

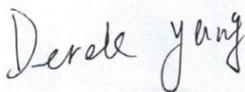
FCC TEST REPORT

Application No.: XAR/2021/10008
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.: M2103K19G / M2103K19PG
Trade Mark: Redmi / POCO
FCC ID: 2AFZZK19G
Standards: 47 CFR FCC Part 2, Subpart J
 47 CFR Part 15, Subpart C
Date of Receipt: 2021/2/8
Date of Test: 2021/2/8 to 2021/3/30
Date of Issue: 2021/3/30

Test Result :	PASS *
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* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:



Derek Yang
Wireless Laboratory Manager



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 中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086 t (86-29) 6282 7885 sgs.china@sgs.com

1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-03-30		Original

Authorized for issue by:			
Prepared By		 _____ (Ben Huang) /Project Engineer	
Checked By		 _____ (Jimmy zhu) /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
Radiated Spurious Emissions	15.247(d);15.205/15.209	ANSI C63.10 2013	Clause 4.3	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.247(d);15.205/15.209	ANSI C63.10 2013	Clause 4.4	PASS

Note: The differences between M2103K19G (K19) and M2103K19PG (K19P) are as below:

Model name	Brand Name	rear cover
M2103K19G	Redmi	The material is the same, drawing is different, laser engraving is different
M2103K19PG	POCO	

Except listings above, the others are all the same as previous version.

Based on the above differences, the main test only performs M2103K19G



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3 General Information

3.1 Details of Client

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

3.2 Test Location

Company:	SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD.
Address:	1/F, Unit D, Building 1, Kanghong Orange Technology Park, No.137, Keyuan 3rd Road, Fengdong New City, Xi'an, Shaanxi China
Post code:	710086



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3.1 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

A2LA (Certificate No. 4854.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4854.01.

Designation Number: CN1271.



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3.2 General Description of EUT

EUT Description:	Mobile Phone
Model No.:	M2103K19G / M2103K19PG
Trade Mark:	Redmi / POCO
Hardware Version:	P2
Software Version:	MIUI 12
IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11B (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11G (20 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11N (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11N (40 MHz channel bandwidth)
Operation Frequency:	2400 MHz -2483.5MHz $f_c = 2407 \text{ MHz} + N * 5 \text{ MHz}$, where: - f_c = "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:	<input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module
Antenna Type:	PIFA Antenna
Antenna Ports	<input checked="" type="checkbox"/> Ant 1, <input type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3
Smart System	<input checked="" type="checkbox"/> SISO (for 802.11B/G/N), <input type="checkbox"/> MIMO (for 802.11N): 2 Tx & 2 Rx, <input type="checkbox"/> Diversity (for 802.11B/G) : Tx & Rx
Antenna Gain:	-1.3dBi

Operation Frequency of each channel (802.11B/G/N HT20/AX HE20)

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/AX HE40)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
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)/AX (HE20)	Frequency for 802.11N (HT40) /AX (HE40)
The Lowest channel	2412MHz	2422MHz
The Middle channel	2437MHz	2437MHz
The Highest channel	2462MHz	2452MHz

3.3 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.

3.4 Description of Support Units

The EUT has been tested independent unit.



4 Test results and Measurement Data

4.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)
<p>15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p>	
<p>The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is -1.3dBi.</p>	



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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:	<p>1) The mains terminal disturbance voltage test was conducted in a shielded room.</p> <p>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.</p> <p>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,</p> <p>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. 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.</p>		



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<p>Test Setup:</p>	
<p>Exploratory Test Mode:</p>	<p>Transmitting with all kind of modulations, data rates at lowest, middle and highest channel. Charge + Transmitting mode.</p>
<p>Final Test Mode:</p>	<p>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.</p>
<p>Instruments Used:</p>	<p>Refer to section 6 for details</p>
<p>Test Results:</p>	<p>Pass</p>



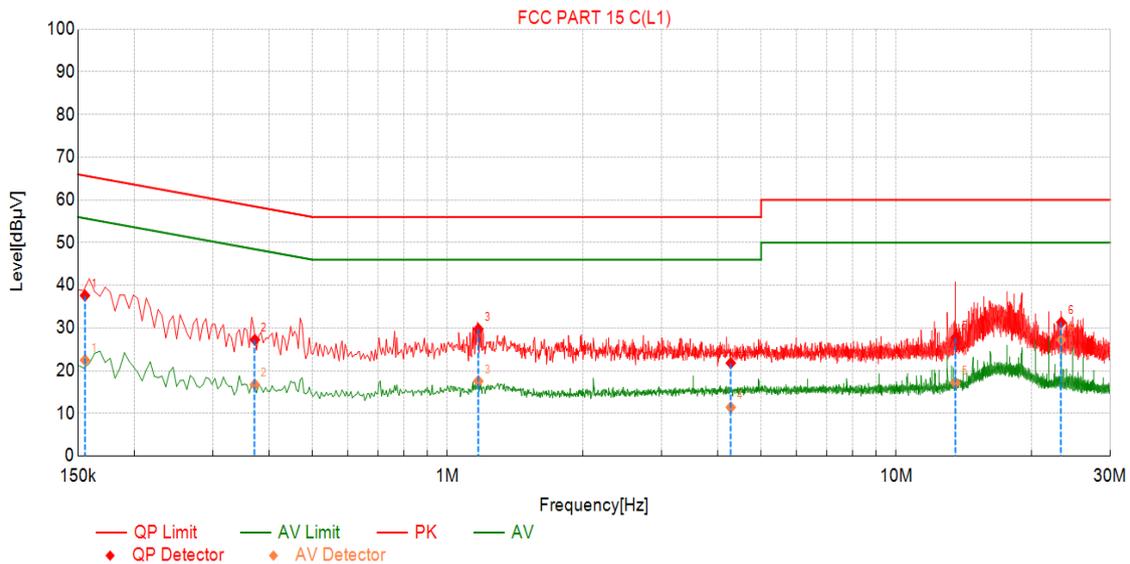
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Measurement Data

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:



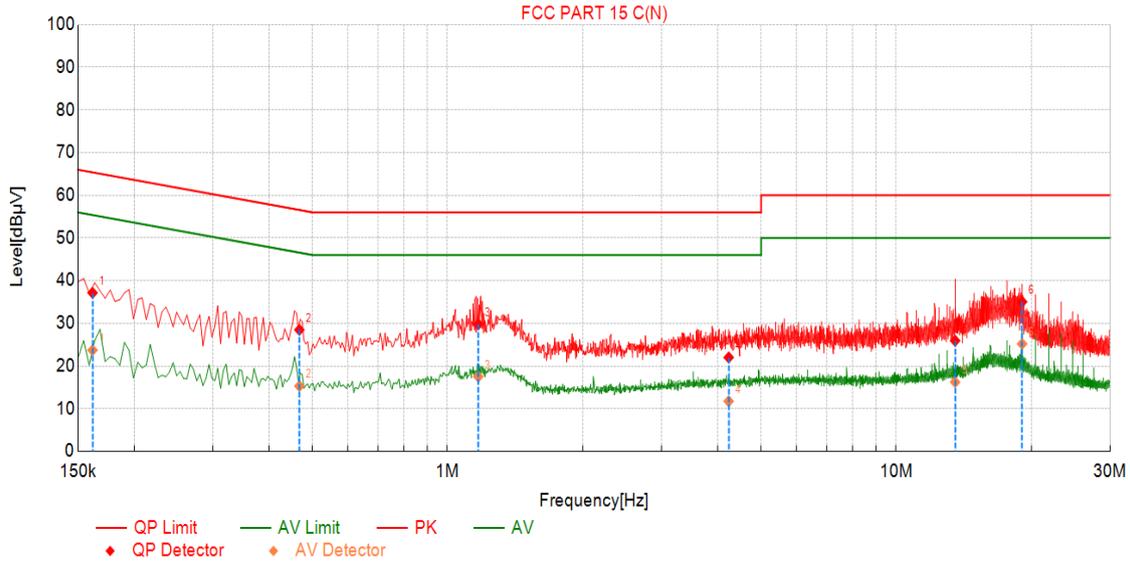
Test Graph

Final Data List								
NO.	Freq. [MHz]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
1	0.1556	37.61	65.69	28.08	22.47	55.69	33.22	PASS
2	0.3720	27.24	58.46	31.22	16.75	48.46	31.71	PASS
3	1.1710	29.76	56.00	26.24	17.55	46.00	28.45	PASS
4	4.2777	21.79	56.00	34.21	11.41	46.00	34.59	PASS
5	13.5592	27.75	60.00	32.25	17.13	50.00	32.87	PASS
6	23.3341	31.32	60.00	28.68	27.22	50.00	22.78	PASS



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Neutral Line:



Test Graph

Final Data List								
NO.	Freq. [MHz]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
1	0.1617	37.14	65.38	28.24	23.72	55.38	31.66	PASS
2	0.4674	28.48	56.56	28.08	15.30	46.56	31.26	PASS
3	1.1709	29.80	56.00	26.20	17.50	46.00	28.50	PASS
4	4.2322	22.01	56.00	33.99	11.75	46.00	34.25	PASS
5	13.5280	25.93	60.00	34.07	16.23	50.00	33.77	PASS
6	19.0822	35.04	60.00	24.96	25.18	50.00	24.82	PASS

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 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	120kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz (DC ≥ 0.98) ≥ 1/T (DC < 0.98)	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.					



<p>Test Setup:</p>	
<p>Figure 1. Below 30MHz</p>	<p>Figure 2. 30MHz to 1GHz</p>
<p>Figure 3. Above 1 GHz</p>	
<p>Test Procedure:</p>	<ol style="list-style-type: none"> 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 chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 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 chamber. The table was rotated 360 degrees to determine the position of the highest radiation 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. 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. Use the following spectrum analyzer settings: <ol style="list-style-type: none"> Span shall wide enough to fully capture the emission being measured; Set RBW=100 kHz for $f < 1 \text{ GHz}$, RBW=1MHz for $f > 1 \text{ GHz}$; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak For average measurement: use duty cycle correction factor method per 15.35(c).



	<p>Duty cycle = On time/100 milliseconds On time = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$ 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 cycle)</p> <p>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.</p> <p>g. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>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.</p> <p>i. Test the EUT in the lowest channel, the middle channel ,the Highest channel.</p> <p>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.</p> <p>k. Repeat above procedures until all frequencies measured was complete.</p>
<p>Exploratory Test Mode:</p>	<p>Transmitting with all kind of modulations, data rates. Charge + Transmitting mode.</p>
<p>Test Configuration:</p>	<p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> • RBW = 120 kHz • VBW = 300 kHz • Detector = Peak • Trace mode = max hold <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> • RBW = 1 MHz • VBW \geq 3 MHz • Detector = Peak • Sweep time = auto • Trace mode = max hold <p>Average Measurements Above 1000MHz</p> <ul style="list-style-type: none"> • RBW = 1 MHz • VBW = 10 Hz, when duty cycle is no less than 98 percent. • VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
<p>Final Test Mode:</p>	<p>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)/AX(HE20);</p>



	13.5Mbps of rate is the worst case of 802.11N(HT40)AX(HE40); 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 6 for details
Test Results:	Pass

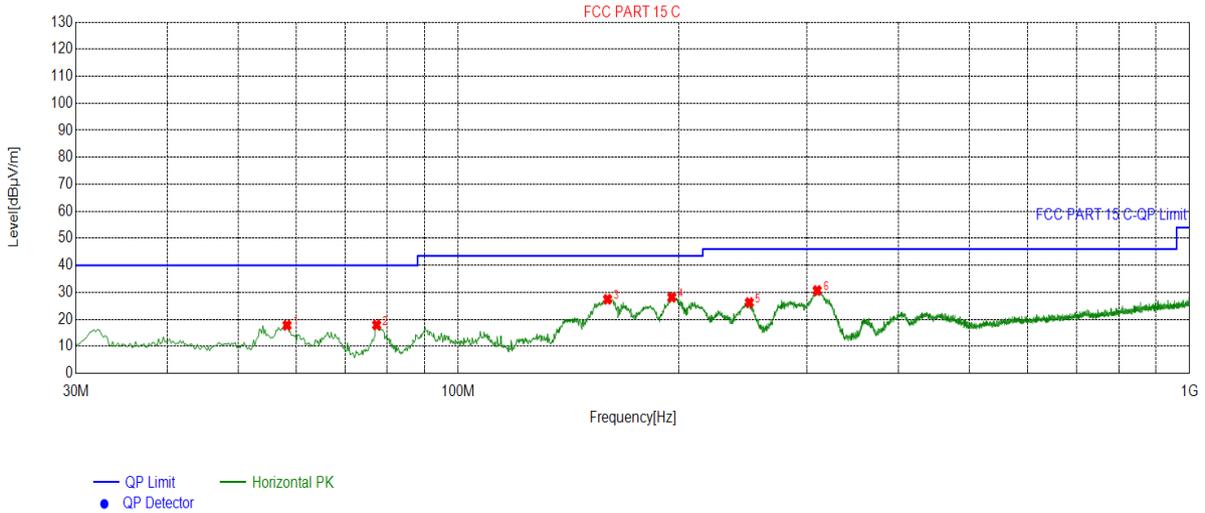


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4.3.1 Radiated emission below 1GHz

4.3.1.1 Charge + Transmitting Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	58.3297	17.80	-31.61	40.00	22.20	154	84	Horizontal
2	77.3455	17.91	-35.67	40.00	22.09	214	259	Horizontal
3	160.006	27.44	-34.63	43.50	16.06	236	272	Horizontal
4	195.903	28.17	-31.62	43.50	15.33	314	243	Horizontal
5	250.040	26.19	-29.66	46.00	19.81	147	236	Horizontal
6	309.609	30.68	-27.99	46.00	15.32	268	287	Horizontal

Final Data List

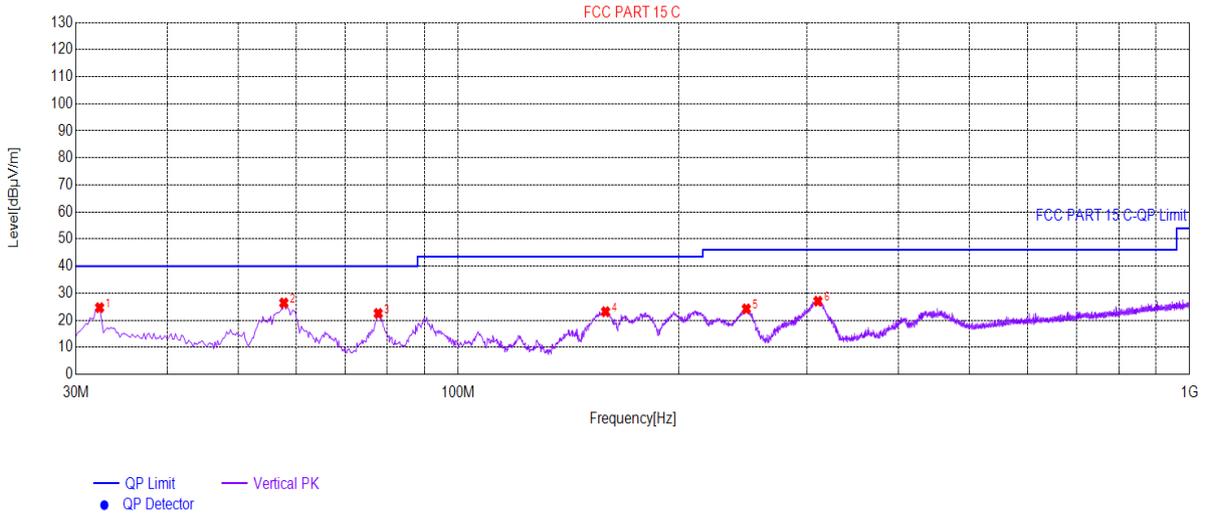


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Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.3285	24.66	-30.02	40.00	15.34	224	132	Vertical
2	57.7476	26.40	-31.53	40.00	13.60	189	359	Vertical
3	77.7335	22.54	-35.74	40.00	17.46	229	104	Vertical
4	159.035	23.16	-34.67	43.50	20.34	263	2	Vertical
5	247.711	24.20	-29.75	46.00	21.80	278	33	Vertical
6	310.386	27.05	-27.97	46.00	18.95	189	94	Vertical

Final Data List

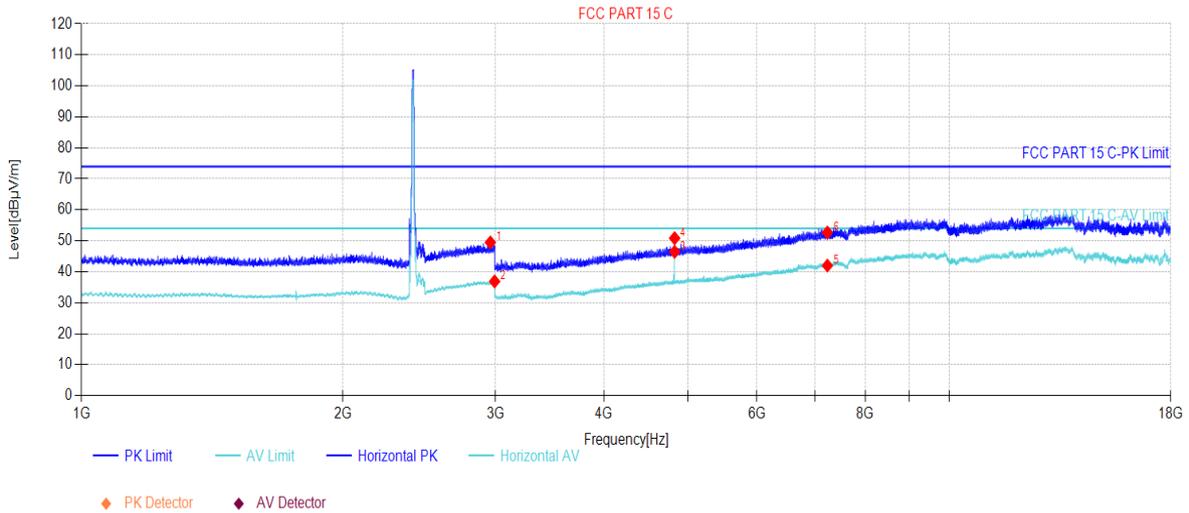


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4.3.2 Transmitter emission above 1GHz

4.3.2.1 802.11B_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2958.79	49.49	7.22	74.00	24.51	151	37	Horizontal
2	2992.39	36.90	7.38	54.00	17.10	187	334	Horizontal
3	4824.06	46.44	-10.56	54.00	7.56	174	355	Horizontal
4	4824.06	50.85	-10.56	74.00	23.15	159	360	Horizontal
5	7236.00	42.01	-2.59	54.00	11.99	162	283	Horizontal
6	7236.00	52.68	-2.59	74.00	21.32	179	287	Horizontal

Final Data List



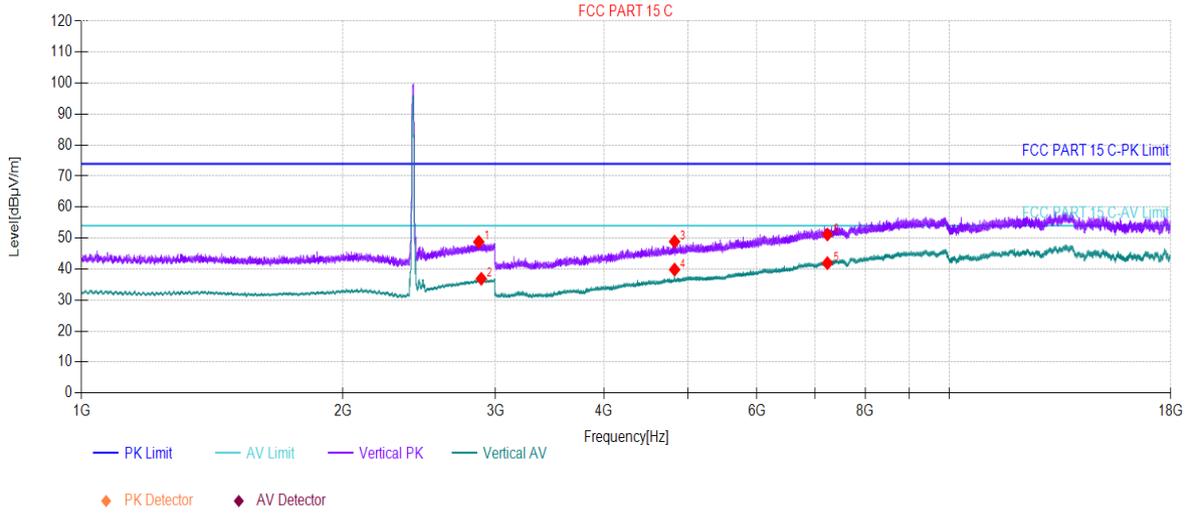
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4.3.2.2 802.11B_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2869.18	48.77	6.88	74.00	25.23	214	80	Vertical
2	2888.58	36.88	6.92	54.00	17.12	256	278	Vertical
3	4823.56	48.86	-10.56	74.00	25.14	216	264	Vertical
4	4824.06	39.83	-10.56	54.00	14.17	221	49	Vertical
5	7236.00	41.91	-2.59	54.00	12.09	222	313	Vertical
6	7236.00	51.17	-2.59	74.00	22.83	312	30	Vertical

Final Data List

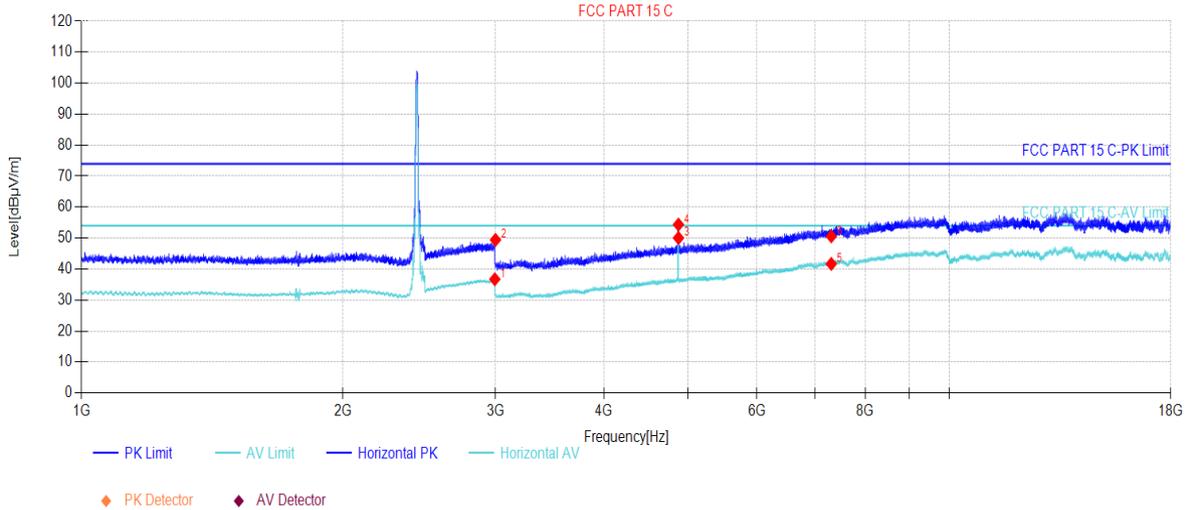


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4.3.2.3 802.11B_Channel 6

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2993.99	36.73	7.38	54.00	17.27	157	300	Horizontal
2	2999.39	49.43	7.41	74.00	24.57	198	216	Horizontal
3	4873.56	50.05	-10.40	54.00	3.95	157	6	Horizontal
4	4873.56	54.36	-10.40	74.00	19.64	167	357	Horizontal
5	7311.00	41.68	-2.58	54.00	12.32	189	355	Horizontal
6	7311.00	50.57	-2.58	74.00	23.43	202	2	Horizontal

Final Data List

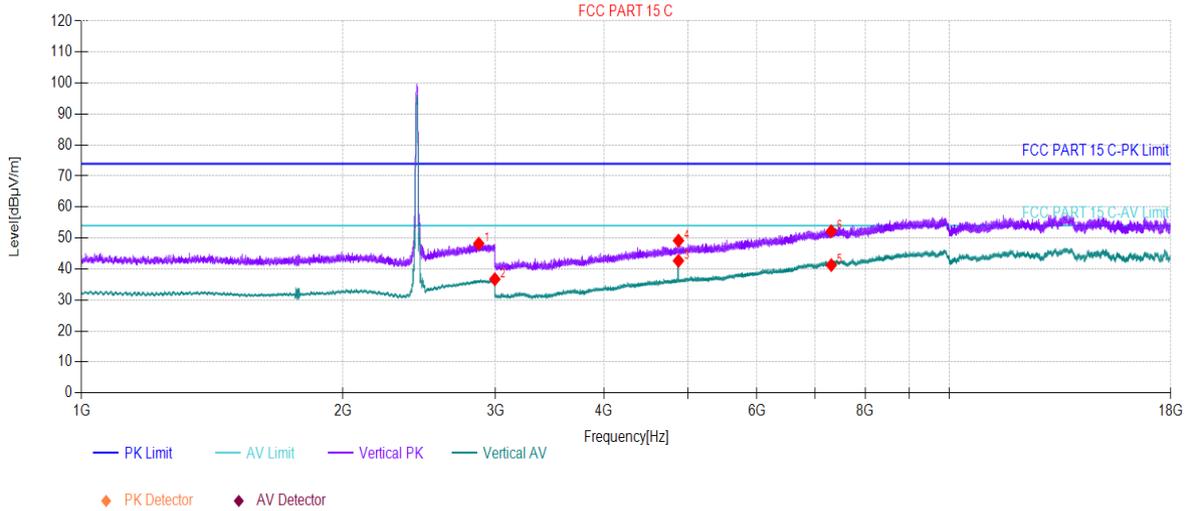


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4.3.2.4 802.11B_Channel 6

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2868.98	48.21	6.88	74.00	25.79	264	143	Vertical
2	2994.19	36.72	7.38	54.00	17.28	224	15	Vertical
3	4873.56	42.65	-10.40	54.00	11.35	327	24	Vertical
4	4874.06	49.17	-10.40	74.00	24.83	214	26	Vertical
5	7311.00	41.26	-2.58	54.00	12.74	234	216	Vertical
6	7311.00	52.22	-2.58	74.00	21.78	321	42	Vertical

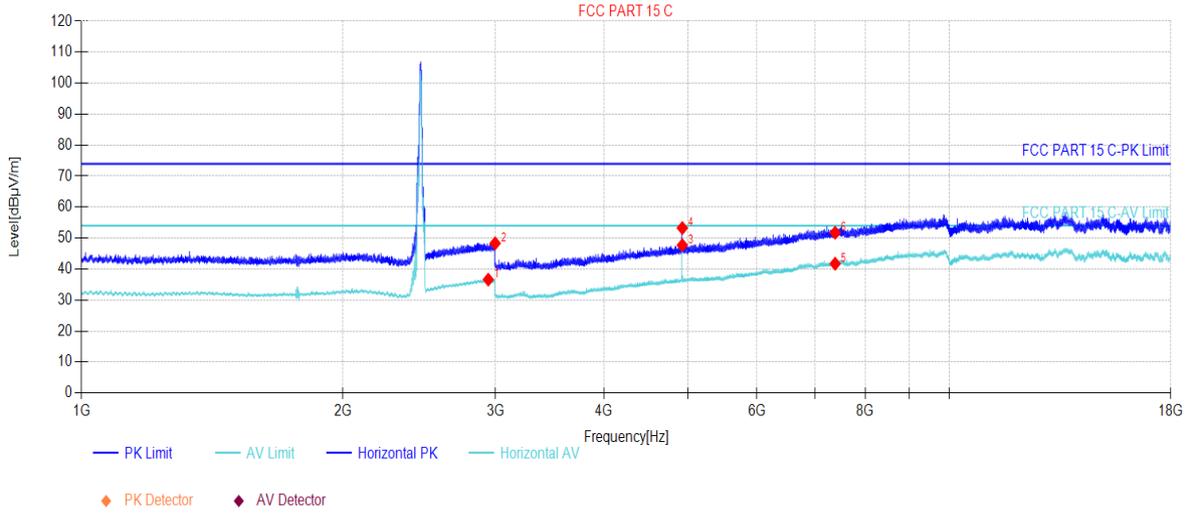
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4.3.2.5 802.11B_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2942.59	36.61	7.15	54.00	17.39	165	91	Horizontal
2	2996.59	48.31	7.39	74.00	25.69	147	173	Horizontal
3	4923.56	47.73	-10.22	54.00	6.27	168	346	Horizontal
4	4924.06	53.25	-10.22	74.00	20.75	155	352	Horizontal
5	7386.00	41.73	-2.06	54.00	12.27	198	2	Horizontal
6	7386.00	51.73	-2.06	74.00	22.27	125	147	Horizontal

Final Data List

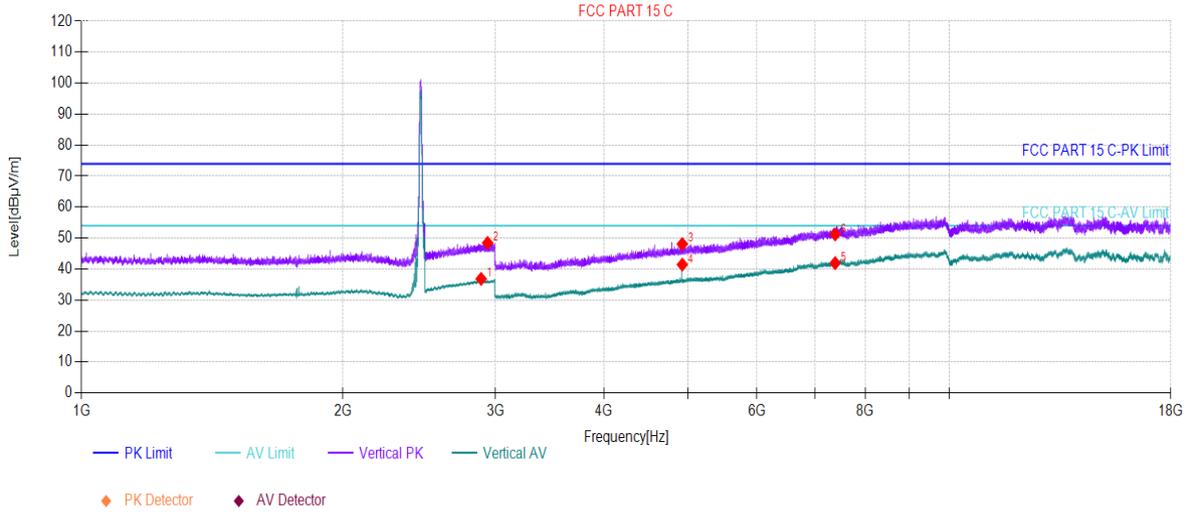


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4.3.2.6 802.11B_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2887.18	36.84	6.92	54.00	17.16	224	122	Vertical
2	2937.19	48.46	7.12	74.00	25.54	236	67	Vertical
3	4924.00	48.10	-10.22	74.00	25.90	274	181	Vertical
4	4924.06	41.45	-10.22	54.00	12.55	212	6	Vertical
5	7386.00	41.93	-2.06	54.00	12.07	222	121	Vertical
6	7386.00	51.20	-2.06	74.00	22.80	276	358	Vertical

Final Data List

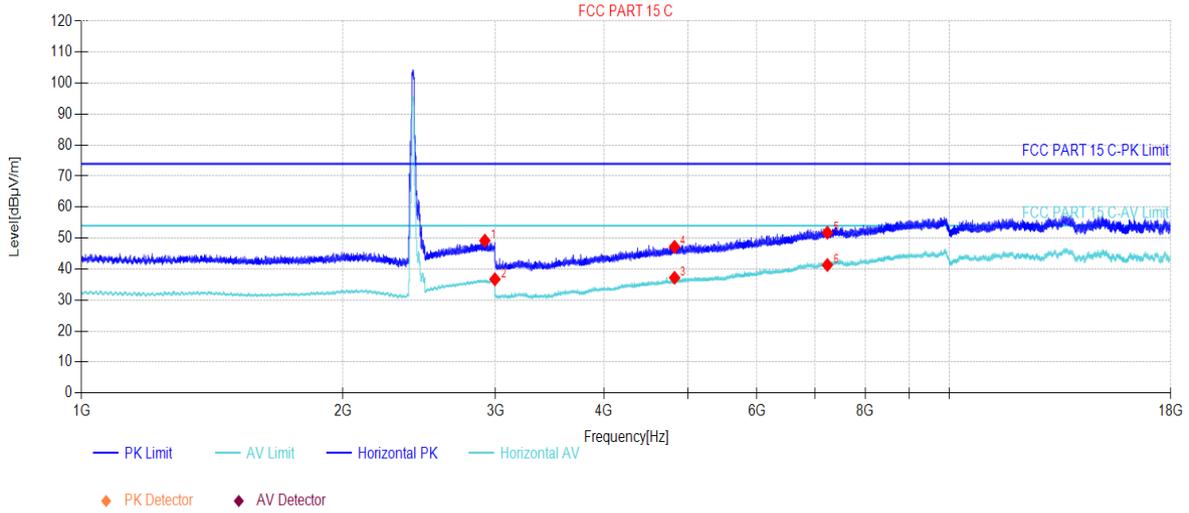


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4.3.2.7 802.11G_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2915.59	49.18	7.02	74.00	24.82	191	16	Horizontal
2	2994.99	36.72	7.39	54.00	17.28	174	127	Horizontal
3	4824.00	37.20	-10.56	54.00	16.80	157	360	Horizontal
4	4824.00	47.18	-10.56	74.00	26.82	163	2	Horizontal
5	7236.00	51.75	-2.59	74.00	22.25	197	147	Horizontal
6	7236.00	41.31	-2.59	54.00	12.69	165	202	Horizontal

Final Data List

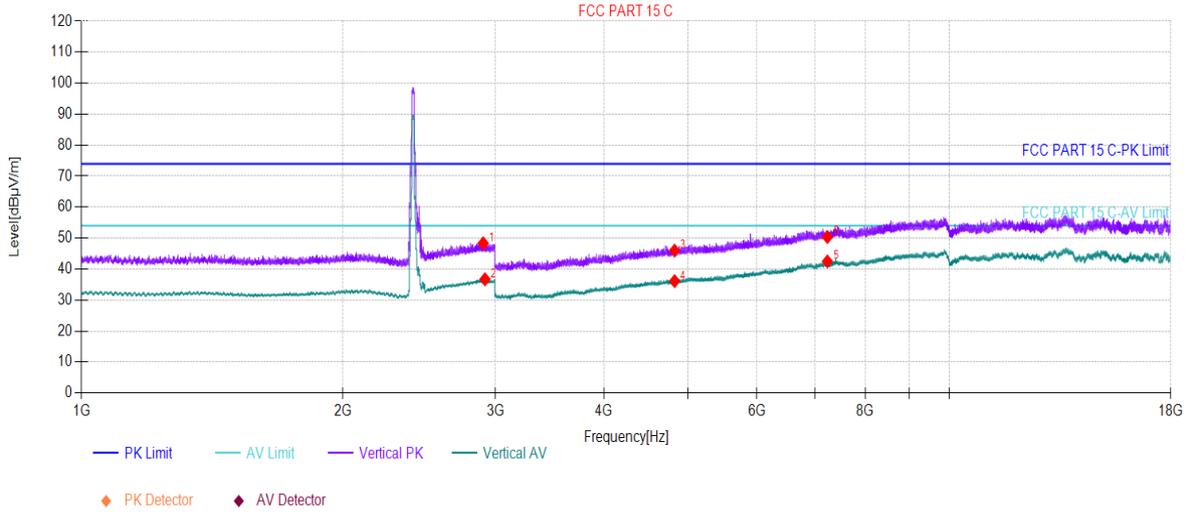


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4.3.2.8 802.11G_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2903.19	48.33	6.96	74.00	25.67	254	358	Vertical
2	2916.39	36.72	7.03	54.00	17.28	274	69	Vertical
3	4824.00	45.98	-10.56	74.00	28.02	199	18	Vertical
4	4824.00	36.11	-10.56	54.00	17.89	274	56	Vertical
5	7236.00	42.48	-2.59	54.00	11.52	236	331	Vertical
6	7236.00	50.34	-2.59	74.00	23.66	255	154	Vertical

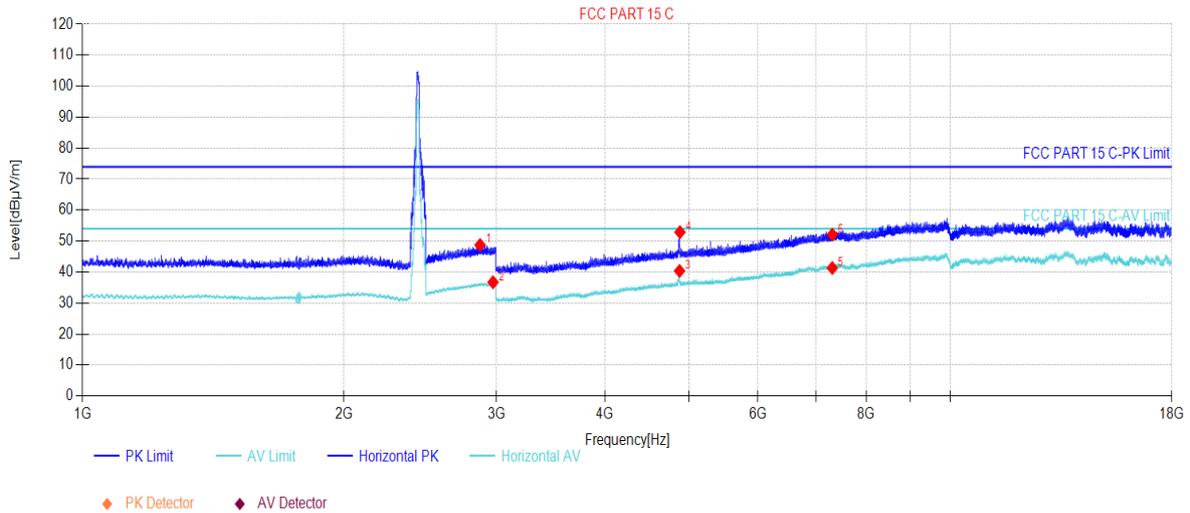
Final Data List



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4.3.2.9 802.11G_Channel 6

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2871.38	48.74	6.89	74.00	25.26	189	285	Horizontal
2	2972.19	36.72	7.28	54.00	17.28	186	59	Horizontal
3	4875.06	40.37	-10.40	54.00	13.63	157	354	Horizontal
4	4880.06	52.88	-10.38	74.00	21.12	165	354	Horizontal
5	7311.00	41.31	-2.58	54.00	12.69	149	12	Horizontal
6	7311.00	52.10	-2.58	74.00	21.90	162	18	Horizontal

Final Data List



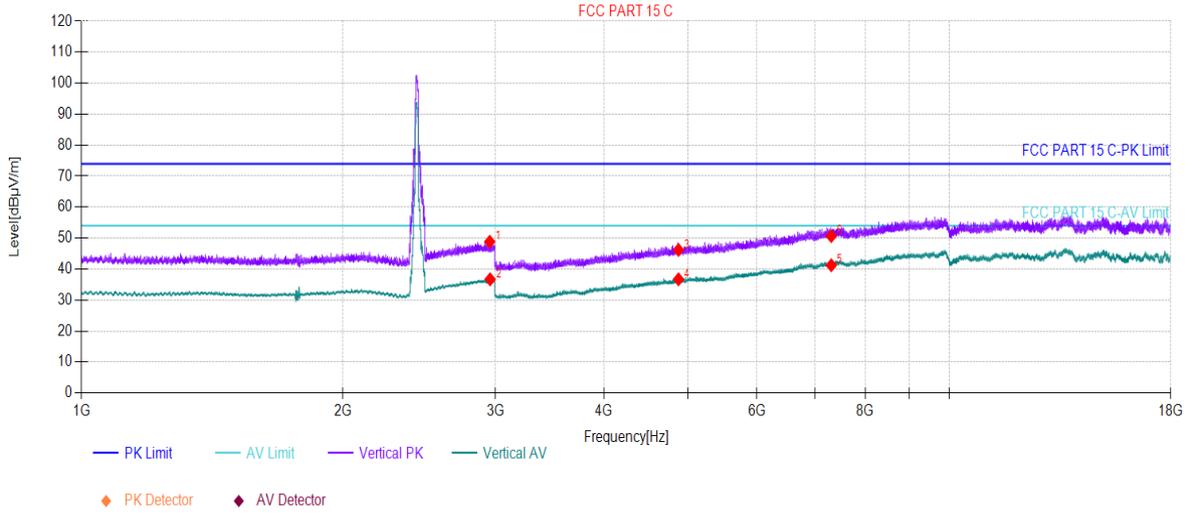
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4.3.2.10 802.11G_Channel 6

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2953.79	48.83	7.20	74.00	25.17	266	136	Vertical
2	2956.99	36.70	7.21	54.00	17.30	218	69	Vertical
3	4874.00	46.18	-10.40	74.00	27.82	247	65	Vertical
4	4874.00	36.71	-10.40	54.00	17.29	241	58	Vertical
5	7311.00	41.25	-2.58	54.00	12.75	236	249	Vertical
6	7311.00	50.65	-2.58	74.00	23.35	254	334	Vertical

Final Data List

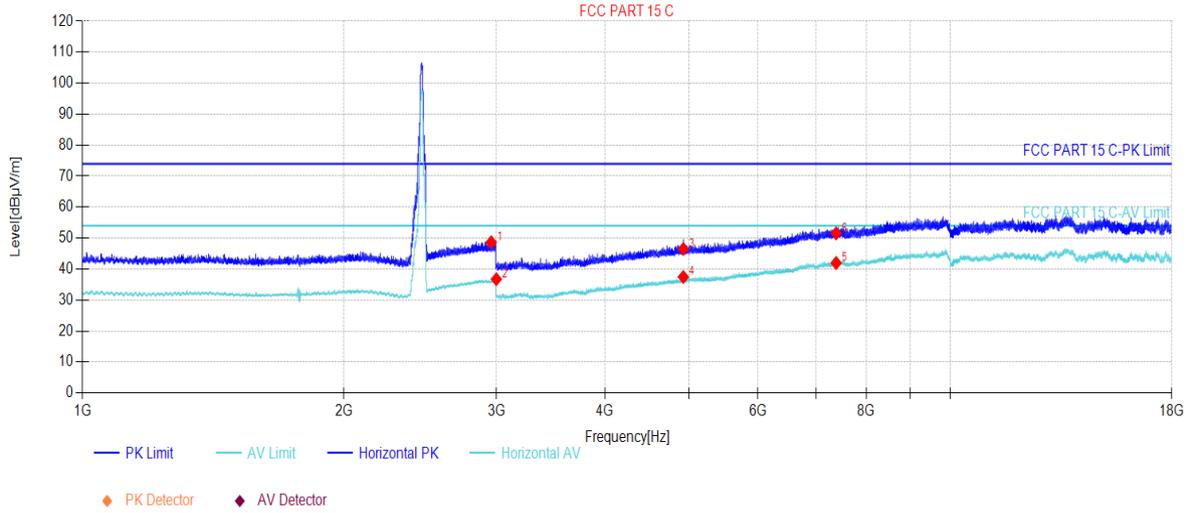


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4.3.2.11 802.11G_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2958.19	48.67	7.22	74.00	25.33	156	173	Horizontal
2	2998.19	36.75	7.40	54.00	17.25	175	38	Horizontal
3	4924.00	46.49	-10.22	74.00	27.51	159	360	Horizontal
4	4924.00	37.46	-10.22	54.00	16.54	179	348	Horizontal
5	7386.00	41.96	-2.06	54.00	12.04	156	24	Horizontal
6	7386.00	51.51	-2.06	74.00	22.49	203	48	Horizontal

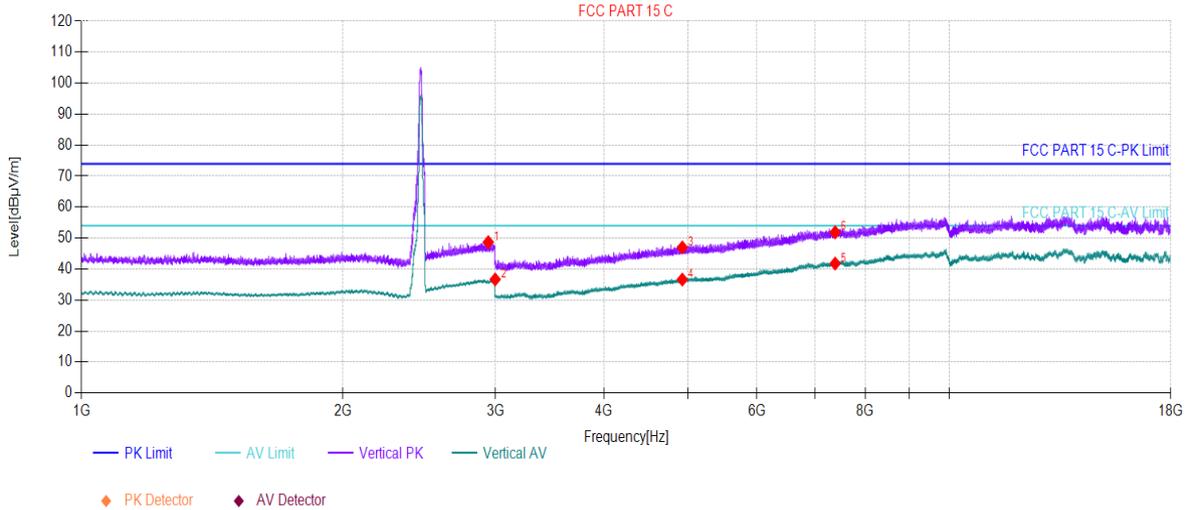
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4.3.2.12 802.11G_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2942.39	48.69	7.15	74.00	25.31	243	88	Vertical
2	2996.99	36.69	7.40	54.00	17.31	214	149	Vertical
3	4924.00	46.99	-10.22	74.00	27.01	276	130	Vertical
4	4924.00	36.63	-10.22	54.00	17.37	216	30	Vertical
5	7386.00	41.80	-2.06	54.00	12.20	246	96	Vertical
6	7386.00	51.88	-2.06	74.00	22.12	276	96	Vertical

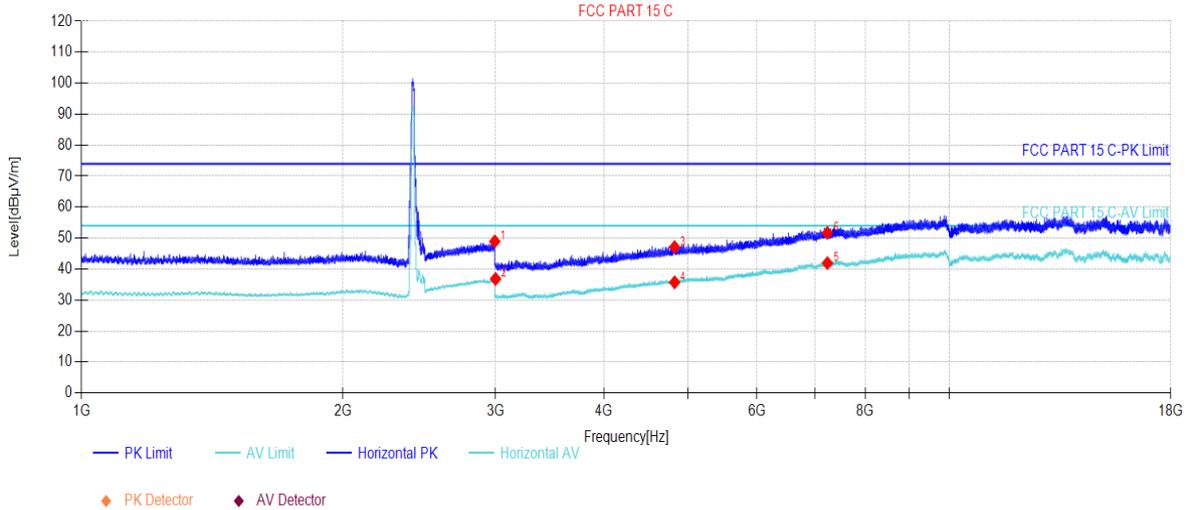
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4.3.2.13 802.11N20_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2993.59	48.93	7.38	74.00	25.07	156	8	Horizontal
2	2999.60	36.83	7.41	54.00	17.17	153	156	Horizontal
3	4824.00	47.10	-10.56	74.00	26.90	175	24	Horizontal
4	4824.00	35.71	-10.56	54.00	18.29	154	313	Horizontal
5	7236.00	41.92	-2.59	54.00	12.08	169	296	Horizontal
6	7236.00	51.67	-2.59	74.00	22.33	201	2	Horizontal

Final Data List

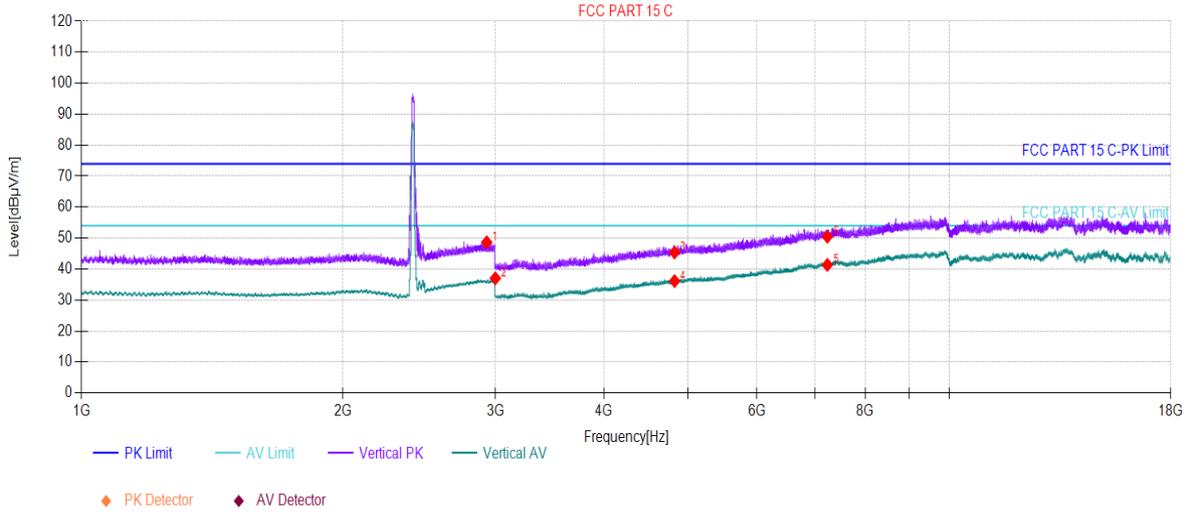


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4.3.2.14 802.11N20_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2930.19	48.64	7.09	74.00	25.36	203	35	Vertical
2	2997.99	37.03	7.40	54.00	16.97	243	179	Vertical
3	4824.00	45.36	-10.56	74.00	28.64	216	208	Vertical
4	4824.00	36.13	-10.56	54.00	17.87	302	273	Vertical
5	7236.00	41.36	-2.59	54.00	12.64	245	2	Vertical
6	7236.00	50.47	-2.59	74.00	23.53	276	36	Vertical

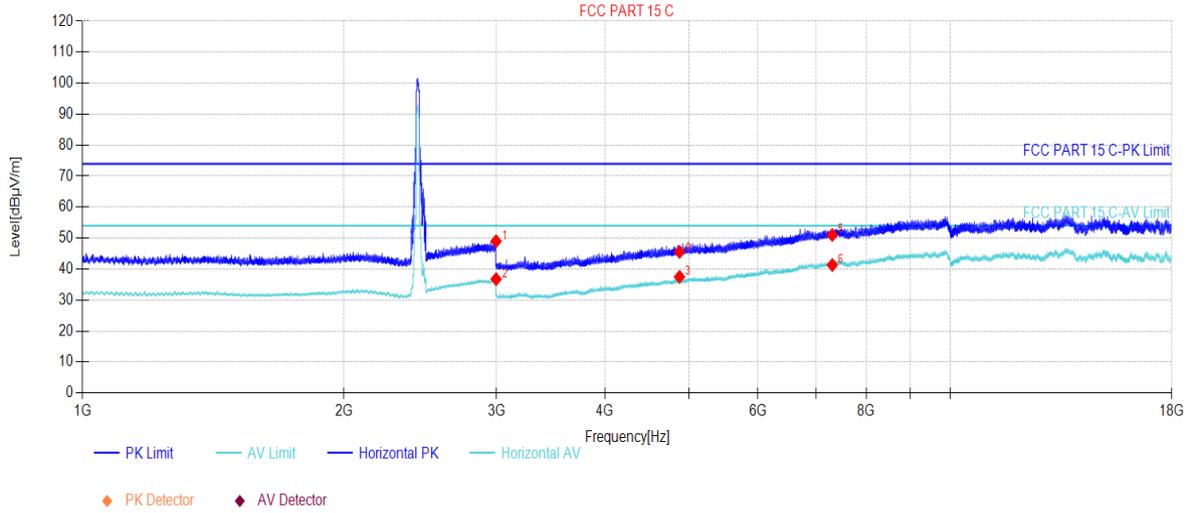
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4.3.2.15 802.11N20_Channel 6

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2996.39	49.01	7.39	74.00	24.99	146	300	Horizontal
2	2996.39	36.76	7.39	54.00	17.24	189	300	Horizontal
3	4874.00	37.50	-10.40	54.00	16.50	176	342	Horizontal
4	4874.00	45.53	-10.40	74.00	28.47	201	200	Horizontal
5	7311.00	51.03	-2.58	74.00	22.97	146	98	Horizontal
6	7311.00	41.32	-2.58	54.00	12.68	156	140	Horizontal

Final Data List

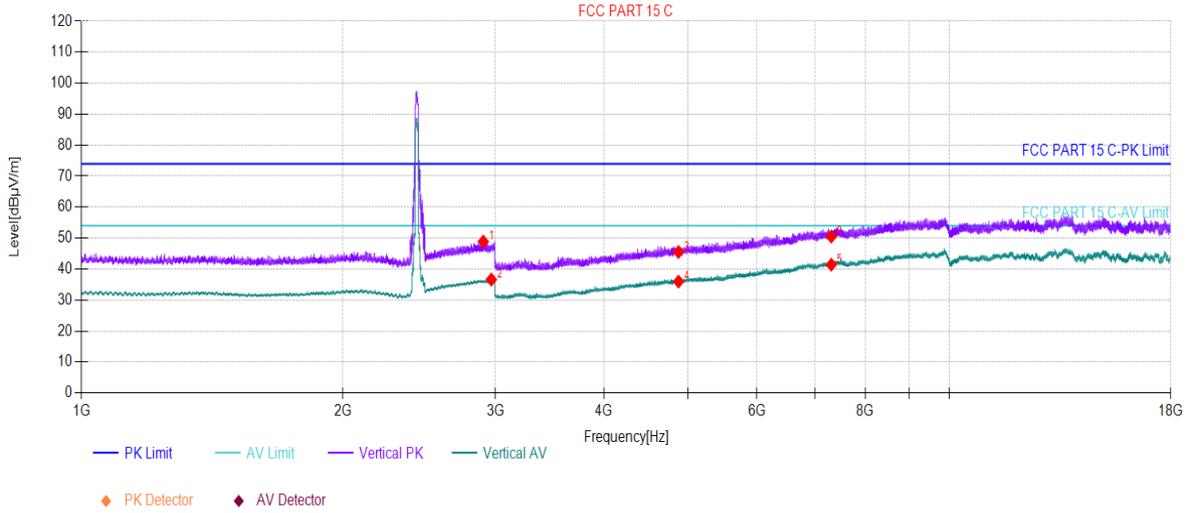


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4.3.2.16 802.11N20_Channel 6

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2904.19	48.89	6.97	74.00	25.11	226	21	Vertical
2	2966.59	36.65	7.26	54.00	17.35	246	166	Vertical
3	4874.00	45.51	-10.40	74.00	28.49	279	158	Vertical
4	4874.00	35.96	-10.40	54.00	18.04	302	55	Vertical
5	7311.00	41.41	-2.58	54.00	12.59	256	359	Vertical
6	7311.00	50.51	-2.58	74.00	23.49	276	17	Vertical

Final Data List

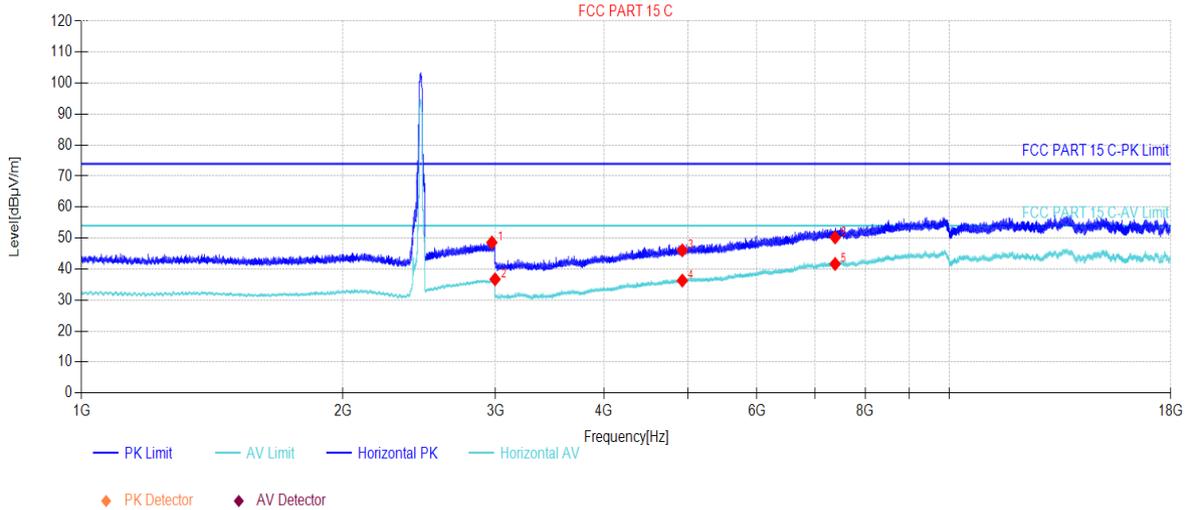


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4.3.2.17 802.11N20_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2970.79	48.58	7.28	74.00	25.42	186	210	Horizontal
2	2996.19	36.73	7.39	54.00	17.27	156	284	Horizontal
3	4924.00	46.04	-10.22	74.00	27.96	143	18	Horizontal
4	4924.00	36.30	-10.22	54.00	17.70	203	313	Horizontal
5	7386.00	41.65	-2.06	54.00	12.35	186	233	Horizontal
6	7386.00	50.22	-2.06	74.00	23.78	176	288	Horizontal

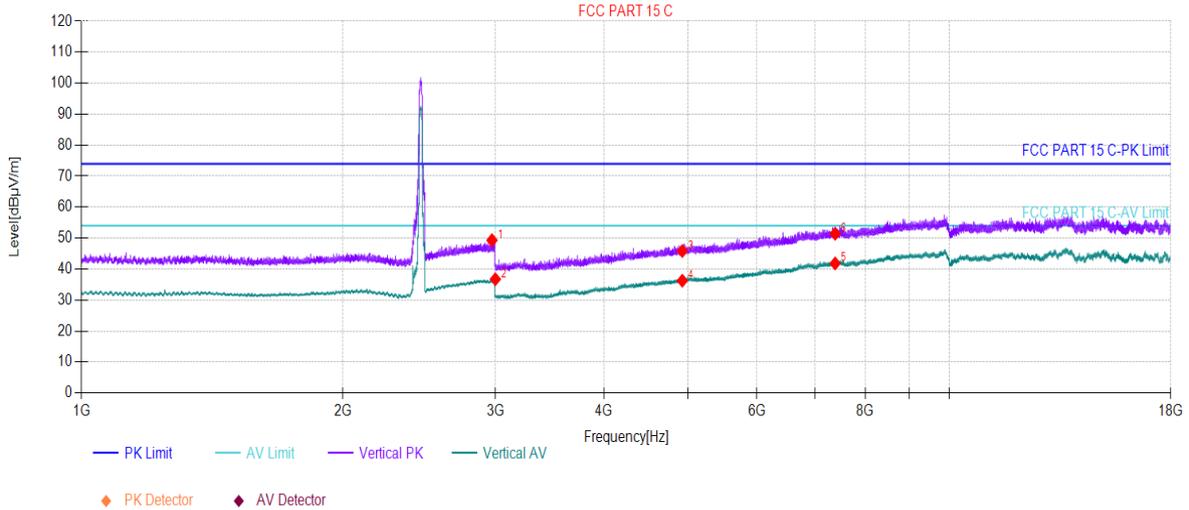
Final Data List



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4.3.2.18 802.11N20_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2971.59	49.32	7.28	74.00	24.68	201	174	Vertical
2	2998.19	36.74	7.40	54.00	17.26	246	45	Vertical
3	4924.00	45.85	-10.22	74.00	28.15	243	18	Vertical
4	4924.00	36.26	-10.22	54.00	17.74	213	352	Vertical
5	7386.00	41.83	-2.06	54.00	12.17	304	163	Vertical
6	7386.00	51.43	-2.06	74.00	22.57	276	2	Vertical

Final Data List



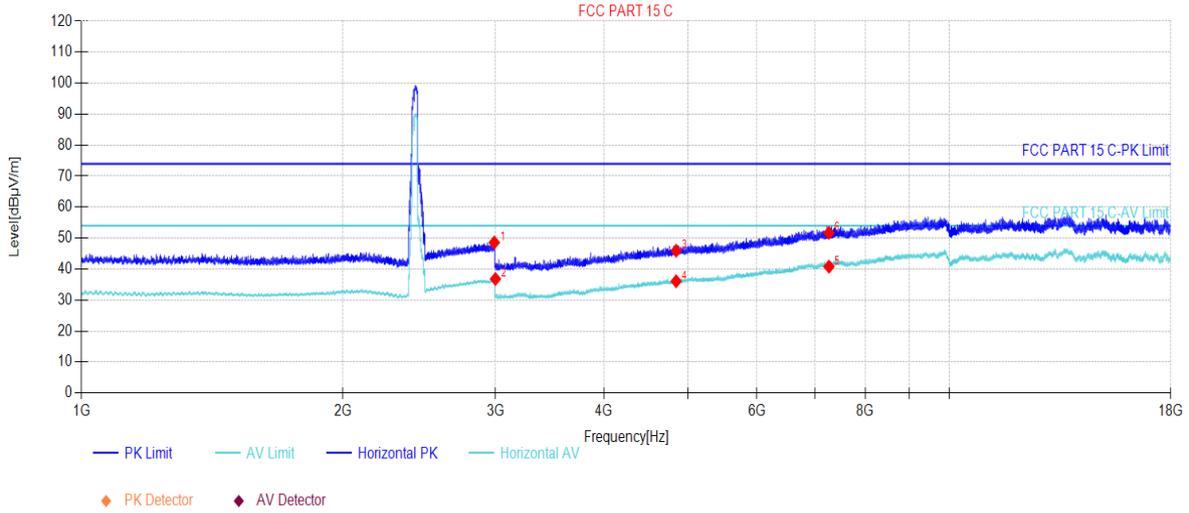
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4.3.2.19 802.11N40_Channel 3

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2989.59	48.57	7.36	74.00	25.43	146	216	Horizontal
2	2998.99	36.81	7.41	54.00	17.19	179	59	Horizontal
3	4844.00	45.94	-10.50	74.00	28.06	156	128	Horizontal
4	4844.00	36.08	-10.50	54.00	17.92	146	98	Horizontal
5	7266.00	40.80	-2.62	54.00	13.20	205	49	Horizontal
6	7266.00	51.71	-2.62	74.00	22.29	148	250	Horizontal

Final Data List

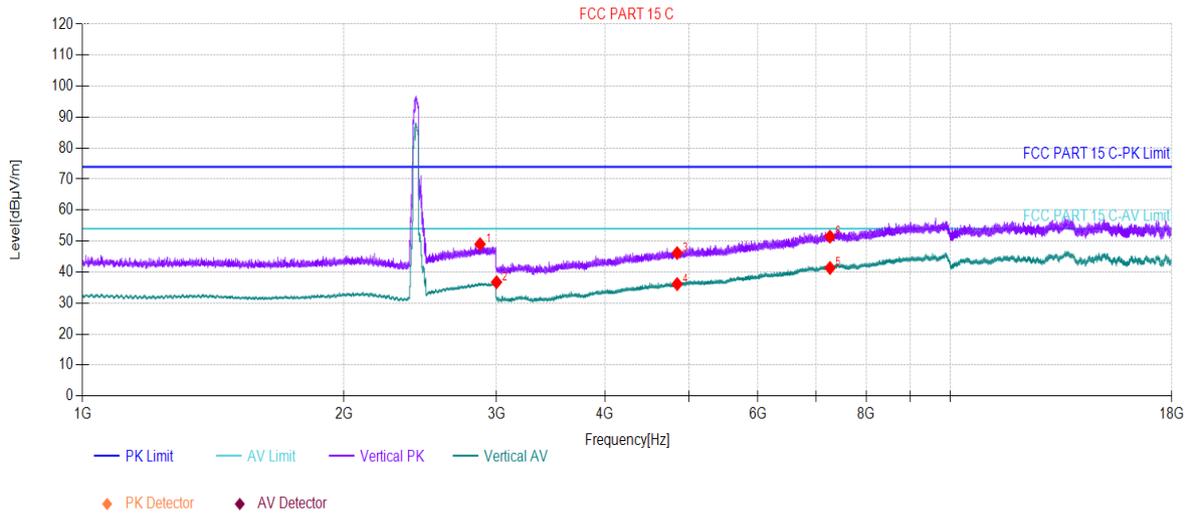


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4.3.2.20 802.11N40_Channel 3

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2871.78	49.03	6.89	74.00	24.97	254	158	Vertical
2	2999.80	36.74	7.41	54.00	17.26	263	0	Vertical
3	4844.00	46.14	-10.50	74.00	27.86	246	235	Vertical
4	4844.00	36.14	-10.50	54.00	17.86	176	353	Vertical
5	7266.00	41.32	-2.62	54.00	12.68	246	183	Vertical
6	7266.00	51.44	-2.62	74.00	22.56	255	332	Vertical

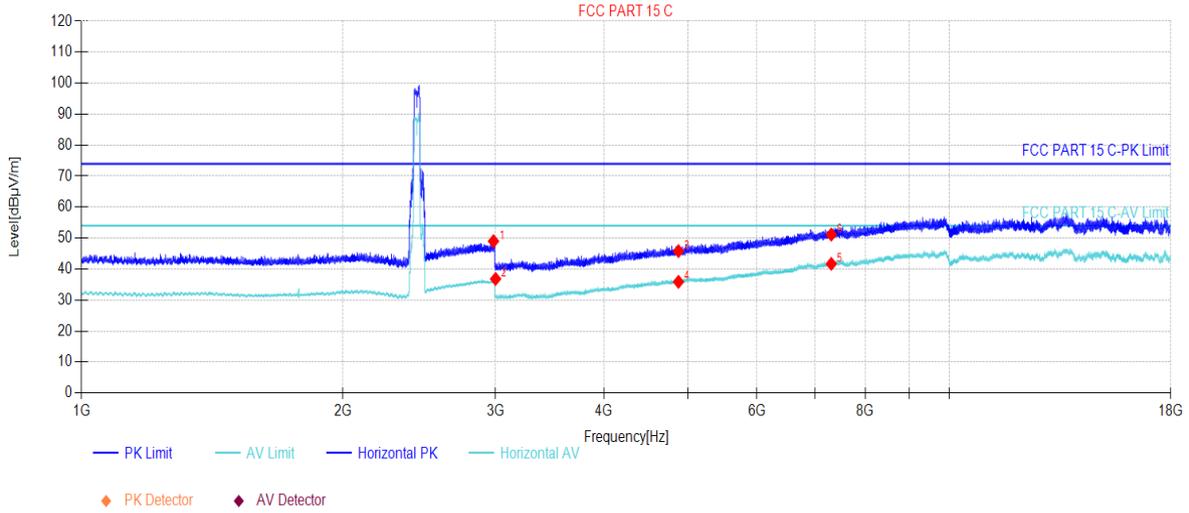
Final Data List



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4.3.2.21 802.11N40_Channel 6

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2983.39	49.01	7.33	74.00	24.99	156	351	Horizontal
2	3000.00	36.83	7.41	54.00	17.17	146	32	Horizontal
3	4874.00	45.81	-10.40	74.00	28.19	176	360	Horizontal
4	4874.00	35.89	-10.40	54.00	18.11	186	358	Horizontal
5	7311.00	41.70	-2.58	54.00	12.30	205	31	Horizontal
6	7311.00	51.14	-2.58	74.00	22.86	146	202	Horizontal

Final Data List

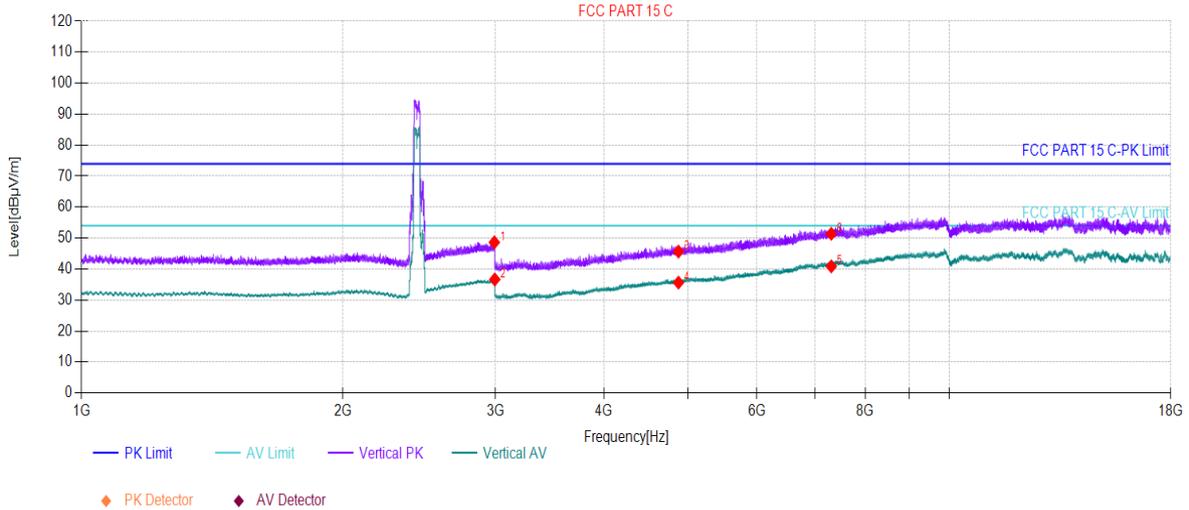


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4.3.2.22 802.11N40_Channel 6

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2990.19	48.63	7.36	74.00	25.37	246	332	Vertical
2	2993.79	36.67	7.38	54.00	17.33	263	202	Vertical
3	4874.00	45.66	-10.40	74.00	28.34	241	139	Vertical
4	4874.00	35.65	-10.40	54.00	18.35	265	344	Vertical
5	7311.00	40.88	-2.58	54.00	13.12	231	329	Vertical
6	7311.00	51.40	-2.58	74.00	22.60	302	133	Vertical

Final Data List

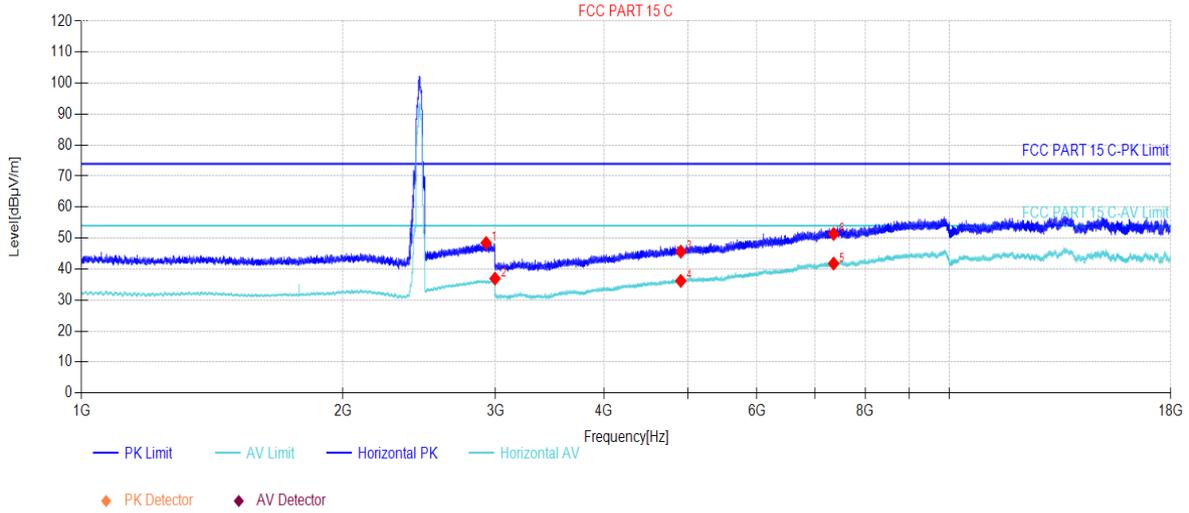


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4.3.2.23 802.11N40_Channel 9

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2925.79	48.43	7.07	74.00	25.57	156	329	Horizontal
2	2995.59	36.95	7.39	54.00	17.05	175	39	Horizontal
3	4904.00	45.62	-10.30	74.00	28.38	159	236	Horizontal
4	4904.00	36.20	-10.30	54.00	17.80	179	340	Horizontal
5	7356.00	41.79	-2.27	54.00	12.21	156	17	Horizontal
6	7356.00	51.34	-2.27	74.00	22.66	203	2	Horizontal

Final Data List

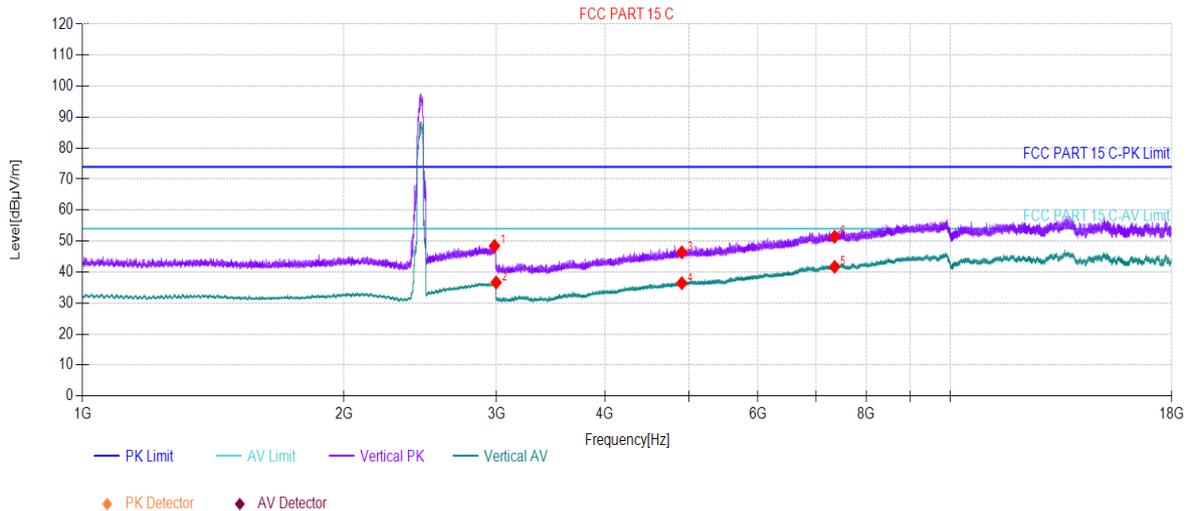


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4.3.2.24 802.11N40_Channel 9

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2983.39	48.45	7.33	74.00	25.55	243	119	Vertical
2	2996.39	36.64	7.39	54.00	17.36	214	211	Vertical
3	4904.00	46.38	-10.30	74.00	27.62	276	25	Vertical
4	4904.00	36.42	-10.30	54.00	17.58	216	138	Vertical
5	7356.00	41.70	-2.27	54.00	12.30	246	67	Vertical
6	7356.00	51.40	-2.27	74.00	22.60	276	326	Vertical

Final Data List

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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4.4 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)	Remark
	30MHz-88MHz	40.0	Quasi-peak
	88MHz-216MHz	43.5	Quasi-peak
	216MHz-960MHz	46.0	Quasi-peak
	960MHz-1GHz	54.0	Quasi-peak
Above 1GHz		54.0	Average Value
		74.0	Peak Value
Test Setup:			

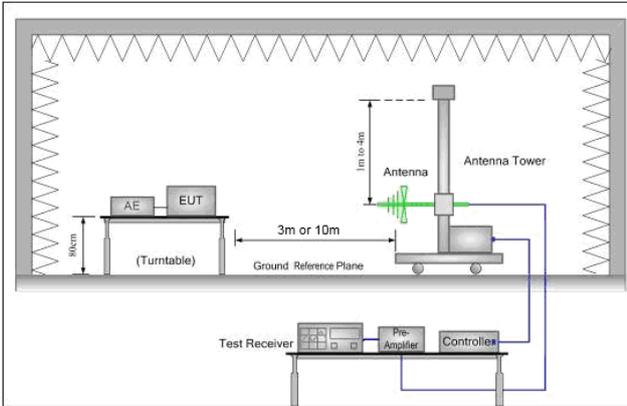


Figure 1. 30MHz to 1GHz

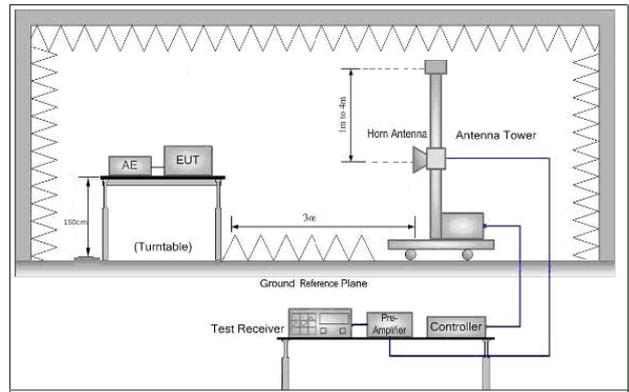


Figure 2. Above 1 GHz

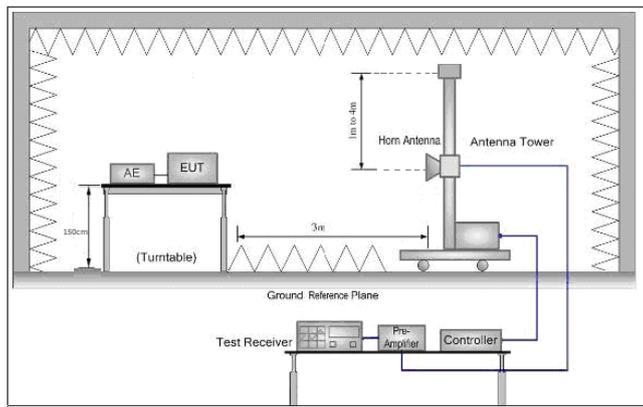


Figure 3. Above 1 GHz



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<p>Test Procedure:</p>	<ol style="list-style-type: none"> 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 chamber. 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 chamber. 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.
<p>Exploratory Test Mode:</p>	<p>Transmitting with all kind of modulations, data rates. Charge + Transmitting mode.</p>
<p>Test Configuration:</p>	<p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> • RBW = 120 kHz • VBW = 300 kHz • Detector = Peak • Trace mode = max hold <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> • RBW = 1 MHz • VBW \geq 3 MHz • Detector = Peak • Sweep time = auto • Trace mode = max hold <p>Average Measurements Above 1000MHz</p> <ul style="list-style-type: none"> • RBW = 1 MHz • VBW = 10 Hz, when duty cycle is no less than 98 percent. • VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



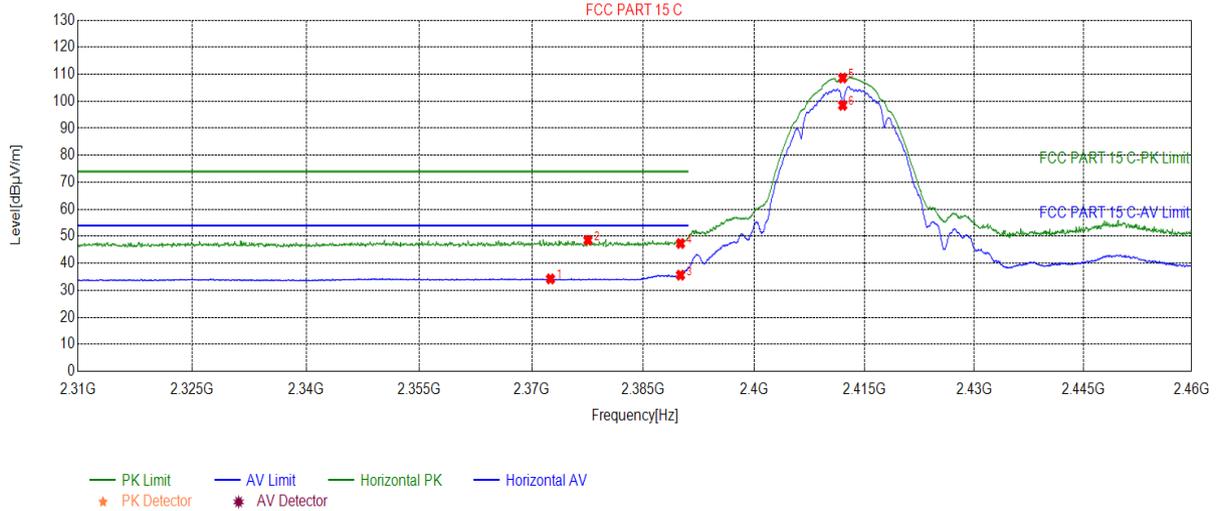
Final Test Mode:	Pretest the EUT at Charge + Transmitting mode. Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G; 6.5Mbps of rate is the worst case of 802.11N(HT20)/AX(HE20); 13.5Mbps of rate is the worst case of 802.11N(HT40)AX(HE40); 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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4.4.1 Test Plots
4.4.1.1 802.11B_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2372.50	34.23	8.02	54.00	19.77	159	223	Horizontal
2	2377.53	48.55	7.97	74.00	25.45	179	234	Horizontal
3	2390.00	35.62	7.98	54.00	18.38	168	211	Horizontal
4	2390.00	47.35	7.98	74.00	26.65	197	245	Horizontal
5	2412.00	108.61	8.16	0.00	-108.61	202	217	Horizontal
6	2412.00	98.48	8.16	0.00	-98.48	189	222	Horizontal

Final Data List

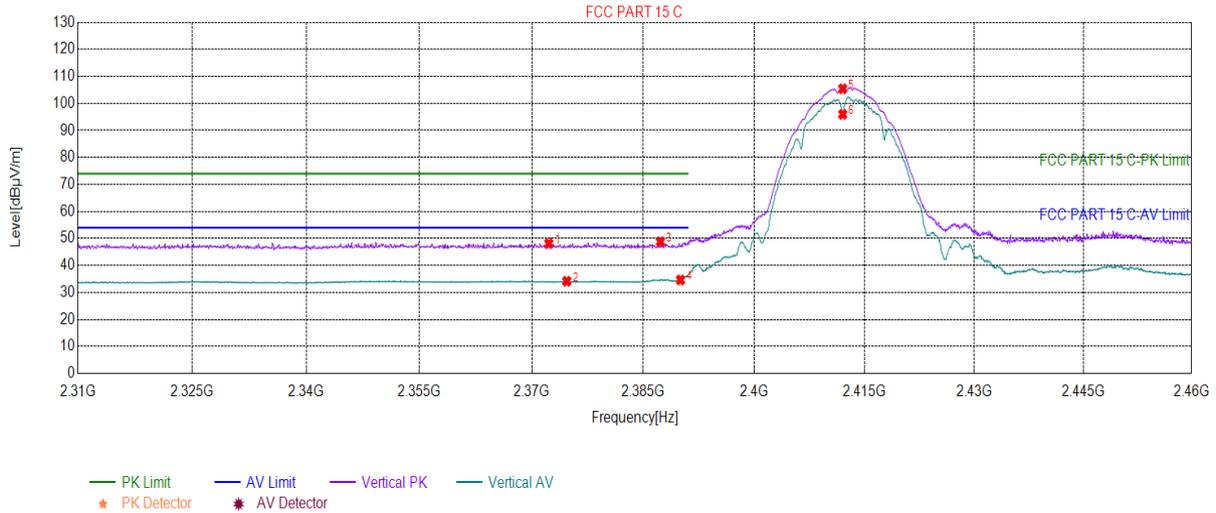


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4.4.1.2 802.11B_Channel 1 X

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2372.28	48.14	8.02	74.00	25.86	204	200	Vertical
2	2374.68	34.15	7.95	54.00	19.85	222	119	Vertical
3	2387.28	48.80	7.90	74.00	25.20	217	298	Vertical
4	2390.00	34.64	7.98	54.00	19.36	236	180	Vertical
5	2412.00	105.43	8.16	0.00	-105.43	279	177	Vertical
6	2412.00	95.94	8.16	0.00	-95.94	278	177	Vertical

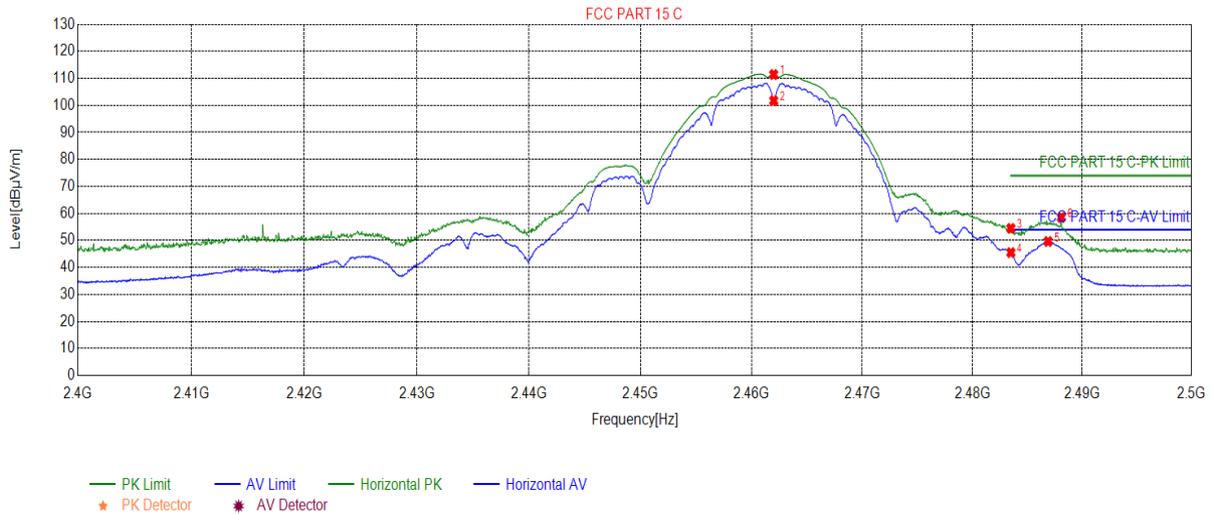
Final Data List



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4.4.1.3 802.11B_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	111.43	8.75	0.00	-111.43	159	222	Horizontal
2	2462.00	101.74	8.75	0.00	-101.74	178	218	Horizontal
3	2483.50	54.47	8.50	74.00	19.53	196	206	Horizontal
4	2483.50	45.51	8.50	54.00	8.49	184	218	Horizontal
5	2486.89	49.62	8.54	54.00	4.38	162	218	Horizontal
6	2488.09	58.50	8.57	74.00	15.50	197	233	Horizontal

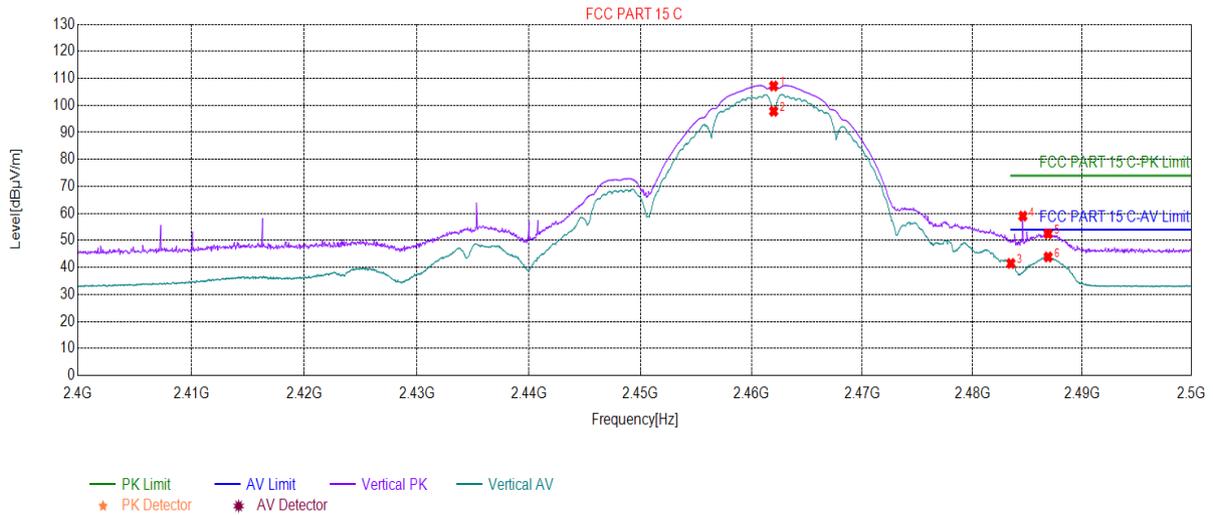
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4.4.1.4 802.11B_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	107.18	8.75	0.00	-107.18	202	180	Vertical
2	2462.00	97.83	8.75	0.00	-97.83	214	180	Vertical
3	2483.50	41.48	8.50	54.00	12.52	239	173	Vertical
4	2484.59	59.01	8.49	74.00	14.99	245	199	Vertical
5	2486.89	52.46	8.54	74.00	21.54	261	166	Vertical
6	2486.89	43.88	8.54	54.00	10.12	224	176	Vertical

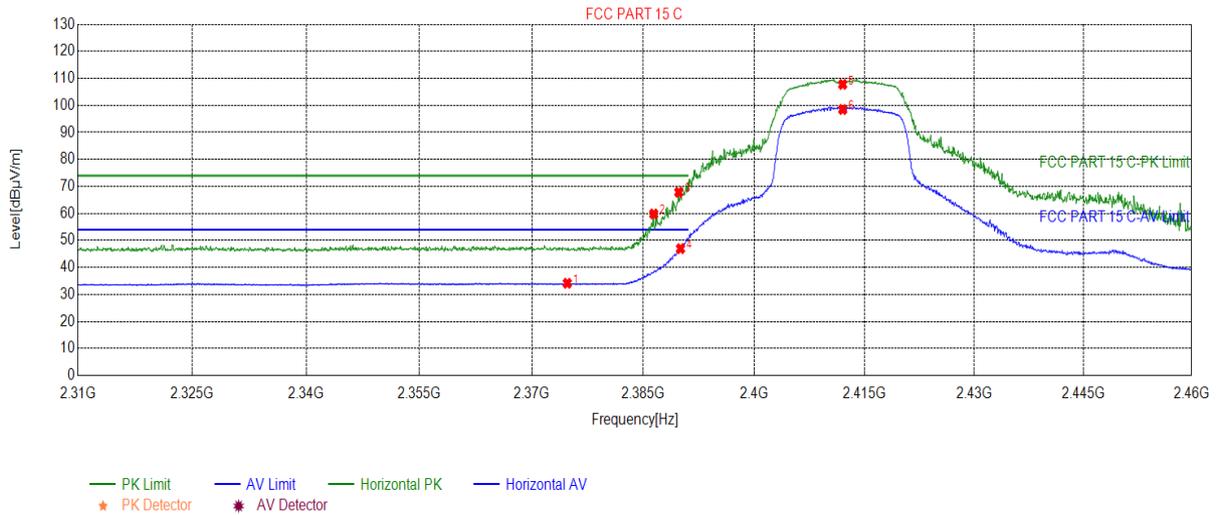
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4.4.1.5 802.11G_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2374.75	34.15	7.95	54.00	19.85	159	324	Horizontal
2	2386.38	59.83	7.87	74.00	14.17	168	233	Horizontal
3	2389.76	67.84	7.98	74.00	6.16	172	218	Horizontal
4	2390.00	46.97	7.98	54.00	7.03	158	215	Horizontal
5	2412.00	107.79	8.16	0.00	-107.79	163	202	Horizontal
6	2412.00	98.48	8.16	0.00	-98.48	189	233	Horizontal

Final Data List



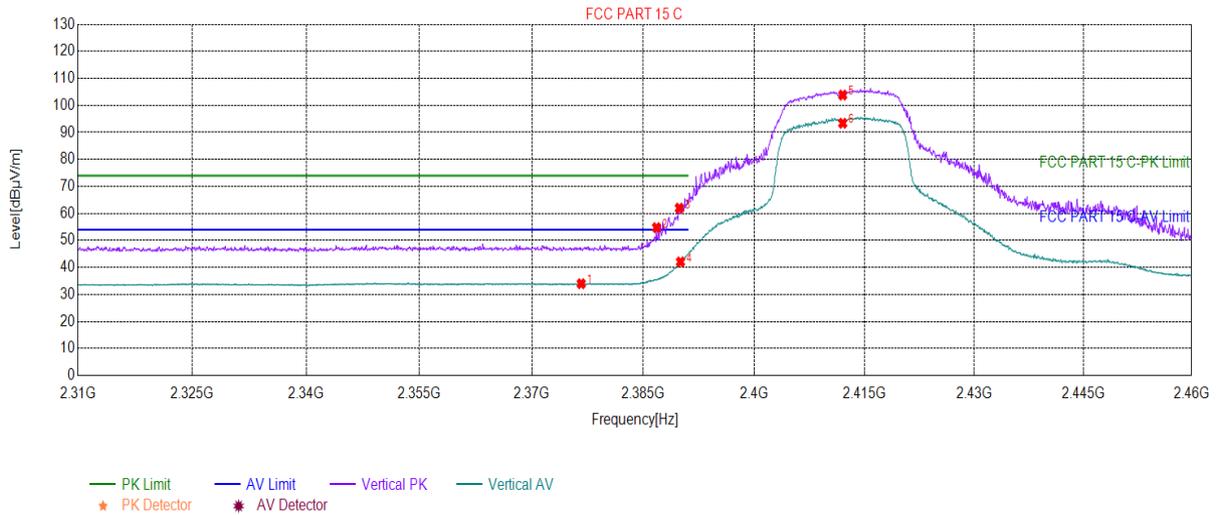
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4.4.1.6 802.11G_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2376.63	33.99	7.96	54.00	20.01	202	90	Vertical
2	2386.76	54.75	7.88	74.00	19.25	236	191	Vertical
3	2389.83	61.98	7.98	74.00	12.02	247	184	Vertical
4	2390.00	42.06	7.98	54.00	11.94	289	184	Vertical
5	2412.00	103.83	8.16	0.00	-103.83	264	177	Vertical
6	2412.00	93.40	8.16	0.00	-93.40	251	177	Vertical

Final Data List

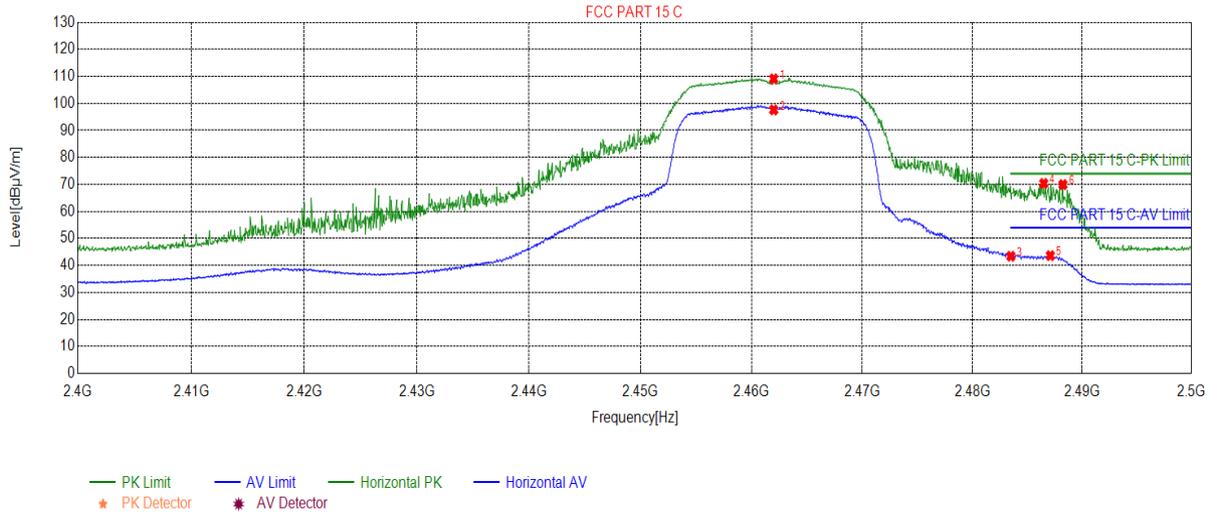


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4.4.1.7 802.11G_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	109.10	8.75	0.00	-109.10	159	220	Horizontal
2	2462.00	97.59	8.75	0.00	-97.59	163	217	Horizontal
3	2483.50	43.42	8.50	54.00	10.58	174	213	Horizontal
4	2486.49	70.38	8.53	74.00	3.62	185	220	Horizontal
5	2487.09	43.63	8.54	54.00	10.37	169	220	Horizontal
6	2488.24	69.93	8.58	74.00	4.07	199	218	Horizontal

Final Data List



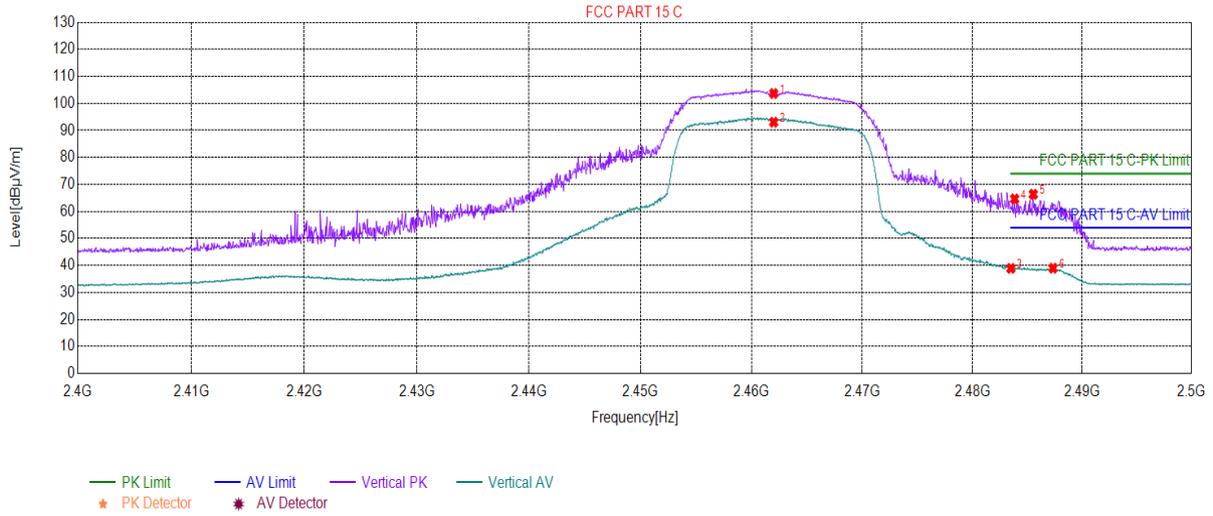
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4.4.1.8 802.11G_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	103.67	8.75	0.00	-103.67	218	173	Vertical
2	2462.00	93.05	8.75	0.00	-93.05	224	180	Vertical
3	2483.50	38.92	8.50	54.00	15.08	236	173	Vertical
4	2483.84	64.64	8.50	74.00	9.36	247	161	Vertical
5	2485.54	66.36	8.50	74.00	7.64	216	168	Vertical
6	2487.34	38.99	8.55	54.00	15.01	245	177	Vertical

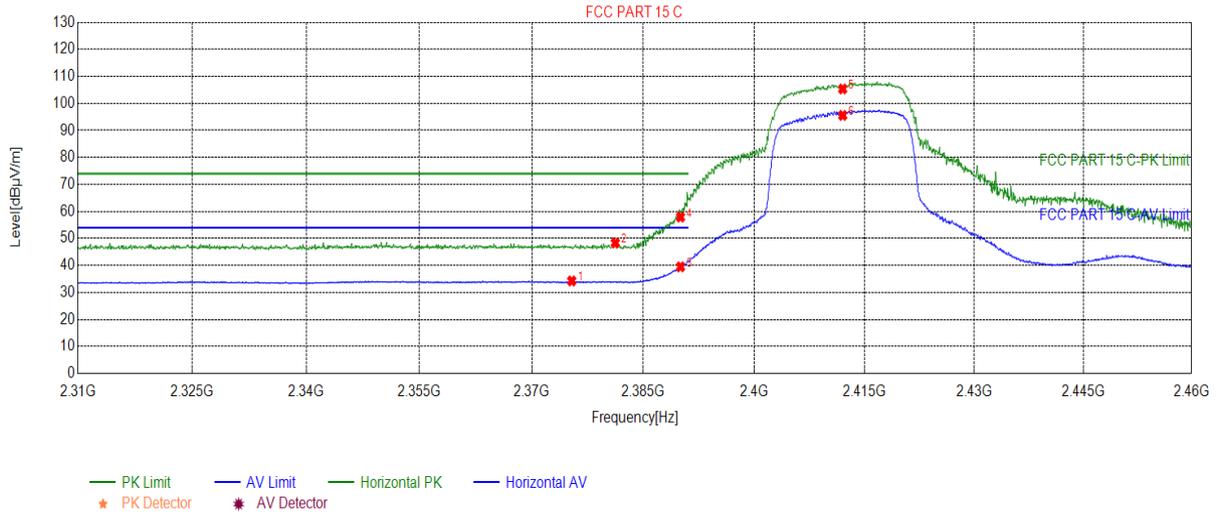
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4.4.1.9 802.11N20_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2375.35	34.27	7.95	54.00	19.73	159	2	Horizontal
2	2381.21	48.34	7.96	74.00	25.66	165	187	Horizontal
3	2390.00	39.49	7.98	54.00	14.51	147	218	Horizontal
4	2390.00	57.90	7.98	74.00	16.10	198	214	Horizontal
5	2412.00	105.36	8.16	0.00	-105.36	168	218	Horizontal
6	2412.00	95.56	8.16	0.00	-95.56	155	218	Horizontal

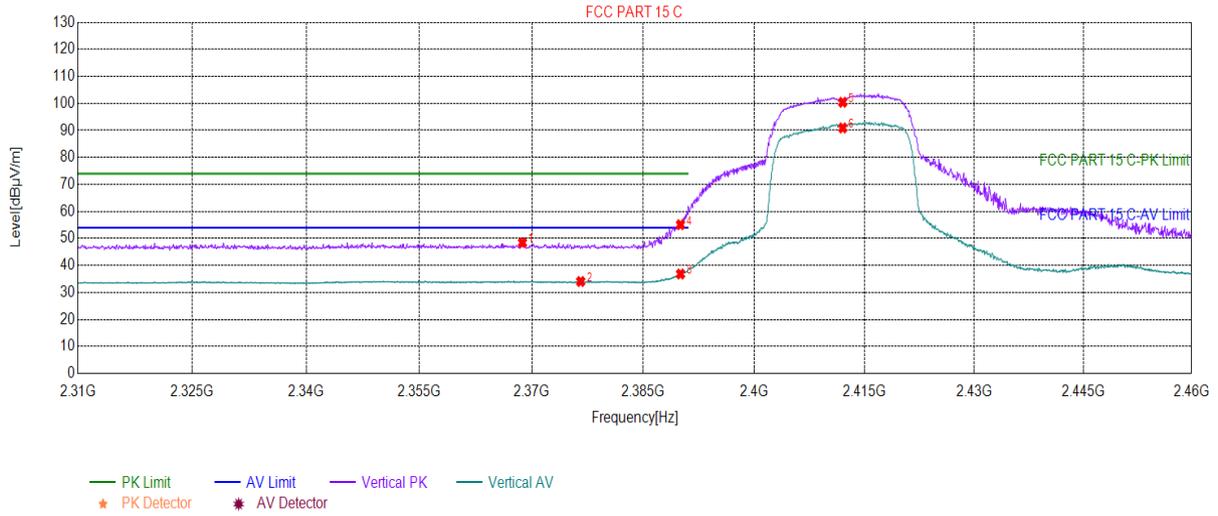
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4.4.1.10 802.11N20_Channel 1

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2368.75	48.43	8.08	74.00	25.57	202	297	Vertical
2	2376.55	34.07	7.96	54.00	19.93	214	25	Vertical
3	2390.00	36.83	7.98	54.00	17.17	268	202	Vertical
4	2390.00	55.09	7.98	74.00	18.91	247	209	Vertical
5	2412.00	100.41	8.16	0.00	-100.41	213	176	Vertical
6	2412.00	90.92	8.16	0.00	-90.92	217	172	Vertical

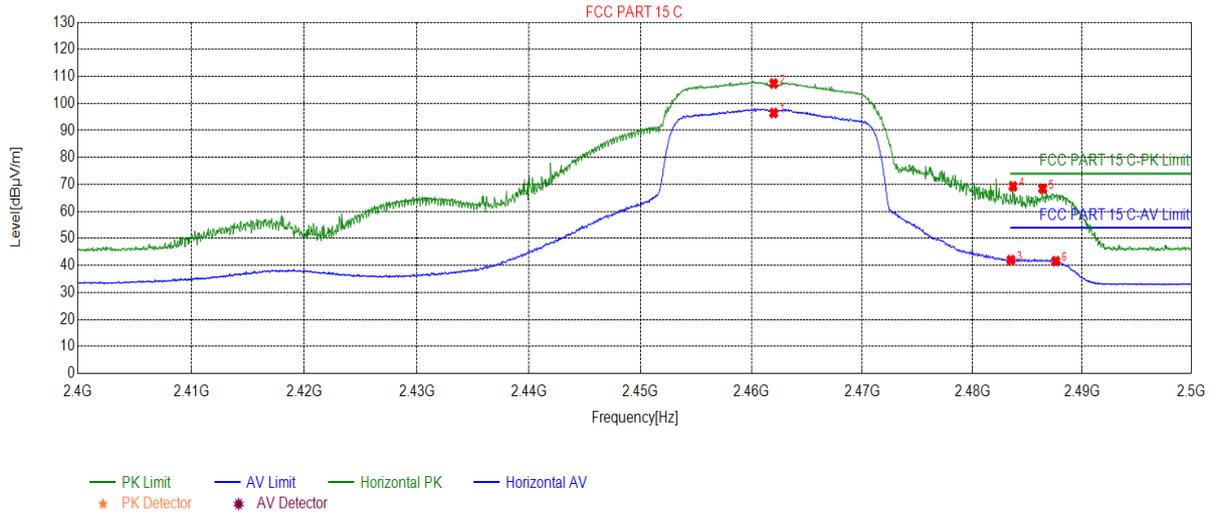
Final Data List



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4.4.1.11 802.11N20_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	96.43	8.75	0.00	-96.43	156	218	Horizontal
2	2462.00	107.32	8.75	0.00	-107.32	178	215	Horizontal
3	2483.50	42.00	8.50	54.00	12.00	195	218	Horizontal
4	2483.69	69.29	8.50	74.00	4.71	184	218	Horizontal
5	2486.39	68.43	8.53	74.00	5.57	168	226	Horizontal
6	2487.59	41.59	8.56	54.00	12.41	174	218	Horizontal

Final Data List

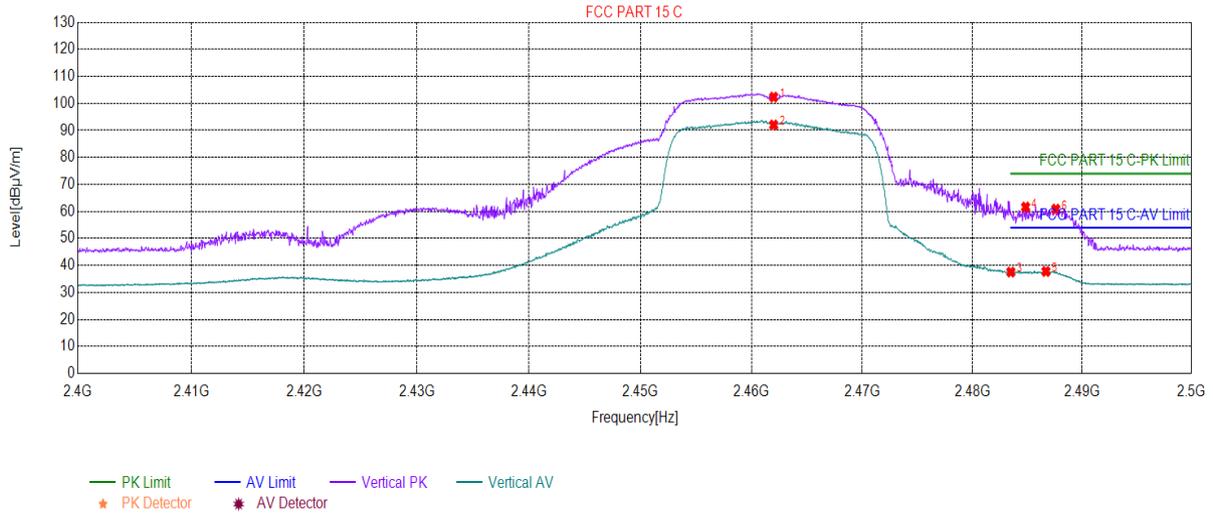


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4.4.1.12 802.11N20_Channel 11

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.00	102.33	8.75	0.00	-102.33	202	172	Vertical
2	2462.00	92.03	8.75	0.00	-92.03	241	176	Vertical
3	2483.50	37.55	8.50	54.00	16.45	274	172	Vertical
4	2484.84	61.62	8.49	74.00	12.38	281	176	Vertical
5	2486.69	37.77	8.53	54.00	16.23	263	172	Vertical
6	2487.59	60.86	8.56	74.00	13.14	224	180	Vertical

Final Data List

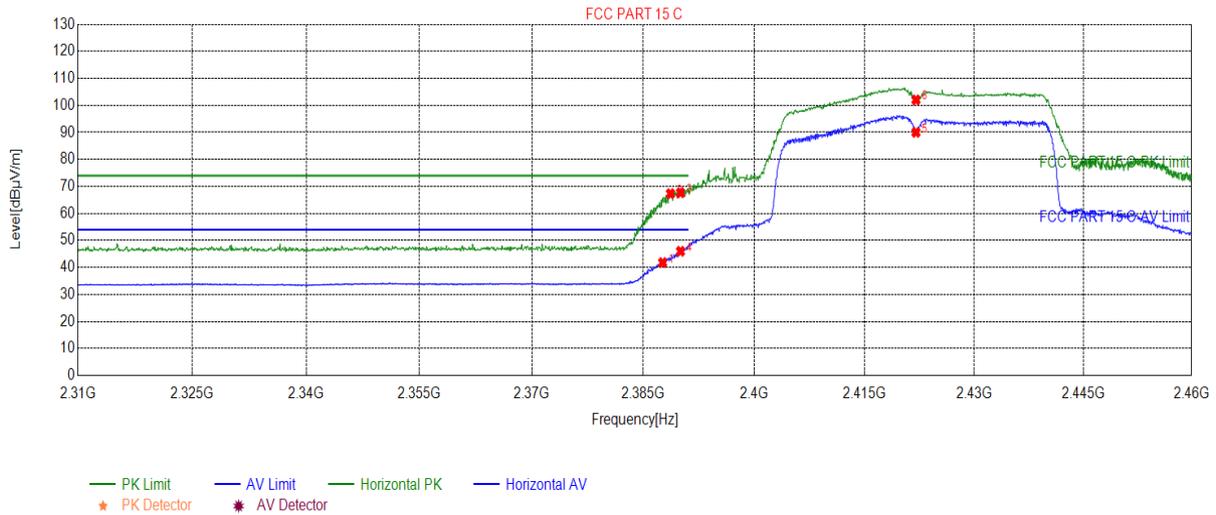


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4.4.1.13 802.11N40_Channel 3

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2387.58	41.79	7.91	54.00	12.21	151	220	Horizontal
2	2388.63	67.31	7.94	74.00	6.69	168	220	Horizontal
3	2390.00	67.65	7.98	74.00	6.35	198	220	Horizontal
4	2390.00	46.00	7.98	54.00	8.00	174	220	Horizontal
5	2422.00	90.03	8.45	0.00	-90.03	162	216	Horizontal
6	2422.00	102.04	8.45	0.00	-102.04	189	213	Horizontal

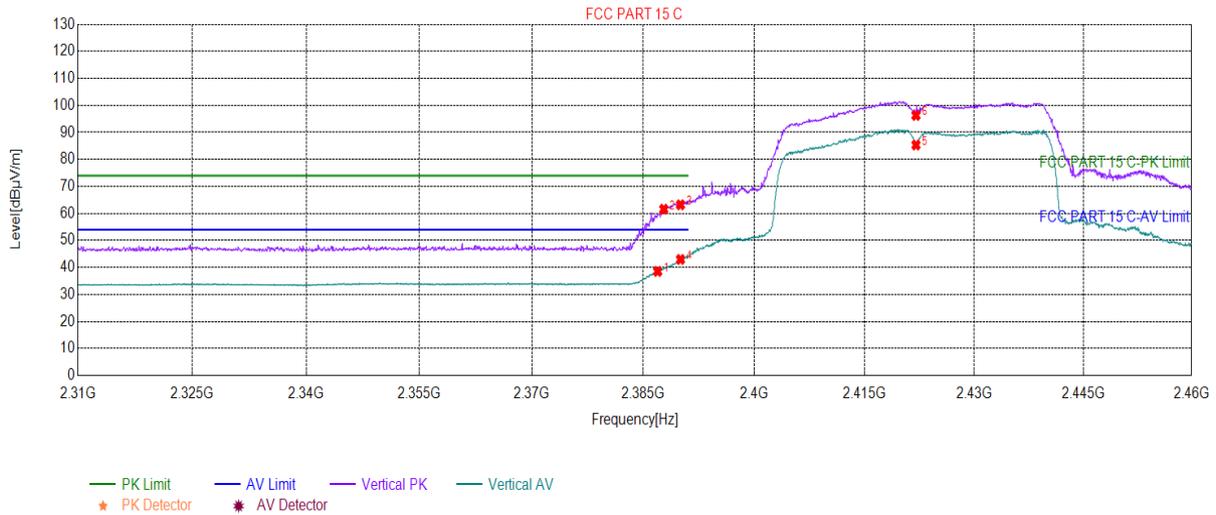
Final Data List



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4.4.1.14 802.11N40_Channel 3

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2386.91	38.53	7.89	54.00	15.47	202	198	Vertical
2	2387.73	61.59	7.91	74.00	12.41	223	175	Vertical
3	2390.00	63.20	7.98	74.00	10.80	214	198	Vertical
4	2390.00	42.97	7.98	54.00	11.03	265	198	Vertical
5	2422.00	85.33	8.45	0.00	-85.33	274	178	Vertical
6	2422.00	96.30	8.45	0.00	-96.30	229	171	Vertical

Final Data List



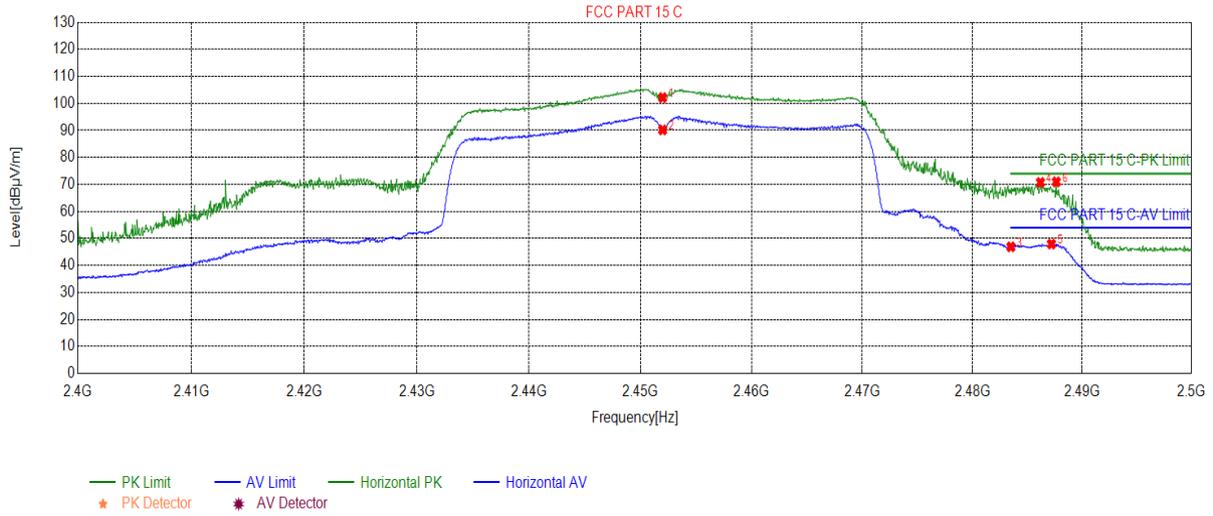
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4.4.1.15 802.11N40_Channel 9

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2452.00	102.15	8.65	0.00	-102.15	159	212	Horizontal
2	2452.00	90.19	8.65	0.00	-90.19	174	214	Horizontal
3	2483.50	46.90	8.50	54.00	7.10	162	212	Horizontal
4	2486.19	70.73	8.52	74.00	3.27	167	212	Horizontal
5	2487.19	47.93	8.55	54.00	6.07	153	218	Horizontal
6	2487.64	70.94	8.56	74.00	3.06	197	218	Horizontal

Final Data List

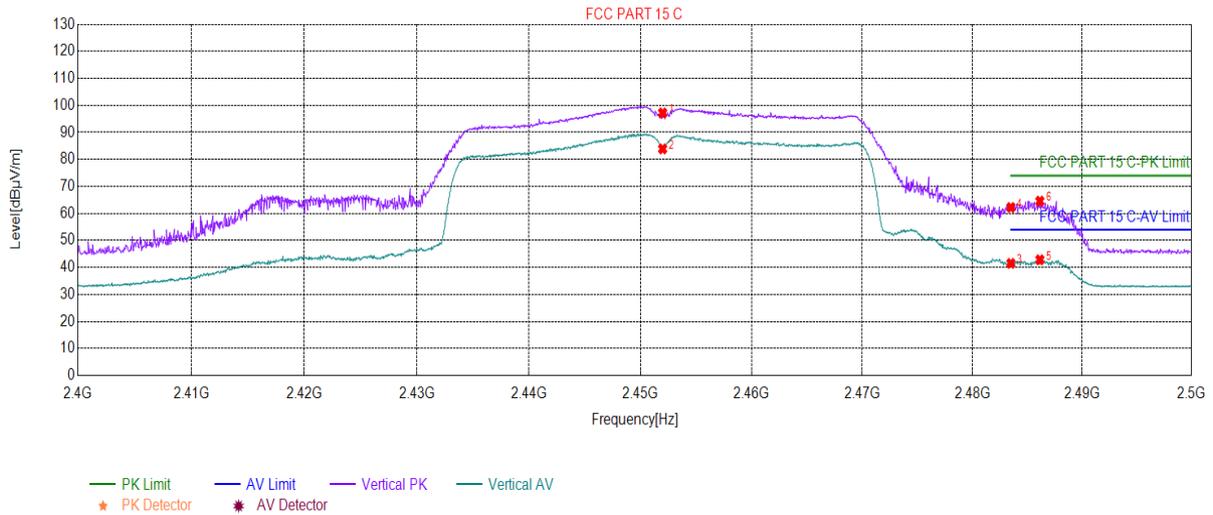


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4.4.1.16 802.11N40_Channel 9

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2452.00	97.21	8.65	0.00	-97.21	203	173	Vertical
2	2452.00	83.89	8.65	0.00	-83.89	274	176	Vertical
3	2483.50	41.51	8.50	54.00	12.49	251	173	Vertical
4	2483.50	62.21	8.50	74.00	11.79	263	173	Vertical
5	2486.14	42.85	8.52	54.00	11.15	247	173	Vertical
6	2486.14	64.55	8.52	74.00	9.45	222	176	Vertical

Final Data List

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.



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

No.	Item	Measurement Uncertainty
1	Radiated Spurious emission test	±4.8dB (30MHz-1GHz)
		±5.2dB (1GHz-6GHz)
		±5.5dB (6GHz-18GHz)
		±5.02dB (18GHz-40GHz)
2	Conduct emission test	±3.4 dB (9KHz- 30MHz)



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6 Equipment List

RSE&RE&CE Test System					
Equipment	Manufacturer	Model No.	Cal Date	Cal Due Date	Inventory No.
Semi-Anechoic Chamber	Brilliant-emc	966	NCR	NCR	XAW03-35-01
MXA signal analyzer	Keysight	N9020A	2020-04-02	2021-04-02	XAW01-06-01
Radio communication analyzer	ROHDE&SCHWARZ	CMW 500	2020-04-02	2021-04-02	XAW01-03-02
Test receiver	ROHDE&SCHWARZ	ESR	2020-09-11	2021-09-10	XAW01-08-01
Receiving antenna	Rosenberger	VULB 9163	2019-10-13	2021-10-12	XAW01-09-01
Receiving antenna	Rosenberger	BBHA 9120D	2019-10-13	2021-10-12	XAW01-09-02
Receiving antenna	Rosenberger	BBHA 9170	2019-10-13	2021-10-12	XAW01-09-03
Directional antenna rack controller	Max-Full	MF-7802BS	NCR	NCR	XAW03-03-01
High-speed antenna rack controller	Max-Full	MF-7802	NCR	NCR	XAW03-04-01
Filter bank	Tonscend	JS0806-F	NCR	NCR	XAW03-05-01
Filter bank	Tonscend	JS0806s	NCR	NCR	XAW03-05-02
Amplifier	Tonscend	TAP00903040	2020-10-26	2021-10-25	XAW01-41-01
Amplifier	Tonscend	TAP01018048	2020-10-26	2021-10-25	XAW01-41-02
Amplifier	Tonscend	TAP18040048	2020-10-26	2021-10-25	XAW01-41-03
Amplifier	Shanghai Steed	YX28980930	2020-10-26	2021-10-25	XAW01-41-06
Artificial network	ROHDE&SCHWARZ	ENV216	2020-08-04	2021-08-03	XAW01-19-02
Temperature and humidity meter	MingGao	TH101B	2020-06-11	2021-05-11	XAW01-01-01
Measurement Software	Tonscend	TS+ RSE&RE	NCR	NCR	XAW02-05-01
Measurement Software	Tonscend	TS+ CE	NCR	NCR	XAW02-05-02

7 Photographs - EUT Constructional Details

Refer to Appendix A Setup Photos.

The End

