

EMC TEST REPORT

For

Shenzhen Feihe Electronics Co., Ltd

Flame Atmosphere Lamp

Model No.: U19

Prepared for : Shenzhen Feihe Electronics Co., Ltd
Address : 3/F, Bldg 3, Hongfa Innovative Park, Jiuwei, Bao'an district,
Shenzhen, China

Prepared by : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : May 10, 2017
Number of tested samples : 1
Serial number : Prototype
Date of Test : May 10, 2017 ~ May 22, 2017
Date of Report : May 22, 2017



EMC TEST REPORT**EN 55015: 2013+A1: 2015**

Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

EN 61547: 2009

Equipment for general lighting purposes - EMC immunity requirements

Report Reference No.: LCS170509014BE**Date Of Issue: May 22, 2017****Testing Laboratory Name.....: Shenzhen Southern LCS Compliance Testing Laboratory Ltd.****Address: B Area, 1-2F, Building B, Zhongyu Green High-tech Industrial Park, Wenge Road, Heshuikou, Gongming Street, Guangming New District, Shenzhen, Guangdong, China****Testing Location/ Procedure ...: Full application of Harmonised standards**
Partial application of Harmonised standards
Other standard testing method **Applicant's Name: Shenzhen Feihe Electronics Co., Ltd****Address: 3/F, Bldg 3, Hongfa Innovative Park, Jiuwei, Bao'an district, Shenzhen, China****Test Specification:****Standard: EN 55015: 2013+A1: 2015**
EN 61547: 2009**Test Report Form No.: LCSEMC-1.0****TRF Originator: Shenzhen Southern LCS Compliance Testing Laboratory Ltd.****Master TRF: Dated 2011-03****Shenzhen Southern LCS Compliance Testing Laboratory Ltd. All rights reserved.**

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Test Item Description.: Flame Atmosphere Lamp**Trade Mark: N/A****Model/ Type Reference: U19****Ratings: DC5V, 50-60Hz, Max. 5W, 1A, IP65****Result: Positive****Compiled by:***Aimee Yang*

Aimee Yang/ File administrators

Supervised by:*Cherry Chen*

Cherry Chen/ Technique principal

Approved by:

Gavin Liang/ Manager

EMC -- TEST REPORT

Test Report No. : LCS170509014BE

May 22, 2017

Date of issue

Type/Model.....: U19

EUT.....: Flame Atmosphere Lamp

Applicant.....: Shenzhen Feihe Electronics Co., Ltd

Address: 3/F, Bldg 3, Hongfa Innovative Park, Jiuwei, Bao'an district,
Shenzhen, China

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Address: 3/F, Bldg 3, Hongfa Innovative Park, Jiuwei, Bao'an district,
Shenzhen, China

Telephone.....: /

Fax.....: /

Test Result according to the standards on page 7:

Positive

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
00	May 22, 2017	Initial Issue	Gavin Liang

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION (EN 55015: 2013+A1: 2015)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN 55015: 2013+A1: 2015	-----	N/A
Magnetic field emission	EN 55015: 2013+A1: 2015	-----	PASS
Radiated disturbance	EN 55015: 2013+A1: 2015	-----	PASS
Harmonic current emissions	EN 61000-3-2: 2014	Class C	N/A
Voltage fluctuations & flicker	EN 61000-3-3: 2013	-----	N/A
IMMUNITY (EN 61547: 2009)			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	EN 61000-4-2: 2009	B	PASS
Electrical fast transient (EFT)	EN 61000-4-4: 2012	B	N/A
Surge (Input a.c. power ports)	EN 61000-4-5: 2014	B	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6: 2014	A	N/A
Power frequency magnetic field	EN 61000-4-8: 2010	A	PASS
Voltage dips, 30% reduction	EN 61000-4-11: 2004	C	N/A
Voltage interruptions		B	N/A
N/A is an abbreviation for Not Applicable.			

1.2. Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

1.2.1. Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deliver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.2. Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be deliver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.3. Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be loss.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: Flame Atmosphere Lamp
Trade Mark	: N/A
Model Number	: U19
Power Supply	: DC5V, 50-60Hz, Max. 5W, 1A, IP65

2.2. Description of Test Facility

Site Description	
EMC Lab.	: TUV RH Registration Number. is UA 50362241 0001. CNAS Registration Number. is L4595. UL Registration Number. is 100571-492. NVLAP Registration Number. is 600112-0.

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4.Measurement Uncertainty

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cisp1})
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 1.40 dB ± 2.80 dB	± 4.0 dB ± 3.6 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.46 dB	N/A
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.12 dB	N/A
Radiated Emission	Level accuracy (30MHz to 200MHz)	± 4.66 dB	± 5.2 dB
Radiated Emission	Level accuracy (200MHz to 1000MHz)	± 4.64 dB	± 5.0 dB
Mains Harmonic	Voltage	$\pm 0.640\%$	N/A
Voltage Fluctuations & Flicker	Voltage	$\pm 0.530\%$	N/A

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1. Radiated Electromagnetic Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2016/06/18
2	10dB Attenuator	SCHWARZBECK	OSPAM236	9729	2016/06/18
3	Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2016/06/18
4	EMI Test Software	AUDIX	E3	N/A	2016/06/18

3.2. Radiated Disturbance (Electric Field)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2016/02/04
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2016/06/18
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2016/06/18
4	EMI Test Software	AUDIX	E3	N/A	2016/06/18
5	Positioning Controller	MF	MF-7082	/	2016/06/18

3.3. Electrostatic Discharge

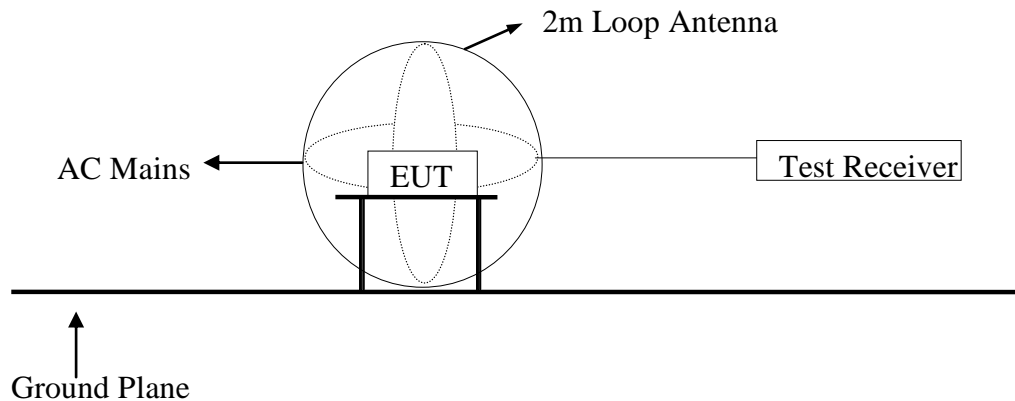
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	KIKUSUI	KC001311	KES4021	2016/06/18

3.4. Power Frequency Magnetic Field Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power frequency mag-field generator System	EVERFINE	EMS61000-8K	906003	2016/06/18

4. MAGNETIC FIELD EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



4.2. Magnetic Field Emission Measurement Standard and Limits

4.2.1. Test Standard

EN 55015: 2013+A1: 2015

4.2.2. Test Limits

Frequency	Limits for loop diameter (dB μ A)
	2m
9kHz ~ 70kHz	88
70kHz ~ 150kHz	88 ~ 58*
150kHz ~ 3.0MHz	58 ~ 22*
3.0MHz ~ 30MHz	22

1. At the transition frequency the lower limit applies.
2. * decreasing linearly with logarithm of the frequency.

4.3. EUT Configuration on Test

The configuration of the EUT is same as Section 3.3.

4.4. Operating Condition of EUT

Same as conducted measurement which is listed in Section 4.4, except the test set up replaced by Section 4.1.

4.5. Test Procedure

The EUT is placed on a wood table in the center of a loop antenna. The induced current in the loop antenna is measured by means of a current probe and the test receiver. Three field components are checked by means of a coaxial switch.

The frequency range from 9kHz to 30MHz is investigated. The receiver is measured with the quasi-peak detector. For frequency band 9kHz to 150kHz, the bandwidth of the field strength meter is set at 200Hz. For frequency band 150kHz to 30MHz, the bandwidth is set at 9kHz.

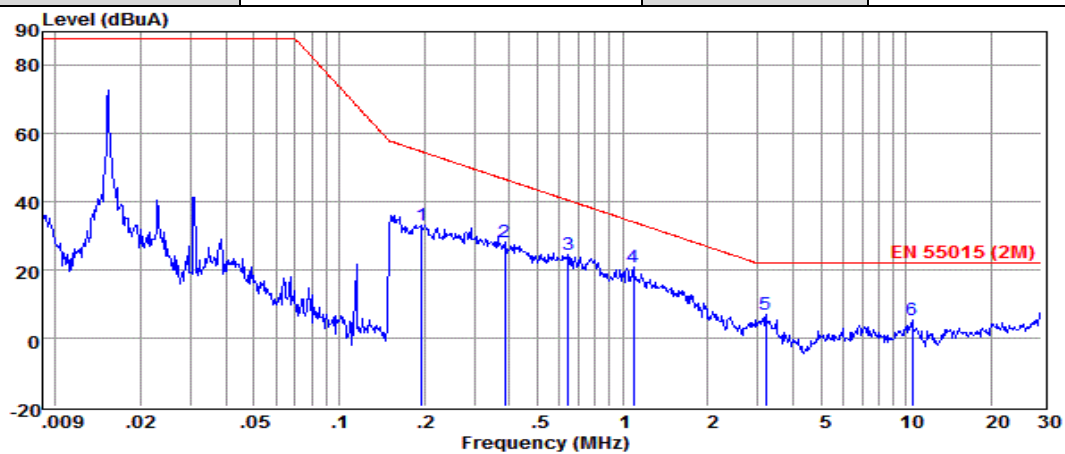
All the test results are listed in Section 4.6.

4.6. Test Results

PASS.

The frequency range from 9kHz to 30MHz is investigated.

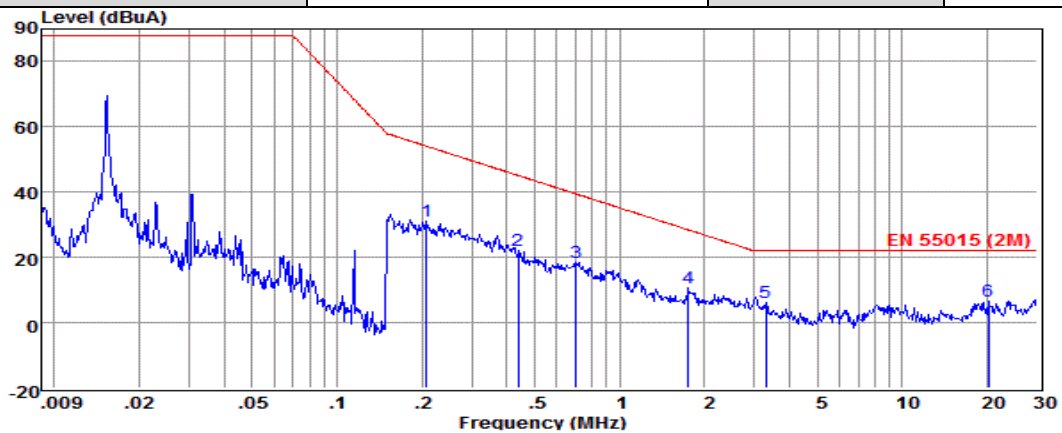
Model No.	U19	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Test Engineer	GAREN DAI
Pol	X		



	Freq	Reading	LISNFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuA	dB	dB	dBuA	dBuA	dB	
1	0.20	-28.42	60.99	0.56	33.13	54.77	-21.64	QP
2	0.38	-33.54	61.00	0.61	28.07	46.68	-18.61	QP
3	0.64	-36.98	60.81	0.64	24.47	40.54	-16.07	QP
4	1.10	-38.79	59.19	0.66	21.06	34.10	-13.04	QP
5	3.20	-49.43	55.79	0.70	7.06	22.00	-14.94	QP
6	10.54	-43.79	48.20	0.81	5.22	22.00	-16.78	QP

Remarks: 1. Measured = Reading +Cable Loss.
 2. The emission levels that are 20dB below the official limit are not reported.

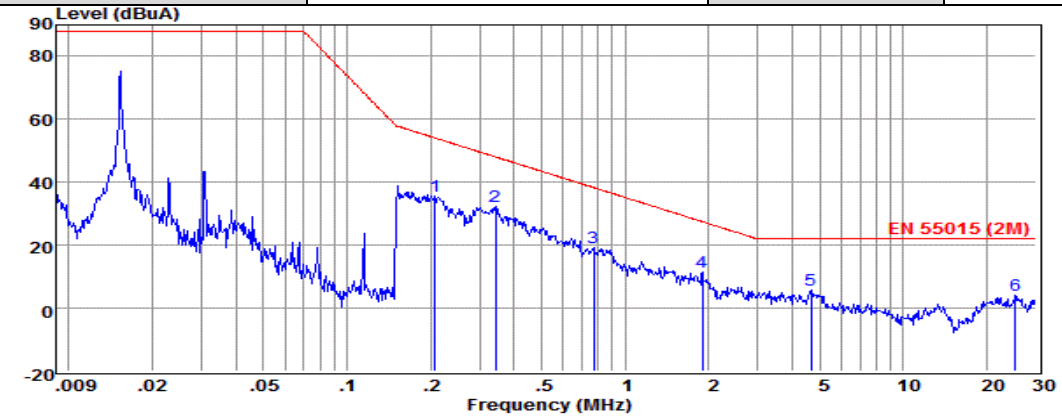
Model No.	U19	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Test Engineer	GAREN DAI
Pol	Y		



	Freq	Reading	LISNFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuA	dB	dB	dBuA	dBuA	dB	
1	0.21	-30.56	61.00	0.56	31.00	54.09	-23.09	QP
2	0.44	-39.32	60.98	0.62	22.28	45.12	-22.84	QP
3	0.70	-42.69	60.68	0.64	18.63	39.46	-20.83	QP
4	1.75	-48.54	58.65	0.68	10.79	28.45	-17.66	QP
5	3.30	-49.97	55.61	0.70	6.34	22.00	-15.66	QP
6	20.16	-40.83	46.56	0.87	6.60	22.00	-15.40	QP

Remarks: 1. Measured = Reading +Cable Loss.
 2. The emission levels that are 20dB below the official limit are not reported.

Model No.	U19	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Test Engineer	GAREN DAI
Pol	Z		

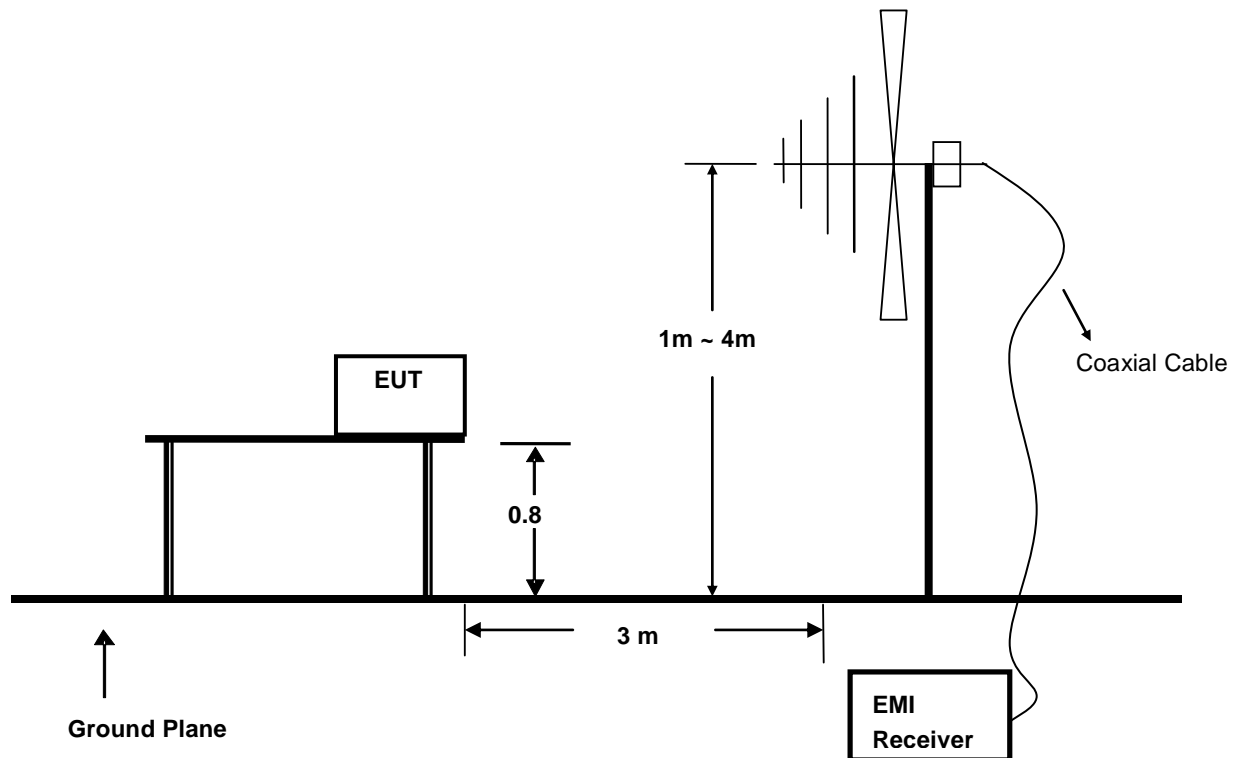


	Freq	Reading	LISNFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuA	dB	dB	dBuA	dBuA	dB	
1	0.21	-26.11	61.00	0.56	35.45	54.09	-18.64	QP
2	0.34	-29.33	61.00	0.60	32.27	48.04	-15.77	QP
3	0.77	-41.79	60.55	0.65	19.41	38.29	-18.88	QP
4	1.90	-47.58	58.56	0.68	11.66	27.47	-15.81	QP
5	4.68	-48.02	53.12	0.72	5.82	22.00	-16.18	QP
6	25.30	-42.05	45.38	0.89	4.22	22.00	-17.78	QP

Remarks: 1. Measured = Reading +Cable Loss.
 2. The emission levels that are 20dB below the official limit are not reported.

5. RADIATED EMISSION MEASUREMENT

5.1. Block Diagram of Test Setup



5.2. Test Standard

EN 55015: 2013+A1: 2015

5.3. Radiated Emission Limits

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB μ V/m)
30 ~ 230	3	40
230 ~ 300	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

5.4.EUT Configuration on Test

The EN 55015 regulations test method must be used to find the maximum emission during radiated emission measurement.

5.5.Operating Condition of EUT

5.5.1 Turn on the power.

5.5.2 After that, let the EUT work in test mode (ON) and measure it.

5.6.Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the Receiver is set at 120kHz.

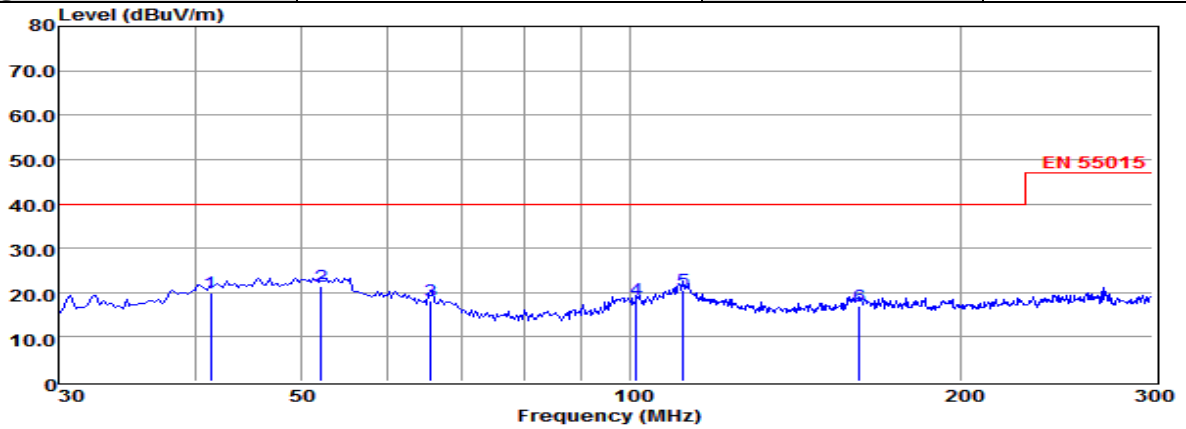
The frequency range from 30MHz to 300MHz is investigated.

5.7.Test Results

PASS.

The test result please refer to the next page.

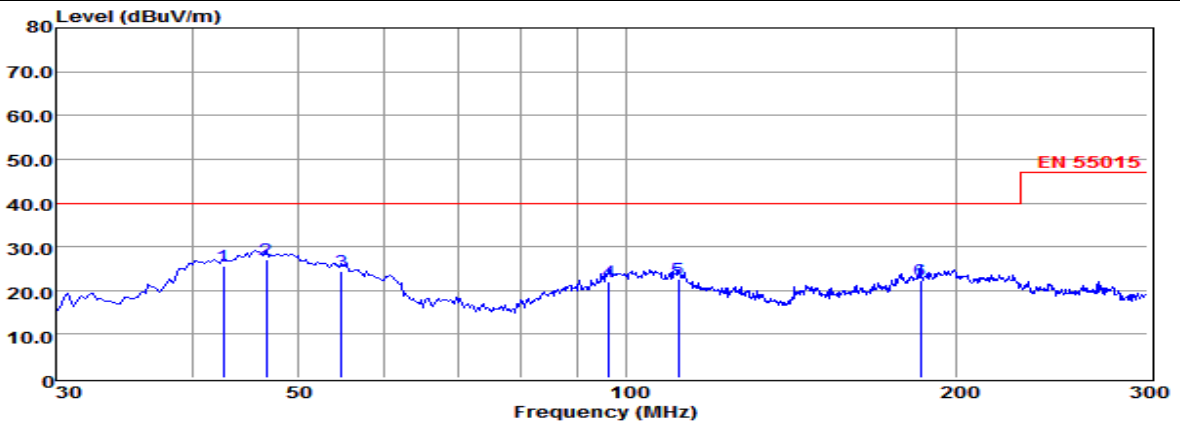
Model No.	U19	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	GAREN DAI		



	Freq MHz	Reading dBuV	CabLos dB	Antfac dB/m	Measured dBuV/m	Limit dBuV/m	Over dB	Remark
1	41.34	6.74	0.50	12.54	19.78	40.00	-20.22	QP
2	52.14	7.97	0.54	12.86	21.37	40.00	-18.63	QP
3	65.64	7.55	0.52	10.13	18.20	40.00	-21.80	QP
4	101.28	6.83	0.60	10.99	18.42	40.00	-21.58	QP
5	111.81	9.28	0.65	10.59	20.52	40.00	-19.48	QP
6	161.76	8.17	0.75	8.00	16.92	40.00	-23.08	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that ate 20db blow the official limit are not reported

Model No.	U19	Test Mode	ON
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	GAREN DAI		

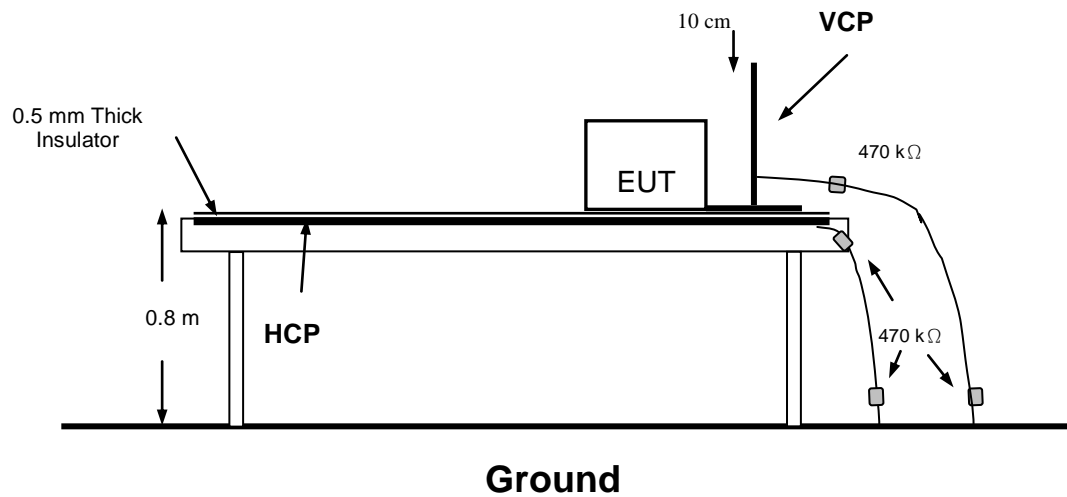


	Freq MHz	Reading dBuV	CabLos dB	Antfac dB/m	Measured dBuV/m	Limit dBuV/m	Over dB	Remark
1	42.69	12.33	0.50	12.78	25.61	40.00	-14.39	QP
2	46.74	13.57	0.35	13.20	27.12	40.00	-12.88	QP
3	54.84	11.35	0.46	12.43	24.24	40.00	-15.76	QP
4	96.42	10.92	0.58	10.43	21.93	40.00	-18.07	QP
5	111.54	11.47	0.61	10.64	22.72	40.00	-17.28	QP
6	185.79	12.18	0.70	9.55	22.43	40.00	-17.57	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that ate 20db blow the official limit are not reported

6. ELECTROSTATIC DISCHARGE TEST

6.1. Block Diagram of Test Setup



6.2. Test Standard

EN 61547: 2009 (EN 61000-4-2: 2009, Severity Level: Air Discharge: Level 3, ± 8 KV
Contact Discharge: Level 2, ± 4 KV)

6.3. Severity Levels and Performance Criterion

6.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	± 2	± 2
2.	± 4	± 4
3.	± 6	± 8
4.	± 8	± 15
X	Special	Special

6.3.2. Performance criterion: **B**

6.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3.6

6.5. Operating Condition of EUT

- 6.5.1. Setup the EUT as shown in Section 6.1.
- 6.5.2. Turn on the power of all equipments.
- 6.5.3. Let the EUT work in test mode (ON) and measure it.

6.6. Test Procedure

6.6.1. Air Discharge

This test is done on a non-conductive surfaces. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Because the case of the EUT is metal surface, so it does not need to be tested.

6.6.2. Contact Discharge

All the procedure shall be same as Section 9.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

6.6.3. Indirect Discharge For Horizontal Coupling Plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

6.6.4. Indirect Discharge For Vertical Coupling Plane

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

6.7. Test Results

PASS.

Please refer to the following page.

Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	Shenzhen Feihe Electronics Co., Ltd		
EUT	Flame Atmosphere Lamp	Temperature	23°C
M/N	U19	Humidity	56%
Criterion	B	Pressure	1021mbar
Test Mode	ON	Test Engineer	GAREN DAI

Air Discharge

Test Points	Test Levels			Results		
	± 2KV	± 4KV	± 8KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Contact Discharge

Test Points	Test Levels		Results		
	± 2 KV	±4 KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Discharge To Horizontal Coupling Plane

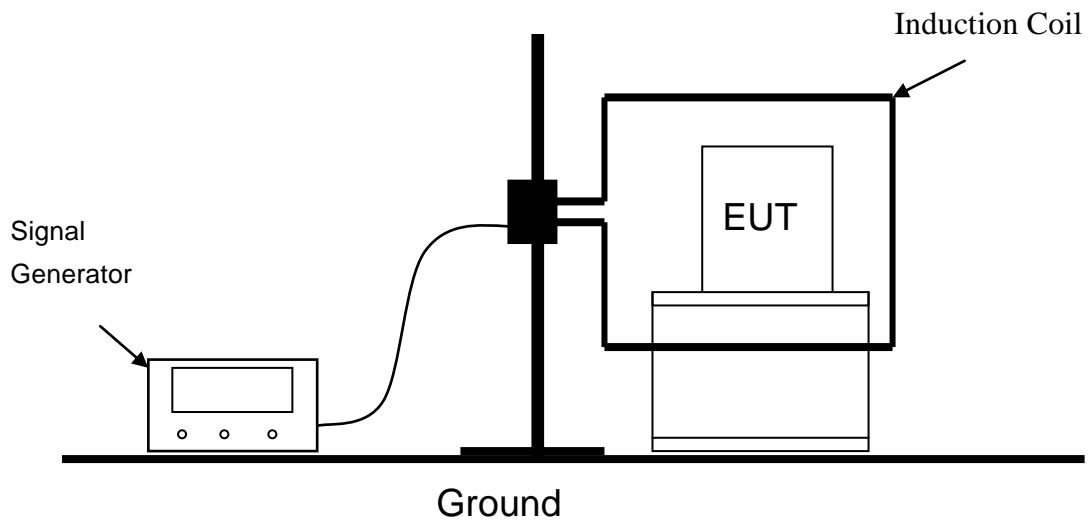
Side of EUT	Test Levels		Results		
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

Discharge To Vertical Coupling Plane

Side of EUT	Test Levels		Results		
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

7. MAGNETIC FIELD IMMUNITY TEST

7.1. Block Diagram of Test Setup



7.2. Test Standard

EN 61547: 2009 (EN 61000-4-8: 2010, Severity Level 2: 3A/m)

7.3. Severity Levels and Performance Criterion

7.3.1. Severity level

Level	Magnetic Field Strength (A/m)
1.	1
2.	3
3.	10
4.	30
5.	100
X	Special

7.3.2. Performance criterion: A

7.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.10.

7.5. Operating Condition of EUT

- 7.5.1. Setup the EUT as shown in Section 7.1.
- 7.5.2. Turn on the power of all equipments.
- 7.5.3. Let the EUT work in test mode (On) and measure it.

7.6. Test Procedure

- 7.6.1. Set up the EUT system as shown on Section 7.1.
- 7.6.2. The Induction coil is set up in horizontal or vertical.
- 7.6.3. Let the EUT work in test mode and measure it.

7.7. Test Results

PASS.

Please refer to the following page.

Magnetic Field Immunity Test Result

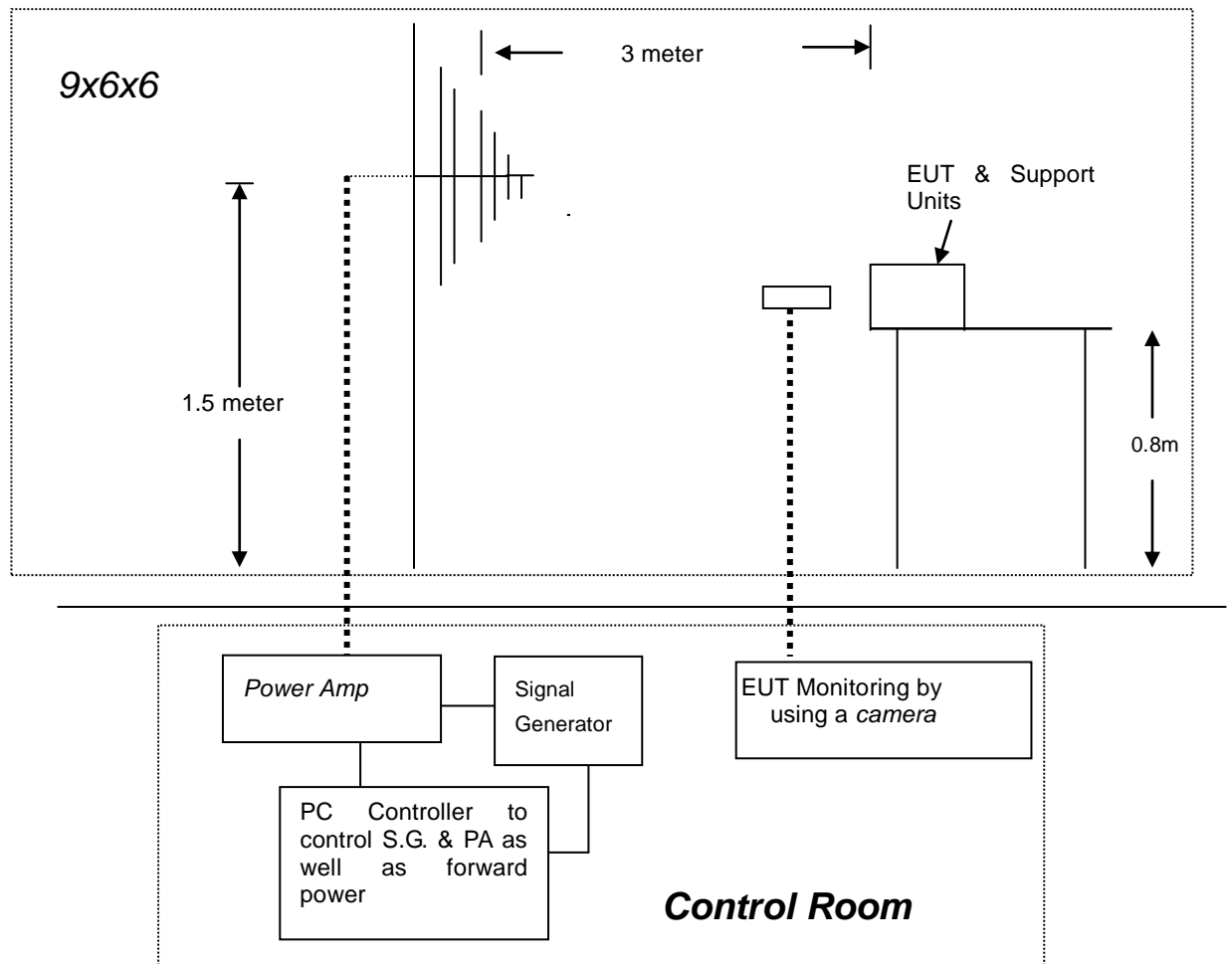
Standard	<input type="checkbox"/> IEC 61000-4-8 <input checked="" type="checkbox"/> EN 61000-4-8		
Applicant	Shenzhen Feihe Electronics Co., Ltd		
EUT	Flame Atmosphere Lamp	Temperature	23°C
M/N	U19	Humidity	56%
Test Mode	ON	Criterion	A
Test Engineer	GAREN DAI		

Test Level (A/M)	Testing Duration	Coil Orientation	Criterion	Result
3	5 mins	X	A	PASS
3	5 mins	Y	A	PASS
3	5 mins	Z	A	PASS

Note:

8. RF FIELD STRENGTH SUSCEPTIBILITY TEST

8.1. Block Diagram of Test Setup



8.2. Test Standard

EN 61547: 2009 (EN 61000-4-3: 2006+A2: 2010, Severity Level: 2, 3V / m)

8.3. Severity Levels and Performance Criterion

8.3.1. Severity level

Level	Field Strength (V/m)
1	1
2	3
3	10
X	Special

8.3.2. Performance criterion: A

8.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.13.

8.5.Operating Condition of EUT

8.5.1.Setup the EUT as shown in Section 8.1.

8.5.2.Turn on the power of all equipments.

8.5.3.Let the EUT work in test mode (On) and measure it.

8.6.Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80 - 1000 MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	3 Sec.

8.7.Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
Applicant	Shenzhen Feihe Electronics Co., Ltd		
EUT	Flame Atmosphere Lamp	Temperature	26°C
M/N	U19	Humidity	51%
Field Strength	3 V/m	Criterion	A
Test Mode	ON	Test Engineer	GAREN DAI
Frequency Range	80 MHz to 1000 MHz		
Modulation	<input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80%		
Steps	1%		

	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS

Test Equipment:

1. Signal Generator: 2031 (MARCONI)
2. Power Amplifier: 500A100 & 100W/1000M1 (A&R)
3. Power Antenna: 3108 (EMCO) & AT1080 (A&R)
4. Field Monitor: FM2000 (A&R)

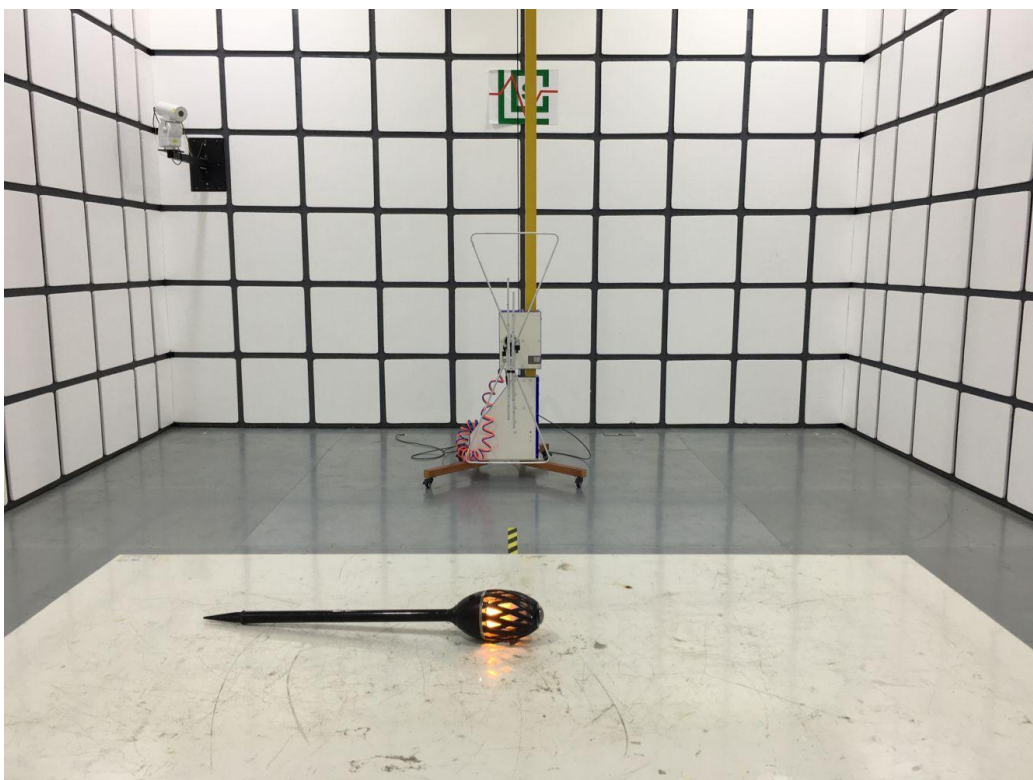
Note:

9. PHOTOGRAPH

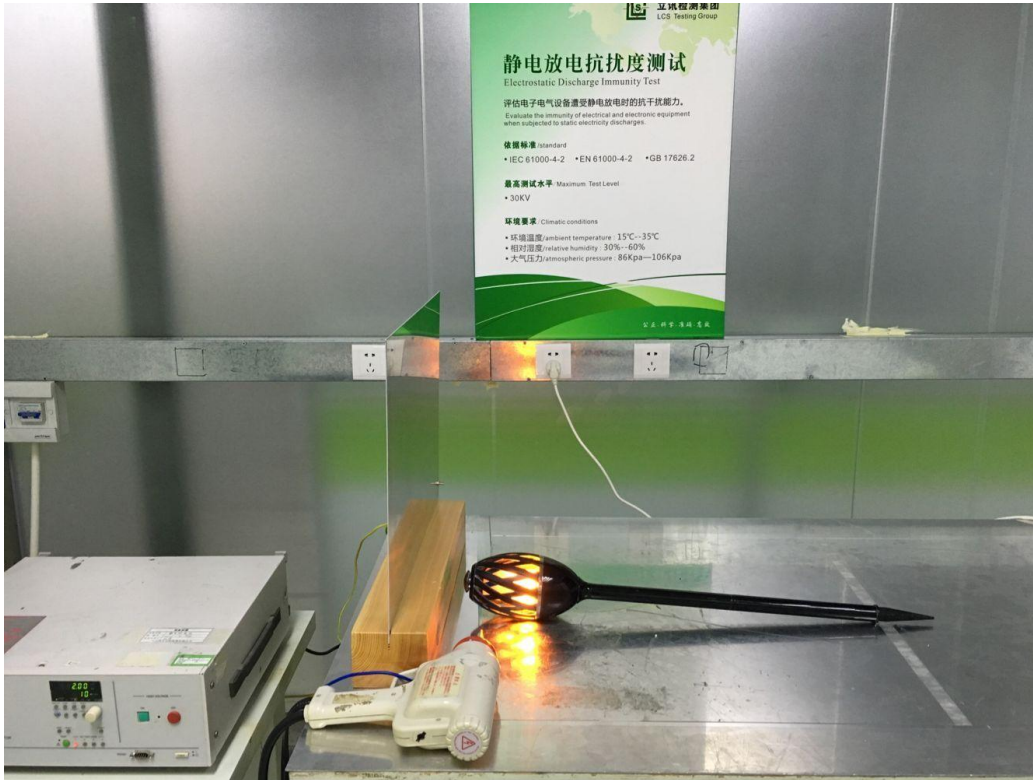
9.1. Photo of Radiated Electromagnetic Disturbance Measurement



9.2. Photo of Radiated Measurement



9.3. Photo of Electrostatic Discharge Test



9.4. Photo of Magnetic Field Immunity Test



10. EXTERNAL AND INTERNAL PHOTOS OF THE EUT



Fig. 1

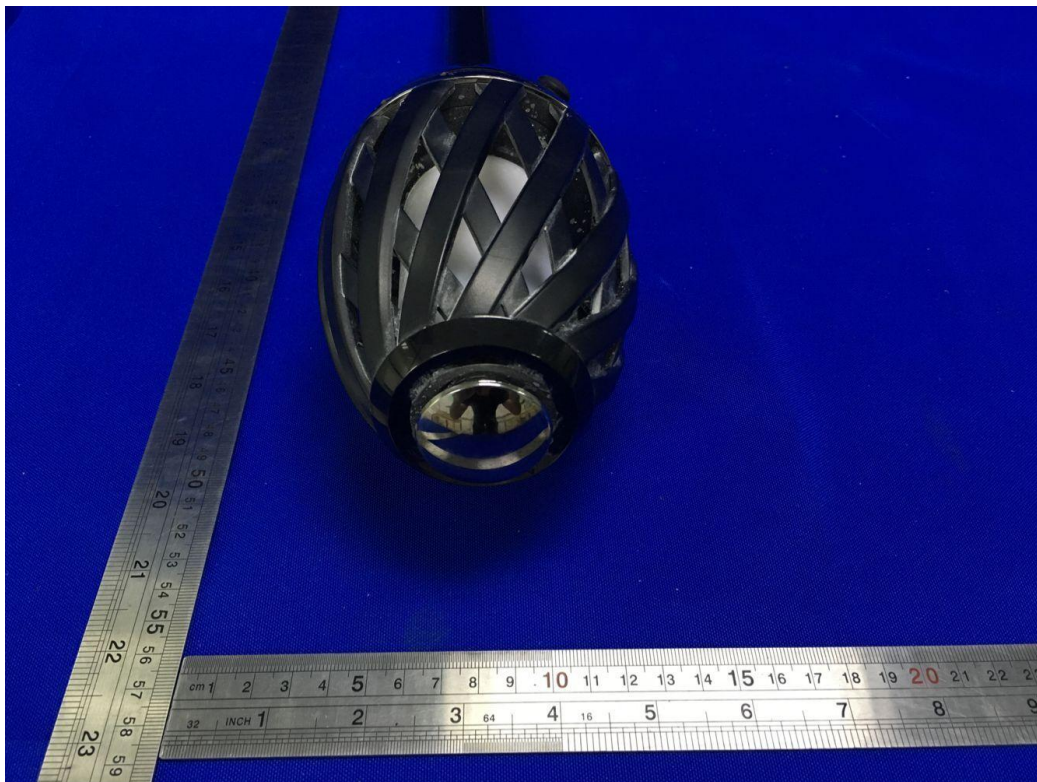


Fig. 2

-----THE END OF TEST REPORT-----