FCC TEST REPORT

Application No:	ZR/2020/50040
Applicant:	Xiaomi Communications Co., Ltd.
Address of Applicant:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer:	Xiaomi Communications Co., Ltd.
Address of Manufacturer	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
EUT Description:	Mobile Phone
Model No.:	M2006C3MG
Trade Mark:	Redmi
FCC ID:	2AFZZC3MG
Standards:	47 CFR FCC Part 2, Subpart J 47 CFR Part 15, Subpart C
Test Method:	KDB558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10 (2013)
Date of Receipt:	2020/6/10
Date of Test:	2020/6/10to 2020/6/26
Date of Issue:	2020/6/26
Test Result:	**PASS ***

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

Authorized Signature:

Derek Yang

Derek Yang
Wireless Laboratory Manager

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1 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2020/6/26		Original

Authorized for issue by:				
Tested By		Mike Hu **(Mike Hu) /Project Engineer**		
Checked By		David Chen **(David Chen) /Reviewer**		

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2 Test Summary

Test Item	Test Requirement	Test method	Test Result	Result
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013	Clause 4.2	PASS
Duty Cycle	--	--	Clause 4.3	PASS
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013	Clause 4.4	PASS
DTS (6 dB) Bandwidth & 99% Occupied Bandwidth	15.247 (a)(2)	ANSI C63.10 2013	Clause 4.5	PASS
Power Spectral Density	15.247 (e)	ANSI C63.10 2013	Clause 4.6	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.7	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.8	PASS
Radiated Spurious Emissions	15.247(d);15.205/15.209	ANSI C63.10 2013	Clause 4.9	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.247(d);15.205/15.209	ANSI C63.10 2013	Clause 4.10	PASS

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3 General Information

3.1 Client Information

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Manufacturer:	Xiaomi Communications Co., Ltd.
Address of Manufacturer:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

3.2 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
Post code:	518057
Telephone:	+86 (0) 755 2601 2053
Fax:	+86 (0) 755 2671 0594
E-mail:	ee.shenzhen@sgs.com

3.3 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 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• 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.

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3.4 General Description of EUT

EUT Description::	Mobile Phone
Model No.:	M2006C3MG
Trade Mark:	Redmi
Hardware Version:	P2
Software Version:	MIUI 12
IEEE 802.11 WLAN Mode Supported	☒ 802.11B (20 MHz channel bandwidth), ☒ 802.11G (20 MHz channel bandwidth) ☒ 802.11N (20 MHz channel bandwidth), ☒ 802.11N (40 MHz channel bandwidth)
Operation Frequency:	2400 MHz -2483.5MHz fc = 2407 MHz + N * 5 MHz, where: -fc = "Operating Frequency" in MHz, -N = "Channel Number" with the range from 1 to 11 for the 20 MHz channel bandwidth, or 3 to 9 for the 40 MHz channel bandwidth.
Type of Modulation:	IEEE for 802.11B: DSSS IEEE for 802.11G : OFDM IEEE for 802.11N(HT20) : OFDM IEEE for 802.11N(HT40) : OFDM
Sample Type:	☒ Portable Device, ☐Module
Antenna Type:	☐ External, ☒ Integrated
Antenna Ports	☒ Ant 1, ☐ Ant 2, ☐ Ant 3
Smart System	☒ SISO (for 802.11B/G/N), ☐ MIMO (for 802.11N): 2 Tx & 2 Rx, ☐ Diversity (for 802.11B/G) : Tx & Rx
Antenna Gain:	1.0dBi
Power Supply	☒ AC/DC Adapter; ☒ Battery ☐ PoE:; ☐ Other:
Accsessories	AC Adapter 1:Model :MDY-09-EQ; Input:100-240V,0.35A;Output:5V,2A AC Adapter 2:Model :MDY-09-EQ; Input:100-240V,0.35A;Output:5V,2A Li-ion Battery: Model :BN56;3.85V,4900mAh USB: Model :H52210; 0.8 meter, shielded cable, with-out ferrite core

Operation Frequency of each channel (802.11B/G/N HT20)							
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		
Operation Frequency of each channel (802.11N HT40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency		

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3	2422MHz	6	2437MHz	9	2452MHz	
4	2427MHz	7	2442MHz			
5	2432MHz	8	2447MHz			

Remark:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency for 802.11B/G/N (HT20)	Frequency for 802.11N (HT40)
The Lowest channel	2412MHz	2422MHz
The Middle channel	2437MHz	2437MHz
The Highest channel	2462MHz	2452MHz

3.5 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	50 % RH
Atmospheric Pressure:	101.30 KPa
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

3.6 Description of Support Units

The EUT has been tested independent unit.

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4 Test results and Measurement Data

4.1 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 1.0dBi.	

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4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
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:	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 50Ω/50μH + 5Ω 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: 2013 on conducted measurement.		

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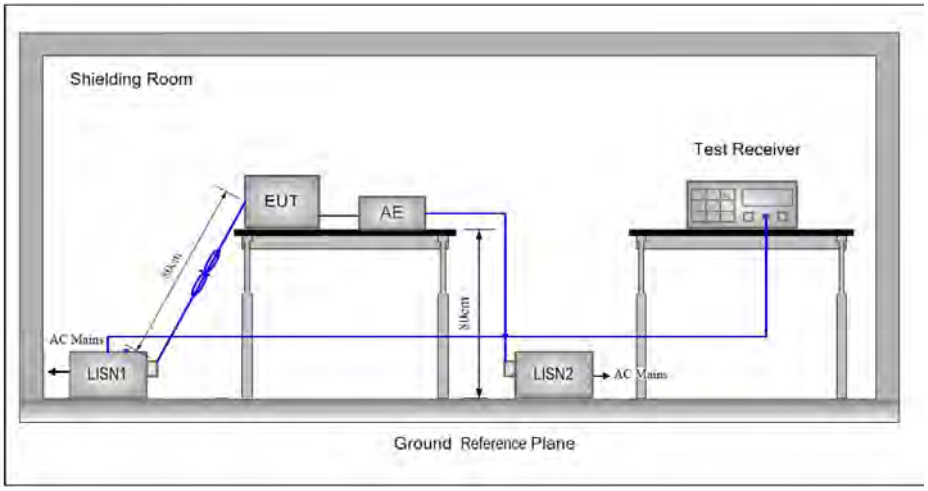
Test Setup:	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel. Charge + Transmitting mode.
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate of 802.11B at lowest channel is the worst case. Charge + Transmitting mode. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

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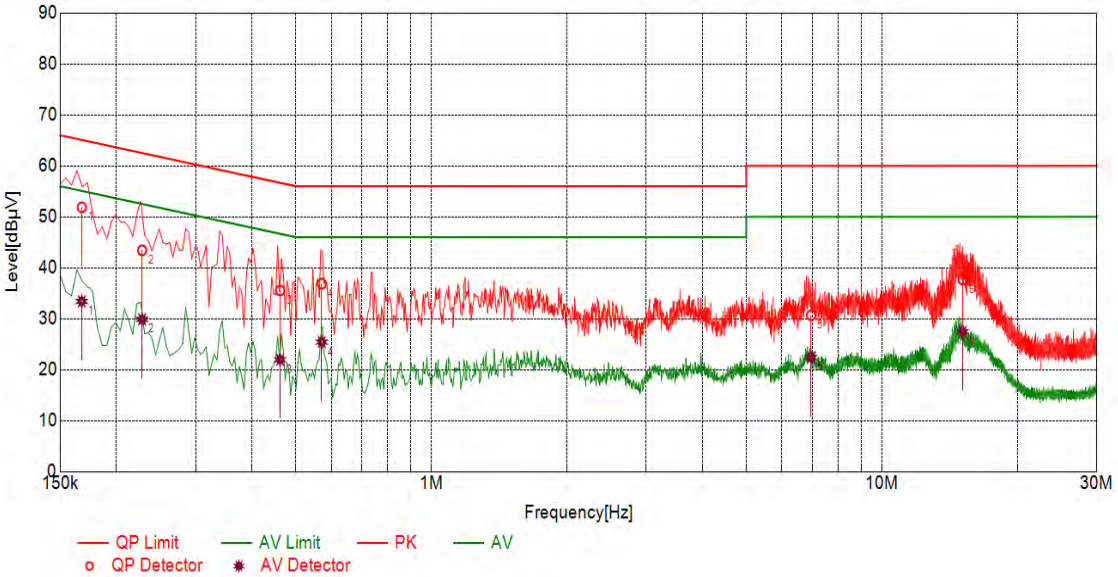
Measurement Data

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

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

Live Line:



Test Graph

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value	QP Limit	QP Margin	AV Value	AV Limit	AV Margin	Type
1	0.1676	10.10	51.86	65.08	13.22	33.40	55.08	21.68	L
2	0.2281	10.10	43.43	62.52	19.09	29.88	52.52	22.64	L
3	0.4617	10.10	35.57	56.66	21.09	21.96	46.66	24.70	L
4	0.5713	10.10	36.87	56.00	19.13	25.43	46.00	20.57	L
5	6.9636	10.10	30.68	60.00	29.32	22.39	50.00	27.61	L
6	15.1241	10.11	37.69	60.00	22.31	27.44	50.00	22.56	L

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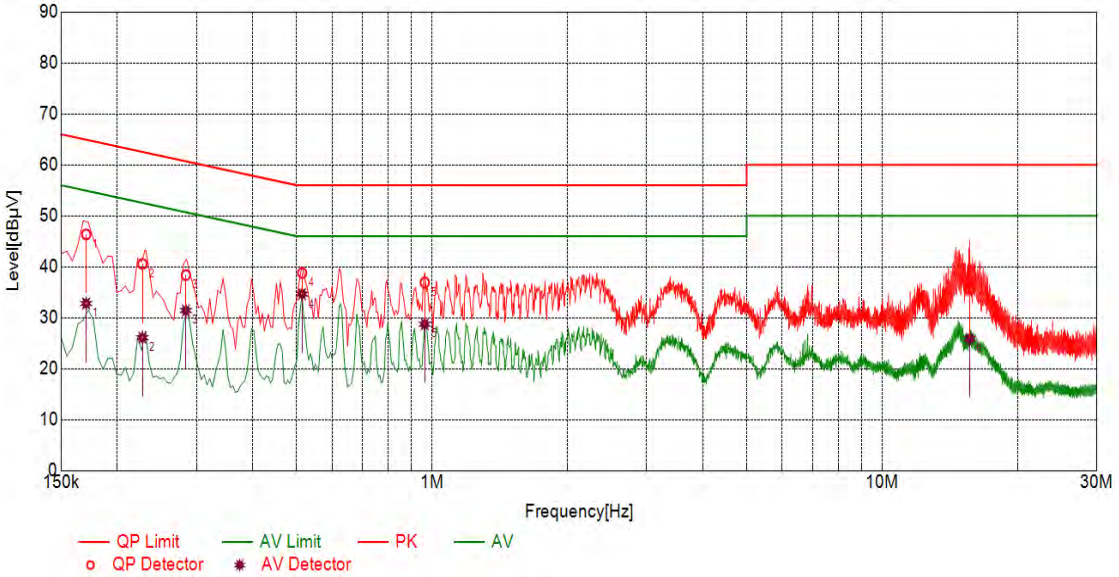
Neutral Line:



Test Graph

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value	QP Limit	QP Margin	AV Value	AV Limit	AV Margin	Type
1	0.1706	10.10	46.35	64.93	18.58	32.79	54.93	22.14	N
2	0.2275	10.10	40.57	62.54	21.97	26.09	52.54	26.45	N
3	0.2841	10.10	38.36	60.69	22.33	31.42	50.69	19.27	N
4	0.5148	10.10	38.79	56.00	17.21	34.65	46.00	11.35	N
5	0.9639	10.10	36.92	56.00	19.08	28.72	46.00	17.28	N
6	15.6579	10.11	35.59	60.00	24.41	25.88	50.00	24.12	N

Remarks:

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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4.3 Duty Cycle

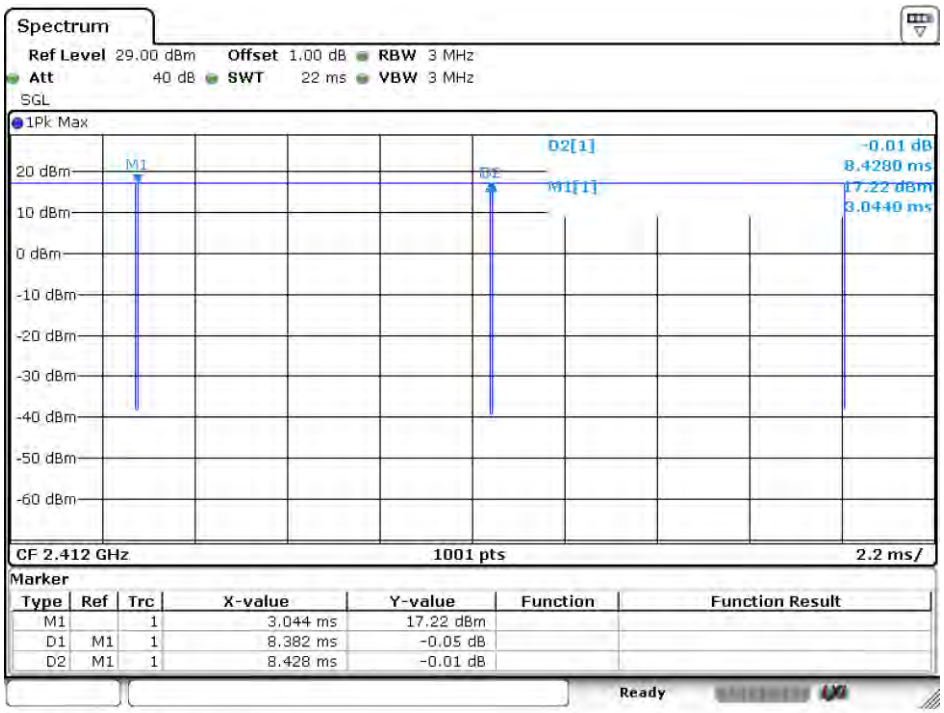
4.3.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11B	Ant 1: CH1,CH6,CH11	99.45
11G	Ant 1: CH1,CH6,CH11	95.54
11N20	Ant 1: CH1,CH6,CH11	95.83
11N40	Ant 1: CH3,CH6,CH9	93.08

4.3.1 Test Plots

4.3.1.1 ANT1

4.3.1.1.1 11B



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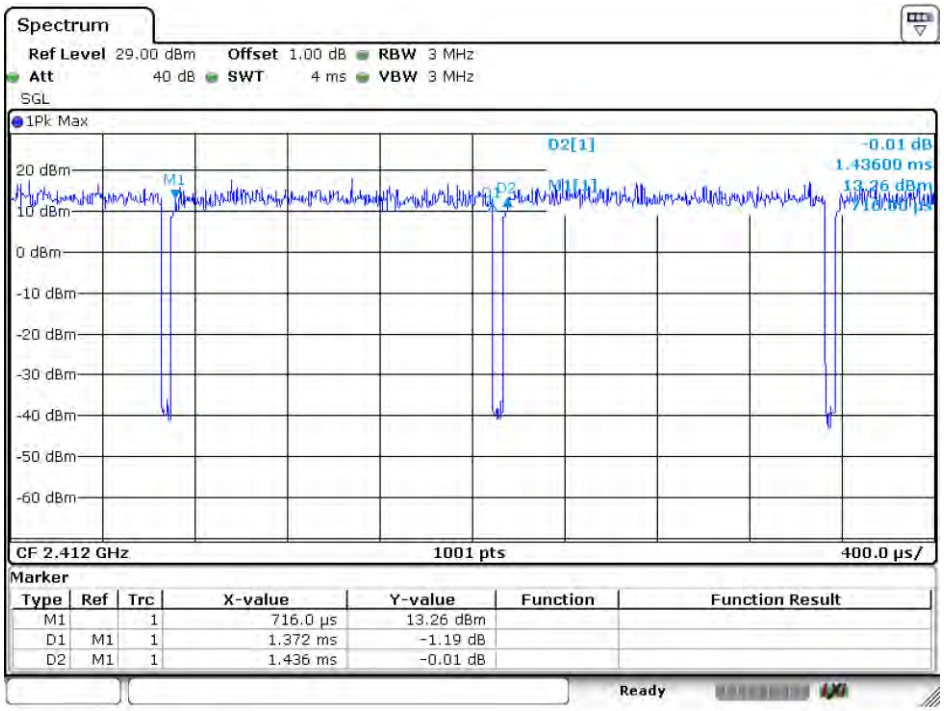
4.3.1.1.2 11G



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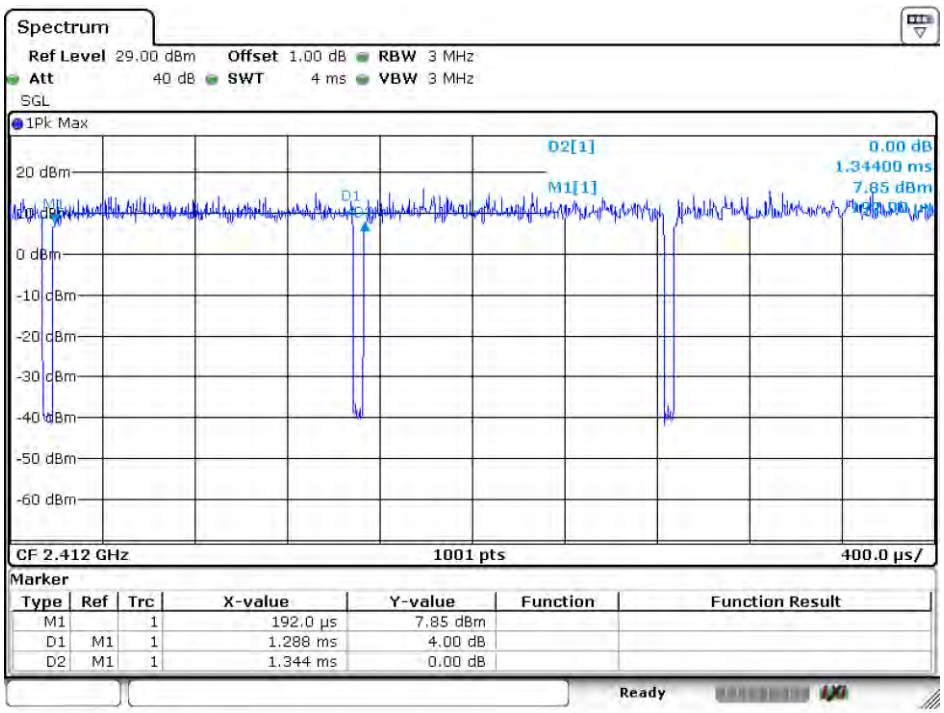
4.3.1.1.3 11N20



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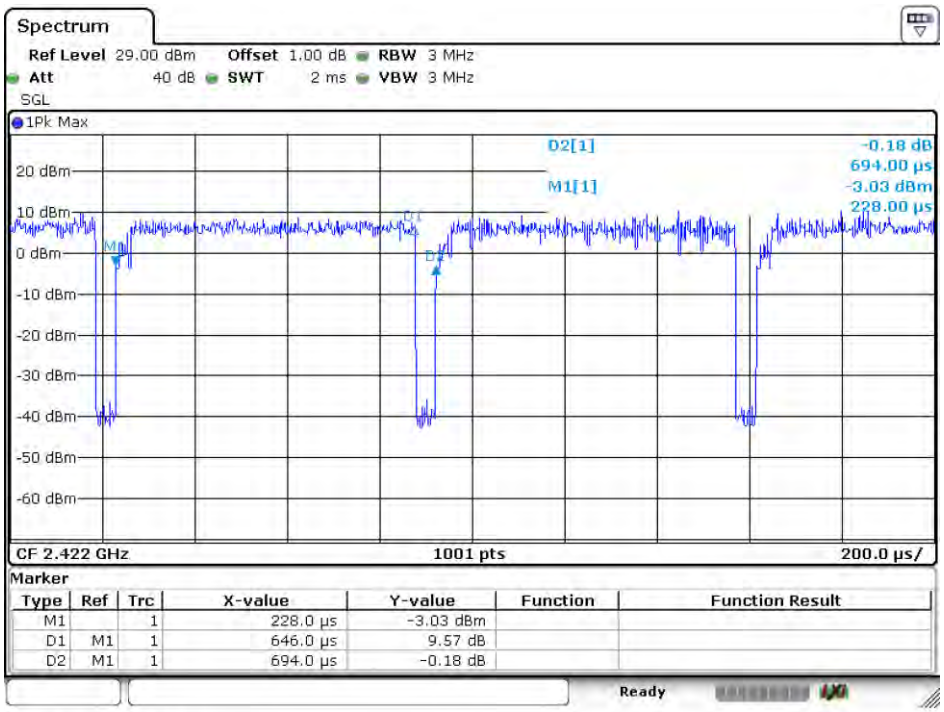
4.3.1.1.4 11N40



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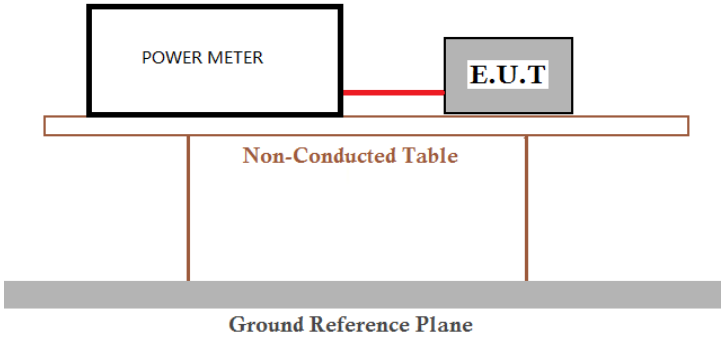
4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 :2013 Section 11.9.1.3
Test Setup:	
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 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G ; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40).
Limit:	30dBm
Test Results:	Pass

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4.4.1 Test Results

Measurement Data of Average Power:

Mode	Test Channel	Average Output Power (dBm) [Duty Cycle Considered]	Result
802.11B	Lowest	16.15	Report purpose only
	Middle	16.48	Report purpose only
	Highest	16.35	Report purpose only
802.11G	Lowest	13.02	Report purpose only
	Middle	13.39	Report purpose only
	Highest	13.08	Report purpose only
802.11N20	Lowest	10.92	Report purpose only
	Middle	11.42	Report purpose only
	Highest	11.02	Report purpose only
802.11N40	Lowest	11.16	Report purpose only
	Middle	11.35	Report purpose only
	Highest	11.42	Report purpose only

Measurement Data of Peak Power:

Mode	Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
802.11B	Lowest	16.66	30.00	Pass
	Middle	16.75	30.00	Pass
	Highest	17.26	30.00	Pass
802.11G	Lowest	14.62	30.00	Pass
	Middle	14.06	30.00	Pass
	Highest	14.21	30.00	Pass
802.11N20	Lowest	12.46	30.00	Pass
	Middle	12.03	30.00	Pass
	Highest	12.20	30.00	Pass
802.11N40	Lowest	12.01	30.00	Pass
	Middle	12.14	30.00	Pass
	Highest	12.62	30.00	Pass

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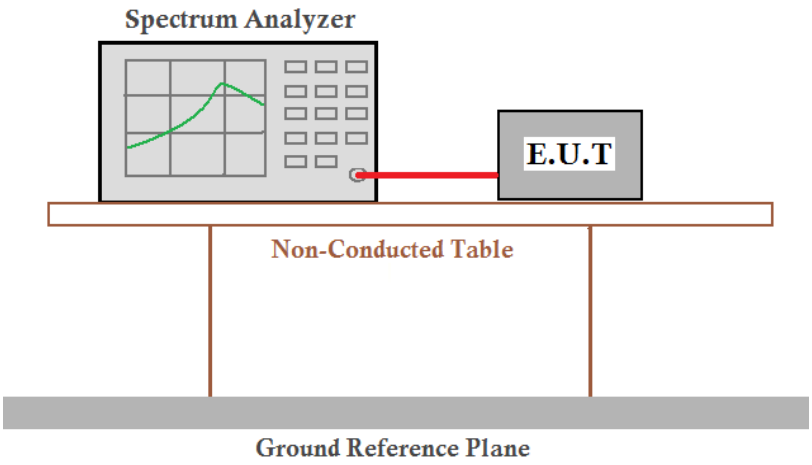
4.5 DTS (6 dB) Bandwidth & 99% Occupied Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013 Section 11.8.1 Option 1
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 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40).
Limit:	≥ 500 kHz
Test Results:	Pass

4.5.1 Test Results

Mode	Test Channel	Occupied Bandwidth (MHz)	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
802.11B	Lowest	12.76	8.55	≥500	Pass
	Middle	12.98	8.55	≥500	Pass
	Highest	13.02	8.99	≥500	Pass
802.11G	Lowest	17.63	16.28	≥500	Pass
	Middle	16.80	16.02	≥500	Pass
	Highest	16.89	16.02	≥500	Pass
802.11N20	Lowest	18.19	17.15	≥500	Pass
	Middle	17.76	16.50	≥500	Pass
	Highest	17.84	17.54	≥500	Pass
802.11N40	Lowest	35.95	35.07	≥500	Pass
	Middle	36.12	35.17	≥500	Pass
	Highest	36.38	35.60	≥500	Pass

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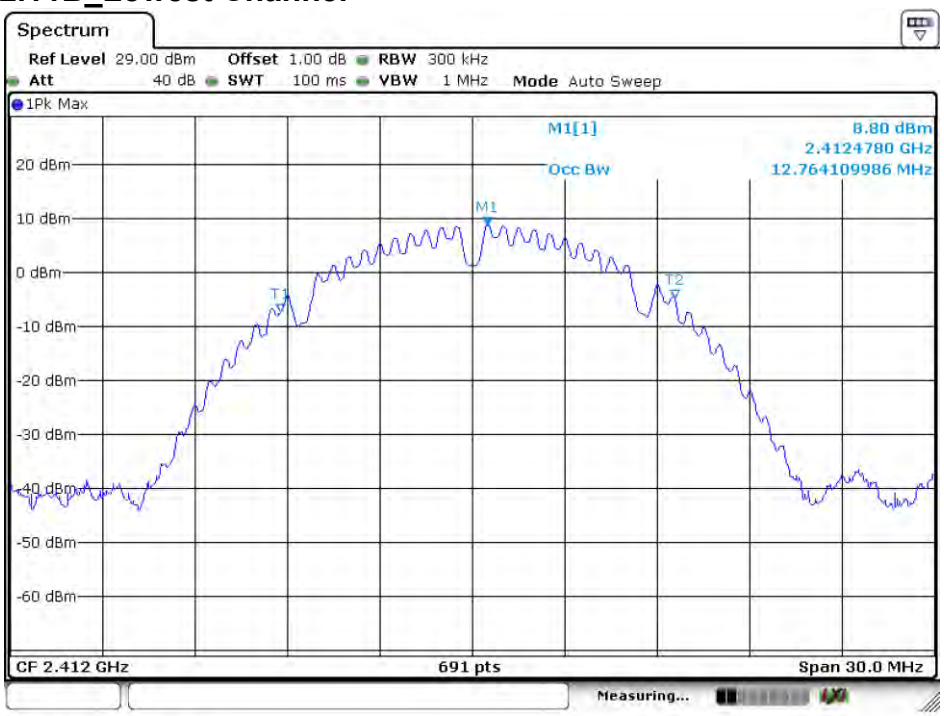
4.5.2 Test plots

4.5.2.1 ANT1

4.5.2.1.1 802.11B_Lowest Channel



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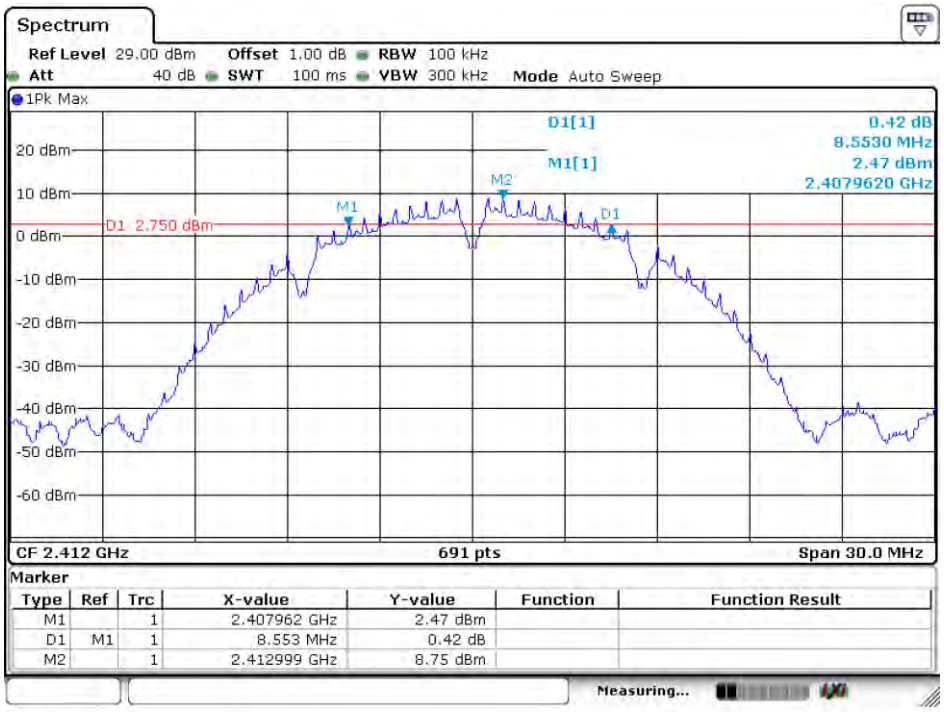

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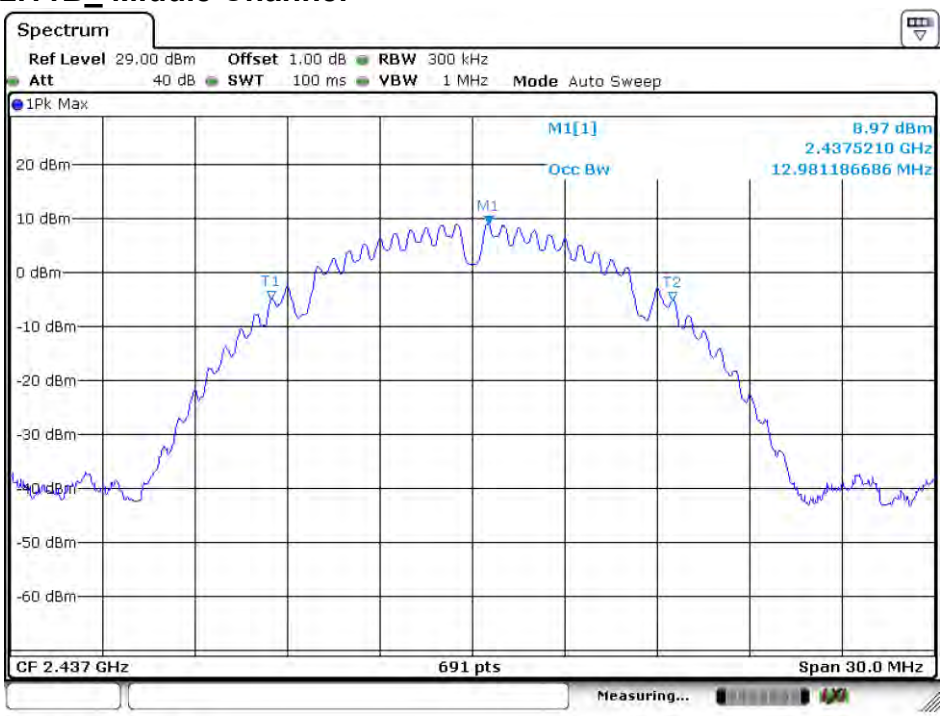
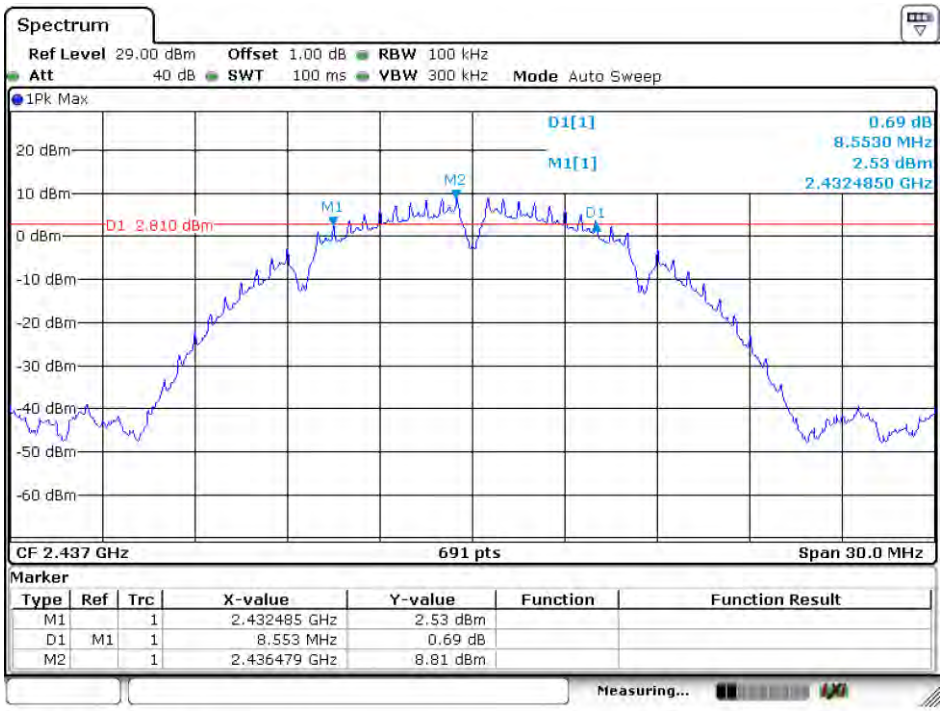
4.5.2.1.2 802.11B_ Middle Channel



Date: 8.JUN.2020 04:04:22



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.432485 GHz	2.53 dBm		
D1	M1	1	8.553 MHz	0.69 dB		
M2		1	2.436479 GHz	8.81 dBm		

Date: 8.JUN.2020 04:11:59

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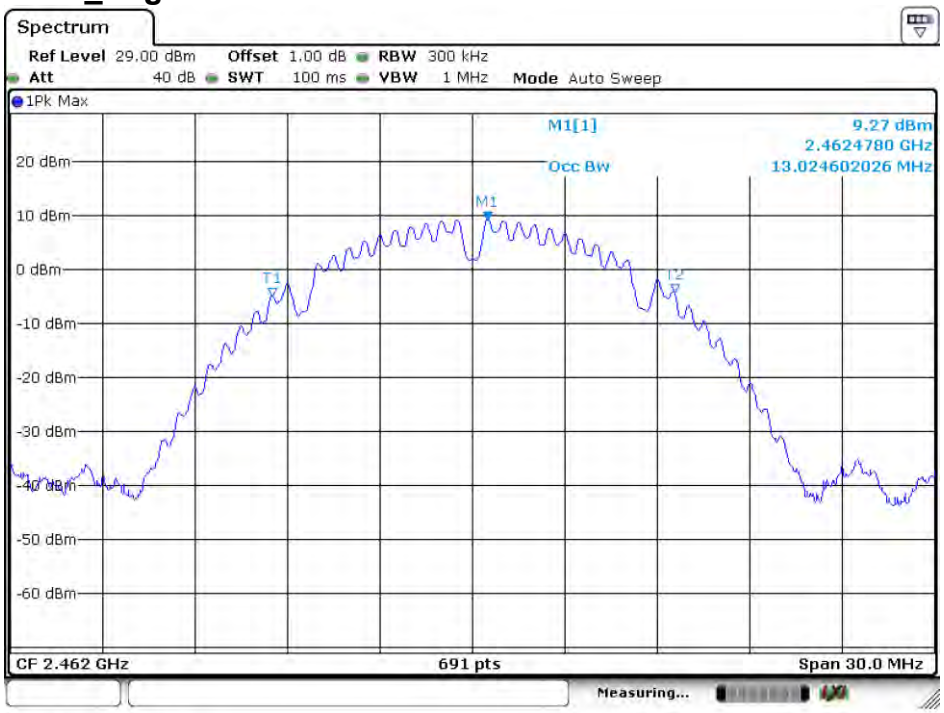
4.5.2.1.3 802.11B_ Highest Channel



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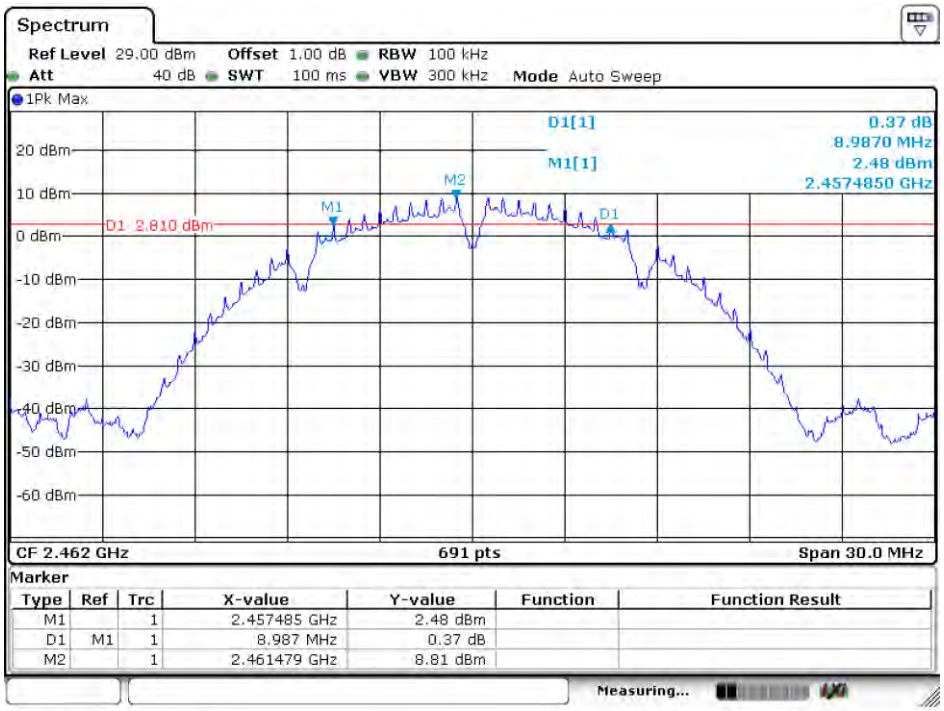

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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.457485 GHz	2.48 dBm		
D1	M1	1	8.987 MHz	0.37 dB		
M2		1	2.461479 GHz	8.81 dBm		

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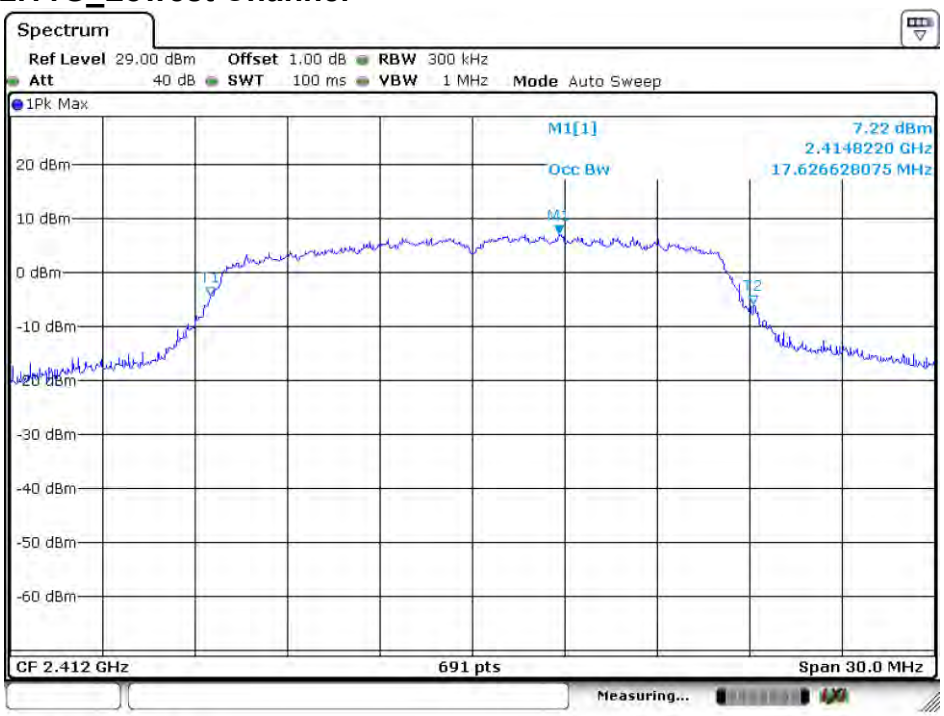
4.5.2.1.4 802.11G_Lowest Channel



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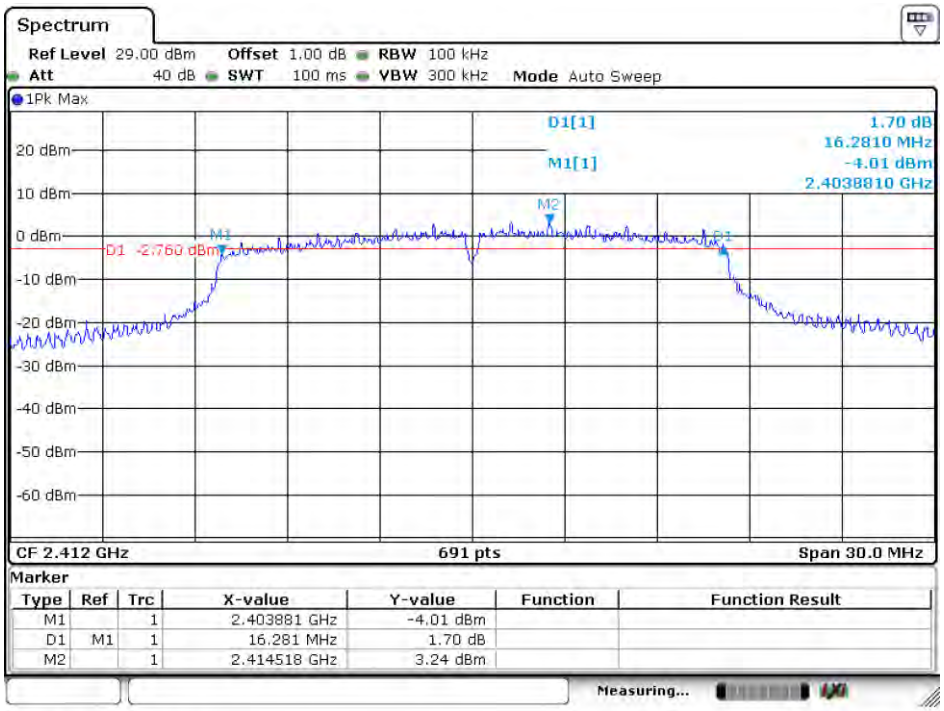

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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.403881 GHz	-4.01 dBm		
D1	M1	1	16.281 MHz	1.70 dB		
M2		1	2.414518 GHz	3.24 dBm		

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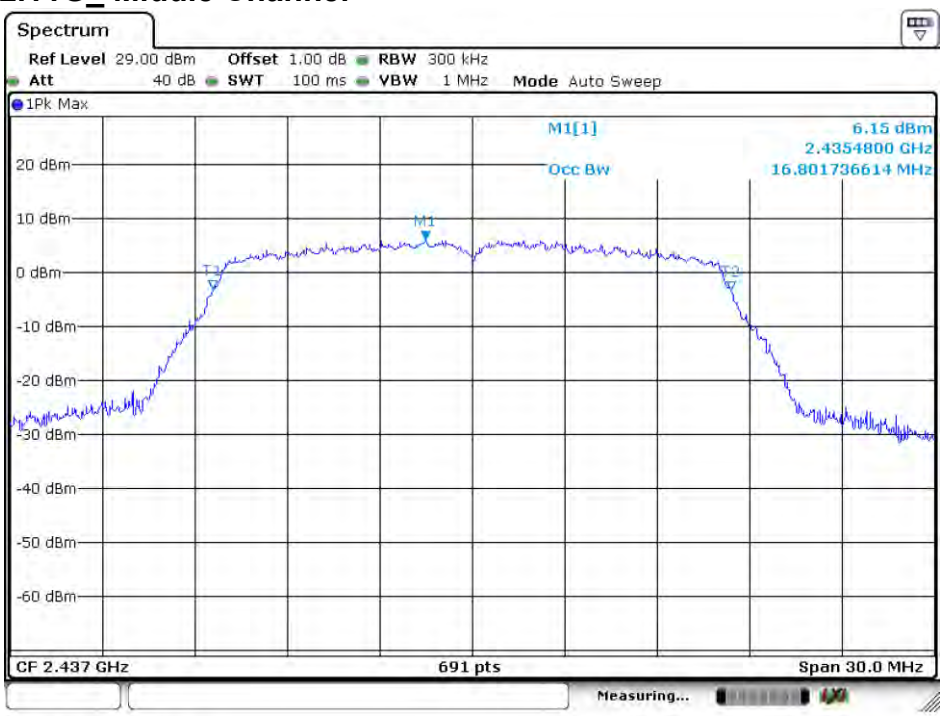
4.5.2.1.5 802.11G_ Middle Channel



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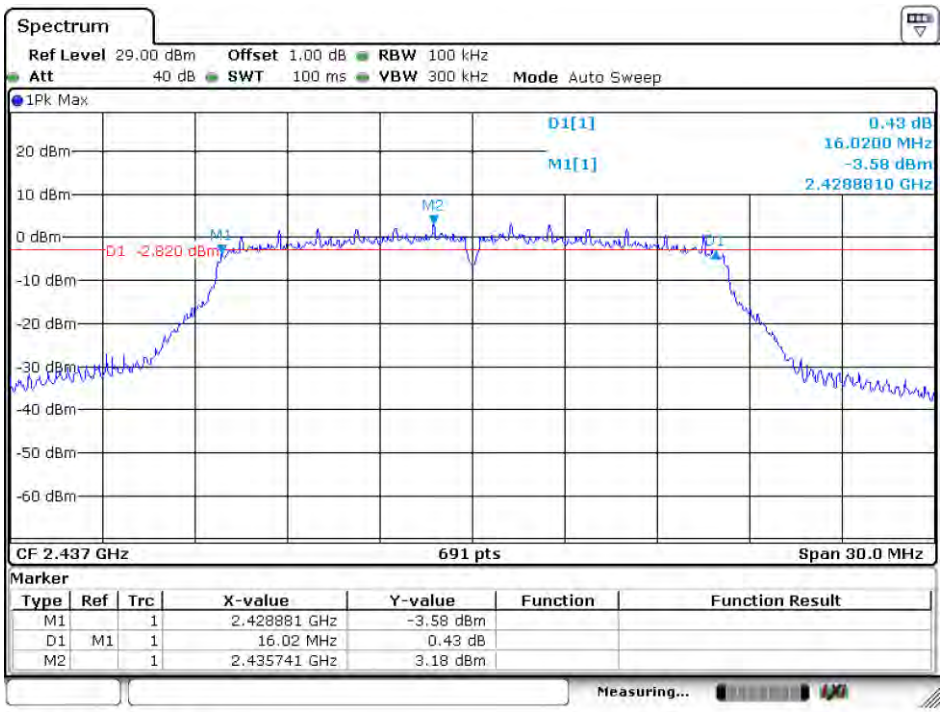

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.428881 GHz	-3.58 dBm		
D1	M1	1	16.02 MHz	0.43 dB		
M2		1	2.435741 GHz	3.18 dBm		

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4.5.2.1.6 802.11G_ Highest Channel

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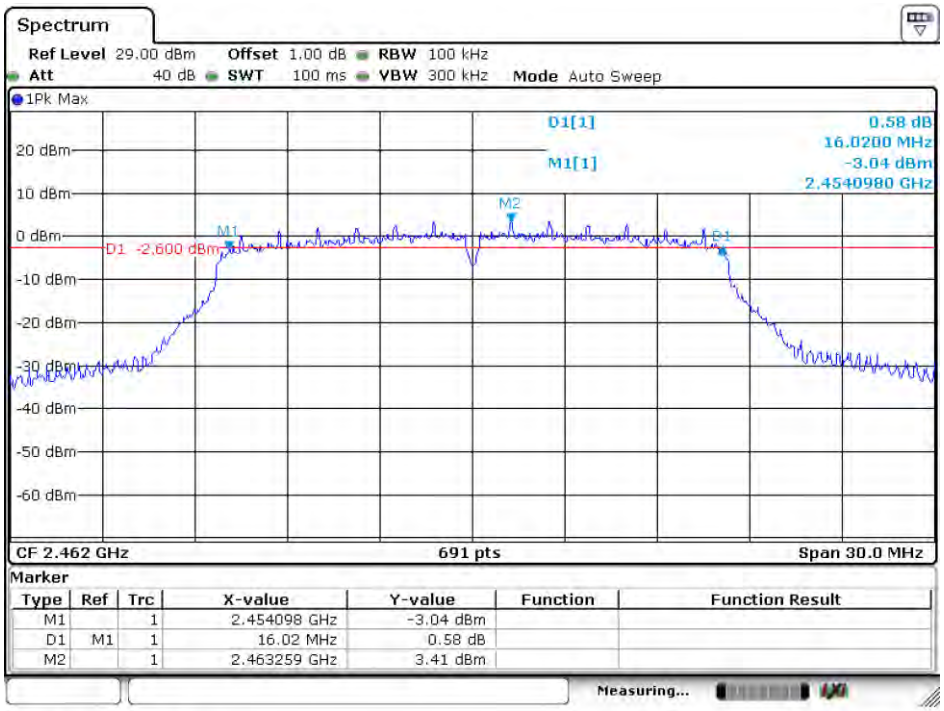

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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.454098 GHz	-3.04 dBm		
D1	M1	1	16.02 MHz	0.58 dB		
M2		1	2.463259 GHz	3.41 dBm		

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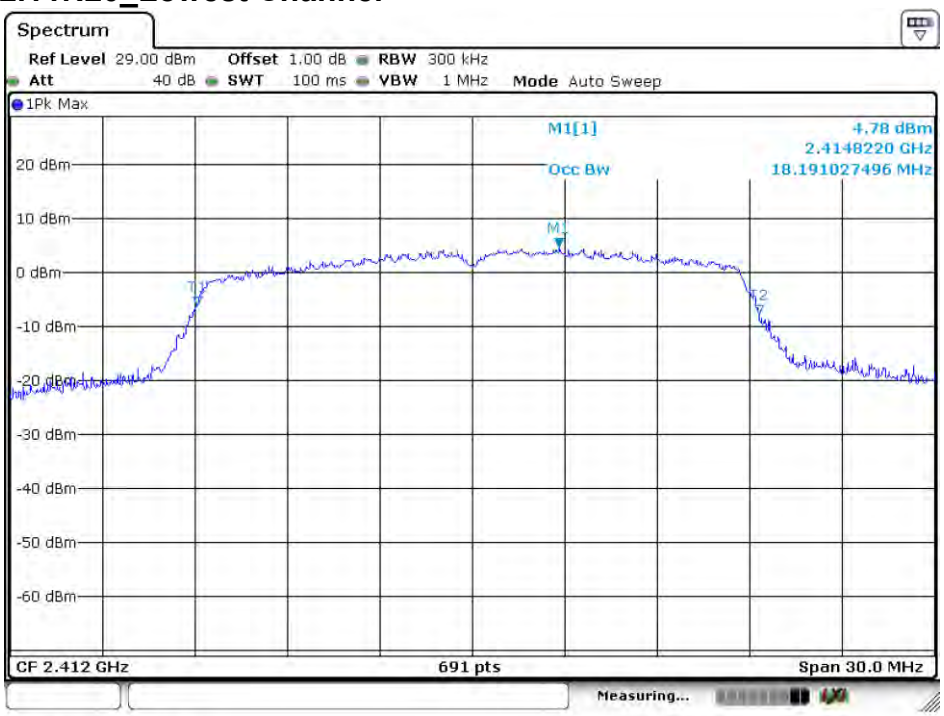
4.5.2.1.7 802.11N20_Lowest Channel



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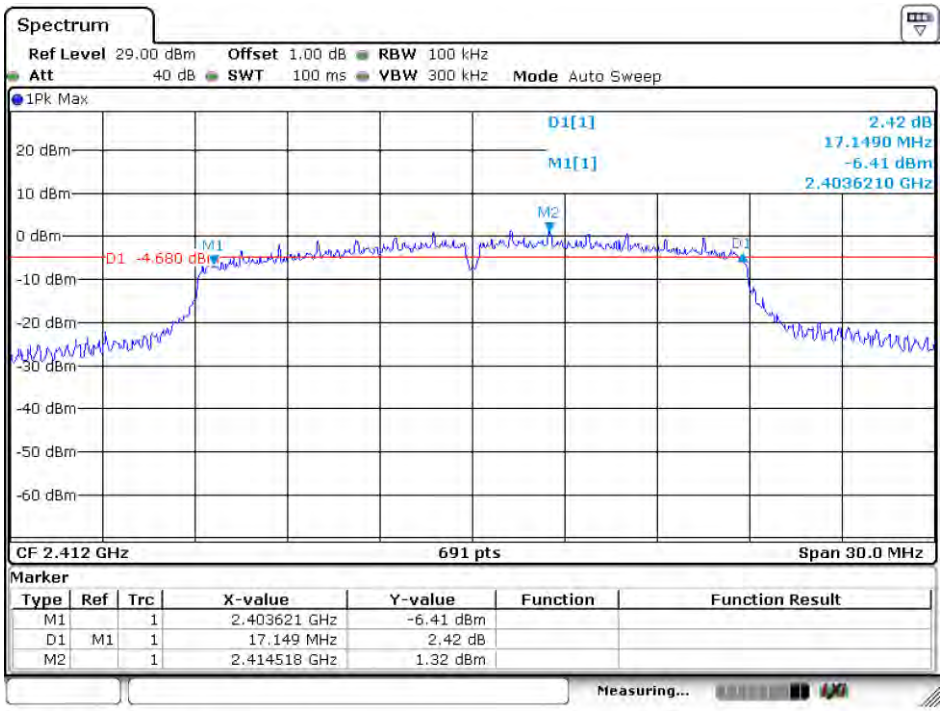

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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.403621 GHz	-6.41 dBm		
D1	M1	1	17.149 MHz	2.42 dB		
M2		1	2.414518 GHz	1.32 dBm		

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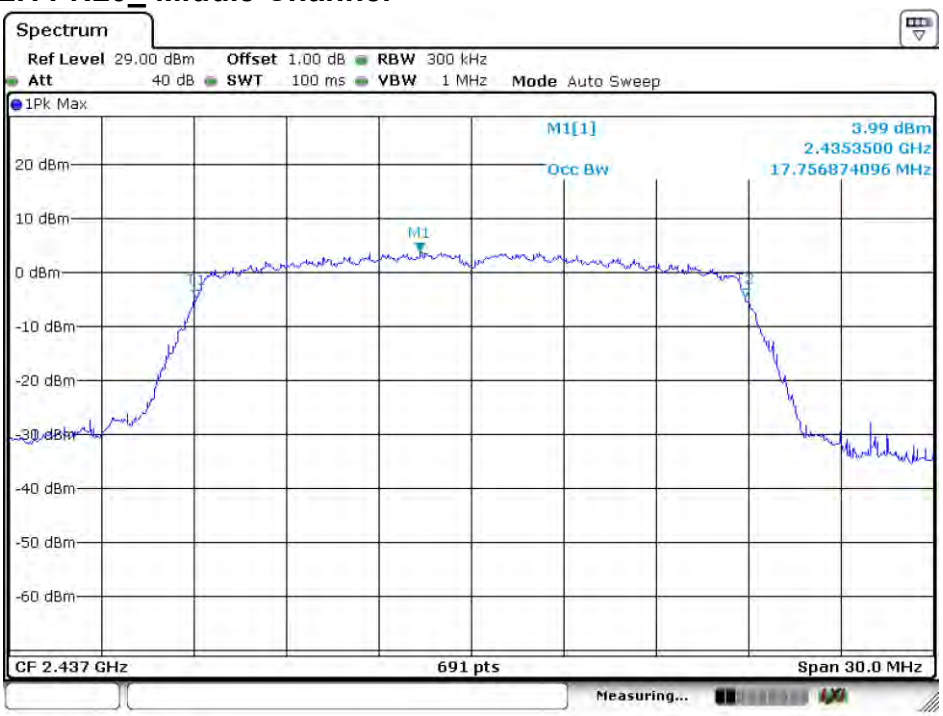
4.5.2.1.8 802.11 N20_ Middle Channel



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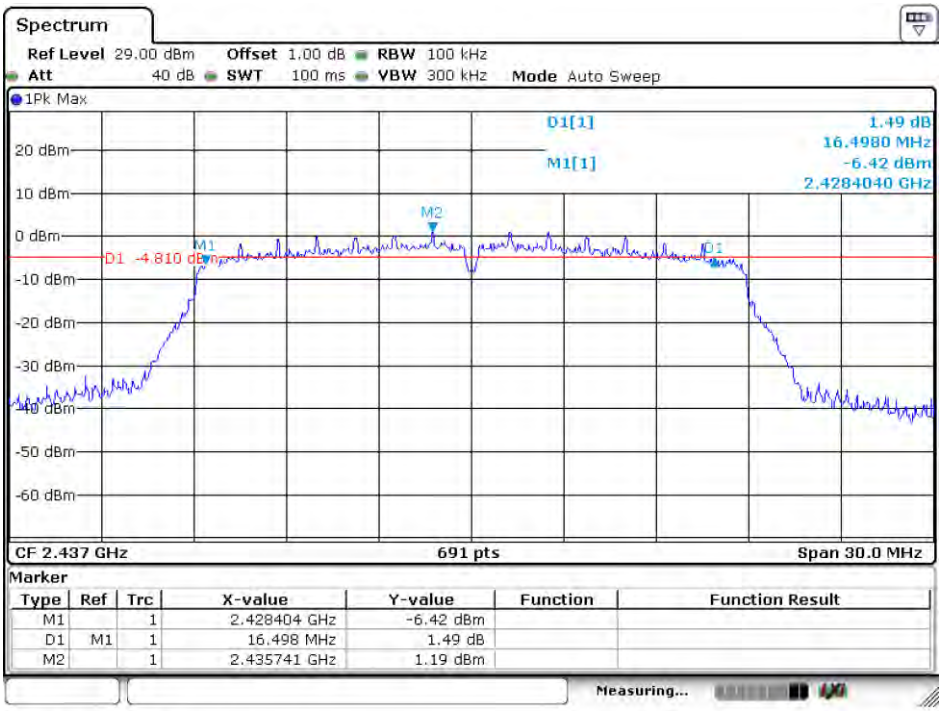

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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.428404 GHz	-6.42 dBm		
D1	M1	1	16.498 MHz	1.49 dB		
M2		1	2.435741 GHz	1.19 dBm		

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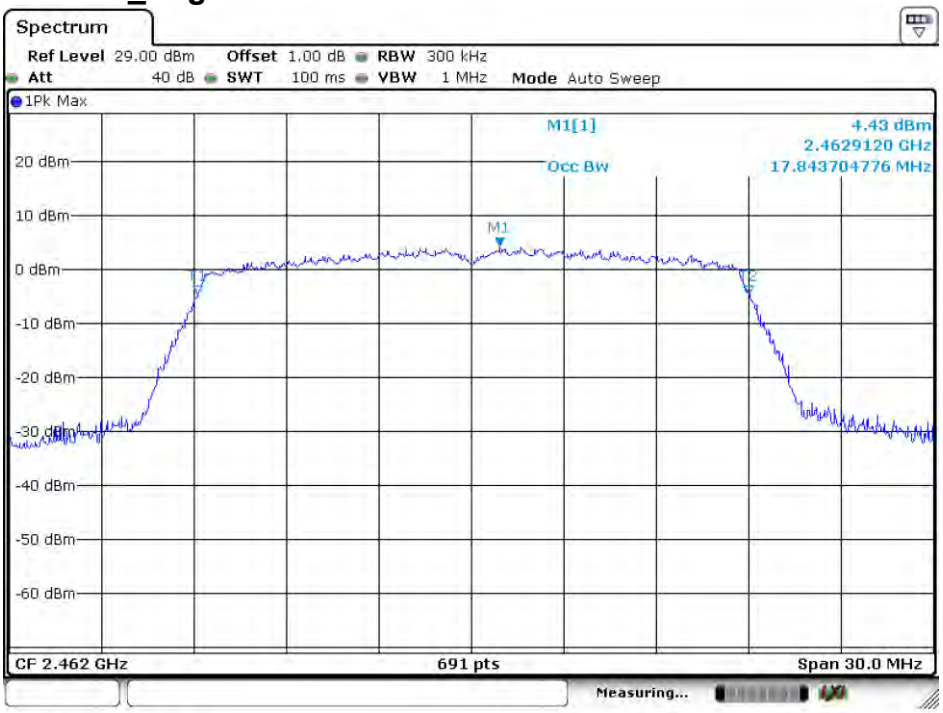
4.5.2.1.9 802.11 N20_ Highest Channel



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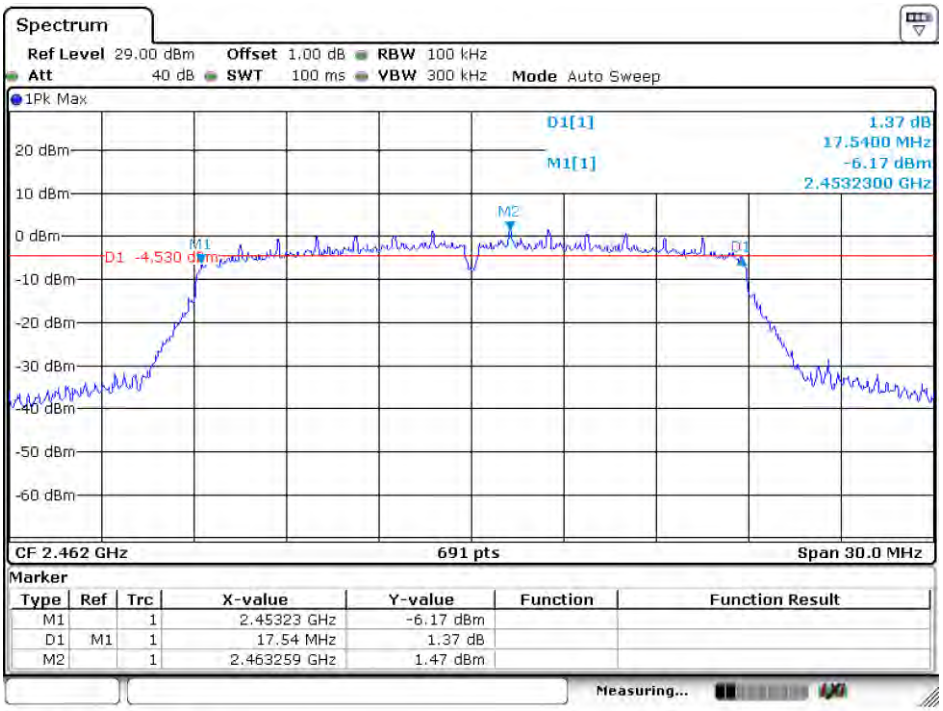

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45323 GHz	-6.17 dBm		
D1	M1	1	17.54 MHz	1.37 dB		
M2		1	2.463259 GHz	1.47 dBm		

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4.5.2.1.10 802.11N40_Lowest Channel

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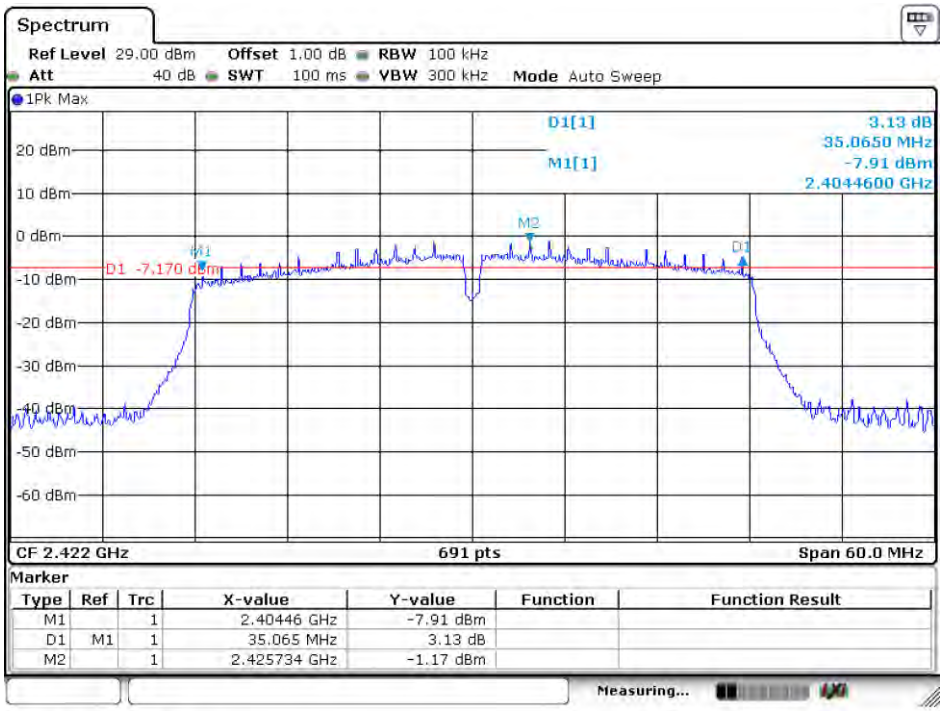

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40446 GHz	-7.91 dBm		
D1	M1	1	35.065 MHz	3.13 dB		
M2		1	2.425734 GHz	-1.17 dBm		

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4.5.2.1.11 802.11 N40_ Middle Channel

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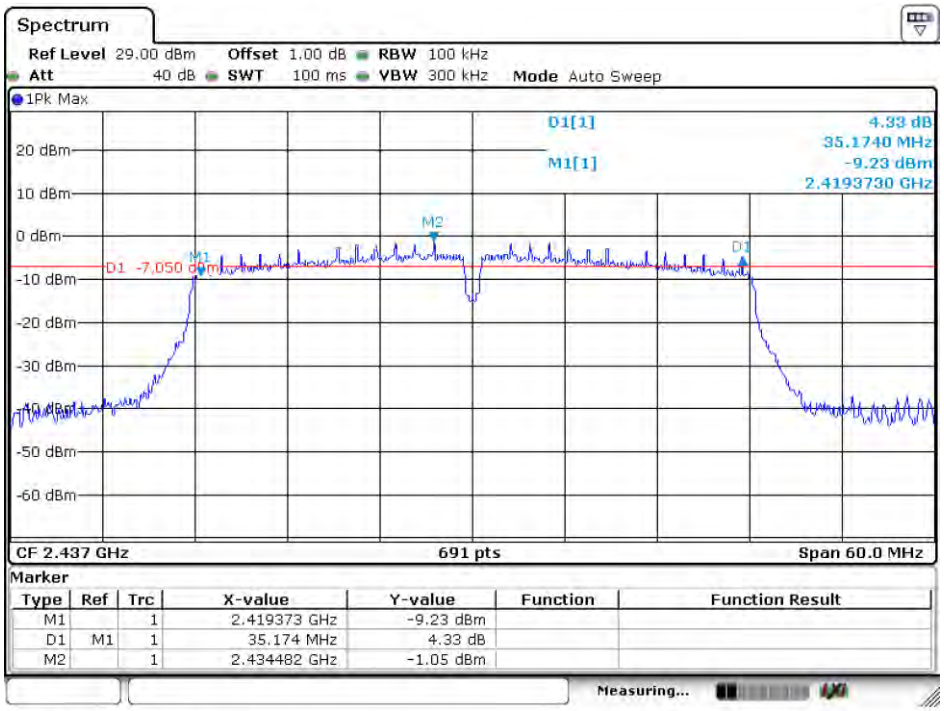

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.419373 GHz	-9.23 dBm		
D1	M1	1	35.174 MHz	4.33 dB		
M2		1	2.434482 GHz	-1.05 dBm		

Date: 8.JUN.2020 04:18:42

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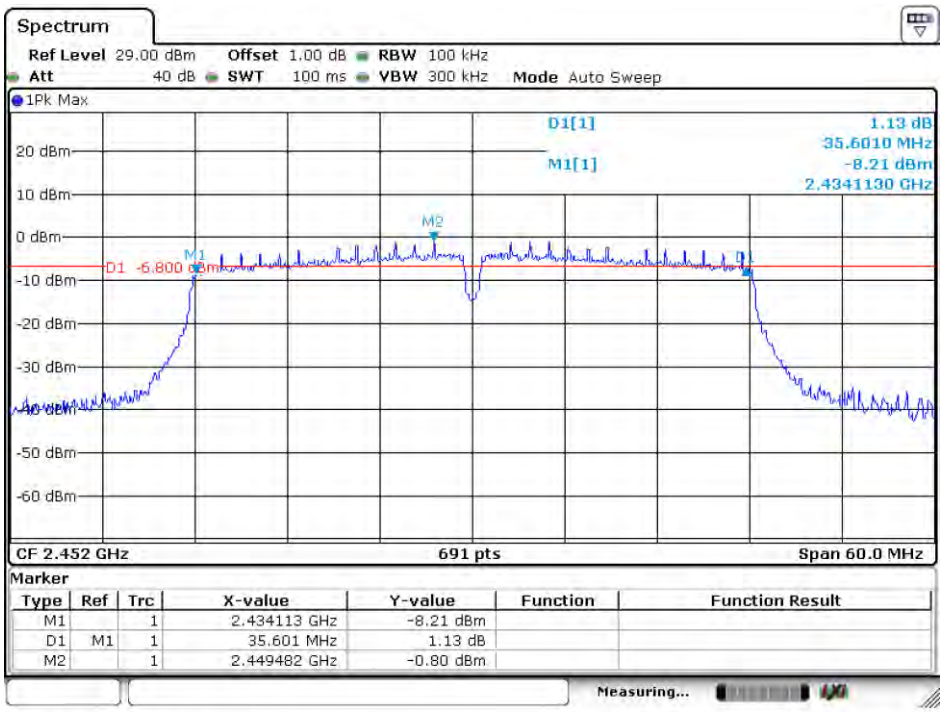
4.5.2.1.12 802.11 N40_ Highest Channel

Date: 8.JUN.2020 04:00:22



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.434113 GHz	-8.21 dBm		
D1	M1	1	35.601 MHz	1.13 dB		
M2		1	2.449482 GHz	-0.80 dBm		

Date: 8.JUN.2020 04:19:46

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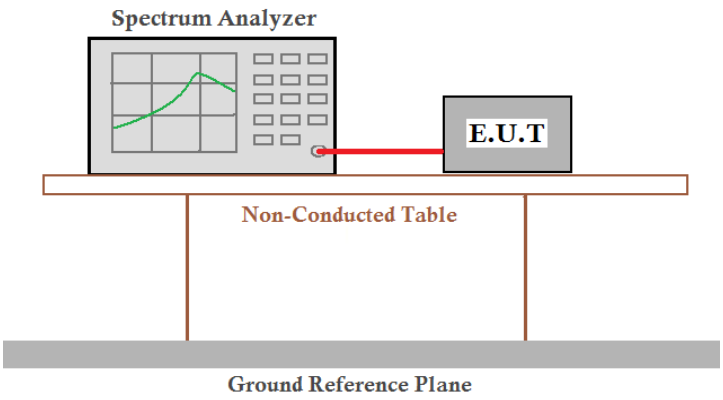
4.6 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 :2013 Section 11.10.2
Test Setup:	
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 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G ; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40).
Limit:	≤8.00dBm/3kHz
Test Results:	Pass

4.6.1 Test Results

Mode	Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11B	Lowest	-3.89	≤8.00	Pass
	Middle	-4.45	≤8.00	Pass
	Highest	-3.55	≤8.00	Pass
802.11G	Lowest	-8.15	≤8.00	Pass
	Middle	-8.35	≤8.00	Pass
	Highest	-8.68	≤8.00	Pass
802.11N20	Lowest	-10.00	≤8.00	Pass
	Middle	-9.99	≤8.00	Pass
	Highest	-10.75	≤8.00	Pass
802.11N40	Lowest	-13.52	≤8.00	Pass
	Middle	-13.95	≤8.00	Pass
	Highest	-13.53	≤8.00	Pass

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4.6.2 Test plots

4.6.2.1 ANT1

4.6.2.1.1 802.11B_Lowest Channel

Date: 8.JUN.2020 04:23:29

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4.6.2.1.2 802.11B_ Middle Channel

Date: 8.JUN.2020 04:23:08

4.6.2.1.3 802.11B_ Highest Channel

Date: 8.JUN.2020 04:22:47

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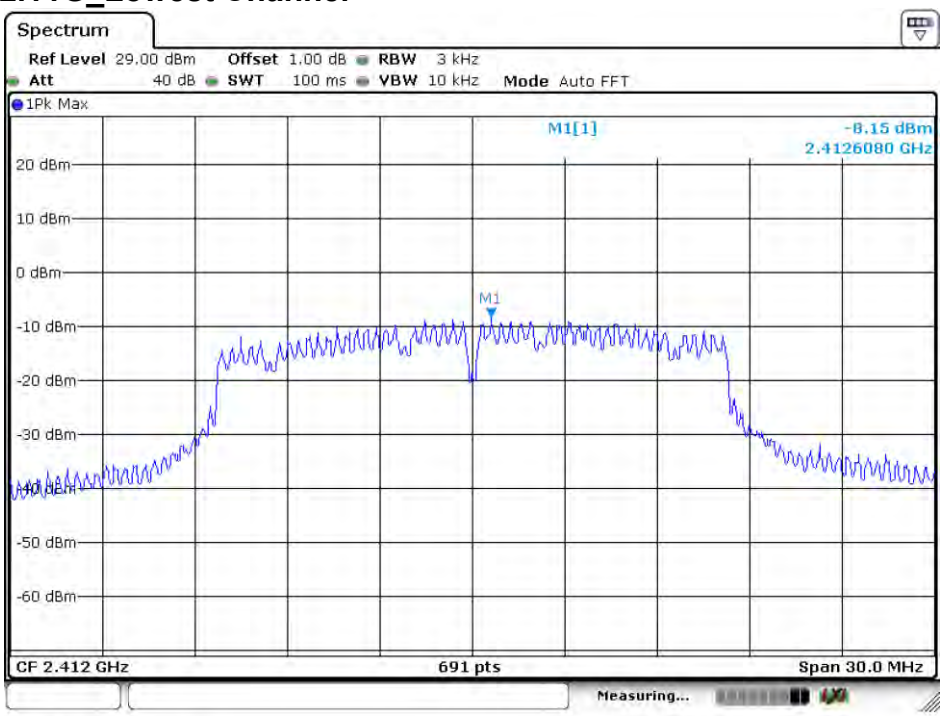
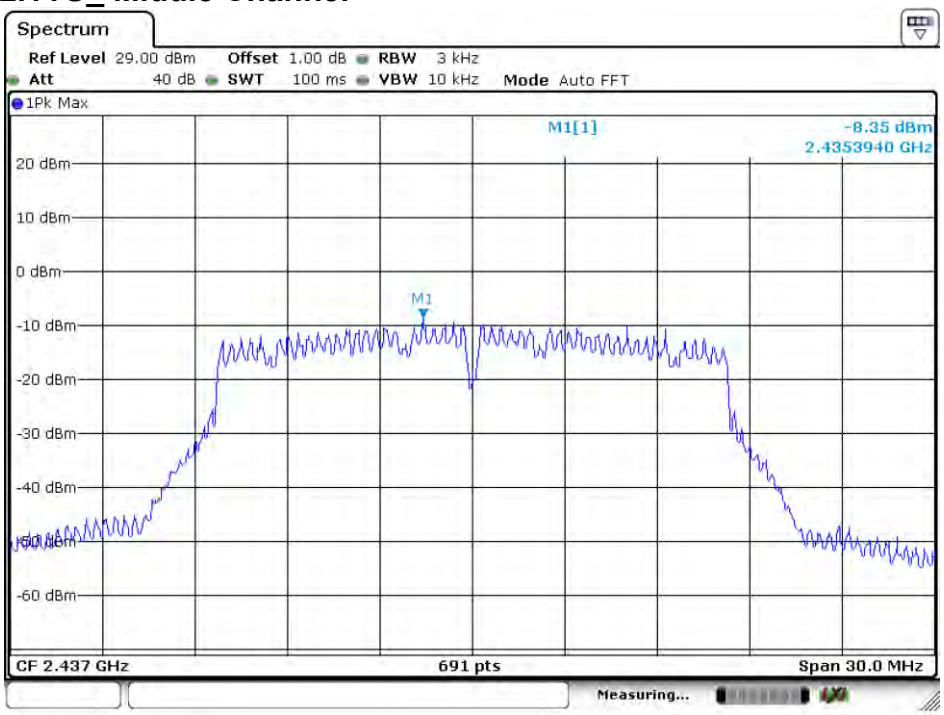
4.6.2.1.4 802.11G_Lowest Channel



Date: 8.JUN.2020 04:24:04

4.6.2.1.5 802.11G_ Middle Channel



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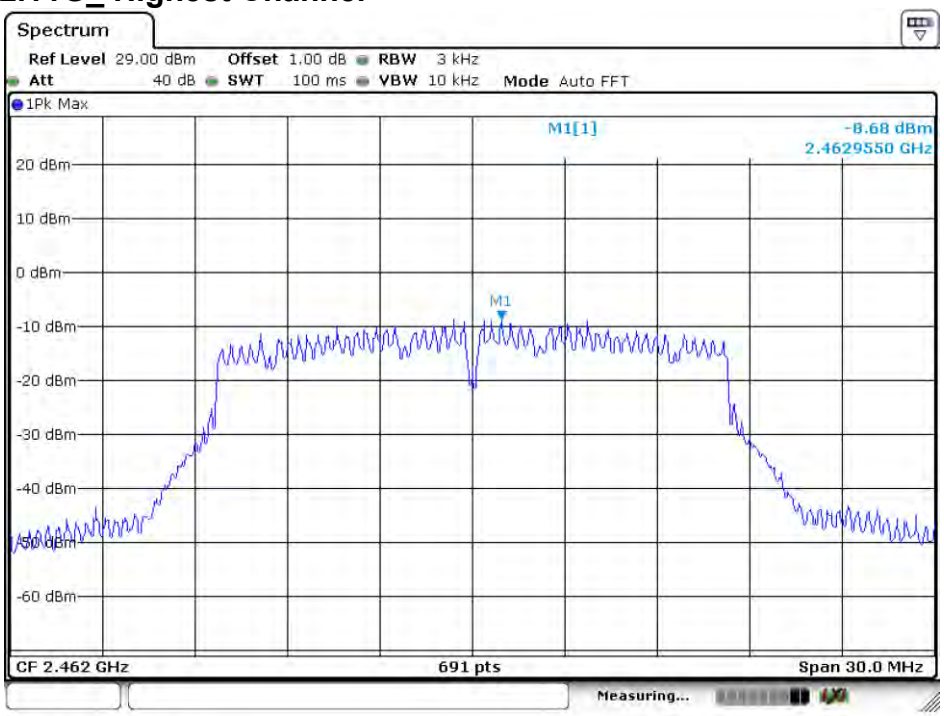
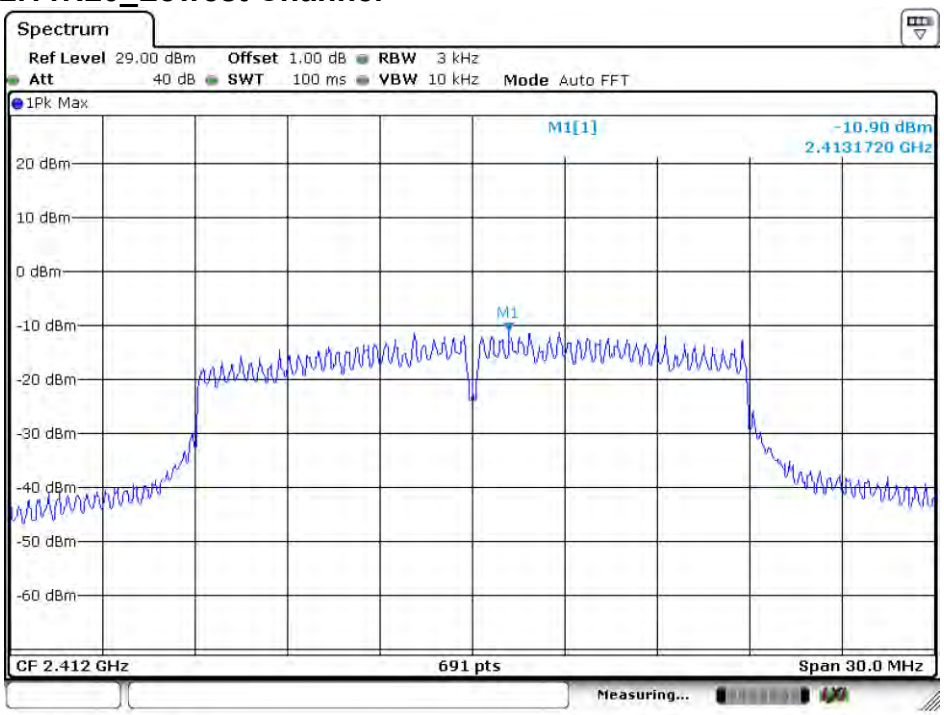
4.6.2.1.6 802.11G_ Highest Channel



Date: 8.JUN.2020 04:24:48

4.6.2.1.7 802.11N20_Lowest Channel



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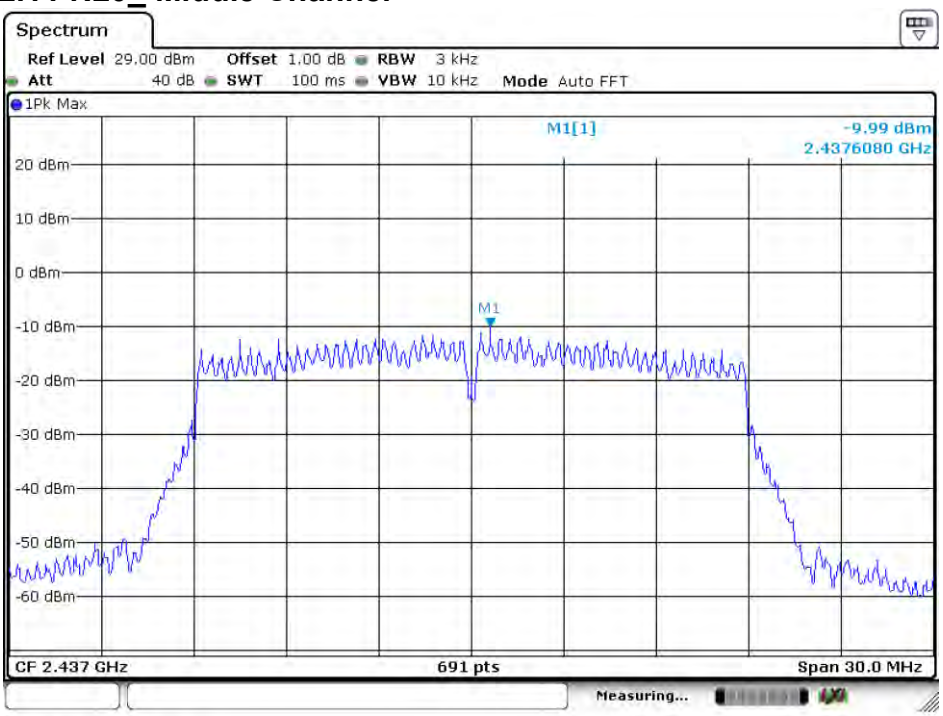
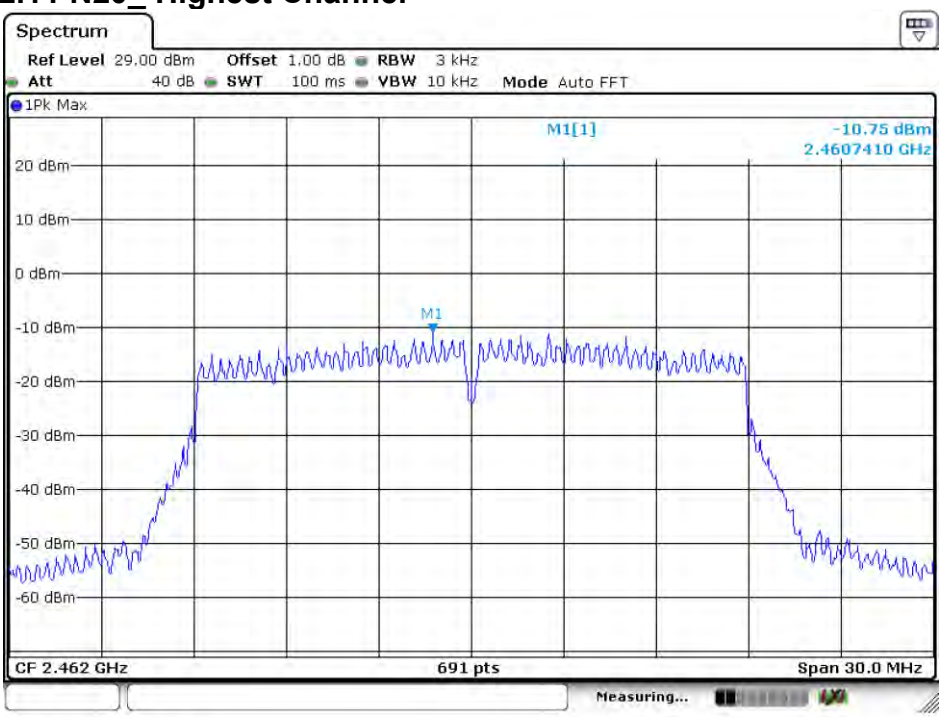
4.6.2.1.8 802.11 N20_ Middle Channel



Date: 8.JUN.2020 04:21:54

4.6.2.1.9 802.11 N20_ Highest Channel



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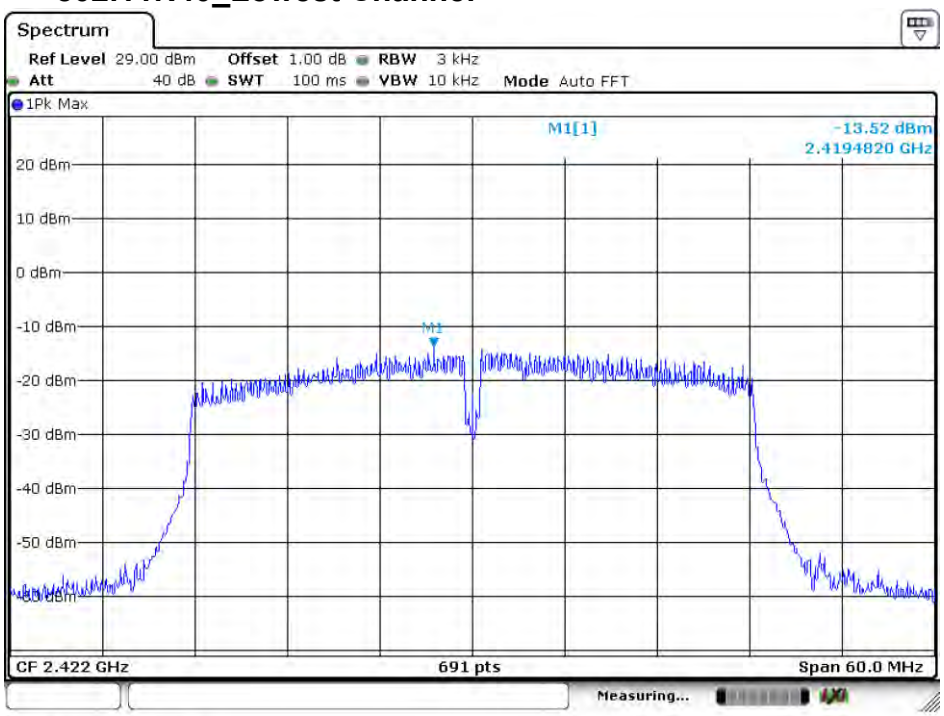
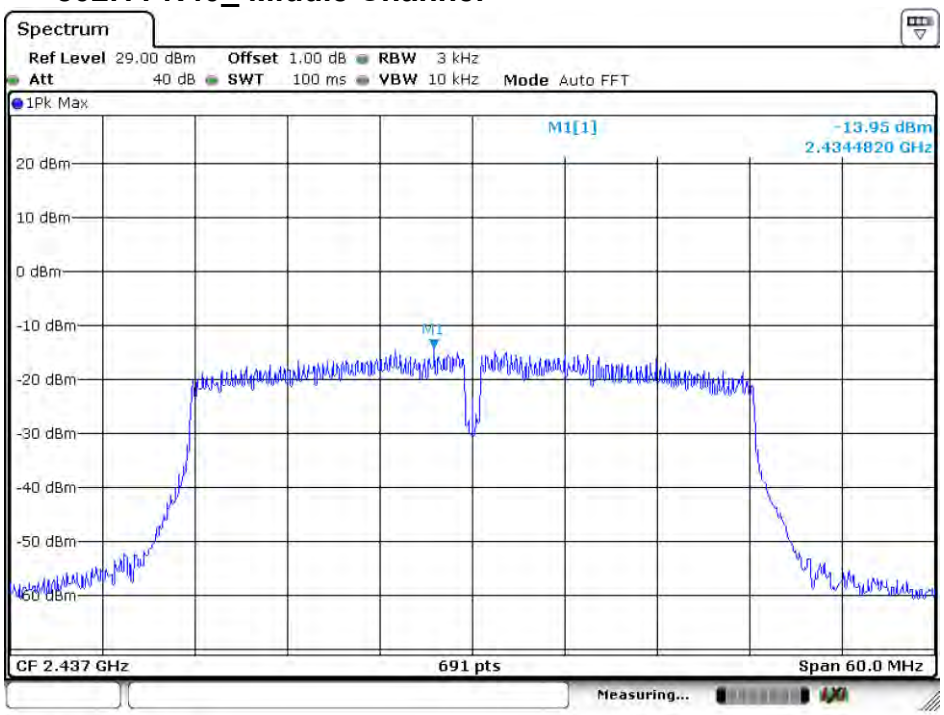
4.6.2.1.10 802.11N40_Lowest Channel



Date: 8.JUN.2020 04:21:00

4.6.2.1.11 802.11 N40_ Middle Channel



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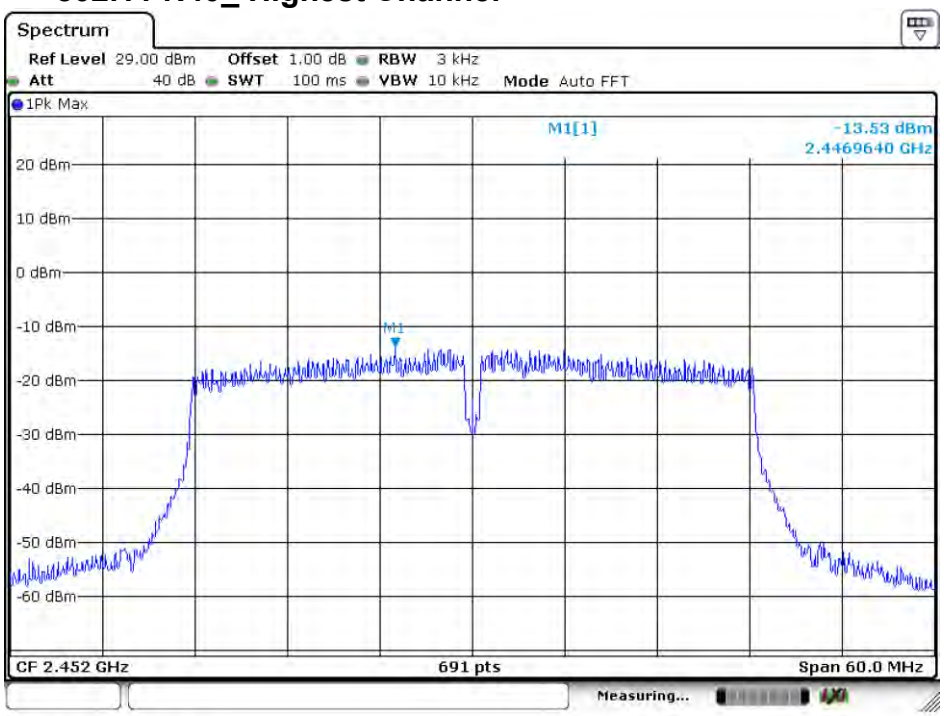

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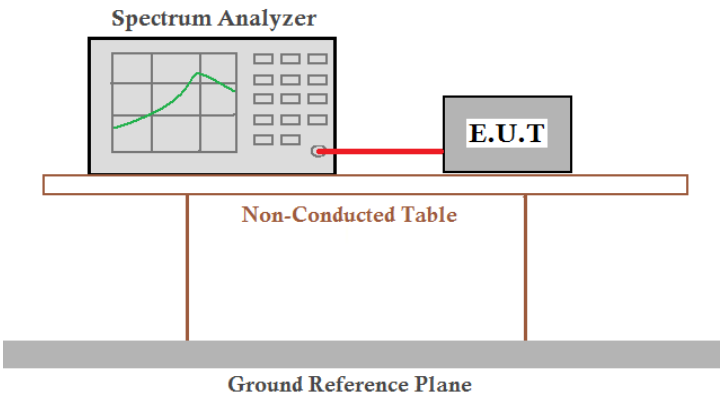
4.7 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.13
Test Setup:	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G ; 6.5Mbps of rate is the worst case of 802.11N(HT20) ; 13.5Mbps of rate is the worst case of 802.11N(HT40).
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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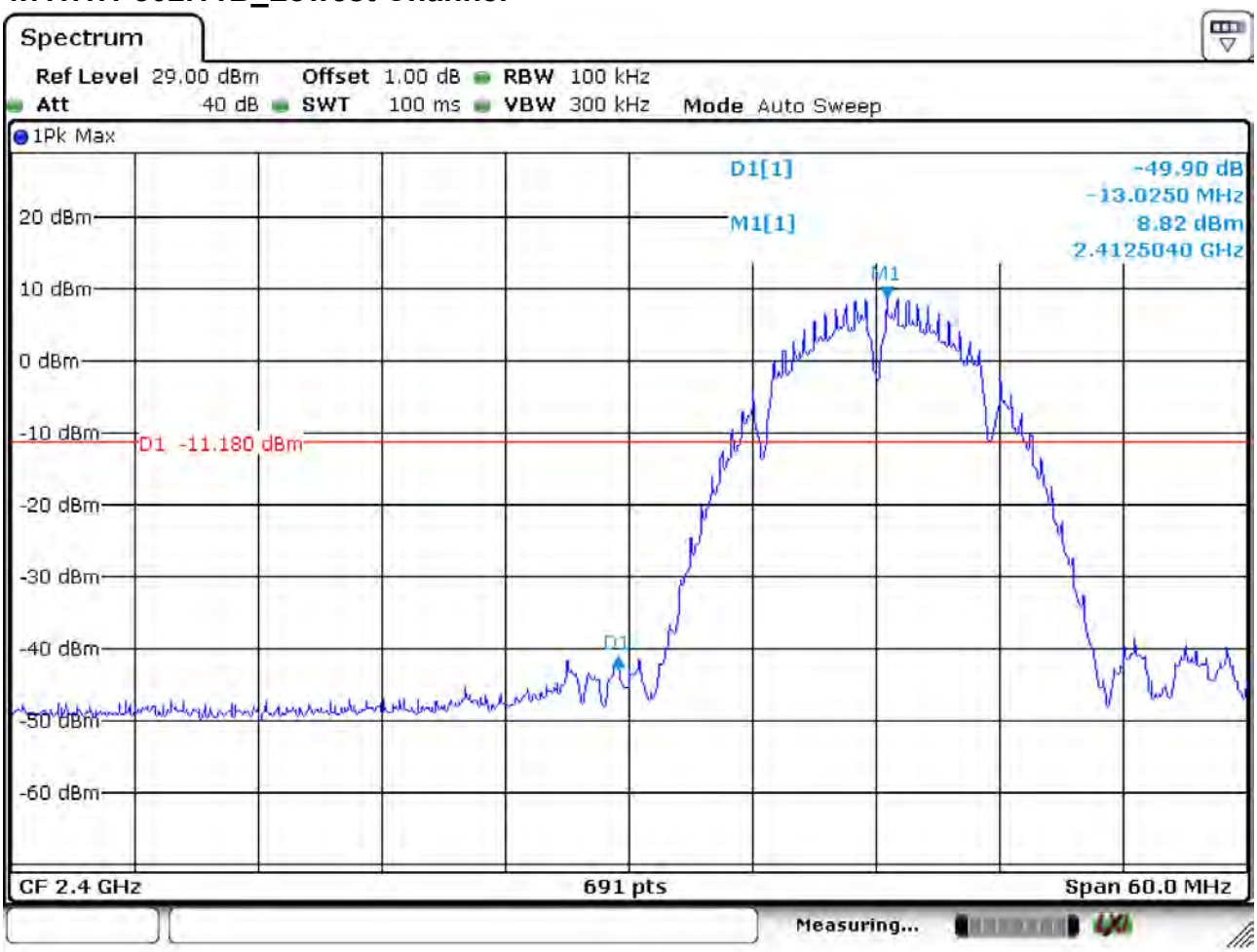
4.7.1 Test plots

4.7.1.1 ANT1

4.7.1.1.1 802.11B_Lowest Channel



Date: 8.JUN.2020 04:32:24

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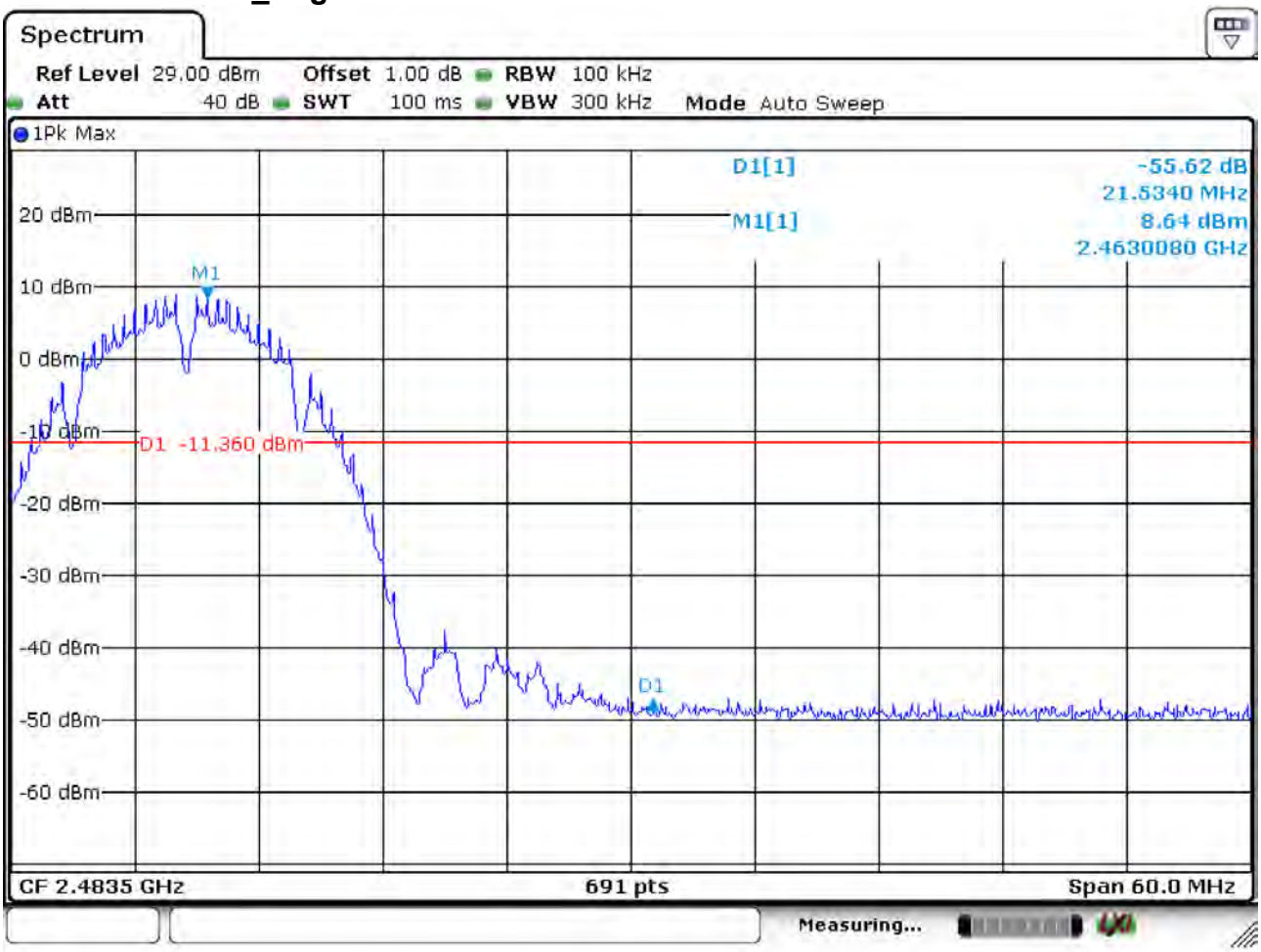
4.7.1.1.2 802.11B_ Highest Channel



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4.7.1.1.3 802.11G_Lowest Channel

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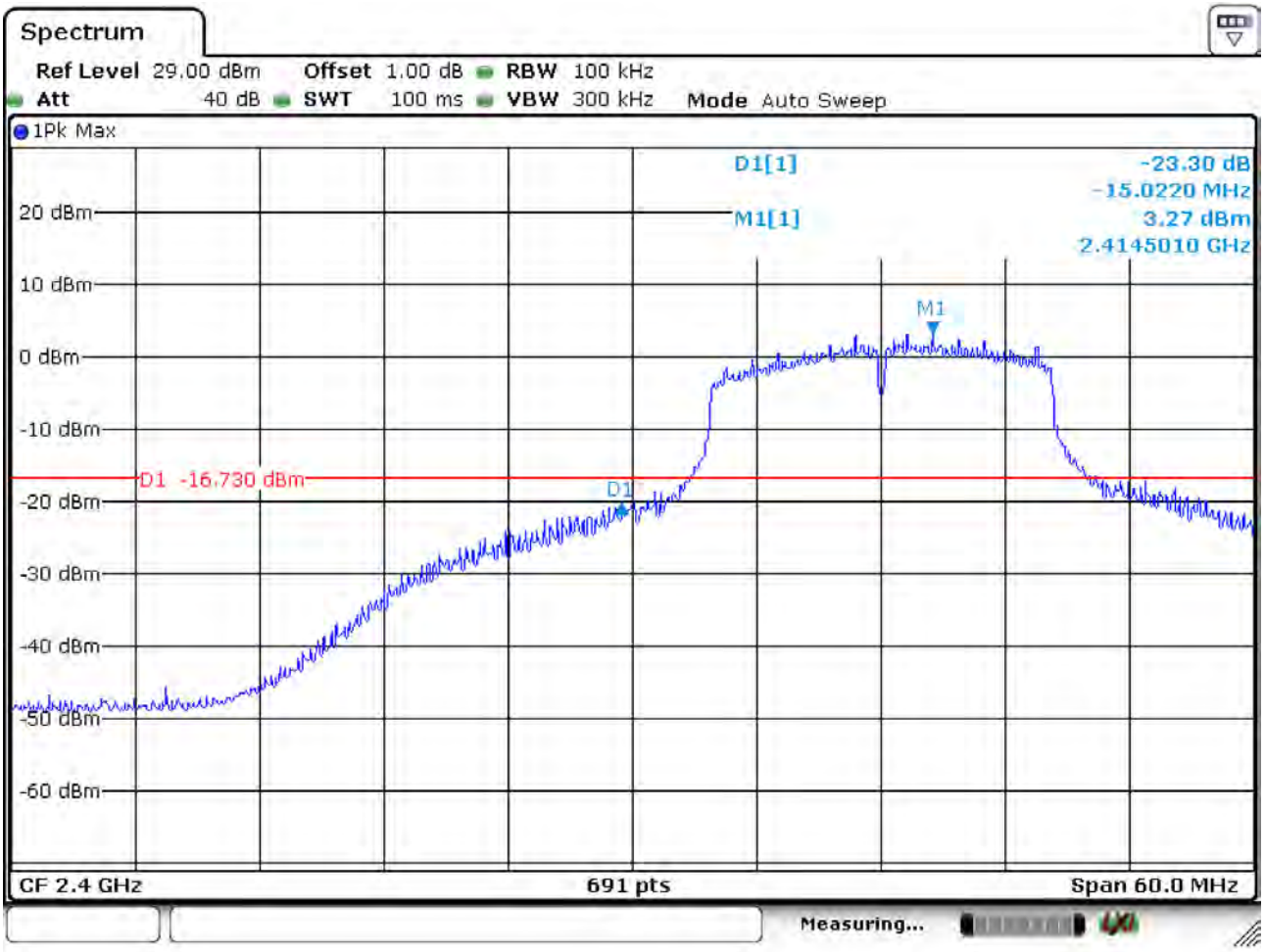

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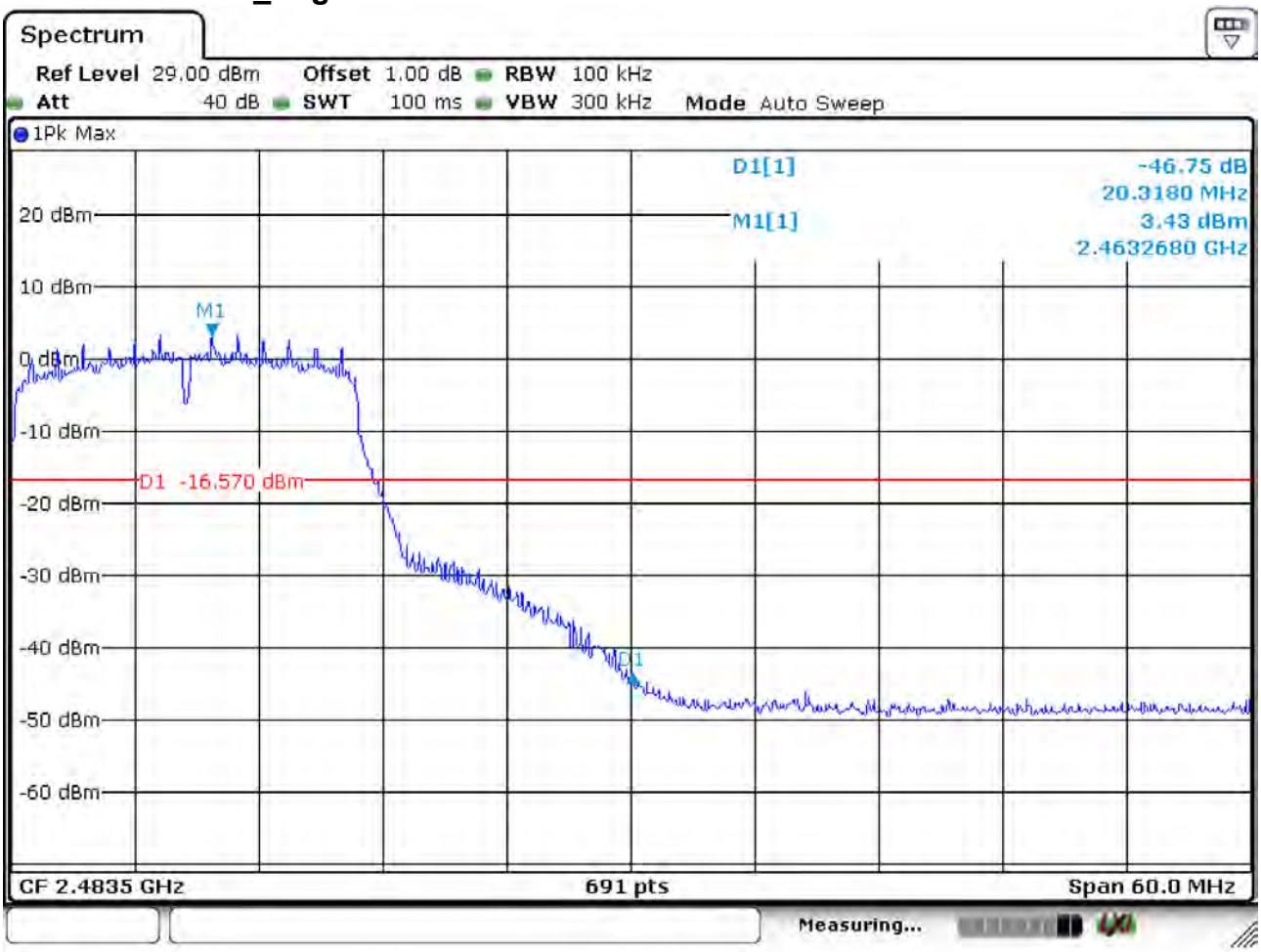
4.7.1.1.4 802.11G_ Highest Channel



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4.7.1.1.5 802.11N20_Lowest Channel

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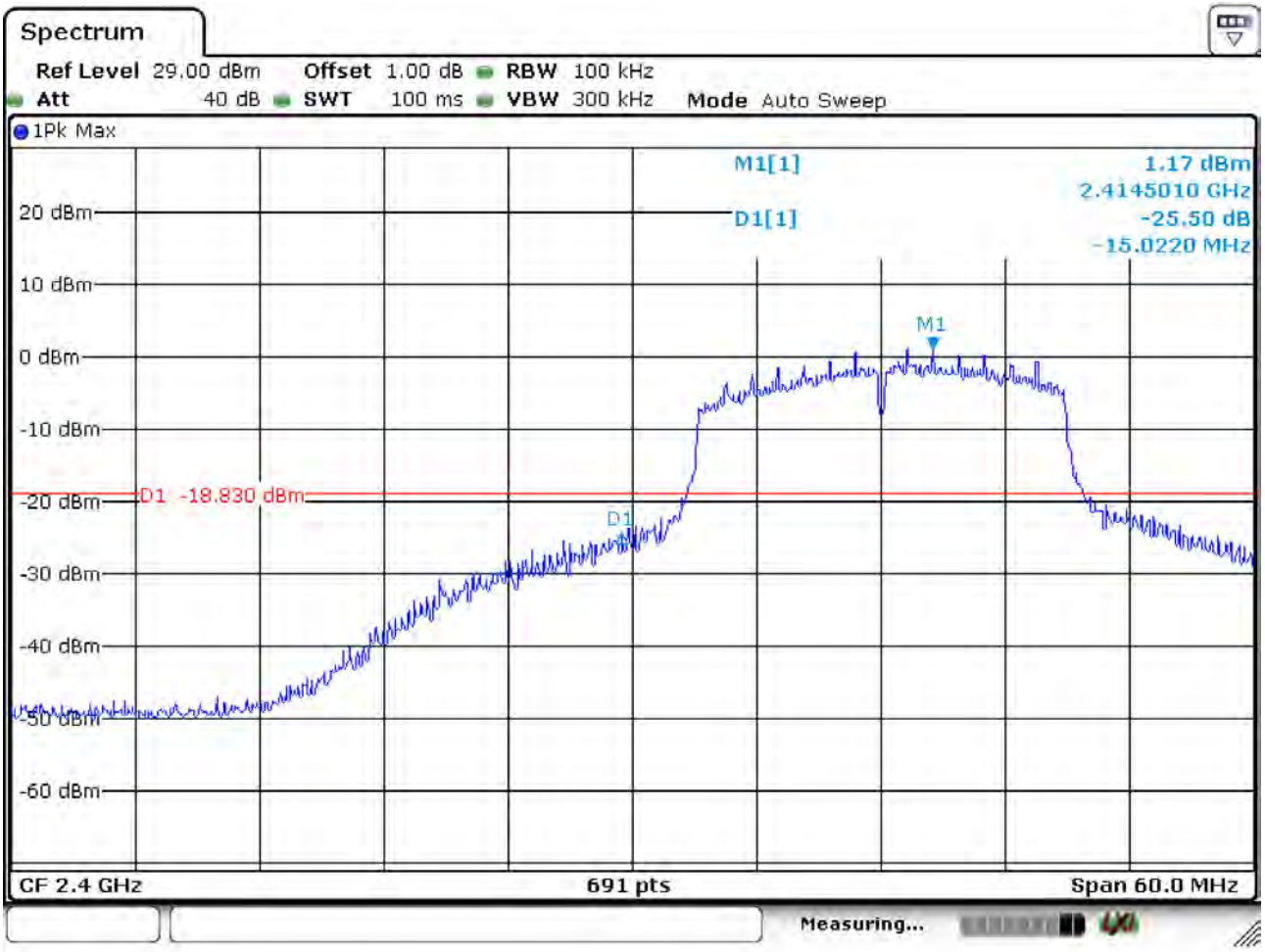

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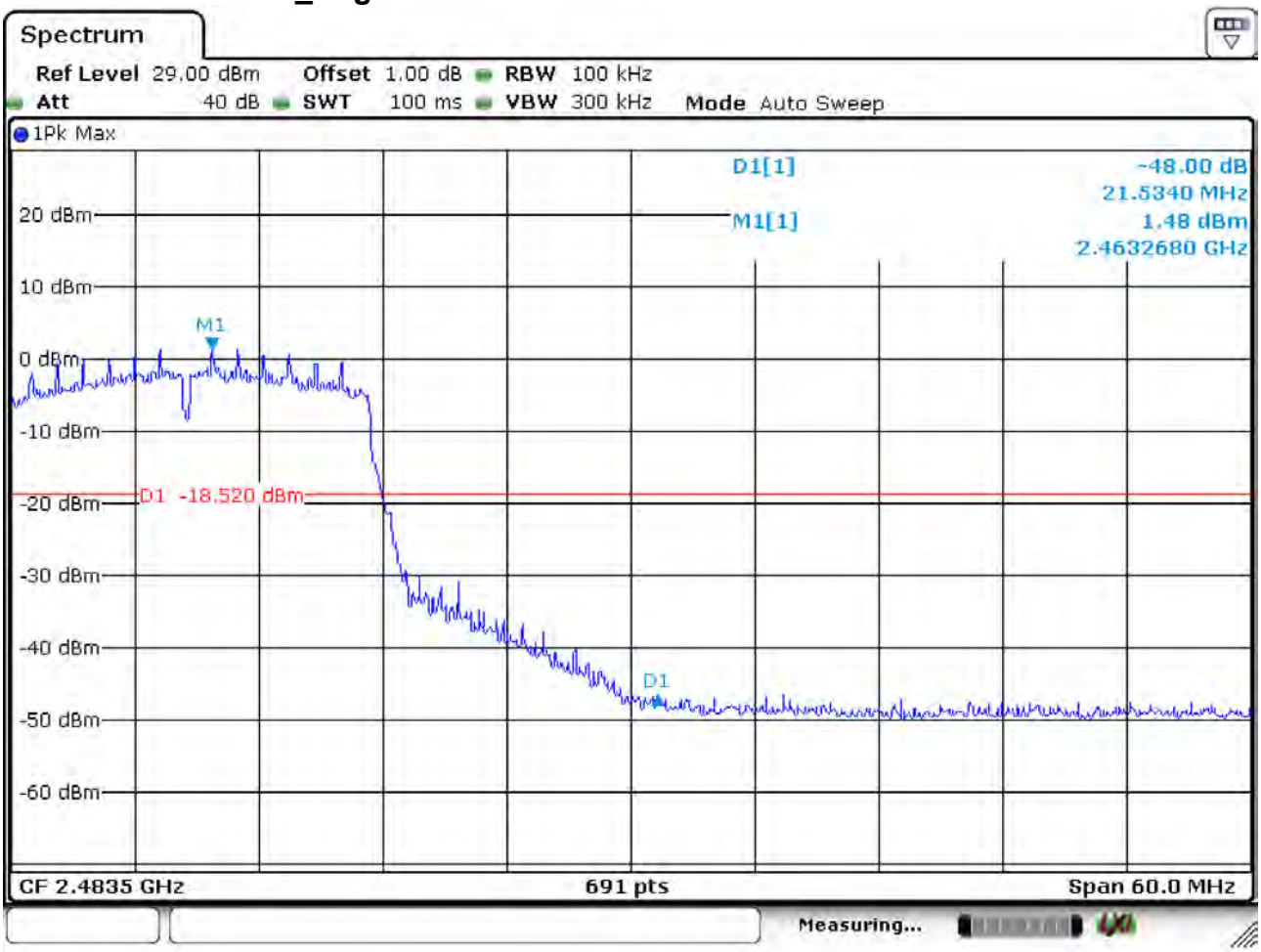
4.7.1.1.6 802.11 N20_ Highest Channel



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4.7.1.1.7 802.11N40_Lowest Channel

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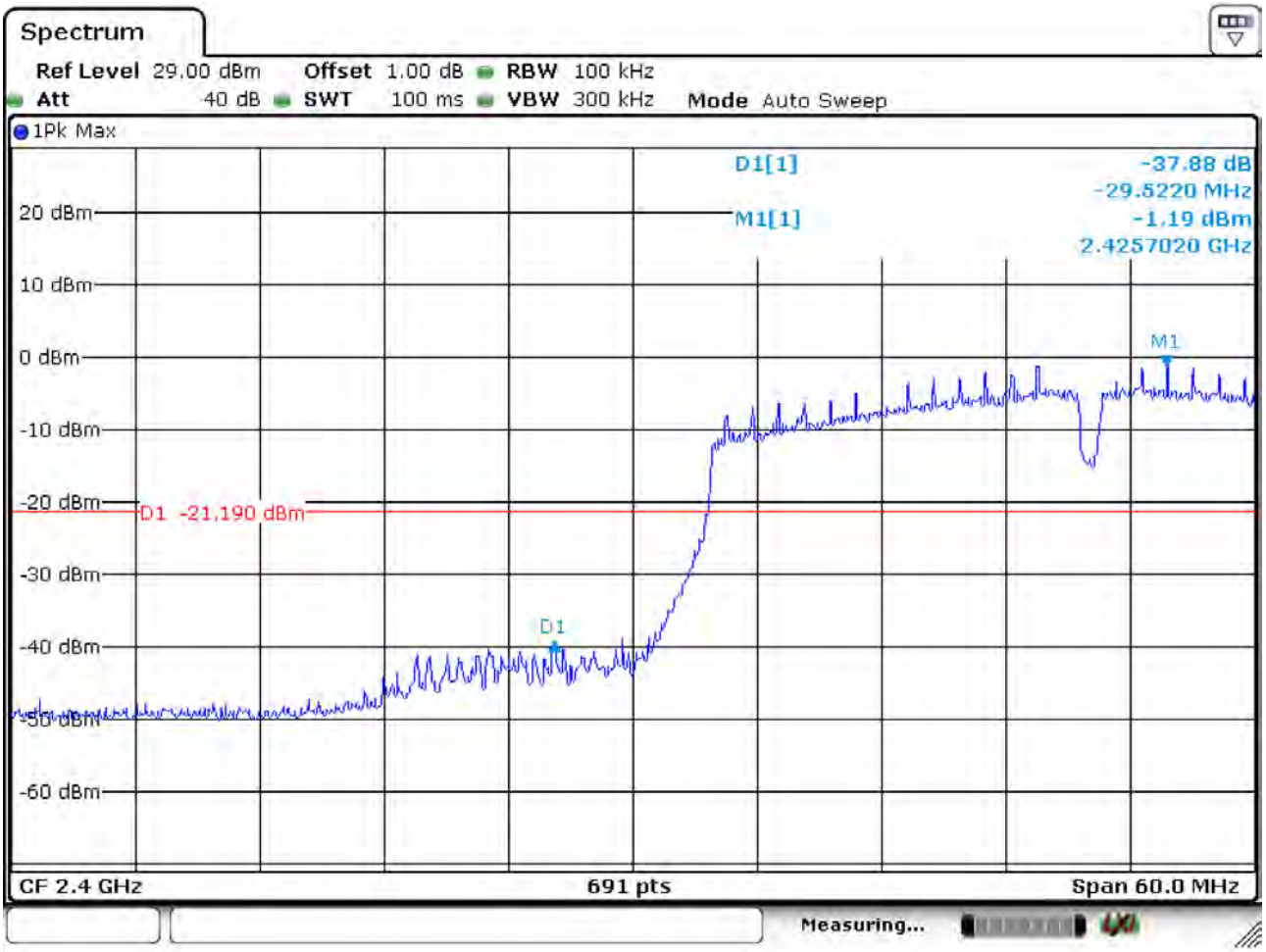

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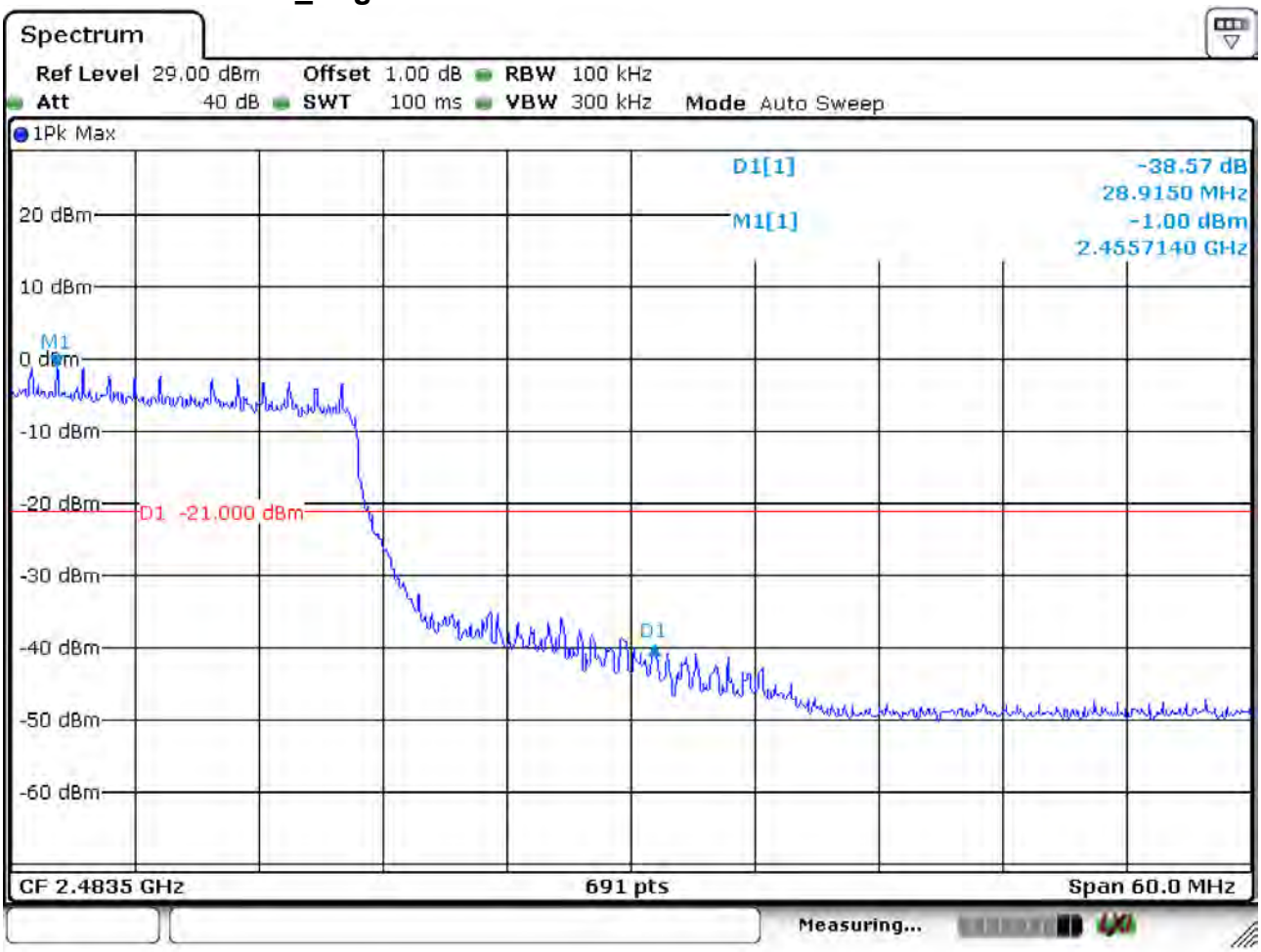
4.7.1.1.8 802.11 N40_ Highest Channel



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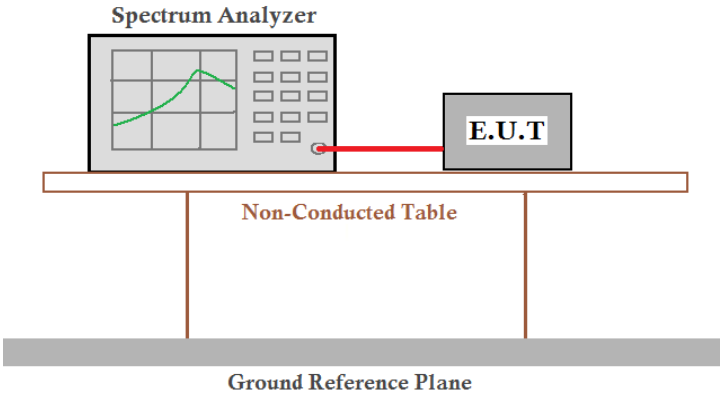
4.8 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40).
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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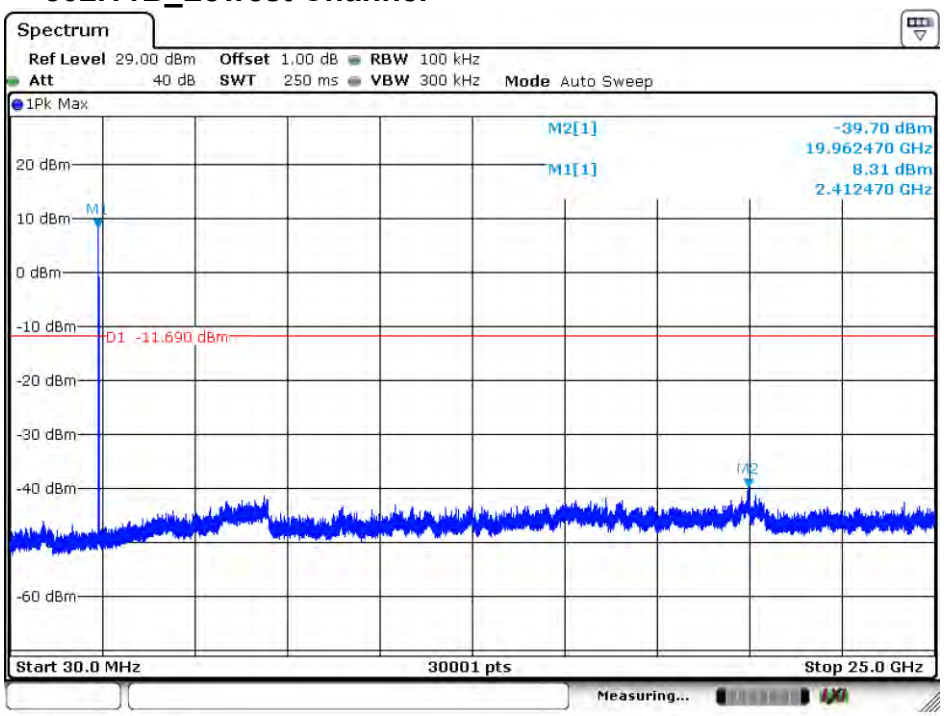
4.8.1 Test plots

4.8.1.1 ANT1

4.8.1.1.1 802.11B_Lowest Channel



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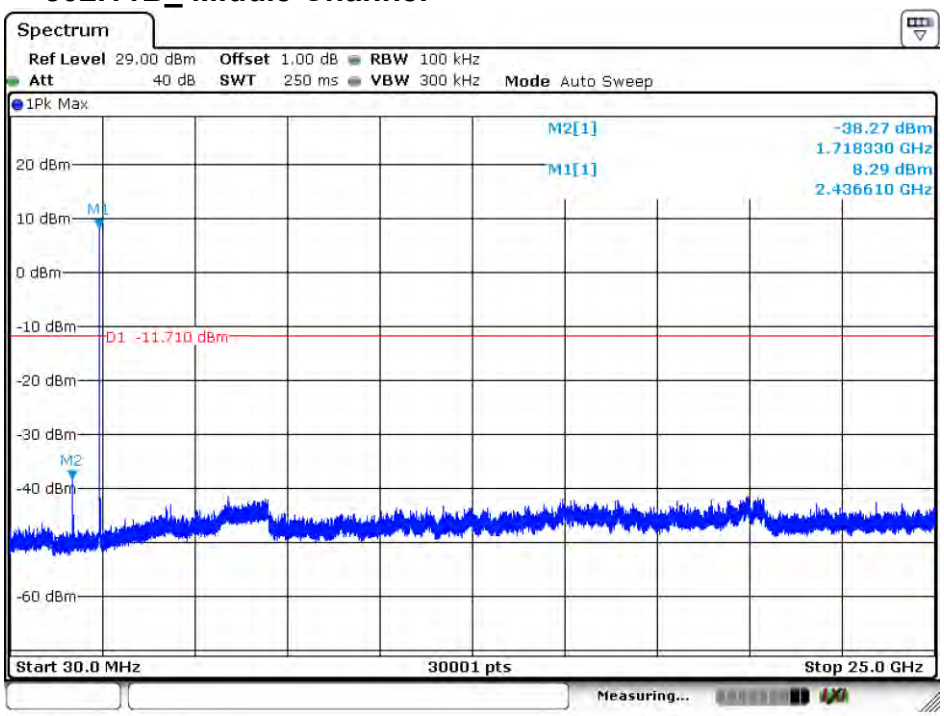
4.8.1.1.2 802.11B_ Middle Channel



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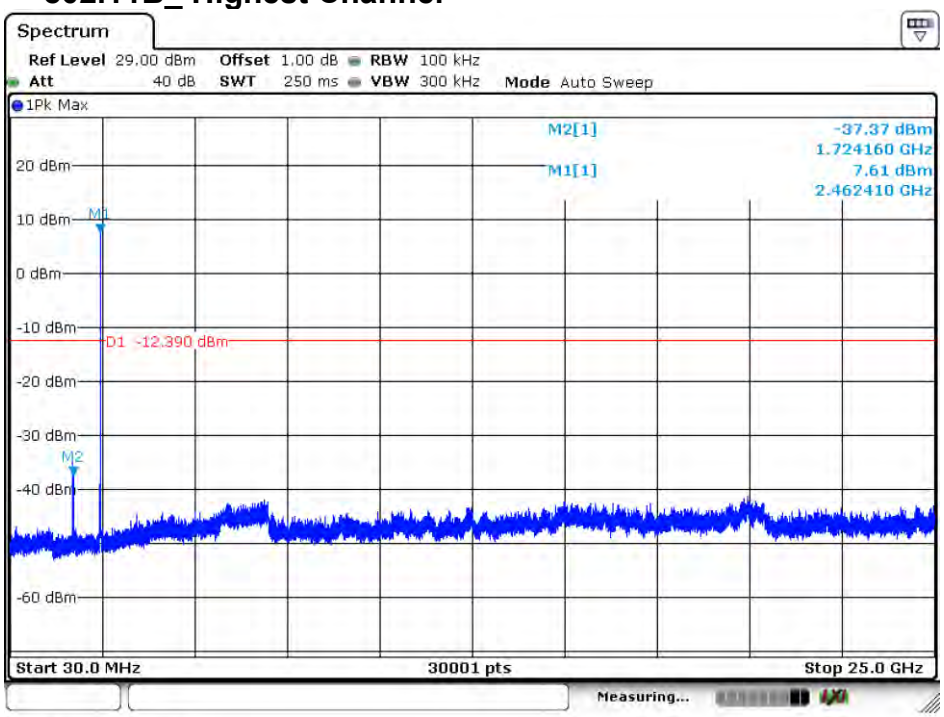
4.8.1.1.3 802.11B_ Highest Channel



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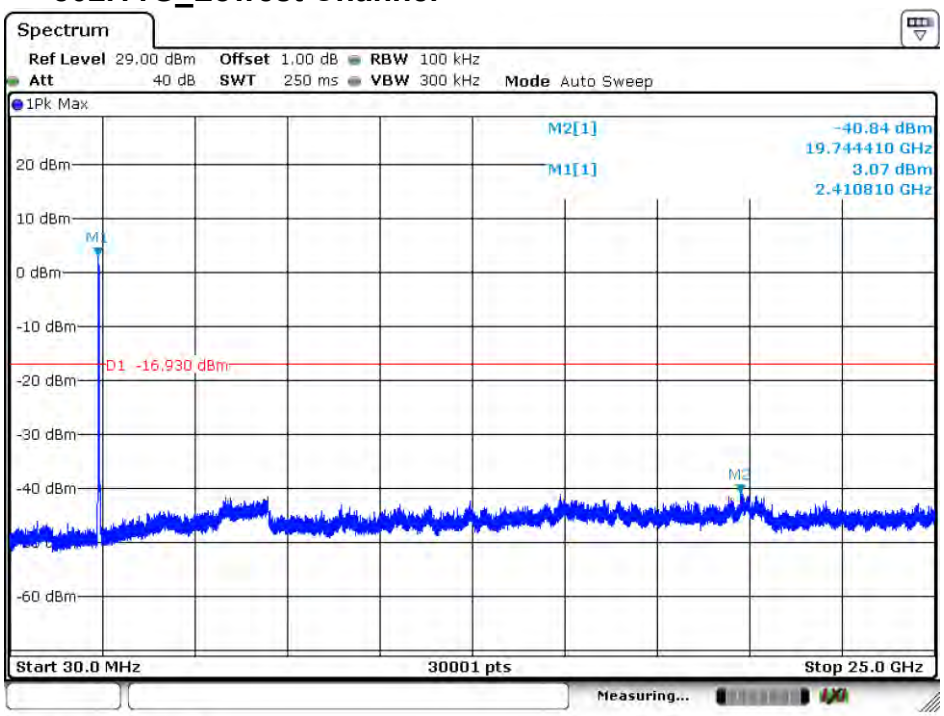
4.8.1.1.4 802.11G_Lowest Channel



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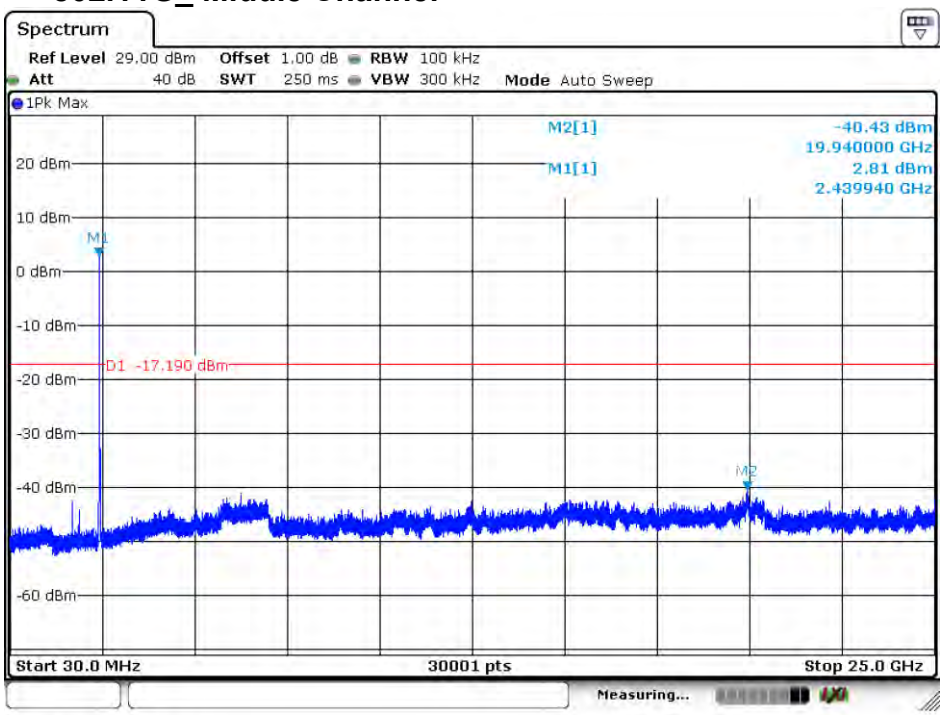
4.8.1.1.5 802.11G_ Middle Channel



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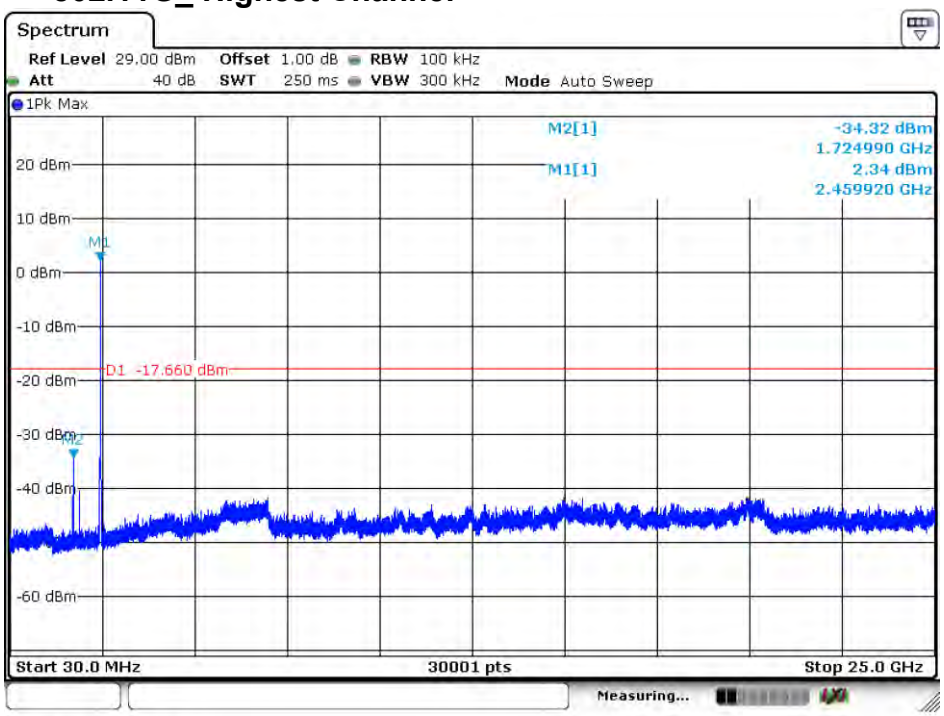
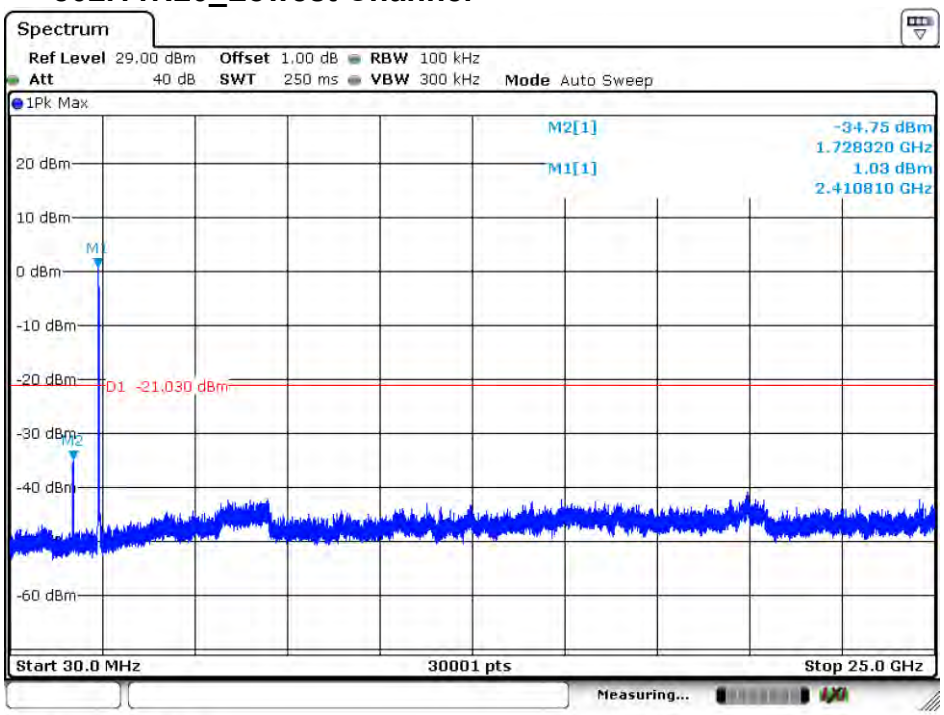
4.8.1.1.6 802.11G_ Highest Channel



Date: 8.JUN.2020 04:56:20

4.8.1.1.7 802.11N20_Lowest Channel



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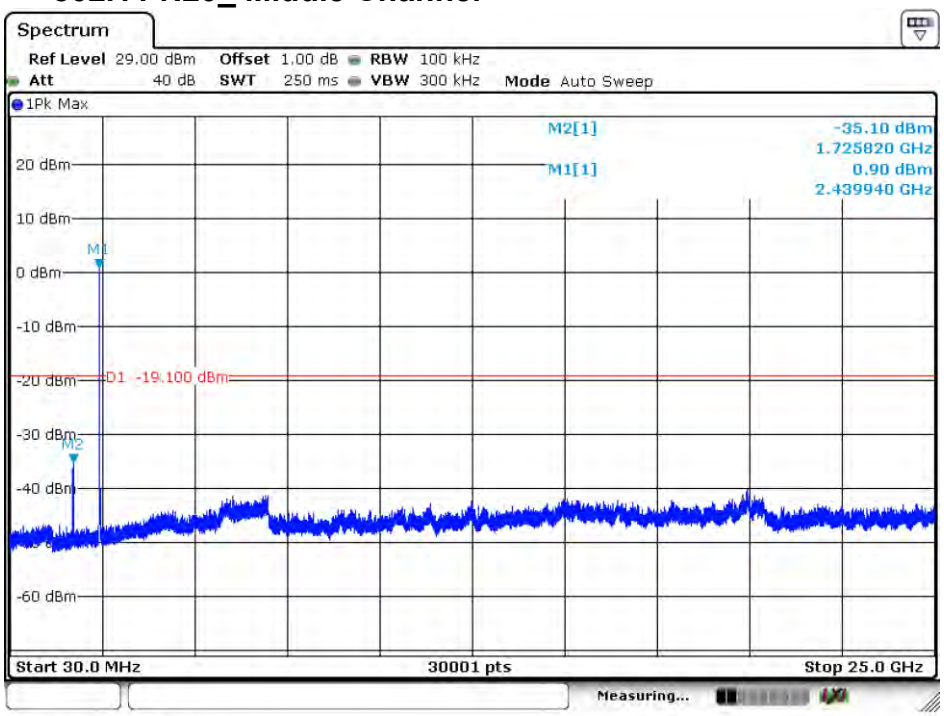
4.8.1.1.8 802.11 N20_ Middle Channel



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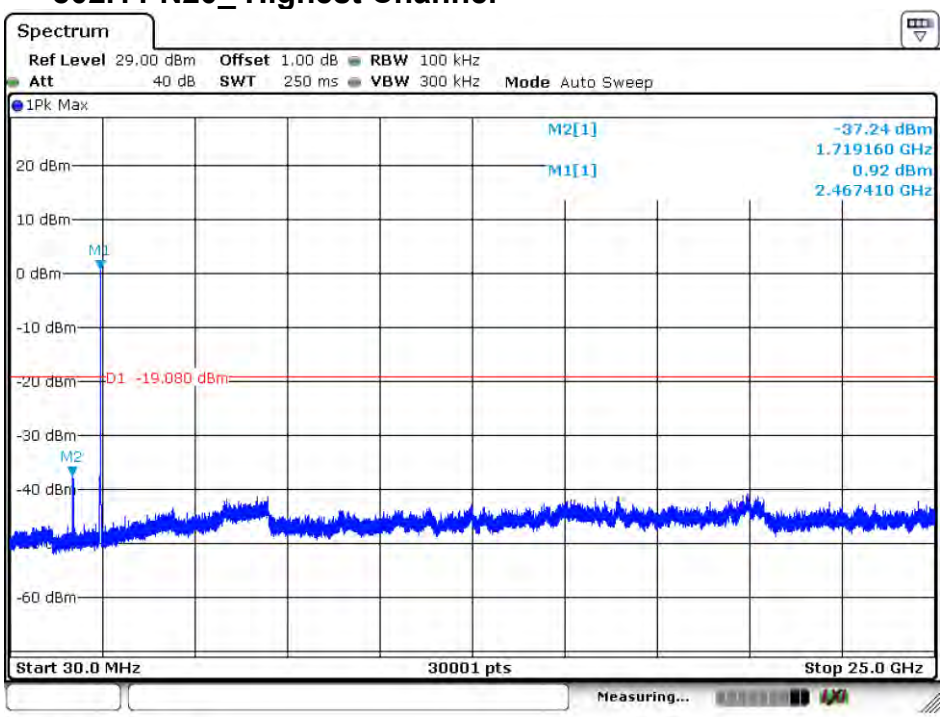
4.8.1.1.9 802.11 N20_ Highest Channel



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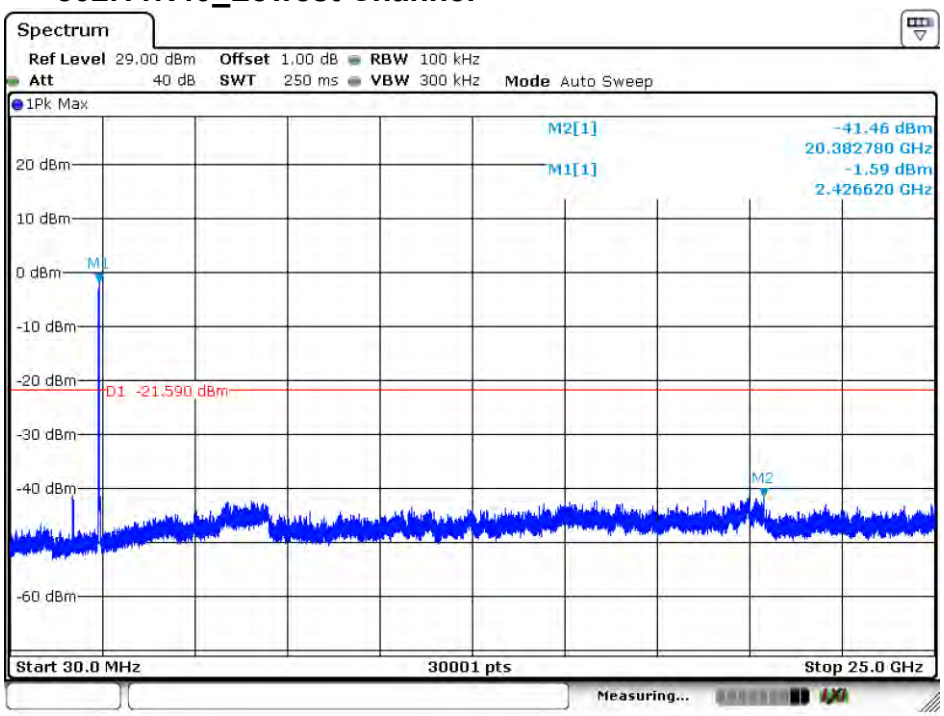
4.8.1.1.10 802.11N40_Lowest Channel



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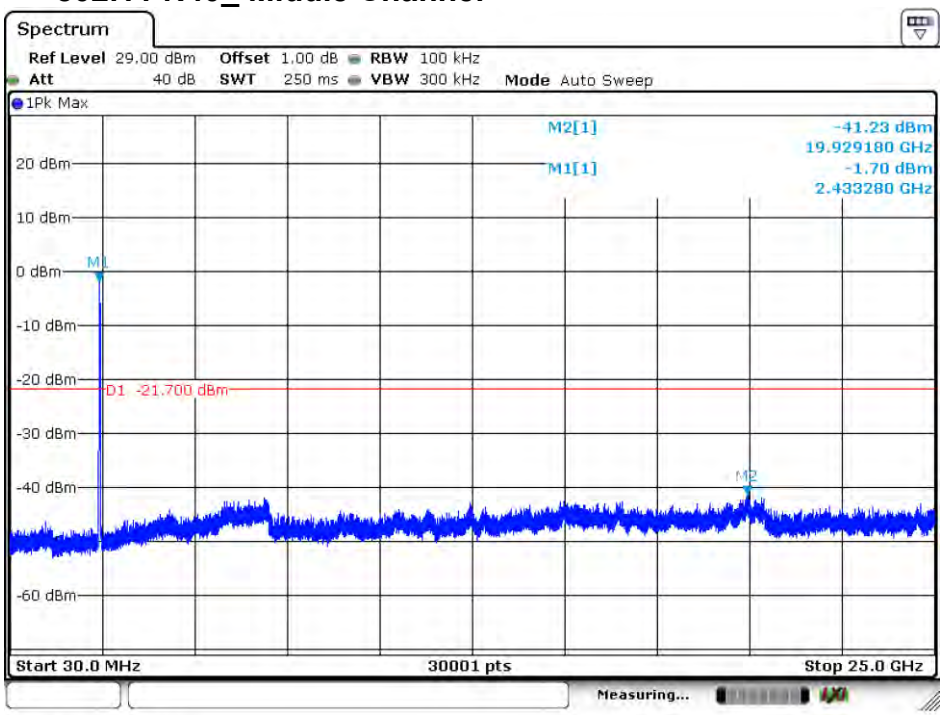
4.8.1.1.11 802.11 N40_ Middle Channel



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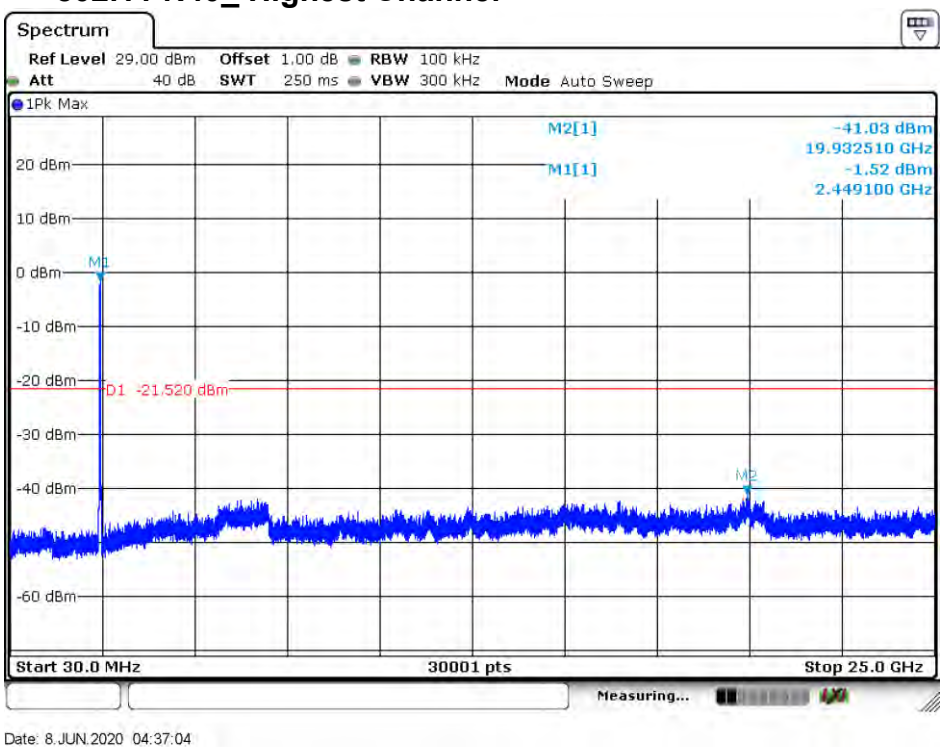
4.8.1.1.12 802.11 N40_ Highest Channel



Remark:

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

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4.9 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 or 10m (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
	Remark: 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.				

Test Setup:	

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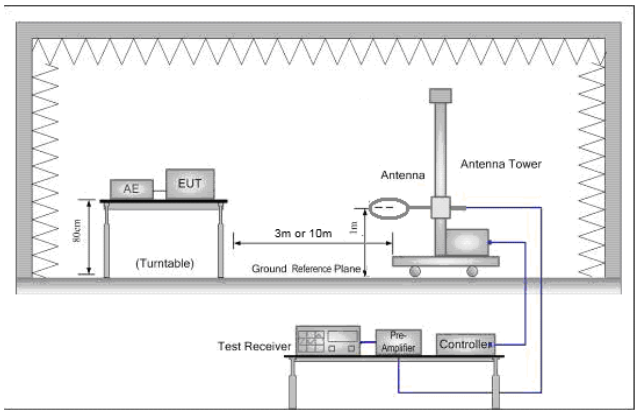

Figure 1. Below 30MHz

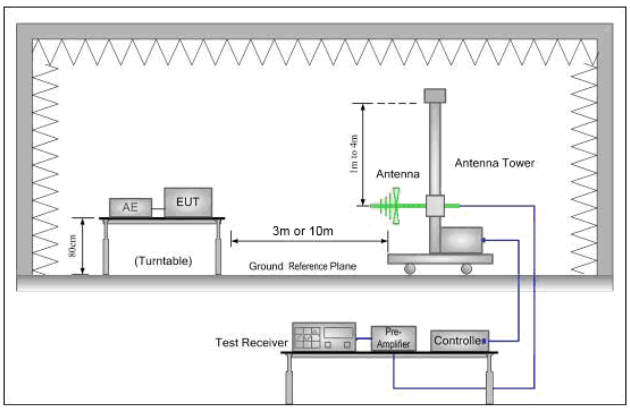

Figure 2. 30MHz to 1GHz

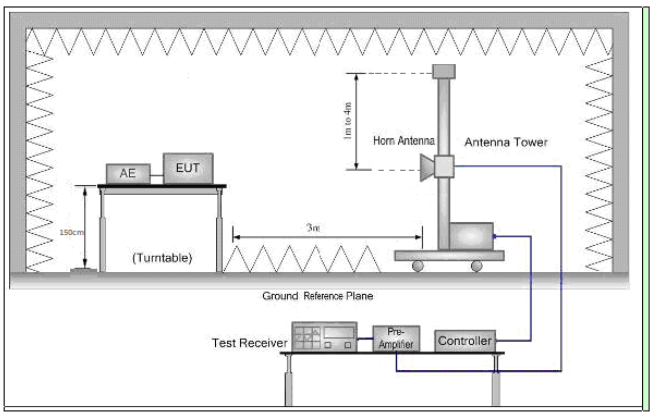

Figure 3. Above 1 GHz

Test Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 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 or 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. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW ⩾ RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak (3) For average measurement: use duty cycle correction factor method per 15.35(c). Duty cycle = On time/100 milliseconds

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	On time = N 1 *L 1 +N 2 *L 2 +...+N n-1 *LN n-1 +N n *L n Where N 1 is number of type 1 pulses, L 1 is length of type 1 pulses, etc. Average Emission Level = Peak Emission Level + 20*log(Duty cycl f. 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. g. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. h. 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. i. Test the EUT in the lowest channel, the middle channel ,the Highest channel j. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case. k. 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 Charge + Transmitting mode. Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40) For below 1GHz, through Pre-scan, find the 1Mbps of rate of 802.11B at lowest channel is the worst case. 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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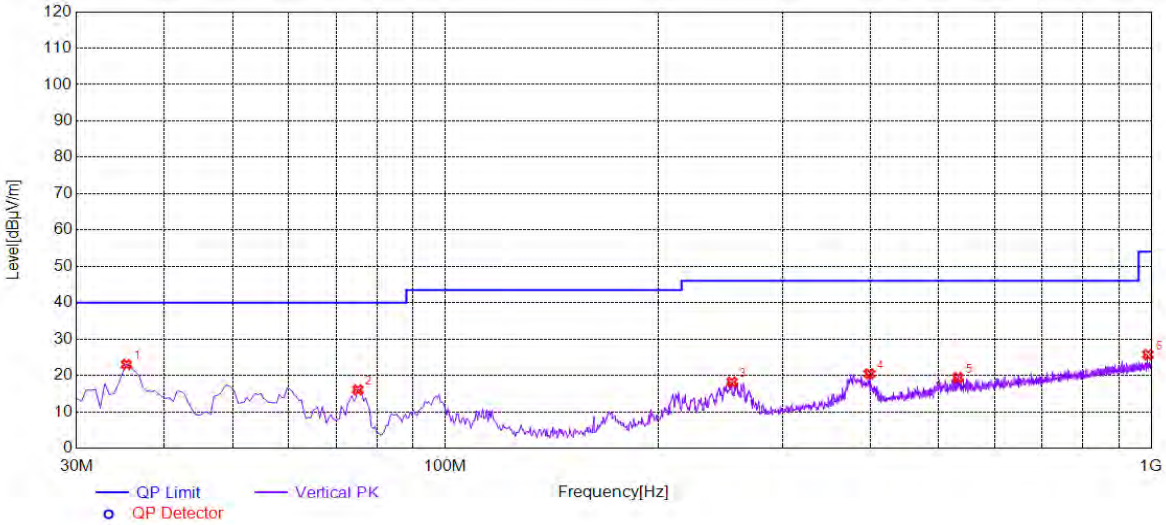
4.9.1 Radiated emission below 1GHz

4.9.1.1 Charge + Transmitting, Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.3377	23.03	-32.65	40.00	16.97	150	74	Vertical
2	75.1276	16.04	-35.04	40.00	23.96	150	46	Vertical
3	254.667	18.20	-29.11	46.00	27.80	150	329	Vertical
4	398.784	20.43	-24.98	46.00	25.57	150	243	Vertical
5	532.226	19.41	-21.88	46.00	26.59	150	229	Vertical
6	989.324	25.74	-14.00	54.00	28.26	150	150	Vertical

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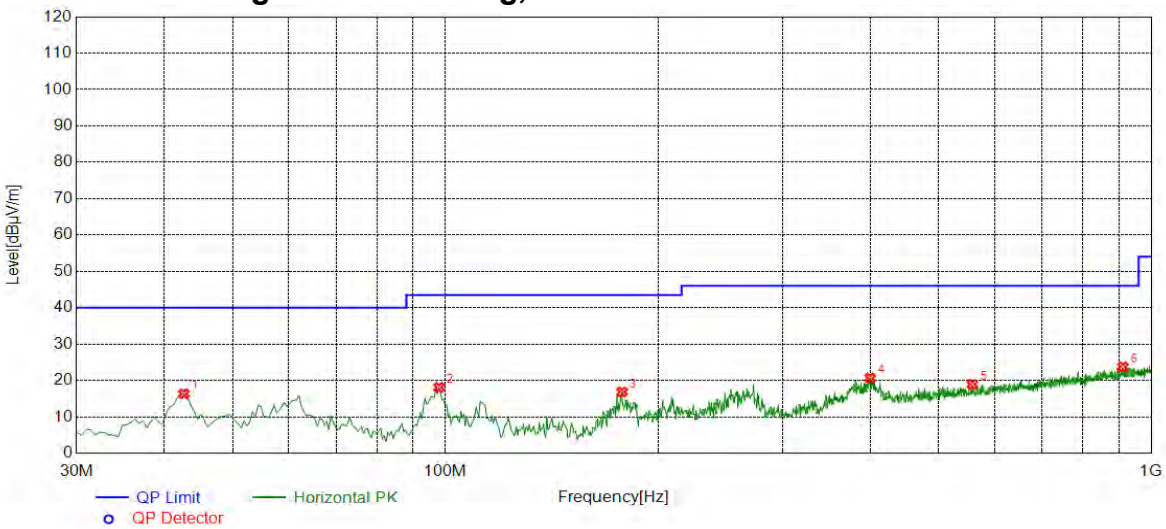
4.9.1.2 Charge + Transmitting, Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	42.6163	16.35	-30.66	40.00	23.65	150	210	Horizontal
2	97.9340	18.10	-32.04	43.50	25.40	150	254	Horizontal
3	177.999	16.82	-33.05	43.50	26.68	150	254	Horizontal
4	399.754	20.69	-24.96	46.00	25.31	150	242	Horizontal
5	557.944	18.91	-21.23	46.00	27.09	150	102	Horizontal
6	911.685	23.74	-15.05	46.00	22.26	150	19	Horizontal

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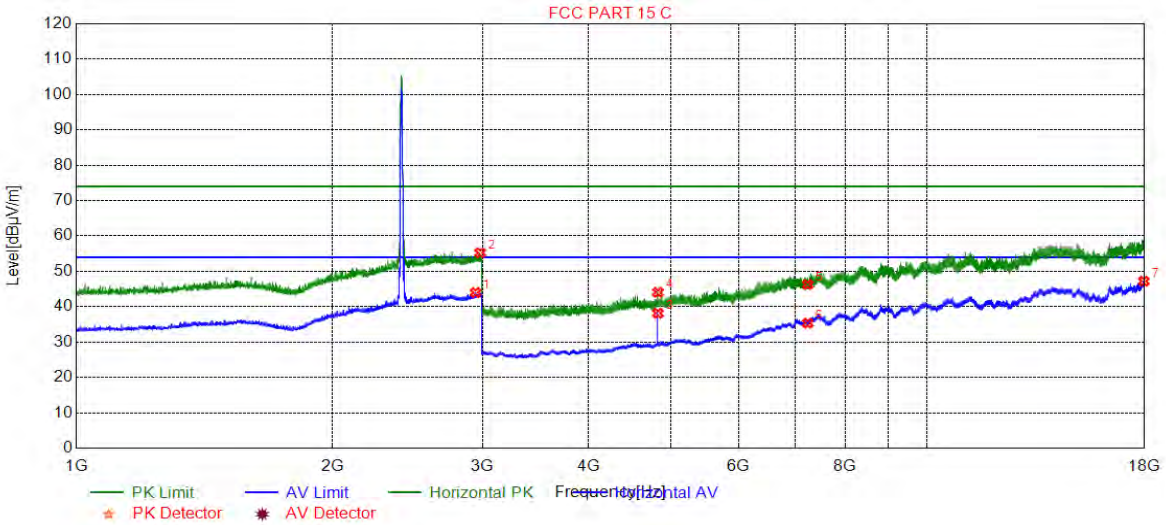
4.9.2 Transmitter emission above 1GHz

4.9.2.1 ANT1

4.9.2.1.1 802.11B_Lowest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2945.48	44.01	9.63	54.00	9.99	150	358	Horizontal
2	2981.99	55.26	9.53	74.00	18.74	150	358	Horizontal
3	4824.00	38.14	-18.21	54.00	15.86	150	238	Horizontal
4	4824.00	44.08	-18.21	74.00	29.92	150	238	Horizontal
5	7236.00	46.26	-9.99	74.00	27.74	150	40	Horizontal
6	7236.00	35.35	-9.99	54.00	18.65	150	90	Horizontal
7	17960.9	47.22	0.71	54.00	6.78	150	191	Horizontal

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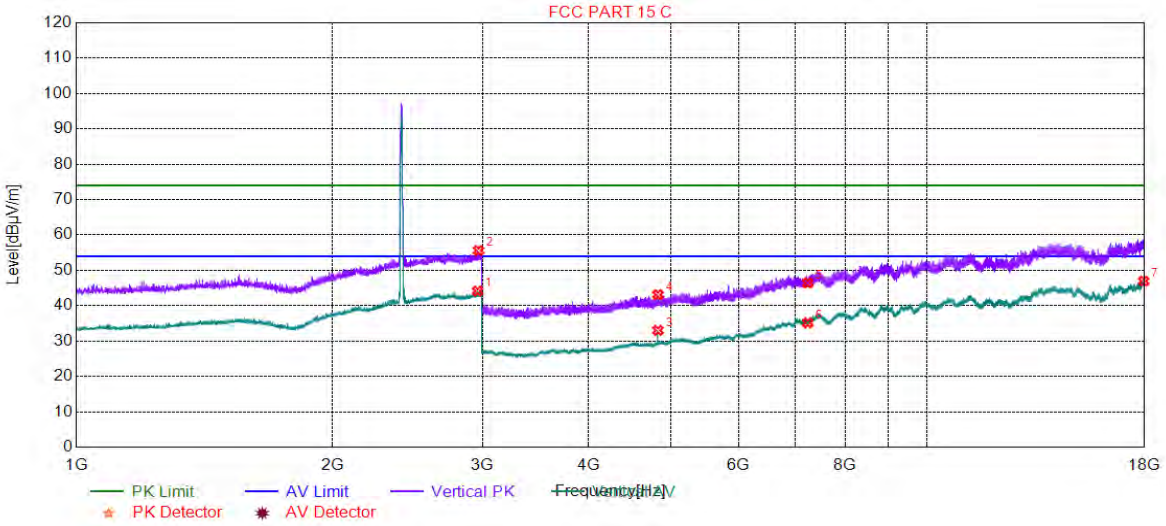
4.9.2.1.2 802.11B_Lowest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2961.49	44.13	9.63	54.00	9.87	150	151	Vertical
2	2968.99	55.61	9.59	74.00	18.39	150	274	Vertical
3	4824.00	33.04	-18.21	54.00	20.96	150	264	Vertical
4	4824.00	43.13	-18.21	74.00	30.87	150	292	Vertical
5	7236.00	46.41	-9.99	74.00	27.59	150	89	Vertical
6	7236.00	35.15	-9.99	54.00	18.85	150	39	Vertical
7	17953.7	46.95	0.71	54.00	7.05	150	140	Vertical

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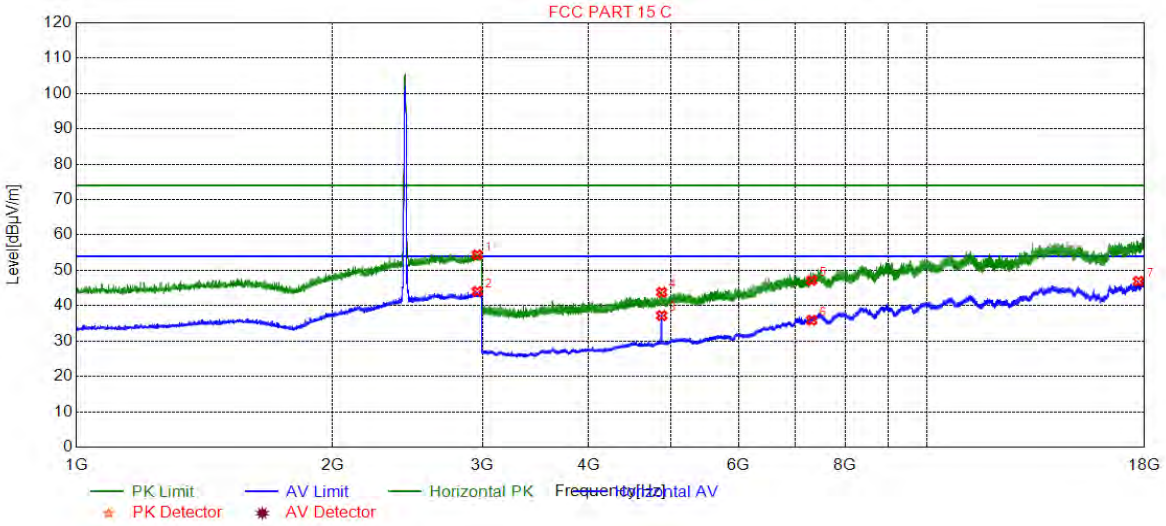
4.9.2.1.3 802.11B_ Middle Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2957.98	54.40	9.64	74.00	19.60	150	142	Horizontal
2	2957.98	44.03	9.64	54.00	9.97	150	251	Horizontal
3	4874.00	37.21	-17.99	54.00	16.79	150	236	Horizontal
4	4874.00	43.81	-17.99	74.00	30.19	150	236	Horizontal
5	7311.00	47.14	-9.74	74.00	26.86	150	190	Horizontal
6	7311.00	35.87	-9.74	54.00	18.13	150	0	Horizontal
7	17704.6	46.92	1.27	54.00	7.08	150	39	Horizontal

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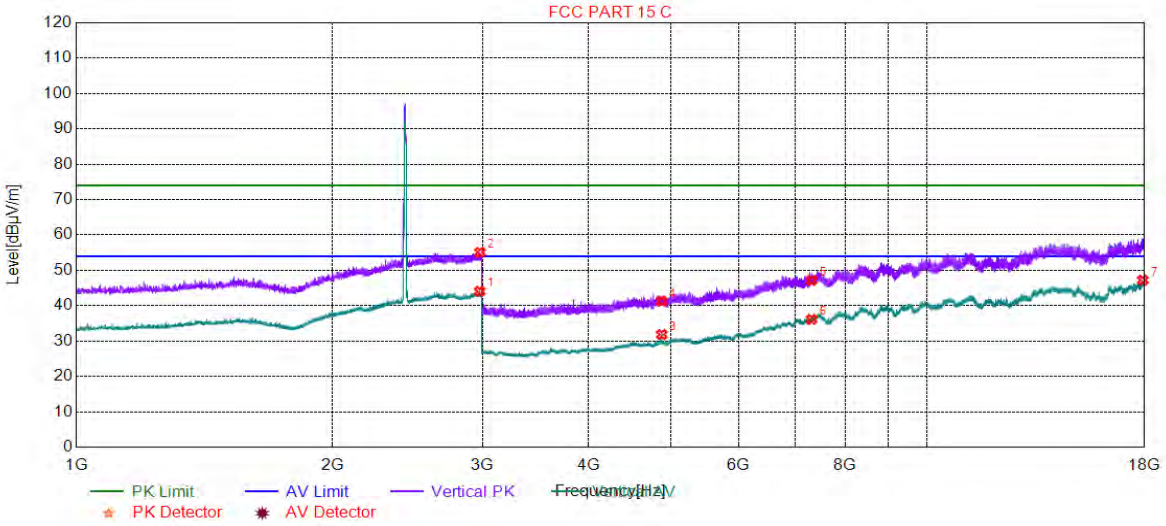
4.9.2.1.4 802.11B_ Middle Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2978.49	44.07	9.55	54.00	9.93	150	164	Vertical
2	2980.49	55.11	9.54	74.00	18.89	150	178	Vertical
3	4874.00	31.85	-17.99	54.00	22.15	150	265	Vertical
4	4874.00	41.30	-17.99	74.00	32.70	150	265	Vertical
5	7311.00	47.12	-9.74	74.00	26.88	150	0	Vertical
6	7311.00	36.14	-9.74	54.00	17.86	150	141	Vertical
7	17913.6	47.22	0.69	54.00	6.78	150	342	Vertical

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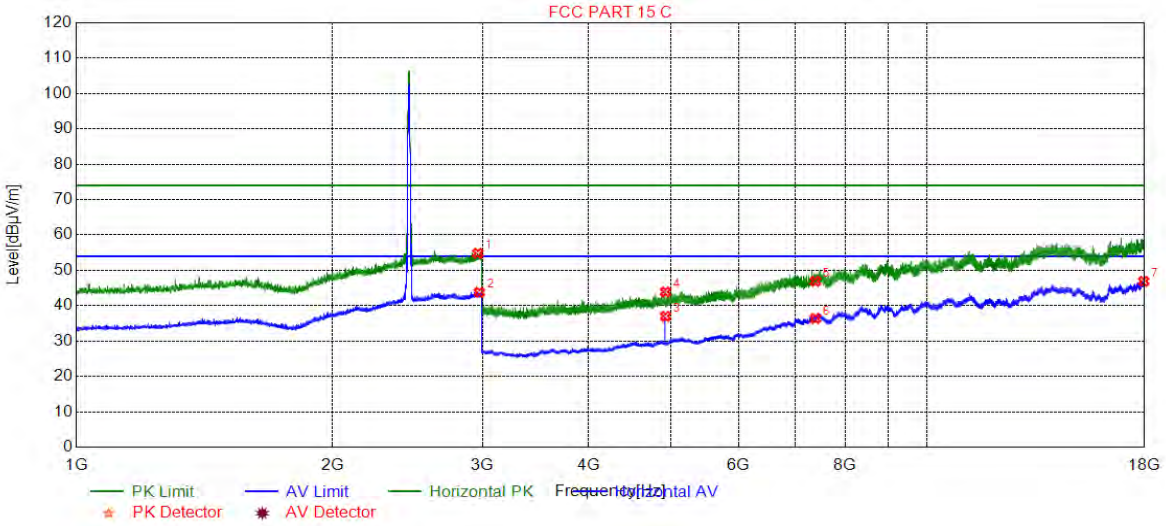
4.9.2.1.5 802.11B_ Highest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2963.99	54.83	9.62	74.00	19.17	150	156	Horizontal
2	2975.49	43.80	9.56	54.00	10.20	150	335	Horizontal
3	4924.00	37.00	-17.72	54.00	17.00	150	266	Horizontal
4	4924.00	43.91	-17.72	74.00	30.09	150	348	Horizontal
5	7386.00	46.90	-9.55	74.00	27.10	150	292	Horizontal
6	7386.00	36.37	-9.55	54.00	17.63	150	0	Horizontal
7	17953.7	46.87	0.71	54.00	7.13	150	39	Horizontal

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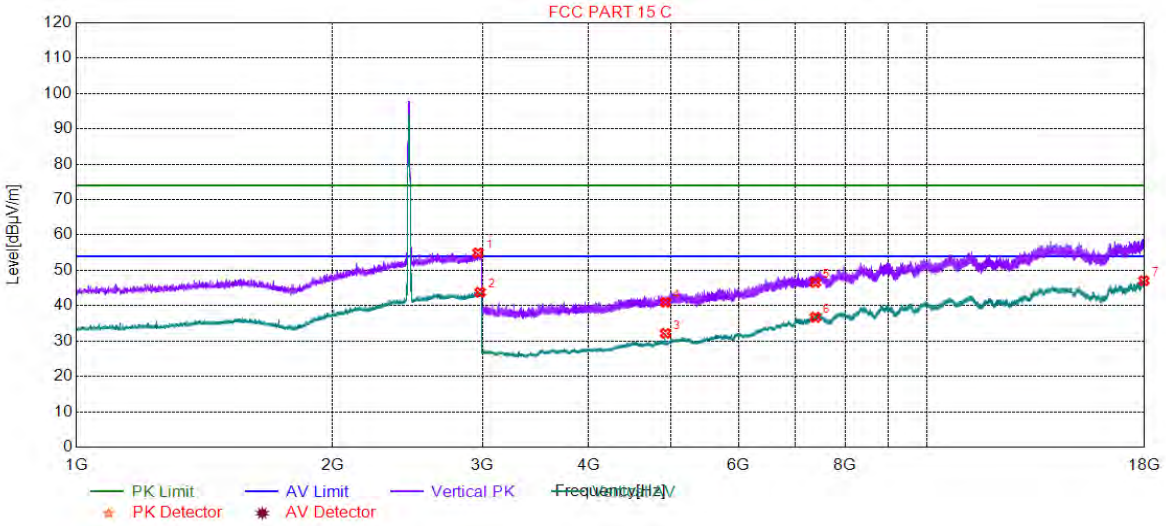
4.9.2.1.6 802.11B_ Highest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2964.99	54.96	9.61	74.00	19.04	150	2	Vertical
2	2981.49	43.82	9.54	54.00	10.18	150	95	Vertical
3	4924.00	32.18	-17.72	54.00	21.82	150	266	Vertical
4	4924.00	40.94	-17.72	74.00	33.06	150	320	Vertical
5	7386.00	46.57	-9.55	74.00	27.43	150	0	Vertical
6	7386.00	36.73	-9.55	54.00	17.27	150	242	Vertical
7	17962.0	47.09	0.71	54.00	6.91	150	242	Vertical

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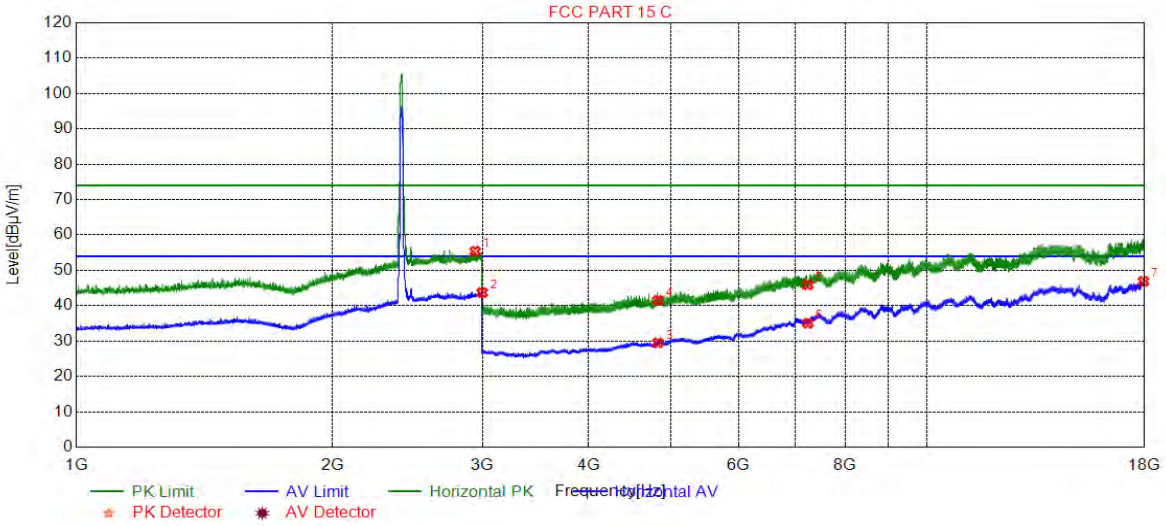
4.9.2.1.7 802.11G_Lowest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2941.98	55.38	9.59	74.00	18.62	150	18	Horizontal
2	2998.49	43.70	9.46	54.00	10.30	150	129	Horizontal
3	4824.00	29.50	-18.21	54.00	24.50	150	210	Horizontal
4	4824.00	41.53	-18.21	74.00	32.47	150	73	Horizontal
5	7236.00	45.89	-9.99	74.00	28.11	150	90	Horizontal
6	7236.00	35.05	-9.99	54.00	18.95	150	191	Horizontal
7	17942.2	46.86	0.70	54.00	7.14	150	191	Horizontal

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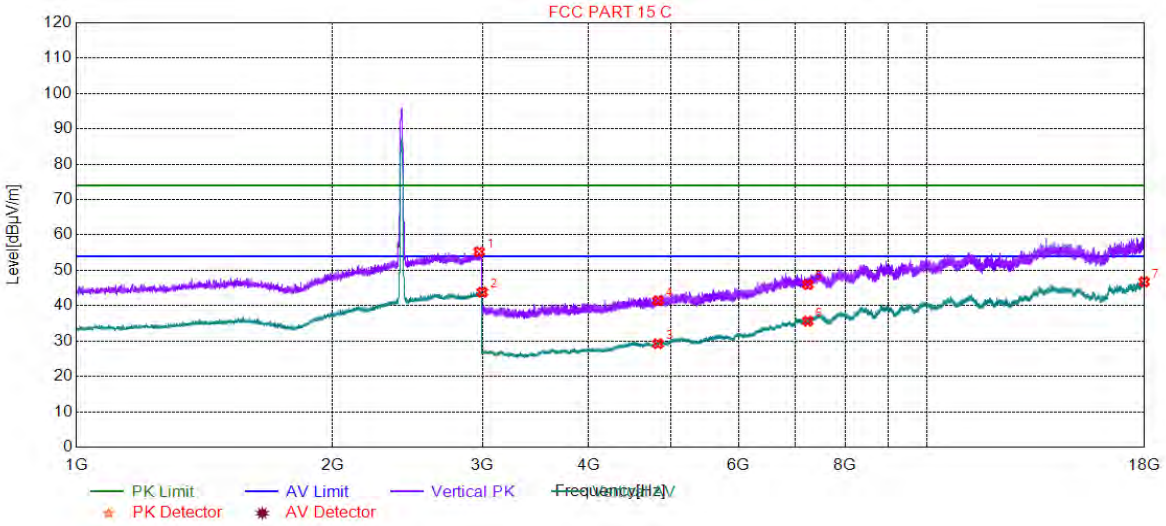
4.9.2.1.8 802.11G_Lowest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2973.49	55.26	9.57	74.00	18.74	150	274	Vertical
2	2998.99	43.82	9.45	54.00	10.18	150	247	Vertical
3	4824.00	29.25	-18.21	54.00	24.75	150	238	Vertical
4	4824.00	41.44	-18.21	74.00	32.56	150	183	Vertical
5	7236.00	45.99	-9.99	74.00	28.01	150	0	Vertical
6	7236.00	35.65	-9.99	54.00	18.35	150	93	Vertical
7	17974.6	46.75	0.71	54.00	7.25	150	241	Vertical

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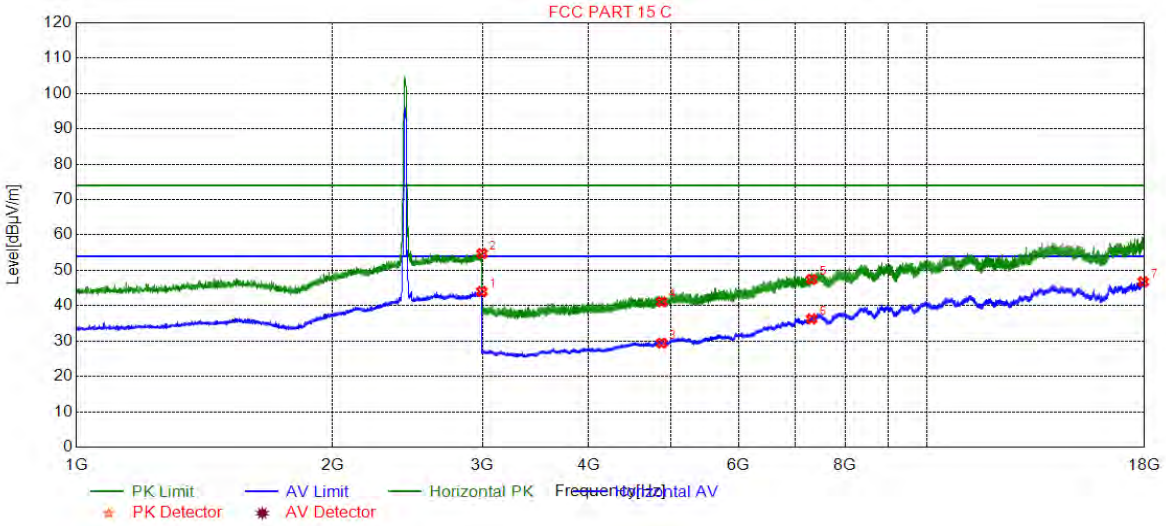
4.9.2.1.9 802.11G_ Middle Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2995.99	44.01	9.47	54.00	9.99	150	45	Horizontal
2	2997.49	54.77	9.46	74.00	19.23	150	294	Horizontal
3	4874.00	29.42	-17.99	54.00	24.58	150	182	Horizontal
4	4874.00	41.10	-17.99	74.00	32.90	150	155	Horizontal
5	7311.00	47.44	-9.74	74.00	26.56	150	291	Horizontal
6	7311.00	36.28	-9.74	54.00	17.72	150	342	Horizontal
7	17929.5	46.76	0.70	54.00	7.24	150	140	Horizontal

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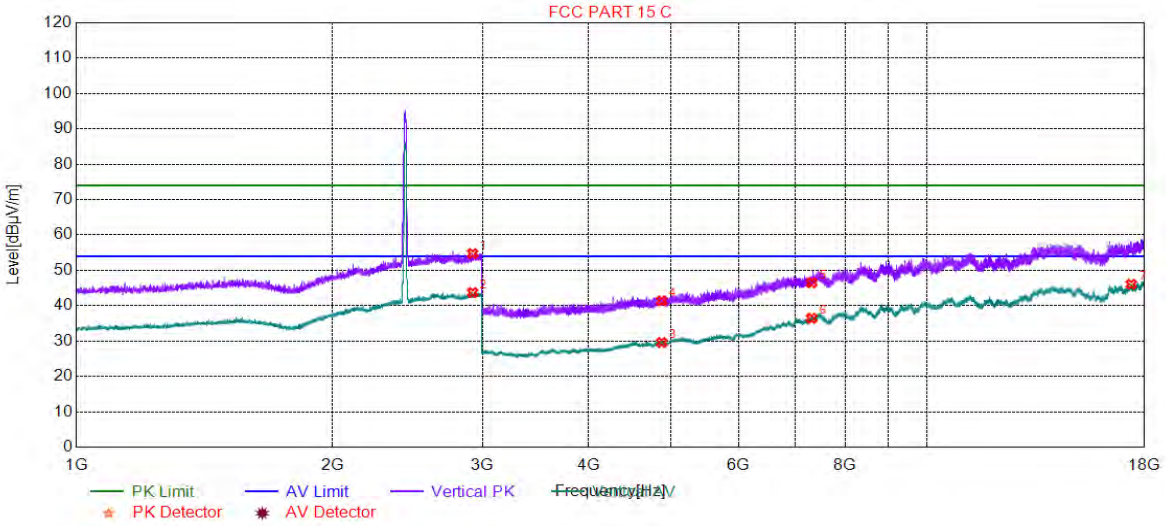
4.9.2.1.10 802.11G_ Middle Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2921.48	54.77	9.37	74.00	19.23	150	70	Vertical
2	2921.98	43.73	9.38	54.00	10.27	150	97	Vertical
3	4874.00	29.59	-17.99	54.00	24.41	150	333	Vertical
4	4874.00	41.37	-17.99	74.00	32.63	150	189	Vertical
5	7311.00	46.51	-9.74	74.00	27.49	150	40	Vertical
6	7311.00	36.43	-9.74	54.00	17.57	150	90	Vertical
7	17360.3	46.07	0.09	54.00	7.93	150	342	Vertical

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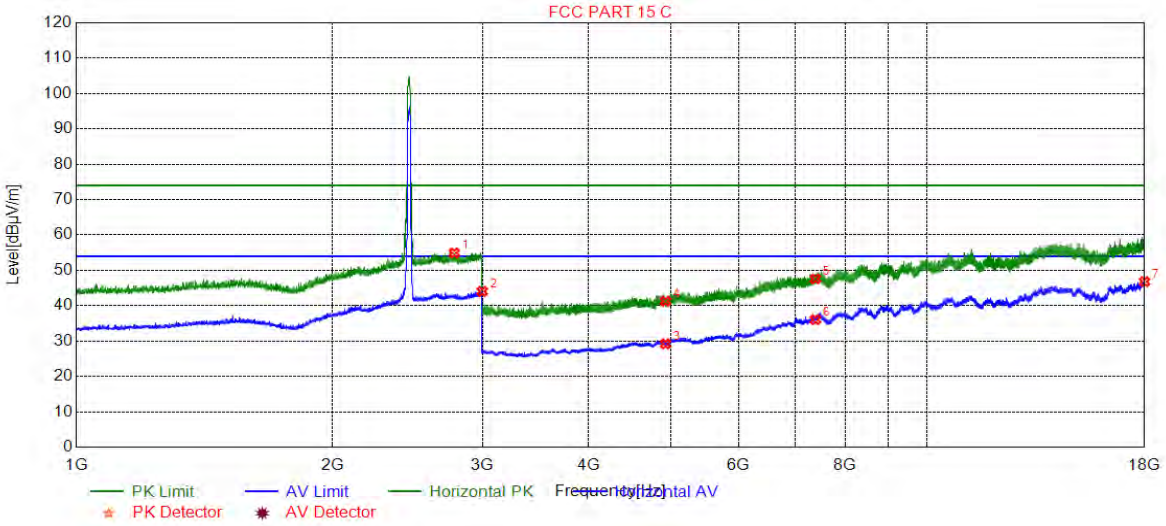
4.9.2.1.11 802.11G_ Highest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2779.94	54.92	9.03	74.00	19.08	150	238	Horizontal
2	2998.49	44.04	9.46	54.00	9.96	150	113	Horizontal
3	4924.00	29.20	-17.72	54.00	24.80	150	208	Horizontal
4	4924.00	41.26	-17.72	74.00	32.74	150	360	Horizontal
5	7386.00	47.60	-9.55	74.00	26.40	150	91	Horizontal
6	7386.00	36.06	-9.55	54.00	17.94	150	191	Horizontal
7	17995.5	46.79	0.72	54.00	7.21	150	242	Horizontal

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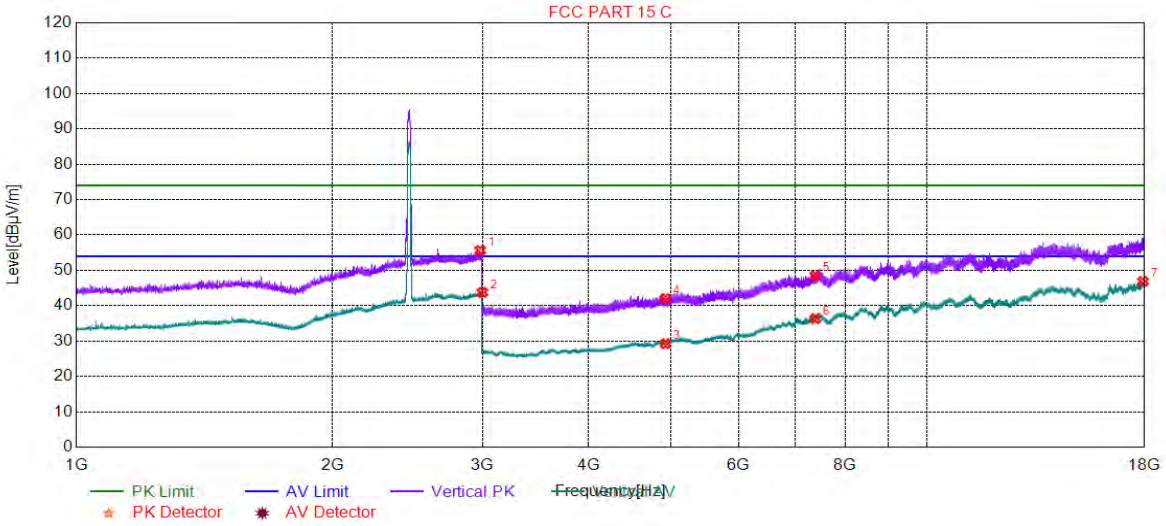
4.9.2.1.12 802.11G_ Highest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2982.49	55.67	9.53	74.00	18.33	150	328	Vertical
2	3000.00	43.77	9.45	54.00	10.23	150	247	Vertical
3	4924.00	29.25	-17.72	54.00	24.75	150	320	Vertical
4	4924.00	42.04	-17.72	74.00	31.96	150	46	Vertical
5	7386.00	48.48	-9.55	74.00	25.52	150	90	Vertical
6	7386.00	36.33	-9.55	54.00	17.67	150	292	Vertical
7	17919.1	46.86	0.70	54.00	7.14	150	292	Vertical

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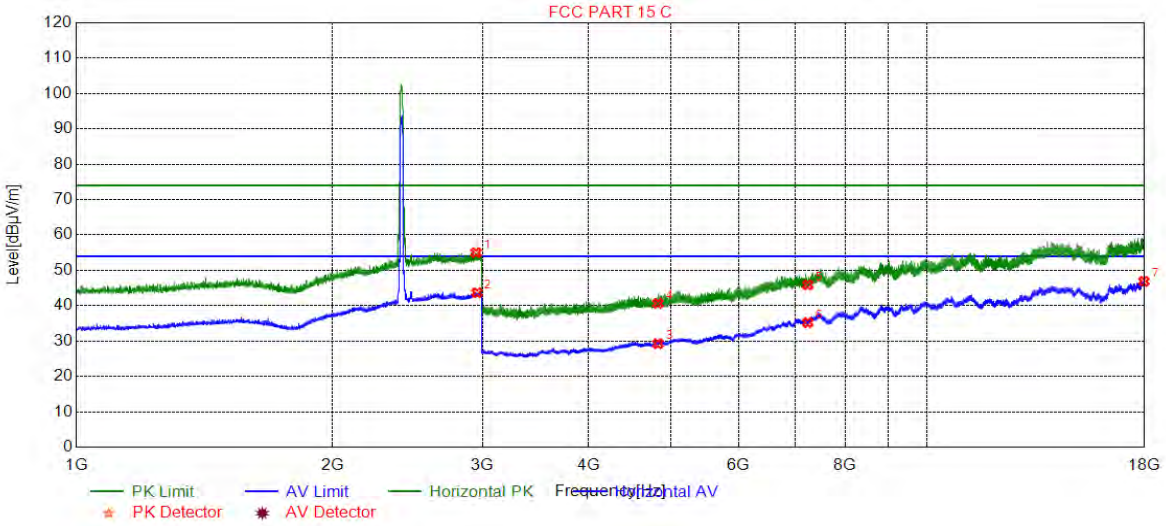
4.9.2.1.13 802.11N20_Lowest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2948.98	55.01	9.67	74.00	18.99	150	360	Horizontal
2	2955.98	43.68	9.65	54.00	10.32	150	126	Horizontal
3	4824.00	29.25	-18.21	54.00	24.75	150	348	Horizontal
4	4824.00	40.64	-18.21	74.00	33.36	150	18	Horizontal
5	7236.00	45.89	-9.99	74.00	28.11	150	191	Horizontal
6	7236.00	35.24	-9.99	54.00	18.76	150	91	Horizontal
7	17964.7	46.88	0.71	54.00	7.12	150	0	Horizontal

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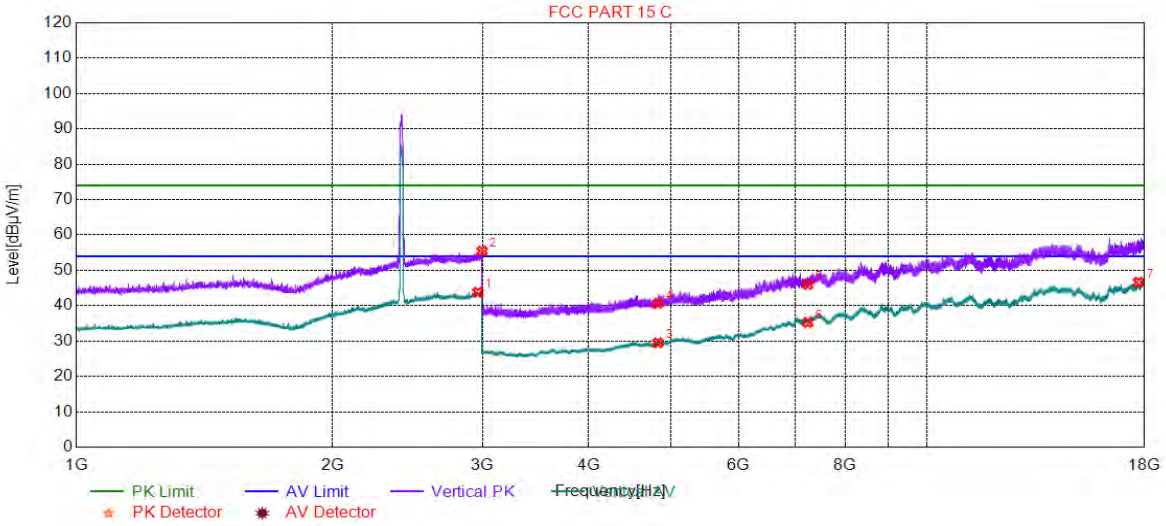
4.9.2.1.14 802.11N20_Lowest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2963.49	43.81	9.62	54.00	10.19	150	12	Vertical
2	2997.99	55.48	9.46	74.00	18.52	150	81	Vertical
3	4824.00	29.53	-18.21	54.00	24.47	150	18	Vertical
4	4824.00	40.64	-18.21	74.00	33.36	150	321	Vertical
5	7236.00	46.02	-9.99	74.00	27.98	150	140	Vertical
6	7236.00	35.27	-9.99	54.00	18.73	150	241	Vertical
7	17705.1	46.64	1.26	54.00	7.36	150	0	Vertical

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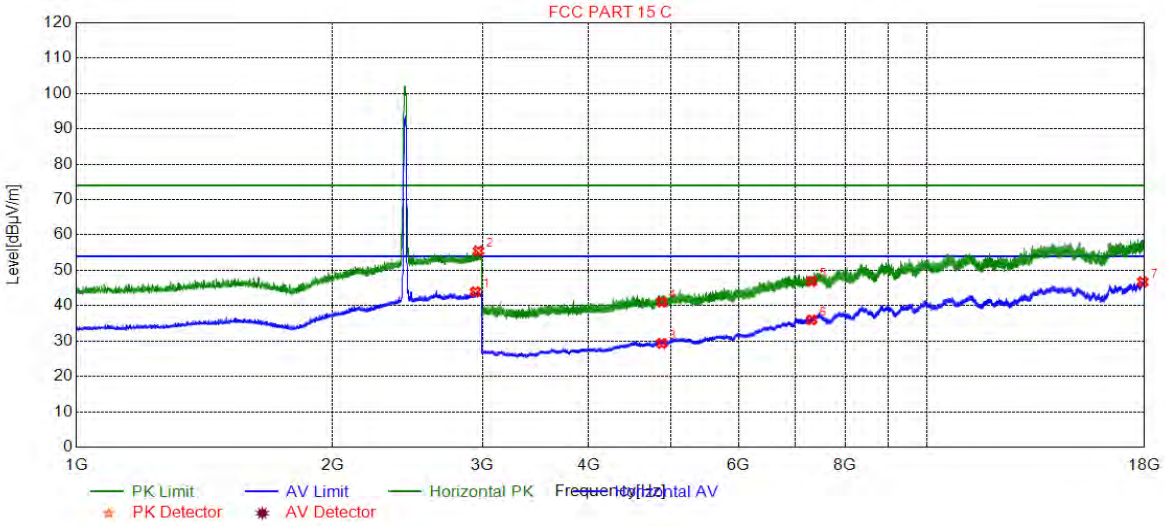
4.9.2.1.15 802.11N20_ Middle Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2943.48	43.94	9.61	54.00	10.06	150	156	Horizontal
2	2967.99	55.49	9.60	74.00	18.51	150	86	Horizontal
3	4874.00	29.37	-17.99	54.00	24.63	150	128	Horizontal
4	4874.00	41.04	-17.99	74.00	32.96	150	18	Horizontal
5	7311.00	46.90	-9.74	74.00	27.10	150	90	Horizontal
6	7311.00	36.00	-9.74	54.00	18.00	150	342	Horizontal
7	17910.3	46.73	0.69	54.00	7.27	150	140	Horizontal

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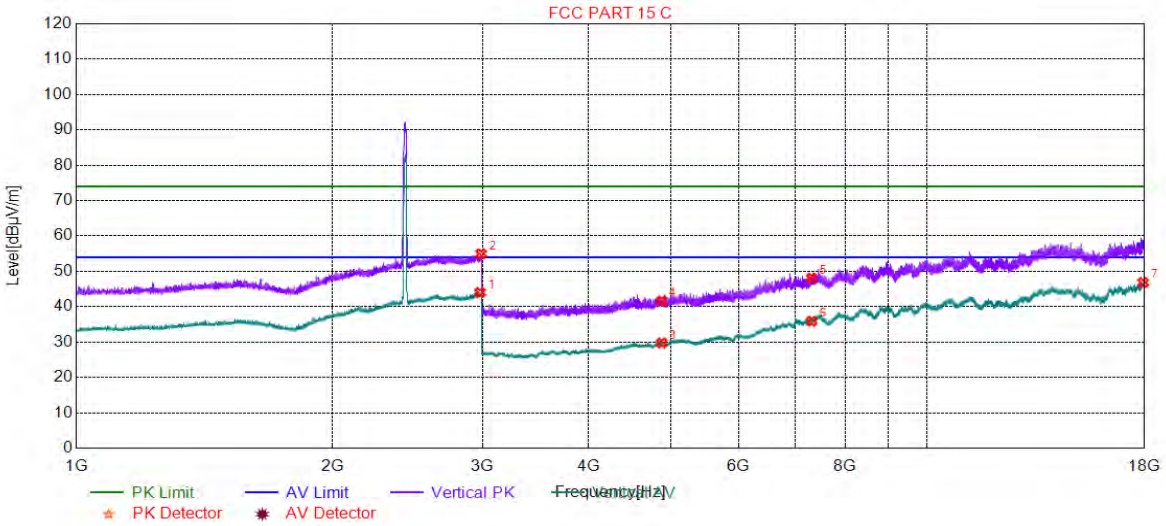
4.9.2.1.16 802.11N20_ Middle Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2981.49	44.01	9.54	54.00	9.99	150	273	Vertical
2	2989.99	54.98	9.50	74.00	19.02	150	95	Vertical
3	4874.00	29.75	-17.99	54.00	24.25	150	248	Vertical
4	4874.00	41.62	-17.99	74.00	32.38	150	82	Vertical
5	7311.00	48.11	-9.74	74.00	25.89	150	241	Vertical
6	7311.00	35.87	-9.74	54.00	18.13	150	40	Vertical
7	17927.9	46.82	0.70	54.00	7.18	150	241	Vertical

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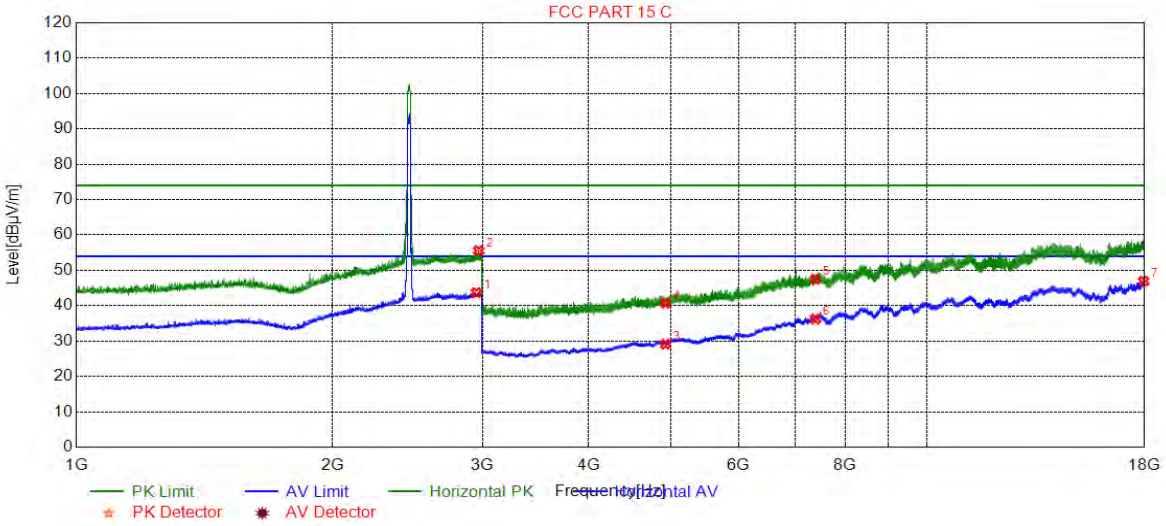
4.9.2.1.17 802.11N20_ Highest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2951.48	43.68	9.67	54.00	10.32	150	18	Horizontal
2	2969.99	55.55	9.59	74.00	18.45	150	128	Horizontal
3	4924.00	29.13	-17.72	54.00	24.87	150	154	Horizontal
4	4924.00	40.72	-17.72	74.00	33.28	150	126	Horizontal
5	7386.00	47.47	-9.55	74.00	26.53	150	191	Horizontal
6	7386.00	36.25	-9.55	54.00	17.75	150	140	Horizontal
7	17951.5	46.95	0.71	54.00	7.05	150	90	Horizontal

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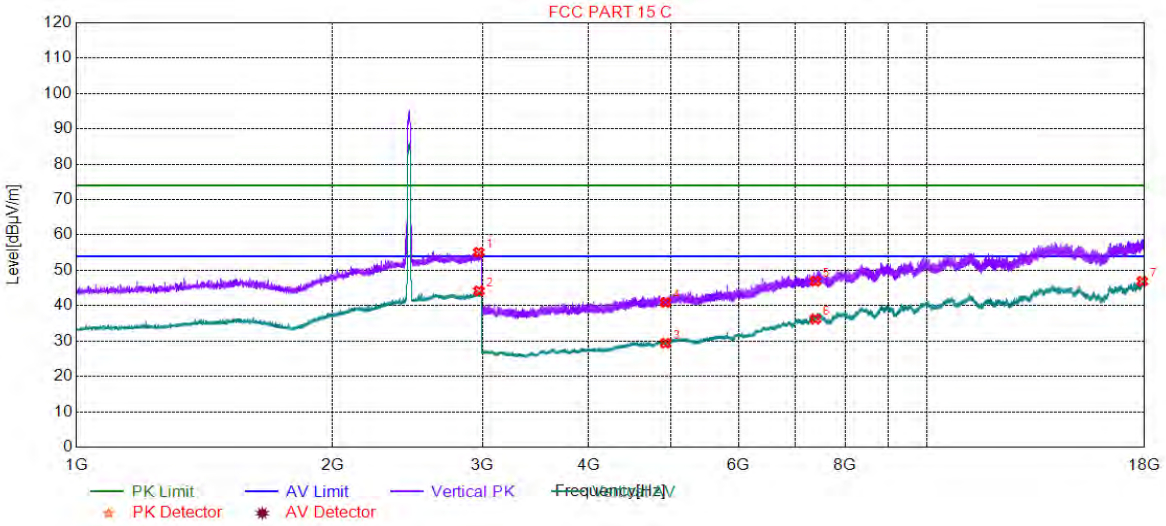
4.9.2.1.18 802.11N20_ Highest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2970.49	55.12	9.59	74.00	18.88	150	260	Vertical
2	2972.49	44.18	9.58	54.00	9.82	150	81	Vertical
3	4924.00	29.39	-17.72	54.00	24.61	150	292	Vertical
4	4924.00	40.92	-17.72	74.00	33.08	150	319	Vertical
5	7386.00	46.91	-9.55	74.00	27.09	150	141	Vertical
6	7386.00	36.24	-9.55	54.00	17.76	150	342	Vertical
7	17883.9	46.89	0.48	54.00	7.11	150	40	Vertical

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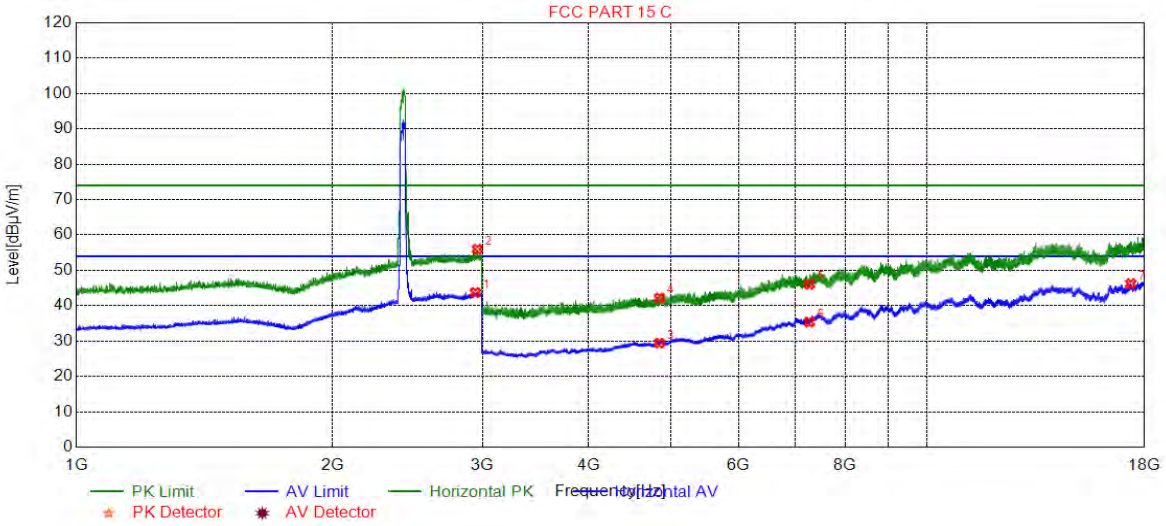
4.9.2.1.19 802.11N40_Lowest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2943.48	43.72	9.61	54.00	10.28	150	291	Horizontal
2	2959.48	55.97	9.64	74.00	18.03	150	140	Horizontal
3	4844.00	29.42	-18.13	54.00	24.58	150	127	Horizontal
4	4844.00	42.18	-18.13	74.00	31.82	150	319	Horizontal
5	7266.00	46.06	-9.88	74.00	27.94	150	42	Horizontal
6	7266.00	35.37	-9.88	54.00	18.63	150	342	Horizontal
7	17337.2	46.22	-0.03	54.00	7.78	150	42	Horizontal

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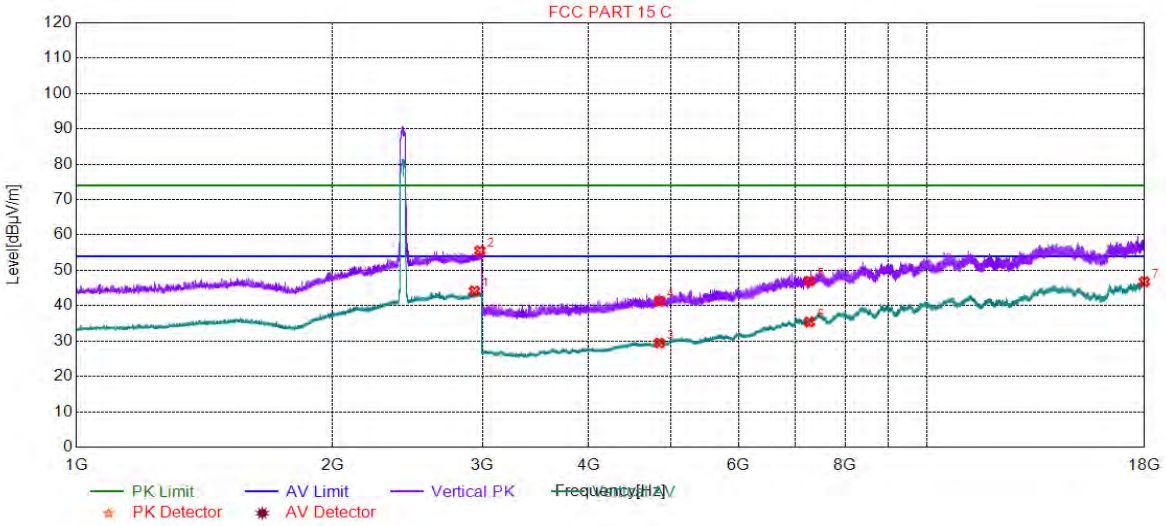
4.9.2.1.20 802.11N40_Lowest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2936.48	44.18	9.53	54.00	9.82	150	138	Vertical
2	2980.49	55.55	9.54	74.00	18.45	150	288	Vertical
3	4844.00	29.44	-18.13	54.00	24.56	150	127	Vertical
4	4844.00	41.24	-18.13	74.00	32.76	150	45	Vertical
5	7266.00	46.95	-9.88	74.00	27.05	150	191	Vertical
6	7266.00	35.39	-9.88	54.00	18.61	150	241	Vertical
7	17984.5	46.79	0.72	54.00	7.21	150	292	Vertical

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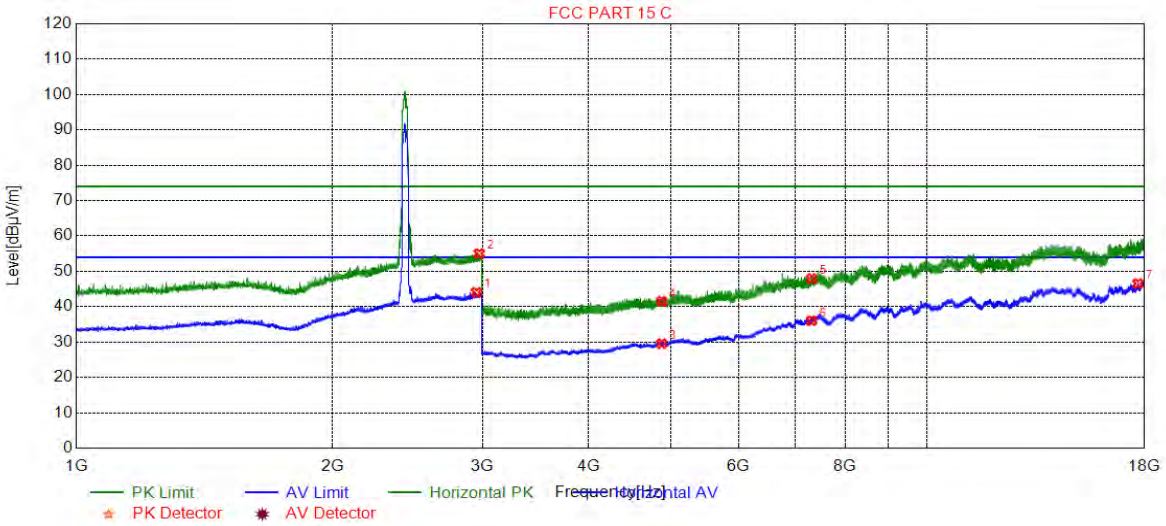
4.9.2.1.21 802.11N40_ Middle Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2951.98	44.07	9.67	54.00	9.93	150	294	Horizontal
2	2974.49	55.06	9.57	74.00	18.94	150	18	Horizontal
3	4874.00	29.55	-17.99	54.00	24.45	150	237	Horizontal
4	4874.00	41.54	-17.99	74.00	32.46	150	237	Horizontal
5	7311.00	47.97	-9.74	74.00	26.03	150	342	Horizontal
6	7311.00	36.04	-9.74	54.00	17.96	150	242	Horizontal
7	17682.0	46.57	1.35	54.00	7.43	150	40	Horizontal

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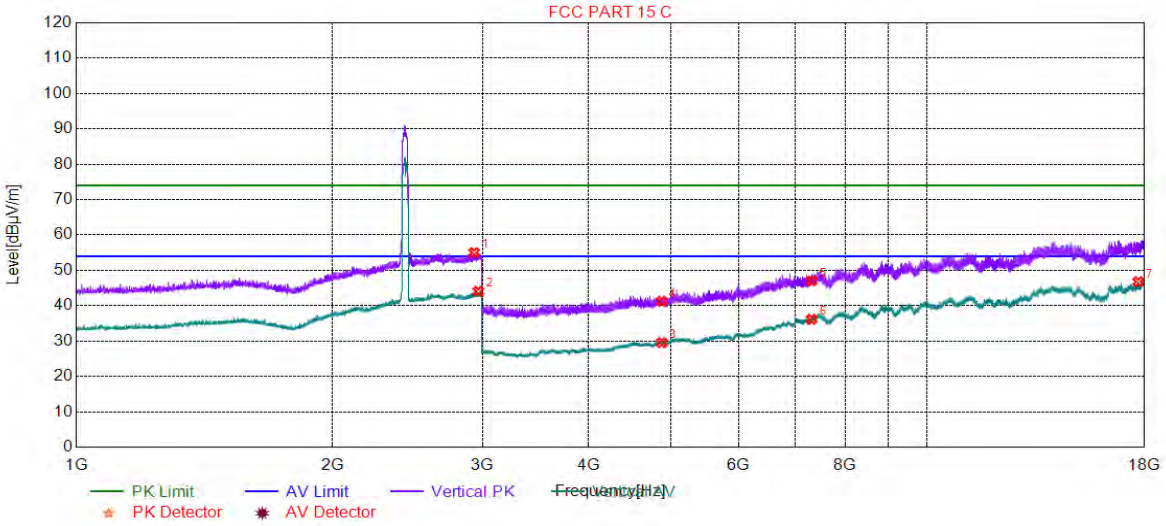
4.9.2.1.22 802.11N40_ Middle Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2933.48	55.05	9.50	74.00	18.95	150	25	Vertical
2	2966.49	44.08	9.60	54.00	9.92	150	11	Vertical
3	4874.00	29.55	-17.99	54.00	24.45	150	237	Vertical
4	4874.00	41.27	-17.99	74.00	32.73	150	182	Vertical
5	7311.00	47.02	-9.74	74.00	26.98	150	0	Vertical
6	7311.00	36.16	-9.74	54.00	17.84	150	190	Vertical
7	17697.4	46.79	1.36	54.00	7.21	150	190	Vertical

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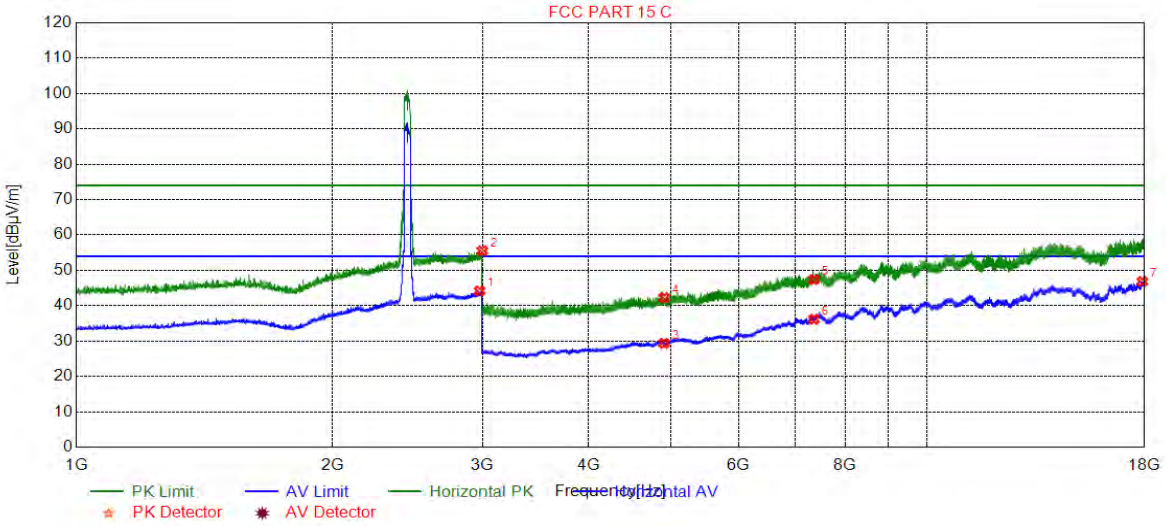
4.9.2.1.23 802.11N40_ Highest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2977.49	44.19	9.55	54.00	9.81	150	32	Horizontal
2	2998.99	55.53	9.45	74.00	18.47	150	291	Horizontal
3	4904.00	29.35	-17.85	54.00	24.65	150	264	Horizontal
4	4904.00	42.25	-17.85	74.00	31.75	150	155	Horizontal
5	7356.00	47.39	-9.62	74.00	26.61	150	0	Horizontal
6	7356.00	36.17	-9.62	54.00	17.83	150	40	Horizontal
7	17887.2	46.86	0.52	54.00	7.14	150	0	Horizontal

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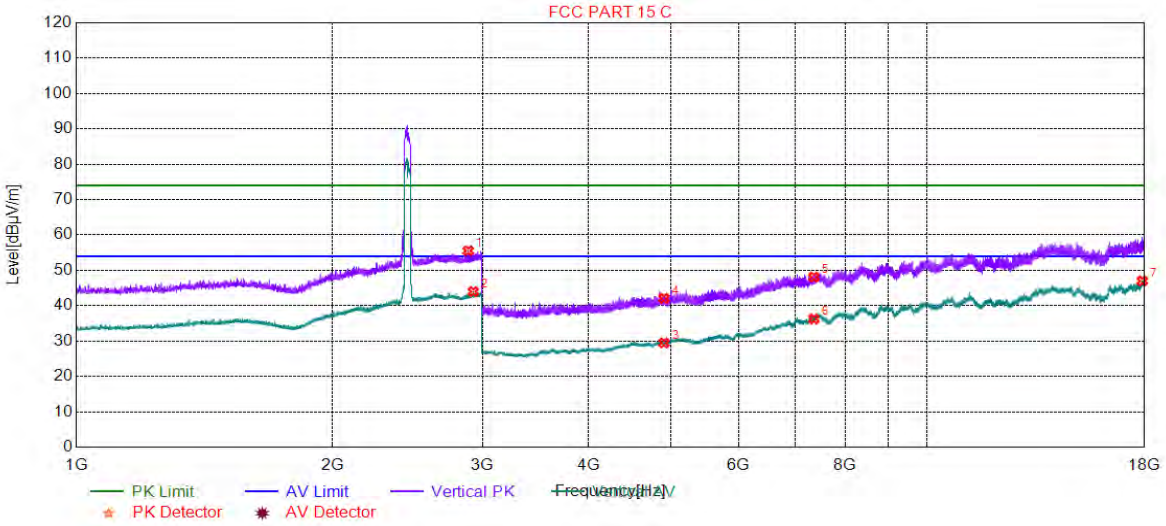
4.9.2.1.24 802.11N40_ Highest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2886.97	55.54	9.17	74.00	18.46	150	2	Vertical
2	2927.48	44.00	9.44	54.00	10.00	150	163	Vertical
3	4904.00	29.48	-17.85	54.00	24.52	150	73	Vertical
4	4904.00	42.10	-17.85	74.00	31.90	150	318	Vertical
5	7356.00	48.11	-9.62	74.00	25.89	150	140	Vertical
6	7356.00	36.25	-9.62	54.00	17.75	150	91	Vertical
7	17886.1	47.01	0.51	54.00	6.99	150	292	Vertical

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 between 9KHz to 30MHz and 18GHz to 25GHz was very low, and the above harmonics were the highest point could be found when testing, 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.

4）All Modes have been tested, but only the worst case data displayed in this report.

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4.10 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 or 10m (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:			

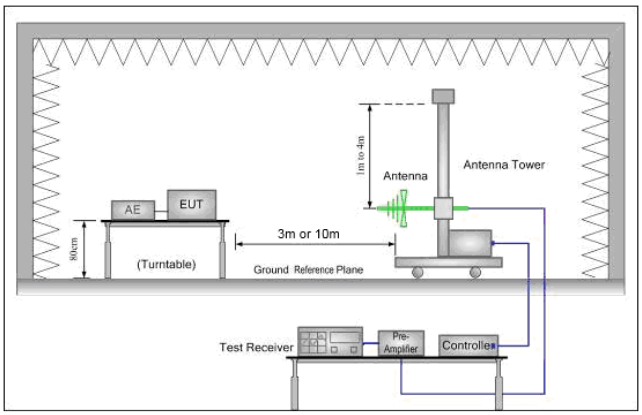

Figure 1. 30MHz to 1GHz

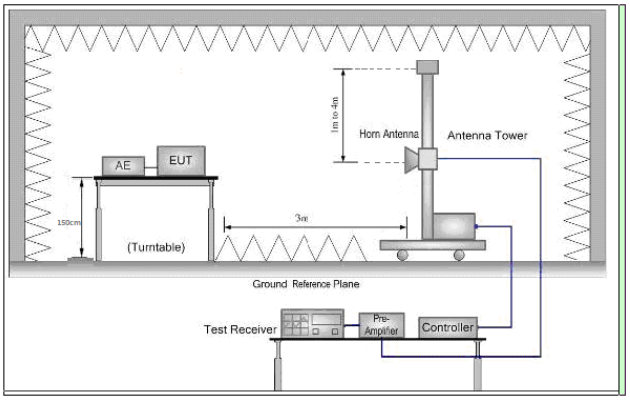

Figure 2. Above 1 GHz

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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 or 10 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 or 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 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. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode,And found the X axis positioning which it is worse case. j. 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 Charge +Transmitting mode. Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G ; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40). 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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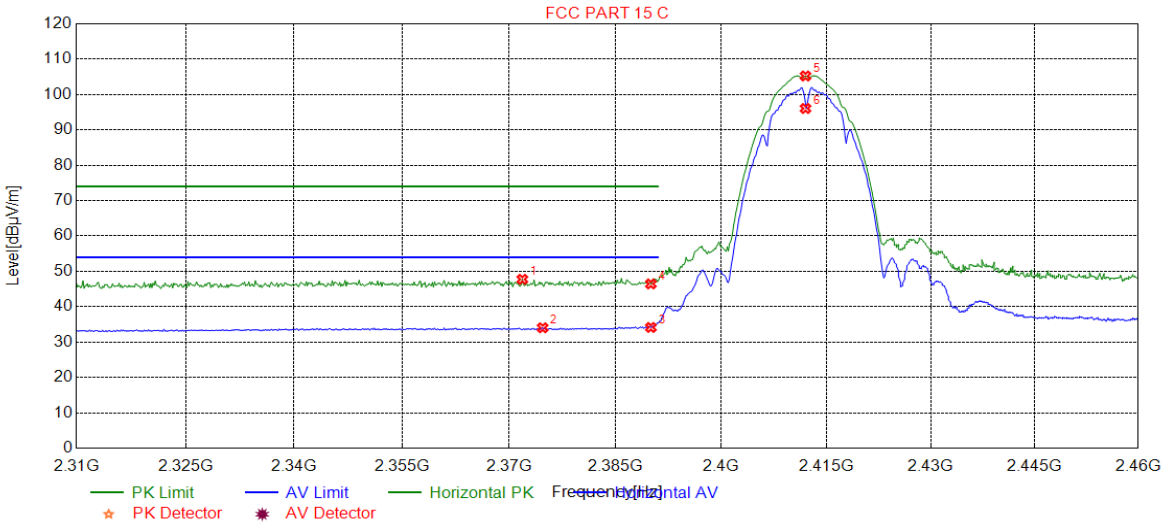
Test plot as follows:

4.10.1 ANT1

4.10.1.1 802.11B_Lowest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2371.86	47.75	7.79	74.00	26.25	150	164	Horizontal
2	2374.71	34.05	7.79	54.00	19.95	150	216	Horizontal
3	2390.00	34.14	7.77	54.00	19.86	150	212	Horizontal
4	2390.00	46.45	7.77	74.00	27.55	150	208	Horizontal
5	2412.00	105.24	7.81	0.00	-105.24	150	216	Horizontal
6	2412.00	96.05	7.81	0.00	-96.05	150	216	Horizontal

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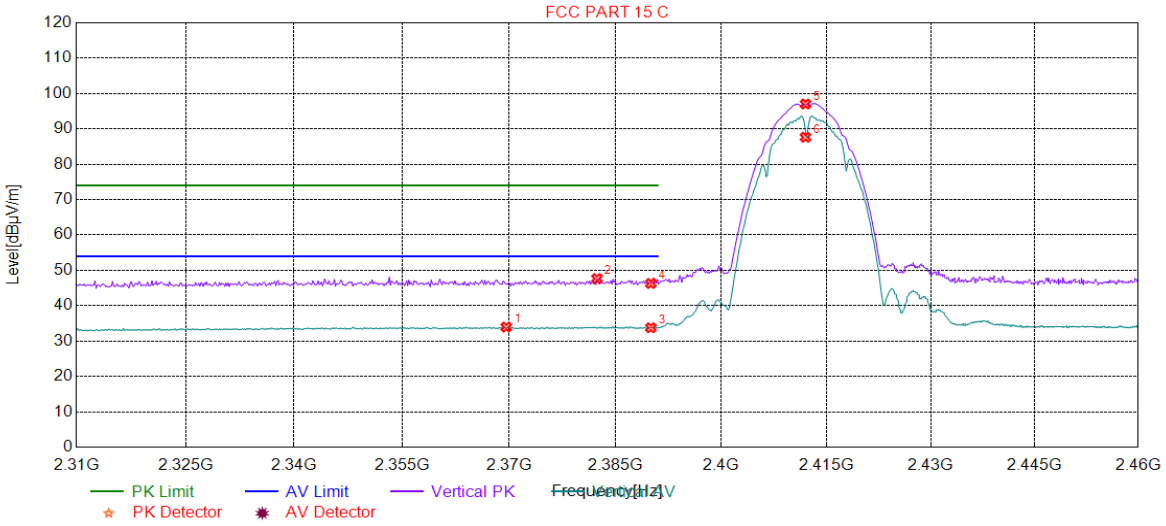
4.10.1.2 802.11B_Lowest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2369.60	33.96	7.79	54.00	20.04	150	128	Vertical
2	2382.37	47.67	7.78	74.00	26.33	150	169	Vertical
3	2390.00	33.78	7.77	54.00	20.22	150	282	Vertical
4	2390.00	46.30	7.77	74.00	27.70	150	271	Vertical
5	2412.00	97.04	7.81	0.00	-97.04	150	60	Vertical
6	2412.00	87.65	7.81	0.00	-87.65	150	60	Vertical

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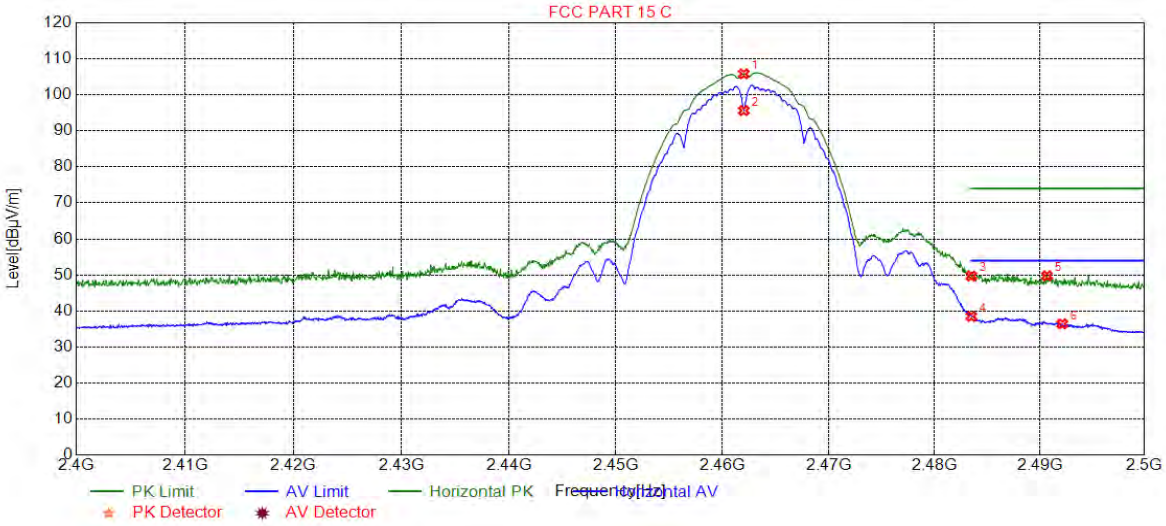
4.10.1.3 802.11B_ Highest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	105.82	7.98	0.00	-105.82	150	217	Horizontal
2	2462.00	95.62	7.98	0.00	-95.62	150	217	Horizontal
3	2483.50	49.70	8.01	74.00	24.30	150	223	Horizontal
4	2483.50	38.49	8.01	54.00	15.51	150	217	Horizontal
5	2490.69	49.77	8.02	74.00	24.23	150	211	Horizontal
6	2492.14	36.42	8.02	54.00	17.58	150	217	Horizontal

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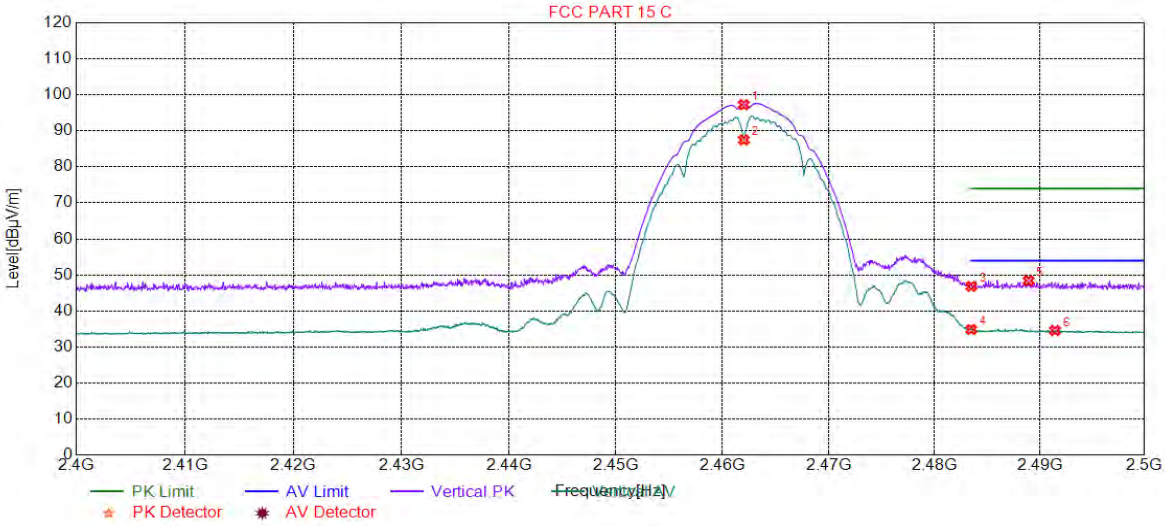
4.10.1.4 802.11B_ Highest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	97.26	7.98	0.00	-97.26	150	222	Vertical
2	2462.00	87.48	7.98	0.00	-87.48	150	222	Vertical
3	2483.50	46.82	8.01	74.00	27.18	150	216	Vertical
4	2483.50	34.86	8.01	54.00	19.14	150	222	Vertical
5	2488.94	48.42	8.02	74.00	25.58	150	271	Vertical
6	2491.44	34.58	8.02	54.00	19.42	150	151	Vertical

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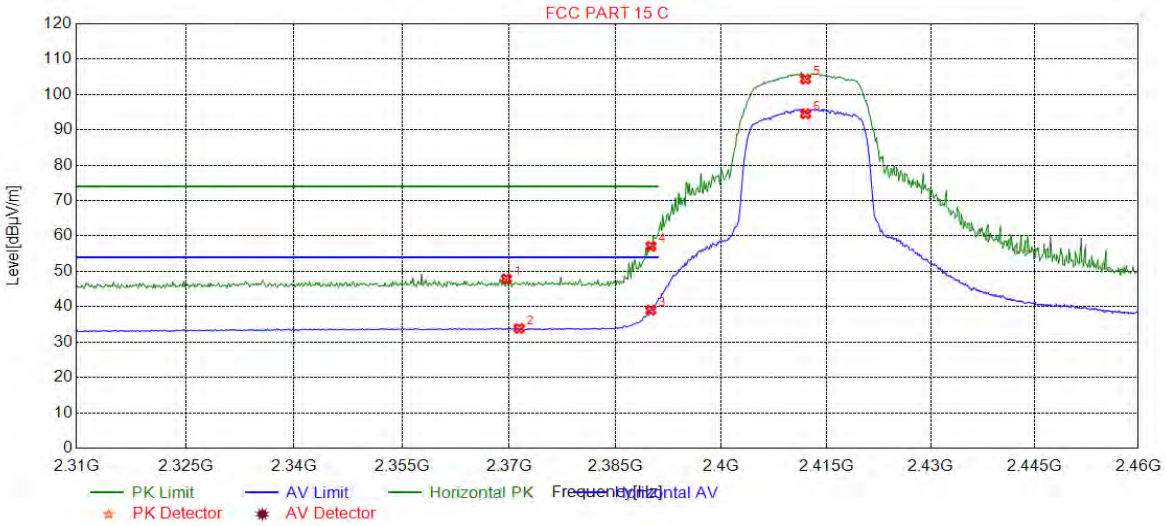
4.10.1.5 802.11G_Lowest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2369.60	47.87	7.79	74.00	26.13	150	45	Horizontal
2	2371.41	33.87	7.79	54.00	20.13	150	343	Horizontal
3	2390.00	39.01	7.77	54.00	14.99	150	214	Horizontal
4	2390.00	57.09	7.77	74.00	16.91	150	50	Horizontal
5	2412.00	104.34	7.81	0.00	-104.34	150	214	Horizontal
6	2412.00	94.57	7.81	0.00	-94.57	150	214	Horizontal

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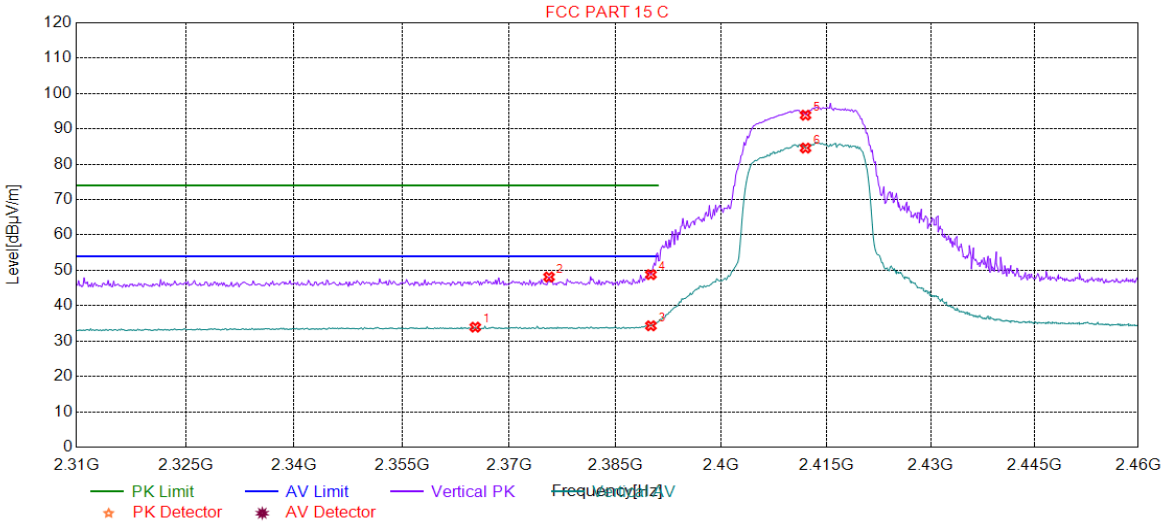
4.10.1.6 802.11G_Lowest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2365.25	33.94	7.79	54.00	20.06	150	5	Vertical
2	2375.61	48.12	7.78	74.00	25.88	150	101	Vertical
3	2390.00	34.32	7.77	54.00	19.68	150	59	Vertical
4	2390.00	48.79	7.77	74.00	25.21	150	312	Vertical
5	2412.00	93.87	7.81	0.00	-93.87	150	282	Vertical
6	2412.00	84.58	7.81	0.00	-84.58	150	316	Vertical

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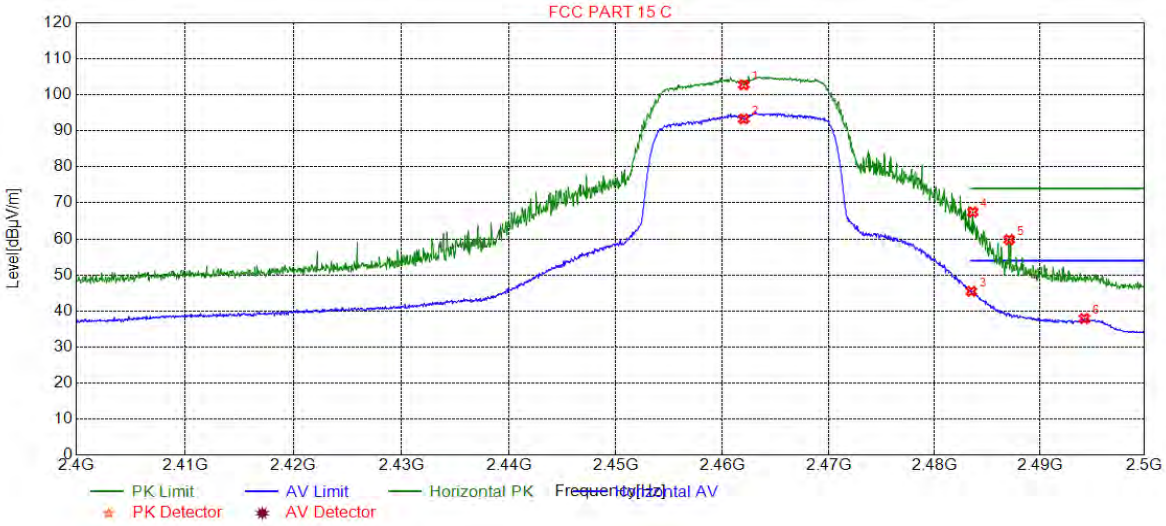
4.10.1.7 802.11G_ Highest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	102.77	7.98	0.00	-102.77	150	206	Horizontal
2	2462.00	93.31	7.98	0.00	-93.31	150	206	Horizontal
3	2483.50	45.44	8.01	54.00	8.56	150	206	Horizontal
4	2483.64	67.47	8.01	74.00	6.53	150	195	Horizontal
5	2487.09	59.81	8.01	74.00	14.19	150	206	Horizontal
6	2494.24	37.90	8.02	54.00	16.10	150	206	Horizontal

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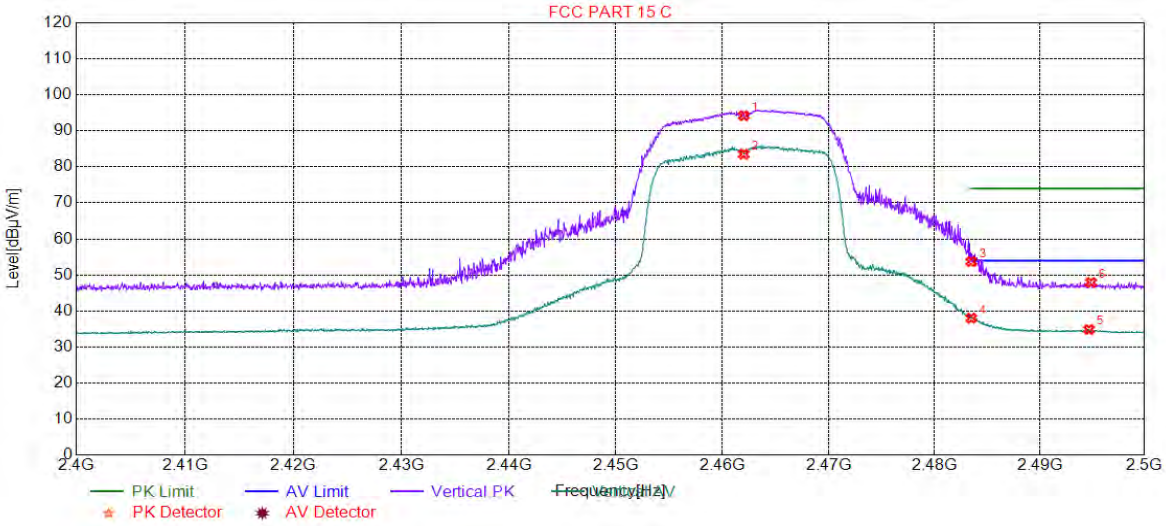
4.10.1.8 802.11G_ Highest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	94.23	7.98	0.00	-94.23	150	234	Vertical
2	2462.00	83.54	7.98	0.00	-83.54	150	42	Vertical
3	2483.50	53.70	8.01	74.00	20.30	150	0	Vertical
4	2483.50	38.00	8.01	54.00	16.00	150	42	Vertical
5	2494.69	34.86	8.02	54.00	19.14	150	245	Vertical
6	2494.89	47.91	8.02	74.00	26.09	150	196	Vertical

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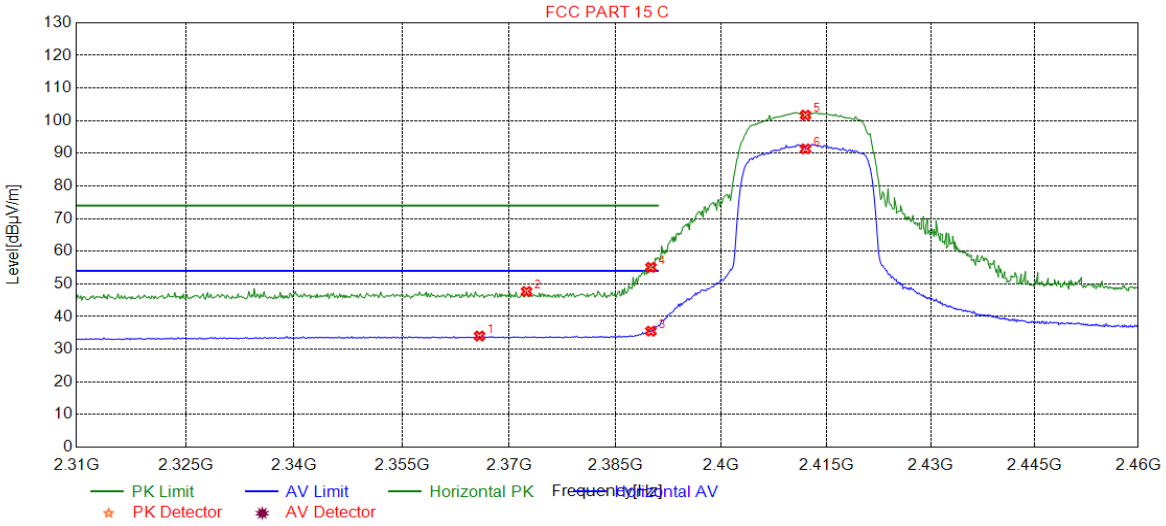
4.10.1.9 802.11N20_ Lowest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2365.85	34.06	7.79	54.00	19.94	150	94	Horizontal
2	2372.46	47.70	7.79	74.00	26.30	150	333	Horizontal
3	2390.00	35.54	7.77	54.00	18.46	150	218	Horizontal
4	2390.00	55.10	7.77	74.00	18.90	150	247	Horizontal
5	2412.00	101.72	7.81	0.00	-101.72	150	214	Horizontal
6	2412.00	91.38	7.81	0.00	-91.38	150	210	Horizontal

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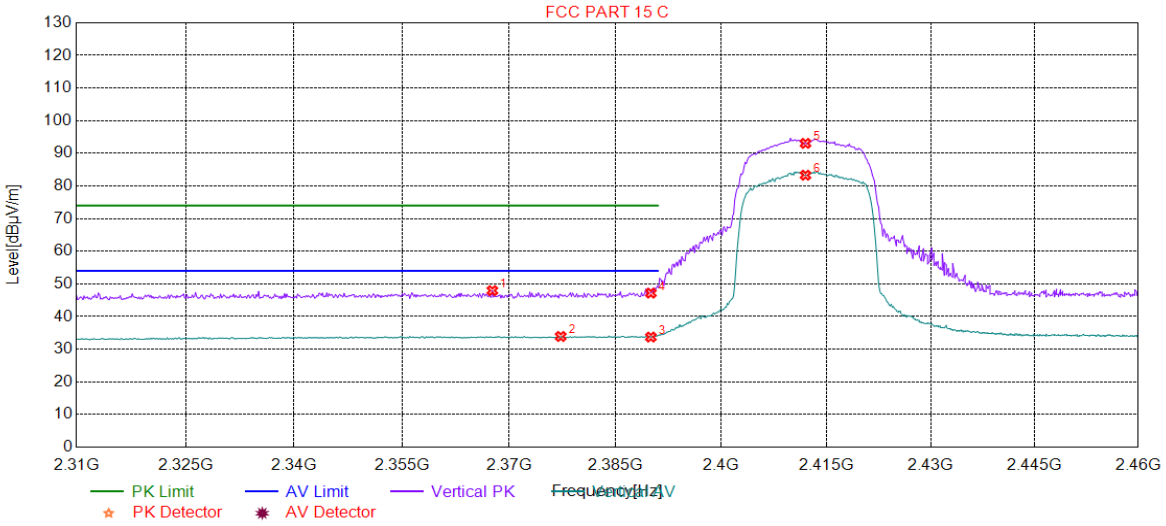
4.10.1.10 802.11N20_Lowest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2367.65	47.96	7.79	74.00	26.04	150	323	Vertical
2	2377.26	33.92	7.78	54.00	20.08	150	238	Vertical
3	2390.00	33.74	7.77	54.00	20.26	150	179	Vertical
4	2390.00	47.20	7.77	74.00	26.80	150	346	Vertical
5	2412.00	93.07	7.81	0.00	-93.07	150	311	Vertical
6	2412.00	83.31	7.81	0.00	-83.31	150	311	Vertical

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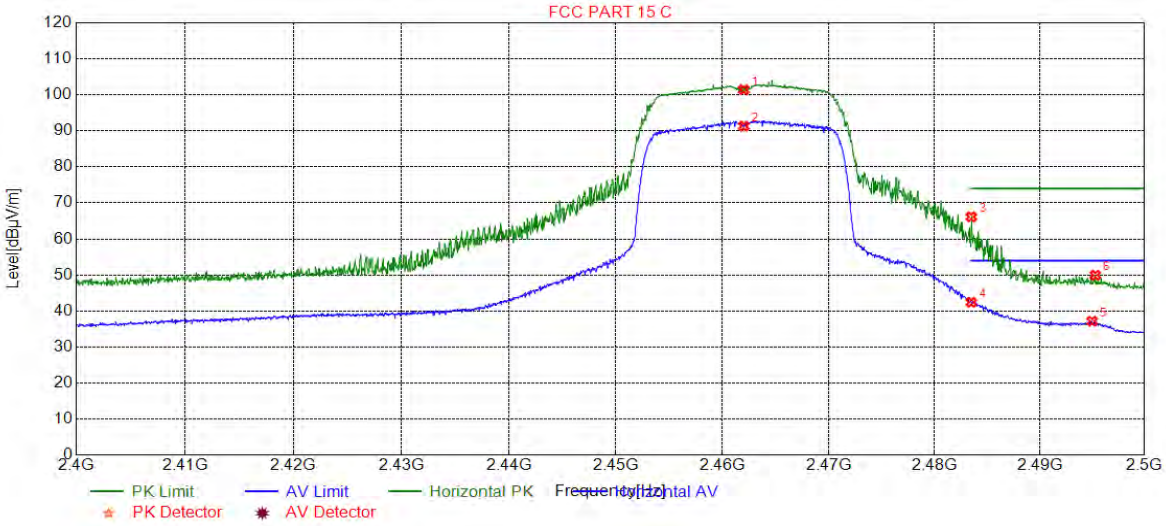
4.10.1.11 802.11N20_ Highest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	101.41	7.98	0.00	-101.41	150	222	Horizontal
2	2462.00	91.28	7.98	0.00	-91.28	150	217	Horizontal
3	2483.50	66.15	8.01	74.00	7.85	150	222	Horizontal
4	2483.50	42.41	8.01	54.00	11.59	150	217	Horizontal
5	2494.99	37.17	8.02	54.00	16.83	150	217	Horizontal
6	2495.29	49.95	8.02	74.00	24.05	150	217	Horizontal

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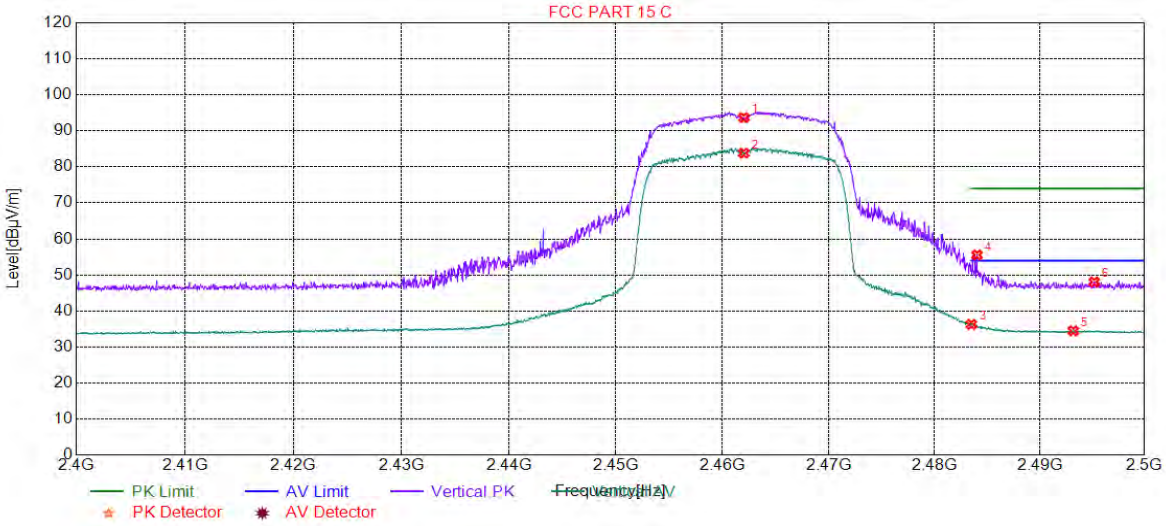
4.10.1.12 802.11N20_ Highest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	93.68	7.98	0.00	-93.68	150	319	Vertical
2	2462.00	83.82	7.98	0.00	-83.82	150	319	Vertical
3	2483.50	36.28	8.01	54.00	17.72	150	319	Vertical
4	2484.04	55.56	8.01	74.00	18.44	150	228	Vertical
5	2493.19	34.49	8.02	54.00	19.51	150	319	Vertical
6	2495.19	48.06	8.02	74.00	25.94	150	330	Vertical

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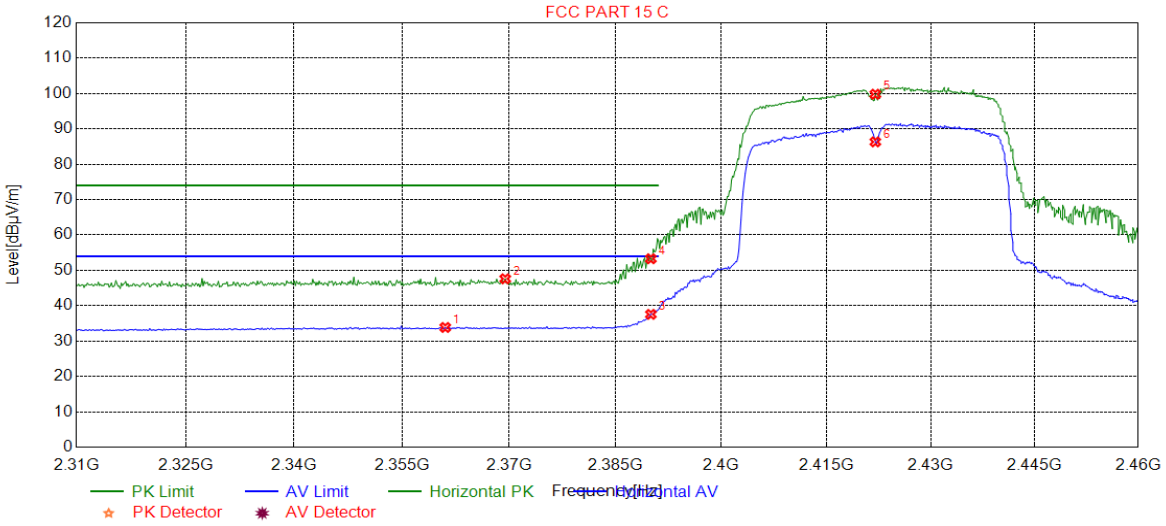
4.10.1.13 802.11N40_Lowest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2361.05	33.86	7.80	54.00	20.14	150	200	Horizontal
2	2369.45	47.61	7.79	74.00	26.39	150	345	Horizontal
3	2390.00	37.56	7.77	54.00	16.44	150	213	Horizontal
4	2390.00	53.28	7.77	74.00	20.72	150	213	Horizontal
5	2422.00	99.80	7.85	0.00	-99.80	150	213	Horizontal
6	2422.00	86.33	7.85	0.00	-86.33	150	213	Horizontal

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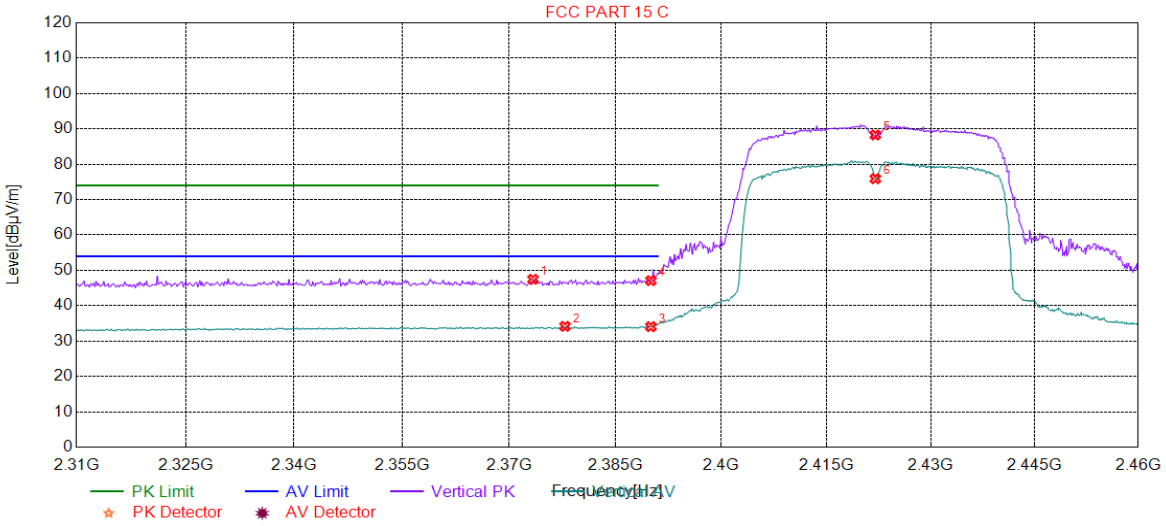
4.10.1.14 802.11N40_Lowest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2373.36	47.47	7.79	74.00	26.53	150	139	Vertical
2	2377.86	34.17	7.78	54.00	19.83	150	28	Vertical
3	2390.00	34.08	7.77	54.00	19.92	150	327	Vertical
4	2390.00	47.10	7.77	74.00	26.90	150	110	Vertical
5	2422.00	88.30	7.85	0.00	-88.30	150	319	Vertical
6	2422.00	75.92	7.85	0.00	-75.92	150	36	Vertical

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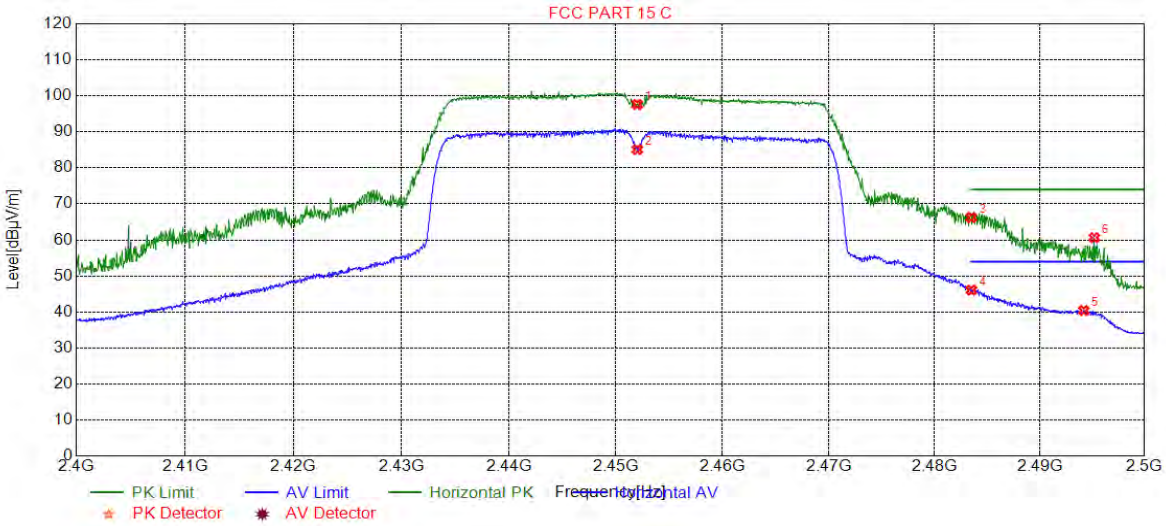
4.10.1.15 802.11N40_ Highest Channel_ Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2452.00	97.63	7.97	0.00	-97.63	150	211	Horizontal
2	2452.00	85.10	7.97	0.00	-85.10	150	211	Horizontal
3	2483.50	66.23	8.01	74.00	7.77	150	205	Horizontal
4	2483.50	46.06	8.01	54.00	7.94	150	205	Horizontal
5	2494.19	40.40	8.02	54.00	13.60	150	211	Horizontal
6	2495.19	60.62	8.02	74.00	13.38	150	211	Horizontal

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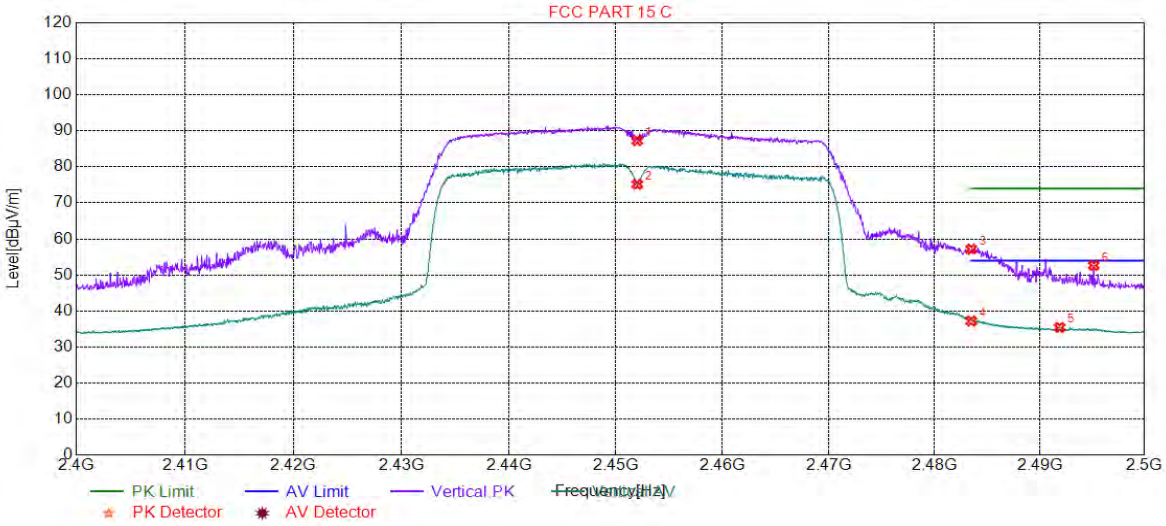
4.10.1.16 802.11N40_ Highest Channel_ Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2452.00	87.31	7.97	0.00	-87.31	150	112	Vertical
2	2452.00	75.17	7.97	0.00	-75.17	150	57	Vertical
3	2483.50	57.19	8.01	74.00	16.81	150	24	Vertical
4	2483.50	37.22	8.01	54.00	16.78	150	118	Vertical
5	2491.89	35.43	8.02	54.00	18.57	150	107	Vertical
6	2495.14	52.63	8.02	74.00	21.37	150	242	Vertical

Remark:
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

All Modes have been tested, but only the worst case data displayed in this report.

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5 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	±0.75dB
2	RF power density, conducted	±2.84dB
3	Spurious emissions, conducted	±0.75dB
4	Radiated Spurious emission test	±4.5dB (30MHz-1GHz)
		±4.8dB (1GHz-25GHz)
5	Conduct emission test	±3.12 dB (9KHz- 30MHz)
6	Temperature test	±1°C
7	Humidity test	±3%
8	DC and low frequency voltages	±0.5%

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6 Equipment List

Conducted Emission					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Duedate (yyyy-mm-dd)
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2020/5/10	2023/5/9
LISN	Rohde & Schwarz	ENV216	SEM007-01	2019/7/14	2020/7/14
LISN	ETS-LINDGREN	Feb-16	SEM007-02	20120/4/1	2021/3/31
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2020/6/12	2021/6/11
2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	2020/2/11	2021/2/10
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2020/3/2	2021/3/1

RF conducted test					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Duedate (yyyy-mm-dd)
DC Power Supply	Agilent Technologies Inc	66311B	W009-09	2019/7/15	2020/7/15
Signal Analyzer	Rohde & Schwarz	FSV	W025-05	2020/1/3	2021/1/2
Coaxial Cable	SGS	N/A	SEM031-01	2020/6/12	2021/6/11
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2019/7/14	2020/7/14
Temperature Chamber	GIANT FORCE	ICT-150-40-CP-AR	W027-03	2019/10/27	2020/10/27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2019/7/14	2020/7/14

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RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018/3/13	2021/3/12
Measurement Software	AUDIX	e3V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020/6/12	2021/6/11
EXA Signal Analyzer (10Hz-26.5GHz)	Agilent Technologies Inc	N9010A	SEM004-09	2020/3/12	2021/3/11
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2020/6/27	2023/6/26
Horn Antenna (0.8-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018/4/13	2021/4/12
Pre-amplifier(0.1-1.3GHz)	HP	8447D	SEM005-02	2019/7/14	2020/7/14
Low Noise Amplifier(100MHz-18GHz)	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2019/9/3	2020/9/2
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017/10/17	2020/10/16
Pre-amplifier(18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2020/3/2	2021/3/1
Band filter	N/A	N/A	SEM023-01	N/A	N/A
RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017/8/5	2020/8/4
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2020/6/12	2021/6/11
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2019/7/14	2020/7/14
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2020/6/27	2023/6/26
Pre-amplifier (0.1-1.3GHz)	Agilent Technologies	8447D	SEM005-01	2020/3/2	2021/3/1

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RE in Chamber					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date (yyyy-mm-dd)**	**Cal. Due date (yyyy-mm-dd)**
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018/3/31	2021/3/30
EMI Test Receiver (9k-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2020/3/2	2021/3/1
Trilog-Broadband Antenna(25M-2GHz)	Schwarzbeck	VULB9168	SEM003-18	2020/3/15	2022/3/14
Pre-amplifier (9k-1GHz)	Sonoma	310N	SEM005-03	2020/3/12	2021/3/11
Loop Antenna (9kHz-30MHz)	ETS-Lindgren	6502	SEM003-08	2017/8/22	2020/8/21
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2020/6/12	2021/6/11

7 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of Set-Up for ZR/2020/50040.

The End

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