APPLICATION FOR IEC TEST REPORT

On Behalf of

Shenzhen Qinhan Lighting Co.,Limited

Led high bay light

Model .: QH-HBGKH-150W, QH-HBGKH-100W,QH-HBGKH-200W

Prepared for : **Shenzhen Qinhan Lighting Co.,Limited**

A building, Chuangze Industrial City, Dalang Town, Dongguan, Guangdong, China.

Prepared By : **TMC Testing Services (Shenzhen) Co., Ltd.**
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TEST REPORT
IEC 60598-2-1
Luminaires
Part 2: Particular requirements:
Section One – Fixed general purpose luminaires

Tested by (Engineer).....	Bat Deng
Approved by (Manager).....	Lemon Rao
Date of issue.....	October 11,2018
Contents.....	32 pages
Testing Laboratory.....	TMC Testing Services(Shenzhen) Co., Ltd.
Address.....	1st Floor, Block A1, Zone A, Xinshidai Gongrong Industrial Park, No. 2, Shihuan Road, Shuitian, Shiyan Street, Baoan District, Shenzhen, China.
Testing location.....	Same as above
Applicant's name ..... :	Shenzhen Qinhan Lighting Co.,Limited
Address.....	A building, Chuangze Industrial City, Dalang Town, Dongguan, Guangdong, China.
Test specification:	
Standard.....	IEC 60598-2-1:1979+A1:1987 IEC 60598-1:2008
Test procedure.....	IEC report
Non-standard test method……..	N/A
Test Report Form No.....	IEC60598_2_1C
Test Report Form(s) Originator.....	Intertek Semko AB
Master TRF.....	2014-08

Test item description.....:	Led high bay light
Manufacturer.....	Shenzhen Qinhan Lighting Co.,Limited
Address.....	A building, Chuangze Industrial City, Dalang Town, Dongguan, Guangdong, China.
Trademark.....	QINHAN LIGHTING
Model/Type reference.....	QH-HBGKH-150W
Ratings.....	230V ~ ,50/60Hz , 150W

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..... :	September 23,2018
Date (s) of performance of tests..... :	September 23,2018- October 11,2018

General remarks:

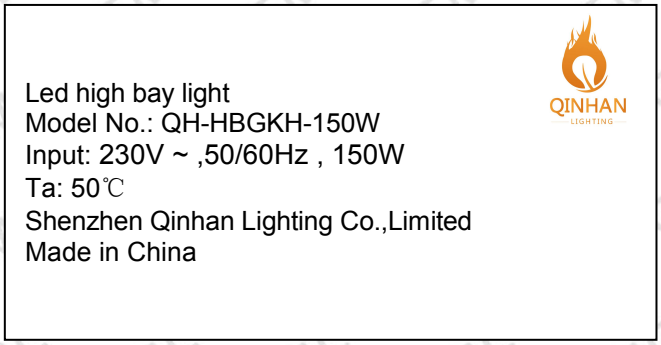
The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.
Throughout this report a point is used as the decimal separator.
Clause numbers between brackets refer to clauses in IEC 60598-1

General product information:

1. All the models have the similar electrical construction except the power and appearance.

Note: All the tests were performed on model QH-HBGKH-150W .

Copy of marking plate
(take the model QH-HBGKH-150W for example)



IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
1.2 (0)	**GENERAL TEST REQUIREMENTS**		P
1.2 (0.1)	Information for luminaire design considered.....:	Standard Yes ☒ No ☐	—
1.2 (0.3)	More sections applicable.....:	Yes ☐ No ☒	—
1.4 (2)	**CLASSIFICATION**		P
1.4 (2.2)	Type of protection .....:	Class I	—
1.4 (2.3)	Degree of protection.....:	IP65	—
1.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces.....:	Yes ☒ No ☐	—
1.4 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	—
	Luminaire for rough service .....:	Yes ☐ No ☒	—
1.5 (3)	**MARKING**		P
1.5 (3.2)	Mandatory markings	See marking plate	P
	Position of the marking	On the outside of main body	P
	Format of symbols/text	Symbols: 5.0mm min. Letter: 2.0mm min.	P
1.5 (3.3)	Additional information		P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires		N/A
1.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
1.5 (3.3.3)	Operating temperature		N/A
1.5 (3.3.4)	Symbol or warning notice		N/A
1.5 (3.3.5)	Wiring diagram	See installation instructions	P
1.5 (3.3.6)	Special conditions		N/A
1.5 (3.3.7)	Metal halide lamp luminaire – warning	Not metal halide lamp luminaire	N/A
1.5 (3.3.8)	Limitation for semi-luminaires		N/A
1.5 (3.3.9)	Power factor and supply current		N/A
1.5 (3.3.10)	Suitability for use indoors		P
1.5 (3.3.11)	Luminaires with remote control	No remote control	N/A
1.5 (3.3.12)	Clip-mounted luminaire – warning	Not clip-mounted luminaires	N/A
1.5 (3.3.13)	Specifications of protective shields		N/A
1.5 (3.3.14)	Symbol for nature of supply	~	P
1.5 (3.3.15)	Rated current of socket outlet	No socket outlet	N/A
1.5 (3.3.16)	Rough service luminaire	Luminaire for normal use	N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable	Ordinary luminaire	N/A
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
1.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
1.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		N/A
	Cautionary symbol		N/A
1.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
1.5 (3.4)	Test with water	rubbing for 15 s	P
	Test with hexane	rubbing for 15 s	P
	Legible after test	legible	P
	Label attached	not be easily removable and no curling.	P
1.6 (4)	**CONSTRUCTION**		P
1.6 (4.2)	Components replaceable without difficulty		N/A
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	**Lampholders**		N/A
1.6 (4.4.1)	Integral lampholder		N/A
1.6 (4.4.2)	Wiring connection		N/A
1.6 (4.4.3)	Lampholder for end- to- end mounting		N/A
1.6 (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 (Nm) .....:		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
1.6 (4.4.5)	Peak pulse voltage		N/A
1.6 (4.4.6)	Centre contact		N/A
1.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
1.6 (4.4.8)	Lamp connectors		N/A
1.6 (4.4.9)	Caps and bases correctly used		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
1.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
1.6 (4.5)	**Starter holders**		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
1.6 (4.6)	**Terminal blocks**		N/A
	Tails		N/A
	Unsecured blocks		N/A
1.6 (4.7)	**Terminals and supply connections**		N/A
1.6 (4.7.1)	Contact to metal parts		N/A
1.6 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
1.6 (4.7.3)	Terminals for supply conductors		N/A
1.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
1.6 (4.7.4)	Terminals other than supply connection		N/A
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
1.6 (4.7.6)	Multi-pole plug	No multi-pole plug	N/A
	- test at 30 N		N/A
1.6 (4.8)	**Switches**		N/A
	- adequate rating	No switch	N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
1.6 (4.9)	**Insulating lining and sleeves**		**P**
1.6 (4.9.1)	Retainment		P
	Method of fixing.....:	Heating shrinkable tub at input wire provides mechanical fixing	—
1.6 (4.9.2)	Insulated linings and sleeves:		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	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
1.6 (4.10)	**Double or reinforced insulation**		N/A
1.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
1.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
1.6 (4.11)	**Electrical connections and current-carrying parts**		**P**
1.6 (4.11.1)	Contact pressure		P
1.6 (4.11.2)	Screws:		N/A
	- self-tapping screws	Self-tapping screws not used	N/A
	- thread- cutting screws	Thread-cutting screws not used	N/A
1.6 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
1.6 (4.11.4)	Material of current-carrying parts	>50% copper	P
1.6 (4.11.5)	No contact to wood or mounting surface	No wood	P
1.6 (4.11.6)	Electro-mechanical contact systems	No such systems	N/A
1.6 (4.12)	**Screws and connections (mechanical) and glands**		**P**
1.6 (4.12.1)	Screws not made of soft metal	Insulating material screw not provided in this luminaire	N/A
	Screws of insulating material	Screws for fixing enclosure: 3.8mm, 1.2Nm	P
	Torque test: torque (Nm); part.....:	Screws for fixing cover: 3.8mm, 1.2Nm	P
	Torque test: torque (Nm); part.....:	Screws for fixing LED PCB: 2.9mm, 0.5Nm	P

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	Torque test: torque (Nm); part.....:		N/A
1.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
1.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm).....:		N/A
	- lampholder; torque (Nm).....:		N/A
	- push-button switches; torque 0,8 Nm.....:		N/A
1.6 (4.12.5)	Screwed glands; force (Nm).....:	Metal gland: 13.4mm, 6.25Nm	P
1.6 (4.13)	**Mechanical strength**		**P**
1.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....:		N/A
	- other parts; energy (Nm).....:	0.35 Nm, metal enclosure 0.35 Nm, Transparent cover	P
	1) live parts	Not become accessible	P
	2) linings		P
	3) protection	Remain accordance against ingress of dust, sold objects and moisture classification	P
	4) covers		P
1.6 (4.13.3)	Straight test finger	30N	P
1.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
1.6 (4.13.6)	Tumbling barrel		N/A
1.6 (4.14)	**Suspensions, fixings and means of adjusting**		**P**
1.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	3.13kg X 4	P
	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) .....:		N/A
	Metal rod. diameter (mm) .....:		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
1.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) ..... :		—
	Stress in conductors (N/mm²) ..... :		N/A
	Mass (kg) of semi-luminaire ..... :		—
	Bending moment (Nm) of semi-luminaire ..... :		N/A
1.6 (4.14.3)	Adjusting devices:		N
	- flexing test; number of cycles..... :		N/A
	- strands broken..... :		N/A
	- electric strength test afterwards		N/A
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
1.6 (4.14.5)	Guide pulleys		N/A
1.6 (4.14.6)	Strain on socket-outlets		N/A
1.6 (4.15)	**Flammable materials**		**P**
	- glow- wire test 650°C..... :	Transparent cover	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
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
1.6 (4.16)	**Luminaires for mounting on normally flammable surfaces**		**P**
	No lamp control gear..... :	The clause not applicable to a control supplied within an enclosure of its own	P
1.6 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
1.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
1.6 (4.16.3)	Design to satisfy the test of 12.6		N/A
1.6 (4.17)	**Drain holes**		N/A
	Clearance at least 5 mm		N/A
1.6 (4.18)	**Resistance to corrosion**		**N/A**
1.6 (4.18.1)	- rust- resistance		N/A
1.6 (4.18.2)	- season cracking in copper		N/A
1.6 (4.18.3)	- corrosion of aluminium		N/A
1.6 (4.19)	Igniters compatible with ballast	No ignitors	N/A
1.6 (4.20)	Rough service vibration	Not rough service luminaires	N/A
1.6 (4.21)	**Protective shield**		N/A
1.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
1.6 (4.21.3)	No direct path		N/A
1.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment.....:	See Test Table 1.15 (13.3.2)	N/A
1.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
1.6 (4.23)	Semi-luminaires comply Class II		N/A
1.6 (4.24)	**Photobiological hazards**		N/A
1.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
1.6 (4.24.2)	Retinal blue light hazard		N/A
	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
1.6 (4.25)	**Mechanical hazard**		**P**
	No sharp point or edges		P
1.6 (4.26)	**Short-circuit protection**		**P**

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
1.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N
1.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		P
	Test chain not melt through		P
	Test sample not exceed values of Table 12.1 and 12.2		P
1.6 (4.27)	**Terminal blocks with integrated screwless earthing contacts**		N/A
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
1.6 (4.28)	**Fixing of thermal sensing control**		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C)..... :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
1.6 (4.29)	**Luminaires with non-replaceable light source**		**P**
	Not possible to replace light source		P
	Live part not accessible after parts have been opened by hand or tools		N/A
1.6 (4.30)	**Luminaires with non-user replaceable light source**		N/A
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	Minimum two fixing means		N/A
1.6 (4.31)	**Insulation between circuits**		N/A
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
	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
1.6 (4.31.1)	SELV circuits		P

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	Used SELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		P
	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
1.6 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to 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
1.6 (4.31.3)	Other circuits		N/A
	Other circuits insulated from accessible parts according Table X.1		N/A
	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 of above		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
1.6 (4.32)	**Overvoltage protective devices**		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	Comply with IEC 61643-11		N/A
	External to control gear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
1.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		P
1.7 (11.2)	Creepage distances and clearances.....:	See Table 1.7 (11.2)	P
	Working voltage (V).....:	230V	—
	Rated pulse voltage (kV).....:	--	—
	Voltage form.....:	Sinusoidal ☒ Non-sinusoidal ☐	—
	PTI.....:	< 600 ☒ ≥ 600 ☐	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II ☒ Category III ☐	—
1.8 (7)	**PROVISION FOR EARTHING**		**P**
1.8 (7.2.1 + 7.2.3)	Accessible metal parts	Permanently and reliably connected to the earthing terminal	P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω.....:	0.043	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		P
	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
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		P
1.8 (7.2.4)	Locking of clamping means		--
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
1.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
1.8 (7.2.8)	Material of earth terminal		P

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	Contact surface bare metal		P
1.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
1.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		N/A
1.9 (14)	**SCREW TERMINALS**		N/A
	Separately approved; component list.....:		N/A
	Part of the luminaire.....:		N/A
1.9 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		N/A
	Separately approved; component list.....:	(see Annex 1)	N/A
	Part of the luminaire.....:	(see Annex 4)	N/A
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.....:	Connecting leads	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
1.10 (5.2.2)	Type of cable.....:		P
	Nominal cross-sectional area (mm²)..... :	3X0.75mm²	P
	Cables equal to IEC 60227 or IEC 60245	IEC 60227	P
1.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
1.10 (5.2.5)	Type Z not connected to screws		N/A
1.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
1.10 (5.2.9)	Locking of screwed bushings		P

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
1.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	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
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
1.10 (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	0.4	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
1.10 (5.2.11)	External wiring passing into luminaire		P
1.10 (5.2.12)	Looping- in terminals		N/A
1.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
1.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	No unsafe compatibility		N/A
1.10 (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
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
1.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
1.10 (5.3)	**Internal wiring**		**P**
1.10 (5.3.1)	Internal wiring of suitable size and typen		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A)..... :		N/A
	- temperatures.....:		N/A
	Green- yellow for earth only		P
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²)..... :	0.5mm²	P
	Insulation thickness		P
	Extra insulation added where necessary		N/A
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Adequate cross-sectional area and insulation thickness		N/A
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
1.10 (5.3.1.4)	Conductors without insulation		N/A
1.10 (5.3.1.5)	SELV current-carrying parts		N/A
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
1.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
1.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
1.10 (5.3.4)	Joints and junctions effectively insulated		N/A
1.10 (5.3.5)	Strain on internal wiring		P
1.10 (5.3.6)	Wire carriers		N/A
1.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
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, 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 starterholders 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
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
1.11 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
1.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
1.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- touch current .....:		N/A
	- no-load voltage.....:		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage .....:		N/A
1.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
1.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
1.11 (8.2.6)	Covers reliably secured		N/A
1.11 (8.2.7)	Discharging of capacitors ≥ 0,5 μF		N/A
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A
1.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		P
1.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 4.13		—
1.12 (12.3)	Endurance test:		P
	- mounting- position.....:	According to manual	—
	- test temperature (°C).....:	35	—
	- total duration (h).....:	240h	—
	- supply voltage: Un factor; calculated voltage (V)...:	254V	—
	- lamp used.....:	Filament Lamp	—
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	- no cracks, deformation etc.		N/A
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/A
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/A
	- calculated mounting surface temperature (°C) .....:		N/A
	- track- mounted luminaires		N/A
1.12 (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
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
1.12 (12.7.1)	Luminaire without temperature sensing control		N/A
1.12 (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) .....:		—
	- 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.....:		—

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	- calculated temperature of fixing point/exposed part (°C)....:		—
	Ball-pressure test....:	See Table 1.15 (13.2.1)	N/A
1.12 (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 1.15 (13.2.1)	N/A
1.12 (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
1.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link....:	Yes ☐ No ☐	—
	- manual reset cut-out....:	Yes ☐ No ☐	—
	- auto reset cut-out....:	Yes ☐ No ☐	—
	- case of abnormal conditions....:		—
	- highest measured temperature of fixing point/ exposed part (°C):....:		—
	Ball-pressure test:....:	See Table 1.15 (13.2.1)	N/A

1.13 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		P
1.13 (-)	If IP > IP 20 the order of tests as specified in clause 1.12		N/A
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		—
	- classification according to IP....:	IP65	—
	- mounting position during test....:	Normal use, most unfavourable position	—
	- fixing screws tightened; torque (Nm)....:	Two thirds of that specified in table 4	—
	- tests according to clauses....:	9.2.0	—
	- electric strength test afterwards	See 10.2.2	P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust- tight luminaire		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	d) i) For luminaires without drain holes – no water entry		N/A
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		N/A
	f) no contact with live parts (IP 2X)		N/A
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		N/A
1.13 (9.3)	Humidity test 48 h	25℃, 95%R.H.	P
1.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		P
1.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:		—
	Insulation resistance (MΩ)..... :		—
	SELV		N/A
	- between current-carrying parts of different polarity:		N/A
	- between current-carrying parts and mounting surface.....:		N/A
	- between current-carrying parts and metal parts of the luminaire.....:		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV		P
	- between live parts of different polarity..... :		N/A
	- between live parts and mounting surface.....:	> 100M, limits: 2M	P
	- between live parts and metal parts.....:	> 100M, limits: 2M	P
	- between live parts of different polarity through action of a switch.....:		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)..... :	within ±3 %.	P
	SELV		N/A
	- between current-carrying parts of different polarity:		N/A
	- between current-carrying parts and mounting surface..... :		N/A
	- between current-carrying parts and metal parts of the luminaire..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV		P
	- between live parts of different polarity..... :		N/A
	- between live parts and mounting surface..... :	1480V, No flashover or breakdown	P
	- between live parts and metal parts..... :	1480V, No flashover or breakdown	P
	- between live parts of different polarity through action of a switch..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
1.14 (10.3)	Touch current or protective conductor current (mA). :	0.41mA, Limits: 3.5mA	P

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

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict

1.7 (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 Live parts of different polarity(LED Driver) fuse two pin			**>2.5** **>2.5**			
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						
Clearances						
Required basic insulation	0,2	0,8	1,5	3	4	5,5
Measured Live parts of different polarity fuse two pin			**>2.5** **>2.5**			
Required supplementary insulation	-	0,8	1,5	3	4	5,5
Measured						
Required reinforced insulation	-	1,6	3	6	8	11
Measured						

Table 11.2	**Minimum distances (mm) for non-sinusoidal pulse voltages**						**N**
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							

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict

1.15 (13.2.1)	**TABLE: Ball Pressure Test of Thermoplastics**		**P**
Allowed impression diameter (mm) .....:		2mm	—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Connector	--	125	0.92
Transparent cover	--	75	0.83
Supplementary information:			

1.15 (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
PCB of LED driver	--	10	No	3	P
transformer bobbin	--	10	No	5	P
Supplementary information:					

1.15 (13.3.2)	**TABLE: Glow-wire test (IEC 60695-2-11)**				**P**
Glow wire temperature .....:		650°C			—
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
Transparent cover	--	30	No	0	P
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No).....:					
Supplementary information:					

1.15 (13.4)	**TABLE: Proof tracking test (IEC 60112)**	**N**

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict

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	**TABLE: Critical components information**					P
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Lead wire	A	Baijia	H055-K	0.5mm², 180℃	--	VDE
Heating shrinkage tube	A	FOSHAN DONGYING HOT SHRINK MATERIAL CO LTD	SALIPT S-901- 600	T125℃	UL 224	UL E487049
Fuse (F1）	A	QianZhi Electronics	SG-M004-05	5A 250V	--	VDE
LED	A	PHILIPS LUMILEDS	SMD 3030	VF:5.8-6.0,IF=150mA ,CCT=6500K	--	-
LED Driver	A	MEAN WELL ENTERPRISES CO.,LTD.	HBG-160-48A	100-240V ~ ,50/60Hz , 150W	EN61347	

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	**TABLE: Temperature measurements, thermal tests of Section 12**		P
	Type reference.....:	QH-HBGKH-150W	—
	Lamp used.....:	LED module	—
	Lamp control gear used.....:	Integral electronic LED driver	—
	Mounting position of luminaire.....:	See manual	—
	Supply wattage (W).....:	227.1W	—
	Supply current (A)..... :	0.916	—
	Calculated power factor.....:	0.97	—

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict

	Table: measured temperatures corrected for ta = 25 °C:		
	- abnormal operating mode.....:	LED Driver output: short circuit	—
	- test 1: rated voltage.....:	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:	254.4V	—
	- 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.....:	264V	—
	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
Enclosure of LED Driver	45	-	91.6	-	Ref.	48.6	175
Heat-shrinkable tubing	45	-	80.4	-	120	-	-
Input wire	45	-	73.9	-	105	-	-
Connector	45	-	63.4	-	Ref.	-	-
Output wire	45	-	105.0	-	180	-	-
LED PCB	45	-	105.9	-	130	-	-
Power cord	45	-	46.2	-	90	-	-
Cover	45	-	82.5	-	90	-	-
Metal enclosure	45	-	56.6	-	90	-	-
Mounting surface	45	-	50.2	-	90	46.1	130

Supplementary information:

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
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).....:		N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

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

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict
(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
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)..... :		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N/A
(15.6)	Terminals external wiring		N/A
	Terminal size and rating		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A
	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A

IEC 60598-2-1& IEC 60598- 1			
Cl.	Requirement – Test	Result	Verdict

(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:										

Photo 1

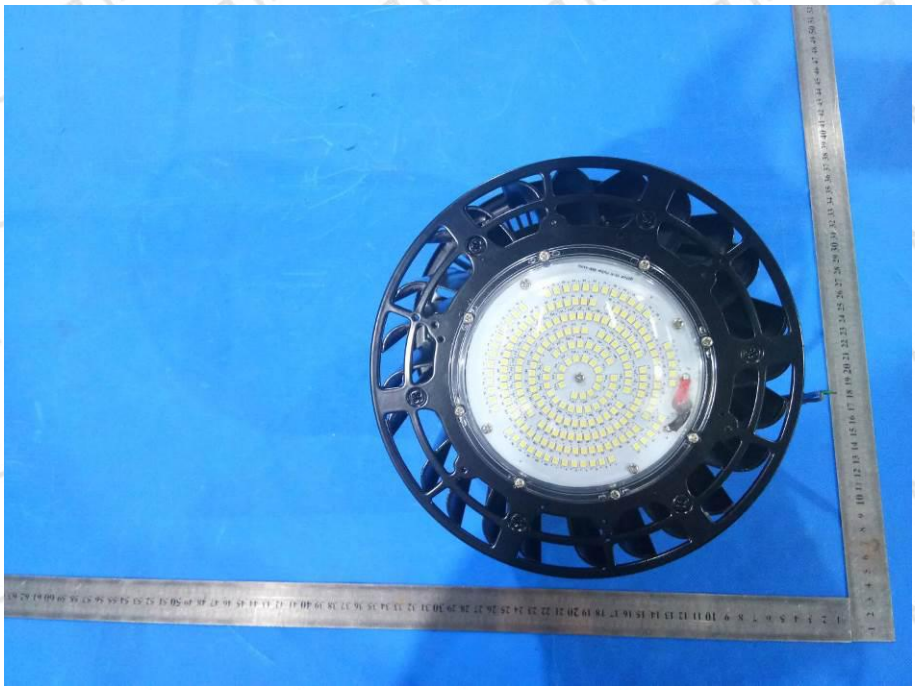


Photo 2

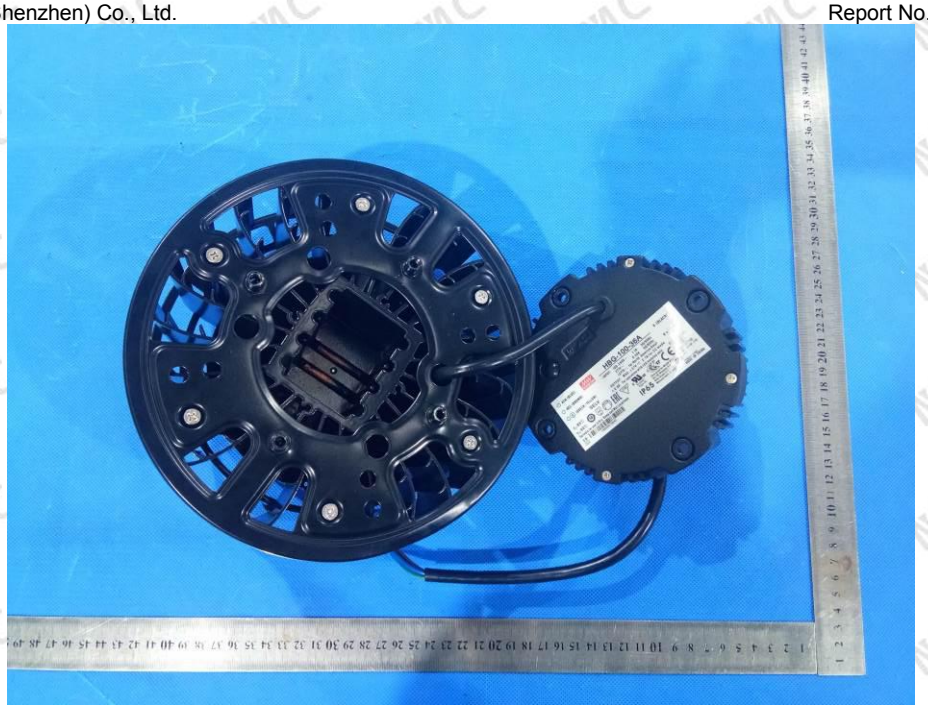


Photo 3

Photo 4

********End of Report********