LVD TEST REPORT

Applicant:	BRAYTRON S.R.L.
Address of Applicant:	B.DUL IULIU MANIU, NR.616, CORP B, ETAJ 1 SECTOR 6, 061129, BUCHAREST, ROMANIA

Equipment Under Test (EUT)

Product Name:	LED LIGHTING FIXTURE
Brand Name:	Braytron
Model No.:	Please refer to page 5
Applicable standards:	EN 60598-2-2:2012 EN 60598-1:2015+A1:2018
Date of sample receipt:	March 1, 2021
Date of Test:	March 2, 2021 To March 18, 2021
Date of report issued:	March 19, 2021
Test Result :	PASS

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

Authorized Signature

Kevin Wang
Laboratory Manager

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

Report Reference No. .....:	EBO2103001-E001
Tested by (name + signature).....:	Bernie Xia Bernie Xia
Approved by (name + signature) .....:	Kevin Wang Kevin wang
Date of issue.....:	March 19, 2021
Testing Laboratory .....:	Shenzhen EBO Testing Center
Address.....:	Building A, Qinye Business Center , Xin'an Sixth Road, 82th District, Bao'an, Shenzhen, China.
Total number of pages.....:	36 pages(not including attachments)
Applicant's name .....:	BRAYTRON S.R.L.
Address.....:	B.DUL IULIU MANIU, NR.616, CORP B, ETAJ 1 SECTOR 6, 061129, BUCHAREST, ROMANIA
Manufacturer's name……..:	DEMGRUP INTERNATIONAL LIGHTING LIMITED
Address.....:	UNIT D 16/F, ONE CAPITAL PLACE, 18 LUARD ROAD, WAN CHAI, HONG KONG
Test specification:	
Standard .....:	EN 60598-2-2:2012 used in conjunction with EN 60598-1:2015+A1:2018
Test procedure.....:	LVD
Non-standard test method……..:	N/A
Test Report Form No. .....:	IEC60598_2_2D
Test Report Form(s) Originator .....:	Intertek Semko AB
Master TRF.....:	2014-09
Test item description..... :	LED LIGHTING FIXTURE
Trade Mark .....:	Braytron
Model/Type reference.....:	Please refer to page 5
Test Model No. .....:	BP01-62410
Ratings.....:	AC 220-240V, 24W, 50/60Hz

Summary of testing:

Testing location:

Shenzhen EBO Testing Center

Building A, Qinye Business Center , Xin'an Sixth Road, 82th District, Bao'an, Shenzhen, China.

Tests performed (name of test and test clause):

- EN 60598-2-2:2012
- EN 60598-1:2015+A1:2018
- EN 62031:2008+A1:2013+A2:2015
- EN 62493:2015

The submitted samples were found to comply with the requirements of above specification.

The submitted samples were found to comply with requirement EN 62493:2015 without testing. because they are LED-light source technology

Summary of compliance with National Differences:

Compliance with the National requirements of CENELEC common modification.

Copy of marking plates:

LED LIGHTING FIXTURE
Model: BP01-62410
Input: 220-240V～, 50/60Hz, 24W
DEMGRUP INTERNATIONAL LIGHTING LIMITED
UNIT D 16/F, ONE CAPITAL PLACE, 18 LUARD ROAD, WAN CHAI, HONG KONG
Importer name: xxx
Importer address: xxx
MADE IN CHINA

Remark:

1. *The marking plates of the other models are of the same pattern.*

Test item particulars ..... :	
Equipment mobility ..... :	--
Supply Connection..... :	Connecting leads
Protection class ..... :	Class II (Recessed luminaire)
Ddegree of protection ..... :	IP40
Possible test case verdicts:	
- test case does not apply to the test object..... :	N (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 ..... :	March 1, 2021
Date(s) of performance of tests ..... :	March 1, 2021 To March 18, 2021

General remarks:

The test results presented in this report relate only to the object tested.
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"(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 point is used as the decimal separator.

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General product information:

The submitted unit is a class II LED LIGHTING FIXTURE, comprised of LED module, independent LED driver and AC Connecting leads; for indoor use only. The models BP01-62410 were selected representative models to perform all tests

Model No.:

BP01-62410	BP01-603X0	BP01-703X0	BP01-606X0
BP01-609X0	BP01-612X0	BP01-615X0	BP01-618X0
BP01-624X0	BP01-632X0	BP01-636X0	BP01-303X0
BP01-306X0	BP01-309X0	BP01-312X0	BP01-315X0
BP01-318X0	BP01-324X0	BP01-332X0	BP01-336X0
BP01-003X0	BP01-006X0	BP01-009X0	BP01-012X0
BP01-015X0	BP01-018X0	BP01-024X0	BP01-032X0
BP01-036X0	BP02-309X0	BP02-312X0	BP02-315X0
BP02-318X0	BP02-324X0	BP02-332X0	BP02-003X0
BP02-103X0	BP02-303X0	BP02-403X0	BP02-603X0
BP02-703X0	BP02-609X0	BP02-612X0	BP02-615X0
BP02-618X0	BP02-624X0	BP02-009X0	BP02-012X0
BP02-015X0	BP02-018X0	BP02-024X0	BP02-032X0
BP03-606X0	BP03-612X0	BP03-618X0	BP03-624X0
BP03-636X0	BP04-606X0	BP04-612X0	BP04-618X0
BP04-624X0	BP03-606X1	BP03-612X1	BP03-618X1
BP03-624X1	BP03-636X1	BP04-606X1	BP04-612X1
BP04-618X1	BP04-624X1	BP04-636X1	BP03-306X0
BP03-312X0	BP03-318X0	BP03-324X0	BP03-336X0
BP03-306X1	BP03-312X1	BP03-318X1	BP03-324X1
BP03-336X1	BP04-306X1	BP04-312X1	BP04-318X1
BP04-324X1	BP04-336X1	BP04-636X0	BP03-006X0
BP03-012X0	BP03-018X0	BP03-024X0	BP03-036X0
BP04-006X0	BP04-012X0	BP04-018X0	BP04-024X0
BP04-036X0	BP04-306X0	BP04-312X0	BP04-318X0
BP04-324X0	BP04-336X0	BP10-003X0	BP10-004X0
BP10-005X0	BP10-006X0	BP10-008X0	BP10-009X0
BP10-010X0	BP10-012X0	BP10-014X0	BP10-015X0
BP10-016X0	BP10-018X0	BP10-022X0	BP10-024X0
BP10-032X0	BP10-036X0	BP12-003X0	BP12-004X0
BP12-005X0	BP12-006X0	BP12-008X0	BP12-009X0
BP12-010X0	BP12-012X0	BP12-014X0	BP12-015X0
BP12-016X0	BP12-018X0	BP12-022X0	BP12-024X0
BP12-032X0	BP12-036X0	BP12-303X0	BP12-304X0
BP12-305X0	BP12-306X0	BP12-308X0	BP12-309X0
BP12-310X0	BP12-312X0	BP12-314X0	BP12-315X0

BP12-316X0	BP12-318X0	BP12-322X0	BP12-324X0
BP12-332X0	BP12-336X0	BP13-003X0	BP13-004X0
BP13-005X0	BP13-006X0	BP13-008X0	BP13-009X0
BP13-010X0	BP13-012X0	BP13-014X0	BP13-015X0
BP13-016X0	BP13-018X0	BP13-022X0	BP13-024X0
BP13-032X0	BP13-036X0 (X=0,1,2,3,4,5,6,7,8,9)		
Remark: All models are identical in the same PCB layout, interior structure and electrical circuits. The only differences are the model name and appearance color for commercial purpose.			

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
2.3 (0)	**GENERAL TEST REQUIREMENTS**		**P**
2.3 (0.1)	Information for luminaire design considered	Standard Yes ☒ No ☐	—
2.3(0.3)	More sections applicable ..... ……:	Yes ☐ No ☒	—
2.5(2)	**CLASSIFICATION**		**P**
2.5(2.2)	Type of protection	Class II luminaires	—
2.5(2.3)	Degree of protection	IP20	—
2.5(2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes ☒ No ☐	—
	Luminaire not 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**		**P**
2.6 (3.2)	Mandatory markings		P
	Position of the marking	Marking on outside surface of luminaire	P
	Format of symbols/text		P
2.6 (3.3)	Additional information		P
	Language of instructions	English version checked. Instructions shall be in a language acceptable for the country where the equipment is to be used.	P
2.6 (3.3.1)	Combination luminaires		N
2.6 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
2.6 (3.3.3)	Operating temperature		N
2.6 (3.3.4)	Symbol or warning notice		P
2.6 (3.3.5)	Wiring diagram		N
2.6 (3.3.6)	Special conditions		N
2.6 (3.3.7)	Metal halide lamp luminaire – warning		N
2.6 (3.3.8)	Limitation for semi-luminaires		N
2.6 (3.3.9)	Power factor and supply current		N
2.6 (3.3.10)	Suitability for use indoors		P
2.6 (3.3.11)	Luminaires with remote control	No this devices	N
2.6 (3.3.12)	Clip-mounted luminaire – warning		N
2.6 (3.3.13)	Specifications of protective shields		N
2.6 (3.3.14)	Symbol for nature of supply	See marking label	P
2.6 (3.3.15)	Rated current of socket outlet	No socket outlet	N

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
2.6 (3.3.16)	Rough service luminaire	For normal use	N
2.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N
2.6 (3.3.18)	Non-ordinary luminaires with PVC cable	Ordinary luminaire	N
2.6 (3.3.19)	Protective conductor current in instruction if applicable		N
2.6 (3.3.20)	Provided with information if not intended to be mounted within arms reach		N
2.6 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		P
	Cautionary symbol		P
2.6(3.3.22)	Controllable luminaires, classification of insulation provided		N
2.6 (3.4)	Test with water	15s	P
	Test with hexane	15s	P
	Legible after test		P
	Label attached		P
2.6.1 (-)	Warning notice, if not suitable for insulating ceiling	See specification	P
2.7 (4)	**CONSTRUCTION**		**P**
2.7 (4.2)	Components replaceable without difficulty	Without such components	N
2.7 (4.3)	Wireways smooth and free from sharp edges		N
2.7 (4.4)	Lampholders		P
2.7 (4.4.1)	Integral lampholder		N
2.7 (4.4.2)	Wiring connection		P
2.7 (4.4.3)	Lampholder for end-to-end mounting		N
2.7 (4.4.4)	Positioning		N
	- pressure test (N) .....:		N
	After test the lampholder comply with relevant standard sheets and show no damage		N
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N
	- bending test (N) .....:		N
	After test the lampholder have not moved from its position and show no permanent deformation		N
2.7 (4.4.5)	Peak pulse voltage		N
2.7 (4.4.6)	Centre contact		N
2.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N
2.7 (4.4.8)	Lamp connectors		N
2.7 (4.4.9)	Caps and bases correctly used		N
2.7(4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N
2.7 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II		N
	Starter holder class II construction		N
2.7 (4.6)	Terminal blocks		N

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
	Tails	No such terminal block use	N
	Unsecured blocks		N
2.7 (4.7)	Terminals and supply connections		P
2.7 (4.7.1)	Contact to metal parts		N
2.7 (4.7.2)	Test 8 mm live conductor		N
	Test 8 mm earth conductor		N
2.7 (4.7.3)	Terminals for supply conductors	Terminals is within driver and approved	N
2.7 (4.7.3.1)	Welded connections:		N
	- stranded or solid conductor		P
	- spot welding		N
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.8.2		N
	- electrical test according to 15.9		N
	- heat test according to 15.9.2.3 and 15.9.2.4		N
2.7 (4.7.4)	Terminals other than supply connection		N
2.7 (4.7.5)	Heat-resistant wiring/sleeves		N
2.7 (4.7.6)	Multi-pole plug		N
	- test at 30 N		N
2.7 (4.8)	Switches:		N
	- adequate rating		N
	- adequate fixing		N
	- polarized supply		N
	- compliance with 61058-1 for electronic switches		N
2.7 (4.9)	Insulating lining and sleeves		P
2.7 (4.9.1)	Retainement		P
	Method of fixing.....:		P
2.7 (4.9.2)	Insulated linings and sleeves		P
	Resistant to a temperature > 20 °C to the wire temperature or		P
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C).....:		N
2.7 (4.10)	Insulation of Class II luminaires		P
2.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P
	Safe installation fixed luminaires		P
	Capacitors and switches		N
	Interference suppression capacitors according to IEC 60384-14		N
2.7 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N
2.7 (4.10.3)	Retainment of insulation:		P
	- fixed		P
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		P
	- lining in lampholder		N
2.7 (4.10.4)	Protective impedance device		P

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor	LED driver approved	P
	Y1 or Y2 capacitors comply with IEC 60384-14		P
	Resistors comply with test (a) in 14.1 of IEC 60065		N
2.7 (4.11)	Electrical connections		P
2.7 (4.11.1)	Contact pressure		P
2.7 (4.11.2)	Screws:		P
	- self-tapping screws		N
	- thread-cutting screws		P
2.7 (4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
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
2.7 (4.12)	Mechanical connections and glands		P
2.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		P
	Torque test: torque (Nm); part .....:	0.5Nm	P
	Torque test: torque (Nm); part .....:		N
	Torque test: torque (Nm); part .....:		N
2.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
2.7 (4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm).....:		N
	- lampholder; torque (Nm).....:		N
	- push-button switches; torque 0,8 Nm .....:		N
2.7 (4.12.5)	Screwed glands; force (Nm) .....:		N
2.7 (4.13)	Mechanical strength		P
2.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....:	0.20Nm	P
	- other parts; energy (Nm).....:	0.35Nm	P
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
2.7 (4.13.3)	Straight test finger	Can’t touch the live part	P
2.7 (4.13.4)	Rough service luminaires		N
	- IP54 or higher		N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
2.7 (4.13.6)	Tumbling barrel		N
2.7 (4.14)	Suspensions and adjusting devices		P
2.7 (4.14.1)	Mechanical load:		P
	A) four times the weight	After test, no damaged	P
	B) torque 2,5 Nm		N

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
	C) bracket arm; bending moment (Nm) .....:		N
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) .....:		N
	Metal rod. diameter (mm) .....:		N
	Fixed luminaire or independent control gear without fixing devices		N
2.7 (4.14.2)	Load to flexible cables		N
	Mass (kg) .....:		N
	Stress in conductors (N/mm^2) .....:		N
	Mass (kg) of semi-luminaire .....:		N
	Bending moment (Nm) of semi-luminaire .....:		N
2.7 (4.14.3)	Adjusting devices:		N
	- flexing test; number of cycles .....:		N
	- strands broken		N
	- electric strength test afterwards		N
2.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N
2.7 (4.14.5)	Guide pulleys		N
2.7 (4.14.6)	Strain on socket-outlets		N
2.7 (4.15)	Flammable materials:		N
	- glow-wire test 650 °C		N
	- spacing ≥ 30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		N
	- thermal protection		N
	- electronic circuits exempted		N
2.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N
2.7 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	(compliance with Section 12)	N
2.7 (4.16.1)	Lamp control gear spacing:		P
	- spacing 35 mm		P
	- spacing 10 mm		N
2.7 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
2.7 (4.16.3)	Design to satisfy the test of 12.6	(see 12.6)	N
2.7 (4.17)	Drain holes		N
	Clearance at least 5 mm		N
2.7 (4.18)	Resistance to corrosion:		N
2.7 (4.18.1)	- rust-resistance		N
2.7 (4.18.2)	- season cracking in copper		N
2.7 (4.18.3)	- corrosion of aluminium		N
2.7 (4.19)	Ignitors compatible with ballast		N
2.7 (4.20)	Rough service vibration		N

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
2.7 (4.21)	Protective shield:		N
2.7 (4.21.1)	Shield fitted		N
	Shield of glass if tungsten halogen lamps		N
2.7 (4.21.2)	Particles from a shattering lamp not impair safety		N
2.7 (4.21.3)	No direct path		N
2.7 (4.21.4)	Impact test on shield		P
	Glow-wire test on lamp compartment		N
2.7 (4.22)	Attachments to lamps		N
2.7 (4.23)	Semi-luminaires comply Class II		P
2.7 (4.24)	Photobiological hazards		N
2.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N
2.7 (4.24.2)	Retinal blue light hazard		N
	Luminaires with E_{thr} :		N
	a) Fixed luminaires		N
	- distance x m, borderline between RG1 and RG2.....		N
	- marking and instruction according 3.2.23		N
	b) Portable and handheld luminaires		N
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N
2.7 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
2.7 (4.26)	Short-circuit protection:		N
2.7 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N
2.7 (4.26.2)	Short-circuit test with test chain according 4.26.3		N
	Test chain not melt through		N
	Test sample not exceed values of Table 12.1 and 12.2		N
2.7 (4.27)	Terminal blocks with integrated screwless earthing contacts		N
	Test according Annex V		N
	Pull test of terminal fixing (20 N)		N
	After test, resistance < 0,05 Ω		N
	Pull test of mechanical connection (50 N)		N
	After test, resistance < 0,05 Ω		N
	Voltage drop test, resistance < 0,05 Ω		N
2.7(4.28)	Fixing of thermal sensing control		N

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
	Not plug-in or easily replaceable type		N
	Reliably kept in position		N
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N
	Not outside the luminaire enclosure		N
	Test of adhesive fixing:		N
	Max. temperature on adhesive material (°C).....		N
	100 cycles between t min and t max		N
	Temperature sensing control still in position		N
2.7(4.29)	Luminaires with non-replaceable light source		N
	Not possible to replace light source		N
	Live part not accessible after parts have been opened by hand or tools		N
2.7 (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
	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		N
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N
2.7(4.31.1)	SELV circuits		P
	Used SELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		N
	Insulating of SELV circuits from other non SELV circuits		P
	Insulating of SELV circuits from FELV		N
	Insulating of SELV circuits from other SELV circuits		N
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
	Plugs and socket-outlets does not have protective conductor contact		N
2.7 (4.31.2)	FELV circuits		N
	Used FELV source		N
	Voltage ≤ ELV		N
	Insulating of FELV circuits from LV supply		N
	FELV circuits insulated from accessible parts according Table X.1		N
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Socket-outlets does not have protective conductor contact		N
2.7 (4.31.3)	Other circuits		N
	Other circuits insulated from accessible parts according Table X.1		N
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N
	- conductive parts are connected together		N
	- test according 7.2.3 of above		N
	- conductive part not cause an electric shock in case of an insulation fault		N
	- equipotential bonding in master/slave applications		N
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N
	- slave luminaire constructed as class I		N
2.7 (4.32)	Overvoltage protective devices		N
	Comply with IEC 61643-11		N
	External to control gear and connected to earth:		N
	- only in fixed luminaires		N
	- only connected to protective earth		N
2.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Working voltage (V) .....:	220-240V	—
	Voltage form	Sinusoidal ☒ Non-sinusoidal ☐	—
	PTI	< 600 ☒ ≥ 600 ☐	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II ☐ Category III ☐	—

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
	Rated pulse voltage (kV)..... :	2.5kV	—
2.9 (7)	**PROVISION FOR EARTHING**		**N**
2.9 (7.2.1 + 7.2.3)	Accessible metal parts	Class II product	N
	Metal parts in contact with supporting surface		N
	Resistance < 0,5 Ω ..... :		N
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a grove		N
	Earth makes contact first		N
2.9 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N
2.9 (7.2.4)	Locking of clamping means		N
	Compliance with 4.7.3		N
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
2.9 (7.2.5)	Earth terminal integral part of connector socket		N
2.9 (7.2.6)	Earth terminal adjacent to mains terminals		N
2.9 (7.2.7)	Electrolytic corrosion of the earth terminal		N
2.9 (7.2.8)	Material of earth terminal		N
	Contact surface bare metal		N
2.9 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
2.9 (7.2.11)	Earthing core coloured green-yellow		N
	Length of earth conductor		N
2.9.1 (-)	Attachment prevented from rotation		N
2.10 (14)	***SCREW TERMINALS***		**N**
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 3)	N
2.10 (15)	***SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS***		**N**
	Separately approved; component list		N
	Part of the luminaire		N

2.11 (5)	***EXTERNAL AND INTERNAL WIRING***		**P**
2.11 (5.2)	Supply connection and external wiring		P
2.11 (5.2.1)	Means of connection..... :	Connecting leads	P
2.11 (5.2.2)	Type of cable ..... :	H03VVH2-F	P
	Nominal cross-sectional area (mm²) ..... :	0.75 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		N
2.11 (5.2.5)	Type Z not connected to screws		N
2.11 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
2.11 (5.2.7)	Cable entries through rigid material have rounded edges		N
2.11 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N

	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
2.11 (5.2.9)	Locking of screwed bushings		N
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		P
2.11 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
2.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N
2.11 (5.2.10.3)	Tests:		N
	- impossible to push cable; unsafe		N
	- pull test: 25 times; pull (N) .....:		N
	- torque test: torque (Nm).....:		N
	- displacement ≤ 2 mm		N
	- no movement of conductors		N
	- no damage of cable or cord		N
2.11 (5.2.11)	External wiring passing into luminaire		N
2.11 (5.2.12)	Looping-in terminals		N
2.11 (5.2.13)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N
2.11 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
2.11 (5.2.16)	Appliance inlets (IEC 60320)		N
	Appliance couplers of class II type		N
2.11 (5.2.17)	No standardized interconnecting cables properly assembled		N
2.11 (5.2.18)	Used plug in accordance with		N
	- IEC 60083		N
	- other standard		N
2.11 (5.3)	Internal wiring		P
2.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A) .....:		N
	- temperatures.....:	(see Annex 2)	P
	Green-yellow for earth only		N
2.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²) .....:	0.75 mm²	P
	Insulation thickness		P
	Extra insulation added where necessary	Insulation tube used	P
2.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal		N
	Adequate cross-sectional area and insulation thickness		N

2.11 (5.3.1.3)	Double or reinforced insulation for class II		P
2.11 (5.3.1.4)	Conductors without insulation		N
2.11 (5.3.1.5)	SELV current-carrying parts		N
2.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
2.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		P
	No twisting over 360°		P
2.11 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- cables with protective sheath		N
2.11 (5.3.4)	Joints and junctions effectively insulated		N
2.11 (5.3.5)	Strain on internal wiring		P
2.11 (5.3.6)	Wire carriers		N
2.11 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N
2.12 (8)	***PROTECTION AGAINST ELECTRIC SHOCK***		**P**
2.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arm's reach, on wall-mounted luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	Basic insulation only accessible under lamp or starter replacement		N
	Protection in any position		P
	Double-ended tungsten filament lamp		P
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N
	Relevant warning according to 3.2.18 fitted to the luminaire		N
2.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position	Recessed downlight	N
2.12 (8.2.3.a)	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		P
	- basic insulation not accessible other than during starter or lamp replacement		P
	- glass protective shields not used as supplementary insulation		N
2.12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N
2.12 (8.2.3.c)	Class III luminaires with exposed SELV parts:		N
	Ordinary luminaire:		N
	- touch current .....:		N
	- no-load voltage .....:		N

	Other than ordinary luminaire:		N
	- nominal voltage .....:		N
2.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		N
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	No such capacitor used	N
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V 1 s after disconnection		N
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N
2.13 (12)	***ENDURANCE TEST AND THERMAL TEST***		**P**
2.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 4.13		N
2.13 (12.3)	Endurance test:		P
	- mounting-position .....:	Recessed ceiling mounted luminaires	—
	- test temperature (°C) .....:	35°C	—
	- total duration (h).....:	240h	—
	- supply voltage: Un factor; calculated voltage (V):	1.1*240V=264V	—
	- lamp used .....:	LED lamp	—
2.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		P
	- marking legible		P
	- no cracks, deformation etc.		P
2.13 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
2.13 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	N
2.13 (12.6)	Thermal test (failed lamp control gear condition):		N
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
	- measured winding temperature (°C): at 1,1 Un .:		—
	- measured mounting surface temperature (°C) at 1,1 Un.....:		N
	- calculated mounting surface temperature (°C) ..:		N
	- track-mounted luminaires		N
2.13 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions.....:		—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C) ...:		N
	- track-mounted luminaires		N
2.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
2.13 (12.7.1)	Luminaire without temperature sensing control		N
2.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N
	Test method 12.7.1.1 or Annex W .....:		—

	Test according to 12.7.1.1:		N
	- case of abnormal conditions		—
	- Ballast failure at supply voltage (V) .....:		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
	Test according to Annex V:		N
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un..:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:		—
	- calculated temperature of fixing point/exposed part (°C) .....:		—
	Ball-pressure test:		N
	- part tested; temperature (°C).....:		N
	- part tested; temperature (°C).....:		N
2.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un..:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:		—
	- calculated temperature of fixing point/exposed part (°C) .....:		—
	Ball-pressure test:		N
	- part tested; temperature (°C).....:		N
	- part tested; temperature (°C).....:		N
2.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N
	- case of abnormal conditions		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
2.13 (12.7.2)	Luminaire with temperature sensing control		N
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out	Yes ☐ No ☐	—
	- auto reset cut-out	Yes ☐ No ☐	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/exposed part (°C):.....:		—
	Ball-pressure test:		N
	- part tested; temperature (°C).....:		N
	- part tested; temperature (°C).....:		N
2.13.1 (-)	Wiring, for connection to the supply, not reach unsafe temperature		N
	- measured temperature of the cable (°C) .....:		N
2.14 (9)	***RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE***		**P**
2.14 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		N
2.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP .....:	IP20	—
	- mounting position during test.....:	Ceiling mounting	—
	- fixing screws tightened; torque (Nm).....:		—
	- tests according to clauses .....:		—
	- electric strength test afterwards		N
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		N

	c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard		N
	d) i) For luminaires without drain holes – no water entry		N
	d) ii) For luminaires with drain holes – no hazardous water entry		N
	e) no water in watertight luminaire		N
	f) no contact with live parts (IP 2X)	IP20	P
	f) no entry into enclosure (IP 3X and IP 4X)		N
	f) no contact with live parts (IP3X and IP4X)		N
	g) no trace of water on part of lamp requiring protection from splashing water		N
	h) no damage of protective shield or glass envelope		N
2.14 (9.3)	Humidity test 48 h	93%, 30°C, 48hours	P
2.14 (-)	Tests order for luminaires with > IP 20		—
2.15 (10)	***INSULATION RESISTANCE AND ELECTRIC STRENGTH***		**P**
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:		N
	- between current-carrying parts of different polarity..... :		N
	- between current-carrying parts and mounting surface ..... :		N
	- between current-carrying parts and metal parts of the luminaire ..... :		N
	Insulation bushings as described in Section 5.... :		N
	Other than SELV:		P
	- between live parts of different polarity.....:	>100MΩ(Limited≥2 MΩ)	P
	- between live parts and mounting surface.....:	>100MΩ(Limited≥2 MΩ)	P
	- between live parts and metal parts.....:	>100MΩ(Limited≥2 MΩ)	P
	- between input wire and metal enclosure .....:	>100MΩ(Limited≥2 MΩ)	P
	- between live parts of different polarity through action of a switch .....:		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N
	- Insulation bushings as described in Section 5 ...:		N
2.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):	See below	—
	SELV:		N
	- between current-carrying parts of different polarity..... :		N
	- between current-carrying parts and mounting surface ..... :		N
	- between current-carrying parts and metal parts of the luminaire ..... :		N

	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N
	- Insulation bushings as described in Section 5		N
	Other than SELV:		P
	- between live parts of different polarity .....:	4U+2000V=2960V	P
	- between live parts and mounting surface .....:	4U+2000V=2960V	P
	- between live parts and metal parts .....:	4U+2000V=2960V	P
	between input wire and metal enclosure .....:	4U+2000V=2960V	P
	- between live parts of different polarity through action of a switch .....:		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....:		N
	- Insulation bushings as described in Section 5 ...:		N
2.15 (10.3)	Touch current or protective conductor current (mA) .....:	0.031mA	P
2.16 (13)	***RESISTANCE TO HEAT, FIRE AND TRACKING***		**P**
2.16 (13.2.1)	Ball-pressure test:	See test table 2.16 (13.2.1)	N
2.16 (13.3.1)	Needle flame test (°C):	See test table 2.16 (13.3.1)	P
2.16 (13.3.2)	Glow-wire test (650°C):	See test table 2.16 (13.3.2)	N
2.16 (13.4.1)	Tracking test:	See test table 2.16 (13.4)	N

2.8 (11.2)	**TABLES: Creepage distances and clearances**					**P**
Table 11.1	**Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages**					P
RMS working voltage (V) not exceeding	50	150	250	500	750	1000
Creepage distances						
Required basic insulation, PTI ≥ 600	0,6	0,8	1,5	3	4	5,5
Measured	--	--	--	--	--	--
Required basic insulation, PTI < 600	1,2	1,6	2,5	5	8	10
Measured	--	--	--	4.0	--	--
Required supplementary insulation PTI ≥ 600	-	0,8	1,5	3	4	5,5
Measured	--	--	--	--	--	--
Required supplementary insulation PTI < 600	-	1,6	2,5	5	8	10
Measured	--	--	--	--	--	--
Required reinforced insulation	-	3,2	5	6	8	11
Measured	--	--	--	6.0	--	--
Clearances						
Required basic insulation	0,2	0,8	1,5	3	4	5,5
Measured	--	--	--	4.0	--	--
Required supplementary insulation	-	0,8	1,5	3	4	5,5
Measured	--	--	--	--	--	--
Required reinforced insulation	-	1,6	3	6	8	11
Measured	--	--	--	6.0	--	--

Table 11.2	**Minimum distances (mm) for non-sinusoidal pulse voltages**						
Rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances	1,0	1,5	2	3	4	5,5	8
Measured							
Rated pulse voltage (peak kV)	10	12	15	20	25	30	40
Required clearances	11	14	18	25	33	40	60
Measured							
Rated pulse voltage (peak kV)	50	60	80	100	-	-	-
Required clearances	75	90	130	170	-	-	-
Measured							

2.16 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			N
Allowed impression diameter (mm) ..... :				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	
Supplementary information:				

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 PCB	See CDF	10	No	0	P
PCB of LED driver	See CDF	10	No	0	P
Supplementary information:					

2.16 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				N
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
--	--	--	--	--	--
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No)……:					
Supplementary information:					

2.16 (13.4)	TABLE: Proof tracking test (IEC 60112)				N
Test voltage PTI ..... :		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	--	--	--	--	--
Supplementary information:					

	ANNEX 1: components	**P**

object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
LED Chip	C	Guangzhou Hongli Opto-Electronic Co., Ltd.	2835	0.2W, 3.0-3.1V, 6000K, Ra>80	EN 60598-2-2	CE Tested with appliance
LED PCB	A	Interchangeable	Interchangeable	V-0, 130C	UL 796	UL
Internal Wire	A	Interchangeable	Interchangeable	24AWG, 300V, 105℃	UL 510	UL
Fuse(F1)	A	Shenzhen Great Electronics Co., Ltd.	-	4.7Ω/1W	IEC/EN 60127-1 IEC/EN 60127-3	UL E301541
LED Power Supply	C	SEE Lighting	S90509-MA2866	24W, 220-240V, 50/60Hz	EN 60598-2-2	CE Tested with appliance

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

	ANNEX 2: temperature measurements, thermal tests of Section 12	**P**

	Type reference .....:	BP01-62410	—
	Lamp used.....:	LED lamp	—
	Lamp control gear used .....:	LED driver	—
	Mounting position of luminaire .....:	Recessed ceiling mounted	—
	Supply wattage (W).....:	24.1W	—
	Supply current (A) .....:	0.105A	—
	Calculated power factor .....:		—
	Table: measured temperatures corrected for ta = 25 °C:		P
	- abnormal operating mode.....:		—
	- test 1: rated voltage .....:		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:	1.06 times rated voltage	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage .....:		—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage.....:		—
	Through wiring or looping-in wiring loaded by a current of A during the test .....:		—

temperature (°C) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	Limit (°C)	test 4	limit
Power cord	--	28.5	--	75	--	--
Power supply enclosure Tc	--	54.7	--	70	--	--
Power supply output wire	--	48.9	--	75	--	--
E-Cap. (C2)	--	58.9	--	105	--	--
L2 winding	--	78.4	--	110	--	--
L2 bobbin	--	77.3	--	110	--	--
PCB near REC	--	74.5	--	130	--	--
Metal enclosure outside	--	60.9	--	Ref.	--	--
LED cover outside	--	49.2	--	Ref.	--	--
Mounting surface	--	38.6	--	90	--	--
Ambient	--	26.0	--	--	--	--

	ANNEX 3: screw terminals (part of the luminaire)	**N**

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

	ANNEX 4: screwless terminals (part of the luminaire)	**N**

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

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

ATTACHMENT TO TEST REPORT IEC 60598-2-2
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
Luminaires

Part 2: Particular requirements:

Section One – Recessed luminaires

Differences according to.....:	EN 60598-2-2: 2012 used in conjunction with EN 60598-1:2015+A:2018
Attachment Form No. .....:	EU_GD_IEC60598_2_2D
Attachment Originator.....:	OVE

EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
	CENELEC COMMON MODIFICATIONS (EN)		—
2.6(3)	**MARKING**		**N**
2.6(3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package		—
2.7(4)	**CONSTRUCTION**		**N**
2.7(4.11.6)	Electro-mechanical contact systems		N
2.11(5)	**EXTERNAL AND INTERNAL WIRING**		**N**
2.11(5.2.1)	Connecting leads		N
	-without a means for connection to the supply		N
	-terminal block specified		N
	-relevant information provided		N
	-compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N
2.11(5.2.2)	Cables equal to EN 50525		N
	Replace table 5.1 –Supply cord		N
2.13(12)	**ENDURANCE TESTS AND THERMAL TESTS**		**P**
2.13(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)**		**N**
(3.3)	DK: power supply cords of class I luminaires with label		N
(4.5.1)	DK: socket-outlets		N

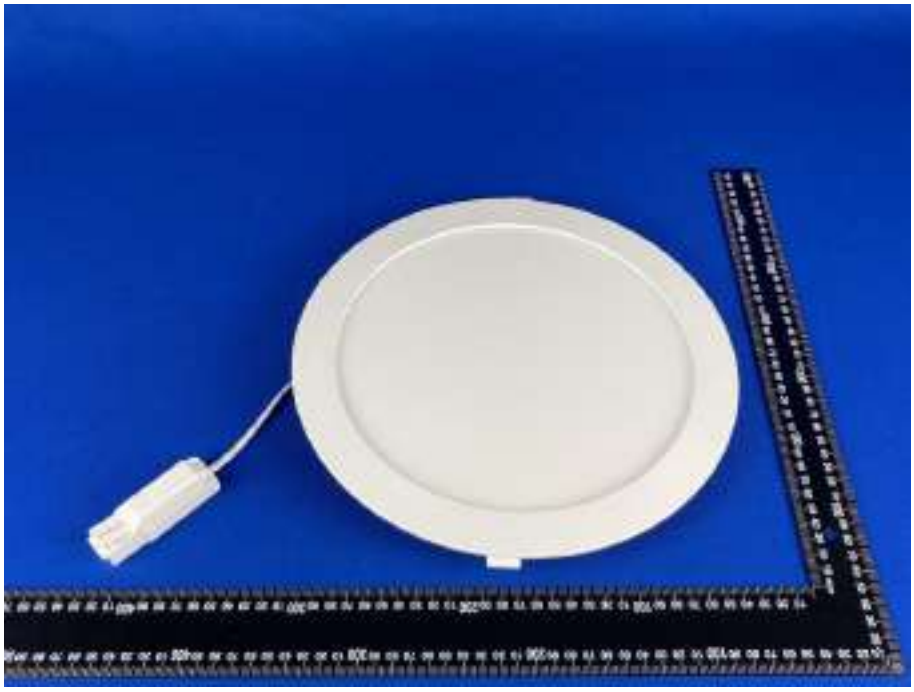
EN 60598-2-2			
Cl.	Requirement – Test	Result	Verdict
(5.2.1)	CY, DK, FI, GB: type of plug		N
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		**N**
(4&5)	FR: Shuttered socket-outlets 10/16A		N
	FR: Safety requirements for high buildings (Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction 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
	-850°C for luminaires in stairways and horizontal travel paths		N
	-650°C for indoor luminaires		N
	GB: Requirements according to United Kingdom Building Regulation		N
4	**GENERAL REQUIREMENTS**		**P**
4.4	Integral modules treated as part of luminaires defined in clause 0.5 of IEC 60598-1	Yes	—
4.5	Independent modules complies with requirements in IEC 60598-1	No	—
5	**GENERAL TEST REQUIREMENTS**		**P**
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13		—
6	**CLASSIFICATION**		**P**
	Built-in module.....:	No	—
	Independent module.....:	No	—
	Integral module .....:	Yes	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	**MARKING**		**N**
	Requirements not applicable to be evaluated product		—
8	**SCREW TERMINALS**		**N**
	Compliance with section 14 of IEC 60598-1		N

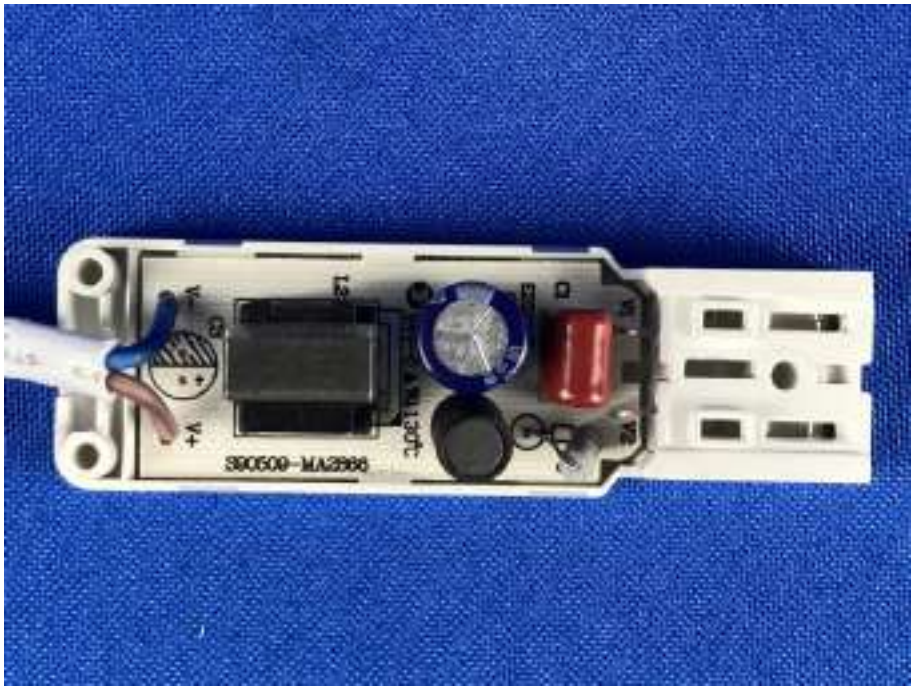
	SCREWLESS TERMINALS		—
	Compliance with section 15 of IEC 60598-1		N
	CONNECTORS		—
	Compliance with IEC 60838-2-2		N
9	**PROVISION FOR PROTECTIVE EARTHING**		**N**
	Requirements not applicable to be evaluated product		N
8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**N**
	Protection against accidental contact with live parts in compliance with IEC 61347-1		N
11	**MOISTURE RESISTANCE AND INSULATION**		**P**
	Protection against moisture and insulation in compliance with Clause 11, IEC 61347-1		P
12	**ELECTRIC STRENGTH**		**N**
	Electric strength in compliance with Clause 12 of IEC 61347-1		N
13	**FAULT CONDITIONS**		**P**
13.1	In compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		N
13.2	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N
	During the tests, tissue paper, spread below module, does not ignite		P
15	**CONSTRUCTION**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Creepage and distances and clearances in compliance with IEC 60598-1		P
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
18(18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**N**

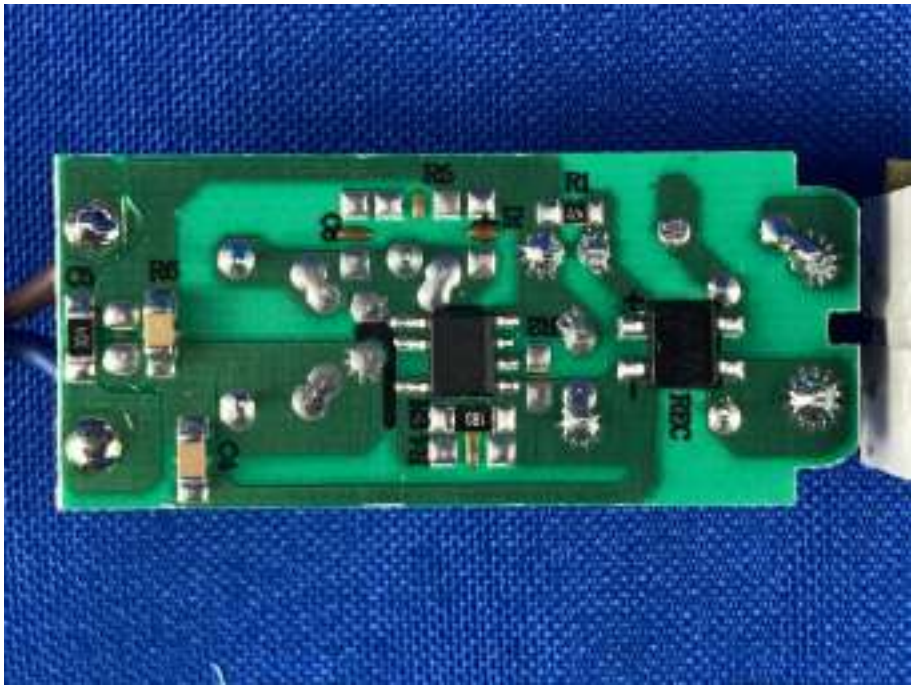
	Resistance to Heat, Fire and Tracking in compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)	N
19	**RESISTANCE TO CORROSION**	**N**
	Resistance to corrosion in compliance with IEC 61347-1	N
20	***INFORMATION FOR LUMINAIRE DESIGN***	**N**
	Information in Annex D	—
21	***HEAT MANAGEMENT***	**N**
21.1	General	N
	Exchangeability is safeguarded by cap or base	N
21.2	Heat-conducting foil and paste	N
	Heat-conducting foil delivered with the module if necessary	N
21.4	Construction	N
	Electrical connection and mechanical holding are separate	N
22	**PHOTOBIOLOGICAL SAFETY**	**P**
22.1	**UV radiation**	P
	Luminous radiation not exceed 2mW/klm	P
22.2	**Blue light hazard**	P
	Assessed according to IEC TR 62778	P
22.3	**Infrared radiation**	P
	Requirements for infrared radiation when required	P
A	***ANNEX A - TESTS***	**N**
	All tests performed in accordance with the advise given in Annex H of IEC 61347-1, if applicable	N
B	***ANNEX B - SELV-operated LED modules***	**N**
	ANNEX I of IEC 61347-2-13 - PARTICULAR ADDITIONAL REQUIREMENTS FOR INDEPENDENT SELV D.C. OR A.C. SUPPLIED ELECTRONIC STEP-DOWN CONVERTORS FOR FILAMENT LAMPS	N

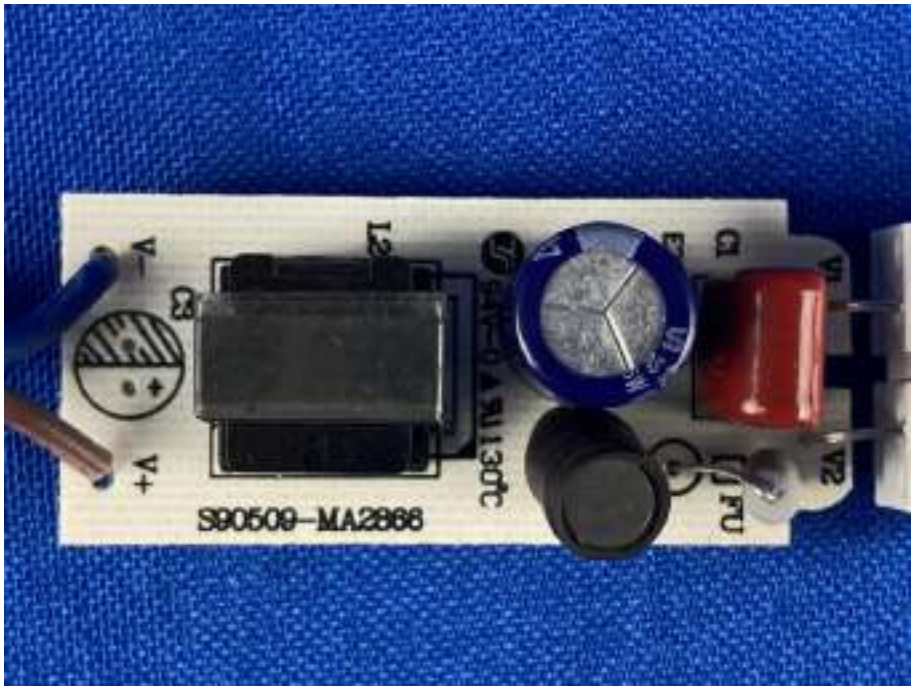
13	**Table of fault conditions**					**P**
Part	0.9xUn	1.1xUn	Short-circuited	Dis-connected		Hazard
LED"+" to "-"	0.9x220 =198V	1.1x240=264V	X	--	Unit shutdown immediately and recoverable, no damage.	No

Attachment – Photos









(EBO authenticate the photo on original report only)

*** End of Report ***