

7.5. Transmit Power Control

7.5.1. Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

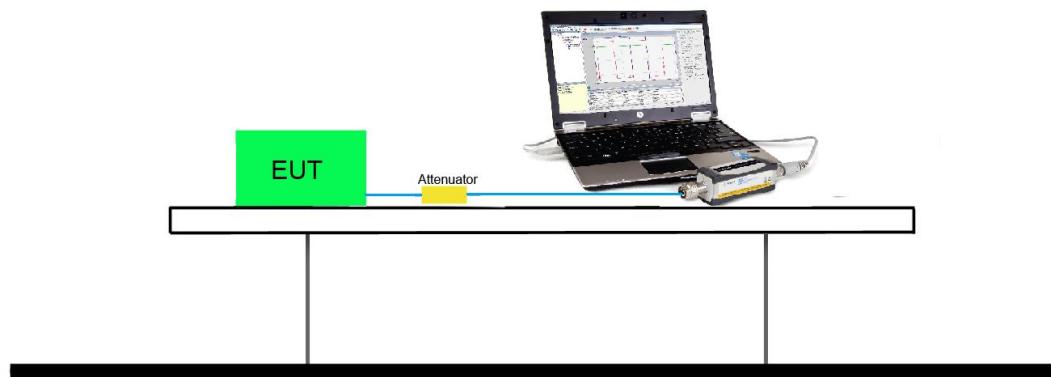
7.5.2. Test Procedure Used

KDB 789033 D02v01r03 - Section E) 3) b) Method PM-G

7.5.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

7.5.4. Test Setup



7.5.5. Test Result

The device only supports band I, so the test item need not be performed.

7.6. Power Spectral Density Measurement

7.6.1. Test Limit

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

5150~5250MHz: Limit (dBm/MHz) = 17dBm/MHz - (7.02dBi - 6dBi) = 15.98dBm/MHz

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

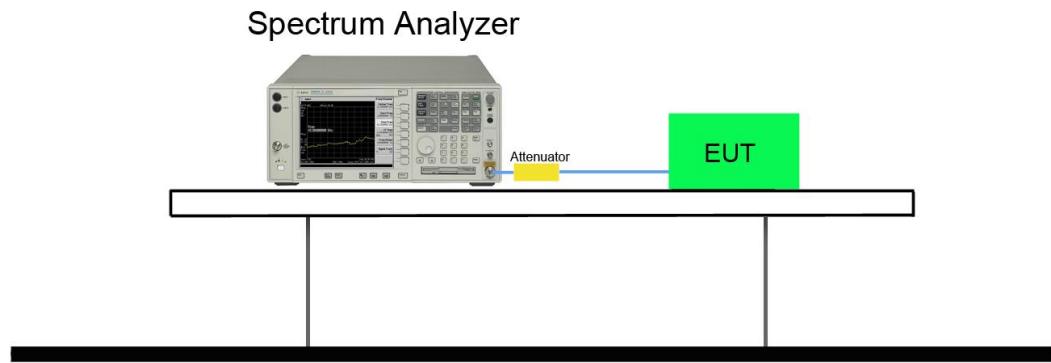
7.6.2. Test Procedure Used

KDB 789033 D02v01r03 - Section F

7.6.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz,
RBW = 100 kHz
4. VBW = 3MHz
5. Number of sweep points $\geq 2 \times (\text{span} / \text{RBW})$
6. Detector = power averaging (Average)
7. Sweep time = auto
8. Trigger = free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add $10 \cdot \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \cdot \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.

7.6.4. Test Setup

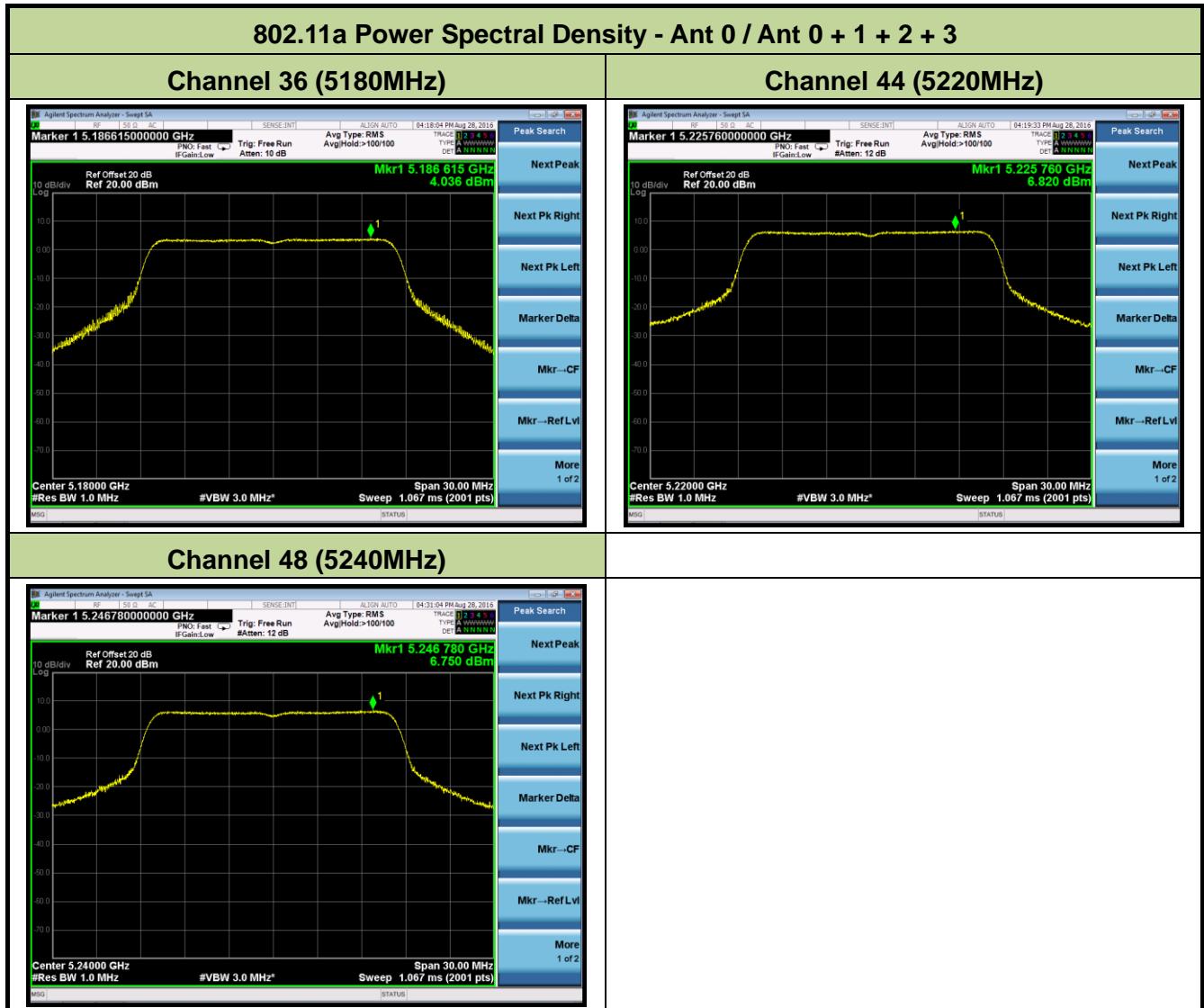


7.6.5. Test Result

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Ant 2 PSD (dBm/MHz)	Ant 3 PSD (dBm/MHz)	Duty Cycle (%)	Total PSD (dBm/MHz)	PSD Limit (dBm/MHz)	Result
11a	6	36	5180	4.04	4.33	3.50	4.35	0.98	10.09	≤ 15.98	Pass
11a	6	44	5220	6.82	6.93	6.94	6.69	0.98	12.87	≤ 15.98	Pass
11a	6	48	5240	6.75	6.88	6.69	6.65	0.98	12.76	≤ 15.98	Pass
11n-HT20	26	36	5180	3.80	4.02	3.06	3.59	0.98	9.65	≤ 15.98	Pass
11n-HT20	26	44	5220	6.54	6.83	5.41	6.47	0.98	12.37	≤ 15.98	Pass
11n-HT20	26	48	5240	6.44	6.58	5.81	6.53	0.98	12.37	≤ 15.98	Pass
11n-HT40	54	38	5190	-2.78	-2.55	-3.49	-2.65	0.97	3.29	≤ 15.98	Pass
11n-HT40	54	46	5230	3.69	4.15	3.32	3.62	0.97	9.85	≤ 15.98	Pass
11ac-VHT80	117.2	42	5210	-5.83	-5.10	-6.28	-5.57	0.95	0.59	≤ 15.98	Pass

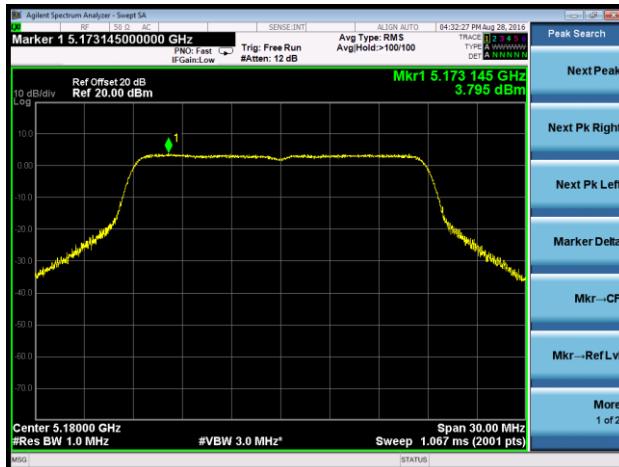
Note 1: When EUT duty cycle ≥ 98%, the Total PSD (dBm/MHz) = $10^{\log\{10^{(Ant\ 0\ PSD/10)} + 10^{(Ant\ 1\ PSD/10)} + 10^{(Ant\ 2\ PSD/10)} + 10^{(Ant\ 3\ PSD/10)}\}}$.

Note 2: When EUT duty cycle < 98%, the Total PSD (dBm/MHz) = $10^{\log\{10^{(Ant\ 0\ PSD/10)} + 10^{(Ant\ 1\ PSD/10)} + 10^{(Ant\ 2\ PSD/10)} + 10^{(Ant\ 3\ PSD/10)}\}} + 10^{\log(1/\text{Duty Cycle})}$.



802.11n-HT20 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 36 (5180MHz)



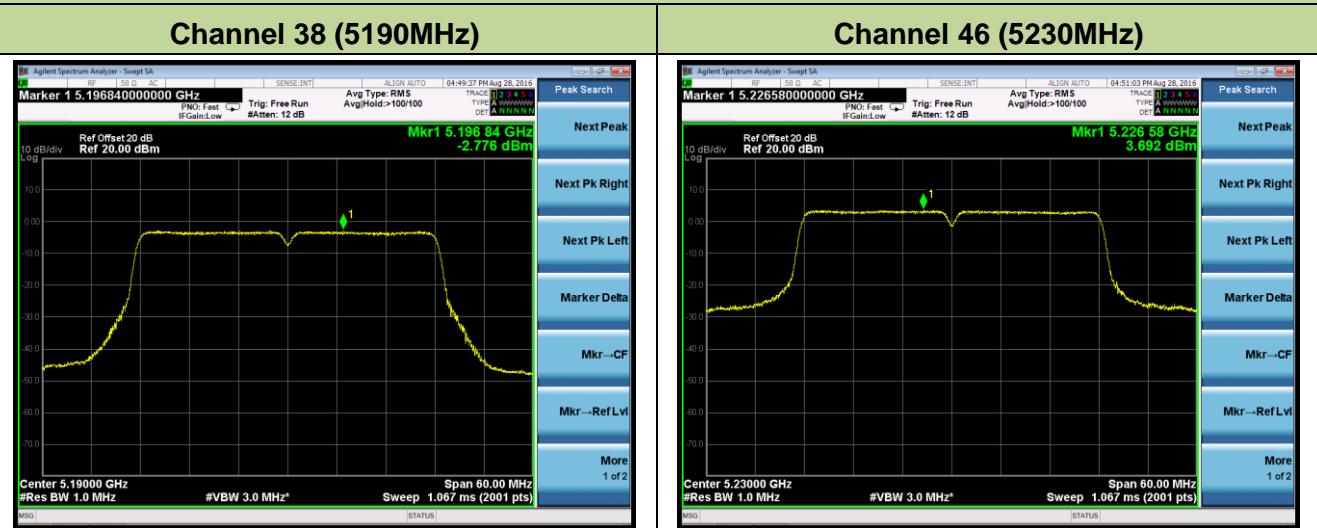
Channel 44 (5220MHz)



Channel 48 (5240MHz)



802.11n-HT40 Power Spectral Density - Ant 0 / Ant Ant 0 + 1 + 2 + 3

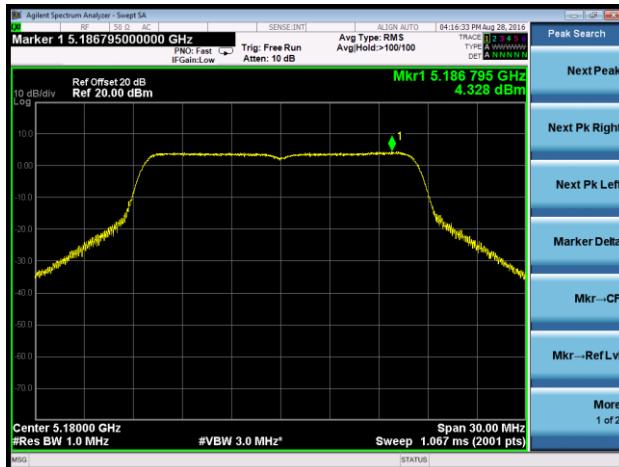


802.11ac-VHT80 Power Spectral Density - Ant 0 / Ant Ant 0 + 1 + 2 + 3

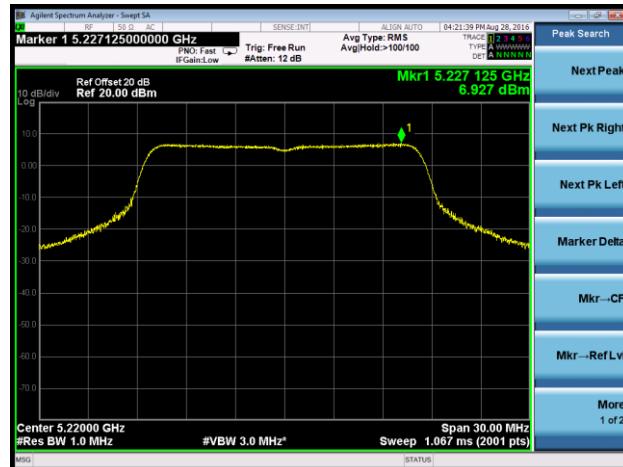


802.11a Power Spectral Density - Ant 1 / Ant Ant 0 + 1 + 2 + 3

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



802.11n-HT20 Power Spectral Density - Ant 1 / Ant Ant 0 + 1 + 2 + 3

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



802.11n-HT40 Power Spectral Density - Ant 1 / Ant Ant 0 + 1 + 2 + 3

Channel 38 (5190MHz)



Channel 46 (5230MHz)



802.11ac-VHT80 Power Spectral Density - Ant 1 / Ant Ant 0 + 1 + 2 + 3

Channel 42 (5210MHz)



802.11a Power Spectral Density - Ant 2 / Ant Ant 0 + 1 + 2 + 3

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



802.11n-HT20 Power Spectral Density - Ant 2 / Ant Ant 0 + 1 + 2 + 3

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)



802.11n-HT40 Power Spectral Density - Ant 2 / Ant Ant 0 + 1 + 2 + 3

Channel 38 (5190MHz)



Channel 46 (5230MHz)



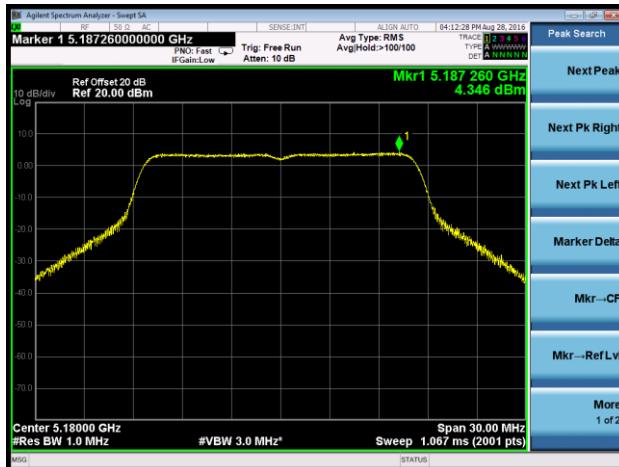
802.11ac-VHT80 Power Spectral Density - Ant 2 / Ant Ant 0 + 1 + 2 + 3

Channel 42 (5210MHz)

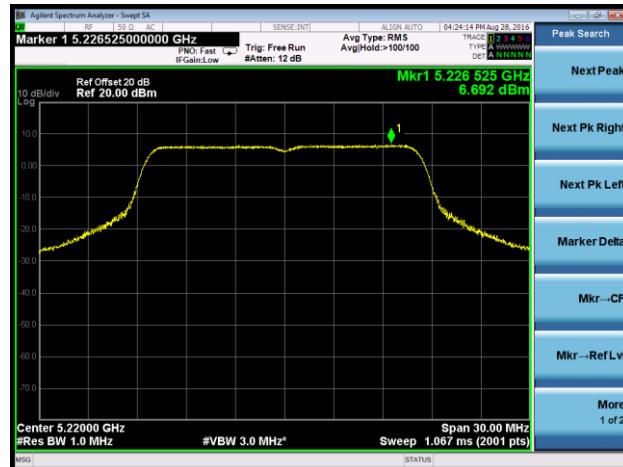


802.11a Power Spectral Density - Ant 3 / Ant Ant 0 + 1 + 2 + 3

Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)

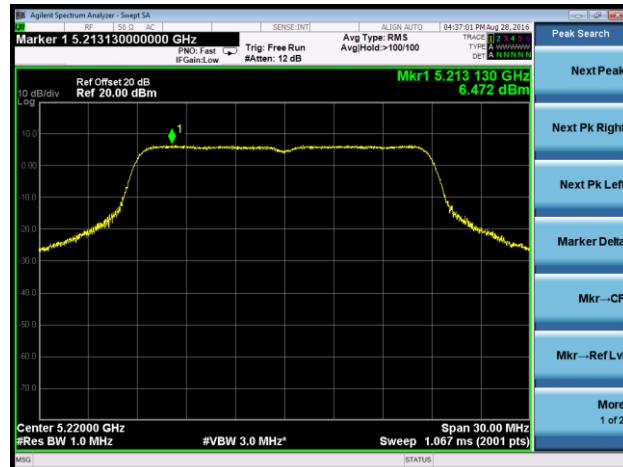


802.11n-HT20 Power Spectral Density - Ant 3 / Ant Ant 0 + 1 + 2 + 3

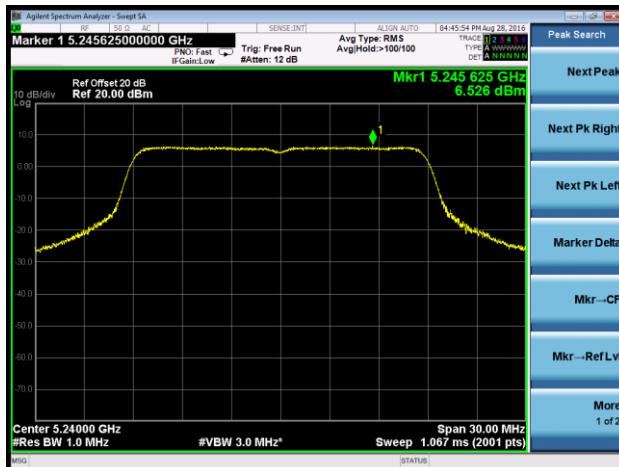
Channel 36 (5180MHz)



Channel 44 (5220MHz)



Channel 48 (5240MHz)

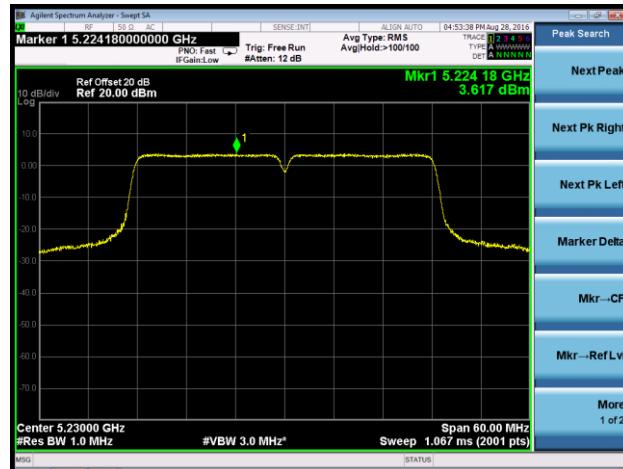


802.11n-HT40 Power Spectral Density - Ant 3 / Ant Ant 0 + 1 + 2 + 3

Channel 38 (5190MHz)



Channel 46 (5230MHz)



802.11ac-VHT80 Power Spectral Density - Ant 3 / Ant Ant 0 + 1 + 2 + 3

Channel 42 (5210MHz)



7.7. Frequency Stability Measurement

7.7.1. Test Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

7.7.2. Test Procedure Used

Frequency Stability under Temperature Variations:

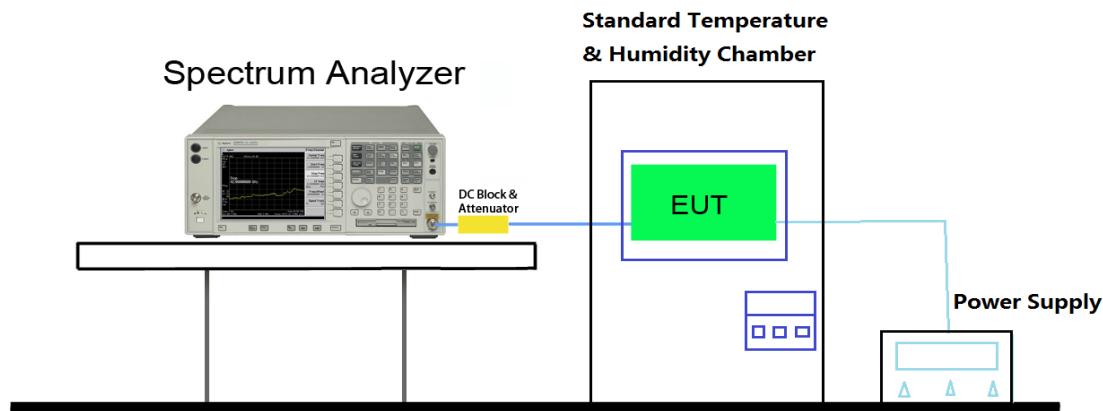
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

7.7.3. Test Setup



7.7.4. Test Result

Test Engineer	Roy Cheng	Temperature	-30 ~ 50°C
Test Time	2016/08/28	Relative Humidity	52%RH

Voltage (%)	Power (VAC)	Temp (°C)	Frequency Tolerance (ppm)			
			0 minutes	2 minutes	5 minutes	10 minutes
100%	120	- 30	6.39	4.73	3.02	3.49
		- 20	-3.45	-4.29	4.78	3.13
		- 10	4.57	3.93	2.62	-1.90
		0	4.89	-5.60	-6.40	2.67
		+ 10	-4.10	2.03	-3.79	-3.73
		+ 20 (Ref)	3.65	5.17	3.11	4.29
		+ 30	-5.39	-5.57	2.33	2.41
		+ 40	4.76	3.05	2.29	6.22
		+ 50	-4.23	2.59	-2.57	-2.38
115%	138	+ 20	4.15	4.25	3.92	3.31
85%	102	+ 20	3.68	3.52	-2.82	0.63

Note: Frequency Tolerance (ppm) = {[Measured Frequency (Hz) - Declared Frequency (Hz)] / Declared Frequency (Hz)} *10⁶.

7.8. Radiated Spurious Emission Measurement

7.8.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.8.2. Test Procedure Used

KDB 789033 D02v01r03 - Section G

7.8.3. Test Setting

Peak Measurements above 1GHz

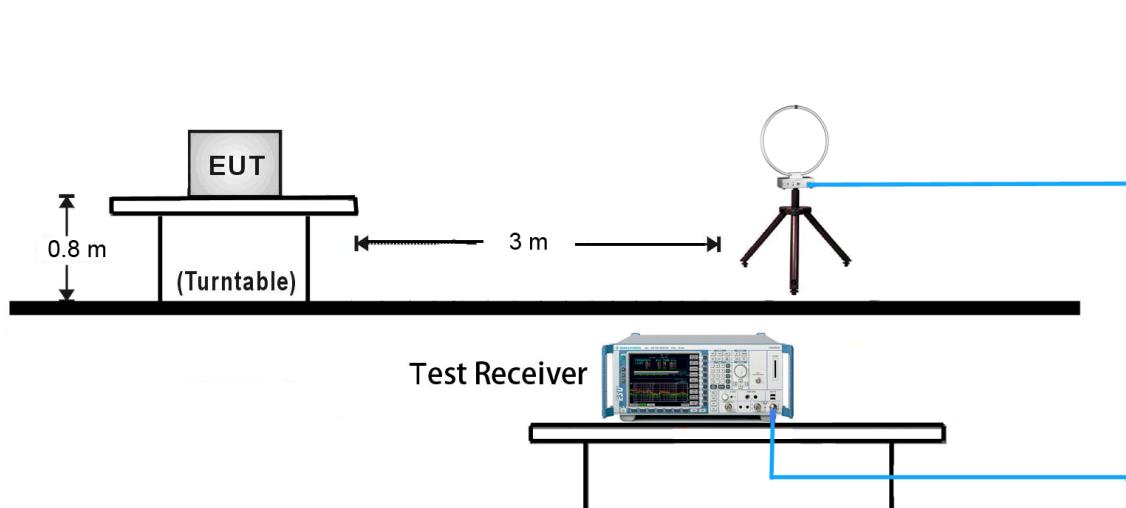
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

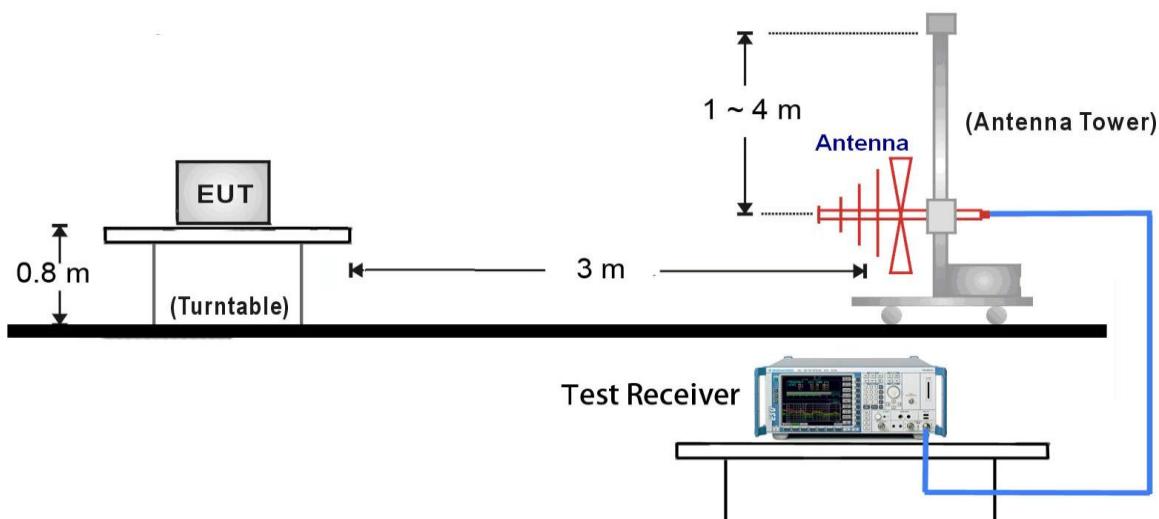
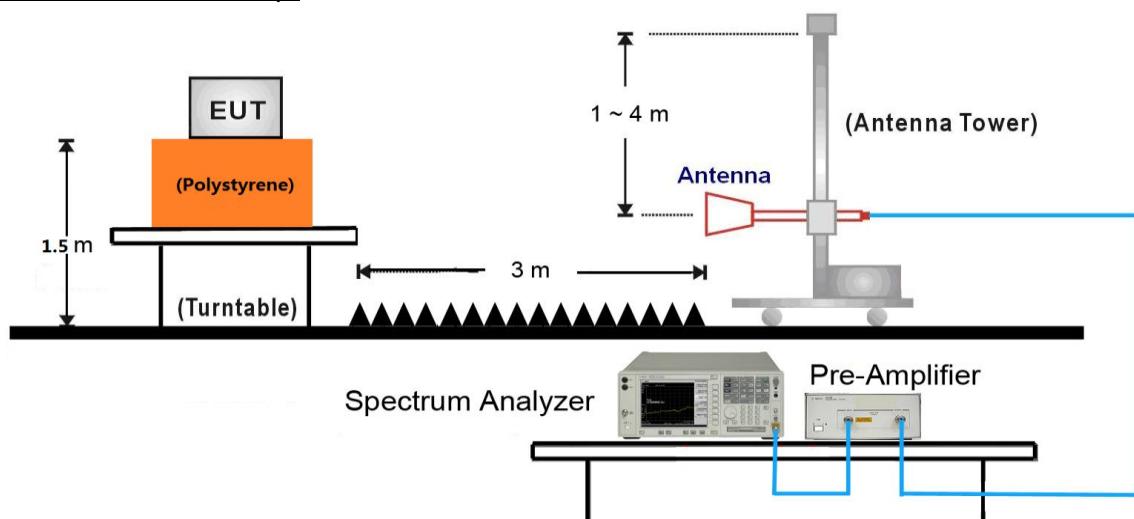
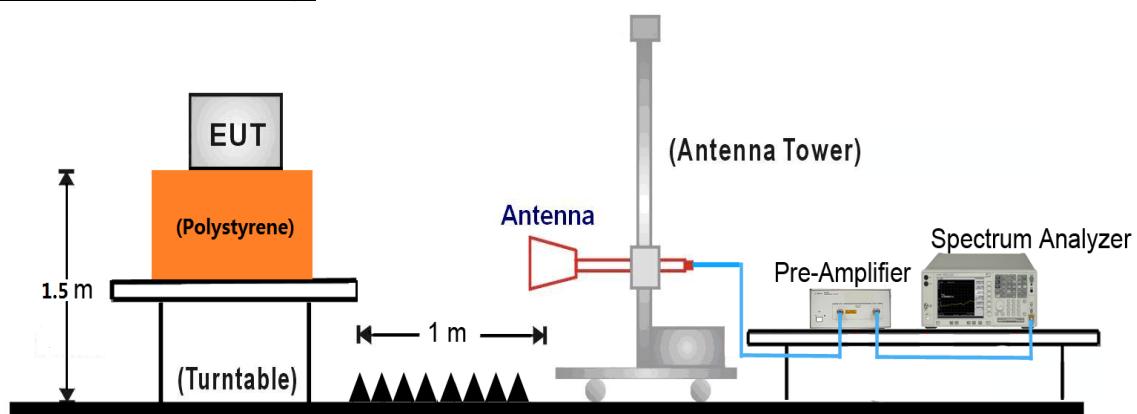
Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120 kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Average Measurements above 1GHz (Method AD)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (Average)
5. Number of measurement points = 1001 (Number of points must be > 2 x span/RBW)
6. Sweep time = auto
7. Trace was averaged over at 100 sweeps

7.8.4. Test Setup**9kHz ~ 30MHz Test Setup:**

30MHz ~ 1GHz Test Setup:

1GHz ~18GHz Test Setup:

18GHz ~40GHz Test Setup:


7.8.5. Test Result

Test Mode:	802.11a	Test Site:	AC1
Test Channel:	36	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	7239.0	44.5	7.8	52.3	68.2	-15.9	Peak	Horizontal
	8089.0	35.7	8.6	44.3	74.0	-29.7	Peak	Horizontal
*	10367.0	37.7	12.2	49.9	68.2	-18.3	Peak	Horizontal
	11633.5	34.4	12.4	46.8	74.0	-27.2	Peak	Horizontal
*	7239.0	42.7	7.8	50.5	68.2	-17.7	Peak	Vertical
	8046.5	36.9	8.8	45.7	74.0	-28.3	Peak	Vertical
*	10358.5	41.1	12.2	53.3	68.2	-14.9	Peak	Vertical
	11531.5	35.1	12.7	47.8	74.0	-26.2	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11a	Test Site:	AC1
Test Channel:	44	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	6329.5	35.0	5.0	40.0	68.2	-28.2	Peak	Horizontal
	9364.0	34.2	10.5	44.7	74.0	-29.3	Peak	Horizontal
*	10452.0	45.2	12.0	57.2	68.2	-11.0	Peak	Horizontal
	15671.0	41.1	11.9	53.0	74.0	-21.0	Peak	Horizontal
*	7239.0	43.6	7.8	51.4	68.2	-16.8	Peak	Vertical
	8437.5	34.8	8.2	43.0	74.0	-31.0	Peak	Vertical
*	10443.5	52.7	12.0	64.7	68.2	-3.5	Peak	Vertical
	15622.3	45.4	12.1	57.5	74.0	-16.5	Peak	Vertical
	15622.3	30.1	12.1	42.2	54.0	-11.8	Average	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11a	Test Site:	AC1
Test Channel:	48	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	7239.0	41.6	7.8	49.4	68.2	-18.8	Peak	Horizontal
	8352.5	35.7	8.0	43.7	74.0	-30.3	Peak	Horizontal
*	10477.5	49.1	12.2	61.3	68.2	-6.9	Peak	Horizontal
	15730.5	40.0	11.8	51.8	74.0	-22.2	Peak	Horizontal
*	7239.0	45.8	7.8	53.6	68.2	-14.6	Peak	Vertical
	8352.5	35.7	8.0	43.7	74.0	-30.3	Peak	Vertical
*	10477.5	50.6	12.2	62.8	68.2	-5.4	Peak	Vertical
	15722.0	43.3	11.8	55.1	74.0	-18.9	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	36	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	7239.0	44.5	7.8	52.3	68.2	-15.9	Peak	Horizontal
	8140.0	35.5	8.5	44.0	74.0	-30.0	Peak	Horizontal
*	10358.5	37.9	12.2	50.1	68.2	-18.1	Peak	Horizontal
	11803.5	34.9	11.8	46.7	74.0	-27.3	Peak	Horizontal
*	6907.5	42.9	6.6	49.5	68.2	-18.7	Peak	Vertical
	8216.5	35.4	8.2	43.6	74.0	-30.4	Peak	Vertical
*	10367.0	39.4	12.2	51.6	68.2	-16.6	Peak	Vertical
	11480.5	33.7	12.7	46.4	74.0	-27.6	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	44	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	7239.0	44.0	7.8	51.8	68.2	-16.4	Peak	Horizontal
	8208.0	35.0	8.3	43.3	74.0	-30.7	Peak	Horizontal
*	10435.0	40.6	12.0	52.6	68.2	-15.6	Peak	Horizontal
	15662.5	38.6	12.0	50.6	74.0	-23.4	Peak	Horizontal
*	6958.5	42.5	6.7	49.2	68.2	-19.0	Peak	Vertical
	8386.5	35.6	8.1	43.7	74.0	-30.3	Peak	Vertical
*	10443.5	48.2	12.0	60.2	68.2	-8.0	Peak	Vertical
	15662.5	40.5	12.0	52.5	74.0	-21.5	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	48	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	7239.0	39.2	7.8	47.0	68.2	-21.2	Peak	Horizontal
	8310.0	35.4	8.0	43.4	74.0	-30.6	Peak	Horizontal
*	10477.5	41.8	12.2	54.0	68.2	-14.2	Peak	Horizontal
	15722.0	39.1	11.8	50.9	74.0	-23.1	Peak	Horizontal
*	6984.0	41.4	6.8	48.2	68.2	-20.0	Peak	Vertical
	8352.5	34.4	8.0	42.4	74.0	-31.6	Peak	Vertical
*	10477.5	50.5	12.2	62.7	68.2	-5.5	Peak	Vertical
	15713.5	40.2	11.8	52.0	74.0	-22.0	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT40	Test Site:	AC1
Test Channel:	38	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	7230.5	43.8	7.8	51.6	68.2	-16.6	Peak	Horizontal
	8174.0	35.6	8.4	44.0	74.0	-30.0	Peak	Horizontal
*	10418.0	34.2	12.2	46.4	68.2	-21.8	Peak	Horizontal
	12679.0	35.5	11.5	47.0	74.0	-27.0	Peak	Horizontal
*	7239.0	51.2	7.8	59.0	68.2	-9.2	Peak	Vertical
	8029.5	35.4	8.7	44.1	74.0	-29.9	Peak	Vertical
*	9593.5	34.2	10.9	45.1	68.2	-23.1	Peak	Vertical
	11472.0	34.8	12.7	47.5	74.0	-26.5	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT40	Test Site:	AC1
Test Channel:	46	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	6975.5	37.4	6.8	44.2	68.2	-24.0	Peak	Horizontal
	8216.5	35.5	8.2	43.7	74.0	-30.3	Peak	Horizontal
*	10452.0	42.8	12.0	54.8	68.2	-13.4	Peak	Horizontal
	11557.0	33.8	12.7	46.5	74.0	-27.5	Peak	Horizontal
*	7239.0	50.9	7.8	58.7	68.2	-9.5	Peak	Vertical
	9177.0	33.8	10.0	43.8	74.0	-30.2	Peak	Vertical
*	10460.5	47.3	12.1	59.4	68.2	-8.8	Peak	Vertical
	11497.5	33.6	12.8	46.4	74.0	-27.6	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11ac-VHT80	Test Site:	AC1
Test Channel:	42	Test Engineer:	Roy Cheng
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	6185.0	35.1	4.6	39.7	68.2	-28.5	Peak	Horizontal
	8429.0	35.4	8.2	43.6	74.0	-30.4	Peak	Horizontal
*	10350.0	33.8	12.2	46.0	68.2	-22.2	Peak	Horizontal
	11880.0	35.3	11.8	47.1	74.0	-26.9	Peak	Horizontal
*	6950.0	41.3	6.7	48.0	68.2	-20.2	Peak	Vertical
	8157.0	36.5	8.4	44.9	74.0	-29.1	Peak	Vertical
*	9925.0	34.2	11.5	45.7	68.2	-22.5	Peak	Vertical
	11888.5	34.6	11.8	46.4	74.0	-27.6	Peak	Vertical

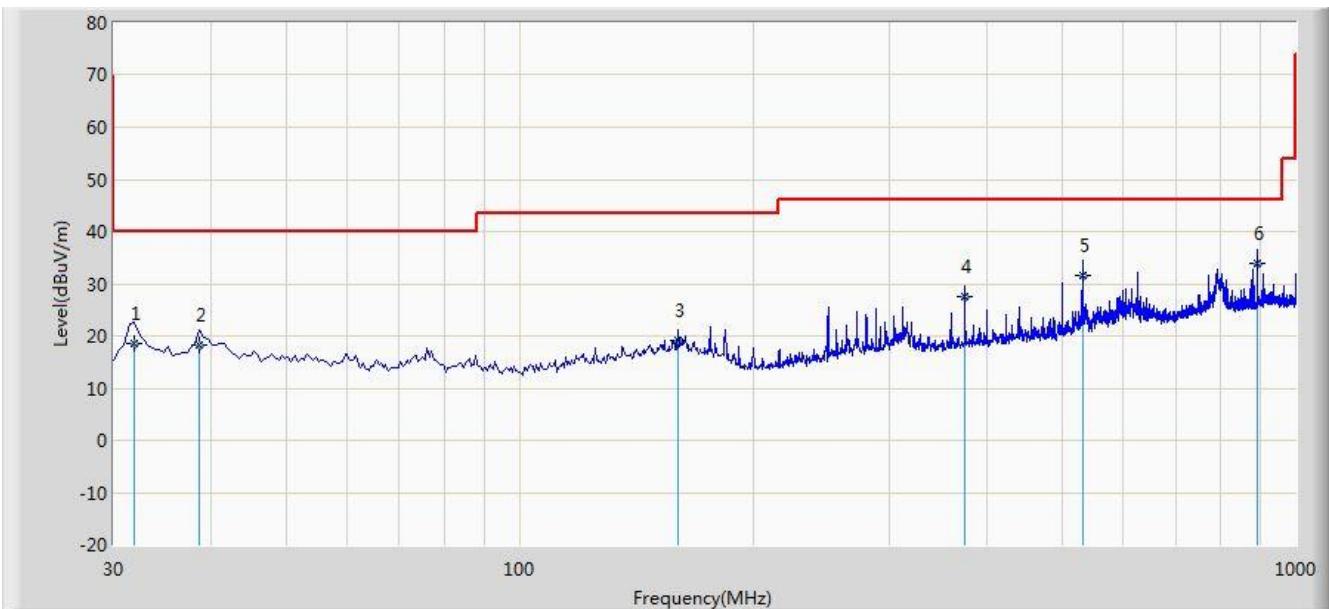
Note 1: “**” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The worst case of Radiated Emission below 1GHz:

Site: AC 1	Time: 2016/08/26 - 17:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Worst Mode: Transmit by 802.11n-HT20 at channel 5180MHz Ant 0 + 1 + 2 + 3	

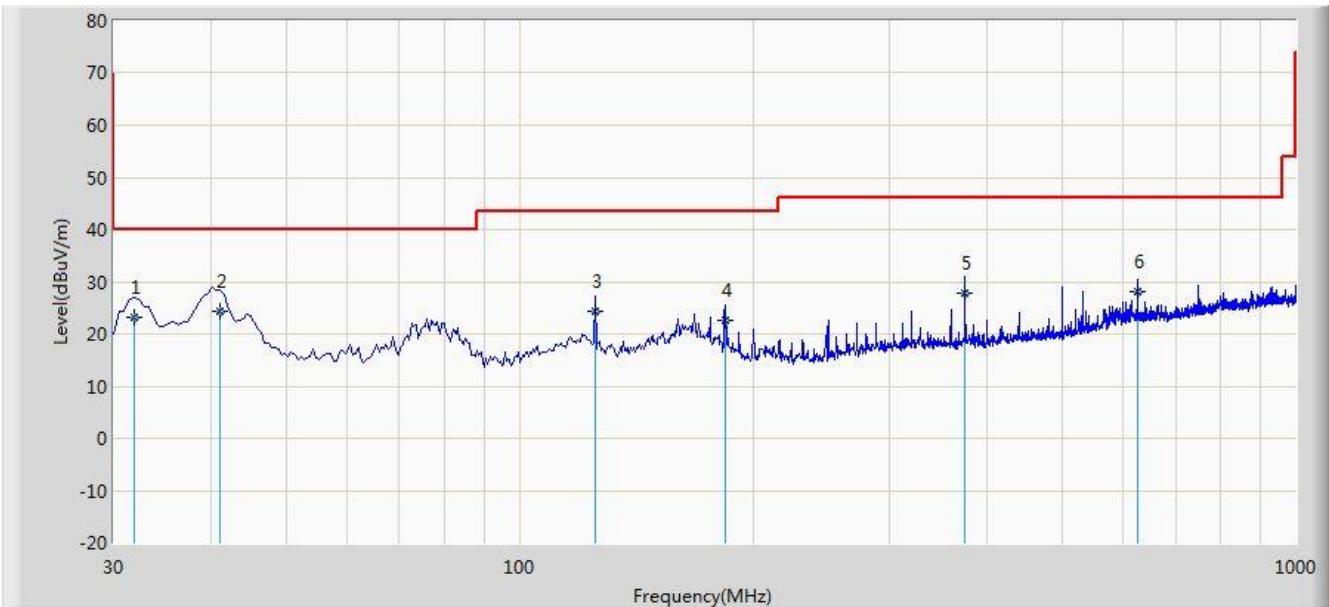


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			31.940	18.468	4.778	-21.532	40.000	13.690	QP
2			38.730	18.146	3.776	-21.854	40.000	14.370	QP
3			159.980	19.071	3.926	-24.429	43.500	15.145	QP
4			374.835	27.651	11.651	-18.349	46.000	16.000	QP
5			531.005	31.609	12.502	-14.391	46.000	19.107	QP
6	*		893.300	33.974	9.730	-12.026	46.000	24.244	QP

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC 1	Time: 2016/08/26 - 17:55
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Worst Mode: Transmit by 802.11n-HT20 at channel 5180MHz Ant 0 + 1 + 2 + 3	

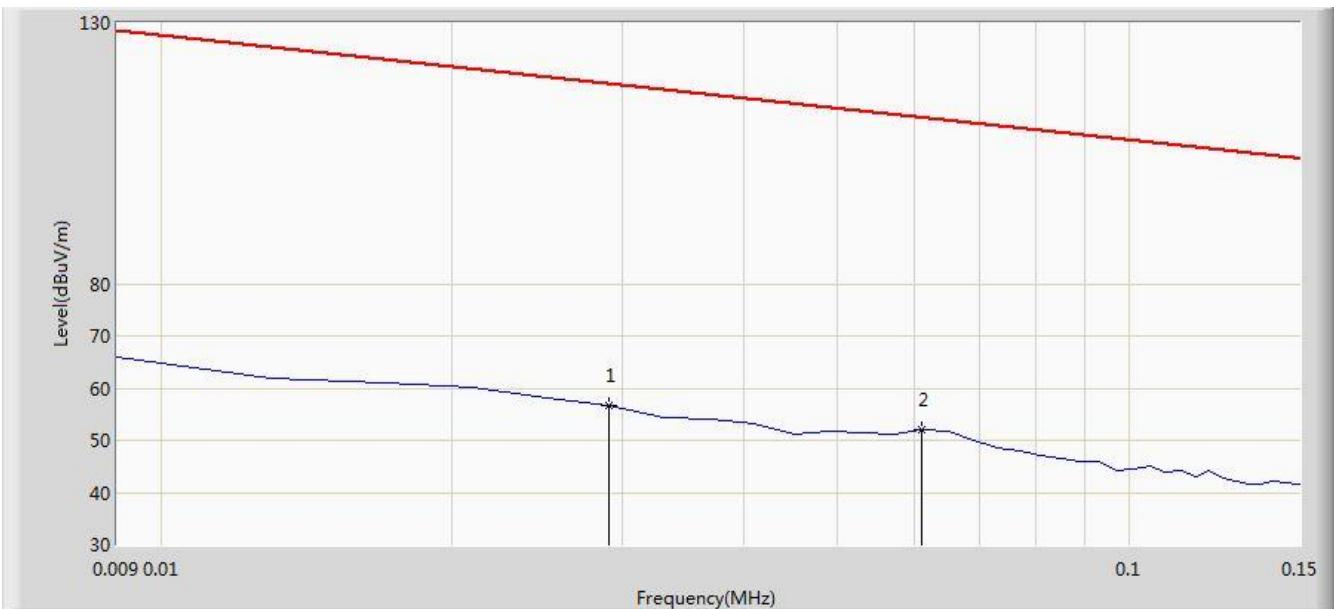


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			31.940	23.085	9.395	-16.915	40.000	13.690	QP
2	*		41.155	24.462	10.010	-15.538	40.000	14.452	QP
3			125.060	24.207	10.757	-19.293	43.500	13.450	QP
4			184.230	22.504	10.207	-20.996	43.500	12.297	QP
5			374.835	27.933	11.933	-18.067	46.000	16.000	QP
6			625.095	27.997	6.971	-18.003	46.000	21.026	QP

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2016/08/25 - 19:18
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: FMZB1519_0.009-30MHz	Polarity: Face on
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

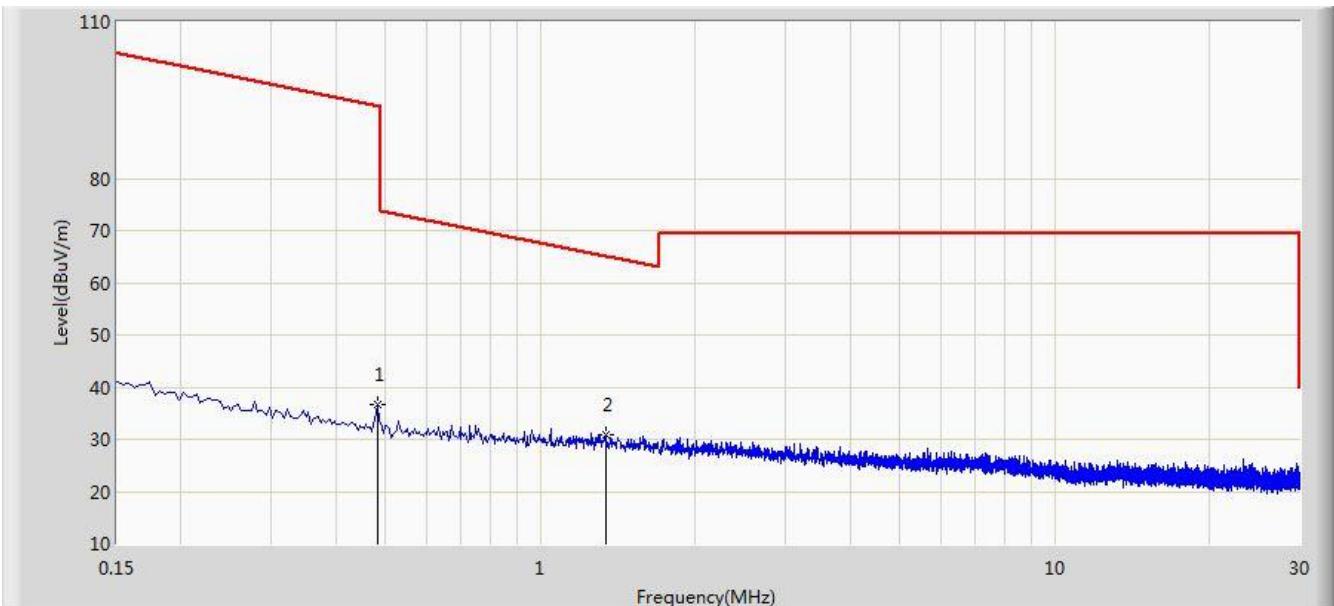


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			0.029	56.610	35.660	-61.732	118.342	21.049	PK
2		*	0.061	51.899	31.588	-59.988	111.887	20.311	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2016/08/25 - 19:19
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: FMZB1519_0.009-30MHz	Polarity: Face on
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 9kHz~30MHz.	



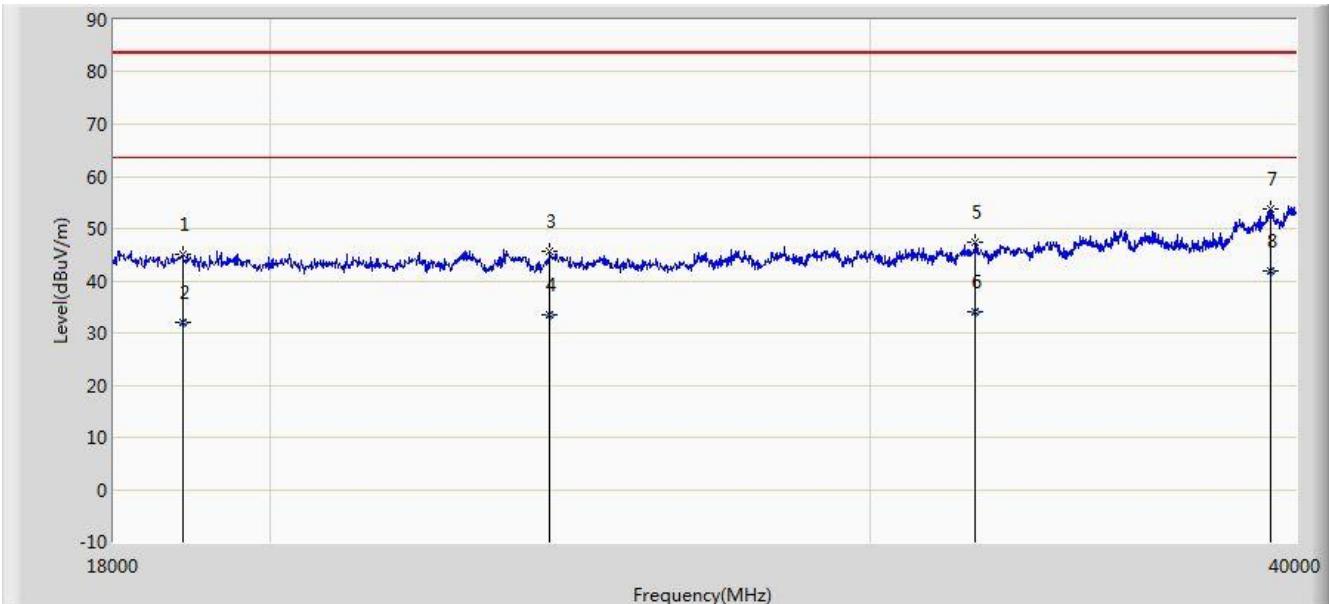
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			0.482	36.584	16.183	-57.359	93.943	20.401	PK
2		*	1.338	31.001	10.512	-34.098	65.099	20.489	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Limit@3m = $20 \cdot \log(30\mu\text{V}/\text{m}) + 20 \cdot \log(30\text{m}/3\text{m}) = 49.5\text{dB}\mu\text{V}/\text{m}$ (Average detector), and $69.5\text{dB}\mu\text{V}/\text{m}$ (Peak detector).

Site: AC1	Time: 2016/08/26 - 21:25
Limit: FCC_Part15.209_RE(1m)	Engineer: Roy Cheng
Probe: BBHA9170_18-40GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 18GHz~40GHz.	

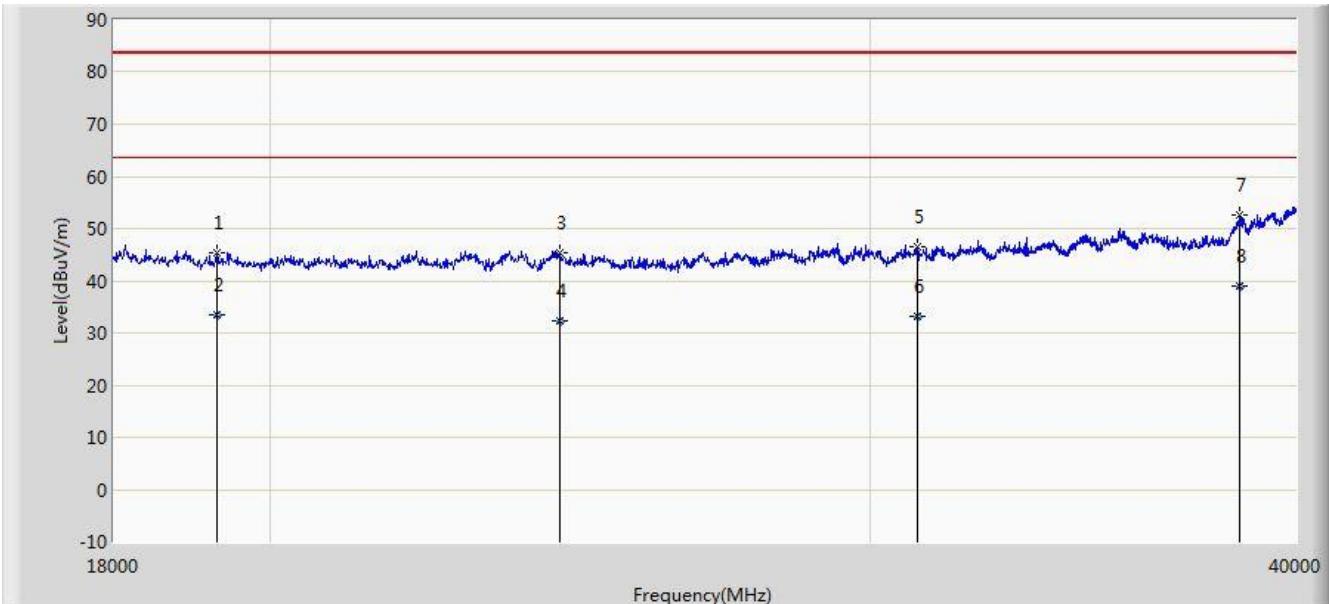


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			18858.000	45.191	36.541	-38.309	83.500	8.650	PK
2			18858.000	32.100	23.450	-31.400	63.500	8.650	AV
3			24171.000	45.675	35.208	-37.825	83.500	10.467	PK
4			24171.000	33.397	22.930	-30.103	63.500	10.467	AV
5			32223.000	47.527	35.659	-35.973	83.500	11.868	PK
6			32223.000	34.038	22.170	-29.462	63.500	11.868	AV
7			39318.000	53.825	36.172	-29.675	83.500	17.653	PK
8		*	39318.000	41.773	24.120	-21.727	63.500	17.653	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/26 - 21:28
Limit: FCC_Part15.209_RE(1m)	Engineer: Roy Cheng
Probe: BBHA9170_18-40GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 18GHz~40GHz.	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			19309.000	45.507	37.286	-37.993	83.500	8.221	PK
2			19309.000	33.541	25.320	-29.959	63.500	8.221	AV
3			24336.000	45.444	34.796	-38.056	83.500	10.649	PK
4			24336.000	32.388	21.740	-31.112	63.500	10.649	AV
5			30991.000	46.616	33.637	-36.884	83.500	12.979	PK
6			30991.000	33.159	20.180	-30.341	63.500	12.979	AV
7			38504.000	52.623	36.736	-30.877	83.500	15.888	PK
8		*	38504.000	39.047	23.160	-24.453	63.500	15.888	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Limit@1m = $20 \cdot \log(500\mu\text{V}/\text{m}) + 20 \cdot \log(3\text{m}/1\text{m}) = 63.5\text{dB}\mu\text{V}/\text{m}$ (Average detector), and $83.5\text{dB}\mu\text{V}/\text{m}$ (Peak detector).

7.9. Radiated Restricted Band Edge Measurement

7.9.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.25 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41	--	--	--

For 15.407(b) requirement:

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725

GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

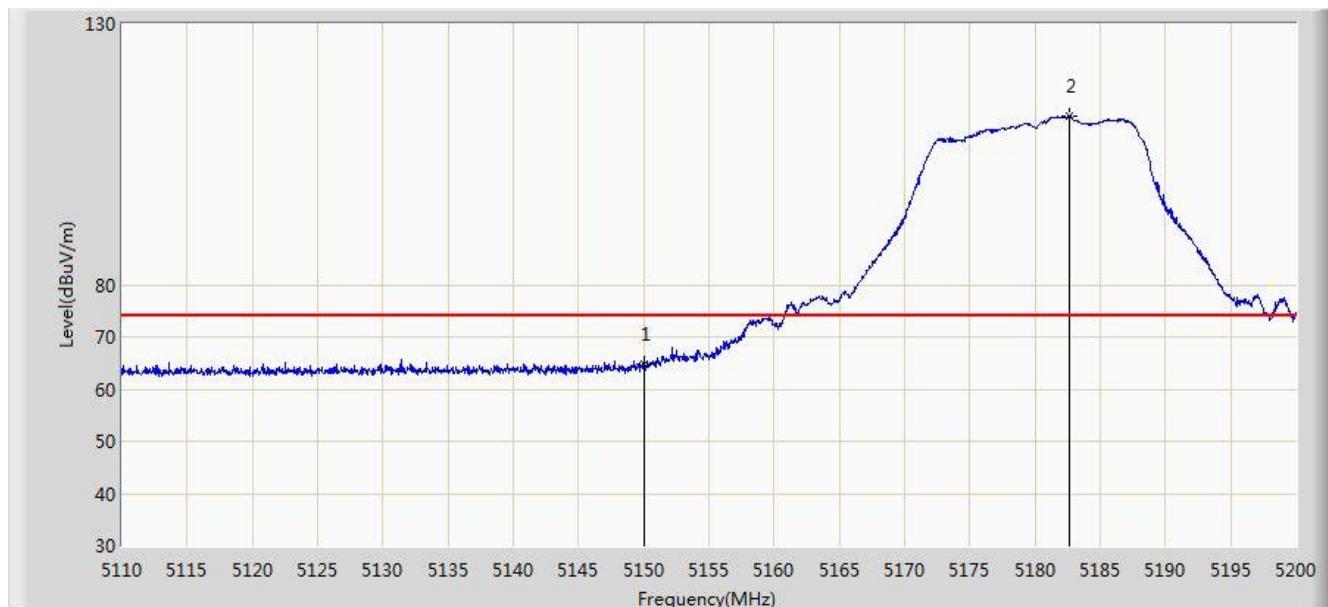
Refer to KDB 789033 D02v01r03 G)2)c), as specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission limit.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.9.2. Test Result of Radiated Restricted Band Edge

Site: AC1	Time: 2016/08/27 - 18:06
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5180MHz	

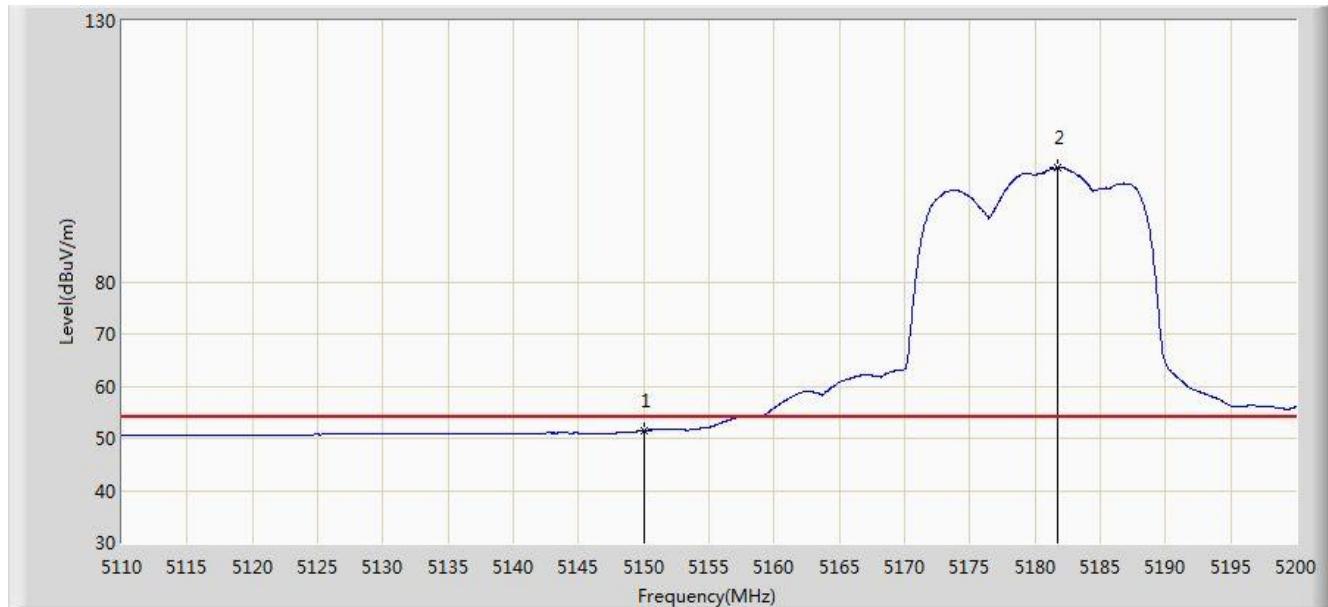


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	64.828	27.376	-9.172	74.000	37.452	PK
2	*		5182.630	112.239	74.871	N/A	N/A	37.368	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5180MHz	

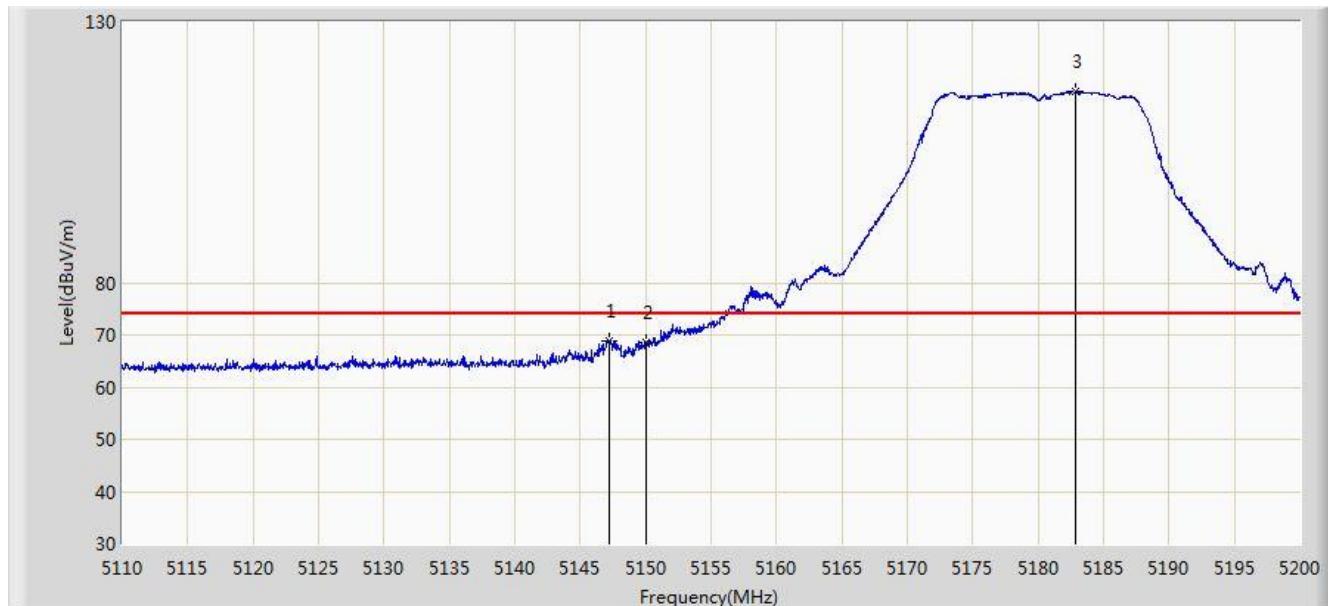


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	51.476	14.024	-2.524	54.000	37.452	AV
2	*	*	5181.775	101.787	64.417	N/A	N/A	37.370	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:03
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5180MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5147.260	68.962	31.506	-5.038	74.000	37.456	PK
2			5150.000	68.564	31.112	-5.436	74.000	37.452	PK
3	*		5182.855	116.606	79.239	N/A	N/A	37.367	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 17:55
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at Channel 5180MHz	

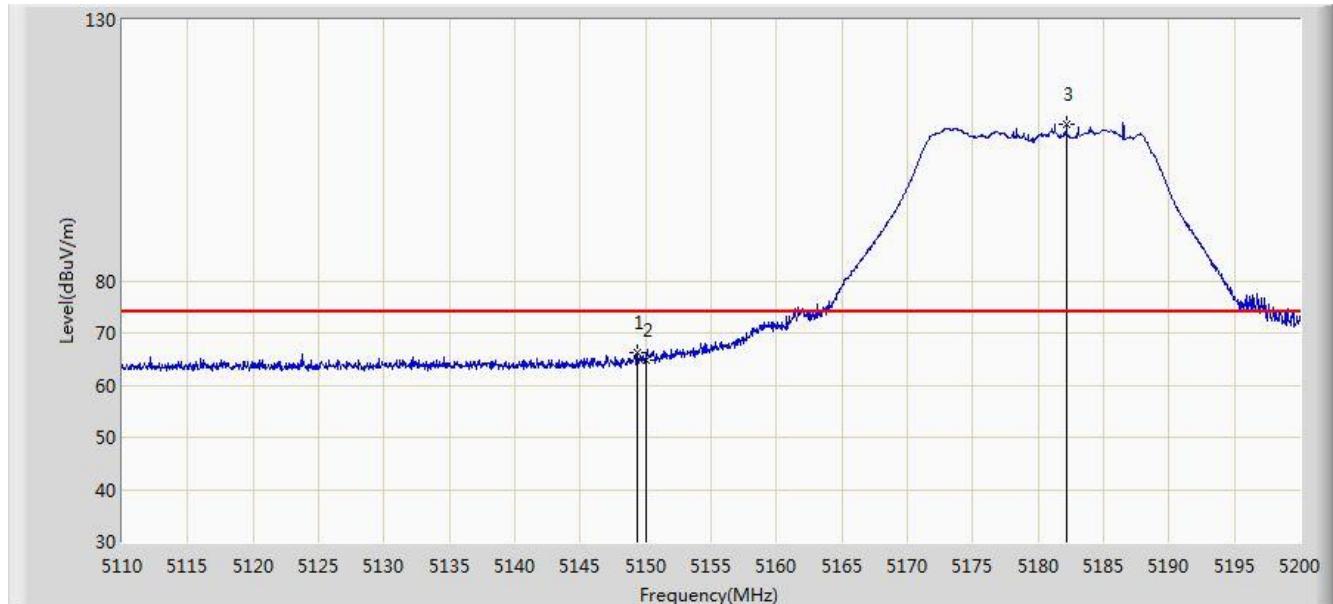


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	53.142	15.690	-0.858	54.000	37.452	AV
2		*	5183.440	106.350	68.985	N/A	N/A	37.365	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:26
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5180MHz	

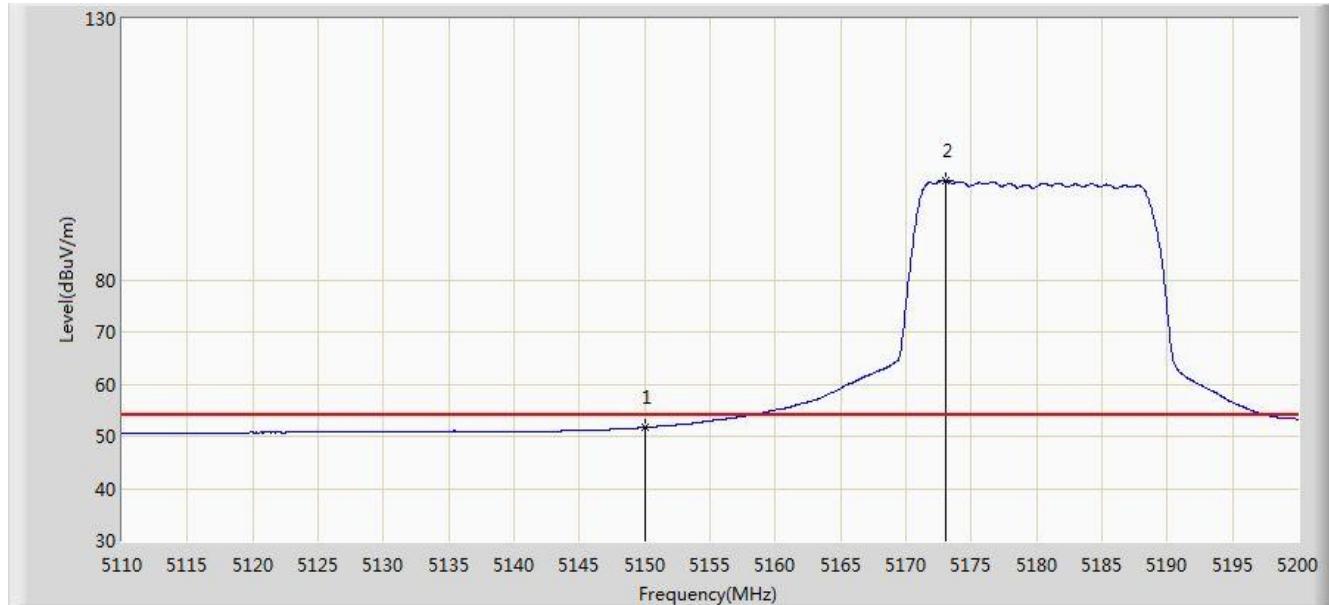


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5149.330	66.136	28.683	-7.864	74.000	37.453	PK
2			5150.000	64.644	27.192	-9.356	74.000	37.452	PK
3	*		5182.180	110.000	72.631	N/A	N/A	37.369	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:29
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5180MHz	

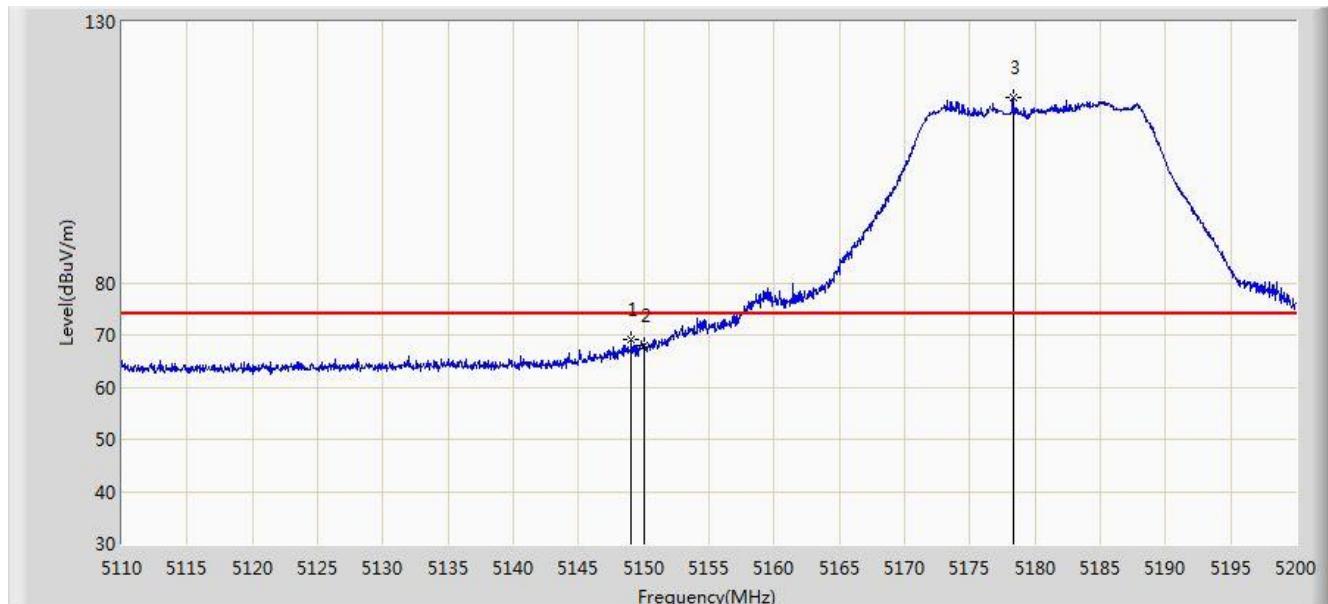


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	51.661	14.209	-2.339	54.000	37.452	AV
2		*	5173.090	98.997	61.608	N/A	N/A	37.390	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:24
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5180MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5149.015	69.130	31.677	-4.870	74.000	37.453	PK
2			5150.000	68.029	30.577	-5.971	74.000	37.452	PK
3	*	*	5178.355	115.566	78.189	N/A	N/A	37.378	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:21
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 5180MHz	

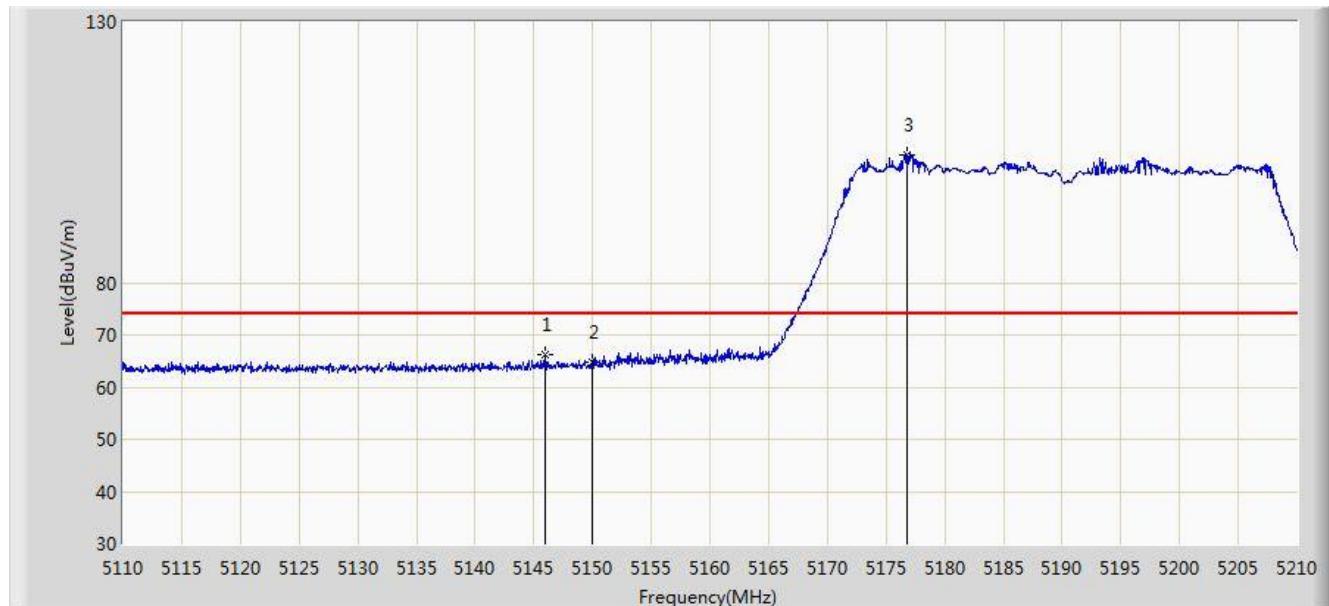


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	53.346	15.894	-0.654	54.000	37.452	AV
2	*		5180.335	103.762	66.389	N/A	N/A	37.373	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:53
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5190MHz	

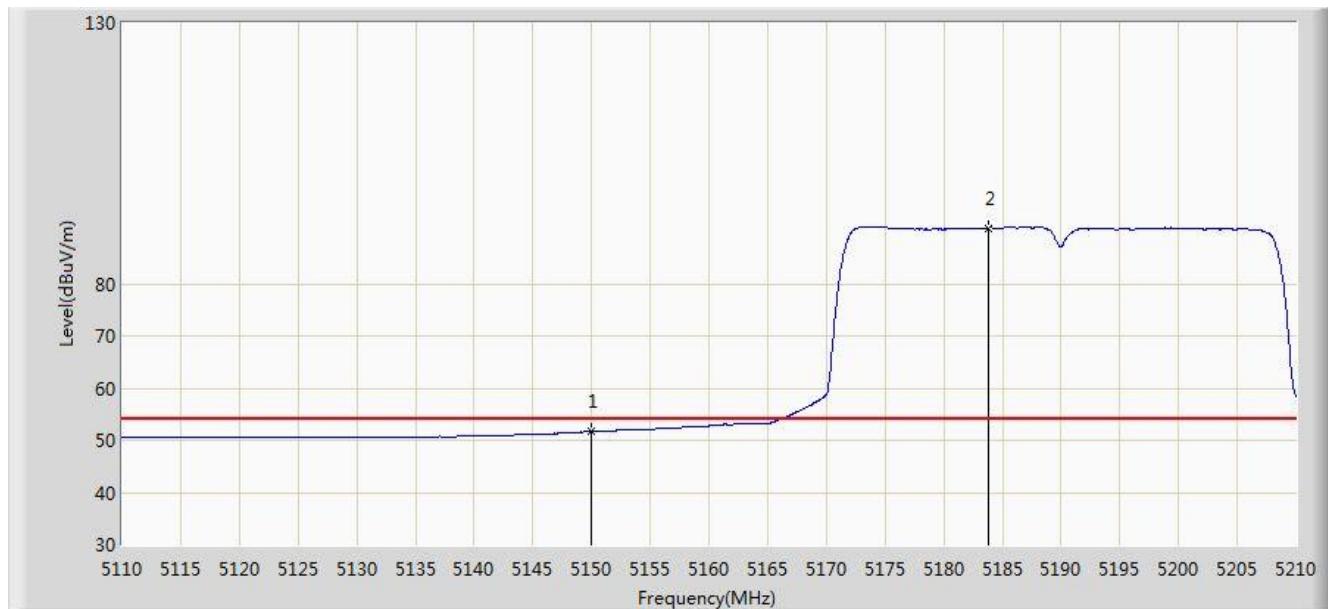


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5145.950	66.105	28.647	-7.895	74.000	37.458	PK
2			5150.000	64.887	27.435	-9.113	74.000	37.452	PK
3	*	*	5176.800	104.496	67.115	N/A	N/A	37.381	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5190MHz	

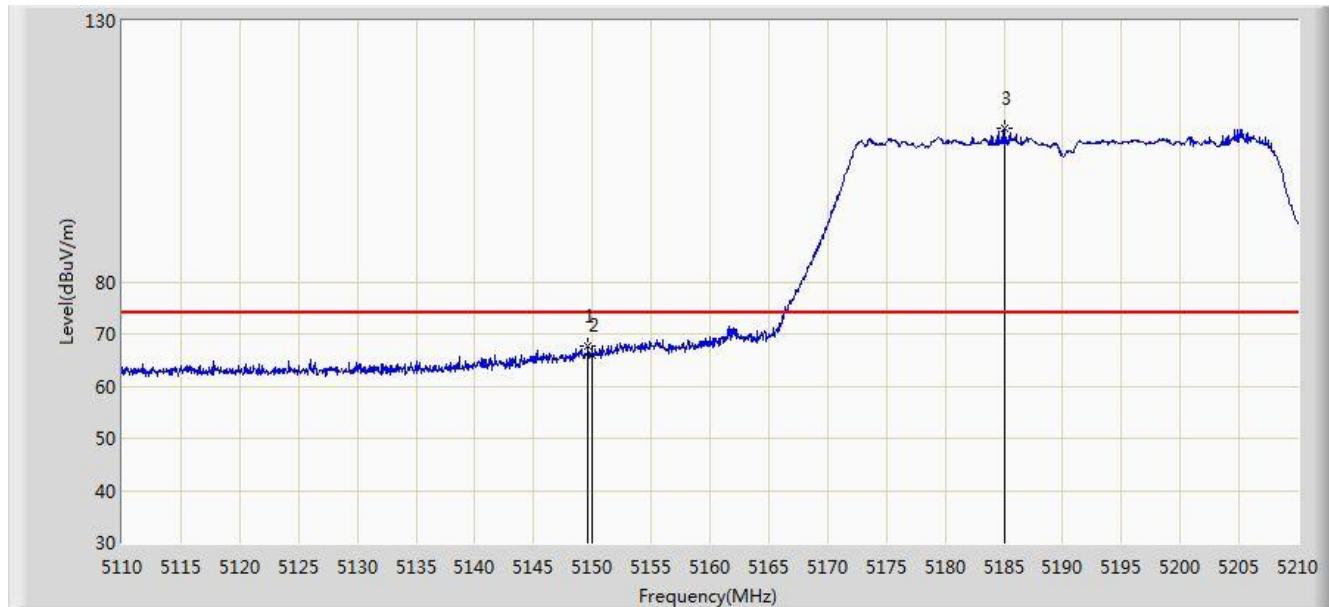


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	51.650	14.198	-2.350	54.000	37.452	AV
2	*		5183.850	90.719	53.355	N/A	N/A	37.365	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5190MHz	

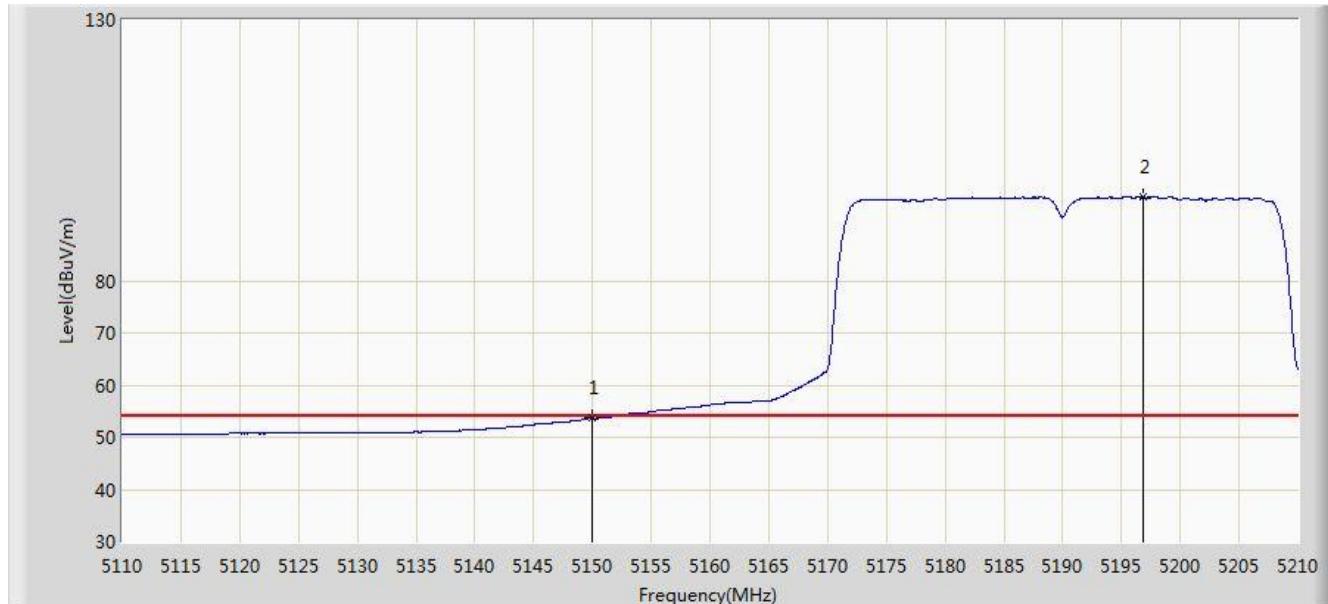


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5149.600	67.595	30.143	-6.405	74.000	37.452	PK
2			5150.000	65.907	28.455	-8.093	74.000	37.452	PK
3		*	5185.050	109.280	71.919	N/A	N/A	37.362	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 18:50
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 5190MHz	

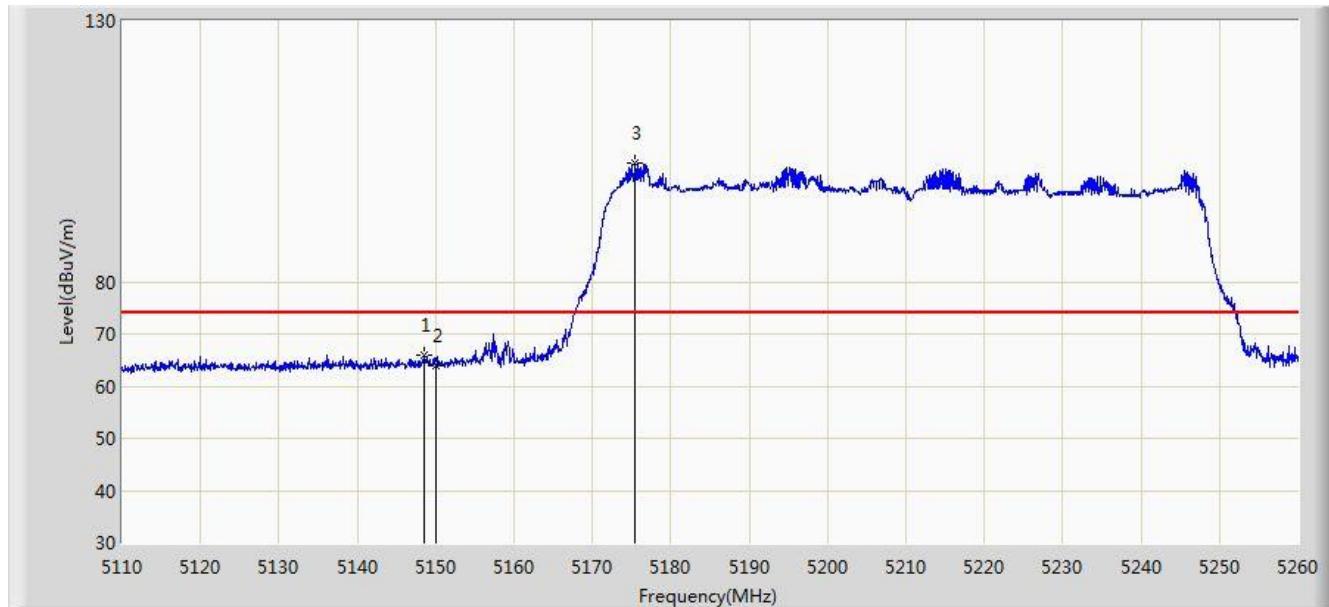


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	53.643	16.191	-0.357	54.000	37.452	AV
2		*	5196.900	96.047	58.714	N/A	N/A	37.332	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 19:09
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HTac-VHT80 at Channel 5210MHz	

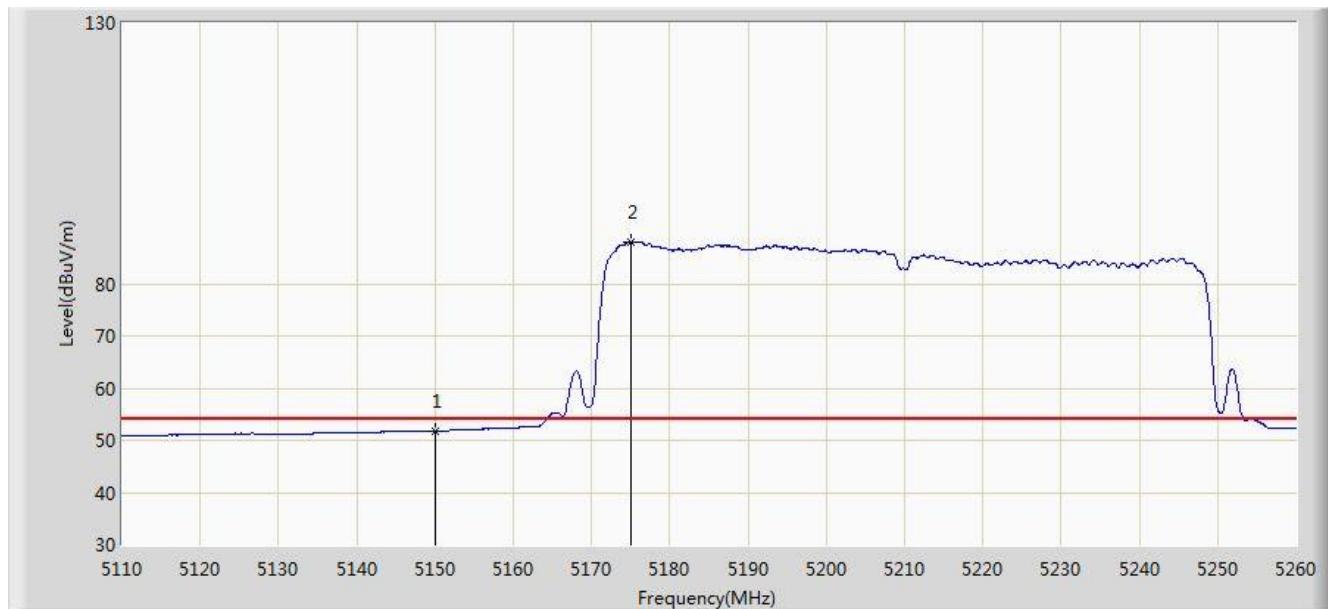


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5148.625	66.006	28.552	-7.994	74.000	37.454	PK
2			5150.000	63.806	26.354	-10.194	74.000	37.452	PK
3		*	5175.475	102.771	65.387	N/A	N/A	37.384	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 19:12
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HTac-VHT80 at Channel 5210MHz	

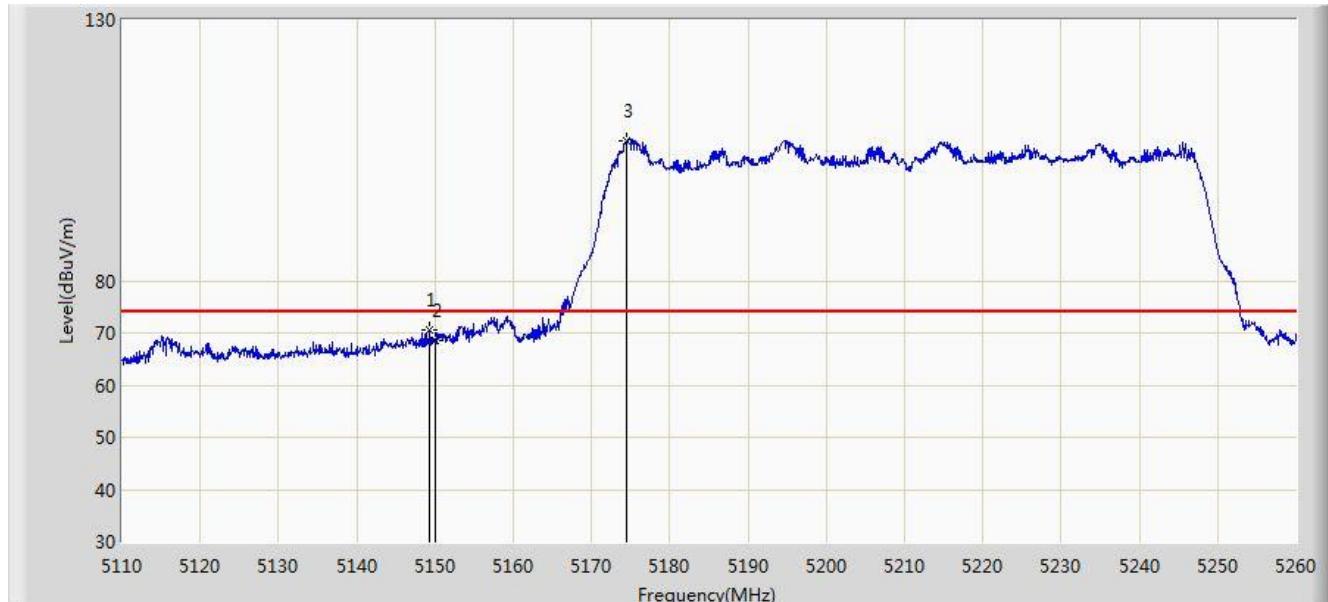


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1			5150.000	51.821	14.369	-2.179	54.000	37.452	AV
2	*		5175.025	87.965	50.580	N/A	N/A	37.385	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 19:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HTac-VHT80 at Channel 5210MHz	

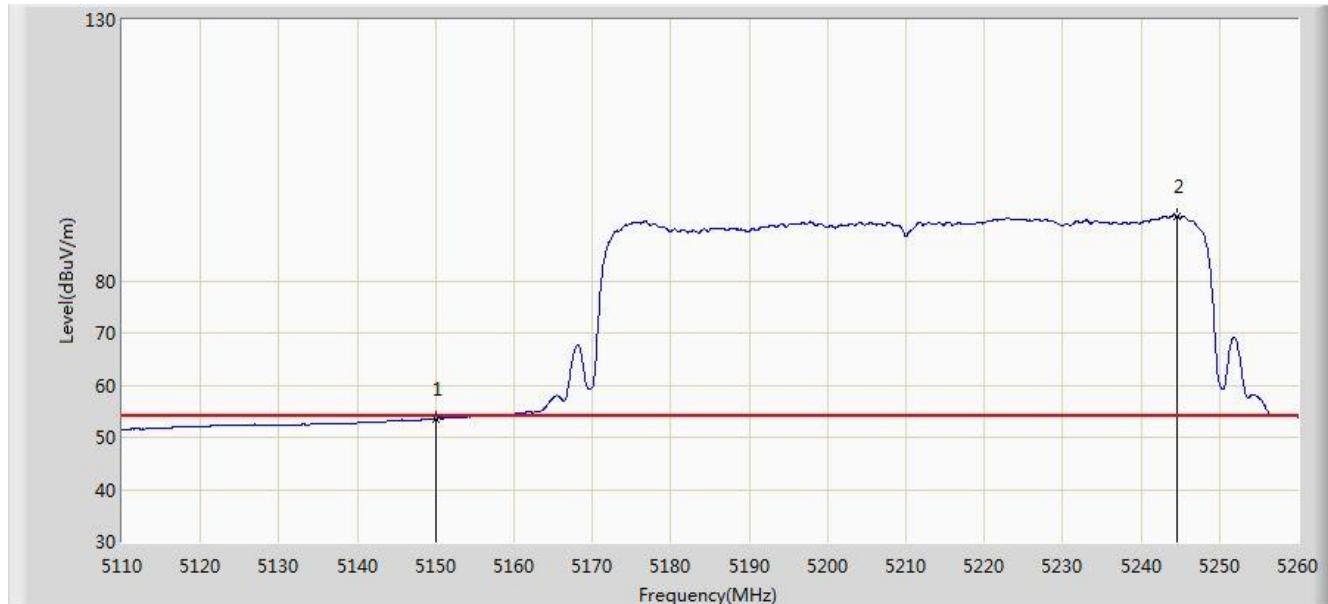


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5149.375	70.715	33.262	-3.285	74.000	37.453	PK
2			5150.000	68.499	31.047	-5.501	74.000	37.452	PK
3	*		5174.500	106.881	69.495	N/A	N/A	37.386	PK

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC1	Time: 2016/08/27 - 19:05
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HTac-VHT80 at Channel 5210MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	53.604	16.152	-0.396	54.000	37.452	AV
2		*	5244.550	92.315	55.108	N/A	N/A	37.206	AV

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

7.10. AC Conducted Emissions Measurement

7.10.1. Test Limit

FCC Part 15.207 Limits		
Frequency (MHz)	QP (dB μ V)	AV (dB μ V)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

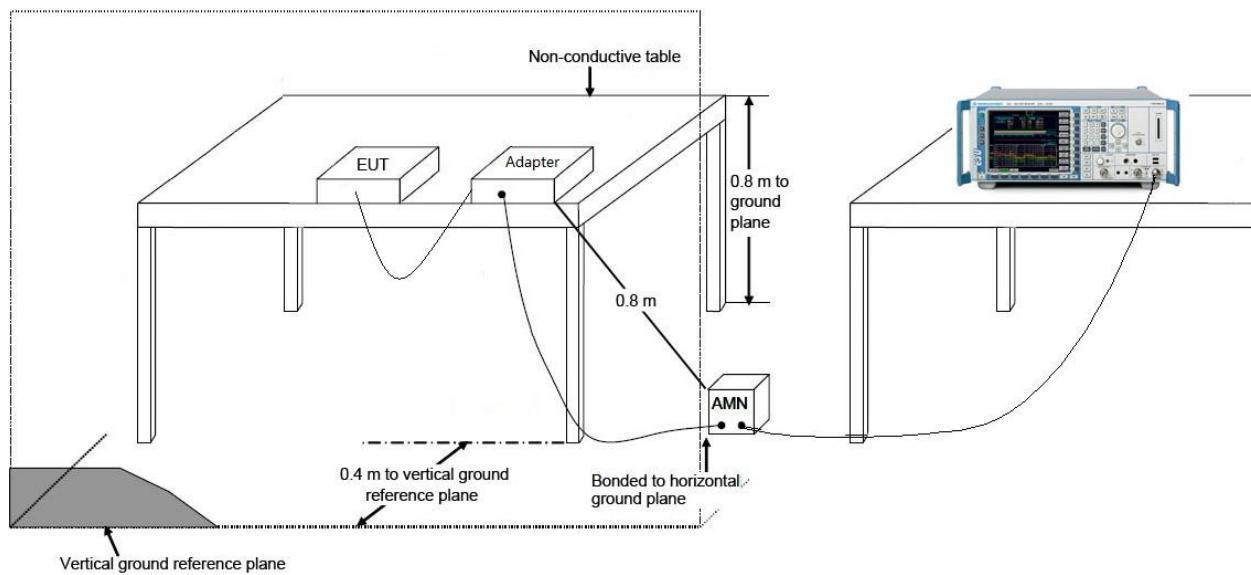
7.10.2. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to KDB 789033 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

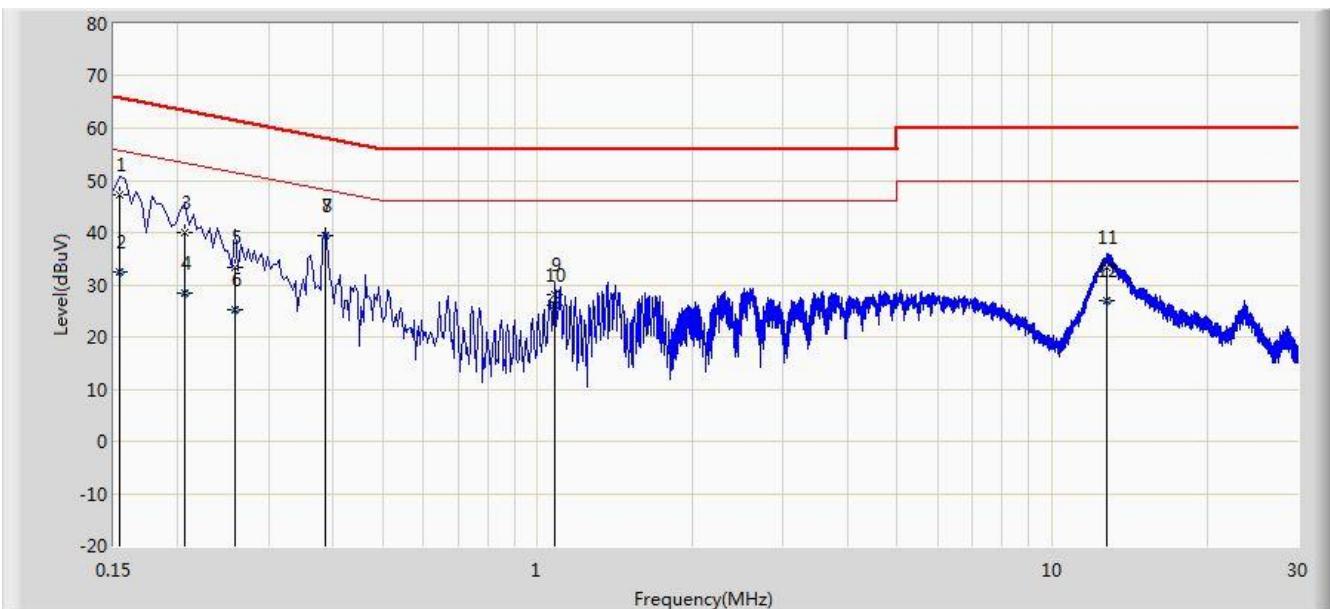
7.10.3. Test Setup



7.10.4. Test Result

Site: SR2	Time: 2016/08/31 - 19:18
Limit: FCC_Part15.207_CE_AC Power	Engineer: Roy Cheng
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz

Worst Mode: Transmit by 802.11a at channel 5180MHz Ant 0 + 1 + 2 + 3

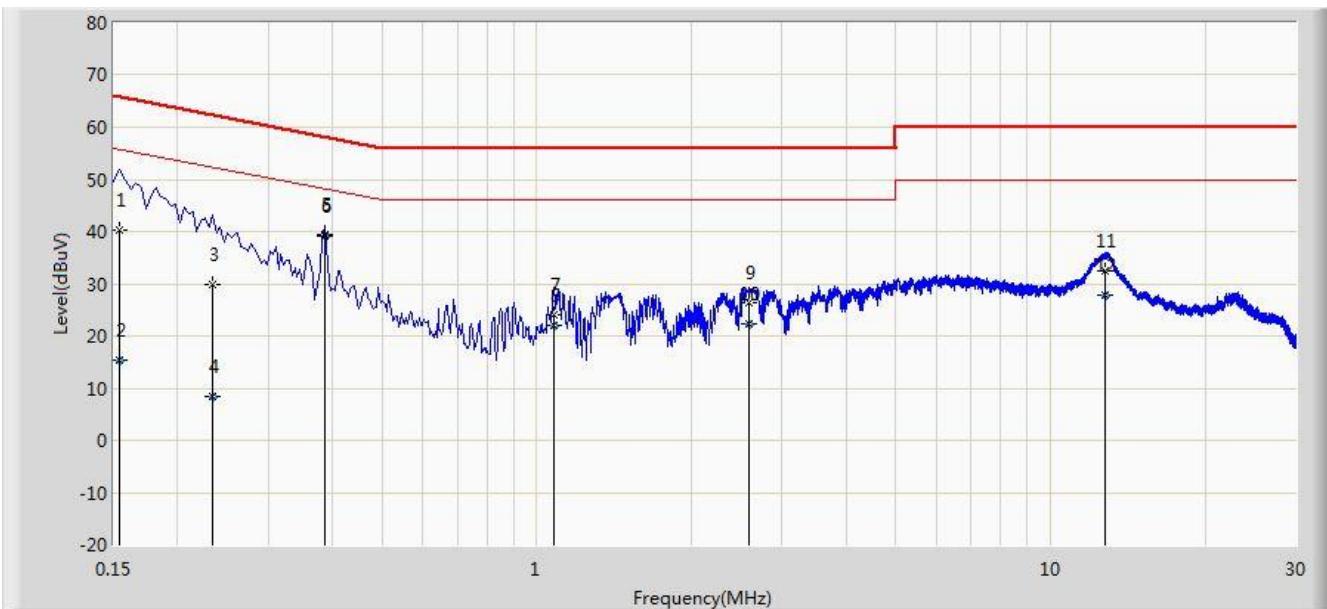


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V)	Factor (dB)	Type
1			0.154	47.124	36.384	-18.658	65.781	10.740	QP
2			0.154	32.595	21.856	-23.186	55.781	10.740	AV
3			0.206	39.973	29.992	-23.392	63.365	9.981	QP
4			0.206	28.528	18.547	-24.838	53.365	9.981	AV
5			0.258	33.259	23.288	-28.237	61.496	9.970	QP
6			0.258	25.177	15.206	-26.319	51.496	9.970	AV
7			0.386	39.522	29.449	-18.627	58.149	10.074	QP
8	*		0.386	39.480	29.406	-8.669	48.149	10.074	AV
9			1.082	28.113	18.208	-27.887	56.000	9.905	QP
10			1.082	26.161	16.256	-19.839	46.000	9.905	AV
11			12.802	33.211	23.130	-26.789	60.000	10.082	QP
12			12.802	27.094	17.012	-22.906	50.000	10.082	AV

Note: Measure Level (dB μ V) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2016/08/31 - 19:23
Limit: FCC_Part15.207_CE_AC Power	Engineer: Roy Cheng
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Equipo para acceso Fibra Óptica	Power: AC 120V/60Hz
Worst Mode: Transmit by 802.11a at channel 5180MHz Ant 0 + 1 + 2 + 3	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	40.270	29.554	-25.511	65.781	10.716	QP
2			0.154	15.478	4.762	-40.303	55.781	10.716	AV
3			0.234	29.942	19.953	-32.365	62.307	9.989	QP
4			0.234	8.542	-1.447	-43.765	52.307	9.989	AV
5			0.386	39.289	29.187	-18.860	58.149	10.102	QP
6	*		0.386	39.202	29.100	-8.947	48.149	10.102	AV
7			1.078	23.933	14.028	-32.067	56.000	9.906	QP
8			1.078	21.912	12.006	-24.088	46.000	9.906	AV
9			2.594	26.471	16.614	-29.529	56.000	9.857	QP
10			2.594	22.273	12.416	-23.727	46.000	9.857	AV
11			12.742	32.502	22.374	-27.498	60.000	10.128	QP
12			12.742	27.862	17.734	-22.138	50.000	10.128	AV

Note: Measure Level (dB μ V) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

8. CONCLUSION

The data collected relate only the item(s) tested and show that the EUT: **Equipo para acceso Fibra Óptica FCC ID: 2AC9MGPT2541GNAC** is in compliance with Part 15E of the FCC Rules.

The End
