

FCC TEST REPORT

FCC ID. : ZIFMSL-SF

Applicant : Foshan Ideal Lighting & Crafts Co., Ltd

Address : Dajiwei Industrial Region, Nanhai Yanbuhexi Yanbian, Foshan City, Guangdong Province, China

Equipment Under Test (EUT) :

Product Name : Strobe Light

Model No. : MSL000, SF007, SF010

Standards : FCC Part 18 : 2009

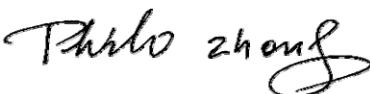
Date of Test : June 1 ~ June 8, 2011

Date of Issue : June 11, 2011

Test Engineer : Olic huang



Reviewed By : Philo zhong



Test Result :	PASS *
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Prepared By:

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* The sample detailed above has been tested to the requirements of Council Directives ANSI C63.4:2003. The test results have been reviewed against the Directives above and found to meet their essential requirements.

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Reference No.: WT11062628-F-E-F

1 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz)	FCC PART 18 : 2009	ANSI C63.4: 2003	Class B	PASS
Conducted Emission (450KHz to 30MHz)	FCC PART 18 : 2009	ANSI C63.4: 2003	Class B	PASS

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3 General Information

3.1 Client Information

Applicant: Foshan Ideal Lighting & Crafts Co., Ltd
Address of Applicant: Dajiwei Industrial Region, Nanhai Yanbuhexi Yanbian, Foshan City, Guangdong Province, China

Manufacturer: Foshan Ideal Lighting & Crafts Co., Ltd
Address of Manufacturer: Dajiwei Industrial Region, Nanhai Yanbuhexi Yanbian Foshan City, Guangdong Province, China

3.2 General Description of E.U.T.

Product Name: Strobe Light
Model No.: MSL000, SF007, SF010
Model Difference : All of the models have the same circuit, they just have different appearance. On the basis of these, we select model SF010 as the test sample, and this report is also applicable to the other models.

3.3 Details of E.U.T.

Technical Data: 120VAC, 60Hz

3.4 Description of Support Units

The EUT has been tested as an independent unit. All the test was performed in the condition of AC 120V/60Hz input.

3.5 Standards Applicable for Testing

The customer requested FCC tests for a Strobe Light. The standards used were FCC PART 18.

3.6 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: IC7760A**

Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC7760A, Aug.03,2010.

- **FCC – Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, May 26, 2011.

3.7 Test Location

All the tests were performed at:-

Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District, Shenzhen, China

4 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114 943	W2008001	9k-26.5GHz	Aug-2010	Aug-2011	Wws20 081596	±1dB
Trilog Broadband Antenne	SCHWARZB ECK MESS-ELEKTROM/VULB9163	336	W2008002	30-3000 MHz	Aug-2010	Aug-2011		±1dB
Broad-band Horn Antenna	SCHWARZB ECK MESS-ELEKTROM/BBHA9120D	667	W2008003	1-18GHz	Aug-2010	Aug-2011		f<10 GHz: ±1dB 10GHz<f <18 GHz: ±1.5dB
Broadband Preamplifier 0.5-18 GHz	SCHWARZB ECK MESS-ELEKTROM/BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-2010	Aug-2011		±1.2dB
10m Coaxial Cable with N-male Connectors	SCHWARZB ECK MESS-ELEKTROM/AK 9515 H	-	-	-	Aug-2010	Aug-2011		-
10m 50 Ohm Coaxial Cable with N-plug, individual length	SCHWARZB ECK MESS-ELEKTROM/AK 9513				Aug-2010	Aug-2011		
Positioning Controller	C&C LAB/CC-C-IF				N/A	N/A		
Color Monitor	SUNSPO/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SC HWARZ/ESPI	101155	W2005001	9k-3GHz	Aug-2010	Aug-2011	Wws20 080942	±1dB
EMI Receiver	Beijingkehuan	KH3931		9k-1GHz	Aug-2010	Aug-2011		
Two-Line V-Network	ROHDE&SC HWARZ/ENV216	100115	W2005002	50Ω/50μ H	Aug-2010	Aug-2011	Wws20 080941	±10%
V-LISN	SCHWARZB ECK MESS-ELEKTRONIK	NSLK 8128	8128-259	9k-30MHz	Aug-2010	Aug-2011		

5 Emissions Test Results

5.1 Conducted Emission Data

Test Requirement:	FCC Part 18
Test Method:	Based on ANSI C63.4:2003
Frequency Range:	450kHz to 30MHz
Class:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

5.1.1 Test Equipment

Please refer to Section 4 this report.

5.1.2 Test Procedure

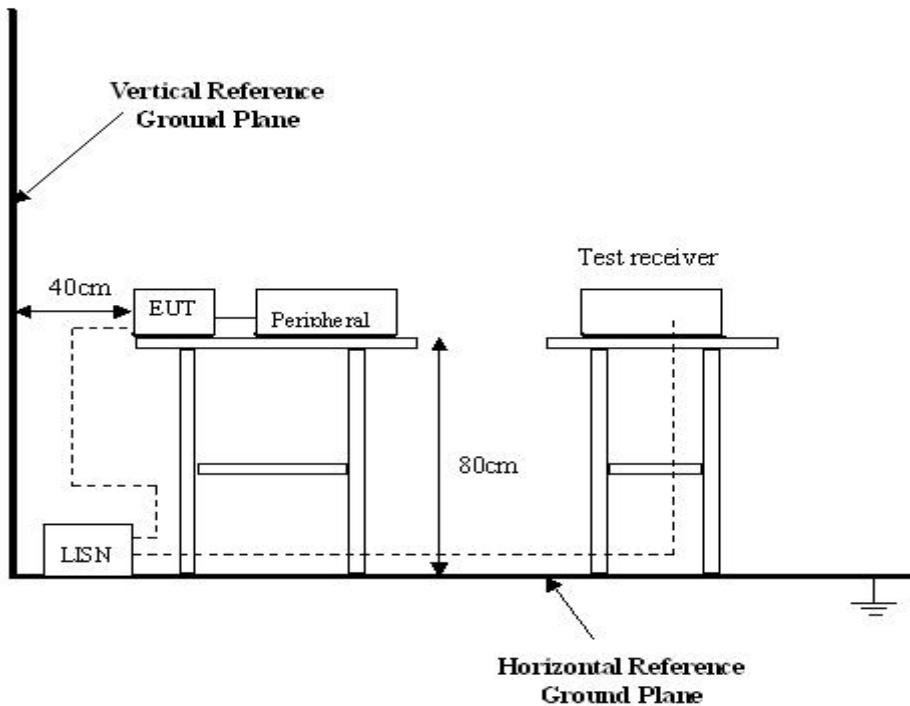
1. During the conducted emission test, the power cord of the EUT is connected to the auxiliary outlet of the LISN.
2. The EUT was tested according to FCC MP-5. The frequency spectrum from 450kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

5.1.3 Conducted Test Setup

The conducted emission tests were performed using the setup accordance with the FCC MP-5 measurement procedure.

The EUT is tested independently.

The power supply used by the EUT is connected to a 120VAC / 60Hz power source.

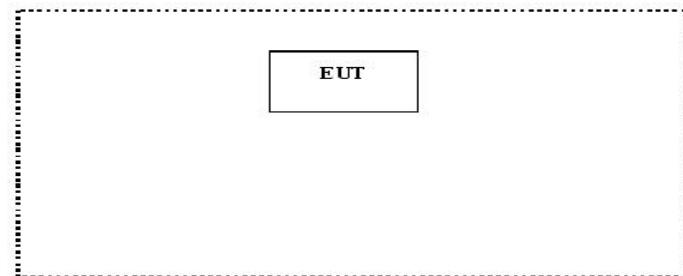


The EUT was placed on the test table in ON mode.

5.1.4 EUT Operating Condition

Operating condition is according to FCC MP-5.

- Setup the EUT and simulators as shown on follow.
- Enable RF signal and confirm EUT active.
- Modulate output capacity of EUT up to specification.



5.1.5 Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dBuV)- Quasi-peak
0.45— 2.51	48
2.51 — 3.0	69.54
3.0 — 30	48

Note: In the above limits, the tighter limit applies at the band edges.

5.1.6 Spectrum Analyzer

The spectrum analyzer is configured during the conduction test is as follows:

Start Frequency 450 kHz
 Stop Frequency 30 MHz
 Sweep Speed Auto
 IF Bandwidth 9 kHz
 Video Bandwidth 100 kHz
 Quasi-Peak Adaptor Bandwidth 9 kHz
 Quasi-Peak Adaptor Mode Normal

5.1.7 Conducted Emission Test Result

Test Item: Conducted Emission Test
 Test Voltage: 120VAC / 60Hz
 Test Mode: Normal
 Temperature: 25.5 °C
 Humidity: 51%RH
 Test Result: PASS

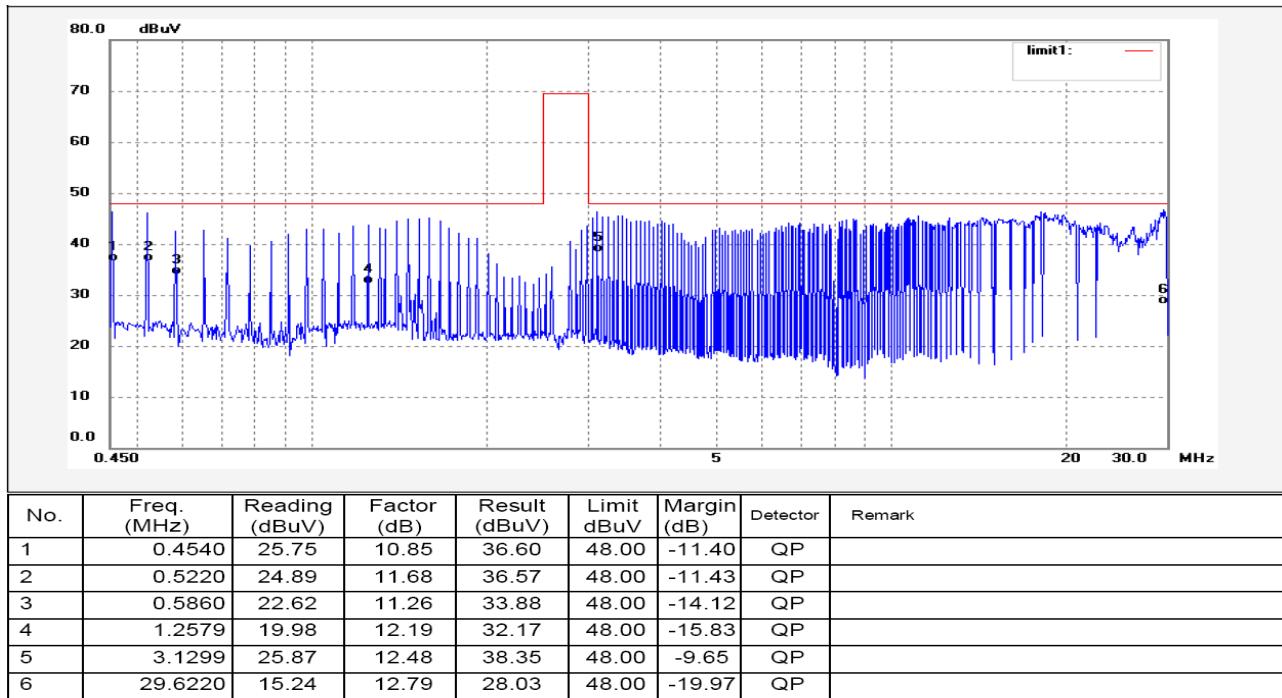
5.1.8 Measurement Data

An initial pre-scan was performed on the live and neutral lines.

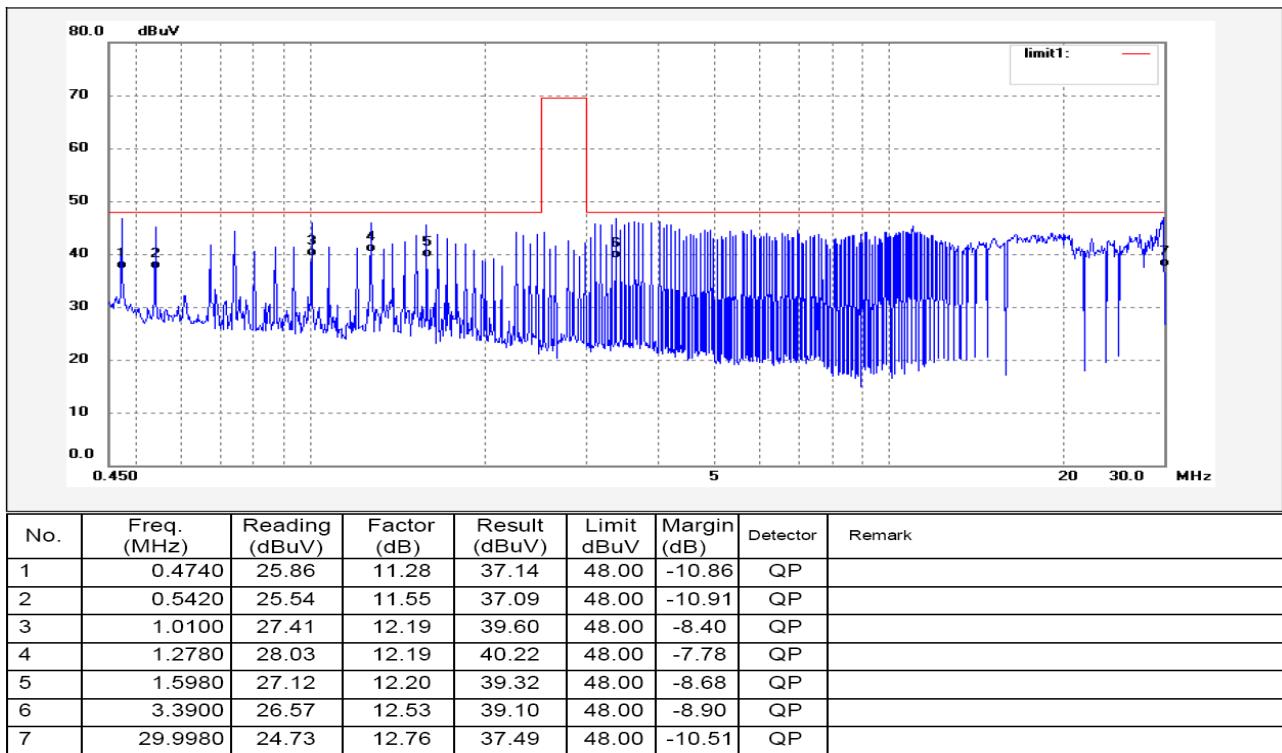
No further quasi-peak or average measurements were performed since no peak emissions were detected within 10dB line below the average limit.

Please refer to the following peak scan graph for reference.

Live line:



Neutral line:



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Reference No.: WT11062628-F-E-F

5.1.9 Photograph –Conducted Emission Test Setup



5.2 Radiation Emission Data

Test Requirement: FCC Part18.305
 Test Method: ANSI C63.4:2003
 Test Result: PASS
 Frequency Range: 30MHz to 1GHz
 Measurement Distance: 3m
 Class: Class B
 Limit:
 40.0 dB μ V/m between 30MHz & 88MHz
 43.5 dB μ V/m between 88MHz & 216MHz
 46.0 dB μ V/m between 216MHz & 1000MHz

Detector: Peak for pre-scan (120kHz resolution bandwidth)
 Quasi-Peak if maximised peak within 6dB of limit

EUT Operation :
 Compliance test was performed in ON mode.

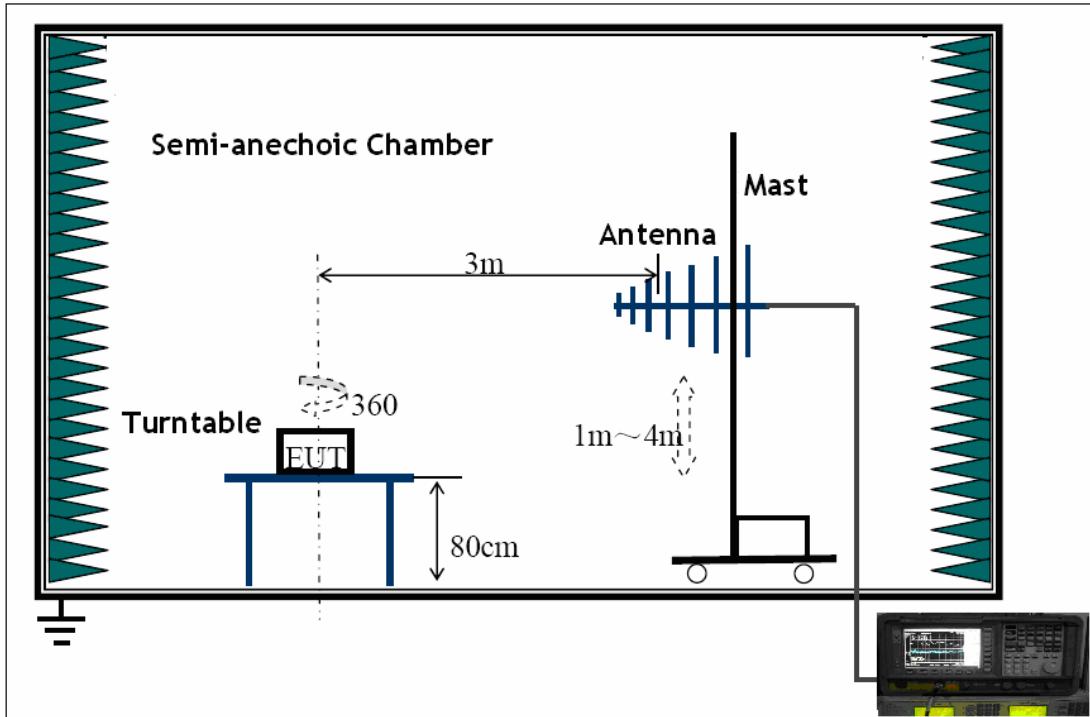
5.2.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek Lab is ± 5.03 dB.

5.2.2 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part18.305 (C) Consumer equipment limits.



The EUT was placed on the test table in shielding room.

5.2.3 Spectrum Analyzer Setup

According to FCC Part18.305 Rules, the system was tested 30 to 1000MHz.

Start Frequency.....	30 MHz
Stop Frequency	1000MHz
Sweep Speed Auto	
IF Bandwidth.....	120 KHz
Video Bandwidth.....	100KHz
Quasi-Peak Adapter Bandwidth	120 KHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	100KHz

5.2.4 Test Procedure

For the radiated emissions test, maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB μ V of specification limits), and are distinguished with a "Qp" in the data table.

The EUT was under normal mode during the final qualification test and the configuration was used to represent the worst case results.

5.2.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

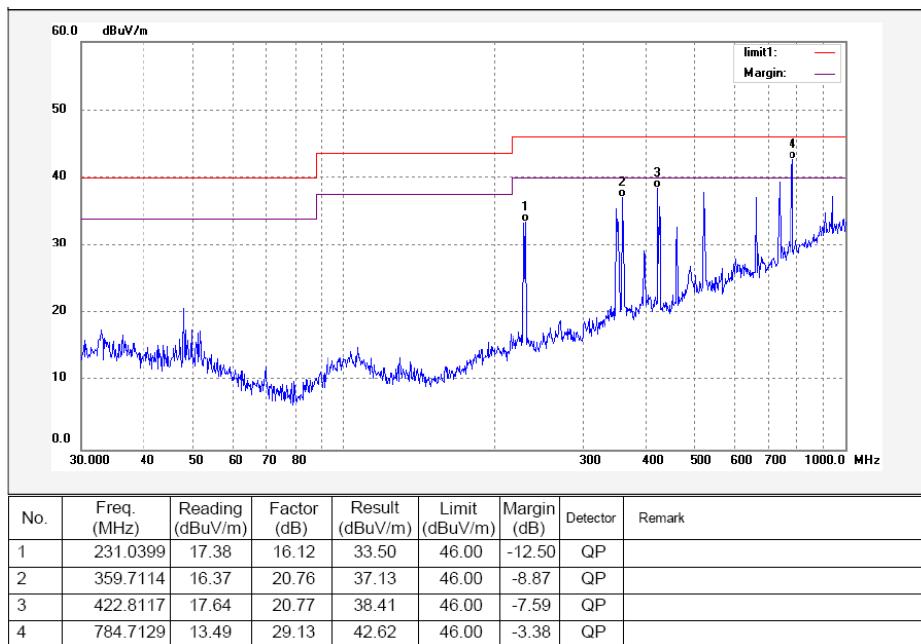
The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB μ V means the emission is 7dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

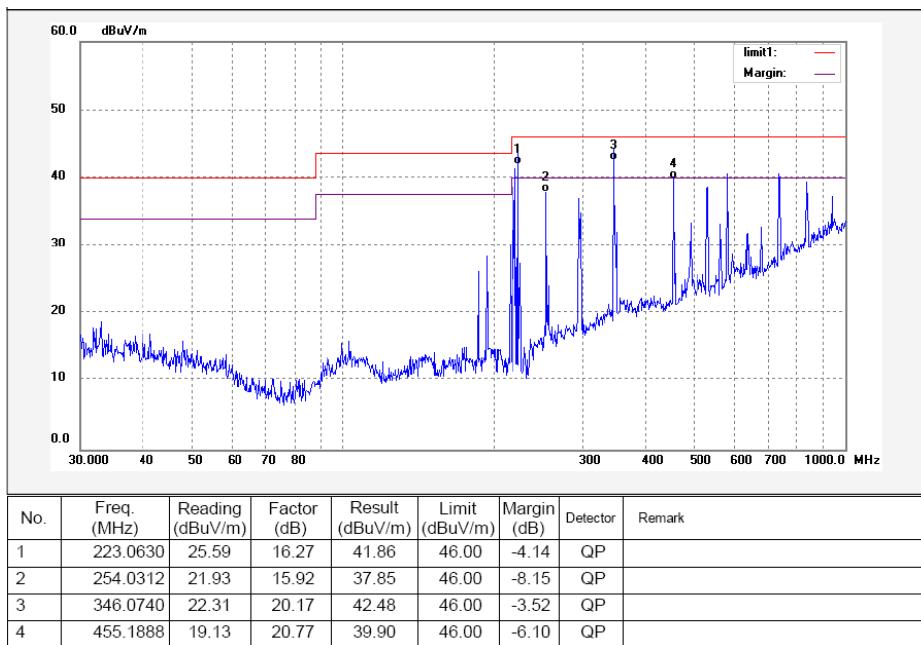
5.2.6 Summary of Test Results

According to the data in this section, the EUT complied with the FCC Part18 standards.

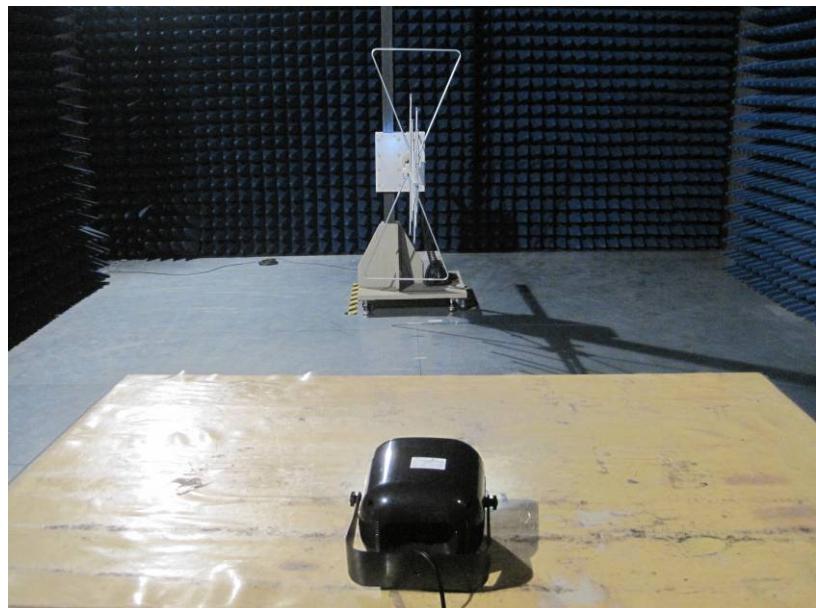
Antenna polarization: Vertical



Antenna polarization: Horizontal



5.2.7 Photograph – Radiation Emission Test Setup



6 Photographs - Constructional Details

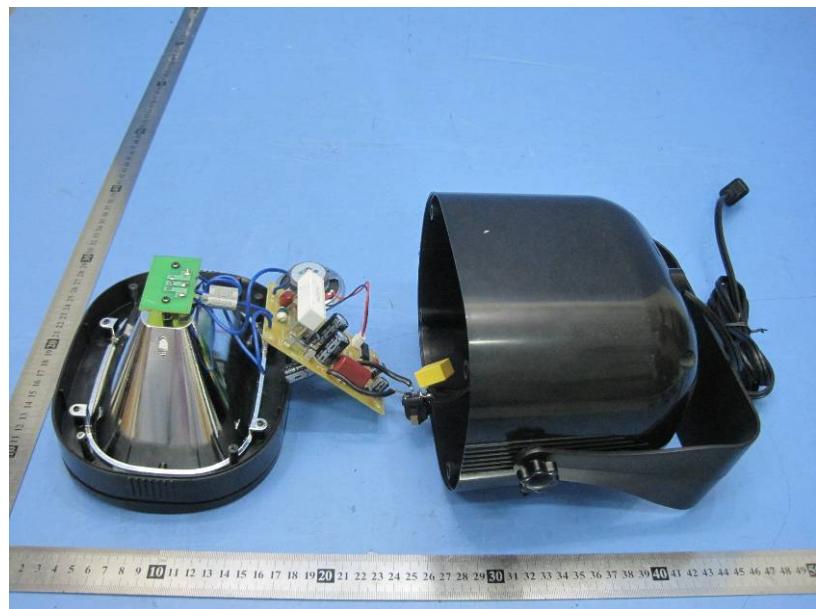
6.1 EUT – Front View



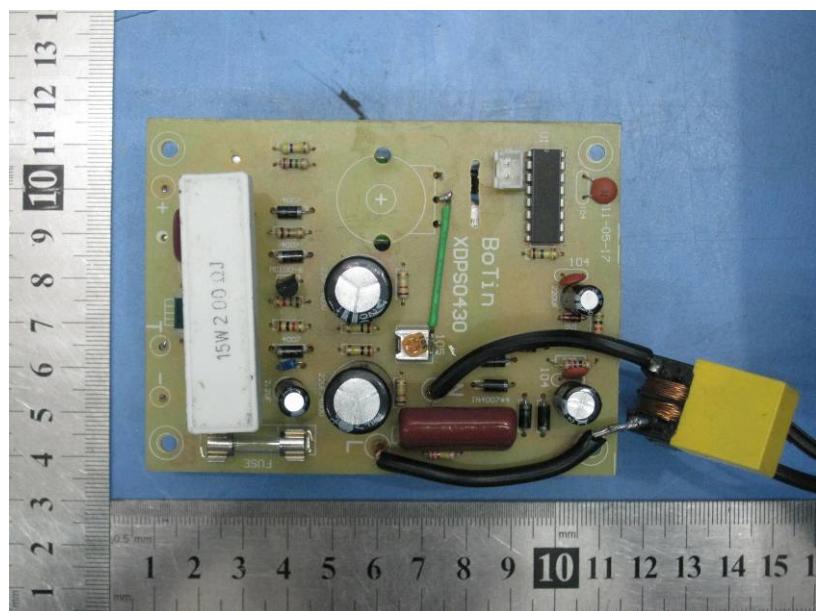
6.2 EUT – Back View



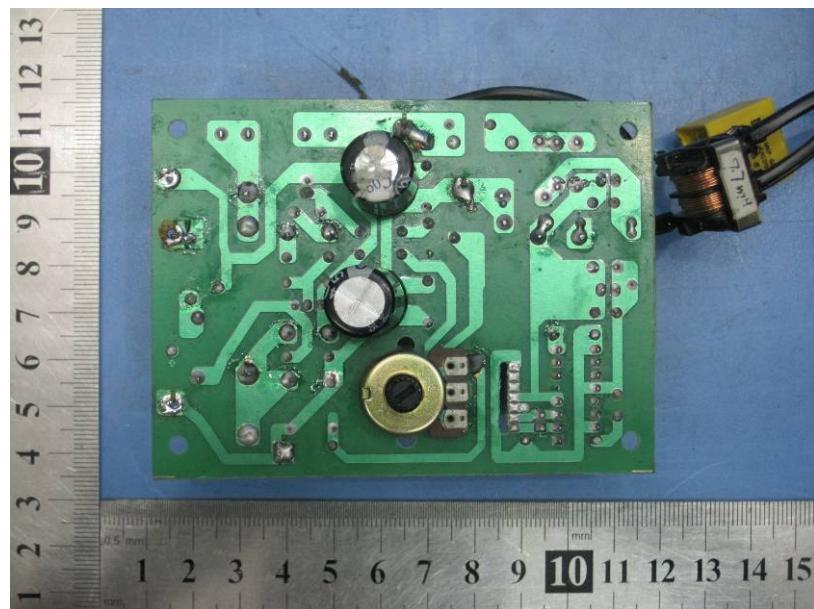
6.3 EUT – Open View



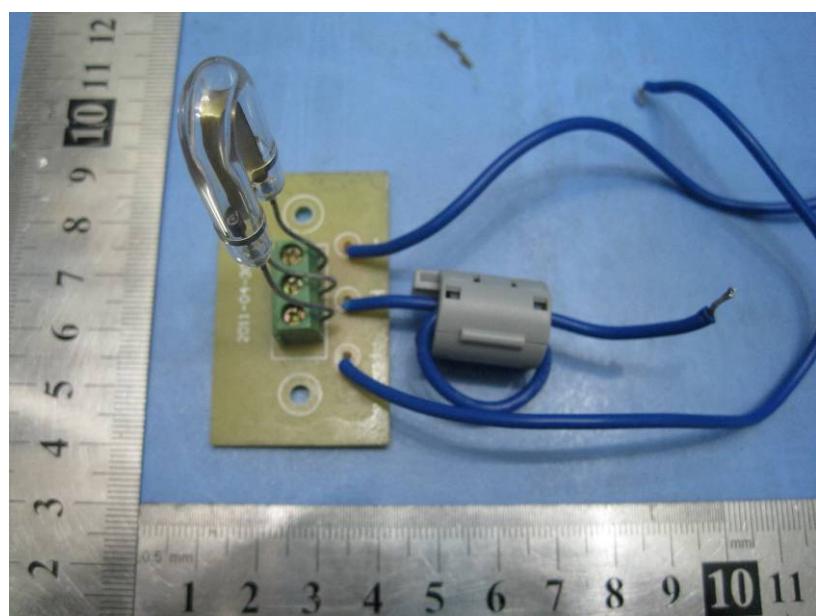
6.4 PCB1 – Front View



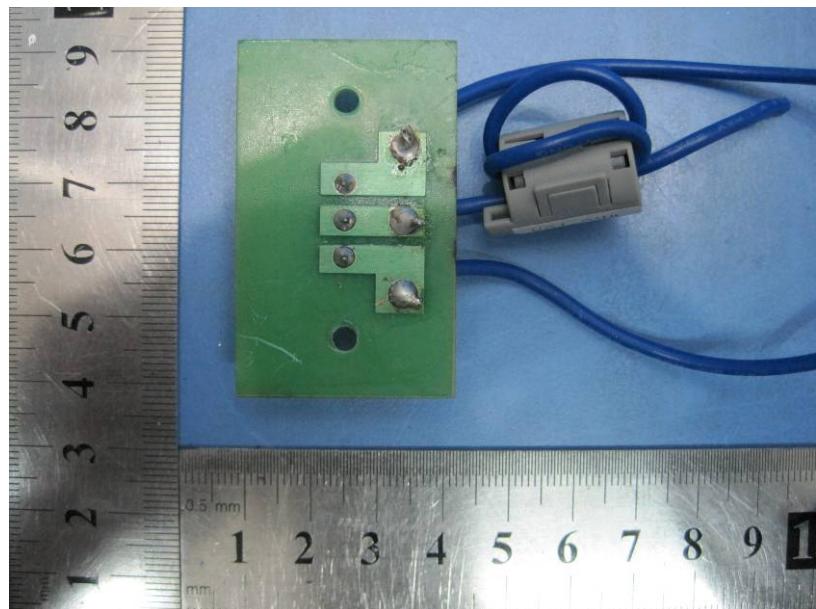
6.5 PCB1 – Back View



6.6 PCB2 – Front View



6.7 PCB2 – Back View



7 FCC Label

This device complies with Part 18 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

