TEST REPORT IEC 62560 and/or EN 62560 Self-Ballasted LED-Lamps for General Lighting Services

Report Reference No	140701678SHA-001
Date of issue	December 17, 2014
Total number of pages:	19 pages
Testing Laboratory	Intertek Testing Services Shanghai
Address:	Building No.86, 1198 Qinzhou Rd (North), Shanghai 200233, CHINA
Applicant's name:	Nantong Rightlite Lighting & Electrical Co., Ltd.
Address:	Wanzitou Industrial Zone, Pingchao Town, Nantong , Jiangsu, China
Test specification:	
Standard	IEC 62560 Edition 1.0 2011 and/or
	EN 62560:2010
Test procedure :	CE-LVD
Non-standard test method	N/A
Test Report Form No	TTRF_IECEN62560_A
TRF Originator	Intertek C&E Shanghai
Master TRF:	Dated 2011-02
Test item description:	Self-ballasted LED lamp
Trade Mark:	N/A
Manufacturer:	Same as applicant
Model/Type reference	GU10-COB-3W, GU10-COB-5W, JDR-COB-3W, JDR-COB-5W
Ratings:	GU10-COB-3W, 220-240V~, 50/60Hz, 3W, GU10
	GU10-COB-5W, 220-240V~, 50/60Hz, 5W, GU10
	JDR-COB-3W, 220-240V~, 50/60Hz, 3W, E27, E14
	JDR-COB-5W, 220-240V~, 50/60Hz, 5W, E27, E14

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



Testir	ng procedure and testing location:	
\boxtimes	Testing Laboratory:	Intertek Testing Services Shanghai
Test	ing location/ address:	Building No.86, 1198 Qinzhou Rd (North), Shanghai 200233, CHINA
	Associated Laboratory:	
Test	ing location/ address	
	Tested by (name + signature): Approved by (+ signature)	Ashuram Zhu Ashuram Zhu Berlin Duan Rado
	Testing procedure: TMP	l^{α}
	Tested by (name + signature):	
	Approved by (+ signature)	
Test	ing location/ address:	
	Testing procedure: WMI	
	Tested by (name + signature):	
	Witnessed by (+ signature)	
	Approved by (+ signature)	
Test	ing location/ address:	
	Testing procedure: SMT	
	Tested by (name + signature):	
	Approved by (+ signature):	
	Supervised by (+ signature):	
Test	ing location/ address:	
	Testing procedure: PMT	
	Tested by (name + signature)	
	Approved by (Laispoture)	
	Approved by (+ signature)	
	Supervised by (+ signature):	
lest	ing location/ address	



Summary of testing:

Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods.

Some representative samples of the products covered by this report have been tested and comply with the applicable requirements of this standard.

All respective tests are applied to typical samples.

The standards EN 62493:2010 was considered and conducted. Details see the Appendix 1 on page 14.

Tests performed (name of test and test clause):	Testing location:
Full	Intertek Testing Services Shanghai
	Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, CHINA

Summary of compliance with National Differences:

CENELE Common Modification (EN) is verified.

Copy of marking plate: (sample)





Nantong Rightlite Lighting & Electrical Co., Ltd.

Label of all models are the same except model name, wattage and parameter.

Test items particulars:	
Lamp cap:	GU10, E27, E14
Lamp identification:	Self-ballasted LED lamps
Commission received from:	N/A
Date:	N/A
Electrical safety class	Class II
IP number:	IP 20
Possible test case verdicts:	
 test case does not apply to the test object 	N/A
 test object does meet the requirement 	P (Pass)
 test object does not meet the requirement 	F (Fail)
Testing:	
Date of receipt of test item:	July 24, 2014
Date (s) of performance of tests:	July 24, 2014 – August 21, 2014
General remarks:	
The test results presented in this report relate only to the This report shall not be reproduced, except in full, without "(See Enclosure #)" refers to additional information and "(See appended table)" refers to a table appended to the Throughout this report a comma is used as the decime	ne object tested. out the written approval of the Issuing testing laboratory. opended to the report. ne report. al separator.
General product information:	
Total 4 models are covered by this report.	
Self-ballasted lamps are with GU10, E14 or E27 caps	
Glass enclosure was fixed to ceramic base by self-ha	rdening glue.
Factory name: Nantong Rightlite Lighting & Electrical	Co., Ltd.
Address: Wanzitou Industrial Zone, Pingchao Town, I	Nantong , Jiangsu, China

		Page 5 of 19	Report No.: 1407016	78SHA-002
		IEC 62560 and/or EN 6	2560	
Clause	Requirement – Test		Result - Remark	Verdict

4	GENERAL REQUIREMENTS AND GENERAL TEST REQUIREMENTS		
4.1	The lamps are designed and constructed that in normal use they function reliably and cause no danger to the user or surroundings		Ρ
4.2	Non-repairable, factory-sealed units		Р
4.3	All tests are carried out on each type of lamp, or on a representative selection from the range		Р
4.4	When the lamp fails during on of the tests, it is replaced, provided that no fire, smoke or flammable gas is produced		Р

5	MARKING		
5.1	a) Mark of origin		Р
	b) Rated voltage/voltage range (V)	220-240V	Р
	d) Rated wattage (W)	3W / 5W	Р
	d) Rated frequency (Hz)	50/60Hz	Р
5.2	a) Burning position if restricted		N/A
	b) Lamp current (A)		N/A
	c) The mechanical stress caused by the weight of the lamp in the luminaire		Р
	d) Special conditions or restrictions observed for lamp operation; operation in dimming circuits		Р
	Not suitable for dimming; symbol used		Р
	e) For eye protection, IEC/TR 62471-2		Р
5.3	1) Presence and legibility of the marking by visual inspection		Р
	2) The durability of the marking is checked by rubbing lightly with water and hexane for 15 s		Р
	3) Availability of information by visual inspection		Р

6	INTERCHANGEABILITY		
6.1	Cap interchangeability		
	Interchangeability shall be ensured by the use of caps in accordance with IEC 60061-1 and gauges in accordance with IEC 60061-3		N/A
	Compliance of the combination of cap and bulb is checked by the use of qauqes		N/A
	B22d or B15d:		N/A
	A max. and A min. gauge 7006-10/11		N/A
	D1 max. gauge 7006-10/11		N/A
	N min. gauge 7006-10/11		N/A

		Page 6 of 19	Report No.: 1407016	78SHA-001
		IEC 62560 and/or EN 6	62560	
Clause	Requirement – Test		Result - Remark	Verdict

Diametrical position of the pins:	N/A
Insertion in lampholder gauge 7006-4A	N/A
Retention in lampholder gauge 7006-4B	N/A
E11:	N/A
"Go" gauge 7006-6	N/A
E12:	N/A
"Go" gauge 7006-27H	N/A
Additional "Go" gauge 7006-27J	N/A
"Not Go" gauge 7006-28C	N/A
Contact-making gauge 7006-32	N/A
E14:	Р
Max. dimensions of the screw thread gauge 7006-27F	Р
Min. major diameter of the screw thread gauge 7006-28B	Р
Dimension S1 gauge 7006-27G	Р
Contact making gauge 7006-54	Р
E17:	N/A
Max. dimensions of the screw thread gauge 7006-27K	N/A
Min. major diameter of the screw thread gauge 7006-28F	N/A
Contact making gauge 7006-26D	N/A
E26:	N/A
Max. dimensions of the screw thread gauge 7006-27D	N/A
Max. major diamater of the screw thread gauge 7006-27E	N/A
E27:	Р
Max. dimension of the screw thread gauge 7006-27B	Р
Min. major diameter of the screw thread gauge 7006-28A	Р
Dimension S1 gauge 7006-27C	Р
Contact making gauge 7006-50	Р
GU10:	Р
"Go" and "Not Go" gauge 7006-121	Р
GZ10:	N/A
"Go" and "Not Go" gauge 7006-120	N/A
GX53:	N/A
"Go" and "Not Go" gauge 7006-142	N/A

Pa		Page 7 of 19	Report No.: 1407016	78SHA-001
		IEC 62560 and/or EN 6	62560	
Clause	Requirement – Test		Result - Remark	Verdict

	"Not Go" gauge 7006-142D		N/A
	"Go" and "Not Go" gauge for checking keyways 7006-142E		N/A
	"Not Go" gauge for checking keyways 7006-142F		N/A
6.2	Bending Moment, axial pull and mass		
	Bending moment imparted by the lamps at the lampholder shall not exceed:		N/A
	Cap type; bending moment (Nm):	E27; 2 Nm	Р
	Cap type; bending moment (Nm):	E14; 1 Nm	Р
	Cap type; bending moment (Nm):		N/A
	The lamps construction shall withstand externally applied axial pull and bending moment		N/A
	Axial pull test: 40 N; 1 min		N/A
	Bending moment test: 3 Nm; 1 min		N/A
	Mass not exceeding 1 kg		N/A

7	PROTECTION AGAINST ACCIDENTAL CONTAC	T WITH LIVE PARTS	
	Lamps shall be so constructed that no internal metal parts, basic insulated external metal parts or live metal parts are accessible, when the lamps is installed in a prescribed lampholder. Compliance is checked by means of the standard test finger with force of 10 N		N/A
	Edison screw caps compliance with gauge IEC 60061-3, sheet 7006-51A for E27 caps		Р
	and sheet 7006-55 for E14 caps		N/A
	B22, B15, GU10 and GZ10 caps compliances with normal incandescent lamps		Р
	External metal parts other than current-carrying parts of the cap shall not be or become live		N/A
	Any movable conductive material placed in most onerous position without using a tool		N/A
	Compliance test (see Clause 8)		N/A

8	INSULATION RESISTANCE AND ELECTRIC STRENGTH AFTER HUMIDITY TREATMENT		
8.1	Insulation resistance and electric strength be adequate between live parts and accessible parts		Р
8.2	After conditioning 48 h at a 9195 % relative humidity and at 2030 °C	93 %R.H.; 25 °C	Р
	Insulation resistance with 500 V d.c., required $\ge 4 \ M\Omega$.	>199MΩ	Р
	Requirements of IEC 61347-1 Annex A complied		Р

		Page 8 of 19	Report No.: 1407016	78SHA-001
		IEC 62560 and/or EN 6	62560	
Clause	Requirement – Test		Result - Remark	Verdict

8.3	Immediately after the insulation resistance test, electric strength test for 1 min.		Р
	Test voltage (4U + 2000V) (V)	2960V	Р
	No flashover or breakdown		Р

9.	MECHANICAL STRENGTH		
9.1	Torsion resistance of unused lamps		N/A
	The cap is remain firmly attached when subjected to torque levels		N/A
	- B22d3 Nm :		N/A
	- B15d 1,15 Nm:		N/A
	- E26 and E273 Nm:	E27; 3 Nm	Р
	- E17 1,5 Nm:		N/A
	- E14 1,15 Nm:	E14; 1,15Nm	Р
	- E11 and E120,8 Nm:		N/A
	- GX53		N/A
	Torque increased continuously from zero to specified value		N/A
	Uncemented caps; relative movement between cap and bulb does not exceed 10°		N/A
9.2	Torsion resistance of lamps after a defined time of usage	(under consideration)	N/A
9.3	After mechanical strength test sample complies requirements of accessibility (Clause 8)		N/A

10	CAP TEMPERATURE RISE		
	Cap temperature rise ΔT_S not exceeding 120 K:		
	- Cap type; Cap temperature rise (K):	E27; 14K	Р
	- Cap type; Cap temperature rise (K):	E14; 15K	Р
	- Cap type; Cap temperature rise (K):		N/A

11	RESISTANCE TO HEAT		
	External parts of insulating material providing protection against electric shock, and parts of insulating material retaining live parts in position, ball pressure test:		Р
	Part tested; temperature (°C); diameter of impression (≤ 2 mm):	PCB; 125; 1,0mm	Р
	Part tested; temperature (°C); diameter of impression (≤ 2 mm):		N/A
	Part tested; temperature (°C); diameter of impression (≤ 2 mm):		N/A



		Page 9 of 19	Report No.: 1407016	78SHA-001
		IEC 62560 and/or EN 6	2560	
Clause	Requirement – Test		Result - Remark	Verdict

Part tested; temperature (°C); diameter of	N/A
impression (\leq 2 mm):	

12	RESISTANCE TO FLAME AND IGNITION		
	Parts of insulating material retaining live parts in position and external parts of insulating material providing protection against electric shock, glow-wire test 650 °C		Р
	Part tested; temperature (°C):	PCB; 650	Р
	Part tested; temperature (°C):		N/A
	Part tested; temperature (°C):		N/A
	Part tested; temperature (°C):		N/A
	No visible flame and no sustained glowing		Р
	Flames and glowing, extinguish within 30 s		N/A
	No ignition of the tissue paper		Р

13	FAULT CONDITIONS		
13.1	Lamps not impair safety when operated under fault conditions during the intended use		Р
13.2	Extreme electrical conditions (dimmable lamps)		
	Lamp withstand extreme electrical conditions for at least 15 min, after thermal stabilization reached		N/A
	Lamp fail safety and has withstood the extreme electrical conditions for 15 min, provided the compliance (see 4.1 and 13.6) is fulfilled		N/A
	Lamp contains an automatic protective device or circuit, operation at this limit for 15 min.		N/A
	The protective device or circuit effectively limits the power over the period, provided the compliance (see 4.1 and 13.6) is fulfilled		N/A
13.3	Extreme electrical conditions (non-dimmable lamp	s)	
	Lamp withstand extreme electrical conditions for at least 15 min, after thermal stabilization reached		Р
	Lamp fail safety and has withstood the extreme electrical conditions for 15 min, provided the compliance (see 4.1 and 13.6) is fulfilled		N/A
	Lamp contains an automatic protective device or circuit, operation at this limit for 15 min.		N/A
	The protective device or circuit effectively limits the power over the period, provided the compliance (see 4.1 and 13.6) is fulfilled		N/A
13.4	Short-circuit across capacitors	(see appended table)	N/A
13.5	Open or bridge points in the circuit where the diagram indicates that such a fault condition may impair safety	(see appended table)	Р



		Page 10 of 19	Report No.: 1407016	78SHA-001
		IEC 62560 and/or EN 6	62560	
Clause	Requirement – Test		Result - Remark	Verdict

13.6	Lamp not catch fire, or produce flammable gases or smoke	Р
	live parts not become accesible	Р
	Insulation resistance with 1000 V d.c., required \geq 4 M Ω .	Р

14	CREEPAGE DISTANCES AND CLEARANCES		
	Creepage distances and clearances according to IEC 61347-1 Table 3 and 4, as appropriate	(see appended table)	Р
	Printed boards see clause 13		Р
	Insulating lining of metallic enclosures		N/A

14	TABLE: creepage distanc	es and cl	earances	i				
	Minimum distances for a.c. (50/60 Hz) sinusoidal voltages							
RMS working voltage (V) not exceeding50150250500750						750	1000	
1 minimum ferent po	n distances between live parts larity. Specify the value mea	s of dif- sured.			Cr=Cl= 4,0mm			
2 minimum distances between live parts and accessible parts which are permanently fixed to the ballast, including screws or devices for fixing covers or fixing the ballast to its support. Specify the value measured.					Cr=Cl= >5mm (by gauge)			
- requir tion PTI	ed creepage distances (mm) ≥ 600	, insula-	0,6	1,4	1,7	3	4	5,5
- requir tion PTI	ed creepage distances (mm) < 600	, insula-	1,2	1,6	2,5	5	8	10
- requir	ed clearances (mm)		0,2	1,4	1,7	3	4	5,5
3 minimum distances between live parts and a flat supporting surface or a loose metal cover, if any, if the construction does not ensure that the values under 2 above are maintained under the most unfavourable circumstances								
- requir	ed clearances (mm)		2	3,2	3,6	4,8	6	8
	Minimum distances for non-	-sinusoida	l pulse vo	ltages				
rated pulse	voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
required mi ances (mm)	nimum distances, clear-	1,0	1,5	2	3	4	5,5	8
Specify the	value measured							
rated pulse voltage (peak kV) 10			12	15	20	25	30	40
required minimum distances, clear-		14	18	25	33	40	60	
Specify the	value measured							
rated pulse	voltage (peak kV)	50	60	80	100	-	-	-



		Page 11 of 19	Report No.: 1407016	78SHA-001
		IEC 62560 and/or EN 6	2560	
Clause	Requirement – Test		Result - Remark	Verdict

required minimum distances, clear- ances (mm)	75	90	130	170	-	-	-
Specify the value measured							



	-	Page 12 of 19	Report No.: 1407016	78SHA-001
		IEC 62560 and/or EN 6	62560	
Clause	Requirement – Test		Result - Remark	Verdict

13	TABLE: tests of fault conditions	
Part	Simulated fault	Hazard
LED	No damage	NO
C1	No damage, recoverable	NO
C2	No damage, recoverable	NO
C3	No damage, recoverable	NO
C4	Fusible resistor damaged immediately	NO
Varistor	The fuse operates immediately	NO



Page 13 of 19	Report No.: 140701678SHA-001
IEC 62560 and/or EN 62560	

Clause Requirement – Test

Result - Remark

Verdict

ANNEX 1: components

object/part No.	co de	manufacturer/ trade- mark	type/model	technical data	standard	mark(s) of conformity
PTC current lim- iter	С	BOURNS ELECTRONICS (TAIWAN) LTD	MF-PSMF110X	V _{max} =DC 6V, I _{max} =40A, T85, ClassC1, UL/E174545	EN 62560	Test with appliance
РСВ	С	KUNSHAN CITY QIANDENG WUQIAO ELECTRICAL APPLIANCE FACTORY	WD-2	T130, V-0, UL/E235380	EN 62560	Test with appliance
Lamp cover	С	Shanghai Chipswinner Electronics Co., Ltd.	CW98TJA4403	V-0	EN 62560	Test with appliance
LED	С	Shanghai Chipswinner Electronics Co., Ltd.	СОВ	I _F =42mA, V _R =3V, 3000K	EN 62471	Test with appliance

The codes above have the following meaning:

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



Appendix 1

	EMF Requirements			
	The Tested product also complies to the requirements of			
	EN 62493 :2010			
1	DISTURBANCE VOLTAGE			
	Disturbance voltage mains terminals in	Р		
	the frequency range from 20 kHz to 30			
	MHz			
2	RADIATED ELECTROMAGNETIC DISTURBANCE – MAGNETIC FIELD			
	Radiated electromagnetic disturbances in	Р		
	the frequency range from 100 kHz to 30			
	MHz			
3	RADIATED ELECTROMAGNETIC DISTURBANCE - ELECTRIC FIELD			
	Radiated electromagnetic disturbances in	Р		
	the frequency range from 30 MHz to 300			
	MHz			
4	INDUCED CURRENT DENSITY TEST			
	the measured (weighted and	Р		
	summarized) induced current density due			
	to the electric field			
	in the frequency range 20 kHz to 10 MHz does not exceed the factor (F) 0,85			



Photos of products



GU10-COB-3W (GU10-COB-5W)



JDR-COB-3W (JDR-COB-5W), E27







JDR-COB-3W (JDR-COB-5W), E14

















Circuit diagram



PCB layout

