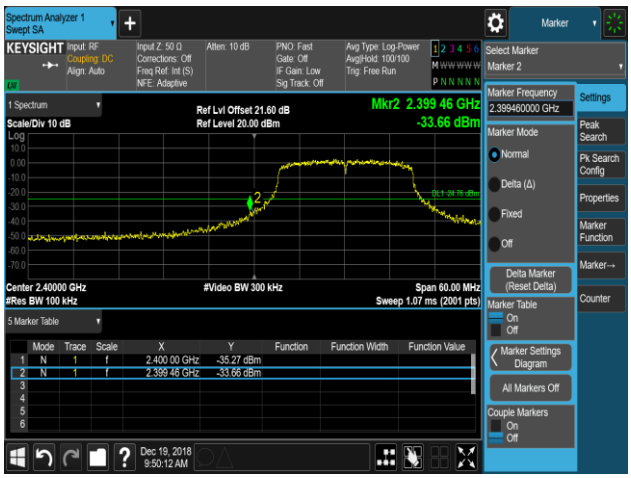
802.11n-HT20 Out-of-Band Emissions

Channel 01 (2412MHz)

100kHz PSD reference Level

Low Band Edge

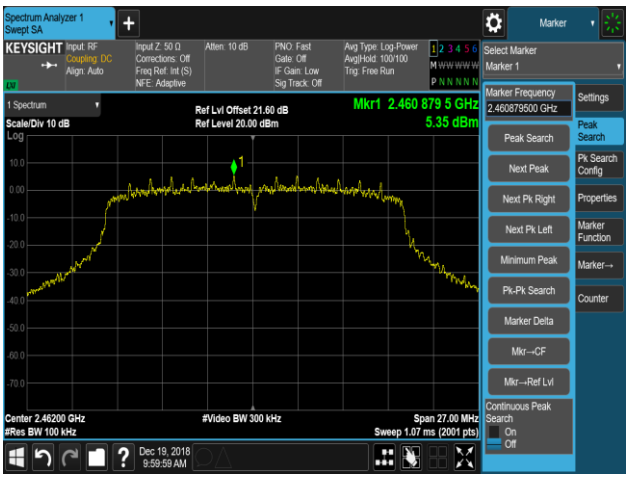


Spurious Emission

Channel 06 (2437MHz)

100kHz PSD reference Level

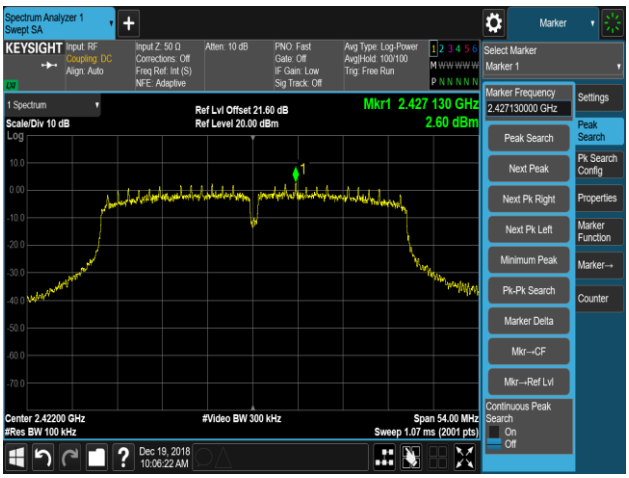
Spurious Emission

802.11n-HT20 Out-of-Band Emissions	
Channel 11 (2462MHz)	
100kHz PSD reference Level	High Band Edge
	
Spurious Emission	

802.11n-HT40 Out-of-Band Emissions

Channel 03 (2422MHz)

100kHz PSD reference Level

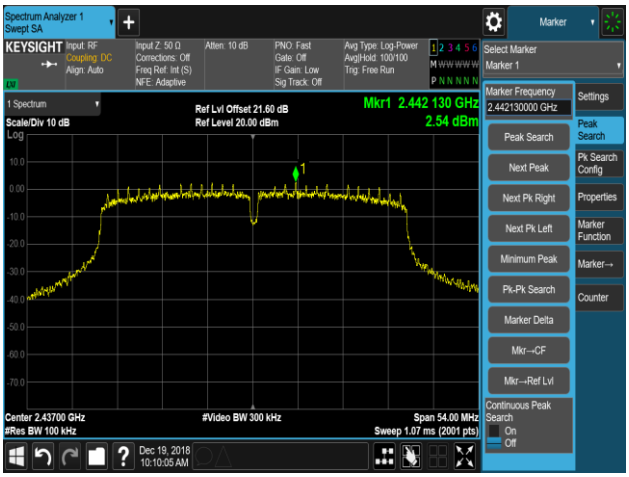


Low Band Edge

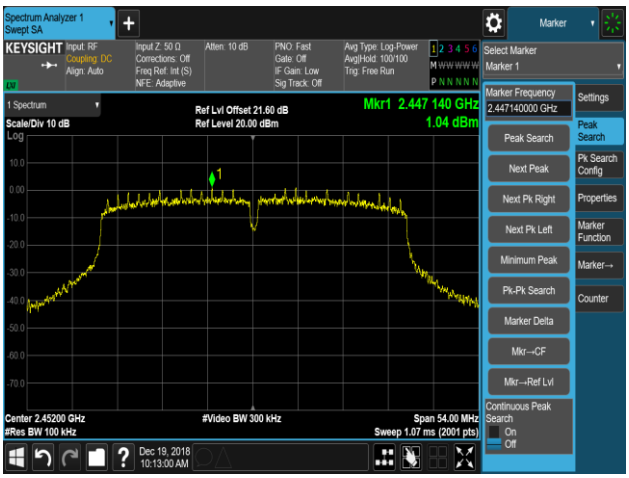
Spurious Emission

Channel 06 (2437MHz)

100kHz PSD reference Level



Spurious Emission

802.11n-HT40 Out-of-Band Emissions	
Channel 09 (2452MHz)	
100kHz PSD reference Level	High Band Edge
	
Spurious Emission	

7.6. Radiated Spurious Emission Measurement

7.6.1.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 [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

7.6.2.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 30MHzto 1GHz)

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

7.6.3.Test Setting

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 or average

5. Sweep time = auto couple

6. Trace was allowed to stabilize

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
> 1000 MHz	1 MHz

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

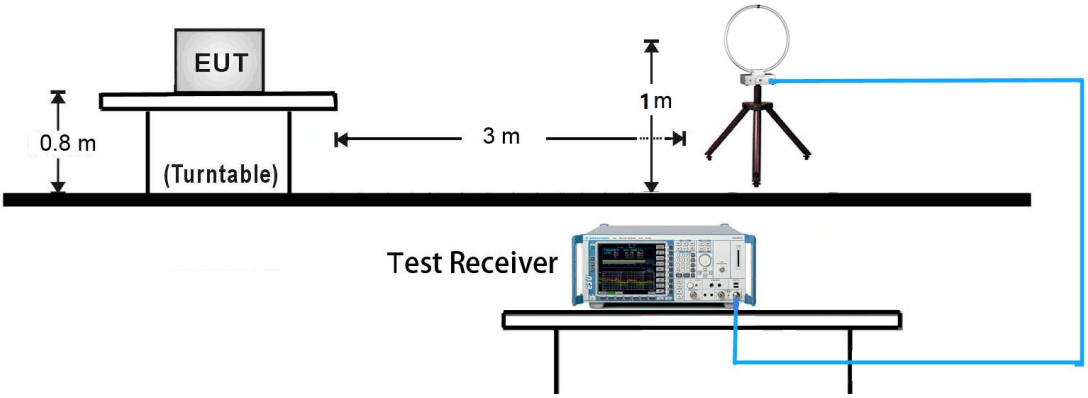
5. Sweep time = auto

6. Trace mode = max hold

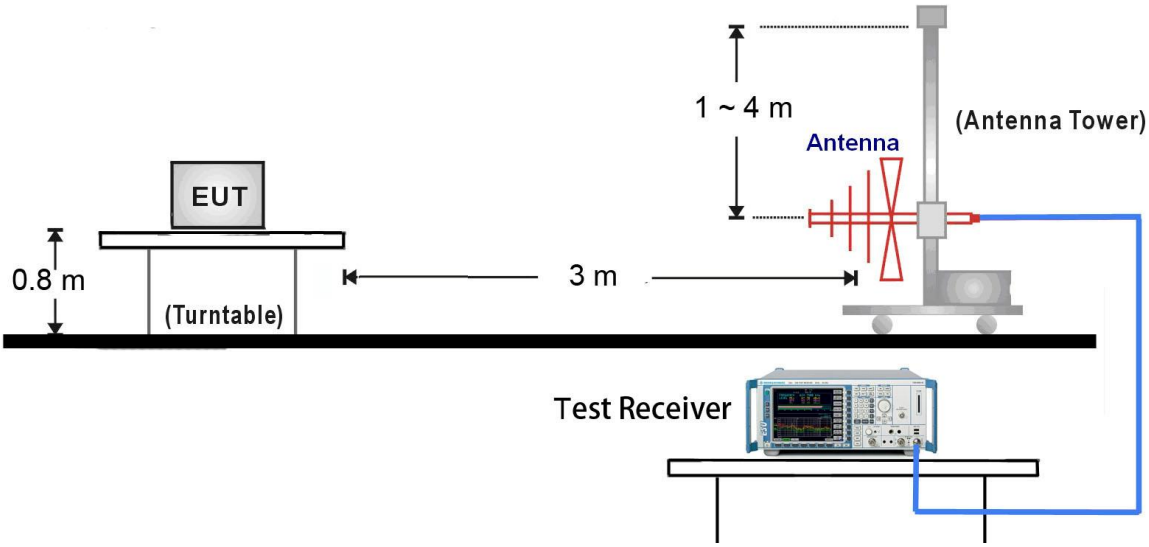
7. Trace was allowed to stabilize

7.6.4.Test Setup

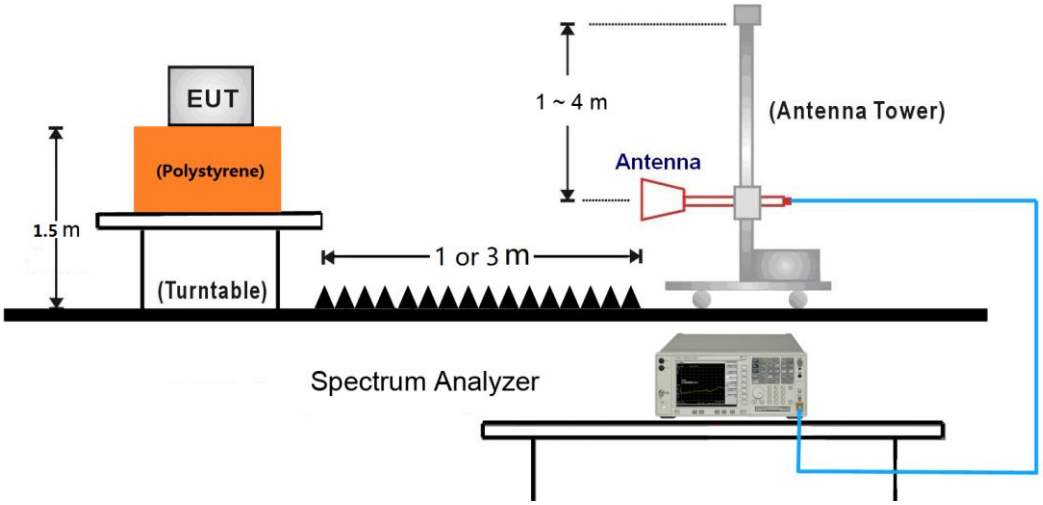
9kHz ~ 30MHzTest Setup:



30MHz~ 1GHz Test Setup:



Above 1GHz Test Setup:



7.6.5.Test Result

Product	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11b	Test Channel:	01
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4824.0	47.9	5.9	53.8	54.0	-0.2	Average	Horizontal
	4824.0	52.6	5.9	58.5	74.0	-15.5	Peak	Horizontal
	7511.0	34.6	12.7	47.3	74.0	-26.7	Peak	Horizontal
*	9823.0	33.3	16.5	49.8	77.9	-28.1	Peak	Horizontal
*	13010.5	32.7	18.5	51.2	77.9	-26.7	Peak	Horizontal
	4824.0	45.6	5.9	51.5	74.0	-22.5	Peak	Vertical
	7460.0	34.5	12.9	47.4	74.0	-26.6	Peak	Vertical
*	10078.0	32.7	17.0	49.7	77.9	-28.2	Peak	Vertical
*	13027.5	32.4	18.4	50.8	77.9	-27.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (107.9dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11b	Test Channel:	06
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4874.0	47.3	6.0	53.3	54.0	-0.7	Average	Horizontal
	4874.0	51.2	6.0	57.2	74.0	-16.8	Peak	Horizontal
	7494.0	36.7	12.7	49.4	74.0	-24.6	Peak	Horizontal
*	9814.5	33.3	16.4	49.7	77.5	-27.8	Peak	Horizontal
*	12959.5	33.1	18.7	51.8	77.5	-25.7	Peak	Horizontal
	4874.0	44.2	6.0	50.2	74.0	-23.8	Peak	Vertical
	7502.5	37.7	12.7	50.4	74.0	-23.6	Peak	Vertical
*	9789.0	34.8	16.1	50.9	77.5	-26.6	Peak	Vertical
*	12900.0	32.9	18.5	51.4	77.5	-26.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (107.5dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11b	Test Channel:	11
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4924.0	47.5	6.1	53.6	54.0	-0.4	Average	Horizontal
	4924.0	49.7	6.1	55.8	74.0	-18.2	Peak	Horizontal
	7502.5	38.0	12.7	50.7	74.0	-23.3	Peak	Horizontal
*	9959.0	35.4	16.7	52.1	76.8	-24.7	Peak	Horizontal
*	12900.0	32.8	18.5	51.3	76.8	-25.5	Peak	Horizontal
	4924.0	45.0	6.1	51.1	74.0	-22.9	Peak	Vertical
	7502.5	37.4	12.7	50.1	74.0	-23.9	Peak	Vertical
*	9925.0	34.7	16.6	51.3	76.8	-25.5	Peak	Vertical
*	13019.0	32.2	18.5	50.7	76.8	-26.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (106.8dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11g	Test Channel:	01
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4824.0	46.6	5.9	52.5	74.0	-21.5	Peak	Horizontal
	7494.0	38.1	12.7	50.8	74.0	-23.2	Peak	Horizontal
*	10001.5	34.9	16.7	51.6	80.3	-28.7	Peak	Horizontal
*	12959.5	32.3	18.7	51.0	80.3	-29.3	Peak	Horizontal
	4824.0	41.9	5.9	47.8	74.0	-26.2	Peak	Vertical
	7528.0	36.3	12.8	49.1	74.0	-24.9	Peak	Vertical
*	9712.5	36.0	15.6	51.6	80.3	-28.7	Peak	Vertical
*	12891.5	33.2	18.5	51.7	80.3	-28.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (110.3dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11g	Test Channel:	06
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4874.0	45.0	6.0	51.0	74.0	-23.0	Peak	Horizontal
	7502.5	39.6	12.7	52.3	74.0	-21.7	Peak	Horizontal
*	10001.5	36.1	16.7	52.8	79.6	-26.8	Peak	Horizontal
*	13002.0	32.7	18.5	51.2	79.6	-28.4	Peak	Horizontal
	4874.0	40.0	6.0	46.0	74.0	-28.0	Peak	Vertical
	7477.0	36.7	12.9	49.6	74.0	-24.4	Peak	Vertical
*	10001.5	34.5	16.7	51.2	79.6	-28.4	Peak	Vertical
*	13121.0	32.4	18.6	51.0	79.6	-28.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (109.6dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11g	Test Channel:	11
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4924.0	44.5	6.1	50.6	74.0	-23.4	Peak	Horizontal
	7502.5	40.1	12.7	52.8	74.0	-21.2	Peak	Horizontal
*	10146.0	34.3	17.0	51.3	78.7	-27.4	Peak	Horizontal
*	13044.5	32.2	18.5	50.7	78.7	-28.0	Peak	Horizontal
	4924.0	39.5	6.1	45.6	74.0	-28.4	Peak	Vertical
	7366.5	35.1	12.7	47.8	74.0	-26.2	Peak	Vertical
*	9874.0	32.4	16.8	49.2	78.7	-29.5	Peak	Vertical
*	13036.0	32.0	18.4	50.4	78.7	-28.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (108.7dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11n-HT20	Test Channel:	01
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4824.0	46.0	5.9	51.9	74.0	-22.1	Peak	Horizontal
	7502.5	37.1	12.7	49.8	74.0	-24.2	Peak	Horizontal
*	10078.0	32.4	17.0	49.4	81.0	-31.6	Peak	Horizontal
*	12840.5	32.9	18.5	51.4	81.0	-29.6	Peak	Horizontal
	4824.0	40.5	5.9	46.4	74.0	-27.6	Peak	Vertical
	8429.0	35.7	12.6	48.3	74.0	-25.7	Peak	Vertical
*	10001.5	38.6	16.7	55.3	81.0	-25.7	Peak	Vertical
*	12951.0	33.6	18.7	52.3	81.0	-28.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (111.0dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11n-HT20	Test Channel:	06
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4874.0	44.0	6.0	50.0	74.0	-24.0	Peak	Horizontal
	7502.5	36.4	12.7	49.1	74.0	-24.9	Peak	Horizontal
*	9899.5	32.5	16.6	49.1	79.0	-29.9	Peak	Horizontal
*	13010.5	32.5	18.5	51.0	79.0	-28.0	Peak	Horizontal
	4874.0	41.0	6.0	47.0	74.0	-27.0	Peak	Vertical
	7502.5	35.8	12.7	48.5	74.0	-25.5	Peak	Vertical
*	9857.0	34.0	16.7	50.7	79.0	-28.3	Peak	Vertical
*	13129.5	32.2	18.7	50.9	79.0	-28.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (109.0dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11n-HT20	Test Channel:	11
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4924.0	45.8	6.1	51.9	74.0	-22.1	Peak	Horizontal
	7494.0	36.4	12.7	49.1	74.0	-24.9	Peak	Horizontal
*	10001.5	36.1	16.7	52.8	79.3	-26.5	Peak	Horizontal
*	12900.0	32.4	18.5	50.9	79.3	-28.4	Peak	Horizontal
	5003.5	41.8	6.3	48.1	74.0	-25.9	Peak	Vertical
	8361.0	36.5	12.6	49.1	74.0	-24.9	Peak	Vertical
*	9814.5	33.5	16.4	49.9	79.3	-29.4	Peak	Vertical
*	13019.0	32.2	18.5	50.7	79.3	-28.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (109.3dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11n-HT40	Test Channel:	03
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4844.0	42.5	5.9	48.4	74.0	-25.6	Peak	Horizontal
	7502.5	38.3	12.7	51.0	74.0	-23.0	Peak	Horizontal
*	9772.0	33.0	16.2	49.2	76.3	-27.1	Peak	Horizontal
*	13095.5	32.2	18.7	50.9	76.3	-25.4	Peak	Horizontal
	5003.5	41.9	6.3	48.2	74.0	-25.8	Peak	Vertical
	7494.0	35.9	12.7	48.6	74.0	-25.4	Peak	Vertical
*	9967.5	34.5	16.7	51.2	76.3	-25.1	Peak	Vertical
*	13010.5	32.0	18.5	50.5	76.3	-25.8	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (106.3dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11n-HT40	Test Channel:	06
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4874.0	42.7	6.0	48.7	74.0	-25.3	Peak	Horizontal
	7494.0	36.5	12.7	49.2	74.0	-24.8	Peak	Horizontal
*	10171.5	32.9	17.0	49.9	75.8	-25.9	Peak	Horizontal
*	12951.0	33.3	18.7	52.0	75.8	-23.8	Peak	Horizontal
	5003.5	41.3	6.3	47.6	74.0	-26.4	Peak	Vertical
	7366.5	35.3	12.7	48.0	74.0	-26.0	Peak	Vertical
*	10001.5	36.4	16.7	53.1	75.8	-22.7	Peak	Vertical
*	13019.0	33.4	18.5	51.9	75.8	-23.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (105.8dBμV/m) or 15.209 which is higher.

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	2.4GHz/5GHz WiFi + Bluetooth Combination Module	Temperature	26°C
Test Engineer	Flag Yang	Relative Humidity	56%
Test Site	AC1	Test Date	2018/12/19
Test Mode:	802.11n-HT40	Test Channel:	09
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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4904.0	39.7	6.0	45.7	74.0	-28.3	Peak	Horizontal
	7502.5	38.0	12.7	50.7	74.0	-23.3	Peak	Horizontal
*	9933.5	34.8	16.7	51.5	74.1	-22.6	Peak	Horizontal
*	13087.0	33.5	18.7	52.2	74.1	-21.9	Peak	Horizontal
	5003.5	40.0	6.3	46.3	74.0	-27.7	Peak	Vertical
	7494.0	36.9	12.7	49.6	74.0	-24.4	Peak	Vertical
*	10197.0	34.6	17.2	51.8	74.1	-22.3	Peak	Vertical
*	13112.5	34.0	18.7	52.7	74.1	-21.4	Peak	Vertical

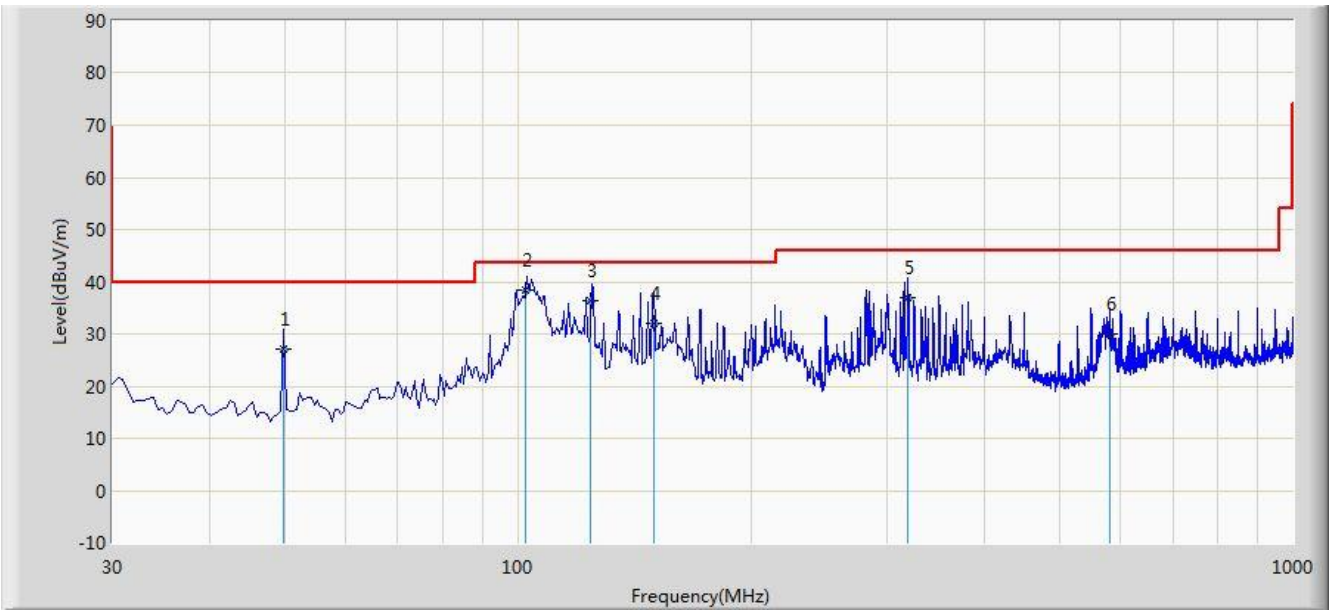
Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (104.1dBμV/m) or 15.209 which is higher.

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: 2018/12/20 - 15:29
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: There is the worst case within frequency range 30MHz~1GHz.	



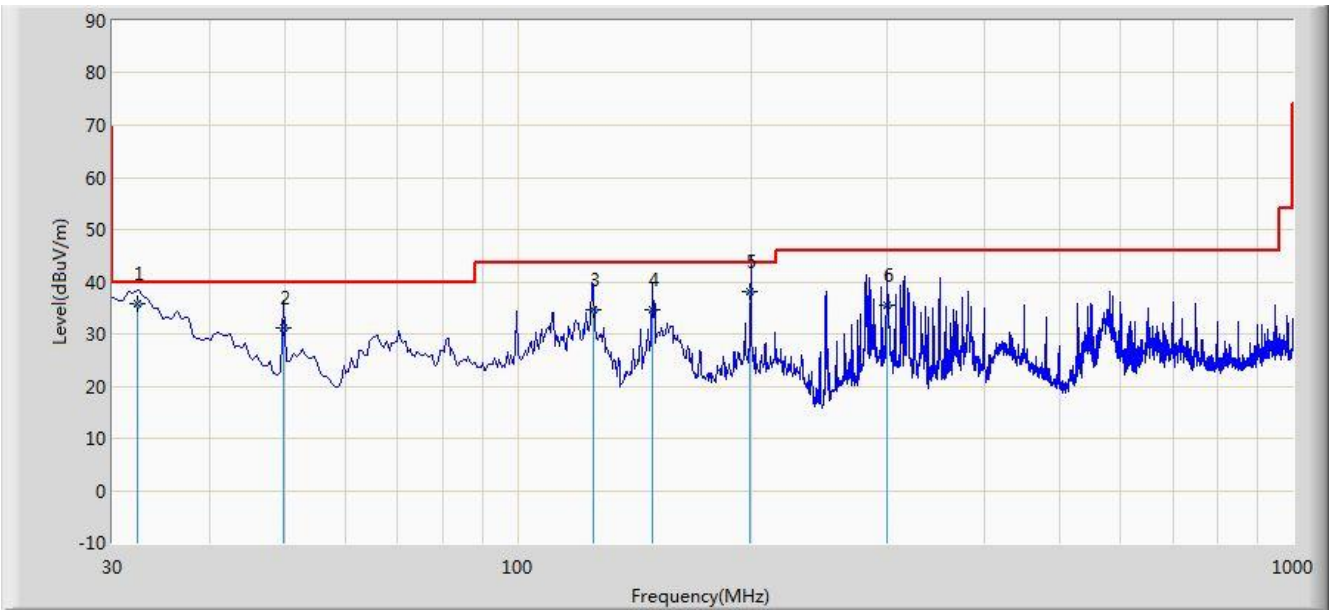
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			49.773	27.192	12.998	-12.808	40.000	14.194	QP
2		*	102.558	38.309	26.981	-5.191	43.500	11.328	QP
3			124.230	36.492	23.001	-7.008	43.500	13.491	QP
4			149.897	32.066	16.819	-11.434	43.500	15.247	QP
5			318.663	36.899	21.991	-9.101	46.000	14.908	QP
6			580.790	30.062	9.911	-15.938	46.000	20.151	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: 2018/12/20 - 15:33
Limit: FCC_Part15.209_RE(3m)	Engineer: David Lv
Probe: VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
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		*	32.310	35.834	22.007	-4.166	40.000	13.827	QP
2			49.870	31.193	17.005	-8.807	40.000	14.188	QP
3			125.200	34.647	21.098	-8.853	43.500	13.549	QP
4			149.250	34.775	19.556	-8.725	43.500	15.218	QP
5			199.660	38.117	26.891	-5.383	43.500	11.226	QP
6			300.224	35.412	21.009	-10.588	46.000	14.403	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.

7.7. Radiated Restricted Band Edge Measurement

7.7.1.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	--	--	--

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

7.7.2.Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

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

7.7.3.Test Setting

Peak Field Strength Measurements

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.

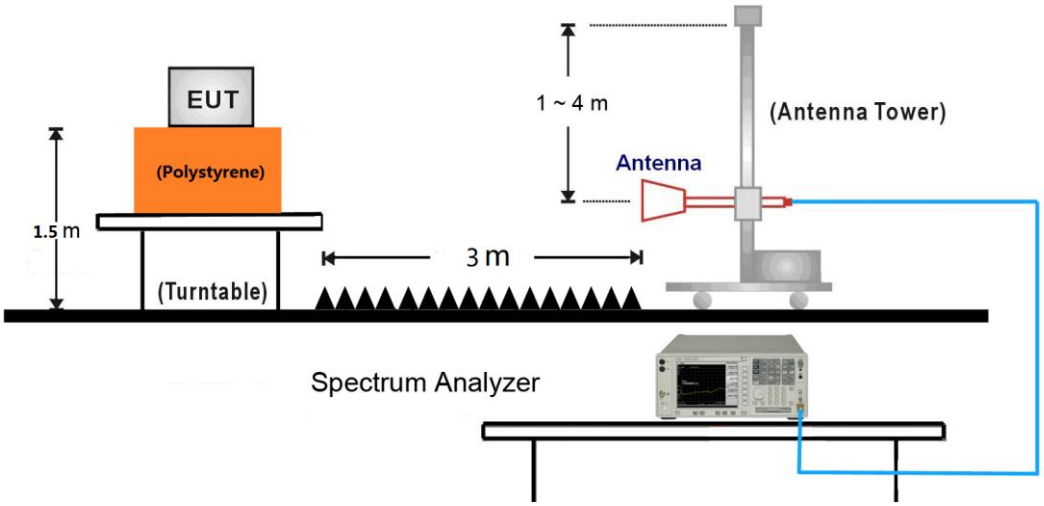
4. Detector = Peak

5. Sweep time = auto

6. Trace mode = max hold

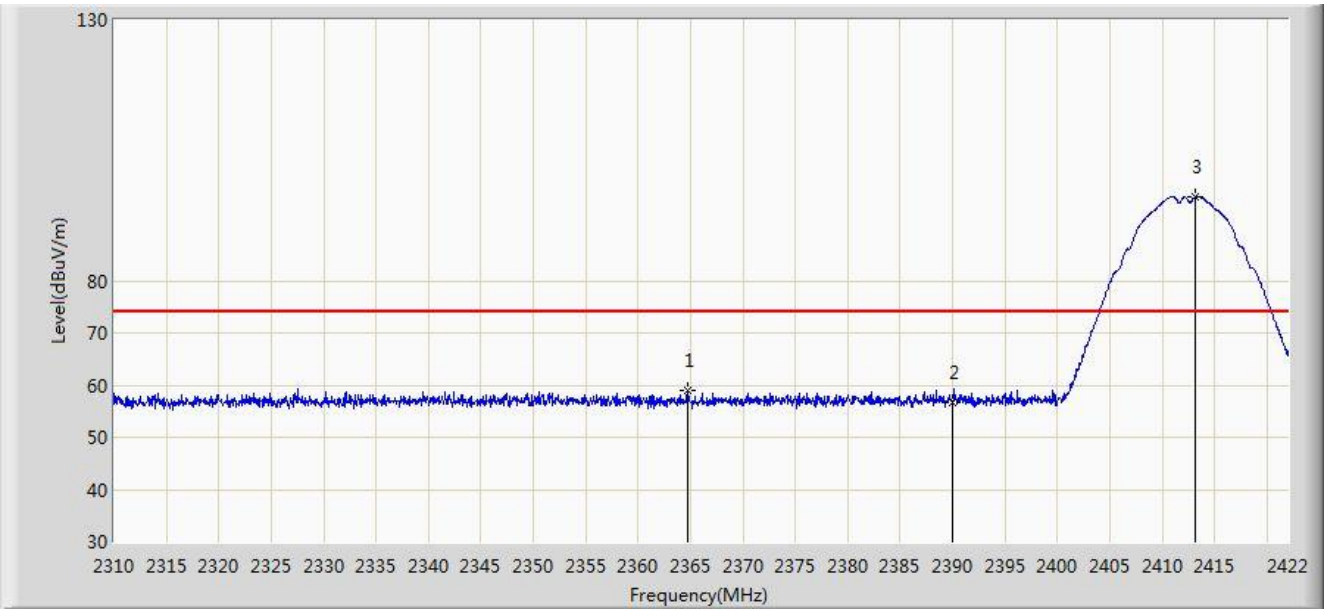
7. Trace was allowed to stabilize

7.7.4.Test Setup



7.7.5.Test Result

Site: AC1	Time: 2018/12/19 - 07:24
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	

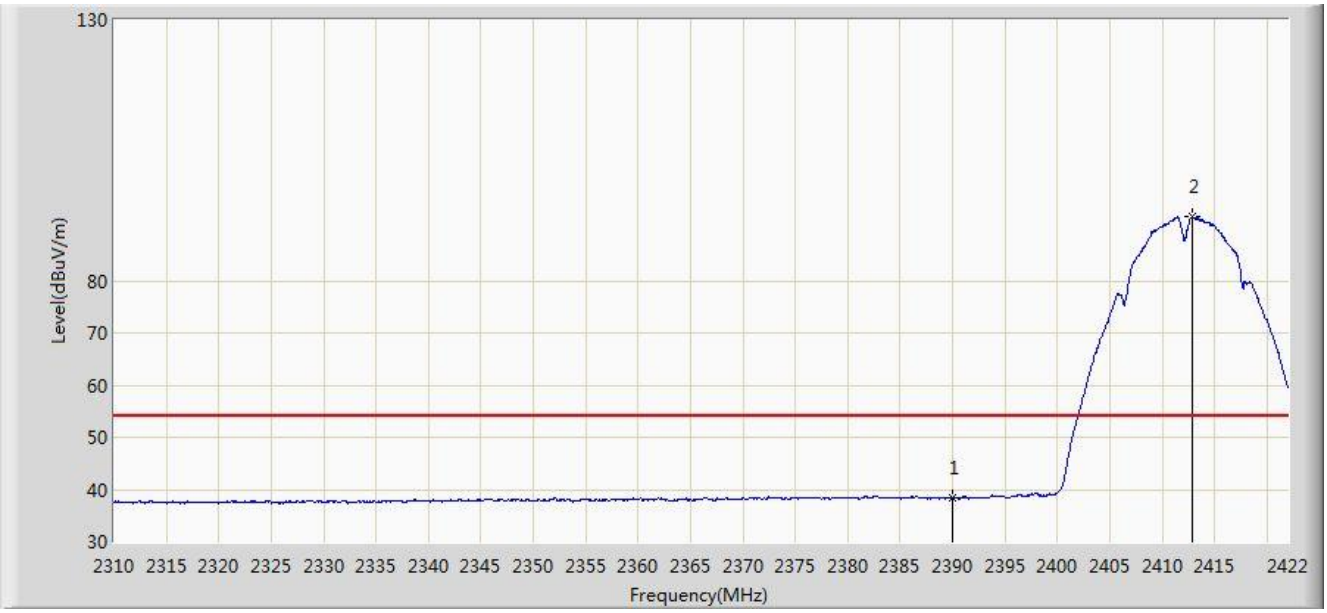


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2364.712	58.923	26.555	-15.077	74.000	32.368	PK
2			2390.000	56.751	24.424	-17.249	74.000	32.327	PK
3		*	2413.208	96.112	63.828	N/A	N/A	32.284	PK

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

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

Site: AC1	Time: 2018/12/19 - 07:26
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	

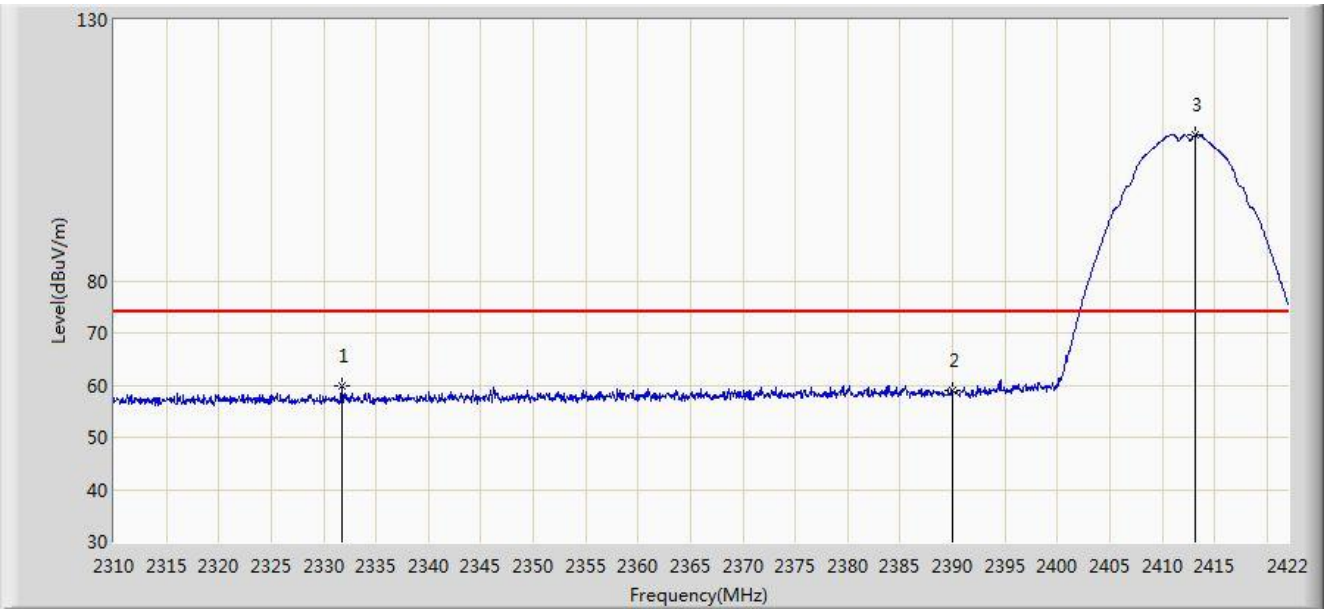


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	38.534	6.207	-15.466	54.000	32.327	AV
2		*	2412.872	92.303	60.019	N/A	N/A	32.285	AV

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

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

Site: AC1	Time: 2018/12/19 - 07:28
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	

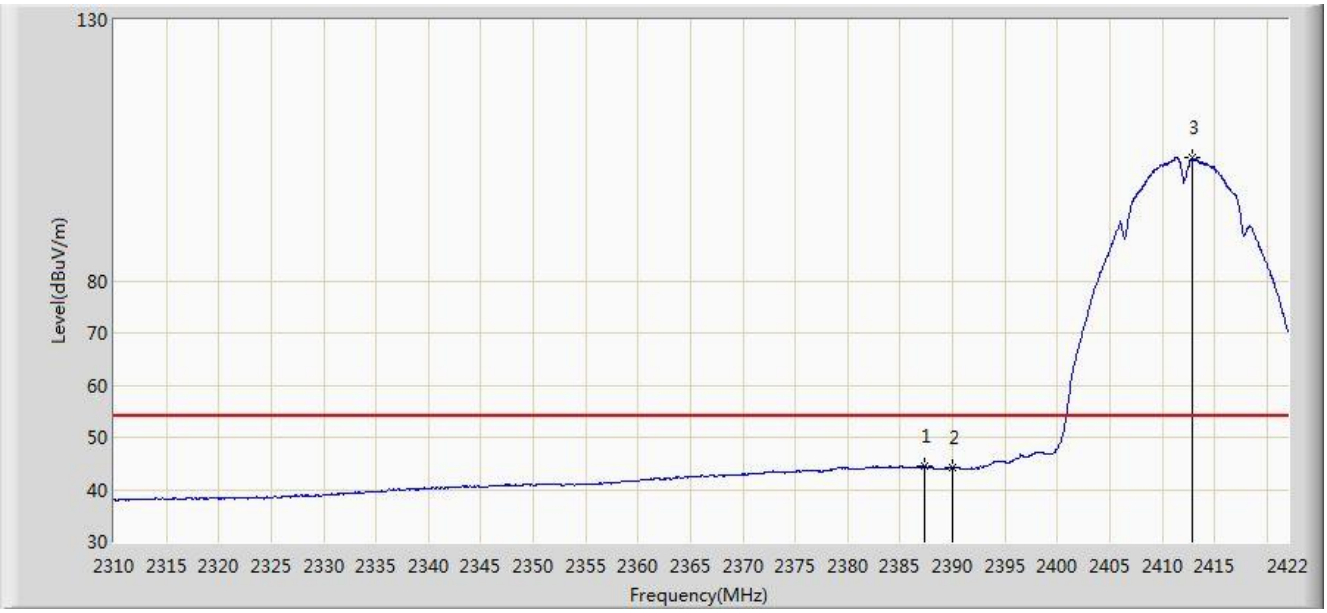


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2331.784	59.751	27.284	-14.249	74.000	32.468	PK
2			2390.000	58.841	26.514	-15.159	74.000	32.327	PK
3		*	2413.152	107.933	75.649	N/A	N/A	32.284	PK

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

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

Site: AC1	Time: 2018/12/19 - 07:31
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	

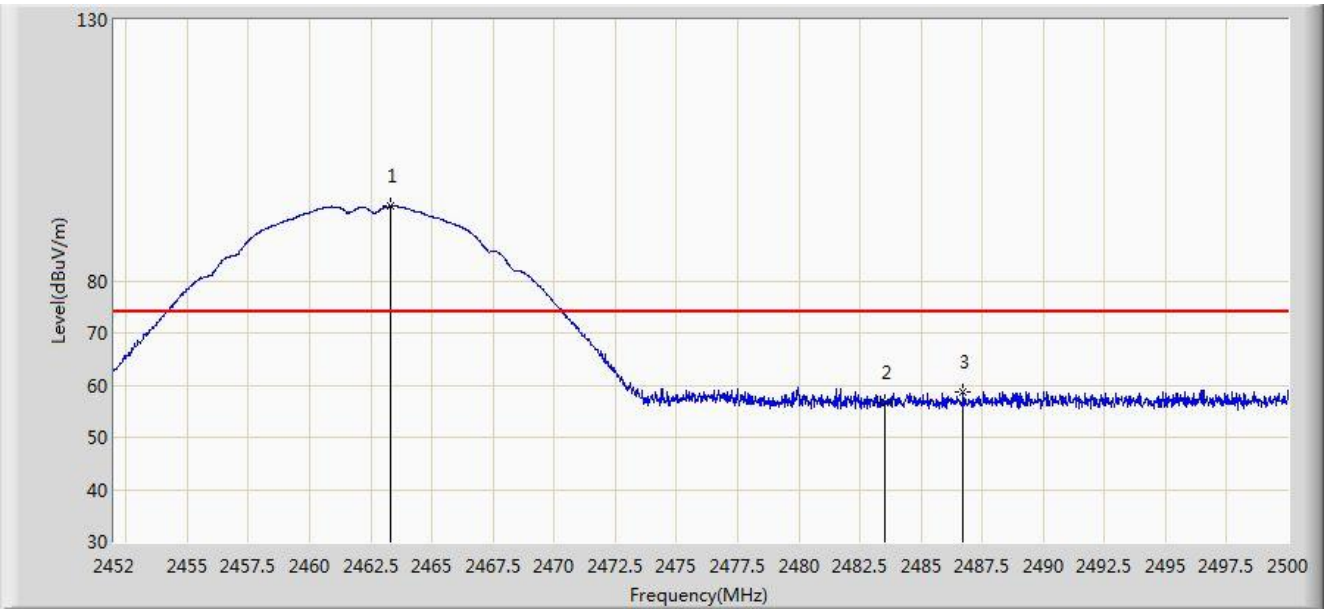


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2387.280	44.472	12.141	-9.528	54.000	32.331	AV
2			2390.000	44.212	11.885	-9.788	54.000	32.327	AV
3		*	2412.816	103.515	71.230	N/A	N/A	32.285	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:21
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.328	94.280	61.997	N/A	N/A	32.283	PK
2			2483.500	56.809	24.470	-17.191	74.000	32.340	PK
3			2486.704	58.638	26.286	-15.362	74.000	32.351	PK

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

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

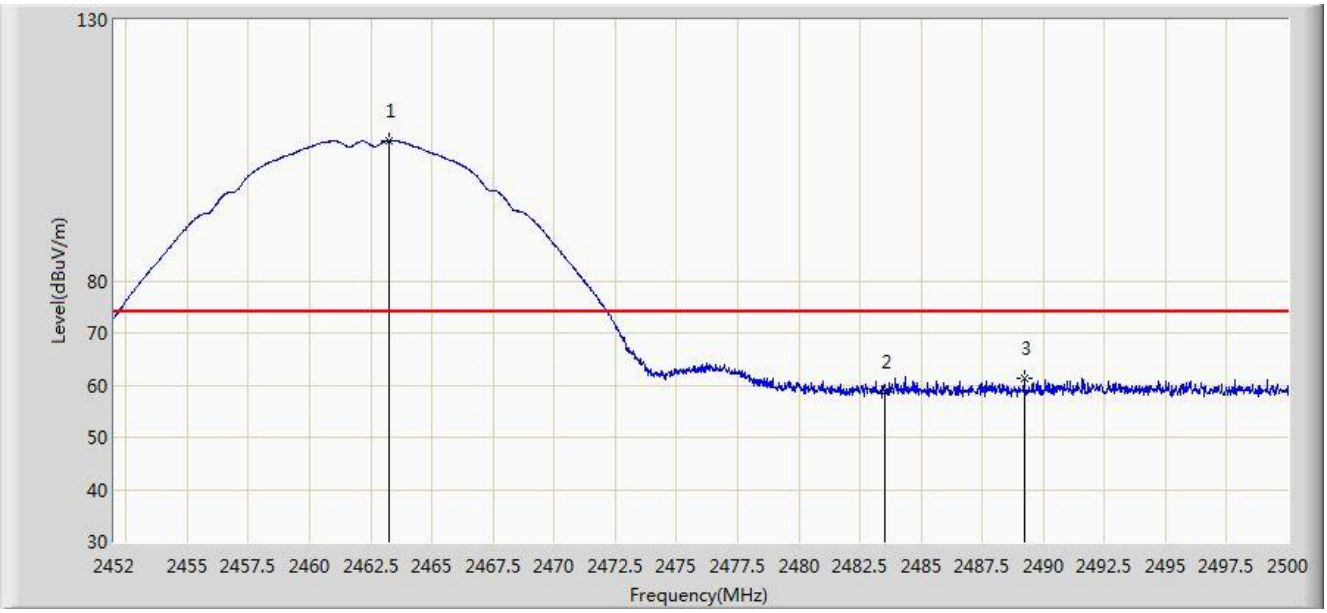
Site: AC1	Time: 2018/12/18 - 20:23
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.824	90.112	57.830	N/A	N/A	32.282	AV
2			2483.500	39.600	7.261	-14.400	54.000	32.340	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:25
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.256	106.768	74.486	N/A	N/A	32.283	PK
2			2483.500	58.794	26.455	-15.206	74.000	32.340	PK
3			2489.224	61.334	28.972	-12.666	74.000	32.362	PK

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

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

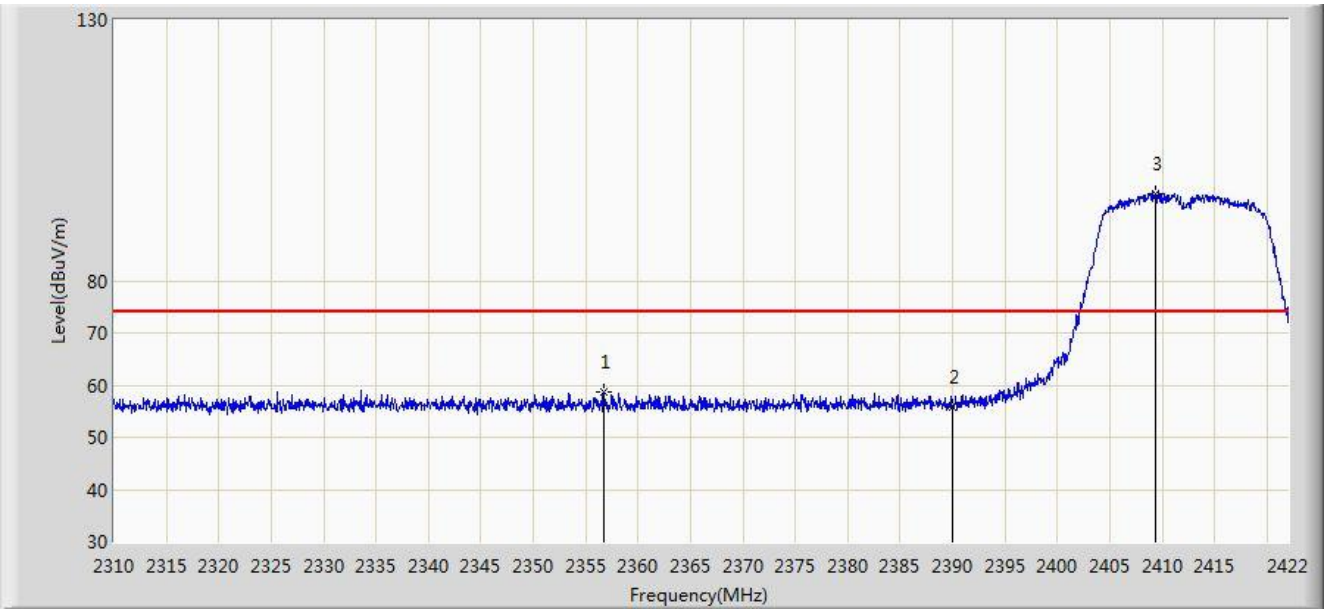
Site: AC1	Time: 2018/12/18 - 20:24
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.168	102.763	70.484	N/A	N/A	32.279	AV
2			2483.500	46.446	14.107	-7.554	54.000	32.340	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:26
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	

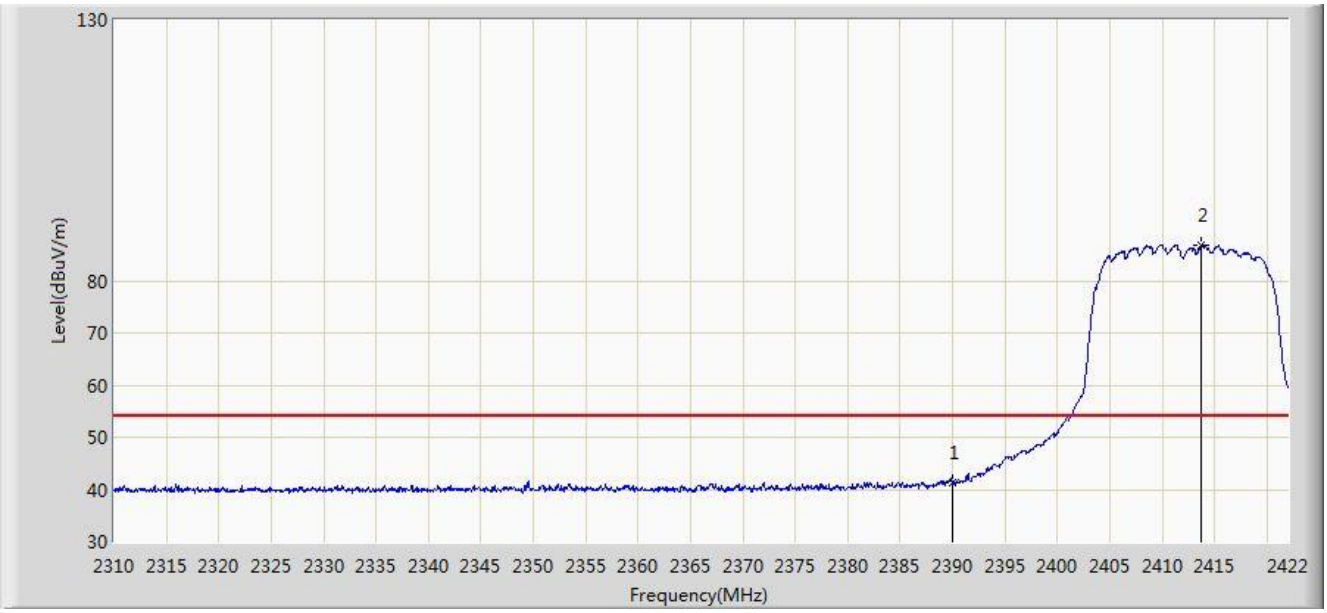


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2356.704	58.771	26.389	-15.229	74.000	32.382	PK
2			2390.000	55.725	23.398	-18.275	74.000	32.327	PK
3		*	2409.344	96.804	64.515	N/A	N/A	32.288	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:28
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	

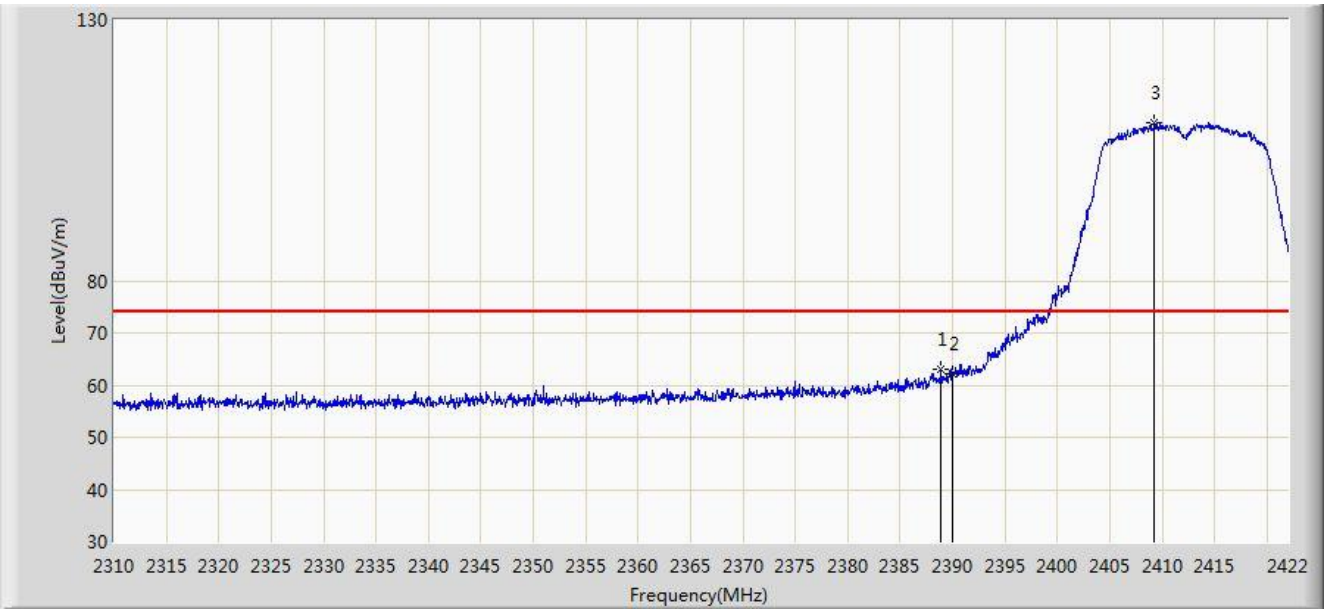


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	41.168	8.841	-12.832	54.000	32.327	AV
2		*	2413.768	86.710	54.426	N/A	N/A	32.284	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:33
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	

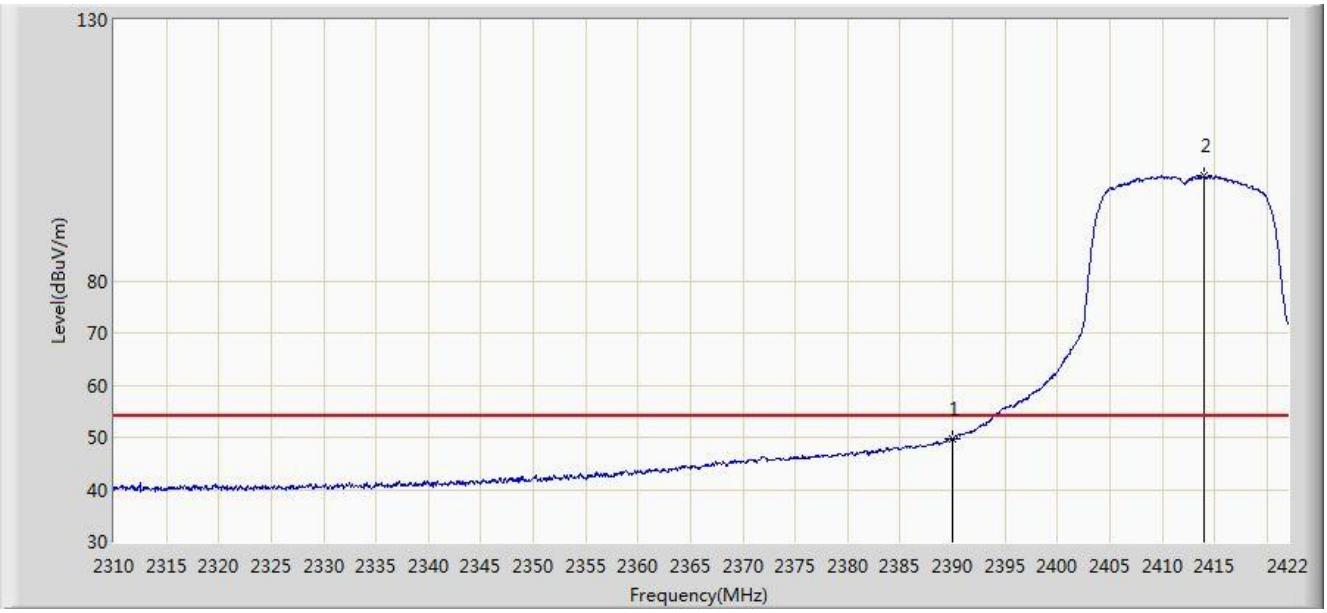


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2388.904	63.033	30.705	-10.967	74.000	32.329	PK
2			2390.000	62.280	29.953	-11.720	74.000	32.327	PK
3		*	2409.232	110.298	78.009	N/A	N/A	32.289	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:31
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	

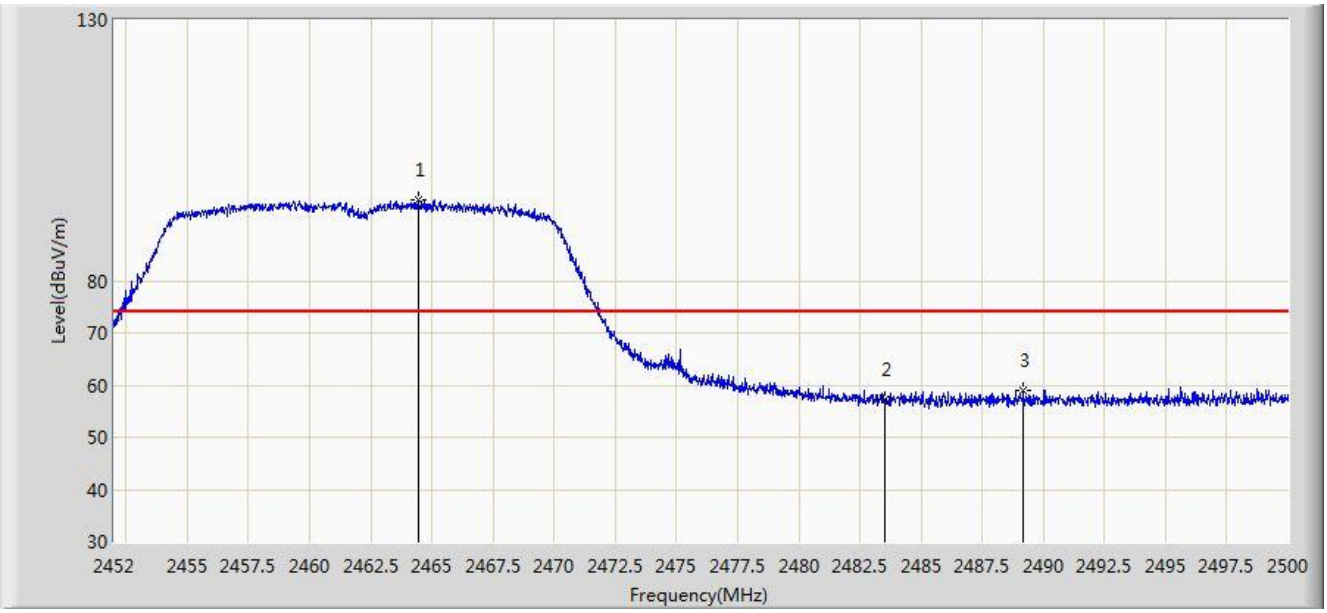


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.747	17.420	-4.253	54.000	32.327	AV
2		*	2413.992	100.139	67.855	N/A	N/A	32.284	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:35
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	

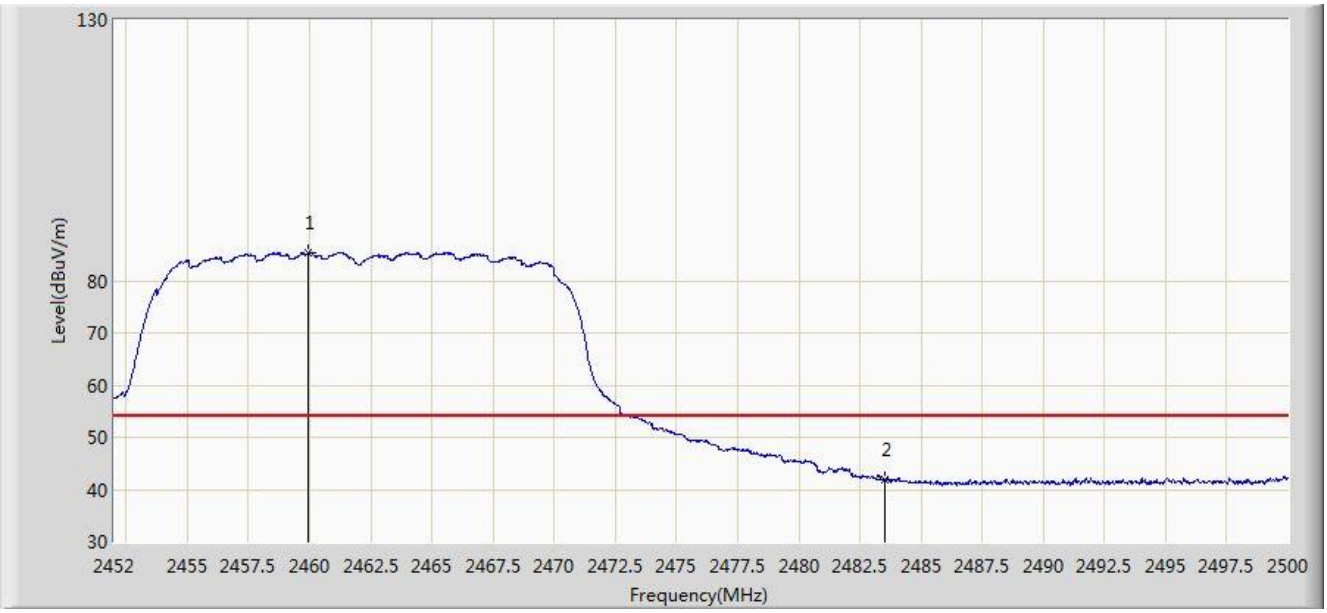


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2464.432	95.376	63.091	N/A	N/A	32.285	PK
2			2483.500	57.113	24.774	-16.887	74.000	32.340	PK
3			2489.176	59.058	26.697	-14.942	74.000	32.362	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:36
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	

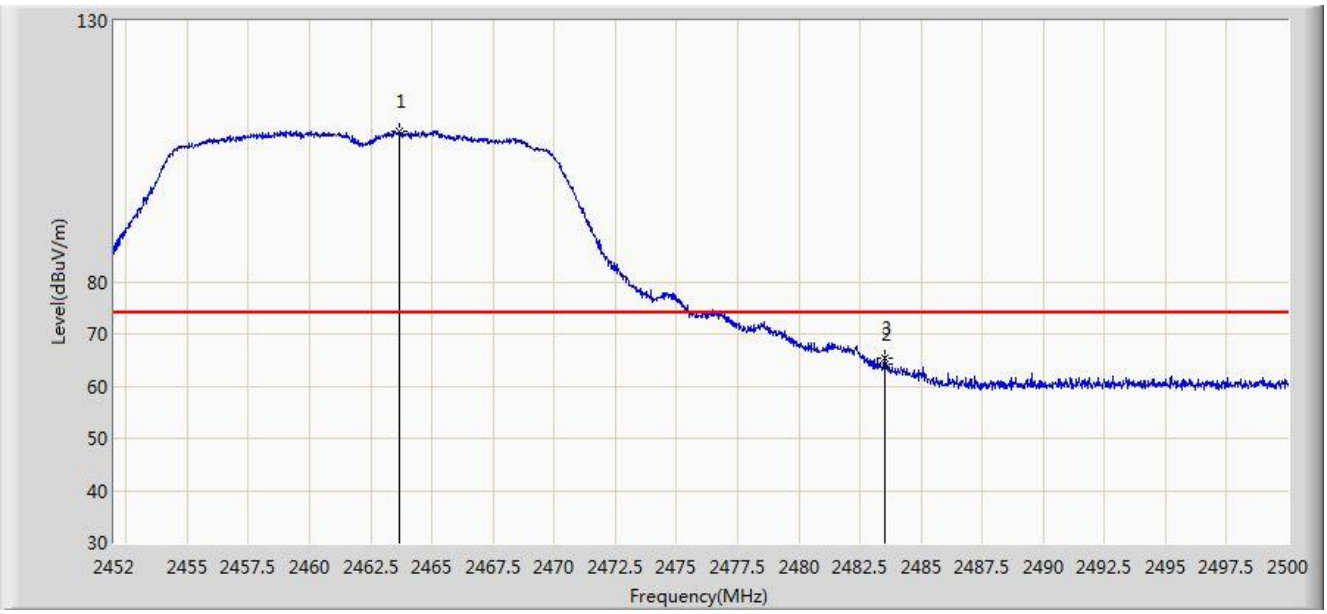


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2459.968	85.443	53.167	N/A	N/A	32.277	AV
2			2483.500	41.888	9.549	-12.112	54.000	32.340	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	

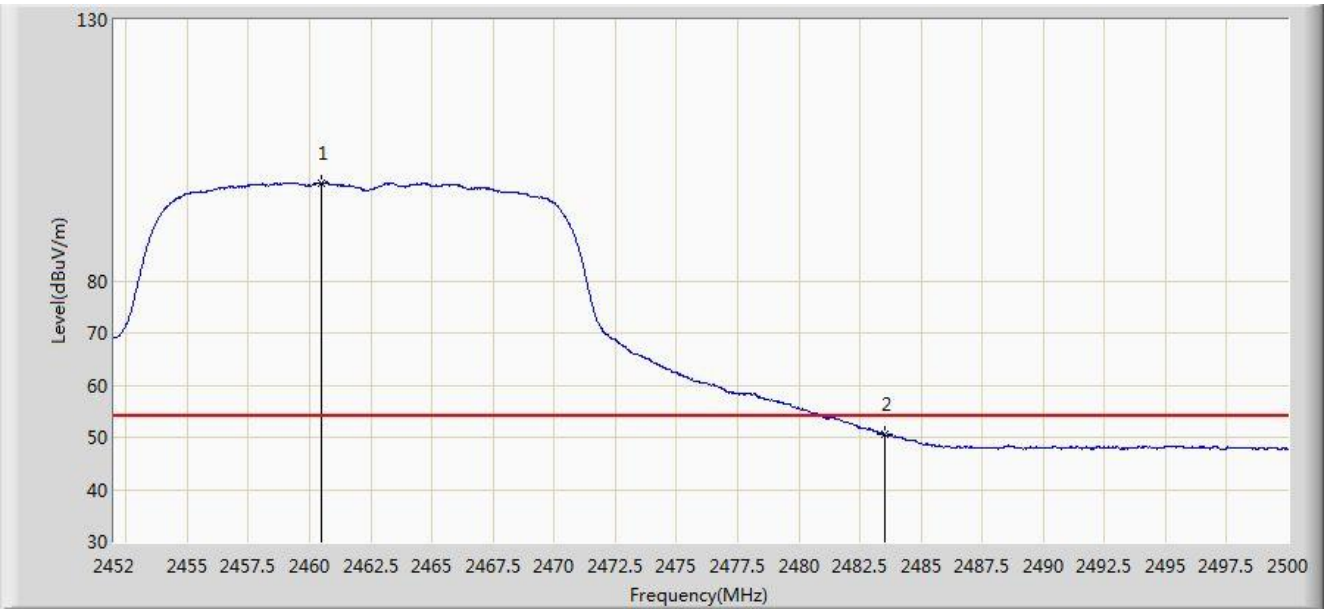


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.640	108.738	76.455	N/A	N/A	32.283	PK
2			2483.500	64.326	31.987	-9.674	74.000	32.340	PK
3			2483.512	65.343	33.004	-8.657	74.000	32.340	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:38
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	

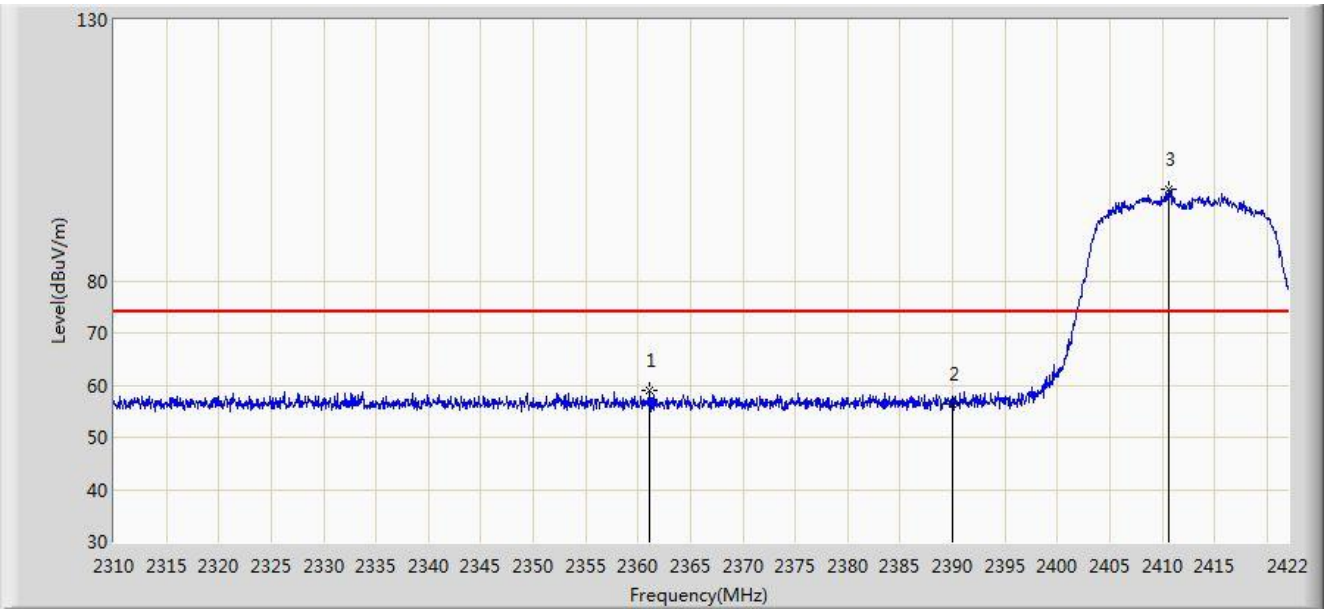


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2460.496	98.829	66.552	N/A	N/A	32.277	AV
2			2483.500	50.607	18.268	-3.393	54.000	32.340	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:42
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	

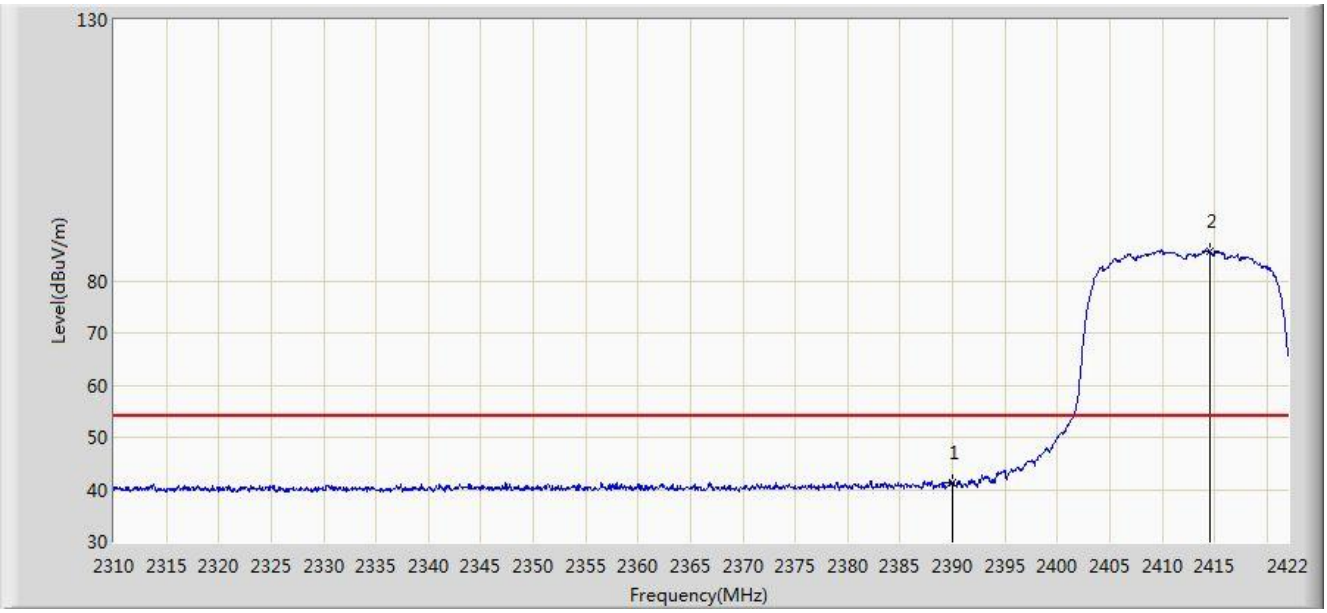


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2361.072	58.925	26.550	-15.075	74.000	32.375	PK
2			2390.000	56.513	24.186	-17.487	74.000	32.327	PK
3		*	2410.688	97.598	65.312	N/A	N/A	32.286	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:45
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	

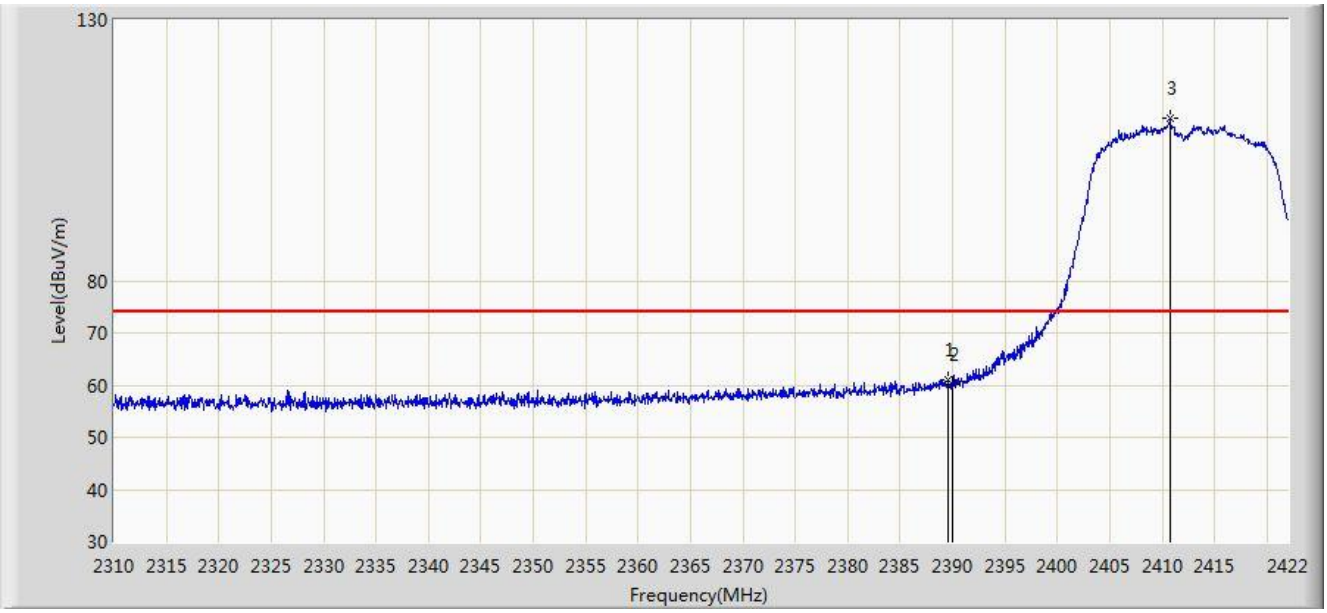


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	41.408	9.081	-12.592	54.000	32.327	AV
2		*	2414.496	85.751	53.467	N/A	N/A	32.284	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:49
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	

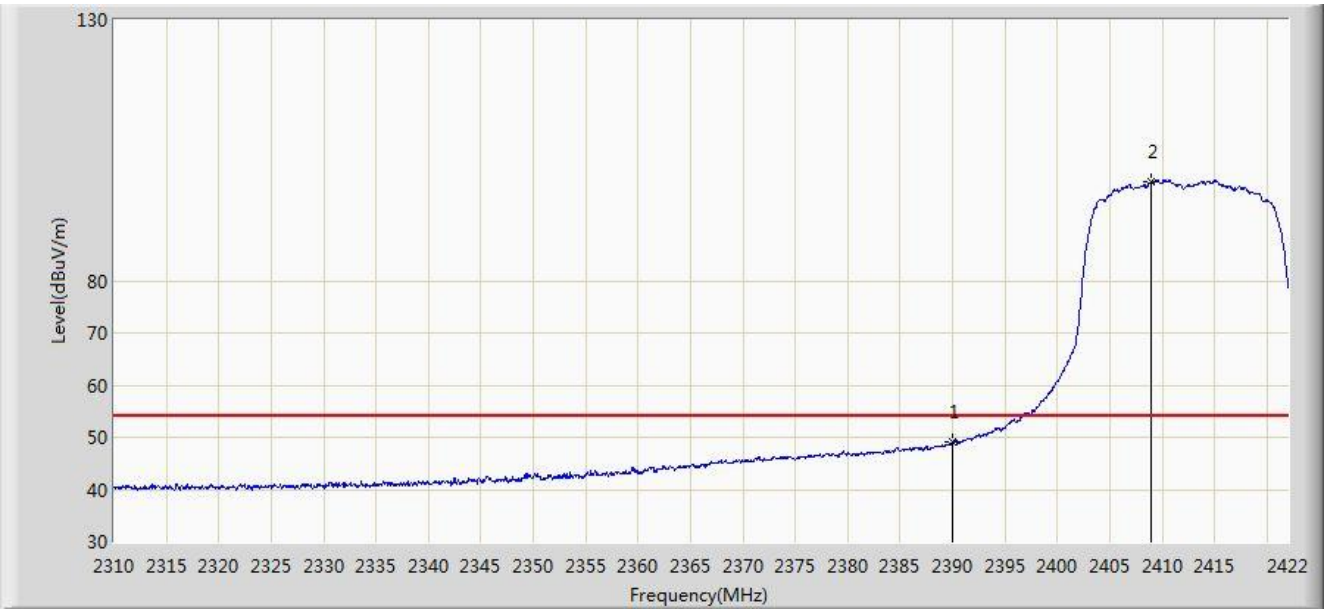


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.520	61.013	28.685	-12.987	74.000	32.327	PK
2			2390.000	60.080	27.753	-13.920	74.000	32.327	PK
3		*	2410.744	111.015	78.729	N/A	N/A	32.286	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:46
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	

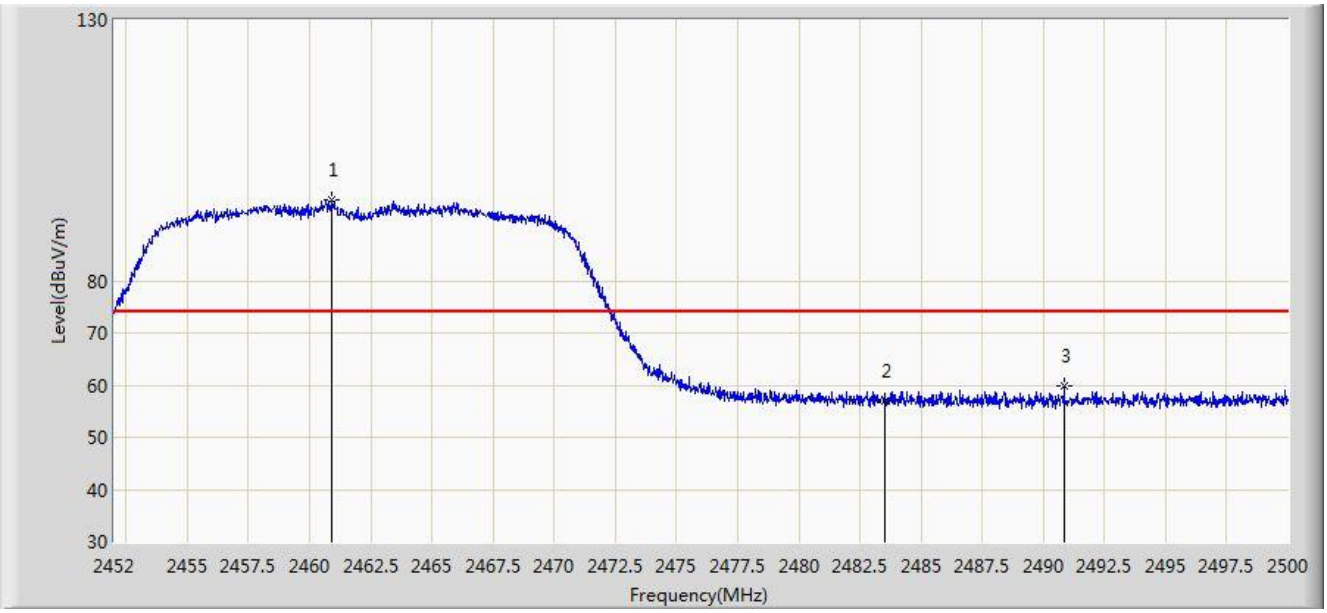


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.088	16.761	-4.912	54.000	32.327	AV
2		*	2409.008	99.127	66.837	N/A	N/A	32.289	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:50
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	

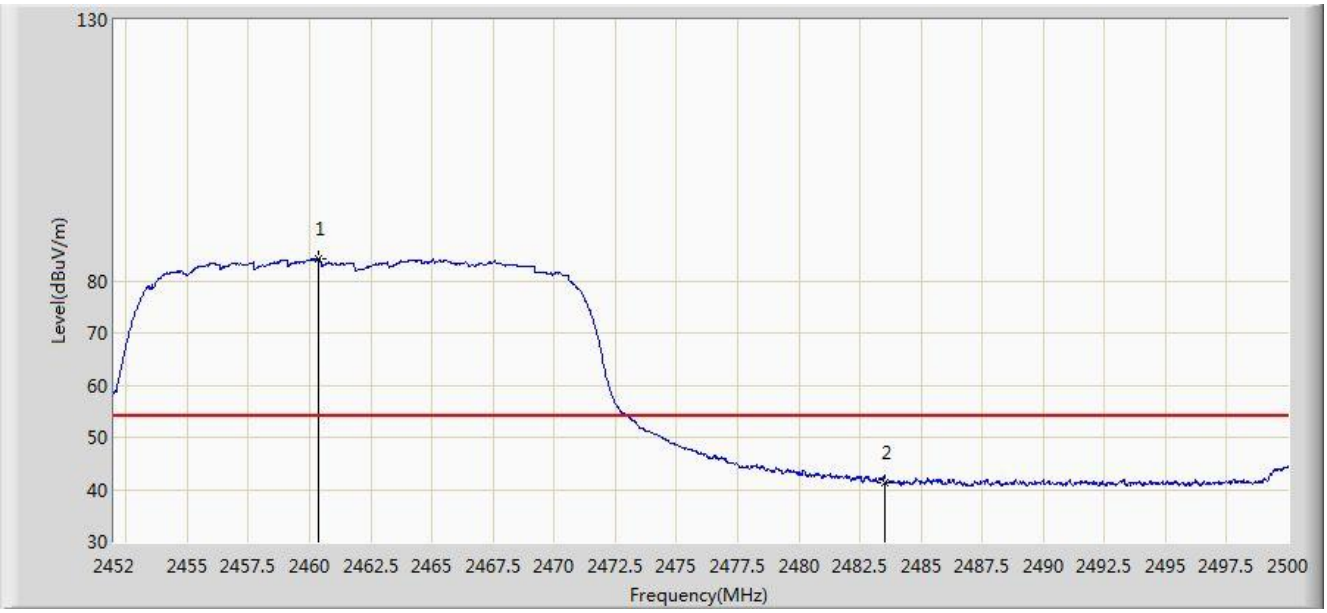


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2460.904	95.494	63.216	N/A	N/A	32.278	PK
2			2483.500	57.039	24.700	-16.961	74.000	32.340	PK
3			2490.856	59.806	27.438	-14.194	74.000	32.368	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	

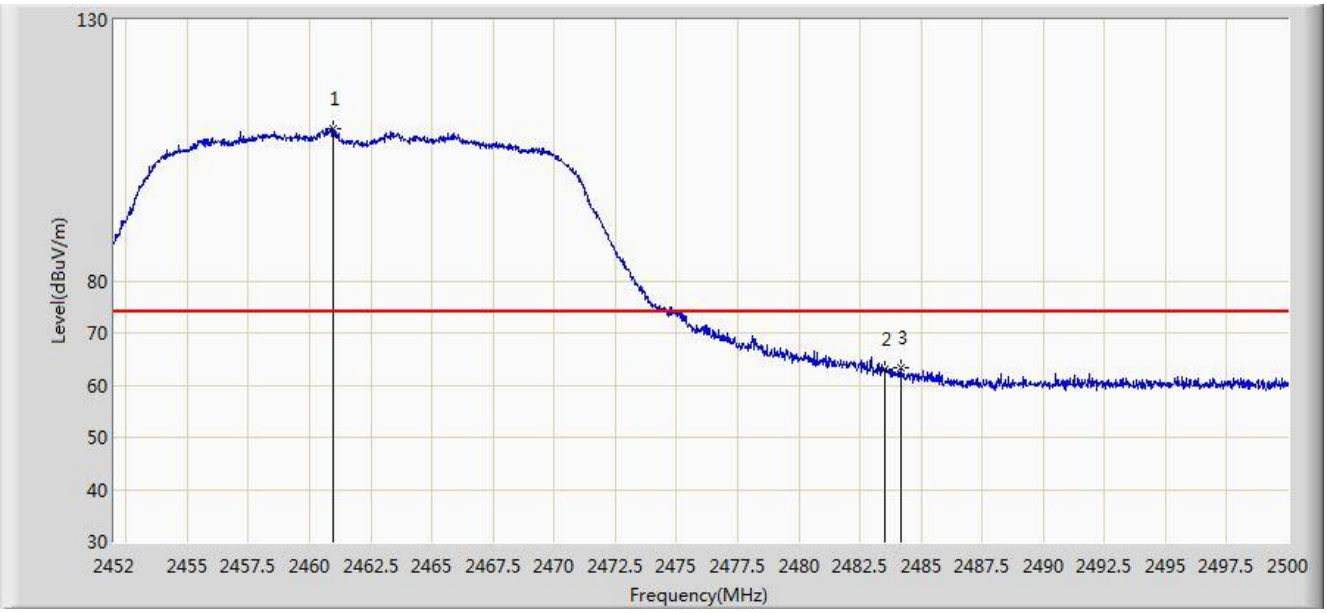


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2460.352	84.204	51.927	N/A	N/A	32.277	AV
2			2483.500	41.421	9.082	-12.579	54.000	32.340	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:54
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	

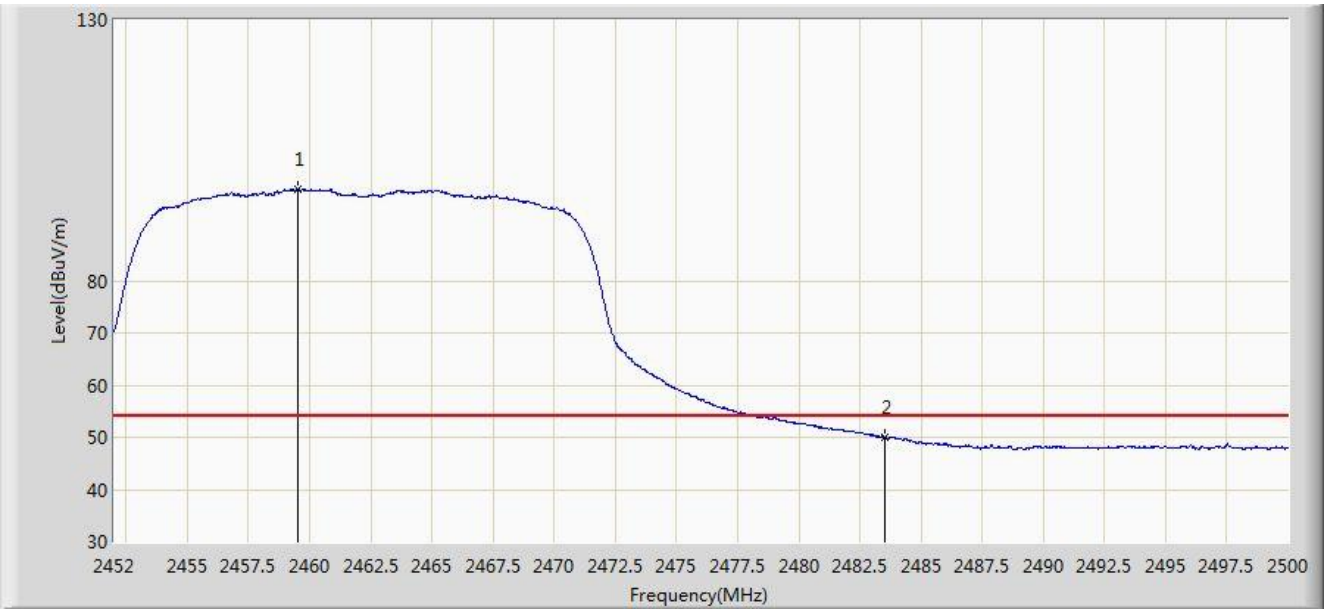


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2460.976	109.252	76.974	N/A	N/A	32.278	PK
2			2483.500	63.139	30.800	-10.861	74.000	32.340	PK
3			2484.184	63.421	31.079	-10.579	74.000	32.342	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:53
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	

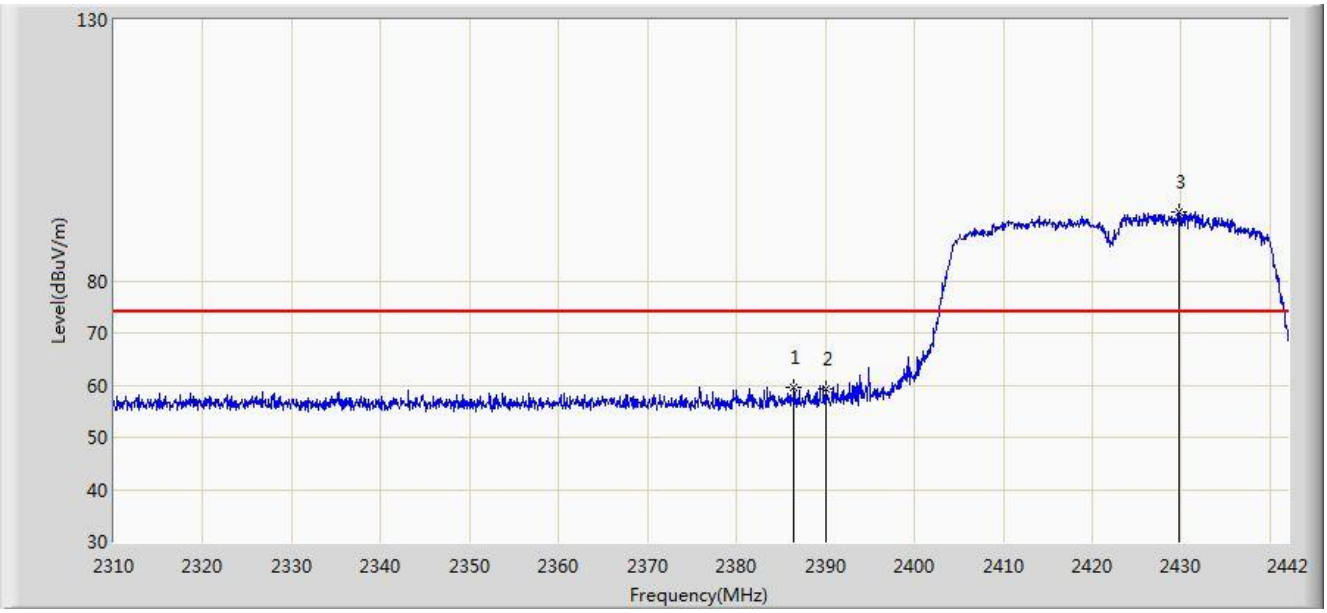


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2459.512	97.568	65.293	N/A	N/A	32.275	AV
2			2483.500	50.035	17.696	-3.965	54.000	32.340	AV

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

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

Site: AC1	Time: 2018/12/18 - 20:56
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2422MHz	

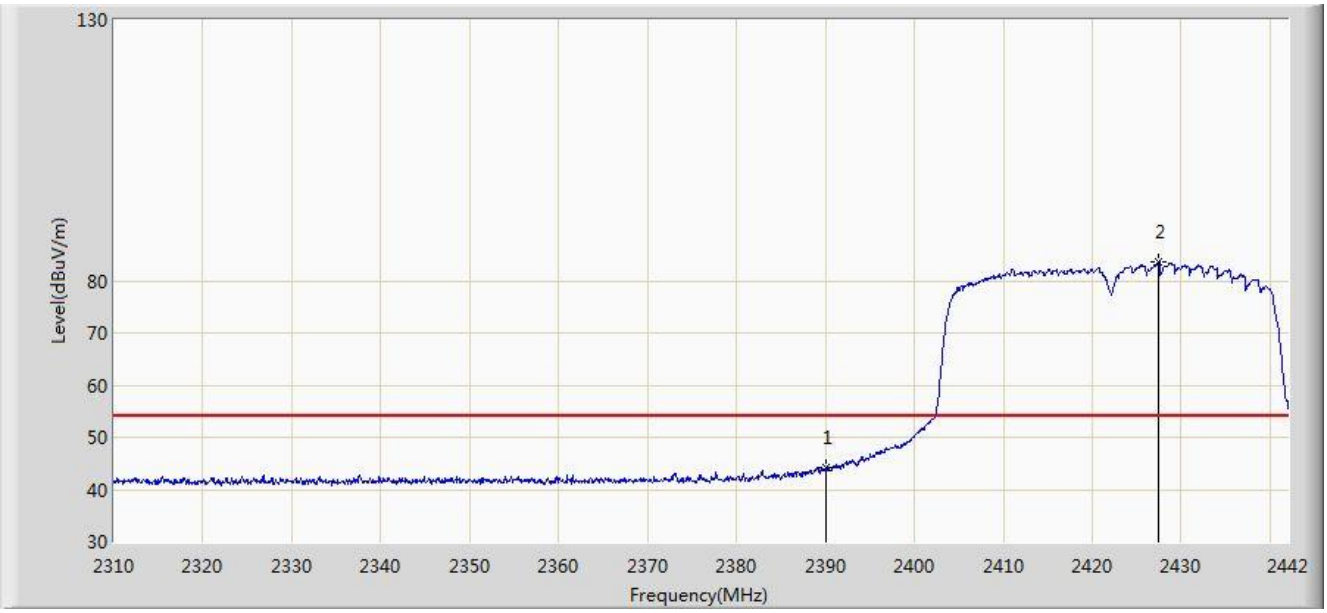


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2386.494	59.653	27.321	-14.347	74.000	32.332	PK
2			2390.000	59.142	26.815	-14.858	74.000	32.327	PK
3		*	2429.790	93.085	60.810	N/A	N/A	32.275	PK

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

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

Site: AC1	Time: 2018/12/18 - 20:58
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2422MHz	

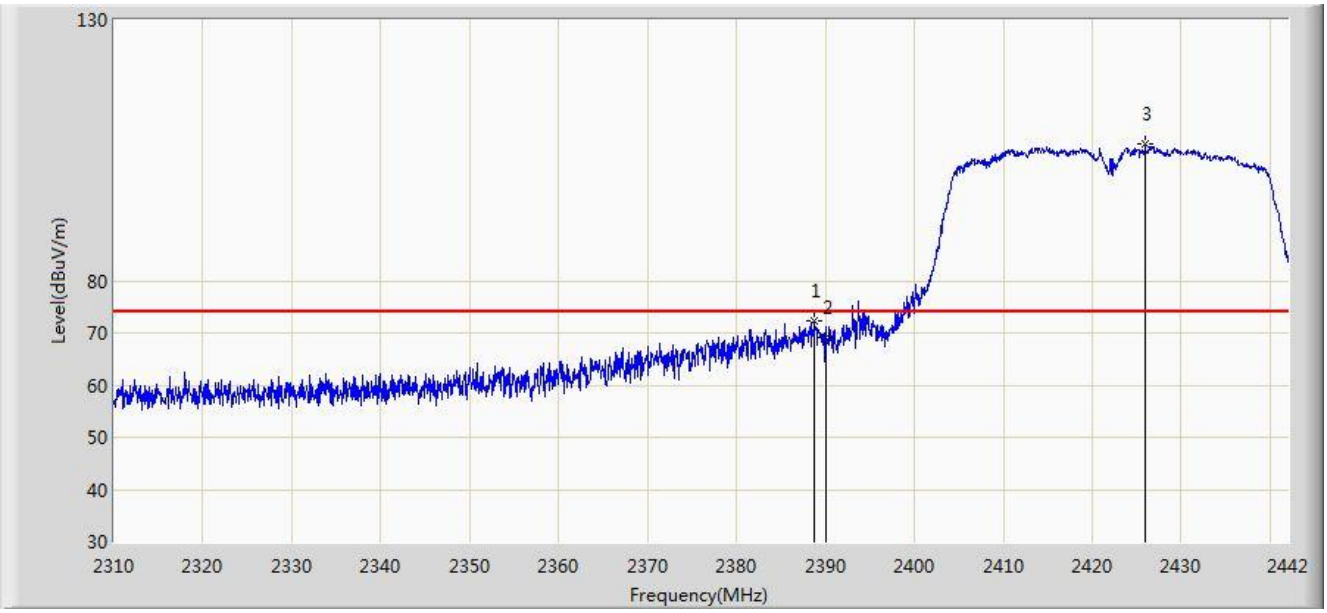


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	44.058	11.731	-9.942	54.000	32.327	AV
2		*	2427.480	83.592	51.314	N/A	N/A	32.278	AV

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

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

Site: AC1	Time: 2018/12/18 - 21:02
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2422MHz	

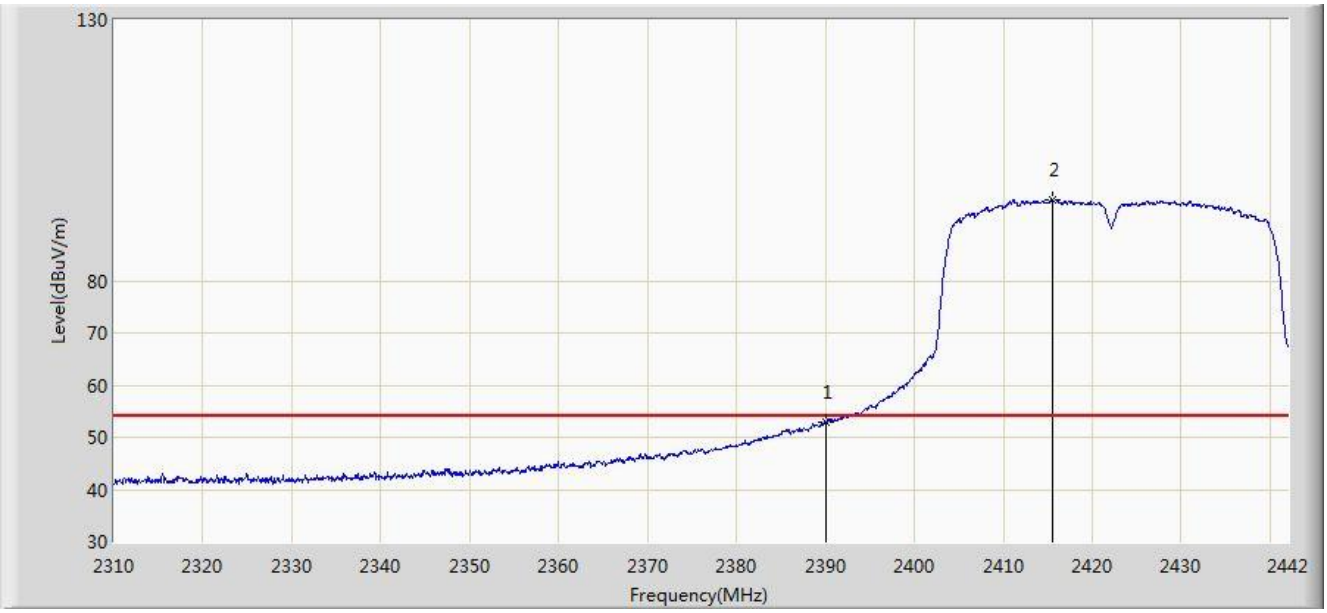


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2388.804	72.197	39.869	-1.803	74.000	32.329	PK
2			2390.000	69.197	36.870	-4.803	74.000	32.327	PK
3		*	2425.962	106.270	73.991	N/A	N/A	32.279	PK

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

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

Site: AC1	Time: 2018/12/18 - 21:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2422MHz	

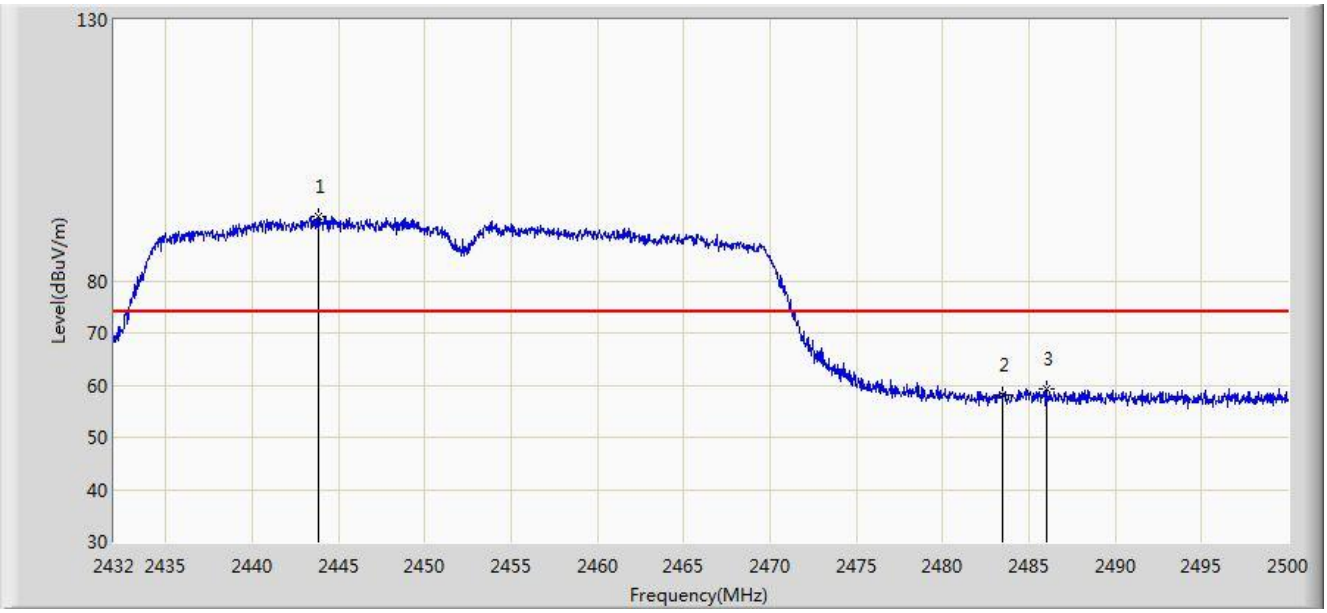


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	52.778	20.451	-1.222	54.000	32.327	AV
2		*	2415.600	95.520	63.237	N/A	N/A	32.283	AV

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

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

Site: AC1	Time: 2018/12/18 - 21:17
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2452MHz	

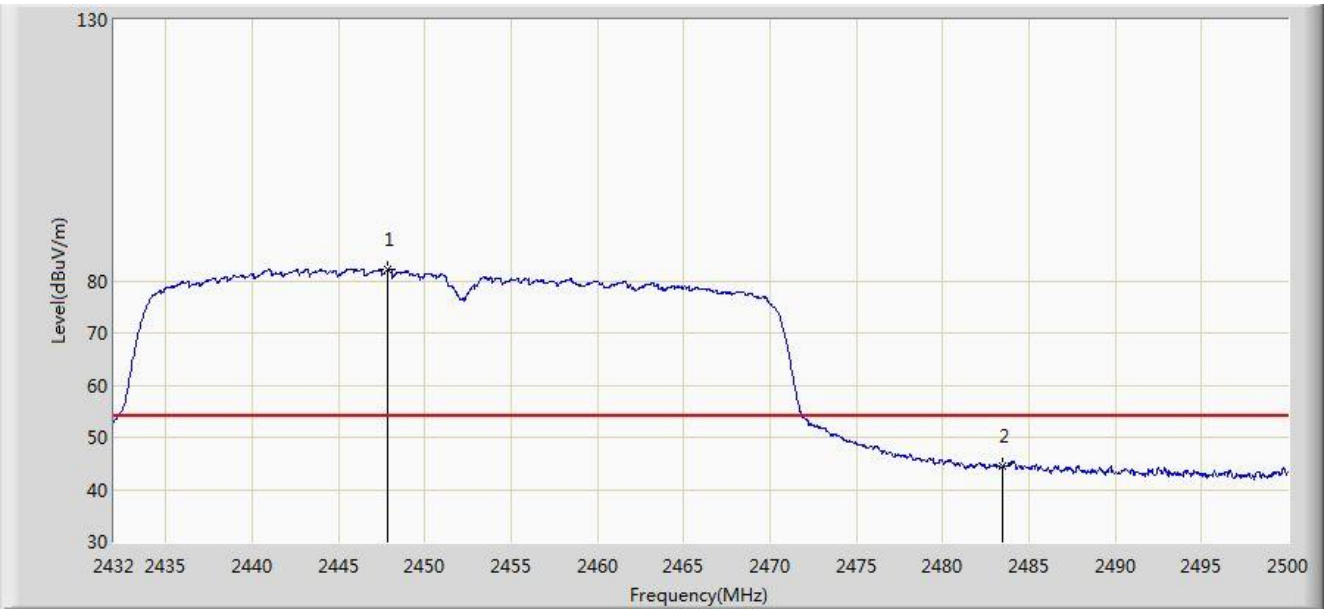


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2443.866	92.276	60.024	N/A	N/A	32.251	PK
2			2483.500	58.106	25.767	-15.894	74.000	32.340	PK
3			2486.060	59.353	27.004	-14.647	74.000	32.349	PK

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

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

Site: AC1	Time: 2018/12/18 - 21:18
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2452MHz	

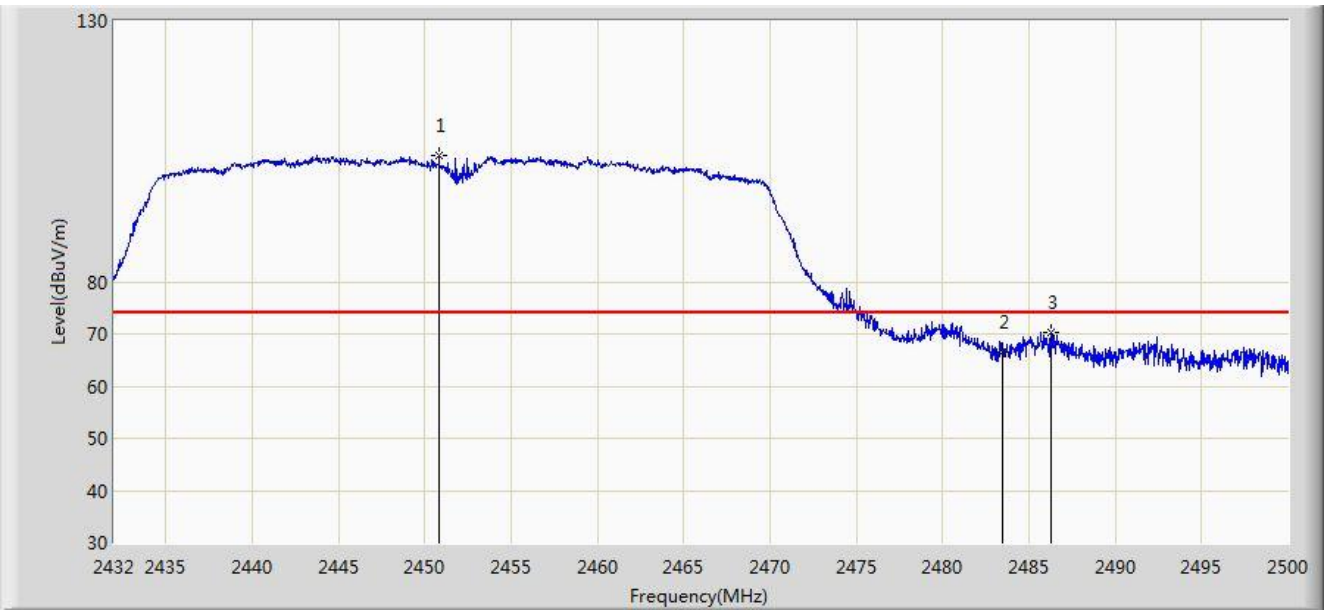


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2447.810	82.042	49.790	N/A	N/A	32.252	AV
2			2483.500	44.446	12.107	-9.554	54.000	32.340	AV

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

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

Site: AC1	Time: 2018/12/18 - 21:15
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2452MHz	

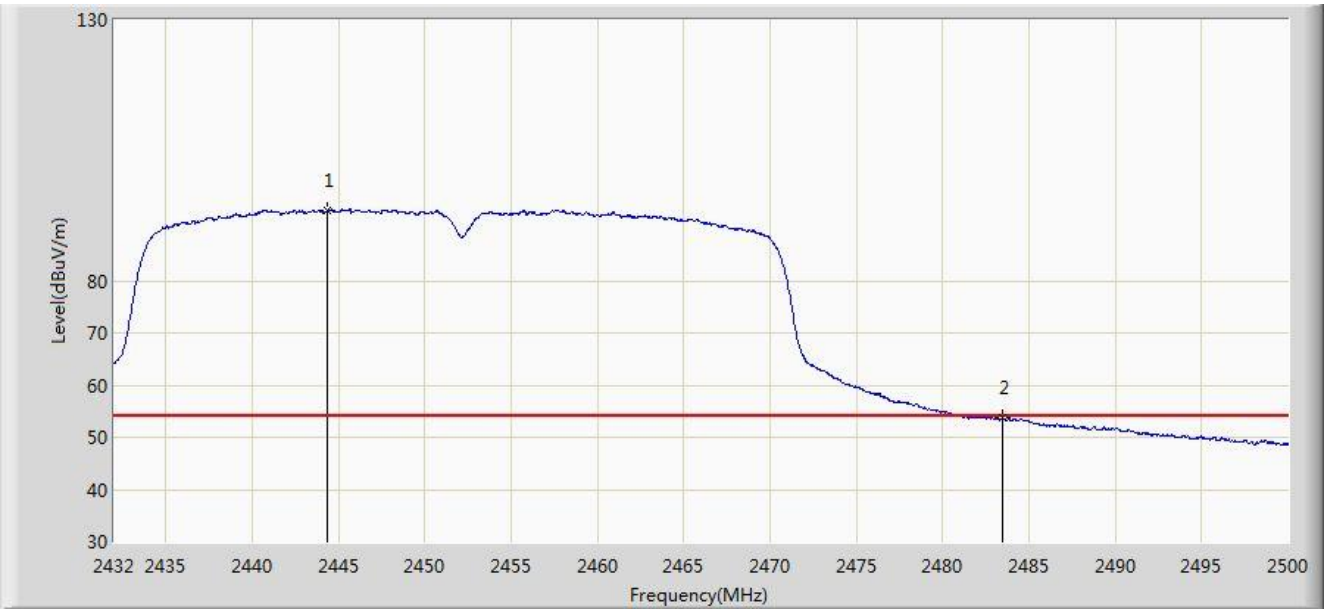


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2450.836	104.103	71.845	N/A	N/A	32.258	PK
2			2483.500	66.622	34.283	-7.378	74.000	32.340	PK
3			2486.298	70.303	37.953	-3.697	74.000	32.350	PK

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

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

Site: AC1	Time: 2018/12/18 - 21:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Bacon Dong
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2452MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2444.376	93.599	61.348	N/A	N/A	32.251	AV
2			2483.500	53.759	21.420	-0.241	54.000	32.340	AV

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

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

7.8. AC Conducted Emissions Measurement

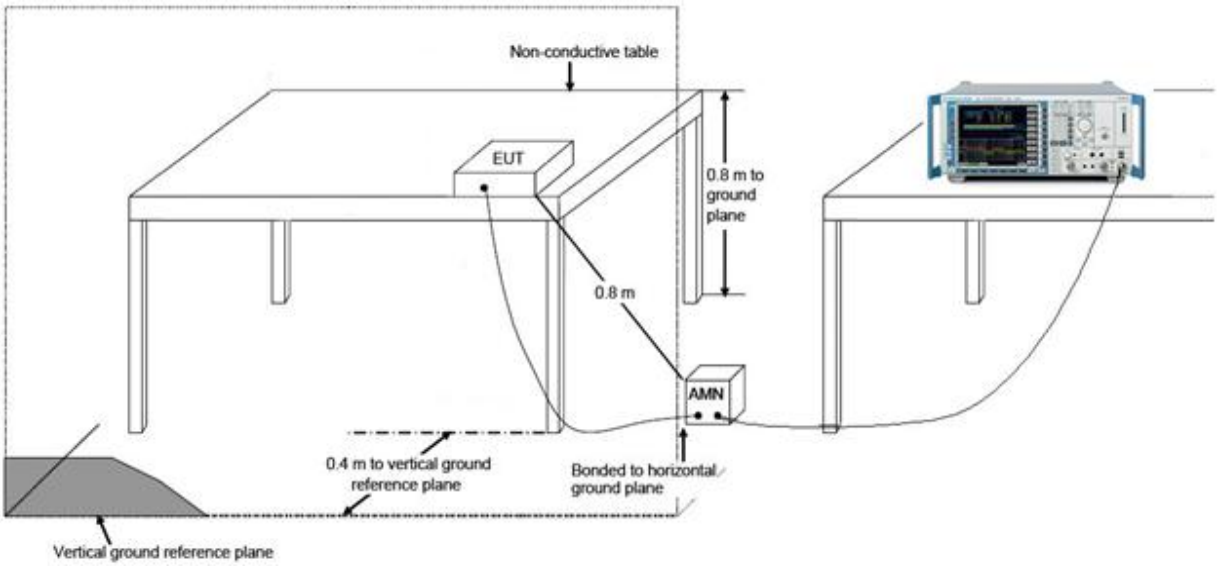
7.8.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
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.

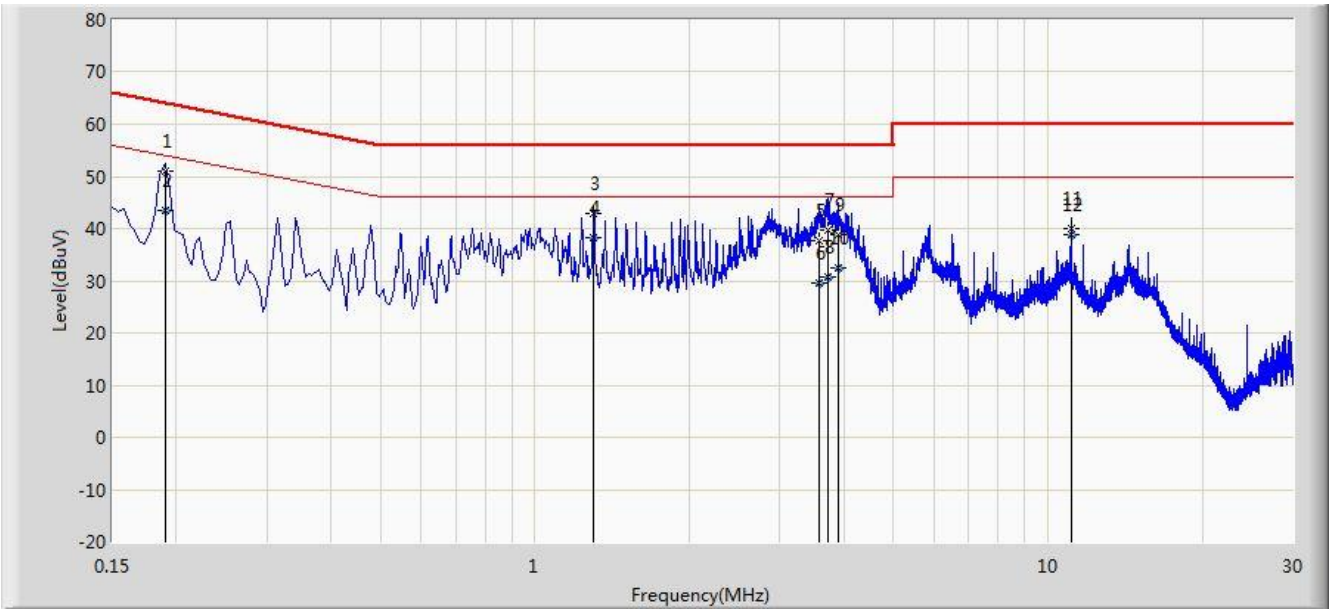
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHzto 0.5MHz.

7.8.2.Test Setup



7.8.3.Test Result

Site: SR2	Time: 2018/12/26 - 17:06
Limit: FCC_Part15.207_CE_AC Power_Class B	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Worst Case Mode: Transmit by 802.11g at channel 2412MHz	

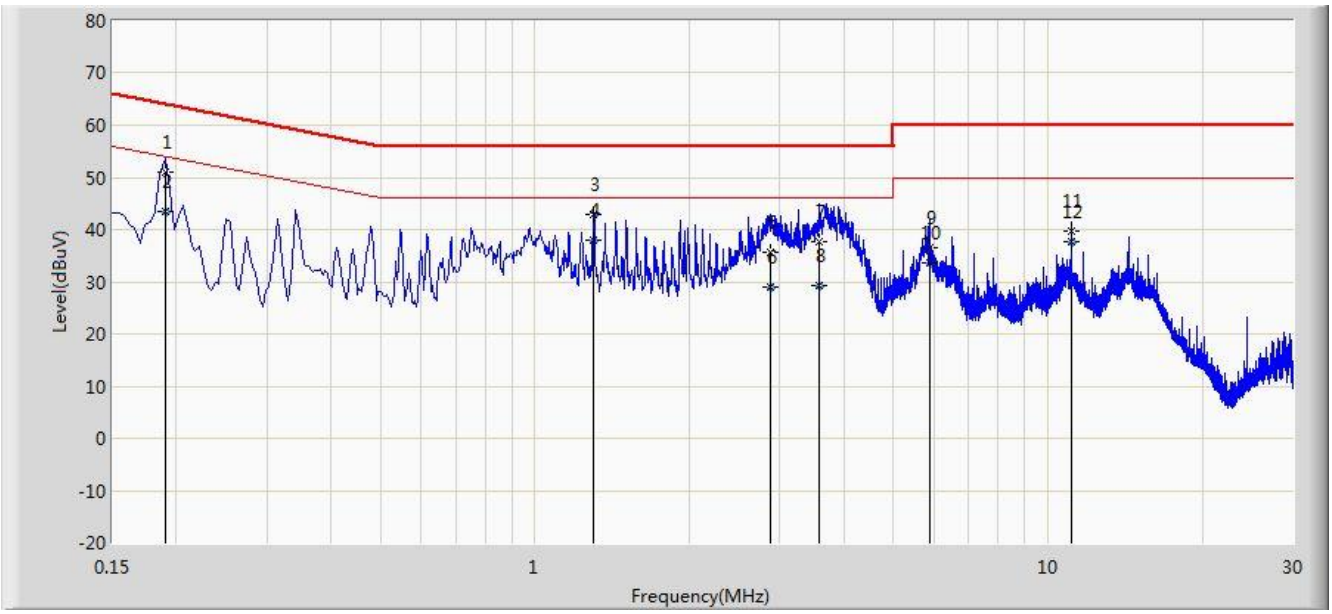


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.190	50.982	40.954	-13.040	64.021	10.028	QP
2			0.190	43.518	33.491	-10.503	54.021	10.028	AV
3			1.302	43.015	33.118	-12.985	56.000	9.897	QP
4		*	1.302	38.219	28.322	-7.781	46.000	9.897	AV
5			3.586	37.669	27.753	-18.331	56.000	9.916	QP
6			3.586	29.463	19.548	-16.537	46.000	9.916	AV
7			3.714	39.823	29.876	-16.177	56.000	9.946	QP
8			3.714	30.619	20.672	-15.381	46.000	9.946	AV
9			3.910	38.828	28.869	-17.172	56.000	9.958	QP
10			3.910	32.524	22.565	-13.476	46.000	9.958	AV
11			11.078	40.064	29.961	-19.936	60.000	10.103	QP
12			11.078	38.805	28.703	-11.195	50.000	10.103	AV

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

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

Site: SR2	Time: 2018/12/26 - 17:11
Limit: FCC_Part15.207_CE_AC Power_Class B	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: 2.4GHz/5GHz WiFi + Bluetooth Combination Module	Power: AC 120V/60Hz
Worst Case Mode: Transmit by 802.11g at channel 2412MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.190	50.942	40.915	-13.079	64.021	10.027	QP
2			0.190	43.376	33.349	-10.645	54.021	10.027	AV
3			1.302	42.791	32.893	-13.209	56.000	9.898	QP
4		*	1.302	38.055	28.157	-7.945	46.000	9.898	AV
5			2.870	35.633	25.781	-20.367	56.000	9.851	QP
6			2.870	28.850	18.999	-17.150	46.000	9.851	AV
7			3.582	37.716	27.793	-18.284	56.000	9.923	QP
8			3.582	29.401	19.478	-16.599	46.000	9.923	AV
9			5.870	36.660	26.550	-23.340	60.000	10.110	QP
10			5.870	33.503	23.392	-16.497	50.000	10.110	AV
11			11.078	39.600	29.470	-20.400	60.000	10.130	QP
12			11.078	37.588	27.458	-12.412	50.000	10.130	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 **2.4GHz/5GHz WiFi + Bluetooth Combination Module** is in compliance with Part 15C of the FCC Rules.

The End

Appendix A - Test Setup Photograph

Refer to “1812RSU007-UT” file.

Appendix B - EUT Photograph

Refer to “1812RSU007-UE” file.