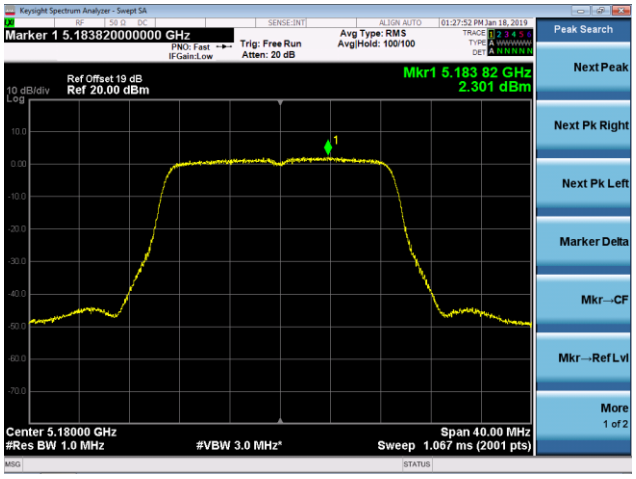
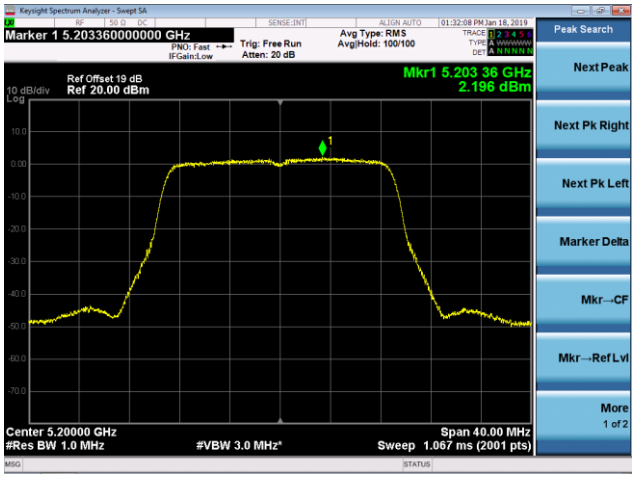
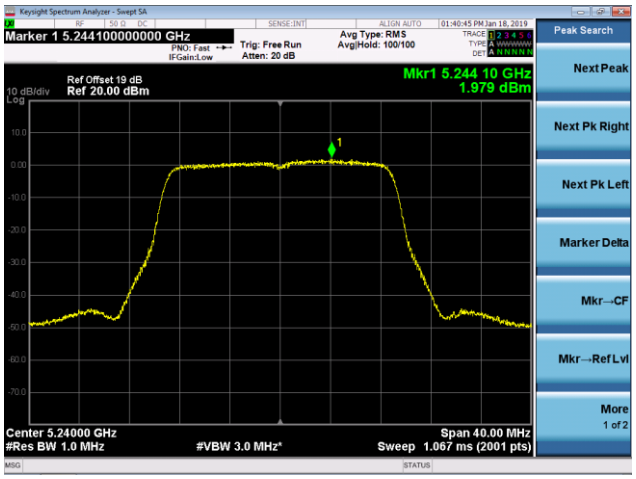
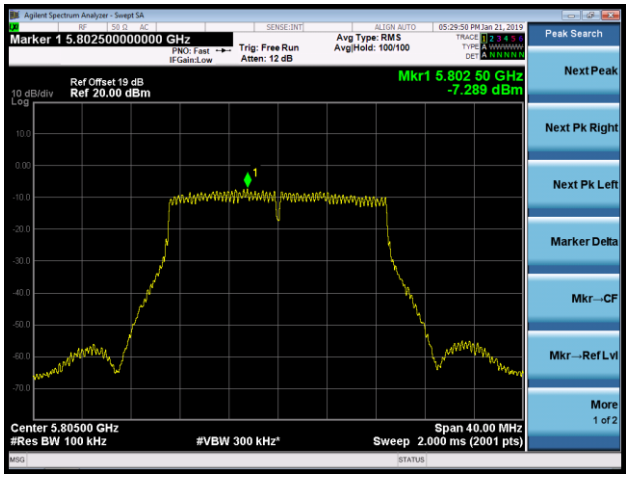
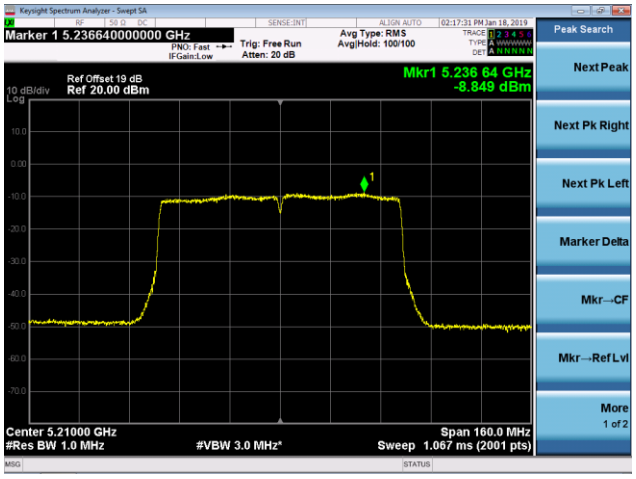
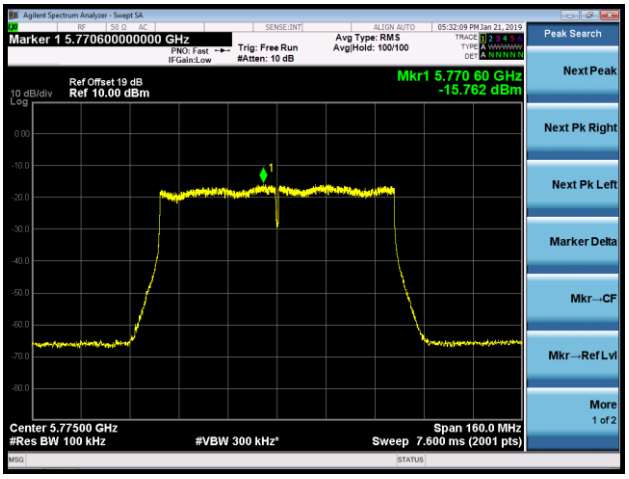
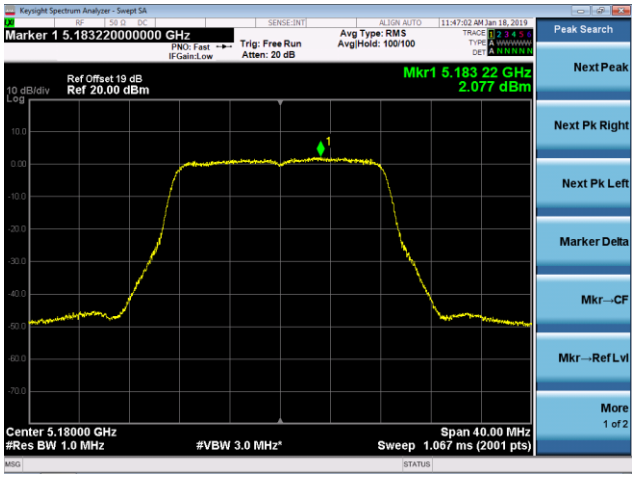
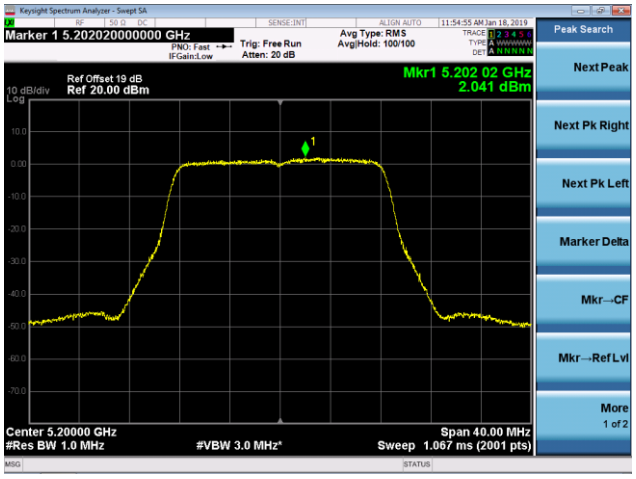
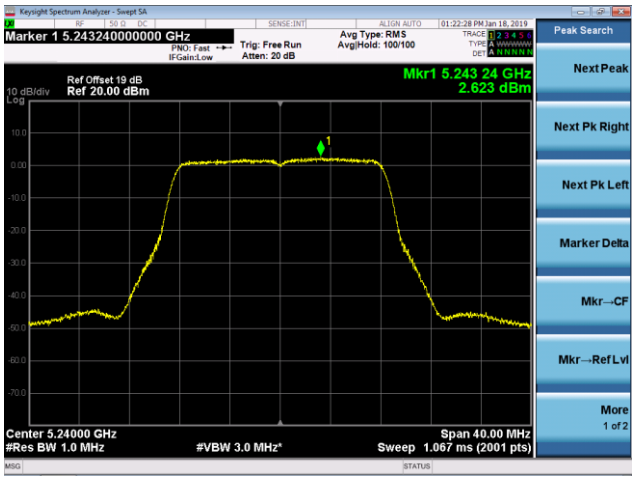
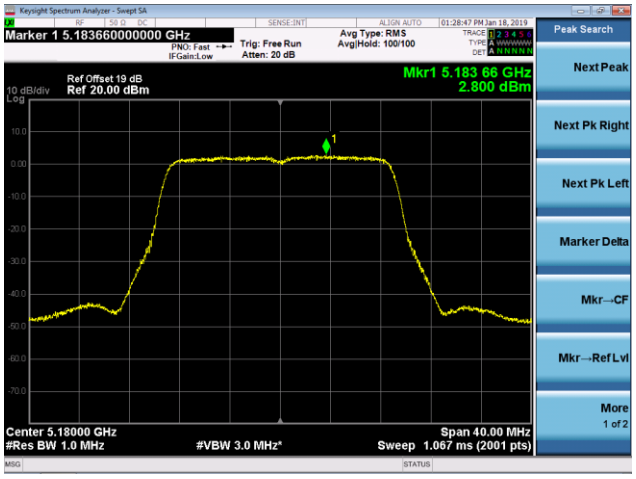
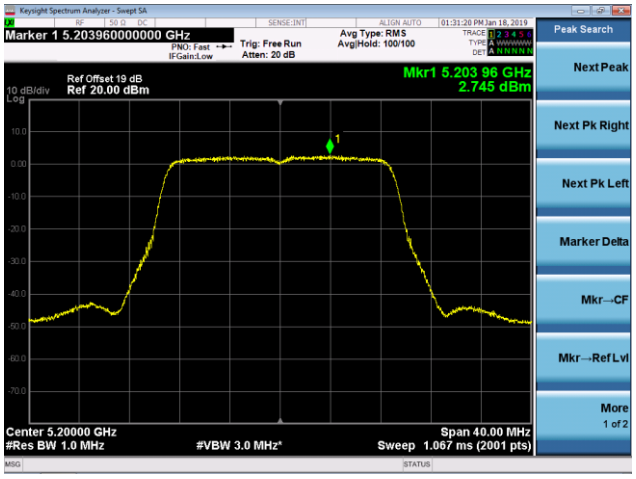
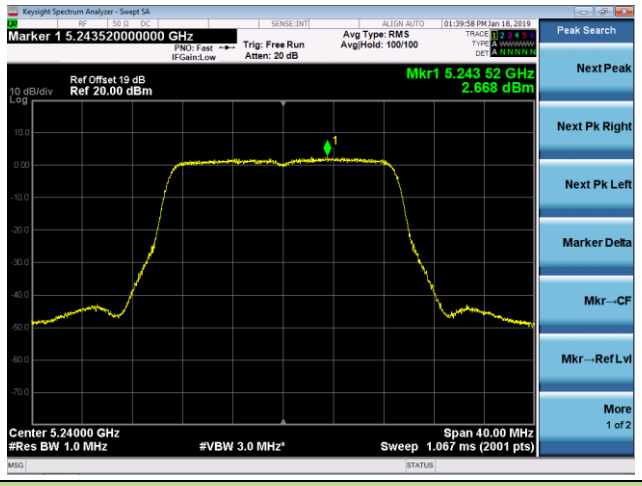
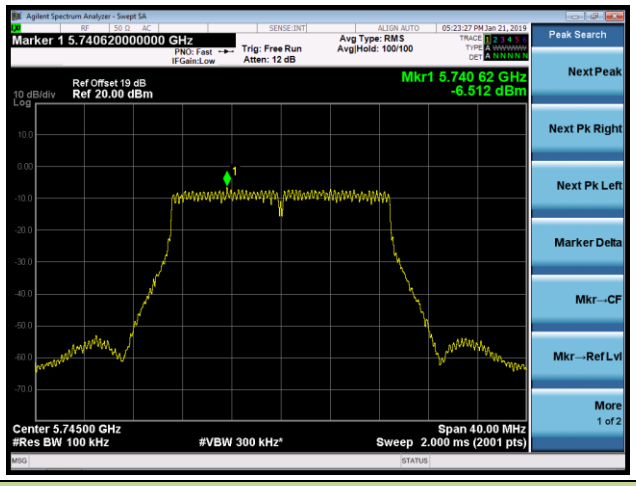
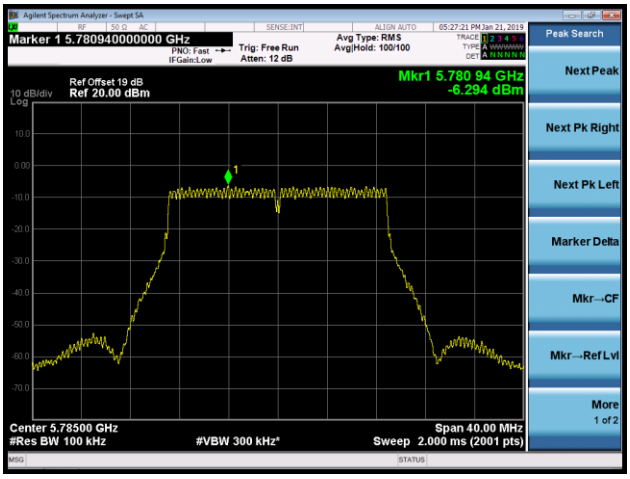
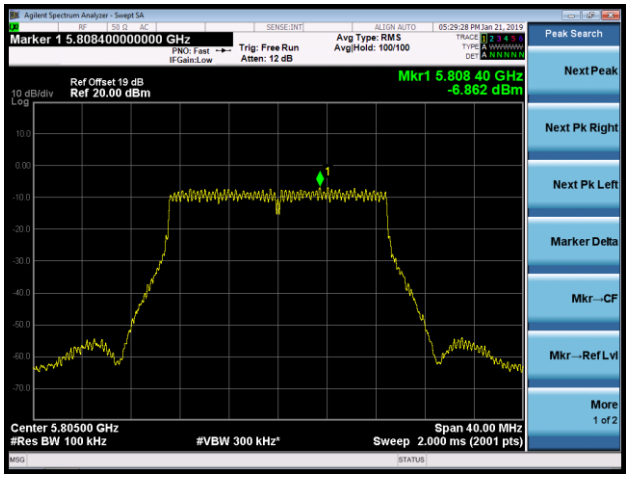
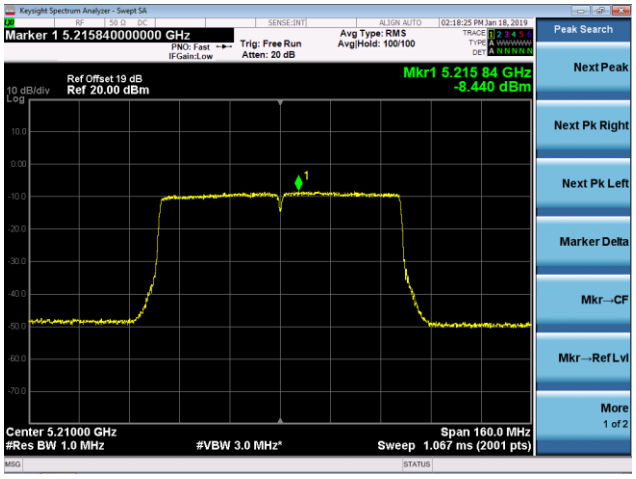
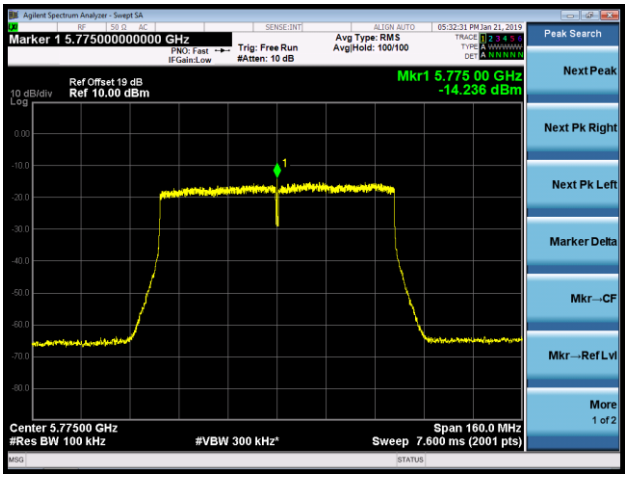
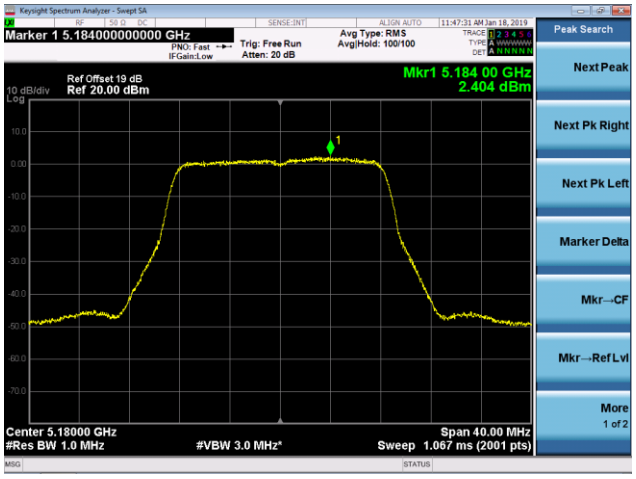
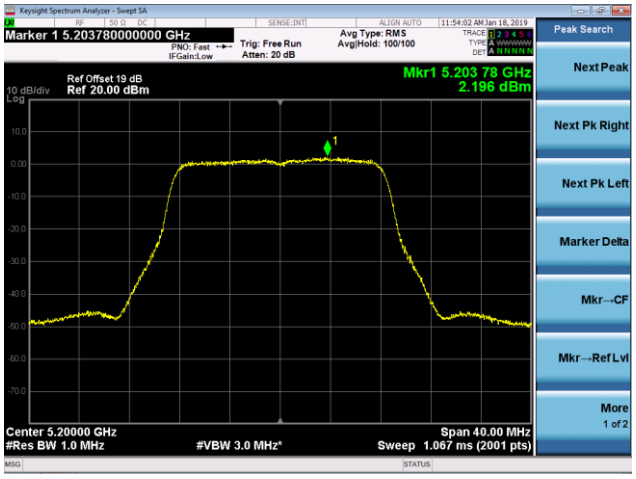
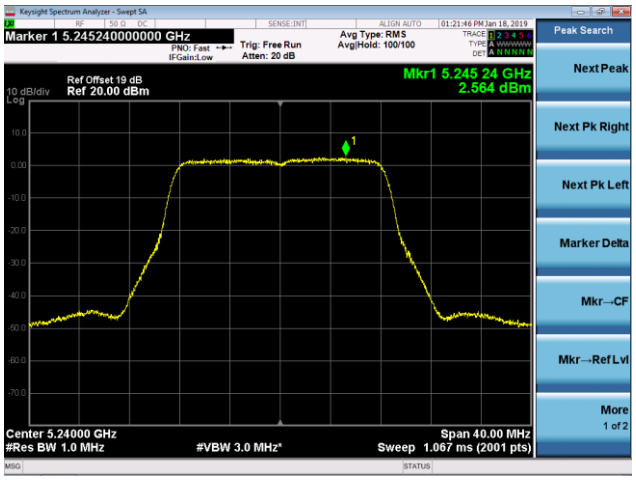
802.11ac-VHT20 Power Spectral Density - Ant 1 / Ant 0 + 1 + 2 + 3	
Channel 36 (5180MHz)	Channel 40 (5200MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 161 (5805MHz)
	

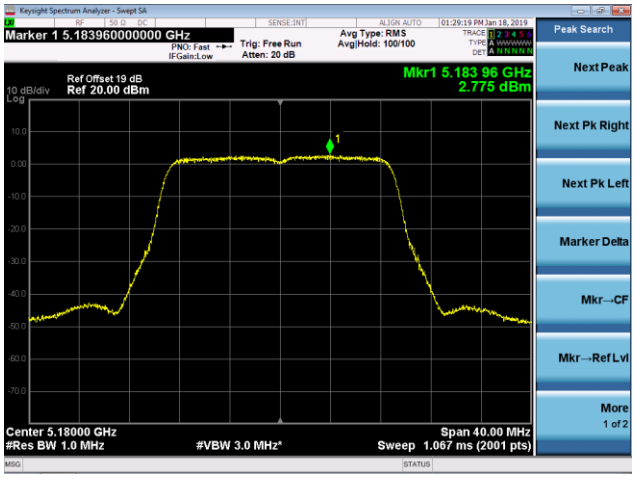
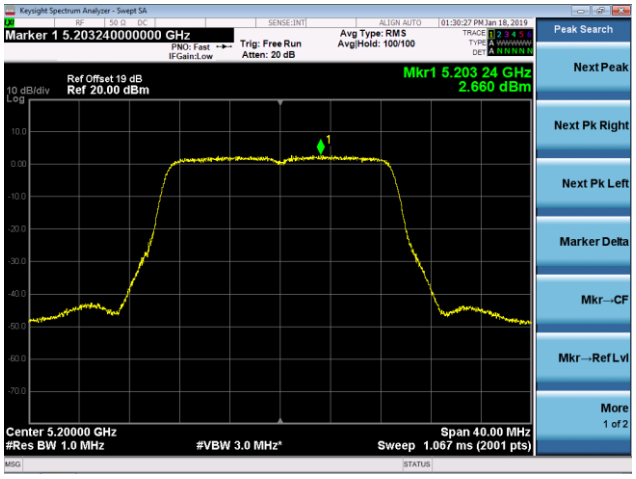
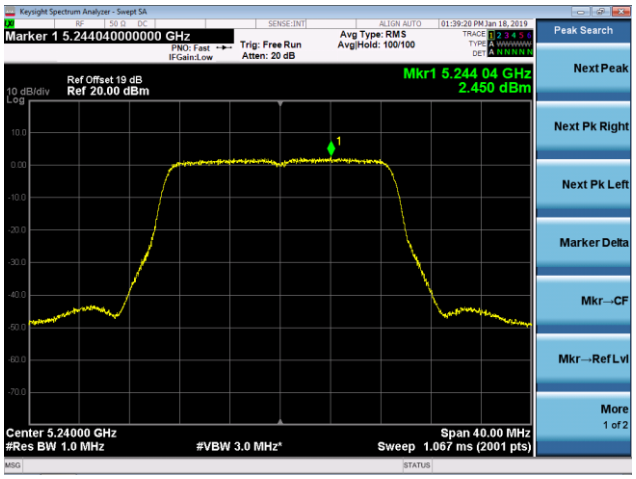
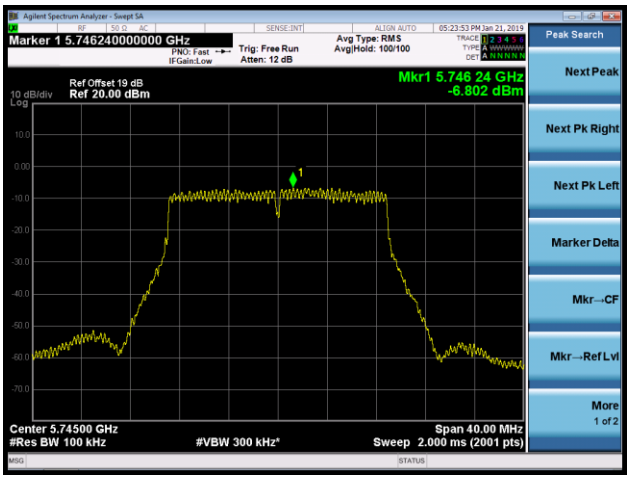
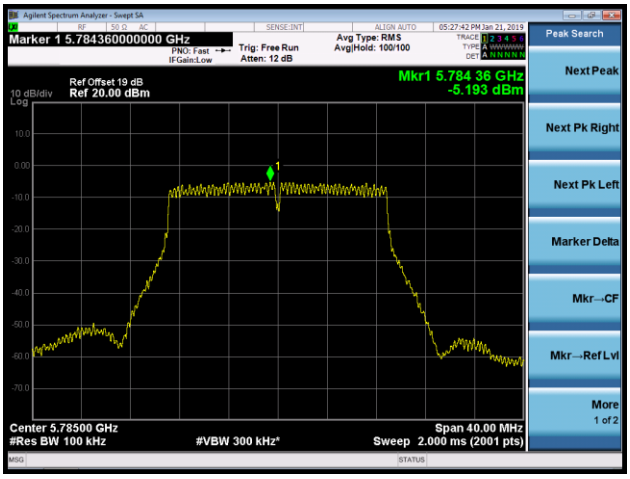
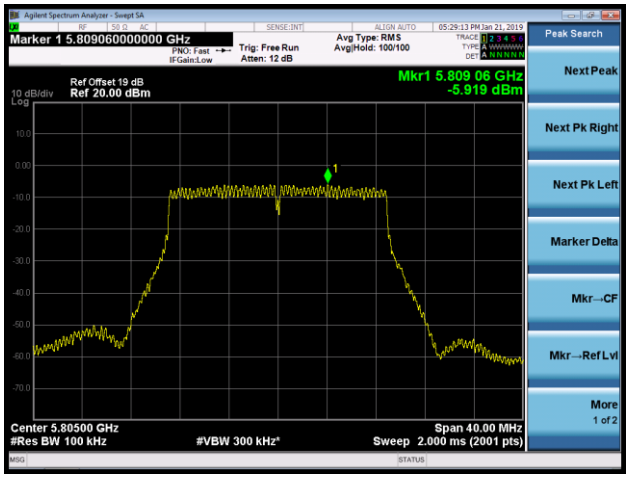
802.11ac-VHT80 Power Spectral Density - Ant 1 / Ant 0 + 1 + 2 + 3	
Channel 58 (5210MHz)	Channel 155 (5775MHz)
	

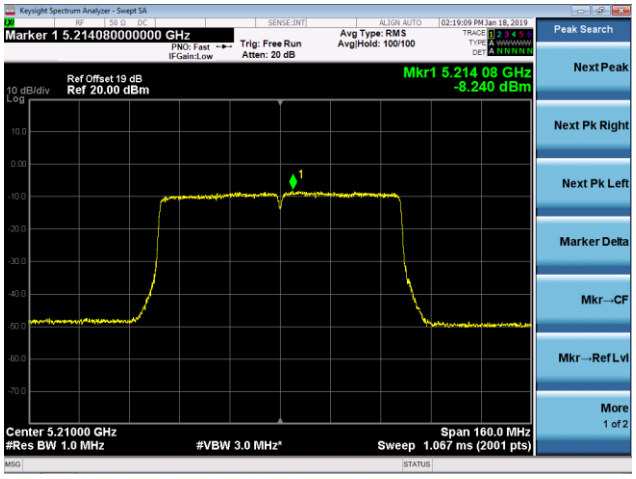
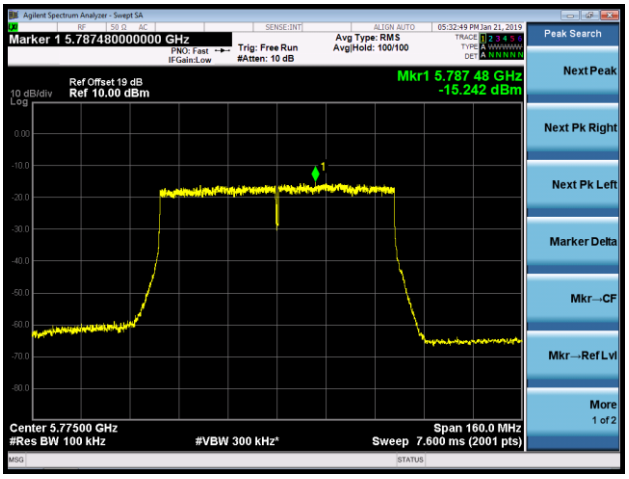
802.11a Power Spectral Density - Ant 2 / Ant 0 + 1 + 2 + 3	
Channel 36 (5180MHz)	Channel 40 (5200MHz)
	
Channel 48 (5240MHz)	
	

802.11ac-VHT20 Power Spectral Density - Ant 2 / Ant 0 + 1 + 2 + 3	
Channel 36 (5180MHz)	Channel 40 (5200MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 161 (5805MHz)
	

802.11ac-VHT80 Power Spectral Density - Ant 2 / Ant 0 + 1 + 2 + 3	
Channel 58 (5210MHz)	Channel 155 (5775MHz)
	

802.11a Power Spectral Density - Ant 3 / Ant 0 + 1 + 2 + 3	
Channel 36 (5180MHz)	Channel 40 (5200MHz)
	
Chanel 48 (5240MHz)	
	

802.11ac-VHT20 Power Spectral Density - Ant 3 / Ant 0 + 1 + 2 + 3	
Channel 36 (5180MHz)	Channel 40 (5200MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 161 (5805MHz)
	

802.11ac-VHT80 Power Spectral Density - Ant 3 / Ant 0 + 1 + 2 + 3	
Channel 58 (5210MHz)	Channel 155 (5775MHz)
	

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.

The transmitter center frequency tolerance shall be ±20 ppm maximum for the 5GHz band (IEEE 802.11 specification).

7.7.2.Test Procedure Used

Frequency Stability Under Temperature Variations:

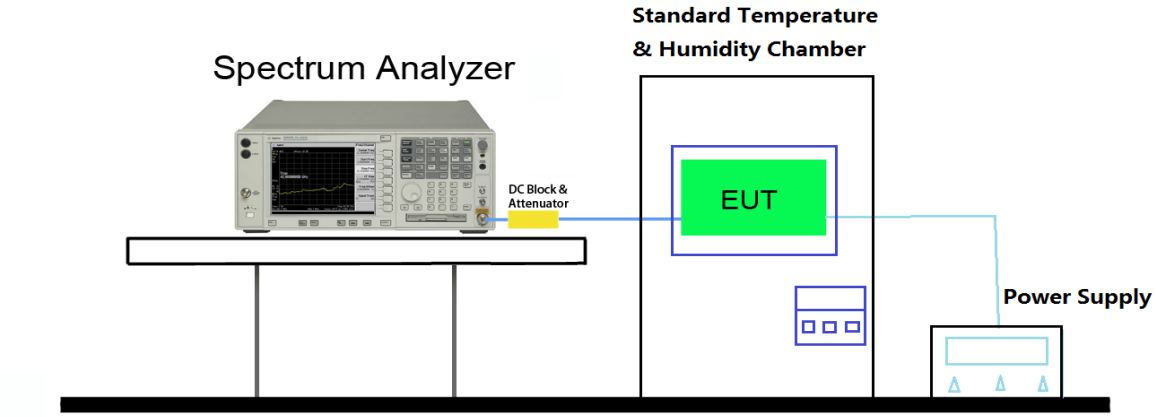
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain 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 (±15%) and endpoint, recordthe maximum frequency change.

7.7.3.Test Setup



7.7.4.Test Result

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	-30 ~ 50°C
Test Engineer	Snake Ni	Relative Humidity	46 ~ 55%RH
Test Site	TR3	Test Time	2019/01/18
Test Mode	5180MHz (Carrier Mode)		

Voltage (%)	Power (VAC)	Temp (°C)	Frequency Tolerance (ppm)
100%	120	- 30	-5.60
		- 20	-5.93
		- 10	-6.22
		0	-6.44
		+ 10	-6.62
		+ 20 (Ref)	-6.12
		+ 30	-6.71
		+ 40	-6.76
		+ 50	-6.81
115%	138	+ 20	-6.84
85%	102	+ 20	-6.90

Note: Frequency Tolerance (ppm) = {[Measured Frequency (Hz) - Declared Frequency (Hz)] / Declared Frequency (Hz)} *10^6.

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 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/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

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.8.3.Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz

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 = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

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

Average Measurements above 1GHz (Method VB)

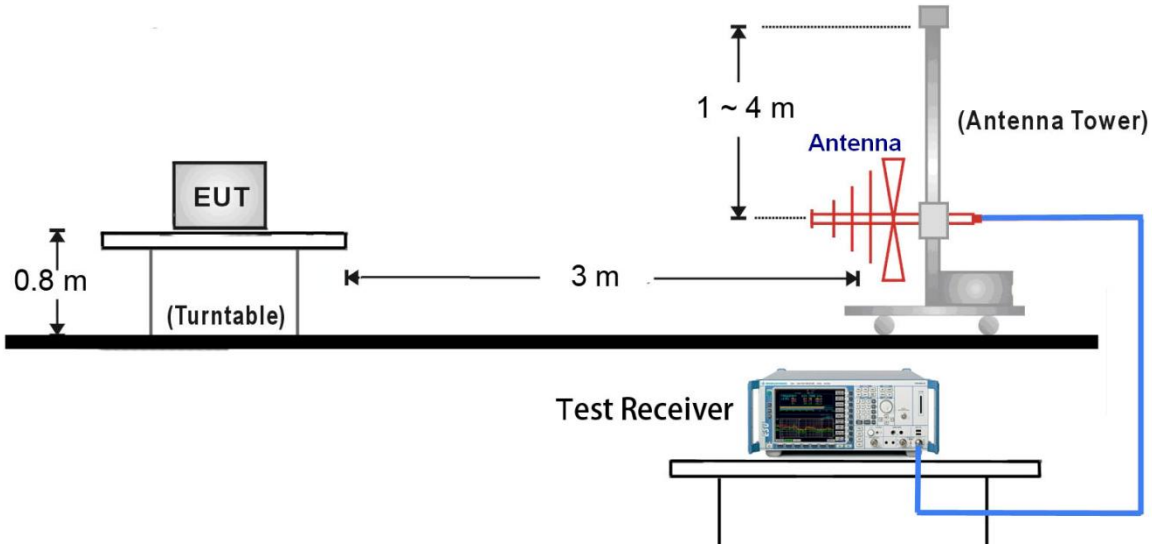
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.

If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.

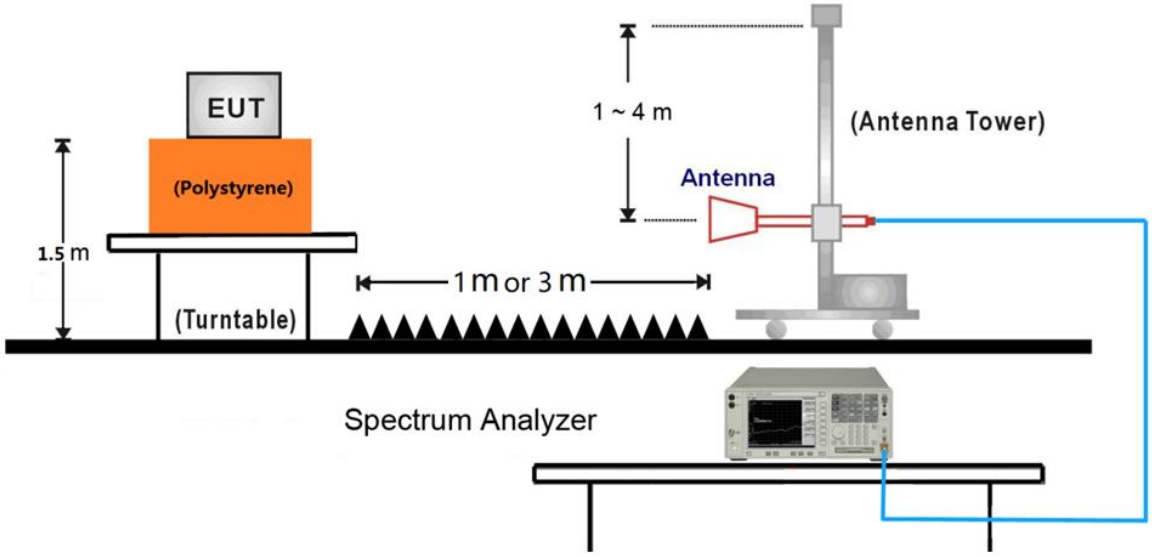
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.8.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.8.5.Test Result

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11a - Ant 0 + 1 + 2 + 3	Test Channel:	36
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8684.0	35.1	13.1	48.2	68.2	-20.0	Peak	Horizontal
*	9831.5	33.3	16.6	49.9	68.2	-18.3	Peak	Horizontal
	11072.5	33.7	17.9	51.6	74.0	-22.4	Peak	Horizontal
	12356.0	34.8	17.2	52.0	74.0	-22.0	Peak	Horizontal
*	8616.0	35.3	12.9	48.2	68.2	-20.0	Peak	Vertical
*	9942.0	33.4	16.8	50.2	68.2	-18.0	Peak	Vertical
	11115.0	34.3	17.8	52.1	74.0	-21.9	Peak	Vertical
	12220.0	34.0	17.4	51.4	74.0	-22.6	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11a - Ant 0 + 1 + 2 + 3	Test Channel:	40
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8684.0	34.3	13.1	47.4	68.2	-20.8	Peak	Horizontal
*	9823.0	34.1	16.5	50.6	68.2	-17.6	Peak	Horizontal
	11064.0	34.7	17.9	52.6	74.0	-21.4	Peak	Horizontal
	12033.0	33.9	17.4	51.3	74.0	-22.7	Peak	Horizontal
*	8828.5	34.1	13.3	47.4	68.2	-20.8	Peak	Vertical
*	9874.0	34.6	16.8	51.4	68.2	-16.8	Peak	Vertical
	10809.0	34.7	18.0	52.7	74.0	-21.3	Peak	Vertical
	12211.5	33.4	17.4	50.8	74.0	-23.2	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11a - Ant 0 + 1 + 2 + 3	Test Channel:	48
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8828.5	33.9	13.3	47.2	68.2	-21.0	Peak	Horizontal
*	9746.5	34.9	16.1	51.0	68.2	-17.2	Peak	Horizontal
	11089.5	34.1	17.8	51.9	74.0	-22.1	Peak	Horizontal
	12203.0	34.0	17.4	51.4	74.0	-22.6	Peak	Horizontal
*	8854.0	33.9	13.4	47.3	68.2	-20.9	Peak	Vertical
*	9823.0	33.9	16.5	50.4	68.2	-17.8	Peak	Vertical
	10885.5	34.9	18.1	53.0	74.0	-21.0	Peak	Vertical
	12237.0	34.4	17.4	51.8	74.0	-22.2	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11ac-VHT20 - Ant 0 + 1 + 2 + 3	Test Channel:	36
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8582.0	35.9	12.8	48.7	68.2	-19.5	Peak	Horizontal
*	9789.0	34.9	16.1	51.0	68.2	-17.2	Peak	Horizontal
	10928.0	34.3	18.2	52.5	74.0	-21.5	Peak	Horizontal
	12279.5	34.8	17.3	52.1	74.0	-21.9	Peak	Horizontal
*	8667.0	34.7	12.9	47.6	68.2	-20.6	Peak	Vertical
*	10086.5	33.8	16.9	50.7	68.2	-17.5	Peak	Vertical
	10800.5	34.8	18.0	52.8	74.0	-21.2	Peak	Vertical
	11956.5	34.2	17.3	51.5	74.0	-22.5	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11ac-VHT20 - Ant 0 + 1 + 2 + 3	Test Channel:	40
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8871.0	35.1	13.2	48.3	68.2	-19.9	Peak	Horizontal
*	10375.5	34.2	17.4	51.6	68.2	-16.6	Peak	Horizontal
	11336.0	35.1	17.6	52.7	74.0	-21.3	Peak	Horizontal
	12237.0	34.8	17.4	52.2	74.0	-21.8	Peak	Horizontal
*	8845.5	34.8	13.3	48.1	68.2	-20.1	Peak	Vertical
*	10035.5	34.2	16.7	50.9	68.2	-17.3	Peak	Vertical
	10962.0	34.7	18.2	52.9	74.0	-21.1	Peak	Vertical
	11795.0	35.0	17.3	52.3	74.0	-21.7	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11ac-VHT20 - Ant 0 + 1 + 2 + 3	Test Channel:	48
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8692.5	34.6	13.0	47.6	68.2	-20.6	Peak	Horizontal
*	9899.5	34.1	16.6	50.7	68.2	-17.5	Peak	Horizontal
	11242.5	34.7	17.5	52.2	74.0	-21.8	Peak	Horizontal
	12160.5	33.8	17.5	51.3	74.0	-22.7	Peak	Horizontal
*	8769.0	35.2	13.2	48.4	68.2	-19.8	Peak	Vertical
*	9908.0	33.9	16.6	50.5	68.2	-17.7	Peak	Vertical
	10775.0	34.8	17.9	52.7	74.0	-21.3	Peak	Vertical
	12101.0	33.9	17.5	51.4	74.0	-22.6	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11ac-VHT20 - Ant 0 + 1 + 2 + 3	Test Channel:	149
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8871.0	35.5	13.2	48.7	68.2	-19.5	Peak	Horizontal
*	9993.0	33.1	16.7	49.8	68.2	-18.4	Peak	Horizontal
	11106.5	34.6	17.8	52.4	74.0	-21.6	Peak	Horizontal
	11948.0	34.6	17.3	51.9	74.0	-22.1	Peak	Horizontal
*	8879.5	35.7	13.2	48.9	68.2	-19.3	Peak	Vertical
*	9857.0	35.0	16.7	51.7	68.2	-16.5	Peak	Vertical
	11013.0	34.7	18.0	52.7	74.0	-21.3	Peak	Vertical
	12007.5	34.9	17.4	52.3	74.0	-21.7	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11ac-VHT20 - Ant 0 + 1 + 2 + 3	Test Channel:	157
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8786.0	34.2	13.3	47.5	68.2	-20.7	Peak	Horizontal
*	9899.5	34.8	16.6	51.4	68.2	-16.8	Peak	Horizontal
	10936.5	34.0	18.3	52.3	74.0	-21.7	Peak	Horizontal
	11684.5	34.9	17.5	52.4	74.0	-21.6	Peak	Horizontal
*	8854.0	34.4	13.4	47.8	68.2	-20.4	Peak	Vertical
*	9780.5	35.1	16.1	51.2	68.2	-17.0	Peak	Vertical
	10834.5	34.9	18.0	52.9	74.0	-21.1	Peak	Vertical
	12500.5	35.1	17.3	52.4	74.0	-21.6	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11ac-VHT20 - Ant 0 + 1 + 2 + 3	Test Channel:	161
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8837.0	34.9	13.2	48.1	68.2	-20.1	Peak	Horizontal
*	10180.0	33.4	17.1	50.5	68.2	-17.7	Peak	Horizontal
	10936.5	33.2	18.3	51.5	74.0	-22.5	Peak	Horizontal
	11922.5	33.3	17.3	50.6	74.0	-23.4	Peak	Horizontal
*	8820.0	34.2	13.3	47.5	68.2	-20.7	Peak	Vertical
*	9840.0	33.5	16.7	50.2	68.2	-18.0	Peak	Vertical
	10911.0	33.3	18.2	51.5	74.0	-22.5	Peak	Vertical
	11990.5	34.0	17.4	51.4	74.0	-22.6	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11ac-VHT80 - Ant 0 + 1 + 2 + 3	Test Channel:	42
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8845.5	35.3	13.3	48.6	68.2	-19.6	Peak	Horizontal
*	9840.0	33.8	16.7	50.5	68.2	-17.7	Peak	Horizontal
	10953.5	34.1	18.2	52.3	74.0	-21.7	Peak	Horizontal
	12169.0	34.6	17.5	52.1	74.0	-21.9	Peak	Horizontal
*	8845.5	34.2	13.3	47.5	68.2	-20.7	Peak	Vertical
*	9899.5	33.5	16.6	50.1	68.2	-18.1	Peak	Vertical
	10894.0	34.4	18.1	52.5	74.0	-21.5	Peak	Vertical
	11914.0	34.9	17.3	52.2	74.0	-21.8	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 dBμV/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 (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Product	GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Temperature	26°C
Test Engineer	Max Wang	Relative Humidity	57 %
Test Site	AC1	Test Date	2019/01/17
Test Mode:	802.11ac-VHT80 - Ant 0 + 1 + 2 + 3	Test Channel:	155
Remark:	1. Average measurement was not performed if peak level lower than average limit. So the margin was calculated using the average limit for emissions fall within the restricted bands. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	8786.0	35.7	13.3	49.0	68.2	-19.2	Peak	Horizontal
*	9950.5	33.7	16.7	50.4	68.2	-17.8	Peak	Horizontal
	10809.0	35.1	18.0	53.1	74.0	-20.9	Peak	Horizontal
	12262.5	34.2	17.4	51.6	74.0	-22.4	Peak	Horizontal
*	8777.5	34.1	13.2	47.3	68.2	-20.9	Peak	Vertical
*	9925.0	34.4	16.6	51.0	68.2	-17.2	Peak	Vertical
	11098.0	34.3	17.8	52.1	74.0	-21.9	Peak	Vertical
	11990.5	34.3	17.4	51.7	74.0	-22.3	Peak	Vertical

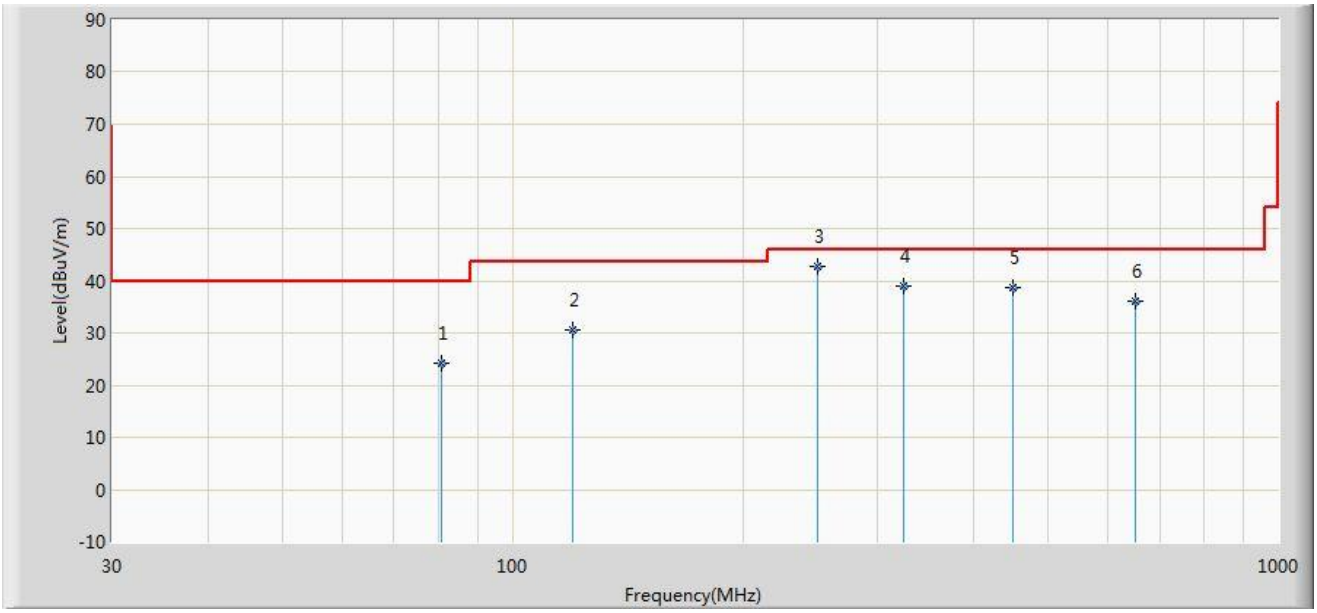
Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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

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

The Worst Case of Radiated Emission below 1GHz:

Site: AC1	Time: 2019/01/22 - 19:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: There is the worst case within frequency range 30MHz~1GHz.	



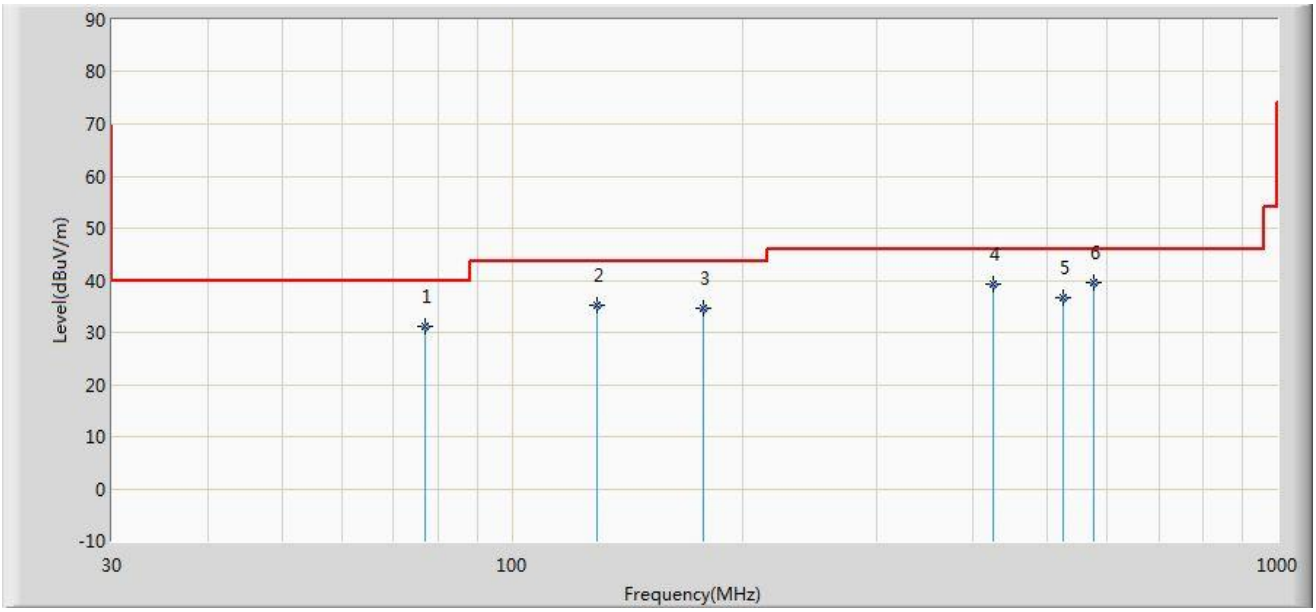
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			80.925	24.203	14.050	-15.797	40.000	10.153	QP
2			119.725	30.689	17.499	-12.811	43.500	13.190	QP
3		*	250.190	42.787	29.760	-3.213	46.000	13.028	QP
4			324.880	39.101	24.016	-6.899	46.000	15.085	QP
5			450.010	38.740	20.821	-7.260	46.000	17.919	QP
6			649.830	36.212	14.759	-9.788	46.000	21.453	QP

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

Site: AC1	Time: 2019/01/22 - 00:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: There is the worst case within frequency range 30MHz~1GHz.	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			77.045	31.220	20.672	-8.780	40.000	10.548	QP
2			128.940	35.349	21.578	-8.151	43.500	13.771	QP
3			177.925	34.702	21.487	-8.798	43.500	13.215	QP
4			424.790	39.374	22.102	-6.626	46.000	17.272	QP
5			524.700	36.638	17.572	-9.362	46.000	19.066	QP
6		*	575.140	39.473	19.446	-6.527	46.000	20.026	QP

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

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	8.025 - 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 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Refer to KDB 789033 D02v02r01 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 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/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 Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.9.3.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

Average Measurements above 1GHz (Method VB)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. RBW = 1MHz

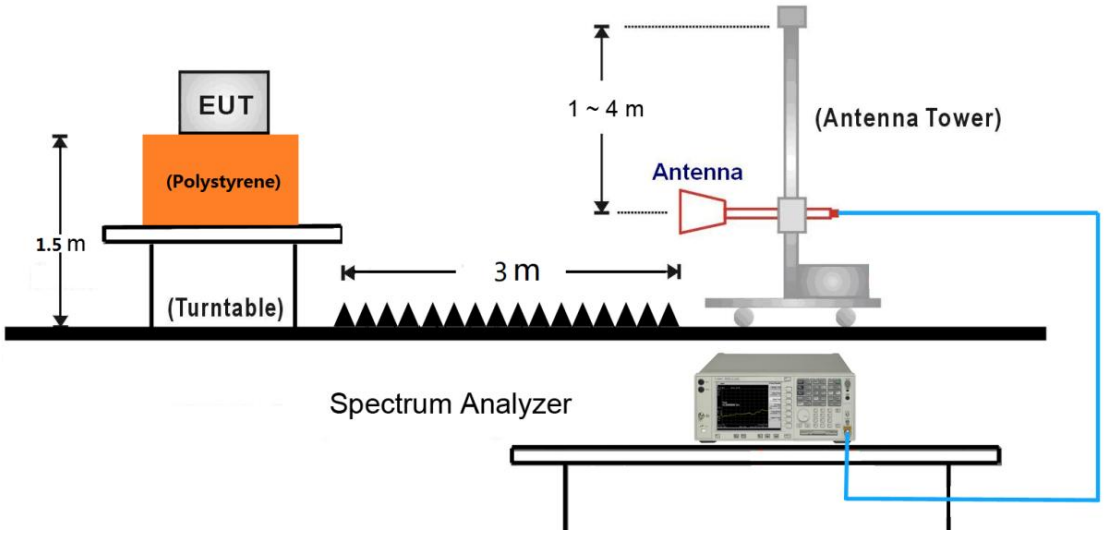
3. VBW If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW ≤ RBW/100 (i.e., 10 kHz) but not less than 10 Hz. If the EUT duty cycle is < 98%, set VBW ≥ 1/T.

4. Detector = Peak

5. Sweep time = auto

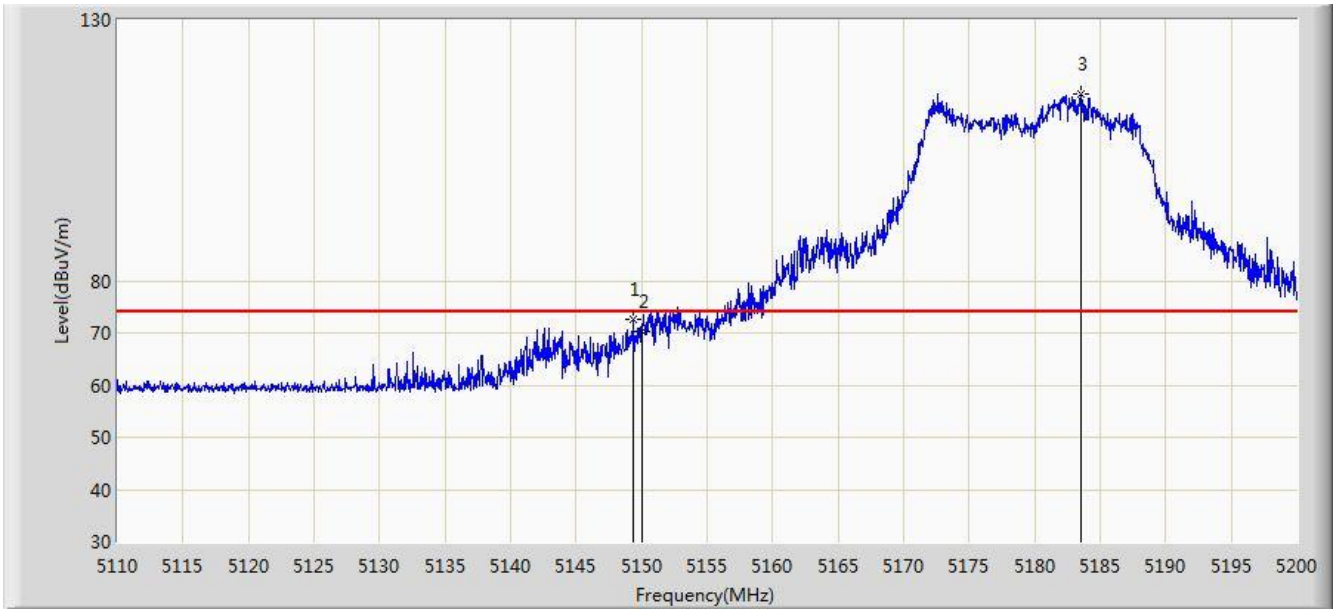
6. Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98% duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where x is the duty cycle.

7.9.4.Test Setup



7.9.5.Test Result

Site: AC1	Time: 2019/01/16 - 12:03
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11a at Channel 5180MHz	

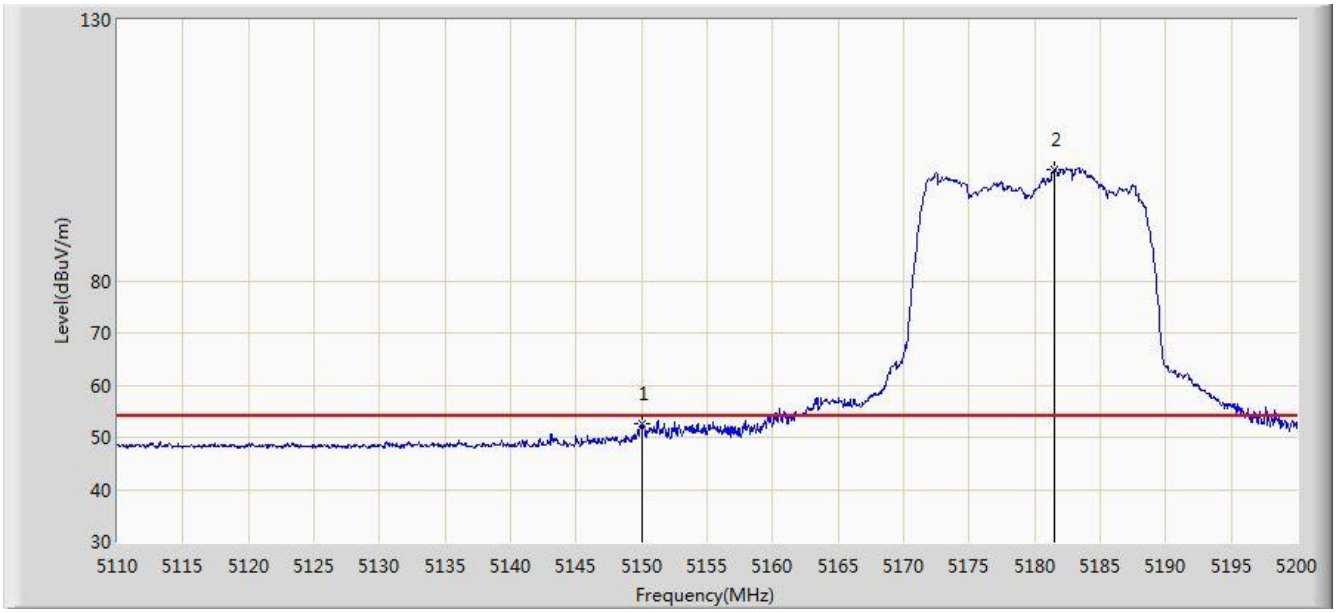


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5149.375	72.647	66.086	-1.353	74.000	6.561	PK
2			5150.000	70.307	63.745	-3.693	74.000	6.562	PK
3		*	5183.575	115.793	109.374	N/A	N/A	6.419	PK

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

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

Site: AC1	Time: 2019/01/16 - 13:04
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11a at Channel 5180MHz	

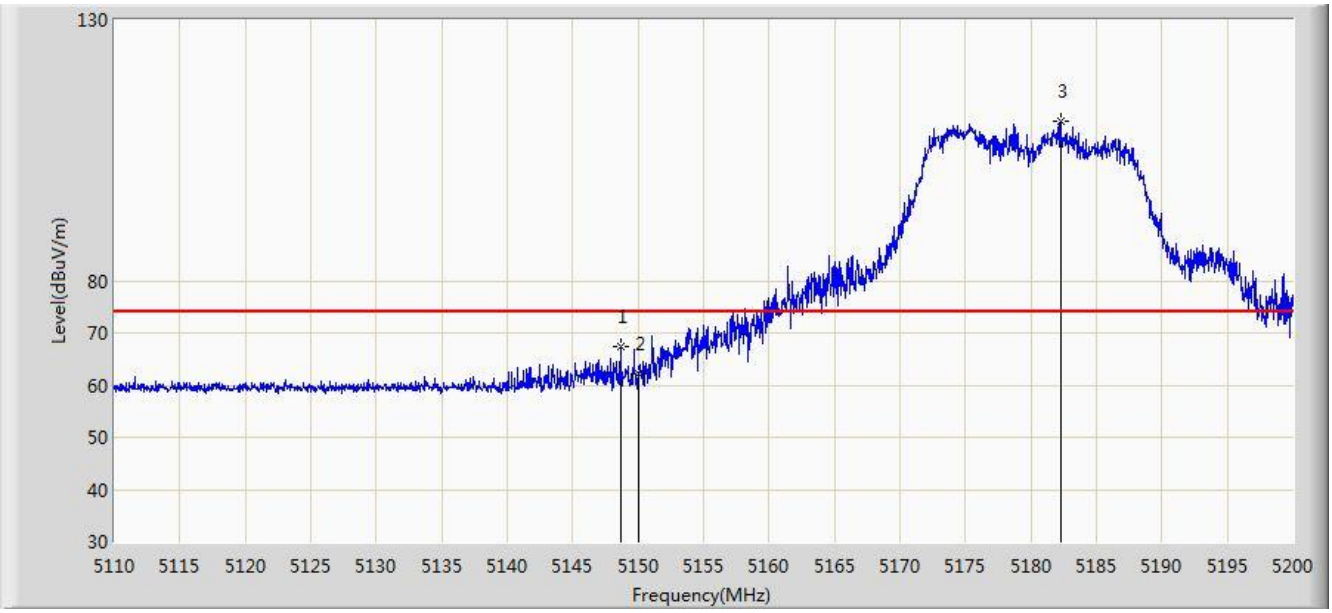


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	52.534	45.972	-1.466	54.000	6.562	AV
2		*	5181.550	101.351	94.919	N/A	N/A	6.432	AV

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

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

Site: AC1	Time: 2019/01/16 - 13:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11a at Channel 5180MHz	

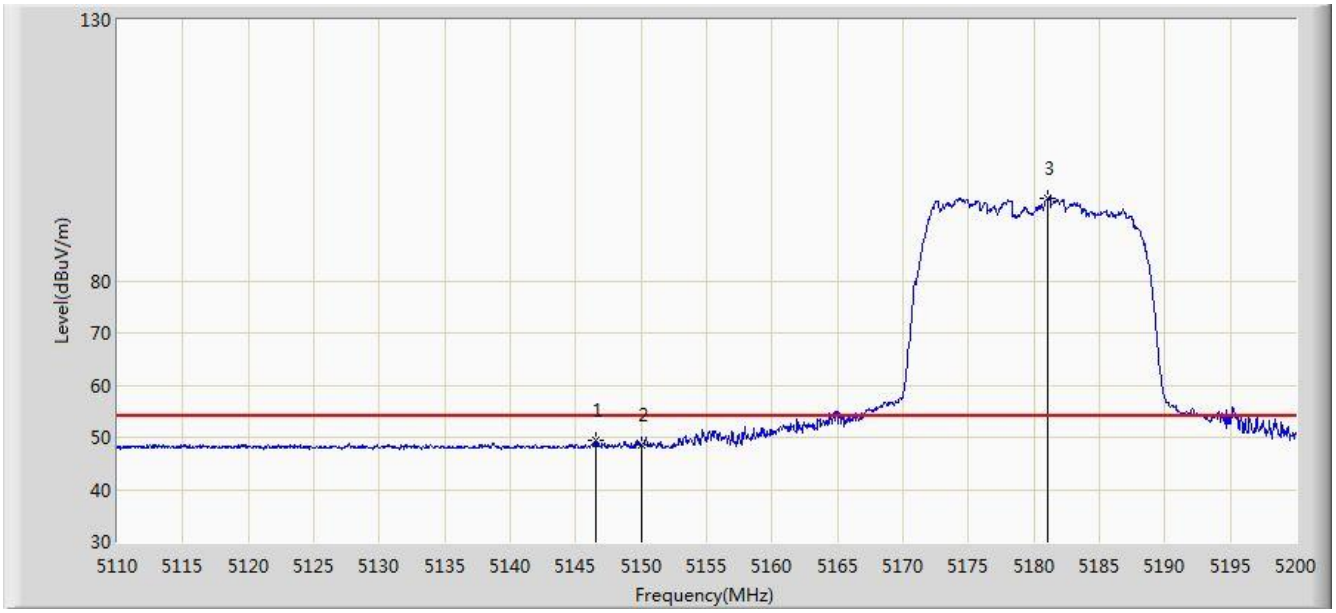


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5148.655	67.391	60.831	-6.609	74.000	6.560	PK
2			5150.000	62.094	55.532	-11.906	74.000	6.562	PK
3		*	5182.270	110.573	104.146	N/A	N/A	6.427	PK

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

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

Site: AC1	Time: 2019/01/16 - 13:12
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11a at Channel 5180MHz	

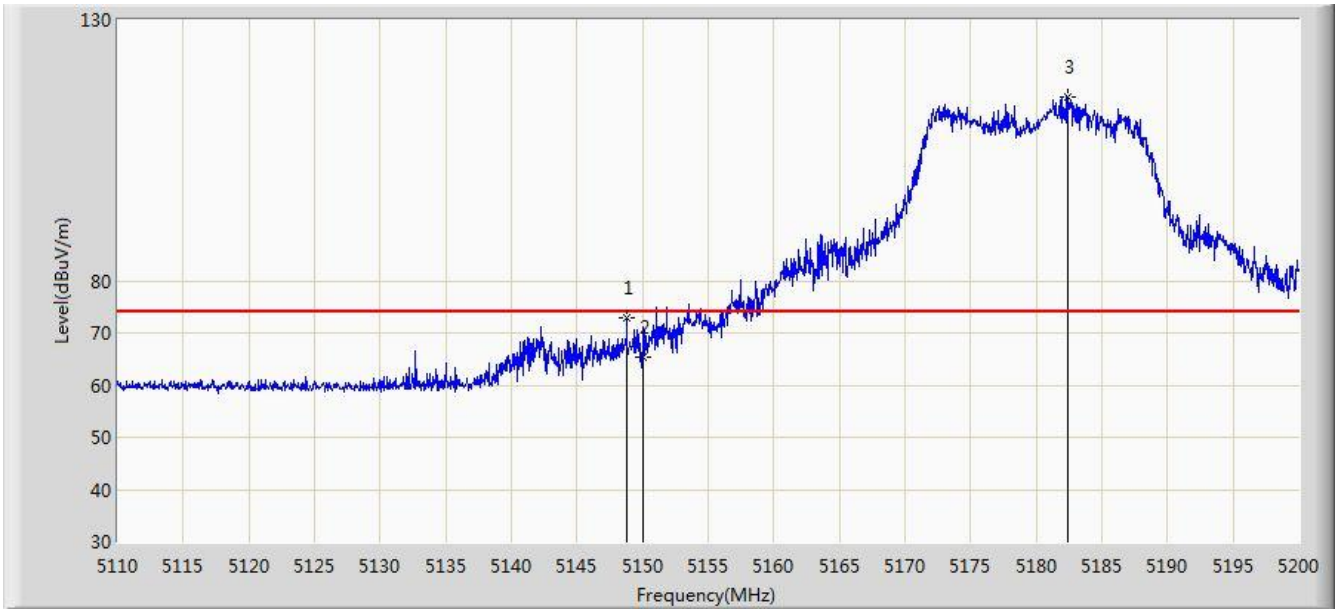


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5146.495	49.360	42.793	-4.640	54.000	6.567	AV
2			5150.000	48.508	41.946	-5.492	54.000	6.562	AV
3		*	5181.055	95.761	89.325	N/A	N/A	6.435	AV

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

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

Site: AC1	Time: 2019/01/16 - 13:14
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT20 at Channel 5180MHz	

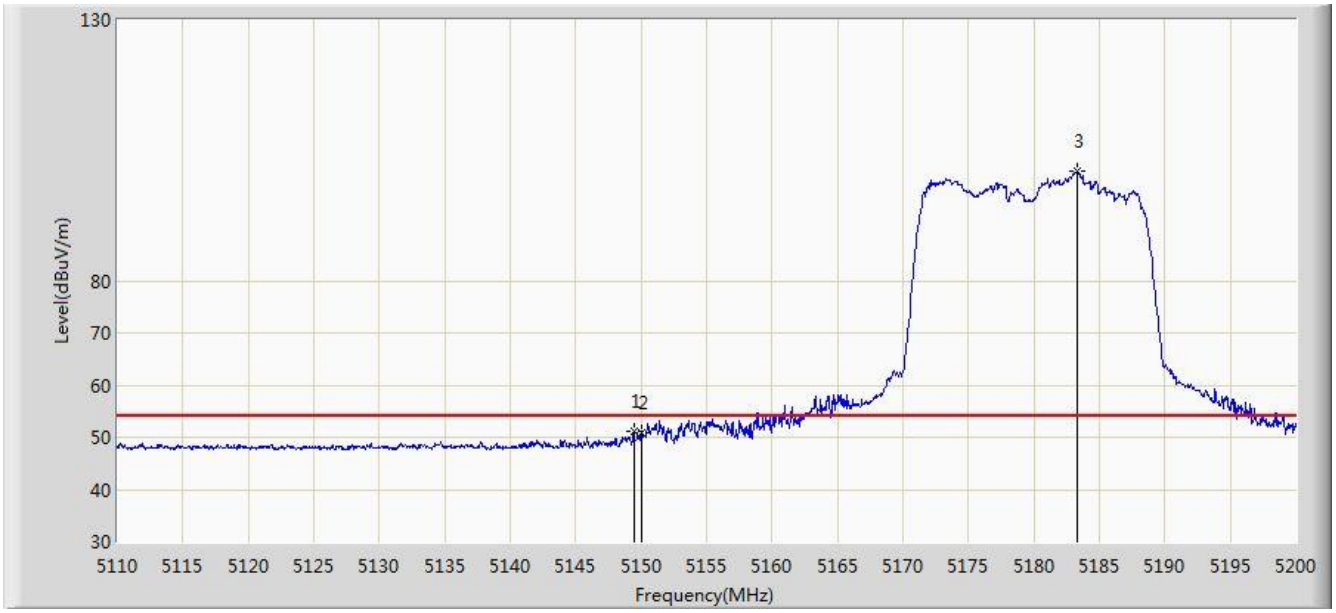


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5148.790	72.999	66.439	-1.001	74.000	6.560	PK
2			5150.000	65.383	58.821	-8.617	74.000	6.562	PK
3		*	5182.405	115.334	108.908	N/A	N/A	6.426	PK

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

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

Site: AC1	Time: 2019/01/16 - 13:21
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT20 at Channel 5180MHz	

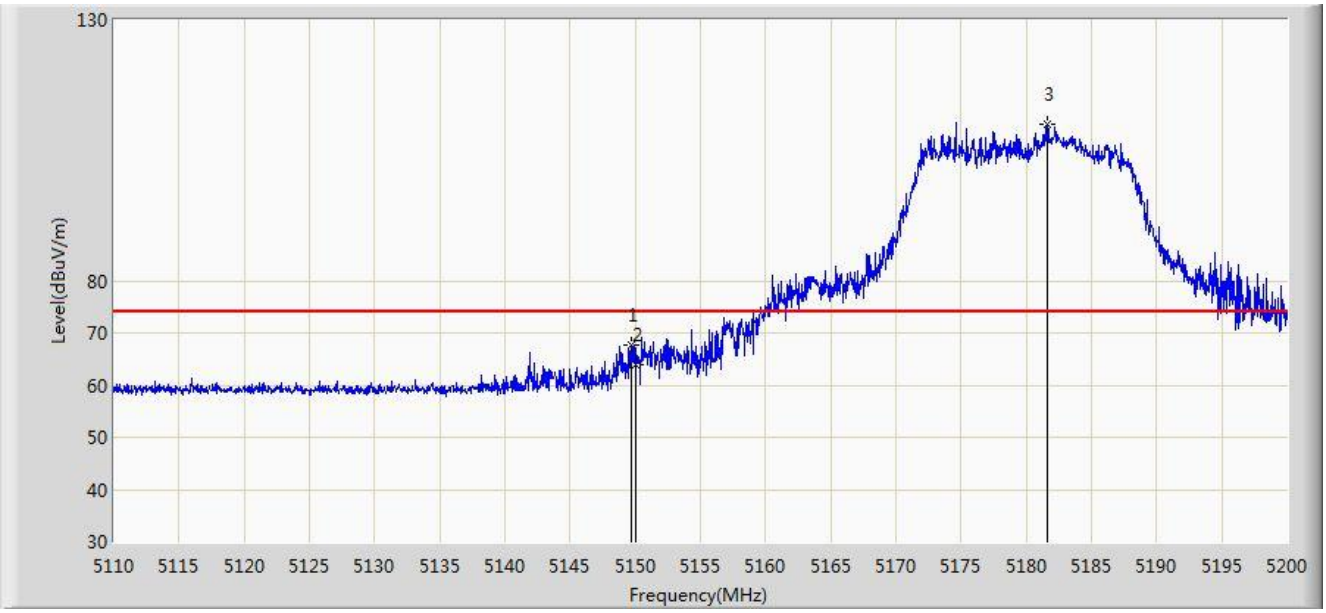


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5149.420	51.212	44.651	-2.788	54.000	6.561	AV
2			5150.000	50.732	44.170	-3.268	54.000	6.562	AV
3		*	5183.305	101.105	94.684	N/A	N/A	6.421	AV

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

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

Site: AC1	Time: 2019/01/16 - 13:26
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT20 at Channel 5180MHz	

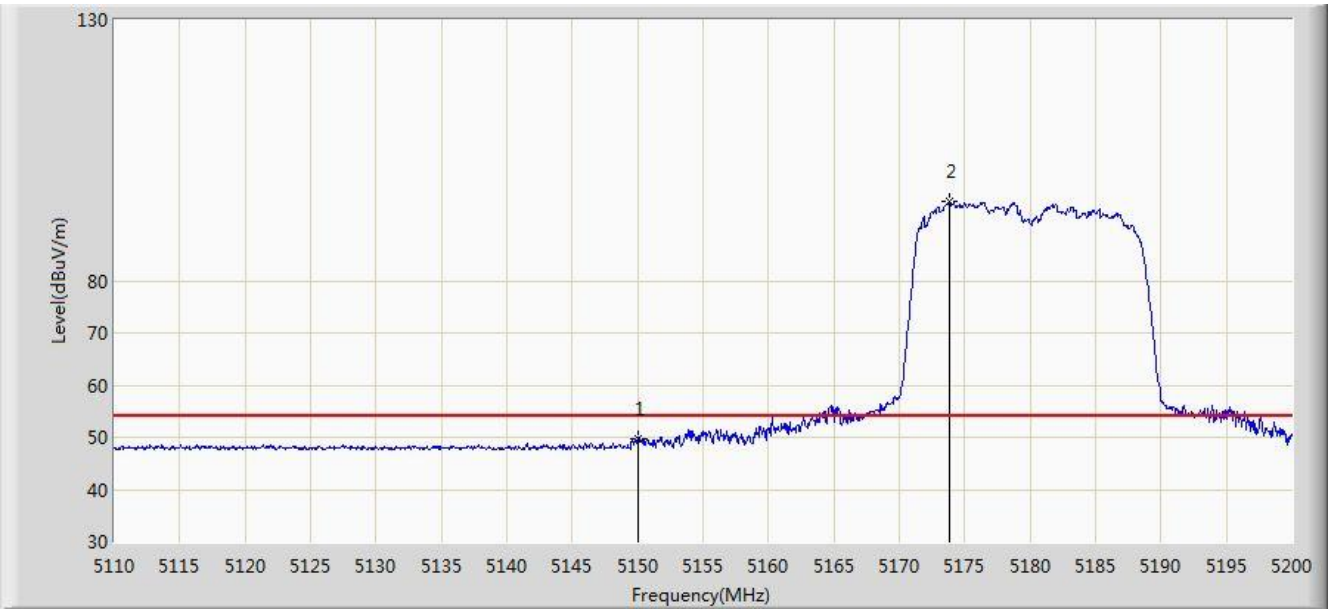


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5149.690	67.547	60.986	-6.453	74.000	6.561	PK
2			5150.000	64.015	57.453	-9.985	74.000	6.562	PK
3		*	5181.640	110.003	103.572	N/A	N/A	6.431	PK

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

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

Site: AC1	Time: 2019/01/16 - 13:28
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT20 at Channel 5180MHz	

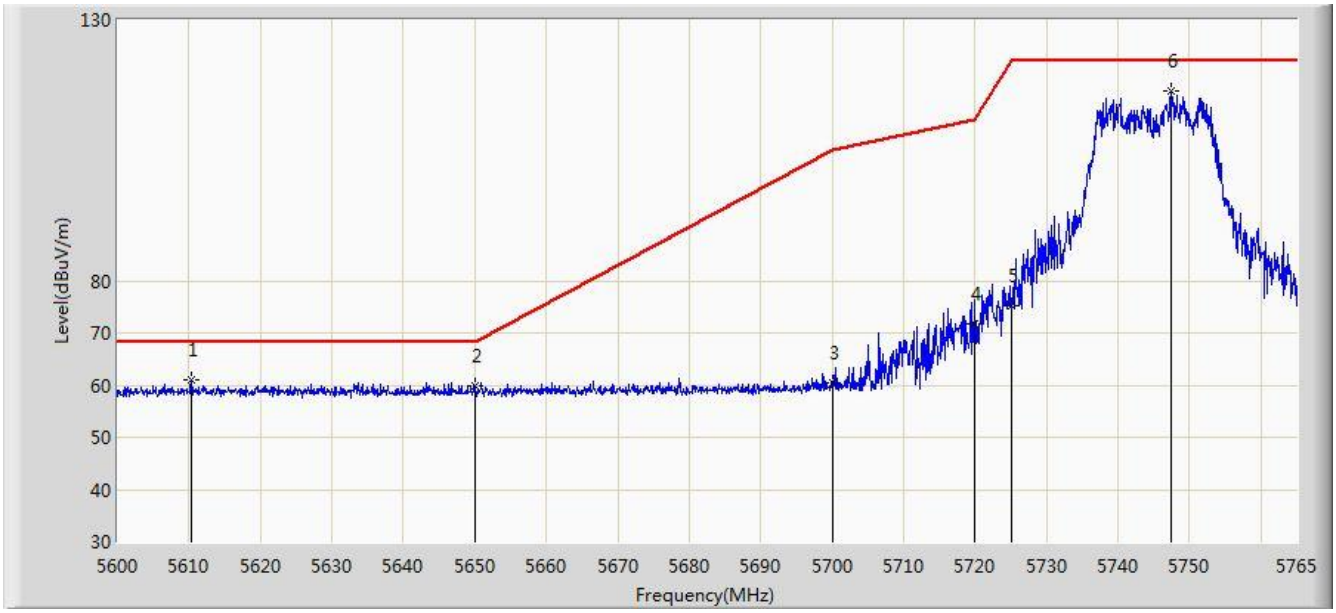


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5150.000	49.820	43.258	-4.180	54.000	6.562	AV
2		*	5173.810	95.128	88.634	N/A	N/A	6.493	AV

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

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

Site: AC1	Time: 2019/01/16 - 13:31
Limit: FCC_Part15.407_RE(3m)_Bandedge	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT20 at Channel 5745MHz	

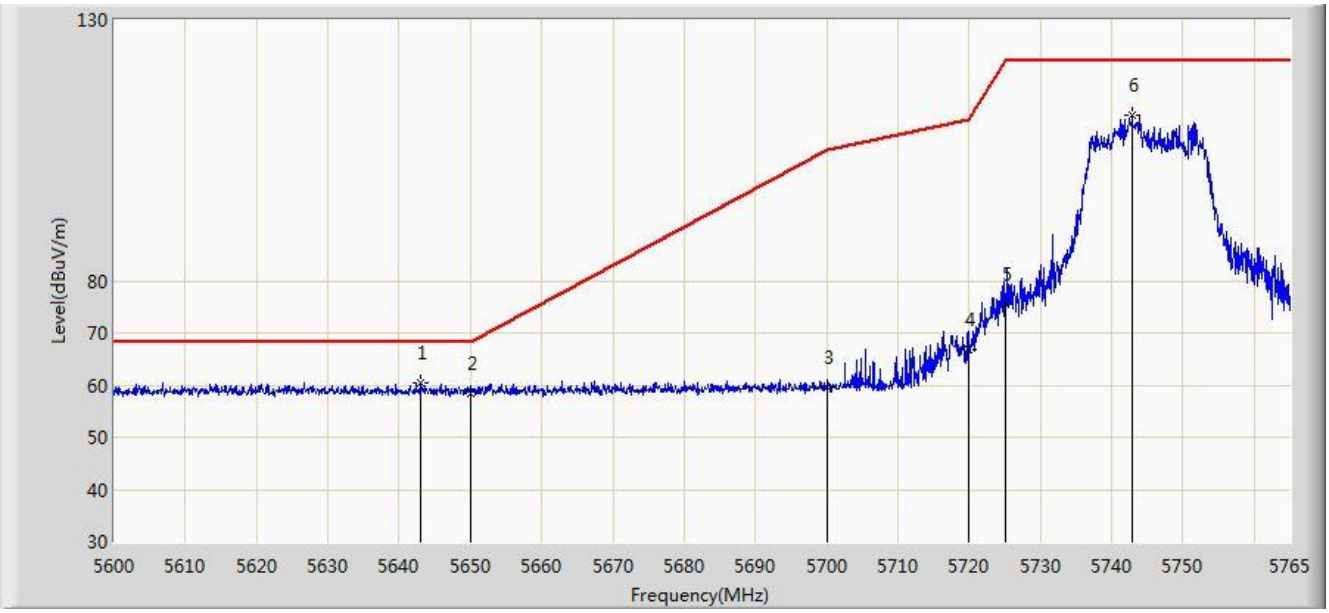


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5610.312	60.908	53.923	-7.292	68.200	6.985	PK
2			5650.000	59.883	52.878	-8.317	68.200	7.005	PK
3			5700.000	60.492	53.327	-44.708	105.200	7.165	PK
4			5720.000	71.846	64.547	-38.954	110.800	7.299	PK
5			5725.000	75.131	67.803	-47.069	122.200	7.328	PK
6		*	5747.345	116.316	108.910	N/A	N/A	7.406	PK

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

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

Site: AC1	Time: 2019/01/16 - 13:35
Limit: FCC_Part15.407_RE(3m)_Bandedge	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT20 at Channel 5745MHz	

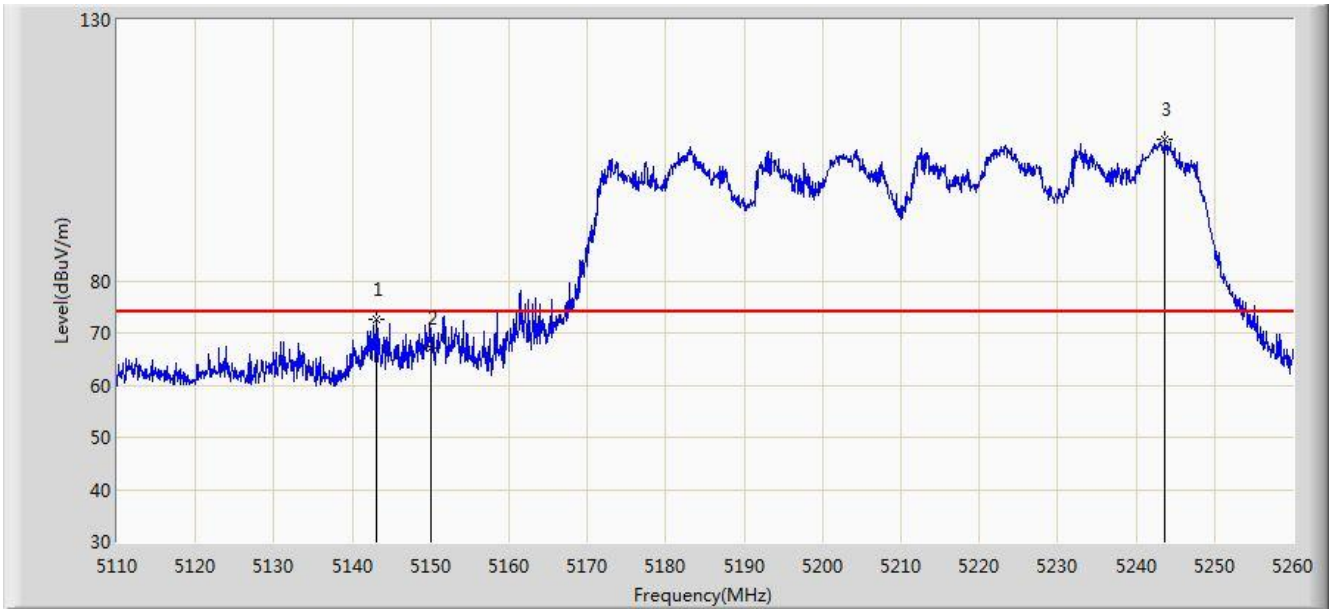


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5643.065	60.562	53.572	-7.638	68.200	6.990	PK
2			5650.000	58.540	51.535	-9.660	68.200	7.005	PK
3			5700.000	59.531	52.366	-45.669	105.200	7.165	PK
4			5720.000	66.779	59.480	-44.021	110.800	7.299	PK
5			5725.000	75.556	68.228	-46.644	122.200	7.328	PK
6			5742.890	111.749	104.346	N/A	N/A	7.403	PK

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

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

Site: AC1	Time: 2019/01/16 - 13:47
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT80 at Channel 5210MHz	

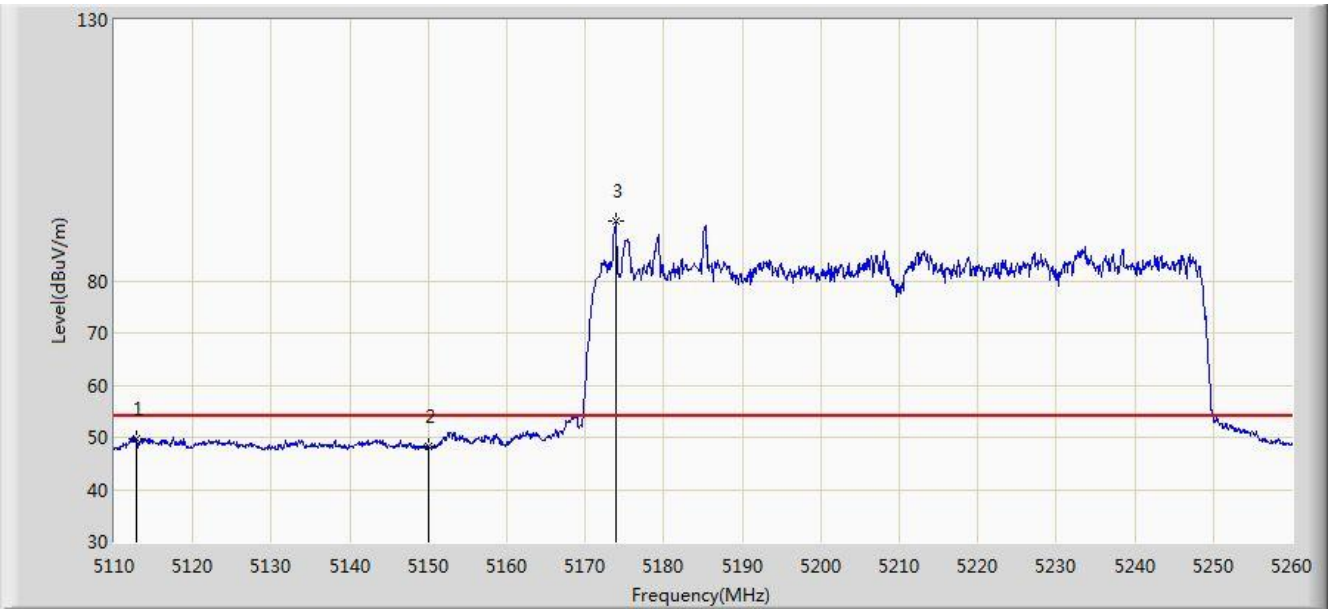


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5143.000	72.475	65.887	-1.525	74.000	6.588	PK
2			5150.000	67.142	60.580	-6.858	74.000	6.562	PK
3		*	5243.725	107.069	100.675	N/A	N/A	6.395	PK

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

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

Site: AC1	Time: 2019/01/16 - 13:50
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT80 at Channel 5210MHz	

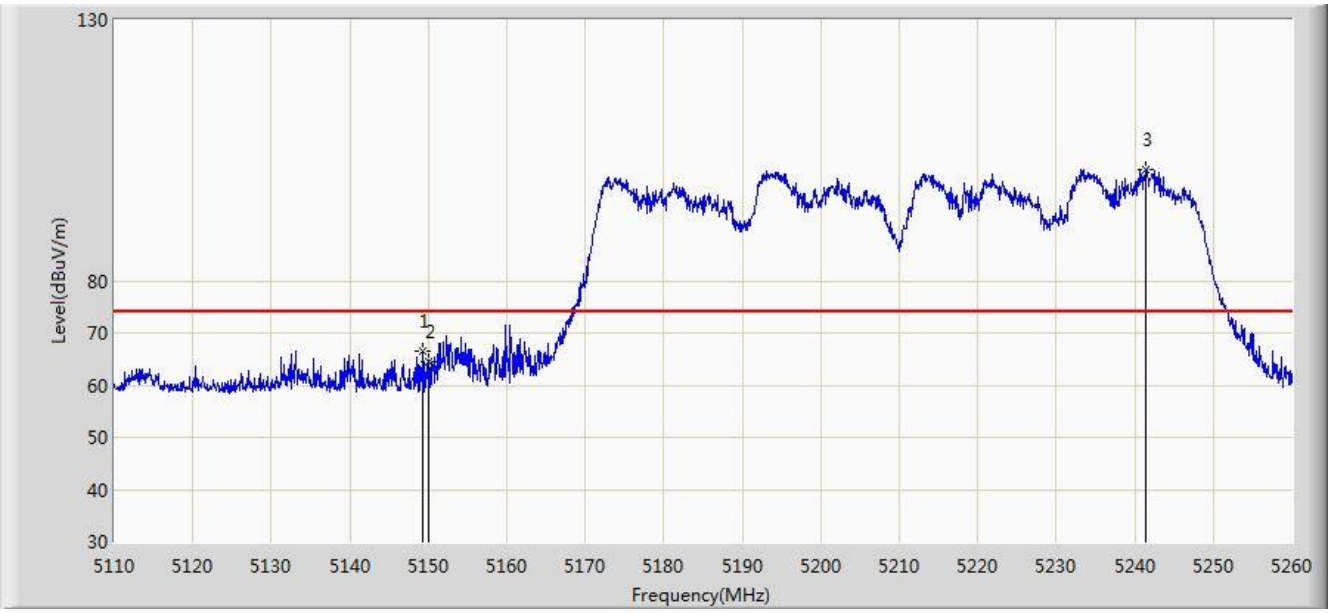


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5112.775	49.741	43.101	-4.259	54.000	6.641	AV
2			5150.000	48.292	41.730	-5.708	54.000	6.562	AV
3		*	5173.900	91.318	84.825	N/A	N/A	6.493	AV

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

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

Site: AC1	Time: 2019/01/16 - 13:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT80 at Channel 5210MHz	

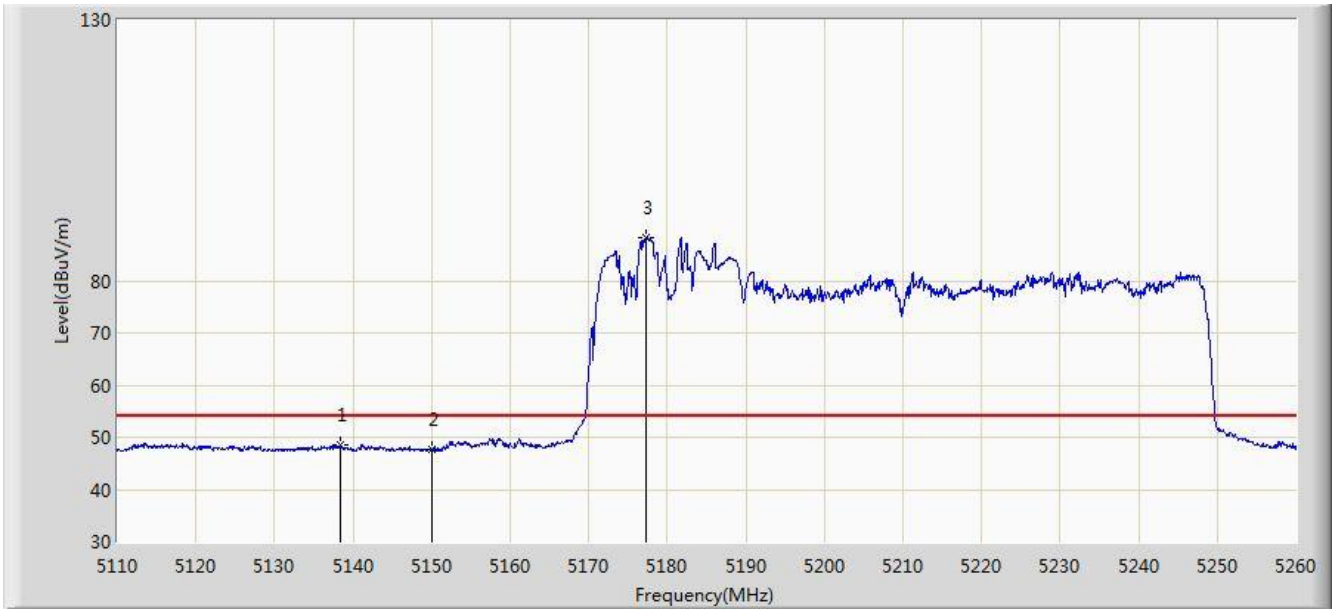


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5149.375	66.482	59.921	-7.518	74.000	6.561	PK
2			5150.000	64.418	57.856	-9.582	74.000	6.562	PK
3		*	5241.400	101.359	94.962	N/A	N/A	6.397	PK

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

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

Site: AC1	Time: 2019/01/16 - 13:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT80 at Channel 5210MHz	

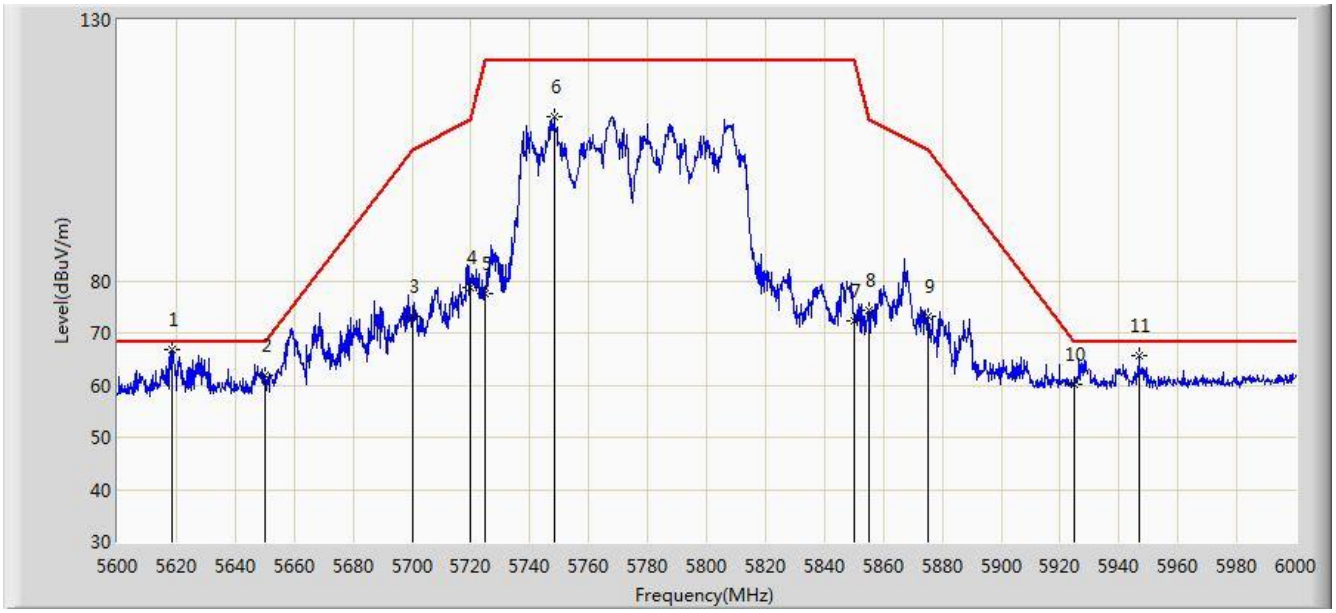


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5138.425	48.529	41.915	-5.471	54.000	6.614	AV
2			5150.000	47.593	41.031	-6.407	54.000	6.562	AV
3		*	5177.350	88.320	81.855	N/A	N/A	6.465	AV

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

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

Site: AC1	Time: 2019/01/16 - 14:06
Limit: FCC_Part15.407_RE(3m)_Bandedge	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT80 at Channel 5775MHz	

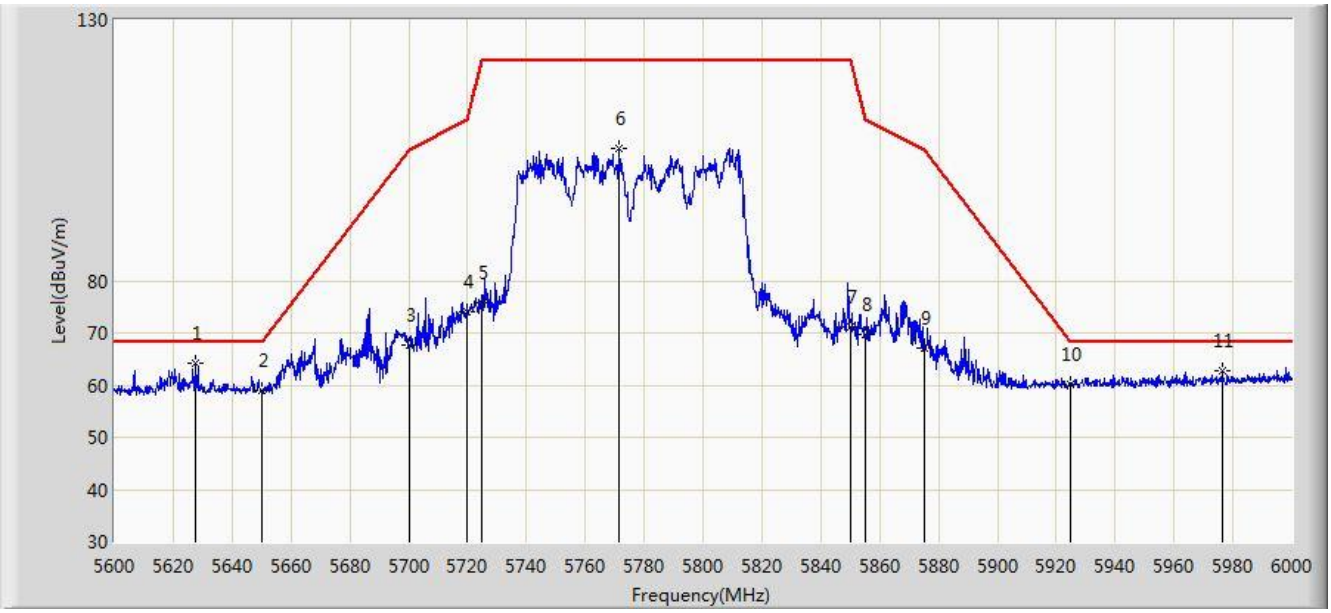


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5618.600	66.668	59.665	-1.532	68.200	7.003	PK
2			5650.000	61.911	54.906	-6.289	68.200	7.005	PK
3			5700.000	73.178	66.013	-32.022	105.200	7.165	PK
4			5720.000	78.754	71.455	-32.046	110.800	7.299	PK
5			5725.000	77.533	70.205	-44.667	122.200	7.328	PK
6			5748.200	111.522	104.115	N/A	N/A	7.407	PK
7			5850.000	72.388	64.615	-49.812	122.200	7.774	PK
8			5855.000	74.385	66.609	-36.415	110.800	7.775	PK
9			5875.000	73.245	65.427	-31.955	105.200	7.818	PK
10			5925.000	60.118	52.299	-8.082	68.200	7.819	PK
11			5946.800	65.543	57.698	-2.657	68.200	7.845	PK

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

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

Site: AC1	Time: 2019/01/16 - 14:08
Limit: FCC_Part15.407_RE(3m)_Bandedge	Engineer: Max Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: By POE
Test Mode: Transmit by 802.11ac-VHT80 at Channel 5775MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	5627.800	64.089	57.081	-4.111	68.200	7.008	PK
2			5650.000	58.947	51.942	-9.253	68.200	7.005	PK
3			5700.000	67.809	60.644	-37.391	105.200	7.165	PK
4			5720.000	74.041	66.742	-36.759	110.800	7.299	PK
5			5725.000	75.896	68.568	-46.304	122.200	7.328	PK
6			5771.400	105.498	98.045	N/A	N/A	7.454	PK
7			5850.000	71.081	63.308	-51.119	122.200	7.774	PK
8			5855.000	69.784	62.008	-41.016	110.800	7.775	PK
9			5875.000	67.096	59.278	-38.104	105.200	7.818	PK
10			5925.000	60.153	52.334	-8.047	68.200	7.819	PK
11			5976.400	62.863	54.981	-5.337	68.200	7.882	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + 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 (dBμV)	AV (dBμV)
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.

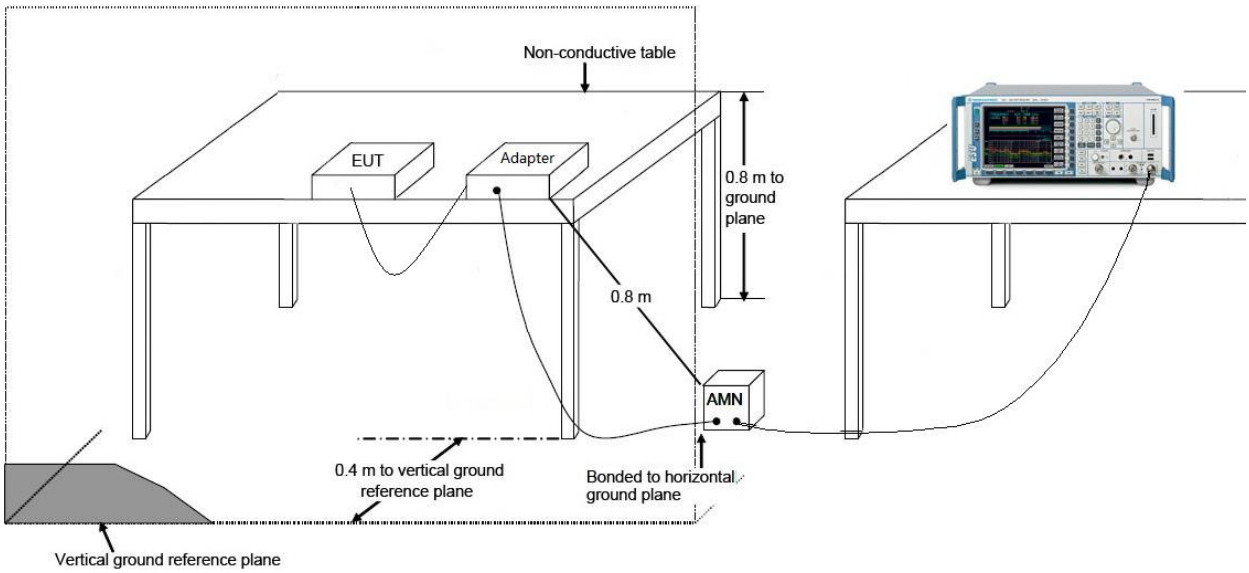
7.10.2. Test Procedure

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.

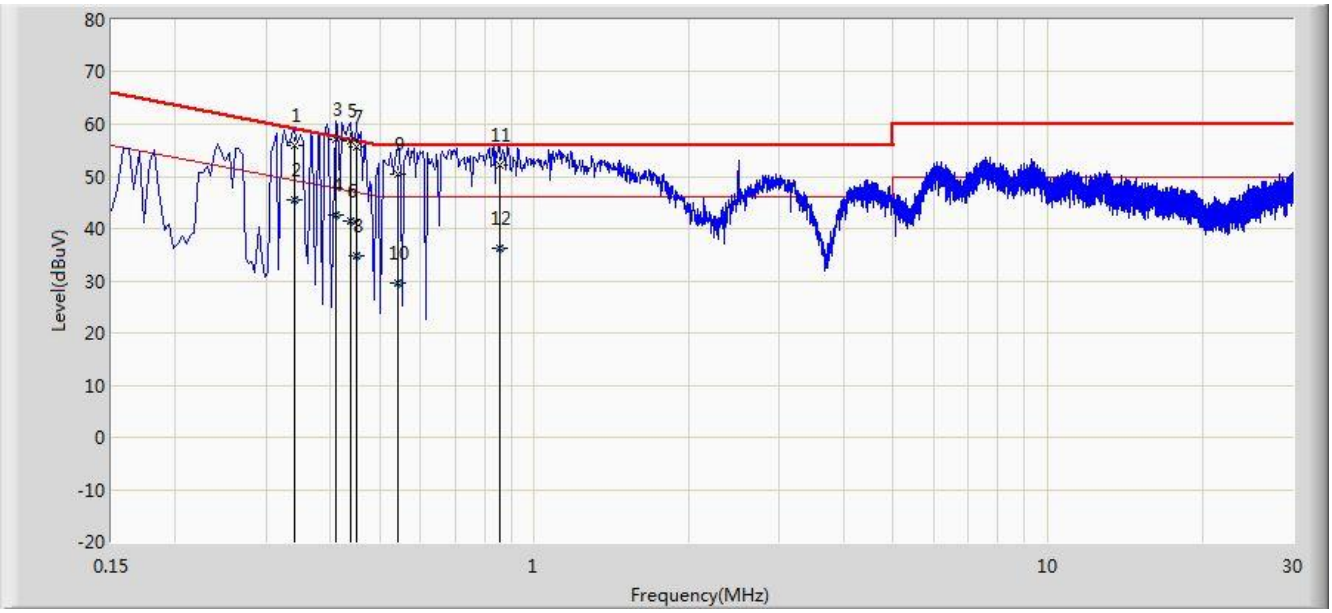
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

7.10.3.Test Setup



7.10.4.Test Result

Site: SR2	Time: 2019/01/16 - 17:45
Limit: FCC_Part15.207_CE_AC Power	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: AC 120V/60Hz
Test Mode 1	

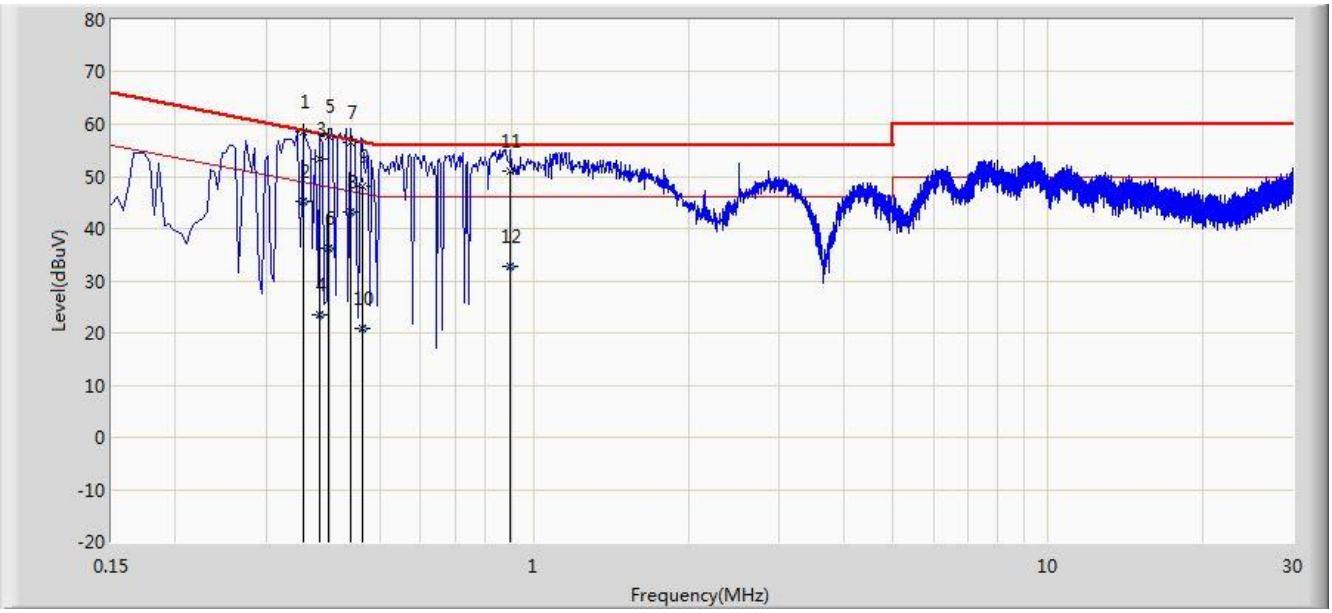


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.342	56.015	45.977	-3.139	59.155	10.038	QP
2			0.342	45.476	35.438	-3.679	49.155	10.038	AV
3			0.410	57.012	46.919	-0.636	57.648	10.093	QP
4			0.410	42.713	32.619	-4.935	47.648	10.093	AV
5		*	0.440	56.720	46.602	-0.342	57.062	10.118	QP
6			0.440	41.540	31.422	-5.522	47.062	10.118	AV
7			0.450	55.519	45.393	-1.356	56.875	10.126	QP
8			0.450	34.843	24.717	-12.032	46.875	10.126	AV
9			0.542	50.472	40.327	-5.528	56.000	10.145	QP
10			0.542	29.606	19.461	-16.394	46.000	10.145	AV
11			0.858	52.157	42.175	-3.843	56.000	9.982	QP
12			0.858	36.123	26.141	-9.877	46.000	9.982	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

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

Site: SR2	Time: 2019/01/16 - 17:42
Limit: FCC_Part15.207_CE_AC Power	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit	Power: AC 120V/60Hz
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.354	58.662	48.584	-0.206	58.868	10.078	QP
2			0.354	45.268	35.191	-3.600	48.868	10.078	AV
3			0.382	53.266	43.167	-4.969	58.236	10.099	QP
4			0.382	23.532	13.433	-24.704	48.236	10.099	AV
5			0.398	57.646	47.536	-0.249	57.895	10.111	QP
6			0.398	36.350	26.240	-11.545	47.895	10.111	AV
7			0.440	56.644	46.502	-0.418	57.062	10.142	QP
8			0.440	43.316	33.173	-3.746	47.062	10.142	AV
9			0.462	48.074	37.915	-8.583	56.657	10.159	QP
10			0.462	20.944	10.785	-25.713	46.657	10.159	AV
11			0.898	51.034	41.069	-4.966	56.000	9.965	QP
12			0.898	32.749	22.784	-13.251	46.000	9.965	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + 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 **GEN3Z Camera and WiFi_Wave2_Zigbee Access Point Unit** is in compliance with Part 15E of the FCC Rules.

The End

Appendix A - Test Setup Photograph

Refer to “1901RSU031-UT” file.

Appendix B - EUT Photograph

Refer to “1901RSU031-UE” file.