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Report No.: EBO1412008-E416
Page 1 of 18

FCC Report

Applicant: SIMPLEX TECNOLOGIA S.A.S
Address of Applicant: Calle 125 # 19-89 of 502, Bogota DC, Colombia
Equipment Under Test (EUT)
Product Name: TABLET PC WITH 3G FUNCTION
Brand Name: Simplex
Model No.: Miratio 600
FCC ID: 2ADT2S-MIRATIO600
Applicable standards: FCC CFR Title 47 Part 15 Subpart B:2013
Date of sample receipt: January 05, 2015
Date of Test: January 05, 2015 To January 09, 2015
Date of report issue: January 09, 2015
Test Result : PASS *

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

Authorized Signature:

Kevin Yu
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the EBO product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	January 09, 2015	Original

Prepared By:

Date:

January 09, 2015

Project Engineer

Check By:

Date:

January 09, 2015

Reviewer

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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.



5 General Information

5.1 Client Information

Applicant:	SIMPLEX TECNOLOGIA S.A.S
Address of Applicant:	Calle 125 # 19-89 of 502, Bogota DC, Colombia
Manufacturer/Factory:	SHENZHEN FUHAICHUANG TECHNOLOGY CO., LTD.
Address of Manufacturer/Factory:	Floor 3, Building A3, Fuqiao Third Zone, Fuyong Town, Bao'an District, Shenzhen

5.2 General Description of EUT

Product Name:	TABLET PC WITH 3G FUNCTION
Brand Name:	Simplex
Model No.:	Miratio 600
Power supply:	Input: AC 100-240V, 50/60Hz Output: DC 5.0V, 2A DC 3.7V Li-ion Battery, 2600mAh

5.3 Test mode

Test mode:	
PC working mode	Keep the EUT in PC working mode.
REC mode	Keep the EUT in REC mode
Video playing mode	Keep the EUT in Video playing 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 fully 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: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

5.6 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC Approval
HP	Printer	CB495A	05257893	DoC
Apple	PC	A1278	C1MN99ERDTY3	DoC

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. 28 2014	Mar. 27 2015
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. 29 2014	Mar. 28 2015
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 29 2014	Mar. 28 2015

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	July 01 2014	June 30 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

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7 Test Results and Measurement Data

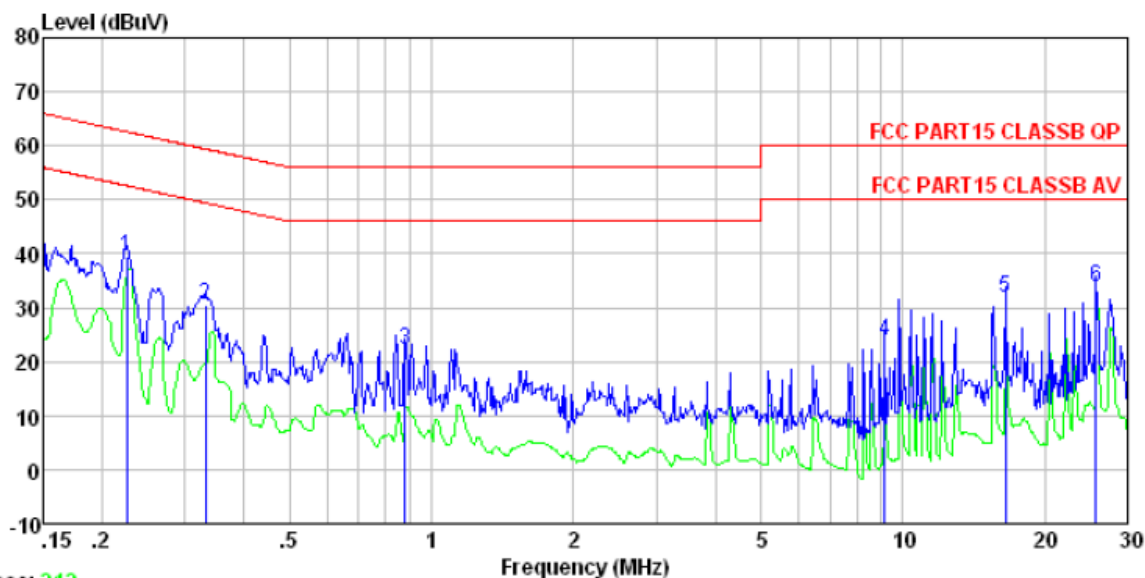
7.1 Conducted Emissions

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, 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:	<div><p style="text-align: center;">Reference Plane</p><p><i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p></div>		
Test procedure:	<div><div>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.</div><div>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).</div><div>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.</div></div>		
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 case, so only the data of worst case was shown on the test report.		
Test results:	Pass		



Measurement Data

Line:



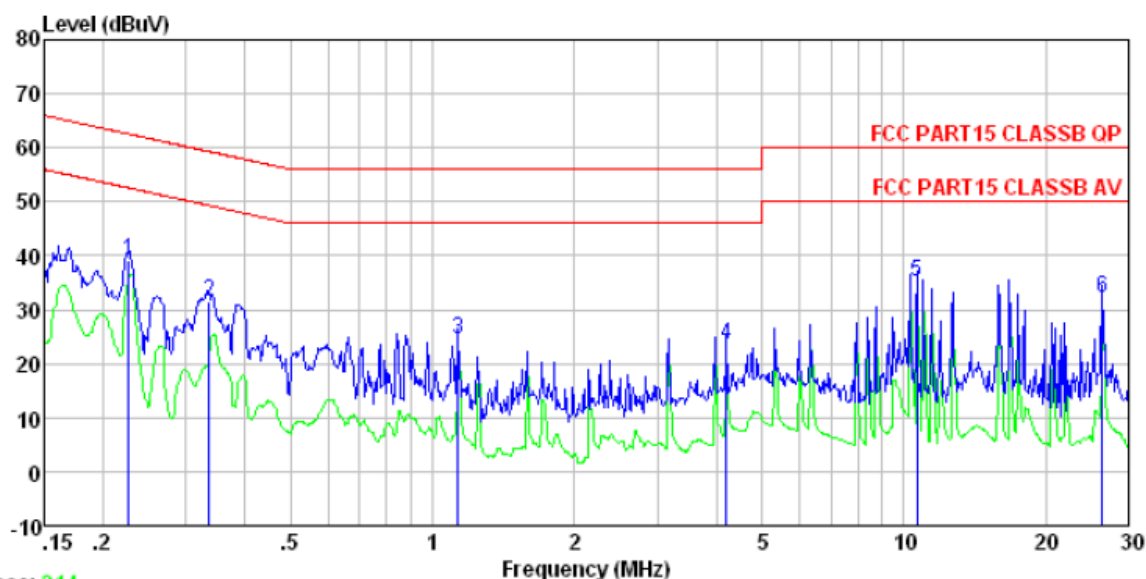
Site : Shielded room

Condition : FCC PART15 CLASSB QP LISN-2013 LINE

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.226	39.26	0.12	0.12	39.50	62.61	-23.11	QP
2	0.332	30.22	0.11	0.10	30.43	59.40	-28.97	QP
3	0.880	22.08	0.14	0.13	22.35	56.00	-33.65	QP
4	9.156	23.32	0.28	0.19	23.79	60.00	-36.21	QP
5	16.486	31.13	0.39	0.22	31.74	60.00	-28.26	QP
6	25.727	32.46	1.11	0.23	33.80	60.00	-26.20	QP



Neutral:



Trace: 214

Site : Shielded room

Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL

	Read	LISN	Cable	Limit	Over		
Freq	Level	Factor	Loss	Level	Line	Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.227	38.92	0.06	0.12	39.10	62.57	-23.47 QP
2	0.336	31.26	0.06	0.10	31.42	59.31	-27.89 QP
3	1.135	24.46	0.08	0.13	24.67	56.00	-31.33 QP
4	4.202	23.13	0.14	0.15	23.42	56.00	-32.58 QP
5	10.676	34.79	0.27	0.19	35.25	60.00	-24.75 QP
6	26.418	31.15	0.96	0.23	32.34	60.00	-27.66 QP

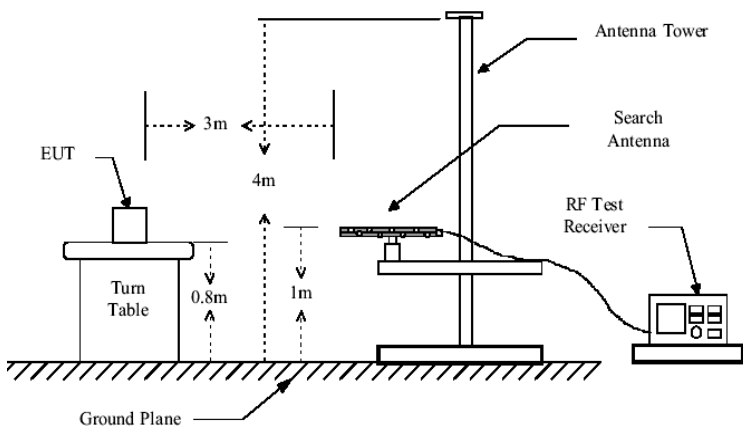
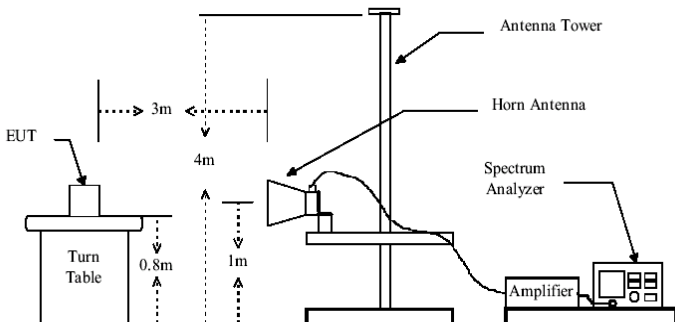
Notes:

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

Test Requirement:	FCC Part15 B Section 15.109				
Test Method:	ANSI C63.4:2003				
Test Frequency Range:	30MHz to 9GHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	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		40.00		Quasi-peak Value
	88MHz-216MHz		43.50		Quasi-peak Value
	216MHz-960MHz		46.00		Quasi-peak Value
	960MHz-1GHz		54.00		Quasi-peak Value
	Above 1GHz		54.00		Average Value
			74.00		Peak Value
Test Procedure:	<div>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.</div> <div>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.</div> <div>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.</div> <div>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.</div> <div>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</div> <div>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.</div>				

Test setup:	Below 1GHz					
						
	Above 1GHz					
						
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1 012mbar
Measurement Record:	Uncertainty: ± 4.5dB					
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 case, so only the data of worst case was shown on the test report.					
Test results:	Pass					

Note:

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

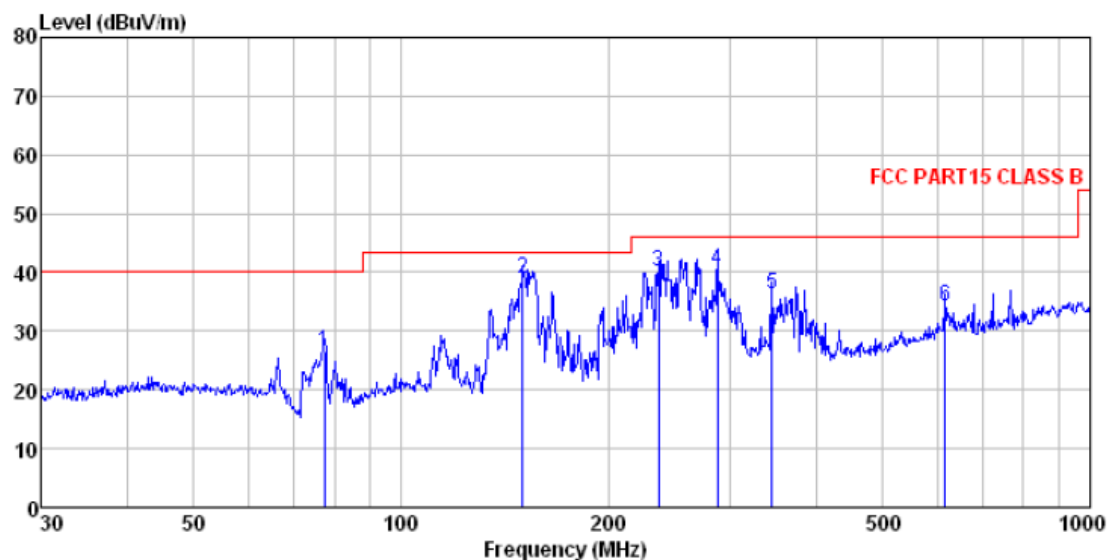
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$



Measurement Data

Below 1GHz

Horizontal:



Site : 3m chamber

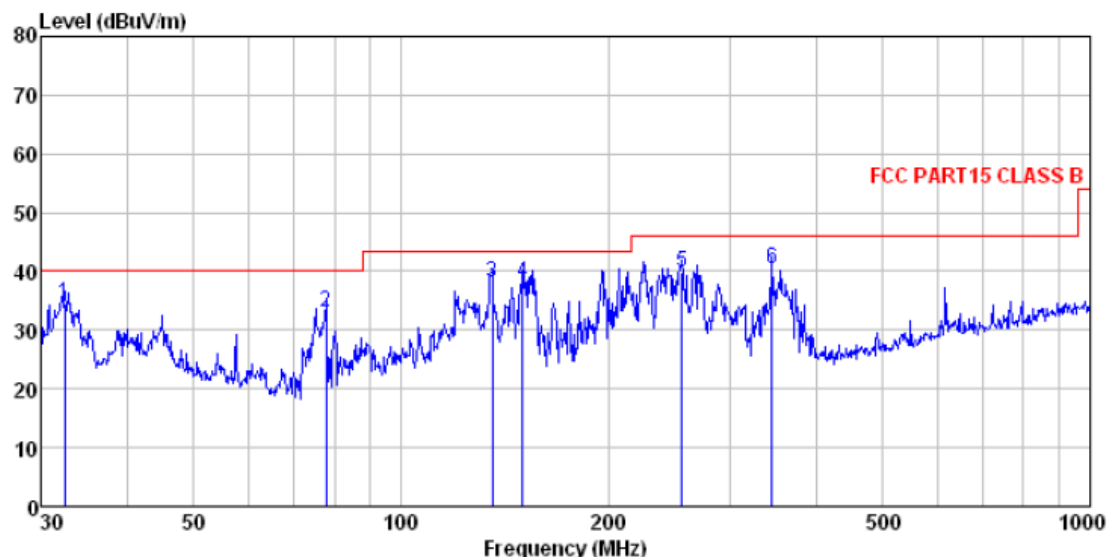
Condition : FCC PART15 CLASS B 3m VULB9163-2013M HORIZONTAL

ReadAntenna Cable Preamp Limit Over

Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	77.321	47.31	10.14	1.01	31.79	26.67	40.00	-13.33 QP
2	150.011	59.05	10.26	1.57	31.98	38.90	43.50	-4.60 QP
3	236.645	56.22	13.93	2.05	32.16	40.04	46.00	-5.96 QP
4	287.990	55.40	14.84	2.31	32.18	40.37	46.00	-5.63 QP
5	345.595	49.57	16.20	2.60	32.04	36.33	46.00	-9.67 QP
6	616.372	41.06	20.52	3.79	31.07	34.30	46.00	-11.70 QP



Vertical:



Site : 3m chamber

Condition : FCC PART15 CLASS B 3m VULB9163-2013M VERTICAL

ReadAntenna Cable Preamp Limit Over

Freq Level Factor Loss Factor Level Line Limit Remark

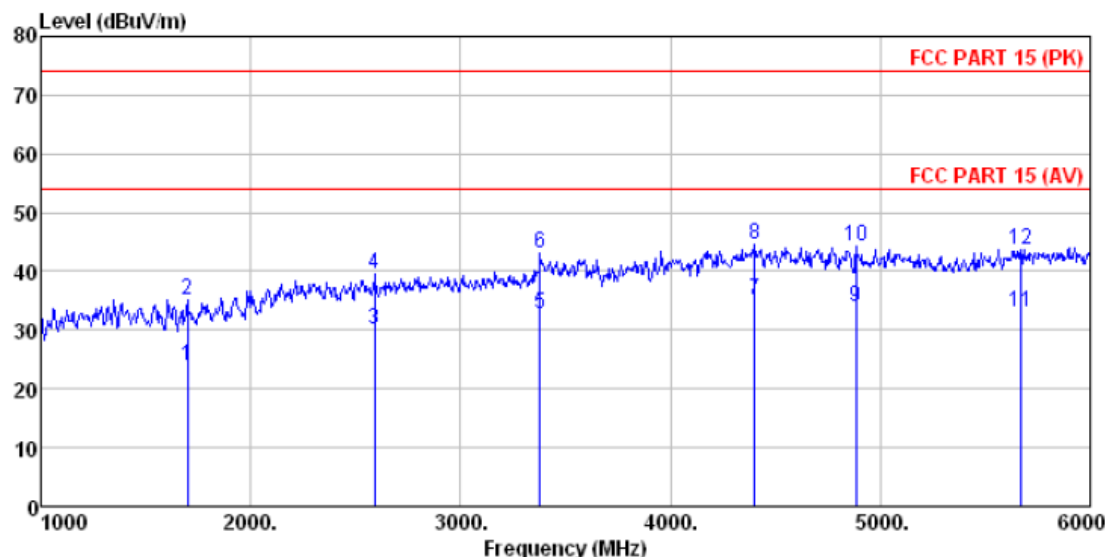
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	32.520	51.83	14.31	0.58	32.06	34.66	40.00	-5.34	QP
2	77.865	53.58	10.26	1.01	31.78	33.07	40.00	-6.93	QP
3	135.506	58.12	10.51	1.47	31.93	38.17	43.50	-5.33	QP
4	150.011	58.32	10.26	1.57	31.98	38.17	43.50	-5.33	QP
5	255.623	55.88	14.06	2.15	32.16	39.93	46.00	-6.07	QP
6	345.595	53.64	16.20	2.60	32.04	40.40	46.00	-5.60	QP

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Above 1GHz

Horizontal:

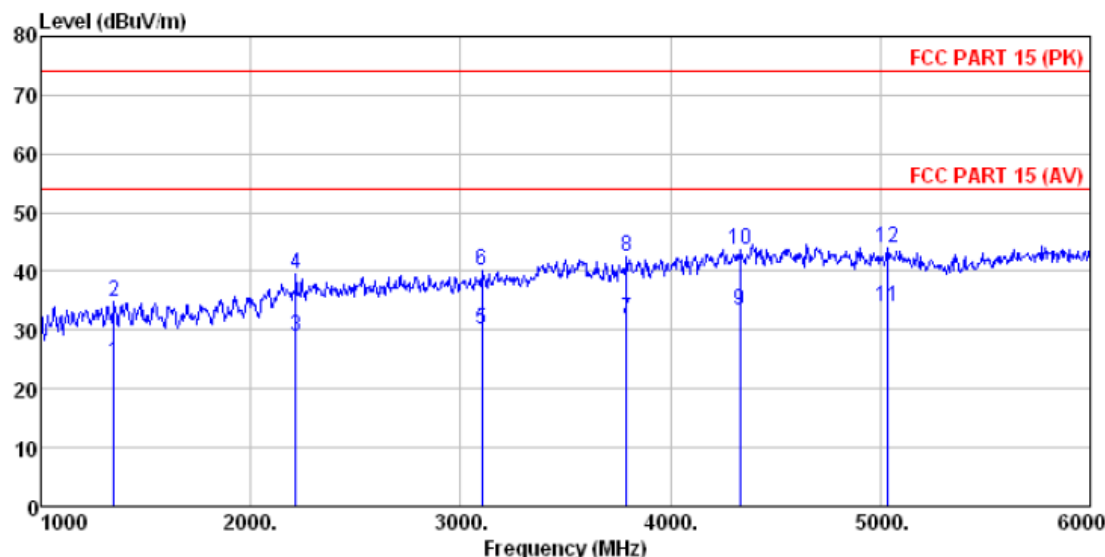


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL

	ReadAntenna	Cable	Preamp	Limit	Over				
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1700.000	28.14	24.98	4.80	33.94	23.98	54.00	-30.02	Average
2	1700.000	39.23	24.98	4.80	33.94	35.07	74.00	-38.93	Peak
3	2590.000	30.66	27.77	5.57	33.78	30.22	54.00	-23.78	Average
4	2590.000	40.13	27.77	5.57	33.78	39.69	74.00	-34.31	Peak
5	3380.000	30.32	28.54	6.72	32.89	32.69	54.00	-21.31	Average
6	3380.000	40.72	28.54	6.72	32.89	43.09	74.00	-30.91	Peak
7	4400.000	27.64	31.09	8.25	31.89	35.09	54.00	-18.91	Average
8	4400.000	37.18	31.09	8.25	31.89	44.63	74.00	-29.37	Peak
9	4885.000	25.65	31.86	8.67	32.13	34.05	54.00	-19.95	Average
10	4885.000	35.88	31.86	8.67	32.13	44.28	74.00	-29.72	Peak
11	5670.000	23.32	32.44	9.74	32.33	33.17	54.00	-20.83	Average
12	5670.000	33.86	32.44	9.74	32.33	43.71	74.00	-30.29	Peak



Vertical:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL

	ReadAntenna	Cable	Preamp	Limit	Over				
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1350.000	27.65	25.71	4.58	33.36	24.58	54.00	-29.42	Average
2	1350.000	37.97	25.71	4.58	33.36	34.90	74.00	-39.10	Peak
3	2215.000	30.02	27.98	5.20	34.23	28.97	54.00	-25.03	Average
4	2215.000	40.46	27.98	5.20	34.23	39.41	74.00	-34.59	Peak
5	3100.000	28.57	28.70	6.13	33.20	30.20	54.00	-23.80	Average
6	3100.000	38.37	28.70	6.13	33.20	40.00	74.00	-34.00	Peak
7	3790.000	27.46	29.36	7.50	32.42	31.90	54.00	-22.10	Average
8	3790.000	37.97	29.36	7.50	32.42	42.41	74.00	-31.59	Peak
9	4330.000	26.13	30.83	8.18	31.86	33.28	54.00	-20.72	Average
10	4330.000	36.54	30.83	8.18	31.86	43.69	74.00	-30.31	Peak
11	5035.000	25.46	31.98	8.81	32.20	34.05	54.00	-19.95	Average
12	5035.000	35.34	31.98	8.81	32.20	43.93	74.00	-30.07	Peak

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8 Test Setup Photo

Refer to test setup photos.



9 EUT Constructional Details

Refer to EUT external and internal photos.