

# SGS-CSTC Standards Technical Services Ltd.

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Report No.: SZEMO10120771201  
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## FCC REPORT

**Application No. :** SZEMO101207712ET(SGS HK NO.:2026034EL)  
**Applicant:** Educational Insights  
**Product Name:** WIRELESS EGGSPERT® 2.4GHZ  
**Operation Frequency:** 2404MHz to 2476MHz  
**FCC ID:** MJO-EI-7881M  
**Standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.249: 2009  
**Date of Receipt** 2010-12-21  
**Date of Test** 2010-12-24 to 2011-01-04  
**Date of Issue** 2011-01-18

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

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

Authorized Signature:



2011 Jan

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 (a)/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.*

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## 4 General Information

### 4.1 Client Information

Applicant:	Educational Insights
Address of Applicant:	152 Walnut Street, Suite 201, Gardena CA 90248

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

Product Name:	EI-7881 WIRELESS EGGSPERT® 2.4GHZ
Item No.:	EI-7881
Request Age Grading:	6+
Country of Origin:	Hong Kong
Country of Destination:	US
Operation Frequency:	2404MHz to 2476MHz
Channel numbers:	16
Modulation type:	FSK
Antenna Type:	Integral
Antenna gain:	-2dBi
Wireless Eggspert:	AC adapter:MODEL NO. DV-7520 INPUT:120VAC 60Hz 3W OUTPUT:7.5VDC 200mA EUT power supply: 6.0V DC(1.5V X 4"AA" Size Batteries)

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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2404MHz	5	2412MHz	9	2438MHz	13	2462MHz
2	2407MHz	6	2429MHz	10	2440MHz	14	2465MHz
3	2408MHz	7	2432MHz	11	2445MHz	15	2467MHz
4	2410MHz	8	2436MHz	12	2459MHz	16	2476MHz

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 channel see below:

Channel	Frequency
The lowest channel	2404MHz
The middle channel	2438MHz
The Highest channel	2476MHz

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### 4.3 E.U.T Operation mode

**Operating Environment:**

Temperature: 24.0 °C  
Humidity: 52 % RH  
Atmospheric Pressure: 1008 mbar

**Test mode:**

Normal operation mode: Keep the EUT connect with Teacher Remote and Answer Button  
AC charge+normal operation mode: Keep the EUT connect with Teacher Remote and Answer Button and AC charge EUT  
Transmitting mode: EUT transmitted continuous with modulation signal at the specific channel  
Idle mode: Keep the EUT at Idle mode

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## 4.4 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 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 and C-2383 respectively.  
Date of Registration: September 29, 2008. Valid until September 28, 2011.
- **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 556682, June 27, 2008.
- **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.

## 4.5 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.

## 4.6 Other Information Requested by the Customer

None.

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## 4.7 Test Instruments list:

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2010-06-17	2011-06-17
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2010-11-05	2011-11-05
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	2008-06-18	2011-06-18
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2010-11-09	2011-11-09
6	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2010-11-09	2011-11-09
7	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2010-11-09	2011-11-09
8	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2010-06-02	2011-06-02
9	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2010-10-27	2011-10-27
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	2010-06-04	2011-06-04
11	Band filter	Amindeon	82346	SEL0094	2010-06-02	2011-06-02

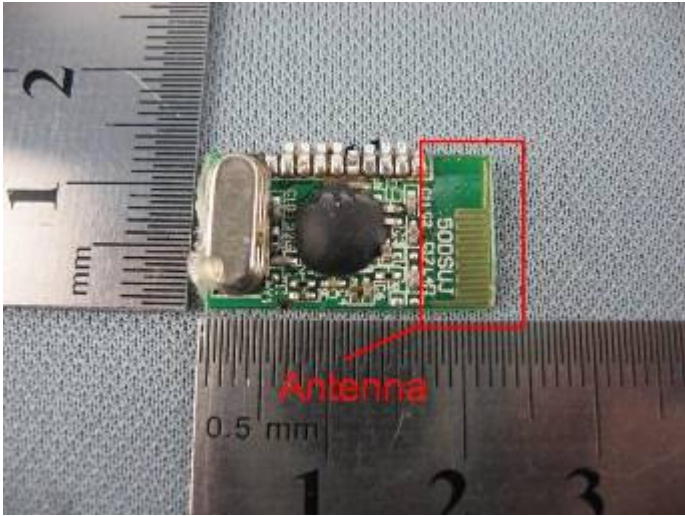
Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	N/A	N/A
2	LISN	ETS-LINDGREN	3816/2	SEL0021	2010-06-02	2011-06-02
3	Two-Line V-Network	Rohde & Schwarz	ENV216	SEL0152	2010-10-27	2011-10-27
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2010-06-02	2011-06-02
5	Coaxial Cable	SGS	N/A	SEL0024	2008-06-18	2011-06-18

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## 5 Test results and Measurement Data

### 5.1 Antenna requirement:

<b>Standard requirement:</b>	FCC Part15 C Section 15.203
<p>15.203 requirement:  <i>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.</i></p>	
<b>E.U.T Antenna:</b>	
	

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## 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" style="width: 100%; border-collapse: collapse;"> <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> <p>* Decreases with the logarithm of the frequency.</p>	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													
Test mode:	AC charge+normal operation mode														
Test procedure	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.														
Test setup:	<p><i>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</i></p>														
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.

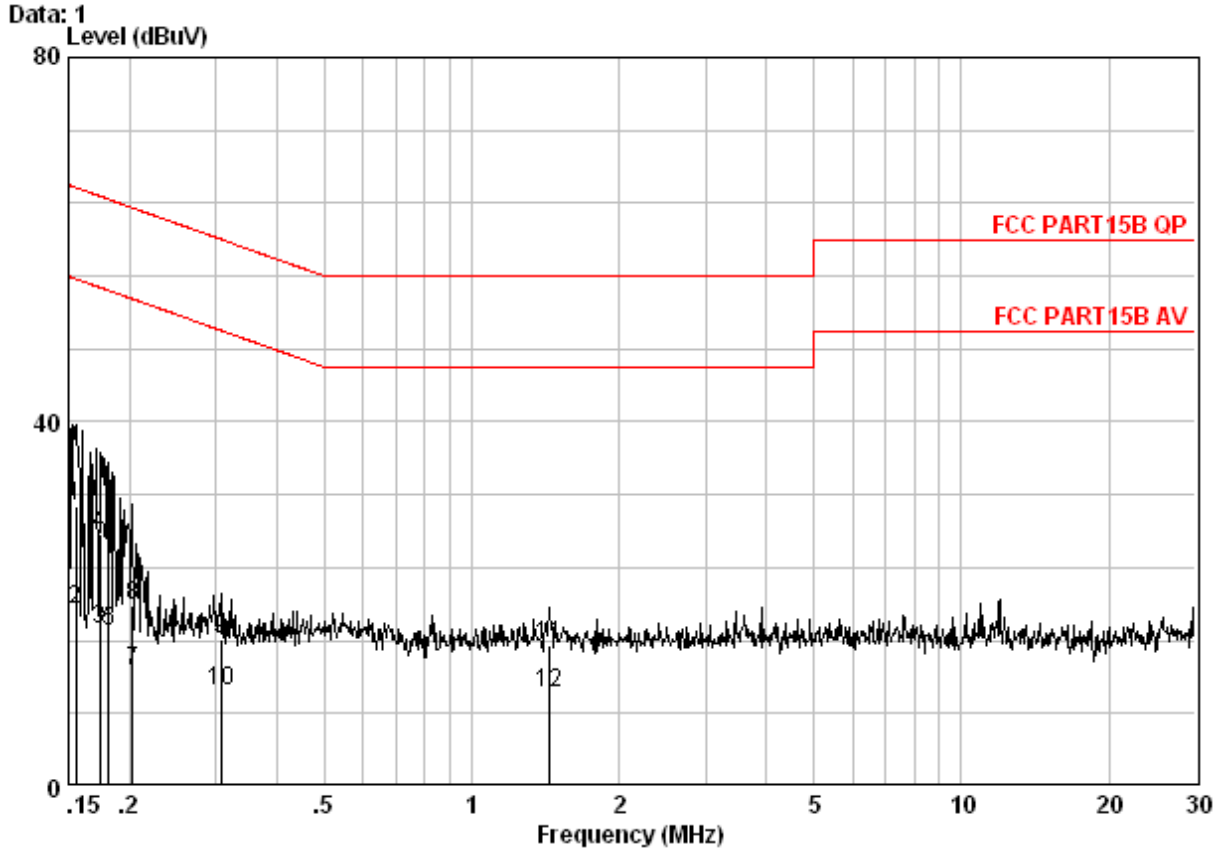
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Live Line:



	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15567	0.04	9.60	21.08	30.72	65.69	-34.97	QP
2	0.15567	0.04	9.60	9.69	19.33	55.69	-36.36	Average
3	0.17399	0.04	9.60	7.57	17.21	54.77	-37.56	Average
4	0.17399	0.04	9.60	18.00	27.64	64.77	-37.13	QP
5	0.18152	0.04	9.60	7.35	16.99	54.42	-37.43	Average
6	0.18152	0.04	9.60	16.84	26.48	64.42	-37.93	QP
7	0.20289	0.04	9.60	2.95	12.59	53.49	-40.90	Average
8	0.20289	0.04	9.60	10.28	19.92	63.49	-43.57	QP
9	0.30671	0.05	9.60	6.54	16.19	60.06	-43.87	QP
10	0.30671	0.05	9.60	0.74	10.39	50.06	-39.67	Average
11	1.433	0.10	9.70	5.78	15.58	56.00	-40.42	QP
12	1.433	0.10	9.70	0.55	10.35	46.00	-35.65	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.

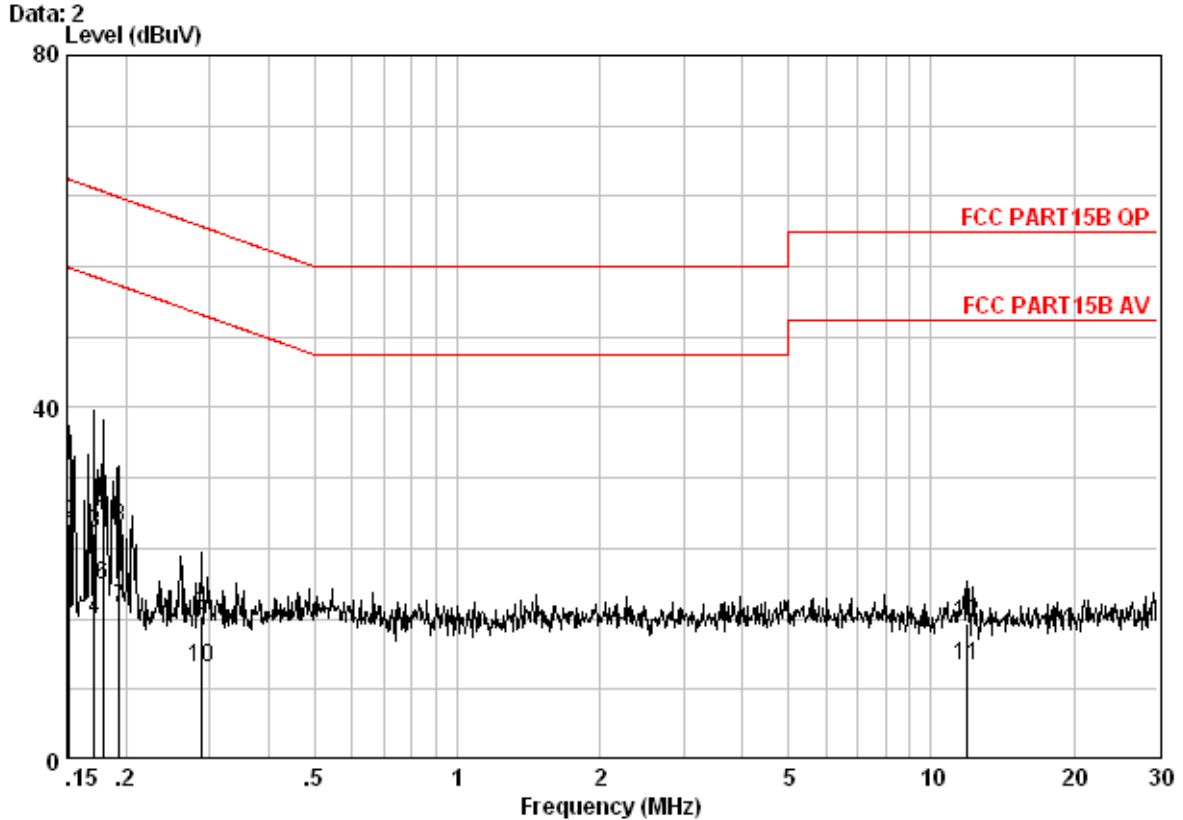
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**Neutral Line:**



	Freq	Cable Loss	LISN Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.15160	0.04	9.60	6.96	55.91	-39.31	Average
2	0.15160	0.04	9.60	17.27	65.91	-39.00	QP
3	0.17124	0.04	9.60	16.12	64.90	-39.14	QP
4	0.17124	0.04	9.60	6.28	54.90	-38.98	Average
5	0.17866	0.04	9.60	18.92	64.55	-35.99	QP
6 @	0.17866	0.04	9.60	10.24	54.55	-34.67	Average
7	0.19344	0.04	9.60	7.59	53.89	-36.66	Average
8	0.19344	0.04	9.60	16.65	63.89	-37.60	QP
9	0.28782	0.05	9.60	6.64	60.59	-44.30	QP
10	0.28782	0.05	9.60	0.79	50.59	-40.15	Average
11	11.933	0.23	9.88	0.67	50.00	-39.21	Average
12	11.933	0.23	9.88	5.26	60.00	-44.63	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.

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## 5.3 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.249 and 15.209			
Test Method:	ANSI C63.10: 2009			
Test Frequency Range:	30MHz to 25GHz			
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)			
Receiver setup:	Frequency	Detector	RBW	VBW
	30MHz-1GHz	Quasi-peak	100KHz	300KHz
	Above 1GHz	Peak	1MHz	3MHz
		Peak	1MHz	10Hz
	Remark			
		Quasi-peak Value		
		Peak Value		
		Average Value		
Limit: (Field strength of the fundamental signal)	Frequency	Limit (dBuV/m @3m)		Remark
	2400MHz-2483.5MHz	94.0		Average Value
		114.0		Peak Value
Limit: (Spurious Emissions)	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
Limit: (band edge)	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.			
Test mode:	Normal operation mode , AC charge+normal operation mode can was performed on the EUT on above modes, and then found the worst case mode is AC charge+normal operation mode Only the worst case data was displayed.			

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Report No.: SZEMO10120771201

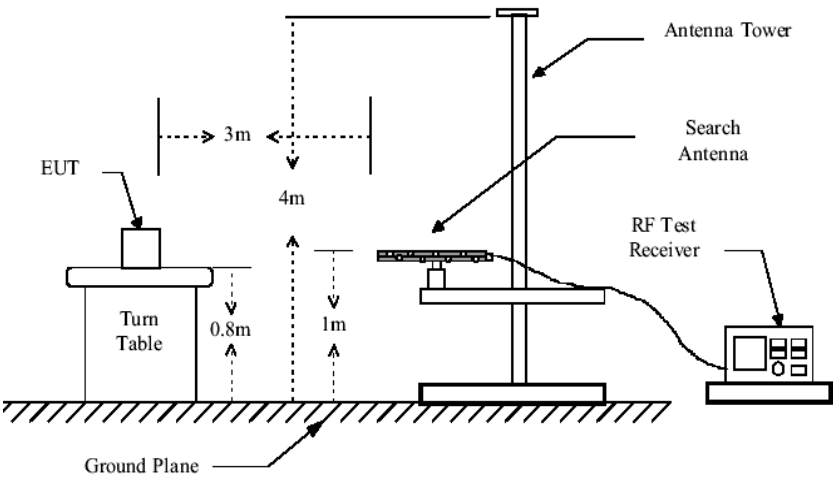
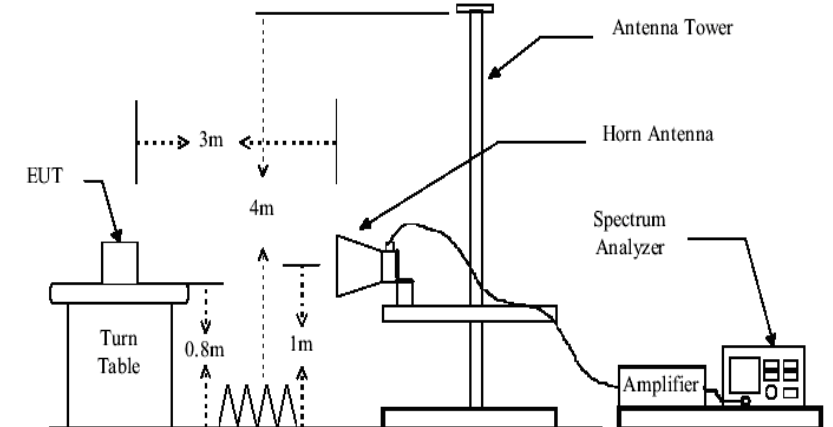
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Test Procedure:	<ol style="list-style-type: none"><li>a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li><li>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li><li>c. 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.</li><li>d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li><li>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li><li>f. 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.</li><li>g. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.</li></ol>
Test Instruments:	Refer to section 4.7 for details

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Test setup:	<p><b>Below 1GHz</b></p>  <p><b>Above 1GHz</b></p> 
Test results:	Pass

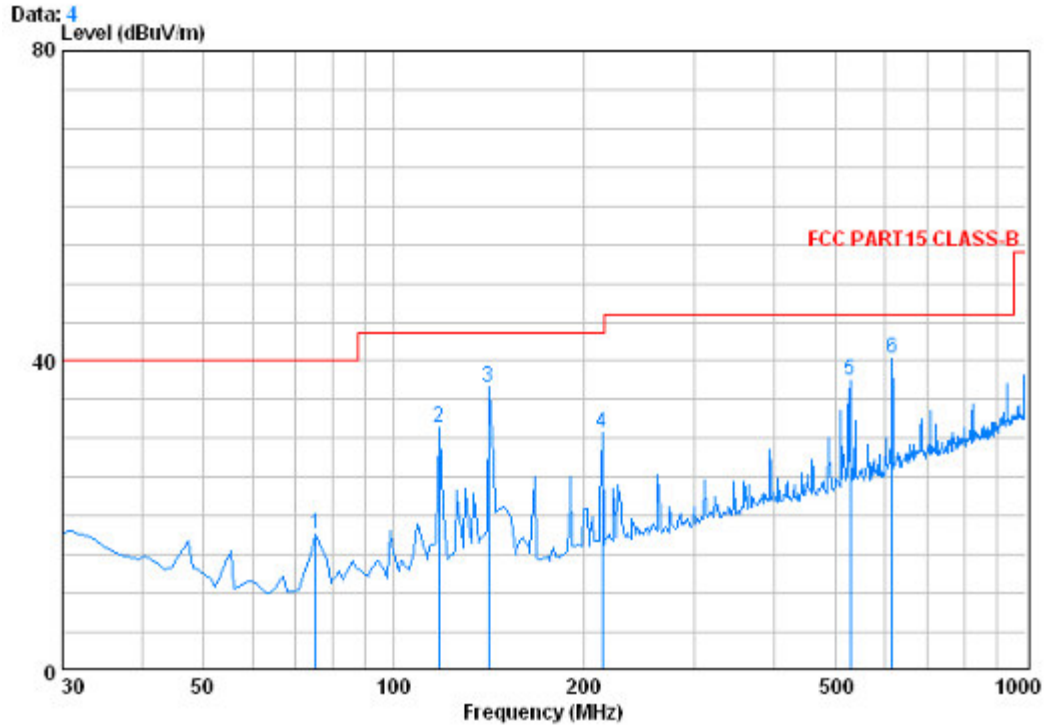
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Vertical:



	Freq	CableAntenna Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	75.590	0.97	7.37	27.24	36.63	40.00	-22.27
2	118.270	1.25	8.02	27.08	49.30	43.50	-12.01
3	141.550	1.30	8.24	26.95	53.98	43.50	-6.93
4	214.300	1.49	10.93	26.65	45.02	43.50	-12.71
5	528.580	2.63	18.56	27.65	43.98	46.00	-8.48
6	614.910	2.73	20.18	27.52	44.87	46.00	-5.74

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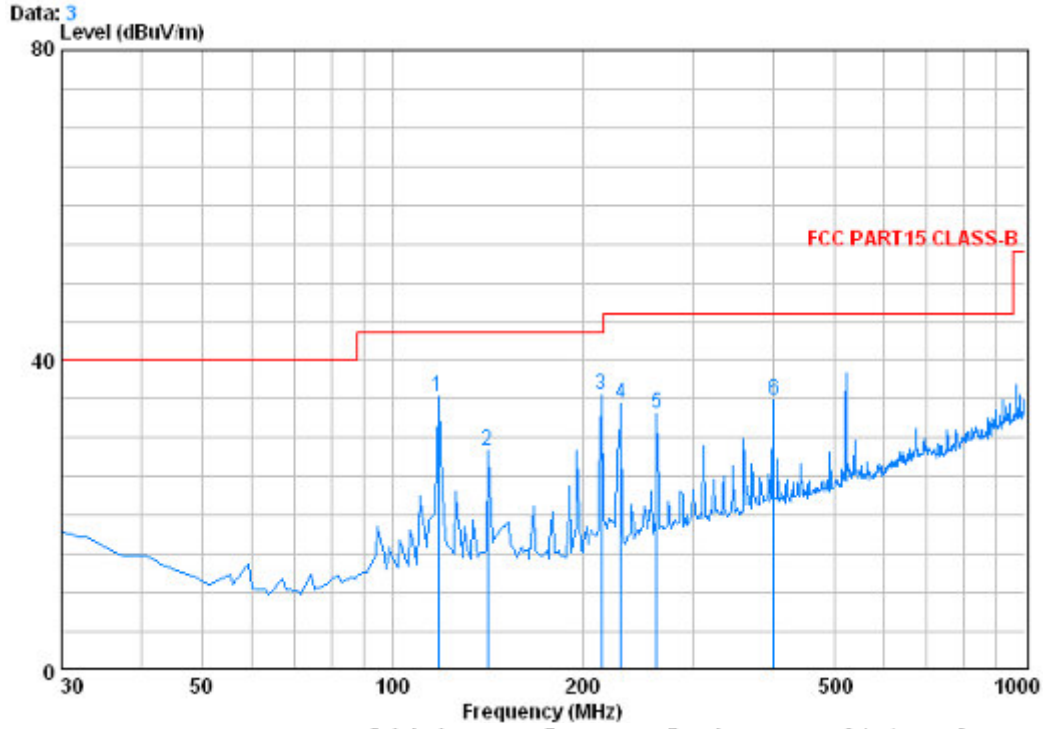


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**Horizontal:**



	Freq	Cable Loss	Antenna Factor	Preamplifier	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	118.270	1.25	8.02	27.08	53.17	35.37	43.50	-8.13
2	141.550	1.30	8.24	26.95	45.72	28.32	43.50	-15.18
3	214.300	1.49	10.93	26.65	49.81	35.58	43.50	-7.92
4	229.820	1.57	11.64	26.59	47.86	34.48	46.00	-11.52
5	261.830	1.73	12.55	26.50	45.25	33.03	46.00	-12.97
6	400.540	2.21	16.30	27.13	43.50	34.88	46.00	-11.12

**Note:**

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

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

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## 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)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2404.276	6.34	30.03	38.87	88.53	86.03	114.00	-27.97	Horizontal
2404.276	6.34	30.03	38.87	87.26	84.76	114.00	-29.24	Vertical
2438.153	6.40	30.18	38.59	86.23	84.22	114.00	-29.78	Horizontal
2438.153	6.40	30.18	38.59	85.34	83.33	114.00	-30.67	Vertical
2476.228	6.45	30.30	39.72	91.78	88.81	114.00	-25.19	Horizontal
2476.228	6.45	30.30	39.72	86.87	83.90	114.00	-30.10	Vertical

Average value:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2404.276	6.25	30.05	38.83	77.98	75.45	94.00	-18.55	Horizontal
2404.276	6.25	30.05	38.83	76.62	74.09	94.00	-19.91	Vertical
2438.153	6.40	30.18	38.59	81.02	79.01	94.00	-14.99	Horizontal
2438.153	6.40	30.18	38.59	80.24	78.23	94.00	-15.77	Vertical
2476.228	6.45	30.30	39.72	86.19	83.22	94.00	-10.78	Horizontal
2476.228	6.45	30.30	39.72	81.18	78.21	94.00	-15.79	Vertical

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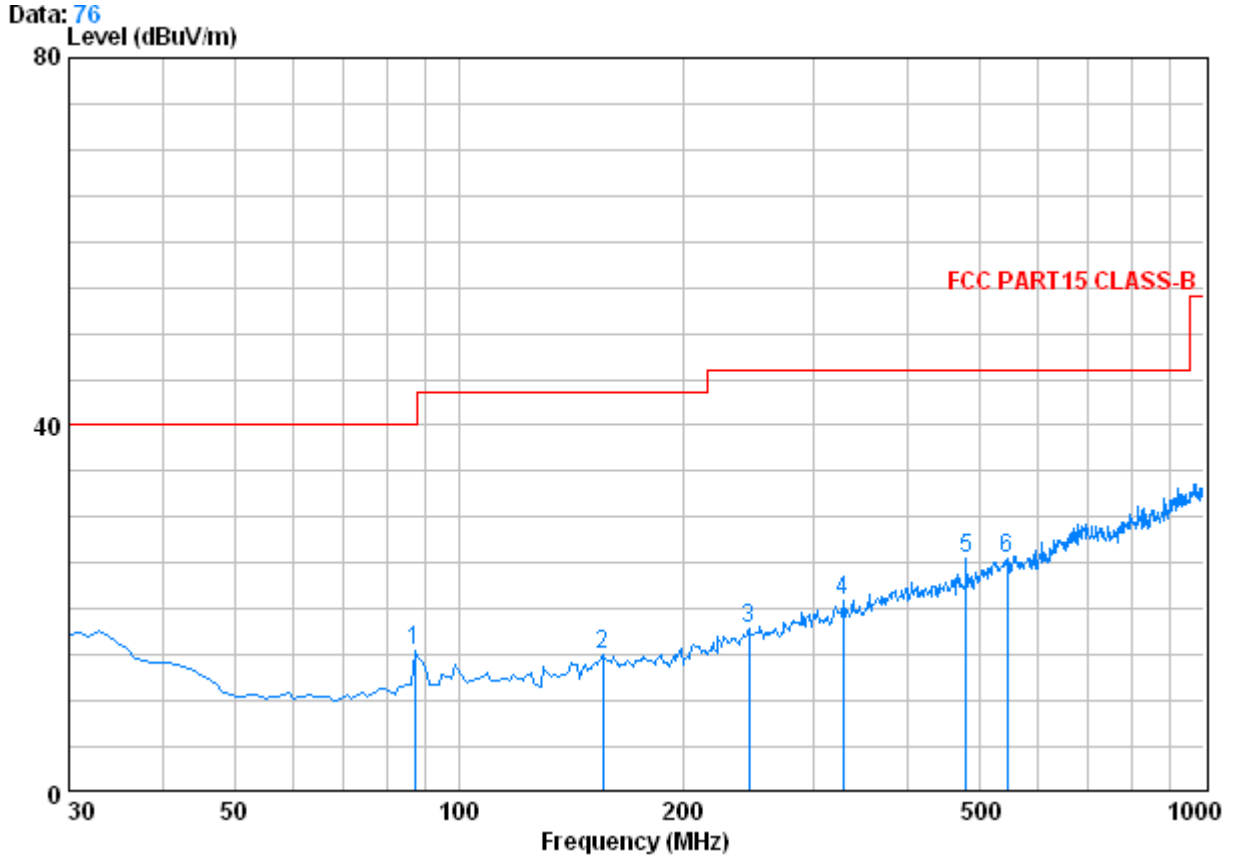
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## 5.3.2 Spurious Emissions

### 30MHz~1GHz

Test mode:	Transmitting	Test channel:	Lowest	Vertical
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	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	87.230	1.10	8.45	27.22	33.06	15.39	40.00	-24.61
2	156.100	1.33	9.39	26.88	31.23	15.07	43.50	-28.43
3	245.340	1.65	12.16	26.55	30.63	17.89	46.00	-28.11
4	327.790	1.99	14.89	26.62	30.72	20.99	46.00	-25.01
5	479.110	2.52	17.80	27.60	32.72	25.44	46.00	-20.56
6	544.100	2.65	18.81	27.63	31.78	25.60	46.00	-20.40

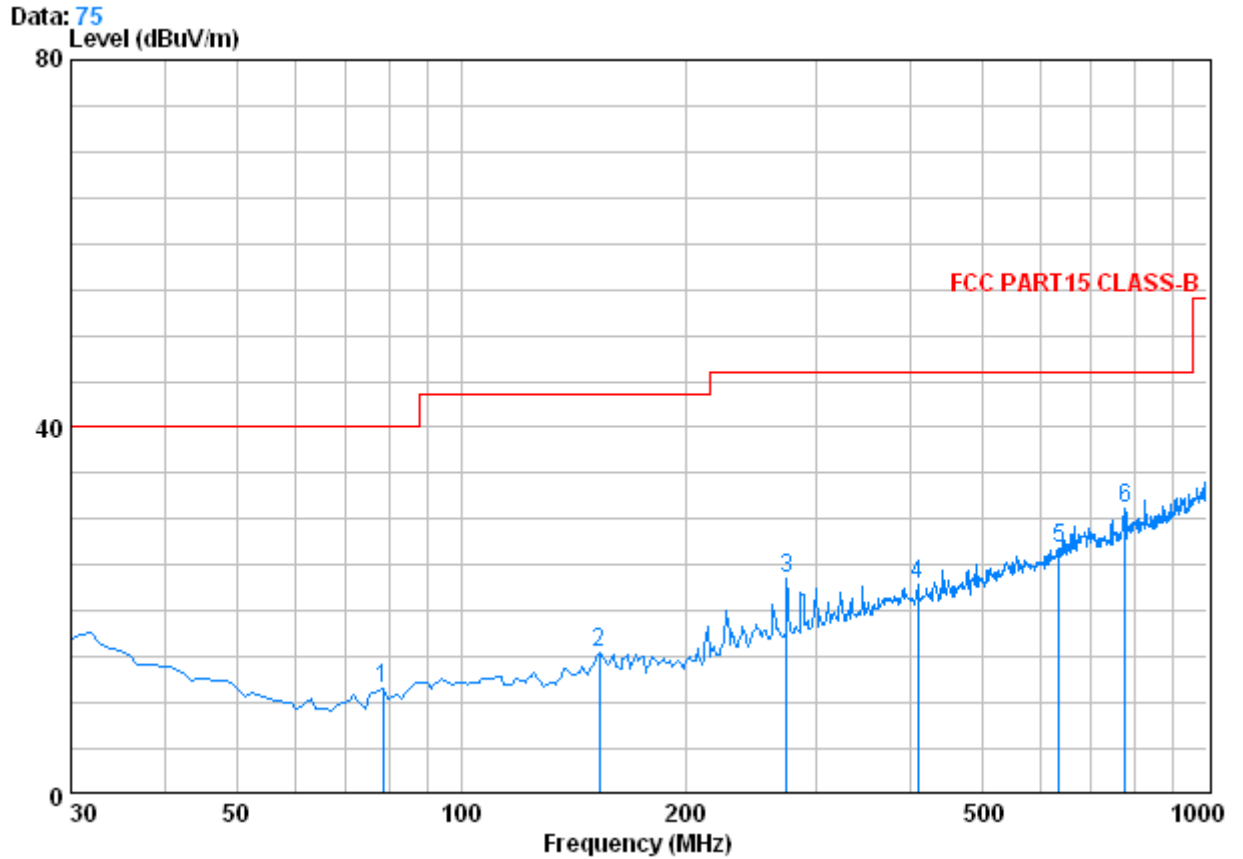
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Test mode:	Transmitting	Test channel:	Lowest	Horizontal
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	Cable	Antenna	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Line	Limit		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m		
1	78.500	1.05	7.59	27.23	30.07	11.48	40.00	-28.52
2	153.190	1.33	9.18	26.89	31.80	15.41	43.50	-28.09
3	273.470	1.78	12.78	26.47	35.43	23.53	46.00	-22.47
4	409.270	2.24	16.34	27.19	31.51	22.90	46.00	-23.10
5 @	634.310	2.77	20.54	27.49	30.92	26.74	46.00	-19.26
6 @	777.870	3.14	22.01	27.32	33.41	31.25	46.00	-14.75

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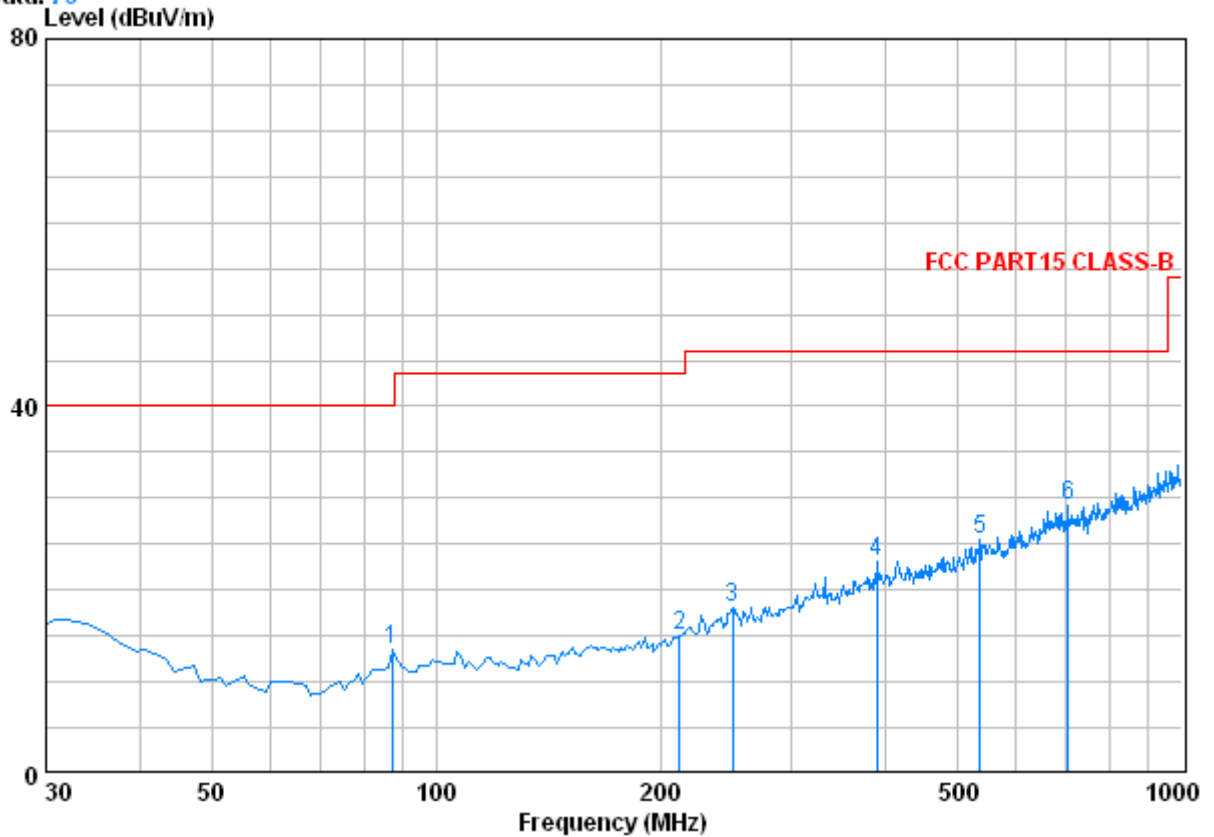
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Test mode:	Transmitting	Test channel:	Middle	Vertical
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Data: 73



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	87.230	1.10	8.45	27.22	31.19	13.52	40.00	-26.48
2	212.360	1.48	10.85	26.65	29.32	14.99	43.50	-28.51
3	250.190	1.68	12.30	26.54	30.75	18.19	46.00	-27.81
4	389.870	2.17	16.18	27.07	31.87	23.16	46.00	-22.84
5	536.340	2.64	18.68	27.64	31.73	25.41	46.00	-20.59
6	703.180	2.91	21.60	27.41	32.20	29.30	46.00	-16.70

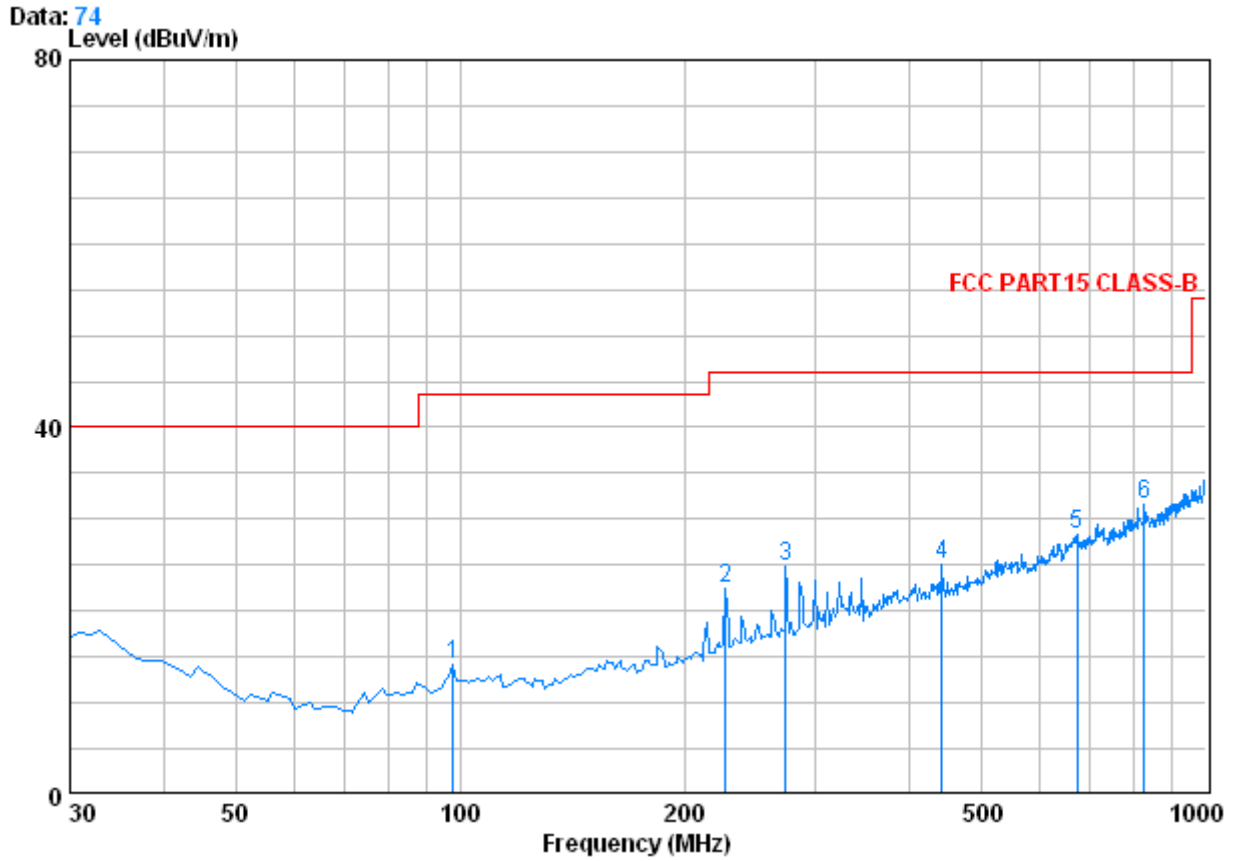
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Test mode:	Transmitting	Test channel:	Middle	Horizontal
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	Cable	Antenna	Preamp	Read		Limit	Over
Freq	Loss	Factor	Factor	Level	Level	Line	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	97.900	1.18	9.02	27.20	31.10	14.09	43.50 -29.41
2	226.910	1.56	11.56	26.61	36.05	22.56	46.00 -23.44
3	273.470	1.78	12.78	26.47	36.77	24.87	46.00 -21.13
4	443.220	2.38	16.74	27.40	33.25	24.98	46.00 -21.02
5 @	673.110	2.85	21.40	27.45	31.48	28.28	46.00 -17.72
6 @	827.340	3.32	22.40	27.13	33.01	31.61	46.00 -14.39

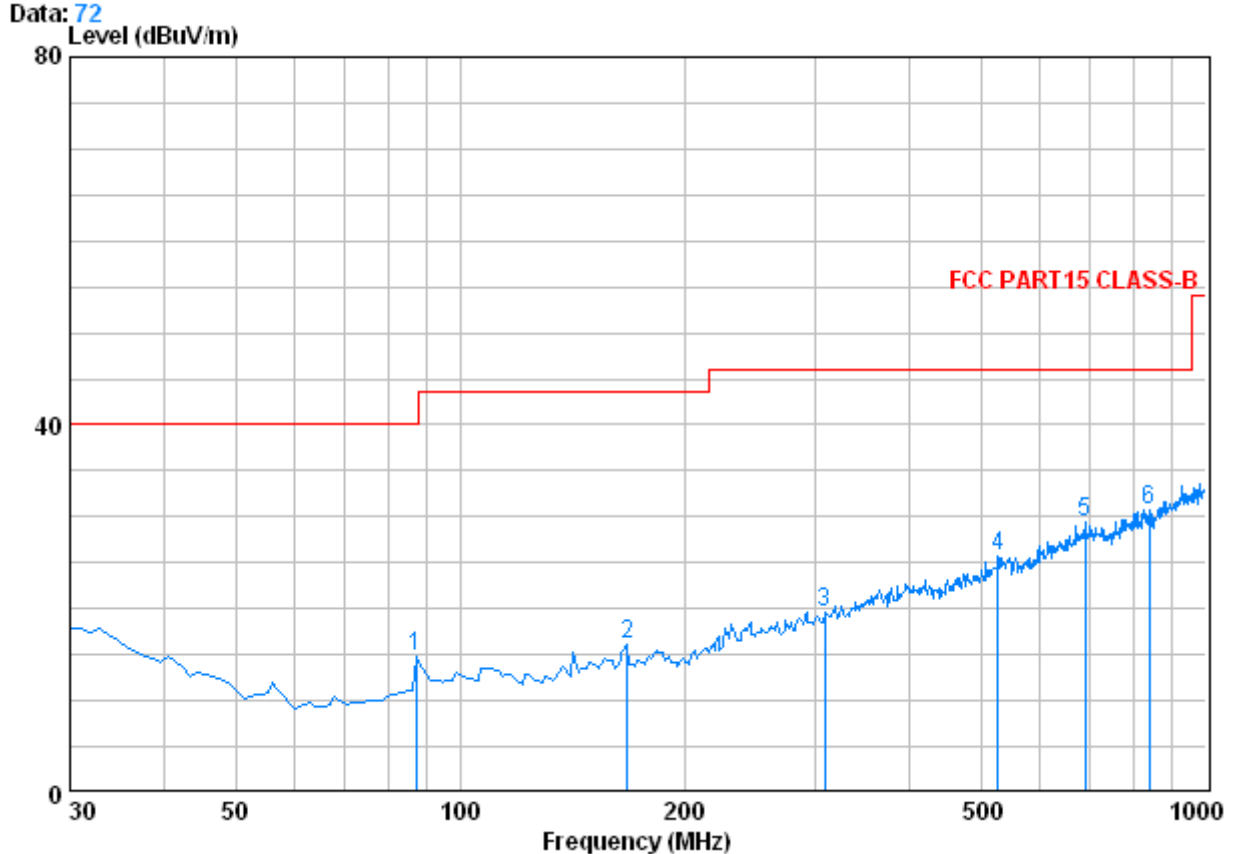
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Test mode:	Transmitting	Test channel:	Highest	Vertical
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	Freq	Cable Loss	Antenna Factor	Preamplifier	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	87.230	1.10	8.45	27.22	32.48	14.81	40.00	-25.19
2	167.740	1.35	9.52	26.82	32.00	16.05	43.50	-27.45
3	308.390	1.93	14.20	26.46	29.99	19.66	46.00	-26.34
4 @	525.670	2.63	18.53	27.65	32.20	25.71	46.00	-20.29
5 @	688.630	2.88	21.52	27.43	32.36	29.33	46.00	-16.67
6 @	839.950	3.37	22.40	27.09	32.14	30.82	46.00	-15.18

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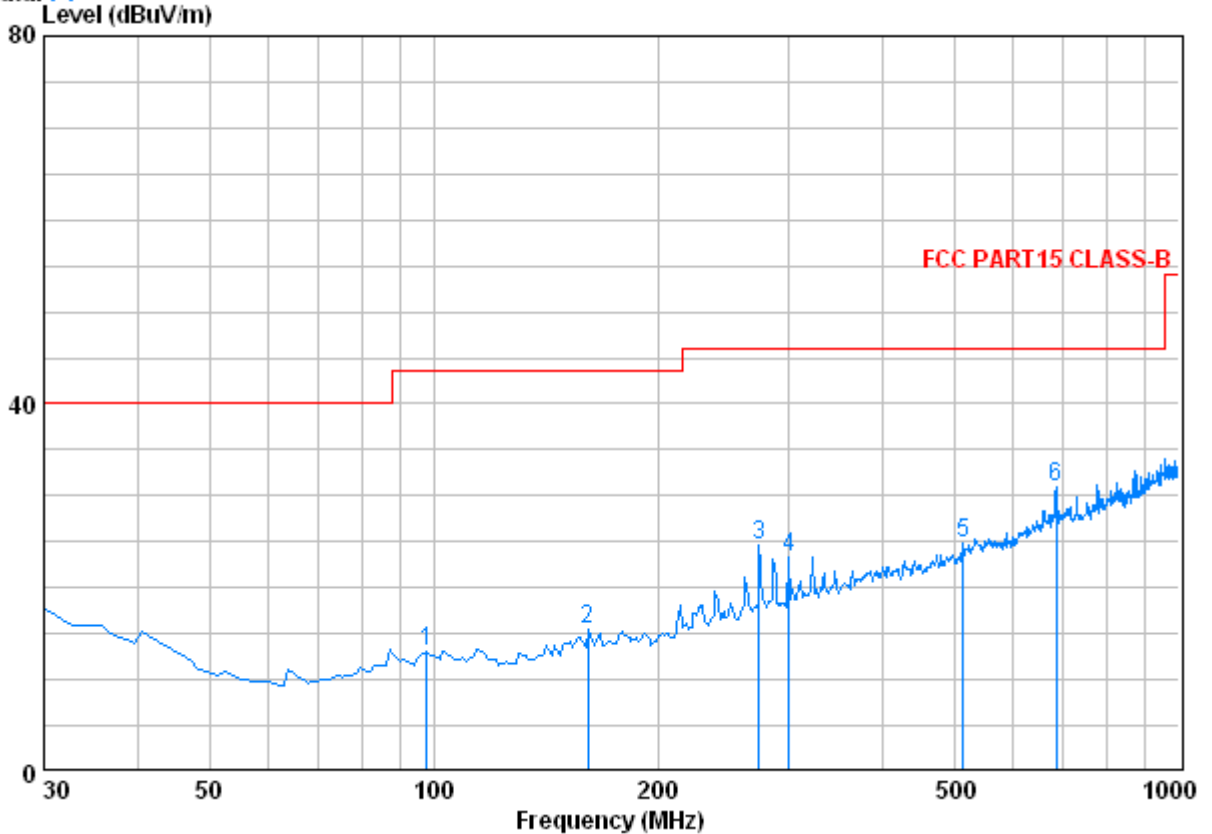
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Test mode:	Transmitting	Test channel:	Highest
			Horizontal

Data: 71



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	97.900	1.18	9.02	27.20	30.09	13.08	43.50	-30.42
2	160.950	1.34	9.59	26.86	31.33	15.40	43.50	-28.10
3	273.470	1.78	12.78	26.47	36.48	24.58	46.00	-21.42
4	299.660	1.90	13.85	26.41	34.00	23.35	46.00	-22.65
5	513.060	2.61	18.18	27.67	31.67	24.79	46.00	-21.21
6 @	683.780	2.87	21.48	27.43	33.93	30.85	46.00	-15.15

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<b>Above 1GHz</b>									
Test mode:		Transmitting		Test channel:		Lowest		Remark:	
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
2374.750	6.23	29.93	39.19	47.12	44.09	74.00	-29.91	Vertical	
3702.500	7.40	32.78	39.14	48.19	49.23	74.00	-24.77	Vertical	
4807.000	9.36	34.25	41.53	49.03	51.11	74.00	-22.89	Vertical	
7215.750	13.30	37.24	40.88	49.33	58.99	74.00	-15.01	Vertical	
9612.750	13.39	37.99	37.56	45.48	59.30	74.00	-14.70	Vertical	
12021.500	16.45	39.10	39.09	46.47	62.93	74.00	-11.07	Vertical	
2374.750	6.23	29.93	39.19	47.98	44.95	74.00	-29.05	Horizontal	
3702.500	7.40	32.78	39.14	48.76	49.80	74.00	-24.20	Horizontal	
4807.000	9.36	34.25	41.53	48.96	51.04	74.00	-22.96	Horizontal	
7215.750	13.30	37.24	40.88	48.85	58.51	74.00	-15.49	Horizontal	
9612.750	13.39	37.99	37.56	45.10	58.92	74.00	-15.08	Horizontal	
12021.500	16.45	39.10	39.09	46.55	63.01	74.00	-10.99	Horizontal	

Test mode:		Transmitting		Test channel:		Lowest		Remark:	
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
2374.750	6.23	29.93	39.19	35.20	32.17	54.00	-21.83	Vertical	
3702.500	7.40	32.78	39.14	35.23	36.27	54.00	-17.73	Vertical	
4807.000	9.36	34.25	41.53	36.19	38.27	54.00	-15.73	Vertical	
7215.750	13.30	37.24	40.88	35.98	45.64	54.00	-8.36	Vertical	
9612.750	13.39	37.99	37.56	33.03	46.85	54.00	-7.15	Vertical	
12021.500	16.45	39.10	39.09	33.55	50.01	54.00	-3.99	Vertical	
2374.750	6.23	29.93	39.19	35.68	32.65	54.00	-21.35	Horizontal	
3702.500	7.40	32.78	39.14	35.96	37.00	54.00	-17.00	Horizontal	
4807.000	9.36	34.25	41.53	36.80	38.88	54.00	-15.12	Horizontal	
7215.750	13.30	37.24	40.88	36.50	46.16	54.00	-7.84	Horizontal	
9612.750	13.39	37.99	37.56	33.43	47.25	54.00	-6.75	Horizontal	
12021.500	16.45	39.10	39.09	33.79	50.25	54.00	-3.75	Horizontal	

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Test mode:		Transmitting		Test channel:		Middle		Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization		
1822.500	5.61	28.06	38.99	47.67	42.35	74.00	-31.65	Vertical		
3655.500	7.92	32.72	40.07	48.21	48.78	74.00	-25.22	Vertical		
4877.500	10.36	34.34	39.89	50.08	54.89	74.00	-19.11	Vertical		
7309.750	12.99	37.30	40.50	49.43	59.22	74.00	-14.78	Vertical		
9753.750	13.89	38.03	37.94	46.58	60.56	74.00	-13.44	Vertical		
12186.000	18.03	39.21	39.27	46.86	64.83	74.00	-9.17	Vertical		
1822.500	5.61	28.06	38.99	49.29	43.97	74.00	-30.03	Horizontal		
3655.500	7.92	32.72	40.07	49.32	49.89	74.00	-24.11	Horizontal		
4877.500	10.36	34.34	39.89	51.07	55.88	74.00	-18.12	Horizontal		
7309.750	12.99	37.30	40.50	49.46	59.25	74.00	-14.75	Horizontal		
9753.750	13.89	38.03	37.94	46.07	60.05	74.00	-13.95	Horizontal		
12186.000	18.03	39.21	39.27	47.14	65.11	74.00	-8.89	Horizontal		

Test mode:		Transmitting		Test channel:		Middle		Remark:		Average
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization		
1822.500	5.61	28.06	38.99	33.86	28.54	54.00	-25.46	Vertical		
3655.500	7.92	32.72	40.07	34.84	35.41	54.00	-18.59	Vertical		
4877.500	10.36	34.34	39.89	35.79	40.60	54.00	-13.40	Vertical		
7309.750	12.99	37.30	40.50	35.79	45.58	54.00	-8.42	Vertical		
9753.750	13.89	38.03	37.94	32.64	46.62	54.00	-7.38	Vertical		
12186.000	18.03	39.21	39.27	32.26	50.23	54.00	-3.77	Vertical		
1822.500	5.61	28.06	38.99	33.82	28.50	54.00	-25.50	Horizontal		
3655.500	7.92	32.72	40.07	34.77	35.34	54.00	-18.66	Horizontal		
4877.500	10.36	34.34	39.89	35.75	40.56	54.00	-13.44	Horizontal		
7309.750	12.99	37.30	40.50	35.74	45.53	54.00	-8.47	Horizontal		
9753.750	13.89	38.03	37.94	32.60	46.58	54.00	-7.42	Horizontal		
12186.000	18.03	39.21	39.27	32.23	50.20	54.00	-3.80	Horizontal		

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Test mode:		Transmitting		Test channel:		Highest		Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization		
1799.000	5.65	27.99	38.66	47.88	42.86	74.00	-31.14	Vertical		
3303.000	6.89	32.30	39.08	48.06	48.17	74.00	-25.83	Vertical		
4948.000	10.51	34.43	40.96	49.68	53.66	74.00	-20.34	Vertical		
7427.250	12.72	37.37	40.01	48.70	58.78	74.00	-15.22	Vertical		
9906.500	14.21	38.07	37.85	46.55	60.98	74.00	-13.02	Vertical		
12385.750	17.55	39.34	39.48	46.92	64.33	74.00	-9.67	Vertical		
1799.000	5.65	27.99	38.66	48.14	43.12	74.00	-30.88	Horizontal		
3303.000	6.89	32.30	39.08	48.60	48.71	74.00	-25.29	Horizontal		
4948.000	10.51	34.43	40.96	49.93	53.91	74.00	-20.09	Horizontal		
7427.250	12.72	37.37	40.01	49.12	59.20	74.00	-14.80	Horizontal		
9906.500	14.21	38.07	37.85	46.94	61.37	74.00	-12.63	Horizontal		
12385.750	17.55	39.34	39.48	47.18	64.59	74.00	-9.41	Horizontal		

Test mode:		Transmitting		Test channel:		Highest		Remark:		Average
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization		
1799.000	5.65	27.99	38.66	33.95	28.93	54.00	-25.07	Vertical		
3303.000	6.89	32.30	39.08	34.81	34.92	54.00	-19.08	Vertical		
4948.000	10.51	34.43	40.96	36.11	40.09	54.00	-13.91	Vertical		
7427.250	12.72	37.37	40.01	35.89	45.97	54.00	-8.03	Vertical		
9906.500	14.21	38.07	37.85	32.69	47.12	54.00	-6.88	Vertical		
12385.750	17.55	39.34	39.48	32.68	50.09	54.00	-3.91	Vertical		
1799.000	5.65	27.99	38.66	33.87	28.85	54.00	-25.15	Horizontal		
3303.000	6.89	32.30	39.08	34.76	34.87	54.00	-19.13	Horizontal		
4948.000	10.51	34.43	40.96	36.06	40.04	54.00	-13.96	Horizontal		
7427.250	12.72	37.37	40.01	35.87	45.95	54.00	-8.05	Horizontal		
9906.500	14.21	38.07	37.85	32.63	47.06	54.00	-6.94	Horizontal		
12385.750	17.55	39.34	39.48	32.65	50.06	54.00	-3.94	Horizontal		

Remark: The disturbance above 13GHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

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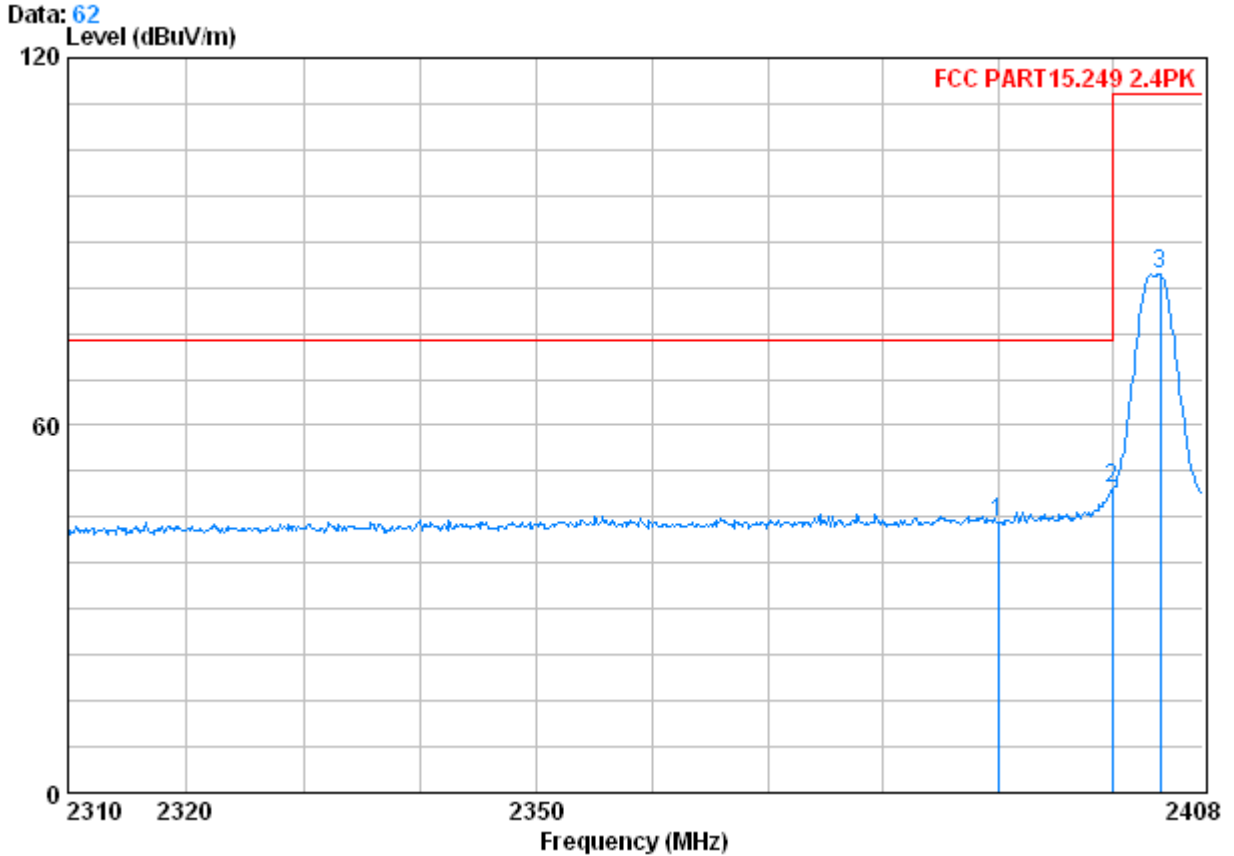
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5.3.3 Band edge (Radiated Emission)					
Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak

Vertical



	Frequency (MHz)							
	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	6.28	29.98	39.03	46.94	44.18	74.00	-29.82
2	2400.000	6.34	30.03	38.87	52.18	49.68	74.00	-24.32
3	2404.276	6.25	30.05	38.83	87.26	84.73	114.00	-29.27

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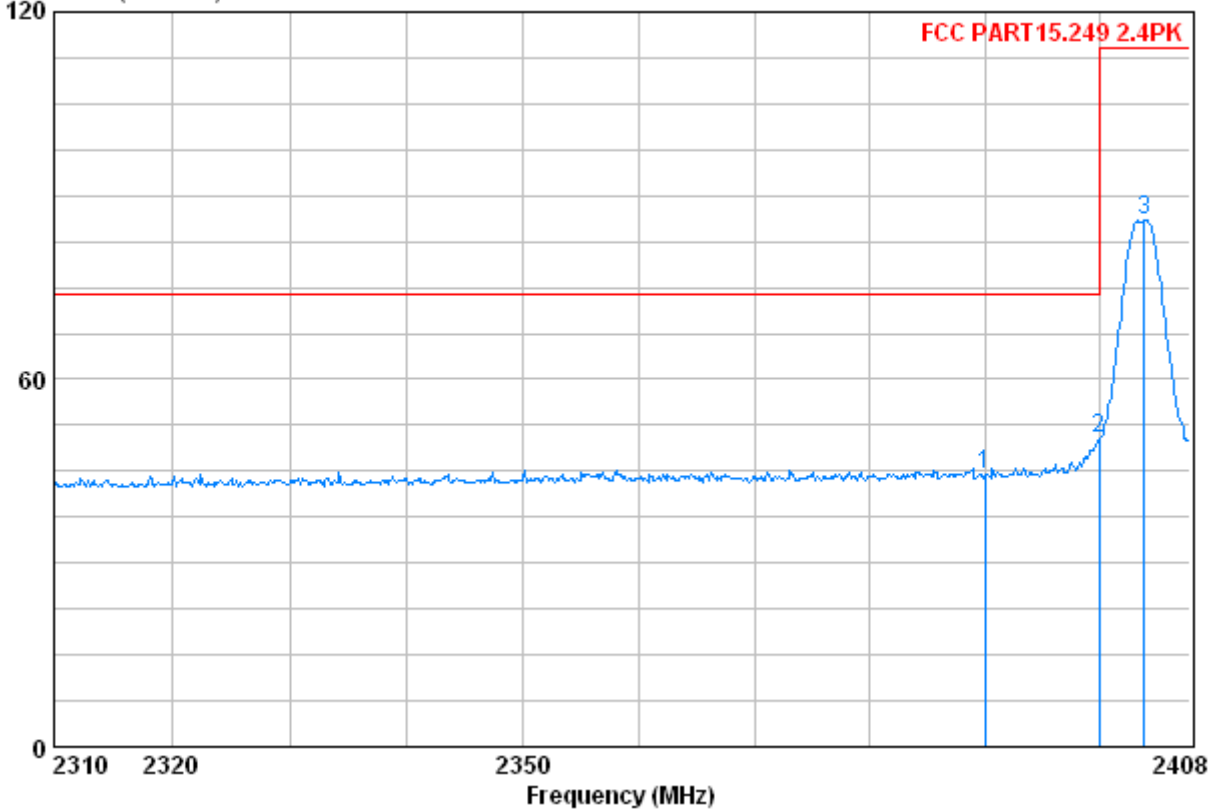
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**Horizontal**

Data: 61  
Level (dBuV/m)



	Cable	Antenna	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Line	Limit		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	6.28	29.98	39.03	47.14	44.37	74.00	-29.63
2	2400.000	6.34	30.03	38.87	52.72	50.22	74.00	-23.78
3	2403.982	6.34	30.03	38.87	88.53	86.03	114.00	-27.97

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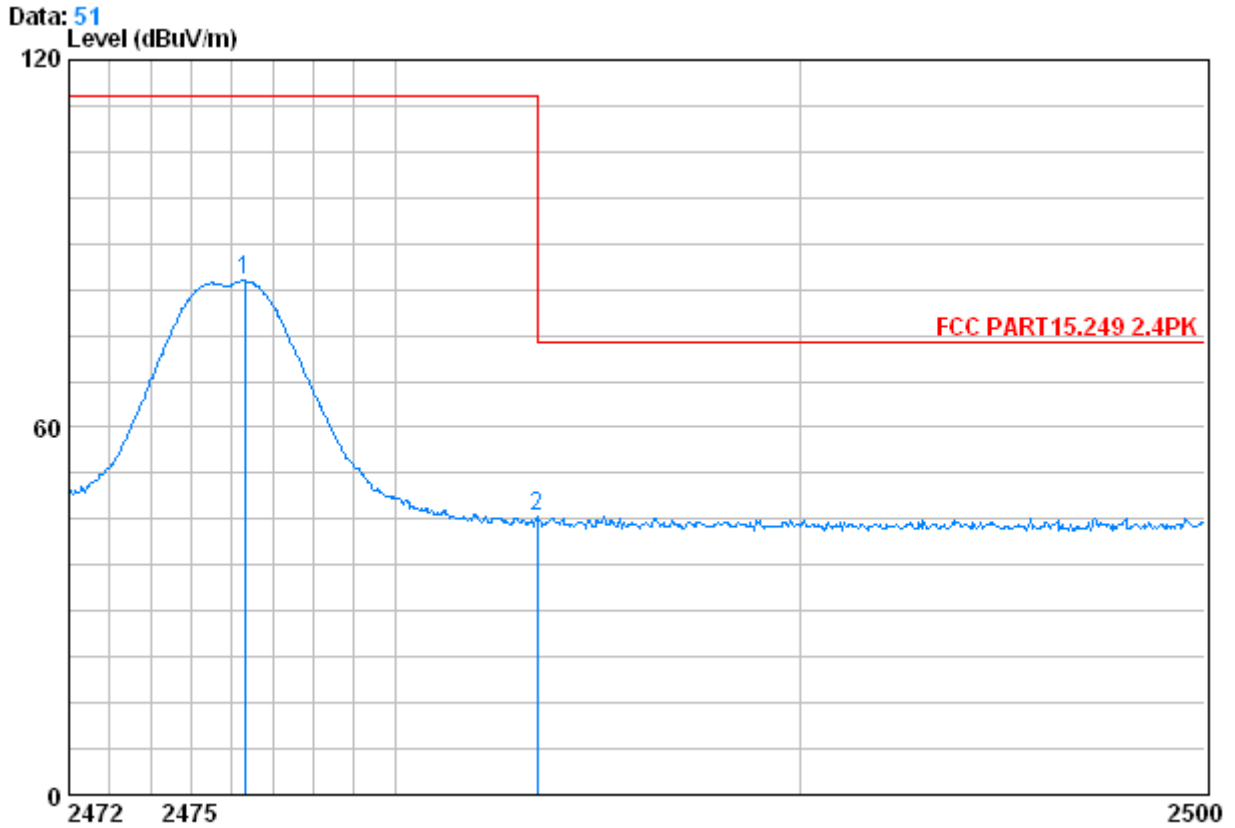
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Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak
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**Vertical**



	Frequency (MHz)							
	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2476.312	6.45	30.30	39.72	86.87	83.90	114.00	-30.10
2	2483.500	6.22	30.32	39.53	48.36	45.37	74.00	-28.63

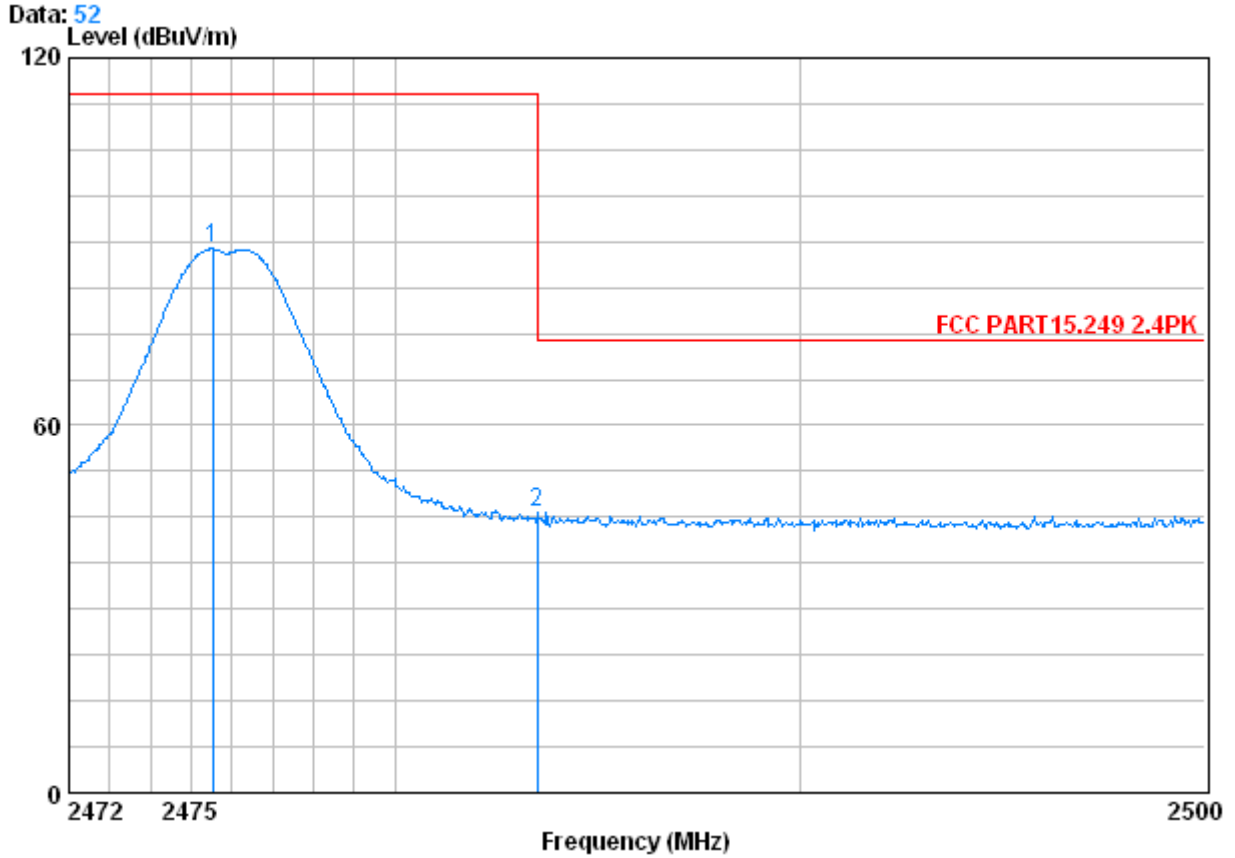
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**Horizontal**



	Freq	Cable Loss	Antenna Factor	Preamplifier Factor	Read Level	Limit Level	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	2475.528	6.45	30.30	39.72	91.79	114.00	-25.19
2	2483.500	6.22	30.32	39.53	48.79	74.00	-28.20

**Remark:**

As shown in this section, the peak field strength of any emission shall not exceed the maximum permitted average limits. So, only the peak measurements were shown in the report.

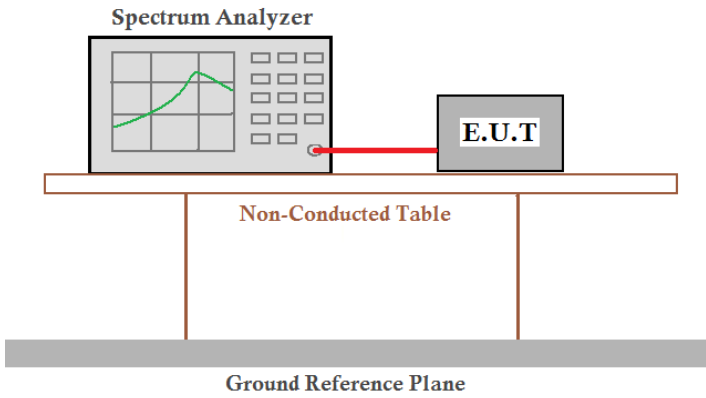
1. The EUT was tested at 3m in field chamber.

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<b>5.3.4 20dB Bandwidth</b>	
Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.10:2009
Limit:	Operation Frequency range 2400MHz-2483.5MHz
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>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 4.7 for details
Test results:	Pass

### Measurement Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	2.520	Pass
Middle	2.556	Pass
Highest	2.592	Pass

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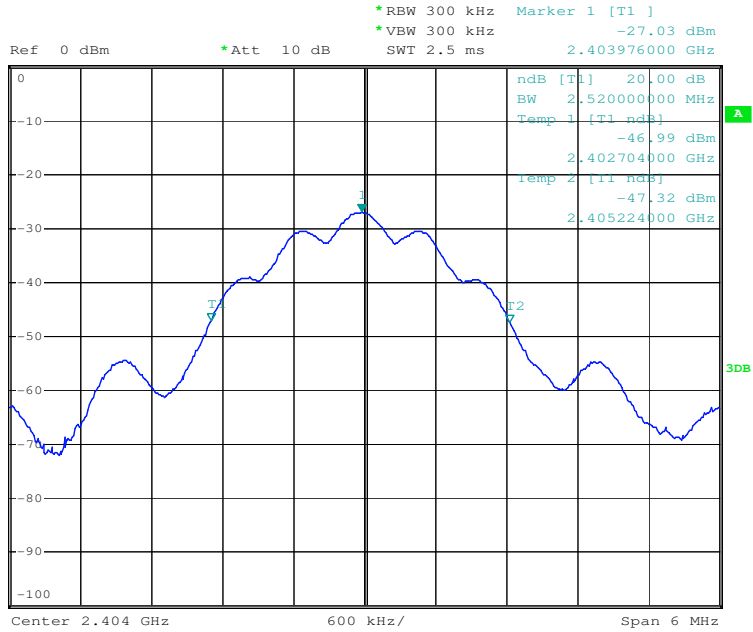
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**Test plot as follows:**

Test channel:	Lowest	
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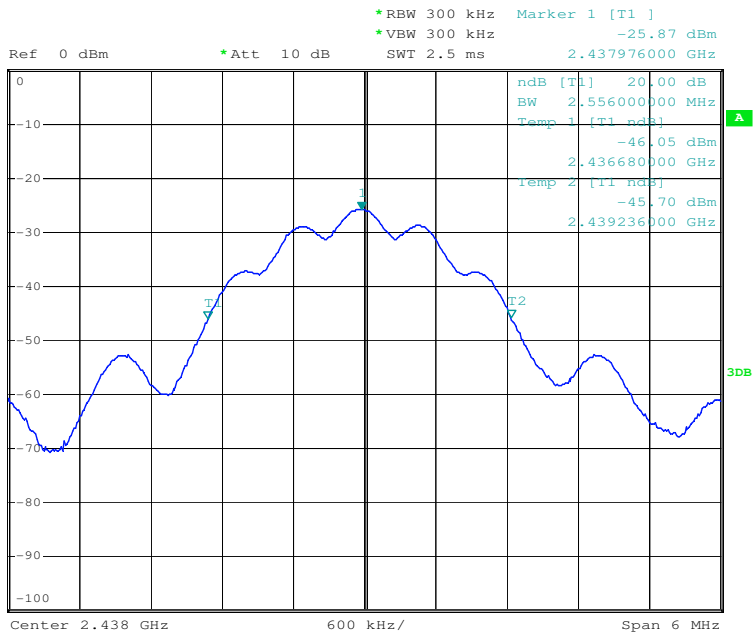
1 PK  
VIEW



Test channel:	Middle	
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1 PK  
VIEW



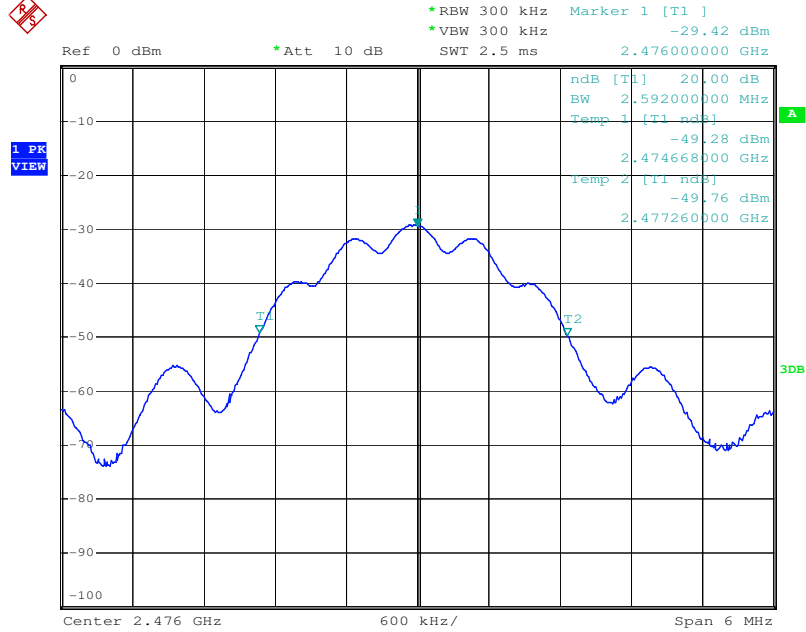
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Test channel:	Highest	
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