FCC TEST REPORT

FCC ID. : ZOPSTLAB

Applicant : Seasonal Visions International Limited.

Address : UNIT C,12/F.PHASE 1, KAISER ESTATE, 37-43 MAN YUE STREET, HUNGHOM,KOWLOON, HONGKONG

Equipment Under Test (EUT) :

Product Name : Strobe Light

Model No. : SL-A, SL-B

Standards : FCC Part 18 : 2009

Date of Test : November 9~19, 2012

Date of Issue : November 20, 2012

Tested By : Zero Zhou /Engineer

Reviewed By : Philo zhong /Manager

Test Result :	**PASS ***

Prepared By:

Waltek Services (Shenzhen) Co., Ltd.

1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District,
Shenzhen 518105, China

Tel :+86-755-27553488
Fax:+86-755-27553868

* 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.

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:	Seasonal Visions International Limited.
Address of Applicant:	UNIT C,12/F.PHASE 1, KAISER ESTATE, 37-45 MAN YUE STREET, HUNGHOM,KOWLOON, HONGKONG
Manufacturer:	SHENZHEN QIAOHUA INDUSTRIES LIMITED
Address of Manufacturer:	301，No.1Building, Qiaohua Industrial Zone, LuoTian Forestry Center, SongGangTown, Bao An, ShenZhen,China

3.2 General Description of E.U.T.

Product Name :	Strobe Light
Model No.:	SL-A, SL-B
Model Difference :	All modes have the same circuit, except for output power. Model SL-A was the test sample.

3.3 Details of E.U.T.

Technical Data:	SL-A: 120VAC / 60Hz, 170mA, 4.6W SL-B: 120VAC / 60Hz, 150mA, 4.0W

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

Spurious Emissions and Radiated Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer	Agilent	E7405A	MY45114943	Aug. 13,2012	Aug. 13,2013
2.	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Aug. 13,2012	Aug. 13,2013
3.	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Aug. 13,2012	Aug. 13,2013
4.	Broad-band Horn Antenna	SCHWARZBECK	VULB9163	667	Aug. 13,2012	Aug. 13,2013
5.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	399	Aug. 13,2012	Aug. 13,2013
6.	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Feb .23,2012	Feb .23,2013
7.	Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-148	Aug. 13,2012	Aug. 13,2013
8.	10m Coaxial Cable with N- plug	SCHWARZBECK	AK 9515 H	-	Aug. 13,2012	Aug. 13,2013
9.	10m 50 Ohm Coaxial Cable with N-plug	SCHWARZBECK	AK 9513	-	Aug. 13,2012	Aug. 13,2013
10.	Positioning Controller	C&C LAB	CC-C-IF	-	Aug. 13,2012	Aug. 13,2013
11.	Color Monitor	SUNSPO	SP-14C	-	Aug. 13,2012	Aug. 13,2013

4.1 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±3.64dB	(1)
Radiation	30MHz~1000MHz	±5.03dB	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5 Emissions Test Results

5.1 Conducted Emission Data

Test Requirement:	FCC Part 18 :2009
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

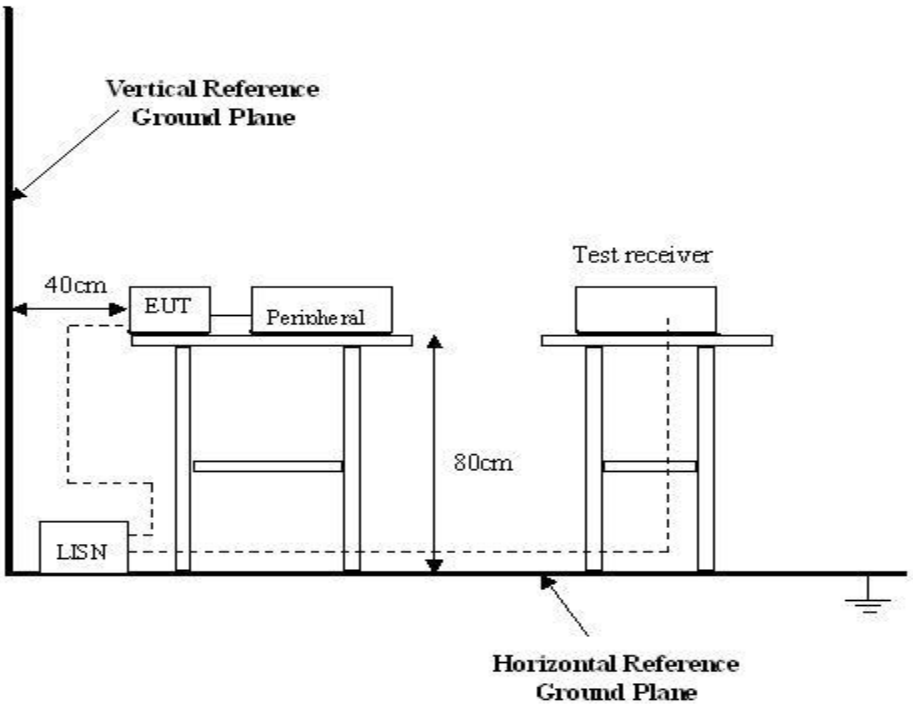
Please refer to Section 4 this report.

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.

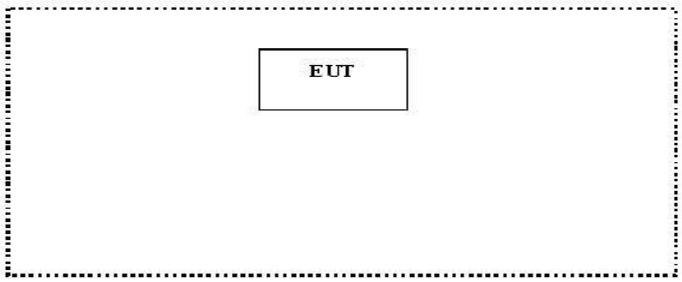


The EUT was placed on the test table in ON mode.

5.1.4 EUT Operating Condition

Operating condition is according to FCC MP-5.

A. Setup the EUT and simulators as shown on follow.
B. Enable RF signal and confirm EUT active.
C. 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

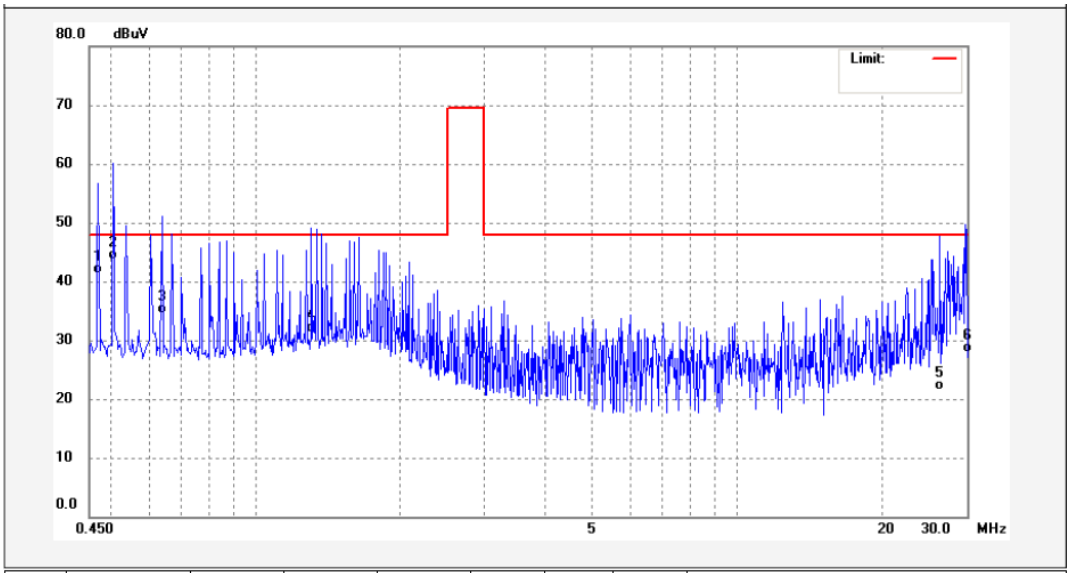
5.1.8 Measurement Data

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

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

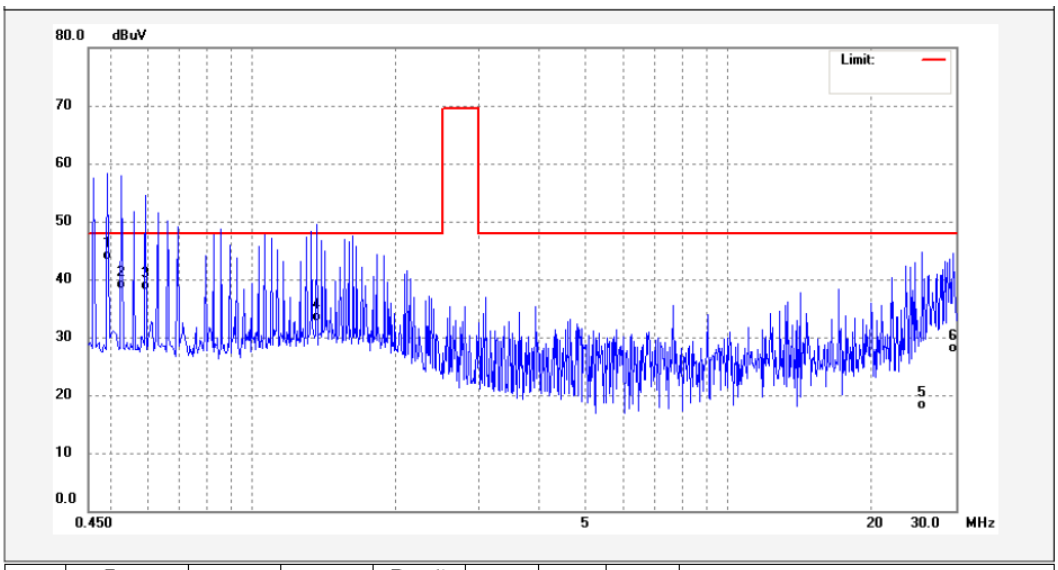
Please refer to the following peak scan graph for reference.

Live line:



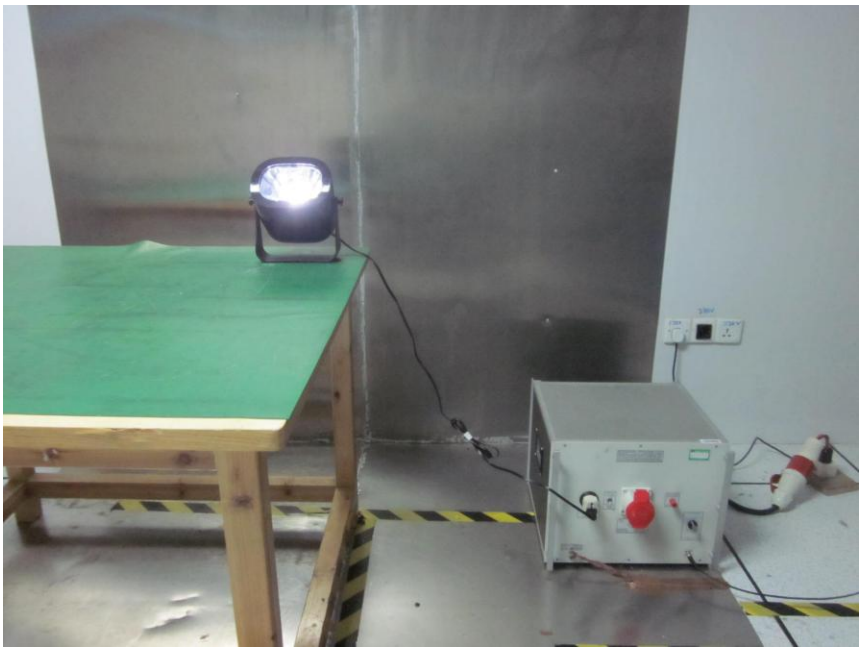
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4700	29.91	11.31	41.22	48.00	-6.78	QP	
2	0.5060	32.32	11.31	43.63	48.00	-4.37	QP	
3	0.6380	23.25	11.33	34.58	48.00	-13.42	QP	
4	1.3060	20.20	11.19	31.39	48.00	-16.61	QP	
5	26.4460	10.04	11.54	21.58	48.00	-26.42	QP	
6	29.8740	16.50	11.47	27.97	48.00	-20.03	QP	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4940	31.90	11.31	43.21	48.00	-4.79	QP	
2	0.5299	26.90	11.31	38.21	48.00	-9.79	QP	
3	0.5940	26.77	11.32	38.09	48.00	-9.91	QP	
4	1.3619	21.58	11.19	32.77	48.00	-15.23	QP	
5	25.5740	6.00	11.56	17.56	48.00	-30.44	QP	
6	29.7460	15.75	11.48	27.23	48.00	-20.77	QP	

5.1.9 Photograph –Conducted Emission Test Setup



5.2 Radiation Emission Data

Test Requirement:	FCC Part18.305 :2009
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46.0 dBμV/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.

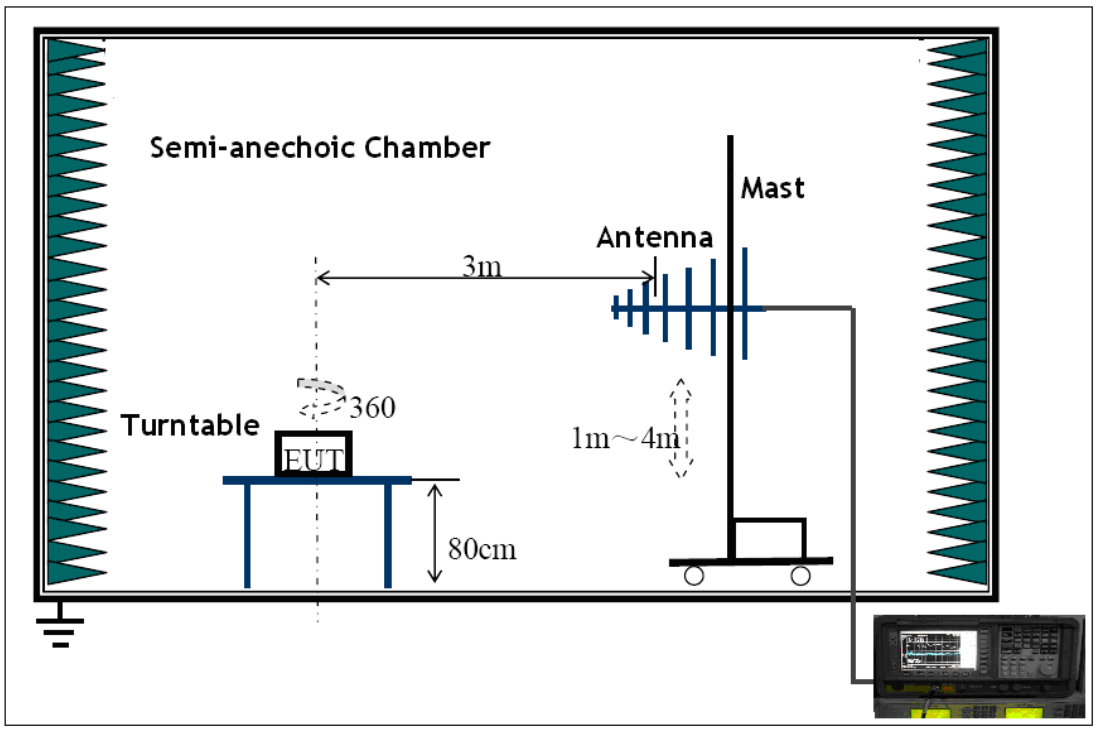
5.2.1 Measurement Uncertainty

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 $\pm$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 epuipment 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 from 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 dBμV 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:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

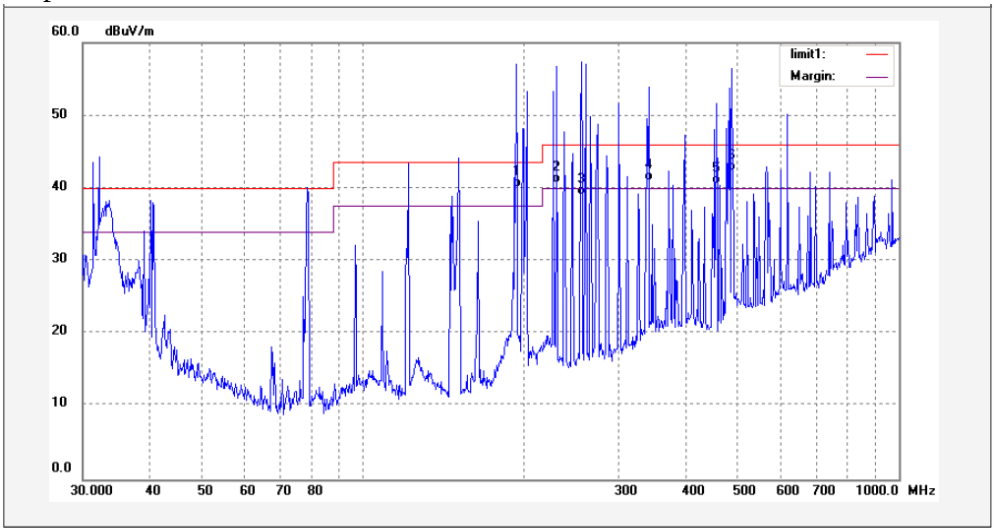
The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Class B Limit

5.2.6 Summary of Test Results

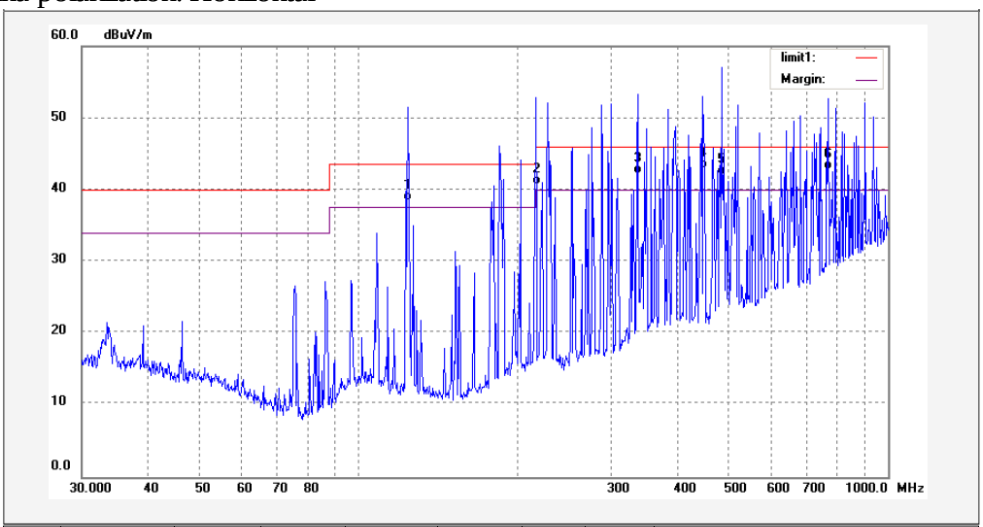
According to the data in this section, the EUT complied with the FCC Part18:2009 standards.

Antenna polarization: Vertical



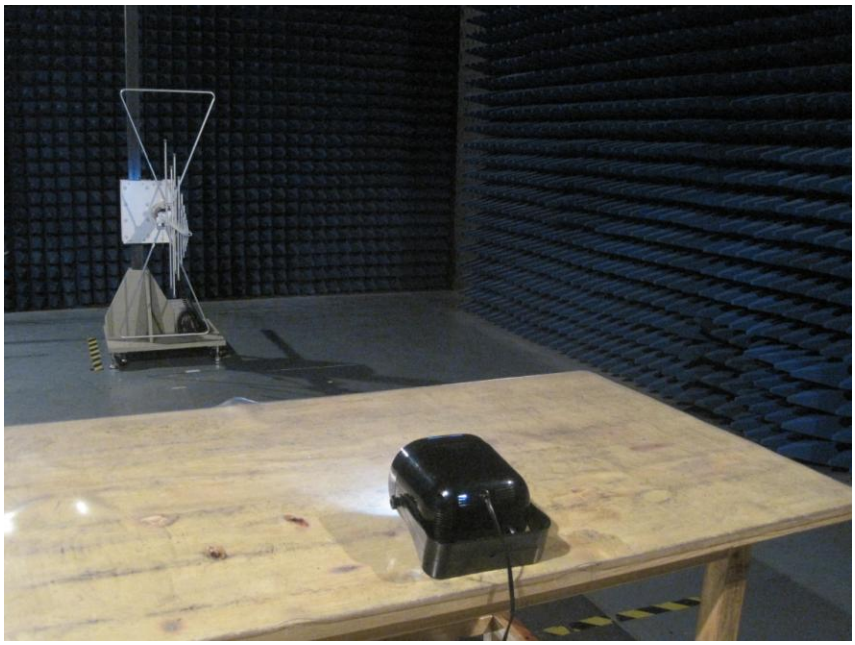
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	193.1366	25.58	14.56	40.14	43.50	-3.36	QP	
2	230.2295	24.59	16.19	40.78	46.00	-5.22	QP	
3	255.8226	22.98	16.03	39.01	46.00	-6.99	QP	
4	341.2442	20.78	20.21	40.99	46.00	-5.01	QP	
5	456.7909	19.72	20.90	40.62	46.00	-5.38	QP	
6	488.3263	17.12	25.25	42.37	46.00	-3.63	QP	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	124.0501	26.91	11.63	38.54	43.50	-4.96	QP	
2	216.1197	25.47	15.33	40.80	46.00	-5.20	QP	
3	336.4817	22.44	19.85	42.29	46.00	-3.71	QP	
4	447.2619	22.72	20.23	42.95	46.00	-3.05	QP	
5	484.9068	17.84	24.20	42.04	46.00	-3.96	QP	
6	771.0475	14.38	28.38	42.76	46.00	-3.24	QP	

5.2.7 Photograph – Radiation Emission Test Setup

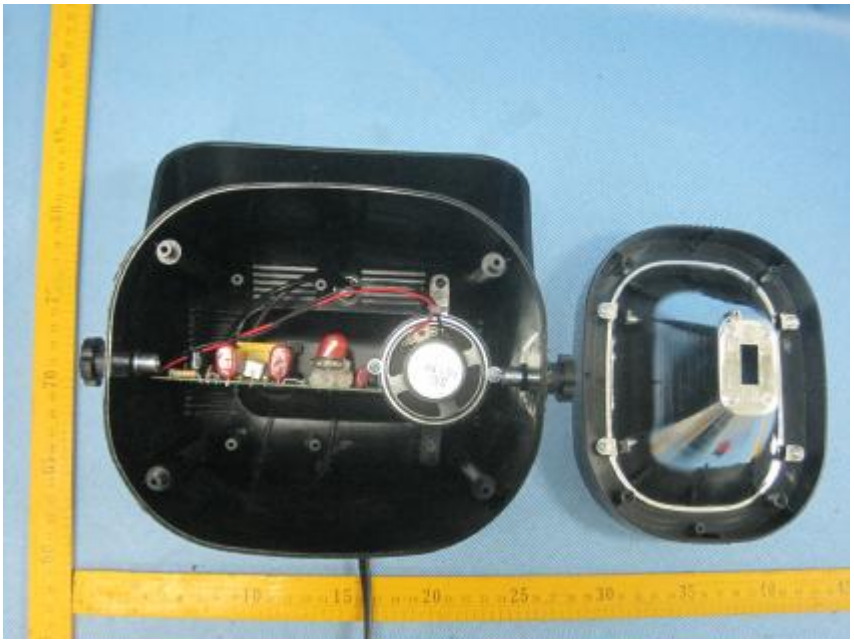


6 Photographs - Constructional Details

6.1 EUT – Front View

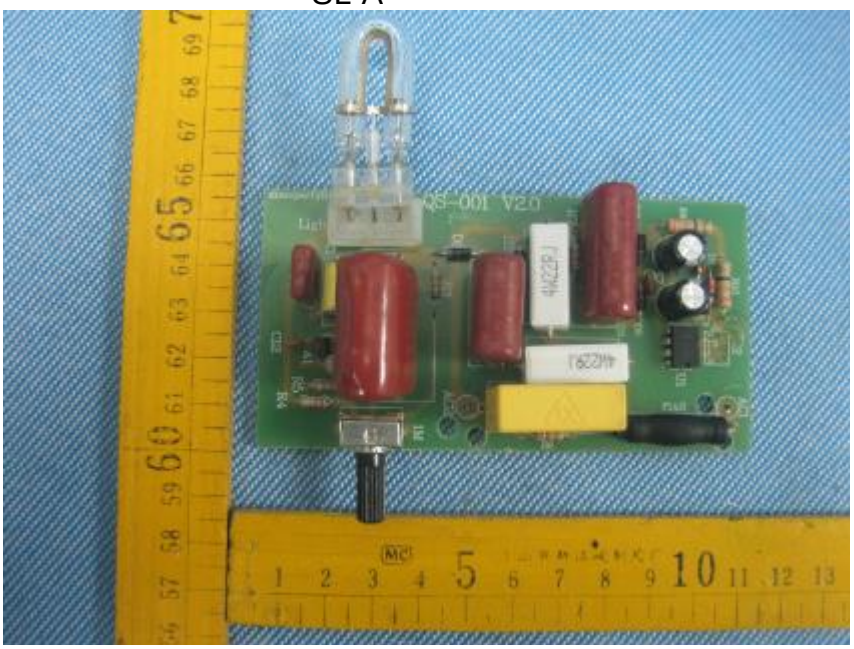
6.2 EUT – Back View

6.3 EUT – Open View

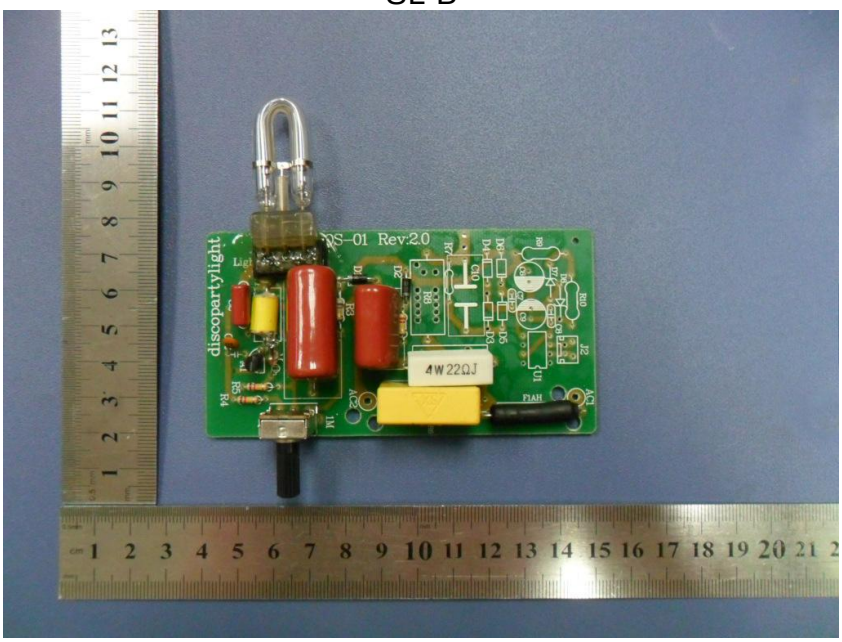


6.4 PCB – Front View

SL-A

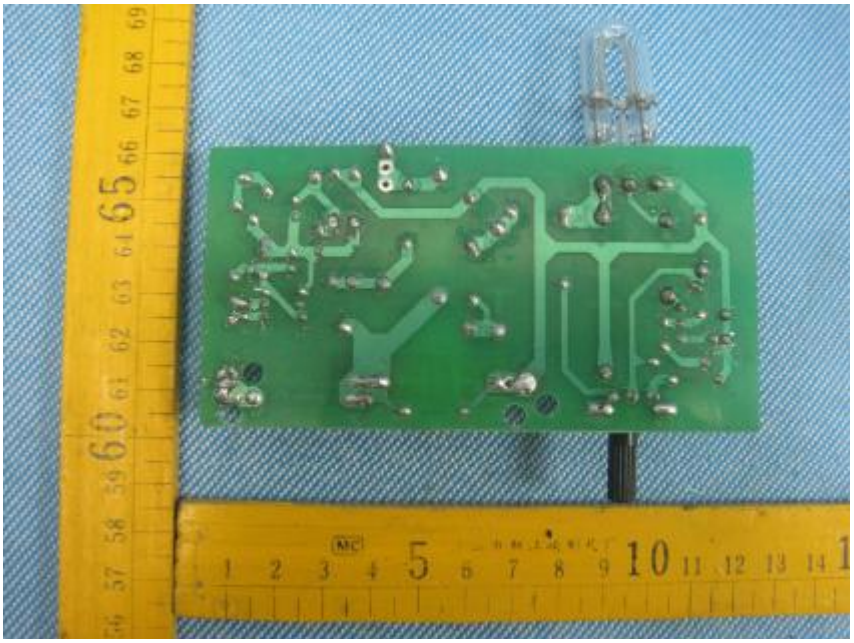


SL-B

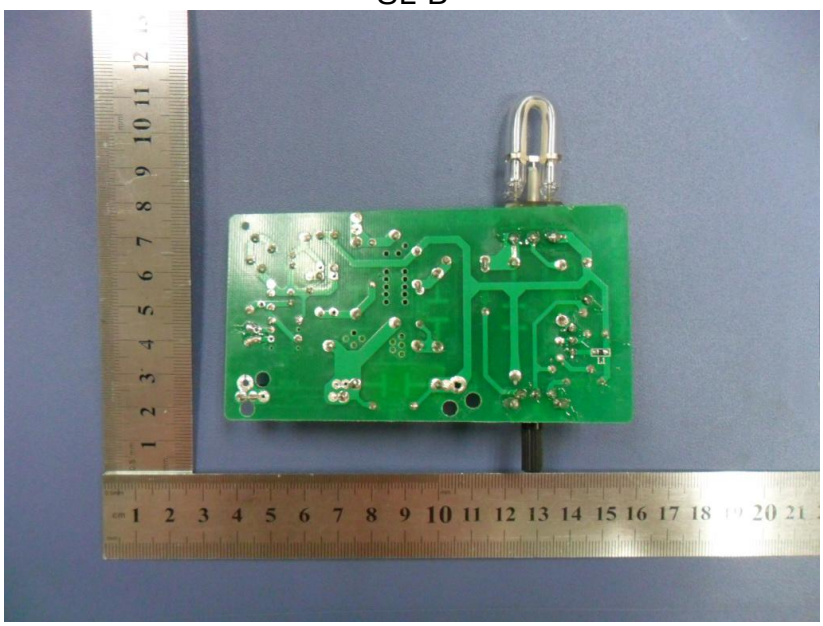


6.5 PCB – Back View

SL-A



SL-B



6.6 Label –View

Strobe Light Mode No.: SL-A FCC ID：ZOPSTLAB Power Supply: 120V AC, 60Hz 170mA 4.6 W Name of Grantee: Seasonal Visions International, Limited Manufacturer: **SHENZHEN QIAOHUA INDUSTRIES LIMITED** This device complies with Part 18 of the FCC Rules. This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment or other critical navigation or communication equipment operating between 0.45–30 MHz. MADE IN CHINA	Strobe Light Mode No.: SL-B FCC ID：ZOPSTLAB Power Supply: 120V AC, 60Hz 150mA 4.0 W Name of Grantee: Seasonal Visions International, Limited Manufacturer: **SHENZHEN QIAOHUA INDUSTRIES LIMITED** This device complies with Part 18 of the FCC Rules. This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment or other critical navigation or communication equipment operating between 0.45–30 MHz. MADE IN CHINA

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.