FCC PART 15 CLASS B
EMI MEASUREMENT AND TEST REPORT
For

BRK Brands Inc

3901 Liberty Street Road Aurora Illinois United States 60504-8122

FCC ID: M7UDWIP-720

May 16, 2013

This Report Concerns:	Equipment Type:
Original Report	Camera

Test Engineer:	Anna Lv
Report No.:	BST201304180001ER
Receive EUT Date/Test Date:	May 13, 2013 / May 14, 2013 - May 16, 2013
Reviewed By:	Mike Moo
Prepared By:	**Shenzhen BST Technology Co.,Ltd.** 3F,Weames Technology Building, No. 10 Kefa Road, Science Park, Nanshan District,Shenzhen,Guangdong,China Tel: 0755-26747751-3 Fax: 0755-26747751-3 ext.826

2 Contents

3 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.

4 General Information

4.1 Client Information

Applicant:	BRK Brands Inc
Address of Applicant:	3901 Liberty Street Road Aurora Illinois United States 60504-8122
Manufacturer:	DIT DIGITAL CO., LTD.
Address of Manufacturer:	B1101 Seat, Tsinghua Science Park, NO. 101, University Road, Tangjiawan, zhuhai China

4.2 General Description of EUT

Product Name:	Camera
Model No.:	DWIP-720
Power supply:	Adapter: Model No.:HND 050200U Adapter Input: AC 100~240V~50/60Hz Output: 5.0V 2.0A DC 3.7V Li-ion Battery

4.3 Test mode

Test mode:	
LAN mode	Keep the EUT in data exchange with LAN mode.

4.4 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, July 20, 2010.

● **Industry Canada (IC)**

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-1.

4.5 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 Tel: 0755-27798480 Fax: 0755-27798960

4.6 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
IBM	Notebook	T42	GTS516	DOC

4.7 Abnormalities from Standard Conditions

None.

4.8 Other Information Requested by the Customer

None.

5 Test Instruments list

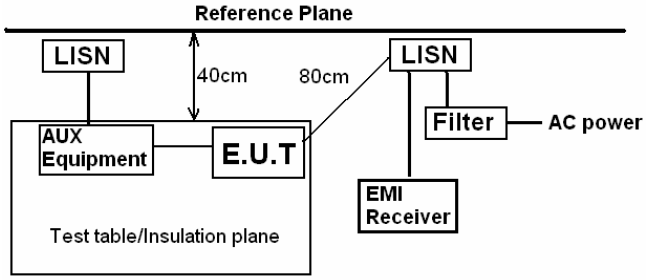
Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	Mar. 29 2013	Mar. 28 2015
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	Jul. 07 2012	Jul. 06 2013
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	Mar. 09 2013	Mar. 08 2014
5	Double -ridged waveguide horn	SCHWARZBECK	9120D	GTS208	Mar. 09 2013	Mar. 08 2014
6	RF Amplifier	HP	8347A	GTS204	Jul. 07 2012	Jul. 06 2013
7	Preamplifier	HP	8349B	GTS206	Jul. 07 2012	Jul. 06 2013
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	Jul. 07 2012	Jul. 06 2013
10	Coaxial Cable	GTS	N/A	GTS211	Jul. 07 2012	Jul. 06 2013
11	Thermo meter	N/A	N/A	GTS256	Jul. 07 2012	Jul. 06 2013

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. 08 2011	Sep. 07 2013
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 03 2012	Jul. 02 2013
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 03 2012	Jul. 02 2013
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 03 2012	Jul. 02 2013
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 03 2012	Jul. 02 2013
6	Coaxial Cable	GTS	N/A	GTS227	Jul. 03 2012	Jul. 02 2013
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 (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	Barometer	ChangChun	DYM3	GTS257	July 10 2012	July 09 2013

6 Test Results and Measurement Data

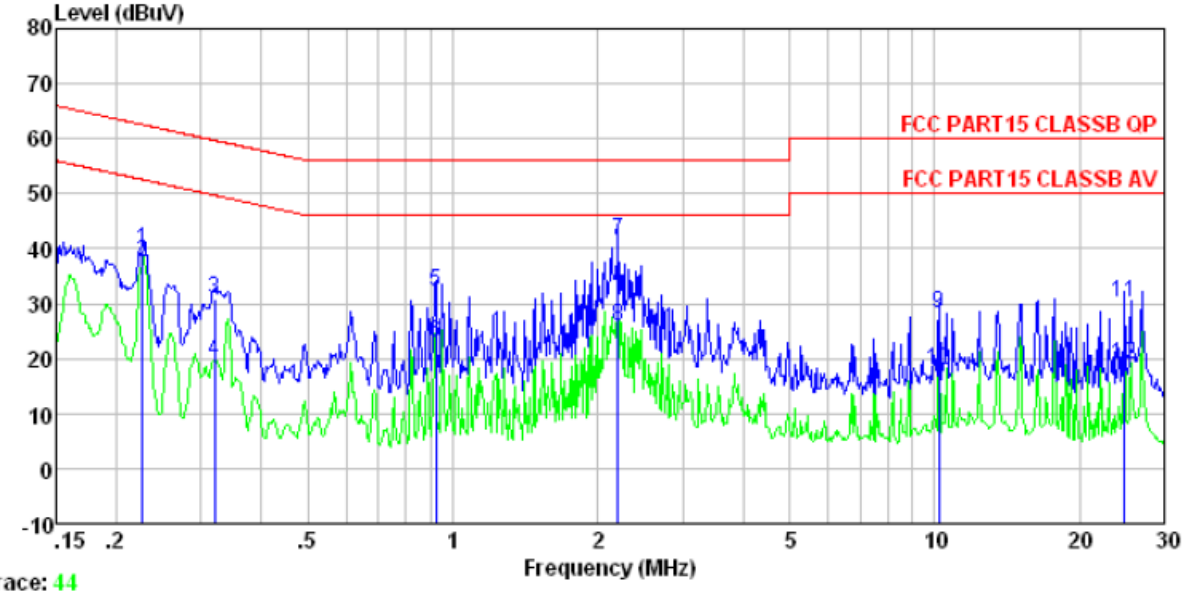
6.1 Conducted Emissions

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 B Section 15.107</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4:2003</td></tr>
<tr><td>Test Frequency Range:</td><td>150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td>Class B</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9KHz, VBW=30KHz, Sweep time=auto</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</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>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test setup:</td><td>


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m
</td></tr>
<tr><td>Test procedure:</td><td>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: 2003 on conducted measurement.</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Measurement Data

Line:

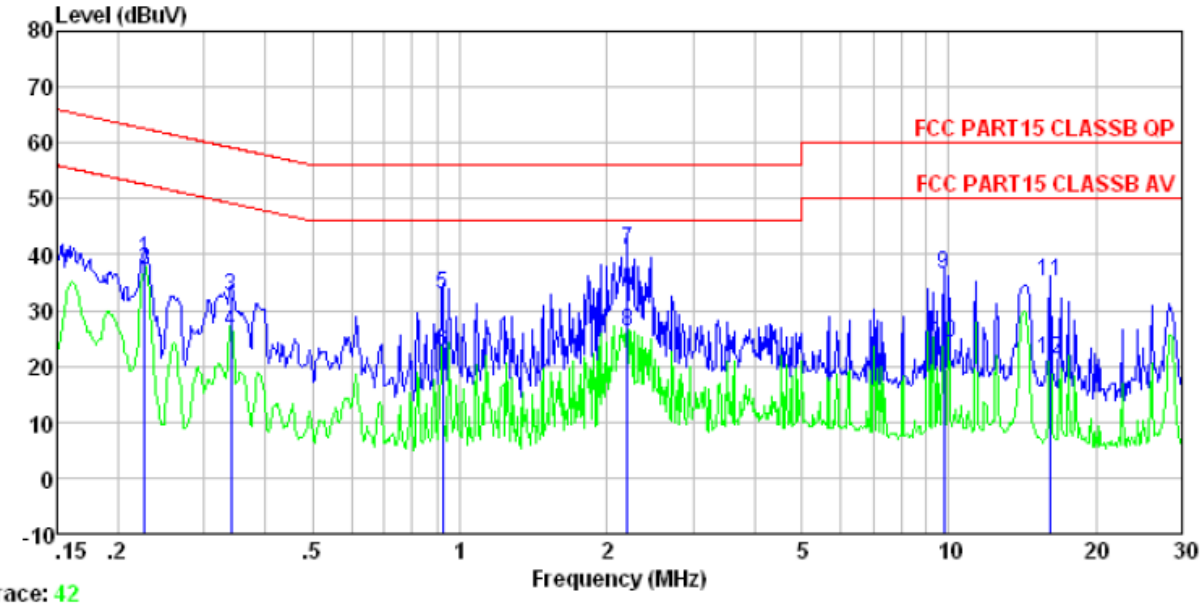


Trace: 44

Condition : FCC PART15 CLASSB QP LISN-2012 LINE
Job No. : 652RF
Test mode : LAN mode
Test Engineer: Blue

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.227	39.95	-0.23	0.10	39.82	62.57	-22.75	QP
2	0.227	37.47	-0.23	0.10	37.34	52.57	-15.23	Average
3	0.320	30.98	-0.22	0.10	30.86	59.71	-28.85	QP
4	0.320	19.76	-0.22	0.10	19.64	49.71	-30.07	Average
5	0.923	32.29	-0.21	0.10	32.18	56.00	-23.82	QP
6	0.923	23.13	-0.21	0.10	23.02	46.00	-22.98	Average
7	2.201	41.60	-0.24	0.10	41.46	56.00	-14.54	QP
8	2.201	26.04	-0.24	0.10	25.90	46.00	-20.10	Average
9	10.233	28.44	-0.42	0.20	28.22	60.00	-31.78	QP
10	10.233	18.12	-0.42	0.20	17.90	50.00	-32.10	Average
11	24.790	30.86	-0.83	0.21	30.24	60.00	-29.76	QP
12	24.790	19.46	-0.83	0.21	18.84	50.00	-31.16	Average

Neutral:



Trace: 42

Condition : FCC PART15 CLASSB QP LISN-2012 NEUTRAL
Job No. : 652RF
Test mode : LAN mode
Test Engineer: Blue

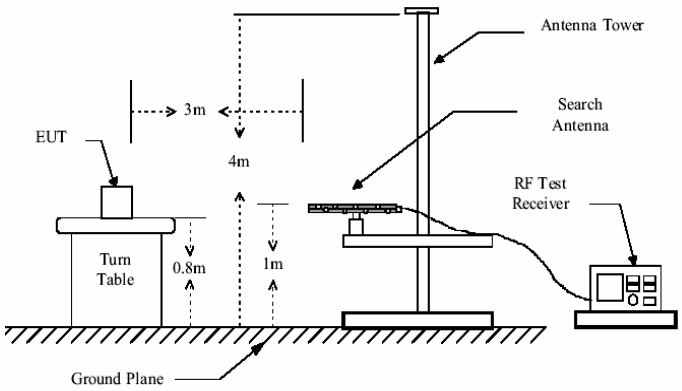
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.227	39.27	-0.09	0.10	39.28	62.57	-23.29	QP
2	0.227	37.13	-0.09	0.10	37.14	52.57	-15.43	Average
3	0.341	32.58	-0.09	0.10	32.59	59.18	-26.59	QP
4	0.341	26.14	-0.09	0.10	26.15	49.18	-23.03	Average
5	0.923	32.69	-0.09	0.10	32.70	56.00	-23.30	QP
6	0.923	22.46	-0.09	0.10	22.47	46.00	-23.53	Average
7	2.201	40.76	-0.11	0.10	40.75	56.00	-15.25	QP
8	2.201	26.13	-0.11	0.10	26.12	46.00	-19.88	Average
9	9.757	36.47	-0.29	0.20	36.38	60.00	-23.62	QP
10	9.757	24.46	-0.29	0.20	24.37	50.00	-25.63	Average
11	16.140	35.44	-0.42	0.20	35.22	60.00	-24.78	QP
12	16.140	21.46	-0.42	0.20	21.24	50.00	-28.76	Average

Notes:

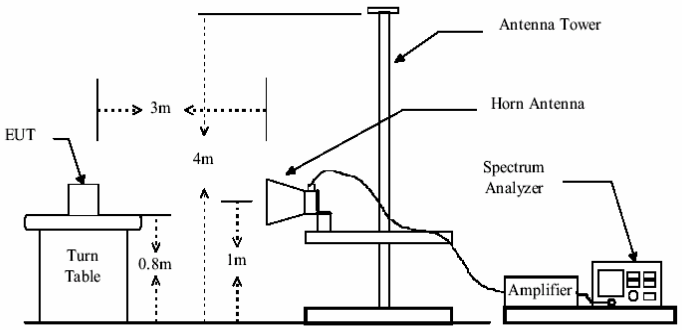
1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss

6.2 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 B Section 15.109</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4:2003</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</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</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>500</td><td>Average</td></tr>
<tr><td>5000</td><td>Peak</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>



Above 1GHz



Test environment:	Temp.:	25 5°C	Humid.:	55%	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					

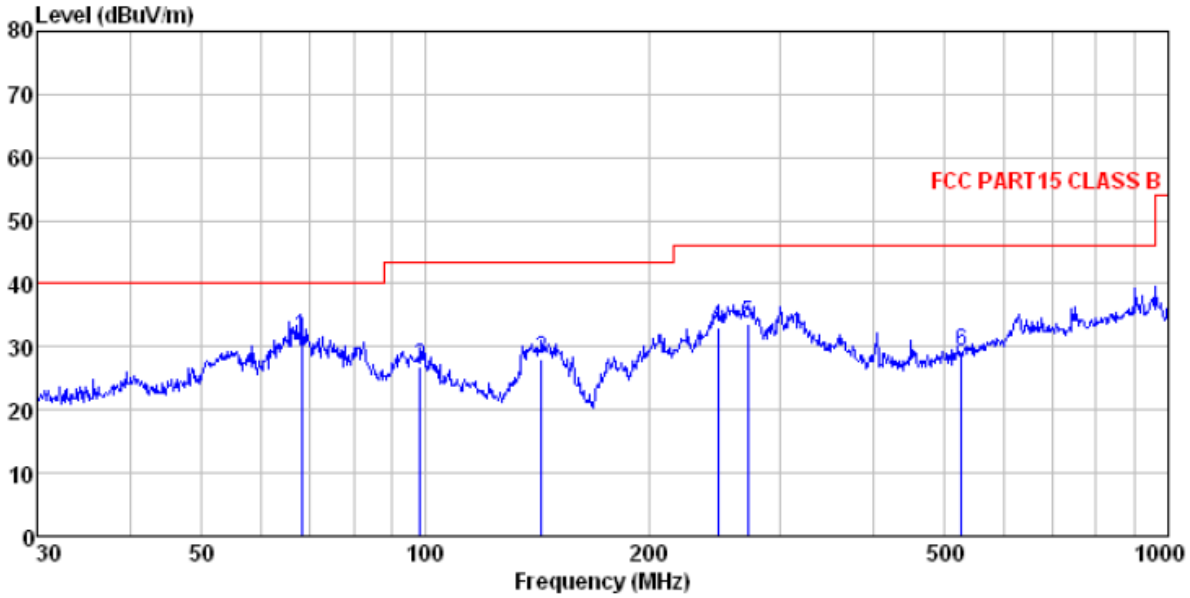
Note:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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

Measurement Data

Below 1GHz

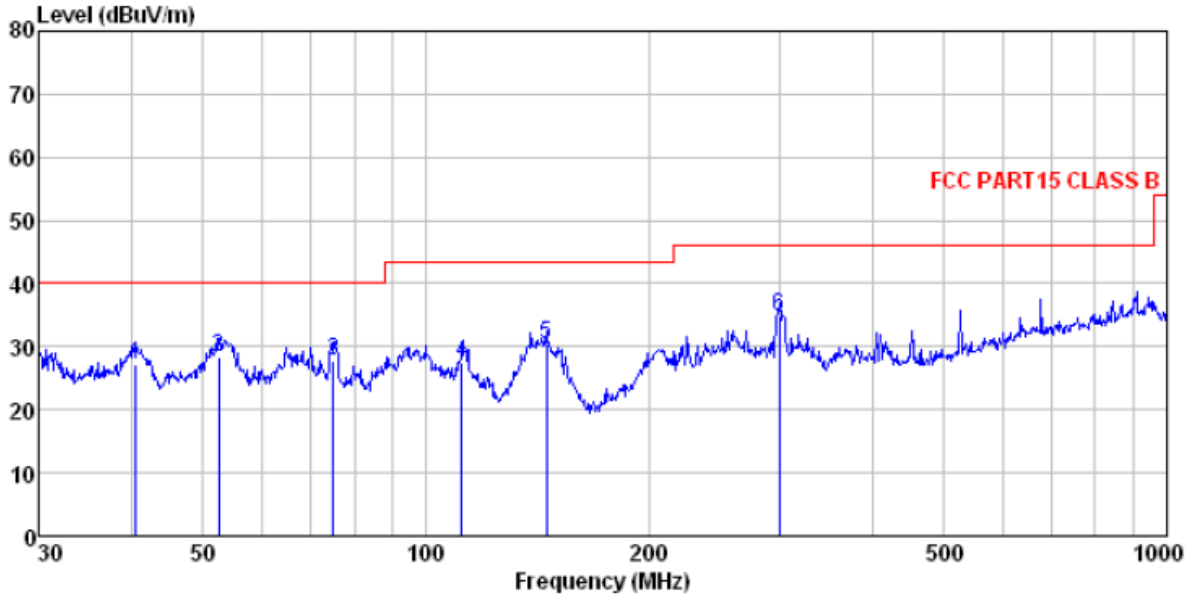
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 -2012-05 HORIZONTAL
Job No. : 652RF
Test Mode : LAN mode
Test Engineer: Sam

	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	68.151	49.18	13.36	0.93	31.89	31.58	40.00	-8.42	QP
2	98.487	41.39	16.13	1.18	31.75	26.95	43.50	-16.55	QP
3	143.326	47.13	11.23	1.53	31.96	27.93	43.50	-15.57	QP
4	247.682	47.93	15.08	2.11	32.16	32.96	46.00	-13.04	QP
5	271.325	48.03	15.46	2.23	32.17	33.55	46.00	-12.45	QP
6	526.397	37.99	19.10	3.43	31.41	29.11	46.00	-16.89	QP

Vertical:

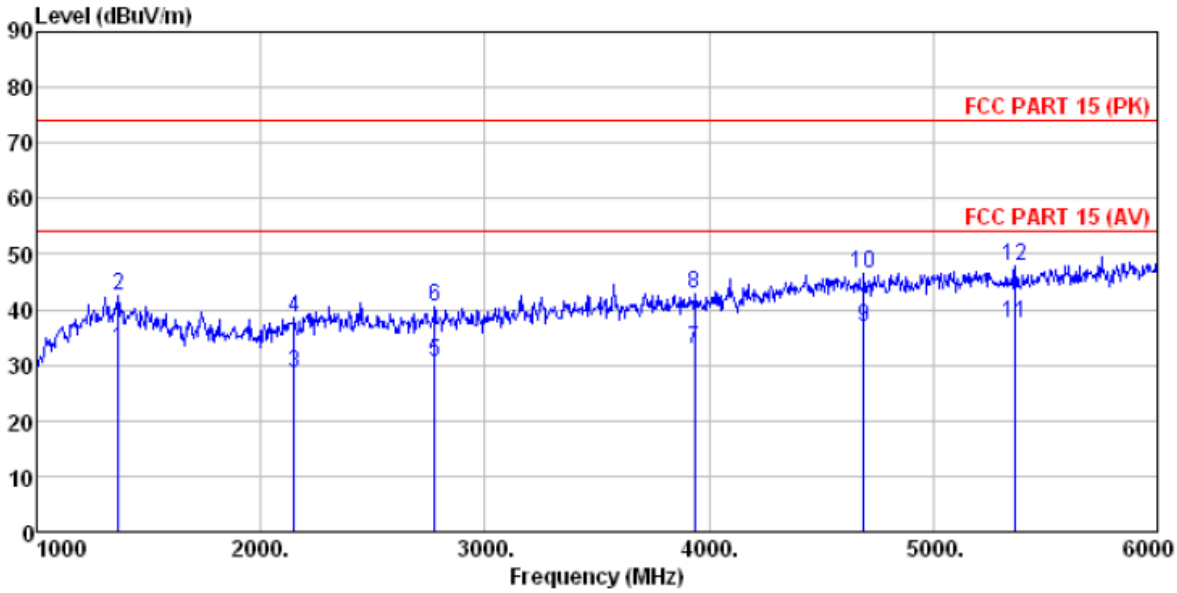


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 -2012-05 VERTICAL
Job No. : 652RF
Test Mode : LAN mode
Test Engineer: Sam

	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	40.559	41.99	16.58	0.67	32.05	27.19	40.00	-12.81	QP
2	52.575	43.32	16.23	0.79	31.95	28.39	40.00	-11.61	QP
3	74.919	46.45	12.13	0.98	31.82	27.74	40.00	-12.26	QP
4	111.738	43.73	14.33	1.29	31.82	27.53	43.50	-15.97	QP
5	145.351	49.58	11.24	1.54	31.96	30.40	43.50	-13.10	QP
6	299.316	48.71	16.06	2.35	32.18	34.94	46.00	-11.06	QP

Above 1GHz

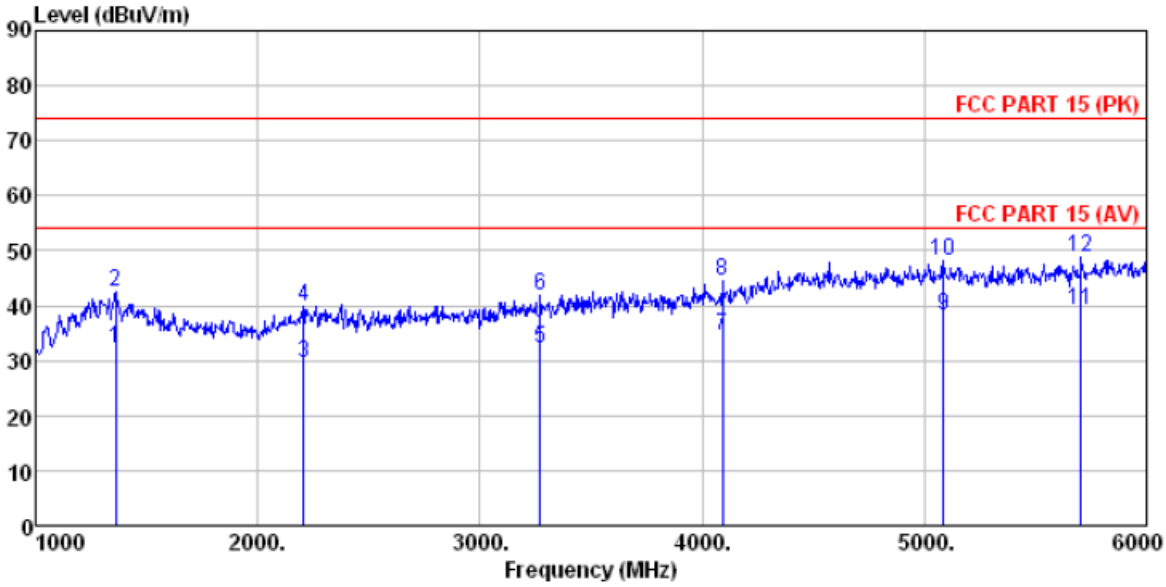
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
Job No. : 652RF
Test Mode : LAN mode
Test Engineer: Sam

	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	1365.000	23.75	25.67	4.59	21.07	32.94	54.00	-21.06	Average
2	1365.000	33.17	25.67	4.59	21.07	42.36	74.00	-31.64	Peak
3	2150.000	26.84	27.52	5.13	30.77	28.72	54.00	-25.28	Average
4	2150.000	36.73	27.52	5.13	30.77	38.61	74.00	-35.39	Peak
5	2775.000	26.92	28.34	5.73	30.27	30.72	54.00	-23.28	Average
6	2775.000	36.80	28.34	5.73	30.27	40.60	74.00	-33.40	Peak
7	3935.000	22.32	29.58	7.75	26.87	32.78	54.00	-21.22	Average
8	3935.000	32.50	29.58	7.75	26.87	42.96	74.00	-31.04	Peak
9	4690.000	20.83	31.65	8.51	24.29	36.70	54.00	-17.30	Average
10	4690.000	30.51	31.65	8.51	24.29	46.38	74.00	-27.62	Peak
11	5365.000	20.12	31.77	9.31	23.84	37.36	54.00	-16.64	Average
12	5365.000	30.73	31.77	9.31	23.84	47.97	74.00	-26.03	Peak

Vertical:

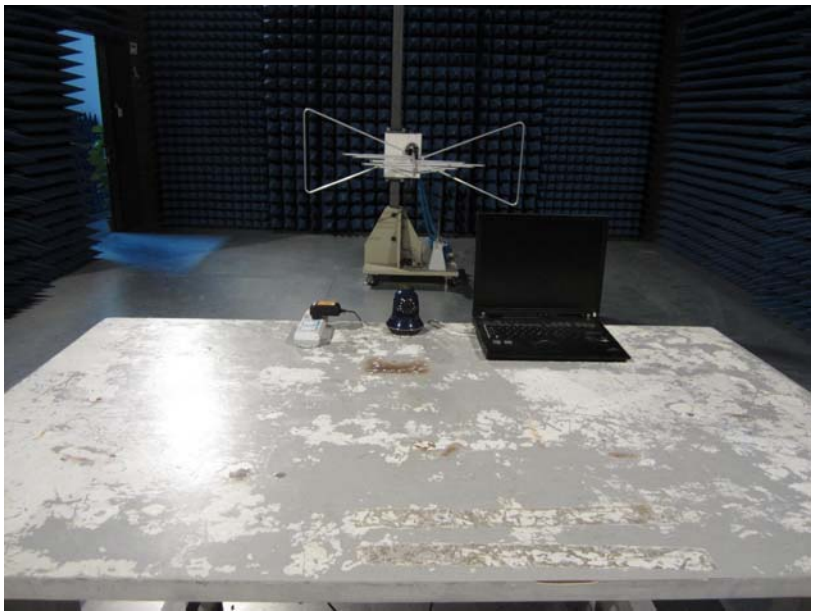


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
Job No. : 652RF
Test Mode : LAN mode
Test Engineer: Sam

	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	1360.000	23.13	25.69	4.59	21.07	32.34	54.00	-21.66	Average
2	1360.000	33.31	25.69	4.59	21.07	42.52	74.00	-31.48	Peak
3	2205.000	27.13	27.96	5.19	30.66	29.62	54.00	-24.38	Average
4	2205.000	37.38	27.96	5.19	30.66	39.87	74.00	-34.13	Peak
5	3270.000	25.84	28.44	6.51	28.70	32.09	54.00	-21.91	Average
6	3270.000	35.54	28.44	6.51	28.70	41.79	74.00	-32.21	Peak
7	4090.000	22.95	29.89	7.95	26.26	34.53	54.00	-19.47	Average
8	4090.000	32.95	29.89	7.95	26.26	44.53	74.00	-29.47	Peak
9	5085.000	21.13	32.02	8.90	23.91	38.14	54.00	-15.86	Average
10	5085.000	31.29	32.02	8.90	23.91	48.30	74.00	-25.70	Peak
11	5705.000	20.79	32.50	9.79	23.84	39.24	54.00	-14.76	Average
12	5705.000	30.34	32.50	9.79	23.84	48.79	74.00	-25.21	Peak

7 Test Setup Photo

Radiated Emission



Conducted Emission

8 EUT Constructional Details

Reference to the test report No. BST201304180002R

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