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Report No.: SZEM110900397901

Page : 1 of 29

# FCC REPORT

**Application No. :** SZEM1109003979RF

**Applicant:** Pixel Enterprise Limited

**Product Name:** Expert

**Operation Frequency:** 2404.12MHz -2478.37MHz

**FCC ID:** X5SEXPERT-402TX

**Standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.249: 2010

**Date of Receipt** 2011-10-08

**Date of Test** 2011-11-02 to 2012-01-04

**Date of Issue** 2012-01-05

<b>Test Result :</b>	<b>PASS *</b>
----------------------	---------------

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

Authorized Signature:



Jack Zhang  
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. 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 SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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### 3 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249/15.209	Pass
Band edge (Radiated Emission)	15.249(a)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

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

*Fail: The EUT does not comply with the essential requirements in the standard.*

## 4 General Information

### 4.1 Client Information

Applicant:	Pixel Enterprise Limited
Address of Applicant:	RM1228,12/F,ONE GRAND TOWER, 639 NATHAN RD, MONGKOK, KOWLOON, HONG KONG
Manufacturer:	Pixel Enterprise Limited
Address of Manufacturer:	RM1228,12/F,ONE GRAND TOWER, 639 NATHAN RD, MONGKOK, KOWLOON, HONG KONG
Factory:	Pixel Enterprise Limited
Address of Factory:	RM1228,12/F,ONE GRAND TOWER, 639 NATHAN RD, MONGKOK, KOWLOON, HONG KONG

### 4.2 General Description of E.U.T.

Product Name:	Expert
Model No.:	W-402 (Camera)
Operation Frequency:	2404.120MHz -2478.370MHz
Number of Channel:	67
Channel Separation:	1.125MHz
Modulation Type:	GFSK
Antenna Type:	Integral
Antenna Gain:	0dBi
Power Supply:	6.0V DC (1.5V x 4 'AA' Batteries)
AC Adapter:	ADAPTER MODEL: HRS6W05010 INPUT: 100-240V 50-60Hz OUTPUT: 5V 1A

Operation Frequency of each channel							
Hopping	Frequency	Hopping	Frequency	Hopping	Frequency	Hopping	Frequency
1	2404.120	21	2426.620	41	2449.120	61	2471.620
2	2405.245	22	2427.745	42	2450.245	62	2472.745
3	2406.370	23	2428.870	43	2451.370	63	2473.870
4	2407.495	24	2429.995	44	2452.495	64	2474.995
5	2408.620	25	2431.120	45	2453.620	65	2476.120
6	2409.745	26	2432.245	46	2454.745	66	2477.245
7	2410.870	27	2433.370	47	2455.870	67	2478.370
8	2411.995	28	2434.495	48	2456.995	68	
9	2413.120	29	2435.620	49	2458.120	69	
10	2414.245	30	2436.745	50	2459.245	70	
11	2415.370	31	2437.870	51	2460.370	71	
12	2416.495	32	2438.995	52	2461.495	72	
13	2417.620	33	2440.120	53	2462.620	73	
14	2418.745	34	2441.245	54	2463.745	74	
15	2419.870	35	2442.370	55	2464.870	75	
16	2420.995	36	2443.495	56	2465.995	76	
17	2422.120	37	2444.620	57	2467.120	77	
18	2423.245	38	2445.745	58	2468.245	78	
19	2424.370	39	2446.870	59	2469.370	79	
20	2425.495	40	2447.995	60	2470.495		

**Note:**

In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channels are:

Channel	Frequency
Lowest channel	2404.120MHz
Middle channel	2442.370MHz
Highest channel	2478.370MHz

### 4.3 E.U.T Operation mode

<b>Operating Environment:</b>	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1012mbar
<b>Test mode:</b>	
Transmitting mode:	Keep the EUT transmitting continuous with modulation test signal at the special channel

### 4.4 Description of Support Units

None



## 4.5 Test Facility

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

### **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 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.

### **VCCI**

The 3m Semi-anechoic chamber, Full-anechoic Chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197, G-416, T-1153 and C-2383 respectively.

### **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical 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 our files. Registration No.: 556682.

### **Industry Canada (IC)**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

## 4.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

## 4.7 Other Information Requested by the Customer

None.

**4.8 Test Instruments list:**

RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2012-06-10
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2012-05-26
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	Coaxial cable	SGS	N/A	SEL0028	2012-05-29
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2012-10-29
6	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2012-10-29
7	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2012-10-29
8	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2012-05-26
9	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2012-10-26
11	Band filter	Amindeon	82346	SEL0094	2012-05-26

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2012-06-10
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2012-10-23
3	Two-Line V-Network	ETS-LINDGREN	3816/2	SEL0021	2012-05-26
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2012-05-26
5	Coaxial Cable	SGS	N/A	SEL0024	2012-05-29



## SGS-CSTC Standards Technical Services Ltd.

Report No.: SZEM110900397901

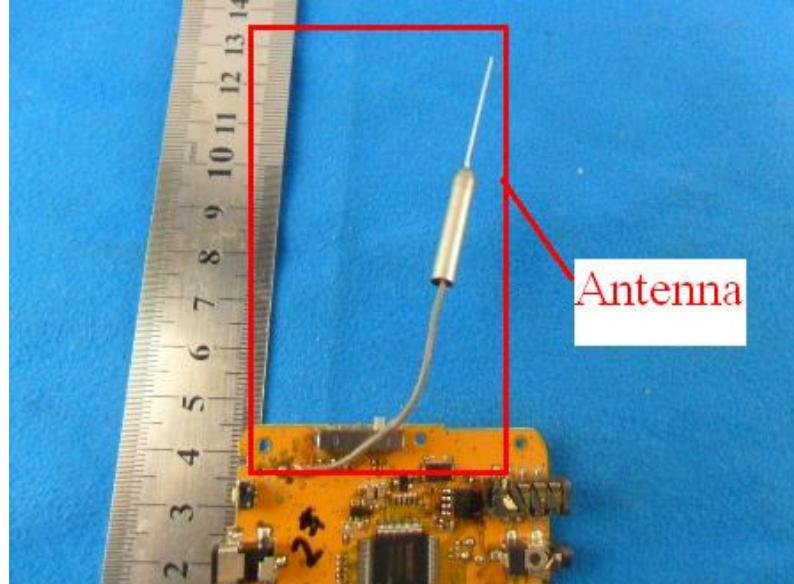
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<b>RF conducted</b>					
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal.Due date (yyyy-mm-dd)</b>
1	Spectrum Analyzer	Rohde & Schwarz	FSP 30	SEL0154	2012-10-23
2	Coaxial cable	SGS	N/A	SEL0028	2012-05-29

<b>General used equipment</b>					
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal.Due date (yyyy-mm-dd)</b>
1	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0102 to SEL0103	2012-10-27
2	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0101	2012-10-27
3	Barometer	ChangChun	DYM3	SEL0088	2012-05-18

## 5 Test results and Measurement Data

### 5.1 Antenna requirement:

<b>Standard requirement:</b>	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
<b>E.U.T Antenna:</b>	 <p>The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.</p>

## 5.2 Conducted Emissions

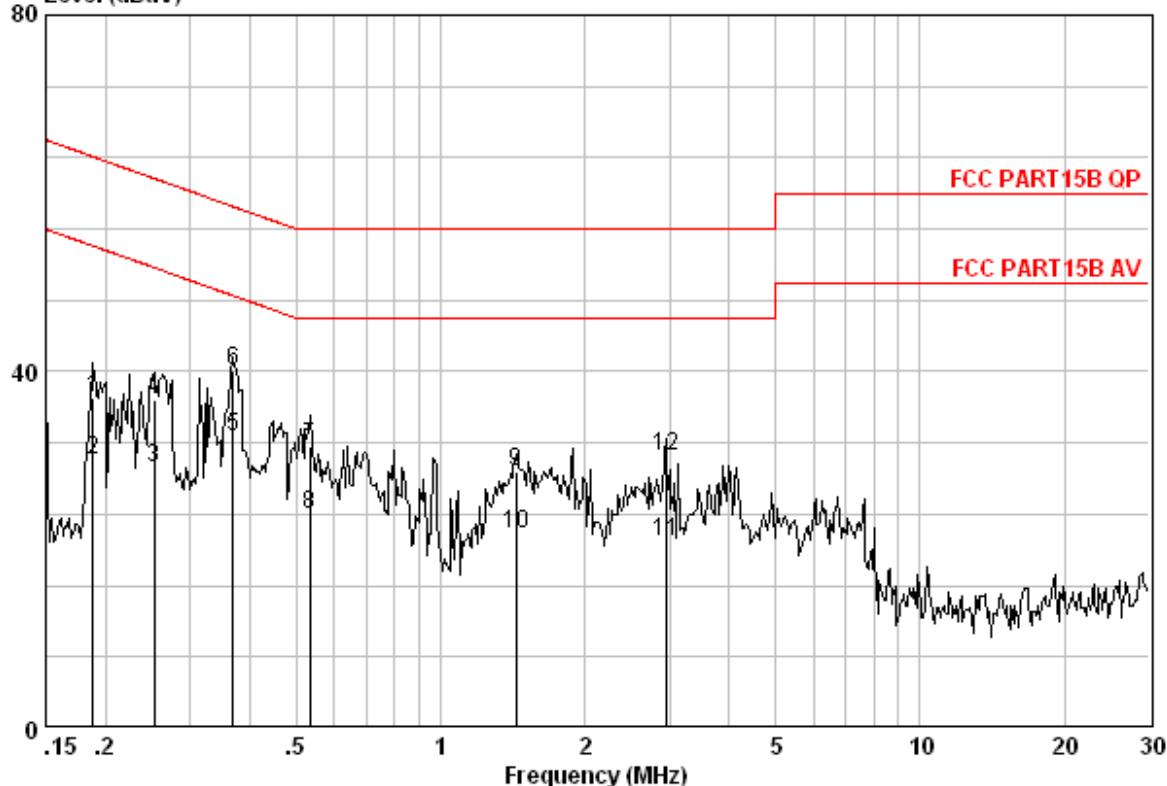
Test Requirement:	FCC Part15 C Section 15.207																
Test Method:	ANSI C63.10: 2009																
Test Frequency Range:	150KHz to 30MHz																
Class / Severity:	Class B																
Receiver setup:	RBW=9KHz, VBW=30KHz																
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <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> </tbody> </table>			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
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 procedure:	<p>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. 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). 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 C63.10: 2009 on conducted measurement.</p>																
Test setup:	<p><b>Reference Plane</b></p> <p>LISN</p> <p>40cm</p> <p>80cm</p> <p>AUX Equipment</p> <p>E.U.T</p> <p>Test table/Insulation plane</p> <p>EMI Receiver</p> <p>Filter</p> <p>AC power</p> <p><i>Remark:</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>																
Test mode:	Transmitting mode																
Test Instruments:	Refer to section 4.7 for details																
Test results:	Pass																

### Measurement Data

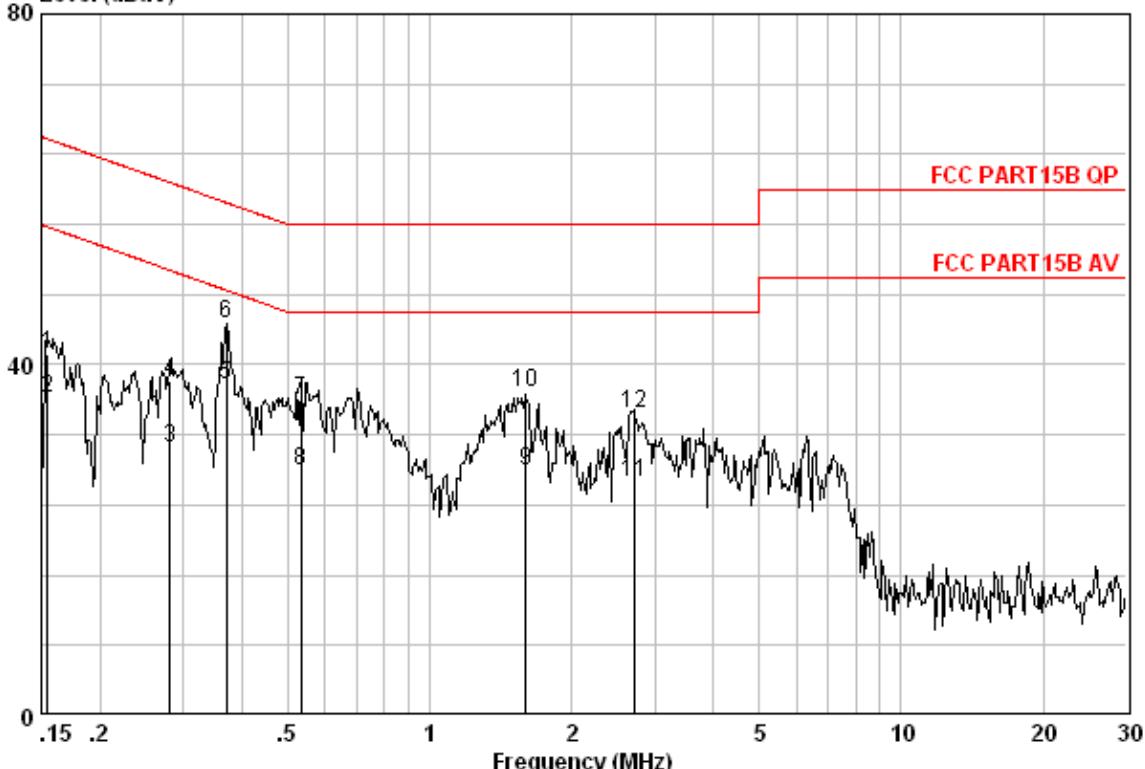
An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



**Live Line:**Data: 1  
Level (dBuV)

Freq	Cable	LISN	Read	Limit		Over	Remark
	Loss	Factor	Level	Level	Line	Limit	
	MHz	dB	dB	dBuV	dBuV	dBuV	
1	0.18838	0.04	9.60	27.50	37.14	64.11	-26.97 QP
2	0.18838	0.04	9.60	20.40	30.04	54.11	-24.07 Average
3	0.25211	0.05	9.60	19.50	29.15	51.69	-22.54 Average
4	0.25211	0.05	9.60	27.20	36.85	61.69	-24.84 QP
5	0.36920	0.05	9.60	23.00	32.65	48.52	-15.86 Average
6	0.36920	0.05	9.60	30.40	40.05	58.52	-18.46 QP
7	0.53215	0.06	9.62	21.90	31.58	56.00	-24.42 QP
8	0.53215	0.06	9.62	14.20	23.88	46.00	-22.12 Average
9	1.433	0.10	9.70	18.90	28.70	56.00	-27.30 QP
10	1.433	0.10	9.70	11.90	21.70	46.00	-24.30 Average
11	2.946	0.14	9.74	11.00	20.88	46.00	-25.12 Average
12	2.946	0.14	9.74	20.60	30.48	56.00	-25.52 QP

**Neutral Line:**
**Data: 2**
**Level (dBuV)**


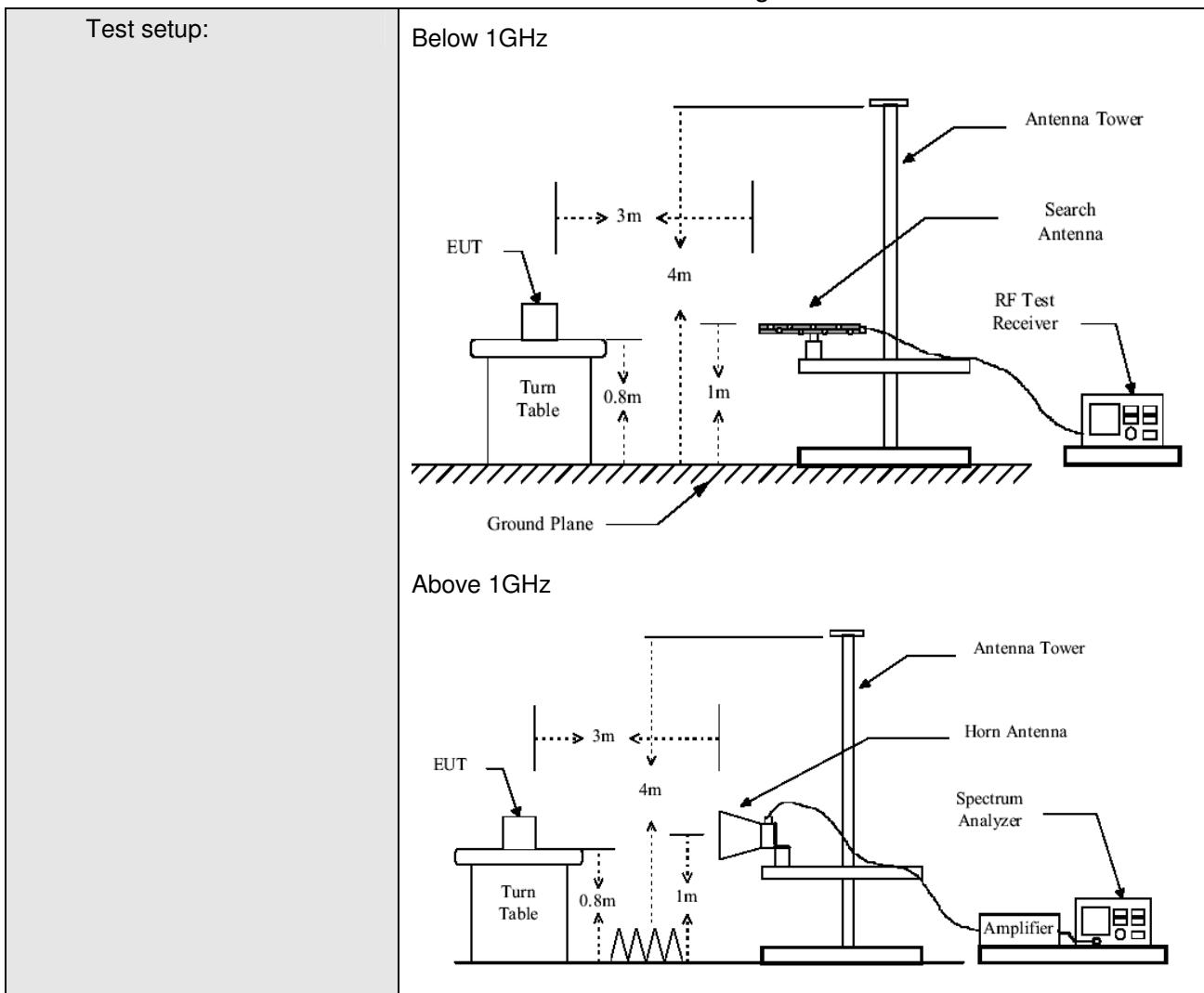
Freq	Cable	LISN	Read	Limit		Over	Remark
	Loss	Factor	Level	Level	Line	Limit	
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.15485	0.04	9.60	31.50	41.14	65.74	-24.60 QP
2	0.15485	0.04	9.60	26.60	36.24	55.74	-19.50 Average
3	0.28178	0.05	9.60	20.90	30.55	50.76	-20.21 Average
4	0.28178	0.05	9.60	28.60	38.25	60.76	-22.51 QP
5	0.37117	0.05	9.60	28.00	37.65	48.47	-10.82 Average
6	0.37117	0.05	9.60	35.00	44.65	58.47	-13.82 QP
7	0.53215	0.06	9.62	26.30	35.98	56.00	-20.02 QP
8	0.53215	0.06	9.62	18.30	27.98	46.00	-18.02 Average
9	1.602	0.11	9.70	18.00	27.81	46.00	-18.19 Average
10	1.602	0.11	9.70	27.00	36.81	56.00	-19.19 QP
11	2.707	0.13	9.73	16.80	26.67	46.00	-19.33 Average
12	2.707	0.13	9.73	24.60	34.47	56.00	-21.53 QP

**Notes:**

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

### 5.3 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.249, 15.209 and 15.205																								
Test Method:	ANSI C63.10: 2009																								
Test Frequency Range:	30MHz to 25GHz																								
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)																								
Receiver setup:	<table border="1"> <thead> <tr> <th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr> </thead> <tbody> <tr> <td>30MHz-1GHz</td><td>Quasi-peak</td><td>100kHz</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> </tbody> </table>					Frequency	Detector	RBW	VBW	Remark	30MHz-1GHz	Quasi-peak	100kHz	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	100kHz	300kHz	Quasi-peak Value																					
Above 1GHz	Peak	1MHz	3MHz	Peak Value																					
	Peak	1MHz	10Hz	Average Value																					
Limit: (Field strength of the fundamental signal)	<table border="1"> <thead> <tr> <th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr> </thead> <tbody> <tr> <td>2400MHz-2483.5MHz</td><td>94.0</td><td>Average Value</td></tr> <tr> <td></td><td>114.0</td><td>Peak Value</td></tr> </tbody> </table>					Frequency	Limit (dBuV/m @3m)	Remark	2400MHz-2483.5MHz	94.0	Average Value		114.0	Peak Value											
Frequency	Limit (dBuV/m @3m)	Remark																							
2400MHz-2483.5MHz	94.0	Average Value																							
	114.0	Peak Value																							
Limit: (Spurious Emissions)	<table border="1"> <thead> <tr> <th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr> </thead> <tbody> <tr> <td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr> <tr> <td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr> <tr> <td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr> <tr> <td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr> <tr> <td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr> <tr> <td>74.0</td><td>Peak Value</td></tr> </tbody> </table>					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
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 Procedure:	<p>The E.U.T and its simulators are placed on a turntable which is 0.8meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.</p> <p>Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10:2009 on radiated measurement.</p>																								
Test Instruments:	Refer to section 4.7 for details																								
Test mode:	Transmitting mode																								
Test result:	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****5.3.1 Field Strength Of The Fundamental Signal****Peak value:**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
2404.120	2.99	32.54	39.86	99.01	94.68	114.00	-19.32	Horizontal
2404.120	2.99	32.54	39.86	96.01	91.68	114.00	-22.32	Vertical
2442.370	3.01	32.61	39.89	95.50	91.23	114.00	-22.77	Horizontal
2442.370	3.01	32.61	39.89	89.50	85.23	114.00	-28.77	Vertical
2478.370	3.03	32.67	39.92	96.48	92.26	114.00	-21.74	Horizontal
2478.370	3.03	32.67	39.92	92.47	88.25	114.00	-25.75	Vertical

**Average value:**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
2404.120	2.99	32.54	39.86	90.86	86.53	94.00	-7.47	Horizontal
2404.120	2.99	32.54	39.86	88.24	83.91	94.00	-10.09	Vertical
2442.370	3.01	32.61	39.89	90.50	86.23	94.00	-7.77	Horizontal
2442.370	3.01	32.61	39.89	85.00	80.73	94.00	-13.27	Vertical
2478.370	3.03	32.67	39.92	91.14	86.92	94.00	-7.08	Horizontal
2478.370	3.03	32.67	39.92	86.59	82.37	94.00	-11.63	Vertical

**5.3.2 Spurious Emissions**
**Above 1GHz**

Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak
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Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
2680.250	3.14	32.96	40.06	48.36	44.40	74.00	-29.60	Vertical
3538.000	3.78	33.24	40.70	48.33	44.65	74.00	-29.35	Vertical
4607.250	4.56	35.03	41.49	49.90	48.00	74.00	-26.00	Vertical
6616.500	5.29	36.20	40.38	50.26	51.37	74.00	-22.63	Vertical
8696.250	6.17	36.36	38.59	48.43	52.37	74.00	-21.63	Vertical
10047.500	5.98	37.76	37.47	45.49	51.76	74.00	-22.24	Vertical
2703.750	3.15	32.98	40.09	48.29	44.33	74.00	-29.67	Horizontal
3761.250	3.96	33.51	40.86	49.75	46.36	74.00	-27.64	Horizontal
5312.250	4.88	34.72	41.52	50.36	48.44	74.00	-25.56	Horizontal
6287.500	5.20	36.04	40.68	50.68	51.24	74.00	-22.76	Horizontal
7932.500	6.21	36.00	39.24	49.44	52.41	74.00	-21.59	Horizontal
10012.250	5.97	37.72	37.45	46.46	52.70	74.00	-21.30	Horizontal

Test mode:	Transmitting	Test channel:	Middle	Remark:	Peak
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Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
2645.000	3.12	32.91	40.05	47.58	43.56	74.00	-30.44	Vertical
3914.000	4.08	33.70	40.97	48.48	45.29	74.00	-28.71	Vertical
5253.500	4.87	34.65	41.57	48.92	46.87	74.00	-27.13	Vertical
6745.750	5.32	36.06	40.28	48.91	50.01	74.00	-23.99	Vertical
8520.000	6.18	36.21	38.73	47.17	50.83	74.00	-23.17	Vertical
10975.750	6.22	38.49	37.85	44.53	51.39	74.00	-22.61	Vertical
2680.250	3.14	32.96	40.06	48.76	44.80	74.00	-29.20	Horizontal
3573.250	3.81	33.28	40.72	49.33	45.70	74.00	-28.30	Horizontal
4595.500	4.55	35.03	41.47	49.60	47.71	74.00	-26.29	Horizontal
6146.500	5.16	35.88	40.79	50.00	50.25	74.00	-23.75	Horizontal
7897.250	6.21	36.00	39.28	49.15	52.08	74.00	-21.92	Horizontal
11281.250	6.29	38.44	37.98	46.14	52.89	74.00	-21.11	Horizontal



## SGS-CSTC Standards Technical Services Ltd.

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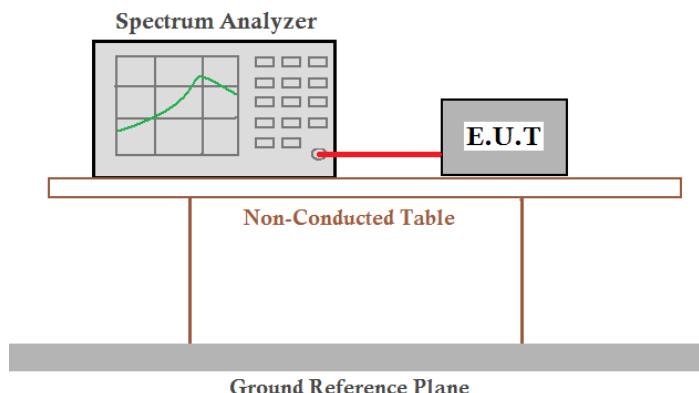
Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak
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Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
3338.250	3.59	33.26	40.55	50.21	46.51	74.00	-27.49	Vertical
4313.500	4.37	34.69	41.26	50.56	48.36	74.00	-25.64	Vertical
5359.250	4.90	34.75	41.48	50.95	49.12	74.00	-24.88	Vertical
6428.500	5.24	36.20	40.55	50.52	51.41	74.00	-22.59	Vertical
7568.250	6.19	36.00	39.56	50.22	52.85	74.00	-21.15	Vertical
9025.250	6.15	36.62	38.31	47.77	52.23	74.00	-21.77	Vertical
2633.250	3.11	32.89	40.03	47.49	43.46	74.00	-30.54	Horizontal
3185.500	3.47	33.32	40.44	47.74	44.09	74.00	-29.91	Horizontal
4419.250	4.44	34.97	41.35	49.70	47.76	74.00	-26.24	Horizontal
5453.250	4.94	34.85	41.40	50.83	49.22	74.00	-24.78	Horizontal
6522.500	5.26	36.28	40.46	49.58	50.66	74.00	-23.34	Horizontal
7744.500	6.22	36.00	39.41	48.71	51.52	74.00	-22.48	Horizontal

### Remark:

1. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

## 5.4 20dB Bandwidth

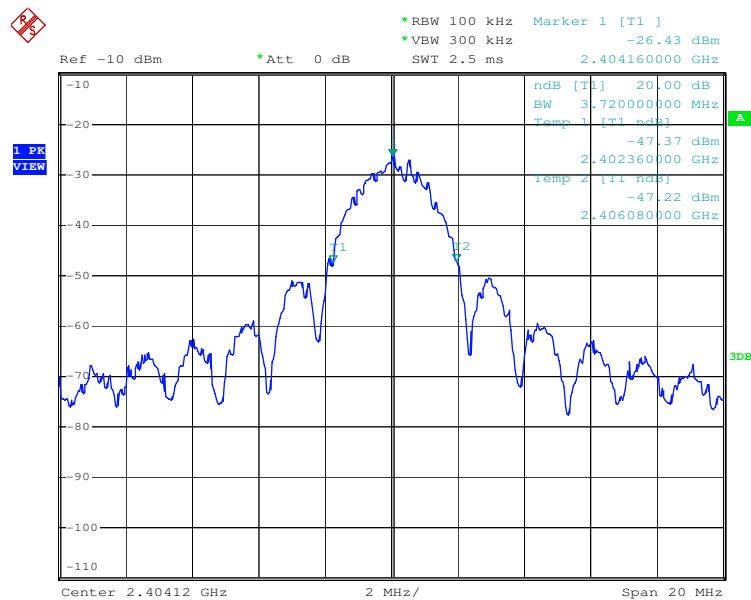
Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.10:2009
Limit:	N/A
Test Procedure:	<ol style="list-style-type: none"> <li>1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.</li> <li>2. Set the EUT to proper test channel.</li> <li>3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points.</li> <li>4. Read 20dB bandwidth.</li> </ol>
Test setup:	 <p><b>Remark:</b> <i>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.7 for details
Test mode:	Transmitting mode
Test result:	Pass

### Measurement Data

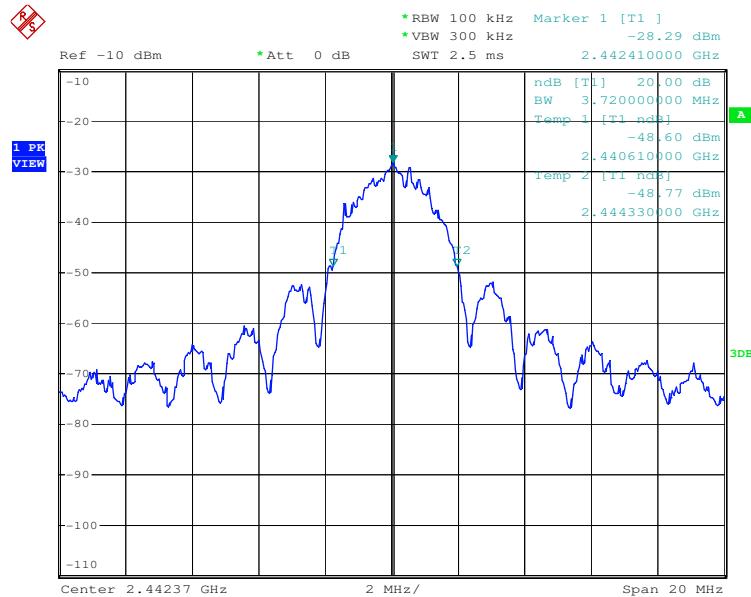
Test channel	20dB bandwidth (MHz)	Result
Lowest	3.720	Pass
Middle	3.720	Pass
Highest	3.720	Pass

**Test plot as follows:**

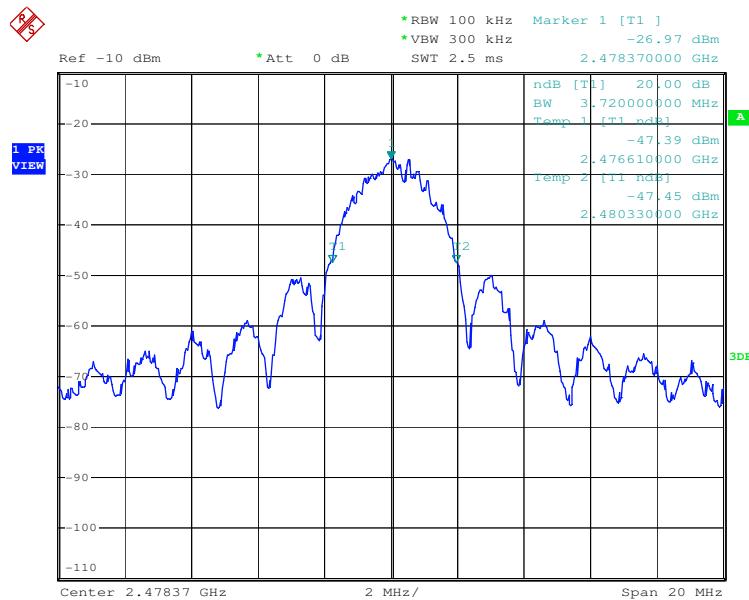
Test channel:	Lowest	
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Test channel:	Middle	
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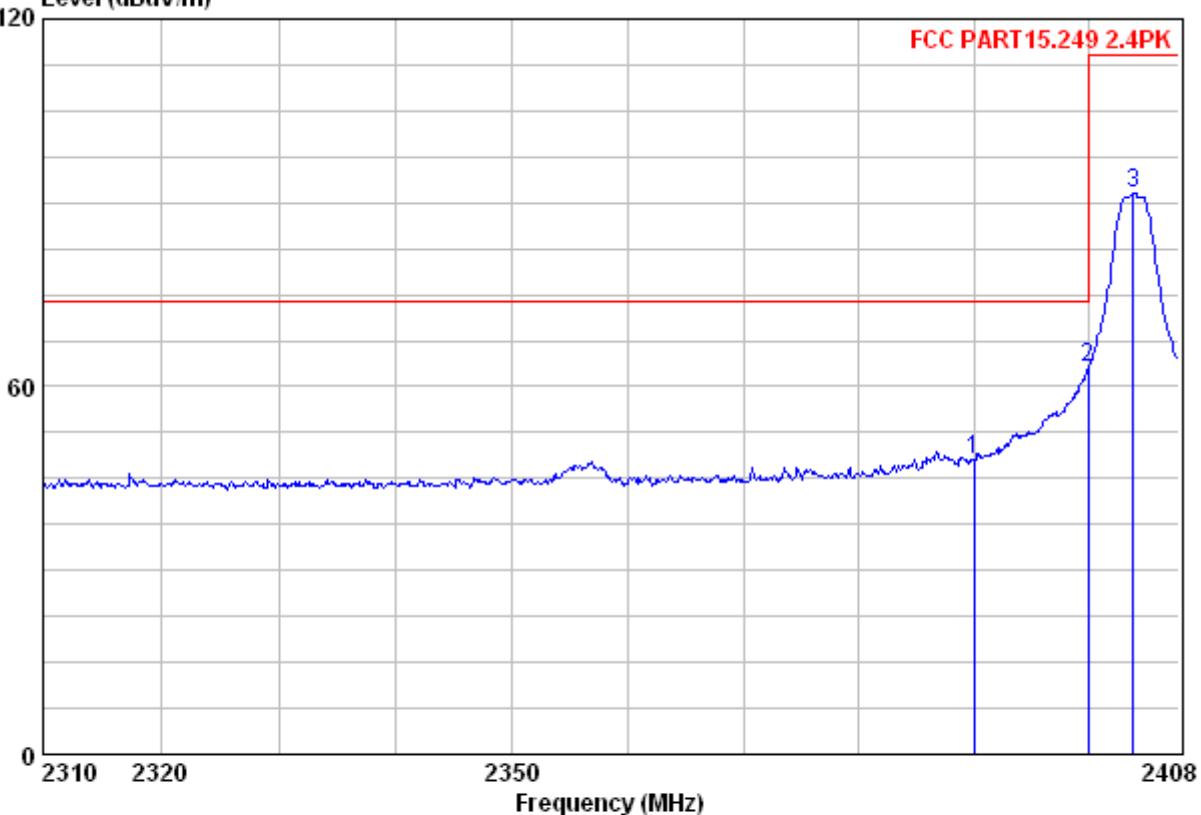
Test channel:	Highest	
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**5.4.1 Band edge (Radiated Emission)**

Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Vertical
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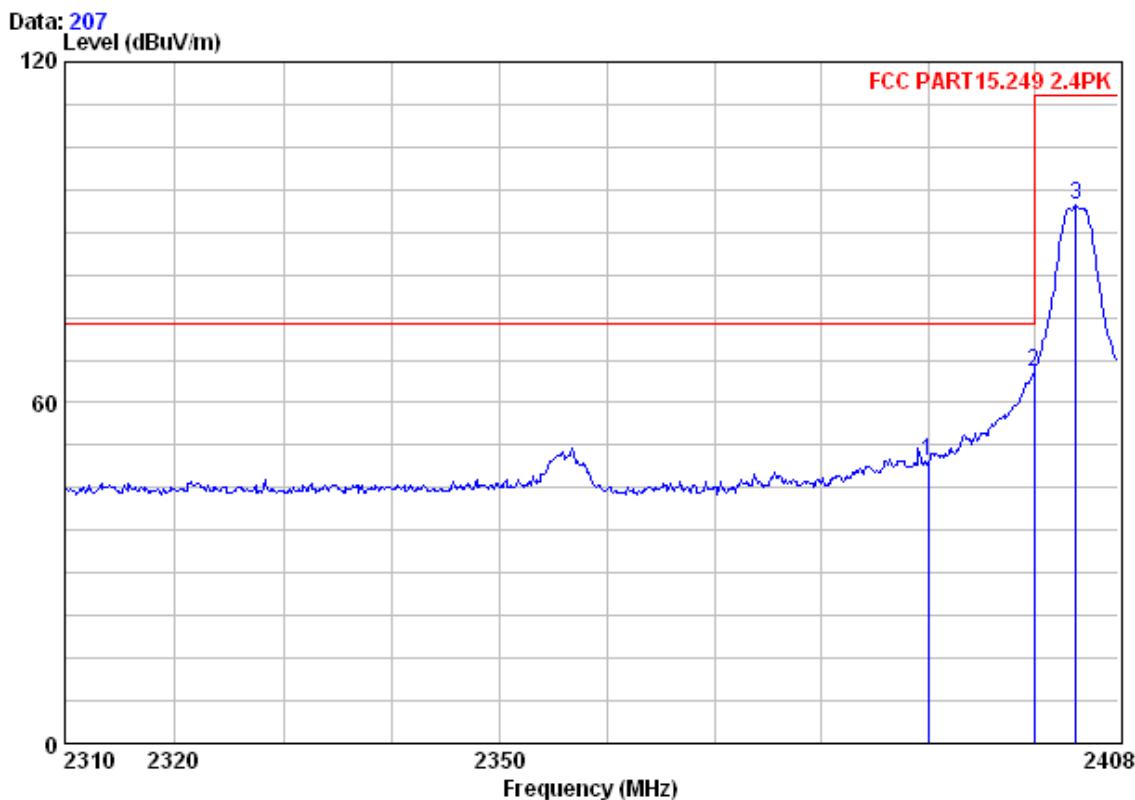
Data: 209  
Level (dBuV/m)



	Cable	Antenna	Preamp	Read	Limit	Over	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit

	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	2.98	32.51	39.85	52.46	48.11	74.00	-25.89
2	2400.000	2.98	32.51	39.86	67.45	63.08	74.00	-10.92
3	2403.982	2.99	32.54	39.86	96.01	91.68	114.00	-22.32

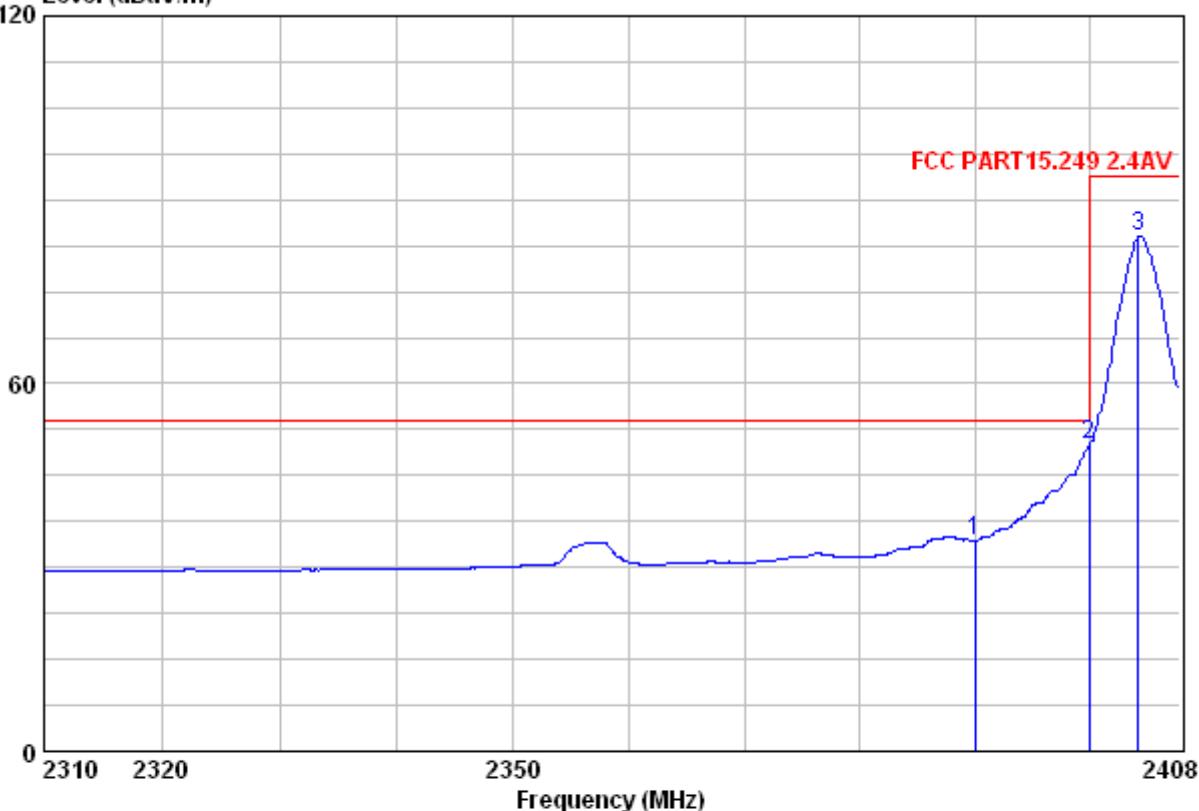
Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Horizontal
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Freq	Cable		Antenna	Preamp	Read	Limit	Over	
	Loss	Factor	Factor	Level	Level			
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	2.98	32.51	39.85	54.09	49.73	74.00	-24.27
2	2400.000	2.98	32.51	39.86	69.91	65.54	74.00	-8.46
3	2403.982	2.99	32.54	39.86	99.00	94.68	114.00	-19.32

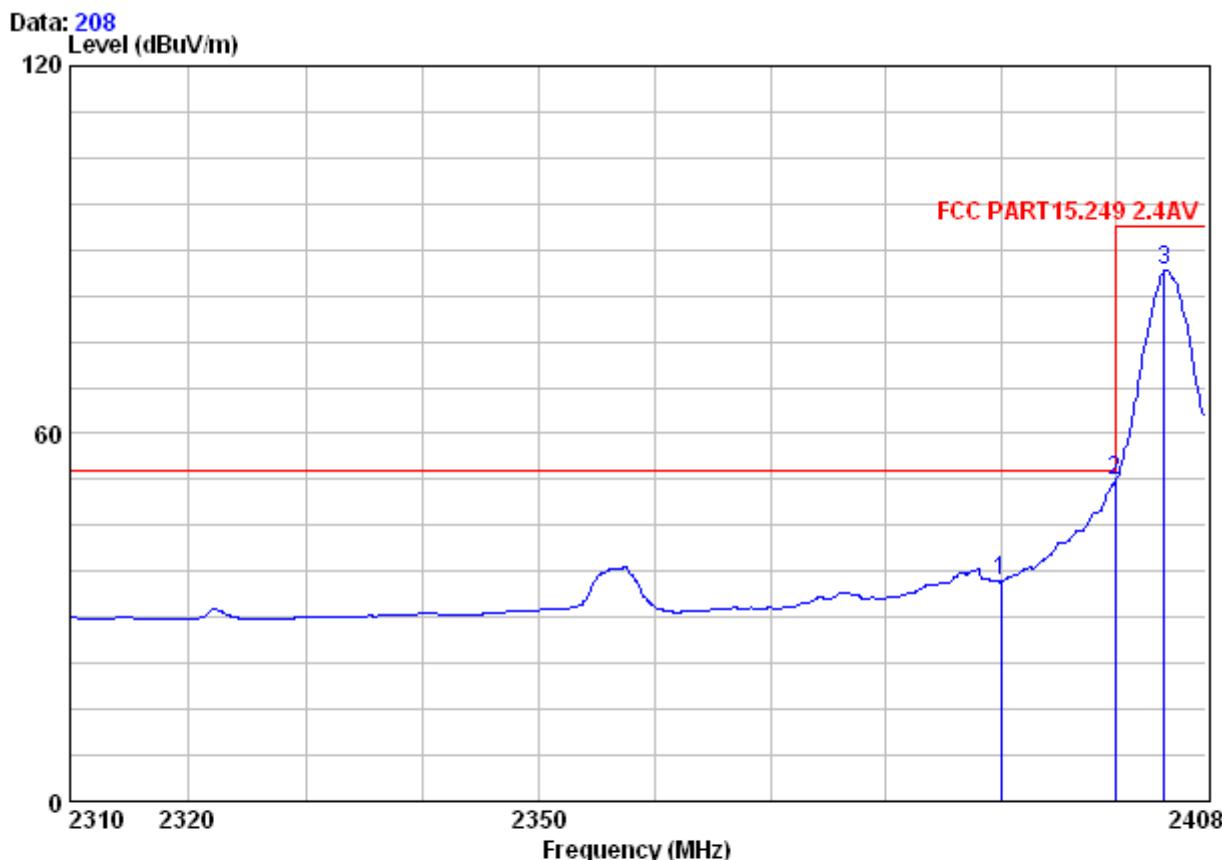
Test mode:	Transmitting	Test channel:	Lowest	Remark:	Average	Vertical
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Data: 210  
Level (dBuV/m)



Freq	Cable	Antenna	Preamp	Read	Limit	Over		
	Loss	Factor	Factor	Level				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1		2390.000	2.98	32.51	39.85	38.64	34.29	54.00
2	0	2400.000	2.98	32.51	39.86	54.32	49.95	54.00
3		2404.374	2.99	32.54	39.86	88.23	83.91	94.00
								-19.71
								-4.05
								-10.09

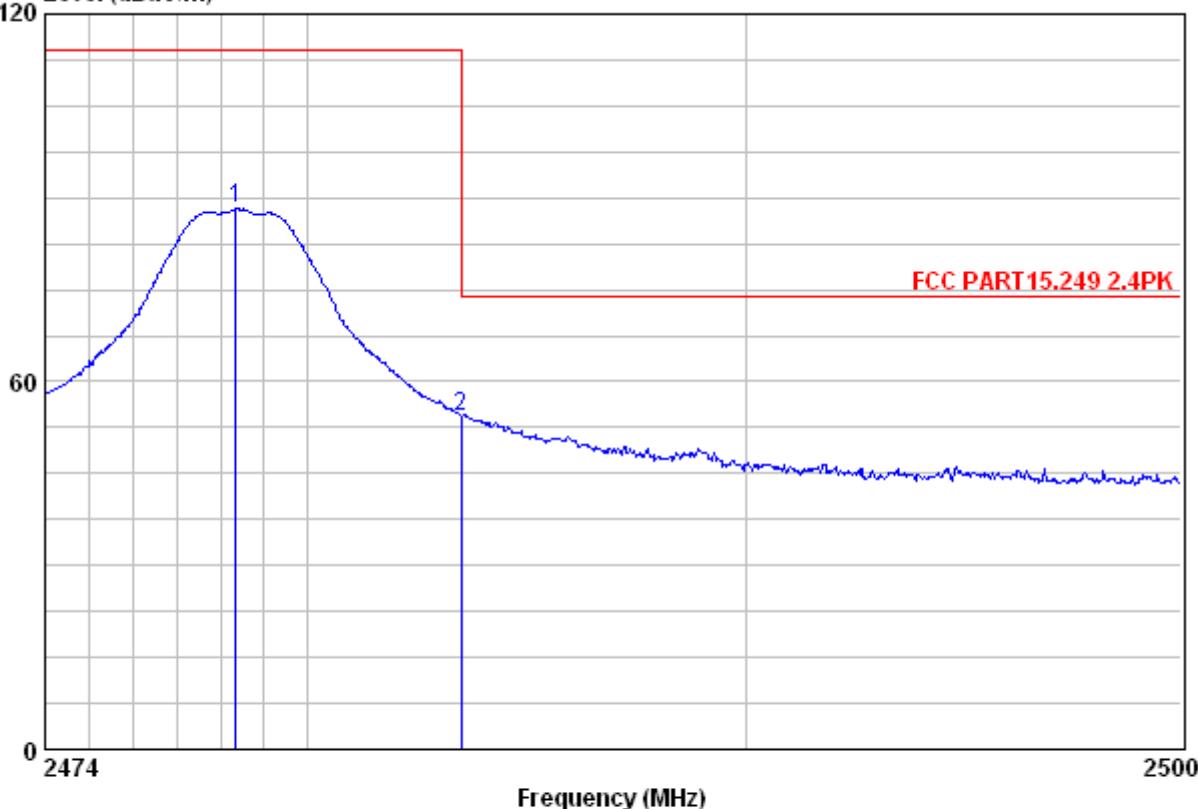
Test mode:	Transmitting	Test channel:	Lowest	Remark:	Average	Horizontal
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Freq	Cable			Antenna	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Level		
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.066	2.98	32.51	39.85	40.20	35.85	54.00	-18.15
2	2400.000	2.98	32.51	39.86	56.78	52.42	54.00	-1.58
3	2404.374	2.99	32.54	39.86	90.86	86.53	94.00	-7.47

Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak	Vertical
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Data: 213  
Level (dBuV/m)



Freq	Cable			Antenna	Preamp	Read	Limit	Over	
	Loss	Factor	Factor			Level			
	MHz	dB	dB/m		dB	dBuV	dBuV/m	dBuV/m	dB
1	2478.342	3.03	32.67	39.92	92.47	88.25	114.00	114.00	-25.75
2	2483.500	3.03	32.67	39.92	58.66	54.44	74.00	74.00	-19.56

Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak	Horizontal
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**Data: 211**

Level (dBuV/m)

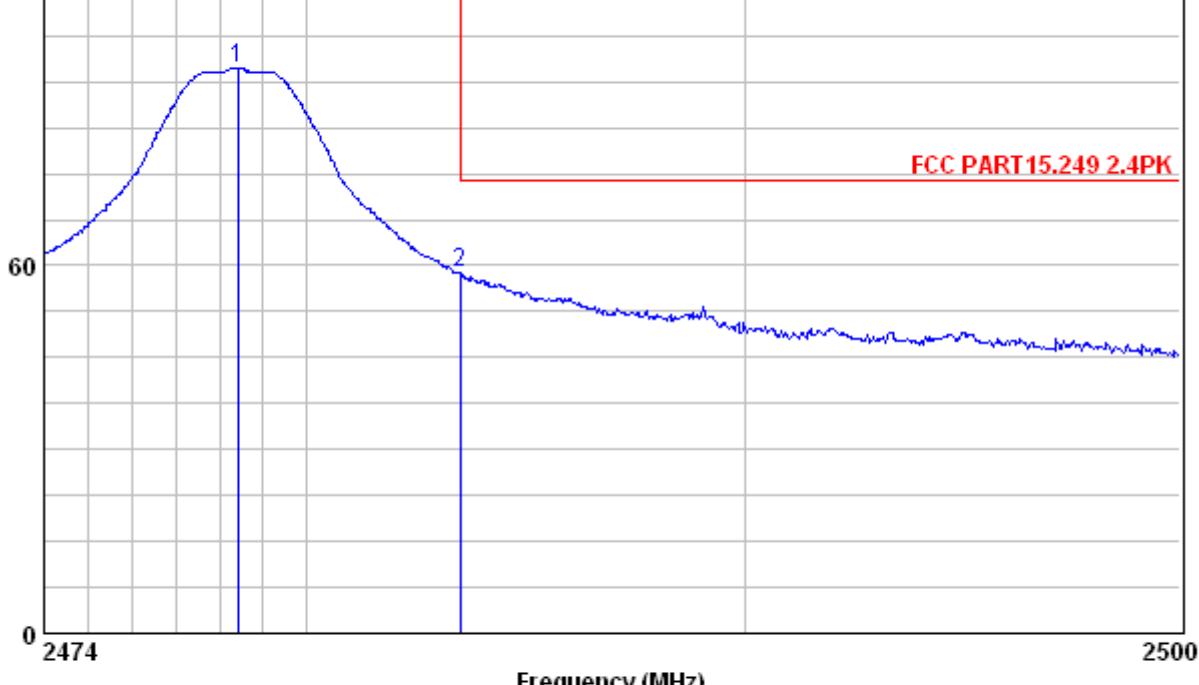
120

60

0

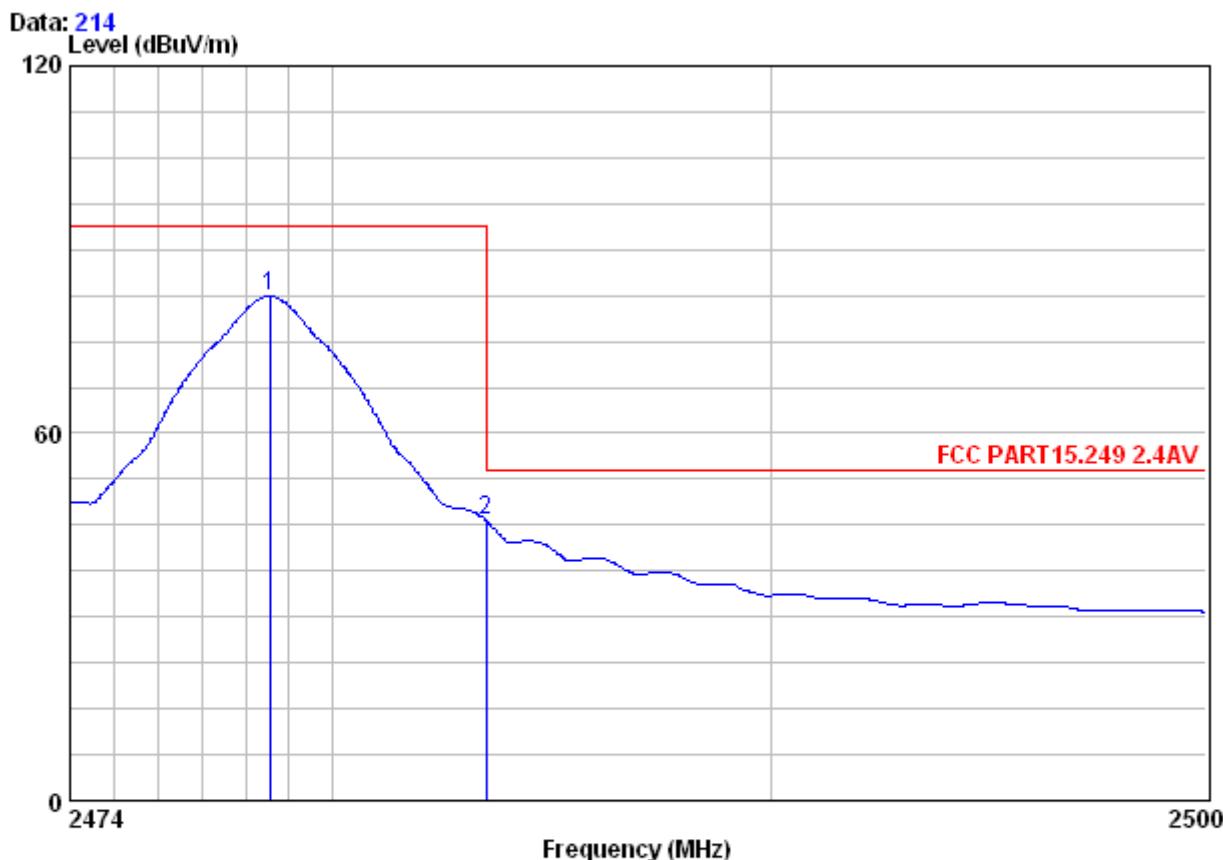
2474

2500

**Frequency (MHz)**
**FCC PART15.249 2.4PK**


Freq	Cable		Antenna	Preamp	Read	Limit	Over	
	Loss	Factor	Factor	Level	Level			
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2478.420	3.03	32.67	39.92	96.48	92.26	114.00	-21.74
2	2483.500	3.03	32.67	39.92	63.15	58.93	74.00	-15.07

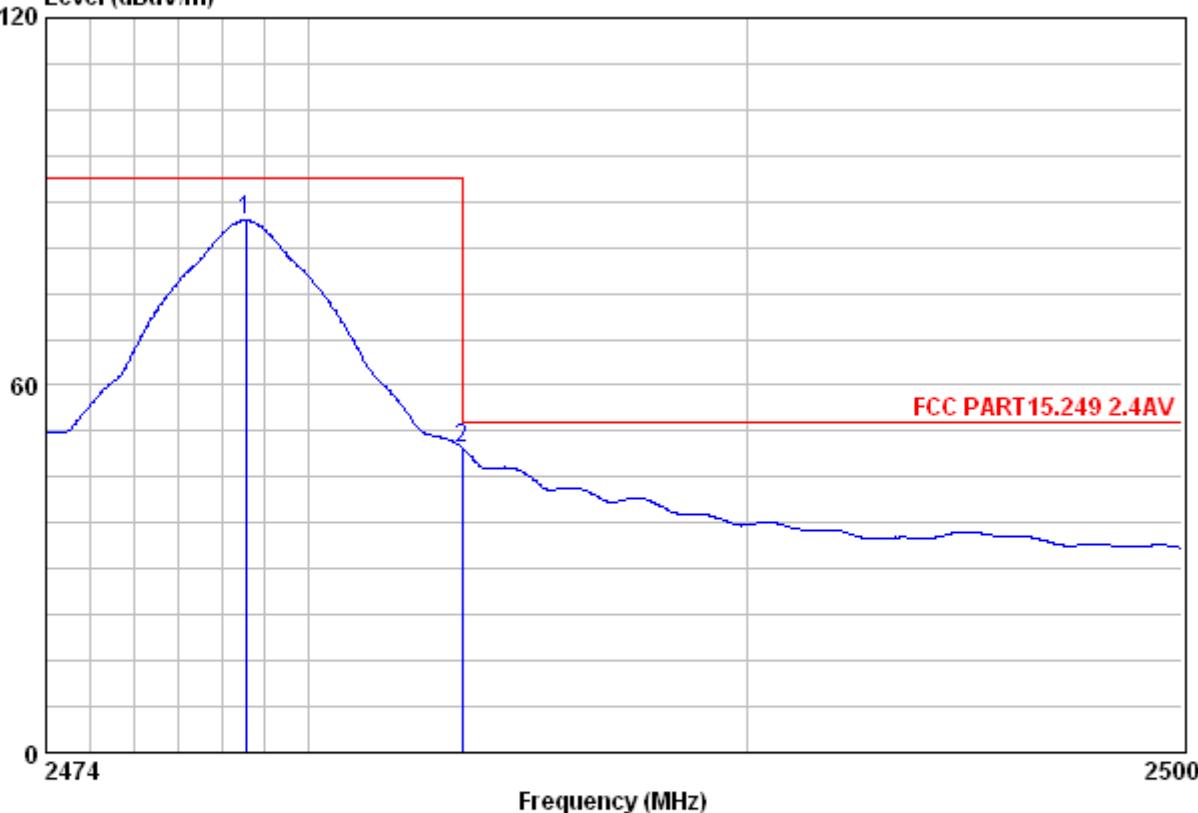
Test mode:	Transmitting	Test channel:	Highest	Remark:	Average	Vertical
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Freq	Cable	Antenna	Preamp	Read	Limit	Over		
	Loss	Factor	Factor	Level	Level	Line	Limit	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2478.550	3.03	32.67	39.92	86.59	82.37	94.00	-11.63
2	2483.500	3.03	32.67	39.92	50.04	45.83	54.00	-8.17

Test mode:	Transmitting	Test channel:	Highest	Remark:	Average	Horizontal
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Data: 212  
 Level (dBuV/m)



Freq	Cable			Antenna	Preamp	Read	Limit	Line	Over
	Loss	Factor	Factor			Level			
	MHz	dB	dB/m		dB	dBuV	dBuV/m	dBuV/m	dB
1 0	2478.550	3.03	32.67	39.92	91.14	86.92	94.00	-7.08	
2 0	2483.500	3.03	32.67	39.92	54.05	49.83	54.00	-4.17	