



TEST REPORT

On Behalf of

SHANGHAI MILANLUX LIGHTING CO.,LTD.
LED TUBE

Model: T8012 30W, T806 9W, T806 10W, T806 12W, T8012 18W,
T8012 20W, T8012 24W, T8012 28W, T8012 34W

Prepared For : **SHANGHAI MILANLUX LIGHTING CO.,LTD.**
517MILANLUX,SUNLAND-MEI CENTER, NO.519 QIFAN ROAD,
SHANGHAI,CHINA

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TEST REPORT EN 62776 Double-capped LED lamps designed to retrofit linear fluorescent lamps – Safety specifications	
Report Number..... :	MK23010025-P01S01
Date of issue..... :	January 16, 2023
Total number of pages	17 pages
Name of Testing Laboratory preparing the Report	TMC Testing Services (Shenzhen) Co., Ltd.
Applicant's name	SHANGHAI MILANLUX LIGHTING CO.,LTD.
Address..... :	51M7ILANLUX, SUNLAND-MEI CENTER, NO.519 QIFAN ROAD, SHANGHAI, CHINA
Test specification:	
Standard	EN 62776:2015
Test procedure	Type Test
Non-standard test method	N/A
Test Report Form No. :	IEC62776A
Test Report Form(s) Originator :	VDE Testing and Certification Institute
Master TRF	2015-04
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General disclaimer:	
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Test item description :		LED TUBE
Trade Mark :		MILANLUX
Manufacturer		SHANGHAI MILANLUX LIGHTING CO.,LTD.
Address :		ECONOMIC DEVELOPMENT ZONE,HUOSHAN,LU'AN,ANHUI, CHINA
Model/Type reference		T8012 30W, T806 9W, T806 10W, T806 12W, T8012 18W, T8012 20W, T8012 24W, T8012 28W, T8012 34W
Ratings		165-265V~, 50/60Hz, 30W
☒	Testing Laboratory:	
Testing location/ address:		TMC Testing Services (Shenzhen) Co., Ltd. 1st Floor, Block A1, Zone A, Xinshidai Gongrong Industrial Park, No. 2, Shihuan Road, Shiyan Street, Baoan District, Shenzhen, China
Tested by (name, function, signature):		Sam Deng Sam Deng
Approved by (name, function, signature) ..:		Dawen Xu Dawen Xu
List of Attachments (including a total number of pages in each attachment): Attachment No. 1: 2 pages of photo documentation.		
Summary of testing:		
Tests performed (name of test and test clause): IEC 62776(ed.1)		Testing location: TMC Testing Services (Shenzhen) Co., Ltd. 1st Floor, Block A1, Zone A, Xinshidai Gongrong Industrial Park, No. 2, Shihuan Road, Shiyan Street, Baoan District, Shenzhen, China
Summary of compliance with National Differences:		
List of countries addressed		
☒ The product fulfils the requirements of Germany and European Group differences EN 62776:2015		

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.



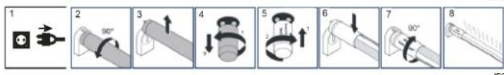
Remarks:

1. Representative markings of T8012 30W, markings of all models are identical except for the model name and rating.
2. Height of CE mark at least 5mm, height of WEEE symbol should not less than 7mm, height of other marks at least 5mm, height of letters and numerals at least 2mm.

Test item particulars.....:	
Classification of installation and use.....:	Double-capped LED lamps designed to retrofit linear fluorescent lamps
Supply Connection	G13 Lamp cap
Degree of Protection	IP20
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	January 6, 2023
Date (s) of performance of tests	January 6, 2023 - January 16, 2023
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 tested. "(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. According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1:	
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 manufacturer	
General product information:	
- All models have similar construction except power are difference. - Unless otherwise specified, the model T8012 30W was chosen as representative model to perform all test.	

EN 62776			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS AND GENERAL TEST REQUIREMENTS		P
4.1	The lamps shall be so designed and constructed that in normal use they function reliably and cause no danger to the user or surroundings.		P
4.2	Double-capped LED lamps shall normally not be opened for tests.		P
4.3	In general, all tests are carried out on each type of lamp or, where a range of similar lamps is involved, for each wattage in the range or on a representative selection from the range, as agreed with the manufacturer.		P
4.4	When the lamp fails safely during one of the tests, it is replaced, provided that 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	Construction of the electrical circuit		P

5	MARKING		P
5.1	1) Mark of origin		P
	2) Rated voltage/voltage range (V)	165-265V~	P
	3) Rated input (W)		P
	4) Rated frequency (Hz)	50/60Hz	P
	5) Double-capped LED lamps suitable to be used in combination with some type of ballast only		P
	6) Double-capped LED lamps marked "This lamp is not suitable to be used in emergency luminaires designed for double-capped fluorescent lamp(s)"		P
	7) LED replacement starter labels: 		P
	8) Provide information on the ingress of dust and water		P
	- Lamp to be used in dry conditions or in a luminaire that provides protection		P
	9) Rated ambient temperature range		P

EN 62776			
Clause	Requirement + Test	Result - Remark	Verdict
5.2	Marking on the lamp, on the immediate lamp wrapping (or container) or in the instructions		P
	1) Lamp current (A)		P
	2) Special conditions or restrictions: 		P
5.3	Instruction manual		P
5.3.1	General		P
5.3.2	Declaration of the product		P
	1) A list of all parts supplied		P
	2) The type of the fluorescent lamp that the LED lamp is designed to replace		P
	3) Provide a warning that no modifications of the luminaire		P
	4) The ambient temperature range		P
	5) Declare: "This lamp is designed for general lighting service (excluding for example explosive atmospheres)."		P
5.3.3	Graphical instruction 		P
5.3.4	Mounting		P
	(1) Switch off electricity		P
	(2) and (3) Remove the conventional lamp.		P
	(4) Remove the starter.		P
	(5) Click the LED replacement starter into the starter holder.		P
	(6) Insert the LED lamp into the lampholder.		P
	(7) Secure the position by turning the lamp by 90°.		P
	(8) Switch on electricity and check for lamp starting.		P
5.4	Compliance		P
	The durability of the marking is checked by rubbing lightly with water and hexane for 15s	After rubbing test, the marking was still legible.	P

6	INTERCHANGEABILITY	P
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EN 62776			
Clause	Requirement + Test	Result - Remark	Verdict
6.1	Interchangeability of the cap	The caps is in accordance with IEC 60061-1	P
	G5.....:	Cap: 7004-52; All dimensions: 7006-46 and 7006-46A	N
	G13.....:	Cap: 7004-51; All dimensions: 7006-44 and 7006-45	P
	Double-capped LED lamps comply with dimensions, electrical, mechanical and thermal tests required in Section 1 of IEC 60155.		P
6.2	Mass		P
	G5: <200g		N
	G13: <500g		P
6.3	Dimensions		P
6.3.1	Requirements		P
6.3.2	Dimensions at 25 °C (non-operating)		P
6.3.3	Variation of dimension A due to self-heating at 25 °C		P
6.3.4	Dimension B at minimum ambient temperature		P
6.3.5	Dimension A at maximum ambient temperature		P
6.3.6	Compliance		P
	- Dimension A1 shall be within the limits of the corresponding dimensions according to the relevant lamp data sheet from IEC 60081		P
	- Dimension B1 shall be within the limits of the corresponding dimensions according to the relevant lamp data sheet from IEC 60081.		P
6.4	Temperature	See Annex 3 of below table	P
6.4.1	Temperature requirement	the LED lamp temperature shall not be higher than 75 °C measured on any location of the lamp	P
6.4.2	Power requirement		P
6.4.3	Compliance		P
6.5	Safety of the lamp in case a wrong starter-lamp combination is used		P
	- fluorescent starter with LED lamp	No damage	P
	- LED replacement starter with fluorescent lamp	No damage	P

EN 62776			
Clause	Requirement + Test	Result - Remark	Verdict
	- one fluorescent lamp replaced by a LED lamp in case of two fluorescent lamps connected in series with the same controlgear	No damage	P
	Compliance		P
	- not catch fire, or produce flammable gases or smoke and live parts not become accessible		P

7	PIN-SAFETY DURING INSERTION		P
	G5 and G13 lamp caps do not assure the insertion of both ends of the lamp simultaneously, for this reason there shall not be any electrical continuity between the two ends of the lamp during the insertion.		P
	Compliance is checked by the following tests:		P
	1) Electric strength test:	(see appended table)	P
	2) Insulation resistance:	>500M Ω	P
	3) Creepage distances and clearance:	(see appended table)	P
	4) Touch current:	0,005mA<0,7mm	P

8	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		P
8.1	General		P
8.2	Test to establish whether a conductive part may cause an electric shock during operation		P
	- test finger with a force of 10 N.		P
8.3	Lamps shall storage 48 h at a 91-95 % relative humidity and at 20-30 °C.	93%RH, 25°C	P
	After storage, Insulation resistance with 500 V d.c., required $\geq 4 \text{ M}\Omega$.	>100 M Ω	P
8.4	Electric strength	(see appended table)	P
	No flashover or breakdown shall occur during the test. Measurements shall be carried out in the humidity cabinet.		P

9	MECHANICAL REQUIREMENTS FOR CAPS		P
9.1	Construction and assembly		P
9.2	Torque test on unused lamps		P

EN 62776			
Clause	Requirement + Test	Result - Remark	Verdict
	-G5:.....0,5Nm	cap not exceeding an angular displacement of 6°	N
	-G13:.....1,0Nm	cap not exceeding an angular displacement of 6°	P
9.3	Torque test after heat treatment		N
	Heating treatment for a period of 2 000 h ± 50 h at a temperature of 80 °C ± 5 °C		N
	-G5:0,3Nm	cap not exceeding an angular displacement of 6°	N
	-G13:0,6Nm	cap not exceeding an angular displacement of 6°	N
9.4	Repetition of 8.2		N
10	CAP TEMPERATURE TEST		P
	Lamp cap temperature rise is checked by the test set-up specified in Annex B of IEC 61195	See ANNEX 2	P
11	RESISTANCE TO HEAT		P
	External parts of insulating material providing protection against electric shock, and parts of insulating material retaining live parts in position, ball pressure test:		P
	Part tested; temperature (°C); diameter of impression (≤ 2 mm).....:	(see appended table)	P
12	RESISTANCE TO FLAME AND IGNITION		P
	Glow-wire test		P
	Part tested; temperature (°C);	(see appended table)	P
	No visible flame and no sustained glowing		P
	Flames and glowing, extinguish within 30s:		N
	No ignition of the tissue paper		P
13	FAULT CONDITIONS		--
13.1	General		P

EN 62776			
Clause	Requirement + Test	Result - Remark	Verdict
	Lamps shall not impair safety when operated under fault conditions which may occur during the intended use. Each of the following fault conditions is applied in turn, as well as any other associated fault condition that may arise from them as logical consequence.		P
13.2	Testing under extreme electrical conditions		P
	Tested is taken as the maximum of the voltage range marked unless the manufacturer declares another voltage as the most critical one; and adjusted to the most critical electrical conditions as indicated by the manufacturer or the power is increased until 150 % of the rated power		P
13.3	Short-circuit across capacitors		P
13.4	Fault conditions across electronic components	(see appended table)	P
13.5	Compliance	(see appended table)	P
	Not catch fire, produce flammable gases or smoke and live part shall not become accessible		P
	After test in 13.2 to 13.5, the lamp shall meet the insulation resistance requirements of 8.3		P
13.6	Further requirements		P
13.7	Safety of the lamp with different types of controlgear		P
	- The LED lamp shall be inserted in a circuit with magnetic ballast designed to supply a conventional fluorescent lamp with the same dimensions		P
	- The LED lamp shall be inserted into a circuit according to Figure A.5 of IEC 60081		P
13.8	Compliance for test with different types of controlgear		P
	Not catch fire, produce flammable gases or smoke and live part shall not become accessible		P
	After test in 13.2 to 13.5, the lamp shall meet the insulation resistance requirements of 8.3		P

EN 62776			
Clause	Requirement + Test	Result - Remark	Verdict
13.9	Safety of the lamp in case the luminaire controlgear short circuits		P
14	CREEPAGE DISTANCES AND CLEARANCES		P
	Creepage distances and clearances according to IEC 61347-1	(see appended table)	P
	Conductive accessible parts according to IEC 60598-1	(see appended table)	N
15	LAMP WITH PROTECTION AGAINST DUST AND MOISTURE		P
15.1	Aim of the test		P
15.2	Thermal endurance		P
15.3	IP testing	IP20	P
16	PHOTOBIOLOGICAL HAZARD		N
16.1	UV radiation		N
16.2	Blue light hazard		N
16.3	Infrared radiation		N
ANNEX A	CONFORMITY TESTING DURING MANUFACTURE		--

EN 62776			
Clause	Requirement + Test	Result - Remark	Verdict

11	TABLE: Ball Pressure Test of Thermoplastics				P
Allowed impression diameter (mm)		2,0mm			—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)		
Plastic enclosure	--	125°C	1,0mm		
Supplementary information:--					

12	TABLE: Resistance to heat and fire - Glow wire tests				P
Glow wire temperature		650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Plastic enclosure	--	30s	No	0s	
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)					Yes
Supplementary information:--					

13	TABLE: tests of fault conditions		P
Part	Simulated fault	Result	Hazard
Output	s-c	Shut down, recoverable, no damage	NO
C1	s-c	Fuse opened. No hazard, No damage.	NO
C3	s-c	Shut down, recoverable, no damage	NO
D2	s-c	Fuse opened. No hazard, No damage.	NO
BD1	s-c	Fuse opened. No hazard, No damage.	NO
Note:S-C; short circuit ; O-C; open circuit			

14	TABLE: Clearance And Creepage Distance Measurements					P
Test Location	Working voltage	Measured cl (mm)	Required cl (mm)	Measured cr (mm)	Required cr (mm)	Verdict
L/N	165-265V~	2,9	1,5	2,9	2,5	Pass
Current-carrying parts and accessible parts	165-265V~	5,6	3,0	5,6	5,0	Pass
Two ends of the lamp during the insertion	165-265V~	5,6	3,0	5,6	5,0	Pass

ANNEX 1		TABLE: Critical components information				
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Fuse	B	Various	Various	250V, T2A	IEC/EN 60127-4	VDE
LED PCB	B	Various	Various	130°C, V-0	UL 796 UL94	UL
Plastic enclosure	B	Various	Various	V-0, 125°C	UL746	UL
Internal wire	B	Various	Various	22AWG, 300V	UL758	UL
Bobbin of transformer	B	Various	Various	94V-0,150°C	UL 94	UL
Magnetic coil of transformer	B	Various	Various	130°C	UL 1446	UL
Insulation tape of transformer	B	Various	Various	130°C	UL 510	UL
Varnish of transformer	B	Various	Various	130°C	UL1446	UL

Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

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 10			P
	Type reference	T8012 30W		—
	Lamp used.....	LED lamp		—
	Supply wattage (W)	30W		—
	Supply current (A)			—
	Calculated power factor.....			—
	Table: measured temperatures corrected for $t_a = 25^\circ\text{C}$:			P
	- abnormal operating mode			—
	- test 1: rated voltage.....	265V~		—
Temperature measurements, ($^\circ\text{C}$)				
Part	Ambient	Clause 10 – normal		
		test 1	limit	Verdict
G13 Lamp cap	25°C	43.5	145	Pass
LED PCB	25°C	68.4	90	Pass
Translucent cover	25°C	40.4	Ref	Pass
Plastic enclosure, inside, near LED	25°C	48.2	Ref.	Pass
Internal wire	25°C	54.5	105	Pass
C1	25°C	58.6	105	Pass
C3	25°C	56.4	105	Pass
Winding of transformer T1	25°C	60.5	130	Pass
PCB under T1	25°C	59.4	130	Pass
Supplementary information:				

Attachment No.1

Photo Documentation

View:
Model:

- ☒ General
- ☐ Front
- ☐ Rear
- ☐ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB



Figure 1

View:

- ☒ General
- ☐ Front
- ☐ Rear
- ☐ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB

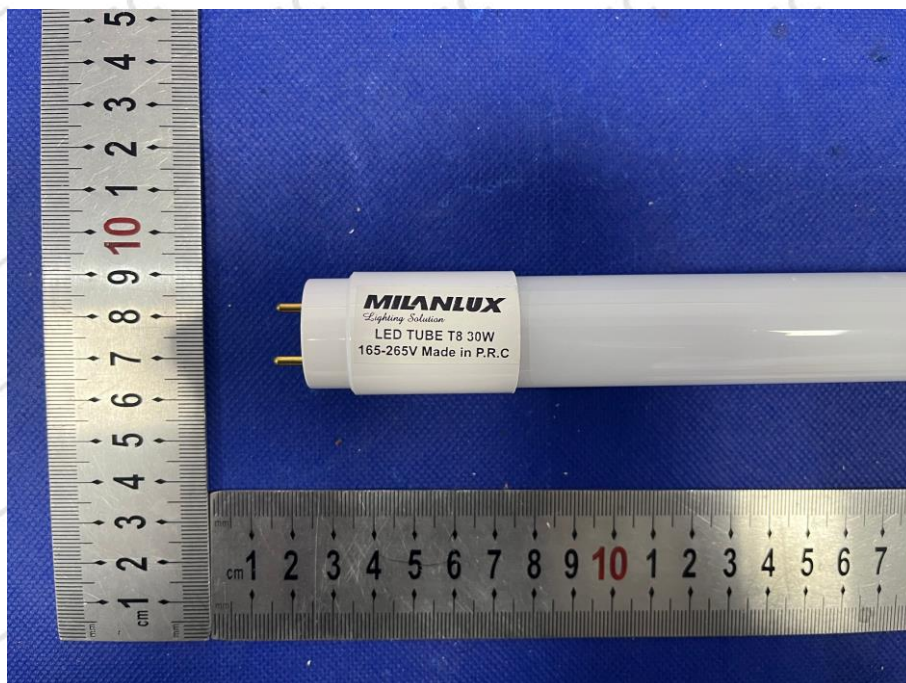


Figure 2

Attachment No.1

Photo Documentation

View:
Model:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB

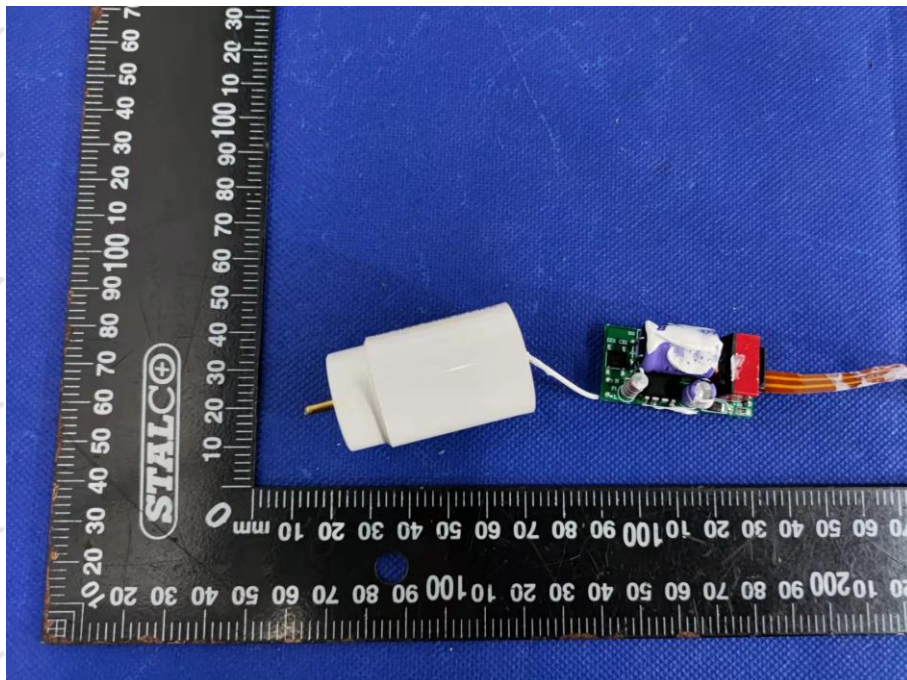


Figure 3

View:

- ☐ General
- ☐ Front
- ☐ Rear
- ☒ Internal
- ☐ Top
- ☐ Bottom
- ☐ PWB

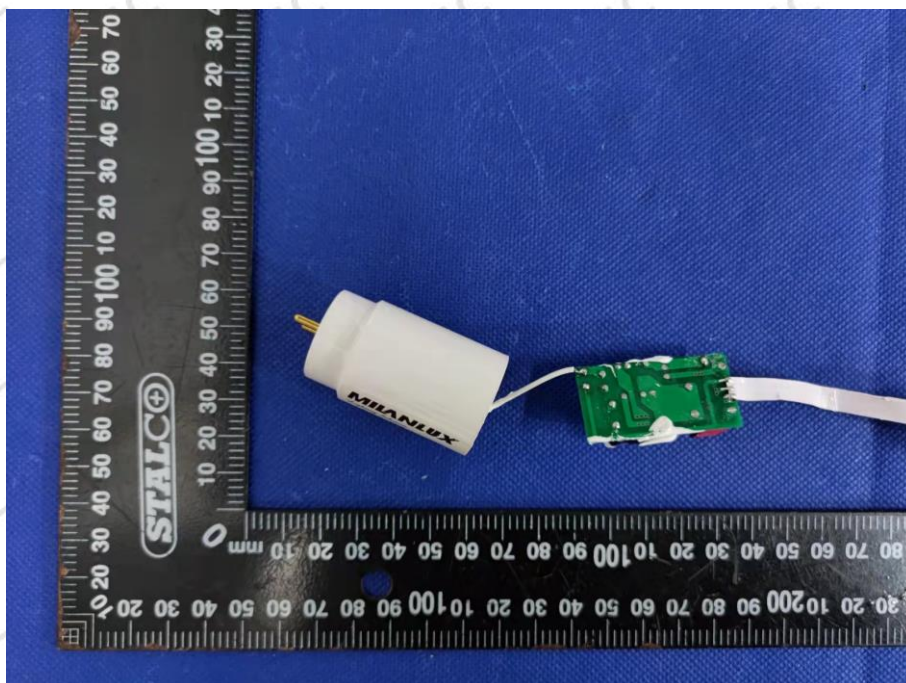


Figure 4

-----End of Test Report-----