FCC Report

Applicant:	Rockioo Technology Co., Ltd.
Address of Applicant:	Room B101,Building 1,Phase III,1980 Cultural and Creative Park, Minzhi, Longhua, Shenzhen, China,518000

Equipment Under Test (EUT)

Product Name:	ROCKIOO WATCH
Model No.:	R1
Trade mark:	ROCKIOO
FCC ID:	2AEGL-R1
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B:2014
Date of sample receipt:	May 08, 2015
Date of Test:	May 11-15, 2015
Date of report issue:	May 18, 2015
Test Result :	PASS *

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

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*May 18, 2015*	*Original*

Prepared By: Edward.Pan ***Date:*** *May 18, 2015*

Project Engineer

Check By: hank.yan ***Date:*** *May 18, 2015*

Reviewer

3 Contents

4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	PASS
Radiated Emissions	Part15.109	PASS

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

Remark: Test according to ANSI C63.4:2009

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

5 General Information

5.1 Client Information

Applicant:	Rockioo Technology Co., Ltd.
Address of Applicant:	Room B101,Building 1,Phase III,1980 Cultural and Creative Park, Minzhi, Longhua, Shenzhen, China,518000
Manufacturer/Factory:	Rockioo Technology Co., Ltd.
Address of Manufacturer/Factory:	Room B101,Building 1,Phase III,1980 Cultural and Creative Park, Minzhi, Longhua, Shenzhen, China,518000

5.2 General Description of EUT

Product Name:	ROCKIOO WATCH
Model No.:	R1
Power supply:	DC 3.7V Li-ion Battery

5.3 Test mode

Test mode:	
Playing mode	Keep the EUT in Playing mode
PC mode	Keep the EUT in exchanging data mode.

5.4 Test Facility

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

● **CNAS —Registration No.: CNAS L5775**

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 28, 2013.

● **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: Room 301-309, 3th Floor, Block A, Huafeng Jinyuan Business Building, No. 300 Laodong Industrial Zone,Xixiang Road, Baoan District, Shenzhen 518102
Tel: 0755-27798480
Fax: 0755-27798960

5.6 Description of Support Units

Manufacturer	Description	Model	Serial Number
Apple	PC	A1278	C1MN99ERDTY3
DELL	KEYBOARD	SK-8115	N/A
DELL	MOUSE	MOC5UO	N/A
Emerson Network Power	USB Charger	A1299	N/A

5.7 Deviation from Standards

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna.
Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

6 Test Instruments list

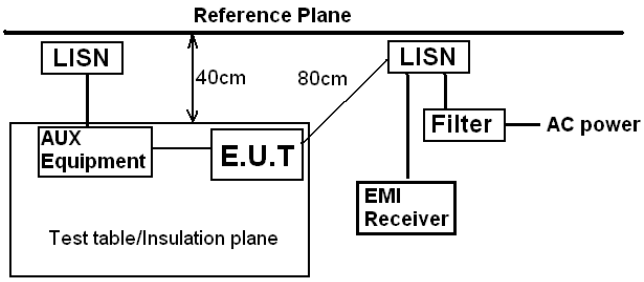
Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	Mar. 27 2015	Mar. 26 2016
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	July 01 2014	June 30 2015
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	July 01 2014	June 30 2015
5	Double -ridged waveguide horn	SCHWARZBECK	9120D	GTS208	June 27 2014	June 26 2015
6	RF Amplifier	HP	8347A	GTS204	July 01 2014	June 30 2015
7	Preamplifier	HP	8349B	GTS206	July 01 2014	June 30 2015
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	Mar. 28 2015	Mar. 27 2016
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 28 2015	Mar. 27 2016

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 07 2013	Sep. 06 2015
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	July 01 2014	June 30 2015
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	July 01 2014	June 30 2015
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	July 01 2014	June 30 2015
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	July 01 2014	June 30 2015
6	Coaxial Cable	GTS	N/A	GTS227	July 01 2014	June 30 2015
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Barometer	ChangChun	DYM3	GTS257	July 08 2014	July 07 2015

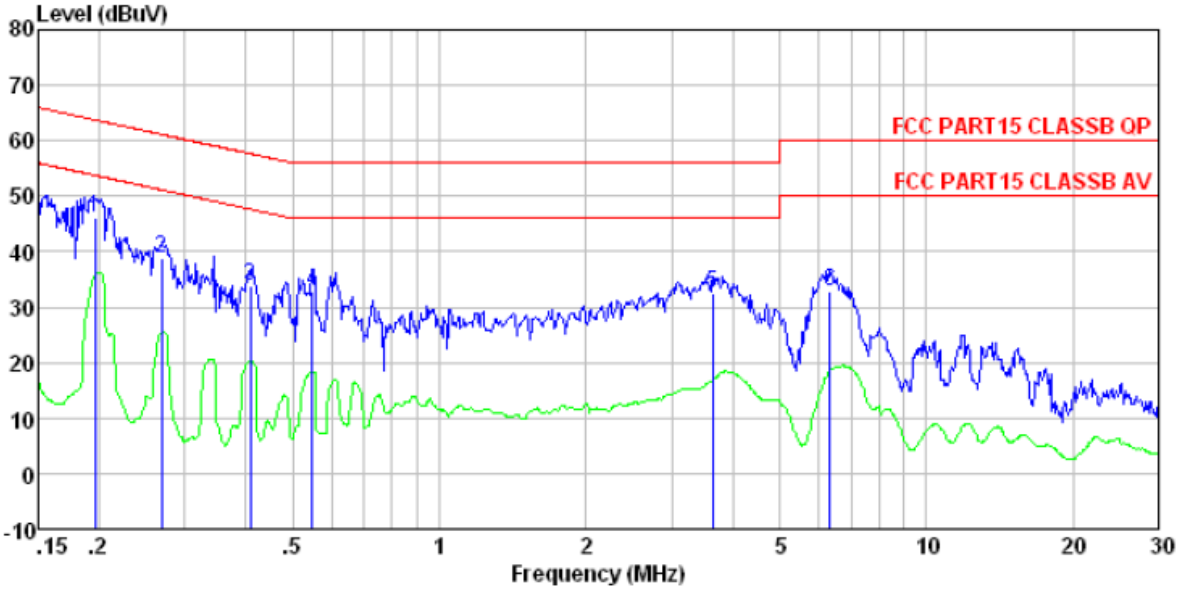
7 Test Results and Measurement Data

7.1 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107
Test Method:	ANSI C63.4:2009
Test Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto
Limit:	Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 * Decreases with the logarithm of the frequency.
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.). This provides 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 refer 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 C63.4:2014 on conducted measurement.
Test Instruments:	Refer to section 6 for details
Test mode:	Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report.
Test results:	Pass

Measurement Data

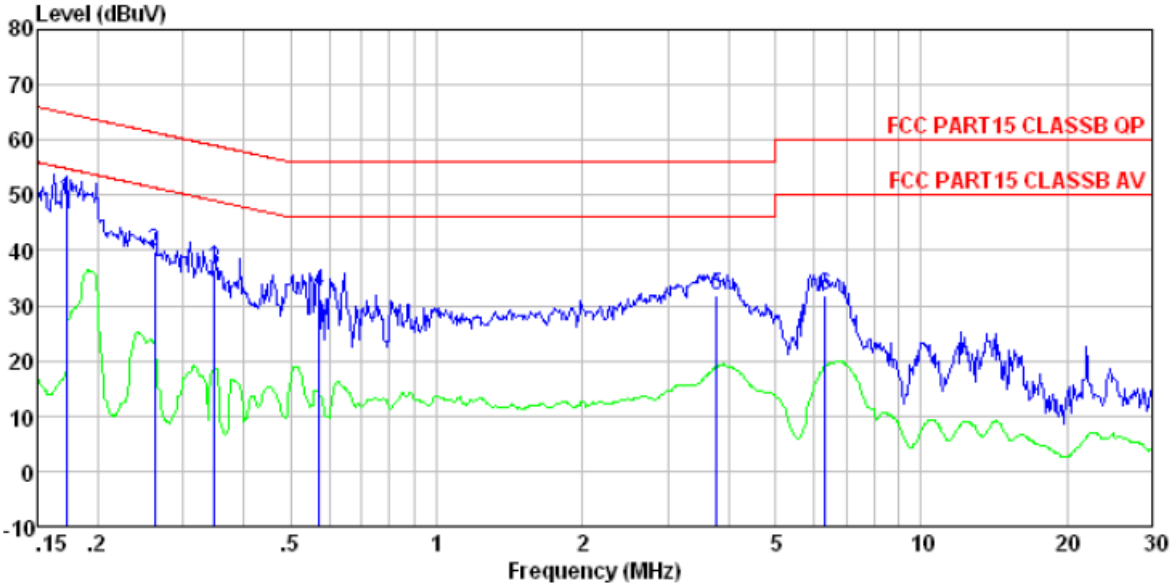
Line:



Condition : FCC PART15 CLASSB QP LISN-2013 LINE
Job No. : 0659RF
Test mode : PC mode
Test Engineer: Qing

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.197	45.79	0.14	0.13	46.06	63.76	-17.70	QP
2	0.269	38.46	0.11	0.11	38.68	61.16	-22.48	QP
3	0.408	33.49	0.11	0.11	33.71	57.68	-23.97	QP
4	0.549	32.67	0.13	0.11	32.91	56.00	-23.09	QP
5	3.642	32.07	0.19	0.15	32.41	56.00	-23.59	QP
6	6.352	32.41	0.23	0.16	32.80	60.00	-27.20	QP

Neutral:



Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL
Job No. : 0659RF
Test mode : PC mode
Test Engineer: Qing

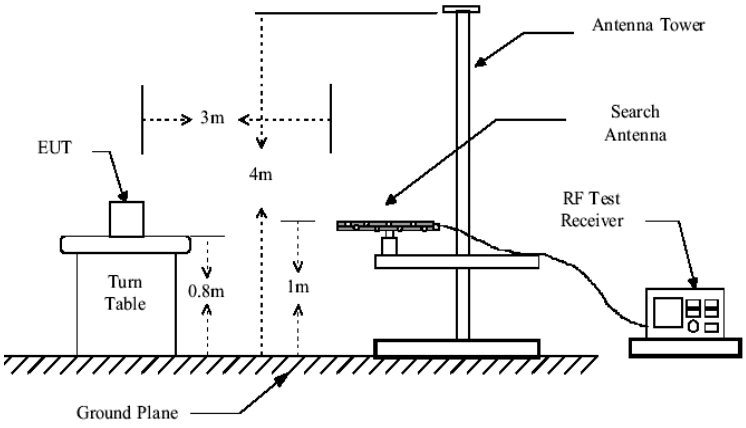
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.172	48.76	0.07	0.12	48.95	64.86	-15.91	QP
2	0.262	39.59	0.06	0.11	39.76	61.38	-21.62	QP
3	0.348	36.48	0.06	0.10	36.64	59.00	-22.36	QP
4	0.573	32.48	0.07	0.12	32.67	56.00	-23.33	QP
5	3.779	31.48	0.14	0.15	31.77	56.00	-24.23	QP
6	6.352	31.55	0.17	0.16	31.88	60.00	-28.12	QP

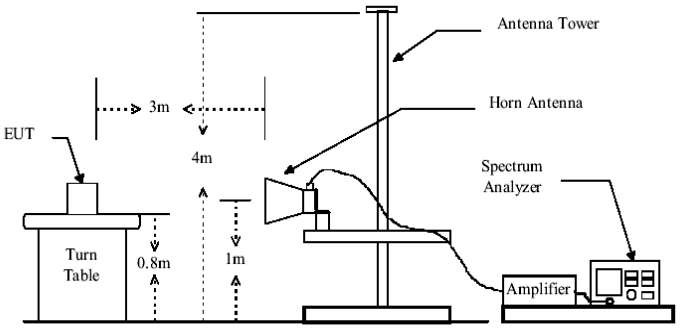
Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

7.2 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 B Section 15.109</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4:2009</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 6GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.00</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.50</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.00</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.00</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.00</td><td>Average Value</td></tr>
<tr><td>74.00</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>
1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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 rota 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.
</td></tr>
<tr><td>Test setup:</td><td>Below 1GHz</td></tr>
</table>

<table>
<tr><td></td><td colspan="6"> 

Above 1GHz

</td></tr>
<tr><td>Test environment:</td><td>Temp.:</td><td>25 °C</td><td>Humid.:</td><td>52%</td><td>Press.:</td><td>1 012mbar</td></tr>
<tr><td>Measurement Record:</td><td colspan="6">Uncertainty: ± 4.5dB</td></tr>
<tr><td>Test Instruments:</td><td colspan="6">Refer to section 6 for details</td></tr>
<tr><td>Test mode:</td><td colspan="6">Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report.</td></tr>
<tr><td>Test results:</td><td colspan="6">Pass</td></tr>
</table>

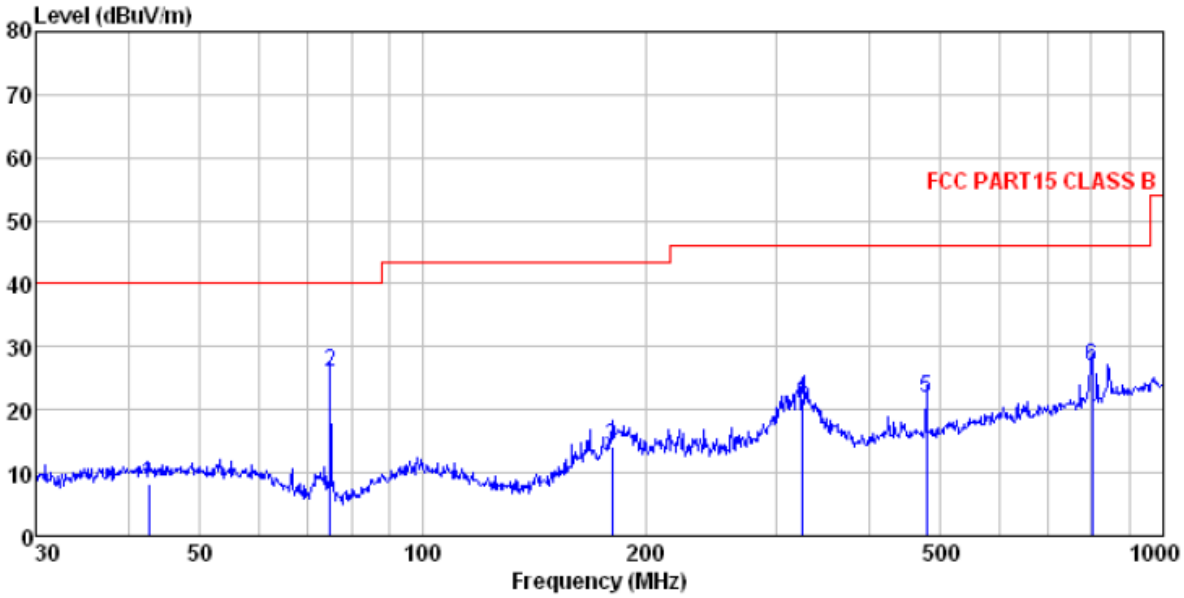
Note:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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

Measurement Data

Below 1GHz

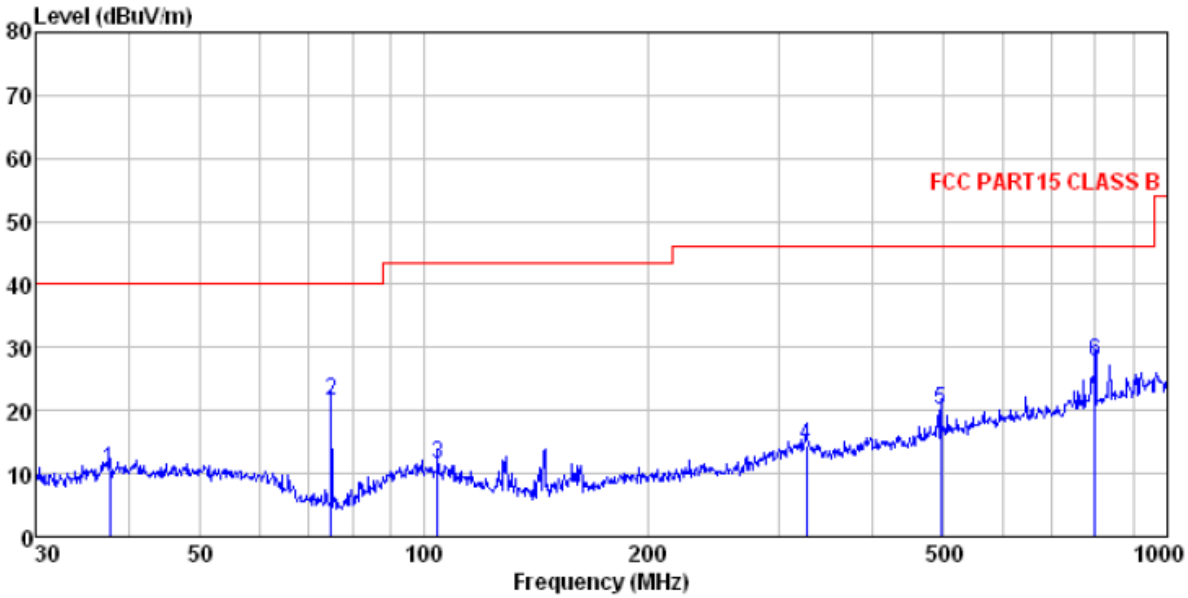
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163-2013M HORIZONTAL
Job No. : 0659RF
Test Mode : PC mode
Test Engineer: Chen

	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	42.600	22.18	15.56	0.69	30.03	8.40	40.00	-31.60	QP
2	74.919	44.95	9.80	0.98	29.83	25.90	40.00	-14.10	QP
3	180.017	30.13	11.68	1.74	29.27	14.28	43.50	-29.22	QP
4	325.596	33.59	15.59	2.49	29.85	21.82	46.00	-24.18	QP
5	478.846	29.86	18.07	3.22	29.34	21.81	46.00	-24.19	QP
6	801.786	29.58	22.06	4.46	29.20	26.90	46.00	-19.10	QP

Vertical:

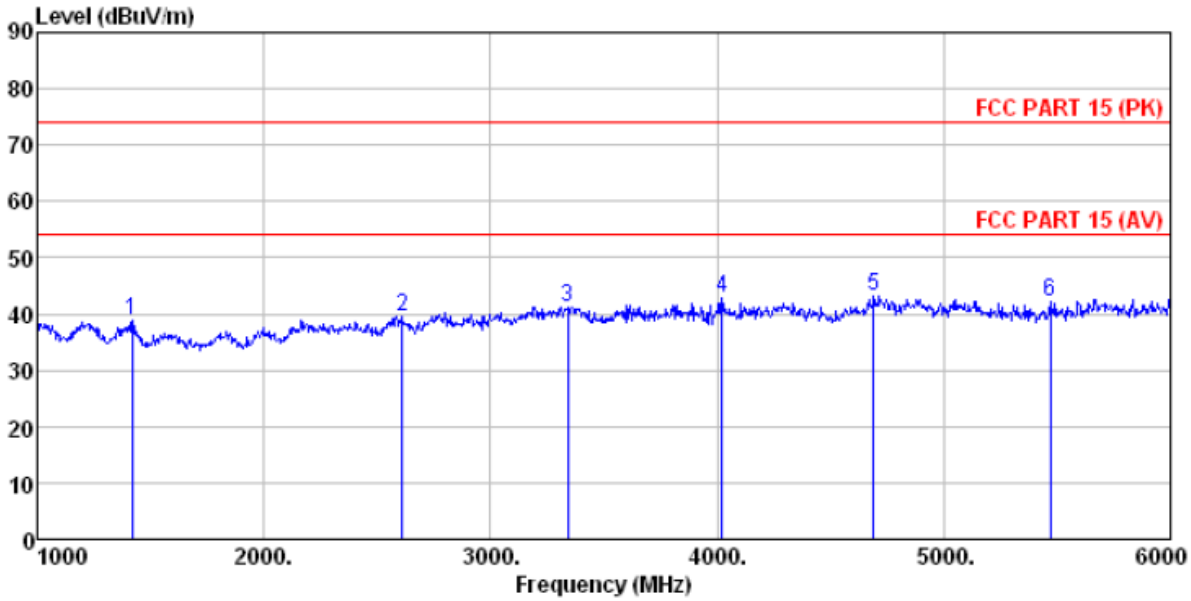


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163-2013M VERTICAL
Job No. : 0659RF
Test Mode : PC mode
Test Engineer: Chen

	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	37.812	24.91	15.06	0.64	30.06	10.55	40.00	-29.45	QP
2	74.919	40.50	9.80	0.98	29.83	21.45	40.00	-18.55	QP
3	104.170	25.30	14.78	1.23	29.67	11.64	43.50	-31.86	QP
4	326.740	26.13	15.59	2.50	29.85	14.37	46.00	-31.63	QP
5	495.934	27.47	18.52	3.29	29.31	19.97	46.00	-26.03	QP
6	798.980	30.37	22.06	4.45	29.20	27.68	46.00	-18.32	QP

Above 1GHz

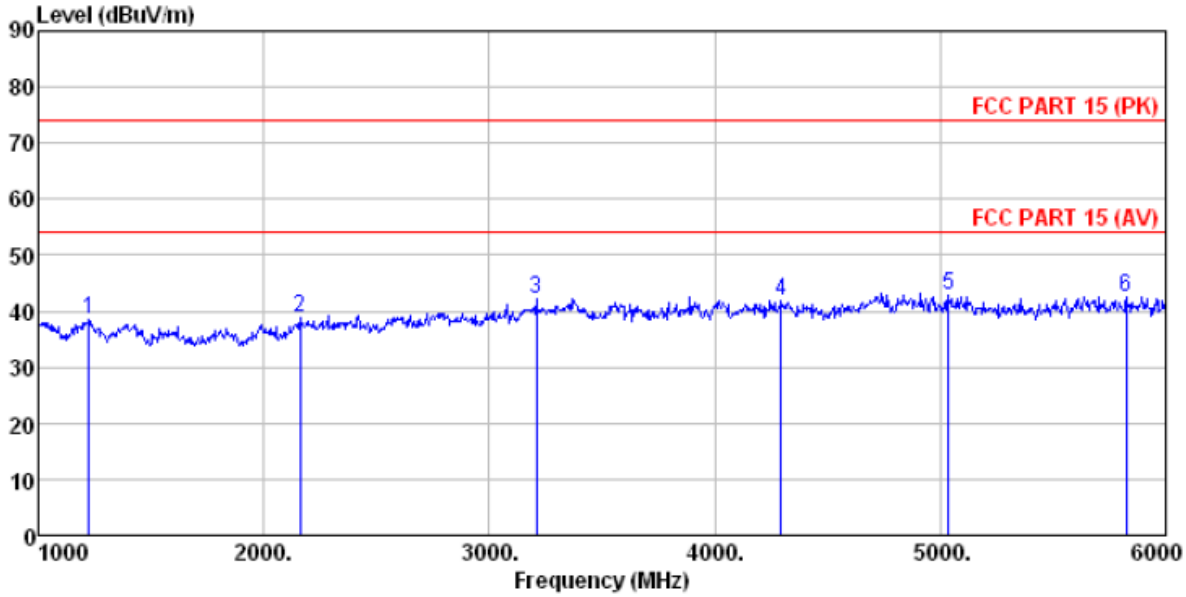
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
Job No. : 0659RF
Test Mode : PC mode
Test Engineer: Chen

	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	1420.000	42.08	25.49	4.63	33.47	38.73	74.00	-35.27	Peak
2	2610.000	39.78	27.84	5.59	33.76	39.45	74.00	-34.55	Peak
3	3340.000	39.19	28.43	6.64	32.93	41.33	74.00	-32.67	Peak
4	4020.000	37.32	29.73	7.88	32.15	42.78	74.00	-31.22	Peak
5	4690.000	35.07	31.65	8.51	32.03	43.20	74.00	-30.80	Peak
6	5470.000	33.27	31.92	9.47	32.41	42.25	74.00	-31.75	Peak

Vertical:

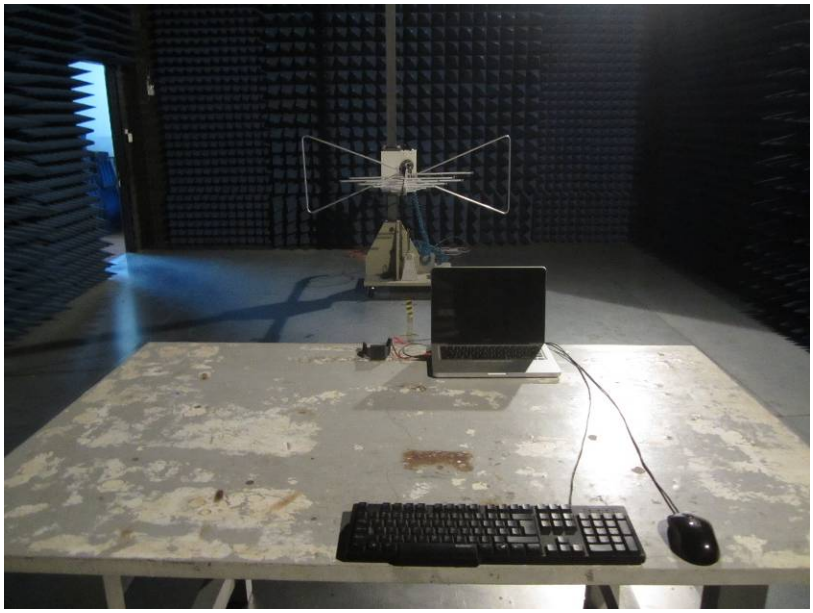


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
Job No. : 0659RF
Test Mode : PC mode
Test Engineer: Chen

	Freq	Read 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	1225.000	41.73	25.45	4.49	33.13	38.54	74.00	-35.46	Peak
2	2160.000	40.32	27.62	5.14	34.29	38.79	74.00	-35.21	Peak
3	3210.000	40.26	28.68	6.39	33.08	42.25	74.00	-31.75	Peak
4	4295.000	34.89	30.71	8.15	31.84	41.91	74.00	-32.09	Peak
5	5035.000	34.37	31.98	8.81	32.20	42.96	74.00	-31.04	Peak
6	5825.000	32.13	32.68	9.97	32.23	42.55	74.00	-31.45	Peak

8 Test Setup Photo

Radiated Emission



Conducted Emission

9 EUT Constructional Details

Reference to the test report No. GTSE15050065901

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