

FCC REPORT

Applicant: Grand Electronics, INC

Address of Applicant: 11650 Brentcross Dr Tomball, TX 77377 ,United States

Equipment Under Test (EUT)

Product Name: Tablet

Model No.: K1, King10, K1x, K1x plus, K-pad

Trade mark: NeuTab, neutab.

FCC ID: 2AGNKK1

Applicable standards: FCC CFR Title 47 Part 15 Subpart B

Date of sample receipt: 15 Dec., 2015

Date of Test: 15 Dec., 2015 to 12 Jan., 2016

Date of report issued: 12 Jan., 2016

Test Result: Pass*

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

Authorized Signature:



Bruce Zhang
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 CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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2 Version

Version No.	Date	Description
00	12 Jan., 2016	Original

Tested by:

Zora Lee

Date:

12 Jan., 2016

Test Engineer

Reviewed by:

Wimer Zhang

Date:

12 Jan., 2016

Project Engineer

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4 Test Summary

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

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

5 General Information

5.1 Client Information

Applicant:	Grand Electronics, INC
Address of Applicant:	11650 Brentcross Dr Tomball, TX 77377, United States
Manufacturer:	GRAND ELECTRI-TECH GLOBAL TRADING LIMITED
Address of Manufacturer:	UNIT 04, 7/F, BRIGHT WAY TOWER, NO. 33 MONG KOK ROAD, KOWLOON, HK.
Factory:	SHENZHEN JRAY HIGH TECHNOLOGY CO., LTD
Address of Factory:	1-4F, PerfectSciencePark, Shang Hang Lang, Big Wave, Longhua, Baoan Shenzhen

5.2 General Description of E.U.T.

Product Name:	Tablet
Model No.:	K1, King10, K1x, K1x plus, K-pad
Power supply:	Rechargeable Li-ion Battery DC3.7V-4500mAh
AC adapter :	Model: HT-003-050200 Input: 100-240V AC, 50/60Hz 0.35A Max Output: 5V DC Max2000mA
Remark:	The model No.: K1, King10, K1x, K1x plus, K-pad were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being different model name.

5.3 Test Mode

Operating mode	Detail description
PC mode	Keep the EUT in Downloading mode (Worst case)
Charging+Recording mode	Keep the EUT in Charging+Recording mode
Charging+Playing mode	Keep the EUT in Charging+Playing mode
FM mode	Keep the EUT in FM receiver mode
GPS mode	Keep the EUT in GPS receiver mode
The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
DELL	PC	OPTIPLEX745	N/A	DoC
DELL	MONITOR	E178FPC	N/A	DoC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC
HP	Printer	CB495A	05257893	DoC
MERCURY	Wireless router	MW150R	12922104015	FCC ID
NAKAMICHI	Bluetooth earphone	T8	N/A	FCC ID

5.5 Laboratory Facility

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

● **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing 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 817957, February 27, 2012.

● **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.6 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282
Fax: +86-755-23116366

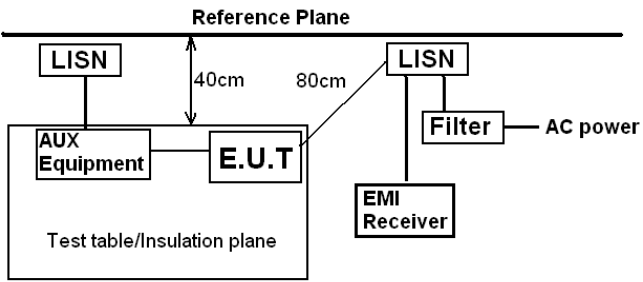
5.7 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017
2	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	03-28-2015	03-28-2016
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	03-28-2015	03-28-2016
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2015	03-31-2016
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	04-01-2015	03-31-2016
6	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	03-28-2015	03-28-2016
7	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	03-28-2015	03-28-2016

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	08-23-2014	08-22-2017
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	03-28-2015	03-28-2016
3	LISN	CHASE	MN2050D	CCIS0074	03-28-2015	03-28-2016
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2015	03-31-2016

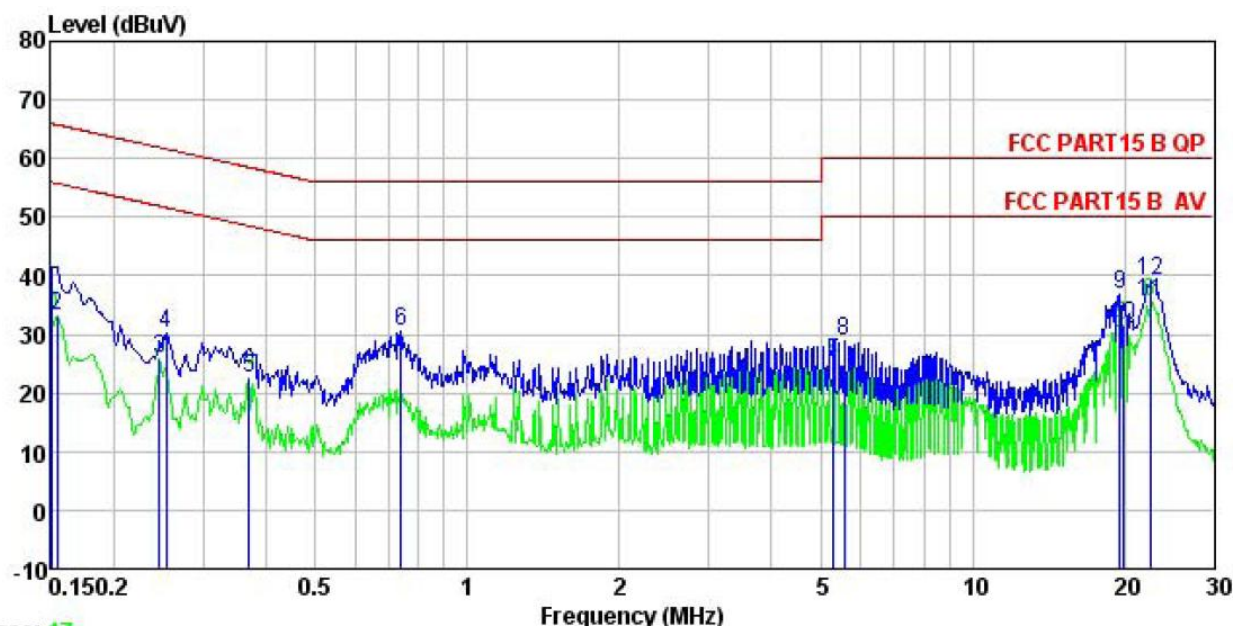
6 Test results and Measurement Data

6.1 Conducted Emission

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		
Limit:	Frequency range (MHz)	Limit (dBμV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	0.5-30	60	50
* Decreases with the logarithm of the frequency.			
Test setup:	 Remark: E.U.T.: Equipment Under Test LISN: Line Impedance 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: 2009 on conducted measurement.		
Test environment:	Temp.: 23°C	Humid.: 56%	Press.: 101kPa
Measurement Record:	Uncertainty: ±3.28dB		
Test Instruments:	Refer to section 5.7 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		

Measurement data:

Line:

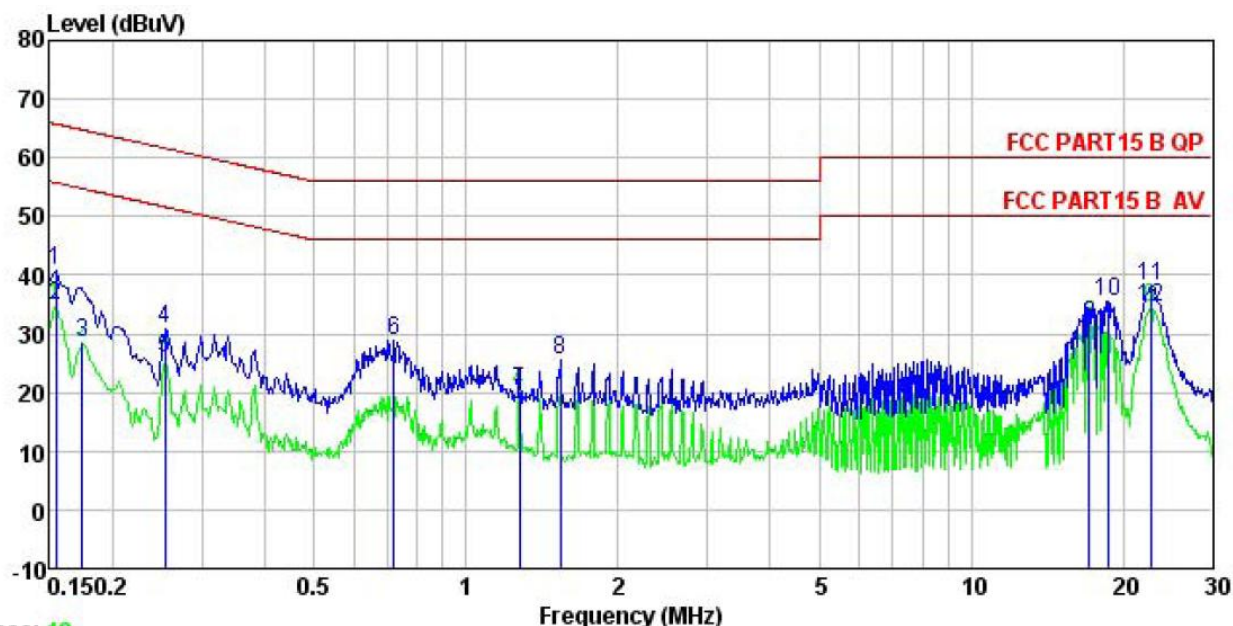


Trace: 17

Site : CCIS Shielding Room
 Condition : FCC PART15 B QP LISN LINE
 EUT : Tablet
 Model : K1
 Test Mode : PC mode
 Power Rating : AC120/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: Zora
 Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.150	30.56	0.27	10.78	41.61	66.00	-24.39	QP
2	0.154	22.21	0.27	10.78	33.26	55.78	-22.52	Average
3	0.246	14.83	0.27	10.75	25.85	51.91	-26.06	Average
4	0.253	19.32	0.27	10.75	30.34	61.64	-31.30	QP
5	0.369	11.42	0.27	10.73	22.42	48.52	-26.10	Average
6	0.739	19.54	0.22	10.79	30.55	56.00	-25.45	QP
7	5.305	14.19	0.30	10.84	25.33	50.00	-24.67	Average
8	5.564	17.87	0.30	10.83	29.00	60.00	-31.00	QP
9	19.532	25.67	0.34	10.93	36.94	60.00	-23.06	QP
10	19.845	20.35	0.34	10.93	31.62	50.00	-18.38	Average
11	22.416	24.12	0.43	10.90	35.45	50.00	-14.55	Average
12	22.535	27.94	0.44	10.89	39.27	60.00	-20.73	QP

Neutral:



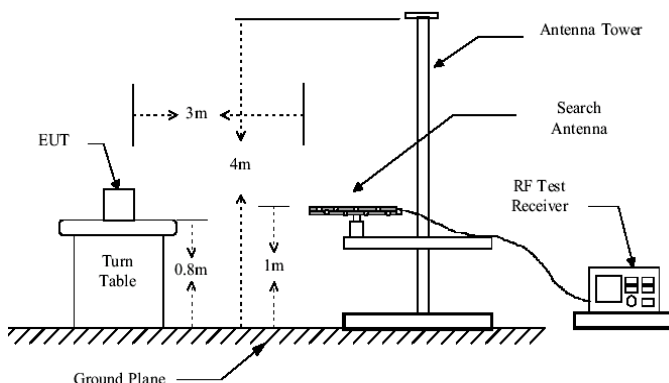
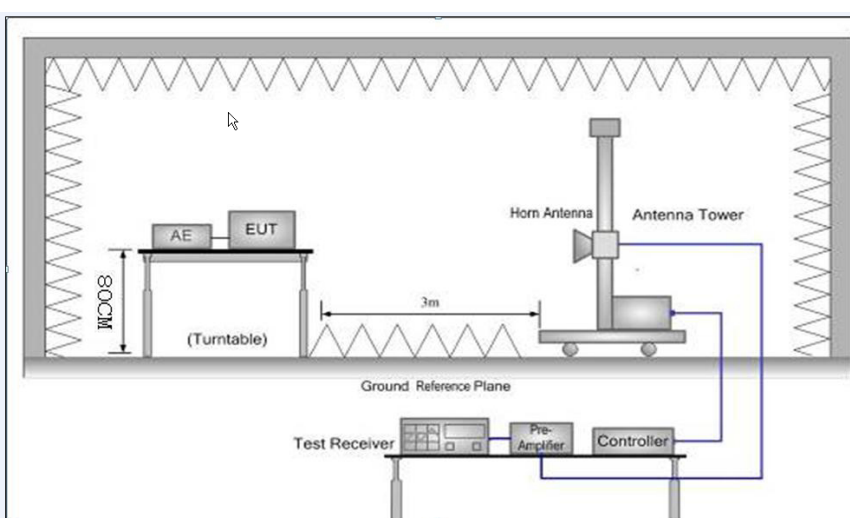
Trace: 19
 Site : CCIS Shielding Room
 Condition : FCC PART15 B QP LISN NEUTRAL
 EUT : Tablet
 Model : K1
 Test Mode : PC mode
 Power Rating : AC120/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: Zora
 Remark :

	Freq	Read	LISN	Cable	Level	Limit	Over	
	MHz	Level	Factor	Loss	dBuV	Line	Limit	Remark
		dBuV	dB	dB		dBuV	dB	
1	0.154	29.69	0.25	10.78	40.72	65.78	-25.06	QP
2	0.154	23.70	0.25	10.78	34.73	55.78	-21.05	Average
3	0.174	17.41	0.25	10.77	28.43	54.77	-26.34	Average
4	0.253	19.93	0.26	10.75	30.94	61.64	-30.70	QP
5	0.253	14.88	0.26	10.75	25.89	51.64	-25.75	Average
6	0.720	17.96	0.18	10.78	28.92	56.00	-27.08	QP
7	1.276	9.06	0.24	10.90	20.20	46.00	-25.80	Average
8	1.535	14.47	0.26	10.93	25.66	56.00	-30.34	QP
9	17.109	20.45	0.25	10.91	31.61	50.00	-18.39	Average
10	18.622	24.49	0.26	10.91	35.66	60.00	-24.34	QP
11	22.655	26.86	0.38	10.89	38.13	60.00	-21.87	QP
12	22.655	23.21	0.38	10.89	34.48	50.00	-15.52	Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

6.2 Radiated Emission

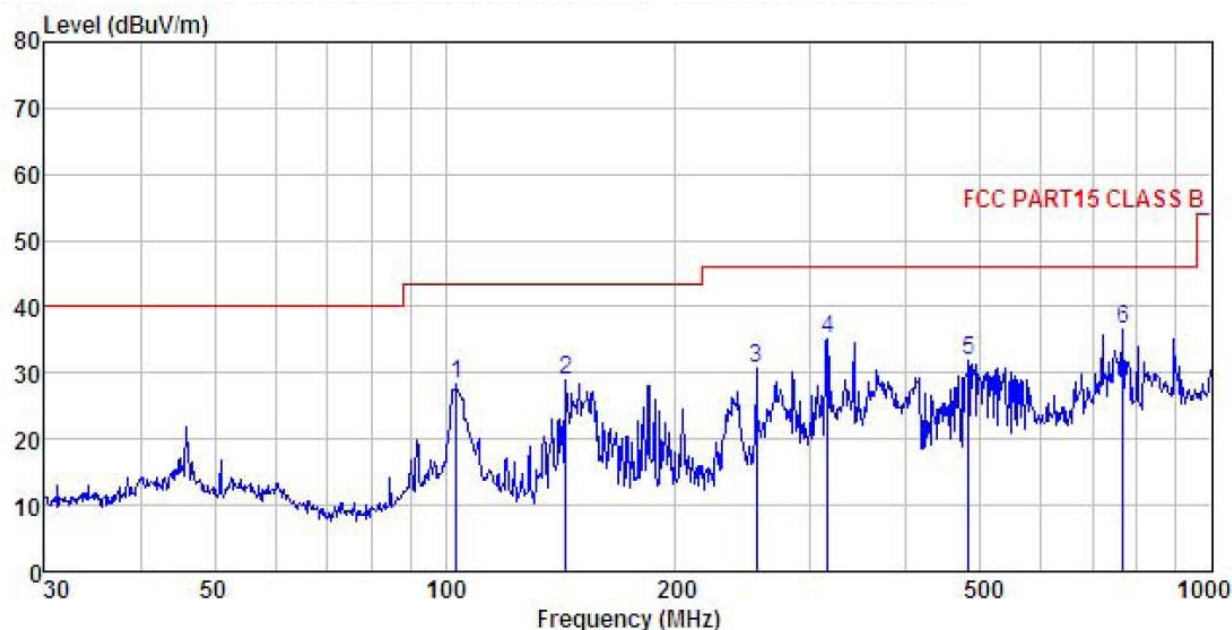
Test Requirement:	FCC Part15 B Section 15.109				
Test Method:	ANSI C63.4:2009				
Test Frequency Range:	30MHz to 6000MHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
RMS		1MHz	3MHz	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				
					
Test setup:	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 chamber. 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 rotating 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.:	55%	Press.:	101kPa
Measurement Record:	Uncertainty: ±4.88dB					
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

Measurement Data

Below 1GHz

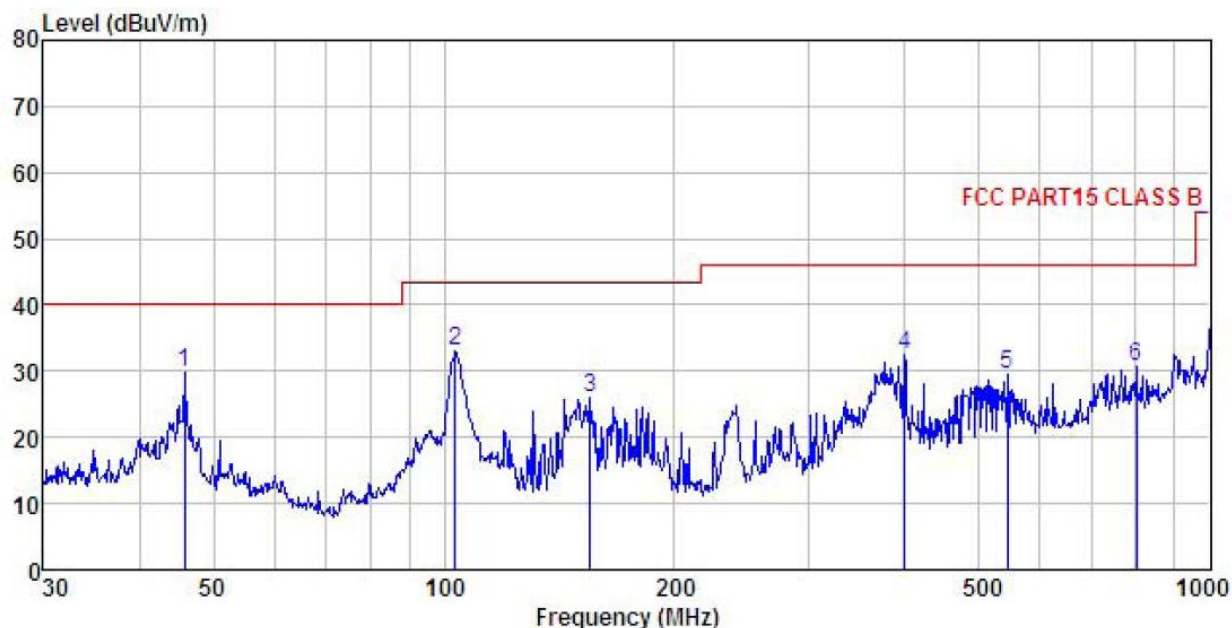
Horizontal:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL
 EUT : Tablet
 Model : K1
 Test mode : PC Mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Zora
 REMARK :

	Freq	ReadAntenna	Cable	Preamp	Limit	Over	
	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB
1	103.442	43.98	12.82	0.99	29.50	28.29	43.50 -15.21 QP
2	143.830	48.68	8.22	1.28	29.25	28.93	43.50 -14.57 QP
3	254.728	45.48	12.06	1.63	28.53	30.64	46.00 -15.36 QP
4	315.481	48.49	13.28	1.82	28.49	35.10	46.00 -10.90 QP
5	482.216	42.22	16.13	2.35	28.92	31.78	46.00 -14.22 QP
6	766.057	42.27	19.63	3.08	28.39	36.59	46.00 -9.41 QP

Vertical:

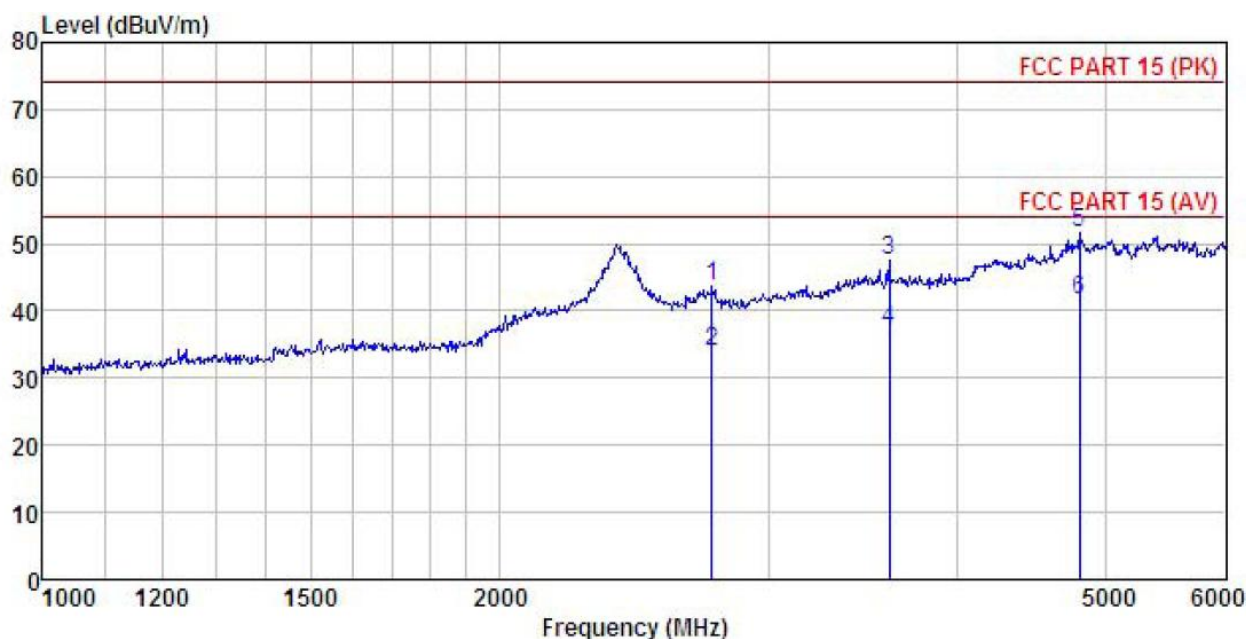


Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL
 EUT : Tablet
 Model : K1
 Test mode : PC Mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Zora
 REMARK :

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	45.855	45.65	13.49	0.57	29.85	29.86	40.00	-10.14 QP
2	103.442	48.79	12.82	0.99	29.50	33.10	43.50	-10.40 QP
3	155.364	45.26	8.48	1.33	29.17	25.90	43.50	-17.60 QP
4	399.030	44.10	15.06	2.12	28.77	32.51	46.00	-13.49 QP
5	543.274	38.57	17.46	2.52	29.08	29.47	46.00	-16.53 QP
6	801.786	35.60	20.06	3.17	28.19	30.64	46.00	-15.36 QP

Above 1GHz

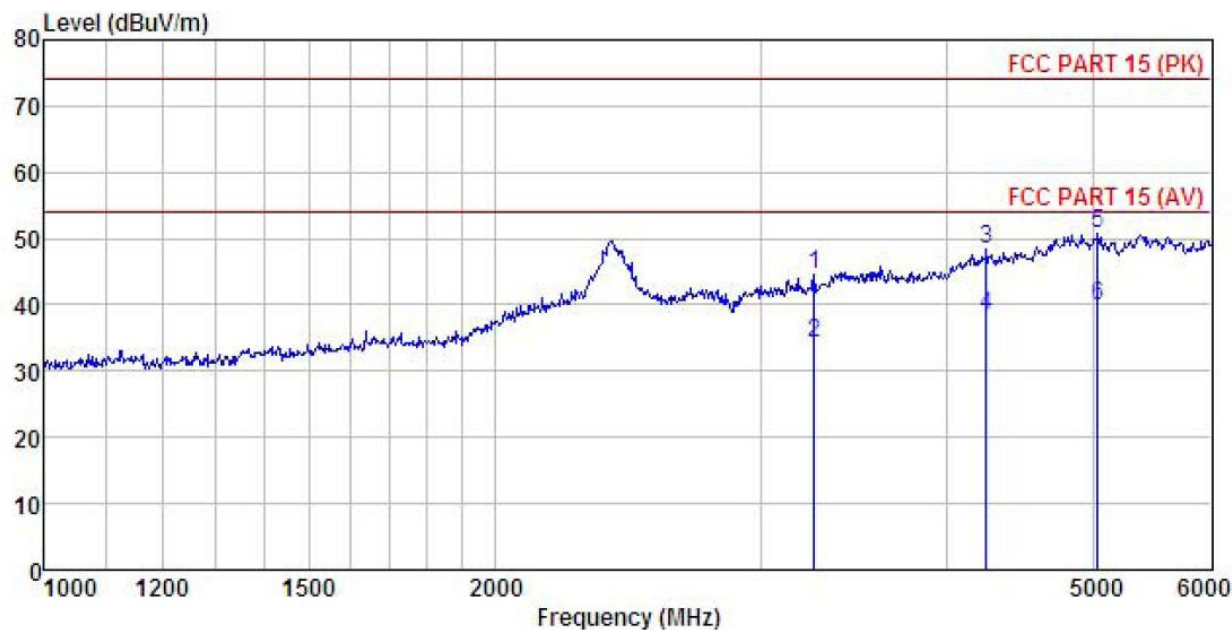
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
 EUT : Tablet
 Model : K1
 Test mode : PC Mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Zora
 REMARK :

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2756.107	48.53	28.31	7.39	40.53	43.70	74.00	-30.30	Peak
2	2756.107	38.74	28.31	7.39	40.53	33.91	54.00	-20.09	Average
3	3605.119	49.82	29.16	8.97	40.33	47.62	74.00	-26.38	Peak
4	3605.119	39.50	29.16	8.97	40.33	37.30	54.00	-16.70	Average
5	4808.328	49.66	31.53	10.57	40.24	51.52	74.00	-22.48	Peak
6	4808.328	39.88	31.53	10.57	40.24	41.74	54.00	-12.26	Average

Vertical:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
 EUT : Tablet
 Model : K1
 Test mode : PC Mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Zora
 REMARK :

	Read	Antenna	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	3258.176	47.86	28.48	8.34	40.09	44.59	74.00	-29.41	Peak
2	3258.176	37.48	28.48	8.34	40.09	34.21	54.00	-19.79	Average
3	4245.295	49.10	30.32	9.92	40.91	48.43	74.00	-25.57	Peak
4	4245.295	38.96	30.32	9.92	40.91	38.29	54.00	-15.71	Average
5	5038.212	47.96	31.90	10.82	40.01	50.67	74.00	-23.33	Peak
6	5038.212	37.25	31.90	10.82	40.01	39.96	54.00	-14.04	Average