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Report No.: SZEM120300143601
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FCC REPORT

Application No: SZEM1203001436RF
Applicant: RM Acquisition LLC
Manufacturer: ELECTRONICS TECHNOLOGY (DONG GUAN) COMPANY LIMITED
Factory: ELECTRONICS TECHNOLOGY (DONG GUAN) COMPANY LIMITED
Product Name: GPS
Model No.(EUT): TND 720
Add Model No.: RVND 7720
FCC ID: A4C-10001A
Standards: FCC CFR Title 47 Part 15 (2010)
Date of Receipt: 2012-03-29
Date of Test: 2012-04-03 to 2012-04-23
Date of Issue: 2012-05-11

Test Result:	PASS*
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* 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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2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	FCC CFR Title 47 Part 15C Section 15.203/15.247 (c)	ANSI C63.10 (2009)	PASS
AC Power Line Conducted Emission	FCC CFR Title 47 Part 15C Section 15.207	ANSI C63.10(2009)	PASS
Conducted Peak Output Power	FCC CFR Title 47 Part 15C Section 15.247 (b)(3)	ANSI C63.10(2009)	PASS
6dB Occupied Bandwidth	FCC CFR Title 47 Part 15C Section 15.247 (a)(2)	ANSI C63.10(2009)	PASS
Power Spectral Density	FCC CFR Title 47 Part 15C Section 15.247 (e)	ANSI C63.10(2009)	PASS
Band-edge for RF Conducted Emissions	FCC CFR Title 47 Part 15C Section 15.247(d)	ANSI C63.10(2009)	PASS
RF Conducted Spurious Emissions	FCC CFR Title 47 Part 15C Section 15.247(d)	ANSI C63.10(2009)	PASS
Radiated Spurious Emissions	FCC CFR Title 47 Part 15C Section 15.205/15.209	ANSI C63.10(2009)	PASS
Band Edge (Radiated Emission)	FCC CFR Title 47 Part 15C Section 15.205/15.209	ANSI C63.10 (2009)	PASS

Remark:

Model No.: TND 720, RVND 7720

Only the model TND 720 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for all above models. Only different on model name and appearance.



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4 General Information

4.1 Client Information

Applicant:	RM Acquisition LLC
Address of Applicant:	9855 Woods Drive Skokie. IL 60077 U.S.A
Manufacturer:	ELECTRONICS TECHNOLOGY (DONG GUAN) COMPANY LIMITED
Address of Manufacturer:	No.161, Xin Min Road, Tong Luo Wei Industrial Zone, Jin Xia, Chang An Town, Dong Guan City, Guang Dong Province, China
Factory:	ELECTRONICS TECHNOLOGY (DONG GUAN) COMPANY LIMITED
Address of Factory:	No.161, Xin Min Road, Tong Luo Wei Industrial Zone, Jin Xia, Chang An Town, Dong Guan City, Guang Dong Province, China

4.2 General Description of EUT

Product Name:	GPS	
Model No.:	TND 720, RVND 7720	
Operation Frequency:	IEEE 802.11b/g: 2412MHz to 2462MHz	
Channel Numbers:	IEEE 802.11b/g: 11 Channels	
Channel Separation:	5MHz	
Type of Modulation:	IEEE for 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK)	
Sample Type:	Portable production	
Test Power Grade:	15 (manufacturer declare)	
Test Software of EUT:	Labtool (manufacturer declare)	
Antenna Type and Gain:	Type: Integral antenna Gain: 0dBi	
Power Supply:	Adapter:	Model: SW013UH-0500200US Input: AC100-240V 50/60Hz 0.4A Max Output: DC5V 2A
	Vehicle adapter:	Model: SW-87180500200A AW11 Input: DC12-24V 2.5A Output: DC5V/2A
	Battery:	GSP 684057 1600mAh 3.7V
	USB charge	
AC/DC Adapter:	138 cm, shielding	
Vehicle Adapter:	236 cm, shielding	
USB Cable:	100 cm	
AV Cable:	106 cm	
Test Voltage:	Input: AC120V 60Hz	

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Operation Frequency each of channel(802.11b/g)							
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		

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:

For 802.11b/g:

Channel	Frequency
The Lowest channel	2412MHz
The Middle channel	2437MHz
The Highest channel	2462MHz



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4.3 Test Environment and Mode

Operating Environment:	
Temperature:	23.0 °C
Humidity:	40% RH
Atmospheric Pressure:	1008 mbar
Test mode:	
Transmitting	Keep the EUT transmitting with modulation.
PC Charge + Transmitting	Keep the EUT charging by PC and transmitting with modulation.
AC Charge + Transmitting	Keep the EUT charging by AC adapter and transmitting with modulation.
Vehicle Charge + Transmitting	Keep the EUT charging by Vehicle adapter and transmitting with modulation.

4.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
Earphone	N/A	N/A
iPad 2	Apple	A1219
DC Power	ZHAOXIN	RXN-305D
PC	DELL	DCSM
LCD-displaying	DELL	SP2208WFPt
KEYBOARD	DELL	SK-8115
MOUSE	Lenovo	MO28UOL
PC	IBM	8172
LCD-displaying	Lenovo	L1711pC
KEYBOARD	IBM	SK-8115
MOUSE	Lenovo	MO28UOA
Coder	HengTong ELECTRON	HT4000
Printer	Canon	BJC-1000SP

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.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.6 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.

4.7 Deviation from Standards

None.

4.8 Abnormalities from Standard Conditions

None.

4.9 Other Information Requested by the Customer

None.

4.10 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	Two-Line V-Network	ETS-LINDGREN	3816/2	SEL0021	2012-05-26
3	LISN	Rohde & Schwarz	ENV216	SEL0152	2012-10-23
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2012-05-26
5	Coaxial Cable	SGS	N/A	SEL0024	2012-05-29



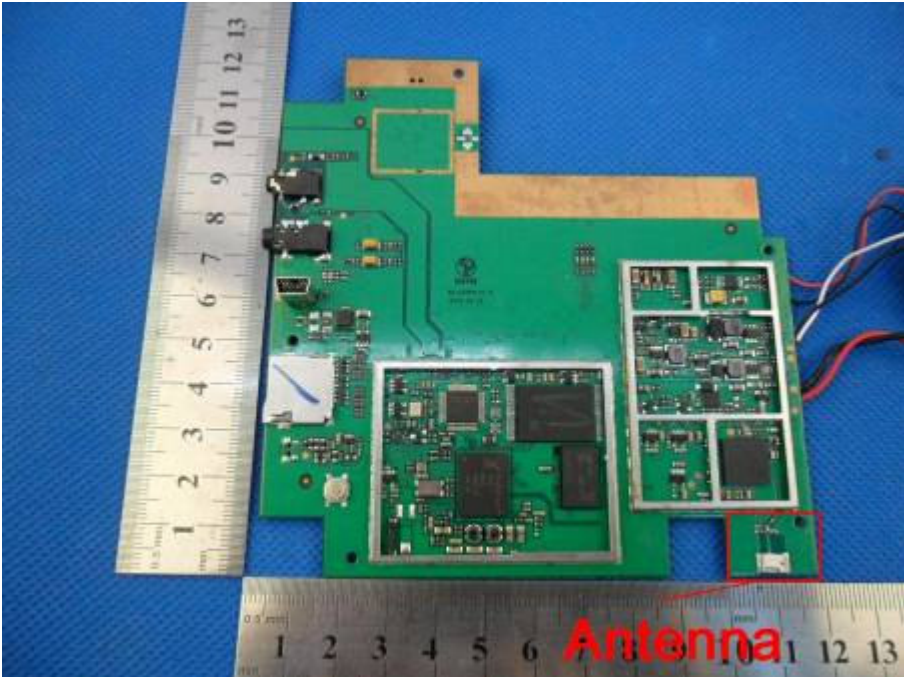
RF conducted					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	Spectrum Analyzer	Rohde & Schwarz	FSP 30	SEL0154	2012-10-23
2	Coaxial cable	SGS	N/A	SEL0028	2012-05-29

General used equipment					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
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

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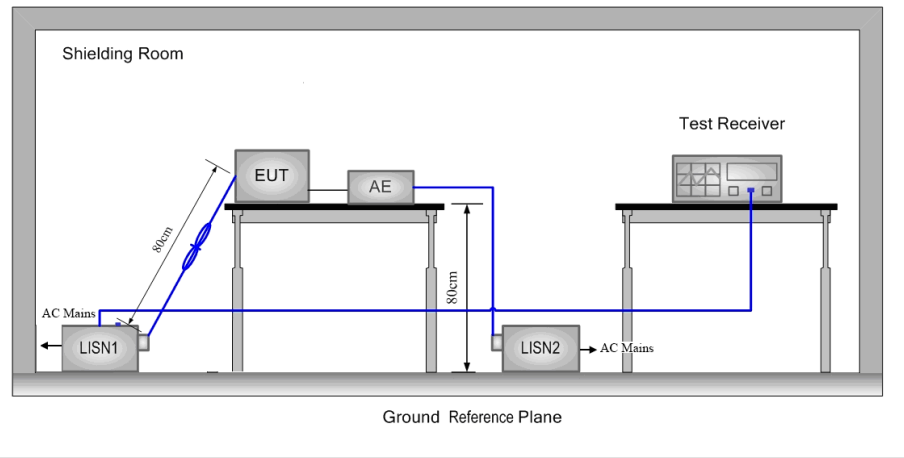
5 Test results and Measurement Data

5.1 Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
<p>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.</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>	
EUT Antenna:	
<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		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	<ol style="list-style-type: none"> 1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) 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>	
<p>Test Mode:</p>	<p>PC Charge + transmitting mode, AC Charge + transmitting mode</p>
<p>Test Status:</p>	<p>Pretest the EUT at different test mode and found the AC Charge + transmitting mode which is worse case, the test worse case mode is recorded in the report.</p>
<p>Instruments Used:</p>	<p>Refer to section 4.10 for details</p>
<p>Test Results:</p>	<p>Pass</p>

Measurement Data

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

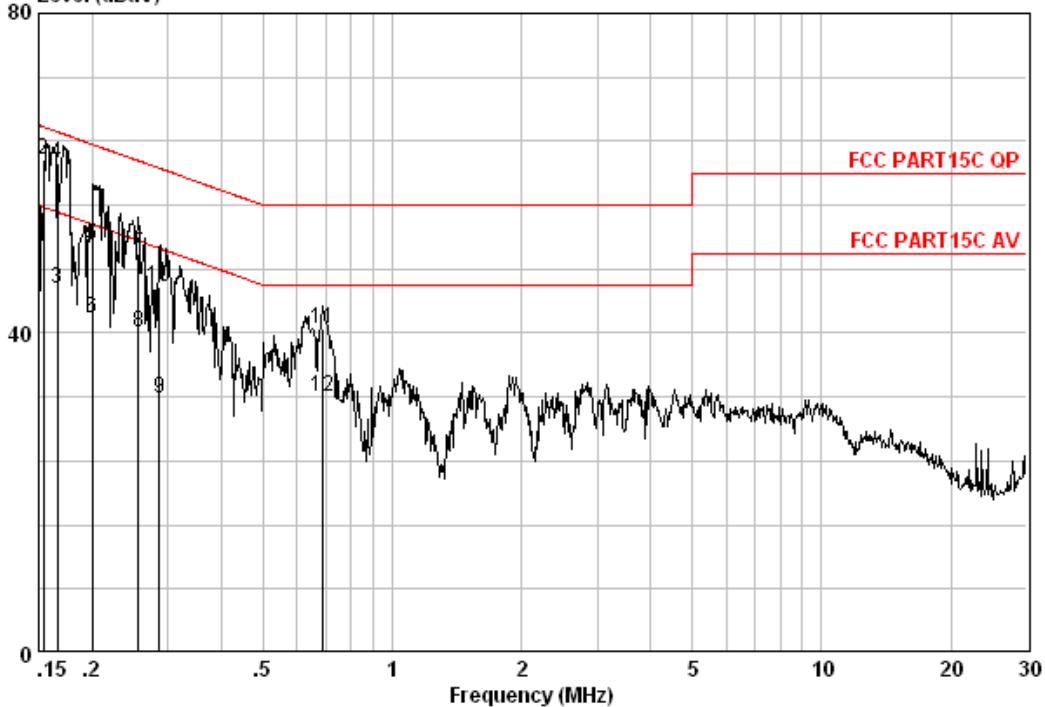
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

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Live Line:

Data: 32
Level (dBuV)



Site : Shielding Room
Condition : FCC PART15C QP CE-20101216 LINE
EUT : GPS
Job No. : 1436RF
test mode : AC charge+TX

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 @	0.15400	0.04	9.60	41.13	50.77	55.78	-5.01	Average
2 @	0.15400	0.04	9.60	52.12	61.76	65.78	-4.02	QP
3	0.16600	0.04	9.60	36.01	45.65	55.16	-9.51	Average
4 @	0.16600	0.04	9.60	51.52	61.16	65.16	-4.00	QP
5	0.20000	0.04	9.60	41.45	51.09	63.61	-12.52	QP
6	0.20000	0.04	9.60	32.16	41.80	53.61	-11.81	Average
7	0.25600	0.05	9.60	40.26	49.91	61.56	-11.65	QP
8	0.25600	0.05	9.60	30.45	40.10	51.56	-11.46	Average
9	0.28700	0.05	9.60	22.16	31.81	50.61	-18.80	Average
10	0.28700	0.05	9.60	36.08	45.73	60.61	-14.88	QP
11	0.68900	0.06	9.70	30.78	40.54	56.00	-15.46	QP
12	0.68900	0.06	9.70	22.36	32.12	46.00	-13.88	Average

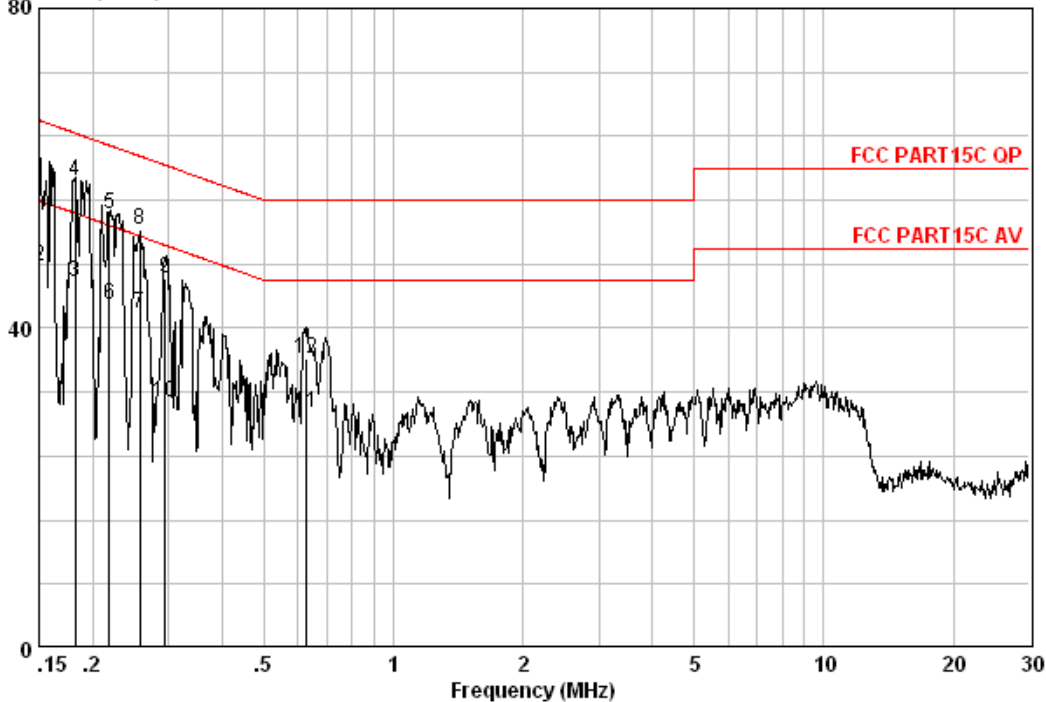
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Neutral Line:

Data: 33

Level (dBuV)



Site : Shielding Room
 Condition : FCC PART15C QP CE-20101216 NEUTRAL
 EUT : GPS
 Job No. : 1436RF
 test mode : AC charge+TX

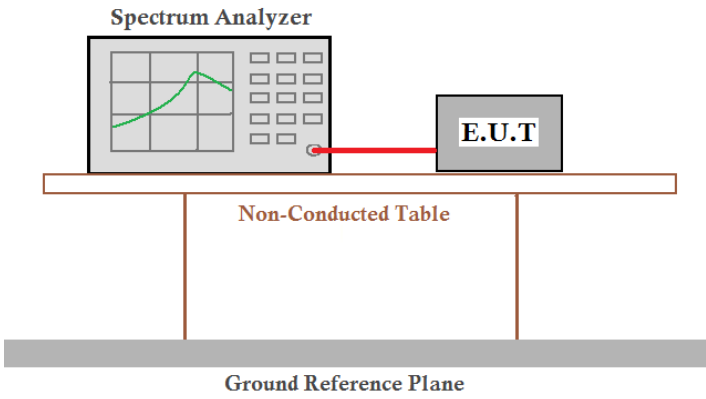
	Freq	Cable Loss	LISN Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.15000	0.04	9.60	50.12	59.76	66.00	-6.24 QP
2	0.15000	0.04	9.60	38.06	47.70	56.00	-8.30 Average
3	0.18200	0.04	9.60	36.24	45.88	54.39	-8.51 Average
4 @	0.18200	0.04	9.60	48.79	58.43	64.39	-5.96 QP
5	0.21900	0.04	9.60	44.67	54.31	62.86	-8.54 QP
6	0.21900	0.04	9.60	33.24	42.88	52.86	-9.97 Average
7	0.25700	0.05	9.60	32.15	41.80	51.53	-9.73 Average
8	0.25700	0.05	9.60	42.58	52.23	61.53	-9.30 QP
9	0.29500	0.05	9.60	36.46	46.11	60.38	-14.27 QP
10	0.29500	0.05	9.60	21.13	30.78	50.38	-19.60 Average
11	0.62700	0.06	9.67	19.78	29.51	46.00	-16.49 Average
12	0.62700	0.06	9.67	26.45	36.18	56.00	-19.82 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 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2009
Test Setup:	 <p><i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</p>
Test Instruments:	Refer to section 4.10 for details
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Through Pre-scan, find the 11Mbps of rate is the worst case of 802.11b; 54Mbps of rate is the worst case of 802.11g.
Limit:	30dBm
Test Results:	Pass

Pre-scan under all rate at lowest channel 1								
Mode	802.11b				X			
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
Power (dBm)	15.98	15.78	16.86	17.33				
Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power (dBm)	17.59	17.95	18.12	17.53	18.18	18.15	17.97	18.42

Through Pre-scan, 11Mbps of rate is the worst case of 802.11b; 54Mbps of rate is the worst case of 802.11g.



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Measurement Data

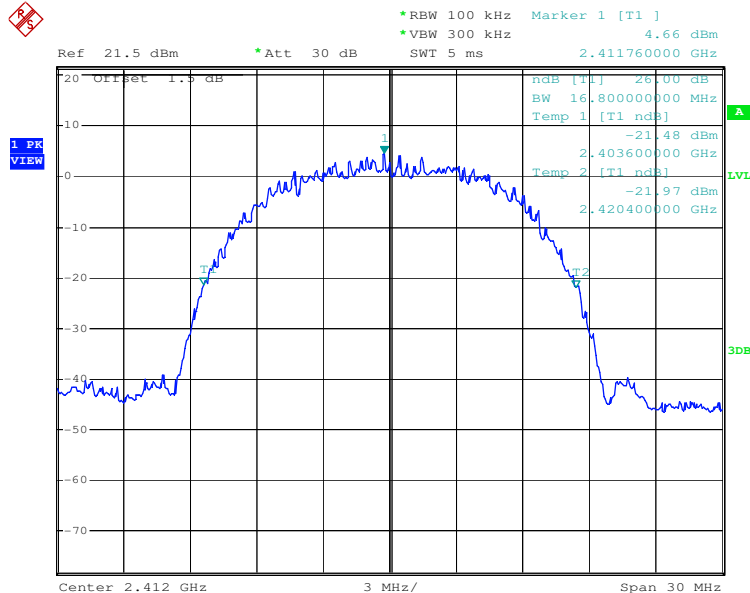
802.11b mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	17.33	30.00	Pass
Middle	18.17	30.00	Pass
Highest	18.56	30.00	Pass
802.11g mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	18.42	30.00	Pass
Middle	19.02	30.00	Pass
Highest	19.97	30.00	Pass

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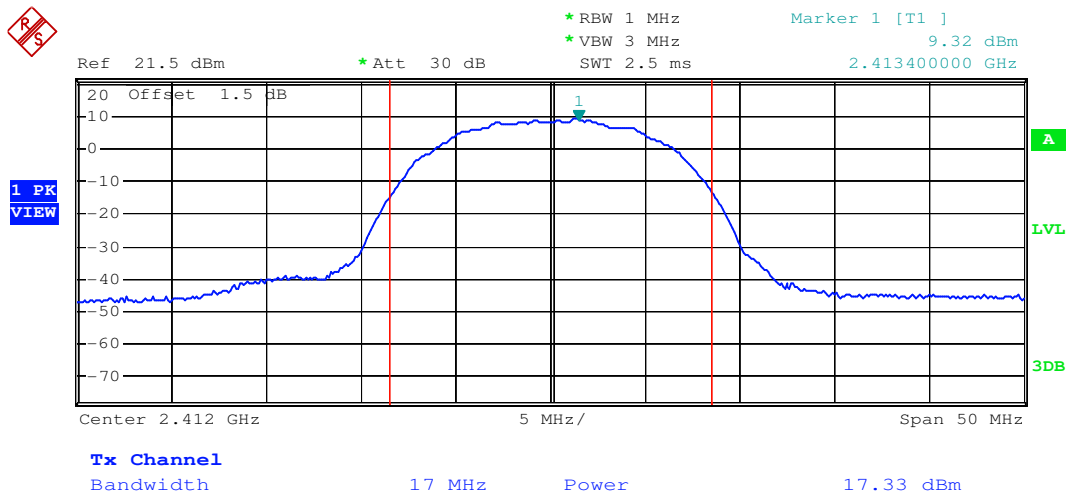


Test plot as follows:

Test mode:	802.11b	Test channel:	Lowest	-26 bandwidth
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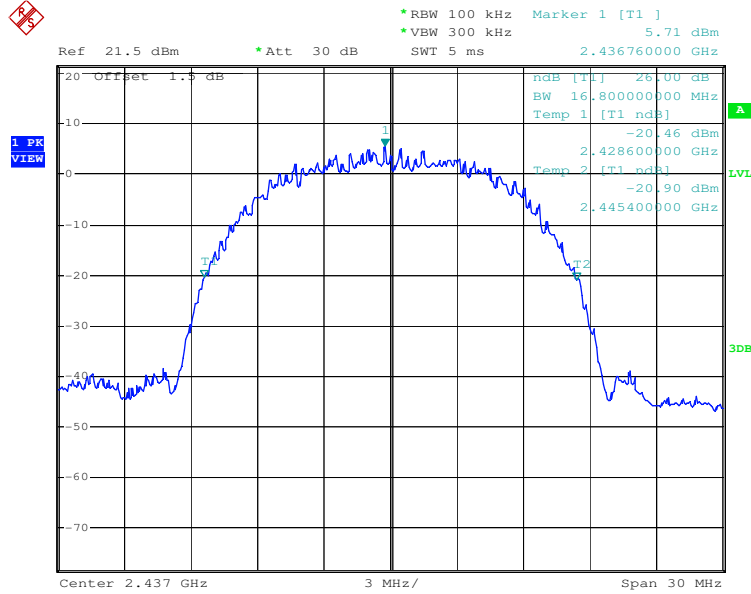
Test mode:	802.11b	Test channel:	Lowest
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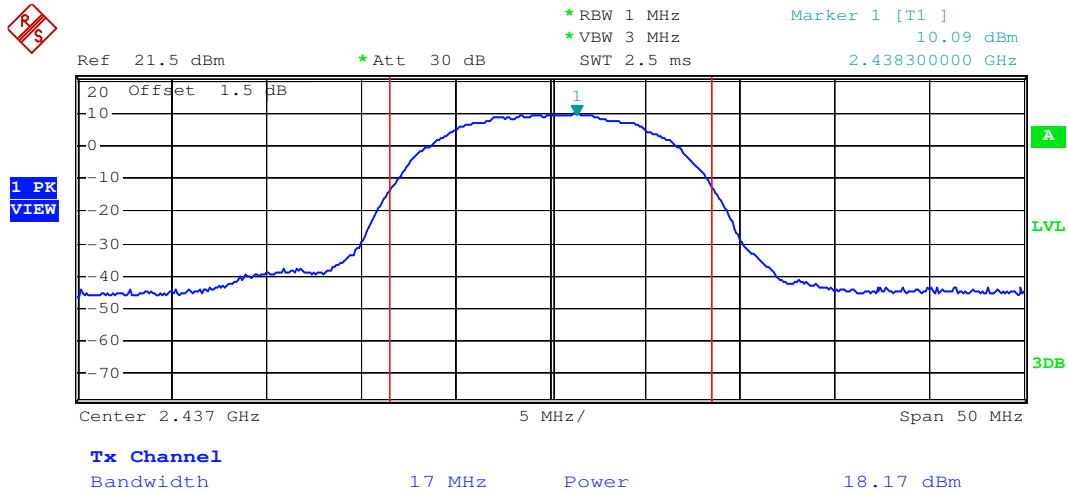
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Test mode:	802.11b	Test channel:	Middle	-26 bandwidth
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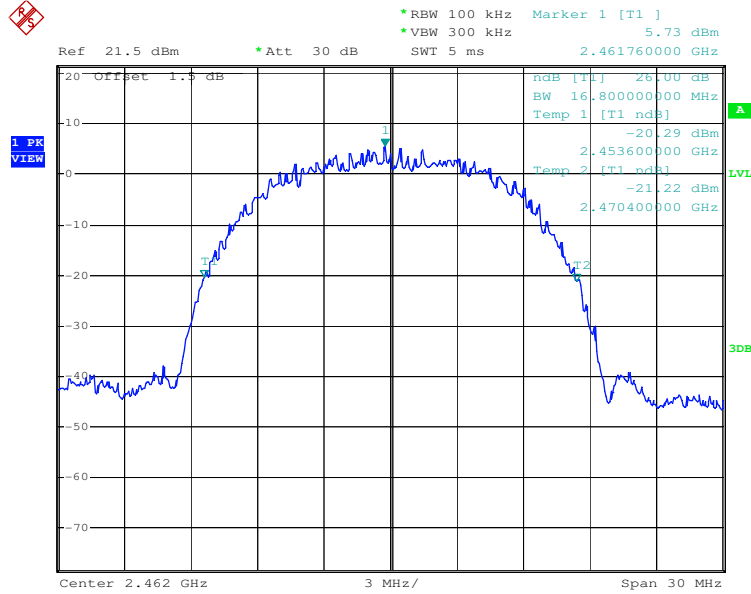
Test mode:	802.11b	Test channel:	Middle
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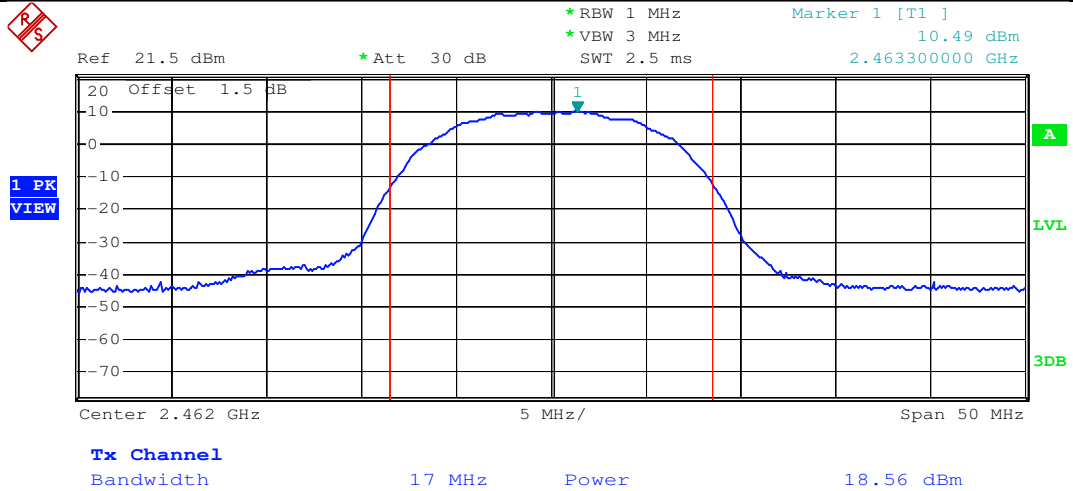
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Test mode:	802.11b	Test channel:	Highest	-26 bandwidth
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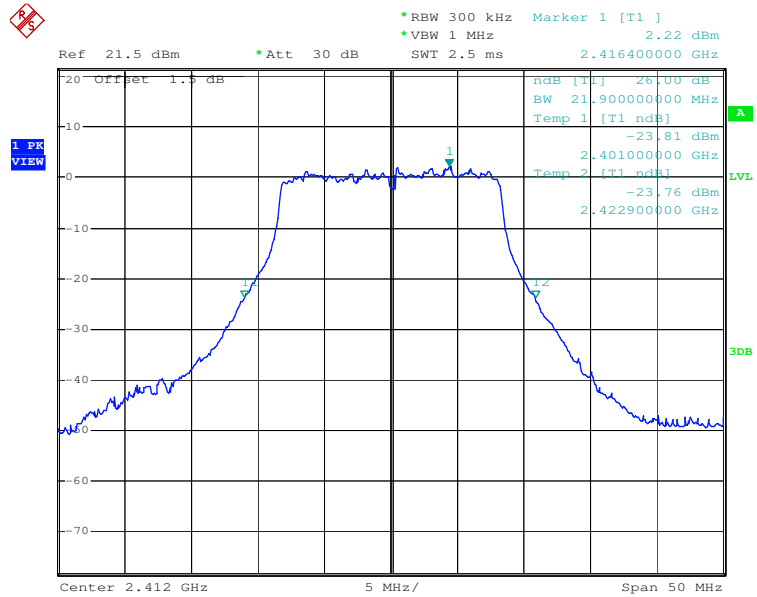
Test mode:	802.11b	Test channel:	Highest
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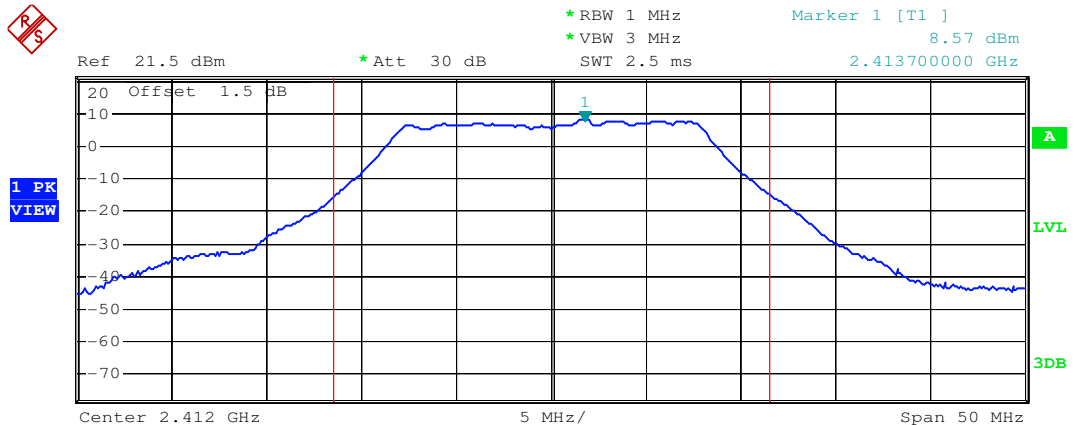
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Test mode:	802.11g	Test channel:	Lowest	-26 bandwidth
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Test mode:	802.11g	Test channel:	Lowest
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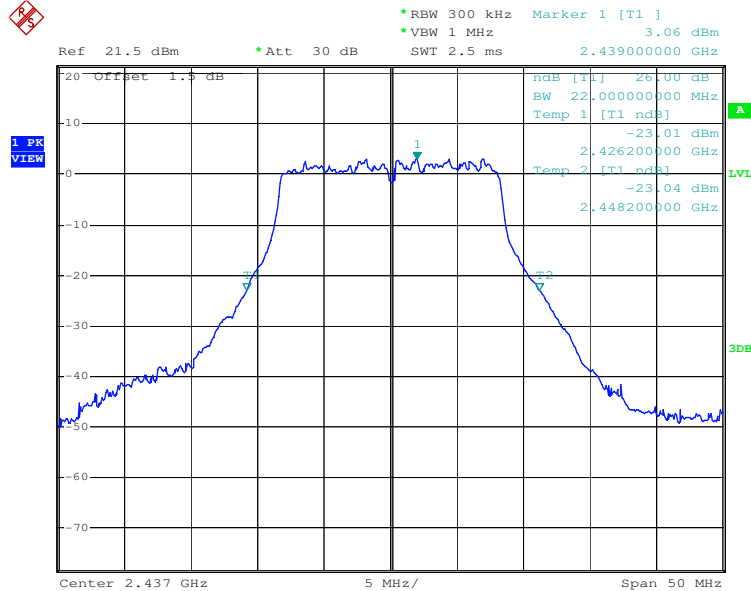


Tx Channel
 Bandwidth 23 MHz Power 18.42 dBm

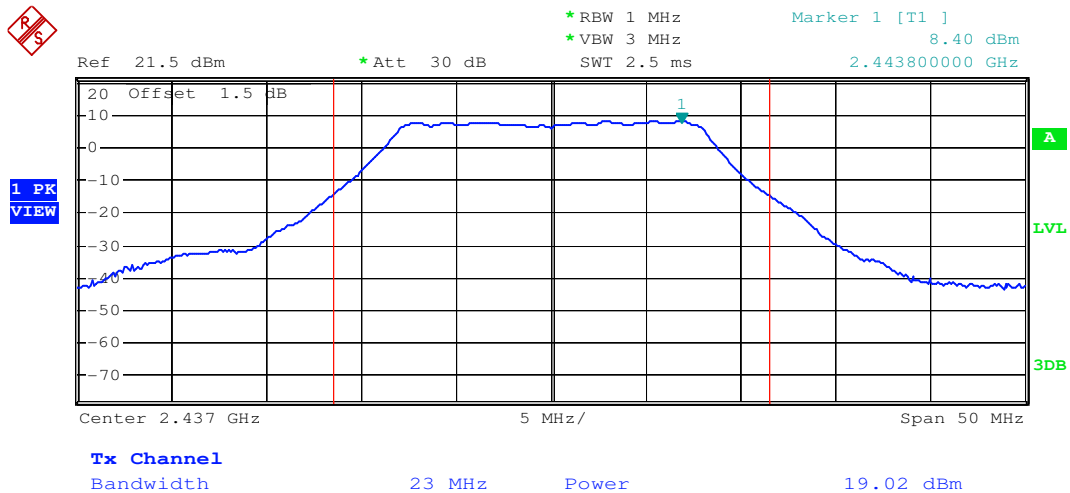
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Test mode:	802.11g	Test channel:	Middle	-26 bandwidth
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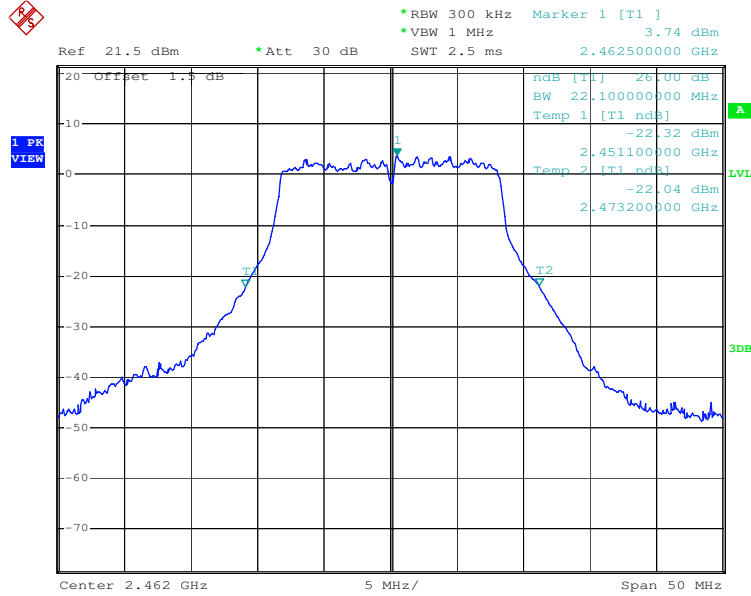
Test mode:	802.11g	Test channel:	Middle
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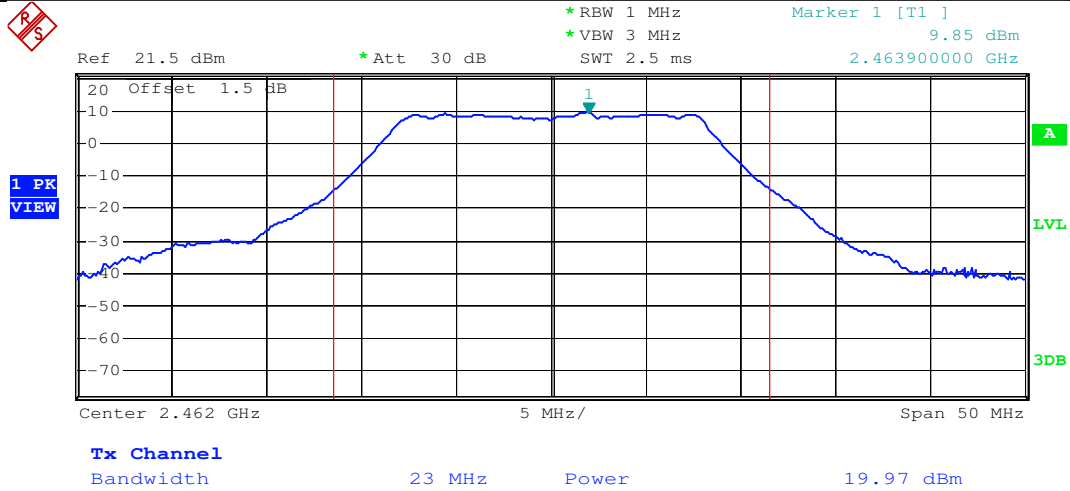
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Test mode:	802.11g	Test channel:	Highest	-26 bandwidth
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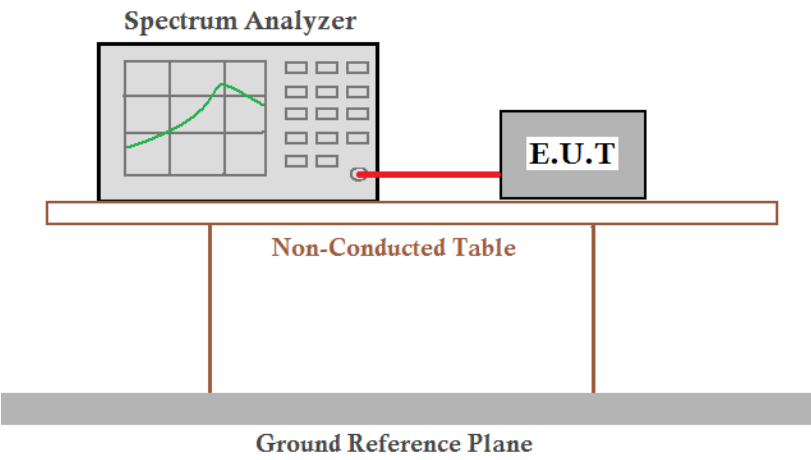


Test mode:	802.11g	Test channel:	Highest
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5.4 6dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.10:2009
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>
Instruments Used:	Refer to section 4.10 for details
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Through Pre-scan, find the 11Mbps of rate is the worst case of 802.11b; 54Mbps of rate is the worst case of 802.11g.
Limit:	≥500 kHz
Test Results:	Pass

Measurement Data

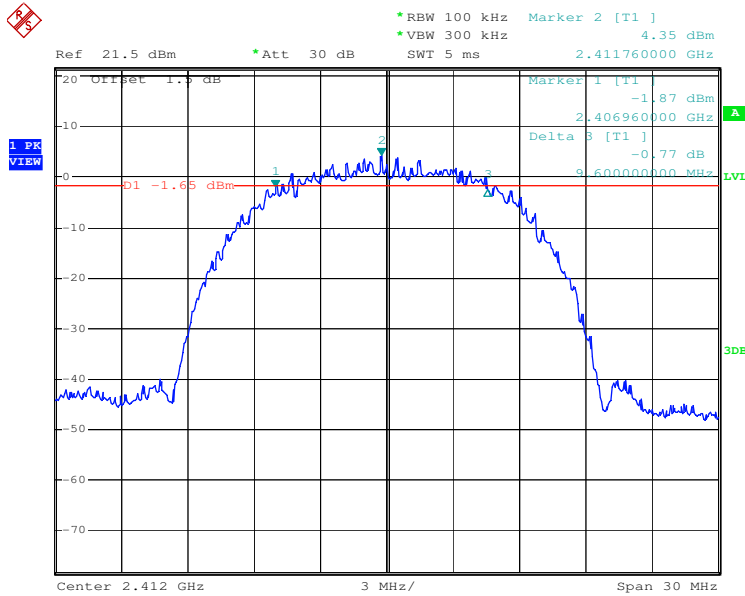
802.11b mode			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	9.60	≥500	Pass
Middle	9.66	≥500	Pass
Highest	9.60	≥500	Pass
802.11g mode			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	16.68	≥500	Pass
Middle	16.66	≥500	Pass
Highest	16.68	≥500	Pass

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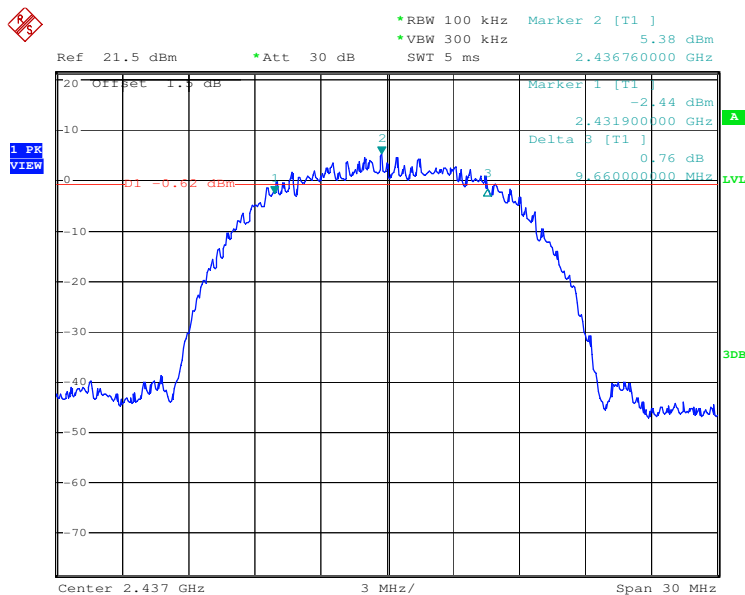


Test plot as follows:

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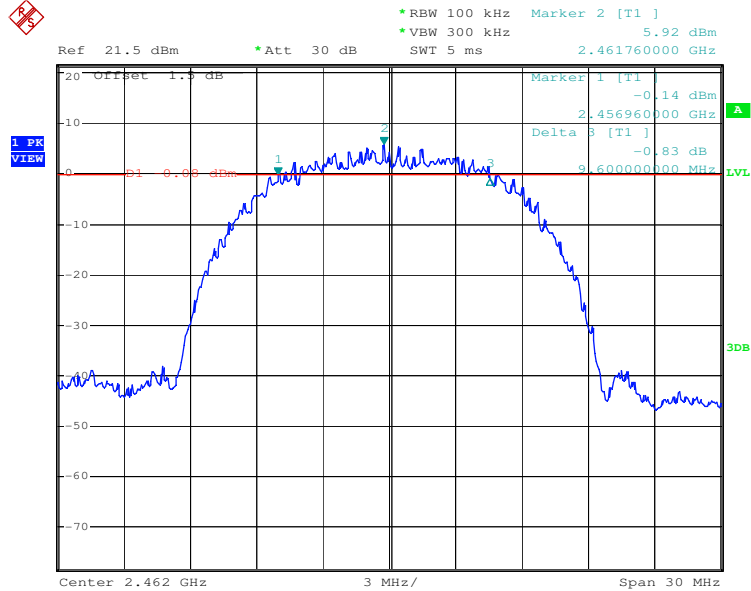
Test mode:	802.11b	Test channel:	Middle
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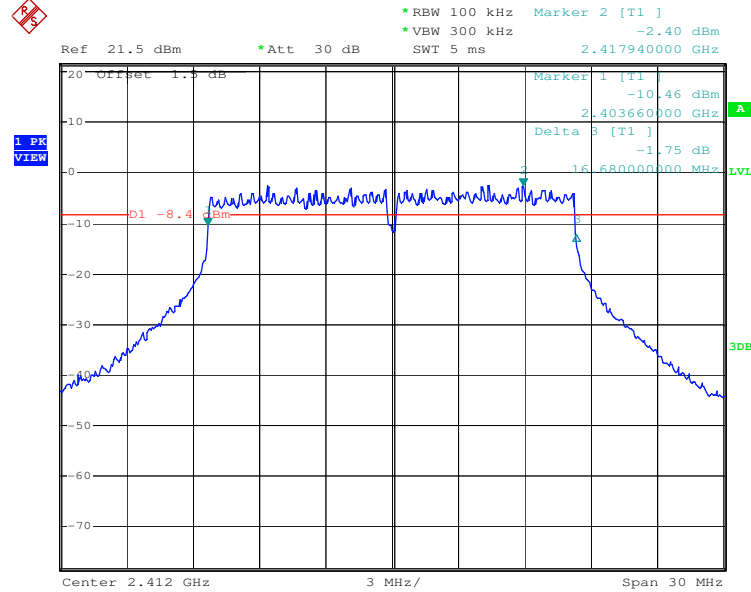
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Test mode:	802.11b	Test channel:	Highest
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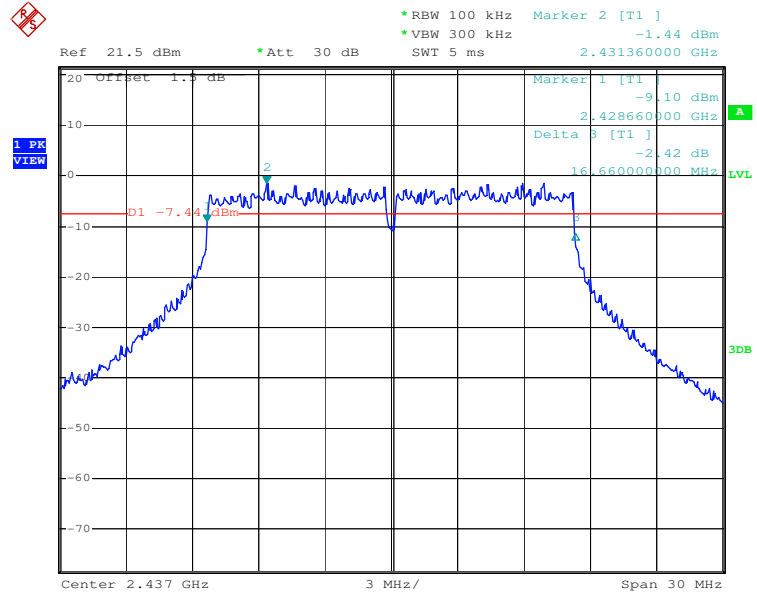
Test mode:	802.11g	Test channel:	Lowest
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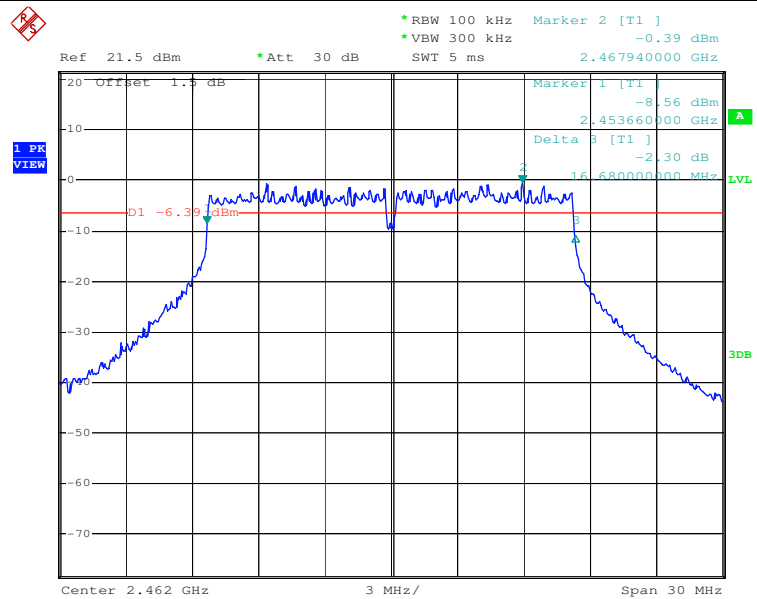
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Test mode:	802.11g	Test channel:	Middle
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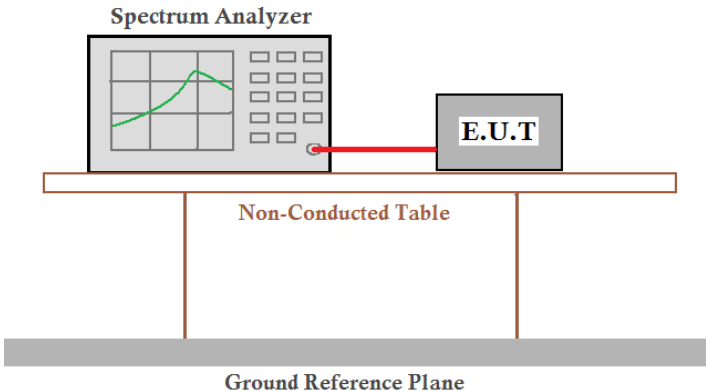


Test mode:	802.11g	Test channel:	Highest
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5.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2009
Test Setup:	 <p><i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</p>
Test Instruments:	Refer to section 4.10 for details
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Through Pre-scan, find the 11Mbps of rate is the worst case of 802.11b; 54Mbps of rate is the worst case of 802.11g.
Limit:	≤8.00dBm
Test Results:	Pass

Measurement Data

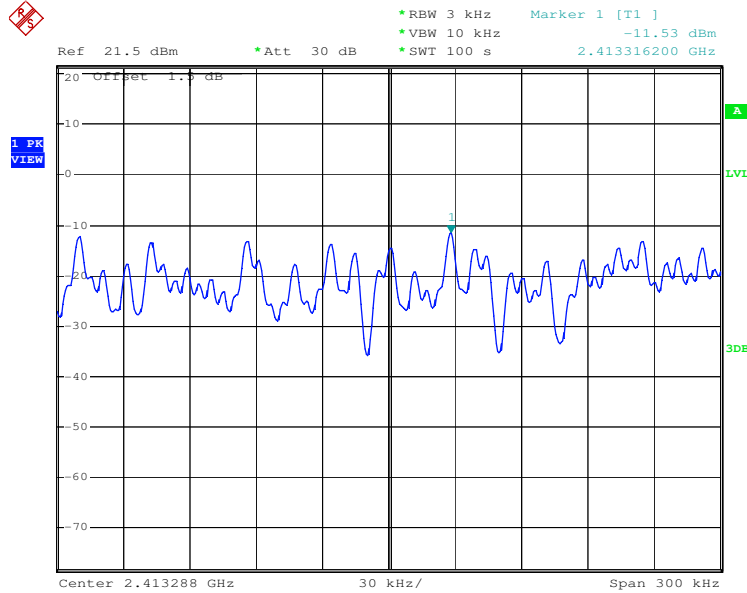
802.11b mode			
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	-11.53	≤8.00	Pass
Middle	-10.71	≤8.00	Pass
Highest	-10.62	≤8.00	Pass
802.11g mode			
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	-16.24	≤8.00	Pass
Middle	-16.85	≤8.00	Pass
Highest	-14.91	≤8.00	Pass

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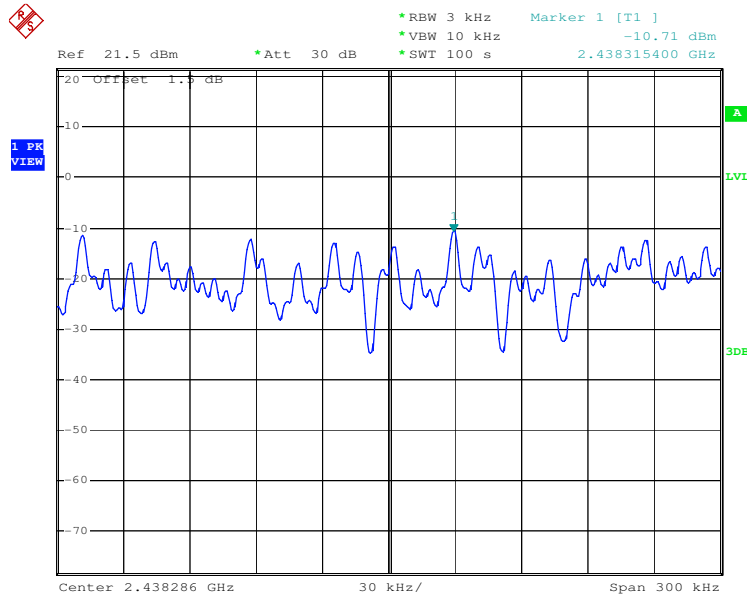


Test plot as follows:

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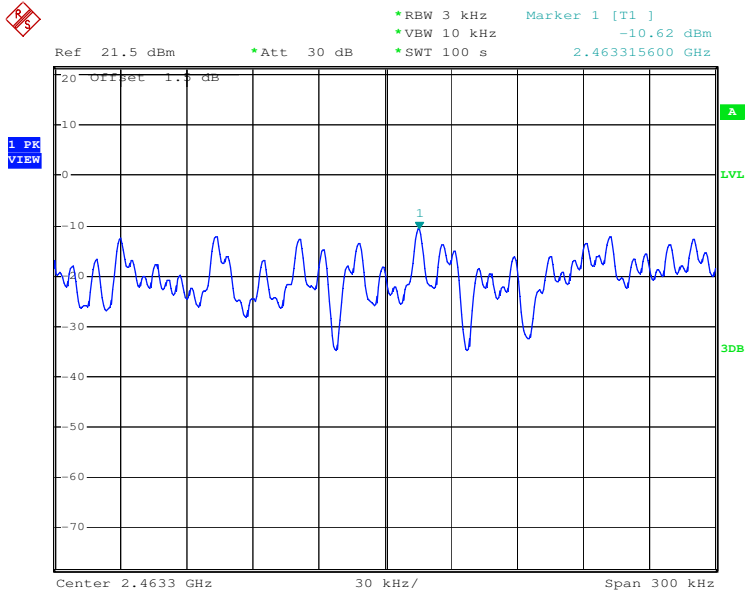
Test mode:	802.11b	Test channel:	Middle
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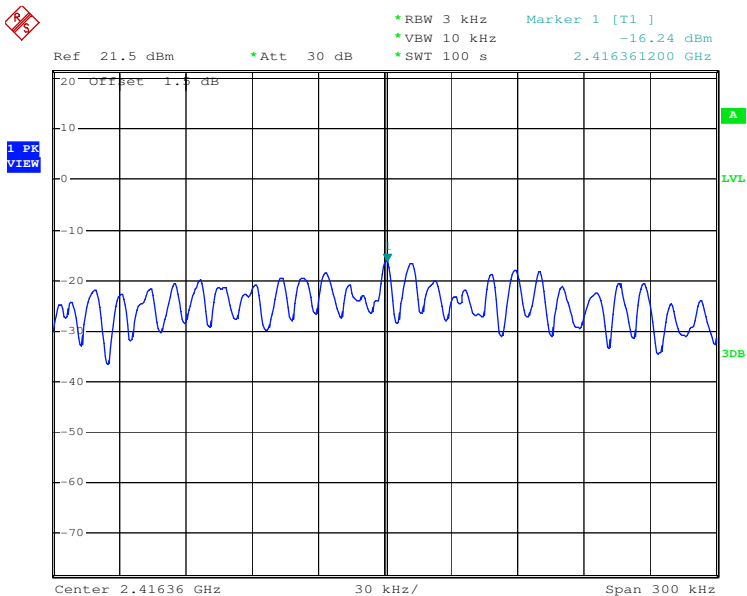
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Test mode:	802.11b	Test channel:	Highest
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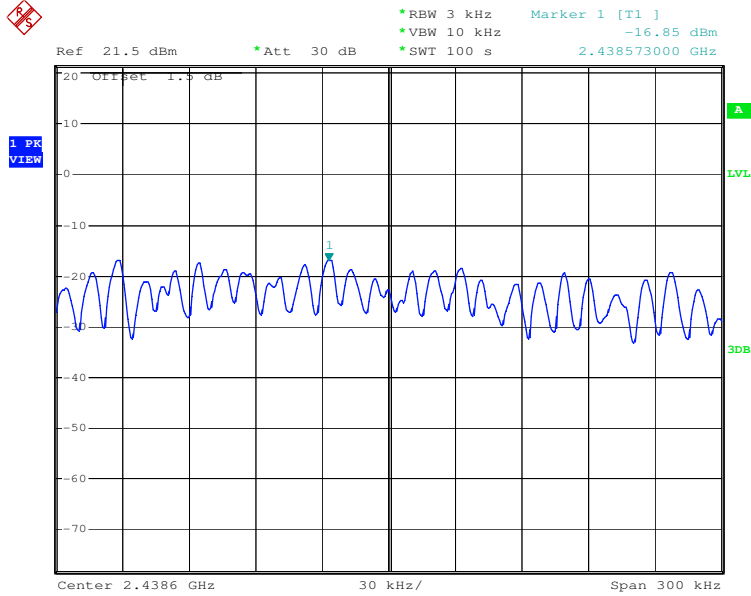
Test mode:	802.11g	Test channel:	Lowest
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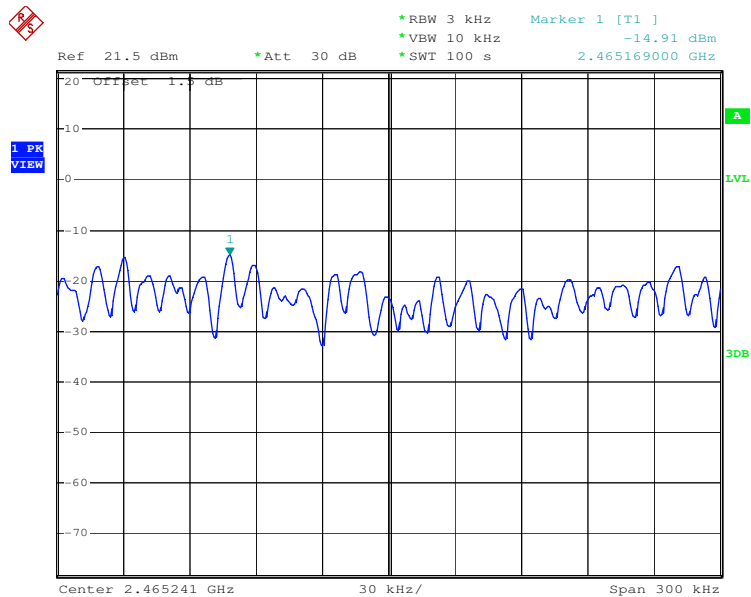
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Test mode:	802.11g	Test channel:	Middle
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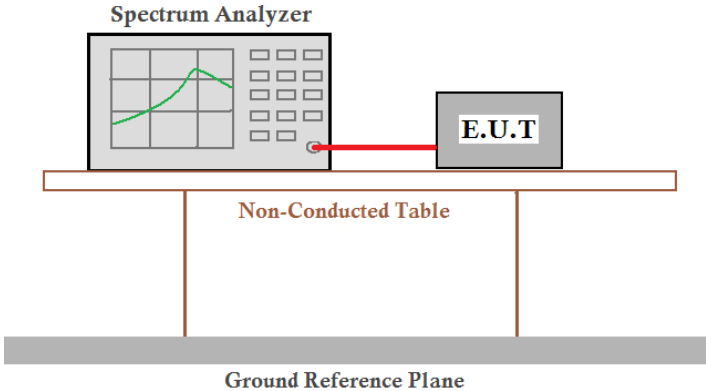


Test mode:	802.11g	Test channel:	Highest
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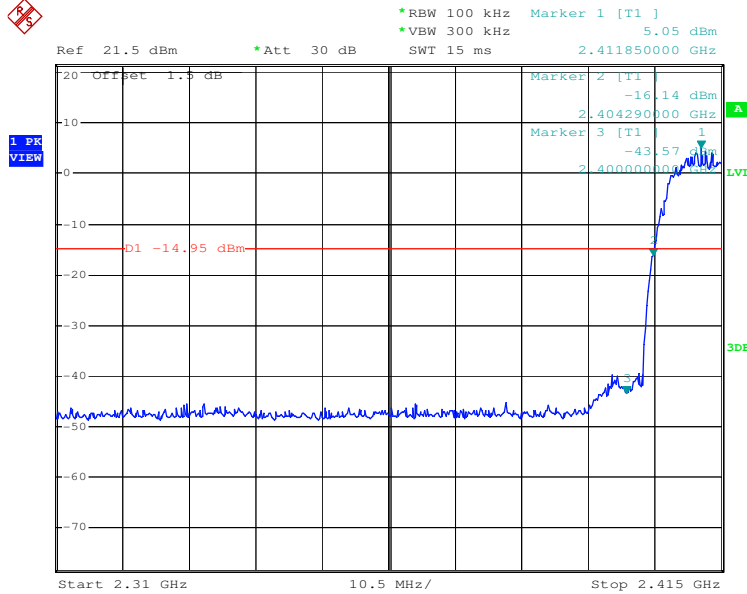
5.6 Band-edge for RF Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2009
Test Setup:	 <p><i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</p>
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Through Pre-scan, find the 11Mbps of rate is the worst case of 802.11b; 54Mbps of rate is the worst case of 802.11g.
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.
Instruments Used:	Refer to section 4.10 for details
Test Results:	Pass

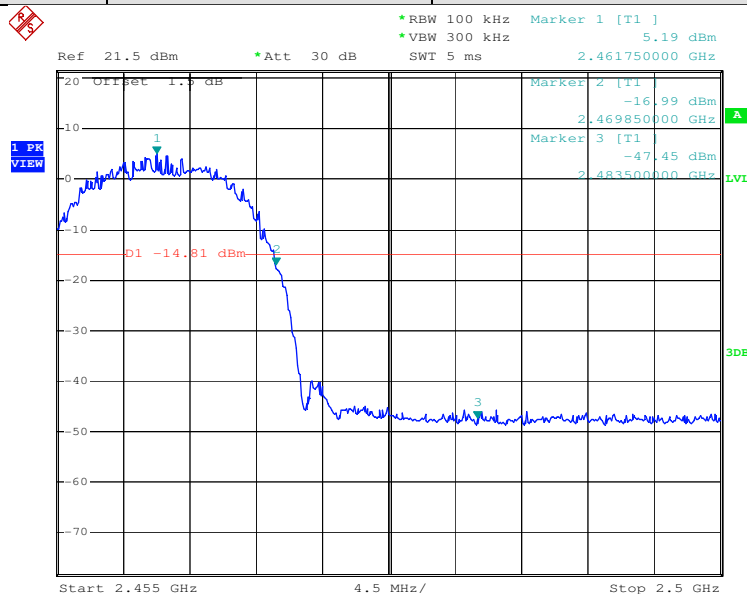


Test plot as follows:

Test mode:	802.11b	Test channel:	Lowest
------------	---------	---------------	--------



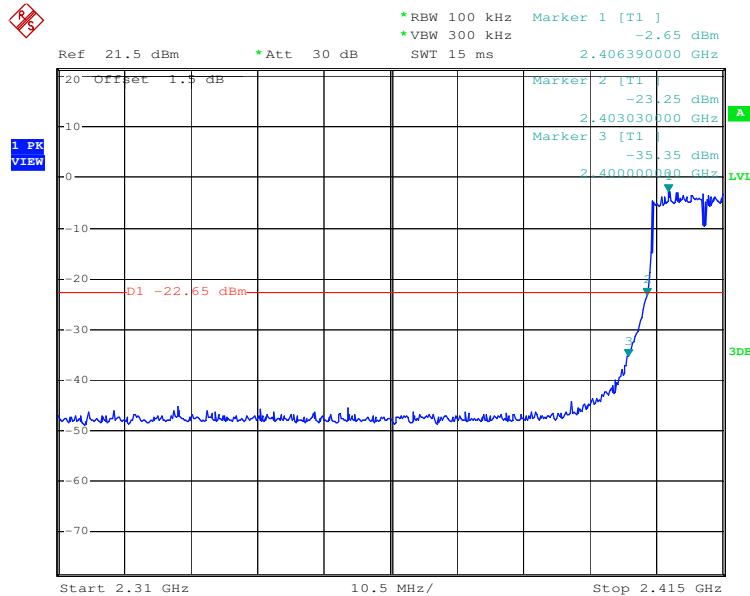
Test mode:	802.11b	Test channel:	Highest
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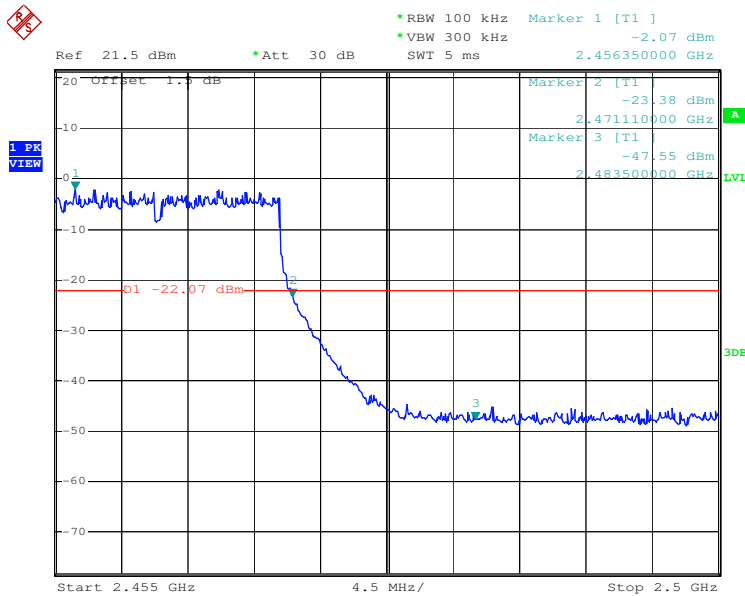
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Test mode:	802.11g	Test channel:	Lowest
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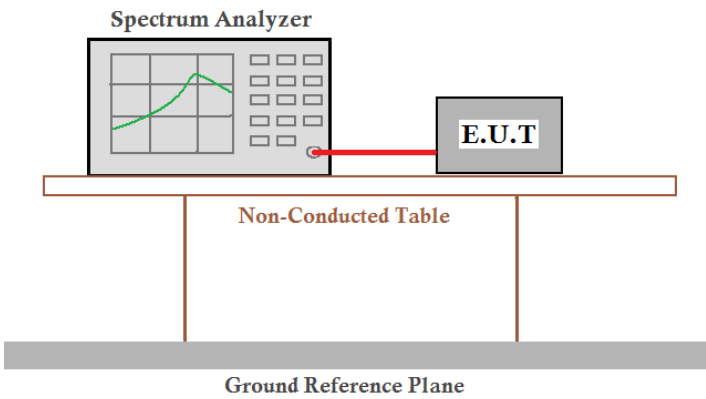


Test mode:	802.11g	Test channel:	Highest
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5.7 RF Conducted Spurious Emissions

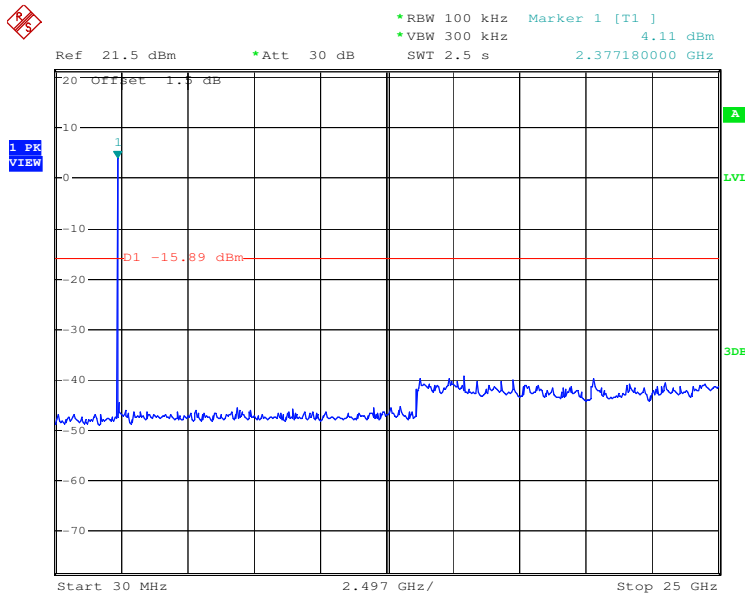
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2009
Test Setup:	 <p><i>Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Through Pre-scan, find the 11Mbps of rate is the worst case of 802.11b; 54Mbps of rate is the worst case of 802.11g.
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.
Instruments Used:	Refer to section 4.10 for details
Test Results:	Pass

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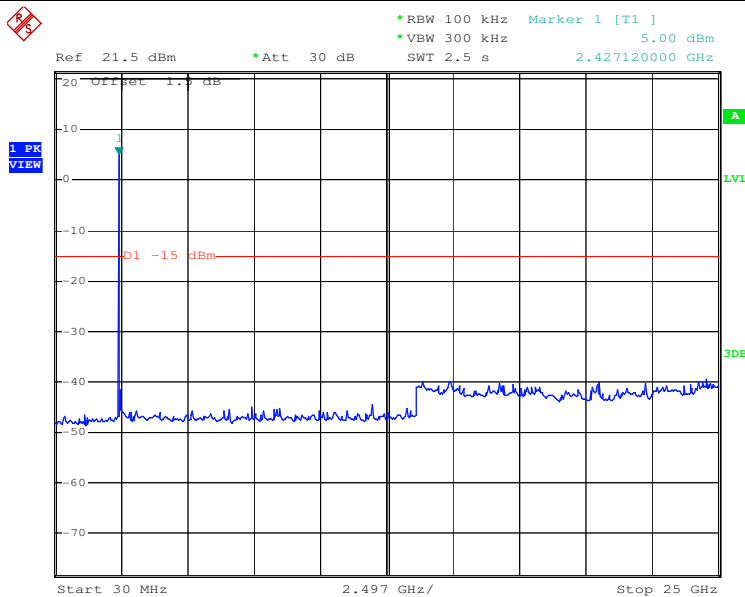


Test plot as follows:

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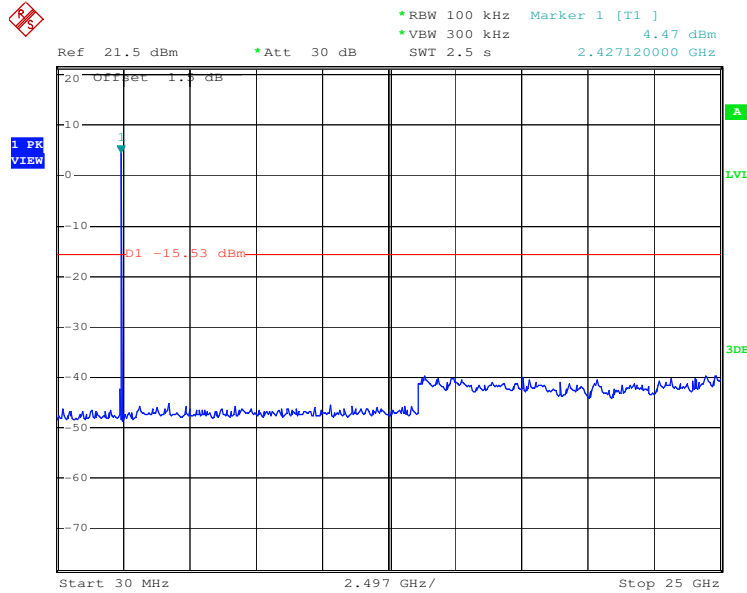
Test mode:	802.11b	Test channel:	Middle
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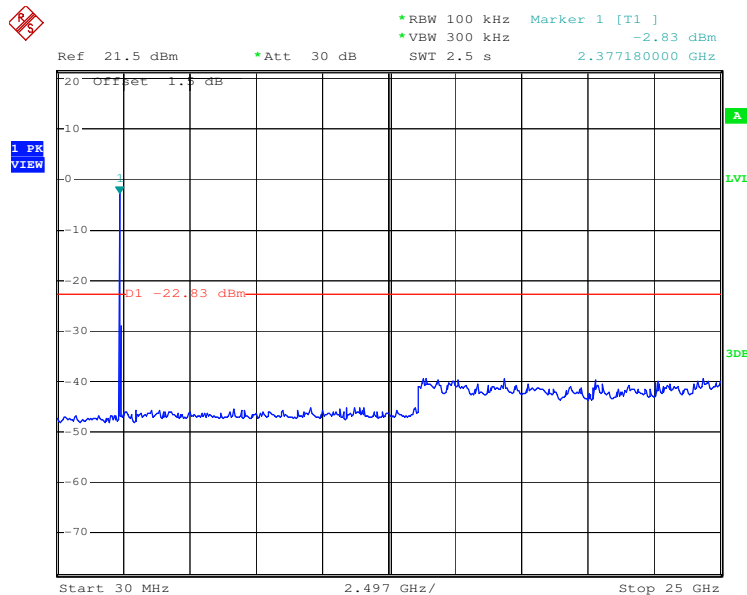
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Test mode:	802.11b	Test channel:	Highest
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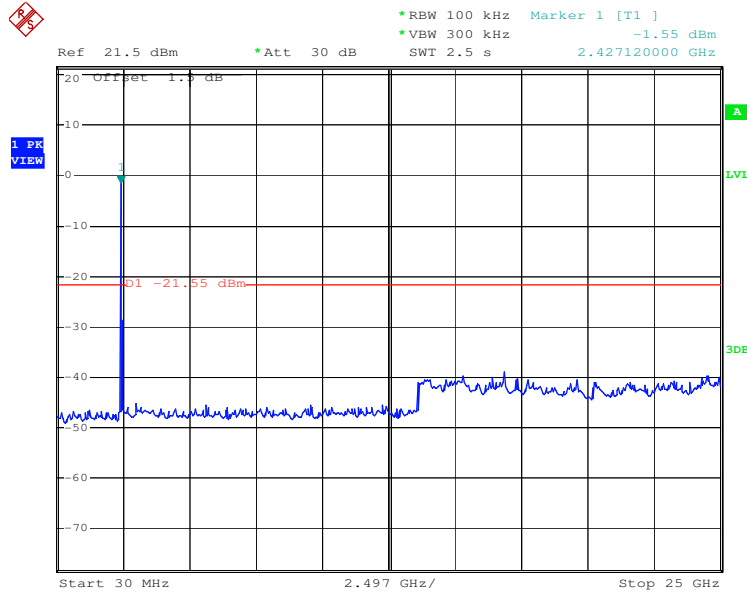
Test mode:	802.11g	Test channel:	Lowest
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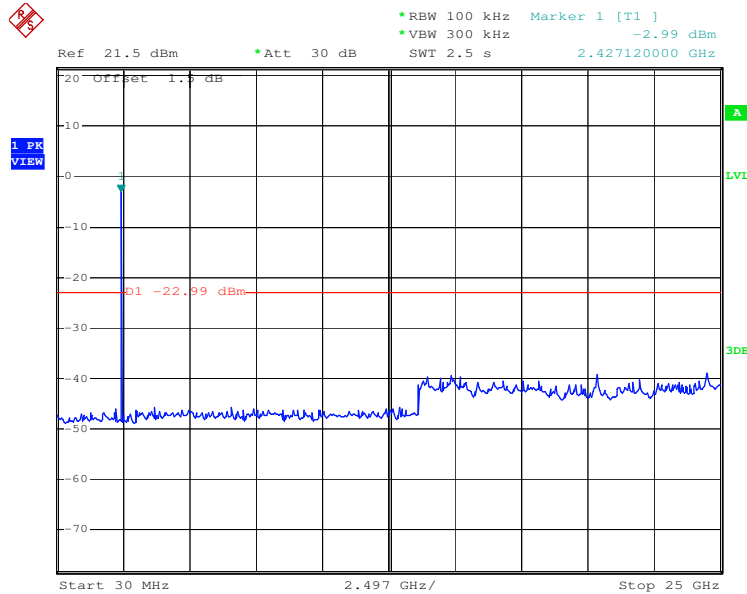
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Test mode:	802.11g	Test channel:	Middle
------------	---------	---------------	--------



Test mode:	802.11g	Test channel:	Highest
------------	---------	---------------	---------



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5.8 Radiated Spurious Emissions

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10: 2009				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	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:	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 Setup:					

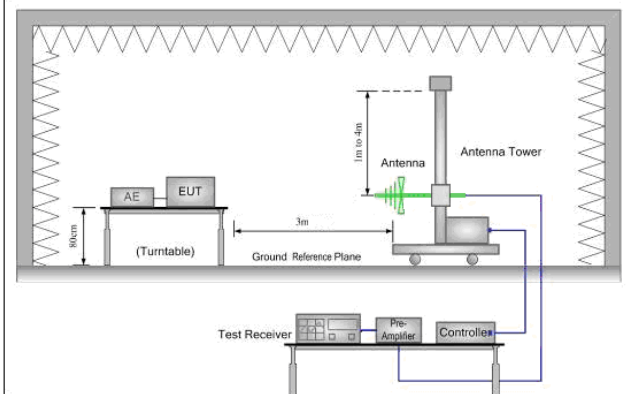


Figure 1. 30MHz to 1GHz

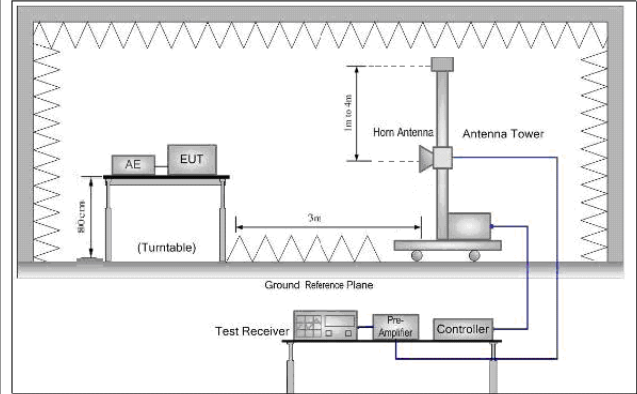


Figure 2. Above 1 GHz

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<p>Test Procedure:</p>	<ol style="list-style-type: none"> 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. 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. 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. 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. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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. g. Test the EUT in the lowest channel ,the middle channel ,the Highest channel h. The radiation measurements are performed in X, Y, Z axis positioning under Transmitting mode. And found the X axis positioning which it is worse case. Only the test worst case mode is recorded in the report. i. Repeat above procedures until all frequencies measured was complete.
<p>Exploratory Test Mode:</p>	<p>Transmitting mode, PC Charge + Transmitting mode, AC Charge + Transmitting mode, Vehicle Charge + Transmitting mode.</p>
<p>Test Status:</p>	<p>Pretest the EUT at different test mode and found the AC Charge + transmitting mode which is worst case, the test worst case mode is recorded in the report.</p>
<p>Final Test Mode:</p>	<p>Through Pre-scan, find the 11Mbps of rate is the worst case of 802.11b; 54Mbps of rate is the worst case of 802.11g.</p>
<p>Instruments Used:</p>	<p>Refer to section 4.10 for details</p>
<p>Test Results:</p>	<p>Pass</p>

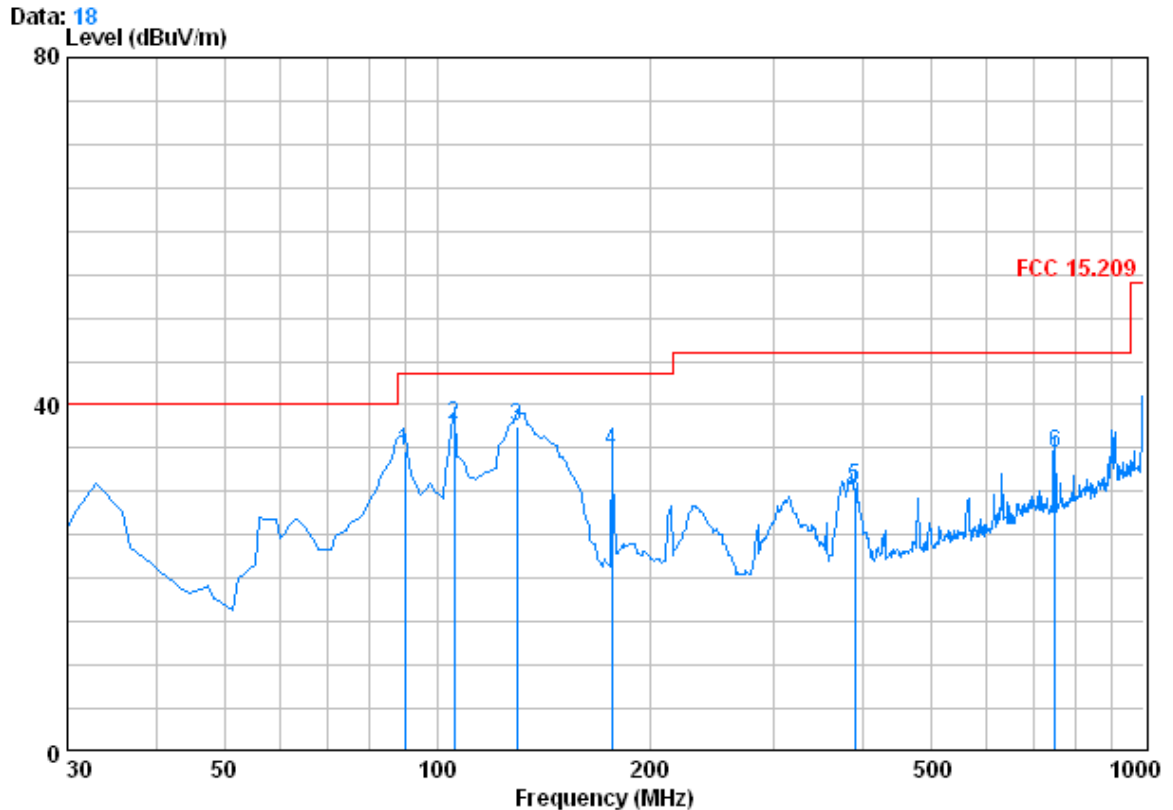
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5.8.1 Radiated emission below 1GHz

30MHz~1GHz (QP)		
Test mode:	AC Charge + transmitting mode	

Vertical:



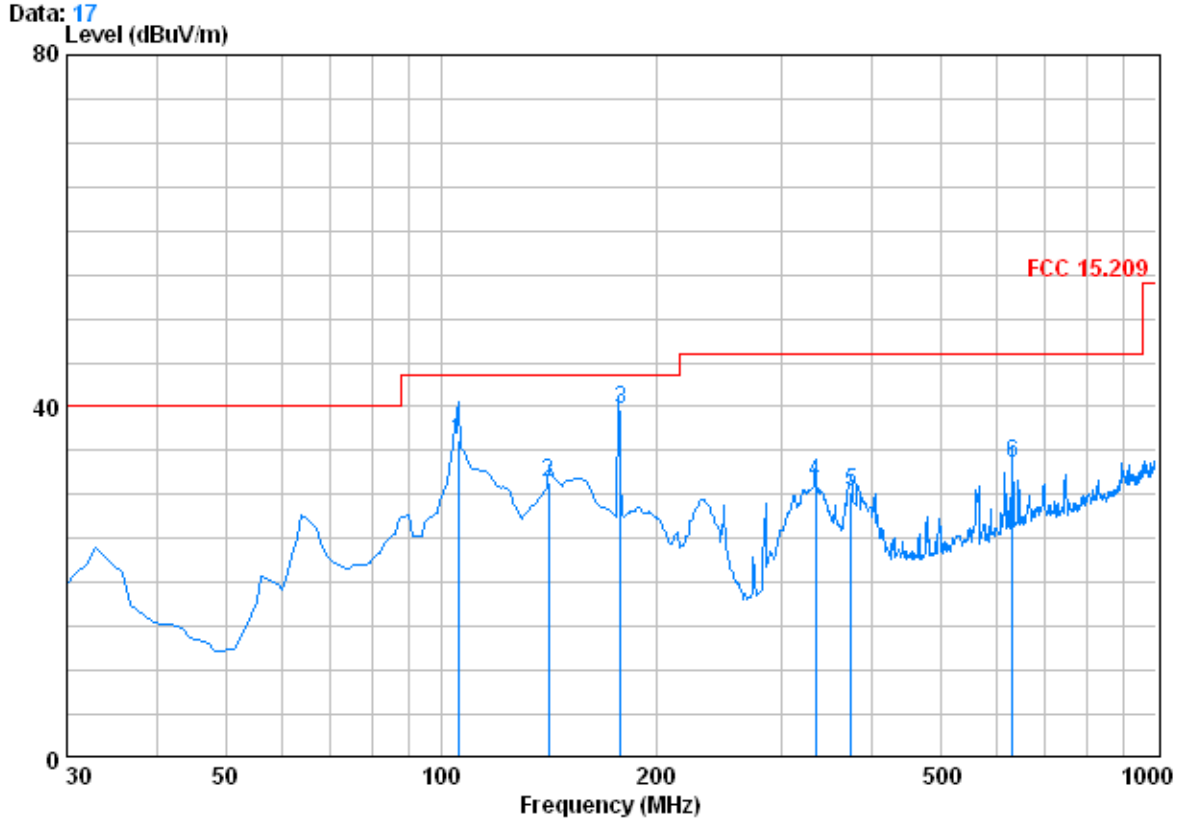
Condition : FCC 15.209 3m 0042673 VERTICAL
 Job No. : 1436RF
 test mode : AC charge+TX

	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	90.140	1.10	8.71	27.21	52.04	34.64	43.50	-8.86
2 @	105.660	1.22	8.81	27.16	54.90	37.77	43.50	-5.73
3	129.910	1.28	7.70	27.01	55.47	37.44	43.50	-6.06
4	176.470	1.36	9.77	26.79	50.38	34.72	43.50	-8.78
5	389.870	2.17	16.18	27.07	39.30	30.59	46.00	-15.41
6	749.740	3.06	21.70	27.35	37.11	34.51	46.00	-11.49

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Horizontal:



Condition : FCC 15.209 3m 0042673 HORIZONTAL
 Job No. : 1436RF
 test mode : AC charge+TX

	Freq	CableAntenna Loss	Antenna Factor	Preamp Factor	Read Level	Limit Level	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	105.660	1.22	8.81	27.16	53.40	36.27	43.50 -7.23
2	141.550	1.30	8.24	26.95	48.85	31.45	43.50 -12.05
3 @	178.572	1.37	9.85	26.78	55.20	39.64	43.50 -3.86
4	334.580	2.01	15.04	26.66	41.01	31.40	46.00 -14.60
5	374.350	2.13	16.00	26.97	39.05	30.22	46.00 -15.78
6	629.460	2.76	20.52	27.50	37.81	33.59	46.00 -12.41

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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		
1818.842	4.18	30.44	39.49	51.87	47.00	74.00	-27.00	Vertical		
1948.245	4.29	31.43	39.55	55.67	51.84	74.00	-22.16	Vertical		
4490.048	7.05	35.15	41.40	48.36	49.16	74.00	-24.84	Vertical		
7413.726	8.99	35.97	39.69	48.45	53.72	74.00	-20.28	Vertical		
9834.406	9.77	37.54	37.60	45.37	55.08	74.00	-18.92	Vertical		
11963.890	11.26	38.87	38.26	47.93	59.80	74.00	-14.20	Vertical		
1818.842	4.18	30.44	39.49	52.70	47.83	74.00	-26.17	Horizontal		
1948.245	4.29	31.43	39.55	63.13	59.30	74.00	-14.70	Horizontal		
4501.492	7.07	35.20	41.40	49.27	50.14	74.00	-23.86	Horizontal		
6628.177	8.19	36.18	40.38	49.26	53.25	74.00	-20.75	Horizontal		
9636.161	9.68	37.34	37.76	46.38	55.64	74.00	-18.36	Horizontal		
11842.690	11.17	38.74	38.21	47.18	58.88	74.00	-15.12	Horizontal		

Test mode:		802.11b		Test channel:		Lowest		Remark:		Average
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Polarization		
1818.842	4.18	30.44	39.49	37.44	32.57	54.00	-21.43	Vertical		
1948.245	4.29	31.43	39.55	38.30	34.47	54.00	-19.53	Vertical		
4490.048	7.05	35.15	41.40	35.03	35.83	54.00	-18.17	Vertical		
7413.726	8.99	35.97	39.69	35.52	40.79	54.00	-13.21	Vertical		
9834.406	9.77	37.54	37.60	32.56	42.27	54.00	-11.73	Vertical		
11963.890	11.26	38.87	38.26	34.00	45.87	54.00	-8.13	Vertical		
1818.842	4.18	30.44	39.49	35.59	30.72	54.00	-23.28	Horizontal		
1948.245	4.29	31.43	39.55	36.03	32.20	54.00	-21.80	Horizontal		
4501.492	7.07	35.20	41.40	34.71	35.58	54.00	-18.42	Horizontal		
6628.177	8.19	36.18	40.38	35.00	38.99	54.00	-15.01	Horizontal		
9636.161	9.68	37.34	37.76	32.60	41.86	54.00	-12.14	Horizontal		
11842.690	11.17	38.74	38.21	32.98	44.68	54.00	-9.32	Horizontal		

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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		
1953.211	4.31	31.43	39.55	48.38	44.57	74.00	-29.43	Vertical		
4536.000	7.12	35.14	41.43	48.36	49.19	74.00	-24.81	Vertical		
6109.670	8.01	35.84	40.83	49.77	52.79	74.00	-21.21	Vertical		
7489.599	9.08	36.00	39.62	48.39	53.85	74.00	-20.15	Vertical		
9562.854	9.67	37.27	37.83	45.61	54.72	74.00	-19.28	Vertical		
12055.600	11.31	38.95	38.30	47.30	59.26	74.00	-14.74	Vertical		
1953.211	4.31	31.43	39.55	48.72	44.91	74.00	-29.09	Horizontal		
4501.492	7.07	35.20	41.40	48.41	49.28	74.00	-24.72	Horizontal		
6047.776	7.99	35.76	40.87	49.72	52.60	74.00	-21.40	Horizontal		
7624.250	9.22	36.00	39.51	48.20	53.91	74.00	-20.09	Horizontal		
9346.262	9.65	37.01	38.03	47.45	56.08	74.00	-17.92	Horizontal		
11963.890	11.26	38.87	38.26	47.37	59.24	74.00	-14.76	Horizontal		

Test mode:		802.11b		Test channel:		Middle		Remark:		Average
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Polarization		
1953.211	4.31	31.43	39.55	33.61	29.80	54.00	-24.20	Vertical		
4536.000	7.12	35.14	41.43	34.73	35.56	54.00	-18.44	Vertical		
6109.670	8.01	35.84	40.83	34.69	37.71	54.00	-16.29	Vertical		
7489.599	9.08	36.00	39.62	35.15	40.61	54.00	-13.39	Vertical		
9562.854	9.67	37.27	37.83	33.48	42.59	54.00	-11.41	Vertical		
12055.600	11.31	38.95	38.30	33.75	45.71	54.00	-8.29	Vertical		
1953.211	4.31	31.43	39.55	33.21	29.40	54.00	-24.60	Horizontal		
4501.492	7.07	35.20	41.40	34.36	35.23	54.00	-18.77	Horizontal		
6047.776	7.99	35.76	40.87	34.68	37.56	54.00	-16.44	Horizontal		
7624.250	9.22	36.00	39.51	35.17	40.88	54.00	-13.12	Horizontal		
9346.262	9.65	37.01	38.03	33.38	42.01	54.00	-11.99	Horizontal		
11963.890	11.26	38.87	38.26	33.81	45.68	54.00	-8.32	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		
4547.561	7.14	35.12	41.44	48.14	48.96	74	-25.04	Vertical		
5574.673	7.79	35.01	41.29	49.13	50.64	74	-23.36	Vertical		
6283.164	8.07	36.04	40.68	49.5	52.93	74	-21.07	Vertical		
7702.278	9.24	36	39.44	47.76	53.56	74	-20.44	Vertical		
9346.262	9.65	37.01	38.03	46.64	55.27	74	-18.73	Vertical		
11963.890	11.26	38.87	38.26	46.6	58.47	74	-15.53	Vertical		
4629.319	7.22	35.01	41.5	48.53	49.26	74	-24.74	Horizontal		
5674.896	7.83	35.18	41.2	49.35	51.16	74	-22.84	Horizontal		
6696.010	8.21	36.11	40.31	49.03	53.04	74	-20.96	Horizontal		
7319.964	8.87	35.93	39.77	49.47	54.5	74	-19.5	Horizontal		
9562.854	9.67	37.27	37.83	46.86	55.97	74	-18.03	Horizontal		
11963.890	11.26	38.87	38.26	46.89	58.76	74	-15.24	Horizontal		

Test mode:		802.11b		Test channel:		Highest		Remark:		Average
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization		
4547.561	7.14	35.12	41.44	34.78	35.60	54.00	-18.40	Vertical		
5574.673	7.79	35.01	41.29	35.21	36.72	54.00	-17.28	Vertical		
6283.164	8.07	36.04	40.68	35.57	39.00	54.00	-15.00	Vertical		
7702.278	9.24	36.00	39.44	33.96	39.76	54.00	-14.24	Vertical		
9346.262	9.65	37.01	38.03	33.38	42.01	54.00	-11.99	Vertical		
11963.890	11.26	38.87	38.26	33.76	45.63	54.00	-8.37	Vertical		
4629.319	7.22	35.01	41.50	36.96	37.69	54.00	-16.31	Horizontal		
5674.896	7.83	35.18	41.20	35.37	37.18	54.00	-16.82	Horizontal		
6696.010	8.21	36.11	40.31	34.79	38.80	54.00	-15.20	Horizontal		
7319.964	8.87	35.93	39.77	34.25	39.28	54.00	-14.72	Horizontal		
9562.854	9.67	37.27	37.83	33.05	42.16	54.00	-11.84	Horizontal		
11963.890	11.26	38.87	38.26	33.71	45.58	54.00	-8.42	Horizontal		

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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		
4547.561	7.14	35.12	41.44	48.20	49.02	74.00	-24.98	Vertical		
6047.776	7.99	35.76	40.87	49.02	51.90	74.00	-22.10	Vertical		
7489.599	9.08	36.00	39.62	48.24	53.70	74.00	-20.30	Vertical		
8355.943	9.43	36.14	38.88	47.17	53.86	74.00	-20.14	Vertical		
9346.262	9.65	37.01	38.03	46.45	55.08	74.00	-18.92	Vertical		
11963.890	11.26	38.87	38.26	46.88	58.75	74.00	-15.25	Vertical		
4501.492	7.07	35.20	41.40	48.95	49.82	74.00	-24.18	Horizontal		
6283.164	8.07	36.04	40.68	48.54	51.97	74.00	-22.03	Horizontal		
7338.621	8.90	35.94	39.75	48.26	53.35	74.00	-20.65	Horizontal		
8615.126	9.51	36.29	38.65	47.42	54.57	74.00	-19.43	Horizontal		
9370.083	9.65	37.03	37.99	46.57	55.26	74.00	-18.74	Horizontal		
11963.890	11.26	38.87	38.26	47.43	59.30	74.00	-14.70	Horizontal		

Test mode:		802.11g		Test channel:		Lowest		Remark:		Average
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization		
4547.561	7.14	35.12	41.44	34.73	35.55	54.00	-18.45	Vertical		
6047.776	7.99	35.76	40.87	34.92	37.80	54.00	-16.20	Vertical		
7489.599	9.08	36.00	39.62	34.54	40.00	54.00	-14.00	Vertical		
8355.943	9.43	36.14	38.88	34.26	40.95	54.00	-13.05	Vertical		
9346.262	9.65	37.01	38.03	33.49	42.12	54.00	-11.88	Vertical		
11963.890	11.26	38.87	38.26	33.77	45.64	54.00	-8.36	Vertical		
4501.492	7.07	35.20	41.40	34.65	35.52	54.00	-18.48	Horizontal		
6283.164	8.07	36.04	40.68	35.84	39.27	54.00	-14.73	Horizontal		
7338.621	8.90	35.94	39.75	34.86	39.95	54.00	-14.05	Horizontal		
8615.126	9.51	36.29	38.65	34.32	41.47	54.00	-12.53	Horizontal		
9370.083	9.65	37.03	37.99	33.08	41.77	54.00	-12.23	Horizontal		
11963.890	11.26	38.87	38.26	33.75	45.62	54.00	-8.38	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		
4536.000	7.12	35.14	41.43	48.30	49.13	74.00	-24.87	Vertical		
6235.364	8.05	35.98	40.71	48.61	51.93	74.00	-22.07	Vertical		
7800.936	9.27	36.00	39.36	49.12	55.03	74.00	-18.97	Vertical		
9465.979	9.66	37.16	37.91	45.96	54.87	74.00	-19.13	Vertical		
10480.590	10.19	38.28	37.65	46.36	57.18	74.00	-16.82	Vertical		
12086.330	11.32	38.99	38.31	47.84	59.84	74.00	-14.16	Vertical		
4594.102	7.18	35.06	41.47	48.75	49.52	74.00	-24.48	Horizontal		
5865.832	7.92	35.48	41.04	50.14	52.50	74.00	-21.50	Horizontal		
7624.250	9.22	36.00	39.51	48.15	53.86	74.00	-20.14	Horizontal		
9157.857	9.64	36.79	38.19	46.61	54.85	74.00	-19.15	Horizontal		
10453.950	10.17	38.24	37.64	46.00	56.77	74.00	-17.23	Horizontal		
12334.980	11.42	39.24	38.42	46.95	59.19	74.00	-14.81	Horizontal		

Test mode:		802.11g		Test channel:		Middle		Remark:		Average
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Polarization		
4536.000	7.12	35.14	41.43	37.48	38.31	54.00	-15.69	Vertical		
6235.364	8.05	35.98	40.71	33.09	36.41	54.00	-17.59	Vertical		
7800.936	9.27	36.00	39.36	34.39	40.30	54.00	-13.70	Vertical		
9465.979	9.66	37.16	37.91	33.32	42.23	54.00	-11.77	Vertical		
10480.590	10.19	38.28	37.65	33.12	43.94	54.00	-10.06	Vertical		
12086.330	11.32	38.99	38.31	33.48	45.48	54.00	-8.52	Vertical		
4594.102	7.18	35.06	41.47	34.98	35.75	54.00	-18.25	Horizontal		
5865.832	7.92	35.48	41.04	36.69	39.05	54.00	-14.95	Horizontal		
7624.250	9.22	36.00	39.51	33.52	39.23	54.00	-14.77	Horizontal		
9157.857	9.64	36.79	38.19	33.78	42.02	54.00	-11.98	Horizontal		
10453.950	10.17	38.24	37.64	32.38	43.15	54.00	-10.85	Horizontal		
12334.980	11.42	39.24	38.42	33.62	45.86	54.00	-8.14	Horizontal		

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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		
4501.492	7.07	35.20	41.40	48.40	49.27	74.00	-24.73	Vertical		
6299.178	8.08	36.06	40.66	48.84	52.32	74.00	-21.68	Vertical		
7566.249	9.17	36.00	39.56	47.58	53.19	74.00	-20.81	Vertical		
8637.084	9.52	36.31	38.64	46.48	53.67	74.00	-20.33	Vertical		
9834.406	9.77	37.54	37.60	45.92	55.63	74.00	-18.37	Vertical		
12024.960	11.30	38.93	38.28	46.27	58.22	74.00	-15.78	Vertical		
4455.890	7.03	35.06	41.37	48.67	49.39	74.00	-24.61	Horizontal		
6283.164	8.07	36.04	40.68	48.83	52.26	74.00	-21.74	Horizontal		
7566.249	9.17	36.00	39.56	48.47	54.08	74.00	-19.92	Horizontal		
8973.250	9.62	36.57	38.34	46.30	54.15	74.00	-19.85	Horizontal		
10062.310	9.89	37.78	37.47	46.07	56.27	74.00	-17.73	Horizontal		
12429.540	11.46	39.33	38.46	46.78	59.11	74.00	-14.89	Horizontal		

Test mode:		802.11g		Test channel:		Highest		Remark:		Average
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization		
4501.492	7.07	35.20	41.40	36.76	37.63	54.00	-16.37	Vertical		
6299.178	8.08	36.06	40.66	34.24	37.72	54.00	-16.28	Vertical		
7566.249	9.17	36.00	39.56	34.36	39.97	54.00	-14.03	Vertical		
8637.084	9.52	36.31	38.64	33.83	41.02	54.00	-12.98	Vertical		
9834.406	9.77	37.54	37.60	34.69	44.40	54.00	-9.60	Vertical		
12024.960	11.30	38.93	38.28	33.70	45.65	54.00	-8.35	Vertical		
4455.890	7.03	35.06	41.37	36.08	36.80	54.00	-17.20	Horizontal		
6283.164	8.07	36.04	40.68	33.33	36.76	54.00	-17.24	Horizontal		
7566.249	9.17	36.00	39.56	34.77	40.38	54.00	-13.62	Horizontal		
8973.250	9.62	36.57	38.34	33.58	41.43	54.00	-12.57	Horizontal		
10062.310	9.89	37.78	37.47	33.51	43.71	54.00	-10.29	Horizontal		
12429.540	11.46	39.33	38.46	33.62	45.95	54.00	-8.05	Horizontal		

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Pre-amplifier. The basic equation with a sample calculation is as follows:

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

2) 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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5.9 Band Edge (Radiated Emission)

Test Requirement:	FCC Part15 C Section 15.209 and 15.205		
Test Method:	ANSI C63.10: 2009		
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)		
Limit:	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 Setup:

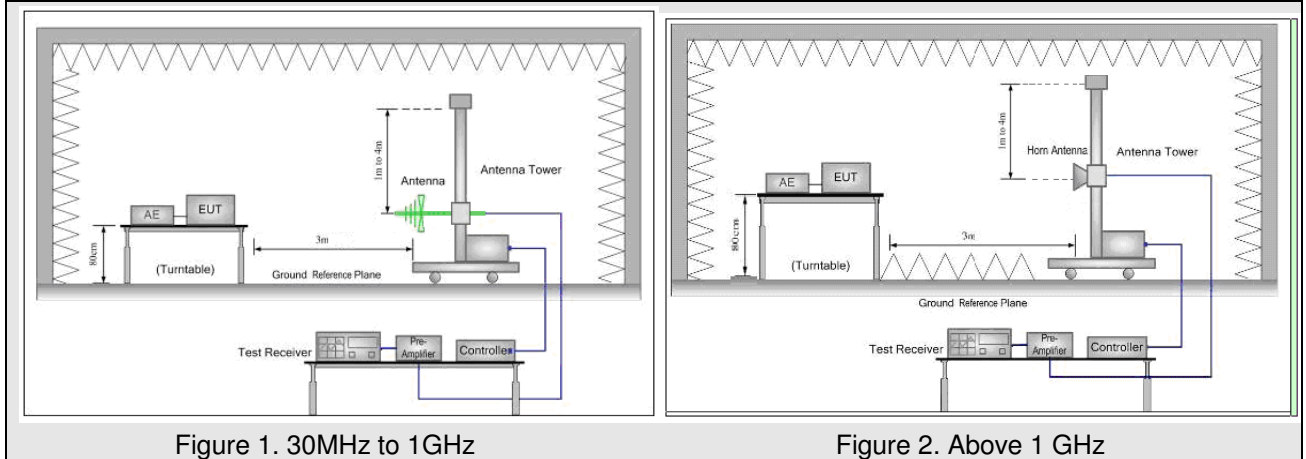


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz

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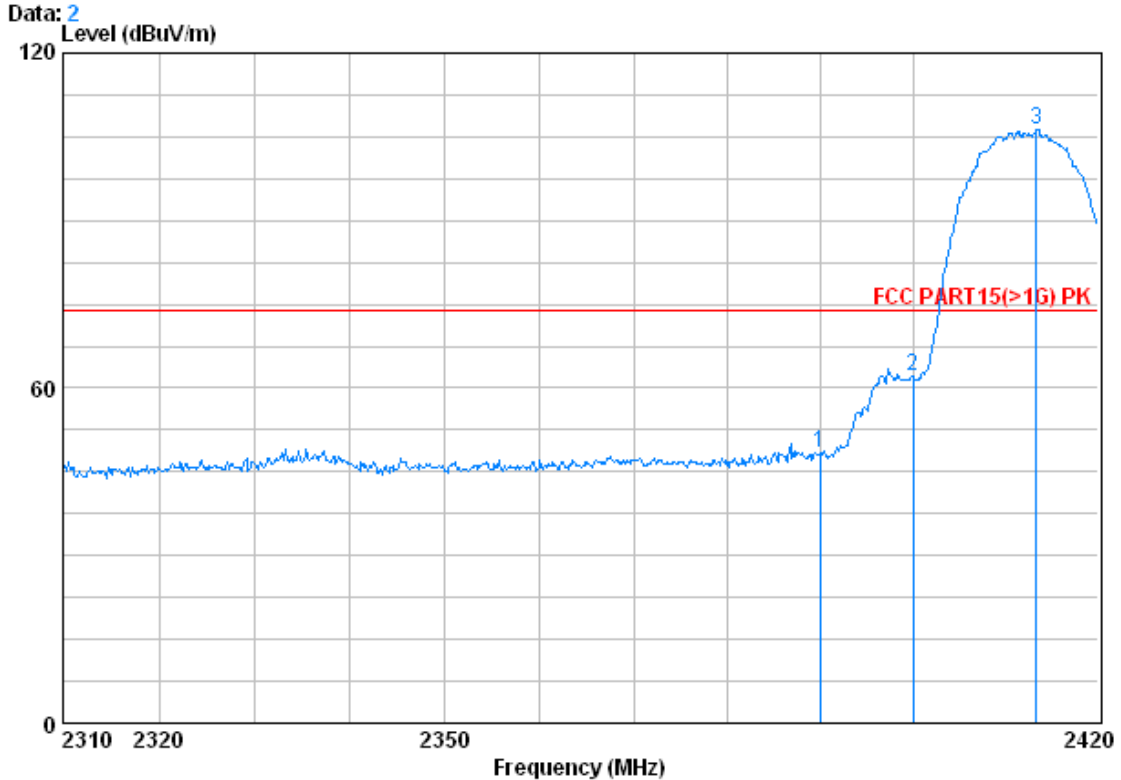
Test Procedure:	<ul style="list-style-type: none">a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.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.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.e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channelg. Test the EUT in the lowest channel , the Highest channelh. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case. Only the test worst case mode is recorded in the report.i. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Through Pre-scan, find the 11Mbps of rate is the worst case of 802.11b; 54Mbps of rate is the worst case of 802.11g.
Instruments Used:	Refer to section 4.10 for details
Test Results:	Pass

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

Vertical:



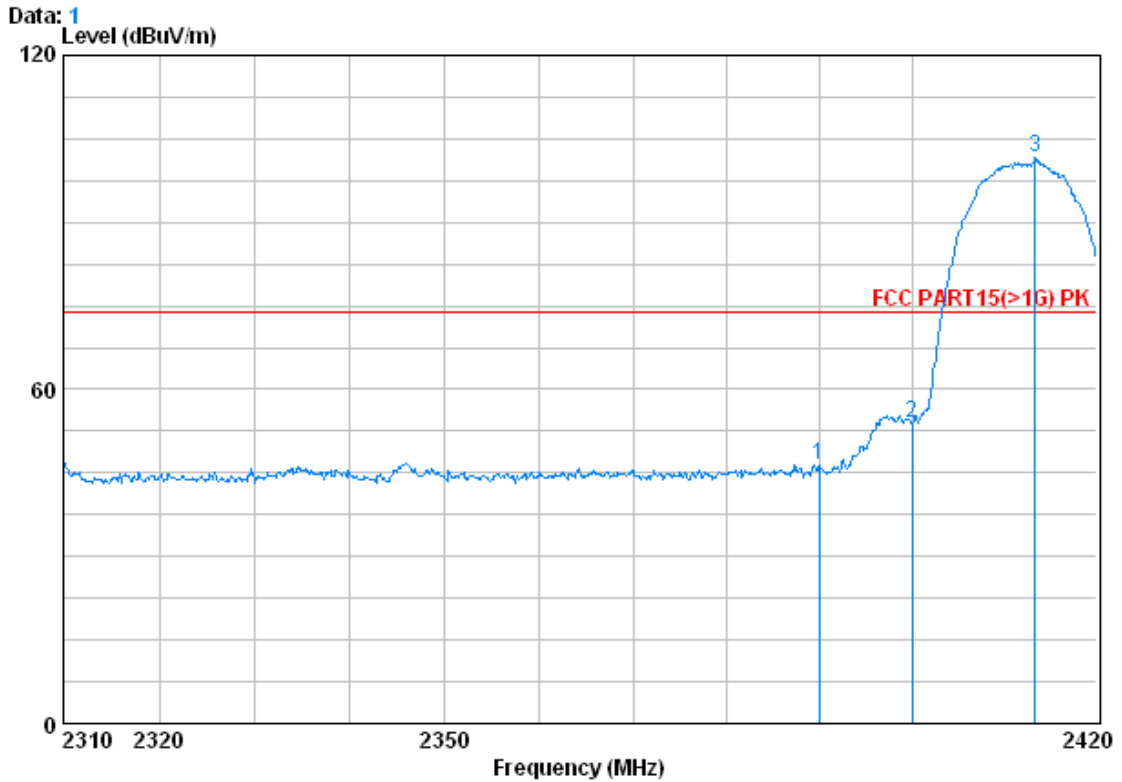
Condition : FCC PART15(>1G) PK 3m VERTICAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11b 2412 Bandedge PK

	Freq	CableAntenna Preamp			Read		Limit	Over	Remark
		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	52.64	48.29	74.00	-25.71	Peak
2	2400.000	2.98	32.51	39.86	66.44	62.07	74.00	-11.93	Peak
3 X	2413.290	2.99	32.54	39.86	110.70	106.38	74.00	32.38	Peak

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Horizontal:



Condition : FCC PART15(>1G) PK 3m HORIZONTAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11b 2412 Bandedge PK

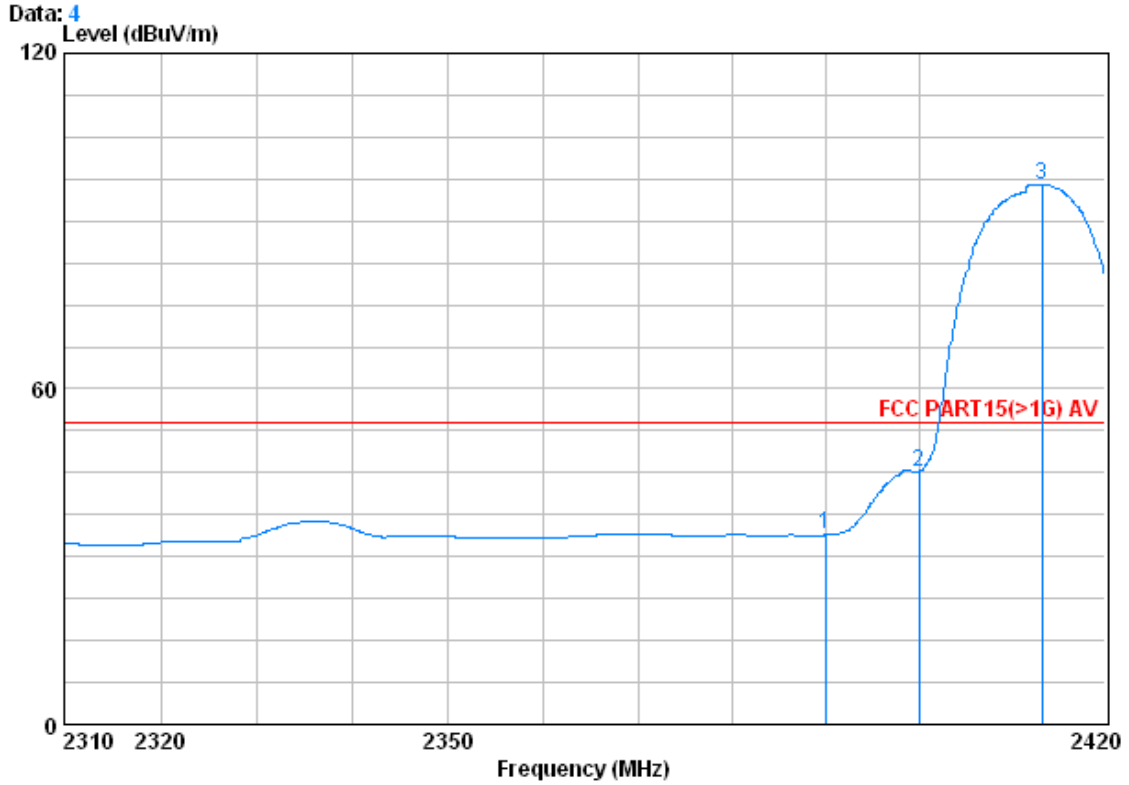
	Freq	Cable	Antenna	Preamp	Read	Limit	Over	Remark
		Loss	Factor	Factor	Level	Line	Limit	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	50.82	46.47	74.00	-27.53 Peak
2	2400.000	2.98	32.51	39.86	58.16	53.79	74.00	-20.21 Peak
3 X	2413.290	2.99	32.54	39.86	105.99	101.67	74.00	27.67 Peak

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



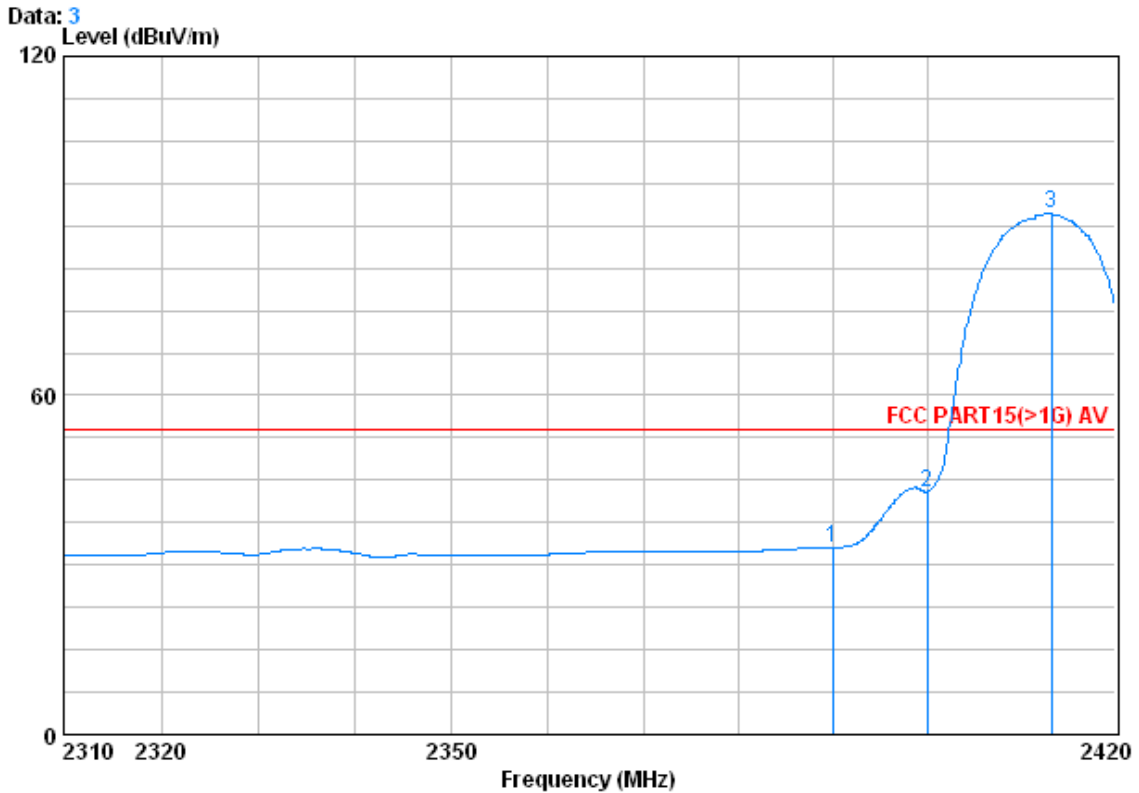
Condition : FCC PART15(>1G) AV 3m VERTICAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11b 2412 Bandedge AV

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit	Over	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	38.22	54.00	-20.13	Average
2	2400.000	2.98	32.51	39.86	49.46	54.00	-8.91	Average
3 @	2413.180	2.99	32.54	39.86	100.86	54.00	42.53	Average

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Horizontal:



Condition : FCC PART15(>1G) AV 3m HORIZONTAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11b 2412 Bandedge AV

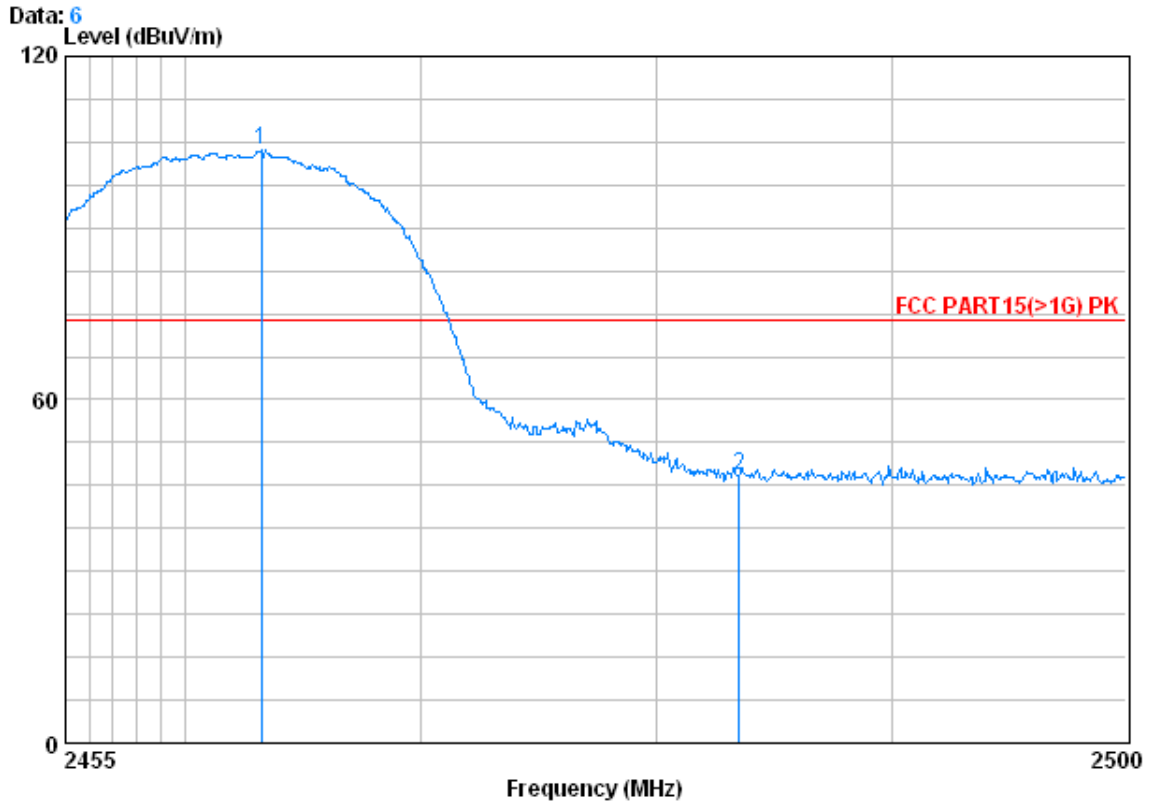
	Freq	Cable Loss	Antenna Loss	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	37.43	33.08	54.00	-20.92	Average
2	2400.000	2.98	32.51	39.86	47.25	42.89	54.00	-11.11	Average
3 @	2413.180	2.99	32.54	39.86	96.40	92.08	54.00	38.08	Average

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



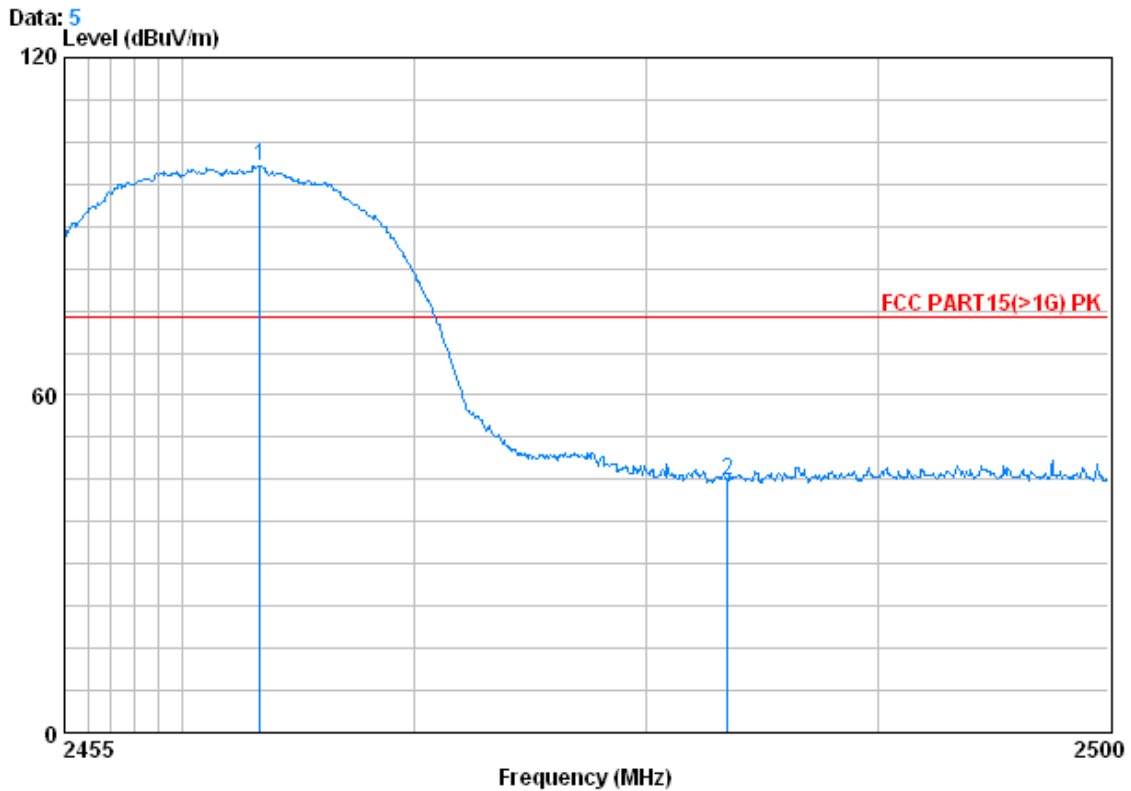
Condition : FCC PART15(>1G) PK 3m VERTICAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11b 2462 Bandedge PK

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 X	2463.235	3.02	32.64	39.91	107.85	74.00	29.60	Peak
2	2483.500	3.03	32.67	39.92	51.13	74.00	-27.09	Peak

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Horizontal:



Condition : FCC PART15(>1G) PK 3m HORIZONTAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11b 2462 Bandedge PK

	Freq	Cable Loss	Antenna Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X	2463.370	3.02	32.64	39.91	105.10	100.85	74.00	26.85	Peak
2	2483.500	3.03	32.67	39.92	49.14	44.92	74.00	-29.08	Peak

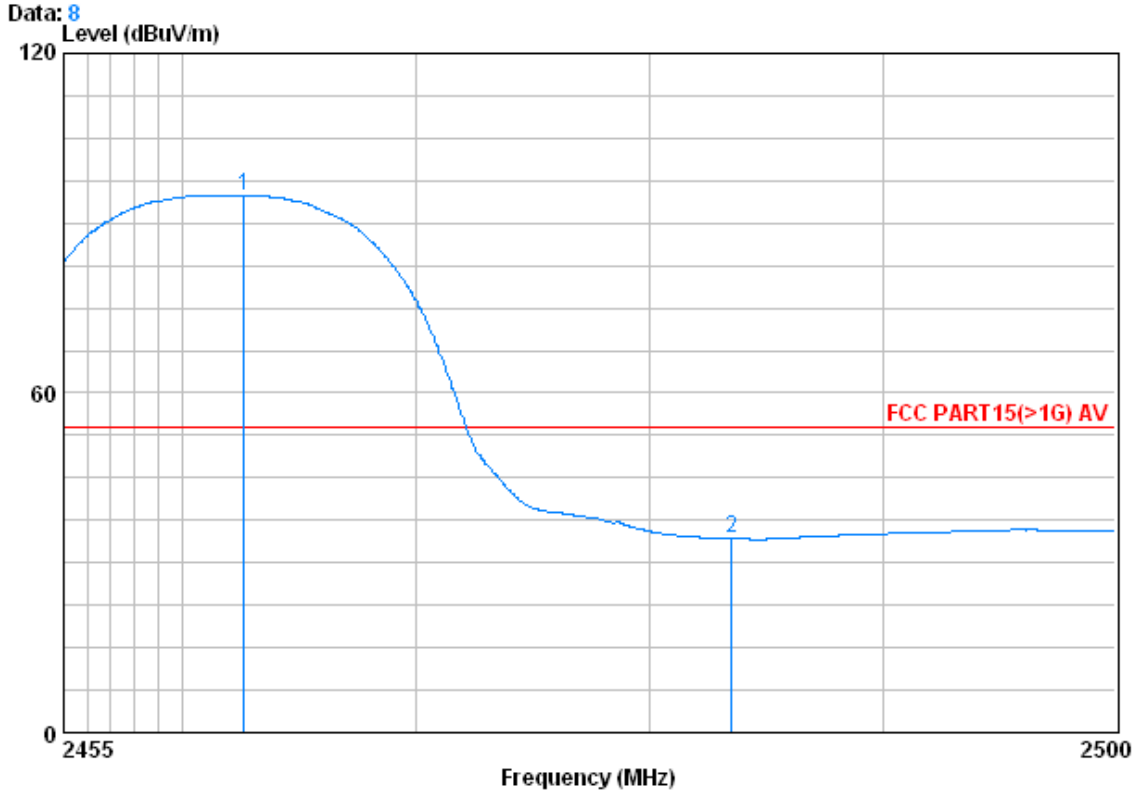


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Test mode:	802.11b	Test channel:	Highest	Remark:	average
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Vertical:



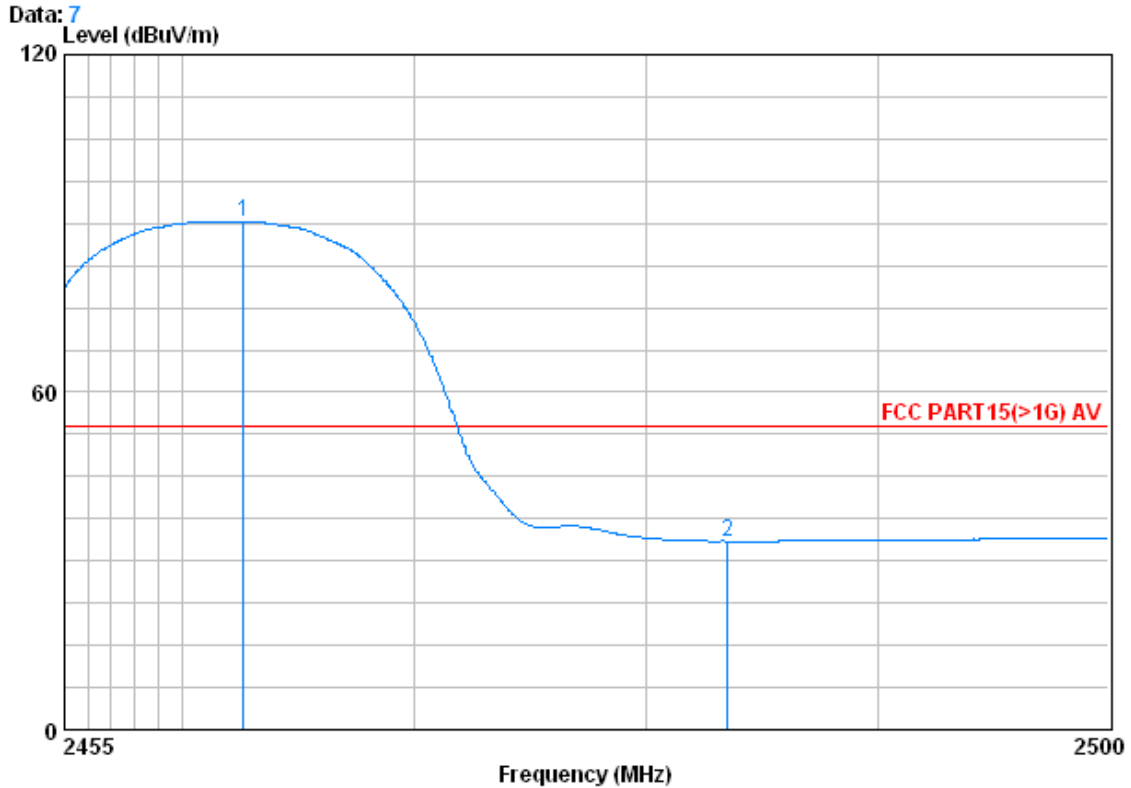
Condition : FCC PART15(>1G) AV 3m HORIZONTAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11b 2462 Bandedge AV

	Freq	Cable	Antenna	Preamp	Read	Limit	Over	Remark
		Loss	Factor	Factor	Level	Line	Limit	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1	2462.650	3.02	32.64	39.91	99.21	94.96	54.00	40.96 Average
2	2483.500	3.03	32.67	39.92	38.44	34.22	54.00	-19.78 Average

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Horizontal:



Condition : FCC PART15(>1G) AV 3m HORIZONTAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11b 2462 Bandedge AV

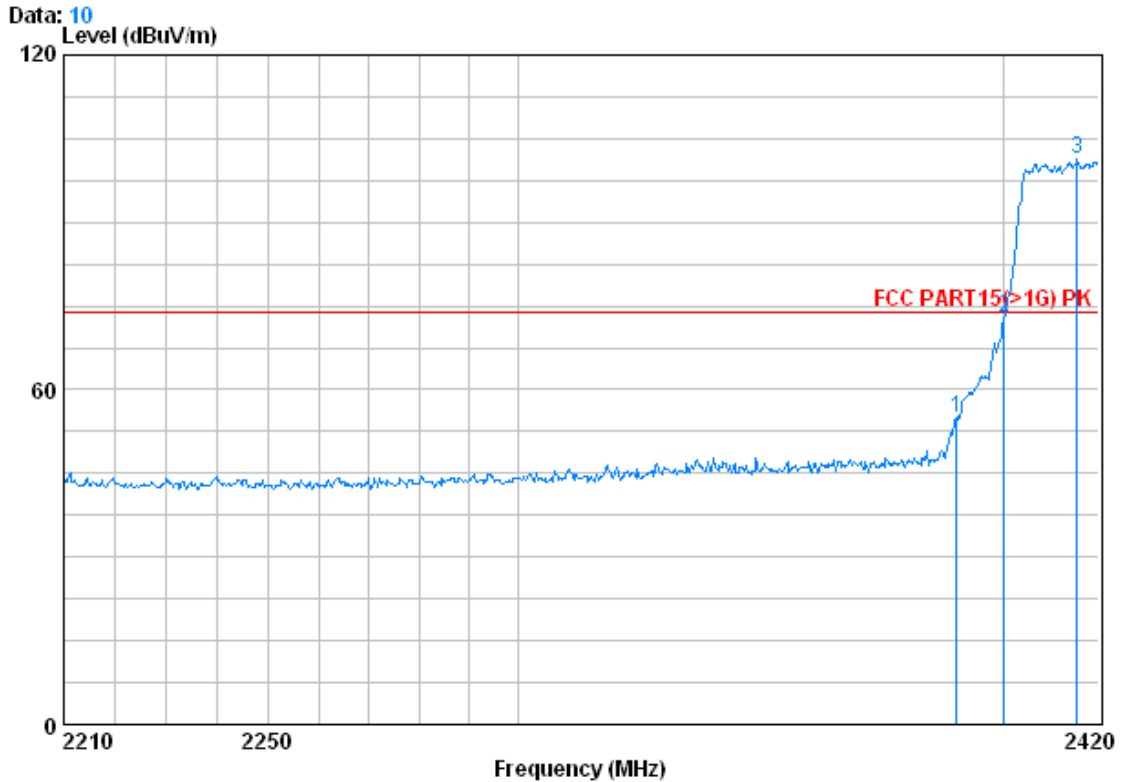
	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 @	2462.650	3.02	32.64	39.91	94.49	54.00	36.24	Average
2	2483.500	3.03	32.67	39.92	37.72	54.00	-20.50	Average

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



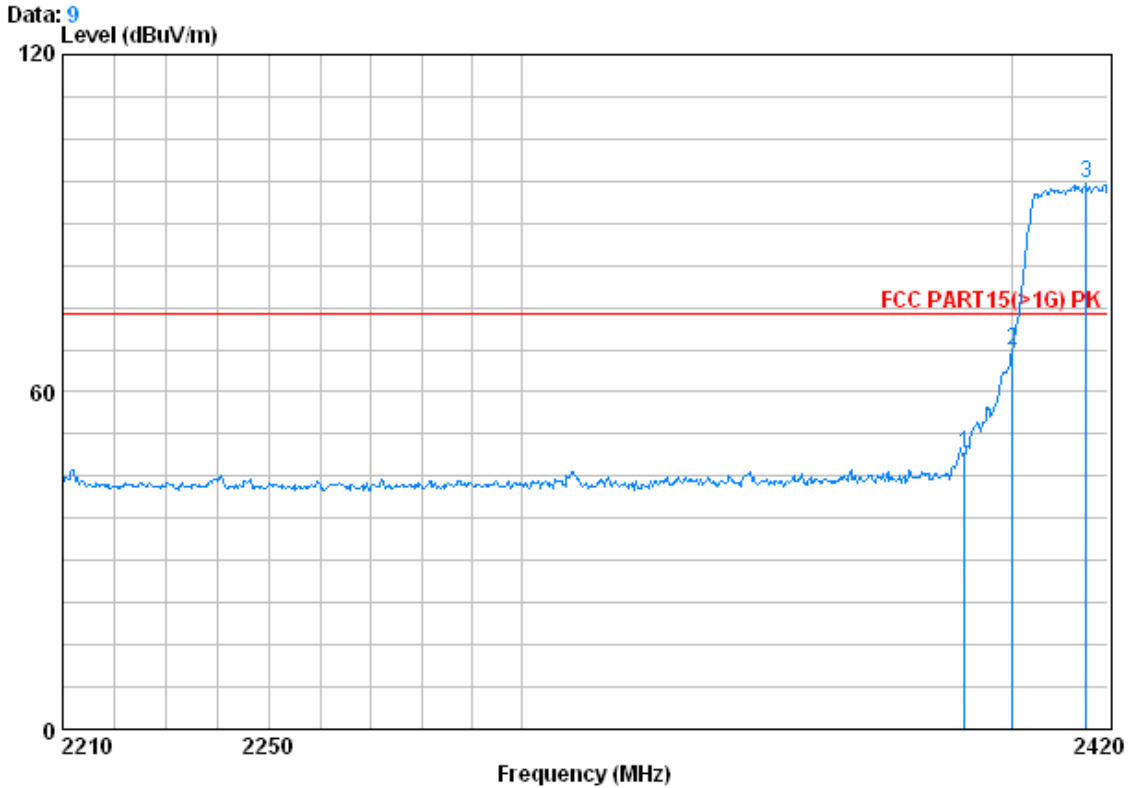
Condition : FCC PART15(>1G) PK 3m VERTICAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11g 2412 Bandedge PK

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	59.33	74.00	-19.03	Peak
2	2400.000	2.98	32.51	39.86	77.14	74.00	-1.23	Peak
3 X	2415.380	2.99	32.54	39.86	105.72	74.00	27.40	Peak

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Horizontal:



Condition : FCC PART15(>1G) PK 3m HORIZONTAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11g 2412 Bandedge PK

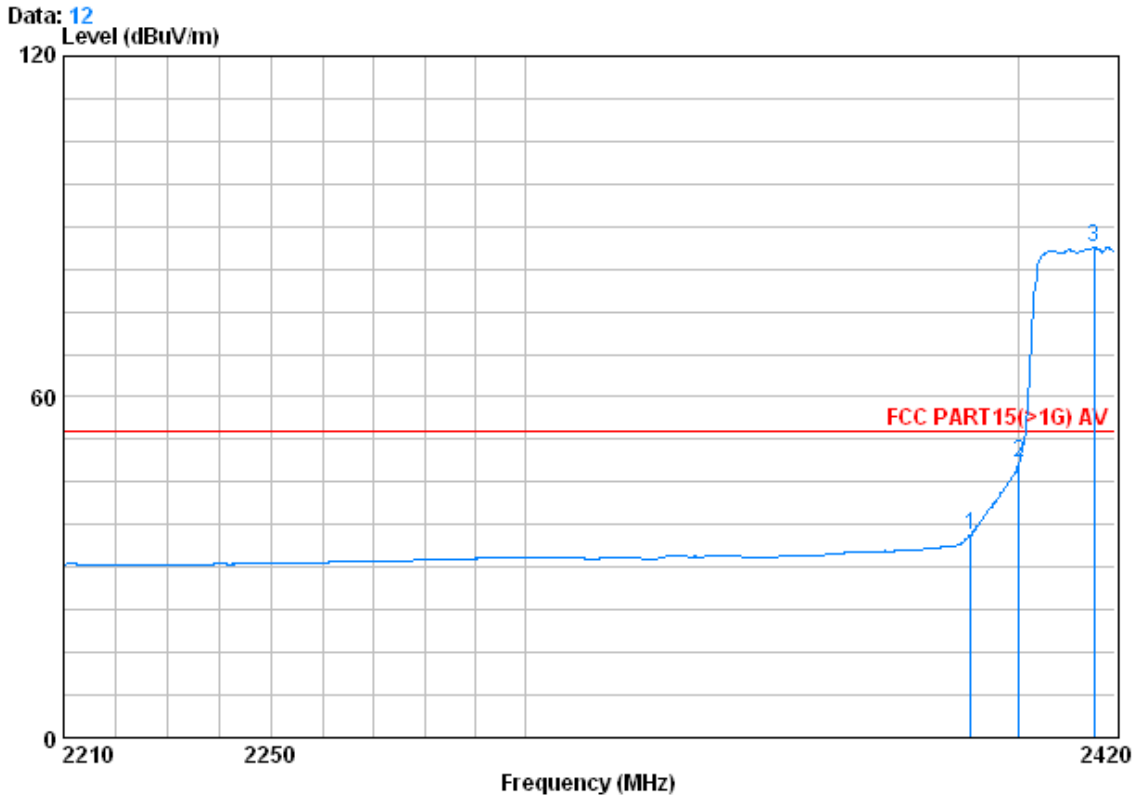
	Freq	Cable&Antenna Loss	Antenna Factor	Preamp Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	53.39	74.00	-24.96	Peak
2	2400.000	2.98	32.51	39.86	71.84	74.00	-6.53	Peak
3 X	2415.380	2.99	32.54	39.86	101.33	74.00	23.01	Peak

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



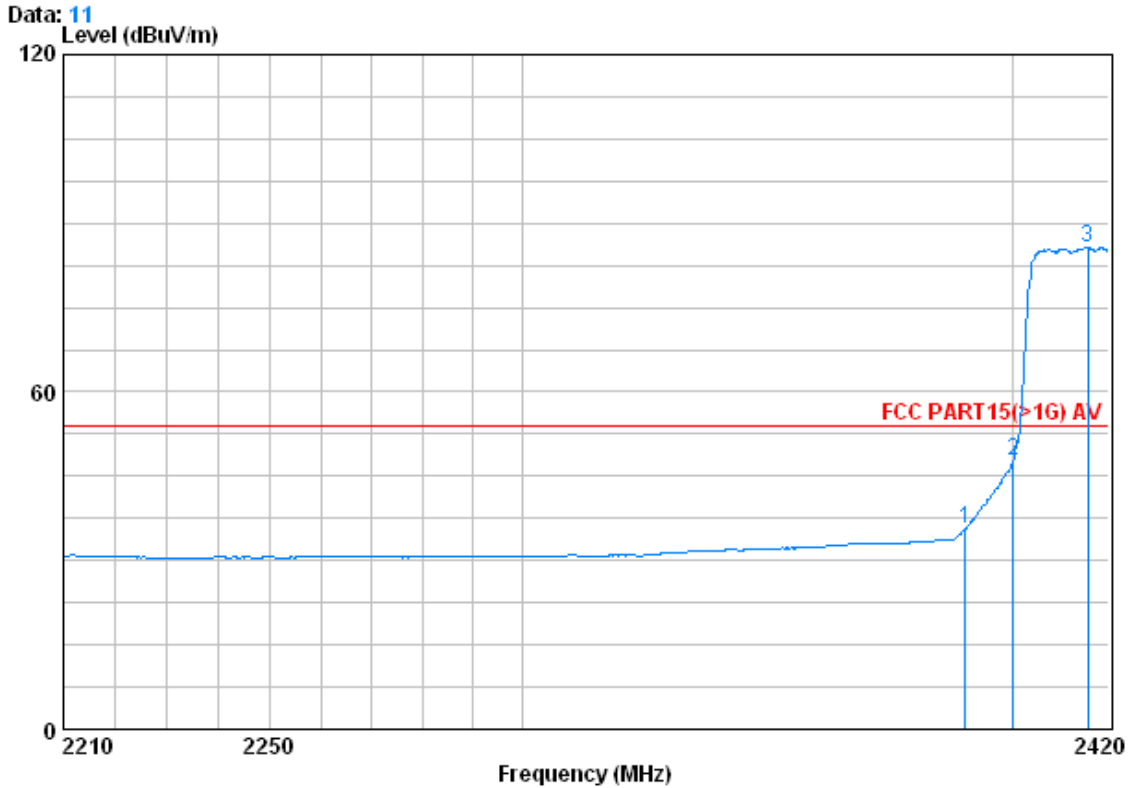
Condition : FCC PART15(>1G) AV 3m VERTICAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11g 2412 Bandedge AV

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	2.98	32.51	39.85	40.12	35.77	54.00	-18.23 Average
2	2400.000	2.98	32.51	39.86	52.64	48.27	54.00	-5.73 Average
3 X	2415.590	2.99	32.54	39.88	90.60	86.25	54.00	32.25 Average

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Horizontal:



Condition : FCC PART15(>1G) AV 3m HORIZONTAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11g 2412 Bandedge AV

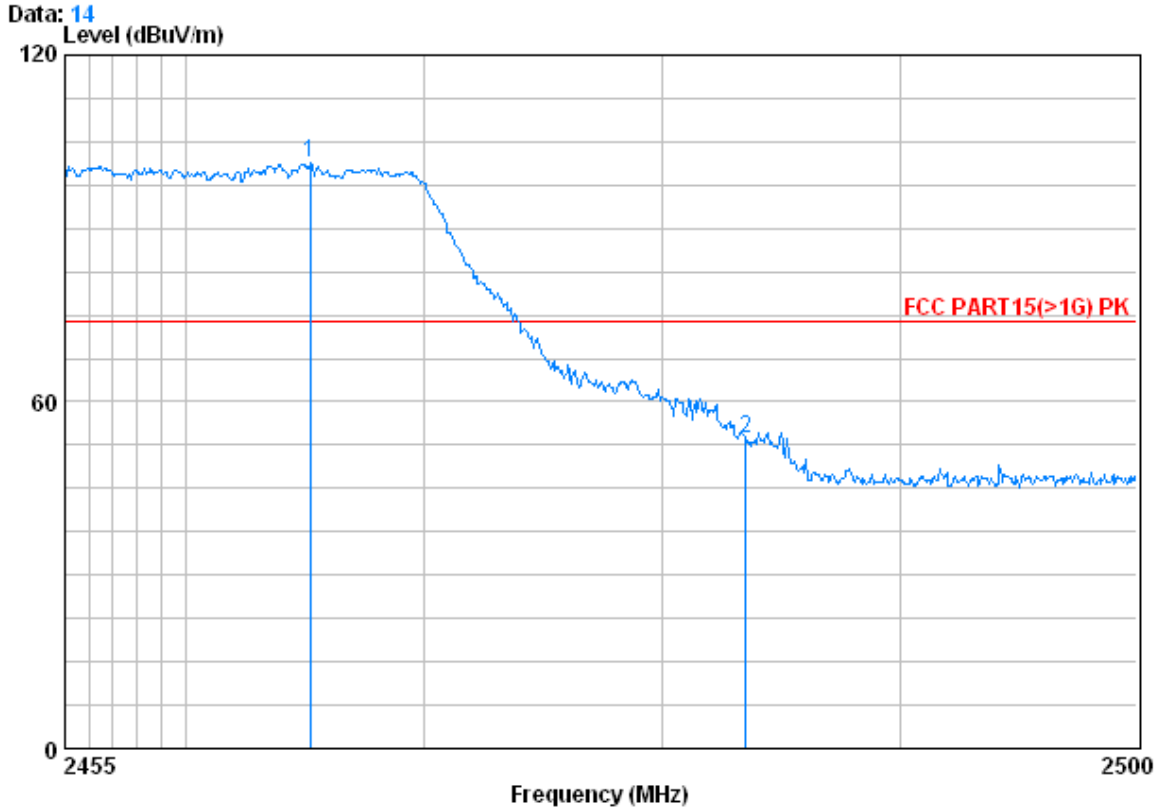
	Freq	Cable	Antenna	Preamp	Read	Limit	Over	Remark
		Loss	Factor	Factor	Level	Line	Limit	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	2.98	32.51	39.85	39.96	35.61	54.00	-18.39 Average
2	2400.000	2.98	32.51	39.86	52.18	47.81	54.00	-6.19 Average
3 X	2415.590	2.99	32.54	39.88	89.95	85.61	54.00	31.61 Average

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

Vertical:



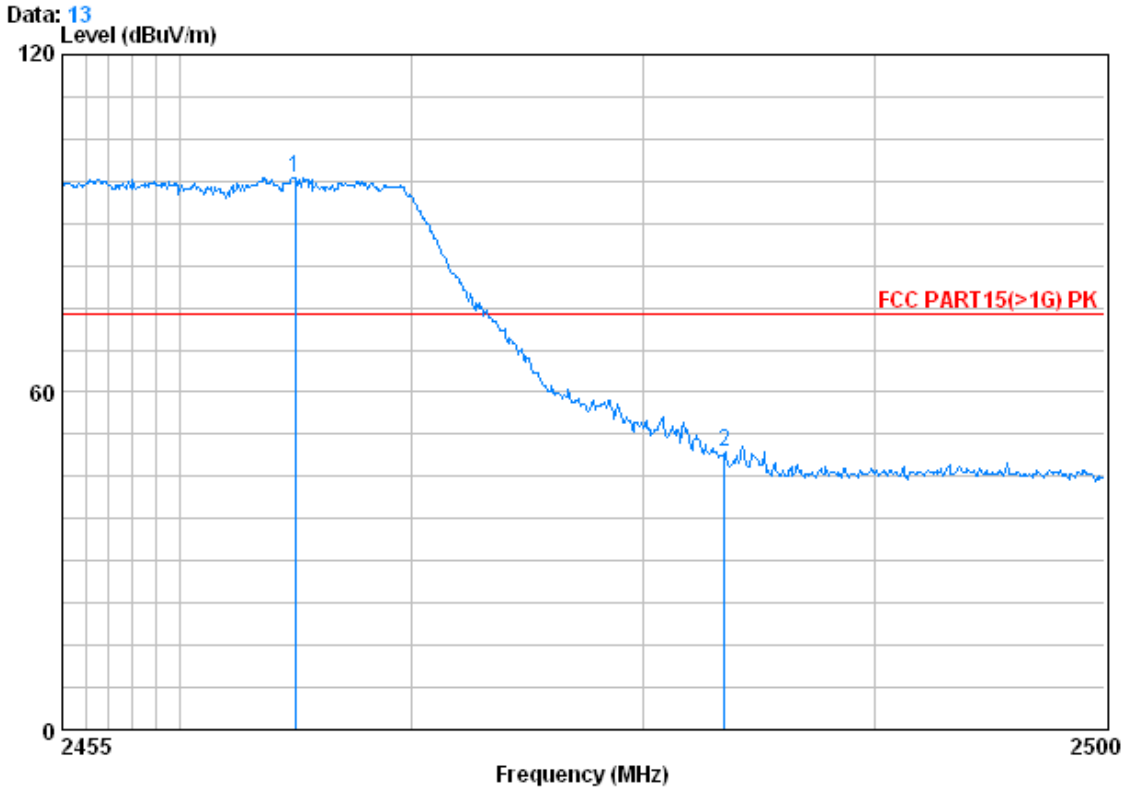
Condition : FCC PART15(>1G) PK 3m VERTICAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11g 2462 Bandedge PK

	Freq	CableAntenna Preamp			Read		Limit	Over	Remark
		Loss	Factor	Factor	Level	Level			
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X	2465.215	3.02	32.64	39.91	105.56	101.32	74.00	27.32	Peak
2	2483.500	3.03	32.67	39.92	57.74	53.52	74.00	-20.48	Peak

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Horizontal:



Condition : FCC PART15(>1G) PK 3m HORIZONTAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11g 2462 Bandedge PK

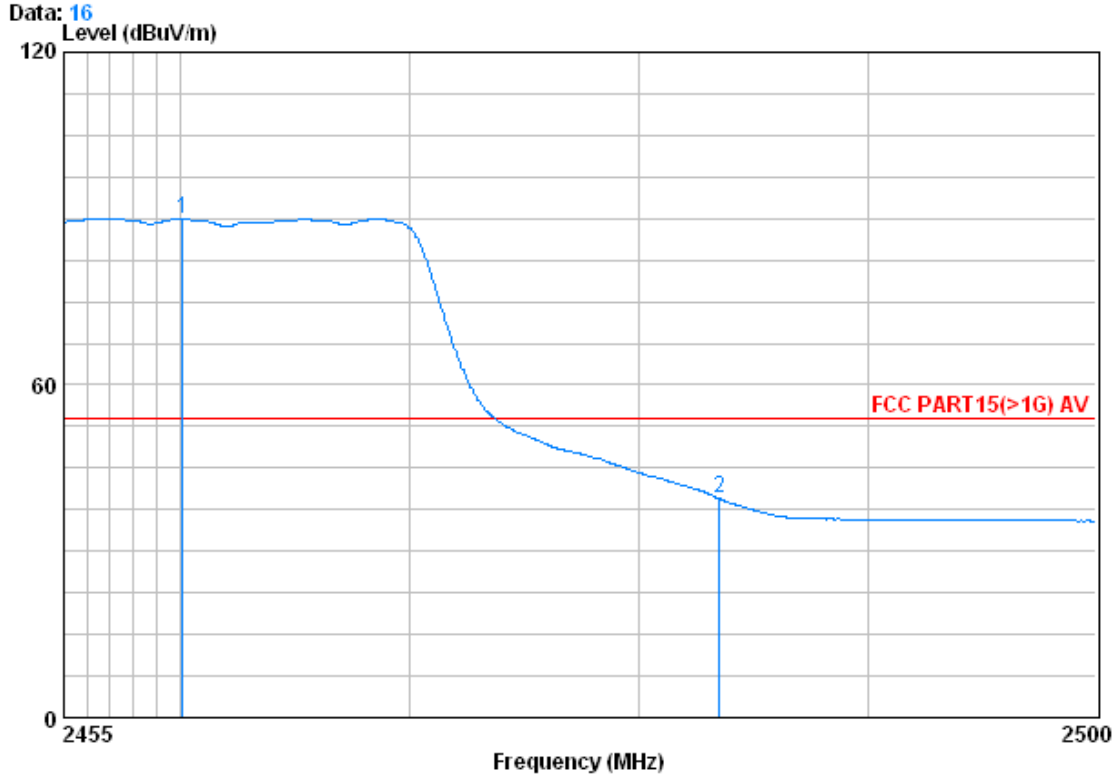
	Freq	Cable Loss	Antenna Loss	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X	2464.990	3.02	32.64	39.91	102.34	98.09	74.00	24.09	Peak
2	2483.500	3.03	32.67	39.92	53.67	49.45	74.00	-24.55	Peak

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



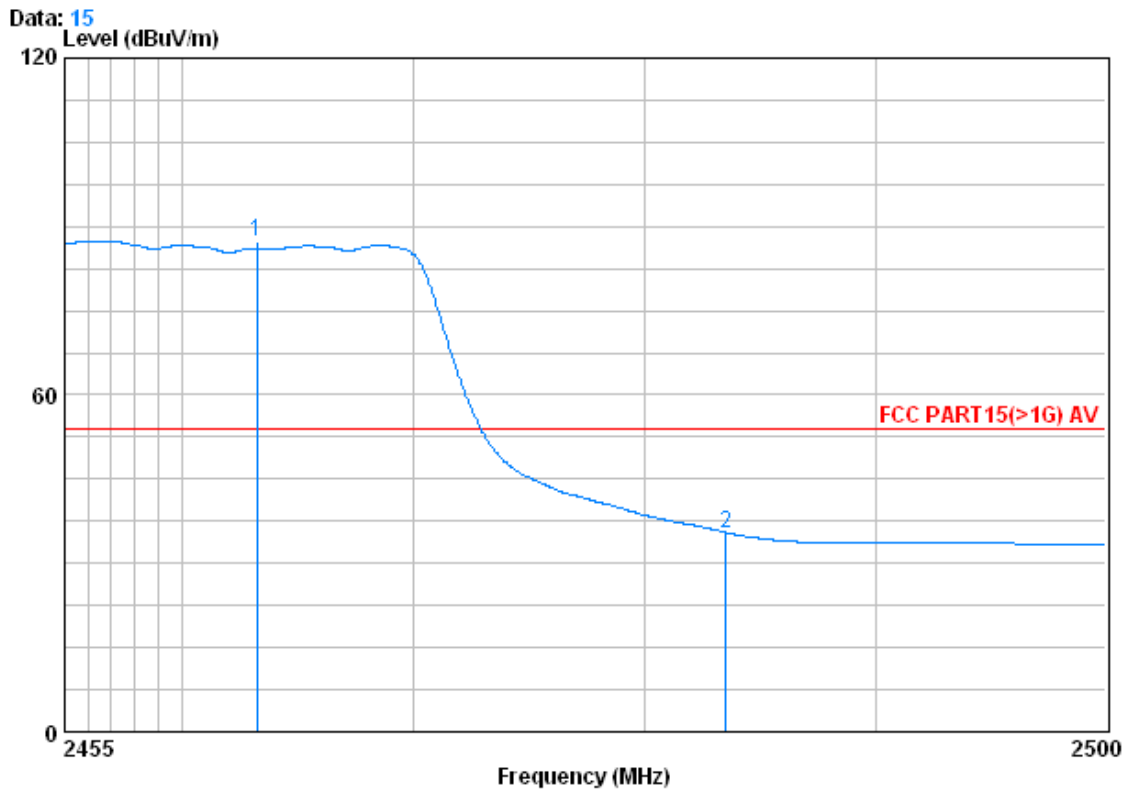
Condition : FCC PART15(>1G) AV 3m VERTICAL
 EUT :
 Job No. : 1436RF
 Mode : 802.11g 2462 Bandedge AV

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2460.130	3.02	32.64	39.91	94.13	89.88	54.00	35.88	Average
2	2483.500	3.03	32.67	39.92	43.69	39.47	54.00	-14.53	Average

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Horizontal:



Condition : FCC PART15(>1G) AV 3m HORIZONTAL
EUT :
Job No. : 1436RF
Mode : 802.11g 2462 Bandedge AV

		Cable	Antenna	Preamp	Read	Limit	Over		
	Freq	Loss	Factor	Factor	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	X	2463.235	3.02	32.64	39.91	91.65	87.40	54.00	33.40 Average
2		2483.500	3.03	32.67	39.92	39.67	35.45	54.00	-18.55 Average

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



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