

## Appendix A

### RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Smart Aroma Diffuser

Trade Mark: atomi

Test Model: AT1359

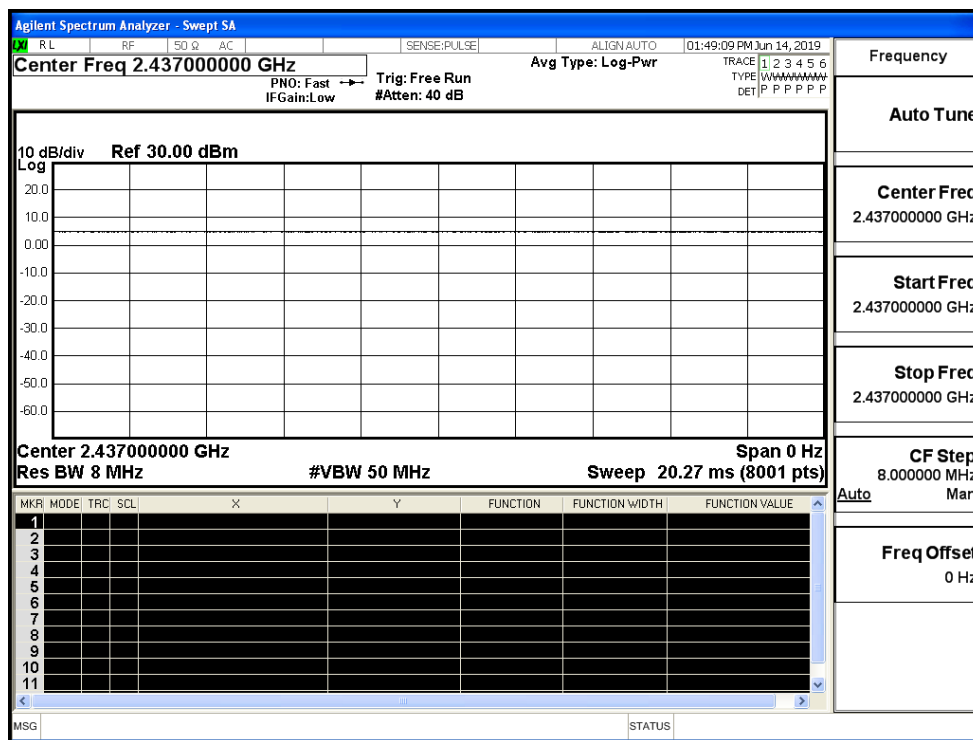
#### Environmental Conditions

|                    |            |
|--------------------|------------|
| Temperature:       | 24.5 ° C   |
| Relative Humidity: | 54.1 %     |
| ATM Pressure:      | 100.0 kPa  |
| Test Engineer:     | SCENT HU   |
| Supervised by:     | WANGCHUANG |

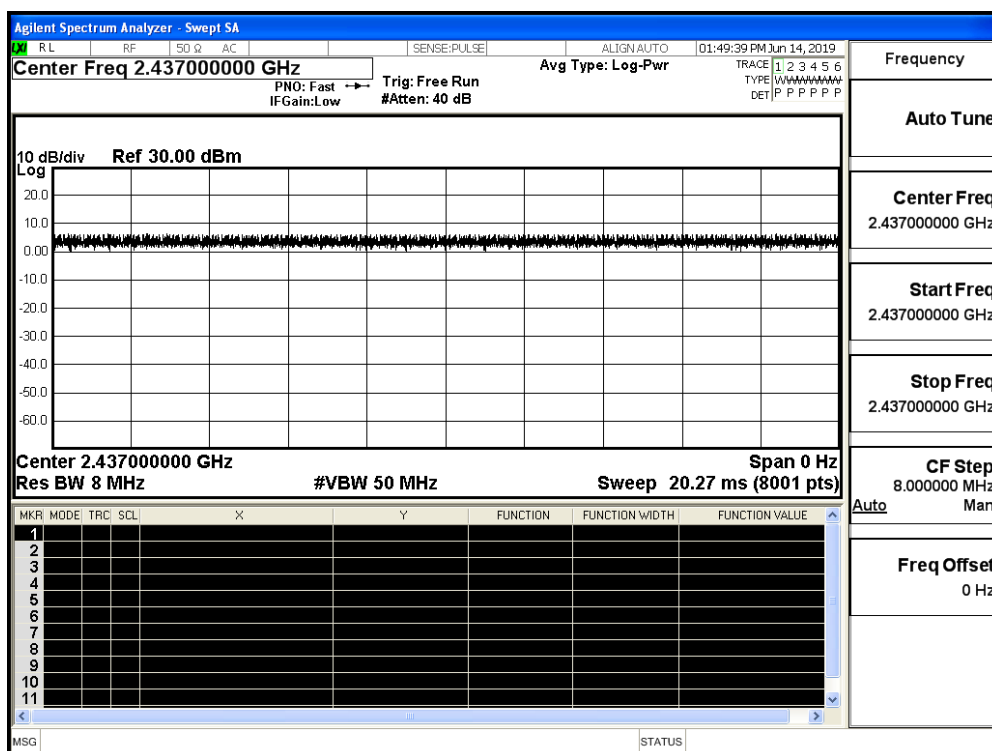
#### A.1 Duty Cycle

| Test Mode | Test Channel | Ant  | Duty Cycle[%] | Verdict |
|-----------|--------------|------|---------------|---------|
| 11B       | 2437         | Ant1 | 100.00        | PASS    |
| 11G       | 2437         | Ant1 | 100.00        | PASS    |
| 11N20SISO | 2437         | Ant1 | 100.00        | PASS    |

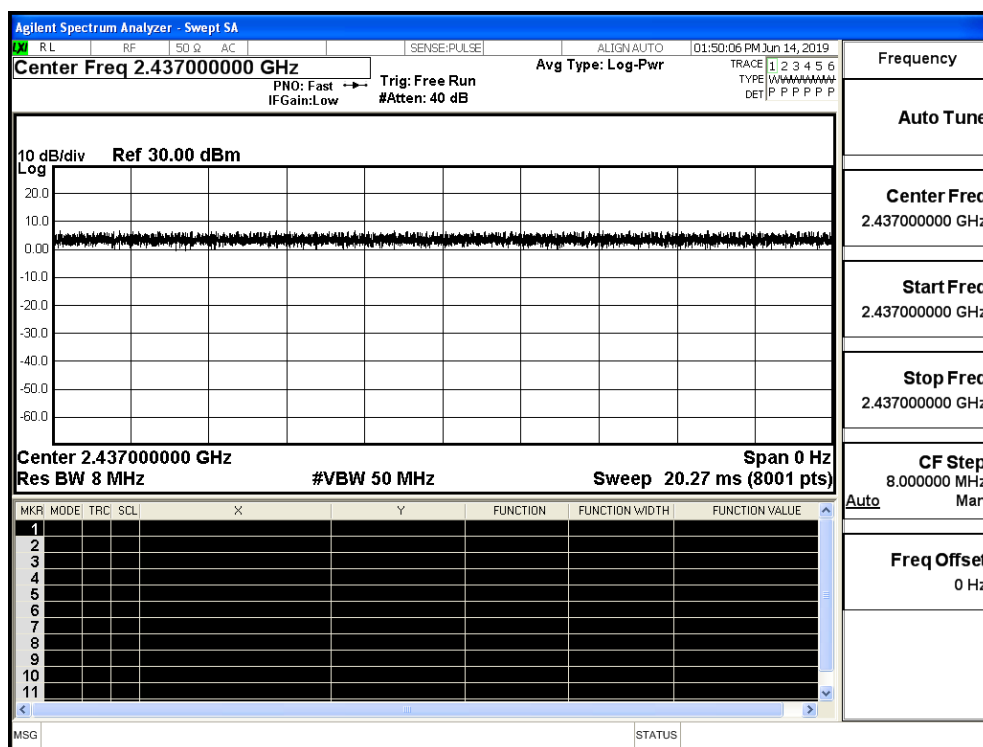
## Duty Cycle\_11B\_2437\_Ant1



## Duty Cycle\_11G\_2437\_Ant1



## Duty Cycle\_11N20SISO\_2437\_Ant1

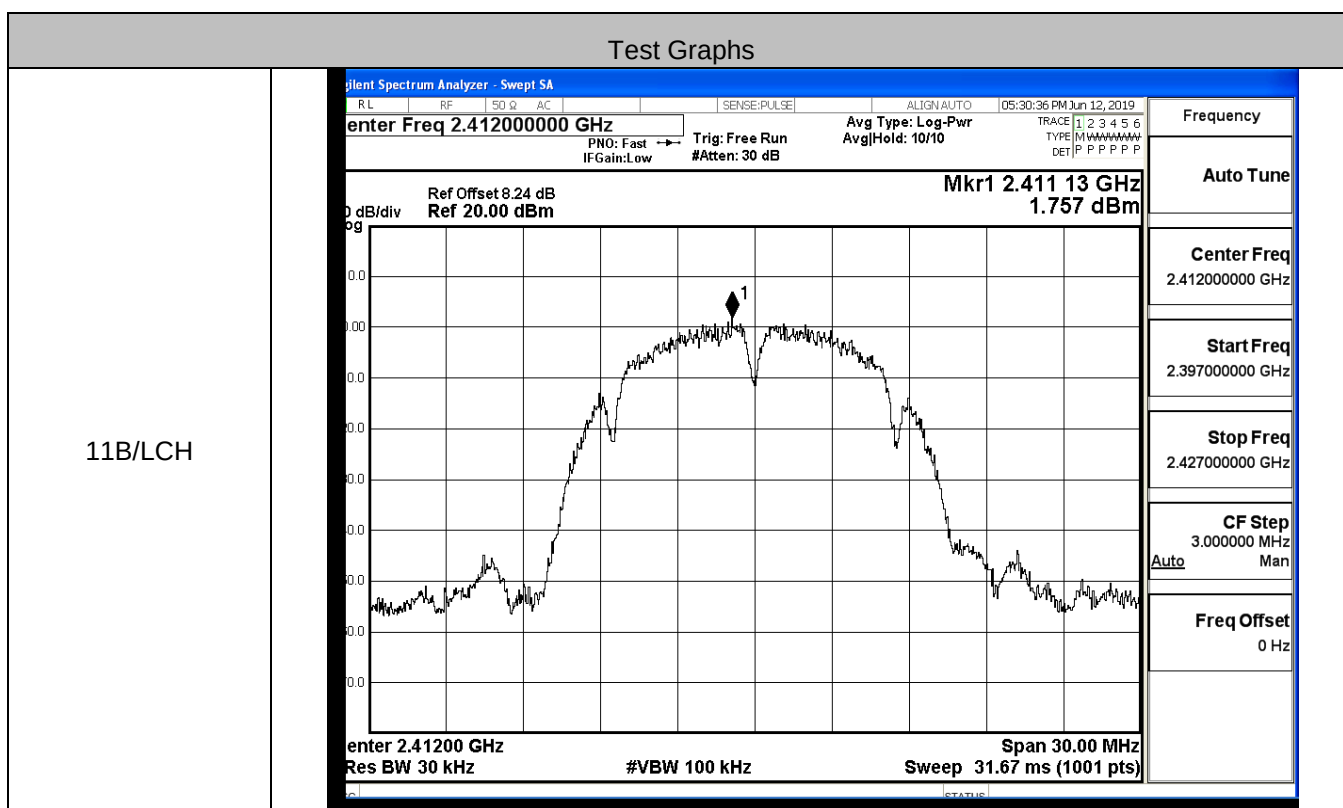


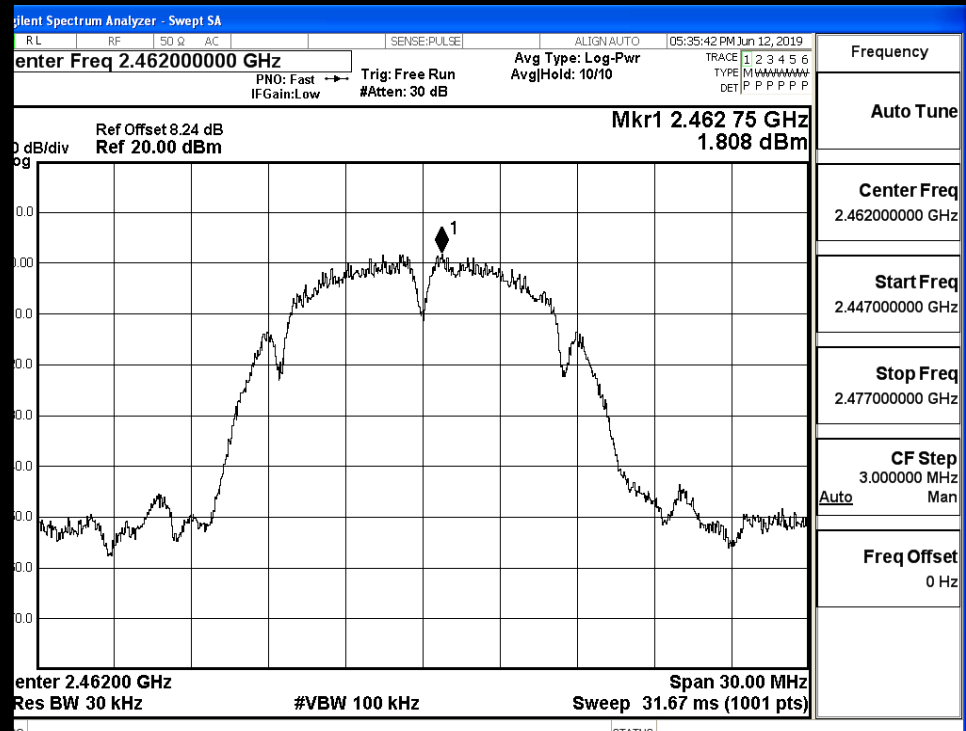
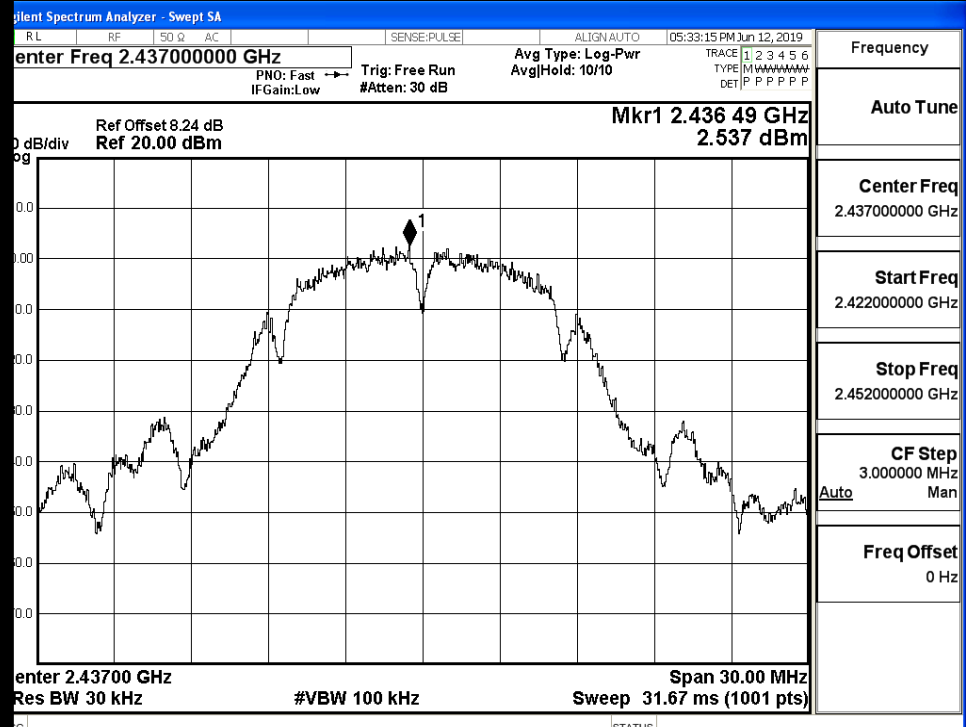
**A.2 Maximum Conducted Output Power**

| Mode      | Channel | Meas.Level [dBm] | Limit [dBm] | Verdict |
|-----------|---------|------------------|-------------|---------|
| 11B       | LCH     | 17.15            | 30          | PASS    |
|           | MCH     | 17.85            | 30          | PASS    |
|           | HCH     | 17.23            | 30          | PASS    |
| 11G       | LCH     | 19.62            | 30          | PASS    |
|           | MCH     | 19.66            | 30          | PASS    |
|           | HCH     | 20.50            | 30          | PASS    |
| 11N20SISO | LCH     | 19.39            | 30          | PASS    |
|           | MCH     | 19.37            | 30          | PASS    |
|           | HCH     | 20.15            | 30          | PASS    |

### A.3 Maximum Power Spectral Density

| Mode      | Channel | Meas.Level<br>[dBm/30KHz] | Meas.Level<br>[dBm/3KHz] | Limit [dBm/3KHz] | Verdict |
|-----------|---------|---------------------------|--------------------------|------------------|---------|
| 11B       | LCH     | 1.757                     | -8.243                   | 8                | PASS    |
|           | MCH     | 2.537                     | -7.463                   | 8                | PASS    |
|           | HCH     | 1.808                     | -8.192                   | 8                | PASS    |
| 11G       | LCH     | -3.188                    | -13.188                  | 8                | PASS    |
|           | MCH     | -3.133                    | -13.133                  | 8                | PASS    |
|           | HCH     | -3.225                    | -13.225                  | 8                | PASS    |
| 11N20SISO | LCH     | -3.399                    | -13.399                  | 8                | PASS    |
|           | MCH     | -3.246                    | -13.246                  | 8                | PASS    |
|           | HCH     | -2.513                    | -12.513                  | 8                | PASS    |







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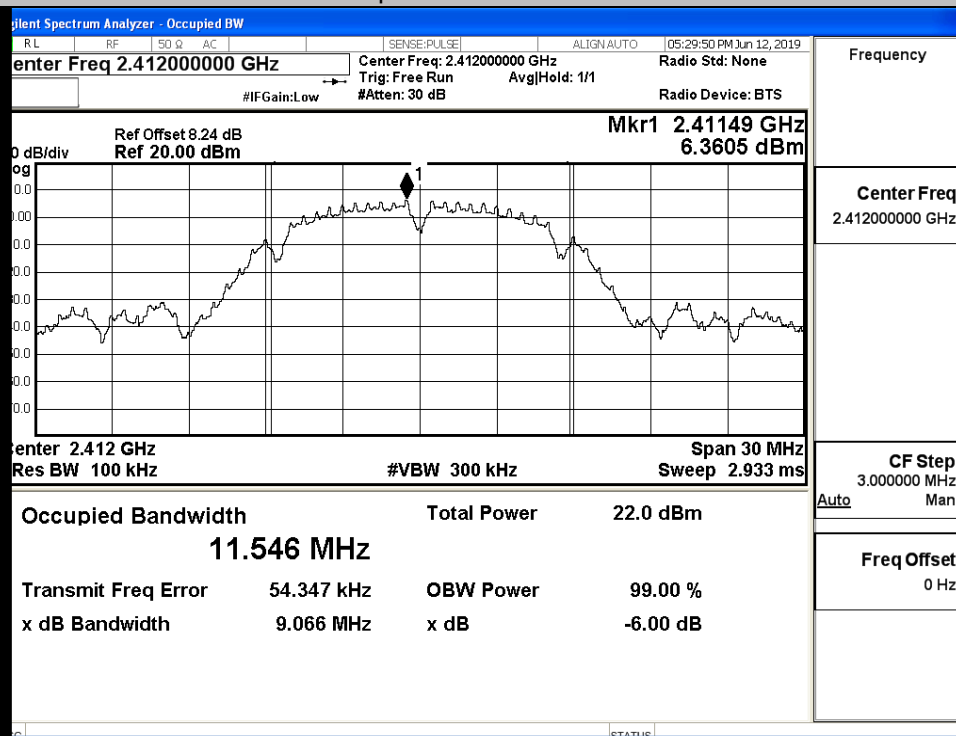


## A.4 6dB Bandwidth

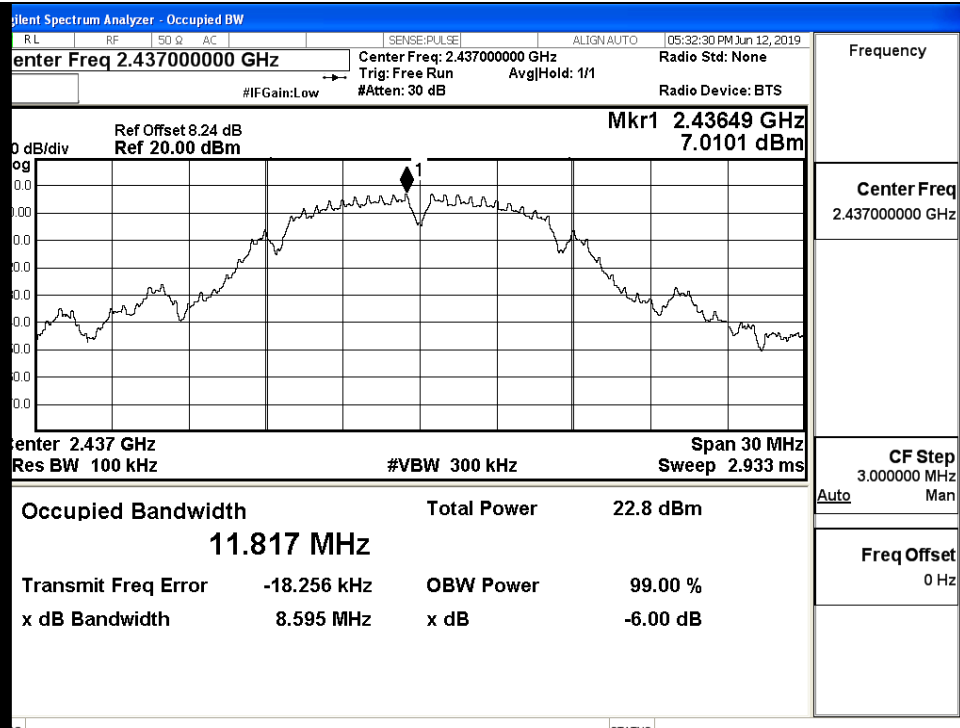
| Mode      | Channel | 6dB Bandwidth [MHz] | Limit [MHz] | Verdict |
|-----------|---------|---------------------|-------------|---------|
| 11B       | LCH     | 9.066               | $\geq 0.5$  | PASS    |
|           | MCH     | 8.595               | $\geq 0.5$  | PASS    |
|           | HCH     | 8.600               | $\geq 0.5$  | PASS    |
| 11G       | LCH     | 15.12               | $\geq 0.5$  | PASS    |
|           | MCH     | 15.13               | $\geq 0.5$  | PASS    |
|           | HCH     | 15.13               | $\geq 0.5$  | PASS    |
| 11N20SISO | LCH     | 15.13               | $\geq 0.5$  | PASS    |
|           | MCH     | 15.12               | $\geq 0.5$  | PASS    |
|           | HCH     | 15.13               | $\geq 0.5$  | PASS    |

## Test Graphs

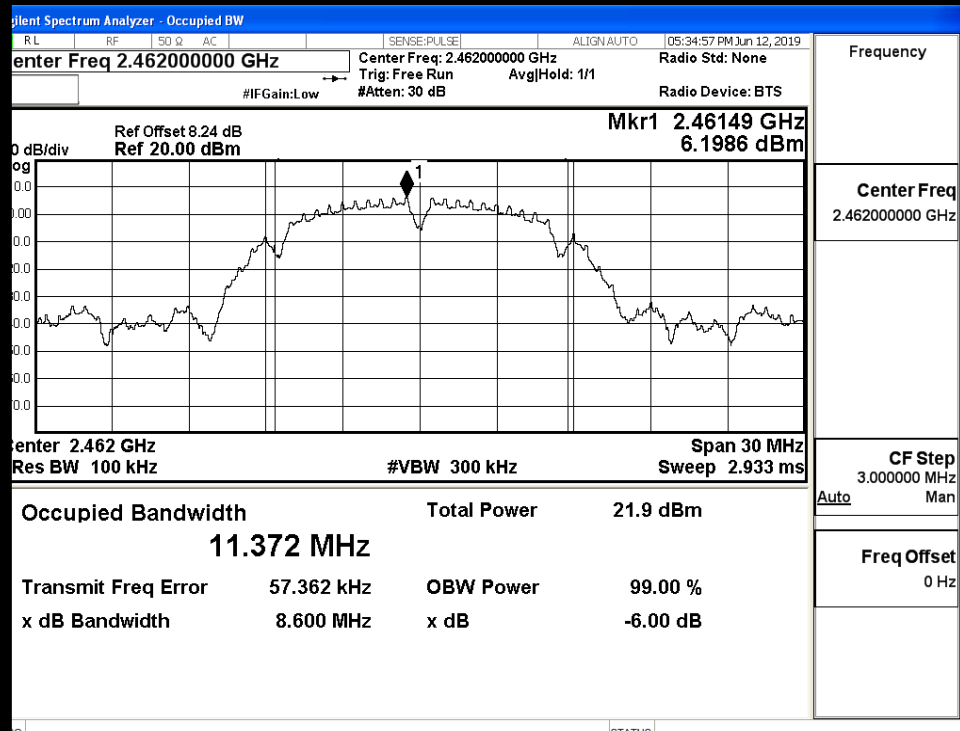
11B/LCH



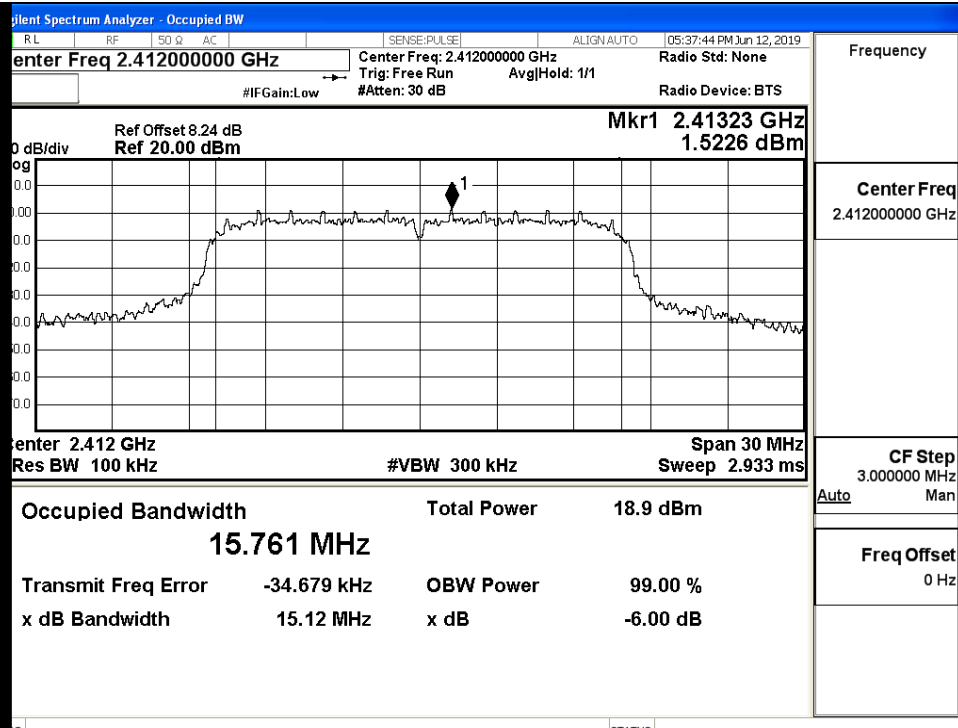
11B/MCH



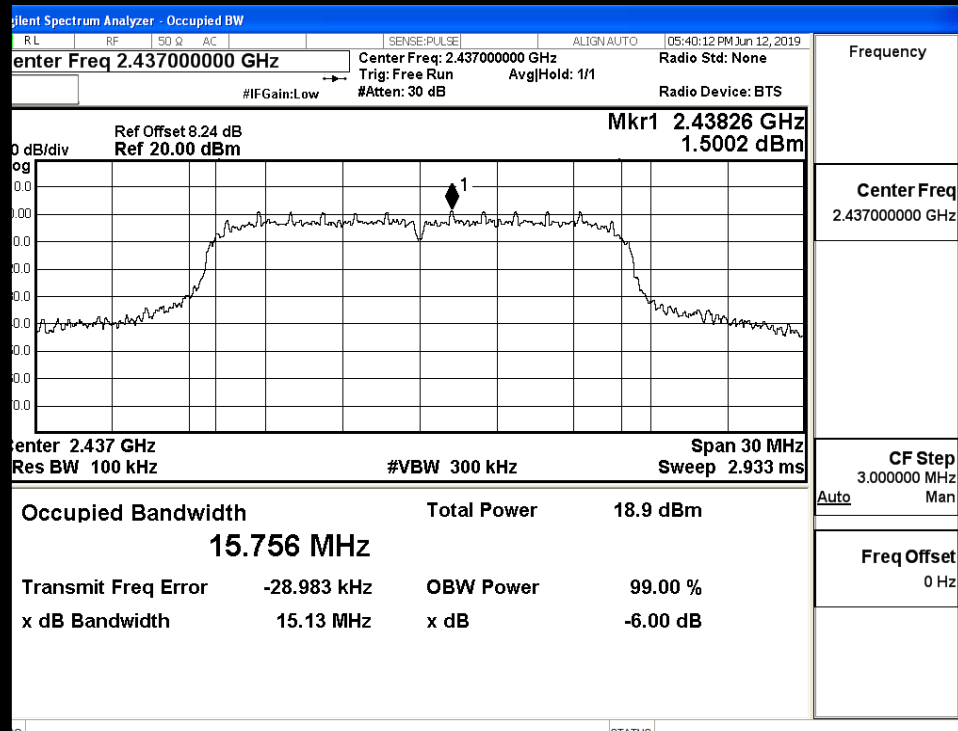
11B/HCH



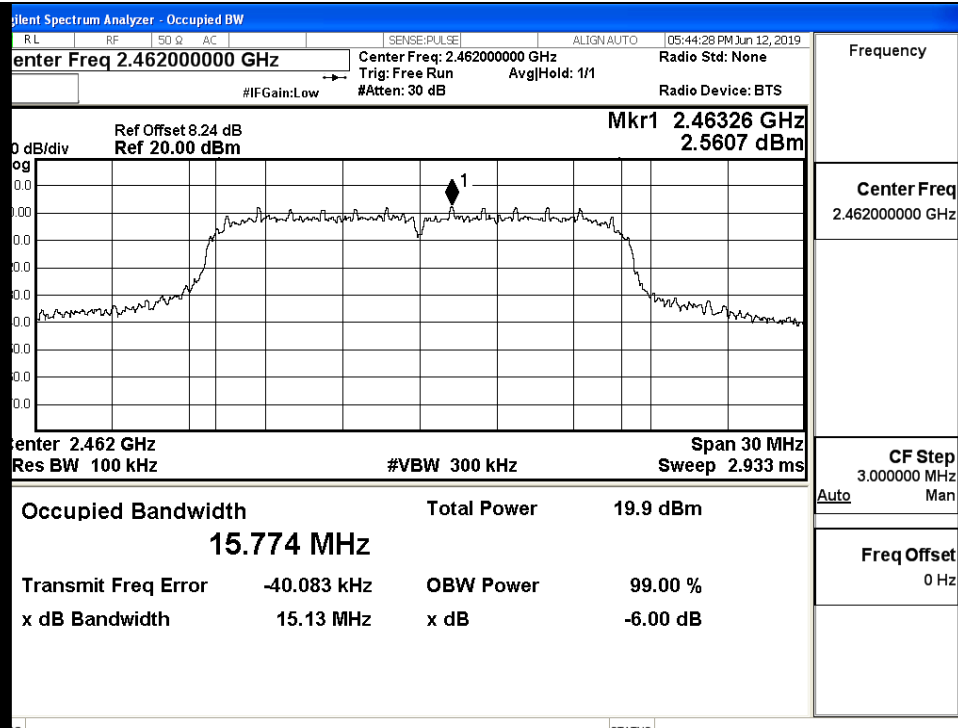
11G/LCH



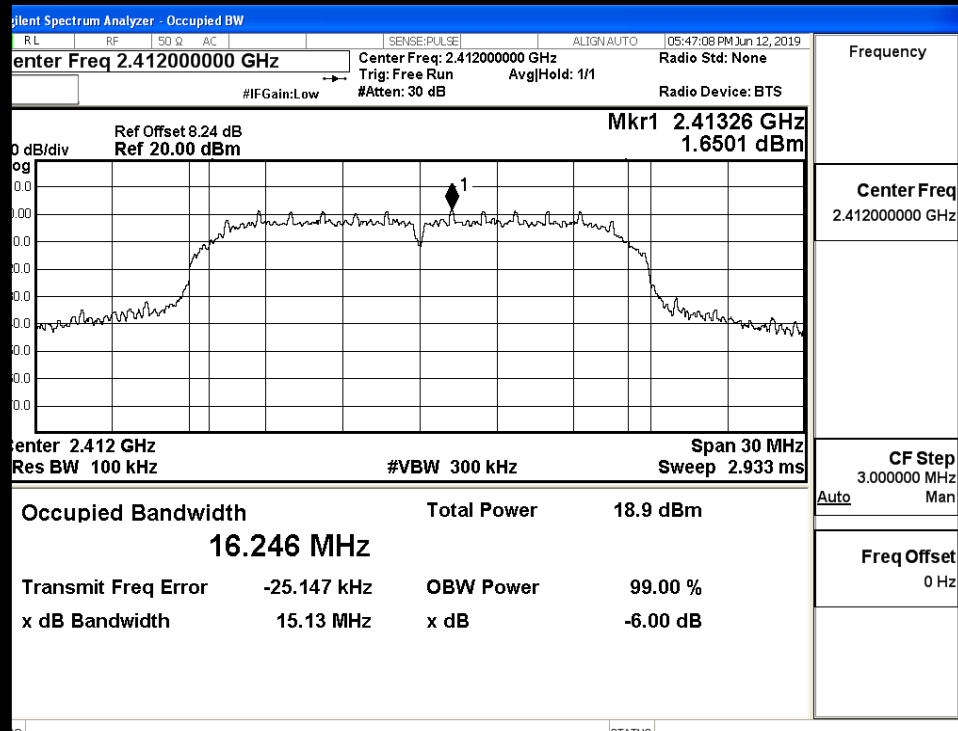
11G/MCH



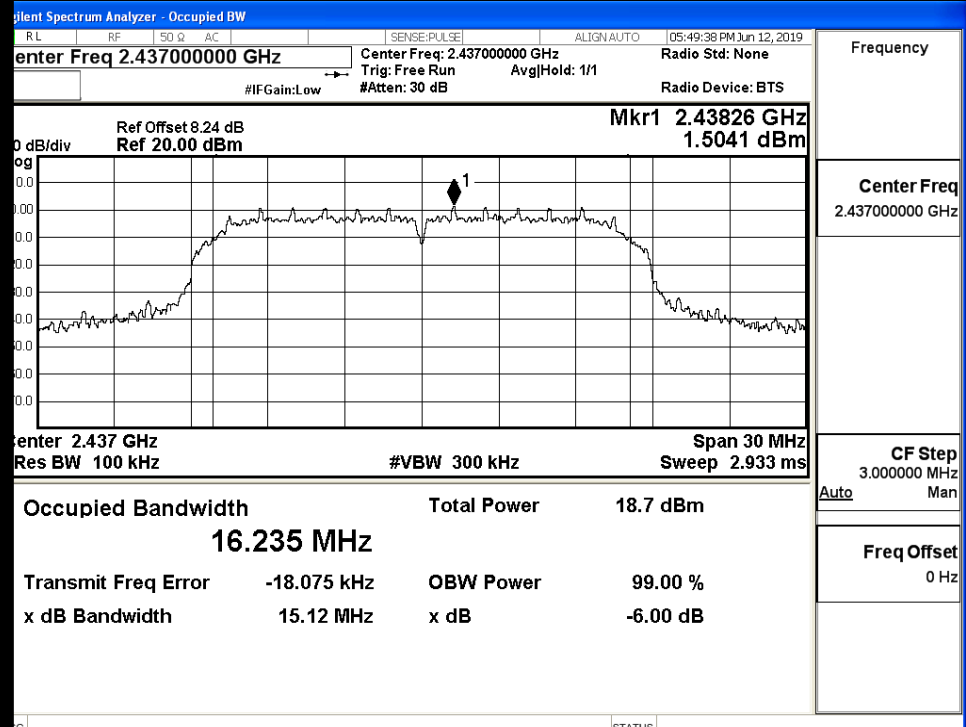
11G/HCH



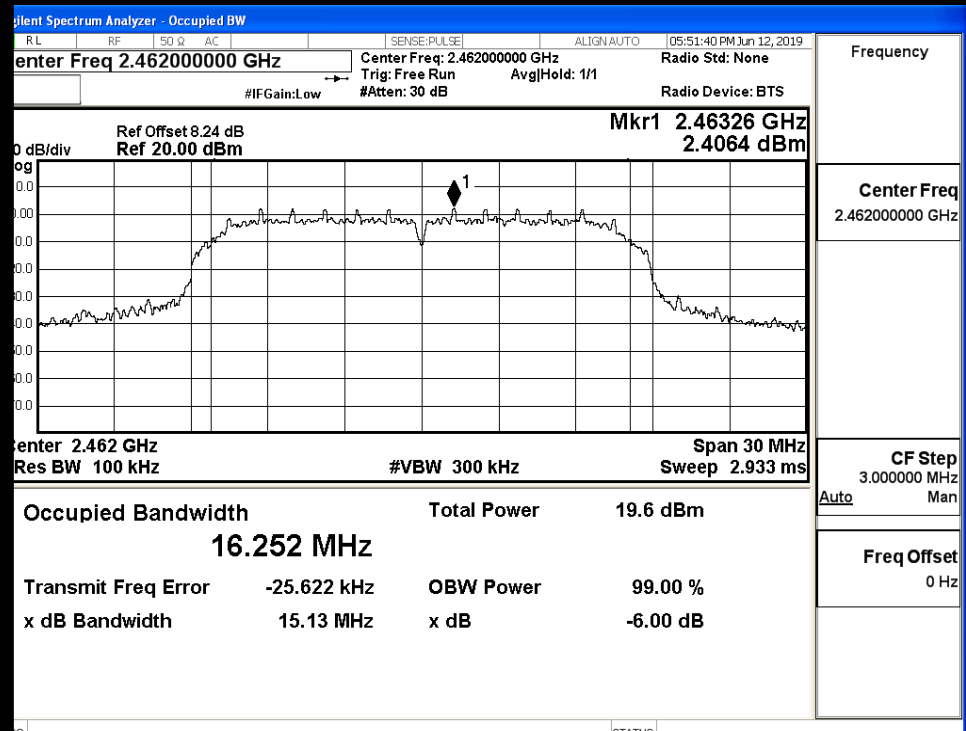
11N20SISO/LCH



11N20SISO/MCH



11N20SISO/HCH

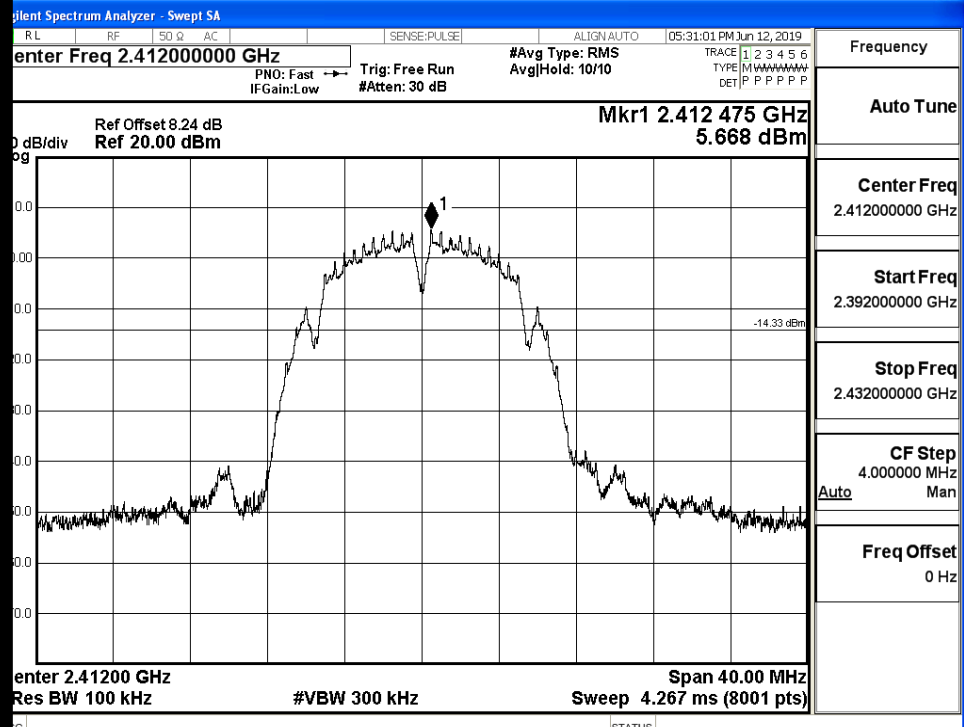


**A.5 RF Conducted Spurious Emissions**

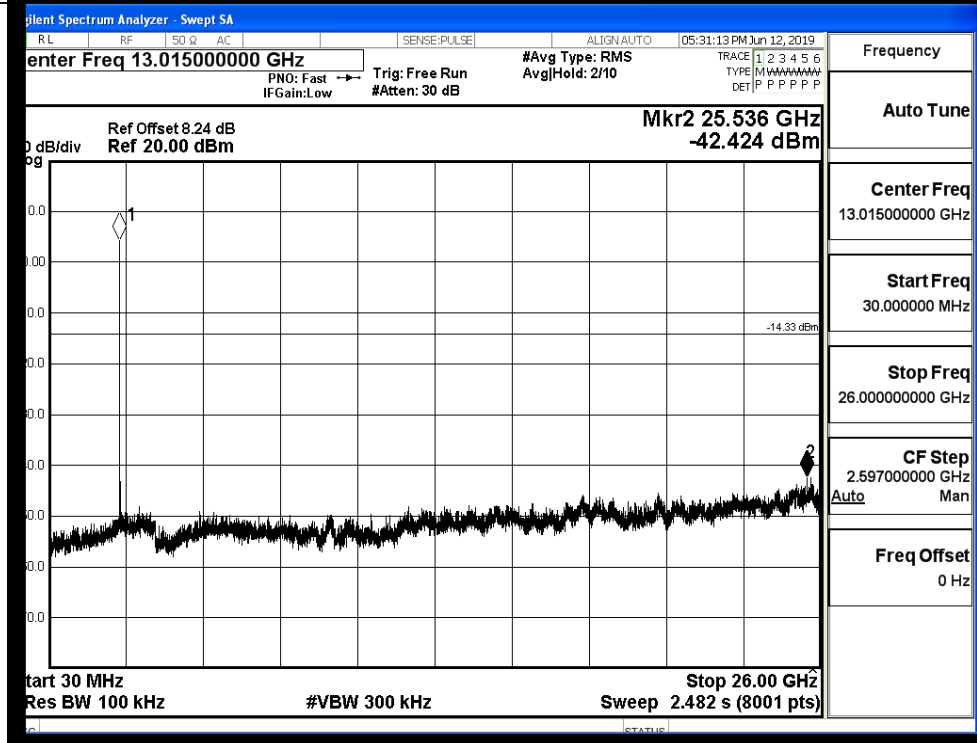
| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| 11B           | LCH     | 5.668      | -42.424          | -14.332     | PASS    |
|               | MCH     | 6.984      | -43.286          | -13.016     | PASS    |
|               | HCH     | 6.307      | -43.553          | -13.693     | PASS    |
| 11G           | LCH     | 1.11       | -38.793          | -18.890     | PASS    |
|               | MCH     | 1.104      | -43.335          | -18.896     | PASS    |
|               | HCH     | 2.012      | -43.535          | -17.988     | PASS    |
| 11N20<br>SISO | LCH     | 1.041      | -42.490          | -18.959     | PASS    |
|               | MCH     | 1.208      | -43.057          | -18.792     | PASS    |
|               | HCH     | 2.047      | -43.528          | -17.953     | PASS    |

## 11B LCH Graphs

Pref/11B/LCH

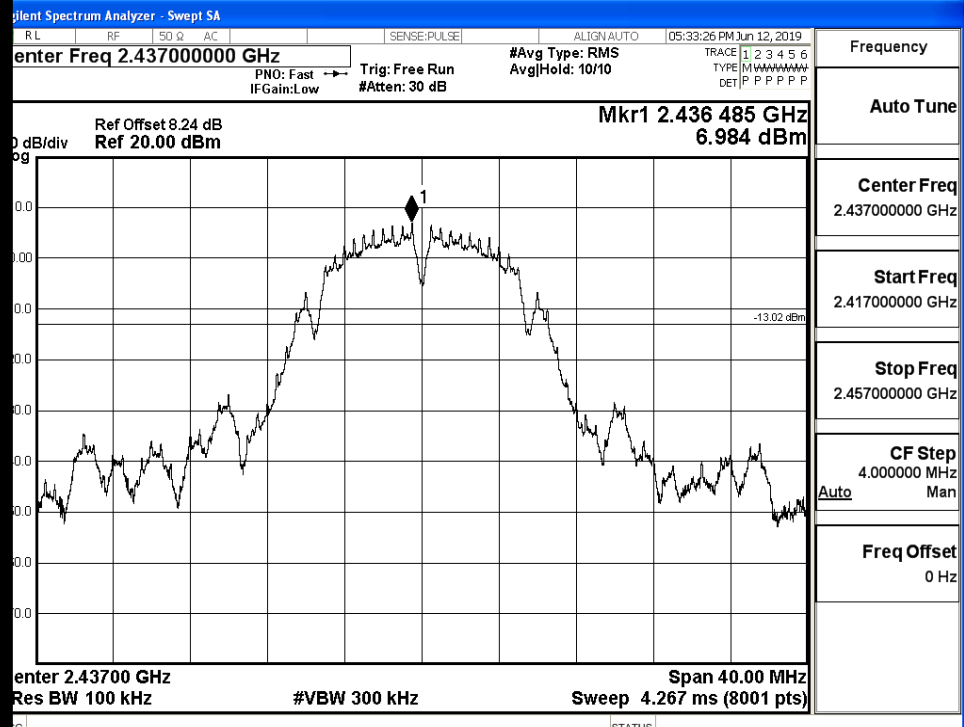


Puw/11B/LCH

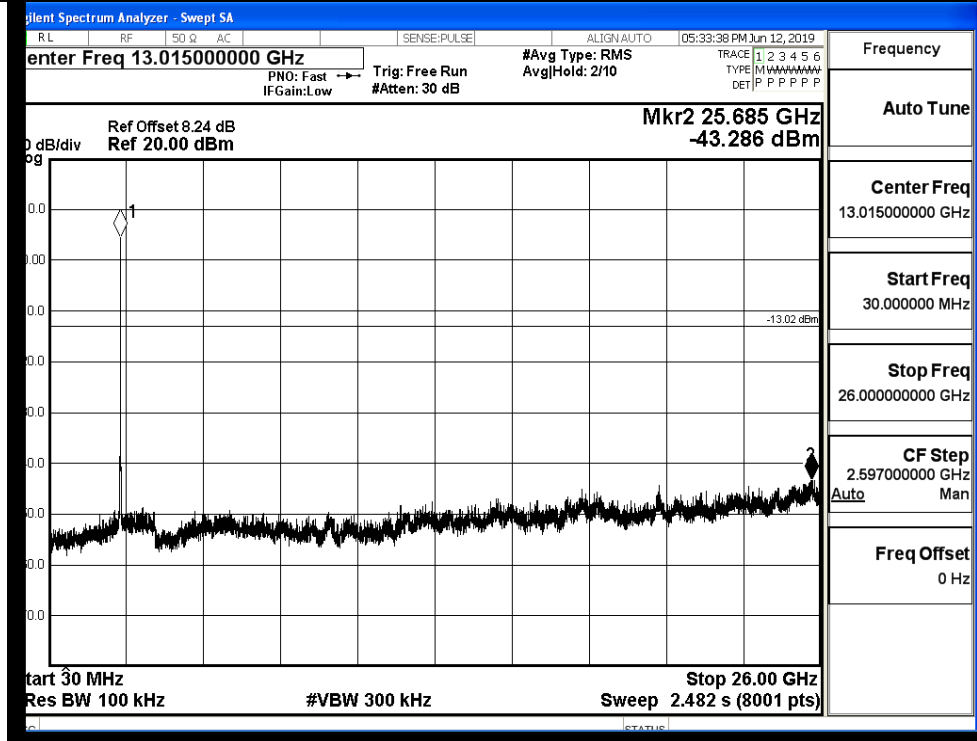


## 11B\_MCH\_Graphs

Pref/11B/MCH

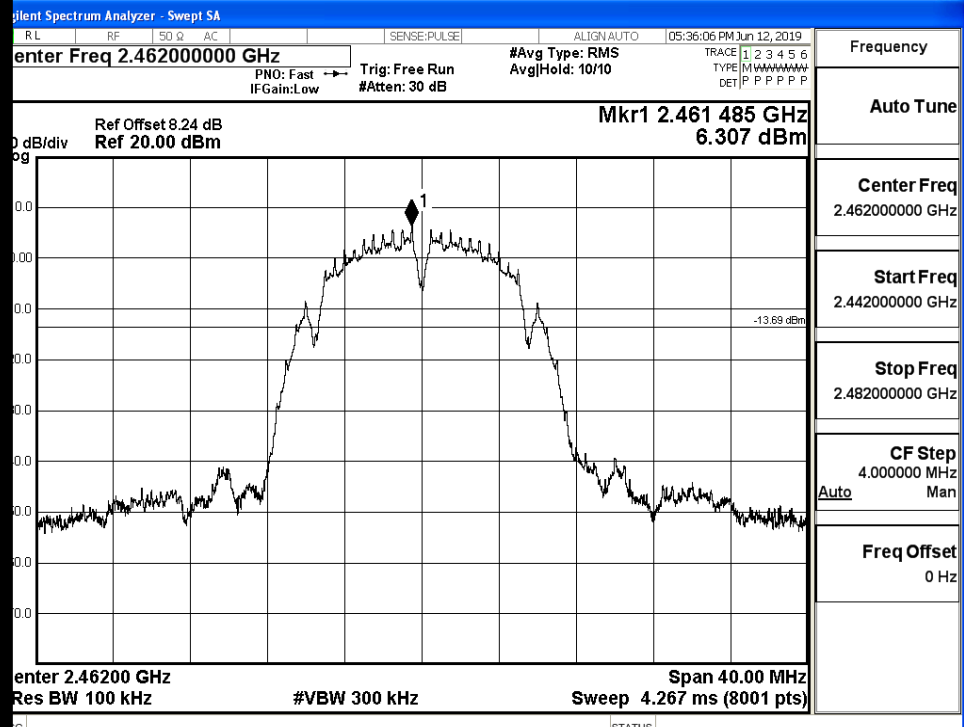


Puw/11B/MCH

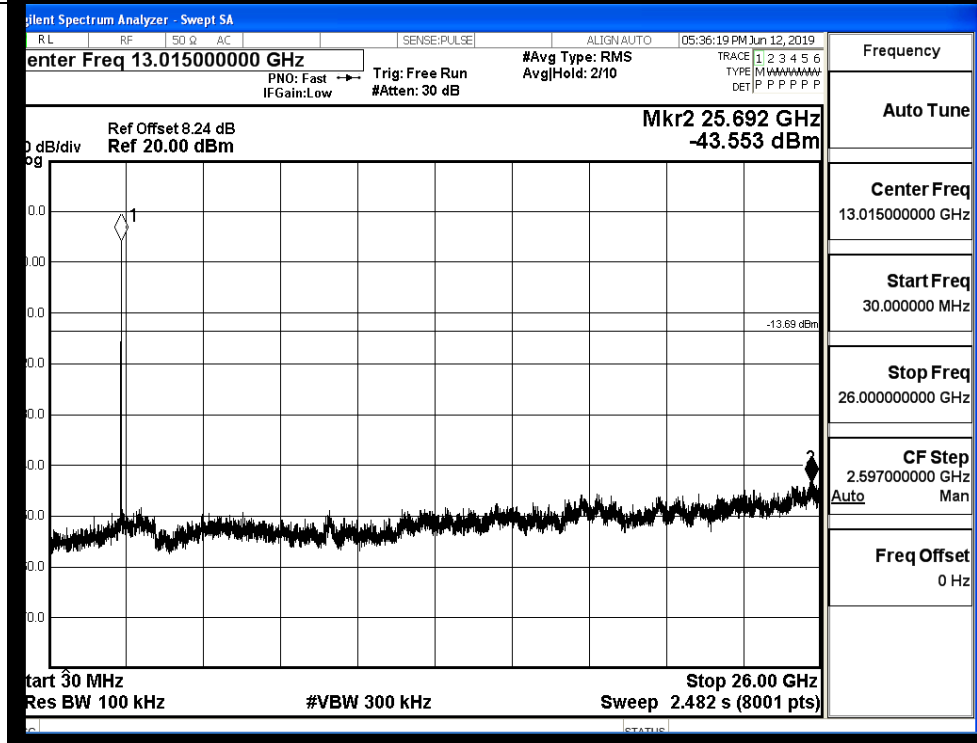


## 11B HCH Graphs

Pref/11B/HCH

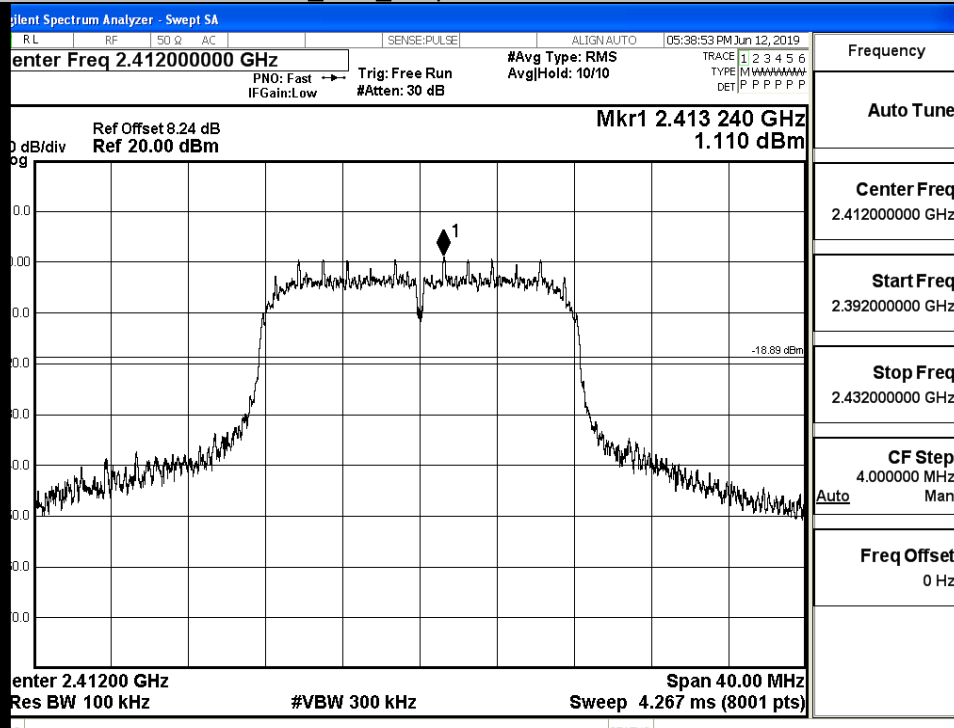


Puw/11B/HCH

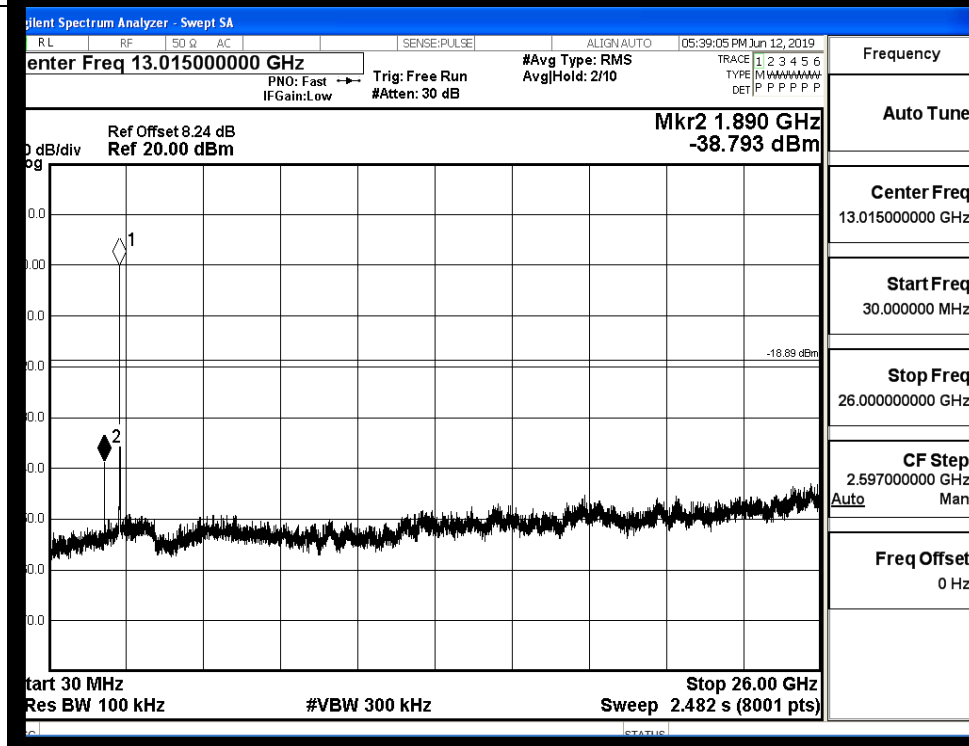


## 11G\_LCH\_Graphs

Pref/11G/LCH

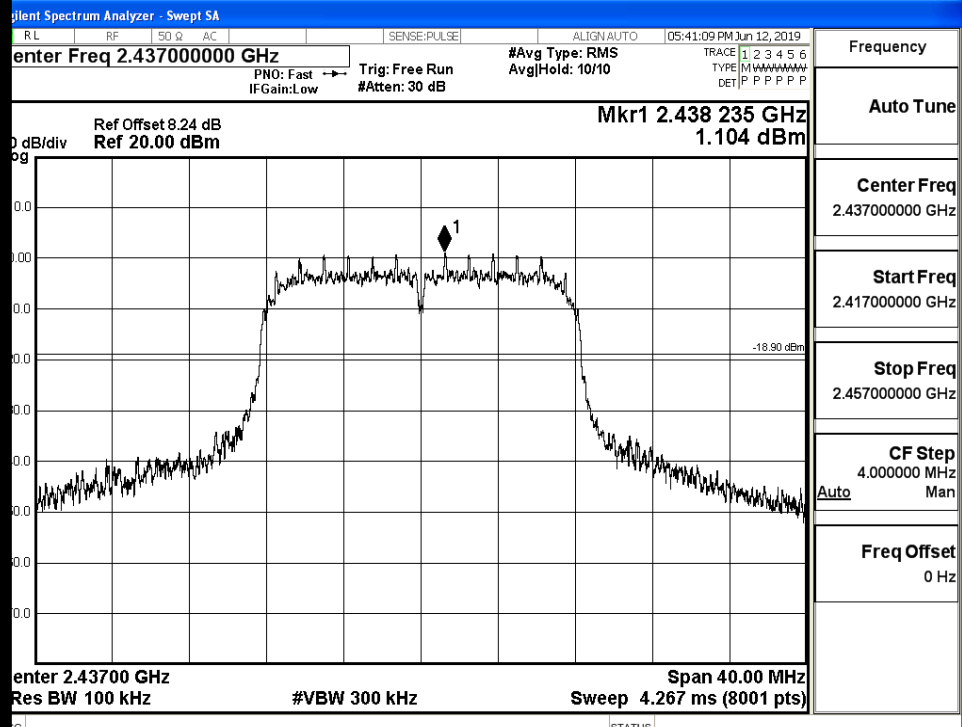


Puw/11G/LCH

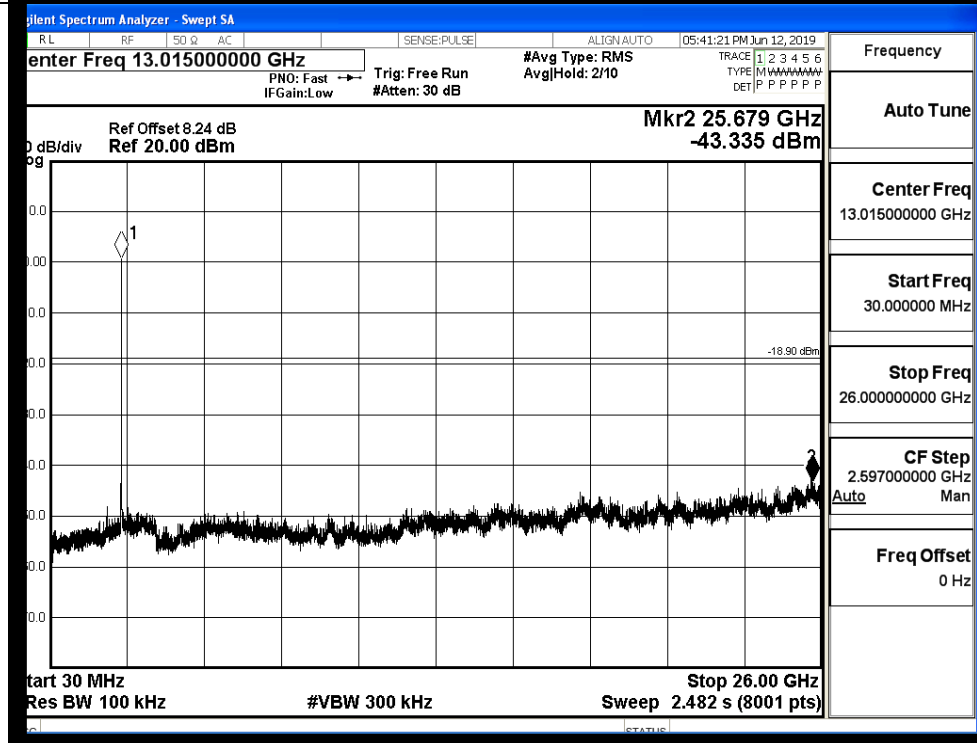


## 11G\_MCH\_Graphs

Pref/11G/MCH

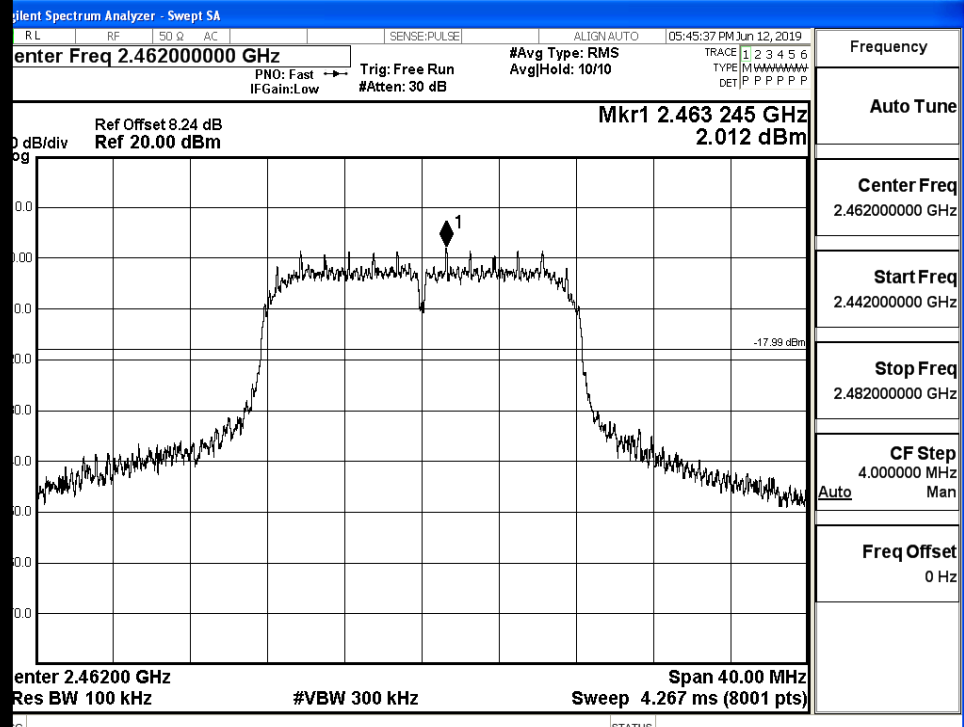


Puw/11G/MCH

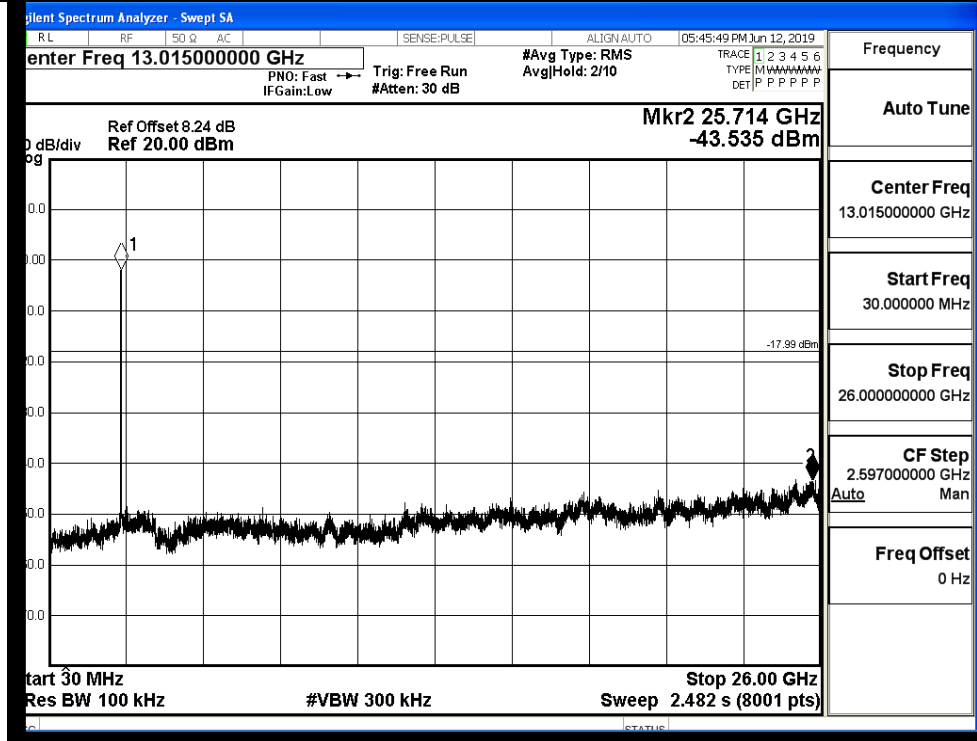


## 11G HCH Graphs

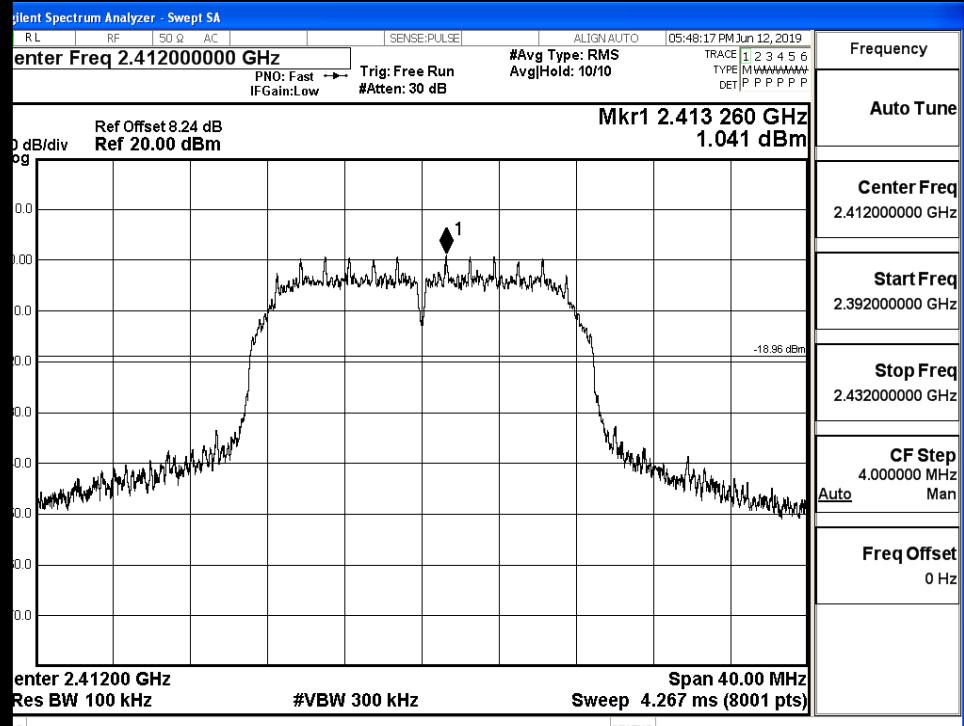
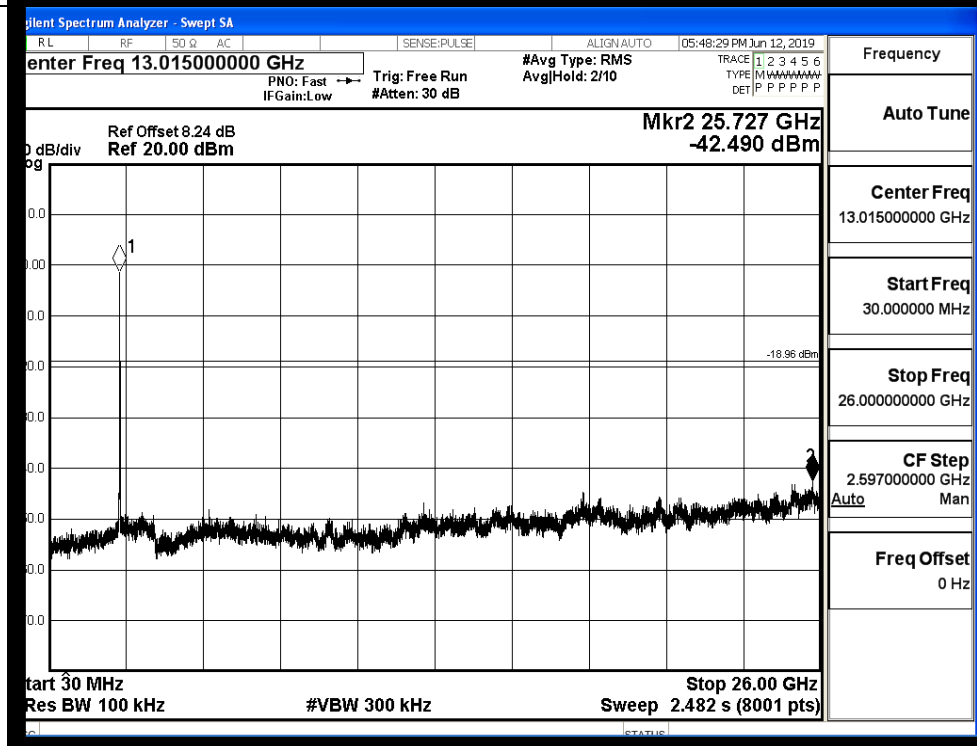
Pref/11G/HCH



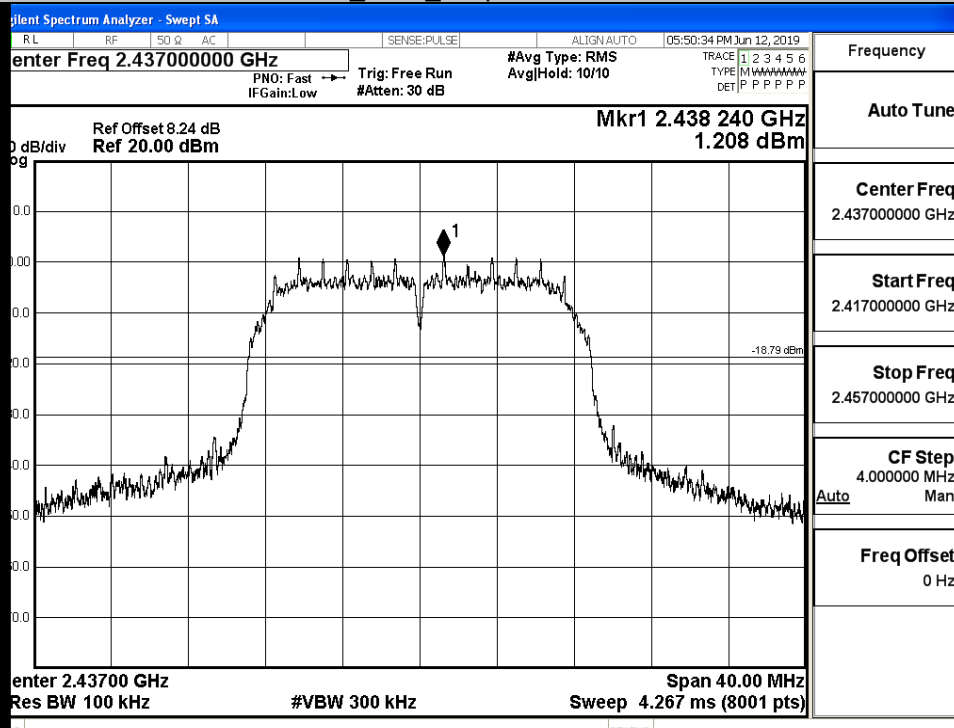
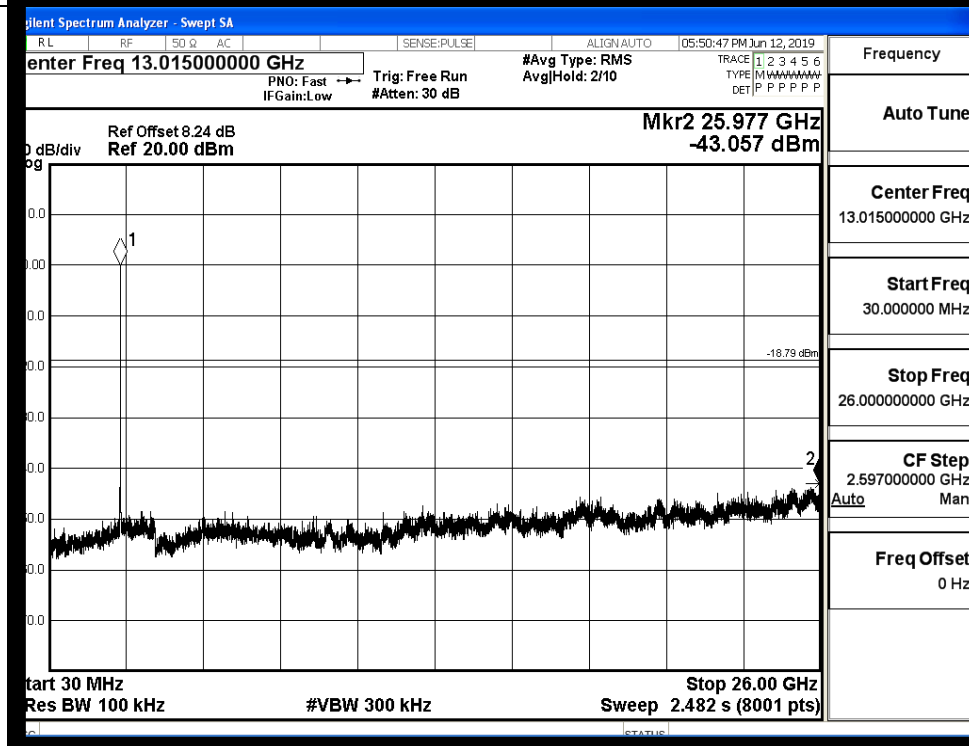
Puw/11G/HCH



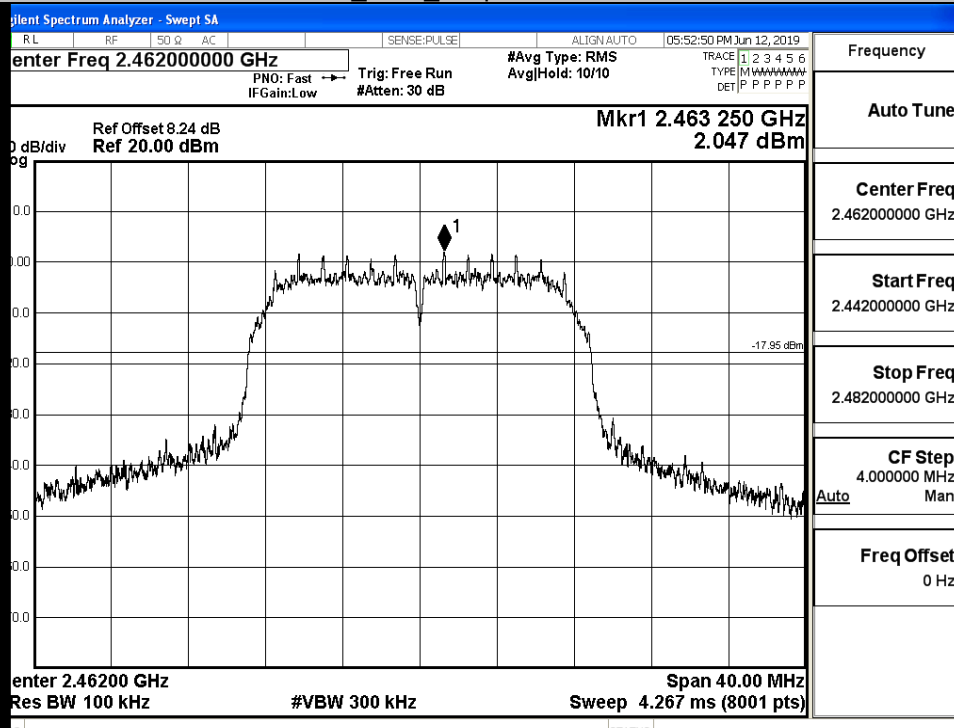
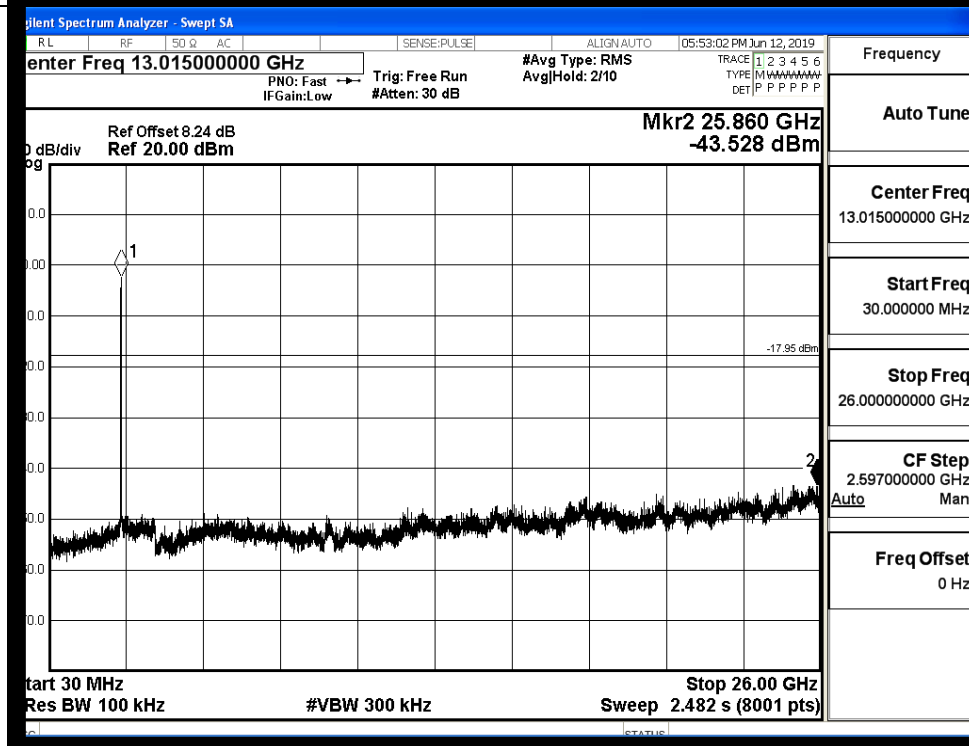
## 11N20SISO LCH Graphs

Pref/11N20SIS  
O/LCHPuw/11N20  
SISO/LCH

## 11N20SISO\_MCH\_Graphs

Pref/11N20  
SISO/MCHPuw/11N20  
SISO/MCH

## 11N20SISO\_HCH\_Graphs

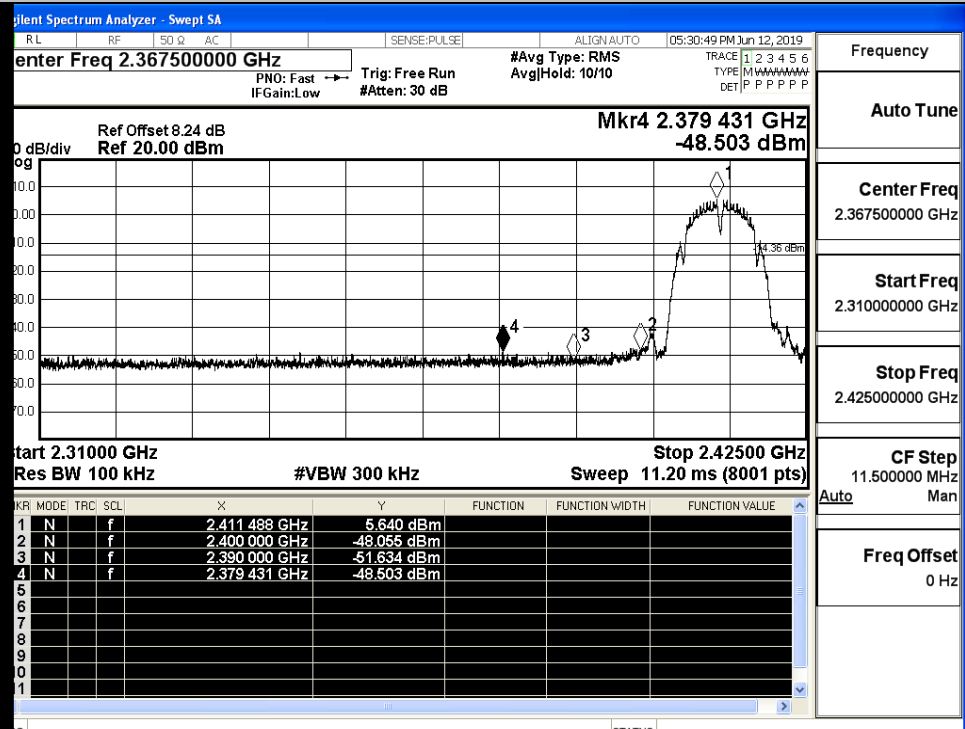
Pref/11N20  
SISO/HCHPuw/11N20  
SISO/HCH

## A.6 Band-edge for RF Conducted Emissions

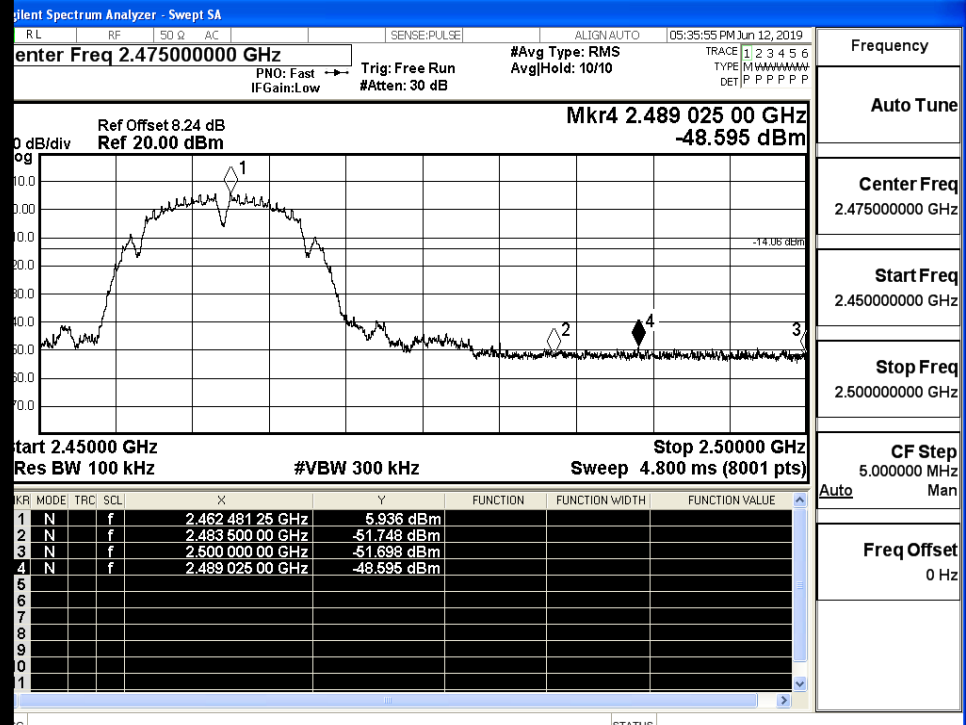
| Mode      | Channel | Carrier Power[dBm] | Max.Spurious Level [dBm] | Limit [dBm] | Verdict |
|-----------|---------|--------------------|--------------------------|-------------|---------|
| 11B       | LCH     | 5.640              | -48.503                  | -14.36      | PASS    |
|           | HCH     | 5.936              | -48.595                  | -14.06      | PASS    |
| 11G       | LCH     | 0.631              | -46.404                  | -19.37      | PASS    |
|           | HCH     | 1.687              | -45.295                  | -18.31      | PASS    |
| 11N20SISO | LCH     | 0.804              | -46.732                  | -19.2       | PASS    |
|           | HCH     | 2.013              | -45.840                  | -17.99      | PASS    |

### Test Graphs

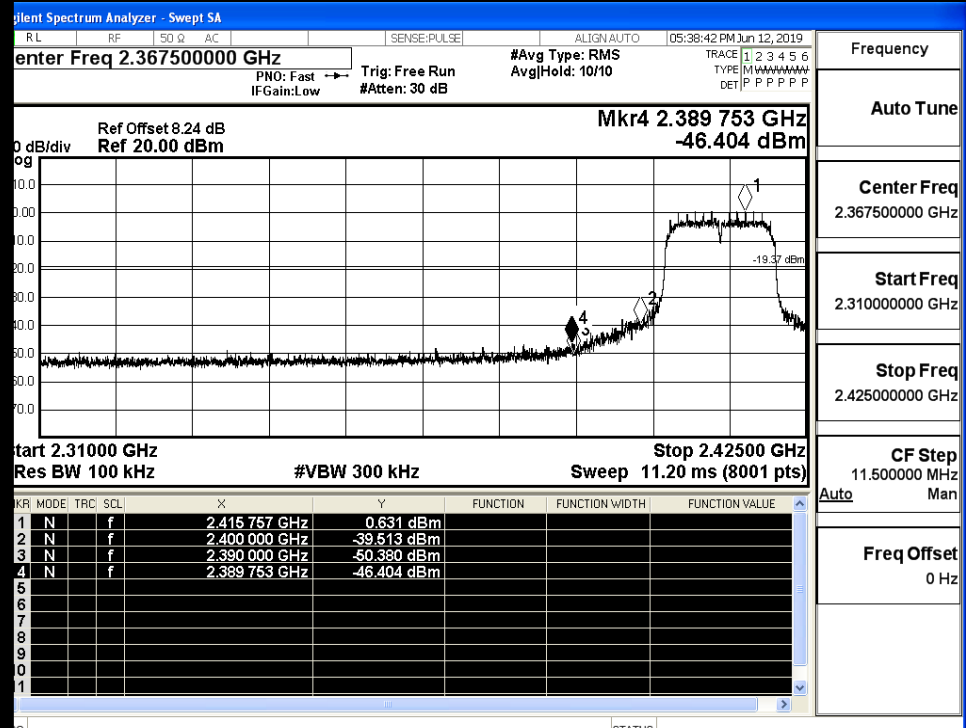
11B/LCH



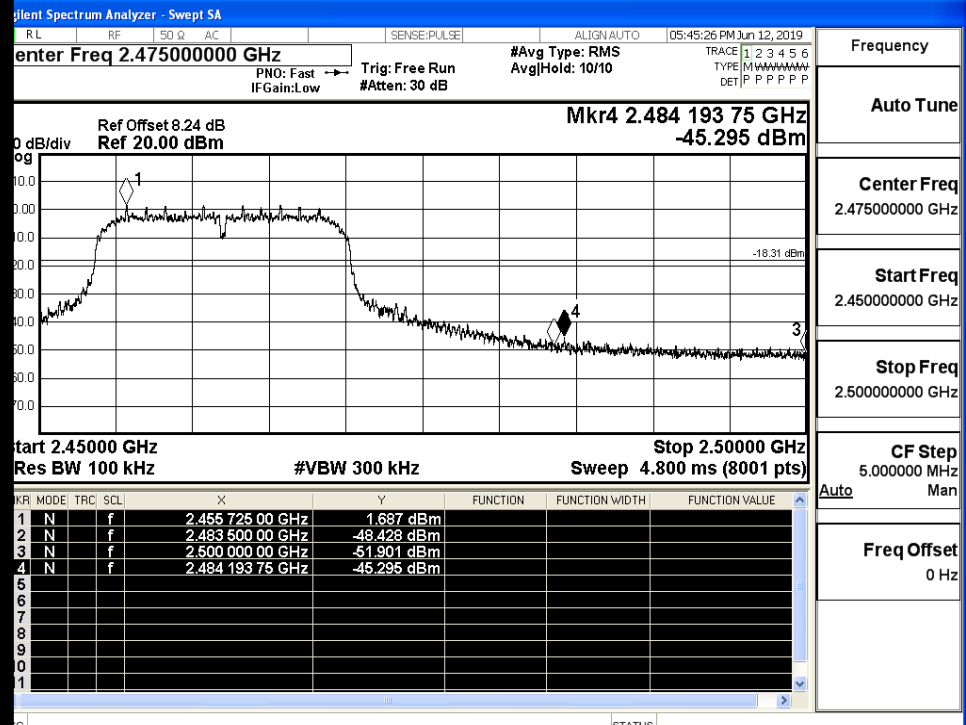
11B/HCH



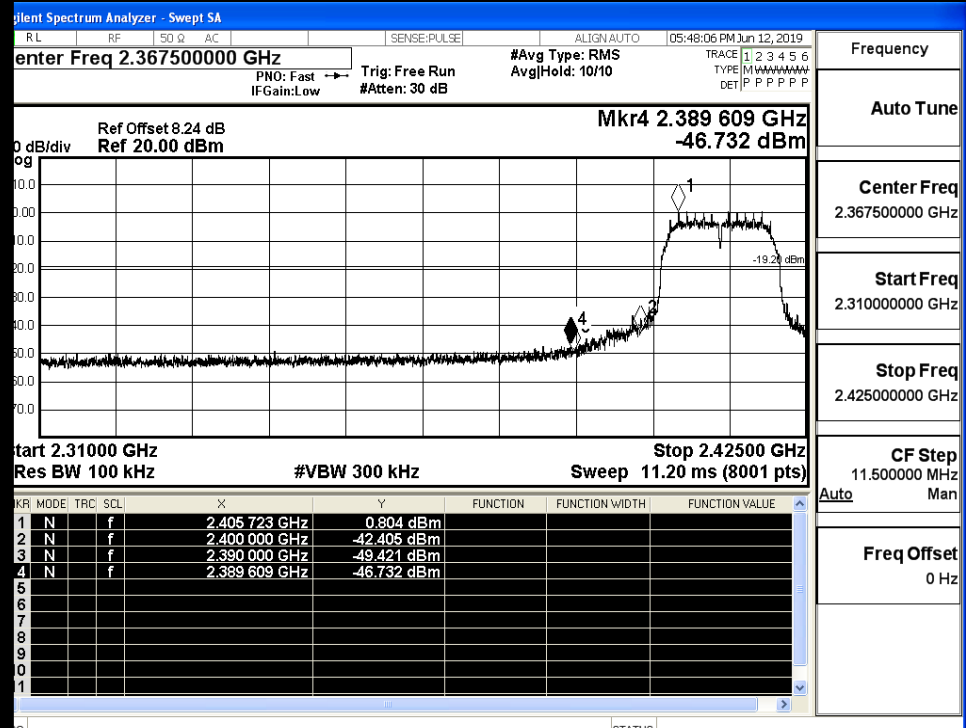
11G/LCH



11G/HCH



11N20SISO/LCH



Silent Spectrum Analyzer - Swept SA

RL RF SO Q AC SENSE:PULSE ALIGN:AUTO 05:52:38 PM Jun 12, 2019

Center Freq 2.475000000 GHz #Avg Type: RMS #Atten: 30 dB Trg: Free Run AvgHold: 10/10 PNO: Fast IFGain: Low TYPE: MAAAAA DET: P P P P P

Ref Offset 8.24 dB Ref 20.00 dBm Mkr4 2.483 843 75 GHz -45.840 dBm

Start 2.45000 GHz Stop 2.50000 GHz  
Res BW 100 kHz #VBW 300 kHz Sweep 4.800 ms (8001 pts)

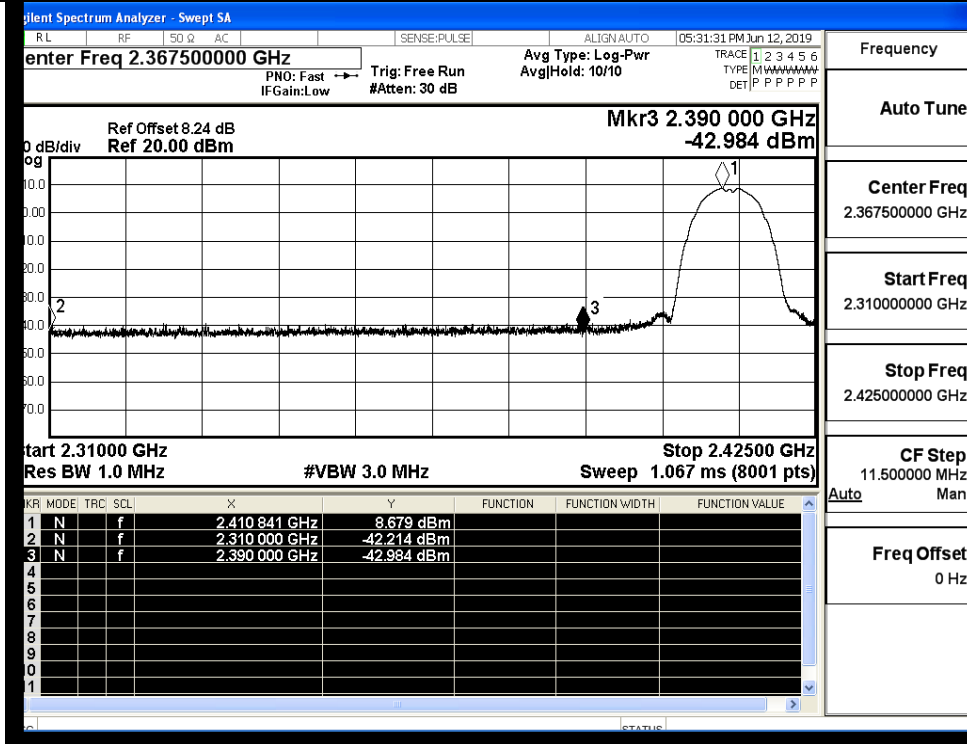
| KR | MODE | TRC | SCL | X                | Y           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |
|----|------|-----|-----|------------------|-------------|----------|----------------|----------------|
| 1  | N    | f   |     | 2.463 237 50 GHz | -2.013 dBm  |          |                |                |
| 2  | N    | f   |     | 2.483 500 00 GHz | -48.265 dBm |          |                |                |
| 3  | N    | f   |     | 2.500 000 00 GHz | -52.315 dBm |          |                |                |
| 4  | N    | f   |     | 2.483 843 75 GHz | -45.840 dBm |          |                |                |
| 5  |      |     |     |                  |             |          |                |                |
| 6  |      |     |     |                  |             |          |                |                |
| 7  |      |     |     |                  |             |          |                |                |
| 8  |      |     |     |                  |             |          |                |                |
| 9  |      |     |     |                  |             |          |                |                |
| 0  |      |     |     |                  |             |          |                |                |
| 1  |      |     |     |                  |             |          |                |                |

Frequency Auto Tune Center Freq 2.475000000 GHz Start Freq 2.450000000 GHz Stop Freq 2.500000000 GHz CF Step 5.000000 MHz Man Auto Freq Offset 0 Hz

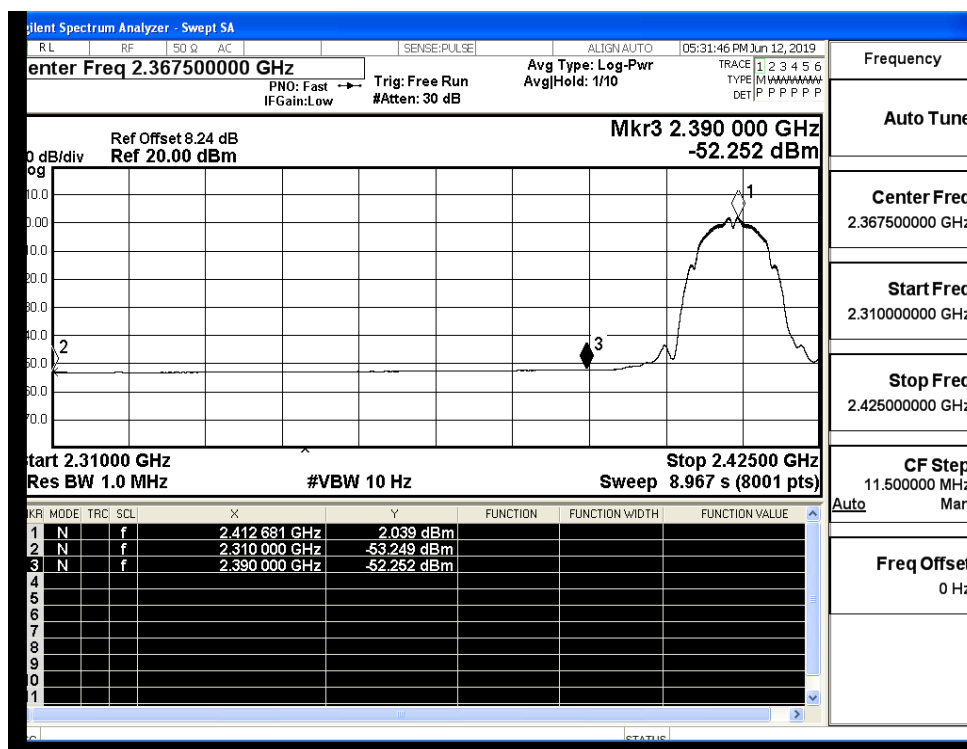
## A.7 Restrict-band band-edge measurements

| Test Mode  | Test Channel | Ant  | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|------------|--------------|------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| 11B        | 2412         | Ant1 | 2310.0 | -42.21      | 2.5  | 0             | 55.49      | PEAK     | 74             | PASS    |
|            | 2412         | Ant1 | 2310.0 | -53.25      | 2.5  | 0             | 44.45      | AV       | 54             | PASS    |
|            | 2412         | Ant1 | 2390.0 | -42.98      | 2.5  | 0             | 54.72      | PEAK     | 74             | PASS    |
|            | 2412         | Ant1 | 2390.0 | -52.25      | 2.5  | 0             | 45.45      | AV       | 54             | PASS    |
|            | 2462         | Ant1 | 2483.5 | -41.91      | 2.5  | 0             | 55.79      | PEAK     | 74             | PASS    |
|            | 2462         | Ant1 | 2483.5 | -51.59      | 2.5  | 0             | 46.11      | AV       | 54             | PASS    |
|            | 2462         | Ant1 | 2500.0 | -41.66      | 2.5  | 0             | 56.04      | PEAK     | 74             | PASS    |
|            | 2462         | Ant1 | 2500.0 | -52.25      | 2.5  | 0             | 45.45      | AV       | 54             | PASS    |
| 11G        | 2412         | Ant1 | 2310.0 | -43.01      | 2.5  | 0             | 54.69      | PEAK     | 74             | PASS    |
|            | 2412         | Ant1 | 2310.0 | -53.25      | 2.5  | 0             | 44.45      | AV       | 54             | PASS    |
|            | 2412         | Ant1 | 2390.0 | -33.52      | 2.5  | 0             | 64.18      | PEAK     | 74             | PASS    |
|            | 2412         | Ant1 | 2390.0 | -50.81      | 2.5  | 0             | 46.89      | AV       | 54             | PASS    |
|            | 2462         | Ant1 | 2483.5 | -35.45      | 2.5  | 0             | 62.25      | PEAK     | 74             | PASS    |
|            | 2462         | Ant1 | 2483.5 | -50.14      | 2.5  | 0             | 47.56      | AV       | 54             | PASS    |
|            | 2462         | Ant1 | 2500.0 | -41.72      | 2.5  | 0             | 55.98      | PEAK     | 74             | PASS    |
|            | 2462         | Ant1 | 2500.0 | -51.94      | 2.5  | 0             | 45.76      | AV       | 54             | PASS    |
| 11N20 SISO | 2412         | Ant1 | 2310.0 | -41.93      | 2.5  | 0             | 55.77      | PEAK     | 74             | PASS    |
|            | 2412         | Ant1 | 2310.0 | -53.21      | 2.5  | 0             | 44.49      | AV       | 54             | PASS    |
|            | 2412         | Ant1 | 2390.0 | -36.82      | 2.5  | 0             | 60.88      | PEAK     | 74             | PASS    |
|            | 2412         | Ant1 | 2390.0 | -51.14      | 2.5  | 0             | 46.56      | AV       | 54             | PASS    |
|            | 2462         | Ant1 | 2483.5 | -36.07      | 2.5  | 0             | 61.63      | PEAK     | 74             | PASS    |
|            | 2462         | Ant1 | 2483.5 | -50.27      | 2.5  | 0             | 47.43      | AV       | 54             | PASS    |
|            | 2462         | Ant1 | 2500.0 | -42.26      | 2.5  | 0             | 55.44      | PEAK     | 74             | PASS    |
|            | 2462         | Ant1 | 2500.0 | -52.03      | 2.5  | 0             | 45.67      | AV       | 54             | PASS    |

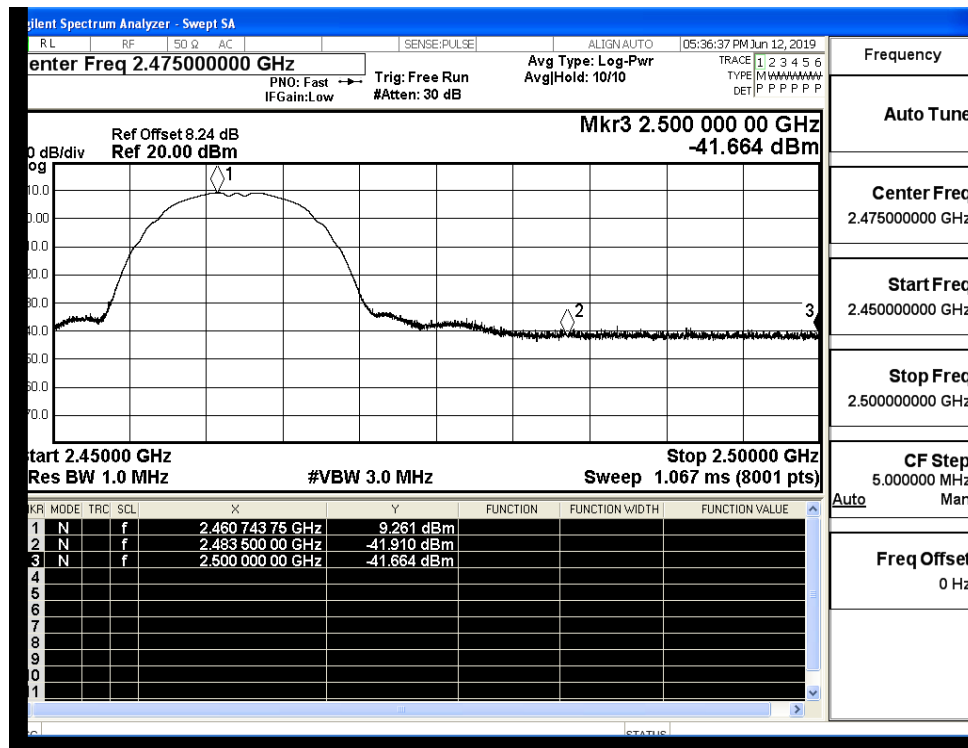
## Restrict-band band-edge measurements\_11B\_2412\_Ant1\_PEAK



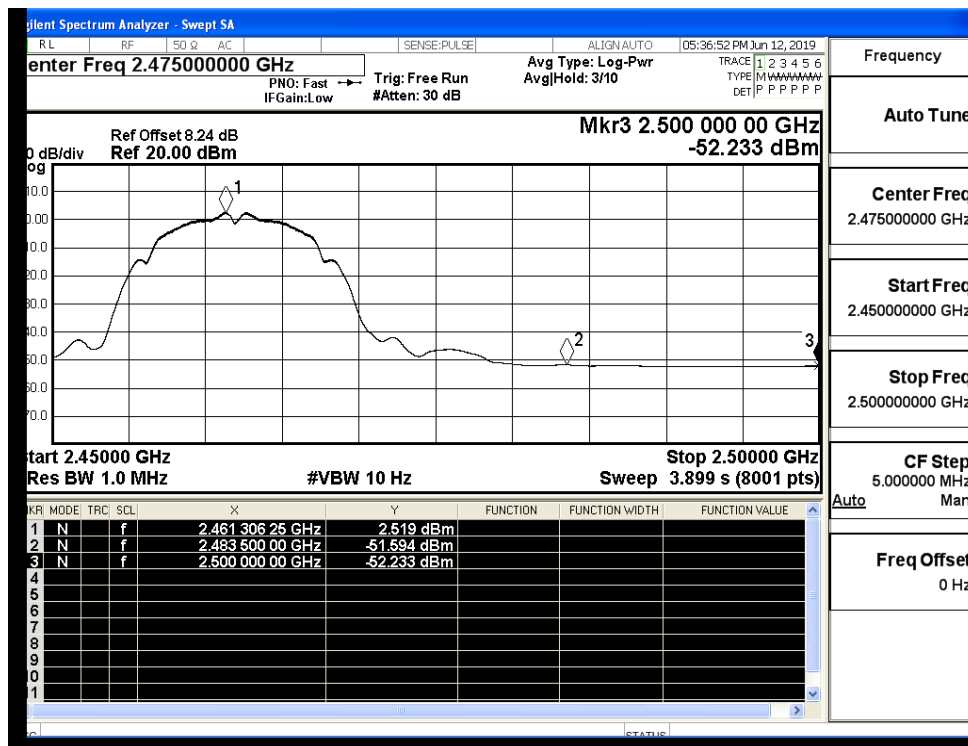
## Restrict-band band-edge measurements\_11B\_2412\_Ant1\_AV



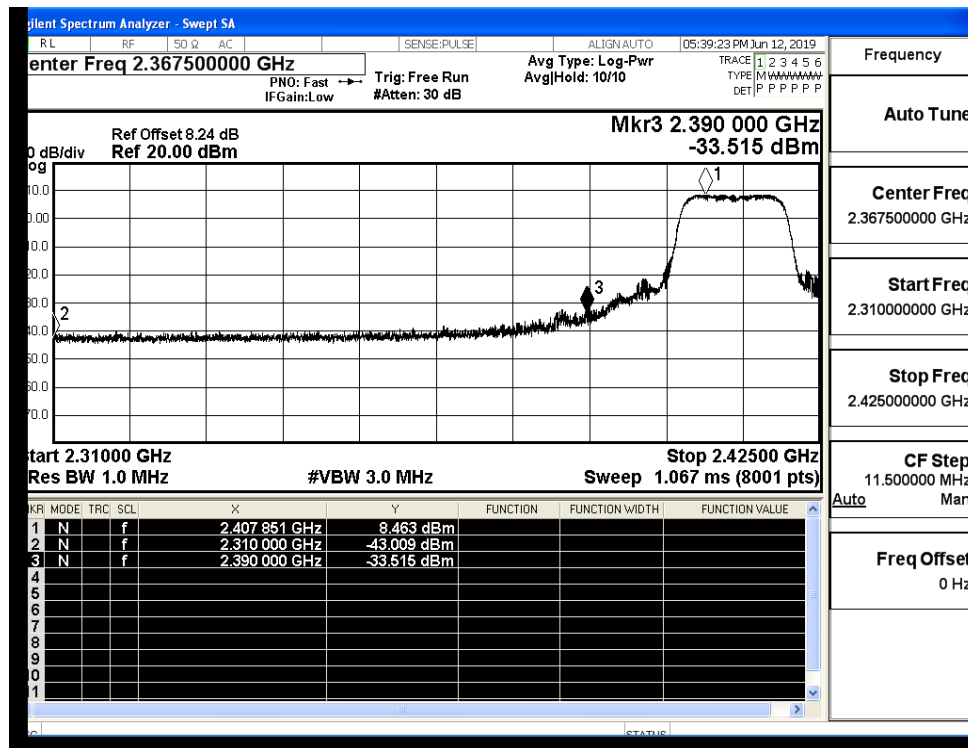
## Restrict-band band-edge measurements\_11B\_2462\_Ant1\_PEAK



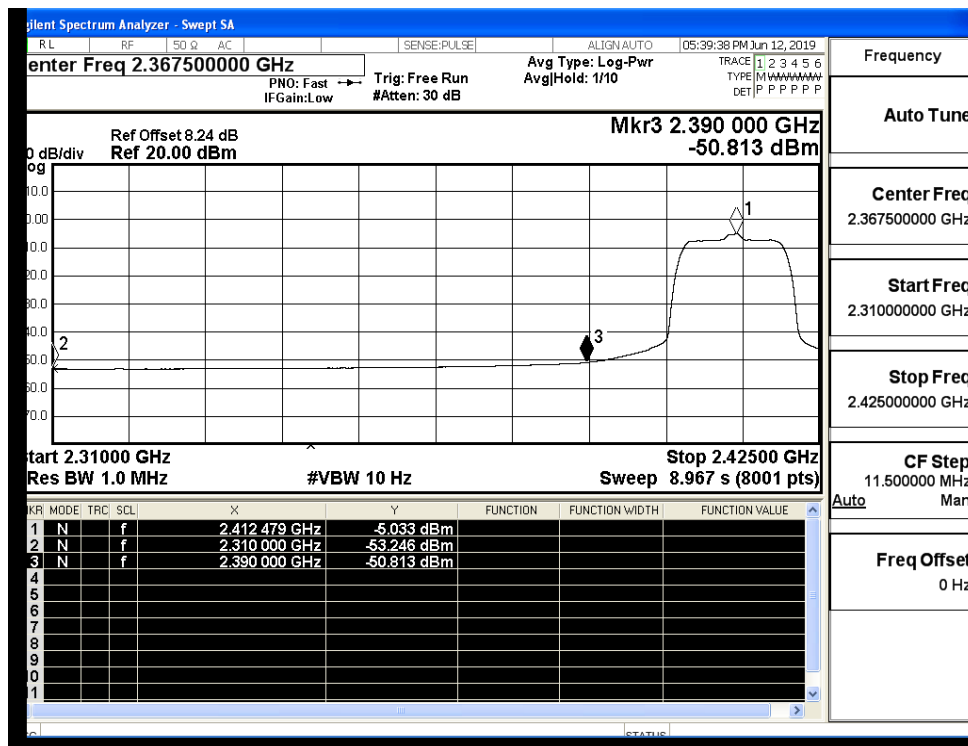
## Restrict-band band-edge measurements\_11B\_2462\_Ant1\_AV



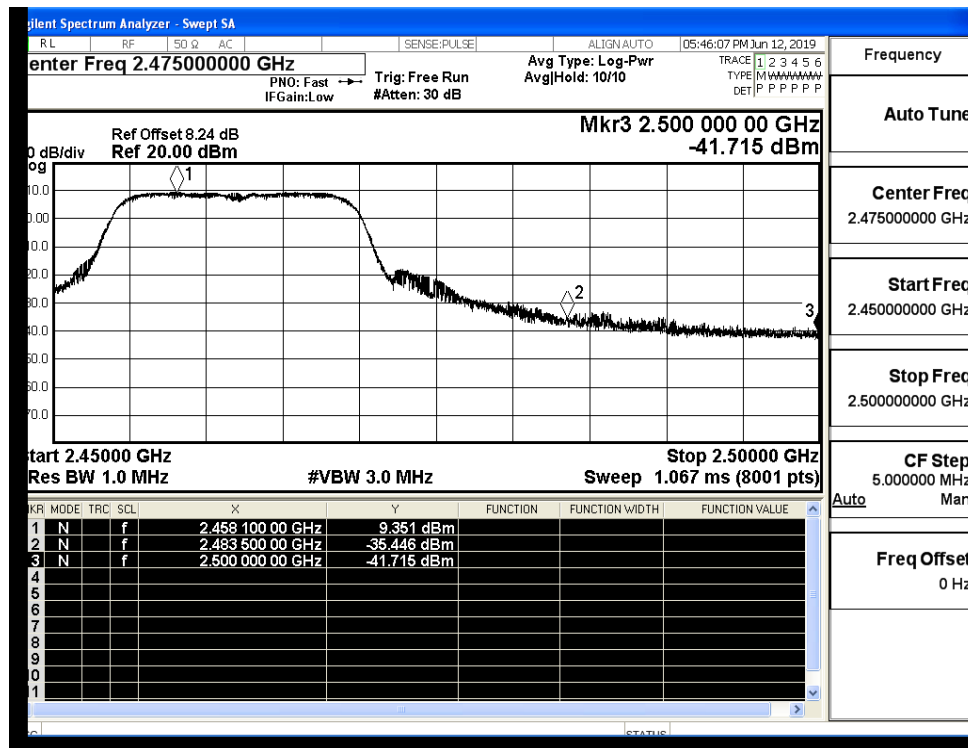
## Restrict-band band-edge measurements\_11G\_2412\_Ant1\_PEAK



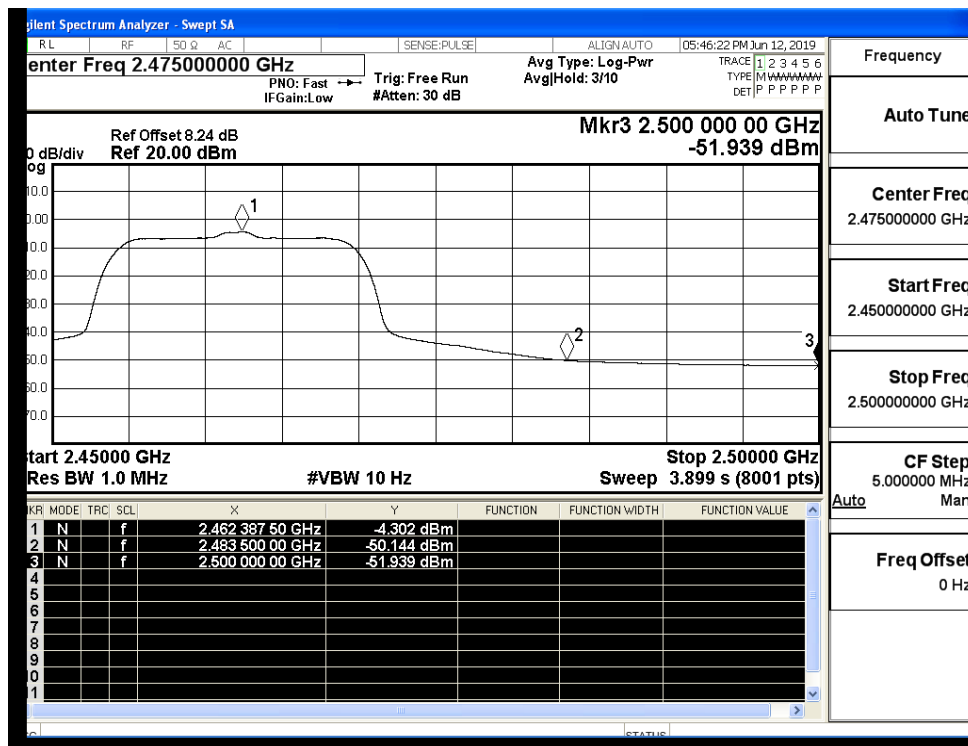
## Restrict-band band-edge measurements\_11G\_2412\_Ant1\_AV



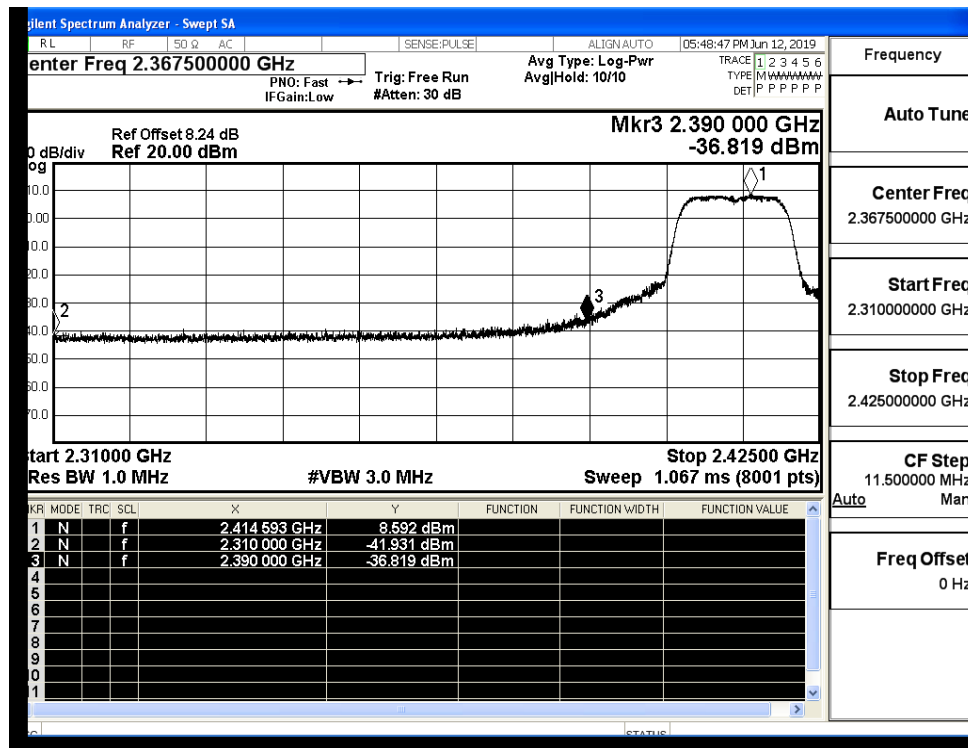
## Restrict-band band-edge measurements\_11G\_2462\_Ant1\_PEAK



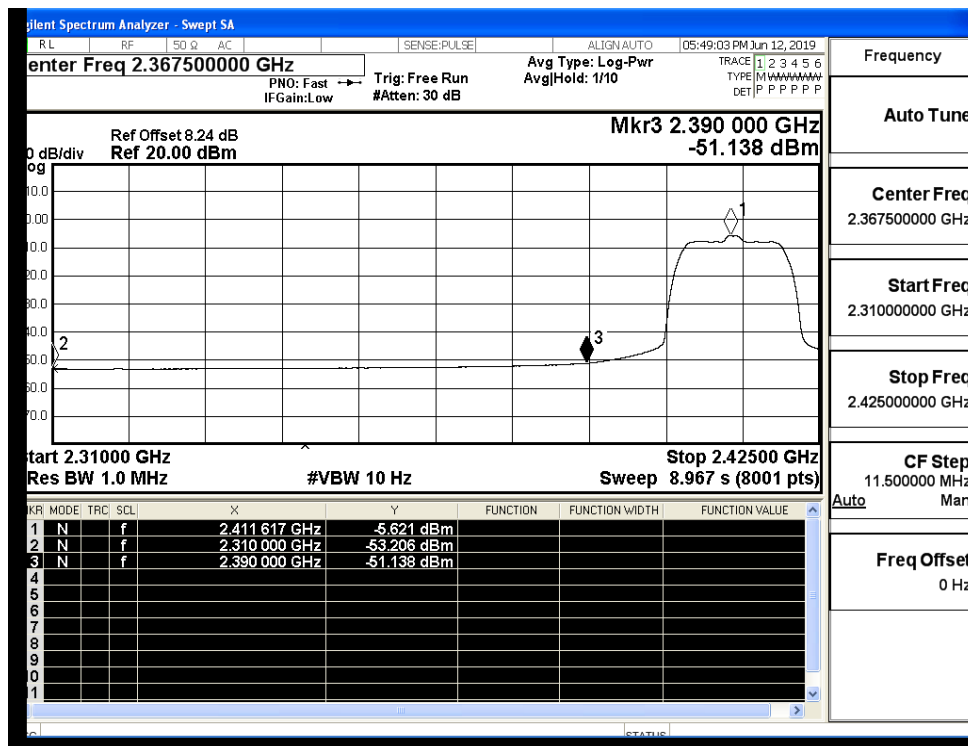
## Restrict-band band-edge measurements\_11G\_2462\_Ant1\_AV



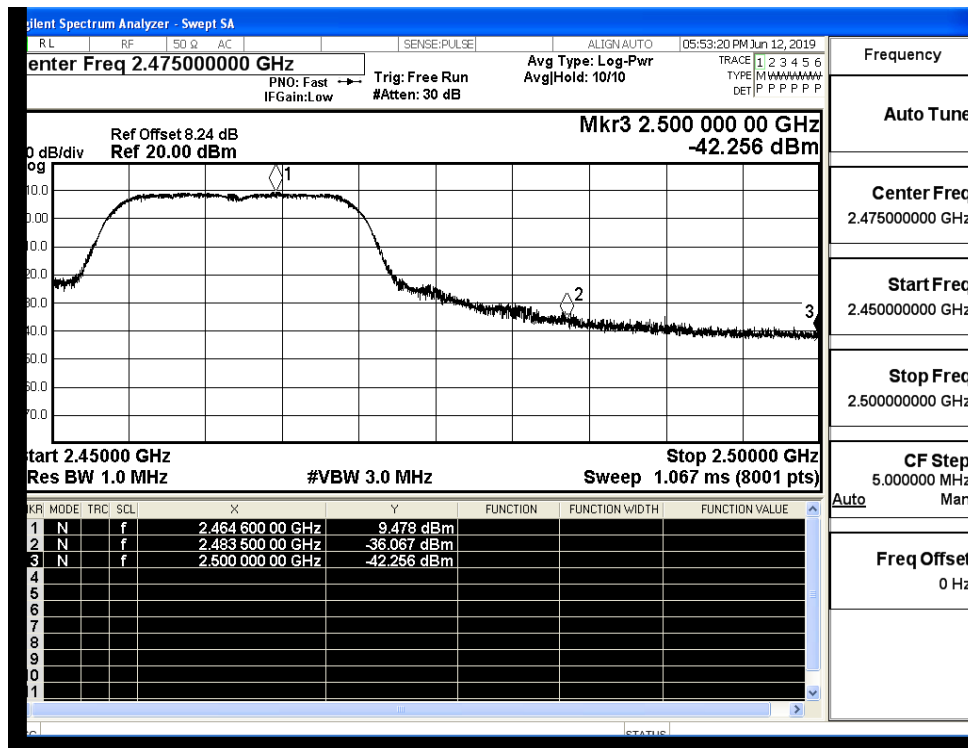
## Restrict-band band-edge measurements\_11N20SISO\_2412\_Ant1\_PEAK



## Restrict-band band-edge measurements\_11N20SISO\_2412\_Ant1\_AV



## Restrict-band band-edge measurements\_11N20SISO\_2462\_Ant1\_PEAK



## Restrict-band band-edge measurements\_11N20SISO\_2462\_Ant1\_AV

