APPLICATION FOR IEC 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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Date of Test: September 23,2018 - October 11, 2018
Date of Report: October 11, 2018
Report Number: TMC181008115-S

TEST REPORT

IEC 62031

LED modules for general lighting – Safety specifications

Report	
Reference No.:	TMC181008115-S
Tested by (+ signature):	Bart Deng
Approved by (+ signature):	Lemon Rao
Date of issue:	October 10, 2018
Contents:	22 pages
Testing Laboratory Name:	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 above
Applicant's Name:	Shenzhen Qinhan Lighting Co.,Limited
Address:	A building, Chuangze Industrial City, Dalang Town, Dongguan, Guangdong, China.
Manufacturer:	Shenzhen Qinhan Lighting Co.,Limited
Address:	A building, Chuangze Industrial City, Dalang Town, Dongguan, Guangdong, China.
Test specification	
Standard:	IEC 62031:2008
Test procedure:	Comply with IEC 62031:2008
Non-standard test method:	N/A
Test item description:	LED HIGH BAY LIGHT
Trade Mark:	N/A
Model and/or type reference:	QH-HBGKH-150W
Rating(s):	230V ~ ,50/60Hz , 150W

Copy of marking plate:

Led high bay light
Model :QH-HBGKH-150W
Input：230V ~ ,50/60Hz , 150W

Shenzhen Qinhan Lighting Co.,Limited
Made In China

Test item particulars :
Test case verdicts
Test case does not apply to the test object .....: N/A
Test item does meet the requirement .....: P(ass)
Test item does not meet the requirement .....: F(ail)
Testing
Date of receipt of test item .....: September 23,2018
Date(s) of performance of test.....: September 23, 2018 to October 11, 2018
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. **General product information:** All models are same except the QH-HBGKH-150W
Test result: All tests compliance with the standards of IEC 62031: 2008

Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.4	Integral modules tested assembled in the luminaire		N
4.5	Independent modules complies with requirements in IEC 60598-1		N
5	**GENERAL TEST REQUIREMENTS**		P
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N
	General conditions for tests in Annex A	(see Annex A)	P
6	**CLASSIFICATION**		P
	Built-in module ..... :	Yes ☒ No ☐	—
	Independent module..... :	Yes ☐ No ☒	—
	Integral module ..... :	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	**MARKING**		P
7.1	**Mandatory markings for built-in or independent modules**		**P**
	a) mark of origin		P
	b) model number, type reference		P
	c1) constant voltage module; rated supply voltage and supply frequency	230V~	P
	c2) constant current module; rated supply current and supply frequency	1.7A	P
	d) nominal power	150W	P
	e) indication of connections, wiring diagram		P
	f) value of t_c and place on the module		N
	g) *E*thr if required		N
	h) symbol for built-in modules		P
	i) heat transfer temperature t_d		N
	j) power for heat-conduction P_d		N
	k) working voltage for insulation		P
7.2	**Location of marking**		**P**
	- marking of a), b), c) and f) on the modules		P
	- marking of d), e), g), h), i) and j) on the modules or data sheet		P
	- marking of k) in manufactures literature		P

Clause	Requirement + Test	Result - Remark	Verdict
	- integral modules a) to g) in literature		N
7.3	**Durable and legibility of marking**		**P**
	- marking of a), b), c) and f) legible after test with water		P
	- marking of d) to j) inspection of compliance		P
8	**TERMINALS**		**N**
	Screw terminals according section 14 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 3)	N
	Screwless terminals according section 15 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 4)	N
	Connectors according IEC 60838-2-2:		N
	Separately approved; component list	(see Annex 2)	N
9 (9)	**PROVISION FOR PROTECTIVE EARTHING**		**P**
- (9.1)	**Provisions for protective earthing**		P
	Terminal complying with clause 8		P
	Locked against loosening and not possible to loosen by hand		P
	Not possible to loosen clamping means unintentionally on screwless terminals		P
	Earthing via means of fixing		P
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		P
	Made of brass or equivalent material		P
	Contact surface bare metal		P
- (9.2)	**Provision for functional earthing**		**N**
	Comply with clause 8 and 9.1		N
- (9.3)	**Earth contact via the track on the printed board**		**N**
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω .....:		N
- (9.4)	**Earthing of built-in lamp controlgear**		**N**

Clause	Requirement + Test	Result - Remark	Verdict
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N
	Earthing terminal only for earthing the built-in controlgear		N
- (9.5)	**Earthing via independent controlgear**		**P**
- (9.5.1)	Earth connection to other equipment		N
	Looping or through connection, conductor min. 1,5 mm² and of copper or equivalent		P
	Protective earthing wires in line with 5.3.1.1 and clause 7		P
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω .....:		N
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N

10 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**P**
- (10.1)	Controlgear protected against accidental contact with live parts		P
- (A2)	The current flowing between the part concerned and earth is measured and does not exceed 0,7 mA (peak) or 2 mA d.c. .....:		P
- (A2)	For frequencies above 1 kHz, the current does not exceed 0,7 mA (peak) multiplied by the value of the frequency in kilohertz or 70 mA (peak) .....:		P
- (A3)	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak).....:		P
- (10.1)	Lacquer or enamel not used for protection or insulation		N
	Adequate mechanical strength on parts providing protection		N
- (10.2)	Capacitors > 0,5 µF: voltage after 1 min (V): < 50 V .....:		N
- (10.3)	Controlgear providing SELV		P
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		P
	No connection between output circuit and the body or protective earthing circuit		P

Clause	Requirement + Test	Result - Remark	Verdict
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N
	SELV outputs separated by at least basic insulation		N
	ELV conductive parts insulated as live parts		N
	Tests according Annex L of IEC 61347-1		N
- (10.4)	Accessible conductive parts in SELV circuits		N
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. ..... :		N
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N
	Y1 or Y2 capacitors comply with IEC 60384-14		N
	Resistors comply with test (a) in 14.1 of IEC 60065		N

11 (11)	**MOISTURE RESISTANCE AND INSULATION**		**P**
	After storage 48 h at 91- 95% relative humidity and 20- 30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ ..... :	DC Input to PCB: >2 MΩ	P
	For double or reinforced insulation ≥ 4 MΩ ..... :		N
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N

12 (12)	**ELECTRIC STRENGTH**		**P**
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		N
	Working voltage ≤ 50 V, test voltage 500 V	DC Input to PCB: 500V	P
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N
	Basic insulation, 2U + 1000 V		N
	Supplementary insulation, 2U + 1000 V		N
	Double or reinforced insulation, 4U + 2000 V		N
	No flashover or breakdown		P

Clause	Requirement + Test	Result - Remark	Verdict
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N
13 (14)	**FAULT CONDITIONS**		**P**
- (14)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		N
	Thermally protected controlgear does not exceed the marked temperature value		N
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N
- (14.5)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ ..... :		P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.6)	Relevant fault condition tests with high-power supply		N
13.2	**Overpower condition**		**P**
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P

Clause	Requirement + Test	Result - Remark	Verdict
15	**CONSTRUCTION**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
- (16)	Creepage and distances and clearances in compliance with IEC 61347-1	(see appended table)	P
	Insulating lining of metallic enclosures		N
	Basic insulation on printed boards tested according to clause 14		N
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		N
	Creepage distances not less than minimum clearance		P
16 (-)	Conductive accessible parts in compliance with applicable parts of IEC 60598-1		P
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	Cl. 17 refer to Cl. 17 of IEC 61347-1 which refer to Cl. 4.11 and 4.12 of IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		—
(4.11)	**Electrical connections**		**P**
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread- cutting screws		N
(4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		N
(4.12)	**Mechanical connections and glands**		**N**
(4.12.1)	Screws not made of soft metal		N
	Screws of insulating material		N
	Torque test: torque (Nm); part.....:		N
	Torque test: torque (Nm); part.....:		N
	Torque test: torque (Nm); part.....:		N
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N
(4.12.4)	Locked connections:		N

Clause	Requirement + Test	Result - Remark	Verdict
	- fixed arms; torque (Nm)..... :		N
	- lampholder; torque (Nm)..... :		N
	- push-button switches; torque 0,8 Nm..... :		N
(4.12.5)	Screwed glands; force (Nm)..... :		N
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**N**
- (18.1)	Ball-pressure test ..... :	See Test Table 18 (18.1)	N
- (18.3)	Glow- wire test (650°C) ..... :	See Test Table 18 (18.3)	N
- (18.4)	Needle-flame test (10 s) ..... :	See Test Table 18 (18.4)	N
- (18.5)	Proof tracking test ..... :	See Test Table 18 (18.5)	N
19 (19)	**RESISTANCE TO CORROSION**		**N**
	- test according 4.18.1 of IEC 60598-1		N
	- adequate varnish on the outer surface		N
20	**INFORMATION FOR LUMINAIRE DESIGN**		**N**
	Information in Annex D (informative)		—
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
22	**PHOTOBIOLOGICAL SAFETY**		**N**
22.1	**UV radiation**		**N**
	Luminous radiation not exceed 2mW/klm		N
22.2	**Blue light hazard**		**N**
	Assessed according to IEC TR 62778		N
22.3	**Infrared radiation**		**N**
	Requirements for infrared radiation when required		N
A	**ANNEX A - TESTS**		**P**
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P

Clause	Requirement + Test	Result - Remark	Verdict
13 (14)	**TABLE: tests of fault conditions**		**P**
Part	**Simulated fault**		**Hazard**
LED module	Overpower: increased until 150 % of the rated power, 30mins		NO
LED	S-C, current from 1.45A to 2.28A↔1.60A		NO

16 (16)	**TABLES: Creepage distances and clearances**						P
Table 3	**Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages**						--
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 Between current-carrying parts of different polarity		**>1.2**					
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 Between current-carrying parts of different polarity		**>0.2**					
Required supplementary insulation		-	0,8	1,5	3	4	5,5
Measured							
Required reinforced insulation		-	1,6	3	6	8	11
Measured							
Table 4	**Minimum distances (mm) for non-sinusoidal pulse voltages**						

Clause	Requirement + Test	Result - Remark	Verdict

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							

Clause	Requirement + Test	Result - Remark	Verdict

18 (18.1)	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:			

18 (18.3)	TABLE: Glow-wire test				N
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
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:					

18 (18.4)	TABLE: Needle-flame test				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
Supplementary information:					

18 (18.5)	TABLE: Proof tracking test				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:					

Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 1	**SELV-operated LED modules**		**N**
	Cl. 5.5 refer to ANNEX I of IEC 61347-2-13 which refer to ANNEX L of IEC 61347-1 (clause numbers between parentheses refer to ANNEX L of IEC 61347-1)		—
(L.3)	**Classification**		**N**
	Class I	Yes ☐ No ☐	—
	Class II	Yes ☐ No ☐	—
	Class III	Yes ☐ No ☐	—
	non-inherently short circuit proof controlgear	Yes ☐ No ☐	—
	inherently short circuit proof controlgear	Yes ☐ No ☐	—
	fail safe controlgear	Yes ☐ No ☐	—
	non-short-circuit proof controlgear	Yes ☐ No ☐	—
(L.4)	**Marking**		N
	Adequate symbols are used		N
(L.5)	**Protection against electric shock**		N
	Comply with 9.2 of IEC 61558-1		N
(L.6)	**Heating**		N
	No excessive temperatures in normal use		N
	Value if capacitor tc marked .....:		—
	Winding insulation classified as Class .....:		—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		N
(L.7)	**Short-circuit and overload protection**		N
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		N
(L.8)	**Insulation resistance and electric strength**		N
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N
(L.8.2)	Insulation resistance		N
	Between input- and output circuits not less than 5 MΩ .....:		N
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ .....:		N
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ .....:		N
(L.8.3)	Electric strength		N
	1) Between live parts of input circuits and live parts of output circuits .....:		N

Clause	Requirement + Test	Result - Remark	Verdict
	2) Over basic or supplementary insulation between:		N
	a) live parts having different polarity ..... :		N
	b) live parts and body if intended to be connected to protective earth ..... :		N
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord ..... :		N
	d) live parts and an intermediate metal part ..... :		N
	e) intermediate metal parts and the body ..... :		N
	f) each input circuit and all other input circuits ..... :		N
	3) Over reinforced insulation between the body and live parts ..... :		N
(L.9)	**Construction**		N
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N
	HF transformer comply with 19 of IEC 61558-2-16		N
(L.10)	**Components**		N
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N
(L.11)	**Creepage distances and clearances**		N
	1. Insulation between input and output circuits, basic insulation:		N
	a) measured values ≥ specified values (mm) ..... :		N
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N
	2. Insulation between input and output circuits, double or reinforced insulation:		N
	a) measured values ≥ specified values (mm) ..... :		N
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N
	3. Insulation between adjacent output circuits		N
	- measured values ≥ specified values (mm) ..... :		N
	4. Insulation between terminals for external connection:		N
	- measured values ≥ specified values (mm) ..... :		N
	5. Basic or supplementary insulation:		N
	a) measured values ≥ specified values (mm) ..... :		N
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N
	d) measured values ≥ specified values (mm) ..... :		N
	e) measured values ≥ specified values (mm) ..... :		N

Clause	Requirement + Test	Result - Remark	Verdict
	6. Reinforced insulation or insulation:		N
	Between body and output circuit: measured values ≥ specified values (mm) .....:		N
	Between body and output circuit if provision against transient voltages: measured values ≥ specified values (mm) ..... :		N
	7. Distance through insulation:		N
	a) measured values ≥ specified values (mm) .....:		N
	b) measured values ≥ specified values (mm) .....:		N
	c) measured values ≥ specified values (mm) .....:		N

ANNEX 2	**TABLE: Critical components information**				P
object/p art No.	manufacturer/trademark	type/model	technical data	standard	mark(s) of conformity
Power cord	Changzhou Jinding Cable Co., Ltd.	H03VVH2-F	2*0.75mm²	EN 50525-2-11	VDE 40018785
Internal wire	DONGGUAN CHENG XING ELECTRONIC CO LTD		20AWG, 80°C, 300V~	UL 758	UL E249743
LED	PHILIPS LUMILEDS	SMD 3030	VF:5.8-6.0,IF=150mA ,CCT=6500K	--	UL
LED Driver	MEAN WELL ENTERPRISES CO.,LTD.	HBG-160-48A	100-240V 50/60Hz 160W	-EN61347	-
Supplementary information:					
[1] Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

Clause	Requirement + Test	Result - Remark	Verdict
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 (mm²).....:		—
(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

Clause	Requirement + Test	Result - Remark	Verdict
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

Clause	Requirement + Test	Result - Remark	Verdict

	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:

Photos:

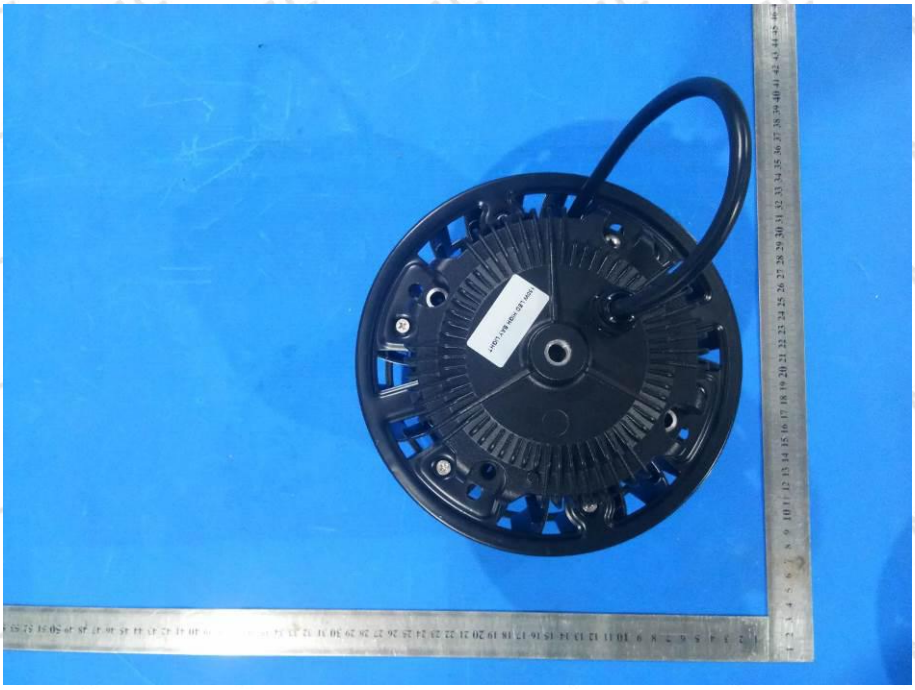

Photo 1

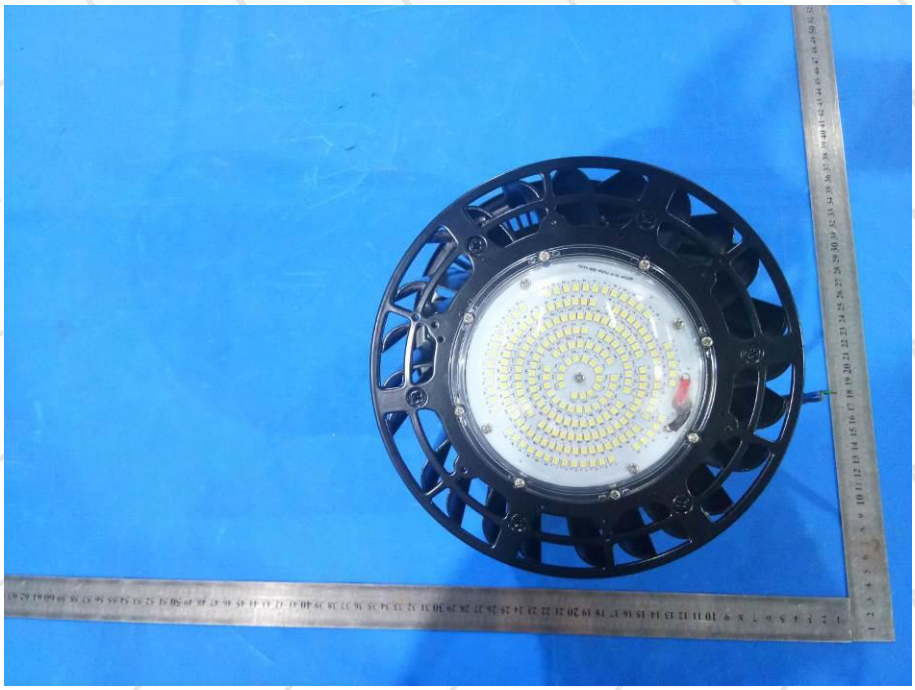

Photo 2

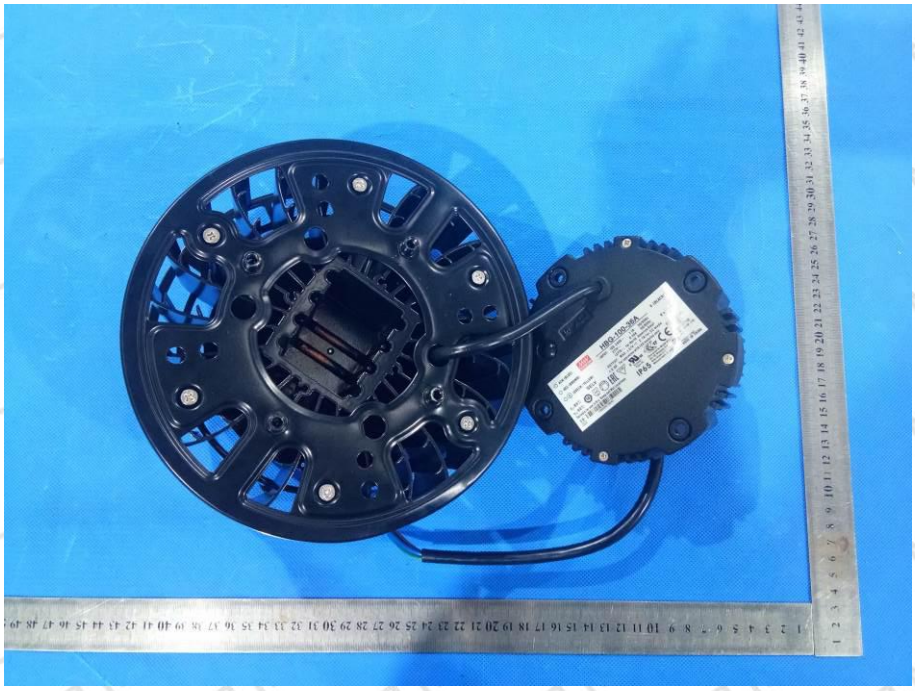

Photo 3

Photo 4

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