

Appendix A

RF Test Data for BT V4.2(BDR/EDR) (Conducted Measurement)

Product Name: BT Speaker

Trade Mark: N/A

Test Model: T7

Environmental Conditions

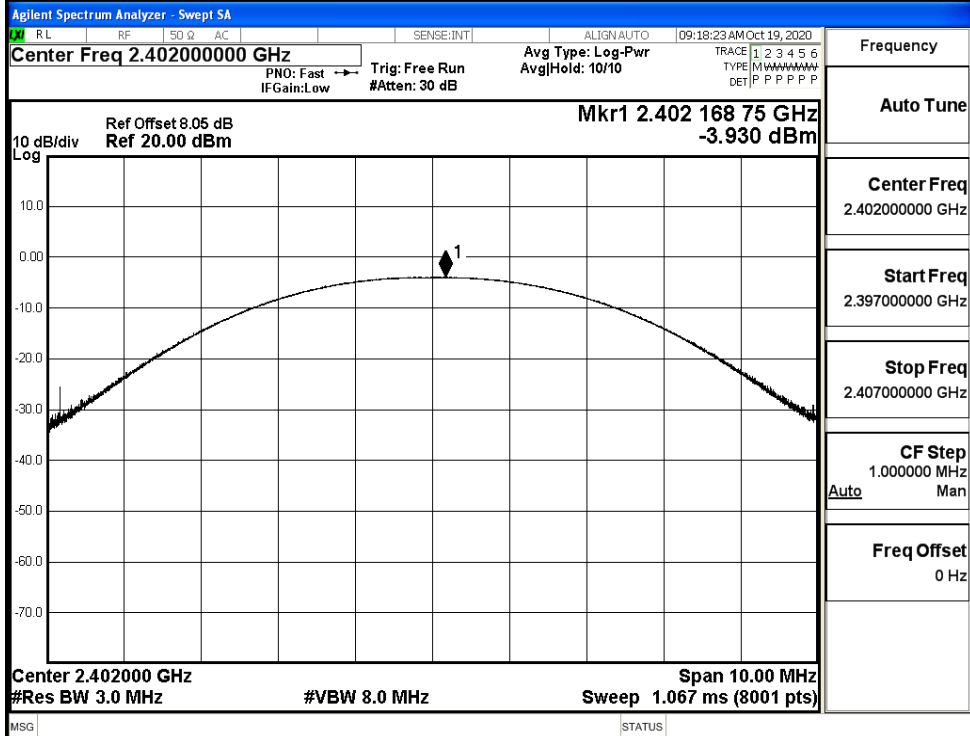
| | |
|--------------------|-----------|
| Temperature: | 25 ° C |
| Relative Humidity: | 50% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | CARL FU |
| Supervised by: | Li Huan |

A.1 Maxmum Conducted Peak Output Power

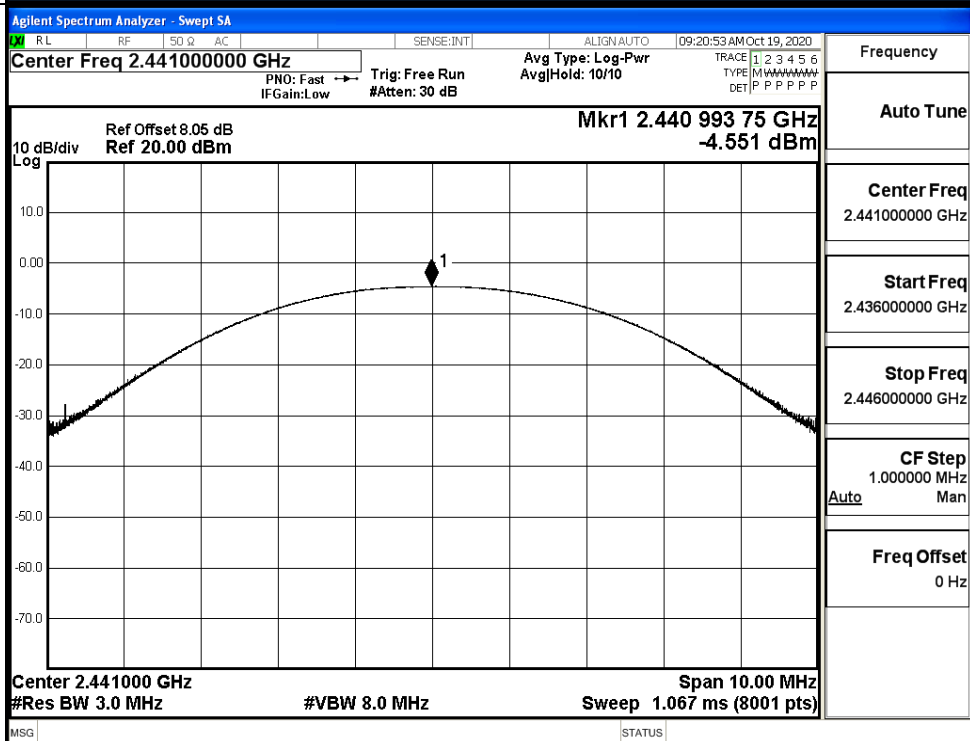
| Mode | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK | LCH | -3.930 | 21 | PASS |
| | MCH | -4.551 | 21 | PASS |
| | HCH | -5.036 | 21 | PASS |
| $\pi/4$ DQPSK | LCH | -4.100 | 21 | PASS |
| | MCH | -4.678 | 21 | PASS |
| | HCH | -5.146 | 21 | PASS |
| 8DPSK | LCH | -4.086 | 21 | PASS |
| | MCH | -4.597 | 21 | PASS |
| | HCH | -5.084 | 21 | PASS |

Test Graphs

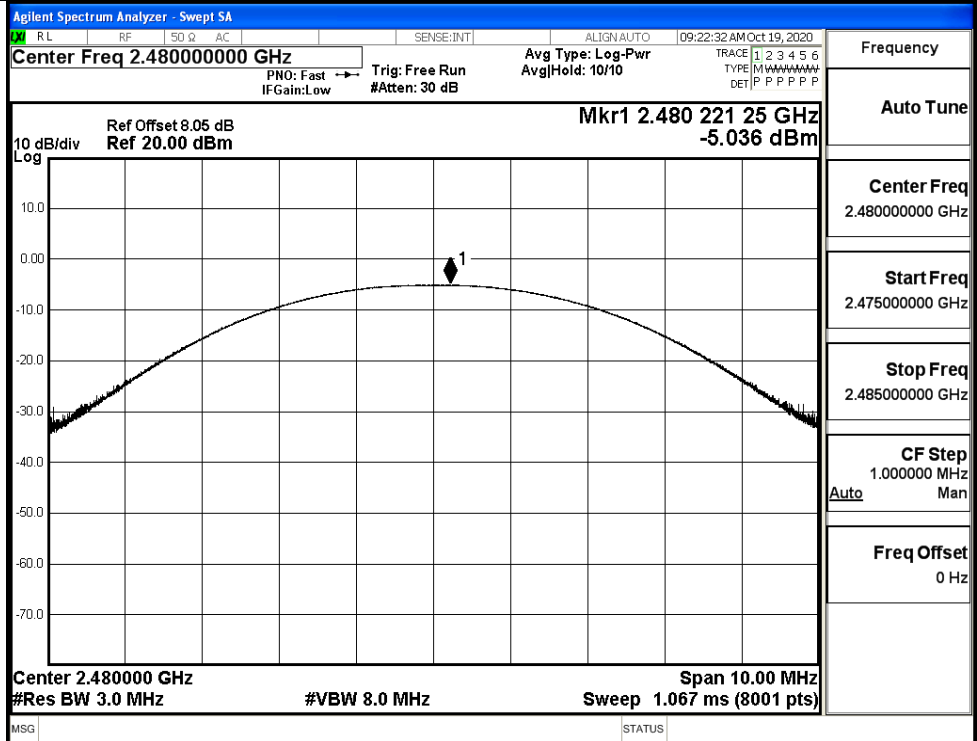
GFSK/LCH



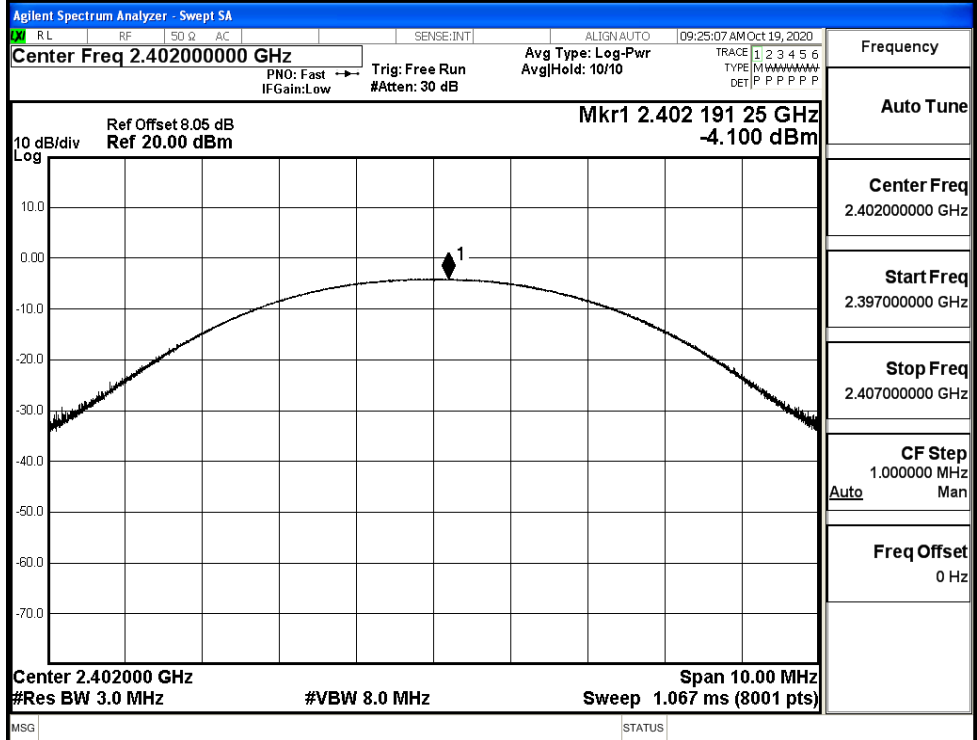
GFSK/MCH

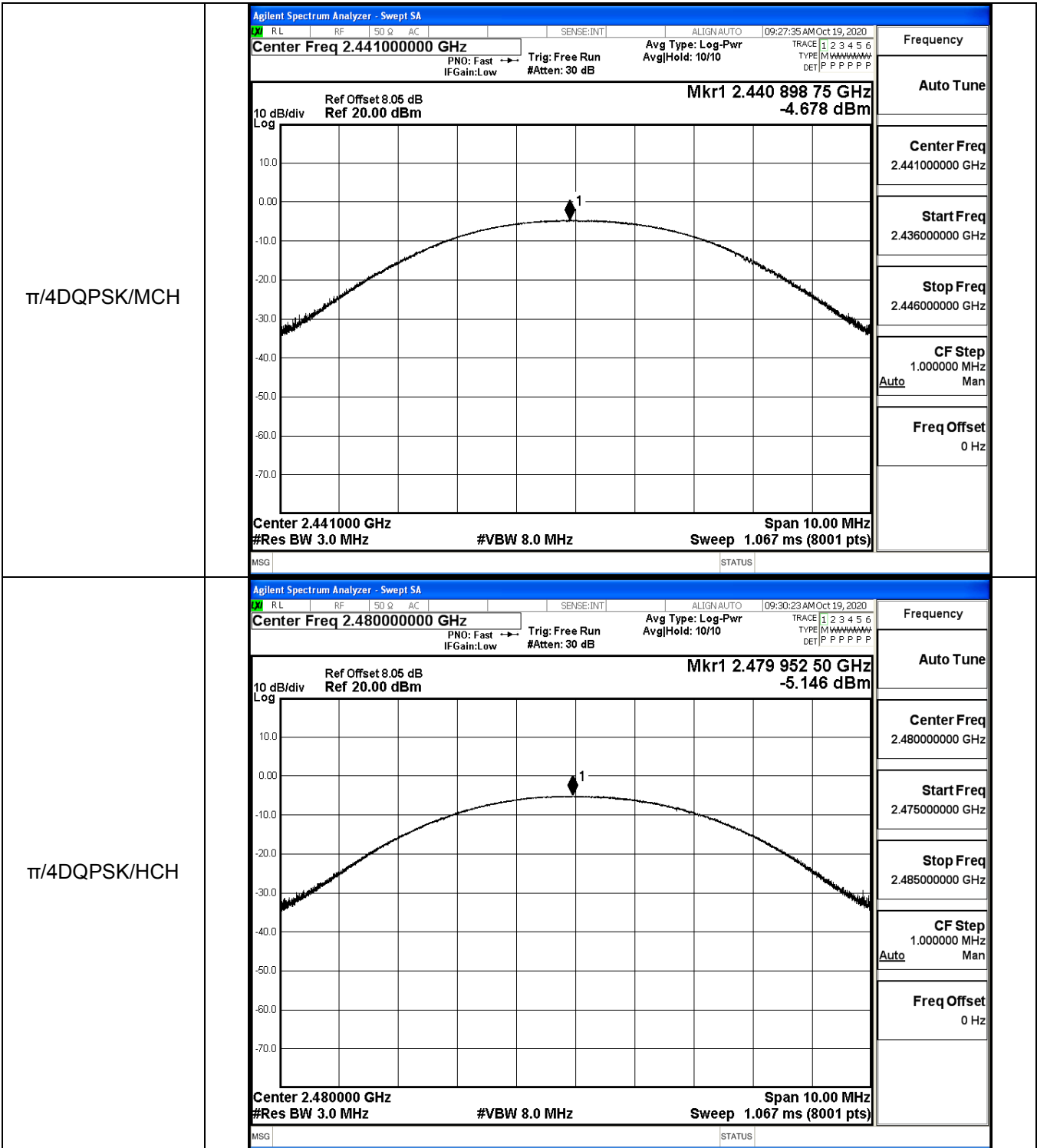


GFSK/HCH

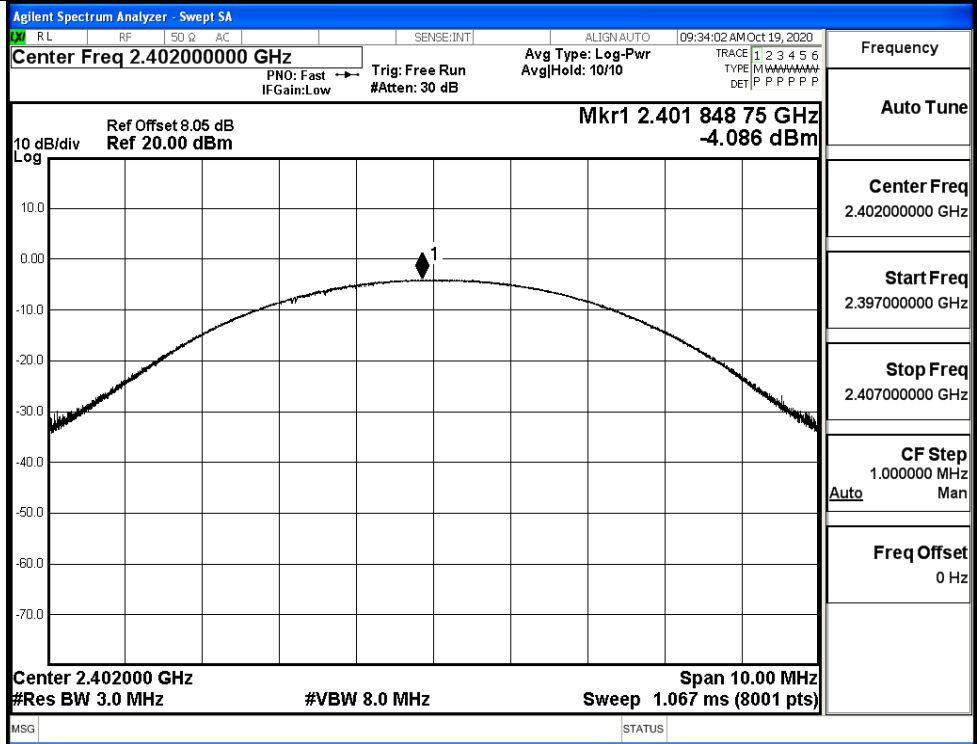


$\pi/4$ DQPSK/LCH

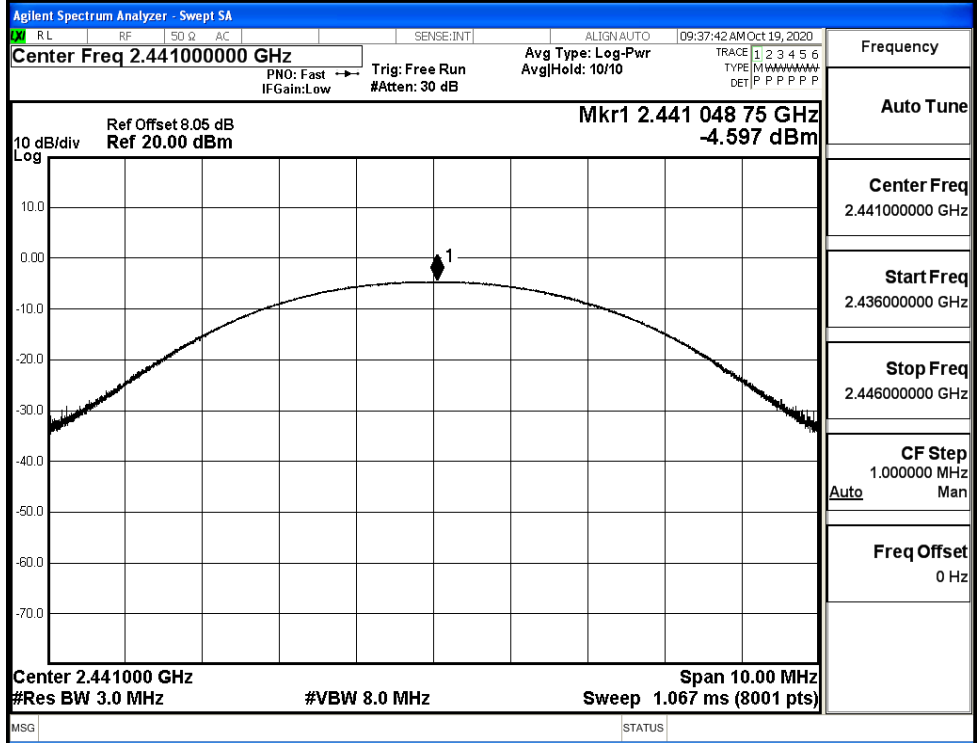




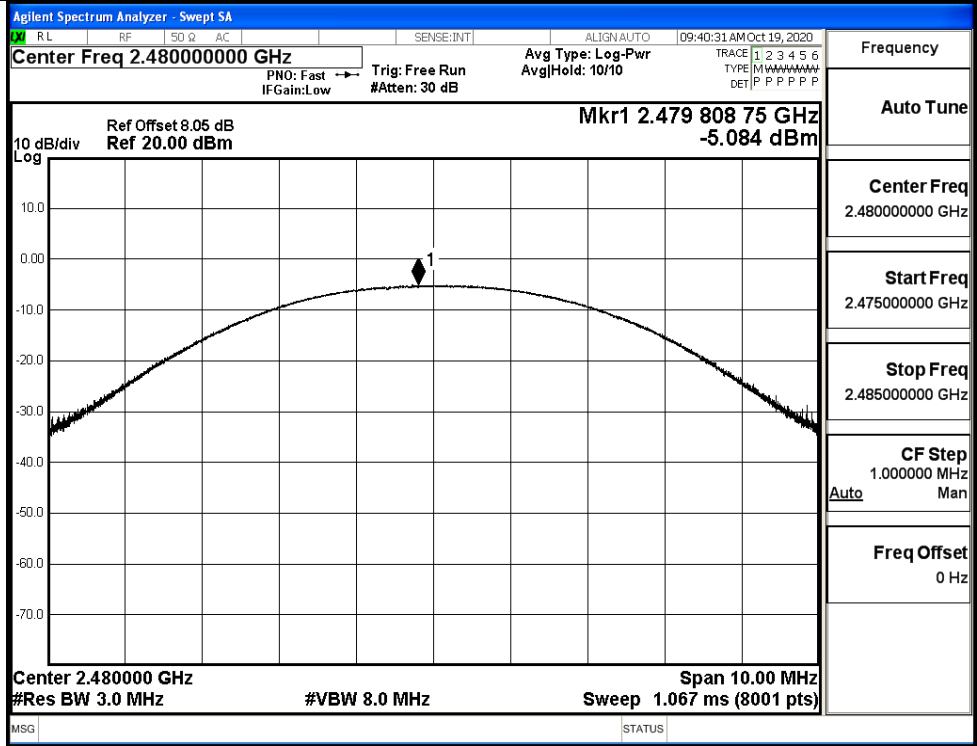
8DPSK/LCH



8DPSK/MCH

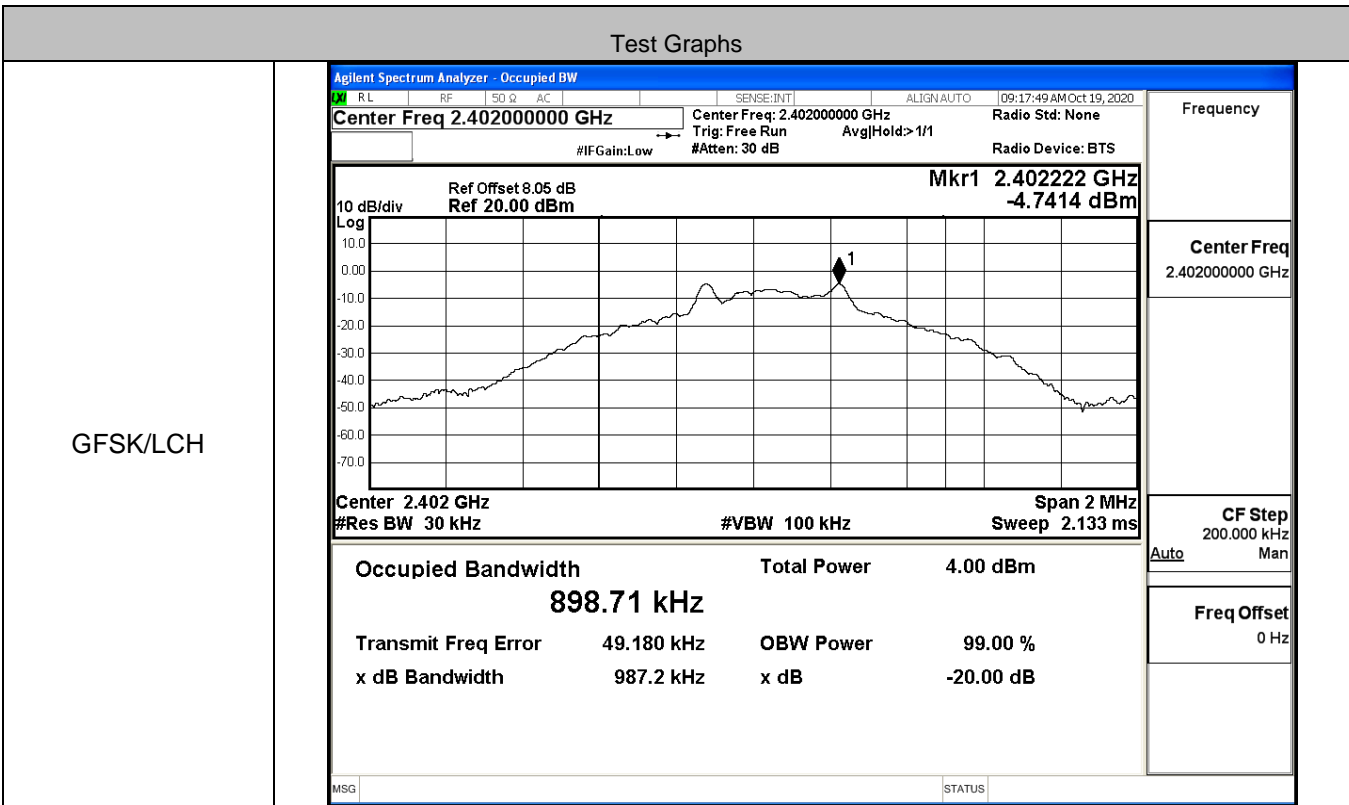


8DPSK/HCH

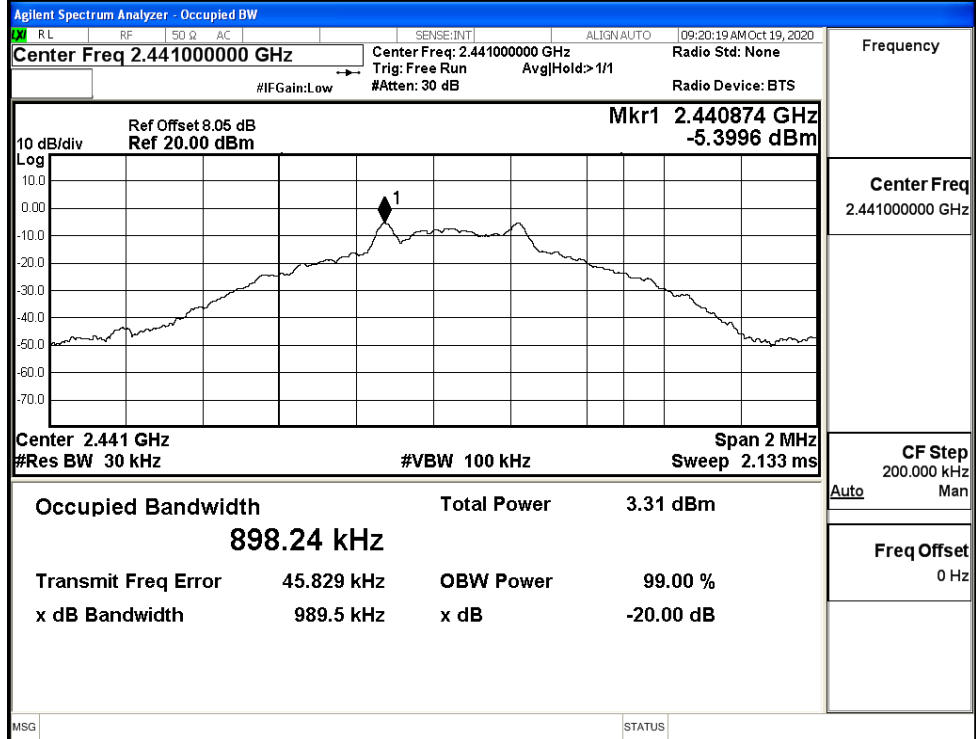


A.2 20dB Bandwidth

| Mode | Channel. | 20dB Bandwidth [MHz] | Limit [MHz] | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK | LCH | 0.9872 | Not Specified | PASS |
| | MCH | 0.9895 | Not Specified | PASS |
| | HCH | 0.9824 | Not Specified | PASS |
| $\pi/4$ DQPSK | LCH | 1.317 | Not Specified | PASS |
| | MCH | 1.311 | Not Specified | PASS |
| | HCH | 1.311 | Not Specified | PASS |
| 8DPSK | LCH | 1.300 | Not Specified | PASS |
| | MCH | 1.298 | Not Specified | PASS |
| | HCH | 1.299 | Not Specified | PASS |



GFSK/MCH



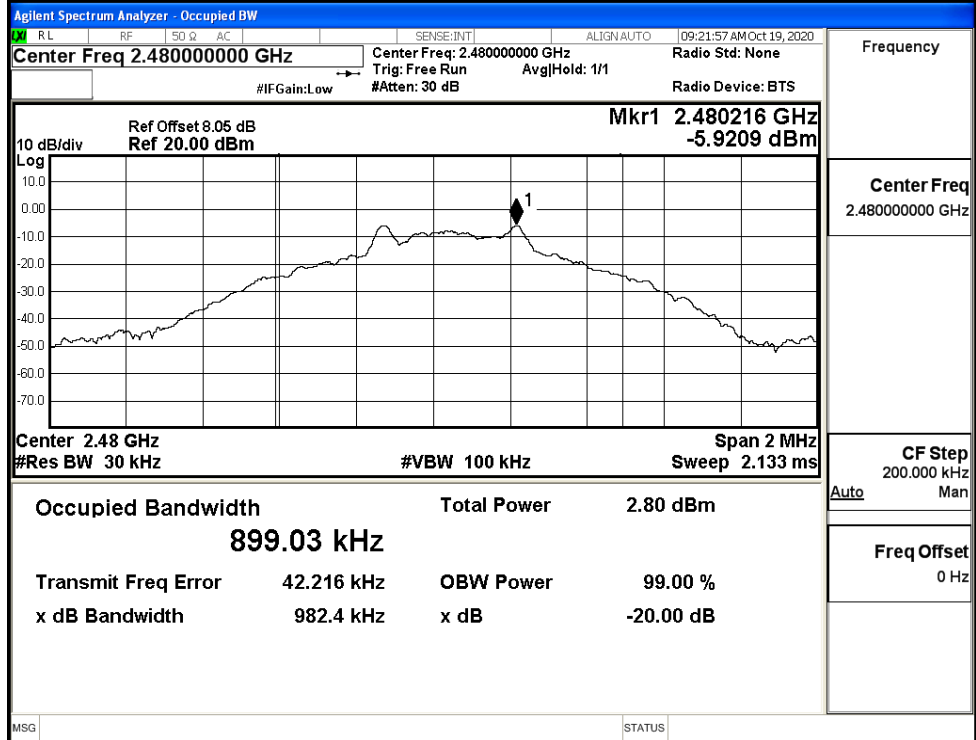
Frequency

Center Freq
2.441000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

GFSK/HCH



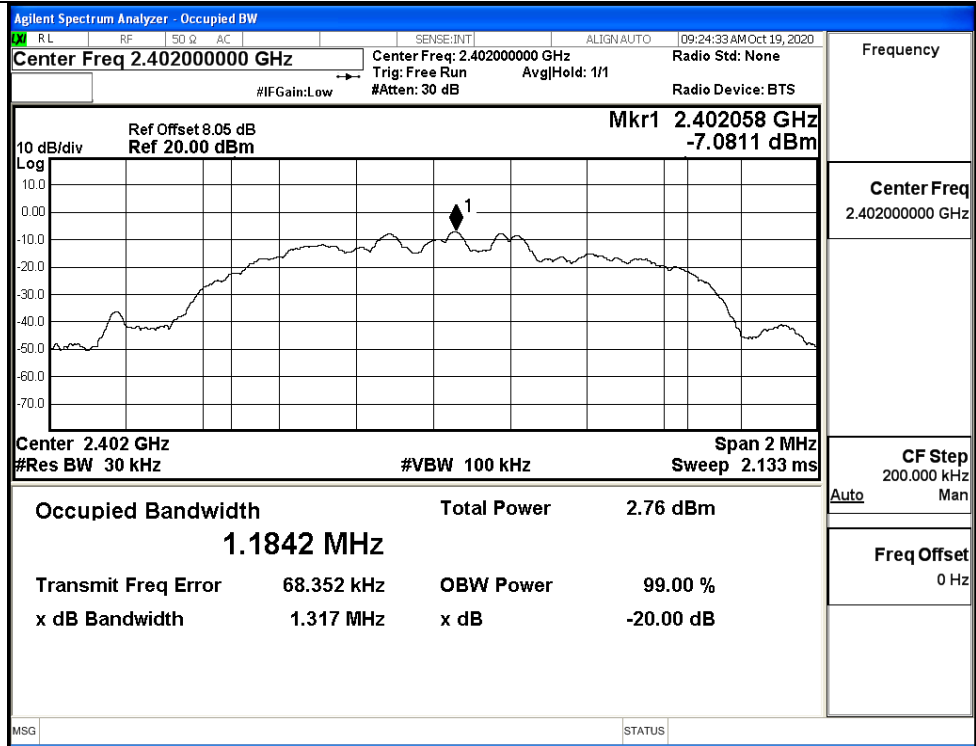
Frequency

Center Freq
2.480000000 GHz

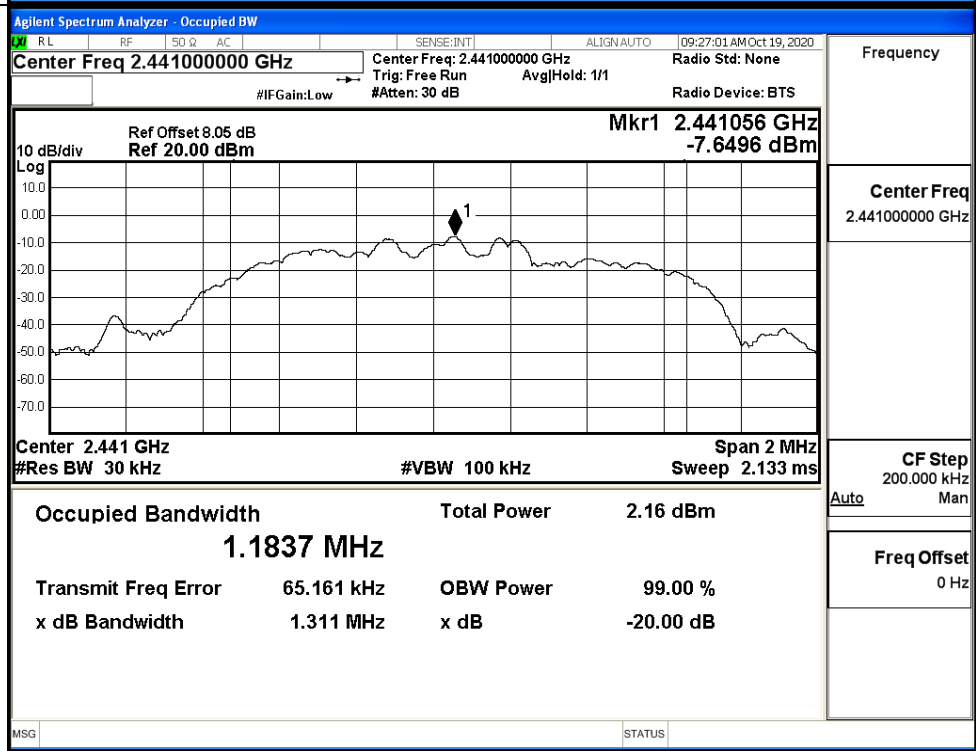
CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

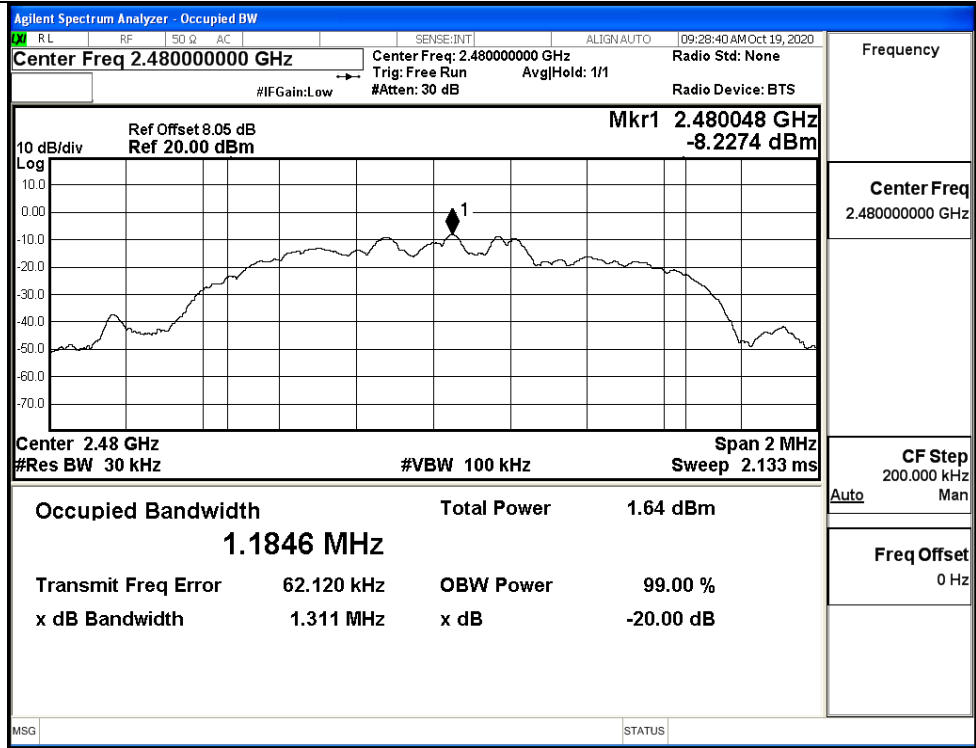
$\pi/4$ DQPSK/LCH



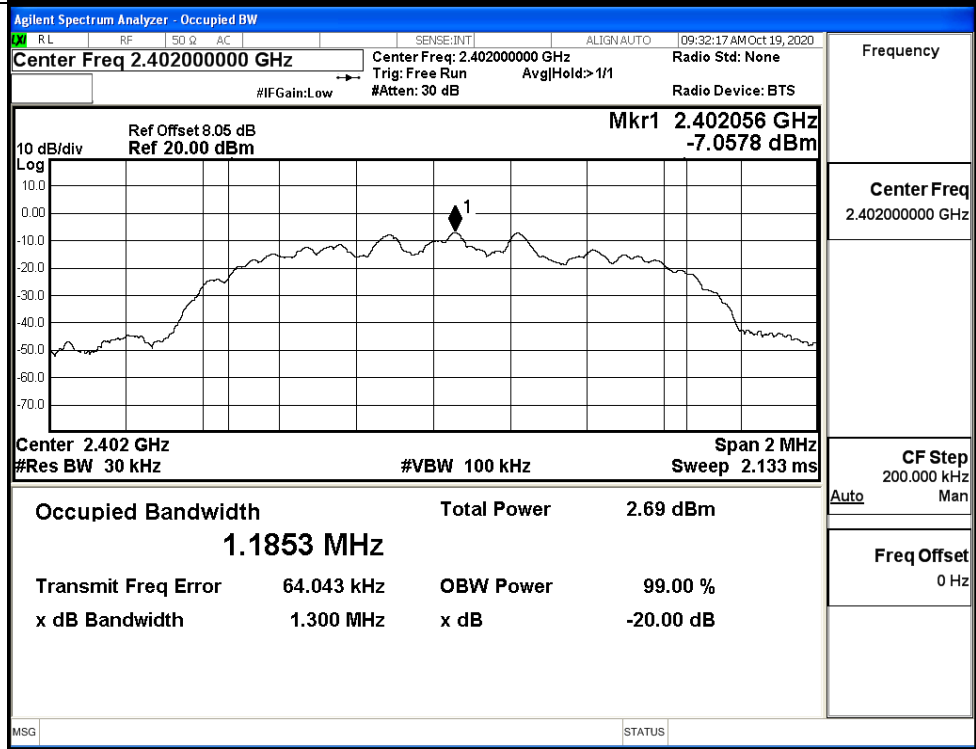
$\pi/4$ DQPSK/MCH



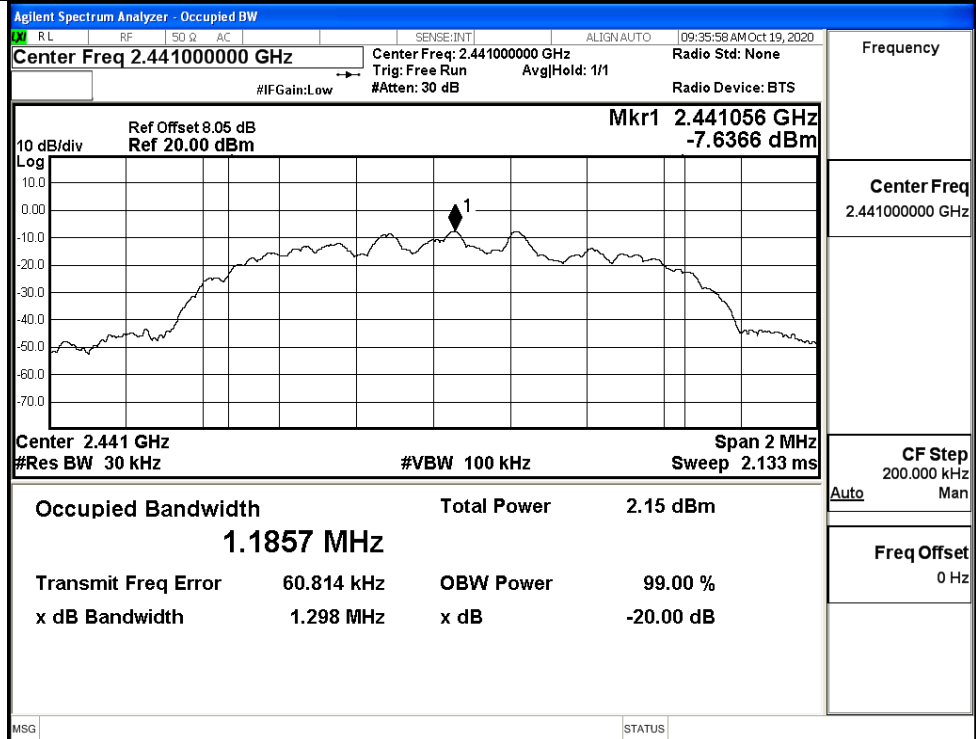
$\pi/4$ DQPSK/HCH



8DPSK/LCH

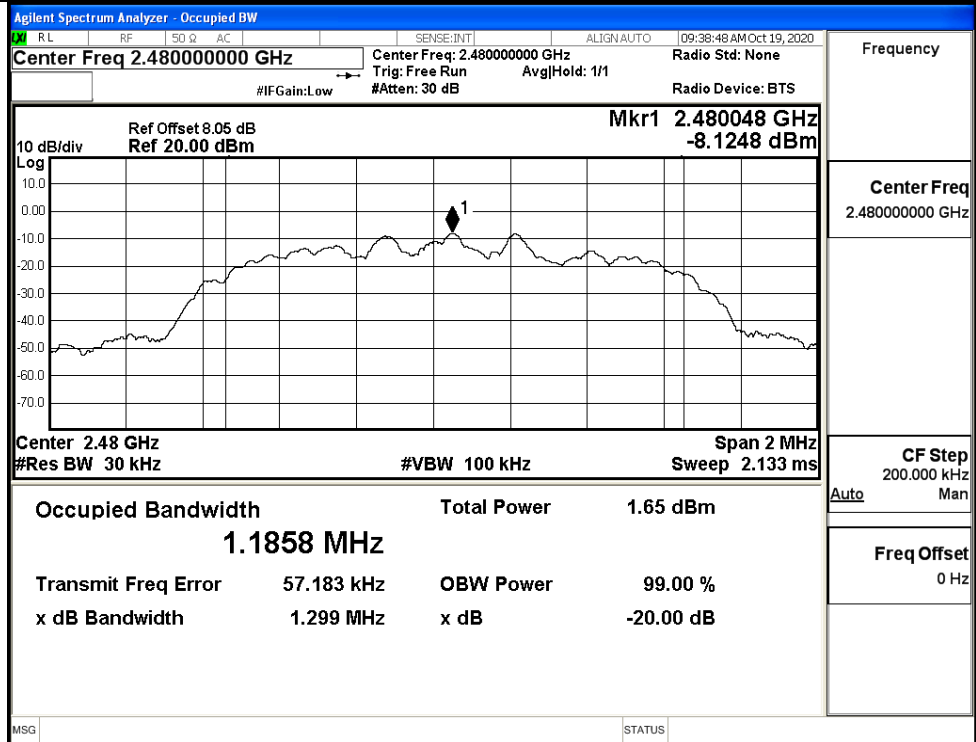


8DPSK/MCH



| | |
|-------------|-----------------|
| Frequency | 2.441000000 GHz |
| Center Freq | 2.441000000 GHz |
| CF Step | 200.000 kHz |
| Auto | Man |
| Freq Offset | 0 Hz |

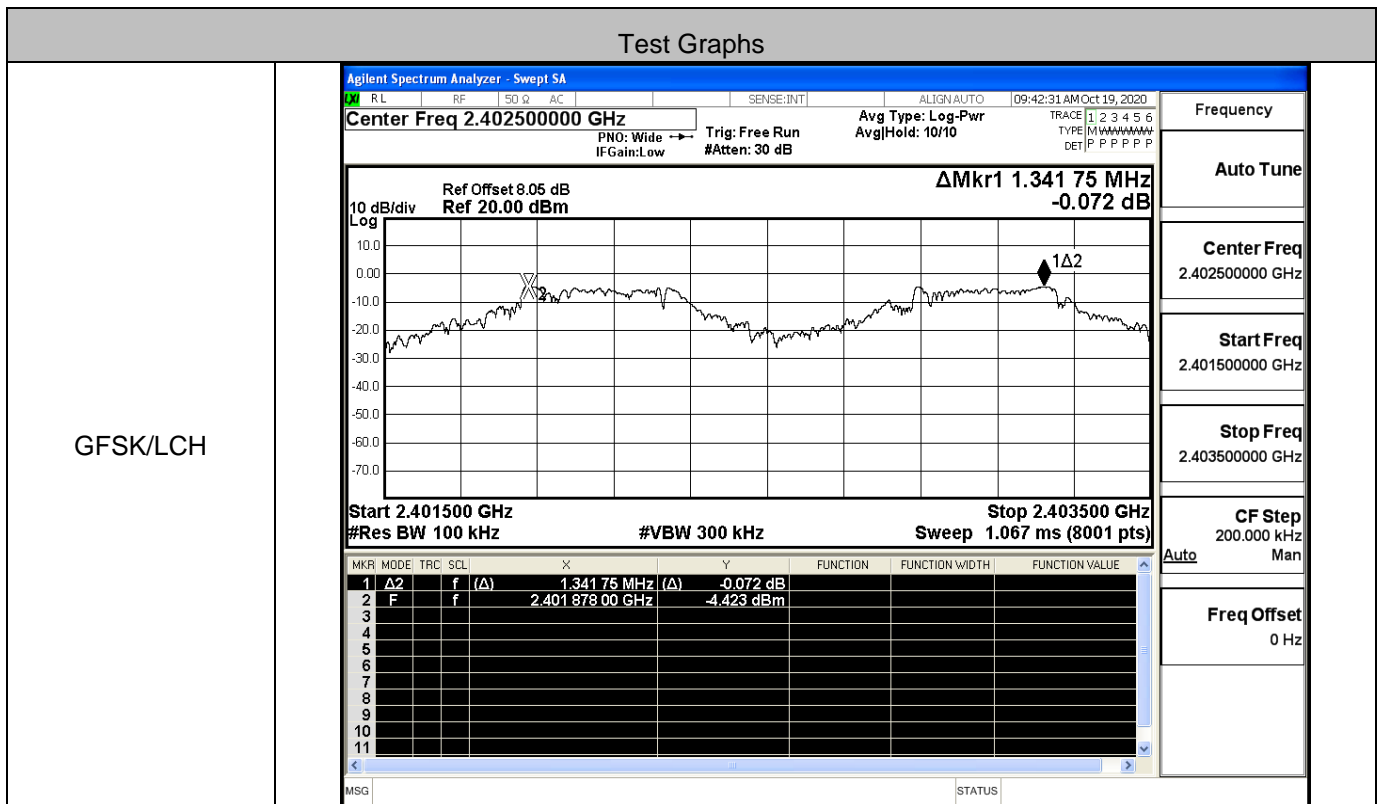
8DPSK/HCH



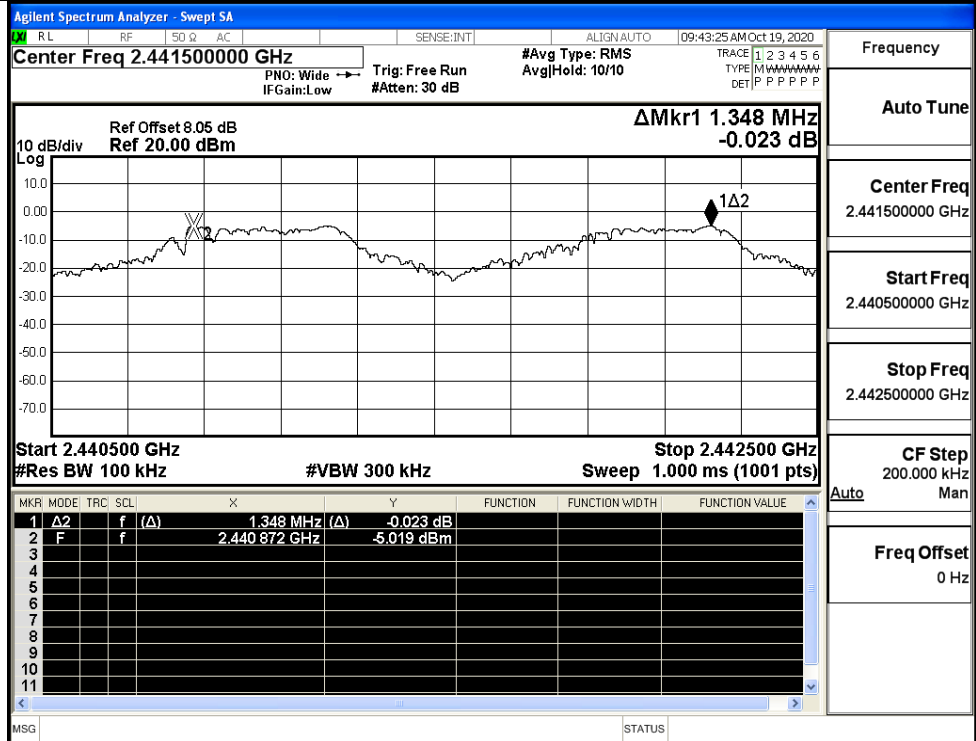
| | |
|-------------|-----------------|
| Frequency | 2.480000000 GHz |
| Center Freq | 2.480000000 GHz |
| CF Step | 200.000 kHz |
| Auto | Man |
| Freq Offset | 0 Hz |

A.3 Carrier Frequency Separation

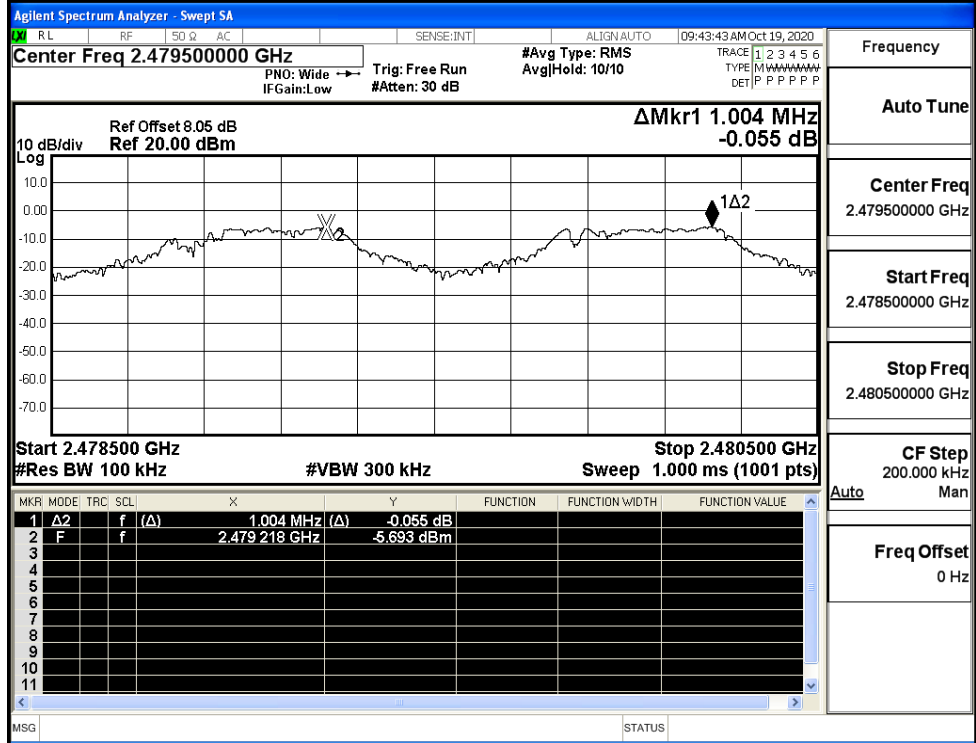
| Mode | Channel | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|----------|---------|------------------------------------|-------------|---------|
| GFSK | LCH | 1.342 | 0.660 | PASS |
| | MCH | 1.348 | 0.660 | PASS |
| | HCH | 1.004 | 0.660 | PASS |
| π/4DQPSK | LCH | 1.356 | 0.878 | PASS |
| | MCH | 1.300 | 0.878 | PASS |
| | HCH | 1.048 | 0.878 | PASS |
| 8DPSK | LCH | 1.110 | 0.867 | PASS |
| | MCH | 0.916 | 0.867 | PASS |
| | HCH | 1.084 | 0.867 | PASS |



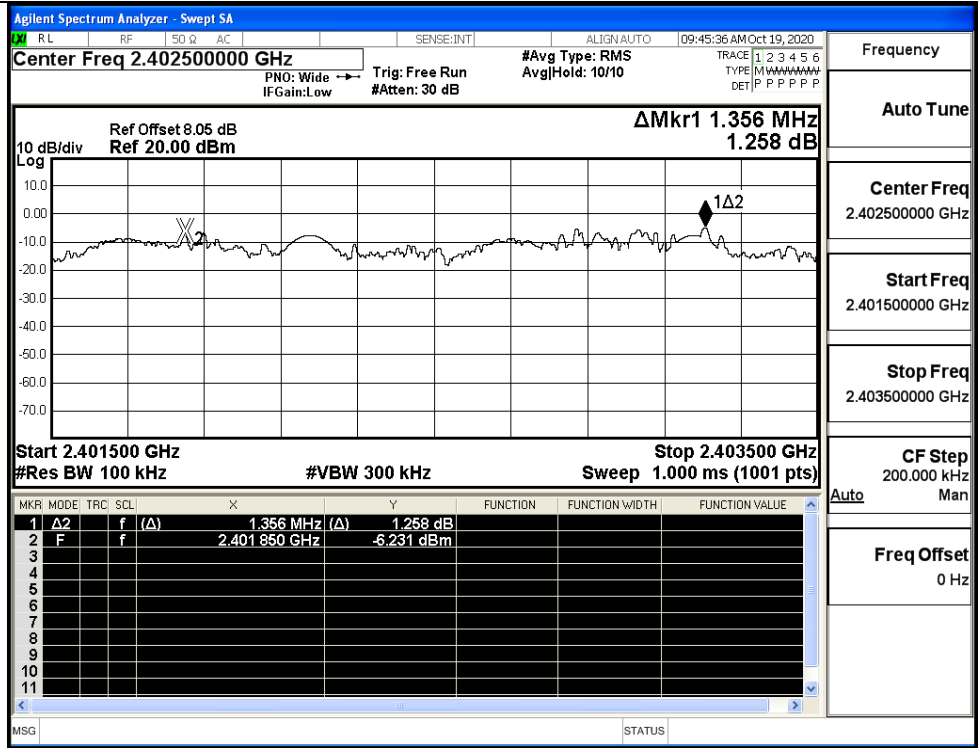
GFSK/MCH



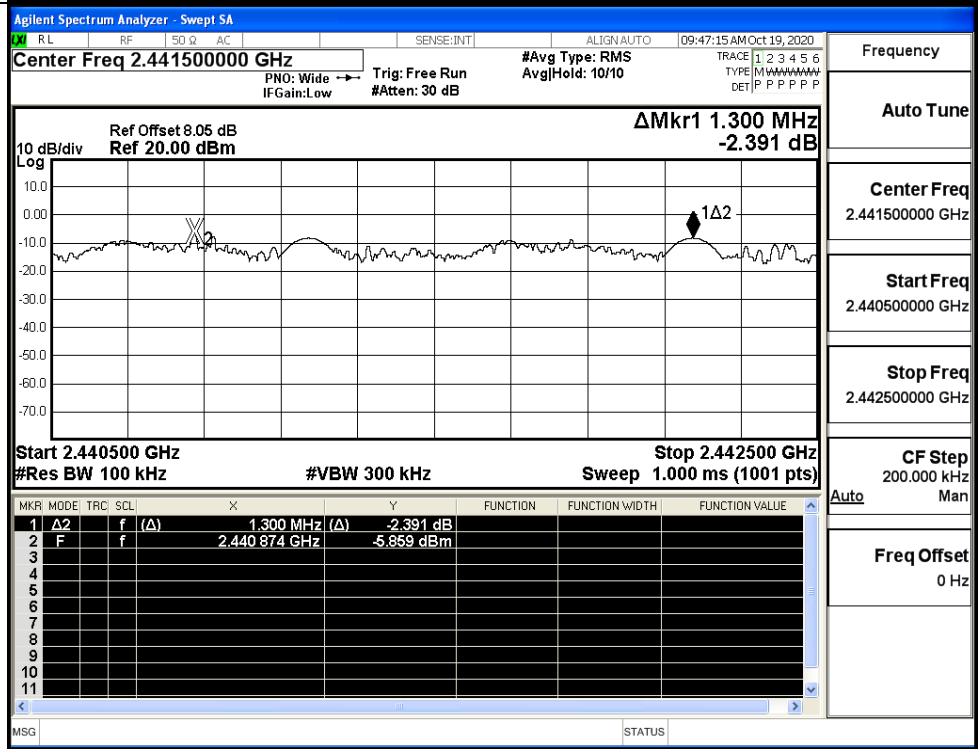
GFSK/HCH



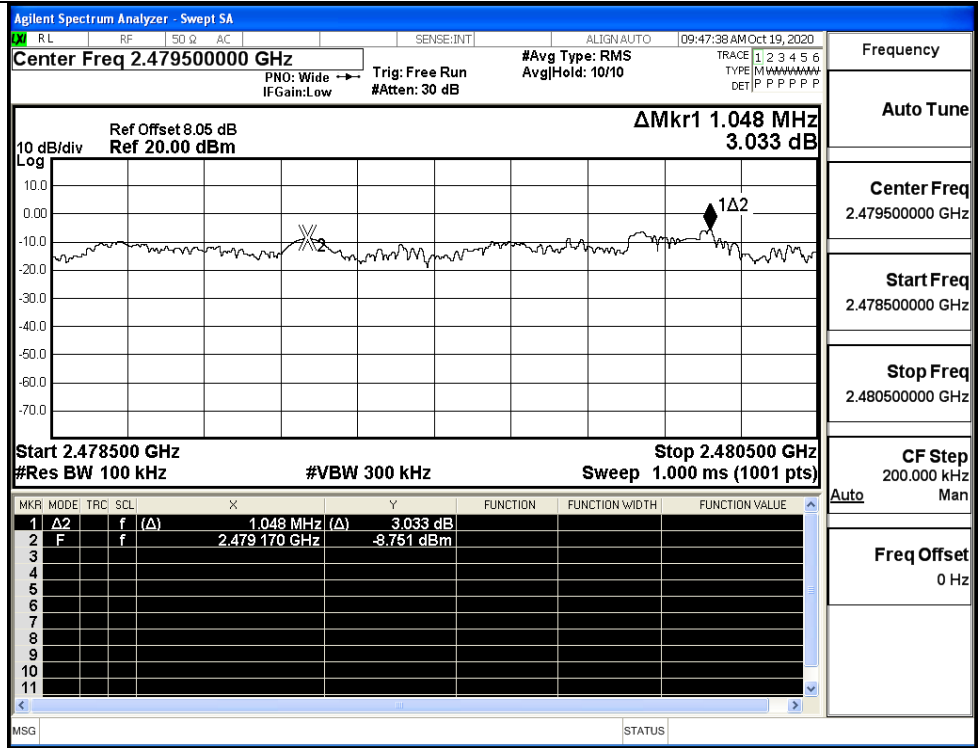
$\pi/4$ DQPSK/LCH



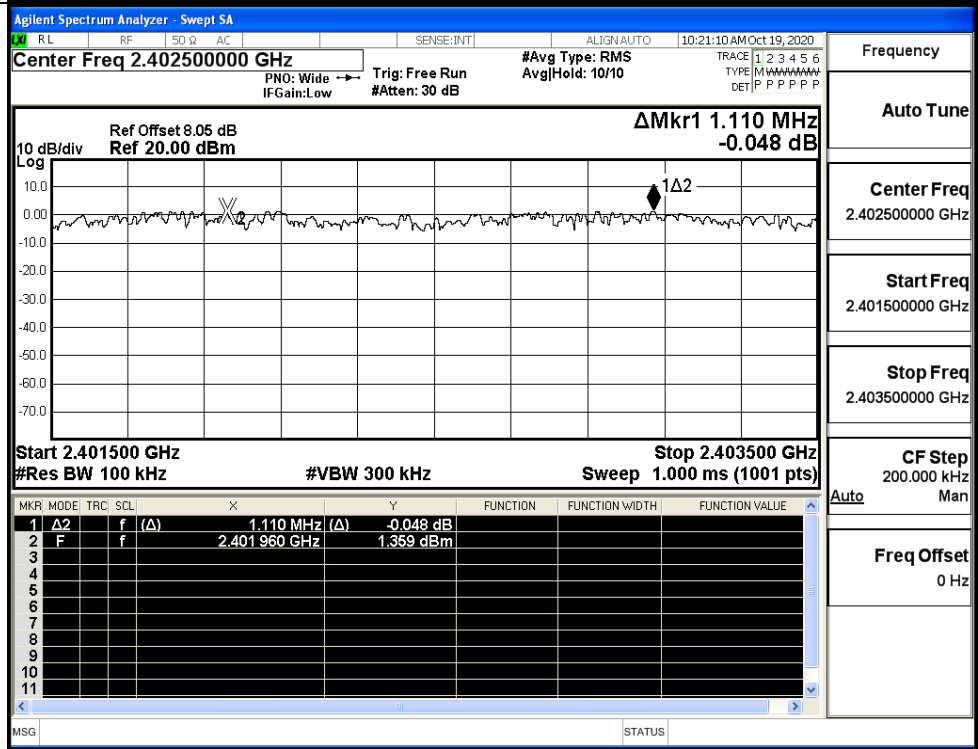
$\pi/4$ DQPSK/MCH



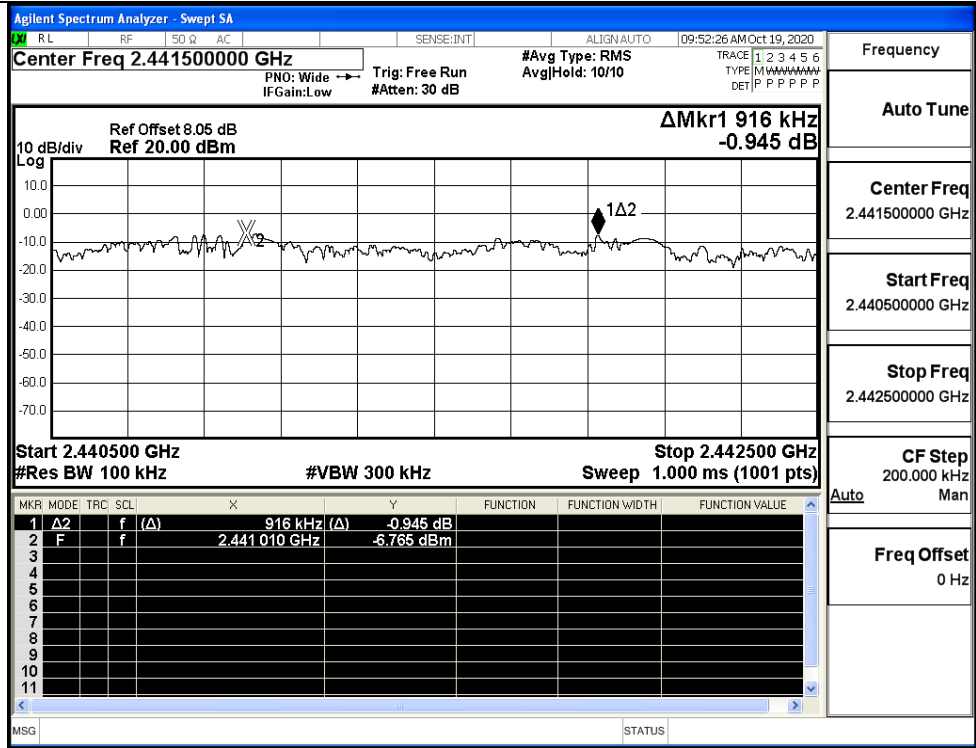
π/4DQPSK/HCH



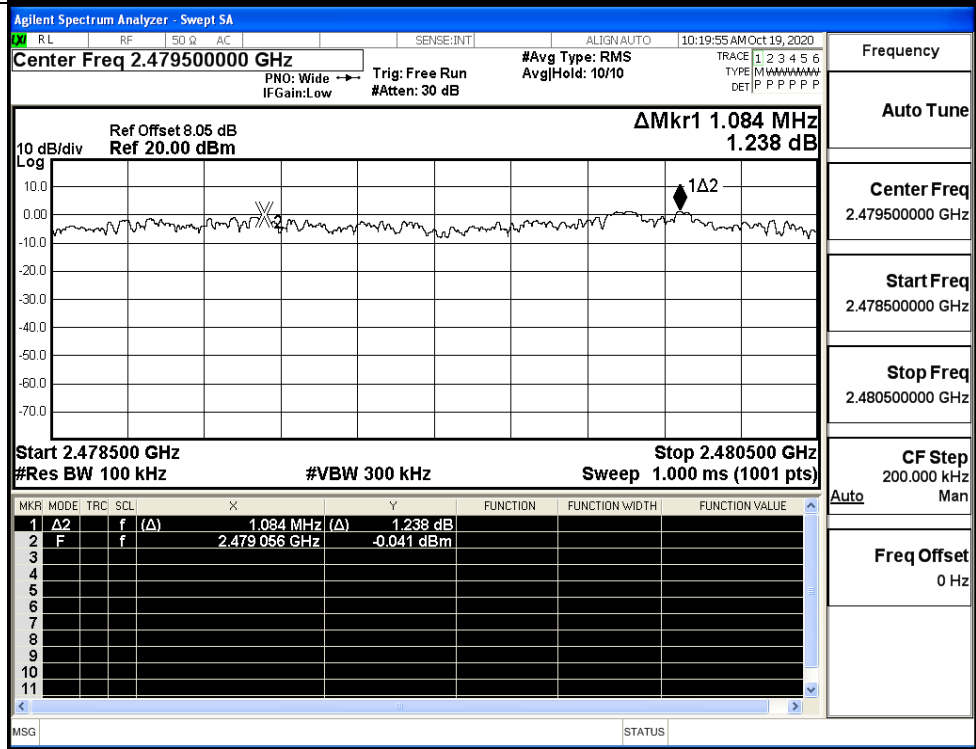
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



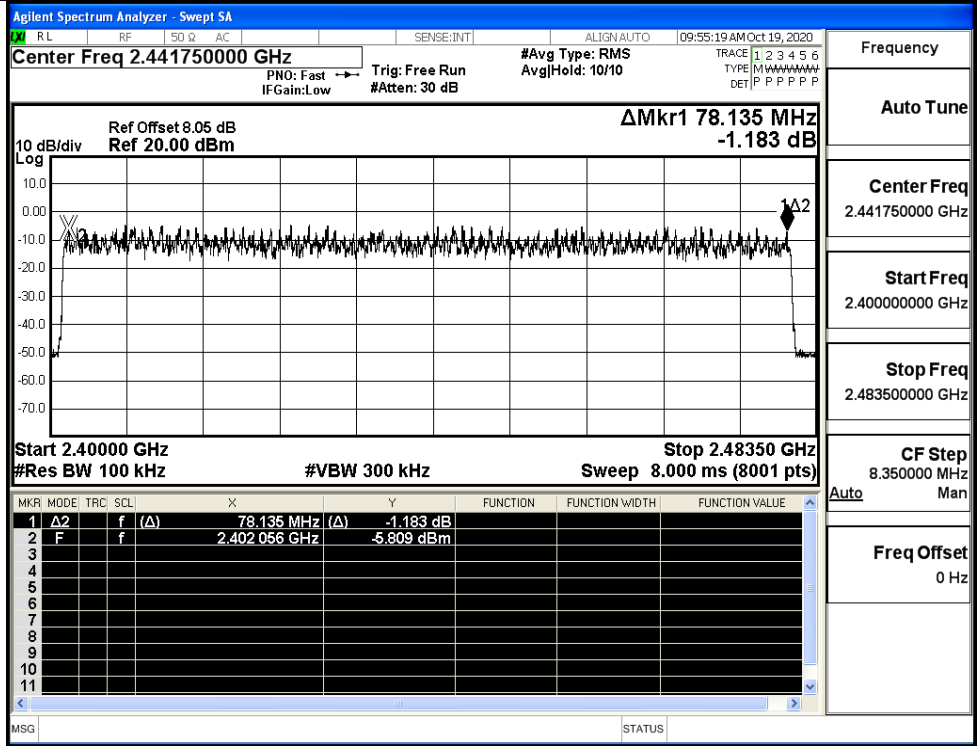
A.4 Hopping Channel Number

| Mode | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK | Hop | 79 | >=15 | PASS |
| $\pi/4$ DQPSK | Hop | 79 | >=15 | PASS |
| 8DPSK | Hop | 79 | >=15 | PASS |

Test Graphs

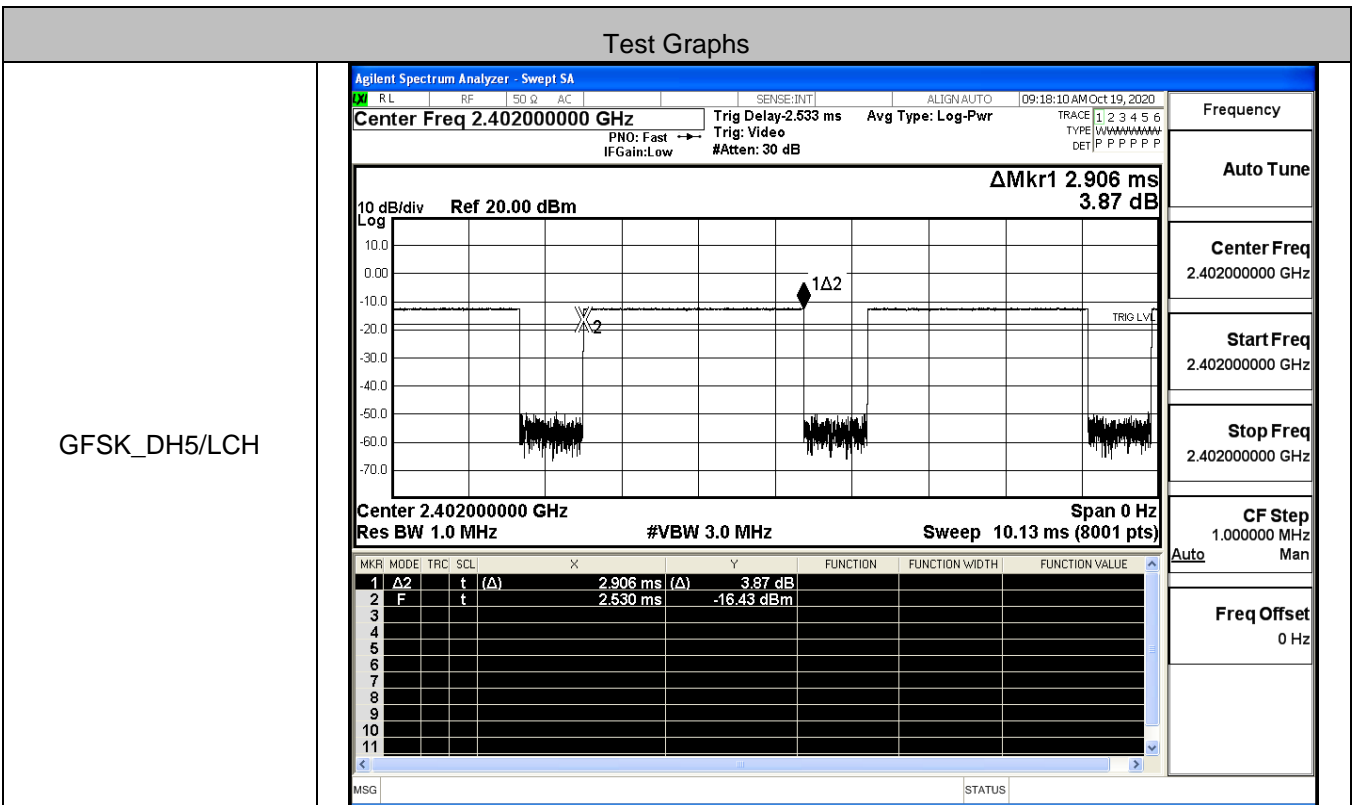
| <p>GFSK/Hop</p> | <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 77.999 MHz -0.968 dB</p> <p>Start 2.40000 GHz #Res BW 100 kHz</p> <p>Stop 2.48350 GHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Δ2</td> <td>f</td> <td>(Δ)</td> <td>77.999 MHz</td> <td>(Δ)</td> <td>-0.968 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402223 GHz</td> <td></td> <td>-4.512 dBm</td> <td></td> <td></td> </tr> </tbody> </table> | MKR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | Δ 2 | f | (Δ) | 77.999 MHz | (Δ) | -0.968 dB | | | 2 | F | f | | 2.402223 GHz | | -4.512 dBm | | | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441750000 GHz</p> <p>Start Freq 2.400000000 GHz</p> <p>Stop Freq 2.483500000 GHz</p> <p>CF Step 8.350000 MHz Man</p> <p>Freq Offset 0 Hz</p> |
|------------------------------------|--|-----|--------------|--------------|--------------|------------|----------------|----------------|----------------|----------------|---|------------|---|--------------|------------|--------------|-----------|--|--|---|---|---|--|--------------|--|------------|--|--|---|
| MKR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | |
| 1 | Δ 2 | f | (Δ) | 77.999 MHz | (Δ) | -0.968 dB | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | f | | 2.402223 GHz | | -4.512 dBm | | | | | | | | | | | | | | | | | | | | | | | |
| <p>$\pi/4$DQPSK/Hop</p> | <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 77.958 MHz -3.557 dB</p> <p>Start 2.40000 GHz #Res BW 100 kHz</p> <p>Stop 2.48350 GHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Δ2</td> <td>f</td> <td>(Δ)</td> <td>77.958 MHz</td> <td>(Δ)</td> <td>-3.557 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402213 GHz</td> <td></td> <td>-5.175 dBm</td> <td></td> <td></td> </tr> </tbody> </table> | MKR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | Δ 2 | f | (Δ) | 77.958 MHz | (Δ) | -3.557 dB | | | 2 | F | f | | 2.402213 GHz | | -5.175 dBm | | | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441750000 GHz</p> <p>Start Freq 2.400000000 GHz</p> <p>Stop Freq 2.483500000 GHz</p> <p>CF Step 8.350000 MHz Man</p> <p>Freq Offset 0 Hz</p> |
| MKR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | |
| 1 | Δ 2 | f | (Δ) | 77.958 MHz | (Δ) | -3.557 dB | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | f | | 2.402213 GHz | | -5.175 dBm | | | | | | | | | | | | | | | | | | | | | | | |

8DPSK/Hop

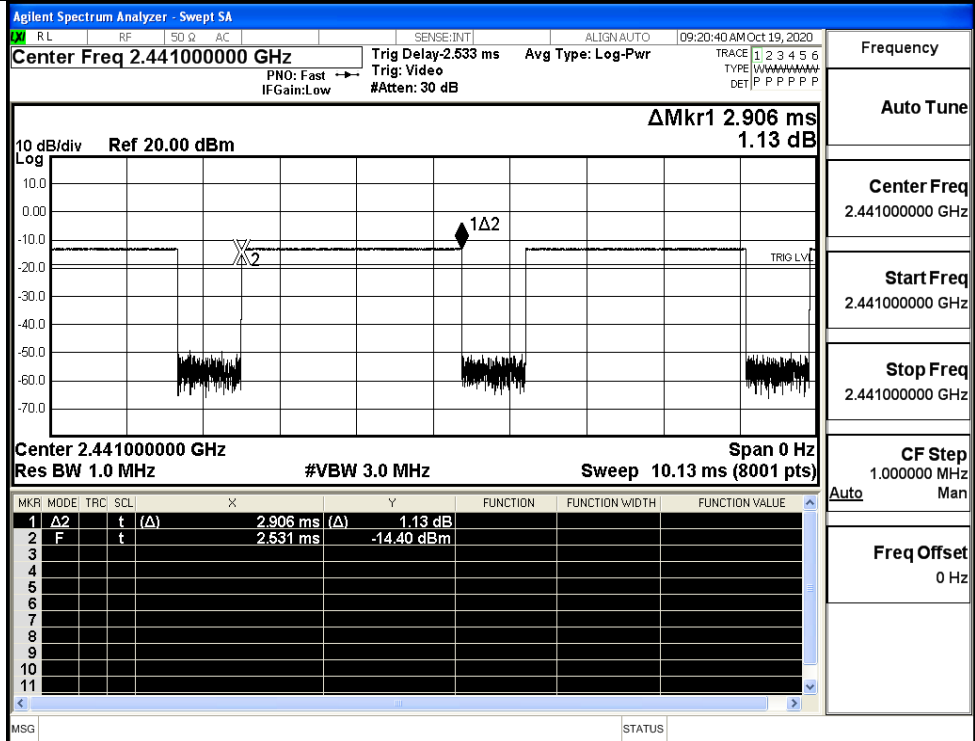


A.5 Dwell Time

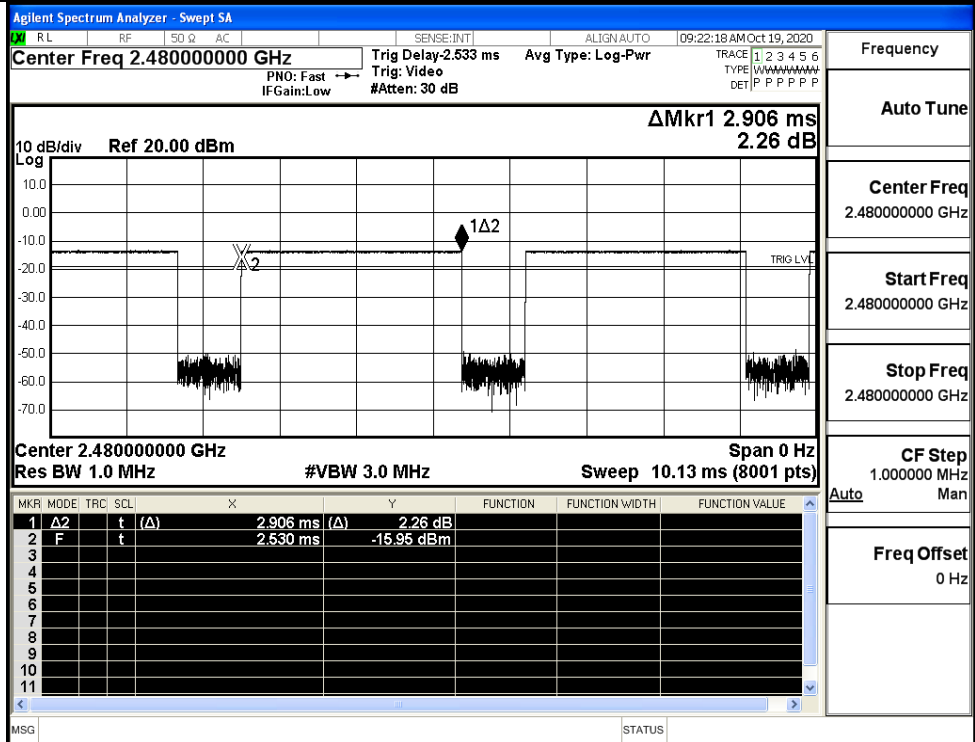
| Mode | Packet | Channel | Burst Width [ms/hop/ch] | Total Hops[hop*ch] | Dwell Time[s] | Limit [s] | Verdict |
|----------|--------|---------|-------------------------|--------------------|---------------|-----------|---------|
| GFSK | DH5 | LCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |
| | DH5 | MCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |
| | DH5 | HCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |
| π/4DQPSK | 2DH5 | LCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |
| | 2DH5 | MCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |
| | 2DH5 | HCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |
| 8DPSK | 3DH5 | LCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |
| | 3DH5 | MCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |
| | 3DH5 | HCH | 2.91 | 106.7 | 0.31 | 0.4 | PASS |



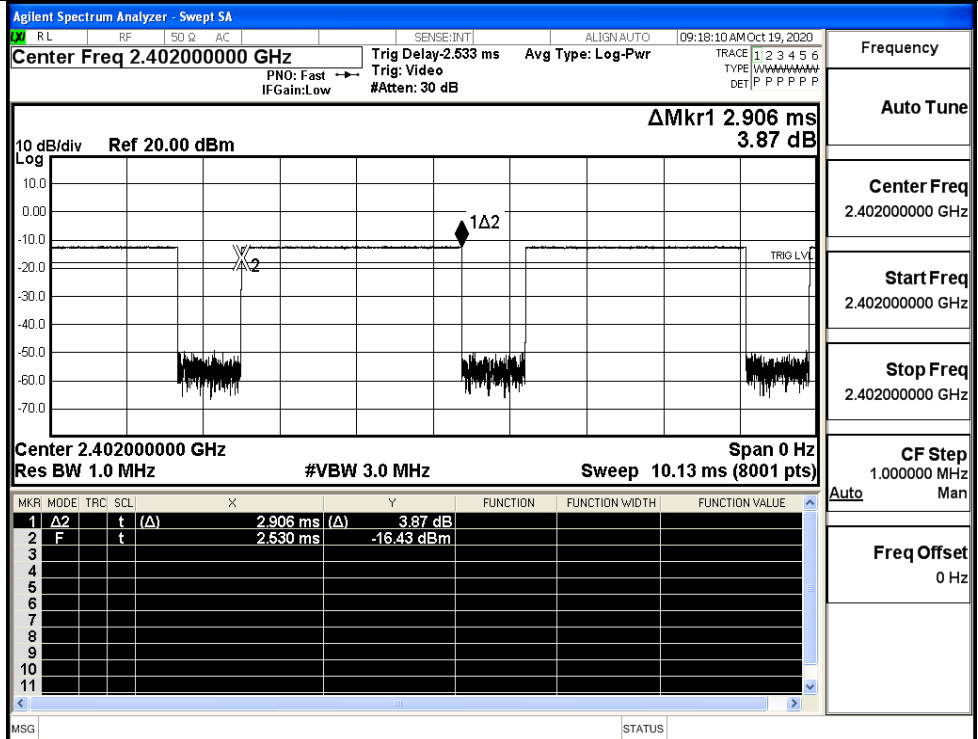
GFSK_DH5/MCH



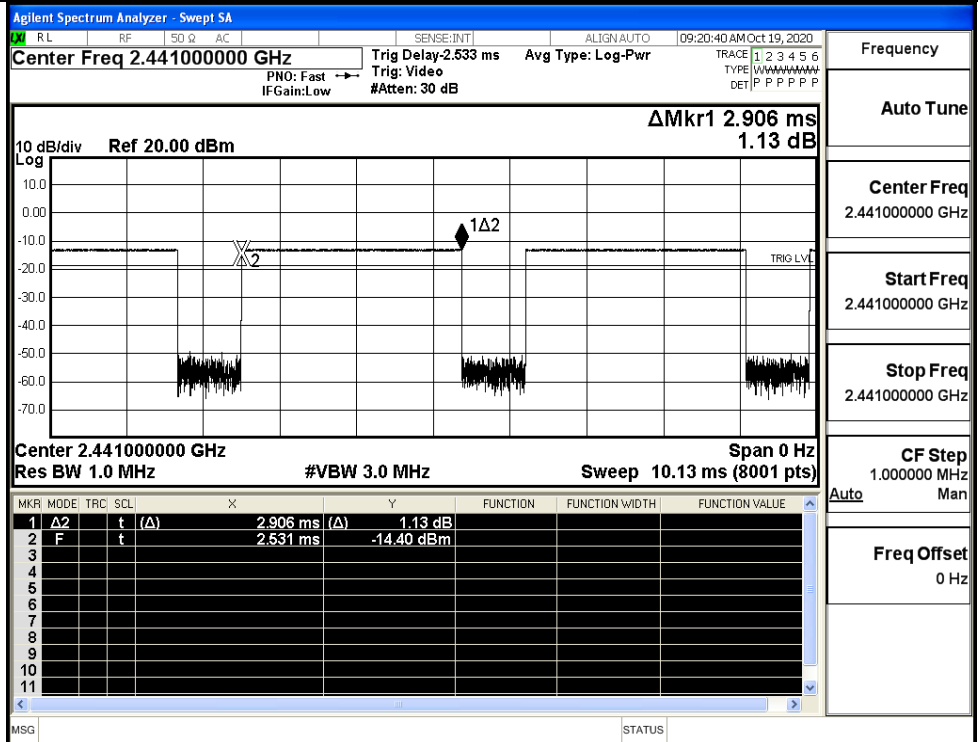
GFSK_DH5/HCH



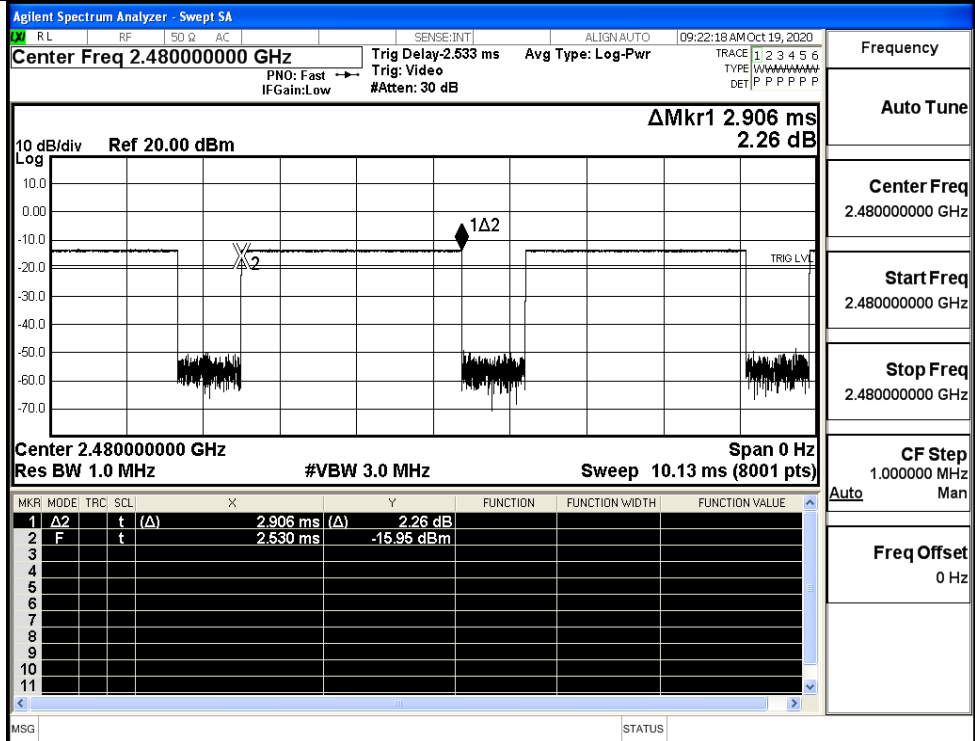
$\pi/4$ DQPSK
_2DH5/LCH



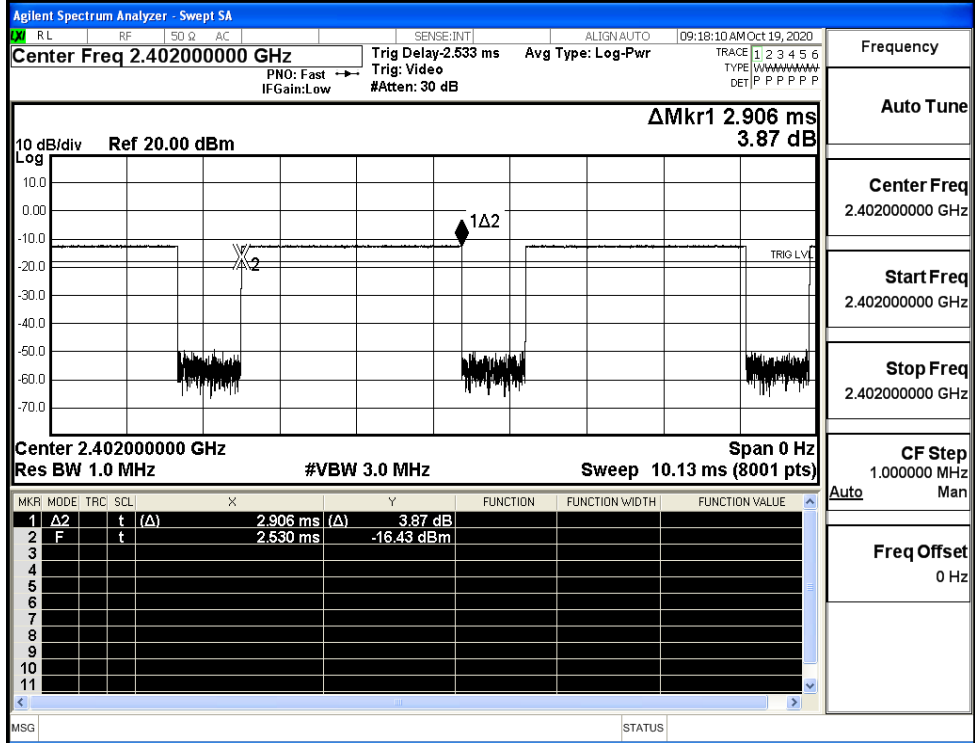
$\pi/4$ DQPSK
_2DH5/MCH



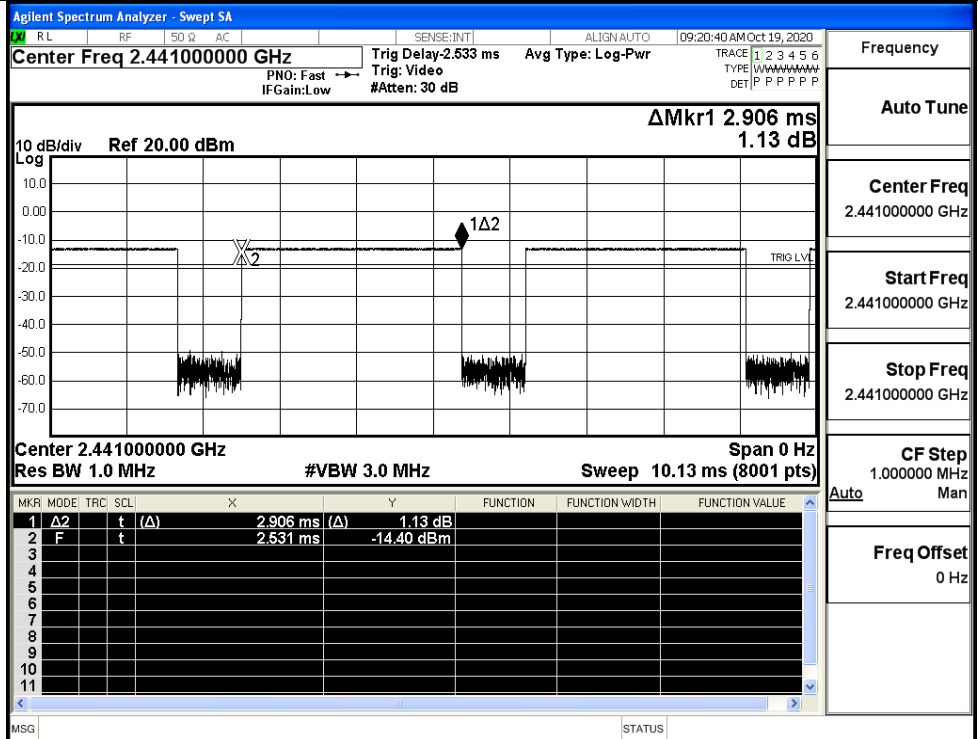
$\pi/4$ DQPSK
_2DH5/HCH



8DPSK_3DH5/LCH

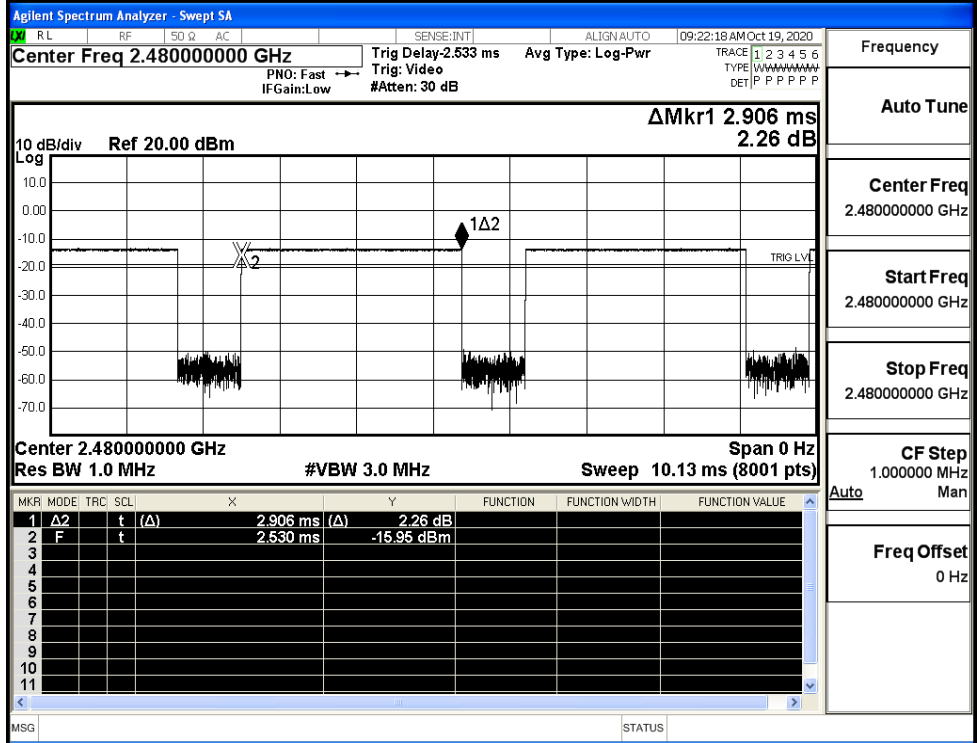


8DPSK_3DH5/MCH



| | |
|-------------|-----------------|
| Frequency | 2.441000000 GHz |
| Auto Tune | |
| Center Freq | 2.441000000 GHz |
| Start Freq | 2.441000000 GHz |
| Stop Freq | 2.441000000 GHz |
| CF Step | 1.000000 MHz |
| Auto | Man |
| Freq Offset | 0 Hz |

8DPSK_3DH5/HCH

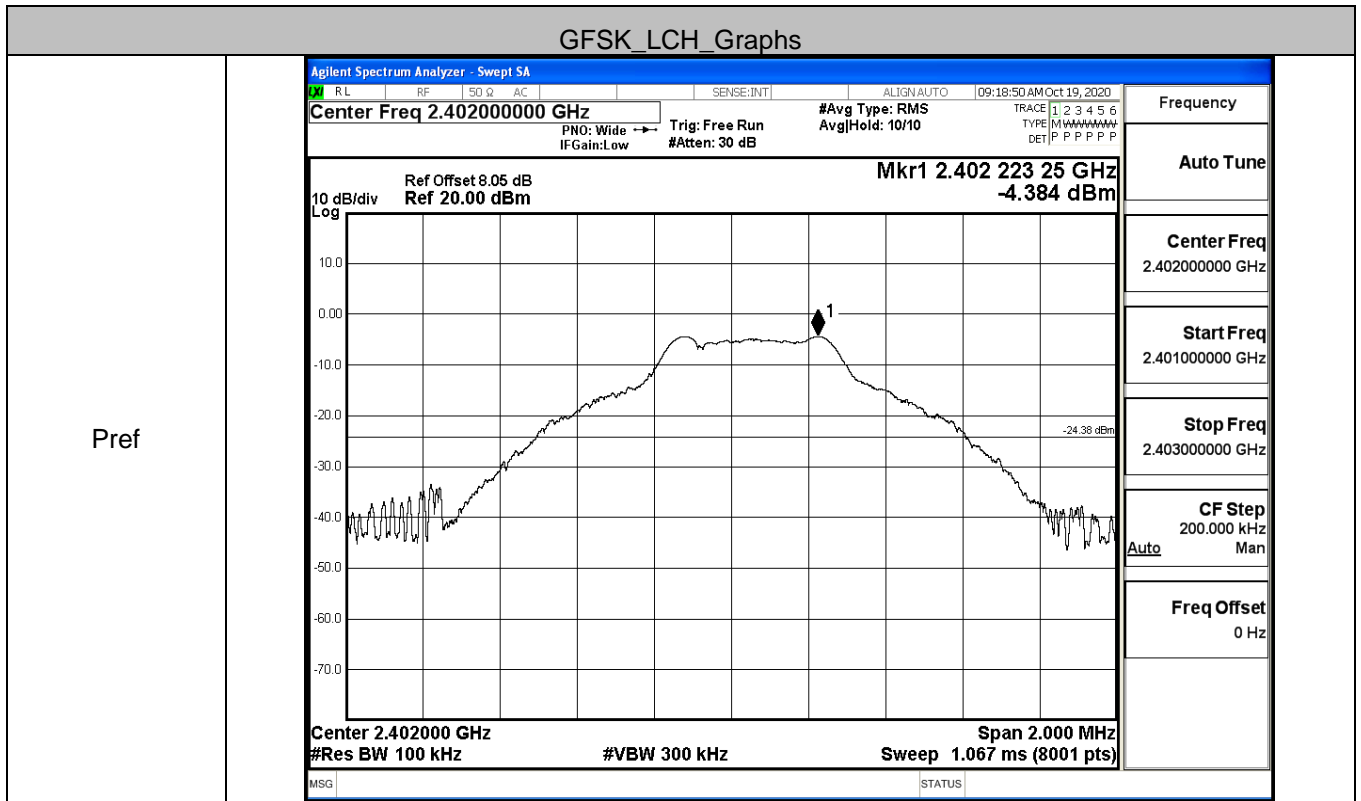


| | |
|-------------|-----------------|
| Frequency | 2.480000000 GHz |
| Auto Tune | |
| Center Freq | 2.480000000 GHz |
| Start Freq | 2.480000000 GHz |
| Stop Freq | 2.480000000 GHz |
| CF Step | 1.000000 MHz |
| Auto | Man |
| Freq Offset | 0 Hz |

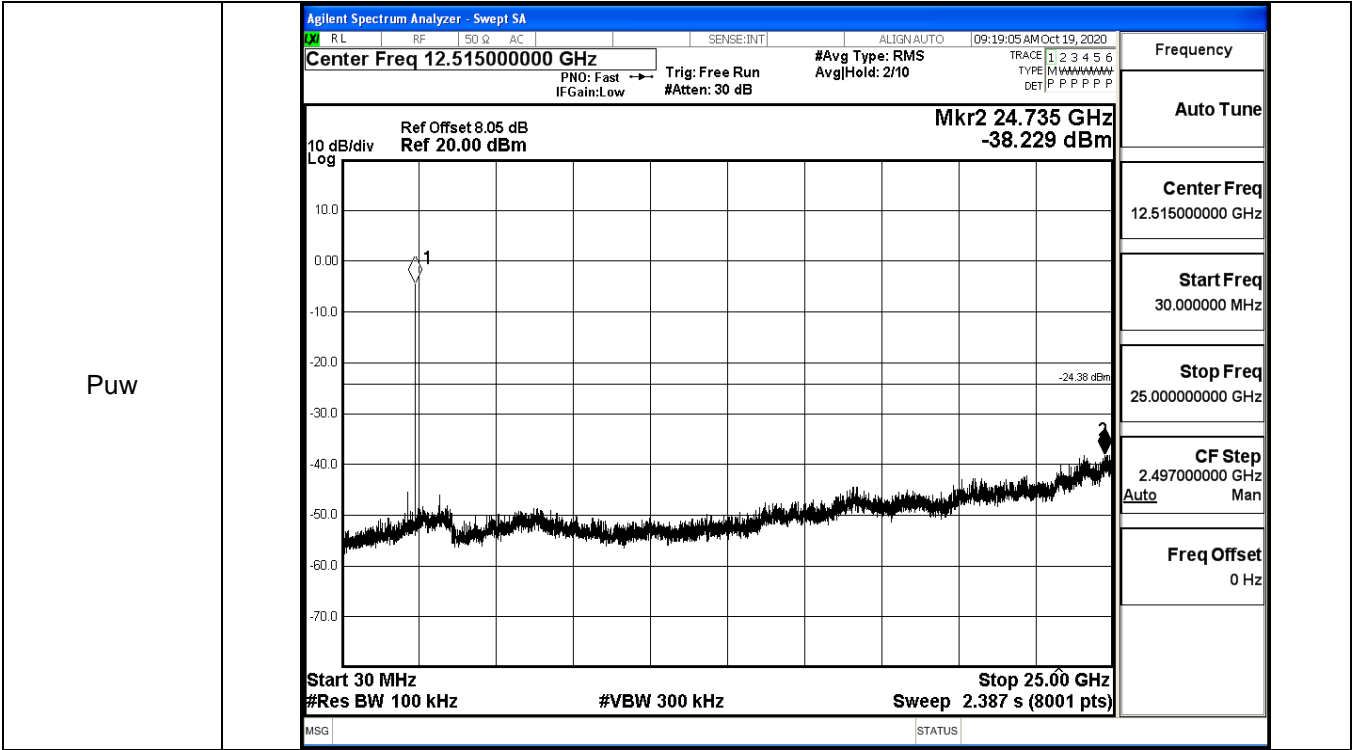
A.6 RF Conducted Spurious Emissions

| Mode | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK | LCH | -4.384 | -38.229 | -24.384 | PASS |
| | MCH | -5.045 | -38.416 | -25.045 | PASS |
| | HCH | -5.556 | -38.364 | -25.556 | PASS |
| π /4DQPSK | LCH | -4.541 | -37.871 | -24.541 | PASS |
| | MCH | -5.133 | -38.287 | -25.133 | PASS |
| | HCH | -5.744 | -37.550 | -25.744 | PASS |
| 8DPSK | LCH | -4.582 | -37.625 | -24.582 | PASS |
| | MCH | -5.027 | -37.142 | -25.027 | PASS |
| | HCH | -5.565 | -37.245 | -25.565 | PASS |

GFSK_LCH_Graphs

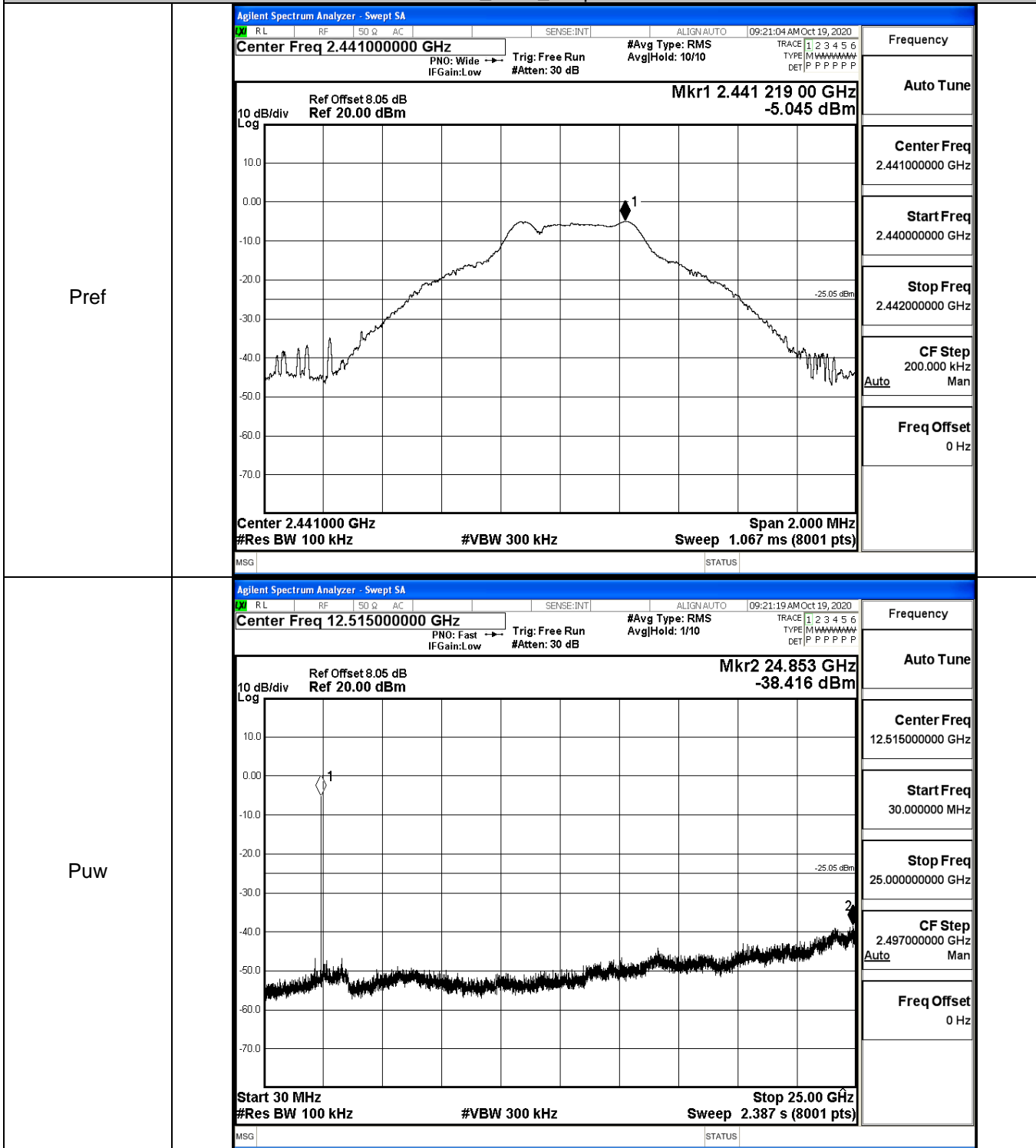


Pref



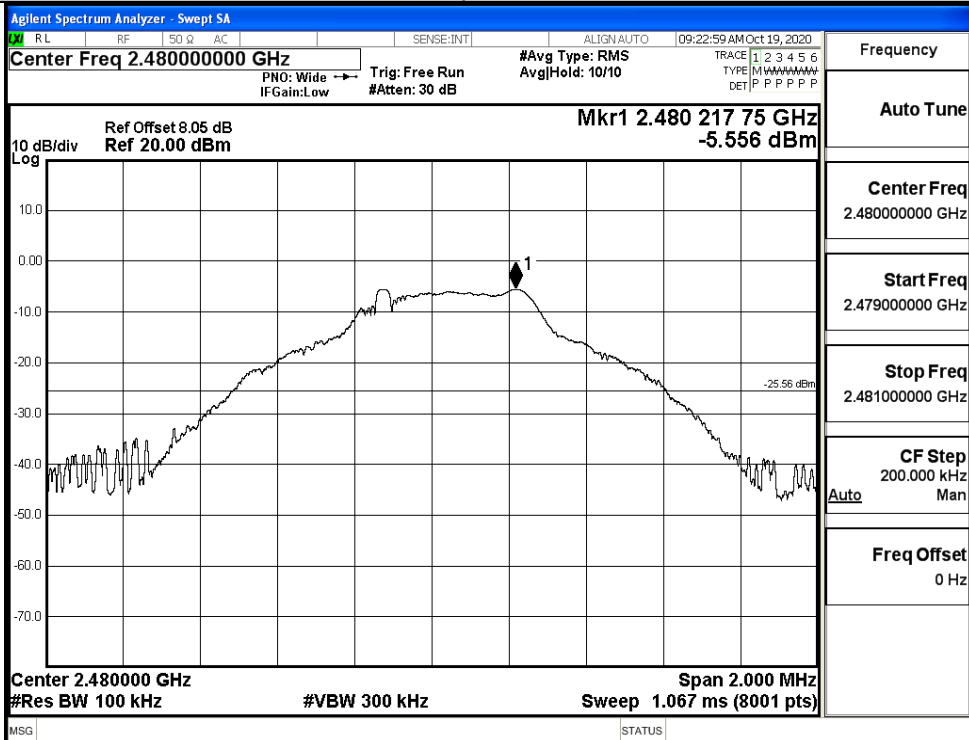
Puw

GFSK_MCH_Graphs

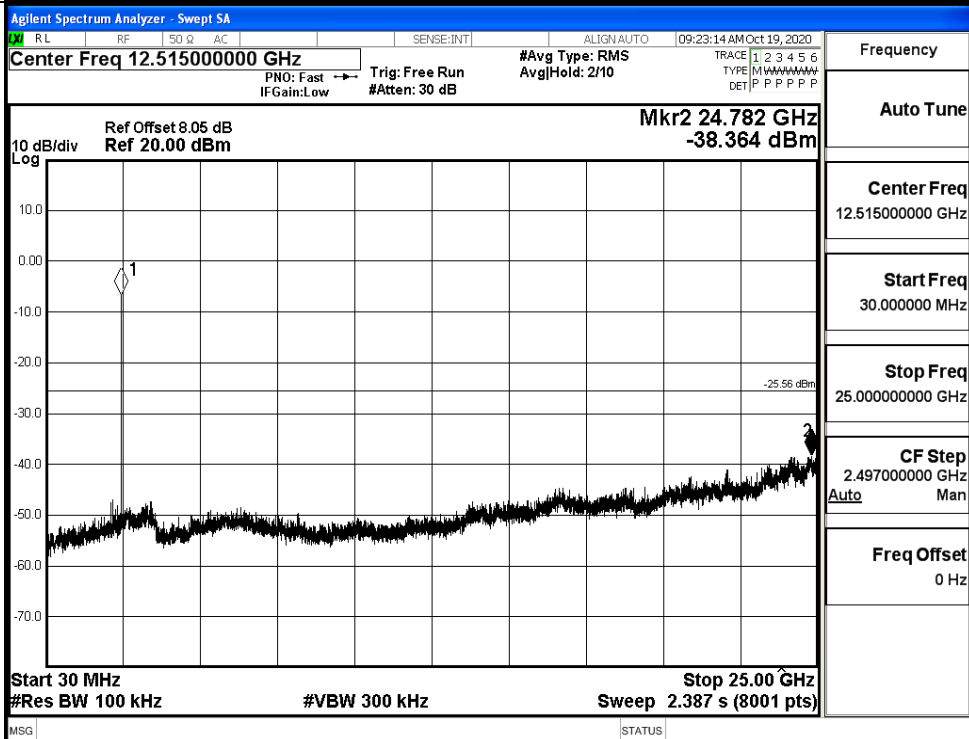


GFSK_HCH_Graphs

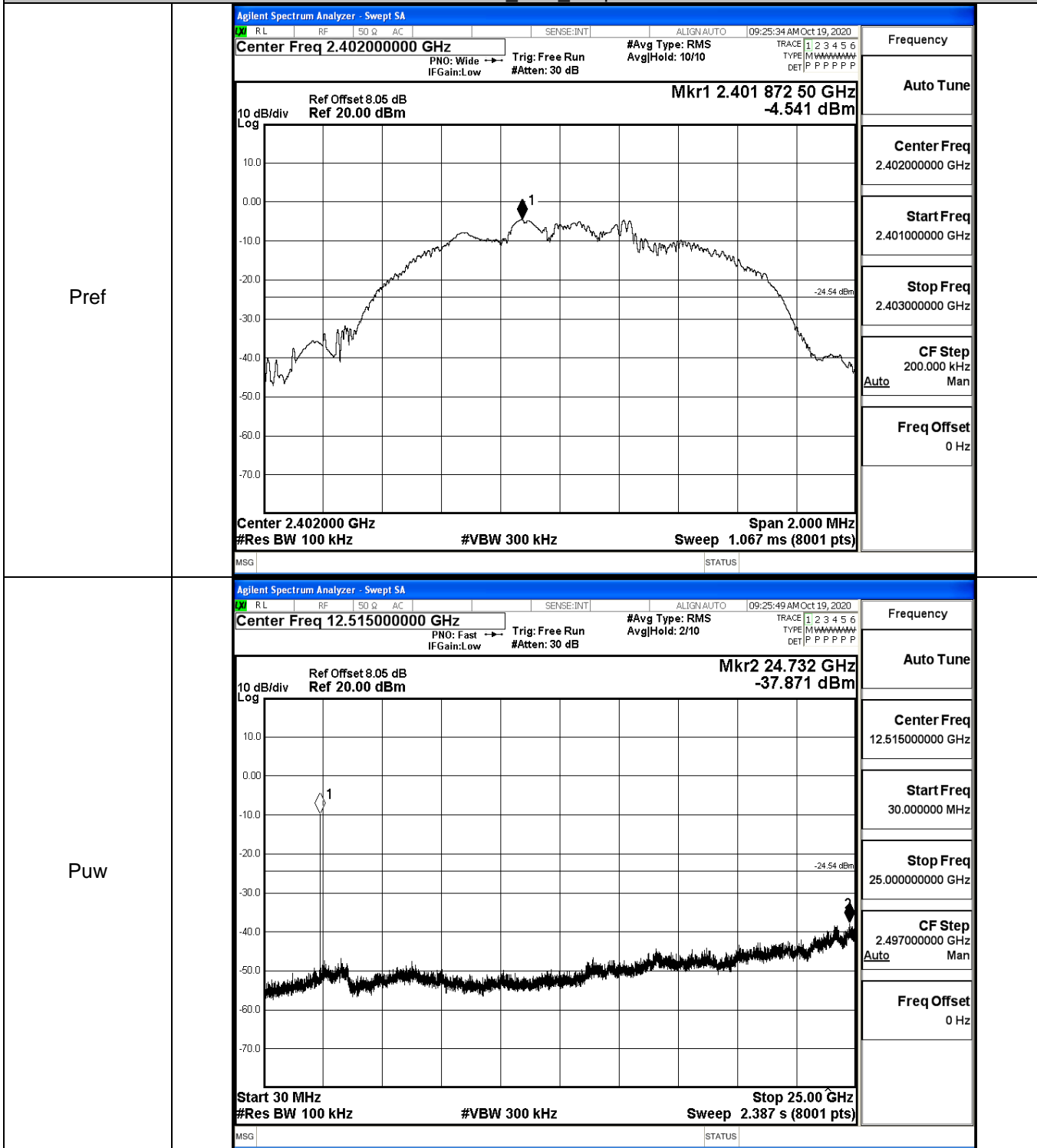
Pref



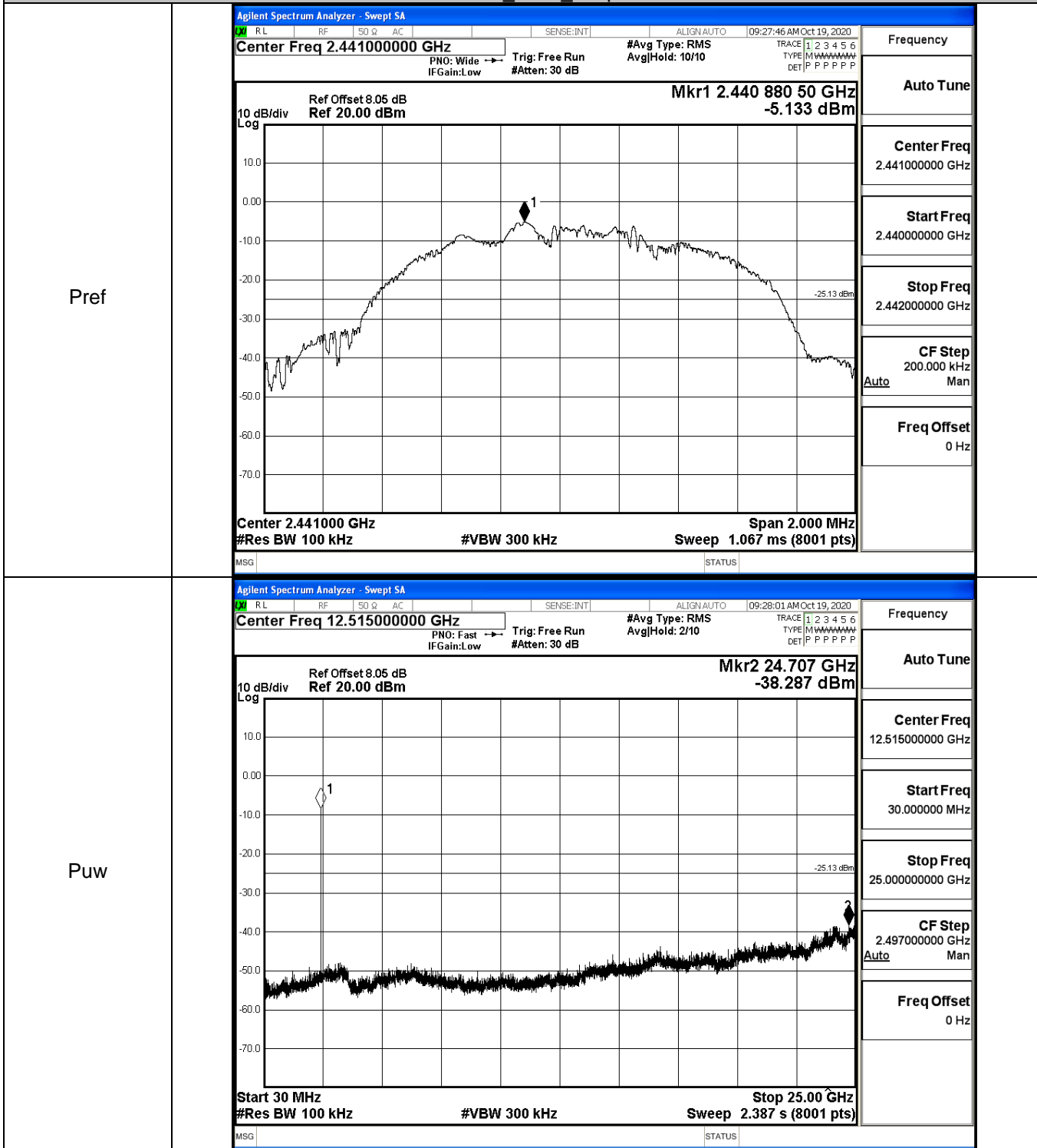
Puw



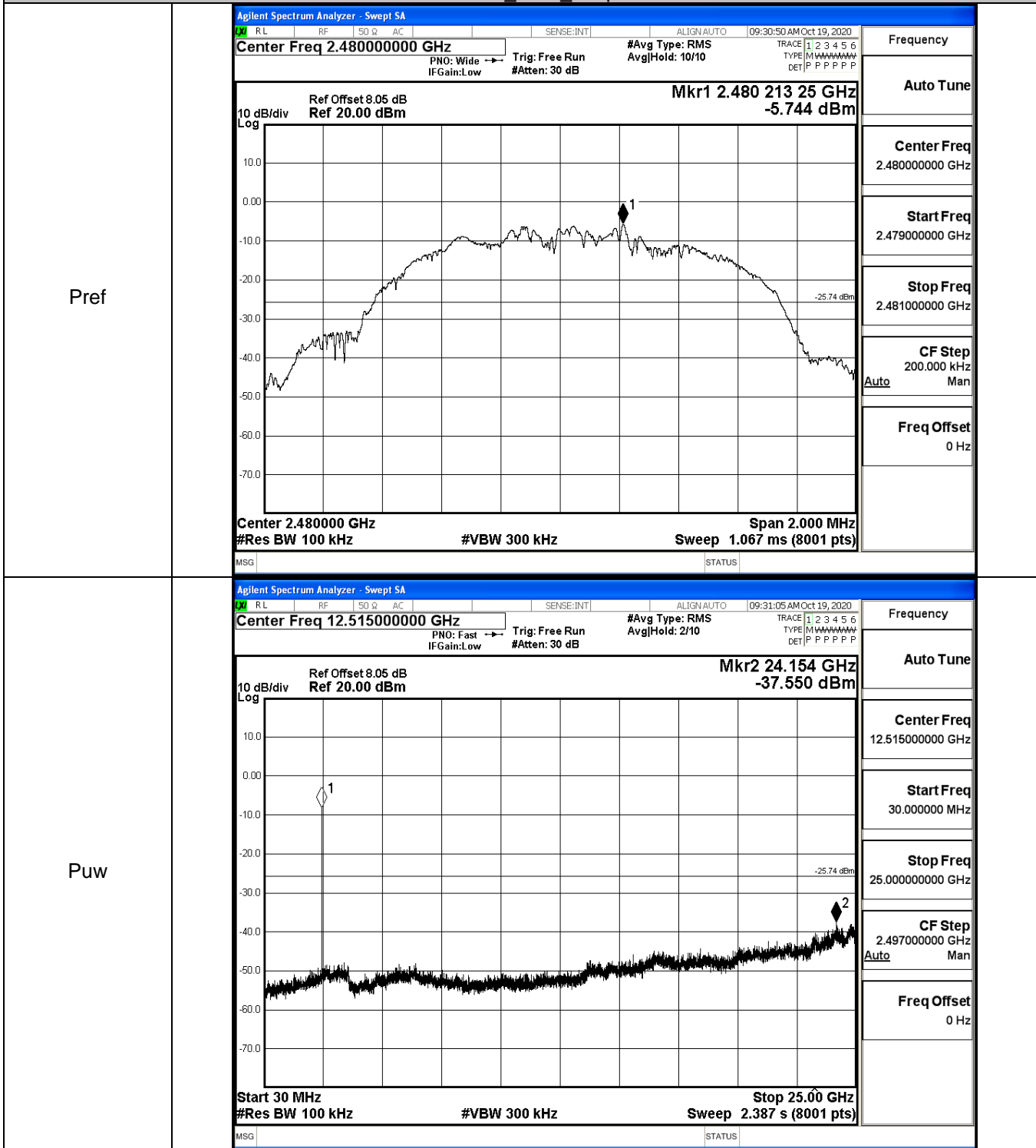
$\pi/4$ DQPSK_LCH_Graphs



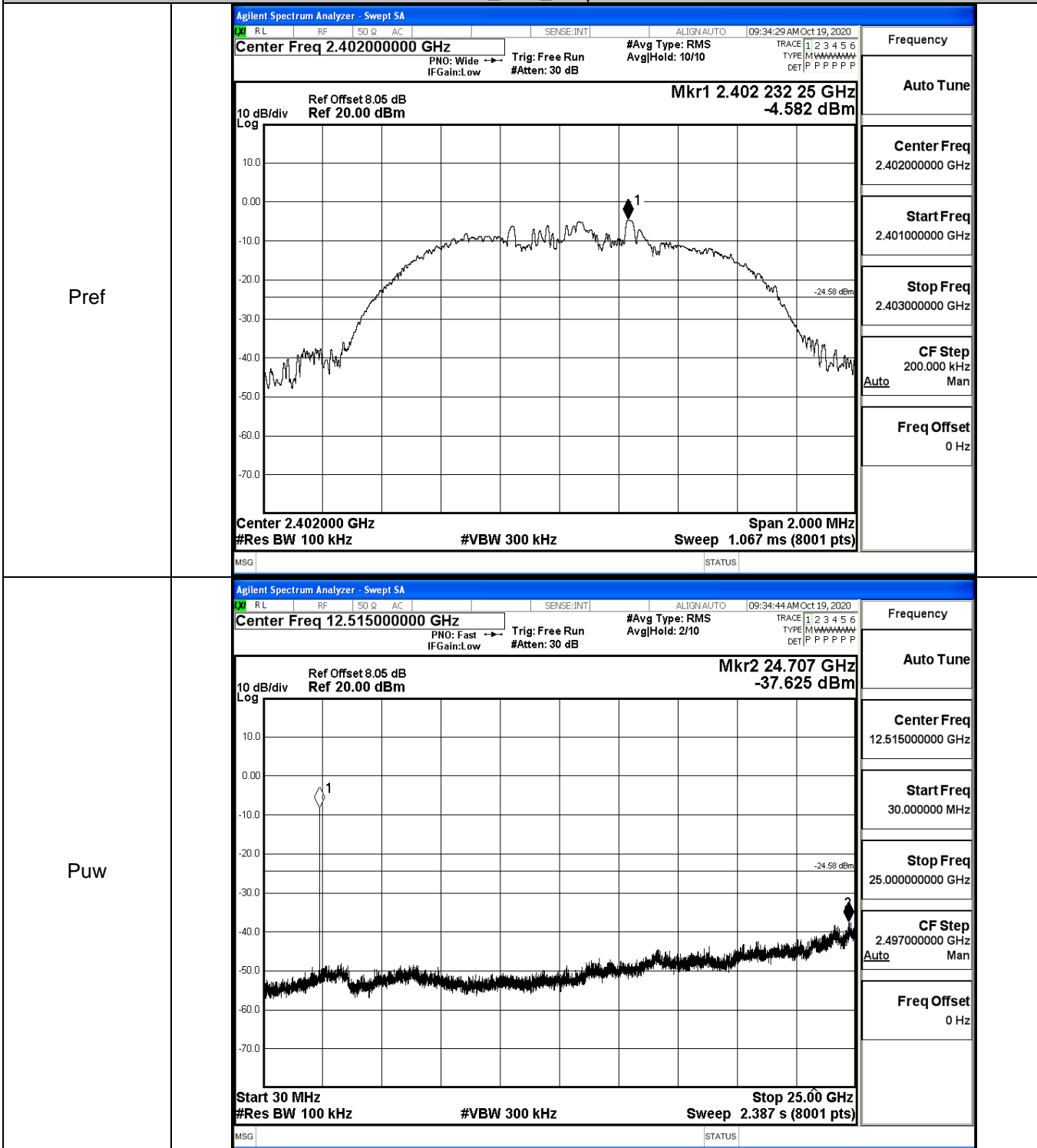
$\pi/4$ DQPSK_MCH_Graphs



$\pi/4$ DQPSK_HCH_Graphs

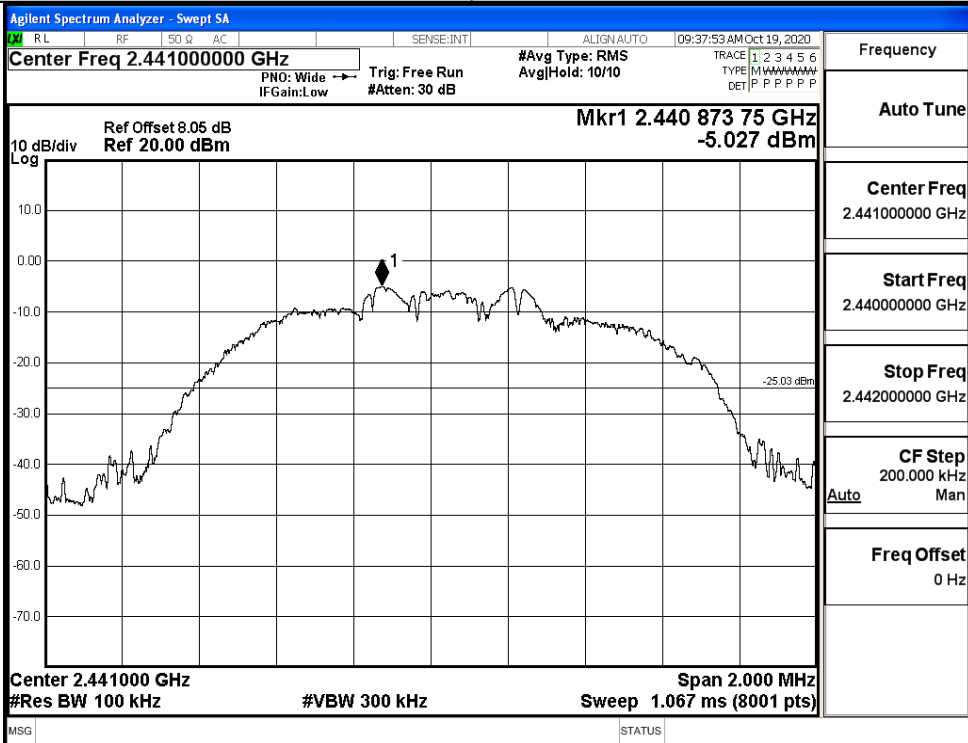


8DPSK_LCH_Graphs

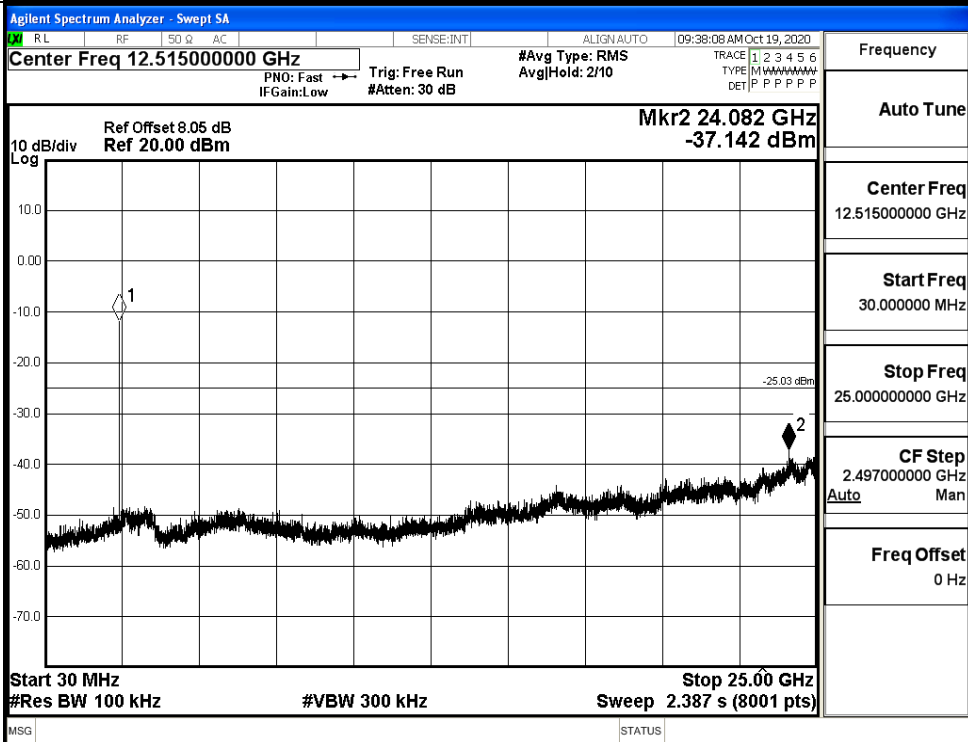


8DPSK_MCH_Graphs

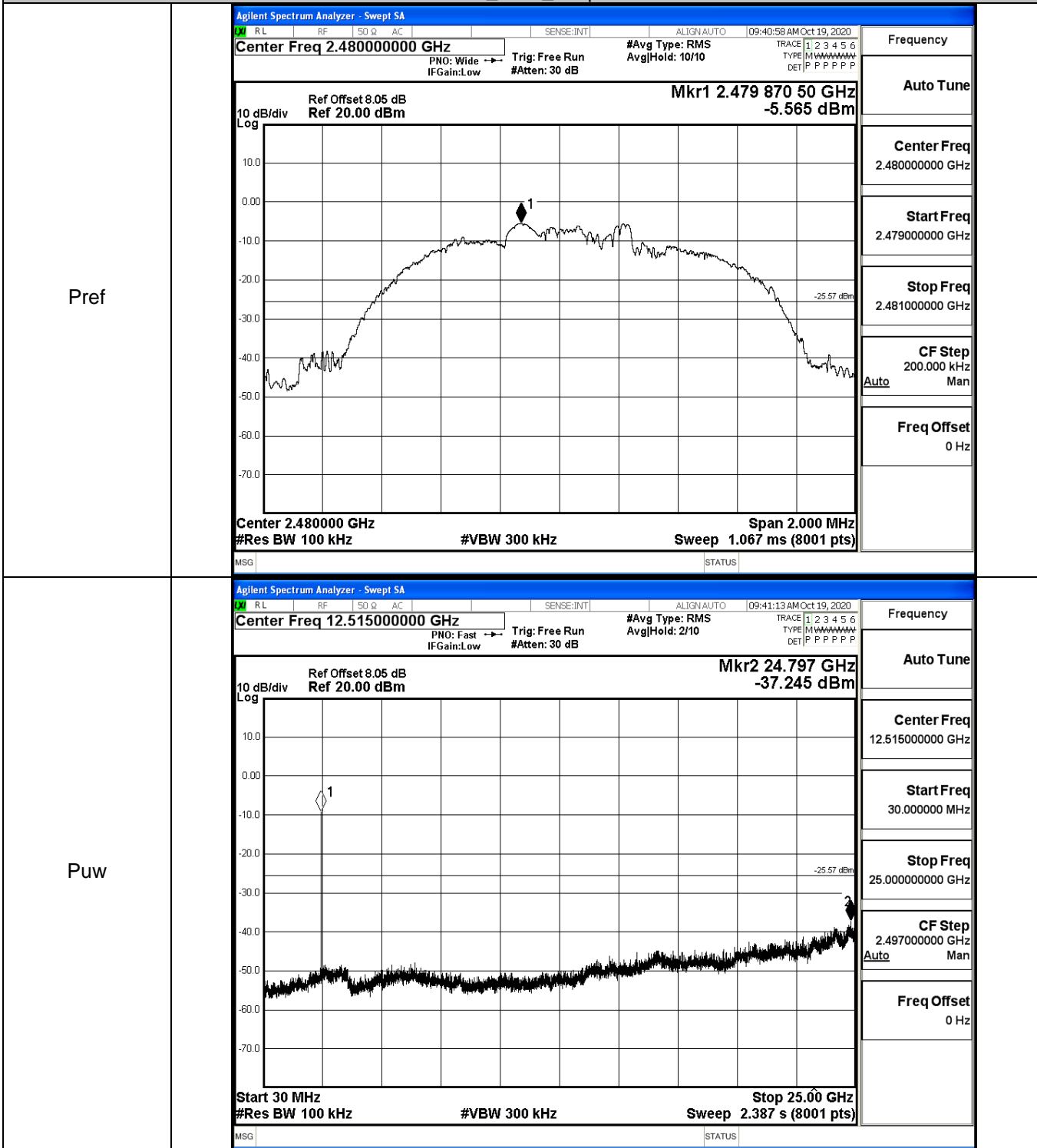
Pref



Puw



8DPSK_HCH_Graphs

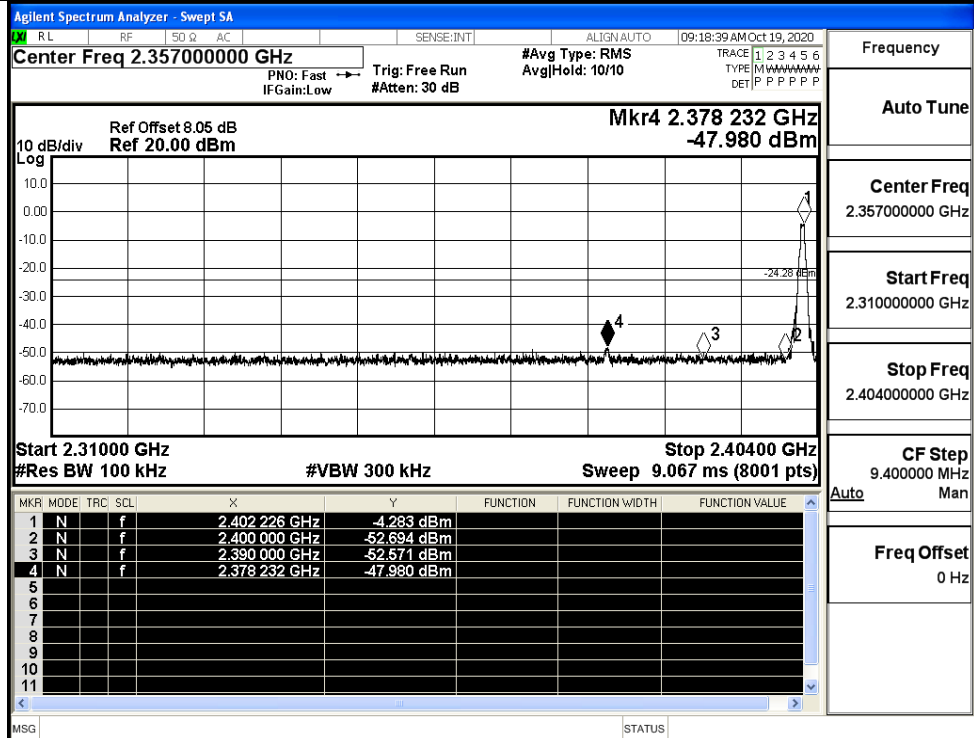


A.7 Band-edge for RF Conducted Emissions

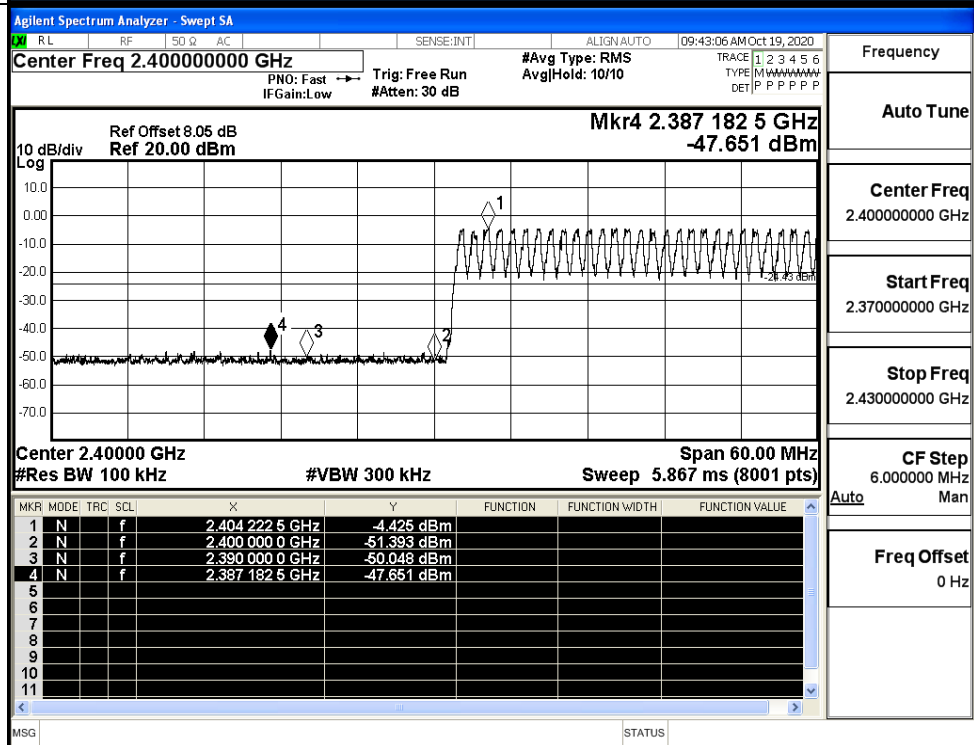
| Mode | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK | LCH | 2402 | -4.283 | Off | -47.980 | -24.28 | PASS |
| | | | -4.425 | On | -47.651 | -24.43 | PASS |
| | HCH | 2480 | -5.460 | Off | -47.872 | -25.46 | PASS |
| | | | -5.041 | On | -46.074 | -25.04 | PASS |
| $\pi/4$ DQPSK | LCH | 2402 | -4.510 | Off | -47.758 | -24.51 | PASS |
| | | | -4.493 | On | -48.221 | -24.49 | PASS |
| | HCH | 2480 | -5.529 | Off | -49.232 | -25.53 | PASS |
| | | | -5.108 | On | -46.438 | -25.11 | PASS |
| 8DPSK | LCH | 2402 | -5.612 | Off | -48.390 | -25.61 | PASS |
| | | | -4.531 | On | -48.274 | -24.53 | PASS |
| | HCH | 2480 | -5.506 | Off | -49.166 | -25.51 | PASS |
| | | | -5.150 | On | -47.995 | -25.15 | PASS |

Test Graphs

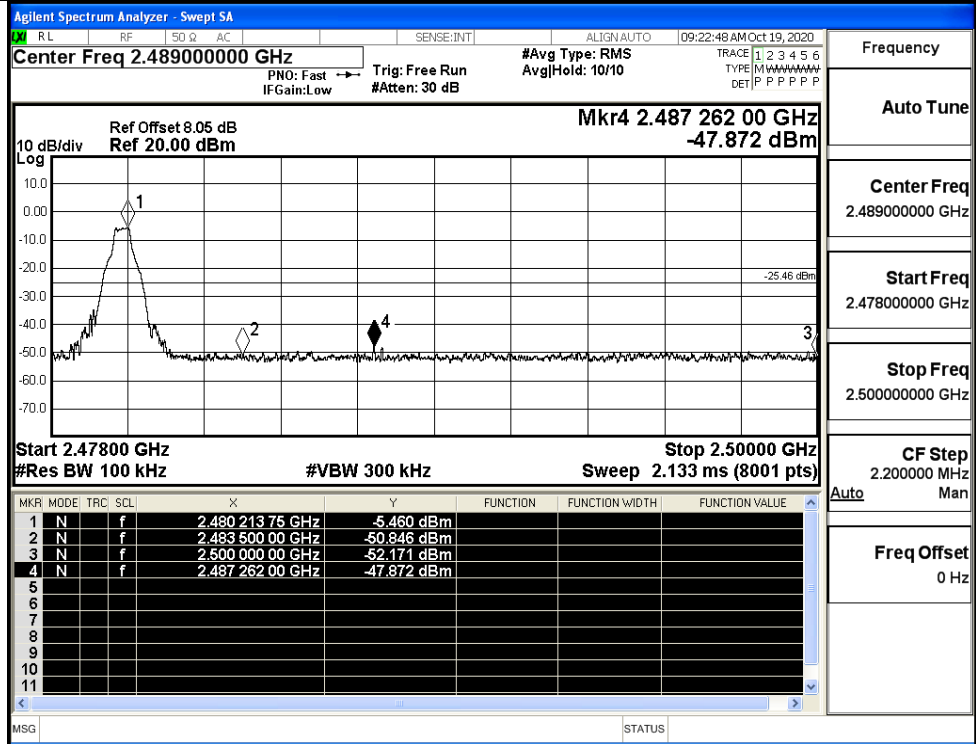
GFSK/LCH/No Hop



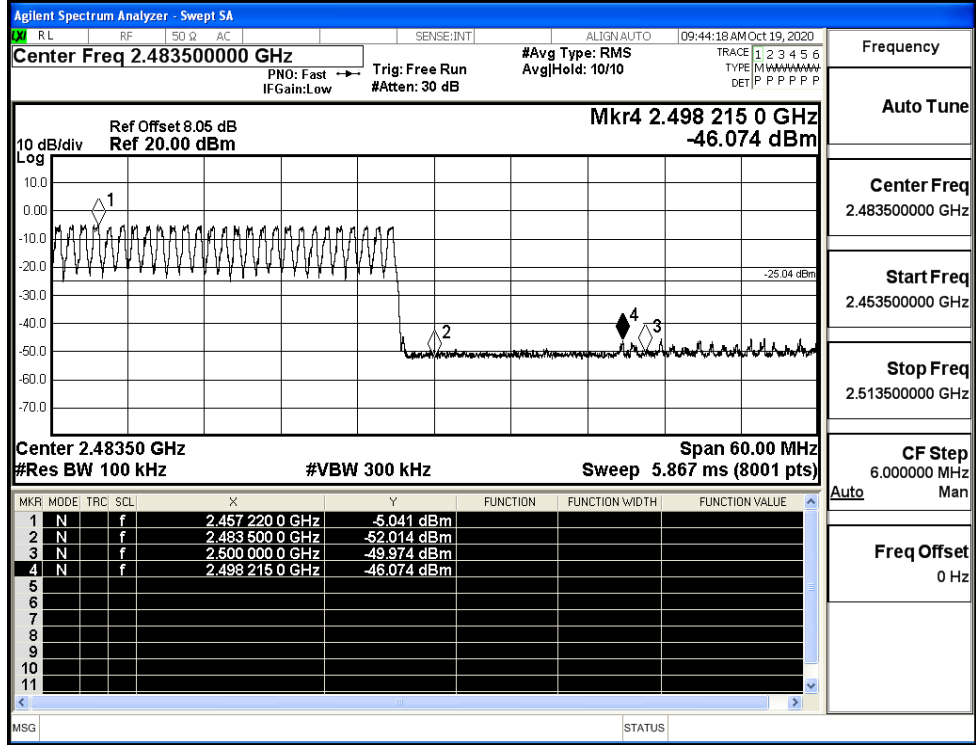
GFSK/LCH/Hop



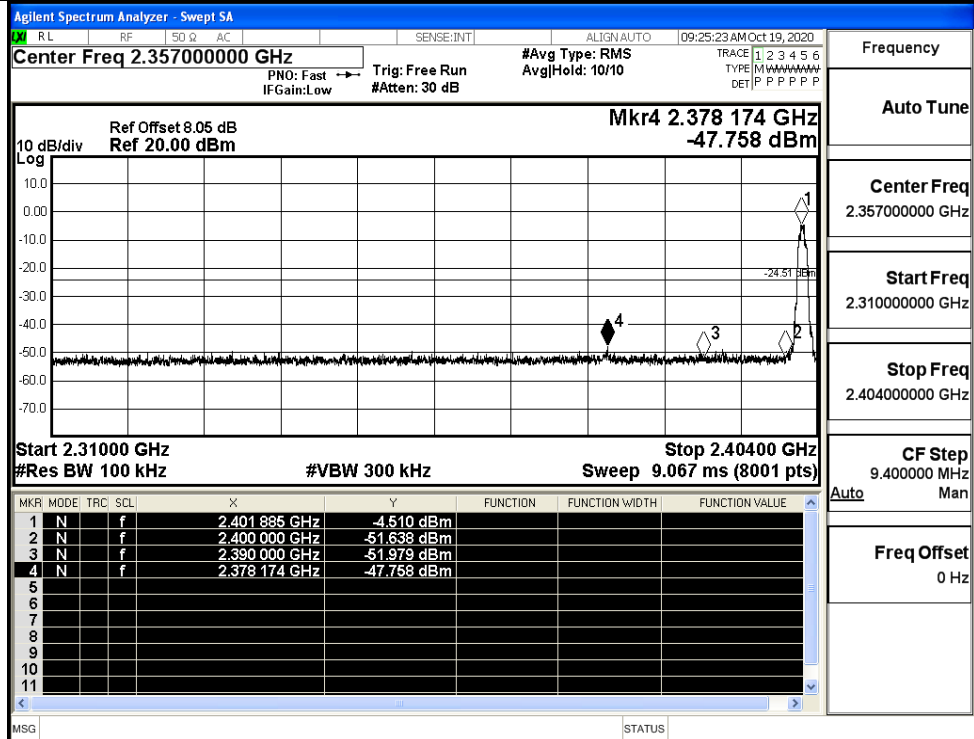
GFSK/HCH/No Hop



GFSK/HCH/Hop

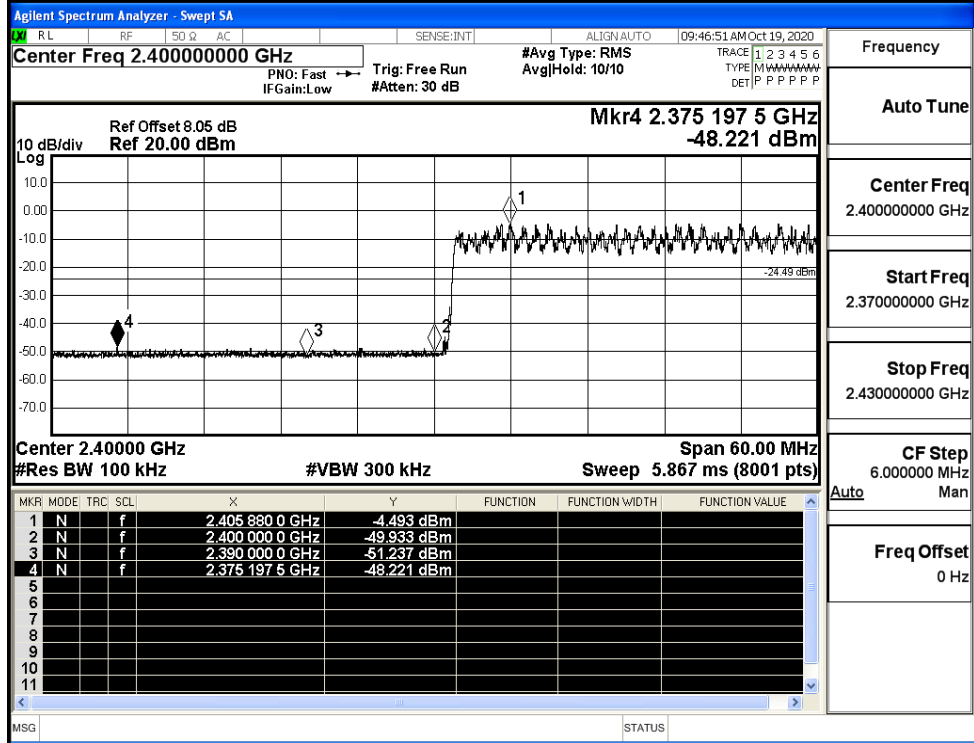


$\pi/4$ DQPSK/LCH/No Hop



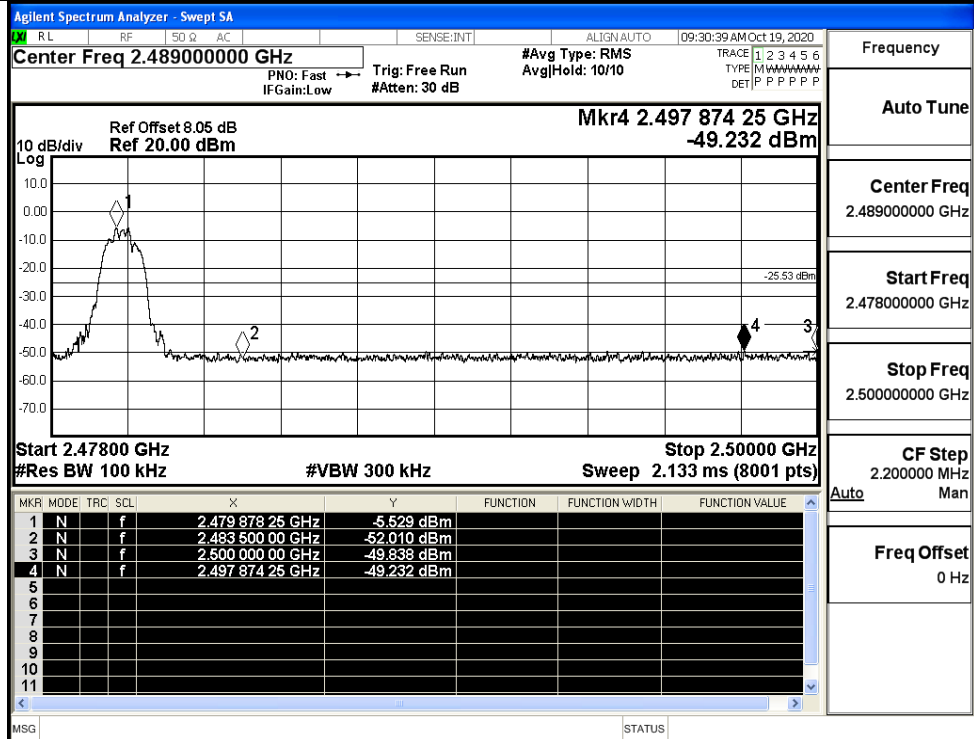
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

π /4DQPSK/HCH/No
Hop



Frequency

Auto Tune

Center Freq
2.489000000 GHz

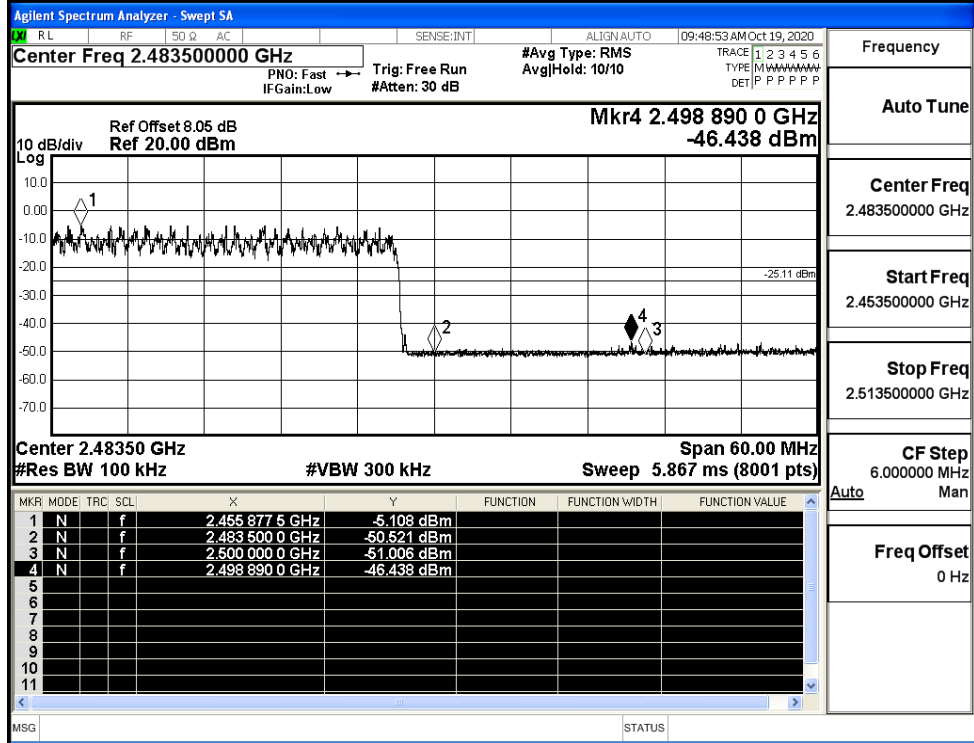
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz

Freq Offset
0 Hz

π /4DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

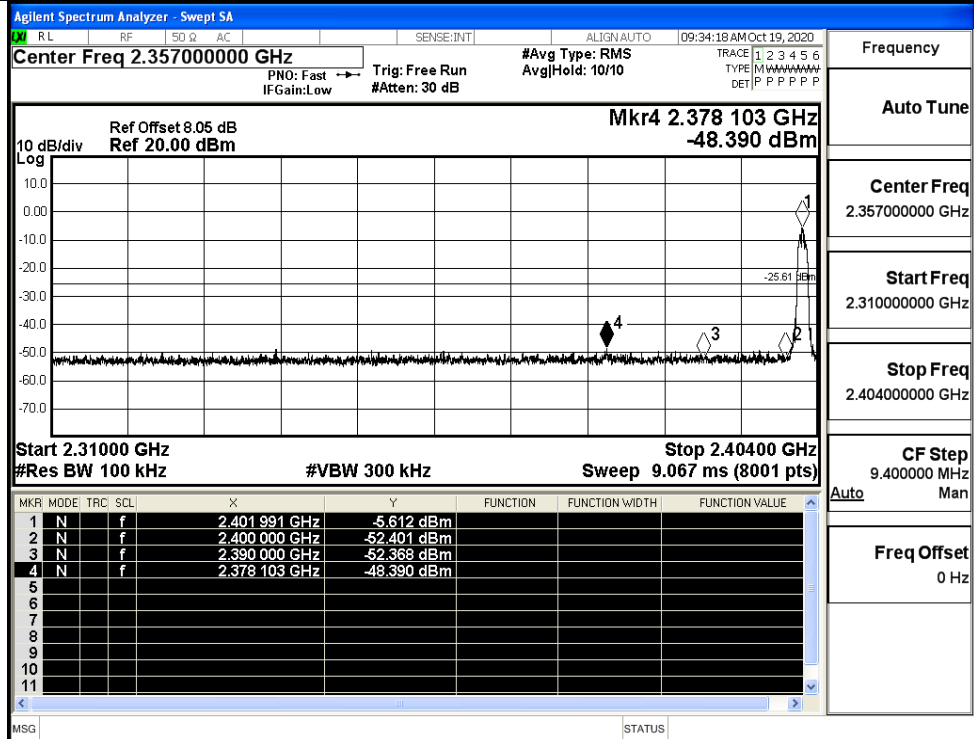
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

CF Step
6.000000 MHz

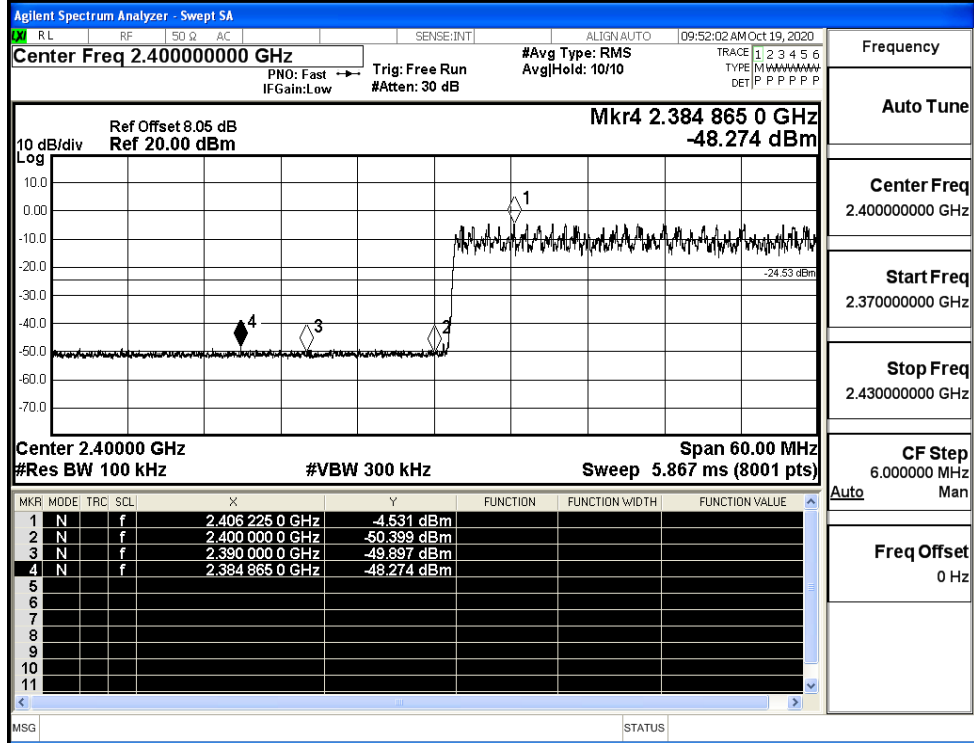
Freq Offset
0 Hz

8DPSK/LCH/No Hop



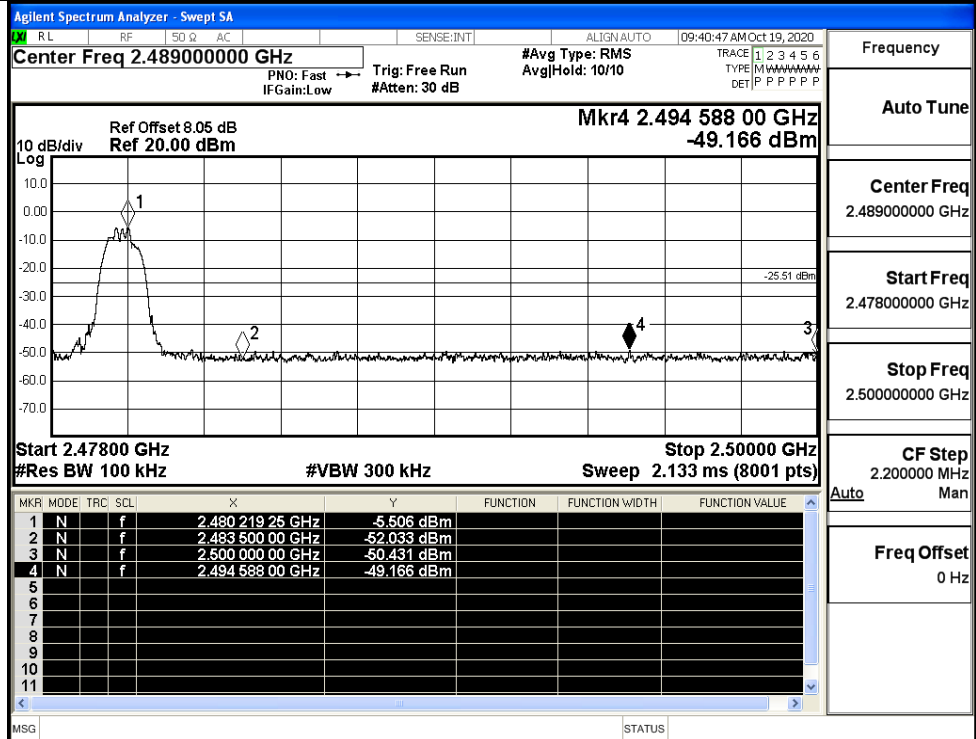
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



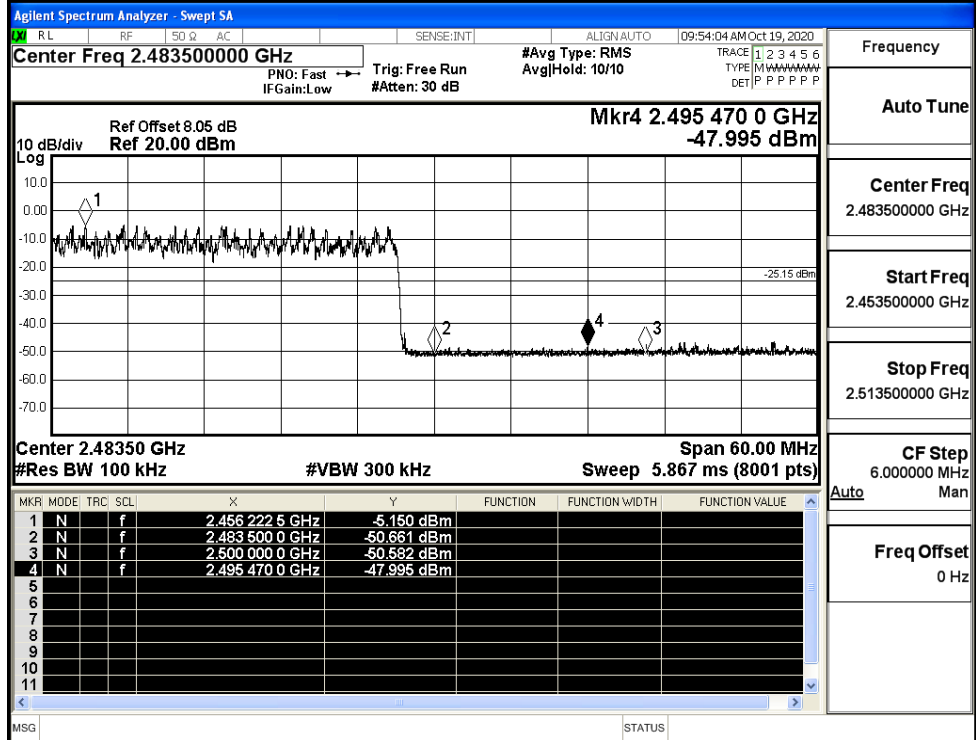
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/HCH/No Hop



Frequency
Auto Tune
Center Freq
2.489000000 GHz
Start Freq
2.478000000 GHz
Stop Freq
2.500000000 GHz
CF Step
2.200000 MHz
Freq Offset
0 Hz

8DPSK/HCH/Hop

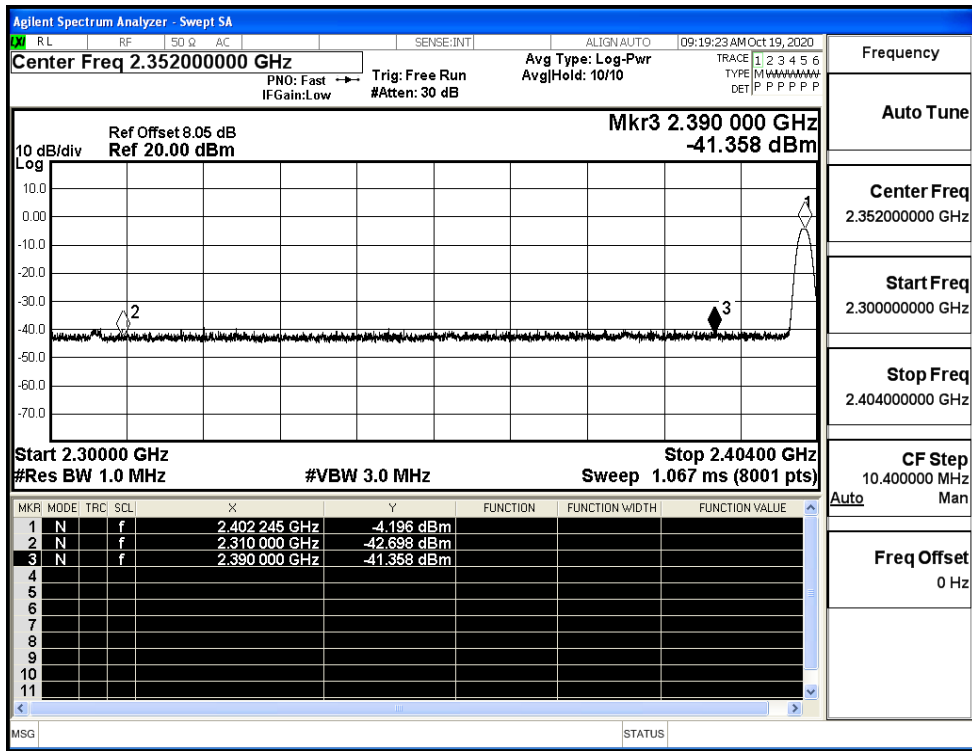


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Freq Offset
0 Hz

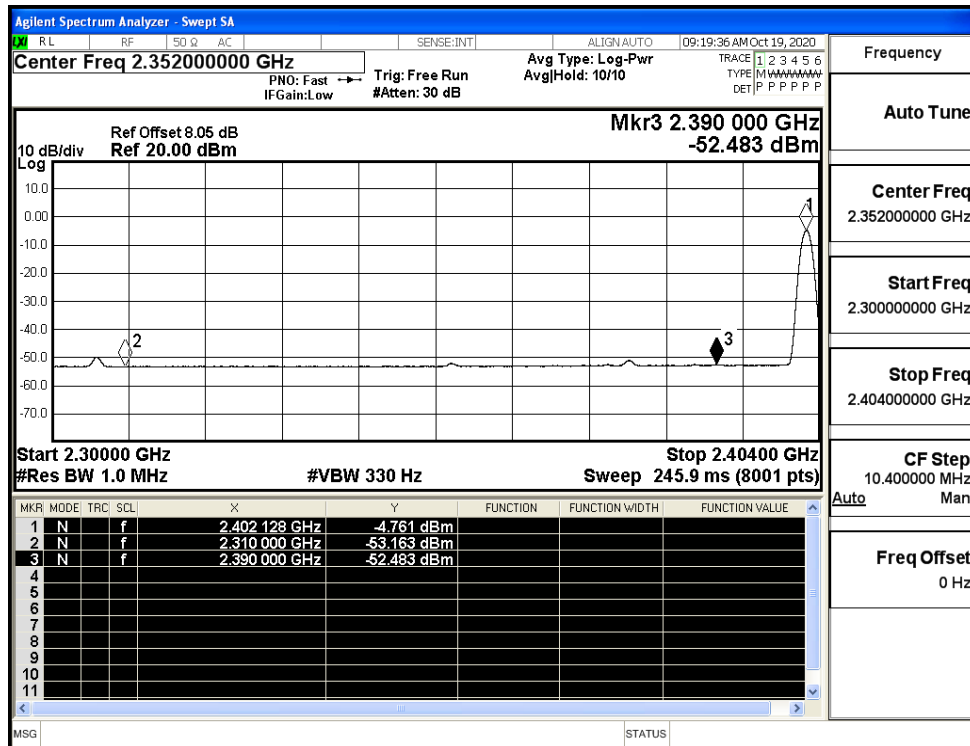
A.8 Restrict-band band-edge measurements

| Test Mode | Hopping | Freq. | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK | Off | 2310.0 | -42.70 | 2.0 | 0 | 52.56 | PEAK | 74 | PASS |
| | Off | 2310.0 | -53.16 | 2.0 | 0 | 42.09 | AV | 54 | PASS |
| | Off | 2390.0 | -41.36 | 2.0 | 0 | 53.90 | PEAK | 74 | PASS |
| | Off | 2390.0 | -52.48 | 2.0 | 0 | 42.77 | AV | 54 | PASS |
| | Off | 2483.5 | -42.32 | 2.0 | 0 | 52.94 | PEAK | 74 | PASS |
| | Off | 2483.5 | -52.37 | 2.0 | 0 | 42.88 | AV | 54 | PASS |
| | Off | 2500.0 | -42.39 | 2.0 | 0 | 52.87 | PEAK | 74 | PASS |
| | Off | 2500.0 | -52.22 | 2.0 | 0 | 43.04 | AV | 54 | PASS |
| $\pi/4$ DQPSK | Off | 2310.0 | -42.92 | 2.0 | 0 | 52.34 | PEAK | 74 | PASS |
| | Off | 2310.0 | -53.16 | 2.0 | 0 | 42.10 | AV | 54 | PASS |
| | Off | 2390.0 | -42.08 | 2.0 | 0 | 53.17 | PEAK | 74 | PASS |
| | Off | 2390.0 | -52.71 | 2.0 | 0 | 42.55 | AV | 54 | PASS |
| | Off | 2483.5 | -42.12 | 2.0 | 0 | 53.14 | PEAK | 74 | PASS |
| | Off | 2483.5 | -52.32 | 2.0 | 0 | 42.94 | AV | 54 | PASS |
| | Off | 2500.0 | -42.30 | 2.0 | 0 | 52.95 | PEAK | 74 | PASS |
| | Off | 2500.0 | -52.16 | 2.0 | 0 | 43.10 | AV | 54 | PASS |
| 8DPSK | Off | 2310.0 | -43.38 | 2.0 | 0 | 51.88 | PEAK | 74 | PASS |
| | Off | 2310.0 | -53.18 | 2.0 | 0 | 42.08 | AV | 54 | PASS |
| | Off | 2390.0 | -43.22 | 2.0 | 0 | 52.03 | PEAK | 74 | PASS |
| | Off | 2390.0 | -52.65 | 2.0 | 0 | 42.61 | AV | 54 | PASS |
| | Off | 2483.5 | -41.25 | 2.0 | 0 | 54.01 | PEAK | 74 | PASS |
| | Off | 2483.5 | -52.27 | 2.0 | 0 | 42.99 | AV | 54 | PASS |
| | Off | 2500.0 | -42.37 | 2.0 | 0 | 52.89 | PEAK | 74 | PASS |
| | Off | 2500.0 | -52.10 | 2.0 | 0 | 43.16 | AV | 54 | PASS |

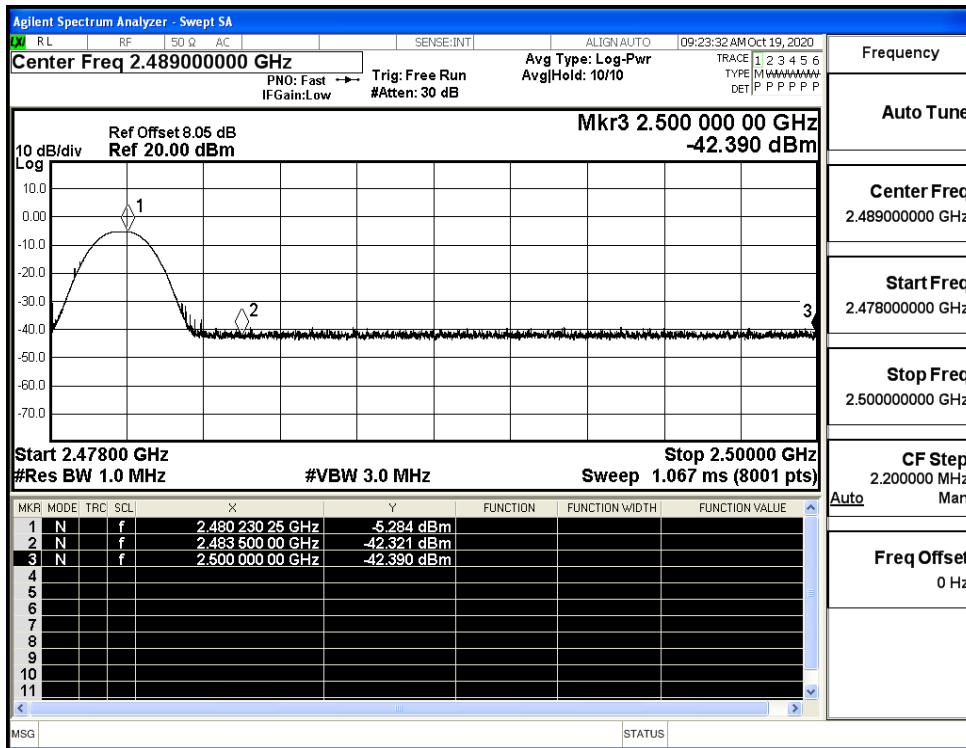
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



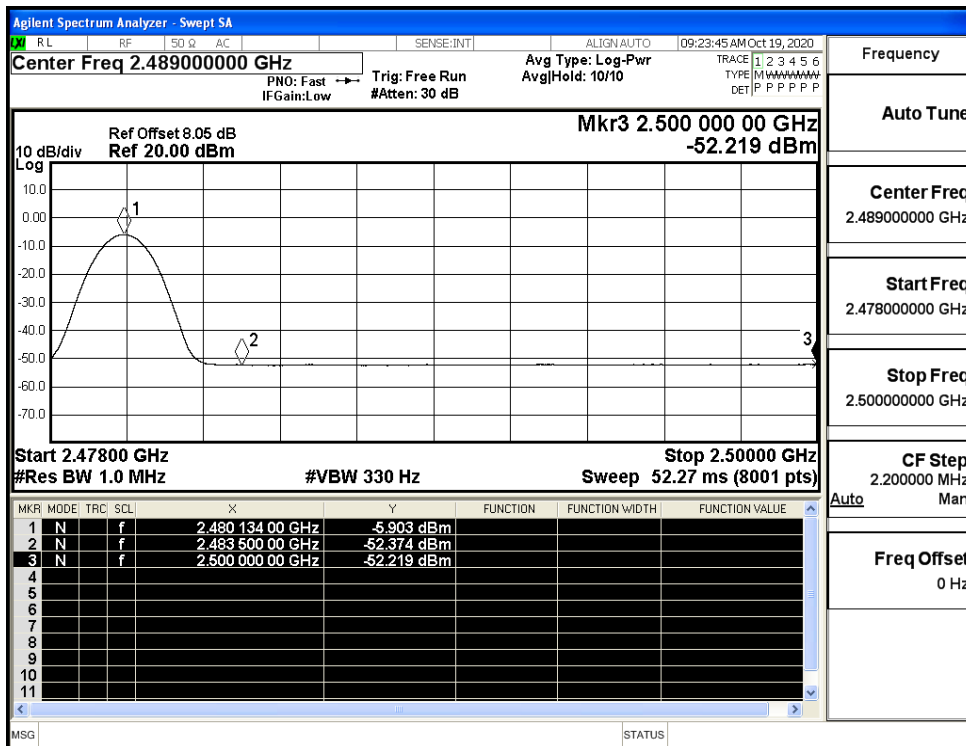
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



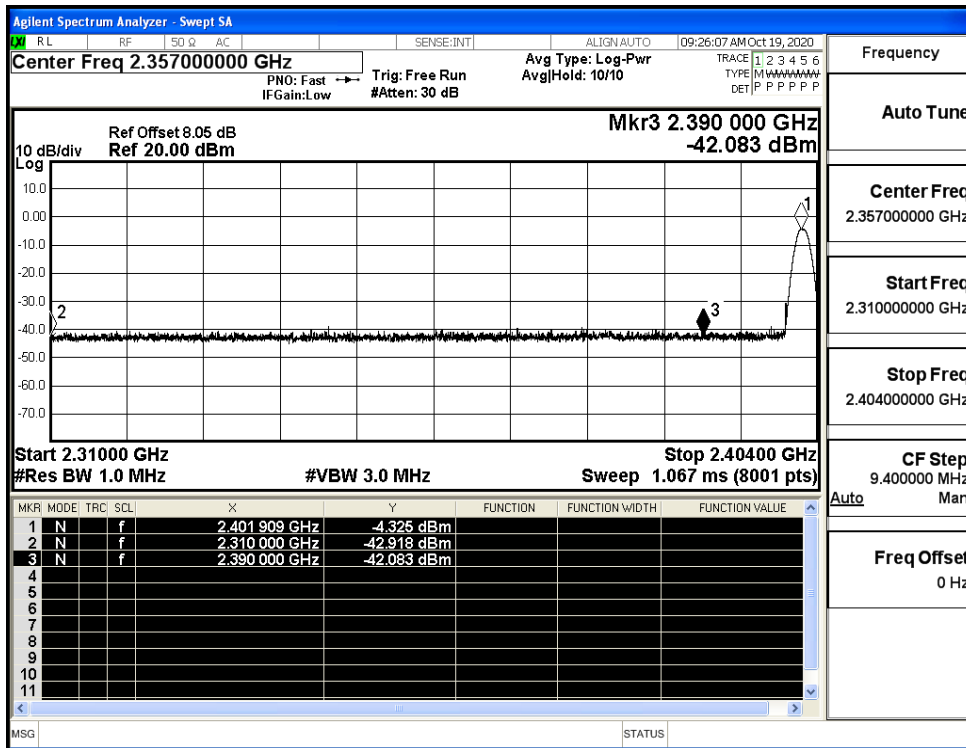
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



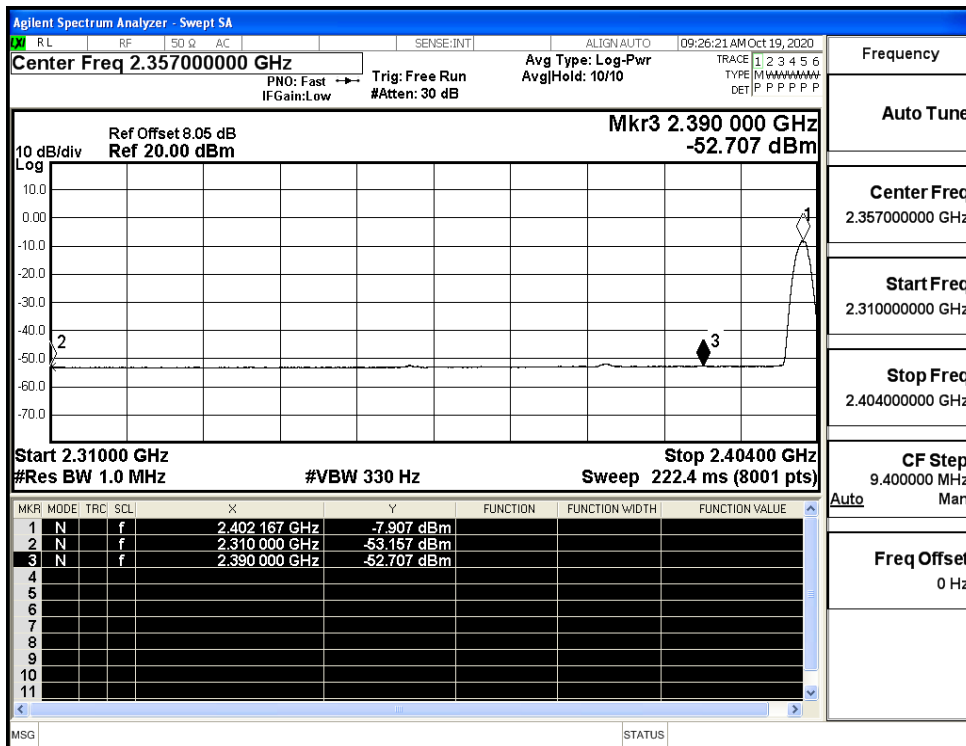
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



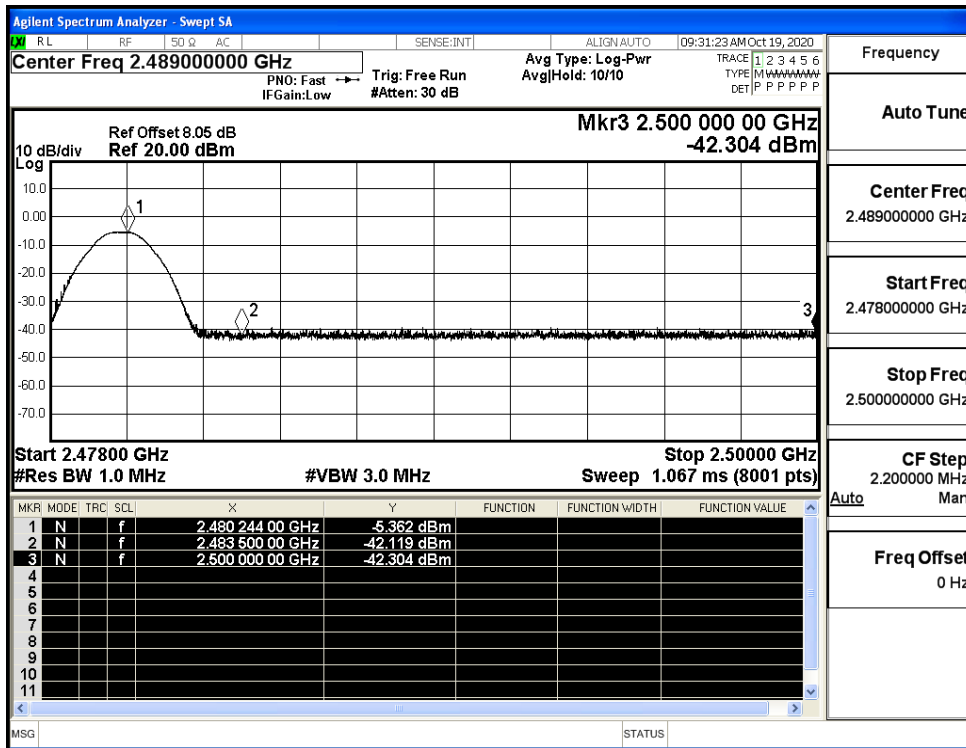
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



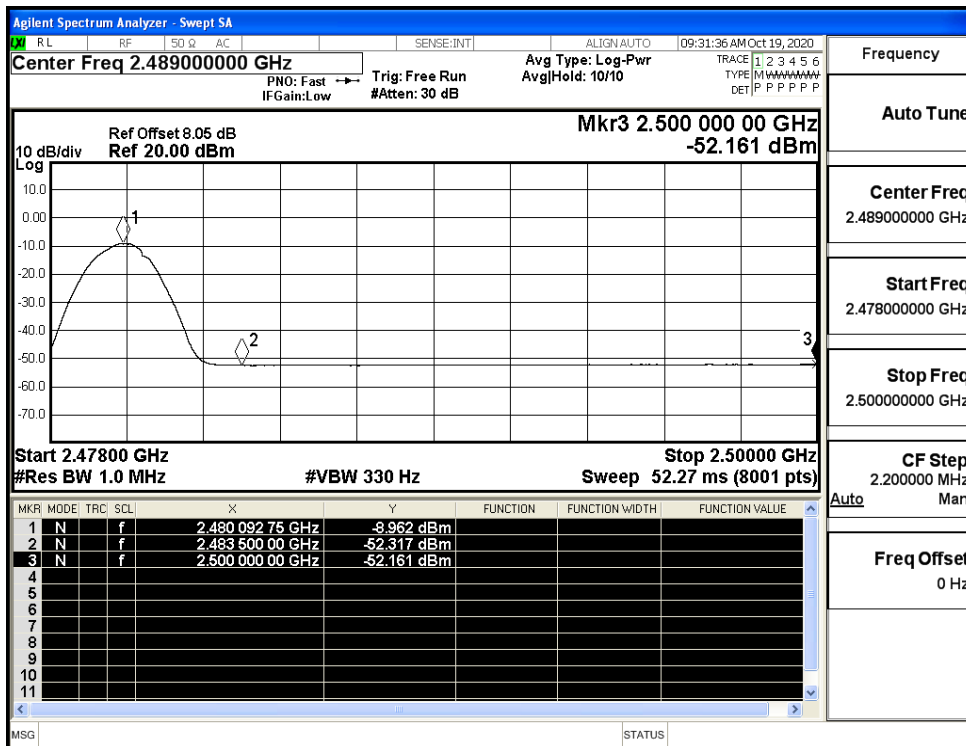
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



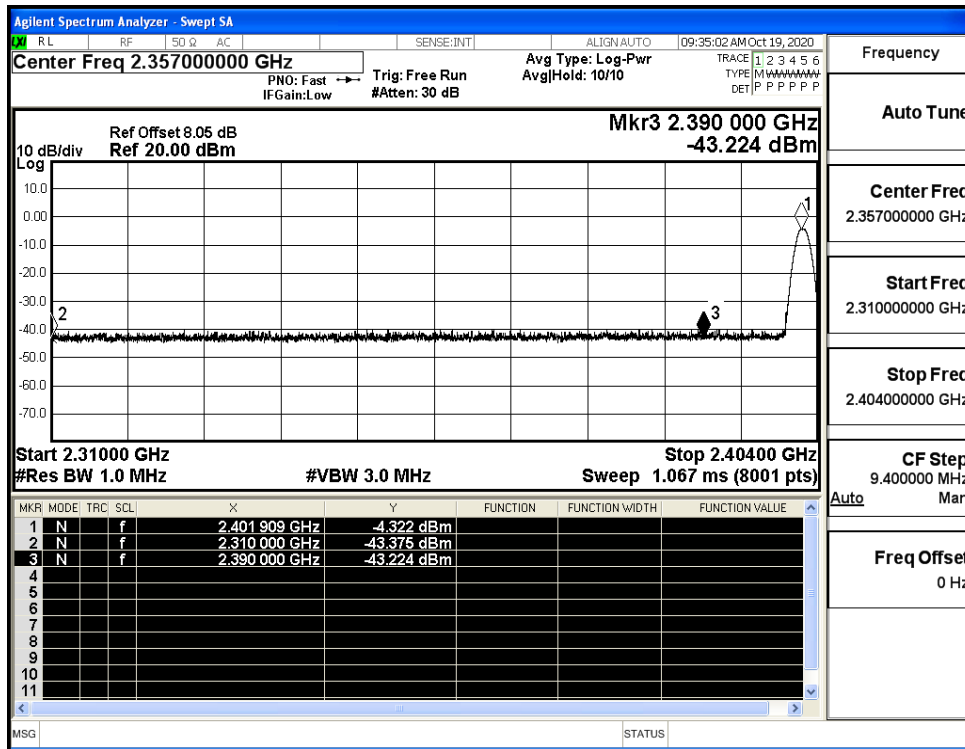
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



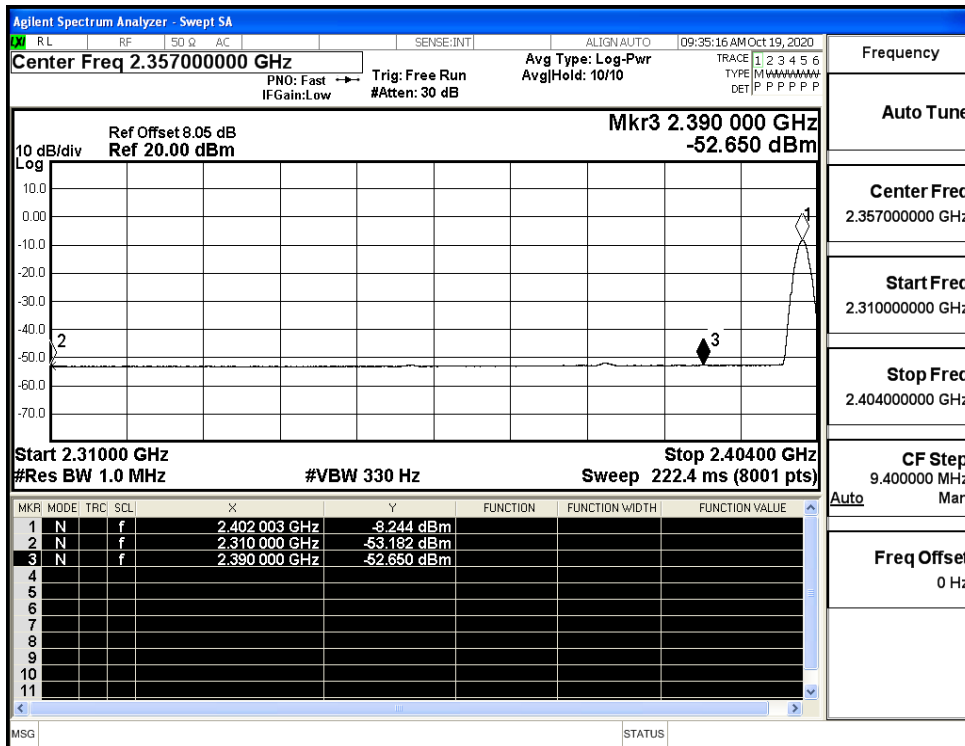
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



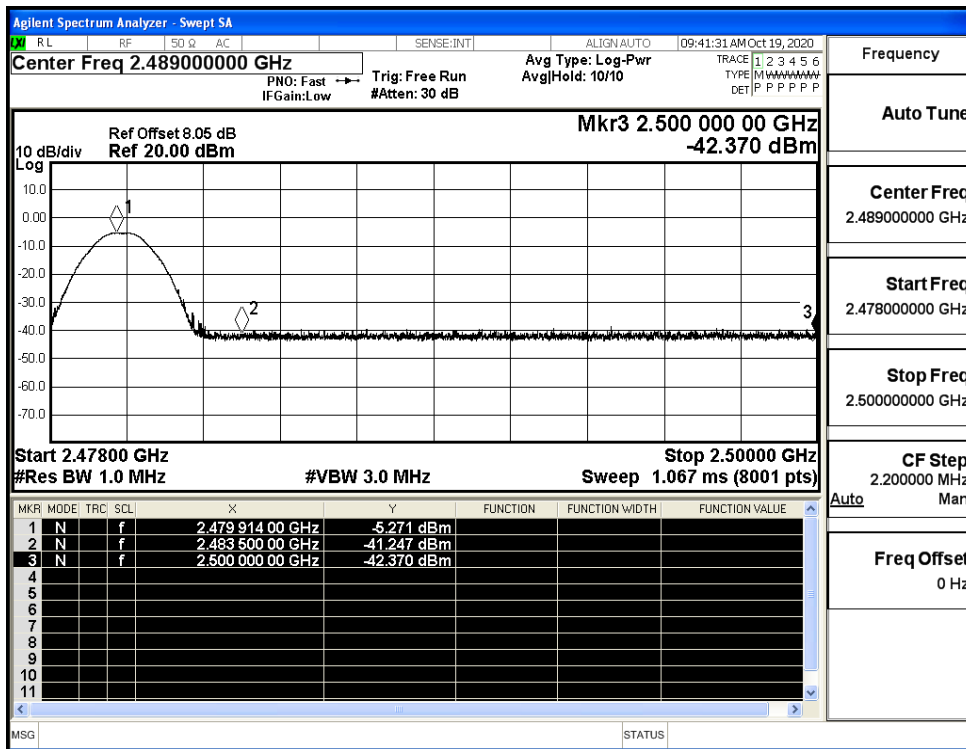
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (High Channel)

