



# EMC TEST REPORT

**Report No. :** SET2019-03314

**Product:** Brightled

**Trade name:** Brightlux

**Model No:** URBJET 100W 4000K Cinza

**Applicant:** Brightled Iluminação LTDA EPP

**Address:** Rua Coronel Almeida, 325 – Centro, Araquari – SC Araquari , SC  
82220-320- BRASIL

**Issued by:** CCIC Southern Electronic Product Testing (Shenzhen)CO., Ltd.

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## Test Report

**Product.....** : Brightled

**Model No. ....** : URBJET 100W 4000K Cinza

**Trade name.....** : Brightlux

**Applicant.....** : Brightled Iluminação LTDA EPP

**Applicant Address.....** : Rua Coronel Almeida, 325 – Centro, Araquari – SC Araquari ,  
SC 82220-320- BRASIL

**Manufacturer.....** : SHENZHEN HUA TIAN TECHNOLOGY CO. LTD

**Manufacturer Address.....** : 3° FLOOR, BUILDING N°. 3 CAIFA INDUSTRY ZONE,  
RENMIN RD 181, LONGHUA DISTRICT, SHENZHEN –  
GUANGDONG - CHINA

**Test Standards.....** : **CISPR15:2013+AMD1:2015** Limits and methods of  
measurement of radio disturbance characteristics of electrical  
lighting and similar equipment

**Test Result.....** : Pass

**Tested by .....** : *Cui Jian* Apr, 04. 2019

**Reviewed by .....** : *Min Jing* Apr, 04. 2019

**Approved by .....** : *Shuangwen Zhang* Apr, 04. 2019



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## 1 General Information

### 1.1 Description of EUT

**Product:** Brightled

**Model No.:** URBJET 100W 4000K Cinza

**Brand Name:** Brightlux

**Serial No.:** /

**Electrical Rating:** 220V, 60Hz, 100W

**NOTE:**

1. For more detailed features about the EUT, please refer to the manufacture's specification or the user's manual.

### 1.2 Objective

Perform ElectroMagnetic Interference (EMI) and ElectroMagnetic Susceptibility (EMS) tests for CE Marking.

### 1.3 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-25°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

### 1.4 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

- Uncertainty of Mains terminal disturbance voltage,  $U_c = \pm 3.6\text{dB}$
- Uncertainty of Radiated Emission(9kHz – 30MHz),  $U_c = \pm 3.4\text{dB}$

### 1.5 Test Date

Emission: 2019.03.13~ 2019.03.25



## 1.6 Test Standards and Results

The EUT has been tested according to the following specifications:

EMISSION		
Standard	Test Type	Result
<b>CISPR15:2013+AMD1:2015</b>	Mains terminal disturbance voltage	PASS
	Radiated Electromagnetic Disturbance Measurement (9kHz-30MHz)	PASS
	Radiated Disturbance Measurement (30MHz -300MHz)	PASS

NOTE: The latest versions of basic standards are applied.

## 1.7 List of Equipments Used

Description	Manufacturer	Model No.	Calibration Due Date	Serial No.
EMI Test Receiver	ROHDE&SCHWARZ	ESR3	2019.09.13	A181103297
LISN	ROHDE&SCHWARZ	ENV216	2019.12.10	A140701847
Loop Antenna	Schwarzbeck	HXYZ9170	2020.07.13	A0304232
Shielding room1	NANBO TECH	L7000*W4500* H3100	2021.09.05	A181003226
EMI Test Receiver	ROHDE&SCHWARZ	ESIB7	2019.08.05	A0501375
Broadband Ant.	ETC	2786	2021.09.16	A150402239
Anechoic Chamber	Albatross	SAC-3MAC (9*6*6m)	2020.03.07	A0412375

NOTE: Equipments listed above have been calibrated and are in the period of validation.



## **2 Emission Test**

### **2.1 EUT Setup and Operating Conditions**

The EUT was powered by 220VAC Mains.

## 2.2 Mains Terminal Disturbance Voltage Measurement

### 2.2.1 Limits of Mains Terminal Disturbance Voltage

Frequency range	Limits (Db $\mu$ V)	
	Quasi-peak	Average
9kHz to 50kHz	110	--
50kHz to 150kHz	90 to 80	--
150kHz to 0.5MHz	66 to 56	56 to 46
0.5MHz to 5.0MHz	56	46
5.0MHz to 30MHz	60	50

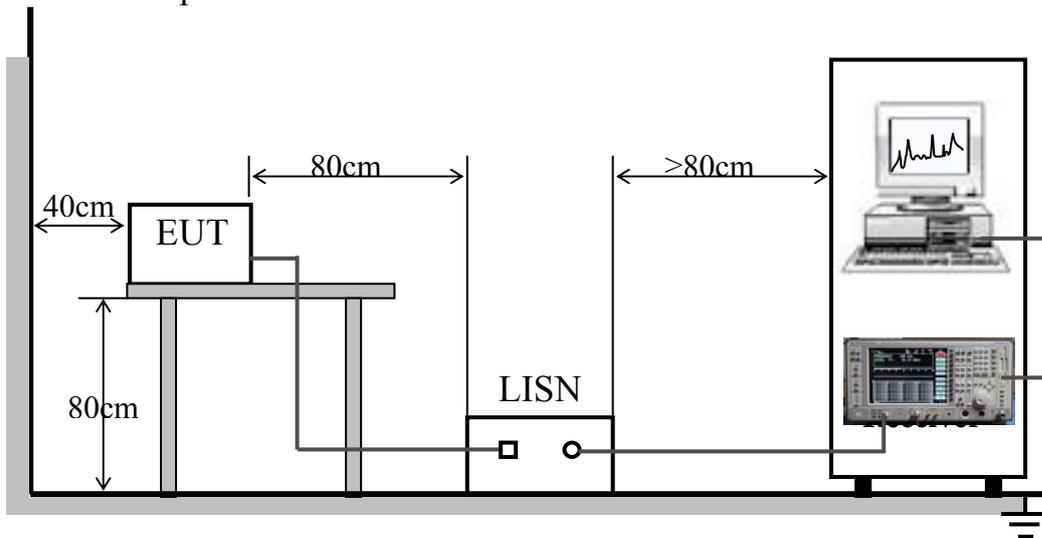
**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 50 kHz to 150 kHz and 150 kHz to 0.5MHz.

### 2.2.2 Test Procedure

- a. The EUT was placed 0.8 meters from the conducting wall of shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50 $\Omega$ /50 $\mu$ H of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 9 kHz to 30MHz was searched. Emission levels over 10Db under the prescribed limits are not reported.

### 2.2.3 Test Setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

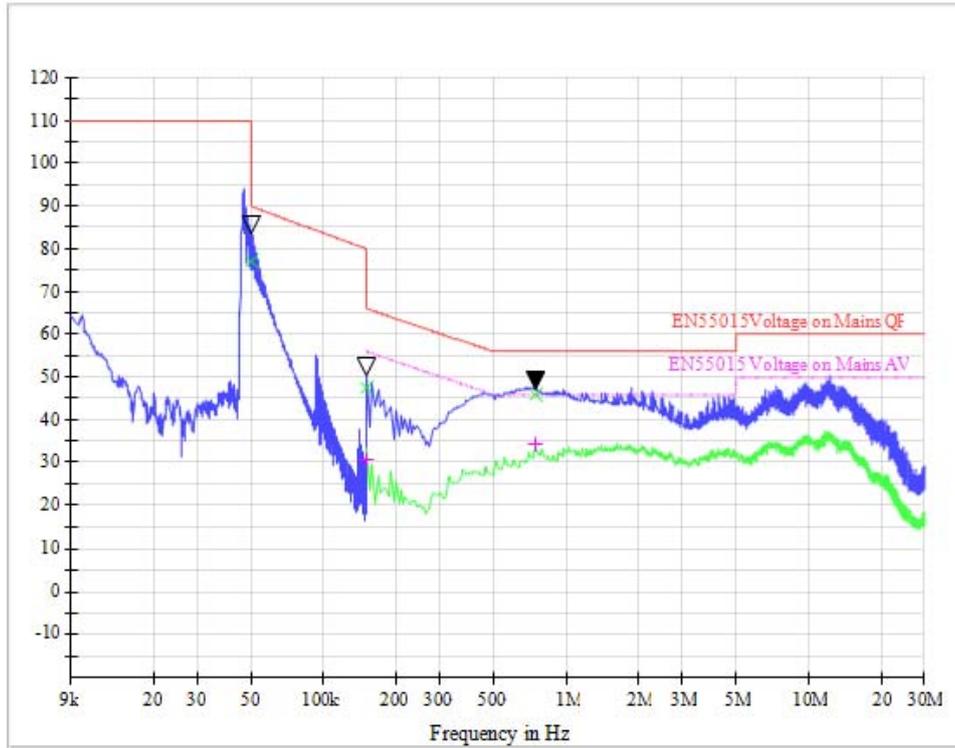
### 2.2.4 Test Result

Freq. (MHz)	Limit Value (Db $\mu$ V)		Emission Level (Db $\mu$ V)	
	QP	AV	QP	AV
0.009 - 0.05	110	--	<50	--
0.05 - 0.15	90 to 80	--	<30	--
0.0503	89.9	---	76.95	---
0.1500	66.0	56.0	47.55	30.67
0.7440	56.0	46.0	46.14	34.03
5 - 30	60	50	<30	NOTE 2

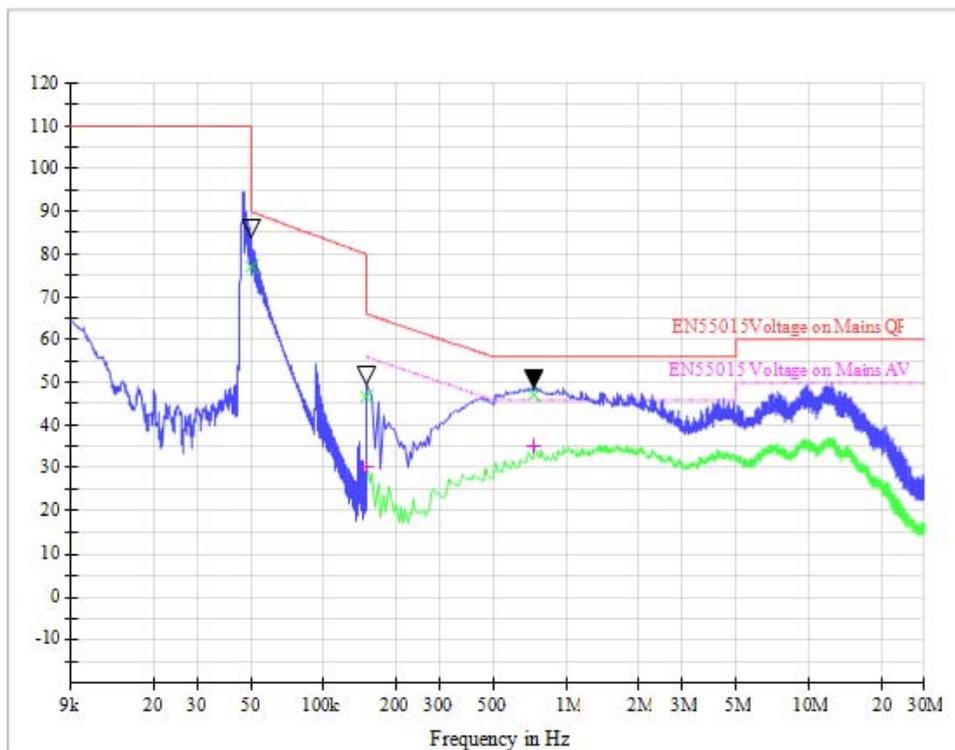
#### NOTE:

1. QP and AV are abbreviations of the quasi-peak and average individually.
2. If the emission levels measured with QP detector are lower than AV limits, there is unnecessary to measure with AV detector.
3. The emission levels recorded above is the larger ones of both L phase and N phase.

1. Mains terminal disturbance voltage, L phase



2. Mains terminal disturbance voltage, N phase



## 2.3 Radiated Electromagnetic Disturbance Measurement

### 2.3.1 Limits of Radiated Electromagnetic Disturbance

Frequency range (MHz)	QP Limits(dB $\mu$ A), for loop antenna with a diameter of 2m
0.009 to 0.07	88
0.07 to 0.15	88 to 58
0.15 to 3.0	58 to 22
3.0 to 30	22

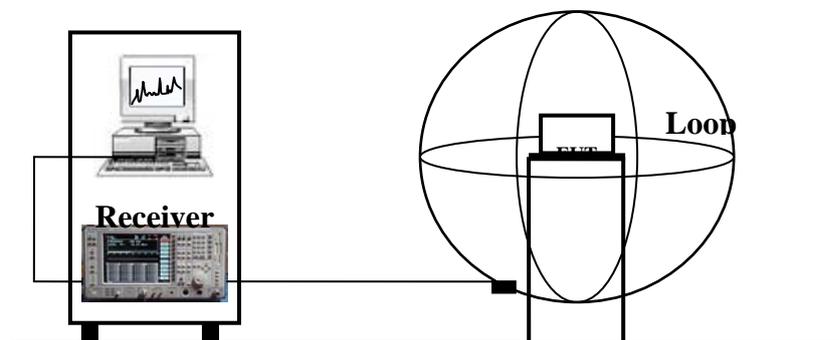
#### Notes:

- (1) The lower limit shall apply at the transition frequency.
- (2) The limit decreases linearly with the logarithm of the frequency in the range 70 kHz to 150 kHz and 0.15MHz to 3MHz.

### 2.3.2 Test Procedure

- a. The magnetic component of radiated electromagnetic disturbance is measured by means of a loop antenna.
- b. The induced current in the loop antenna is measured by means of a current probe (1V/A) and the CISPR measuring receiver. By means of a coaxial switch, the three field directions are measured in sequence.
- c. The EUT was placed in the center of the loop antenna, on an insulated table.

### 2.3.3 Test Setup



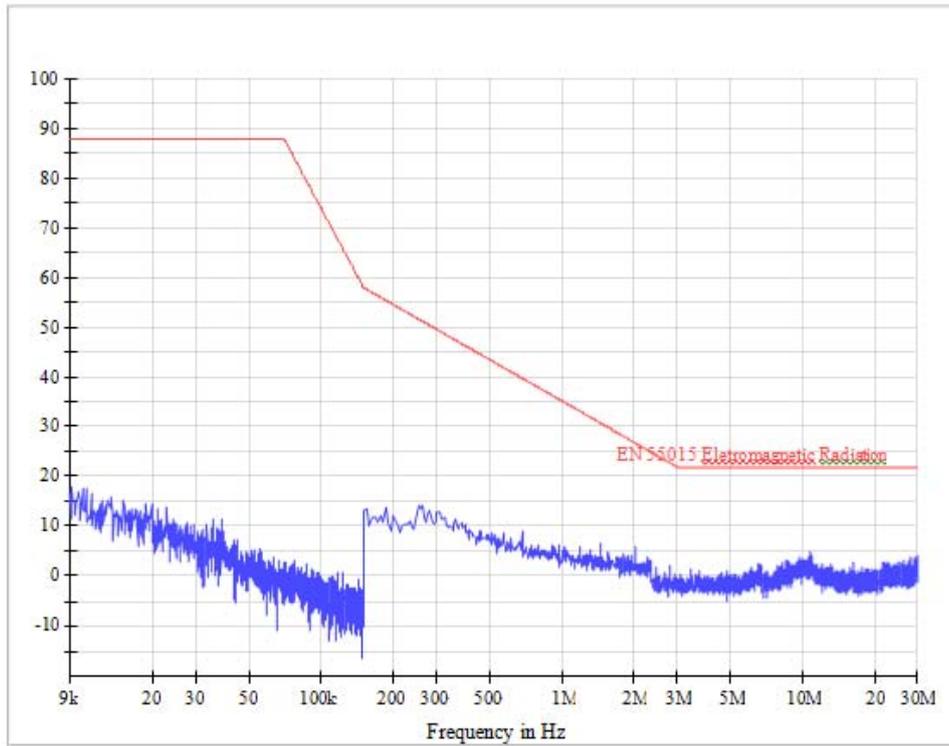
For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.



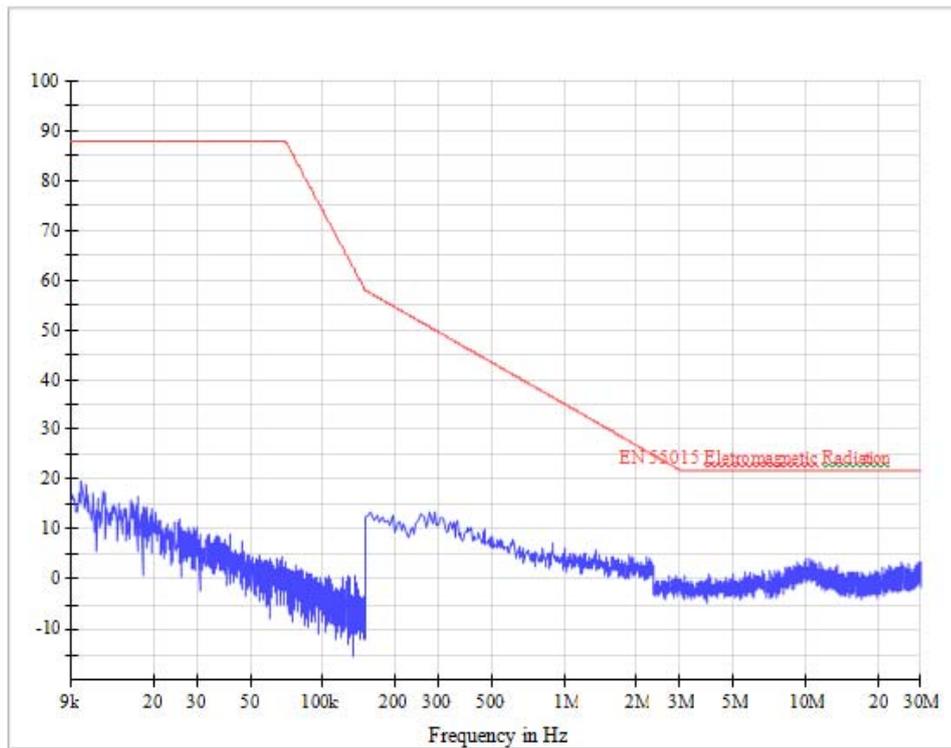
## 2.3.4 Test Results

No.	Antenna Direction	Frequency (MHz)	QP Limits (dB $\mu$ A)	Emission Level (dB $\mu$ A)
1	X/Y/Z	0.009 – 0.07	88	<40
2	X/Y/Z	0.07 – 0.15	88 – 58	<20
3	X/Y/Z	0.15 – 3.0	58 – 22	<10
4	X/Y/Z	3.0 – 30	22	<10

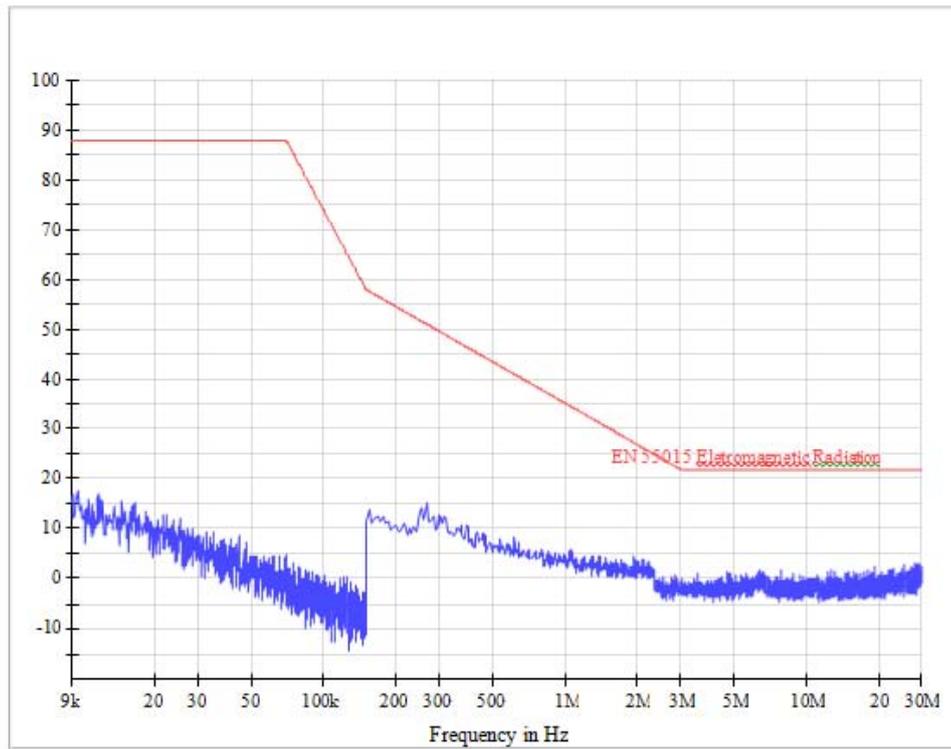
1. Radiated electromagnetic disturbance, loop antenna direction: X



2. Radiated electromagnetic disturbance, loop antenna direction: Y



## 3. Radiated electromagnetic disturbance, loop antenna direction: Z



## 2.4 Radiated Disturbance Measurement

### 2.4.1 Limits of Radiated Disturbance

Frequency range (MHz)	Quasi peak limits(dB $\mu$ V/m), for Class B ITE, at 3m measurement distance
30 – 230	40
230 - 300	47

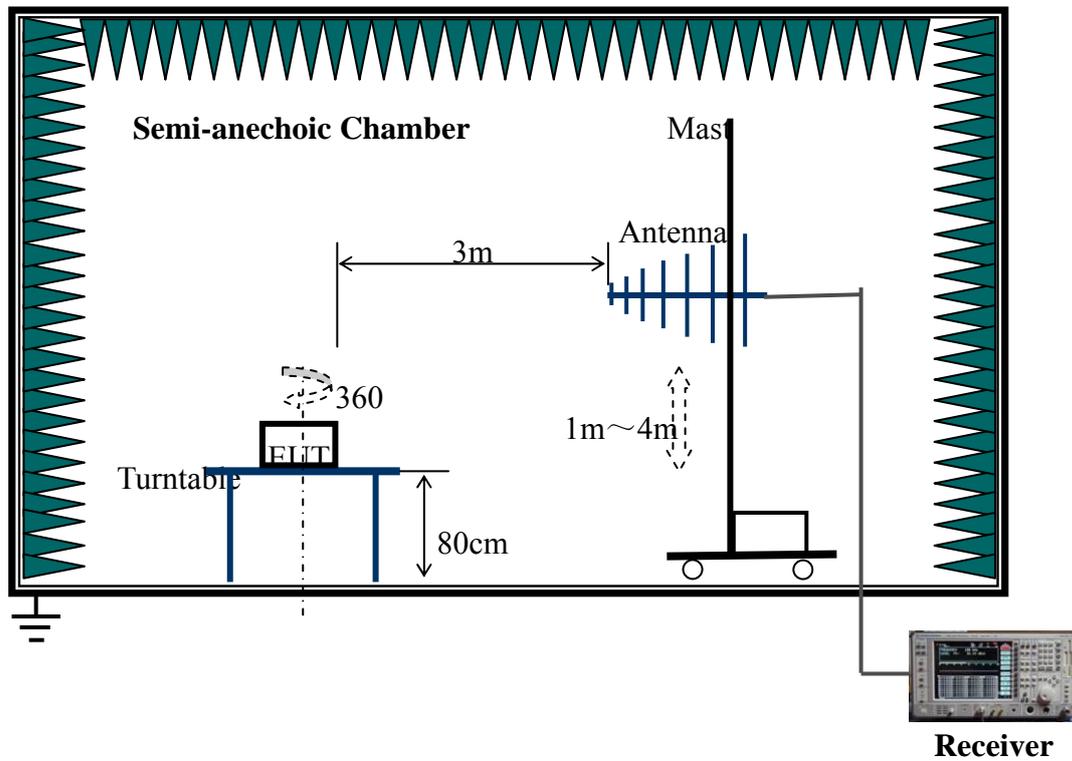
**Notes:**

- (3) The lower limit shall apply at the transition frequency.
- (4) Additional provisions may be required for cases where interference occurs.

### 2.4.2 Test Procedure

- d. The EUT was placed on the top of an insulating table 0.8 meters above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- e. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- f. The antenna is a broadband antenna, and its height is varied from 1 to 4 meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- g. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the heights from 1 to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- h. The test-receiver system was set to Peak Detector Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emission that did not have 10dB margin would be retested one by one using the quasi-peak method.

### 2.4.3 Test Setup

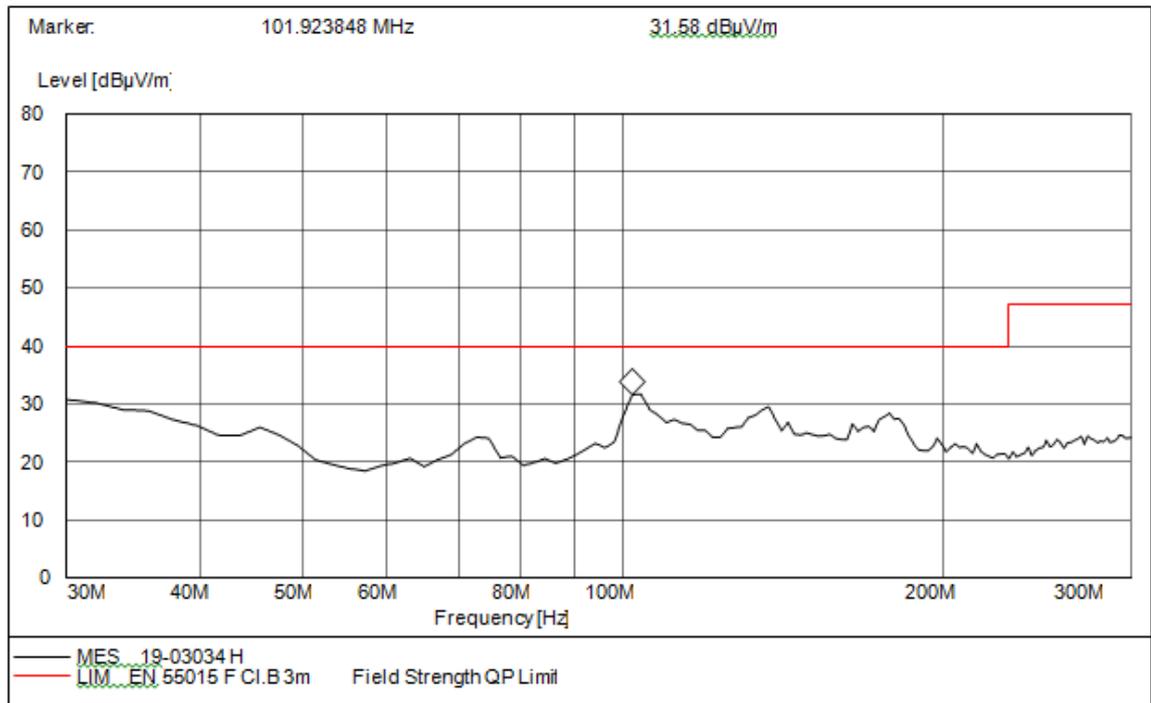


For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

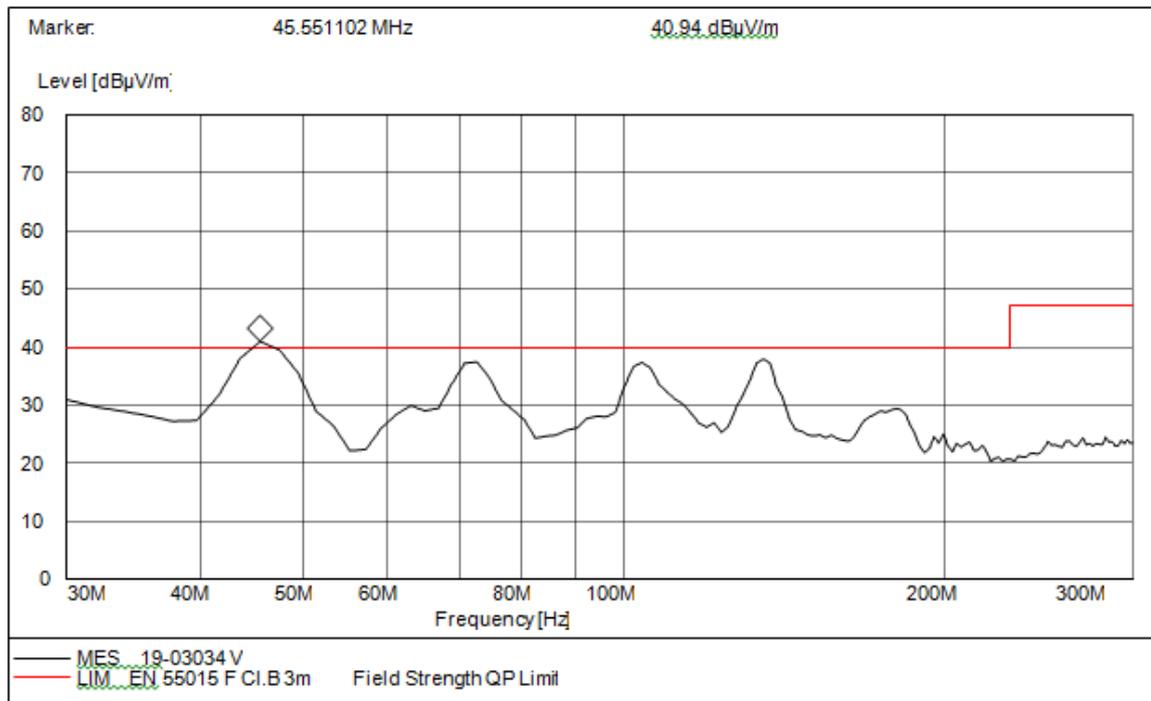
### 2.4.4 Test Result

No.	Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	QP Limits (dB $\mu$ V/m)	Emission Level (dB $\mu$ V/m)
1	46.83	V	100	125	40	36.92
2	72.44	V	100	326	40	35.02
3	103.36	V	100	225	40	35.47
4	230-300	H/V	100-400	0-360	47	<37

### 1. Radiation disturbances, antenna polarization: Horizontal



### 2. Radiation disturbances, antenna polarization: Vertical

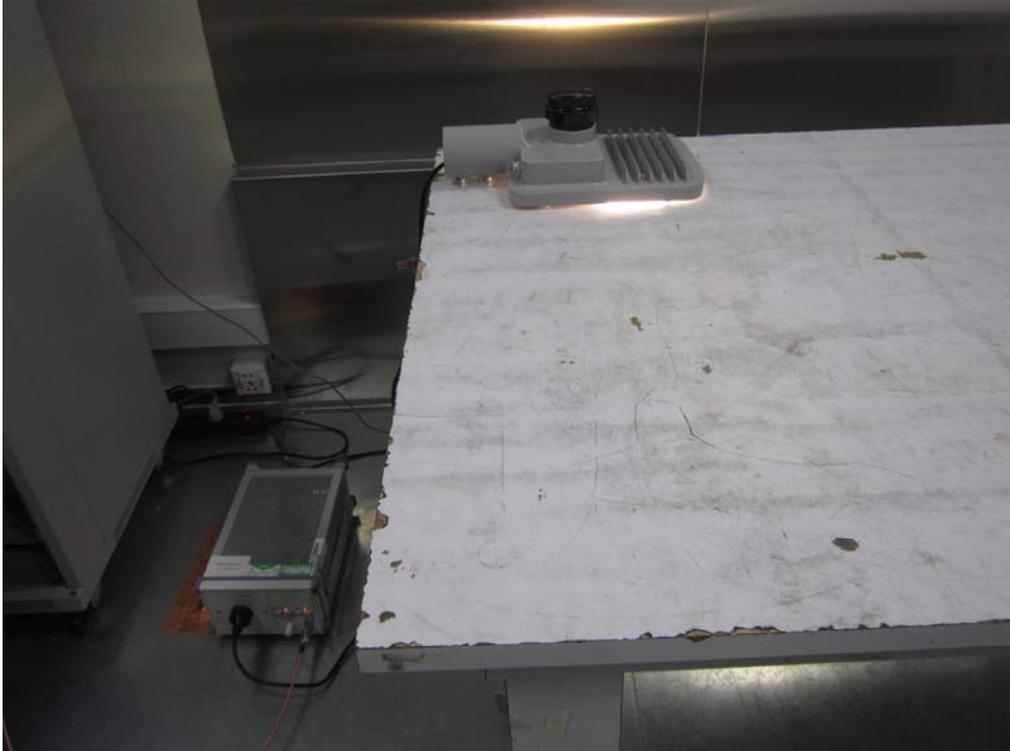


## Appendix I: Photographs of the EUT



## Appendix II: Photographs of the Test Configuration

### 1. Mains Terminal Disturbance Voltage Measurement



### 2. Radiated Electromagnetic Disturbance, Magnetic Component



### 3.Radiated Electromagnetic Disturbance





## STATEMENT

1. The test report is invalid without stamp of laboratory.
2. The test report is invalid without signature of person(s) testing and authorizing.
3. The test report is invalid if erased and corrected.
4. Test results of the report is valid to the test samples if sampling by client.
5. “☆” item to be outside the scope of authorized by CNAS.
6. “☆” item to be outside the scope of CMA, the test method、 data and results are available for reference..
7. The test report shall not be reproduced except in full, without written approval of the laboratory.
8. If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

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