

FCC TEST REPORT

Product Name : FACTORY LAMP

**Model Name : 1:SBD1105B-YQL100;
2:SBF6105B-YQL100;**

Prepared for:

**Shanghai Senben Lighting Technology Incorporated Company
Zone B, Block 2, No. 4800, Baoqian Highway, Jiading District, Shanghai
City, China
TEL: +86-21-59900576
FAX: +86-21-59900576**

Prepared by:

**Unilab (Shanghai) Co., Ltd.
No. 1350, Lianxi Rd. Pudong New District, Shanghai, China
TEL: +86-21-50275125
FAX: +86-21-50277862**

**Report Number : UL22020131212FCC121
Date of Report : 2013-12-20
Date of Test : 2013-12-12~2013-12-19**

Notes :

The test results only relate to these samples which have been tested.
Partly using this report will not be admitted unless been allowed by Unilab.
Unilab is only responsible for the complete report with the reported stamp of Unilab.

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

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

Product Name: FACTORY LAMP

Brand Name: N/A

Model Name: 1:SBD1105B-YQL100;
2:SBF6105B-YQL100;

Operating frequency: 0.22MHz-0.28MHz

Model difference: SBD1105B-YQL100 and SBF6105B-YQL100 are identical. They are marketed in different countries, so they own different model name. The model under test is **SBF6105B-YQL100** and the test results are applicable to the other.

FCC ID: 2AA551105B6105B100

EUT Voltage: AC input: AC 120V/60Hz

Date of Receipt: 2013-12-12

Date of Test 2013-12-12~2013-12-19

Test Standard: FCC CFR Title 47 Part 18 Subpart C

Test Result: Complied

Prepared by :


(Technical Engineer: Flame Wang)

Reviewed by :


(Senior Engineer: Forest Cao)

Approved by :


(Supervisor: Eva Wang)

TABLE OF CONTENTS

| | | |
|------------|--|----|
| 1. | TECHNIACL SUMMARY | 4 |
| 1.1 | SUMMARY OF STANDARDS AND TEST RESULTS..... | 4 |
| 1.2 | TEST UNCERTAINTY..... | 4 |
| 1.3 | TEST EQUIPMENT LIST | 4 |
| 1.4 | SUPPORT EQUIPMENT..... | 4 |
| 1.5 | TEST FACILITY | 5 |
| 1.6 | TEST SETUP CONFIGURATION | 5 |
| 2. | CONDUCTED DISTURBANCE..... | 6 |
| 2.1 | TEST SETUP | 6 |
| 2.2 | LIMITS..... | 6 |
| 2.3 | TEST PROCEDURE | 6 |
| 2.4 | TEST RESULT | 7 |
| 3. | RADIATED DISTURBANCE | 9 |
| 3.1 | TEST SETUP | 9 |
| 3.2 | LIMITS..... | 9 |
| 3.3 | TEST PROCEDURE | 9 |
| 3.4 | TEST RESULT | 10 |
| 4. | MAGNETIC FIELD EMISSION | 12 |
| 4.1 | TEST SETUP | 12 |
| 4.2 | LIMITS..... | 12 |
| 4.3 | TEST PROCEDURE | 12 |
| 4.4 | TEST RESULT | 13 |
| APPENDIX 1 | PHOTOGRAPHS OF TEST SETUP | 15 |
| APPENDIX 2 | PHOTOGRAPHS OF EUT..... | 15 |

1. TECHNICAL SUMMARY

1.1 SUMMARY OF STANDARDS AND TEST RESULTS

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

| Test Item | FCC | Result |
|-------------------------|---------------|--------|
| Conducted disturbance | FCC 18.307(c) | P |
| Radiated disturbance | FCC 18.305(c) | P |
| Magnetic Field Emission | FCC 18.305(b) | P |

Note: P means pass, F means failure, N/A means not applicable

1.2 TEST 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.

| Test item | Value (dB) |
|-----------------------|------------|
| Conducted disturbance | 3.4 |
| Radiated disturbance | 4.2 |

1.3 TEST EQUIPMENT LIST

| Shielding Room No. 3 - Conducted disturbance Test | | | | |
|---|--------------|--------|------------|------------|
| Equipment | Manufacturer | Model | Serial No. | Due Date |
| Receiver | Agilent | N9038A | MY51210142 | 2014/09/27 |
| LISN | R&S | ENV216 | 100069 | 2014/06/23 |

| 3m Semi-anechoic Chamber - Radiated disturbance Test | | | | |
|--|--------------|-----------|------------|------------|
| Equipment | Manufacturer | Model | Serial No. | Due Date |
| 3m Chamber & Accessory Equipment | ETS-LINDGREN | FACT-3 | CT-0000336 | 2014/11/26 |
| Receiver | Agilent | N9038A | MY51210142 | 2014/09/27 |
| Biconilog Antenna | SCHWARZBECK | VULB 9160 | 3316 | 2014/10/19 |
| Loop Antenna | Schwarzbeck | FMZB1519 | 1519-020 | 2014/03/27 |

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and has been calibrated by accredited calibration laboratories.

1.4 SUPPORT EQUIPMENT

| Equipment | Manufacturer | Model | Serial No. | Due Date |
|-----------|--------------|-------|------------|----------|
| N/A | N/A | N/A | N/A | N/A |

1.5 TEST FACILITY

The site and apparatus are constructed in conformance with the requirements of ANSI C63.4: 2009, CISPR 16-1-1 and other equivalent standards. The laboratory is compliance with the requirements of the ISO/IEC/EN17025. FCC Registration Number is 714465.

1.6 TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

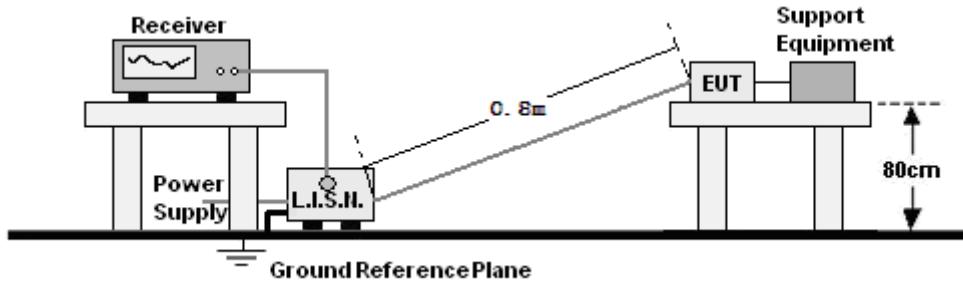
Notes:

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.
3. All the tests were carried out with the EUT in normal operation. Which was shown in this test report is the worst test mode.

2. CONDUCTED DISTURBANCE

2.1 TEST SETUP

For mains port:



2.2 LIMITS

Limits for Class B digital devices

| Frequency range (MHz) | Limits dB(μ V) | |
|--------------------------|------------------------|---------|
| | Quasi-peak | Average |
| 0,45 to 2.51 | 48 | / |
| 2.51 to 3 | 70 | / |
| 3 to 30 | 48 | / |

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

2.3 TEST PROCEDURE

For mains port:

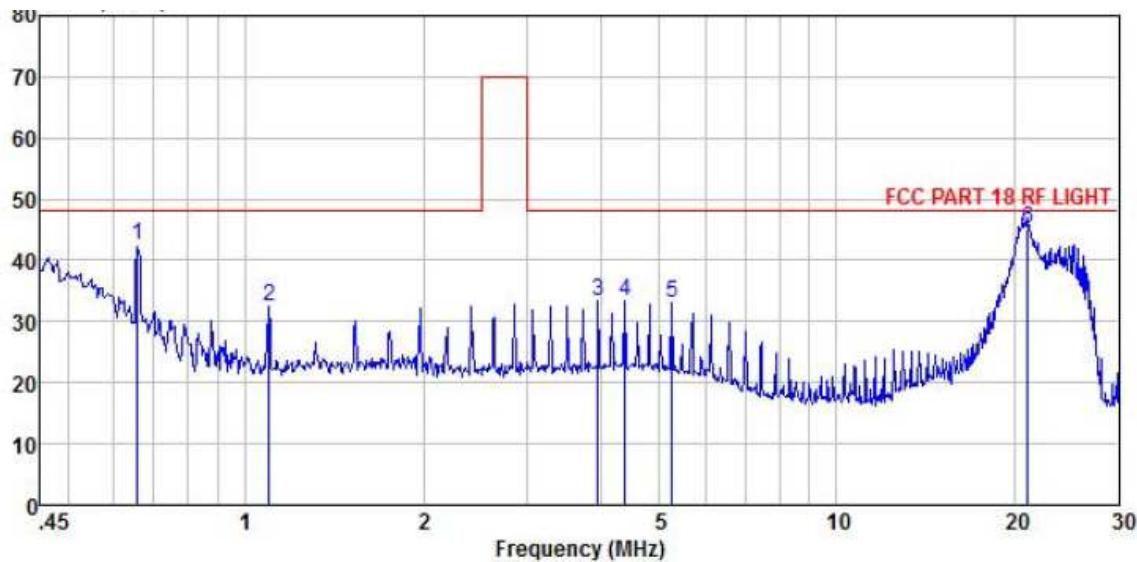
- The EUT and support equipment were placed on a nonconductive table 0.8m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane. The EUT connected to the main through Line Impedance Stability Network (L.I.S.N) to provide a $50\ \Omega/50\mu\text{H}$ coupling impedance for the measuring equipment. The support equipment is also connected to the main power through a LISN that provides a $50\ \Omega/50\mu\text{H}$ coupling impedance with $50\ \Omega$ terminations. Both sides of AC line (Line & Neutral) were checked to find out the maximum conducted emission.
- The RBW of the receiver was set at 9 kHz. The frequency range from 150 kHz to 30 MHz was checked. Run the receiver's pre-scan to record the maximum disturbance generated from EUT in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and record.

2.4 TEST RESULT

For mains port:

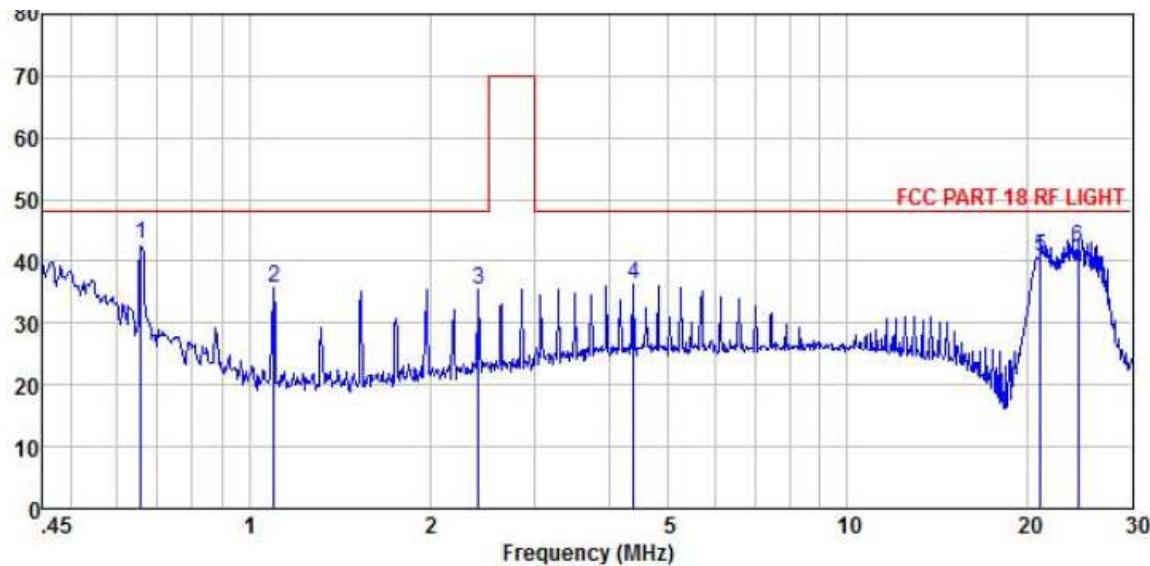
Model Name: SBF6105B-YQL100

Test mode: Power on



Site : SHIELDED ROOM 3
Condition : FCC PART 18 RF LIGHT ENV216(L)-20120730 LINE
EUT : FACTORY LAMP
Model Name : SBF6105B-YQL100
Temp/Humi : 23 °C /51 %
Power Rating: AC 120V/60Hz
Mode : Power on
Memo :

| Freq | Read | LISN | Cable | Preamp | Limit | Over | Remark |
|------|-------|-------|--------|--------|-------|-------|-------------------|
| | MHz | Level | Factor | Loss | | | |
| 1 | 0.66 | 31.82 | 10.42 | 0.12 | 0.00 | 42.36 | 48.00 -5.64 QP |
| 2 | 1.10 | 21.89 | 10.52 | 0.14 | 0.00 | 32.55 | 48.00 -15.45 Peak |
| 3 | 3.95 | 22.62 | 10.52 | 0.14 | 0.00 | 33.28 | 48.00 -14.72 Peak |
| 4 pk | 4.38 | 22.79 | 10.52 | 0.14 | 0.00 | 33.45 | 48.00 -14.55 Peak |
| 5 | 5.27 | 22.31 | 10.51 | 0.17 | 0.00 | 32.99 | 48.00 -15.01 Peak |
| 6 pp | 21.06 | 34.53 | 10.52 | 0.11 | 0.00 | 45.16 | 48.00 -2.84 QP |



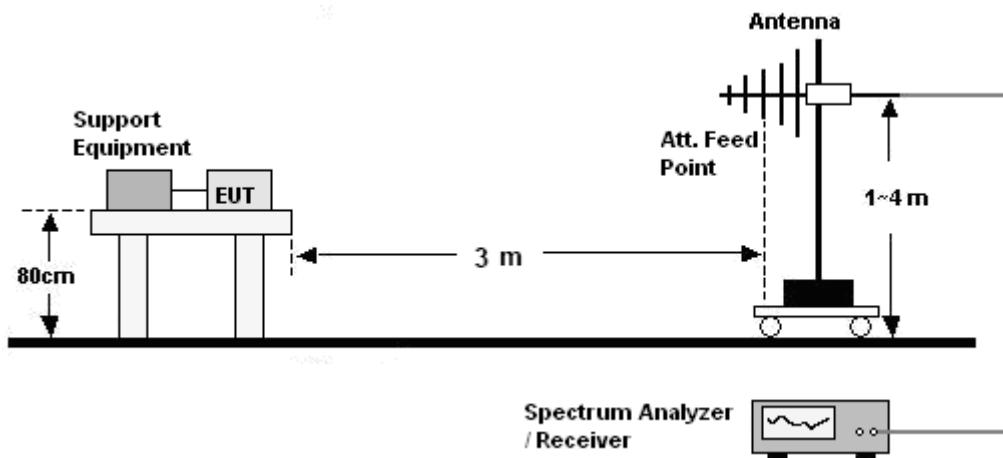
Site : SHIELDED ROOM 3
Condition : FCC PART 18 RF LIGHT ENV216(N)-20120730 NEUTRAL
EUT : FACTORY LAMP
Model Name : SBF6105B-YQL100
Temp/Humi : 23 °C /51 %
Power Rating: AC 120V/60Hz
Mode : Power on
Memo :

| Freq | Read | LISN | Cable | Preamp | Limit | Over | Remark | |
|------|-------|--------|-------|--------|-------|-------|--------|-------------|
| | Level | Factor | Loss | Factor | | Line | | |
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dB |
| 1 pp | 0.66 | 32.39 | 10.32 | 0.12 | 0.00 | 42.83 | 48.00 | -5.17 QP |
| 2 | 1.10 | 25.29 | 10.31 | 0.14 | 0.00 | 35.74 | 48.00 | -12.26 Peak |
| 3 | 2.41 | 24.93 | 10.32 | 0.15 | 0.00 | 35.40 | 48.00 | -12.60 Peak |
| 4 pk | 4.38 | 25.84 | 10.32 | 0.14 | 0.00 | 36.30 | 48.00 | -11.70 Peak |
| 5 | 21.08 | 30.17 | 10.41 | 0.11 | 0.00 | 40.69 | 48.00 | -7.31 QP |
| 6 | 24.31 | 31.56 | 10.48 | 0.12 | 0.00 | 42.16 | 48.00 | -5.84 QP |

3. RADIATED DISTURBANCE

3.1 TEST SETUP

30MHz ~ 1GHz:



3.2 LIMITS

Limits for Class B digital devices

| Frequency (MHz) | limits at 3m dB(μ V/m) |
|-----------------|--------------------------------|
| 30-88 | 40.0 |
| 88-216 | 43.5 |
| 216-960 | 46.0 |

NOTE: 1. The lower limit shall apply at the transition frequency.
2. The limits shown above are based on measuring equipment employing a CISPR quasi-peak detector function for frequencies below or equal to 1000MHz.
3. The limits shown above are based on measuring equipment employing an average detector function for frequencies above 1000MHz.

3.3 TEST PROCEDURE

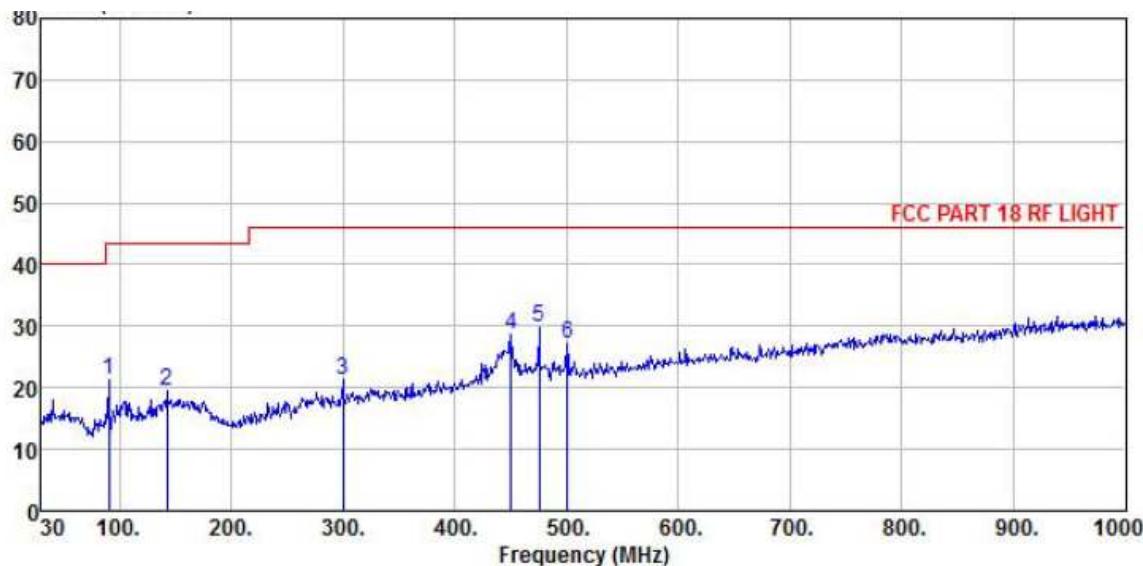
30MHz ~ 1GHz:

- The EUT and support equipment were placed on the non-conductive turntable 0.8m above the horizontal metal ground plane at a chamber. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna.
- The frequency range from 30MHz to 1GHz was checked. The RBW of the receiver was set at 120kHz. Set the receiver in Peak detector, Max Hold mode. 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.
- 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 EUT radiated the maximum emission, then set the test frequency receiver to QP Detector and record the maximum value.

3.4 TEST RESULT

Model Name: SBF6105B-YQL100

Test mode: Power on



Site : chamber

Condition : FCC PART 18 RF LIGHT 3m VULB9160 HORIZONTAL

EUT : FACTORY LAMP

Model Name : SBF6105B-YQL100

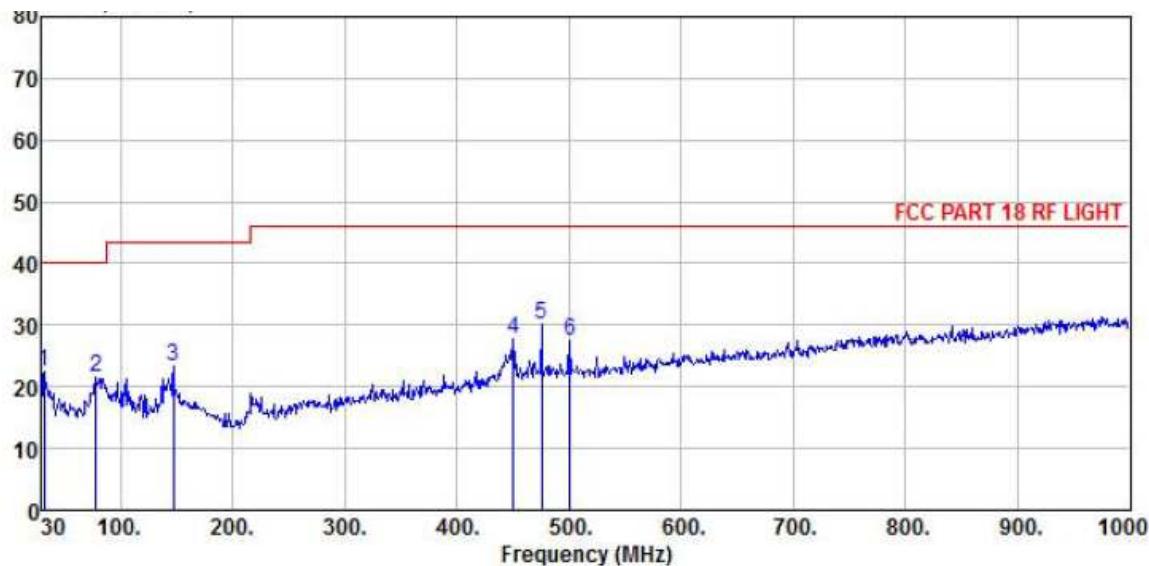
Temp/Humi : 23 °C /51 %

Power Rating: AC 120V/60Hz

Mode : Power on

Memo :

| | | ReadAntenna | Cable | Preamp | | Limit | Over | |
|------|--------|-------------|--------|--------|--------|--------|--------|-------------|
| | Freq | Level | Factor | Loss | Factor | Level | Line | Limit |
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB |
| 1 | 90.14 | 10.99 | 9.30 | 1.09 | 0.00 | 21.38 | 43.50 | -22.12 Peak |
| 2 | 142.52 | 4.16 | 13.58 | 1.62 | 0.00 | 19.36 | 43.50 | -24.14 Peak |
| 3 | 299.66 | 5.65 | 13.19 | 2.53 | 0.00 | 21.37 | 46.00 | -24.63 Peak |
| 4 | 450.01 | 9.42 | 16.36 | 2.89 | 0.00 | 28.67 | 46.00 | -17.33 Peak |
| 5 pp | 475.23 | 9.95 | 16.81 | 2.97 | 0.00 | 29.73 | 46.00 | -16.27 Peak |
| 6 | 500.45 | 7.20 | 17.06 | 3.03 | 0.00 | 27.29 | 46.00 | -18.71 Peak |



Site : chamber

Condition : FCC PART 18 RF LIGHT 3m VULB9160 VERTICAL

EUT : FACTORY LAMP

Model Name : SBF6105B-YQL100

Temp/Humi : 23 °C /51 %

Power Rating: AC 120V/60Hz

Mode : Power on

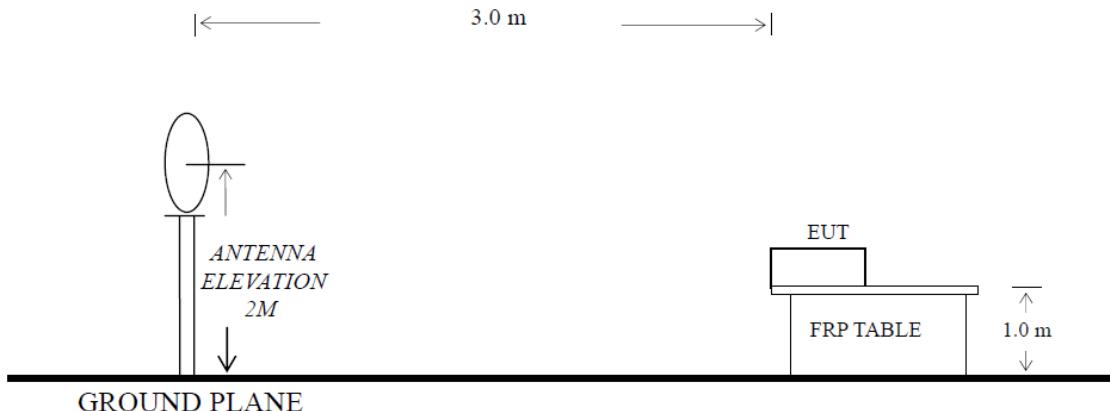
Memo :

| Freq | ReadAntenna | | Cable Preamp | | Limit Level | Over Line | Over Limit | Remark |
|------|-------------|--------|--------------|--------|-------------|-----------|------------|-------------|
| | Level | Factor | Loss | Factor | | | | |
| MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 31.94 | 9.39 | 12.22 | 0.70 | 0.00 | 22.31 | 40.00 | -17.69 Peak |
| 2 | 78.50 | 11.39 | 9.14 | 1.09 | 0.00 | 21.62 | 40.00 | -18.38 Peak |
| 3 | 147.37 | 7.80 | 13.79 | 1.63 | 0.00 | 23.22 | 43.50 | -20.28 Peak |
| 4 | 450.01 | 8.50 | 16.36 | 2.89 | 0.00 | 27.75 | 46.00 | -18.25 Peak |
| 5 pp | 475.23 | 10.24 | 16.81 | 2.97 | 0.00 | 30.02 | 46.00 | -15.98 Peak |
| 6 | 500.45 | 7.23 | 17.06 | 3.03 | 0.00 | 27.32 | 46.00 | -18.68 Peak |

4. MAGNETIC FIELD EMISSION

4.1 TEST SETUP

30MHz ~ 1GHz:



4.2 LIMITS

| Frequency (MHz) | limits at 3m dB(μ V/m) |
|-----------------|--------------------------------|
| 0.009-30 | 63.5 |

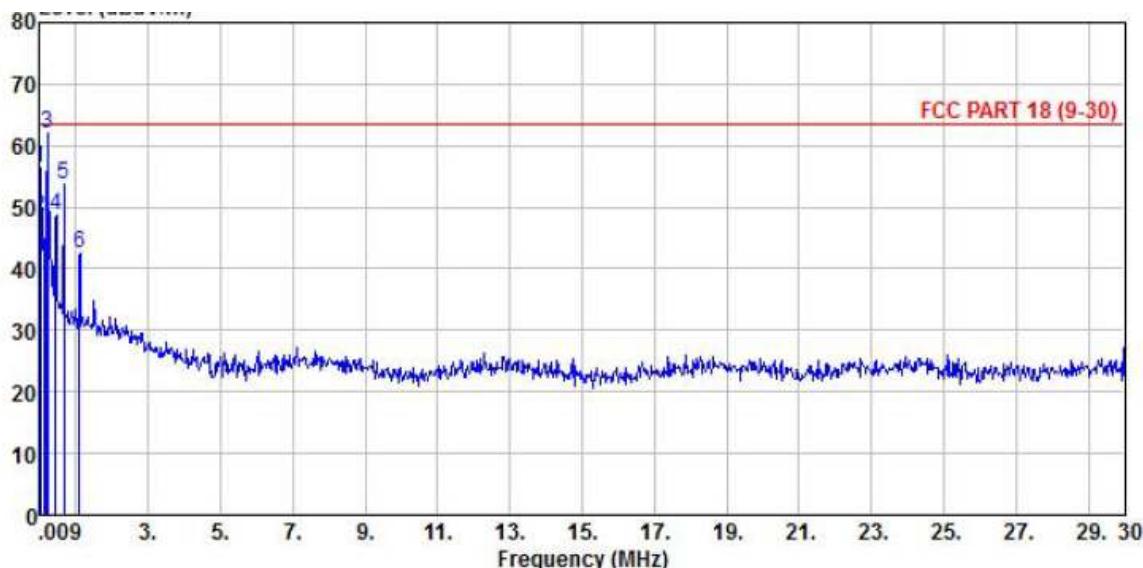
4.3 TEST PROCEDURE

- The EUT and support equipment were placed on the non-conductive turntable 1m above the horizontal metal ground plane at a chamber. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. The antenna shall be set at height 2m above the floor.
- The frequency range from 0.009MHz to 30MHz was checked. The bandwidth setting on the test receiver is 200Hz from 9kHz to 150kHz and 9kHz from 150kHz to 30MHz.. Set the receiver in Peak detector, Max Hold mode. Record the maximum field strength of all the pre-scan process in the full band in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- 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 degree where EUT radiated the maximum emission, then set the test frequency receiver to QP Detector and record the maximum value.

4.4 TEST RESULT

Model Name: SBF6105B-YQL100

Test mode: Power on



Site : chamber

Condition : FCC PART 18 (9-30) 3m FMZB 1519 HORIZONTAL

EUT : FACTORY LAMP

Model Name : SBF6105B-YQL100

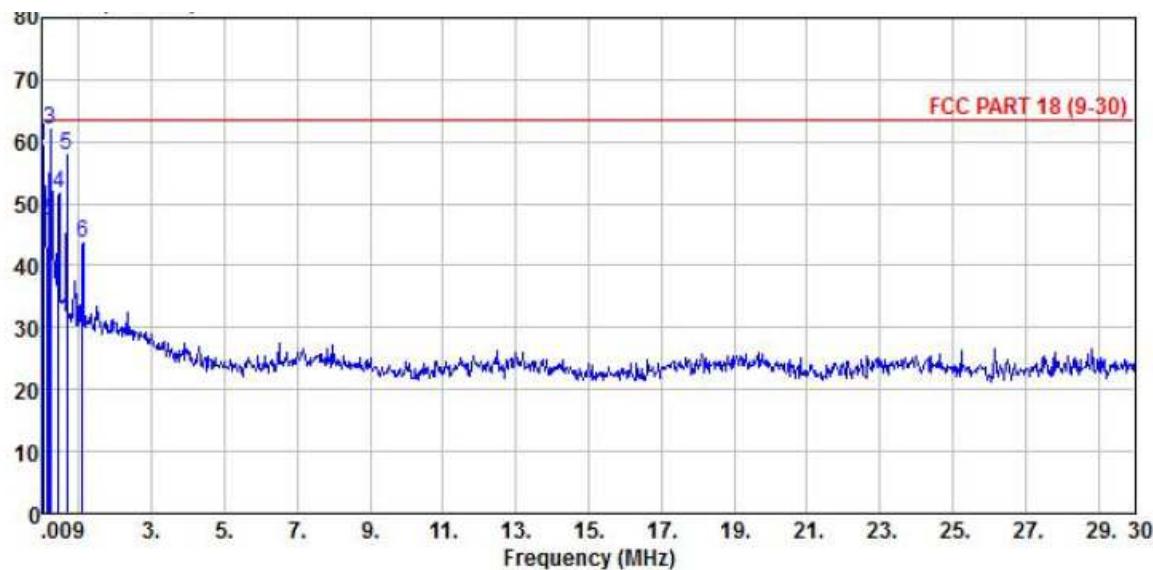
Temp/Humi : 23 °C /51 %

Power Rating: AC 120V/60Hz

Mode : Power on

Memo :

| Freq | ReadAntenna Level | Cable Loss Factor | Preamp Factor | Limit | | Over Line Limit | Remark |
|------|----------------------|-------------------------|------------------|-------|------|-----------------------|-------------------|
| | | | | Level | dB | | |
| 1 pk | 0.01 | 34.31 | 21.73 | 0.31 | 0.00 | 56.35 | 63.50 -7.15 Peak |
| 2 | 0.02 | 26.94 | 21.27 | 0.31 | 0.00 | 48.52 | 63.50 -14.98 Peak |
| 3 pp | 0.21 | 42.09 | 19.66 | 0.33 | 0.00 | 62.08 | 63.50 -1.42 QP |
| 4 | 0.45 | 28.82 | 19.66 | 0.33 | 0.00 | 48.81 | 63.50 -14.69 Peak |
| 5 | 0.66 | 33.75 | 19.72 | 0.33 | 0.00 | 53.80 | 63.50 -9.70 Peak |
| 6 | 1.11 | 22.20 | 19.80 | 0.37 | 0.00 | 42.37 | 63.50 -21.13 Peak |



Site : chamber
Condition : FCC PART 18 (9-30) 3m FMZB 1519 VERTICAL

EUT : FACTORY LAMP

Model Name : SBF6105B-YQL100

Temp/Humi : 23 °C /51 %

Power Rating: AC 120V/60Hz

Mode : Power on

Memo :

| Freq | ReadAntenna | | Cable Preamp | | Limit Level | Over Line | Over Limit | Remark |
|------|-------------|--------|--------------|--------|-------------|-----------|------------|-------------|
| | Level | Factor | Loss | Factor | | | | |
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB |
| 1 pk | 0.01 | 59.04 | 0.00 | 0.31 | 0.00 | 59.35 | 63.50 | -4.15 Peak |
| 2 | 0.04 | 47.02 | 0.00 | 0.31 | 0.00 | 47.33 | 63.50 | -16.17 Peak |
| 3 pp | 0.21 | 61.74 | 0.00 | 0.33 | 0.00 | 62.07 | 63.50 | -1.43 QP |
| 4 | 0.45 | 51.41 | 0.00 | 0.33 | 0.00 | 51.74 | 63.50 | -11.76 Peak |
| 5 | 0.66 | 57.38 | 0.00 | 0.33 | 0.00 | 57.71 | 63.50 | -5.79 Peak |
| 6 | 1.11 | 43.30 | 0.00 | 0.37 | 0.00 | 43.67 | 63.50 | -19.83 Peak |

APPENDIX 1 PHOTOGRAHPS OF TEST SETUP

Please refer to the file named “2AA551105B6105B100_Setup Photos”.

APPENDIX 2 PHOTOGRAHPS OF EUT

Please refer to the two files named “2AA551105B6105B100_External Photos” and
“2AA551105B6105B100_Internal Photos”.

----End of the report----