


# FCC TEST REPORT

Product Name: Integrated sterilization lamp

Trademark: 

Model Number: LYL-YTH-01  
LYL-YTH-02, LYL-YTH-03, LYL-YTH-04, LYL-YTH-05, LYL-YTH-06

Prepared For: GUANGDONG LIANGYUELIANG PHOTOELECTRIC TECHNOLOGY CO., LTD  
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Sample Received Date: Mar. 24, 2020

Sample tested Date: Mar. 24, 2020 to Mar. 30, 2020

Issue Date: Mar. 30, 2020

Report No.: BCTC2003001391E

Test Standards 47 CFR FCC Part 15 Subpart B

Test Results PASS

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Approved by:



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(Note: N/A means not applicable)

## 1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2003001391E	Mar. 30, 2020	Original	Valid

## 2. TEST SUMMARY

The Product has been tested according to the following specifications:

Standard	Test Item	Test result
FCC 15.107	Conducted Emission	Pass
FCC 15.109	Radiated Emission	Pass

### 3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	3.20
Radiated Emission(30MHz~1GHz)	4.80
Radiated Emission(1GHz~6GHz)	4.90

## 4. PRODUCT INFORMATION AND TEST SETUP

### 4.1 Product Information

**Ratings:** AC120V 60Hz

**Model difference:** All models are identical except for the appearance color, the test model is LYL-YTH-01 and the test results are applicable to other tests.

**Cable of Product**

No.	Cable Type	Quantity	Provider	Length (m)	Specification	Note
1	--	--	Applicant	---	Shielded	With a ferrite ring in mid Detachable
2	--	--	BCTC	--	Unshielded	--

### 4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

### 4.3 Support Equipment

No	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

**Notes:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

### 4.4 Test Mode

Test item	Test Mode	Test Voltage
Conducted Emission (150KHz-30MHz) Class B	Working	AC 120V/60Hz*
Radiated mission(30MHz-1GHz) Class B	Working	AC 120V/60Hz
All test mode were tested and passed, only Conducted Emissions, Radiated Emissions shows (*) is the worst case mode which were recorded in this report.		

## 5. TEST FACILITY AND TEST INSTRUMENT USED

### 5.1 Test Facility

All measurement facilities used to collect the measurement data are located at BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

### 5.2 Test Instrument Used

Disturbance voltages Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	Jun. 13, 2019	Jun.12, 2020
LISN	R&S	ENV216	101375	Jun. 13, 2019	Jun.12, 2020
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

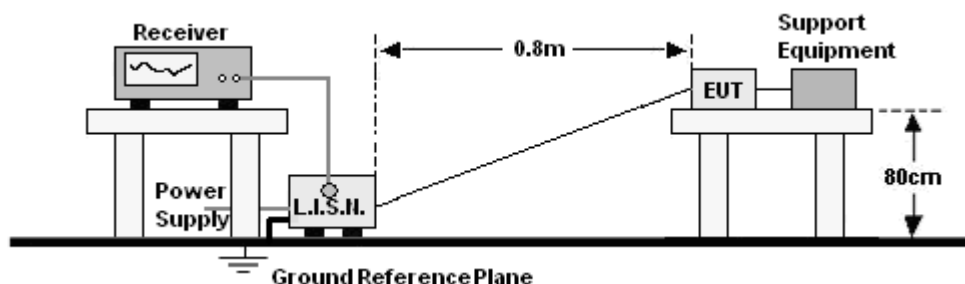
Radiated disturbance Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	Jun. 19, 2018	Jun. 18, 2021
Receiver	R&S	ESR3	102075	Jun. 13, 2019	Jun. 12, 2020
Receiver	R&S	ESRP	101154	Jun. 13, 2019	Jun. 12, 2020
Amplifier	Schwarzbeck	BBV9744	9744-0037	Jun. 25, 2019	Jun. 24, 2020
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-942	Jun. 22, 2019	Jun. 21, 2020
Horn Antenna	SCHWARZBECK	BBHA9120 D	1201	Jun. 22, 2019	Jun. 21, 2020
Amplifier	Schwarzbeck	BBV9718	9718-309	Jun. 25, 2019	Jun. 24, 2020
Software	Frad	EZ-EMC	FA-03A2 RE	\	\



## 6. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

### 6.1 Block Diagram Of Test Setup

For mains ports:



### 6.2 Limit

Limits for Class B devices

(MHz)	Limits dB( $\mu$ V)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56*	56 to 46*
0,50 to 5	56	46
5 to 30	60	50

Notes: 1. \*Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

### 6.3 Test procedure

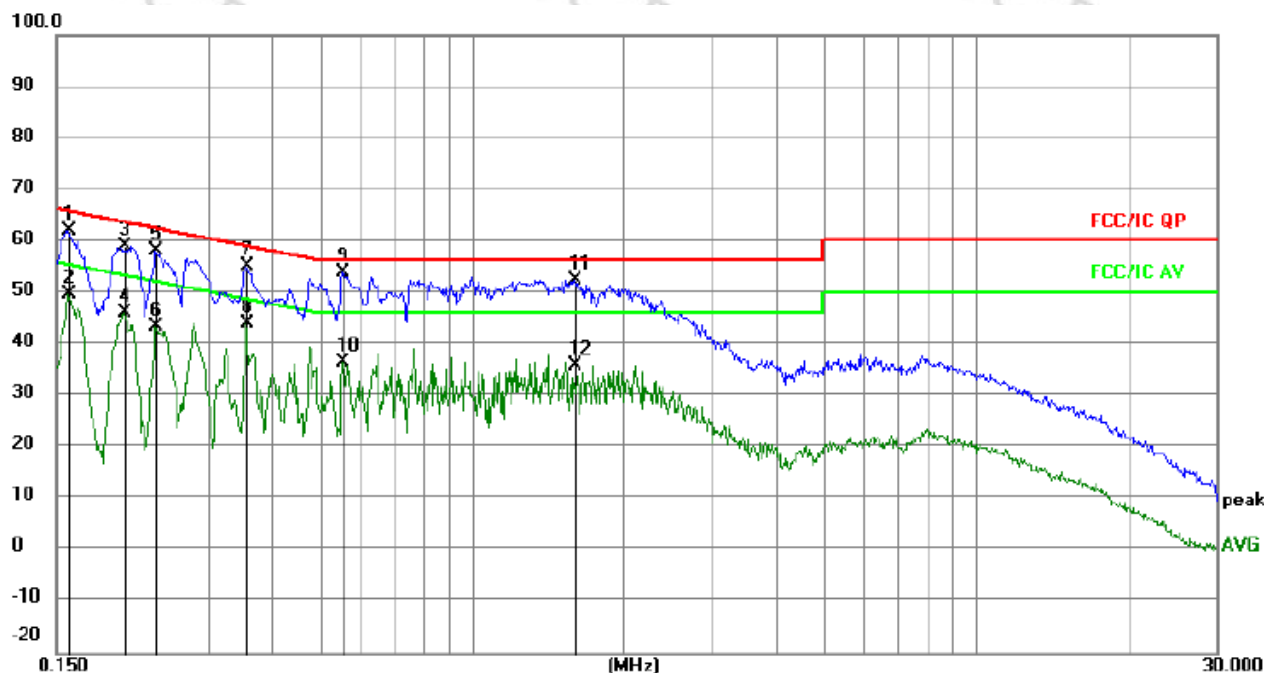
For mains ports:

- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.



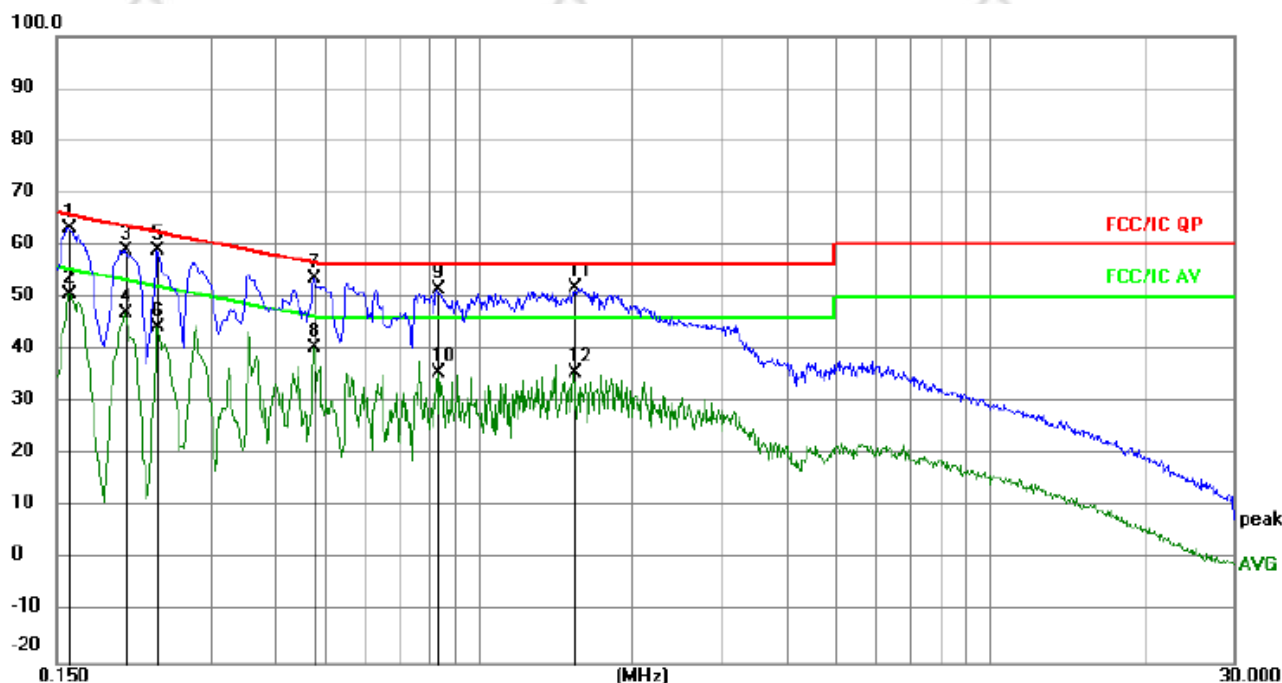
## 6.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Line
Test Voltage :	AC 120V/60Hz	Test Mode:	Working



No.	Mk.	Freq. MHz	Reading Level dB	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1590	52.67	9.51	62.18	65.52	-3.34	QP	
2		0.1590	40.23	9.51	49.74	55.52	-5.78	AVG	
3		0.2040	49.54	9.46	59.00	63.45	-4.45	QP	
4		0.2040	36.73	9.46	46.19	53.45	-7.26	AVG	
5		0.2355	48.53	9.50	58.03	62.25	-4.22	QP	
6		0.2355	33.86	9.50	43.36	52.25	-8.89	AVG	
7		0.3570	45.60	9.53	55.13	58.80	-3.67	QP	
8		0.3570	34.45	9.53	43.98	48.80	-4.82	AVG	
9	*	0.5549	44.03	9.82	53.85	56.00	-2.15	QP	
10		0.5549	26.70	9.82	36.52	46.00	-9.48	AVG	
11		1.5944	42.85	9.58	52.43	56.00	-3.57	QP	
12		1.5944	26.25	9.58	35.83	46.00	-10.17	AVG	

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Neutral
Test Voltage :	AC 120V/60Hz	Test Mode:	Working



No.	Mk.	Freq. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1590	53.67	9.51	63.18	65.52	-2.34	QP	
2		0.1590	41.23	9.51	50.74	55.52	-4.78	AVG	
3		0.2040	49.57	9.46	59.03	63.45	-4.42	QP	
4		0.2040	37.73	9.46	47.19	53.45	-6.26	AVG	
5		0.2355	49.53	9.50	59.03	62.25	-3.22	QP	
6		0.2355	34.86	9.50	44.36	52.25	-7.89	AVG	
7		0.4785	44.23	9.57	53.80	56.37	-2.57	QP	
8		0.4785	30.97	9.57	40.54	46.37	-5.83	AVG	
9		0.8339	41.91	9.62	51.53	56.00	-4.47	QP	
10		0.8339	26.00	9.62	35.62	46.00	-10.38	AVG	
11		1.5404	42.35	9.58	51.93	56.00	-4.07	QP	
12		1.5404	26.07	9.58	35.65	46.00	-10.35	AVG	

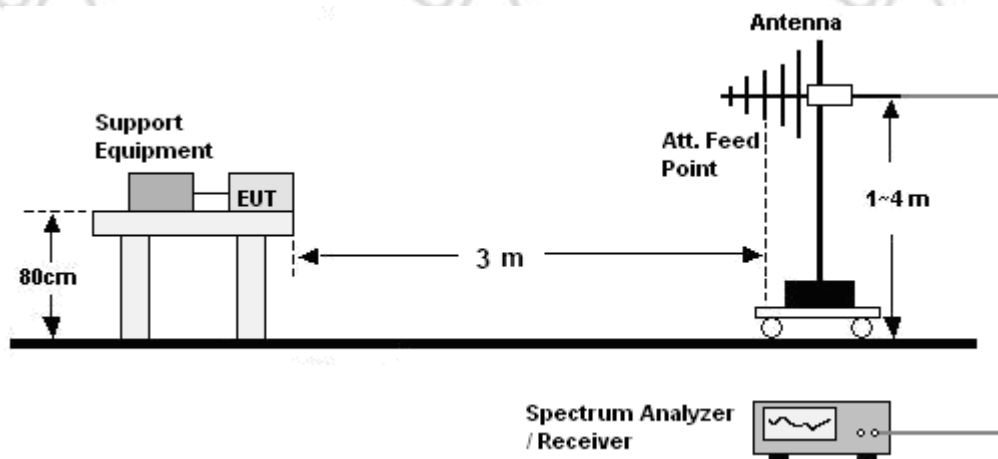
**Remark:**

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

## 7. RADIATION EMISSION TEST

### 7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



### 7.2 Limit

Limits for Class B devices

Frequency (MHz)	limits at 3m dB(μV/m)		
	QP Detector	PK Detector	AV Detector
30-88	40.0	--	--
88-216	43.5	--	--
216-960	46.0	--	--
960 to 1000	54.0	--	--
Above 1000	--	74.0	54.0

**Note:** The lower limit shall apply at the transition frequencies.

### 7.3 Test Procedure

#### 30MHz ~ 1GHz:

- a. The Product was placed on the nonconductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

#### Remark:

The highest frequency of the internal sources of the EUT is less than 108 MHz, so the measurement shall only be made up to 1 GHz.

## 7.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Horizontal
Test Voltage :	AC 120V/60Hz	Test Mode:	Working

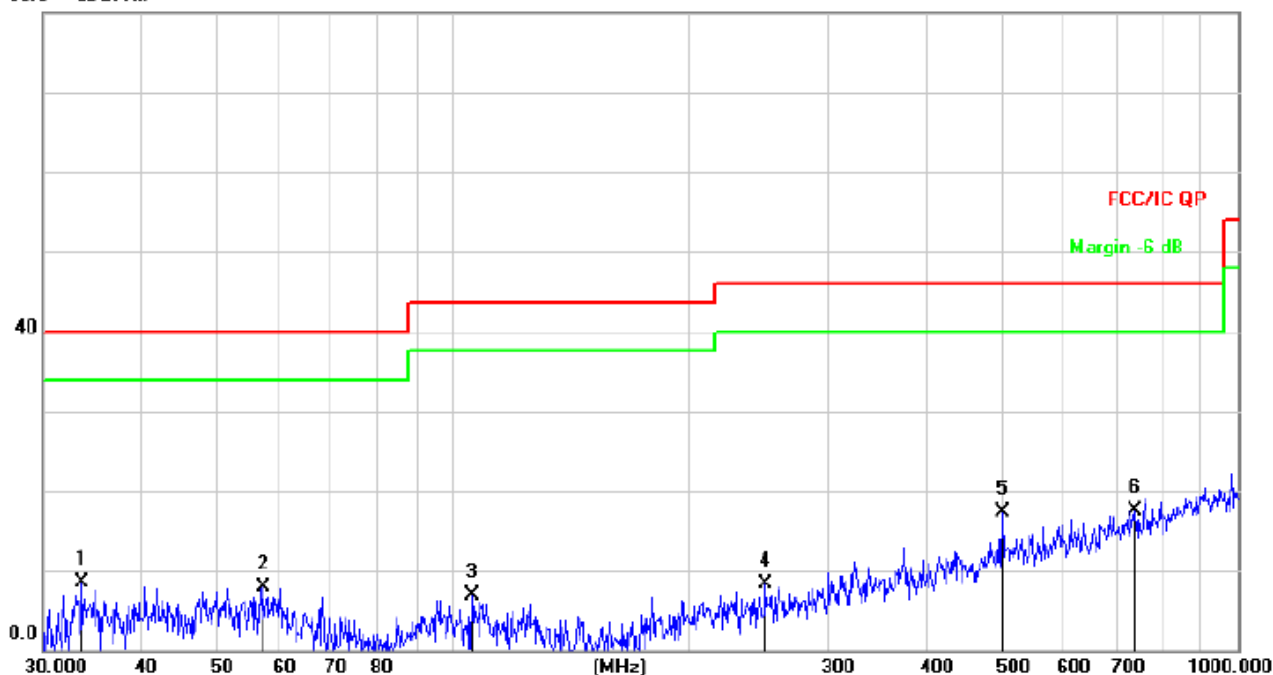
80.0 dBuV/m



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		41.5670	24.38	-15.32	9.06	40.00	-30.94	QP		
2		50.2324	25.50	-14.87	10.63	40.00	-29.37	QP		
3		106.3850	25.02	-16.69	8.33	43.50	-35.17	QP		
4		124.1330	24.97	-17.83	7.14	43.50	-36.36	QP		
5		300.3672	28.85	-13.59	15.26	46.00	-30.74	QP		
6	*	658.8362	24.07	-6.51	17.56	46.00	-28.44	QP		

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Vertical
Test Voltage :	AC 120V/60Hz	Test Mode:	Working

80.0 dBuV/m



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table
		MHz	Level	Factor	ment			Height	Degree
			dBuV	dB	dBuV/m	dB/m	dB	cm	degree
							Detector		Comment
1		33.6802	25.08	-16.59	8.49	40.00	-31.51	QP	
2		57.1914	23.46	-15.61	7.85	40.00	-32.15	QP	
3		105.6415	23.45	-16.64	6.81	43.50	-36.69	QP	
4		250.3012	23.43	-15.14	8.29	46.00	-37.71	QP	
5		501.1790	26.30	-8.91	17.39	46.00	-28.61	QP	
6	*	739.6604	22.10	-4.51	17.59	46.00	-28.41	QP	

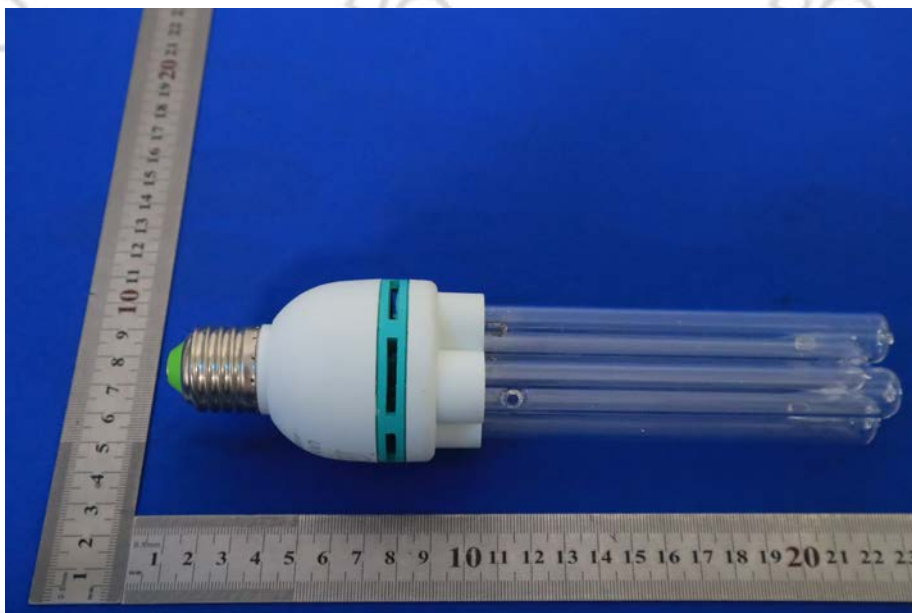
Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



## 8. EUT PHOTOGRAPHS

EUT Photo 1

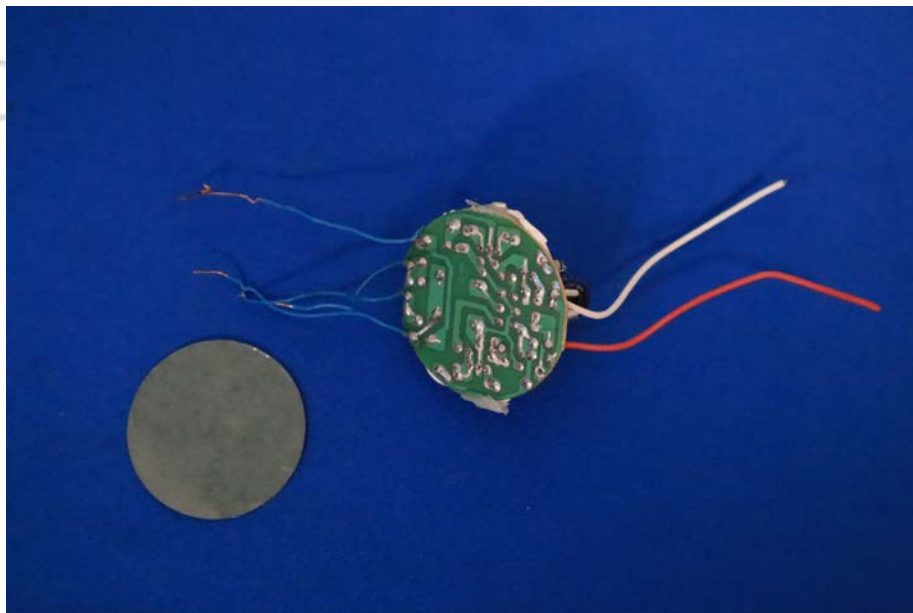


EUT Photo 2

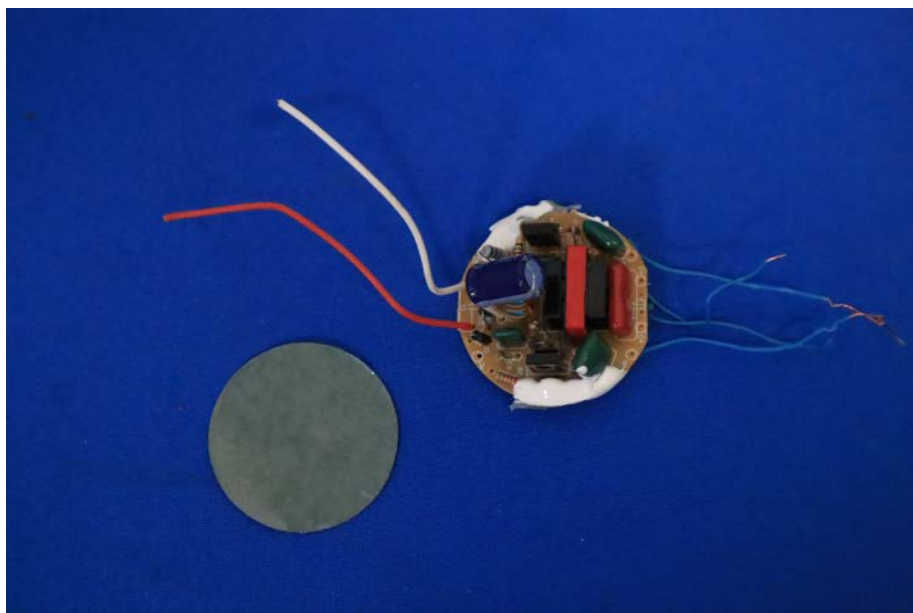




**EUT Photo 3**



**EUT Photo 4**

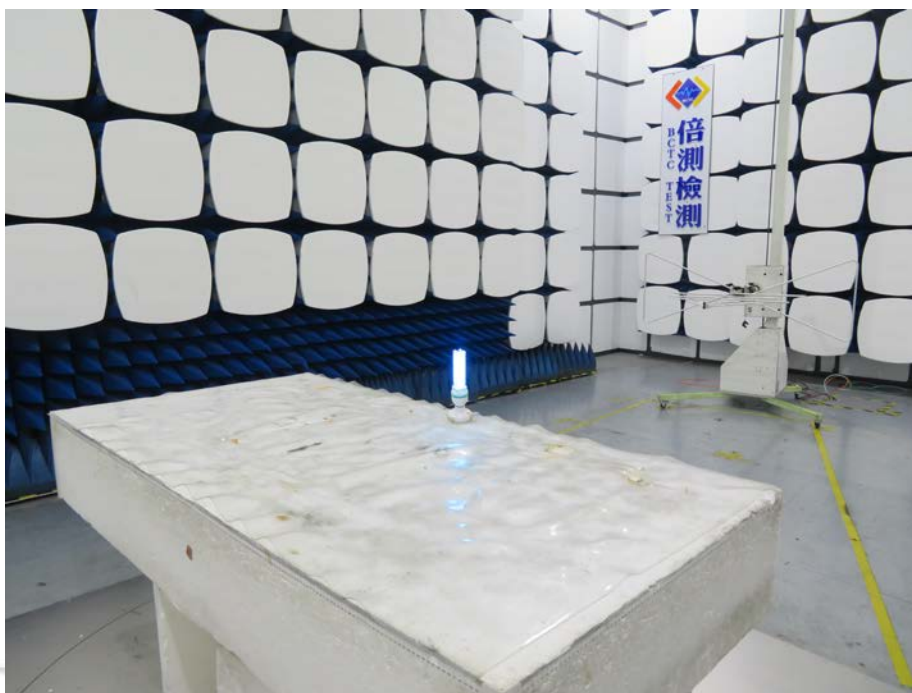


## 9. EUT TEST SETUP PHOTOGRAPHS

### Conducted emission



### Radiated emission



\*\*\*\*\* END OF REPORT \*\*\*\*\*