Report No.: 130422075GZU-001
Issued: 03 June 2013

TEST REPORT

Applicant Name & Address	:	Polygroup Limited(Macao Commercial Offshore) Avenida Xian Xing Hai,Centro Golden Dragon,11 Andar Macau
Sample Description		
Product	:	Christmas Tree Lighting
Model No.	:	LxGxRxS(the first x=30-120; the second x=0-5; the third x=0150-1400) Note: "L" means that the low voltage, the first "x" indicates the size of the tree, said the use of height from 3ft-12ft, "Gx" number of cord sets,G0 represents 0 cord sets & G5 on behalf of 5 cord sets, "R" which means that the tree is to use rotating tree foot, the third "x" represents the number of lamps, from 150 to 1400 lamps, "s"mean that the tree pin.
Electrical Rating	:	Adaptor model: MTS810-29V Input: 120V 60Hz 0.2A 24W; Output: 29V DC 15W
FCC ID	:	2AABT-CW002
Date Received	:	22 April 2013
Date Test Conducted	:	25 April 2013 – 13 May 2013
Test standards	:	FCC Part 15:2011
Test Result	:	Pass
Conclusion	:	The submitted samples complied with the above rules/standards.
Remark	:	None.

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CONTENT

1 TEST RESULTS SUMMARY

Classification of EUT: Class B

Test Item	Standard	Result
Conducted Emission	**FCC Part 15, Subpart B: 2011**	**Pass**
Radiated Emission	**FCC Part 15, Subpart B: 2011**	**Pass**

Remark: 1. The symbol "N/A" in above table means Not Applicable.
2. When determining the test results, measurement uncertainty of tests has been considered.

2 Test Results Conclusion
(with Justification)

RE: EMC Testing Pursuant to FCC Part 15, Subpart B: 2011 Performed On the Christmas Tree Lighting, Model: LxGxRxS(the first x=30-120, means the height of the tree; the second x=0-5 ,means the number of the cord set; the third x=0150-1400, means the number of LED).

We tested Christmas Tree Lighting, Model: L12G5R1400S, to determine if it was in compliance with the relevant FCC rules as marked on the Test Results Summary. We found that the unit met the requirement of FCC Part 15, Subpart B: 2011 when tested as received. The worst case's test data was presented in this test report. Test items Conducted Emission and Radiated Emission were subcontracted.

The Equipment Under Test (EUT) is controlled by a controller, the controller is an intentional radiator using 433.92MHz frequency.

Antenna Type: Integral wire antenna.

The controller option of this receiver is subject to Certification procedure.

All models are declared to be identical in terms of electrical design, their difference lies in the number of LED. Select L12G5R1400S to be tested since it has the maximum LED and it's the worst case in all models.

The data on the below test result table lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

According 15.107, the worst case conducted emission at 0.452MHz

Judgement: Passed by -4.05 dB

According 15.109, the worst case radiated emission at 57.16 MHz
Judgement: Passed by -3.06 dB

The production units are required to conform to the initial sample as received when the units are placed on the market.

3 LABORATORY MEASUREMENTS

Configuration Information

Equipment Under Test (EUT):	Christmas Tree Lighting
Model:	L12G5R1400S
Serial No.	Not Labelled
Support Equipment:	A controller
Rated Voltage:	120V/60Hz
Condition of Environment:	Temperature : 15~35°C Relative Humidity: 35~60% Atmosphere Pressure 86~106kPa

Notes:

1. Test Environment
If ambient levels of emissions exceed the appropriate limit, the following steps were taken to assure compliance. First, the measurement bandwidth was reduced, if this did not affect the peak readings. Such a reduction can allow much closer examination of emissions close to local ambient signals. Second, the antenna could be brought closer to the EUT. Finally, in severe cases, testing was re-performed at night or other times when the offending signal was off the air. The measurements were made at nominal room temperature ($25^{o}C \pm 10^{o}C$).

2. Test Site
Conducted Emission test and Radiated Emission test were subcontracted to Keyway Technology Co.,Ltd. located at Baishun Industrial Zone, Zhangmotou Town, Dongguan, Guangdong, China 523638. This test facility and site measurement data have been fully placed on file with the FCC, test firm registration number is 370994.

3. Test Platform
Radiated emission and Conducted emission tests were made on 12mm thick insulating material on the reference ground plane. The vertical conducting plane or wall of a screened room shall be located 40 cm to the rear of the EUT. All other surfaces of EUT shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

4. Measurement Uncertainty
When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

4 TEST RESULTS

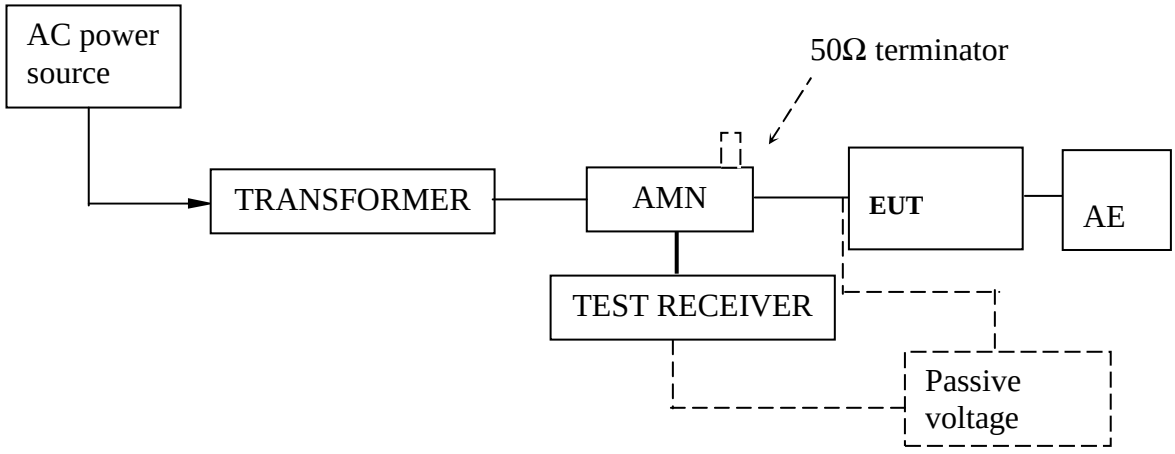
4.1 Conducted Emission Test

Test Result: Pass

4.1.1 Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
101156	EMI Test Receiver	Rohde&Schwarz	ESCI	07 Jul 2012	07 Jul 2013
101315	Artificial Mains Network	Rohde&Schwarz	ENV216	02 Jul 2012	02 Jul 2013
944 Cable	RF Cable	FUJIKURA	3D-2W	02 Jul 2012	02 Jul 2013

4.1.2 Block Diagram of Test Setup



4.1.3 Test Setup and Procedure

Test was performed according to ANSI C63.4: 2009. The EUT was set to achieve the maximum emission level. The mains terminal disturbance voltage was measured with the EUT in a shielded room. The EUT was connected to AC power source through an Artificial Mains Network which provides a 50Ω linear impedance Artificial hand is used if appropriate (for handheld apparatus). The load/control terminal disturbance voltage was measured with passive voltage probe if appropriate.

The vertical conducting plane or wall of a screened room shall be located 40 cm to the rear of the EUT. All other surfaces of tabletop EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs The table-top EUT was placed on a 0.8m high non-metallic table above earthed ground plane(Ground Reference Plane).And for floor standing EUT, was placed on a 12mm high non-metallic supported on GRP. The Artificial Mains Network is situated at a distance of 0.8m from the EUT.

During the test, mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

The bandwidth of test receiver was set at 9 kHz. The frequency range from 150 kHz to 30MHz was checked.

4.1.4 Test Data

At main terminal: Pass

Operation Mode: LED light on

L line:

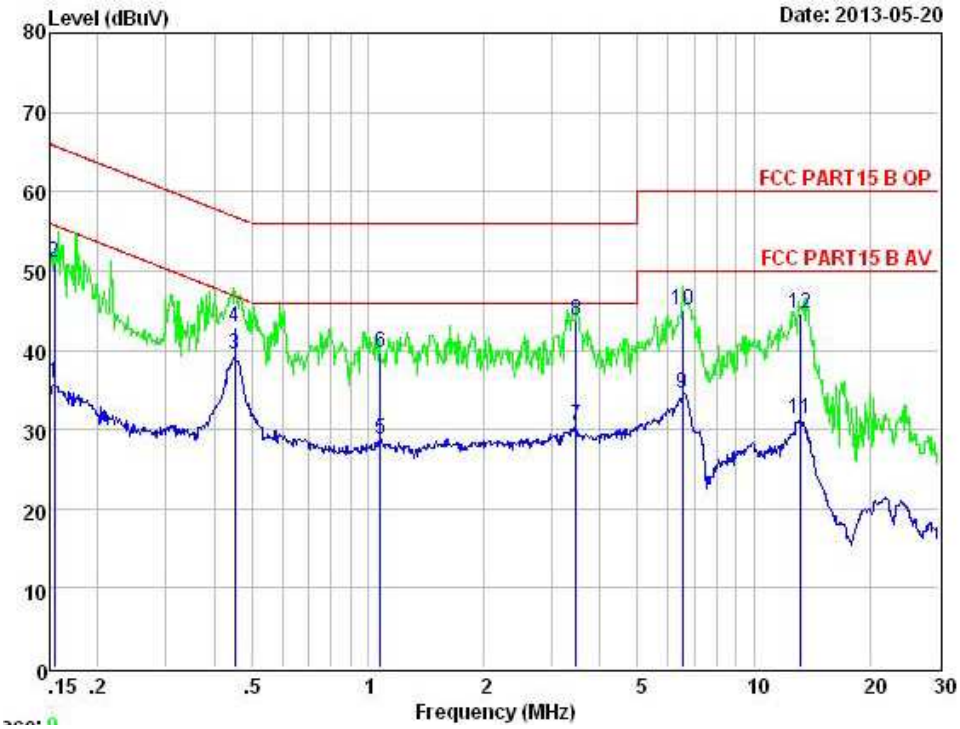
Frequency	Quasi-Peak		Average	
MHz	Disturbance Level dBuV	Permitted limit dBuV	Disturbance Level dBuV	Permitted limit dBuV
0.154	50.97	65.78	35.76	55.78
0.452	43.00	56.85	39.50	46.85
1.077	39.65	56.00	28.77	46.00
3.454	43.67	56.00	30.48	46.00
6.523	45.00	60.00	34.62	50.00
13.127	44.64	60.00	31.28	50.00

N line:

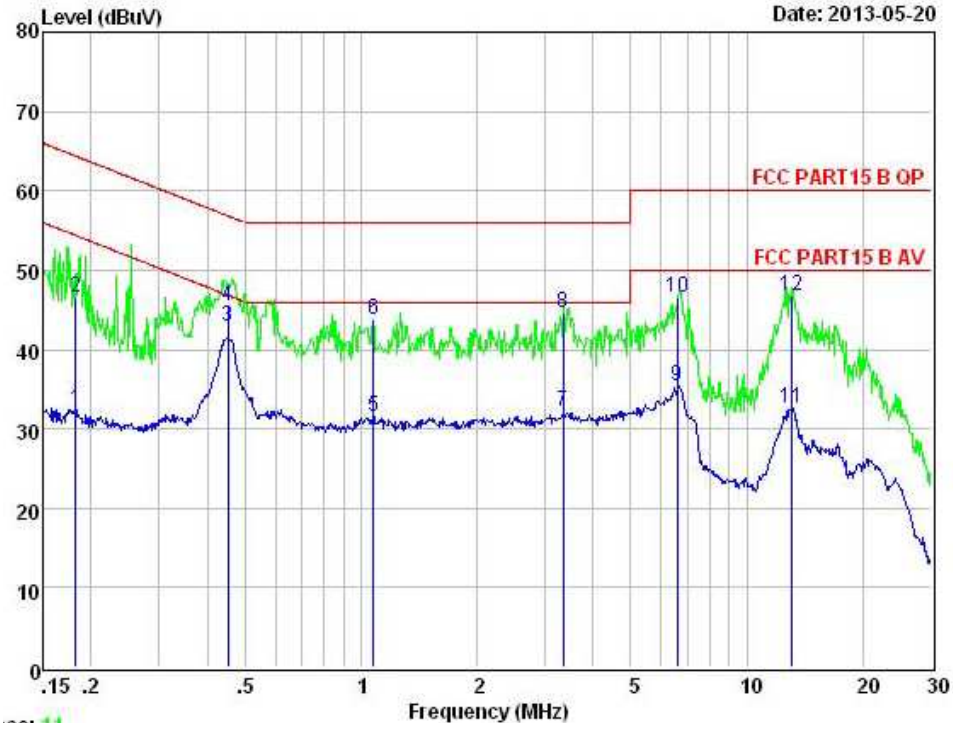
Frequency	Quasi-Peak		Average	
MHz	Disturbance Level dBuV	Permitted limit dBuV	Disturbance Level dBuV	Permitted limit dBuV
0.182	46.64	64.37	32.33	54.37
0.452	45.50	56.85	42.80	46.85
1.077	43.65	56.00	31.58	46.00
3.346	44.61	56.00	32.19	46.00
6.592	46.65	60.00	35.39	50.00
12.988	46.70	60.00	32.69	50.00

4.1.5 Emission Curve

Tested Wire: Live



Tested Wire: Neutral



4.1.6 Measurement Uncertainty

Uncertainty: 2.50 dB at a level of confidence of 95%

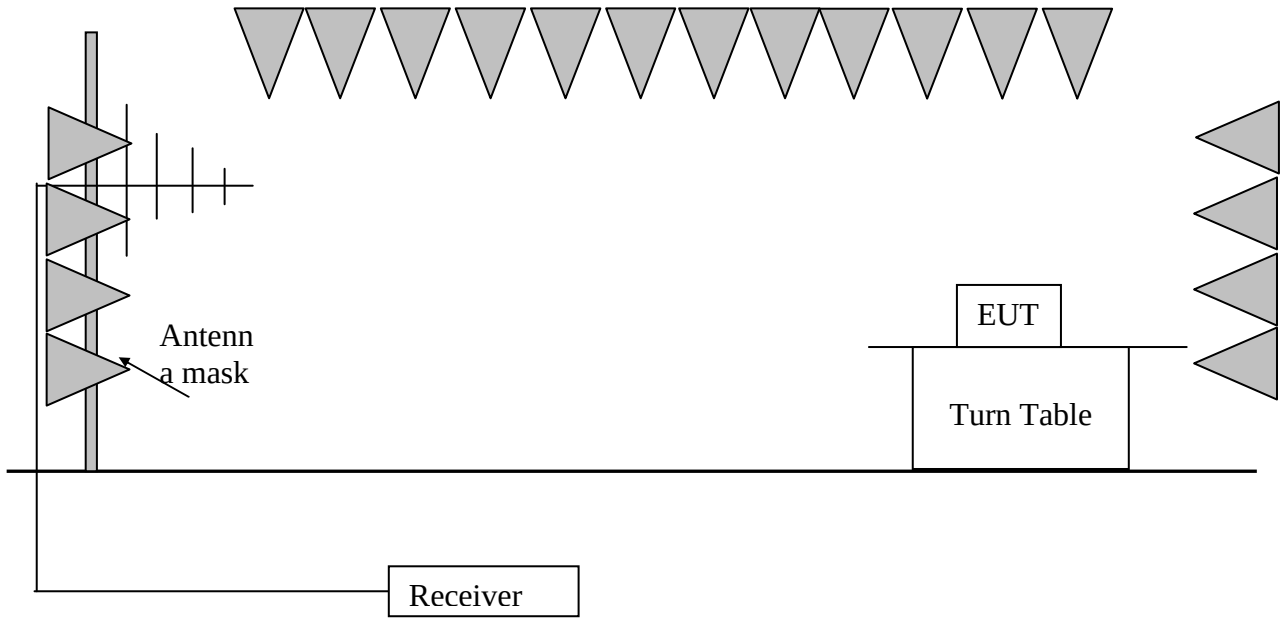
4.2 Radiated Emission

Test Result: Pass

4.2.1 Used Test Equipment

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
101156	EMI Test Receiver	Rohde&Schwarz	ESCI	07 Jul 2012	07 Jul 2013
00135452	Bilog Antenna	ETS-LINDGREN	3142D	28 Jun. 2012	28 Jun 2013
3911A04271	Spectrum Analyzer	Agilent	8593E	28 Nov. 2012	28 Nov. 2013
KW01	3m Semi-anechoic Chamber	ETS-LINDGREN	966	07 Jul 2012	07 Jul 2013
187303	Signal Amplifier	SONOMA	310	07 Jul 2012	07 Jul 2013
966 Cable 1#	RF Cable	IMRO	IMRO-400	07 Jul 2012	07 Jul 2013
11003	Horn Antenna	DAZE	ZN30701	11 Jul 2012	11 Jul 2013
11001	Signal Amplifier	DAZE	ZN3380C	07 Jul 2012	07 Jul 2013
966 Cable 1#	RF Cable	IMRO	IMRO-400	07 Jul 2012	07 Jul 2013

4.2.2 Block Diagram of Test Setup



4.2.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG + AV

→ FS = RA + Correct Factor + AV

where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
AV = Average Factor in -dB
Correct Factor = AF + CF – AG

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

FS = RA + Correct Factor + AV

Assume a receiver reading of 52.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 52.0 dBµV/m
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
AV = -5.0 dB
Correct Factor = -20
FS = 52.0 - 20 -5.0 = 27.0 dBµV/m

Level in µV/m = Common Antilogarithm [(27 dBµV/m)/20] = 22.4 µV/m

4.2.4 Test Setup and Procedure

The measurement was applied in a 3 m semi-anechoic chamber. The EUT was placed on a 12mm thick insulating material above the reference ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mask. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.

Broadband antenna was used as receiving antenna. Both horizontal and vertical polarization of the antenna was set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 requirement during radiated test. The bandwidth setting on R&S Test Receiver was 120 kHz. The frequency range from 30MHz to 2000MHz was checked

4.2.5 Test Data

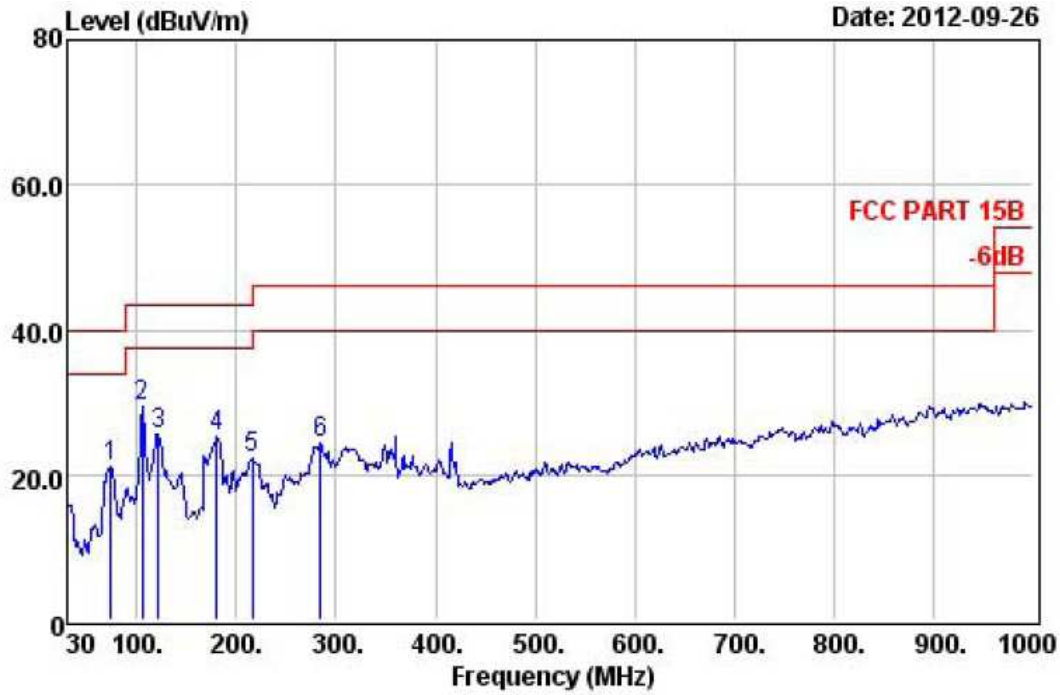
Radiated Emissions
Pursuant to FCC 15.109: Emissions Requirement: 30MHz-1GHz

Polarization	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	63.95	55.50	-23.19	32.31	40.00	-7.69
Horizontal	105.66	49.61	-20.87	28.74	43.50	-14.76
Horizontal	144.46	38.06	-21.34	16.72	43.50	-26.78
Vertical	57.16	59.82	-22.88	36.94	40.00	-3.06
Vertical	63.95	58.80	-23.19	35.61	40.00	-4.39
Vertical	117.30	60.84	21.50	39.34	43.50	-4.16

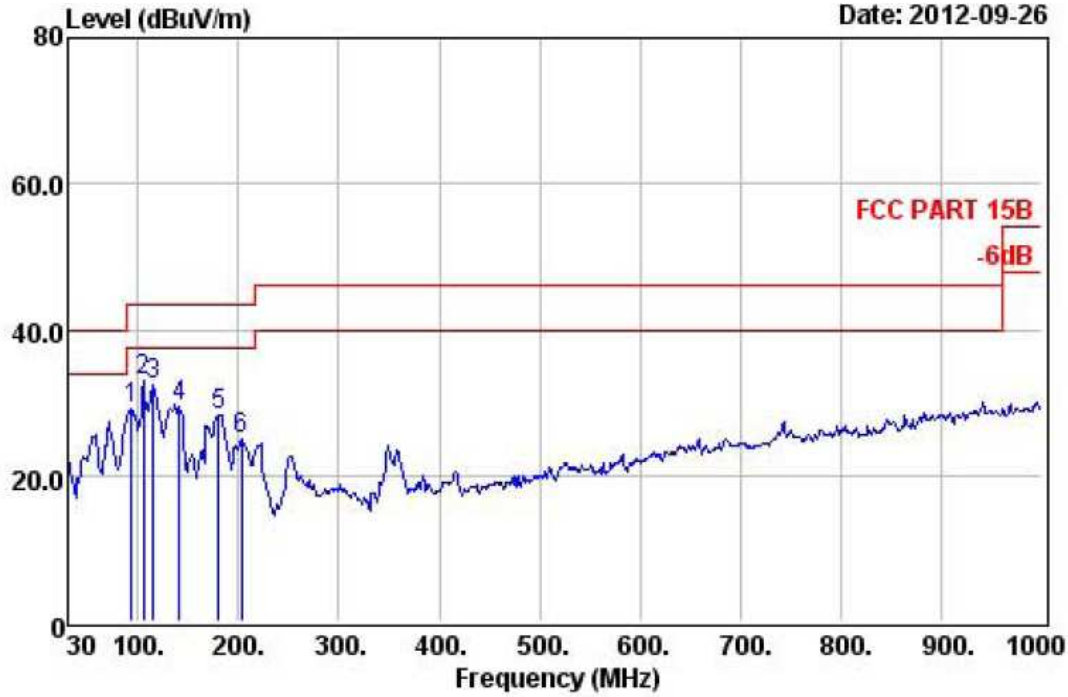
Notes:
1. Quasi-peak detector was used at below 1GHz, peak detector was used at above 1GHz.
2. All measurements were made at 3 meter.
3. Negative value in the margin column shows emission below limit.
4. When tested above 1GHz, the emissions found were at least 20 dB below the limit.

4.2.6 Test Curve

Horizontal:



Vertical:



4.2.7 Measurement uncertainty

Uncertainty: 3.2 dB at a level of confidence of 95%