

TEST REPORT
EN 60598-1& EN 60598-2-1
Luminaires
Part 2: Particular requirements:
Section One – Fixed general purpose luminaire

Testing Laboratory: **Shenzhen LST Technology Co., Ltd.**
 Address: Huichao Building, Yintian Industry zone,
 Baoan District, Shenzhen, Guangdong P.R. China

Testing location / address: **Shenzhen LST Technology Co., Ltd.**

Prepared by(Engineer).....: *Jandi*

Reviewer(Quality Manager).....: *Dan*

Approved&Authorized Signer(Manager).....: *Jandi*



Date of Report.....: **Mar. 25, 2019**

Applicant's name.....: **Shenzhen xinjia lighting co., ltd**
 Address: 9th Floor, Building A9, Xinghuaxiong Industrial Park, Baihuadong
 First Industrial Zone, Guangming District, Shenzhen, Guangdong

Manufacturer name: **Shenzhen xinjia lighting co., ltd**
 Address: 9th Floor, Building A9, Xinghuaxiong Industrial Park, Baihuadong
 First Industrial Zone, Guangming District, Shenzhen, Guangdong

Test specification:
 Standard: EN 60598-2-1:1989 used in conjunction with
 EN 60598-1: 2015+A1:2018
 Test procedure: Test report
 Non-standard test method.....: N/A
Test Report Form No......: IEC60598_2_1D
 TRF Originator.....: Intertek Semko AB
 Master TRF: 2014-08

Test item description: **LED Grow Light**

Trademark.....: **SINJIAlight**

Model/Type reference: **ZW0173**
ZW0081,ZW0141,ZW0013,ZW0125,ZW0209,ZW0213,ZW0148

Ratings: **85-265 AC, 50Hz**

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)

General remarks


This report shall not be reproduced except in full without the written approval of the testing laboratory.
 The test results presented in this report relate only to the item(s) tested.
 "(see remark #)" refers to a remark appended to the report.
 "(see Annex #)" refers to an annex appended to the report.
 Clause numbers between brackets refer to clauses in EN 60598-1.
 Throughout this report a comma is used as the decimal separator.

Brief description of the test sample:

The equipment is an **LED Grow Light** for general use.

Artwork of marking plate:

LED Grow Light
Model: ZW0173
85-265V AC 50Hz



Manufacturer : UKLED-ltd
Address:9th Floor, Building A9, Xinghuaxiong Industrial Park,
Baihuadong First Industrial Zone, Guangming District, Shenzhen,
Guangdong

Summary of construction and testing:

These series appliances are LED-R7S, The products are different for model number, power, dimmable function and outlook color All tests were conducted at the model of SG-VIG500. The test results comply with the requirement of the relevant standards.

The test results in the report only apply to the tested sample.

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.2 (0)	GENERAL TEST REQUIREMENTS		P
1.2 (0.1)	Information for luminaire design considered	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
1.2(0.3)	More sections applicable	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

1.4 (2)	CLASSIFICATION		P
1.4 (2.2)	Type of protection	Class II	—
1.4 (2.3)	Degree of protection.....	IP20	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire not suitable for direct mounting on normally flammable surfaces	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
1.4 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

1.5 (3)	MARKING		P
1.5 (3.2)	Mandatory markings	(See marking plate)	P
	Position of the marking	On the enclosure	P
	Format of symbols/text	Symbols: 5.0mm min; Letter: 2.0 mm min.	P
1.5 (3.3)	Additional information	User manual provided	P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires	Not combination luminaire	N
1.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
1.5 (3.3.3)	Operating temperature		N
1.5 (3.3.4)	Symbol or warning notice		N
1.5 (3.3.5)	Wiring diagram	Direct connected to mains	N
1.5 (3.3.6)	Special conditions		N
1.5 (3.3.7)	Metal halide lamp luminaire – warning		N
1.5 (3.3.8)	Limitation for semi-luminaires		N
1.5 (3.3.9)	Power factor and supply current		N
1.5 (3.3.10)	Suitability for use indoors		P
1.5 (3.3.11)	Luminaires with remote control	No remote control	N
1.5 (3.3.12)	Clip-mounted luminaire – warning		N
1.5 (3.3.13)	Specifications of protective shields		N
1.5 (3.3.14)	Symbol for nature of supply	Symbol: ~	P

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5 (3.3.15)	Rated current of socket outlet	No socket outlet	N
1.5 (3.3.16)	Rough service luminaire		N
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	By track connector	N
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable	ordinary luminaire	N
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N
1.5 (3.3.20)	Provided with information if not intended to be mounted within arms reach		N
1.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		N
	Cautionary symbol		N
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N
1.5 (3.4)	Test with water	15s with water	P
	Test with hexane	15s with hexane	P
	Legible after test	The marking is legible	P
	Label attached	Label was not be easily removable and show no curling after test	P

1.6 (4)	CONSTRUCTION		P
1.6 (4.2)	Components replaceable without difficulty		N
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		N
1.6 (4.4.1)	Integral lampholder		N
1.6 (4.4.2)	Wiring connection		N
1.6 (4.4.3)	Lampholder for end-to-end mounting		N
1.6 (4.4.4)	Positioning	No such lampholder	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 (Nm)		N
	After test the lampholder have not moved from its position and show no permanent deformation		N

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.4.5)	Peak pulse voltage		N
1.6 (4.4.6)	Centre contact		N
1.6 (4.4.7)	Parts in rough service luminaires resistant to tracking	Ordinary luminaires	N
1.6 (4.4.8)	Lamp connectors	No lamp connector provided	N
1.6 (4.4.9)	Caps and bases correctly used		N
1.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N
1.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II		N
	Starter holder class II construction		N
1.6 (4.6)	Terminal blocks		P
	Tails		P
	Unsecured blocks		N
1.6 (4.7)	Terminals and supply connections		P
1.6 (4.7.1)	Contact to metal parts		P
1.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		N
1.6 (4.7.3)	Terminals for supply conductors		N
1.6 (4.7.3.1)	Welded connections:		N
	- stranded or solid conductor		N
	- spot welding		N
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.8.2		N
	- electrical test according to 15.9		N
	- heat test according to 15.9.2.3 and 15.9.2.4		N
1.6 (4.7.4)	Terminals other than supply connection		N
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N
1.6 (4.7.6)	Multi-pole plug		N
	- test at 30 N		N
1.6 (4.8)	Switches:		P
	- adequate rating		P
	- adequate fixing		N

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- polarized supply		N
	- compliance with 61058-1 for electronic switches		P
1.6 (4.9)	Insulating lining and sleeves		N
1.6 (4.9.1)	Retainment		N
	Method of fixing :		—
1.6 (4.9.2)	Insulated linings and sleeves		N
	Resistant to a temperature > 20 °C to the wire temperature or	No such Insulated linings and sleeves	N
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C) :		N
1.6 (4.10)	Insulation of Class II luminaires		P
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation	Class II appliances	P
	Safe installation fixed luminaires		P
	Capacitors and switches		N
	Interference suppression capacitors according to IEC 60384-14		P
1.6 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N
1.6 (4.10.3)	Retainment of insulation:		N
	- fixed	Class II appliances	N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
1.6 (4.11)	Electrical connections		P
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		P
	- self-tapping screws	Self-tapping screws not used	N
	- thread-cutting screws	Thread-cutting screws not used	N
1.6 (4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		N
1.6 (4.11.4)	Material of current-carrying parts	>50% copper	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.11.5)	No contact to wood or mounting surface	Current-carrying parts not contact wood	P
1.6 (4.11.6)	Electro-mechanical contact systems	No such systems	N
1.6 (4.12)	Mechanical connections and glands		P
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		P
	Torque test: torque (Nm); part..... :	Screws for fixing enclosure: 2.88mm, 0.5Nm, 5 times	P
	Torque test: torque (Nm); part..... :		N
	Torque test: torque (Nm); part..... :		N
	Torque test: torque (Nm); part..... :		N
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P
1.6 (4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm)	No such fixed arms	N
	- lampholder; torque (Nm)	No such lampholder	N
	- push-button switches; torque 0,8 Nm	No such switches	N
1.6 (4.12.5)	Screwed glands; force (Nm)	No such Screwed glands	N
1.6 (4.13)	Mechanical strength		P
1.6 (4.13.1)	Impact tests: (additionally considered)		P
	- fragile parts; energy (Nm)		N
	- other parts; energy (Nm)	0.35Nm for Lens 0.35Nm for Enclosure	P
	1) live parts		P
	2) linings		N
	3) protection		P
	4) covers		P
1.6 (4.13.3)	Straight test finger		P
1.6 (4.13.4)	Rough service luminaires		N
	- IP54 or higher	Ordinary luminaires	N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
1.6 (4.13.6)	Tumbling barrel		N

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6 (4.14)	Suspensions and adjusting devices		P
1.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	4 × 1.51 kg =6.04kg	P
	B) torque 2,5 Nm		N
	C) bracket arm; bending moment (Nm)..... :		N
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N
	Metal rod. diameter (mm)		N
	Fixed luminaire or independent control gear without fixing devices		N
1.6 (4.14.2)	Load to flexible cables		N
	Mass (kg)	No such lamps	N
	Stress in conductors (N/mm ²)		N
	Mass (kg) of semi-luminaire		N
	Bending moment (Nm) of semi-luminaire		N
1.6 (4.14.3)	Adjusting devices:		N
	- flexing test; number of cycles..... :	No adjusting devices	N
	- strands broken		N
	- electric strength test afterwards		N
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors	No telescopic tubes	N
1.6 (4.14.5)	Guide pulleys	No guide pulleys	N
1.6 (4.14.6)	Strain on socket-outlets	No socket-outlet	N
1.6 (4.15)	Flammable materials:		P
	- glow-wire test 650 °C	See table 1.15 (13.3.2)	P
	- spacing ≥ 30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		P
	- thermal protection		N
	- electronic circuits exempted		N
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	a) construction		N
	b) temperature sensing control		N

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Clause	Requirement + Test	Result - Remark	Verdict
	c) surface temperature		N
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	Electronic lamp control gear is exempt from the requirements of this clause.	N
1.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
1.6 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
1.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N
1.6 (4.17)	Drain holes	Not protection against water	N
	Clearance at least 5 mm		N
1.6 (4.18)	Resistance to corrosion:		P
1.6 (4.18.1)	- rust-resistance		P
1.6 (4.18.2)	- season cracking in copper		P
1.6 (4.18.3)	- corrosion of aluminium		P
1.6 (4.19)	Igniters compatible with ballast		N
1.6 (4.20)	Rough service vibration	Ordinary service luminaire	N
1.6 (4.21)	Protective shield:		N
1.6 (4.21.1)	Shield fitted		N
	Shield of glass if tungsten halogen lamps		N
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
1.6 (4.21.3)	No direct path		N
1.6 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment	See table 1.15 (13.3.2)	N
1.6 (4.22)	Attachments to lamps	No attachments	N
1.6 (4.23)	Semi-luminaires comply Class II		N
1.6 (4.24.1)	UV radiation for tungsten halogen lamps and metal halide lamps (Annex P)		N
1.6 (4.24.2)	Retinal blue light hazard		P
	Luminaires with E_{thr} :		N

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
1.6 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection:		N
1.6 (4.26.1)	Uninsulated accessible SELV parts		N
1.6 (4.26.2)	Short-circuit test		N
1.6 (4.26.3)	Test chain according to Figure 29		N
1.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N
	Test according Annex V		N
	Pull test of terminal fixing (20 N)		N
	After test, resistance < 0,05 Ω		N
	Pull test of mechanical connection (50 N)		N
	After test, resistance < 0,05 Ω		N
	Voltage drop test, resistance < 0,05 Ω		N
1.6 (4.28)	Fixing of thermal sensing control		N
	Not plug-in or easily replaceable type		N
	Reliably kept in position		N
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N
	Not outside the luminaire enclosure		N
	Test of adhesive fixing:		N
	Max. temperature on adhesive material (°C)		-
	100 cycles between t min and t max		N
	Temperature sensing control still in position		N
1.6 (4.29)	Luminaires with non-replaceable light source		N
	Not possible to replace light source		N

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Live part not accessible after parts have been opened by hand or tools		N
1.6 (4.30)	Luminaires with non-user replaceable light source		P
	If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol:		P
	Minimum two fixing means	Two screws	P
1.6 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N
1.6 (4.31.1)	SELV circuits		P
	Used SELV source	LED driver tested according to IEC 61347-2-13	P
	Voltage ≤ ELV	Max.40V	P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		N
	Insulating of SELV circuits from FELV		N
	Insulating of SELV circuits from other SELV circuits		N
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Plugs and socket-outlets does not have protective conductor contact		N
1.6 (4.31.2)	FELV circuits	No such 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

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Socket outlets does not admit plugs of other voltage systems		N
	Socket-outlets does not have protective conductor contact		N
1.6 (4.31.3)	Other circuits		N
	Other circuits insulated from accessible parts according Table X.1		N
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N
	- conductive parts are connected together		N
	- test according 7.2.3 of above		N
	- conductive part not cause an electric shock in case of an insulation fault		N
	- equipotential bonding in master/slave applications		N
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N
	- slave luminaire constructed as class I		N
1.6 (4.32)	Overvoltage protective devices		N
	Comply with IEC 61643-11		N
	External to control gear and connected to earth:		N
	- only in fixed luminaires		N
	- only connected to protective earth		N

1.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		—
	Working voltage (V)	220-240V~	—
	Voltage form	Sinusoidal <input checked="" type="checkbox"/> Non-sinusoidal <input type="checkbox"/>	—
	PTI	< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—
	Rated pulse voltage (kV)	2.5KV	—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm)	cr=4,0mm (limit 2.5mm) cl=4,0mm (limit 1.5mm)	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm)	cr=2.8mm (limit 2.5mm) cl=2.8mm (limit 1.5mm)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm)		N
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)		N
	(5) Not used		—
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm)		P

1.8 (7)	PROVISION FOR EARTHING		N
2.8 (7.2.1 + 7.2.3)	Accessible metal parts		N
	Metal parts in contact with supporting surface		N
	Resistance < 0,5 Ω	0	N
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a groove		N
	Earth makes contact first		N
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
	Protective earthing of the luminaire not via built-in control gear		N
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N
2.8 (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
1.8 (7.2.5)	Earth terminal integral part of connector socket		N
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		N
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N
1.8 (7.2.8)	Material of earth terminal		N
	Contact surface bare metal		N
1.8 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
1.8 (7.2.11)	Earthing core coloured green-yellow		N
	Length of earth conductor		N

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Clause	Requirement + Test	Result - Remark	Verdict
1.9 (14)	SCREW TERMINALS		N
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 3)	N
1.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 4)	N
1.10 (5)	EXTERNAL AND INTERNAL WIRING		P
1.10 (5.2)	Supply connection and external wiring		P
1.10 (5.2.1)	Means of connection	By track adaptor	P
1.10 (5.2.2)	Type of cable		N
	Nominal cross-sectional area (mm ²)		N
	Cables equal to IEC 60227 or IEC 60245		N
1.10 (5.2.3)	Type of attachment, X, Y or Z		N
1.10 (5.2.5)	Type Z not connected to screws		N
1.10 (5.2.6)	Cable entries:		N
	- suitable for introduction		N
	- adequate degree of protection		N
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		N
1.10 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
1.10 (5.2.9)	Locking of screwed bushings		N
1.10 (5.2.10)	Cord anchorage:		N
	- covering protected from abrasion		N
	- clear how to be effective		N
	- no mechanical or thermal stress		N
	- no tying of cables into knots etc.		N
	- insulating material or lining		N

EN 60598-1&EN 60598-2-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N
1.10 (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
1.10 (5.2.11)	External wiring passing into luminaire		N
1.10 (5.2.12)	Looping-in terminals		N
1.10 (5.2.13)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N
1.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Appliance couplers of class II type		N
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N
1.10 (5.2.18)	Used plug in accordance with		N
	- IEC 60083		N
	- other standard		N
1.10 (5.3)	Internal wiring		P

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Clause	Requirement + Test	Result - Remark	Verdict
1.10 (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)		N
	Green-yellow for earth only		N
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²)..... : 0.5 mm ²		P
	Insulation thickness		P
	Extra insulation added where necessary		N
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N
	Adequate cross-sectional area and insulation thickness		N
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N
1.10 (5.3.1.4)	Conductors without insulation		N
1.10 (5.3.1.5)	SELV current-carrying parts		P
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
1.10 (5.3.2)	Sharp edges etc.	Inner wire can't touch the sharp edges , rivets and similar components	P
	No moving parts of switches etc.	No moving parts used	N
	Joints, raising/lowering devices	No such devices	N
	Telescopic tubes etc.	No telescopic tubes etc.	N
	No twisting over 360°		P
1.10 (5.3.3)	Insulating bushings:		N
	- suitable fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- cables with protective sheath		N
1.10 (5.3.4)	Joints and junctions effectively insulated		N
1.10 (5.3.5)	Strain on internal wiring		N
1.10 (5.3.6)	Wire carriers		N
1.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N

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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
1.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires		N
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arms reach, on wall-mounted luminaires		P
	Lampholder and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	Basic insulation only accessible under lamp or starter replacement		N
	Protection in any position		P
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N
	Relevant warning according to 3.2.18 fitted to the luminaire		N
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position	Fixed luminaire	N
1.11 (8.2.3.a)	Class II luminaire:		N
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- basic insulation not accessible other than during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
1.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N
1.11 (8.2.3.c)	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

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Clause	Requirement + Test	Result - Remark	Verdict
1.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.11 (8.2.6)	Covers reliably secured		P
1.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$	capacitors $< 0,5 \mu\text{F}$	N
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N

1.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
1.12 (12.3)	Endurance test:		P
	- mounting-position..... :	Fixed As normal use	—
	- test temperature (°C)..... :	35	—
	- total duration (h)..... :	240	—
	- supply voltage: Un factor; calculated voltage (V):	1.1X240V=264V	—
	- lamp used..... :	LED	—
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		P
	- marking legible	Marking still legible and shows no curing	P
	- no cracks, deformation etc.		P
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
1.12 (12.6)	Thermal test (failed lamp control gear condition):		N
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)..... :		—
	- case of abnormal conditions..... :		—
	- electronic lamp control gear		N
	- measured winding temperature (°C): at 1,1 Un :		—
	- measured mounting surface temperature (°C) at 1,1 Un..... :		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- calculated mounting surface temperature (°C) . . :		N
	- track-mounted luminaires		N
1.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions :		—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C) .. :		N
	- track-mounted luminaires		N
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
1.12 (12.7.1)	Luminaire without temperature sensing control		N
1.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N
	Test method 12.7.1.1 or Annex V :		—
	Test according to 12.7.1.1:		N
	- case of abnormal conditions		—
	- Ballast failure at supply voltage (V) :		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
	Test according to Annex V:		N
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un . . :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un :		—
	- calculated temperature of fixing point/exposed part (°C)..... :		—
	Ball-pressure test:		N
	- part tested; temperature (°C) :		N
	- part tested; temperature (°C) :		N
1.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un . . :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un :		—

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

1.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP20	—
	- mounting position during test :	As in normal use	—
	- fixing screws tightened; torque (Nm) :	fixing enclosure :0,5 Nm	—
	- tests according to clauses..... :		—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		N
	c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard		N
	d) i) For luminaires without drain holes – no water entry		N
	d) ii) For luminaires with drain holes – no hazardous water entry		N

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
1.13 (9.3)	Humidity test 48 h	25°C; 93%R.H. 48H	P

1.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
1.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø		—
	Insulation resistance (MΩ)		—
	SELV:		P
	- between current-carrying parts of different polarity	>10MΩ	P
	- between current-carrying parts and mounting surface	>10MΩ	P
	- between current-carrying parts and metal parts of the luminaire	>10MΩ	P
	Other than SELV:		P
	- between live parts of different polarity	> 100MΩ	P
	- between live parts and mounting surface	>100MΩ	P
	- between live parts and metal parts	>100MΩ	P
	- between live parts of different polarity through action of a switch		N
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):		—
	SELV:		P
	- between current-carrying parts of different polarity	500V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts and mounting surface	500V	P
	- between current-carrying parts and metal parts of the luminaire	500V	P
	Other than SELV:		P
	- between live parts of different polarity	1480V	P
	- between live parts and mounting surface	1480V	P
	- between live parts and metal parts	1480V	P
	- between live parts of different polarity through action of a switch		P
1.14 (10.3)	Touch current (mA)	0.002mA	P

1.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		—
1.15 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (°C)	LED Driver enclosure: 125°C, 1.0mm	P
	- part tested; temperature (°C)	Lens: 125°C,0,8mm	P
	- part tested; temperature (°C)	track adaptor: 125°C,0,6mm	P
	- part tested; temperature (°C)		N
1.15 (13.3.1)	Needle flame test (10 s):		N
	- part tested		N
	- part tested		N
	- part tested		N
1.15 (13.3.2)	Glow-wire test (650°C):		P
	- part tested	LED Driver enclosure: no flame, no drop	P
	- part tested	Lens: no flame, no drop	P
	- part tested	track adaptor: no flame, no drop	
	- part tested		N
1.15 (13.4.1)	Tracking test: part tested		N

ANNEX 1: components				P
object/part No.	manufacturer/ trademark	type/model	technical data	mark(s) of conformity
Internal wire	C	Various	Various	Test with appliance
Plug	QL	PSB-10	10A,250V~	UL
Switch	Patent	303	2A,250V~	CE
Terminal blocks	--	--	2.5A,250V~	UL
Power supply cord	KEMA-KEUR	CEBEC	2*0.75mm ²	VDE

ANNEX 2: temperature measurements, thermal tests of Section 12			P			
Type reference	4FT T5 18W		—			
Lamp used	LED		—			
Lamp control gear used			—			
Mounting position of luminaire	As in normal use		—			
Supply wattage (W).....	18		—			
Supply current (A)	0.06		—			
Calculated power factor	0.988		—			
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	1,06X285V=302.1V		—			
- 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	test 4	Limit
Test Wire	--	30.1	--	90	--	--
Plug	--	85.2	--	85	--	--
Metal enclosure	--	64.7	--	--	--	--
Switch	--	69.8	--	--	--	--
Internal wire	--	2702	--	80	--	--

Mounting surface	--	45.1	--	90	--	--
Light of 0.1m		31.8		90		
Ambient		25.1		Ref.		

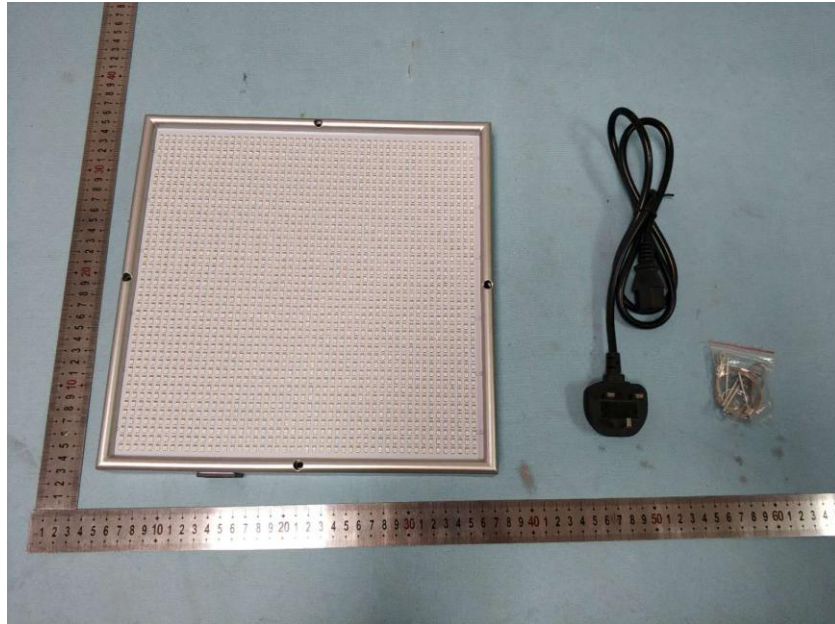
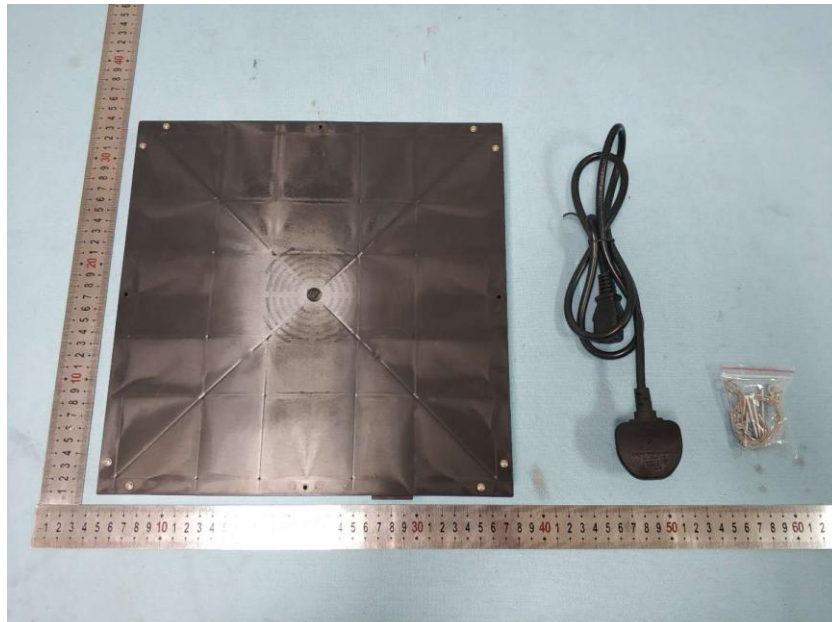
	ANNEX 3: screw terminals (part of the luminaire)		N
(14)	SCREW TERMINALS		N
(14.2)	Type of terminal		—
	Rated current (A)		—
(14.3.2.1)	One or more conductors		N
(14.3.2.2)	Special preparation		N
(14.3.2.3)	Terminal size		N
	Cross-sectional area (mm ²)		N
(14.3.3)	Conductor space (mm)		N
(14.4)	Mechanical 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	No screwless terminals	—
	Rated current (A)		—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N

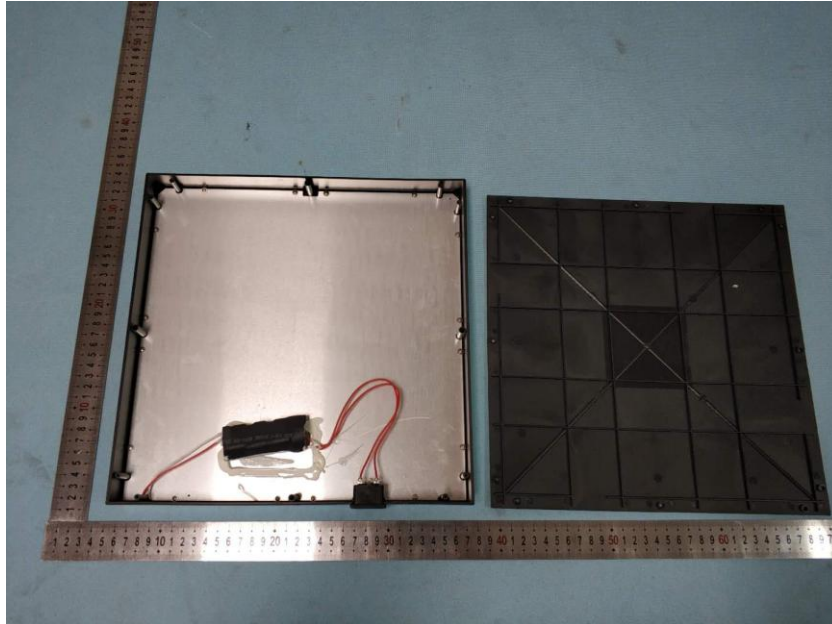
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5.1)	Terminals internal wiring		N
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N
	Insertion force not exceeding 50 N		N
(15.5.2)	Permanent connections: pull-off test (20 N)		N
(15.6)	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
(15.7)	Terminals external wiring		N
	Terminal size and rating		N
(15.8.1)	Pull test spring-type terminals (4 samples); pull (N)		N
	Pull test pin or tab terminals (4 samples); pull (N)		N
(15.9)	Contact resistance test		N
	Voltage drop (mV) after 1 h		N

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)										

ANNEX A: Photo-documentation

EUT Photo 1**EUT Photo 2**

EUT Photo 3



***** END OF REPORT *****