



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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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

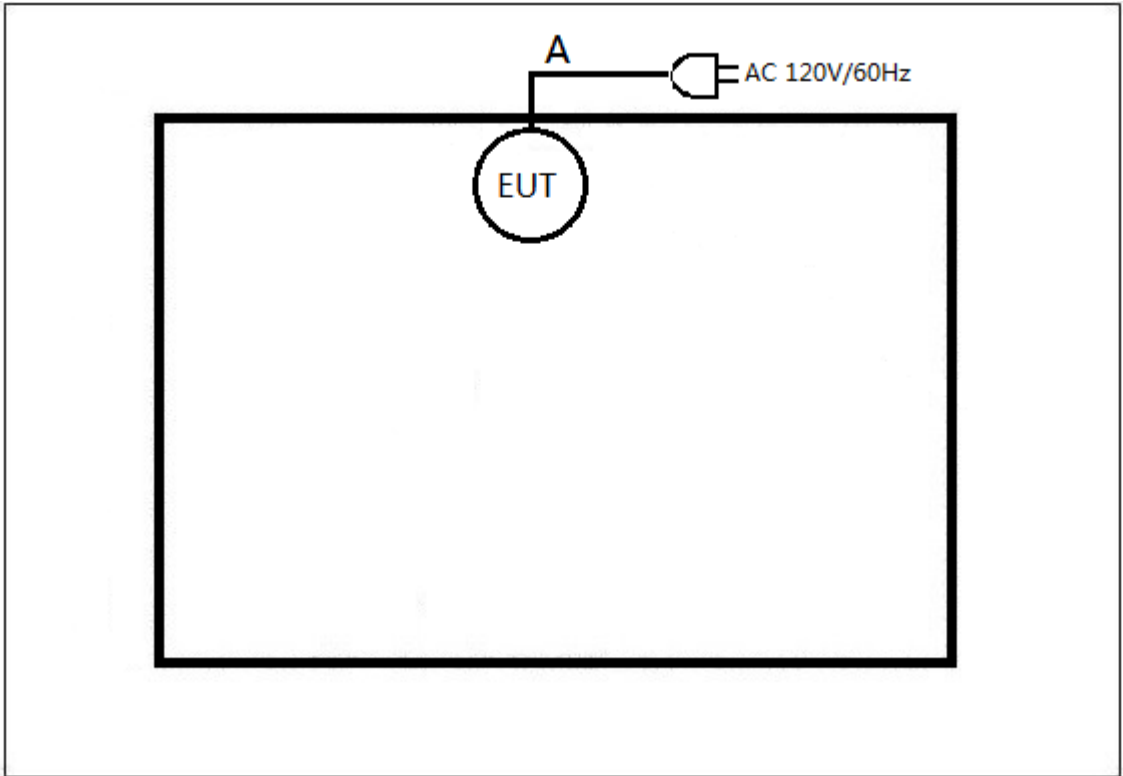
Test Site	MRT Technology (Suzhou) Co., Ltd
Test Site Location	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Registration No.	809388

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

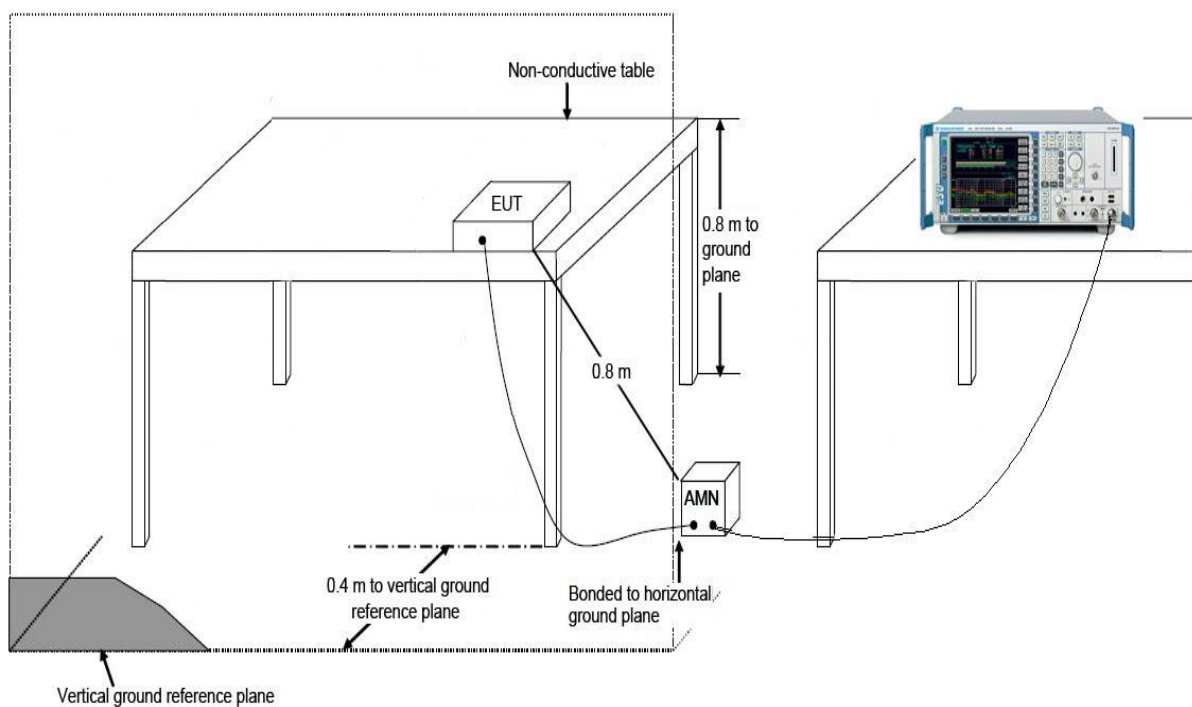
4. Conducted Emission

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)

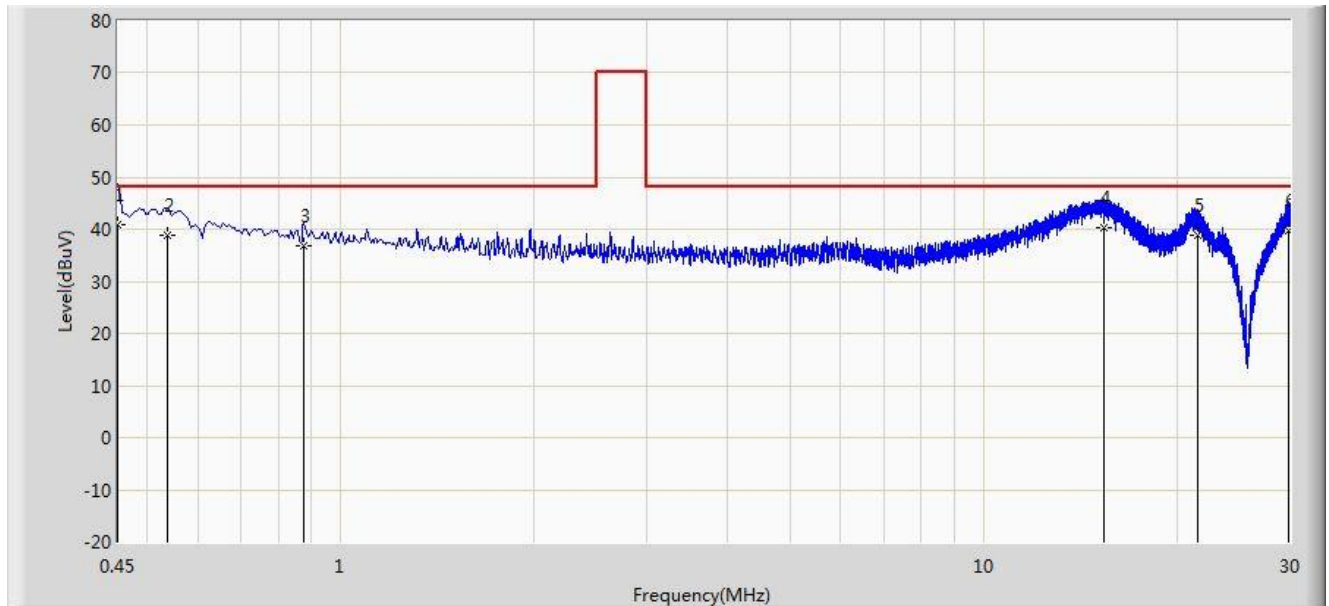
Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

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

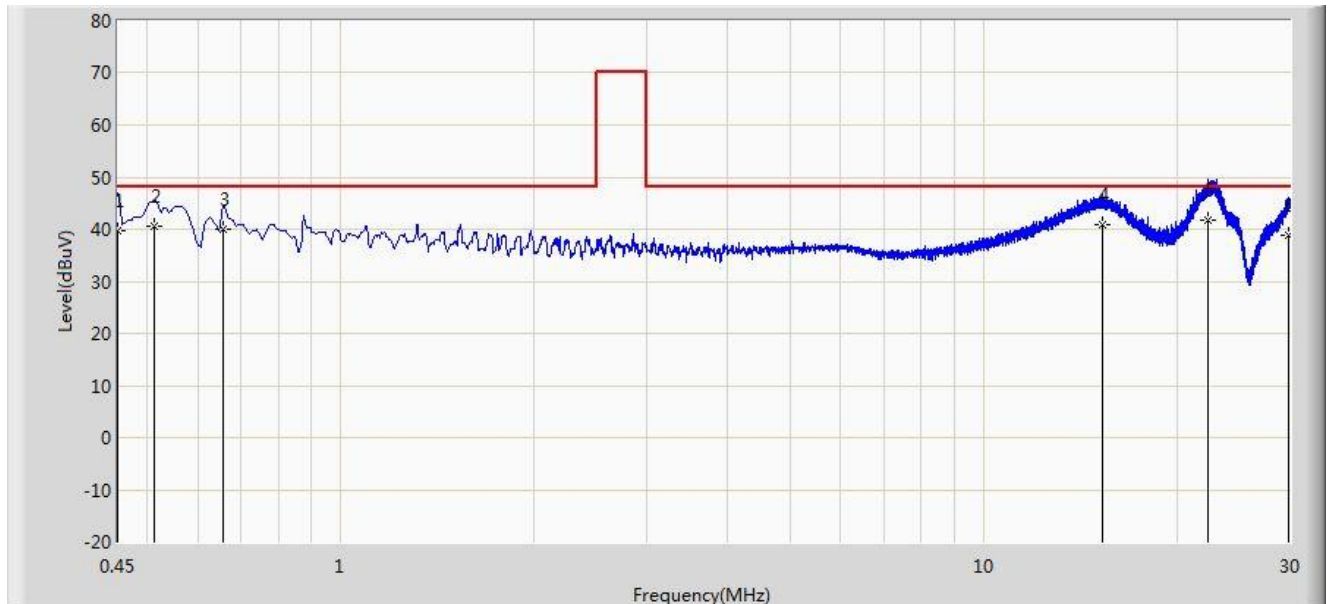
Tested By	Roy Cheng	Test Data	2014/03/20 - 09:42
Site	SR2	Power	AC 120V/60Hz
Limit	FCC_Part18_ RF lighting_ CE_ Main	Polarity	Line
AMN	LISN_101683-FILTER ON	Test Mode	Mode 1
EUT	FACTORY LAMP	EUT Model	SBD1103-YQL50



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

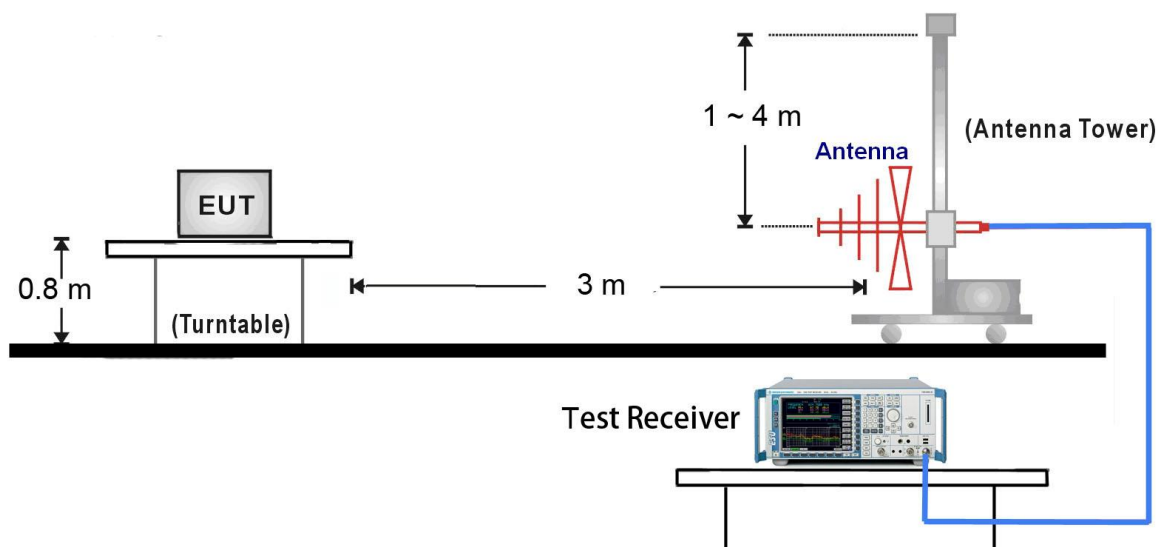
Note 1: The lower limit shall apply at the transition frequency.

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.

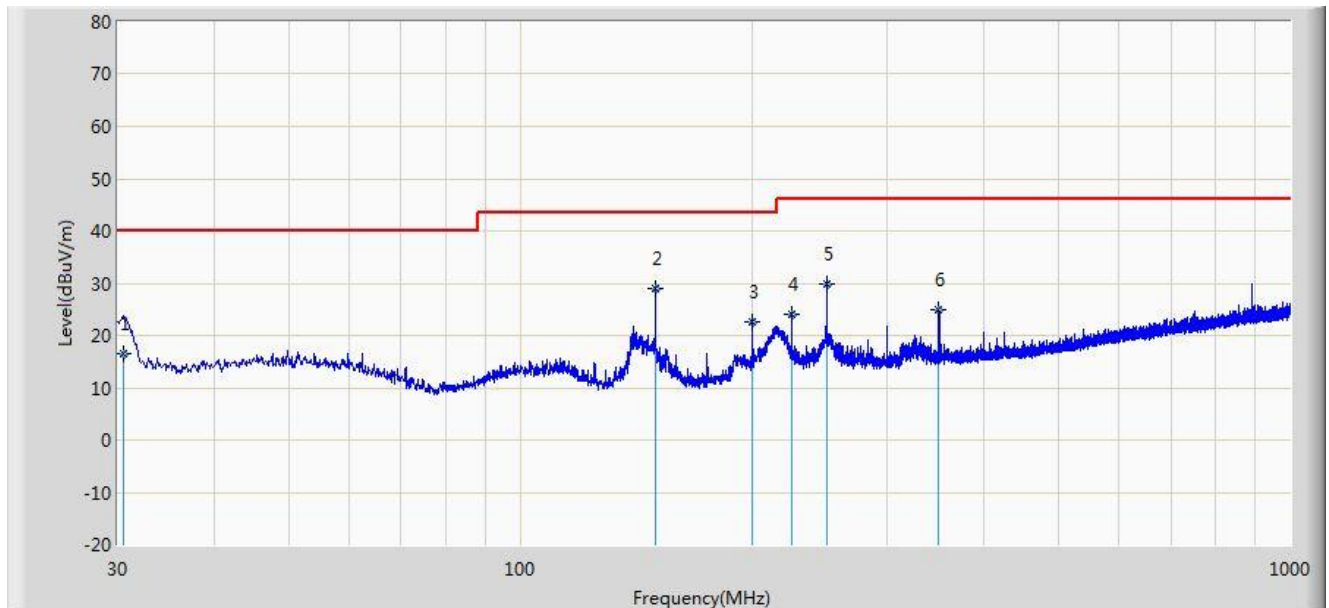
For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

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

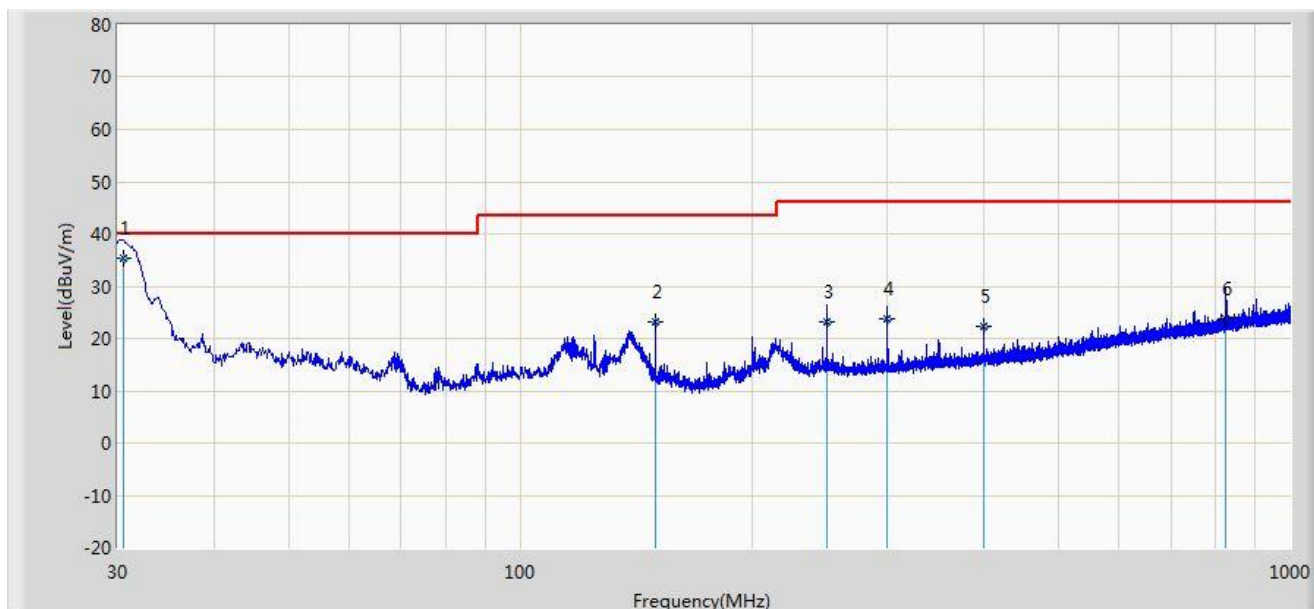
Tested By	Roy Cheng	Test Data	2014/03/21 - 09:24
Site	AC1	Power	AC 120V/60Hz
Limit	FCC_Part18_RF Lighting_ RE(3m)	Polarity	Horizontal
Antenna	VULB9162_0.03-8GHz	Test Mode	Mode 1
EUT	FACTORY LAMP	EUT Model	SBD1103-YQL50



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
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.84dB 150kHz~30MHz: 3.46dB
Radiated disturbance
The maximum measurement uncertainty is evaluated as: Horizontal: 30MHz~300MHz: 4.07dB 300MHz~1GHz: 3.63 dB Vertical: 30MHz~300MHz: 4.18 dB 300MHz~1GHz: 3.60 dB

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 _____