Test Report issued under the responsibility of:

TEST REPORT
IEC 60598-2-5
Luminaires
Part 2: Particular requirements
Section 5: Floodlights

Report Number. ..... :	4791524802.1-1
Date of issue ..... :	2025-05-15
Total number of pages ..... :	115 (including attachments)
Name of Testing Laboratory preparing the Report ..... :	UL-CCIC Company Limited Guangzhou Branch Room 101 & 401, Block A, R&D Building, Room 101, 201, 301, & 401, Block B, Electronic Building, No.8, Nanyun Er Road, Huangpu District, Guangzhou, China
Applicant's name ..... :	Paragon Semiconductor Lighting Technology Co Ltd
Address ..... :	3F No 369 Sec 2 Wenhua 2Nd Rd,Linkou Dist,New Taipei City,244,Taiwan
Test specification:	
Standard ..... :	IEC 60598-2-5:2015 used in conjunction with IEC 60598-1:2020
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC60598_2_5G
Test Report Form(s) Originator .... :	Intertek Semko AB
Master TRF ..... :	2021-11-11

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description ..... :	LED flood lamp
Trade Mark(s) ..... :	ParaDenko
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	TTL-035-50-100V-1; other models see “model list in General product information” for detail.
Ratings ..... :	100V~, 50/60 Hz, ta=25°C, Class I, other parameter see “model list in General product information” for detail.

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**CB Testing Laboratory:**	UL-CCIC Company Limited Guangzhou Branch	
Testing location/ address.....:		Room 101 & 401, Block A, R&D Building, Room 101, 201, 301, & 401, Block B, Electronic Building, No.8, Nanyun Er Road, Huangpu District, Guangzhou, China	
Tested by (name, function, signature).....:		Ian Pan/Project handler	
Approved by (name, function, signature)...:		Yoshiaki Takata /Reviewer	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address.....:			
Tested by (name + signature) .....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

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

Attachment 1: Differences Between IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2014, AMD1:2017 and IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2020, 3 pages
Attachment 2: IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2014 + AMD1:2017 JAPAN NATIONAL DIFFERENCES, totally 63 pages.
Attachment 3: IEC 60598-2-5:2015 used in conjunction with IEC 60598-1:2020 EU difference. 2 pages.
Attachment 4: Requirements of IEC 62031:2018, totally 5 pages;
Attachment 5: Photo document, 3 pages.

Summary of testing:

The submitted samples fulfil the requirement of standards:

IEC 60598-2-5:2015 used in conjunction with IEC 60598-1:2020

Tests performed (name of test and test clause):

Date (s) of performance of tests: 2024-11-01 to 2025-04-18

5.5(3): Marking
5.6(4): Construction
5.7(11): Creepage Distances and Clearances
5.8(7): Provision for Earthing
5.10(5): External and Internal Wiring
5.11(8): Protection Against Electric Shock
5.12(12): Endurance Test And Thermal Test
5.13(9): Resistance to Dust and Moisture
5.14(10): Insulation Resistance and Electric Strength
5.15(13): Resistance to Heat, Fire and Tracking

Testing location:

UL-CCIC Company Limited Guangzhou Branch Room 101 & 401, Block A, R&D Building, Room 101, 201, 301, & 401, Block B, Electronic Building, No.8, Nanyun Er Road, Huangpu District, Guangzhou, China

Photobiological safety test (IEC TR 62778) conducted as below accreditation lab according to CTL DSH 1039A:

UL Verification Services (Guangzhou) Co., Ltd.
1-3F & Room 501 Building 2 (R&D Center A1)
, No. 25, South Huanshi Avenue, Nansha District, Guangzhou 511458, China

Summary of compliance with National Differences (List of countries addressed):

EU Group differences

☒ The product fulfils the requirements of EN 60598-2-5:2015 used in conjunction with EN IEC 60598-1:2021 + A11:2022.

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

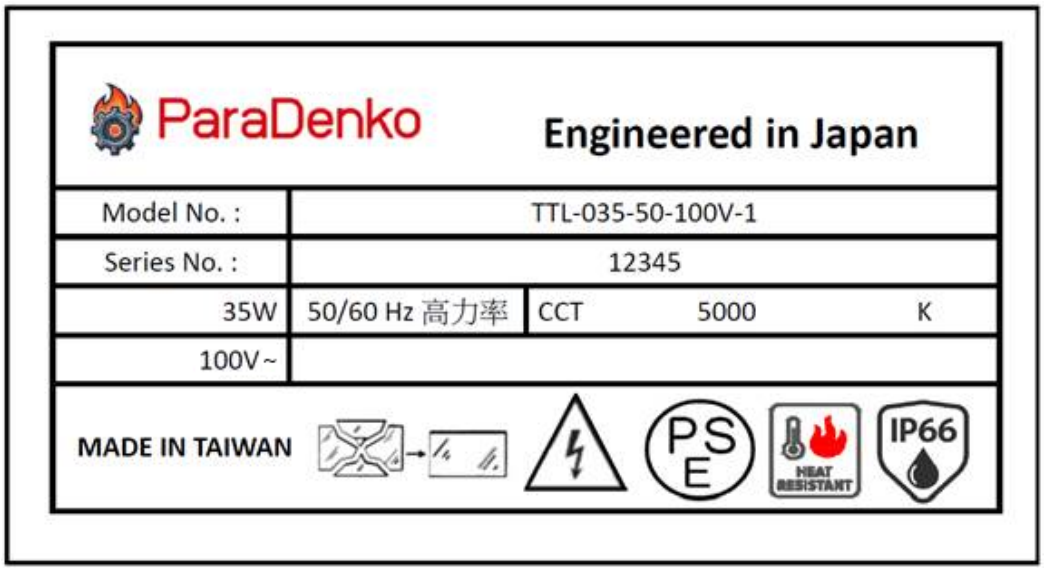
☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.
IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Representative



Attach on metal enclosure

Attach on LED cover

: Remark:

1. The height of letters and numerals was not less than 2mm.
2. The height of symbol “  ” was not less than 15mm.
3. The height of the other graphical symbols was not less than 5mm.
4. Series No. “12345” is the production number of the product and will change with the production cycle

Test item particulars.....:	
Classification of installation and use.....:	Class I and for outdoor use
Supply Connection.....:	Supply cable
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 .....:	2024-09-05
Date (s) of performance of tests.....:	2024-11-01 to 2025-04-18

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

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

Clause numbers between brackets refer to clauses in IEC 60598-1

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies).....:	Same as applicant

General product information and other remarks:

1. The products are LED flood luminaires, Class I, IP66, for outdoor use. All models have the similar electrical and mechanism structure, only the LED quantity, LED driver parameter are different, Model TTL-035-50-100V-1 was selected as the main test model as it has the Max. power. Some tests are also referred to CBTR No. 4791475312.1-1 due to product have similar construction, except the rated parameter and some components.
2. Detail information see model list below.

Model list

Item.	Model No.	Rated wattage	Size (LxWxH)mm
1	TTL-010-50-100V-1	10W	110*320.72*138.88
2	TTL-020-50-100V-1	20W	110*320.72*138.88
3	TTL-035-50-100V-1	35W	110*320.72*138.88

Supplementary Information on National/Group Differences not to be listed on CBTC: Japan.
For information only since the ND/GD TRF latest revision does not match the latest revision of IEC Standard TRF used for evaluation. The product fulfils the requirements of: J60598-2-5 (H29) / JIS C 8105-2-5:2017 used in conjunction with J60598-1 (2022) / JIS C 8105-1:2021

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.2 (0)	**GENERAL TEST REQUIREMENTS**		P
5.2 (0.3)	More sections applicable ..... :	Yes ☐ No ☒ Section/s:	—
5.2 (0.5)	Components	(see Annex 1)	—
5.2 (0.7)	**Information for luminaire design in light sources standards**		—
5.2 (0.7.2)	Light source safety standard ..... :	IEC 62031	—
	Luminaire design in the light source safety standard		P
5.4 (2)	**CLASSIFICATION OF LUMINAIRES**		P
5.4 (2.2)	Type of protection ..... :	Class I	P
5.4 (2.3)	Degree of protection ..... :	IP66	P
5.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces ..... :	Yes ☒ No ☐	—
5.4 (2.5)	Luminaire for normal use ..... :	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—
5.5 (3)	**MARKING**		P
5.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
5.5 (3.3)	Additional information		P
	Language of instructions		P
5.5 (3.3.1)	Combination luminaires		N/A
5.5 (3.3.2)	Nominal frequency in Hz	50/60	P
5.5 (3.3.3)	Operating temperature		N/A
5.5 (3.3.5)	Wiring diagram		N/A
5.5 (3.3.6)	Special conditions		N/A
5.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
5.5 (3.3.8)	Limitation for semi-luminaires		N/A
5.5 (3.3.9)	Power factor and supply current		P
5.5 (3.3.10)	Suitability for use indoors		N/A
5.5 (3.3.11)	Luminaires with remote control		N/A
5.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
5.5 (3.3.13)	Specifications of protective shields		N/A
5.5 (3.3.14)	Symbol for nature of supply		P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.5 (3.3.15)	Rated current of socket outlet		N/A
5.5 (3.3.16)	Rough service luminaire		N/A
5.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
5.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
5.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
5.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
5.5 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable	P
5.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
5.5 (3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component		N/A
5.5 (3.3.24)	If not supplied with terminal block, information on the packaging		P
5.5 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
5.5 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A
5.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
5.5 (-)	Additional information if applicable		P
	a) Operation position		P
	b) Weight and dimensions		P
	c) Maximum protected area		P
	d) Limitation of use indoors and/or outdoor		P
	e) Maximum mounting height if ≤ 5 m		N/A
5.6 (4)	**CONSTRUCTION**		P
5.6 (4.2)	Components replaceable without difficulty		P
5.6 (4.3)	Wireways smooth and free from sharp edges		P
5.6 (4.4)	**Lampholders**		**N/A**
5.6 (4.4.1)	Integral lampholder		N/A
5.6 (4.4.2)	Wiring connection		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
5.6 (4.4.4)	Positioning		N/A
	- pressure test (N) ..... :	N/A	—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N) ..... :	N/A	—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
5.6 (4.4.5)	Peak pulse voltage		N/A
5.6 (4.4.6)	Centre contact		N/A
5.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
5.6 (4.4.8)	Lamp connectors		N/A
5.6 (4.4.9)	Caps and bases correctly used		N/A
5.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
5.6 (4.5)	**Starter holders**		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
5.6 (4.6)	**Terminal blocks**		N/A
	Tails		N/A
	Unsecured blocks		N/A
5.6 (4.7)	**Terminals and supply connections**		**P**
5.6 (4.7.1)	Contact to metal parts		P
5.6 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
5.6 (4.7.3)	Terminals for supply conductors		P
5.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.7.4)	Terminals other than supply connection		P
5.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
5.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
5.6 (4.8)	**Switches**		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
5.6 (4.9)	**Insulating lining and sleeves**		**P**
5.6 (4.9.1)	Retainment		P
	Method of fixing ..... :	By construction	P
5.6 (4.9.2)	Insulated linings and sleeves:		P
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		P
	b) Ageing test. Temperature (°C) ..... :	--	N/A
5.6 (4.10)	**Double or reinforced insulation**		N/A
5.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
5.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
5.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
5.6 (4.10.4)	Protective impedance device		N/A
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
5.6 (4.11)	**Electrical connections and current-carrying parts**		**P**
5.6 (4.11.1)	Contact pressure		P
5.6 (4.11.2)	Screws:		P
	- self-tapping screws		P
	- thread-cutting screws		N/A
5.6 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N/A
5.6 (4.11.4)	Material of current-carrying parts		P
5.6 (4.11.5)	No contact to wood or mounting surface		P
5.6 (4.11.6)	Electro-mechanical contact systems		N/A
5.6 (4.12)	**Screws and connections (mechanical) and glands**		**P**
5.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part..... :	1.2; screw for fix enclosure cover	P
	Torque test: torque (Nm); part..... :	1.2; Screw for fix earth screw	P
5.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
5.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) ..... :		N/A
	- lampholder; torque (Nm) ..... :		N/A
	- push-button switches; torque 0,8 Nm ..... :		N/A
5.6 (4.12.5)	Screwed glands; force (Nm)..... :	3.25	P
5.6 (4.13)	**Mechanical strength**		**P**
5.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm) ..... :	0.7	P
	- other parts; energy (Nm)..... :	0.5	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
5.6 (4.13.2)	Metal parts have adequate mechanical strength		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.13.3)	Straight test finger		P
5.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
5.6 (4.13.6)	Tumbling barrel		N/A
5.6 (4.14)	**Suspensions, fixings and means of adjusting**		**P**
5.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	Max. 1.91kg x 4=7.64kg	P
	B) torque 2,5 Nm		P
	C) bracket arm; bending moment (Nm)..... :		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		N/A
	Metal rod. diameter (mm) ..... :		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
5.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) ..... :	N/A	—
	Stress in conductors (N/mm²) ..... :		N/A
	Mass (kg) of semi-luminaire ..... :		N/A
	Bending moment (Nm) of semi-luminaire ..... :		N/A
5.6 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles..... :		N/A
	- strands broken ..... :		N/A
	- electric strength test afterwards		N/A
5.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
5.6 (4.14.5)	Guide pulleys		N/A
5.6 (4.14.6)	Strain on socket-outlets		N/A
5.6 (4.15)	**Flammable materials**		P
	- glow-wire test 650°C ..... :	See Test Table 1.15 (13.3.2)	P
	- spacing ≥30 mm		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
5.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
5.6 (4.16)	**Luminaires for mounting on normally flammable surfaces**		**P**
	No lamp control gear ..... :	(compliance with Section 12)	P
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
5.6 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
5.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
5.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
5.6 (4.17)	**Drain holes**		N/A
	Clearance at least 5 mm		N/A
5.6 (4.18)	**Resistance to corrosion**		P
5.6 (4.18.1)	- rust-resistance		N/A
5.6 (4.18.2)	- season cracking in copper		P
5.6 (4.18.3)	- corrosion of aluminium		N/A
5.6 (4.19)	Ignitors compatible with ballast		N/A
5.6 (4.20)	Rough service vibration		N/A
5.6 (4.21)	**Protective shield**		N/A
5.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
5.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.21.3)	No direct path		N/A
5.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment..... :	See Test Table 5.15 (13.3.2)	N/A
5.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
5.6 (4.23)	Semi-luminaires comply Class II		N/A
5.6 (4.24)	**Photobiological hazards**		**P**
5.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
5.6 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 ..... :	RG1, test report 4791475312.4-1	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2 .. :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
5.6 (4.25)	**Mechanical hazard**		**P**
	No sharp point or edges		P
5.6 (4.26)	**Short-circuit protection**		N/A
5.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
5.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Supply source ES1 PSE		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
5.6 (4.27)	**Terminal blocks with integrated screwless earthing contacts**		N/A
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Voltage drop test, resistance < 0,05 Ω		N/A
5.6 (4.28)	**Fixing of thermal sensing control**		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) ..... :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
5.6 (4.29)	**Luminaires with non-replaceable light source**		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
5.6 (4.30)	**Luminaires with non-user replaceable light source**		**P**
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		P
	At least one fixing means requiring use of tool		P
5.6 (4.31)	**Insulation between circuits**		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
5.6 (4.31.1)	SELV or PELV circuits		N/A
	Used SELV/PELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of SELV/PELV circuits from LV supply		N/A
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		N/A
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
5.6 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
5.6 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
5.6 (4.32)	**Overvoltage protective devices**		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
5.6 (4.33)	**Luminaire powered via information technology communication cabling**		N/A
	Requirements for Class III luminaire		N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
5.6 (4.34)	**Electromagnetic fields (EMF)**		P
	No harmful electromagnetic fields	Deemed to comply with the requirement per clause 4.2.2 of IEC 62493:2015	P
5.6 (4.35)	**Protection against moving fan blades**		N/A
	Test with a standard test finger		N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		N/A
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
	-input power of fan ≤ 2 W at rated voltage		N/A
5.6 (4.36)	**Track-mounted luminaires**		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A
5.6.1 (-)	At least IPX3 if for outdoor use	IP66	P
5.6.2 (-)	Lampholder brackets and lamp supports		N/A
5.6.3 (-)	Adjusting means		P
5.6.4 (-)	Controlling components		N/A
5.6.5 (-)	Fixing device		P
	Wind force test		P
5.6.6 (-)	Locking of angular adjustment		P
5.6.7 (-)	Vibration resistance		P
5.6.8 (-)	Requirement on glass cover if mounting height > 5 m		P
	Method of protection .....:	fractures into small pieces	—

5.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		P
5.7 (11.2)	Creepage distances and clearances..... :	See Table 5.7 (11.2)	P
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1)	Category II ☒ Category III ☐	—
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
5.7 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 5.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and $f_{U_{OUT}}$ according IEC 61347-1, clause 7.1, item w	See Test Table 5.7 (11.2) II	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 5.7 (11.2) II	N/A
5.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 5.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 5.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 5.7 (11.2) II	N/A
5.8 (7)	**PROVISION FOR EARTHING**		P
5.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω..... :	Max 0.054 Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		P
	Thread-forming screw used in a grove		N/A
	Protective earth makes contact first		P
	Terminal blocks with integrated screwless protective earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
5.8 (7.2.2 + 7.2.3)	Protective earth continuity in joints, etc.		P
5.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
5.8 (7.2.5)	Protective earth terminal integral part of connector socket		N/A
5.8 (7.2.6)	Protective earth terminal adjacent to mains terminals		N/A
5.8 (7.2.7)	Electrolytic corrosion of the protective earth terminal		P
5.8 (7.2.8)	Material of protective earth terminal		P
	Contact surface bare metal		P
5.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
5.8 (7.2.11)	Protective earthing core coloured green-yellow		P
	Length of earth conductor		P
5.8 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.9 (14)	**SCREW TERMINALS**		P
	Separately approved; component list	(see Annex 1)	P
	Part of the luminaire	(see Annex 3)	N/A
5.9 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		N/A
	Separately approved; component list..... :	(see Annex 1)	N/A
	Part of the luminaire ..... :	(see Annex 4)	N/A
5.10 (5)	**EXTERNAL AND INTERNAL WIRING**		P
5.10 (5.2)	**Supply connection and external wiring**		**P**
5.10 (5.2.1)	Means of connection ..... :	Supply cable	P
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment	VCTF is only for Japan market	N/A
5.10 (5.2.2)	Type of cable..... :	See annex 1	P
	Nominal cross-sectional area (mm²) ..... :	See annex 1	P
	Cables equal to IEC 60227 or IEC 60245		P
5.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
5.10 (5.2.5)	Type Z not connected to screws		N/A
5.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
5.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
5.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
5.10 (5.2.9)	Locking of screwed bushings		N/A
5.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
5.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
5.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	Type Y	P
5.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) ..... :	80	P
	- torque test: torque (Nm) ..... :	0.35	P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
5.10 (5.2.10.4)	Luminaire with/designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV ≤ 25V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤12V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤12V RMS/30V DC		N/A
	Pull test of 30N		N/A
5.10 (5.2.11)	External wiring passing into luminaire		P
5.10 (5.2.12)	Looping-in terminals		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
5.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
5.10 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
5.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
5.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
5.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
5.10 (5.3)	**Internal wiring**		**P**
5.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) ..... :		N/A
	- temperatures ..... :	(see Annex 2)	N/A
	Green-yellow for protective earth only		P
5.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²)..... :	See Annex 1	P
	Insulation thickness		P
	Extra insulation added where necessary		N/A
5.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Cross-sectional area (mm²)..... :	See annex 1	N/A
5.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.10 (5.3.1.4)	Conductors without insulation		N/A
5.10 (5.3.1.5)	SELV/PELV current-carrying parts		N/A
5.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
5.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		N/A
5.10 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- cables with protective sheath		P
5.10 (5.3.4)	Joints and junctions effectively insulated		N/A
5.10 (5.3.5)	Strain on internal wiring		P
5.10 (5.3.6)	Wire carriers		N/A
5.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
5.10 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		N/A
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
5.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		P
5.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation only accessible under lamp or starter replacement		P
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
5.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
5.11 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
5.11 (8.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
5.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)..... :		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	- interrupted DC voltage (V) …….:		N/A
	- touch current if applicable (mA) ..... :		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)..... :		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	- interrupted DC voltage (V) …….:		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
5.11 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- voltage under load/ no-load DC (V)……...:		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)..... :		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	One pole insulated if required		N/A
5.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
5.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
5.11 (8.2.6)	Covers reliably secured		P
5.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection	3.75nF, 14V	P
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
5.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		P
5.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) as specified in 5.13		—
5.12 (12.2)	**Selection of lamps and ballasts**		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—
5.12 (12.3)	**Endurance test:**		P
	a) mounting-position ..... :	As normal use	—
	b) test temperature (°C) ..... :	35	—
	c) total duration (h) ..... :	240	—
	d) supply voltage (V) ..... :	110V	—
	d) if not equipped with control gear, constant voltage/current (V) or (A) ..... :	--	—
5.12 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		N/A
	- voltage under normal operation (V)……...:	N/A	—
	- voltage under abnormal operation (V)……...:	N/A	—
	e) luminaire ceases to operate		—
	f) luminaire with constant light output function		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
5.12 (12.4)	**Thermal test (normal operation)**	(see Annex 2)	P
5.12 (12.5)	**Thermal test (abnormal operation)**	(see Annex 2)	P
5.12 (12.6)	**Thermal test (failed lamp control gear condition):**		N/A
5.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :	N/A	—
	- case of abnormal conditions ..... :	N/A	—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un .... :	N/A	—
	- measured mounting surface temperature (°C) at 1,1 Un..... :		N/A
	- calculated mounting surface temperature (°C) ..... :		N/A
	- track-mounted luminaires		N/A
5.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions ..... :	N/A	—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C) ..... :		N/A
	- track-mounted luminaires		N/A
5.12 (12.7)	**Thermal test (failed lamp control gear in plastic luminaires):**		N/A
5.12 (12.7.1)	Luminaire without temperature sensing control		N/A
5.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W ..... :	N/A	—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions ..... :	N/A	—
	- Ballast failure at supply voltage (V) ..... :	N/A	—

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Clause	Requirement + Test	Result - Remark	Verdict
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions ..... :	N/A	—
	- measured winding temperature (°C): at 1,1 Un ..... :	N/A	—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :	N/A	—
	- calculated temperature of fixing point/exposed part (°C) ..... :	N/A	—
	Ball-pressure test .....:	See Table 5.15 (13.2.1)	N/A
5.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions ..... :	N/A	—
	- measured winding temperature (°C): at 1,1 Un ..... :	N/A	—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :	N/A	—
	- calculated temperature of fixing point/exposed part (°C) ..... :	N/A	—
	Ball-pressure test ..... :	See Table 5.15 (13.2.1)	N/A
5.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions ..... :	N/A	—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
5.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link..... :	Yes ☐ No ☐	—
	- manual reset cut-out ..... :	Yes ☐ No ☐	—
	- auto reset cut-out ..... :	Yes ☐ No ☐	—
	- case of abnormal conditions ..... :	N/A	—
	- highest measured temperature of fixing point/ exposed part (°C): ..... :	N/A	—
	Ball-pressure test: ..... :	See Table 5.15 (13.2.1)	N/A
5.12.1 (-)	Reduction 10 °C of measured temperatures if for outdoor use		—
5.12.2 (-)	Glass covers used within the thermal limits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.13 (9)	**RESISTANCE TO DUST AND MOISTURE**		P
5.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 5.12		P
5.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP66	—
	- mounting position during test ..... :	As in normal used	—
	- fixing screws tightened; torque (Nm) ..... :	0.8	—
	- tests according to clauses..... :	cl.9.2.2 & cl.9.2.7	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		P
	c.1) For luminaires without drain holes – no water entry		P
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold water jet-proof luminaire		N/A
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		N/A
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A
	f) no trace of water on part of lamp requiring protection from splashing water		P
	g) no damage of protective shield or glass envelope		P
5.13 (9.3)	Humidity test 48 h		P

5.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		P
5.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø ..... :	N/A	—
	Insulation resistance (MΩ) ..... :	See below	—
	SELV/PELV:		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and metal parts of the luminaire ..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity ..... :	> 2.6 MΩ	P
	- between live parts and mounting surface ..... :	> 2.6 MΩ	P
	- between live parts and metal parts ..... :	> 2.6 MΩ	P
	- between live parts of different polarity through action of a switch ..... :	--	N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :	> 2.6 MΩ	P
	- Insulation bushings as described in Section 5 ..... :		N/A
5.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V) ..... :	See below	N/A
	SELV/PELV:		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface ..... :		N/A
	- between current-carrying parts and metal parts of the luminaire ..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity ..... :	1200 V	P
	- between live parts and mounting surface ..... :	1200 V	P
	- between live parts and metal parts ..... :	1200 V	P
	- between live parts of different polarity through action of a switch ..... :	--	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :	1200 V	P
	- Insulation bushings as described in Section 5 ..... :	--	N/A
5.14 (10.3)	Touch current (mA).....:	Max. 0.07	P
	Protective conductor current (mA).....:	Max. 0.51	P

5.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
5.15 (13.2.1)	Ball-pressure test ..... :	See Test Table 5.15 (13.2.1)	P
5.15 (13.3.1)	Needle-flame test (10 s) ..... :	See Test Table 5.15 (13.3.1)	N/A
5.15 (13.3.2)	Glow-wire test (650°C) ..... :	See Test Table 5.15 (13.3.2)	P
5.15 (13.4)	Proof tracking test (IEC 60112) ..... :	See Test Table 5.15 (13.4)	N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

5.7 (11.2)	TABLE I: Creepage distances and clearances							P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*							P
	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:	B	>0.65	0.5	11.1B	>2.1	1.6	11.1A	
Working voltage (V) .....:					100Vac			—
PTI .....:					< 600 ☒ ≥ 600 ☐			—
Pulse voltage if applicable (kV) .....:					--			—
Supplementary information: Live parts of different polarity								
Distance 2:	B	>0.65	0.5	11.1B	>2.1	1.6	11.1A	
Working voltage (V) .....:					100Vac			—
PTI .....:					< 600 ☒ ≥ 600 ☐			—
Pulse voltage if applicable (kV) .....:					--			—
Supplementary information: Live parts and accessible metal parts								
Distance 3:	S	>0.65	0.5	11.1B	>2.1	1.6	11.1B	
Working voltage (V) .....:					100Vac			—
PTI .....:					< 600 ☒ ≥ 600 ☐			—
Pulse voltage if applicable (kV) .....:					--			—
Supplementary information: Cord clamped and metal enclosure.								
Distance 4:	B	>1.95	0.8	11.1B	>3.25	1.6	11.1A	
Working voltage (V) .....:					100Vac			—
PTI .....:					< 600 ☒ ≥ 600 ☐			—
Pulse voltage if applicable (kV) .....:					--			—
Supplementary information: PCB and the metal enclosure.								

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

5.7 (11.2)	TABLE II: Creepage distances and clearances						N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict

Distance 1:	-	-	-	-	-	-	-
Working voltage (V) .....:					N/A		—
Frequency if applicable (kHz) .....:					N/A		—
PTI .....:					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:					N/A		—
Supplementary information:							
Distance 2:	-	-	-	-	-	-	-
Working voltage (V) .....:					N/A		—
Frequency if applicable (kHz) .....:					N/A		—
PTI .....:					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:					N/A		—
Supplementary information:							
Distance 3:	-	-	-	-	-	-	-
Working voltage (V) .....:					N/A		—
Frequency if applicable (kHz) .....:					N/A		—
PTI .....:					< 600 ☐ ≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:					N/A		—
Supplementary information:							

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

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

5.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) ..... :		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Plastic sheet	See annex 1	75	1.21	
Enclosure of LED module	See annex 1	125	1.44	
Supplementary information:				

5.15 (13.3.1)	TABLE: Needle-flame test				N/A
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:					

5.15 (13.3.2)	TABLE: Resistance to heat and fire - Glow wire tests						P
Object/ Part No./ Material	**Manufacturer/ trademark**	**Glow wire test (°C)**					**Verdict**
		650		**750**		**850**	
		te	**ti**	**te**	**ti**		
Plastic sheet	See Annex 1	0	0	-	-	-	P
Enclosure of LED module	See annex 1	0	0	-	-	-	P
Ignition of the specified layer placed underneath the test specimen (Yes/No)..... :							No
Supplementary information:							

5.15 (13.4)	TABLE: Proof tracking test				N/A
Test voltage PTI ..... :		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
-	-	-	-	-	-
-	-	-	-	-	-

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

ANNEX 1 **TABLE: Critical components information** --

Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Power cord	B	ECHU SPECIAL WIRE & CABLE(KUNSHAN) CO.,LTD	VCTF	3×1.25mm² 300V 105° C	JIS C3306:2000 JIS C3312-2000	JET7576-12009-1001
Power cord (only for out of Japanese market)	B	SHANGHAI CHUANGQI CABLE CO., LTD.	H05RR-F	3x1.0mm²	VDE 0285-525-2-21:2012-01	VDE40025408
Terminal block	B	EASE Industries & Investments Co., Ltd.	15A-2P	450V 57A 1.0-6.0mm²	EN 60998-1:2004 EN 60998-2-1:2004	VDE : 40055512
Varistors	B	Yageo	20D511K	320V, 6500A surge, 1W	IEC 61051-2:1991 IEC 61051-2-2:1991 IEC 61051-1:2007 IEC 61051-2:1991/AMD1:2009	VDE40028836
Fuse	B	REOMAX Fuse Manufacturers	SET1200	250V 2A(2410)	IEC 60127-1:2006/AMD2:2015 IEC 60127-7:2015 J60127-1(H28) J60127-4(H28)	TUV : J 50598779001 VDE : 40050560 PSE : 20021615 UL : E340427
Fuse	D	REOMAX Fuse Manufacturers	SET1315	250V 3.15A(2410)	IEC 60127-1:2006/AMD2:2015 IEC 60127-7:2015	TUV : J 5059877900 01 VDE : 40050560 PSE : 20021615 UL : E340427

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Clause	Requirement + Test	Result - Remark	Verdict

COB module	C	PARAGON SEMICONDUCTOR LIGHTING TECHNOLOGY CO LTD	LAC220-7240-XX-YYK-zzz	220 V, max. 35 W	IEC 60598-1:2020; IEC 60598-2-5:2015; IEC 62031:2018	Test with luminaire and UL E355751
Lead wire to COB	C	GUANGZHOU TANG YAO WIRES CO LTD	1332	No. 18 AWG, 600 V, 200°C	IEC 60598-1:2020; IEC 60598-2-5:2015	Test with luminaire and E207696
Plastic cover of LED	C	KINGFA SCI & TECH CO LTD	PBT-RG301	Rated V-0, 125°C	IEC 60598-1:2020; IEC 60598-2-5:2015	Test with luminaire and E171666
PCB	C	GIA TZOONG ENTERPRISE CO LTD	83	Metal base, V-0	IEC 60598-1:2020; IEC 60598-2-5:2015	Test with luminaire and UL E117098
Mylar insulation sheet	C	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR117ECO	Min.0.4mm, V-0, 130°C	IEC 60598-1:2020; IEC 60598-2-5:2015	Test with luminaire and UL E199019

Supplementary information:

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

The codes above have the following meaning:

A - The component is replaceable with another one, also certified, with equivalent characteristics

B - The component is replaceable if authorised by the test house

C - Integrated component tested together with the appliance

D - Alternative component

The CBTL has verified the component information.

License available upon request.

The Standards IEC/EN not dated refer to the editions applied in this test report.

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference ..... :	TTL-035-50-100V-1	—
	Lamp used..... :	LED	—
	Lamp control gear used ..... :	integrated LED driver	—
	Mounting position of luminaire ..... :	Normal use	—
	Supply wattage (W) ..... :	26.58	—
	Supply current (A) ..... :	0.256	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	30 (required 25)	—
	- abnormal operating mode ..... :	SC driver output/ SC LED choose Max. data to record	—
5.12 (12.4)	- test 1: rated voltage ..... :	100V (tested under 106V)	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	106V	—
	- 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 ..... :	--	—
5.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current or 130/150% of rated input voltage ..... :	110V	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Input wire of LED (internal wire)	30.0	--	79.1	--	80	--	--
LED PCB	30.0	--	111.1	--	Ref.	--	--
Cover of LED	30.0	--	92.6	--	Ref.	--	--
tc of LED power supply (PCB of the LED power supply)	30.0	134.6	--	--	Ref.	--	--
Contact point between ceiling and luminaire	30.0	--	36.5	--	90	31.4	130
Lighted surface (10 cm)	30.0	--	40.9	--	90	32.2	175
Supply cord	30.0	--	37.6	--	90		
Wire though the gland	30.0	--	50.7	--	75	--	--
Touchable part for adjusting	30.0	--	37.8	--	60	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:-

ANNEX 3	**Screw terminals (part of the luminaire)**		N/A
(14)	**SCREW TERMINALS**		N/A
(14.2)	Type of terminal.....:	N/A	—
	Rated current (A).....:	N/A	—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²).....:	N/A	—
(14.3.3)	Conductor space (mm).....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread).....:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

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

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A
(15.6.3.1) **(15.6.3.2)**	**TABLE: Contact resistance test / Heating tests**		N/A

Attachment 1: Differences Between IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2014, AMD1:2017 and IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2020			
Clause	Requirement + Test	Result - Remark	Verdict

1.6 (3)	**MARKING**		—
1.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
1.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A

1.7 (4)	**CONSTRUCTION**		—
1.7 (4.10.4)	Protective impedance device		N/A
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
1.7 (4.26)	**Short-circuit protection**		N/A
1.7 (4.26.1)	Adequate means of uninsulated accessible SELV / PELV parts		N/A
1.7 (4.26.2)	Short-circuit test with test chain according 4.26.3:		N/A
	Supply source ES1 PSE		N/A
1.6 (4.33)	**Luminaire powered via information technology communication cabling**		N/A
	Requirements for Class III luminaire		N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
1.6 (4.34)	**Electromagnetic fields (EMF)**		P
	No harmful electromagnetic fields		P
1.6 (4.35)	**Protection against moving fan blades**		N/A
	Test with a standard test finger		N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		N/A
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
	-input power of fan ≤ 2 W at rated voltage		N/A
1.6 (4.36)	**Track-mounted luminaires**		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A

1.9 (7)	**PROVISION FOR EARTHING**		—
1.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A

1.11 (5)	**EXTERNAL AND INTERNAL WIRING**		—
1.11 (5.2)	**Supply connection and external wiring**		P
1.11 (5.2.1)	Means of connection	Terminal block	P
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
1.11 (5.2.10.4)	Luminaire with/designed for use with supply cord with maximum current of 2A:		N/A

Attachment 1: Differences Between IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2014, AMD1:2017 and IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2020			
Clause	Requirement + Test	Result - Remark	Verdict
	- Ordinary Class III luminaire supplied with SELV ≤ 25V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤12V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤12V RMS/30V DC		N/A
	Pull test of 30N		N/A
1.11 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
1.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		—
1.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- interrupted DC voltage (V) ……:		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	- interrupted DC voltage (V) ……:		N/A
1.12 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V)……...:		N/A
	One pole insulated if required		N/A
1.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		—
1.13 (12.3)	**Endurance test**		N/A
1.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		N/A
	- voltage under normal operation (V)……...:		—
	- voltage under abnormal operation (V)……..:		—
	e) luminaire ceases to operate		—
	f) luminaire with constant light output function		N/A
1.14 (9)	**RESISTANCE TO DUST AND MOISTURE**		—
1.14 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		N/A
1.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		N/A
	- classification according to IP.....		—
	d) no water in watertight, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold water jet-proof luminaire		N/A
1.15 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		—
1.15 (10.3)	Touch current (mA)……:		N/A

Attachment 1: Differences Between IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2014, AMD1:2017 and IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2020			
Clause	Requirement + Test	Result - Remark	Verdict
	Protective conductor current (mA).....:	Max 0.24mA(limit :3.5mA)	P

Attachment 2

Report No.: 4791524802.1-1

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 60598-2-5: 2015 used in conjunction with IEC 60598-1:2014 + AMD1:2017** **JAPAN NATIONAL DIFFERENCES** Luminaires Part 2: Particular requirements Section 5: Floodlights			
Differences according to.....:	J60598-2-5 (H29) / JIS C 8105-2-5:2017 used in conjunction with J60598-1 (2022) / JIS C 8105-1:2021		
TRF template used: .....:	IECEE OD-2020-F3:2022, Ed. 1.2		
Attachment Form No.....:	JP_ND_IEC60598_2_5F		
Attachment Originator .....:	TÜV Rheinland Japan Ltd.		
Master Attachment.....:	2024-05-09		
	National Differences - Japan		P
5.1 (0.1)	**SCOPE**		P
5.1 (0.1)	At the beginning of the tenth paragraph, add the following. Except for 10.2.1 Test – Insulation resistance, (J60598-1(2022))		P
5.4 (2)	**Classification of luminaires**	-	P
5.4 (2.2)	Replace the first paragraph with the following. Luminaires are classified according to the type of protection against electric shock provided, as class 0, class 0I class I, class II or class III (see definitions in Section 1). However, class 0 is applicable only to ordinary luminaires with a rated voltage 150 V or less (including the rated secondary voltage in the case of suspended fluorescent luminaires for household). Luminaires with protection class of IPX1 or higher, moisture-proof luminaires and rough service luminaires are not class 0. (J60598-1(2022))	Class I	P
	In the second paragraph, replace “class I” with “class I or class 0I”. (J60598-1(2022))		P

Attachment 2

Report No.: 4791524802.1-1

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
5.4 (2.3)	Except for the title, replace the whole with the following. Luminaires are classified in accordance with the "IP number" system of classification described in JIS C 0920 and Annex 2 (Degrees of protection against high temperature and high moisture for luminaires) of JIS C 0920. Tests for the degrees of protection are given in Section 9. NOTE 1 Luminaires classified as watertight are not necessarily suitable for operation under water. Pressure watertight luminaires should be used for such applications. NOTE 2 Annex 2 of JIS C 0920 specifies the degrees of protection against high temperature and high moisture and also specifies the conditions for the tests and conformity for the degrees of protection. (J60598-1(2022))	IP66	P
5.5 (3)	**Marking**	-	P
5.5 (3.2)	In the left column of the Table 3.1, delete "3.2.23 ..... Do not stare at light source". (J60598-1(2022))		P

Attachment 2

Report No.: 4791524802.1-1

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	In Table 3.1, replace the center columns of table with the following. Markings belonging to b) 3.2.1 3.2.2 [b] 3.2.3 Ambient temperature 3.2.4 3.2.5 3.2.6 Corresponding IP number, and for moisture-proof luminaires, marking of “防湿” or “防湿形” 3.2.7 Maker’s model number or type reference 3.2.8.2 Rated input power 3.2.9 The relevant symbol for luminaires not suitable for direct mounting on normally flammable surface 3.2.12 Termination 3.2.17 [c] For interconnected luminaires, the maximum connectable number of luminaires or the maximum current 3.2.19A The rated frequency 3.2.19B The rated secondary voltage, the rated secondary short-circuit current 3.2.19C The type of thermally insulating material construction 3.2.19D The rated power consumption or the rated input power 3.2.19E The restriction for use of class I track-mounted luminaires 3.2.21 The relevant symbol for not suitable for covering with thermally insulating material 3.2.25 Rated input constant voltage [f] 3.2.26 Rated input constant current and value of Uout [g] (J60598-1(2022))		P
	In Item c in the bottom column of Table 3.1, replace “Interconnected luminaires” with “For interconnected luminaires, the maximum connectable number of luminaires or the maximum current”. (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	In the last paragraph, replace “the base plate” with “the base plate or connector”. (J60598-1(2022))		N/A
5.5 (3.2.2)	In the first paragraph, delete the second sentence. (J60598-1(2022))		N/A
5.5 (3.2.6)	After the first paragraph, add the following. Moisture-proof luminaires are marked with “防湿” or “防湿形”. (J60598-1(2022))		N/A
5.5 (3.2.12)	Delete NOTE 4. (J60598-1(2022))		N/A
5.5 (3.2.18)	In the paragraph, delete “and luminaires with double-capped Fa8 tubular lamps”. (J60598-1(2022))		N/A
	(only informative) The following is an example of Japanese text corresponding to the English warning notice specified in b) of sub-clause 3.2.18. “注意：ランプ交換に先立ち，イグナイタ又はスイッチング素子を取り外し，ランプ交換の後に取り外した部品を取り付ける。” (J60598-1(2022))		N/A
5.5 (3.2.19A)	After sub-clause 3.2.19, add the following new sub-clause. 3.2.19A Rated frequency in hertz (limited to those having a discharge lamp, transformer or motor) (J60598-1(2022))		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5 (3.2.19B)	After sub-clause 3.2.19A, add the following new sub-clause. 3.2.19B Luminaires are marked with: - the rated secondary voltage, if the rated secondary voltage exceeds 150 V; - the rated secondary short-circuit current, if the rated secondary voltage exceeds 300 V and the rated secondary current exceeds 1 A. The rated secondary voltage, the rated secondary current and the rated secondary short-circuit current are the values marked on the lamp controlgear used or the values measured in accordance with the relevant JIS standard for the lamp controlgear used. (J60598-1(2022))		N/A
5.5 (3.2.19C)	After sub-clause 3.2.19B, add the following new sub-clause. 3.2.19C For luminaires suitable for covering with thermally insulating materials, the type of thermally insulating material construction, and the declared value of the thermal resistance if required. However, this does not apply to the luminaires subjected to the test of a) specified in Annex D. NOTE In Japan, for recessed luminaires which the thermally insulating material construction is done, there is JIL 5002 of a group standard published by the Japan lighting Manufacturers Association. The standard specifies the type of thermally insulating material construction. (J60598-1(2022))		N/A
5.5 (3.2.19D)	After sub-clause 3.2.19C, add the following new sub-clause. 3.2.19D Rated power consumption in watt or rated input power in watt(limited to those having a discharge lamp, transformer or motor) The rated power consumption or rated input power is the value specified by the manufacturer, based on the value measured in accordance with 7.5 (Input) of JIS C 8105-3 or A8.3 of JIS C 8105-3. (J60598-1(2022))		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5 (3.2.19E)	After sub-clause 3.2.19D, add the following new sub-clause. Class I track-mounted luminaires are marked with the substance that this luminaire must not be mounted to class 0 tracks. (J60598-1(2022))		N/A
5.5 (3.2.21)	Replace the whole with the following. The relevant Symbol a), b) or c) (see Figure 1) for luminaires not suitable for covering with thermally insulated material are explained on the luminaire or in the manufacturer's instructions provided with the luminaire. (See Table N.1.) The dimensions of the rectangle which is circumscribed to the symbol a) in Figure 1 is at least 25 mm for each side. The dimensions of the rectangle which is circumscribed to the symbol b) is at least 20 mm for each side. And, the area of the rectangle which is circumscribed to the symbol c) is at least 4 cm^2. However, for small luminaires, if ensuring of a space for marking is not possible, it may be explained on the packaging of the luminaire or in the instructions. A warning notice and symbol is required when a luminaire is not suitable for covering with thermally insulated material. (J60598-1(2022))		N/A
5.5 (3.2.22)	In the paragraph, replace the first sentence with the following. Luminaires with internal replaceable fuses may be marked with symbol (see Figure 1 from IEC 61558-1) shown in Figure 1 at the end of marking of the rating of fuse, if required. (J60598-1(2022))		N/A
5.5 (3.2.23)	In the first paragraph, replace the first sentence with the following. Warning symbol "Do not stare at the operating light source" (see Figure 1) for portable and handheld luminaires that have been classified as risk group RG1 according to 4.24.2. (J60598-1(2022))		P

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	Replace the all paragraph from the second one with the following. For fixed luminaires that have been classified as risk group RG1 according to 4.24.2, the manufacturer's instructions provided with the luminaire give the following or equivalent text, "照明器具を長時間見続けることがないように照明器具を設置すること" (J60598-1(2022))		
5.5 (3.2.24)	Add the following to the end of the paragraph. However where it is not possible to mark the symbol in height of 15mm on the cover due to the construction of luminaires, it may be marked in adjacent to the cover which can draw well attention. Nevertheless where it is no possible to mark it in height of 15mm, it is marked on cover or in adjacent to cover in the maximum height as possible. (J60598-1(2022))		N/A
5.5 (3.3)	In the first sentence of the paragraph, replace "all details" with "all details (shown in sub-clauses 3.3.1 to 3.3.22)" (J60598-1(2022))		P
5.5 (3.3.2)	Replace "Nominal frequency in hertz" with "(See 3.2.19A.)" (J60598-1(2022))		P
5.5 (3.3.3)	In the first sentence of the Item c), replace "The maximum temperature" with "The type of cable useable or the maximum temperature", and replace "90 °C" with "60 °C". (J60598-1(2022))		N/A
5.5 (3.3.9)	Add the following to the end of the paragraph. If the power factor is 0,85 or more, the value of the power factor is marked. Instead of the value, it may be marked with "高力率". NOTE 2 An example of luminaires suitable for both resistive and inductive loads is the luminaire which both incandescent and self-ballasted lamps are usable. (J60598-1(2022))		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5 (3.3.11)	Replace the paragraph with the following. For luminaires using remote control gear, e.g., ballast, the range of lamps for which the luminaire is designed. For luminaires which high-pressure mercury vapour lamps, metal halide lamps and high pressure sodium vapour lamps are usable as HID lamp, those may be marked with, for example, “HID 200 ~ 400”. (J60598-1(2022))		N/A
5.5 (3.3.15)	In the paragraph, replace “The rated current” with “The rated current or maximum wattage”. (J60598-1(2022))		N/A
5.5 (3.3.16)	Replace the first dash with the following. - the connection to socket outlets of which the degree of protection against ingress of water is rated with IPX4; (J60598-1(2022))		N/A
5.5 (3.3.18A)	After sub-clause 3.3.18, add the following new sub-clause. 3.3.18A For luminaires which secondary-processing is required for the luminaire itself or the component of the luminaire when a constructor mounts the luminaire, the following is explained in the instructions etc.: - the substance that depending on the processing method there is a possibility causing a hazard; - the processing method for protection which is made not to cause injuries Knockout is an example of secondary-processing. (J60598-1(2022))		N/A
5.5 (3.3.20)	(only informative) The following is an example of Japanese text corresponding to English text for advice specified in sub-clause 3.3.20. “人が触れるおそれのある場所に取り付けてはならない。” (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
5.5 (3.3.23)	Replace the first sentence with the following. Luminaires delivered without controlgear and not specified the appropriate controlgear, are provided with the necessary information for the selection of the appropriate component (in particular the maximum wiring distance and size between controlgear and luminaire), together with the highest allowed Uout value of the controlgear and the maximum Up or equivalent peak voltage Up where pulse voltages are used. (J60598-1(2022))		N/A
5.5 (3.3.24)	Replace the first sentence with the following. Where the terminal block is not supplied with the luminaire, the packaging or the installation instruction contains the following wording: (J60598-1(2022))		P
5.6 (4)	**Construction**	-	P
5.6.5 (-)	Replace the wind speed “150 km/h” with “216 km/h (60 m/s)” (J60598-2-5(H29))		P
	Replace the applied load “2.4 kN” with “2.6 kN” (J60598-2-5(H29))		P
5.6 (4.4.1)	Add the end of the second paragraph, add the following. However, if lampholders which complies with JIS C 8280 or lampholders equivalent to those are used, this does not apply to the part of cap of the lamp. (J60598-1(2022))		N/A
5.6 (4.4.4)	In the second sentence of the second paragraph of Item i), replace “in IEC 60061-3:” with “in IEC 60061-3 or caps equivalent to these:”. (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	In Item b), replace the first paragraph with the following. Mounting brackets for Edison screw or bayonet-capped lampholders are subjected to testing for 1 min, to the following bending moments: for E14 and B15 lampholders 1,2 Nm; for E26 and B22 lampholders 2,0 Nm; for E39 lampholders 4,0 Nm; for E12 lampholders 0,5 Nm; for E17 lampholders 1,2 Nm; The values for other lampholders are under consideration. (J60598-1(2022))		N/A
5.6 (4.4.5)	At the end of this sub-clause, add the following. For lampholders having other rated voltage than mentioned above, it is considered that the lampholder complies with this requirement, if it withstands the test voltage specified in Table 10.2. (J60598-1(2022))		N/A
5.6 (4.4.6)	At the end of the first paragraph, add the following. For workshop luminaires provided with Edison Screw lampholders, the shell of base is connected to the neutral of the supply terminals. (J60598-1(2022))		N/A
5.6 (4.4.9A)	After sub-clause 4.4.9, add the following new sub-clause. 4.4.9A E27 and E40 lampholders are not used. (J60598-1(2022))		N/A
5.6 (4.4.9B)	After sub-clause 4.4.9A, add the following new sub-clause. 4.4.9B Mechanical strength of Edison screw lampholders is checked according to JIS C 8280. (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.5)	Replace the whole with the following except for the title of sub-clause. Starter holders in luminaires other than class II accept starters which comply with JIS C 7619. Class II luminaires have a structure that the starter can not be touched with the standard test finger, after removing the components removable by hand. And the starter incorporated is provided with cap of Type P and with enclosure other than metal. If an E17 starterholder and an E17 lampholder for incandescent lamps are used for same luminaire, the starterholder and the lampholder are located with a suitable distance for preventing misuse when mounting a starter or incandescent lamp or replacing those, or markings indicating clearly that it is for either of starter or incandescent lamp is provided adjacent to the starterholder and the lampholder. Compliance is checked by inspection. (J60598-1(2022))		N/A
5.6 (4.6)	After the first paragraph, add the following. NOTE “Within a box specified by the manufacturer” includes outlet boxes etc. (J60598-1(2022))		N/A
5.6 (4.7.1)	In the first paragraph, replace “In portable luminaires of class I and class II and in fixed luminaires of class I and class II that are frequently adjusted” with “In portable luminaires of class 0, class 0I, class I and class II and in fixed luminaires of class 0, class 0I, class I and class II that are frequently adjusted” (J60598-1(2022))		P
	In Item c) of the second paragraph for NOTE, replace “is anchored to” with “is anchored (for example, by passing through a hole, by tying) to”. (J60598-1(2022))		P

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	In the second paragraph for NOTE, add a new item after Item h) as follows. hA) the wire conductor is fixed by a screw or nut, by using washer(s) for prevention against loosening. However, this applies to the part which its removal is not required, when the supply cord is replaced or when other protective inspection work is performed. (J60598-1(2022))		P
	In the last paragraph for NOTE, replace “a) to h)” with “a) to hA)”, and “a) and b)” with “a), b) and hA)”. (J60598-1(2022))		N/A
5.6 (4.7.2)	At the beginning of the first paragraph, replace “Supply terminals” with “Supply terminals of luminaires having a type X attachment supply cord” (J60598-1(2022))		N/A
	In the last paragraph, replace “IEC standard” with “IEC standard, JIS standard or the relevant regulations”, and “a shorter length” with “a shorter length 8 mm or less” (J60598-1(2022))		N/A
5.6 (4.7.3)	In NOTE 3, replace “snap-on connectors” with “snap-on connectors and welding”. (J60598-1(2022))		P
5.6 (4.7.4)	At the end of the second paragraph, replace “external wiring” with “external wiring of luminaires which are intended for connection to fixed wirings and for replacement of cables/cords or components by users”. (J60598-1(2022))		P

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.8)	At the end of this sub-clause, add the following. The fixing part for a pull-cord of pull-switch and the pull-cord withstand the test which a pull force of 70 N for a period of 1 minute applies to the fixing part for pull-cord after mounting the luminaire as in normal use. And, after the test, when a pull force of 150 N for a period of 1 minute applies to the tip of the pull-cord, the pull-cord is cut. Otherwise, it comes off from the switch. And, any abnormality (for example, the state which the electrical connection of the ceiling rosette is subjected to a force or the state which electric shock or fire may be caused) is not caused in the body. Moreover, there is no fear of damaging of the glass part like lamp by the pull-cord tab subjected to a repulsive force of the pull-cord. (J60598-1(2022))		N/A
5.6 (4.11.2)	After the second paragraph, add the following. Even if locking device against loosening, the interconnection of such metals is not used. (J60598-1(2022))		P
	After the third paragraph, add the following. Class 2 self-tapping screw according to JIS B 1122 may be used to provide conductive parts and earth continuity. (J60598-1(2022))		P
5.6 (4.11.6)	After the second paragraph, add the following NOTE. NOTE 1 A cycle consisting of making of the contact and breaking is repeated 50 times in total. (J60598-1(2022))		N/A
5.6 (4.12.1)	In Table 4.1, replace the title with “Torque to be applied to screws”. (J60598-1(2022))		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.12.4)	In the third paragraph, replace the existing five dashes with the following. - 4,0 Nm for E39 lampholders; - 2,0 Nm for E26 and B22 lampholders; - 1,2 Nm for E17 lampholders; - 0,6 Nm for E17 starterholders; - 1,2 Nm for E14 and B15 lampholders (except candle type); - 0,5 Nm for E14 and B15 candle lampholders; - 0,5 Nm for E10, E11 and E12 lampholders; (J60598-1(2022))		N/A
5.6 (4.12.5)	In Table 4.2, replace the title with “Table 4.2 - Moment to be applied to test rod”. (J60598-1(2022))		P
5.6 (4.13.1)	At the beginning of the first sentence of the sixth paragraph, replace “Three blows” with “One blow against the fragile points and three blows against other points”. (J60598-1(2022))		P
	In the last sentence of the sixth paragraph, replace “three blows” with “blows of the above specified respective number”. (J60598-1(2022))		P
5.6 (4.14.1)	In the paragraph for Test A, add the following after the first sentence. For luminaires provided with ceiling rosette, the load is added so that a load equal to four times the weight of the luminaire is applied to the ceiling rosette. (J60598-1(2022))		N/A
5.6 (4.14.2)	In the first paragraph, add the following after the first sentence. However, for luminaires provided with a textile braided or round braided cord without reinforcement core, the weight of the luminaire is 3 kg or less. (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	In Table 4.4, replace the title with “Table 4.4 – Maximum mass of semi-luminaires and maximum bending moment”. (J60598-1(2022))		N/A
	In the left column of Table 4.4, replace “E14 and B15” with “E14, E17 and B15”, and “E27 and B22” with “E26 and B22”. (J60598-1(2022))		N/A
5.6 (4.14.3)	In Table 4.5, replace the title with “Number of cycles of operation of adjusting devices”. (J60598-1(2022))		N/A
	In the left column of Table 4.5, replace “for example shop-window spotlights” with “for example shop-window spotlights and luminaires provided with a flexible tube”. (J60598-1(2022))		N/A
5.6 (4.15.2)	In the second sentence of Item b), replace “or a thermal link” with “or a thermal link (a thermal cut-out which operates only once and then requires replacement)”. (J60598-1(2022))		N/A
	In Item c), replace “the relevant auxiliary standard” with “the relevant auxiliary standard, e.g., JIS C 8108, JIS C 8117, JIS C 8147-2-3, JIS C 8147-2-8, JIS C 8147-2-9, etc.” (J60598-1(2022))		N/A
5.6 (4.16.2)	In the second sentence of the first paragraph, replace “the relevant auxiliary standard” with “the relevant auxiliary standard, e.g., JIS C 8108, JIS C 8117, JIS C 8147-2-3, JIS C 8147-2-8, JIS C 8147-2-9, JIS C 8147-2-13, etc.” (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	In the fifth paragraph, replace as follows: - “the relevant auxiliary standard” with “the relevant auxiliary standard, e.g., JIS C 8108, JIS C 8117, JIS C 8147-2-3, JIS C 8147-2-8, JIS C 8147-2-9, JIS C 8147-2-13, JIS C 8147-2-13, etc.”; - “temperature declared thermally protected ballast/transformer(s)” with “temperature declared thermally protected ballast/transformer/LED module controlgear(s)”, and; - “or below 130 °C” with “or below 130 °C, and thermally protected ballast(s) marked with the symbol TB or TAB”. (J60598-1(2022))		N/A
	In the last paragraph, replace “value above 130 °C” with “value above 130 °C or with the symbol TC or OP”. (J60598-1(2022))		N/A
5.6 (4.17)	In the first paragraph, replace “and jet-proof” with “, jet-proof and powerful water jet-proof”. (J60598-1(2022))		N/A
5.6 (4.18.1)	In the first paragraph, replace “, jet-proof,” with “, jet-proof, powerful water jet-proof,”. (J60598-1(2022))		N/A
5.6 (4.18.3)	In the paragraph, replace “, jet-proof,” with “, jet-proof, powerful water jet-proof,”. (J60598-1(2022))		N/A
5.6 (4.19)	Replace the second paragraph with “Compliance is checked by inspection, in addition to check of marking of ballasts and ignitors etc.” (J60598-1(2022))		N/A
5.6 (4.20)	Replace the part of “Sweep rate” with the following. Sweep rate: approximately one octave per minute (speed rate which a frequency reaches to two times or half of the original in one minute) (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.21.1)	After NOTE 2, add the following. The requirements of this sub-clause do not apply to luminaires like emergency lighting exclusive-use luminaires, which a lighting time is obviously of short. (J60598-1(2022))		N/A
5.6 (4.21.4)	Add the following new dash after NOTE 2. - the following test or Annex JA applies, except for metal halide lamps Luminaires are operated, by using the tungsten halogen lamp of the maximum rated power for which the luminaire is designed, until the stable condition of temperature is reached. After that, the tungsten halogen lamp is burst by applying an electrical overload, which is the minimum energy being enough to burst. Adjustable luminaires are adjusted in the most suitable position where fragments of glass fly out from the luminaire. During the test, a wrapping tissue specified in No. 6228 of JIS P 0001 is spread out horizontally at the 500 mm below of the luminaire. For luminaires recessed, the tissue is spread out so as to cover on the surface of the ceiling suspended. After burst of the tungsten halogen lamp, the luminaire and the protective shield show no damage in the part other than the surface. The wrapping tissue do not ignite by the fragments of glass which flied out from the luminaire. After inspection of the luminaire, the luminaire is possible to mount a new tungsten halogen lamp, and the protective shield and components, which were removed for mounting of the tungsten halogen lamp, are possible to mount again. That time, the luminaire lights with same state. And, this tungsten halogen lamp is broken in the same manner mentioned above. The luminaire is in the state of conformity with the requirements, except for the damage of the protective shield. The part of the protective shield is not discrete. (J60598-1(2022))		N/A
5.6 (4.24.2)	Replace “IEC/TR 62778.” of the first paragraph with “Annex JC” (J60598-1(2022))		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Replace a) with the following. For fixed mounted luminaires, the risk group does not exceed RG1 at the distance obtaining 500 lx. (J60598-1(2022))		P
	Replace b) with the following. For mains socket-outlet mounted nightlights specified in JIS C 8105-2-12, portable and handheld luminaires, the risk group does not exceed RG1 at the distance of 200 mm. (J60598-1(2022))		N/A
5.6 (4.25)	At the end of the first paragraph, add the following. However, if secondary-processing is required for the luminaire or the component of luminaire when a constructor mounts the luminaire, the hazards of the following part described in the instructions etc. are checked in the state where processing for protection was made. - the part for which the substance that there is a fear of causing a hazard by the process method is described - the part for which the method for the protection-processing for not causing injury is described (J60598-1(2022))		N/A
5.6 (4.26.1)	In the second sentence of NOTE, replace “this transformer/converter” with “this transformer/convertor (including electronic convertor)”. (J60598-1(2022))		N/A
5.6 (4.26A)	After sub-clause 4.26, add the following new sub-clause. 4.26A Luminaires which the thermally insulating material construction by the blowing method is made Luminaires, which the thermally insulating material construction by the blowing method is made, do not have openings where the test probe for the first IP number 3 specified in Table 9.1 can be inserted. During test, no load is applied to the test probe. (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.27A)	After sub-clause 4.27, add the following new sub-clause. 4.27A Optical output Optical outputs of LED luminaires for general lighting are such that people do not feel a flicker. However, this does not apply to the following. a) luminaires for lighting the feet; b) luminaires for lighting at stages or studios (limited to those intended for the special effect like stroboscopic effect); c) ground recessed luminaires; d) luminaires for underwater lighting; e) luminaires for showcases; f) Indicating lights; g) nightlights; h) in addition to Items a) to g), luminaires not used for lighting for a long time at ordinary houses, offices etc. If a luminaire is complying with the following Items i) or j), the luminaire is considered that it complies with this requirement. i) the optical output does not have any missed-part which is less than 5 % of the peak value of the optical output, and the repeated frequency of the optical output is 100 Hz or more. j) the repeated frequency of the optical output is 500 Hz or more. (J60598-1(2022))		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.27B)	After sub-clause 4.27A, add the following new sub-clause. 4.27B Prevention of smoking, flaming, etc. during the period of use LED luminaires are designed so that failures relating to fire (for example, smoking, flaming, etc.) are not caused during the period of use of the luminaire. The luminaires complying with the following Items a) and b) are considered to be in conformity with this requirement. a) During the following test was carried out, flame, smoke or flammable gas are not generated. The input power is increased to 150 % rated value, by adjusting the input voltage. After the temperature was stabilized, the state is kept for 15 minutes. If the input power is not possible to increase to 150 % rated value, the input voltage or input current is increased to 150 % rated value concerned. However, if the input power is limited by a protective device or circuit, it is increased up to the power value limited. (For luminaires having surge-absorbers etc., the test may be carried out by removing of it from the circuit, during testing.) Atomized spraying of electrolytic solution generated by operation of the safety valve of electrolytic capacitor is not considered as smoking. Flammability of gases generated by components of luminaires is checked by the test of a high-frequency spark generator. b) Luminaire enclosures protecting live parts of electric circuits against electric shock or enclosures for supply circuits installed inside luminaires are constructed with: - metal; - materials complying with the test at 650 °C test temperature, specified in JIS C 60695-2-11 or JIS C 60695-2-12, or; - materials of 675 °C or better glow-wire ignition temperature (GWIT), confirmed by the test specified in JIS C 60695-2-13 However, this does not apply to the part of luminaire enclosure, which has translucency and which is a unavoidable part for the optical properties of the luminaire. (J60598-1(2022))		P

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.30A)	After sub-clause 4.30, add the following new sub-clause. 4.30A Lamps other than fluorescent lamps having caps for fluorescent lamps For luminaires having a structure which lamps are removable, lampholders (except for GX53) for fluorescent lamps, which are specified in JIS C8324, are not supplied with electricity if they are connected with other lamps than fluorescent lamps. However, if the lamp is a non-removal lamp other than fluorescent lamps, this excludes the lamp. Here, non-removal lamps are the lamps of which the mounting or removing is possible only by use of a tool. The lamps which the mounting or removing is possible in accordance with the instruction manual although a tool is required for the mounting or removing are considered not to be non-removable lamp. If a tool is required for the mounting or removing and if the instruction for mounting or removing is available only in the construction manual for the constructors, the lamp is considered to be non-removable lamp. Compliance is checked by inspection. (J60598-1(2022))		N/A
5.6 (4.32)	Add the following after the paragraph. Overvoltage protective devices are not used to connect between live parts and accessible metal parts of Class 0I luminaires. (J60598-1(2022))		N/A
5.7 (11)	**Creepage distances and clearances**	-	P
5.7 (11.2.1)	In the seventh paragraph, replace “IEC publications” with “Appendixes (except for Appendix 12) of “Interpretation of METI Ordinance establishing Technical Requirements for Electrical Appliances and Materials”, IEC standards or JIS standards harmonizing with IEC standards”. (J60598-1(2022))		P

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	Replace Table 11.1A with the following. Table 11.1A – Minimum creepage distances for a.c. sinusoidal voltages up to 30 kHz (to be used in conjunction with Annex M) RMS working voltage Not exceeding V / Distances mm 50 / 100 / 150 / 200 / 250 / 500 / 750 / 1 000 Creepage distances [b c] - Basic/Supplementary insulation PTI [a] ≥ 600: 0,6 / 0,7 (1,5) [e] / 0,8 (1,5) [e] / 1,0 / 1,3 / 2,5 / 3,8 / 5,0 PTI [a] < 600: 1,2 / 1,4 (1,5) [e] / 1,6 / 2,0 / 2,5 / 5 / 7,6 / 10 - Reinforced insulation PTI [a] ≥ 600: - / 1,5 / 1,6 / 2,0 / 2,6 / 5,0 / 7,6 / 10 PTI [a] < 600: 2,8 / 3,2 / 4,0 / 5,0 / 10 / 16 / 20 a PTI (proof tracking index) in accordance with JIS C 2134:2007. b For creepage distances, the equivalent d.c. voltage is equal to the r.m.s. value of the sinusoidal a.c. voltage. Linear interpolation between columns is allowed. c In the case of combination of voltage and frequency which require higher creepage than the values required in this table, the control gear is marked with the details of this combination (Ûout and frequency fUout) – see JIS C 8147-1, 7.1, item w). For details and the required values for creepage see JIS C 8147-1, 16.2.2. d Values under consideration e The values in the parentheses apply to basic insulation of class 0 and class 0I luminaires, except for between live parts of different polarity. (J60598-1(2022))		P
	Replace the value of Table 11.1B with the following. Clearances with mains supply transients according to impulse withstand category II b – Basic or supplementary insulation, Working voltage 150V: 0.5 (1.5)e e The values in the parentheses apply to basic insulation of class 0 and class 0I luminaires, except for between live parts of different polarity. (J60598-1(2022))		N/A
5.8 (7)	**Provision for earthing**	-	P
5.8 (7.2.1)	In the first paragraph, replace “class I luminaires” with “class I luminaires and class 0I luminaires”, “a lamp or replaceable starter” with “a replaceable light source or starter”, and “an earthing terminal or earthing contact” with “an earthing terminal, earthing contact or earthing lead”. (J60598-1(2022))		P
	In the second paragraph, replace “the earthing terminal or earthing contact” with “the earthing terminal, earthing contact or earthing lead”. (J60598-1(2022))		P

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	At the end of the third paragraph, replace “an earthing terminal” with “an earthing terminal, earthing contact or earthing lead”. (J60598-1(2022))		P
5.8 (7.2.3)	At the end of NOTE, add the following. In the case of class 0I luminaires with a earthing lead, the earthing contact is at the end of the earthing lead. (J60598-1(2022))		N/A
5.8 (7.2.5)	At the end of paragraph, add the following. However, this does not apply to class 0I luminaires. (J60598-1(2022))		N/A
5.8 (7.2.6)	At the end of paragraph, add the following. For class 0I luminaires, the earthing terminal or earthing lead are provided in the easily visible place of enclosure. (J60598-1(2022))		N/A
5.8 (7.2.8)	Add the following at the end. NOTE Bare metal includes metals for which conductive surface treatment was made. (J60598-1(2022))		P
5.8 (7.2.9)	At the end of paragraph, add the following. And the compliance to the requirement of clause 7.2.7 is judged by referring Annex F of JIS C 6065:2013. (J60598-1(2022))		P
5.8 (7.2.11)	In the first paragraph, replace “coloured green-yellow” with “coloured green-yellow or an earthing core marked with the purport for earthing by means of not easily erased”. (J60598-1(2022))		P
	In the second paragraph, replace “of a supply cord” with “of a supply cord or the earthing core marked with the purport for earthing by means of not easily erased”. (J60598-1(2022))		P

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	In the third paragraph, replace “the green and yellow colour combination” with “the green and yellow colour combination or which are marked with the purport for earthing,” (J60598-1(2022))		P
	In the fourth paragraph, replace “with supply cords” with “with supply cords having an earthing core”. (J60598-1(2022))		P
	Add the following after the second paragraph. Class 0I luminaires are provided with any of the following: - an earthing lead coloured green-yellow; - an earthing lead marked with the purport for earthing by means of not easily erased, or; - an earthing terminal. (J60598-1(2022))		N/A
5.9 (14 & 15)	**Terminals**	-	N/A
5.9 (14.3.1)	After the first paragraph, add the following. The requirement based on terminal sizes applies to only terminals intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts). (J60598-1(2022))		N/A
5.9 (14.3.2.3)	After the first sentence of the first paragraph, add the following. And, this requirement applies to only terminals intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts). (J60598-1(2022))		N/A
5.9 (14.3.3)	At the beginning of the first paragraph, replace “Terminals” with “Terminals intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts)”. (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	Replace the last paragraph with the following. Compliance is checked by inspection, by measurement and by fitting conductors of the smallest and largest nominal cross-sectional areas specified in Table 14.2 or conductors of the smallest and largest nominal cross-sectional areas specified by the manufacturer. (J60598-1(2022))		N/A
5.9 (14.4.1)	At the beginning of the first paragraph, replace “For pillar terminals” with “For pillar terminals intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts)”. (J60598-1(2022))		N/A
	At the beginning of the third paragraph, replace “For mantle terminals” with “For mantle terminals intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts)”. (J60598-1(2022))		N/A
5.9 (14.4.2)	Replace the fifth paragraph with the following. Terminals intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts), are fitted with a conductor having the composition given in Table 14.3, and other terminals are fitted with a standard conductor of the cable/cord specified. (J60598-1(2022))		N/A
5.9 (14.4.3)	At the beginning of the first paragraph, replace “Terminal sizes up to and including size 5” with “Terminal sizes up to and including size 5, which are intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts),”. (J60598-1(2022))		N/A
5.9 (14.4.6)	In the first sentence of the fifth paragraph, replace “Table 14.2” with “Table 14.2 or of the largest nominal cross-sectional area specified by the manufacturer”. (J60598-1(2022))		N/A

<table>
<tr><td colspan="4">ATTACHMENT to TRF IEC60598_2_5F</td></tr>
<tr><td>Clause</td><td>Requirement + Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td></td><td>In the second sentence of the fifth paragraph, replace “Table 14.4 or” with “Table 14.4 or, if terminals are intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts),”
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td>5.9 (14.4.7)</td><td>In the second paragraph, replace “For lug terminals” with “For lug terminals and terminals intended for connection by crimp terminals”.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Replace the fourth paragraph with the following.

Compliance is checked by inspection and, by the following test if terminals are other than terminal intended for connection by crimp terminals.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td></td><td>In the fifth paragraph, replace “in Table 14.2” with “in Table 14.2 or of the smallest and largest nominal cross-sectional areas specified by the manufacturer”.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Replace seventh paragraph with the following.

Each conductor is then subjected to a full of the value, a pull, given in Table 14.5 if the terminals are intended for connecting cables/cords complying with JIS C 3662 (all parts) or JIS C 3663 (all parts), and a pull given in Table 14.5A if terminals are provided with marking of the applicable cables/cords.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td></td><td>After Table 14.5, add the following table.

Table 14.5A – Pull to be applied to conductor
<table>
<tr><td>Nominal cross-sectional areas of applicable cables/cords mm²</td><td>≤ 1,0</td><td>1,0 < and ≤ 1,5</td><td>1,5 < and ≤ 2,5</td><td>2,5 < and ≤ 4</td><td>4 < and ≤ 6</td><td>6 < and ≤ 10</td><td>10 < and ≤ 16</td><td>16 < and ≤ 25</td></tr>
<tr><td>Pull (N)</td><td>35</td><td>40</td><td>50</td><td>60</td><td>80</td><td>90</td><td>100</td><td>135</td></tr>
</table>
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td>5.9 (14.4.8)</td><td>In the second paragraph, replace “in Table 14.2” with “in Table 14.2 or of the smallest and largest nominal cross-sectional areas specified by the manufacturer”.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
</table>

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Clause	Requirement + Test	Result - Remark	Verdict
5.9 (15.1)	Replace the first paragraph with the following. This section specifies requirements for all types of terminals and electrical connections, that do not employ screws, for solid or stranded copper conductors up to 2,5 mm^2 for internal wiring of luminaires and for connections to external wiring (up to 3,5 mm^2) of luminaires. (J60598-1(2022))		N/A
5.9 (15.2.6)	In the paragraph, replace “terminals” with “terminals, lampholders, etc.” (J60598-1(2022))		N/A
5.9 (15.3.10)	In the paragraph, replace “Manufacturers state” with “For terminals intended for connection to the fixed wiring and for replacement by users, manufacturers state”. (J60598-1(2022))		N/A
5.9 (15.5.2.2.1)	In the first sentence of the paragraph, replace “at a temperature of *T* ± 5 °C or 100 °C ± 5 °C, whichever is the higher,” with “at a temperature of *T* ± 5 °C or 100 °C ± 5 °C, whichever is the higher, if it is a *T*-marked component, and at a temperature of *t* ± 5 °C if it is a *t*-marked component”. (J60598-1(2022))		N/A
	Replace NOTE with the following. NOTE The temperatures *T* and *t* are the marked maximum rated temperature for *T*-marked or *t*-marked components such as lampholders. (J60598-1(2022))		N/A
5.9 (15.6.1)	In the first paragraph, replace “in Table 15.1” with “in Table 15.1 or with the nominal cross-sectional areas specified by the manufacturer”. (J60598-1(2022))		N/A
	Add the following values at the bottom of Table 15.1. 20 | > 2,0 to 3,5 (J60598-1(2022))		N/A

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	At the end of the last paragraph, replace “cross-sectional areas specified” with “cross-sectional areas specified or of the smallest and largest nominal cross-sectional areas specified by the manufacturer”. (J60598-1(2022))		N/A
5.9 (15.6.2.1)	Replace “specified in 15.6.” in the first paragraph with “specified in 15.6 or by the manufacturer. (J60598-1(2022))		N/A
	Replace “each terminal five times” in the first paragraph with “each terminal five times with solid copper conductors having the largest and then the smallest cross-sectional areas alternately". (J60598-1(2022))		N/A
5.9 (15.6.2.2)	Add the following values at the bottom of Table 15.2. 20 | 30 | 15 (J60598-1(2022))		N/A
5.9 (15.6.3.2.3)	In the first sentence of the paragraph, replace “at a temperature of *T* ± 5 °C or 100 °C ± 5 °C, whichever is the higher,” with “at a temperature of *T* ± 5 °C or 100 °C ± 5 °C, whichever is the higher, if it is a *T*-marked component, and at a temperature of *t* ± 5 °C if it is a *t*-marked component”. (J60598-1(2022))		N/A
	Replace NOTE with the following. NOTE The temperatures *T* and *t* are the marked maximum rated temperature for *T*-marked or *t*-marked components, such as lampholders. (J60598-1(2022))		N/A
5.10 (5)	**External and internal wiring**	-	P
5.10 (5.2.1)	Add “Ceiling rosette” after “appliance inlets;”.in dashed paragraph of “fixed luminaires”. (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.10 (5.2.2)	In the first paragraph, replace “those specified in IEC 60227 and IEC 60245, as indicated in Table 5.1” with “JIS C 3662 series and JIS C 3663 series, as indicated in Table 5.1, or those specified in Table 5.1A or Appendix 1 of “Interpretation of METI Ordinance establishing Technical requirements for Electrical Appliances and Materials””. (J60598-1(2022))		P
	Add the following after the third paragraph. The use of cords without sheath is not acceptable for Luminaires other than ordinary class 0 luminaires (J60598-1(2022))		N/A
	In the left column of the Table 5.1, replace “Ordinary class I luminaires” with “Ordinary class I luminaires, ordinary class 0I luminaires”, and “Ordinary class II luminaires” with “Ordinary class II luminaires, class 0 luminaires”. (J60598-1(2022))		P

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<table>
<tr><td colspan="4">ATTACHMENT to TRF IEC60598_2_5F</td></tr>
<tr><td>Clause</td><td>Requirement + Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td></td><td>After Table 5.1, add the following.

Table 5.1A – Cables/cords for external wiring
<table>
<tr><th>Service voltage V</th><th>Type of cable/cord</th><th>Symbol for cable/ cord</th><th>JIS standard</th></tr>
<tr><td>≤ 150</td><td>Indoor silicone rubber insulated cords</td><td>-</td><td>-</td></tr>
<tr><td>≤ 300</td><td>Rubber insulated flexible cords</td><td>-</td><td>JIS C 3301</td></tr>
<tr><td></td><td>Polyvinyl chloride insulated flexible cords</td><td>-</td><td>JIS C 3306</td></tr>
<tr><td>≤ 600</td><td>600 V Polyvinyl chloride insulated wires</td><td>IV</td><td>JIS C 3307</td></tr>
<tr><td></td><td>600 V Grade polyvinyl chloride insulated and sheathed portable power cables</td><td>VCT</td><td>JIS C 3312</td></tr>
<tr><td></td><td>Rubber insulated lead wires for electric machinery and apparatus</td><td>600V LKGB</td><td>JIS C 3315</td></tr>
<tr><td></td><td>Electric polyvinyl chloride insulated wires for electrical apparatus</td><td>KIV</td><td>JIS C 3316</td></tr>
<tr><td></td><td>600V Grade heat-resistant polyvinyl chloride insulated wires</td><td>HIV</td><td>JIS C 3317</td></tr>
<tr><td></td><td>600 V Silicone rubber insulated wires</td><td>600V KGB</td><td>JIS C 3323</td></tr>
<tr><td></td><td>600V Rubber insulated flexible cables</td><td>2CT, 2RNCT</td><td>JIS C 3327</td></tr>
<tr><td></td><td>600V Polyethylene insulated cables</td><td>600V EE</td><td>JIS C 3605</td></tr>
<tr><td></td><td>600V Flame retardant polyethylene insulated wires</td><td>1E/F</td><td>JIS C 3612</td></tr>
<tr><td>≤ 1 000</td><td>1 000 V Fluorescent discharge lamps wires</td><td>1 000V FL</td><td>-</td></tr>
</table>
(J60598-1(2022))</td><td></td><td>P</td></tr>
</table>

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<table>
<tr><td colspan="4">ATTACHMENT to TRF IEC60598_2_5F</td></tr>
<tr><td>Clause</td><td>Requirement + Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td></td><td>Replace Table 5.3 as following.

Table 5.3 Wiring dimension
<table><tr><td rowspan="2">Condition</td><td colspan="2">Minimum nominal conductor cross-section (mm²)[i]</td></tr><tr><td>Ordinary luminaire</td><td>Other than ordinary luminaire</td></tr><tr><td>General</td><td>0.75</td><td>0.75</td></tr><tr><td>Declared to be “For indoor use only”, in accordance with 3.3.18.</td><td>0.75</td><td>0.75</td></tr><tr><td>Declared to be “Rough service luminaire”</td><td>1.0</td><td>1.0</td></tr><tr><td>When luminaire is provided with a 10/16 A socketoutlet.</td><td>1.5</td><td>1.5</td></tr><tr><td>Class III luminaires or SELV circuits connections between parts of other luminaire types, with 2 A maximum rated current.</td><td>0.4 [a) c)]</td><td>0.4 [a) c)]</td></tr><tr><td>Class III luminaires or SELV circuits connections between parts of other luminaire types, with 2 A maximum rated current, consisting of cables with two or more conductors.</td><td>0.2 [a) b) c)]</td><td>0.2 [a) b) c)]</td></tr><tr><td>Conductors connected to SELV control gear that limits output current to maximum 2 A.</td><td>< 0.2 [d) e) g) h)]</td><td>< 0.2 [d) e) g) h)]</td></tr></table>(J60598-1(2022))</td><td></td><td>P</td></tr>
<tr><td></td><td>Delete the following.

If the luminaire is provided with a 10/16 A socket-outlet, the flexible conductor nominal crosssection area is at least 1,5 mm^2.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td>5.10 (5.2.8)</td><td>After NOTE 2, add the following.

NOTE 3 Bushing includes tubes.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td>5.10 (5.2.10.3)</td><td>In Table 5.2, replace the title with “Table 5.2 – Pull-force applied to cables/cords”.
(J60598-1(2022))</td><td></td><td>P</td></tr>
<tr><td>5.10 (5.2.14)</td><td>After the second paragraph, add the following.

NOTE 1 In Appendix 4 of “Interpretation of METI Ordinance establishing Technical requirements for Electrical Appliances and Materials”, protection class against electric shock for plugs has not been defined. Therefore, if the luminaire including the plug fulfills the protection class against electric shock, the plug is considered to be in compliance with the requirement of this sub-clause.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
<tr><td></td><td>In the fourth paragraph, replace “IEC 60083” with “Table 1 of JIS C 8303”.
(J60598-1(2022))</td><td></td><td>N/A</td></tr>
</table>

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
5.10 (5.2.18)	In the first paragraph, replace “IEC 60083, or with regional or national standards where applicable” with “JIS C 8282 (all parts), or with Appendix 4 of “Interpretation of METI Ordinance establishing Technical requirements for Electrical Appliances and Materials”. (J60598-1(2022))		N/A
5.10 (5.3.1)	Replace the sixth paragraph with the following. When stable conditions are reached, the voltage is increased to the voltage specified in d) of 12.4.1d) (J60598-1(2022))		P
5.10 (5.3.3)	At the end of this paragraph, add the following. For class 0, class 0I and class I luminaires, if the metal parts for passing have smoothly rounded edges, they are considered to be in conformity with this requirement. (J60598-1(2022))		P
5.11 (8)	**Protection against electric shock**	-	P
5.11 (8.2.1)	At the beginning of the second sentence of the first paragraph, add “Except for class 0 luminaires,” (J60598-1(2022))		N/A
	In the second sentence of the paragraph before item a), replace “except lamps and” with “except lamps, starters and”. (J60598-1(2022))		N/A
	At the beginning of the fifth paragraph from the last, replace “Class I and class II” with “Class 0, class 0I, class I and class II”. (J60598-1(2022))		N/A
	In the last paragraph, replace “double-capped Fa8 tubular lamps” with “double-capped FaX6 fluorescent lamps”. (J60598-1(2022))		N/A
5.11 (8.2.3)	In the second sentence of item a), replace “cap” with “cap and accessible metal parts other than cap”. (J60598-1(2022))		N/A
	In Item b), replace “class I” with “class 0I and class I”. (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.11 (8.2.6)	In the fourth paragraph, replace “20 N” with “at least 20 N”, and “80 N” with “at least 80 N”, (J60598-1(2022))		P
5.12 (12)	**Endurance tests and thermal tests**	-	P
5.12 (12.2)	In the second sentence of the third paragraph, replace “the ballast” with “the ballast (reference ballast)” (J60598-1(2022))		N/A
5.12 (12.3.1)	In 1) of Item e), replace “cyclic protective devices” with “cyclic thermal protective devices”, and “(thermal links)” with “(thermal links, ballasts marked with the symbol TC or OP)” (J60598-1(2022))		N/A
	In 2) of Item e), replace “the protective device” with “the thermal protective device” in both the first and second sentences, and “adjustment below” with “adjustment of the supply voltage or ambient temperature at that time below” in the second sentence. (J60598-1(2022))		N/A
5.12 (12.3.2)	In the second sentence of paragraph, replace “a chance failure” with “a chance failure (including operation of thermal protective device)”. (J60598-1(2022))		P
5.12 (12.4.1)	At the end of the second dash of Item d), add the following. However, for tubular fluorescent and other discharge lamp luminaires, using electronic ballasts, the most unfavourable value in the range of 0,94 and 1,06 times of the rated voltage (the range of 0,94 times of the minimum and 1,06 times of the maximum, for the rated voltage range) (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	At the end of the second dash of Item d), add the following. - Tubular fluorescent, other discharge lamp luminaires and Filament lamp luminaires for ELV may be as follows instead of above second dash. However luminaires with electronic ballasts are excluded. For luminaires using protected ballasts and luminaires with ballasts/transformers which are classified by the winding insulation system, 1,0 times may be applied. For luminaires not incorporating ballast, the rated voltage marked on the ballast may be applied, by using the ballast specified by the manufacturer. For luminaires for which plural ballasts are specified, the rated voltage marked on the ballast may be applied, by using the ballast presenting the most unfavourable condition. (J60598-1(2022))		N/A
	After the third dash of Item d), add the following new dash. - For LED luminaires: the most unfavourable value in the range of 0,94 and 1,06 times of the rated voltage (the range of 0,94 times of the minimum and 1,06 times of the maximum, for the rated voltage range) (J60598-1(2022))		P
5.12 (12.4.2)	Add the following after the first sentence of item a). This is not applied to the test according to test condition third dash of 12.4.1 d). (J60598-1(2022))		P
	Add the following to the end of item b). .For the permissible maximum temperature of the material, Appendix JB is available. (J60598-1(2022))		P
	In item c), replace “for example clamped)” with “for example clamped), limited to the case where cables/cords listed in Table 5.1 complying with the relevant IEC standard are used” (J60598-1(2022))		P

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	Replace Table 12.1 with the following except for the bottom column. Table 12.1 – Maximum temperatures under the test conditions 12.4.1, for principal parts (J60598-1(2022))		P
	At the end of Item b in the bottom column of Table 12.1, add the following sentence. If capacitors comply with JIS C 4908 and are marked with the symbol expressing the maximum allowable temperature, the marked symbol is replaced with the value of maximum temperature. (J60598-1(2022))		N/A

Part			Maximum Temperature °C
Lamp caps			As specified in the appropriate JIS lamp standard [a]
Windings	Ballasts or transformers with t_w marking		t_w
	Windings in ballasts, transformers, motors, etc., if the winding insulation system according to JIS C 4003	- of class A material [c]	100
		- of class E material [c]	115
		- of class B material [c]	125
		- of class F material [c]	150
		- of class H material [c]	170
Case (of capacitor, starting device, electronic ballast or convertor (including electronic step-down converter), LED module control gear, etc.)		If t_c is marked	t_c [b]
		For capacitor if t_c is not marked	50
Insulation of winding:			See Table 12.2 and Items b) and c) of 12.4.2
Contacts of ceramic lampholders and insulating material of lampholders and starterholders other than ceramic lampholders:	With *T* marking	(B15, B22) [d] (JISC 8122)	165 for T_1 and 210 for T_2
		Others (JIS C 8280, JIS C 8324, JIS C 8121 (all parts) [e] and JIS C 8122)	*T*
	Without *T* or *t* marking	(E14, B15) (JIS C 8121 (all parts) and JIS C 8122)	135
		(B22, E26, E17) (JIS C 8280 and JIS C 8122)	165
		E39, E11	225
		E12	100
		Fluorescent lampholders/starterholders (JIS C 8324) and miscellaneous lampholders (JIS C 8121 (all parts) [e])	80
Switches marked with individual ratings		Switches with *T* marking	*T*
		Switches without *T* marking	55
Other parts of the luminaire (according to material and use):			See Table 12.2 and item b) of 12.4.2 b)
Mounting surface:		Normally flammable surface	90
		Non-combustible surface	Not measured
Means of adjustment and its surrounding space [f]		Metal parts	60
		Non-metal parts	75
Accessible parts of enclosure [i]		Metal parts	85
		Non-metal parts	100
Enclosure to which a person is not easily accessible [k]			100
Objects lighted by spotlights (see 12.4.1 j))			90 (of test surface), or the value declared by the manufacturer (limited to the value not exceeding 90 °C)
Track (for track-mounted luminaires)			As stated by the track manufacturer [g]
Mains socket-outlet-mounted luminaire and plug-ballast/transformer:		- case parts intended to be gripped by hand	75
		- the plug/socket interface	70
		- all other parts	85
Replaceable glow-starting devices			80 [h]

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Clause	Requirement + Test	Result - Remark	Verdict
	At the end of Item f in the bottom column of Table 12.1, add the following sentence. Part of the enclosure is not considered to be a means of adjustment, except for the part for which the manufacturer's instructions explains the purport that the part is an operation part for adjusting the luminaire during use. (J60598-1(2022))		P
	In the bottom column of Table 12.1, add the following new items after Item h. i For lampholders complying with only the relevant regulations, the maximum temperatures specified in the regulations apply. j In this table, "enclosure" is the enclosure in the state of normal use, except for the following part. - upper surface of the electric installation part of the suspended fluorescent luminaires for household - lamps in the light source part inside the cover, and the part of inner surface of reflecting shades, globes and lighting covers etc. - road lighting luminaires, floodlights (including projectors, however, limited to floodlights with marking of the purport of luminaires for exhibition business on the surface of the body), luminaires for high ceiling (limited to those with marking of the purport on the surface of body, except for those to be used by contacted with (or by recessed into) the building materials), and reflecting shades, globes and lighting covers of luminaires for stages or studios k Examples of the enclosure to which a person is not easily accessible: - for recessed luminaires, the enclosure of the part of chassis recessed - the enclosure of the luminaires providing a clear guidance, which an instruction for mounting the luminaire out of arms reach is available in the installation instructions. (J60598-1(2022))		P
	In the title of Table 12.2, replace "12.4.2" with "12.4.1". (J60598-1(2022))		P

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
5.12 (12.5.1)	At the end of the third paragraph of Item b), add the following. However, for tubular fluorescent and other discharge lamp luminaires, using electronic ballasts, the most unfavourable value in the range of 0,9 and 1,1 times of the rated voltage (the range of 0,9 times of the minimum and 1,1 times of the maximum, for the rated voltage range) (J60598-1(2022))		N/A
	After the third paragraph of Item b), add the following. - For tubular fluorescent, other discharge lamp luminaires and Filament lamp luminaires for ELV, the rated voltage (in case of rated voltage range, maximum voltage) can be applied instead of above second dash, provided that luminaires using protected ballasts and luminaires with ballasts/transformers which are classified by the winding insulation system. However luminaires with electronic ballasts are excluded. (J60598-1(2022))		N/A
	After the fourth paragraph of Item b), add the following. - For LED luminaires: the most unfavourable value in the range of 0,9 and 1,1 times of the rated voltage (the range of 0,9 times of the minimum and 1,1 times of the maximum, for the rated voltage range). (J60598-1(2022))		P
	In the fifth paragraph of Item b), replace “transformer/convertors” with “transformer/convertors (including electronic convertor)”. (J60598-1(2022))		P
	In the paragraph of Item e), replace “metal halide lamps” with “metal halide lamps [1)]” (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	At the end of Item e), add the following. However, for luminaires which the one-shot type protective device operates, the assessment for the winding temperatures of ballasts is not carried out. NOTE [1)] Lamps which the purport is stated clearly in the manufacturer's specifications etc. (J60598-1(2022))		N/A
	After Item e), add the following new item. eA) For luminaires which an one-shot type protective device operates during the test, assessment for capacitors is not carried out if the capacitor is; - capacitors with a built-in safety device specified in JIS C 4908; - capacitors with safety mechanism, specified in JIS C 4908, or; - capacitors protected by the enclosure of ballast, except for power factor improvement capacitors and phase-advanced capacitors (J60598-1(2022))		N/A
5.12 (12.5.2)	Add the following after the first paragraph. This is not applied to the test according to test condition third dash of 12.5.1 b). (J60598-1(2022))		P
	In Item a in the bottom row of Table 12.3, replace "marked on" with "marked with S on". (J60598-1(2022))		N/A
	Replace the title of Table 12.4 with the following. Table 12.4 – Maximum temperature of windings under abnormal operating conditions and at 110 % of rated voltage for lamp control gear (the case of use of protected ballasts: at 100 % of rated voltage) (J60598-1(2022))		N/A

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	Replace the title of Table 12.5 with the following. Table 12.5 – Maximum temperature of windings under abnormal operating conditions and at 110 % of rated voltage for lamp control gear marked “D6” (the case of use of protected ballasts: at 100 % of rated voltage) (J60598-1(2022))		N/A
	In the last paragraph, replace “the relevant IEC auxiliary standard” with “clause 13 (Thermal endurance test for windings of ballasts) of JIS C8147-1”. (J60598-1(2022))		N/A
	In the sentence with parentheses after the last paragraph, replace “the relevant IEC auxiliary standard” with “clause 13 of JIS C8147-1”. (J60598-1(2022))		N/A
5.12 (12.6.1)	The end of the second sentence of Item b), add “(See Figure 9)”. (J60598-1(2022))		N/A
5.12 (12.6.2)	In the title, replace “above 130 °C” with “above 130 °C, or symbol TC or OP” (J60598-1(2022))		N/A
5.12 (12.7.1.2)	In the fifth paragraph, add the following after the second sentence. The best straight line through these points is drawn. (J60598-1(2022))		N/A
5.13 (9)	**Resistance to dust and moisture**	-	P
5.13 (9.2)	In this sub-clause, replace “9.2.9” with “9.2.9A”. (J60598-1(2022))		P
	In the seventh paragraph, add the following after the first sentence. If the manufacturer specifies the method for mounting to the mounting surface, the test is carried out after mounting in accordance with the method specified. (J60598-1(2022))		P

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	After Item e), add the following new item. eA) For moisture-proof luminaires used in bathroom etc., after the moisture-proof test specified in 9.2.9A, the luminaire tested complies with the following. - that entry of moisture which inhibits normal operation is not inside the luminaire; and - that the insulation resistance between all live parts and the earthed part is at least 1 MΩ, by measuring with an insulation resistance tester of DC 500 V rated measurement voltage which is specified in JIS C 1302. (J60598-1(2022))		N/A
5.13 (9.2.4)	Replace NOTE with the following. The oscillating tube test and the spray nozzle test as prescribed in JIS C 0920 are accepted. However, the state of lighting-on and lighting-off of the luminaire and the test duration are of as mentioned above. (J60598-1(2022))		N/A
5.13 (9.2.5)	Replace NOTE with the following. The oscillating tube test and the spray nozzle test as prescribed in JIS C 0920 are accepted. However, the state of lighting-on and lighting-off of the luminaire and the test duration are of as mentioned above. (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
5.13 (9.2.9A)	After sub-clause 9.2.9, add the following new sub-clause. 9.2.9A For luminaires usable in bath rooms etc., the luminaire under test is placed in the most unfavourable position of normal use, in the thermostatic chamber generating gentle breeze and maintained at 91 to 95 % relative humidity. In the thermostatic chamber, the temperatures at all positions where the luminaire under test is placed are kept at the appropriate temperature of t °C ± 1 °C, within the range of 35 to 40 °C. The luminaire is kept the state of lighting-on for a period of 8 h, and then the luminaire is placed in the state of lighting-off for a period of 16 h in the room of normal temperature and normal humidity. This cyclic operation is repeated 10 times. (J60598-1(2022))		N/A
5.14 (10)	**Insulation resistance and electric strength**	-	P
5.14 (10.2)	Add the following to the end of last paragraph. Note 2 Uout specified in JIS C 8147-1 means the maximum voltage generated between output terminals of control gear or output terminal and earth. (J60598-1(2022))		P
5.14 (10.2.1)	In the first paragraph, replace “after the application of the voltage” with “immediately after humidity test and thermal test (normal operation)”. (J60598-1(2022))		P
	In the second row of Table 10.1, replace “class I luminaires” with “class 0, class 0I and class I luminaires”. (J60598-1(2022))		P
5.14 (10.2.2)	At the end of the second paragraph, add the following. In this case, the applied time after reaching to the specified voltage is considered as the specified time. (J60598-1(2022))		P
	In the 11th paragraph, replace “the ignitor operating” with “the ignitor operating (without fitting of lamp in the circuit)”. (J60598-1(2022))		N/A

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	In the 13th paragraph after NOTE 2, replace “100 % rated voltage” with “100 % rated voltage, without fitting of lamp”. (J60598-1(2022))		N/A
	In the 15th paragraph, replace “with ignitors provided” with “with ignitors (including ignitors incorporated in ballasts) provided” (J60598-1(2022))		N/A
	Add the following to the end of last paragraph. Note 3 Uout specified in JIS C 8147-1 means the maximum voltage generated between output terminals or output terminal and earth of control gear. (J60598-1(2022))		P
	In the second row of Table 10.2, replace “class I luminaires” with “class 0, class 0I and class I luminaires”. (J60598-1(2022))		P
	In the bottom of Table 10.2, replace the second footnote with “*U*: working voltage”. (J60598-1(2022))		P
5.14 (10.3)	In the second row of Table 10.3, replace the text with the following. All luminaires of class 0, class 0I and class II (J60598-1(2022))		P
	In the third row of Table 10.3, replace the text with the following. Class I luminaires rated up to and including 16 A fitted with a plug connectable to a mains socket-outlet (J60598-1(2022))		P
	In the fourth row of Table 10.3, replace “Class I luminaires” with “Class 0I and class I luminaires”. (J60598-1(2022))		P
	In the fifth row of Table 10.3, replace “Class I luminaires” with “Class 0I and class I luminaires”. (J60598-1(2022))		P

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	In the sixth row of Table 10.3, add a) to the value of 10 mA. (J60598-1(2022))		N/A
	By creating a column in the bottom of Table 10.3, add the following NOTE. NOTE a) Luminaires fitted with plural electronic lamp control gears may exceed 10 mA. In such case, marking specified in 3.3.19 is required. (J60598-1(2022))		N/A
	Delete the following sentence. * Testing is not required where the manufacturer's instructions supplied with the luminaire advise that the luminaire must be earthed. (J60598-1(2022))		P
	Add the following NOTE in the Table 10.3. Class 0I luminaires are considered as Class I only when the manufacturer specifies the earth connection. (J60598-2(2022))		N/A
Figure 1	Replace the symbol for "Luminaires not suitable for covering with thermal insulating material" with following. a):  b):  c):  (J60598-1(2022))		N/A
Figure 7	Below the drawing, add the following NOTE, by marking with "a)" to the value of 50 mm in the drawing. NOTE a) Spacing of holes is 50 mm. (J60598-1(2022))		N/A
Figure 8	At the end of the title of Figure 8, add "(jet-proof test and powerful water jet-proof test)". (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Figure 9	In the sentence for Item 6, replace “drawn through” with “drawn with best fitting through”. (J60598-1(2022))		N/A
	In the sentence for Item 7, replace “drawn through” with “drawn with best fitting through”. (J60598-1(2022))		N/A
Annex B	In the title of Annex B, replace “(normative)” with “(informative)”. (J60598-1(2022))		N/A
	In the fourth paragraph from the last of B.2.2.3, replace “E27 or B22 cap” with “E26 or B22 cap” (J60598-1(2022))		N/A
Annex C	In the third paragraph of 1) of Item b), replace “Fa6” with “FaX6”. (J60598-1(2022))		N/A
	In the second paragraph of 2) of Item b), replace “at the ambient temperature of the draught-proof enclosure” with “at the ambient temperature of the draught-proof enclosure (the temperature specified in SECTION 12)”. (J60598-1(2022))		N/A
Annex D	In Item b), replace the title with the following. Luminaires recessing into ceilings but not suitable for covering with thermal insulating material, which are marked with Symbol a) for luminaires not suitable for covering with thermally insulating material, shown in Figure 1 (J60598-1(2022))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	After Figure D.2, add the following. For luminaires marked with the purport that it is suitable for the thermally insulating material construction, as specified in 3.2.19C, the luminaires are subjected to the following tests of Item c) or d). The test is carried out by installing the appropriate wooden test box respectively in a draught-proof enclosure. However, if it is clear that the equivalent results are obtained, another draught-proof enclosure with a different structure may be used. NOTE 0A The test methods shown in Items c) and d) are based on JIL 5002 which was published as a group standard by the Japan lighting Manufacturers Association. c) Luminaires specifying the construction by the mat-laying method Luminaires are covered with the thermal insulation material specified in JIS A 9521 so that the thermal resistance of 4,6 m^2K/W or 6,6 m^2K/W is obtained, and additionally with the test ceiling specified in Figure D.2A, by size of luminaire. The thermal resistance is according to the instruction by the manufacturer. d) Luminaires specifying the construction by the blowing method The thermal insulation material specified in JIS A 9523 are filled, so that the thermal resistance of 6,6 m^2K/W is obtained, in the test ceiling specified in Figure D.2B by size of luminaire. (J60598-1(2022))		N/A

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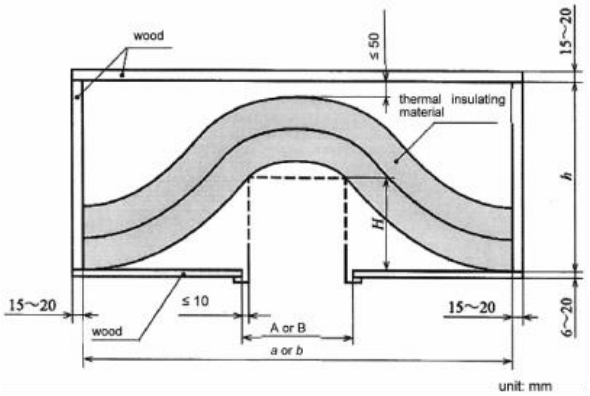
Clause	Requirement + Test	Result - Remark	Verdict
			N/A

Dimensions of test ceiling unit: mm

Diameter, major axis, one side, long side or maximum diameter of recess-hole, *A*	Long side of test ceiling *a*
≤ 250	900
250 < and < 800	1450
800 ≤ and < 1400	2050
1400 ≤ and < 2000	2650
2000 ≤	A + 650

Diameter, minor axis, one side, short side or minimum diameter of recess-hole, *B*	Short side of test ceiling *b*
≤ 250	900
250 < and < 800	1450
800 ≤ and < 1400	2050
1400 ≤ and < 2000	2650
2000 ≤	B + 650

Luminaire declared for thermal resistance of 4,6 m^2K/W

Height of luminaire *H*	Height of test ceiling *h*
< 50	250
50 ≤ and < 100	300
100 ≤ and < 150	350
150 ≤ and < 200	400
200 ≤ and < 250	450
250 ≤ and < 300	500
300 ≤	*H* + 250

Luminaire declared for thermal resistance of 6,6 m^2K/W

Height of luminaire *H*	Height of test ceiling *h*
< 50	350
50 ≤ and < 100	400
100 ≤ and < 150	450
150 ≤ and < 200	500
200 ≤ and < 250	550
250 ≤ and < 300	600
300 ≤	*H* + 350

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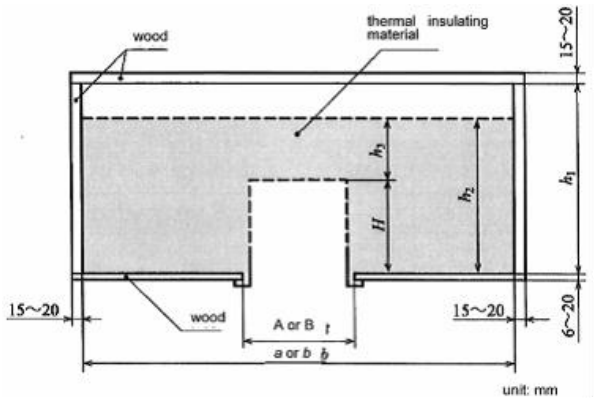
Clause	Requirement + Test	Result - Remark	Verdict
	Before the test, the thermally insulating material in the position of 200 mm from the end of the recess-hole is pressed over the entire periphery by hand. Figure D.2A Luminaires specifying the construction by the mat-laying method (J60598-1(2022))		
			N/A

Dimensions of test ceiling unit: mm

Diameter, major axis, one side, long side or maximum diameter of recess-hole, *A*	Long side of test ceiling *a*
≤ 250	900
250 < and < 800	1450
800 ≤ and < 1400	2050
1400 ≤ and < 2000	2650
2000 ≤	A + 650

Diameter, minor axis, one side, short side or minimum diameter of recess-hole, *B*	Short side of test ceiling *b*
≤ 250	900
250 < and < 800	1450
800 ≤ and < 1400	2050
1400 ≤ and < 2000	2650
2000 ≤	B + 650

Height of luminaire *H*	Height of test ceiling		
	h_1	h_2	h_3
< 275	500	300	-
275 ≤	500	-	25

Figure D.2B Luminaires specifying the construction by the blowing method
(J60598-1(2022))

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Clause	Requirement + Test	Result - Remark	Verdict
	Luminaires marked with Symbol b) or c) for luminaires not suitable for covering with thermally insulating material, as shown in Figure 1 are tested in accordance with the following Item e) or f). The test is carried out by installing the appropriate wooden test box respectively in a draught-proof enclosure. However, if it is clear that the equivalent results are obtained, another draught-proof enclosure with a different structure may be used. NOTE 0B The test methods shown in Items e) and f) are based on Technical Data 131 which was published as a group standard by the Japan lighting Manufacturers Association. (J60598-1(2022))		N/A

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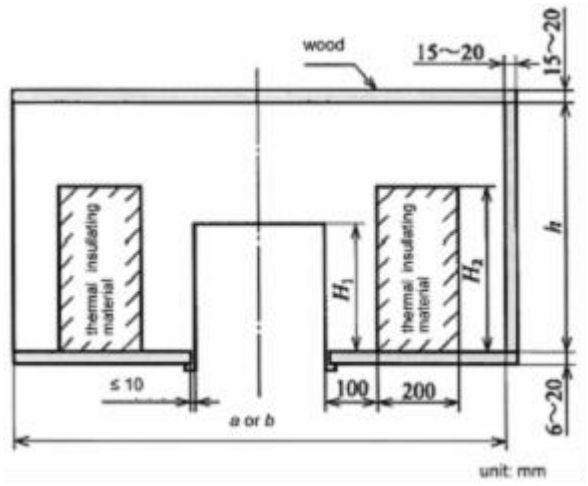
Clause	Requirement + Test	Result - Remark	Verdict
	e) Luminaires marked with Symbol b) or c) for luminaires not suitable for covering with thermally insulating material, as shown in Figure 1, and which the long-side/diameter of the recess-hole is 250 mm or less Luminaires are mounted in the test ceiling specified in Figure D.2C, by size of luminaire. The internal surface of the test ceiling is painted with a matte paint. The mounting boards are painted with a matte black paint of non-metallic. Four sides are enclosed with a heat insulating material. The thermal insulating materials are the material specified in JIS A 9521, with thermal resistance of 2,2 m^2K/W and thickness of 100 mm. For the sides of the vertical direction, three sides are provided and one side is opened.		N/A



Dimensions of test ceiling unit: mm

Height of luminaire H_1	Height of insulation material H_2	Height of ceiling h
< 100	100 (1 piece)	200
100 ≤ and < 200	200 (2 pieces)	300
200 ≤ and < 350	300 (3 pieces)	450
If $H1$ exceeds 350, pursuant to this.		

Long side or maximum diameter of recess-hole	Long side of test ceiling a
≤ 250	900
250 < and < 800	1450
800 ≤ and < 1400	2050
1400 ≤ and < 2000	2650

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
			N/A

Short side or minimum diameter of recess-hole	Short side of test ceiling *b*
≤ 250	900
250 < and < 800	1450
800 ≤ and < 1400	2050
1400 ≤ and < 2000	2650

Figure D.2C – Luminaires marked with Symbol b) or c) for luminaires not suitable for covering with thermally insulating material, as shown in Figure 1, and which the long-side/diameter of the recess-hole is 250 mm or less

(J60598-1(2022))

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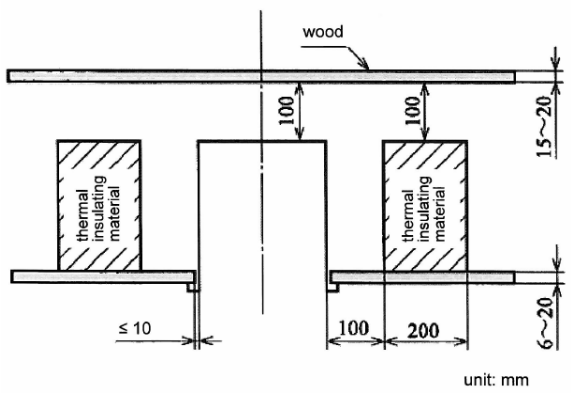
ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	f) Luminaires marked with Symbol b) or c) for luminaires not suitable for covering with thermally insulating material, as shown in Figure 1, and which the long-side/diameter of the recess-hole exceeds 250 mm Luminaires are mounted in the test ceiling specified in Figure D.2D, by size of luminaire.  The internal surface of the test ceiling is painted with a matte paint. The mounting boards are painted with a matte black paint of non-metallic. Four sides are enclosed with a heat insulating material. The thermal insulating materials are the material specified in JIS A 9521, with thermal resistance of 2,2 m^2K/W and thickness of 100 mm. Figure D.2D – Luminaires marked with Symbol b) or c) for luminaires not suitable for covering with thermally insulating material, as shown in Figure 1, and which the long-side/diameter of the recess-hole exceeds 250 mm (J60598-1(2022))		N/A
Annex G	In the second paragraph of sub-clause G.3, replace “class II luminaries” with “class II and class 0 luminaries”. (J60598-1(2022))		N/A
	In the fifth paragraph of sub-clause G.4, replace “portable class I luminaries” with “portable class I, class 0I and class 0 luminaries”. (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	In the ninth paragraph of sub-clause G.4, replace “class II luminaries” with “class II and class 0 luminaries”. (J60598-1(2022))		N/A
G.5	In the columns a) and c) of the Table G.1, replace as follows. - for a), “class II” with “class II and class 0” - for c), “class I, pluggable” with “class I and class 0I, pluggable”. (J60598-1(2022))		N/A
Fig. G.3	In the title of Figure G.3, replace “portable class I luminaries” with “portable class I, class 0I and class 0 luminaries”. (J60598-1(2022))		N/A
Annex M	In a column of the second row of Table M.1, replace “Luminaires of class I” with “Luminaires of class 0, class 0I and class I” (J60598-1(2022))		P
Annex V	In the fifth paragraph for “Checking mechanical connection to supporting plate:” of sub-clause V.1, replace the first sentence with the following. For this test, the terminal block is mounted to the fixing supports, in same state as normal use. (J60598-1(2022))		N/A
	At the end of the fourth sentence of the fifth paragraph of sub-clause V.2, replace “this annex” with “7.2.3”. (J60598-1(2022))		N/A

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
Annex JA	Add the following new annex after Annex X. **Annex JA** (normative) **Protective shield for luminaires for tungsten halogen lamps** This annex describes the requirements made for handling of “protective shield for luminaires for tungsten halogen lamps” specifically. JA.1 Mechanical construction By considering the case where a lamp is shattered, luminaires have a structure that any glass fragments, of 3 mm or more size, of a shattered lamp does not fly out to outside of the luminaire, by a method of a protective shield or other means. Protective shields might be of heat-resistant glasses (for example, tempered glasses, hard glasses etc.) or of wire-netting of 2 mm or less mesh. However, when tempered glasses are used, those should be of at least 4 mm thickness. And, the part of approximately 5 mm from the edge of the tempered glass (boundary part of stress distribution) should be covered for protection. NOTE This materializes the results of the experiment. And, the size limitation for the mesh of wire-netting is made in consideration that there is no possibility of human harm or property damage which is caused thermally or mechanically by the fragments of 3 mm or less size of a shattered lamp, even if the fragments fly out directly or indirectly to outside of the luminaires. JA.2. Resistance to impact If glasses are used for protective shields, the appropriate impact energy, specified for fragile parts in Table 4.3, is applied once to the glass part likely to be the weakest, by means of a 10 mm radius spherical-faced weight of 250 g, with polyamide surface of R100 Rockwell Hardness, or by means of the apparatus specified in JIS C 60068-2-60. After test, hairline cracks, open cracks or other abnormalities are not shown in the protective shield.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	NOTE For impact energy by means of a weight, the impact energy of 0,2 Nm is produced by dropping the weight from 8 cm height, 0,35 Nm is from 14 cm height, and 0,5 Nm from 20 cm height. JA.3 Temperature limit If tempered glasses are used, when the temperatures of all parts reached in the stable condition during the temperature rise test in normal use, the maximum temperature of the inner surface of the glass does not exceed 220 °C, and the temperature difference with the minimum temperature of the glass, including the outer surface of the glass, does not exceed 180 °C. NOTE The upper limit of 220 °C for glass surface temperature is for preventing the strength deterioration of the tempered glasses. And the temperature difference of 180 °C is for preventing the damaging of glass by quenching of glass surface. (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
Annex JB	Add the following new annex after Annex JA. **Annex JB** (normative) **Temperature upper limits for use of insulations** JB.1 Electrical insulations or thermal insulations (except for those used for supply cables/cords) In Tables JB.1 to JB.7, the temperatures specified in the columns of “Value 1” and “Value 2” areas follows. - Value 1: temperature upper limit for use of insulations listed in the left columns - Value 2: temperature upper limits for use of insulations accepted the tentative registration NOTE For use proven insulations, the temperature rise values registered tentatively may be used based on the various data of the material manufacturer, until a testing body finishes the temperature rise test for the material. This temperature rise value is registered with a temperature value, being more than the value of “Value 1” but not exceeding the value of “Value 2”. Where the tentatively registered under the following condition, the temperature can be regarded as the temperature upper limit. - The insulating material described in the left column is used under the temperature exceeding the upper limit of Value 2, or the material(including chemically or physically bonding materials of materials described in this table) other than described in this table is used. - Estimated thermal evaluation temperature of the insulating material itself or the same kind of material is verified by objective datas according to the similar means as Value 2 of this table.		P

ATTACHMENT to TRF IEC60598_2_5F

Clause	Requirement + Test	Result - Remark	Verdict

JB.1.1 Natural materials

Temperature upper limits for use of electrical insulations and thermal insulations which are of natural materials are shown in Table JB.1.

Table JB.1 - Temperature upper limits for use of electrical insulations and thermal insulations which are of natural materials

Type (name of material)		Temperature upper limits for use °C	
		Value 1	Value 2
Bituminous compound for filling		75 (105) [a]	105
Natural fibre like paper, cotton and silk, and wood		90 (105) [b]	-
Oil denatured natural resin		105	-
Rock wool		-	600
Silica powder		500	-
Mica	Muscovite	500 (600) [c]	700
	Phlogopite	650 (850) [c]	900
Heat-resist cement (for tubular bulb)		-	350

NOTE [a] The values of [a] apply to thermal insulations.
NOTE [b] The values of [b] apply to materials impregnated with varnish.
NOTE [c] The values of [c] apply in the case of absence of external mechanical force. "Absence of external mechanical force" means the case where the insulation is not subjected directly to an external pressure which is resulted by a rotating, reciprocating or rectilinear motion or the like, by sufficiently fixing the insulation by means of other parts.

JB.1.2 Built-up mica

Temperature upper limits for use of electrical insulations and thermal insulations which are of built-up mica are shown in Table JB.2.

Table JB.2 - Temperature upper limits for use of electrical insulations and thermal insulations which are of built-up mica

Type (name of material)	Classification		Temperature upper limits for use °C		Remarks
	Reinforcement	Adhesive	Value 1	Value 2	
Mica splittings, Assembled mica paper	-	1~4	130	150	The given numbers given in the column for adhesive are respectively as follows. 1: those mainly composed of asphalt 2: those mainly composed of natural resin or denatured natural resin 3: those mainly composed of ceramic 4: those mainly composed of oil-denatured synthetic resin, alkyd orthophatalate resin or cross-linked polyester resin 5: those mainly composed of silicon–denatured synthetic resin, isophatalate alkyd resin, telephatalate alkyd resin or epoxy resin 6: those mainly composed of silicon resin 7: those of inorganic 8: those without adhesive
		5	155	(180)	
		6	180	-	
			450 [a] (700)	700	
			600 [b] (800)		
		7	600 [a] (700)	700	
			700 [b] (850)	700	
	Paper	8	-	(180)	
		1~4	130	-	
	Polyethylene terephthalate film	4	130	(150)	
		5	-	(180)	
	Glass fabric	4	130	(155)	
		5	155	(180)	
		6	180	-	
	Polyester nonwoven fabric	4	130	(150)	
		5	155	(180)	
	Polyester woven fabric	4	130	-	
		5	155	(180)	
	Polyethylene naphthalate film	4	130	(150)	
		5	155	-	
	Polyamide-imide film	5	155	(180)	
		6	180	-	
	Aramide paper	5	155	(180)	
		6	180	-	
	Polyimide film	5	155	(180)	
		6	180	-	
Mycalex	-	-	-	350	

NOTE 1 The values in parenthesis in column "Value 1" apply in the case of absence of external mechanical force.
NOTE 2 The values in parenthesis in column "Value 2" apply in only the case where it is used as insulation system.
NOTE [a] For heating substrate of muscovite mica
NOTE [b] For heating substrate of phlogopite mica

P

Attachment 2

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	JB.1.3 Organic materials (thermosetting resins) Temperature upper limits for use of electrical insulations and thermal insulations which are of organic materials (thermosetting resins) are shown in Table JB.3.		P

Table JB.3 - Temperature upper limits for use of electrical insulations and thermal insulations which are of organic materials (thermosetting resins)

Type (name of material)	Classification		Temperature upper limits for use °C	
	Laminated or moulded etc.	Filler or base material	Value 1	Value 2
Melamine resin	Laminate	Glass fibre	75 (100) [a]	(140) [a]
	Moulded material	Cellulose	120	140
		Inorganic	140	160
Phenol resin	Laminate	Cotton fabric	115 (85) [b]	120
		Paper	120 (70) [c]	140 (110) [c]
		Polyamide cloth	75	100
		Inorganic	140	180
	Moulded material	Other than inorganic	140 (150) [a]	160
		Inorganic	150 (160) [a]	180
Melamine phenol resin	Moulded material	Specific gravity of less than 1,55	130	-
Urea resin	Moulded material	Cellulose	90	110
Unsaturated polyester resin	Casting	-	120	130
	Laminate	Inorganic	140	180
	Moulded material	Other than inorganic	120	170
		Inorganic powder	140	180
		Glass fibre	155	
Epoxy resin	Casting	-	120	150
	Laminate	Other than inorganic	110 (90) [c]	120
		Inorganic	130 (140) [a]	160
	Moulded material		130	160
Diallyl phthalate resin	Laminate	Inorganic	140	180
	Moulded material	Other than inorganic	130	160
		Inorganic powder	150	180
		Glass fibre	155	
Xylene resin	Casting	-	140	-
Polyamide-imide	Film	-	180	-
Silicon resin	Laminate	Inorganic	180 (220) [a]	220
	Moulded material		180 (240) [a]	220
Polyimide	Film	-	210	250
	Laminate	-	190	-
Polybutadiene	Casting	-	120	130
	Moulded material	Inorganic	130	150
Diphenyl oxide resin	Laminate	Inorganic	180	-
Polyurethane	Moulded material Soft	-	-	50 (85) [e]
	Moulded material Hard	-	-	60 (100) [e]

NOTE 1 Temperatures for inorganic or glass fibre materials shall be the temperature in the case where a large amount of inorganic or glass fibre materials were mixed in.
NOTE 2 Alkyd resins and dichloropentadiene resins are treated as unsaturated polyester resin.
NOTE 3 "Casting" includes encapsulation, embedding and potting.
NOTE [a] The values of [a] apply to thermal insulations.
NOTE [b] The values of [b] apply to those with a thickness of less than 0,8 mm.
NOTE [c] The values of [c] apply to those with flame-retardant and a thickness of less than 0,8 mm.
NOTE [d] The values of [d] apply to those used for thermal insulation and for sealing lead-outs of sheathed wires.
NOTE [e] The values of e is limited to those for heat retaining.

ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	JB.1.4 Organic materials (thermoplastic resins) Temperature upper limits for use of electrical insulations and thermal insulations which are of organic materials (thermoplastic resins) are shown in Table JB.4.		P

Table JB.4 - Temperature upper limits for use of electrical insulations and thermal insulations which are of organic materials (thermoplastic resins)

Type (name of material)	Classification (reinforcement material)	Temperature upper limits for use °C	
		Value 1	Value 2
Methacrylic resin	-	50	90
Cellulose acetate resin	-		60
Cellulose acetate butylate resin	-		
Polystyrene	-	50 (70) [a]	85
Heat-resisting polystyrene	-	-	80
Polyethylene	-	50	80
Foamed polyethylene compound (for cables and cords)	-	60	-
Cross-linked foamed polyethylene compound (for cables and cords)	-	-	105
Polyethylene compound (for cables and cords) [c]	-	75	-
Cross-linked polyethylene	-	90	120
Cross-linked polyethylene compound (for cables and cords)	-	90	125
Chlorinated polyethylene compound (for cables and cords)	-	90	110
Acrylonitrile acrylic rubber styrene resin	-	55	85
Acrylonitrile chlorinated polyethylene styrene resin	-		
Acrylonitrile styrene resin	-	55	105
Acrylonitrile butadiene styrene resin Acrylonitrile butadiene chlorinated polyethylene resin	Glass fibre	80	105
Polyvinyl chloride resin Polyvinyl chloride compound (for cables and cords)	-	60	75
Heat-resisting polyvinyl chloride resin Heat-resisting polyvinyl chloride compound (for cables and cords)	-	75	105
Cross-linked polyvinyl chloride compound (for cables and cords)	-	75	105
Polypropylene	-	105 (85) [d]	110
	Glass fibre	110	120
Polypropylene compound (for cables and cords)	-	-	105
Denatured polyphenylene ether Denatured polyphenylene oxide	-	75	120
	Glass fibre	100	140
Polyacetal	-	100	120
	Glass fibre	120	130
Polyamide (nylon)	-	90	120
	Glass fibre	120	130
Polyamide compound (for cables and cords)	-	90	-
Polycarbonate	-	110	125
	Glass fibre	120	130
Polyethylene terephthalate	-	120	125
	Glass fibre	130	150
Polybutylene terephthalate	-	120	125
	Glass fibre	135	150
Polybutylene terephthalate compound (for cables and cords)	-	120	-
Heat-resisting polyethylene terephthalate	Film	135	150
Polyvinylidene difluoride compound (for cables and cords)	-	150	160
Polychlorotrifluoroethylene (ethylene trifluoride resin)	-	150	180
Ethylene-tetrafluoroethylene copolymer (for cables and cords)	-	150	-
Tetrafluoroethylene hexafluoropropylene resin Tetrafluoroethylene hexafluoropropylene compound (for cables and cords)	-	200	-
Polytetrafluoroethylene (ethylene tetrafluoride resin) Polytetrafluoroethylene (ethylene tetrafluoride) compound (for cables and cords)	-	250	-
Aramide (aromatic polyamide paper)	-	220	-
Polysulfone	-	140 (150) [b]	150
Polyethylene naphthalate	-	155	-
Perfluoroalkoxy compound (for cables and cords)	-	250	-
Polyallylate	-	120	-
	Glass fibre	130	-

NOTE Temperatures for glass fibres shall be the temperature in the case where a large amount of glass fibres were mixed in.
NOTE [a] The values of [a] apply only to capacitor dielectrics.
NOTE [b] The values of [b] apply to thermal insulations.
NOTE [c] Tapes and tubes etc. are included.
NOTE [d] The values of [d] apply to those with a thickness of less than 0,8 mm.

ATTACHMENT to TRF IEC60598_2_5F

Clause	Requirement + Test	Result - Remark	Verdict

JB.1.5 Inorganic materials

Temperature upper limits for use of electrical insulations and thermal insulations which are of inorganic materials are shown in Table JB.5.

Table JB.5 - Temperature upper limits for use of electrical insulations and thermal insulations which are of inorganic materials

Type (name of material)		Temperature upper limits for use °C	
		Value 1	Value 2
Glass	Glass fibre (only alkaline free)	300	500
	Lead glass	380	400
	Borosilicate glass	490	-
	Quartz glass	800	1100
	Crystallized glass	-	1000
Ceramic		800 (1000) [a]	1300
Magnesium oxide		-	1000 (1100) [b]
Silica board		-	1000

NOTE [a] The values of [a] apply to electric heating elements etc.
NOTE [b] The values of [b] apply to fillers for sheathed heaters etc.

JB.1.6 Rubber compounds

Temperature upper limits for use of electrical insulations and thermal insulations which are of rubber compounds are shown in Table JB.6.

Table JB.6 - Temperature upper limits for use of electrical insulations and thermal insulations which are of rubber compounds

Type (name of material)	Temperature upper limits for use °C	
	Value 1	Value 2
Natural rubber Polyurethane rubber Ebonite	60	85
Styrene butadiene rubber	75	85
Nitrile rubber	75	90
Chloroprene rubber		
Butyl rubber	80	120
Ethylene propylene rubber	90	110
Chlorosulfonated polyethylene rubber		
Chlorinated polyethylene rubber	-	105
Silicone rubber	180 (200) [a]	260
Fluororubber	-	230

NOTE 1 Silicon rubber includes those for casting.
NOTE 2 Ethylene propylene rubber includes ethylene propylene diene rubber (EPDM).
NOTE [a] The values of [a] apply to those used for thermal insulation and for sealing lead-outs of sheathed wires.

JB.1.7 Sleeves, cloths, tapes (those of fiber products) and others

Temperature upper limits for use of sleeves, cloths, tapes (those of fiber products), and other electrical insulations and thermal insulations are shown in Table JB.7.

Table JB.7 - Temperature upper limits for use of sleeves, cloths, tapes (those of fibre products), and other electrical insulations and thermal insulations

Type (name of material)	Classification (type of impregnating and coating material)	Temperature upper limits for use °C	
		Value 1	Value 2
Rayon, Cellulose acetate, Vinylon	Adhesive, oil varnish	105	-
Paper, Cotton fabric, Polyamide, Polyester fabric, Polyester nonwoven fabric	Oil varnish	105	120
Polyester fabric Polyester nonwoven fabric	Alkyd resin varnish	120	-
Glass fabric		130	-
Paper	Iso or terephthalate alkyd resin varnish, Epoxy resin varnish, Alkyd resin varnish	105	155
Polyester fabric Polyester nonwoven fabric		120	
Glass fabric, Aramide paper	Iso or terephthalate alkyd resin varnish, Epoxy resin varnish	155	-
	Silicon resin varnish	180	-
	Silicon rubber	180	250
Vulcanized fibre	-	105	110
Heat-resisting fibre	-	120	130

P

Attachment 2

Report No.: 4791524802.1-1

<table>
<tr><th colspan="4">ATTACHMENT to TRF IEC60598_2_5F</th></tr>
<tr><th>Clause</th><th>Requirement + Test</th><th>Result - Remark</th><th>Verdict</th></tr>
<tr><td></td><td>JB.2 Electrical insulations or thermal insulations (limited to those used for power supply cables/cords etc.)

Temperature upper limits for use of electrical insulations or thermal insulations (limited to those used for power supply cables/cords etc.) are shown in Table JB.8.

Table JB.8 - Temperature upper limits for use of electrical insulations or thermal insulations (limited to those used for power supply cables/cords etc.)
<table>
<tr><th>Type (name of material)</th><th>Temperature upper limits for use (Value 1) °C</th></tr>
<tr><td>Natural rubber compound
Polyurethane rubber compound
Polyvinyl chloride compound</td><td>60</td></tr>
<tr><td>Chloroprene rubber compound
Styrene butadiene rubber compound
Heat-resisting vinyl compound
Polyethylene compound
Polyolefin compound</td><td>75</td></tr>
<tr><td>Butyl rubber compound
Ethylene propylene rubber compound
Flame-resistant ethylene rubber compound</td><td>80</td></tr>
<tr><td>Chlorosulfonated polyethylene rubber compound
Cross-linked polyethylene compound
Cross-linked polyolefin compound</td><td>90</td></tr>
<tr><td>Silicone rubber compound</td><td>90
(180)</td></tr>
<tr><td>Tetrafluoroethylene resin compound</td><td>90
(200)</td></tr>
<tr><td>Chlorinated polyethylene rubber compound</td><td>-</td></tr>
</table>
NOTE 1 The values in parentheses apply to:
- luminaires of which supply cords/cables are protected with metal raceways or metal conduits etc. and which are mounted out of arms reach; and
- luminaires, such as floodlights etc., which are used in high places of outdoor and which are mounted out of arms reach.
NOTE 2 Ethylene propylene rubber compound includes ethylene propylene diene rubber compound (EPDM).
NOTE 3 Polyolefin compound is to be a resin compound (except for polyethylene) which is made of ethylene, propylene, ethylene propylene, ethylene vinyl acetate and ethylene ethyl acrylate.
NOTE 4 Flame-resistant ethylene rubber compound includes ethylene propylene rubber compound, ethylene propylene diene rubber compound (EPDM) and ethylene vinyl acetate rubber mixed spinning which are provided with flame-resistant.

(J60598-1(2022))</td><td></td><td>P</td></tr>
</table>

Attachment 2

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<table>
<tr><td colspan="4">ATTACHMENT to TRF IEC60598_2_5F</td></tr>
<tr><td>Clause</td><td>Requirement + Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td>Annex JC</td><td>Add the following new annex after Annex JB.

Annex JC
(normative)
Classification of risk group for blue-light retina injury

JC.1 Outline
This annex specifies classification of risk group for blue-light retina injury of luminaires. This can be applied to lamp.

JC.2 Classification of risk group
JC.2.1 General
Risk group of blue-light retina injury is classified as table JC.1 according to the degree of biological injury. The addressed radiance in this annex is average radiance in the particular field of view. The minimum area of field of view is ϕ2.2mm and radiance of smaller area than ϕ2.2mm is not addressed.
Note: The smallest area for radiance measurement in this annex is ϕ2.2mm at light emitting part which is derived from the minimum value of field of view (0.011rad) and the minimum distance (200mm). Standard value of risk group is calculated from average radiance in the particular field of view. (Refer to JIS C 7550:2011)
Table JC.1 – Classification of risk group for blue-light retina injury
<table><tr><td>Risk group</td><td>Symbol</td><td>Summary of degree of injury</td></tr><tr><td>Exempt group</td><td>RG0</td><td>It does not pose any photobiological hazard</td></tr><tr><td>Risk group 1 (low risk)</td><td>RG1</td><td>It does not pose a hazard due to normal behavioral limitations on exposure</td></tr><tr><td>Risk group 2 (Moderate risk)</td><td>RG2</td><td>It does not pose a hazard due to the aversion response to very bright light sources or due to thermal discomfort.</td></tr><tr><td>Risk group 3 (High risk)</td><td>RG3</td><td>It may pose a hazard even for momentary or brief exposure.</td></tr><tr><td colspan="3">Note a): For the detailed information about risk group, see JIS C 7550.</td></tr></table>
JC.2.2 Classification of Exempt group (RG0)
Classification of Exempt group (RG0) is according to the following.
a) RG0 classified by JIS C 7550:2011.
b) RG0 classified by JC.3.
c) White light with the maximum radiance at light emitting part of luminaire which does not exceed 4 x 10^4 cd·m^{-2}. The radiance in the field of view should be less than 1°.
d) luminaires using RG0 light source or combination of RG0 light source in the same manner.</td><td>RG1</td><td>P</td></tr>
</table>

Attachment 2

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE 1: Chromaticity range of white light intended to use as luminaire deviates not more than 0.02 from black body radiation on CIE 1960 UCS. NOTE 2: Light source described in this clause means light source component such as lamp for general purpose luminaire, LED package, LED module, etc. NOTE 3: Specification, instruction manual, and measurement data provided by light source or luminaire manufacturer may be referred for risk group of light source and maximum radiance at light emitting part of luminaire. NOTE 4: “combination of RG0 light source in the same manner” described in d) means condition that emitting light is not condensed (or spectral distribution does not change). JC.2.3 Classification of risk group 1(RG1) Classification of risk group 1(RG1) is according to the following. a) RG1 classified by JIS C 7550:2011. b) RG1 classified by JC.3. c) White light with the maximum radiance at light emitting part of luminaire which does not exceed 4 x 10^6 cd·m^{-2}. The radiance in the field of view should be less than 1°. d) luminaires using RG1 light source or combination of RG1 light source in the same manner. Note: See NOTE 1 to NOTE 4 of JC.2.2. JC.2.4 Classification where exceeds risk group 1(RG1) Classification where exceeds risk group 1(RG1) is according to the following. a) RG2 or RG3 classified by JIS C 7550:2011. b) RG2 or RG3 classified by JC.3. JC.3 Classification of risk group by measurement of radiance. (This clause is omitted) (J60598-1(2022))		N/A

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ATTACHMENT to TRF IEC60598_2_5F			
Clause	Requirement + Test	Result - Remark	Verdict
Annex JD	Add the following new annex after Annex JC. Annex JD (informative) Method to estimate radiance from optical distribution measurement data (This Annex is omitted due to method associate JC.3.)		N/A

Attachment 3

Report No.: 4791524802.1-1

IEC60598_2_5G ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 60598-2-5** **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** Luminaires Part 2: Particular requirements Section 5: Floodlights			
Differences according to.....:	EN 60598-2-5:2015 used in conjunction with EN IEC 60598-1:2021 + A11:2022		
TRF template used .....:	IECEE OD-2020-F2:2020, Ed. 1.1		
Attachment Form No.....:	EU_GD_IEC60598_2_5G		
Attachment Originator .....:	UL(Demko)		
Master Attachment.....:	2022-05-24		
	CENELEC COMMON MODIFICATIONS (EN)		P
5.5 (3)	**MARKING**		N/A
5.5 (3.2.12)	Note 4 deleted		N/A
5.6 (4)	**CONSTRUCTION**		N/A
5.6 (4.11.6)	Electro-mechanical contact systems: electric strength test at 1 500 V		N/A
5.10 (5)	**EXTERNAL AND INTERNAL WIRING**		P
5.10 (5.2.2)	Cables equal to EN 50525 (all parts)		P
	Paragraph 2 deleted		N/A
	Replace table 5.1 – Supply cord		N/A
5.12 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		P
5.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		P
(3.3)	DK: power supply cords of class I luminaires with label		P
(5.2.1)	CY, DK, FI, UK: type of plug		N/A
(5.2.18)	DK: socket-outlets		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A

Attachment 3

Report No.: 4791524802.1-1

IEC60598_2_5G ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	FR: Safety requirements for high buildings *(Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting)* Glow-wire test for outer parts of luminaires:		N/A
	- 850°C for luminaires in stairways and horizontal travel paths		N/A
	- 650°C for indoor luminaires		N/A
	UK: Requirements according to United Kingdom Building Regulation		N/A

Attachment 4 Additional requirements of IEC 62031:2018_LED modules for general lighting – Safety specifications			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.2	Classification		P
	Built-in module ..... :	Yes ☐ No ☒	—
	Independent module..... :	Yes ☐ No ☒	—
	Integral module ..... :	Yes ☒ No ☐	—
4.6	Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017		N/A
4.8	Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11.	(see Annex 1)	N/A
6	**MARKING**		N/A
7	**TERMINALS**		N/A
8 (9)	**EARTHING**		N/A
9 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		P
- (10.1)	Controlgear protected against accidental contact with live parts	Test with appliance	P
- (A2)	Voltage measured with 50 kΩ	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impendance device	(see Annex A)	N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V .....:		N/A
- (10.3)	Controlgear providing SELV		N/A
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated from earth by at least basic insulation		N/A

Attachment 4 Additional requirements of IEC 62031:2018_LED modules for general lighting – Safety specifications			
Clause	Requirement + Test	Result - Remark	Verdict
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. ..... :		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
10 (11)	**MOISTURE RESISTANCE AND INSULATION**		**P**
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ ..... :	Test with appliance	P
	For double or reinforced insulation ≥ 4 MΩ ..... :		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A
11 (12)	**ELECTRIC STRENGTH**		**P**
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		N/A
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		P
	Basic insulation, 2U + 1000 V	Test with appliance	P
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P

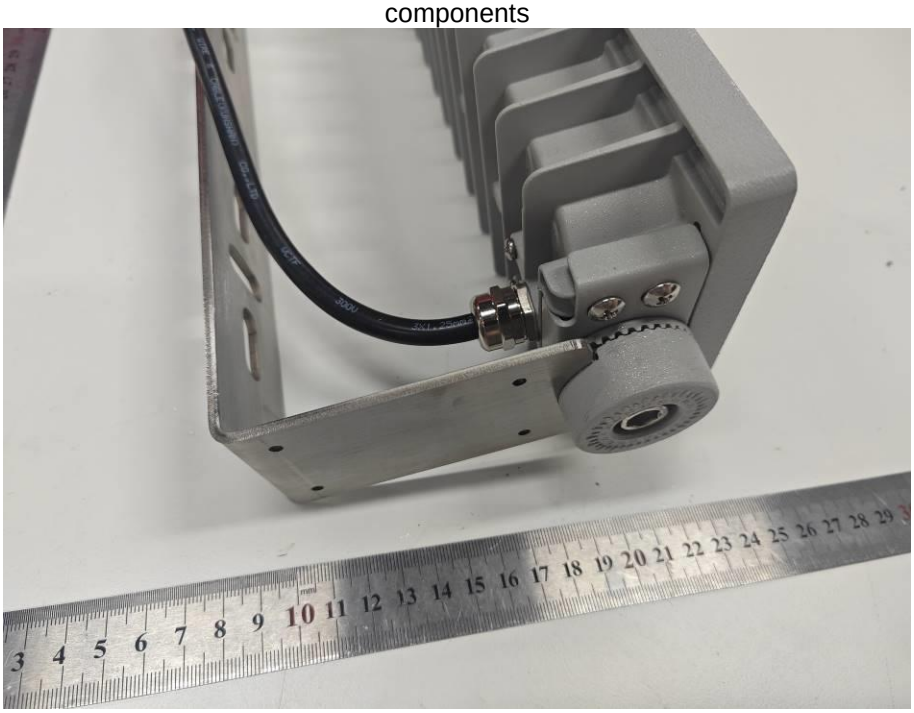
Attachment 4 Additional requirements of IEC 62031:2018_LED modules for general lighting – Safety specifications			
Clause	Requirement + Test	Result - Remark	Verdict
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A
12 (14)	**FAULT CONDITIONS**		**P**
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
	Short-circuit or interruption of SPDs	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ .....:	>1.3 MΩ	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		—
12.2	**Overpower condition**		**P**
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P

Attachment 4 Additional requirements of IEC 62031:2018_LED modules for general lighting – Safety specifications			
Clause	Requirement + Test	Result - Remark	Verdict
	Molten material does not ignite tissue paper, spread below the module		P
14 (15)	**CONSTRUCTION**		**P**
- (15.1)	**Wood, cotton, silk, paper and similar fibrous material**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	**Printed circuits**		P
	Printed circuits used as internal connections complies with clause 14		P
15 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
- (16.1)	**General**		P
	Creepage distances and clearances according to 16.2 and 16.3		P
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P		N/A
- (16.2)	**Creepage distances**		P
- (16.2.2)	Minimum creepage distances for working voltages		P
	Creepage distances according to Table 7	See main report	P
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8	(see appended table)	N/A
- (16.3)	**Clearances**		P
- (16.3.2)	Clearances for working voltages		P
	Clearances distances according to Table 9	See main report	P
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N/A
	Clearances distances for basic or supplementary insulation according to Table 10		N/A
	Clearances distances for reinforced insulation according to Table 11		N/A
16 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		N/A
17 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
- (18.1)	Ball-pressure test .....:	See main report	P

Attachment 4 Additional requirements of IEC 62031:2018_LED modules for general lighting – Safety specifications			
Clause	Requirement + Test	Result - Remark	Verdict
- (18.2)	Test of printed boards .....:	See main report	P
- (18.3)	Glow-wire test (650°C) .....:	See main report	N/A
- (18.4)	Needle-flame test (10 s) .....:	See main report	P
- (18.5)	Proof tracking test .....:	See main report	N/A
18	**RESISTANCE TO CORROSION**		N/A
20	**HEAT MANAGEMENT**		N/A
A	**ANNEX A - TESTS**		P
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P
(A)	**ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK**		N/A
ANNEX 1	**LED MODULES WITH INTEGRAL CONTROLGEAR PROVIDING SELV**		N/A
13 (14)	**TABLE: tests of fault conditions**		P
TTL-035-50-100V-1			
Part	**Simulated fault**		**Hazard**
LED1	Short circuit, unit working normally, recoverable.		~~YES~~/NO
LED1	Open circuit, unit working normally, recoverable.		~~YES~~/NO
BD1	Short circuit, fuse opened, un-recoverable.		~~YES~~/NO
RS9	Short circuit, unit working normally, recoverable.		~~YES~~/NO

Attachment 5 of photo documentation

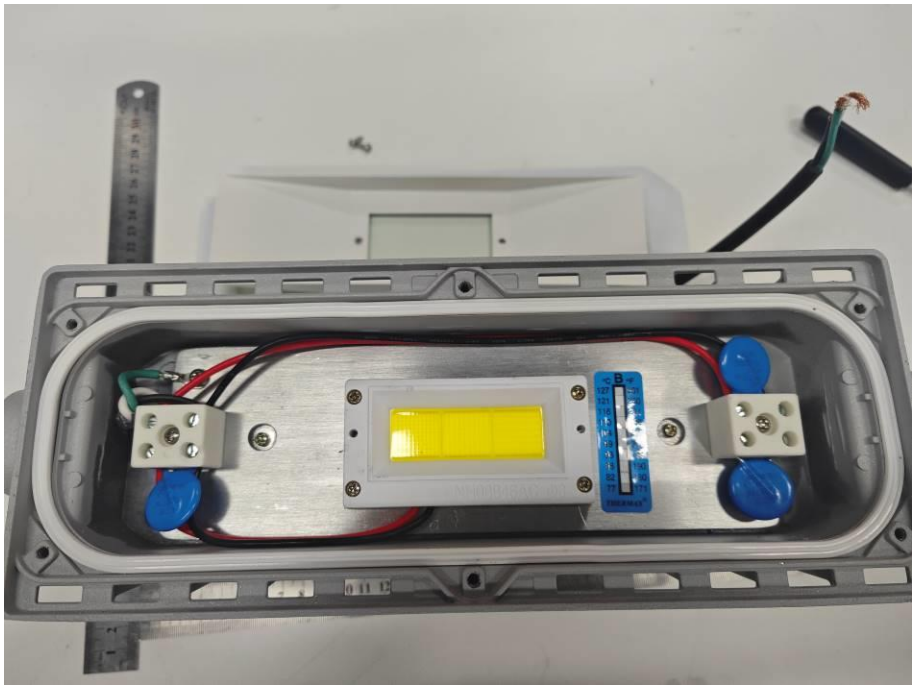
TTL-035-50-100V-1, all models have similar construction except the some parameter and of components



Adjusting part

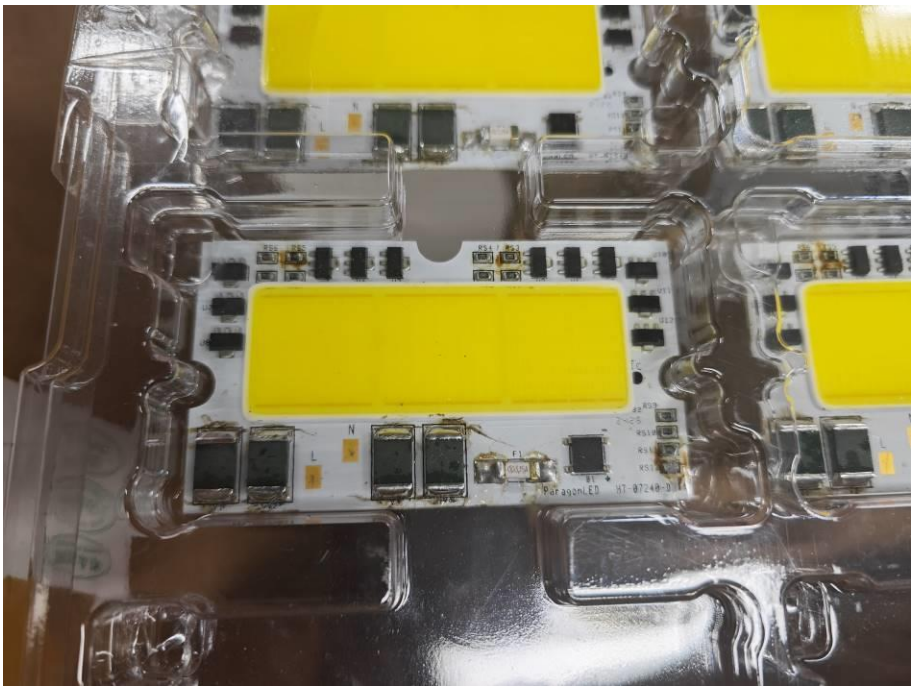
Attachment 5 of photo documentation

Internal



Internal

Attachment 5 of photo documentation



LED module view, There is an insulating layer between the LED module and the metal base

LED module