

802.11n-HT20 Out-of-Band Emissions

Channel 01 (2412MHz)

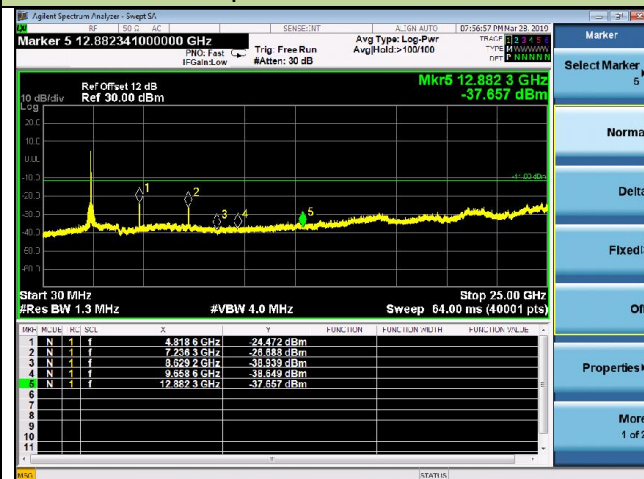
100kHz PSD Reference Level



Low Band Edge



Spurious Emission



Channel 06 (2437MHz)

100kHz PSD Reference Level



Spurious Emission



Channel 11 (2462MHz)

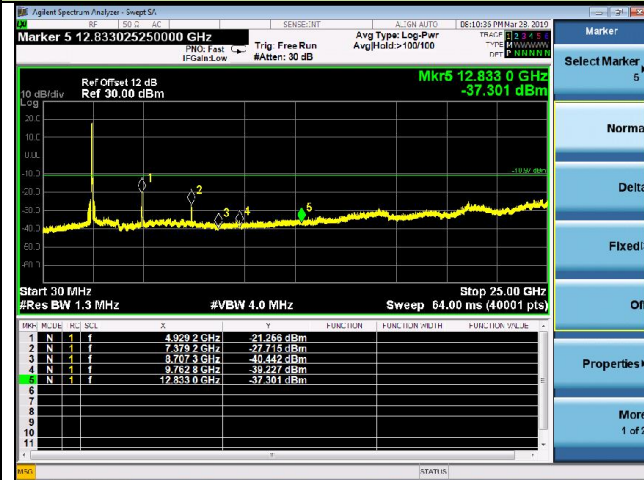
100kHz PSD Reference Level



High Band Edge



Spurious Emission



802.11n-HT40 Out-of-Band Emissions

Channel 03 (2422MHz)

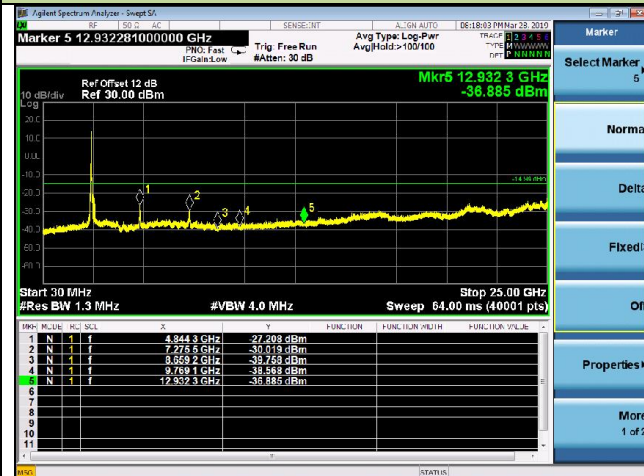
100kHz PSD Reference Level



Low Band Edge



Spurious Emission



Channel 06 (2437MHz)

100kHz PSD Reference Level



Spurious Emission



Channel 09 (2452MHz)

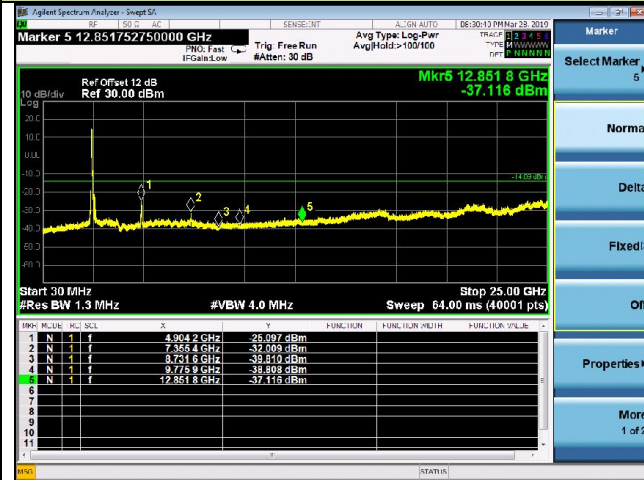
100kHz PSD Reference Level



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 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

7.6.2. 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 30MHz to 1GHz)

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

7.6.3. 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
> 1000 MHz	1 MHz

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

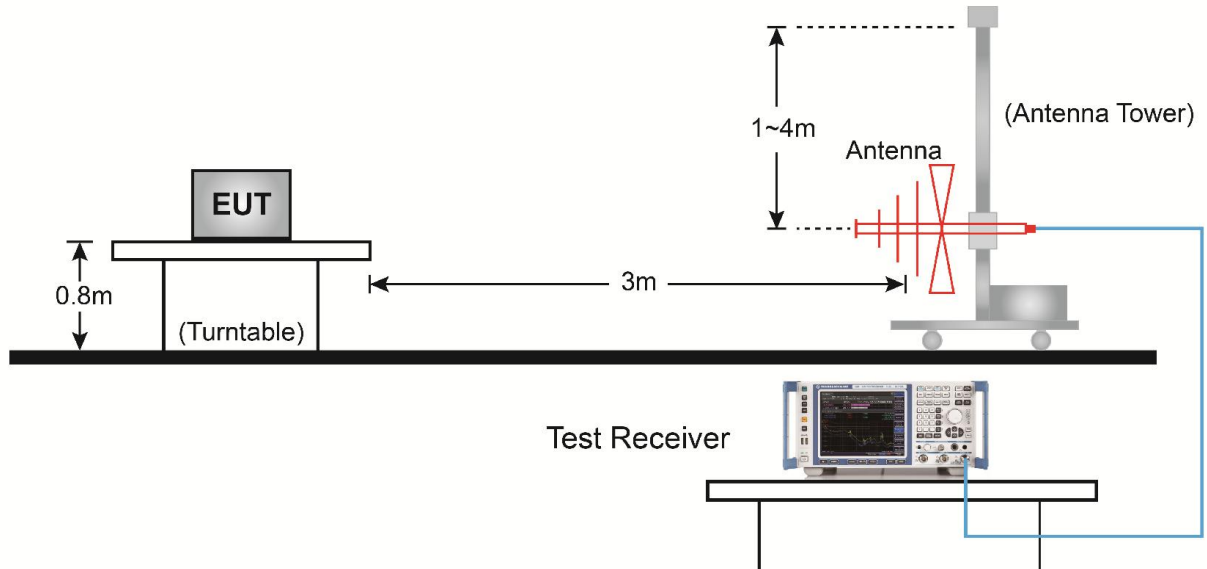
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

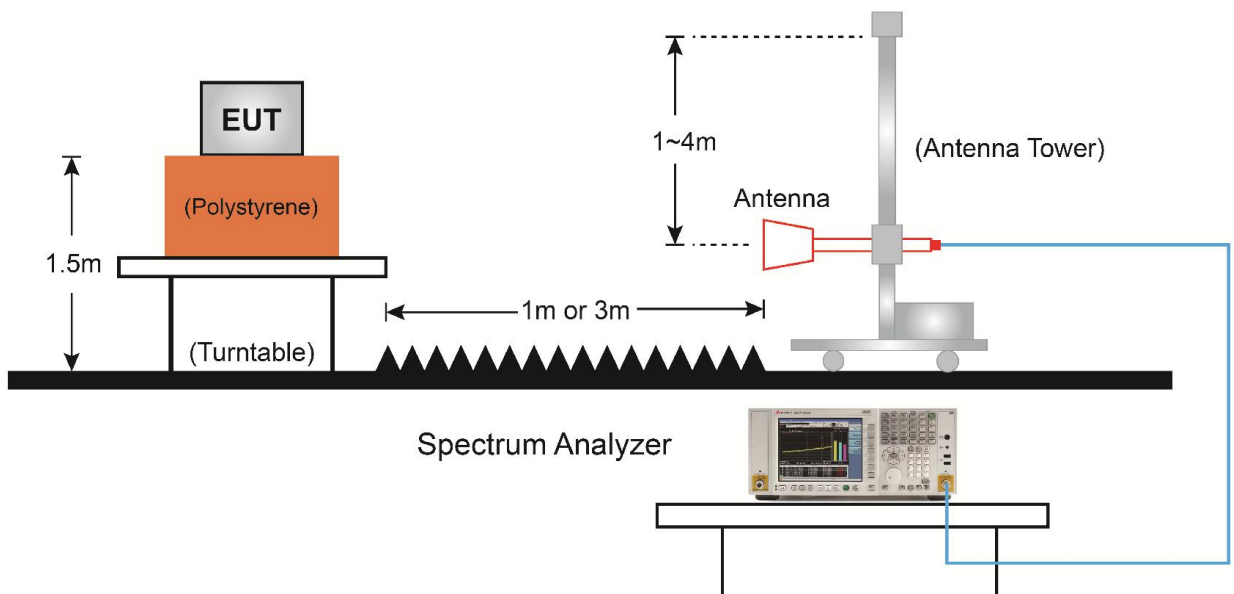
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.6.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.6.5. Test Result

Product	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC2	Test Date	2019/03/28
Test Mode	802.11b	Test Channel	01
Note	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	48.0	3.6	51.6	54.0	-2.4	Average	Horizontal
	4825.0	49.4	3.6	53.0	74.0	-21.0	Peak	Horizontal
*	7239.0	38.2	11.4	49.6	74.0	-24.4	Peak	Horizontal
	9160.0	33.2	13.9	47.1	74.0	-26.9	Peak	Horizontal
*	9848.5	36.1	14.1	50.2	74.0	-23.8	Peak	Horizontal
	4824.0	48.1	3.6	51.7	54.0	-2.3	Average	Vertical
	4825.0	48.8	3.6	52.4	74.0	-21.6	Peak	Vertical
*	7485.5	38.8	12.0	50.8	74.0	-23.2	Peak	Vertical
	7970.0	36.3	11.6	47.9	74.0	-26.1	Peak	Vertical
*	9644.5	34.4	13.7	48.1	74.0	-25.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (71.3dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/03/28
Test Mode	802.11b	Test Channel	06
Note	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	49.8	3.6	53.4	54.0	-0.6	Average	Horizontal
	4876.0	50.3	3.6	53.9	74.0	-20.1	Peak	Horizontal
	7307.0	36.4	11.9	48.3	74.0	-25.7	Peak	Horizontal
*	9746.5	35.4	13.9	49.3	74.0	-24.7	Peak	Horizontal
*	13010.5	31.3	21.3	52.6	74.0	-21.4	Peak	Horizontal
	4874.0	49.3	3.6	52.9	54.0	-1.1	Average	Vertical
	4876.0	49.8	3.6	53.4	74.0	-20.6	Peak	Vertical
*	7069.0	34.9	10.7	45.6	74.0	-28.4	Peak	Vertical
	7485.5	38.5	12.0	50.5	74.0	-23.5	Peak	Vertical
*	9746.5	35.4	13.9	49.3	74.0	-24.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (71.1dBμV/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)

Product	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11b	Test Channel	11
Note	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
	4927.0	44.9	3.6	48.5	74.0	-25.5	Peak	Horizontal
*	7060.5	34.9	10.7	45.6	74.0	-28.4	Peak	Horizontal
	7485.5	35.6	12.0	47.6	74.0	-26.4	Peak	Horizontal
*	10307.5	34.1	15.7	49.8	74.0	-24.2	Peak	Horizontal
	4927.0	44.2	3.6	47.8	74.0	-26.2	Peak	Vertical
*	7060.5	35.0	10.7	45.7	74.0	-28.3	Peak	Vertical
	7494.0	37.6	12.0	49.6	74.0	-24.4	Peak	Vertical
*	9848.5	36.2	14.1	50.3	74.0	-23.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (74.4dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11g	Test Channel	01
Note	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	48.7	3.6	52.3	54.0	-1.7	Average	Horizontal
	4825.0	49.6	3.6	53.2	74.0	-20.8	Peak	
*	7239.0	36.6	11.4	48.0	74.0	-26.0	Peak	Horizontal
	9049.5	34.8	12.8	47.6	74.0	-26.4	Peak	Horizontal
*	10129.0	34.8	15.3	50.1	74.0	-23.9	Peak	Horizontal
	4824.0	47.2	3.6	50.8	54.0	-3.2	Average	Vertical
	4825.0	47.6	3.6	51.2	74.0	-22.8	Peak	
*	7043.5	34.8	10.7	45.5	74.0	-28.5	Peak	Vertical
	7494.0	38.2	12.0	50.2	74.0	-23.8	Peak	Vertical
*	10392.5	33.5	16.3	49.8	74.0	-24.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (75.4dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11g	Test Channel	06
Note	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	49.9	3.6	53.5	54.0	-0.5	Average	Horizontal
	4876.0	50.7	3.6	54.3	74.0	-19.7	Peak	
*	7103.0	34.8	11.1	45.9	74.0	-28.1	Peak	Horizontal
	7315.5	36.6	11.9	48.5	74.0	-25.5	Peak	Horizontal
*	9253.5	34.8	13.7	48.5	74.0	-25.5	Peak	Horizontal
	4874.0	49.4	3.6	53.0	54.0	-1.0	Average	Vertical
	4876.0	49.9	3.6	53.5	74.0	-20.5	Peak	
*	7009.5	34.5	10.3	44.8	74.0	-29.2	Peak	Vertical
	7477.0	39.2	11.9	51.1	74.0	-22.9	Peak	Vertical
*	10358.5	33.8	16.1	49.9	74.0	-24.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (76.7BμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11g	Test Channel	11
Note	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
	4910.0	40.5	3.5	44.0	74.0	-30.0	Peak	Horizontal
	7494.0	34.7	12.0	46.7	74.0	-27.3	Peak	Horizontal
*	7995.5	35.5	11.7	47.2	74.0	-26.8	Peak	Horizontal
*	10307.5	33.9	15.7	49.6	74.0	-24.4	Peak	Horizontal
	4927.0	41.7	3.6	45.3	74.0	-28.7	Peak	Vertical
*	6822.5	35.9	9.0	44.9	74.0	-29.1	Peak	Vertical
	7468.5	37.8	11.8	49.6	74.0	-24.4	Peak	Vertical
*	9848.5	37.2	14.1	51.3	74.0	-22.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (79.6dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11n-HT20	Test Channel	01
Note	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
	4995.0	38.0	3.7	41.7	74.0	-32.3	Peak	Horizontal
*	6117.0	35.5	6.5	42.0	74.0	-32.0	Peak	Horizontal
	7494.0	35.4	12.0	47.4	74.0	-26.6	Peak	Horizontal
*	8590.5	35.1	12.1	47.2	74.0	-26.8	Peak	Horizontal
	4978.0	40.6	3.7	44.3	74.0	-29.7	Peak	Vertical
*	7035.0	34.6	10.8	45.4	74.0	-28.6	Peak	Vertical
	7494.0	39.0	12.0	51.0	74.0	-23.0	Peak	Vertical
*	9644.5	37.3	13.7	51.0	74.0	-23.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (74.5dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11n-HT20	Test Channel	06
Note	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
	4876.0	41.4	3.6	45.0	74.0	-29.0	Peak	Horizontal
*	6584.5	36.2	8.2	44.4	74.0	-29.6	Peak	Horizontal
	7502.5	34.4	11.8	46.2	74.0	-27.8	Peak	Horizontal
*	9755.0	34.3	14.0	48.3	74.0	-25.7	Peak	Horizontal
	4986.5	40.0	3.7	43.7	74.0	-30.3	Peak	Vertical
*	7128.5	33.6	11.0	44.6	74.0	-29.4	Peak	Vertical
*	8599.0	32.2	12.1	44.3	74.0	-29.7	Peak	Vertical
	9355.5	33.5	13.4	46.9	74.0	-27.1	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (78.4dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11n-HT20	Test Channel	11
Note	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
*	5539.0	38.2	4.1	42.3	74.0	-31.7	Peak	Horizontal
*	6933.0	35.6	10.1	45.7	74.0	-28.3	Peak	Horizontal
	7494.0	35.8	12.0	47.8	74.0	-26.2	Peak	Horizontal
	10996.0	33.4	18.6	52.0	74.0	-22.0	Peak	Horizontal
	4927.0	40.3	3.6	43.9	74.0	-30.1	Peak	Vertical
*	7213.5	34.6	11.6	46.2	74.0	-27.8	Peak	Vertical
	7494.0	39.0	12.0	51.0	74.0	-23.0	Peak	Vertical
*	9865.5	35.9	14.1	50.0	74.0	-24.0	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (79.4dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11n-HT40	Test Channel	03
Note	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
	4842.0	38.1	3.4	41.5	74.0	-32.5	Peak	Horizontal
*	6542.0	35.6	8.5	44.1	74.0	-29.9	Peak	Horizontal
	7485.5	35.0	12.0	47.0	74.0	-27.0	Peak	Horizontal
*	9908.0	34.6	14.2	48.8	74.0	-25.2	Peak	Horizontal
	4986.5	42.0	3.7	45.7	74.0	-28.3	Peak	Vertical
*	7103.0	34.4	11.1	45.5	74.0	-28.5	Peak	Vertical
	7485.5	37.6	12.0	49.6	74.0	-24.4	Peak	Vertical
*	9687.0	37.2	13.6	50.8	74.0	-23.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (75.2dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11n-HT40	Test Channel	06
Note	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
	4876.0	37.2	3.6	40.8	74.0	-33.2	Peak	Horizontal
*	6865.0	35.7	9.5	45.2	74.0	-28.8	Peak	Horizontal
	7494.0	34.8	12.0	46.8	74.0	-27.2	Peak	Horizontal
*	10409.5	33.5	16.3	49.8	74.0	-24.2	Peak	Horizontal
	4986.5	41.1	3.7	44.8	74.0	-29.2	Peak	Vertical
*	6584.5	35.8	8.2	44.0	74.0	-30.0	Peak	Vertical
	7494.0	38.0	12.0	50.0	74.0	-24.0	Peak	Vertical
*	9746.5	35.8	13.9	49.7	74.0	-24.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (76.3dBμV/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	Built-in Pump	Temperature	25°C
Test Engineer	Flag Yang	Relative Humidity	52%
Test Site	AC1	Test Date	2019/05/18
Test Mode	802.11n-HT40	Test Channel	09
Note	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
	4901.5	38.8	3.5	42.3	74.0	-31.7	Peak	Horizontal
*	7103.0	34.2	11.1	45.3	74.0	-28.7	Peak	Horizontal
	7502.5	35.2	11.8	47.0	74.0	-27.0	Peak	Horizontal
*	9670.0	35.3	13.6	48.9	74.0	-25.1	Peak	Horizontal
	4978.0	41.5	3.7	45.2	74.0	-28.8	Peak	Vertical
*	6941.5	34.8	10.0	44.8	74.0	-29.2	Peak	Vertical
	7502.5	35.2	11.8	47.0	74.0	-27.0	Peak	Vertical
*	10290.5	34.4	15.6	50.0	74.0	-24.0	Peak	Vertical

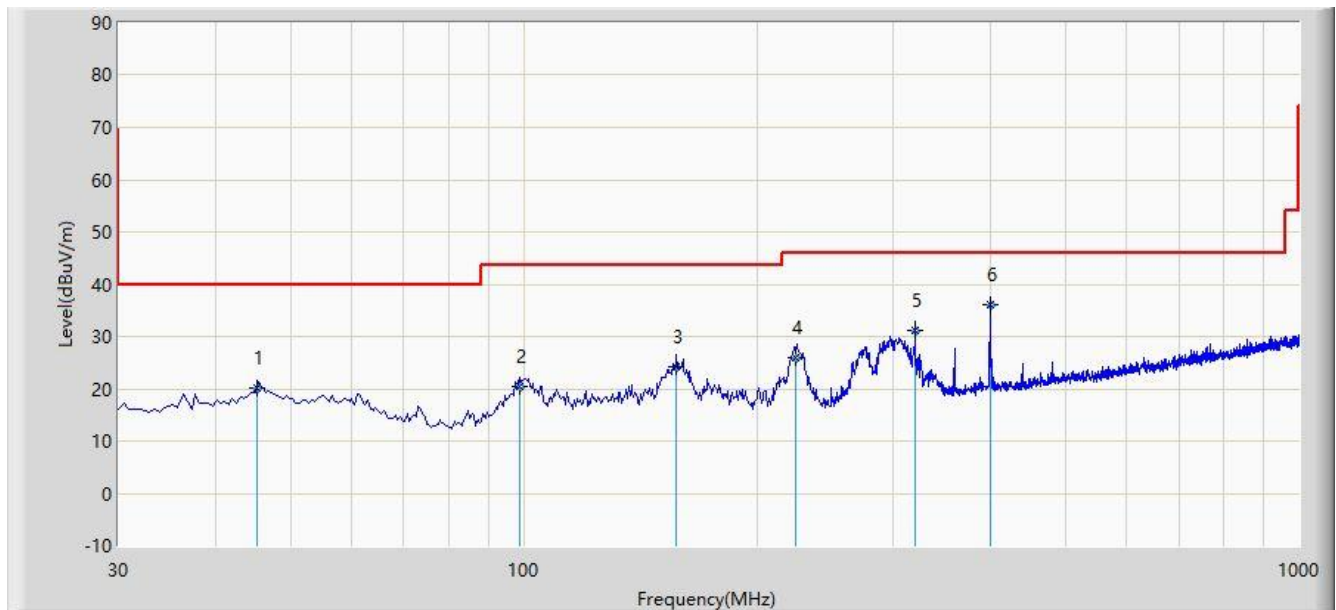
Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (77.7dBμV/m) or 15.209 which is higher.

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

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

The Worst Case of Radiated Emission below 1GHz:

Site: AC2	Time: 2019/04/02 - 15:23
Limit: FCC_Part15.209_RSE(3m)	Engineer: Messiah Li
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: AC 120V/60Hz
Worst Case Mode: There is the worst case within frequency range 30MHz~1GHz.	



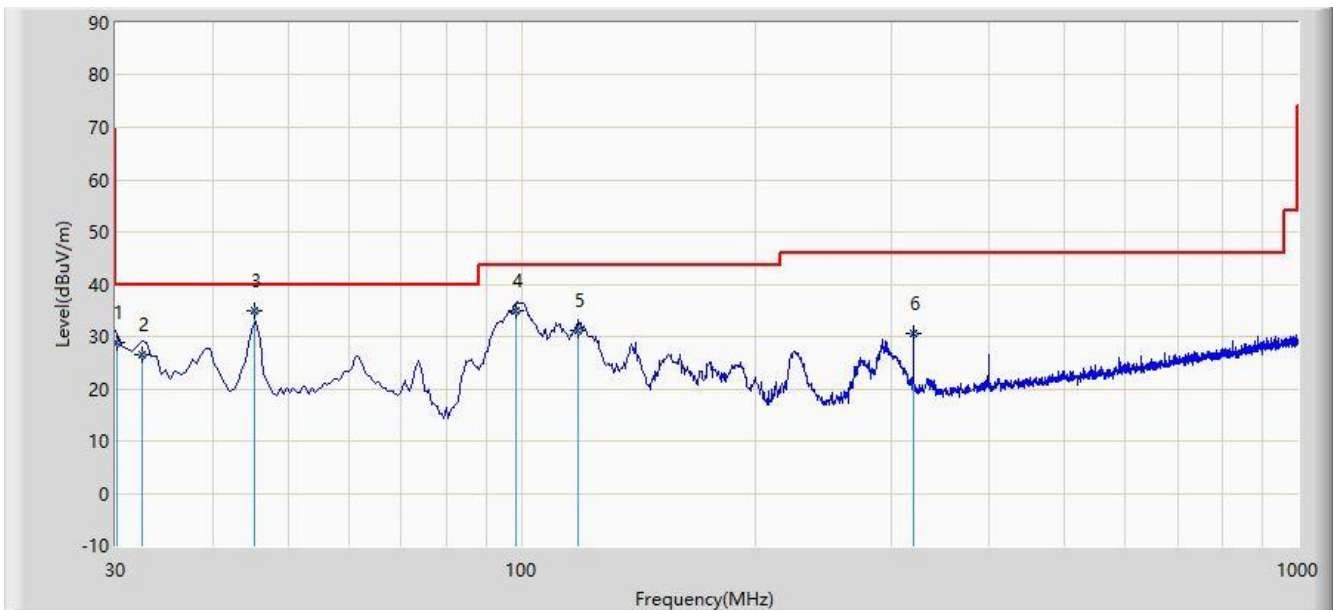
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			45.260	20.077	5.300	-19.923	40.000	14.777	QP
2			98.740	20.330	7.640	-23.170	43.500	12.690	QP
3			157.460	24.155	14.580	-19.345	43.500	9.575	QP
4			224.580	26.041	13.410	-19.959	46.000	12.631	QP
5			320.250	31.070	16.250	-14.930	46.000	14.820	QP
6		*	400.120	36.052	19.650	-9.948	46.000	16.402	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + 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: AC2	Time: 2019/04/02 - 15:25
Limit: FCC_Part15.209_RSE(3m)	Engineer: Messiah Li
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Built-in Pump	Power: AC 120V/60Hz
Worst Case 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	Type
1			30.120	28.960	16.970	-11.040	40.000	11.990	QP
2			32.410	26.657	14.250	-13.343	40.000	12.407	QP
3		*	45.210	34.798	20.030	-5.202	40.000	14.767	QP
4			98.470	35.007	22.350	-8.493	43.500	12.657	QP
5			118.470	31.020	19.650	-12.480	43.500	11.370	QP
6			320.150	30.439	15.620	-15.561	46.000	14.818	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + 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 - 156.52525	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 Limits		
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

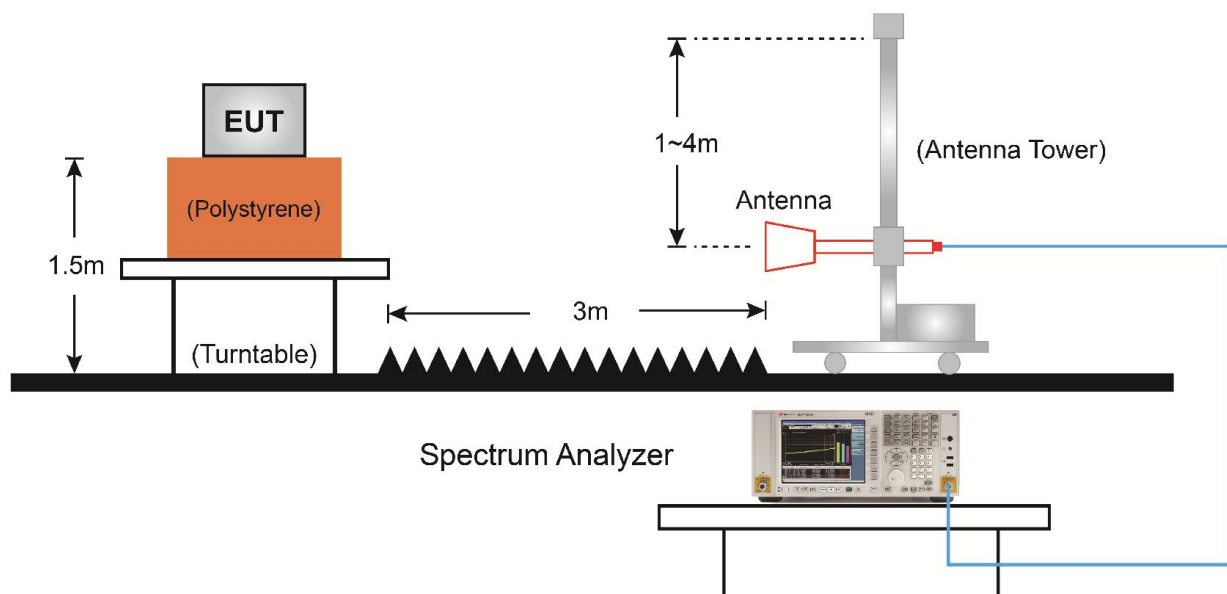
Peak Field Strength Measurements

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)

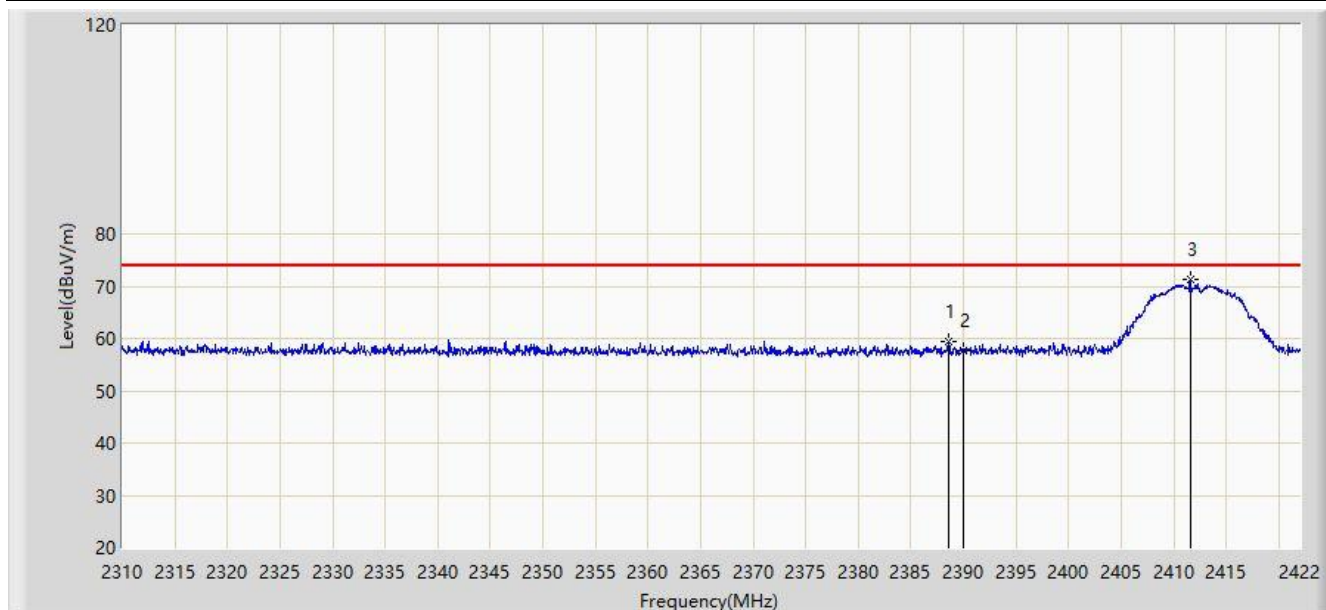
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4. 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: AC2	Time: 2019/03/26 - 04:39
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11b at channel 2412MHz	

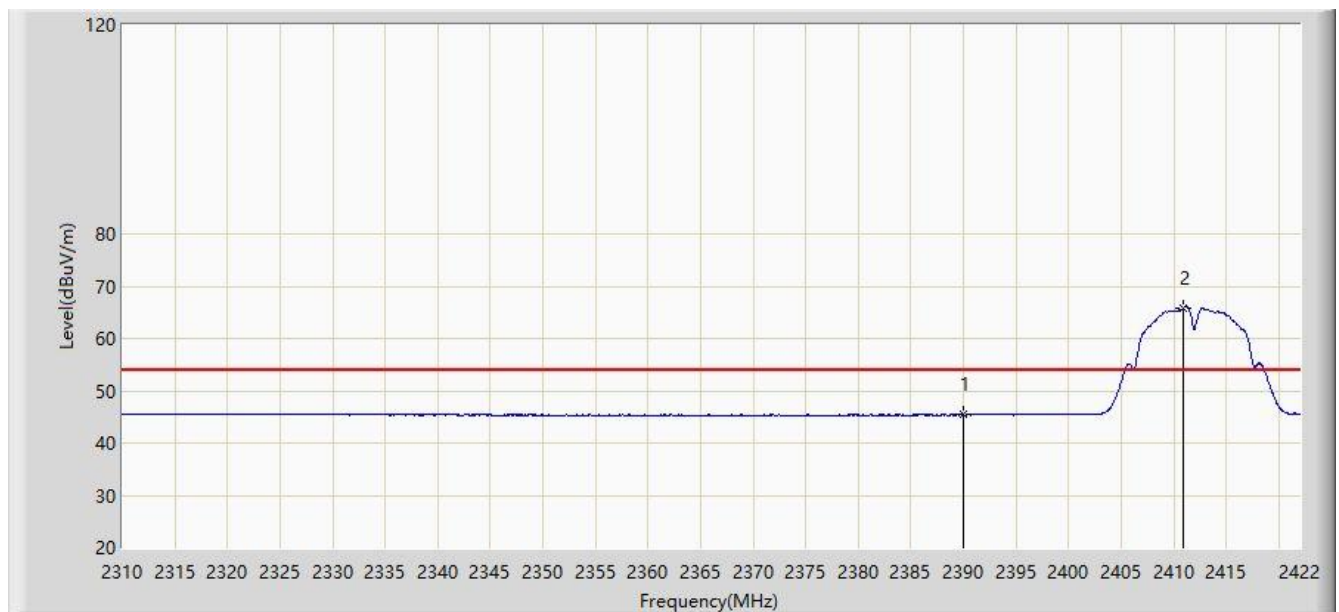


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2388.568	59.411	27.962	-14.589	74.000	31.449	PK
2			2390.000	57.654	26.205	-16.346	74.000	31.449	PK
3		*	2411.584	71.345	39.956	N/A	N/A	31.389	PK

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

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

Site: AC2	Time: 2019/03/26 - 05:01
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11b at channel 2412MHz	

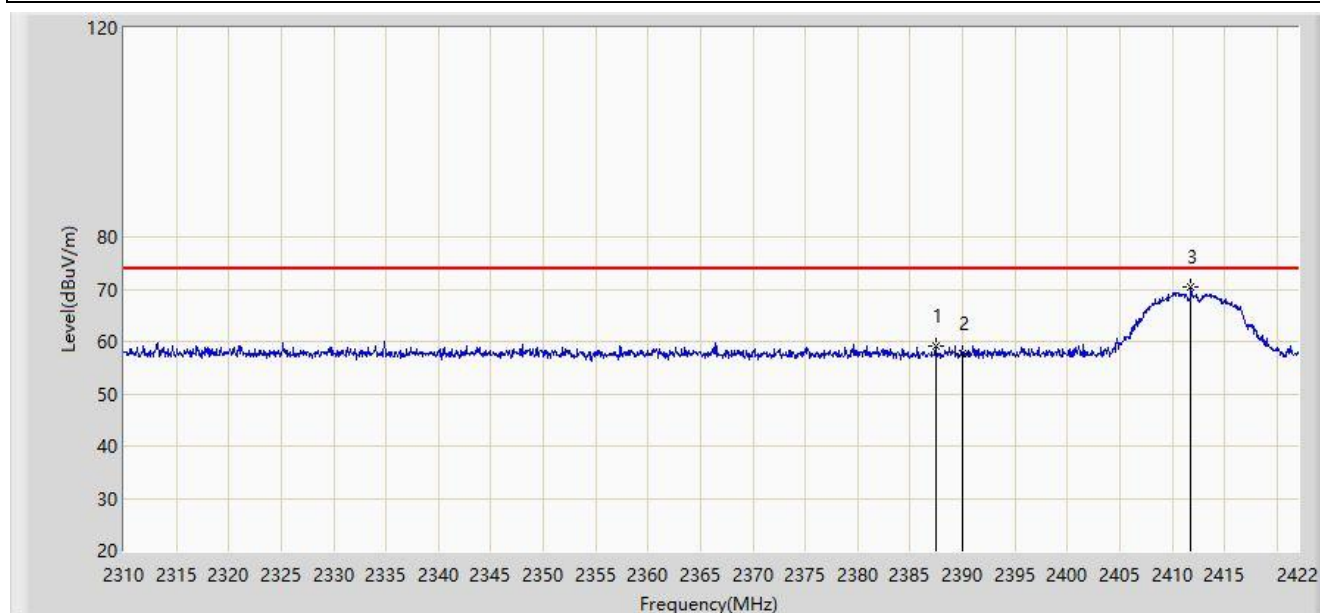


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	45.387	13.938	-8.613	54.000	31.449	AV
2		*	2410.968	65.851	34.461	N/A	N/A	31.390	AV

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

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

Site: AC2	Time: 2019/03/26 - 05:02
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11b at channel 2412MHz	

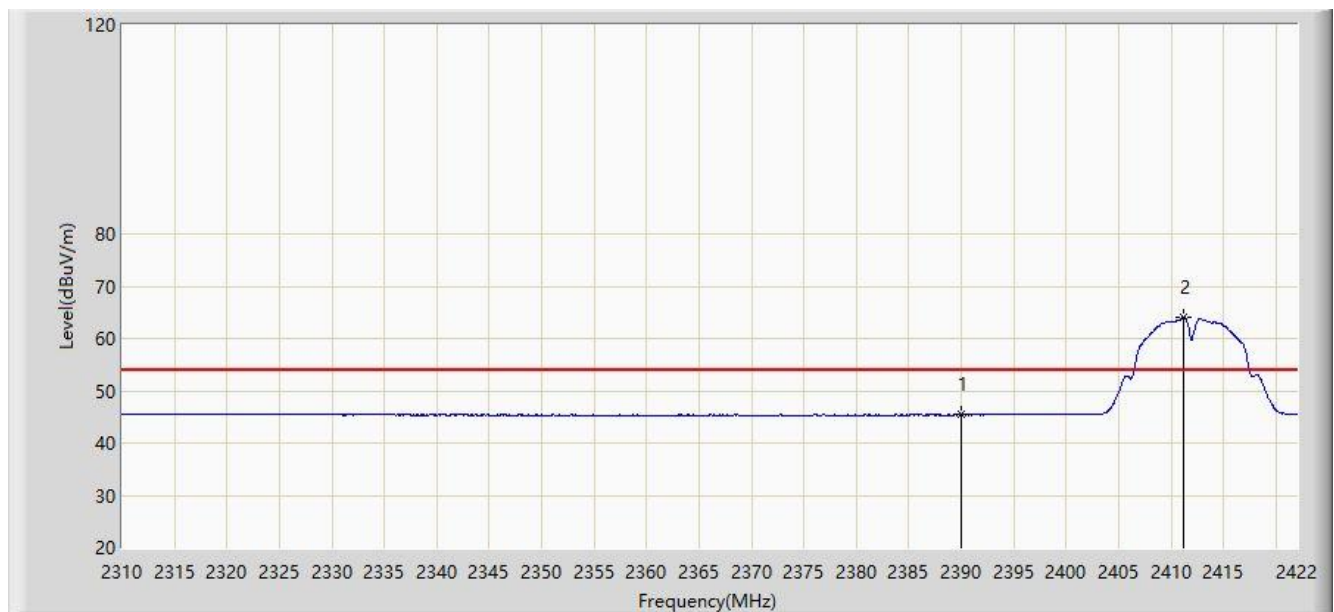


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2387.448	58.988	27.540	-15.012	74.000	31.448	PK
2			2390.000	57.825	26.376	-16.175	74.000	31.449	PK
3		*	2411.752	70.336	38.947	N/A	N/A	31.389	PK

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

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

Site: AC2	Time: 2019/03/26 - 05:09
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11b at channel 2412MHz	

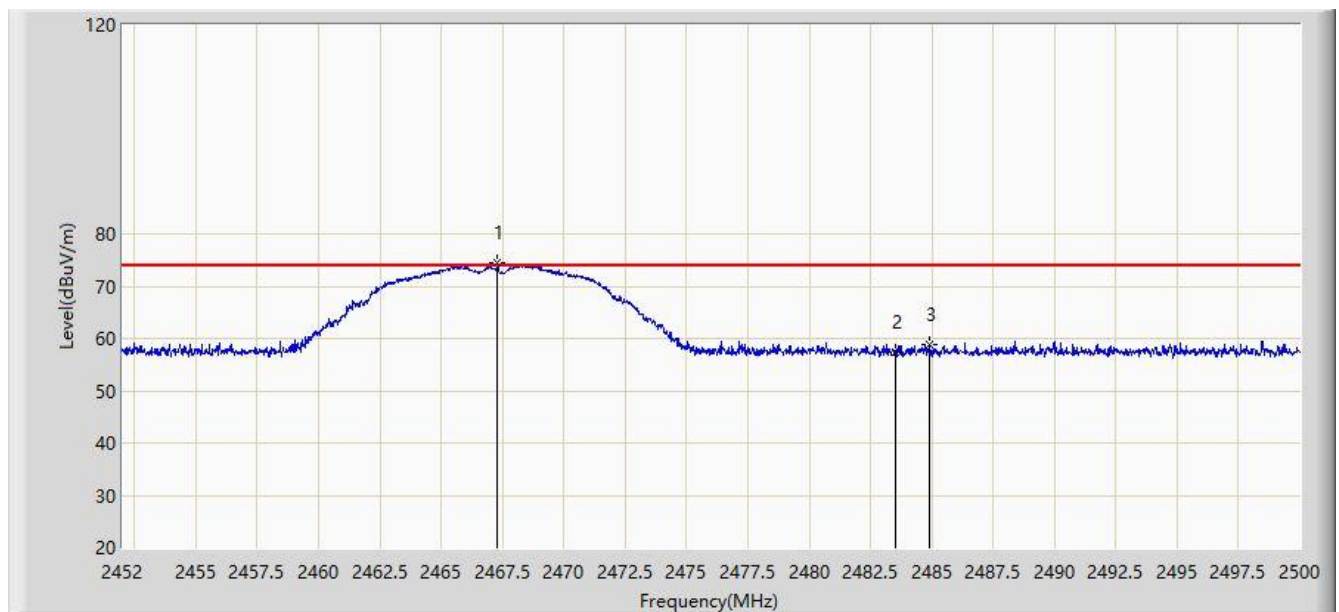


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	45.441	13.992	-8.559	54.000	31.449	AV
2		*	2411.136	64.072	32.682	N/A	N/A	31.390	AV

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

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

Site: AC2	Time: 2019/03/26 - 05:12
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11b at channel 2462MHz	

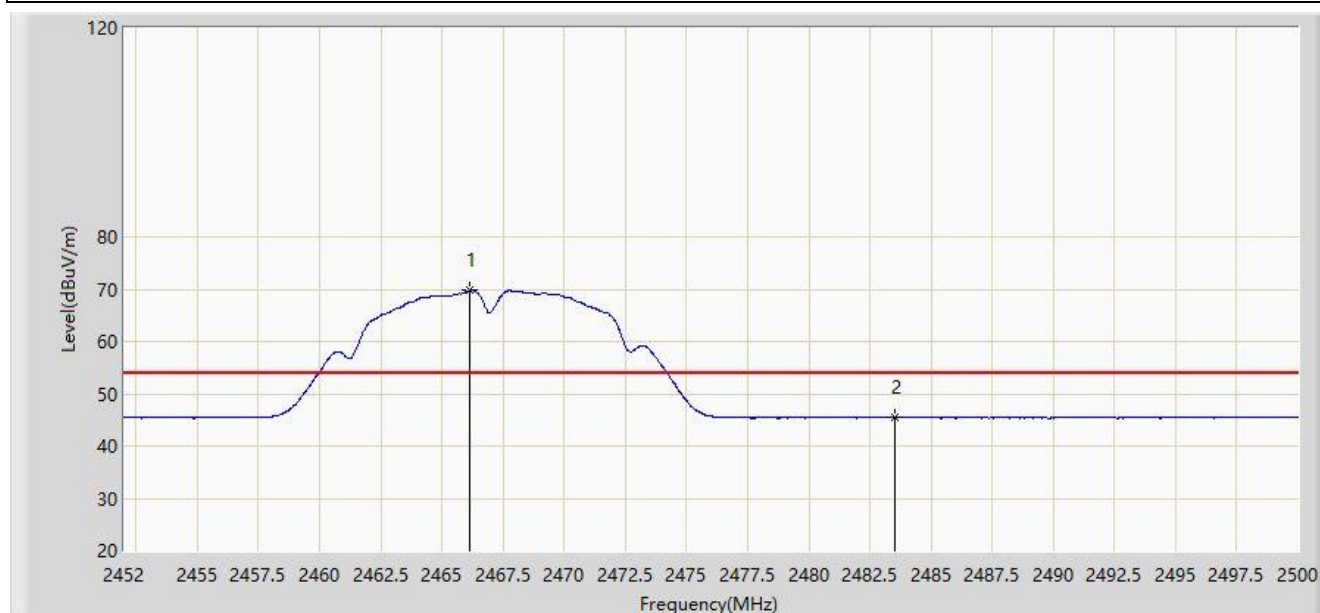


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2467.288	74.438	43.080	N/A	N/A	31.358	PK
2			2483.500	57.445	26.042	-16.555	74.000	31.403	PK
3			2484.880	58.738	27.331	-15.262	74.000	31.407	PK

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

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

Site: AC2	Time: 2019/03/26 - 05:19
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11b at channel 2462MHz	

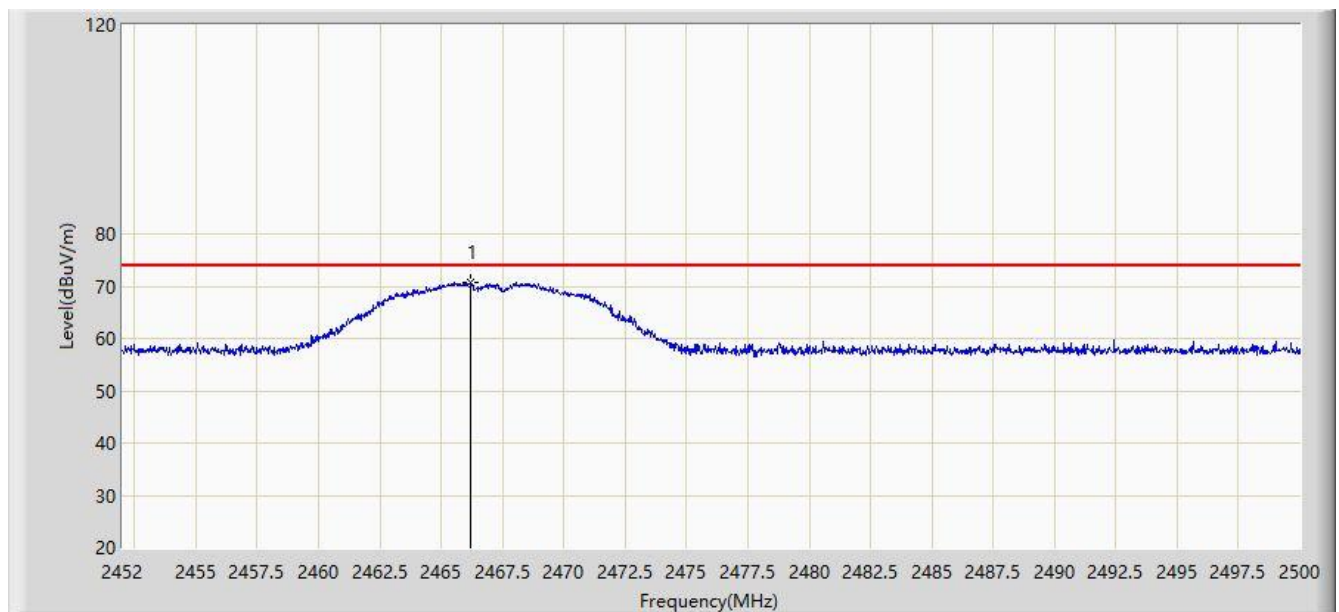


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2466.160	69.782	38.427	N/A	N/A	31.355	AV
2			2483.500	45.445	14.042	-8.555	54.000	31.403	AV

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

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

Site: AC2	Time: 2019/03/26 - 05:20
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11b at channel 2462MHz	

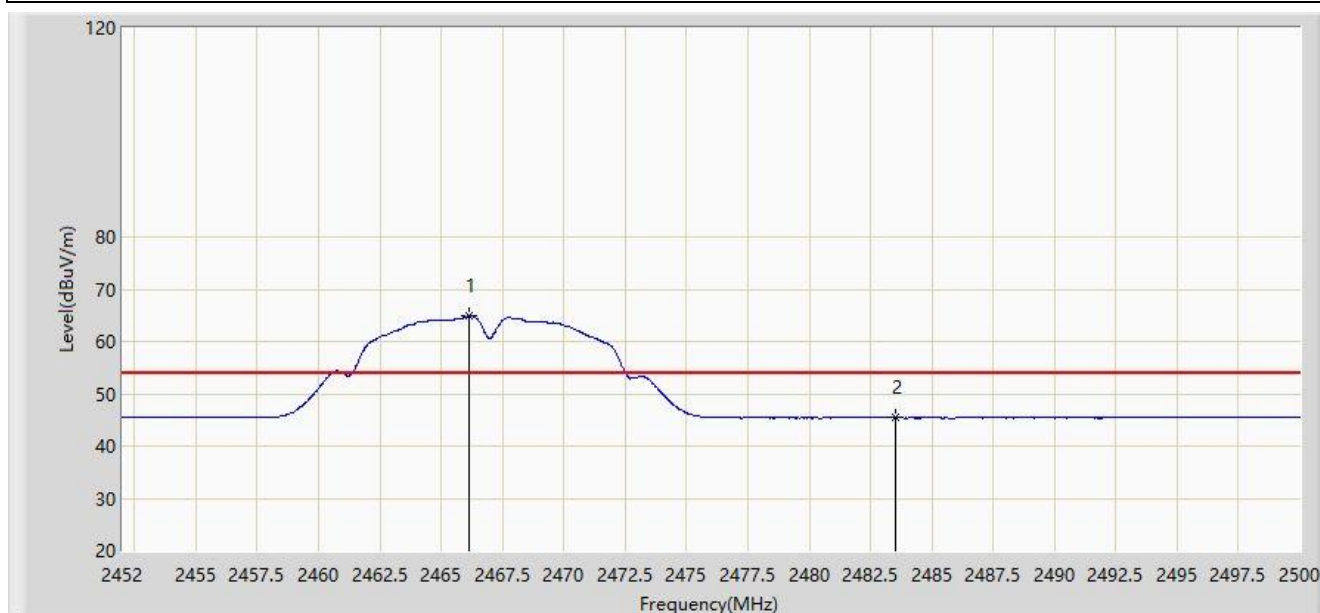


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2466.208	70.765	39.410	N/A	N/A	31.355	PK

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

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

Site: AC2	Time: 2019/03/26 - 05:26
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11b at channel 2462MHz	

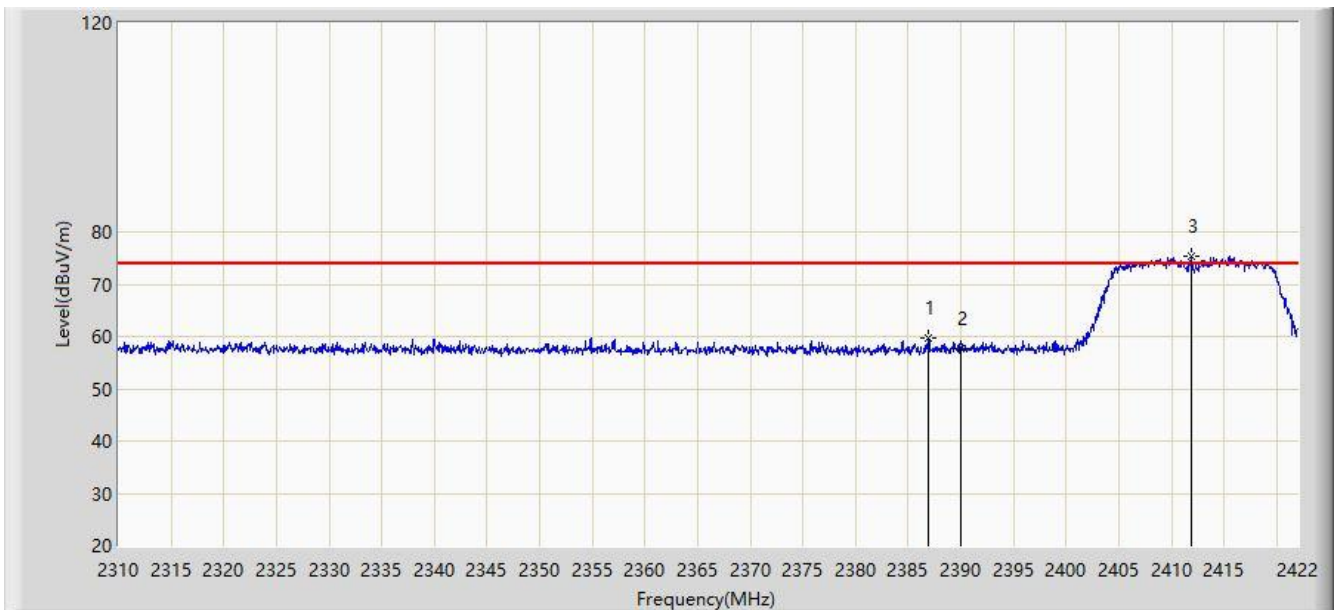


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2466.136	64.886	33.531	N/A	N/A	31.355	AV
2			2483.500	45.480	14.077	-8.520	54.000	31.403	AV

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

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

Site: AC2	Time: 2019/03/26 - 05:27
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2412MHz	

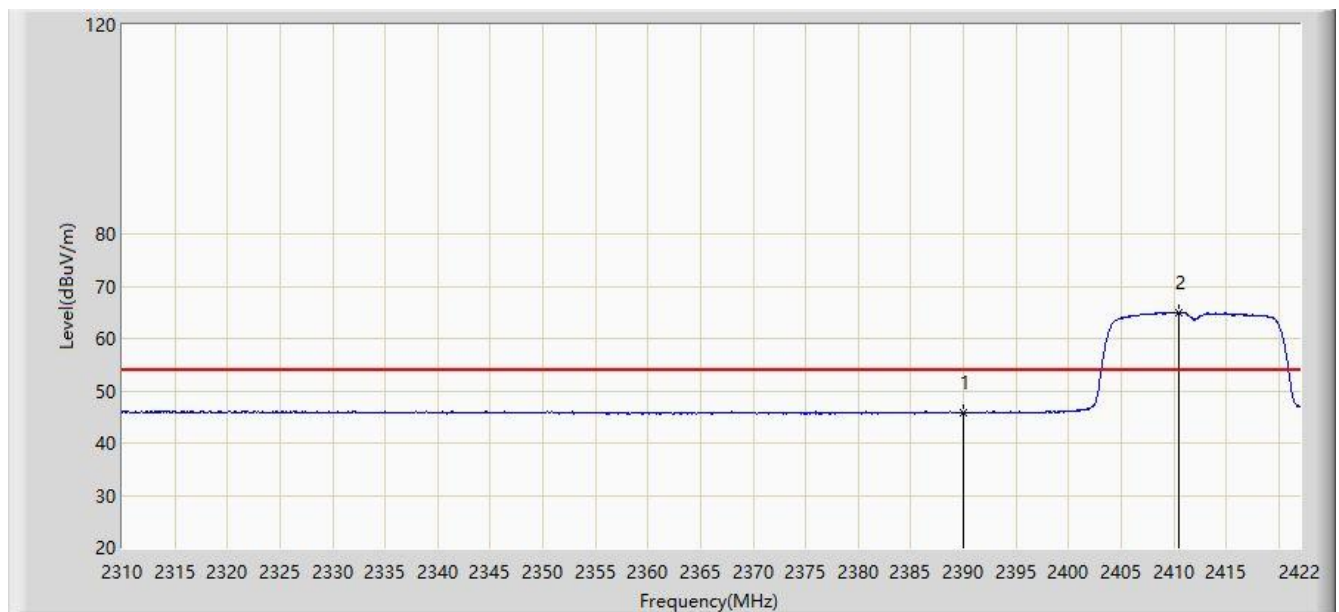


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2386.944	59.750	28.302	-14.250	74.000	31.448	PK
2			2390.000	57.768	26.319	-16.232	74.000	31.449	PK
3		*	2411.864	75.381	43.993	N/A	N/A	31.388	PK

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

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

Site: AC2	Time: 2019/03/26 - 05:36
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2412MHz	

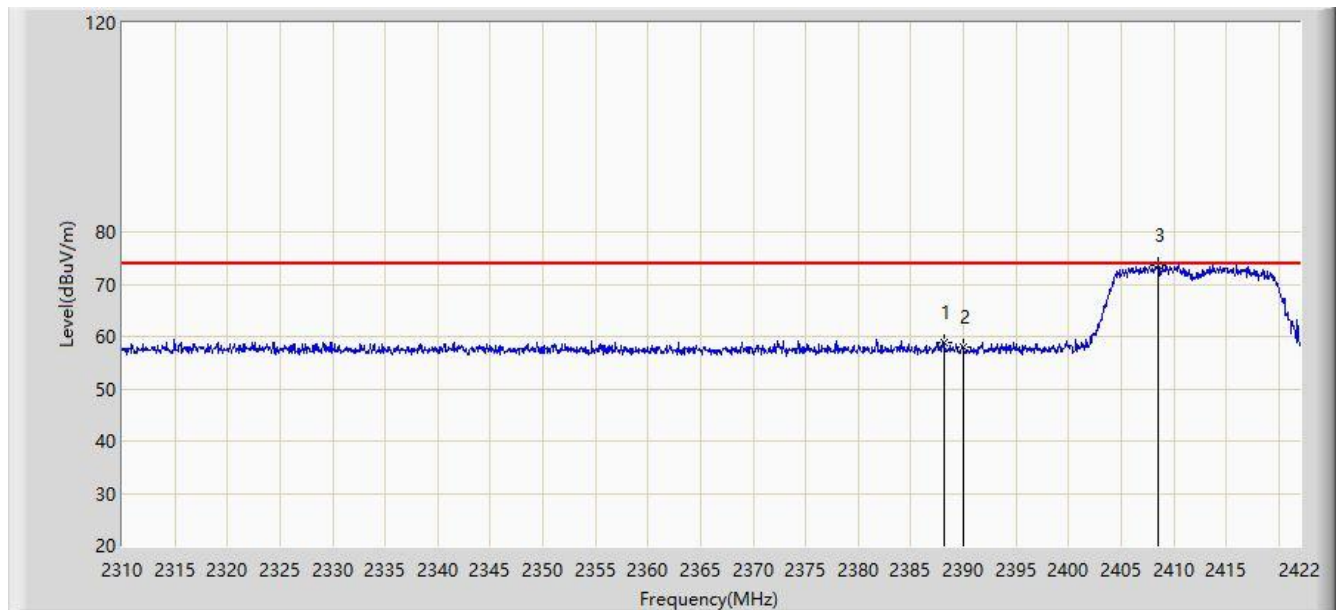


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	45.838	14.389	-8.162	54.000	31.449	AV
2		*	2410.464	64.893	33.501	N/A	N/A	31.393	AV

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

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

Site: AC2	Time: 2019/03/26 - 05:37
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2412MHz	

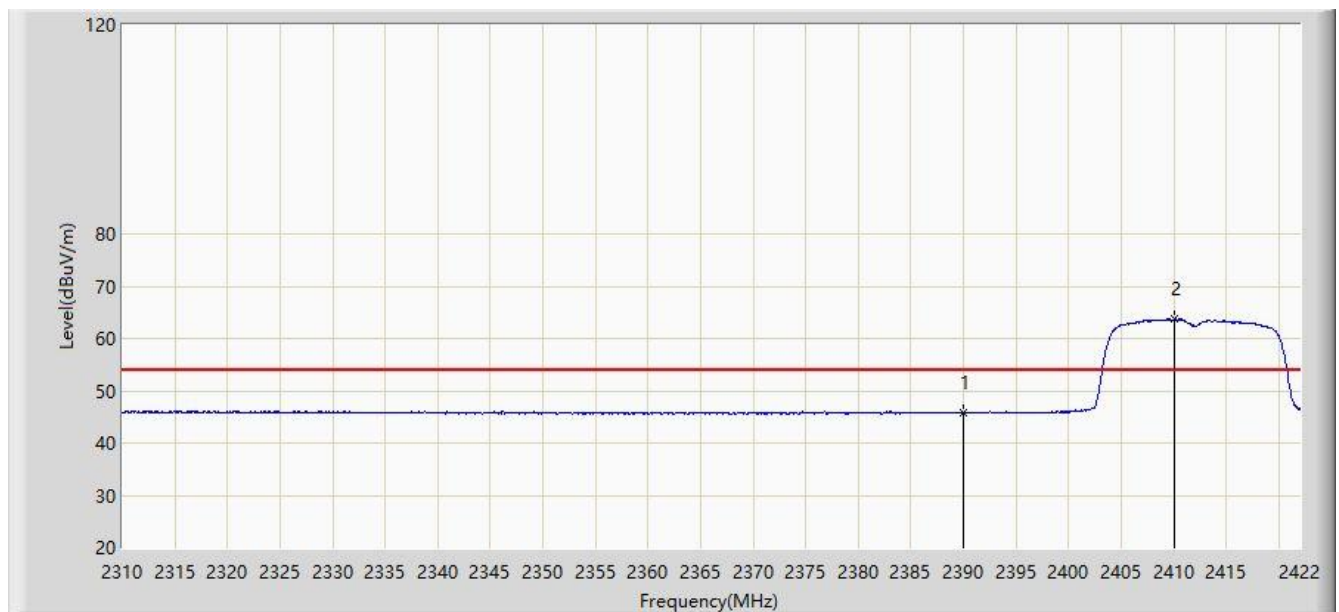


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2388.176	58.981	27.533	-15.019	74.000	31.449	PK
2			2390.000	58.024	26.575	-15.976	74.000	31.449	PK
3		*	2408.560	73.678	42.279	N/A	N/A	31.398	PK

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

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

Site: AC2	Time: 2019/03/26 - 05:42
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2412MHz	

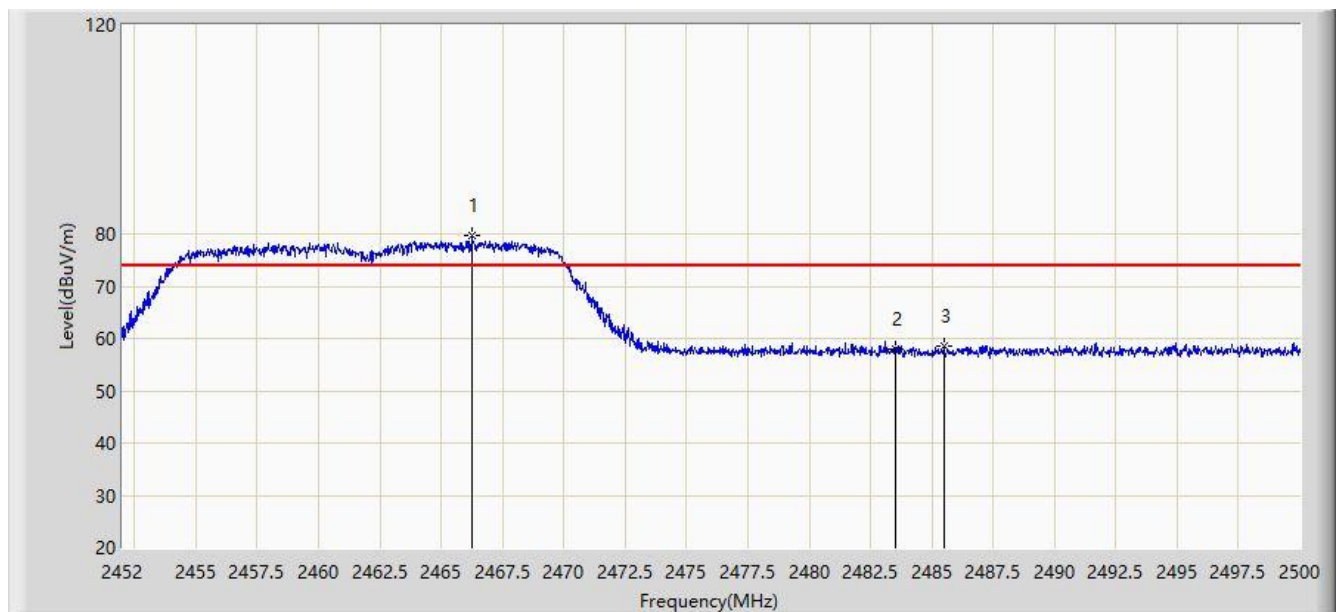


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	45.788	14.339	-8.212	54.000	31.449	AV
2		*	2410.016	63.639	32.245	N/A	N/A	31.394	AV

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

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

Site: AC2	Time: 2019/03/26 - 05:42
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2462MHz	

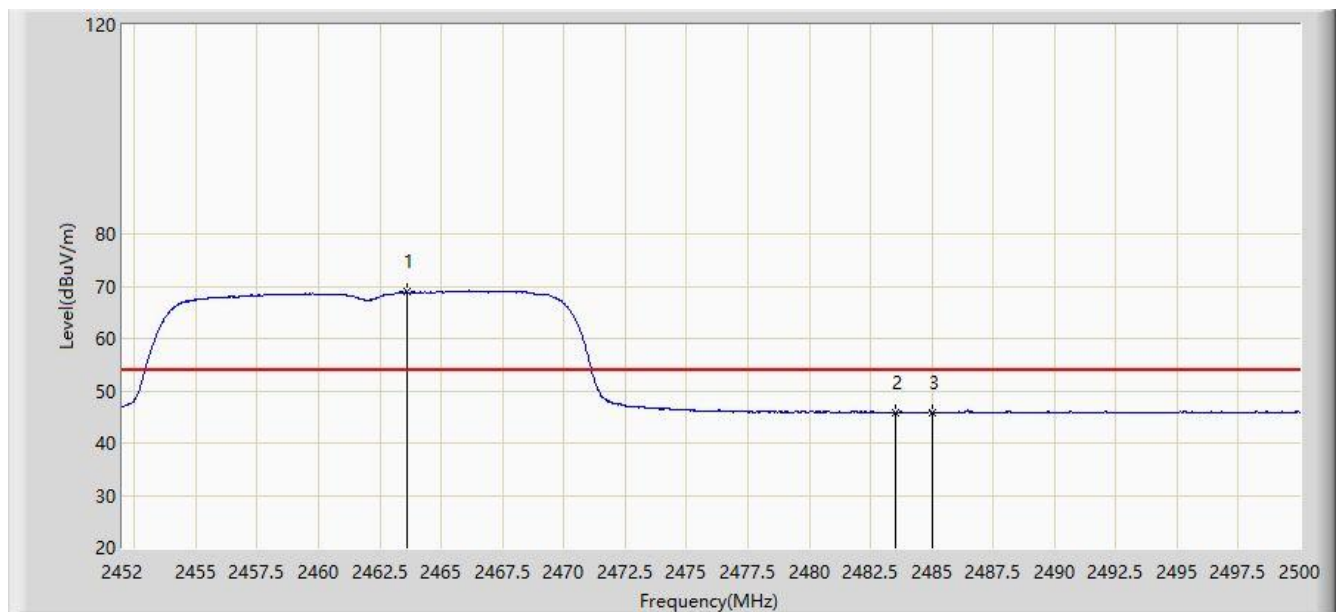


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2466.256	79.622	48.267	N/A	N/A	31.355	PK
2			2483.500	57.853	26.450	-16.147	74.000	31.403	PK
3			2485.480	58.619	27.210	-15.381	74.000	31.409	PK

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

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

Site: AC2	Time: 2019/03/26 - 05:48
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2462MHz	

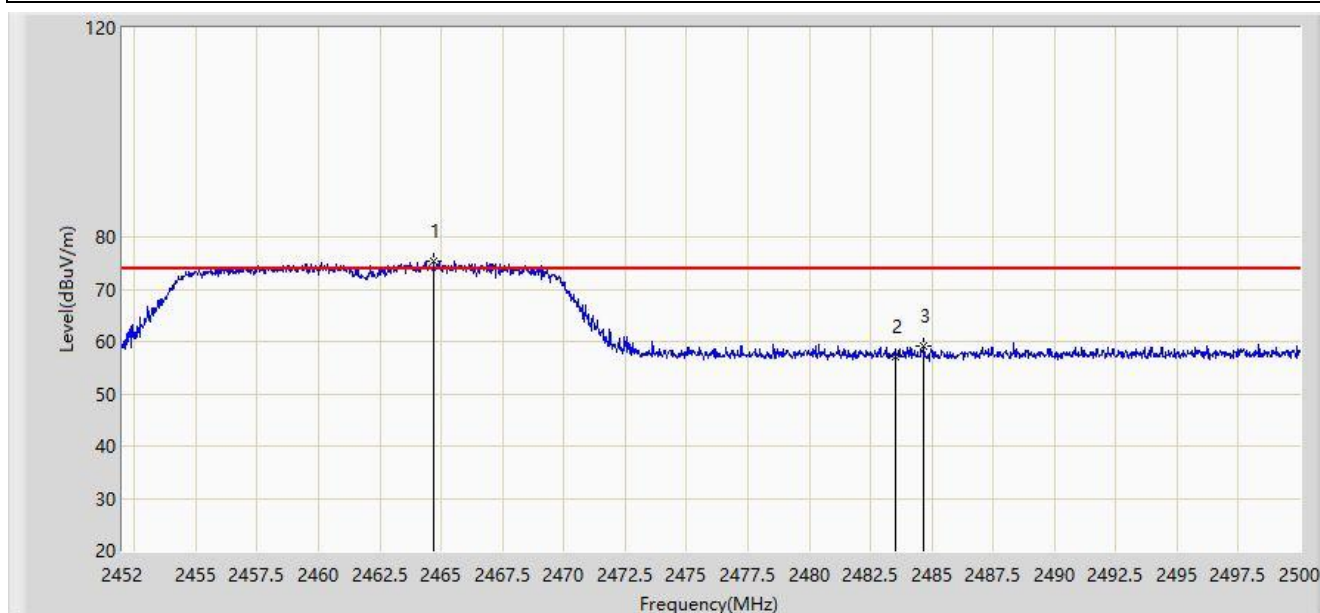


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.616	68.922	37.573	N/A	N/A	31.349	AV
2			2483.500	45.881	14.478	-8.119	54.000	31.403	AV
3			2485.000	45.933	14.525	-8.067	54.000	31.408	AV

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

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

Site: AC2	Time: 2019/03/26 - 05:49
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2462MHz	

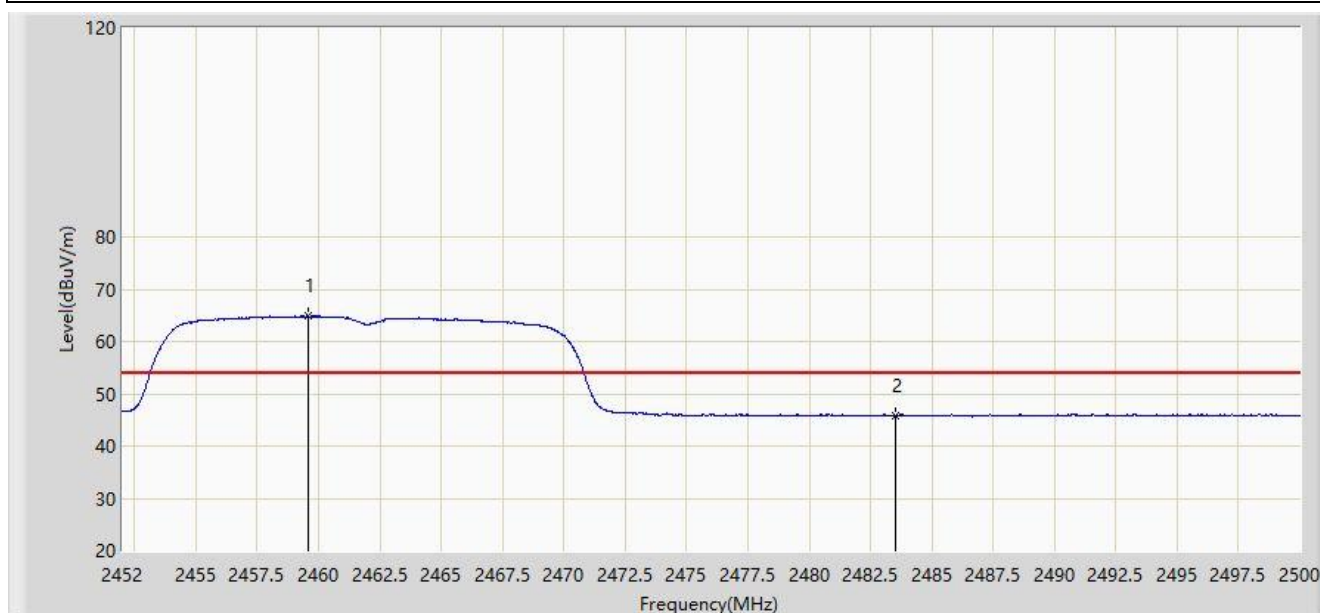


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2464.696	75.448	44.096	N/A	N/A	31.352	PK
2			2483.500	57.245	25.842	-16.755	74.000	31.403	PK
3			2484.664	59.052	27.645	-14.948	74.000	31.407	PK

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

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

Site: AC2	Time: 2019/03/26 - 06:18
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2462MHz	

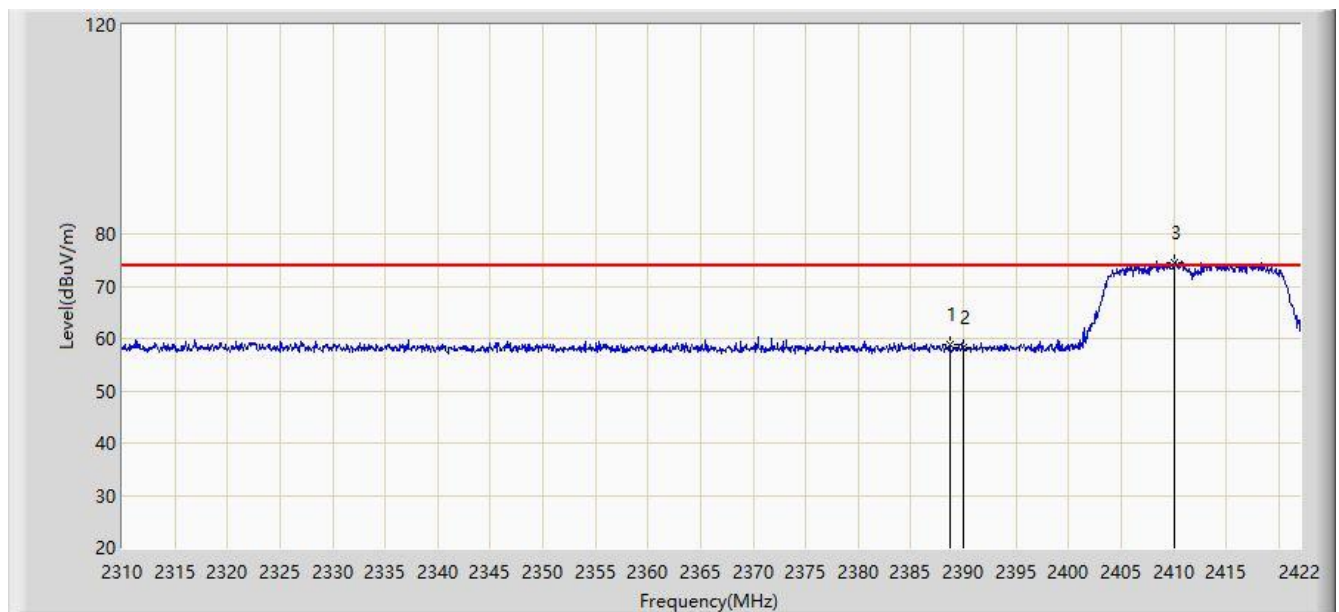


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2459.584	64.884	33.541	N/A	N/A	31.342	AV
2			2483.500	45.819	14.416	-8.181	54.000	31.403	AV

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

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

Site: AC2	Time: 2019/03/26 - 06:19
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11g at channel 2462MHz	

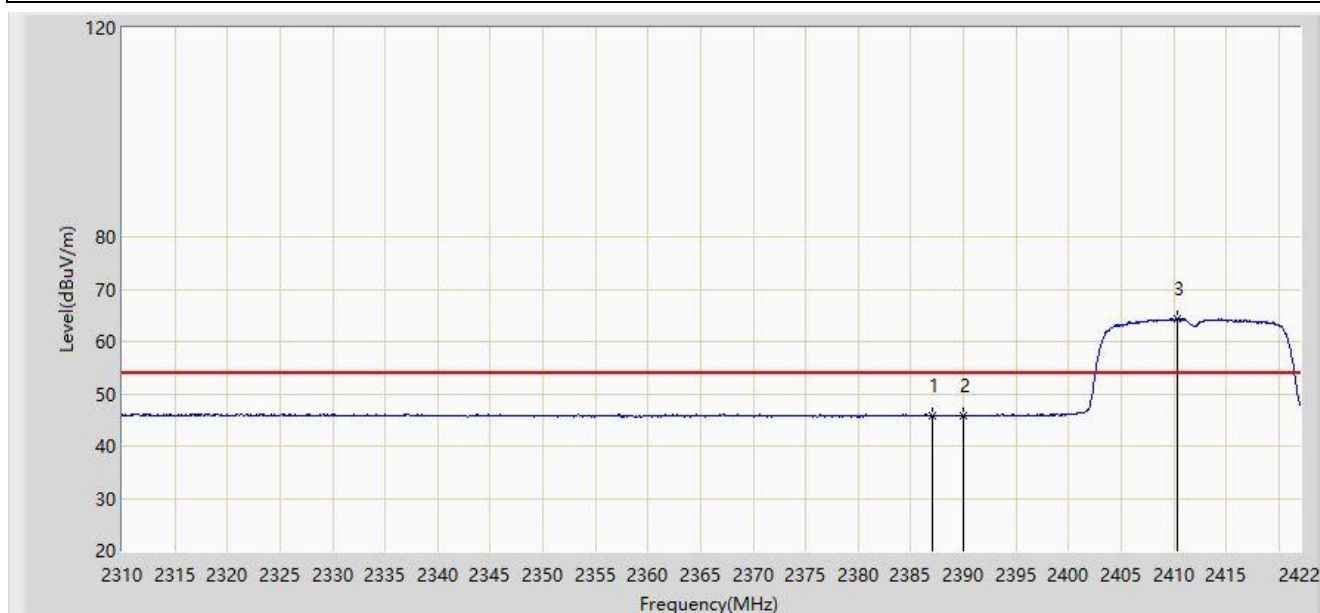


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2388.736	58.783	27.334	-15.217	74.000	31.448	PK
2			2390.000	58.196	26.747	-15.804	74.000	31.449	PK
3		*	2410.072	74.503	43.110	N/A	N/A	31.394	PK

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

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

Site: AC2	Time: 2019/03/26 - 06:32
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n20 at channel 2412MHz	

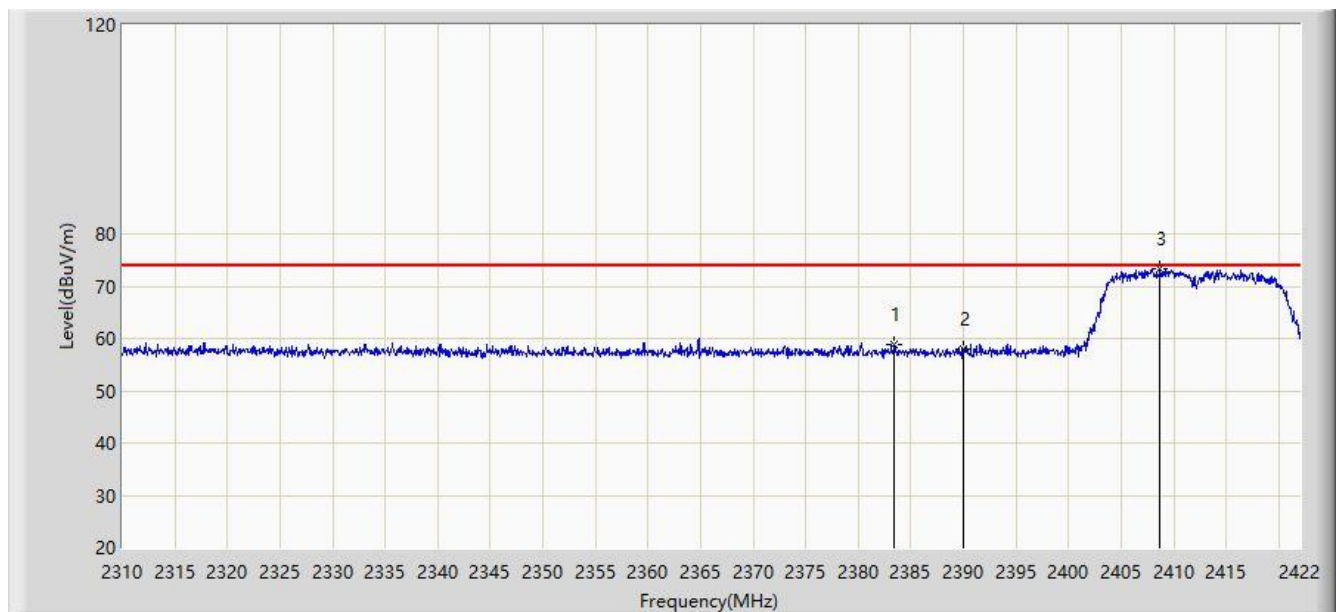


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2387.056	45.933	14.485	-8.067	54.000	31.448	AV
2			2390.000	45.773	14.324	-8.227	54.000	31.449	AV
3		*	2410.296	64.317	32.924	N/A	N/A	31.393	AV

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

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

Site: AC2	Time: 2019/03/26 - 06:33
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n20 at channel 2412MHz	

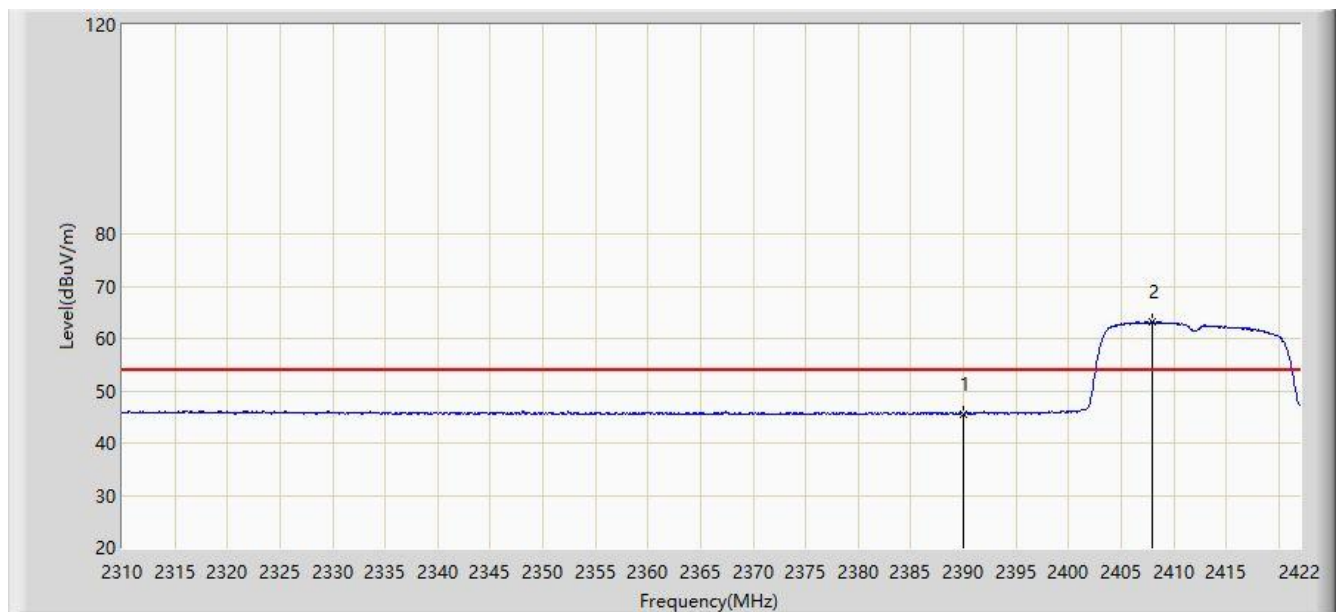


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2383.416	58.794	27.346	-15.206	74.000	31.448	PK
2			2390.000	57.896	26.447	-16.104	74.000	31.449	PK
3		*	2408.672	73.319	41.921	N/A	N/A	31.398	PK

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

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

Site: AC2	Time: 2019/03/26 - 06:36
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n20 at channel 2412MHz	

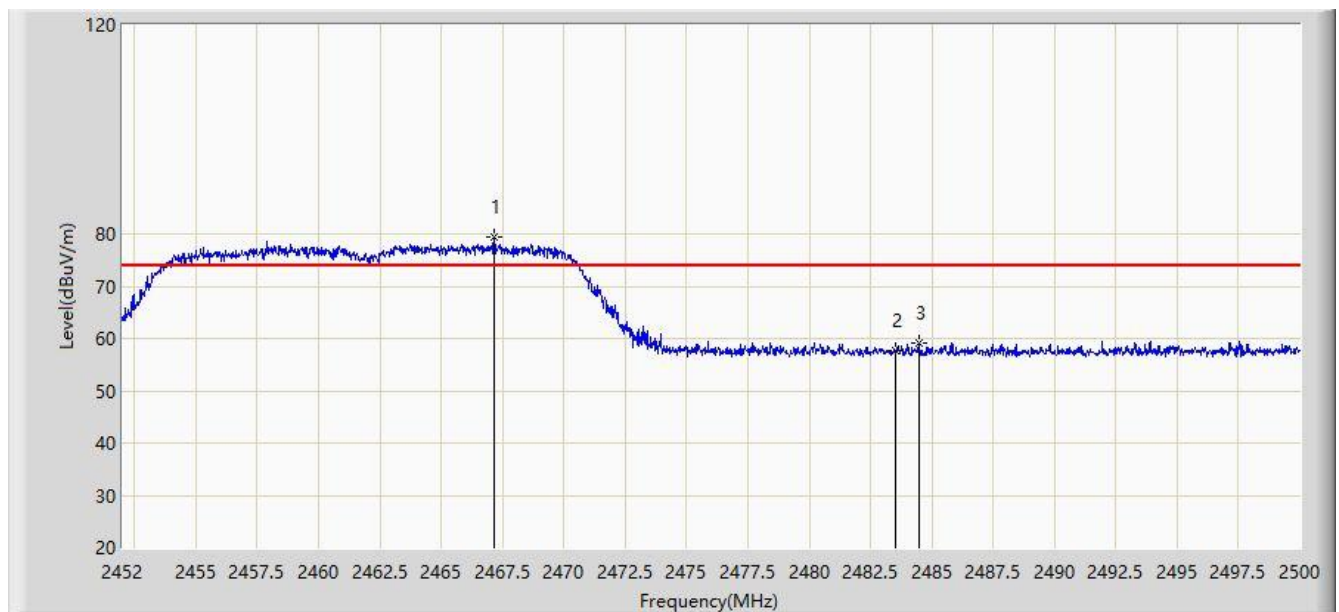


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	45.624	14.175	-8.376	54.000	31.449	AV
2		*	2408.000	63.143	31.742	N/A	N/A	31.401	AV

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

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

Site: AC2	Time: 2019/03/26 - 06:38
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n20 at channel 2462MHz	

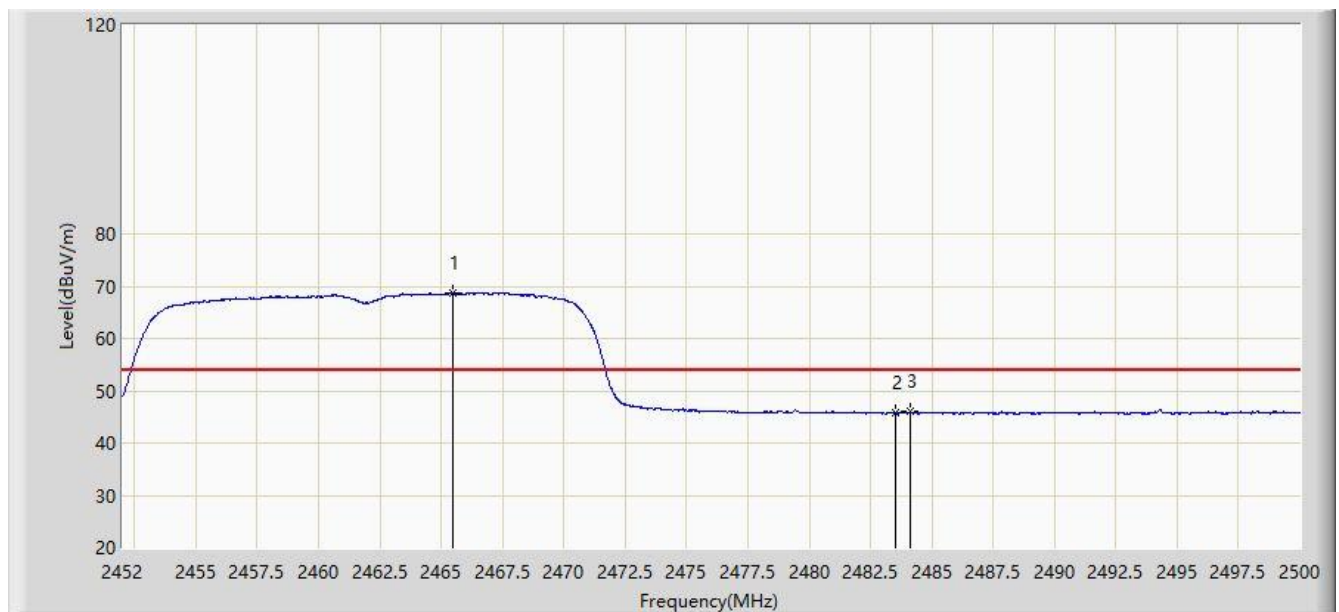


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2467.144	79.415	48.057	N/A	N/A	31.358	PK
2			2483.500	57.589	26.186	-16.411	74.000	31.403	PK
3			2484.472	59.031	27.625	-14.969	74.000	31.406	PK

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

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

Site: AC2	Time: 2019/03/26 - 06:42
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n20 at channel 2462MHz	

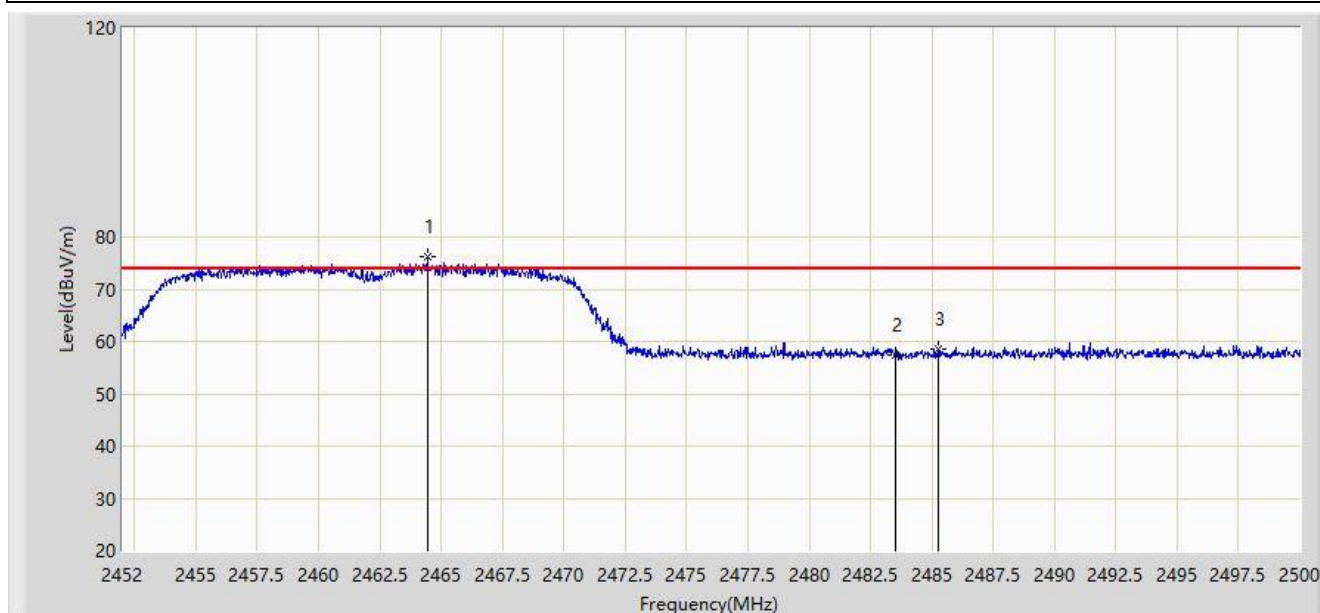


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2465.488	68.639	37.285	N/A	N/A	31.353	AV
2			2483.500	45.908	14.505	-8.092	54.000	31.403	AV
3			2484.136	45.967	14.562	-8.033	54.000	31.405	AV

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

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

Site: AC2	Time: 2019/03/26 - 06:43
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n20 at channel 2462MHz	

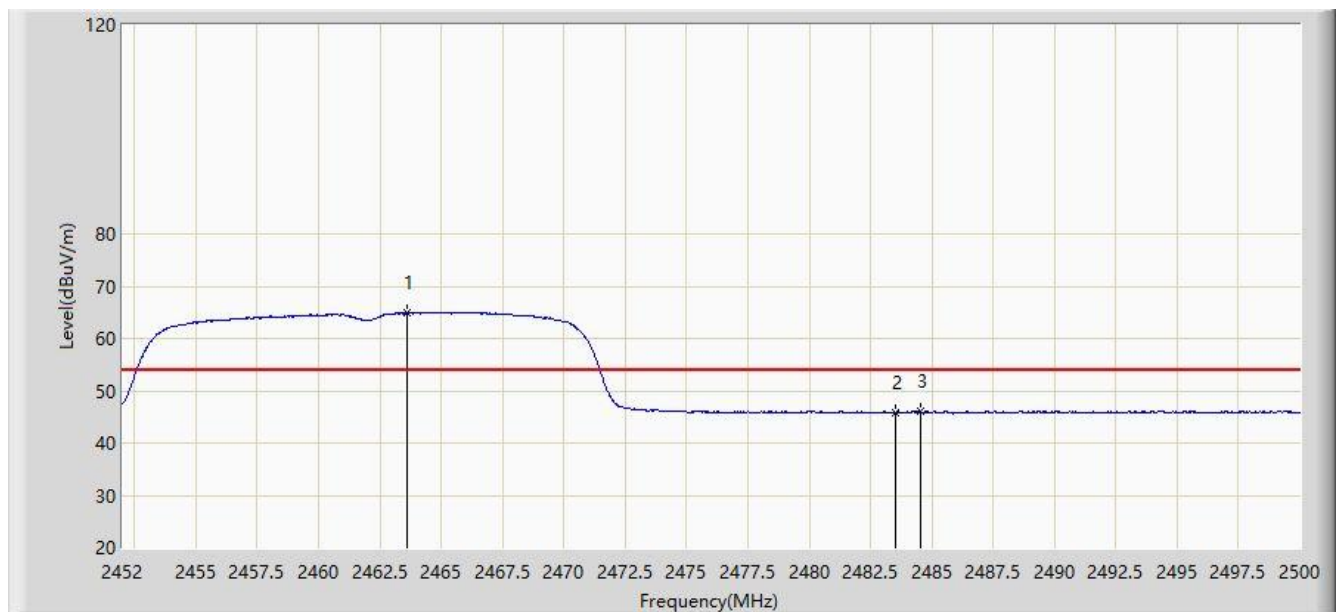


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2464.432	76.107	44.756	N/A	N/A	31.351	PK
2			2483.500	57.329	25.926	-16.671	74.000	31.403	PK
3			2485.288	58.411	27.002	-15.589	74.000	31.409	PK

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

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

Site: AC2	Time: 2019/03/26 - 06:48
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n20 at channel 2462MHz	

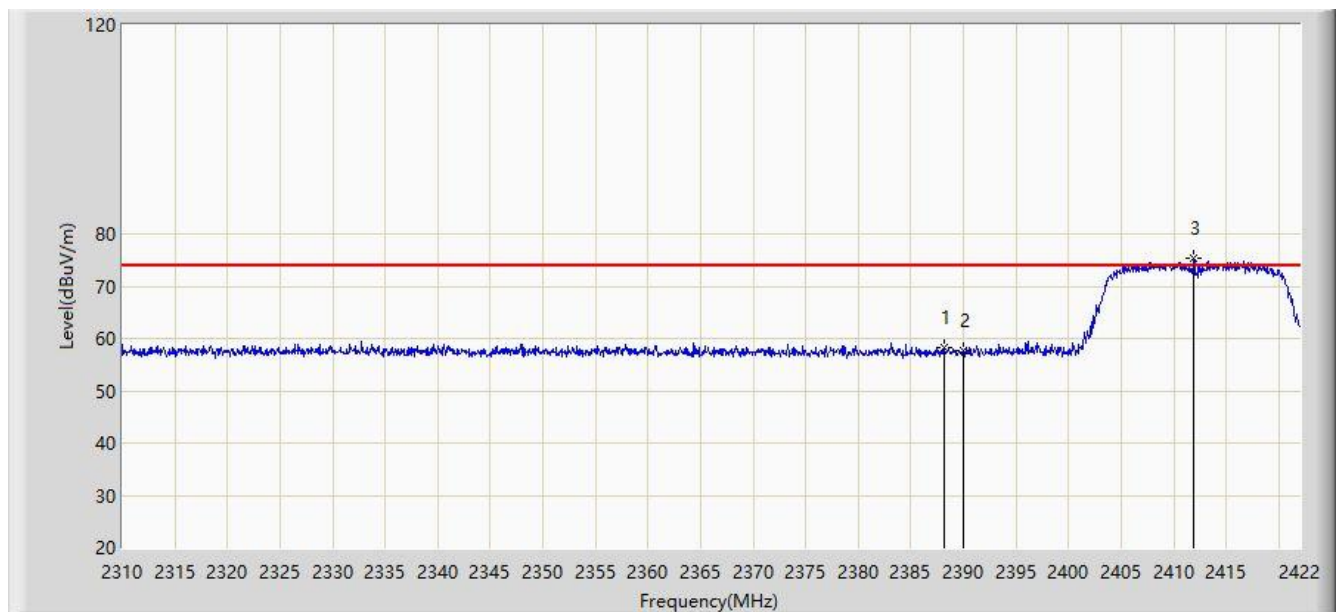


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.616	64.910	33.561	N/A	N/A	31.349	AV
2			2483.500	45.704	14.301	-8.296	54.000	31.403	AV
3			2484.520	46.070	14.664	-7.930	54.000	31.406	AV

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

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

Site: AC2	Time: 2019/03/26 - 06:51
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n40 at channel 2422MHz	

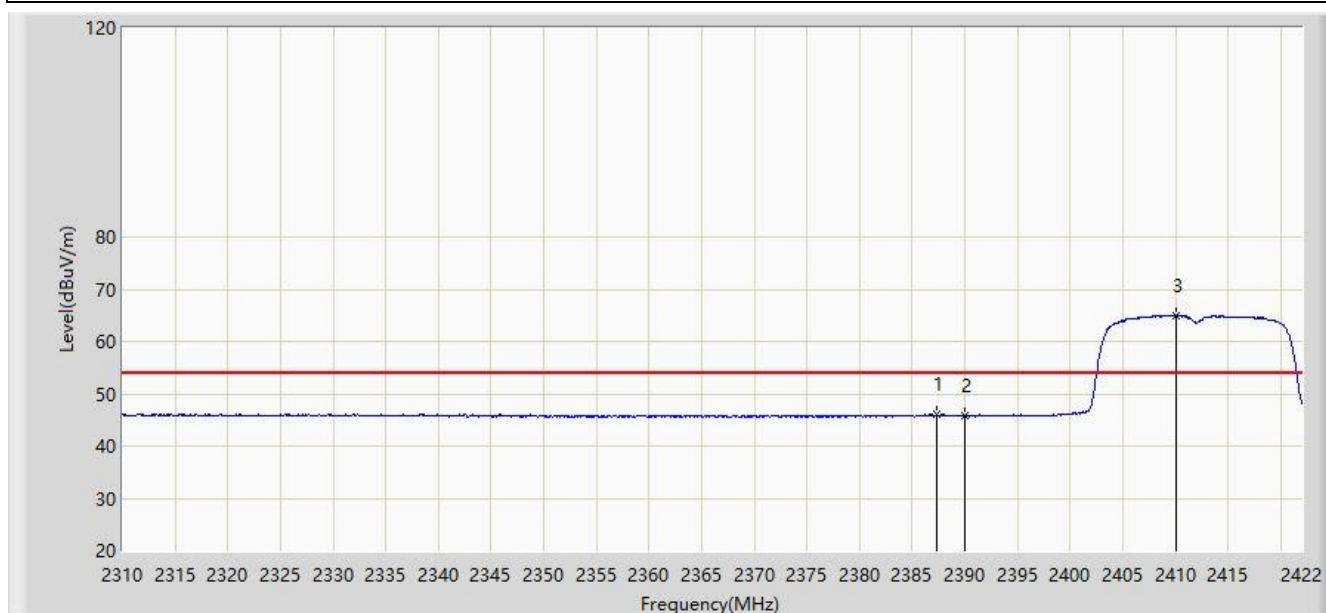


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2388.120	58.295	26.847	-15.705	74.000	31.449	PK
2			2390.000	57.758	26.309	-16.242	74.000	31.449	PK
3		*	2411.920	75.233	43.845	N/A	N/A	31.388	PK

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

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

Site: AC2	Time: 2019/03/26 - 07:00
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n40 at channel 2422MHz	

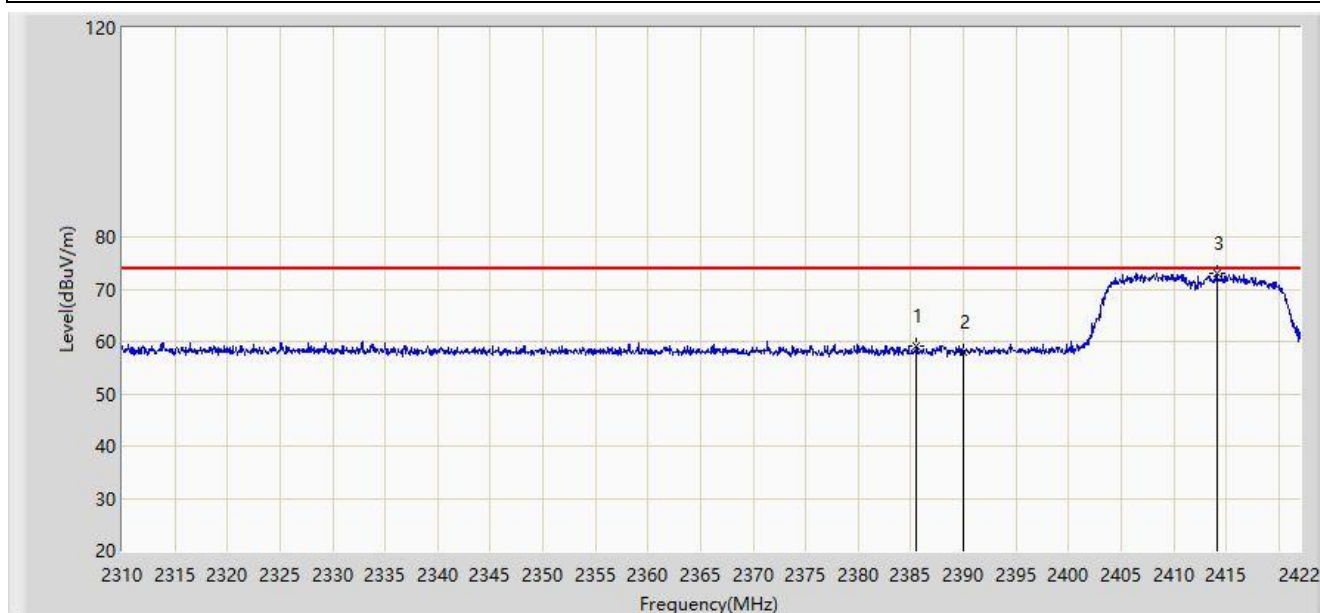


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2387.336	45.975	14.527	-8.025	54.000	31.449	AV
2			2390.000	45.784	14.335	-8.216	54.000	31.449	AV
3		*	2410.072	64.938	33.545	N/A	N/A	31.394	AV

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

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

Site: AC2	Time: 2019/03/26 - 07:01
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n40 at channel 2422MHz	

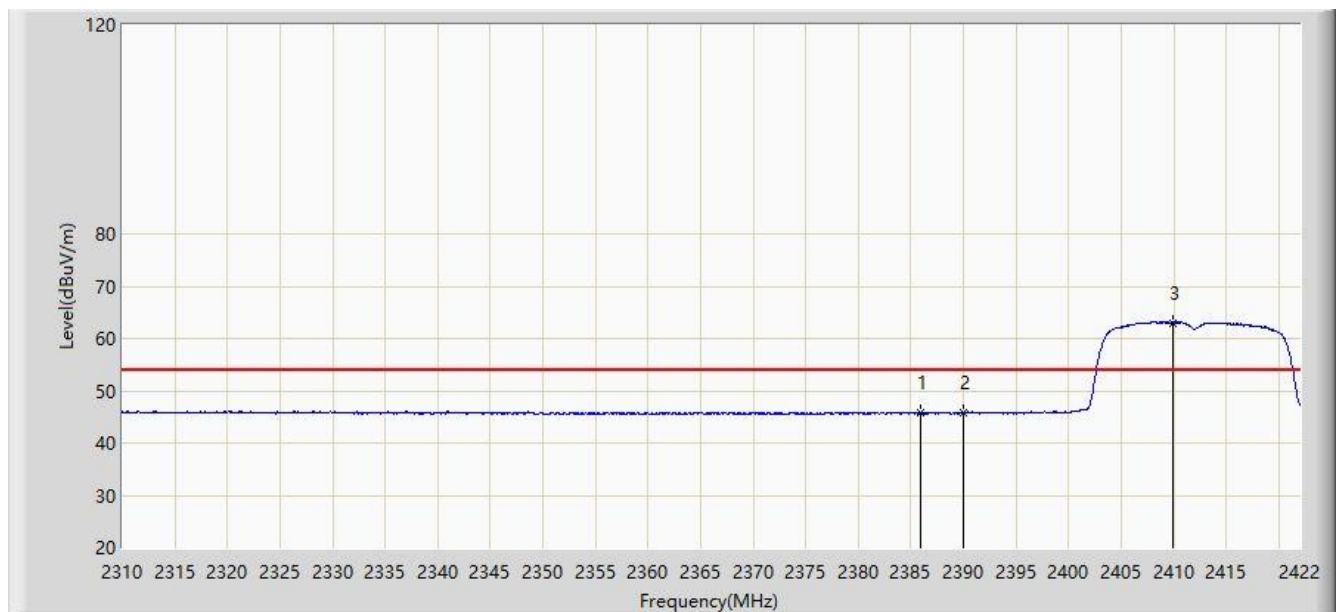


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2385.544	59.180	27.732	-14.820	74.000	31.448	PK
2			2390.000	57.987	26.538	-16.013	74.000	31.449	PK
3		*	2414.104	72.994	41.611	N/A	N/A	31.383	PK

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

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

Site: AC2	Time: 2019/03/26 - 07:09
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n40 at channel 2422MHz	

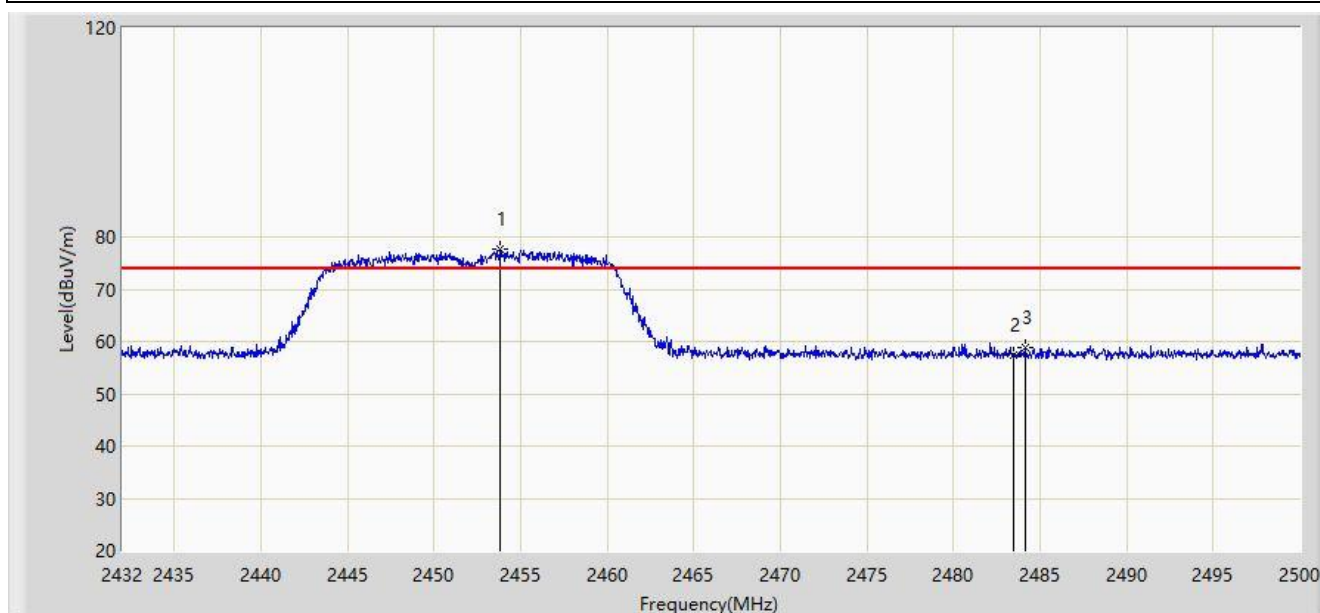


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2385.936	45.941	14.493	-8.059	54.000	31.448	AV
2			2390.000	45.680	14.231	-8.320	54.000	31.449	AV
3		*	2409.904	63.039	31.645	N/A	N/A	31.394	AV

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

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

Site: AC2	Time: 2019/03/26 - 07:11
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n40 at channel 2452MHz	

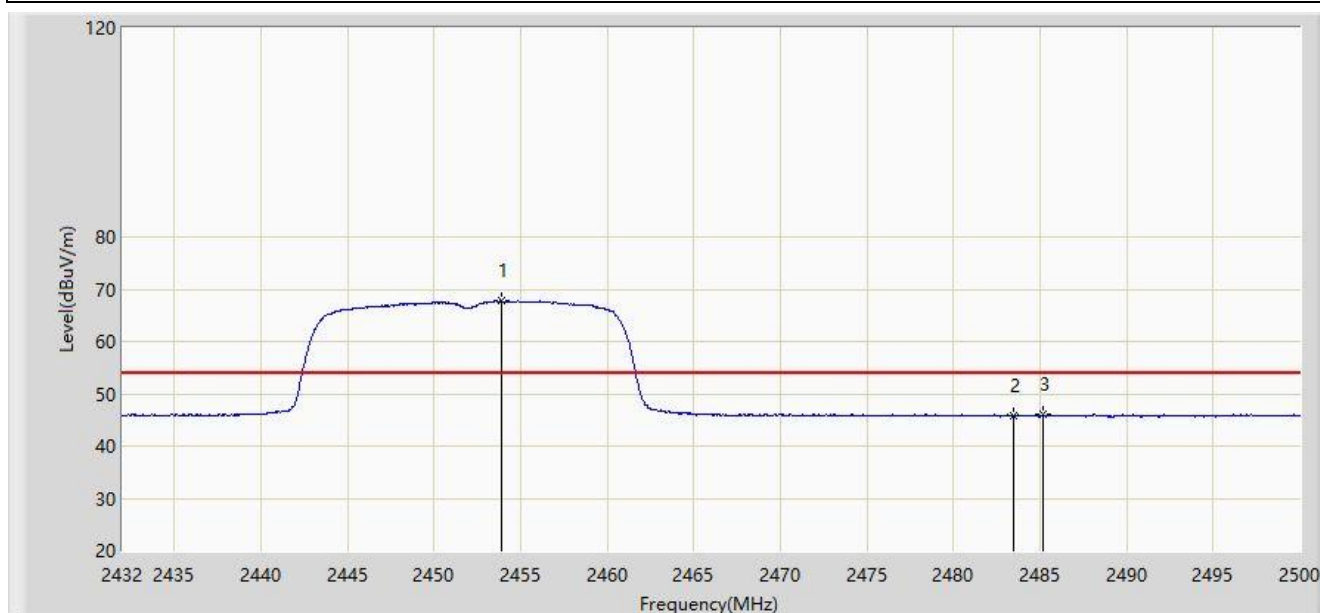


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2453.828	77.686	46.352	N/A	N/A	31.334	PK
2			2483.500	57.440	26.037	-16.560	74.000	31.403	PK
3			2484.122	58.816	27.411	-15.184	74.000	31.405	PK

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

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

Site: AC2	Time: 2019/03/26 - 07:21
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n40 at channel 2452MHz	

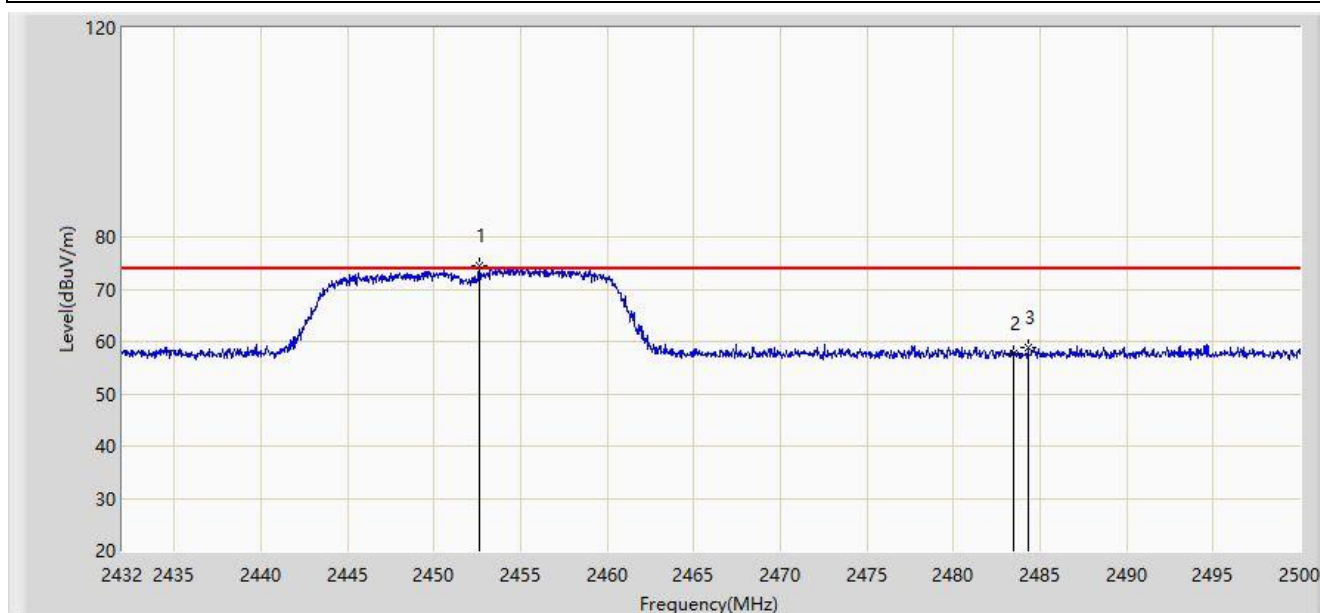


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2453.862	67.749	36.415	N/A	N/A	31.334	AV
2			2483.500	45.717	14.314	-8.283	54.000	31.403	AV
3			2485.176	45.955	14.547	-8.045	54.000	31.409	AV

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

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

Site: AC2	Time: 2019/03/26 - 07:22
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n40 at channel 2452MHz	

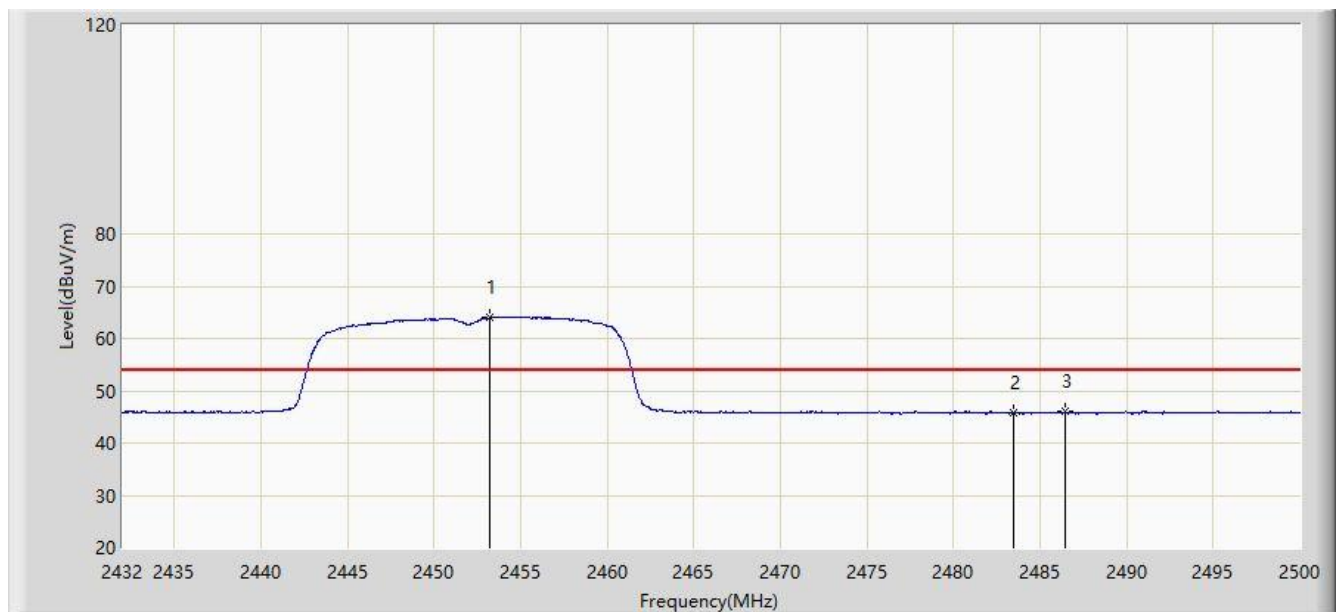


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2452.604	74.625	43.293	N/A	N/A	31.332	PK
2			2483.500	57.585	26.182	-16.415	74.000	31.403	PK
3			2484.326	58.770	27.364	-15.230	74.000	31.405	PK

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

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

Site: AC2	Time: 2019/03/26 - 07:26
Limit: FCC_Part15_Band Edge(3m)	Engineer: Stone Jia
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Built-in Pump	Power: By USB
Note: Transmit by 802.11n40 at channel 2452MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2453.182	63.968	32.635	N/A	N/A	31.332	AV
2			2483.500	45.695	14.292	-8.305	54.000	31.403	AV
3			2486.468	45.951	14.538	-8.049	54.000	31.413	AV

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

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

7.8. AC Conducted Emissions Measurement

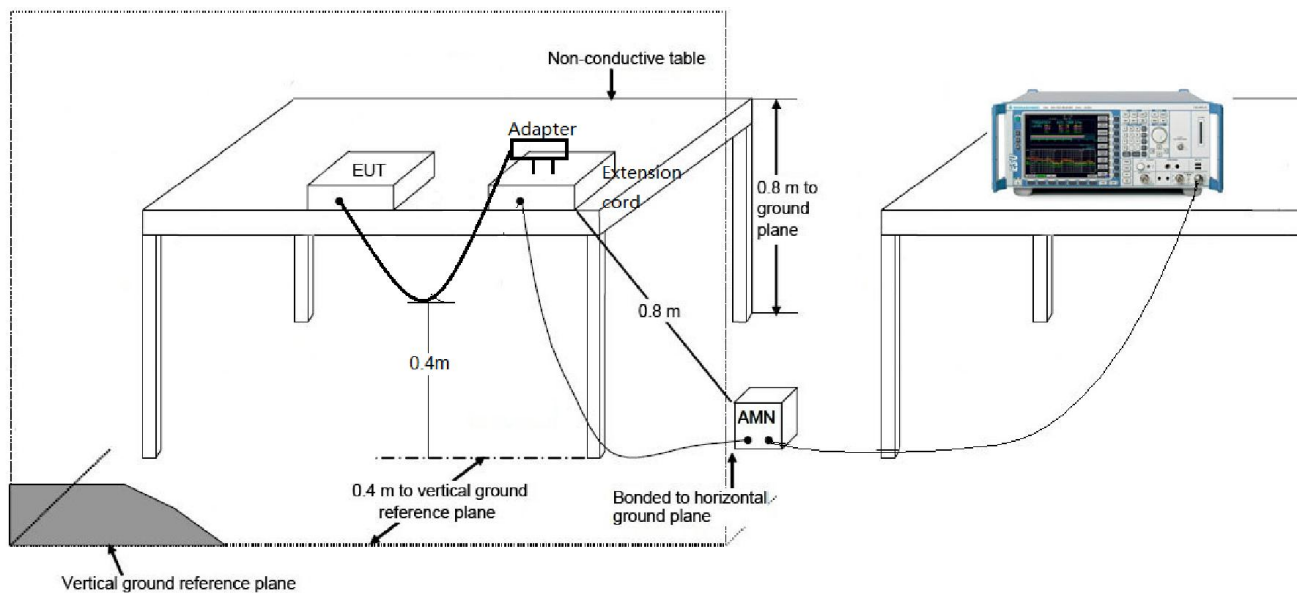
7.8.1. Test Limit

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.

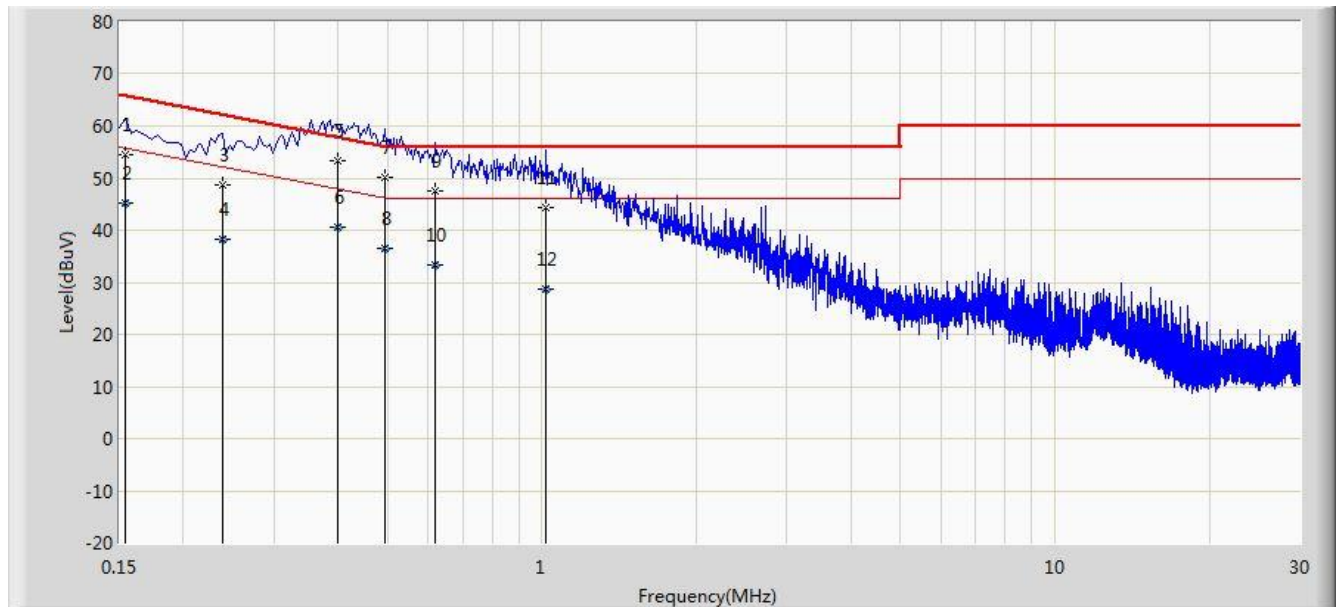
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.8.2. Test Setup



7.8.3.Test Result

Site: SR2	Time: 2019/04/02 - 17:42
Limit: FCC_Part15.207_CE_AC Power	Engineer: David Lv
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Built-in Pump	Power: AC 120V/60Hz
Test Mode 1	

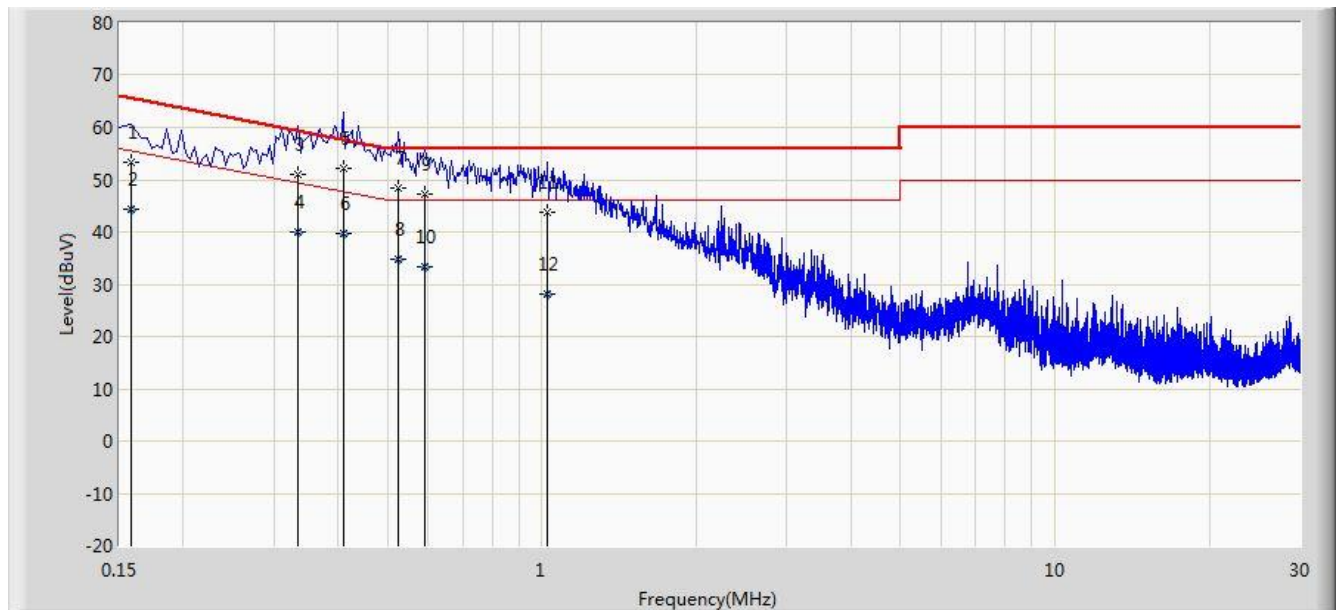


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	54.392	43.653	-11.389	65.781	10.740	QP
2			0.154	45.099	34.359	-10.682	55.781	10.740	AV
3			0.238	48.644	38.690	-13.522	62.166	9.954	QP
4			0.238	38.202	28.247	-13.964	52.166	9.954	AV
5		*	0.399	53.353	43.269	-4.521	57.874	10.084	QP
6			0.399	40.591	30.507	-7.283	47.874	10.084	AV
7			0.494	50.011	39.853	-6.089	56.100	10.158	QP
8			0.494	36.656	26.499	-9.444	46.100	10.158	AV
9			0.618	47.453	37.347	-8.547	56.000	10.106	QP
10			0.618	33.422	23.316	-12.578	46.000	10.106	AV
11			1.018	44.296	34.387	-11.704	56.000	9.908	QP
12			1.018	28.614	18.706	-17.386	46.000	9.908	AV

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

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

Site: SR2	Time: 2019/04/02 - 17:42
Limit: FCC_Part15.207_CE_AC Power	Engineer: David Lv
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Built-in Pump	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			0.158	53.358	43.069	-12.210	65.568	10.290	QP
2			0.158	44.250	33.960	-11.318	55.568	10.290	AV
3			0.334	51.017	40.954	-8.334	59.351	10.063	QP
4			0.334	40.007	29.944	-9.344	49.351	10.063	AV
5		*	0.410	52.293	42.173	-5.355	57.648	10.119	QP
6			0.410	39.728	29.608	-7.920	47.648	10.119	AV
7			0.526	48.300	38.128	-7.700	56.000	10.172	QP
8			0.526	34.872	24.700	-11.128	46.000	10.172	AV
9			0.590	47.277	37.140	-8.723	56.000	10.137	QP
10			0.590	33.358	23.221	-12.642	46.000	10.137	AV
11			1.026	43.885	33.977	-12.115	56.000	9.908	QP
12			1.026	28.078	18.170	-17.922	46.000	9.908	AV

Note: Measure Level (dBuV) = Reading Level (dBuV) + 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 **Built-in Pump** is in compliance with Part 15C of the FCC Rules.

The End

Appendix A - Test Setup Photograph

Refer to “1903RSU006-UT” file.

Appendix B - EUT Photograph

Refer to “ 1903RSU006-UE” file.