Report No: CCIS12090016103

FCC REPORT

Applicant:	SUNUP MECHA-ELECTRONIC EQUIPMENT CO.,LTD
Address of Applicant:	517 Room F building, Taoyuan Road No.1, Nanshan district, Shenzhen, China

Equipment Under Test (EUT)

Product Name:	MAG CUBE
Model No.:	CRCW21PA, CRCW21PX(X=A~Z)
FCC ID:	YPWCRCW21PA
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B: 2010
Date of sample receipt:	14 Sep., 2012
Date of Test:	17 Oct 2012
Date of report issued:	17 Oct., 2012
Test Result :	Pass *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	20 Oct., 2012	*Original*

Prepared By: Joe. Zhou ***Date:*** 20 Oct., 2012

Project Engineer

Check By: Bruce Zhang ***Date:*** 20 Oct., 2012

Reviewer

3 Contents

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4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	Pass
Readiated Emissions	Part15.109	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	SUNUP MECHA-ELECTRONIC EQUIPMENT CO.,LTD
Address of Applicant:	517 Room F building, Taoyuan Road No.1, Nanshan district, Shenzhen, China
Manufacturer:	SUNUP MECHA-ELECTRONIC EQUIPMENT CO.,LTD
Address of Manufacturer:	517 Room F building, Taoyuan Road No.1, Nanshan district, Shenzhen, China
Factory:	SUNUP MECHA-ELECTRONIC EQUIPMENT CO.,LTD
Address of Factory:	517 Room F building, Taoyuan Road No.1, Nanshan district, Shenzhen, China

5.2 General Description of E.U.T.

Product Name:	MAG CUBE
Model No.:	CRCW21PA, CRCW21PX(X=A~Z)
Power supply:	DC 5V from USB port
Remark	Only the model No. CRCW21PA was tested , CRCW21PA and CRCW21PX(X=A~Z) were identical inside, since the electrical circuit design, layout, components used and internal wiring were identical for the above items, with only difference being the model name for the marketing requirement, CRCW21PX(X=A~Z), X:delegate different sales territory).

5.3 Operating Modes

Operating mode	Detail description
PC mode :	Keep the EUT in downloading with SD and music paly from the USB port

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
HP	Printer	P1007	VNFP409729	DoC
HP	PC	Pro 2000MT	N/A	DoC
HP	MONITOR	CompaqLE1851WL	515682-070	DoC
HP	KEYBOARD	SK-2880	434820-AA2	DoC
HP	MOUSE	MOC5UO	N/A	DoC

5.5 Deviation from Standards

None

5.6 Abnormalities from Standard Conditions

None.

5.7 Other Information Requested by the Customer

None.

5.8 Test Facility

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

- **FCC —Registration No.:** 817957

China Certification & Inspection Services Co., Ltd., Shenzhen 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 out files. Registration 817957, February 27, 2012

- **Industry Canada (IC)**

The 3m Semi-anechoic chamber of China Certification & Inspection Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

5.9 Test Location

All tests were performed at:

China Certification & Inspection Services Co., Ltd.
Address: 1st Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China
Tel: 0755-23118282
Fax: 0755-23116366

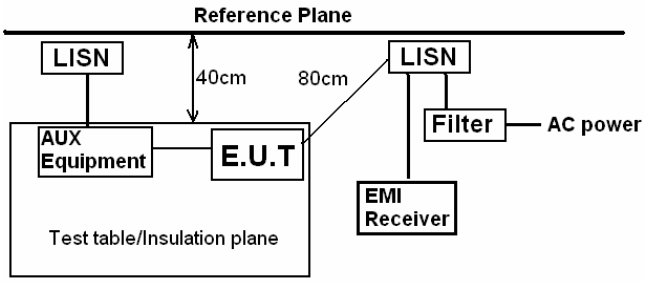
6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	June 09 2012	June 09 2013
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS202	N/A	N/A
3	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	June 04 2012	June 04 2013
4	Double –ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 30 2012	May 30 2013
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
6	Coaxial Cable	CCIS	N/A	CCIS0016	Apr. 01 2012	Apr. 01 2013
7	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2012	Apr. 01 2013
8	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2012	Apr. 01 2013
9	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2012	Apr. 01 2013
10	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2012	Apr. 01 2013
11	Amplifier(10KHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2012	Apr. 01 2013
12	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2012	June 09 2013
13	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Apr. 01 2012	Mar. 31 2013
14	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2012	Mar. 29 2013
15	Coaxial Cable	CCIS	N/A	CCIS0095	Apr. 01 2012	Apr. 01 2013

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	June 09 2012	June 09 2013
2	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2012	Apr 01 2013
3	LISN	CHASE	MN2050D	CCIS0074	Apr 01 2012	Apr 01 2013
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2012	Apr. 01 2013
5	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	June 09 2012	June 09 2013
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

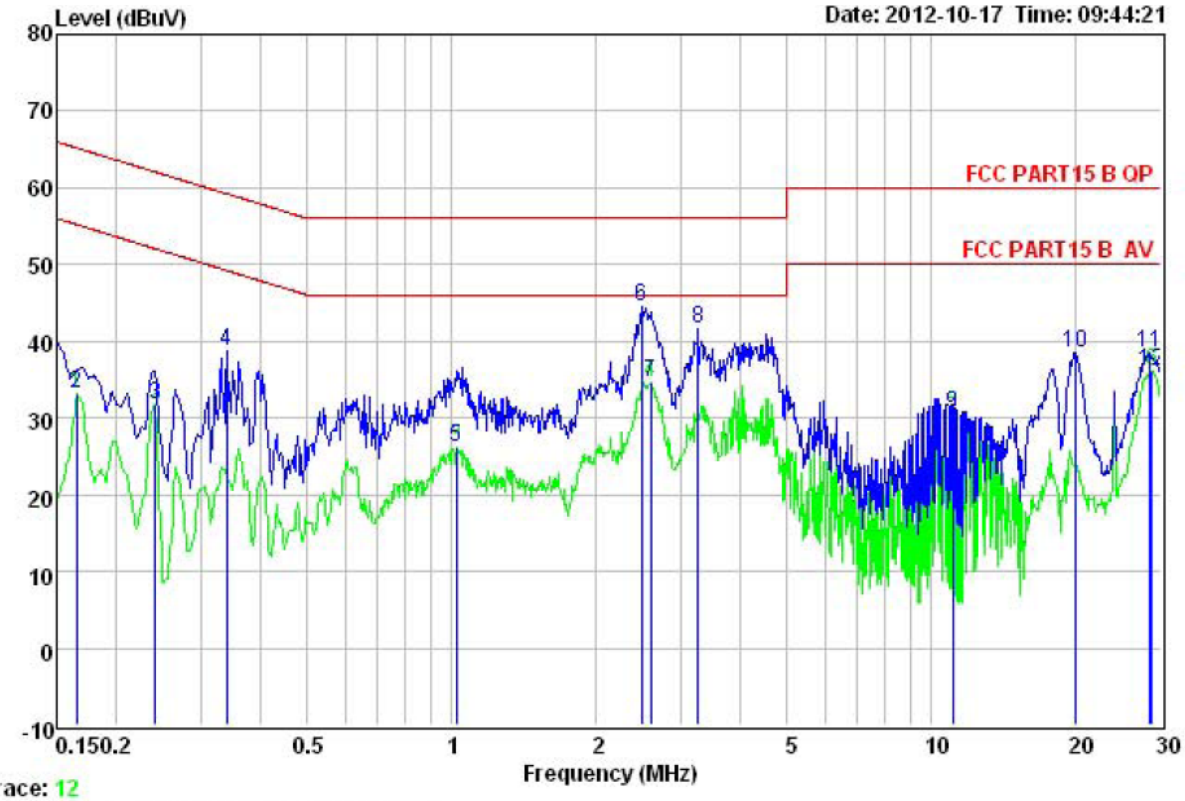
7 Test results and Measurement Data

7.1 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107
Test Method:	ANSI C63.4:2003
Test Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9kHz, VBW=30kHz
Limit:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBµV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>0.5-30</td><td>60</td><td>50</td></tr></table>
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: 3.28dB
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement data:

Line:

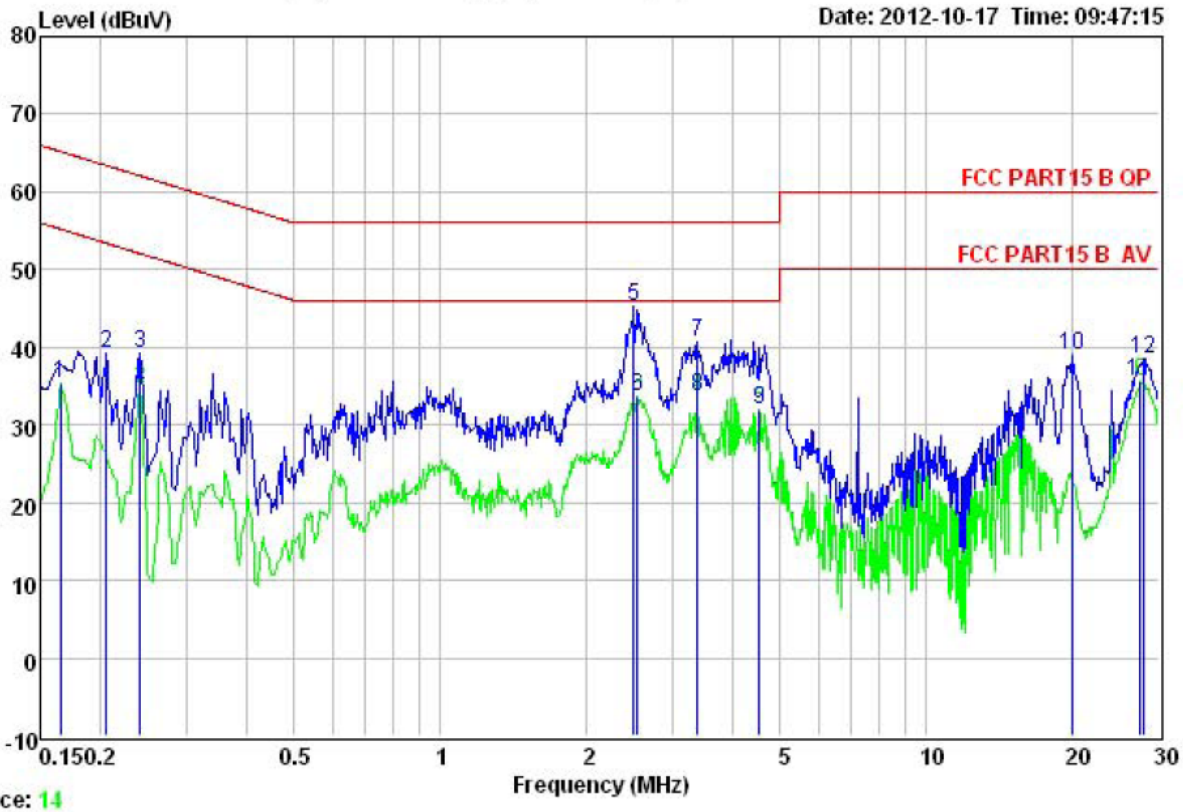


Trace: 12

Site : CCIS Conducted Test Site
Condition : FCC PART15 B QP LISN LINE
Job NO. : 161RF
Test Mode : pc mode
Test engieer: Joe

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.150	28.87	10.25	0.79	39.91	66.00	-26.09	QP
2	0.165	22.27	10.24	0.78	33.29	55.21	-21.92	Average
3	0.240	20.86	10.23	0.75	31.84	52.08	-20.24	Average
4	0.339	27.68	10.27	0.73	38.68	59.22	-20.54	QP
5	1.021	15.08	10.21	0.86	26.15	46.00	-19.85	Average
6	2.487	33.31	10.28	0.95	44.54	56.00	-11.46	QP
7	2.594	23.42	10.28	0.94	34.64	46.00	-11.36	Average
8	3.258	30.39	10.29	0.90	41.58	56.00	-14.42	QP
9	11.080	19.27	10.25	0.93	30.45	50.00	-19.55	Average
10	19.845	27.32	10.33	0.93	38.58	60.00	-21.42	QP
11	28.452	26.83	10.78	0.87	38.48	60.00	-21.52	QP
12	28.755	24.46	10.81	0.87	36.14	50.00	-13.86	Average

Neutral:



Trace: 14

Site : CCIS Conducted Test Site
Condition : FCC PART15 B QP LISN NEUTRAL
Job NO. : 161RF
Test Mode : pc mode
Test engieer: Joe

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.165	24.32	10.26	0.78	35.36	55.21	-19.85	Average
2	0.205	28.34	10.23	0.76	39.33	63.40	-24.07	QP
3	0.240	28.27	10.23	0.75	39.25	62.08	-22.83	QP
4	0.240	23.77	10.23	0.75	34.75	52.08	-17.33	Average
5	2.500	34.02	10.27	0.94	45.23	56.00	-10.77	QP
6	2.540	22.40	10.27	0.94	33.61	46.00	-12.39	Average
7	3.381	29.57	10.28	0.90	40.75	56.00	-15.25	QP
8	3.381	22.50	10.28	0.90	33.68	46.00	-12.32	Average
9	4.525	20.74	10.28	0.88	31.90	46.00	-14.10	Average
10	19.845	27.69	10.34	0.93	38.96	60.00	-21.04	QP
11	27.562	24.00	10.72	0.87	35.59	50.00	-14.41	Average
12	28.003	26.85	10.75	0.87	38.47	60.00	-21.53	QP

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

7.2 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109
Test Method:	ANSI C63.4:2003
Test Frequency Range:	30MHz to 6000MHz
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver setup:

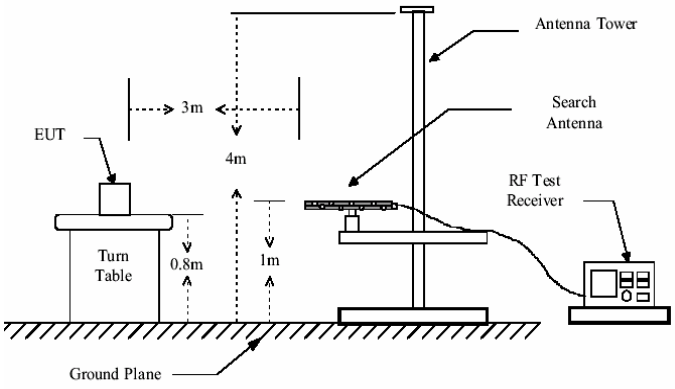
Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

Limit:

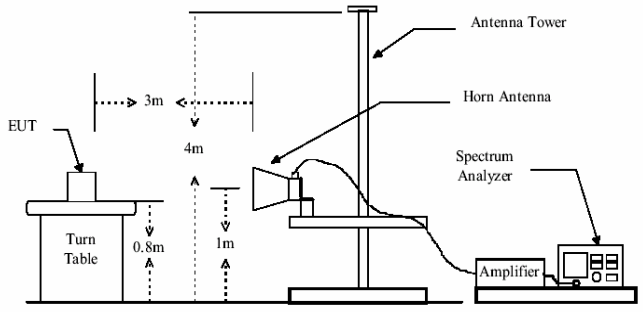
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test setup:

Below 1GHz



Above 1GHz

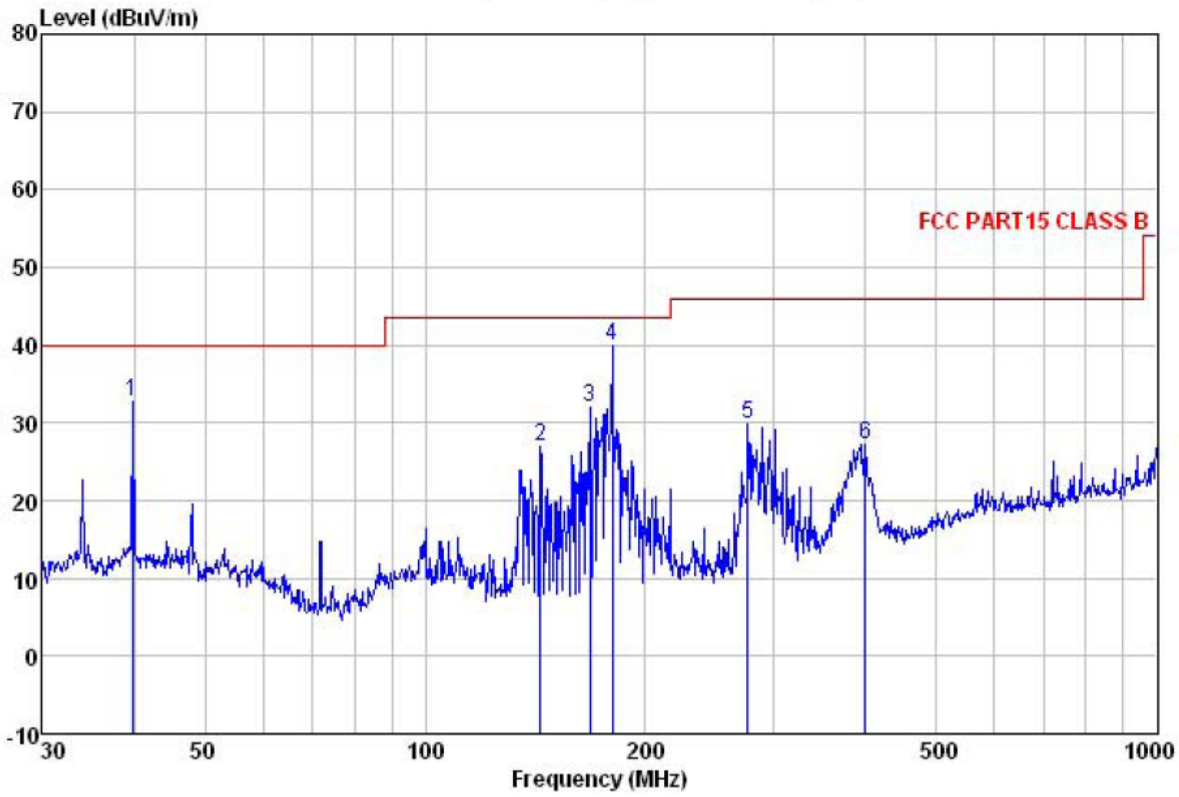


Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: 4.88dB
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Below 1G

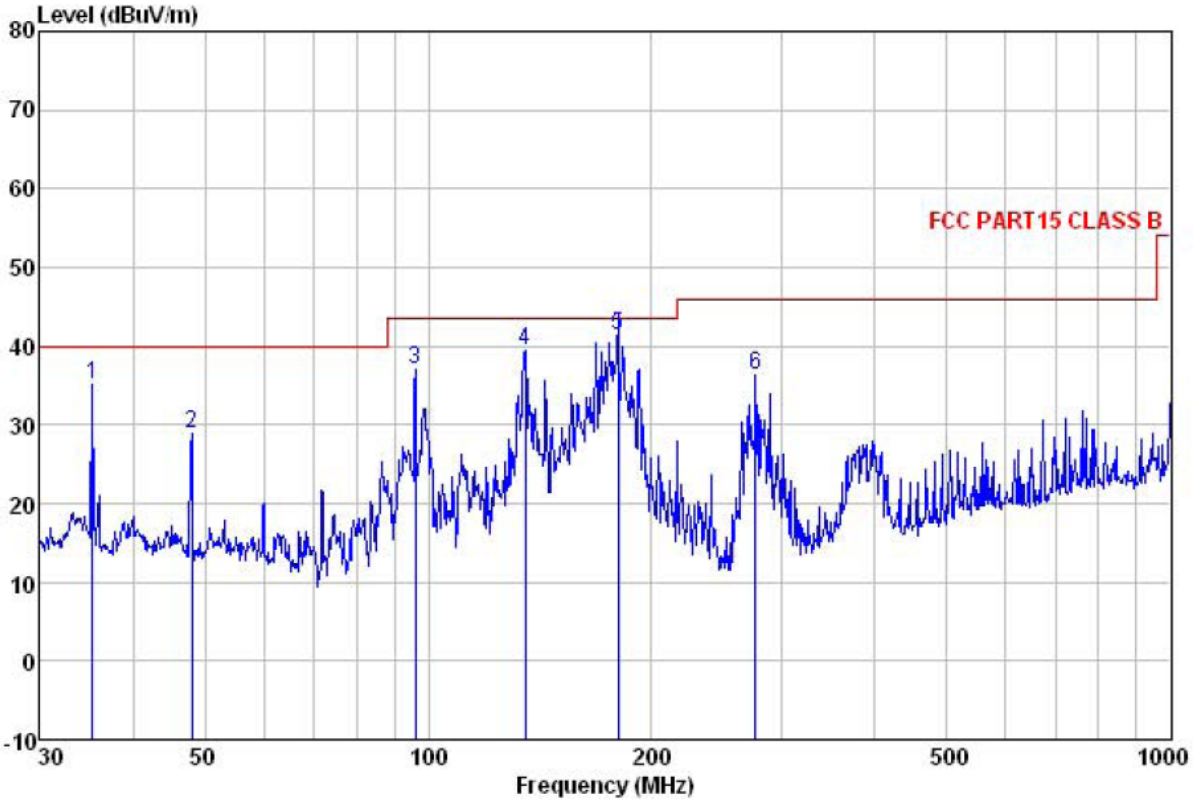
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(2012.4.1) HORIZONTAL
Job No. : 161RF
Test mode : pc mode
Test Engineer: Joe

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	39.854	45.15	13.53	1.21	27.24	32.65	40.00	-7.35	QP
2	143.830	45.62	8.22	2.44	29.32	26.96	43.50	-16.54	QP
3	167.824	49.55	8.90	2.64	29.01	32.08	43.50	-11.42	QP
4	180.017	54.06	9.68	2.73	26.51	39.96	43.50	-3.54	QP
5	276.124	44.00	12.55	2.88	29.51	29.92	46.00	-16.08	QP
6	399.030	39.03	15.06	3.08	29.89	27.28	46.00	-18.72	QP

Vertical:

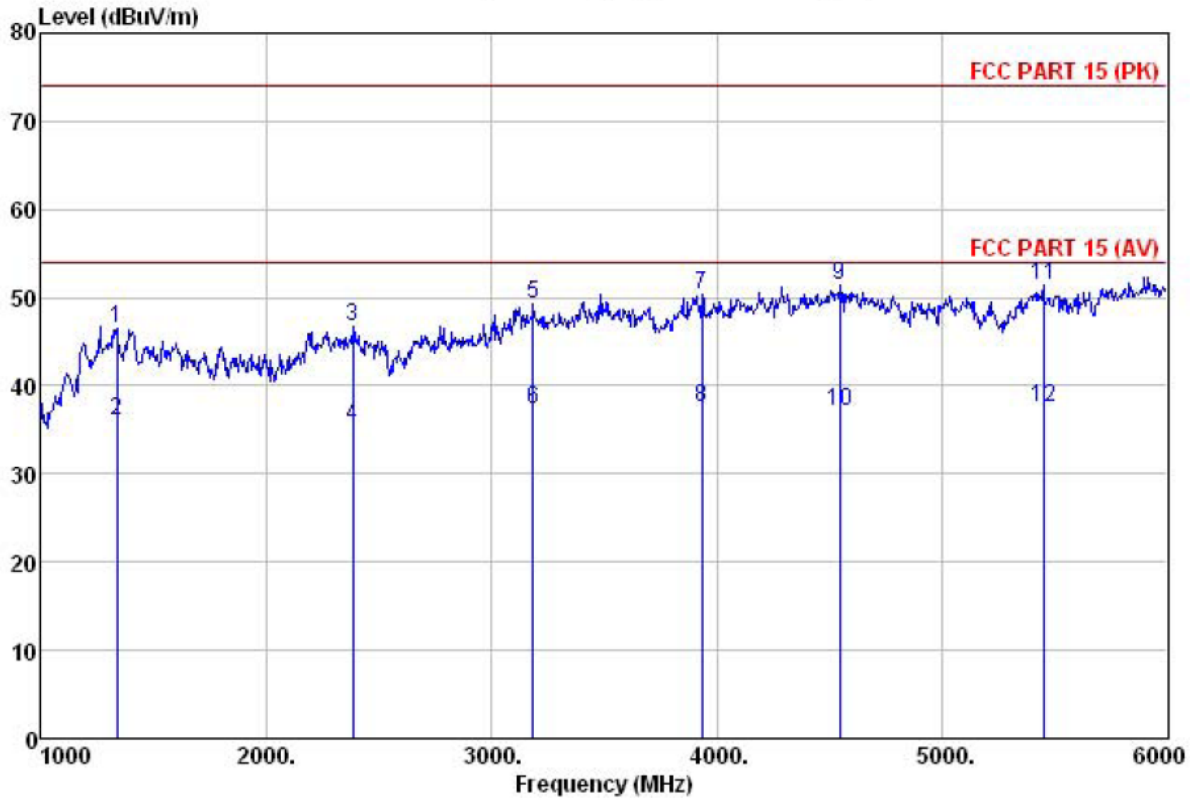


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(2012.4.1) VERTICAL
Job No. : 161RF
Test mode : pc mode
Test Engineer: Joe

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	35.251	48.44	12.39	1.07	26.82	35.08	40.00	-4.92	QP
2	47.994	42.35	13.36	1.27	28.10	28.88	40.00	-11.12	QP
3	96.099	52.15	12.90	2.00	30.08	36.97	43.50	-6.53	QP
4	135.032	58.05	8.56	2.34	29.45	39.50	43.50	-4.00	QP
5	180.017	55.46	9.68	2.73	26.51	41.36	43.50	-2.14	QP
6	276.124	50.47	12.55	2.88	29.51	36.39	46.00	-9.61	QP

Above 1G

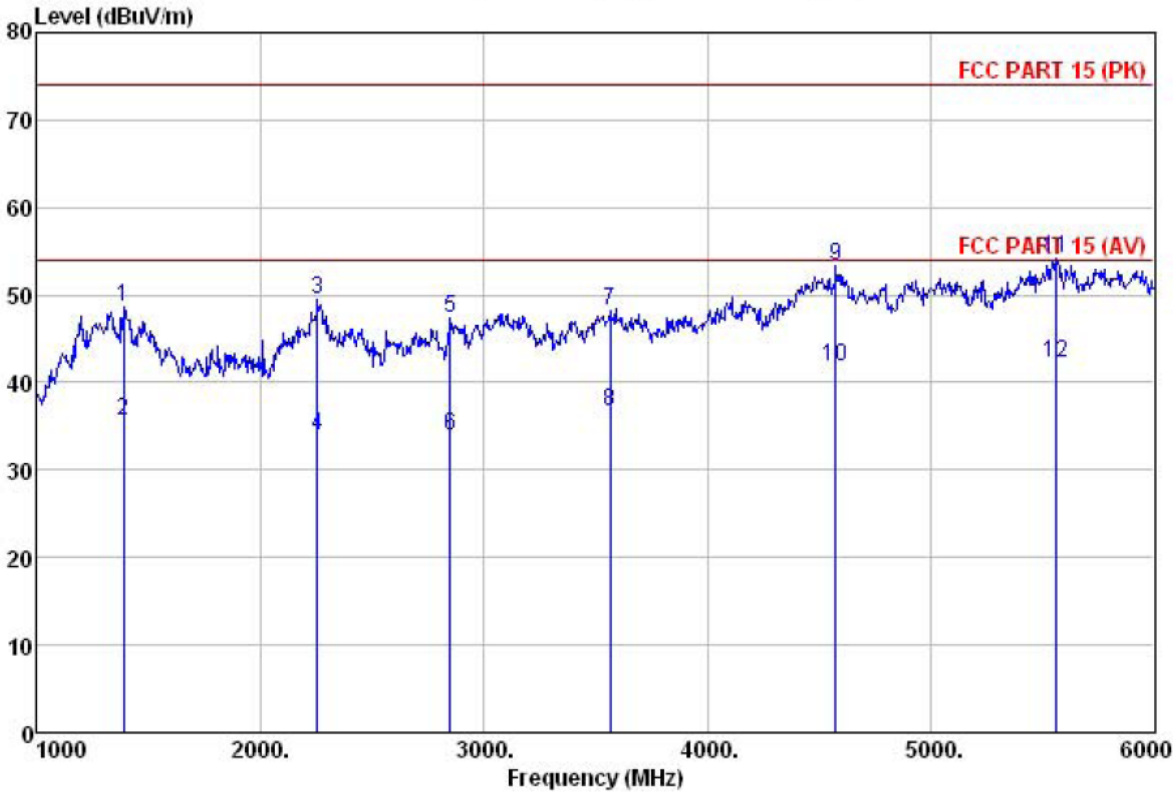
Vertical:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(>1GHZ) VERTICAL
Job No. : 161RF
Test mode : pc mode
Test Engineer: Joe

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1335.000	38.55	25.65	2.80	20.58	46.42	74.00	-27.58	Peak
2	1335.000	28.19	25.65	2.80	20.58	36.06	54.00	-17.94	Average
3	2385.000	45.41	27.58	3.81	30.15	46.65	74.00	-27.35	Peak
4	2385.000	34.16	27.58	3.81	30.15	35.40	54.00	-18.60	Average
5	3185.000	45.12	28.76	4.55	29.20	49.23	74.00	-24.77	Peak
6	3185.000	33.16	28.76	4.55	29.20	37.27	54.00	-16.73	Average
7	3935.000	42.23	29.78	5.23	26.80	50.44	74.00	-23.56	Peak
8	3935.000	29.36	29.78	5.23	26.80	37.57	54.00	-16.43	Average
9	4545.000	39.35	30.86	5.70	24.45	51.46	74.00	-22.54	Peak
10	4545.000	25.10	30.86	5.70	24.45	37.21	54.00	-16.79	Average
11	5450.000	36.94	31.99	6.25	23.81	51.37	74.00	-22.63	Peak
12	5450.000	23.14	31.99	6.25	23.81	37.57	54.00	-16.43	Average

Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(>1GHZ) HORIZONTAL
Job No. : 161RF
Test mode : pc mode
Test Engineer: Joe

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1385.000	41.68	25.50	2.86	21.39	48.65	74.00	-25.35	Peak
2	1385.000	28.60	25.50	2.86	21.39	35.57	54.00	-18.43	Average
3	2255.000	48.32	28.02	3.72	30.50	49.56	74.00	-24.44	Peak
4	2255.000	32.65	28.02	3.72	30.50	33.89	54.00	-20.11	Average
5	2850.000	44.98	28.38	4.20	30.10	47.46	74.00	-26.54	Peak
6	2850.000	31.50	28.38	4.20	30.10	33.98	54.00	-20.02	Average
7	3565.000	41.91	29.11	4.92	27.78	48.16	74.00	-25.84	Peak
8	3565.000	30.50	29.11	4.92	27.78	36.75	54.00	-17.25	Average
9	4575.000	41.14	30.92	5.72	24.43	53.35	74.00	-20.65	Peak
10	4575.000	29.60	30.92	5.72	24.43	41.81	54.00	-12.19	Average
11	5560.000	39.55	32.09	6.31	23.81	54.14	74.00	-19.86	Peak
12	5560.000	27.59	32.09	6.31	23.81	42.18	54.00	-11.82	Average

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor