TEST REPORT

Product Name:	Led panel light
Brand Name:	
Model Number:	MPL-0606-36 MPL-0303-24, MPL-0306-36, MPL-0312-36, MPL-0612-60, MPL-R105-4, MPL-R120-6, MPL-R145-9, MPL-R160-10, MPL-R170-12, MPL-R180-12, MPL-R195-15, MPL-R225-18, MPL-R240-18, MPL-R250-20, MPL-R300-24, MPL-S105-4, MPL-S120-6, MPL-S145-9, MPL-S175-12, MPL-S195-15, MPL-R225-18, MPL-R250-20
Prepared For:	MIC Optoelectronic Co., Ltd
Address:	2nd floor,Third Building, 97# AiNan Road,LongDong, BaoLong Street, LongGang District, Shenzhen, China
Prepared By:	Shenzhen DL Testing Technology Co., Ltd.
Address:	101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China
Date of Receipt:	Jul. 27, 2022
Test Date:	Jul. 27, 2022 – Aug. 04, 2022
Date of Report:	Aug. 04, 2022
Report No.:	DL-20220804008S

TEST REPORT
EN 60598-2-2
Part 2: Particular requirements
Section 2: Recessed luminaires

Report Number .....:	DL-20220804008S
Tested by (name) .....:	Hardy Chen
Reviewed by (name) .....:	Ray Liang
Approved by (name) .....:	Jade Yang
Date of issue .....:	Aug. 04, 2022
Total number of pages .....:	56 pages

Applicant's name .....:	MIC Optoelectronic Co., Ltd
Address .....:	2nd floor,Third Building, 97# AiNan Road,LongDong, BaoLong Street, LongGang District, Shenzhen, China
Testing Laboratory.....:	Shenzhen DL Testing Technology Co., Ltd.
Address .....:	101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

Test specification:	
Standard.....:	EN 60598-1:2015+A1:2018 EN 60598-2-2:2012
Test procedure .....:	CE-LVD
Non-standard test method.....:	N/A

Test Report Form No. .....:	IEC60598_2_2F
Test Report Form(s) originator...:	Intertek Semko AB
Master TRF .....:	Dated 2017-12-21

Test item description .....:	Led panel light
Brand Name .....:	MIC Light the world
Manufacturer .....:	Same as applicant
Model/Type reference .....:	MPL-0606-36 (For additional models, see page 1)
Ratings .....:	200-240V~ 50/60Hz 36W

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

Attachment No. 1: 2 pages of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES for EN 60598-2-2:2012 and EN 60598-1:2015+A1:2018;
Attachment No. 2: 5 pages of test report of IEC 62031:2018;
Attachment No. 3: 2 pages of test report of IEC TR 62778:2014 (for blue light hazard);
Attachment No. 4: 2 pages of test report of EN62493:2015;
Attachment No. 5: 5 pages of photos.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
The submitted samples were tested and found to comply with the requirements of: EN 60598-1:2015+A1:2018 EN 60598-2-2:2012 The LED modules in products were found to comply with the requirement of EN IEC 62031:2020 The submitted samples were classified as RG0 according to IEC TR 62778:2014 The submitted samples were LED-light-source technology, they were found to comply with the requirements EN 62493:2015 without test	101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

Summary of compliance with National Differences:

List of countries addressed: See the attachment of National and Group Differences for details.

☒ **The product fulfils the requirements of** EN 60598-2-2:2012 and EN 60598-1:2015+A1:2018 and EN 62493:2015

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing DL Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the DL, responsible for this Test Report.

Copy of marking plate:

Led panel light

Model: MPL-0606-36

Rating: 200-240V~ 50/60Hz 36W

MIC Optoelectronic Co.,Ltd

Importer: XXXXXX

Address: XXXXXX

Made in China

- The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

Test item particulars..... :	
Classification of installation and use..... :	Class II
Supply Connection ..... :	AC power supply
..... :	
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 .....:	Jul. 27, 2022
Date (s) of performance of tests .....:	Jul. 27, 2022 – Aug. 04, 2022
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	
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	MIC Optoelectronic Co., Ltd 2nd floor,Third Building, 97# AiNan Road,LongDong, BaoLong Street, LongGang District, Shenzhen, China
General product information and other remarks: Led panel light, class II equipment, power by LED driver, indoor used only. All of the models are same light source and construction.	

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.3 (0)	**GENERAL TEST REQUIREMENTS**		—
2.3 (0.3)	More sections applicable..... :	Yes ☐ No ☒ Section/s:	—
2.3 (0.5)	Components	(see Annex 1)	—
2.3 (0.7)	**Information for luminaire design in light sources standards**		—
2.3 (0.7.2)	Light source safety standard ..... :	IEC 62031	—
	Luminaire design in the light source safety standard		P
2.5 (2)	**CLASSIFICATION OF LUMINAIRES**		—
2.5 (2.2)	Type of protection ..... :	Class II	P
2.5 (2.3)	Degree of protection ..... :	IP20	P
2.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces..... :	Yes ☐ No ☐	—
2.5 (2.5)	Luminaire for normal use ..... :	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—
2.6 (3)	**MARKING**		—
2.6 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
2.6 (3.3)	Additional information		P
	Language of instructions	English	P
2.6 (3.3.1)	Combination luminaires		N/A
2.6 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
2.6 (3.3.3)	Operating temperature		N/A
2.6 (3.3.5)	Wiring diagram		N/A
2.6 (3.3.6)	Special conditions		N/A
2.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A
2.6 (3.3.8)	Limitation for semi-luminaires		N/A
2.6 (3.3.9)	Power factor and supply current		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.6 (3.3.10)	Suitability for use indoors		P
2.6 (3.3.11)	Luminaires with remote control		N/A
2.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
2.6 (3.3.13)	Specifications of protective shields		N/A
2.6 (3.3.14)	Symbol for nature of supply	~	P
2.6 (3.3.15)	Rated current of socket outlet		N/A
2.6 (3.3.16)	Rough service luminaire		N/A
2.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type X	P
2.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
2.6 (3.3.19)	Protective conductor current in instructions, if applicable		N/A
2.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
2.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable light source	P
	Cautionary symbol		P
2.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
2.6 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
2.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
2.6 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
2.7 (4)	**CONSTRUCTION**		—
2.7 (4.2)	Components replaceable without difficulty		P
2.7 (4.3)	Wireways smooth and free from sharp edges		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.4)	**Lampholders**		**N/A**
2.7 (4.4.1)	Integral lampholder		N/A
2.7 (4.4.2)	Wiring connection		N/A
2.7 (4.4.3)	Lampholder for end-to-end mounting		N/A
2.7 (4.4.4)	Positioning		N/A
	- pressure test (N) ..... :		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N) ..... :		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
2.7 (4.4.5)	Peak pulse voltage		N/A
2.7 (4.4.6)	Centre contact		N/A
2.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
2.7 (4.4.8)	Lamp connectors		N/A
2.7 (4.4.9)	Caps and bases correctly used		N/A
2.7 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
2.7 (4.5)	**Starter holders**		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
2.7 (4.6)	**Terminal blocks**		N/A
	Tails		N/A
	Unsecured blocks		N/A
2.7 (4.7)	**Terminals and supply connections**		**P**
2.7 (4.7.1)	Contact to metal parts		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
2.7 (4.7.3)	Terminals for supply conductors		P
2.7 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
2.7 (4.7.4)	Terminals other than supply connection		P
2.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
2.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
2.7 (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
2.7 (4.9)	**Insulating lining and sleeves**		N/A
2.7 (4.9.1)	Retainment		N/A
	Method of fixing..... :		N/A
2.7 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)..... :		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.10)	**Double or reinforced insulation**		N/A
2.7 (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
	Interference suppression capacitors according to IEC 60384-14		N/A
2.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
2.7 (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
2.7 (4.10.4)	Protective impedance device		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
2.7 (4.11)	**Electrical connections and current-carrying parts**		**P**
2.7 (4.11.1)	Contact pressure		N/A
2.7 (4.11.2)	Screws:		P
	- self-tapping screws		P
	- thread-cutting screws		N/A
2.7 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.11.4)	Material of current-carrying parts		P
2.7 (4.11.5)	No contact to wood or mounting surface		P
2.7 (4.11.6)	Electro-mechanical contact systems		N/A
4.7 (4.12)	**Screws and connections (mechanical) and glands**		**P**
2.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part ..... :	Screw for enclosure	P
	Torque test: torque (Nm); part ..... :		N/A
	Torque test: torque (Nm); part ..... :		N/A
2.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
2.7 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) ..... :		N/A
	- lampholder; torque (Nm)..... :		N/A
	- push-button switches; torque 0,8 Nm ..... :		N/A
2.7 (4.12.5)	Screwed glands; force (Nm) ..... :		N/A
2.7 (4.13)	**Mechanical strength**		**P**
2.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :		N/A
	- other parts; energy (Nm)..... :	0.35Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
2.7 (4.13.3)	Straight test finger	30N	P
2.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
2.7 (4.13.6)	Tumbling barrel		N/A
2.7 (4.14)	**Suspensions, fixings and means of adjusting**		N/A
2.7 (4.14.1)	Mechanical load:		N/A
	A) four times the weight		N/A
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm) ..... :		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		—
	Metal rod. diameter (mm) ..... :		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
2.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) ..... :		—
	Stress in conductors (N/mm²) ..... :		N/A
	Mass (kg) of semi-luminaire ..... :		N/A
	Bending moment (Nm) of semi-luminaire ..... :		N/A
2.7 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles ..... :		N/A
	- strands broken ..... :		N/A
	- electric strength test afterwards		N/A
2.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
2.7 (4.14.5)	Guide pulleys		N/A
2.7 (4.14.6)	Strain on socket-outlets		N/A
2.7 (4.15)	**Flammable materials**		P

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- glow-wire test 650°C..... :	See Test Table 2.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
2.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
2.7 (4.16)	**Luminaires for mounting on normally flammable surfaces**		P
	No lamp control gear..... :	(compliance with Section 12)	N/A
2.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
2.7 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
2.7 (4.16.3)	Design to satisfy the test of 12.6.....:	(see clause 12.6)	N/A
2.7 (4.17)	**Drain holes**		N/A
	Clearance at least 5 mm		N/A
2.7 (4.18)	**Resistance to corrosion**		N/A
2.7 (4.18.1)	- rust-resistance		N/A
2.7 (4.18.2)	- season cracking in copper		N/A
2.7 (4.18.3)	- corrosion of aluminium		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
2.7 (4.19)	Ignitors compatible with ballast		N/A
2.7 (4.20)	Rough service vibration		N/A
2.7 (4.21)	**Protective shield**		N/A
2.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
2.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
2.7 (4.21.3)	No direct path		N/A
2.7 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment ..... :	See Test Table 2.15 (13.3.2)	N/A
2.7 (4.22)	Attachments to lamps not cause overheating or damage		N/A
2.7 (4.23)	Semi-luminaires comply Class II		N/A
2.7 (4.24)	**Photobiological hazards**		P
2.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
2.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 .....:	RG0	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2.. :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
2.7 (4.25)	**Mechanical hazard**		**P**

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	No sharp point or edges		P
2.7 (4.26)	**Short-circuit protection**		N/A
2.7 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
2.7 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
2.7 (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
	Voltage drop test, resistance < 0,05 Ω		N/A
2.7 (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
2.7 (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
2.7 (4.30)	**Luminaires with non-user replaceable light source**		**P**

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		P
	Minimum two fixing means		P
2.7 (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
2.7 (4.31.1)	SELV circuits		P
	Used SELV source		P
	Voltage ≤ ELV		N/A
	Insulating of SELV circuits from LV supply		N/A
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
2.7 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
2.7 (4.31.3)	Other circuits		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
2.7 (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
2.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		—
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1) .....:	Category II ☒ Category III ☐	—
2.8 (11.2.1)	Category III according Annex U		N/A

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
2.8 (11.2.2)	Creepage distances for frequency up to 30 kHz..... :	Approved SELV LED driver used	N/A
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w)..... :	See Test Table 2.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347 ..... :	See Test Table 2.7 (11.2) II	N/A
2.8 (11.2.3)	Clearances for frequency up to 30 kHz ..... :	See Test Table 2.7 (11.2) I	N/A
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P ..... :	See Test Table 2.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347 ..... :	See Test Table 2.7 (11.2) II	N/A
2.9 (7)	**PROVISION FOR EARTHING**		—
2.9 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 Ω ..... :		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
2.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
2.9 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
2.9 (7.2.5)	Earth terminal integral part of connector socket		N/A
2.9 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
2.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
2.9 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A
2.9 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
2.9 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
2.10 (14)	**SCREW TERMINALS**		—
	Separately approved; component list ..... :	(see Annex 1)	P
	Part of the luminaire..... :	(see Annex 3)	N/A
2.10 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		—
	Separately approved; component list ..... :	(see Annex 1)	N/A
	Part of the luminaire..... :	(see Annex 4)	N/A
2.11 (5)	**EXTERNAL AND INTERNAL WIRING**		—
2.11 (5.2)	**Supply connection and external wiring**		**P**
2.11 (5.2.1)	Means of connection..... :	AC power supply	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
2.11 (5.2.2)	Type of cable..... :		P
	Nominal cross-sectional area (mm²)..... :		P
	Cables equal to IEC 60227 or IEC 60245	IEC 60227	P
2.11 (5.2.3)	Type of attachment, X, Y or Z..... :	Type X	P
2.11 (5.2.5)	Type Z not connected to screws		N/A
2.11 (5.2.6)	Cable entries:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- suitable for introduction		P
	- adequate degree of protection		P
2.11 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
2.11 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
2.11 (5.2.9)	Locking of screwed bushings		N/A
2.11 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		N/A
2.11 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
2.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	Type X	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.11 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N) ..... :	60	P
	- torque test: torque (Nm)..... :	0.25	P
	- displacement ≤ 2 mm	1.0	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
2.11 (5.2.11)	External wiring passing into luminaire		P
2.11 (5.2.12)	Looping-in terminals		N/A
2.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
2.11 (5.2.14)	Mains plug same protection		P
	Class III luminaire plug		N/A
	No unsafe compatibility		P
2.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
2.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
2.11 (5.2.18)	Used plug in accordance with		P
	- IEC 60083		P
	- other standard		N/A
2.11 (5.3)	**Internal wiring**		**P**
2.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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 earth only		P
2.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm²) ..... :		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
2.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm²) .....:		P
2.11 (5.3.1.3)	Double or reinforced insulation for class II		N/A
2.11 (5.3.1.4)	Conductors without insulation		N/A
2.11 (5.3.1.5)	SELV current-carrying parts		P
2.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
2.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
2.11 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
2.11 (5.3.4)	Joints and junctions effectively insulated		N/A
2.11 (5.3.5)	Strain on internal wiring		N/A
2.11 (5.3.6)	Wire carriers		N/A
2.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
2.11 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		**P**
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	P
	No damage to luminaire wiring after test		P
2.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		—
2.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starter holders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
2.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
2.12 (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
2.12 (8.2.3.b)	BC lampholder of metal in class I luminaires is earthed		N/A
2.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V) ..... :		N/A
	- no-load voltage (V) ..... :		N/A
	- touch current if applicable (mA) ..... :		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V) ..... :		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
2.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
2.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
2.12 (8.2.6)	Covers reliably secured		P
2.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V 1 s after disconnection		P
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
2.12 (-)	Parts within the celling space provide same degree of protection against electric shock as parts below the celling space		N/A

2.13 (12)	**ENDURANCE TEST AND THERMAL TEST**		—
2.13.1 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) specified in 2.14		—
2.13 (12.2)	**Selection of lamps and ballasts**		**—**
	Lamp used according Annex B..... :	See Annex 2 for lamp used	—
	Controlgear if separate and not supplied..... :	See Annex 2 for controlgear used	—
2.13 (12.3)	Endurance test:		P
	a) mounting-position ..... :	As in normal use	—
	b) test temperature (°C) ..... :	35	—
	c) total duration (h)..... :	240	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A) ..... :	264V	—
	e) luminaire ceases to operate	--	—
2.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P

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Clause	Requirement + Test	Result - Remark	Verdict
2.13 (12.4)	**Thermal test (normal operation)**..... :	(see Annex 2)	P
2.13 (12.5)	**Thermal test (abnormal operation)** .....:	(see Annex 2)	N/A
2.13 (12.6)	**Thermal test (failed lamp control gear condition):**		N/A
2.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions..... :		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un ... :		—
	- measured mounting surface temperature (°C) at 1,1 Un..... :		N/A
	- calculated mounting surface temperature (°C) .... :		N/A
	- track-mounted luminaires		N/A
2.13 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions..... :		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C)..... :		N/A
	- track-mounted luminaires		N/A
2.13 (12.7)	**Thermal test (failed lamp control gear in plastic luminaires):**		N/A
2.13 (12.7.1)	Luminaire without temperature sensing control		N/A
2.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W ..... :		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions..... :		—
	- Ballast failure at supply voltage (V) ..... :		—

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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 ..... :		—
	- measured winding temperature (°C): at 1,1 Un ..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :		—
	- calculated temperature of fixing point/exposed part (°C) ..... :		—
	Ball-pressure test ..... :	See Table 2.15 (13.2.1)	N/A
2.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions ..... :		—
	- measured winding temperature (°C): at 1,1 Un ..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :		—
	- calculated temperature of fixing point/exposed part (°C) ..... :		—
	Ball-pressure test ..... :	See Table 2.15 (13.2.1)	N/A
2.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions ..... :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
2.13 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link ..... :	Yes ☐ No ☐	—
	- manual reset cut-out ..... :	Yes ☐ No ☐	—
	- auto reset cut-out ..... :	Yes ☐ No ☐	—
	- case of abnormal conditions ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- highest measured temperature of fixing point/ exposed part (°C): ..... :		—
	Ball-pressure test: ..... :	See Table 2.15 (13.2.1)	N/A
2.13.1 (-)	Wiring, for connection to the supply, not reach unsafe temperature		N/A
	- measured temperature of the cable (°C) ..... :		N/A
2.14 (9)	**RESISTANCE TO DUST AND MOISTURE**		—
2.14 (-)	If IP > IP 20 the order of tests as specified in clause 2.13		—
2.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP ..... :	IP20	—
	- mounting position during test..... :	As in normal use	—
	- fixing screws tightened; torque (Nm) ..... :	--	—
	- tests according to clauses ..... :	Clause 9.2.0	—
	- electric strength test afterwards		N/A
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	c.1) For luminaires without drain holes – no water entry		N/A
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight or pressure watertight luminaire		N/A
	e) no contact with live parts (IP 2X)	IP20	P
	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		N/A
	g) no damage of protective shield or glass envelope		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.14 (9.3)	Humidity test 48 h		P
2.15 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		—
2.15 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø ..... :		—
	Insulation resistance (MΩ) ..... :		—
	SELV		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface ..... :	100 MΩ	P
	- 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		P
	- between live parts of different polarity ..... :	100 MΩ	P
	- between live parts and mounting surface ..... :	100 MΩ	P
	- between live parts and metal parts ..... :		N/A
	- between live parts of different polarity through action of a switch ..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
2.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Test voltage (V) ..... :		N/A
	SELV		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface ..... :	500V	P
	- 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		P
	- between live parts of different polarity ..... :	1480V	P
	- between live parts and mounting surface ..... :	2960V	P
	- between live parts and metal parts ..... :		N/A
	- between live parts of different polarity through action of a switch ..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
2.15 (10.3)	Touch current or protective conductor current (mA).:	Max. 0.02mA (limit: 0.7mA)	P
2.16 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		—
2.16 (13.2.1)	Ball-pressure test ..... :	See Test Table 2.15 (13.2.1)	P
2.16 (13.3.1)	Needle-flame test (10 s)..... :	See Test Table 2.15 (13.3.1)	P
2.16 (13.3.2)	Glow-wire test (650°C)..... :	See Test Table 2.15 (13.3.2)	P
2.16 (13.4)	Proof tracking test (IEC 60112)..... :	See Test Table 2.15 (13.4)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

2.8 (11.2)	TABLE I: Creepage distances and clearances							N/A
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							N/A
	Applicable part of IEC 60598-1 Table 11.1A*, 11.1B* and 11.2*							N/A
	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:								
Working voltage (V) .....:								—
PTI .....:					< 600 ☐ ≥ 600 ☐			—
Pulse voltage if applicable (kV) .....:								—
Supplementary information:								
Distance 2:								
Working voltage (V) .....:								—
PTI .....:					< 600 ☐ ≥ 600 ☐			—
Pulse voltage if applicable (kV) .....:								—
Supplementary information:								
Distance 3:								
Working voltage (V) .....:								—
PTI .....:					< 600 ☐ ≥ 600 ☐			—
Pulse voltage if applicable (kV) .....:								—
Supplementary information: ** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.								

2.8 (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
Distance 1:							

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Clause	Requirement + Test	Result - Remark	Verdict

Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐		≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information:								
Distance 2:								
Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐		≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information:								
Distance 3:								
Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐		≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information: ** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.								

2.16 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) ..... :			—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
LED module PCB	See annex 1	125	0.6
Connector	See annex 1	125	0.6
LED cover	See annex 1	75	0.5
Supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

2.16 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
LED module PCB	See annex 1	10	No	0	Pass
Connector	See annex 1	10	No	0	Pass
Supplementary information:					

2.16 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)			N/A
Glow wire temperature ..... :	650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
--	--	--	--	--
Supplementary information:				

2.16 (13.4)	TABLE: Proof tracking test (IEC 60112)				N/A
Test voltage PTI ..... :	--				—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	**---**	--	--	--	--
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1	TABLE: Critical components information					P
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Input cord	B	Zhongshan Henglan Boyi Electrical Appliance factory	H03VVH2-F	300/300 V 2 x 0.75 mm^2	DIN EN 50525-2-11 IEC 60227-1 IEC 60227-2 IEC 60227-5	VDE 40036714
LED Power Supply	A	Shenzhen Dome Microelectronic Co., Ltd	ZF-NEH040S0 900FFF	Inpout: 220-240VAC, 50/60Hz, 0.19A Output: 24-40VDC, 0.9A, 55VDC Max.	EN 61347-1 EN 61347-2-13	CE
LED module PCB	C	Jiangmen Zhonghao Precision Electronics Co. Ltd	MLT-AL	V-0,130 °C	IEC 60598-2-2 IEC 62031	UL E366055 tested with appliance
LED module	B	Jiangmen Zhongyang Optoelectronics Co., Ltd	S12W	DC 24-42 V, 300 mA, 12 W	IEC 60598-2-2 IEC 62031	Tested with appliance

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

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

ANNEX 2	TABLE: Temperature measurements, thermal tests of Section 12		P
	Type reference ..... :	MPL-0606-36	—
	Lamp used ..... :	LED	—
	Lamp control gear used ..... :	ZF-NEH040S0900FFF	—
	Mounting position of luminaire ..... :	Recessed in test box	—
	Supply wattage (W)..... :	34.1W	—
	Supply current (A) ..... :	0.154	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	25	—
	- abnormal operating mode..... :	--	—
2.12 (12.4)	- test 1: rated voltage ..... :	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1.06*240V=254.4V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	--	—
2.12 (12.5)	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	--	—

Temperature measurements, (°C)

Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Input wire	25.0	--	48.0	--	90	--	--
External enclosure(tc point, above transformer)	25.0	--	54.2	--	80	--	--
LED module PCB	25.0	--	49.7		cl.13.2		

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

LED module PCB	25.0	--	39.4	--	cl.13.2	--	--
LED cover	25.0	--	26.2	--	cl.13.2		
Mounting surface	25.0	--	37.5	--	90	--	--
Object light(0.1m)	25.0	--	31.1	--	90	--	--

Supplementary information:

ANNEX 3	**Screw terminals (part of the luminaire)**		N/A
(14)	**SCREW TERMINALS**		N/A
(14.2)	Type of terminal ..... :		—
	Rated current (A) ..... :		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²) ..... :		—
(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

IEC 60598-2-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Mantle terminal		N/A
	Pull test; pull (N)..... :		N/A
(14.4.8)	Without undue damage		N/A
ANNEX 4	**Screwless terminals (part of the luminaire)**		N/A
(15)	**SCREWLESS TERMINALS**		N/A
(15.2)	Type of terminal ..... :		—
	Rated current (A) ..... :		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples) ..... :		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples)..... :		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)..... :		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—

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

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

	Voltage drop of two inseparable joints		N/A
	Voltage drop after 10th alt. 25th cycle		N/A
	Max. allowed voltage drop (mV).....:		—

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

	Voltage drop after 50th alt. 100th cycle		N/A
	Max. allowed voltage drop (mV).....:		—

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

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
Supplementary information:										

ATTACHMENT No.1			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT No.1 TO TEST REPORT IEC 60598-2-2
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
Luminaires
Part 2: Particular requirements
Section 2: Recessed luminaires

Differences according to ..... :	EN 60598-2-2:2012 used in conjunction with EN 60598-1:2015 + A1:2018
Attachment Form No..... :	EU_GD_IEC60598_2_2F
Attachment Originator ..... :	OVE
Master Attachment..... :	2019-01-24

	CENELEC COMMON MODIFICATIONS (EN)		—
2.6 (3)	**MARKING**		—
2.6 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package		N/A
2.7 (4)	**CONSTRUCTION**		—
2.7 (4.11.6)	Electro-mechanical contact systems		P
2.11 (5)	**EXTERNAL AND INTERNAL WIRING**		—
2.11 (5.2.1)	Connecting leads		P
	- without a means for connection to the supply		P
	- terminal block specified		N/A
	- relevant information provided		N/A
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N/A
2.11 (5.2.2)	Cables equal to EN 50525		N/A

ATTACHMENT No.1			
Clause	Requirement + Test	Result - Remark	Verdict
	Replace table 5.1 – Supply cord		N/A
2.13 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		—
2.13 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		—
(3.3)	DK: power supply cords of class I luminaires with label		N/A
(4.5.1)	DK: socket-outlets		N/A
(5.2.1)	CY, DK, FI, GB: type of plug		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		—
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
	FR: Safety requirements for high buildings (Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage) 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
	GB: Requirements according to United Kingdom Building Regulation		N/A

ATTACHMENT No.2 TO TEST REPORT IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		—
4.4	Integral modules tested assembled in the luminaire		P
4.5	Independent modules complies with requirements in IEC 60598-1		N/A
5	**GENERAL TEST REQUIREMENTS**		—
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N/A
	General conditions for tests in Annex A	(see Annex A)	P
6	**CLASSIFICATION**		—
	Built-in module .....:	Yes ☐ No ☒	—
	Independent module .....:	Yes ☐ No ☒	—
	Integral module .....:	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	**MARKING**		N/A
	Requirements not applicable to the evaluated product.		—
8	**TERMINALS**		—
	Screw terminals according section 14 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 3)	N/A
	Screwless terminals according section 15 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 4)	N/A
	Connectors according IEC 60838-2-2:		N/A
	Separately approved; component list	(see Annex 2)	N/A
9 (9)	**PROVISION FOR PROTECTIVE EARTHING**		**N/A**
	Requirements not applicable to the evaluated product.		—
10 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**N/A**
	Requirements not applicable to the evaluated product.		—

ATTACHMENT No.2 TO TEST REPORT IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
11 (11)	**MOISTURE RESISTANCE AND INSULATION**		—
	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 .....:	100 MΩ	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
12 (12)	**ELECTRIC STRENGTH**		—
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N/A
	Basic insulation, 2U + 1000 V		N/A
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A
13 (14)	**FAULT CONDITIONS**		—
- (14)	When operated under fault conditions the controlgear:		N/A
	- does not emit flames or molten material		N/A
	- does not produce flammable gases		N/A
	- protection against accidental contact not impaired		N/A
	Thermally protected controlgear does not exceed the marked temperature value		N/A

ATTACHMENT No.2 TO TEST REPORT IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N/A
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N/A
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	N/A
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
- (14.5)	After the tests has been carried out on three samples:		N/A
	The insulation resistance ≥ 1 MΩ ..... :		N/A
	No flammable gases		N/A
	No accessible parts have become live		N/A
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N/A
- (14.6)	Relevant fault condition tests with high-power supply		N/A
13.2	**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
	Molten material does not ignite tissue paper, spread below the module		P
15	**CONSTRUCTION**		—
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P

ATTACHMENT No.2 TO TEST REPORT IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
16 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		—
- (16)	Creepage and distances and clearances in compliance with IEC 60598-1	(see appended table)	P
	Insulating lining of metallic enclosures		N/A
	Basic insulation on printed boards tested according to clause 14		N/A
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		N/A
	Creepage distances not less than minimum clearance		N/A
16 (-)	Conductive accessible parts in compliance with applicable parts of IEC 60598-1		N/A
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		—
	Cl. 17 refer to Cl. 17 of IEC 61347-1 which refer to Cl. 4.11 and 4.12 of IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		—
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		—
- (18.1)	Ball-pressure test ..... :	See Test Table 18 (18.1)	N/A
- (18.2)	Test of printed boards ..... :	See Test Table 18 (18.2)	N/A
- (18.3)	Glow-wire test (650°C) ..... :	See Test Table 18 (18.3)	N/A
- (18.4)	Needle-flame test (10 s) ..... :	See Test Table 18 (18.4)	N/A
- (18.5)	Proof tracking test ..... :	See Test Table 18 (18.5)	N/A
19 (19)	**RESISTANCE TO CORROSION**		—
	- test according 4.18.1 of IEC 60598-1		N/A
	- adequate varnish on the outer surface		N/A
20	**INFORMATION FOR LUMINAIRE DESIGN**		—
	Information in Annex D (informative)		—
21	**HEAT MANAGEMENT**		—
21.1	**General**		N/A
	Exchangeability is safeguarded by cap or base		N/A
21.2	**Heat-conducting foil and paste**		N/A

ATTACHMENT No.2 TO TEST REPORT IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Heat-conducting foil delivered with the module if necessary		N/A
22	**PHOTOBIOLOGICAL SAFETY**		—
22.1	**UV radiation**		N/A
	Luminous radiation not exceed 2mW/klm		N/A
22.2	**Blue light hazard**		**P**
	Assessed according to IEC TR 62778		P
22.3	**Infrared radiation**		N/A
	Requirements for infrared radiation when required		N/A
A	**ANNEX A - TESTS**		—
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P

ATTACHMENT No.2 TO TEST REPORT IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62031 **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** LED modules for general lighting – Safety specifications
Differences according to .....: EN 62031:2008+A1:2013+A2:2015

	CENELEC COMMON MODIFICATIONS (EN)	—
	No common modifications	N/A

ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS(EN)**		—
	No special National conditions		N/A

ZC	**ANNEX ZC, NATIONAL DEVIATIONS(EN)**		—
	No National deviations		N/A

ATTACHMENT No.3 TO TEST REPORT IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict
7	Measurement information flow		P
7.1	Basic flow		P
	'Law of conservation of luminance' applied		P
	Use of only true luminance/radiance values		P
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		P
	In case E_{thr} value for RG2 was established the peak value was derived from angular light distribution		N/A
7.2	**Conditions for the radiance measurement**		**P**
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N/A
7.3	**Special cases (I): Replacement by a lamp or LED module of another type**		**N/A**
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	**Special cases (II): Arrays and clusters of primary light sources**		**N/A**
	LED package is evaluated as .....:	☐ RG0 unlimited ☐ RG1 unlimited	N/A
	E_{thr} of LED package applies to array		N/A
8	**RISK GROUP CLASSIFICATION**		**P**
	Risk group achieved:		P
	- .. Risk Group 0 unlimited		N/A
	- .. Risk Group 1 unlimited		P
	- E_{thr} ..... (lx) : Distance to reach RG1 ..... (m) :		N/A

ATTACHMENT No.3 TO TEST REPORT IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Spectroradiometric measurement		**P**
	Measurement performed on:	☐ **LED package** ☒ **LED module** ☐ **Lamp** ☐ **Luminaire**	
	Model number .....:	**MPL-0606-36**	
	Test voltage (V) .....:	240VAC	—
	Test current (A) .....:	0.154	—
	Test frequency (Hz) .....:	50	—
	Ambient, t (°C) .....:	25	—
	Measurement distance.....:	☒ 20 cm ☐ ... cm	—
	Source size .....:	☒ Non-small ☐ Small : .... mm	—
	Field of view .....:	☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	—

Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	/	--
x/y colour coordinates			/	--
Blue light hazard radiance	L_B	$W/(m^2 \cdot sr^1)$	5.99e	--
Blue light hazard irradiance	E_B	W/m^2	/	--
Luminance	L	cd/m^2	30759911	--
Illuminance	E	lx	/	--
Supplementary information: --				

ATTACHMENT No.4 TO TEST REPORT EN62493			
Clause	Requirement + Test	Result - Remark	Verdict

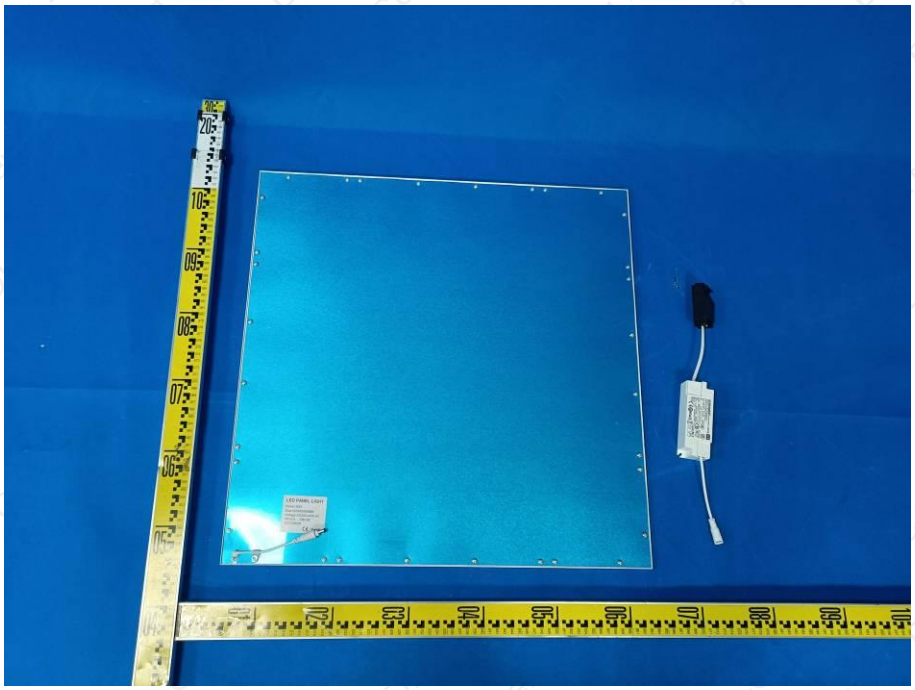
4.2	**APPLICATION OF LIMITS (Test summary)**		—
	Specific absorption rate (SAR)		—
a)	CISPR 15 clause 4.3.1 Disturbance voltage mains terminals 20 kHz – 30 MHz	*)	P
b)	CISPR 15 clause 4.4 Radiated electromagnetic disturbances 100 kHz – 30 MHz	*)	P
c)	CISPR 15 clause 4.4.2 Radiated electromagnetic disturbances 30 MHz – 300 MHz	*)	P
*)	☒ See separate Test Report for measurements of a), b) and c) above ☐ Only measurement of d) below. See measurement results below. In this case this test report does not show compliance with IEC 62493.		—
	Induced current density		P
d)	Induced current density 20 kHz – 10 MHz	See measurement results below	P
4.2.d	**INDUCED CURRENT DENSITY**		—
	Power supply system utilised:		—
	Voltage .....:	AC 200-240V	—
	Frequency .....:	50/60Hz	—
	Environmental conditions:		—
	Temperature .....:	25°C	—
	Humidity.....:	52% R.H.	—
	EuT operation mode:		—
	☒ Normal operation		—
	☐ Other operation:		—
4.2.d	**MEASUREMENT RESULTS**		—
	Measuring with “Van der Hoofden” test head		—

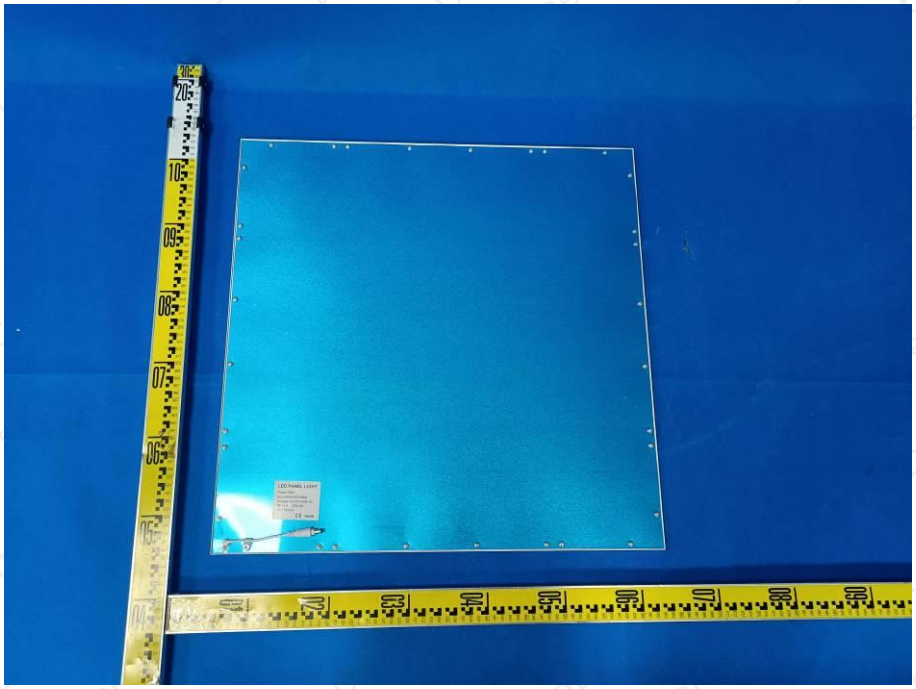
Location of EuT	Measuring distance	Result (F)	Limit (F)	Verdict

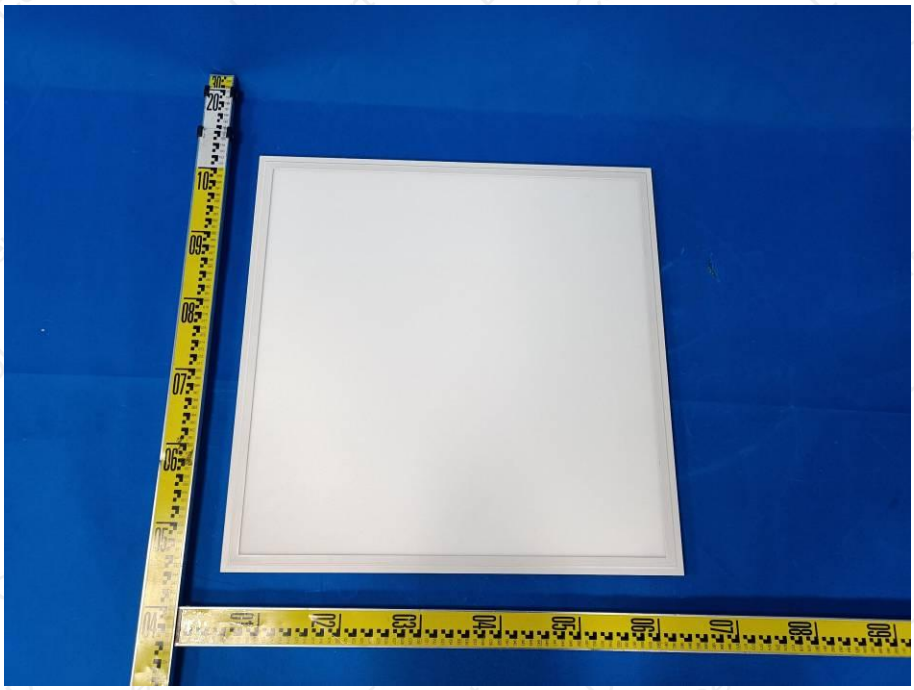
ATTACHMENT No.4 TO TEST REPORT EN62493			
Clause	Requirement + Test	Result - Remark	Verdict

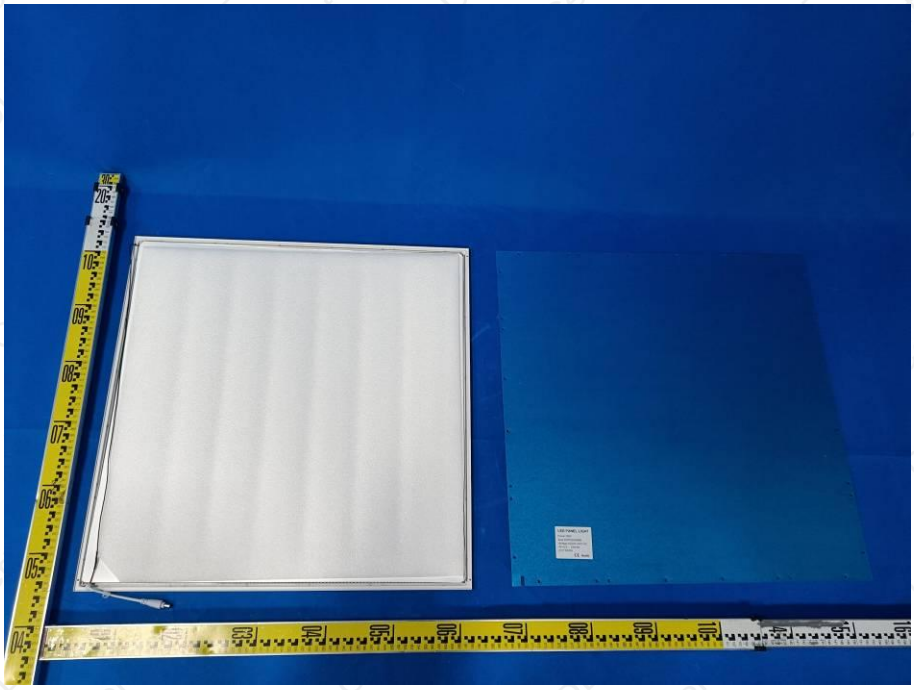
Front of EuT	50 cm	0,12	0,85	P
Rear of EuT	50 cm	0,11	0,85	P
Side of EuT	50 cm	0,12	0,85	P

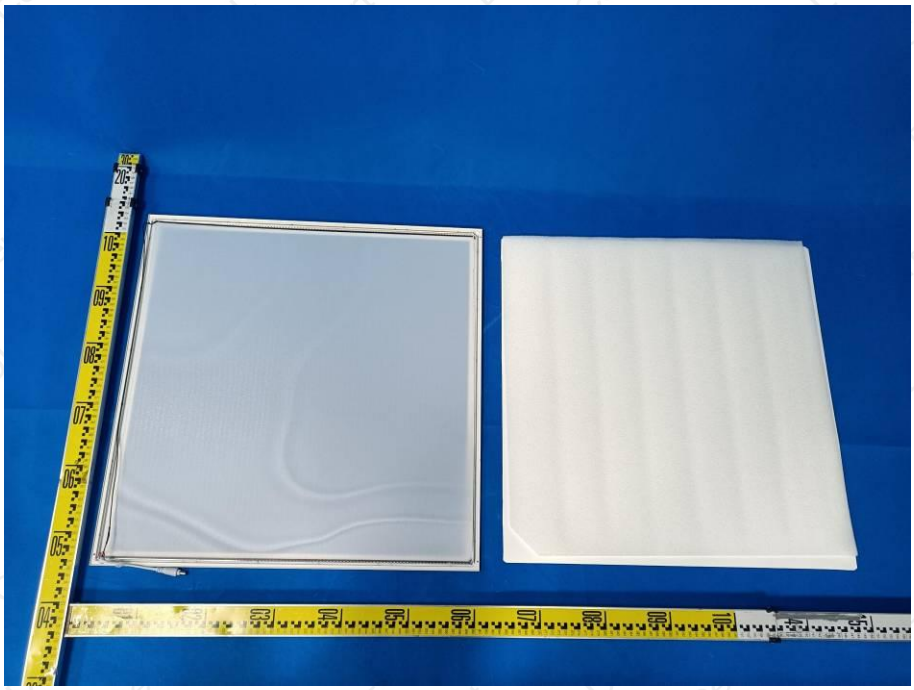
Attachment No. 5: EUT PHOTOGRAPHS

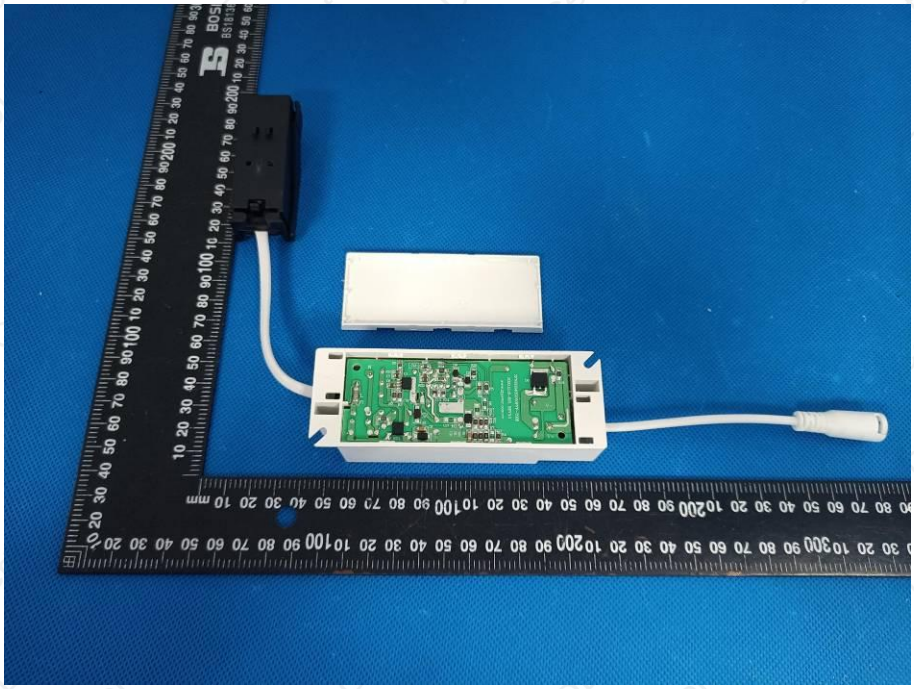


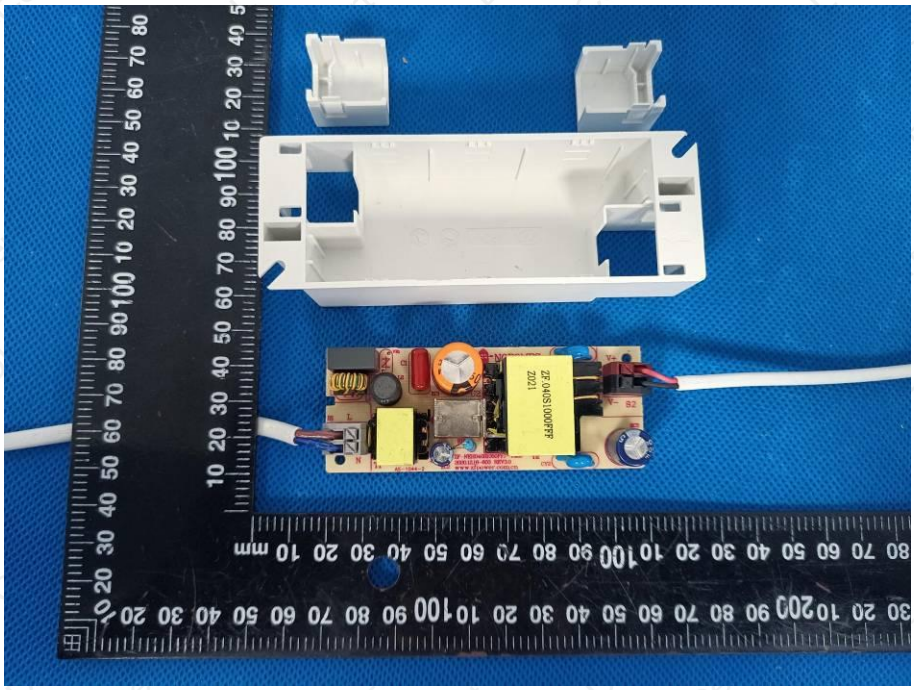


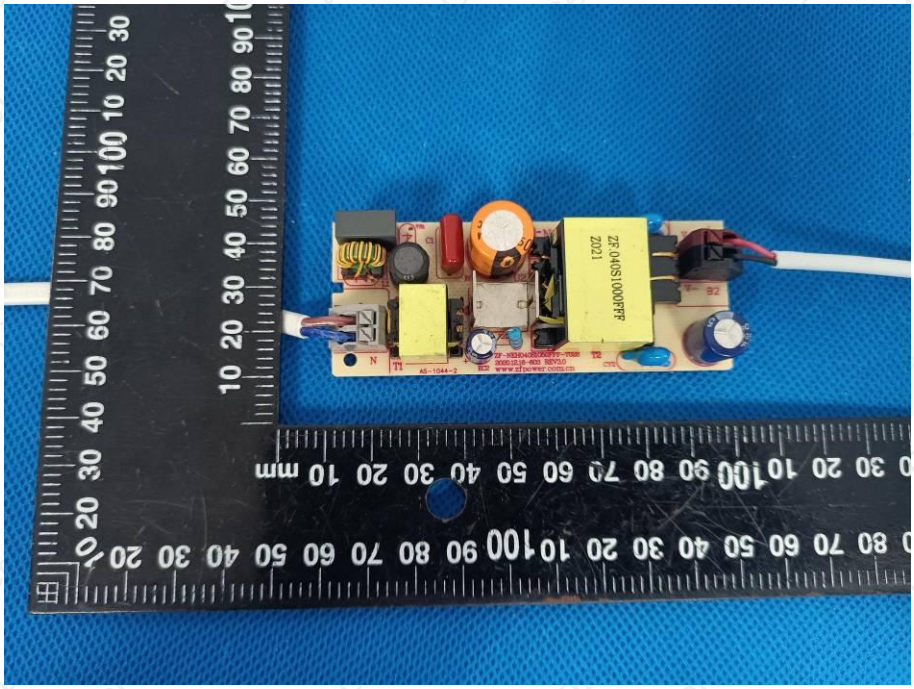


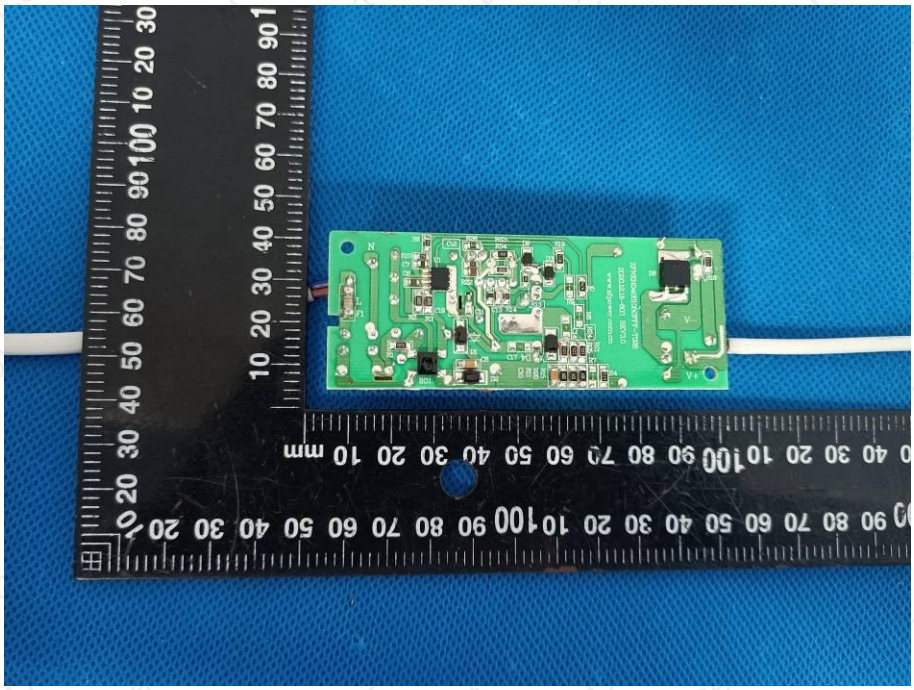












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