FCC TEST REPORT

FCC ID : WK8- SU41XD

Applicant : TOP BRILLIANT TECHNOLOGY LTD.

Address : Suite 101-102,lst Floor,Building7,No.5 Science park,Shatin,New Territories,Hong Kong.

Equipment Under Test (EUT) :

Product description : Self ballasted lamp

Model No. : SU413D/120,SU418D/120

Standards : FCC Part18:2007

Date of Test : June 27,2011

Test Engineer : （Olic huang/Engineer）

Reviewed By **:** （Philo zhong/Manager）

PERPARED BY:
Waltek Services (Shenzhen) Co., Ltd.
1/F, Fukangtai Building,West Baima Rd.,Songgang Street, Baoan District, Shenzhen 518105,China
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Ref. No.: WT11062832-D-E-F

Contents

2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz)	FCC PART 18: 2007	ANSI C63.4:2003	N/A	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 18: 2007	ANSI C63.4:2003	N/A	PASS

3 General Information

3.1 Client Information

Applicant:	TOP BRILLIANT TECHNOLOGY LTD.
Address of Applicant:	Suite 101-102,lst Floor,Building7,No.5 Science park,Shatin,New Territories,Hong Kong.
Manufacturer:	Dong Guan Wei Cheng Lighting CO., LTD
Address of Manufacturer:	Cai Wu Industrial Park , Wusha, Chang An ,Dongguan,PRC

3.2 General Description of E.U.T.

Product description:	Self ballasted lamp
Model No.:	SU413D/120,SU418D/120

3.3 Details of E.U.T.

Power Supply: 120VAC / 60Hz

The appearance of two models are the same except that the output power is different.

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3.4 Description of Support Units

The EUT has been tested as an independent unit.

3.5 Standards Applicable for Testing

The customer requested FCC tests for a Self ballasted lamp.The standards used were FCC Part18:2007.

3.6 Test Methodology

All measurements contained in this report are conducted with FCC Measurement Procedure MP-5, technical requirements for Methods of Measurement of Radio-Noise Emission from ISM Equipment.

3.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **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.

- **IC – Registration No.: IC7760A**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory 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.

3.8 Test Location

All Emissions testswere performed at:-
1/F, Fukangtai Building,West Baima Rd.,Songgang Street,
Baoan District, Shenzhen 518105, Guangdong,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	MY45114943	W2008001	9k-26.5GHz	Aug-03-10	Aug-02-11	Wws20081596	±1dB
Trilog Broadband Antenne	SCHWARZBECK MESS-ELEKTROM/ VULB9163	336	W2008002	30-3000 MHz	Aug-03-10	Aug-02-11		±1dB
Broad-band Horn Antenna	SCHWARZBECK MESS-ELEKTROM/ BBHA 9120D(1201)	667	W2008003	1-18GHz	Aug-03-10	Aug-02-11		f＜10 GHz：±1dB 10GHz＜f＜18 GHz：±1.5dB
Broadband Preamplifier	SCHWARZBECK MESS-ELEKTROM/ BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-03-10	Aug-02-11		±1.2dB
10m Coaxial Cable with N-male Connectors	SCHWARZBECK MESS-ELEKTROM/ AK 9515 H	-	-	-	Aug-03-10	Aug-02-11		-
10m 50 Ohm Coaxial Cable with N-plug	SCHWARZBECK MESS-ELEKTROM/ AK 9513				Aug-03-10	Aug-02-11		
Positioning Controller	C&C LAB/ CC-C-IF				N/A	N/A		
Color Monitor	SUNSPO/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-03-10	Aug-02-11	Wws20080942	±1dB
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug-03-10	Aug-02-11	Wws20080941	±10%
Absorbing Clamp	ROHDE&SCHWARZ/ MDS-21	100205	W2005003	impandance50 Ω loss ： 17 dB	Aug-03-10	Aug-02-11	Wws20080943	±1dB
10m 50 Ohm Coaxial Cable with N-plug	SCHWARZBECK MESS-ELEKTROM/ AK 9514				Aug-03-10	Aug-02-11		

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V07451 03095	W2008012	Power：2000VA Vol-range：0-300V Freq_range：10-80Hz	Aug-03-10	Aug-02-11	Wwd200 81185	Voltage distinguish:0.025% Power_freq distinguish:0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V07451 03096	W2008013	Vol-range：0-300V Power_freq：10-80Hz				
Electrostatic Discharge Simulator	Em Test AG/Switzerland/DITO	V07451 03094	W2008005	Contact discharge：500V-10KV Air diacharge：500V-16.5KV	Aug-03-10	Aug-02-11	Wwc200 82400	7.5A current will be changed in V_m=1.5V
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range：9K-1GHz RF voltage：-60 dBm-+10dBm	Aug-03-10	Aug-02-11	Wws200 81890	Power_freq distinguish0.1Hz RFeletricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-03-10	Aug-02-11	Wwc200 82396	150K-80MHz：±1dB 80-230MHz:-2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range：0.15-1000 MHz	Aug-03-10	Aug-02-11	Wwc200 82397	0.3-400 MHz：±4dB Other freq：±5dB
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365			Aug-03-10	Aug-02-11	Wws200 81597	
All Modules Generator	SCHAFFNER /6150	34579	W2008006	voltage:200V-4.4KV Pulse current：100A-2.2KA	Aug-03-10	Aug-02-11	Wwc200 82401	voltage: ±10% Pulse current：±10%
Capacitive Coupling Clamp	SCHAFFNER / CDN 8014	25311			Aug-03-10	Aug-02-11	Wwc200 82398	-
Signal and Data Line Coupling Network	SCHAFFNER / CDN 117	25627	W2008011	1.2/50μS	Aug-03-10	Aug-02-11	Wwc200 82399	-

5 Conducted Emission Test

Product Name:	Self ballasted lamp
Test Requirement:	FCC Part 18
Test Method:	Based on FCC Part 18
Test Date:	June 27,2011
Frequency Range:	150kHz 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 Test Equipment

Please refer to Section 5 this report.

5.2 Test Procedure

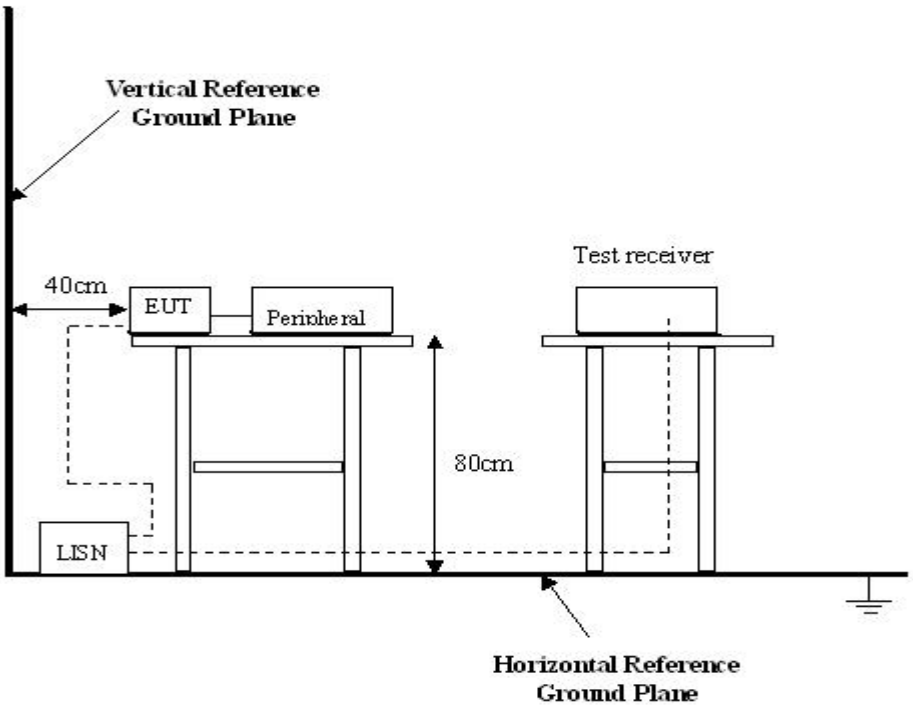
1. During the conducted emission test, the power cord of the EUT is connected to the auxiliary outlet of the LISN.
2. The EUT was tested according to FCC MP-5. The frequency spectrum from 150kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

5.3 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.



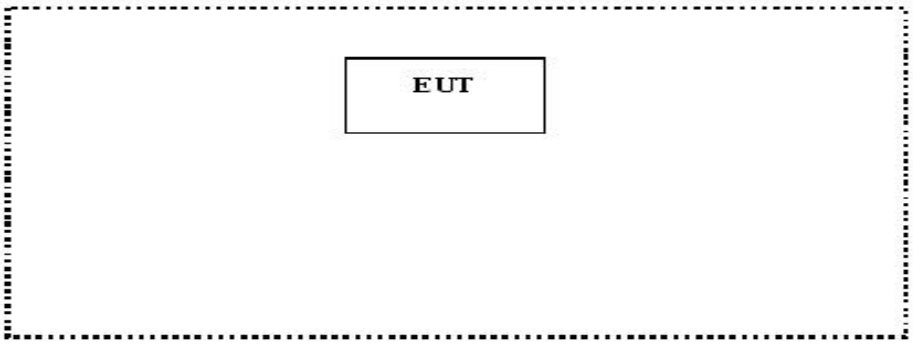
5.4 EUT Operating Condition

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.



5.5 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.

5.6 Spectrum Analyzer

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

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

5.7 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

5.7.1 Measurement Data

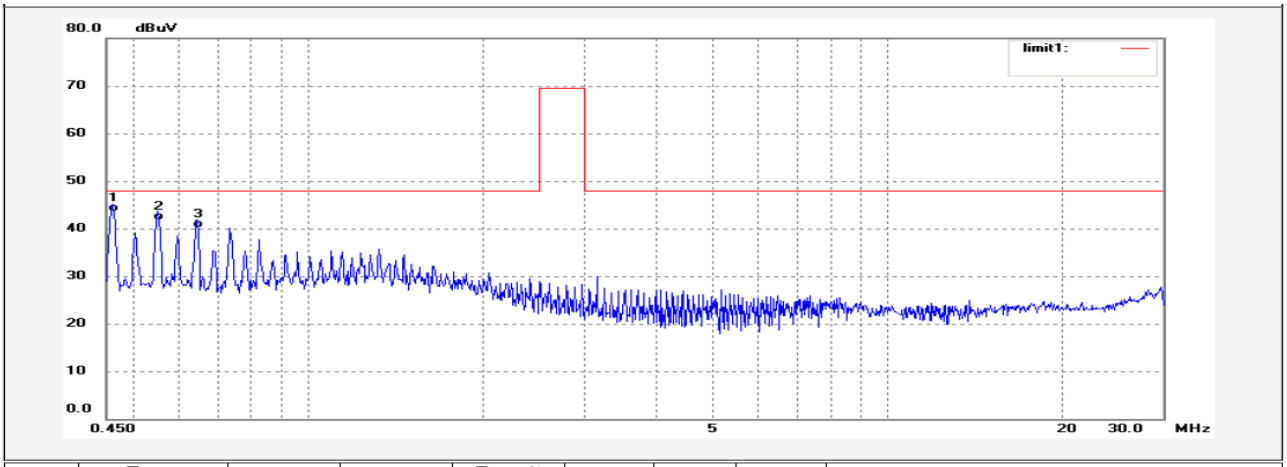
An initial pre-scan was performed on the live and neutral lines.

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

Please refer to the folsmalling peak scan graph for reference.

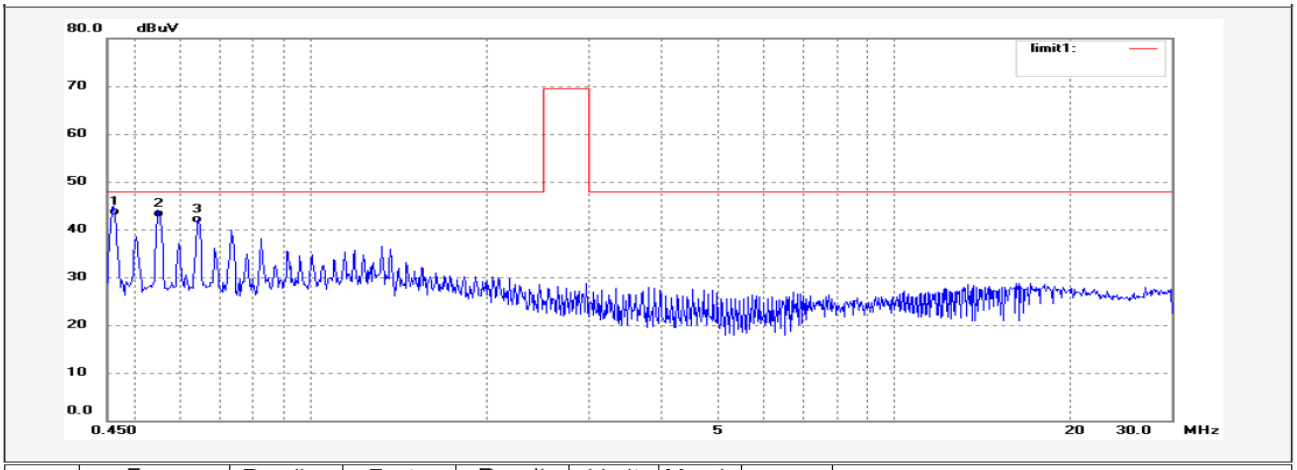
Test Mode: SU418D/120

Live Line



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4620	32.68	10.78	43.46	48.00	-4.54	QP	
2	0.5540	31.26	10.47	41.73	48.00	-6.27	QP	
3	0.6460	29.40	10.66	40.06	48.00	-7.94	QP	

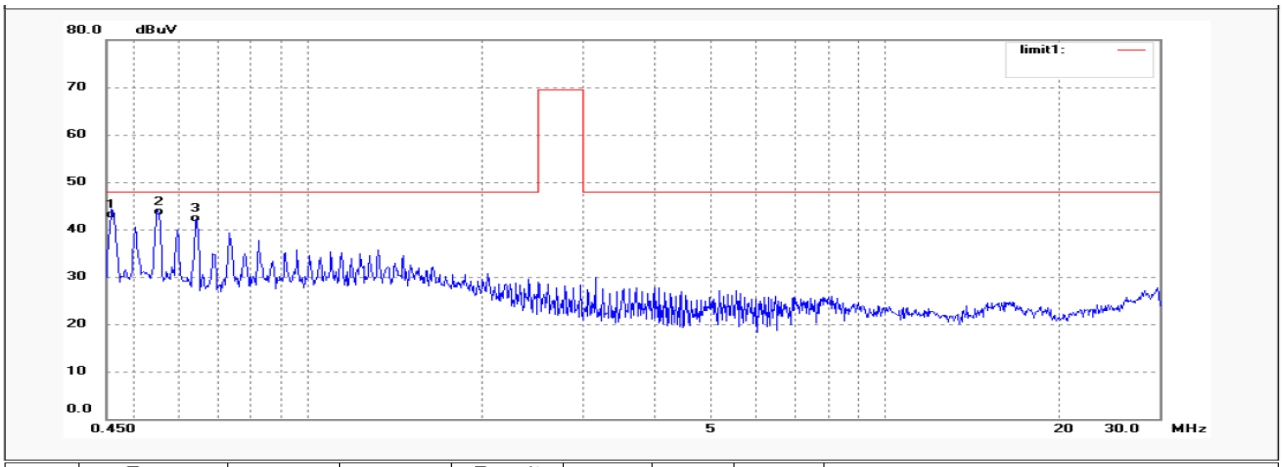
Nentual Live



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4620	32.22	10.78	43.00	48.00	-5.00	QP	
2	0.5500	32.05	10.50	42.55	48.00	-5.45	QP	
3	0.6419	30.66	10.62	41.28	48.00	-6.72	QP	

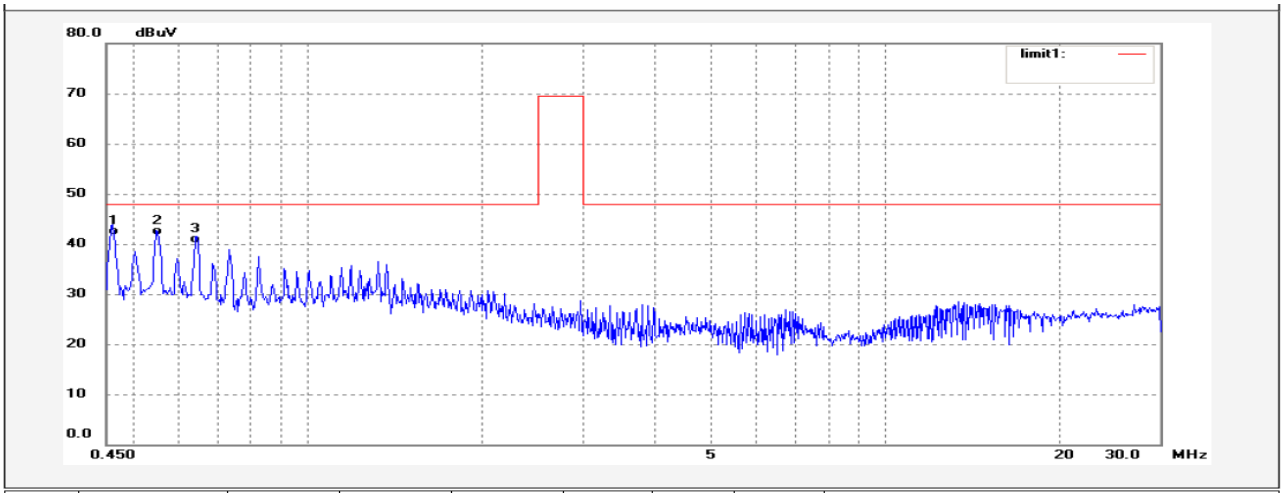
Test Mode : SU413D/120

Live Line



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4595	31.52	10.78	42.30	48.00	-5.70	QP	
2	0.5540	32.52	10.47	42.99	48.00	-5.01	QP	
3	0.6431	30.95	10.63	41.58	48.00	-6.42	QP	

Nentual Line



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4620	30.99	10.78	41.77	48.00	-6.23	QP	
2	0.5500	31.25	10.50	41.75	48.00	-6.25	QP	
3	0.6419	29.51	10.62	40.13	48.00	-7.87	QP	

5.8 Radiation Emission Data

Test Requirement:	FCC Part18 15.305
Test Method:	ANSI C63.4:2003
Test Date:	June 27,2011
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46 dBμV/m between 216MHz & 1000MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

5.8.1 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 +5.05 dB.

5.8.2 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 ON mode.

5.8.3 Spectrum Analyzer Setup

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

Start Frequency.....30 MHz
Stop Frequency .....1 GHz
Sweep Speed Auto
IF Bandwidth .....120 kHz
Video Bandwidth.....100KHz
Quasi-Peak Adapter Bandwidth .....120 kHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 100KHz

5.8.4 Test Procedure

For the radiated emissions test, maximizing procedure was performed on the six (6) Largeest 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. But any frequency above 1000 MHz, the limit is based on average detector.
The EUT was under normal mode during the final qualification test and the configuration was used to represent the worst case results.

5.8.5 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 folsmalls:

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

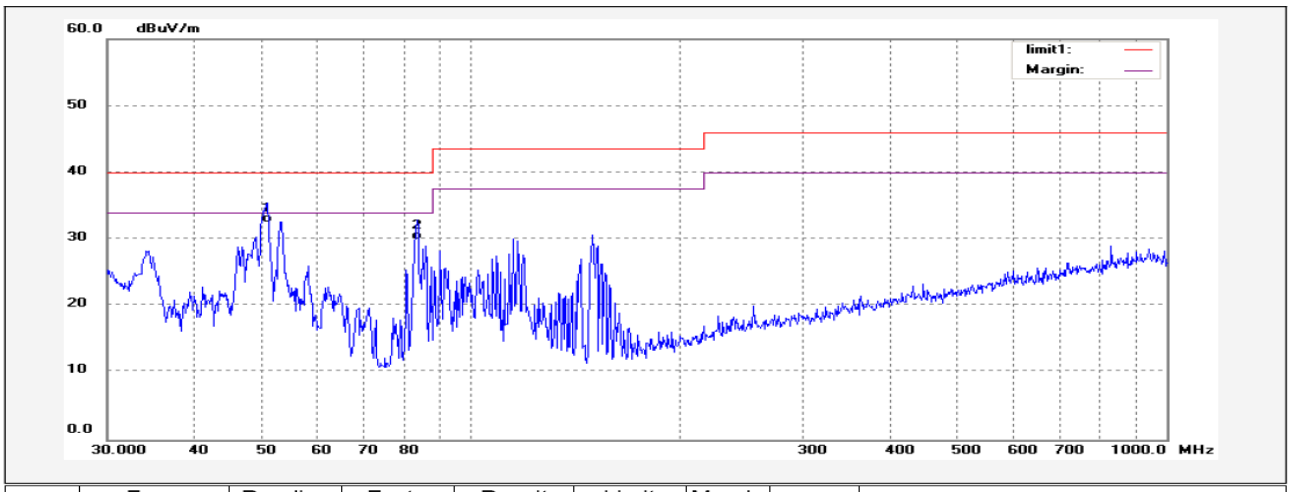
The "**Margin**" column of the folsmalling data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV besmall the maximum limit for Class B. The equation for margin calculation is as folsmalls:
Margin = Corr. Ampl. – Class B Limit

5.8.6 Summary of Test Results

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

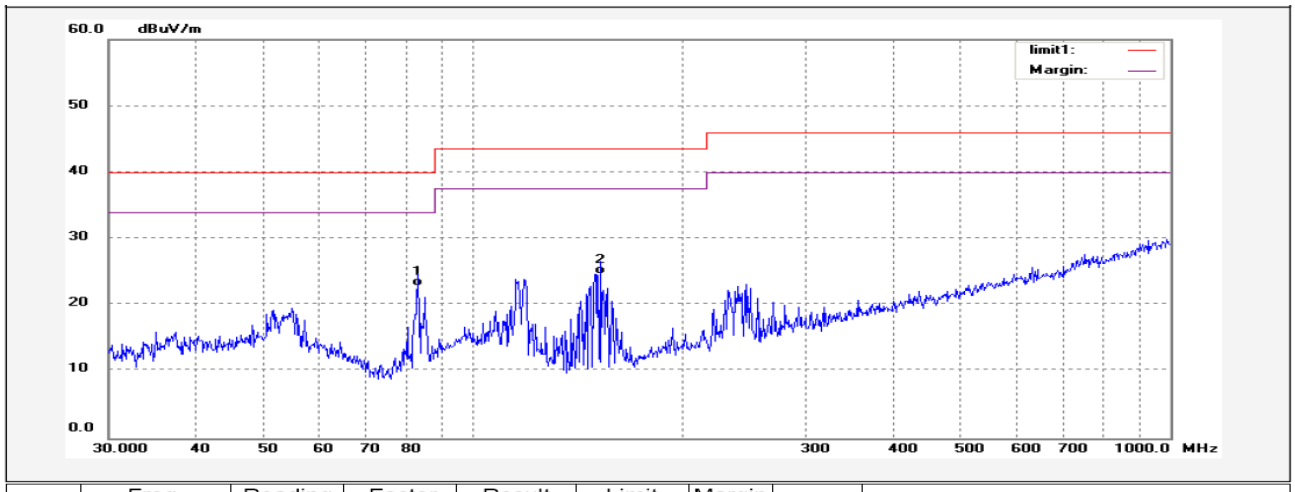
Test Mode:SU418D/120

Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	50.9961	15.72	16.70	32.42	40.00	-7.58	QP	
2	83.6937	16.45	13.42	29.87	40.00	-10.13	QP	

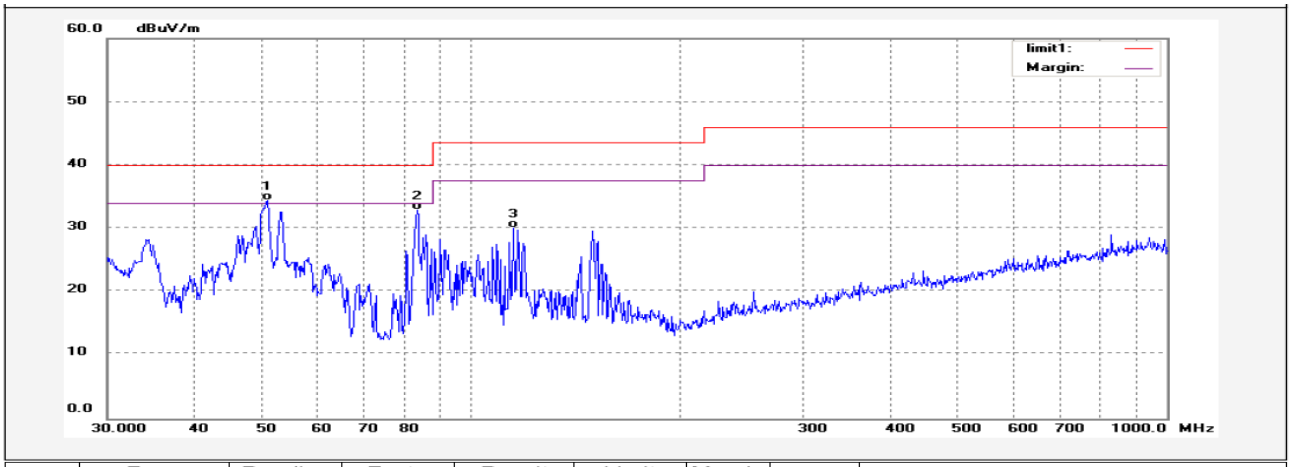
Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	83.4002	11.28	11.54	22.82	40.00	-17.18	QP	
2	152.0902	14.33	10.33	24.66	43.50	-18.84	QP	

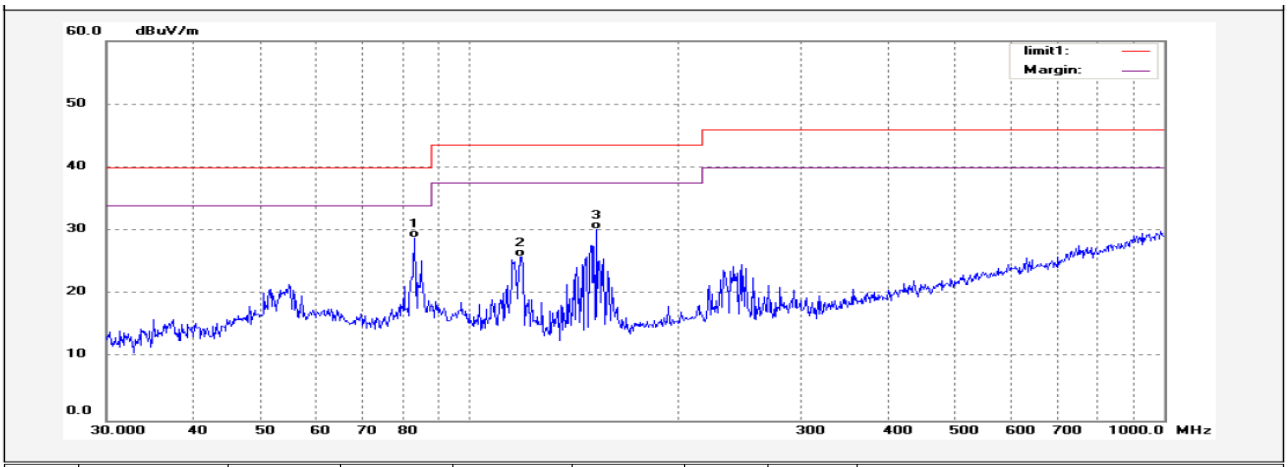
Test Mode: SU413D/120

Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	50.9960	17.72	16.70	34.42	40.00	-5.58	QP	
2	83.6937	19.45	13.42	32.87	40.00	-7.13	QP	
3	114.8224	15.00	15.10	30.10	43.50	-13.40	QP	

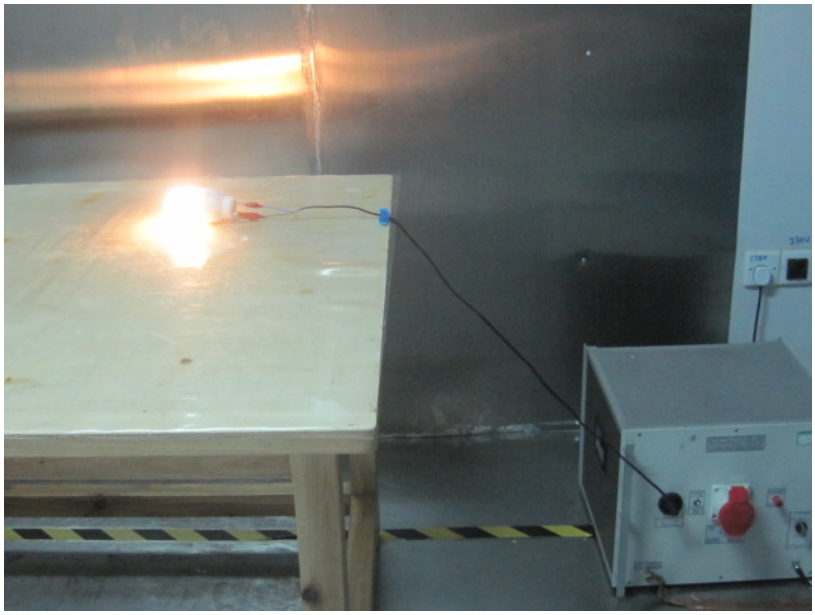
Vertical



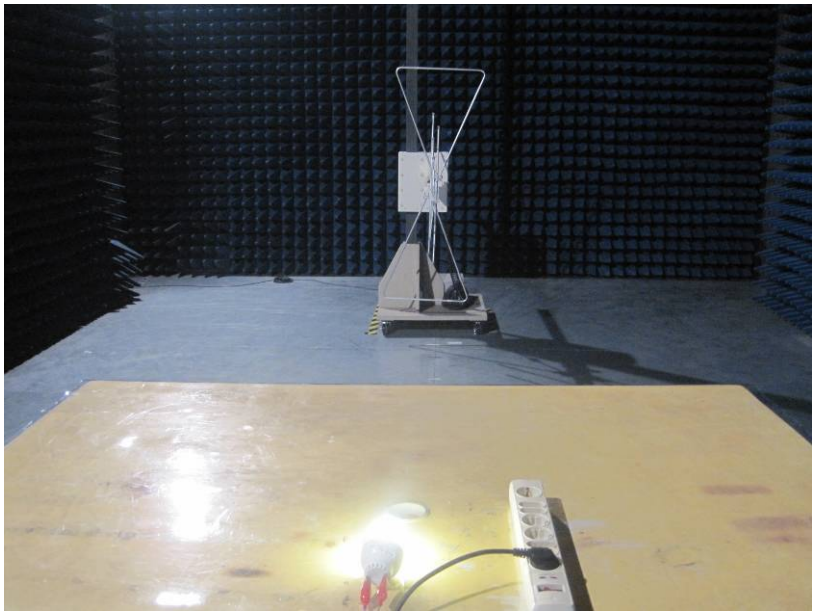
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	83.4001	17.28	11.54	28.82	40.00	-11.18	QP	
2	118.5113	13.60	12.34	25.94	43.50	-17.56	QP	
3	152.0901	19.83	10.33	30.16	43.50	-13.34	QP	

6 Photographs of Testing

6.1 Conducted Emission Test View



6.2 Radiation Emission Test View

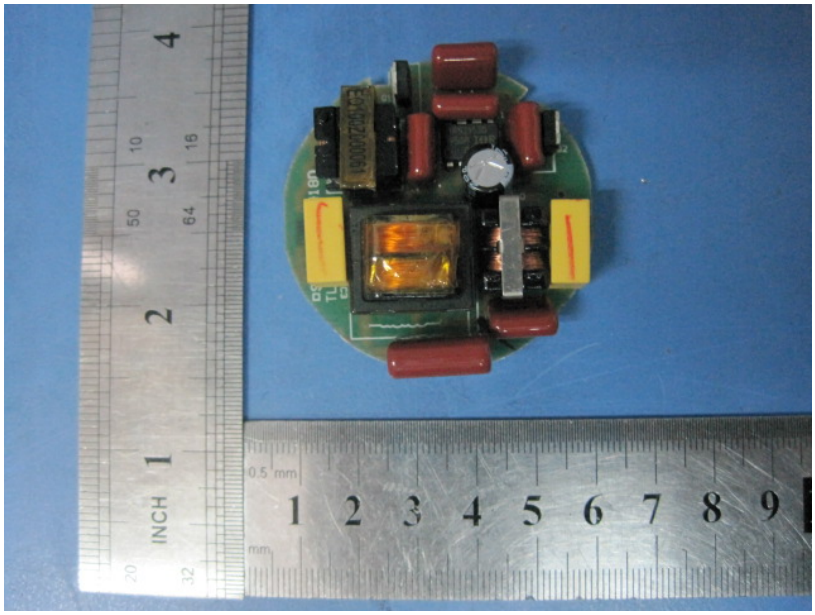


7 Photographs - Constructional Details

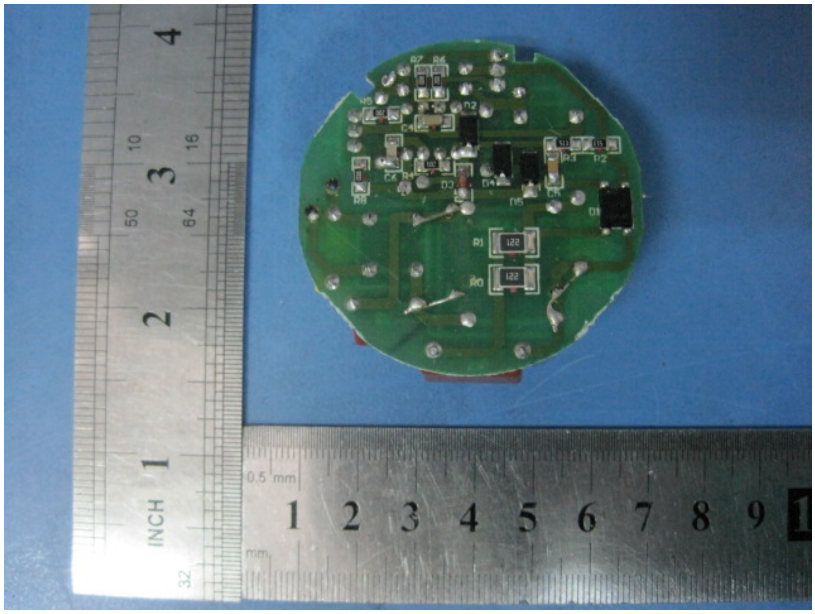
7.1 EUT -Front View

7.2 EUT -Back View

7.3 PCB - Front View



7.4 PCB - Back View



8 FCC ID Label

This device complies with Part 18 of the FCC Rules.

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.

Proposed Label Location on EUT

EUT Top View/ proposed FCC Label Location