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FCC REPORT

Application No. :	SZEM1607006252CR
Applicant:	Mota Group, Inc
Manufacturer:	Mota Group, Inc
Factory:	Mota Group, Inc
Product Name:	JetJat Ultra
Model No.:	JJ-ULTRA, JJ-ULTRA-W, JETJAT ULTRA, MOTA JET JAT NANO-C, JETJAT LIVE-W, Mota PROLIVE-5000, JJ-ULTRA-K
FCC ID:	2AI6CGC032410233
Standards:	47 CFR Part 15, Subpart C (2015)
Date of Receipt:	2016-07-04(for original report SZEM160600518402)
Date of Test:	2016-07-06 to 2016-07-07(for original report SZEM160600518402)
Date of Issue:	2016-07-11(for original report SZEM160600518402) 2016-08-25(for new report SZEM160700625201)
Test Result:	**PASS ***

. * 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 Version

Revision Record				
Version	***Chapter***	***Date***	***Modifier***	***Remark***
00		*2016-07-11*		*Original*
01		*2016-08-25*		*New*

Authorized for issue by:				
Tested By		Bill Chen **(Bill Chen) /Project Engineer**		2016-07-07 **Date**
Checked By		Eric Fu **(Eric Fu) /Reviewer**		2016-08-25 **Date**

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3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(3)	ANSI C63.10 2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(2)	ANSI C63.10 2013	PASS
Power Spectral Density	47 CFR Part 15, Subpart C Section 15.247 (e)	ANSI C63.10 2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS

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Remark for the report SZEM160600518402:

Model No.: CX-10WD, CX-10W, CX-10DS, CX-30W, CX-37, CX-38, CX-39, CX-10WD-TX, CX-10W-TX, CX-10, CX-10A, CX-10C, CX-10D, CX-31, CX-30W-TX, CX-37W, CX-38W, CX-39W, JETJAT ULTRA
Only the model CX-10WD was tested, since the circuitry design, PCB layout, electrical components used, internal wiring and functions were identical for all above models. Only the mode No. and appearance of the color are different.

Remark for the report SZEM160700625201:

Model No.: JJ-ULTRA, JJ-ULTRA-W, JETJAT ULTRA, MOTA JET JAT NANO-C, JETJAT LIVE-W, Mota PROLIVE-5000, JJ-ULTRA-K

This report was an additional report copied from the report SZEM160600518402, just changed the name & address of applicant, manufacturer, factory; product name and model numbers.

According to the declaration of the applicant, the electrical circuit design, layout, components used and internal wiring for the models in the report SZEM160600518402 was exactly the same as the models in SZEM160700625201, only different on model No..

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5 General Information

5.1 Client Information

Applicant:	Mota Group, Inc
Address of Applicant:	PO Box 1116, Campbell, CA 95009
Manufacturer:	Mota Group, Inc
Address of Manufacturer:	PO Box 1116, Campbell, CA 95009
Factory:	Mota Group, Inc
Address of Factory:	PO Box 1116, Campbell, CA 95009

5.2 General Description of EUT

Product Name:	JetJat Ultra
Model No.:	JJ-ULTRA
Operation Frequency:	IEEE 802.11g: 2412MHz to 2462MHz
Channel Numbers:	IEEE 802.11g: 11 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK)
Sample Type:	Mobile production
Antenna Type:	Integral
Antenna Gain:	0dBi
Battery	DC 3.7V by lithium battery(DC 3.7V, 150mAh)

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Operation Frequency each of channel(802.11g)							
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 802.11g:

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

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5.3 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1005 mbar
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

5.4 Description of Support Units

Description	Manufacturer	Model No.
Laptop	Lenovo	T430u
Test board	Supply to SGS	N/A

5.5 Test Location

All tests were performed at:

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

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.

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5.6 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.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, 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)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

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5.10 Equipment 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	SEM001-01	2016-05-13	2017-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2015-09-16	2016-09-16
3	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
4	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
5	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2016-04-25	2017-04-25
7	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A
8	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2015-10-09	2016-10-09
9	Loop Antenna	Beijing Daze	ZN30401	SEM003-09	2015-05-13	2018-05-13

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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	AUDIX	N/A	SEM001-02	2016-05-13	2017-05-13
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEM004-04	2016-04-25	2017-04-25
3	BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2014-11-15	2017-11-15
4	Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2015-10-09	2016-10-09
5	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
6	Horn Antenna (18-26GHz)	ETS-Lindgren	3160	SEM003-12	2014-11-24	2017-11-24
7	Low Noise Amplifier	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2015-10-09	2016-10-09
8	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A

RF connected test						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2015-10-09	2016-10-09
2	Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2015-10-17	2016-10-17
3	Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2016-04-25	2017-04-25
4	Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2015-10-09	2016-10-09

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6 Test results and Measurement Data

6.1 Antenna Requirement

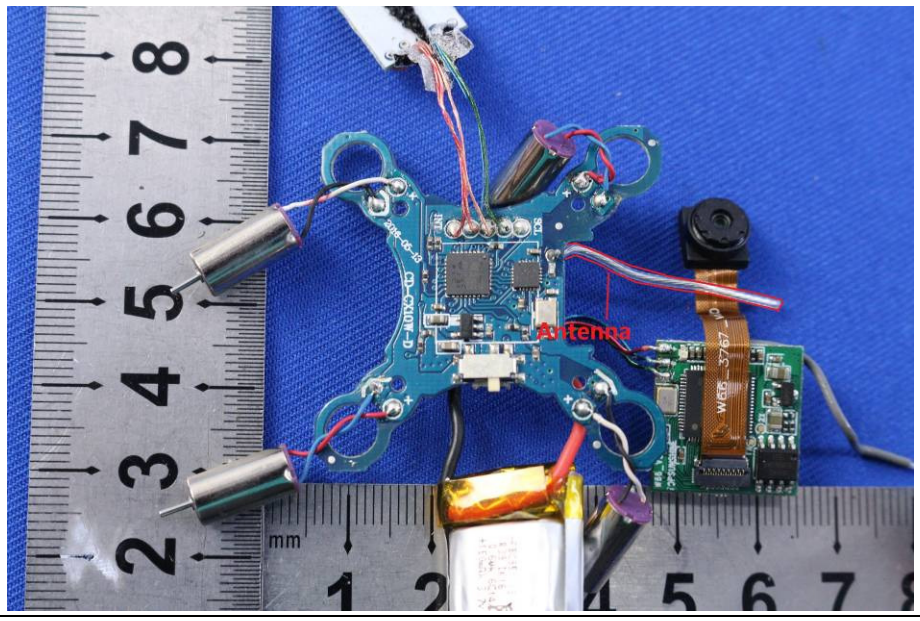
Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)

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.

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.



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.

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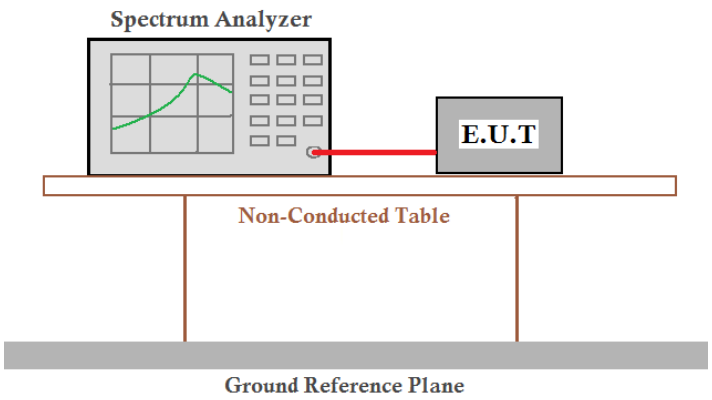
6.2 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 :2013 Section 11.9.1
Test Setup:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.*
Test Instruments:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11g.
Limit:	30dBm
Test Results:	Pass

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Pre-scan under all rate at lowest channel 1

Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power (dBm)	23.12	23.09	23.06	22.98	23.01	22.85	22.79	23.10

Through Pre-scan 6Mbps of rate is the worst case of 802.11g.

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Measurement Data

802.11g mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	23.12	30.00	Pass
Middle	22.52	30.00	Pass
Highest	22.18	30.00	Pass

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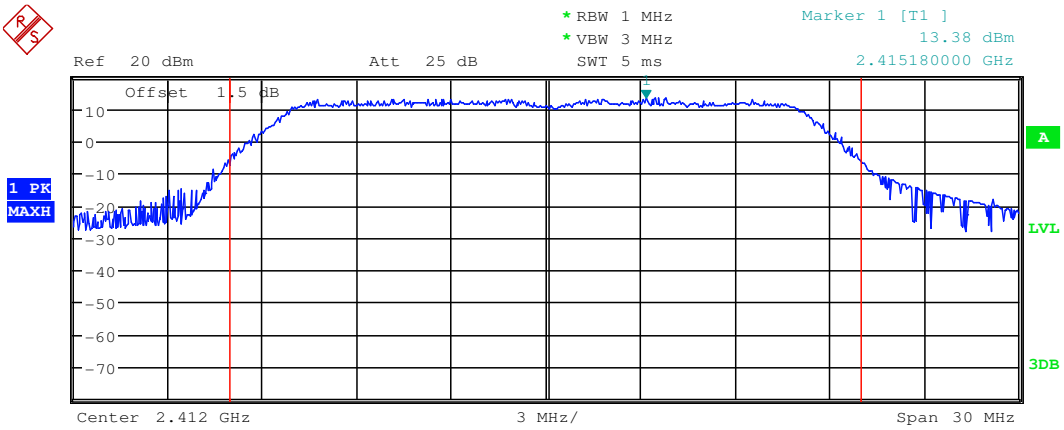
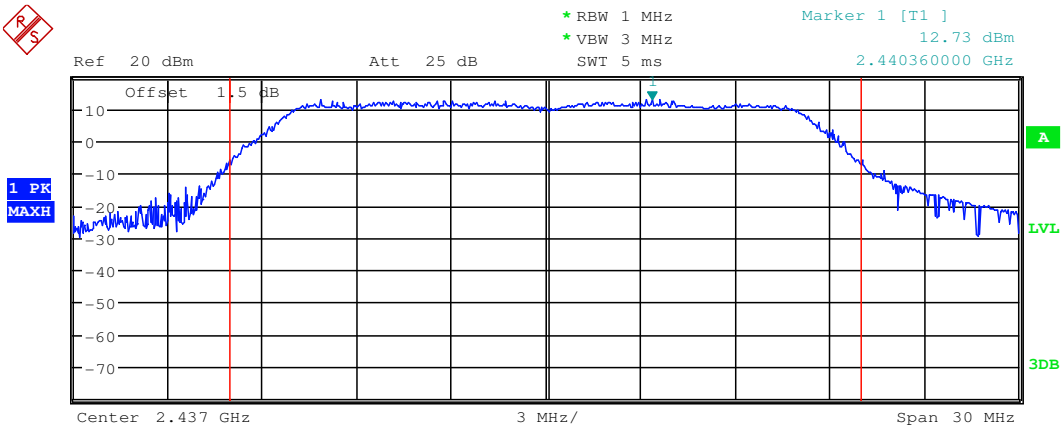
Test plot as follows:

Test mode:	802.11g	Test channel:	Lowest



Tx Channel
Bandwidth 20 MHz Power 23.12 dBm

Test mode:	802.11g	Test channel:	Middle



Tx Channel
Bandwidth 20 MHz Power 22.52 dBm

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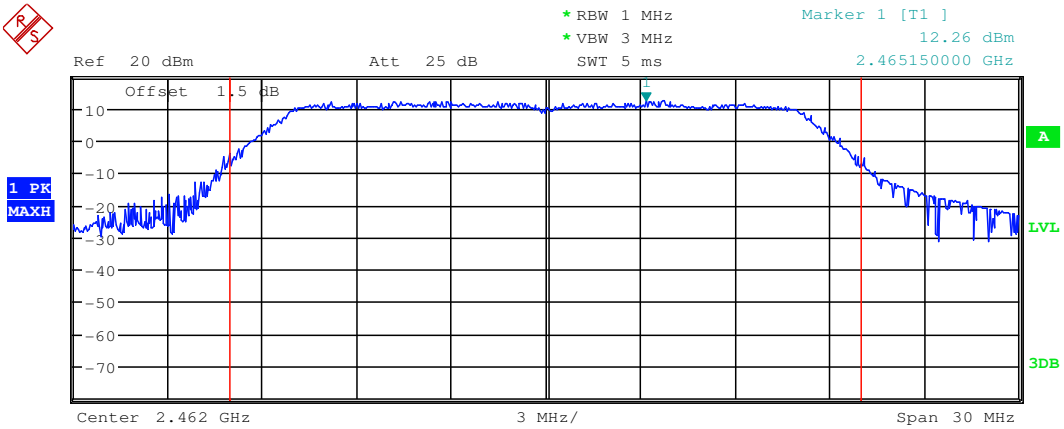
Test mode:	802.11g	Test channel:	Highest



Tx Channel

Bandwidth 20 MHz Power 22.18 dBm

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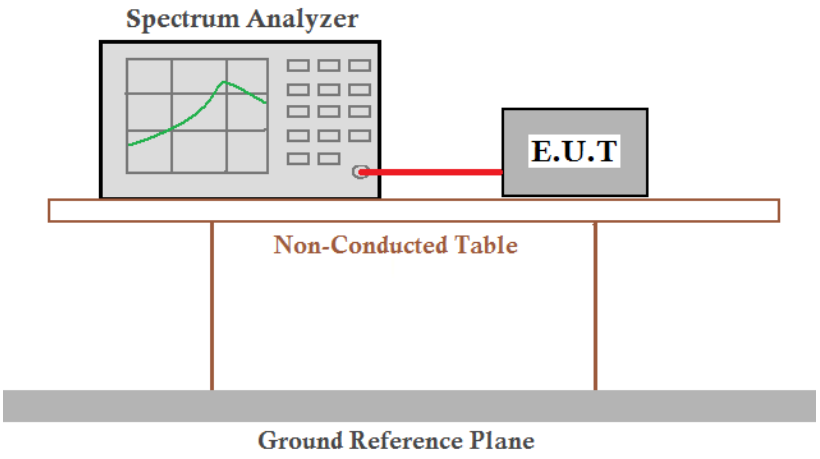
6.3 6dB Occupy Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013 Section 11.8
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11g.
Limit:	≥ 500 kHz
Test Results:	Pass

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Measurement Data

802.11g mode			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	16.50	≥500	Pass
Middle	16.53	≥500	Pass
Highest	16.56	≥500	Pass

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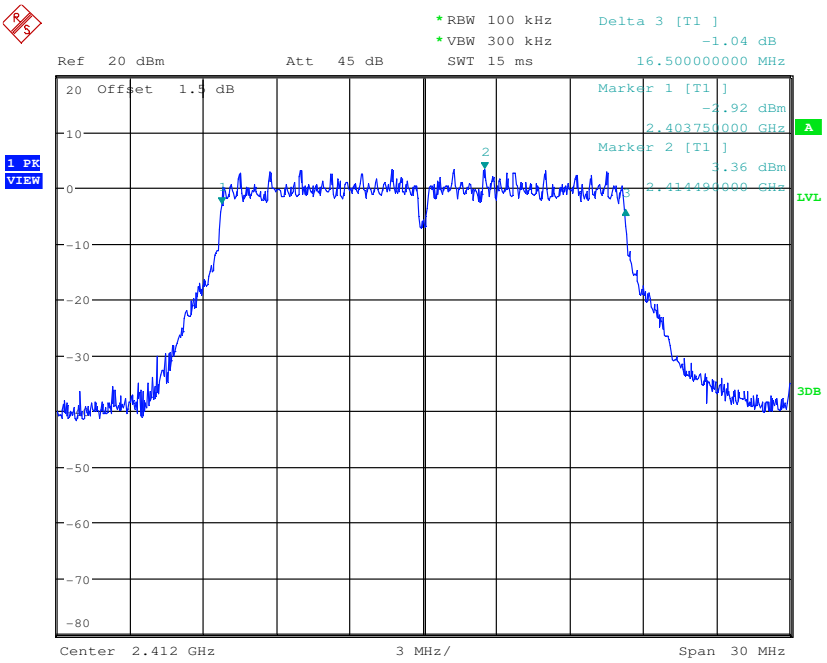
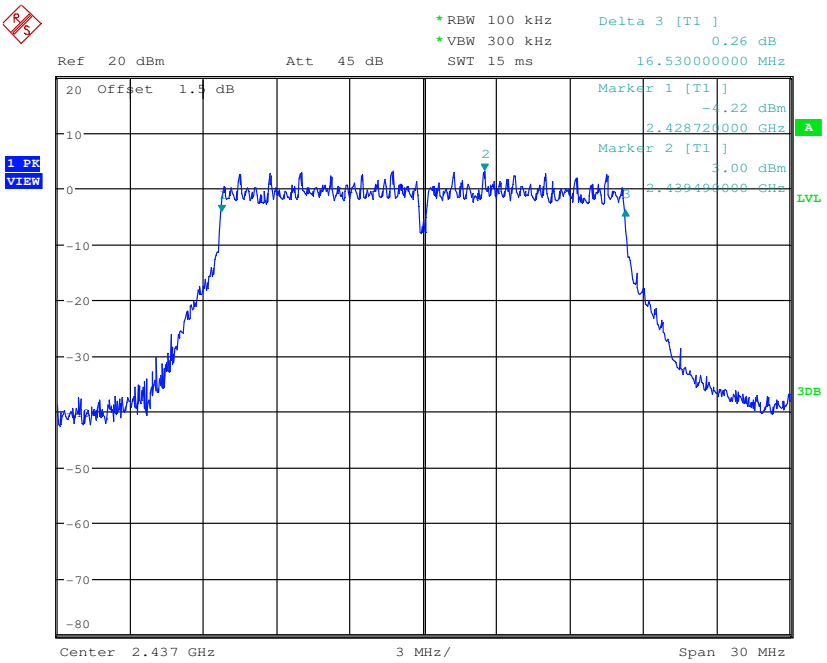
Test plot as follows:

Test mode:	802.11g	Test channel:	Lowest



Test mode:	802.11g	Test channel:	Middle



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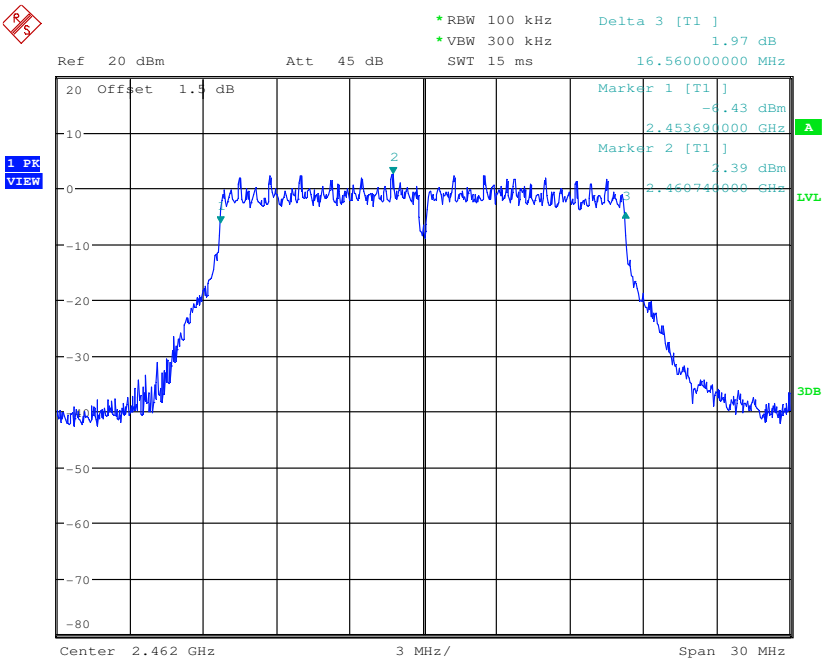
Test mode:	802.11g	Test channel:	Highest



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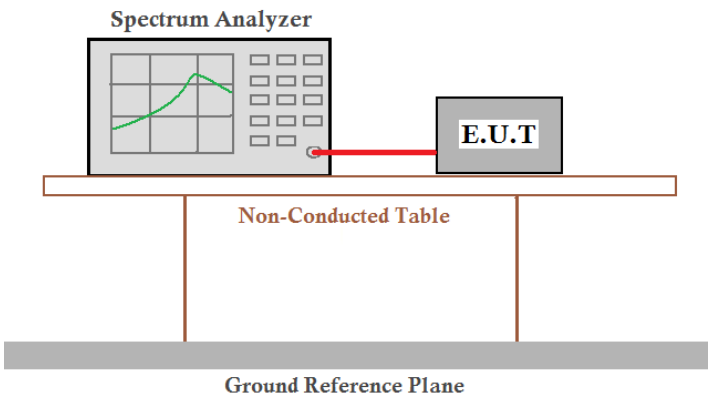
6.4 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 :2013 Section 11.10.2
Test Setup:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.*
Test Instruments:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11g.
Limit:	≤8.00dBm/3kHz
Test Results:	Pass

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Measurement Data

802.11g mode			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-11.64	≤8.00	Pass
Middle	-12.42	≤8.00	Pass
Highest	-12.20	≤8.00	Pass

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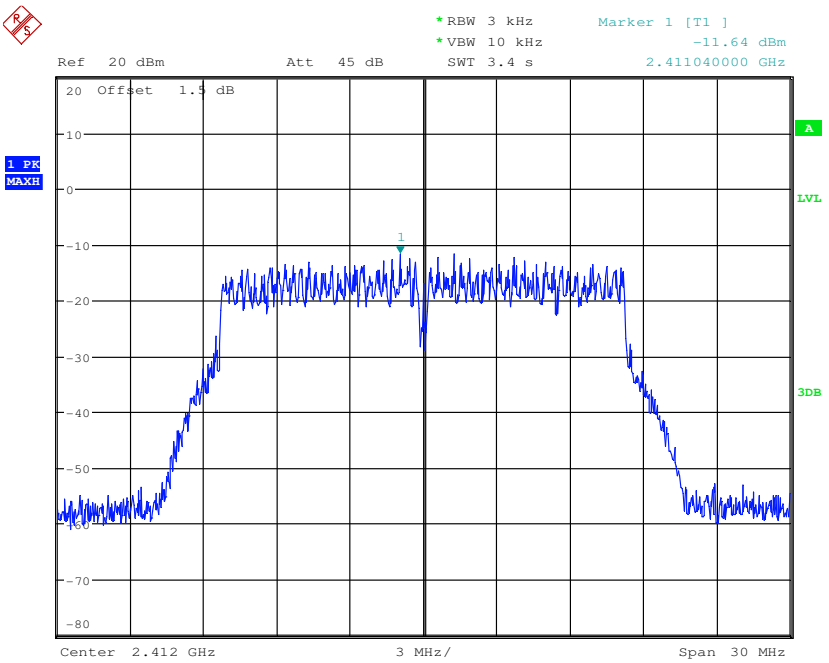
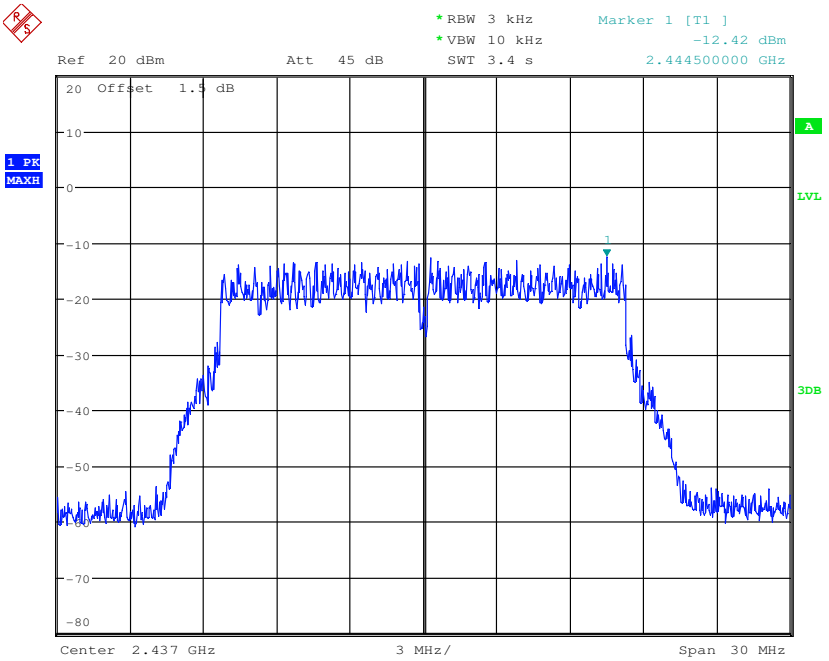
Test plot as follows:

Test mode:	802.11g	Test channel:	Lowest



Test mode:	802.11g	Test channel:	Middle



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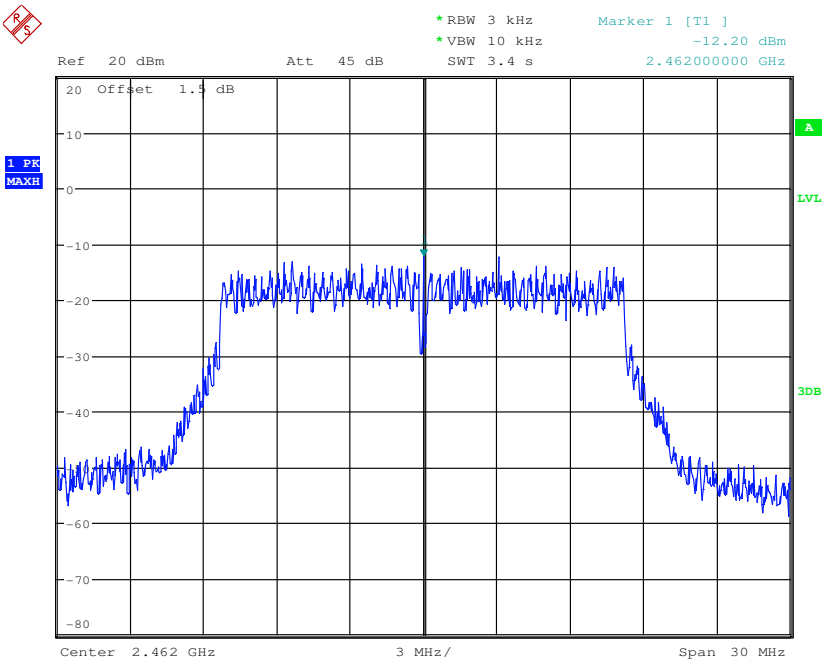
Test mode:	802.11g	Test channel:	Highest



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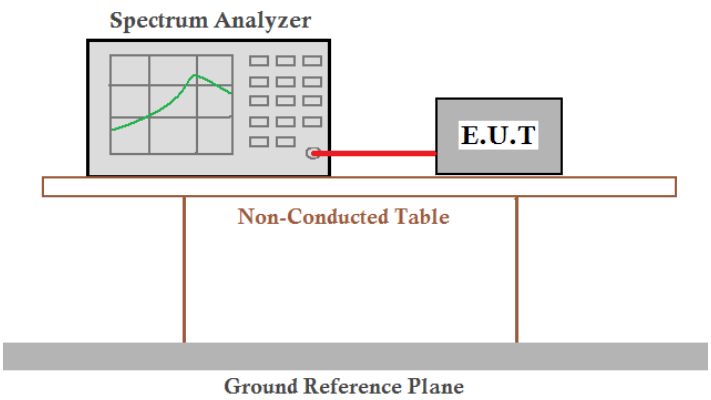
6.5 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.13
Test Setup:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.*
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 6Mbps 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 5.10 for details
Test Results:	Pass

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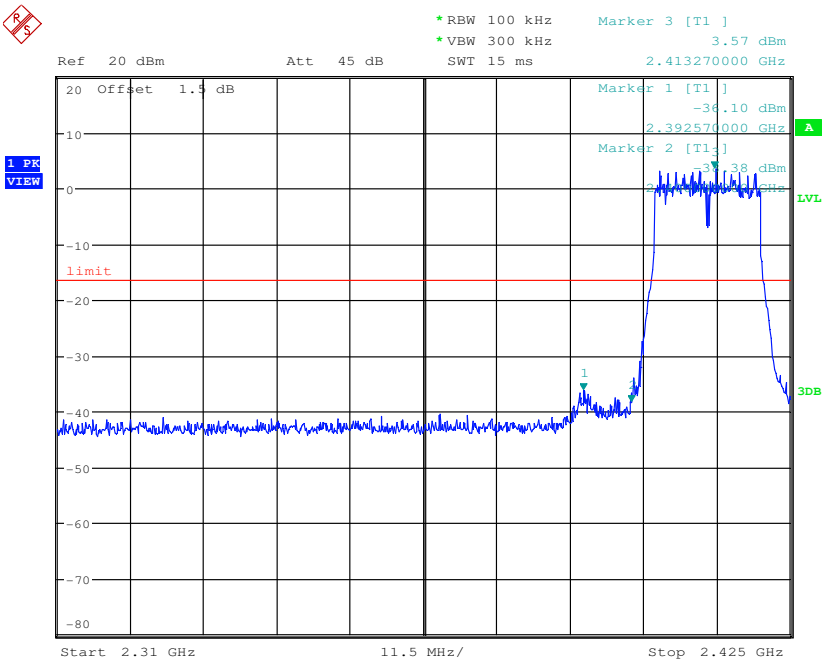
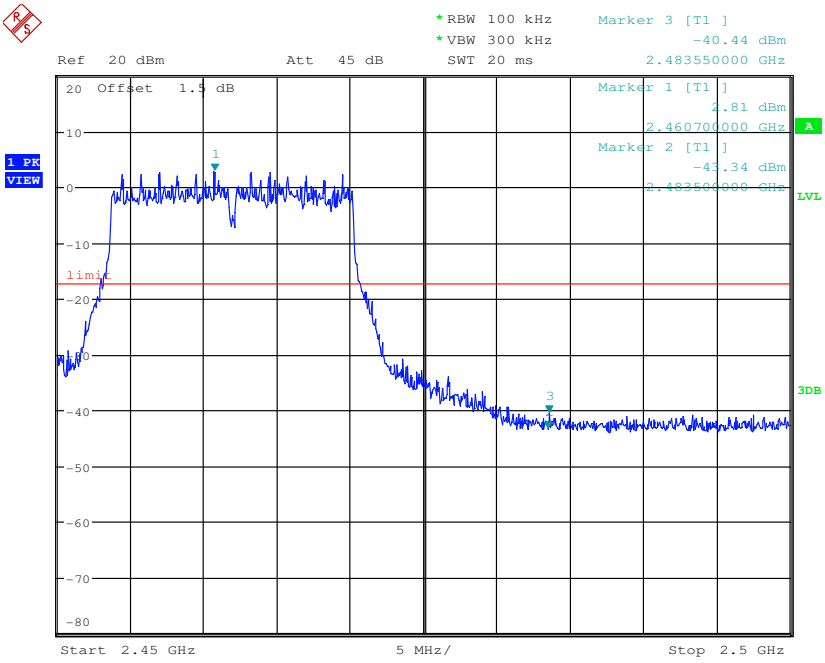
Test plot as follows:

Test mode:	802.11g	Test channel:	Lowest



Test mode:	802.11g	Test channel:	Highest



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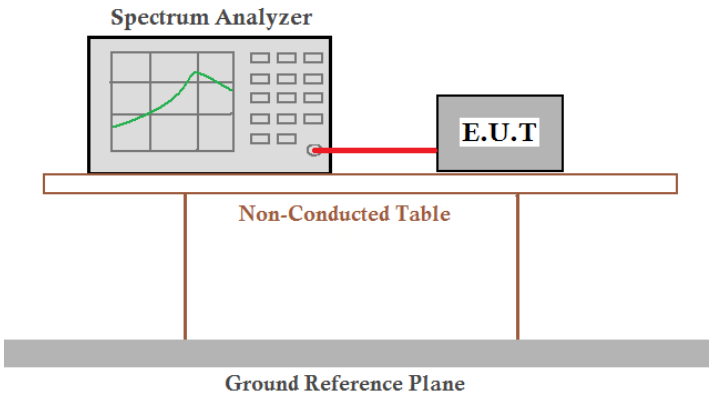
6.6 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.*
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 6Mbps 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 5.10 for details
Test Results:	Pass

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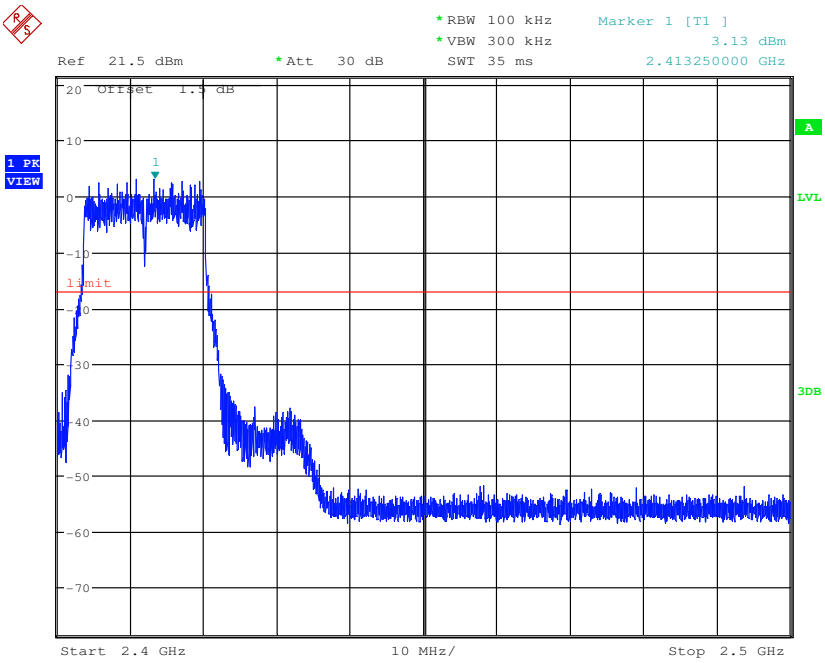
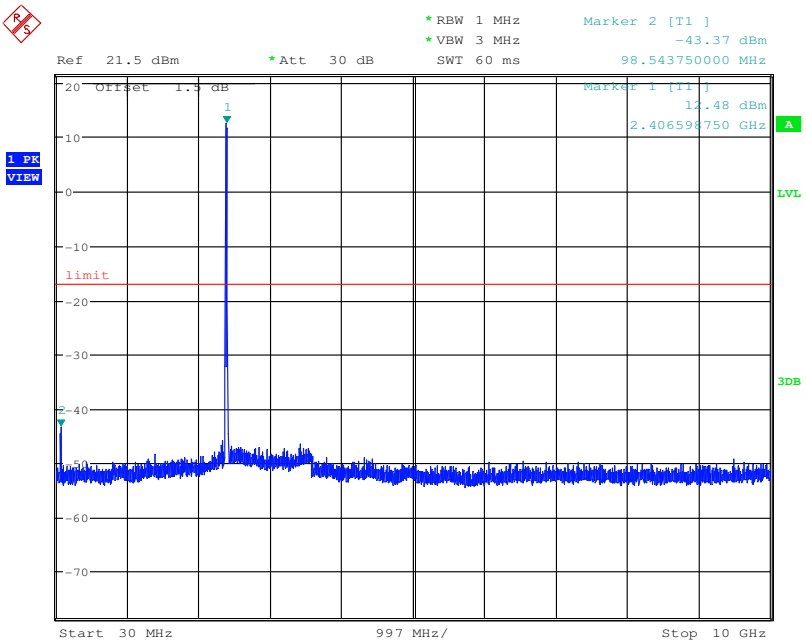
Test plot as follows:

Test mode:	802.11g	Test channel:	Lowest





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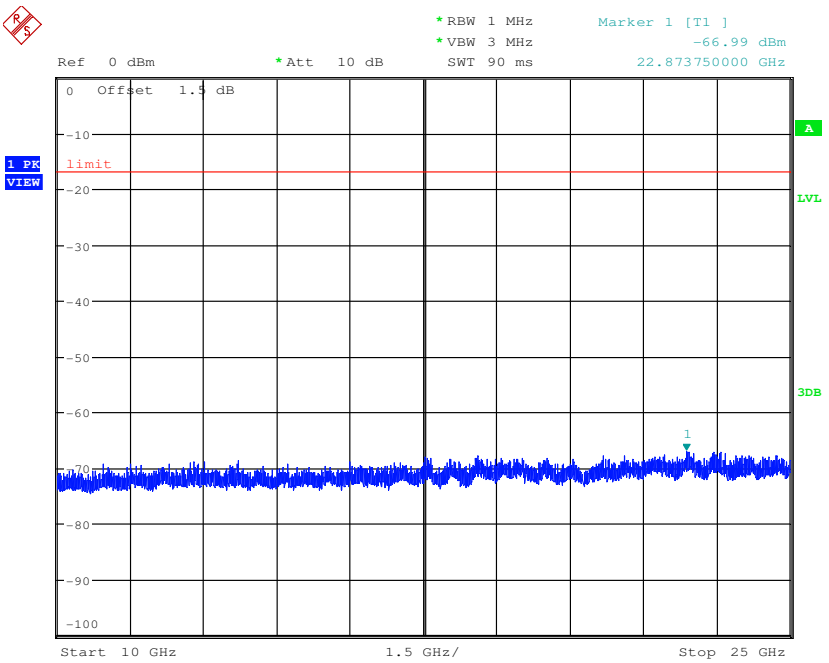
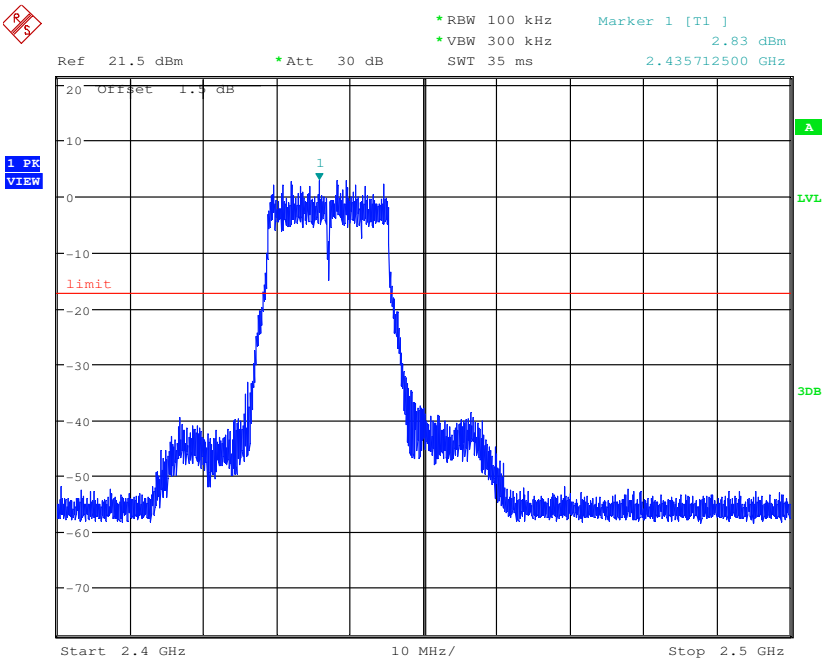


Test mode:	802.11g	Test channel:	Middle



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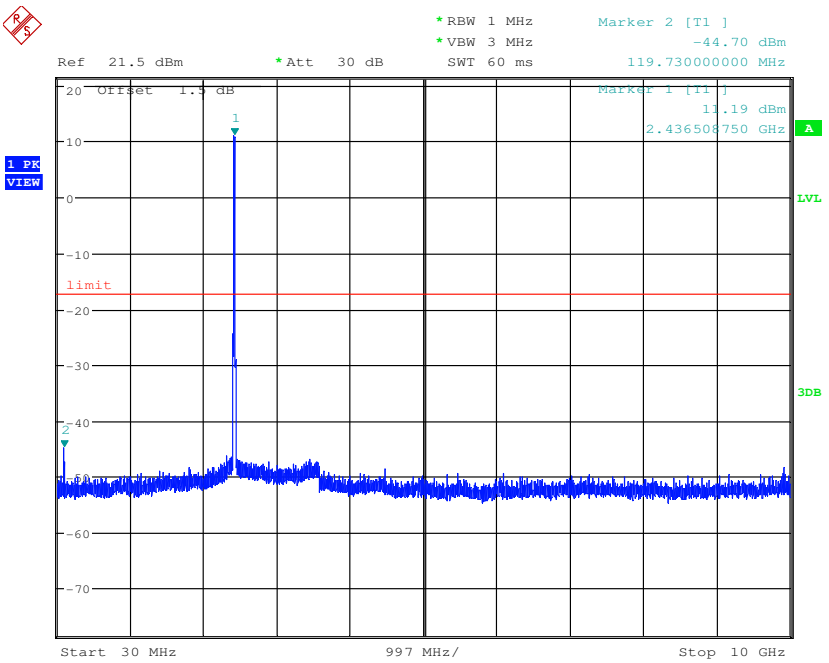

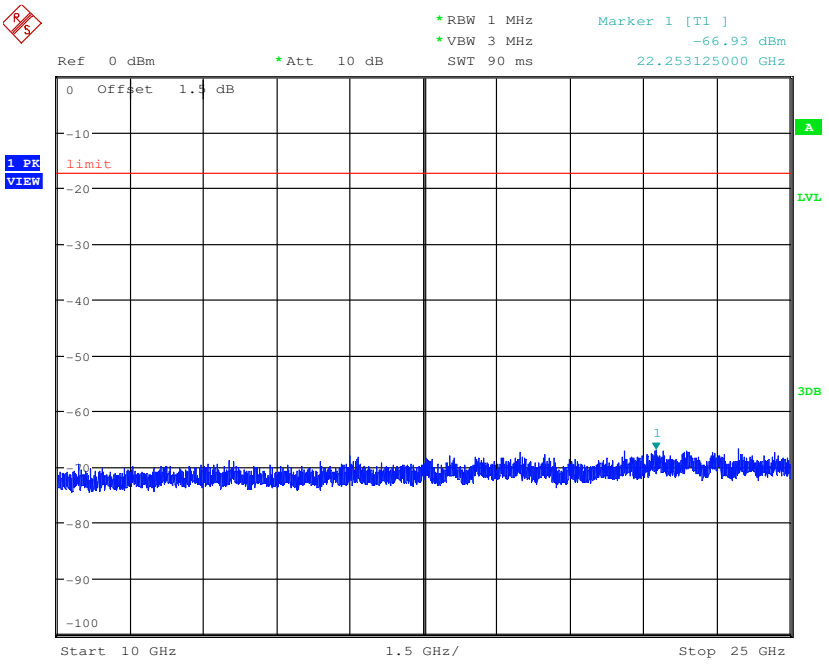

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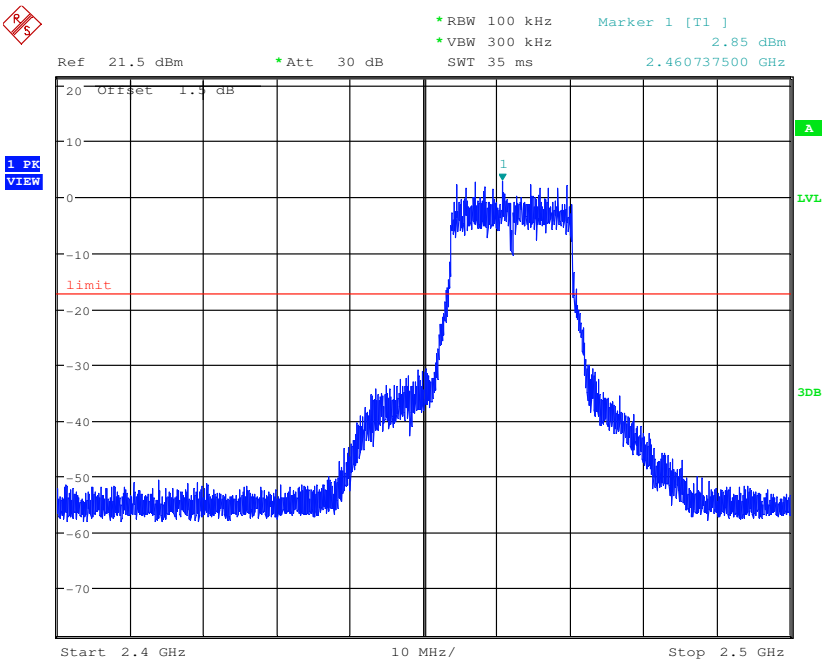
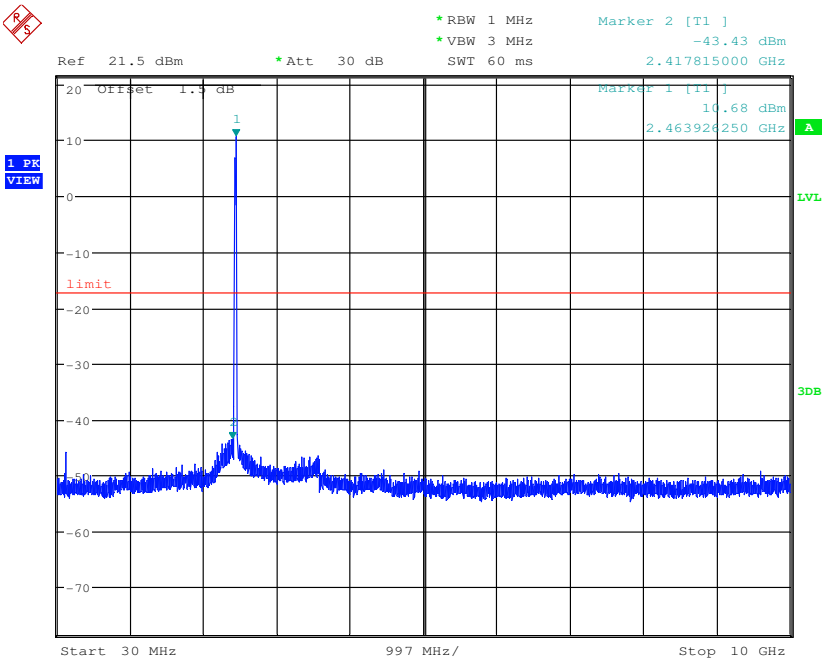
Test mode:	802.11g	Test channel:	Highest





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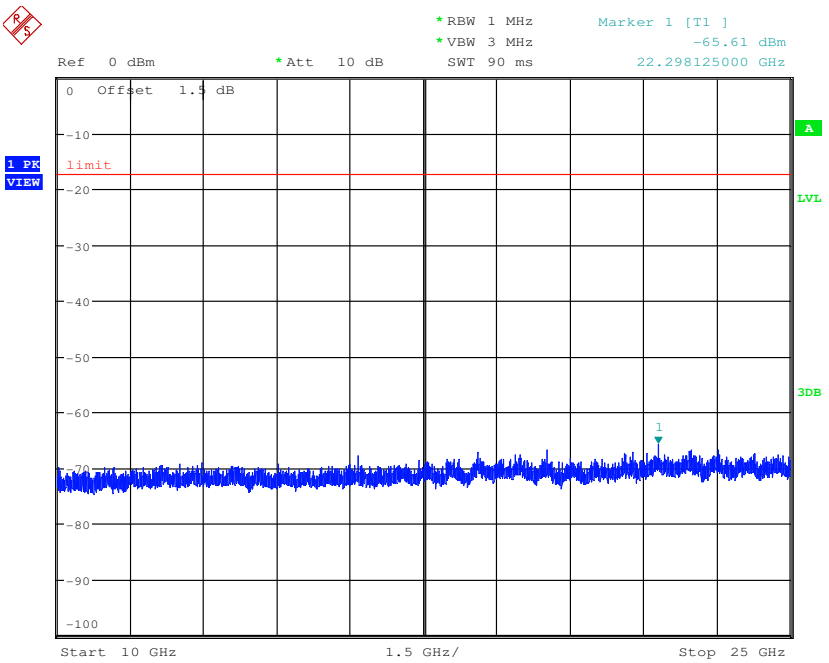

Remark:

Use 100kHz RBW to determine the relative limit in the band 2.4GHz to 2.5GHz, and Use 1MHz RBW to measure spurious emissions in the band 30MHz to 10GHz and 10GHz to 25GHz. The sweep points set to 30001.

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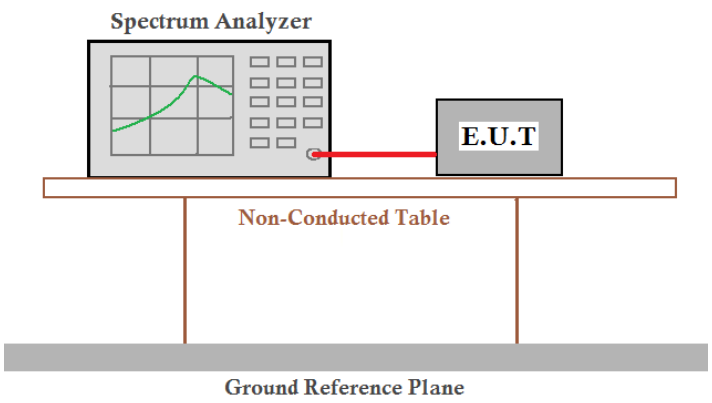
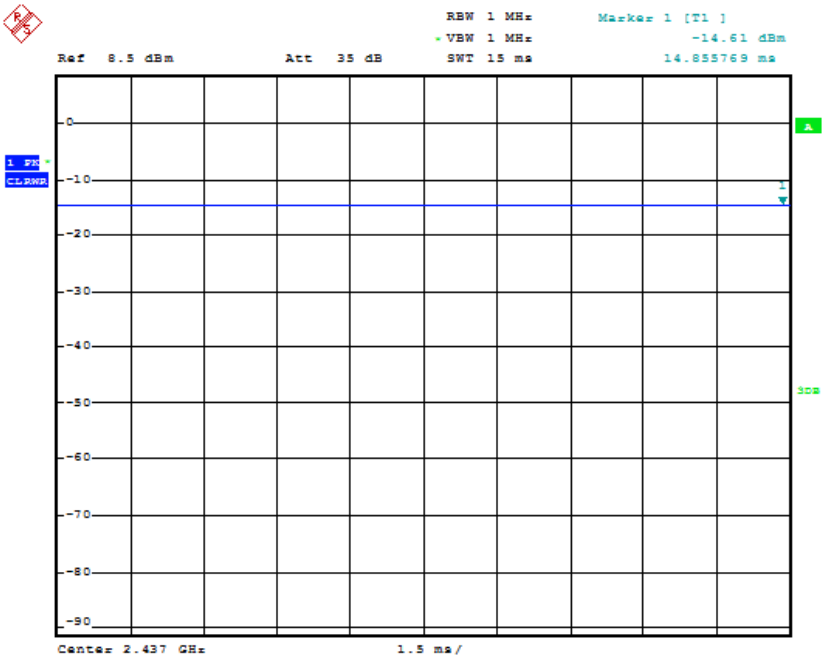
6.7 Duty Cycle

Test Requirement:	47 CFR Part 15C Section 15.35 (c)
Test Method:	ANSI C63.10 :2013 Section 11.6
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Limit:	N/A
Test Mode:	Transmitting mode
Test Results:	Pass

Test plot as follows:



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6.8 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205
Test Method:	ANSI C63.10 :2013 Section 11.12
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

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Test Setup:	

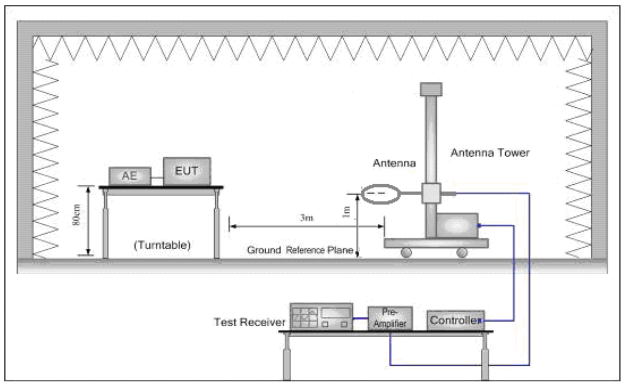

Figure 1. Below 30MHz

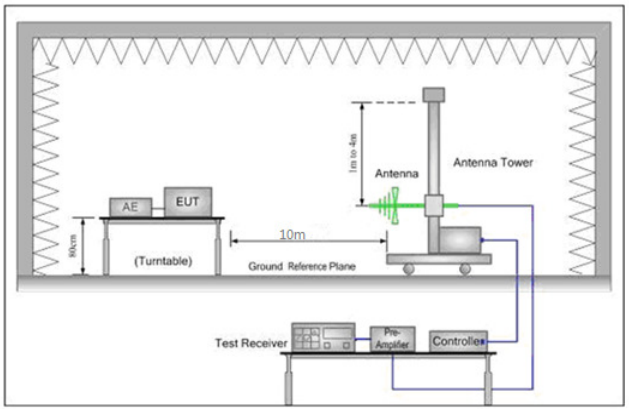

Figure 2. 30MHz to 1GHz

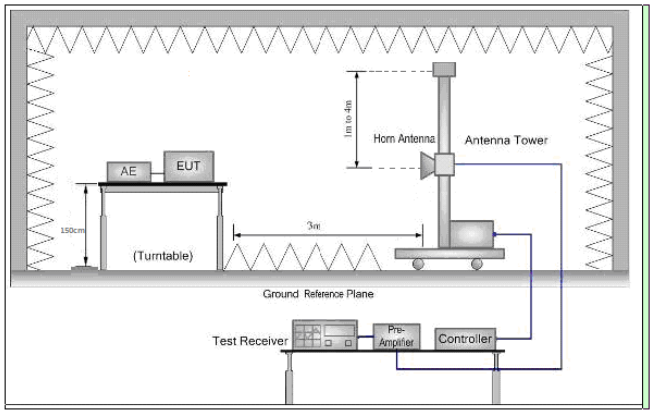

Figure 3. Above 1 GHz

Test Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at 10 meters semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. 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. e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. 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

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	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. h. Test the EUT in the lowest channel (2402MHz),the middle channel (2441MHz),the Highest channel (2480MHz) i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. j. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates. Transmitting mode
Final Test Mode:	Pretest the EUT at Transmitting mode Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11g. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

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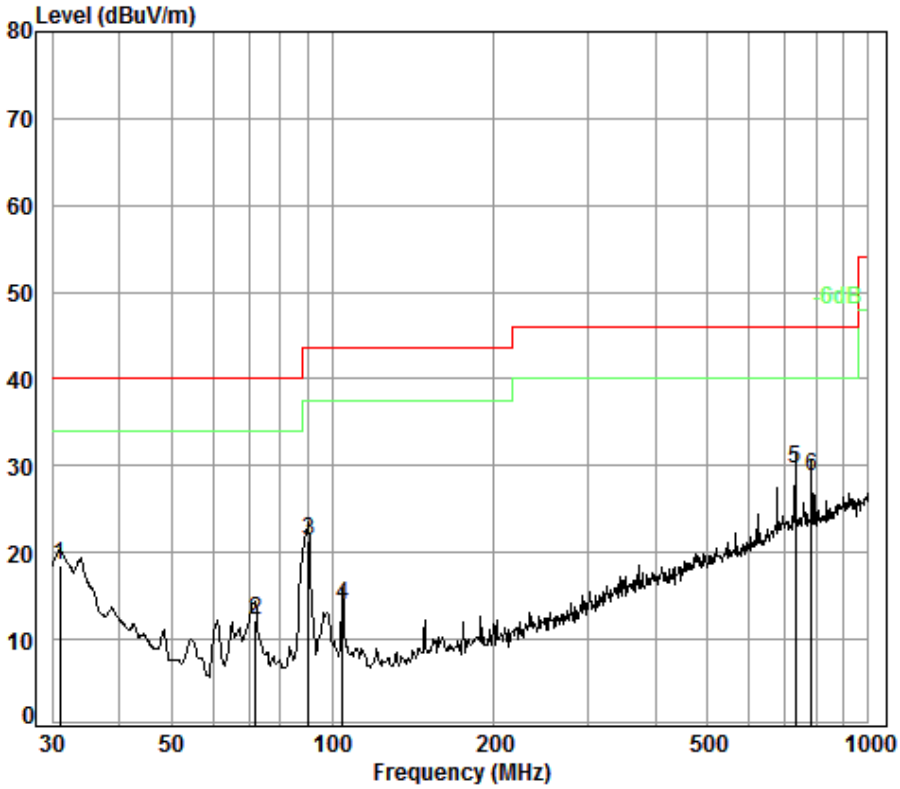
6.8.1 Radiated emission below 1GHz

30MHz~1GHz（QP）		
Test mode:	Transmitting	Vertical



Condition: 3m VERTICAL
Job No. : 5184CR
Test mode: TX mode
: Plane

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	30.96	0.60	18.36	27.40	26.92	18.48	40.00	-21.52
2	71.83	0.86	7.07	27.33	31.70	12.30	40.00	-27.70
3	90.22	1.10	8.81	27.31	38.83	21.43	43.50	-22.07
4	104.54	1.21	8.91	27.27	31.10	13.95	43.50	-29.55
5 pp	729.36	2.99	21.60	27.53	32.61	29.67	46.00	-16.33
6	782.35	3.15	21.93	27.43	31.12	28.77	46.00	-17.23

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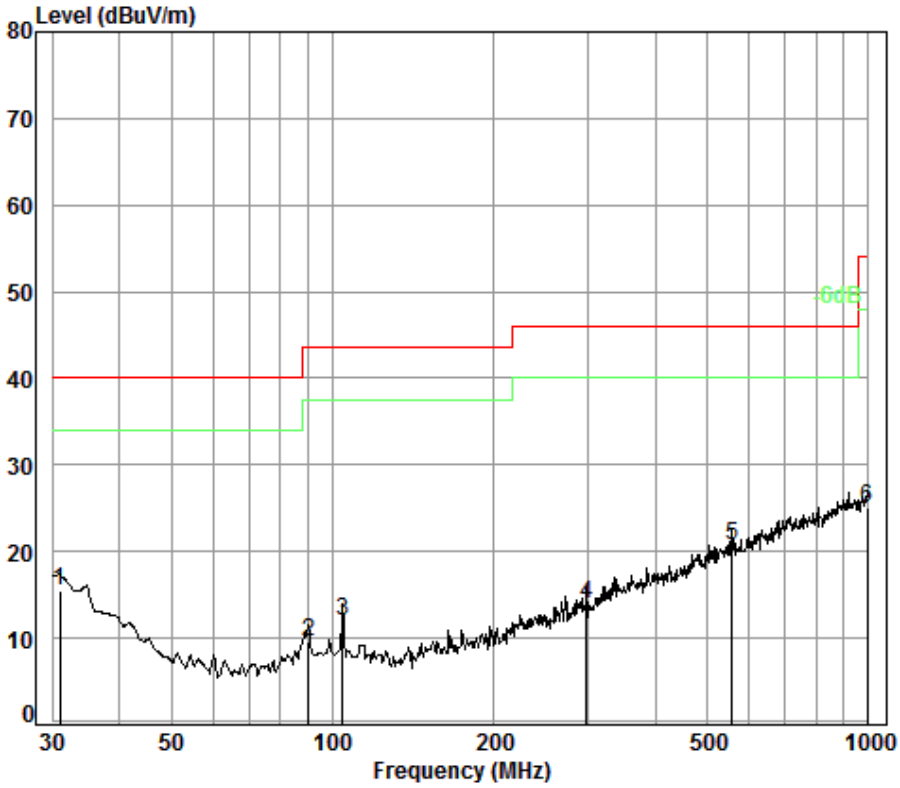
Test mode:	Transmitting	Horizontal



Condition: 3m HORIZONTAL
Job No. : 5184CR
Test mode: TX mode
: Plane

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	30.96	0.60	18.36	27.40	23.84	15.40	40.00	-24.60
2	90.22	1.10	8.81	27.31	26.94	9.54	43.50	-33.96
3	104.54	1.21	8.91	27.27	29.09	11.94	43.50	-31.56
4	298.27	1.89	13.54	26.60	25.08	13.91	46.00	-32.09
5	556.77	2.66	19.00	27.67	26.76	20.75	46.00	-25.25
6	993.01	3.69	23.99	26.53	23.91	25.06	54.00	-28.94

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6.8.2 Transmitter emission above 1GHz

Test mode:	802.11g		Test channel:		Lowest	Remark:		Peak
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3814.467	32.91	7.75	38.49	44.92	47.09	74	-26.91	Vertical
4824.000	34.12	8.90	38.75	45.67	49.94	74	-24.06	Vertical
6016.949	34.71	10.54	38.94	45.43	51.74	74	-22.26	Vertical
7236.000	35.58	10.69	37.63	42.88	51.52	74	-22.48	Vertical
9648.000	37.10	12.52	36.29	36.38	49.71	74	-24.29	Vertical
12603.270	37.90	14.44	37.75	38.32	52.91	74	-21.09	Vertical
3797.945	32.89	7.74	38.48	44.55	46.70	74	-27.30	Horizontal
4824.000	34.12	8.90	38.75	46.21	50.48	74	-23.52	Horizontal
6016.949	34.71	10.54	38.94	45.06	51.37	74	-22.63	Horizontal
7236.000	35.58	10.69	37.63	42.15	50.79	74	-23.21	Horizontal
9648.000	37.10	12.52	36.29	34.89	48.22	74	-25.78	Horizontal
12603.270	37.90	14.44	37.75	39.03	53.62	74	-20.38	Horizontal

Test mode:	802.11g		Test channel:		Middle	Remark:		Peak
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3892.524	32.99	7.77	38.52	45.52	47.76	74	-26.24	Vertical
4874.000	34.17	8.97	38.76	45.86	50.24	74	-23.76	Vertical
6148.967	34.77	10.37	38.76	45.04	51.42	74	-22.58	Vertical
7311.000	35.54	10.72	37.59	41.60	50.27	74	-23.73	Vertical
9748.000	37.10	12.58	36.16	38.41	51.93	74	-22.07	Vertical
12639.790	37.92	14.55	37.79	38.96	53.64	74	-20.36	Vertical
3814.467	32.91	7.75	38.49	44.83	47.00	74	-27.00	Horizontal
4874.000	34.17	8.97	38.76	45.31	49.69	74	-24.31	Horizontal
6069.413	34.74	10.47	38.87	45.36	51.70	74	-22.30	Horizontal
7311.000	35.54	10.72	37.59	41.39	50.06	74	-23.94	Horizontal
9748.000	37.10	12.58	36.16	39.31	52.83	74	-21.17	Horizontal
12676.420	37.94	14.65	37.82	38.85	53.62	74	-20.38	Horizontal

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

Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3792.453	32.87	7.74	38.48	44.33	46.46	74	-27.54	Vertical
4924.000	34.22	9.04	38.77	45.11	49.60	74	-24.40	Vertical
6087.002	34.74	10.45	38.85	45.65	51.99	74	-22.01	Vertical
7386.000	35.51	10.75	37.56	41.72	50.42	74	-23.58	Vertical
9848.000	37.15	12.63	36.03	38.98	52.73	74	-21.27	Vertical
12676.420	37.94	14.65	37.82	38.09	52.86	74	-21.14	Vertical
3825.521	32.93	7.75	38.49	45.13	47.32	74	-26.68	Horizontal
4924.000	34.22	9.04	38.77	45.18	49.67	74	-24.33	Horizontal
6140.076	34.77	10.38	38.78	45.63	52.00	74	-22.00	Horizontal
7386.000	35.51	10.75	37.56	41.96	50.66	74	-23.34	Horizontal
9848.000	37.15	12.63	36.03	39.29	53.04	74	-20.96	Horizontal
12639.790	37.92	14.55	37.79	38.27	52.95	74	-21.05	Horizontal

Remark:

1) 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

2) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) 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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6.9 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205
Test Method:	ANSI C63.10: 2013 Section 11.12
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:

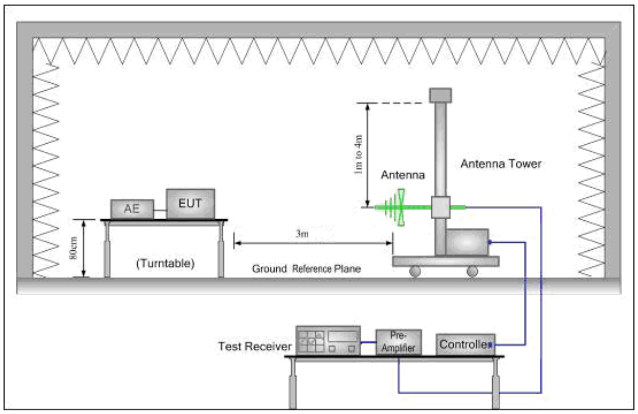

Figure 1. 30MHz to 1GHz

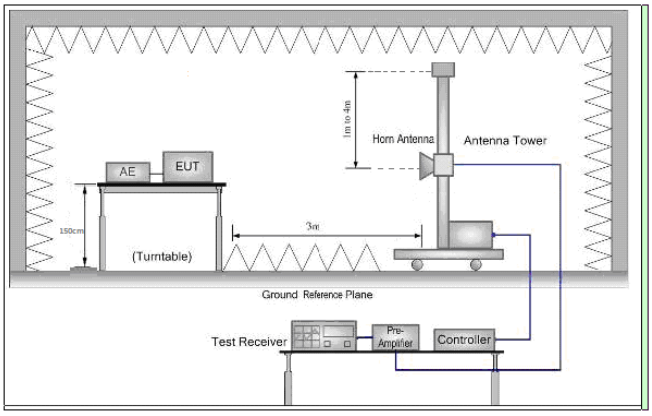

Figure 2. Above 1 GHz

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Test Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. 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. e. 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. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. 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 channel h. Test the EUT in the lowest channel , the Highest channel i. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates. Charge + Transmitting mode.
Final Test Mode:	Pretest the EUT at Transmitting mode and Charge +Transmitting mode, found the Charge +Transmitting mode which it is worse case Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11g. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

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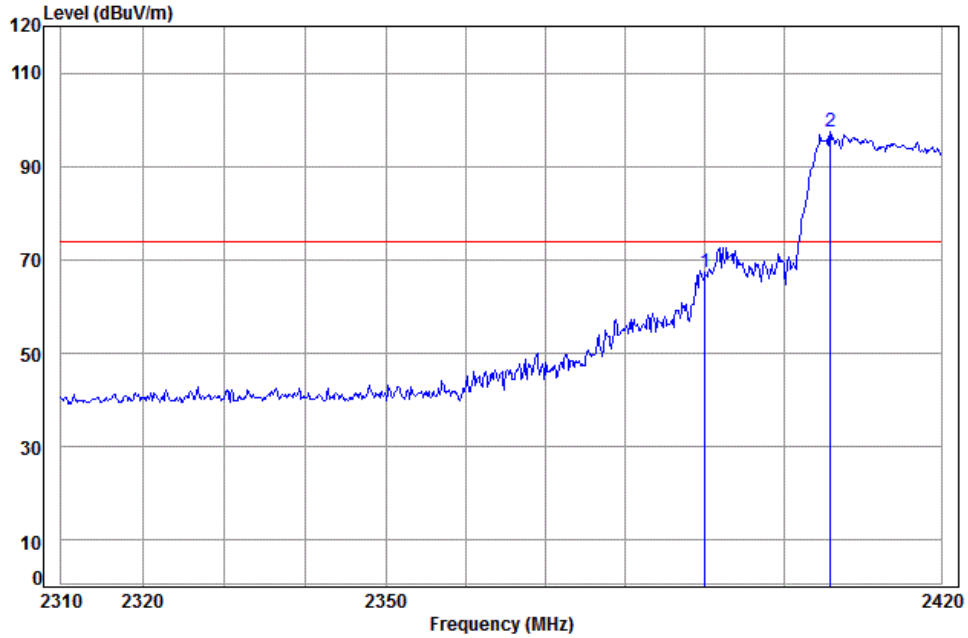
Test plot as follows:

Worse case mode:		Test channel:	Lowest	Remark:	Peak	Vertical



Condition: 3m Vertical
Job No: : 5184CR
Mode: : 2412 Band edge
: G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.00	5.34	28.57	38.11	71.47	67.27	74.00	-6.73
2 pp	2405.86	5.35	28.63	38.11	101.68	97.55	74.00	23.55

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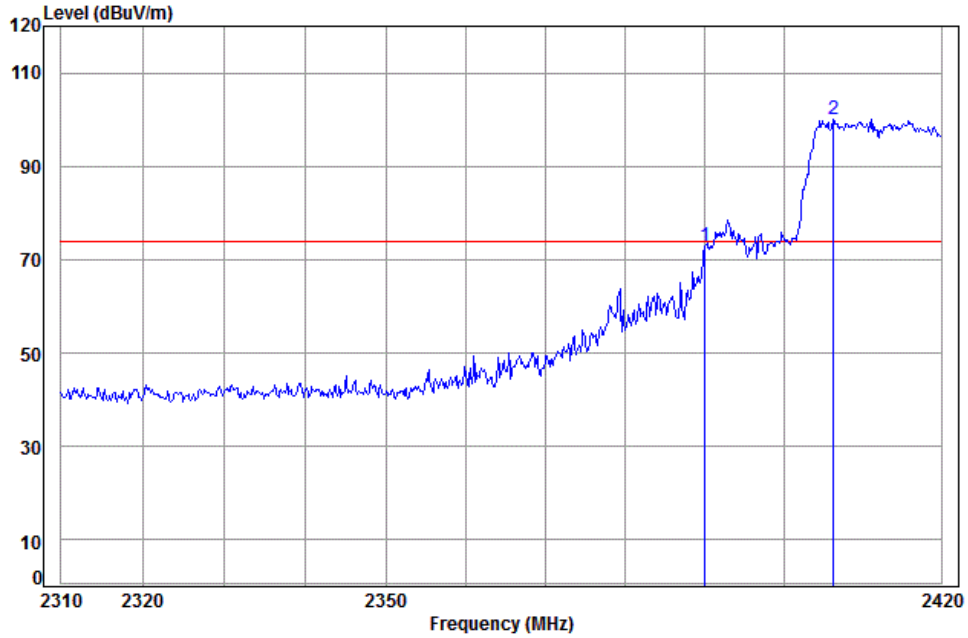
Worse case mode:		Test channel:	Lowest	Remark:	Peak	Horizontal



Condition: 3m Horizontal
Job No: : 5184CR
Mode: : 2412 Band edge
: G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.00	5.34	28.57	38.11	77.00	72.80	74.00	-1.20
2 pp	2406.30	5.35	28.63	38.11	104.31	100.18	74.00	26.18

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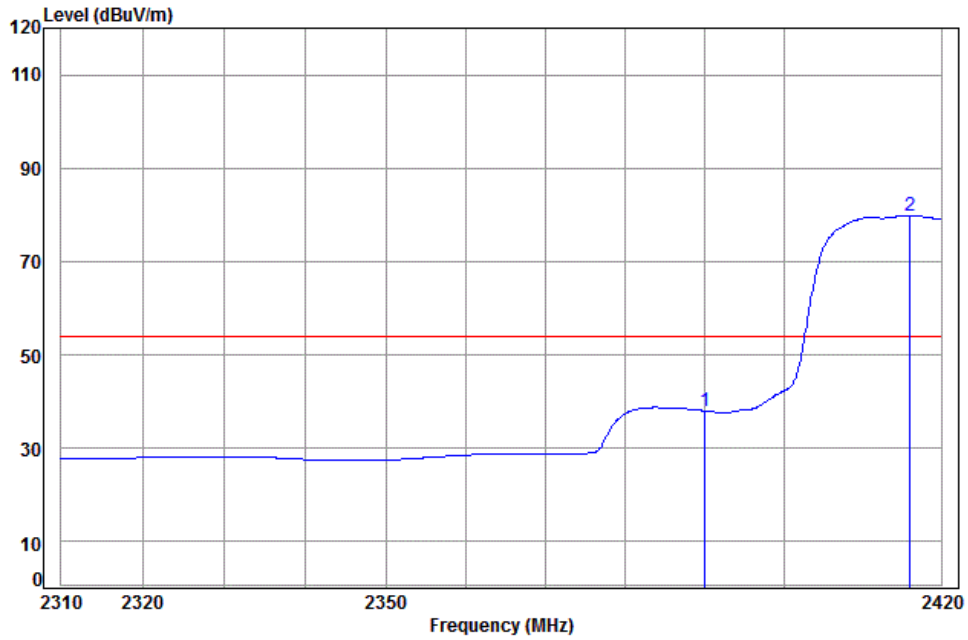
Worse case mode:		Test channel:	Lowest	Remark:	Average	Vertical



Condition: 3m Vertical
Job No: : 5184CR
Mode: : 2412 Band edge
: G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.00	5.34	28.57	38.11	42.20	38.00	54.00	-16.00
2 pp	2416.06	5.36	28.68	38.11	83.89	79.82	54.00	25.82

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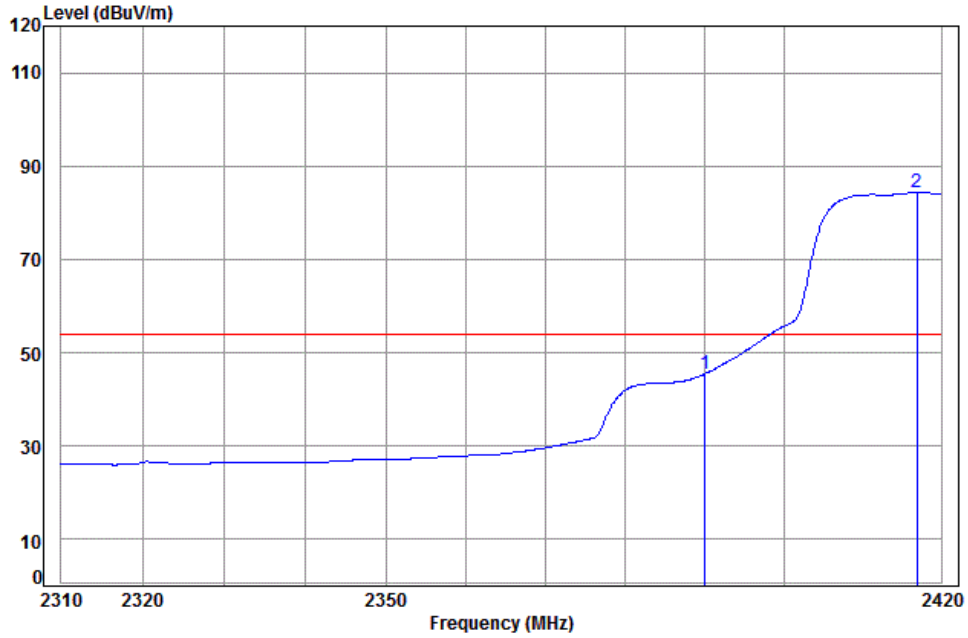
Worse case mode:		Test channel:	Lowest	Remark:	Average	Horizontal



Condition: 3m Horizontal
Job No: : 5184CR
Mode: : 2412 Band edge
: G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.00	5.34	28.57	38.11	49.72	45.52	54.00	-8.48
2 pp	2416.96	5.36	28.68	38.11	88.38	84.31	54.00	30.31

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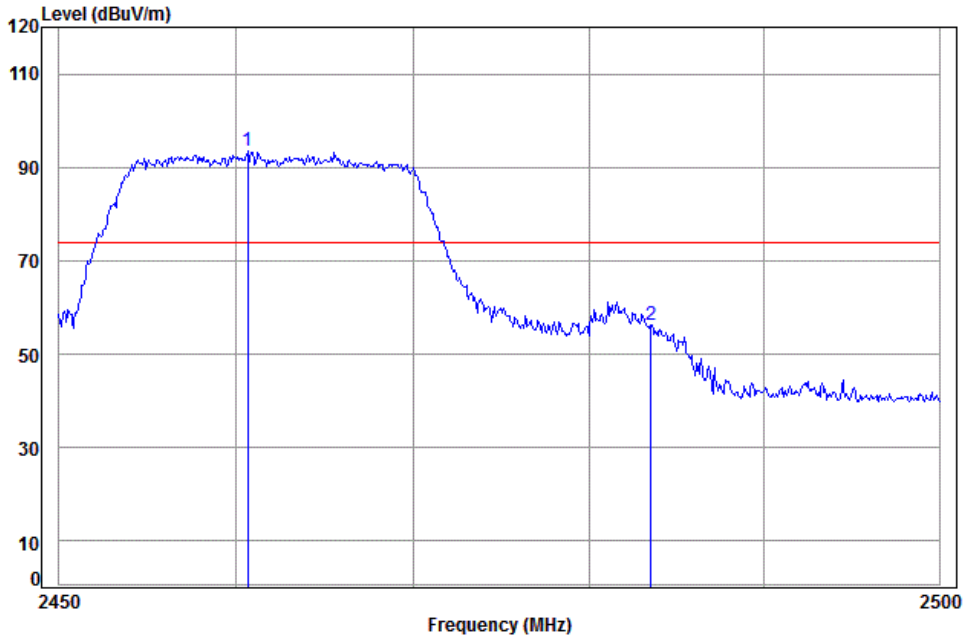
Worse case mode:		Test channel:	Highest	Remark:	Peak	Vertical



Condition: 3m Vertical
Job No: : 5184CR
Mode: : 2462 Band edge
: G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2460.62	5.39	28.88	38.12	97.28	93.43	74.00	19.43
2	2483.50	5.41	28.98	38.12	60.04	56.31	74.00	-17.69

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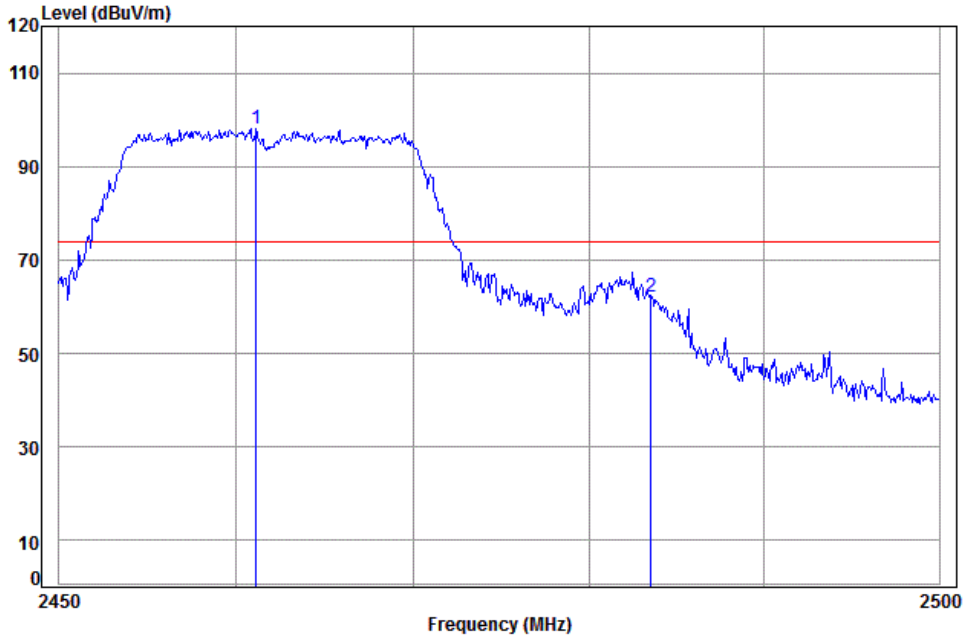
Worse case mode:		Test channel:	Highest	Remark:	Peak	Horizontal



Condition: 3m Horizontal
Job No: : 5184CR
Mode: : 2462 Band edge
: G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2461.11	5.39	28.88	38.12	101.93	98.08	74.00	24.08
2	2483.50	5.41	28.98	38.12	65.89	62.16	74.00	-11.84

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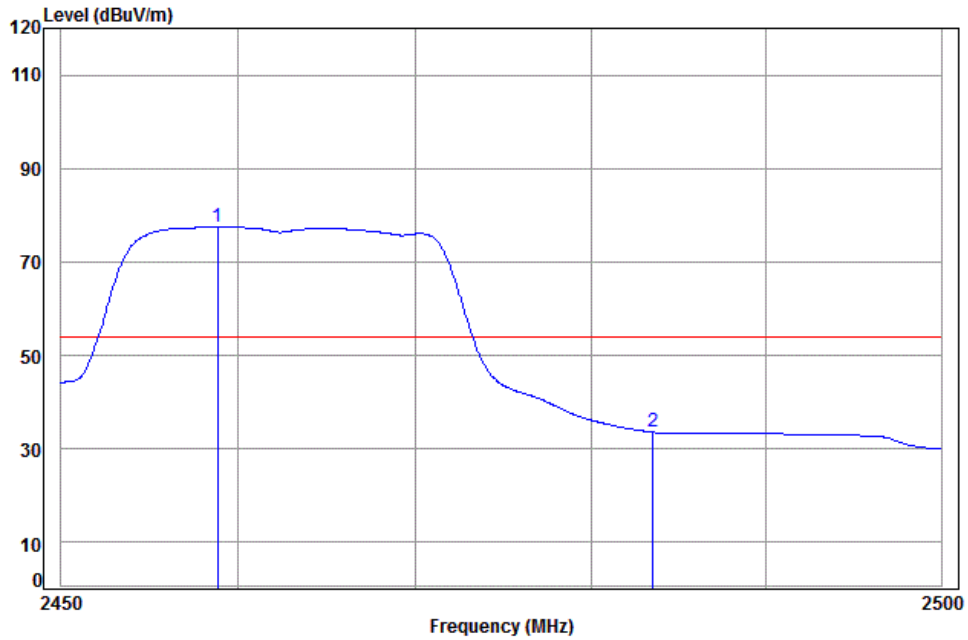
Worse case mode:		Test channel:	Highest	Remark:	Average	Vertical



Condition: 3m Vertical
Job No: : 5184CR
Mode: : 2462 Band edge
: G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2458.83	5.39	28.87	38.12	81.40	77.54	54.00	23.54
2	2483.50	5.41	28.98	38.12	37.31	33.58	54.00	-20.42

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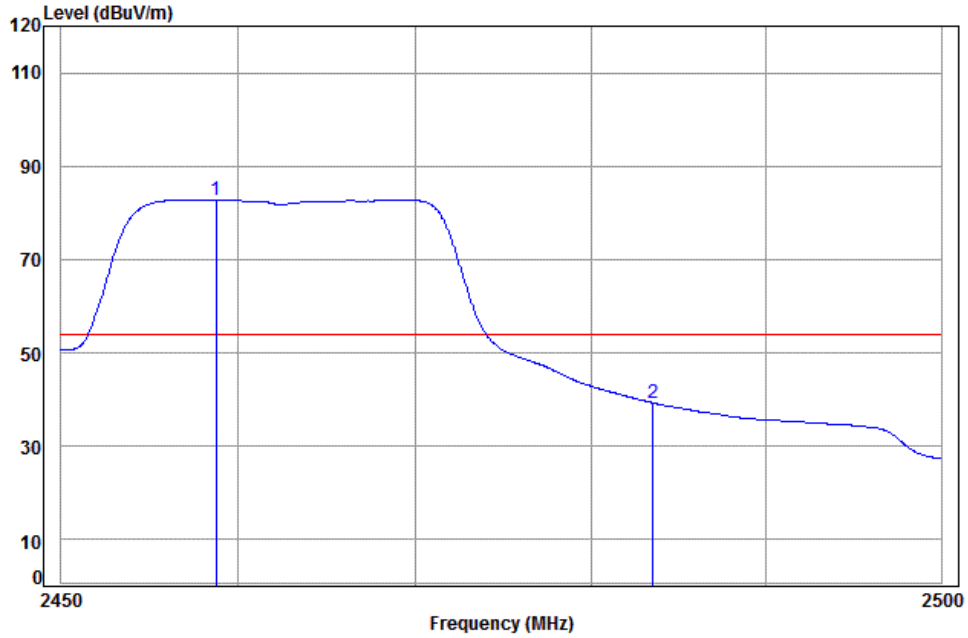
Worse case mode:		Test channel:	Highest	Remark:	Average	Horizontal



Condition: 3m Horizontal
Job No: : 5184CR
Mode: : 2462 Band edge
: G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2458.73	5.39	28.87	38.12	86.57	82.71	54.00	28.71
2	2483.50	5.41	28.98	38.12	43.08	39.35	54.00	-14.65

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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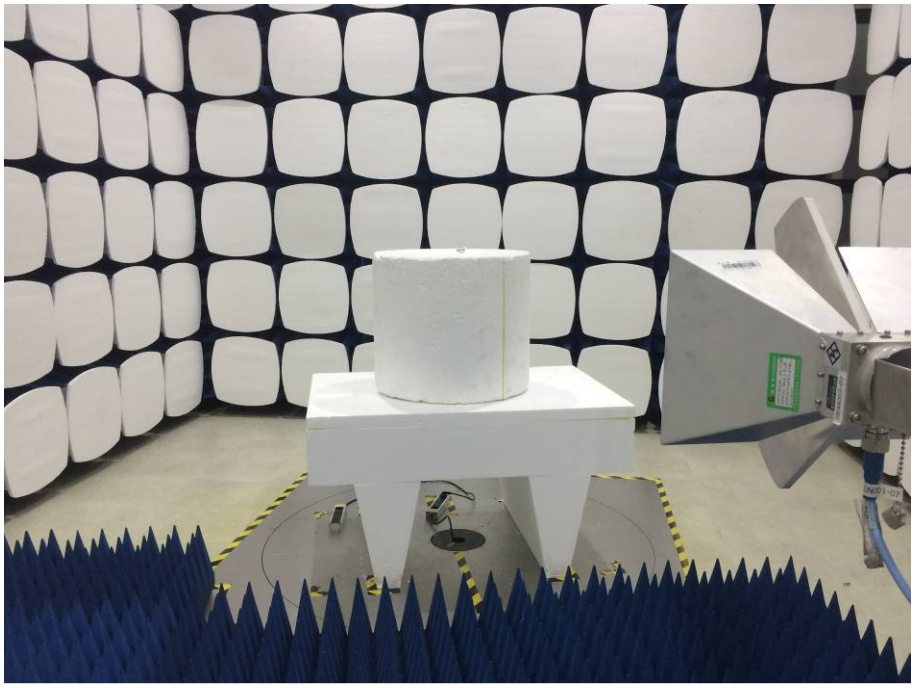
7 Photographs - EUT Test Setup

Test model No.: CX-10WD

7.1 Radiated Emission

7.2 Radiated Spurious Emission



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8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1607006252CR.

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