Test Report issued under the responsibility of:

TEST REPORT
IEC 62776
Double-capped LED lamps designed to retrofit linear fluorescent lamps – Safety specifications

Report reference No. . .....:	AOC240122008S-R1
Tested by (name + signature).....:	ZhiCong Xian Technical Engineer
Approved by (name + signature) .....:	Robin Liu Technical Manager
Date of issue .....:	2024-01-22
Total number of pages	30 pages
Testing Laboratory Name .....:	**Shenzhen AOCE Electronic Technology Service Co., Ltd**
Address .....:	Room 202, 2nd Floor, No.12th Building,Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District,Shenzhen, Guangdong
Applicant's name .....:	Zhongshan Lianheliuming Lighting Technology Co., Ltd.
Address .....:	8F-1 and 2F-1 Distric D, Building VI Plant, No.1 Henglong Road, Tonyi Industrial Park, Guzhen Town, Zhongshan City, 528421 Guangdong, P.R. China
Test specification:	
Standard.....:	IEC 62776:2014
Test procedure .....:	IEC Test report
Non-standard test method .....:	N/A
Test Report Form No.	TRF.IEC 62776A
Test Report Form(s) Originator.....:	AOCE
Master TRF .....:	Dated 2023-03
Test item description.....:	LED TUBE (T8 LED TUBE)
Trade Mark.....:	/
Manufacturer .....:	Same as applicant
Model/Type reference .....:	NT-T8YP30, other model's name see the page 5.
Ratings .....:	220-240V~, 50/60Hz, 30W Max

List of Attachments (including a total number of pages in each attachment):

Attachment 1: Thermal test data;

Attachment 2: Test report for IEC 61347-1:2015+A1:2017 & IEC 61347-2-13:2014+A1:2016;

Attachment 3: Product photos.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
Unless otherwise specified, model NT-T8YP30 and NT-T8RC15 were chosen to perform full tests. Construction check was performed on all models. Additional requirements for LED driver according to IEC 61347-1:2015+A1 and IEC 60598-1:2020 were considered. Blue light hazard assessment according to IEC TR 62778:2014 was performed on model NT-T8YP30 (6500K) and evaluated as RG0.	Shenzhen AOCE Electronic Technology Service Co., Ltd Room 202, 2nd Floor, No.12th Building,Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District,Shenzhen, Guangdong

Summary of compliance with National Differences:

List of countries addressed

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Copy of marking plate:

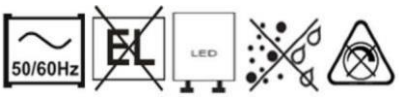
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Rating label attached on the tube

LED Tube (T8 LED Tube)

Model: NT-T8YP30

Rating: 220-240V~, 50/60Hz, 0.22A, 30W



ta: -20 to 40°C

This lamp is not suitable to be used in emergency luminaires designed for double-capped fluorescent lamp(s).

Manufacturer: Zhongshan Lianheliuming Lighting Technology Co., Ltd

Made In China

Label A: attached on the surface of lamp cap.

Note:

Remark:

1. The marking labels for other models are identical as above except model name and ratings.
2. The height of letters and numbers shall not be less than 2mm.
3. The height of graphical symbols shall not be less than 5mm.

Test item particulars..... :	
Classification of installation and use..... :	For indoor use only
Supply Connection ..... :	G13 lamp cap
..... :	
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 ..... :	2024-01-02
Date (s) of performance of tests ..... :	2024-01-02 to 2024-1-22

General remarks:

"(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 ☒ comma / ☐ point is used as the decimal separator.

This report was based on the original report AOC240122008S-R1, only following items are revised, when this report issued, the original report will be withdraw:

1.Modify model name

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :	Same as applicant

General product information:

The samples have been tested and found compliant with the requirement of safety standards listed below:
- IEC 62776:2014

1. The products covered by this report are non-dimmable LED TUBE (T8 LED TUBE). all models have the same mechanical and electrical construction, used in dry location and indoor only
2. All model have are same construction , only the size shape, LED quantity, LED driver and power different with marketing requirement.
3. Integral LED drivers have same circuit diagram and PCB layout, differences are the components, parameters.
4. Ratings: 220-240 V~, 50/60 Hz, , ta:-20℃ to 40℃; 3000-6500K, non-dimmable type.
5. Model list:

Item	Model name	Rated current (A)	Rated power (W)	LED driver	LED quantity	Size (mm)	Weight(g)
1	NT-T8YP09A	0,07	9	B-15W	33S1P, 33pcs	Φ28 x L600	70
2	NT-T8YP09B						
3	NT-T8YP09						
4	NT-T8RC09						
5	NT-T8RC10	0,08	10	B-15W	36S1P, 36pcs	Φ28 x L600	75
6	NT-T8RC10A						
7	NT-T8XH10						
8	NT-T8RC15	0,11	15	B-15W	55S1P, 55pcs	Φ28 x L600	95
9	NT-T8RC15A						
10	NT-T8XH15						
11	NT-T8YP18A	0,14	18	B-30W	33S2P, 66pcs	Φ28 x L1200	165
12	NT-T8YP18B						
13	NT-T8AP18						
14	NT-T8RC18						
15	NT-T8RC18A						
16	NT-T8XH18A						
17	NT-T8YP18						
18	NT-T8XH18						
19	NT-T8YP20	0,16	20	B-30W	36S2P, 72pcs	Φ28 x L1200	170
20	NT-T8AP20						
21	NT-T8RC20						
22	NT-T8XH20						
23	NT-T8LH22	0,18	22	B-30W	40S2P, 80pcs	Φ28 x L1200	175
24	NT-T8XH22						
25	NT-T8LH24	0,20	24	B-30W	44S2P, 88pcs	Φ28 x L1200	180
26	NT-T8YP30	0,22	30	B-30W	55S2P, 110pcs	Φ28 x L1200	190
27	NT-T8AP30						
28	NT-T8RC30						

Note: Item 1-4 are all the same, except model name; Item 5-7 are all the same, except model name; Item 9-10 are all the same, except model name; Item 11-18 are all the same, except model name; Item 19-22 are all the same, except model name; Item 23-24 are all the same, except model name; Item 26-28 are all the same, except model name.

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict

4	GENERAL REQUIREMENTS		**P**
4.1	The lamp shall be so designed and constructed that in normal use cause no danger to the user or surroundings		P
4.2	Double-capped LED lamps shall be specially prepared for fault condition. Opened lamps to verify conformity with clause 11, 12 and 14 of this standard.		P
4.3	All tests are carried out on each type or each power or representative selection of lamps.		P
4.4	When the lamp fails safely during one of the tests, it is replaced if no fire, smoke or flammable gas is produced.		P
4.5	Internal wiring shall be carried out as in Clause 5.3 of IEC 60598-1.		P
4.6	For construction of electrical circuit, cl.15.1, 15.2 of IEC 61347-1. For other parts, cl.4.11, 4.12, 4.25 of IEC 60598-1 shall be regarded.		P
5	**MARKING**		**P**
5.1	Marking on the lamp		P
a)	– mark of origin		P
b)	– rated supply voltage (V) .....:	220-240VAC	P
c)	– rated power (W) .....:	30W	P
d)	– rated frequency (Hz) .....:	50/60Hz	P
e)	– marked with symbol fig. 1.		N/A
	– marked with symbol fig 2.		P
f)	– symbol acc. to Fig.3 and “This lamp is not suitable to be used in emergency luminaires…”		P
g)	– replaced starter, tube marking “type ref”, – starter marking “LED”, Fig.4		P
h)	– information on the ingress of dust and water marked with Fig. 5		P
i)	– rated ambient temperature range of the lamp.		P
5.2	Marking on the lamp, on the immediate lamp wrapping or in the instructions		P
	– explanation of Fig. 1 and Fig. 2 shall be given in instruction manual		P
a)	– rated current (A) .....:	On label	P
b)	– special conditions or restrictions; not suitable	On label	P

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict
	for dimming, symbol fig.6		
5.3	Instruction manual		P
5.3.1	General		P
	– instruction, describing all necessary steps for replacement LED lamp, replacement of starter.		P
	– required instructions shall be given either on the lamp,		N/A
	– on the product packaging		N/A
	– or in the manufacturer´s instructions provided with the lamp		P
	– explanation of the symbols in the instruction manual		P
5.3.2	Declaration of the product		P
(1)	– list of all supplied parts		P
(2)	– declaration of the replaced fluorescent lamps		P
(3)	– Warning that no modification of the luminaire is to be made.		P
(4)	– The ambient temperature range shall be declared.		P
	– if higher than -20°C or lower than +60°C, additional information necessary	-20°C to 40°C	P
	– sentence “The lamp may not be suitable for use in all application …”		P
(5)	– Declare: “This lamp is designed for general lighting service (excluding explosive atmospheres)”		P
5.3.3	Graphical instruction		P
	– Graphical instruction, Fig.7 or description		P
5.3.4	Mounting		P
	– Described steps instead of graphical instruction 5.3.3		P
5.4	Compliance		P
	rubbing 15 s water, 15 s petroleum; marking legible		**P**
6	**INTERCHANGEABILITY**		P
6.1	Interchangeability of the cap		P
	Cap interchangeability in accordance with IEC 60061-1	See appended table 2	P
	Gauge in accordance with IEC 60061-3, G5/G13	G13	P
	LED replacement starter in accordance with the dimensions, electrical, mechanical and thermal		P

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict
	tests required in Section 1 of IEC 60155		
6.2	Mass		P
	G5-capped lamp: limit 200g G13-capped lamp: limit 500g	G13: Max.190g	P
6.3	Dimensions		P
6.3.1	The length of the lamp shall not change significantly within specified ambient temperature range of the lamp.	See appended table 3	P
6.3.2	Double-capped LED lamps for use in FL luminaires shall comply with the dimensions and tolerances of the corresponding lamps as defined in IEC 60081 at 25 °C.	See appended table 3	P
6.3.3	Variation of dimension A due self-heating at 25° C.	See appended table 4	P
6.3.4	Dimensions of corresponding lamps of IEC 60081. min ambient temp.(e.g. -20 °C)	See appended table 4	P
6.3.5	Dimensions of corresponding lamps of IEC 60081. max ambient temp. (e.g. +60 °C)	See appended table 4	P
6.3.6	Compliance		P
	Dimensions A1, B1 of corresponding lamps of IEC 60081.	See appended table 5	P
6.4	Temperature		P
6.4.1	Temperature requirement		P
	LED temperature shall not be higher than 75 °C on any location of the lamp.	Max. 72,2 °C	P
6.4.2	Power requirement		P
	Power consumed of LED lamp shall not higher than replaced FL lamp (described in 60081)		P
6.4.3	Compliance		P
	Compliance; ta 25 °C, horizontally, rated supply voltage. Max surface temp. shall not exceed 6.4.1 and 6.4.2.		P
6.5	Safety of the lamp in case a wrong starter-lamp combination is used		P
	– FL starter with LED lamp		P
	– LED starter with FL lamp		N/A
	– Starter compliance for all possible combinations in case of two fluorescent lamps in series.		P
	– For LED replacement which replace shorted starter: combination “replaced starter for LED lamp and FL lamp” test not required.		P
	Rated voltage is taken as maximum voltage range.		P

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Clause	Requirement + Test	Result - Remark	Verdict
13.2	Testing under extreme electrical conditions		P
	Lamp withstands overpower condition (150 % of the rated power) >15 min.		P
	A lamp fails safe after 15 min overpower condition		N/A
	Lamp with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
13.3	Short-circuit across capacitors		P
	Only one component at a time allowed	see appended table 7	P
13.4	Fault conditions across electronic components		P
	Fault conditions: where diagram indicates fault condition impairs safety, electronic components have been short-circuited or disconnected.	see appended table 7	P
	Only one component at the time subjected.		P
13.5	Compliance		P
	During the tests 13.2 to 13.5 the lamp shall not:		P
	– catch fire		P
	– does not produce flammable gases or smoke		P
	– live parts not accessible		P
	After the tests the insulation resistance with d.c. 500 V complies with requirements of Cl. 8.3:	> 100 MΩ	P
	To avoid any overheating during fault conditions, the impedance of the lamp shall be checked.		P
	Overload due to rectifications of supply current shall be prevent. The difference of pos. and neg. semi waveform <30% of max. value.		P
- (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 7	N/A
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	see appended table 7	N/A
13.7	Safety of the lamp with different types of controlgear		P
	LED lamp operate safely with any type of controlgear as following		P
	– with magnetic ballast		P
	– with HF ballast (fic. A.5, IEC 60081)		P
	LED lamp tested at max. rated voltage with max. rated power.		P
7	**PIN-SAFETY DURING INSERTION**		P

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict
	G5 and G13 lamps shall not be any electrical continuity between two ends of lamp.		P
	Basic insulation during lamp insertion (IEC 60598-1 clause 8)		P
	Deactivation of the protection against electric shock is not permissible		P
	Electric strength test conducted with 1500 V (2 U + 1000 V) between both ends of the lamp	1480V	P
	Insulation resistance measured with about 500 V d.c. the minimum resistance shall be 2 MΩ	> 100 MΩ	P
	Clearance (according to IEC 61347-1) shall be applied based on 250V working voltage		P
	Creepage distances shall not be less than the required minimum clearance.		P
	Touch current shall not exceed 0,7mA peak at a test voltage of 500 V r.m.s. (50 Hz or 60Hz) acc. to Fig. 8	Max. 0,03mA	P
8	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		P
8.1	General		P
	Adequate insulation resistance and electrical strength between live and accessible parts. For caps requirements of IEC 61195 clauses 2.4 and 2.5		P
8.2	Test to establish whether a conductive part may cause an electric shock during operation		P
	Lamp construction without any additional luminaire enclosure. Following parts are not accessible when lamp is installed:		P
	– internal metal parts		P
	– basic insulated external metal parts, other than caps		P
	– live metal parts of the lamp cap		P
	– live metal parts of the lamp itself		P
	Tested with a test finger with a force of 10 N		P
	External metal parts other than current-carrying parts of the cap shall not be live.		P
8.3	Insulation resistance		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
	≥ 4 MΩ for double or reinforced insulation.....:	> 100 MΩ	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.4	Electric strength		P
	Immediately after clause 8.3 electric strength test for 1 min		P
	Basic insulation; pcb-board, SELV-circuits: 500 V		N/A
	Double or reinforced insulation, 4U + 2000 V	2960V	P
	No flashover or breakdown		P
9	**MECHANICAL REQUIREMENTS FOR CAPS**		P
9.1	Construction and assembly		P
	Caps shall be constructed and assembled to the bulb that they remain attached during and after operation as following		P
9.2	Torque test on unused lamps		P
	Compliance is checked by applying a torque test to the pins. The lamp cap shall remain firmly attached to the bulb. Angular displacement < 6°.		P
	Lamps with adjustable caps. Rotated to both extreme positions		N/A
9.3	Torque test after heat treatment		P
	Fixing the cap by crimp, screw or similar connection, lamps are exempt from this clause		P
	Heat treatment for 2000h at 80°C		N/A
	Heat treatment for 100h at 80°C for other kind of fixing		P
	Lamps with adjustable caps. Rotated to its extreme positions (both)		N/A
9.4	Repetition of Clause 8.2		P
	Clause 8.2 shall comply after the mechanical strength test.		P
10	**CAP TEMPERATURE RISE**		P
	Lamp cap temperature shall not exceed 120 °C.		P
11	**RESISTANCE TO HEAT**		P
	Parts of insulating material retaining live parts in position and other parts, enclosure of starter, ball-pressure test:		P
	– part; test temperature (°C) .....:	See appended table 6	P
12	**RESISTANCE TO FLAME AND IGNITION**		P
	External parts of insulating material preventing electric shock, enclosure of starter, glow-wire test 650 °C		N/A
	– flame extinguished within 30 s	Lamp cap, LED driver PCB Bobbin of T1	P

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Clause	Requirement + Test	Result - Remark	Verdict
	– no flaming drops igniting tissue paper		**P**
13	**FAULT CONDITIONS**		P
13.1	General		P
	Lamps shall not impair safety		P
13.2	Testing under extreme electrical conditions		P
	Lamp withstands overpower condition (150 % of the rated power) >15 min.		P
	A lamp fails safe after 15 min overpower condition		N/A
	Lamp with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
13.3	Short-circuit across capacitors		P
	Only one component at a time allowed	see appended table 7	P
13.4	Fault conditions across electronic components		P
	Fault conditions: where diagram indicates fault condition impairs safety, electronic components have been short-circuited or disconnected.	see appended table 7	P
	Only one component at the time subjected.		P
13.5	Compliance		P
	During the tests 13.2 to 13.5 the lamp shall not:		P
	– catch fire		P
	– does not produce flammable gases or smoke		P
	– live parts not accessible		P
	After the tests the insulation resistance with d.c. 500 V complies with requirements of Cl. 8.3:	> 100 MΩ	P
	To avoid any overheating during fault conditions, the impedance of the lamp shall be checked.		P
	Overload due to rectifications of supply current shall be prevent. The difference of pos. and neg. semi waveform <30% of max. value.	Steady-state r.m.s. current is less than the r.m.s. current of corresponding fluorescent lamp	P
13.6	Further requirements		P
	In add. to fault conditions 13.2to 13.5, fault conditions Cl.14.1 of IEC 61347-1 and 14.3 and the additional tests in 13.7 are carried out.		P
- (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 7	N/A
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N/A
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	see appended table 7	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
13.7	Safety of the lamp with different types of controlgear		P
	LED lamp operate safely with any type of controlgear as following		P
	– with magnetic ballast		P
	– with HF ballast (fic. A.5, IEC 60081)		P
	LED lamp tested at max. rated voltage with max. rated power.		P
13.8	Compliance for test with different type of controlgears		P
	During tests of 13.7 shall not catch fire, produce flammable gases or smoke, live parts shall not become accessible.		P
	Low impedance: max. 0,51 A when 3,6 V applied to the pins of a cap.		P
13.9	Safety of the lamp in case the luminaire controlgear short circuits		P
	Ballast and starter are short-circuited in the luminaire.		P
14	**CREEPAGE DISTANCES AND CLEARANCES**		P
	Creepage distances and clearances according to IEC 61347-1 with add. requirements.	see appended table 8	P
	Creepage distance between contact pins or metal shell of the cap according to IEC 60061-4		P
	For other parts creepage distances and clearances IEC 61347-1; accessible conductive parts IEC 60598-1, double or reinforced insulation.		P
15	**LAMP WITH PROTECTION AGAINST DUST AND MOISTURE**		**N/A**
15.1	Aim of the test		N/A
	Where the lamp is not marked acc. to Fig.5 tests 15.2 and 15.3 have to be conducted.		N/A
15.2	Thermal endurance		N/A
	- mounting-position:		N/A
	- test temperature (°C):		N/A
	- total duration (h):		N/A
	- supply voltage:		N/A
	Lamp shall not have become unsafe		N/A
	Marking legible		N/A
15.3	IP testing		N/A
- (9.2)	Tests for ingress of dust, solid objects and moisture:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- classification according to IP:		N/A
	- mounting position during test:		N/A
	- fixing screws tightened; torque (Nm):		N/A
	- tests according to clauses:		N/A
	- electric strength test afterwards		N/A
	a) no deposit in dust-proof lamp		N/A
	b) no talcum in dust-tight lamp		N/A
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	d) i) For lamps without drain holes – no water entry		N/A
	d) ii) For lamps with drain holes – no hazardous water entry		N/A
	e) no water in watertight lamps		N/A
	h) no damage of protective shield or glass envelope		N/A
16	**PHOTOBIOLOGICAL HAZARD**		N/A
16.1	UV radiation		N/A
	UV radiation of LED lamp shall not exceed 2 mW/klm		N/A
16.2	Blue light hazard		P
	Blue light hazard acc. IEC/TR 62778. LED lamps shall be classified as RG0 or RG1 unlimited.	RG0 Blue light hazard radiance: 1.587E+01 W/(m^2•sr^1)	P
16.3	Infrared radiation		N/A
	LED lamps do not require measurement		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

TABLE 1	**: Critical components information**				**P**
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1) 2)]
G13 lamp cap	JIANENG LIGHT FITTINGS CO. , LTD.	G13 lamp cap	--	IEC 62776	Tested with appliance
- Pins of lamp cap	Honghuicheng Hardware (Shenzhen) Co., Ltd	--	Ø2.4 mm; copper: > 60%	IEC 62776	Tested with appliance
- Plastic of lamp cap	BAYER MATERIALSCIENCE AG	6165 X + (z)(f1)	PC; V-0; 125℃	IEC 62776	Tested with appliance & UL E41613
- Fuse in lamp cap	Dongguan Rexmax Electronics Co. , Ltd	TBP	250V, T2A	IEC/EN 60127-1 IEC/EN 60127-3	VDE 40032053
Fixed glue between lamp cap and glass tube	SHIN-ETSU CHEMICAL CO LTD	KE-45	HB, 105℃	--	Tested with appliance and UL E192980
LED	MLS CO.,LTD	E2835UX55	SMD 2835; IF=150mA, VF=2.8-3.8V, View angle: 120°, CCT: 3000-6500K	IEC 62776	Test report: RGT20240105 00606
PCB of LED module	LIANMENG ELECTRONICS HUIYANG CO LTD	LM-6	Metal base; 130℃ ; V-0	--	Tested with appliance & UL E469262
Internal wires	ZHONGSHAN HUALAN ELECTRONIC CO LTD	3135	600V; 20AWG; 200℃	--	Tested with appliance & UL E303124
Heat-shrinkable tube	SHENZHEN WOER HEAT SHRINKABLE MATERIAL CO LTD	RSFR	600V, 125℃		Tested with appliance & UL E203950
LED driver model: B-30W					
Fuse resistor	Xuyi Sanwei Electric Co. Ltd.	RXF	0.5W; 2.2Ω	IEC/EN 62368-1	VDE 40037299
Transformer	Guangdong Hualing Electronic Technology Co. , Ltd.	EE14	2.0mH	--	Tested with appliance
- Bobbin	CHANG CHUN PLASTICS Co. , Ltd.	T375J	PMC; V-0; 150℃	--	Tested with appliance & E59481
- Magnet wire	DONG GUAN YIDA INDUSTRIAL CO LTD	2UEW/155	155℃	--	Tested with appliance & E344055

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Clause	Requirement + Test	Result - Remark	Verdict

- Insulation tape	SYMBIO INC	35660(a), 35660Y(e)	130℃	--	Tested with appliance & UL E50292
PCB	KINGBOARD LAMINATES HOLDINGS LTD	KB-5150	CEM-1; V-0; 130℃	--	Tested with appliance & UL E123995
LED driver model: B-15W					
Fuse resistor	Xuyi Sanwei Electric Co. Ltd.	RXF	0.5W; 2.2Ω	IEC/EN 62368-1	VDE 40037299
Transformer	Guangdong Hualing Electronic Technology Co. , Ltd.	EE10	4.0mH	--	Tested with appliance
- Bobbin	CHANG CHUN PLASTICS Co. , Ltd.	T375J	PMC; V-0; 150℃	--	Tested with appliance & E59481
- Magnet wire	DONG GUAN YIDA INDUSTRIAL CO LTD	2UEW/155	155℃	--	Tested with appliance & E344055
- Insulation tape	SYMBIO INC	35660(a), 35660Y(e)	130℃	--	Tested with appliance & UL E50292
PCB	KINGBOARD LAMINATES HOLDINGS LTD	KB-5150	CEM-1; V-0; 130℃	--	Tested with appliance & UL E123995
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) License available upon request.					

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict

TABLE 2:	Dimensions according to Cap sheet in IEC 60061-1; 7004-51 (G13)						P
Object / part No.	A	D	E	F	G	H	N
NT-T8RC15	24,43	12,5	2,31	7,28	--	--	8,90
NT-T8YP30	24,51	12,7	2,33	7,25	--	--	9,01
Limit T8 lamp:	max. 25,78	12,7	2,29-2,67	6,6-7,62	--	--	min. 8,71

TABLE 3	Dimensions of the corresponding lamps of IEC 60081 25 °C				P
Object / part No.	A	B		C	D
	max	min	max	max	max
NT-T8YP30	1199,1	1205,9		1213,2	27,6
Limit	1199,4	1204,1	1206,5	1213,6	28,0
NT-T8RC15	588,5	596,3		603,0	27,6
Limit	589,8	594,5	596,9	604,0	28,0

TABLE 4	Variation of dimension A and B		
Object / part No.	A (in operation)	A: 40°C	B: -20°C
	max		min
NT-T8RC15	588,9		594,6
NT-T8YP30	1199,3		1204,8

TABLE 5	Compliance acc. to clause 6.3.6 **A1 = Atmax + ΔA – A25°C (tmax – 25 °C) 11,7*10-6** **B1 = Btmax – A25°C (tmin – 25 °C) 11,7*10-6**	P
Object / part No.	A1	B1
NT-T8RC15	589,2	594,5
NT-T8YP30	1199,3	1204,6

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict

TABLE 6	Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) ..... :	< 2,0 mm		—
Part	Test temperature (°C)	Impression diameter (mm)	
Plastic of lamp cap	125	1,0	
Bobbin of transformer	126	1,2	
LED driver PCB	128	0,9	
Supplementary information:			

TABLE 7	Tests of fault conditions		P
Part	Simulated fault	Result	Hazard
Model: NT-T8RC15			
U1 (1-4)	Short-circuit	Unit shut down; Recoverable	~~YES~~/NO
C1	Short-circuit	Fuse opened; Repeated 10 times	~~YES~~/NO
C2	Short-circuit	Unit shut down; Recoverable	~~YES~~/NO
Output	Short-circuit	Unit shut down; Recoverable	~~YES~~/NO
Model: NT-T8YP30			
BD1	Short-circuit	Fuse opened; Repeated 10 times	~~YES~~/NO
C1	Short-circuit	Fuse opened; Repeated 10 times	~~YES~~/NO
U1 (1-4)	Short-circuit	Unit shut down; Recoverable	~~YES~~/NO
D1	Short-circuit	Fuse opened; Repeated 10 times	~~YES~~/NO
C2	Short-circuit	Unit shut down; Recoverable	~~YES~~/NO
Output	Short-circuit	Unit shut down; Recoverable	~~YES~~/NO

TABLE 8	Clearance And Creep age Distance Measurements					P
clearance cl and creep age distance decry at/of:	Up (V)	U rams. (V)	required cr (mm)	Measured cr (mm)	required cl (mm)	Measured cl (mm)
Model: NT-T8RC15						
Opposite polarity before fuse resistor	--	240	2,5	6,0	1,5	6,0
Two pins offuse resistor	--	240	2,5	3,2	1,5	3,2
Live parts to accessible enclosure	--	240	5,0	>6,0	3,0	>6,0
Model: NT-T8YP30						

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict

Opposite polarity before fuse resistor	--	240	2,5	6,0	1,5	6,0
Two pins offuse resistor	--	240	2,5	3,2	1,5	3,2
Live parts to accessible enclosure	--	240	5,0	>6,0	3,0	>6,0
Supplementary information: --						

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict
	EMF		P
	EMF; The tested product complies to the requirements of EN 62493	LED-light-source technology, Non-wireless technology (exclude infra-red)	P
L	**ANNEX L: PARTICULAR ADDITIONAL REQUIREMENTS FOR integrated HF-TRANSFORMERS PROVIDING SELV (IEC 61347-1)**		N/A
L.3	Classification		N/A
	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.6	Heating		N/A
	No excessive temperatures in normal use		N/A
	Value if capacitor tc marked .....:		—
	Winding insulation classified as Class .....:		—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		N/A
L.9	Construction		N/A
L.9.1	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N/A
	HF transformer comply with 19 of IEC 61558-2-16		N/A
L.10	Components		N/A
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N/A
L.11	Creepage distances and clearances		N/A
	1. Insulation between input and output circuits, basic insulation:		N/A
	a) measured values > specified values (mm) .....:		N/A
	b) measured values > specified values (mm) .....:		N/A
	c) measured values > specified values (mm) .....:		N/A
	2. Insulation between input and output circuits, double or reinforced insulation:		N/A
	a) measured values > specified values (mm) .....:		N/A
	b) measured values > specified values (mm) .....:		N/A
	c) measured values > specified values (mm) .....:		N/A
	3. Insulation between adjacent input circuits		N/A
	- measured values > specified values (mm) .....:		N/A
	3. Insulation between adjacent output circuits		N/A

IEC 62776			
Clause	Requirement + Test	Result - Remark	Verdict
	- measured values > specified values (mm) .....:		N/A
	4. Insulation between terminals for external connection:		N/A
	- measured values > specified values (mm) .....:		N/A
	5. Basic or supplementary insulation:		N/A
	a) measured values > specified values (mm) .....:		N/A
	b) measured values > specified values (mm) .....:		N/A
	c) measured values > specified values (mm) .....:		N/A
	d) measured values > specified values (mm) .....:		N/A
	e) measured values > specified values (mm) .....:		N/A
	6. Reinforced insulation or insulation:		N/A
	Between body and output circuit: measured values > specified values (mm) .....:		N/A
	Between body and output circuit if provision against transient voltages: measured values > specified values (mm) .....:		N/A
	7. Distance through insulation:		N/A
	a) measured values > specified values (mm) .....:		N/A
	b) measured values > specified values (mm) .....:		N/A
	c) measured values > specified values (mm) .....:		N/A

ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict

	Thermal test (cap temperature test)	**P**

	Type reference ..... :	NT-T8RC15	—
	Test voltage ..... :	1.1×240V=264V	—
	Frequency (Hz) ..... :	50	—
	Supply current (A) ..... :	0,104	—
	Supply wattage (W) ..... :	15,6	—
	Mounting position ..... :	Horizontal mounted as normal use	—
	Table: measured temperatures corrected for ta = 40°C:		P

Temperature (°C) of part	Test value (°C)	Limit (°C)
The tube surface temperature (the hottest point)	71,8	75
Lamp cap inner surface	64,0	135
Lamp cap outer surface	59,0	135
LED driver input wire	81,3	200
LED driver output wire	54,3	200
C1	59,7	105
C4	47, 1	105
Winding of T1	93,6	120
Bobbin of T1	85,1	150
PCB near T1	66,8	130
LED module PCB	55,0	130

	Type reference ..... :	NT-T8YP30	—
	Test voltage ..... :	1.1×240V=264V	—
	Frequency (Hz) ..... :	50	—
	Supply current (A) ..... :	0,208	—
	Supply wattage (W) ..... :	29,6	—
	Mounting position ..... :	Horizontal mounted as normal use	—
	Table: measured temperatures corrected for ta = 40°C:		P

Temperature (°C) of part	Test value (°C)	Limit (°C)
The tube surface temperature (the hottest point)	72,2	75
Lamp cap inner surface	63,5	135
Lamp cap outer surface	55,8	135
LED driver input wire	81,4	200

ATTACHMENT 1			
Clause	Requirement + Test	Result - Remark	Verdict

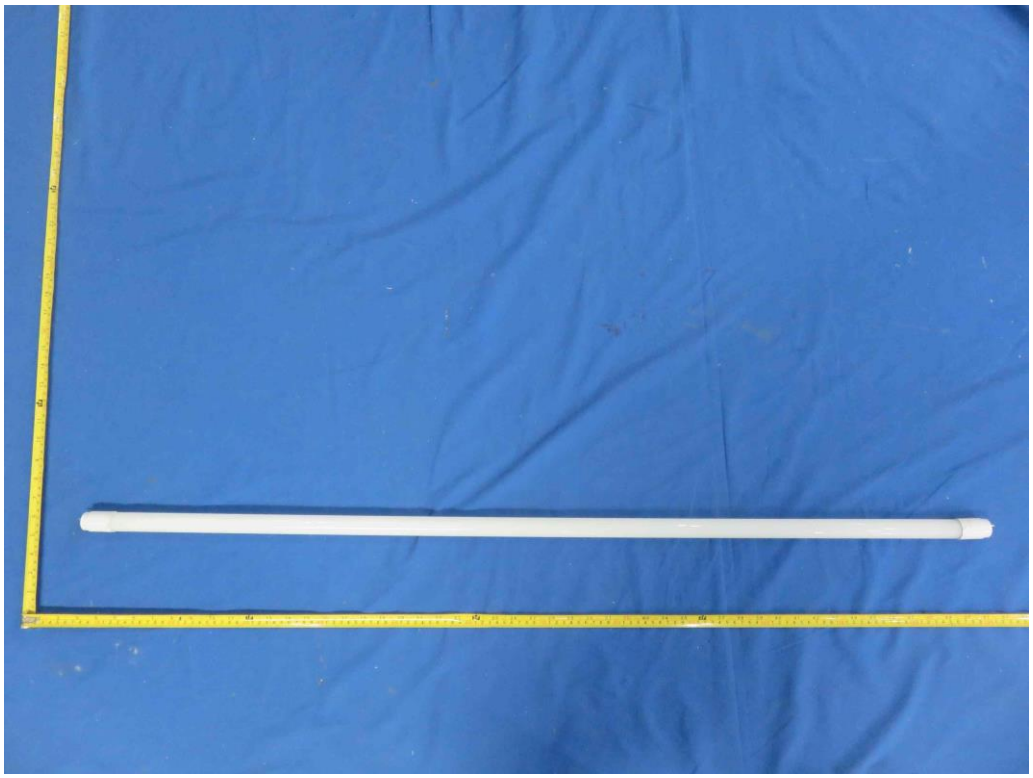
LED driver output wire	82,7	200
C1	89,7	105
C4	85,1	105
Winding of T1	100,5	120
Bobbin of T1	96,4	150
PCB near T1	102,8	130
LED module PCB	51,4	130

ATTACHMENT 2			
Clause	Requirement + Test	Result - Remark	Verdict

	Additional requirements according to IEC 61347-1:2015+A1:2017 & IEC 61347-2-13:2014+A1:2016	**P**

Cl.15.1 and Cl.15.2 of EN 61347-1:2015+A1:2021			
15.1	Wood, cotton, silk, paper and similar fibrous material		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
15.2	Printed circuits		P
	Printed circuits used as internal connections complies with clause 14 of IEC 61347-1		P
Cl.4.11, Cl.4.12 and Cl.4.25 of EN IEC 60598-1:2021+A11:2022			
4.11	Electrical connections and current-carrying parts		P
4.11.1	Contact pressure		P
4.11.2	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
4.11.3	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
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/A
4.12	Screws and connections (mechanical) and glands		N/A
4.12.1	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
4.12.2	Screws with diameter < 3 mm screwed into metal		N/A
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
4.12.5	Screwed glands; force (Nm).....:		N/A
4.25	Mechanical hazard		P
	No sharp point or edges		P

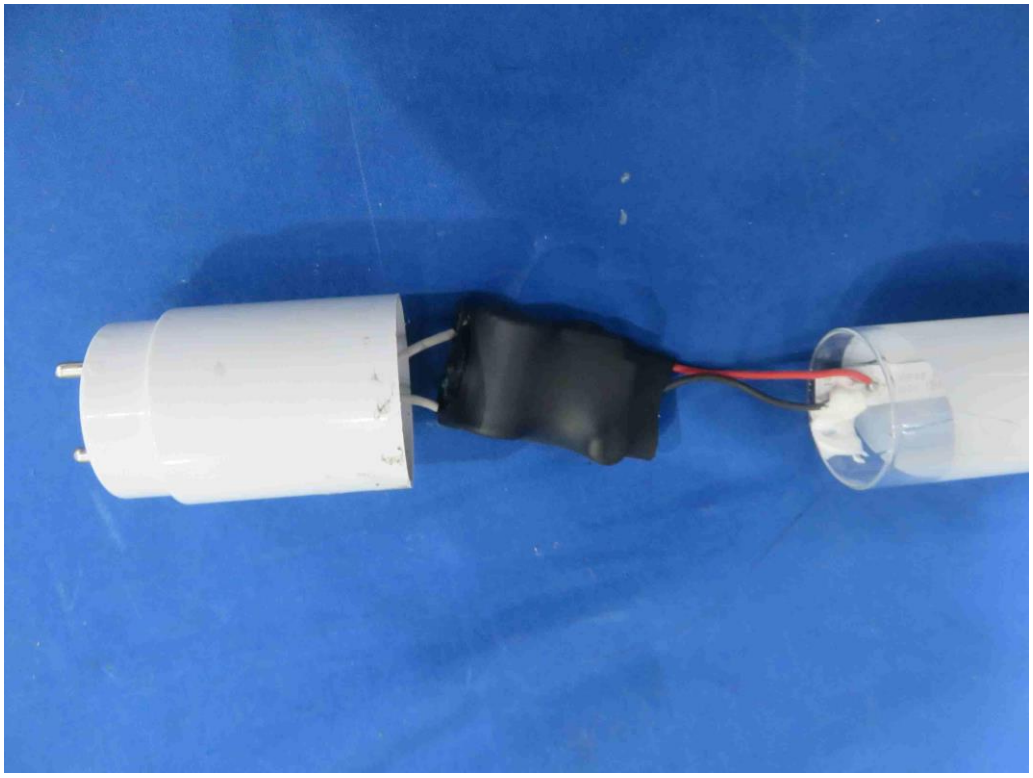
ATTACHMENT 3
Photo



Overall view for model NT-T8YP30

Lamp cap view for model NT-T8YP30

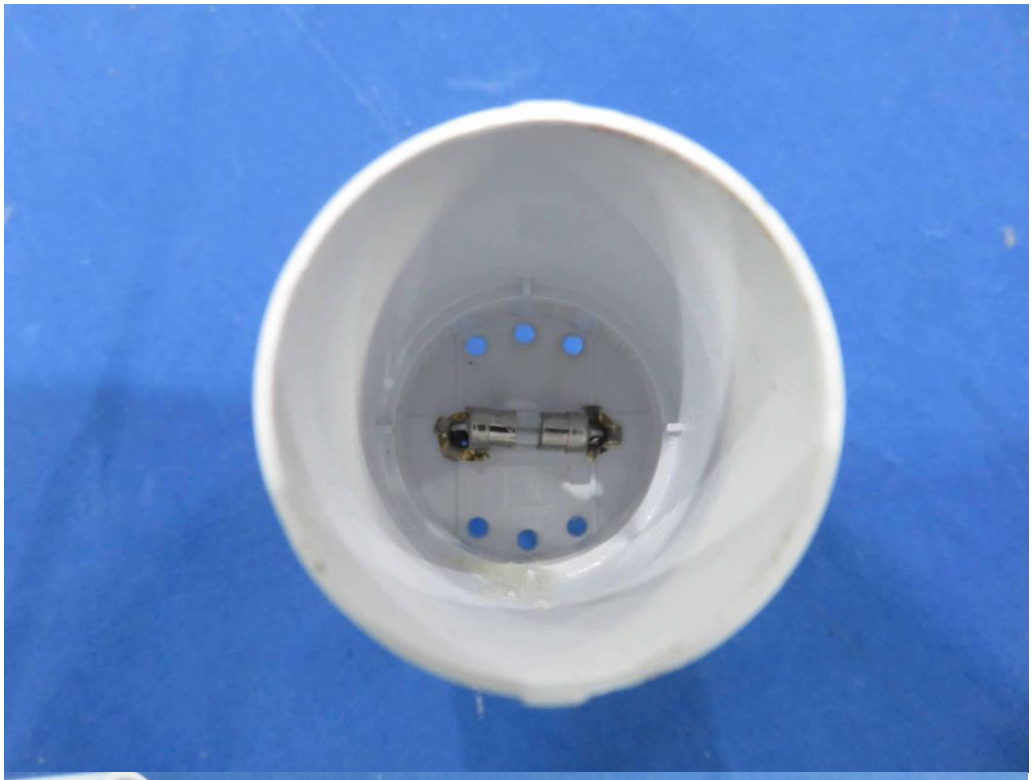
ATTACHMENT 3
Photo



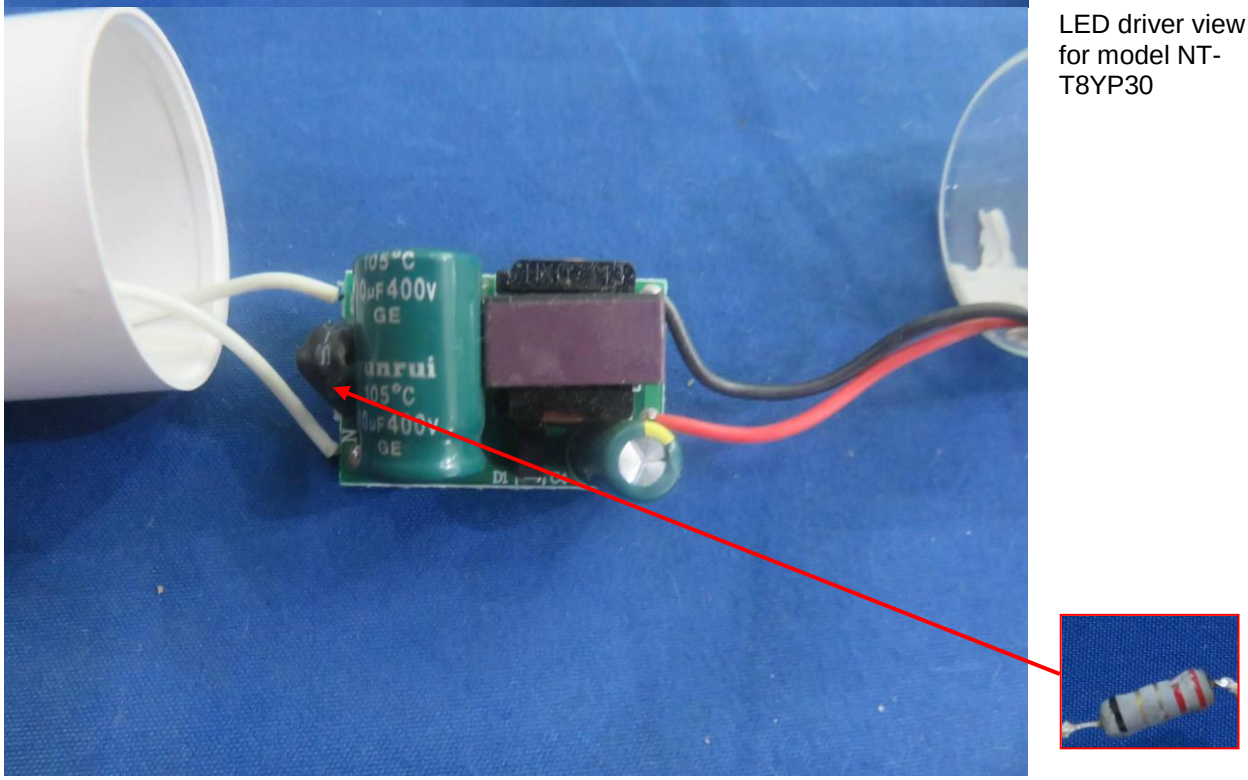
Internal view for model NT-T8YP30

Lamp cap view for model NT-T8YP30

ATTACHMENT 3
Photo

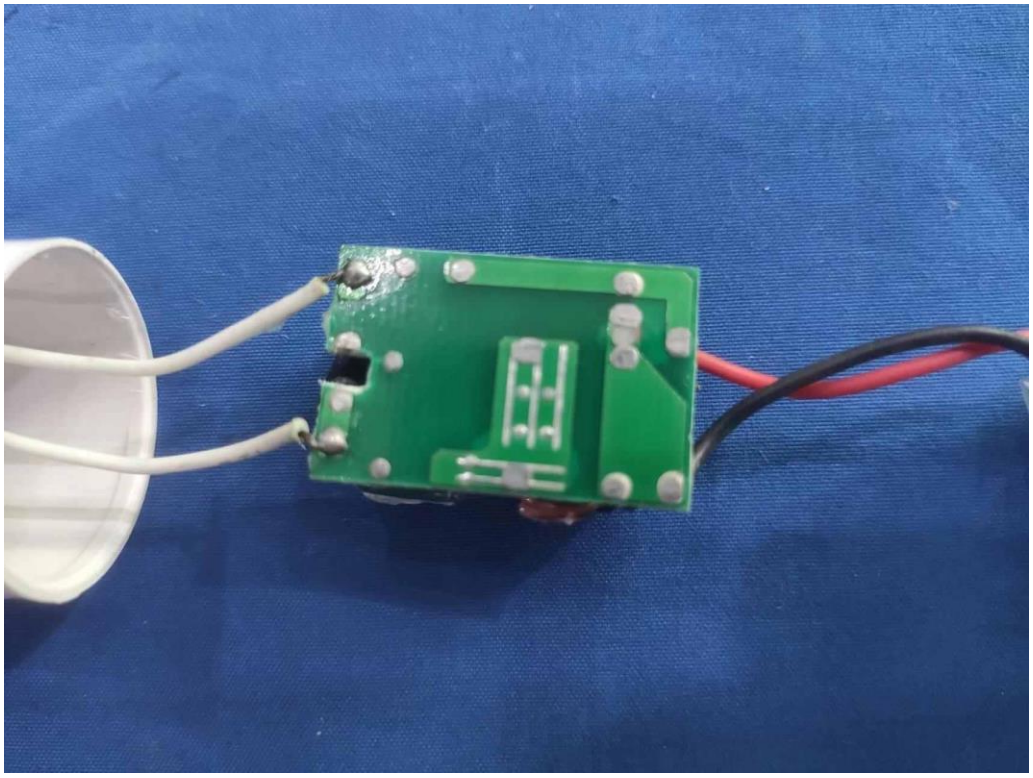


LED cap (the other side) view for model NT-T8YP30

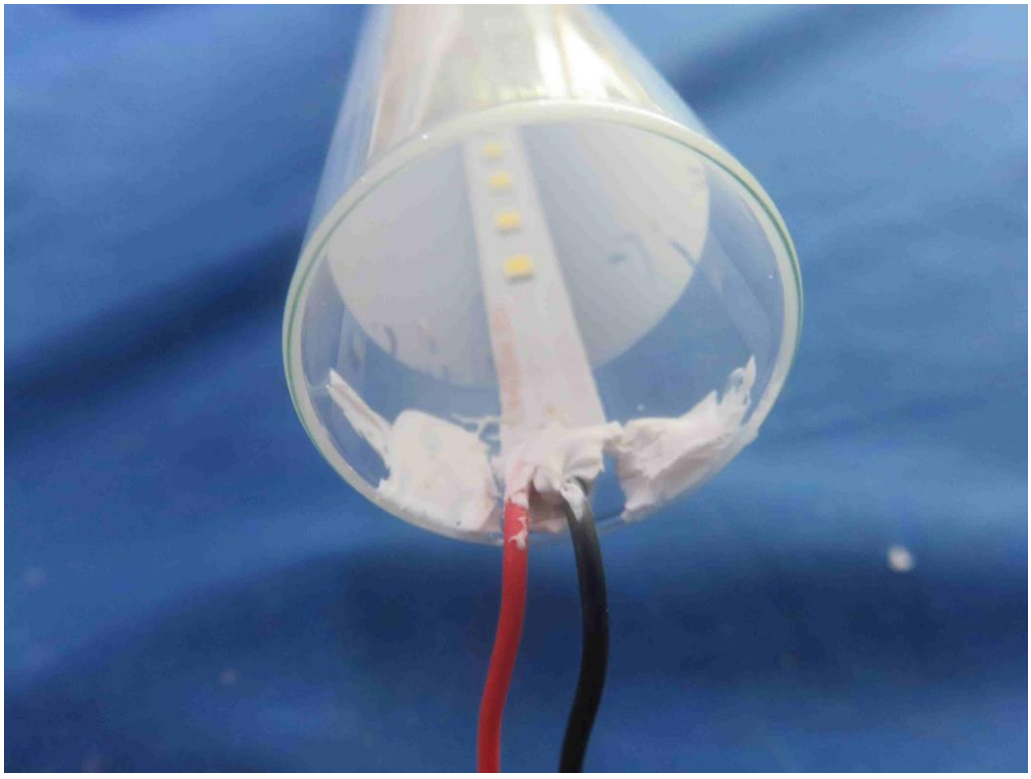


LED driver view for model NT-T8YP30

ATTACHMENT 3
Photo



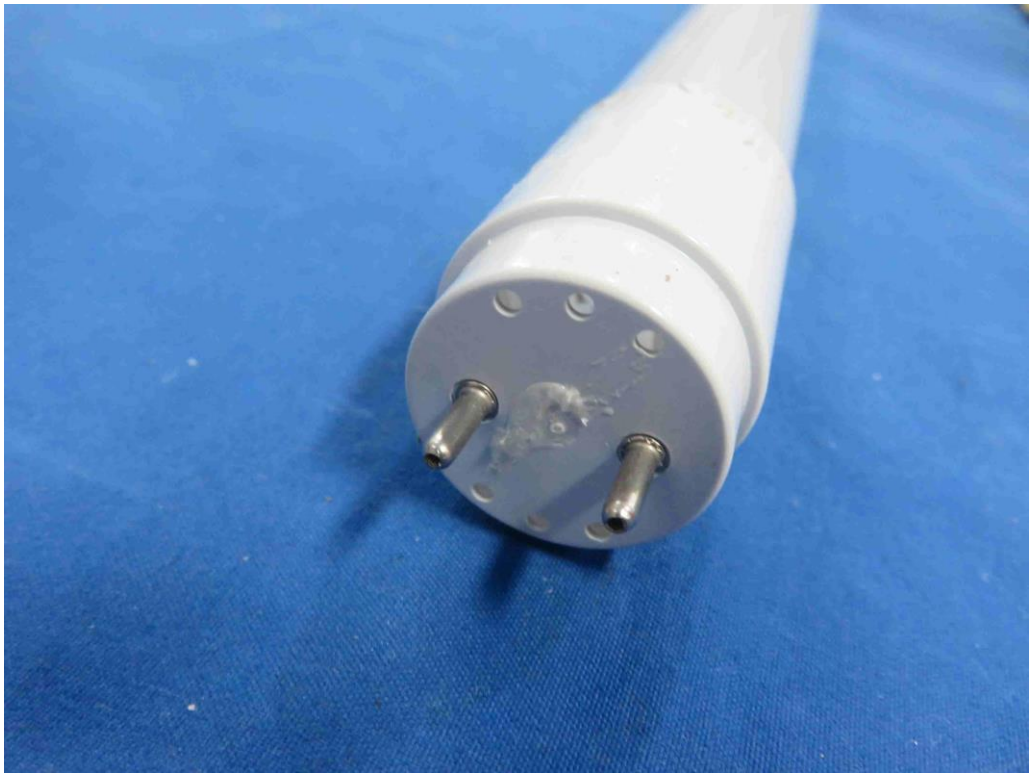
LED driver view for model NT-T8YP30



LED module view for model NT-T8YP30

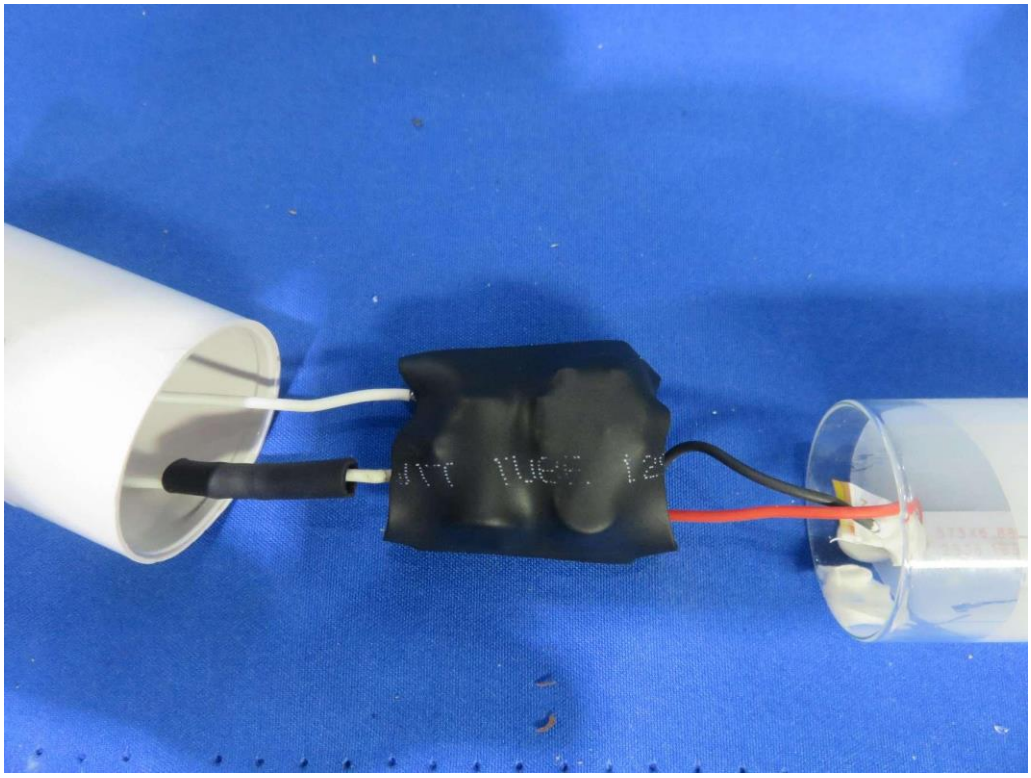
ATTACHMENT 3
Photo

Overall view for model NT-T8RC15

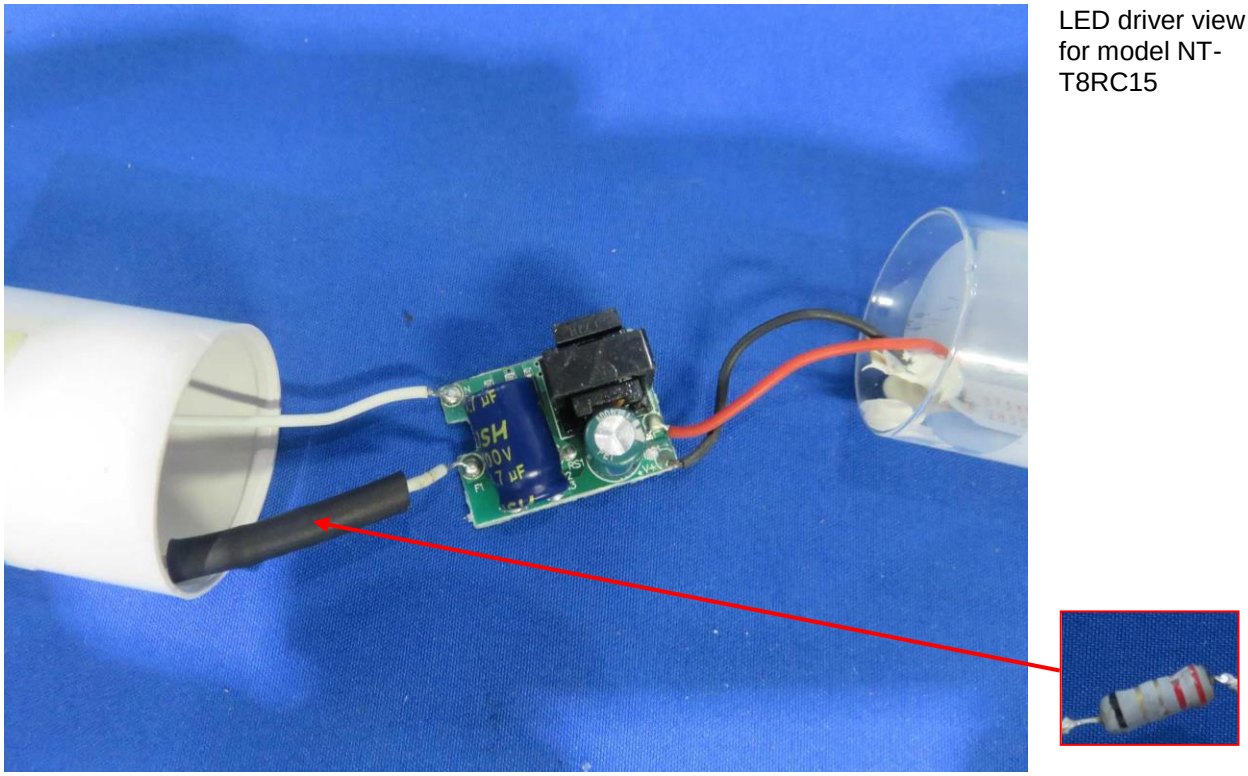


Lamp cap view for model NT-T8RC15

ATTACHMENT 3
Photo

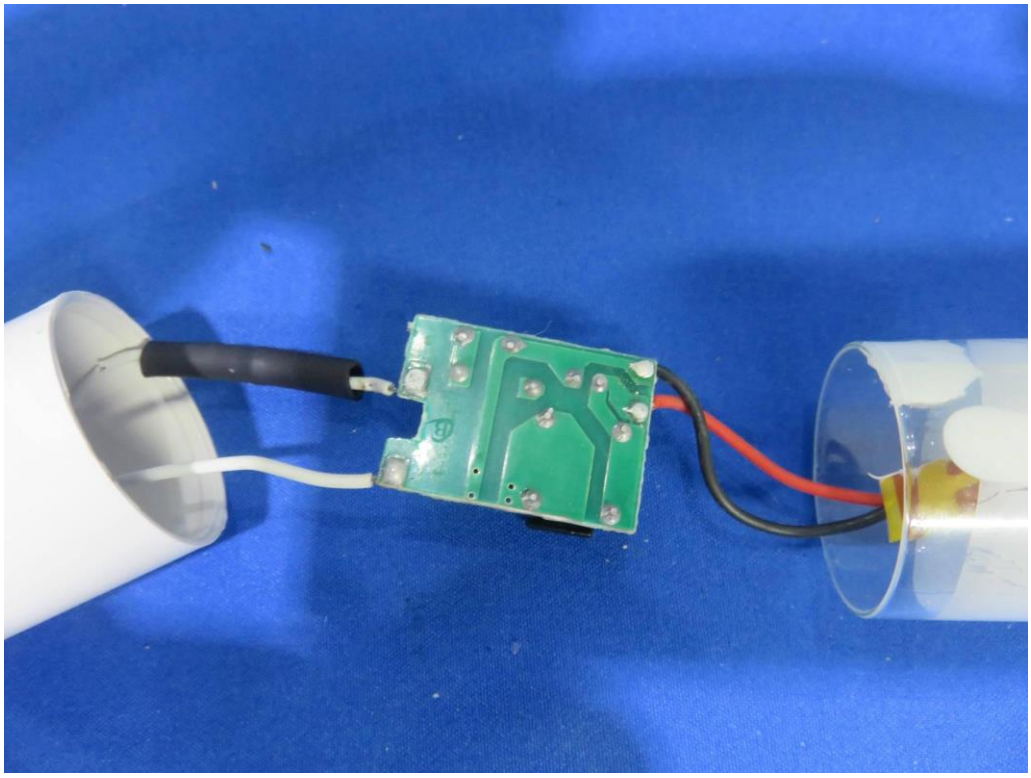


Internal view for model NT-T8RC15

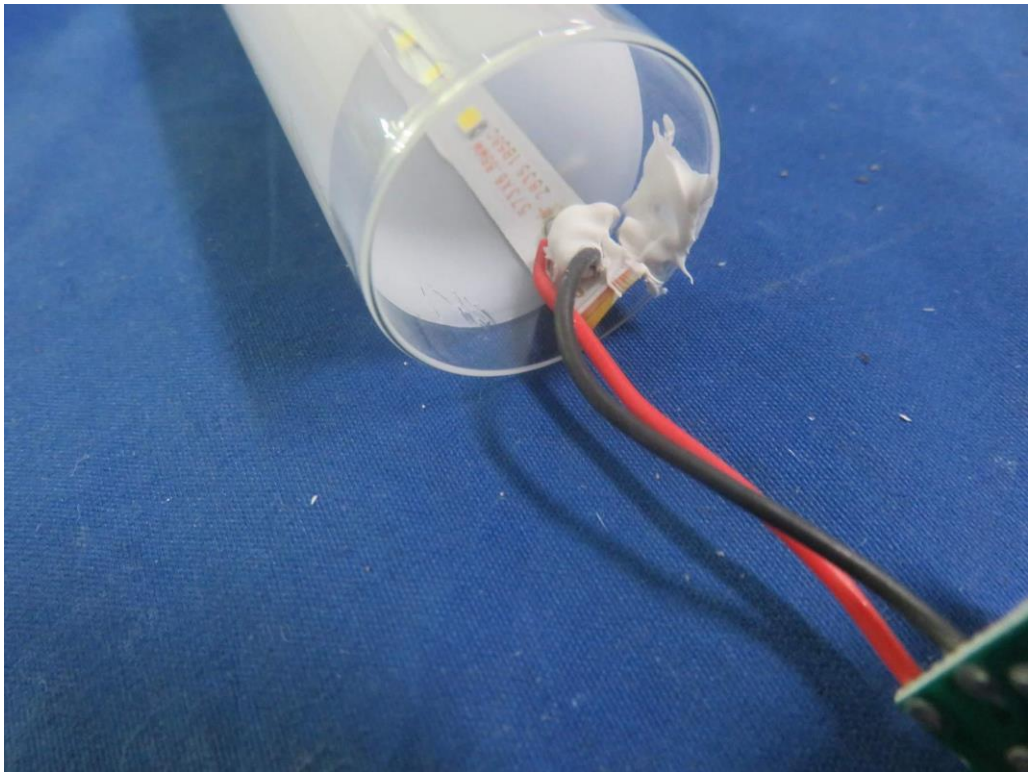


LED driver view for model NT-T8RC15

ATTACHMENT 3
Photo



LED driver view for model NT-T8RC15



LED module view for model NT-T8RC15

---End The Report ---

ATTACHMENT 3
Photo