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 [V/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.6.2. Test Procedure Used

KDB 558074 D01v03r05 - Section 12.2.3 (quasi-peak measurements)

KDB 558074 D01v03r05 - Section 12.2.4 (peak power measurements)

KDB 558074 D01v03r05 - Section 12.2.5 (average power measurements)

7.6.3. Test Setting

Peak Field Strength Measurements

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

2. RBW = as specified in Table 1

3. VBW = 3MHz

4. Detector = peak

5. Sweep time = auto couple

6. Trace mode = max hold

7. 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

Average Field Strength Measurements

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

2. RBW = 1MHz

3. VBW ≥ 1/T

4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
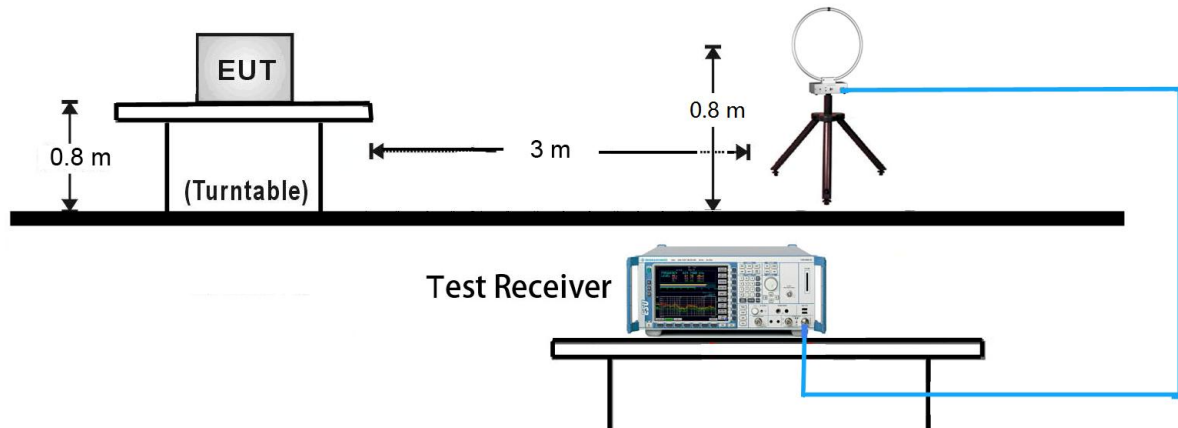
5. Detector = Peak

6. Sweep time = auto
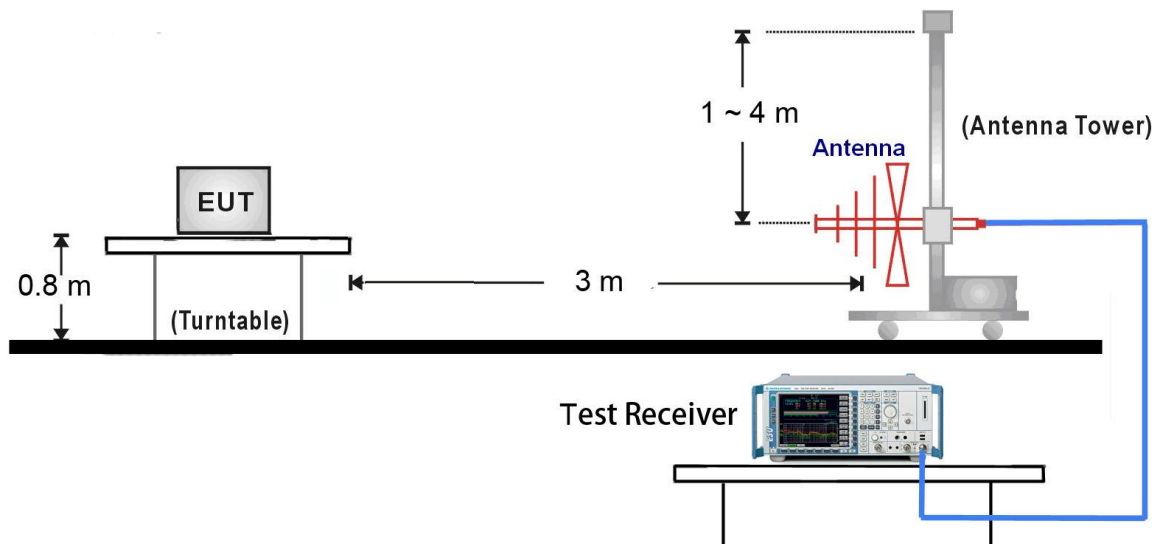
7. Trace mode = max hold

8. Allow max hold to run for at least 50 times (1/duty cycle) traces
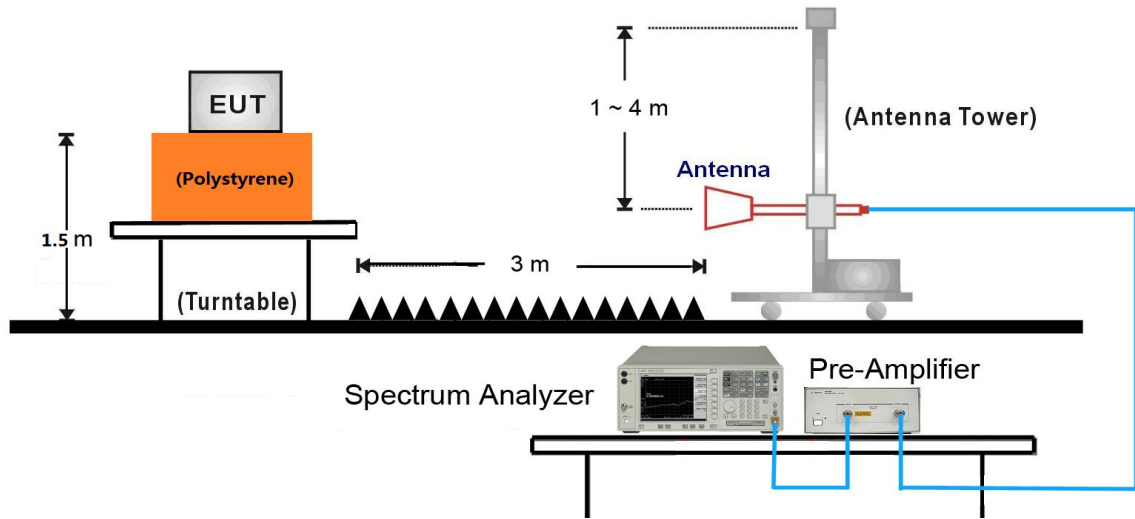
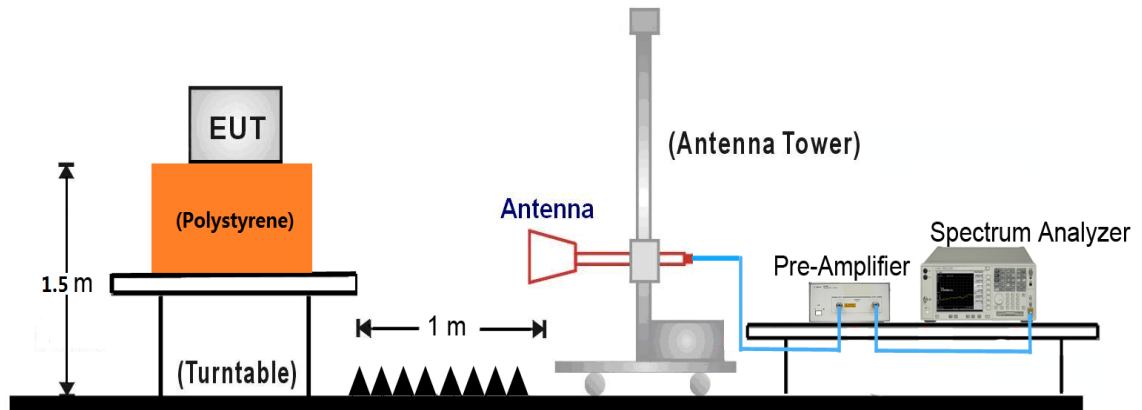### 7.6.4. Test Setup

9kHz ~ 30MHz Test Setup:

30MHz ~ 1GHz Test Setup:

1GHz ~ 18GHz Test Setup:

18GHz ~25GHz Test Setup:

7.6.5. Test Result

Test Mode:	802.11b	Test Site:	AC1
Test Channel:	01	Test Engineer:	Vince Yu
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
*	3553.0	38.7	-0.9	37.8	80.3	-42.5	Peak	Horizontal
*	4487.0	37.1	1.6	38.7	80.3	-41.6	Peak	Horizontal
	4825.0	48.0	2.7	50.7	74.0	-23.3	Peak	Horizontal
	5402.0	35.5	3.1	38.6	74.0	-35.4	Peak	Horizontal
*	3500.0	37.9	-1.1	36.8	80.3	-43.5	Peak	Vertical
*	4436.0	36.4	1.5	37.9	80.3	-42.4	Peak	Vertical
	4825.0	43.4	2.7	46.1	74.0	-27.9	Peak	Vertical
	5389.0	35.4	3.1	38.5	74.0	-35.5	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (100.3dBμV/m) or FCC 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)

Test Mode:	802.11b	Test Site:	AC1
Test Channel:	06	Test Engineer:	Vince Yu
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
*	3469.0	38.1	-1.3	36.8	80.5	-43.7	Peak	Horizontal
*	4419.0	36.0	1.4	37.4	80.5	-43.1	Peak	Horizontal
	4876.0	44.8	2.7	47.5	74.0	-26.5	Peak	Horizontal
	5389.0	35.5	3.1	38.6	74.0	-35.4	Peak	Horizontal
*	3443.0	37.8	-1.5	36.3	80.5	-44.2	Peak	Vertical
*	4569.0	36.8	1.9	38.7	80.5	-41.8	Peak	Vertical
	4876.0	40.9	2.7	43.6	74.0	-30.4	Peak	Vertical
	5400.0	35.8	3.1	38.9	74.0	-35.1	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (100.5dBµV/m) or FCC 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)

Test Mode:	802.11b	Test Site:	AC1
Test Channel:	11	Test Engineer:	Vince Yu
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
*	3466.0	37.8	-1.3	36.5	79.3	-42.8	Peak	Horizontal
*	4474.0	35.8	1.6	37.4	79.3	-41.9	Peak	Horizontal
	4927.0	44.9	2.8	47.7	74.0	-26.3	Peak	Horizontal
	5389.0	35.4	3.1	38.5	74.0	-35.5	Peak	Horizontal
*	3553.0	37.8	-0.9	36.9	79.3	-42.4	Peak	Vertical
*	4469.0	36.8	1.6	38.4	79.3	-40.9	Peak	Vertical
	4927.0	40.4	2.8	43.2	74.0	-30.8	Peak	Vertical
	5402.0	35.7	3.1	38.8	74.0	-35.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (99.3dBµV/m) or FCC 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)

Test Mode:	802.11g	Test Site:	AC1
Test Channel:	01	Test Engineer:	Vince Yu
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
*	3499.0	37.8	-1.1	36.7	79.0	-42.3	Peak	Horizontal
*	4468.0	35.9	1.6	37.5	79.0	-41.5	Peak	Horizontal
	4825.0	41.6	2.7	44.3	74.0	-29.7	Peak	Horizontal
	5452.0	35.5	3.4	38.9	74.0	-35.1	Peak	Horizontal
*	3502.0	37.5	-1.1	36.4	79.0	-42.6	Peak	Vertical
*	4429.0	36.7	1.5	38.2	79.0	-40.8	Peak	Vertical
	5408.0	35.3	3.2	38.5	74.0	-35.5	Peak	Vertical
	7362.0	34.7	7.9	42.6	74.0	-31.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (99.0dBμV/m) or FCC 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)

Test Mode:	802.11g	Test Site:	AC1
Test Channel:	06	Test Engineer:	Vince Yu
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
*	3595.0	37.6	-0.7	36.9	80.7	-43.8	Peak	Horizontal
*	4425.0	36.3	1.4	37.7	80.7	-43.0	Peak	Horizontal
	4876.0	41.3	2.7	44.0	74.0	-30.0	Peak	Horizontal
	5406.0	34.9	3.2	38.1	74.0	-35.9	Peak	Horizontal
*	3458.0	37.5	-1.4	36.1	80.7	-44.6	Peak	Vertical
*	4451.0	36.3	1.5	37.8	80.7	-42.9	Peak	Vertical
	4876.0	37.7	2.7	40.4	74.0	-33.6	Peak	Vertical
	5389.0	34.3	3.1	37.4	74.0	-36.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (100.7dBμV/m) or FCC 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)

Test Mode:	802.11g	Test Site:	AC1
Test Channel:	11	Test Engineer:	Vince Yu
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
*	3506.0	37.6	-1.1	36.5	76.2	-39.7	Peak	Horizontal
*	4441.0	36.3	1.5	37.8	76.2	-38.4	Peak	Horizontal
	4918.5	37.4	2.8	40.2	74.0	-33.8	Peak	Horizontal
	5451.0	35.3	3.4	38.7	74.0	-35.3	Peak	Horizontal
*	3562.0	37.0	-0.8	36.2	76.2	-40.0	Peak	Vertical
*	4445.0	36.1	1.5	37.6	76.2	-38.6	Peak	Vertical
	4924.0	35.9	2.8	38.7	74.0	-35.3	Peak	Vertical
	7386.0	34.2	7.9	42.1	74.0	-31.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (96.2dBμV/m) or FCC 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)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	01	Test Engineer:	Vince Yu
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
*	3525.0	37.6	-1.0	36.6	79.0	-42.4	Peak	Horizontal
*	4462.0	35.9	1.5	37.4	79.0	-41.6	Peak	Horizontal
	4816.5	43.2	2.7	45.9	74.0	-28.1	Peak	Horizontal
	7355.0	35.6	8.0	43.6	74.0	-30.4	Peak	Horizontal
*	3452.0	37.4	-1.4	36.0	79.0	-43.0	Peak	Vertical
*	4459.0	35.5	1.5	37.0	79.0	-42.0	Peak	Vertical
	4816.5	37.7	2.7	40.4	74.0	-33.6	Peak	Vertical
	7362.0	35.8	7.9	43.7	74.0	-30.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (99.0dBμV/m) or FCC 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)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	06	Test Engineer:	Vince Yu
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
*	3529.0	37.9	-1.0	36.9	77.1	-40.2	Peak	Horizontal
*	4469.0	35.1	1.6	36.7	77.1	-40.4	Peak	Horizontal
	4859.0	39.7	2.7	42.4	74.0	-31.6	Peak	Horizontal
	7458.0	34.7	8.1	42.8	74.0	-31.2	Peak	Horizontal
*	3529.0	37.6	-1.0	36.6	77.1	-40.5	Peak	Vertical
*	4481.0	35.6	1.6	37.2	77.1	-39.9	Peak	Vertical
	4825.0	35.3	2.7	38.0	74.0	-36.0	Peak	Vertical
	7515.0	34.4	8.3	42.7	74.0	-31.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (97.1dBµV/m) or FCC 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)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	11	Test Engineer:	Vince Yu
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
*	3518.0	37.0	-1.0	36.0	77.9	-41.9	Peak	Horizontal
*	4425.0	35.8	1.4	37.2	77.9	-40.7	Peak	Horizontal
	4927.0	38.9	2.8	41.7	74.0	-32.3	Peak	Horizontal
	7326.0	34.5	8.0	42.5	74.0	-31.5	Peak	Horizontal
*	3529.0	38.2	-1.0	37.2	77.9	-40.7	Peak	Vertical
*	4405.0	35.4	1.4	36.8	77.9	-41.1	Peak	Vertical
	4824.0	35.4	2.7	38.1	74.0	-35.9	Peak	Vertical
	7326.0	34.7	8.0	42.7	74.0	-31.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (97.9dBμV/m) or FCC 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)

Test Mode:	802.11n-HT40	Test Site:	AC1
Test Channel:	03	Test Engineer:	Vince Yu
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
*	3526.0	38.0	-1.0	37.0	76.1	-39.1	Peak	Horizontal
*	4425.0	36.1	1.4	37.5	76.1	-38.6	Peak	Horizontal
	4825.0	38.0	2.7	40.7	74.0	-33.3	Peak	Horizontal
	7362.0	35.4	7.9	43.3	74.0	-30.7	Peak	Horizontal
*	3526.0	37.1	-1.0	36.1	76.1	-40.0	Peak	Vertical
*	4405.0	35.6	1.4	37.0	76.1	-39.1	Peak	Vertical
	4842.0	37.6	2.7	40.3	74.0	-33.7	Peak	Vertical
	7369.0	34.1	7.9	42.0	74.0	-32.0	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (96.1dBµV/m) or FCC 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)

Test Mode:	802.11n-HT40	Test Site:	AC1
Test Channel:	06	Test Engineer:	Vince Yu
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.		

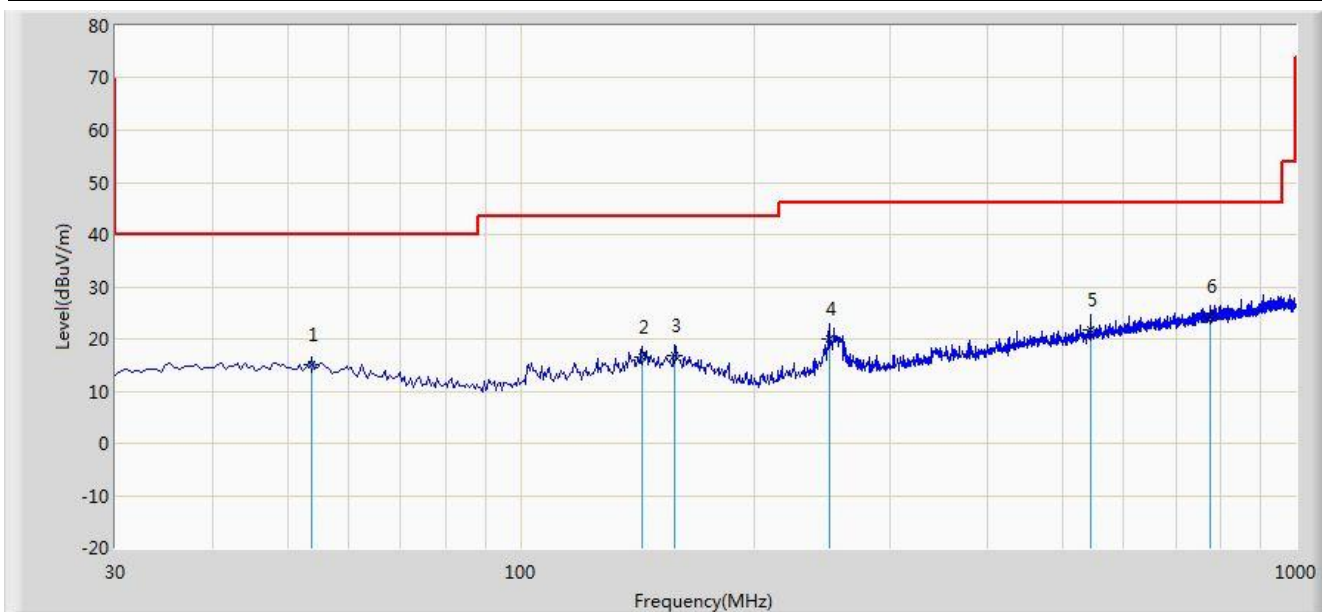| Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
*	3526.0	37.8	-1.0	36.8	76.3	-39.5	Peak	Horizontal
*	4429.0	36.0	1.5	37.5	76.3	-38.8	Peak	Horizontal
	4876.0	36.9	2.7	39.6	74.0	-34.4	Peak	Horizontal
	7326.0	34.7	8.0	42.7	74.0	-31.3	Peak	Horizontal
*	3526.0	38.4	-1.0	37.4	76.3	-38.9	Peak	Vertical
*	4425.0	35.8	1.4	37.2	76.3	-39.1	Peak	Vertical
	4824.0	35.5	2.7	38.2	74.0	-35.8	Peak	Vertical
	7368.0	34.5	7.9	42.4	74.0	-31.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (96.3dBμV/m) or FCC 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)

Test Mode:	802.11n-HT40	Test Site:	AC1
Test Channel:	09	Test Engineer:	Vince Yu
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
*	3526.0	37.9	-1.0	36.9	76.5	-39.6	Peak	Horizontal
*	4426.0	38.3	1.5	39.8	76.5	-36.7	Peak	Horizontal
	4910.0	37.8	2.7	40.5	74.0	-33.5	Peak	Horizontal
	7368.0	34.8	7.9	42.7	74.0	-31.3	Peak	Horizontal
*	3528.0	37.7	-1.0	36.7	76.5	-39.8	Peak	Vertical
*	4425.0	36.5	1.4	37.9	76.5	-38.6	Peak	Vertical
	4824.0	35.0	2.7	37.7	74.0	-36.3	Peak	Vertical
	7368.0	35.4	7.9	43.3	74.0	-30.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (96.5dBµV/m) or FCC 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:

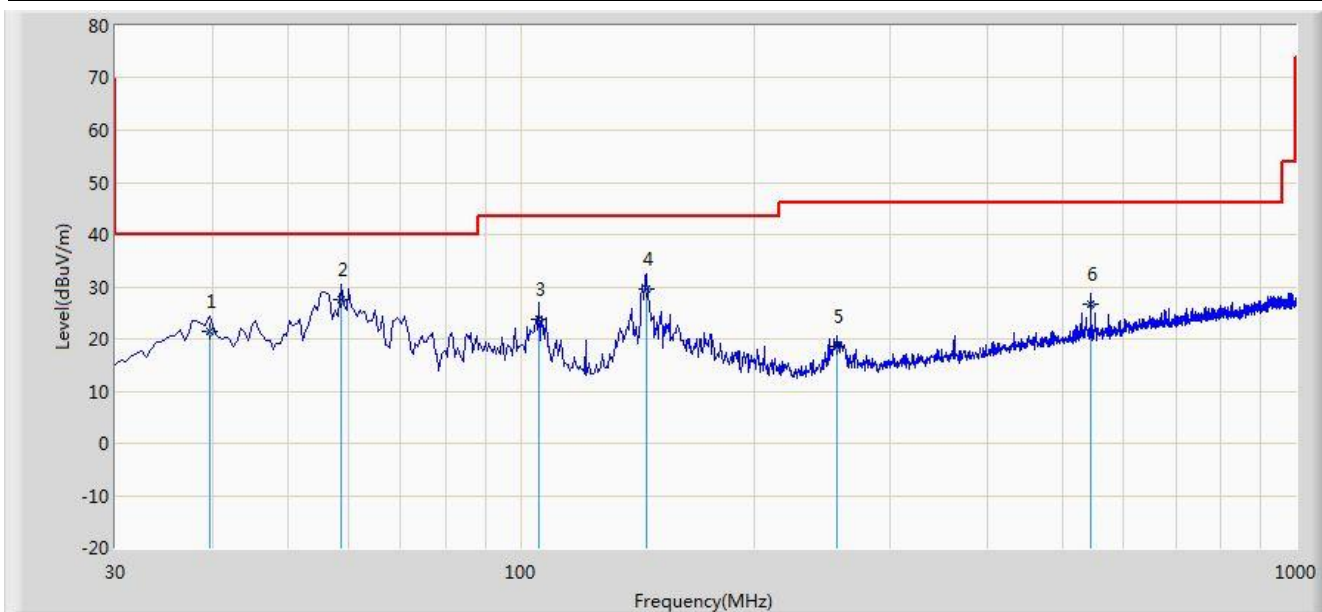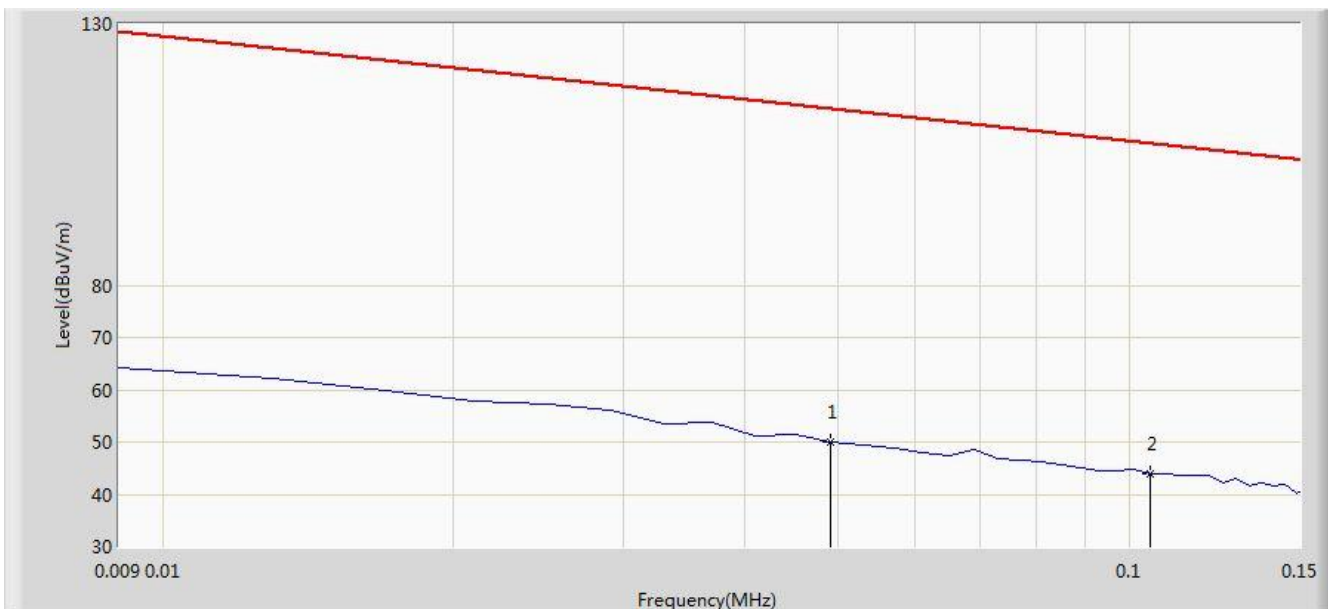| Site: AC 1	Time: 2016/04/20 - 10:14
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Worse Case Mode: Transmit by 802.11g at channel 2412MHz	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			53.765	14.929	1.134	-25.071	40.000	13.795	QP
2			143.490	16.665	1.936	-26.835	43.500	14.729	QP
3			158.040	16.752	1.565	-26.748	43.500	15.187	QP
4			250.190	19.904	6.968	-26.096	46.000	12.936	QP
5			543.615	21.642	2.291	-24.358	46.000	19.351	QP
6		*	774.475	24.463	1.448	-21.537	46.000	23.015	QP

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

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

Site: AC 1	Time: 2016/04/20 - 10:14
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Worse Case 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			39.700	21.461	6.953	-18.539	40.000	14.508	QP
2		*	58.615	27.470	14.012	-12.530	40.000	13.458	QP
3			105.660	23.900	12.352	-19.600	43.500	11.548	QP
4			145.430	29.440	14.571	-14.060	43.500	14.869	QP
5			255.525	18.677	5.627	-27.323	46.000	13.049	QP
6			543.615	26.680	7.329	-19.320	46.000	19.351	QP

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

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

Site: AC1	Time: 2016/04/20 - 09:44
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: FMZB1519_0.009-30MHz	Polarity: Face on
EUT: Element hub	Power: AC 120V/60Hz

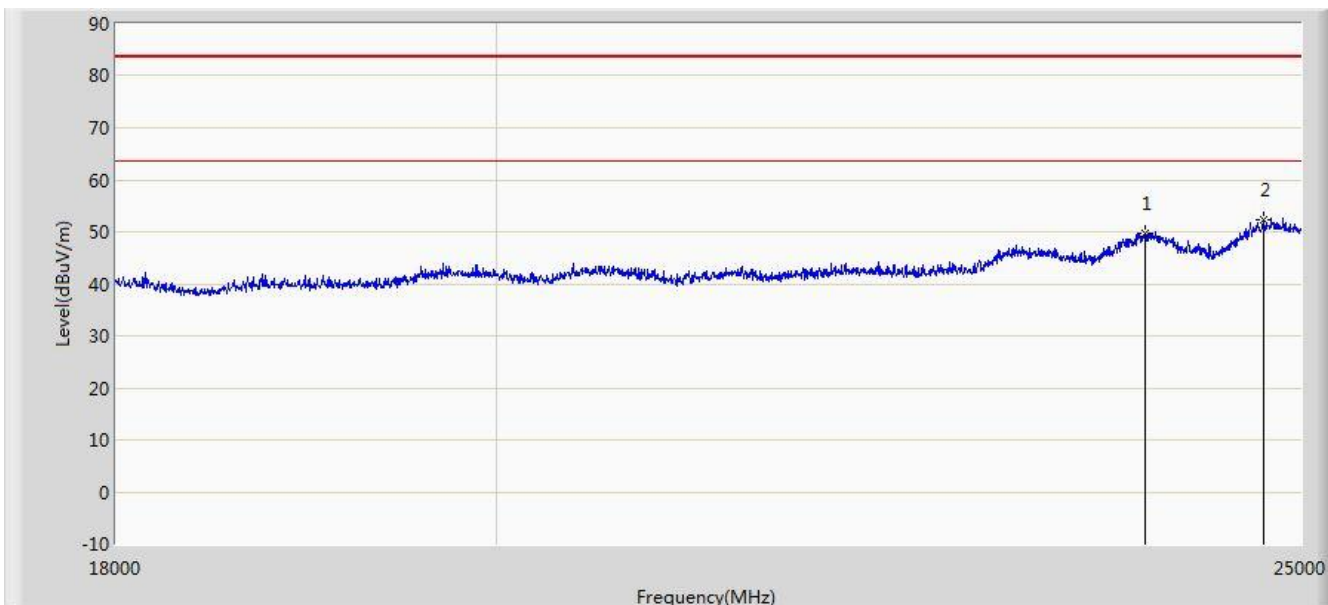**Note: There is the ambient noise within frequency range 9kHz~30MHz.**

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			0.049	50.112	29.552	-63.688	113.800	20.560	AV
2		*	0.105	44.043	23.845	-63.137	107.180	20.198	QP

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

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

Limit@3m = 20*Log((2400/49)uV/m) + 40*Log(300m/3m) = 113.800dBµv/m (Average detector)

Site: AC1	Time: 2016/04/20 - 09:44
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: FMZB1519_0.009-30MHz	Polarity: Face on
EUT: Element hub	Power: AC 120V/60Hz

Note: There is the ambient noise within frequency range 9kHz~30MHz.

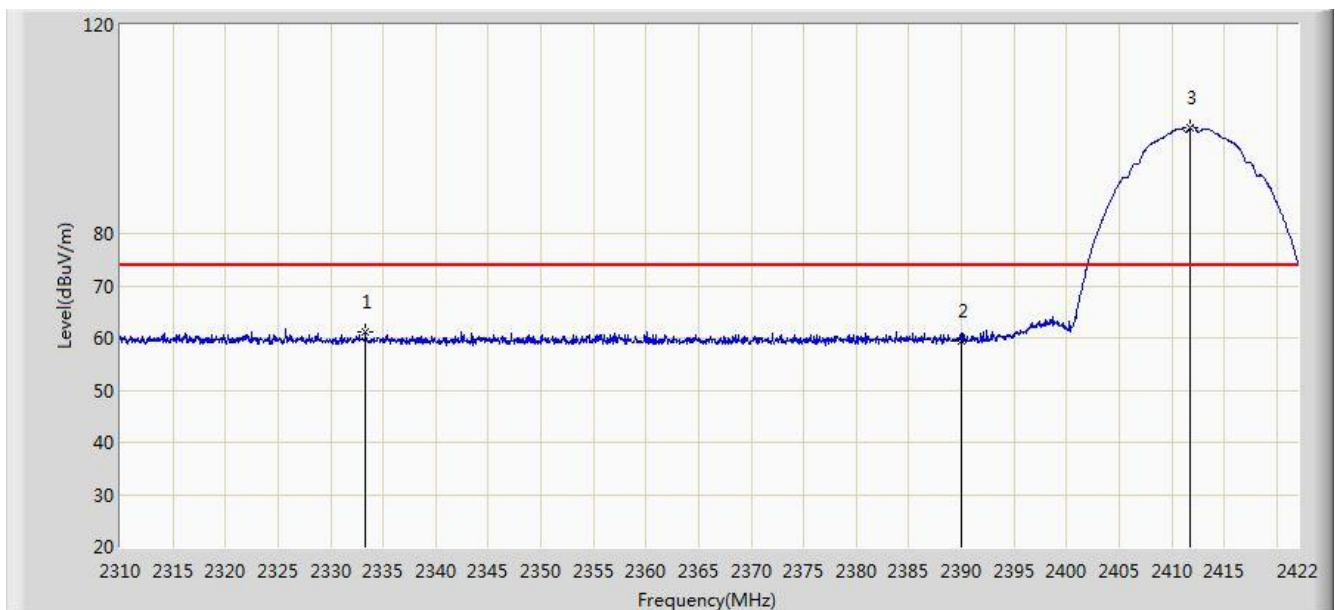| No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2.175	27.371	6.960	-42.129	69.500	20.412	QP
2			6.216	24.786	4.701	-44.714	69.500	20.085	QP

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

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

Limit@3m = 20*Log(30uV/m) + 20*Log(30m/3m) = 49.5dBμv/m (Average detector), and 69.5dBμv/m

(Quasi-Peak detector).

Site: AC1	Time: 2016/04/20 - 10:21
Limit: FCC_Part15.209_RE(1m)	Engineer: Vince Yu
Probe: BBHA9170_18-40GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz

Note: There is the ambient noise within frequency range 18GHz~25GHz.

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			23943.000	49.776	35.866	-33.724	83.500	13.910	PK
2		*	24741.000	52.375	37.681	-31.125	83.500	14.694	PK

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

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

Site: AC1	Time: 2016/04/20 - 10:21
Limit: FCC_Part15.209_RE(1m)	Engineer: Vince Yu
Probe: BBHA9170_18-40GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz

Note: There is the ambient noise within frequency range 18GHz~25GHz.

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			23999.000	50.379	36.435	-33.121	83.500	13.944	PK
2		*	24846.000	52.503	37.735	-30.997	83.500	14.768	PK

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

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

7.7. Radiated Restricted Band Edge Measurement

7.7.1. Test Result

|	
Site: AC 1	Time: 2016/04/20 - 14:09
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	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			2333.296	61.293	29.932	-12.707	74.000	31.360	PK
2			2390.000	59.475	28.272	-14.525	74.000	31.203	PK
3		*	2411.752	100.309	69.139	N/A	N/A	31.170	PK

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

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

| Site: AC 1	Time: 2016/04/20 - 14:12
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	
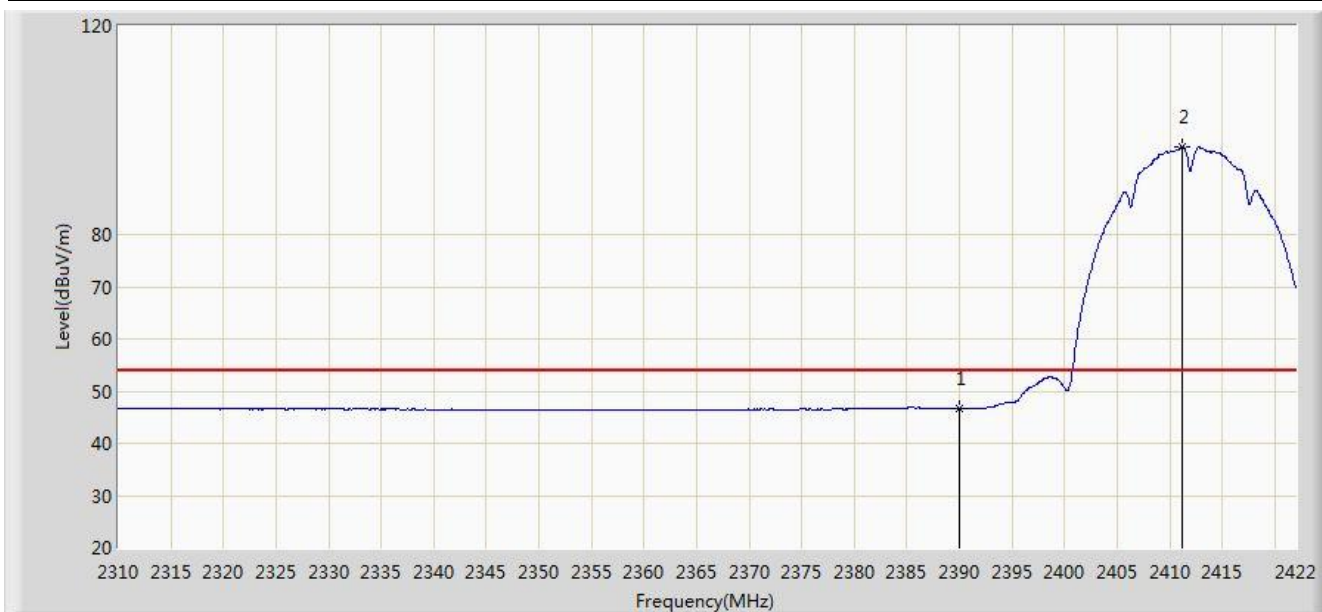
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	46.704	15.501	-7.296	54.000	31.203	AV
2		*	2411.136	96.838	65.667	N/A	N/A	31.171	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	
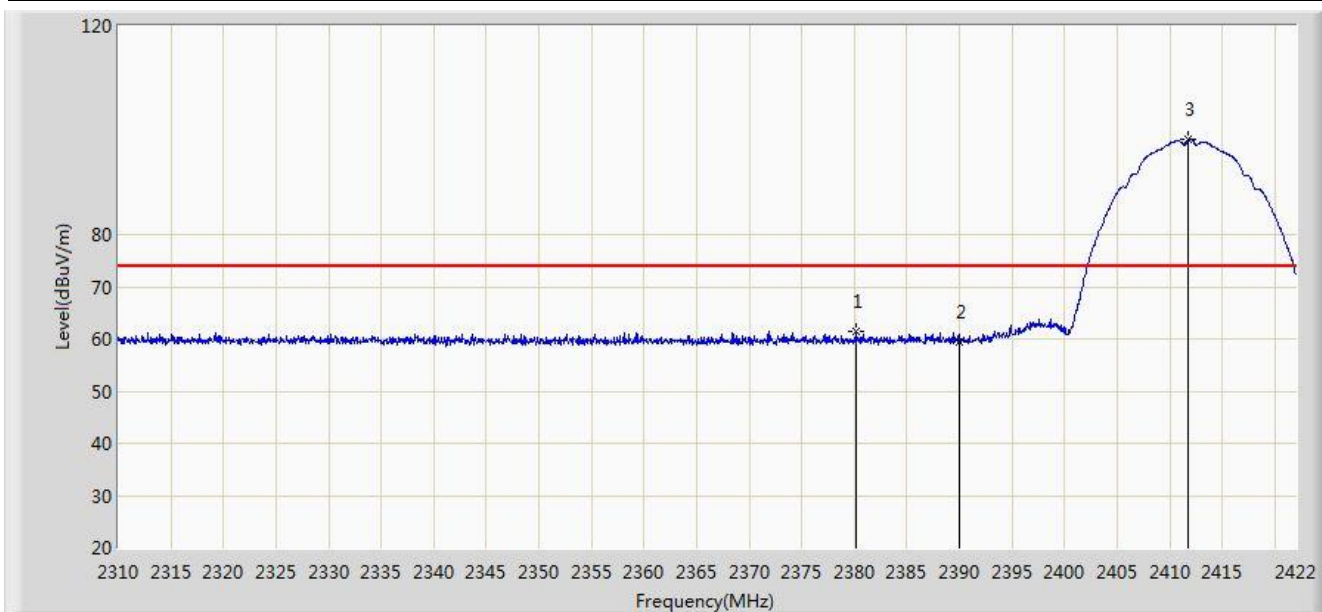
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2380.112	61.372	30.151	-12.628	74.000	31.220	PK
2			2390.000	59.380	28.177	-14.620	74.000	31.203	PK
3		*	2411.808	98.136	66.966	N/A	N/A	31.170	PK

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

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

Site: AC 1	Time: 2016/04/20 - 14:20
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	
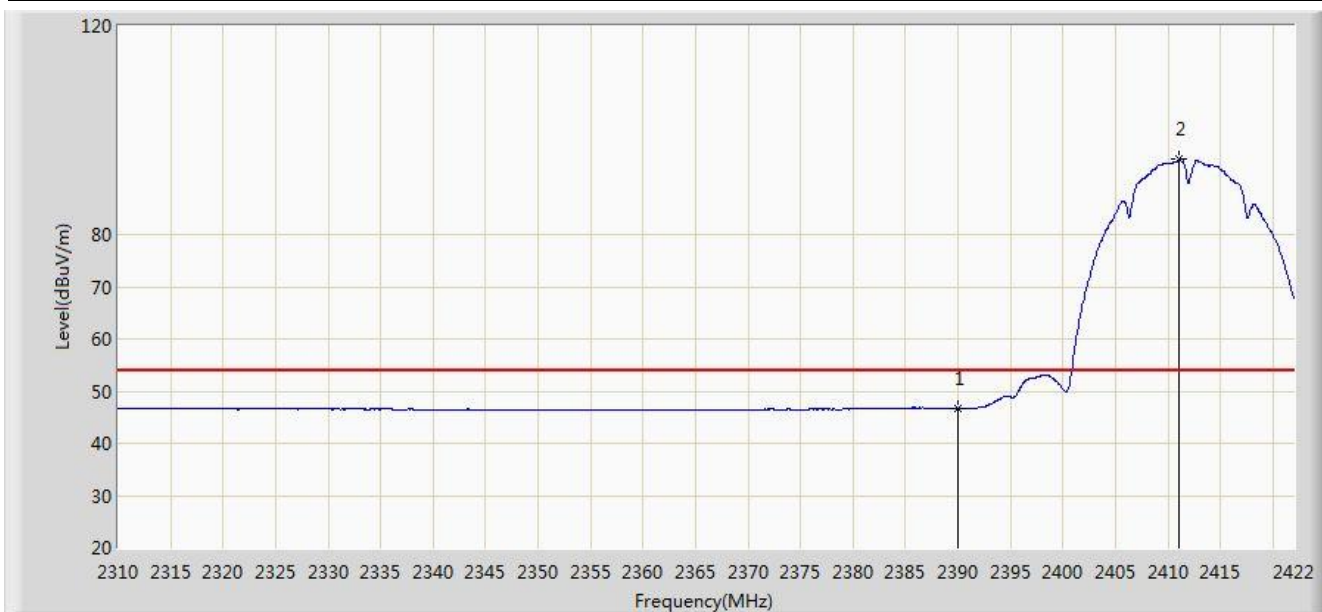
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	46.693	15.490	-7.307	54.000	31.203	AV
2		*	2411.080	94.402	63.231	N/A	N/A	31.171	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:21
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	
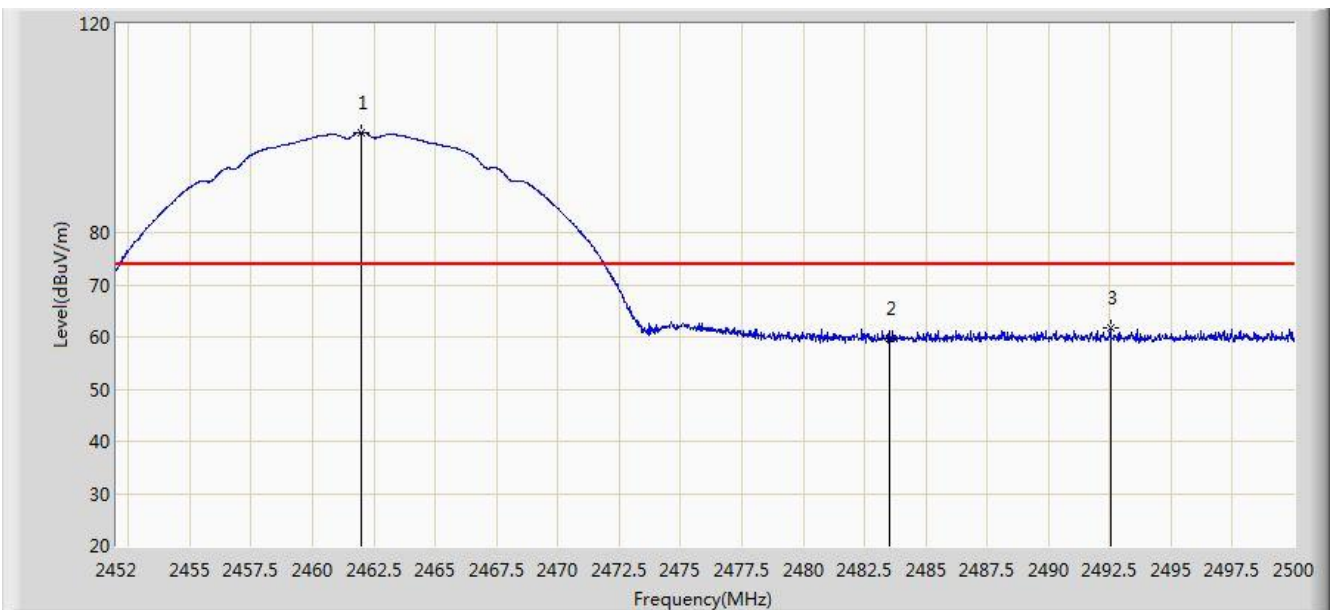
No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV/m)	Reading Level (dBµV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.984	99.262	68.127	N/A	N/A	31.135	PK
2			2483.500	59.682	28.489	-14.318	74.000	31.194	PK
3			2492.512	61.870	30.653	-12.130	74.000	31.217	PK

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

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

Site: AC 1	Time: 2016/04/20 - 14:24
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	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		*	2461.216	95.539	64.405	N/A	N/A	31.134	AV
2			2483.500	46.707	15.514	-7.293	54.000	31.194	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:25
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	
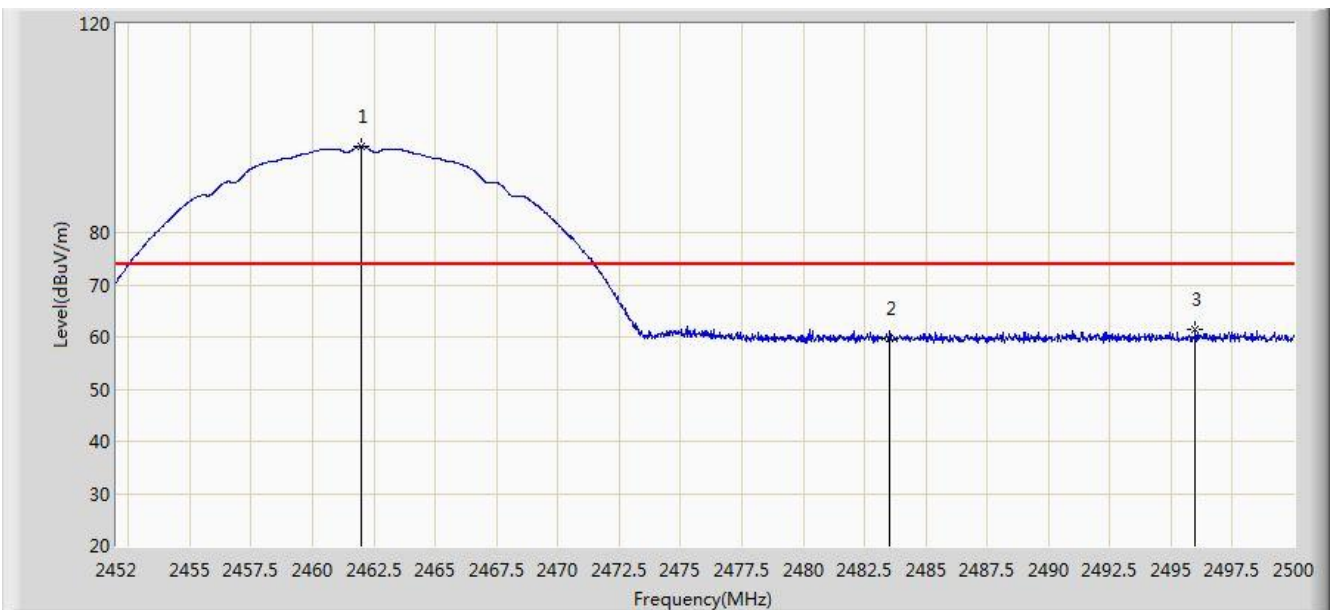
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.960	96.583	65.448	N/A	N/A	31.135	PK
2			2483.500	59.665	28.472	-14.335	74.000	31.194	PK
3			2495.968	61.439	30.213	-12.561	74.000	31.226	PK

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

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

| Site: AC 1	Time: 2016/04/20 - 14:27
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	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		*	2461.192	92.812	61.678	N/A	N/A	31.134	AV
2			2483.500	46.647	15.454	-7.353	54.000	31.194	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:28
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	
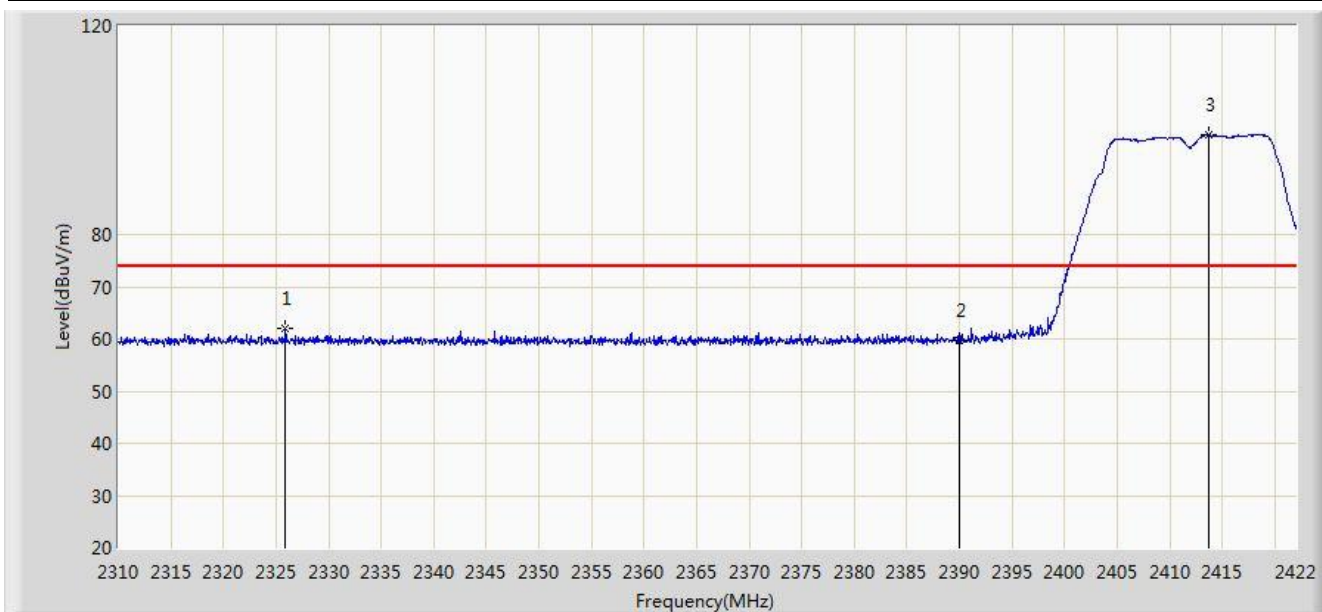
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2325.904	62.004	30.609	-11.996	74.000	31.395	PK
2			2390.000	59.796	28.593	-14.204	74.000	31.203	PK
3		*	2413.656	99.040	67.873	N/A	N/A	31.167	PK

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

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

Site: AC 1	Time: 2016/04/20 - 14:30
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	
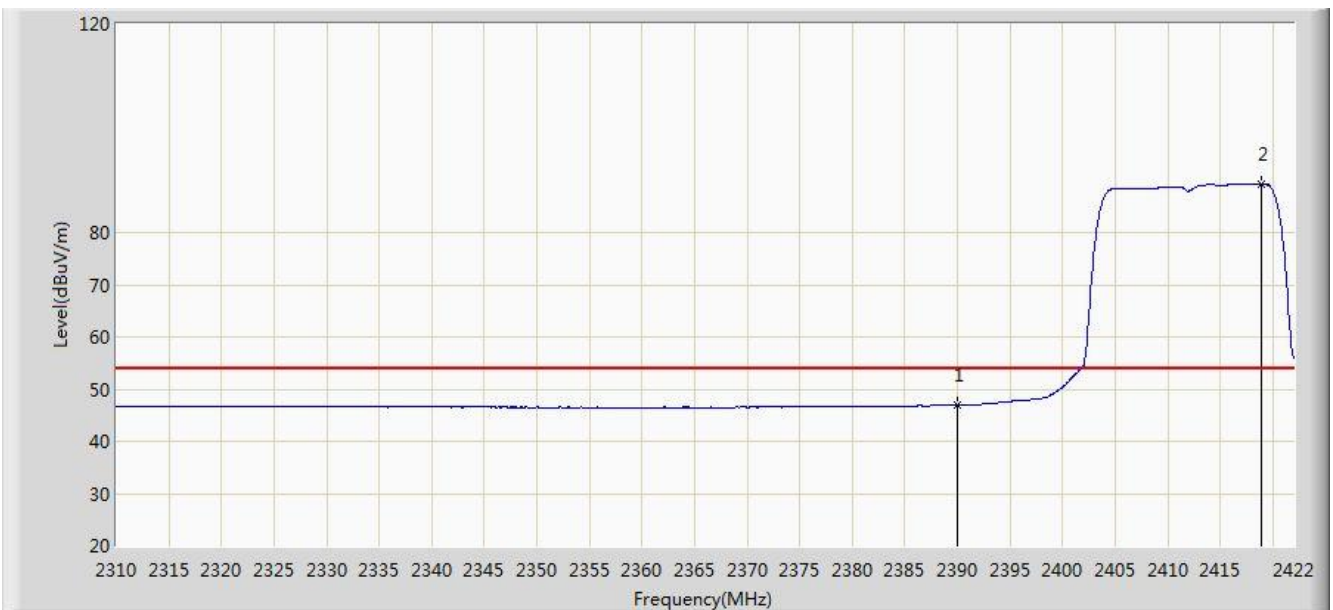
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	46.903	15.700	-7.097	54.000	31.203	AV
2		*	2418.920	89.341	58.183	N/A	N/A	31.157	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:31
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	
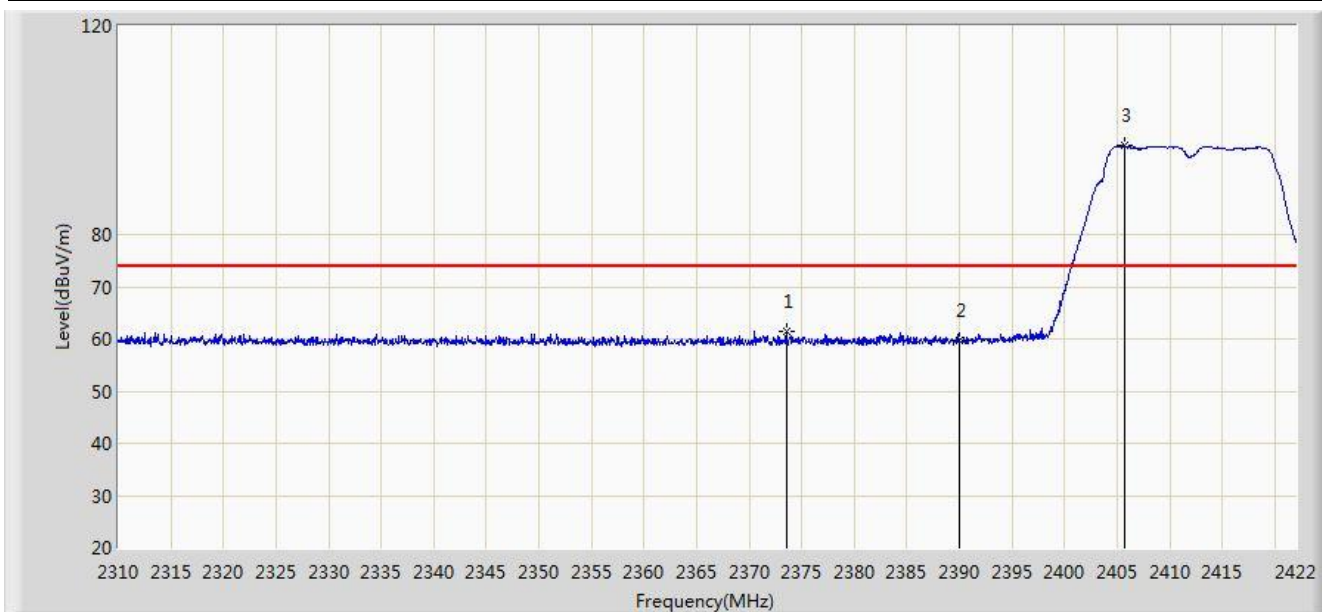
No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV/m)	Reading Level (dBµV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2373.560	61.480	30.247	-12.520	74.000	31.234	PK
2			2390.000	59.749	28.546	-14.251	74.000	31.203	PK
3		*	2405.704	96.981	65.802	N/A	N/A	31.178	PK

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

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

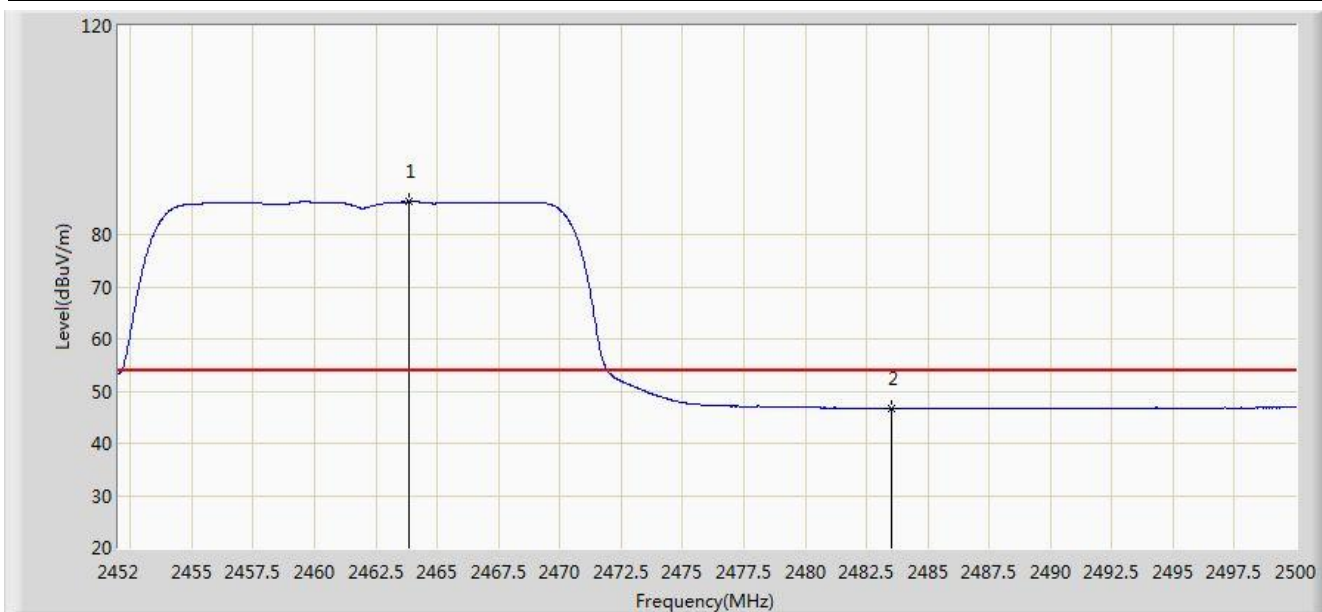| Site: AC 1	Time: 2016/04/20 - 14:33
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	46.775	15.572	-7.225	54.000	31.203	AV
2		*	2410.296	87.011	55.839	N/A	N/A	31.172	AV

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

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

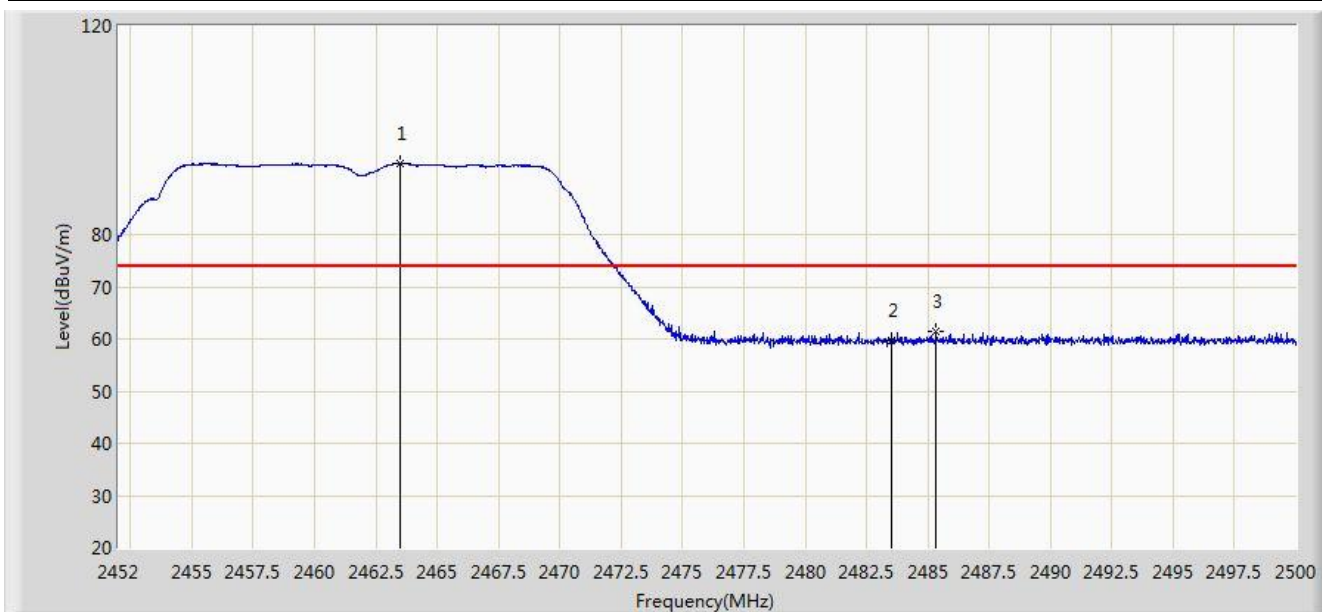| Site: AC 1	Time: 2016/04/20 - 14:34
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	
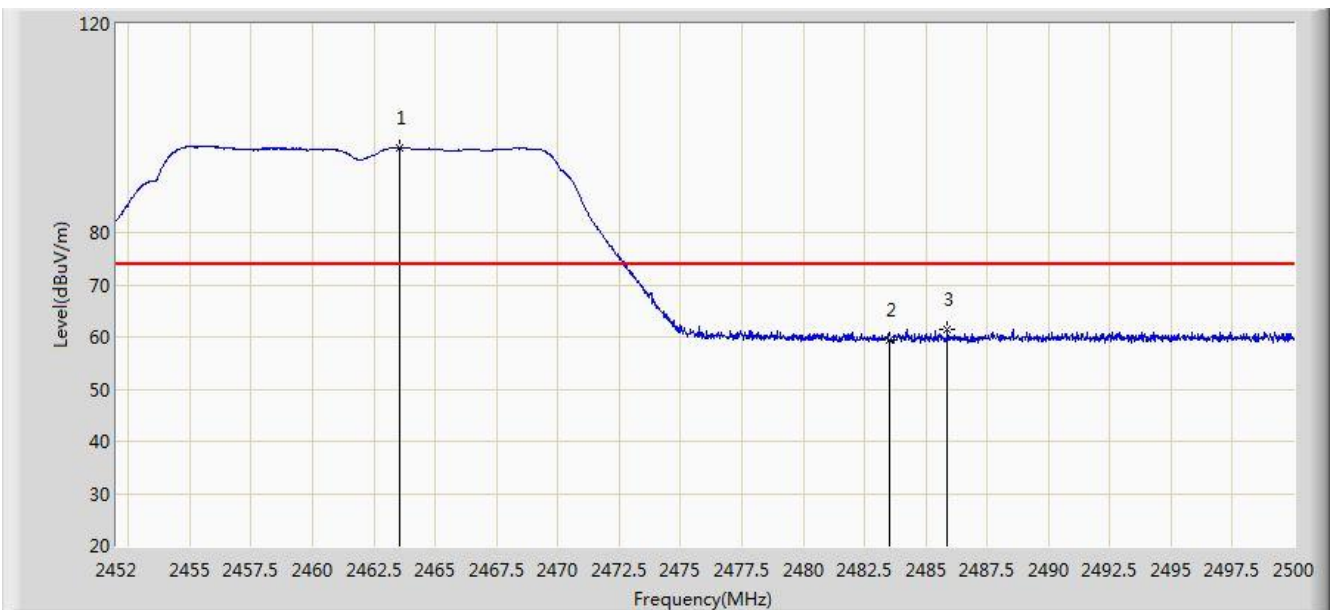
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.520	96.224	65.086	N/A	N/A	31.139	PK
2			2483.500	59.356	28.163	-14.644	74.000	31.194	PK
3			2485.864	61.502	30.302	-12.498	74.000	31.200	PK

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

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

| Site: AC 1	Time: 2016/04/20 - 14:37
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	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		*	2463.856	86.268	55.129	N/A	N/A	31.139	AV
2			2483.500	46.723	15.530	-7.277	54.000	31.194	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:37
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	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		*	2463.472	93.674	62.536	N/A	N/A	31.138	PK
2			2483.500	59.750	28.557	-14.250	74.000	31.194	PK
3			2485.336	61.485	30.287	-12.515	74.000	31.198	PK

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

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

Site: AC 1	Time: 2016/04/20 - 14:39
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	
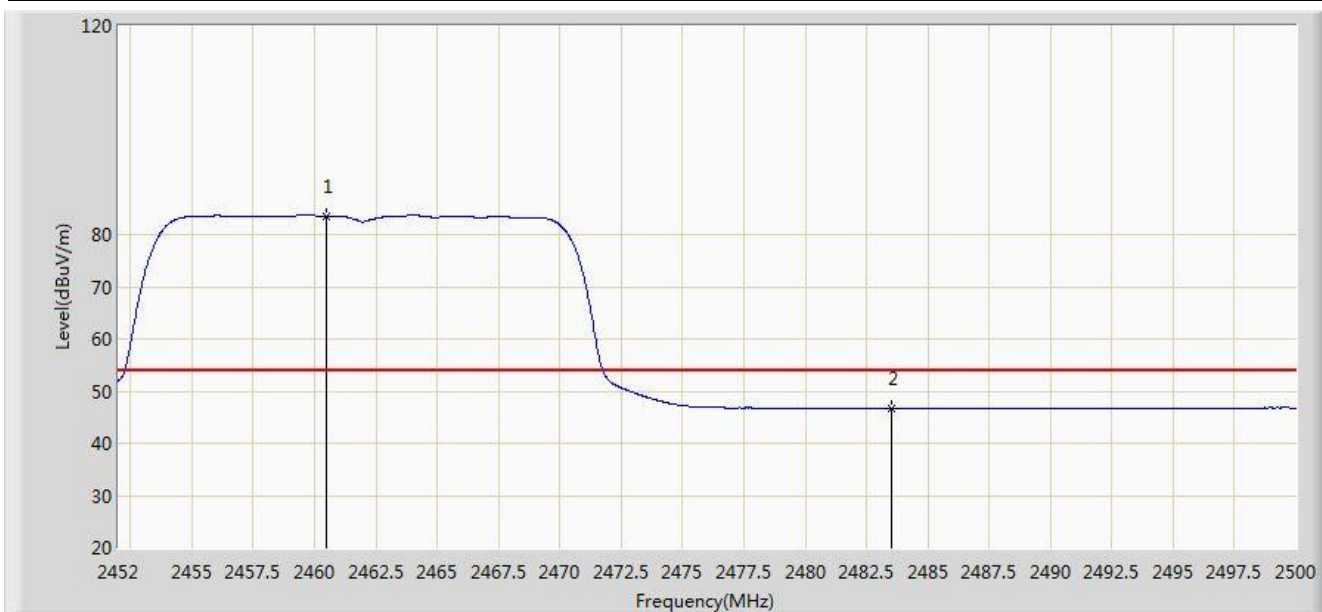
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2460.496	83.554	52.421	N/A	N/A	31.133	AV
2			2483.500	46.679	15.486	-7.321	54.000	31.194	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	
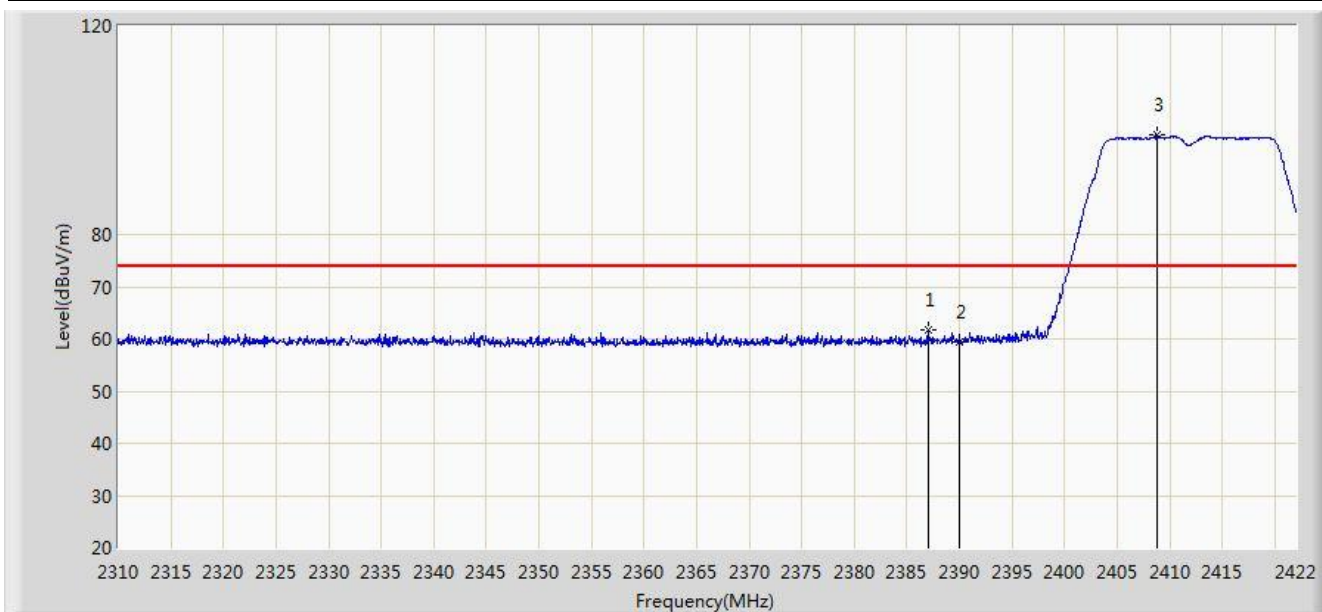
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2387.000	61.691	30.483	-12.309	74.000	31.209	PK
2			2390.000	59.325	28.122	-14.675	74.000	31.203	PK
3		*	2408.840	99.042	67.868	N/A	N/A	31.175	PK

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

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

| Site: AC 1	Time: 2016/04/20 - 14:42
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	
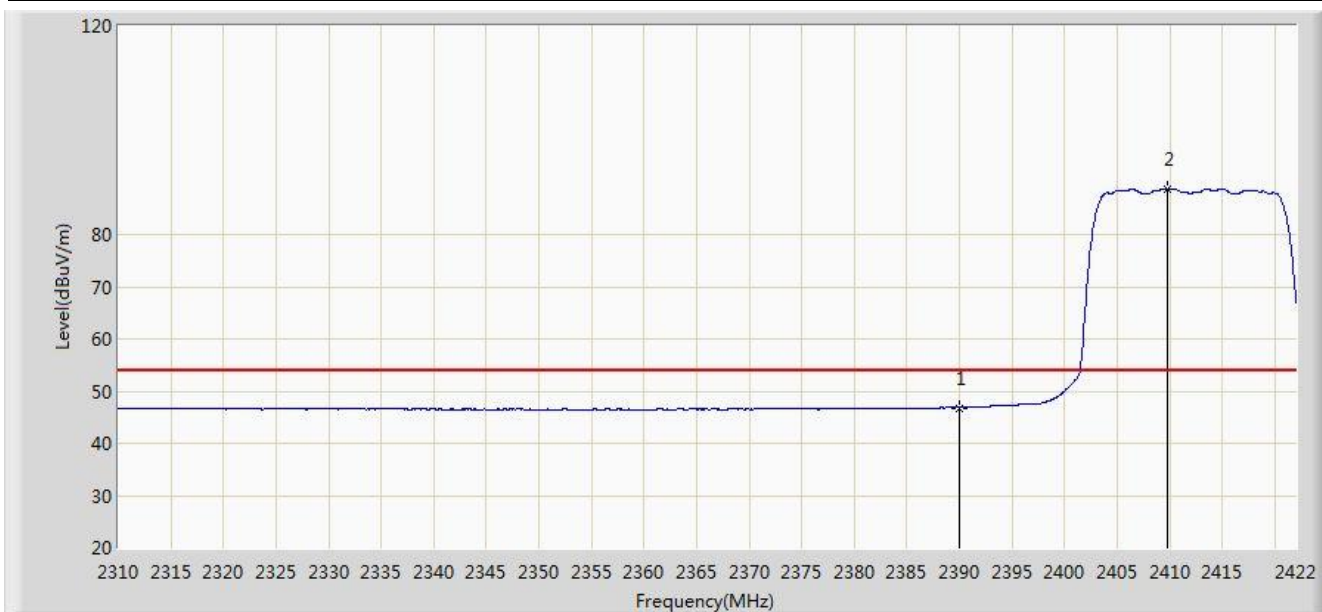
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	46.806	15.603	-7.194	54.000	31.203	AV
2		*	2409.736	88.685	57.512	N/A	N/A	31.173	AV

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

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

Site: AC 1	Time: 2016/04/20 - 14:43
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	
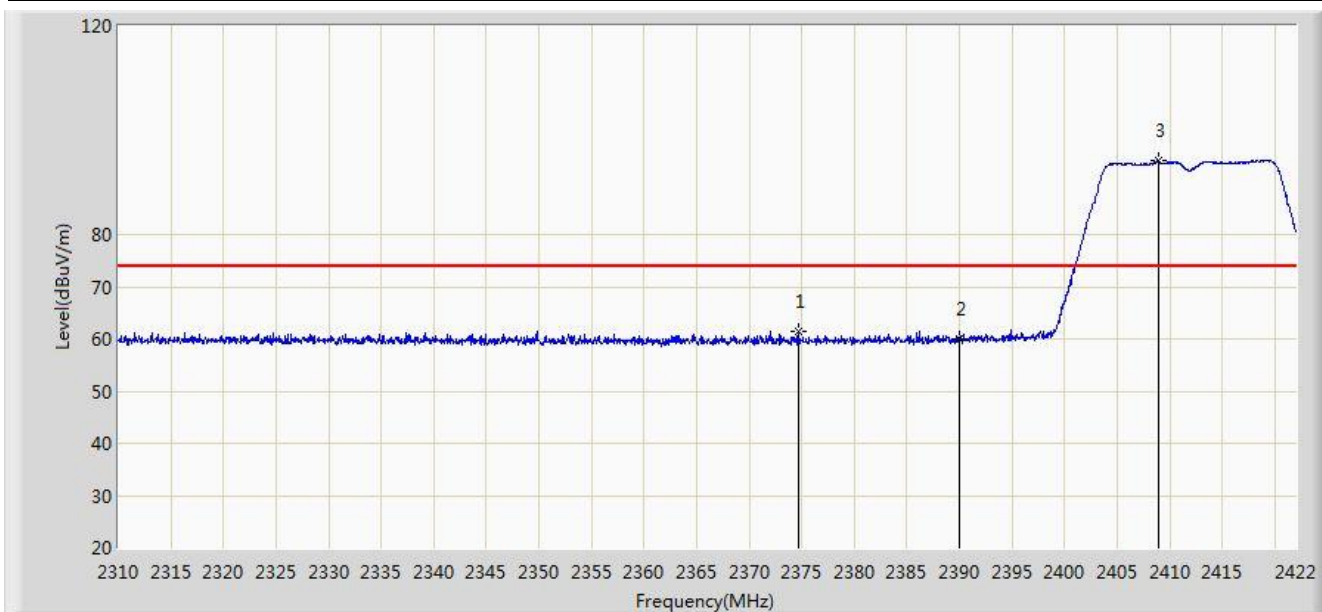
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2374.680	61.350	30.119	-12.650	74.000	31.231	PK
2			2390.000	60.076	28.873	-13.924	74.000	31.203	PK
3		*	2408.896	94.158	62.984	N/A	N/A	31.174	PK

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

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

| Site: AC 1	Time: 2016/04/20 - 14:45
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	
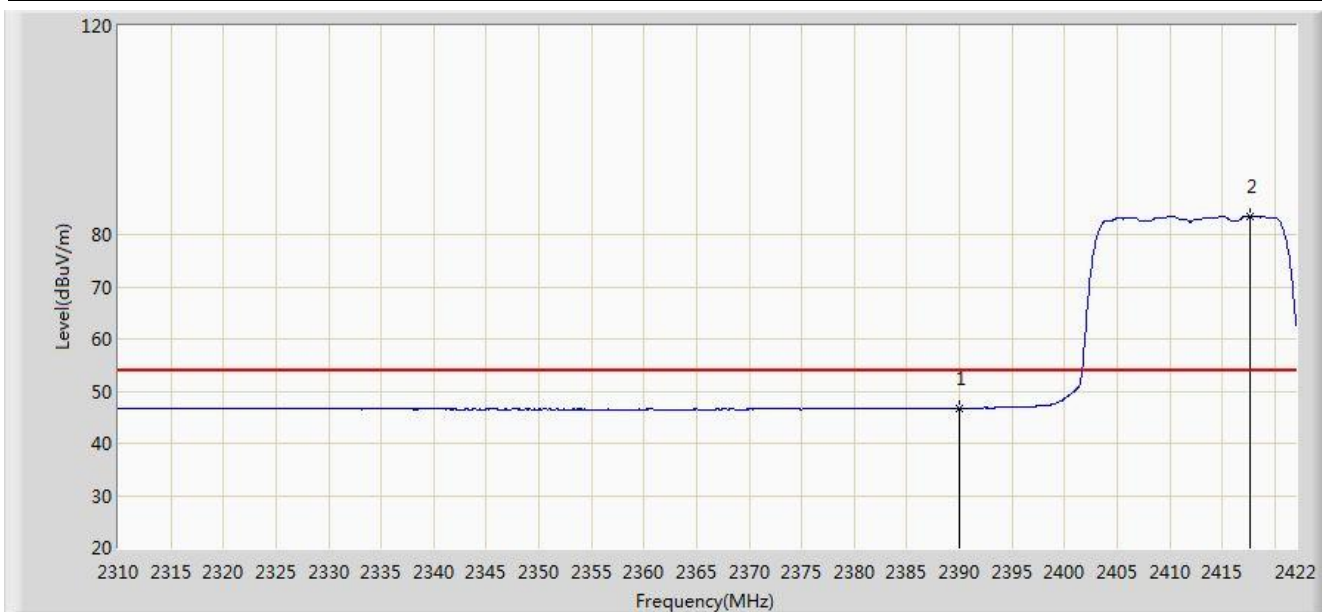
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	46.686	15.483	-7.314	54.000	31.203	AV
2		*	2417.688	83.521	52.361	N/A	N/A	31.159	AV

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

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

|	
Site: AC 1	Time: 2016/04/20 - 14:46
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	
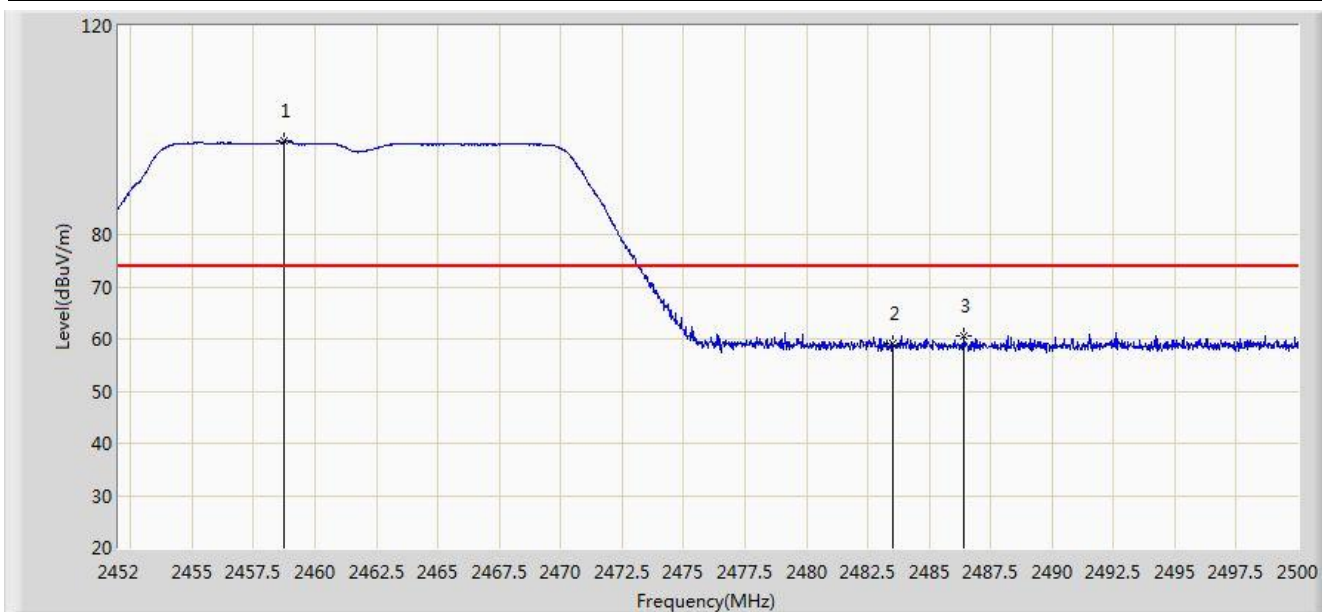
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2458.720	97.856	66.726	N/A	N/A	31.129	PK
2			2483.500	59.117	27.924	-14.883	74.000	31.194	PK
3			2486.416	60.551	29.350	-13.449	74.000	31.201	PK

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

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

| Site: AC 1	Time: 2016/04/20 - 14:49
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	
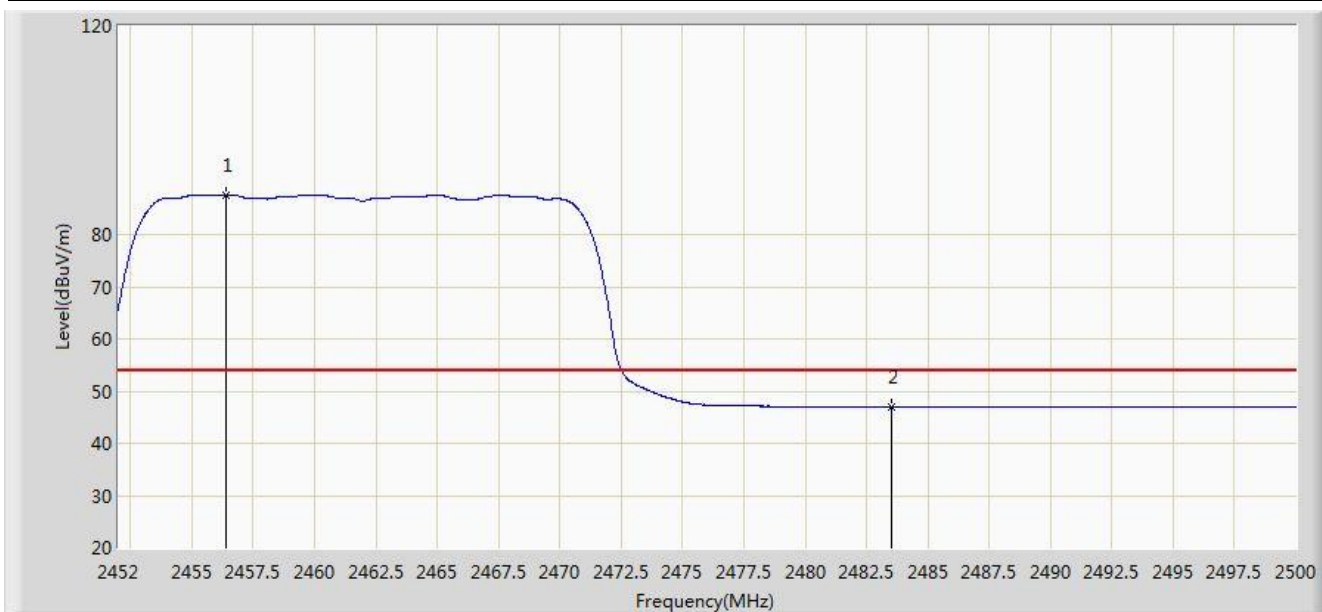
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2456.368	87.611	56.486	N/A	N/A	31.125	AV
2			2483.500	46.886	15.693	-7.114	54.000	31.194	AV

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

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

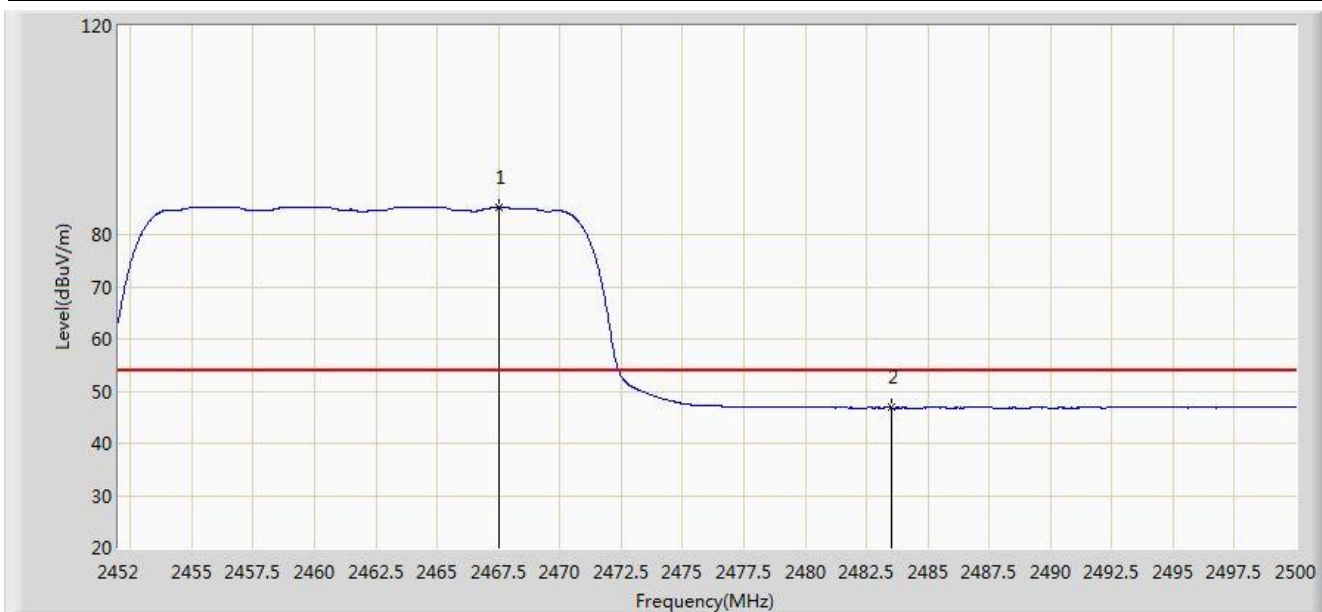| Site: AC 1	Time: 2016/04/20 - 14:50
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	
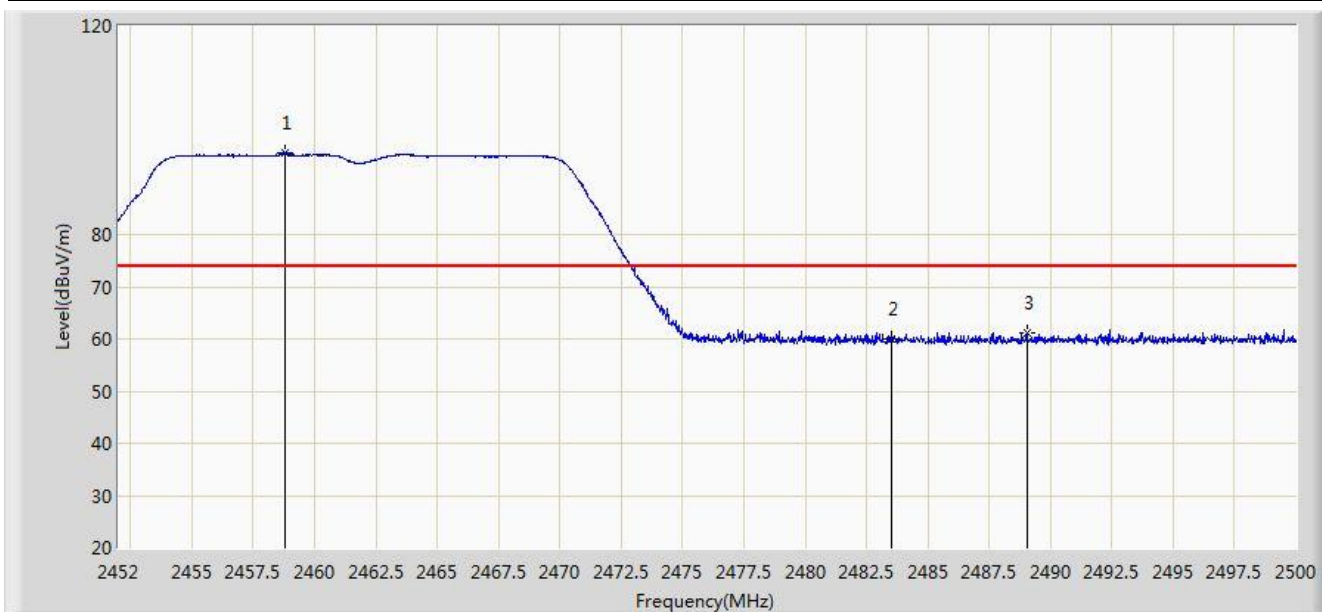
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2458.792	95.674	64.544	N/A	N/A	31.129	PK
2			2483.500	60.043	28.850	-13.957	74.000	31.194	PK
3			2489.032	61.234	30.026	-12.766	74.000	31.208	PK

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

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

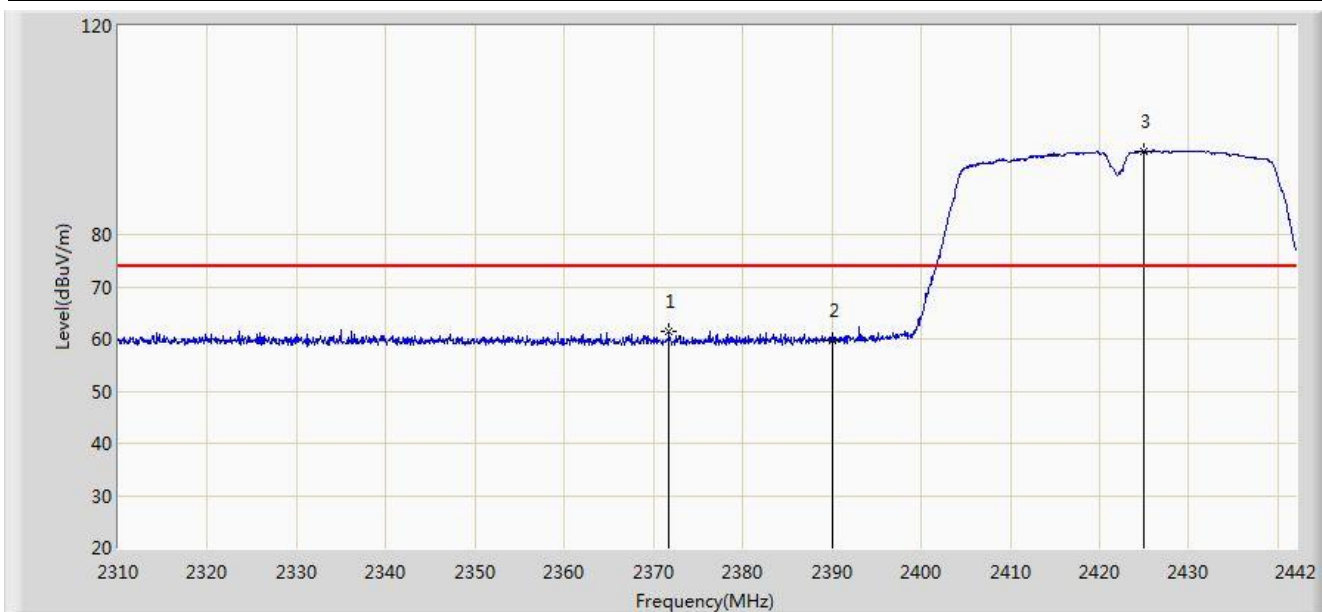| Site: AC 1	Time: 2016/04/20 - 14:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2467.504	85.114	53.965	N/A	N/A	31.150	AV
2			2483.500	46.821	15.628	-7.179	54.000	31.194	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	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			2371.710	61.517	30.280	-12.483	74.000	31.236	PK
2			2390.000	59.738	28.535	-14.262	74.000	31.203	PK
3		*	2424.906	96.079	64.932	N/A	N/A	31.147	PK

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

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

|	
Site: AC 1	Time: 2016/04/20 - 14:56
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2422MHz	
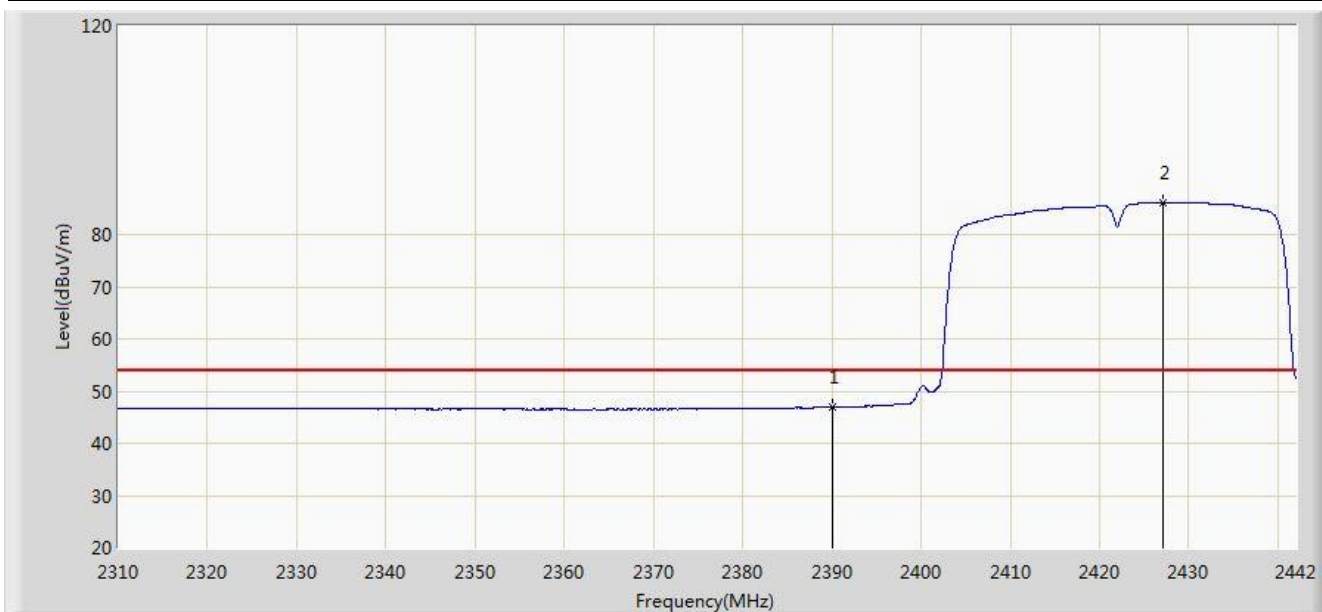
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.102	17.899	-4.898	54.000	31.203	AV
2		*	2427.348	80.218	49.075	N/A	N/A	31.143	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 14:57
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2422MHz	
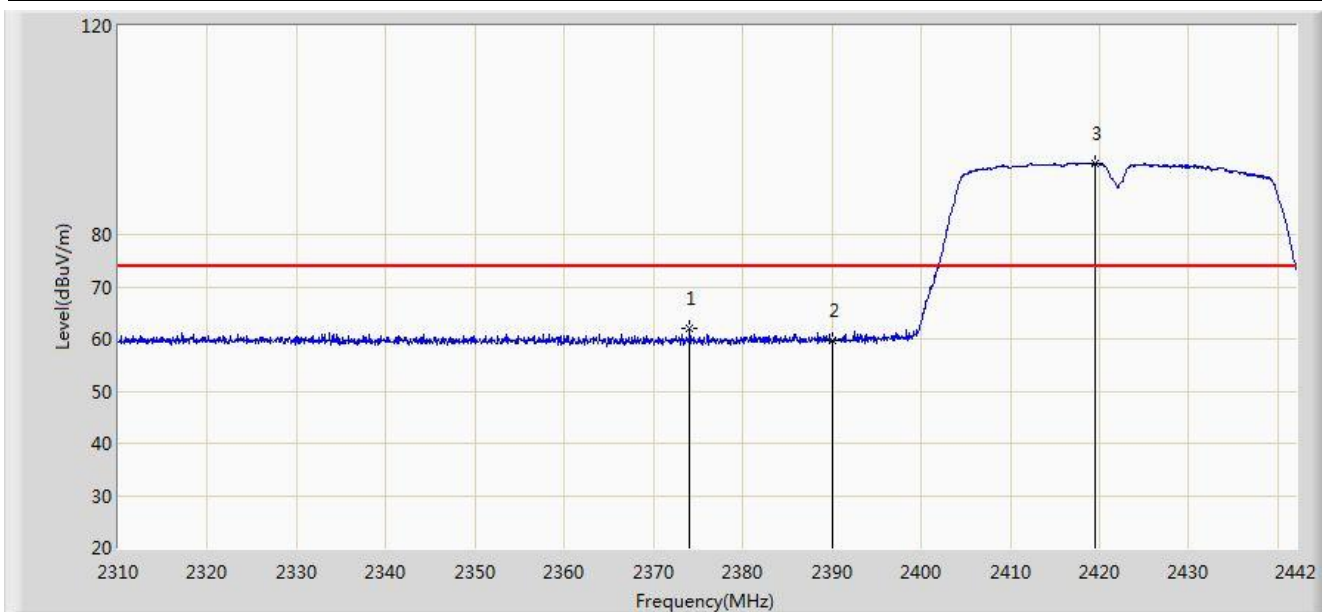
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Over Limit (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2374.086	61.947	30.715	-12.053	74.000	31.232	PK
2			2390.000	59.596	28.393	-14.404	74.000	31.203	PK
3		*	2419.560	93.768	62.611	N/A	N/A	31.157	PK

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

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

| Site: AC 1	Time: 2016/04/20 - 14:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2422MHz	
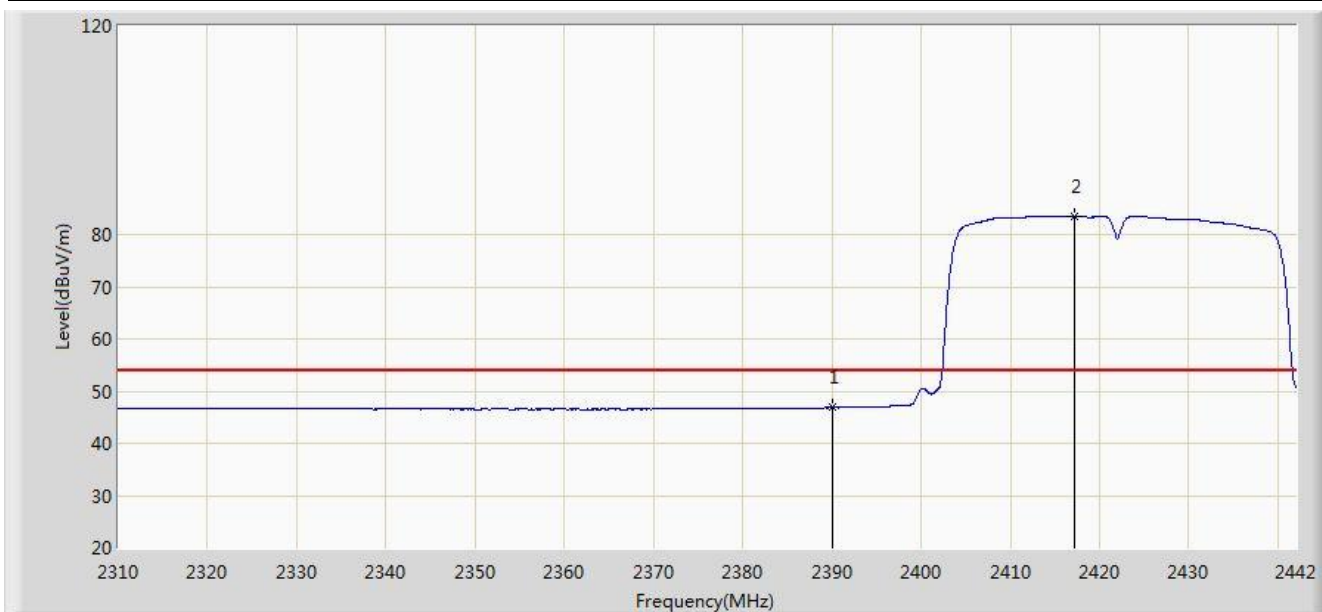
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	46.837	15.634	-7.163	54.000	31.203	AV
2		*	2417.118	83.576	52.415	N/A	N/A	31.161	AV

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

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

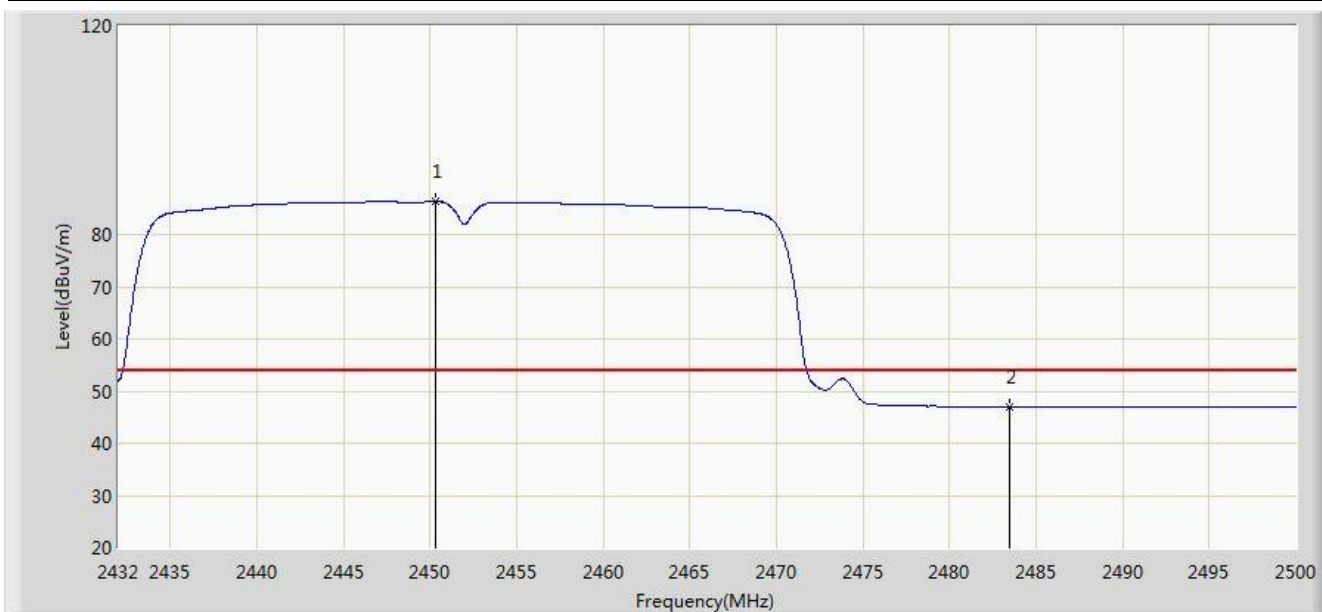| Site: AC 1	Time: 2016/04/20 - 15:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2452MHz	
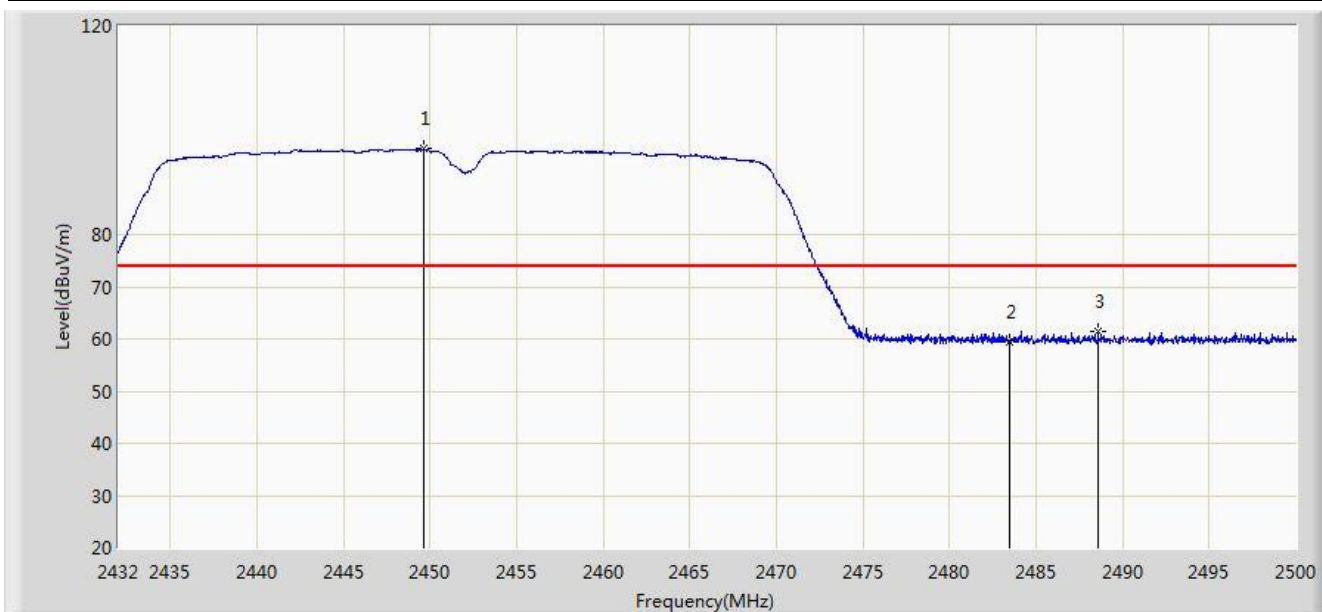
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2449.680	96.549	65.436	N/A	N/A	31.113	PK
2			2483.500	59.486	28.293	-14.514	74.000	31.194	PK
3			2488.576	61.482	30.275	-12.518	74.000	31.207	PK

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

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

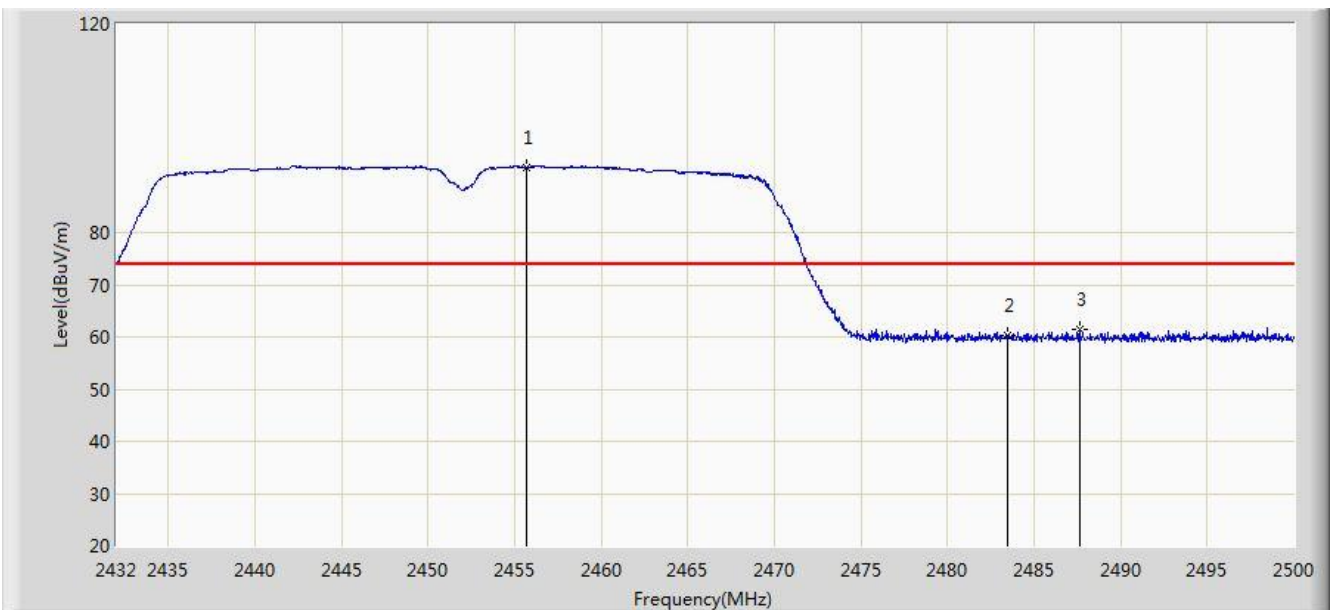| Site: AC 1	Time: 2016/04/20 - 15:02
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2452MHz	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2450.360	86.312	55.197	N/A	N/A	31.115	AV
2			2483.500	46.936	15.743	-7.064	54.000	31.194	AV

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

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

| Site: AC 1	Time: 2016/04/20 - 15:02
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	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		*	2455.664	92.604	61.480	N/A	N/A	31.124	PK
2			2483.500	60.191	28.998	-13.809	74.000	31.194	PK
3			2487.624	61.345	30.141	-12.655	74.000	31.204	PK

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

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

Site: AC 1	Time: 2016/04/20 - 15:04
Limit: FCC_Part15.209_RE(3m)	Engineer: Vince Yu
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT40 at Channel 2452MHz	
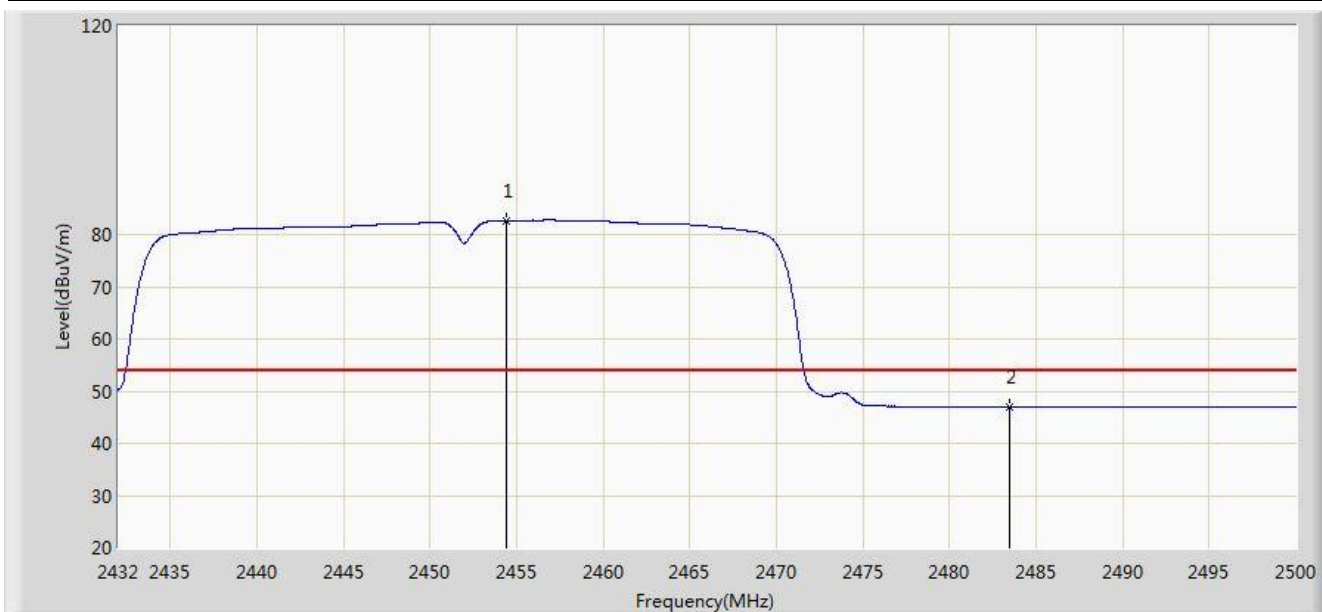
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2454.372	82.655	51.533	N/A	N/A	31.121	AV
2			2483.500	46.905	15.712	-7.095	54.000	31.194	AV

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)
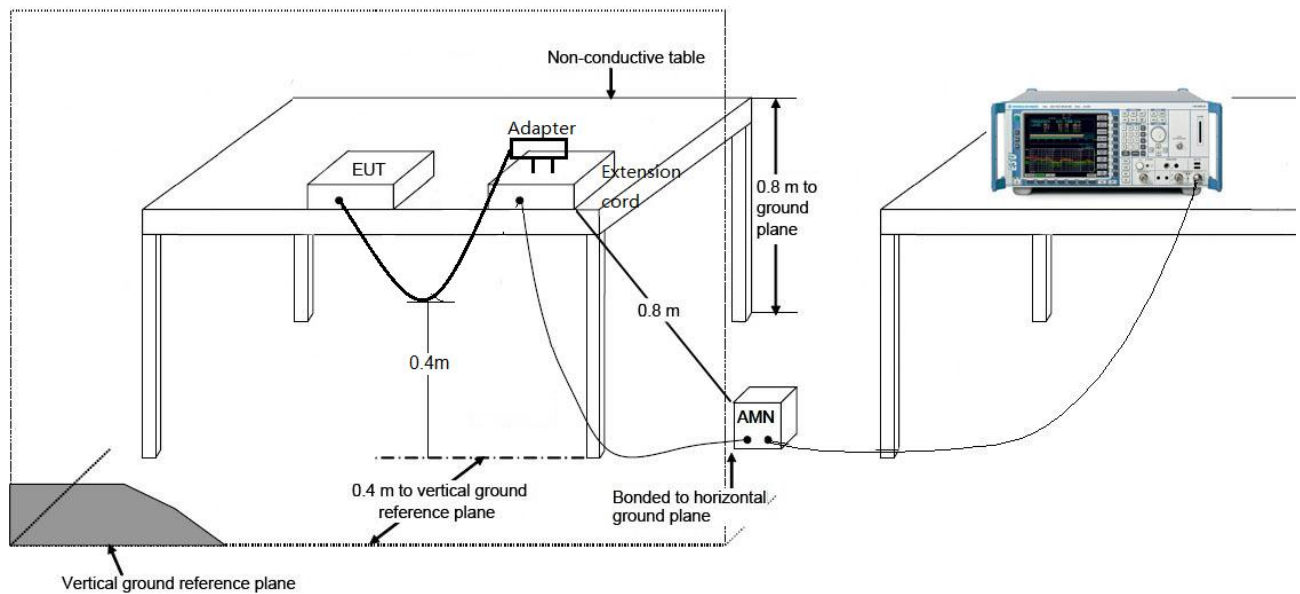
7.8. AC Conducted Emissions Measurement

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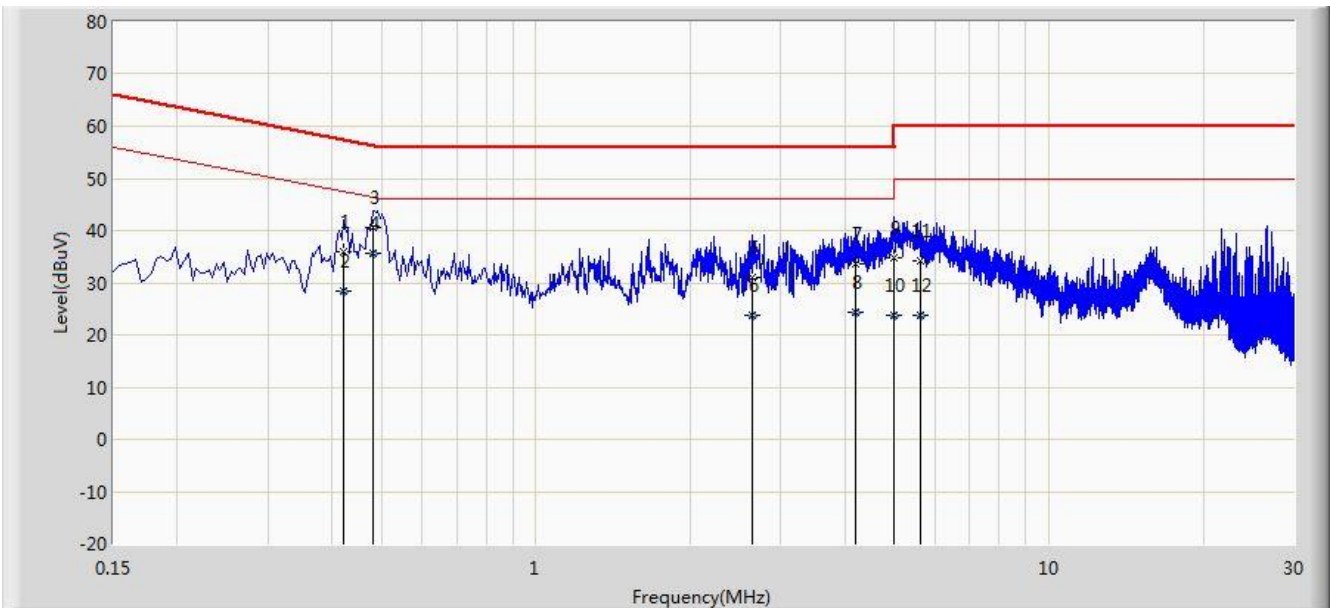
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.8.2. Test Setup

7.8.3. Test Result

| Site: SR2	Time: 2016/04/19 - 14:23
Limit: FCC_Part15.207_CE_AC Power	Engineer: Zero Cao
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Element hub	Power: AC 120V/60Hz
Test 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			0.422	35.965	25.861	-21.444	57.409	10.104	QP
2			0.422	28.379	18.275	-19.030	47.409	10.104	AV
3			0.482	40.710	30.559	-15.594	56.305	10.152	QP
4		*	0.482	35.647	25.495	-10.658	46.305	10.152	AV
5			2.646	30.928	21.076	-25.072	56.000	9.852	QP
6			2.646	23.871	14.019	-22.129	46.000	9.852	AV
7			4.194	33.544	23.568	-22.456	56.000	9.976	QP
8			4.194	24.465	14.489	-21.535	46.000	9.976	AV
9			4.986	34.916	24.889	-21.084	56.000	10.027	QP
10			4.986	23.726	13.699	-22.274	46.000	10.027	AV
11			5.602	34.225	24.144	-25.775	60.000	10.081	QP
12			5.602	23.628	13.547	-26.372	50.000	10.081	AV

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

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

Site: SR2	Time: 2016/04/19 - 14:29
Limit: FCC_Part15.207_CE_AC Power	Engineer: Zero Cao
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Element hub	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at channel 2412MHz	
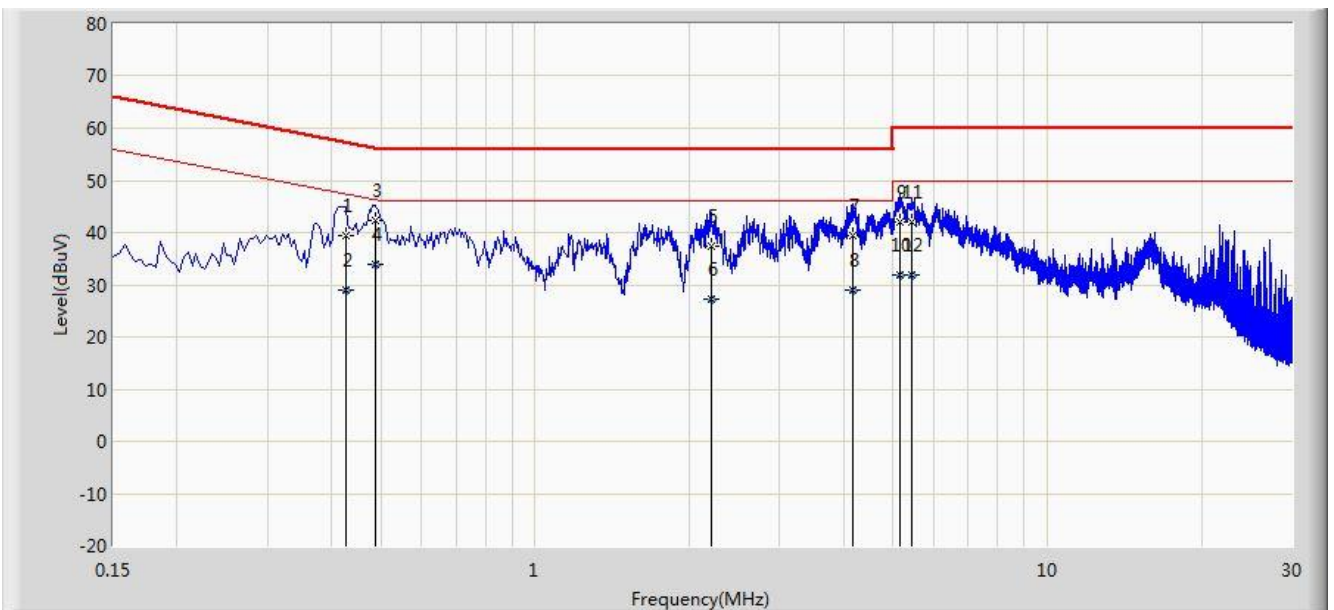
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.426	39.342	29.210	-17.988	57.330	10.132	QP
2			0.426	29.010	18.878	-18.321	47.330	10.132	AV
3			0.486	42.196	32.020	-14.040	56.236	10.176	QP
4		*	0.486	33.949	23.773	-12.287	46.236	10.176	AV
5			2.214	37.435	27.567	-18.565	56.000	9.869	QP
6			2.214	27.337	17.468	-18.663	46.000	9.869	AV
7			4.158	39.393	29.411	-16.607	56.000	9.982	QP
8			4.158	29.109	19.127	-16.891	46.000	9.982	AV
9			5.162	42.141	32.084	-17.859	60.000	10.057	QP
10			5.162	31.881	21.824	-18.119	50.000	10.057	AV
11			5.434	42.137	32.054	-17.863	60.000	10.083	QP
12			5.434	31.815	21.732	-18.185	50.000	10.083	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 **Element hub FCC ID:**

2AGN8-Z02HUB is in compliance with Part 15C of the FCC Rules.

———————————— The End ————————————