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Report No.: SZEMO11030118901

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# FCC REPORT

**Application No:** SZEMO110301189RF  
**Applicant:** ShenZhen Foscam Intelligent Technology Co., Ltd.  
**Manufacturer/Factory:** ShenZhen Foscam Intelligent Technology Co., Ltd.  
**Product Name:** Wireless IP Camera  
**Operation Frequency:** 2412MHz to 2462MHz  
**FCC ID:** ZDE-FI8918W  
**Standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2010  
**Date of Receipt:** 2011-03-22  
**Date of Test:** 2011-03-29 to 2011-04-27  
**Date of Issue:** 2011-05-25

<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

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf

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 SGS PRODUCT CERTIFICATION MARK. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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### 3 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Radiated Emission	15.205/15.209	Pass
Band Edge	15.247(d)	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:	ShenZhen Foscam Intelligent Technology Co., Ltd.
Manufacturer/Factory:	ShenZhen Foscam Intelligent Technology Co., Ltd.
Address of Applicant/ Manufacturer/Factory:	5/F, Block 1, Vision Business Park, Nanshan District, Shenzhen, China.

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

Product Name:	Wireless IP Camera
Model No.:	FI8918W
Trade Mark:	FOSCAM
Operation Frequency:	2412MHz~2462MHz
Channel numbers:	11
Channel separation:	5MHz
Modulation type: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation type: (IEEE 802.11g)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Antenna Type:	detachable
Antenna gain:	2dBi
Power supply:	MODEL:SAW-0502000 INPUT:100-240V~ 50-60Hz 0.5A OUTPUT:5V  2000mA
Network Lan cable:	1.5m

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

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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	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

4.3 Test environment and mode

Test Environment:	
Temperature:	24.0 °C
Humidity:	50 % RH
Atmospheric Pressure:	1008 mbar
Test mode:	
Tx mode:	The EUT transmitted the continuous modulation test signal at the specific channel(s).
Rx mode:	The EUT searched and received the useful test signal.
Wi-Fi mode:	The EUT wireless linked to TP-link router, switching packets.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-Test Mode:								
Mode	802.11b							
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power (dBm)	20.22	20.10	19.75	18.50				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power (dBm)	20.52	20.11	20.05	19.87	19.58	19.14	18.86	18.25
Final Test Mode:								
According to ANSI C63.10 standards, the test results are both the “worst case” and “worst setup”								
1Mbps for 802.11b, 6Mbps for 802.11g								

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#### 4.4 Description of Support Units

The EUT has been tested with associated equipment below:

Description	Manufacturer	Model No.
PC	DELL	OPTIPLEX 755
LCD-displaying	DELL	E1909WF
KEYBOARD	DELL	SK-8115
MOUSE	DELL	MOC5110
PC	DELL	OPTIDLEX 330
LCD-displaying	DELL	SP2208WFPT
KEYBOARD	DELL	SK-8115
MOUSE	DELL	MOC5110
Router	TP-link	TL_WR340G+

#### 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 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.

#### 4.6 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.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



<b>Conducted Emission</b>						
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal.Date (yyyy-mm-dd)</b>	<b>Cal.Due date (yyyy-mm-dd)</b>
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


<b>RF conducted</b>						
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal.Date (yyyy-mm-dd)</b>	<b>Cal.Due date (yyyy-mm-dd)</b>
1	Spectrum Analyzer	Rohde & Schwarz	FSP 30	SEL0154	2010-10-27	2011-10-27
2	Coaxial cable	SGS	N/A	SEL0028	2008-06-18	2011-06-18

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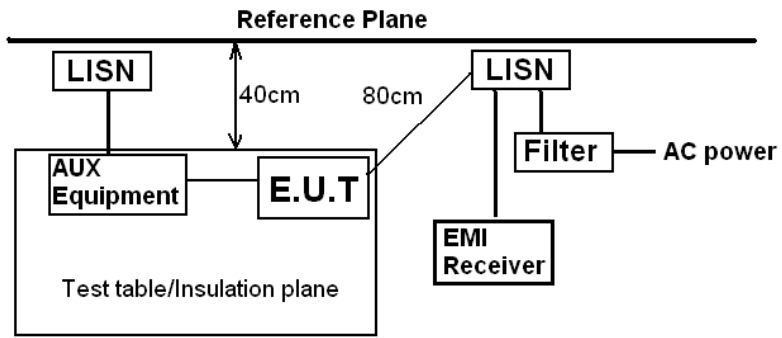


## 5 Test results and Measurement Data

### 5.1 Antenna requirement:

<b>Standard requirement:</b>	FCC Part15 C Section 15.203 /247(c)
<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> <p>15.247(b) (4) requirement:            The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p>	
<b>E.U.T Antenna:</b>	
<p>The antenna is detachable on the main PCB and no consideration of replacement. The best gain of the antenna is 2dBi.</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> <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 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><i>Remark</i>  E.U.T: Equipment Under Test  LISN: Line Impedance Stabilization Network  Test table height=0.8m</p>														
Test Instruments:	Refer to section 4.8 for details														
Test mode:	Wi-Fi mode														
Test results:	Pass														

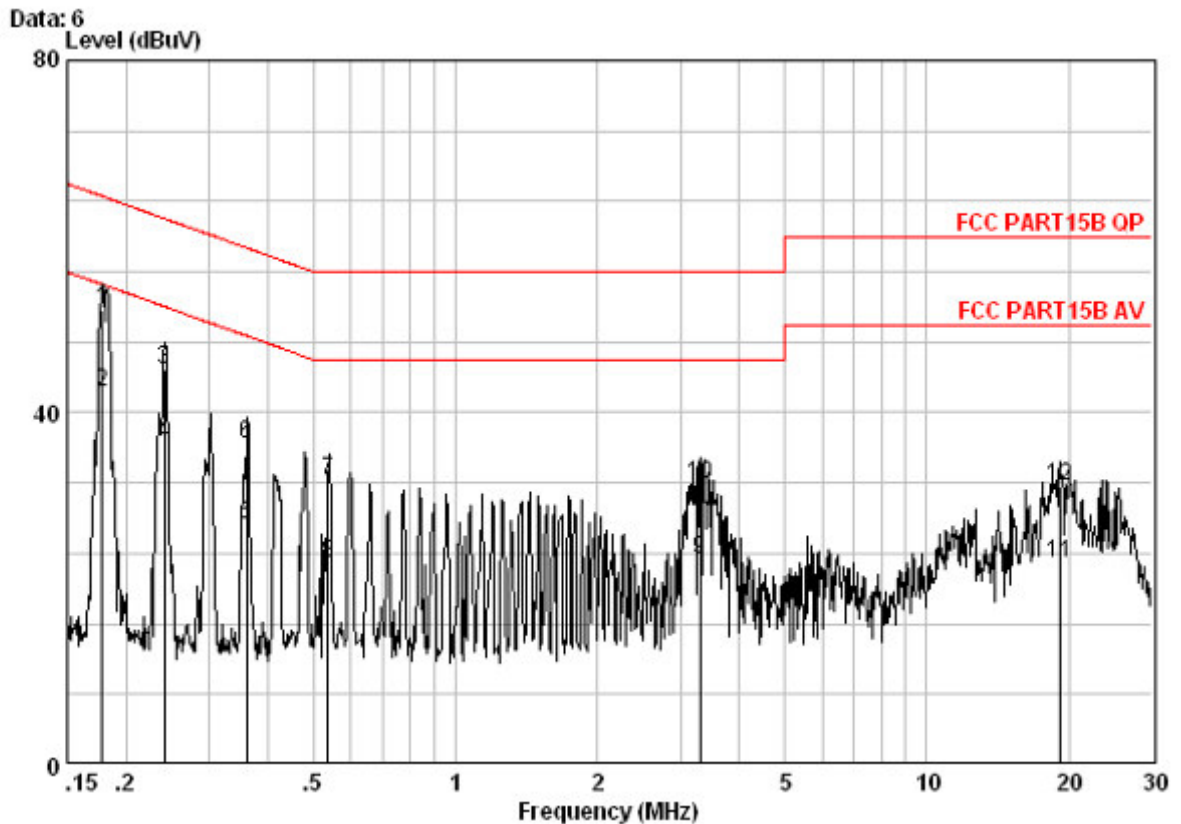
### Measurement Data

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:

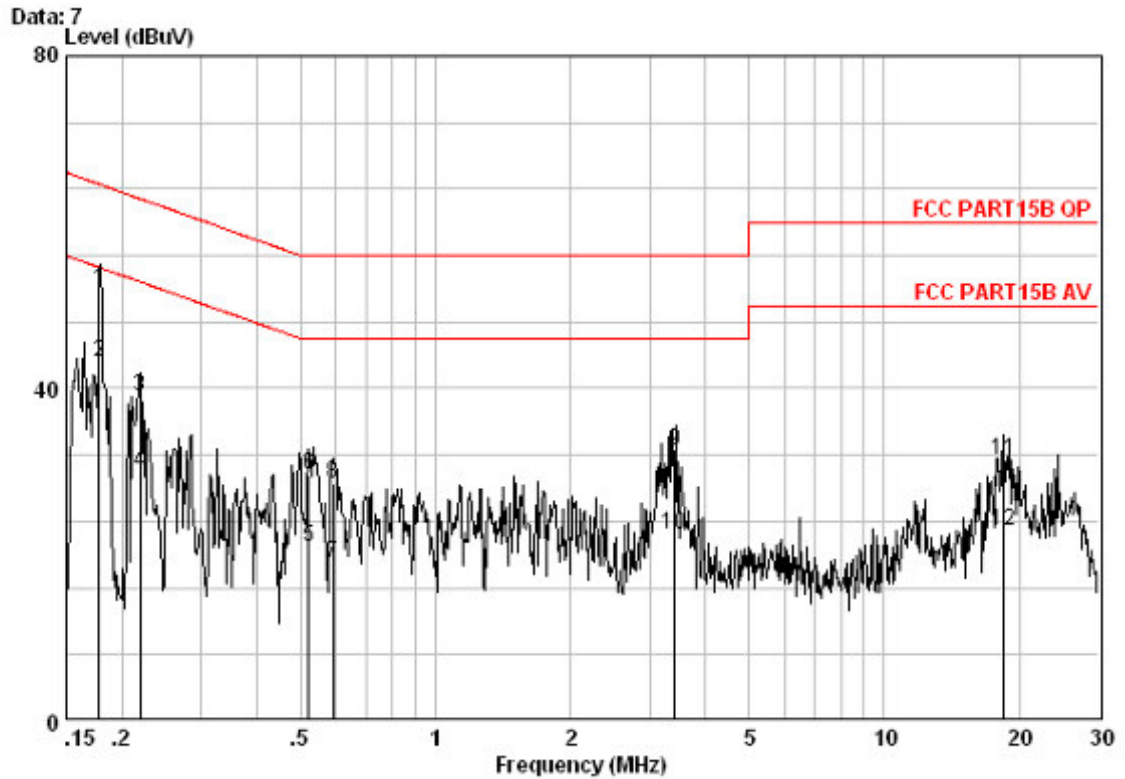


	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17800	0.04	9.60	41.91	51.55	64.58	-13.02	QP
2	0.17800	0.04	9.60	32.62	42.26	54.58	-12.32	Average
3	0.24100	0.04	9.60	35.33	44.97	62.06	-17.09	QP
4	0.24100	0.04	9.60	26.85	36.49	52.06	-15.57	Average
5	0.36000	0.05	9.60	17.61	27.26	48.73	-21.46	Average
6	0.36000	0.05	9.60	26.78	36.43	58.73	-22.29	QP
7	0.53700	0.06	9.62	22.61	32.29	56.00	-23.71	QP
8	0.53700	0.06	9.62	13.11	22.79	46.00	-23.21	Average
9	3.293	0.15	9.75	13.40	23.30	46.00	-22.70	Average
10	3.293	0.15	9.75	22.03	31.93	56.00	-24.07	QP
11	19.100	0.27	10.08	12.60	22.95	50.00	-27.05	Average
12	19.100	0.27	10.08	21.20	31.55	60.00	-28.45	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.

Neutral Line:

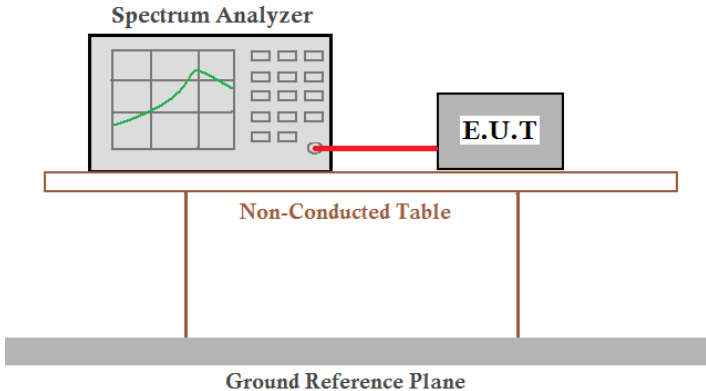


	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17800	0.04	9.60	42.30	51.94	64.58	-12.64	QP
2	0.17800	0.04	9.60	33.61	43.25	54.58	-11.33	Average
3	0.22000	0.04	9.60	29.30	38.94	62.82	-23.87	QP
4	0.22000	0.04	9.60	20.19	29.83	52.82	-22.99	Average
5	0.52000	0.06	9.61	11.20	20.87	46.00	-25.13	Average
6	0.52000	0.06	9.61	20.04	29.72	56.00	-26.28	QP
7	0.59000	0.06	9.65	9.15	18.86	46.00	-27.14	Average
8	0.59000	0.06	9.65	18.91	28.62	56.00	-27.38	QP
9	3.410	0.15	9.76	22.66	32.57	56.00	-23.43	QP
10	3.410	0.15	9.76	12.50	22.41	46.00	-23.59	Average
11	18.420	0.26	10.07	21.04	31.37	60.00	-28.63	QP
12	18.420	0.26	10.07	12.60	22.94	50.00	-27.06	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.

### 5.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2009
Limit:	30dBm
Test setup:	 <p><i>Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.8 for details
Test results:	Pass

### Measurement Data

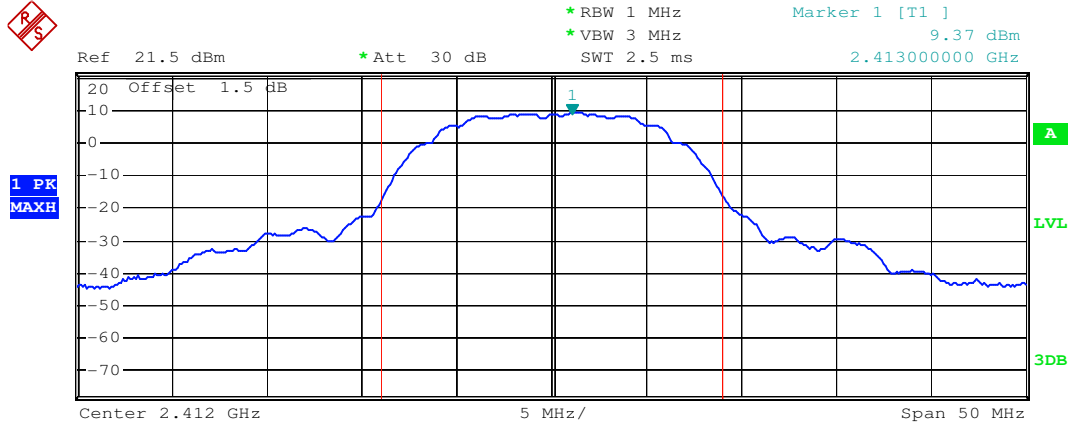
802.11b mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	18.15	30.00	Pass
Middle	20.00	30.00	Pass
Highest	20.22	30.00	Pass
802.11g mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	20.23	30.00	Pass
Middle	19.99	30.00	Pass
Highest	20.52	30.00	Pass

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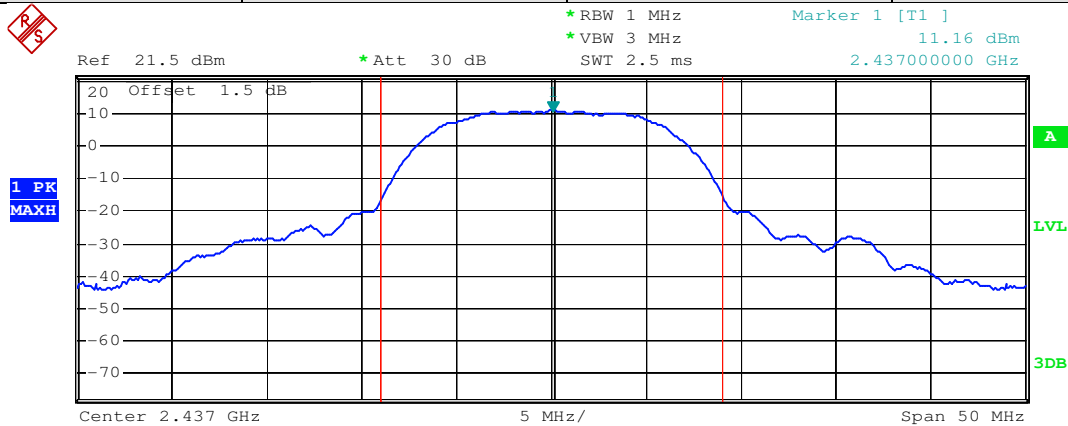


Test plot as follows:

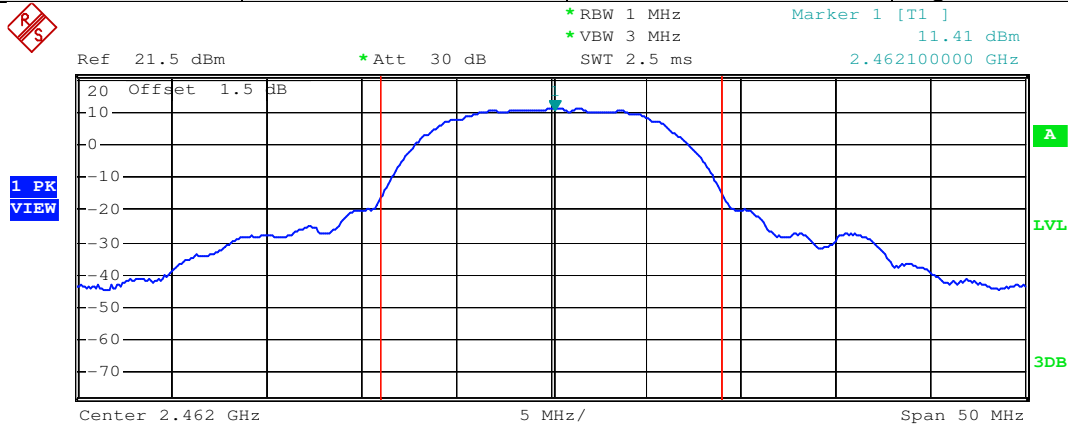
Test mode:	802.11b	Test channel:	Lowest
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Test mode:	802.11b	Test channel:	Middle
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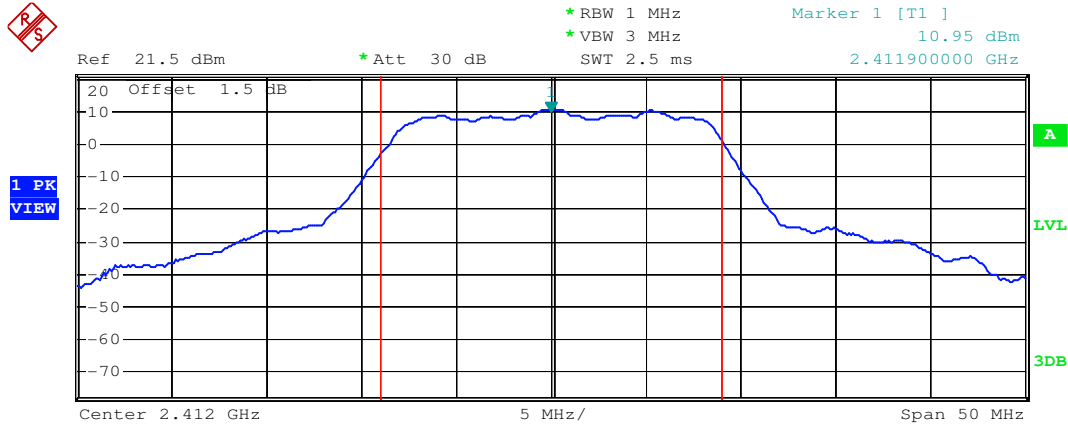
Test mode:	802.11b	Test channel:	Highest
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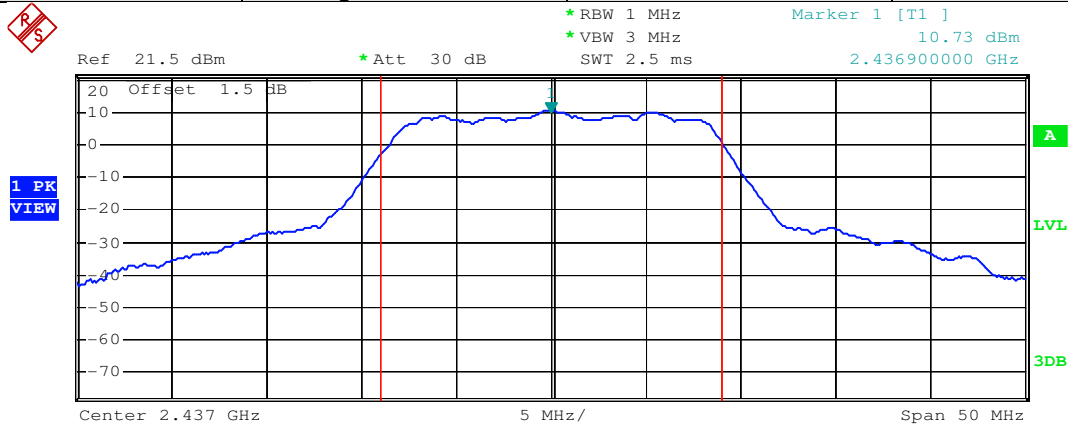
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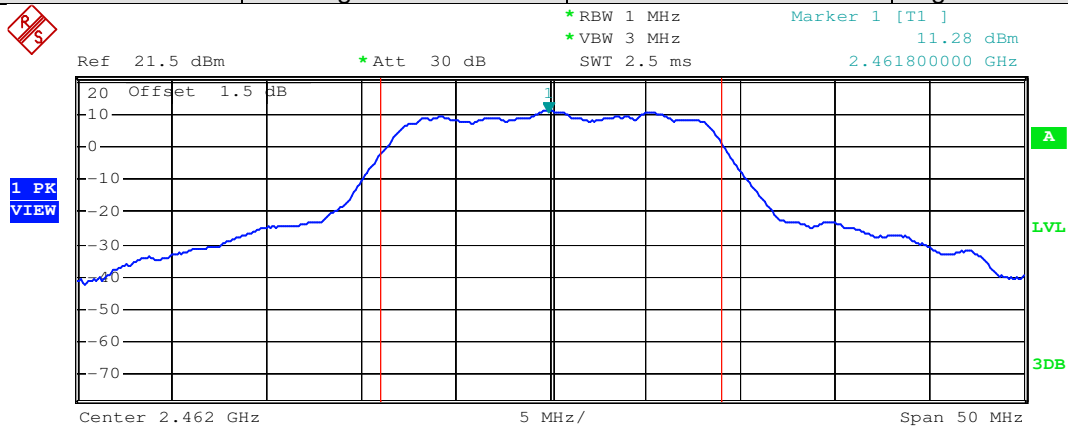
Test mode:	802.11g	Test channel:	Lowest
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Test mode:	802.11g	Test channel:	Middle
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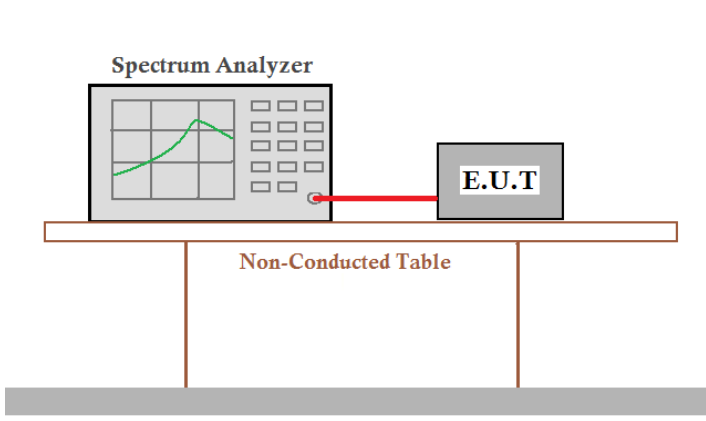


Test mode:	802.11g	Test channel:	Highest
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### 5.4 6dB Occupancy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.10:2009
Limit:	>500KHz
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 4.8 for details
Test results:	Pass

### Measurement Data

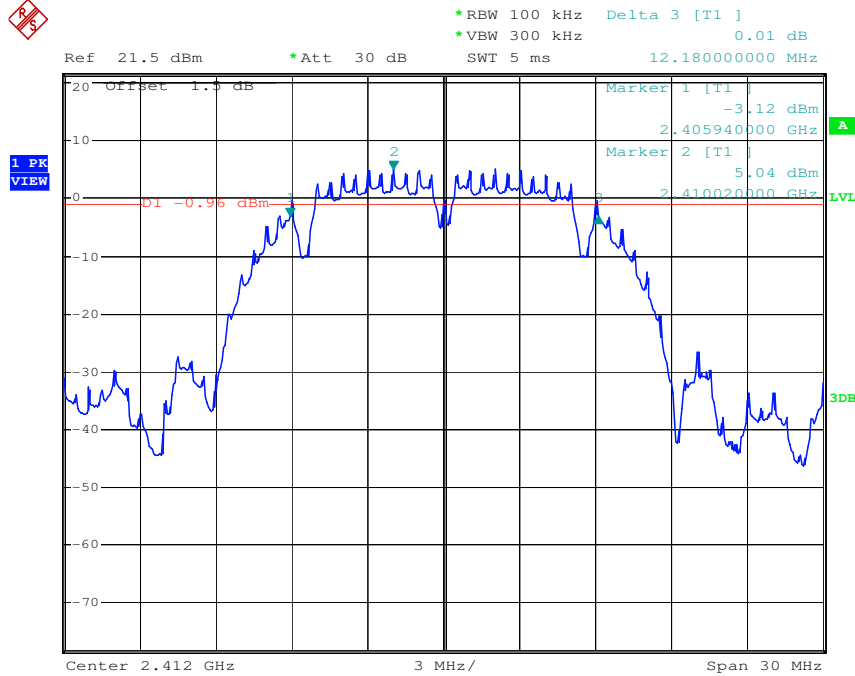
802.11b mode			
Test channel	6dB Occupancy Bandwidth (MHz)	Limit (KHz)	Result
Lowest	12.18	>500	Pass
Middle	11.46	>500	Pass
Highest	11.46	>500	Pass
802.11g mode			
Test channel	6dB Occupancy Bandwidth (MHz)	Limit (KHz)	Result
Lowest	15.24	>500	Pass
Middle	15.24	>500	Pass
Highest	15.24	>500	Pass



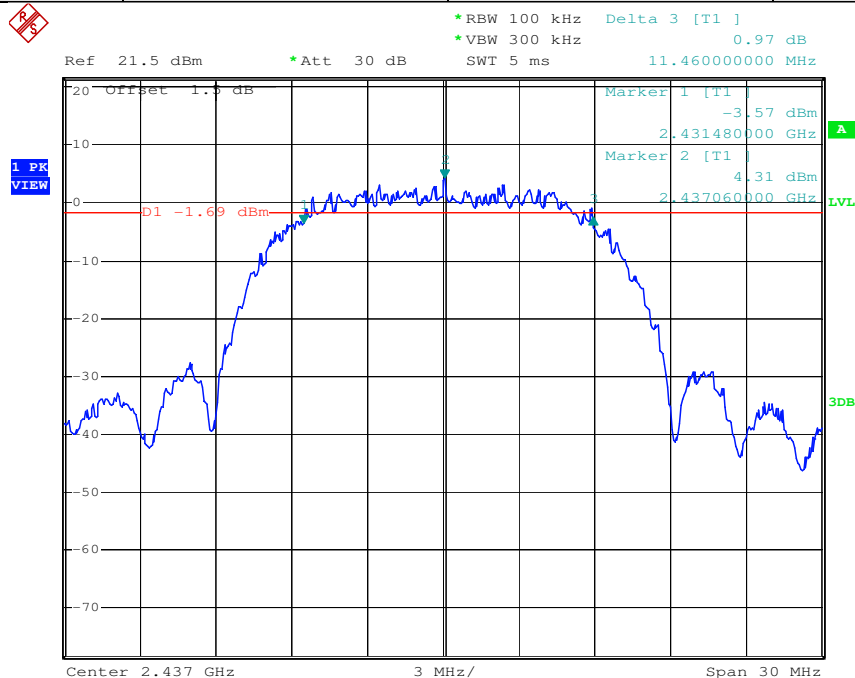


Test plot as follows:

Test mode:	802.11b	Test channel:	Lowest
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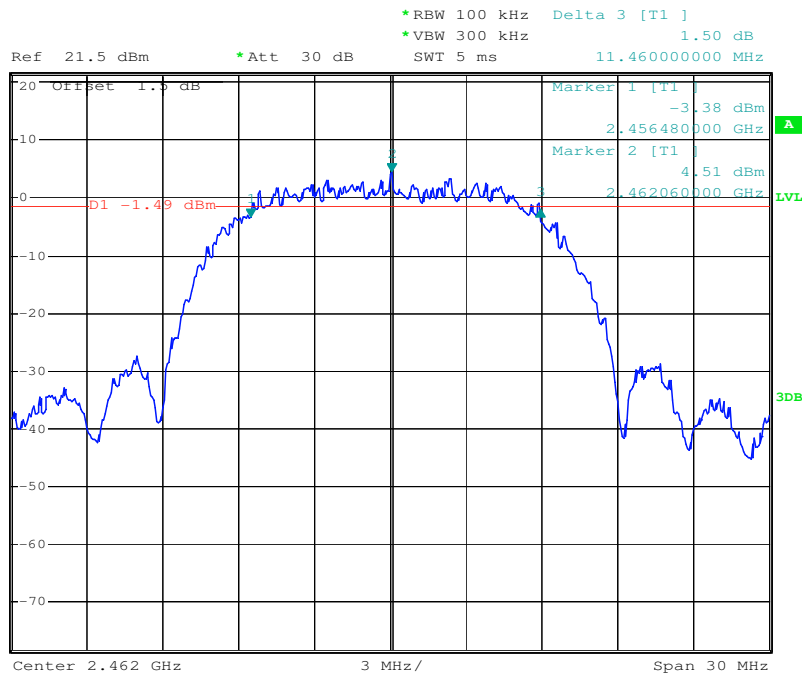
Test mode:	802.11b	Test channel:	Middle
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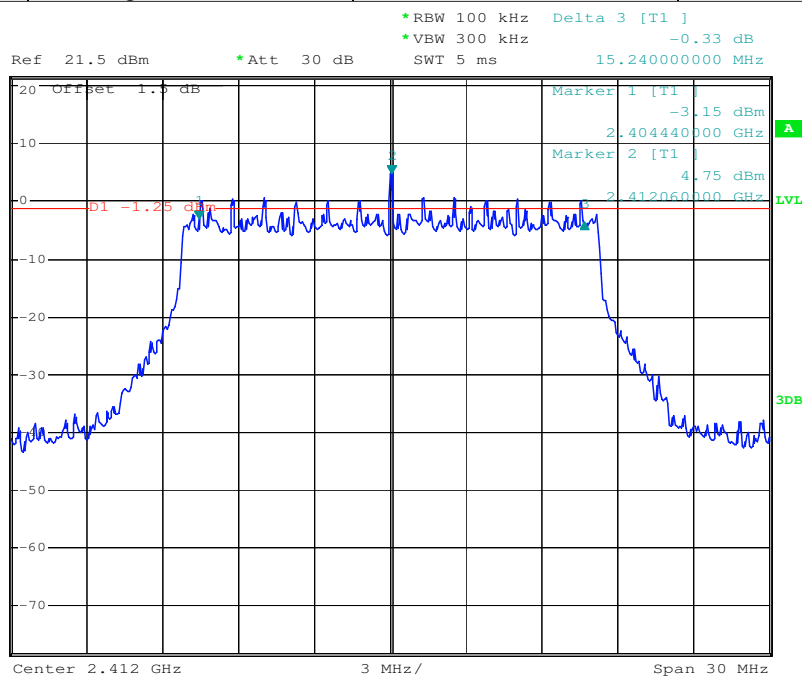
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Test mode:	802.11b	Test channel:	Highest
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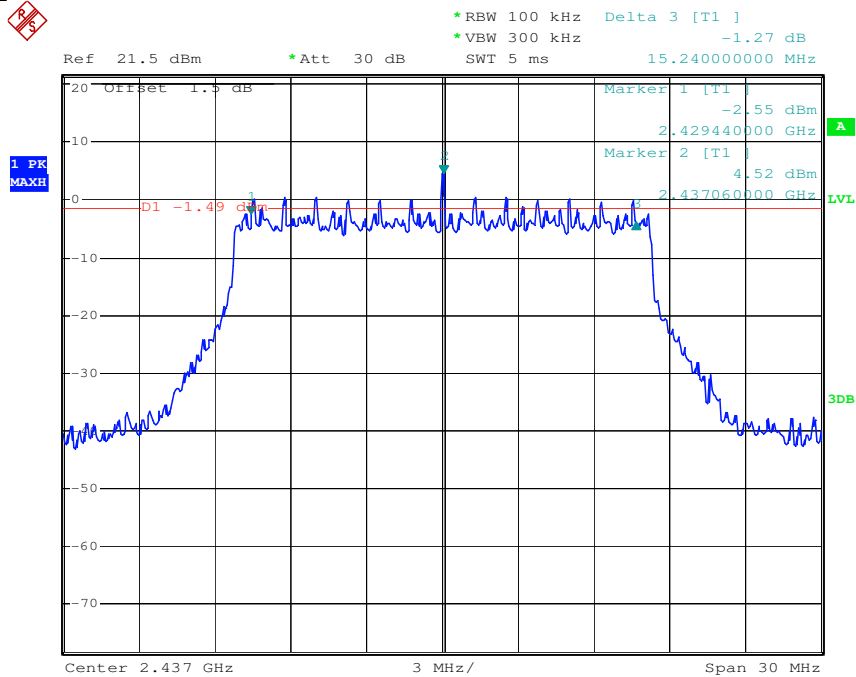
Test mode:	802.11g	Test channel:	Lowest
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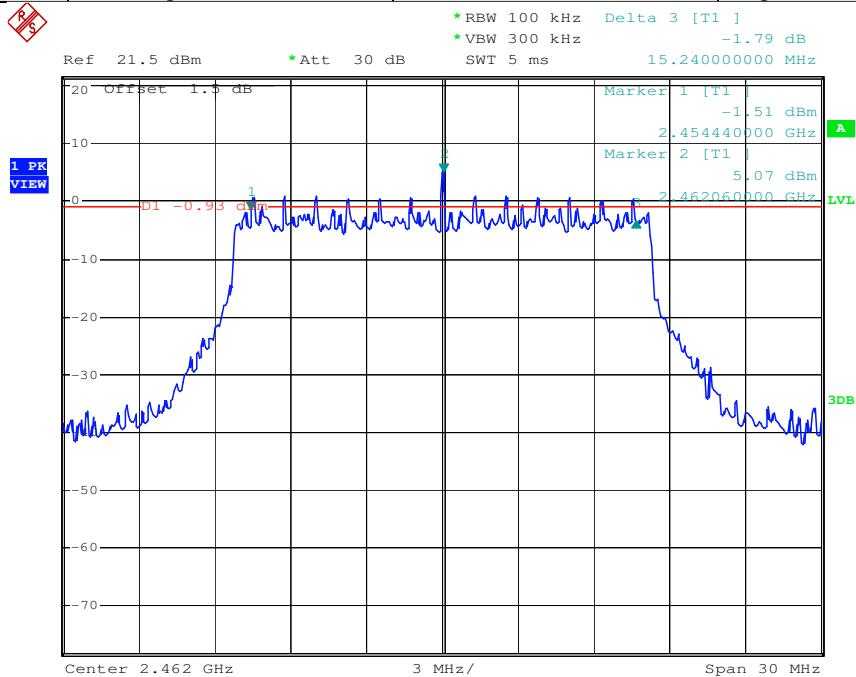
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Test mode:	802.11g	Test channel:	Middle
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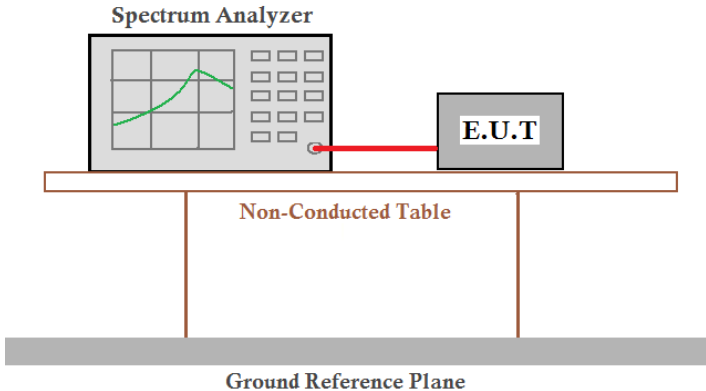


Test mode:	802.11g	Test channel:	Highest
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### 5.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2009
Limit:	<8dBm
Test setup:	 <p><i>Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.8 for details
Test results:	Pass

### Measurement Data

802.11b mode			
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	-2.91	<8.00	Pass
Middle	-3.28	<8.00	Pass
Highest	-2.99	<8.00	Pass
802.11g mode			
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	3.49	<8.00	Pass
Middle	3.24	<8.00	Pass
Highest	3.76	<8.00	Pass

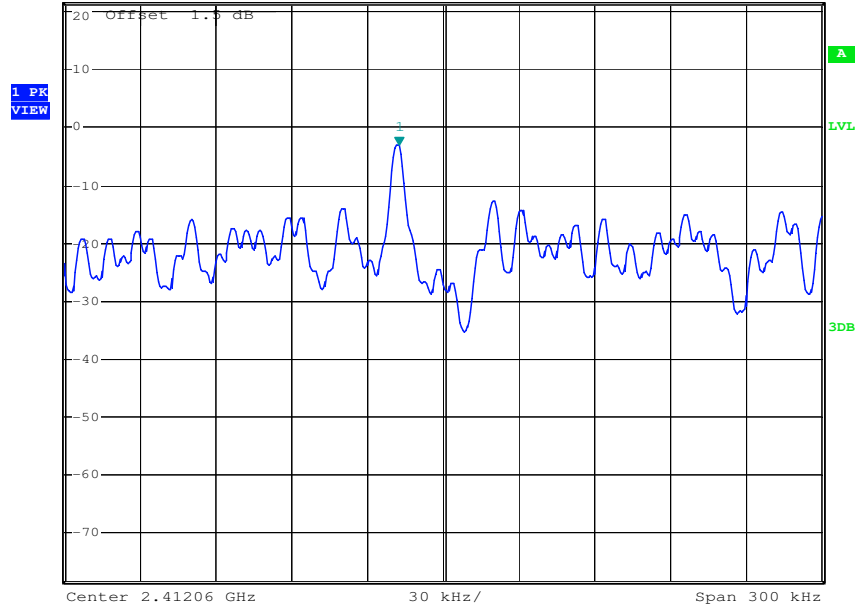


Test plot as follows:

Test mode:	802.11b	Test channel:	Lowest
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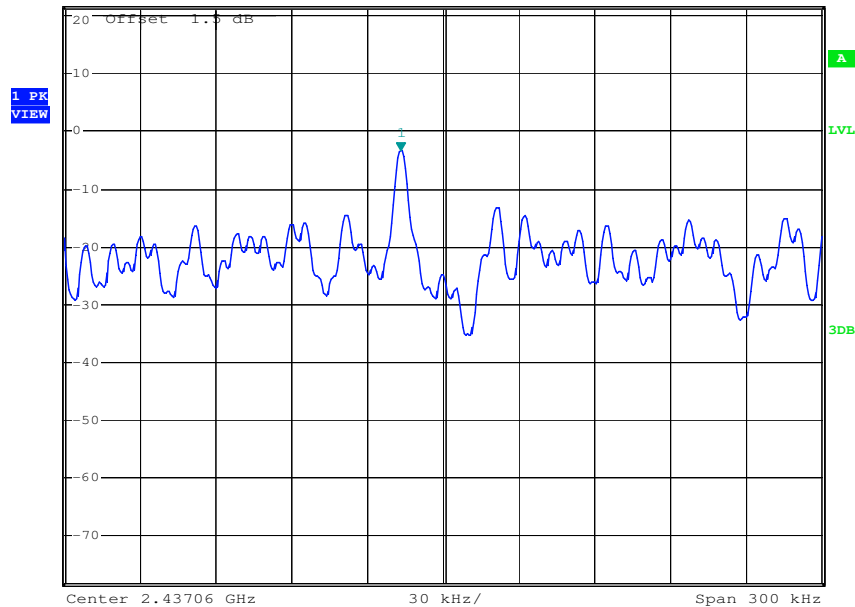
Ref 21.5 dBm \*Att 30 dB \*RBW 3 kHz Marker 1 [T1] -2.91 dBm  
\*VBW 10 kHz \*SWT 100 s 2.412042600 GHz



Test mode:	802.11b	Test channel:	Middle
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Ref 21.5 dBm \*Att 30 dB \*RBW 3 kHz Marker 1 [T1] -3.28 dBm  
\*VBW 10 kHz \*SWT 100 s 2.437043200 GHz



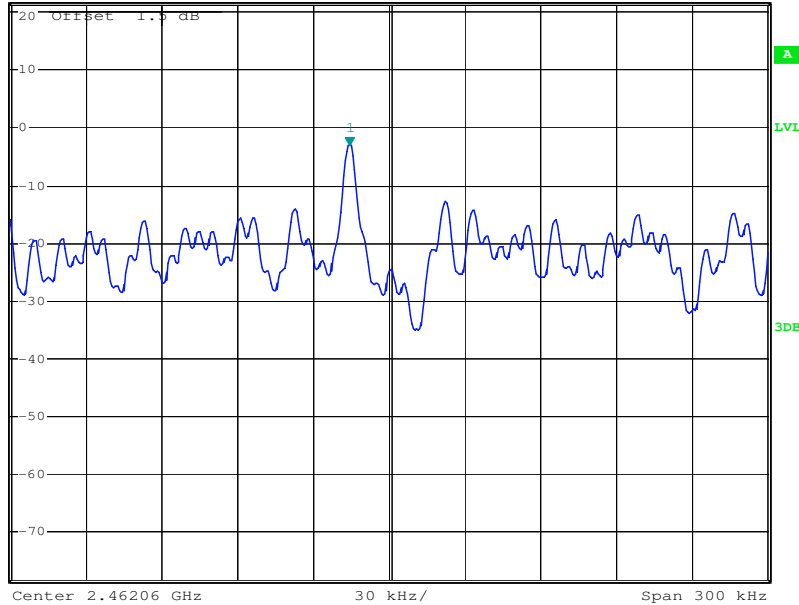
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Test mode:	802.11b	Test channel:	Highest
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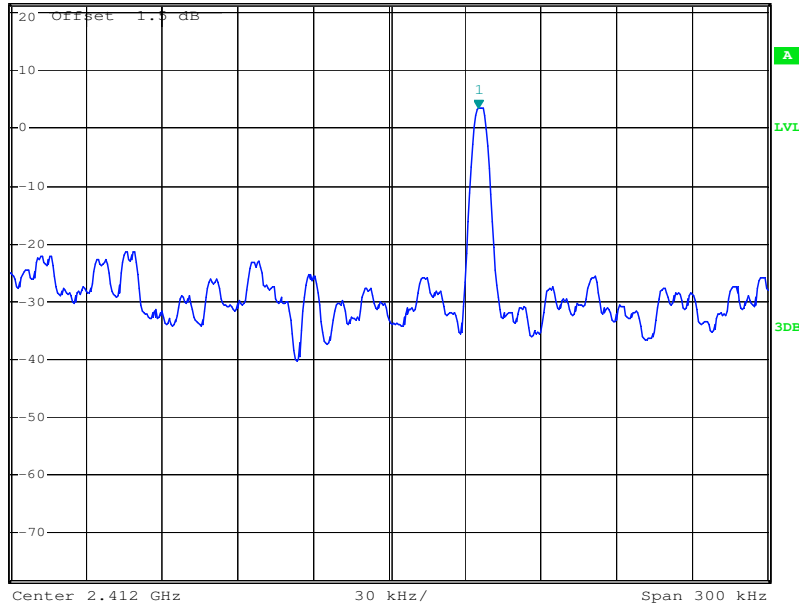
Ref 21.5 dBm \*Att 30 dB \*RBW 3 kHz Marker 1 [T1] \*VBW 10 kHz -2.99 dBm \*SWT 100 s 2.462044400 GHz



Test mode:	802.11g	Test channel:	Lowest
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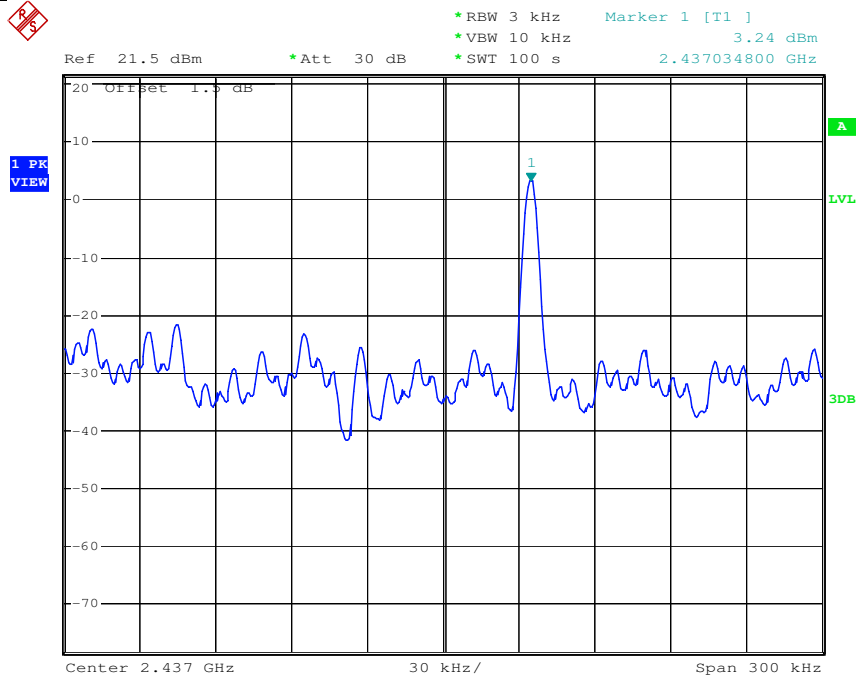
Ref 21.5 dBm \*Att 30 dB \*RBW 3 kHz Marker 1 [T1] \*VBW 10 kHz 3.49 dBm \*SWT 100 s 2.412035400 GHz



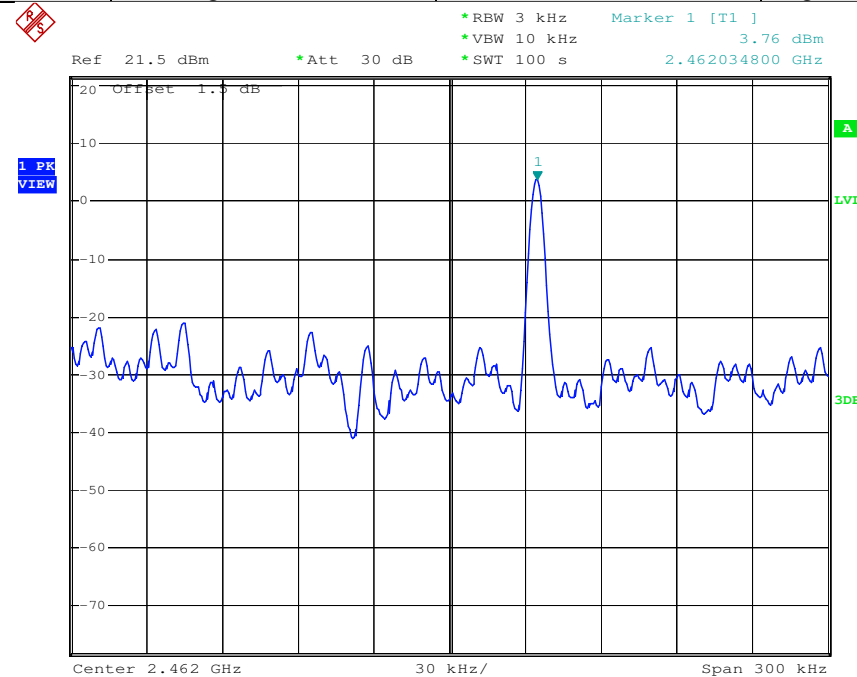
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Test mode:	802.11g	Test channel:	Middle
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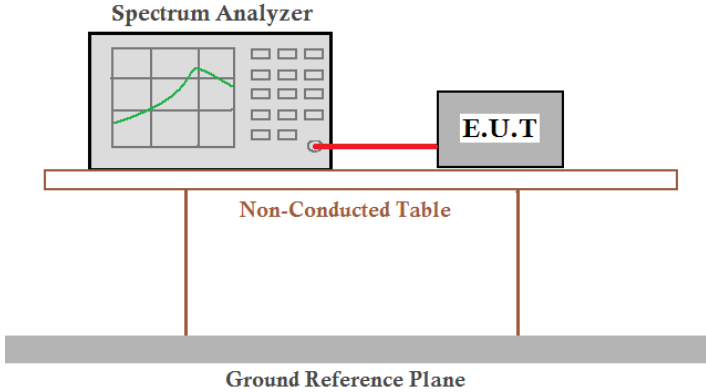


Test mode:	802.11g	Test channel:	Highest
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### 5.6 Band Edge

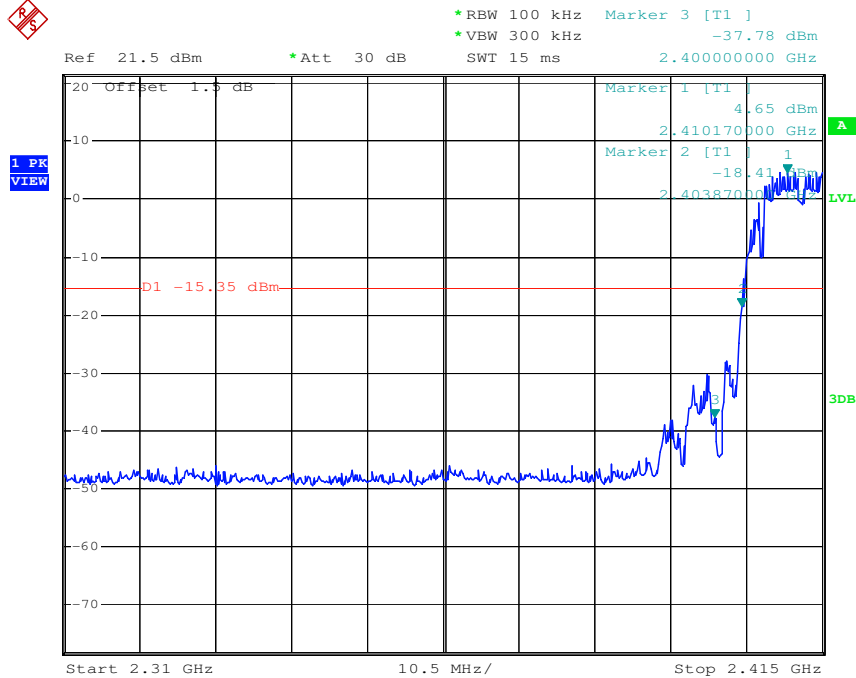
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2009
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p><i>Remark:</i> <i>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.8 for details
Test results:	Pass



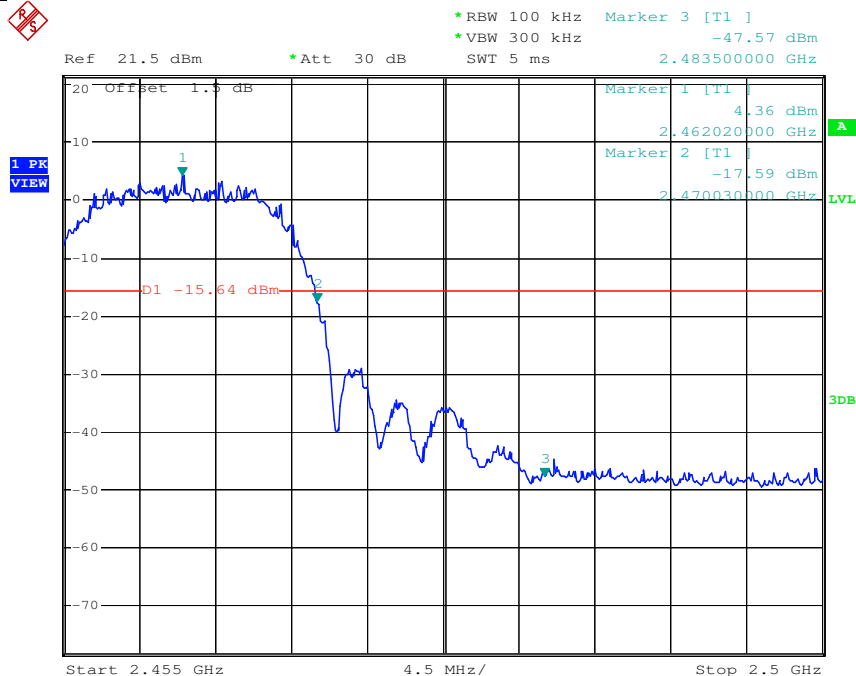


Test plot as follows:

Test mode:	802.11b	Test channel:	Lowest
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Test mode:	802.11b	Test channel:	Highest
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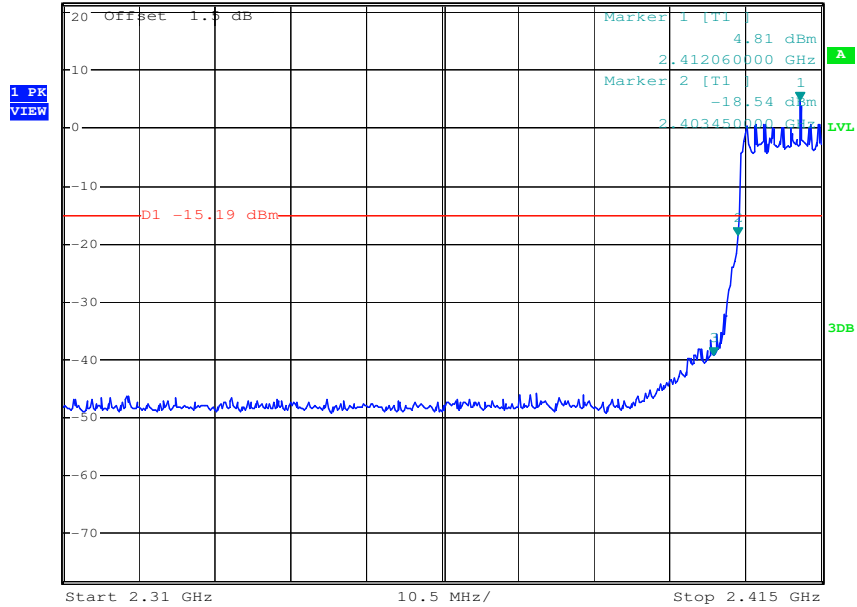
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Test mode:	802.11g	Test channel:	Lowest
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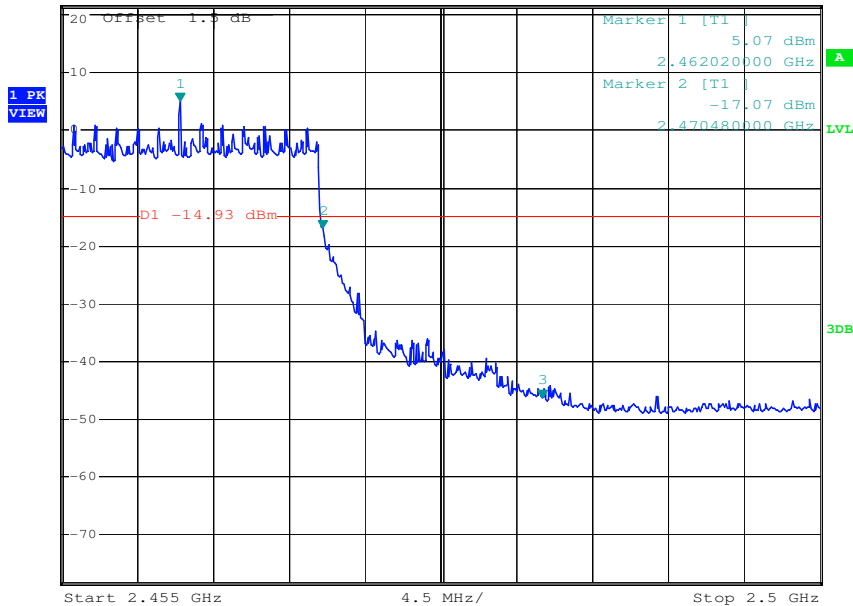
Ref 21.5 dBm \*Att 30 dB \*RBW 100 kHz Marker 3 [T1 ]  
 \*VBW 300 kHz -39.23 dBm  
 SWT 15 ms 2.400000000 GHz



Test mode:	802.11g	Test channel:	Highest
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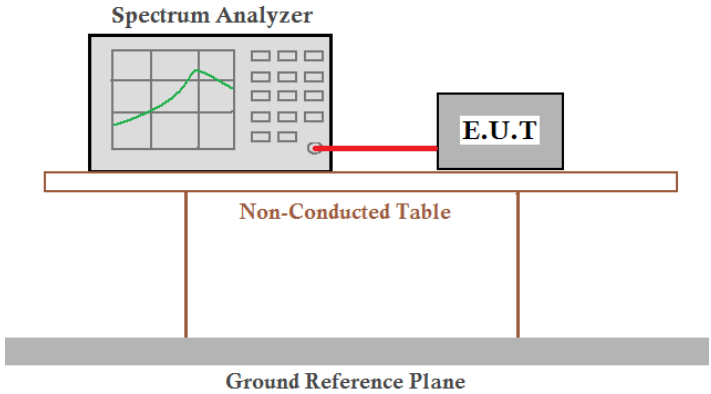


Ref 21.5 dBm \*Att 30 dB \*RBW 100 kHz Marker 3 [T1 ]  
 \*VBW 300 kHz -46.36 dBm  
 SWT 5 ms 2.483500000 GHz



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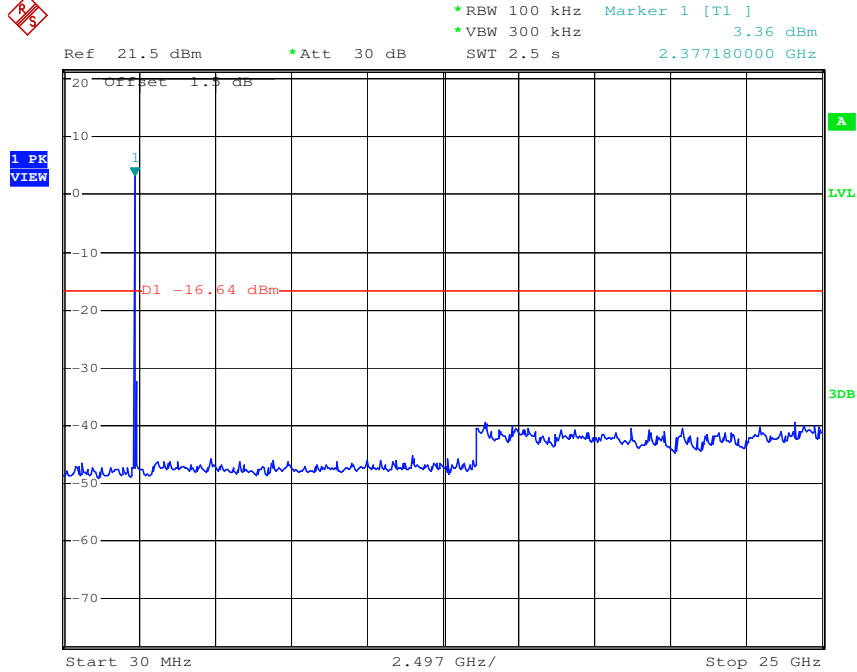
### 5.7 RF Antenna Conducted spurious emissions

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2009
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p><i>Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.8 for details
Test results:	Pass

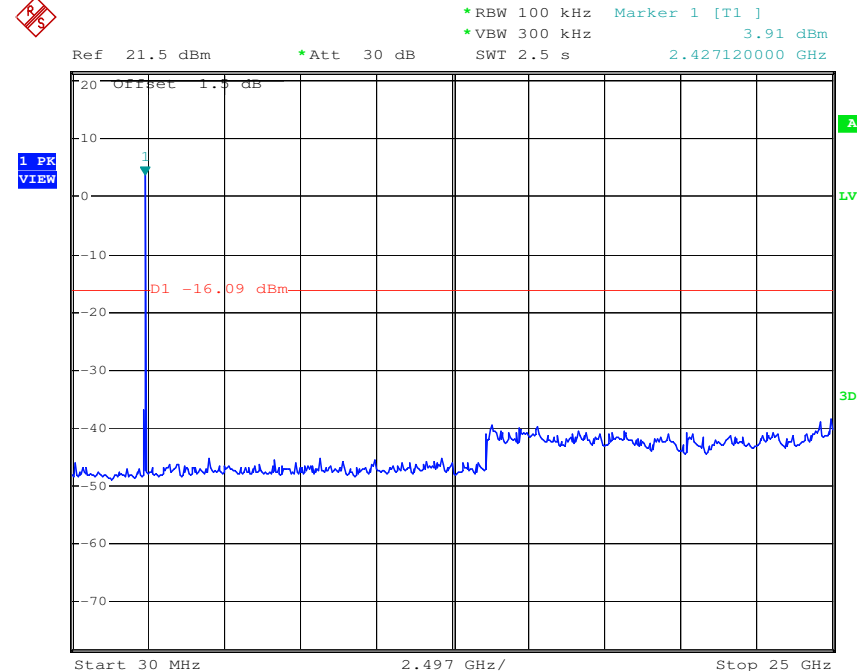


Test plot as follows:

Test mode:	802.11b	Test channel:	Lowest
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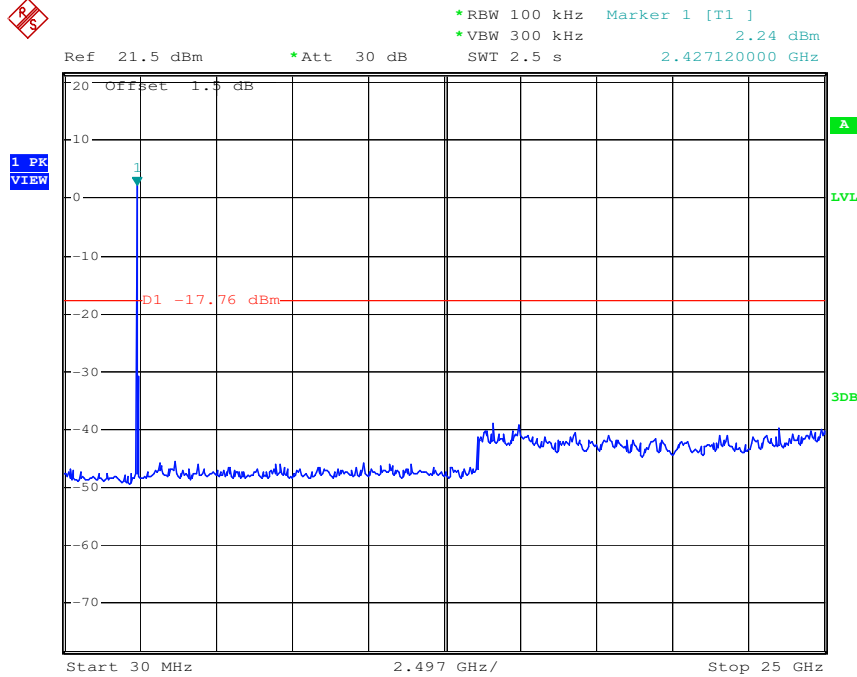
Test mode:	802.11b	Test channel:	Middle
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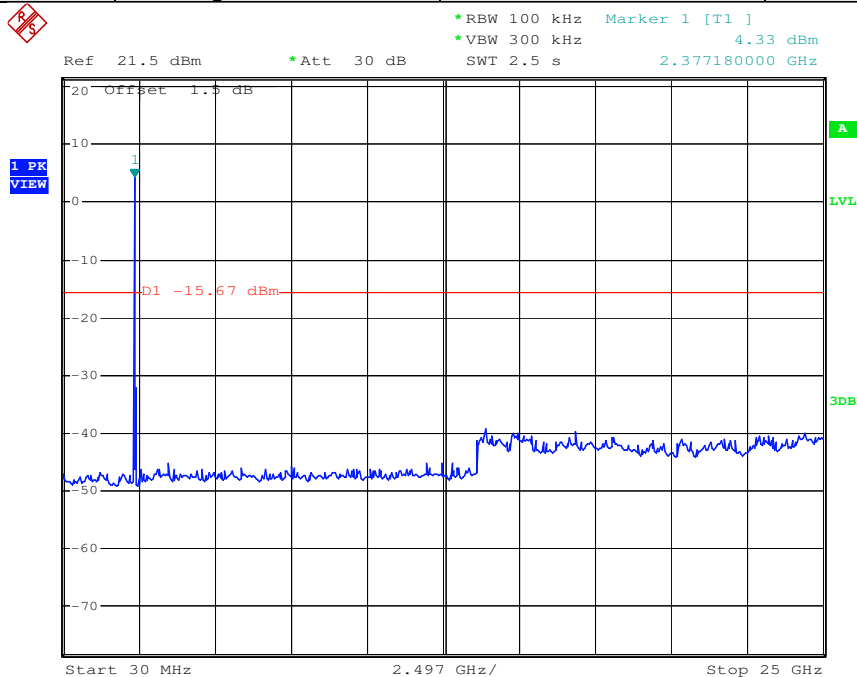
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Test mode:	802.11b	Test channel:	Highest
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Test mode:	802.11g	Test channel:	Lowest
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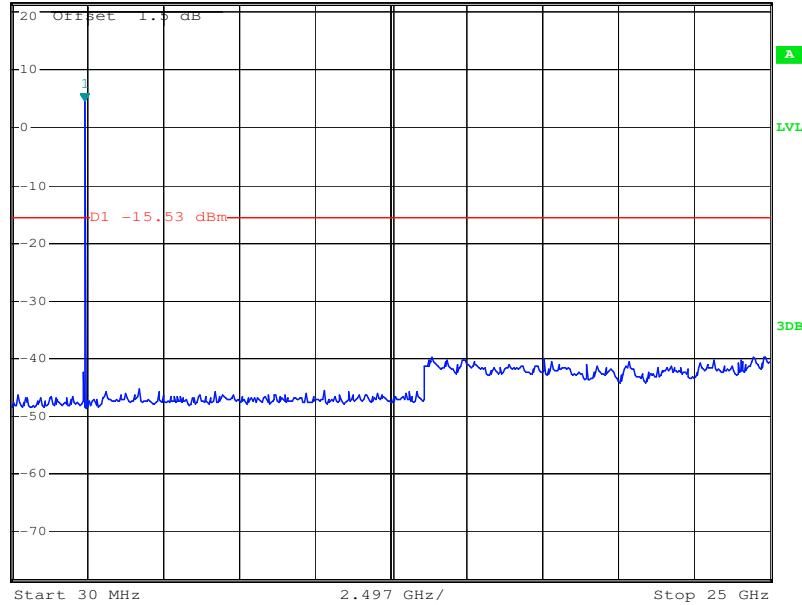


Test mode:	802.11g	Test channel:	Middle
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Ref 21.5 dBm \*Att 30 dB \*RBW 100 kHz Marker 1 [T1] 4.47 dBm  
\*VBW 300 kHz 2.427120000 GHz  
SWT 2.5 s

1 PK  
VIEW

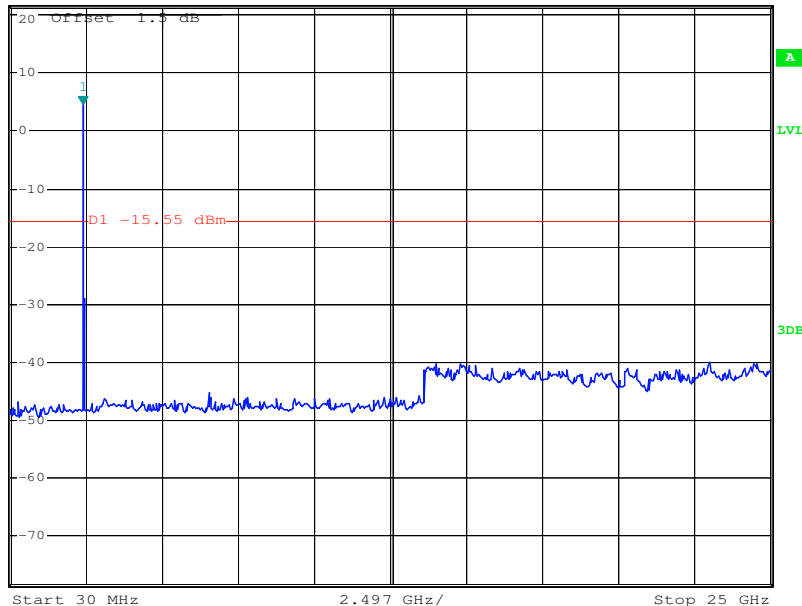


Test mode:	802.11g	Test channel:	Highest
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Ref 21.5 dBm \*Att 30 dB \*RBW 100 kHz Marker 1 [T1] 4.45 dBm  
\*VBW 300 kHz 2.427120000 GHz  
SWT 2.5 s

1 PK  
VIEW

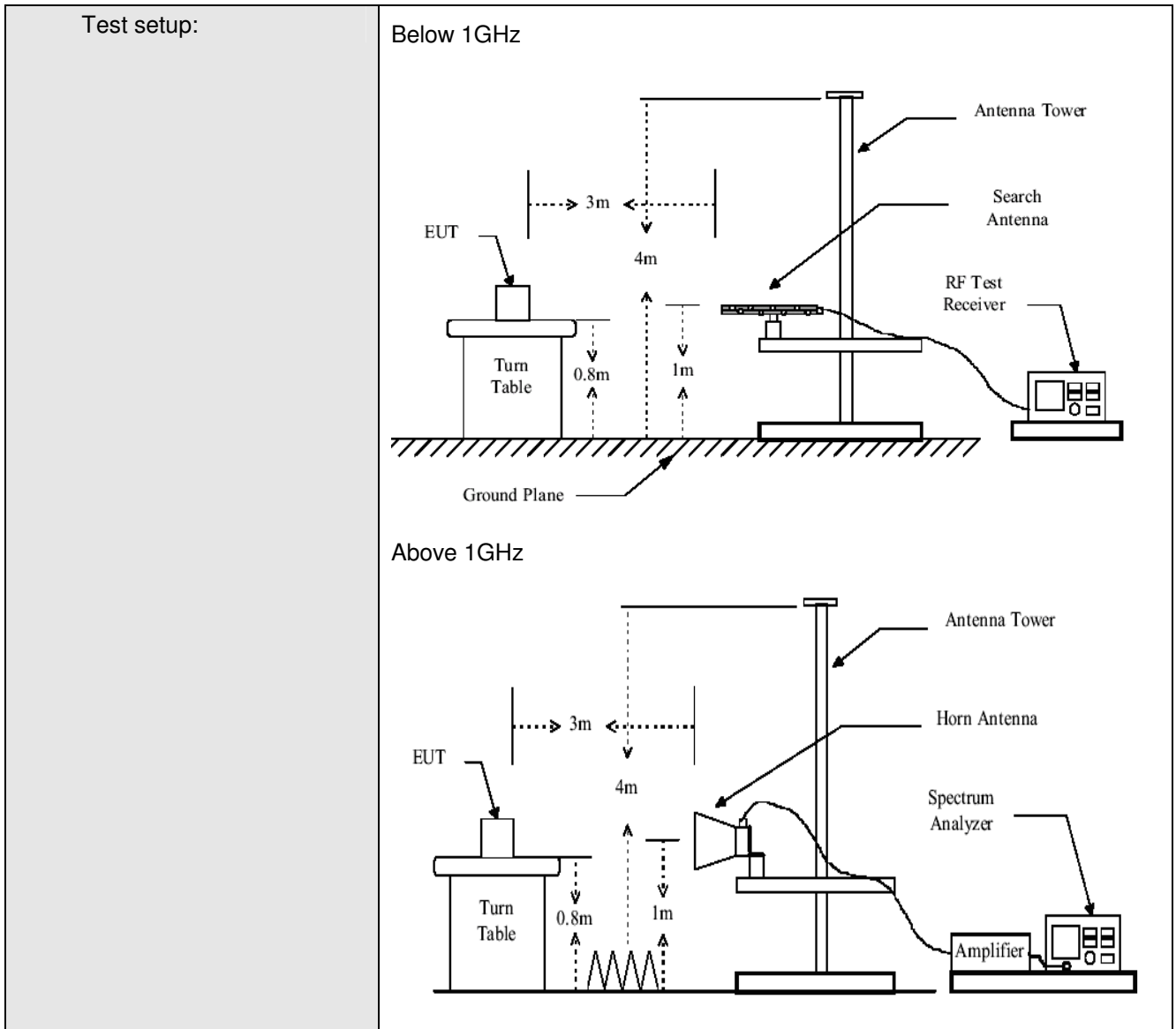


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### 5.8 Radiated Emission

Test Requirement:	FCC Part15 C Section 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:	<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 turn table which is 0.8meter above ground. The turn table 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 4.8 for details																							
Test mode:	Wi-Fi mode																							
Test results:	Pass																							



**Note:**

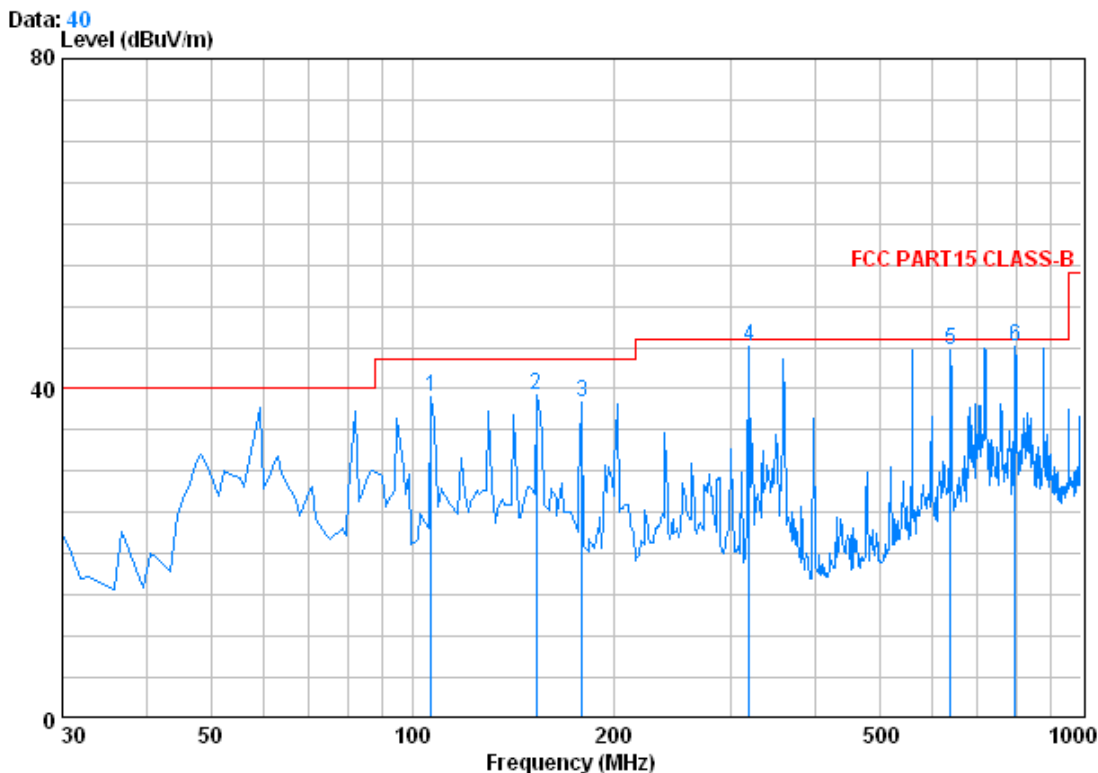
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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



### 5.8.1 Radiated emission below 1GHz

Vertical:

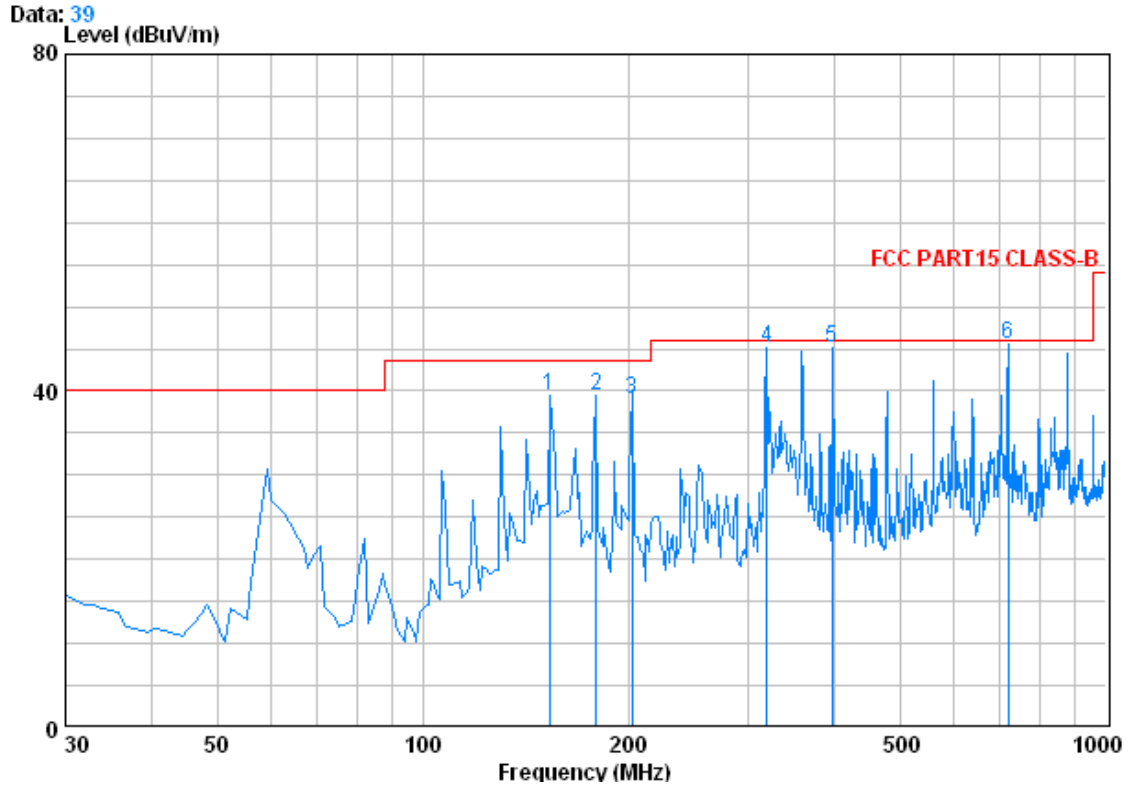


	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	106.630	1.22	8.77	27.15	56.11	38.95	43.50	-4.55
2	153.190	1.32	9.18	26.89	55.71	39.32	43.50	-4.18
3	179.380	1.37	9.87	26.78	53.91	38.38	43.50	-5.12
4 @	319.060	1.96	14.59	26.54	55.17	45.18	46.00	-0.82
5	638.190	2.78	20.55	27.49	48.83	44.68	46.00	-1.32
6 @	797.270	3.19	22.09	27.30	47.19	45.17	46.00	-0.83

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Horizontal:



	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	153.190	1.32	9.18	26.89	55.87	39.48	43.50	-4.02
2	179.380	1.37	9.87	26.78	55.04	39.51	43.50	-3.99
3	202.660	1.42	10.32	26.69	53.97	39.02	43.50	-4.48
4 @	319.060	1.96	14.59	26.54	55.12	45.13	46.00	-0.87
5 @	397.630	2.19	16.27	27.11	53.82	45.16	46.00	-0.84
6 @	718.700	2.96	21.60	27.39	48.29	45.46	46.00	-0.54

Remark: the data above is tested with QP detector mode.

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**5.8.2 Transmitter emission above 1GHz**

Test mode:		802.11b		Test channel:		Lowest		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		
2316.000	6.00	29.74	39.83	50.73	46.64	74.00	-27.36	Vertical		
3655.500	7.92	32.72	40.07	45.15	45.72	74.00	-28.28	Vertical		
4830.500	10.34	34.28	41.43	44.81	48.00	74.00	-26.00	Vertical		
7333.250	12.91	37.31	40.40	40.38	50.20	74.00	-23.80	Vertical		
9648.000	13.49	37.99	37.64	36.53	50.37	74.00	-23.63	Vertical		
12056.750	16.77	39.12	39.13	36.06	52.82	74.00	-21.18	Vertical		
2327.750	6.02	29.76	39.75	49.77	45.80	74.00	-28.20	Horizontal		
3526.250	7.62	32.57	39.84	44.84	45.19	74.00	-28.81	Horizontal		
4842.250	11.47	34.30	41.59	44.82	49.00	74.00	-25.00	Horizontal		
7239.250	13.22	37.26	40.78	40.53	50.23	74.00	-23.77	Horizontal		
9612.750	13.39	37.99	37.56	36.45	50.27	74.00	-23.73	Horizontal		
12056.750	16.77	39.12	39.13	35.02	51.78	74.00	-22.22	Horizontal		

Test mode:		802.11b		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		
1493.500	4.73	27.11	39.75	49.95	42.04	74.00	-31.96	Vertical		
3620.250	8.23	32.68	40.64	44.72	44.99	74.00	-29.01	Vertical		
4877.500	10.36	34.34	39.89	44.29	49.10	74.00	-24.90	Vertical		
7321.500	12.91	37.31	40.40	40.38	50.20	74.00	-23.80	Vertical		
9753.750	13.89	38.03	37.94	36.26	50.24	74.00	-23.76	Vertical		
12162.500	17.71	39.19	39.23	33.32	50.99	74.00	-23.01	Vertical		
1258.500	4.46	26.30	39.34	51.05	42.47	74.00	-31.53	Horizontal		
3244.250	6.97	32.22	39.27	45.97	45.89	74.00	-28.11	Horizontal		
4865.750	9.68	34.32	40.35	43.14	46.79	74.00	-27.21	Horizontal		
7333.250	12.91	37.31	40.40	36.26	46.08	74.00	-27.92	Horizontal		
9730.250	13.79	38.02	37.86	37.25	51.20	74.00	-22.80	Horizontal		
12162.500	17.71	39.19	39.23	32.87	50.54	74.00	-23.46	Horizontal		

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Test mode:		802.11b		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		
1481.750	4.69	27.07	39.61	49.07	41.22	74.00	-32.78	Vertical		
2974.000	6.58	31.83	39.10	46.74	46.05	74.00	-27.95	Vertical		
4924.500	10.53	34.41	40.90	44.43	48.47	74.00	-25.53	Vertical		
7380.250	12.68	37.35	40.11	38.33	48.25	74.00	-25.75	Vertical		
9836.000	14.13	38.05	38.01	34.63	48.80	74.00	-25.20	Vertical		
12327.000	17.71	39.30	39.41	32.86	50.46	74.00	-23.54	Vertical		
1258.500	4.46	26.30	39.34	52.46	43.88	74.00	-30.12	Horizontal		
3690.750	7.50	32.76	39.33	44.81	45.74	74.00	-28.26	Horizontal		
4924.500	10.53	34.41	40.90	44.80	48.84	74.00	-25.16	Horizontal		
7380.250	12.68	37.35	40.11	39.05	48.97	74.00	-25.03	Horizontal		
9859.500	14.17	38.06	37.93	36.17	50.47	74.00	-23.53	Horizontal		
12291.750	17.79	39.28	39.38	33.46	51.15	74.00	-22.85	Horizontal		

Test mode:		802.11g		Test channel:		Lowest		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		
2327.750	6.02	29.76	39.75	50.44	46.47	74.00	-27.53	Vertical		
3690.750	7.50	32.76	39.33	46.07	47.00	74.00	-27.00	Vertical		
4818.750	9.21	34.26	41.27	44.77	46.97	74.00	-27.03	Vertical		
7239.250	13.22	37.26	40.78	40.75	50.45	74.00	-23.55	Vertical		
9648.000	13.49	37.99	37.64	37.14	50.98	74.00	-23.02	Vertical		
12056.750	16.77	39.12	39.13	35.83	52.59	74.00	-21.41	Vertical		
2316.000	6.00	29.74	39.83	50.54	46.45	74.00	-27.55	Horizontal		
3643.750	8.02	32.70	40.26	45.58	46.04	74.00	-27.96	Horizontal		
4830.500	10.34	34.28	41.43	45.41	48.60	74.00	-25.40	Horizontal		
7239.250	13.22	37.26	40.78	41.85	51.55	74.00	-22.45	Horizontal		
9648.000	13.49	37.99	37.64	36.66	50.50	74.00	-23.50	Horizontal		
12056.750	16.77	39.12	39.13	34.24	51.00	74.00	-23.00	Horizontal		

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Test mode:		802.11g		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		
1775.500	5.52	27.94	38.94	45.51	40.03	74.00	-33.97	Vertical		
3690.750	7.50	32.76	39.33	45.17	46.10	74.00	-27.90	Vertical		
4865.750	9.68	34.32	40.35	44.67	48.32	74.00	-25.68	Vertical		
7321.500	12.91	37.31	40.40	40.42	50.24	74.00	-23.76	Vertical		
9753.750	13.89	38.03	37.94	38.44	52.42	74.00	-21.58	Vertical		
12162.500	17.71	39.19	39.23	33.75	51.42	74.00	-22.58	Vertical		
1575.750	5.03	27.36	39.07	47.43	40.75	74.00	-33.25	Horizontal		
3667.250	7.71	32.74	39.70	44.75	45.50	74.00	-28.50	Horizontal		
4865.750	9.68	34.32	40.35	44.71	48.36	74.00	-25.64	Horizontal		
7333.250	12.91	37.31	40.40	42.12	51.94	74.00	-22.06	Horizontal		
9730.250	13.79	38.02	37.86	36.50	50.45	74.00	-23.55	Horizontal		
12197.750	18.03	39.21	39.27	34.82	52.79	74.00	-21.21	Horizontal		

Test mode:		802.11g		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		
1470.000	4.66	27.03	39.47	47.09	39.31	74.00	-34.69	Vertical		
3726.000	7.42	32.80	39.42	45.13	45.93	74.00	-28.07	Vertical		
4924.500	10.53	34.41	40.90	44.40	48.44	74.00	-25.56	Vertical		
7380.250	12.68	37.35	40.11	38.55	48.47	74.00	-25.53	Vertical		
9836.000	14.13	38.05	38.01	35.14	49.31	74.00	-24.69	Vertical		
12327.000	17.71	39.30	39.41	33.70	51.30	74.00	-22.70	Vertical		
1258.500	4.46	26.30	39.34	53.06	44.48	74.00	-29.52	Horizontal		
3549.750	7.85	32.60	40.17	44.59	44.87	74.00	-29.13	Horizontal		
4936.250	10.53	34.41	40.90	43.73	47.77	74.00	-26.23	Horizontal		
7380.250	12.68	37.35	40.11	39.41	49.33	74.00	-24.67	Horizontal		
9859.500	14.17	38.06	37.93	35.80	50.10	74.00	-23.90	Horizontal		
12291.750	17.79	39.28	39.38	33.33	51.02	74.00	-22.98	Horizontal		

Remark:

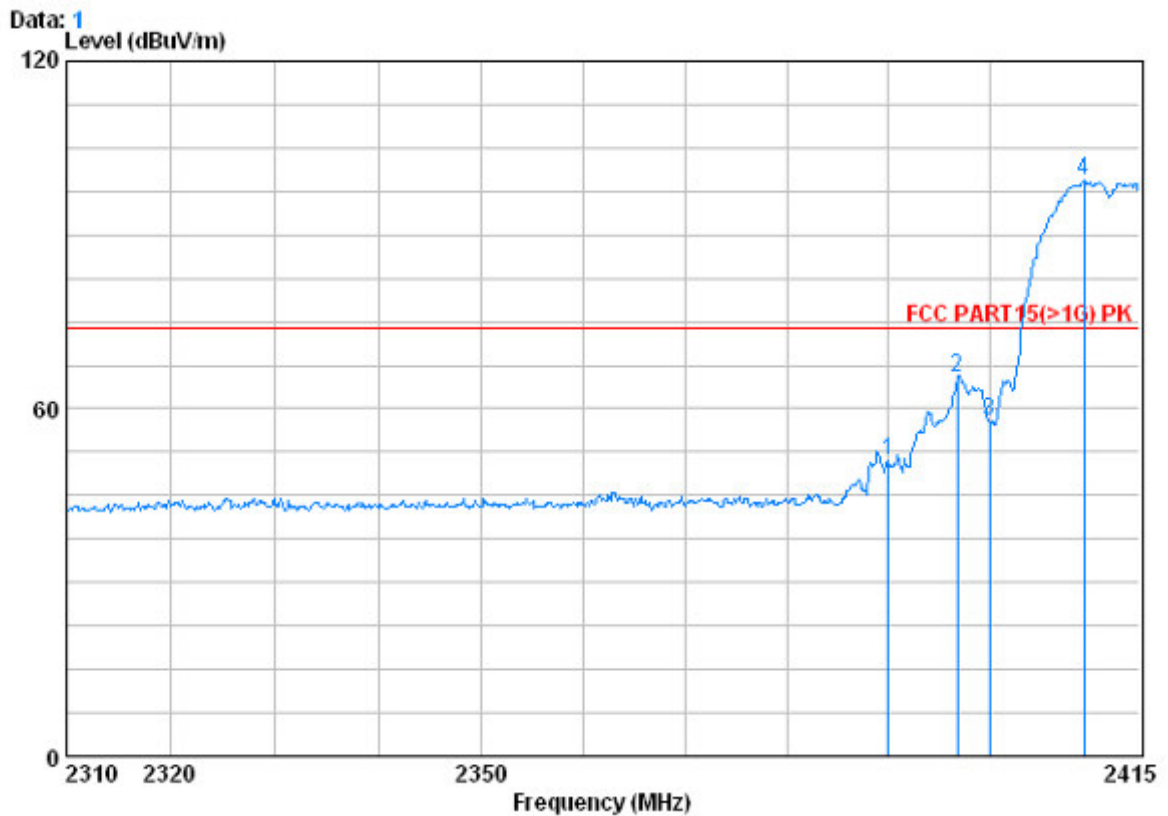
As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements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

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5.8.3 Band edge (Radiated Emission)					
Test mode:	802.11b	Test channel:	Lowest	Remark:	Peak

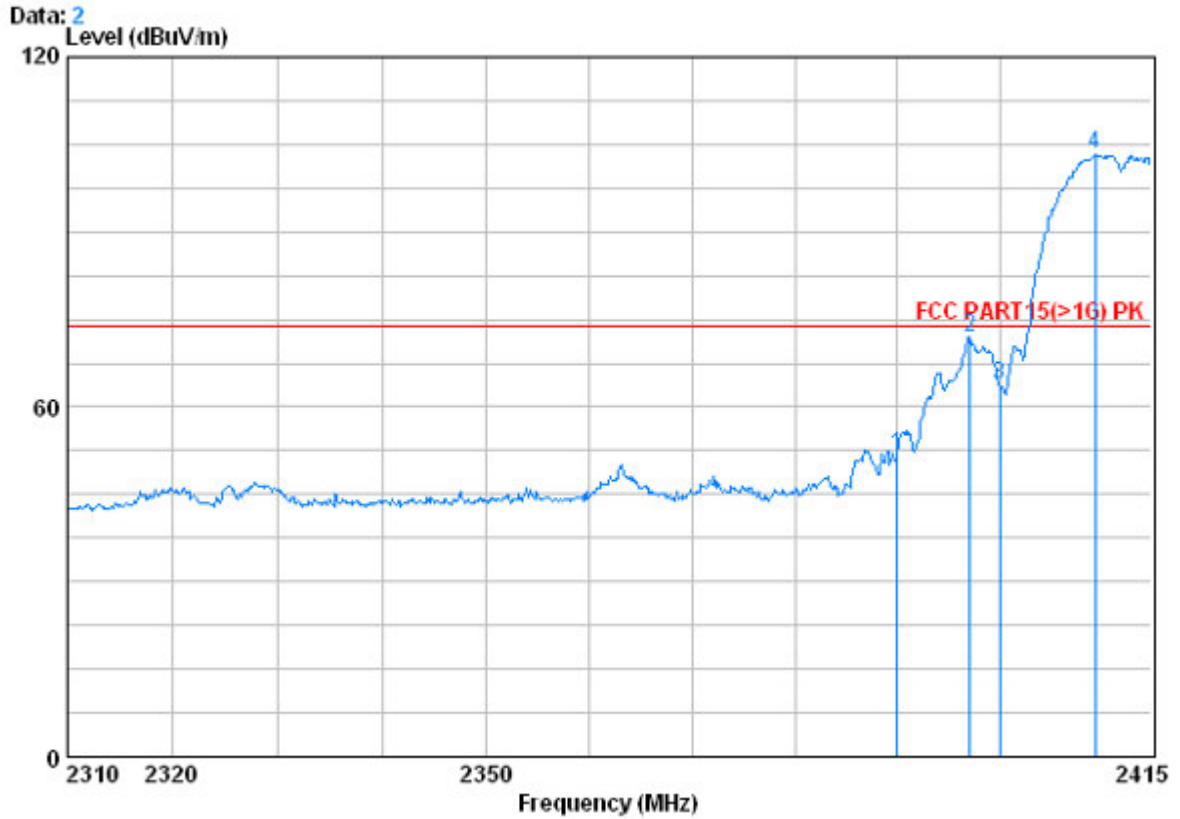
Vertical:



	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	53.64	50.87	74.00	-23.13
2	2396.835	6.31	30.01	38.95	68.07	65.44	74.00	-8.56
3	2400.000	6.34	30.03	38.87	60.52	58.02	74.00	-15.98
4 X	2409.435	6.25	30.05	38.83	101.77	99.24	74.00	25.24

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Horizontal:



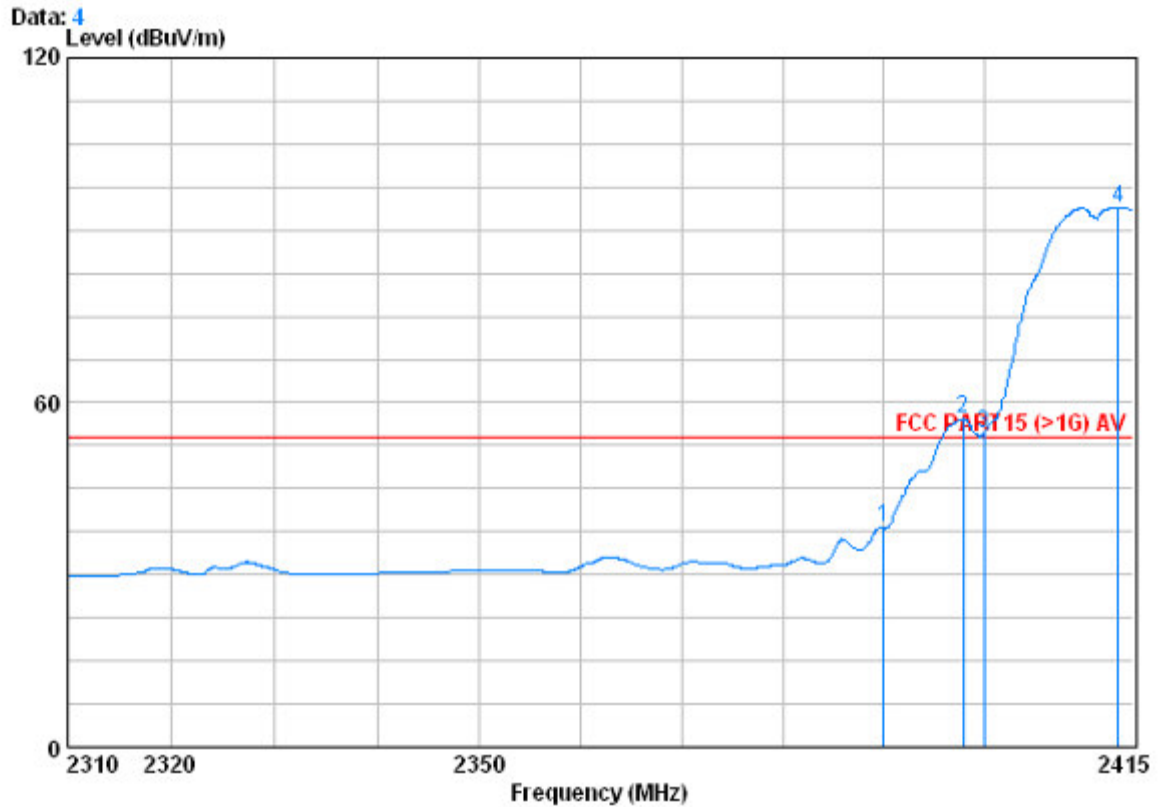
	Freq	CableAntenna Loss	Preamp Factor	Read Level	Limit Line	Over Limit		
	MHz	dB	dB/m	dB	dBuV	dBuV/m		
1	2390.000	6.28	29.98	39.03	54.54	51.78	74.00	-22.22
2	2397.150	6.31	30.01	38.95	74.58	71.95	74.00	-2.05
3	2400.000	6.34	30.03	38.87	66.34	63.84	74.00	-10.16
4 X	2409.435	6.25	30.05	38.83	105.85	103.32	74.00	29.32

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Test mode:	802.11b	Test channel:	Lowest	Remark:	Average
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Vertical:

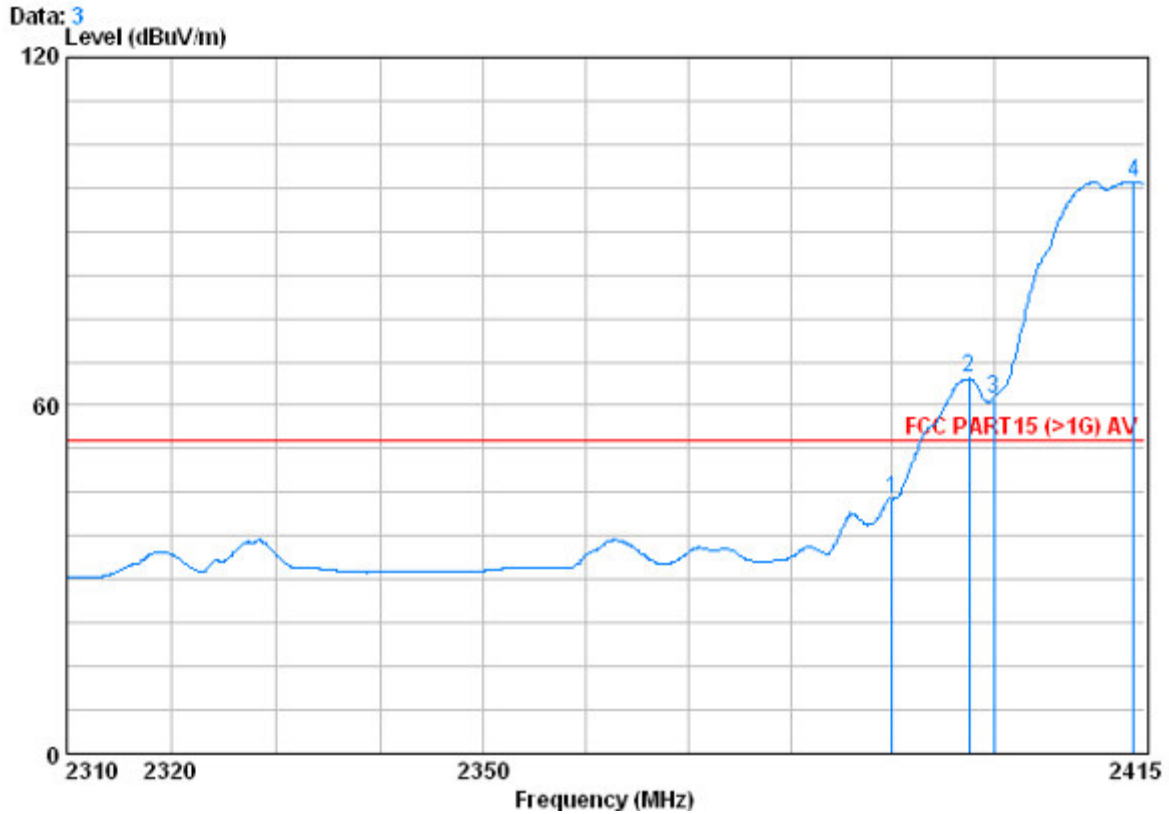


	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	6.28	29.98	39.03	40.94	38.18	54.00	-15.82
2 X	2397.990	6.34	30.03	38.87	59.57	57.07	54.00	3.07
3 X	2400.000	6.34	30.03	38.87	57.07	54.57	54.00	0.57
4 @	2413.530	6.15	30.08	38.78	96.47	93.91	54.00	39.91

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Horizontal:



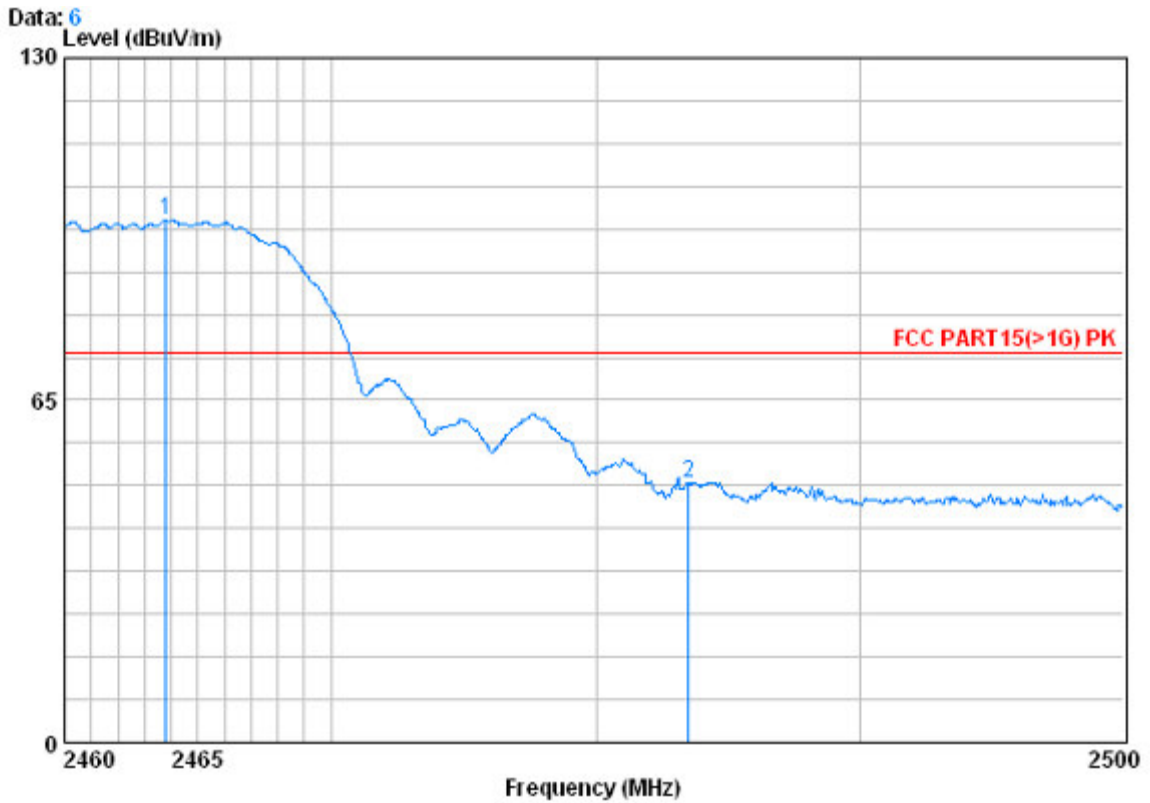
	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	6.28	29.98	39.03	46.72	43.95	54.00	-10.05
2 X	2397.570	6.34	30.03	38.87	67.08	64.58	54.00	10.58
3 X	2400.000	6.34	30.03	38.87	63.79	61.29	54.00	7.29
4 @	2413.950	6.15	30.08	38.78	101.06	98.51	54.00	44.51

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Test mode:	802.11b	Test channel:	Highest	Remark:	Peak
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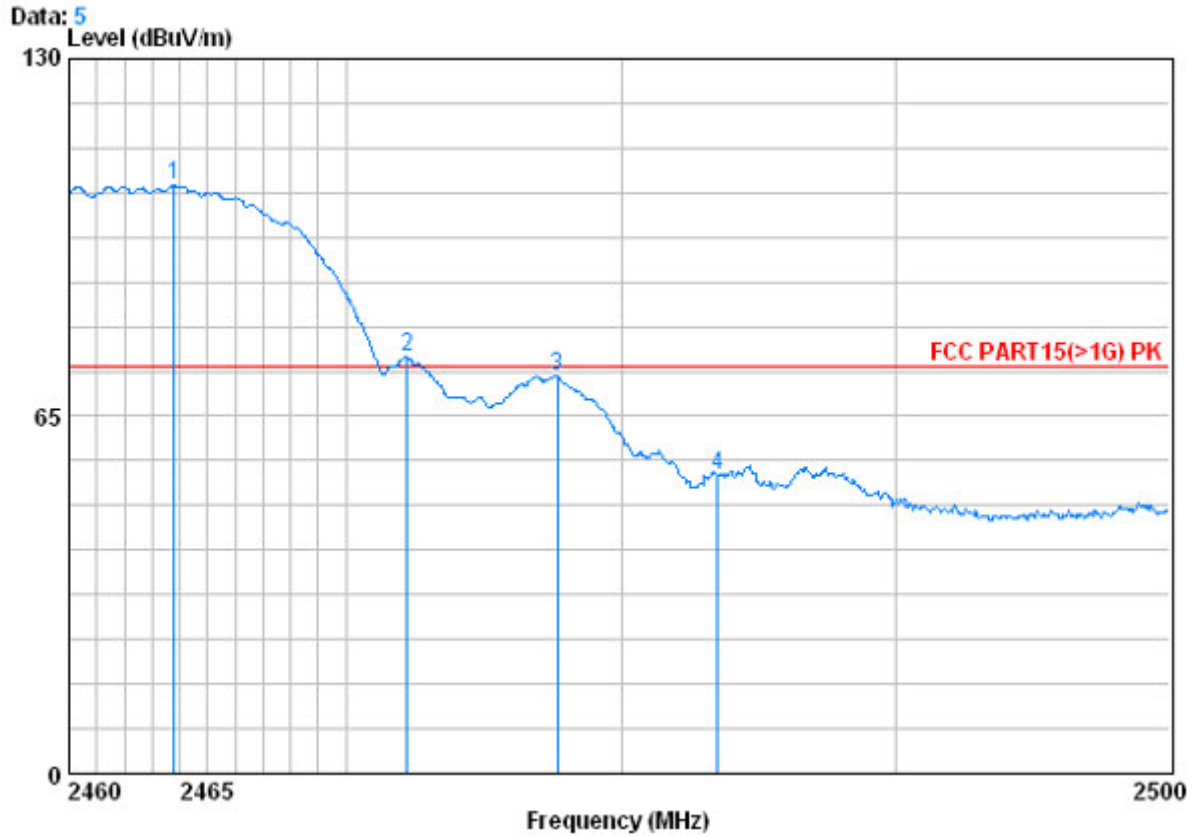
Vertical:



		Cable	Antenna	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1 X	2463.800	6.70	30.25	39.61	101.83	99.17	74.00 25.17
2	2483.500	6.22	30.32	39.53	52.28	49.30	74.00 -24.70

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Horizontal:



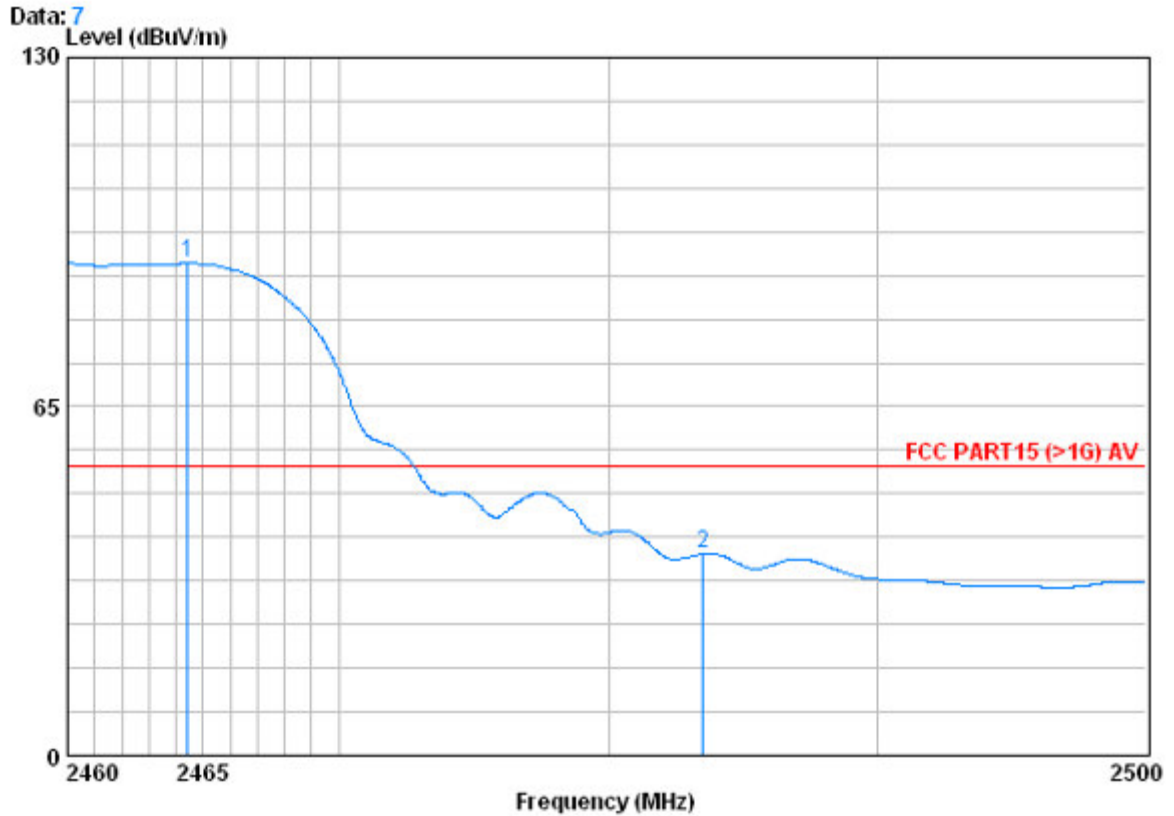
		CableAntenna	Preamp	Read	Limit	Over			
	Freq	Loss	Factor	Level	Line	Limit			
	MHz	dB	dB/m	dB	dBuV/m	dB			
1	Ø	2463.800	6.70	30.25	39.61	109.54	106.88	74.00	32.88
2	X	2472.240	6.58	30.27	39.67	78.52	75.70	74.00	1.70
3		2477.680	6.45	30.30	39.72	75.24	72.27	74.00	-1.73
4		2483.500	6.22	30.32	39.53	57.10	54.11	74.00	-19.89

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Test mode:	802.11b	Test channel:	Highest	Remark:	Average
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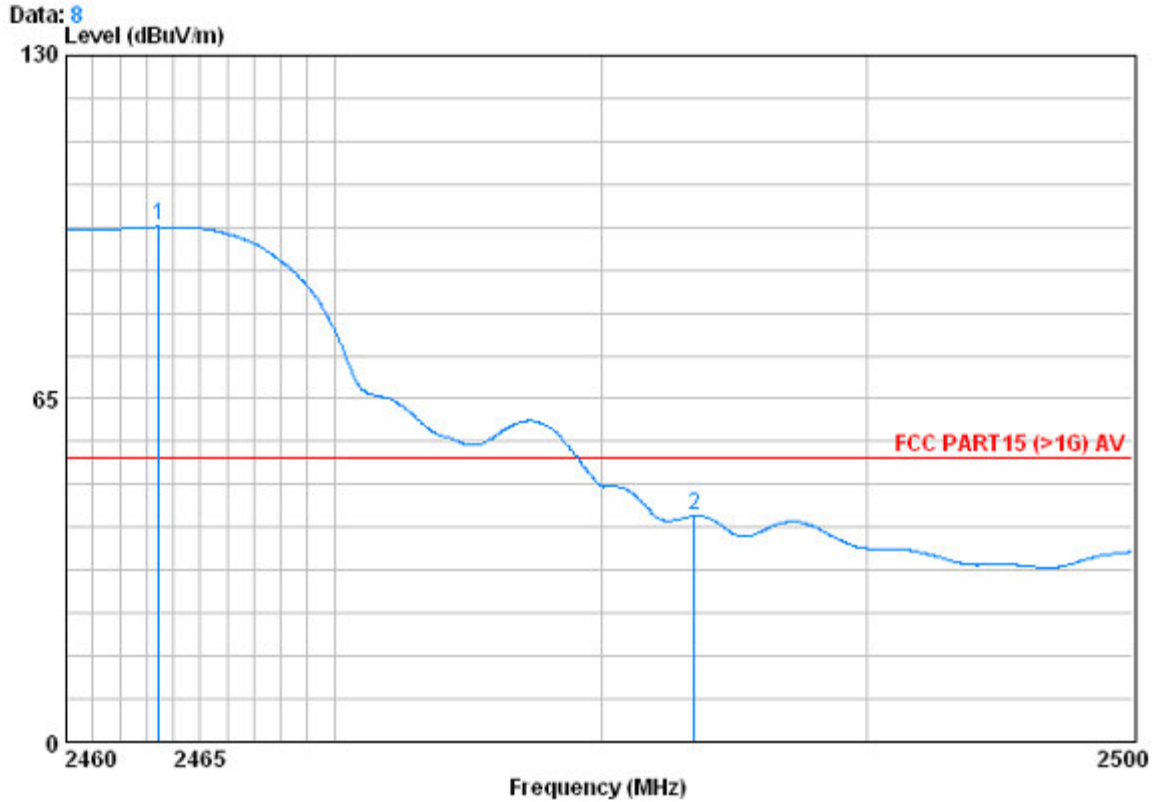
Vertical:



	Cable	Antenna	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Line	Limit		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB		
1 @	2464.440	6.70	30.25	39.61	94.31	91.65	54.00	37.65
2	2483.500	6.22	30.32	39.53	40.61	37.62	54.00	-16.38

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Horizontal:

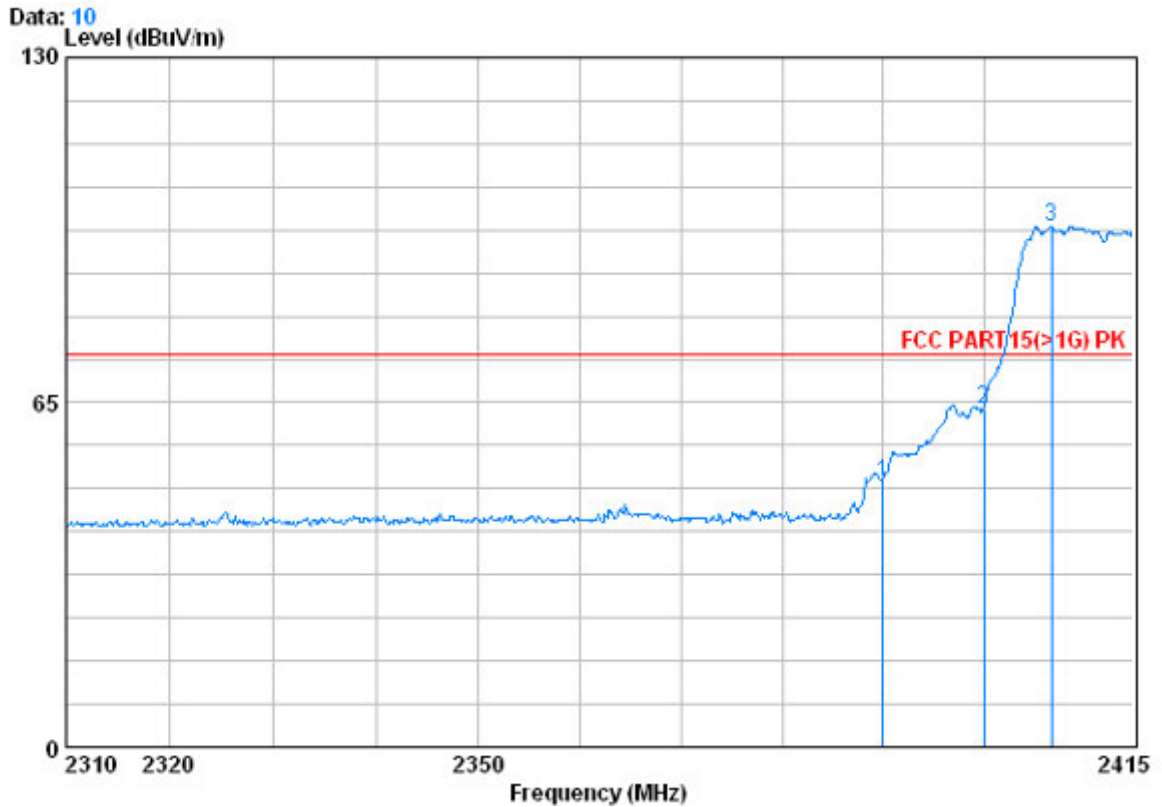


	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2463.440	6.70	30.25	39.61	100.26	97.59	54.00	43.59
2	2483.500	6.22	30.32	39.53	45.85	42.86	54.00	-11.14

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Test mode:	802.11g	Test channel:	Lowest	Remark:	Peak
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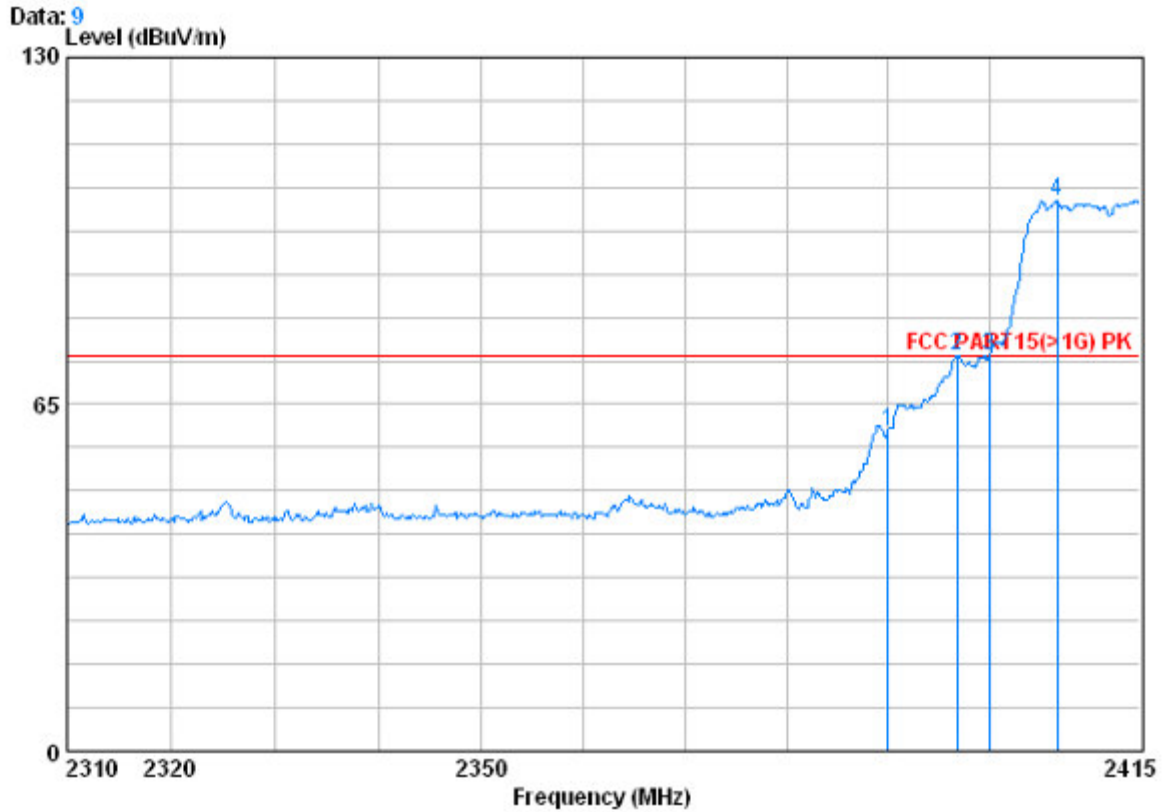
Vertical:



	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	52.86	50.10	74.00	-23.90
2	2400.000	6.34	30.03	38.87	66.15	63.65	74.00	-10.35
3 X	2406.810	6.25	30.05	38.83	100.81	98.29	74.00	24.29

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Horizontal:



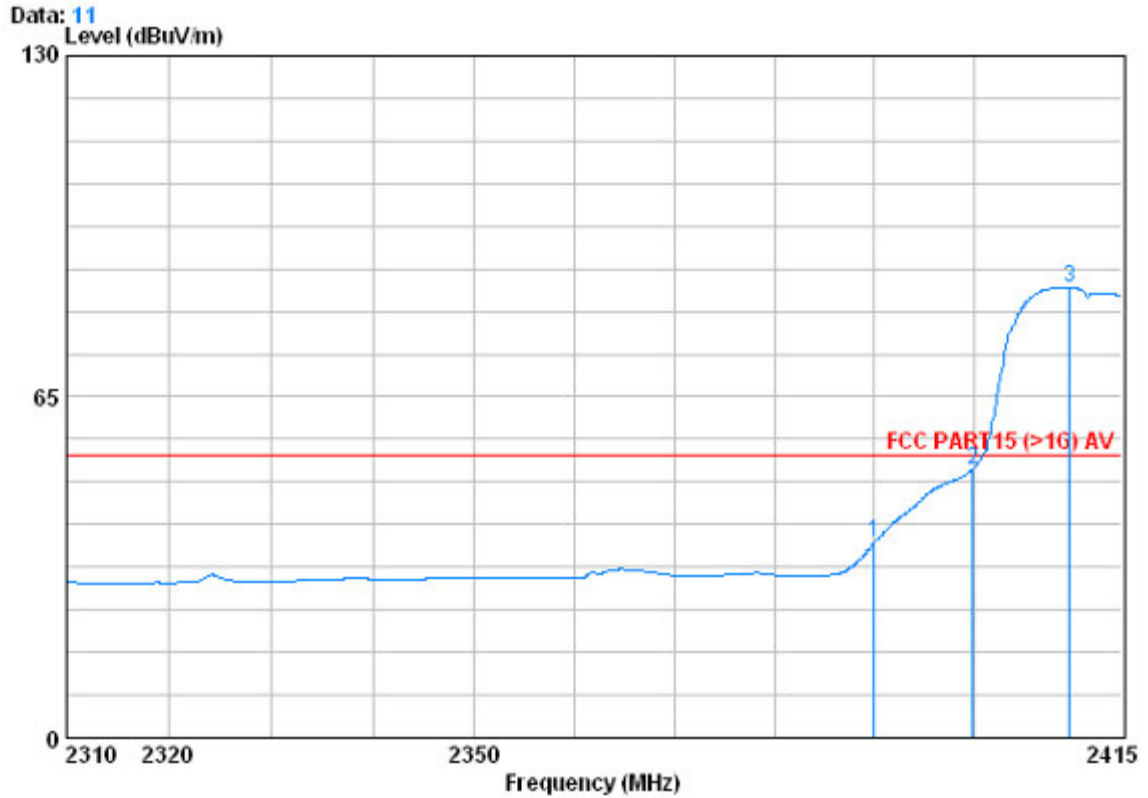
		CableAntenna	Preamp	Read	Limit	Over		
	Freq	Loss	Factor	Level	Line	Limit		
	MHz	dB	dB/m	dB	dBuV	dBuV/m		
1	2390.000	6.28	29.98	39.03	62.67	59.90	74.00	-14.10
2 X	2396.835	6.31	30.01	38.95	76.67	74.04	74.00	0.04
3	2400.000	6.34	30.03	38.87	76.45	73.95	74.00	-0.05
4 X	2406.810	6.25	30.05	38.83	105.60	103.07	74.00	29.07

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Test mode:	802.11g	Test channel:	Lowest	Remark:	Average
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Vertical:

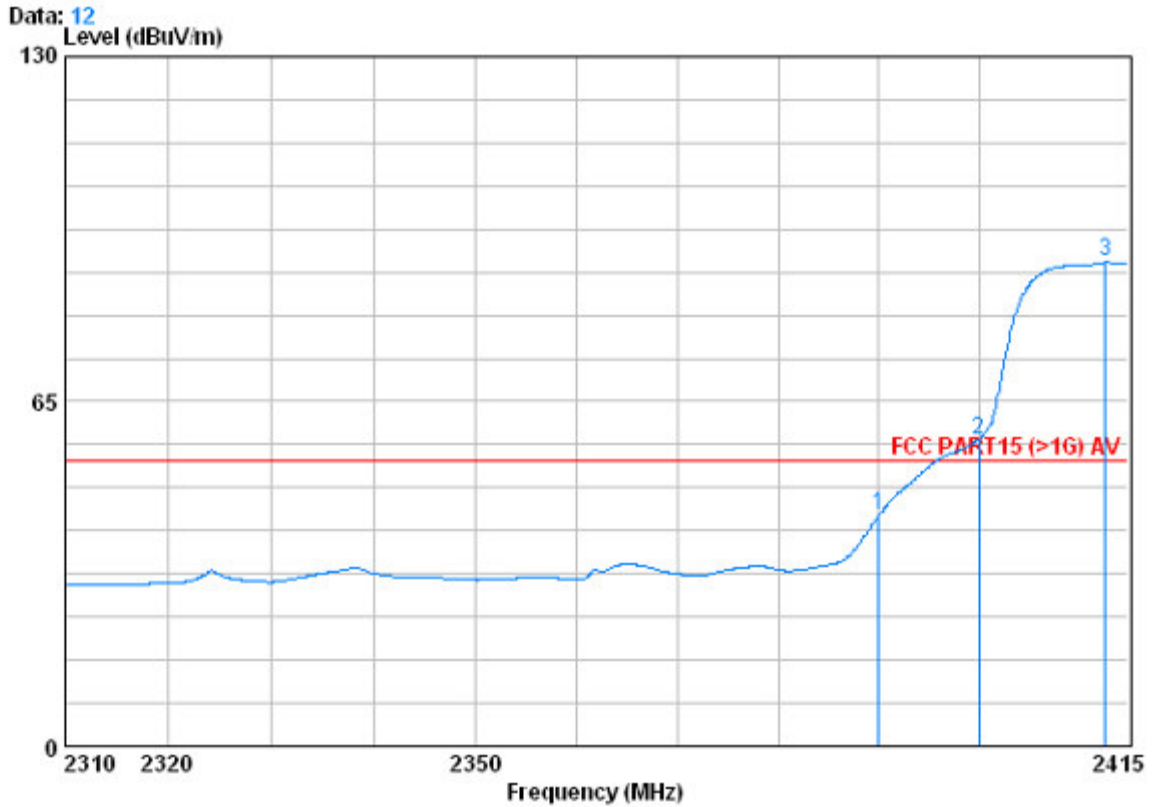


	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.010	6.28	29.98	39.03	39.80	37.03	54.00	-16.97
2	2399.985	6.34	30.03	38.87	53.68	51.18	54.00	-2.82
3 @	2409.750	6.25	30.05	38.83	88.36	85.83	54.00	31.83

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Horizontal:

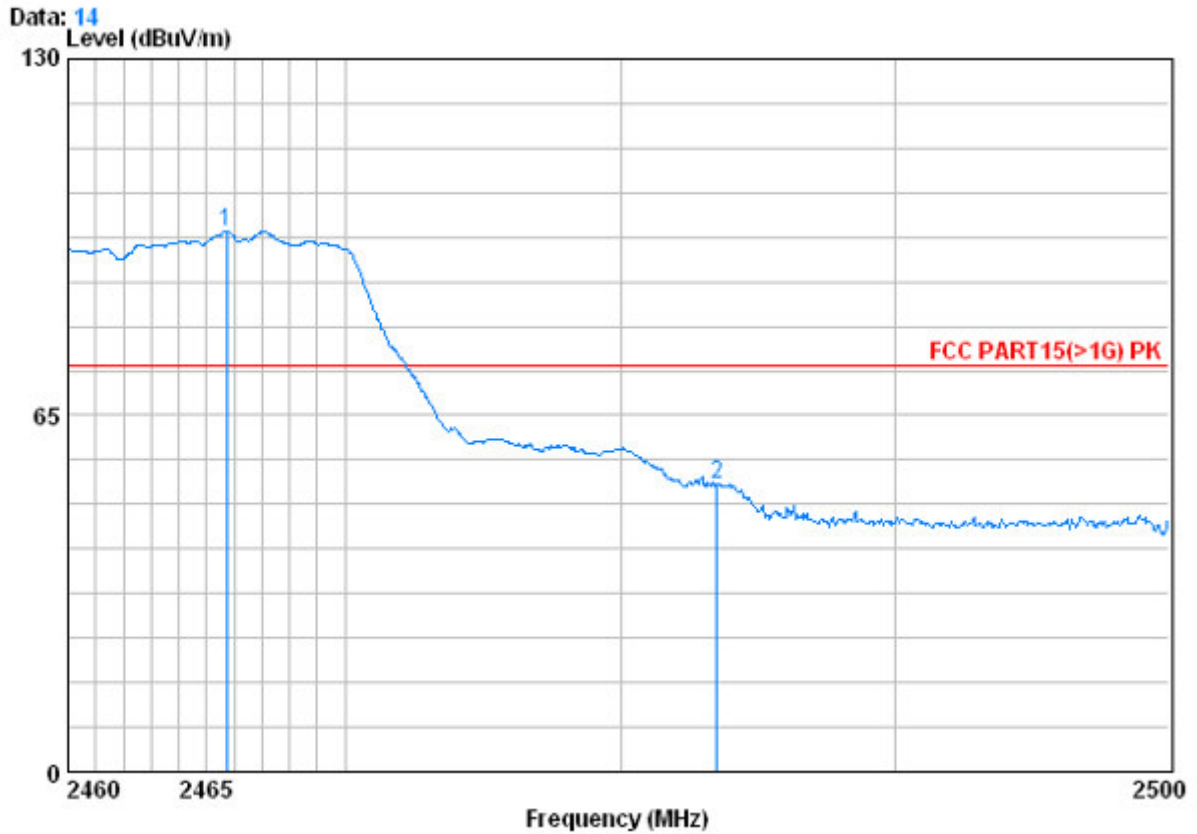


	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	6.28	29.98	39.03	46.17	43.40	54.00	-10.60
2 X	2400.000	6.34	30.03	38.87	60.34	57.84	54.00	3.84
3 0	2412.795	6.15	30.08	38.78	93.77	91.22	54.00	37.22



Test mode:	802.11g	Test channel:	Highest	Remark:	Peak
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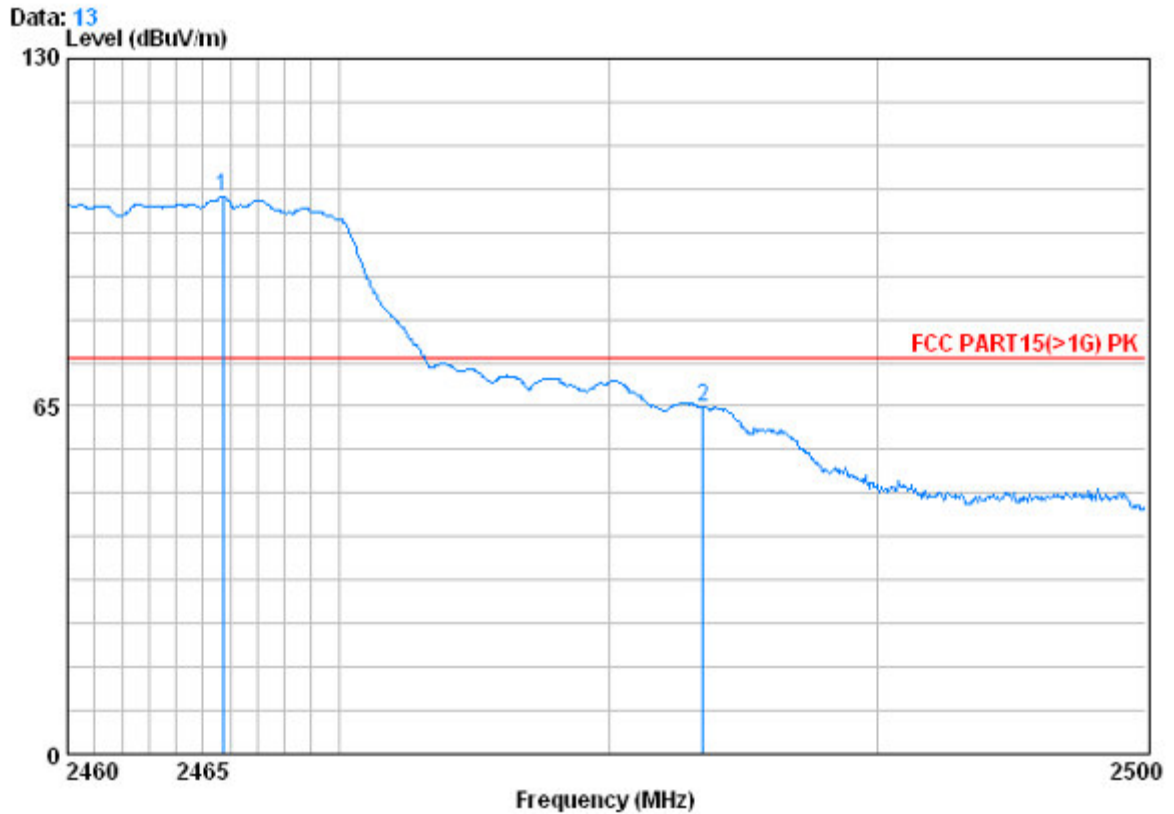
Vertical:



		CableAntenna	Preamp	Read	Limit	Over		
	Freq	Loss	Factor	Level	Line	Limit		
	MHz	dB	dB/m	dB	dBuV	dBuV/m		
1 X	2465.720	6.70	30.25	39.61	101.25	98.59	74.00	24.59
2	2483.500	6.22	30.32	39.53	55.57	52.59	74.00	-21.41

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Horizontal:



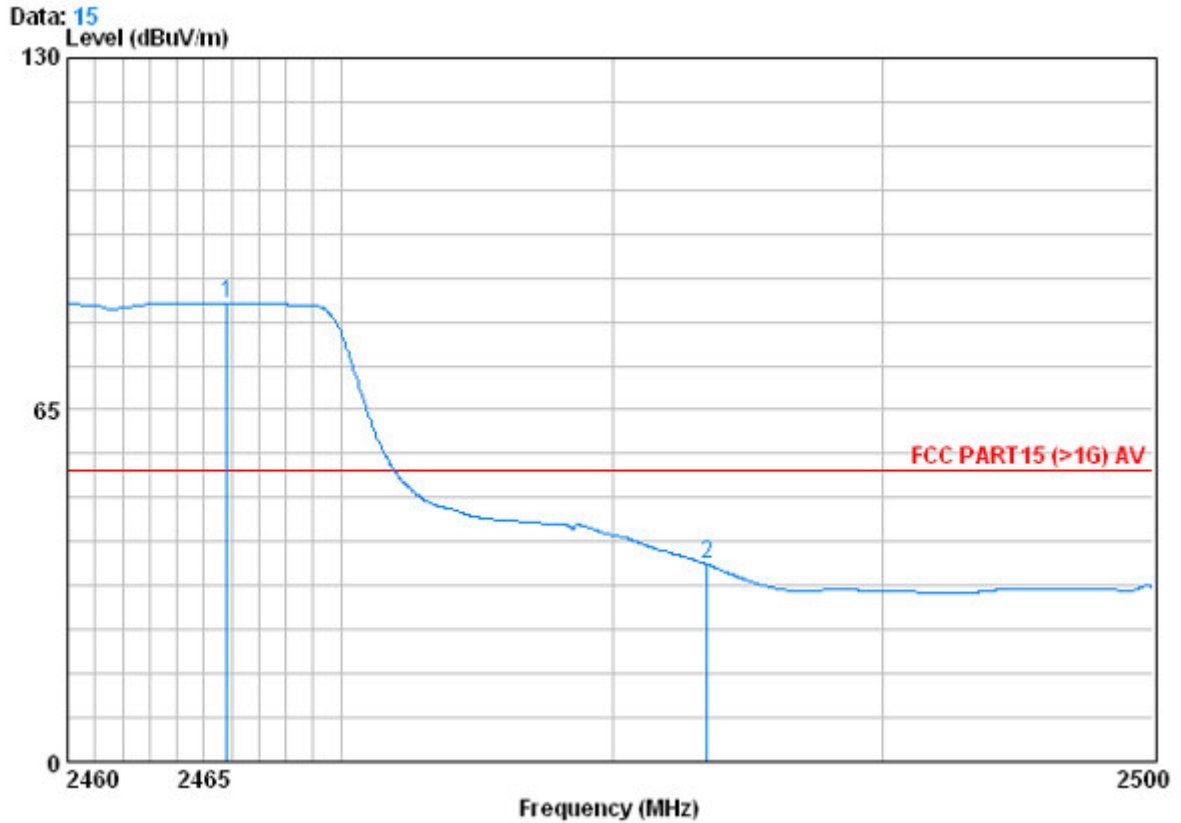
		CableAntenna	Preamp	Read	Limit	Over		
	Freq	Loss	Factor	Level	Line	Limit		
	MHz	dB	dB/m	dB	dBuV	dBuV/m		
1 X	2465.720	6.70	30.25	39.61	106.78	104.12	74.00	30.12
2	2483.500	6.22	30.32	39.53	67.85	64.86	74.00	-9.14

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Test mode:	802.11g	Test channel:	Highest	Remark:	Average
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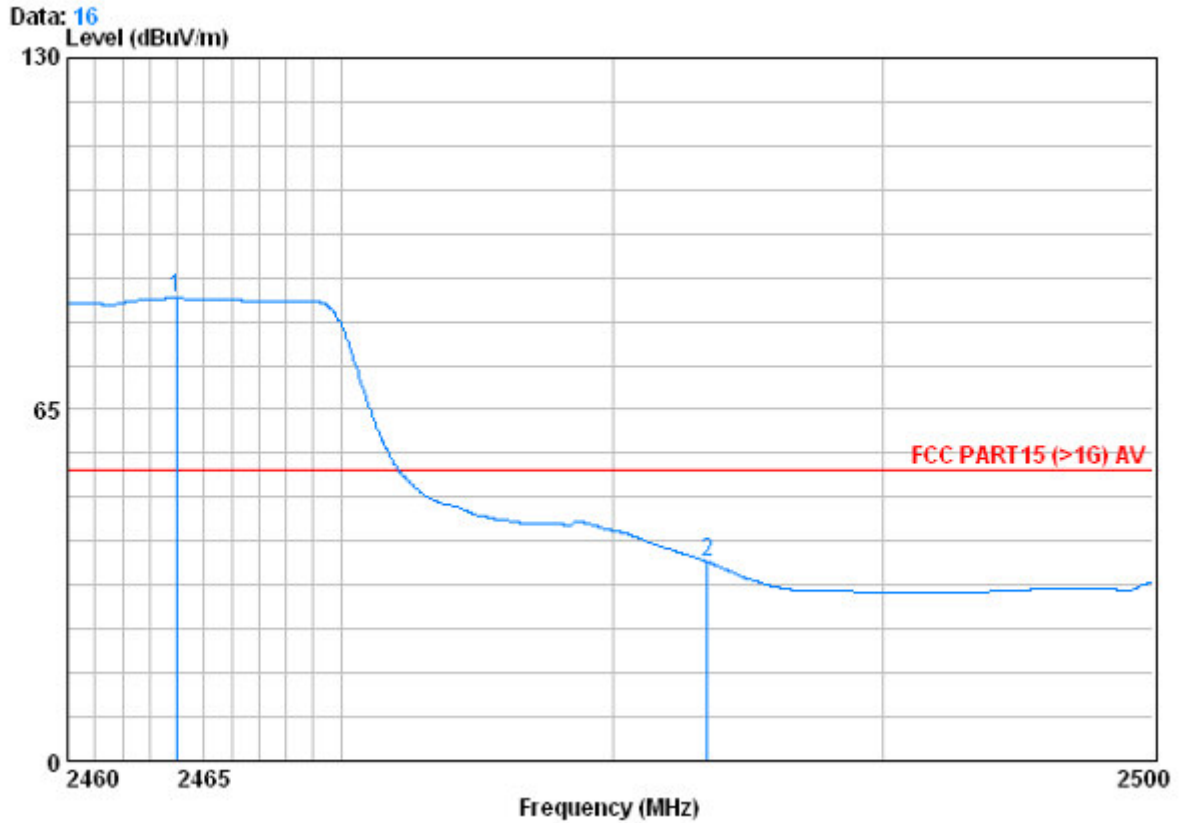
Vertical:



	Freq	CableAntenna Loss	Preamp Factor	Read Level	Limit Line	Over Limit
	MHz	dB	dB/m	dBuV	dBuV/m	dB
1 X	2465.840	6.70	30.25	87.41	84.75	30.75
2	2483.500	6.22	30.32	39.45	54.00	-17.54

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Horizontal:



	Freq	CableAntenna Loss	Preamp Factor	Read Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV/m	dB
1	2463.960	6.70	30.25	88.24	54.00	31.58
2	2483.500	6.22	30.32	39.78	54.00	-17.20

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