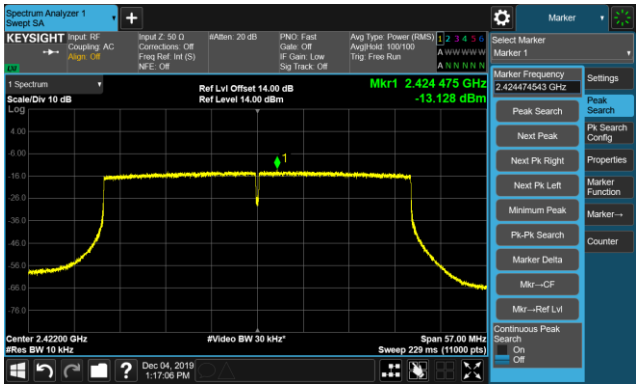
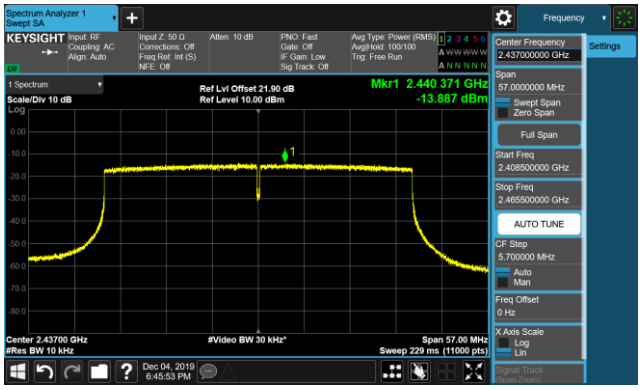
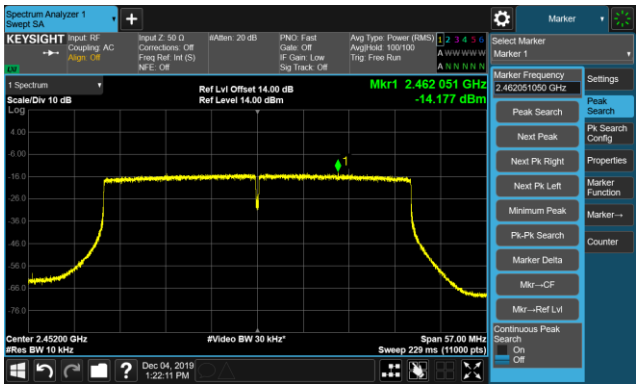
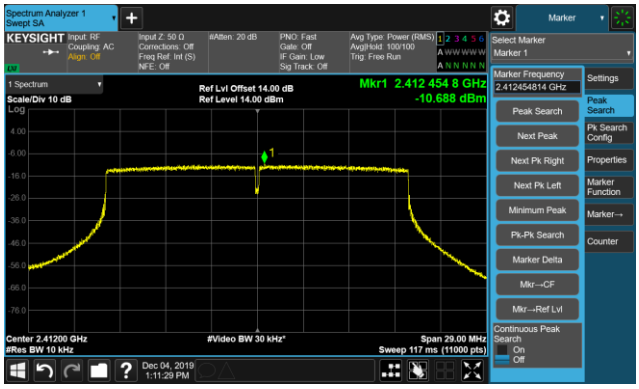
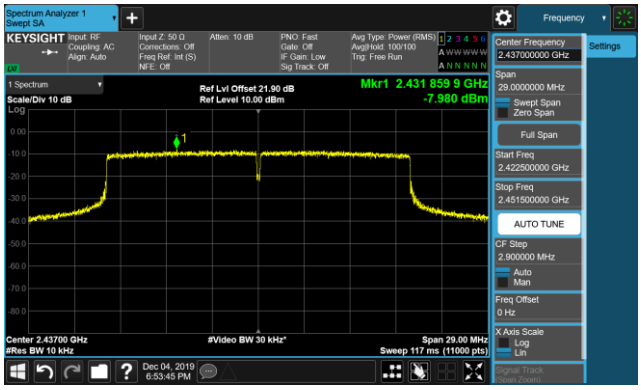
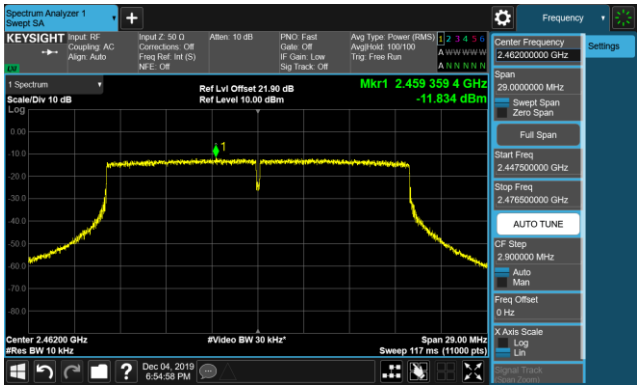
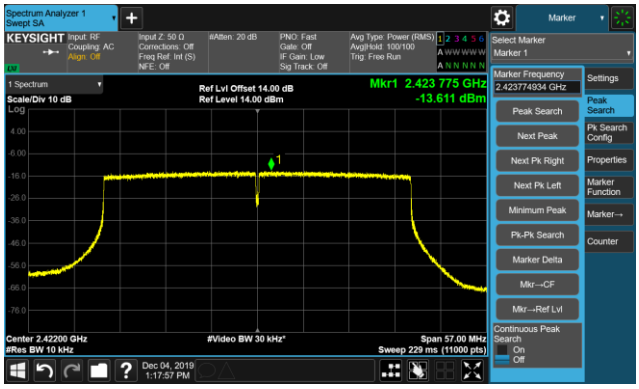
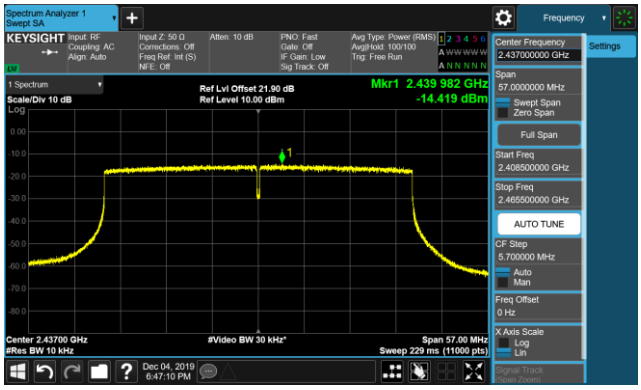
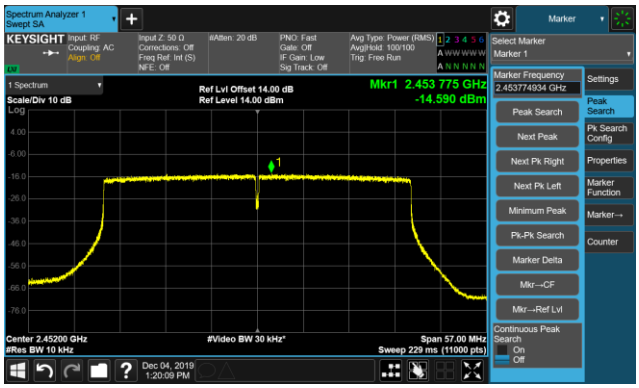
802.11ax-HE40 AVGPSD - Ant 0 / Ant 0 + 1 (Beam-Forming Mode)	
Channel 03 (2422MHz)	Channel 06 (2437MHz)
	
Channel 09 (2452MHz)	
	

802.11ax-HE20 AVGPSD - Ant 1 / Ant 0 + 1 (Beam-Forming Mode)	
Channel 01 (2412MHz)	Channel 06 (2437MHz)
	
Channel 11 (2462MHz)	
	

802.11ax-HE40 AVGPSD - Ant 1 / Ant 0 + 1 (Beam-Forming Mode)	
Channel 03 (2422MHz)	Channel 06 (2437MHz)
	
Channel 09 (2452MHz)	
	

7.5. Conducted Band Edge and Out-of-Band Emissions

7.5.1.Test Limit

The limit for out-of-band spurious emissions at the band edge is 30dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

7.5.2.Test Procedure Used

ANSI C63.10 Section 11.11

7.5.3.Test Setting

Reference level measurement

1. Set instrument center frequency to DTS channel center frequency
2. Set the span to ≥ 1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW ≥ 3 x RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize

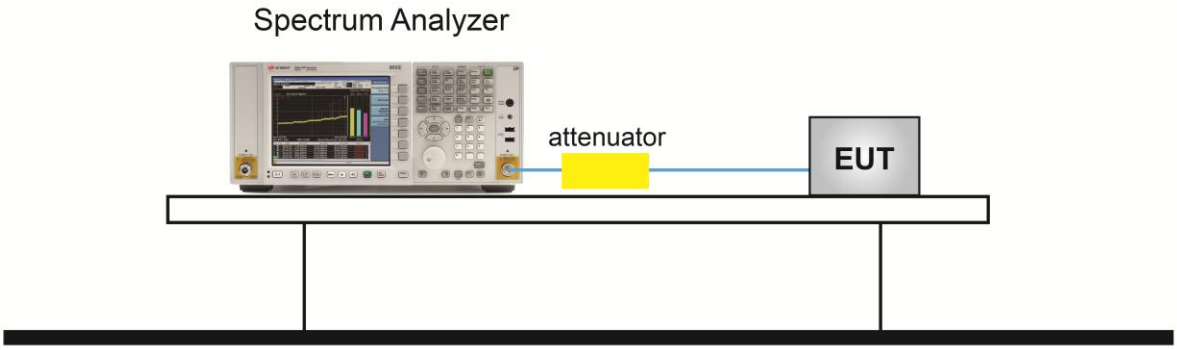
Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 1.3MHz
3. VBW = 4MHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

Test Notes

1. RBW was set to 1.3MHz rather than 100 kHz in order to increase the measurement speed.
2. The display line shown in the following plots denotes the limit at 30dB below the fundamental emission level measured in a 100 kHz bandwidth. However, since the traces in the following plots are measured with a 1.3MHz RBW, the display line may not necessarily appear to be 30dB below the level of the fundamental in a 1.3MHz bandwidth.
3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.

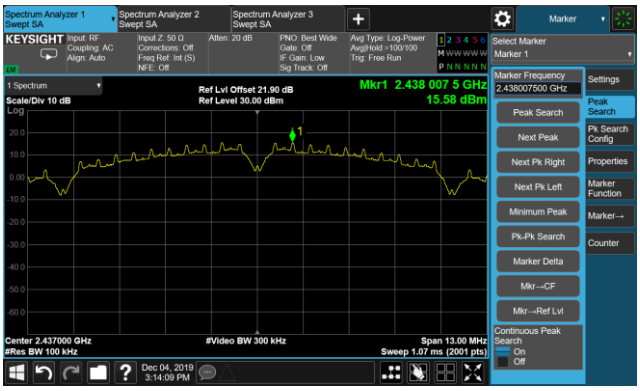
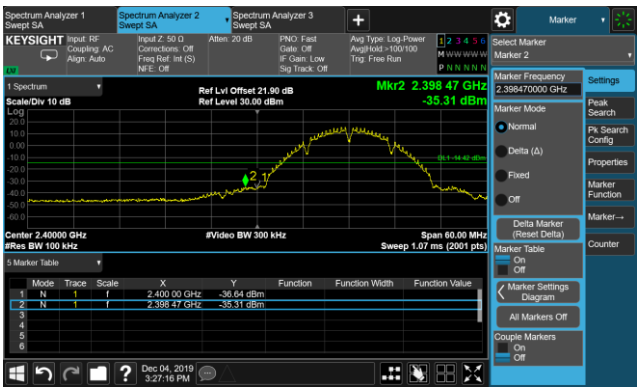
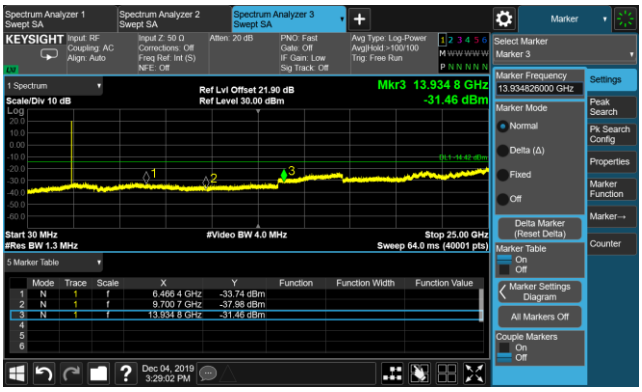
7.5.4.Test Setup

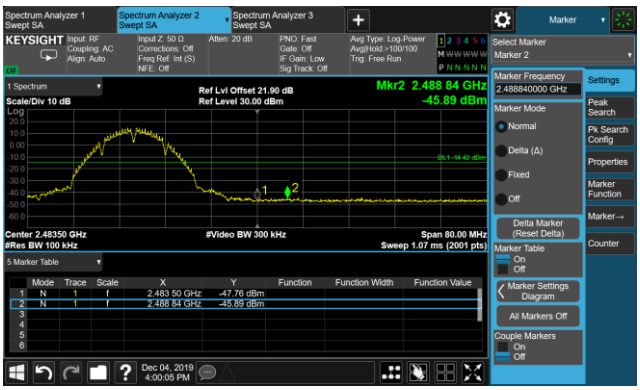
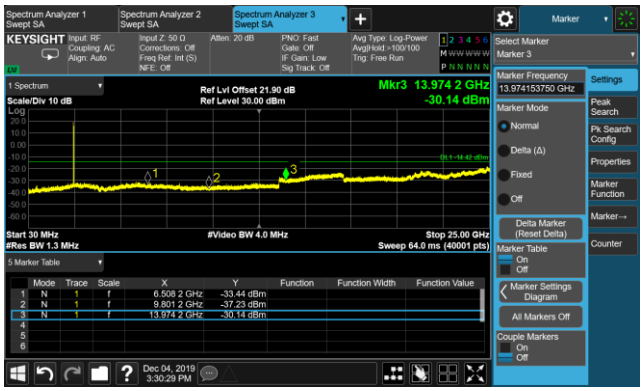


7.5.5.Test Result

Product	GigaSpire	Temperature	25°C
Test Engineer	Bacon Dong	Relative Humidity	54%
Test Site	TR3	Test Date	2019/12/04

Test Mode	Data Rate / MCS	Channel No.	Frequency (MHz)	Limit (dBc)	Result
Ant 0 / Ant 0 + 1					
802.11b	1Mbps	01	2412	30	Pass
802.11b	1Mbps	06	2437	30	Pass
802.11b	1Mbps	11	2462	30	Pass
802.11g	6Mbps	01	2412	30	Pass
802.11g	6Mbps	06	2437	30	Pass
802.11g	6Mbps	11	2462	30	Pass
802.11n-HT20	MCS0	01	2412	30	Pass
802.11n-HT20	MCS0	06	2437	30	Pass
802.11n-HT20	MCS0	11	2462	30	Pass
802.11n-HT40	MCS0	03	2422	30	Pass
802.11n-HT40	MCS0	06	2437	30	Pass
802.11n-HT40	MCS0	09	2452	30	Pass
802.11ax-HE20	MCS0	01	2412	30	Pass
802.11ax-HE20	MCS0	06	2437	30	Pass
802.11ax-HE20	MCS0	11	2462	30	Pass
802.11ax-HE40	MCS0	03	2422	30	Pass
802.11ax-HE40	MCS0	06	2437	30	Pass
802.11ax-HE40	MCS0	09	2452	30	Pass

802.11b Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
100kHz PSD reference Level	
	
Channel 01 (2412MHz)	
Low Band Edge	Spurious Emission
	
Channel 06 (2437MHz)	
Spurious Emission	
	

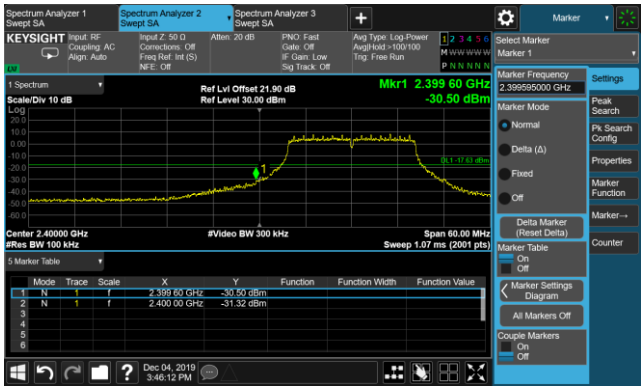
802.11b Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
Channel 11 (2462MHz)	
High Band Edge	Spurious Emission
	

802.11g Out-of-Band Emissions - Ant 0 / Ant 0 +1

100kHz PSD reference Level

Channel 01 (2412MHz)

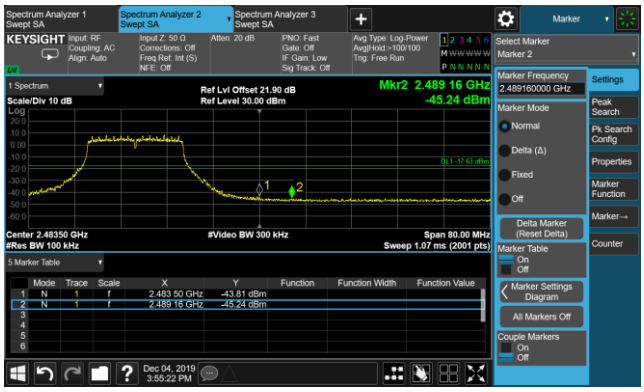
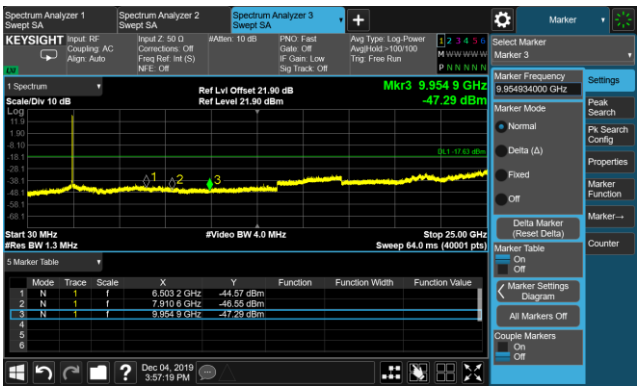
Low Band Edge

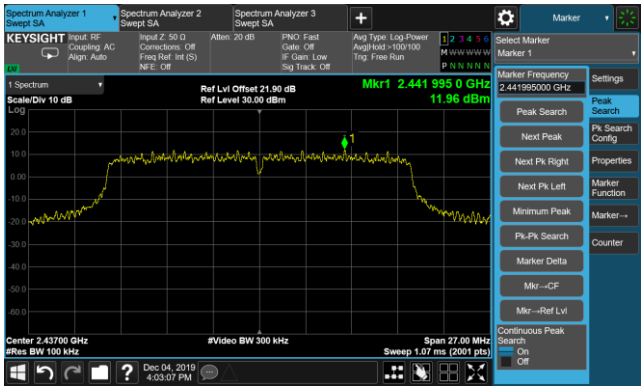
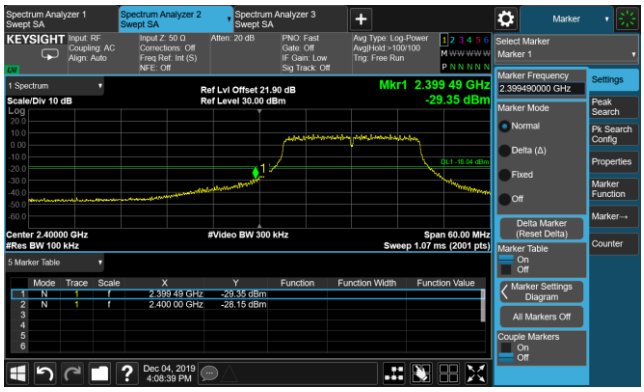
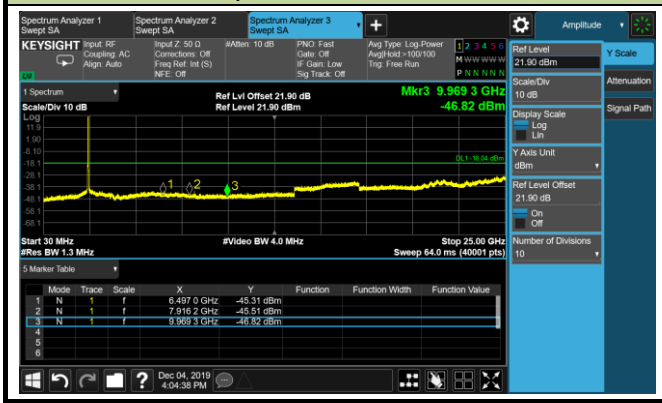


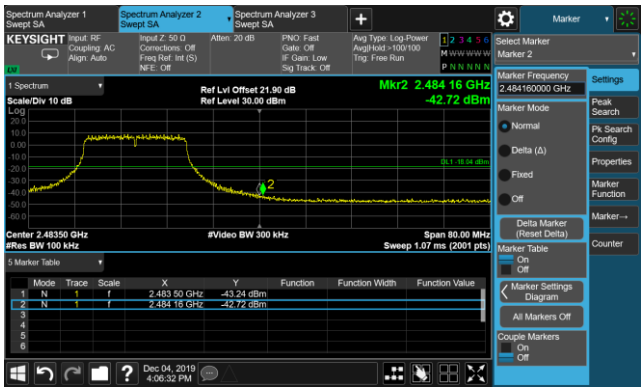
Spurious Emission

Channel 06 (2437MHz)

Spurious Emission

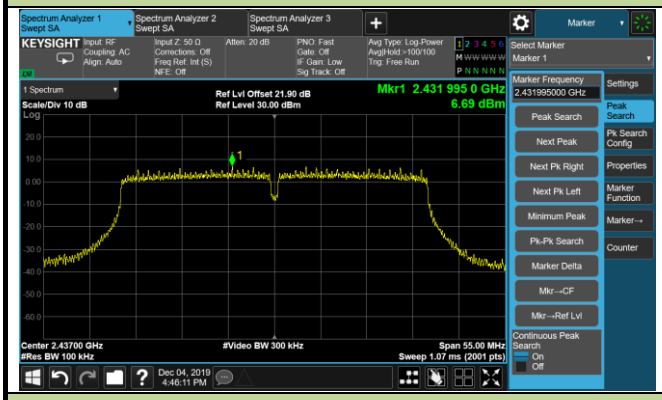
802.11g Out-of-Band Emissions - Ant 0 / Ant 0 +1	
Channel 11 (2462MHz)	
High Band Edge	Spurious Emission
	

802.11n-HT20 Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
100kHz PSD reference Level	
	
Channel 01 (2412MHz)	
Low Band Edge	Spurious Emission
	
Channel 06 (2437MHz)	
Spurious Emission	
	

802.11n-HT20 Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
Channel 11 (2462MHz)	
High Band Edge	Spurious Emission
	

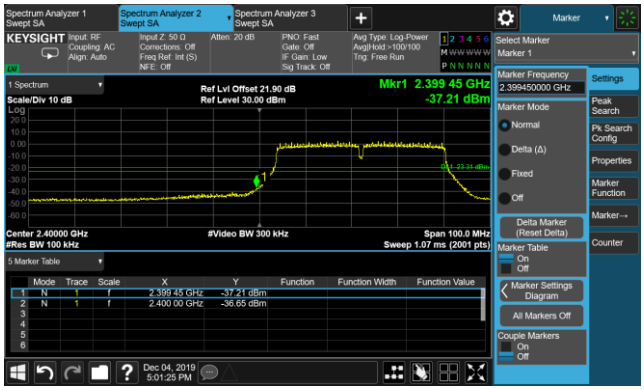
802.11n-HT40 Out-of-Band Emissions - Ant 0 / Ant 0 + 1

100kHz PSD reference Level

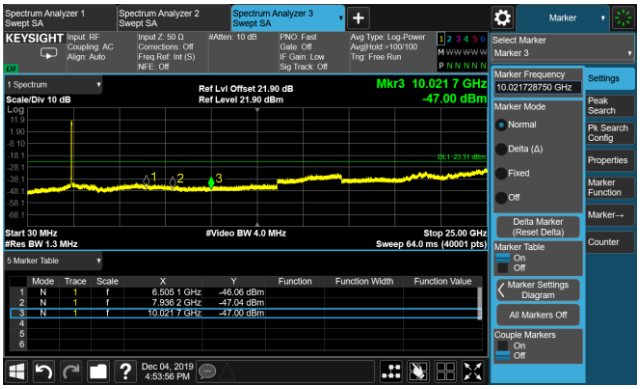


Channel 03 (2422MHz)

Low Band Edge

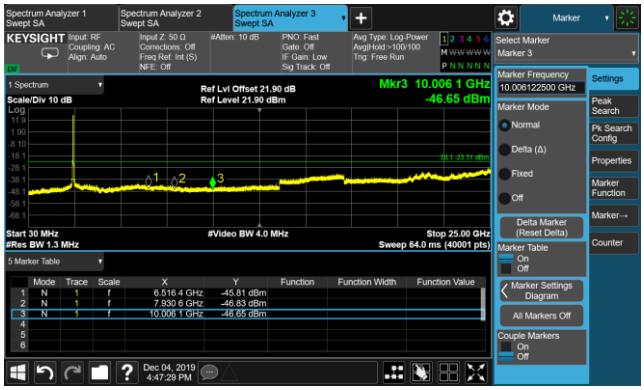


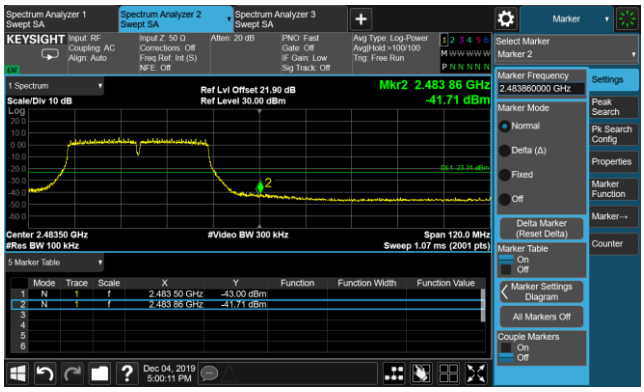
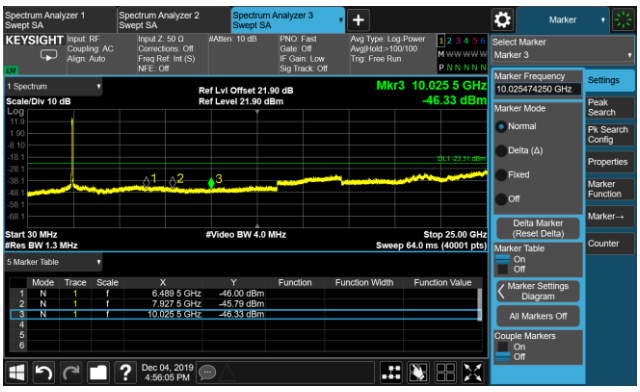
Spurious Emission

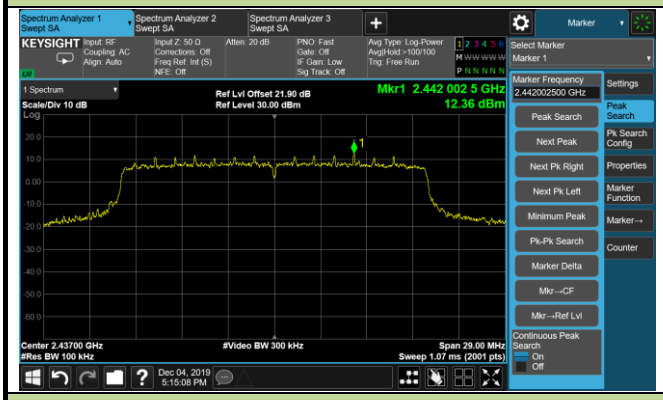
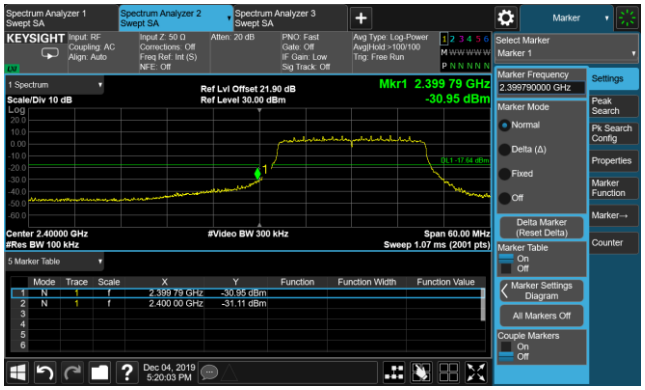
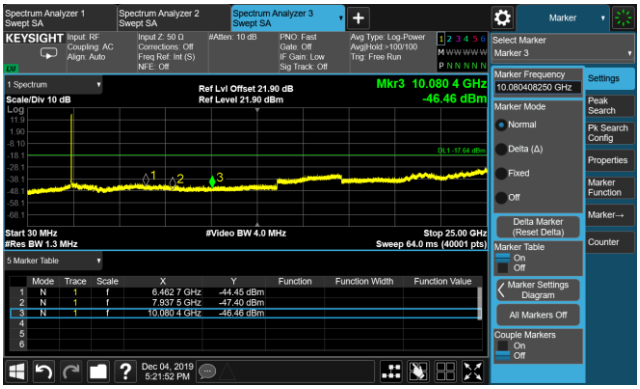
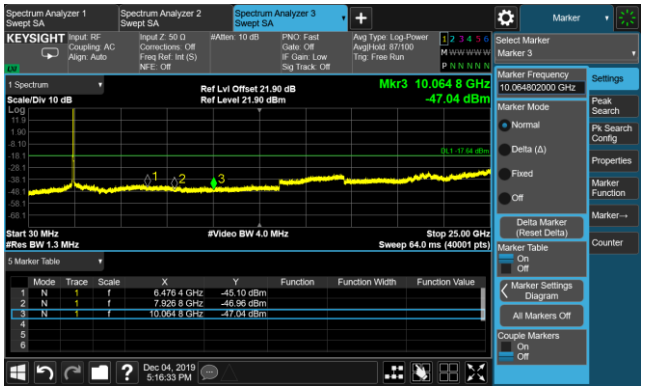


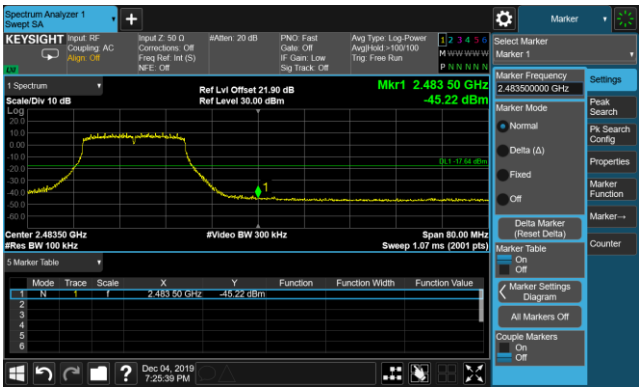
Channel 06 (2437MHz)

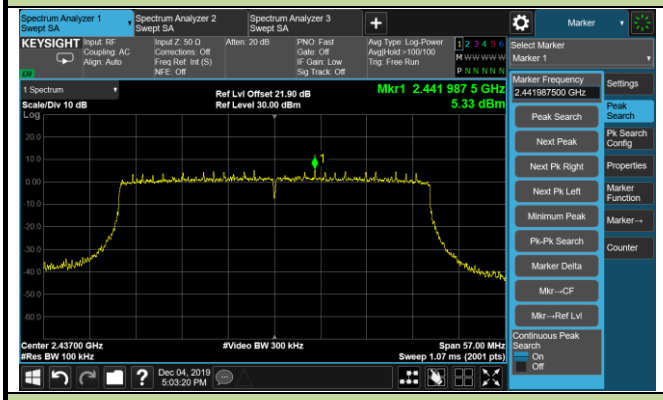
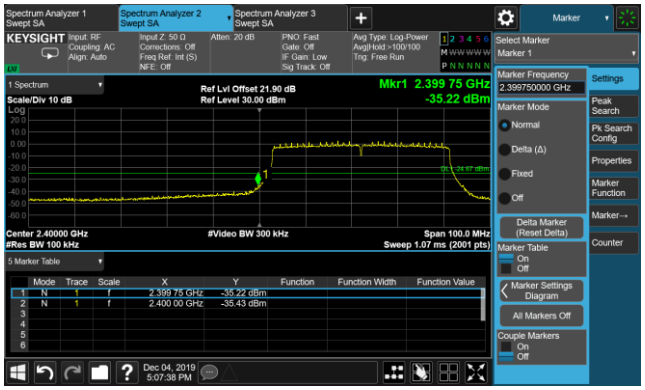
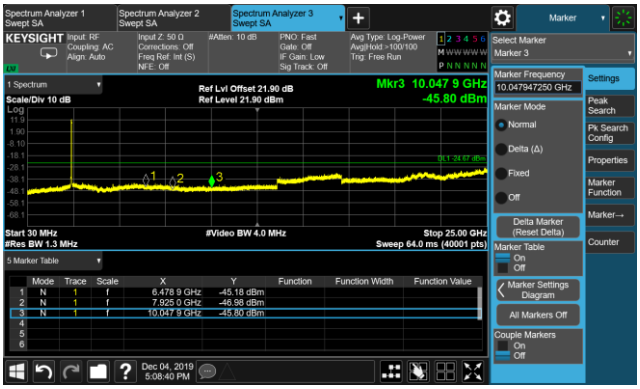
Spurious Emission

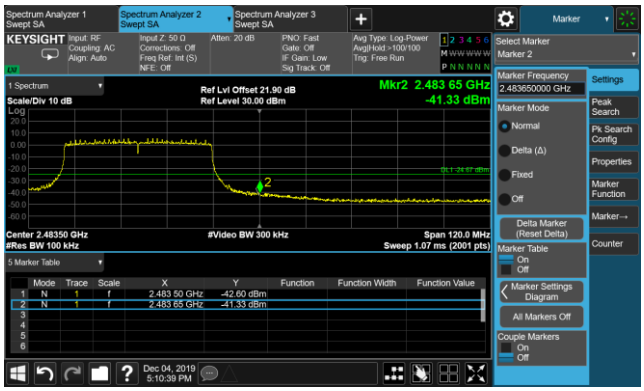
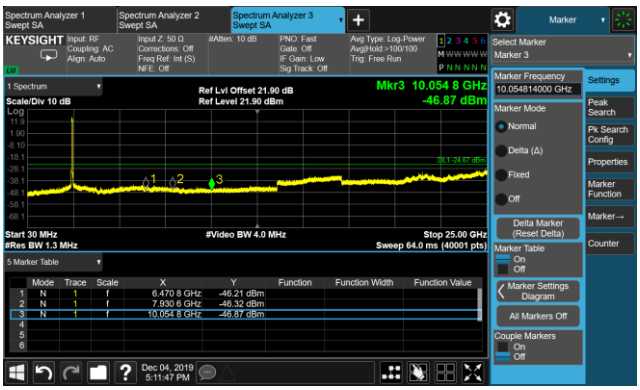


802.11n-HT40 Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
Channel 09 (2452MHz)	
High Band Edge	Spurious Emission
	

802.11ax-HE20 Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
100kHz PSD reference Level	
	
Channel 01 (2412MHz)	
Low Band Edge	Spurious Emission
	
Channel 06 (2437MHz)	
Spurious Emission	
	

802.11ax-HE20 Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
Channel 11 (2462MHz)	
High Band Edge	Spurious Emission
	

802.11ax-HE40 Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
100kHz PSD reference Level	
	
Channel 03 (2422MHz)	
Low Band Edge	Spurious Emission
	
Channel 06 (2437MHz)	
Spurious Emission	
	

802.11ax-HE40 Out-of-Band Emissions - Ant 0 / Ant 0 + 1	
Channel 09 (2452MHz)	
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
> 1000MHz	1MHz

Quasi-Peak Measurements below 1GHz

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

2. Span was set greater than 1MHz

3. RBW = as specified in Table 1

4. Detector = CISPR quasi-peak

5. Sweep time = auto couple

6. Trace was allowed to stabilize

Peak Measurements above 1GHz

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

2. RBW = 1MHz

3. VBW = 3MHz

4. Detector = peak

5. Sweep time = auto couple

6. Trace mode = max hold

7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

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

2. RBW = 1MHz

3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.

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

4. Detector = Peak

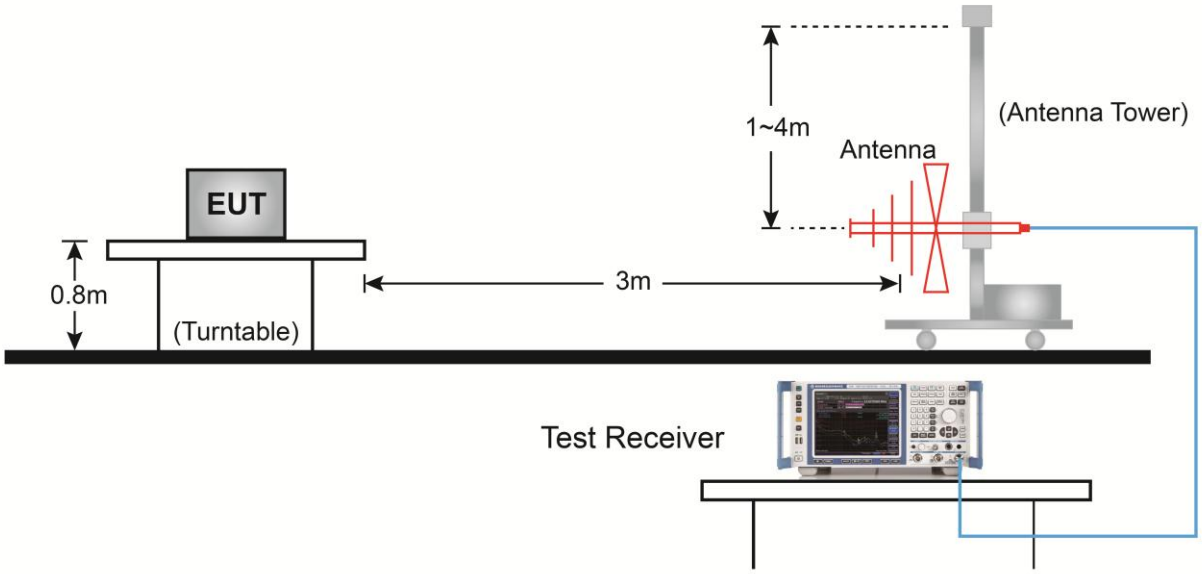
5. Sweep time = auto

6. Trace mode = max hold

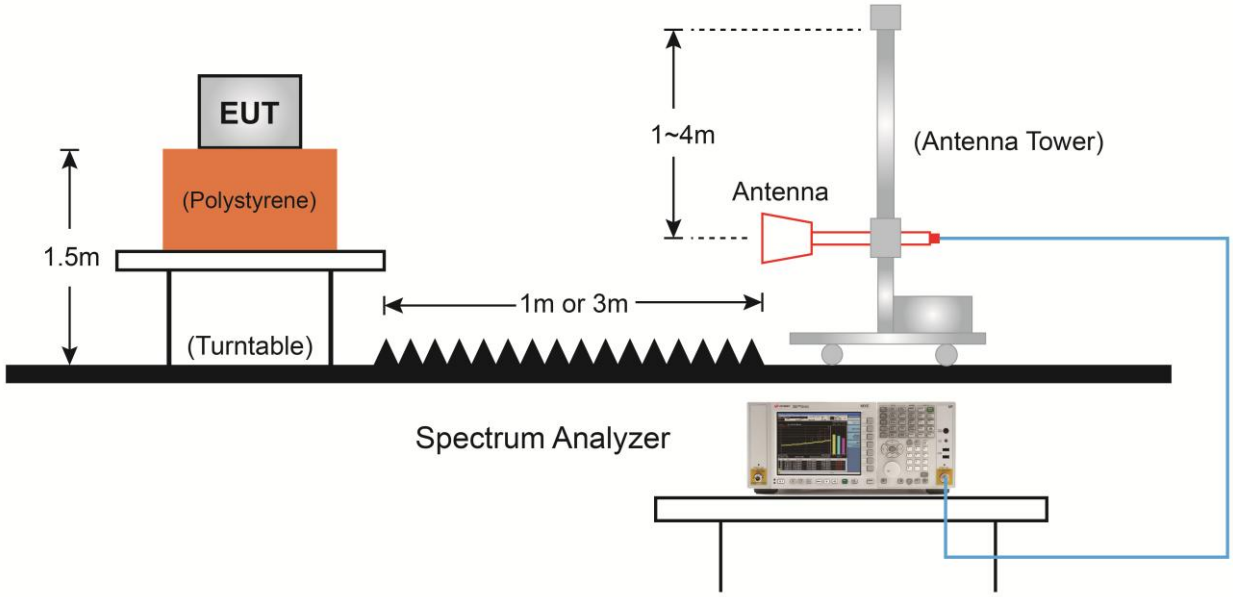
7. Trace was allowed to stabilize

7.6.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.6.5.Test Result

Product	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11b - Ant 0 + 1 (Non Beam-Forming Mode)	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
	3873.0	40.6	3.0	43.6	74.0	-30.4	Peak	Horizontal
	4825.0	41.7	6.1	47.8	74.0	-26.2	Peak	Horizontal
*	6253.0	42.6	8.6	51.2	87.8	-36.6	Peak	Horizontal
*	6797.0	37.6	9.8	47.4	87.8	-40.4	Peak	Horizontal
	4017.5	40.2	3.3	43.5	74.0	-30.5	Peak	Vertical
	4825.0	42.4	6.1	48.5	74.0	-25.5	Peak	Vertical
*	6006.5	39.2	7.9	47.1	87.8	-40.7	Peak	Vertical
*	6253.0	42.0	8.6	50.6	87.8	-37.2	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (117.8dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11b - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4221.5	40.3	3.8	44.1	74.0	-29.9	Peak	Horizontal
	4876.0	41.6	5.9	47.5	74.0	-26.5	Peak	Horizontal
*	6253.0	42.8	8.6	51.4	91.4	-40.0	Peak	Horizontal
*	6975.5	37.8	10.5	48.3	91.4	-43.1	Peak	Horizontal
	3992.0	39.5	3.4	42.9	74.0	-31.1	Peak	Vertical
	4876.0	43.2	5.9	49.1	74.0	-24.9	Peak	Vertical
*	6253.0	42.9	8.6	51.5	91.4	-39.9	Peak	Vertical
*	6984.0	37.9	10.6	48.5	91.4	-42.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (121.4dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11b - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4017.5	39.7	3.3	43.0	74.0	-31.0	Peak	Horizontal
	4927.0	42.9	6.1	49.0	74.0	-25.0	Peak	Horizontal
*	6253.0	42.0	8.6	50.6	90.3	-39.7	Peak	Horizontal
*	7120.0	37.9	11.3	49.2	90.3	-41.1	Peak	Horizontal
	4051.5	39.9	3.4	43.3	74.0	-30.7	Peak	Vertical
	4927.0	45.5	6.1	51.6	74.0	-22.4	Peak	Vertical
*	6253.0	42.9	8.6	51.5	90.3	-38.8	Peak	Vertical
*	7052.0	38.0	10.9	48.9	90.3	-41.4	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (120.3dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11g - Ant 0 + 1 (Non Beam-Forming Mode)	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
	3898.5	39.5	3.1	42.6	74.0	-31.4	Peak	Horizontal
	4816.5	42.1	5.9	48.0	74.0	-26.0	Peak	Horizontal
*	5938.5	38.3	7.7	46.0	85.3	-39.3	Peak	Horizontal
*	6253.0	41.9	8.6	50.5	85.3	-34.8	Peak	Horizontal
	4026.0	40.0	3.3	43.3	74.0	-30.7	Peak	Vertical
	4825.0	43.9	6.1	50.0	74.0	-24.0	Peak	Vertical
*	6253.0	42.2	8.6	50.8	85.3	-34.5	Peak	Vertical
*	6822.5	38.6	9.9	48.5	85.3	-36.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (115.3dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11g - Ant 0 + 1 (Non Beam-Forming Mode)	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
	3898.5	39.9	3.1	43.0	74.0	-31.0	Peak	Horizontal
	4876.0	42.7	5.9	48.6	74.0	-25.4	Peak	Horizontal
*	6253.0	41.9	8.6	50.5	88.6	-38.1	Peak	Horizontal
*	6559.0	38.2	9.6	47.8	88.6	-40.8	Peak	Horizontal
	4366.0	39.3	4.3	43.6	74.0	-30.4	Peak	Vertical
	4876.0	45.8	5.9	51.7	74.0	-22.3	Peak	Vertical
*	6253.0	41.8	8.6	50.4	88.6	-38.2	Peak	Vertical
*	7111.5	37.9	11.3	49.2	88.6	-39.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (118.6BμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11g - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4068.5	39.6	3.4	43.0	74.0	-31.0	Peak	Horizontal
	4918.5	42.6	6.1	48.7	74.0	-25.3	Peak	Horizontal
*	5734.5	38.1	7.4	45.5	86.6	-41.1	Peak	Horizontal
*	6253.0	41.9	8.6	50.5	86.6	-36.1	Peak	Horizontal
	4009.0	39.5	3.3	42.8	74.0	-31.2	Peak	Vertical
	4927.0	44.6	6.1	50.7	74.0	-23.3	Peak	Vertical
*	6253.0	42.4	8.6	51.0	86.6	-35.6	Peak	Vertical
*	7120.0	38.0	11.3	49.3	86.6	-37.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (116.6dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11n-HT20 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	3949.5	39.6	3.2	42.8	74.0	-31.2	Peak	Horizontal
	4816.5	41.3	5.9	47.2	74.0	-26.8	Peak	Horizontal
*	6253.0	41.8	8.6	50.4	86.5	-36.1	Peak	Horizontal
*	6771.5	37.7	9.9	47.6	86.5	-38.9	Peak	Horizontal
	3992.0	38.4	3.4	41.8	74.0	-32.2	Peak	Vertical
	4825.0	42.4	6.1	48.5	74.0	-25.5	Peak	Vertical
*	6253.0	41.7	8.6	50.3	86.5	-36.2	Peak	Vertical
*	7094.5	37.8	11.3	49.1	86.5	-37.4	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (116.5dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11n-HT20 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4264.0	39.1	4.0	43.1	74.0	-30.9	Peak	Horizontal
	4876.0	40.2	5.9	46.1	74.0	-27.9	Peak	Horizontal
*	6253.0	41.4	8.6	50.0	88.3	-38.3	Peak	Horizontal
*	7069.0	37.9	11.0	48.9	88.3	-39.4	Peak	Horizontal
	3992.0	39.7	3.4	43.1	74.0	-30.9	Peak	Vertical
	4876.0	40.5	5.9	46.4	74.0	-27.6	Peak	Vertical
*	6253.0	42.4	8.6	51.0	88.3	-37.3	Peak	Vertical
*	6907.5	38.3	10.2	48.5	88.3	-39.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.3dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11n-HT20 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4077.0	39.1	3.3	42.4	74.0	-31.6	Peak	Horizontal
	4918.5	42.7	6.1	48.8	74.0	-25.2	Peak	Horizontal
*	6253.0	42.5	8.6	51.1	86.9	-35.8	Peak	Horizontal
*	6890.5	38.2	10.0	48.2	86.9	-38.7	Peak	Horizontal
	4026.0	39.7	3.3	43.0	74.0	-31.0	Peak	Vertical
	4918.5	41.2	6.1	47.3	74.0	-26.7	Peak	Vertical
*	6253.0	41.6	8.6	50.2	86.9	-36.7	Peak	Vertical
*	6941.5	38.6	10.4	49.0	86.9	-37.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (116.9dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11n-HT40 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4009.0	40.3	3.3	43.6	74.0	-30.4	Peak	Horizontal
	4816.5	37.3	5.9	43.2	74.0	-30.8	Peak	Horizontal
*	6253.0	41.8	8.6	50.4	79.0	-28.6	Peak	Horizontal
*	6907.5	37.2	10.2	47.4	79.0	-31.6	Peak	Horizontal
	4017.5	39.9	3.3	43.2	74.0	-30.8	Peak	Vertical
	4842.0	39.0	5.9	44.9	74.0	-29.1	Peak	Vertical
*	6253.0	41.7	8.6	50.3	79.0	-28.7	Peak	Vertical
*	6720.5	38.1	9.6	47.7	79.0	-31.3	Peak	Vertical

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

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11n-HT40 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4145.0	39.3	3.5	42.8	74.0	-31.2	Peak	Horizontal
	4901.5	38.9	6.1	45.0	74.0	-29.0	Peak	Horizontal
*	6253.0	42.1	8.6	50.7	84.6	-33.9	Peak	Horizontal
*	7035.0	38.0	10.9	48.9	84.6	-35.7	Peak	Horizontal
	3873.0	39.6	3.0	42.6	74.0	-31.4	Peak	Vertical
	4876.0	39.0	5.9	44.9	74.0	-29.1	Peak	Vertical
*	6253.0	43.4	8.6	52.0	84.6	-32.6	Peak	Vertical
*	6737.5	37.9	9.8	47.7	84.6	-36.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (114.6dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11n-HT40 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4017.5	39.6	3.3	42.9	74.0	-31.1	Peak	Horizontal
	4893.0	40.1	6.0	46.1	74.0	-27.9	Peak	Horizontal
*	6253.0	41.0	8.6	49.6	83.4	-33.8	Peak	Horizontal
*	6576.0	37.4	9.7	47.1	83.4	-36.3	Peak	Horizontal
	3728.5	40.8	2.5	43.3	74.0	-30.7	Peak	Vertical
	4901.5	40.7	6.1	46.8	74.0	-27.2	Peak	Vertical
*	6253.0	41.5	8.6	50.1	83.4	-33.3	Peak	Vertical
*	7094.5	37.6	11.3	48.9	83.4	-34.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (113.4dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11ax-HE20 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4017.5	40.7	3.3	44.0	74.0	-30.0	Peak	Horizontal
	4825.0	40.0	6.1	46.1	74.0	-27.9	Peak	Horizontal
*	6253.0	41.7	8.6	50.3	85.9	-35.6	Peak	Horizontal
*	6916.0	37.8	10.3	48.1	85.9	-37.8	Peak	Horizontal
	3830.5	39.8	2.9	42.7	74.0	-31.3	Peak	Vertical
	4825.0	41.0	6.1	47.1	74.0	-26.9	Peak	Vertical
*	5887.5	37.8	7.6	45.4	85.9	-40.5	Peak	Vertical
*	6253.0	42.4	8.6	51.0	85.9	-34.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (115.9dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11ax-HE20 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4017.5	39.7	3.3	43.0	74.0	-31.0	Peak	Horizontal
	4884.5	40.3	5.9	46.2	74.0	-27.8	Peak	Horizontal
*	6253.0	42.2	8.6	50.8	88.7	-37.9	Peak	Horizontal
*	7111.5	37.6	11.3	48.9	88.7	-39.8	Peak	Horizontal
	4026.0	39.6	3.3	42.9	74.0	-31.1	Peak	Vertical
	4884.5	40.2	5.9	46.1	74.0	-27.9	Peak	Vertical
*	6253.0	41.9	8.6	50.5	88.7	-38.2	Peak	Vertical
*	7128.5	37.3	11.3	48.6	88.7	-40.1	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (118.7dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11ax-HE20 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4221.5	38.7	3.8	42.5	74.0	-31.5	Peak	Horizontal
	4918.5	41.5	6.1	47.6	74.0	-26.4	Peak	Horizontal
*	6253.0	41.2	8.6	49.8	87.4	-37.6	Peak	Horizontal
*	6780.0	37.4	9.9	47.3	87.4	-40.1	Peak	Horizontal
	4068.5	39.0	3.4	42.4	74.0	-31.6	Peak	Vertical
	4918.5	41.3	6.1	47.4	74.0	-26.6	Peak	Vertical
*	5828.0	36.6	7.8	44.4	87.4	-43.0	Peak	Vertical
*	6253.0	42.2	8.6	50.8	87.4	-36.6	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (117.4dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11ax-HE40 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	3839.0	39.2	2.9	42.1	74.0	-31.9	Peak	Horizontal
	4842.0	38.9	5.9	44.8	74.0	-29.2	Peak	Horizontal
*	6253.0	42.1	8.6	50.7	80.0	-29.3	Peak	Horizontal
*	6907.5	36.9	10.2	47.1	80.0	-32.9	Peak	Horizontal
	3992.0	39.6	3.4	43.0	74.0	-31.0	Peak	Vertical
	4986.5	36.7	6.4	43.1	74.0	-30.9	Peak	Vertical
*	6253.0	41.4	8.6	50.0	80.0	-30.0	Peak	Vertical
*	6805.5	37.4	9.8	47.2	80.0	-32.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (110.0dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11ax-HE40 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	4077.0	39.8	3.3	43.1	74.0	-30.9	Peak	Horizontal
	4884.5	39.4	5.9	45.3	74.0	-28.7	Peak	Horizontal
*	6253.0	41.5	8.6	50.1	86.9	-36.8	Peak	Horizontal
*	6737.5	37.4	9.8	47.2	86.9	-39.7	Peak	Horizontal
	4000.5	39.5	3.3	42.8	74.0	-31.2	Peak	Vertical
	4876.0	40.2	5.9	46.1	74.0	-27.9	Peak	Vertical
*	6253.0	42.5	8.6	51.1	86.9	-35.8	Peak	Vertical
*	7128.5	37.6	11.3	48.9	86.9	-38.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (116.9dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	David Lv	Relative Humidity	52%
Test Site	AC1	Test Date	2019/11/27
Test Mode	802.11ax-HE40 - Ant 0 + 1 (Non Beam-Forming Mode)	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
	3992.0	39.4	3.4	42.8	74.0	-31.2	Peak	Horizontal
	4901.5	39.2	6.1	45.3	74.0	-28.7	Peak	Horizontal
*	5743.0	37.1	7.4	44.5	85.2	-40.7	Peak	Horizontal
*	6253.0	42.0	8.6	50.6	85.2	-34.6	Peak	Horizontal
	3992.0	39.5	3.4	42.9	74.0	-31.1	Peak	Vertical
	4910.0	39.4	6.2	45.6	74.0	-28.4	Peak	Vertical
*	6253.0	41.4	8.6	50.0	85.2	-35.2	Peak	Vertical
*	7094.5	37.1	11.3	48.4	85.2	-36.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (115.2dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	Cloud Guo	Relative Humidity	52%
Test Site	AC1	Test Date	2019/12/11
Test Mode	802.11ax-HE20 - Ant 0 + 1 (Beam-Forming Mode)	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
	3949.5	39.7	3.2	42.9	74.0	-31.1	Peak	Horizontal
	4672.0	38.6	5.3	43.9	74.0	-30.1	Peak	Horizontal
*	5743.0	38.6	7.4	46.0	85.0	-39.0	Peak	Horizontal
*	6253.0	41.4	8.6	50.0	85.0	-35.0	Peak	Horizontal
	4026.0	39.9	3.3	43.2	74.0	-30.8	Peak	Vertical
	4867.5	39.1	5.9	45.0	74.0	-29.0	Peak	Vertical
*	6253.0	40.3	8.6	48.9	85.0	-36.1	Peak	Vertical
*	6950.0	37.0	10.5	47.5	85.0	-37.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (115.0dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	Cloud Guo	Relative Humidity	52%
Test Site	AC1	Test Date	2019/12/11
Test Mode	802.11ax-HE20 - Ant 0 + 1 (Beam-Forming Mode)	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
	3975.0	40.2	3.3	43.5	74.0	-30.5	Peak	Horizontal
	4876.0	40.4	5.9	46.3	74.0	-27.7	Peak	Horizontal
*	6253.0	42.5	8.6	51.1	86.1	-35.0	Peak	Horizontal
*	6873.5	39.2	10.1	49.3	86.1	-36.8	Peak	Horizontal
	4170.5	37.9	3.6	41.5	74.0	-32.5	Peak	Vertical
	4935.5	39.3	6.1	45.4	74.0	-28.6	Peak	Vertical
*	6159.5	36.6	8.2	44.8	86.1	-41.3	Peak	Vertical
*	6975.5	37.7	10.5	48.2	86.1	-37.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (116.1dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	Cloud Guo	Relative Humidity	52%
Test Site	AC1	Test Date	2019/12/11
Test Mode	802.11ax-HE20 - Ant 0 + 1 (Beam-Forming Mode)	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
	3890.0	40.0	3.0	43.0	74.0	-31.0	Peak	Horizontal
	4672.0	38.4	5.3	43.7	74.0	-30.3	Peak	Horizontal
*	6253.0	42.2	8.6	50.8	86.0	-35.2	Peak	Horizontal
*	6737.5	37.6	9.8	47.4	86.0	-38.6	Peak	Horizontal
	3779.5	40.6	2.8	43.4	74.0	-30.6	Peak	Vertical
	4901.5	39.1	6.1	45.2	74.0	-28.8	Peak	Vertical
*	6253.0	41.2	8.6	49.8	86.0	-36.2	Peak	Vertical
*	7094.5	38.4	11.3	49.7	86.0	-36.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (116.0dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	Cloud Guo	Relative Humidity	52%
Test Site	AC1	Test Date	2019/12/11
Test Mode	802.11ax-HE40 - Ant 0 + 1 (Beam-Forming Mode)	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
	3941.0	39.7	3.2	42.9	74.0	-31.1	Peak	Horizontal
	4791.0	40.2	5.8	46.0	74.0	-28.0	Peak	Horizontal
*	6253.0	42.0	8.6	50.6	82.5	-31.9	Peak	Horizontal
*	7026.5	37.8	10.9	48.7	82.5	-33.8	Peak	Horizontal
	3856.0	40.6	2.8	43.4	74.0	-30.6	Peak	Vertical
	4816.5	38.9	5.9	44.8	74.0	-29.2	Peak	Vertical
*	6253.0	42.0	8.6	50.6	82.5	-31.9	Peak	Vertical
*	6822.5	37.1	9.9	47.0	82.5	-35.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (112.5dBμV/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	GigaSpire	Temperature	25°C
Test Engineer	Cloud Guo	Relative Humidity	52%
Test Site	AC1	Test Date	2019/12/11
Test Mode	802.11ax-HE40 - Ant 0 + 1 (Beam-Forming Mode)	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
	3992.0	39.8	3.4	43.2	74.0	-30.8	Peak	Horizontal
	4901.5	39.1	6.1	45.2	74.0	-28.8	Peak	Horizontal
*	6253.0	41.5	8.6	50.1	82.7	-32.6	Peak	Horizontal
*	7094.5	37.7	11.3	49.0	82.7	-33.7	Peak	Horizontal
	3949.5	39.7	3.2	42.9	74.0	-31.1	Peak	Vertical
	5063.0	38.5	6.7	45.2	74.0	-28.8	Peak	Vertical
*	6253.0	39.6	8.6	48.2	82.7	-34.5	Peak	Vertical
*	7077.5	38.1	11.2	49.3	82.7	-33.4	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (112.7dBμV/m) or 15.209 which is higher.

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

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

Product	GigaSpire	Temperature	25°C
Test Engineer	Cloud Guo	Relative Humidity	52%
Test Site	AC1	Test Date	2019/12/11
Test Mode	802.11ax-HE40 - Ant 0 + 1 (Beam-Forming Mode)	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
	3813.5	40.3	2.8	43.1	74.0	-30.9	Peak	Horizontal
	4995.0	39.0	6.4	45.4	74.0	-28.6	Peak	Horizontal
*	6253.0	41.8	8.6	50.4	82.1	-31.7	Peak	Horizontal
*	7018.0	37.9	11.0	48.9	82.1	-33.2	Peak	Horizontal
	3864.5	39.7	2.9	42.6	74.0	-31.4	Peak	Vertical
	4672.0	40.6	5.3	45.9	74.0	-28.1	Peak	Vertical
*	6253.0	40.6	8.6	49.2	82.1	-32.9	Peak	Vertical
*	6848.0	38.1	10.0	48.1	82.1	-34.0	Peak	Vertical

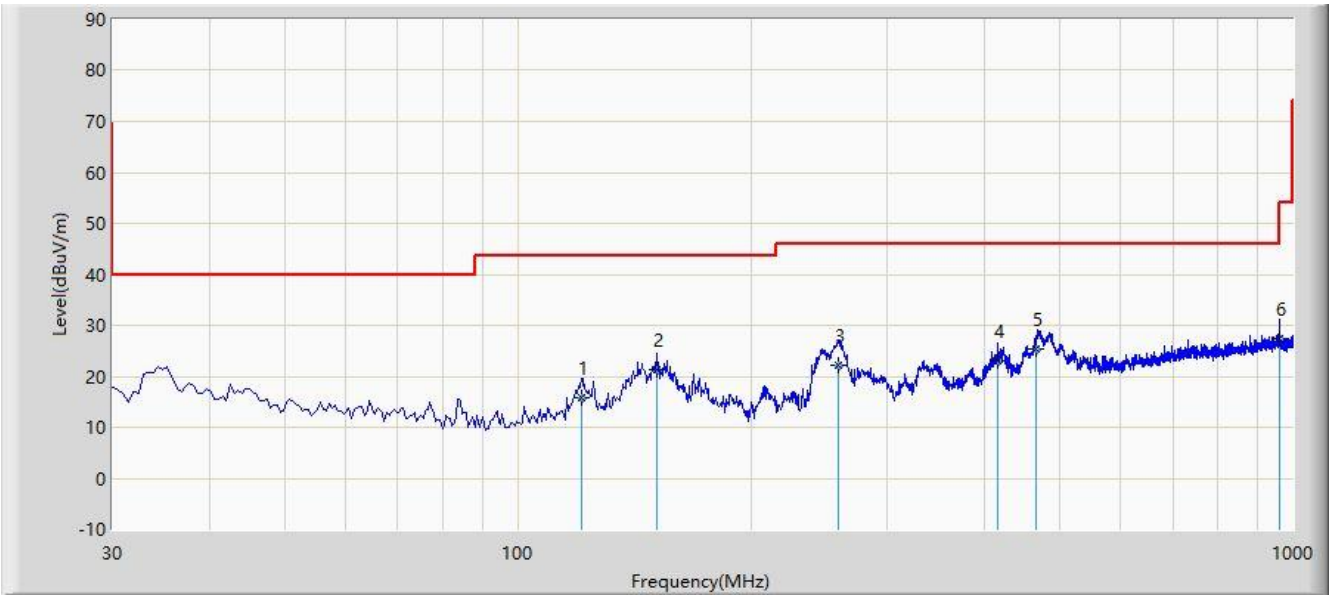
Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (112.1dBμV/m) or 15.209 which is higher.

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

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

The Worst Case of Radiated Emission below 1GHz:

Site: AC1	Time: 2019/11/29 - 15:00
Limit: FCC_Part15.209_RSE(3m)	Engineer: Dillon Diao
Probe: AC1_VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Worst Case Mode: There is the worst case within frequency range 30MHz~1GHz.	



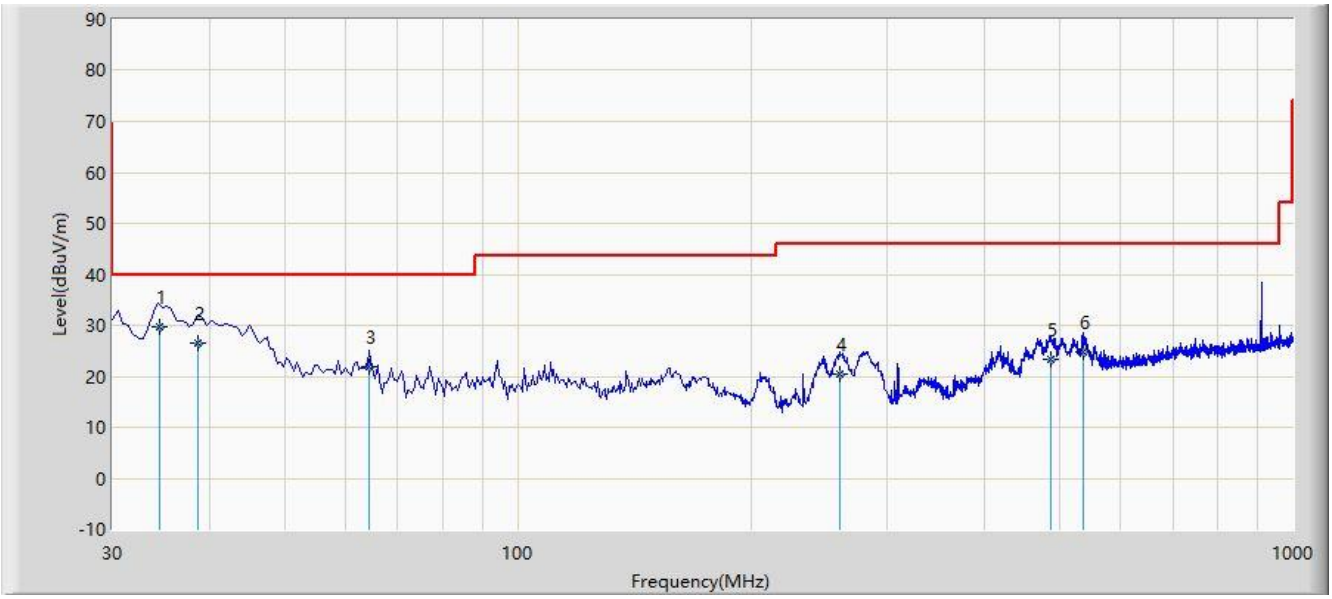
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			120.680	15.813	2.580	-27.687	43.500	13.233	QP
2			151.250	21.445	6.200	-22.055	43.500	15.245	QP
3			258.930	22.199	9.030	-23.801	46.000	13.169	QP
4			416.080	23.014	6.040	-22.986	46.000	16.974	QP
5		*	467.400	25.360	7.300	-20.640	46.000	18.060	QP
6			960.200	27.462	2.480	-26.538	54.000	24.982	QP

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

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

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

Site: AC1	Time: 2019/11/29 - 15:04
Limit: FCC_Part15.209_RSE(3m)	Engineer: Dillon Diao
Probe: AC1_VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: GigaSpire	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)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	34.450	29.593	15.690	-10.407	40.000	13.904	QP
2			38.750	26.466	12.040	-13.534	40.000	14.425	QP
3			64.450	21.878	9.300	-18.122	40.000	12.578	QP
4			259.840	20.478	7.300	-25.522	46.000	13.179	QP
5			487.850	23.359	5.030	-22.641	46.000	18.328	QP
6			537.800	24.715	5.380	-21.285	46.000	19.336	QP

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

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

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

7.7. Radiated Restricted Band Edge Measurement

7.7.1.Test Limit

For 15.205 requirement:

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

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1] 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	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

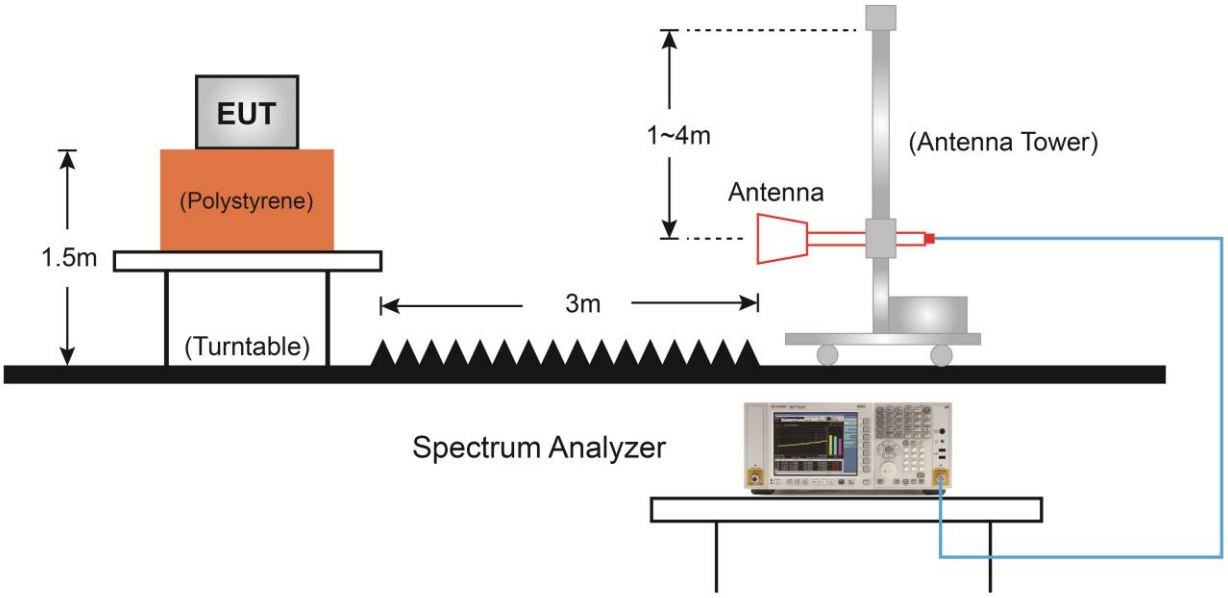
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

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 ≥ 98%, set VBW = 10 Hz.

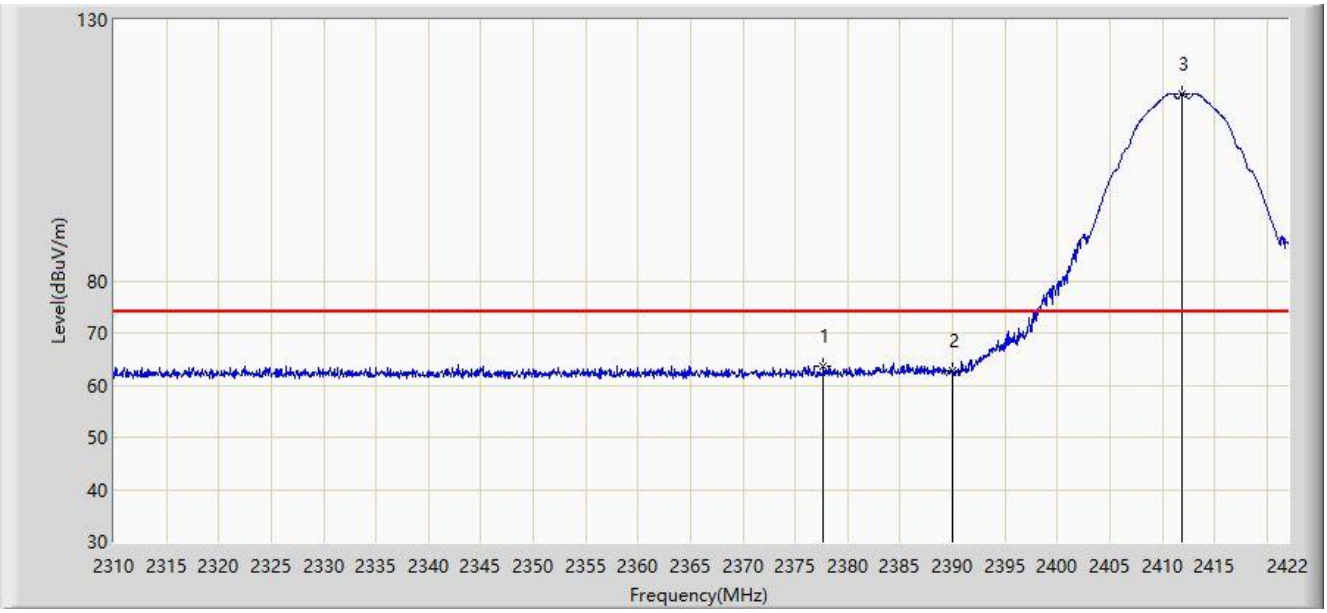
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.7.4.Test Setup



7.7.5.Test Result

Site: AC1	Time: 2019/12/12 - 23:22
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz (Non Beam-Forming Mode)	

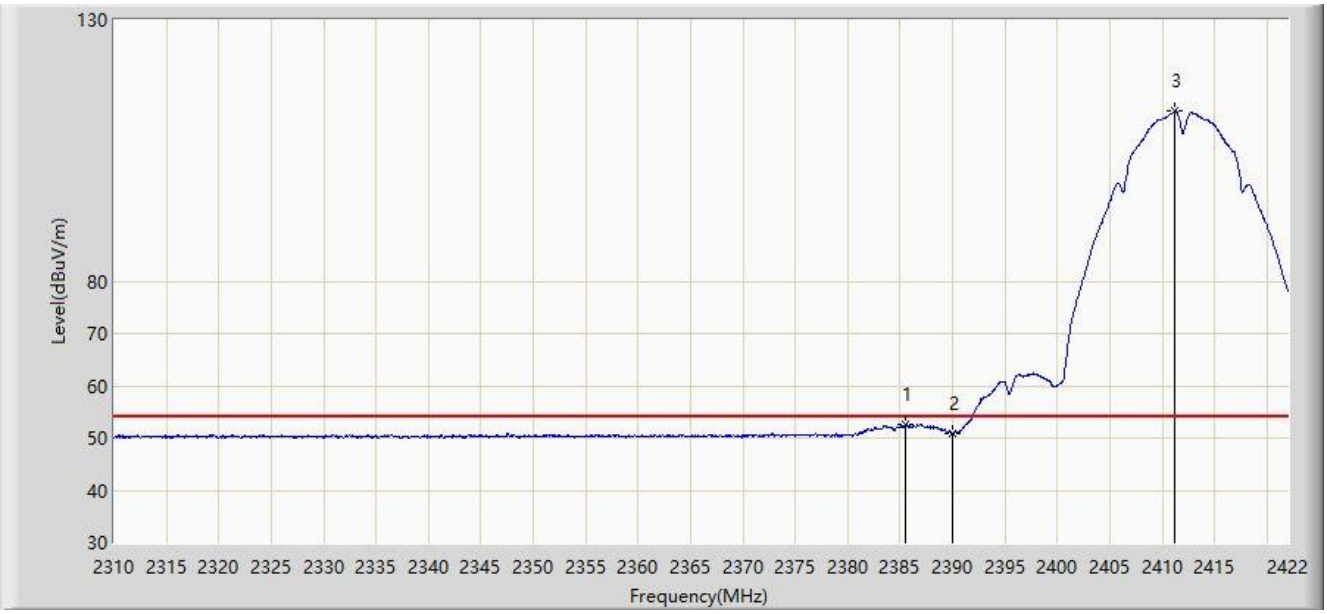


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2377.704	63.752	64.869	-10.248	74.000	-1.117	PK
2			2390.000	62.701	63.782	-11.299	74.000	-1.081	PK
3		*	2411.864	115.750	116.773	N/A	N/A	-1.023	PK

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

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

Site: AC1	Time: 2019/12/12 - 23:23
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz (Non Beam-Forming Mode)	

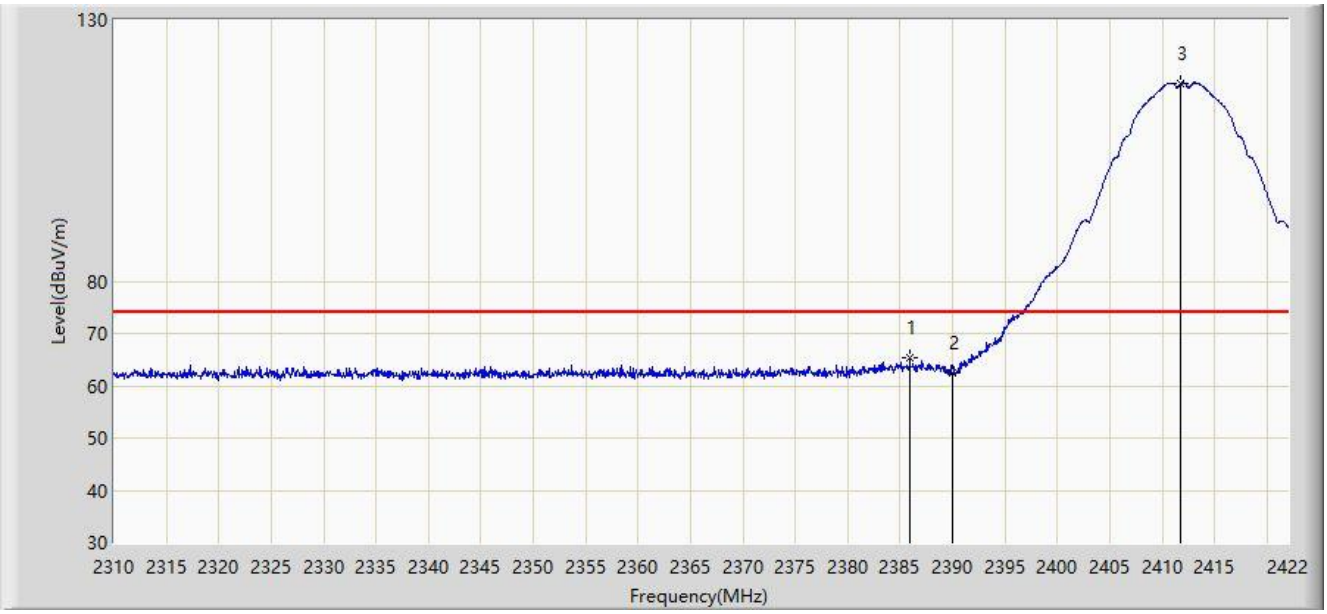


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2385.544	52.565	53.659	-1.435	54.000	-1.095	AV
2			2390.000	50.831	51.912	-3.169	54.000	-1.081	AV
3		*	2411.192	112.509	113.534	N/A	N/A	-1.024	AV

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

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

Site: AC1	Time: 2019/12/12 - 23:21
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz (Non Beam-Forming Mode)	

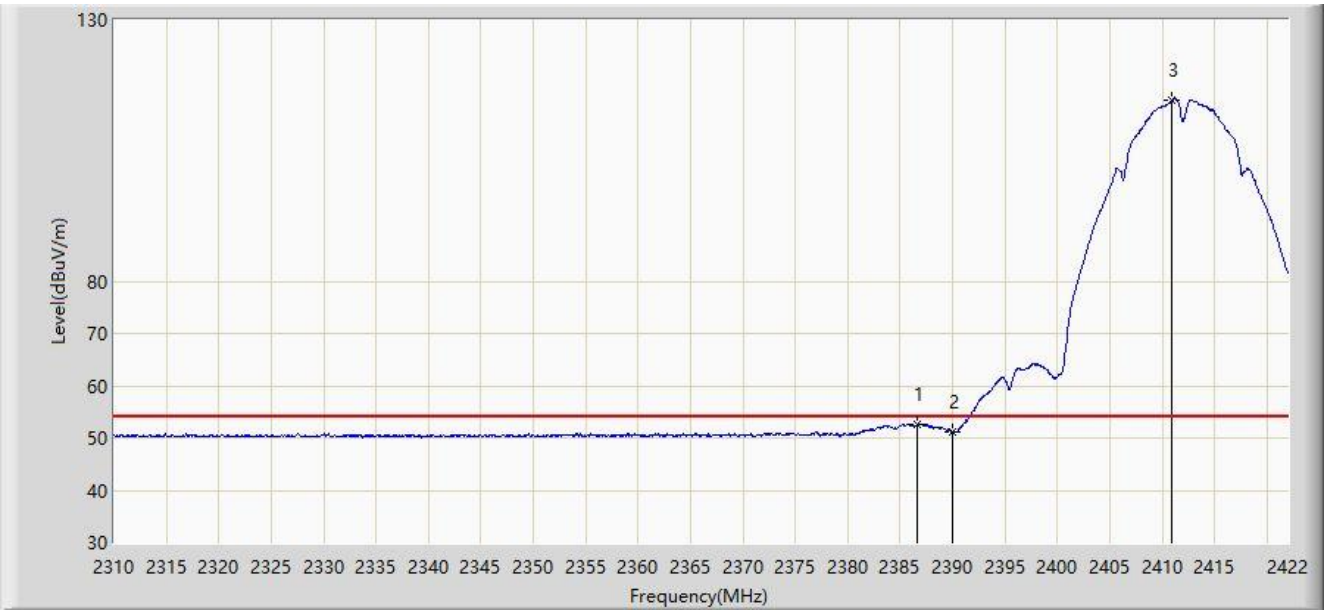


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2385.936	65.371	66.464	-8.629	74.000	-1.093	PK
2			2390.000	62.409	63.490	-11.591	74.000	-1.081	PK
3		*	2411.808	117.820	118.843	N/A	N/A	-1.023	PK

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

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

Site: AC1	Time: 2019/12/12 - 23:20
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz (Non Beam-Forming Mode)	

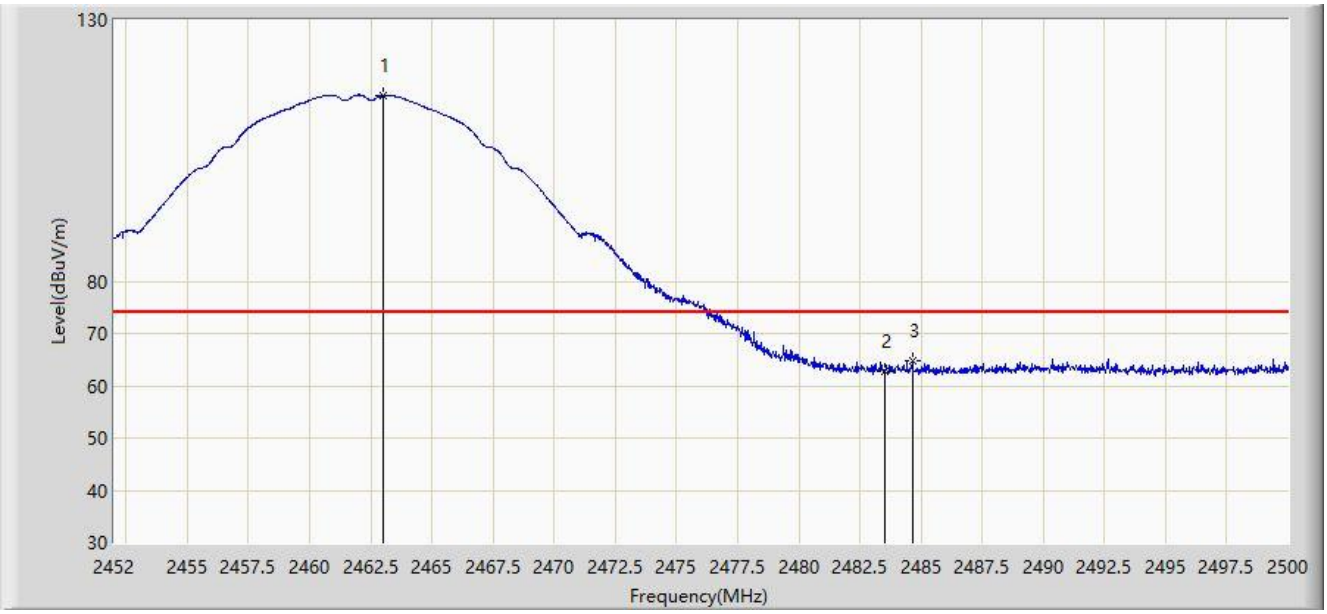


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2386.664	52.518	53.609	-1.482	54.000	-1.091	AV
2			2390.000	51.274	52.355	-2.726	54.000	-1.081	AV
3		*	2410.968	114.635	115.660	N/A	N/A	-1.025	AV

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

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

Site: AC1	Time: 2019/12/12 - 23:28
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz (Non Beam-Forming Mode)	

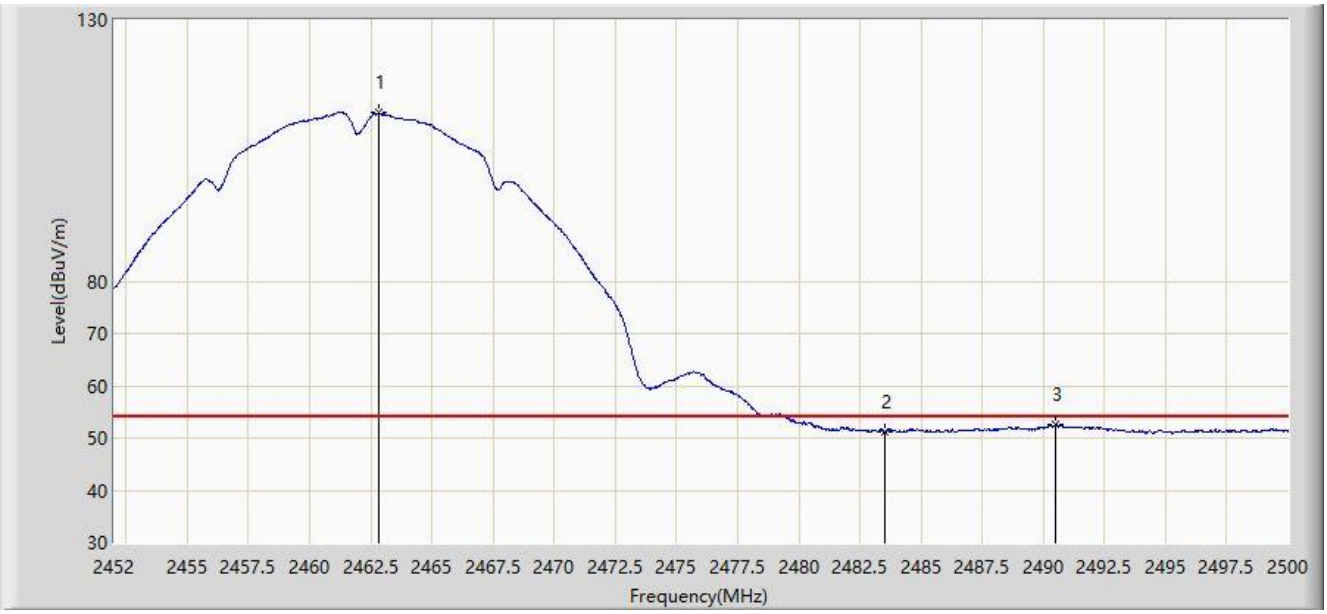


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.992	115.561	116.529	N/A	N/A	-0.968	PK
2			2483.500	62.789	63.820	-11.211	74.000	-1.031	PK
3			2484.640	64.655	65.682	-9.345	74.000	-1.027	PK

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

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

Site: AC1	Time: 2019/12/12 - 23:30
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz (Non Beam-Forming Mode)	

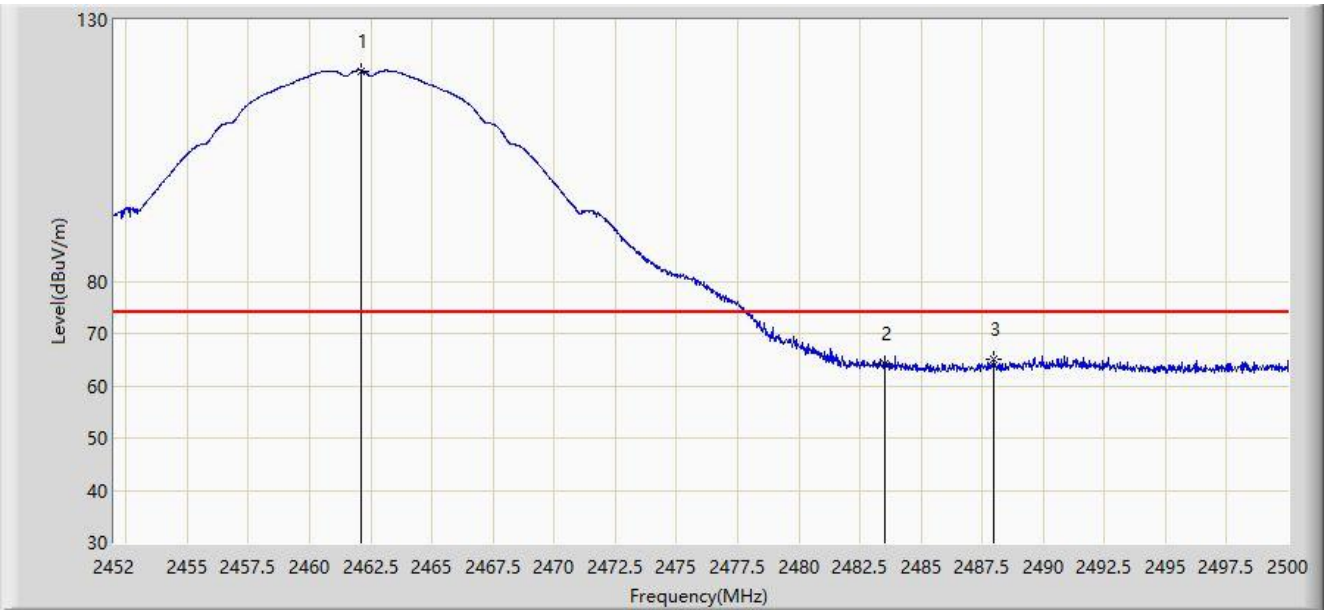


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.800	112.178	113.145	N/A	N/A	-0.967	AV
2			2483.500	51.220	52.251	-2.780	54.000	-1.031	AV
3			2490.472	52.540	53.546	-1.460	54.000	-1.005	AV

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

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

Site: AC1	Time: 2019/12/12 - 23:25
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz (Non Beam-Forming Mode)	

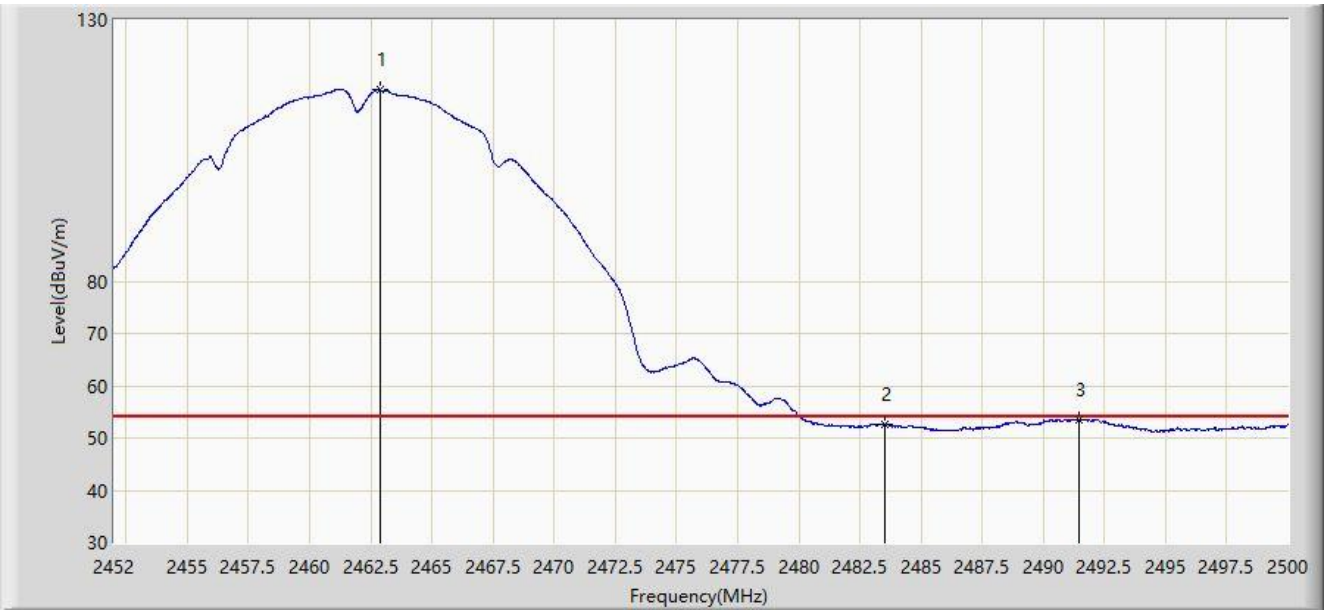


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.128	120.254	121.218	N/A	N/A	-0.963	PK
2			2483.500	64.294	65.325	-9.706	74.000	-1.031	PK
3			2487.952	64.973	65.988	-9.027	74.000	-1.015	PK

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

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

Site: AC1	Time: 2019/12/12 - 23:28
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz (Non Beam-Forming Mode)	

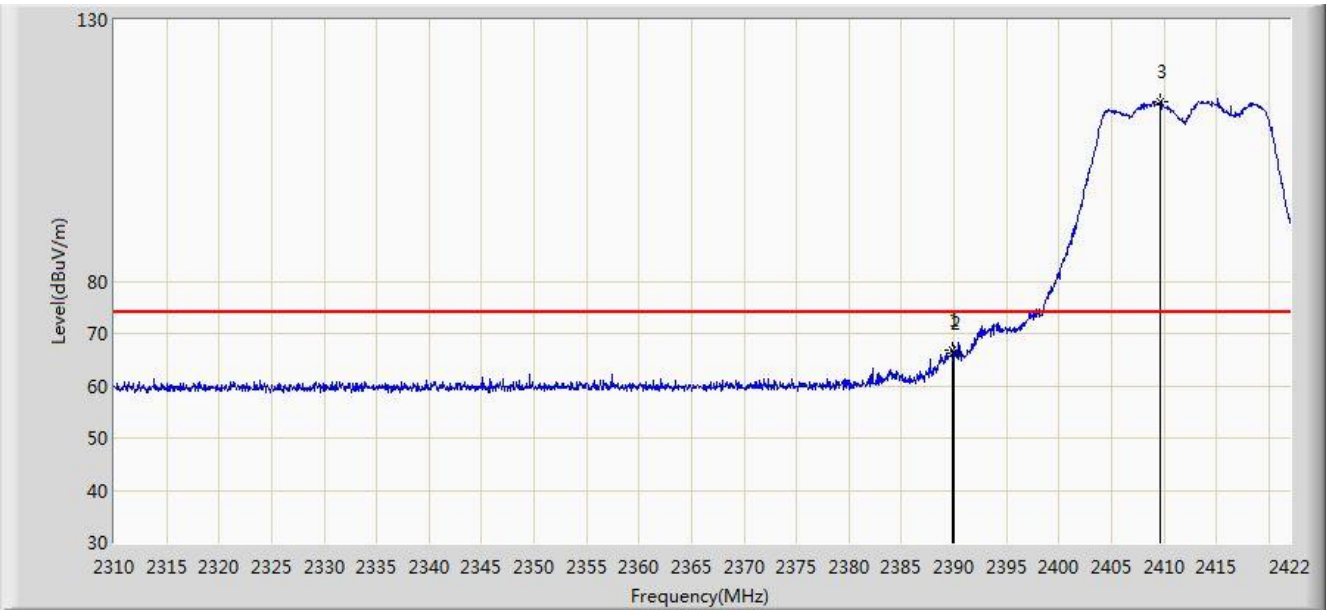


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.872	116.538	117.506	N/A	N/A	-0.968	AV
2			2483.500	52.701	53.732	-1.299	54.000	-1.031	AV
3			2491.480	53.595	54.597	-0.405	54.000	-1.002	AV

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

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

Site: AC1	Time: 2019/11/26 - 20:13
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz (Non Beam-Forming Mode)	

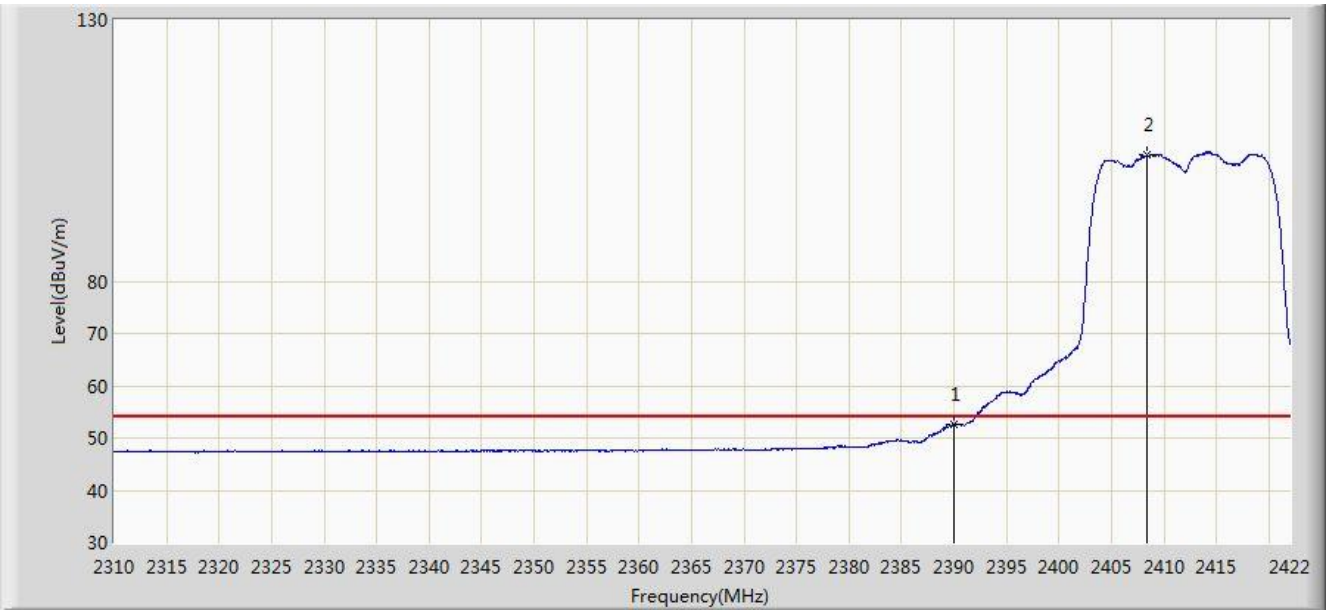


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.856	66.850	34.778	-7.150	74.000	32.072	PK
2			2390.000	66.234	34.162	-7.766	74.000	32.072	PK
3		*	2409.624	114.322	82.242	N/A	N/A	32.080	PK

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

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

Site: AC1	Time: 2019/11/26 - 20:11
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz (Non Beam-Forming Mode)	

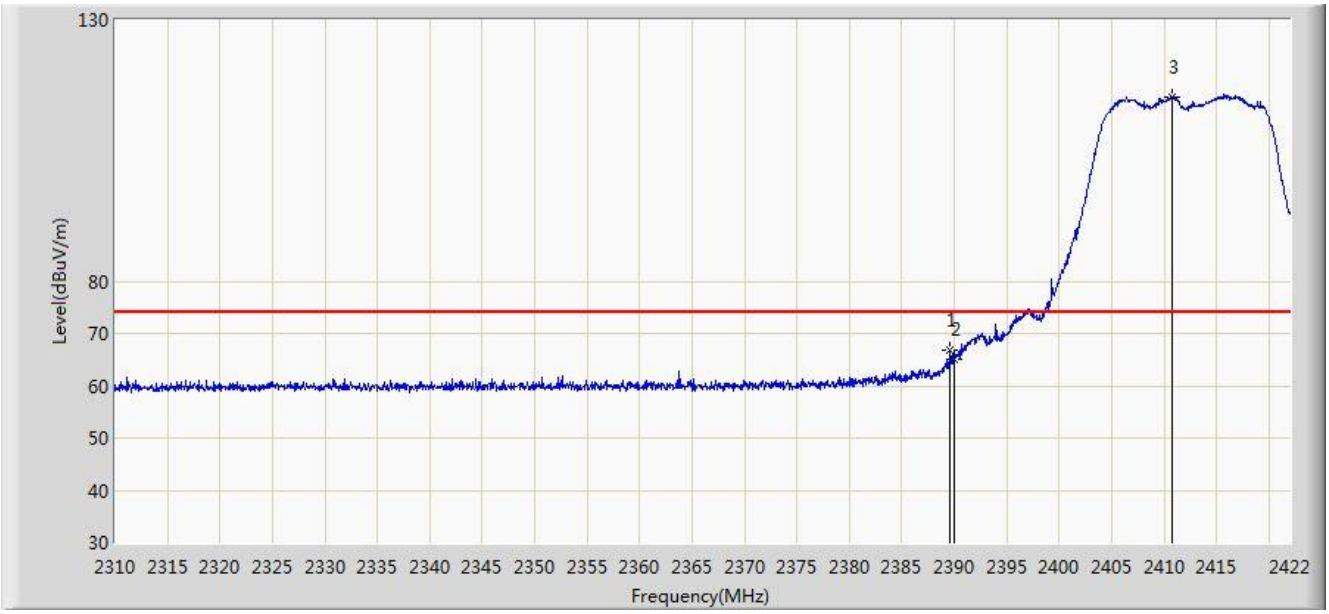


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	52.481	20.409	-1.519	54.000	32.072	AV
2		*	2408.448	104.090	72.011	N/A	N/A	32.079	AV

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

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

Site: AC1	Time: 2019/11/26 - 20:14
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz (Non Beam-Forming Mode)	

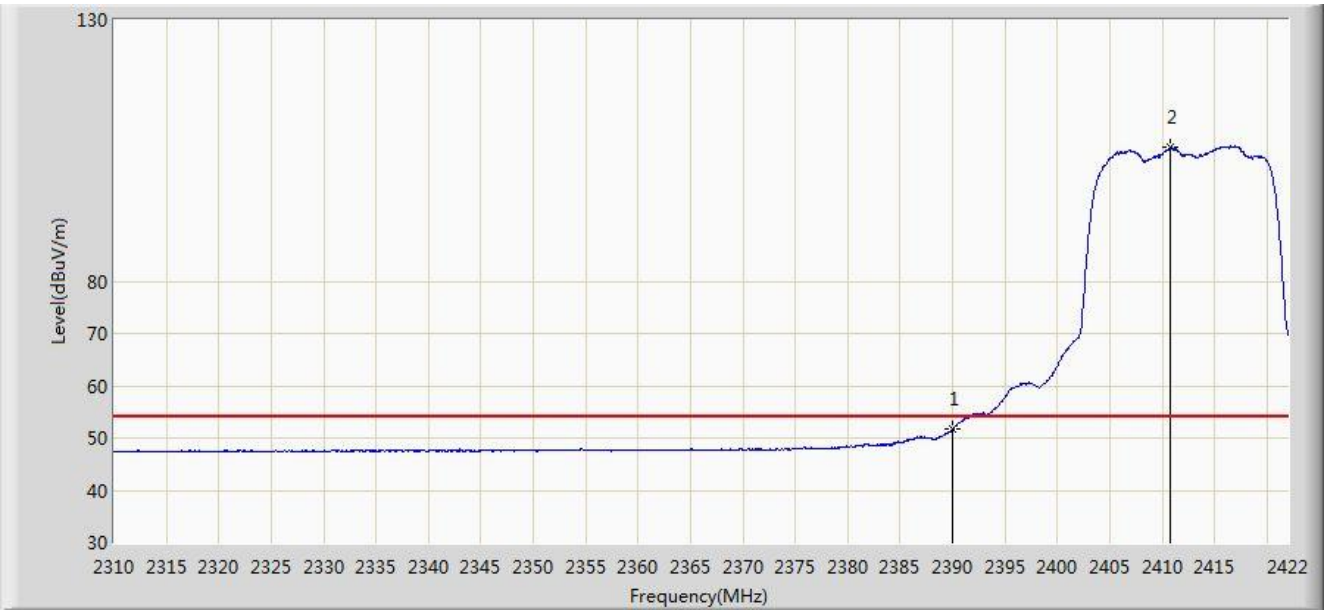


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.632	66.680	34.608	-7.320	74.000	32.072	PK
2			2390.000	65.151	33.079	-8.849	74.000	32.072	PK
3		*	2410.744	115.296	83.215	N/A	N/A	32.080	PK

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

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

Site: AC1	Time: 2019/11/26 - 20:16
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz (Non Beam-Forming Mode)	

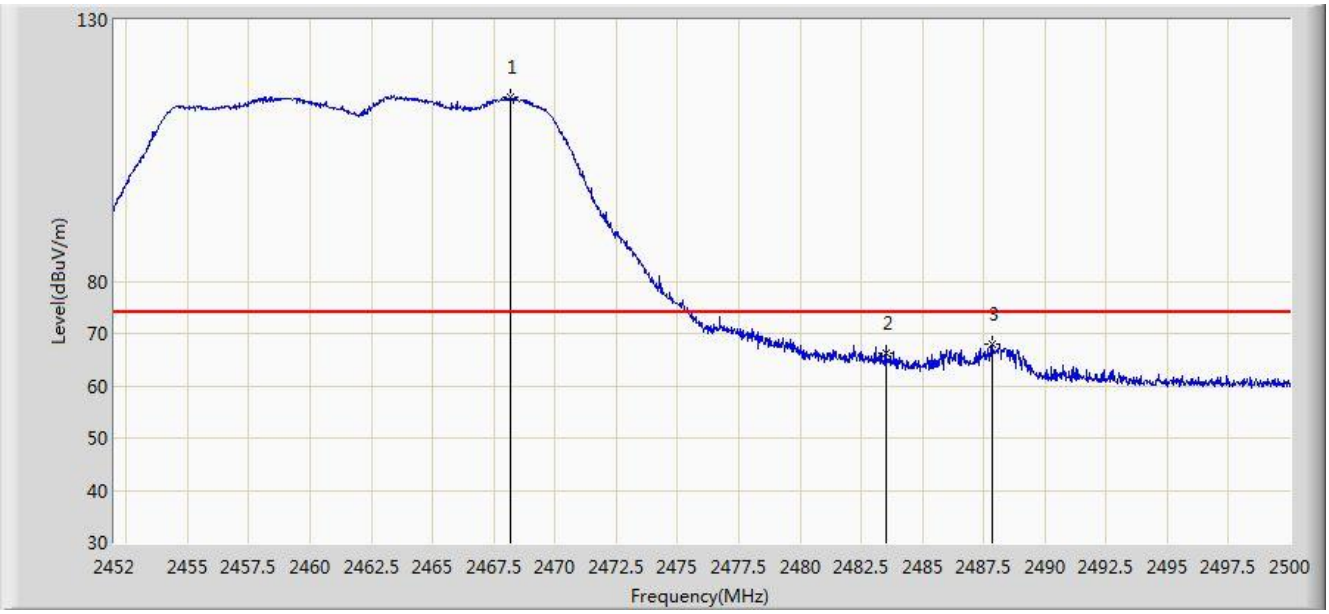


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	51.705	19.633	-2.295	54.000	32.072	AV
2		*	2410.800	105.625	73.544	N/A	N/A	32.080	AV

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

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

Site: AC1	Time: 2019/11/26 - 20:24
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz (Non Beam-Forming Mode)	

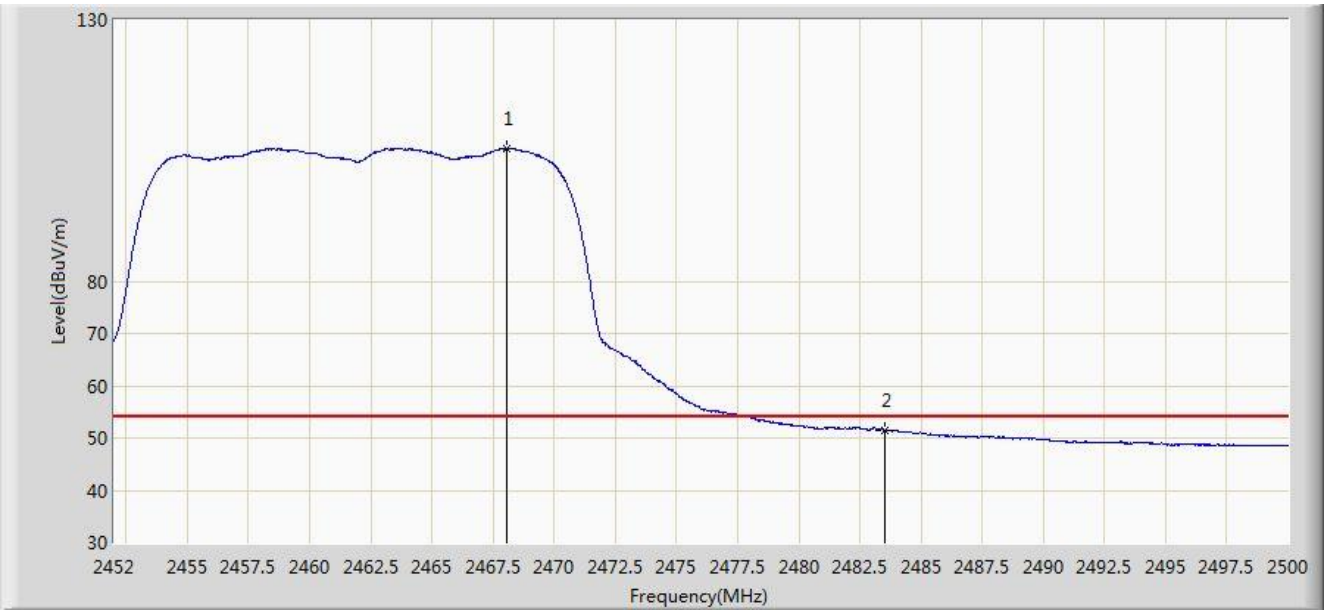


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2468.152	115.139	83.071	N/A	N/A	32.068	PK
2			2483.500	66.136	34.099	-7.864	74.000	32.037	PK
3			2487.856	68.071	36.042	-5.929	74.000	32.028	PK

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

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

Site: AC1	Time: 2019/11/26 - 20:22
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz (Non Beam-Forming Mode)	

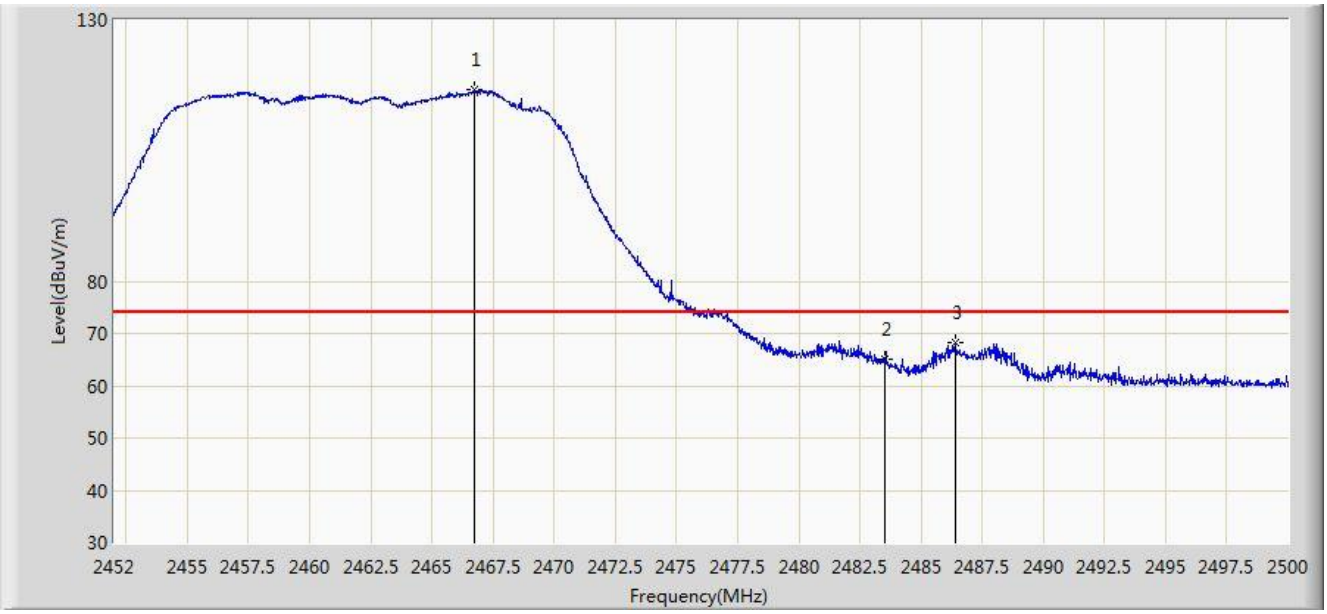


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2468.032	105.383	73.315	N/A	N/A	32.068	AV
2			2483.500	51.406	19.369	-2.594	54.000	32.037	AV

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

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

Site: AC1	Time: 2019/11/26 - 20:25
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz (Non Beam-Forming Mode)	

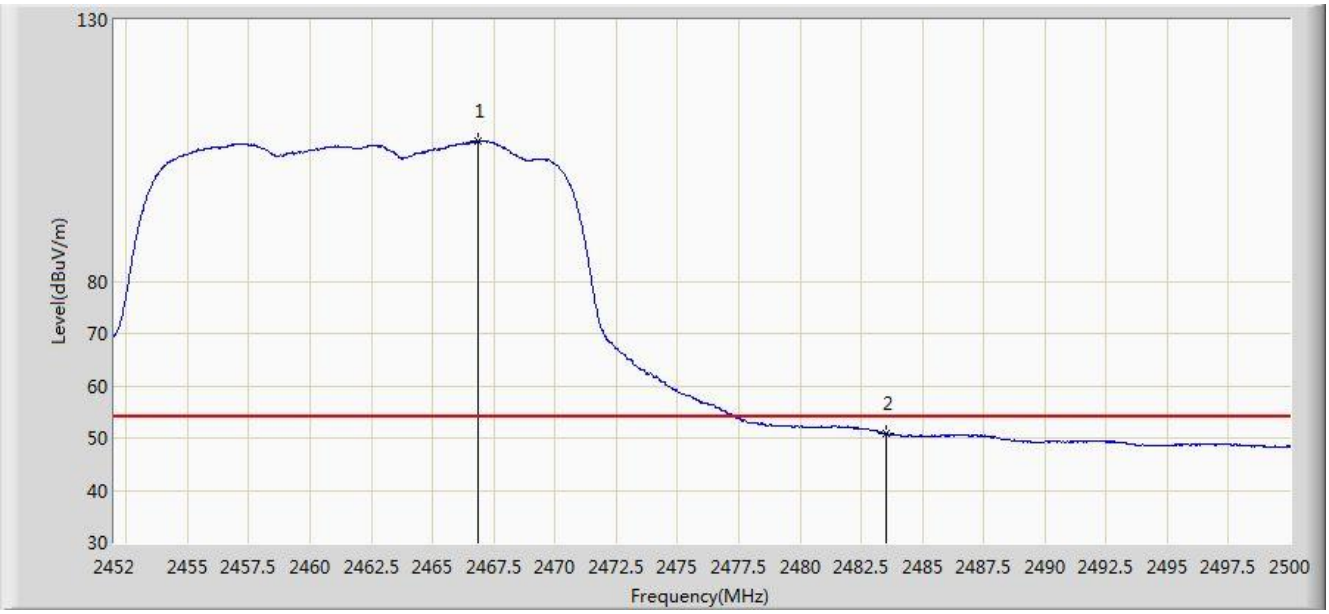


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2466.760	116.564	84.493	N/A	N/A	32.071	PK
2			2483.500	65.101	33.064	-8.899	74.000	32.037	PK
3			2486.392	68.210	36.178	-5.790	74.000	32.032	PK

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

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

Site: AC1	Time: 2019/11/26 - 20:27
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz (Non Beam-Forming Mode)	

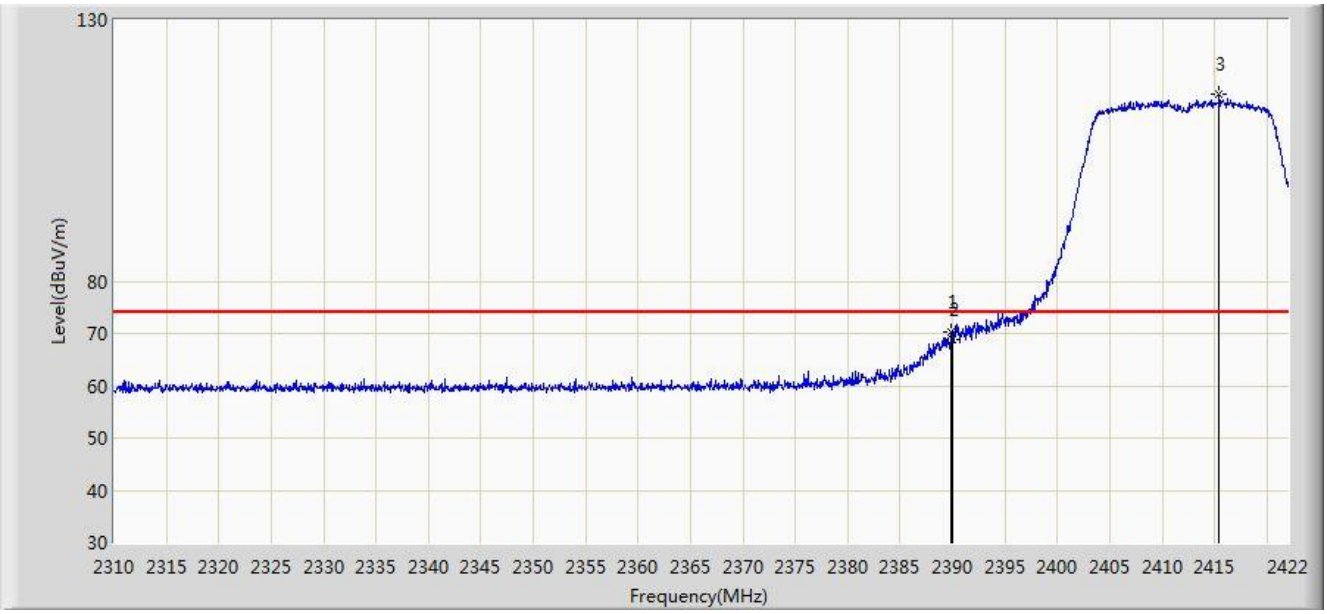


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2466.880	106.864	74.793	N/A	N/A	32.070	AV
2			2483.500	50.745	18.708	-3.255	54.000	32.037	AV

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

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

Site: AC1	Time: 2019/11/26 - 21:19
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz (Non Beam-Forming Mode)	

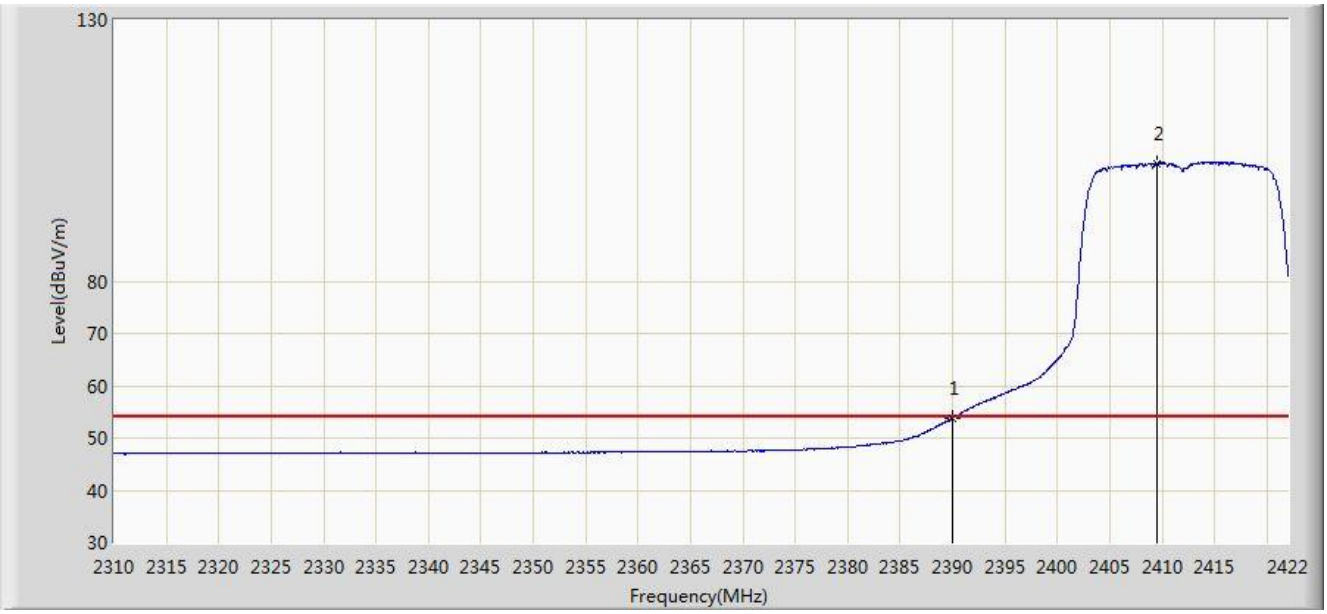


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.912	70.246	38.174	-3.754	74.000	32.072	PK
2			2390.000	68.933	36.861	-5.067	74.000	32.072	PK
3		*	2415.448	115.896	83.803	N/A	N/A	32.093	PK

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

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

Site: AC1	Time: 2019/11/26 - 21:17
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz (Non Beam-Forming Mode)	

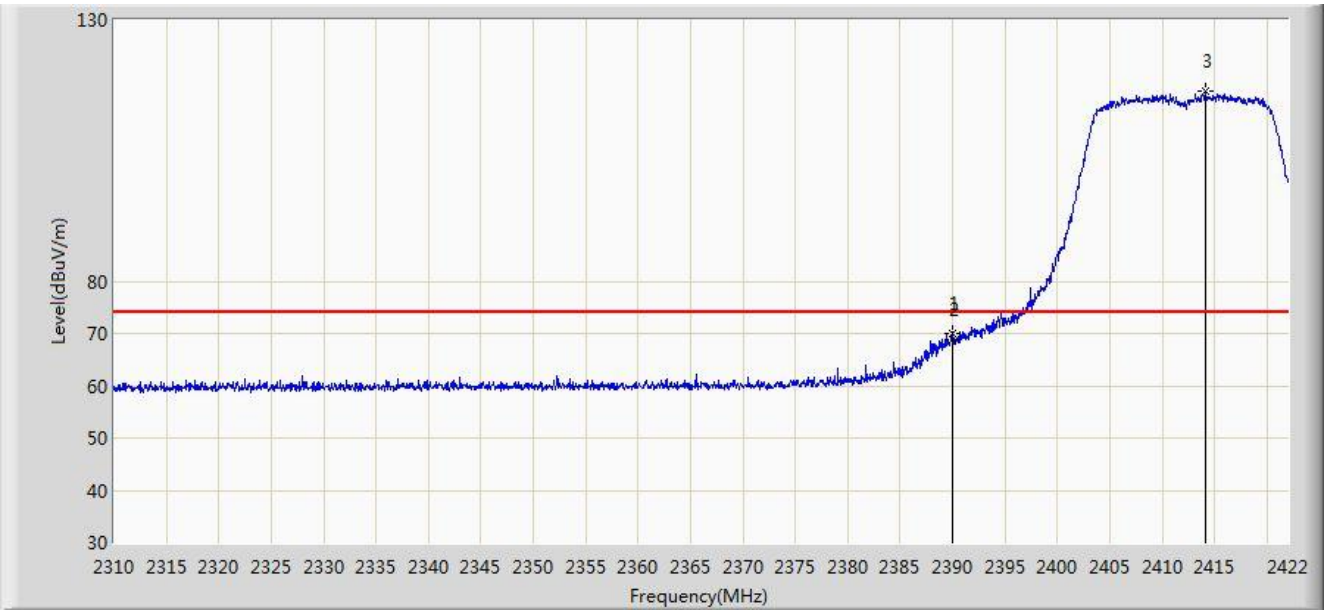


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	53.875	21.803	-0.125	54.000	32.072	AV
2		*	2409.568	102.534	70.454	N/A	N/A	32.080	AV

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

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

Site: AC1	Time: 2019/11/26 - 21:22
Limit: FCC_Part15_RSE(3m)	Engineer: Larry Yan
Probe: AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: GigaSpire	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz (Non Beam-Forming Mode)	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.968	69.903	37.831	-4.097	74.000	32.072	PK
2			2390.000	68.892	36.820	-5.108	74.000	32.072	PK
3		*	2414.160	116.495	84.406	N/A	N/A	32.089	PK

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

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