



FCC Test Report

Application No.: DNT2601290767R01410-02195

Applicant: Vandsec Electronics Co., Ltd.

Address of Applicant: Room 201, No.75 Bao'nan Road, Nanlian Community, Longgang Sub-district, Longgang District, Shenzhen City, Guangdong Province, China, 518100

EUT Description: Hanging Hummingbird Feeder

Model No.: V10-FNQ-01

Additional Model(s): V10-FNQ-02, V10-FNQ-03, V10-FNQ-05, V10-FNQ-06, V10-FNQ-07, V10-FNQ-08

FCC ID: 2BVEK-V10-FNQ01

Power Supply: Input DC 5V; DC 3.7V From Battery

Trade Mark: /

Standards: 47 CFR FCC Part 2, Subpart J
47 CFR Part 15, Subpart E
ANSI C63.10: 2013

Date of Receipt: 2026/1/29

Date of Test: 2026/1/30 to 2026/3/11

Date of Issue: 2026/3/26

Test Result: **PASS**

Prepared By: Carl . Lin (Testing Engineer)

Reviewed By: Wayne . Lin (Project Engineer)

Approved By: Yenue Shan (Manager)



Note: If there is any objection to the results in this report, please submit a written inquiry to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp, and is issued by the company in accordance with the requirements of the "Conditions of Issuance of Test Reports" printed in the attached page. Unless otherwise stated, the results presented in this report only apply to the samples tested this time. Partial reproduction of this report is not allowed unless approved by the company in writing.

Dongguan DN Testing Co., Ltd.

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Mar.26, 2026	Valid	Original Report



1 Test Summary

No.	Description of Test Item	FCC Standard Section	Results
1	6dB Bandwidth & 26dB Bandwidth & 99% Occupied Bandwidth	15.407(a) 15.407(e)	PASS
2	Maximum Conducted Output Power	15.407(a)	PASS
3	Peak Power Spectral Density	15.407(a)	PASS
4	Unwanted Emissions and Band Edge	15.205 15.209 15.407(b)	PASS
5	Frequency Stability	15.407(g)	PASS
6	AC Power Line Conducted Emissions	15.207 15.407(b)(9)	PASS
7	Antenna Requirement	15.203	PASS

Note:

1. "N/A" denotes test is not applicable in this test report.



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2 General Information

2.1 Test Location

Company:	Dongguan DN Testing Co., Ltd
Address:	No. 1, West Fourth Street, South Xinfu Road, Wusha Liwu, Chang' an Town, Dongguan City, Guangdong P.R.China
Test engineer:	Gali Lin



2.2 General Description of EUT

Manufacturer:	Vandsec Electronics Co., Ltd.
Address of Manufacturer:	Room 201, No.75 Bao'nan Road, Nanlian Community, Longgang Sub-district, Longgang District, Shenzhen City, Guangdong Province, China, 518100
Factory:	Vandsec Electronics Co., Ltd.
Address of Factory:	Room 201, No.75 Bao'nan Road, Nanlian Community, Longgang Sub-district, Longgang District, Shenzhen City, Guangdong Province, China, 518100
EUT Description:	Hanging Hummingbird Feeder
Test Model No.:	V10-FNQ-01
Additional Model(s):	V10-FNQ-02, V10-FNQ-03, V10-FNQ-05, V10-FNQ-06, V10-FNQ-07, V10-FNQ-08
Power Supply:	Input DC 5V; DC 3.7V From Battery
Trade Mark:	/
Hardware Version:	V1.0
Software Version:	V1.0
Chip Type:	AIC8800M40B
Serial number	PR2601290767R01410
IEEE 802.11 WLAN Mode Supported	☒ 802.11a (20 MHz channel bandwidth), ☒ 802.11n (20 MHz channel bandwidth), ☒ 802.11n (40 MHz channel bandwidth), ☒ 802.11ac (20 MHz channel bandwidth), ☒ 802.11ac (40 MHz channel bandwidth), ☒ 802.11ax (20 MHz channel bandwidth), ☒ 802.11ax (40 MHz channel bandwidth)
Operation Frequency:	U-NII-1: 5180 MHz~5240 MHz U-NII-2A: 5260 MHz~5320 MHz U-NII-2C: 5500 MHz~5700 MHz U-NII-3: 5745 MHz~5825 MHz
Type of Modulation:	OFDM/OFDMA
Sample Type:	☐ Portable Device, ☐ Module, ☒ Mobile Device
Antenna Type:	☒ External, ☐ Integrated
Antenna Ports	☒ Ant 1, ☐ Ant 2, ☐ Ant 3
Smart System	☒ SISO (for 802.11a/n/ac/ax), ☐ MIMO (for 802.11n/ac/ax), ☐ Diversity (for 802.11a).
Antenna Gain*:	☒ Provided by applicant 5.36dBi
RF Cable*:	☒ Provided by applicant 0.5dB(0.6~1GHz); 0.8dB(1.4~2GHz); 1.0dB(2.1~2.7GHz); 1.5dB(3~4GHz); 1.8dB(4.4~6GHz);



Remark: *Since the above data and/or information is provided by the applicant relevant results or conclusions of this report are only made for these data and/or information, DNT is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

*All models are just name differences, motherboard, PCB circuit board, chip, electronic components is all the same.

2.3Channel List

Band	Mode	Channel	Frequency (MHz)
U-NII-1	IEEE 802.11a & n HT20 & ac VHT20 & ax HE20	36	5180
		40	5200
		44	5220
		48	5240
	IEEE 802.11n HT40 & ac VHT40 & ax HE40	38	5190
		46	5230
U-NII-2a	IEEE 802.11a & n HT20 & ac VHT20 & ax HE20	52	5260
		56	5280
		60	5300
		64	5320
	IEEE 802.11n HT40 & & ac VHT40 & ax HE40	54	5270
		62	5310
U-NII-2C	IEEE 802.11a & n HT20 & ac VHT20 & ax HE20	100	5500
		104	5520
		108	5540
		112	5560
		116	5580
		120	5600
		124	5620
		128	5640
		132	5660
		136	5680
	IEEE 802.11n HT40 & & ac VHT40 & ax HE40	140	5700
		102	5510
		110	5550
		118	5590
		126	5630
		134	5670



UNII-3	IEEE 802.11a & n HT20 & ac VHT20 & ax HE20	149	5745
		153	5765
		157	5785
		161	5805
		165	5825
	IEEE 802.11n HT40 & & ac VHT40 & ax HE40	151	5755
		159	5795

Remark:

In FCC 15.31, for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table, and the selected channel to perform the test as below:

Frequency Range of Operation Operating Frequency Range (in each Band)	Number of Measurement Frequencies Required	Location of Measurement Frequency in Band of Operation
1 MHz or less	1	centre
1 MHz to 10 MHz	2	1 near high end, 1 near low end
Greater than 10 MHz	3	1 near high end, 1 near centre

2.4 Test Environment and Mode

Operating Environment:	
Temperature:	20~25.0 °C
Humidity:	45~56 % RH
Atmospheric Pressure:	101.0~101.30 KPa
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

2.5 Power Setting of Test Software

Software Name	SecureCRT		
Frequency(MHz)	5180	5200	5240
11A	18	18	18
11N20	18	18	18
11AC20	18	18	18
11AX20	18	18	18
Frequency(MHz)	5260	5280	5320
11A	18	18	18
11N20	18	18	18
11AC20	18	18	18
11AX20	18	18	18
Frequency(MHz)	5500	5580	5700
11A	18	18	18
11N20	18	18	18



11AC20	18	18	18
11AX20	18	18	18
Frequency(MHz)	5745	5785	5825
11A	18	18	18
11N20	18	18	18
11AC20	18	18	18
11AX20	18	18	18
Frequency(MHz)	5190	5230	
11N40	16	16	
11AC40	16	16	
11AX40	16	16	
Frequency(MHz)	5270	5310	
11N40	16	16	
11AC40	16	16	
11AX40	16	16	
Frequency(MHz)	5510	5550	5670
11N40	16	16	16
11AC40	16	16	16
11AX40	16	16	16
Frequency(MHz)	5755	5795	
11N40	16	16	
11AC40	16	16	
11AX40	16	16	

2.6 Description of Support Units

The EUT has been tested as an independent unit.



2.7 Test Facility

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

Lab A:

• **FCC, USA**

Designation Number: CN1348

• **A2LA (Certificate No. 7050.01)**

DONGGUAN DN TESTING CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 7050.01.

• **Innovation, Science and Economic Development Canada**

DONGGUAN DN TESTING CO., LTD. EMC Laboratory has been recognized by ISED as an accredited testing laboratory. CAB identifier is CN0149.

IC#: 30755.

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

No.	Item	Measurement Uncertainty
1	DTS Bandwidth	$\pm 0.0196\%$
2	Maximum Conducted Output Power	± 0.686 dB
3	Maximum Power Spectral Density Level	± 0.743 dB
4	Band-edge Compliance	± 1.328 dB
5	Unwanted Emissions In Non-restricted Freq Bands	9KHz-1GHz: ± 0.746 dB 1GHz-26GHz: ± 1.328 dB

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.0 dB (150kHz to 30MHz)
2	Radiated Emission	± 4.8 dB (Below 1GHz)
		± 4.8 dB (1GHz to 6GHz)
		± 4.5 dB (6GHz to 18GHz)
		± 5.02 dB (Above 18GHz)



2.9 Equipment List

For Connect EUT Antenna Terminal Test					
Description	Manufacturer	Model	Serial Number	Cal date	Due date
Signal Generator	Keysight	N5181A-6G	MY48180415	2025-10-21	2026-10-20
Signal Generator	Keysight	N5182B	MY57300617	2025-10-21	2026-10-20
Power supply	Keysight	E3640A	ZB2022656	2025-10-21	2026-10-20
Radio Communication Tester	R&S	CMW500	105082	2025-10-21	2026-10-20
Spectrum Analyzer	Aglient	N9010A	MY52221458	2025-10-21	2026-10-20
BT/WIFI Test Software	Tonscend	JS1120-3 V3.6.16	NA	NA	NA
RF Control Unit	Tonscend	JS0806-2	22F8060581	NA	NA
Power Sensor	Anritsu	ML2495A	2129005	2025-10-21	2026-10-20
Pulse Power Sensor	Anritsu	MA2411B	1911397	2025-10-21	2026-10-20
temperature and humidity box	SCOTEK	SCD-C40-80PRO	6866682020008	2025-10-21	2026-10-20

Test Equipment for Conducted Emission					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Receiver	R&S	ESCI3	101152	2025-10-21	2026-10-20
LISN	R&S	ENV216	102874	2025-10-21	2026-10-20
ISN	R&S	ENY81-CA6	1309.8590.03	2025-10-21	2026-10-20

Test Equipment for Radiated Emission(30MHz-1000MHz)					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Receiver	R&S	ESR7	102497	2025-10-21	2026-10-20
Test Software	Tonscend	JS32-RE	NA	NA	NA
RF Cable	ETS-LINDGREN	RFC-NMS-100-NMS-350-IN	NA	2025-10-21	2026-10-20
Log periodic antenna	ETS-LINDGREN	VULB 9168	01475	2025-10-21	2026-10-20
Pre-amplifier	Schwarzbeck	BBV9743B	00423	2025-10-21	2026-10-20



Test Equipment for Radiated Emission(Above 1000MHz)					
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Frequency analyser	Keysight	N9010A	MY52221458	2025-10-21	2026-10-20
RF Cable	ETS-LINDGREN	RFC-NMS-100- NMS-350-IN	NA	2025-10-21	2026-10-20
Horn Antenna	ETS-LINDGREN	3117	00252567	2025-10-21	2026-10-20
Double ridged waveguide antenna	ETS-LINDGREN	3116C	00251780	2025-10-21	2026-10-20
Test Software	Tonscend	JS32-RE	NA	NA	NA
Pre-amplifier	ETS-LINDGREN	3117-PA	252567	2025-10-21	2026-10-20
Pre-amplifier	ETS-LINDGREN	3116C-PA	251780	2025-10-21	2026-10-20



3 Test results and Measurement Data

3.1 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 externally connected to the motherboard, The best case gain of the antenna is 5.36dBi.	



3.2 Duty Cycle

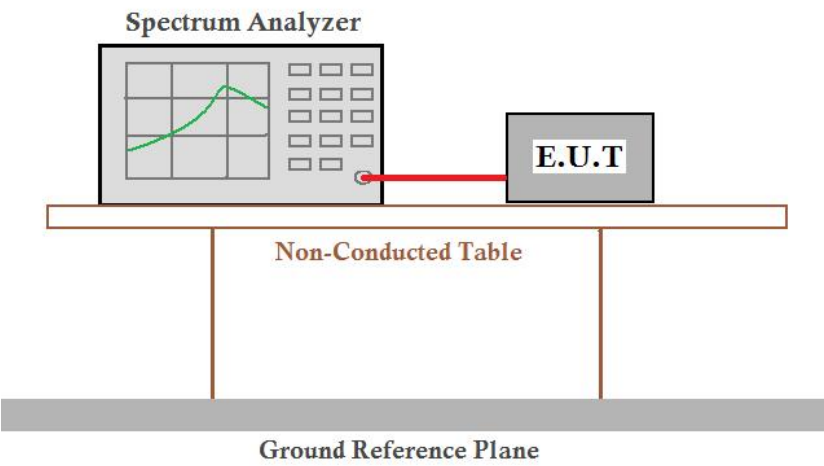
Refer to section : **Appendix A**

Note:

- 1.If duty cycle $< 98\%$, the conducted average output power and average power spectral density should be add duty factor.
- 2.If duty cycle $\geq 98\%$, the EUT is consider to be transmitting continuously, the conducted average output power and average power spectral density no need to add duty factor (consider to be zero).
- 3.The conducted peak output power and peak power spectral density no need to consider duty factor.
- 4.The on-time time is transmission duration (T).



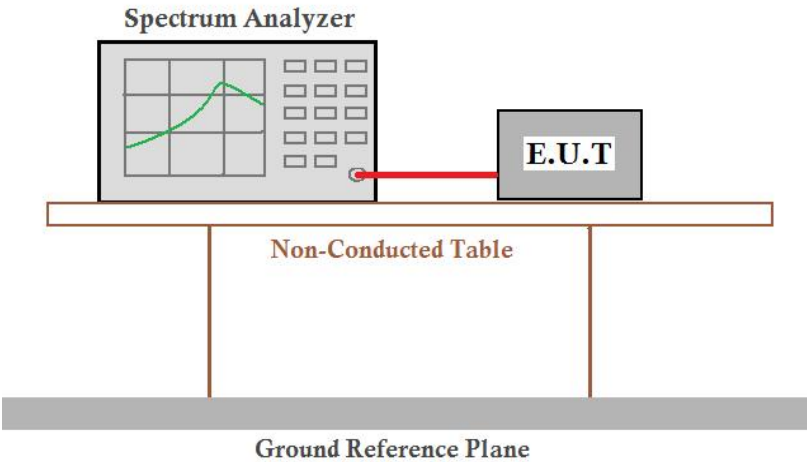
3.3 26dB Emission Bandwidth

Test Requirement:	47 CFR Part 15 Section 15.407(a)			
Test Method:	ANSI C63.10: 2013			
Test Setup:				
Instruments Used:	Refer to section 6 for details			
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates			
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20) ; MCS0 of rate is the worst case of 802.11n(HT40); Only the worst case is recorded in the report.			
Limit	Band	Frequency (MHz)	Test Item	Limit
	U-NII-1	5150-5250	26dB Bandwidth&99% Occupied Bandwidth	N/A
	U-NII-2A	5250-5350	26dB Bandwidth&99% Occupied Bandwidth	N/A
	U-NII-2C	5470-5725	26dB Bandwidth&99% Occupied Bandwidth	N/A
	U-NII-3	5725-5850	6dB Bandwidth&99% Occupied Bandwidth	6dB Bandwidth $\geq$ 500KHz

The detailed test data see:**Appendix B**



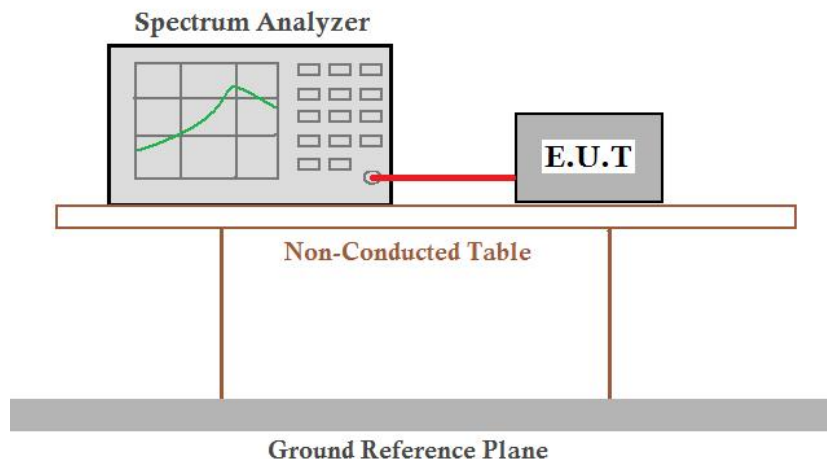
3.4 DTS (6 dB) Bandwidth

Test Requirement:	47 CFR Part 15 Section 15.407(e)																							
Test Method:	ANSI C63.10: 2013																							
Test Setup:																								
Instruments Used:	Refer to section 2.9 for details																							
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates																							
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20) ; MCS0 of rate is the worst case of 802.11n(HT40);																							
Limit:	<table><tr><th>Band</th><th>Frequency (MHz)</th><th>Test Item</th><th>Limit</th></tr><tr><td>U-NII-1</td><td>5150-5250</td><td>26dB Bandwidth&99% Occupied Bandwidth</td><td>N/A</td></tr><tr><td>U-NII-2A</td><td>5250-5350</td><td>26dB Bandwidth&99% Occupied Bandwidth</td><td>N/A</td></tr><tr><td>U-NII-2C</td><td>5470-5725</td><td>26dB Bandwidth&99% Occupied Bandwidth</td><td>N/A</td></tr><tr><td>U-NII-3</td><td>5725-5850</td><td>6dB Bandwidth&99% Occupied Bandwidth</td><td>6dB Bandwidth ≥ 500KHz</td></tr></table>				Band	Frequency (MHz)	Test Item	Limit	U-NII-1	5150-5250	26dB Bandwidth&99% Occupied Bandwidth	N/A	U-NII-2A	5250-5350	26dB Bandwidth&99% Occupied Bandwidth	N/A	U-NII-2C	5470-5725	26dB Bandwidth&99% Occupied Bandwidth	N/A	U-NII-3	5725-5850	6dB Bandwidth&99% Occupied Bandwidth	6dB Bandwidth ≥ 500KHz
Band	Frequency (MHz)	Test Item	Limit																					
U-NII-1	5150-5250	26dB Bandwidth&99% Occupied Bandwidth	N/A																					
U-NII-2A	5250-5350	26dB Bandwidth&99% Occupied Bandwidth	N/A																					
U-NII-2C	5470-5725	26dB Bandwidth&99% Occupied Bandwidth	N/A																					
U-NII-3	5725-5850	6dB Bandwidth&99% Occupied Bandwidth	6dB Bandwidth ≥ 500KHz																					
Test Results:	PASS																							

The detailed test data see: **Appendix B**



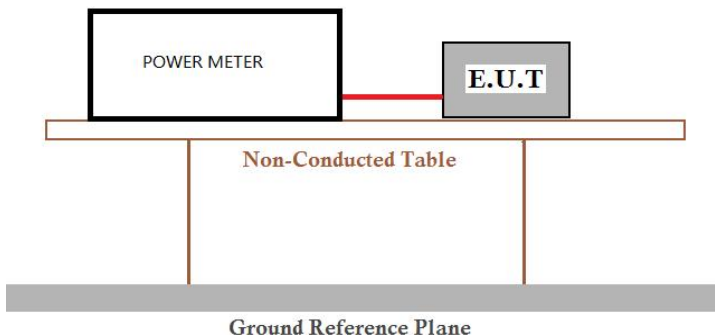
3.5 99% Occupied Bandwidth

Test Requirement:	47 CFR Part 15 Section 15.407(a)																							
Test Method:	ANSI C63.10: 2013																							
Test Setup:																								
Instruments Used:	Refer to section 6 for details																							
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates																							
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20) ; MCS0 of rate is the worst case of 802.11n(HT40); Only the worst case is recorded in the report.																							
Limit:	<table><tr><th>Band</th><th>Frequency (MHz)</th><th>Test Item</th><th>Limit</th></tr><tr><td>U-NII-1</td><td>5150-5250</td><td>26dB Bandwidth&99% Occupied Bandwidth</td><td>N/A</td></tr><tr><td>U-NII-2A</td><td>5250-5350</td><td>26dB Bandwidth&99% Occupied Bandwidth</td><td>N/A</td></tr><tr><td>U-NII-2C</td><td>5470-5725</td><td>26dB Bandwidth&99% Occupied Bandwidth</td><td>N/A</td></tr><tr><td>U-NII-3</td><td>5725-5850</td><td>6dB Bandwidth&99% Occupied Bandwidth</td><td>6dB Bandwidth ≥ 500KHz</td></tr></table>				Band	Frequency (MHz)	Test Item	Limit	U-NII-1	5150-5250	26dB Bandwidth&99% Occupied Bandwidth	N/A	U-NII-2A	5250-5350	26dB Bandwidth&99% Occupied Bandwidth	N/A	U-NII-2C	5470-5725	26dB Bandwidth&99% Occupied Bandwidth	N/A	U-NII-3	5725-5850	6dB Bandwidth&99% Occupied Bandwidth	6dB Bandwidth ≥ 500KHz
Band	Frequency (MHz)	Test Item	Limit																					
U-NII-1	5150-5250	26dB Bandwidth&99% Occupied Bandwidth	N/A																					
U-NII-2A	5250-5350	26dB Bandwidth&99% Occupied Bandwidth	N/A																					
U-NII-2C	5470-5725	26dB Bandwidth&99% Occupied Bandwidth	N/A																					
U-NII-3	5725-5850	6dB Bandwidth&99% Occupied Bandwidth	6dB Bandwidth ≥ 500KHz																					
Test Results:	Pass																							

The detailed test data see: **Appendix C**



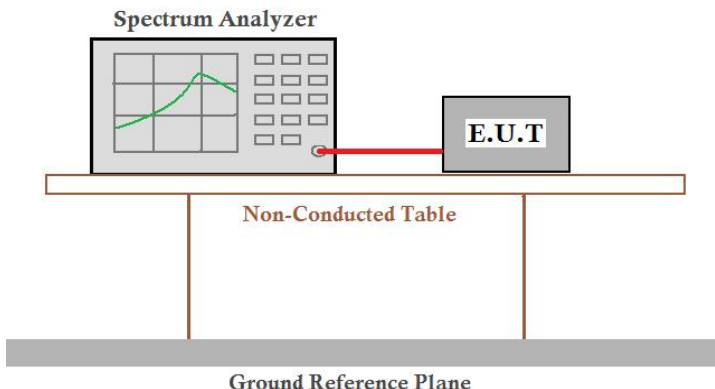
3.6 Conducted Output Power

Test Requirement:	47 CFR Part 15 Section 15.407(a)	
Test Method:	ANSI C63.10 :2013	
Test Setup:		
Test Instruments:	Refer to section 2.9 for details	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates	
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20) ; MCS0 of rate is the worst case of 802.11n(HT40);	
Limit:	Frequency Band	Limit
	5150-5250MHz	Not exceed 250mW(24dBm)
	5250-5350MHz	The lesser of 250mW(24dBm) or $11 + 10\log B$
	5470-5725MHz	The lesser of 250mW(24dBm) or $11 + 10\log B$
	5725-5850MHz	Not exceed 1W(30dBm)
Test Results:	Pass	

The detailed test data see: **Appendix D**



3.7 Power Spectral Density

Test Requirement:	47 CFR Part 15 Section 15.407(a)	
Test Method:	ANSI C63.10: 2013 KDB 789033 D02 v02r01, Section F.	
Test Setup:		
Test Instruments:	Refer to section 2.9 for details	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates	
Final Test Mode:	Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20) ; MCS0 of rate is the worst case of 802.11n(HT40);	
Limit:	Frequency Band	Limit
	5150-5250MHz	The power spectral density less than 11dBm/1MHz
	5250-5350MHz	The power spectral density less than 11dBm/1MHz
	5470-5725MHz	The power spectral density less than 11dBm/1MHz
	5725-5850MHz	The power spectral density less than <30dBm/500KHz
Test Results:	Pass	

The detailed test data see: **Appendix E**



3.8 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15 Section 15.407(b)				
Test Method:	ANSI C63.10: 2013				
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	120kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz (DC $\geq$ 0.98) $\geq$ 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.				

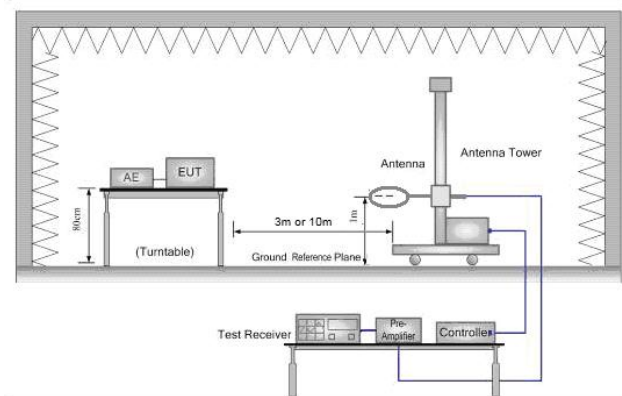
**Test Setup:**

Figure 1. Below 30MHz

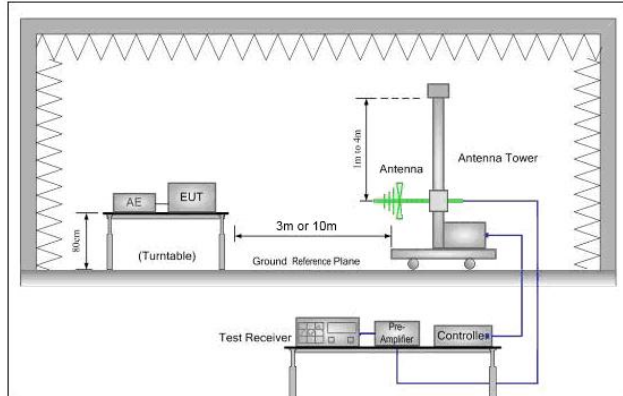


Figure 2. 30MHz to 1GHz

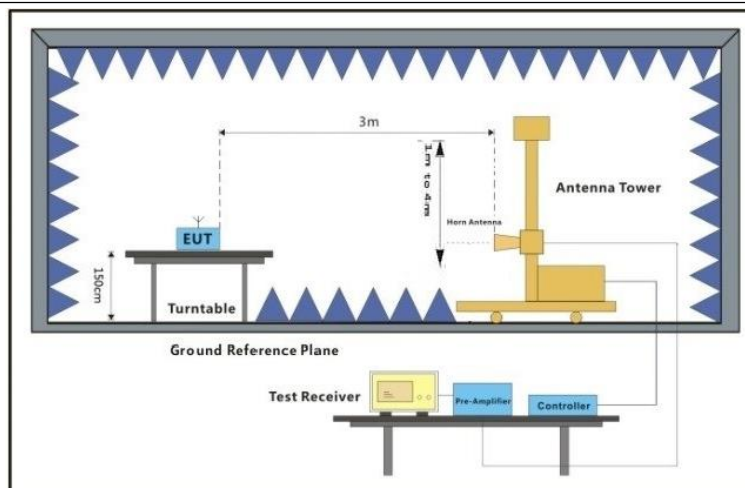


Figure 3. Above 1 GHz

Test Procedure:

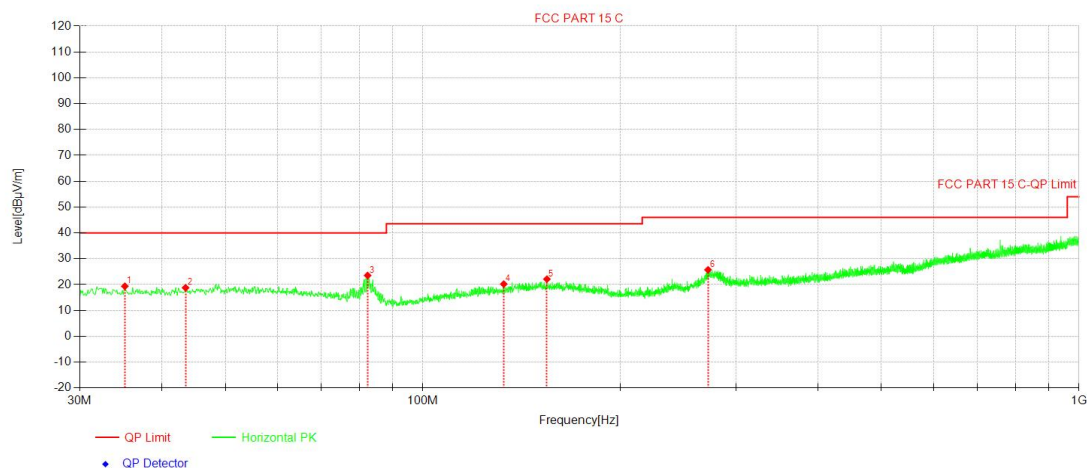
- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
Test Configuration:	Measurements Below 1000MHz • RBW = 120 kHz • VBW = 300 kHz • Detector = Peak • Trace mode = max hold Peak Measurements Above 1000 MHz • RBW = 1 MHz • VBW $\geq$ 3 MHz • Detector = Peak • Sweep time = auto • Trace mode = max hold Average Measurements Above 1000MHz • 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.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates. Charge + Transmitting mode.
Final Test Mode:	Pretest the EUT at Transmitting mode. Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20) ; MCS0 of rate is the worst case of 802.11n(HT40); For below 1GHz, through Pre-scan, find the the worst case. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 2.9 for details
Test Results:	Pass

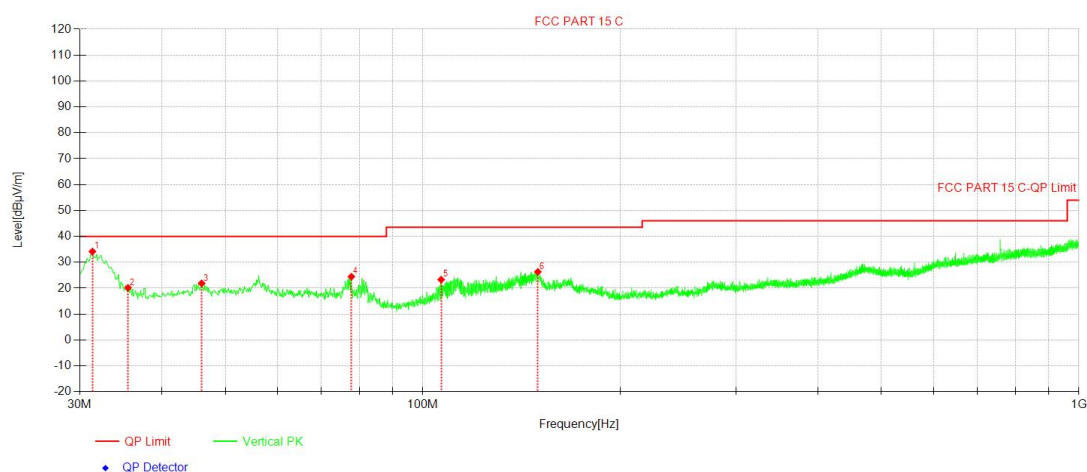
**Test data****For 30-1000MHz****5.1G**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]
1	35.14	28.69	-9.33	19.36	40.00	20.64	100	94
2	43.48	27.16	-8.38	18.78	40.00	21.22	100	329
3	82.38	36.66	-13.12	23.54	40.00	16.46	100	172
4	132.83	29.38	-9.17	20.21	43.50	23.29	100	234
5	154.56	29.90	-7.80	22.10	43.50	21.40	100	4
6	272.03	33.64	-7.92	25.72	46.00	20.28	100	245

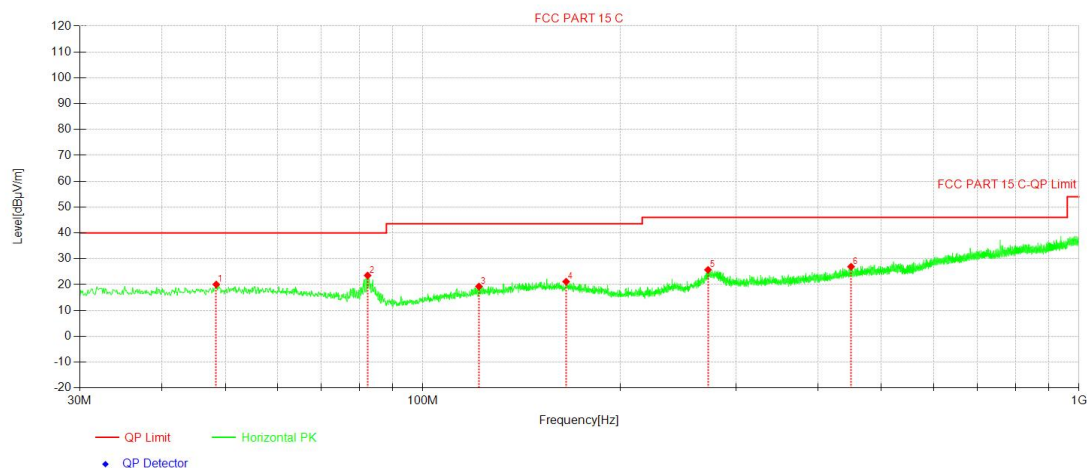
Vertical :



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]
1	31.35	43.98	-9.83	34.15	40.00	5.85	100	107
2	35.52	29.45	-9.30	20.15	40.00	19.85	100	325
3	46.00	30.07	-8.20	21.87	40.00	18.13	100	92
4	77.82	36.41	-11.96	24.45	40.00	15.55	100	314
5	106.63	34.92	-11.62	23.30	43.50	20.20	100	357
6	149.71	34.20	-7.89	26.31	43.50	17.19	100	266

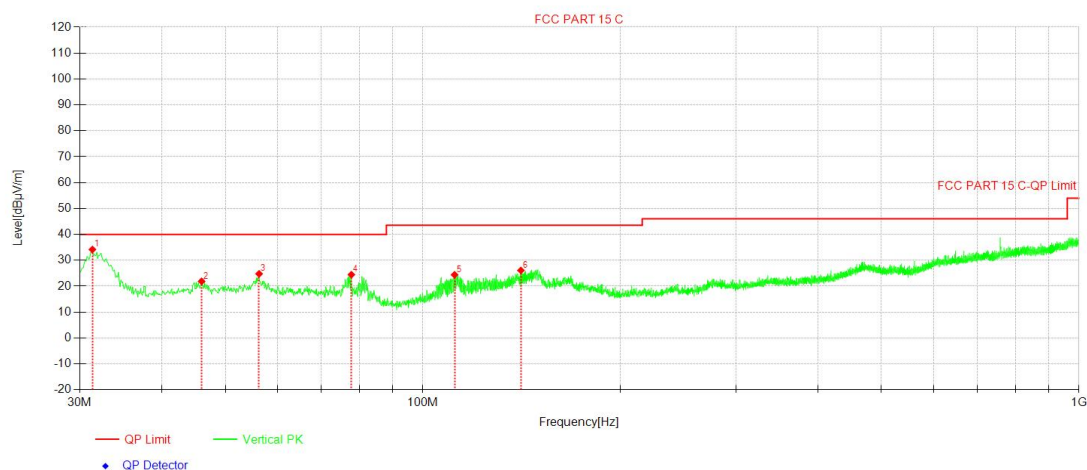
**5.8G**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]
1	48.43	28.14	-8.07	20.07	40.00	19.93	100	125
2	82.38	36.66	-13.12	23.54	40.00	16.46	100	172
3	121.77	29.41	-10.14	19.27	43.50	24.23	100	193
4	165.32	29.13	-7.99	21.14	43.50	22.36	100	166
5	272.03	33.64	-7.92	25.72	46.00	20.28	100	245
6	449.46	29.79	-2.85	26.94	46.00	19.06	100	293

Vertical :



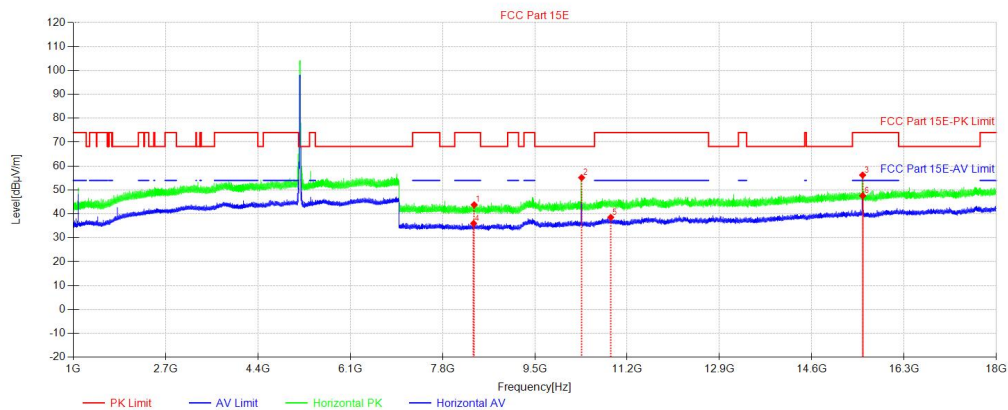
NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]
1	31.35	43.98	-9.83	34.15	40.00	5.85	100	107
2	46.00	30.07	-8.20	21.87	40.00	18.13	100	92
3	56.28	33.15	-8.38	24.77	40.00	15.23	100	335
4	77.82	36.41	-11.96	24.45	40.00	15.55	100	314
5	111.77	35.41	-11.01	24.40	43.50	19.10	100	276
6	141.07	34.49	-8.41	26.08	43.50	17.42	100	260



For above 1GHz

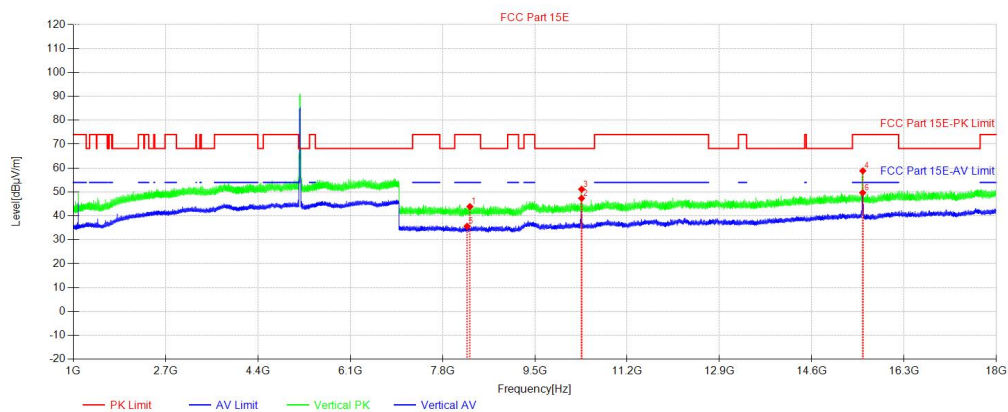
11A 5180MHz

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8383.85	45.83	-2.04	43.79	74.00	30.21	150	170	PK
2	10362.17	54.75	0.39	55.14	68.20	13.06	150	114	PK
3	15537.22	50.66	5.56	56.22	74.00	17.78	150	150	PK
4	8373.29	38.07	-2.05	36.02	54.00	17.98	150	260	AV
5	10898.99	37.03	1.50	38.53	54.00	15.47	150	315	AV
6	15537.66	42.00	5.57	47.57	54.00	6.43	150	131	AV

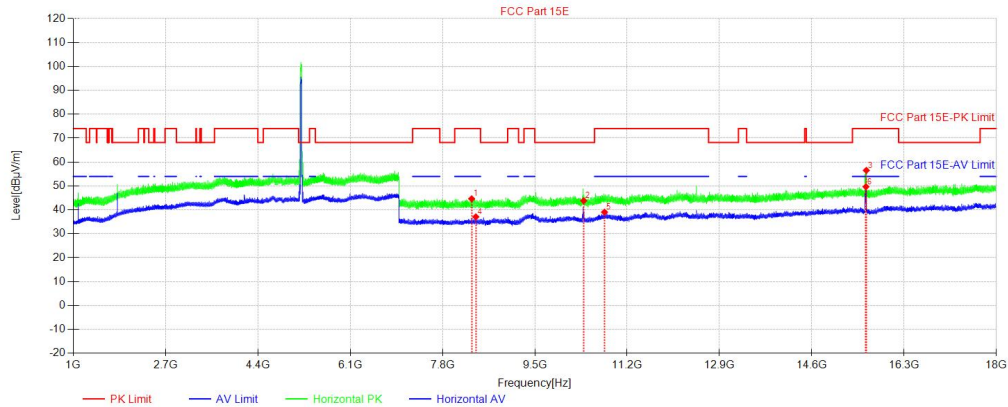
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8304.65	45.97	-2.09	43.88	74.00	30.12	150	77	PK
2	10360.41	46.93	0.40	47.33	68.20	20.87	150	129	PK
3	10362.17	50.74	0.39	51.13	68.20	17.07	150	129	PK
4	15539.86	53.28	5.56	58.84	74.00	15.16	150	298	AV
5	8252.29	37.76	-2.09	35.67	54.00	18.33	150	298	AV
6	15537.66	44.11	5.57	49.68	54.00	4.32	150	318	AV

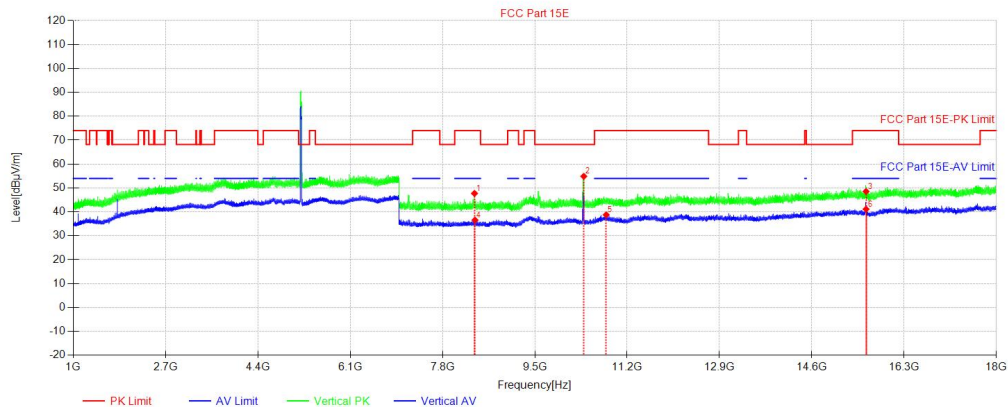
**11A 5200MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8336.77	46.71	-2.08	44.63	74.00	29.37	150	245	PK
2	10400.01	43.45	0.36	43.81	68.20	24.39	150	58	PK
3	15605.42	51.09	5.43	56.52	74.00	17.48	150	58	PK
4	8413.77	39.09	-2.02	37.07	54.00	16.93	150	322	AV
5	10783.27	37.54	1.51	39.05	54.00	14.95	150	285	AV
6	15598.38	44.25	5.43	49.68	54.00	4.32	150	58	AV

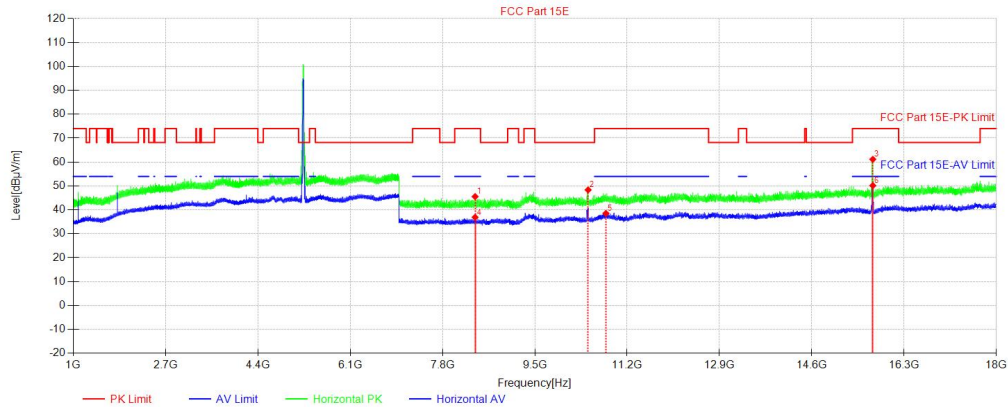
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8389.13	49.74	-2.03	47.71	74.00	26.29	150	281	PK
2	10401.77	54.51	0.36	54.87	68.20	13.33	150	190	PK
3	15600.14	43.11	5.43	48.54	74.00	25.46	150	243	PK
4	8397.93	38.57	-2.02	36.55	54.00	17.45	150	281	AV
5	10815.39	37.18	1.58	38.76	54.00	15.24	150	354	AV
6	15600.14	35.69	5.43	41.12	54.00	12.88	150	243	AV

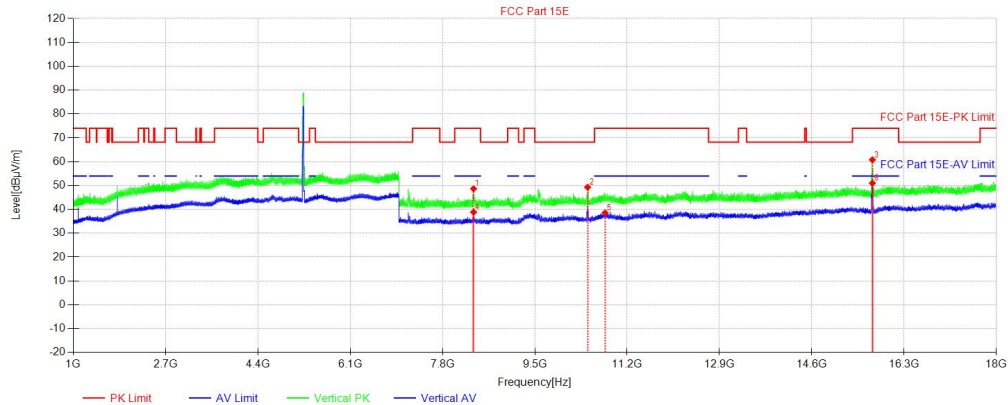
**11A 5240MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8400.13	47.56	-2.02	45.54	74.00	28.46	150	220	PK
2	10481.85	47.87	0.48	48.35	68.20	19.85	150	164	PK
3	15724.22	55.81	5.34	61.15	74.00	12.85	150	73	PK
4	8400.57	38.92	-2.02	36.90	54.00	17.10	150	220	AV
5	10809.67	36.94	1.58	38.52	54.00	15.48	150	202	AV
6	15724.22	44.82	5.34	50.16	54.00	3.84	150	73	AV

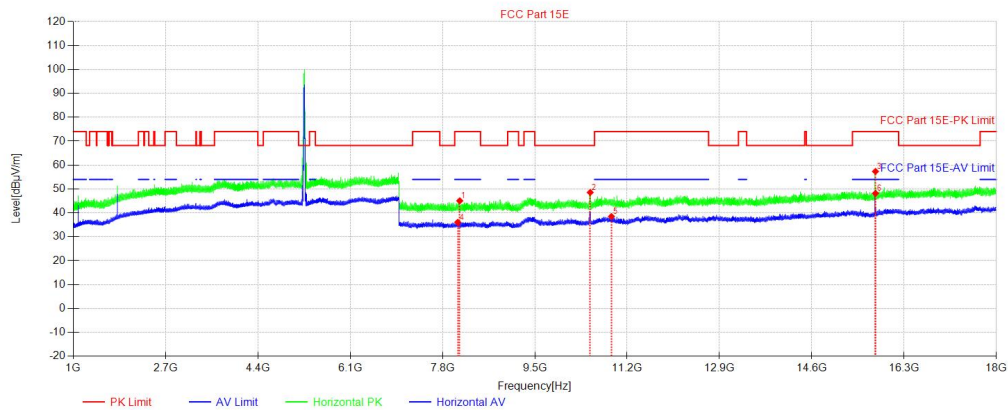
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8371.53	50.70	-2.05	48.65	74.00	25.35	150	282	PK
2	10472.17	48.81	0.46	49.27	68.20	18.93	150	228	PK
3	15716.30	55.42	5.35	60.77	74.00	13.23	150	56	PK
4	8371.97	40.87	-2.05	38.82	54.00	15.18	150	302	AV
5	10794.27	36.99	1.56	38.55	54.00	15.45	150	282	AV
6	15716.74	45.64	5.34	50.98	54.00	3.02	150	56	AV

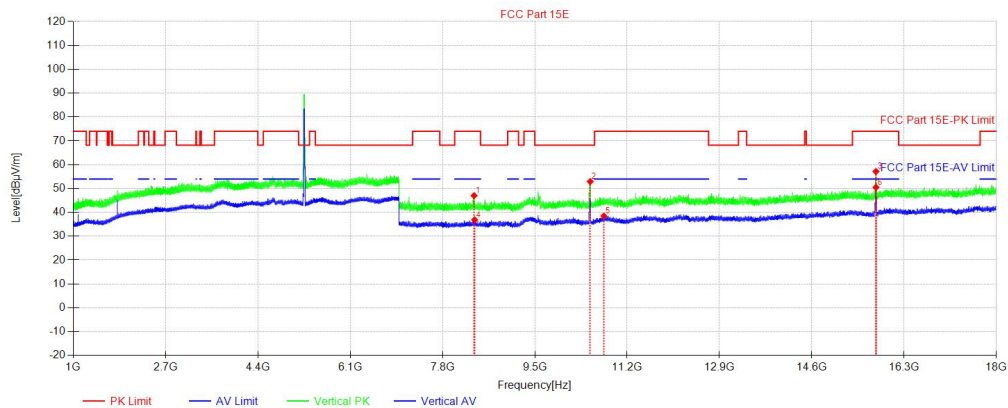
**11A 5260MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8117.64	46.90	-1.85	45.05	74.00	28.95	150	280	PK
2	10520.14	48.01	0.54	48.55	68.20	19.65	150	337	PK
3	15773.51	52.03	5.30	57.33	74.00	16.67	150	66	PK
4	8080.24	37.79	-1.74	36.05	54.00	17.95	150	1	AV
5	10911.31	36.99	1.48	38.47	54.00	15.53	150	15	AV
6	15773.95	42.86	5.29	48.15	54.00	5.85	150	66	AV

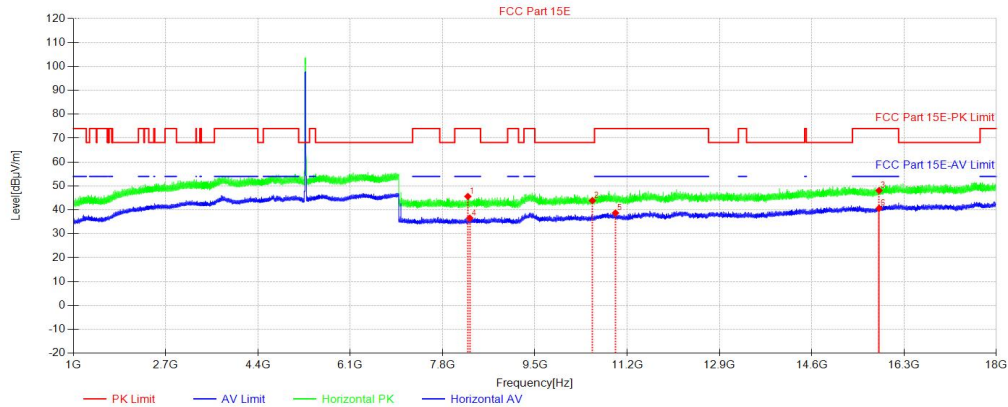
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8381.65	49.07	-2.04	47.03	74.00	26.97	150	264	PK
2	10520.58	52.39	0.54	52.93	68.20	15.27	150	170	PK
3	15781.87	51.87	5.29	57.16	74.00	16.84	150	92	PK
4	8391.77	38.89	-2.03	36.86	54.00	17.14	150	282	AV
5	10771.83	37.03	1.45	38.48	54.00	15.52	150	264	AV
6	15782.31	45.19	5.29	50.48	54.00	3.52	150	92	AV

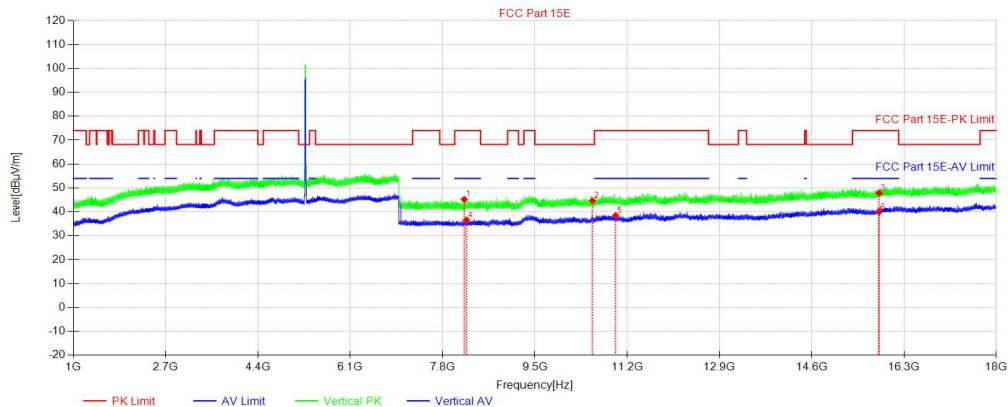
**11A 5280MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8266.81	47.70	-2.09	45.61	74.00	28.39	150	16	PK
2	10560.18	43.25	0.61	43.86	68.20	24.34	150	184	PK
3	15840.39	42.63	5.48	48.11	74.00	25.89	150	91	PK
4	8302.01	38.65	-2.08	36.57	54.00	17.43	150	1	AV
5	10985.68	37.32	1.38	38.70	54.00	15.30	150	1	AV
6	15840.39	35.16	5.48	40.64	54.00	13.36	150	298	AV

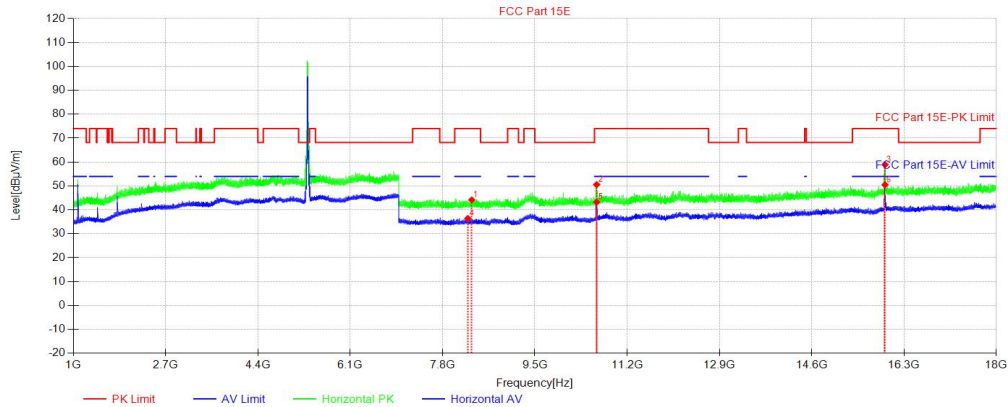
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8200.81	47.33	-2.13	45.20	74.00	28.80	150	1	PK
2	10560.18	44.01	0.61	44.62	68.20	23.58	150	148	PK
3	15840.39	42.34	5.48	47.82	74.00	26.18	150	186	PK
4	8240.85	38.70	-2.11	36.59	54.00	17.41	150	166	AV
5	10987.88	37.04	1.39	38.43	54.00	15.57	150	72	AV
6	15840.39	34.55	5.48	40.03	54.00	13.97	150	204	AV

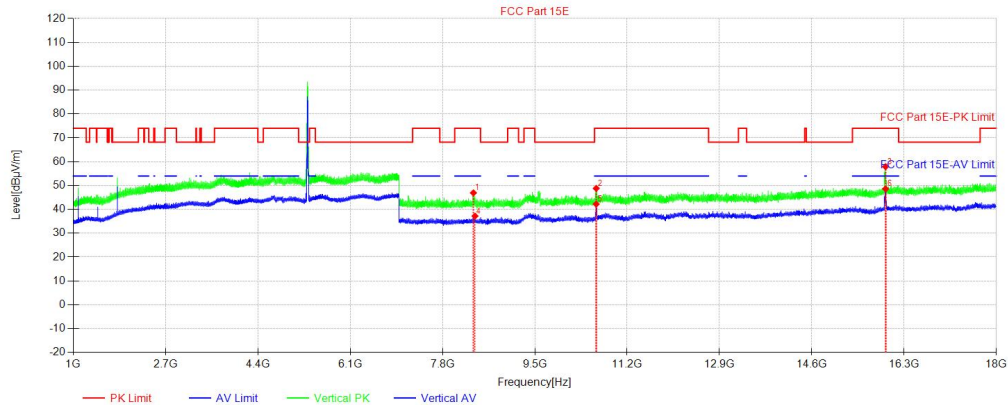
**11A 5320MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8338.97	46.23	-2.08	44.15	74.00	29.85	150	115	PK
2	10638.94	49.73	0.84	50.57	74.00	23.43	150	170	PK
3	15949.51	52.79	6.09	58.88	74.00	15.12	150	44	PK
4	8266.37	38.49	-2.09	36.40	54.00	17.60	150	299	AV
5	10639.38	42.40	0.84	43.24	54.00	10.76	150	170	AV
6	15949.96	44.39	6.09	50.48	54.00	3.52	150	44	AV

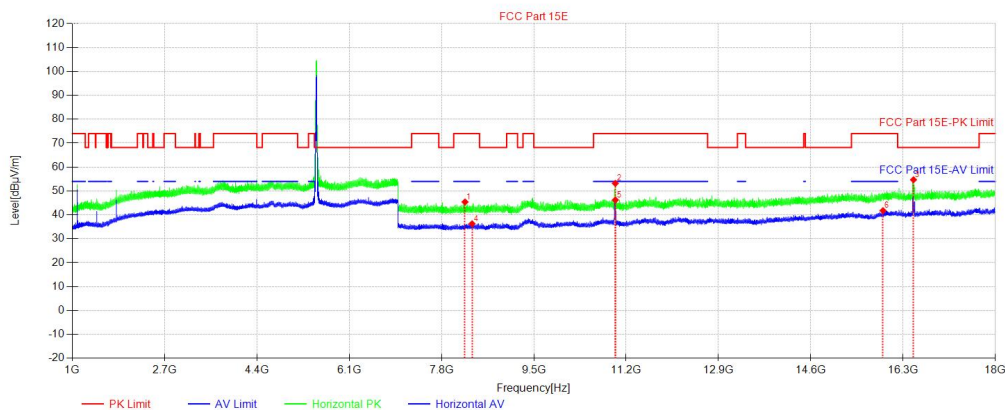
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8369.33	48.97	-2.06	46.91	74.00	27.09	150	282	PK
2	10630.58	48.00	0.80	48.80	74.00	25.20	150	226	PK
3	15959.19	51.78	6.13	57.91	74.00	16.09	150	192	PK
4	8398.81	39.20	-2.02	37.18	54.00	16.82	150	282	AV
5	10630.58	41.41	0.80	42.21	54.00	11.79	150	226	AV
6	15959.63	42.47	6.14	48.61	54.00	5.39	150	192	AV

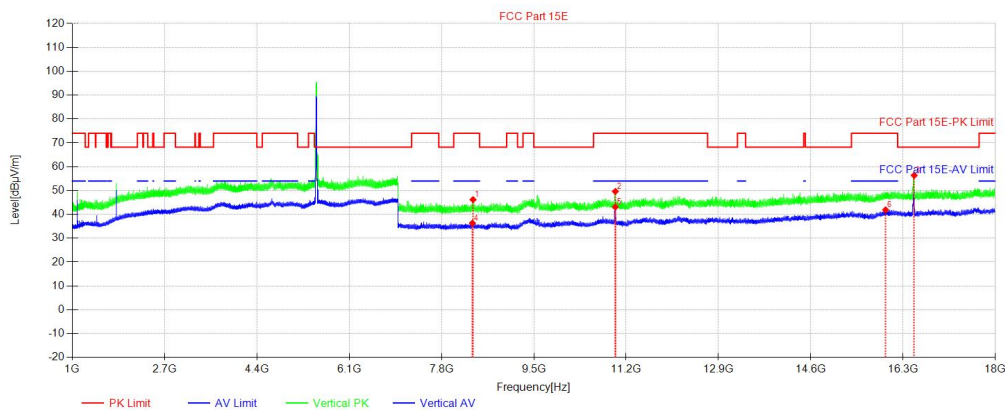
**11A 5500MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8233.36	47.49	-2.10	45.39	74.00	28.61	150	90	PK
2	11001.08	51.80	1.37	53.17	74.00	20.83	150	73	PK
3	16492.05	48.12	6.57	54.69	68.20	13.51	150	32	PK
4	8362.73	38.34	-2.07	36.27	54.00	17.73	150	356	AV
5	11001.52	44.84	1.37	46.21	54.00	7.79	150	73	AV
6	15930.59	35.80	5.98	41.78	54.00	12.22	150	318	AV

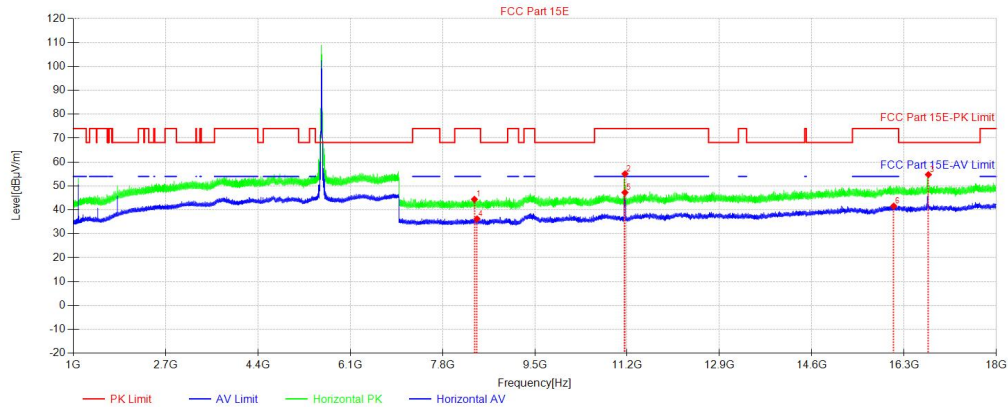
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8379.89	48.21	-2.04	46.17	74.00	27.83	150	110	PK
2	11001.52	48.25	1.37	49.62	74.00	24.38	150	188	PK
3	16504.38	49.76	6.58	56.34	68.20	11.86	150	91	PK
4	8369.77	38.39	-2.06	36.33	54.00	17.67	150	354	AV
5	11001.52	41.72	1.37	43.09	54.00	10.91	150	188	AV
6	15978.55	35.64	6.24	41.88	54.00	12.12	150	205	AV

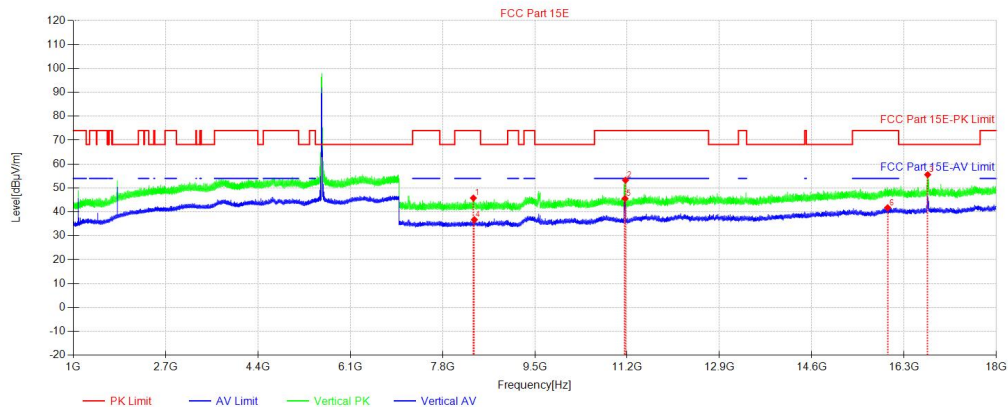
**11A 5580MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8387.81	46.45	-2.03	44.42	74.00	29.58	150	34	PK
2	11161.24	53.97	1.09	55.06	74.00	18.94	150	243	PK
3	16748.14	47.66	7.10	54.76	68.20	13.44	150	206	PK
4	8436.21	38.27	-2.03	36.24	54.00	17.76	150	148	AV
5	11159.48	46.17	1.09	47.26	54.00	6.74	150	243	AV
6	16109.24	35.11	6.47	41.58	54.00	12.42	150	278	AV

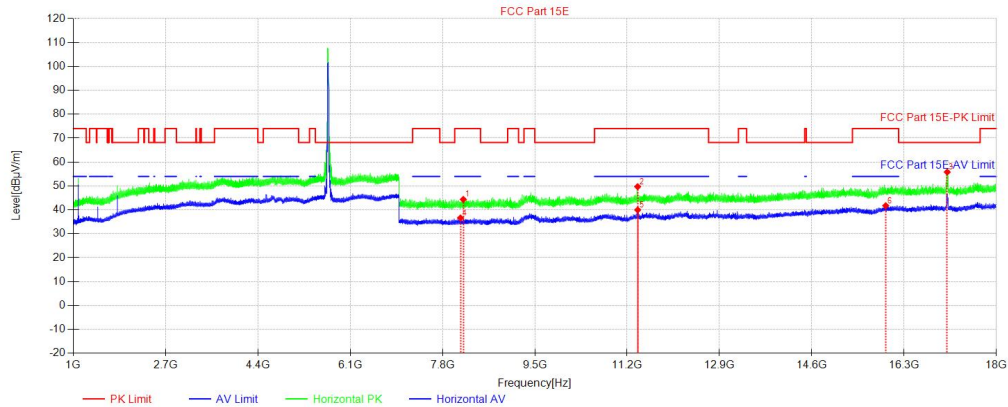
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8368.45	47.83	-2.06	45.77	74.00	28.23	150	147	PK
2	11170.04	52.18	1.06	53.24	74.00	20.76	150	166	PK
3	16735.38	48.53	7.04	55.57	68.20	12.63	150	108	PK
4	8386.93	38.76	-2.04	36.72	54.00	17.28	150	280	AV
5	11160.80	44.47	1.09	45.56	54.00	8.44	150	166	AV
6	15997.91	35.39	6.34	41.73	54.00	12.27	150	203	AV

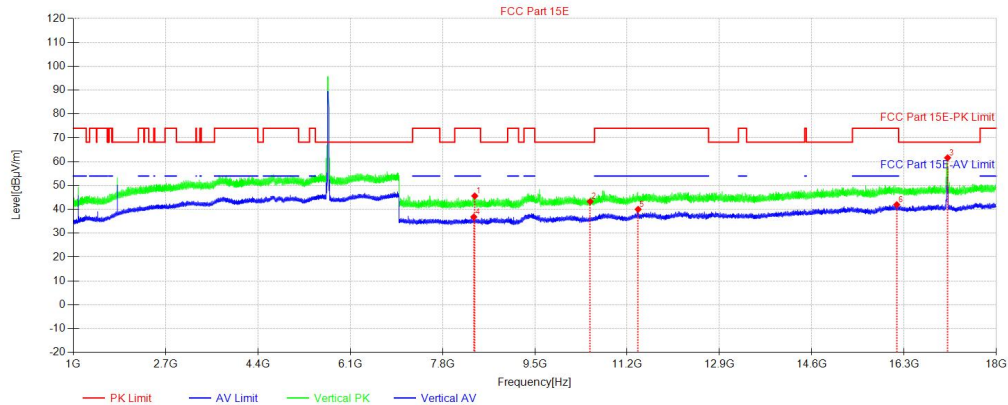
**11A 5700MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8182.76	46.46	-2.08	44.38	74.00	29.62	150	210	PK
2	11393.13	48.00	1.71	49.71	74.00	24.29	150	264	PK
3	17095.32	47.32	8.50	55.82	68.20	12.38	150	302	PK
4	8131.28	38.52	-1.90	36.62	54.00	17.38	150	2	AV
5	11394.89	38.24	1.72	39.96	54.00	14.04	150	264	AV
6	15961.83	35.59	6.15	41.74	54.00	12.26	150	151	AV

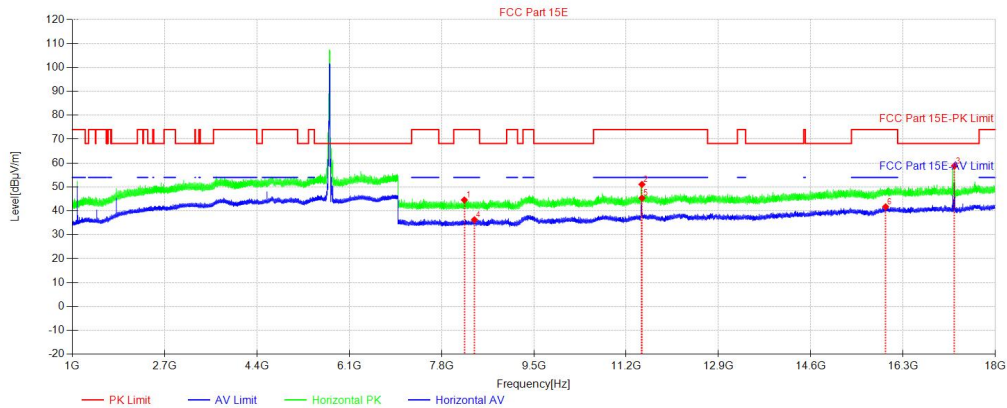
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8393.53	47.65	-2.03	45.62	74.00	28.38	150	106	PK
2	10520.14	42.72	0.54	43.26	68.20	24.94	150	167	PK
3	17102.36	53.09	8.53	61.62	68.20	6.58	150	106	PK
4	8376.37	38.87	-2.05	36.82	54.00	17.18	150	282	AV
5	11403.25	38.29	1.74	40.03	54.00	13.97	150	30	AV
6	16165.56	35.31	6.66	41.97	54.00	12.03	150	282	AV

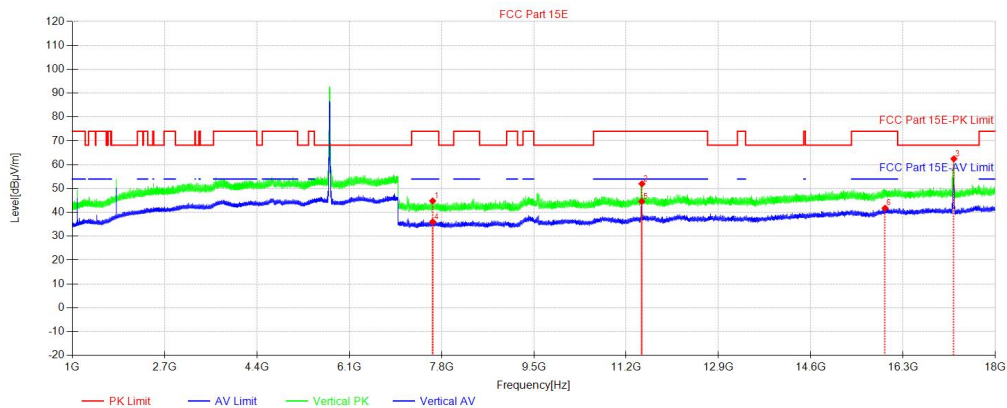
**11A 5745MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8221.04	46.68	-2.12	44.56	74.00	29.44	150	246	PK
2	11491.69	49.04	2.03	51.07	74.00	22.93	150	59	PK
3	17246.68	49.93	8.87	58.80	68.20	9.40	150	59	PK
4	8406.29	38.33	-2.02	36.31	54.00	17.69	150	339	AV
5	11492.13	43.35	2.03	45.38	54.00	8.62	150	77	AV
6	15978.55	35.47	6.24	41.71	54.00	12.29	150	4	AV

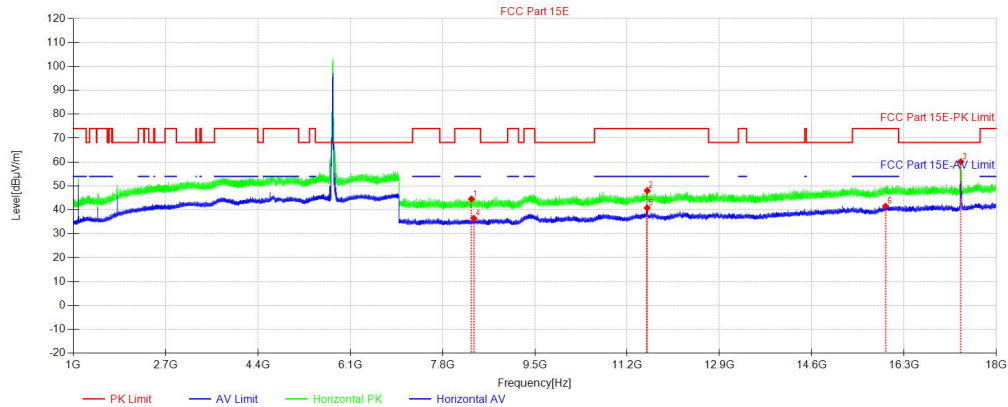
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	7637.14	45.96	-1.17	44.79	74.00	29.21	150	88	PK
2	11491.69	49.93	2.03	51.96	74.00	22.04	150	71	PK
3	17235.24	53.60	8.86	62.46	68.20	5.74	150	51	PK
4	7638.46	37.20	-1.17	36.03	54.00	17.97	150	223	AV
5	11487.73	42.55	2.02	44.57	54.00	9.43	150	88	AV
6	15968.87	35.60	6.19	41.79	54.00	12.21	150	261	AV

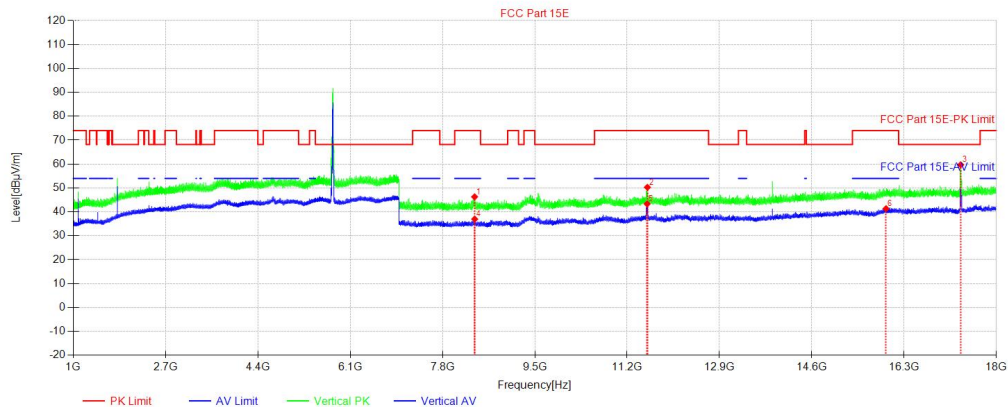
**11A 5785MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8333.69	46.61	-2.08	44.53	74.00	29.47	150	245	PK
2	11570.02	45.70	2.33	48.03	74.00	25.97	150	58	PK
3	17343.93	51.19	8.96	60.15	68.20	8.05	150	58	PK
4	8375.93	38.53	-2.05	36.48	54.00	17.52	150	322	AV
5	11570.02	38.45	2.33	40.78	54.00	13.22	150	285	AV
6	15959.19	35.41	6.13	41.54	54.00	12.46	150	58	AV

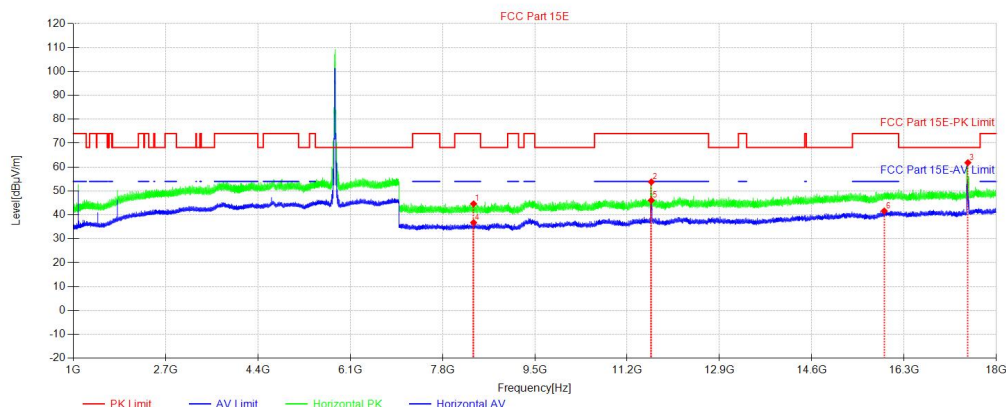
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8391.33	48.32	-2.03	46.29	74.00	27.71	150	282	PK
2	11573.10	47.92	2.35	50.27	74.00	23.73	150	79	PK
3	17342.61	50.74	8.96	59.70	68.20	8.50	150	59	PK
4	8392.65	38.99	-2.03	36.96	54.00	17.04	150	299	AV
5	11568.70	41.02	2.33	43.35	54.00	10.65	150	168	AV
6	15967.99	35.17	6.18	41.35	54.00	12.65	150	18	AV

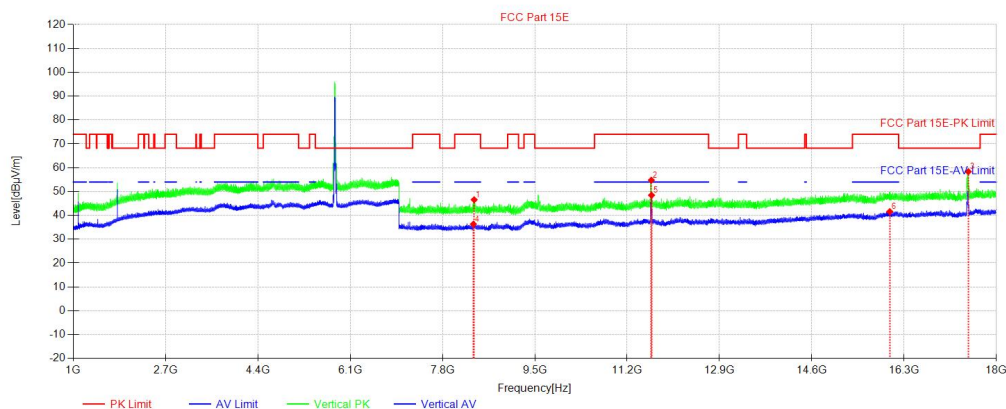
**11A 5825MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8372.41	46.67	-2.05	44.62	74.00	29.38	150	44	PK
2	11645.70	51.43	2.34	53.77	74.00	20.23	150	212	PK
3	17475.49	52.28	9.56	61.84	68.20	6.36	150	83	PK
4	8372.85	38.82	-2.05	36.77	54.00	17.23	150	63	AV
5	11646.14	43.72	2.34	46.06	54.00	7.94	150	232	AV
6	15934.99	35.64	6.00	41.64	54.00	12.36	150	83	AV

Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	8383.41	48.59	-2.04	46.55	74.00	27.45	150	115	PK
2	11645.70	52.41	2.34	54.75	74.00	19.25	150	80	PK
3	17483.41	48.69	9.63	58.32	68.20	9.88	150	187	PK
4	8368.89	38.40	-2.06	36.34	54.00	17.66	150	133	AV
5	11649.66	46.12	2.32	48.44	54.00	5.56	150	80	AV
6	16037.08	35.21	6.36	41.57	54.00	12.43	150	356	AV

**Note:**

1. The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe including Ant.Factor and the Cable Factor etc.), The basic equation is as follows:

Result Level= Reading Level + Correct Factor(including Ant.Factor, Cable Factor etc.)

2. The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

3. The amplitude of 18GHz to 40GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be report.

4. All channels had been pre-test, 802.11a is the worst case, only the worst case was reported.



3.9 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15 Section 15.407(b)		
Test Method:	ANSI C63.10: 2013		
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
	MHz	MHz	MHz
	0.090 - 0.110	16.42 - 16.423	399.9 - 410
	0.495 - 0.505	16.69475 - 16.69525	608 - 614
	2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240
	4.125 - 4.128	25.5 - 25.67	1300 - 1427
	4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5
	4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5
	6.215 - 6.218	74.8 - 75.2	1660 - 1710
	6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2
	6.31175 - 6.31225	123 - 138	2200 - 2300
	8.291 - 8.294	149.9 - 150.05	2310 - 2390
	8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500
	8.37625 - 8.38675	156.7 - 156.9	2690 - 2900
	8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267
	12.29 - 12.293	167.72 - 173.2	3332 - 3339
	12.51975 - 12.52025	240 - 285	3345.8 - 3358
	12.57675 - 12.57725	322 - 335.4	3600 - 4400
			(²)
Test Setup:			

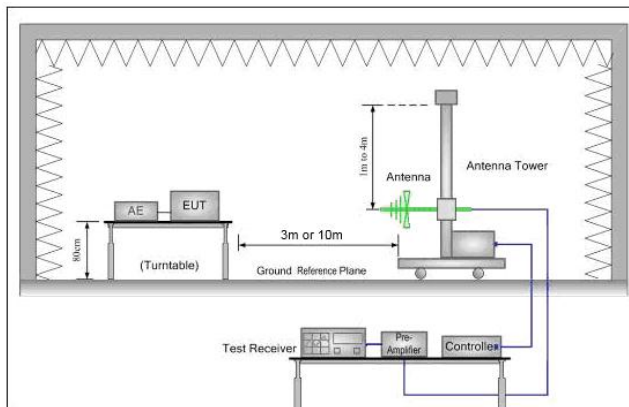


Figure 1. 30MHz to 1GHz

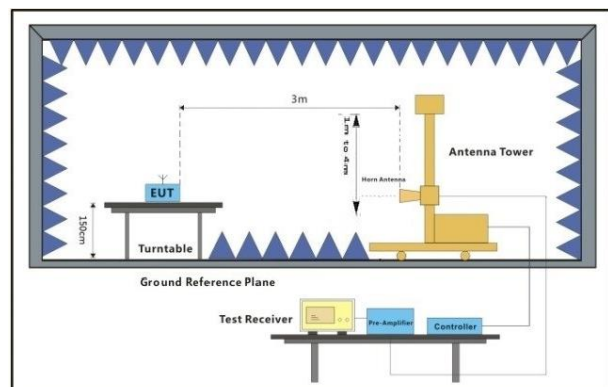


Figure 2. Above 1 GHz

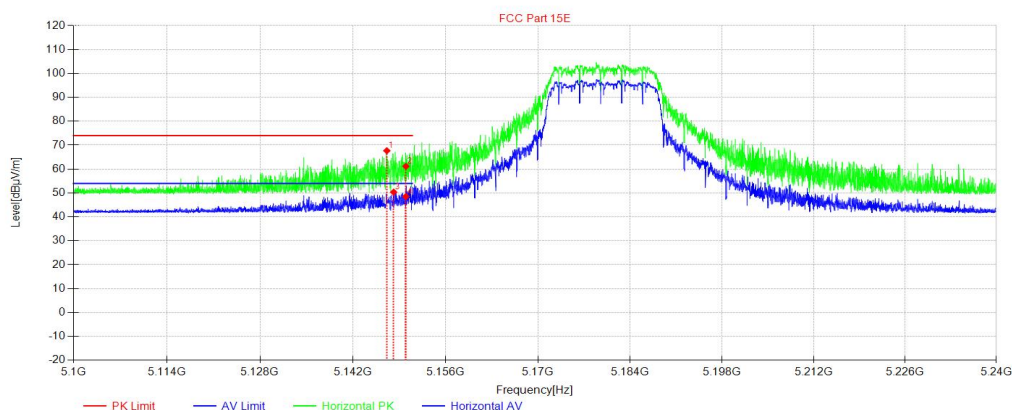


Test Procedure:	- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. - For above 1GHz, the EUT was placed on the top of a rotating 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. - 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. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - 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 - Test the EUT in the lowest channel , the Highest channel - 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. - Repeat above procedures until all frequencies measured was complete.
Test Configuration:	Measurements Below 1000MHz • RBW = 120 kHz • VBW = 300 kHz • Detector = Peak • Trace mode = max hold Peak Measurements Above 1000 MHz • RBW = 1 MHz • VBW $\geq$ 3 MHz • Detector = Peak • Sweep time = auto • Trace mode = max hold Average Measurements Above 1000MHz • 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.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates. Transmitting mode.
Final Test Mode:	Pretest the EUT at Charge + Transmitting mode. Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20) ; MCS0 of rate is the worst case of 802.11n(HT40); Only the worst case is recorded in the report.
Instruments Used:	Refer to section 2.9 for details
Test Results:	Pass



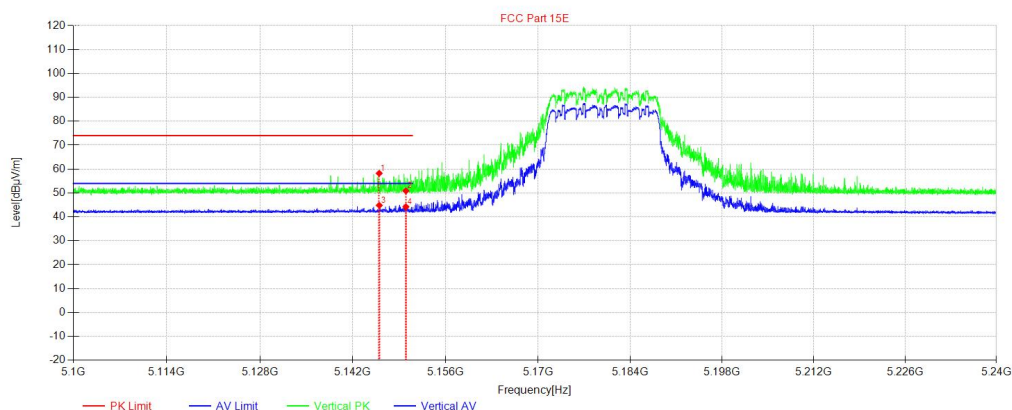
Test Date
11A 5180MHz

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5147.13	62.68	5.00	67.68	74.00	5.82	150	117	PK
2	5150.01	56.12	5.01	61.13	74.00	12.87	150	2	PK
3	5148.16	45.35	5.01	50.36	54.00	3.64	150	106	AV
4	5150.01	43.52	5.01	48.53	54.00	5.47	150	325	AV

Vertical:

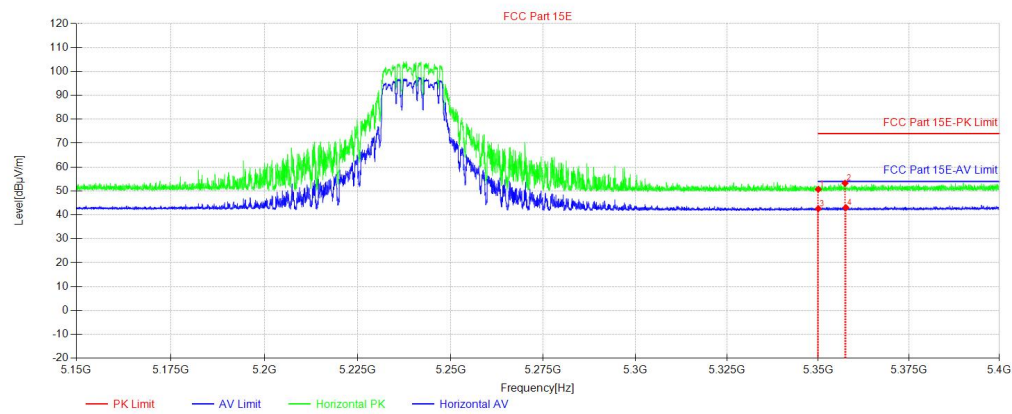


NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5145.98	53.22	5.00	58.22	74.00	15.78	150	156	PK
2	5150.01	45.85	5.01	50.86	74.00	23.14	150	100	PK
3	5145.99	39.81	5.00	44.81	54.00	9.19	150	156	AV
4	5150.01	39.19	5.01	44.20	54.00	9.80	150	199	AV



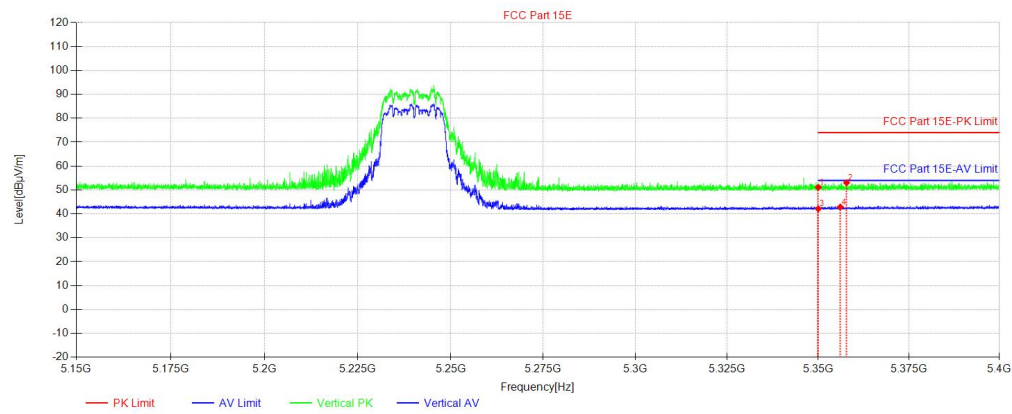
11A 5240MHz

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5350.02	45.55	5.15	50.70	74.00	23.30	150	279	PK
2	5357.37	48.09	5.14	53.23	74.00	20.77	150	258	PK
3	5350.02	37.43	5.15	42.58	54.00	11.42	150	312	AV
4	5357.59	37.90	5.14	43.04	54.00	10.96	150	334	AV

Vertical:

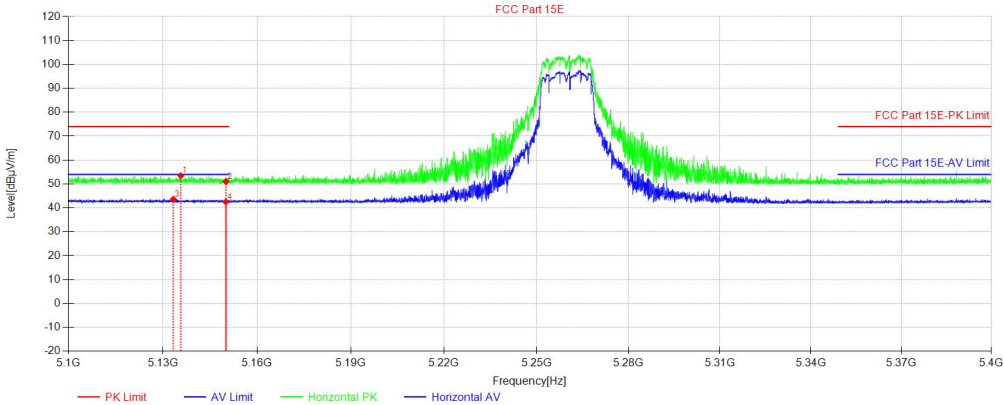


NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5350.02	45.96	5.15	51.11	74.00	22.89	150	146	PK
2	5357.79	47.89	5.14	53.03	74.00	20.97	150	346	PK
3	5350.02	36.99	5.15	42.14	54.00	11.86	150	268	AV
4	5356.07	37.72	5.14	42.86	54.00	11.14	150	212	AV



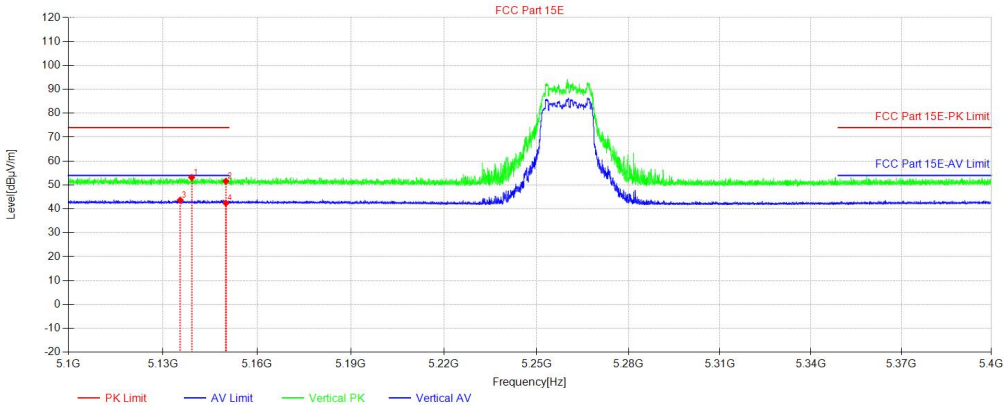
11A 5260MHz

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5135.64	48.50	4.97	53.47	74.00	20.53	150	337	PK
2	5150.01	45.99	5.01	51.00	74.00	23.00	150	122	PK
3	5133.31	38.66	4.97	43.63	54.00	10.37	150	135	AV
4	5150.01	37.49	5.01	42.50	54.00	11.50	150	62	AV

Vertical:

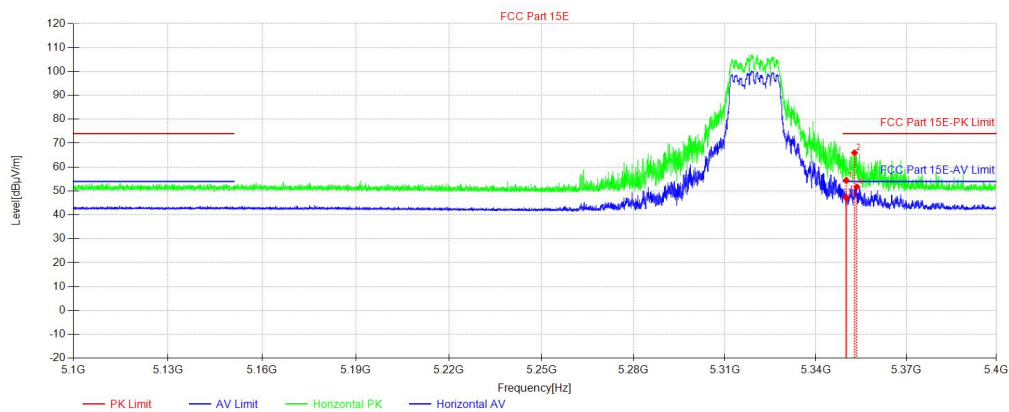


NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5139.12	48.14	4.98	53.12	74.00	20.88	150	58	PK
2	5150.01	46.57	5.01	51.58	74.00	22.42	150	34	PK
3	5135.46	38.67	4.97	43.64	54.00	10.36	150	167	AV
4	5150.01	37.39	5.01	42.40	54.00	11.60	150	69	AV



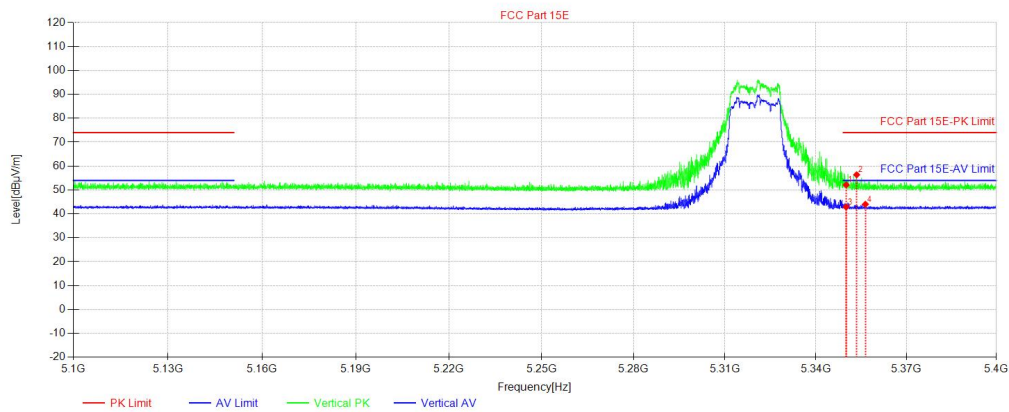
11A 5320MHz

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5350.01	49.30	5.15	54.45	74.00	19.55	150	360	PK
2	5352.77	60.84	5.15	65.99	74.00	8.01	150	91	PK
3	5350.01	42.07	5.15	47.22	54.00	6.78	150	69	AV
4	5353.55	46.57	5.14	51.71	54.00	2.29	150	101	AV

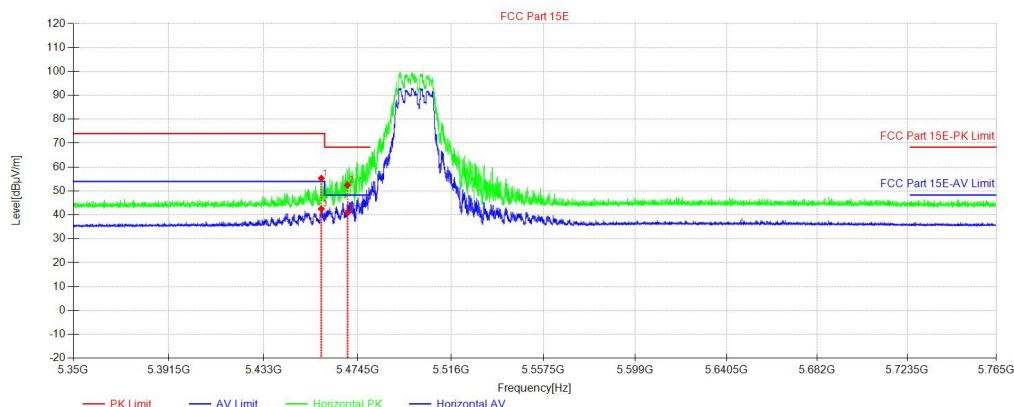
Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5350.01	46.97	5.15	52.12	74.00	21.88	150	18	PK
2	5353.49	51.23	5.14	56.37	74.00	17.63	150	207	PK
3	5350.01	37.73	5.15	42.88	54.00	11.12	150	160	AV
4	5356.37	38.87	5.14	44.01	54.00	9.99	150	160	AV

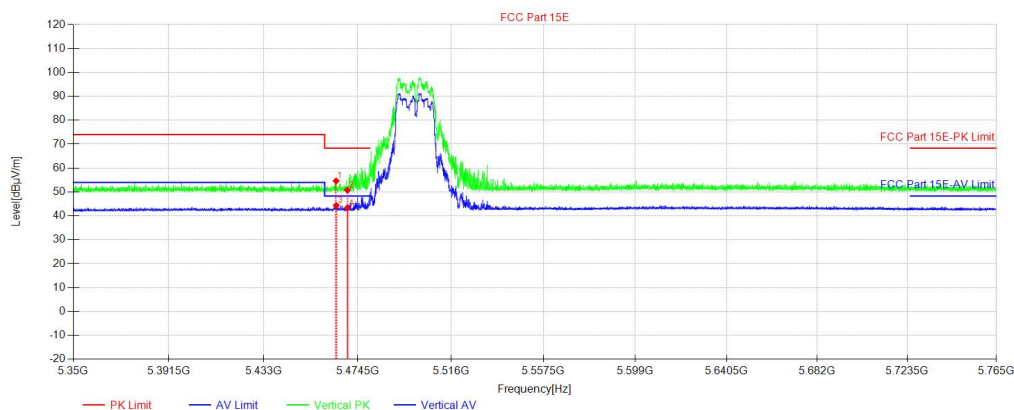
**11A 5500MHz**

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5458.49	50.27	5.03	55.30	74.00	18.70	150	101	PK
2	5470.03	47.39	5.04	52.43	68.30	15.87	150	124	PK
3	5458.49	37.44	5.03	42.47	54.00	11.53	150	101	AV
4	5470.03	35.77	5.04	40.81	48.30	7.49	150	134	AV

Vertical:

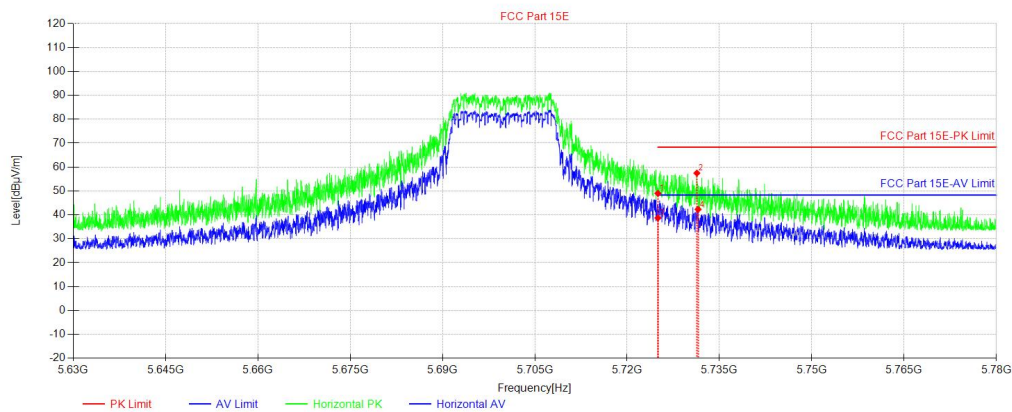


NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5465.04	49.57	5.04	54.61	68.30	13.69	150	203	PK
2	5470.03	45.72	5.04	50.76	68.30	17.54	150	37	PK
3	5465.09	39.32	5.04	44.36	48.30	3.94	150	203	AV
4	5470.03	38.27	5.04	43.31	48.30	4.99	150	179	AV



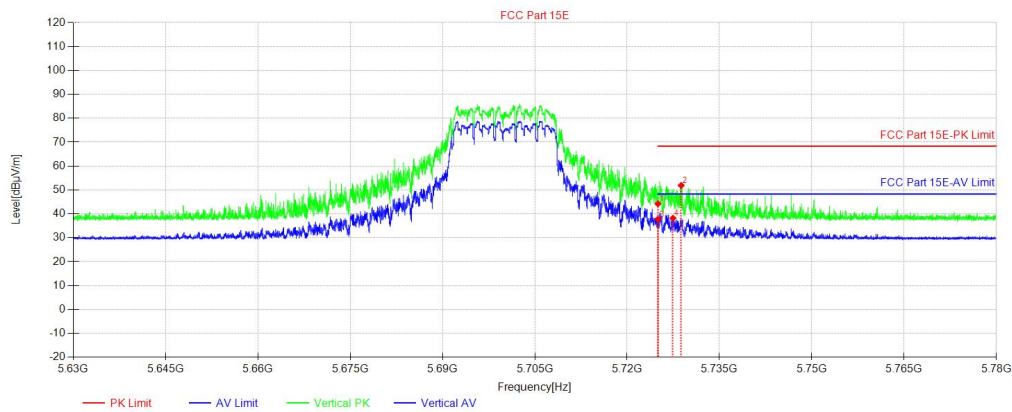
11A 5700MHz

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5725.00	43.78	5.21	48.99	68.30	19.31	150	116	PK
2	5731.33	52.24	5.23	57.47	68.30	10.83	150	105	PK
3	5725.00	33.49	5.21	38.70	48.30	9.60	150	215	AV
4	5731.53	37.08	5.23	42.31	48.30	5.99	150	91	AV

Vertical:

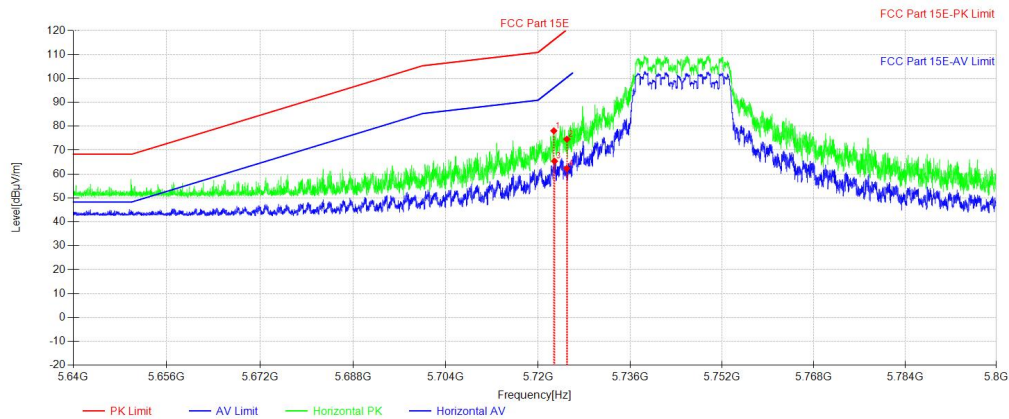


NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5725.00	39.02	5.21	44.23	68.30	24.07	150	186	PK
2	5728.78	46.68	5.22	51.90	68.30	16.40	150	208	PK
3	5725.00	32.54	5.21	37.75	48.30	10.55	150	186	AV
4	5727.44	32.95	5.22	38.17	48.30	10.13	150	219	AV



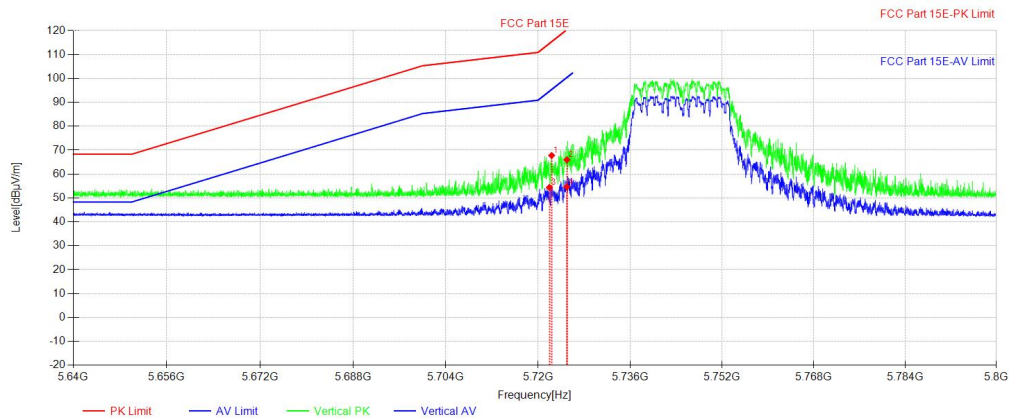
11A 5745MHz

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5722.74	72.88	5.20	78.08	116.11	38.03	150	96	PK
2	5725.00	69.37	5.21	74.58	120.40	45.82	150	86	PK
3	5722.85	60.20	5.20	65.40	96.33	30.93	150	96	AV
4	5725.00	57.17	5.21	62.38	100.40	38.02	150	86	AV

Vertical:

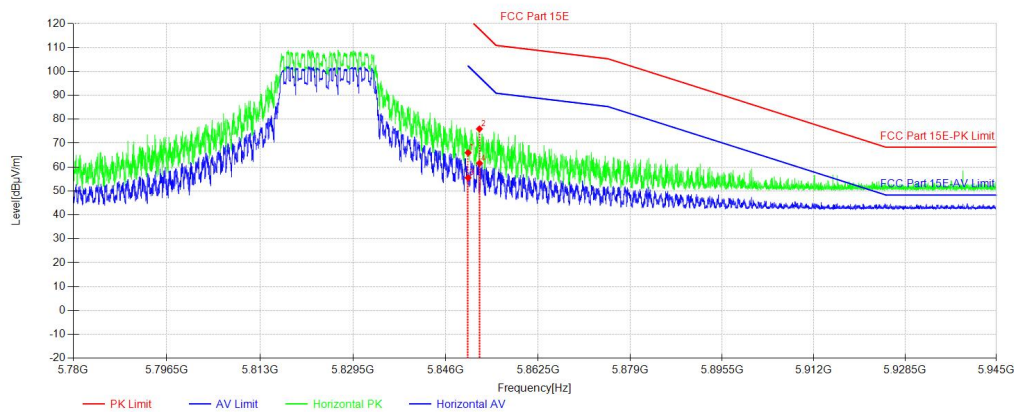


NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5722.36	62.59	5.20	67.79	115.38	47.59	150	198	PK
2	5725.00	60.77	5.21	65.98	120.40	54.42	150	218	PK
3	5721.97	49.21	5.20	54.41	94.65	40.24	150	186	AV
4	5725.00	49.44	5.21	54.65	100.40	45.75	150	218	AV



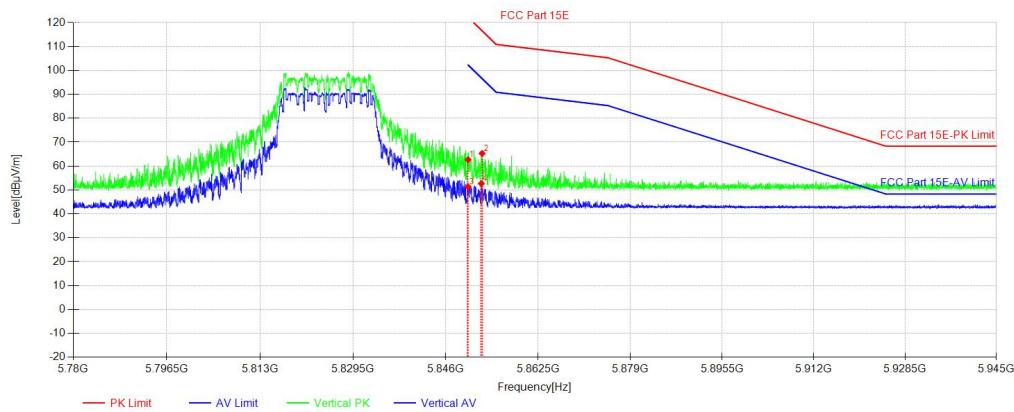
11A 5825MHz

Horizontal:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5850.000	60.49	5.50	65.99	122.30	56.31	150	240	PK
2	5852.029	70.46	5.50	75.96	117.67	41.71	150	105	PK
3	5850.000	49.99	5.50	55.49	102.30	46.81	150	44	AV
4	5852.046	56.10	5.50	61.60	97.63	36.03	150	105	AV

Vertical:



NO.	Freq. [MHz]	Reading Level [dBμV]	Correct Factor [dB/m]	Result Level [dBμV/m]	AV Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5850.00	57.15	5.50	62.65	122.30	59.65	150	203	PK
2	5852.50	59.77	5.51	65.28	116.58	51.30	150	203	PK
3	5850.00	45.81	5.50	51.31	102.30	50.99	150	203	AV
4	5852.35	47.15	5.51	52.66	96.92	44.26	150	203	AV

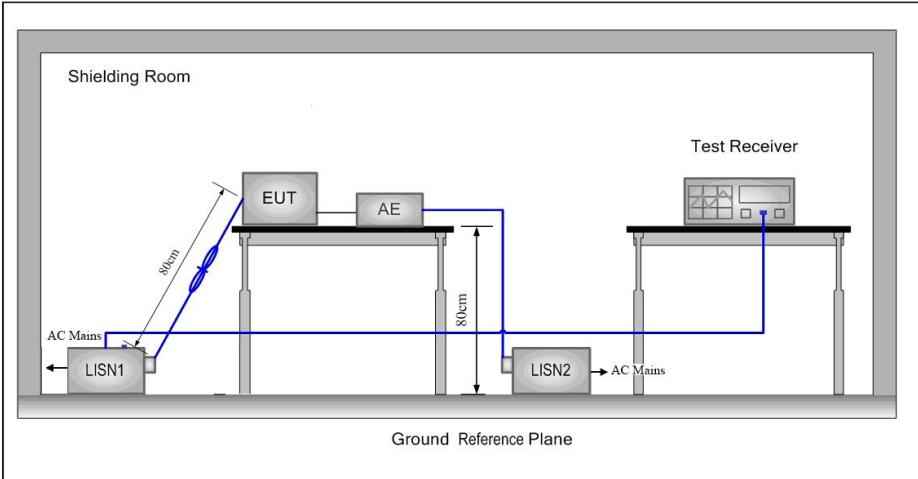
1. The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe including Ant.Factor and the Cable Factor etc.), The basic equation is as follows:

Result Level= Reading Level + Correct Factor(including Ant.Factor, Cable Factor etc.)

2. All channels had been pre-test, 802.11a is the worst case, only the worst case was reported.



3.10 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15 Section 15.407(b)		
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 $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 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.		
Test Setup:			
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.		



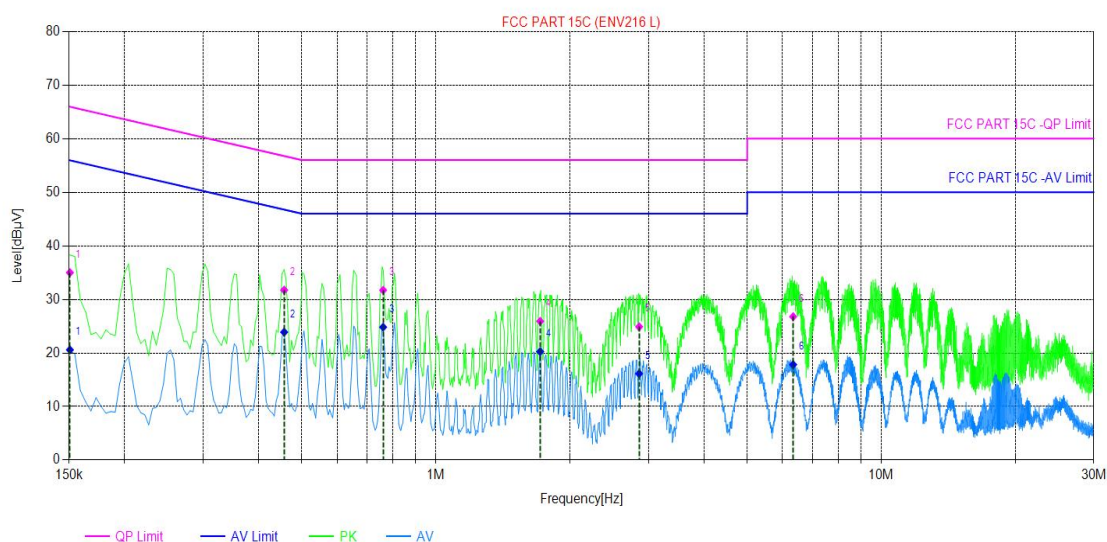
	Charge + Transmitting mode.
Final Test Mode:	Through Pre-scan, find the 6.5Mbps of rate of 802.11n(HT20) at lowest channel is the worst case. Charge + Transmitting mode. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 2.9 for details
Test Results:	Pass

Measurement Data

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

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

Live Line:

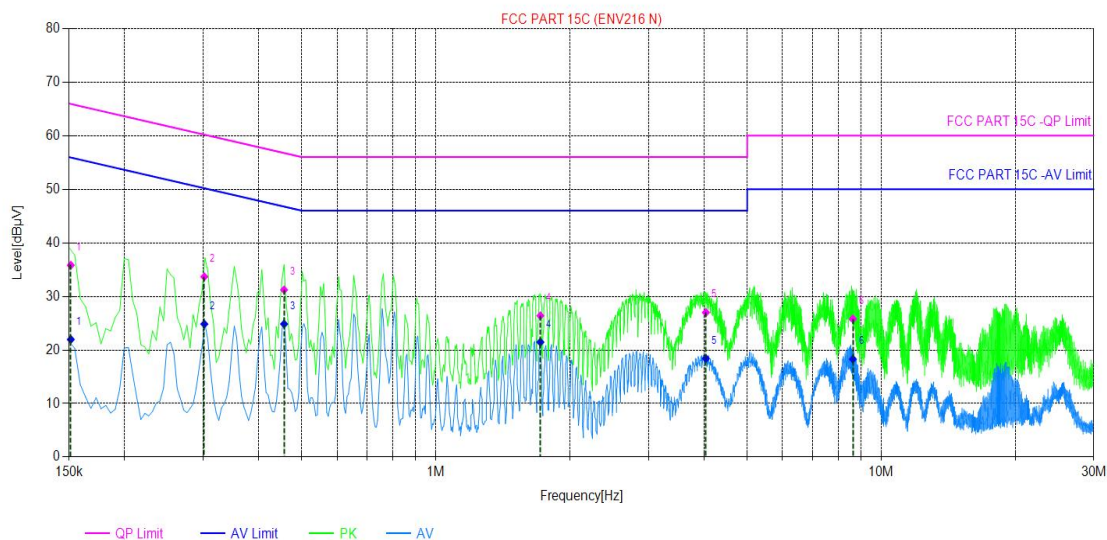


Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.1507	9.89	35.00	65.96	30.96	20.58	55.96	35.38	PASS
2	0.4563	9.83	31.74	56.76	25.02	23.89	46.76	22.87	PASS
3	0.7611	9.75	31.72	56.00	24.28	24.82	46.00	21.18	PASS
4	1.7141	9.73	25.91	56.00	30.09	20.25	46.00	25.75	PASS
5	2.8600	9.74	24.89	56.00	31.11	16.14	46.00	29.86	PASS
6	6.3409	9.84	26.78	60.00	33.22	17.82	50.00	32.18	PASS



Neutral Line:



Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.1514	9.79	35.82	65.92	30.10	21.96	55.92	33.96	PASS
2	0.3019	9.88	33.67	60.19	26.52	24.84	50.19	25.35	PASS
3	0.4561	9.78	31.22	56.76	25.54	24.84	46.76	21.92	PASS
4	1.7162	9.75	26.39	56.00	29.61	21.46	46.00	24.54	PASS
5	4.0378	9.96	27.00	56.00	29.00	18.40	46.00	27.60	PASS
6	8.6345	9.88	25.79	60.00	34.21	18.29	50.00	31.71	PASS

Remark:

1. The 802.11A is the worse case.
2. The following Quasi-Peak and Average measurements were performed on the EUT:
3. The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe including LISN Factor and the Cable Factor etc.), The basic equation is as follows:

Result Level= Reading Level + Correct Factor(including LISN Factor, Cable Factor etc.)



4 Appendix

Appendix A: Duty Cycle

Test Result

TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11A	Ant1	5180	1.36	11.38	11.95	---	---
		5200	1.36	11.39	11.94	---	---
		5240	1.36	12.21	11.14	---	---
		5260	1.36	11.39	11.94	---	---
		5280	1.36	11.39	11.94	---	---
		5320	1.38	11.41	12.09	---	---
		5500	1.37	11.39	12.03	---	---
		5580	1.38	11.39	12.12	---	---
		5700	1.36	11.39	11.94	---	---
		5745	1.36	11.39	11.94	---	---
		5785	1.38	11.39	12.12	---	---
		5825	1.36	11.39	11.94	---	---
11N20SISO	Ant1	5180	1.29	11.32	11.40	---	---
		5200	1.27	11.30	11.24	---	---
		5240	1.27	12.20	10.41	---	---
		5260	1.28	11.31	11.32	---	---
		5280	1.27	11.30	11.24	---	---
		5320	1.27	11.30	11.24	---	---
		5500	1.27	11.30	11.24	---	---
		5580	1.27	11.29	11.25	---	---
		5700	1.27	11.30	11.24	---	---
		5745	1.27	11.30	11.24	---	---
		5785	1.27	11.30	11.24	---	---
		5825	1.28	11.43	11.20	---	---
11N40SISO	Ant1	5190	0.65	10.68	6.09	---	---
		5230	0.63	10.84	5.81	---	---
		5270	0.63	10.66	5.91	---	---
		5310	0.63	10.66	5.91	---	---
		5510	0.63	10.66	5.91	---	---
		5550	0.65	10.66	6.10	---	---
		5670	0.63	10.66	5.91	---	---
		5755	0.65	10.66	6.10	---	---
		5795	0.63	10.66	5.91	---	---
11AC20SISO	Ant1	5180	1.30	11.31	11.49	---	---
		5200	1.28	11.31	11.32	---	---
		5240	1.29	11.32	11.40	---	---
		5260	1.29	11.32	11.40	---	---
		5280	1.28	11.31	11.32	---	---
		5320	1.29	11.32	11.40	---	---
		5500	1.29	11.32	11.40	---	---
		5580	1.28	11.31	11.32	---	---
		5700	1.27	11.30	11.24	---	---
		5745	1.28	11.31	11.32	---	---
		5785	1.00	11.03	9.07	---	---
		5825	1.00	11.03	9.07	---	---
11AC40SISO	Ant1	5190	0.63	10.66	5.91	---	---
		5230	0.65	10.68	6.09	---	---
		5270	0.63	10.66	5.91	---	---
		5310	0.63	10.66	5.91	---	---
		5510	0.63	10.66	5.91	---	---
		5550	0.65	10.66	6.10	---	---
		5670	0.65	10.68	6.09	---	---



		5755	0.63	10.66	5.91	---	---
		5795	0.65	10.68	6.09	---	---
11AX20SIS O	Ant1	5180	1.00	11.02	9.07	---	---
		5200	1.00	11.03	9.07	---	---
		5240	1.00	11.01	9.08	---	---
		5260	1.00	11.01	9.08	---	---
		5280	1.00	11.03	9.07	---	---
		5320	1.00	11.03	9.07	---	---
		5500	0.98	11.01	8.90	---	---
		5580	1.00	11.03	9.07	---	---
		5700	1.00	11.03	9.07	---	---
		5745	1.00	11.03	9.07	---	---
		5785	1.00	11.03	9.07	---	---
		5825	1.00	11.01	9.08	---	---
11AX40SIS O	Ant1	5190	0.52	10.55	4.93	---	---
		5230	0.55	10.56	5.21	---	---
		5270	0.53	10.56	5.02	---	---
		5310	0.54	10.57	5.11	---	---
		5510	0.54	10.55	5.12	---	---
		5550	0.53	10.56	5.02	---	---
		5670	0.53	10.56	5.02	---	---
		5755	0.53	10.54	5.03	---	---
		5795	0.52	10.55	4.93	---	---