

FCC Report

Applicant: SHENZHEN GIEC DIGITAL CO., LTD

Address of Applicant: No.1 Building,Factory,No.7 District,Dayang Development Areas,FuYongStreet,Baoan Shenzhen China

Equipment Under Test (EUT)

Product Name: Tablet PC

Model No.: TM800W610L, GK-MWR8004, TM800P610L

Applicable standards: FCC CFR Title 47 Part 15 Subpart B:2015

Date of sample receipt: May 30, 2016

Date of Test: May 30-June 03, 2016

Date of report issue: June 03, 2016

Test Result : PASS *

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

Authorized Signature:

A circular blue ink stamp for GTS Global United Technology Services Co., Ltd. is overlaid with a handwritten signature in black ink. The signature appears to be 'Robinson Lo'.

Robinson Lo

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 GTS 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. Any mention of GTS or testing done by GTS in connection with, distribution or use of the product described in this report must be approved by GTS in writing.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

2 Version

Version No.	Date	Description
00	June 03, 2016	Original

Prepared By:

Edward Pan

Date:

June 03, 2016

Project Engineer

Check By:

Hank Yan

Date:

June 03, 2016

Reviewer

3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	4
4.1 MEASUREMENT UNCERTAINTY.....	4
5 GENERAL INFORMATION	5
5.1 CLIENT INFORMATION.....	5
5.2 GENERAL DESCRIPTION OF EUT	5
5.3 TEST MODE	5
5.4 TEST FACILITY	6
5.5 TEST LOCATION.....	6
5.6 DESCRIPTION OF SUPPORT UNITS	6
5.7 DEVIATION FROM STANDARDS	6
5.8 ABNORMALITIES FROM STANDARD CONDITIONS.....	6
5.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER	6
6 TEST INSTRUMENTS LIST	7
7 TEST RESULTS AND MEASUREMENT DATA.....	8
7.1 CONDUCTED EMISSIONS	8
7.2 RADIATED EMISSION	19
8 TEST SETUP PHOTO	41
9 EUT CONSTRUCTIONAL DETAILS	42

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 C63.4:2014.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	$\pm 4.34\text{dB}$	(1)
Radiated Emission	30MHz ~ 1000MHz	$\pm 4.24\text{dB}$	(1)
Radiated Emission	1GHz ~ 26.5GHz	$\pm 4.68\text{dB}$	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	$\pm 3.45\text{dB}$	(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:	SHENZHEN GIEC DIGITAL CO., LTD
Address of Applicant:	No.1 Building,Factory,No.7 District,Dayang Development Areas,FuYongStreet,Baoan Shenzhen China
Manufacturer:	SHENZHEN GIEC DIGITAL CO., LTD
Address of Manufacturer:	No.1 Building,Factory,No.7 District,Dayang Development Areas,FuYongStreet,Baoan Shenzhen China

5.2 General Description of EUT

Product Name:	Tablet PC
Model No.:	TM800W610L, GK-MWR8004, TM800P610L
Power Supply:	Quick Charger: Model No. : A68-502000 Input: AC 100-240V, 50/60Hz 0.35A Output: DC 5V, 2.0A Or DC 3.8 V 3700mAh

5.3 Test mode

Test mode:	
HDMI mode	Keep the EUT in HDMI mode
REC mode	Keep the EUT in video record mode.
USB playing mode	Keep the EUT in USB flash disk playing mode.
TF card playing mode	Keep the EUT in SD card playing mode.
Buring test mode	PC working mode

5.4 Test Facility

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

- **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.

No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.6 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
DELL	KEYBOARD	SK-8115	N/A	DOC
DELL	MOUSE	N/A	N/A	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	July. 03 2015	July. 02 2020
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. 03 2015	July. 02 2016
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	July. 06 2015	July. 05 2016
5	Double -ridged waveguide horn	SCHWARZBECK	9120D	GTS208	July. 06 2015	July. 05 2016
6	RF Amplifier	HP	8347A	GTS204	July. 03 2015	July. 02 2016
7	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	July. 03 2015	July. 02 2016
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	July. 05 2015	July. 04 2016
10	Coaxial Cable	GTS	N/A	GTS211	July. 05 2015	July. 04 2016
11	Thermo meter	N/A	N/A	GTS256	July. 06 2015	July. 05 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 2015	Sep. 06 2016
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	June 30 2015	June 29 2016
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	June 30 2015	June 29 2016
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June 30 2015	June 29 2016
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	June 30 2015	June 29 2016
6	Coaxial Cable	GTS	N/A	GTS227	June 30 2015	June 29 2016
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 07 2015	July 06 2016

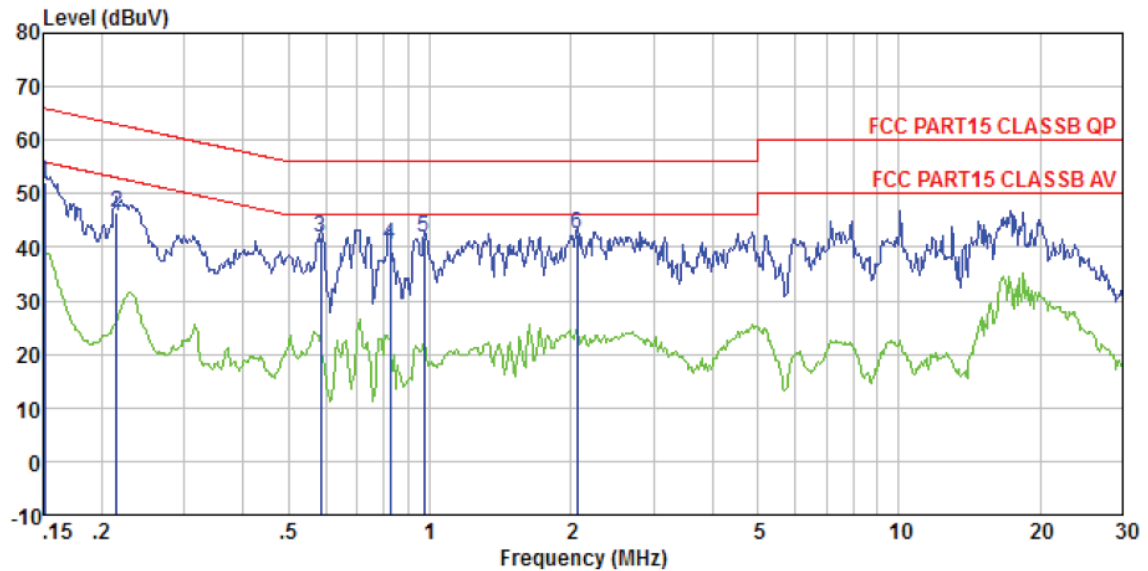
7 Test Results and Measurement Data

7.1 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107			
Test Method:	ANSI C63.4:2014			
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:	Reference Plane LISN AUX Equipment E.U.T 40cm 80cm LISN Filter EMI Receiver AC power Test table/Insulation plane			
	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.). 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:	worse case is reported			
Test results:	Pass			

Measurement Data

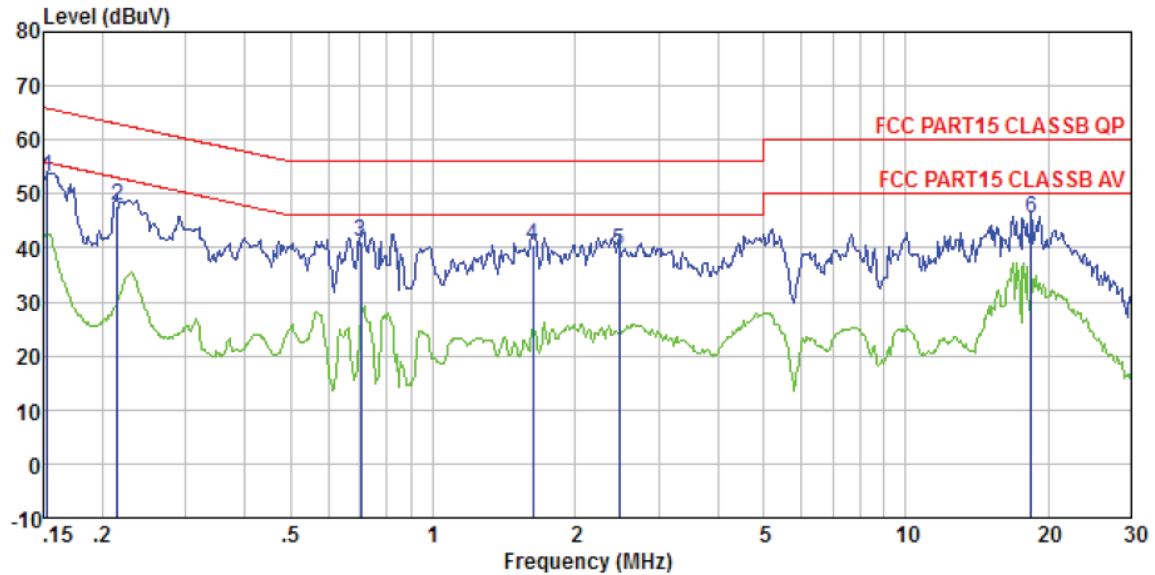
Line:



Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2012 LINE
 Job No. : 0205
 Test Mode : REC mode
 Test Engineer: Sky

	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.151	52.16	52.00	-0.26	0.10	65.96	-13.96	QP
2	0.215	46.54	46.41	-0.23	0.10	63.01	-16.60	QP
3	0.585	41.90	41.79	-0.21	0.10	56.00	-14.21	QP
4	0.822	40.59	40.49	-0.20	0.10	56.00	-15.51	QP
5	0.974	41.92	41.81	-0.21	0.10	56.00	-14.19	QP
6	2.066	42.62	42.48	-0.24	0.10	56.00	-13.52	QP

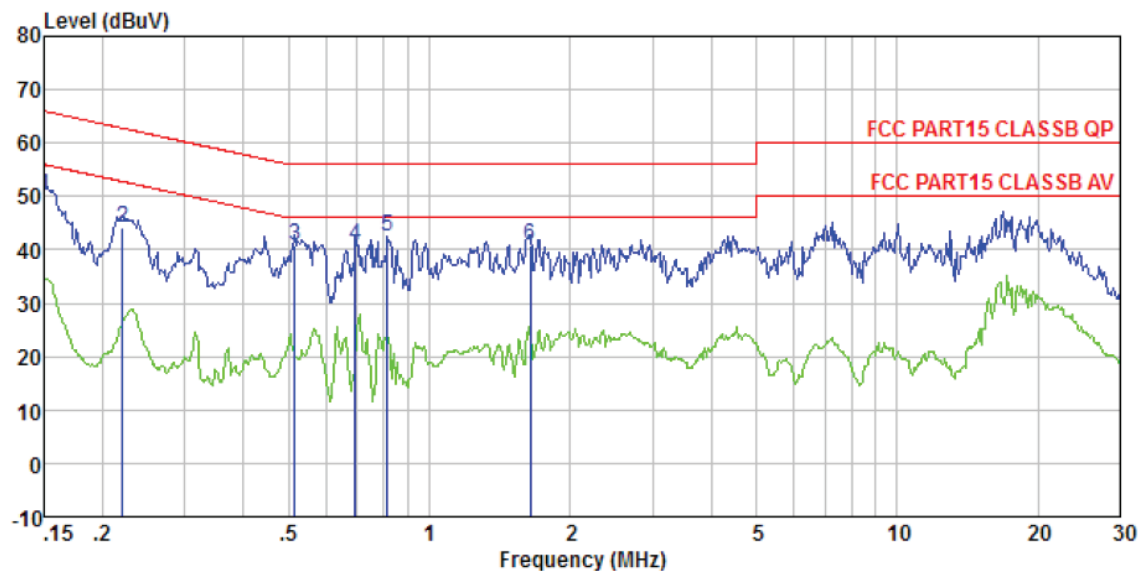
Neutral:



Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2012 NEUTRAL
 Job No. : 0205
 Test Mode : REC mode
 Test Engineer: Sky

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.153	53.05	53.02	-0.13	0.10	65.82	-12.80	QP
2	0.215	47.81	47.82	-0.09	0.10	63.01	-15.19	QP
3	0.705	41.10	41.12	-0.08	0.10	56.00	-14.88	QP
4	1.628	40.63	40.63	-0.10	0.10	56.00	-15.37	QP
5	2.474	39.61	39.60	-0.11	0.10	56.00	-16.40	QP
6	18.426	45.78	45.48	-0.51	0.21	60.00	-14.52	QP

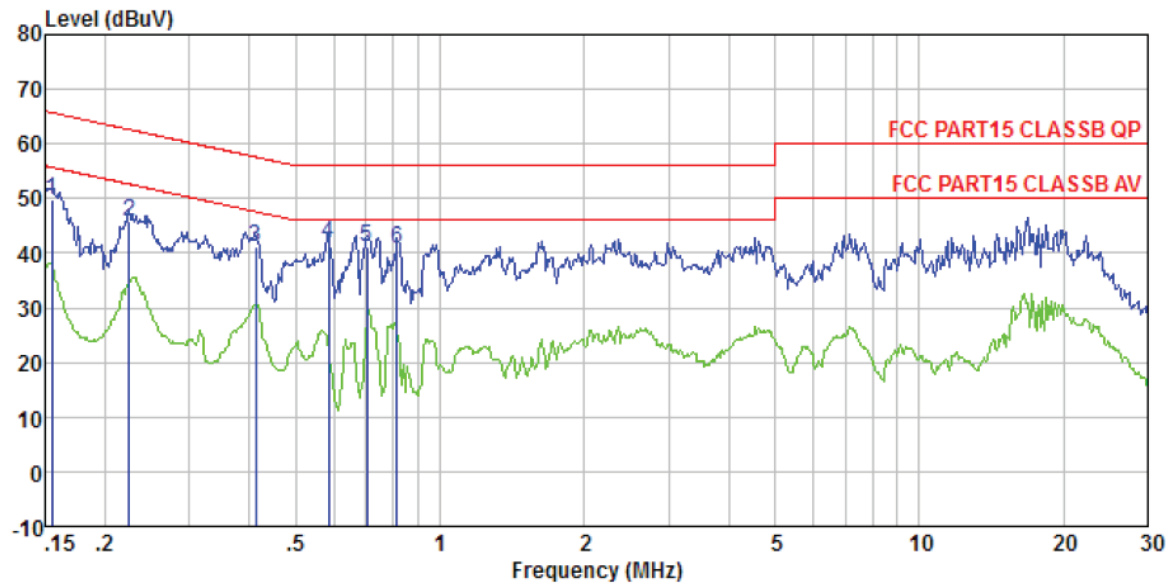
Line:



Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2012 LINE
 Job No. : 0205
 Test Mode : TF card playing mode
 Test Engineer: Sky

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.150	50.17	50.01	-0.26	0.10	66.00	-15.99	QP
2	0.221	44.42	44.29	-0.23	0.10	62.79	-18.50	QP
3	0.516	40.86	40.75	-0.21	0.10	56.00	-15.25	QP
4	0.694	40.75	40.65	-0.20	0.10	56.00	-15.35	QP
5	0.813	42.66	42.56	-0.20	0.10	56.00	-13.44	QP
6	1.645	40.97	40.84	-0.23	0.10	56.00	-15.16	QP

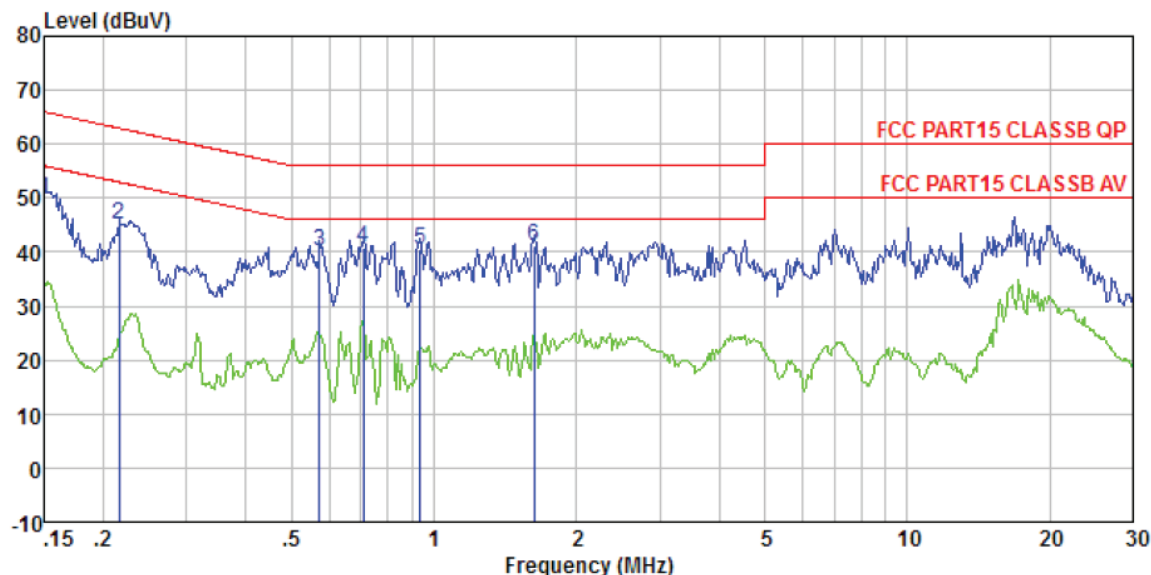
Neutral:



Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2012 NEUTRAL
 Job No. : 0205
 Test Mode : TF card playing mode
 Test Engineer: Sky

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.155	49.73	49.70	-0.13	0.10	65.74	-16.04	QP
2	0.224	45.65	45.66	-0.09	0.10	62.66	-17.00	QP
3	0.413	41.04	41.06	-0.08	0.10	57.59	-16.53	QP
4	0.585	41.71	41.73	-0.08	0.10	56.00	-14.27	QP
5	0.705	41.10	41.12	-0.08	0.10	56.00	-14.88	QP
6	0.813	40.71	40.73	-0.08	0.10	56.00	-15.27	QP

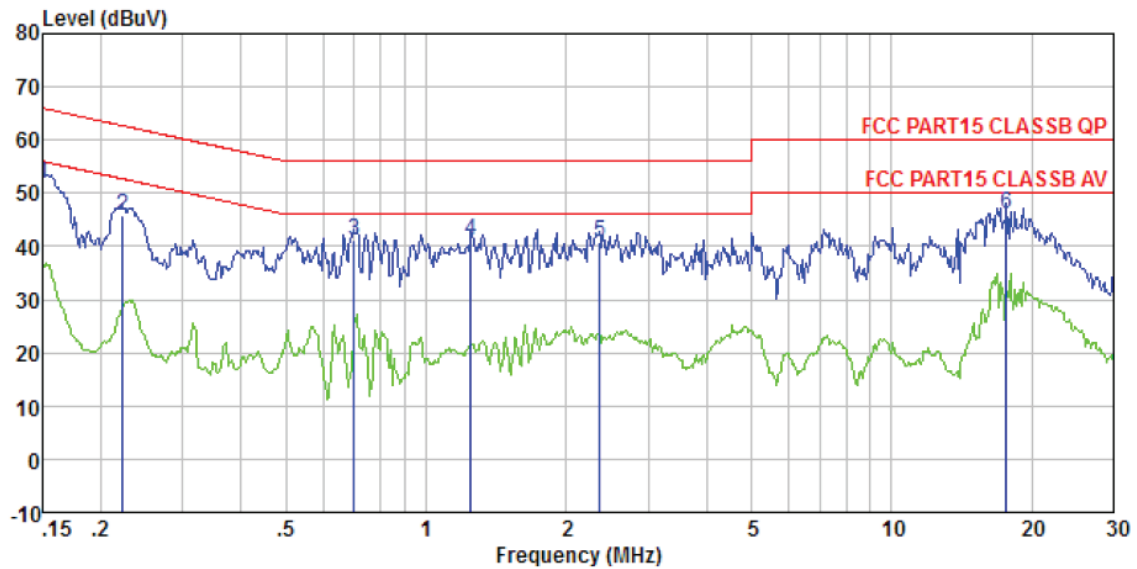
Line:



Site : Shielded room
Condition : FCC PART15 CLASSB QP LISN-2012 LINE
Job No. : 0205
Test Mode : USB playing mode
Test Engineer: Sky

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.150	49.81	49.65	-0.26	0.10	66.00	-16.35	QP
2	0.216	45.19	45.06	-0.23	0.10	62.96	-17.90	QP
3	0.573	40.10	39.99	-0.21	0.10	56.00	-16.01	QP
4	0.708	40.98	40.88	-0.20	0.10	56.00	-15.12	QP
5	0.933	40.63	40.52	-0.21	0.10	56.00	-15.48	QP
6	1.628	41.35	41.22	-0.23	0.10	56.00	-14.78	QP

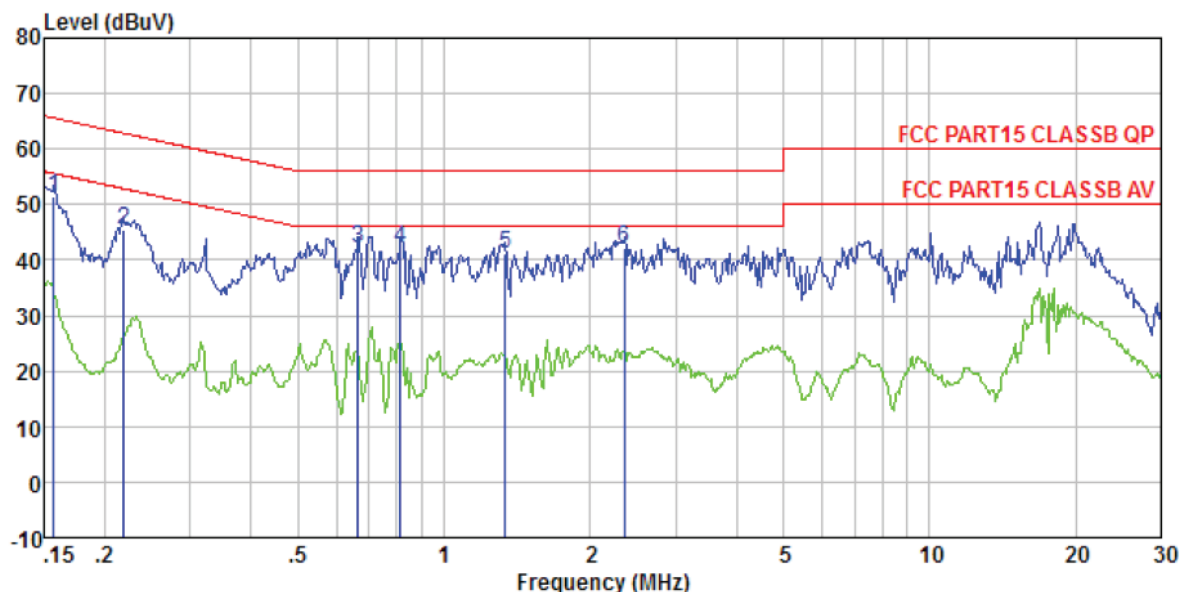
Neutral:



Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2012 NEUTRAL
 Job No. : 0205
 Test Mode : USB playing mode
 Test Engineer: Sky

	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.150	51.64	51.61	-0.13	0.10	66.00	-14.39	QP
2	0.223	45.79	45.80	-0.09	0.10	62.70	-16.90	QP
3	0.701	41.23	41.25	-0.08	0.10	56.00	-14.75	QP
4	1.249	41.24	41.25	-0.09	0.10	56.00	-14.75	QP
5	2.358	40.88	40.87	-0.11	0.10	56.00	-15.13	QP
6	17.661	46.32	46.05	-0.48	0.21	60.00	-13.95	QP

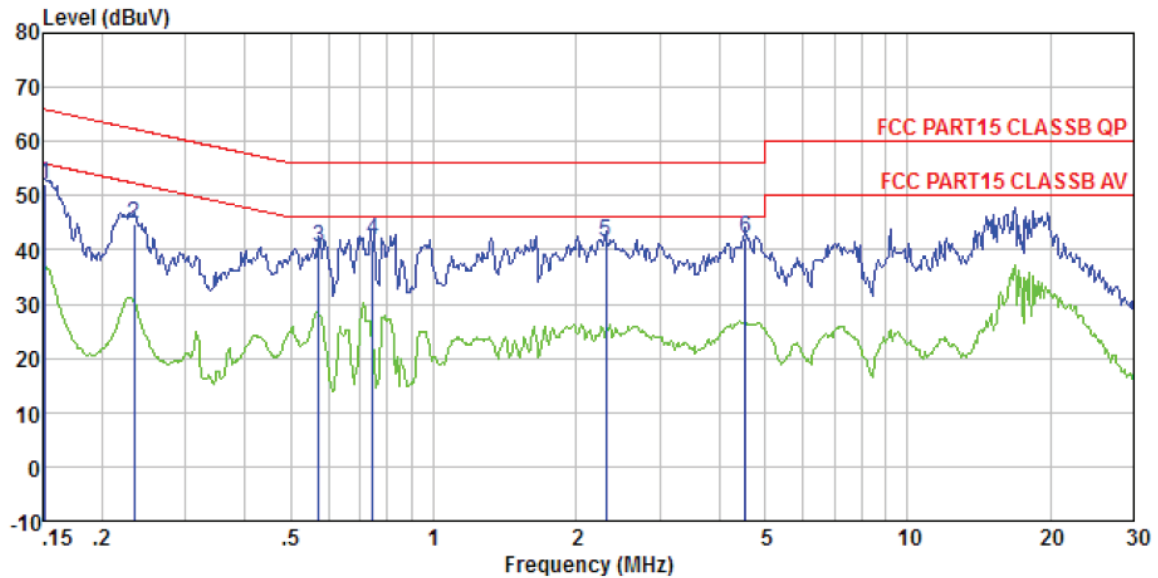
Line:



Site : Shielded room
Condition : FCC PART15 CLASSB QP LISN-2012 LINE
Job No. : 0205
Test Mode : Burning test mode
Test Engineer: Sky

	Read	LISN	Cable	Limit	Over	
Freq	Level	Level	Loss	Line	Limit	Remark
MHz	dBuV	dBuV	dB	dB	dB	
1	0.157	51.65	51.49	-0.26	0.10	65.60 -14.11 QP
2	0.219	45.57	45.44	-0.23	0.10	62.88 -17.44 QP
3	0.665	42.40	42.30	-0.20	0.10	56.00 -13.70 QP
4	0.813	42.21	42.11	-0.20	0.10	56.00 -13.89 QP
5	1.338	41.29	41.17	-0.22	0.10	56.00 -14.83 QP
6	2.346	42.32	42.18	-0.24	0.10	56.00 -13.82 QP

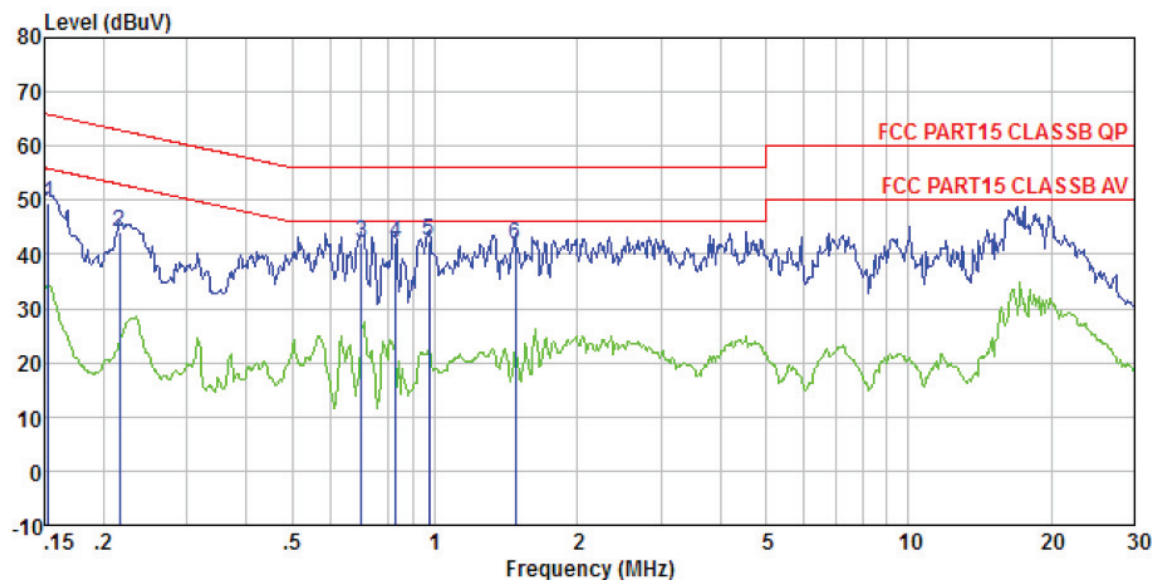
Neutral:



Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2012 NEUTRAL
 Job No. : 0205
 Test Mode : Burning test mode
 Test Engineer: Sky

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.152	52.19	52.16	-0.13	0.10	65.91	-13.75	QP
2	0.234	44.92	44.93	-0.09	0.10	62.30	-17.37	QP
3	0.573	40.55	40.57	-0.08	0.10	56.00	-15.43	QP
4	0.743	41.80	41.82	-0.08	0.10	56.00	-14.18	QP
5	2.309	41.57	41.56	-0.11	0.10	56.00	-14.44	QP
6	4.549	42.19	42.13	-0.16	0.10	56.00	-13.87	QP

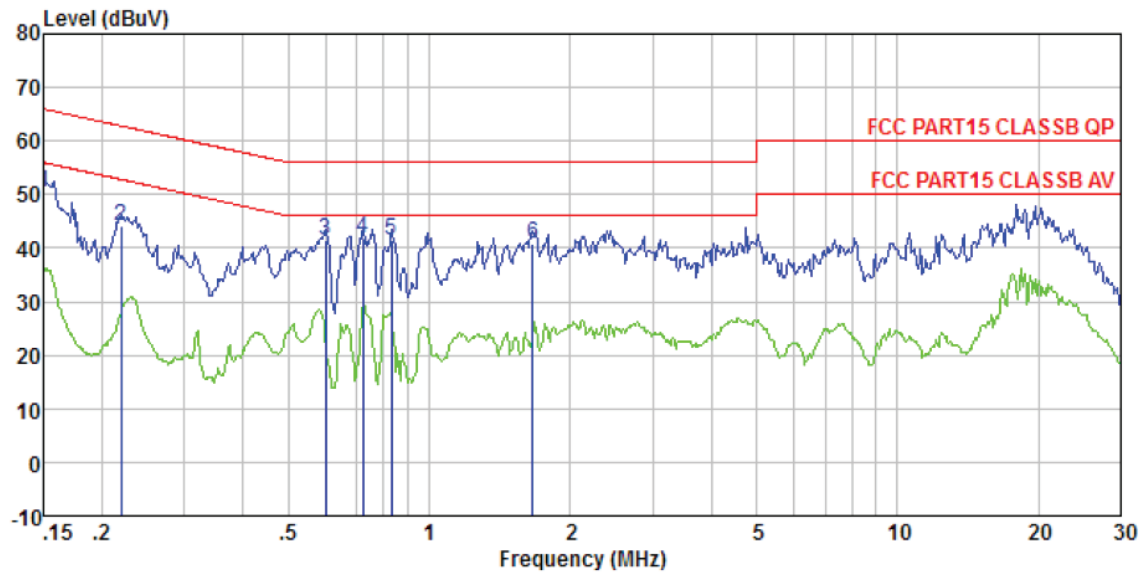
Line:



Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2012 LINE
 Job No. : 0205
 Test Mode : HDMI mode
 Test Engineer: Sky

	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.153	49.56	49.40	-0.26	0.10	65.82	-16.42	QP
2	0.216	44.33	44.20	-0.23	0.10	62.96	-18.76	QP
3	0.701	42.32	42.22	-0.20	0.10	56.00	-13.78	QP
4	0.826	42.20	42.10	-0.20	0.10	56.00	-13.90	QP
5	0.974	42.56	42.45	-0.21	0.10	56.00	-13.55	QP
6	1.480	41.79	41.67	-0.22	0.10	56.00	-14.33	QP

Neutral:



Site : Shielded room
 Condition : FCC PART15 CLASSB QP LISN-2012 NEUTRAL
 Job No. : 0205
 Test Mode : HDMI mode
 Test Engineer: Sky

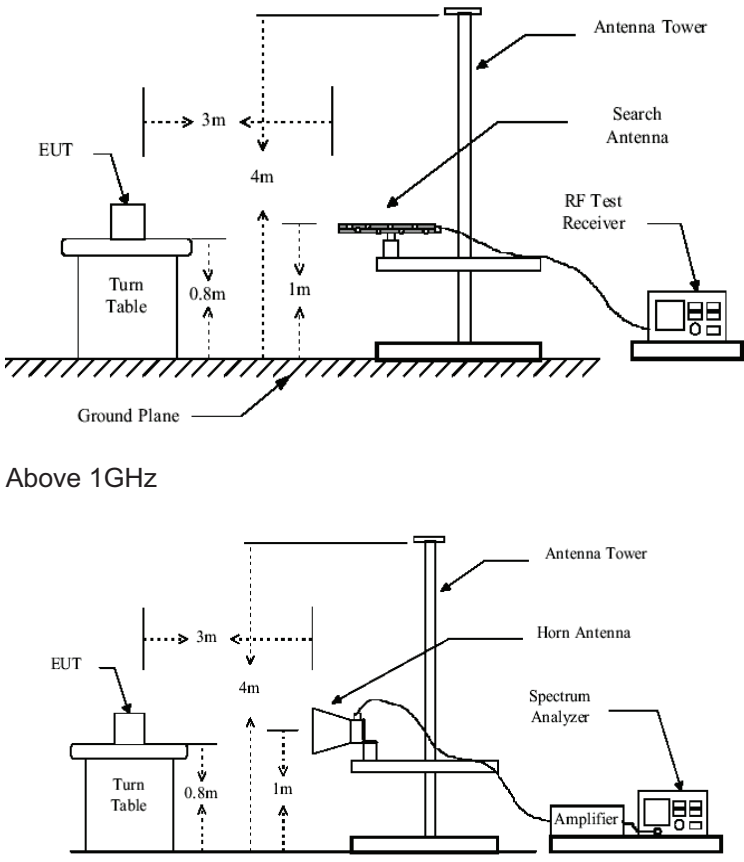
	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.150	50.57	50.54	-0.13	0.10	66.00	-15.46	QP
2	0.220	43.96	43.97	-0.09	0.10	62.83	-18.86	QP
3	0.601	41.40	41.42	-0.08	0.10	56.00	-14.58	QP
4	0.724	41.63	41.65	-0.08	0.10	56.00	-14.35	QP
5	0.830	41.35	41.37	-0.08	0.10	56.00	-14.63	QP
6	1.662	40.97	40.97	-0.10	0.10	56.00	-15.03	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 C63.4:2014																																					
Test Frequency Range:	30MHz to 25GHz																																					
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)																																					
Receiver setup:	<table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></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>					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														
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:	<table><tr><td colspan="2">Frequency</td><td>Limit (dBuV/m @3m)</td><td colspan="2">Remark</td></tr><tr><td colspan="2">30MHz-88MHz</td><td>40.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">88MHz-216MHz</td><td>43.50</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">216MHz-960MHz</td><td>46.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">960MHz-1GHz</td><td>54.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2" rowspan="2">Above 1GHz</td><td>54.00</td><td colspan="2">Average Value</td></tr><tr><td>74.00</td><td colspan="2">Peak Value</td></tr></table>					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	
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:	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.																																					
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:	Refer to section 5.3 for details
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:

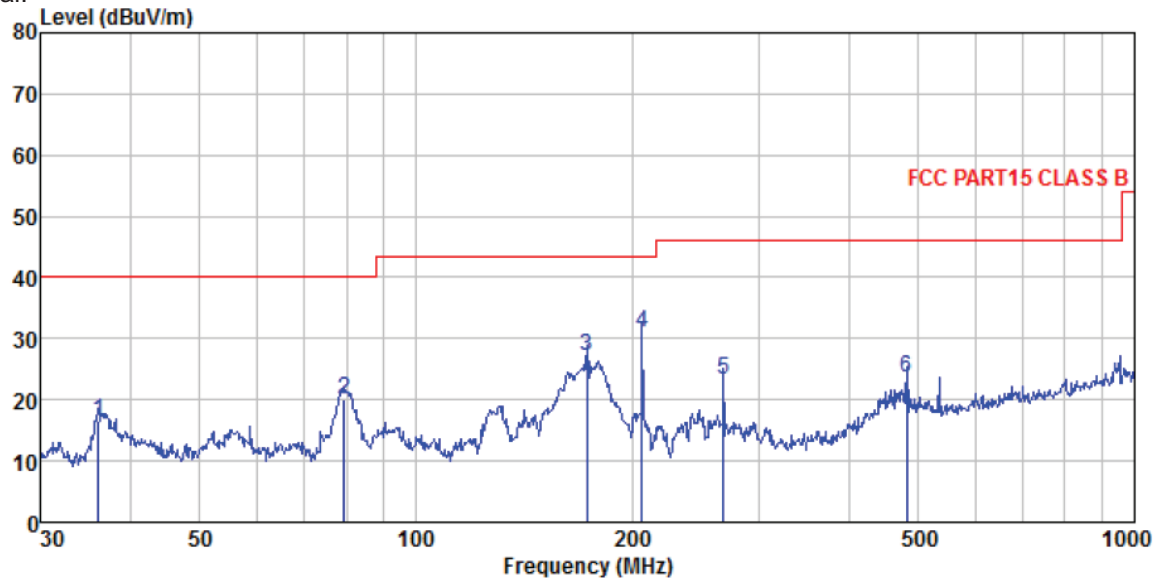
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

For above 1GHz test , 1GHz to 25GHz all have been tested , only worse case 1GHz to 6GHz is reported , from 6GHz to 25GHz , no emission is found

Measurement Data

Below 1GHz

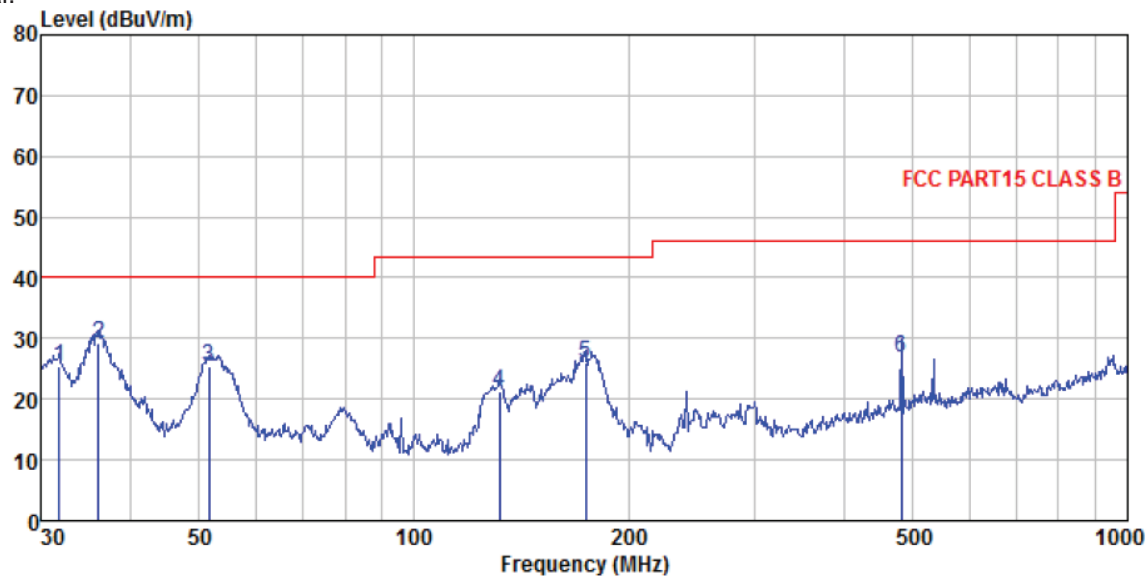
Horizontal:



Condition : FCC PART15 CLASS B VULB9163-2013M HORIZONTAL
 Job No. : 0205
 Test Mode : REC mode
 Test Engineer: He

	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	36.127	31.28	14.63	0.62	30.06	16.47	40.00	-23.53 QP
2	79.521	38.28	10.48	1.02	29.80	19.98	40.00	-20.02 QP
3	173.205	43.51	11.16	1.70	29.30	27.07	43.50	-16.43 QP
4	206.398	45.48	12.77	1.88	29.27	30.86	43.50	-12.64 QP
5	267.546	36.48	14.30	2.21	29.77	23.22	46.00	-22.78 QP
6	482.216	31.45	18.13	3.23	29.33	23.48	46.00	-22.52 QP

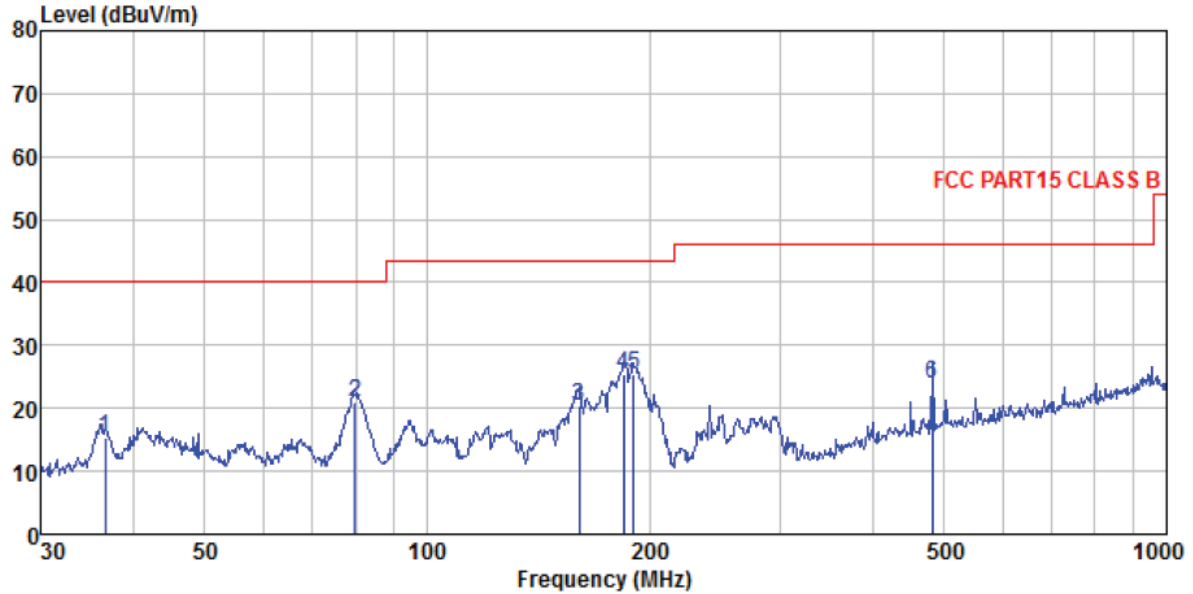
Vertical:



Condition : FCC PART15 CLASS B VULB9163-2013M VERTICAL
 Job No. : 0205
 Test Mode : REC mode
 Test Engineer: He

	Freq	ReadAntenna	Cable Preamp		Limit	Over		
		Level Factor	Loss Factor	Level	Line	Limit	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	31.843	40.57	14.32	0.57	30.09	25.37	40.00	-14.63 QP
2	36.127	44.12	14.63	0.62	30.06	29.31	40.00	-10.69 QP
3	51.662	39.29	15.17	0.79	29.99	25.26	40.00	-14.74 QP
4	131.758	38.48	10.82	1.45	29.50	21.25	43.50	-22.25 QP
5	173.814	42.30	11.23	1.71	29.30	25.94	43.50	-17.56 QP
6	482.216	34.75	18.13	3.23	29.33	26.78	46.00	-19.22 QP

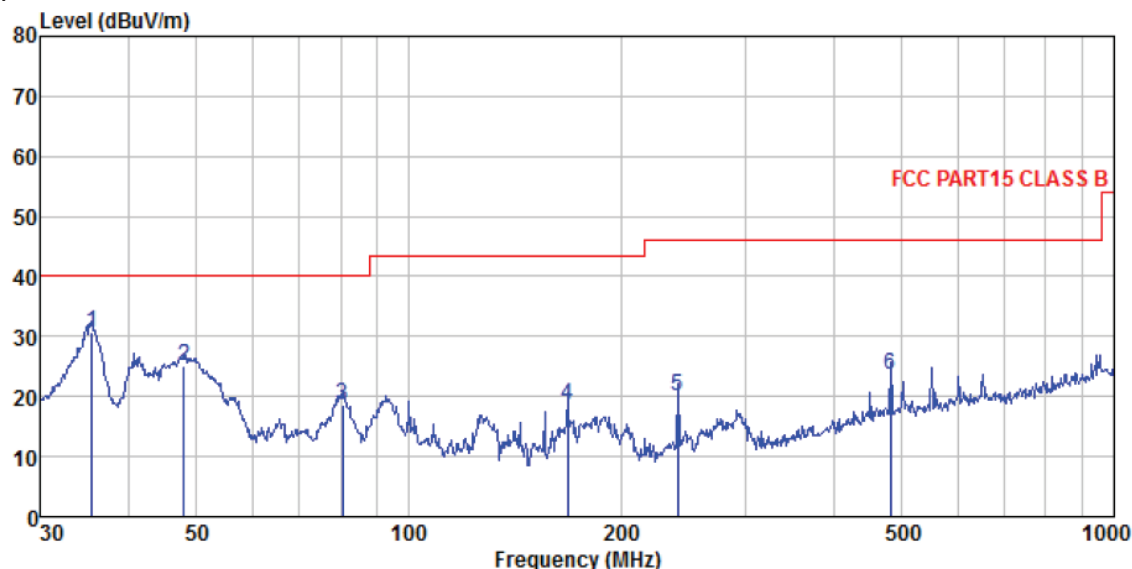
Horizontal:



Condition : FCC PART15 CLASS B VULB9163-2013M HORIZONTAL
 Job No. : 0205
 Test Mode : IF card playing mode
 Test Engineer: He

	Freq	ReadAntenna Level	Cable Preamp Factor	Loss Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	36.637	30.16	14.73	0.63	30.06	15.46	40.00	-24.54 QP
2	79.800	39.27	10.54	1.03	29.80	21.04	40.00	-18.96 QP
3	160.346	37.52	10.67	1.63	29.36	20.46	43.50	-23.04 QP
4	184.490	40.94	12.08	1.76	29.26	25.52	43.50	-17.98 QP
5	190.405	40.18	12.56	1.79	29.23	25.30	43.50	-18.20 QP
6	482.216	32.03	18.13	3.23	29.33	24.06	46.00	-21.94 QP

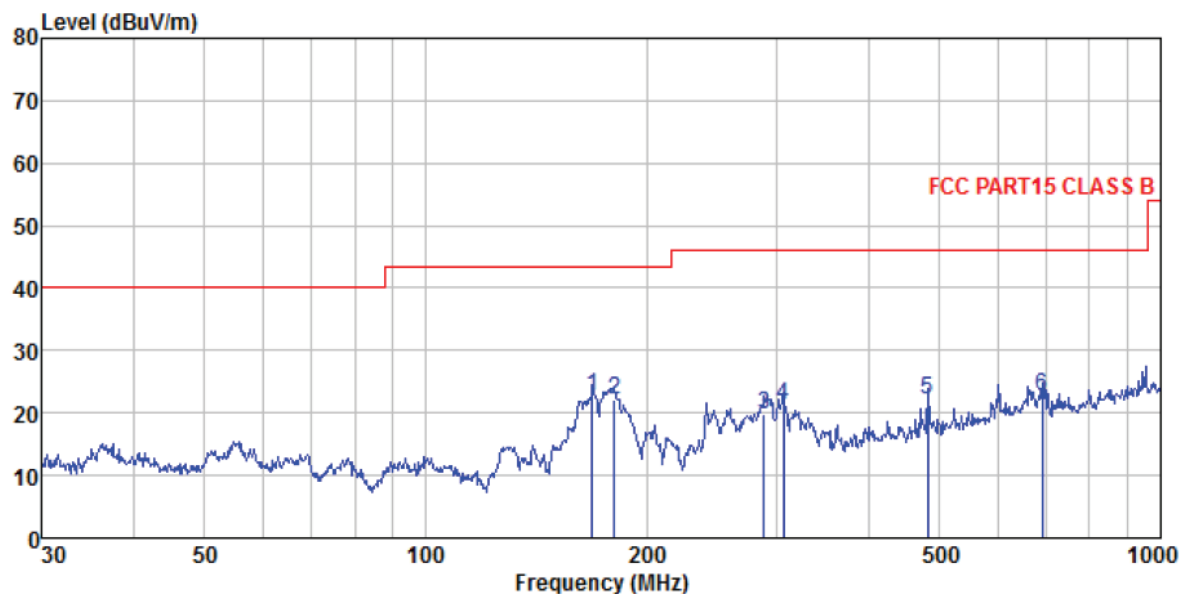
Vertical:



Condition : FCC PART15 CLASS B VULB9163-2013M VERTICAL
 Job No. : 0205
 Test Mode : TF card playing mode
 Test Engineer: He

		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	35.499	45.60	14.44	0.61	30.07	30.58	40.00	-9.42 QP
2	47.994	38.91	15.36	0.75	30.01	25.01	40.00	-14.99 QP
3	80.644	36.48	10.84	1.03	29.79	18.56	40.00	-21.44 QP
4	167.824	35.46	10.90	1.67	29.33	18.70	43.50	-24.80 QP
5	240.830	33.45	14.09	2.08	29.57	20.05	46.00	-25.95 QP
6	482.216	31.59	18.13	3.23	29.33	23.62	46.00	-22.38 QP

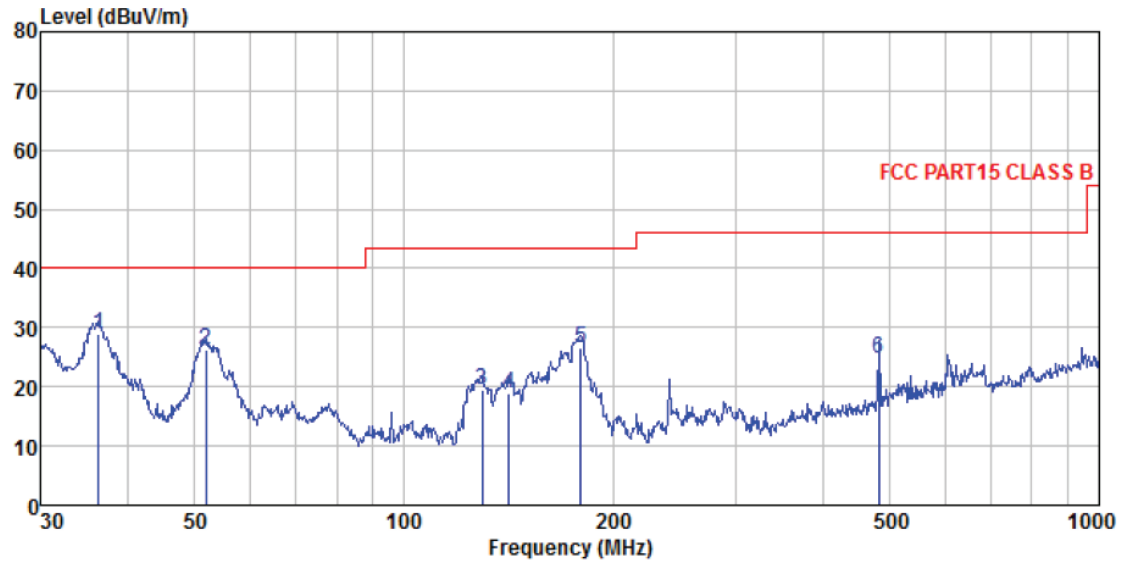
Horizontal:



Condition : FCC PART15 CLASS B VULB9163-2013M HORIZONTAL
 Job No. : 0205
 Test Mode : Burning test mode
 Test Engineer: He

	ReadAntenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	168.414	39.33	10.92	1.68	29.32	22.61	43.50
2	180.649	38.04	11.76	1.74	29.27	22.27	43.50
3	289.002	32.62	14.84	2.31	29.93	19.84	46.00
4	306.754	33.70	15.15	2.39	29.96	21.28	46.00
5	482.216	29.99	18.13	3.23	29.33	22.02	46.00
6	689.565	27.05	20.78	4.05	29.21	22.67	46.00

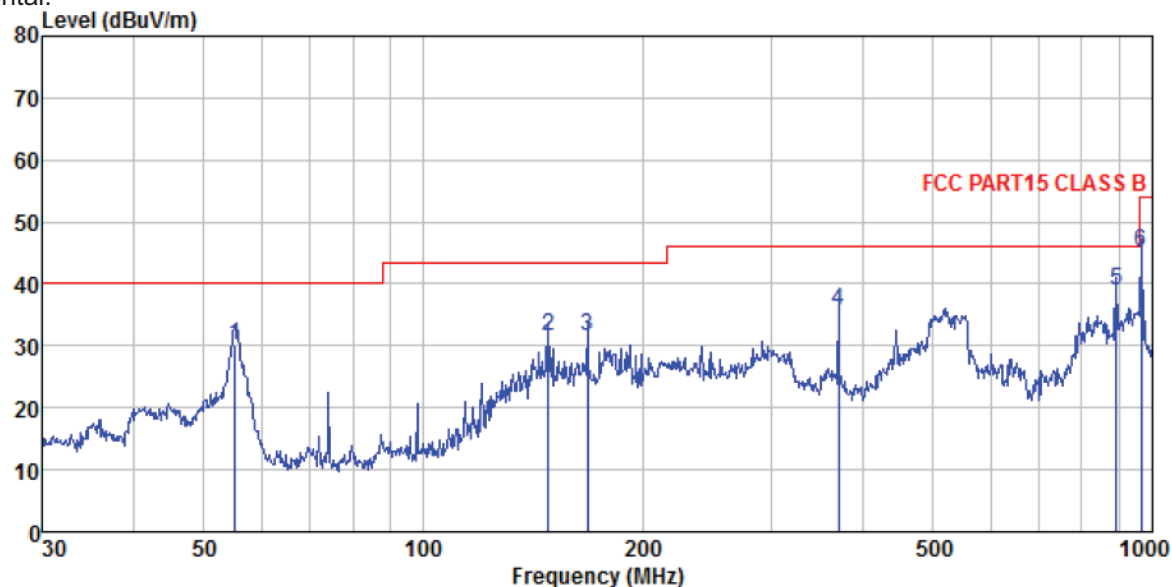
Vertical:



Condition : FCC PART15 CLASS B VULB9163-2013M VERTICAL
Job No. : 0205
Test Mode : Burning test mode
Test Engineer: He

	Freq	ReadAntenna	Cable	Preamp	Limit	Over	
	Level	Factor	Loss	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	36.381	43.79	14.68	0.62	30.06	29.03	40.00 -10.97 QP
2	51.843	40.21	15.16	0.79	29.98	26.18	40.00 -13.82 QP
3	129.468	36.63	11.03	1.43	29.51	19.58	43.50 -23.92 QP
4	141.826	36.69	10.20	1.52	29.45	18.96	43.50 -24.54 QP
5	179.386	42.55	11.62	1.74	29.28	26.63	43.50 -16.87 QP
6	482.216	32.69	18.13	3.23	29.33	24.72	46.00 -21.28 QP

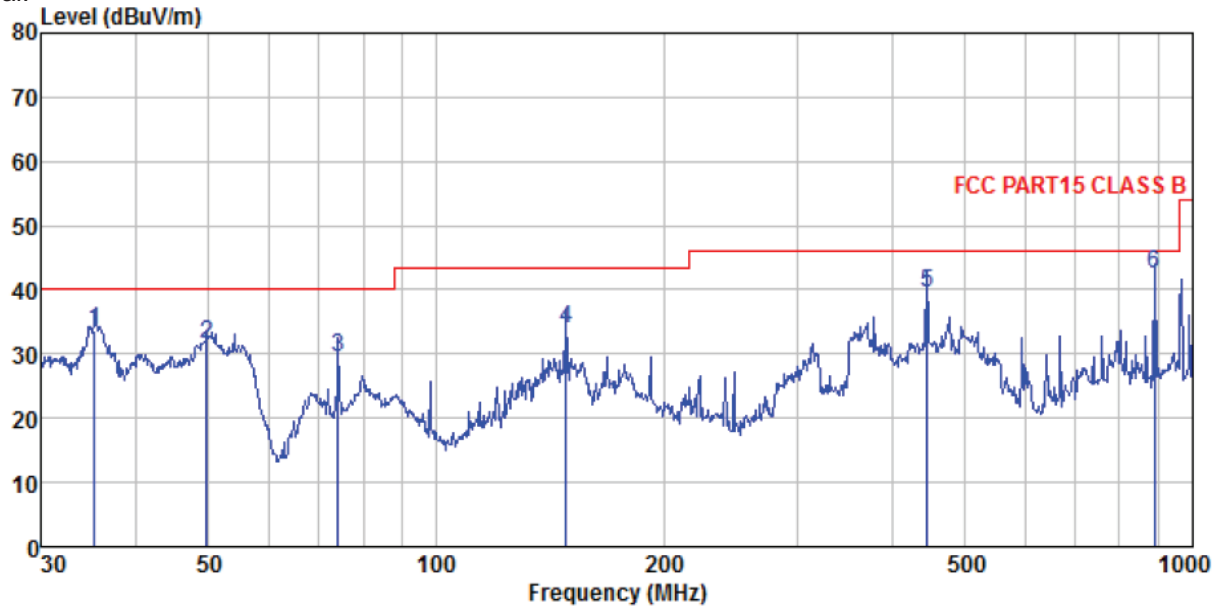
Horizontal:



Condition : FCC PART15 CLASS B VULB9163-2013M HORIZONTAL
 Job No. : 0205
 Test Mode : HDMI mode
 Test Engineer: He

	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	55.221	44.31	15.00	0.82	29.96	30.17	40.00	-9.83	QP
2	148.441	49.26	10.25	1.56	29.41	31.66	43.50	-11.84	QP
3	167.824	48.31	10.90	1.67	29.33	31.55	43.50	-11.95	QP
4	370.702	46.06	16.51	2.72	29.64	35.65	46.00	-10.35	QP
5	890.728	40.37	23.00	4.82	29.11	39.08	46.00	-6.92	QP
6	965.542	45.63	23.52	5.09	29.10	45.14	54.00	-8.86	QP

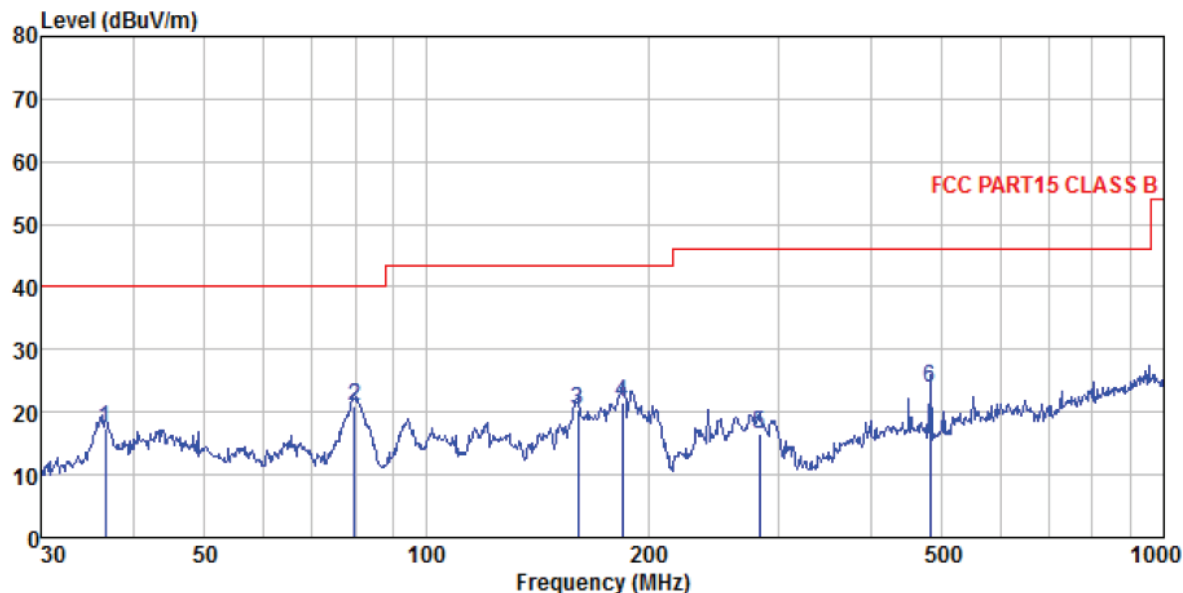
Vertical:



Condition : FCC PART15 CLASS B VULB9163-2013M VERTICAL
 Job No. : 0205
 Test Mode : HDMI mode
 Test Engineer: He

		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	35.375	48.58	14.39	0.61	30.07	33.51	40.00	-6.49 QP
2	49.707	45.44	15.28	0.77	30.00	31.49	40.00	-8.51 QP
3	74.135	48.36	9.93	0.98	29.83	29.44	40.00	-10.56 QP
4	148.441	51.62	10.25	1.56	29.41	34.02	43.50	-9.48 QP
5	444.851	48.44	17.57	3.07	29.41	39.67	46.00	-6.33 QP
6	890.097	43.70	23.00	4.82	29.11	42.41	46.00	-3.59 QP

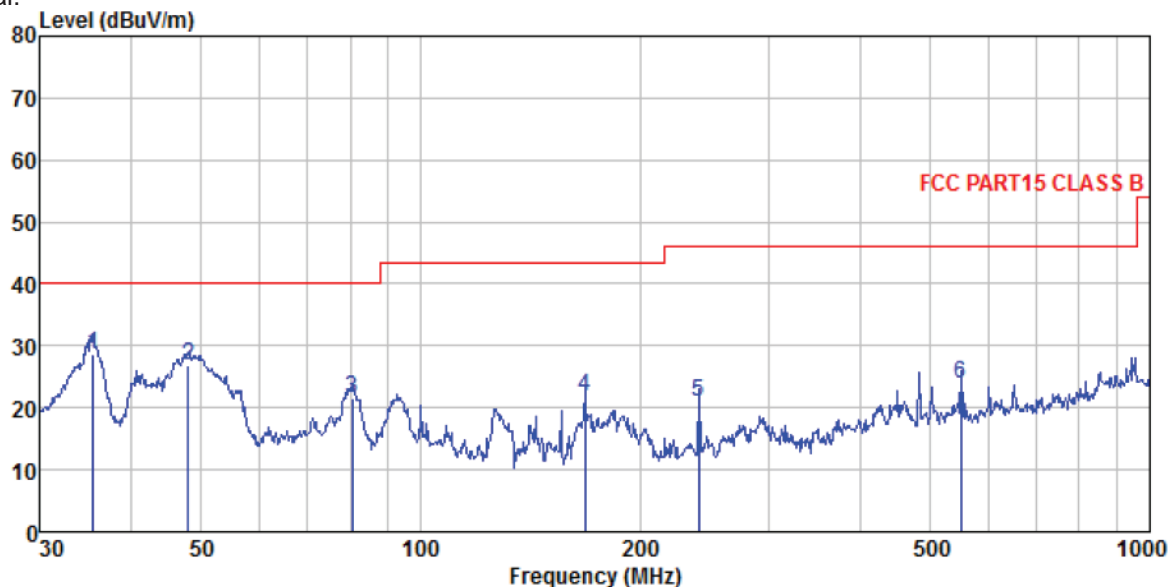
Horizontal:



Condition : FCC PART15 CLASS B VULB9163-2013M HORIZONTAL
 Job No. : 0205
 Test Mode : USB playing mode
 Test Engineer: He

	Freq	ReadAntenna Level	Cable Factor	Preamp Loss	Level	Limit	Over	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	36.637	32.16	14.73	0.63	30.06	17.46	40.00	-22.54 QP
2	79.800	39.27	10.54	1.03	29.80	21.04	40.00	-18.96 QP
3	160.346	37.52	10.67	1.63	29.36	20.46	43.50	-23.04 QP
4	184.490	36.94	12.08	1.76	29.26	21.52	43.50	-21.98 QP
5	282.985	29.53	14.73	2.28	29.89	16.65	46.00	-29.35 QP
6	482.216	32.03	18.13	3.23	29.33	24.06	46.00	-21.94 QP

Vertical:

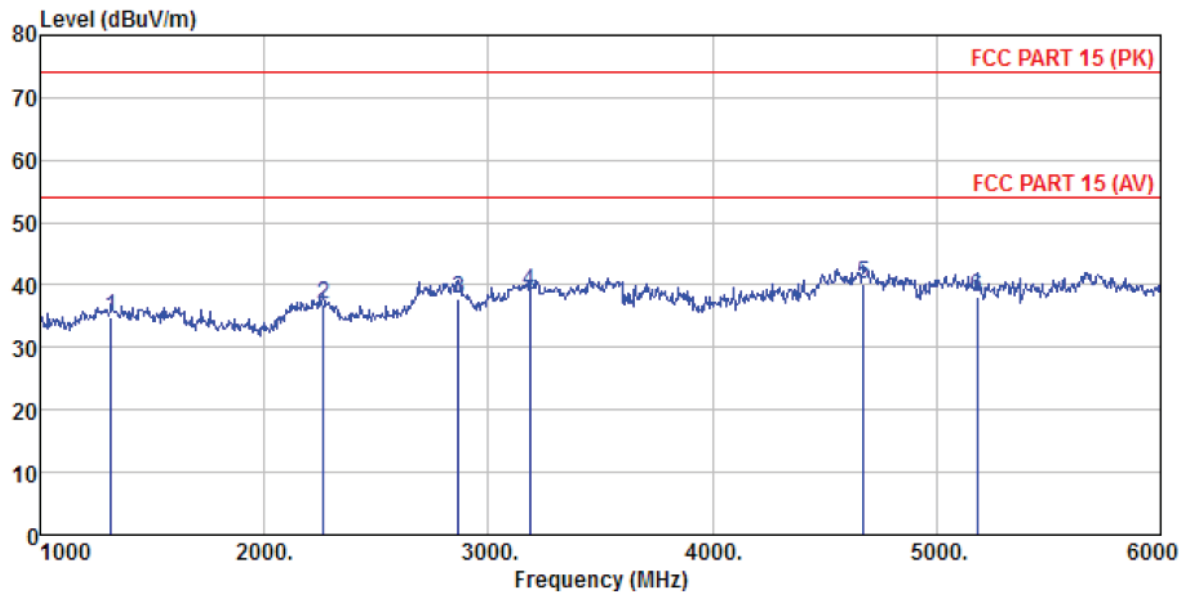


Condition : FCC PART15 CLASS B VULB9163-2013M VERTICAL
 Job No. : 0205
 Test Mode : USB playing mode
 Test Engineer: He

	Freq	ReadAntenna Level	Cable Factor	Preamp Loss	Level	Limit	Over	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	35.499	43.60	14.44	0.61	30.07	28.58	40.00	-11.42 QP
2	47.994	40.91	15.36	0.75	30.01	27.01	40.00	-12.99 QP
3	80.644	39.48	10.84	1.03	29.79	21.56	40.00	-18.44 QP
4	167.824	38.46	10.90	1.67	29.33	21.70	43.50	-21.80 QP
5	240.830	34.45	14.09	2.08	29.57	21.05	46.00	-24.95 QP
6	550.948	30.14	19.57	3.53	29.30	23.94	46.00	-22.06 QP

Above 1GHz

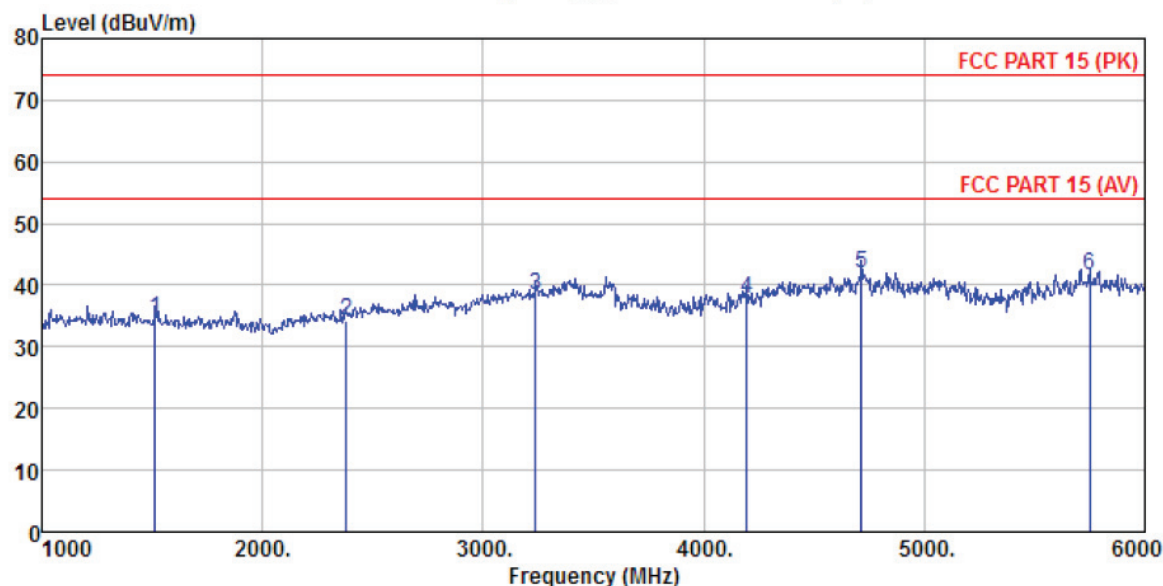
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
 Job No. : 0205
 Test Mode : REC mode
 Test Engineer: He

	Freq	ReadAntenna	Cable	Preamp	Limit	Over	
	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	1315.000	37.94	25.66	4.56	33.30	34.86	74.00 -39.14 Peak
2	2265.000	37.68	28.01	5.25	34.17	36.77	74.00 -37.23 Peak
3	2865.000	36.95	28.40	5.81	33.47	37.69	74.00 -36.31 Peak
4	3185.000	36.89	28.76	6.33	33.10	38.88	74.00 -35.12 Peak
5	4675.000	32.05	31.63	8.49	32.02	40.15	74.00 -33.85 Peak
6	5180.000	29.24	32.00	9.03	32.27	38.00	74.00 -36.00 Peak

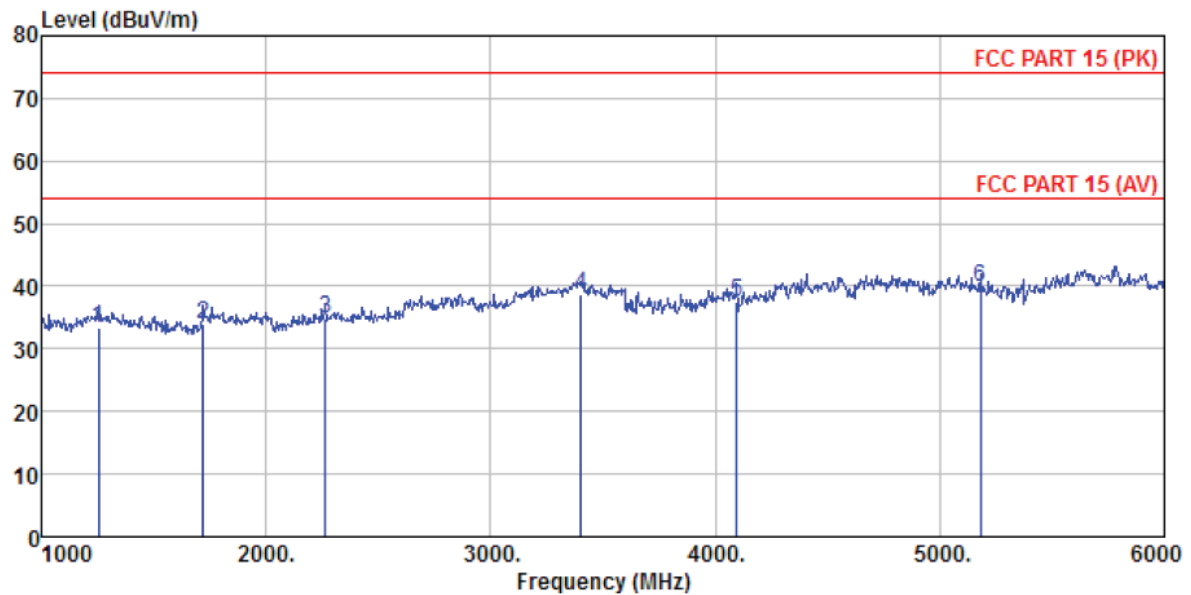
Vertical:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
 Job No. : 0205
 Test Mode : REC mode
 Test Engineer: He

	Freq	ReadAntenna		Cable Preamp		Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Factor	dBuV/m	dBuV/m	Limit	
		dBuV	dB/m	dB	dB			dB	
1	1515.000	38.22	25.20	4.69	33.62	34.49	74.00	-39.51	Peak
2	2380.000	35.39	27.63	5.37	34.03	34.36	74.00	-39.64	Peak
3	3240.000	36.50	28.58	6.45	33.04	38.49	74.00	-35.51	Peak
4	4195.000	31.64	30.18	8.05	31.96	37.91	74.00	-36.09	Peak
5	4715.000	33.77	31.66	8.53	32.05	41.91	74.00	-32.09	Peak
6	5750.000	31.37	32.56	9.86	32.28	41.51	74.00	-32.49	Peak

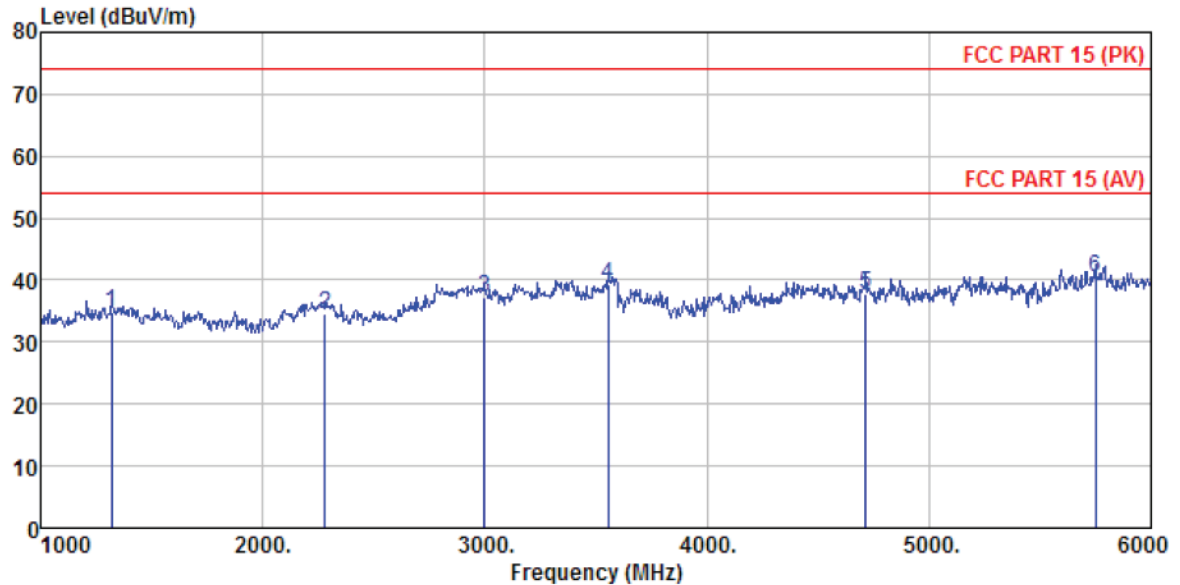
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
 Job No. : 0205
 Test Mode : TF card playing mode
 Test Engineer: He

	ReadAntenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit
-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1255.000	36.54	25.54	4.51	33.18	33.41	74.00
2	1720.000	38.14	25.01	4.81	33.97	33.99	74.00
3	2265.000	35.68	28.01	5.25	34.17	34.77	74.00
4	3405.000	36.23	28.64	6.78	32.87	38.78	74.00
5	4095.000	31.80	29.89	7.96	32.07	37.58	74.00
6	5180.000	31.24	32.00	9.03	32.27	40.00	74.00

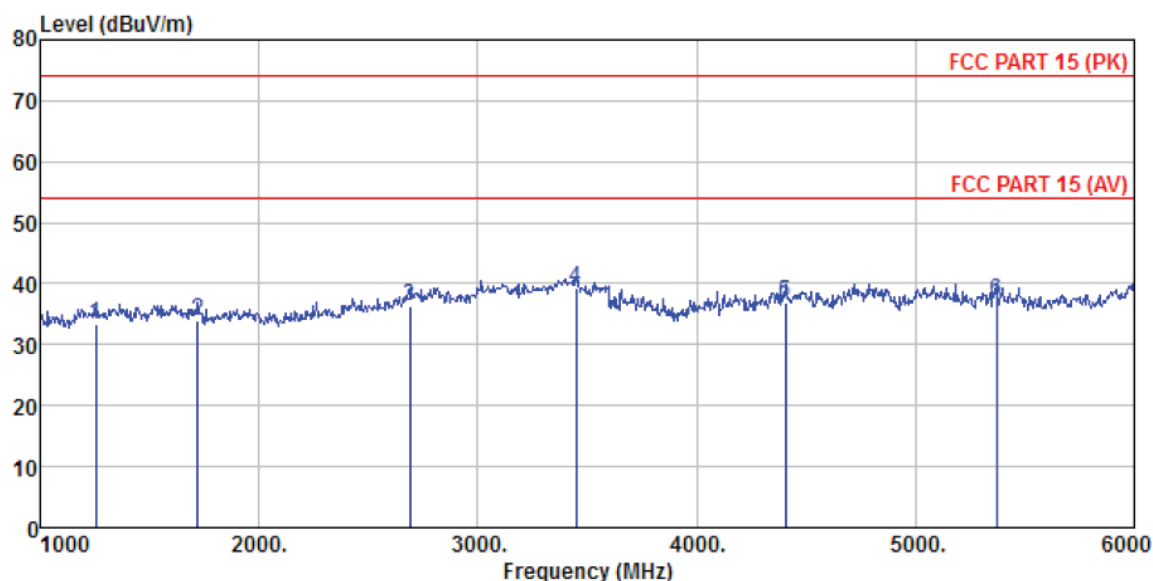
Vertical:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
 Job No. : 0205
 Test Mode : TF card playing mode
 Test Engineer: He

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1320.000	37.86	25.66	4.56	33.30	34.78	74.00	-39.22	Peak
2	2280.000	35.32	27.99	5.27	34.15	34.43	74.00	-39.57	Peak
3	3000.000	36.22	28.47	5.92	33.31	37.30	74.00	-36.70	Peak
4	3555.000	35.92	29.09	7.07	32.69	39.39	74.00	-34.61	Peak
5	4715.000	29.77	31.66	8.53	32.05	37.91	74.00	-36.09	Peak
6	5750.000	30.37	32.56	9.86	32.28	40.51	74.00	-33.49	Peak

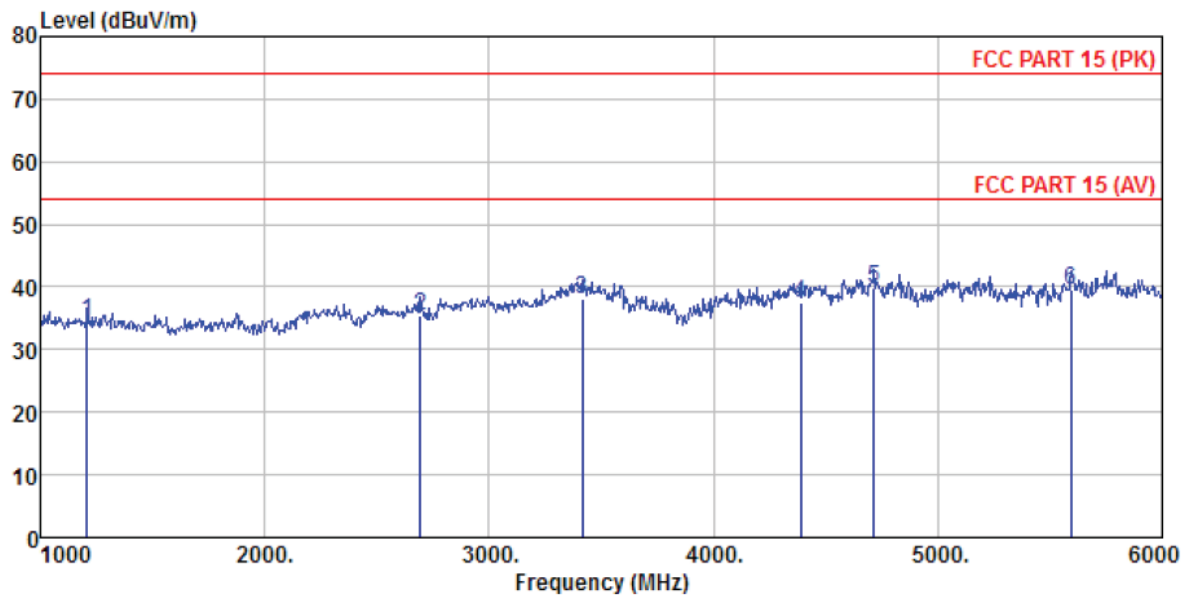
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
 Job No. : 0205
 Test Mode : Burning test mode
 Test Engineer: He

	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	1255.000	36.54	25.54	4.51	33.18	33.41	74.00	-40.59 Peak
2	1720.000	38.14	25.01	4.81	33.97	33.99	74.00	-40.01 Peak
3	2690.000	36.22	28.12	5.66	33.68	36.32	74.00	-37.68 Peak
4	3450.000	36.27	28.80	6.86	32.81	39.12	74.00	-34.88 Peak
5	4405.000	29.35	31.09	8.25	31.89	36.80	74.00	-37.20 Peak
6	5370.000	28.42	31.77	9.33	32.36	37.16	74.00	-36.84 Peak

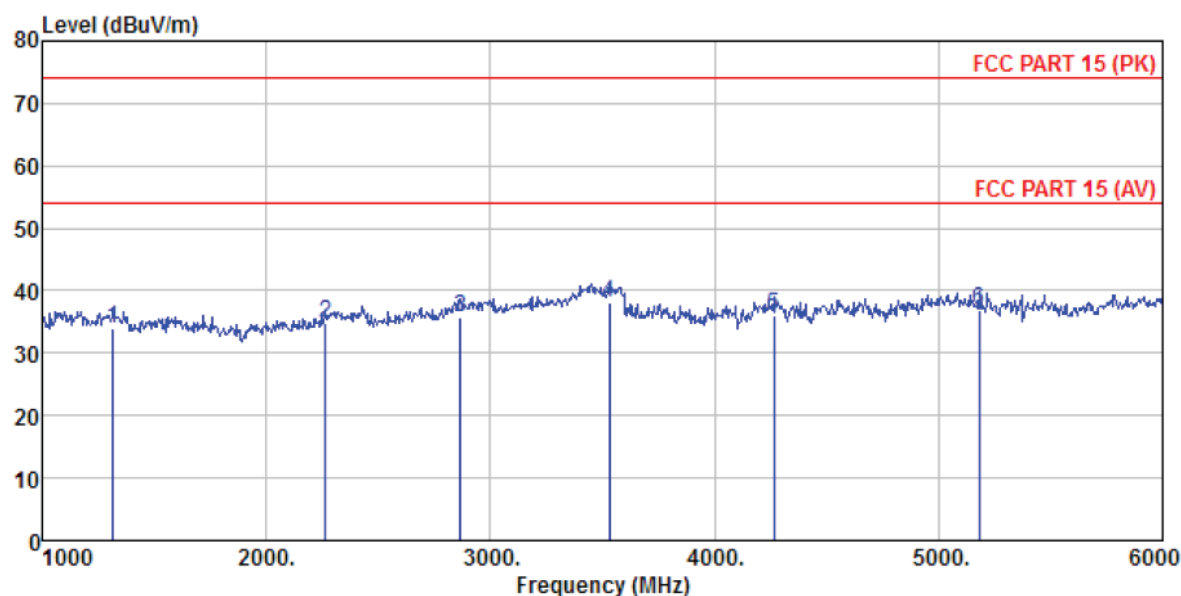
Vertical:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
Job No. : 0205
Test Mode : Burning test mode
Test Engineer: He

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
		Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1210.000	37.71	25.39	4.47	33.10	34.47	74.00	-39.53 Peak
2	2695.000	35.16	28.16	5.67	33.66	35.33	74.00	-38.67 Peak
3	3415.000	35.38	28.67	6.80	32.85	38.00	74.00	-36.00 Peak
4	4390.000	30.03	31.05	8.24	31.88	37.44	74.00	-36.56 Peak
5	4715.000	31.77	31.66	8.53	32.05	39.91	74.00	-34.09 Peak
6	5595.000	30.08	32.22	9.65	32.38	39.57	74.00	-34.43 Peak

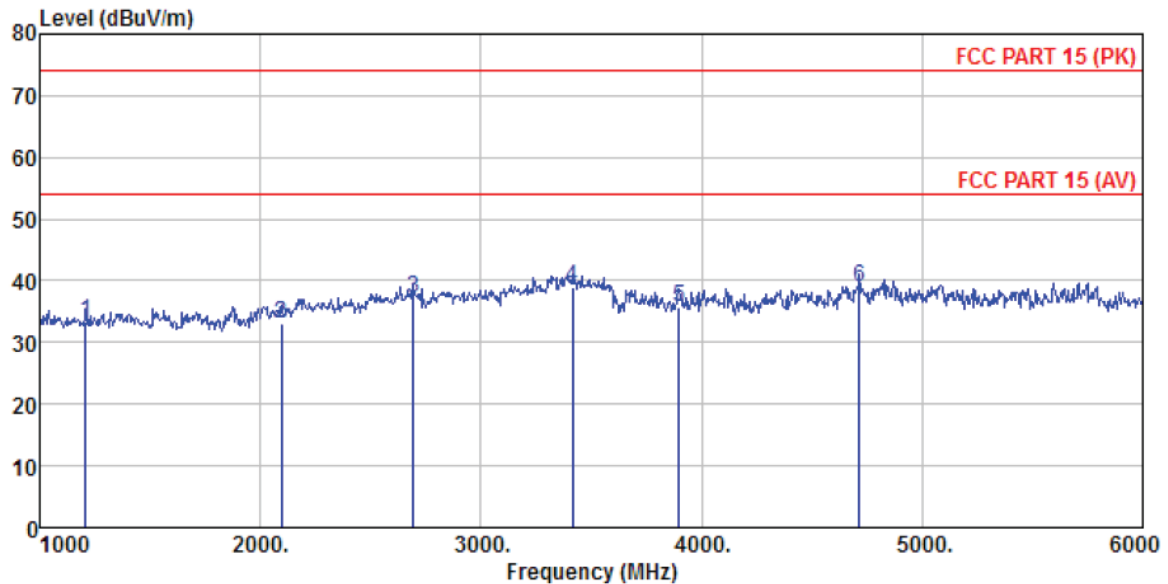
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
 Job No. : 0205
 Test Mode : HDMI mode
 Test Engineer: He

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1315.000	36.94	25.66	4.56	33.30	33.86	74.00	-40.14	Peak
2	2265.000	35.68	28.01	5.25	34.17	34.77	74.00	-39.23	Peak
3	2865.000	34.95	28.40	5.81	33.47	35.69	74.00	-38.31	Peak
4	3530.000	34.79	29.04	7.01	32.71	38.13	74.00	-35.87	Peak
5	4265.000	29.35	30.50	8.12	31.88	36.09	74.00	-37.91	Peak
6	5180.000	28.24	32.00	9.03	32.27	37.00	74.00	-37.00	Peak

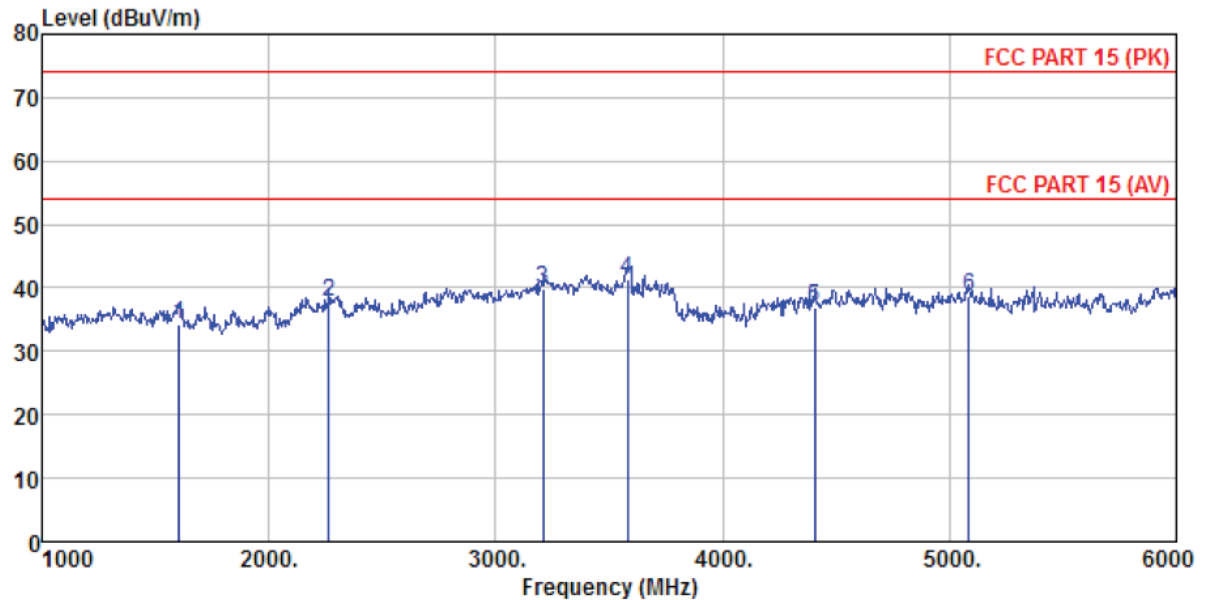
Vertical:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
 Job No. : 0205
 Test Mode : HDMI mode
 Test Engineer: He

	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	1210.000	36.71	25.39	4.47	33.10	33.47	74.00	-40.53 Peak
2	2095.000	35.52	26.91	5.07	34.36	33.14	74.00	-40.86 Peak
3	2695.000	37.16	28.16	5.67	33.66	37.33	74.00	-36.67 Peak
4	3415.000	36.38	28.67	6.80	32.85	39.00	74.00	-35.00 Peak
5	3900.000	30.73	29.50	7.69	32.29	35.63	74.00	-38.37 Peak
6	4715.000	30.77	31.66	8.53	32.05	38.91	74.00	-35.09 Peak

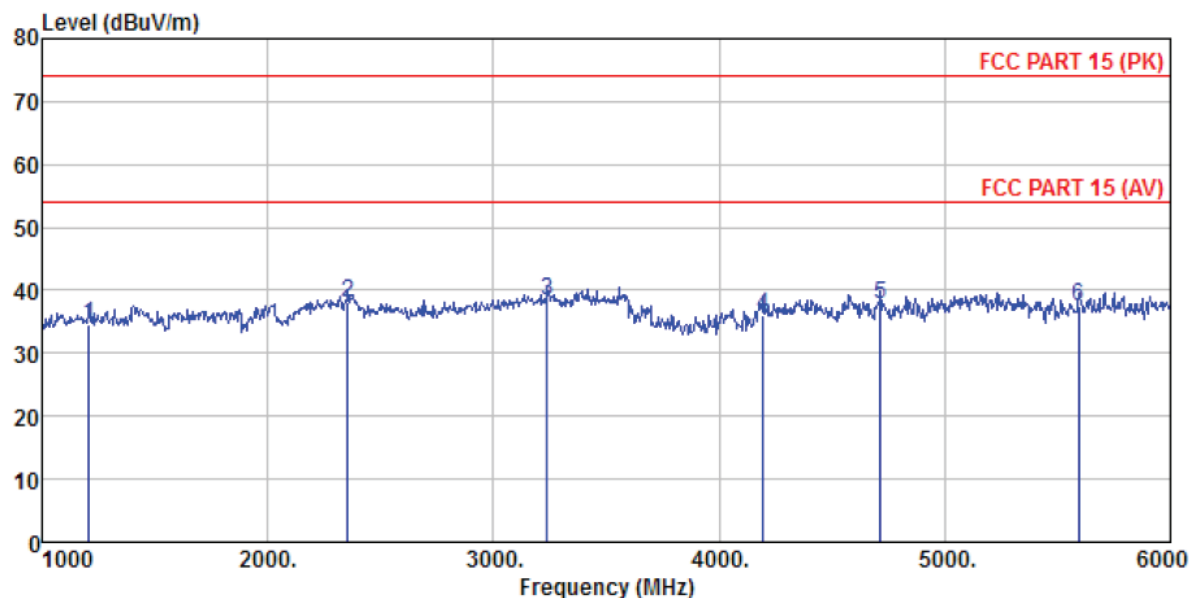
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
 Job No. : 0205
 Test Mode : USB playing mode
 Test Engineer: He

	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	
		Level	Factor	Loss	Factor		Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1605.000	38.29	24.97	4.75	33.79	34.22	74.00	-39.78	Peak
2	2265.000	38.68	28.01	5.25	34.17	37.77	74.00	-36.23	Peak
3	3210.000	37.85	28.68	6.39	33.08	39.84	74.00	-34.16	Peak
4	3580.000	37.86	29.11	7.11	32.66	41.42	74.00	-32.58	Peak
5	4405.000	29.35	31.09	8.25	31.89	36.80	74.00	-37.20	Peak
6	5085.000	29.85	32.02	8.90	32.22	38.55	74.00	-35.45	Peak

Vertical:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
 Job No. : 0205
 Test Mode : USB playing mode
 Test Engineer: He

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
		Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1210.000	37.71	25.39	4.47	33.10	34.47	74.00	-39.53 Peak
2	2355.000	39.18	27.69	5.34	34.05	38.16	74.00	-35.84 Peak
3	3240.000	36.50	28.58	6.45	33.04	38.49	74.00	-35.51 Peak
4	4195.000	29.64	30.18	8.05	31.96	35.91	74.00	-38.09 Peak
5	4715.000	29.77	31.66	8.53	32.05	37.91	74.00	-36.09 Peak
6	5595.000	28.08	32.22	9.65	32.38	37.57	74.00	-36.43 Peak

8 Test Setup Photo

Radiated Emission



Conducted Emission



9 EUT Constructional Details

Reference to the test report No. GTS201605000205E01

----- End-----