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Report No.: 1403ESU01901
Report Version: V02
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MEASUREMENT REPORT

FCC Part 18 Subpart C: 2013

FCC ID: 2AA55HUNHE50

APPLICANT: Shanghai Senben Lighting Technology Incorporated Company

Product: FACTORY LAMP

Model No.: SBD1103-YQL50, SBF6103-YQL50
SBD1110-YQL50, SBF6107-YQL50

Standards: FCC Part 18 Subpart C: 2013
MP5: 1986

Result: Complies

Test Date: March 19 ~ 22, 2014

Reviewed By : Robin Wu
(Robin Wu)

Approved By : Marlin Chen
(Marlin Chen)

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

| Report No. | Version | Description | Issue Date |
|--------------|---------|------------------------------------|------------|
| 1403ESU01901 | Rev. 01 | Initial report | 04-17-2014 |
| 1403ESU01901 | Rev. 02 | Delete the Magnetic Field Emission | 04-23-2014 |

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1. General Information

1.1. Applicant

Shanghai Senben Lighting Technology Incorporated Company
Zone B, Block 2, No. 4800, Baoqian Highway, Jiading District, Shanghai City, China

1.2. Manufacturer

Shanghai Senben Lighting Technology Incorporated Company
Zone B, Block 2, No. 4800, Baoqian Highway, Jiading District, Shanghai City, China

1.3. Feature of Product

| | |
|-------------------|--------------------------------------------------------------------|
| Product Name | FACTORY LAMP |
| FCC ID | 2AA55HUNHE50 |
| Model No. | SBD1103-YQL50, SBF6103-YQL50, SBD1110-YQL50, SBF6107-YQL50 |
| Model Difference | The structure and power are the same, but different in appearance. |
| Working Frequency | 280kHz |
| Working Voltage | AC 120V, 60Hz |

Note: The Lights belong to Consumer equipment, so the corresponding limits are presented according to FCC Part 18 Subpart C. This test report has assessed the Model No.: SBD1103-YQL50

1.4. Testing Facility

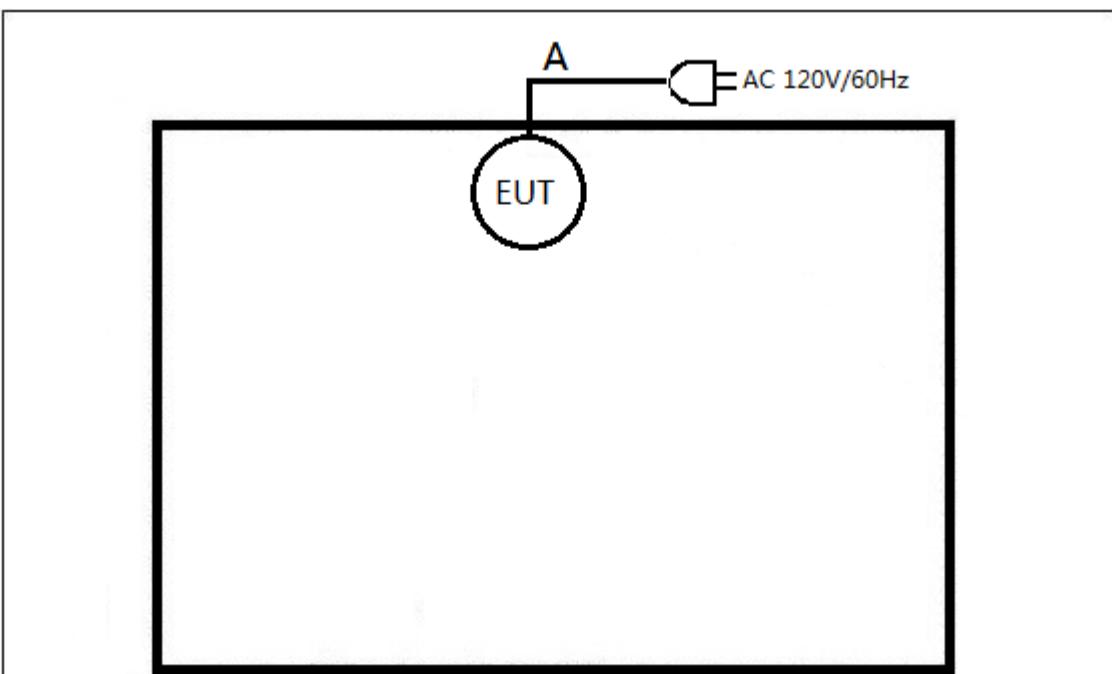
| | |
|--------------------|------------------------------------------------------------------------------------------------------------|
| Test Site | MRT Technology (Suzhou) Co., Ltd |
| Test Site Location | D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China |
| Registration No. | 809388 |

2. Test Configuration of Equipment Under Test

2.1. Test Mode

| Final Test Mode | |
|-----------------|------------------|
| Test Mode | Mode 1: Power On |

2.2. Configuration of Tested System

| Connection Diagram | | |
|-------------------------------------------------------------------------------------|-------------|-------------------|
|  | | |
| Cable Type | | Cable Description |
| A | Power Cable | 1.6m |

2.3. Accessories Description

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product | Manufacturer | Model No. | Serial No. | Power Cord |
|---------|--------------|-----------|------------|------------|
| N/A | N/A | N/A | N/A | N/A |

2.4. Tested Software

| |
|-----------------|
| Not Applicable. |
|-----------------|

3. Test Summary

| Normative References | Test Description | Test Result (Pass/Fail) |
|------------------------------------------|--------------------|-------------------------|
| FCC Part 18 Subpart C: 2013 MP5: 1986 | Conducted Emission | Pass |
| FCC Part 18 Subpart C: 2013 MP5: 1986 | Radiated Emission | Pass |

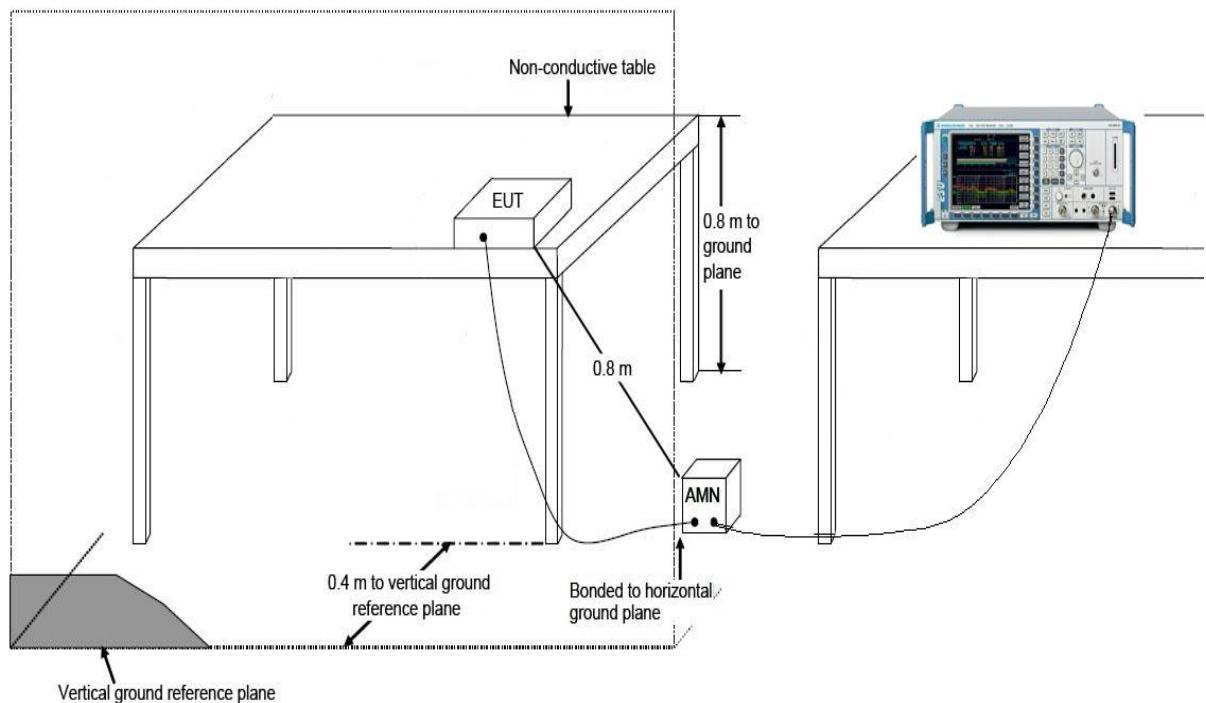
4. Conducted Emission

4.1. Limit of Conducted Emission

| FCC Part 18 Subpart C Paragraph 18.307(c) Limits | | |
|--------------------------------------------------|-----------|-----------|
| Frequency (MHz) | QP (dBuV) | AV (dBuV) |
| 0.45 – 2.51 | 48 | -- |
| 2.51 – 3.0 | 70 | -- |
| 3.0 - 30 | 48 | -- |

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

4.2. Test Setup



4.3. Test Procedure

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)

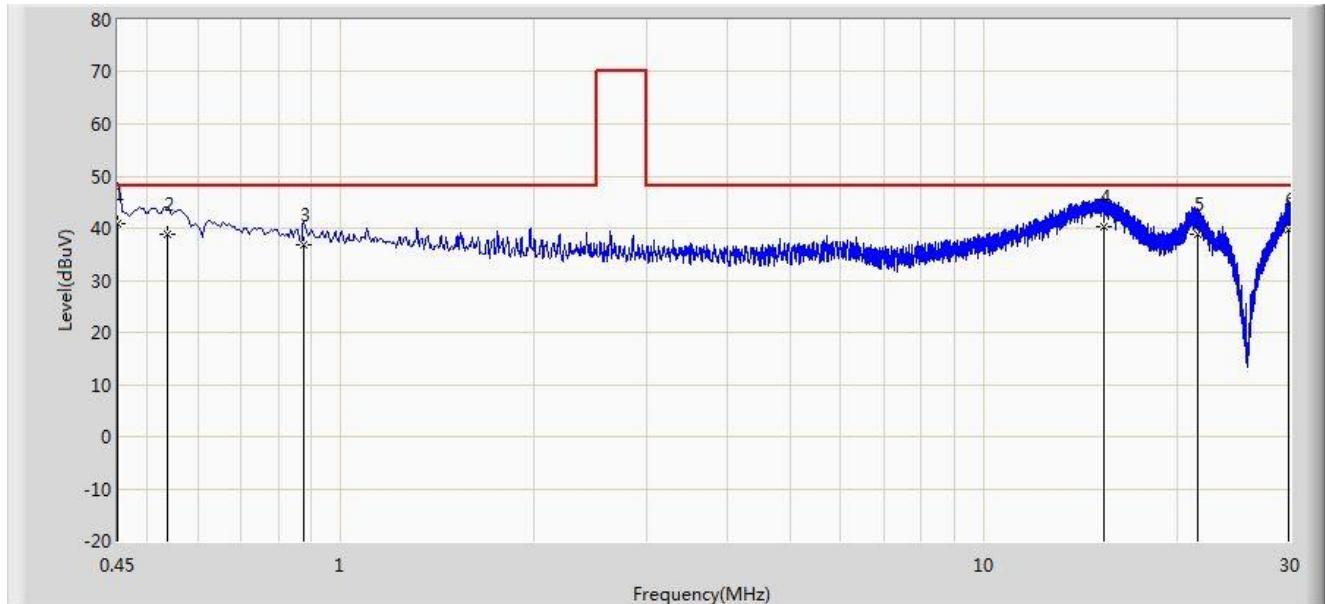
Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

4.4. Test Result

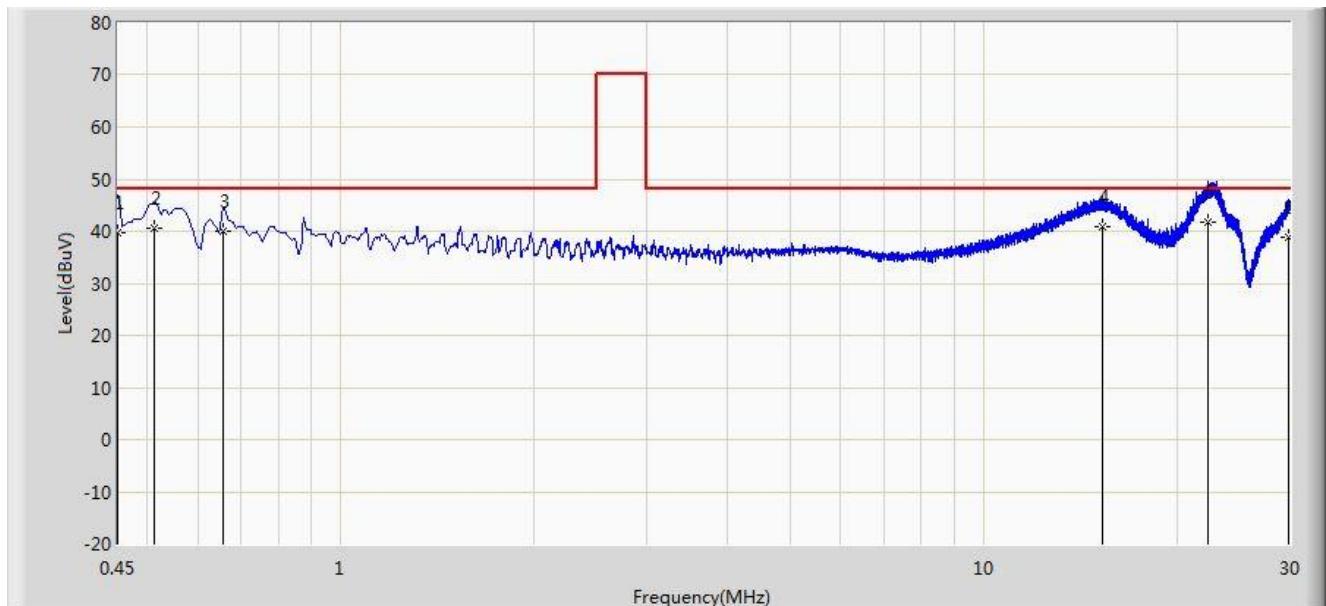
| | | | |
|-----------|--------------------------------|-----------|--------------------|
| Tested By | Roy Cheng | Test Data | 2014/03/20 - 09:42 |
| Site | SR2 | Power | AC 120V/60Hz |
| Limit | FCC_Part18_RF lighting_CE_Main | Polarity | Line |
| AMN | LISN_101683-FILTER ON | Test Mode | Mode 1 |
| EUT | FACTORY LAMP | EUT Model | SBD1103-YQL50 |



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | AMN Factor (dB) | Cable Loss (dB) | Type |
|----|------|------|-----------------|----------------------|----------------------|-----------------|--------------|-----------------|-----------------|------|
| 1 | | | 0.450 | 40.972 | 30.846 | -7.028 | 48.000 | 10.110 | 0.016 | QP |
| 2 | | | 0.538 | 38.713 | 28.566 | -9.287 | 48.000 | 10.130 | 0.017 | QP |
| 3 | | | 0.878 | 36.913 | 26.942 | -11.087 | 48.000 | 9.954 | 0.018 | QP |
| 4 | | | 15.398 | 40.411 | 30.342 | -7.589 | 48.000 | 9.773 | 0.296 | QP |
| 5 | | | 21.550 | 38.798 | 28.629 | -9.202 | 48.000 | 9.813 | 0.355 | QP |
| 6 | | | 29.902 | 39.652 | 29.380 | -8.348 | 48.000 | 9.791 | 0.481 | QP |

Remarks: Measure Level = Reading Level + AMN Factor + Cable Loss

| | | | |
|-----------|--------------------------------|-----------|--------------------|
| Tested By | Roy Cheng | Test Data | 2014/03/20 - 09:48 |
| Site | SR2 | Power | AC 120V/60Hz |
| Limit | FCC_Part18_RF lighting_CE_Main | Polarity | Neutral |
| AMN | LISN_101683-FILTER ON | Test Mode | Mode 1 |
| EUT | FACTORY LAMP | EUT Model | SBD1103-YQL50 |



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | AMN Factor (dB) | Cable Loss (dB) | Type |
|----|------|------|-----------------|----------------------|----------------------|-----------------|--------------|-----------------|-----------------|------|
| 1 | | | 0.450 | 39.758 | 29.608 | -8.242 | 48.000 | 10.134 | 0.016 | QP |
| 2 | | | 0.514 | 40.617 | 30.441 | -7.383 | 48.000 | 10.160 | 0.016 | QP |
| 3 | | | 0.658 | 39.981 | 29.883 | -8.019 | 48.000 | 10.082 | 0.017 | QP |
| 4 | | | 15.350 | 40.768 | 30.652 | -7.232 | 48.000 | 9.821 | 0.296 | QP |
| 5 | | | 22.370 | 41.797 | 31.583 | -6.203 | 48.000 | 9.873 | 0.340 | QP |
| 6 | | | 29.846 | 38.939 | 28.499 | -9.061 | 48.000 | 9.959 | 0.481 | QP |

Remarks: Measure Level = Reading Level + AMN Factor + Cable Loss

5. Radiated Emission

5.1. Limit

| FCC Part 18 Subpart C Paragraph 18.305(c) | | |
|-------------------------------------------|--------------|----------------|
| Frequency (MHz) | Distance (m) | Level (dBuV/m) |
| 30 - 88 | 3 | 40.0 |
| 88 - 216 | 3 | 43.5 |
| 216 - 1000 | 3 | 46.0 |

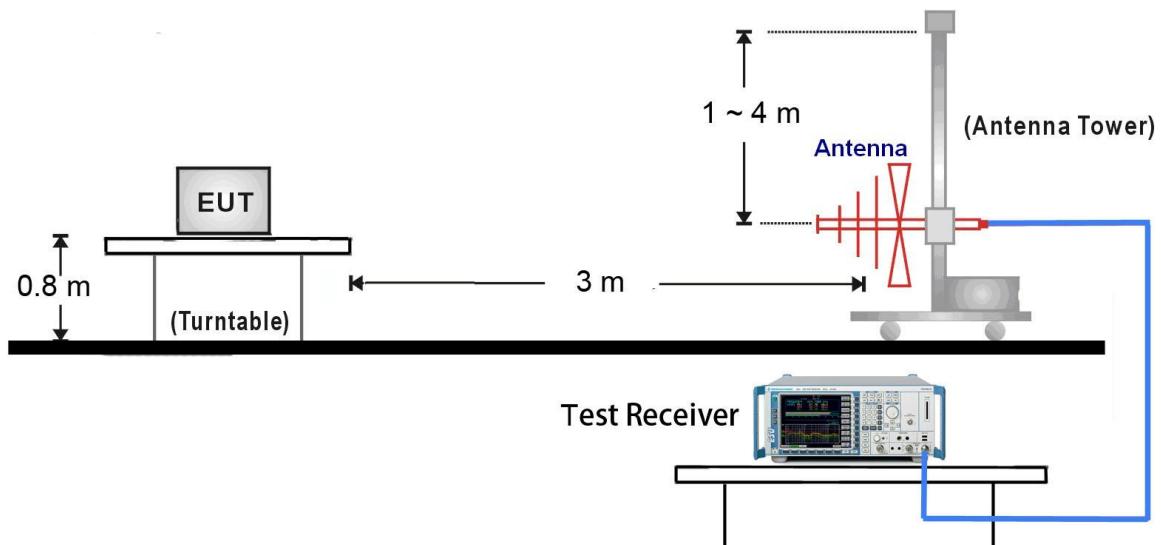
Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

5.2. Test Setup

30MHz ~ 1GHz Test Setup:



5.3. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Horizontal or vertical polarization of the antenna is set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

| Highest frequency generated or used in the device or on which the device operates or tunes (MHz) | Upper frequency of measurement range (MHz) |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Below 1.705 | 30 |
| 1.705 - 108 | 1000 |
| 108 - 500 | 2000 |
| 500 - 1000 | 5000 |
| Above 1000 | 5th harmonic of the highest frequency or 40 GHz, whichever is lower |

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based measuring equipment employing an average detector function. When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

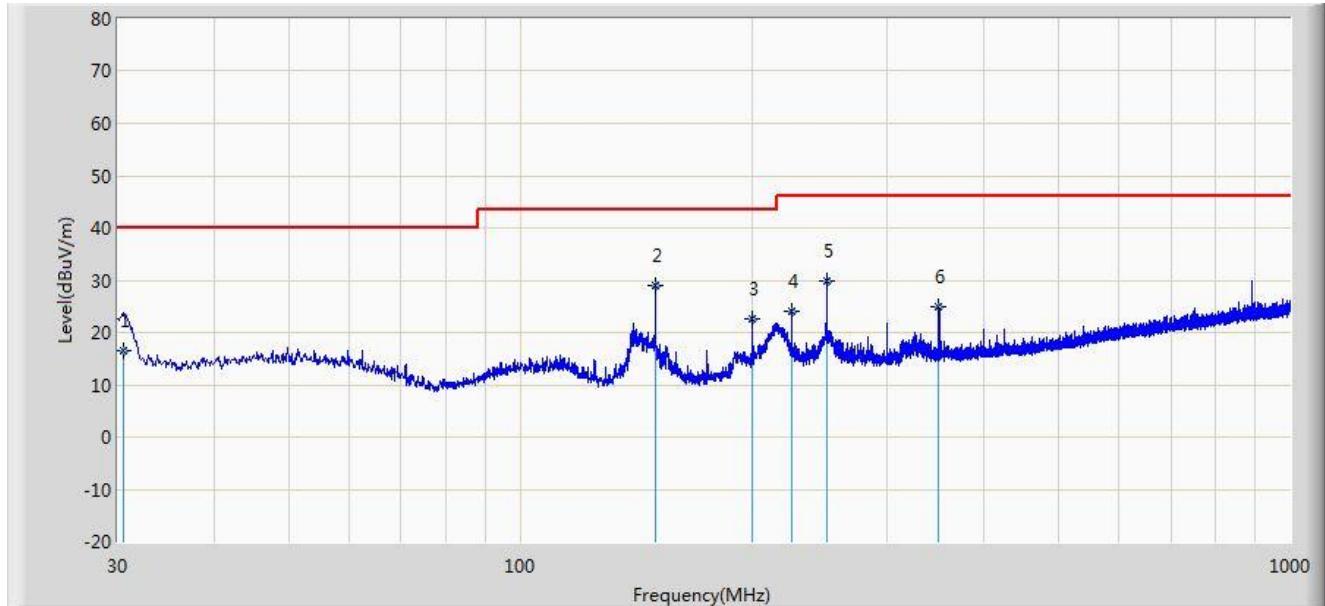
For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 3 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESR) is 120 kHz and above 1GHz is 1MHz.

5.4. Test Result

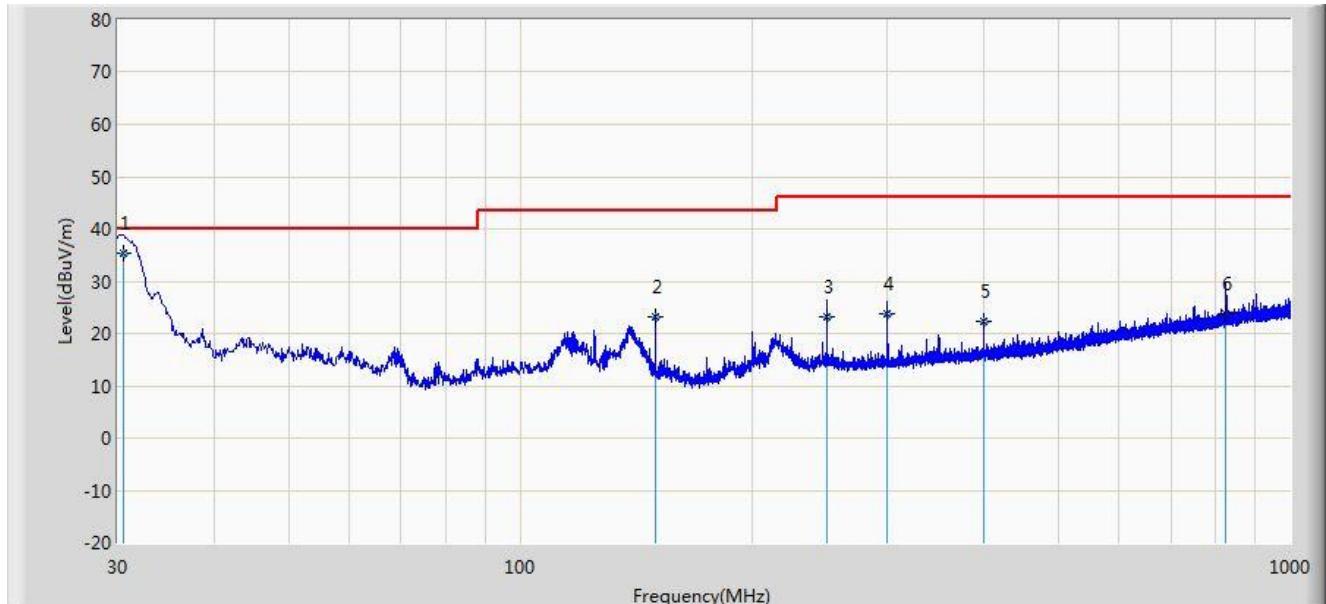
| | | | |
|-----------|--------------------------------|-----------|--------------------|
| Tested By | Roy Cheng | Test Data | 2014/03/21 - 09:24 |
| Site | AC1 | Power | AC 120V/60Hz |
| Limit | FCC_Part18_RF Lighting_ RE(3m) | Polarity | Horizontal |
| Antenna | VULB9162_0.03-8GHz | Test Mode | Mode 1 |
| EUT | FACTORY LAMP | EUT Model | SBD1103-YQL50 |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Ant Factor (dB/m) | Cable Loss (dB) | Ant Pos (cm) | Table Pos (deg) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------------|-----------------|--------------|-----------------|------|
| 1 | | 30.485 | 16.589 | 4.600 | -23.411 | 40.000 | 11.644 | 0.345 | 100 | 245 | QP |
| 2 | | 150.003 | 28.870 | 19.700 | -14.630 | 43.500 | 8.420 | 0.750 | 100 | 20 | QP |
| 3 | | 200.001 | 22.619 | 10.700 | -20.881 | 43.500 | 11.045 | 0.874 | 100 | 105 | QP |
| 4 | | 225.001 | 24.170 | 11.700 | -21.830 | 46.000 | 11.550 | 0.920 | 100 | 302 | QP |
| 5 | * | 250.003 | 29.779 | 16.500 | -16.221 | 46.000 | 12.307 | 0.972 | 100 | 92 | QP |
| 6 | | 350.002 | 24.872 | 9.500 | -21.128 | 46.000 | 14.215 | 1.156 | 100 | 215 | QP |

Remarks: Measure Level = Reading Level + Ant Factor + Cable Loss

| | | | |
|-----------|--------------------------------|-----------|--------------------|
| Tested By | Roy Cheng | Test Data | 2014/03/21 - 09:33 |
| Site | AC1 | Power | AC 120V/60Hz |
| Limit | FCC_Part18_RF Lighting_ RE(3m) | Polarity | Vertical |
| Antenna | VULB9162_0.03-8GHz | Test Mode | Mode 1 |
| EUT | FACTORY LAMP | EUT Model | SBD1103-YQL50 |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Ant Factor (dB/m) | Cable Loss (dB) | Ant Pos (cm) | Table Pos (deg) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------------|-----------------|--------------|-----------------|------|
| 1 | * | 30.485 | 35.289 | 23.300 | -4.711 | 40.000 | 11.644 | 0.345 | 100 | 201 | QP |
| 2 | | 150.001 | 23.170 | 14.000 | -20.330 | 43.500 | 8.420 | 0.750 | 100 | 52 | QP |
| 3 | | 250.001 | 23.079 | 9.800 | -22.921 | 46.000 | 12.307 | 0.972 | 100 | 236 | QP |
| 4 | | 300.020 | 23.625 | 9.500 | -22.375 | 46.000 | 13.062 | 1.063 | 100 | 63 | QP |
| 5 | | 400.002 | 22.417 | 6.200 | -23.583 | 46.000 | 14.974 | 1.243 | 100 | 92 | QP |
| 6 | | 825.200 | 23.786 | 1.300 | -22.214 | 46.000 | 20.705 | 1.781 | 100 | 108 | QP |

Remarks: Measure Level = Reading Level + Ant Factor + Cable Loss

6. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT 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 $k = 2$.

| |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conducted Emission |
| <p>The maximum measurement uncertainty is evaluated as:</p> <p>9kHz~150kHz: 3.84dB</p> <p>150kHz~30MHz: 3.46dB</p> |
| Radiated disturbance |
| <p>The maximum measurement uncertainty is evaluated as:</p> <p>Horizontal: 30MHz~300MHz: 4.07dB</p> <p>300MHz~1GHz: 3.63 dB</p> <p>Vertical: 30MHz~300MHz: 4.18 dB</p> <p>300MHz~1GHz: 3.60 dB</p> |

7. List of Measuring Instrument

Conducted Emission

| Instrument | Manufacturer | Model No. | Serial No. | Cali. Interval | Cali. Due Date |
|----------------------------|--------------|-----------|------------|----------------|----------------|
| EMI Test Receiver | R&S | ESR7 | 101209 | 1 year | 2014/11/08 |
| Two-Line V-Network | R&S | ENV216 | 101683 | 1 year | 2014/11/08 |
| Two-Line V-Network | R&S | ENV216 | 101684 | 1 year | 2014/11/08 |
| Temperature/Humidity Meter | Anymetre | TH101B | SR2-01 | 1 year | 2014/11/15 |

Radiated disturbance

| Instrument | Manufacturer | Model No. | Serial No. | Cali. Interval | Cali. Due Date |
|----------------------------|--------------|-----------|------------|----------------|----------------|
| EMI Test Receiver | R&S | ESR7 | 101209 | 1 year | 2014/11/08 |
| Bilog Period Antenna | Schwarzbeck | VULB 9162 | 9162-047 | 1 year | 2014/11/24 |
| Temperature/Humidity Meter | Anymetre | TH101B | AC1-01 | 1 year | 2014/11/15 |

————— The End —————