

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Thermostat

Trade Mark: N/A

Test Model: T18XUTW-7-WIFI(TY)

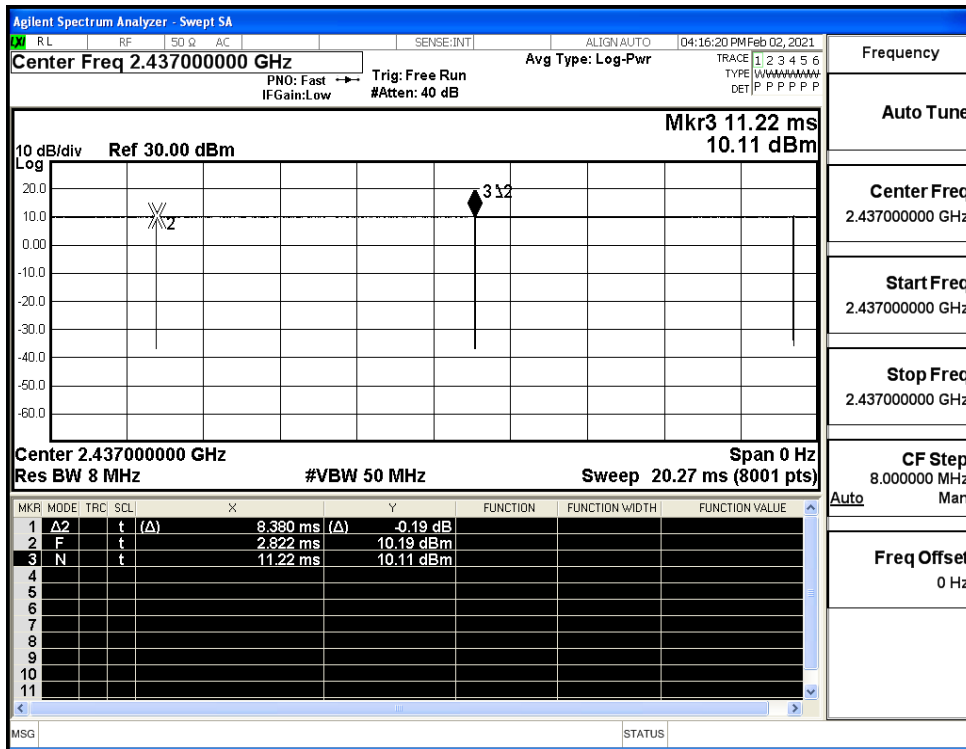
Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 24.6° C |
| Relative Humidity: | 54.1% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | Carl Fu |
| Supervised by: | Li Huan |

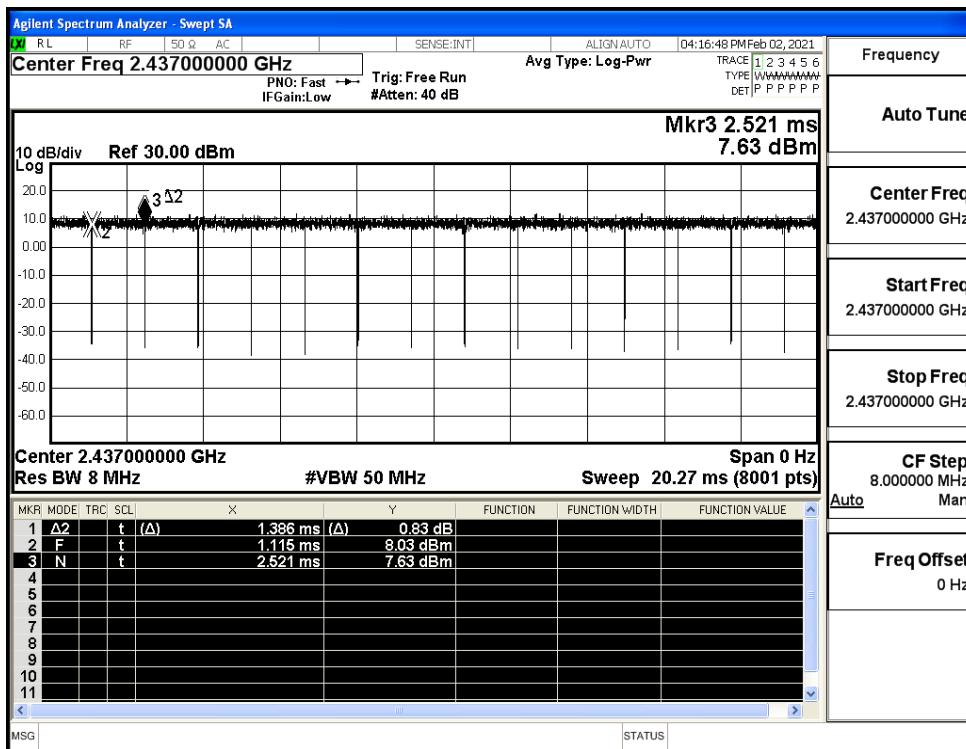
A.1 Duty Cycle

| Test Mode | Test Channel | Ant | Duty Cycle[%] | Verdict |
|-----------|--------------|------|---------------|---------|
| 11B | 2437 | Ant1 | 99.8 | PASS |
| 11G | 2437 | Ant1 | 98.6 | PASS |
| 11N20SISO | 2437 | Ant1 | 98.7 | PASS |
| 11N40SISO | 2437 | Ant1 | 99.2 | PASS |

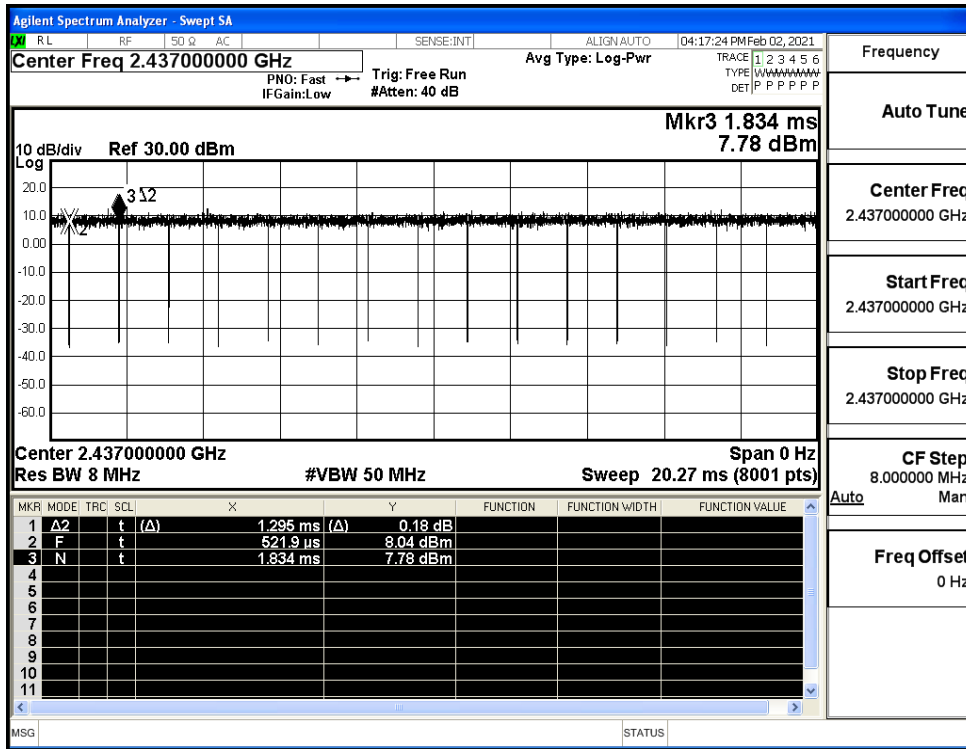
Duty Cycle_11B_2437_Ant1



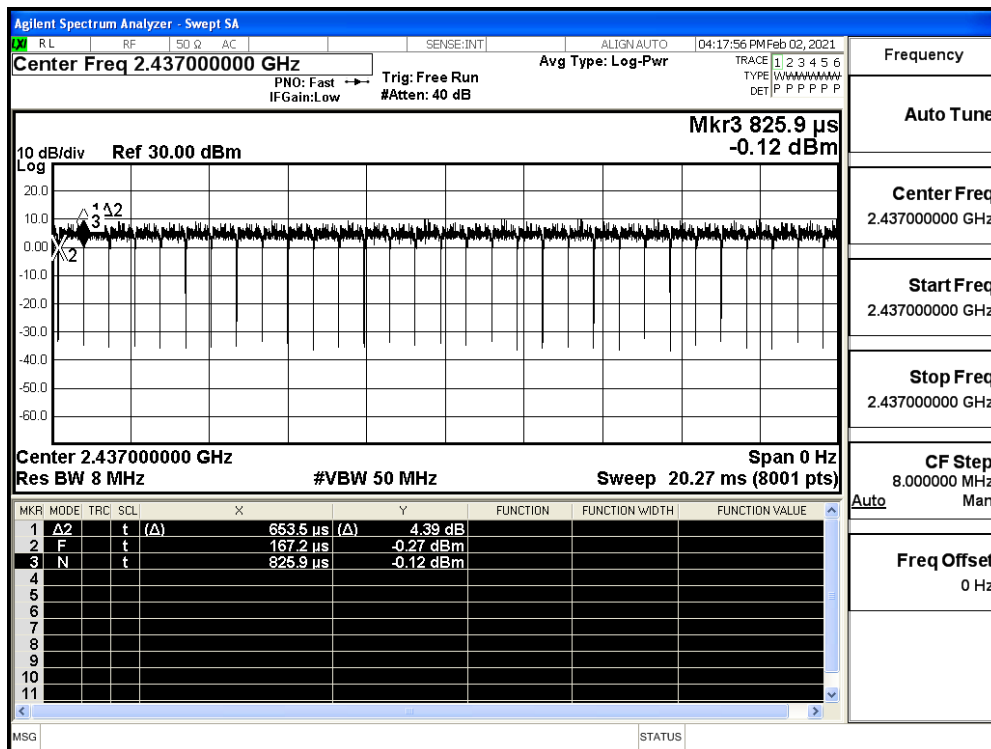
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



A.2 Maximum Conducted Output Power

| Mode | Channel | Meas.Level [dBm] | Limit [dBm] | Verdict |
|-----------|---------|------------------|-------------|---------|
| 11B | LCH | 17.93 | 30 | PASS |
| | MCH | 18.14 | 30 | PASS |
| | HCH | 18.08 | 30 | PASS |
| 11G | LCH | 18.78 | 30 | PASS |
| | MCH | 19.44 | 30 | PASS |
| | HCH | 19.34 | 30 | PASS |
| 11N20SISO | LCH | 17.92 | 30 | PASS |
| | MCH | 19.14 | 30 | PASS |
| | HCH | 18.71 | 30 | PASS |
| 11N40SISO | LCH | 19.20 | 30 | PASS |
| | MCH | 19.34 | 30 | PASS |
| | HCH | 19.22 | 30 | PASS |

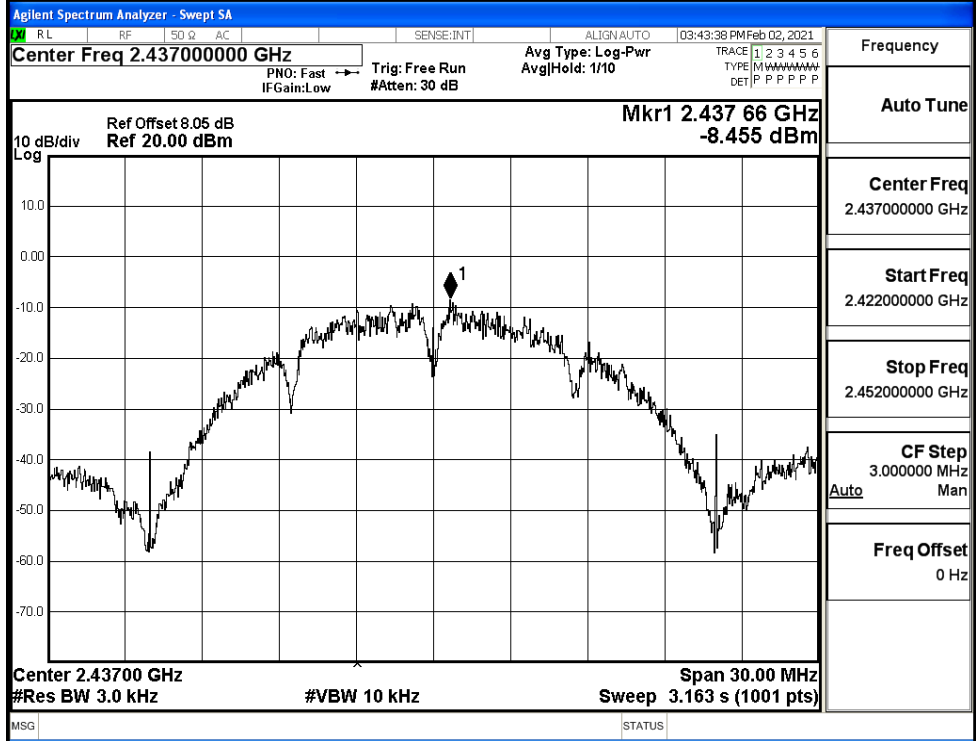
A.3 Maximum Power Spectral Density

| Mode | Channel | Meas.Level [dBm/3KHz] | Limit [dBm/3KHz] | Verdict |
|-----------|---------|-----------------------|------------------|---------|
| 11B | LCH | -10.950 | 8 | PASS |
| | MCH | -8.455 | 8 | PASS |
| | HCH | -8.873 | 8 | PASS |
| 11G | LCH | -13.763 | 8 | PASS |
| | MCH | -13.198 | 8 | PASS |
| | HCH | -13.782 | 8 | PASS |
| 11N20SISO | LCH | -13.838 | 8 | PASS |
| | MCH | -13.416 | 8 | PASS |
| | HCH | -13.931 | 8 | PASS |
| 11N40SISO | LCH | -15.531 | 8 | PASS |
| | MCH | -15.156 | 8 | PASS |
| | HCH | -16.058 | 8 | PASS |

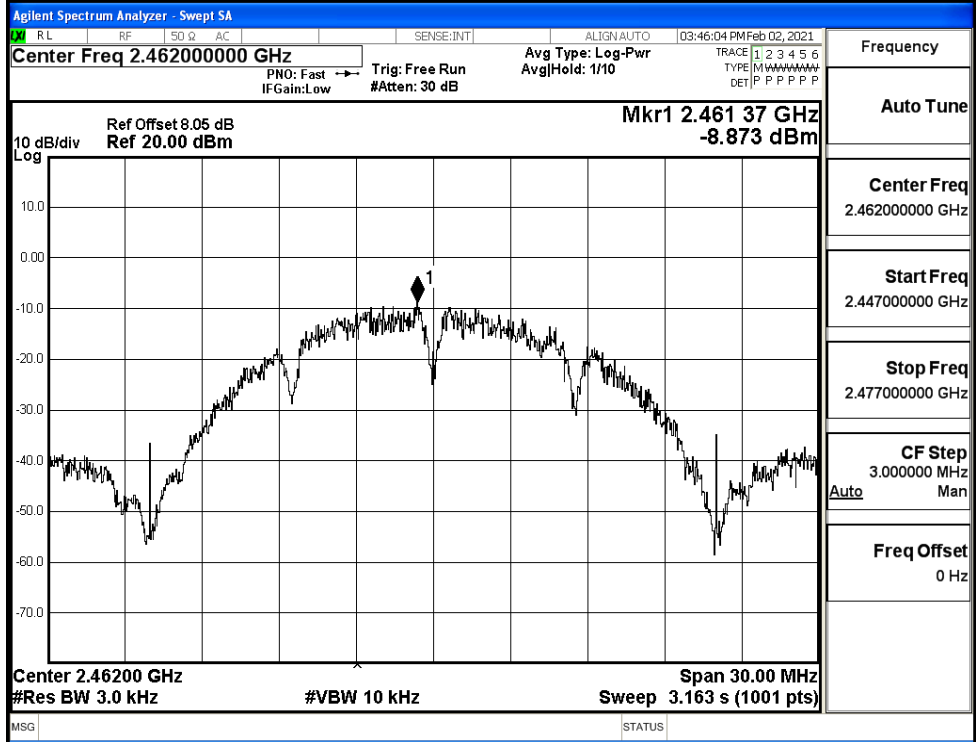
Test Graphs



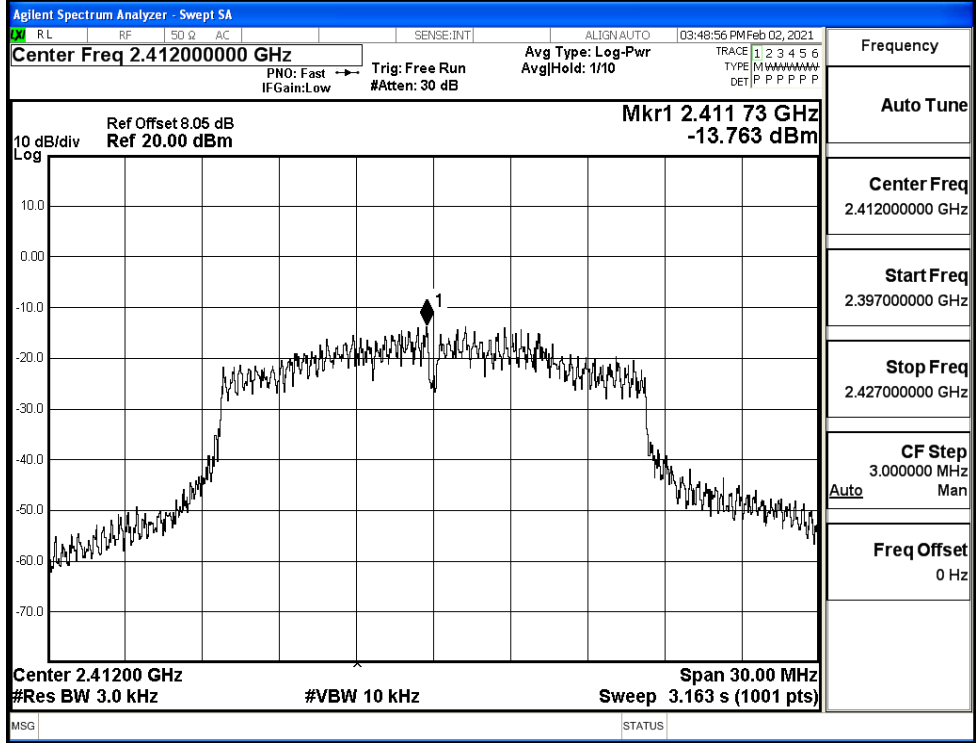
11B/MCH



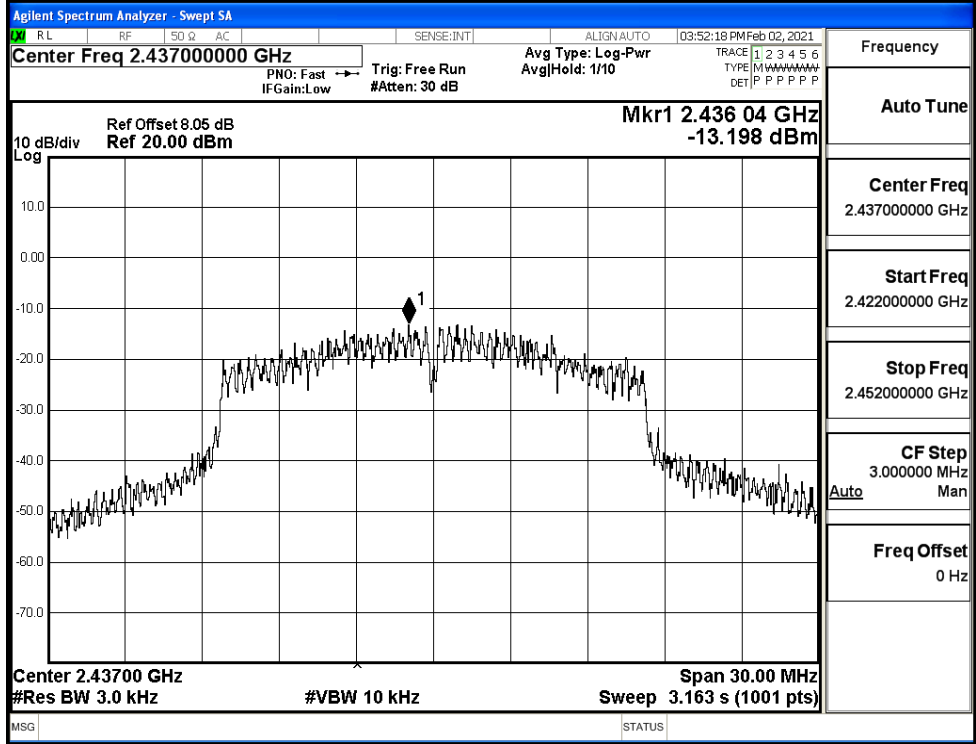
11B/HCH



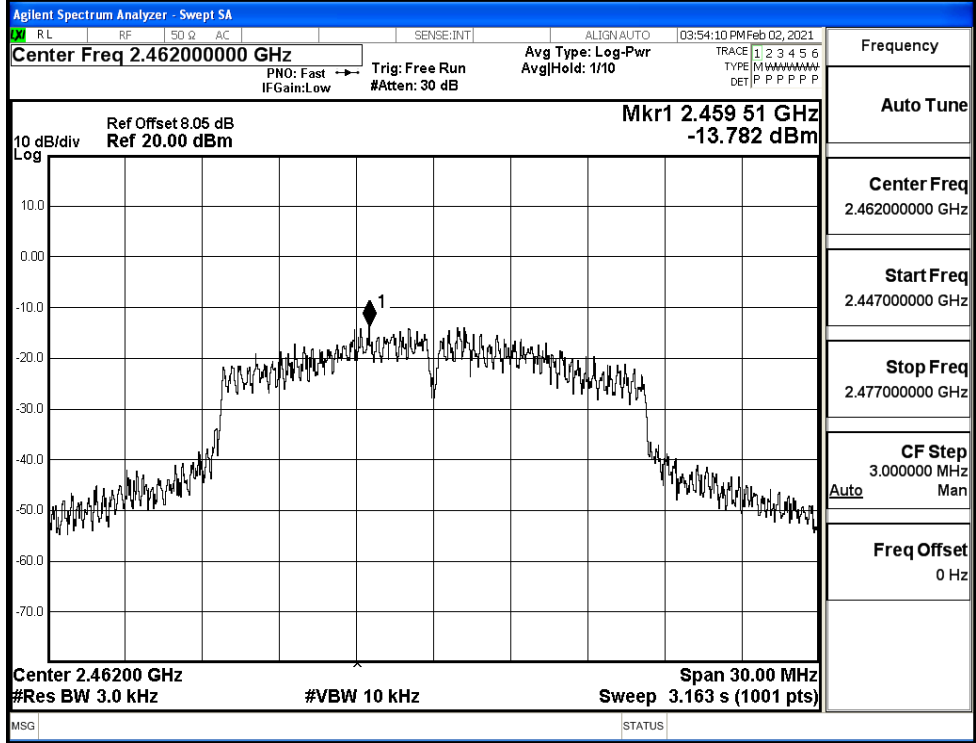
11G/LCH



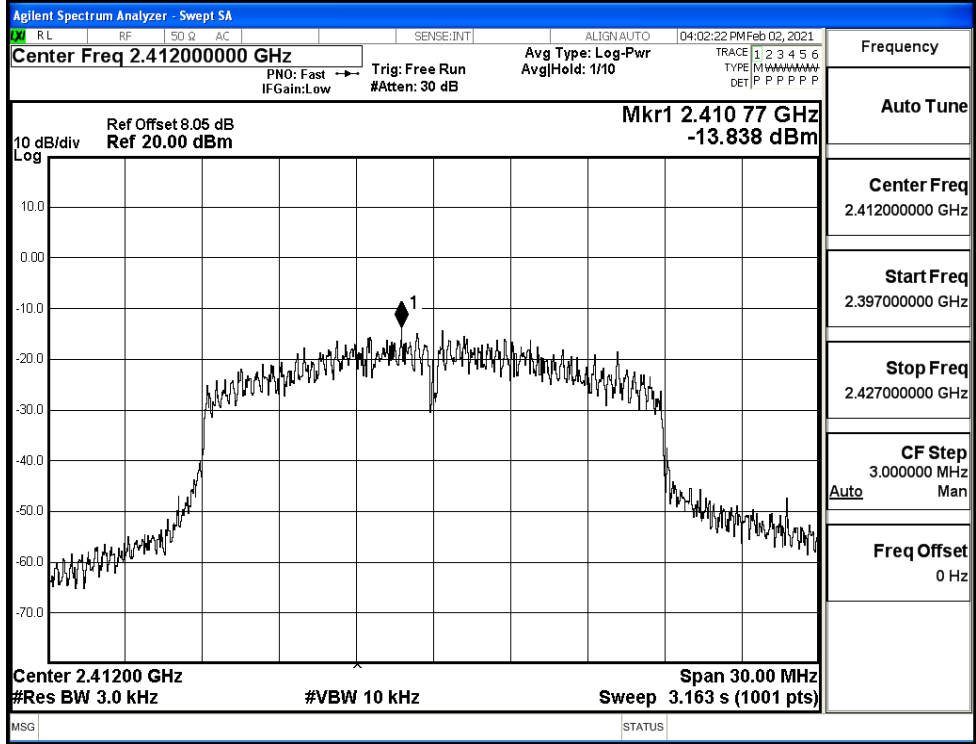
11G/MCH



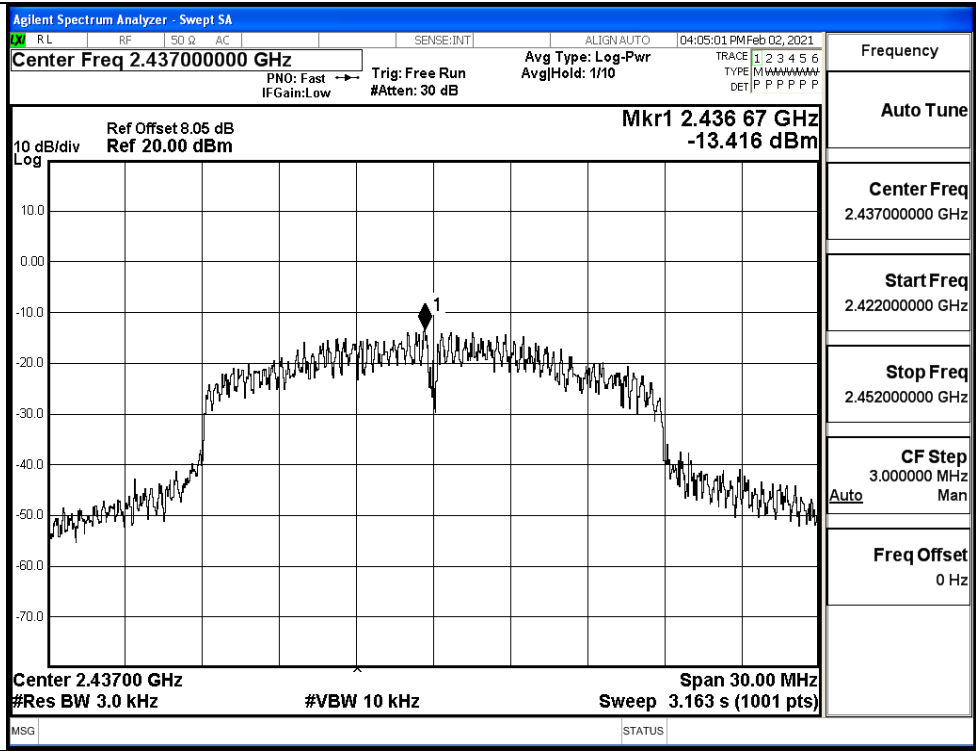
11G/HCH



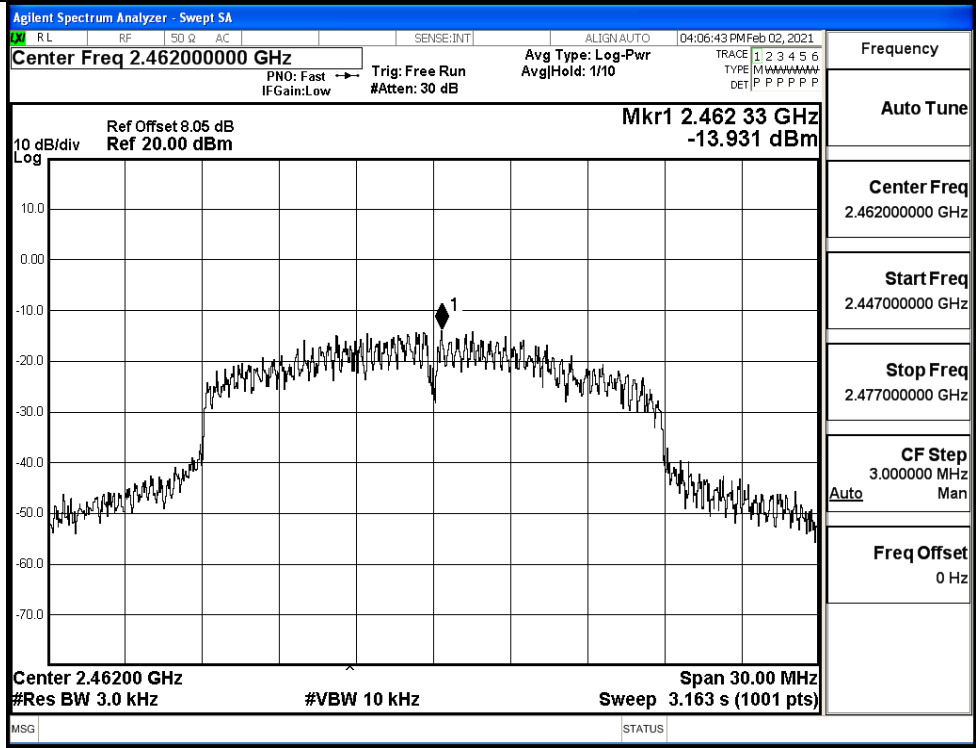
11N20SISO/LCH



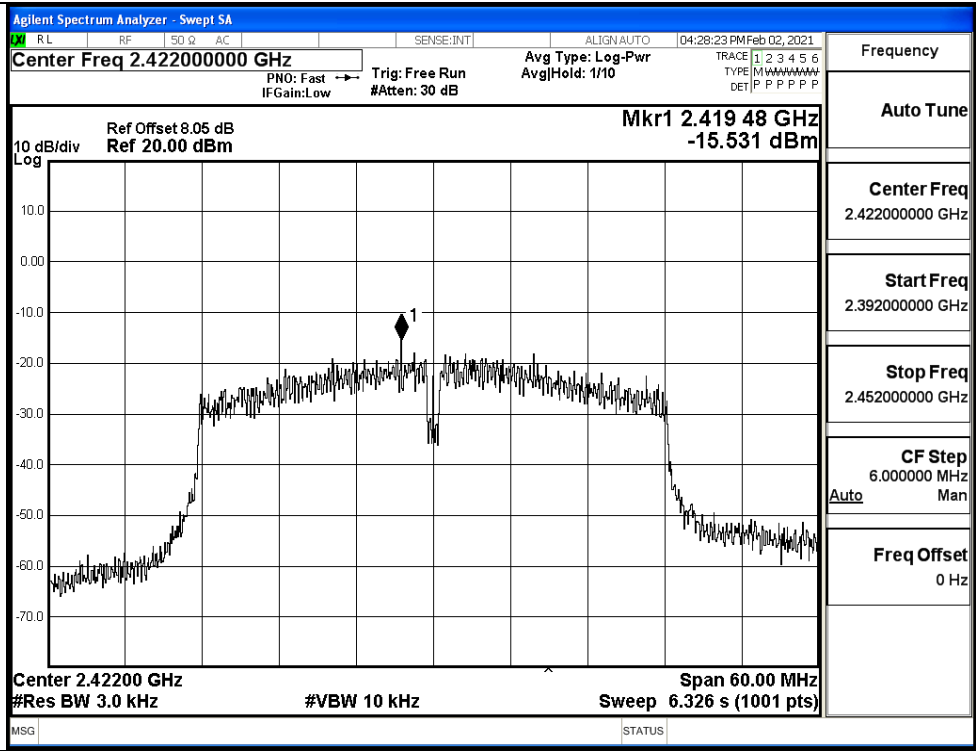
11N20SISO/MCH



11N20SISO/HCH

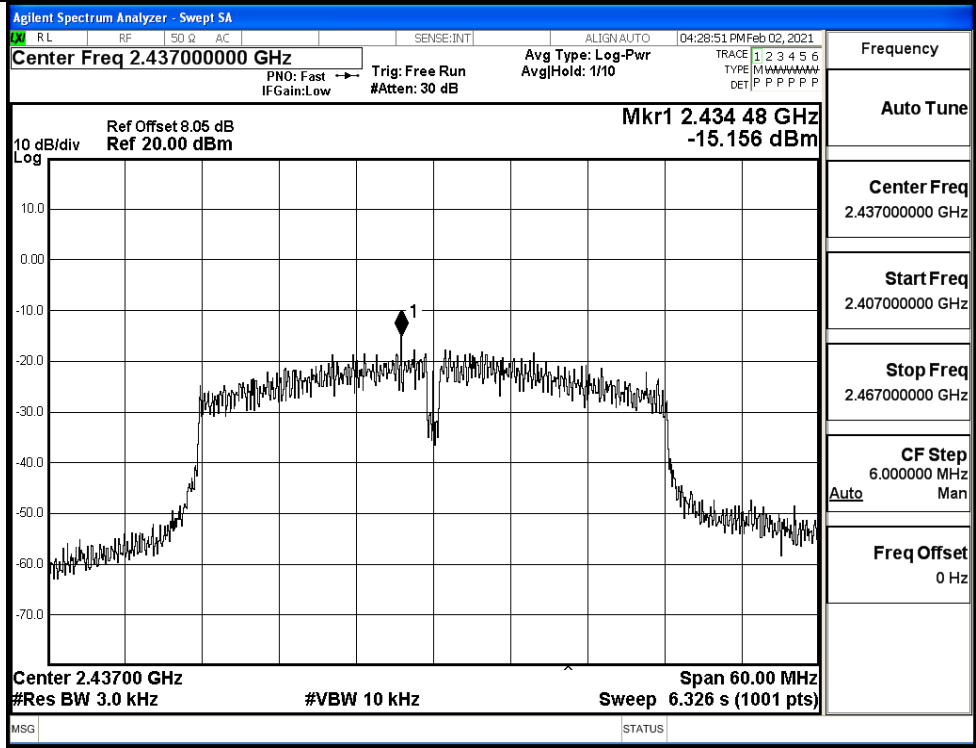


11N40SISO/LCH



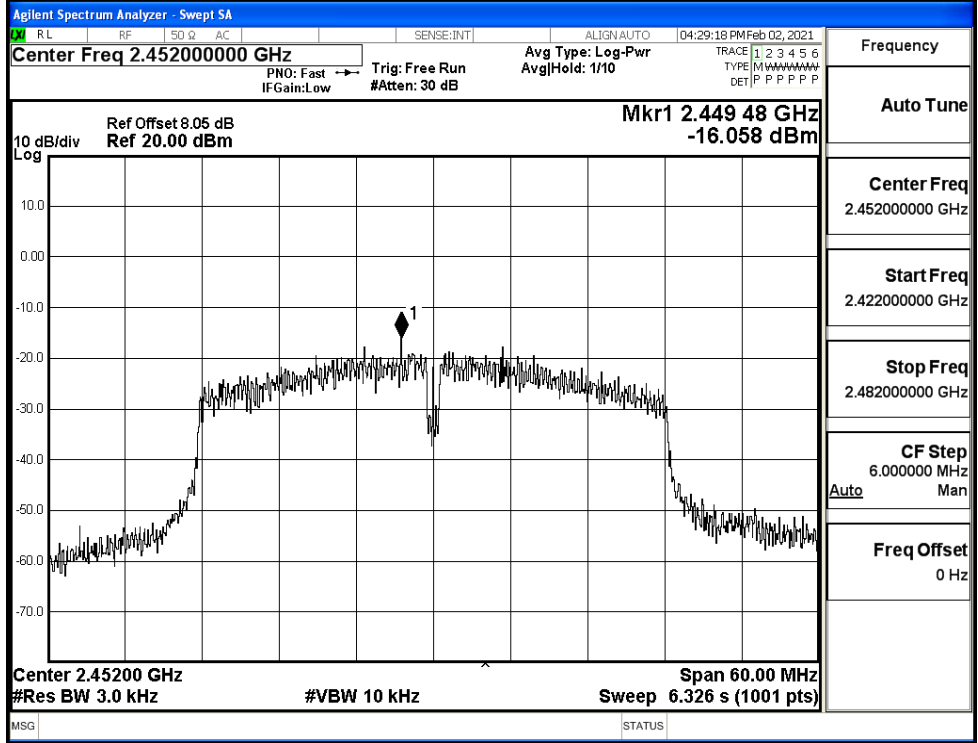
| |
|-------------------------------------|
| Frequency |
| Auto Tune |
| Center Freq 2.42200000 GHz |
| Start Freq 2.392000000 GHz |
| Stop Freq 2.452000000 GHz |
| CF Step 6.000000 MHz Auto Man |
| Freq Offset 0 Hz |

11N40SISO/MCH



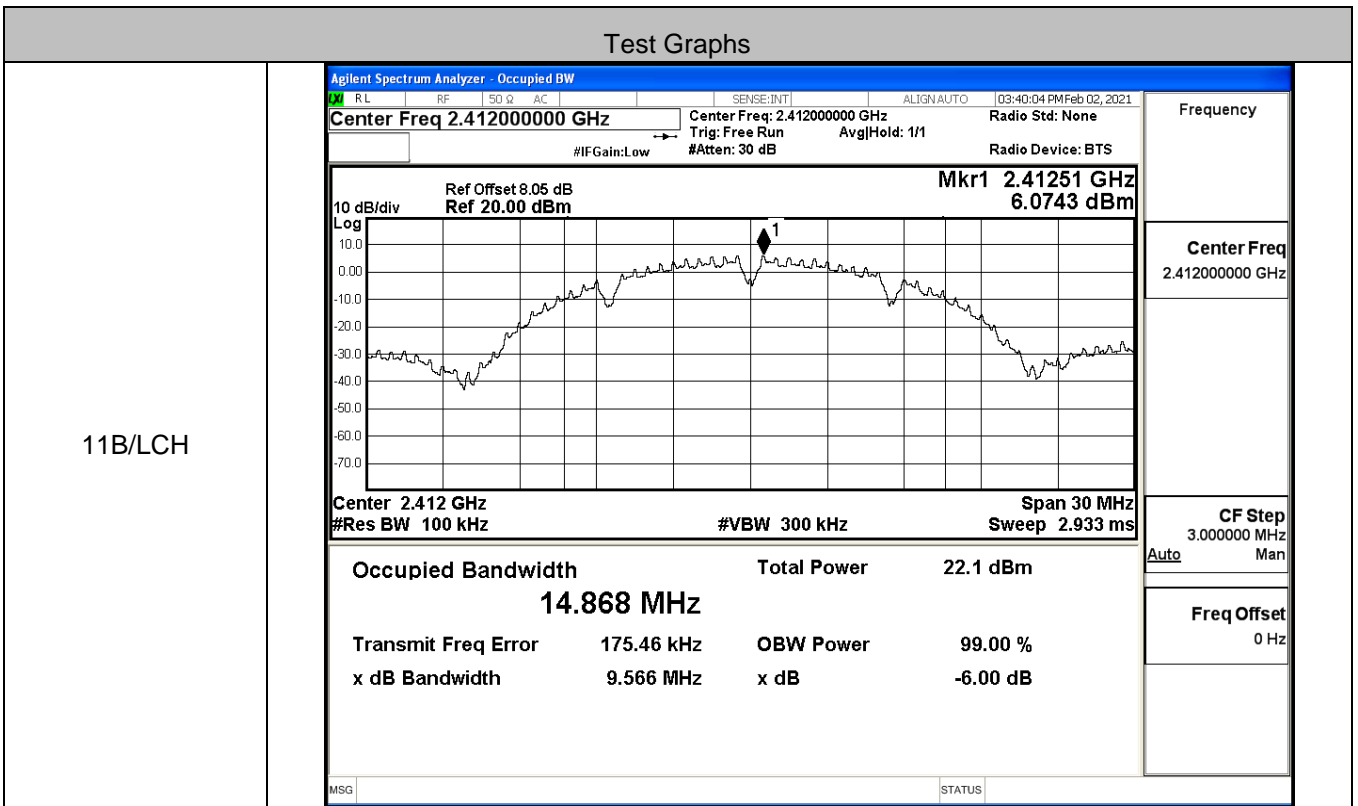
| |
|-------------------------------------|
| Frequency |
| Auto Tune |
| Center Freq 2.43700000 GHz |
| Start Freq 2.407000000 GHz |
| Stop Freq 2.467000000 GHz |
| CF Step 6.000000 MHz Auto Man |
| Freq Offset 0 Hz |

11N40SISO/HCH

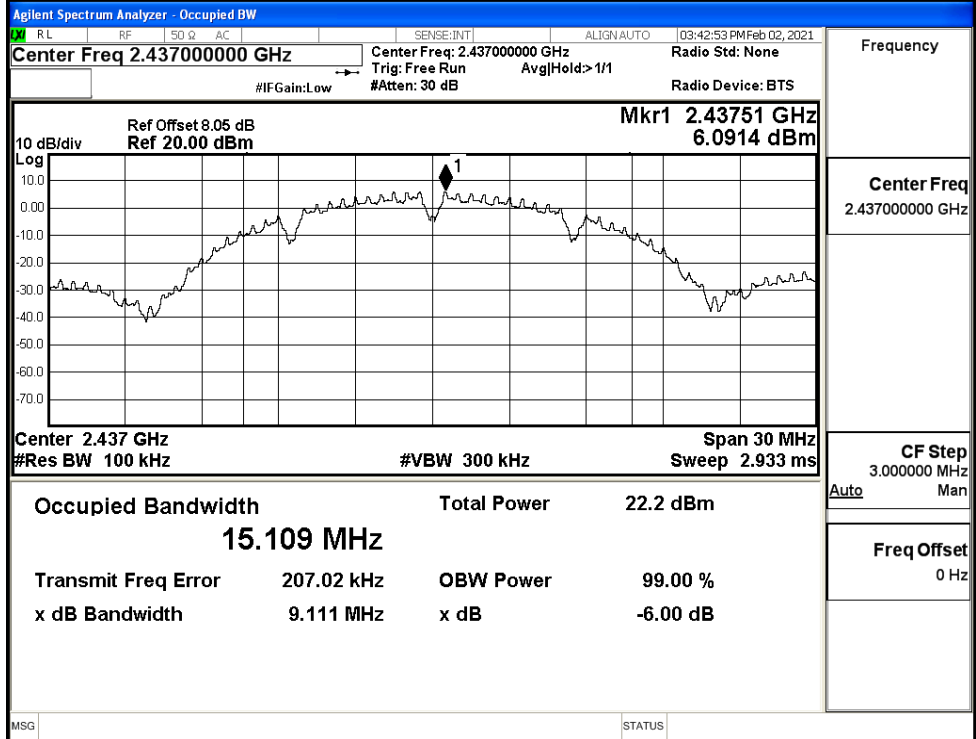


A.4 6dB Bandwidth

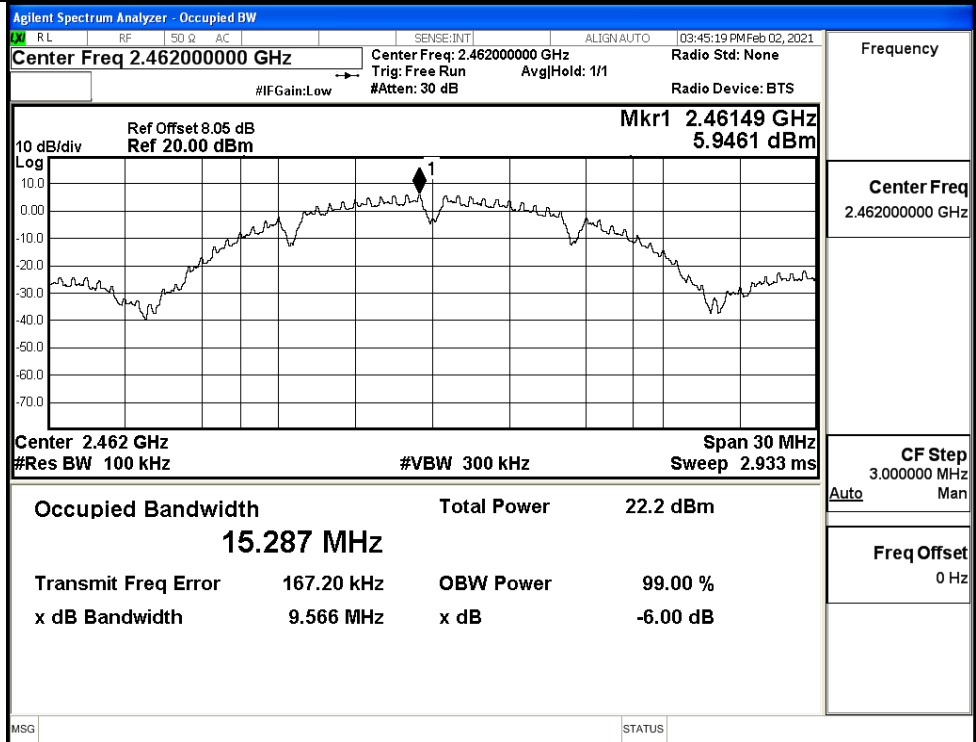
| Mode | Channel | 6dB Bandwidth [MHz] | Limit [MHz] | Verdict |
|-----------|---------|---------------------|-------------|---------|
| 11B | LCH | 9.566 | ≥0.5 | PASS |
| | MCH | 9.111 | ≥0.5 | PASS |
| | HCH | 9.566 | ≥0.5 | PASS |
| 11G | LCH | 12.59 | ≥0.5 | PASS |
| | MCH | 12.58 | ≥0.5 | PASS |
| | HCH | 12.57 | ≥0.5 | PASS |
| 11N20SISO | LCH | 12.59 | ≥0.5 | PASS |
| | MCH | 12.58 | ≥0.5 | PASS |
| | HCH | 12.53 | ≥0.5 | PASS |
| 11N40SISO | LCH | 31.33 | ≥0.5 | PASS |
| | MCH | 31.37 | ≥0.5 | PASS |
| | HCH | 30.09 | ≥0.5 | PASS |



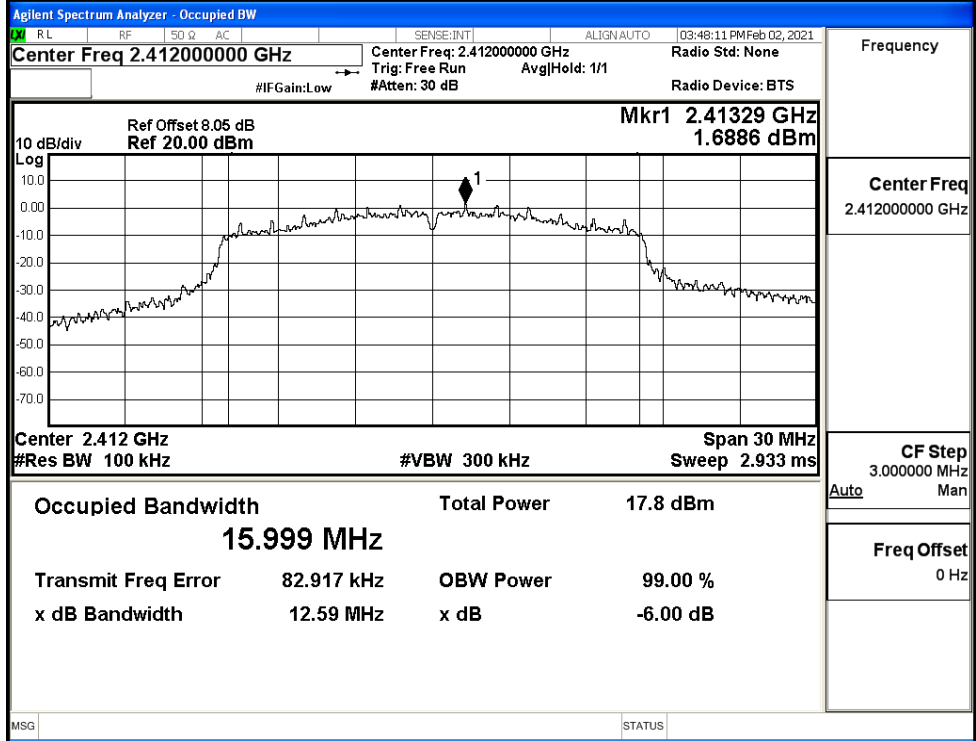
11B/MCH



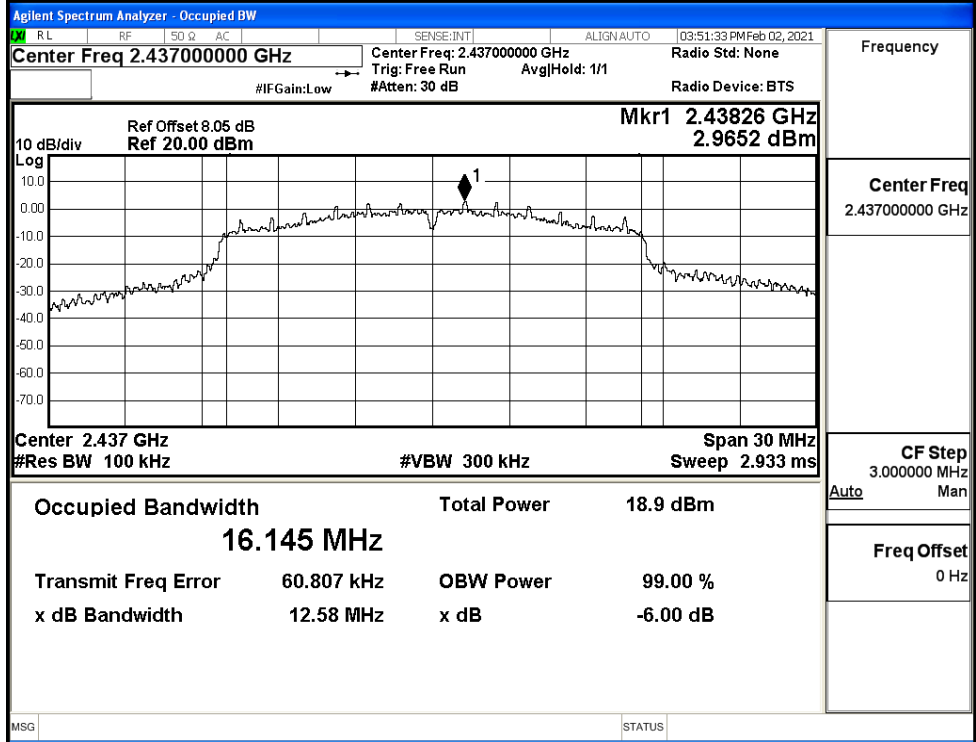
11B/HCH



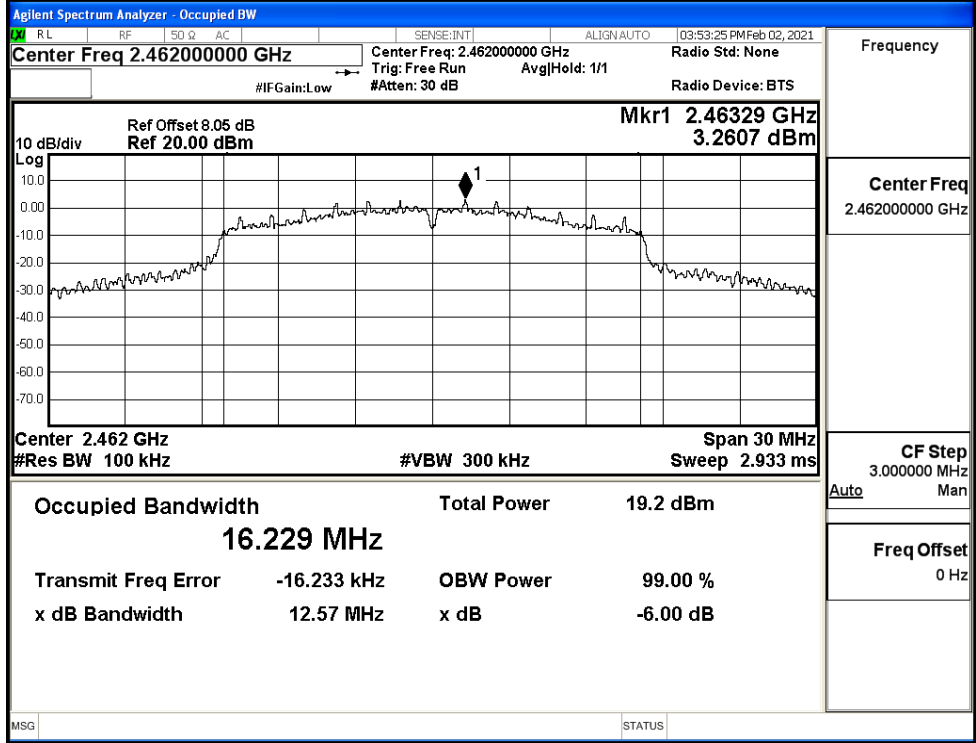
11G/LCH



11G/MCH

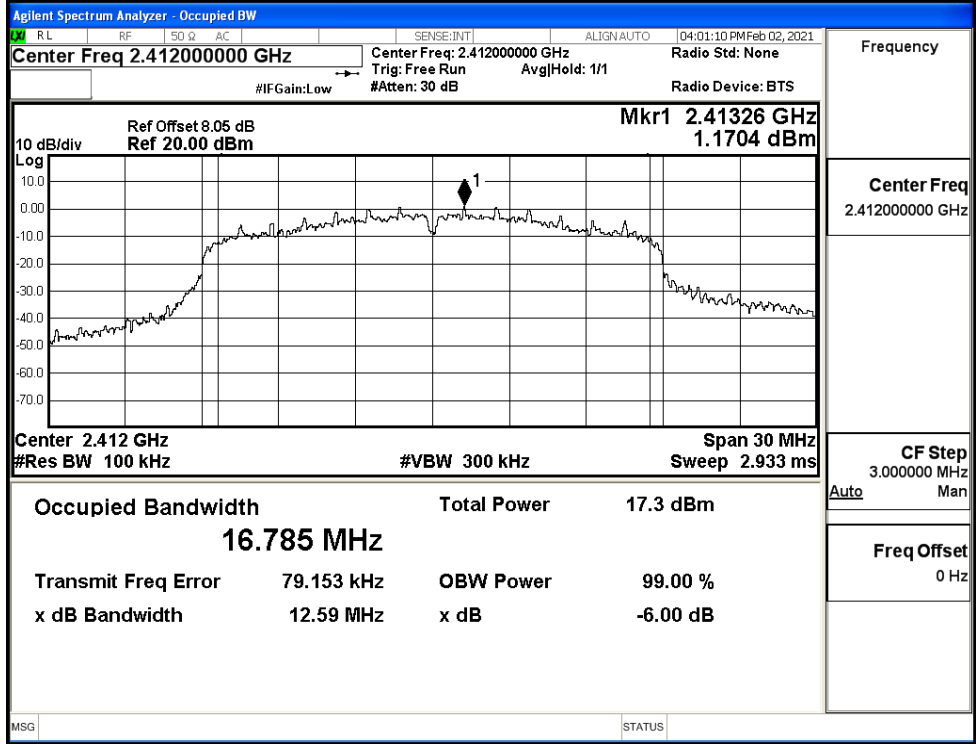


11G/HCH



| | |
|-------------|----------------|
| Frequency | 2.46200000 GHz |
| Center Freq | 2.46200000 GHz |
| CF Step | 3.000000 MHz |
| Auto | Man |
| Freq Offset | 0 Hz |

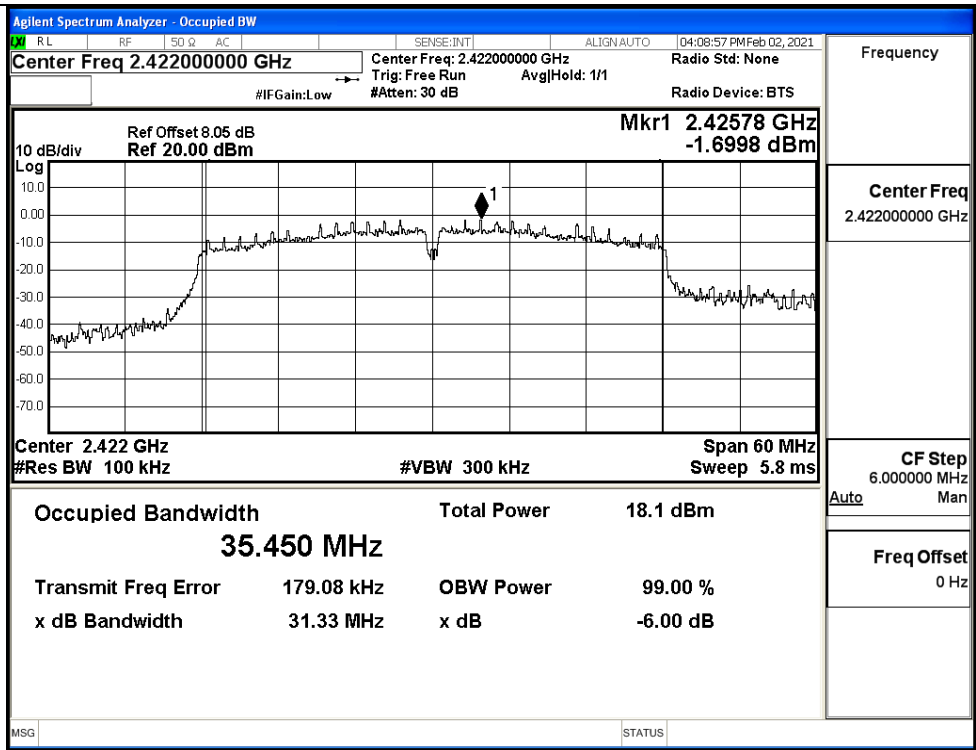
11N20SISO/LCH



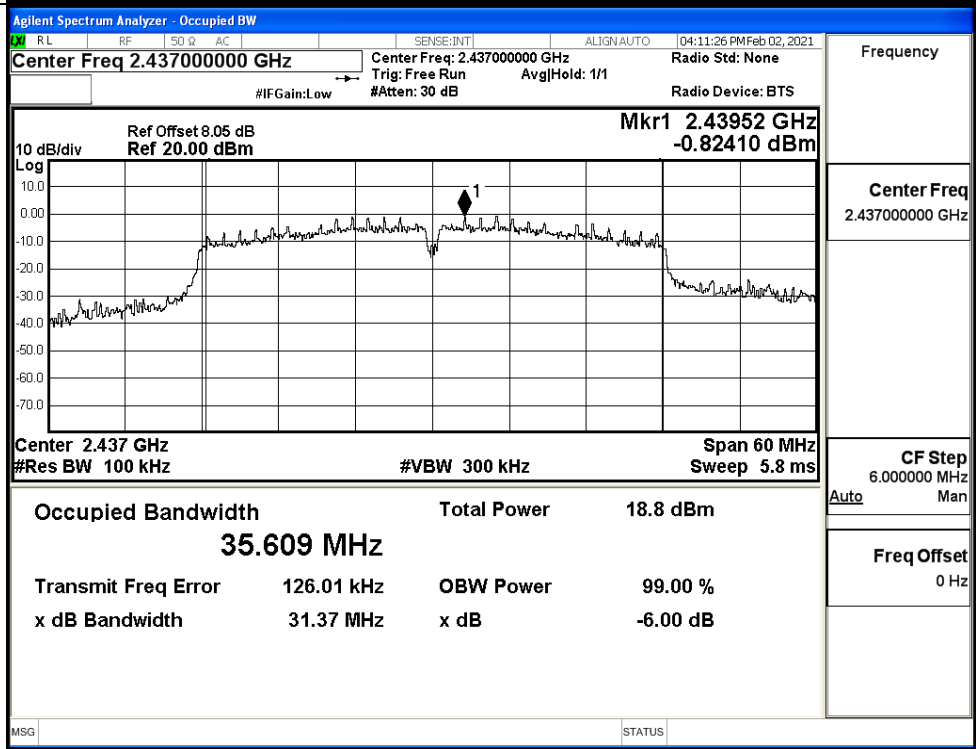
| | |
|-------------|----------------|
| Frequency | 2.41200000 GHz |
| Center Freq | 2.41200000 GHz |
| CF Step | 3.000000 MHz |
| Auto | Man |
| Freq Offset | 0 Hz |

| | | |
|----------------------|---|---|
| <p>11N20SISO/MCH</p> | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>RL RF 50 Ω AC SENSE:INT ALIGN AUTO 04:04:16 PM Feb 02, 2021</p> <p>Center Freq 2.43700000 GHz Center Freq: 2.43700000 GHz Radio Std: None Trig: Free Run Avg Hold: 1/1 #IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <p>10 dB/div Ref Offset 8.05 dB Mkr1 2.43829 GHz Log Ref 20.00 dBm 2.8934 dBm</p> <p>Center 2.437 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 18.8 dBm 17.021 MHz</p> <p>Transmit Freq Error 57.446 kHz OBW Power 99.00 % x dB Bandwidth 12.58 MHz x dB -6.00 dB</p> <p>MSG STATUS</p> | <p>Frequency</p> <p>Center Freq 2.43700000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |
| <p>11N20SISO/HCH</p> | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>RL RF 50 Ω AC SENSE:INT ALIGN AUTO 04:05:58 PM Feb 02, 2021</p> <p>Center Freq 2.46200000 GHz Center Freq: 2.46200000 GHz Radio Std: None Trig: Free Run Avg Hold: 1/1 #IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <p>10 dB/div Ref Offset 8.05 dB Mkr1 2.46326 GHz Log Ref 20.00 dBm 2.8808 dBm</p> <p>Center 2.462 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 18.5 dBm 17.018 MHz</p> <p>Transmit Freq Error -19.960 kHz OBW Power 99.00 % x dB Bandwidth 12.53 MHz x dB -6.00 dB</p> <p>MSG STATUS</p> | <p>Frequency</p> <p>Center Freq 2.46200000 GHz</p> <p>CF Step 3.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |

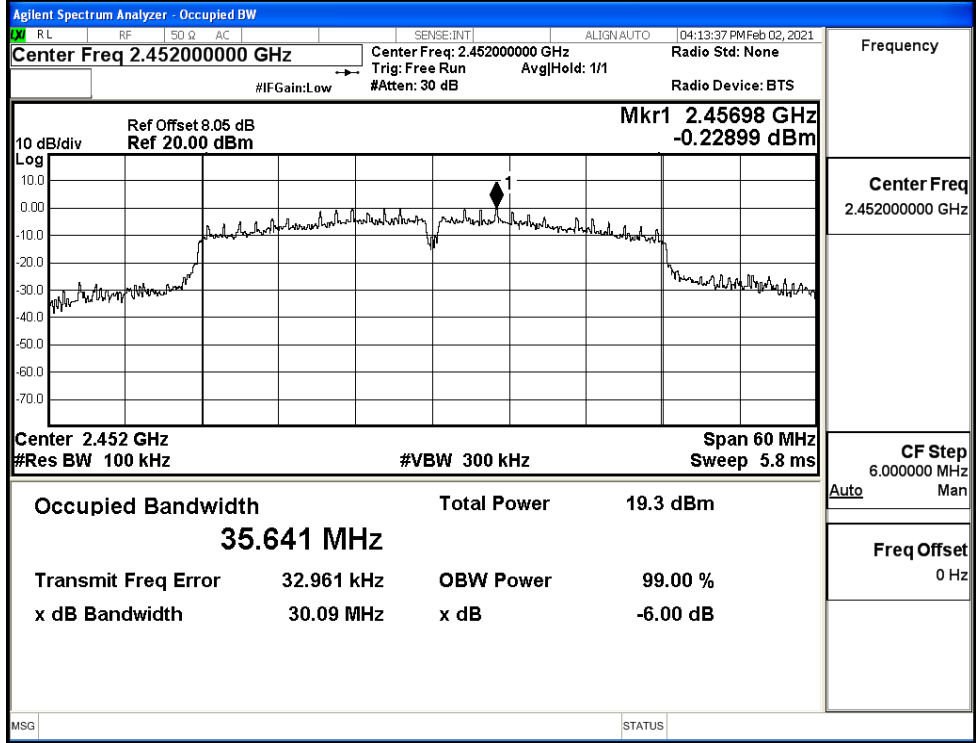
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

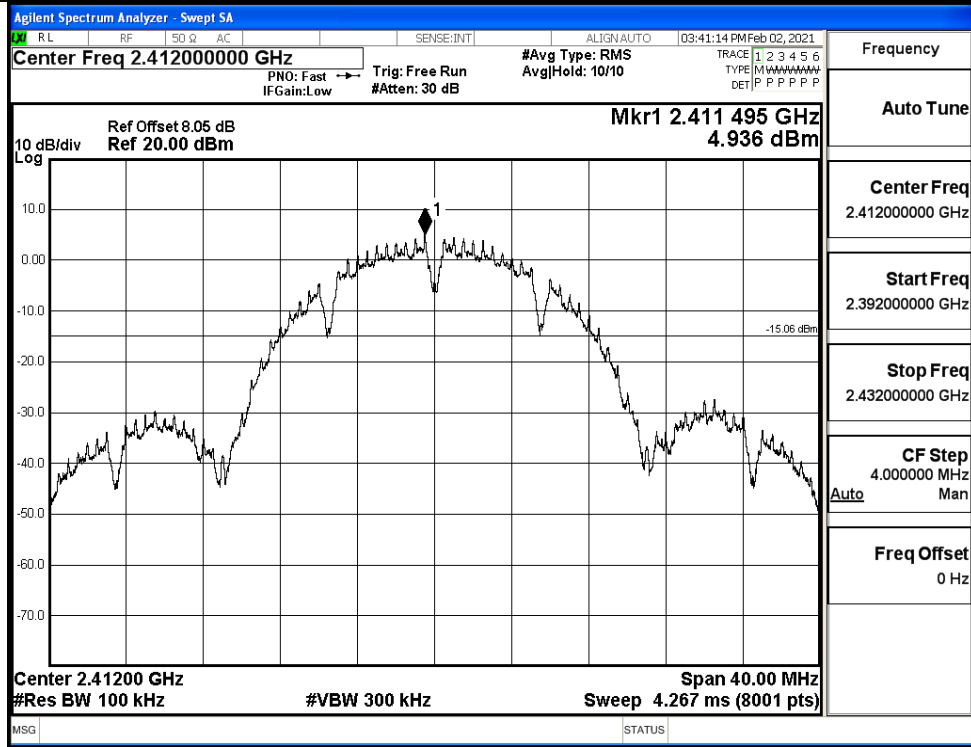


A.5 RF Conducted Spurious Emissions

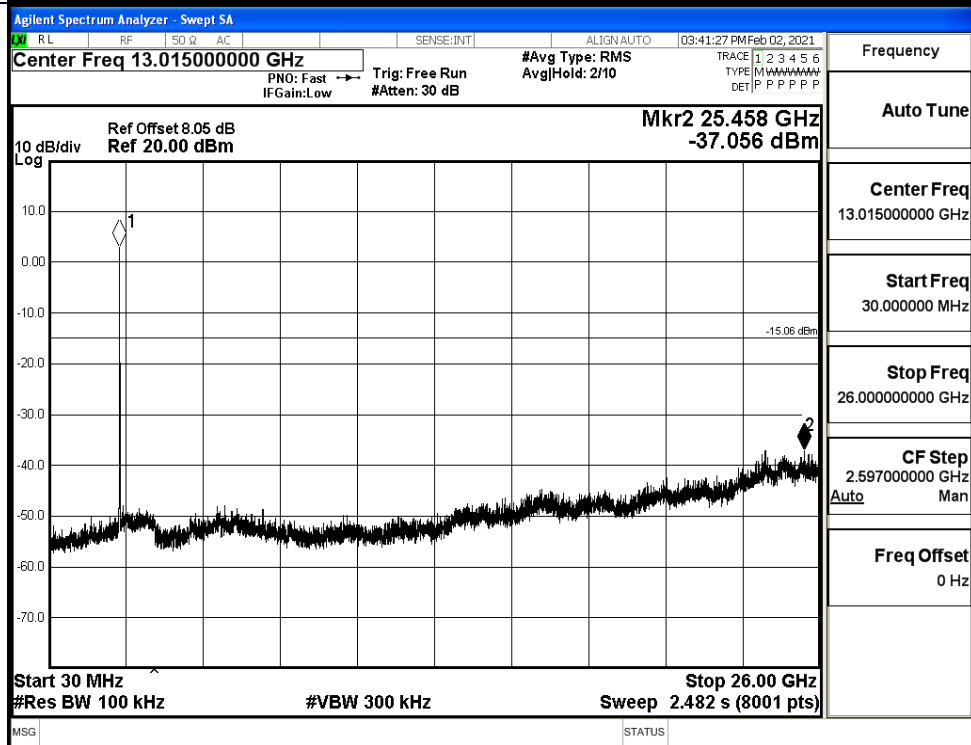
| Mode | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| 11B | LCH | 4.936 | -37.056 | -15.064 | PASS |
| | MCH | 6.045 | -37.364 | -13.955 | PASS |
| | HCH | 5.936 | -37.916 | -14.064 | PASS |
| 11G | LCH | 2.065 | -37.681 | -17.935 | PASS |
| | MCH | 3.129 | -37.512 | -16.871 | PASS |
| | HCH | 2.354 | -38.002 | -17.646 | PASS |
| 11N20 SISO | LCH | 1.744 | -38.024 | -18.256 | PASS |
| | MCH | 2.773 | -37.631 | -17.227 | PASS |
| | HCH | 2.068 | -37.047 | -17.932 | PASS |
| 11N40 SISO | LCH | -1.355 | -38.511 | -21.355 | PASS |
| | MCH | -1.101 | -38.389 | -21.101 | PASS |
| | HCH | -0.275 | -38.283 | -20.275 | PASS |

11B_LCH_Graphs

Pref/11B/LCH

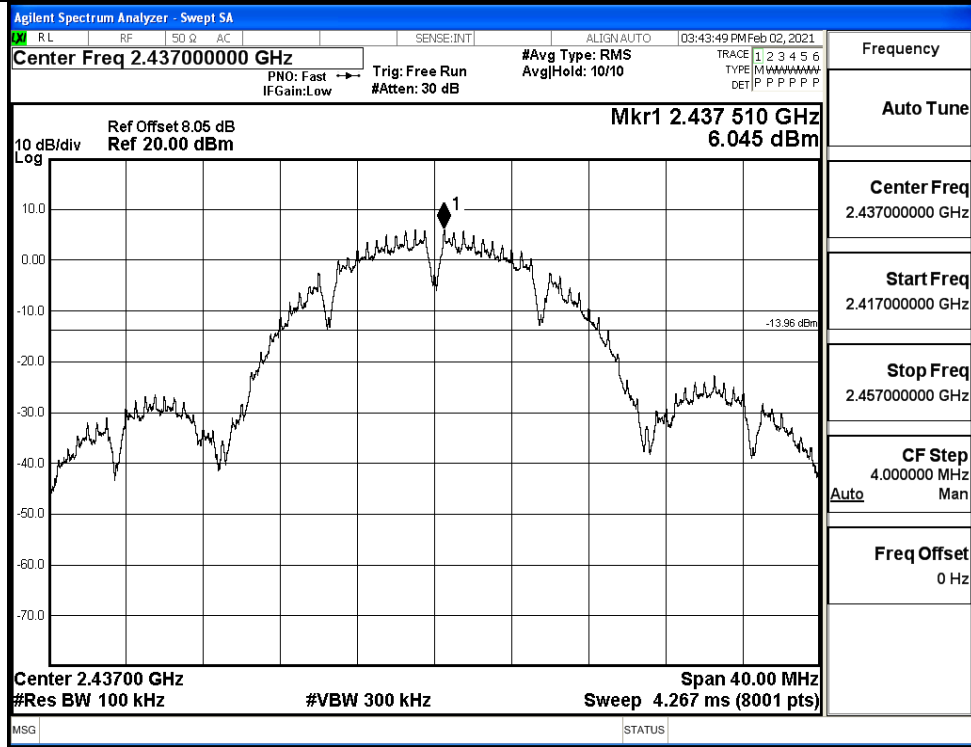


Puw/11B/LCH

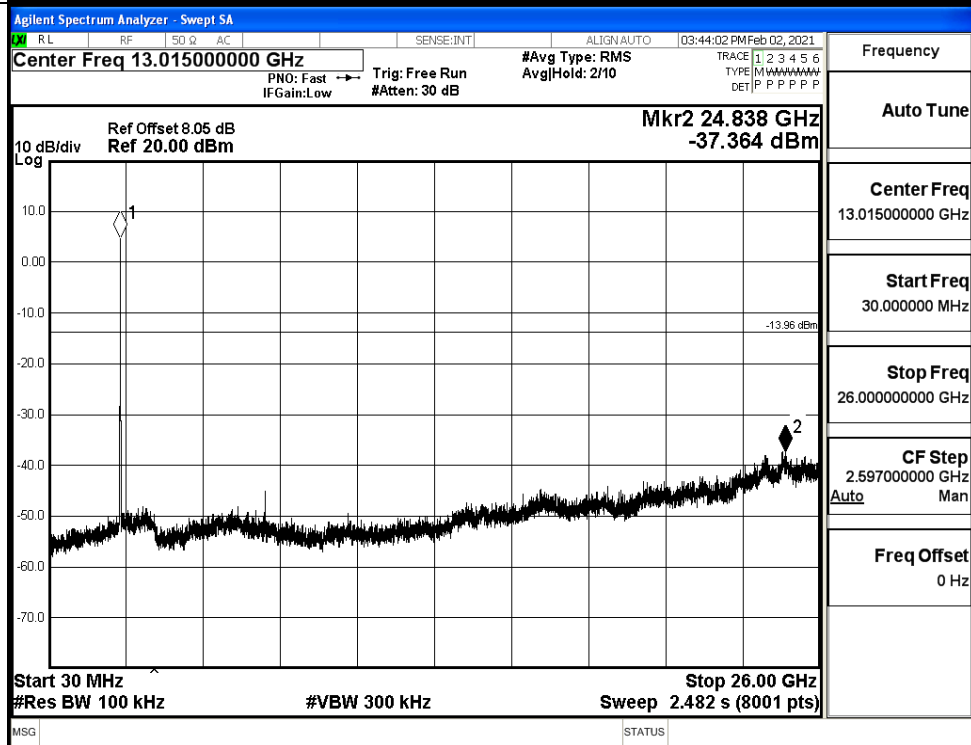


11B_MCH_Graphs

Pref/11B/MCH

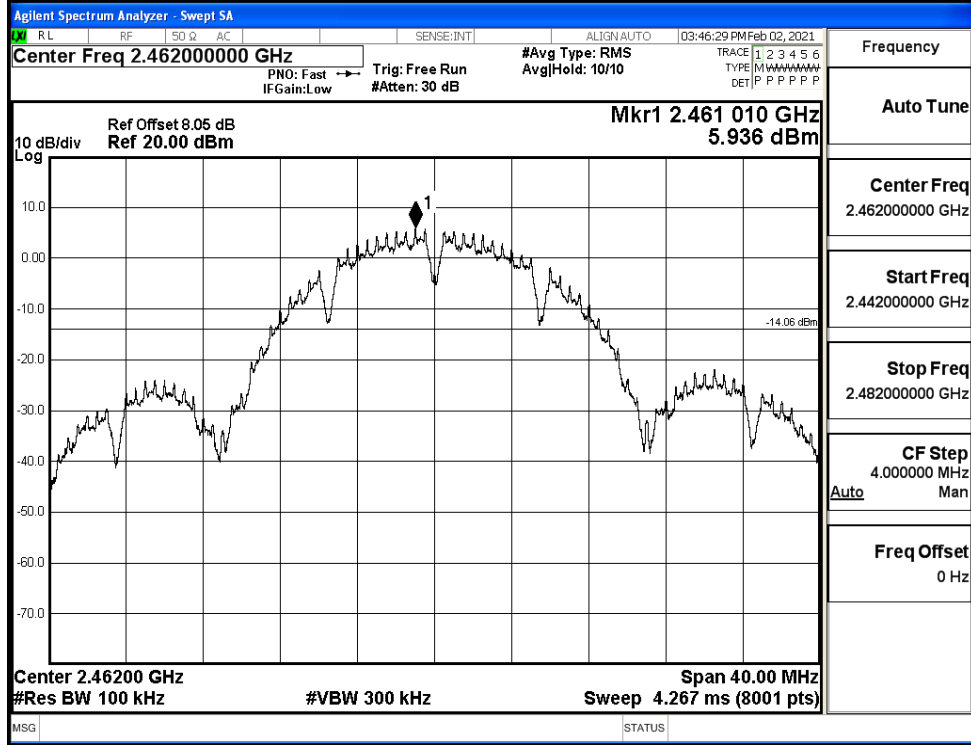


Puw/11B/MCH

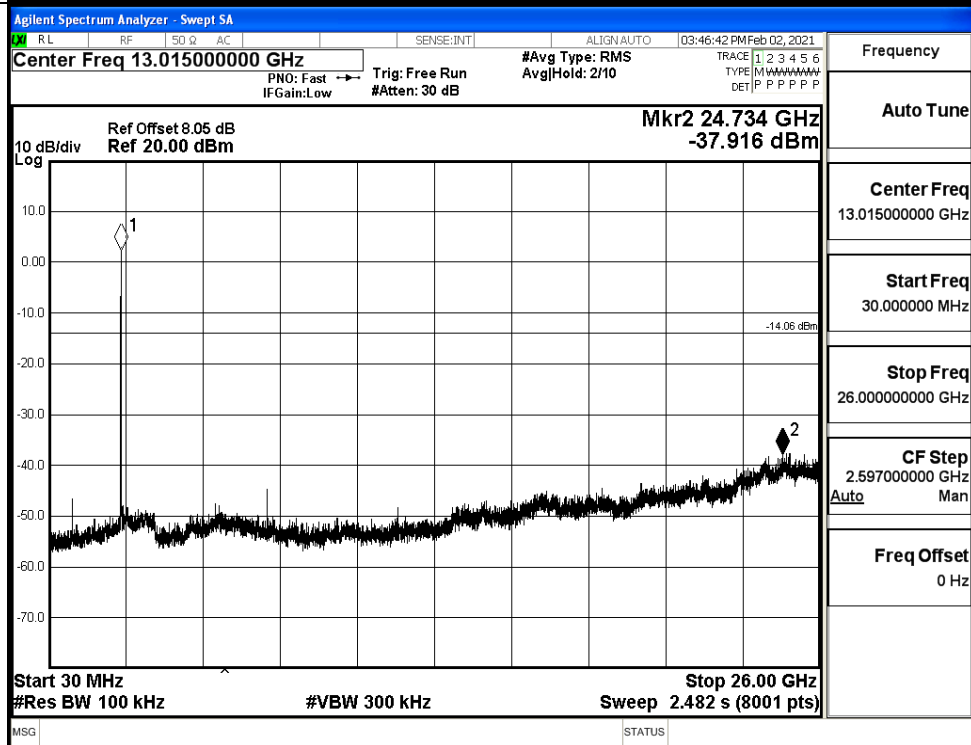


11B_HCH_Graphs

Pref/11B/HCH

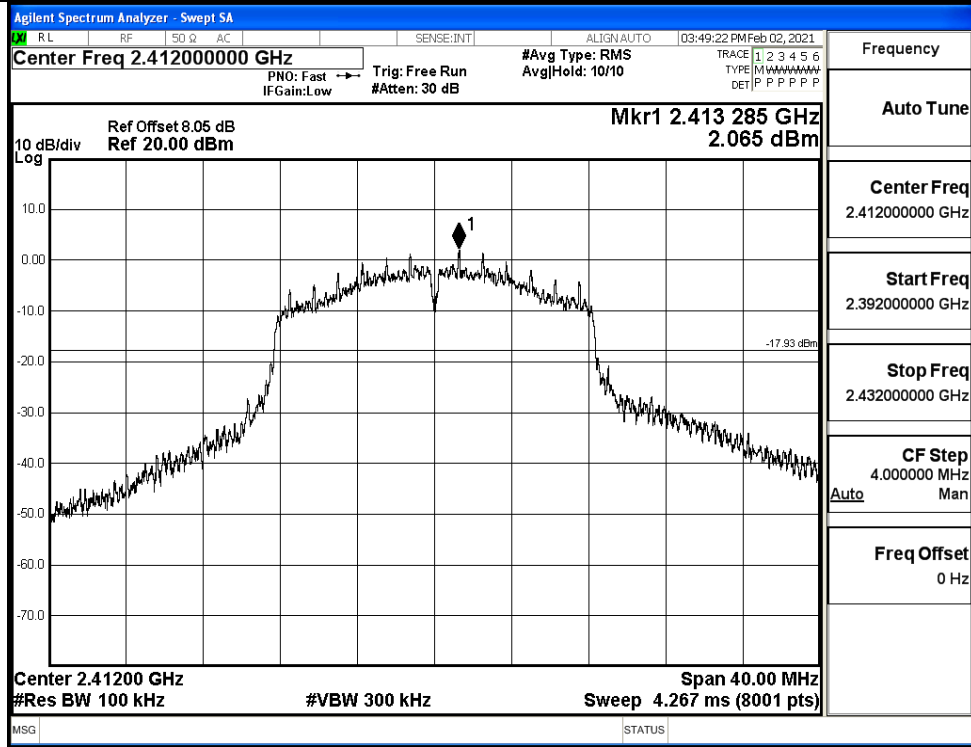


Puw/11B/HCH

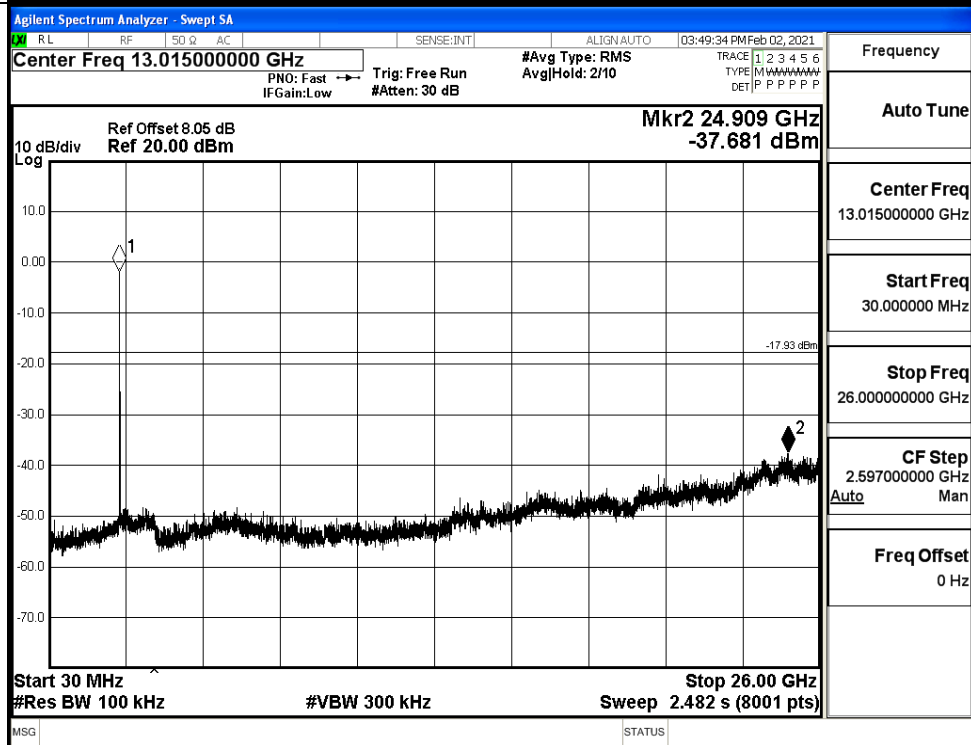


11G_LCH_Graphs

Pref/11G/LCH

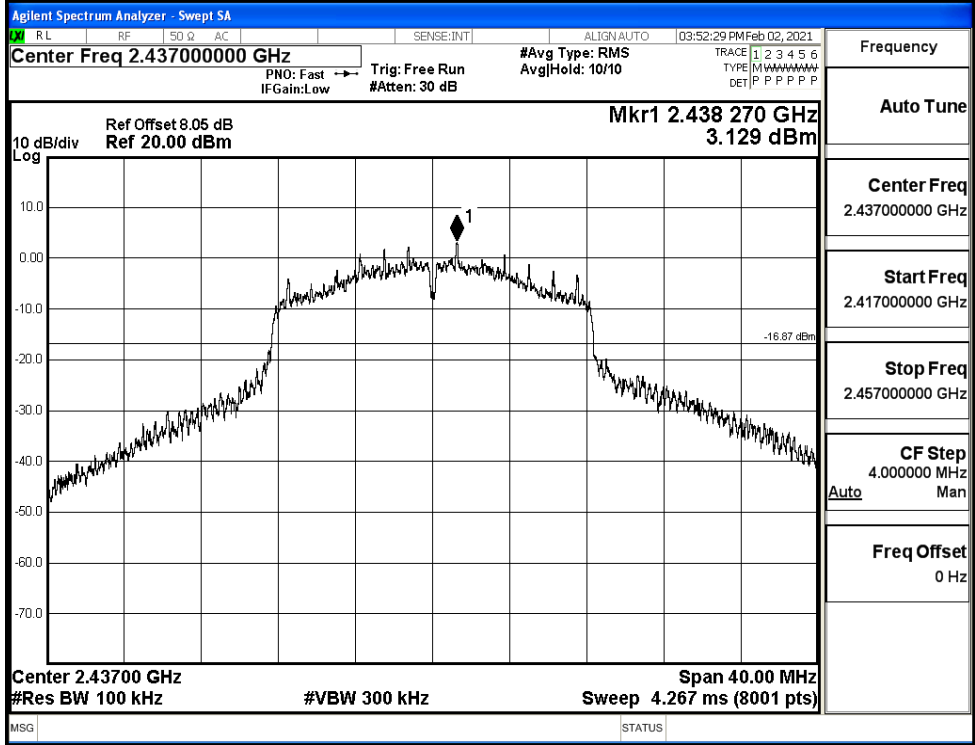


Puw/11G/LCH

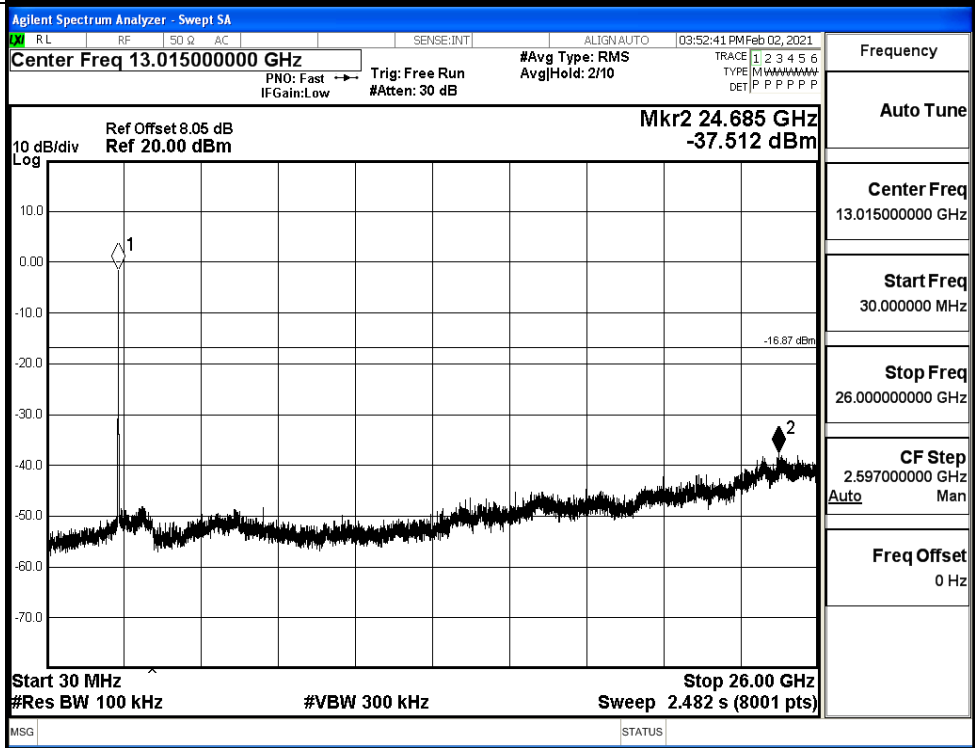


11G_MCH_Graphs

Pref/11G/MCH

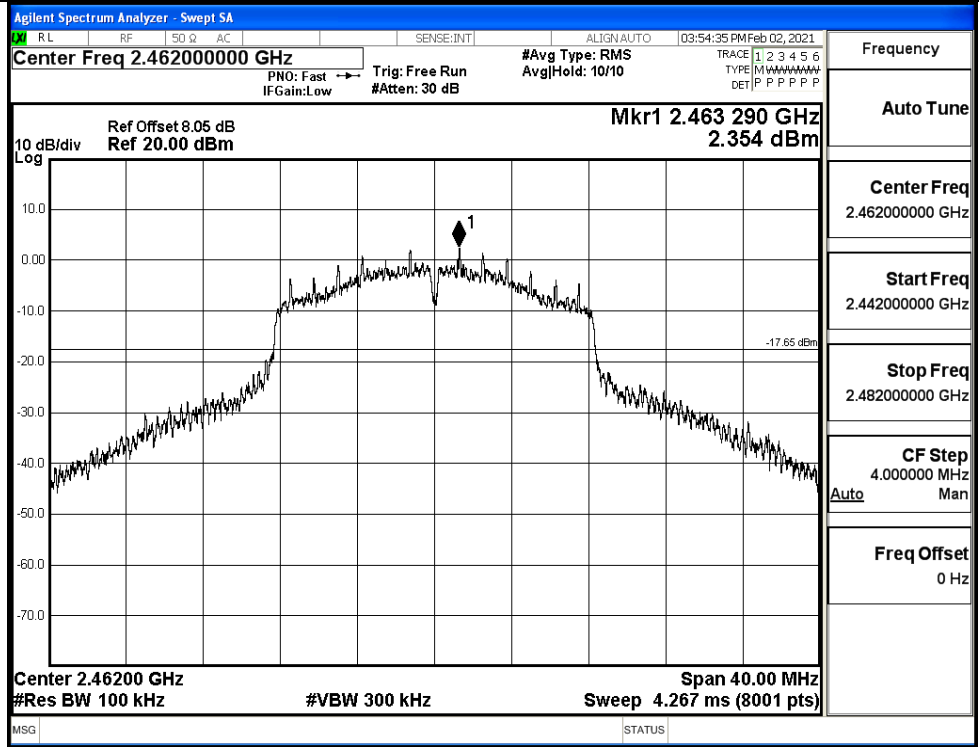


Puw/11G/MCH

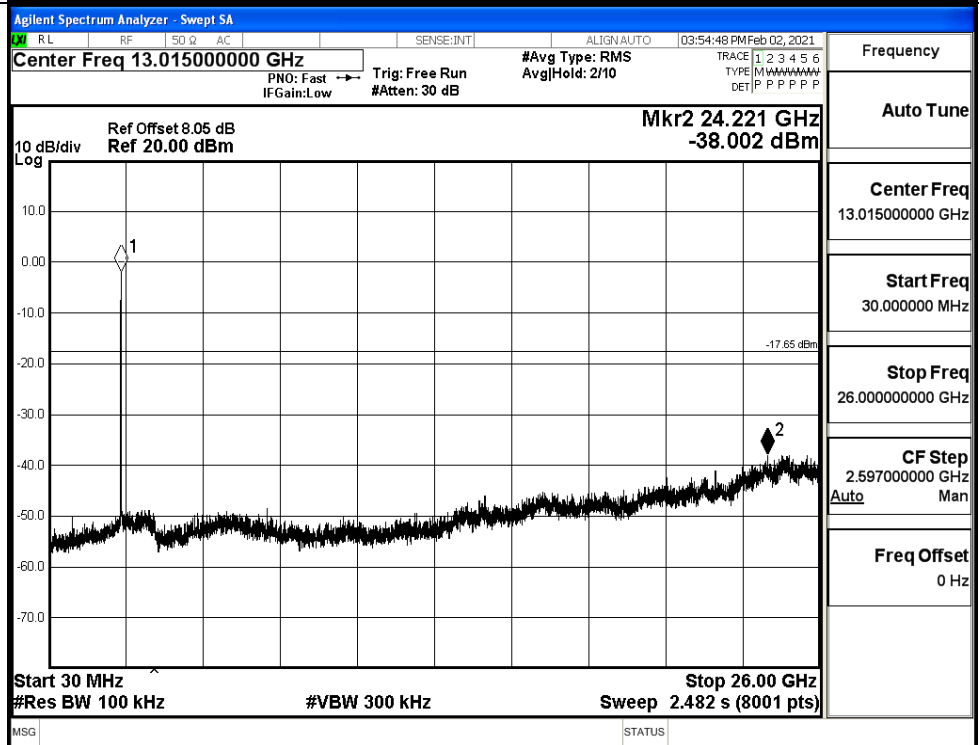


11G_HCH_Graphs

Pref/11G/HCH

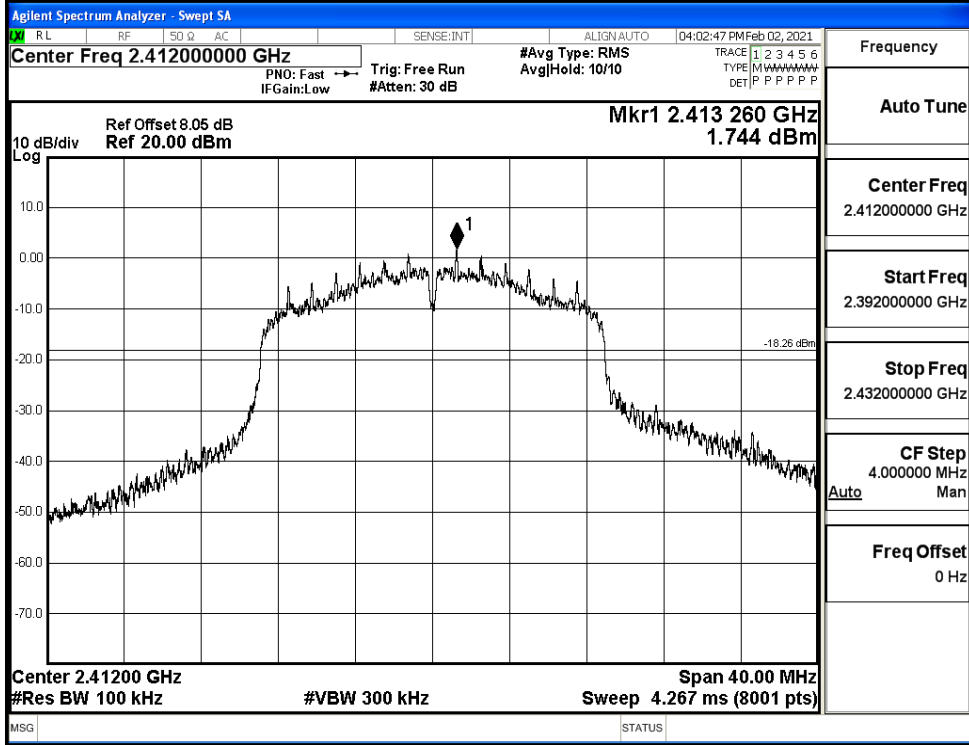


Puw/11G/HCH

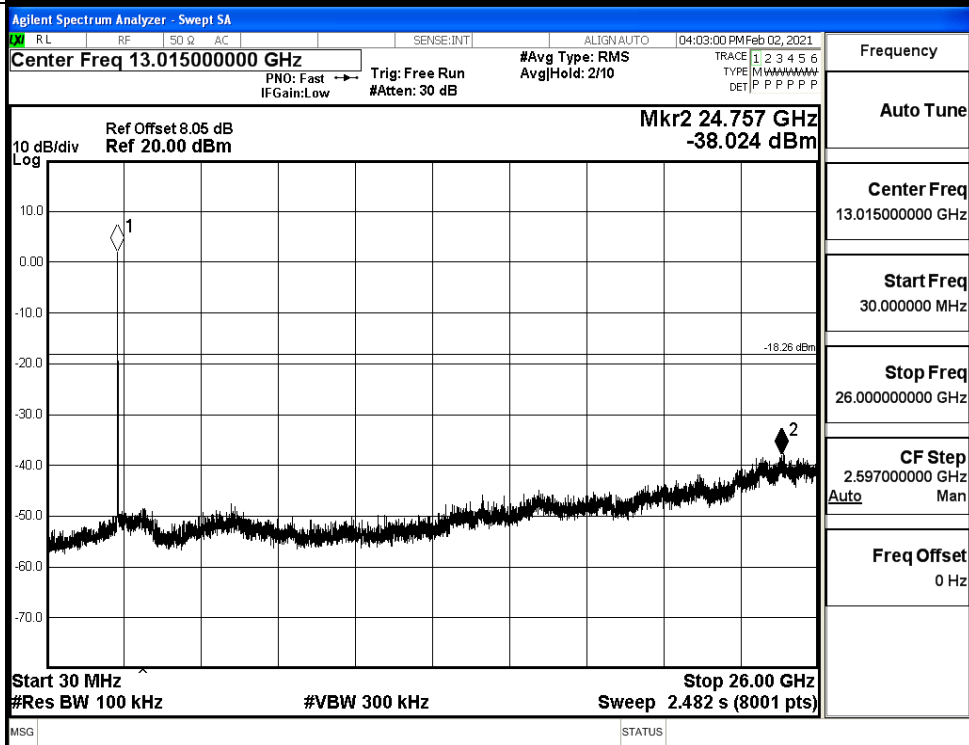


11N20SISO_LCH_Graphs

Pref/11N20SIS
O/LCH

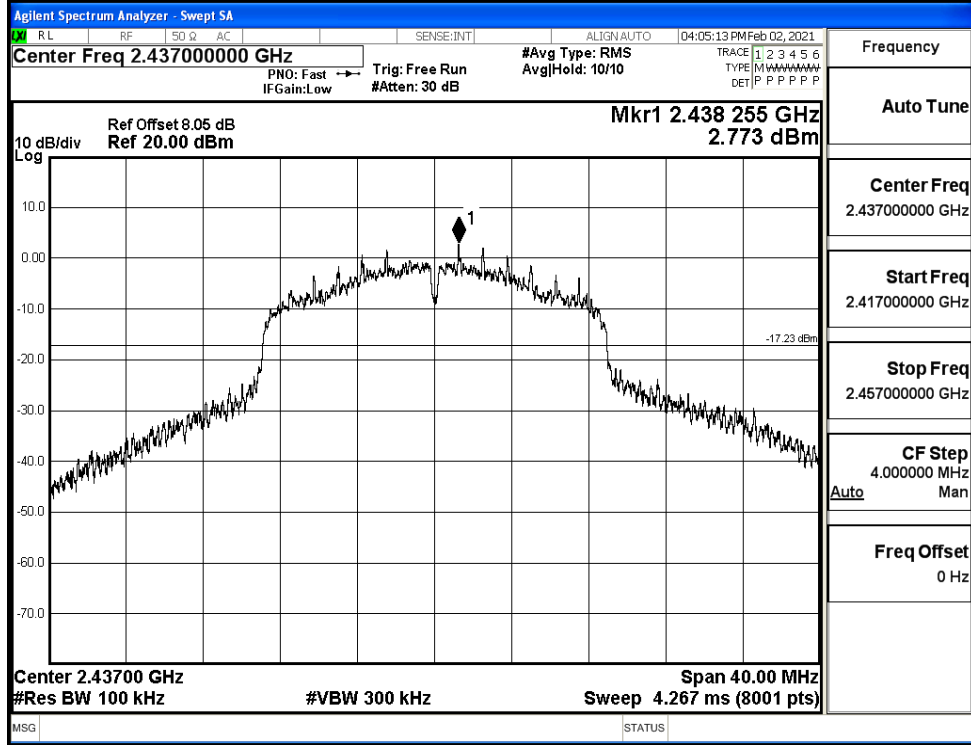


Puw/11N20
SISO/LCH

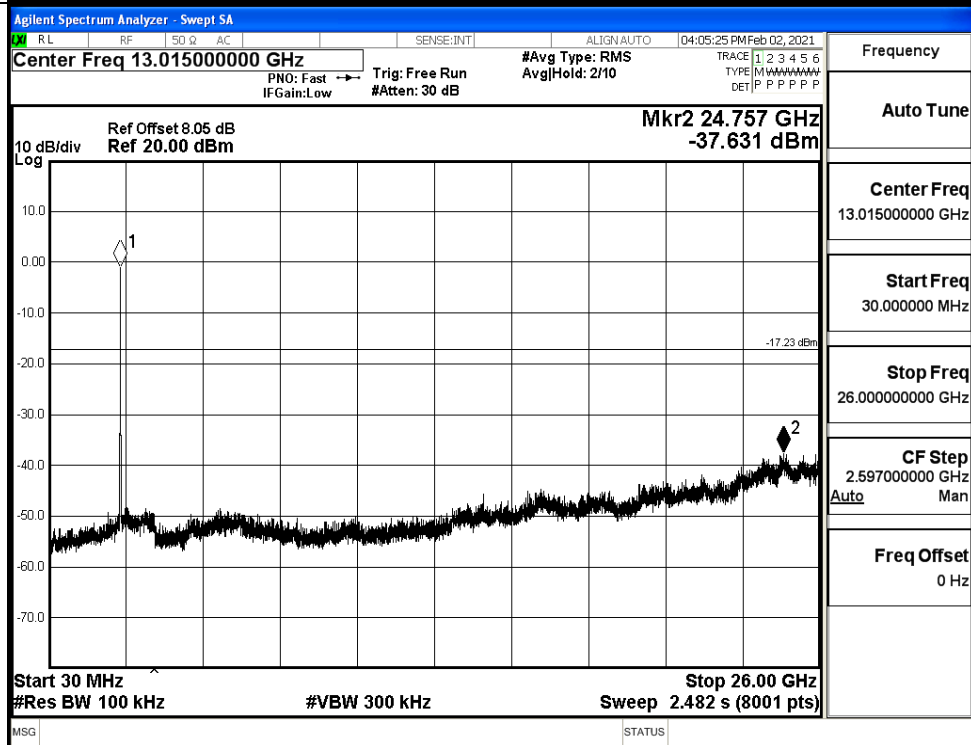


11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

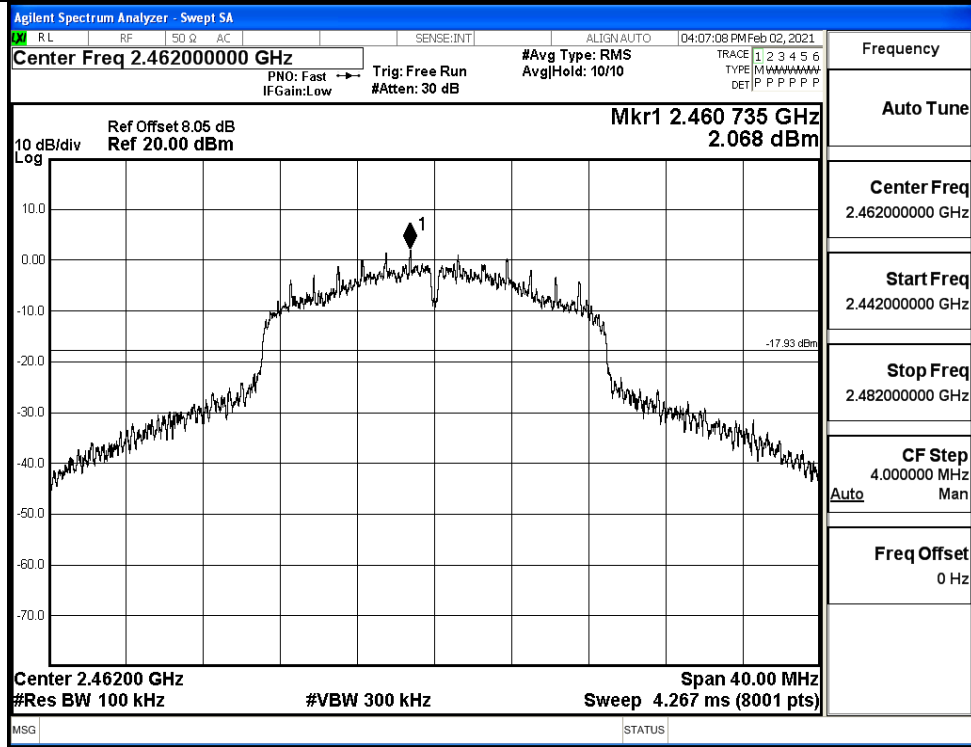


Puw/11N20
SISO/MCH

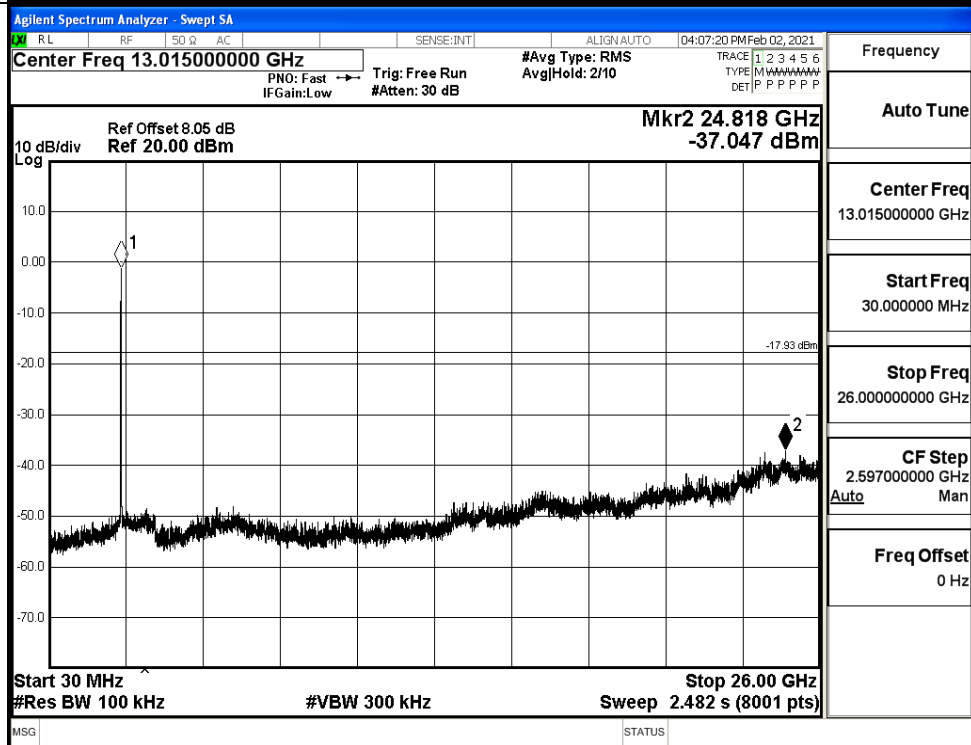


11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH

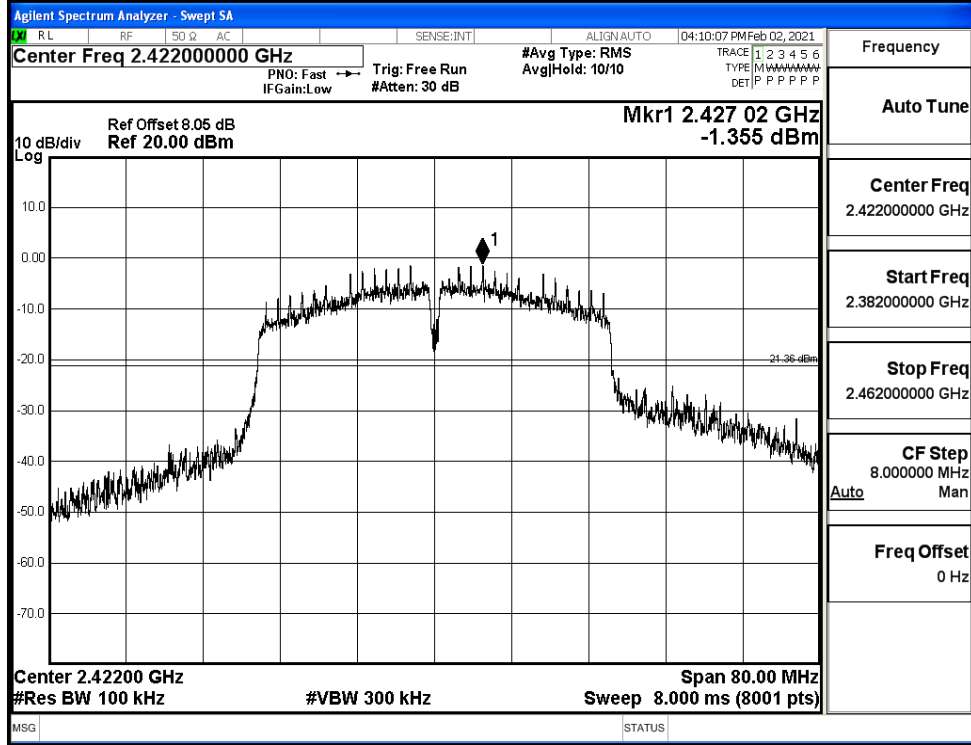


Puw/11N20
SISO/HCH

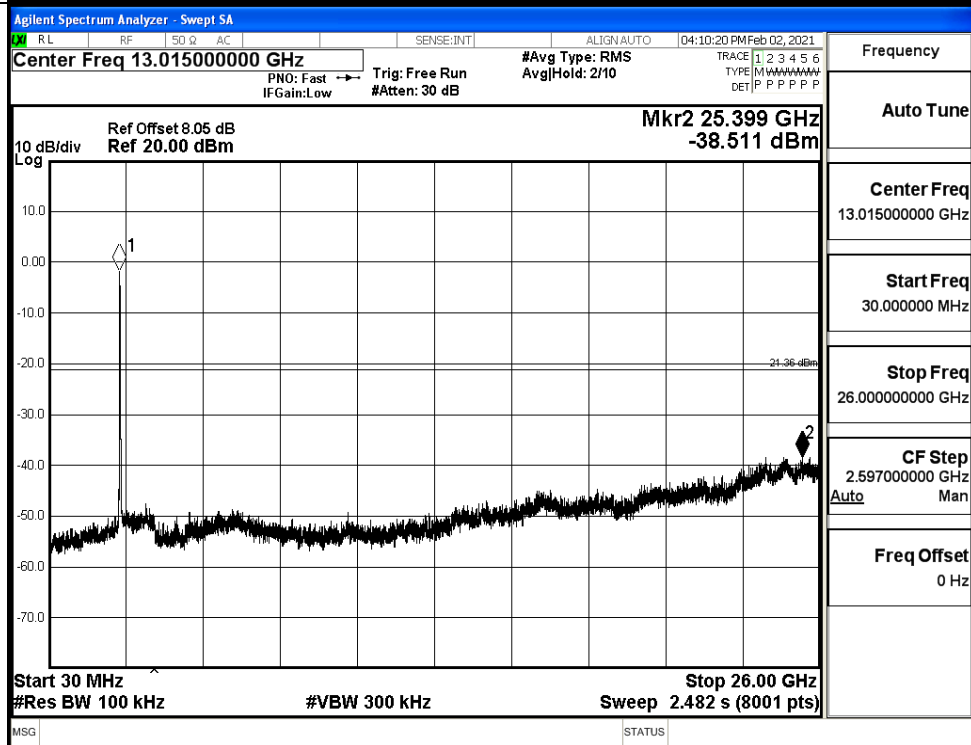


11N40SISO_LCH_Graphs

Pref/11N40
SISO/LCH

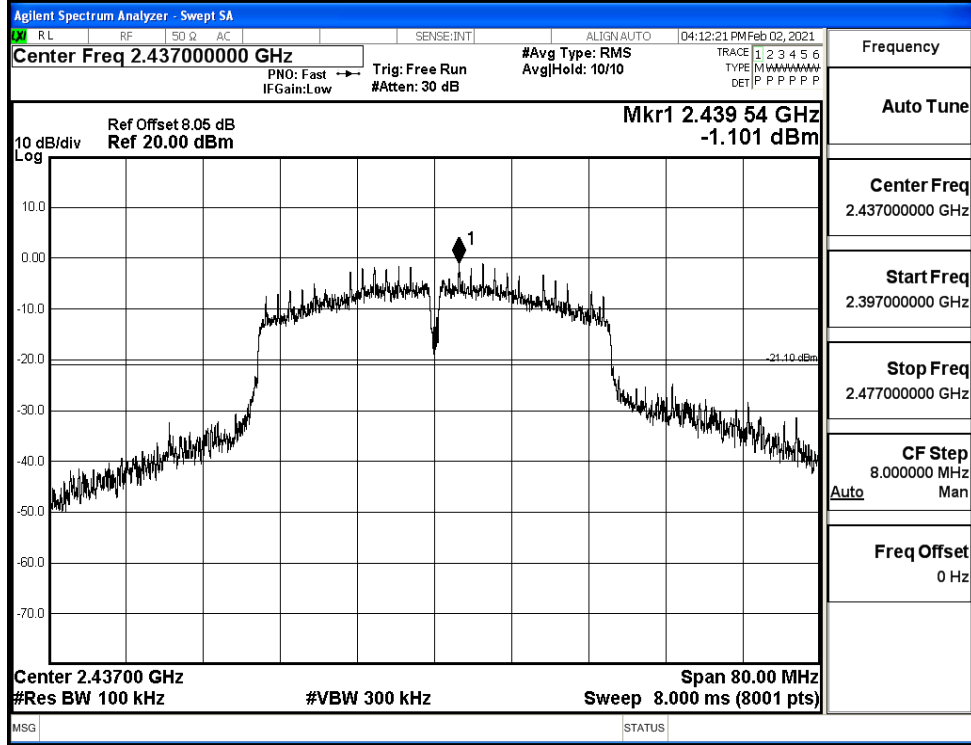


Puw/11N40
SISO/LCH

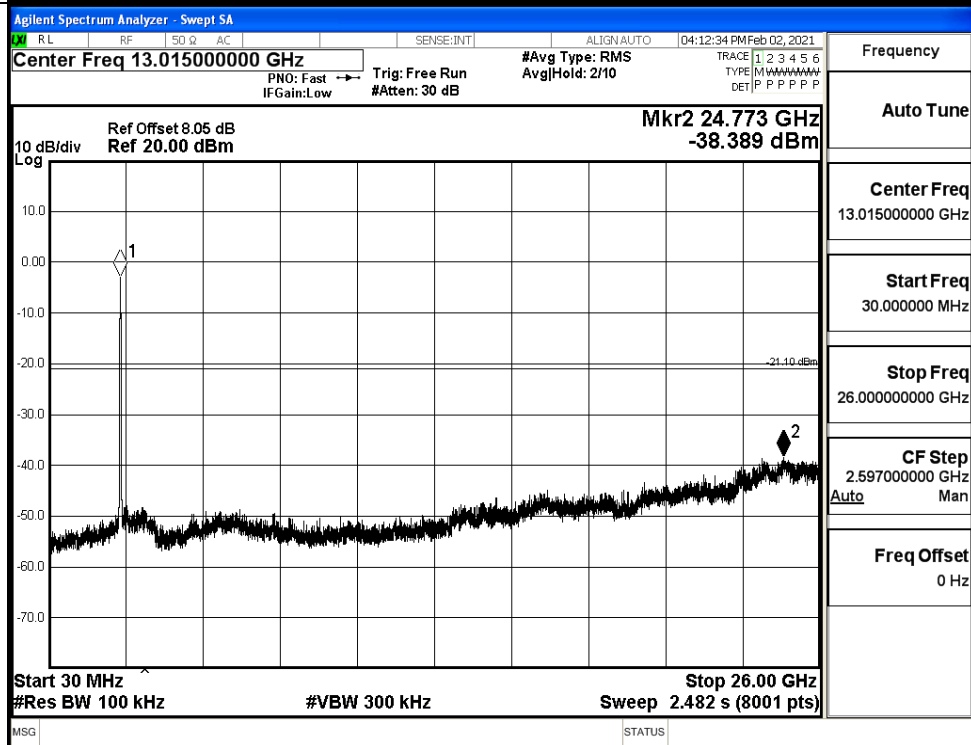


11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

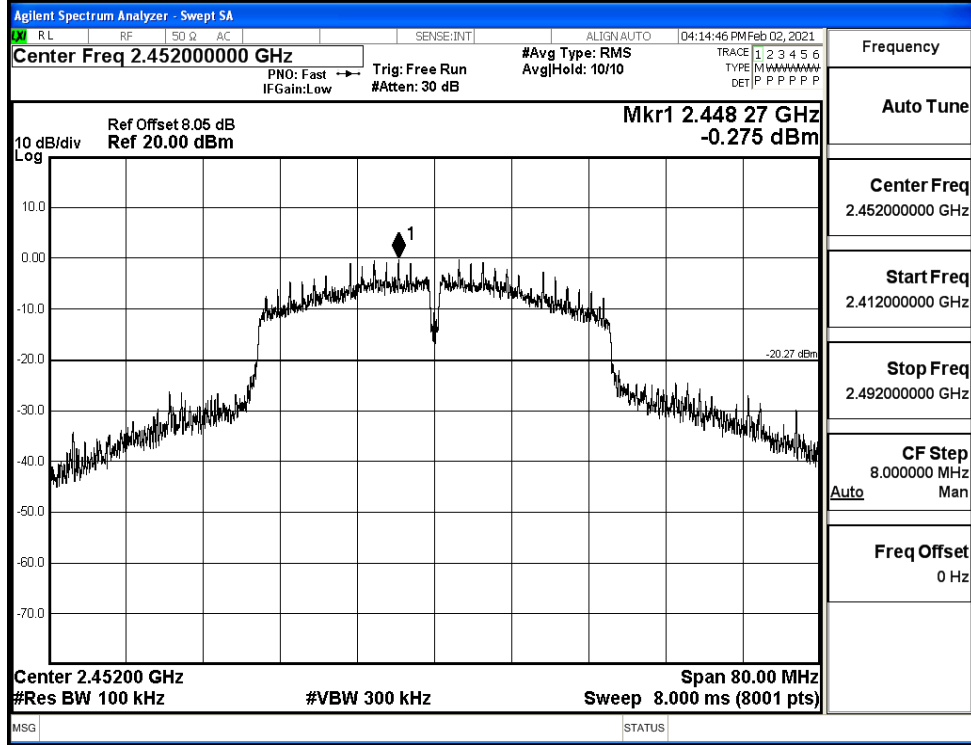


Puw/11N40
SISO/MCH

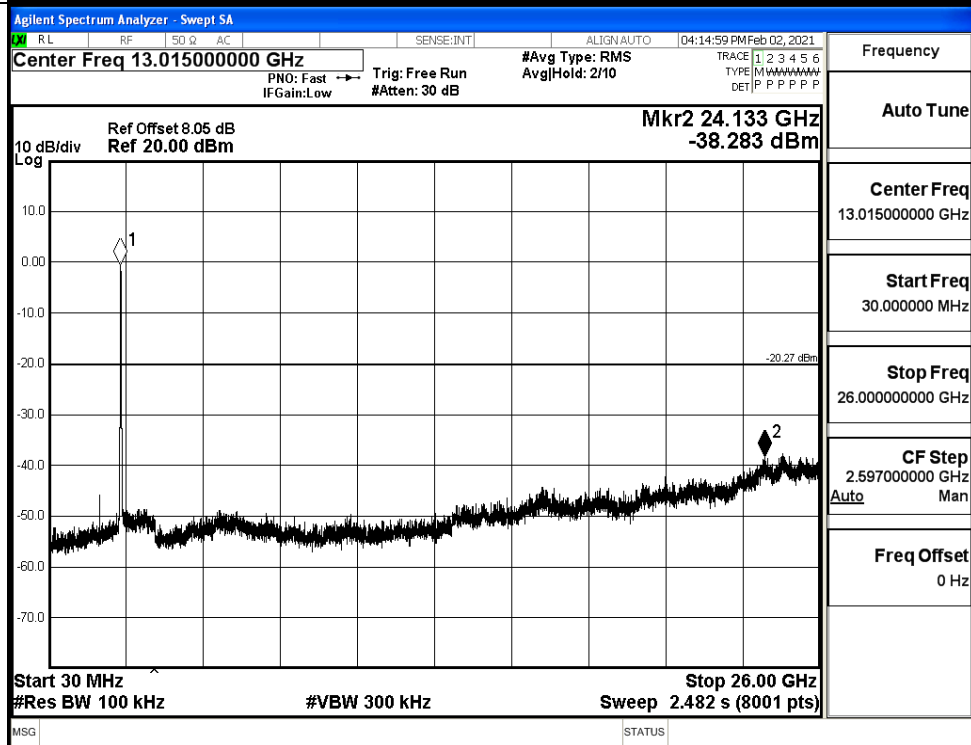


11N40SISO_HCH_Graphs

Pref/11N40
SISO/HCH

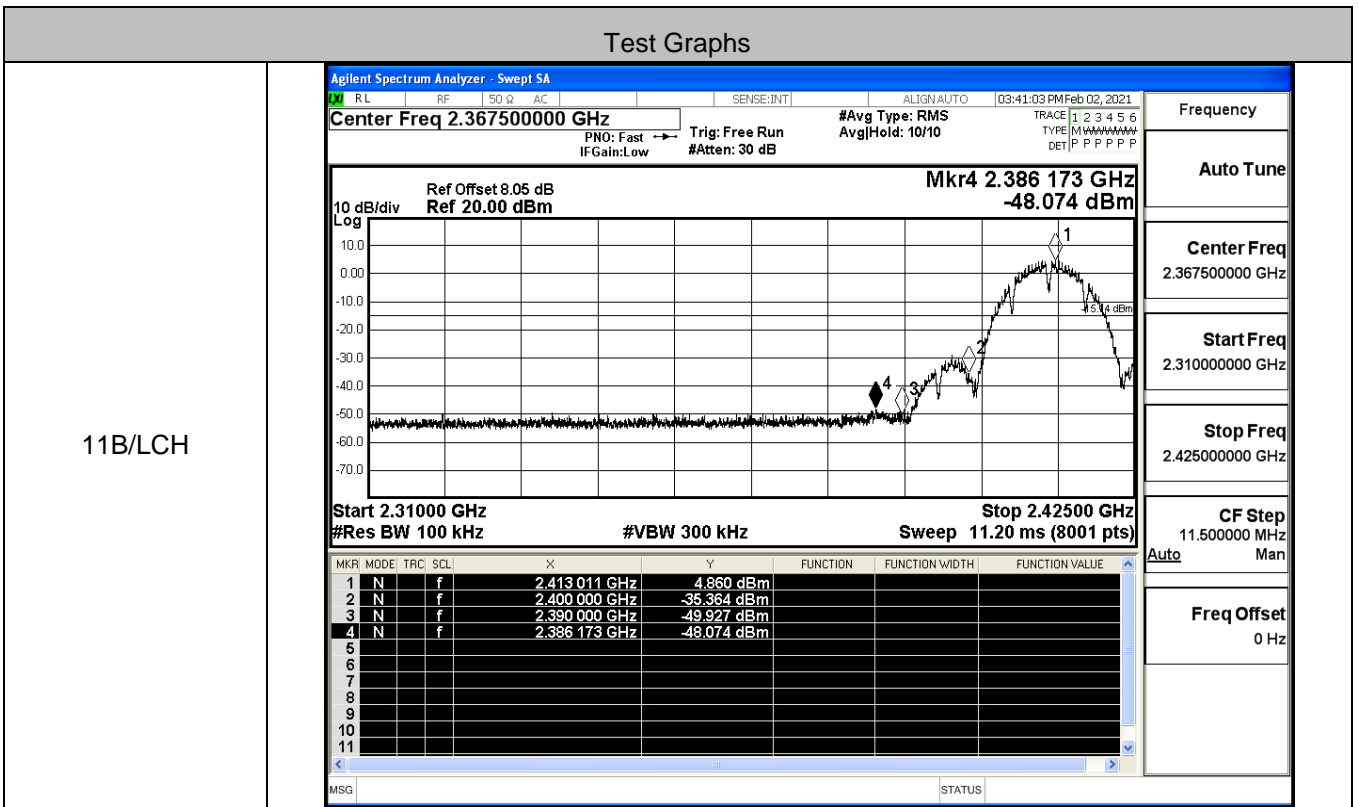


Puw/11N40
SISO/HCH

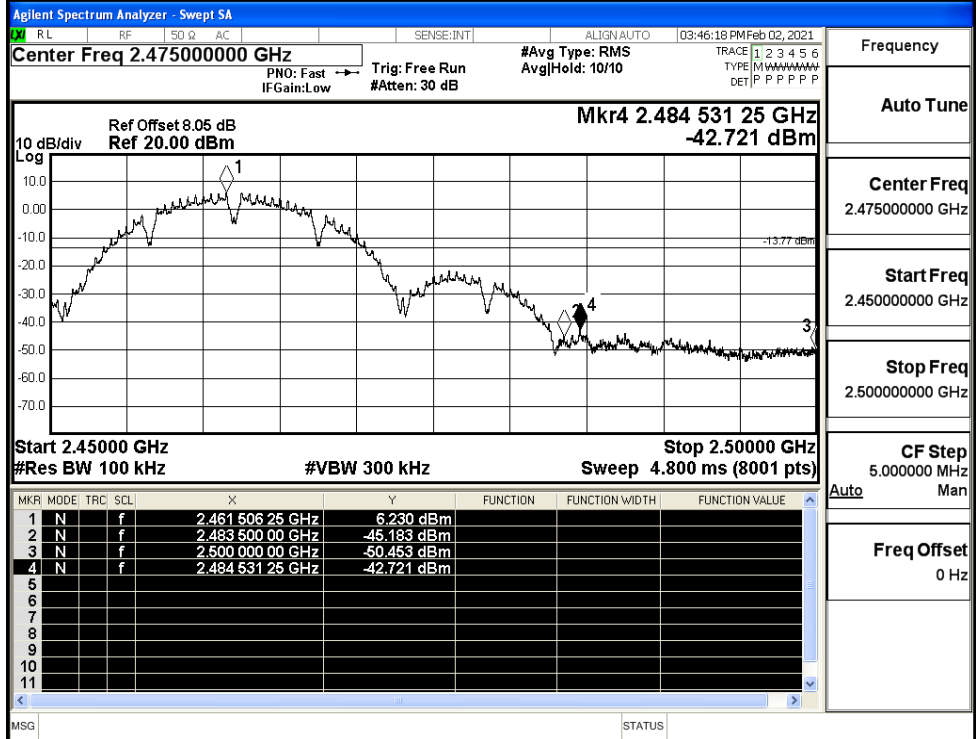


A.6 Band-edge for RF Conducted Emissions

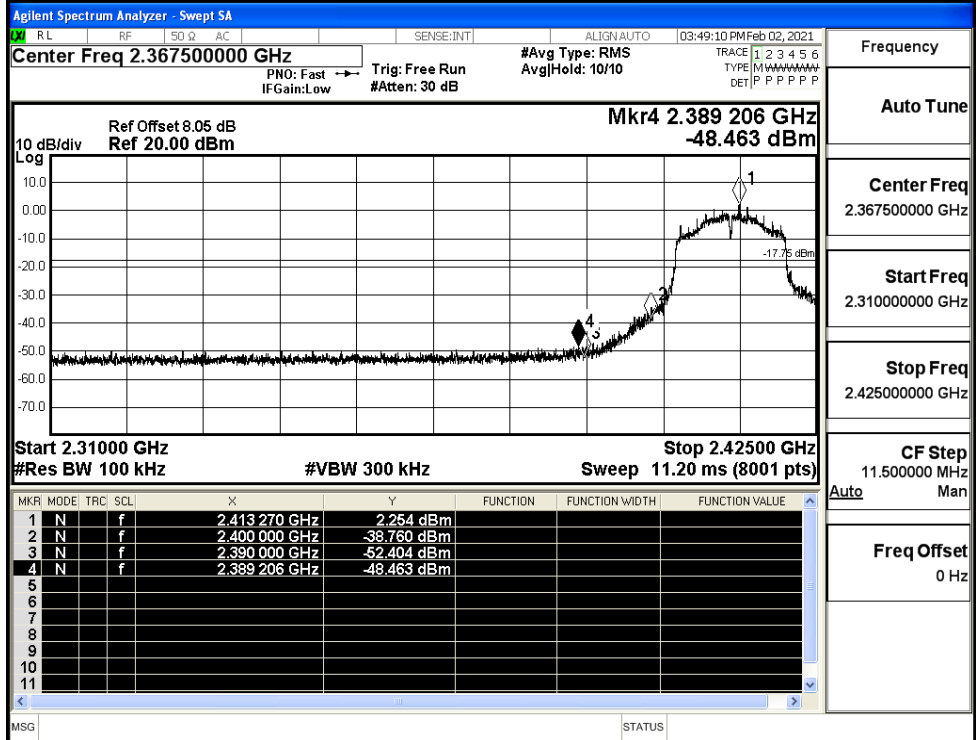
| Mode | Channel | Carrier Power[dBm] | Max.Spurious Level [dBm] | Limit [dBm] | Verdict |
|-----------|---------|--------------------|--------------------------|-------------|---------|
| 11B | LCH | 4.860 | -48.074 | -15.14 | PASS |
| | HCH | 6.230 | -42.721 | -13.77 | PASS |
| 11G | LCH | 2.254 | -48.463 | -17.75 | PASS |
| | HCH | 1.862 | -42.736 | -18.14 | PASS |
| 11N20SISO | LCH | 0.494 | -48.514 | -19.51 | PASS |
| | HCH | 2.639 | -43.476 | -17.36 | PASS |
| 11N40SISO | LCH | -1.504 | -41.602 | -21.5 | PASS |
| | HCH | -0.190 | -26.415 | -20.19 | PASS |



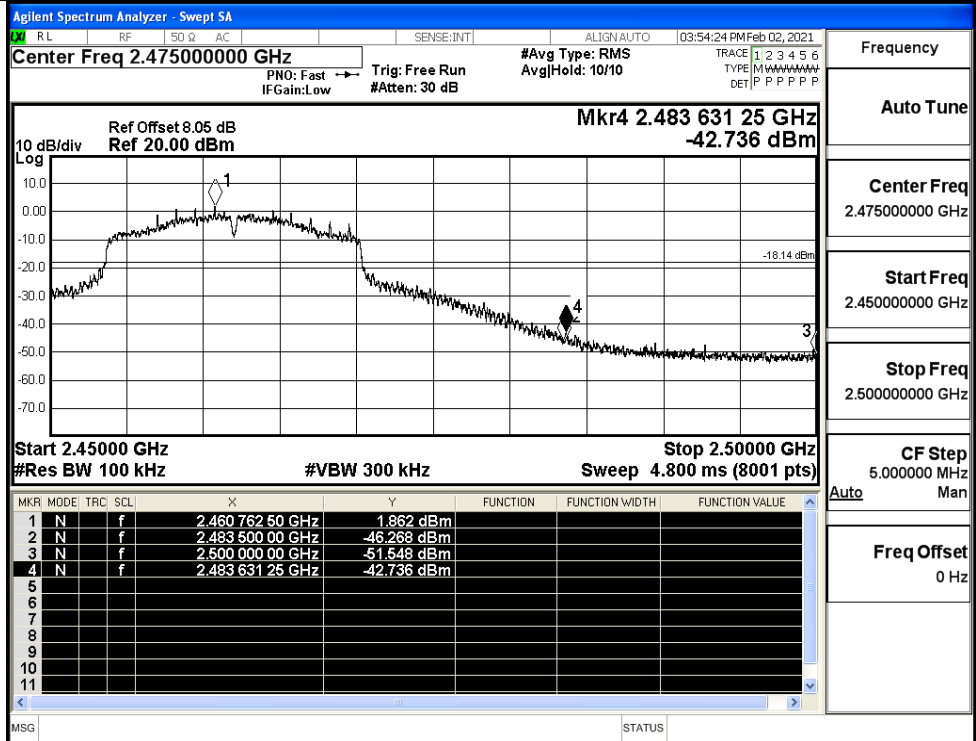
11B/HCH



11G/LCH

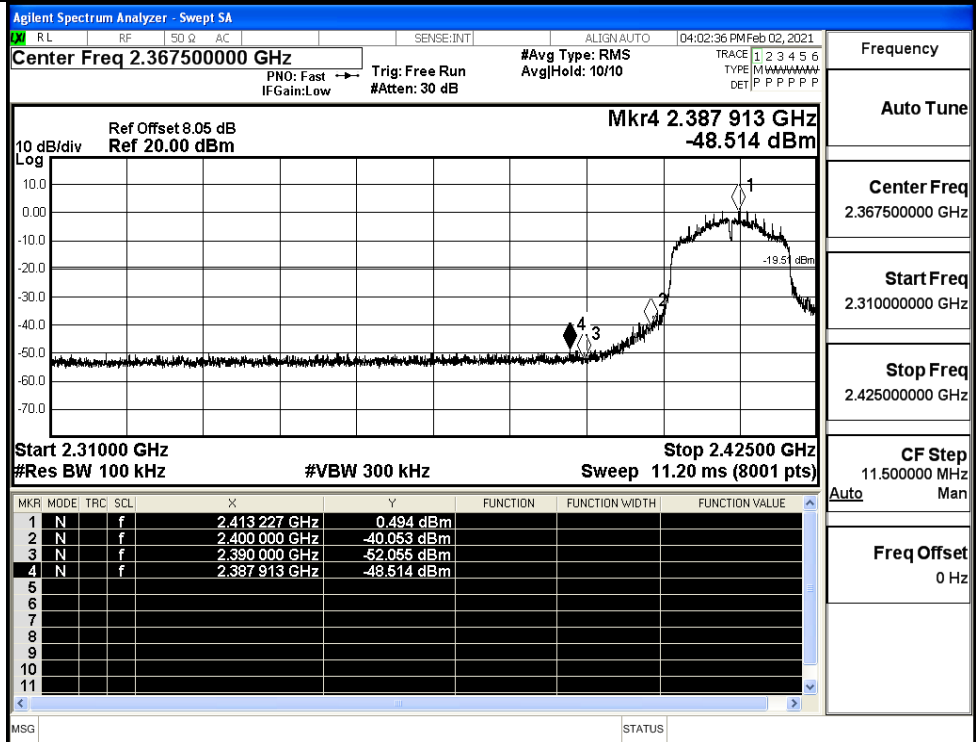


11G/HCH



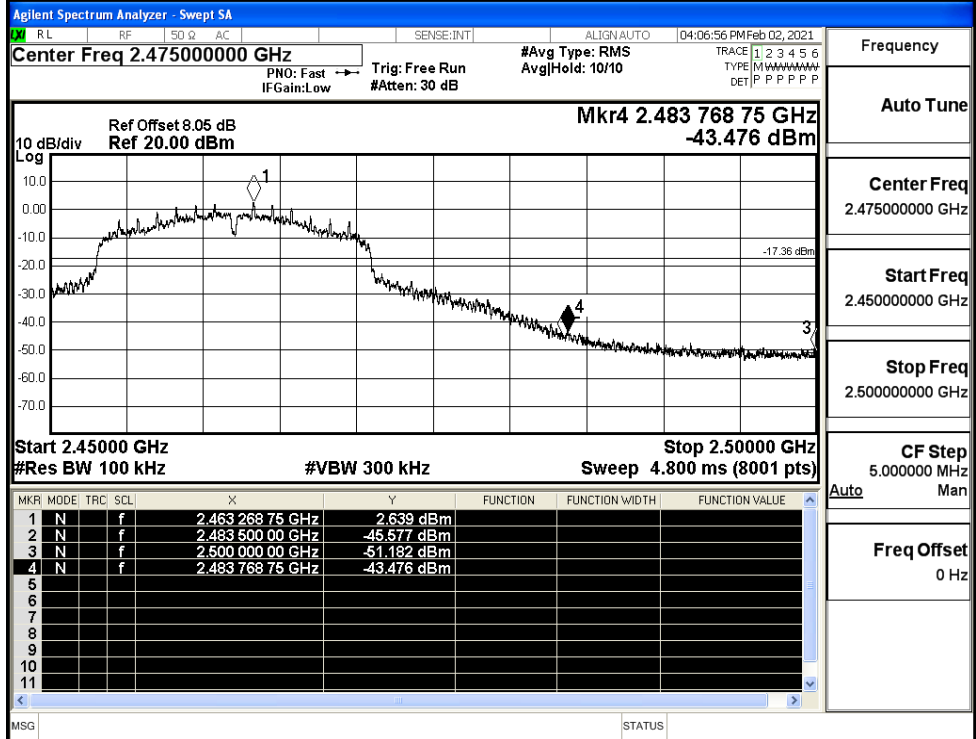
| | |
|-------------|----------------|
| Frequency | Auto Tune |
| Center Freq | 2.47500000 GHz |
| Start Freq | 2.45000000 GHz |
| Stop Freq | 2.50000000 GHz |
| CF Step | 5.000000 MHz |
| Freq Offset | 0 Hz |

11N20SISO/LCH

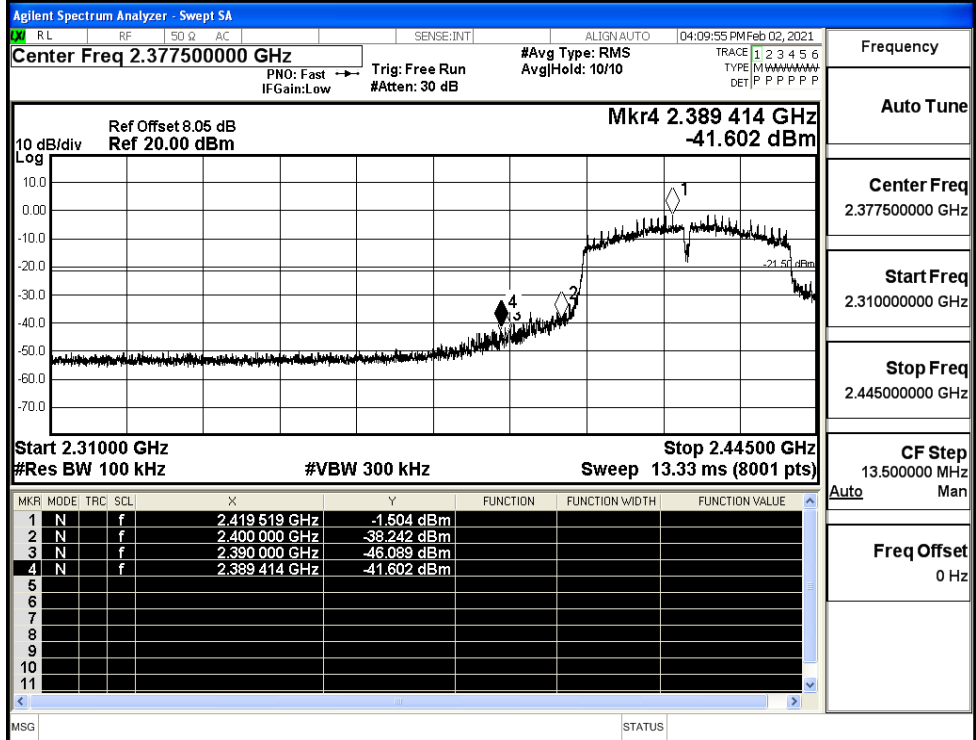


| | |
|-------------|----------------|
| Frequency | Auto Tune |
| Center Freq | 2.36750000 GHz |
| Start Freq | 2.31000000 GHz |
| Stop Freq | 2.42500000 GHz |
| CF Step | 11.500000 MHz |
| Freq Offset | 0 Hz |

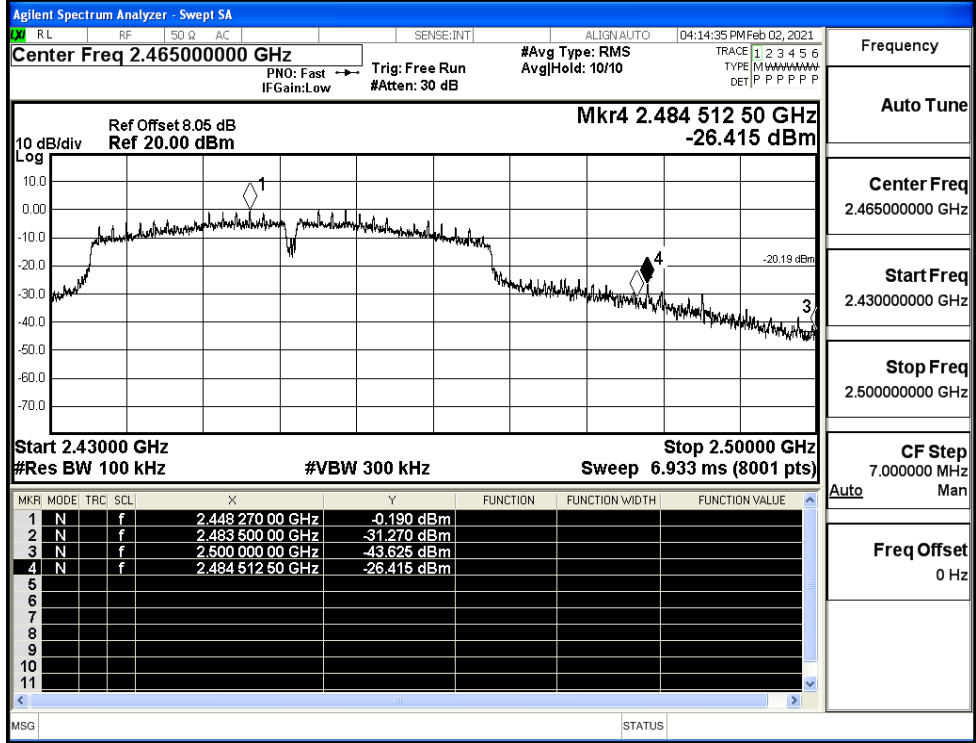
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

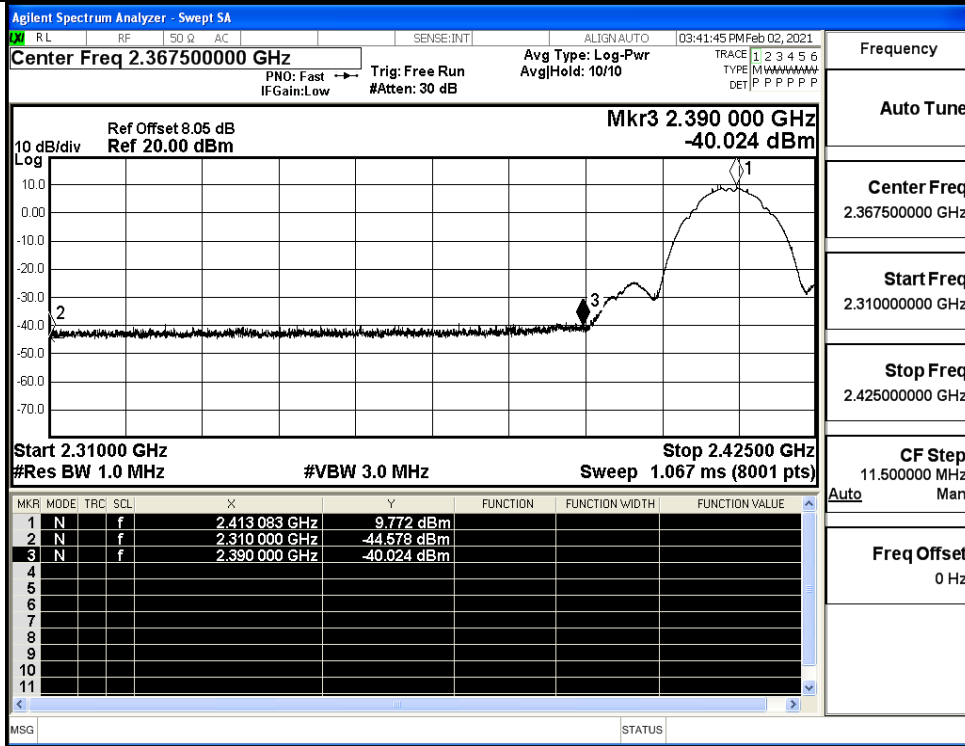


A.7 Restrict-band band-edge measurements

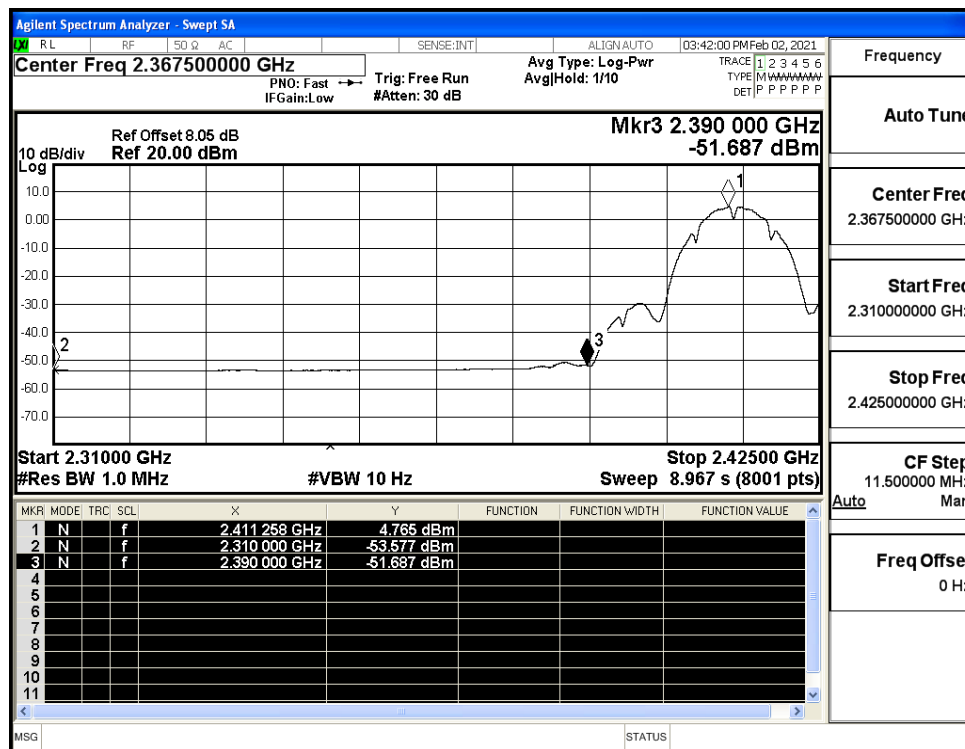
| Test Mode | Test Channel | Ant | Freq. | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|--------------|------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| 11B | 2412 | Ant1 | 2310.0 | -44.58 | 2.0 | 0 | 52.65 | PEAK | 74 | PASS |
| | 2412 | Ant1 | 2310.0 | -53.58 | 2.0 | 0 | 43.65 | AV | 54 | PASS |
| | 2412 | Ant1 | 2390.0 | -40.02 | 2.0 | 0 | 57.21 | PEAK | 74 | PASS |
| | 2412 | Ant1 | 2390.0 | -51.69 | 2.0 | 0 | 45.54 | AV | 54 | PASS |
| | 2462 | Ant1 | 2483.5 | -38.31 | 2.0 | 0 | 58.92 | PEAK | 74 | PASS |
| | 2462 | Ant1 | 2483.5 | -46.99 | 2.0 | 0 | 50.24 | AV | 54 | PASS |
| | 2462 | Ant1 | 2500.0 | -42.27 | 2.0 | 0 | 54.96 | PEAK | 74 | PASS |
| | 2462 | Ant1 | 2500.0 | -51.76 | 2.0 | 0 | 45.47 | AV | 54 | PASS |
| 11G | 2412 | Ant1 | 2310.0 | -43.93 | 2.0 | 0 | 53.30 | PEAK | 74 | PASS |
| | 2412 | Ant1 | 2310.0 | -53.41 | 2.0 | 0 | 43.82 | AV | 54 | PASS |
| | 2412 | Ant1 | 2390.0 | -37.62 | 2.0 | 0 | 59.61 | PEAK | 74 | PASS |
| | 2412 | Ant1 | 2390.0 | -51.55 | 2.0 | 0 | 45.68 | AV | 54 | PASS |
| | 2462 | Ant1 | 2483.5 | -31.83 | 2.0 | 0 | 65.40 | PEAK | 74 | PASS |
| | 2462 | Ant1 | 2483.5 | -45.41 | 2.0 | 0 | 51.82 | AV | 54 | PASS |
| | 2462 | Ant1 | 2500.0 | -40.12 | 2.0 | 0 | 57.11 | PEAK | 74 | PASS |
| | 2462 | Ant1 | 2500.0 | -51.88 | 2.0 | 0 | 45.35 | AV | 54 | PASS |
| 11N20 SISO | 2412 | Ant1 | 2310.0 | -44.08 | 2.0 | 0 | 53.15 | PEAK | 74 | PASS |
| | 2412 | Ant1 | 2310.0 | -53.41 | 2.0 | 0 | 43.82 | AV | 54 | PASS |
| | 2412 | Ant1 | 2390.0 | -38.88 | 2.0 | 0 | 58.35 | PEAK | 74 | PASS |
| | 2412 | Ant1 | 2390.0 | -52.06 | 2.0 | 0 | 45.17 | AV | 54 | PASS |
| | 2462 | Ant1 | 2483.5 | -33.27 | 2.0 | 0 | 63.96 | PEAK | 74 | PASS |
| | 2462 | Ant1 | 2483.5 | -46.52 | 2.0 | 0 | 50.71 | AV | 54 | PASS |
| | 2462 | Ant1 | 2500.0 | -40.42 | 2.0 | 0 | 56.81 | PEAK | 74 | PASS |
| | 2462 | Ant1 | 2500.0 | -52.05 | 2.0 | 0 | 45.18 | AV | 54 | PASS |
| 11N40 SISO | 2422 | Ant1 | 2310.0 | -42.56 | 2.0 | 0 | 54.67 | PEAK | 74 | PASS |
| | 2422 | Ant1 | 2310.0 | -53.43 | 2.0 | 0 | 43.80 | AV | 54 | PASS |
| | 2422 | Ant1 | 2390.0 | -29.92 | 2.0 | 0 | 67.31 | PEAK | 74 | PASS |

| | | | | | | | | | | |
|--|------|------|--------|--------|-----|---|-------|------|----|------|
| | 2422 | Ant1 | 2390.0 | -46.65 | 2.0 | 0 | 50.58 | AV | 54 | PASS |
| | 2452 | Ant1 | 2483.5 | -24.79 | 2.0 | 0 | 72.44 | PEAK | 74 | PASS |
| | 2452 | Ant1 | 2483.5 | -43.58 | 2.0 | 0 | 53.65 | AV | 54 | PASS |
| | 2452 | Ant1 | 2500.0 | -37.05 | 2.0 | 0 | 60.18 | PEAK | 74 | PASS |
| | 2452 | Ant1 | 2500.0 | -51.22 | 2.0 | 0 | 46.01 | AV | 54 | PASS |

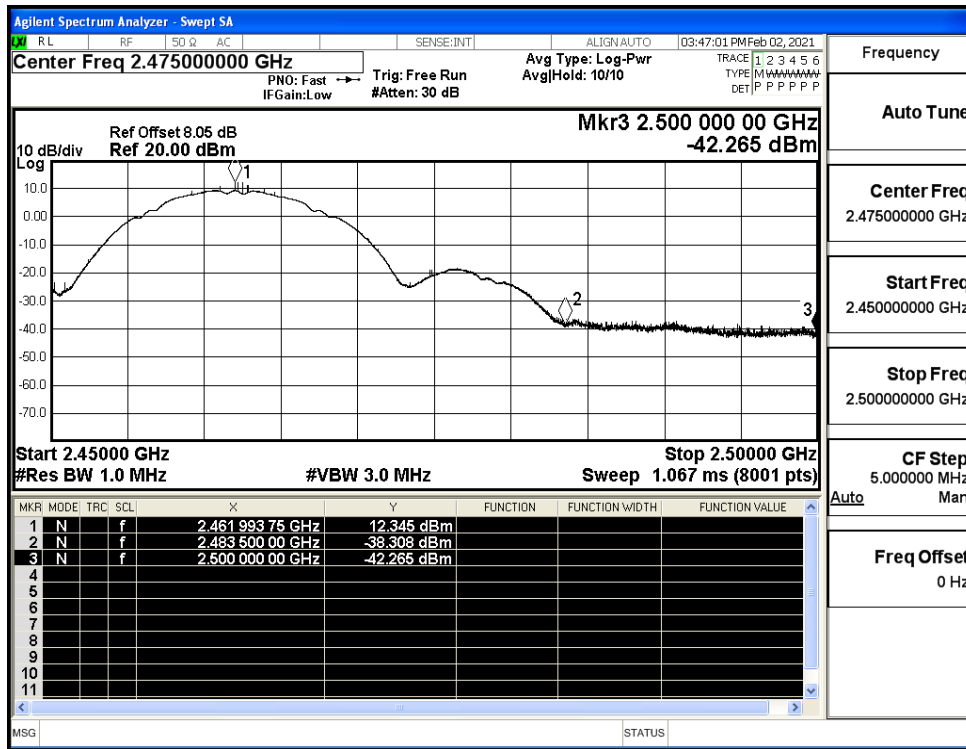
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



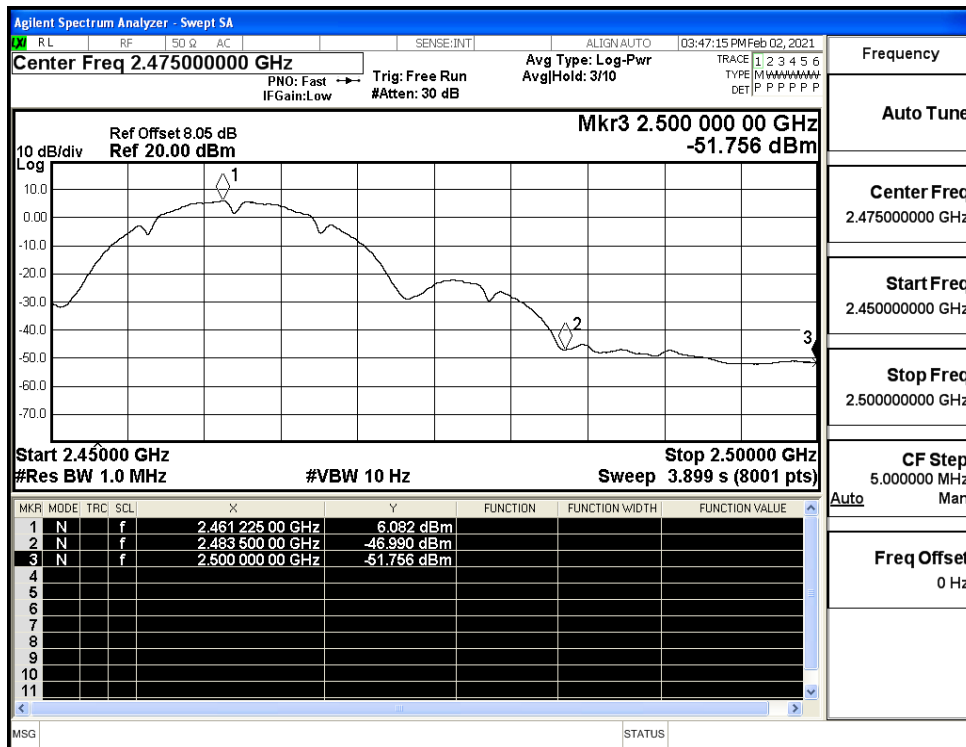
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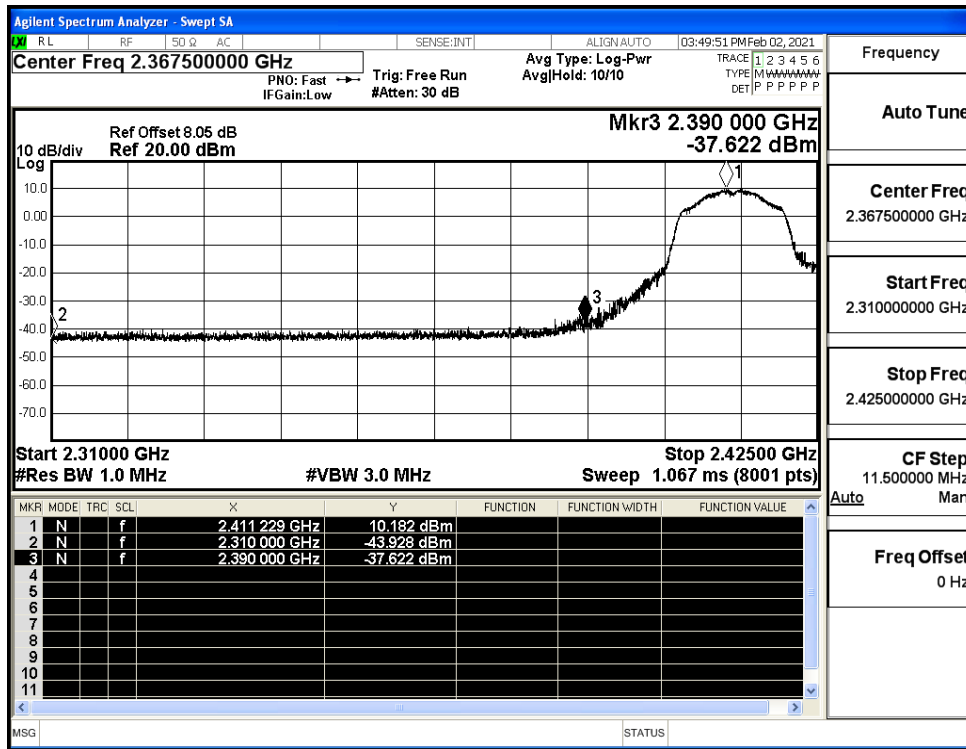
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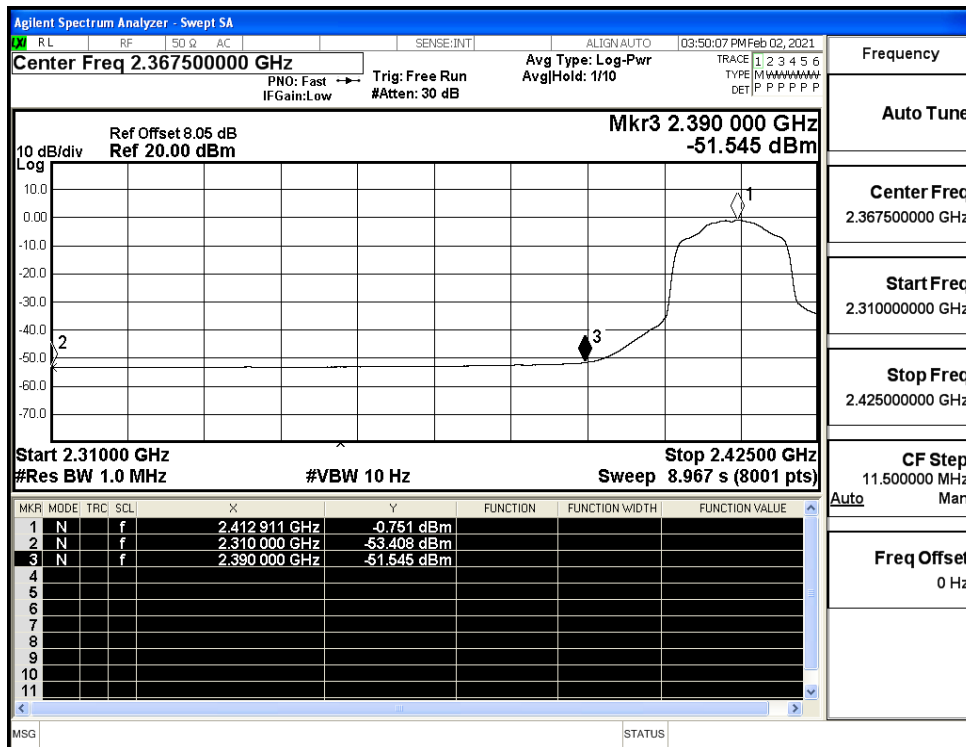
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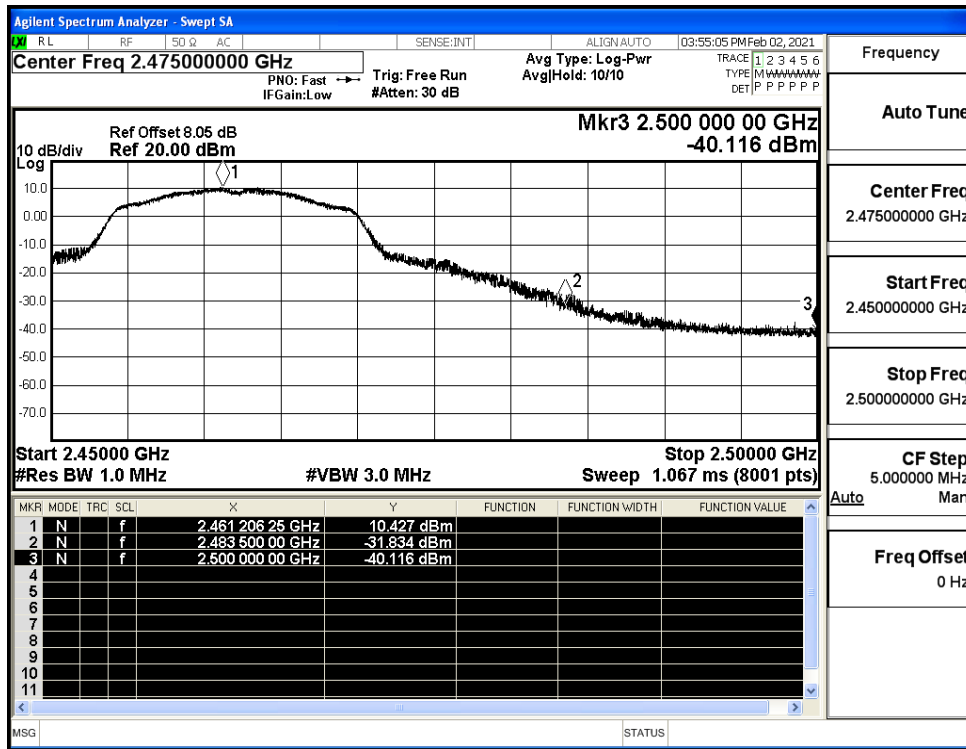
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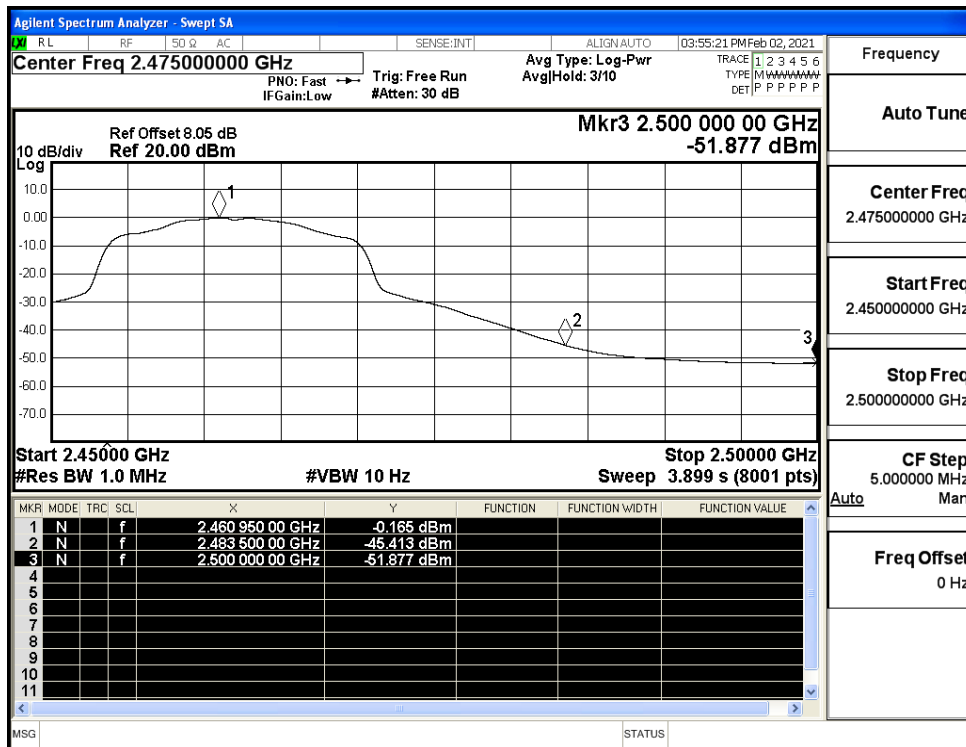
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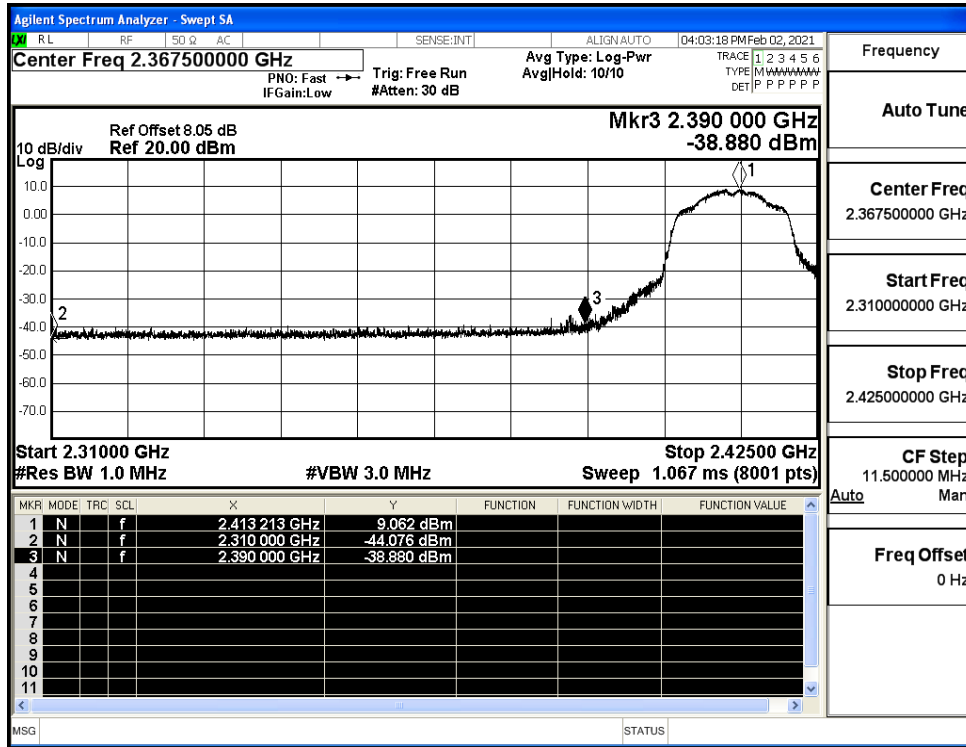
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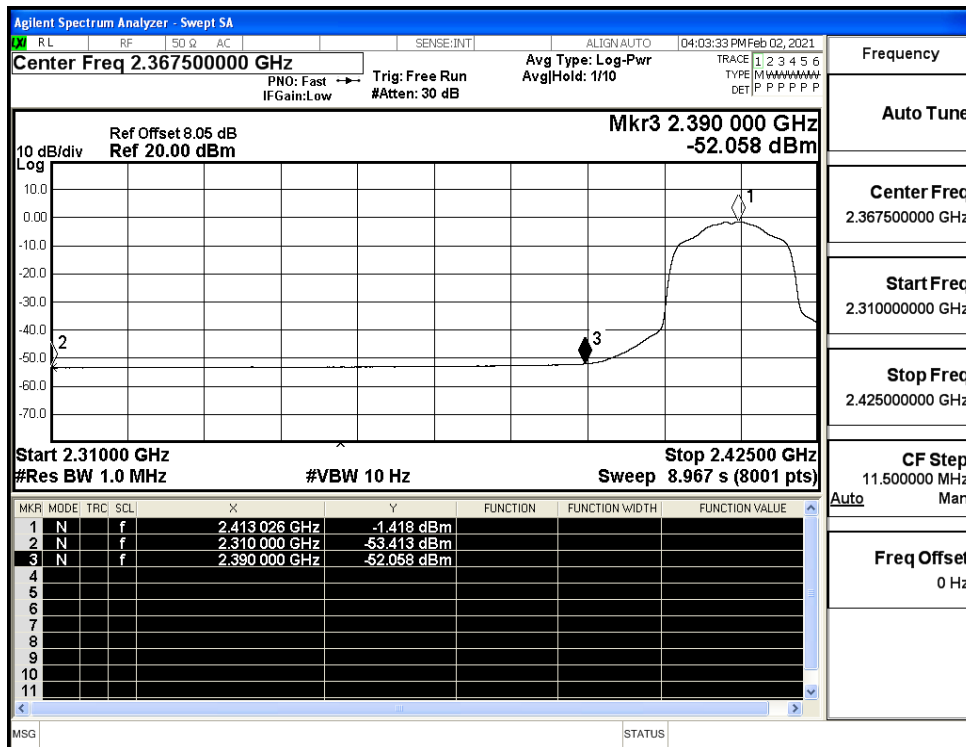
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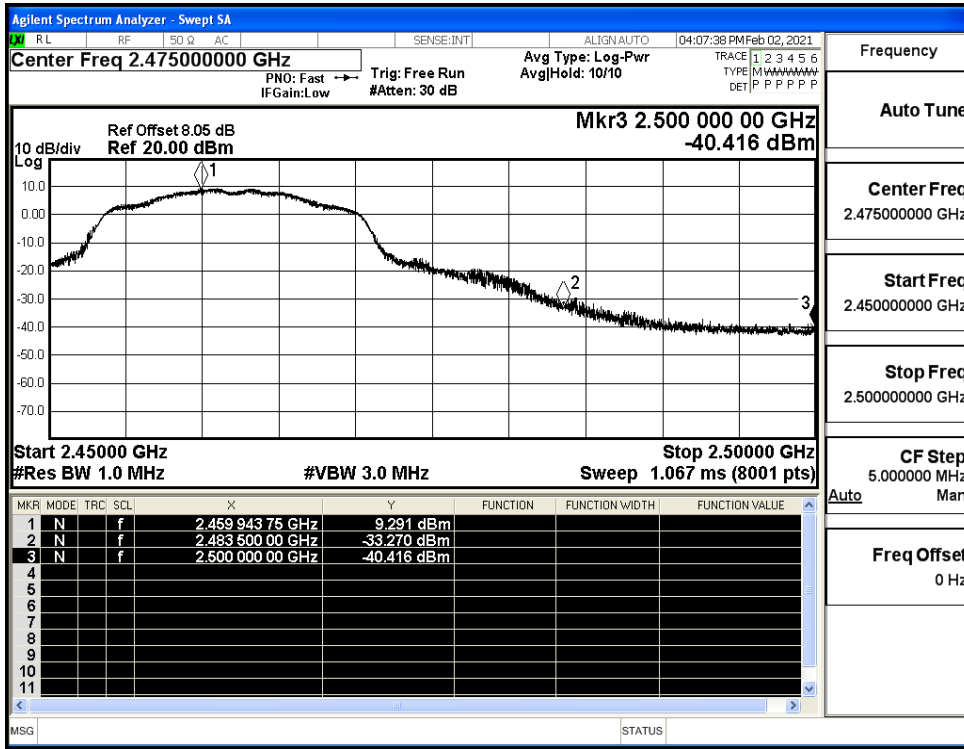
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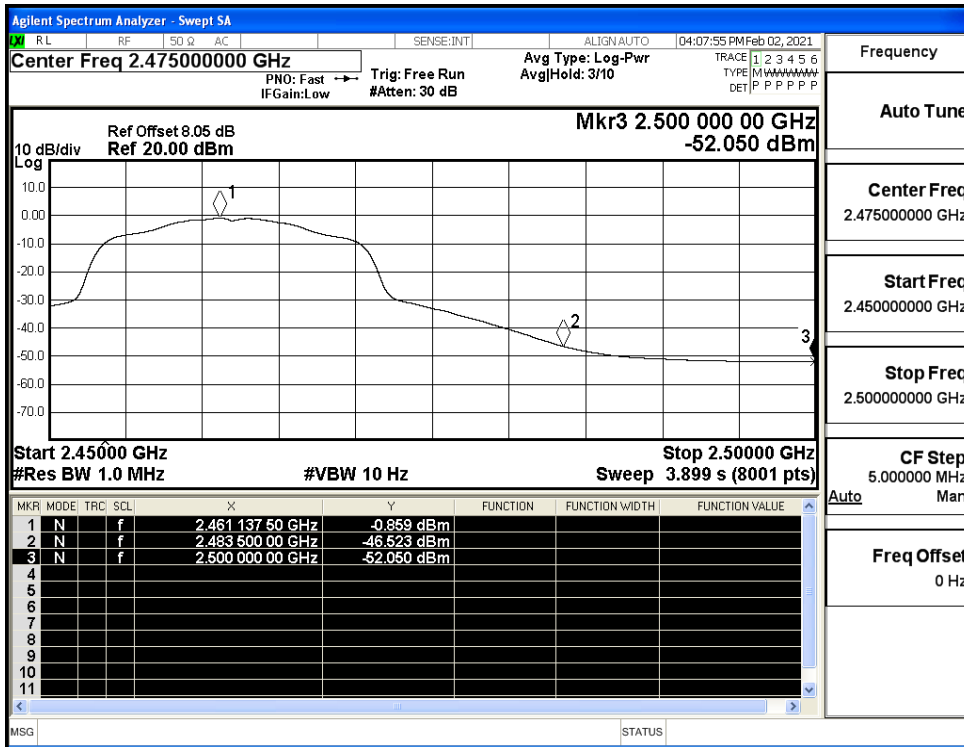
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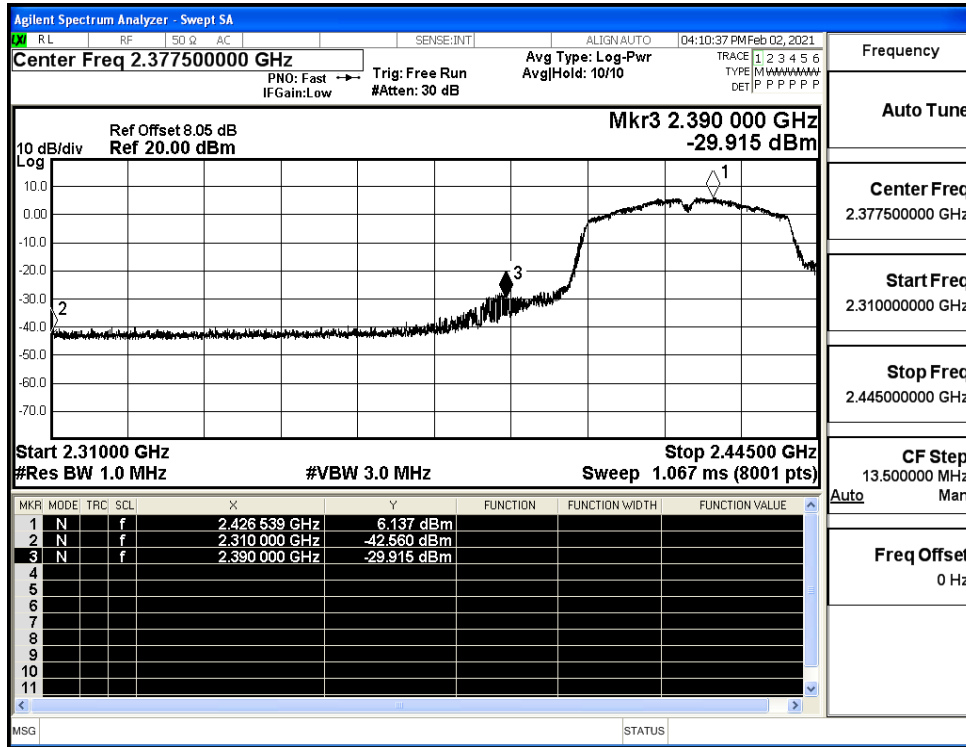
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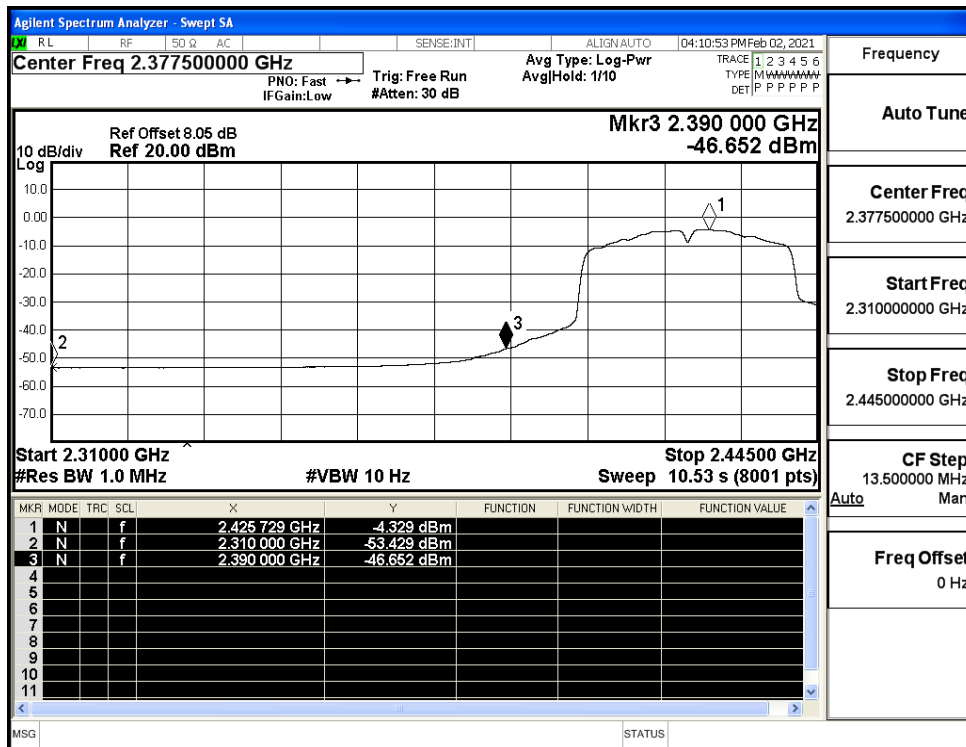
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



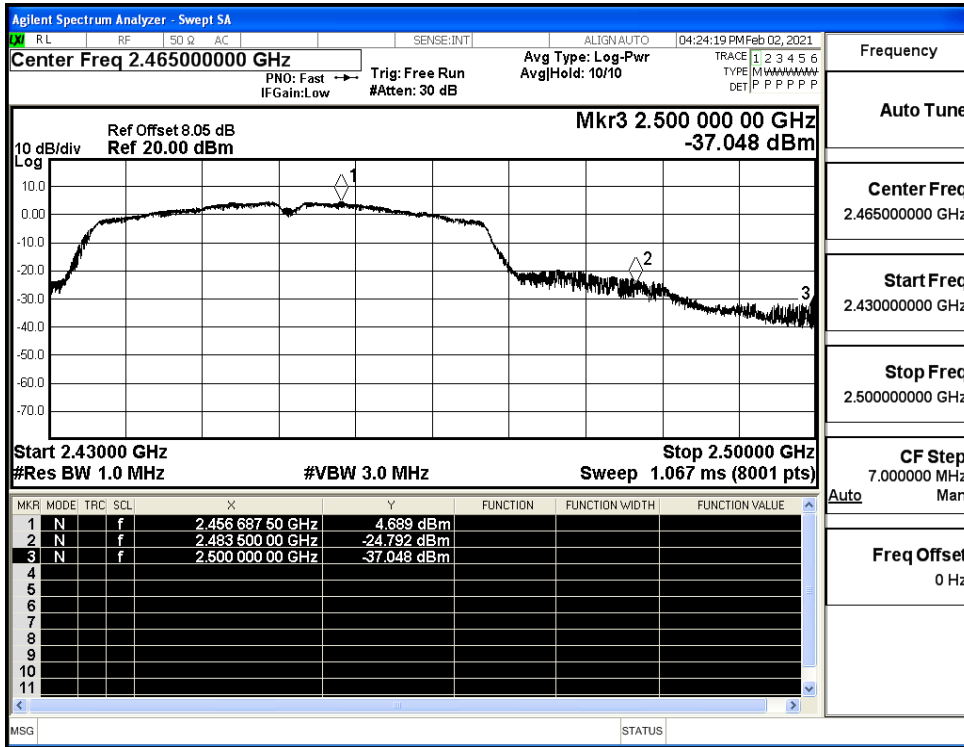
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2422_Ant1_AV



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_AV

