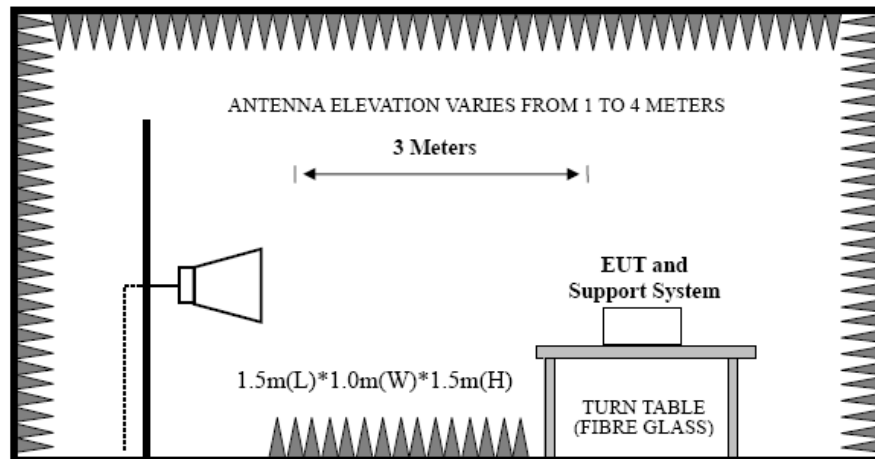


## 5 BAND EDGE COMPLIANCE TEST

### 5.1 Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits

### 5.2 Block Diagram of Test setup



### 5.3 Test Procedure

EUT was placed on a turn table, which is 1.5 m high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of emissions

Peak : RBW = 1MHz, VBW = 1MHz, Detector=PEAK detector, Sweep time = auto.

AV : RBW = 1MHz, VBW = 10Hz, Detector=PEAK detector, Sweep time = auto.

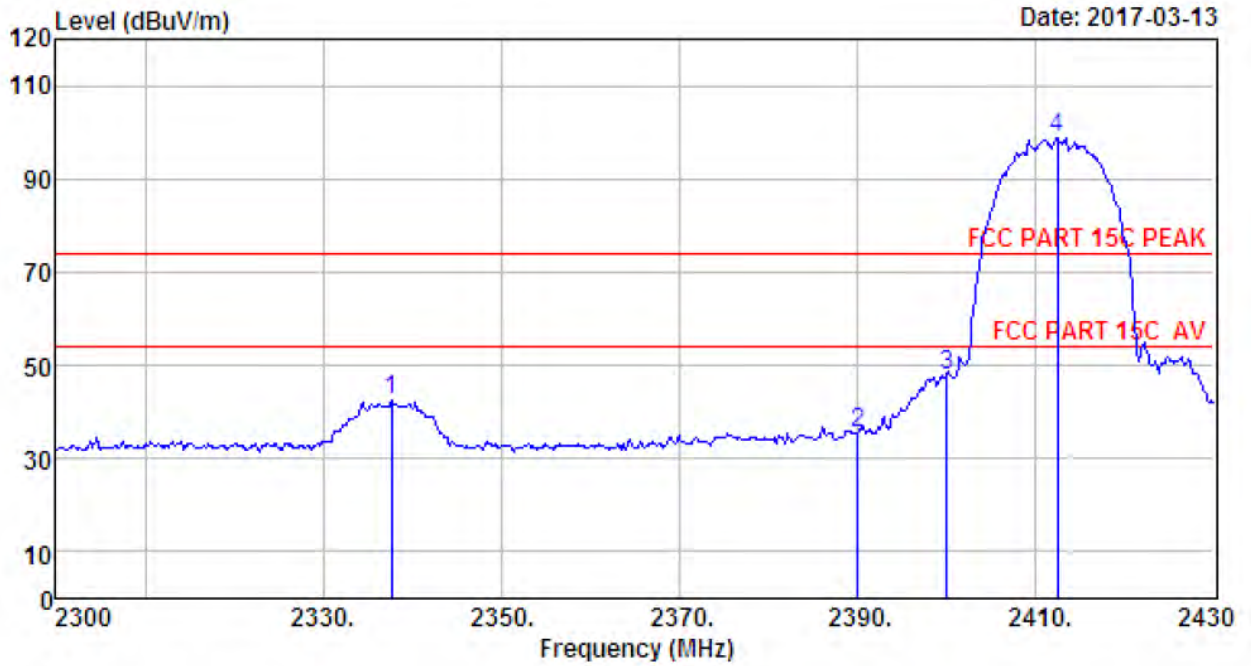
### 5.4 Test Result

Pass (The testing data was attached in the next pages.)

Note: 1、 For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

2、 The frequency 2412 MHz and 2462 MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

### 5.5 Test Data

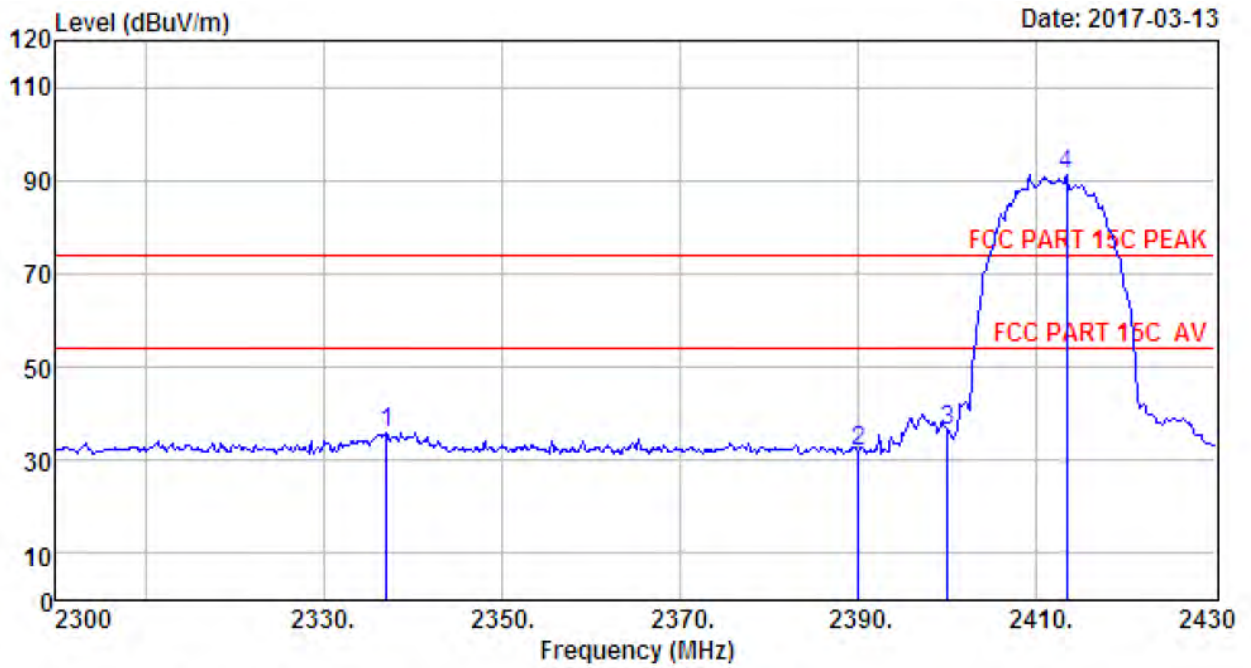


```

Site no.       : 1# 966 Chamber           Data no.  : 31
Dis. / Ant.   : 3m ANT 1-18G            Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C PEAK
Env. / Ins.   : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer     : Tony
EUT          : Big Blue 200
Power        : DC 25V From Adapter Input AC 120V/60Hz
M/N         : AR108A4BKA
Test Mode    : IEEE 802.11b CH1 2412TX
                Antenna 1
    
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2337.70	27.73	6.56	34.59	42.92	42.62	74.00	31.38	Peak
2	2390.00	27.64	6.62	34.62	35.72	35.36	74.00	38.64	Peak
3	2400.00	27.61	6.62	34.64	48.45	48.04	74.00	25.96	Peak
4	2412.45	27.60	6.64	34.64	99.32	98.92	74.00	-24.92	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



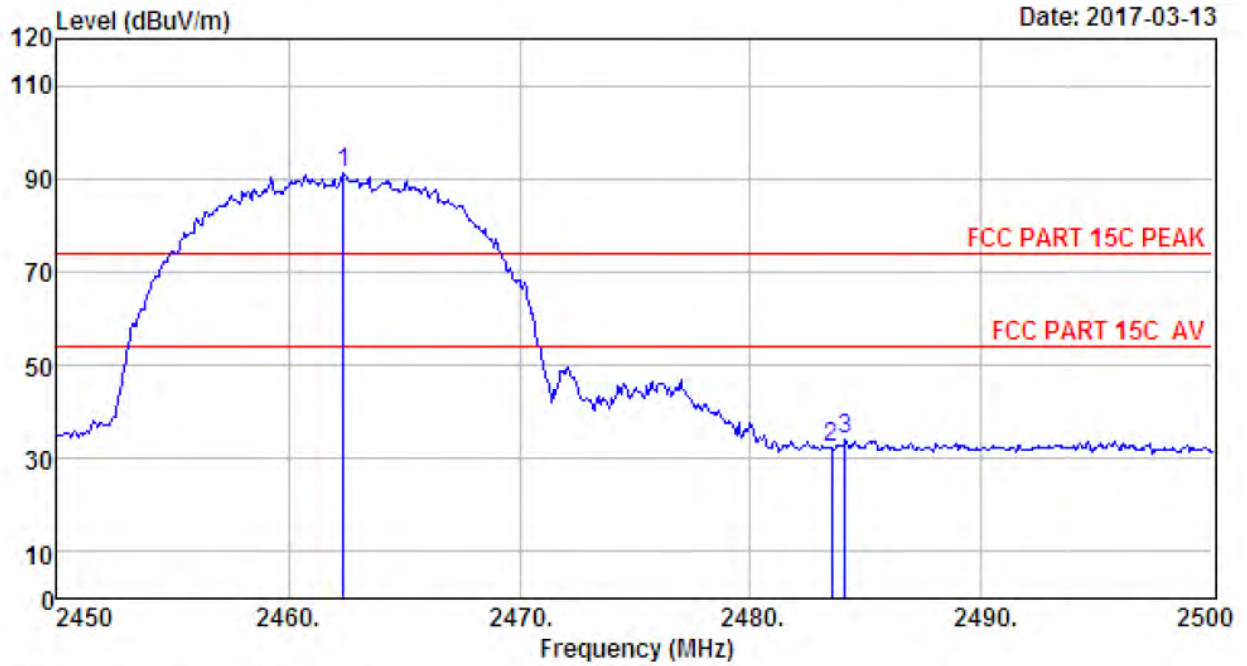
Date: 2017-03-13

```

Site no.       : 1# 966 Chamber           Data no.   : 32
Dis. / Ant.   : 3m ANT 1-18G           Ant. pol.  : VERTICAL
Limit         : FCC PART 15C PEAK
Env. / Ins.   : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer      : Tony
EUT           : Big Blue 200
Power         : DC 25V From Adapter Input AC 120V/60Hz
M/N           : AR108A4BKA
Test Mode     : IEEE 802.11b CH1 2412TX
                Antenna 1
    
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2337.05	27.73	6.56	34.59	36.36	36.06	74.00	37.94	Peak
2	2390.00	27.64	6.62	34.62	32.21	31.85	74.00	42.15	Peak
3	2400.00	27.61	6.62	34.64	36.87	36.46	74.00	37.54	Peak
4	2413.36	27.60	6.64	34.64	91.44	91.04	74.00	-17.04	Peak

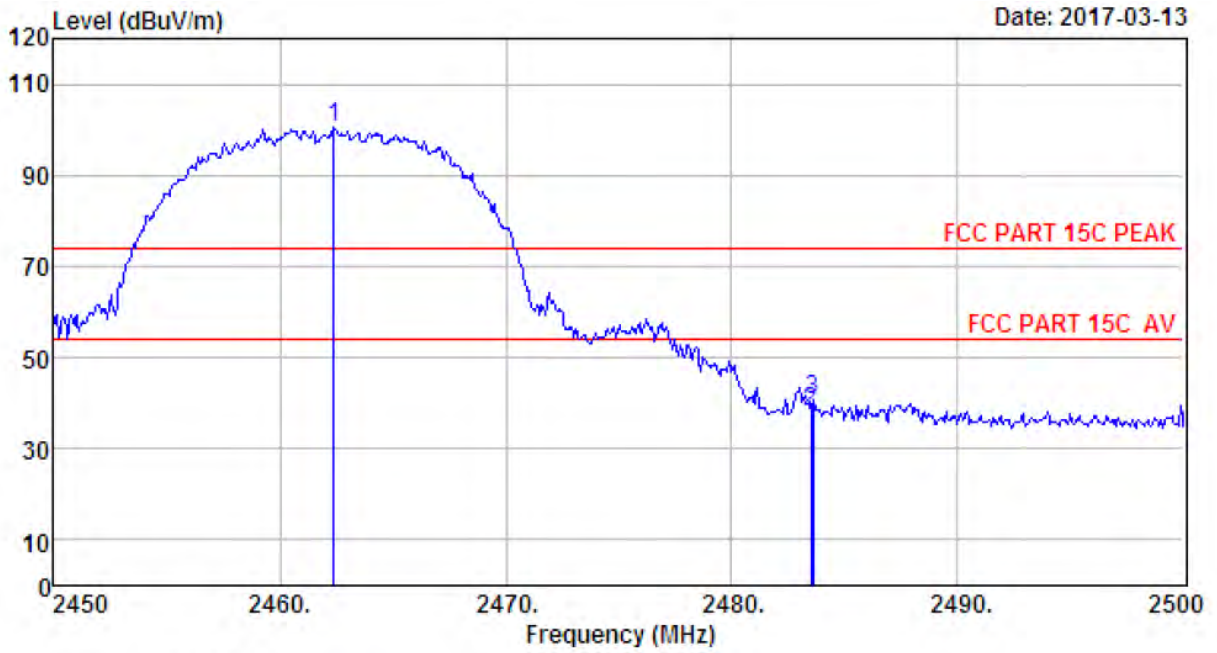
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 33  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11b CH11 2462TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2462.40	27.58	6.69	34.98	91.98	91.27	74.00	-17.27	Peak
2	2483.50	27.58	6.71	35.11	33.15	32.33	74.00	41.67	Peak
3	2484.10	27.58	6.71	35.11	34.76	33.94	74.00	40.06	Peak

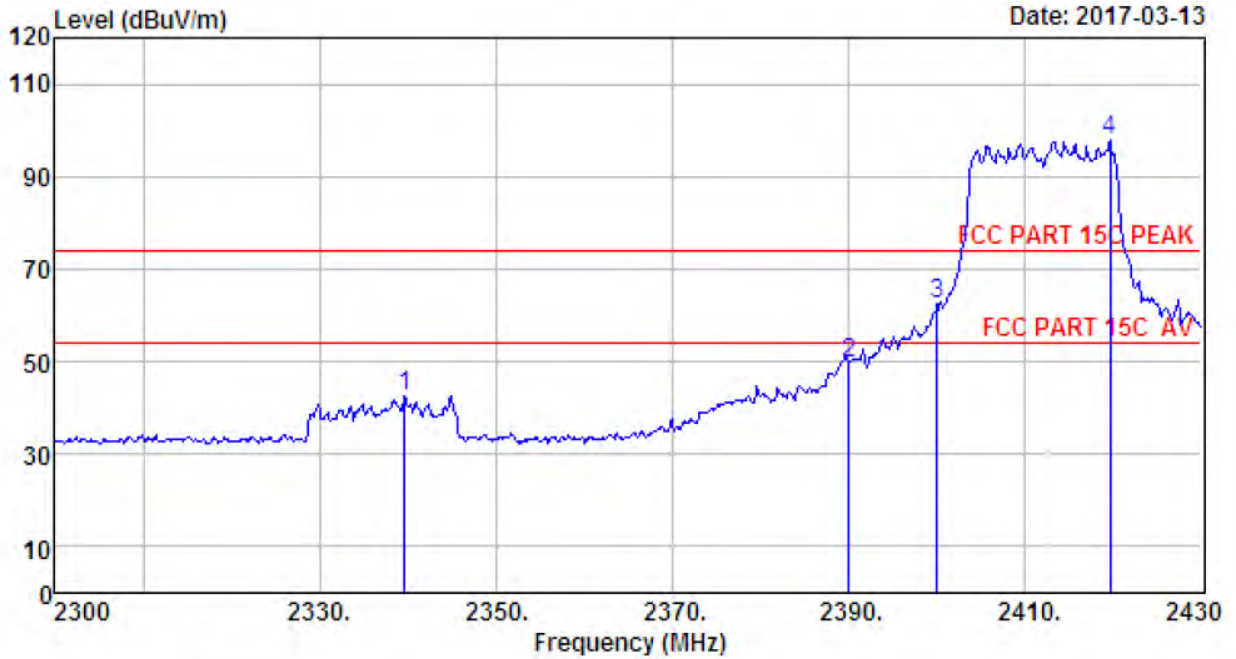
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 34  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11b CH11 2462TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.40	27.58	6.69	34.98	101.44	100.73	74.00	-26.73	Peak
2	2483.50	27.58	6.71	35.11	38.69	37.87	74.00	36.13	Peak
3	2483.60	27.58	6.71	35.11	41.50	40.68	74.00	33.32	Peak

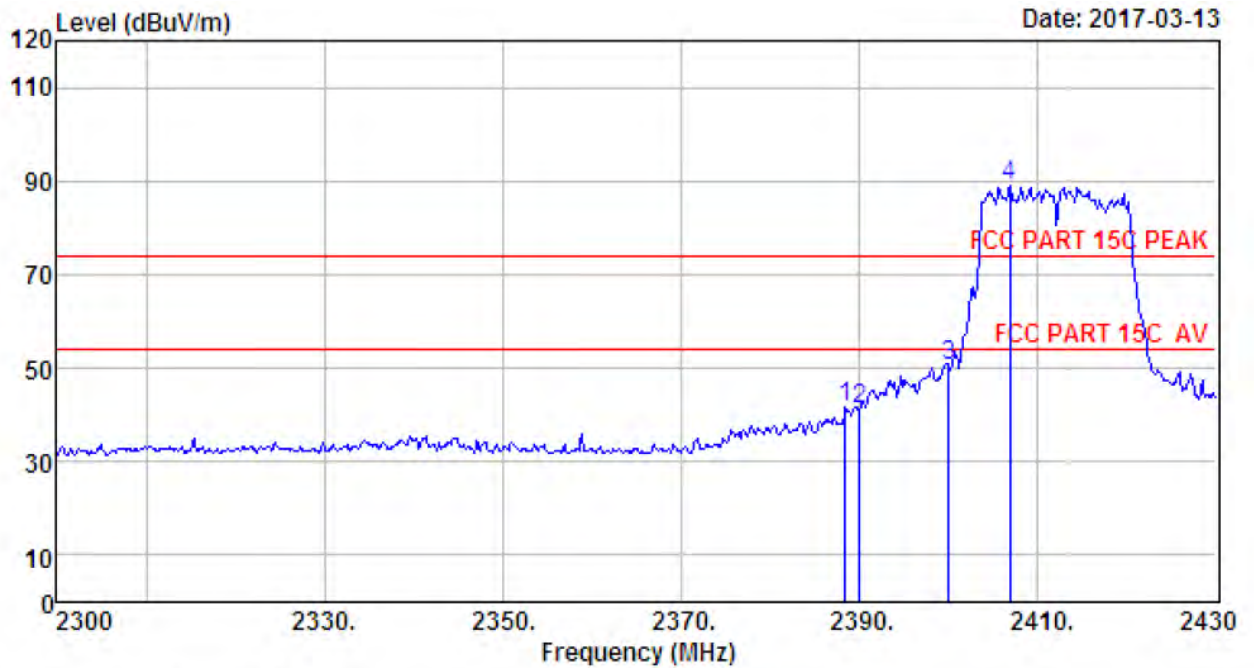
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 35  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11g CH1 2412TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2339.65	27.70	6.56	34.59	43.05	42.72	74.00	31.28	Peak
2	2390.00	27.64	6.62	34.62	49.92	49.56	74.00	24.44	Peak
3	2400.00	27.61	6.62	34.64	62.69	62.28	74.00	11.72	Peak
4	2419.60	27.60	6.66	34.74	98.32	97.84	74.00	-23.84	Peak

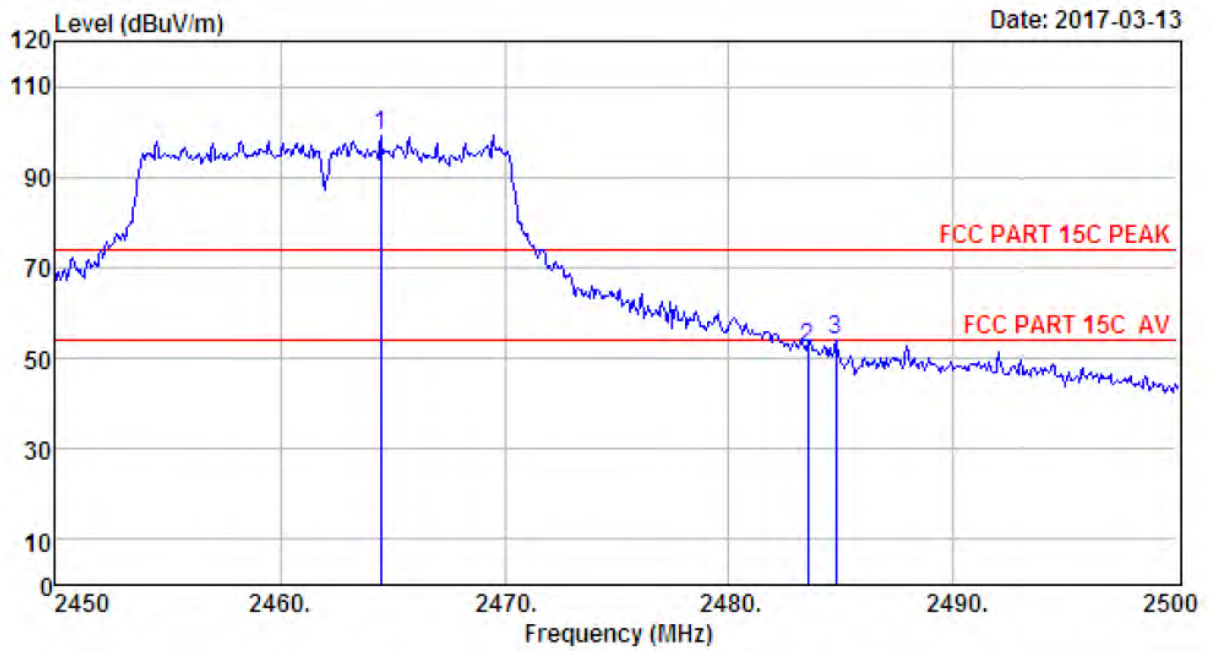
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 36  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11g CH1 2412TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2388.40	27.64	6.62	34.62	41.90	41.54	74.00	32.46	Peak
2	2390.00	27.64	6.62	34.62	41.39	41.03	74.00	32.97	Peak
3	2400.00	27.61	6.62	34.64	50.73	50.32	74.00	23.68	Peak
4	2406.86	27.61	6.64	34.64	89.49	89.10	74.00	-15.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

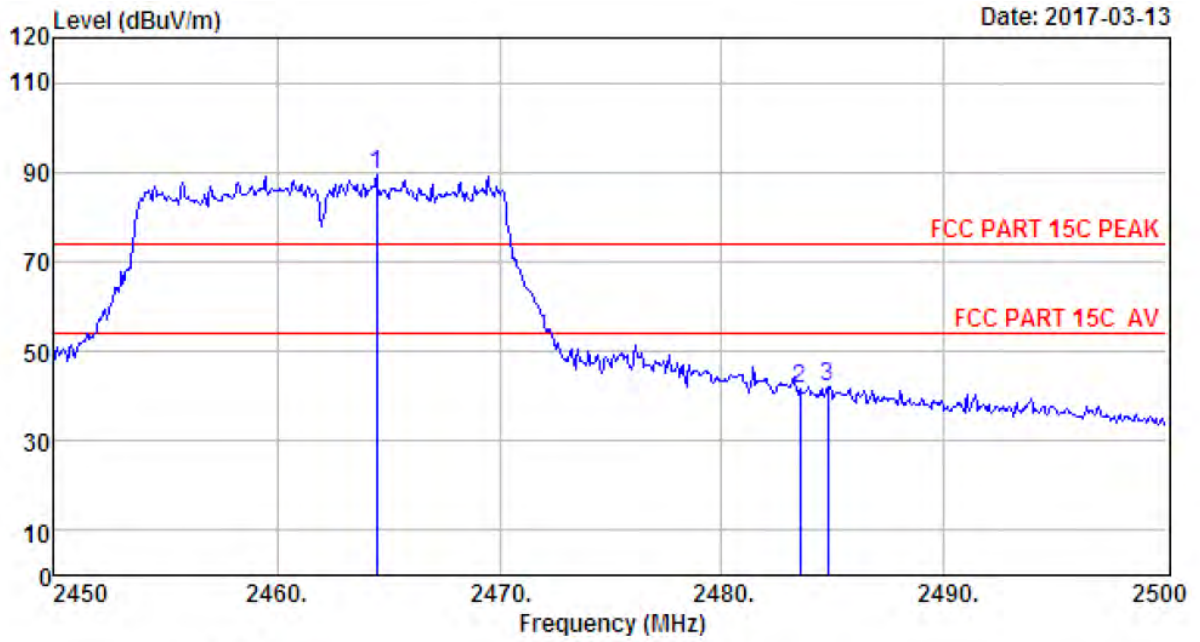


Site no. : 1# 966 Chamber Data no. : 37  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11g CH11 2462TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2464.50	27.58	6.69	34.98	99.90	99.19	74.00	-25.19	Peak
2	2483.50	27.58	6.71	35.11	53.08	52.26	74.00	21.74	Peak
3	2484.75	27.58	6.71	35.11	54.84	54.02	74.00	19.98	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

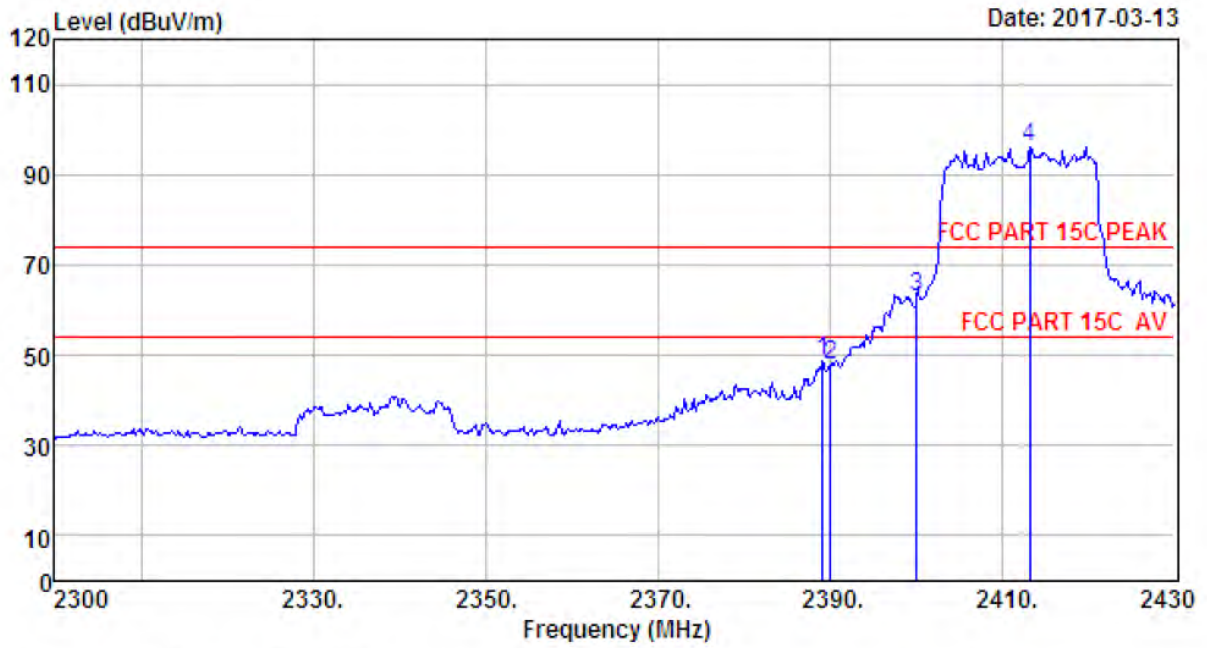




Site no. : 1# 966 Chamber Data no. : 38  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11g CH11 2462TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2464.50	27.58	6.69	34.98	89.96	89.25	74.00	-15.25	Peak
2	2483.50	27.58	6.71	35.11	42.49	41.67	74.00	32.33	Peak
3	2484.75	27.58	6.71	35.11	42.91	42.09	74.00	31.91	Peak

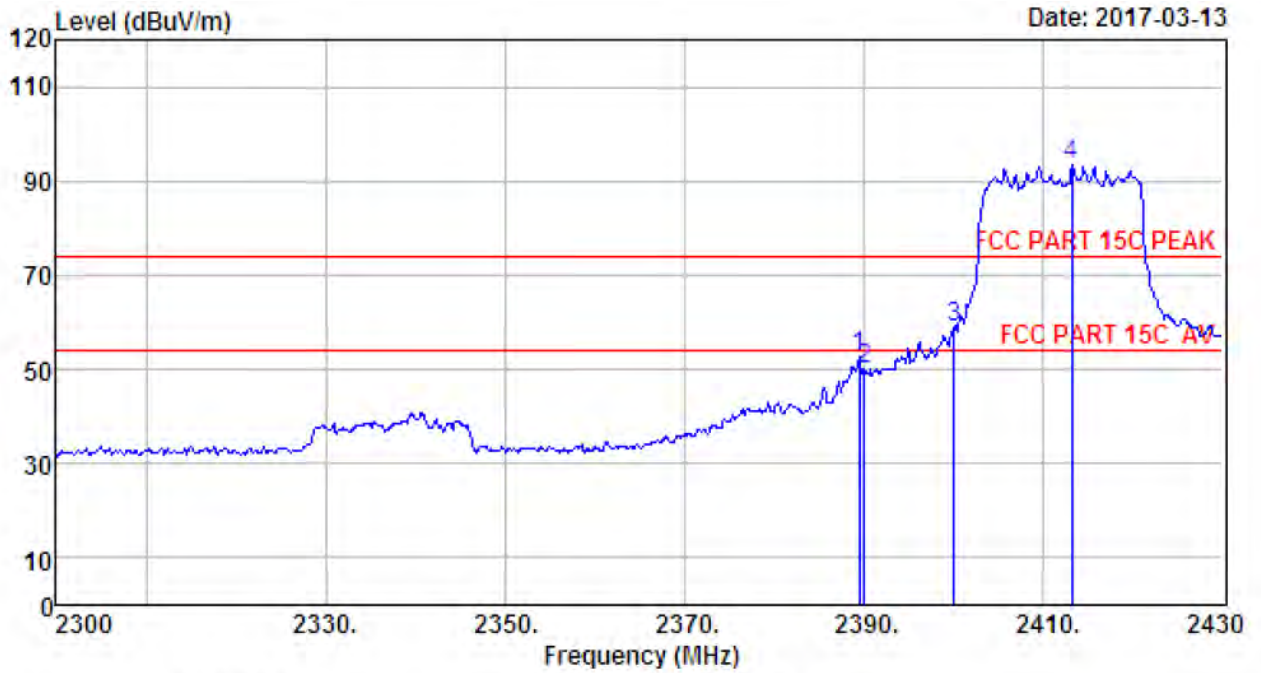
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 39  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11n HT20 CH1 2412TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2389.05	27.64	6.62	34.62	49.02	48.66	74.00	25.34	Peak
2	2390.00	27.64	6.62	34.62	48.33	47.97	74.00	26.03	Peak
3	2400.00	27.61	6.62	34.64	63.18	62.77	74.00	11.23	Peak
4	2413.10	27.60	6.64	34.64	96.61	96.21	74.00	-22.21	Peak

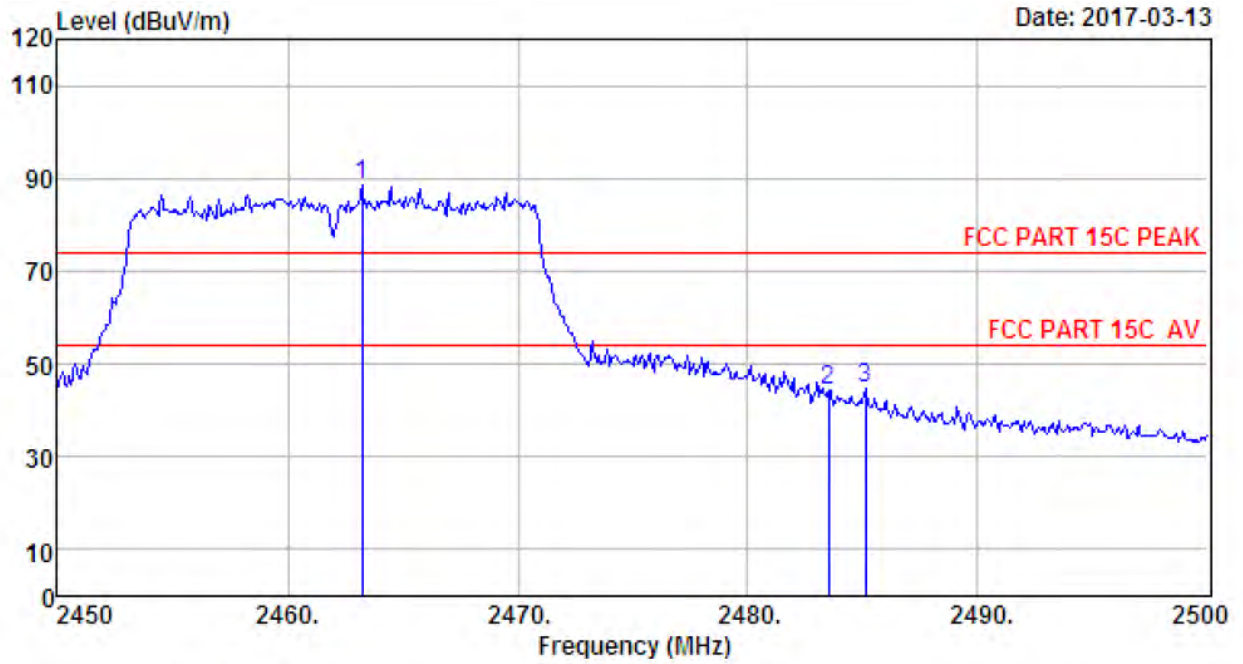
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 40  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11n HT20 CH1 2412TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2389.44	27.64	6.62	34.62	52.92	52.56	74.00	21.44	Peak
2	2390.00	27.64	6.62	34.62	50.26	49.90	74.00	24.10	Peak
3	2400.00	27.61	6.62	34.64	59.30	58.89	74.00	15.11	Peak
4	2413.10	27.60	6.64	34.64	94.02	93.62	74.00	-19.62	Peak

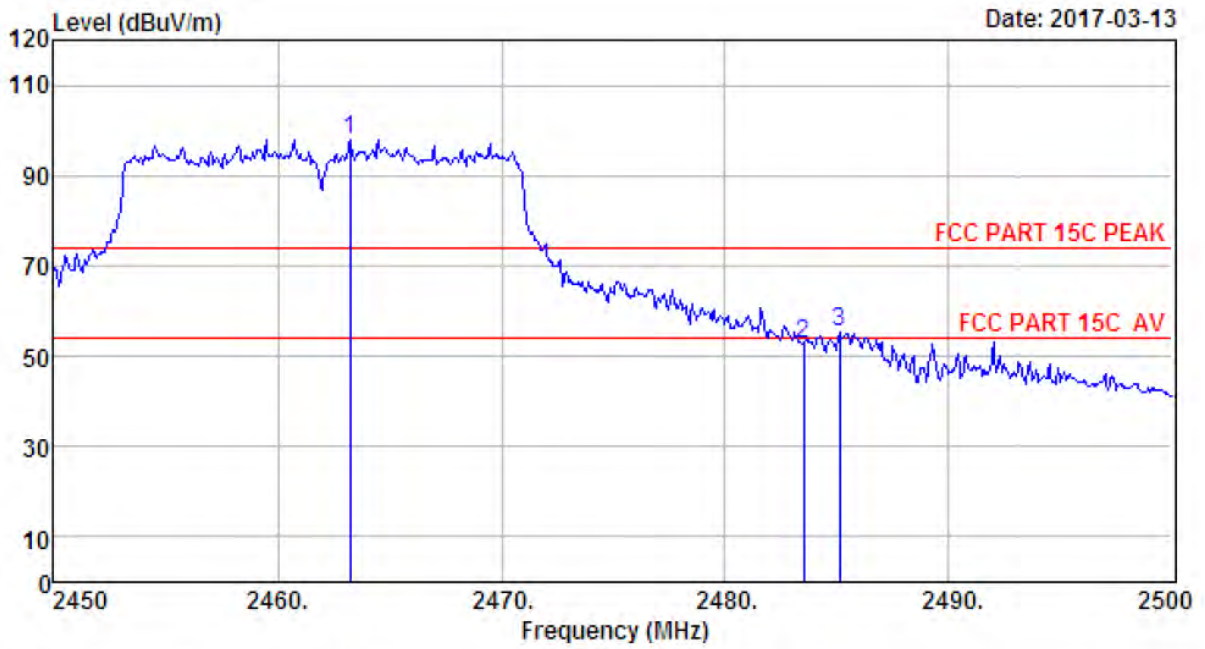
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 41  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11n HT20 CH11 2462TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2463.25	27.58	6.69	34.98	89.13	88.42	74.00	-14.42	Peak
2	2483.50	27.58	6.71	35.11	45.24	44.42	74.00	29.58	Peak
3	2485.10	27.58	6.71	35.11	45.60	44.78	74.00	29.22	Peak

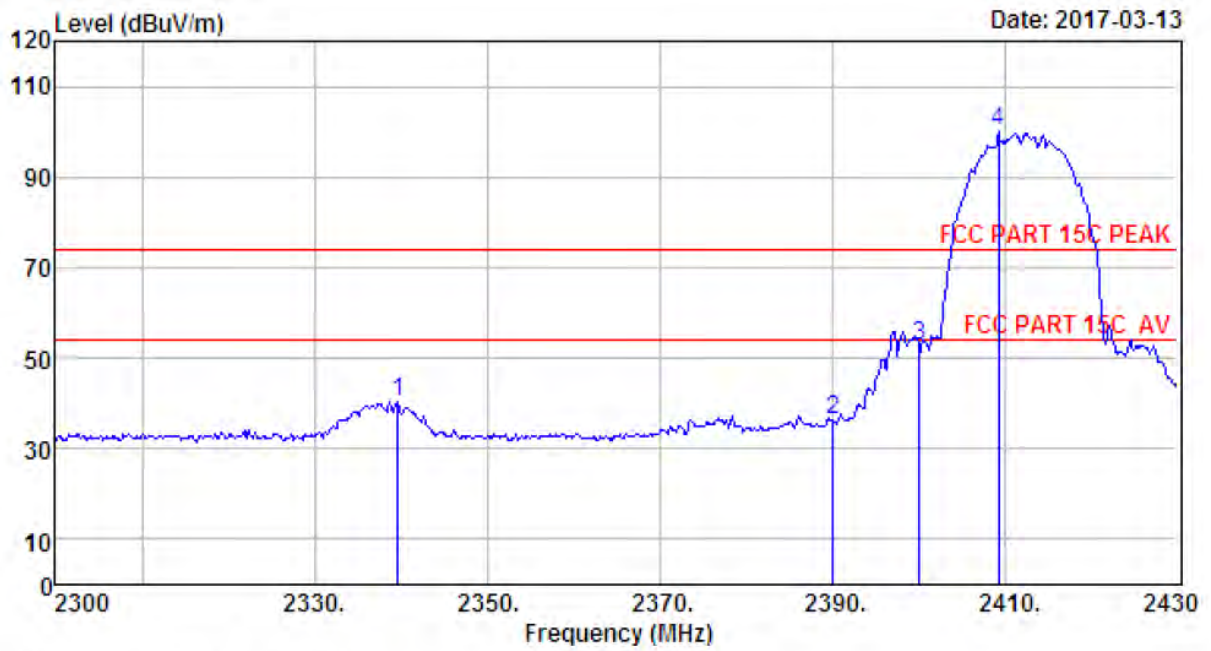
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 42  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11n HT20 CH11 2462TX  
 Antenna 1

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2463.25	27.58	6.69	34.98	98.77	98.06	74.00	-24.06	Peak
2	2483.50	27.58	6.71	35.11	53.49	52.67	74.00	21.33	Peak
3	2485.10	27.58	6.71	35.11	55.97	55.15	74.00	18.85	Peak

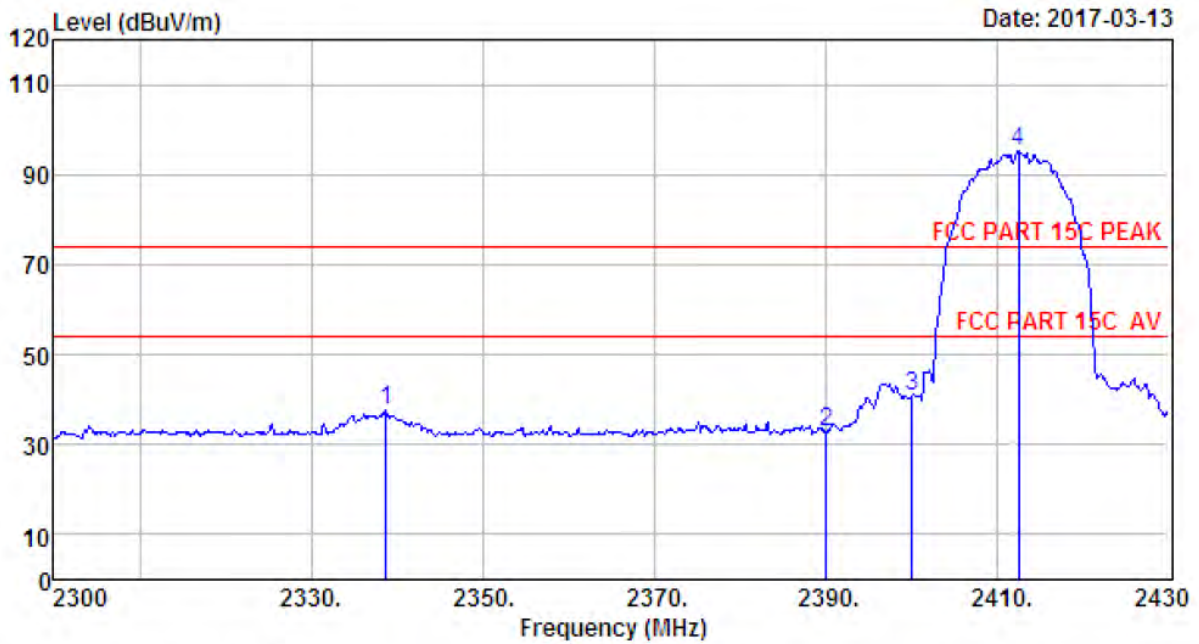
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber                      Data no. : 61  
 Dis. / Ant. : 3m ANT 1-18G                      Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11b CH1 2412TX  
                     Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2339.65	27.70	6.56	34.59	40.81	40.48	74.00	33.52	Peak
2	2390.00	27.64	6.62	34.62	36.57	36.21	74.00	37.79	Peak
3	2400.00	27.61	6.62	34.64	52.89	52.48	74.00	21.52	Peak
4	2409.20	27.60	6.64	34.64	100.41	100.01	74.00	-26.01	Peak

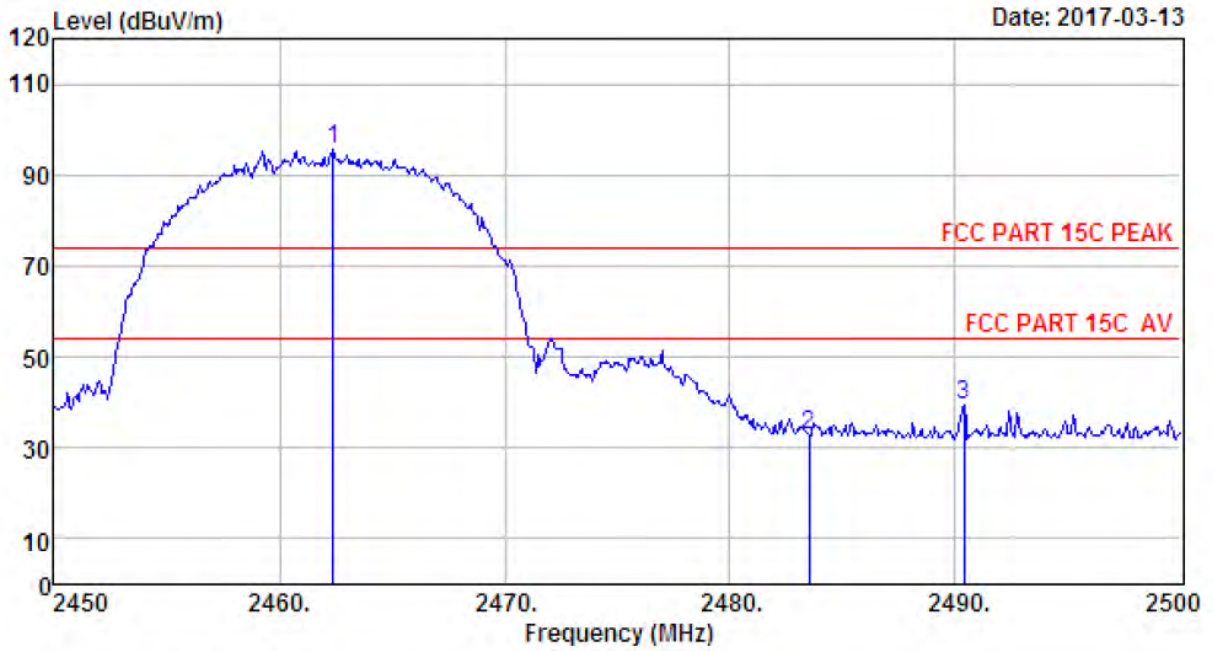
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 62  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUI : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11b CH1 2412TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2338.74	27.73	6.56	34.59	37.91	37.61	74.00	36.39	Peak
2	2390.00	27.64	6.62	34.62	32.97	32.61	74.00	41.39	Peak
3	2400.00	27.61	6.62	34.64	41.03	40.62	74.00	33.38	Peak
4	2412.45	27.60	6.64	34.64	95.78	95.38	74.00	-21.38	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

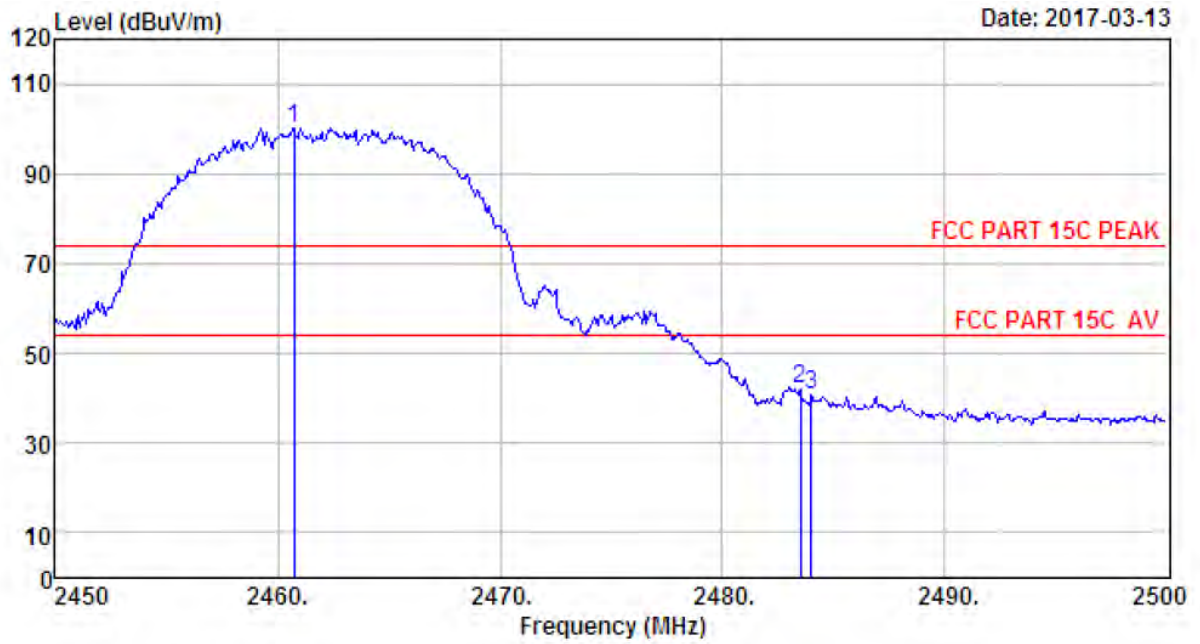


Site no. : 1# 966 Chamber Data no. : 63  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11b CH11 2462TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.40	27.58	6.69	34.98	96.17	95.46	74.00	-21.46	Peak
2	2483.50	27.58	6.71	35.11	33.63	32.81	74.00	41.19	Peak
3	2490.40	27.58	6.73	35.24	40.12	39.19	74.00	34.81	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

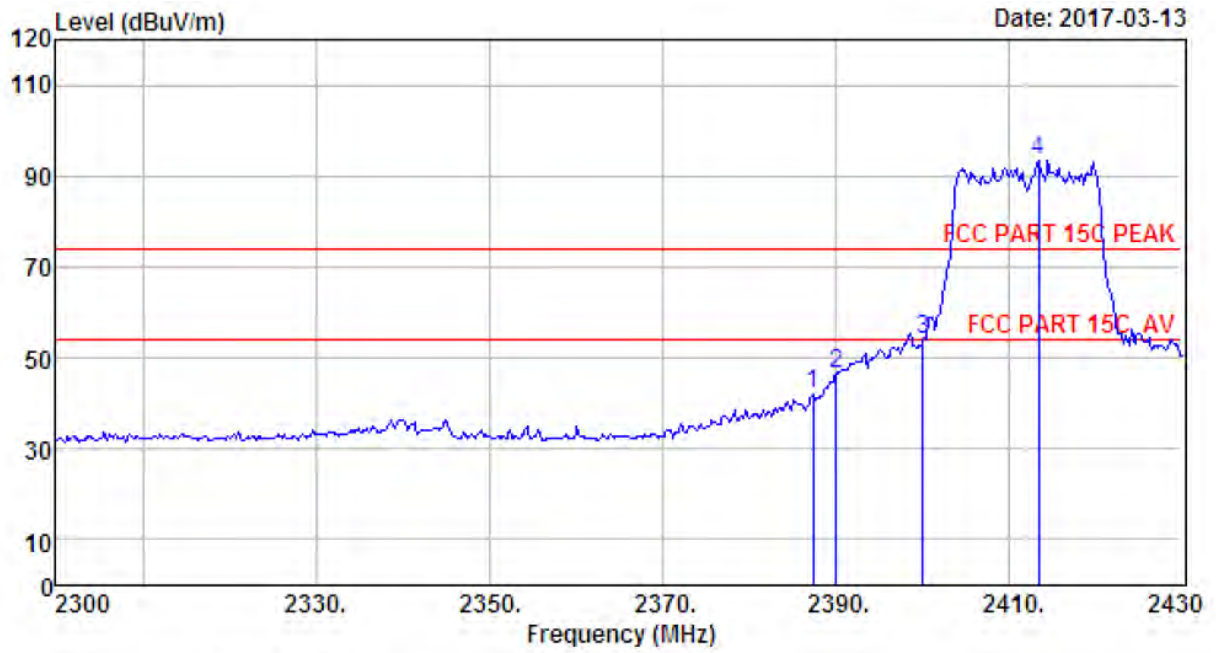




Site no. : 1# 966 Chamber Data no. : 64  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11b CH11 2462TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.75	27.58	6.69	34.98	100.94	100.23	74.00	-26.23	Peak
2	2483.50	27.58	6.71	35.11	43.08	42.26	74.00	31.74	Peak
3	2484.00	27.58	6.71	35.11	41.60	40.78	74.00	33.22	Peak

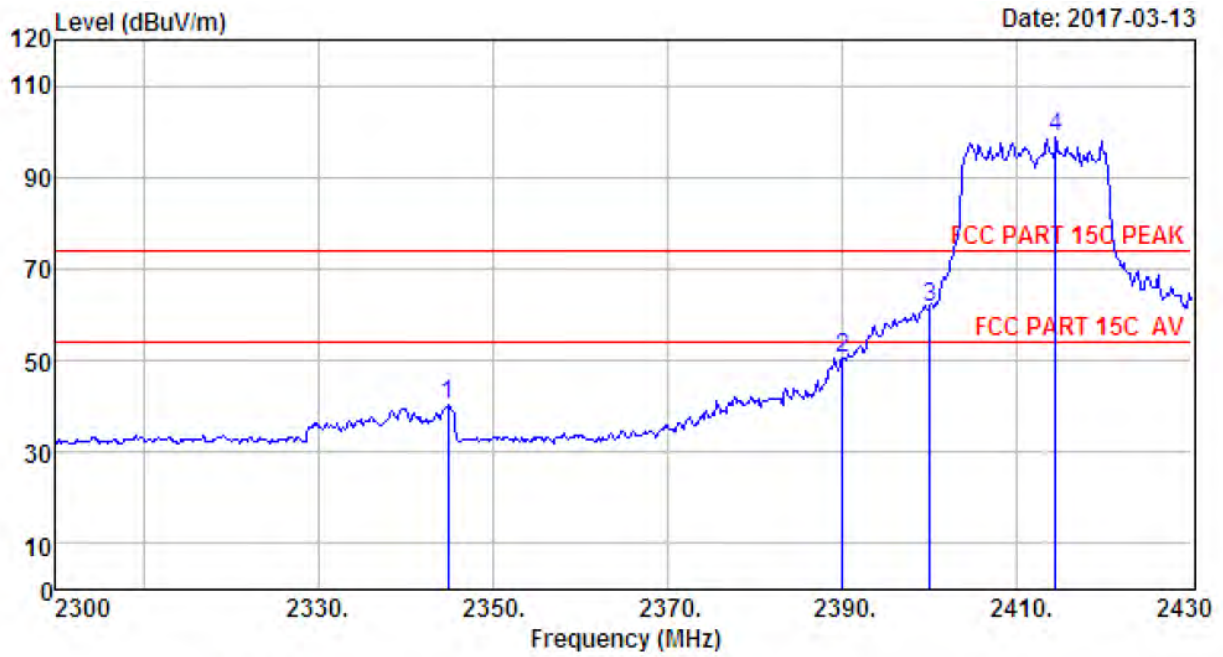
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 65  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11g CH1 2412TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2387.36	27.64	6.62	34.62	42.53	42.17	74.00	31.83	Peak
2	2390.00	27.64	6.62	34.62	46.99	46.63	74.00	27.37	Peak
3	2400.00	27.61	6.62	34.64	54.28	53.87	74.00	20.13	Peak
4	2413.36	27.60	6.64	34.64	94.00	93.60	74.00	-19.60	Peak

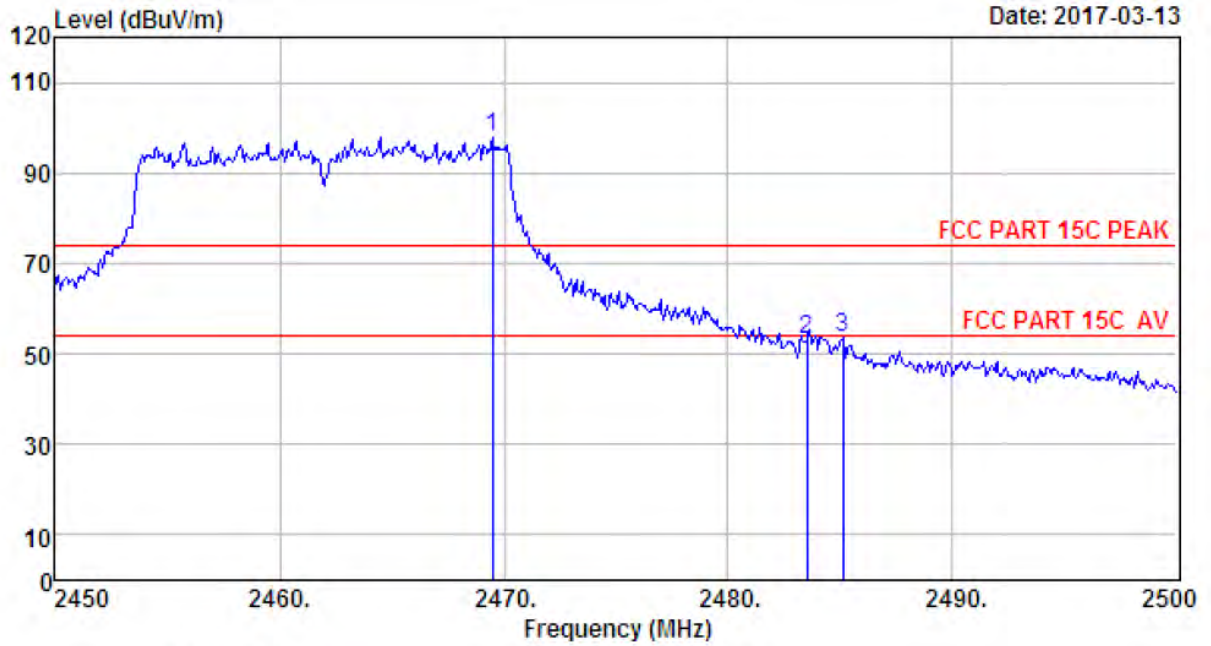
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 66  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11g CH1 2412TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2344.85	27.70	6.56	34.59	40.50	40.17	74.00	33.83	Peak
2	2390.00	27.64	6.62	34.62	50.74	50.38	74.00	23.62	Peak
3	2400.00	27.61	6.62	34.64	62.06	61.65	74.00	12.35	Peak
4	2414.40	27.60	6.64	34.64	99.08	98.68	74.00	-24.68	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

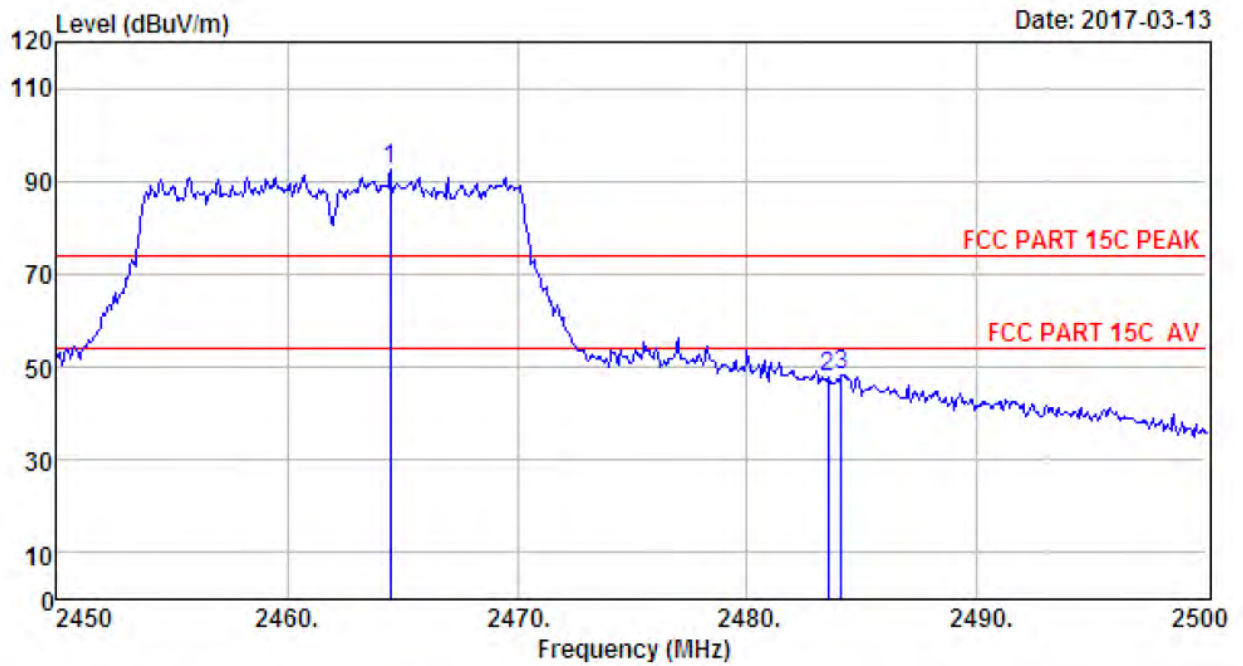


```

Site no.       : 1# 966 Chamber           Data no.  : 67
Dis. / Ant.    : 3m ANT 1-18G           Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C PEAK
Env. / Ins.    : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer      : Tony
EUT           : Big Blue 200
Power         : DC 25V From Adapter Input AC 120V/60Hz
M/N           : AR108A4BKA
Test Mode     : IEEE 802.11g CH11 2462TX
                Antenna 2
    
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2469.50	27.58	6.69	34.98	98.48	97.77	74.00	-23.77	Peak
2	2483.50	27.58	6.71	35.11	54.04	53.22	74.00	20.78	Peak
3	2485.10	27.58	6.71	35.11	54.33	53.51	74.00	20.49	Peak

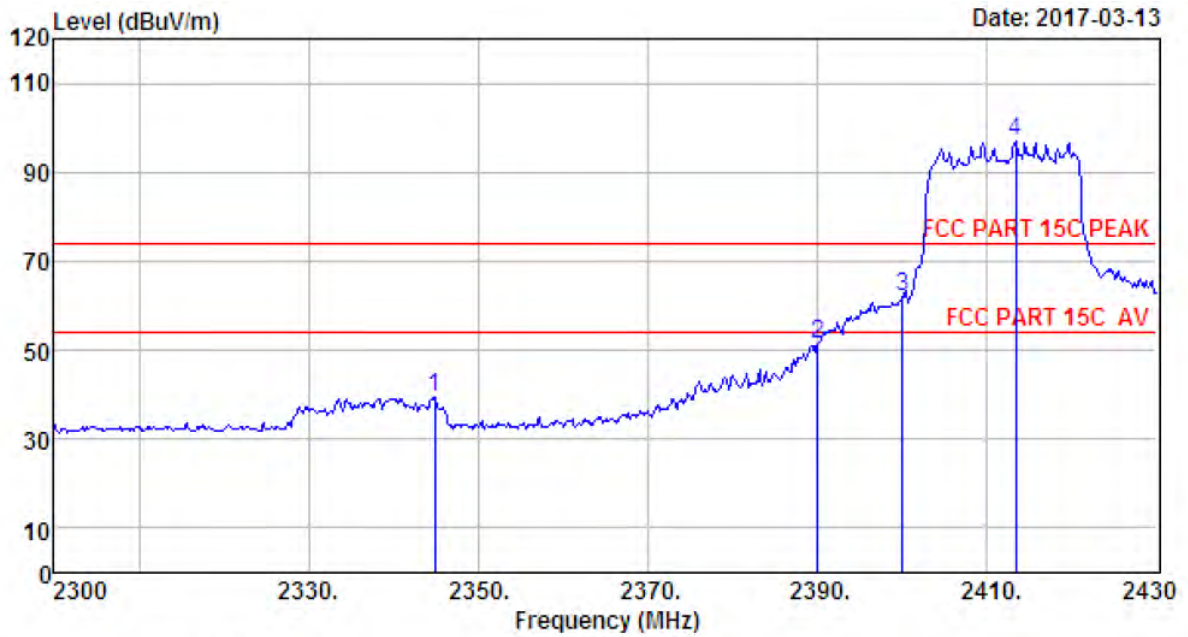
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 68  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11g CH11 2462TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2464.50	27.58	6.69	34.98	93.12	92.41	74.00	-18.41	Peak
2	2483.50	27.58	6.71	35.11	48.53	47.71	74.00	26.29	Peak
3	2484.10	27.58	6.71	35.11	49.29	48.47	74.00	25.53	Peak

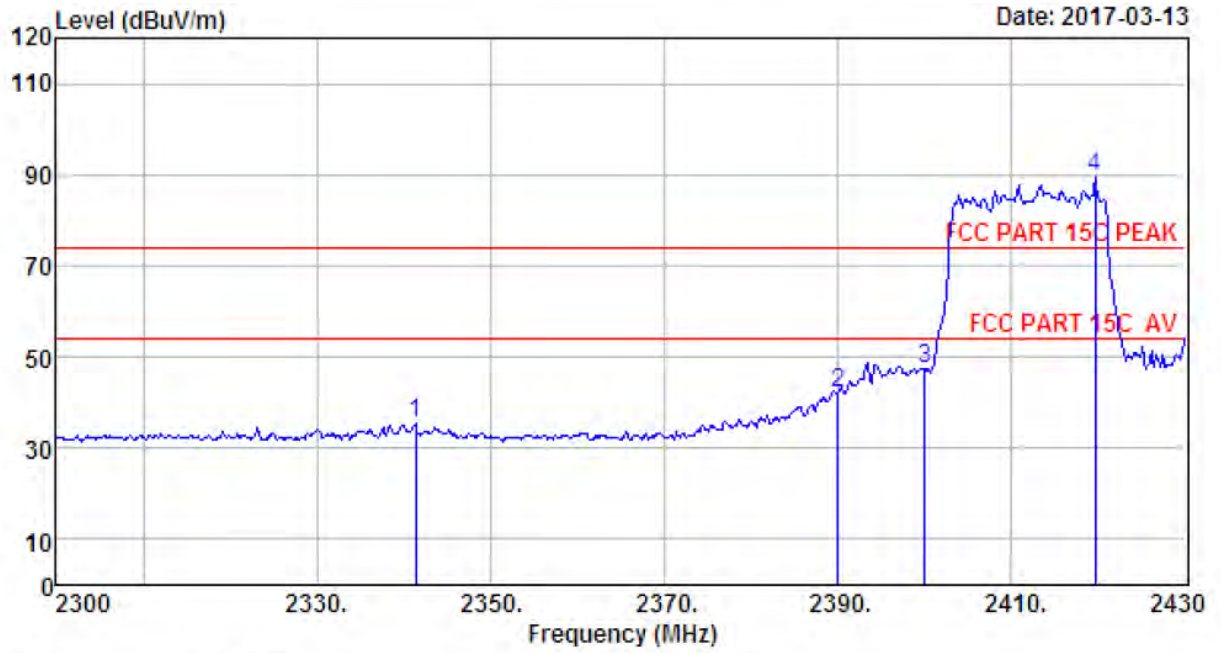
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 69  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11n HT20 CH1 2412TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2344.85	27.70	6.56	34.59	39.77	39.44	74.00	34.56	Peak
2	2390.00	27.64	6.62	34.62	51.74	51.38	74.00	22.62	Peak
3	2400.00	27.61	6.62	34.64	62.20	61.79	74.00	12.21	Peak
4	2413.36	27.60	6.64	34.64	97.38	96.98	74.00	-22.98	Peak

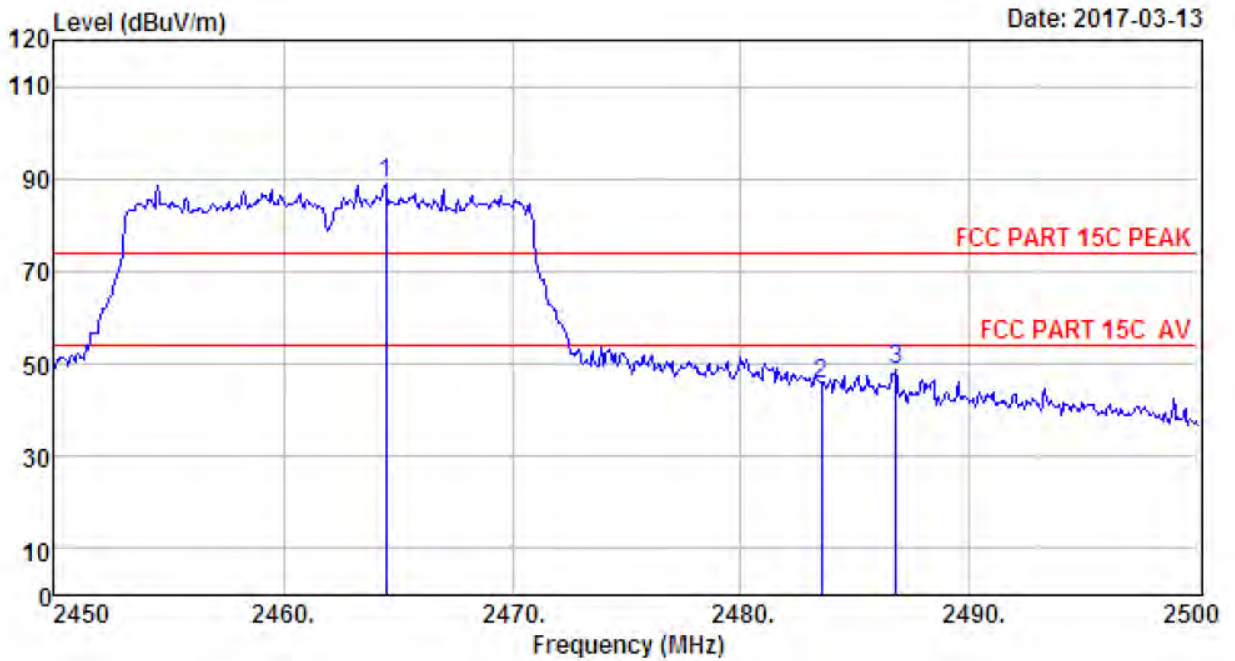
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 70  
 Dis. / Ant. : 3m ANI 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11n HT20 CH1 2412TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2341.34	27.70	6.56	34.59	35.63	35.30	74.00	38.70	Peak
2	2390.00	27.64	6.62	34.62	42.41	42.05	74.00	31.95	Peak
3	2400.00	27.61	6.62	34.64	47.59	47.18	74.00	26.82	Peak
4	2419.60	27.60	6.66	34.74	89.77	89.29	74.00	-15.29	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

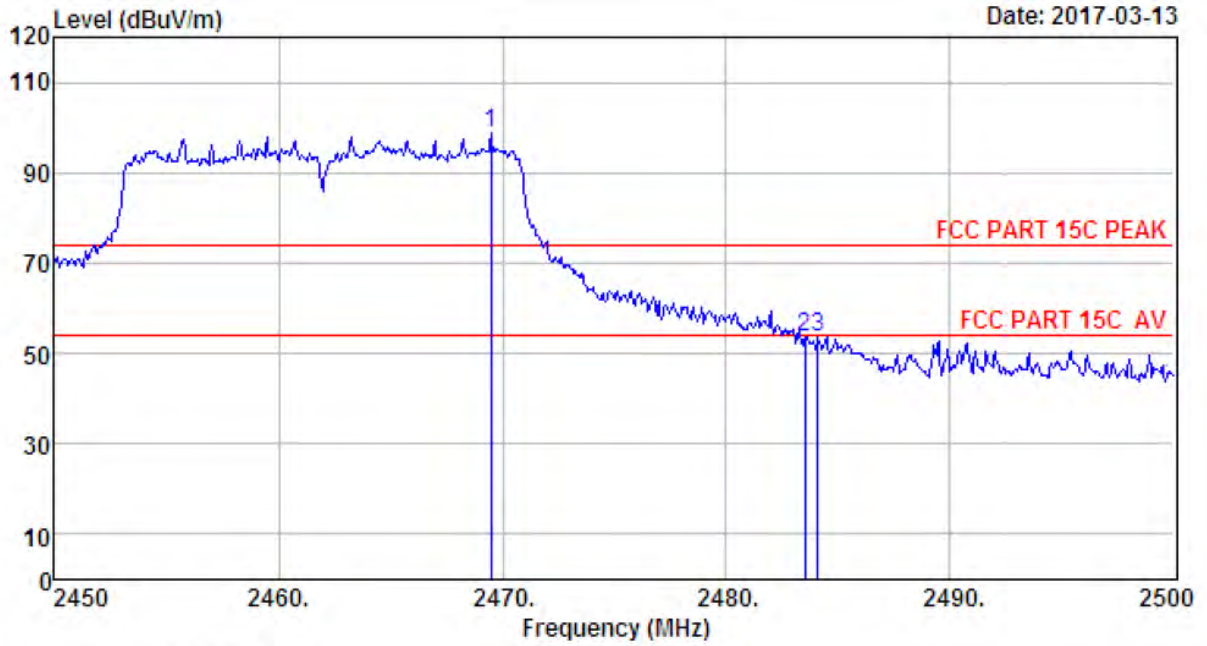


Site no. : 1# 966 Chamber Data no. : 71  
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa  
 Engineer : Tony  
 EUT : Big Blue 200  
 Power : DC 25V From Adapter Input AC 120V/60Hz  
 M/N : AR108A4BKA  
 Test Mode : IEEE 802.11n HT20 CH11 2462TX  
 Antenna 2

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2464.50	27.58	6.69	34.98	89.67	88.96	74.00	-14.96	Peak
2	2483.50	27.58	6.71	35.11	46.56	45.74	74.00	28.26	Peak
3	2486.75	27.58	6.71	35.11	49.48	48.66	74.00	25.34	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.





```

Site no.       : 1# 966 Chamber           Data no.   : 72
Dis. / Ant.    : 3m ANT 1-18G           Ant. pol.  : HORIZONTAL
Limit         : FCC PART 15C PEAK
Env. / Ins.    : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer      : Tony
EUT           : Big Blue 200
Power         : DC 25V From Adapter Input AC 120V/60Hz
M/N          : AR108A4BKA
Test Mode     : IEEE 802.11n HT20 CH11 2462TX
                Antenna 2
    
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2469.50	27.58	6.69	34.98	99.37	98.66	74.00	-24.66	Peak
2	2483.50	27.58	6.71	35.11	54.60	53.78	74.00	20.22	Peak
3	2484.10	27.58	6.71	35.11	54.34	53.52	74.00	20.48	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

## 6 6dB & 20dB Bandwidth Test

### 6.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

### 6.2 Test Procedure for 6dB

- 1, The transmitter output (antenna port) was connected to the spectrum analyzer. Connect EUT antenna terminal to the spectrum analyzer with a low loss SMA cable.
- 2, Follow the test procedure as described in KDB 558074
  - (1). Set resolution bandwidth (RBW) = 100 kHz.
  - (2). Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
  - (3). Detector = Peak.
  - (4). Trace mode = max hold.
  - (5). Sweep = auto couple.
  - (6). Allow the trace to stabilize.
  - (7). Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 6.3 Test Procedure for 20dB

- 1, The transmitter output (antenna port) was connected to the spectrum analyzer. Connect EUT antenna terminal to the spectrum analyzer with a low loss SMA cable.
- 2, Follow the test procedure as described in C63.10
  - (1). The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.
  - (2). The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.
  - (3). Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than  $[10 \log (OBW/RBW)]$  below the reference level. Specific guidance is given in 4.1.5.2.
  - (4). Steps a) through c) might require iteration to adjust within the specified tolerances.
  - (5). The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.
  - (6). Set detection mode to peak and trace mode to max hold.
  - (7). Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
  - (8). Determine the “-xx dB down amplitude” using  $[(\text{reference value}) - xx]$ . Alternatively, this calculation may be made by using the marker-delta function of the instrument.
  - (9). If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).
  - (10). Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “\_xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value,

then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “\_xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

(11). The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

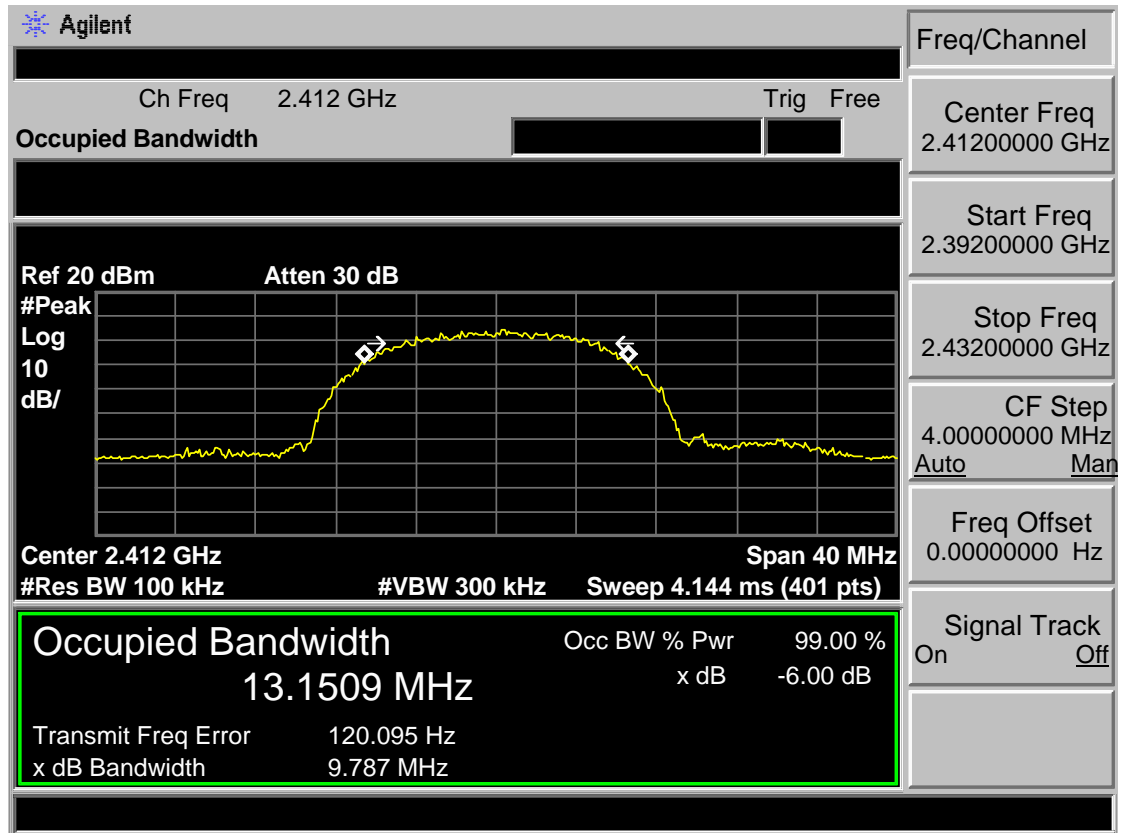
## 6.4 Test Result

EUT: Big Blue 200				
M/N: AR108A4BKA				
Test date: 2017-03-03		Tested by: Tony.Tang		Test site: RF Site
Test Mode	CH	6dB bandwidth ( MHz )	20dB bandwidth ( MHz )	Limit (KHz)
Antenna 1				
IEEE 802.11 b	CH1	9.787	15.277	>500
	CH6	9.656	15.400	>500
	CH11	9.716	15.386	>500
IEEE 802.11 g	CH1	16.554	18.562	>500
	CH6	16.529	18.455	>500
	CH11	16.521	18.429	>500
IEEE 802.11 n HT 20	CH1	17.264	19.513	>500
	CH6	17.635	19.372	>500
	CH11	17.660	19.405	>500
Antenna 2				
IEEE 802.11 b	CH1	9.676	15.331	>500
	CH6	9.744	15.423	>500
	CH11	9.734	15.385	>500
IEEE 802.11 g	CH1	16.458	18.668	>500
	CH6	16.491	18.559	>500
	CH11	16.470	18.553	>500
IEEE 802.11 n HT 20	CH1	17.419	19.515	>500
	CH6	17.448	19.544	>500
	CH11	17.561	19.535	>500
Conclusion : PASS				

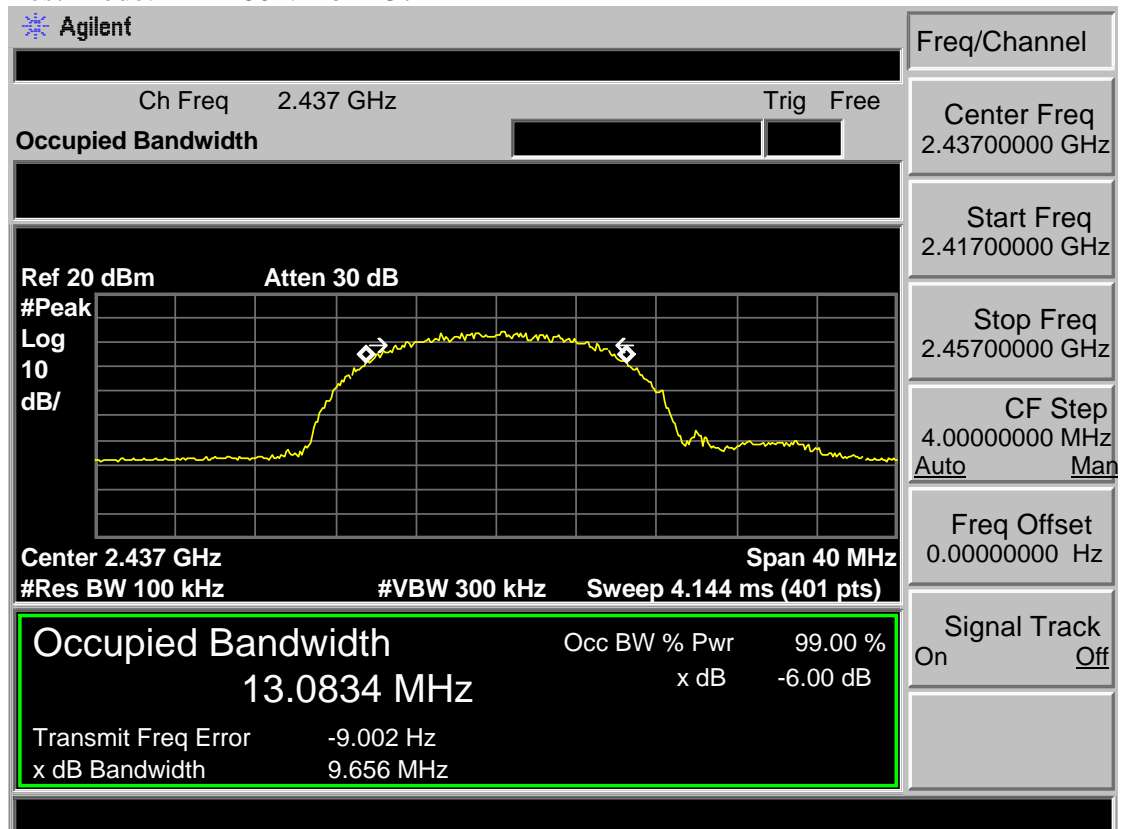
### 6.5 6dB Test Data

Antenna 1

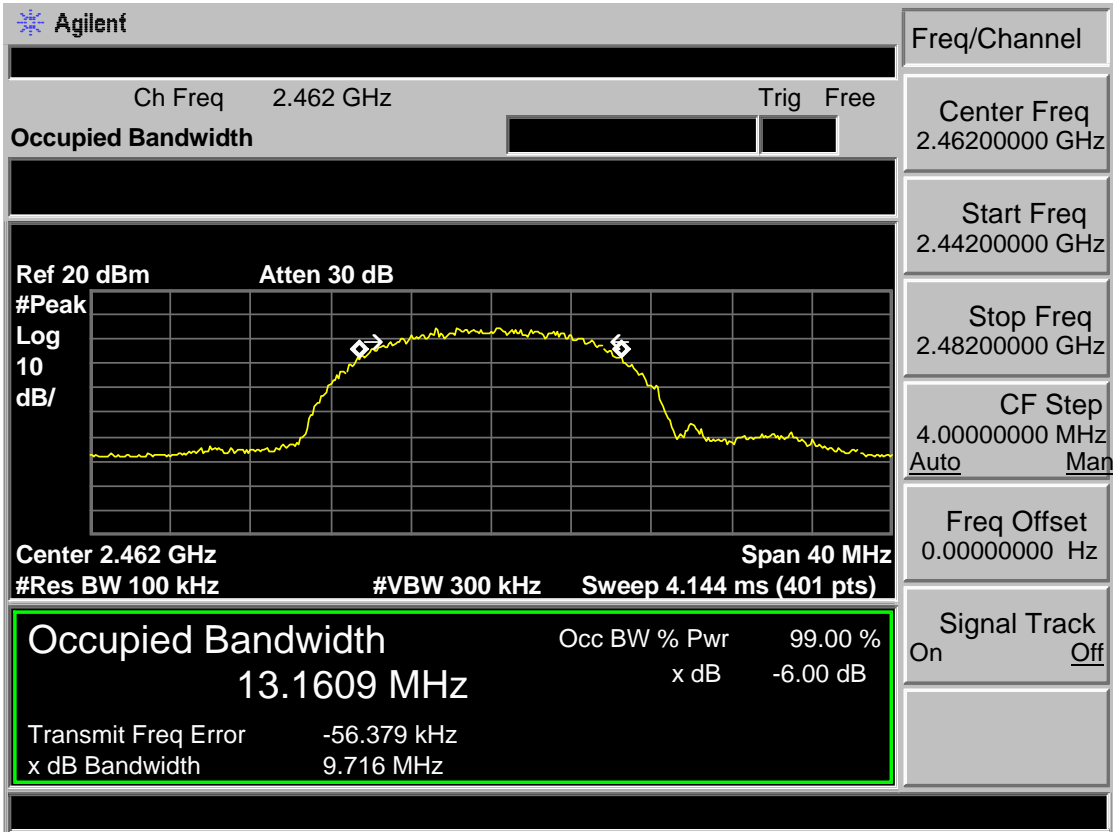
Test Mode: IEEE 802.11b 2412MHz



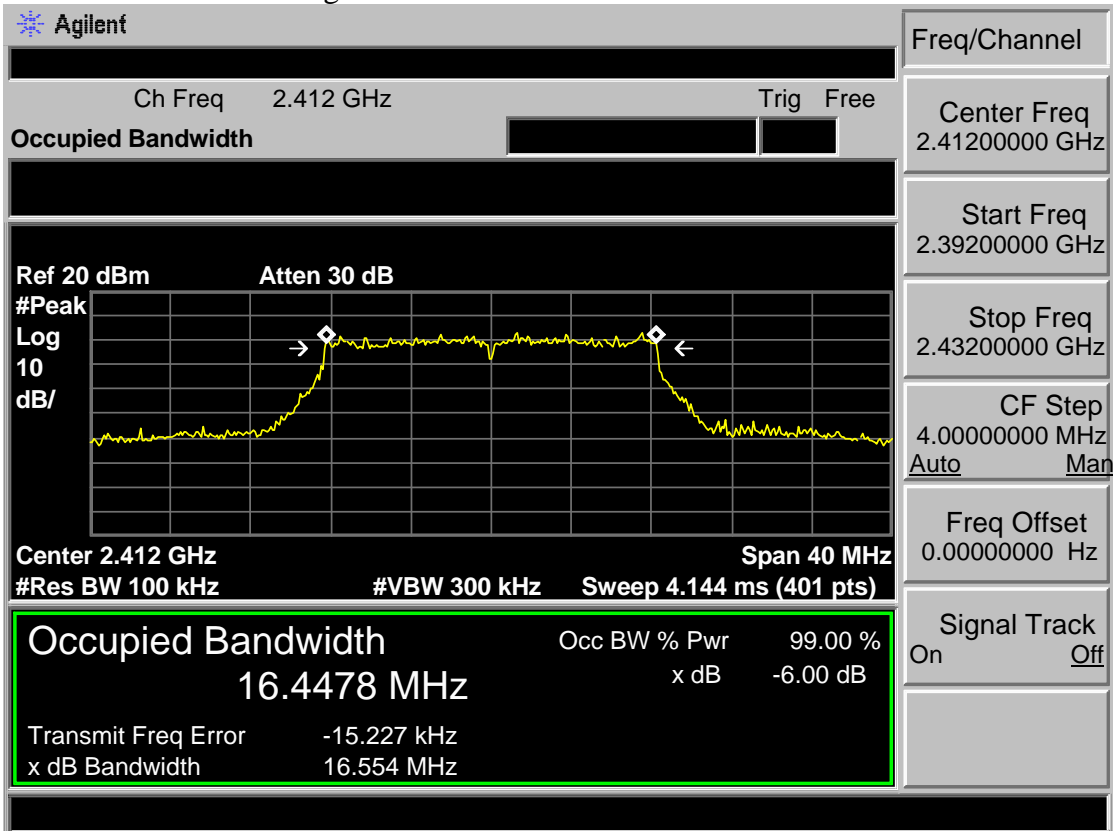
Test Mode: IEEE 802.11b 2437MHz



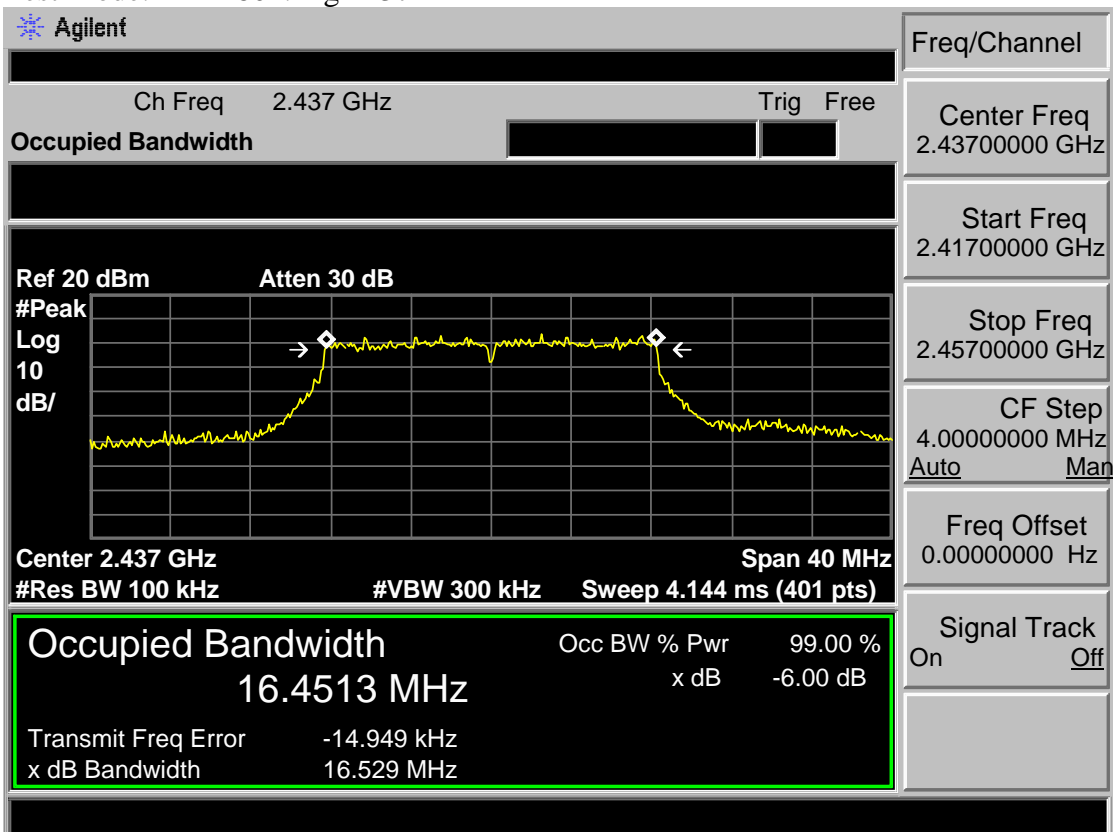
Test Mode: IEEE 802.11b 2462MHz



Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz



Test Mode: IEEE 802.11g 2462MHz

Agilent

Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.44200000 GHz
Stop Freq	2.48200000 GHz
CF Step	4.00000000 MHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	On <u>Off</u>

Ch Freq	2.462 GHz	Trig	Free
<b>Occupied Bandwidth</b>			

Ref 20 dBm      Atten 30 dB

#Peak  
Log  
10  
dB/

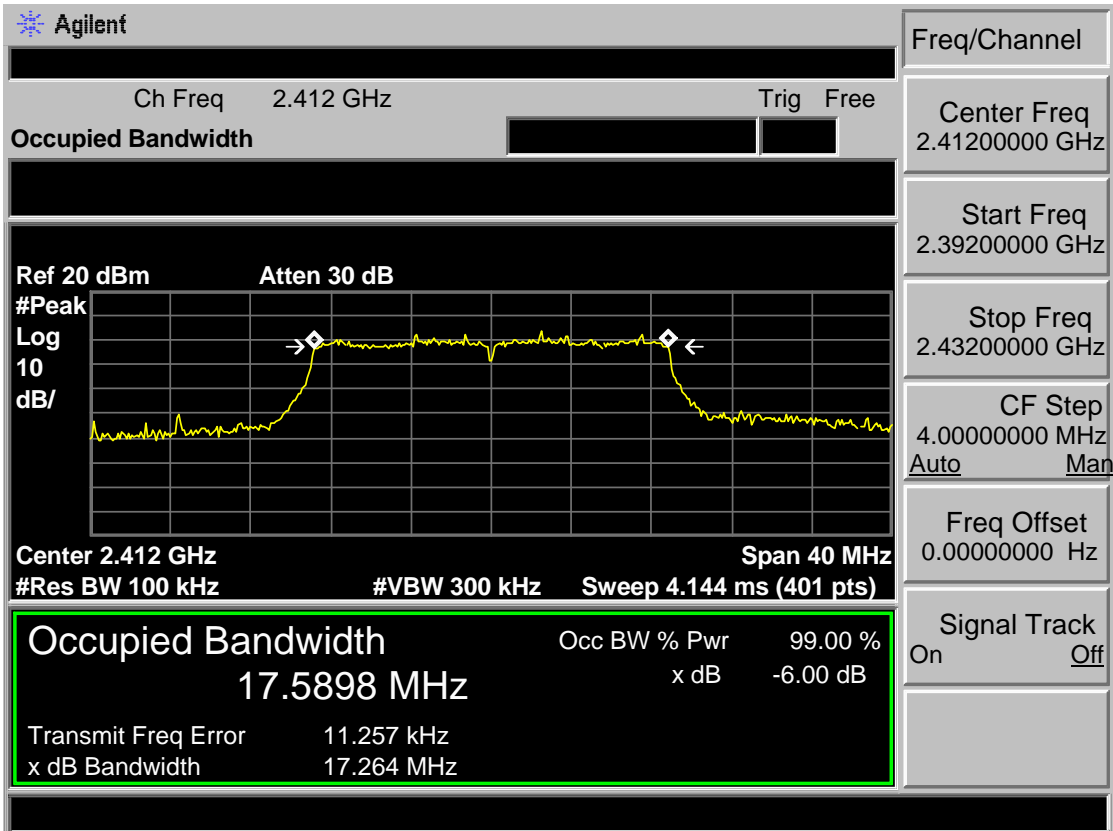
Center 2.462 GHz      Span 40 MHz

#Res BW 100 kHz      #VBW 300 kHz      Sweep 4.144 ms (401 pts)

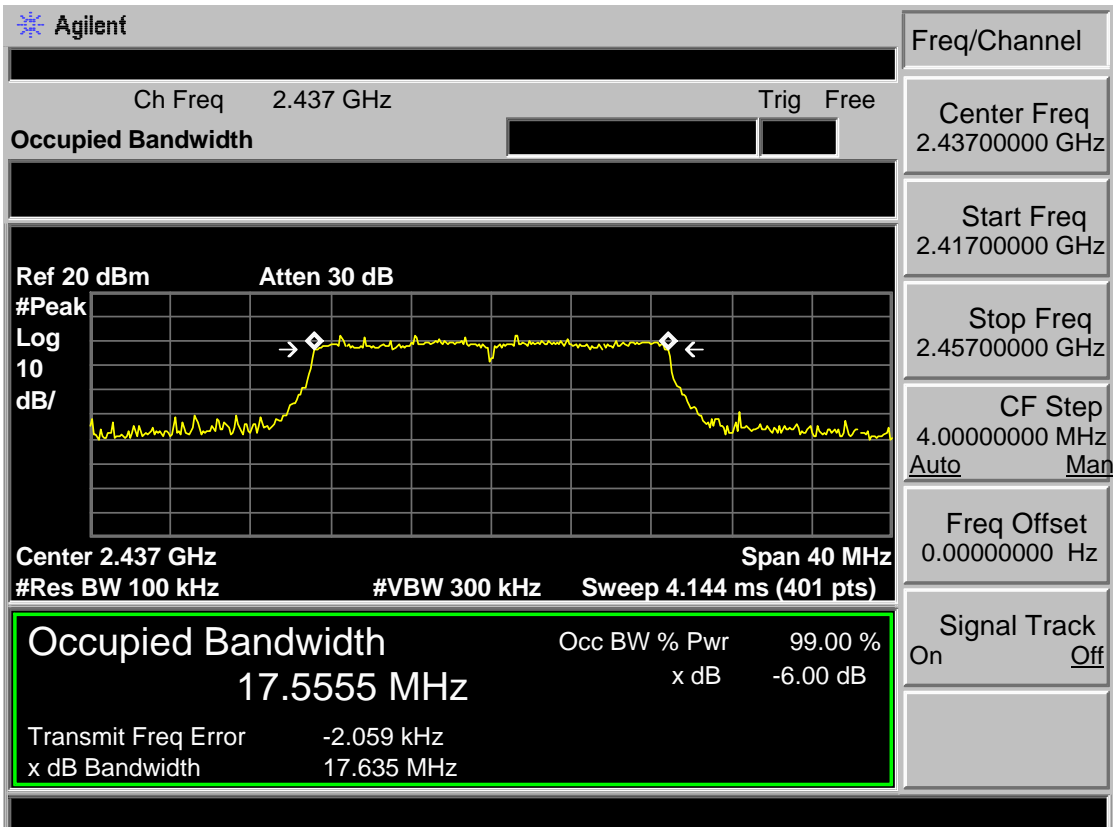
<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
16.4516 MHz	x dB	-6.00 dB
Transmit Freq Error	-1.257 kHz	
x dB Bandwidth	16.521 MHz	



Test Mode: IEEE 802.11n HT20 2412MHz



Test Mode: IEEE 802.11n HT20 2437MHz



Test Mode: IEEE 802.11n HT20 2462MHz

**Agilent**

Ch Freq 2.462 GHz Trig Free

**Occupied Bandwidth**

Ref 20 dBm Atten 30 dB

#Peak Log 10 dB/

Center 2.462 GHz Span 40 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.144 ms (401 pts)

**Occupied Bandwidth** Occ BW % Pwr 99.00 %

17.5684 MHz x dB -6.00 dB

Transmit Freq Error 8.546 kHz

x dB Bandwidth 17.660 MHz

Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.44200000 GHz

Stop Freq 2.48200000 GHz

CF Step 4.00000000 MHz

Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Antenna 2

Test Mode: IEEE 802.11b 2412MHz

Agilent

Ch Freq 2.412 GHz Trig Free

Occupied Bandwidth

Ref 20 dBm Atten 30 dB

#Peak Log 10 dB/

Center 2.412 GHz Span 40 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.144 ms (401 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
<b>13.1473 MHz</b>	x dB	-6.00 dB
Transmit Freq Error	-19.901 kHz	
x dB Bandwidth	9.676 MHz	

Freq/Channel

Center Freq 2.41200000 GHz

Start Freq 2.39200000 GHz

Stop Freq 2.43200000 GHz

CF Step 4.00000000 MHz Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Test Mode: IEEE 802.11b 2437MHz

Agilent

Ch Freq 2.437 GHz Trig Free

Occupied Bandwidth

Ref 20 dBm Atten 30 dB

#Peak Log 10 dB/

Center 2.437 GHz Span 40 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.144 ms (401 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
<b>13.1769 MHz</b>	x dB	-6.00 dB
Transmit Freq Error	-35.212 kHz	
x dB Bandwidth	9.744 MHz	

Freq/Channel

Center Freq 2.43700000 GHz

Start Freq 2.41700000 GHz

Stop Freq 2.45700000 GHz

CF Step 4.00000000 MHz Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Test Mode: IEEE 802.11b 2462MHz

**Agilent**

Ch Freq 2.462 GHz Trig Free

**Occupied Bandwidth**

Ref 20 dBm Atten 30 dB

Center 2.462 GHz Span 40 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.144 ms (401 pts)

**Occupied Bandwidth** Occ BW % Pwr 99.00 %

13.1716 MHz x dB -6.00 dB

Transmit Freq Error -47.459 kHz

x dB Bandwidth 9.734 MHz

Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.44200000 GHz

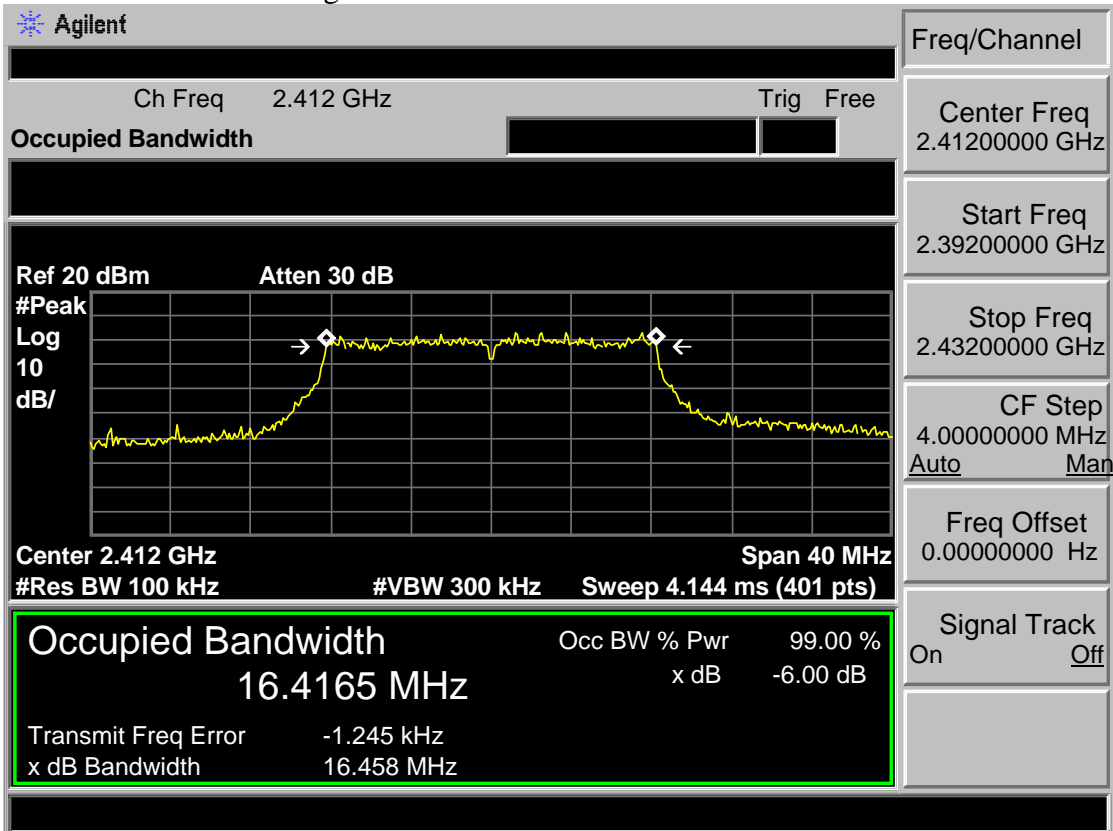
Stop Freq 2.48200000 GHz

CF Step 4.00000000 MHz  
Auto Man

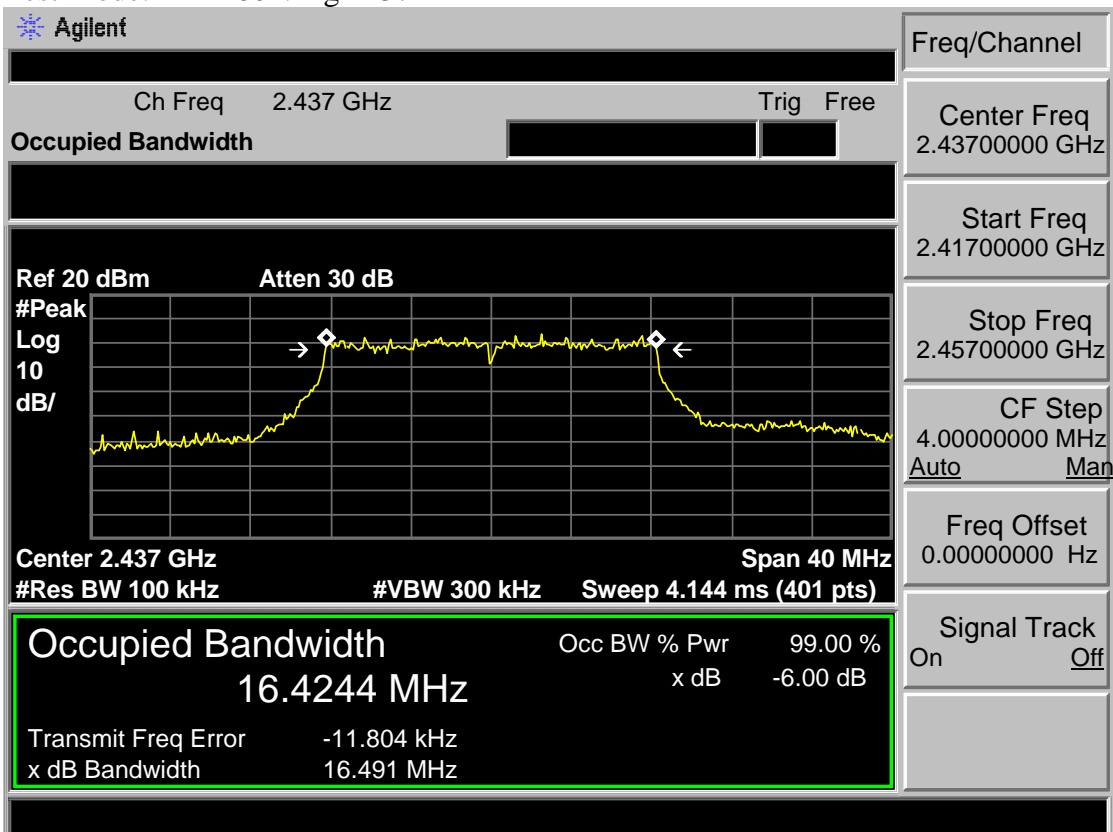
Freq Offset 0.00000000 Hz

Signal Track On Off

Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz



Test Mode: IEEE 802.11g 2462MHz

Agilent

Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.44200000 GHz
Stop Freq	2.48200000 GHz
CF Step	4.00000000 MHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	On <u>Off</u>

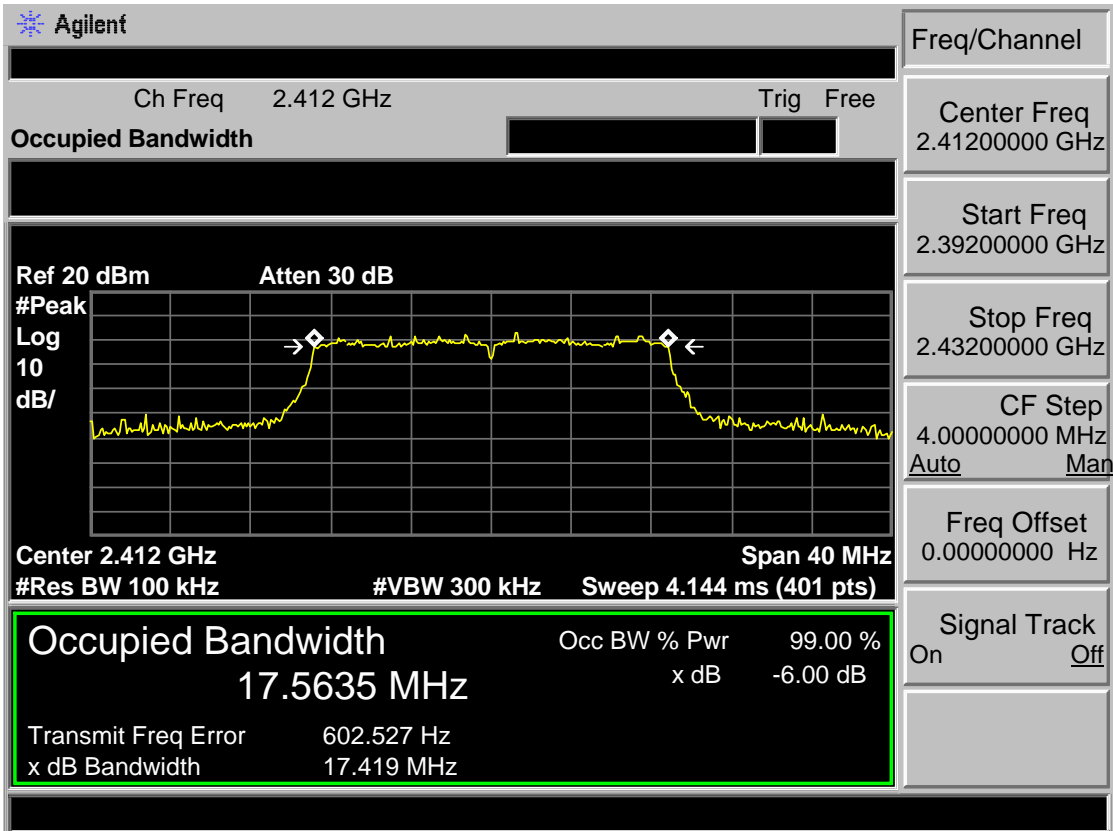
Ch Freq	2.462 GHz	Trig	Free
<b>Occupied Bandwidth</b>			

Ref 20 dBm	Atten 30 dB	
#Peak	→	←
Log		
10		
dB/		

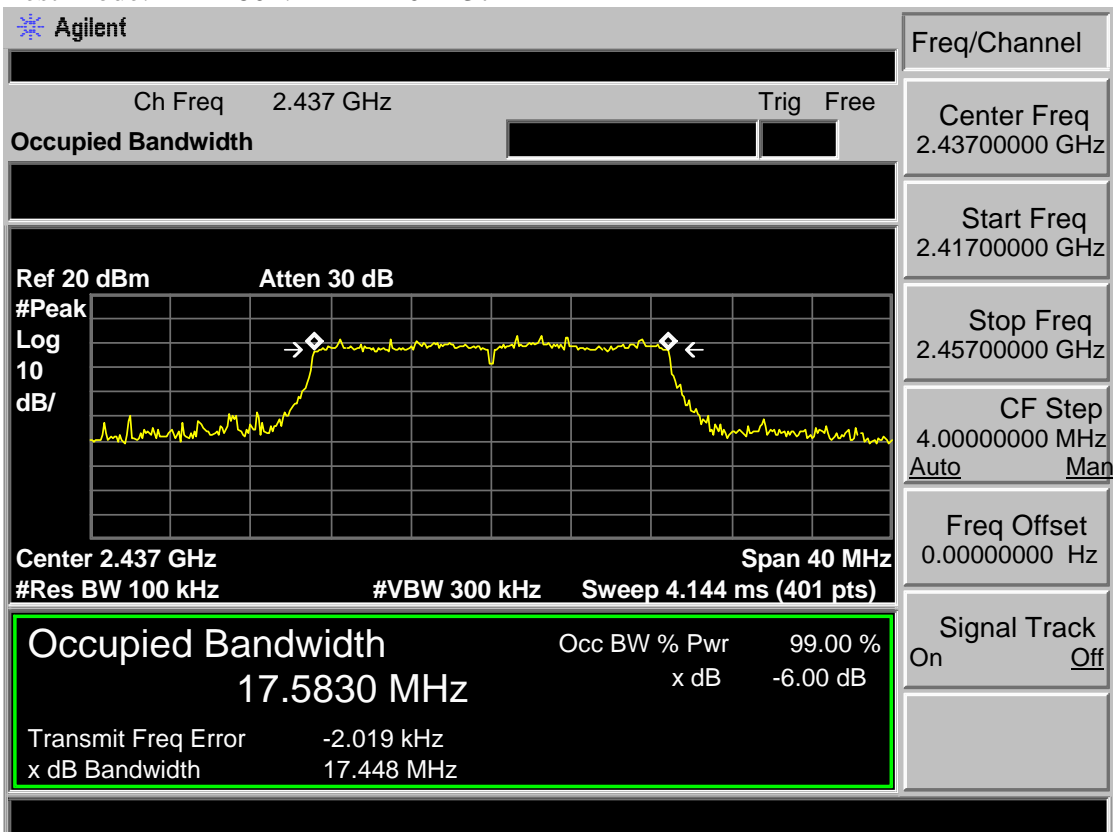
Center 2.462 GHz	Span 40 MHz
#Res BW 100 kHz	#VBW 300 kHz Sweep 4.144 ms (401 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr 99.00 %
16.4106 MHz	x dB -6.00 dB
Transmit Freq Error	-11.673 kHz
x dB Bandwidth	16.470 MHz

Test Mode: IEEE 802.11n HT20 2412MHz



Test Mode: IEEE 802.11n HT20 2437MHz



Test Mode: IEEE 802.11n HT20 2462MHz

**Agilent**

Ch Freq 2.462 GHz Trig Free

**Occupied Bandwidth**

Ref 20 dBm Atten 30 dB

Center 2.462 GHz Span 40 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 4.144 ms (401 pts)

**Occupied Bandwidth** 17.5706 MHz  
 Occ BW % Pwr 99.00 %  
 x dB -6.00 dB

Transmit Freq Error -3.065 kHz  
 x dB Bandwidth 17.561 MHz

Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.44200000 GHz

Stop Freq 2.48200000 GHz

CF Step 4.00000000 MHz  
 Auto Man

Freq Offset 0.00000000 Hz

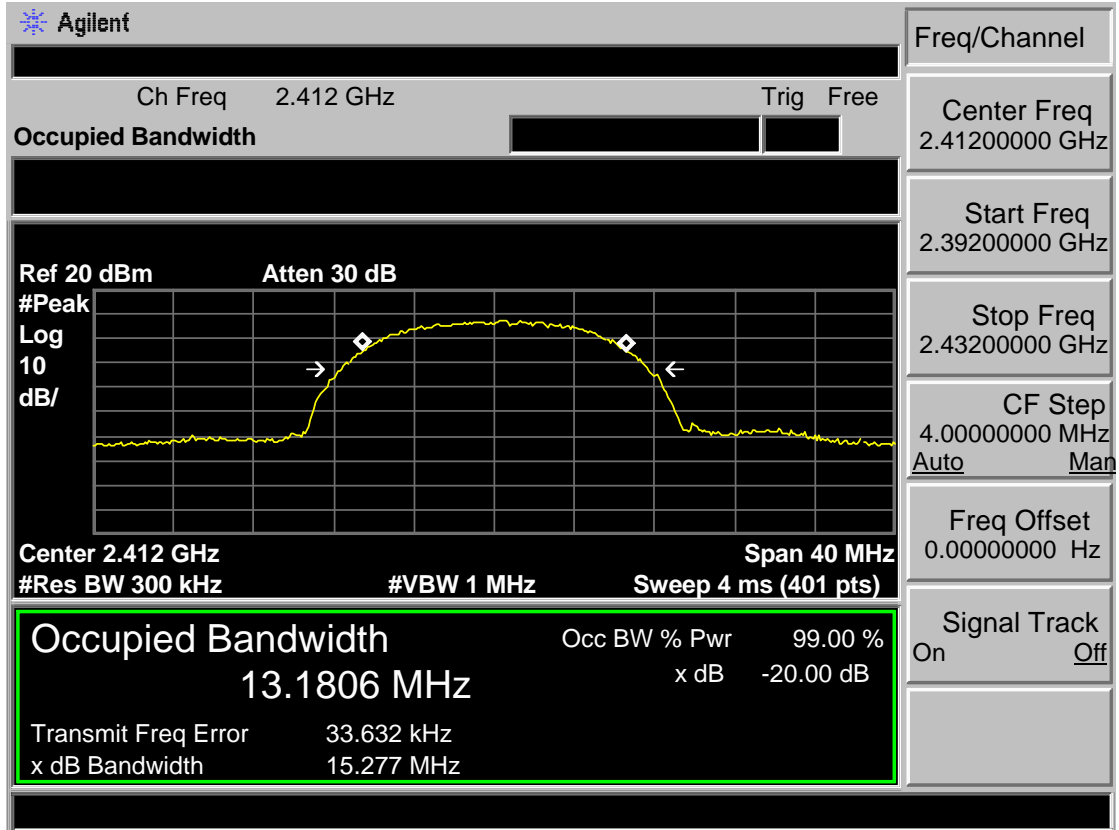
Signal Track On Off



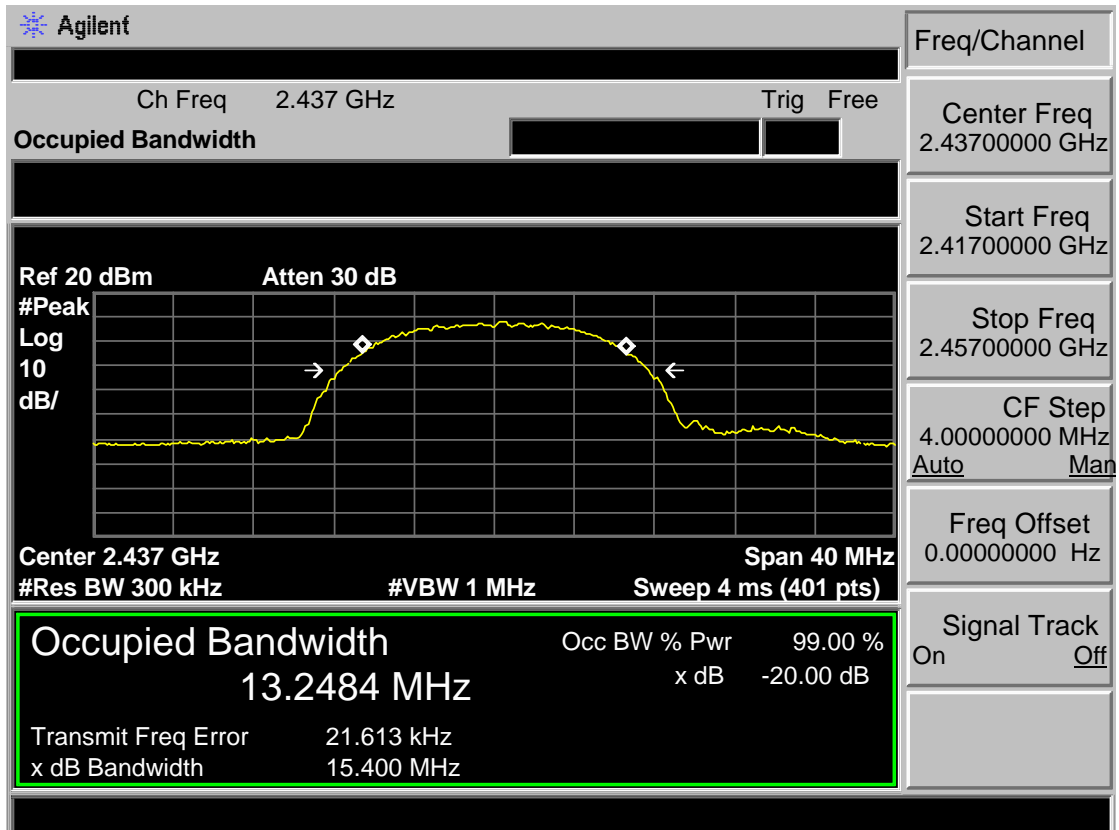
### 6.6 20dB Test Data

Antenna 1

Test Mode: IEEE 802.11b 2412MHz



Test Mode: IEEE 802.11b 2437MHz



Test Mode: IEEE 802.11b 2462MHz

Agilent

Freq/Channel

Ch Freq 2.462 GHz
Trig Free

**Occupied Bandwidth**

Ref 20 dBm
Atten 30 dB

Center 2.462 GHz
Span 40 MHz

#Res BW 300 kHz
#VBW 1 MHz
Sweep 4 ms (401 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
13.2362 MHz	x dB	-20.00 dB
Transmit Freq Error	4.570 kHz	
x dB Bandwidth	15.386 MHz	

Center Freq  
2.46200000 GHz

Start Freq  
2.44200000 GHz

Stop Freq  
2.48200000 GHz

CF Step  
4.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

Test Mode: IEEE 802.11g 2412MHz

**Agilent**

Ch Freq 2.412 GHz Trig Free

**Occupied Bandwidth**

Ref 20 dBm Atten 30 dB

#Peak Log 10 dB/

Center 2.412 GHz Span 40 MHz  
#Res BW 300 kHz #VBW 1 MHz Sweep 4 ms (401 pts)

**Occupied Bandwidth** Occ BW % Pwr 99.00 %  
16.7121 MHz x dB -20.00 dB

Transmit Freq Error 23.628 kHz  
x dB Bandwidth 18.562 MHz

Freq/Channel

Center Freq 2.41200000 GHz

Start Freq 2.39200000 GHz

Stop Freq 2.43200000 GHz

CF Step 4.00000000 MHz  
Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Test Mode: IEEE 802.11g 2437MHz

**Agilent**

Ch Freq 2.437 GHz Trig Free

**Occupied Bandwidth**

Ref 20 dBm Atten 30 dB

#Peak Log 10 dB/

Center 2.437 GHz Span 40 MHz  
#Res BW 300 kHz #VBW 1 MHz Sweep 4 ms (401 pts)

**Occupied Bandwidth** Occ BW % Pwr 99.00 %  
16.6755 MHz x dB -20.00 dB

Transmit Freq Error 16.127 kHz  
x dB Bandwidth 18.455 MHz

Freq/Channel

Center Freq 2.43700000 GHz

Start Freq 2.41700000 GHz

Stop Freq 2.45700000 GHz

CF Step 4.00000000 MHz  
Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Test Mode: IEEE 802.11g 2462MHz

**Agilent**

Ch Freq 2.462 GHz Trig Free

**Occupied Bandwidth**

Center 2.462 GHz Span 40 MHz  
 #Res BW 300 kHz #VBW 1 MHz Sweep 4 ms (401 pts)

Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.44200000 GHz

Stop Freq 2.48200000 GHz

CF Step 4.00000000 MHz  
 Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

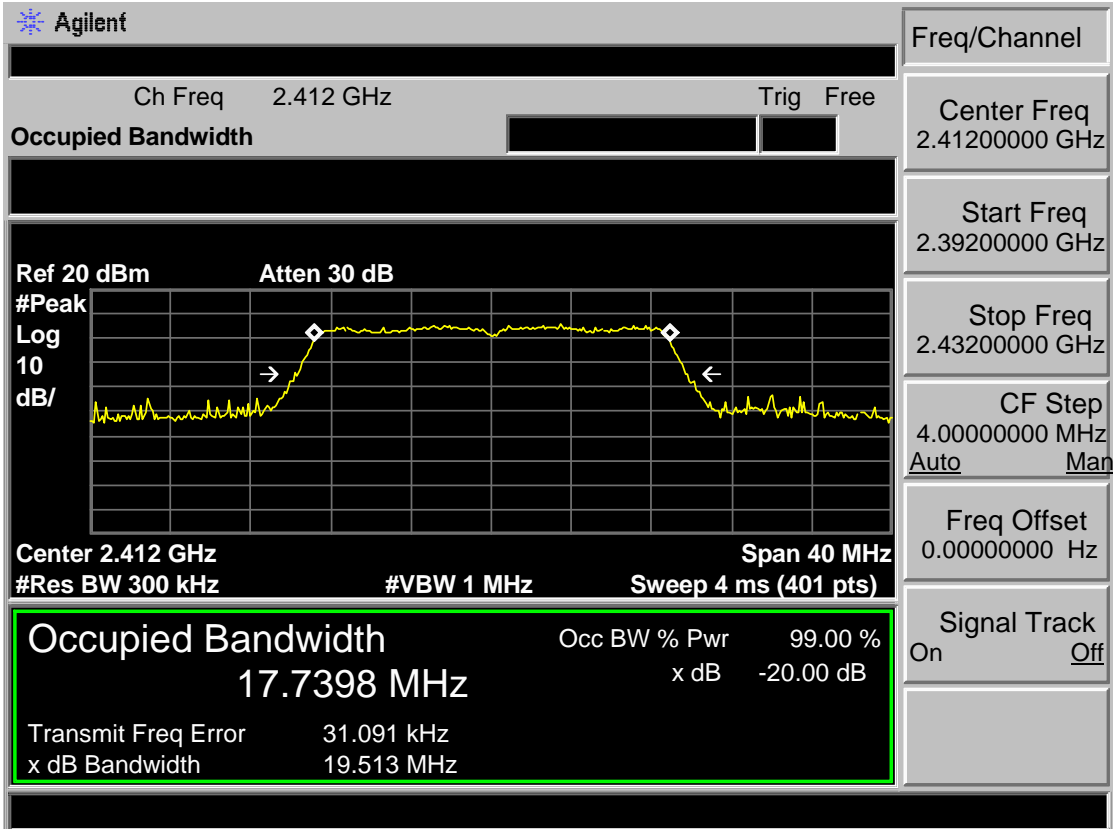
**Occupied Bandwidth** Occ BW % Pwr 99.00 %

16.7892 MHz x dB -20.00 dB

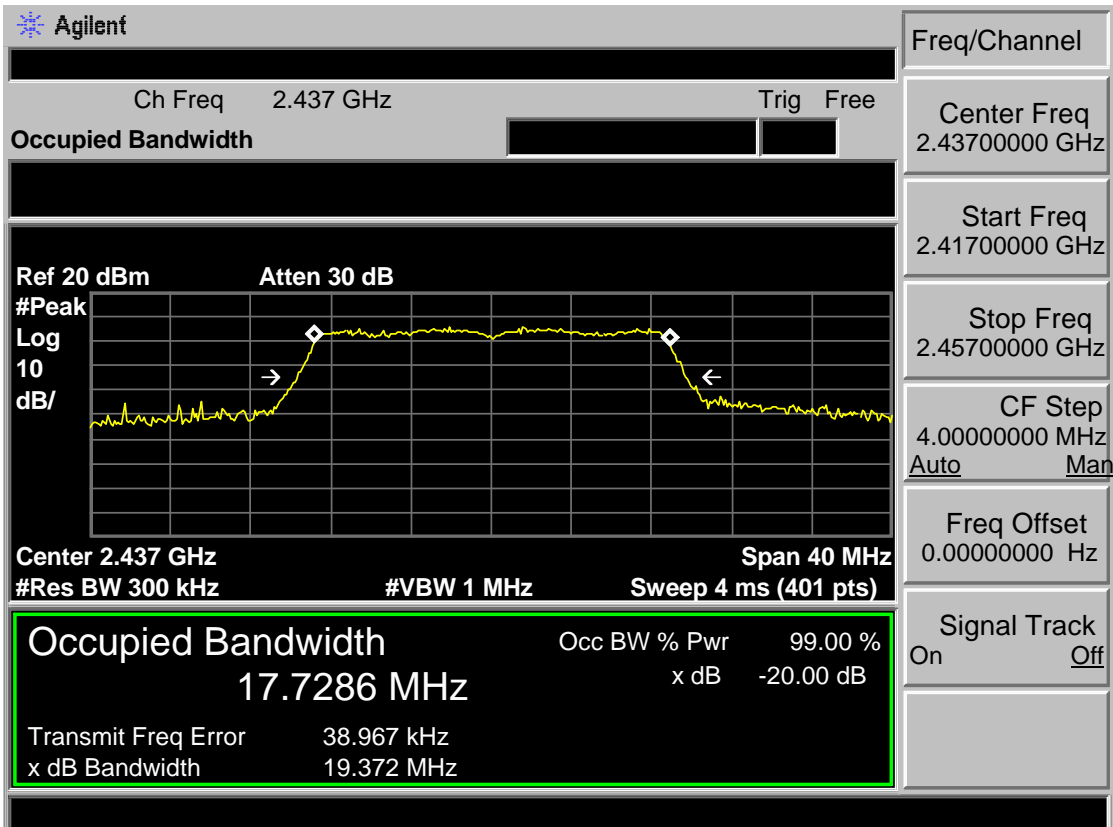
Transmit Freq Error 3.150 kHz

x dB Bandwidth 18.429 MHz

Test Mode: IEEE 802.11n HT20 2412MHz



Test Mode: IEEE 802.11n HT20 2437MHz



Test Mode: IEEE 802.11n HT20 2462MHz

Agilent

Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.44200000 GHz
Stop Freq	2.48200000 GHz
CF Step	4.00000000 MHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	On <u>Off</u>

Ch Freq	2.462 GHz	Trig	Free
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<b>Occupied Bandwidth</b>	
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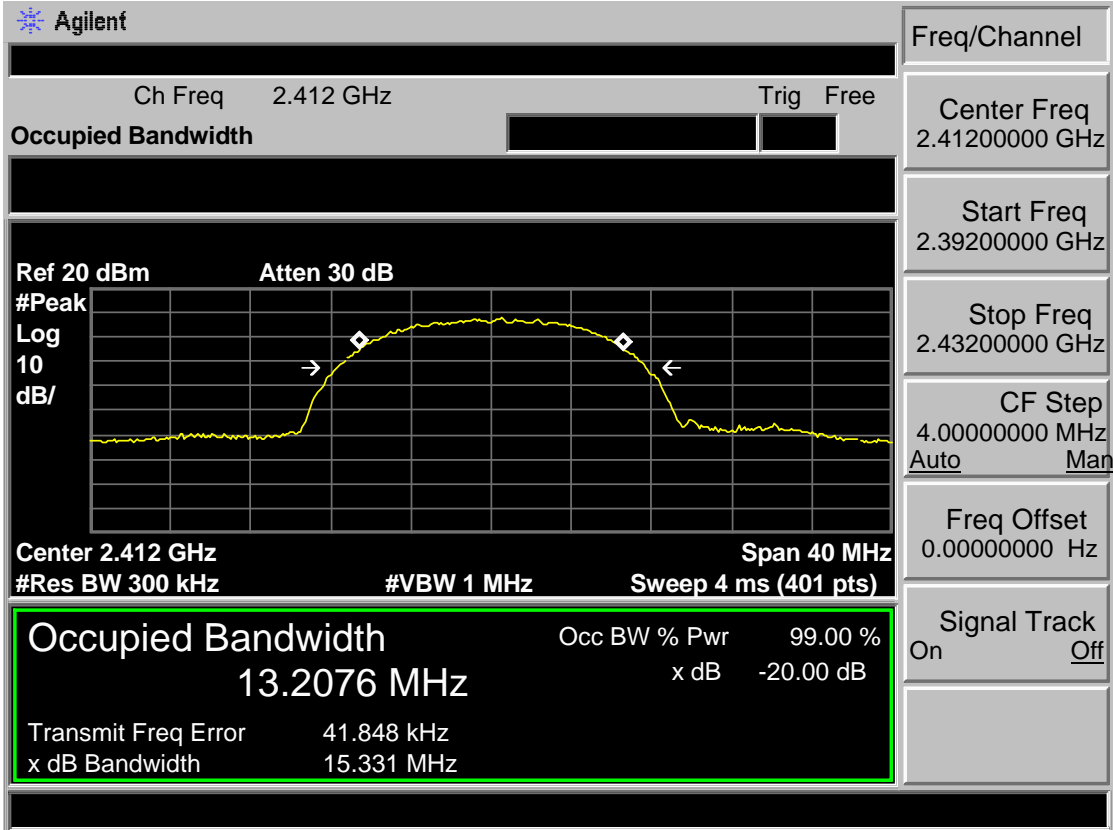
Ref 20 dBm	Atten 30 dB
------------	-------------

Center 2.462 GHz	#VBW 1 MHz	Span 40 MHz
#Res BW 300 kHz	Sweep 4 ms (401 pts)	

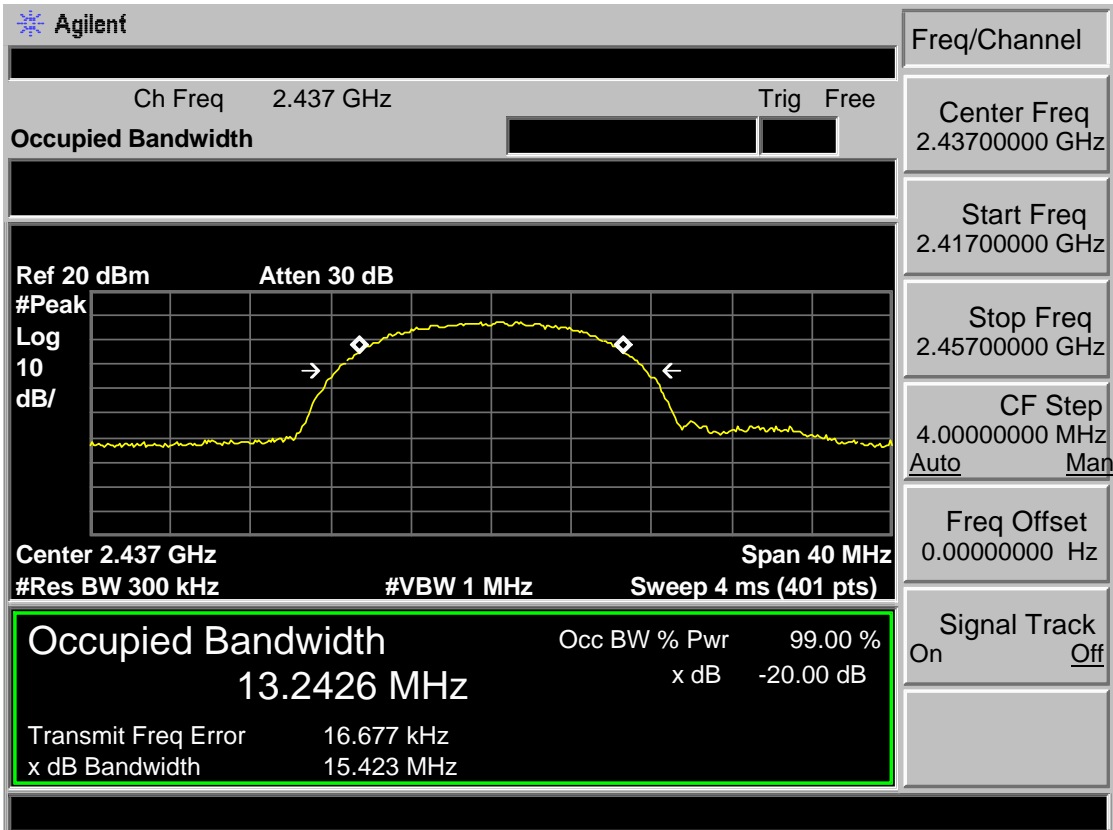
<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
17.7448 MHz	x dB	-20.00 dB
Transmit Freq Error	2.547 kHz	
x dB Bandwidth	19.405 MHz	

Antenna 2

Test Mode: IEEE 802.11b 2412MHz



Test Mode: IEEE 802.11b 2437MHz



Test Mode: IEEE 802.11b 2462MHz

**Agilent**

Ch Freq 2.462 GHz Trig Free

**Occupied Bandwidth**

Center 2.462 GHz Span 40 MHz

#Res BW 300 kHz #VBW 1 MHz Sweep 4 ms (401 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
13.2724 MHz	x dB	-20.00 dB
Transmit Freq Error	-5.192 kHz	
x dB Bandwidth	15.385 MHz	

Freq/Channel

Center Freq  
2.46200000 GHz

Start Freq  
2.44200000 GHz

Stop Freq  
2.48200000 GHz

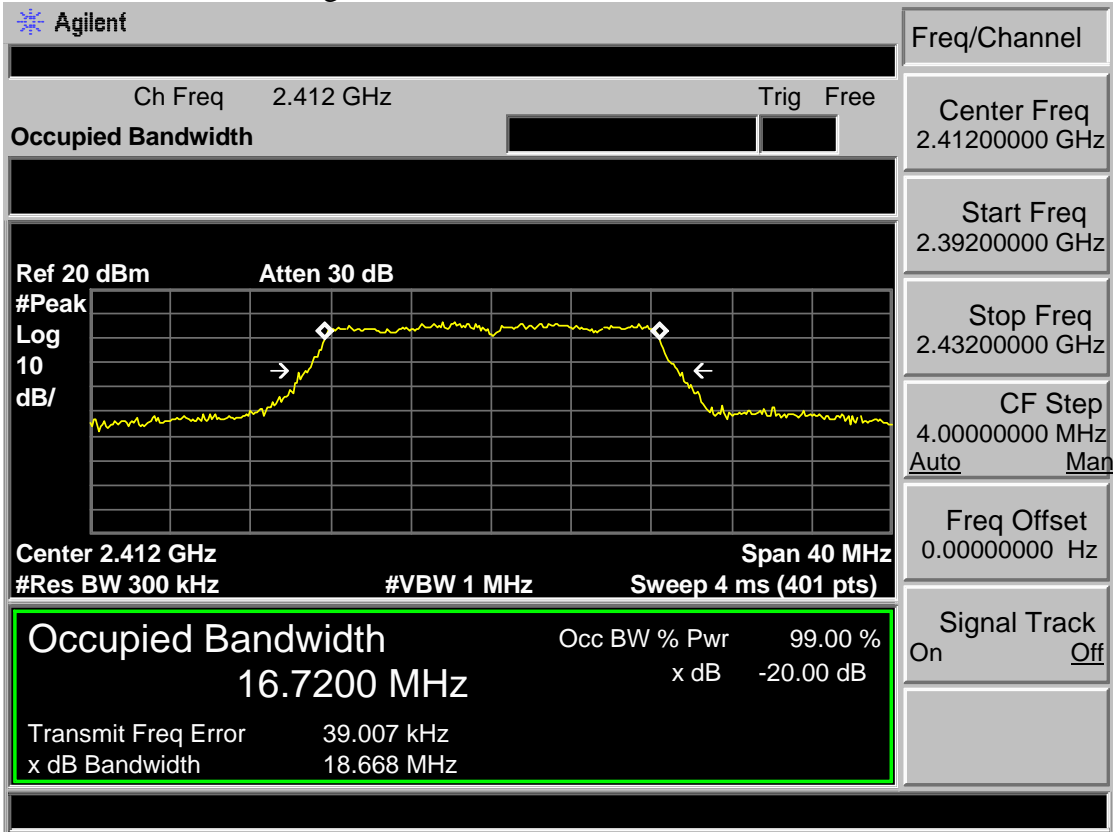
CF Step  
4.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

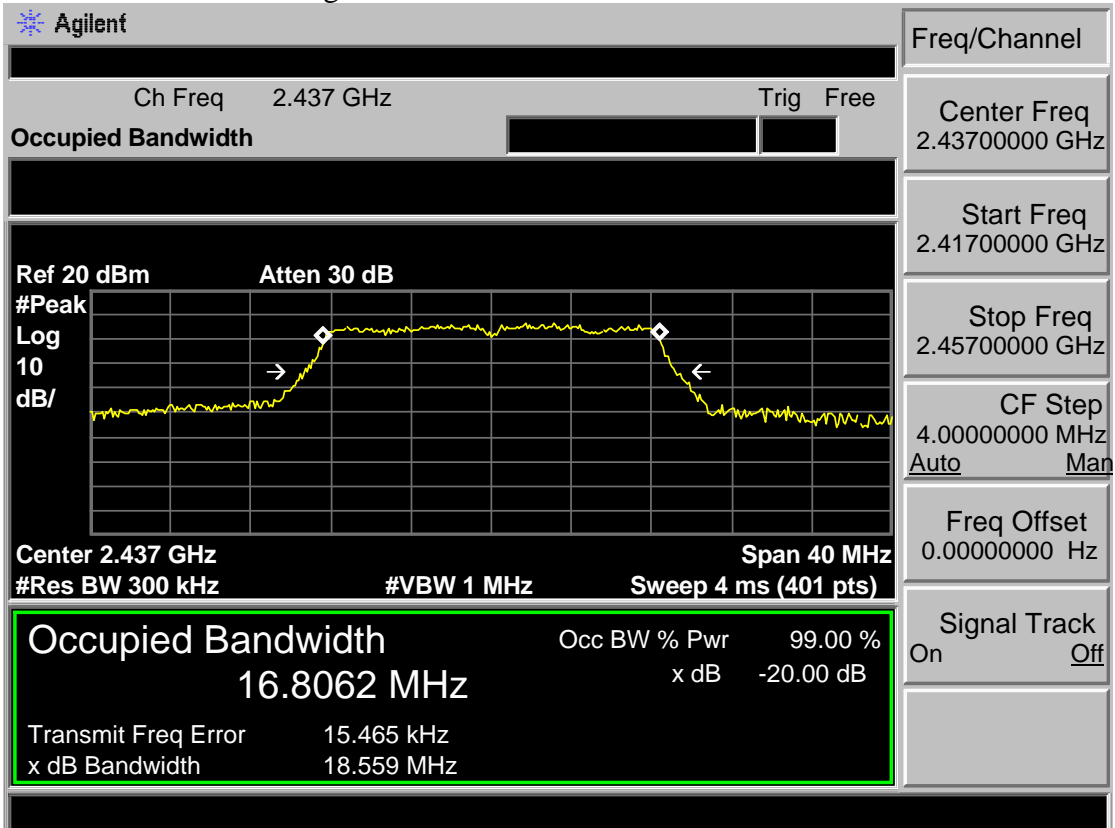
Signal Track  
On Off



Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz



Test Mode: IEEE 802.11g 2462MHz

**Agilent**

Ch Freq 2.462 GHz Trig Free

**Occupied Bandwidth**

Ref 20 dBm Atten 30 dB

#Peak Log 10 dB/

Center 2.462 GHz Span 40 MHz

#Res BW 300 kHz #VBW 1 MHz Sweep 4 ms (401 pts)

**Occupied Bandwidth** Occ BW % Pwr 99.00 %

16.7563 MHz x dB -20.00 dB

Transmit Freq Error -18.834 kHz

x dB Bandwidth 18.553 MHz

Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.44200000 GHz

Stop Freq 2.48200000 GHz

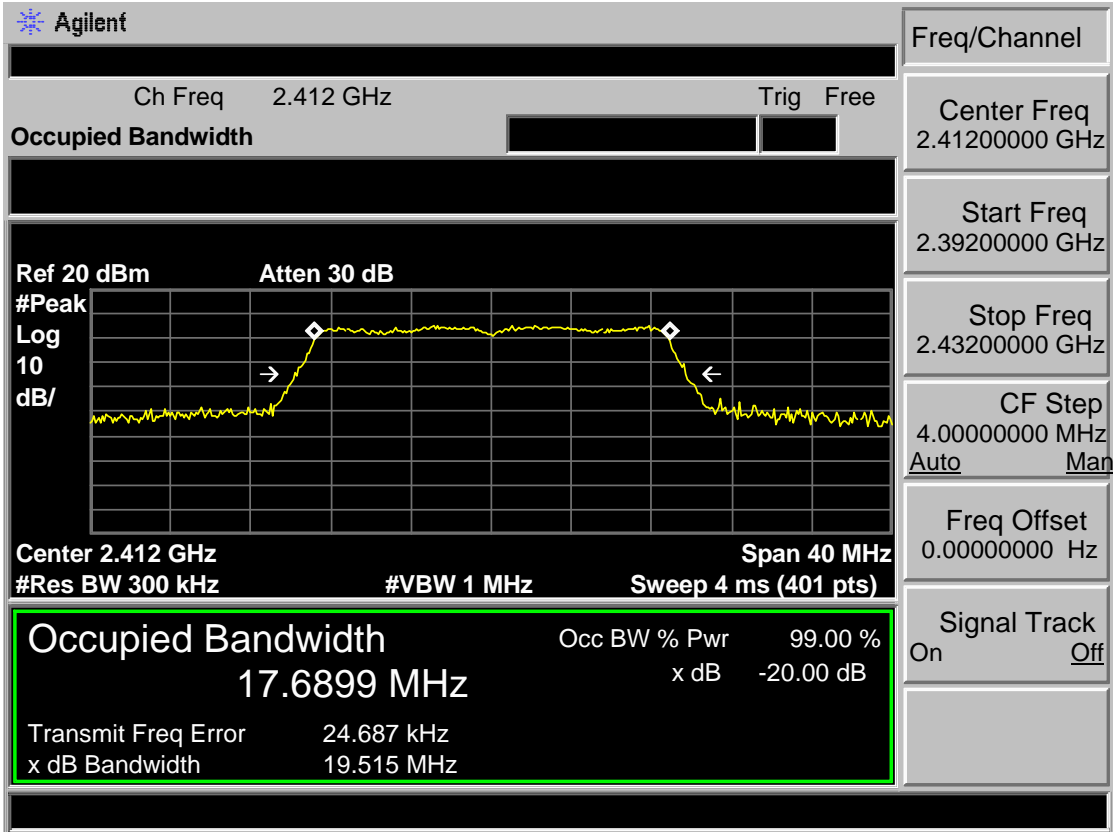
CF Step 4.00000000 MHz

Auto Man

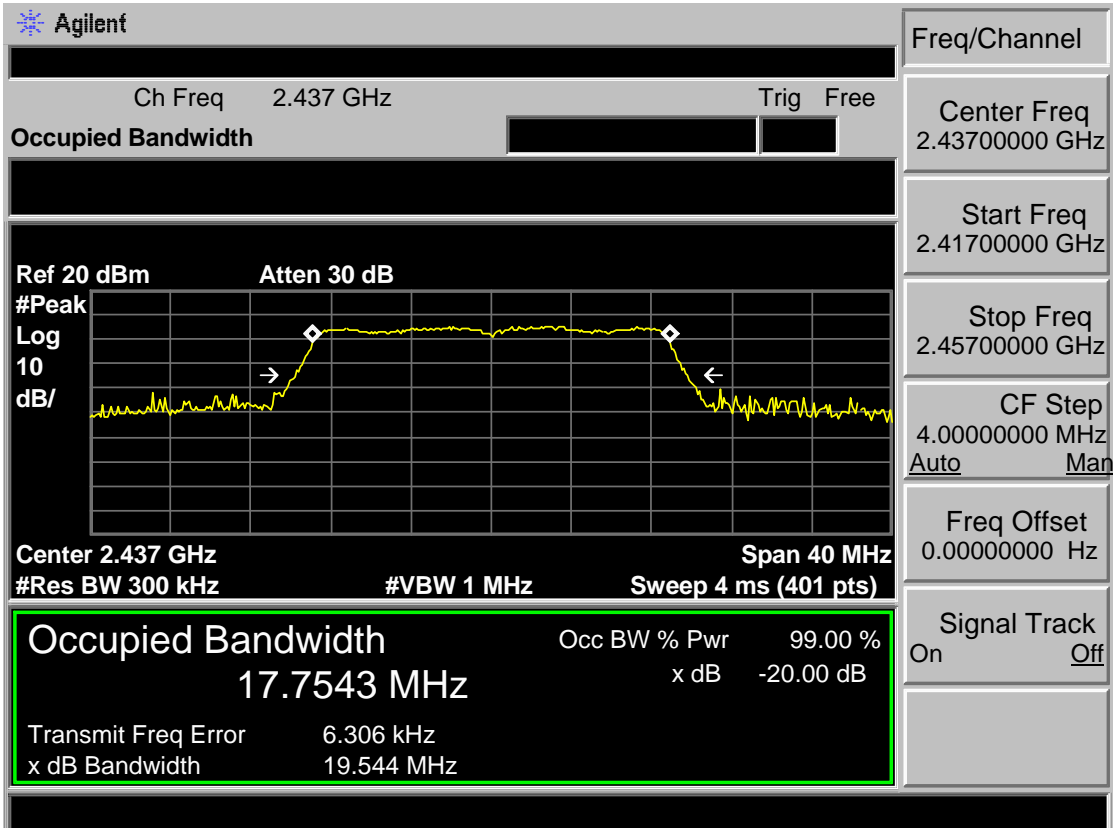
Freq Offset 0.00000000 Hz

Signal Track On Off

Test Mode: IEEE 802.11n HT20 2412MHz



Test Mode: IEEE 802.11n HT20 2437MHz



Test Mode: IEEE 802.11n HT20 2462MHz

**Agilent**

Ch Freq 2.462 GHz Trig Free

**Occupied Bandwidth**

Center 2.462 GHz Span 40 MHz

#Res BW 300 kHz #VBW 1 MHz Sweep 4 ms (401 pts)

Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.44200000 GHz

Stop Freq 2.48200000 GHz

CF Step 4.00000000 MHz  
Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

**Occupied Bandwidth** Occ BW % Pwr 99.00 %

**17.7752 MHz**

x dB -20.00 dB

Transmit Freq Error 5.117 kHz

x dB Bandwidth 19.535 MHz

## 7 OUTPUT POWER TEST

### 7.1 Limit

For systems using digital modulation in the 2400—2483.5MHz, The Peak out put Power shall not exceed 1W(30dBm)

### 7.2 Test Procedure

- 1, The transmitter output (antenna port) was connected to the spectrum analyzer. Connect EUT antenna terminal to the spectrum analyzer with a low loss SMA cable.
- 2, Follow the test procedure as described in KDB 558074
  - (1)Set span to at least 1.5 times the OBW.
  - (2)Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
  - (3)Set VBW  $\geq 3 \times$  RBW.
  - (4)Number of points in sweep  $\geq 2 \times$  span / RBW. (This gives bin-to-bin spacing  $\leq$  RBW/2, so that narrowband signals are not lost between frequency bins.)
  - (4)Sweep time = auto.
  - (5)Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
  - (6)If transmit duty cycle  $< 98 \%$ , use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle  $\geq 98 \%$ , and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
  - (7)Trace average at least 100 traces in power averaging (i.e., RMS) mode.
  - (8)Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

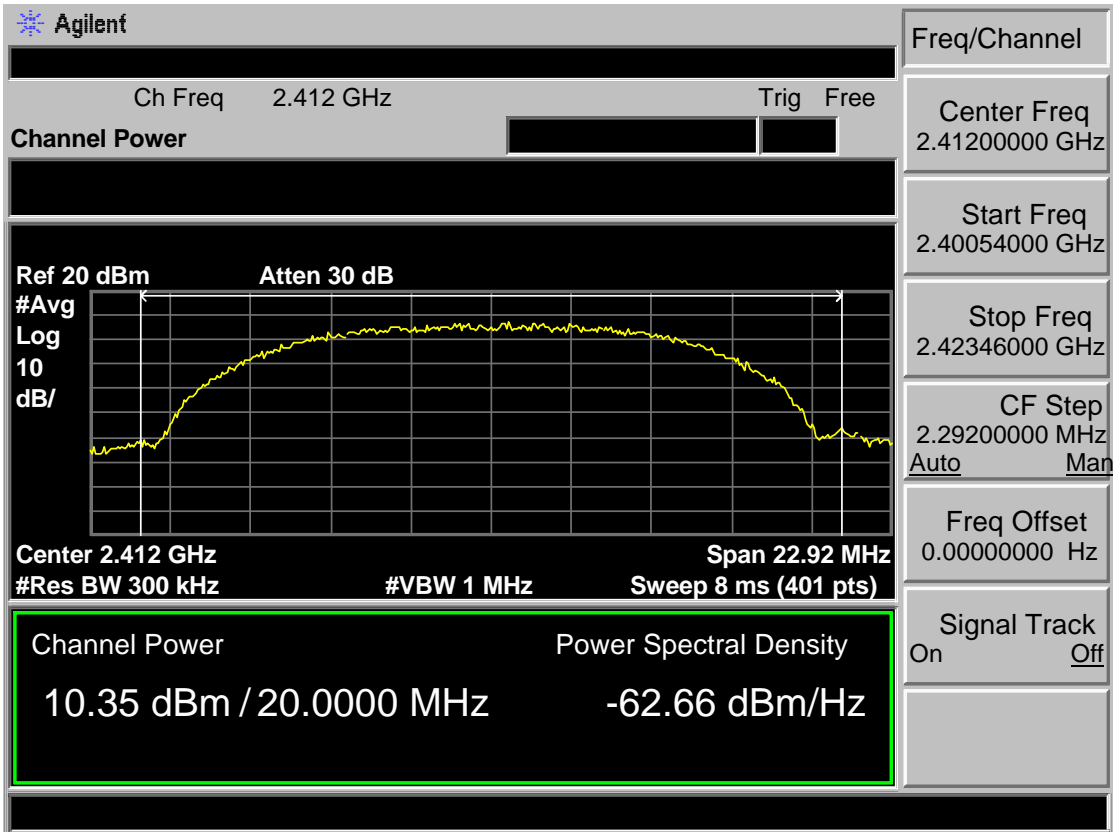
### 7.3 Test Result

EUT: Big Blue 200				
M/N: AR108A4BKA				
Test date: 2017-03-03		Test site: 3m Chamber		Tested by: Tony Tang
Pass				
Test Mode	CH	Conducted Power (dBm)		Limit (dBm)
		ANT 1	ANT 2	
IEEE 802.11 b	CH1	10.35	10.51	30
	CH6	10.43	10.55	30
	CH11	10.05	10.92	30
IEEE 802.11 g	CH1	8.54	8.45	30
	CH6	8.04	8.14	30
	CH11	8.13	8.86	30
IEEE 802.11 n HT 20	CH1	7.69	7.14	30
	CH6	7.08	7.93	30
	CH11	7.72	7.57	30
Conclusion : PASS				

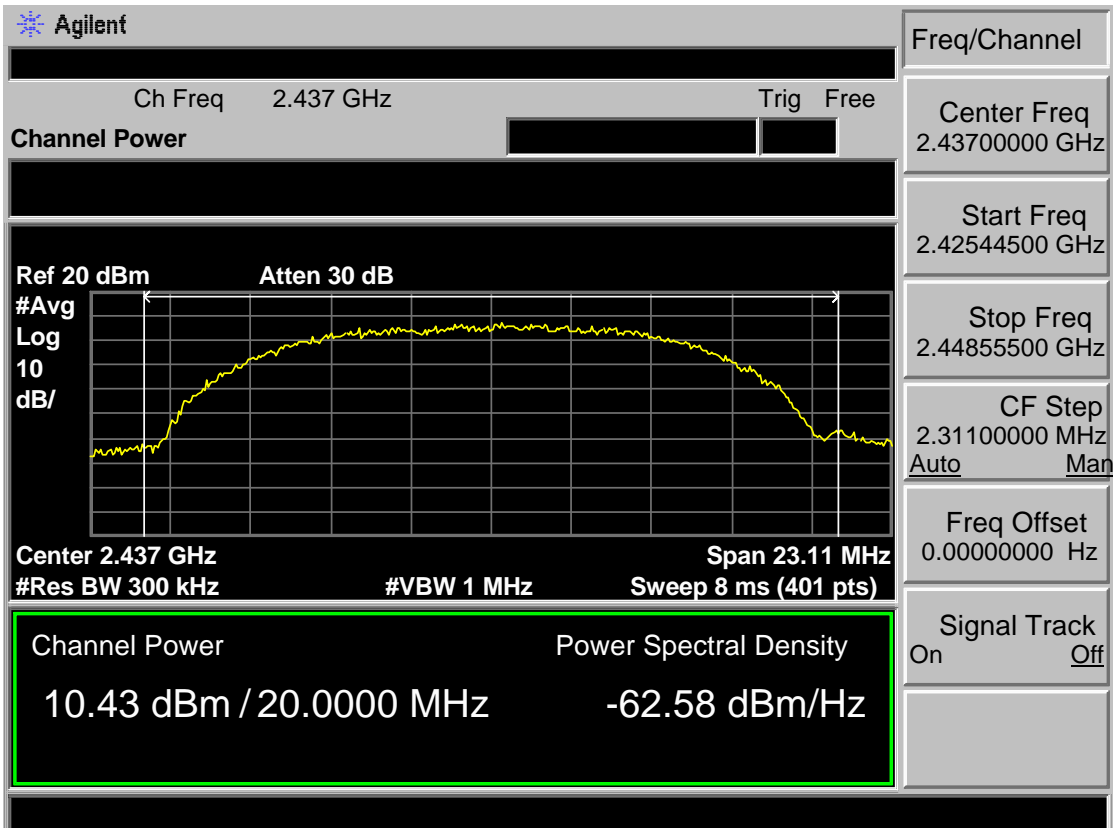
### 7.4 Test Data

Antenna 1

Test Mode: IEEE 802.11b 2412MHz



Test Mode: IEEE 802.11b 2437MHz



Test Mode: IEEE 802.11b 2462MHz

Agilent

Freq/Channel

Ch Freq 2.462 GHz  
**Channel Power**

Trig Free

Ref 20 dBm
Atten 30 dB

Center 2.462 GHz
Span 23.08 MHz

#Res BW 300 kHz
#VBW 1 MHz
Sweep 8 ms (401 pts)

Center Freq  
2.46200000 GHz

Start Freq  
2.45046000 GHz

Stop Freq  
2.47354000 GHz

CF Step  
2.30800000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

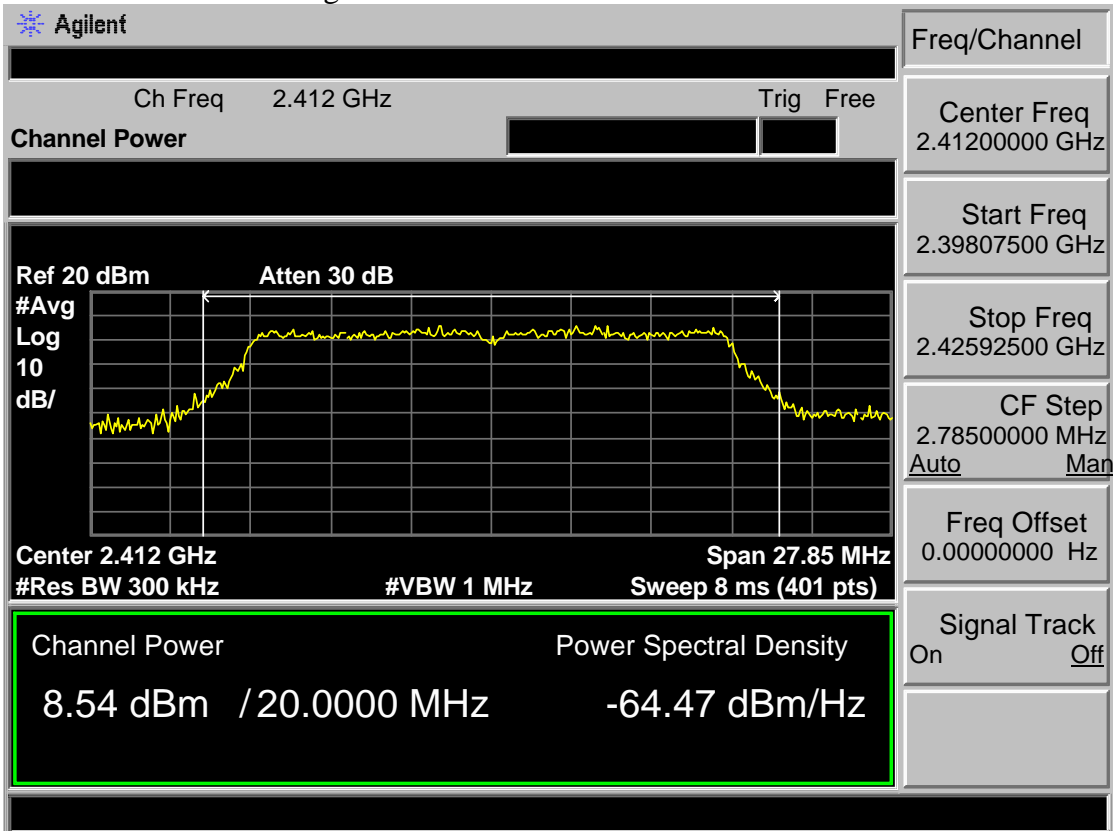
Signal Track  
On Off

Channel Power  
 10.05 dBm / 20.0000 MHz

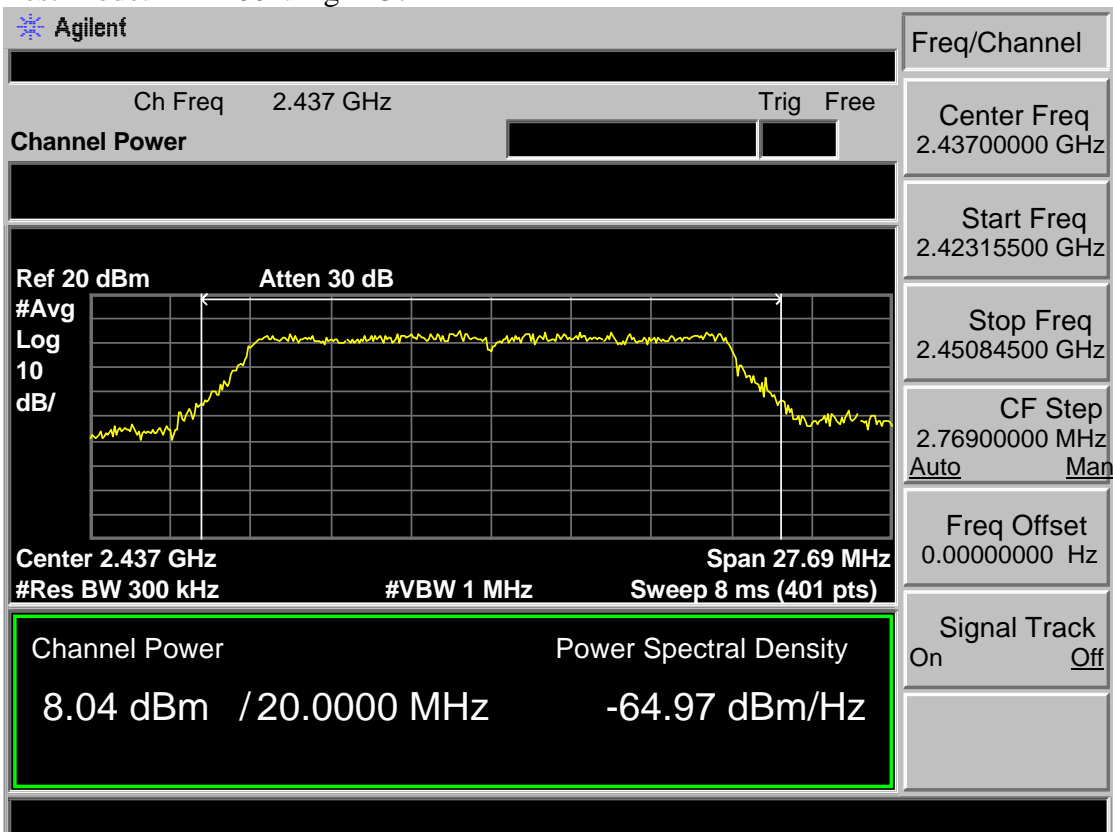
Power Spectral Density  
 -62.96 dBm/Hz



Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz



Test Mode: IEEE 802.11g 2462MHz

Agilent

Freq/Channel  
 Center Freq 2.4620000 GHz  
 Start Freq 2.44817500 GHz  
 Stop Freq 2.47582500 GHz  
 CF Step 2.76500000 MHz  
 Auto Man  
 Freq Offset 0.00000000 Hz  
 Signal Track On Off

Ch Freq 2.462 GHz  
 Trig Free

Channel Power

Ref 20 dBm      Atten 30 dB

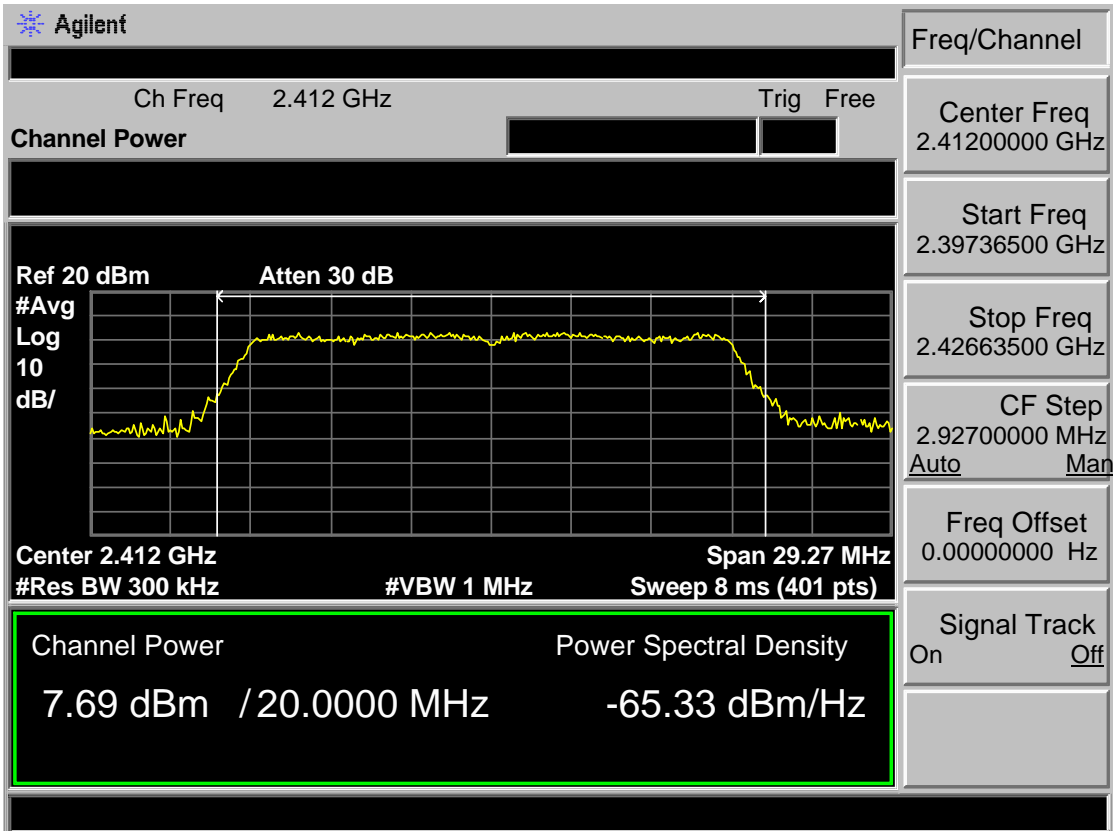
#Avg 10  
Log dB/

Center 2.462 GHz      Span 27.65 MHz  
#Res BW 300 kHz      #VBW 1 MHz      Sweep 8 ms (401 pts)

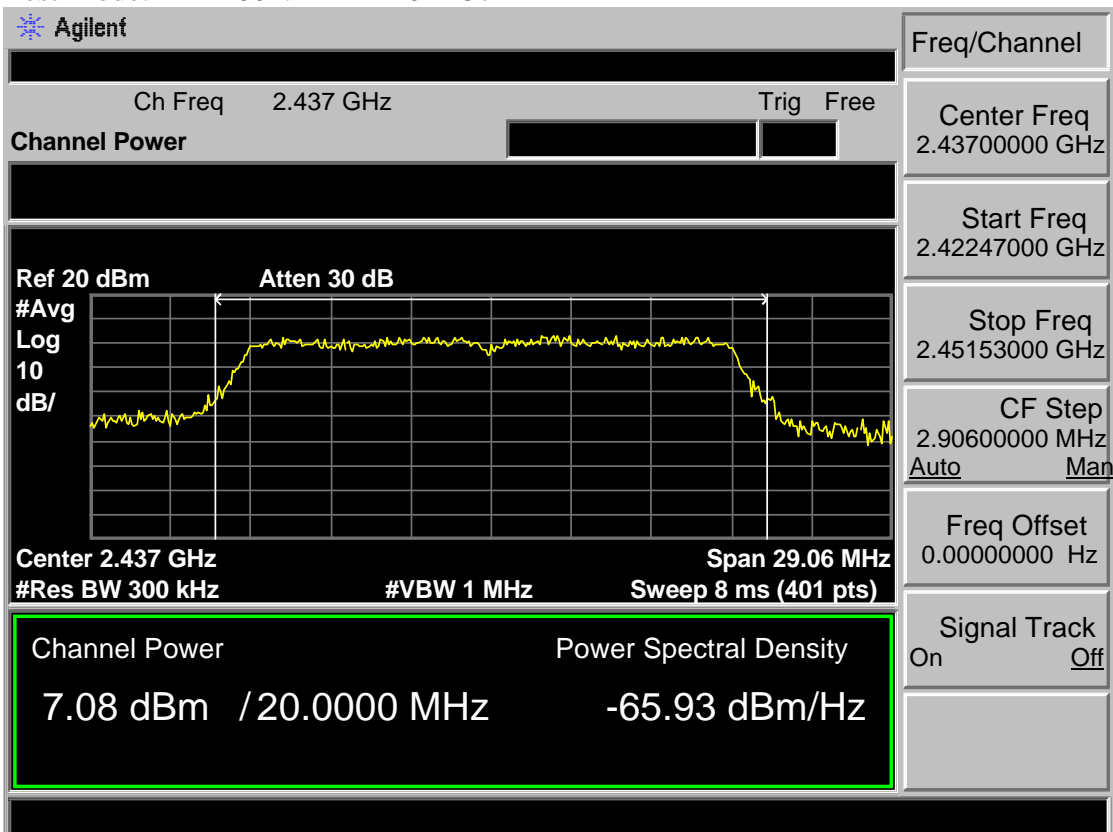
Channel Power  
 8.13 dBm / 20.0000 MHz

Power Spectral Density  
 -64.88 dBm/Hz

Test Mode: IEEE 802.11n HT20 2412MHz



Test Mode: IEEE 802.11n HT20 2437MHz



Test Mode: IEEE 802.11n HT20 2462MHz

Agilent

Freq/Channel

Ch Freq 2.462 GHz  
**Channel Power**

Trig Free

Center Freq 2.46200000 GHz

Start Freq 2.44744500 GHz

Stop Freq 2.47655500 GHz

CF Step 2.91100000 MHz  
 Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Ref 20 dBm      Atten 30 dB

Span 29.11 MHz

Center 2.462 GHz

#Res BW 300 kHz

#VBW 1 MHz

Sweep 8 ms (401 pts)

Channel Power

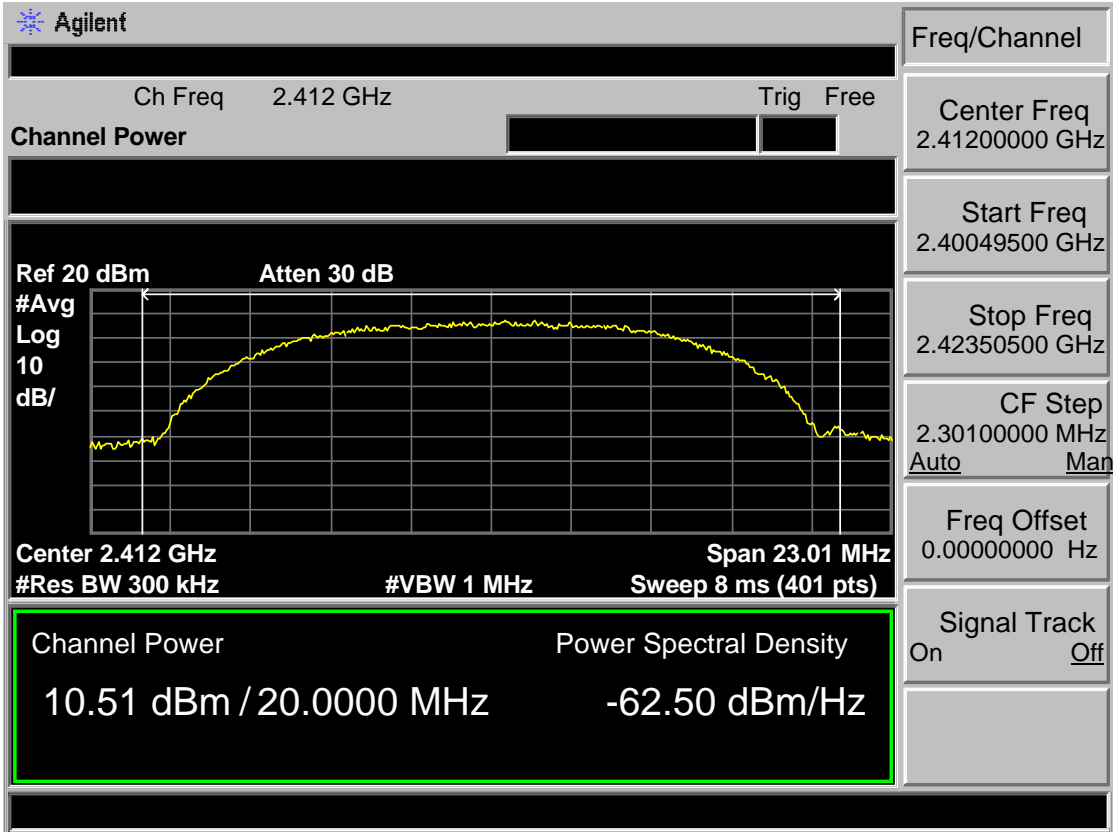
**7.72 dBm / 20.0000 MHz**

Power Spectral Density

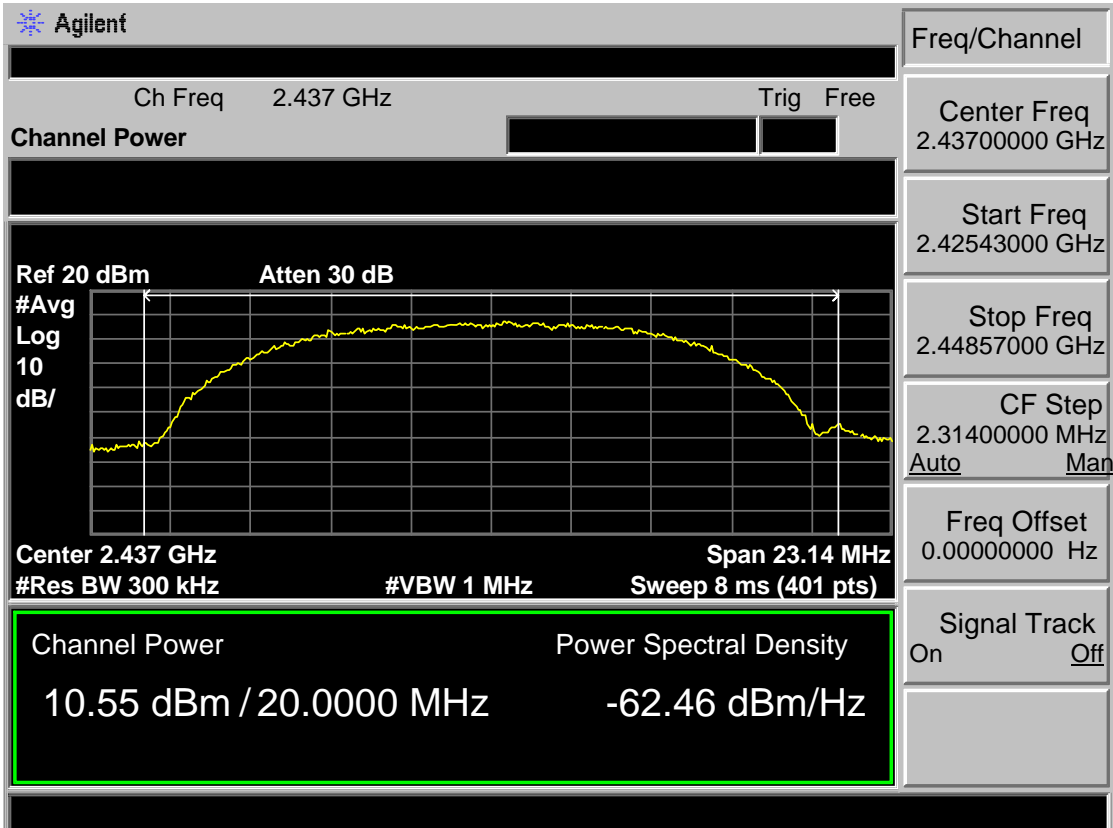
**-65.29 dBm/Hz**

Antenna 2

Test Mode: IEEE 802.11b 2412MHz



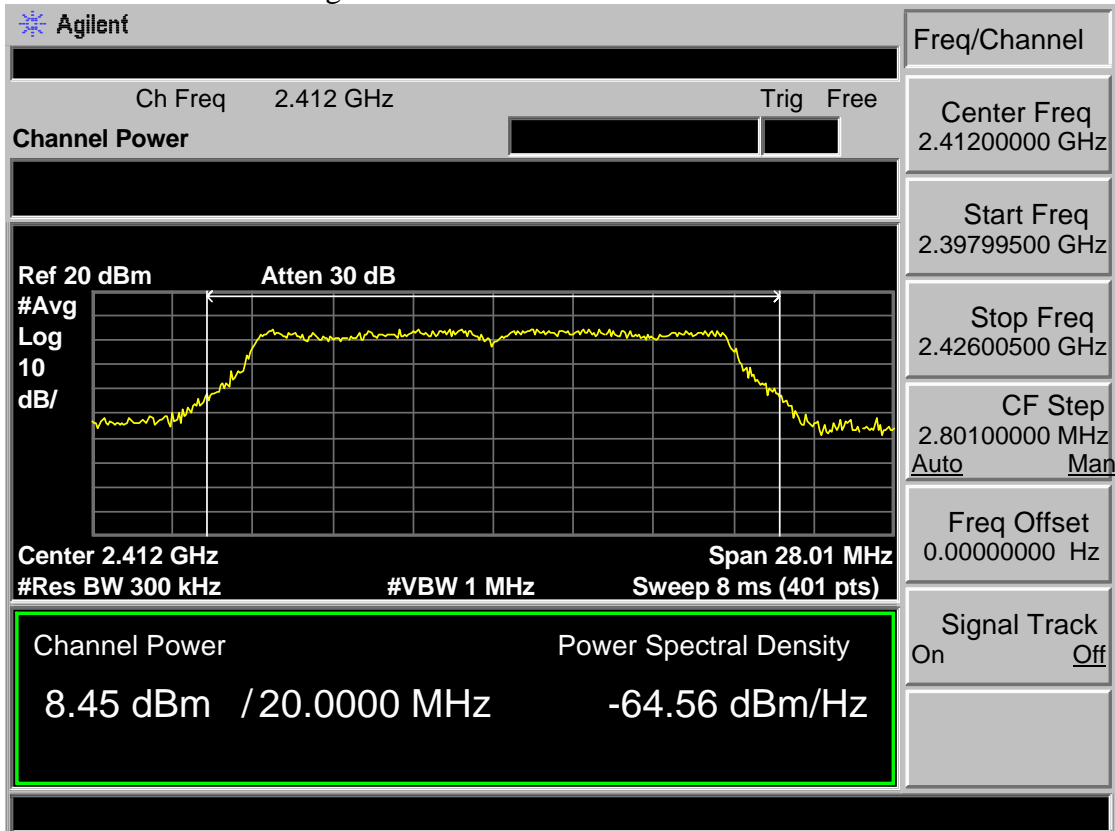
Test Mode: IEEE 802.11b 2437MHz



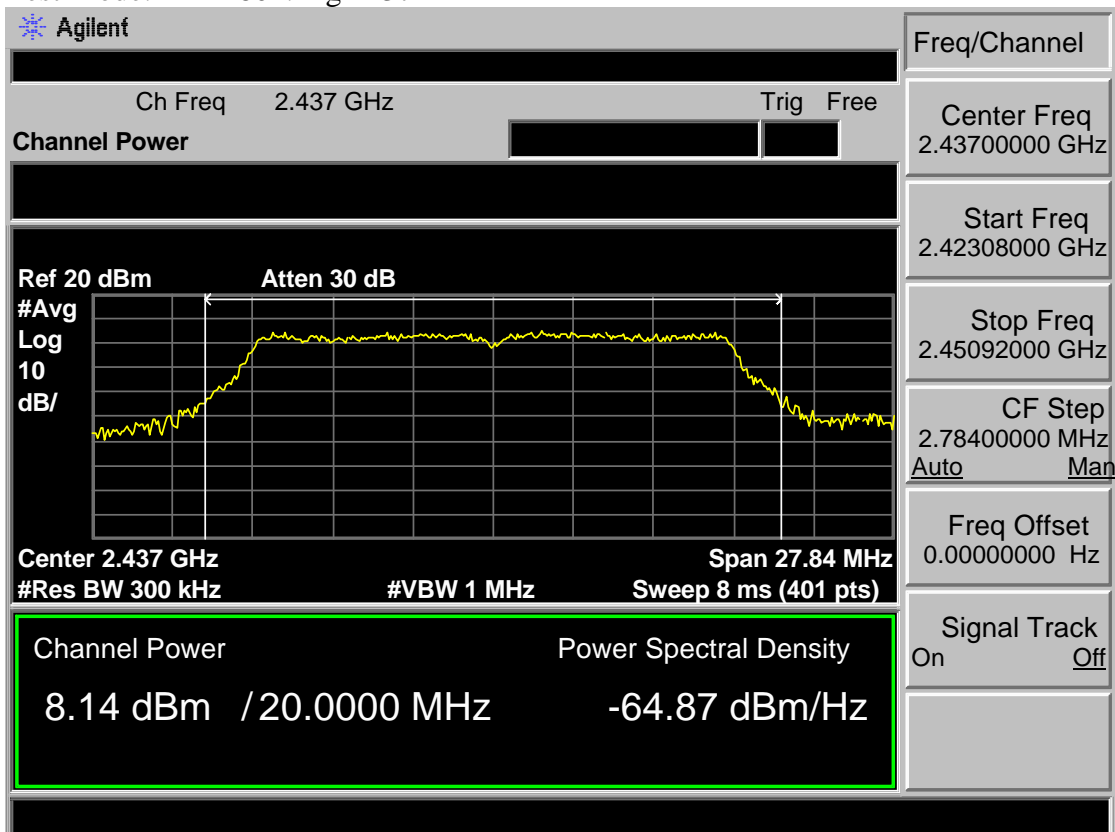
Test Mode: IEEE 802.11b 2462MHz

Agilent		Freq/Channel
Ch Freq 2.462 GHz Trig Free		Center Freq 2.46200000 GHz
Channel Power		Start Freq 2.45046000 GHz
Ref 20 dBm Atten 30 dB #Avg 10 Log dB/		Stop Freq 2.47354000 GHz
		CF Step 2.30800000 MHz Auto Man
Center 2.462 GHz Span 23.08 MHz #Res BW 300 kHz #VBW 1 MHz Sweep 8 ms (401 pts)		Freq Offset 0.00000000 Hz
Channel Power Power Spectral Density 10.92 dBm / 20.0000 MHz -62.09 dBm/Hz		Signal Track On Off

Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz



Test Mode: IEEE 802.11g 2462MHz

Agilent

Freq/Channel

Ch Freq 2.462 GHz

Trig Free

Channel Power

Center Freq  
2.46200000 GHz

Ref 20 dBm
Atten 30 dB

Center 2.462 GHz
Span 27.83 MHz

#Res BW 300 kHz
#VBW 1 MHz
Sweep 8 ms (401 pts)

Start Freq  
2.44808500 GHz

Stop Freq  
2.47591500 GHz

CF Step  
2.78300000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

Channel Power

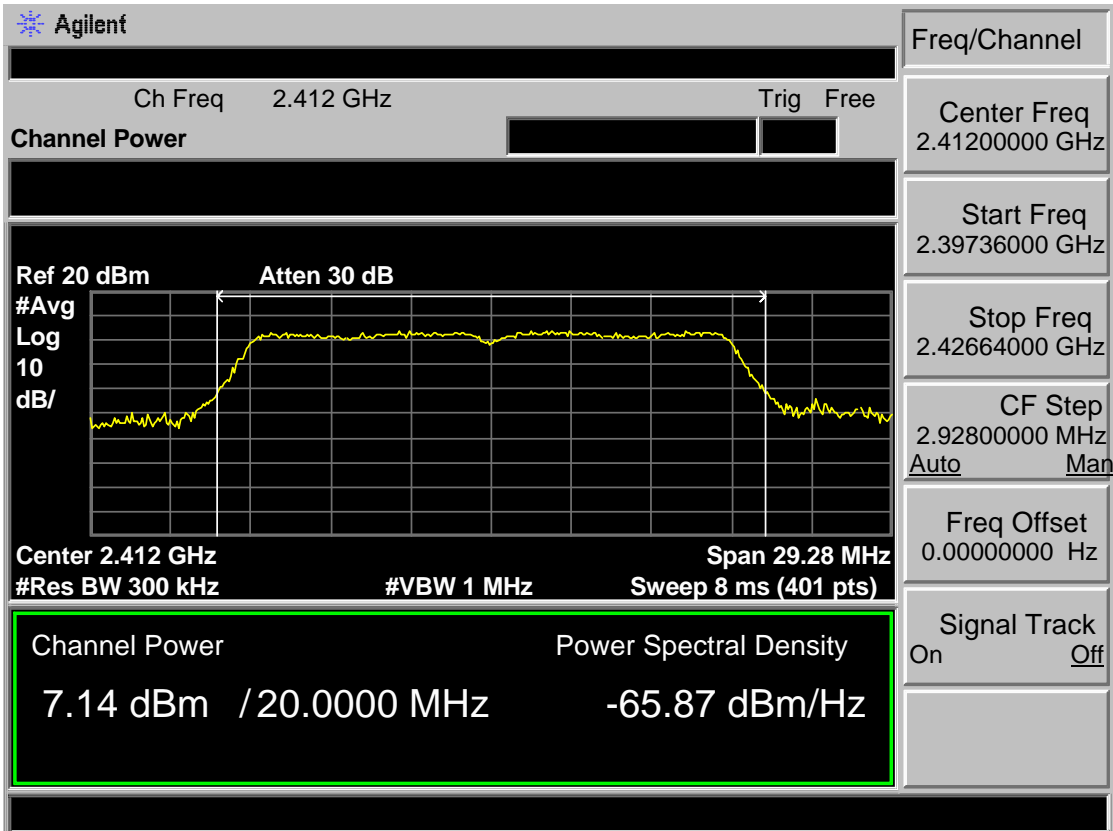
**8.86 dBm / 20.0000 MHz**

Power Spectral Density

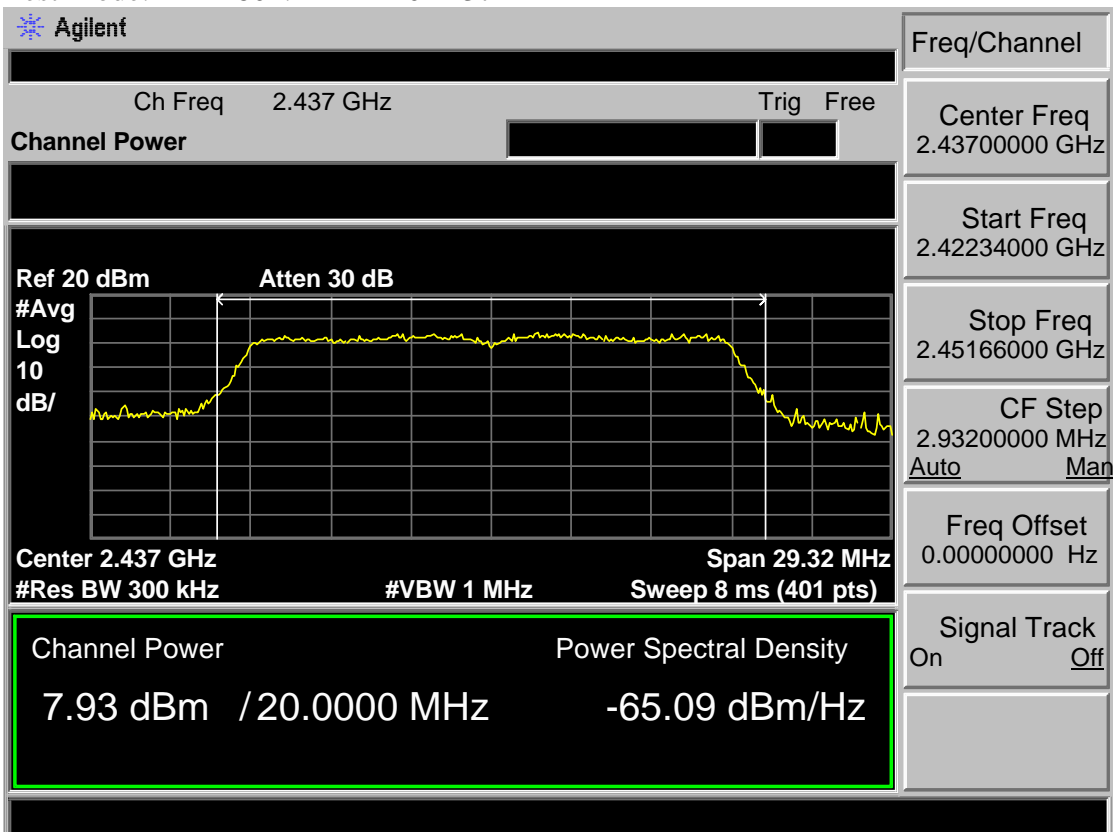
**-64.15 dBm/Hz**



Test Mode: IEEE 802.11n HT20 2412MHz



Test Mode: IEEE 802.11n HT20 2437MHz



Test Mode: IEEE 802.11n HT20 2462MHz

Agilent

Freq/Channel

Ch Freq 2.462 GHz  
**Channel Power**

Trig Free

Center Freq 2.46200000 GHz

Start Freq 2.44734500 GHz

Stop Freq 2.47665500 GHz

CF Step 2.93100000 MHz  
 Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Ref 20 dBm      Atten 30 dB

#Avg  
Log  
10  
dB/

Center 2.462 GHz      Span 29.31 MHz

#Res BW 300 kHz      #VBW 1 MHz      Sweep 8 ms (401 pts)

Channel Power

**7.57 dBm / 20.0000 MHz**

Power Spectral Density

**-65.44 dBm/Hz**

## 8 POWER SPECTRAL DENSITY TEST

### 8.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

### 8.2 Test Procedure

- 1, The transmitter output (antenna port) was connected to the spectrum analyzer. Connect EUT antenna terminal to the spectrum analyzer with a low loss SMA cable.
  
- 2, Follow the test procedure as described in KDB 558074
  - (1). Set analyzer center frequency to DTS channel center frequency.
  - (2). Set the span to 1.5 times the DTS bandwidth.
  - (3). Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
  - (4). Set the VBW  $\geq 3 \text{ RBW}$ .
  - (5). Detector = peak.
  - (6). Sweep time = auto couple.
  - (7). Trace mode = max hold.
  - (8). Allow trace to fully stabilize.
  - (9). Use the peak marker function to determine the maximum amplitude level.
  - (10). If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

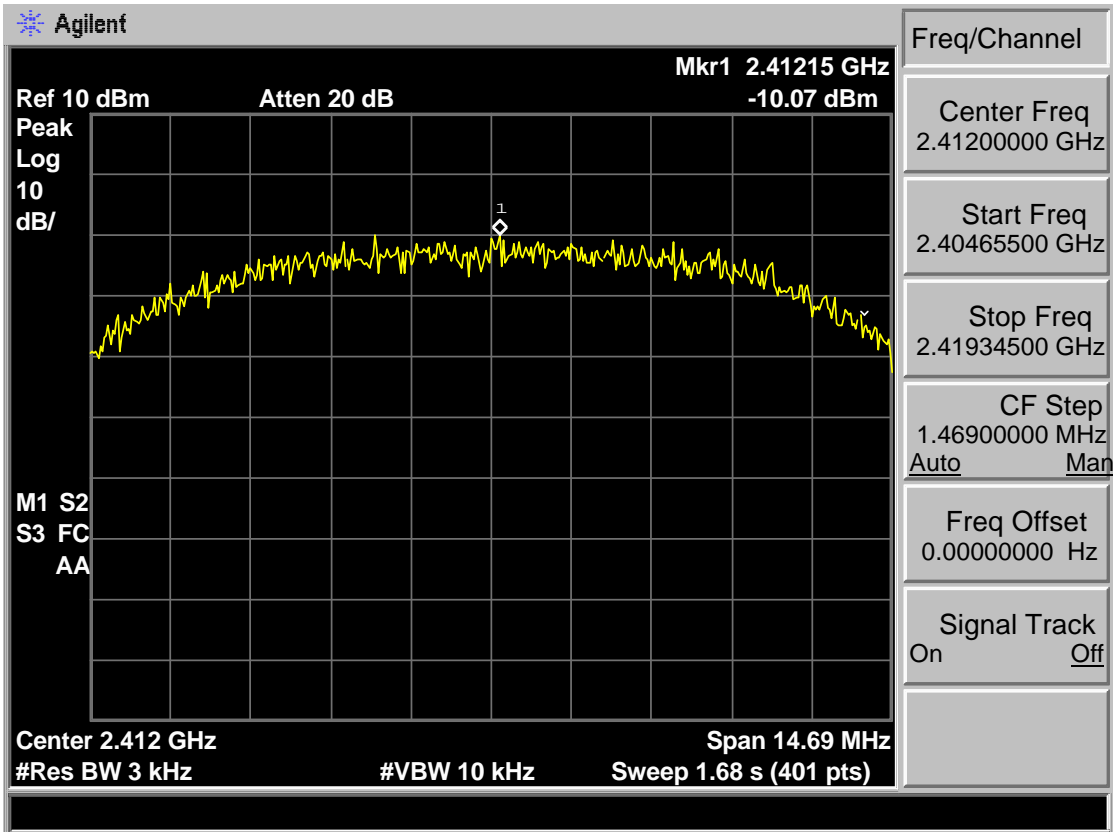
### 8.3 Test Result

EUT: Big Blue 200				
M/N: AR108A4BKA				
Test date: 2017-03-03		Test site: 3m Chamber		Tested by: Tony Tang
Pass				
Test Mode	CH	Power density (dBm/3kHz)		Limit (dBm/3kHz)
		ANT 1	ANT 2	
IEEE 802.11 b	CH1	-10.07	-9.381	8
	CH6	-9.998	-9.860	8
	CH11	-9.669	-9.360	8
IEEE 802.11 g	CH1	-11.26	-11.80	8
	CH6	-11.06	-12.44	8
	CH11	-11.64	-11.21	8
IEEE 802.11 n HT 20	CH1	-13.59	-13.51	8
	CH6	-13.40	-13.23	8
	CH11	-13.44	-13.01	8
Conclusion : PASS				

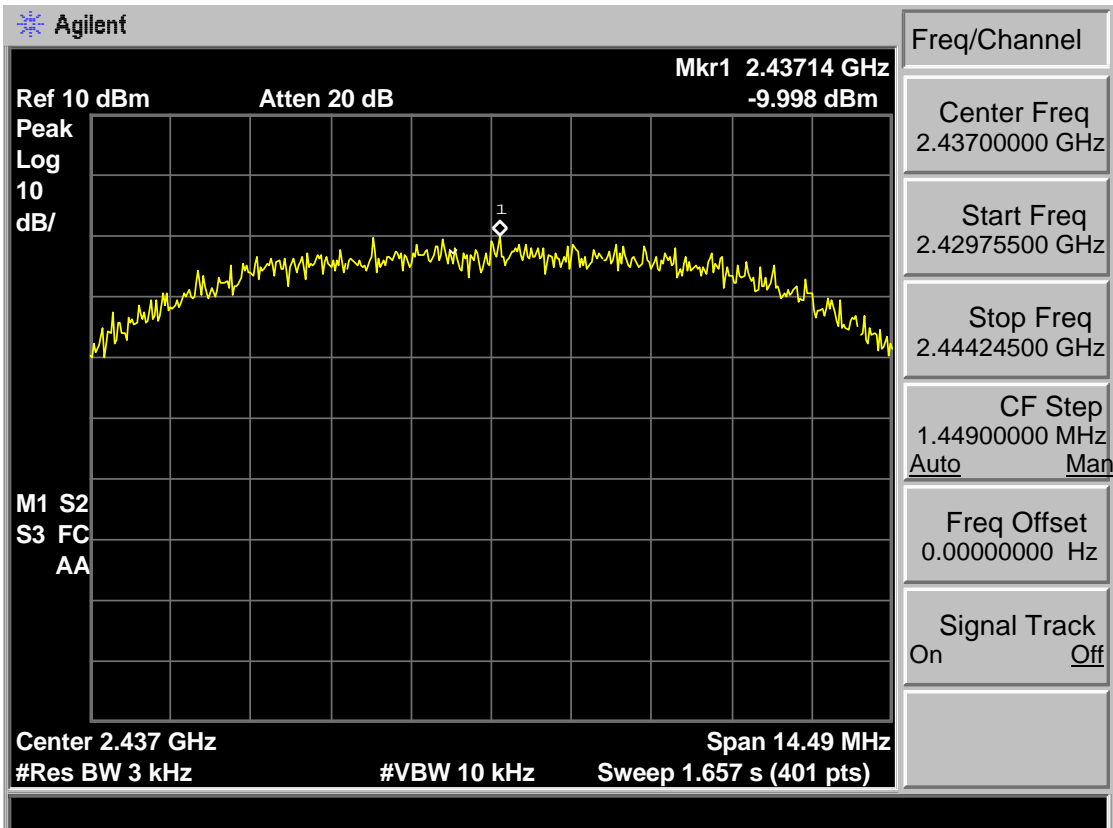
### 8.4 Test Data

Antenna 1

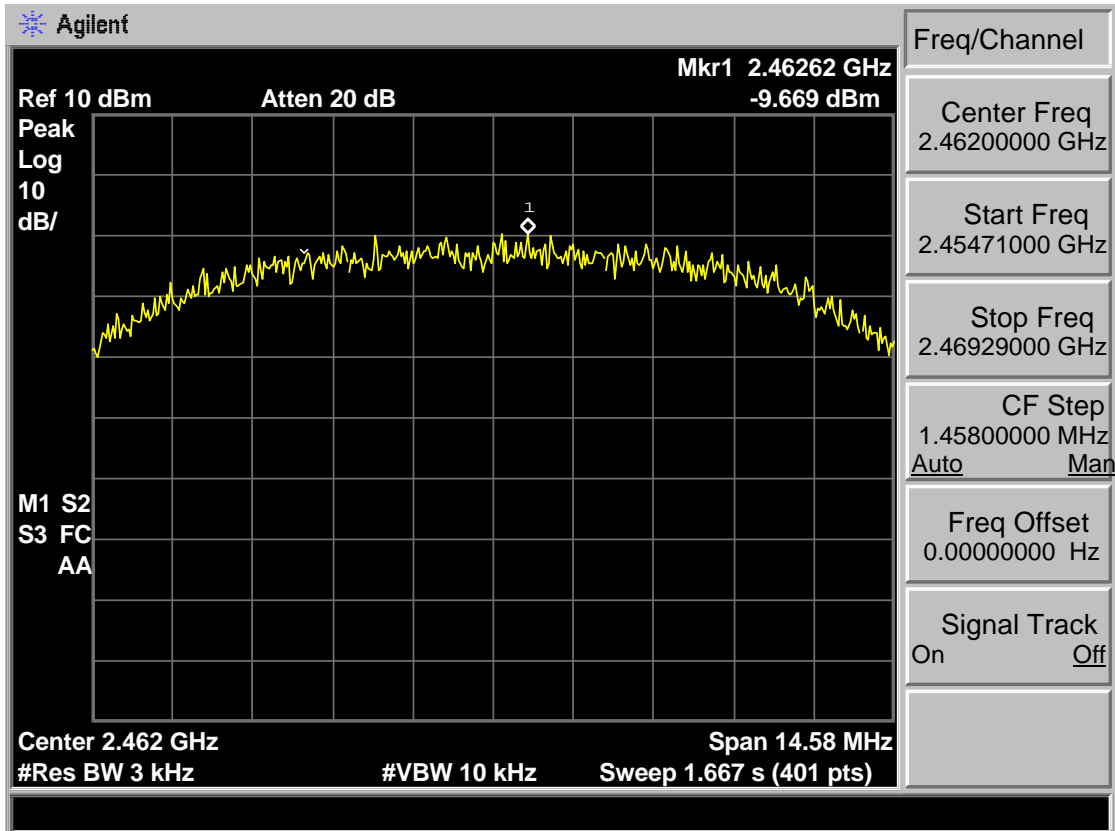
Test Mode: IEEE 802.11b 2412MHz



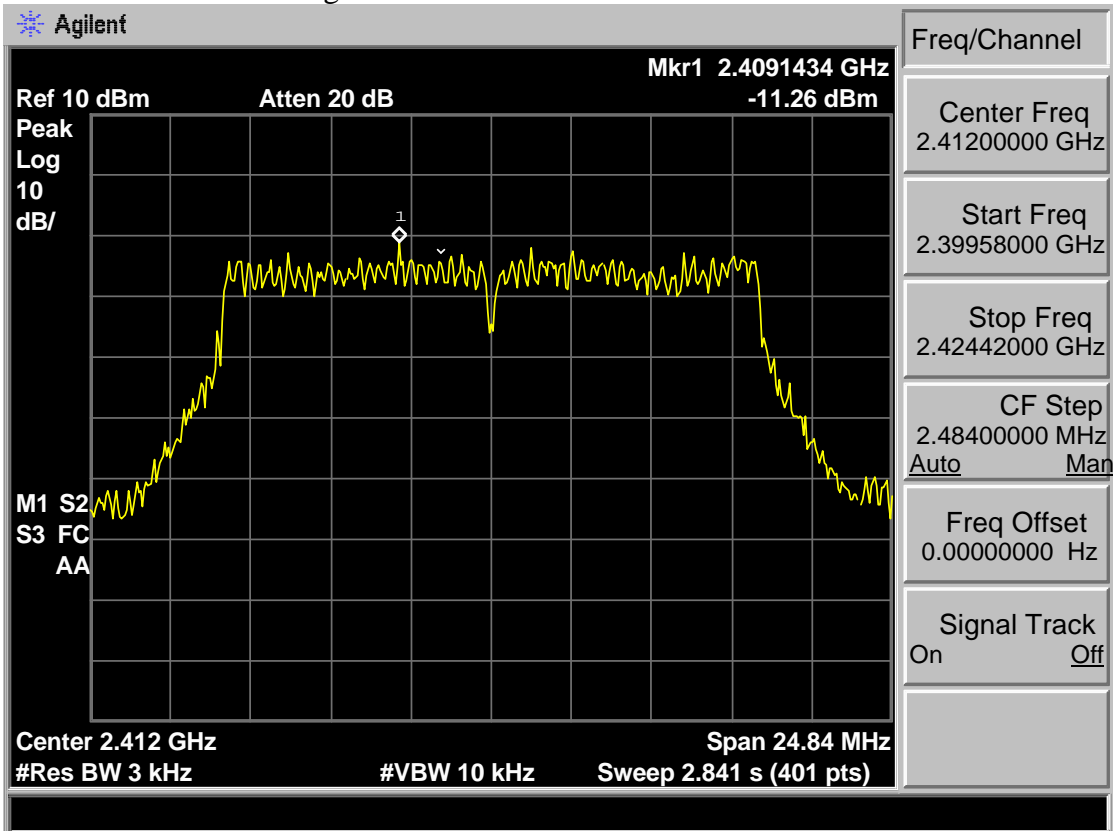
Test Mode: IEEE 802.11b 2437MHz



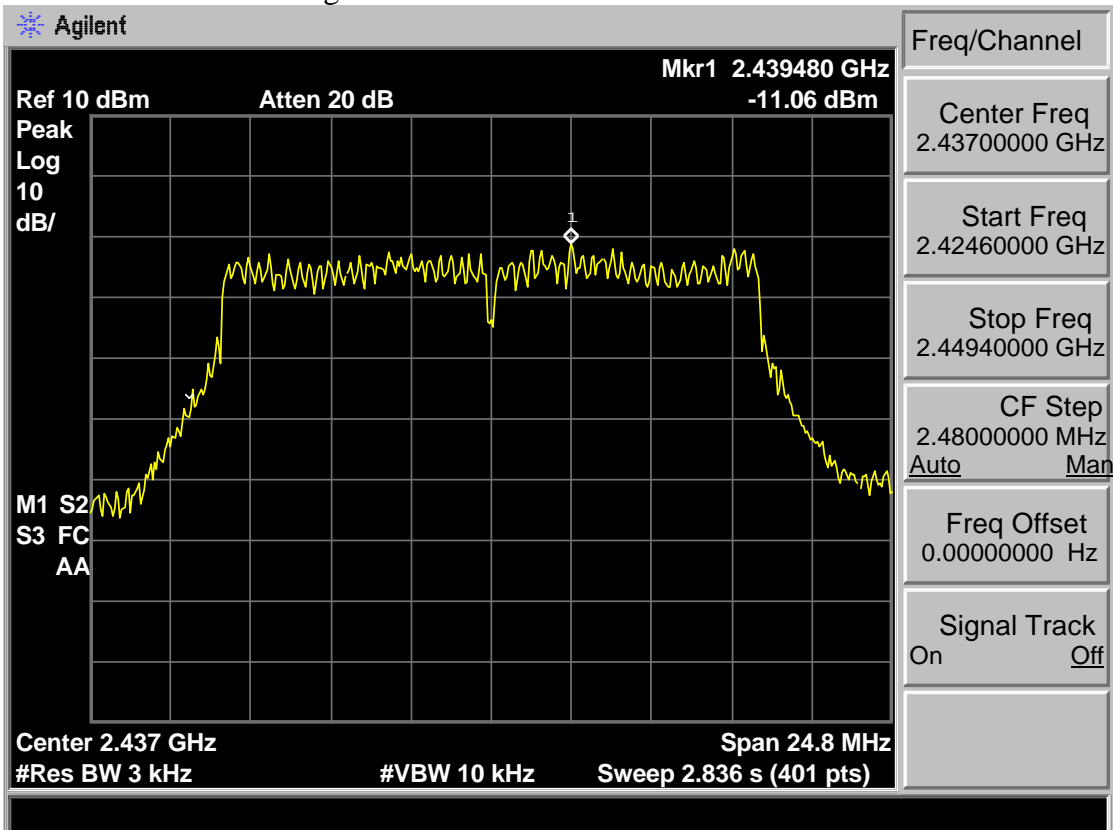
Test Mode: IEEE 802.11b 2462MHz



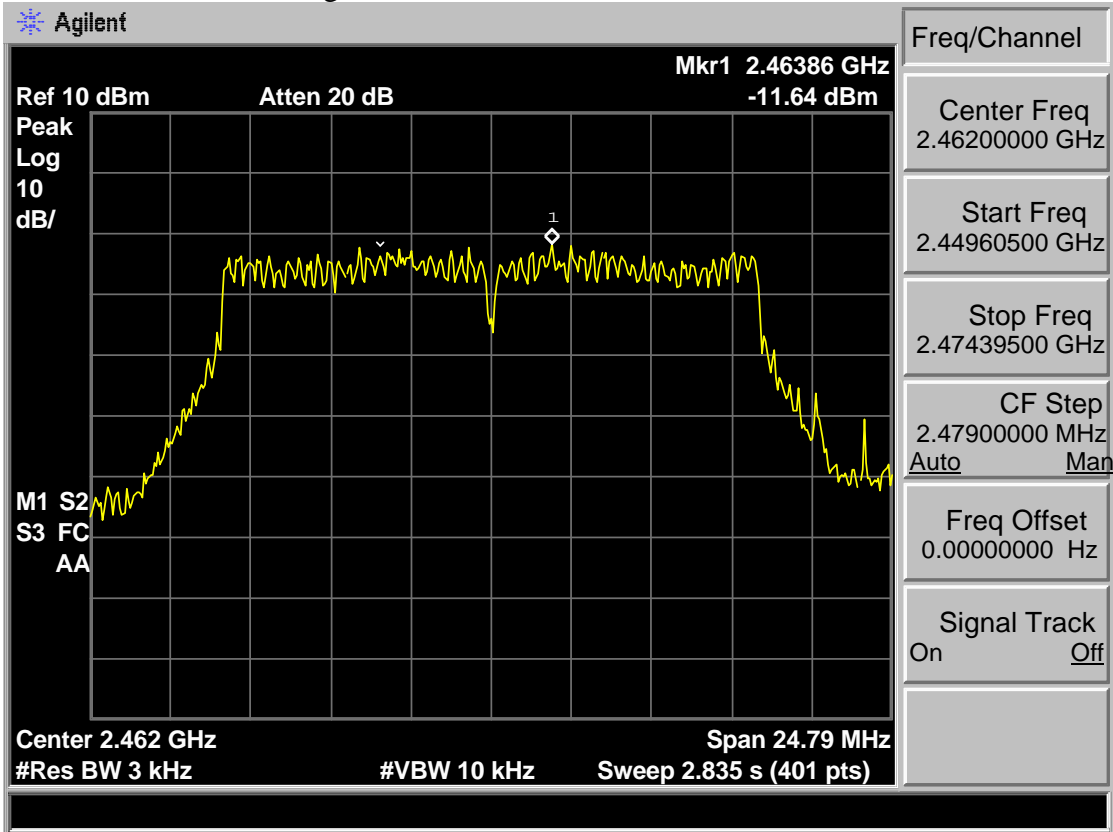
Test Mode: IEEE 802.11g 2412MHz



Test Mode: IEEE 802.11g 2437MHz

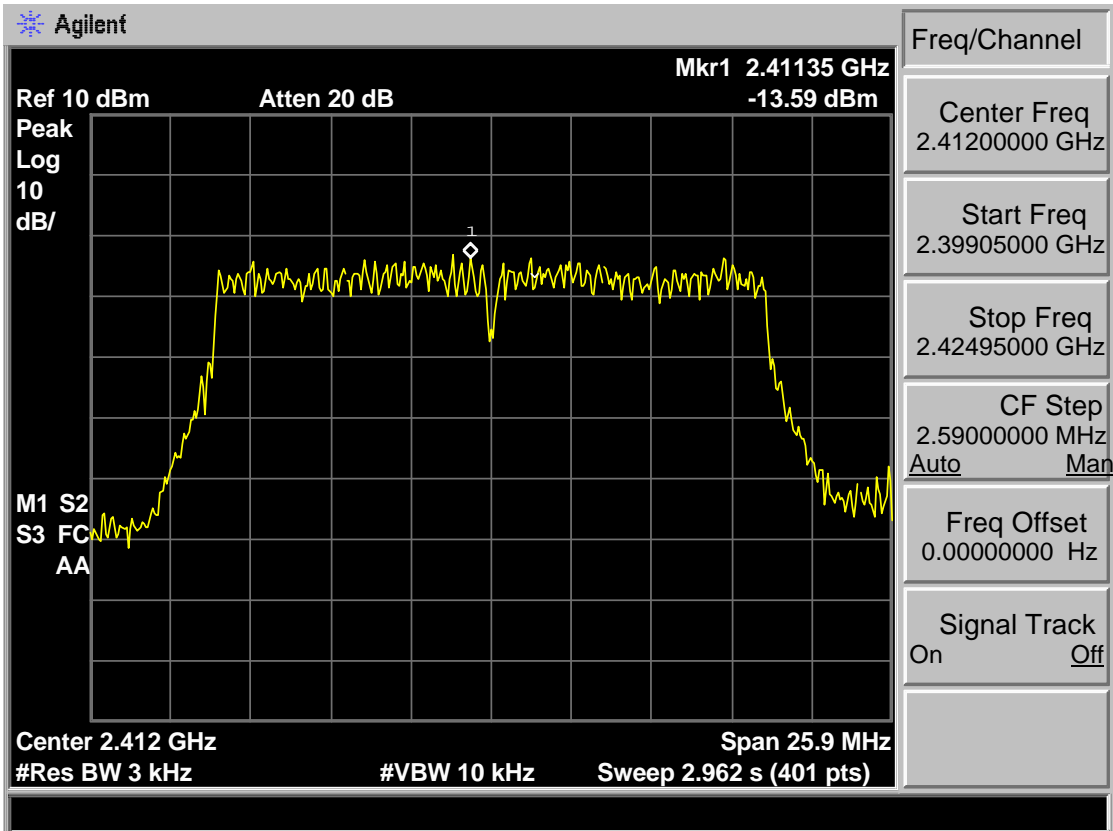


Test Mode: IEEE 802.11g 2462MHz

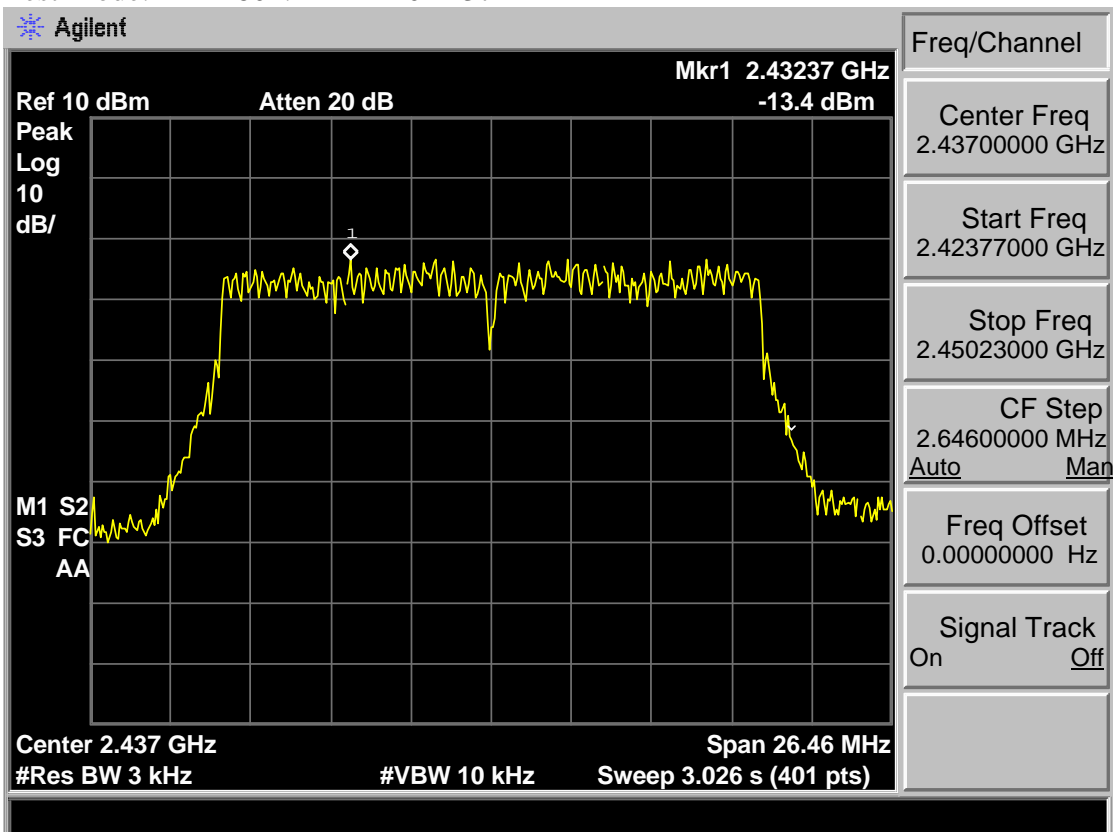




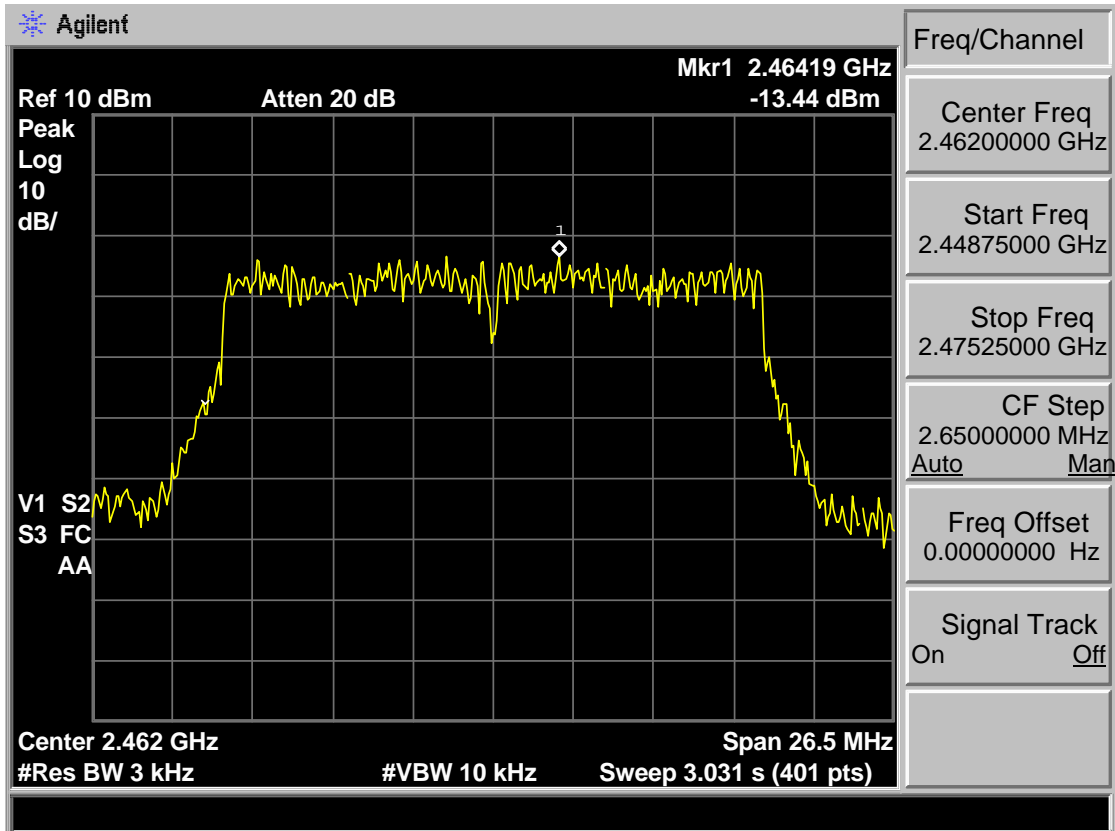
Test Mode: IEEE 802.11n HT20 2412MHz



Test Mode: IEEE 802.11n HT20 2437MHz

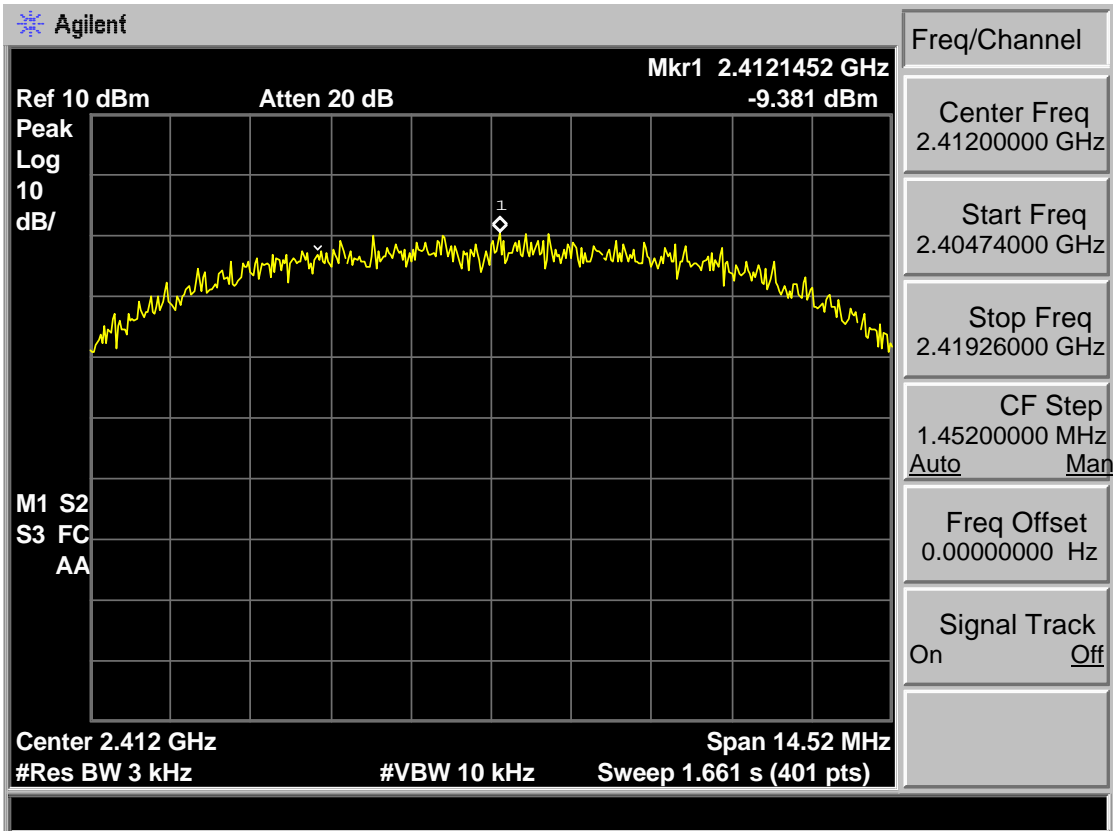


Test Mode: IEEE 802.11n HT20 2462MHz

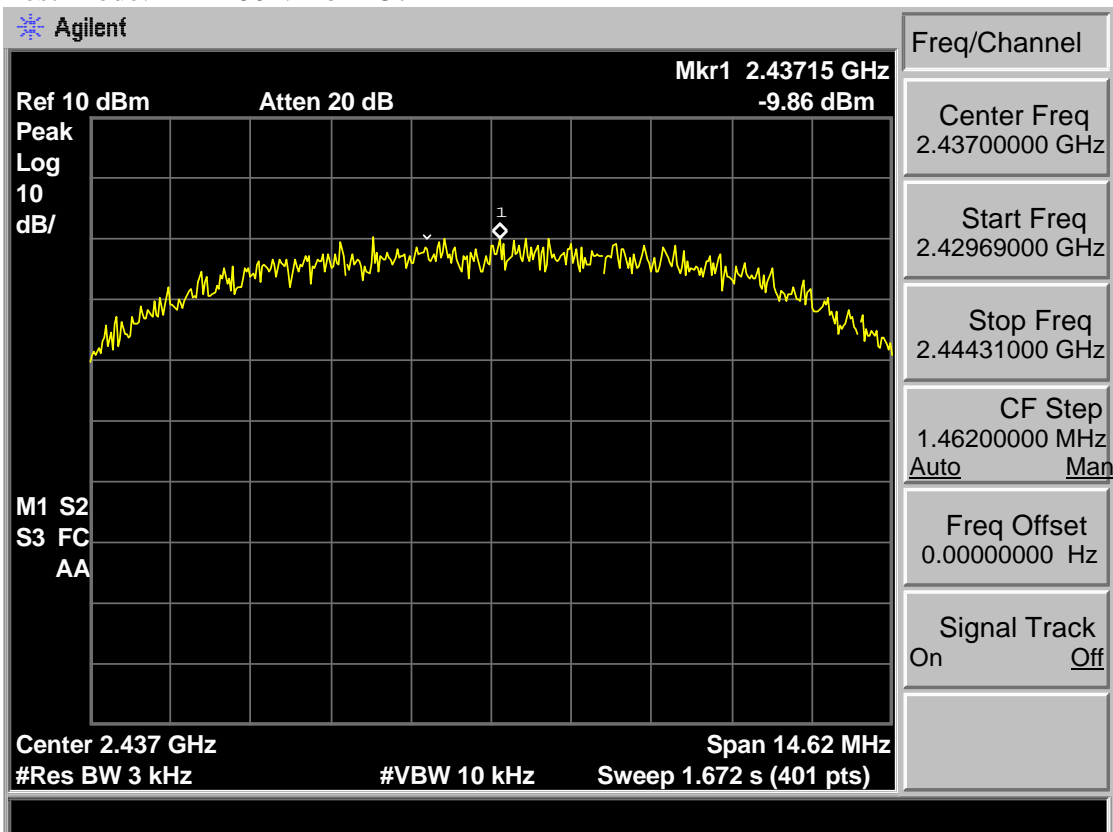


Antenna 2

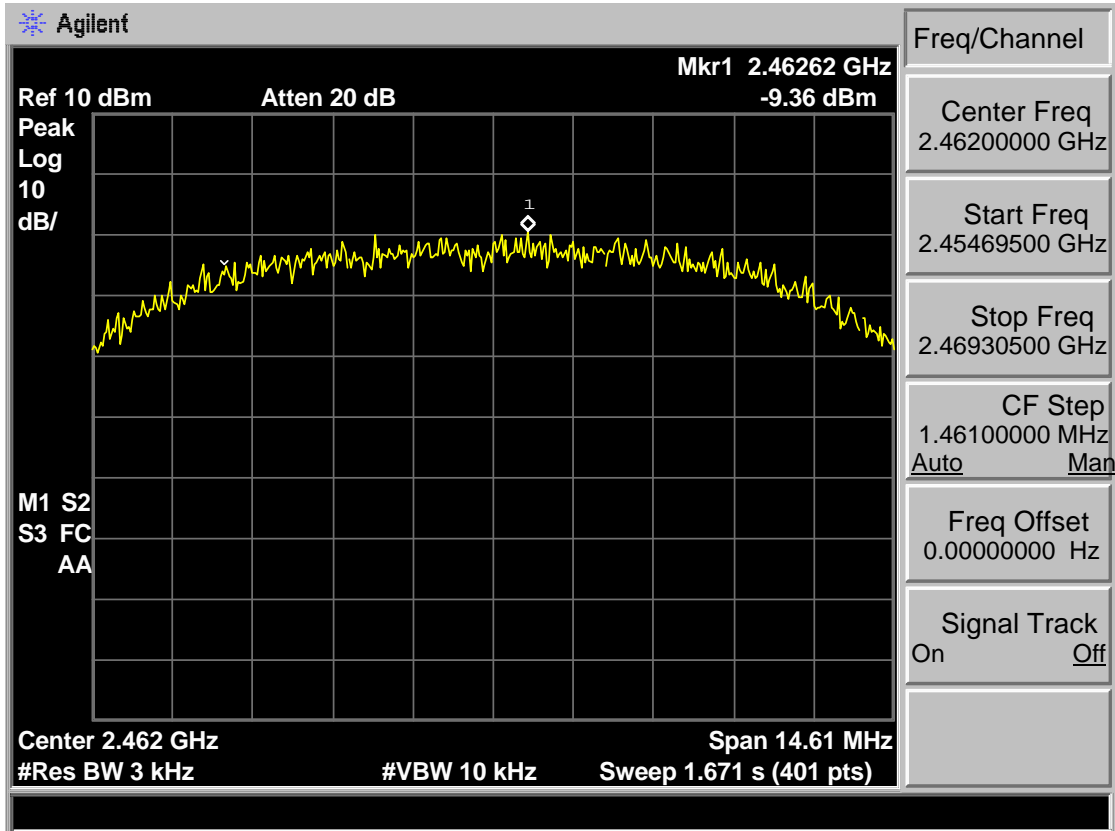
Test Mode: IEEE 802.11b 2412MHz



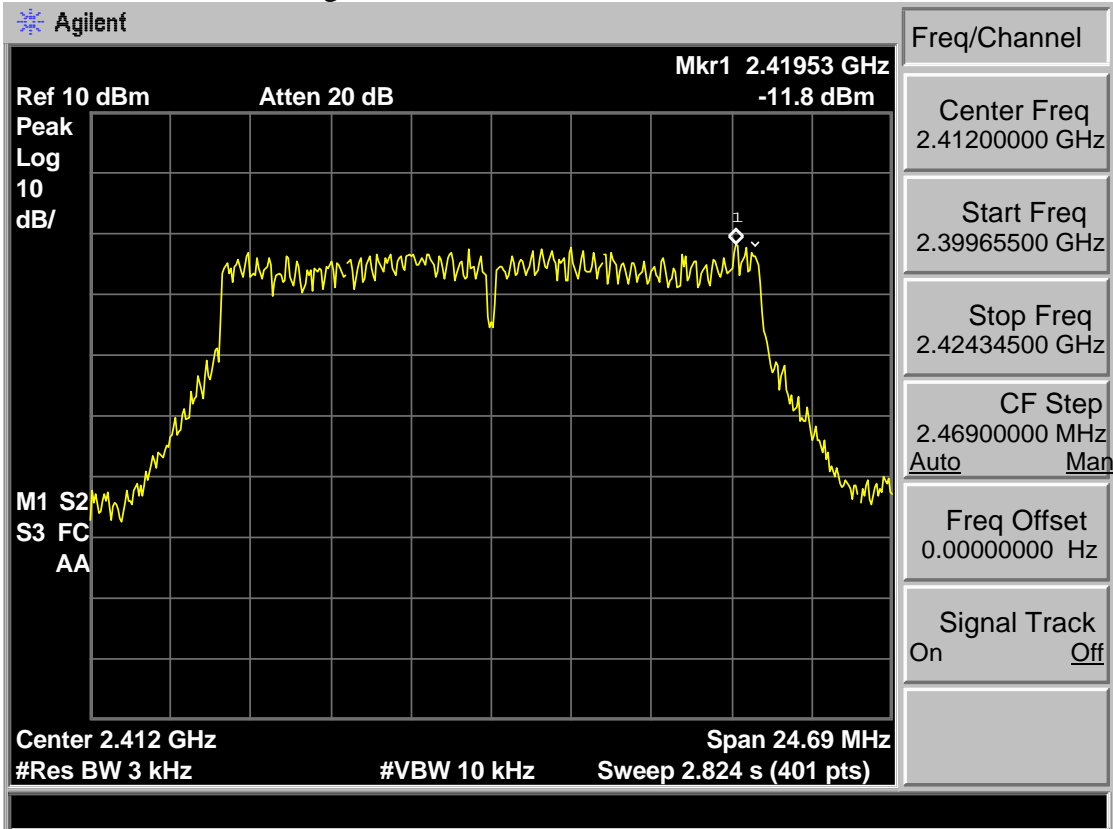
Test Mode: IEEE 802.11b 2437MHz



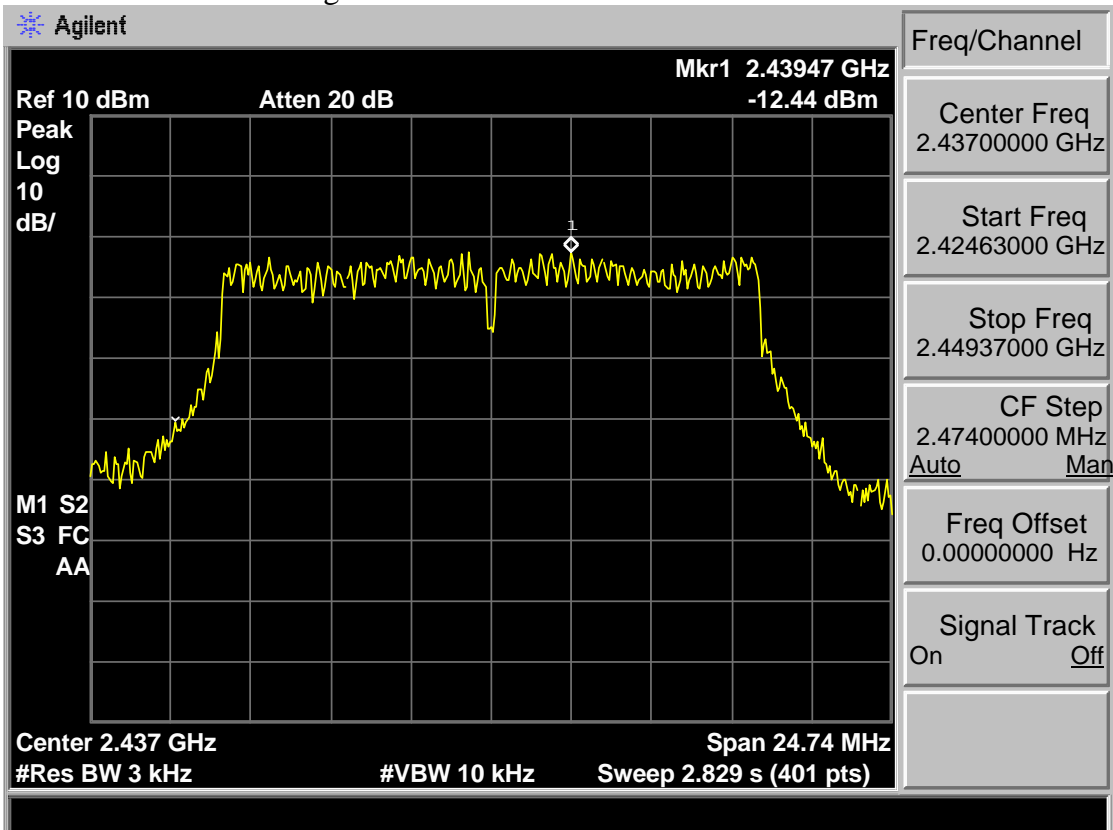
Test Mode: IEEE 802.11b 2462MHz



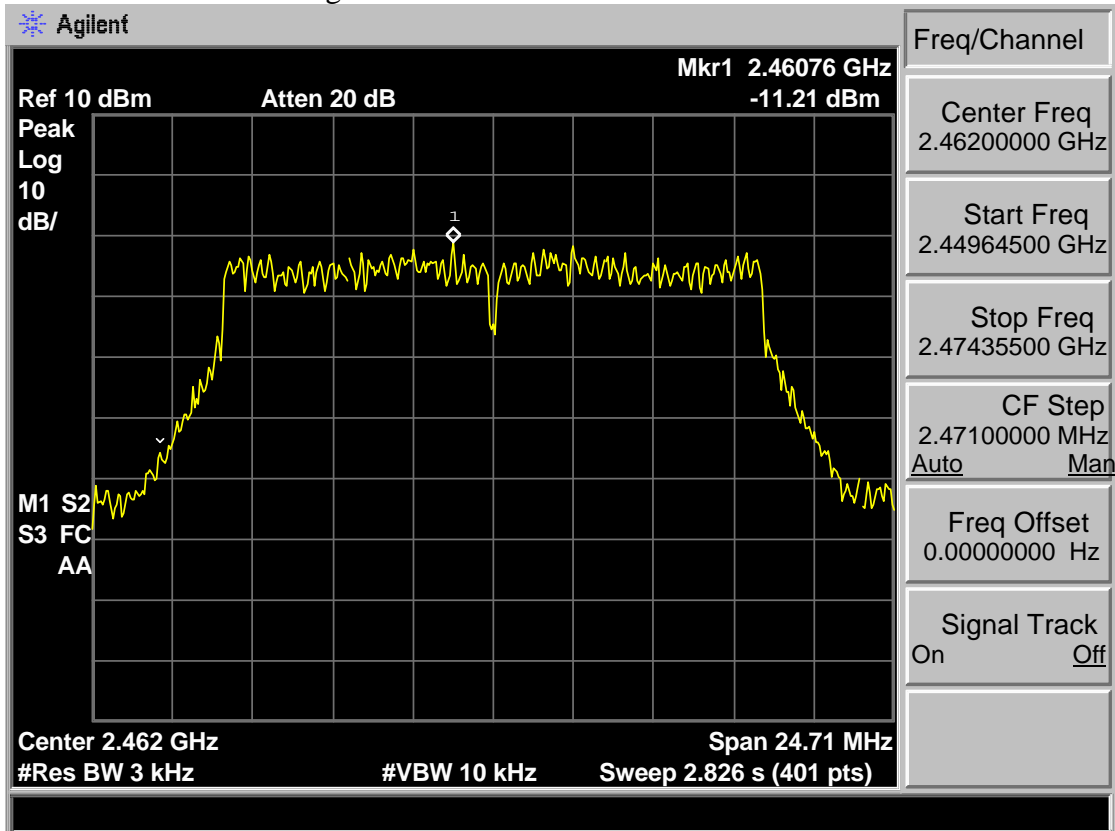
Test Mode: IEEE 802.11g 2412MHz



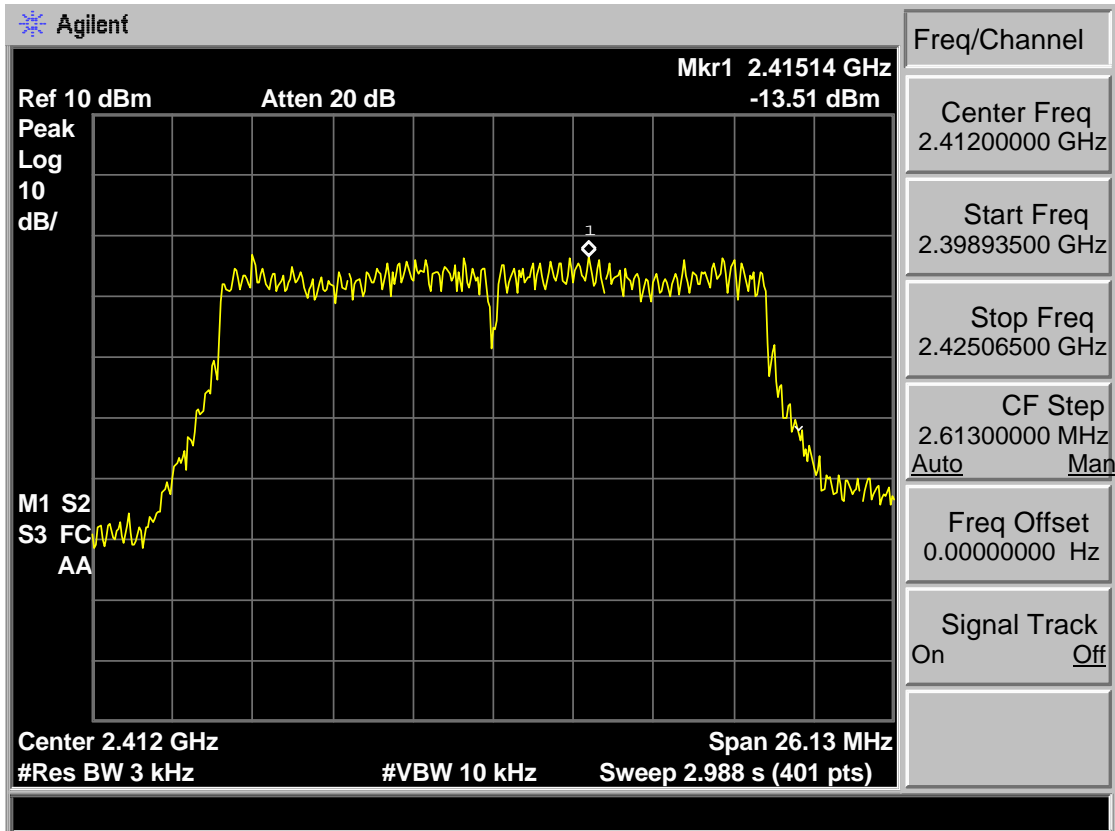
Test Mode: IEEE 802.11g 2437MHz



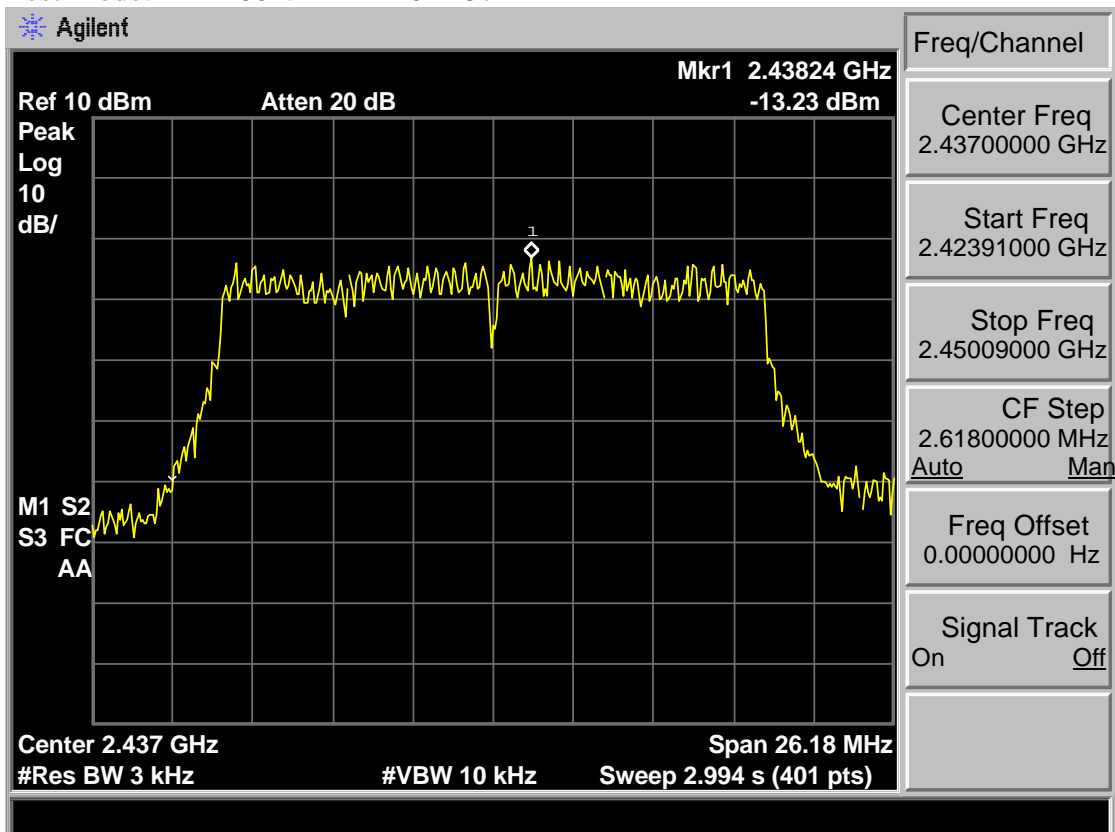
Test Mode: IEEE 802.11g 2462MHz



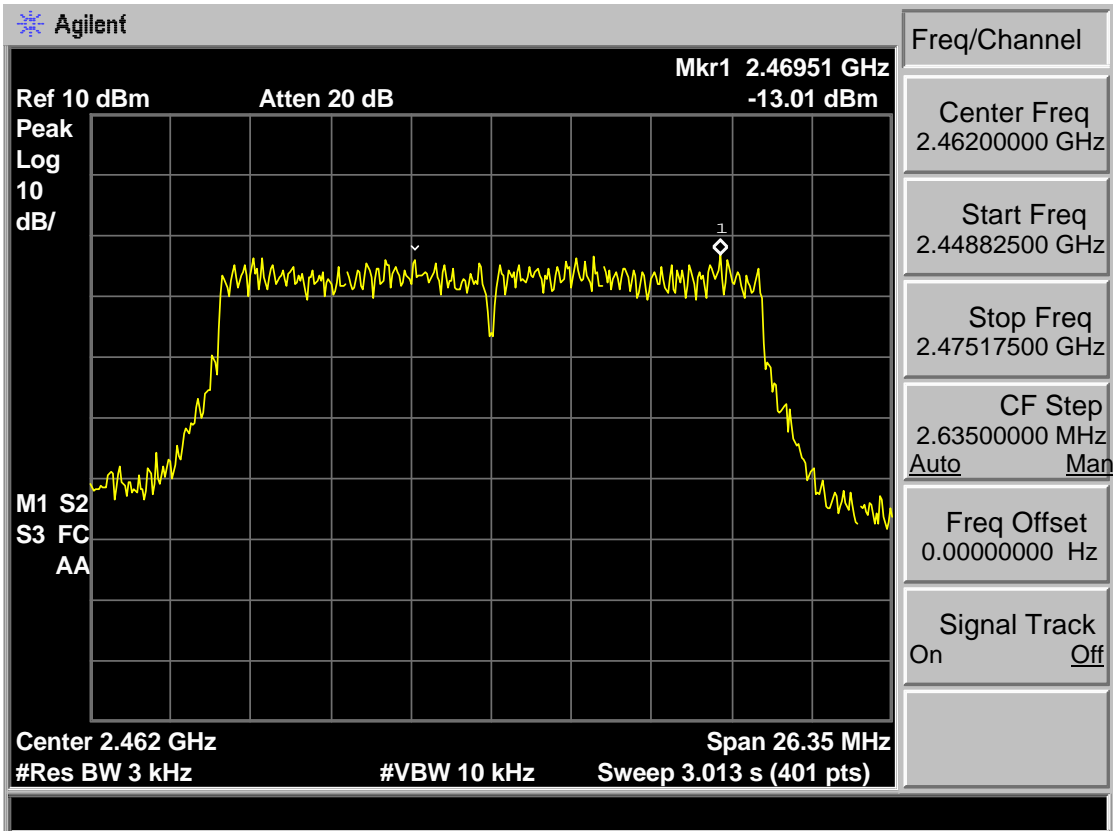
Test Mode: IEEE 802.11n HT20 2412MHz



Test Mode: IEEE 802.11n HT20 2437MHz



Test Mode: IEEE 802.11n HT20 2462MHz





## 9 ANTENNA REQUIREMENTS

### 9.1 Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### 9.2 Result

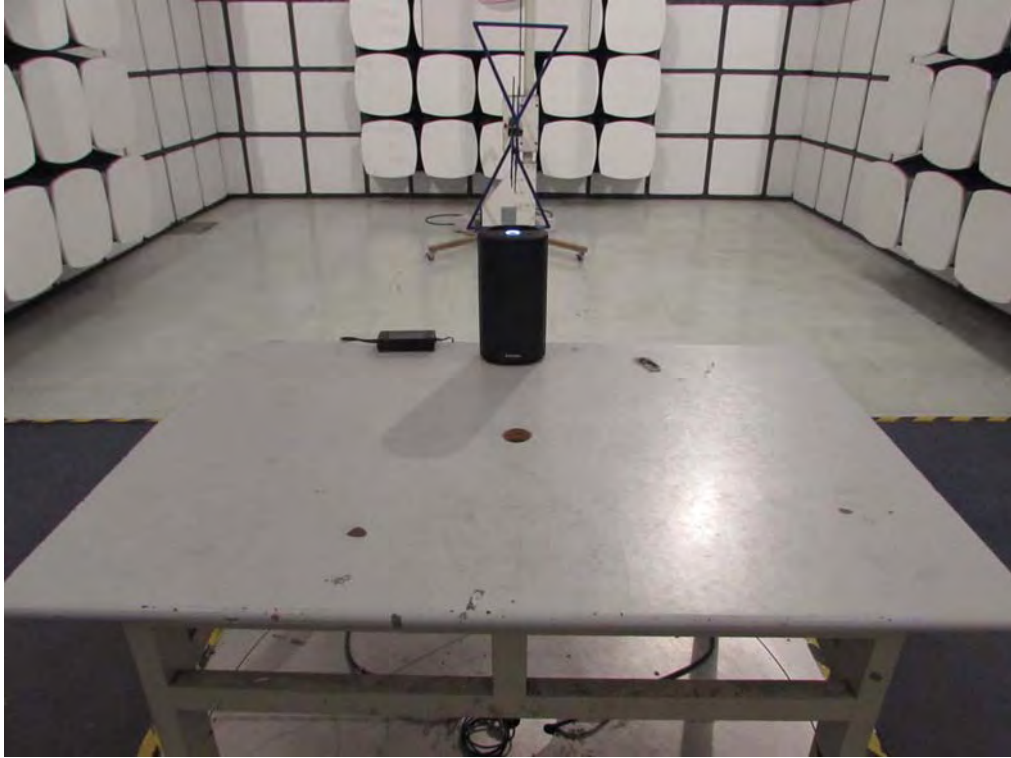
The antennas used for this product are FPCB antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 3.24 dBi.

# 10 TEST SETUP PHOTO

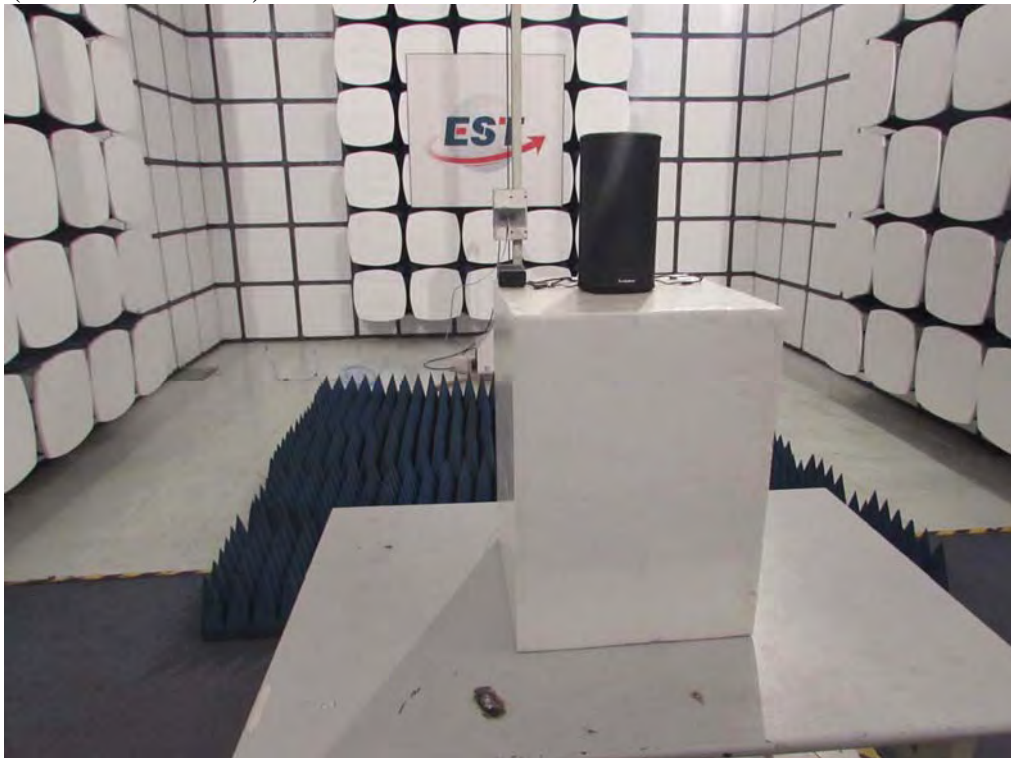
Conducted Test



Radiated Test (30-1000 MHz)



Radiated Test (Above 1000 MHz)



# 11 PHOTOS OF EUT

**External Photos**  
M/N: AR108A4BKA



**External Photos**  
M/N: AR108A4BKA



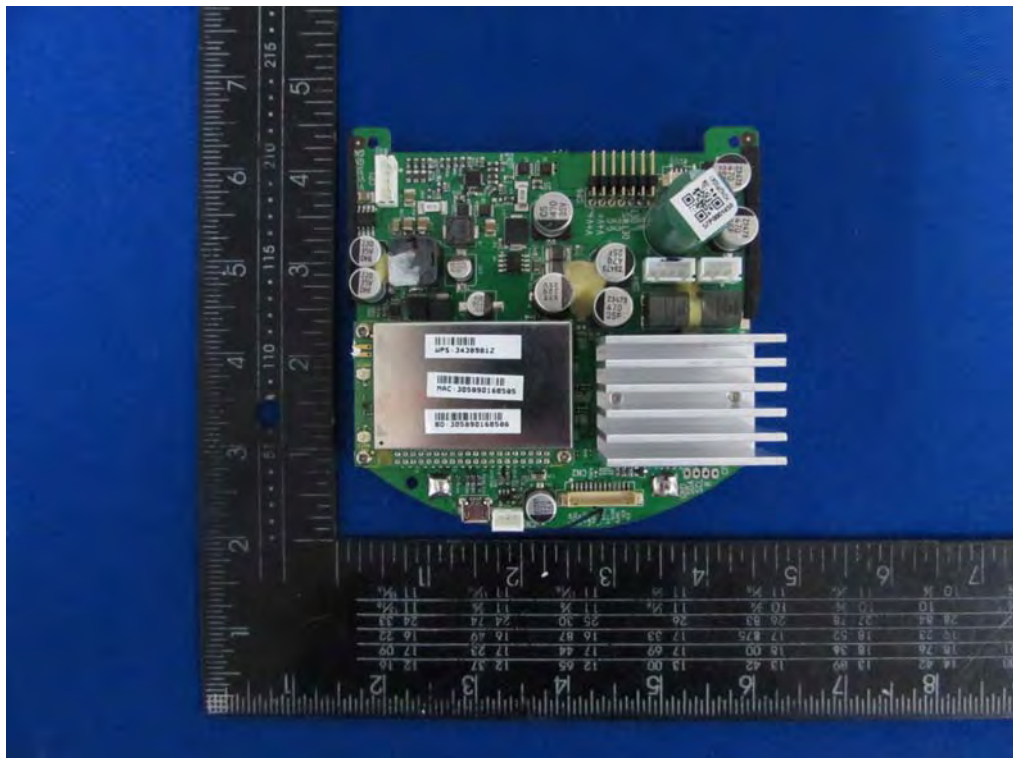
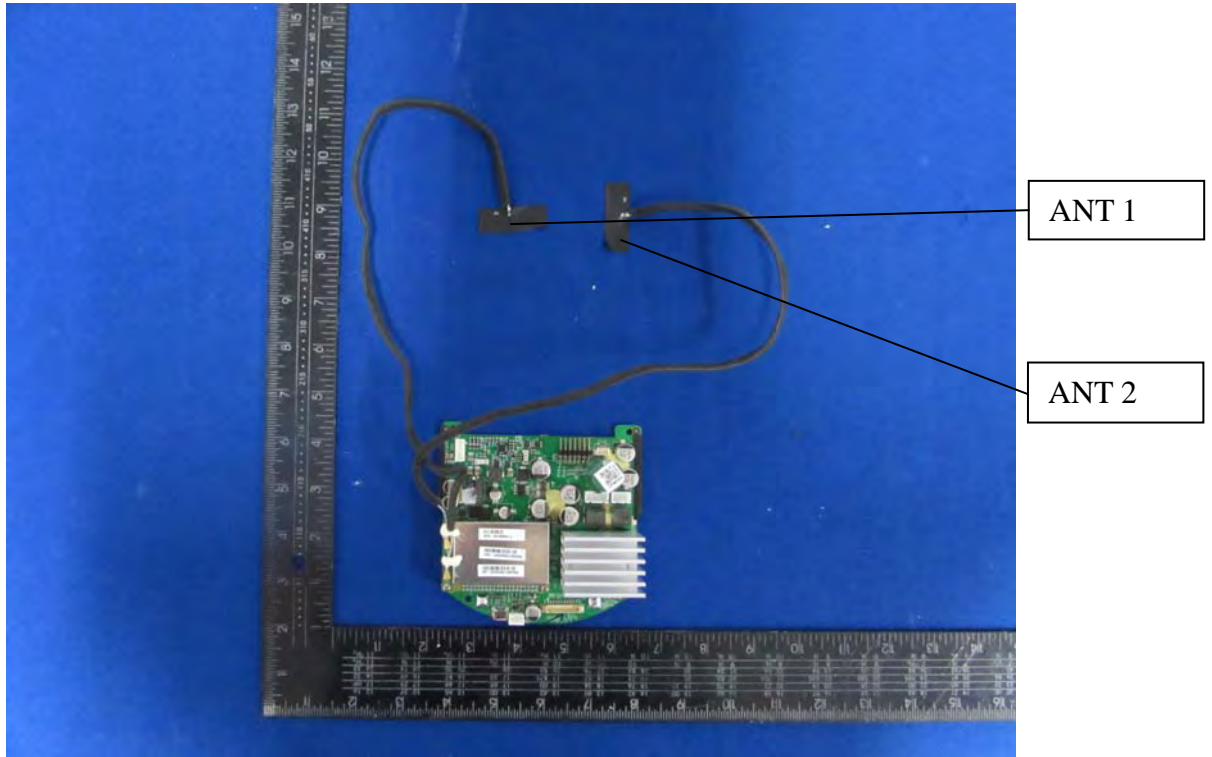
**External Photos**  
M/N: AR108A4BKA



**Internal Photos**  
M/N: AR108A4BKA

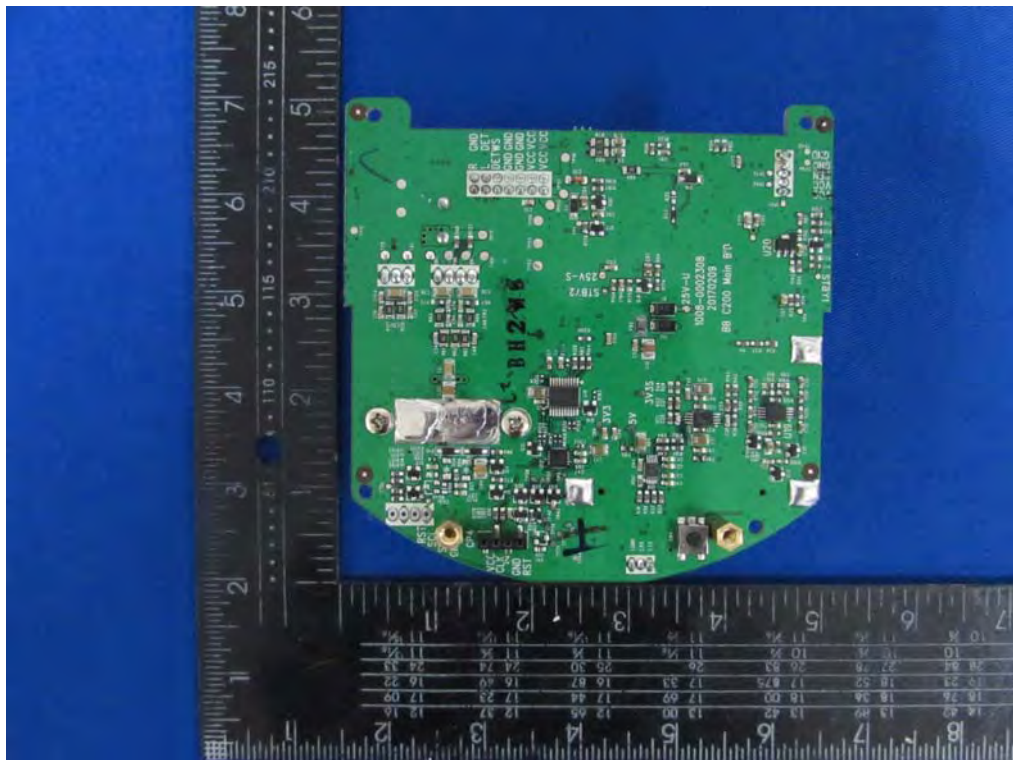


**Internal Photos**  
M/N: AR108A4BKA

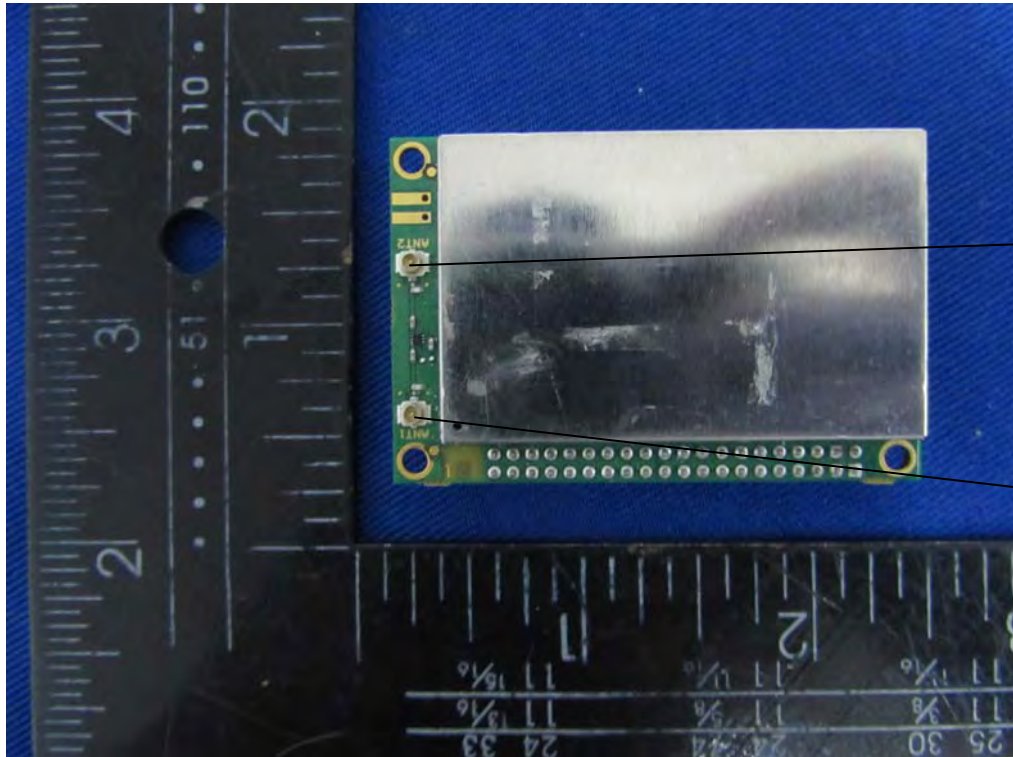




**Internal Photos**  
M/N: AR108A4BKA

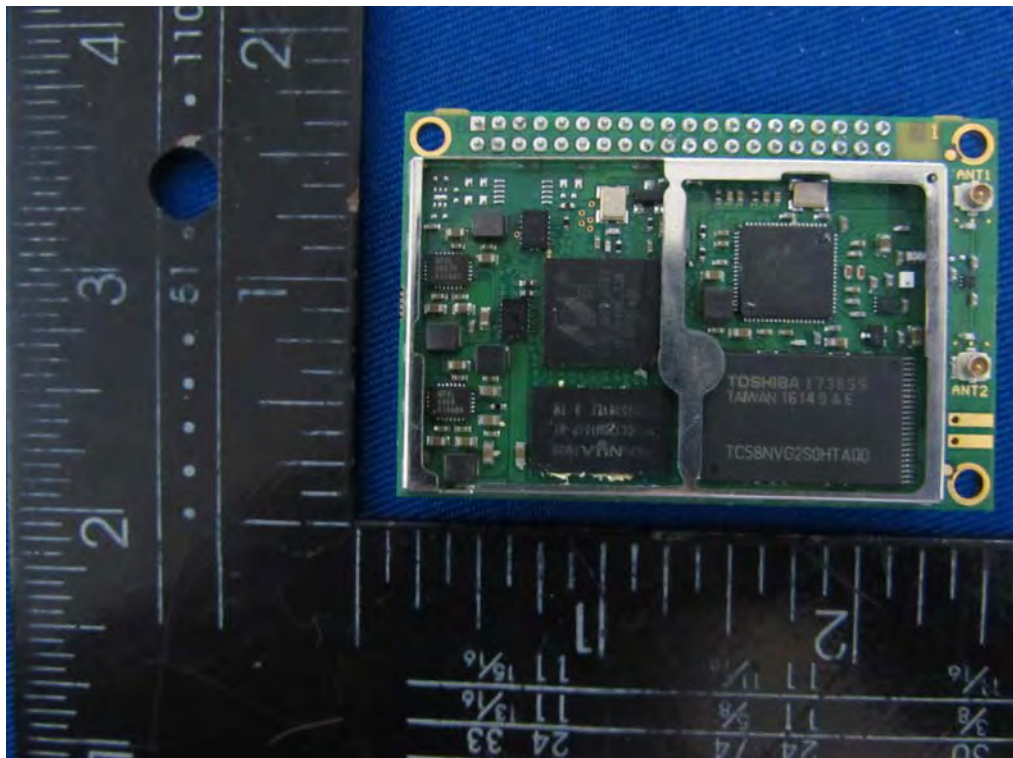


**Internal Photos**  
M/N: AR108A4BKA

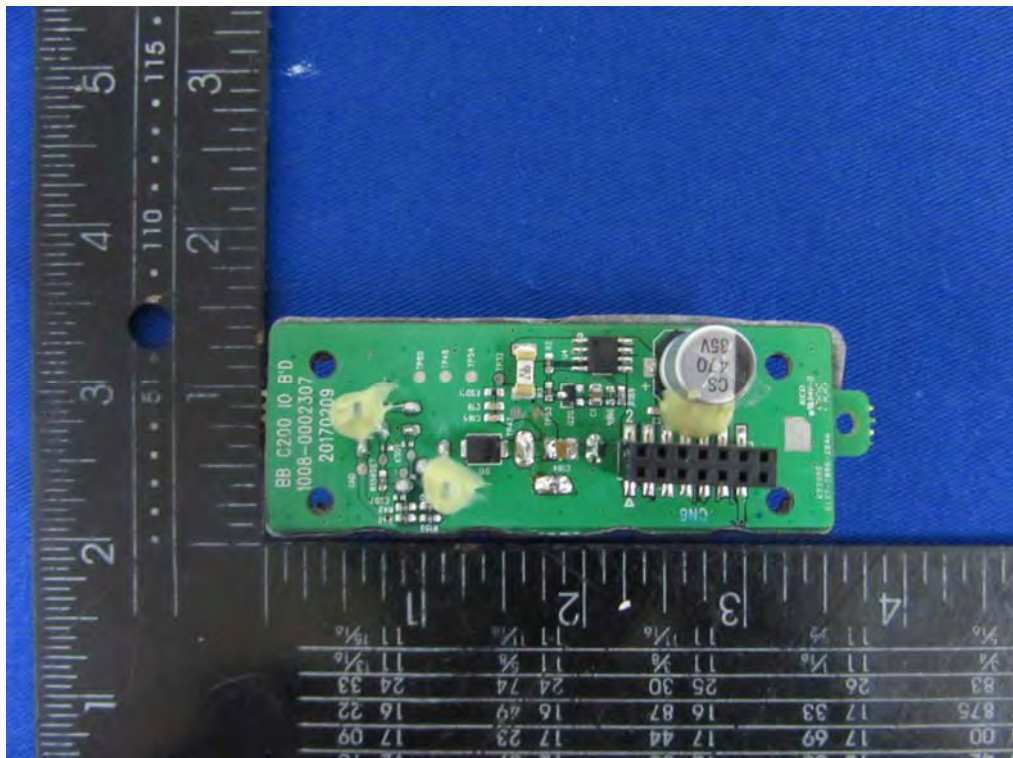
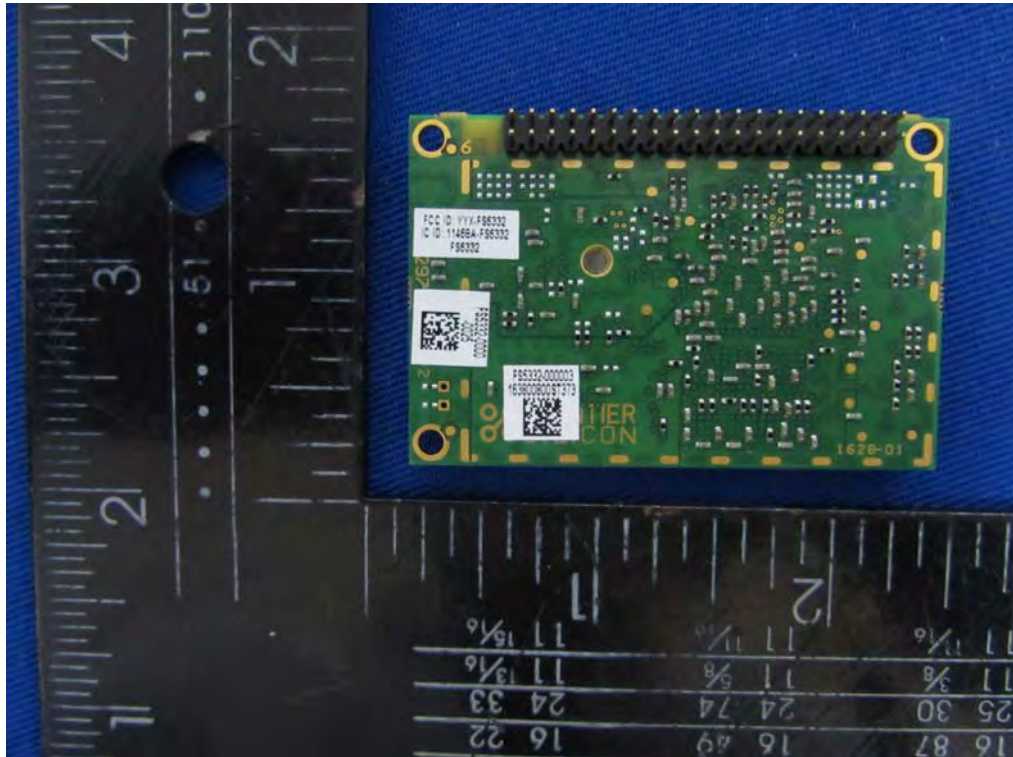


ANT 2  
ipex  
connector

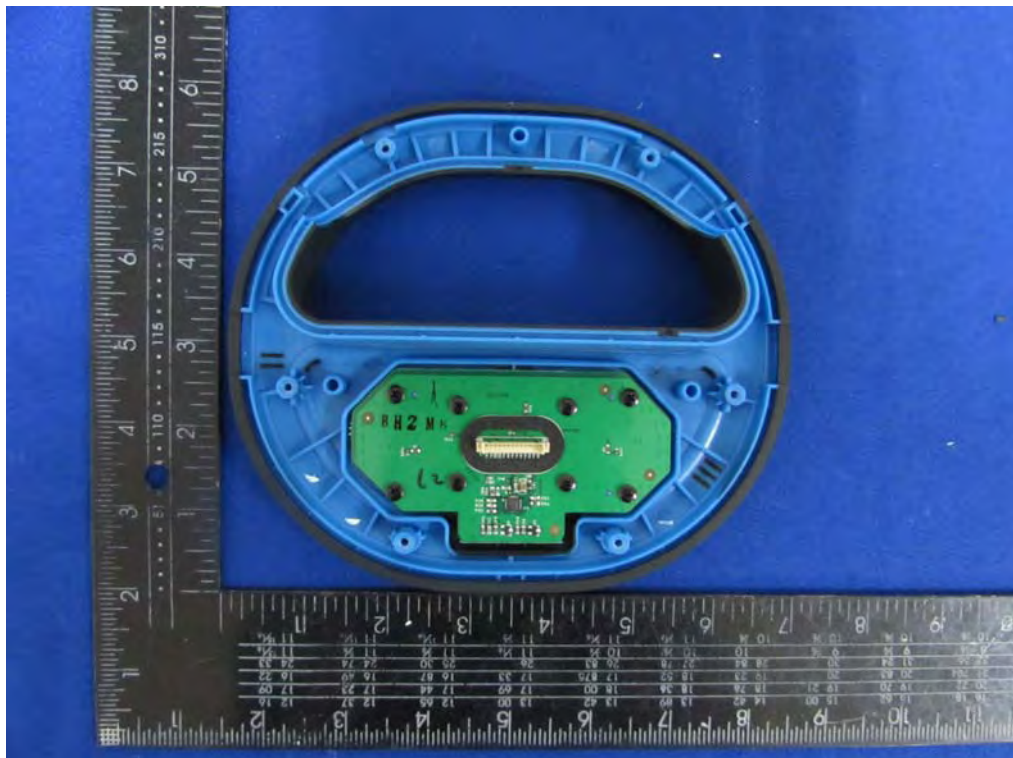
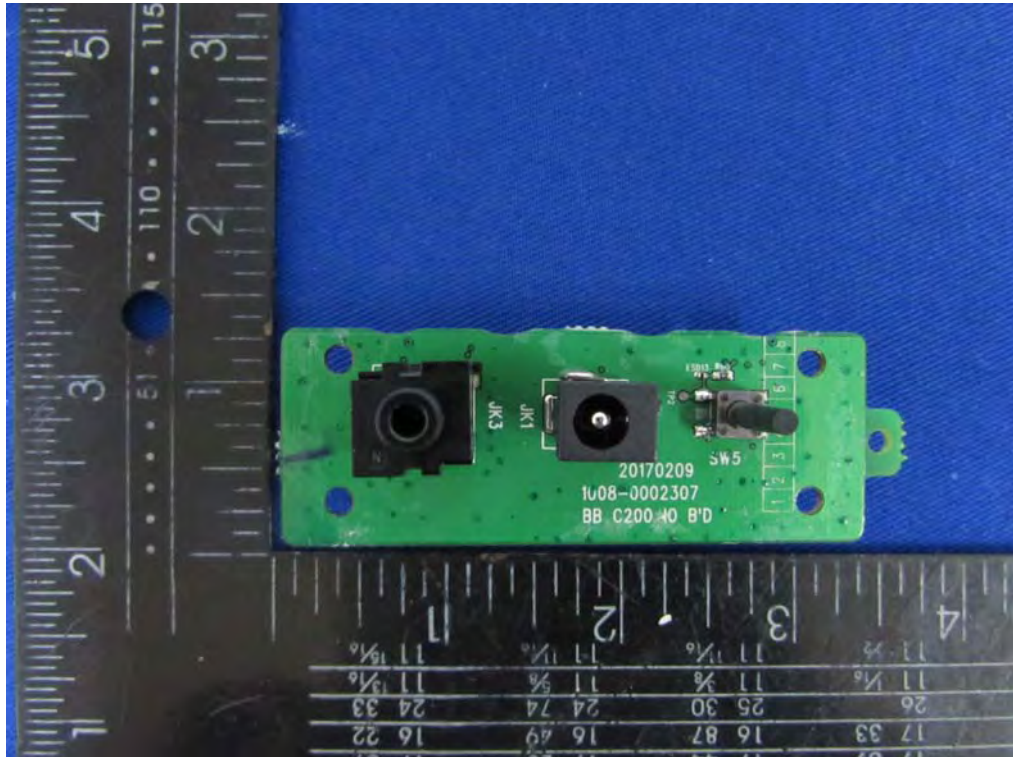
ANT 1  
ipex  
connector



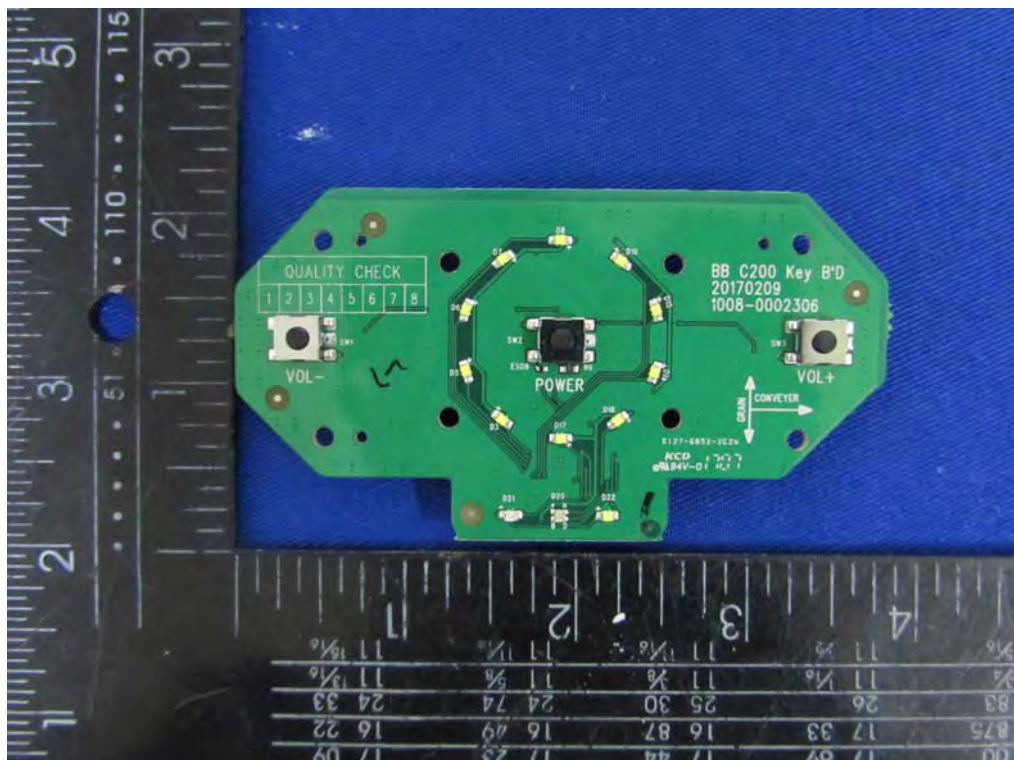
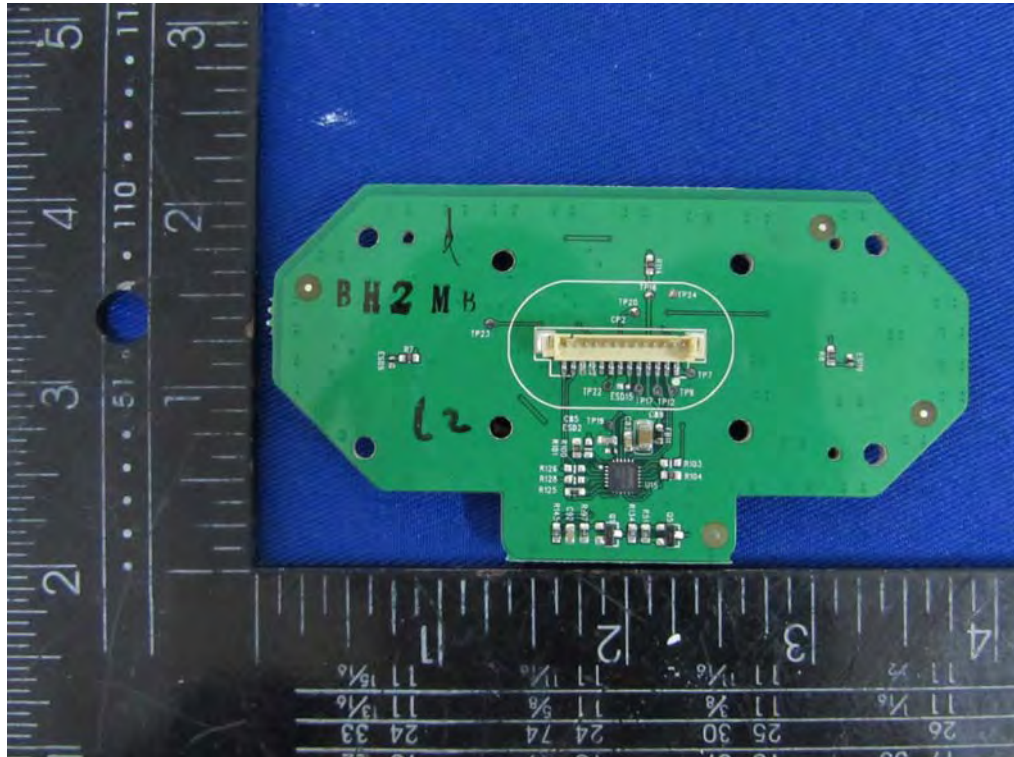
**Internal Photos**  
M/N: AR108A4BKA



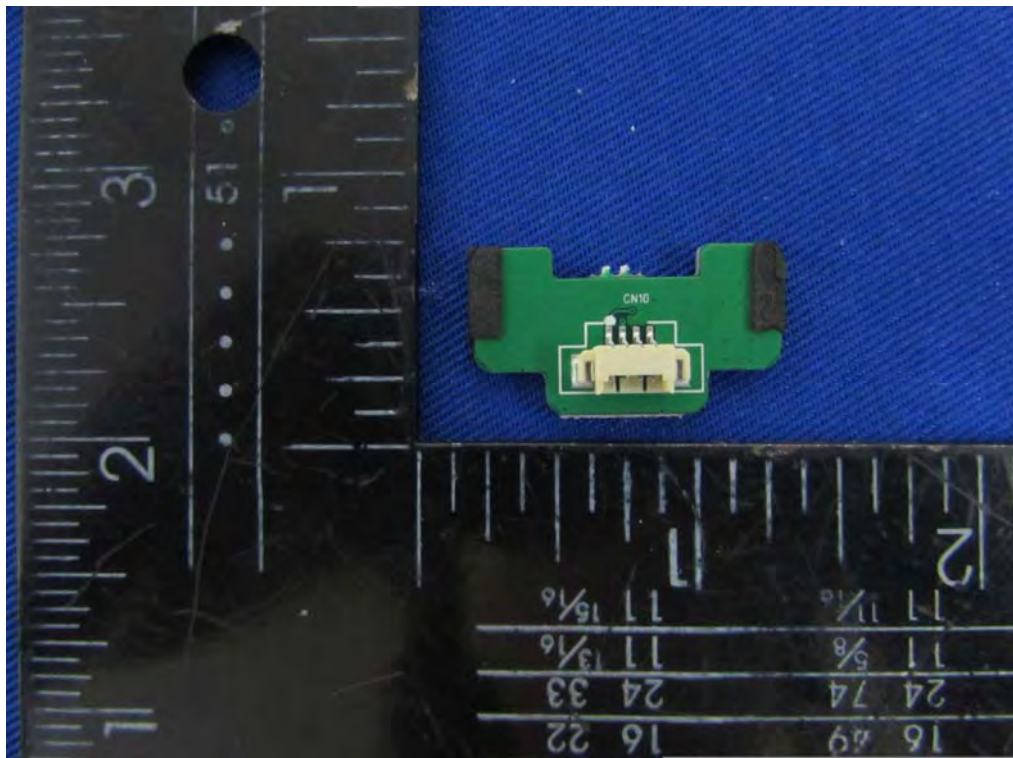
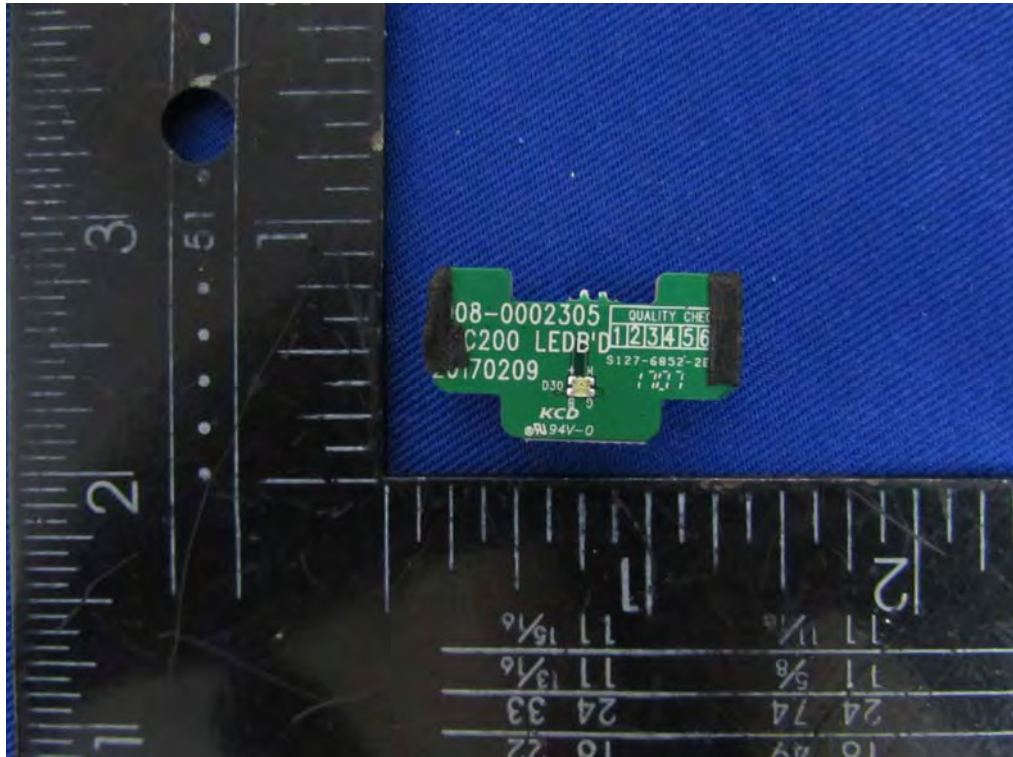
**Internal Photos**  
M/N: AR108A4BKA



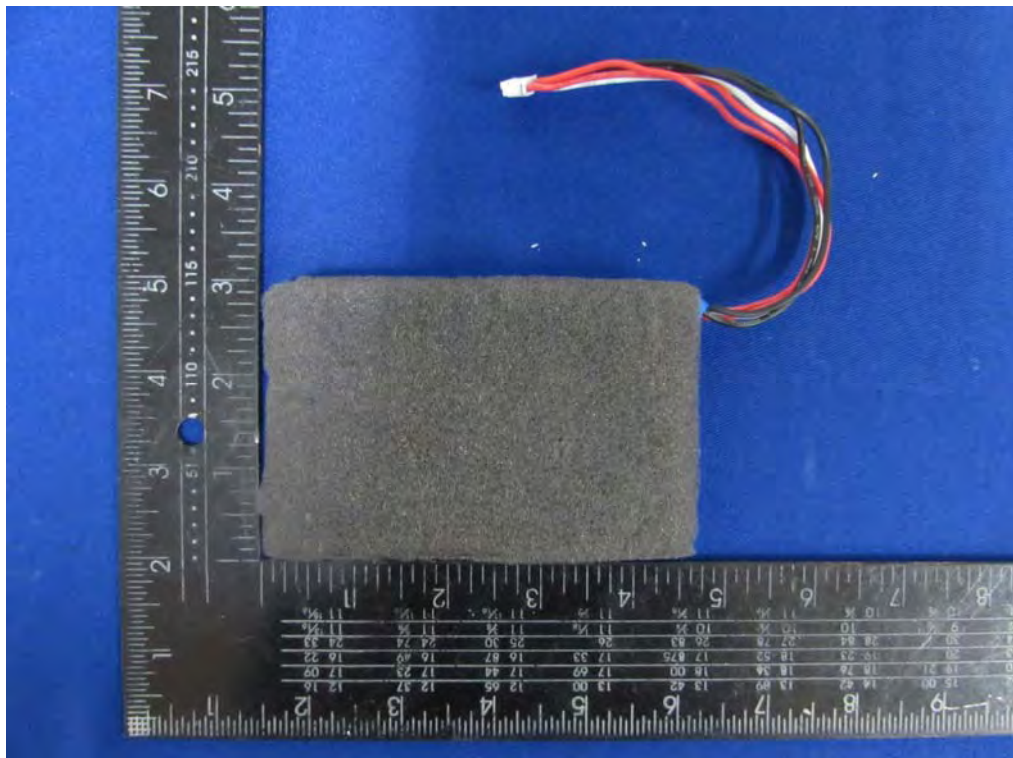
**Internal Photos**  
M/N: AR108A4BKA



**Internal Photos**  
M/N: AR108A4BKA



**Internal Photos**  
M/N: AR108A4BKA



### Adapter Photos

