

## Appendix A

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

Product Name: tablet

Trade Mark: TOPELOTEK, UJoyFeel

Test Model: KIDS707

#### Environmental Conditions

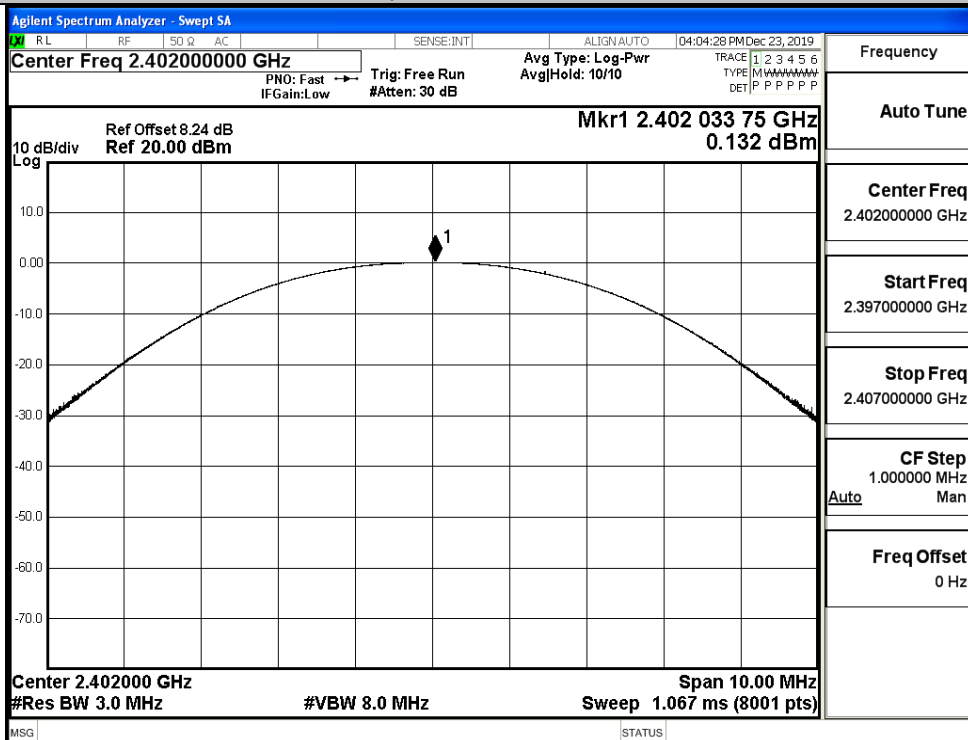
|                    |             |
|--------------------|-------------|
| Temperature:       | 24.6℃       |
| Relative Humidity: | 54.1%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | Alisa Huang |
| Supervised by:     | Wang Chuang |

#### A.1 Maximum Conducted Peak Output Power

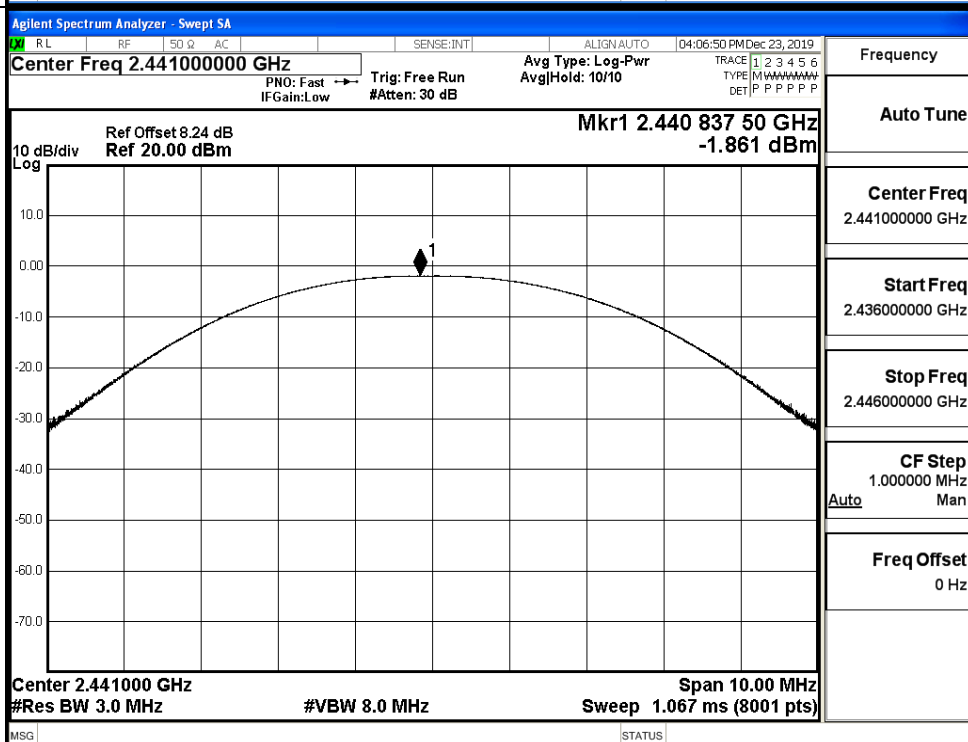
| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | 0.132                           | 21          | PASS    |
|               | MCH      | -1.861                          | 21          | PASS    |
|               | HCH      | -0.646                          | 21          | PASS    |
| $\pi/4$ DQPSK | LCH      | -0.622                          | 21          | PASS    |
|               | MCH      | -2.522                          | 21          | PASS    |
|               | HCH      | -1.418                          | 21          | PASS    |
| 8DPSK         | LCH      | -0.434                          | 21          | PASS    |
|               | MCH      | -2.281                          | 21          | PASS    |
|               | HCH      | -1.183                          | 21          | PASS    |

## Test Graphs

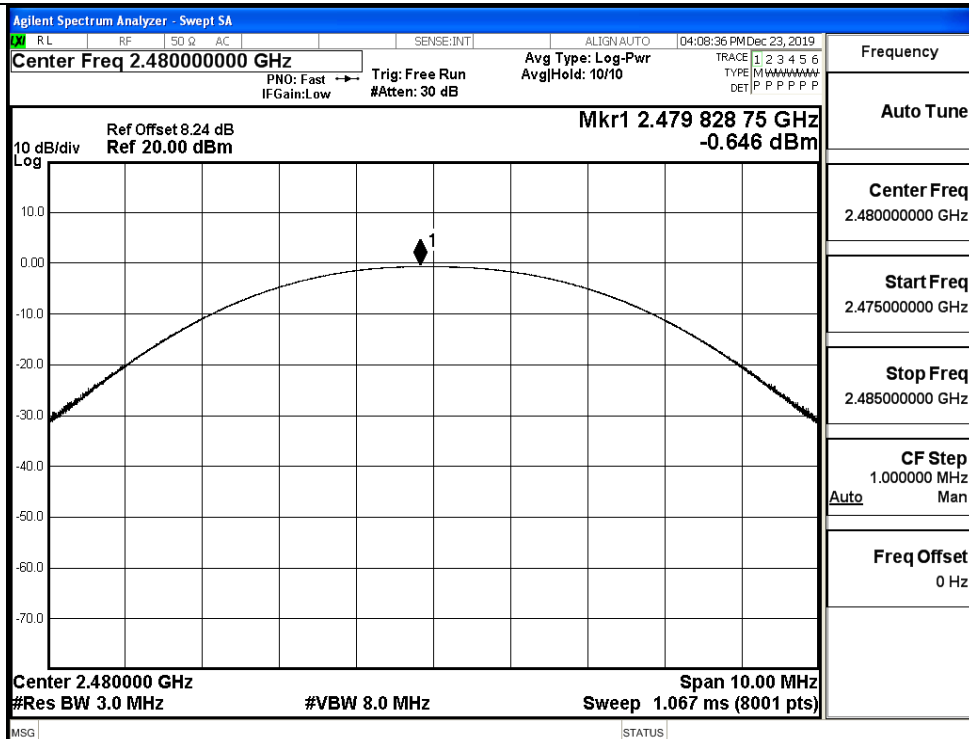
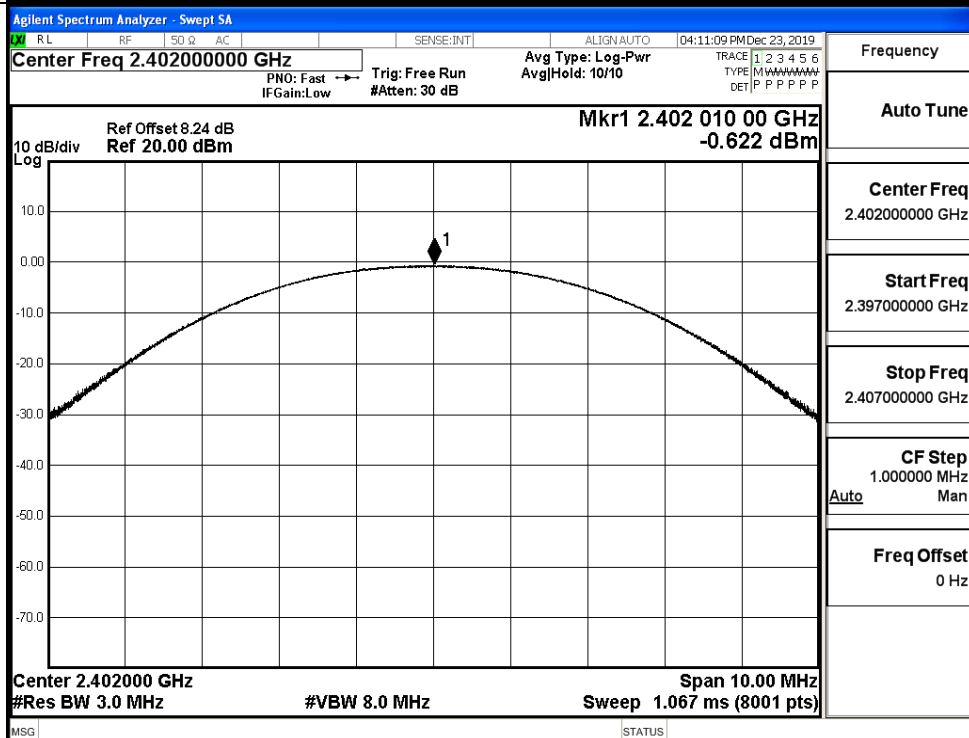
GFSK/LCH

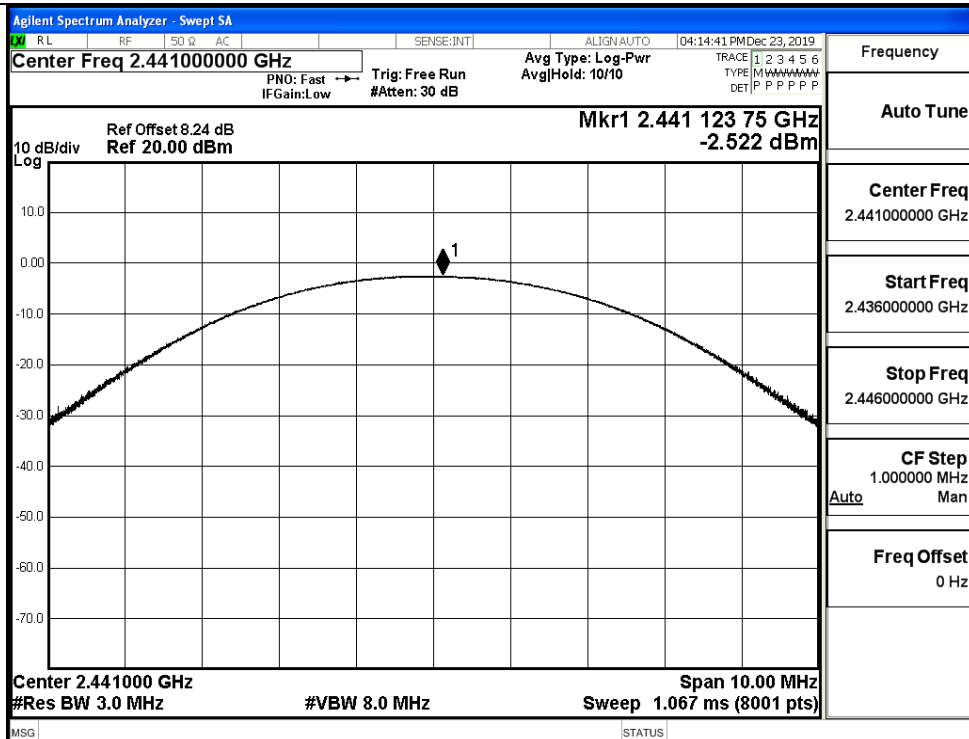
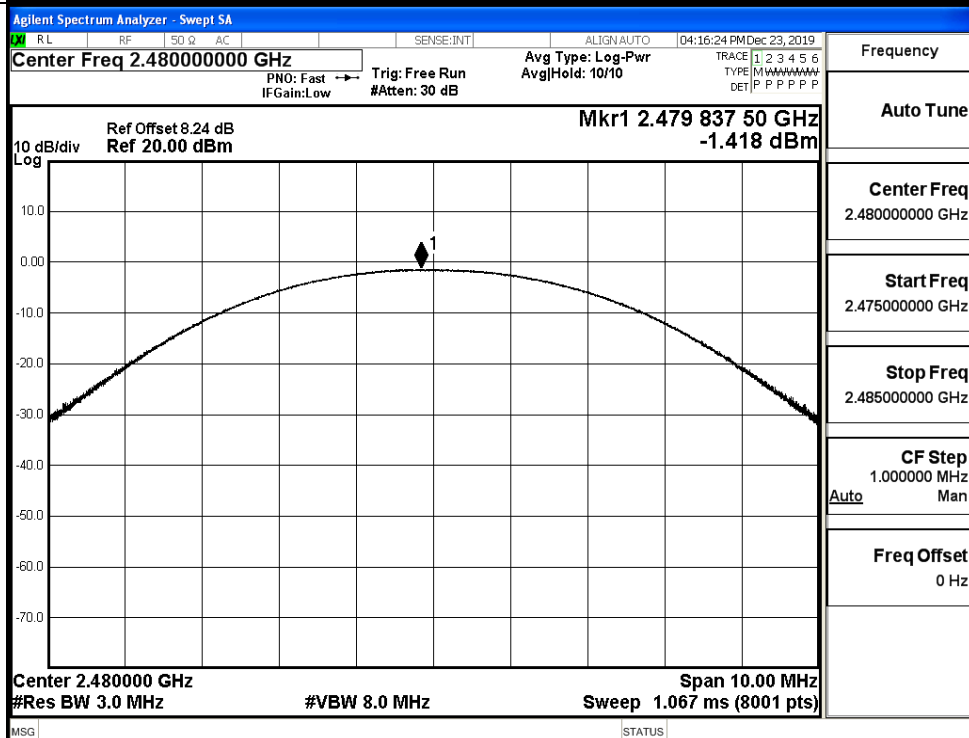


GFSK/MCH

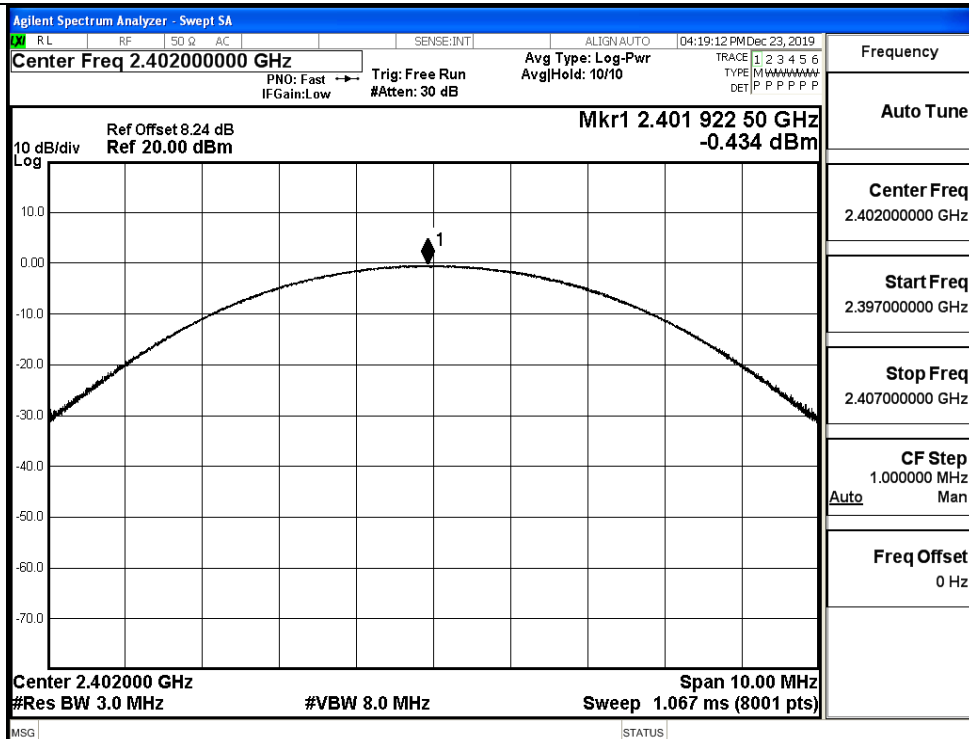


GFSK/HCH

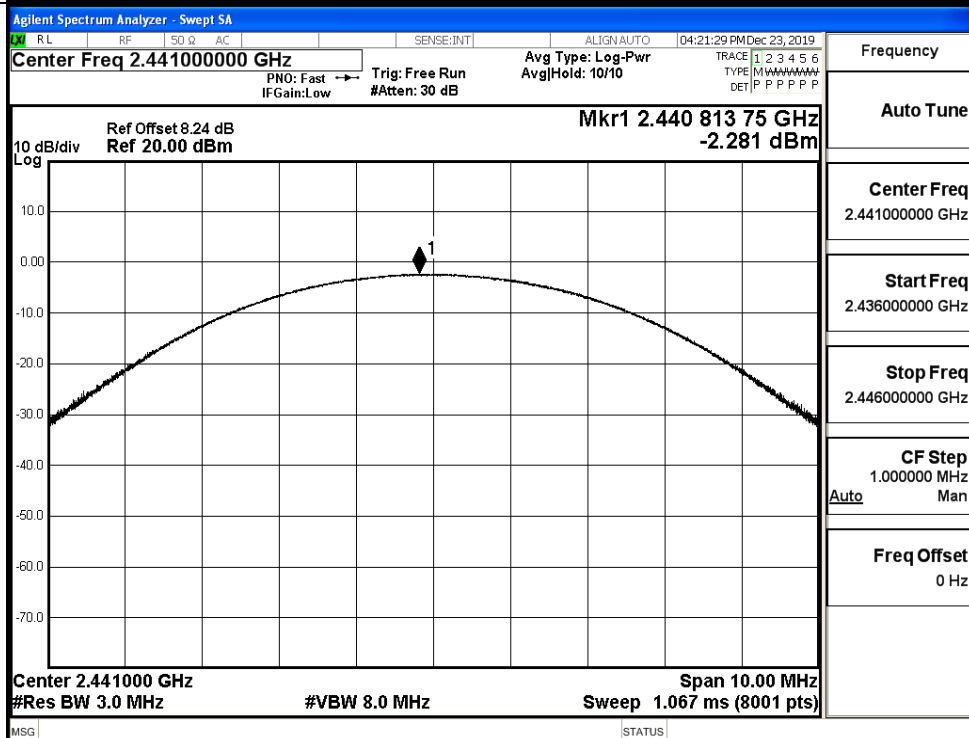
 $\pi$ /4DQPSK/LCH

$\pi/4$ DQPSK/MCH $\pi/4$ DQPSK/HCH

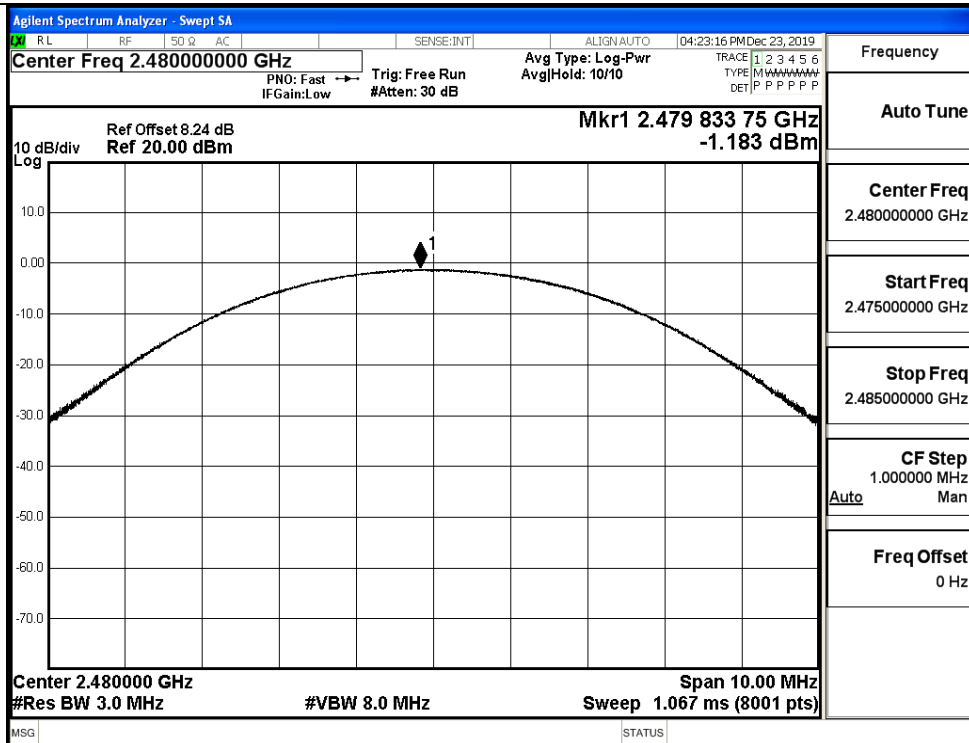
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

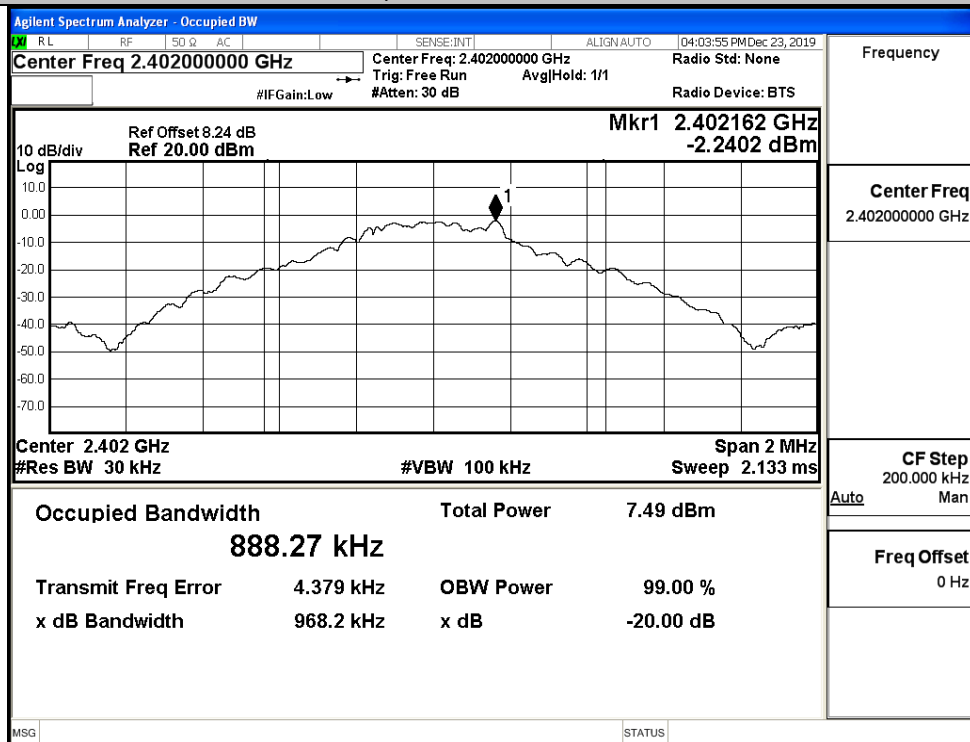


## A.2 20dB Bandwidth and 99% Bandwidth

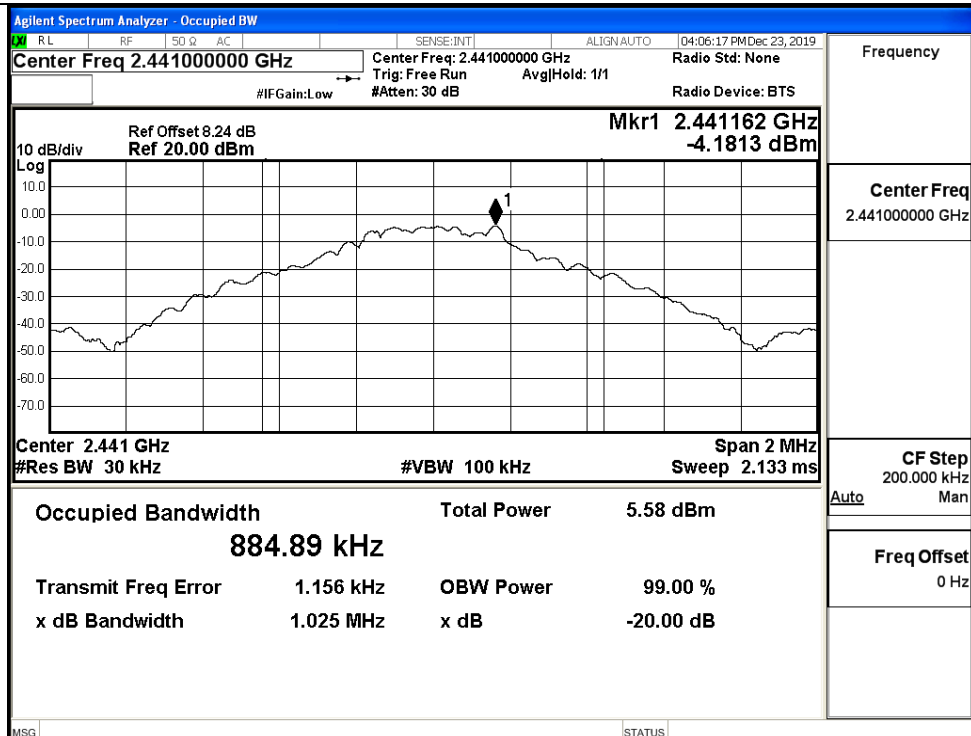
| Mode          | Channel. | 20dB Bandwidth [MHz] | 99% Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------------|---------------|---------|
| GFSK          | LCH      | 0.9682               | 0.8883              | Not Specified | PASS    |
|               | MCH      | 1.025                | 0.8849              | Not Specified | PASS    |
|               | HCH      | 1.029                | 0.8888              | Not Specified | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.318                | 1.175               | Not Specified | PASS    |
|               | MCH      | 1.293                | 1.176               | Not Specified | PASS    |
|               | HCH      | 1.290                | 1.170               | Not Specified | PASS    |
| 8DPSK         | LCH      | 1.292                | 1.185               | Not Specified | PASS    |
|               | MCH      | 1.299                | 1.189               | Not Specified | PASS    |
|               | HCH      | 1.300                | 1.183               | Not Specified | PASS    |

Test Graphs

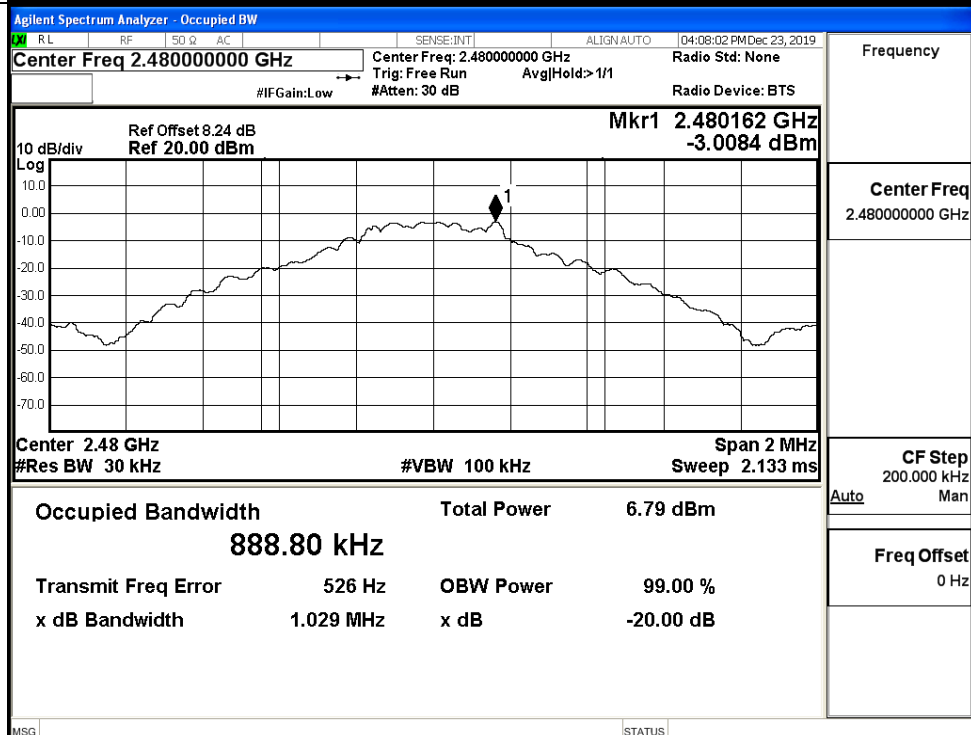
GFSK/LCH

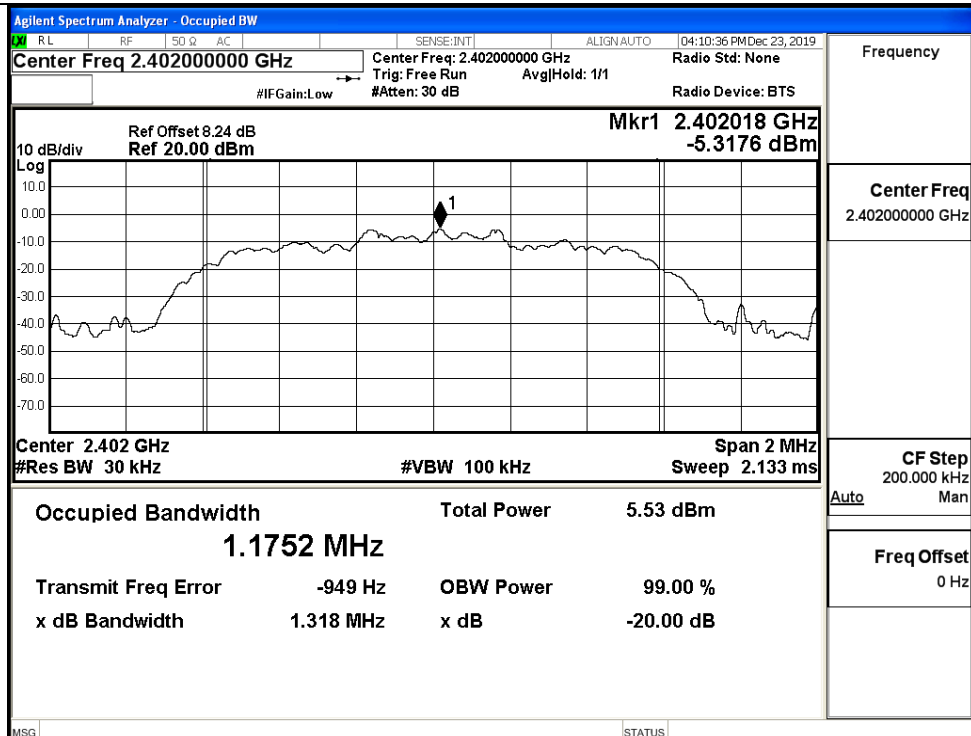
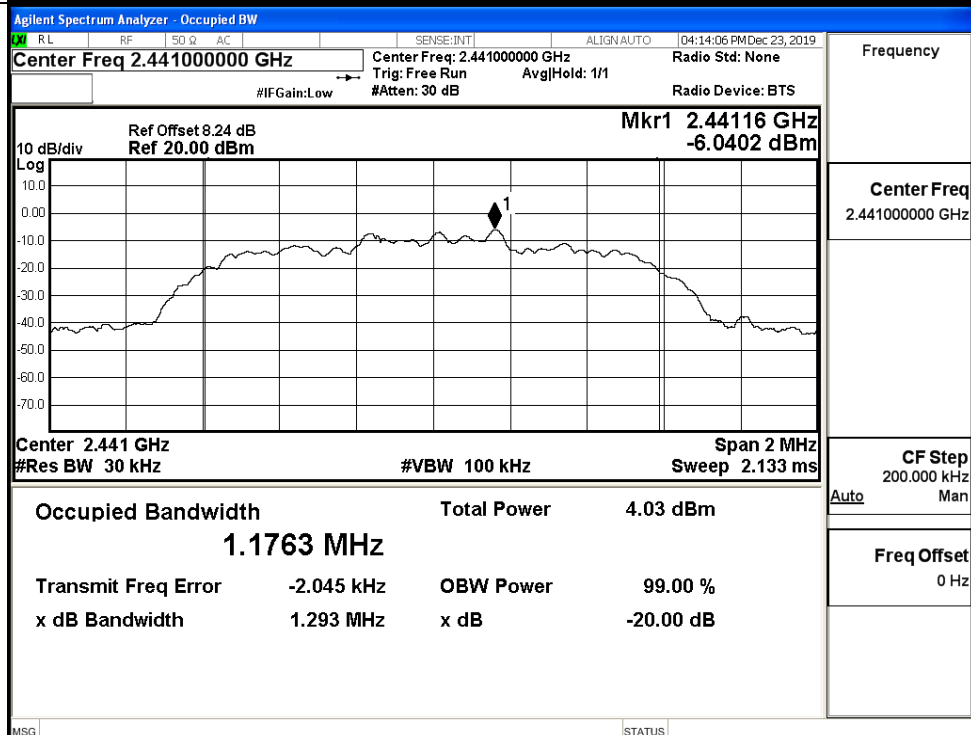


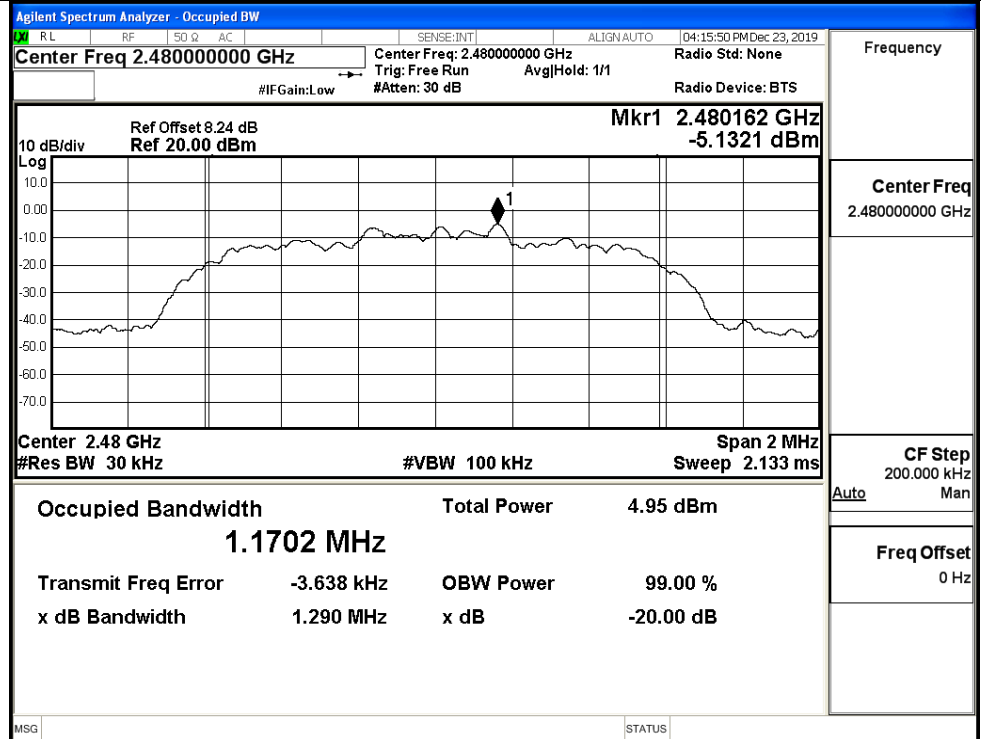
GFSK/MCH



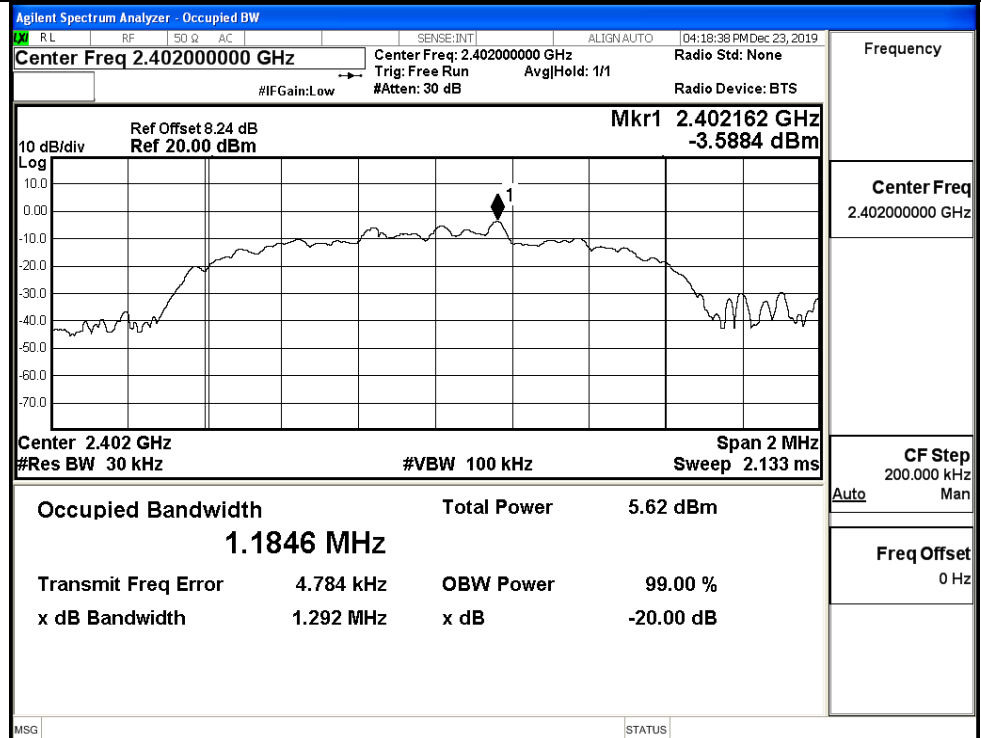
GFSK/HCH



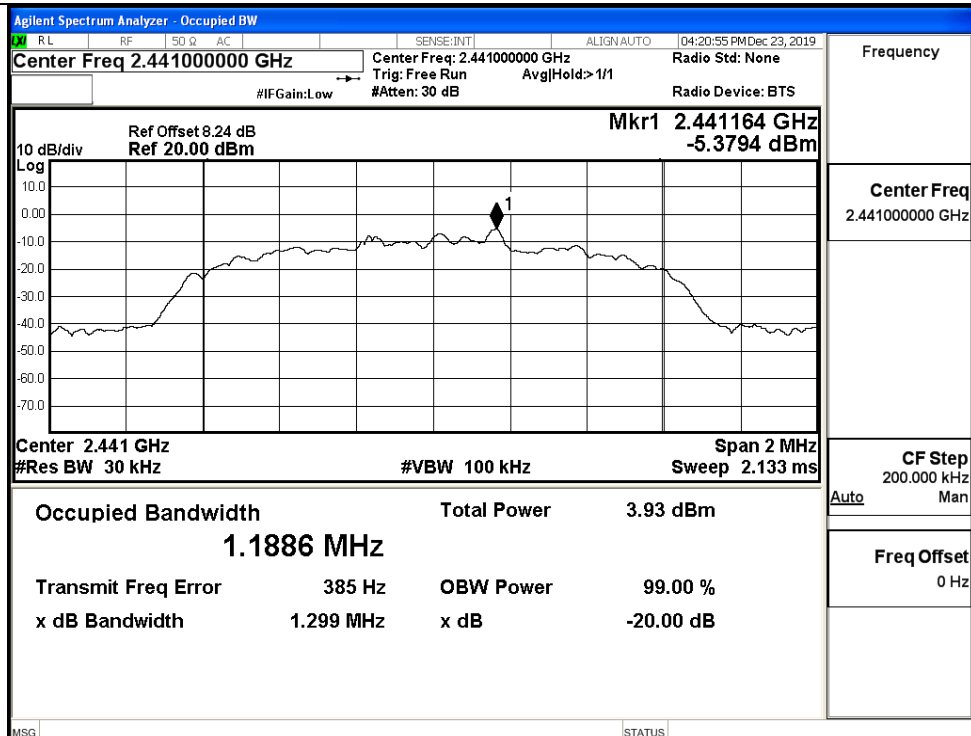
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

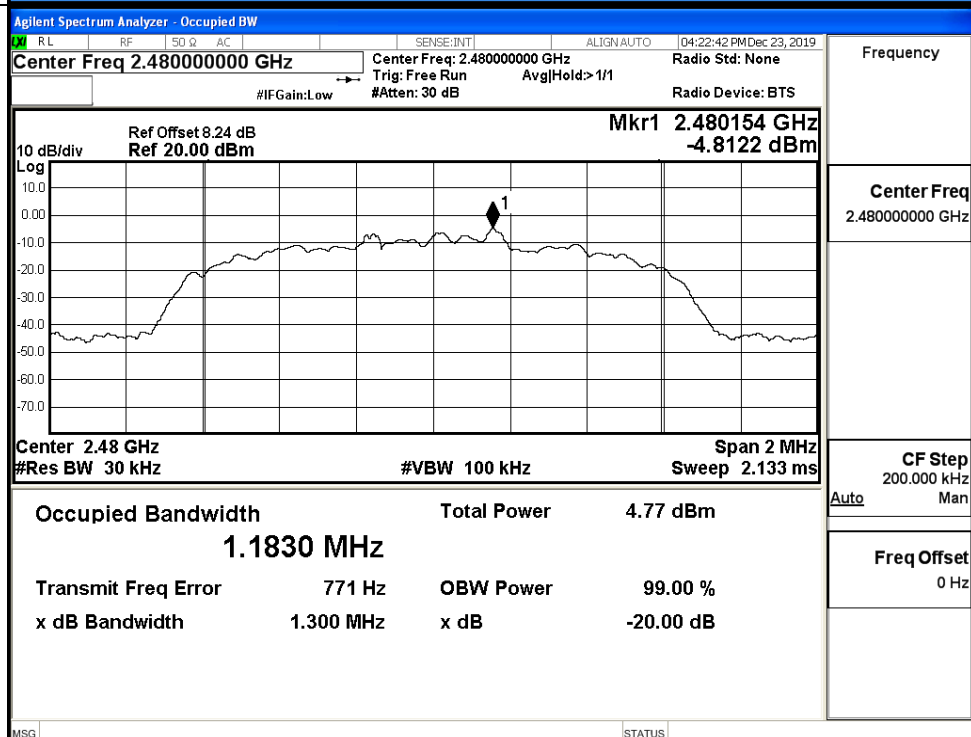
8DPSK/LCH



8DPSK/MCH



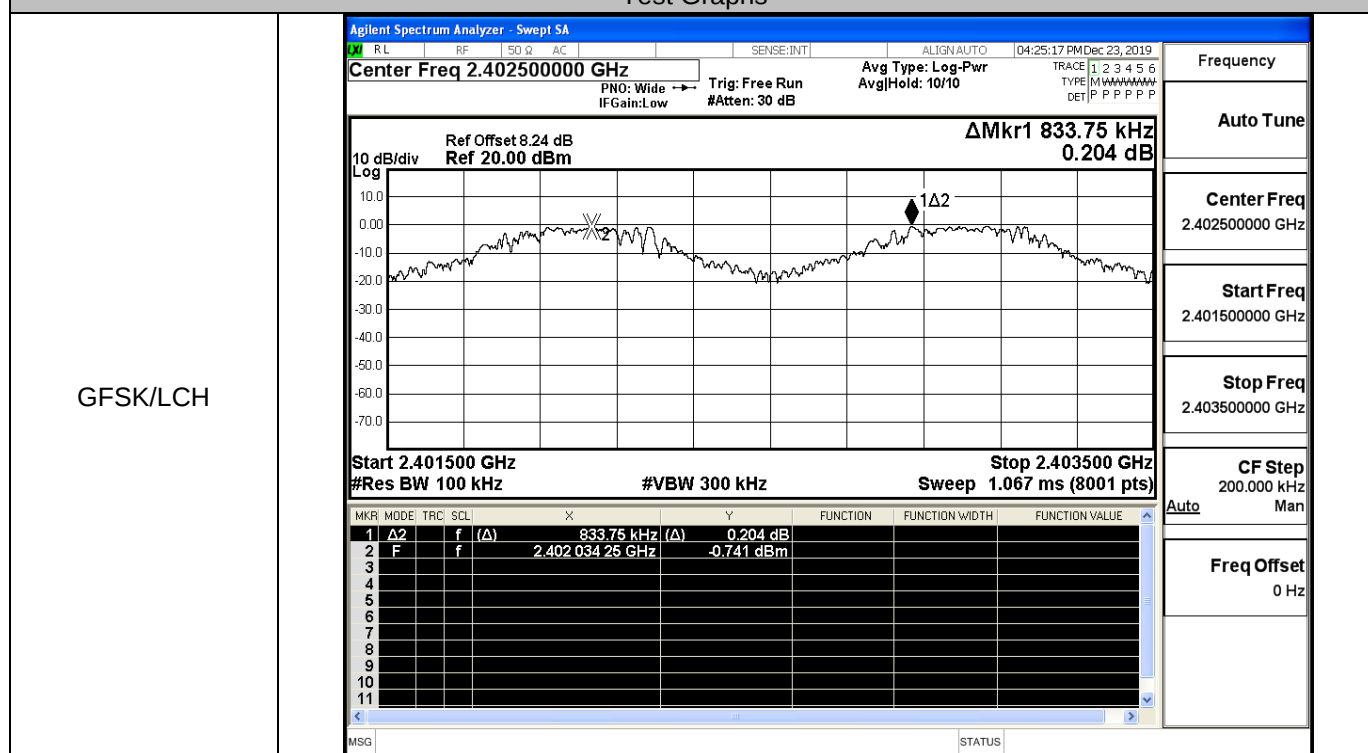
8DPSK/HCH



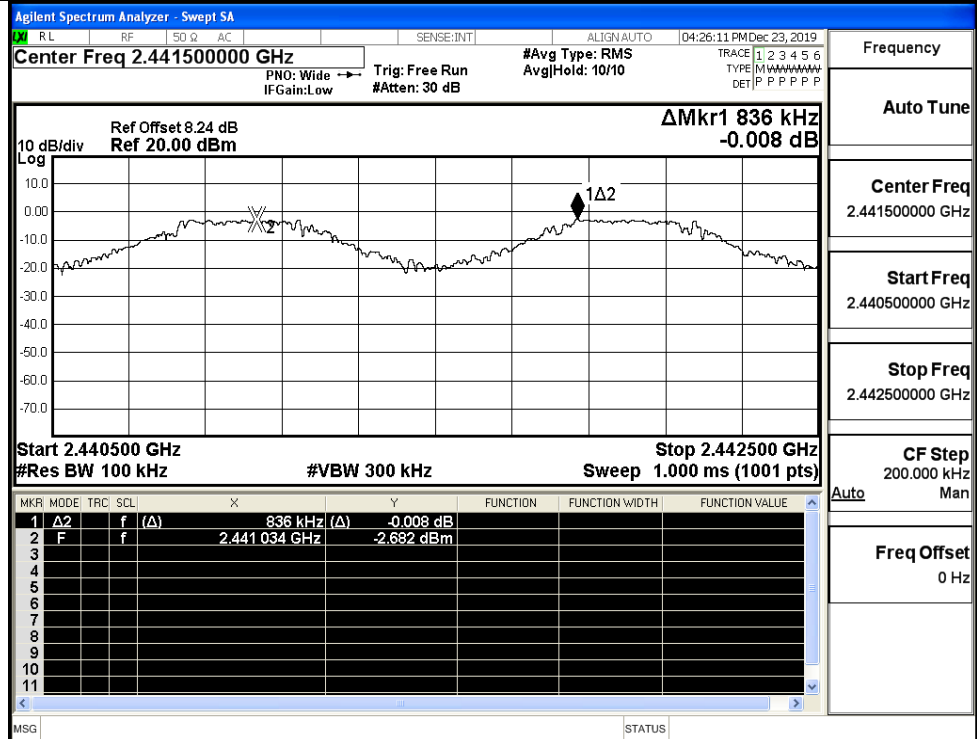
### A.3 Carrier Frequency Separation

| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | LCH      | 0.834                              | 0.686       | PASS    |
|               | MCH      | 0.836                              | 0.686       | PASS    |
|               | HCH      | 1.148                              | 0.686       | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.014                              | 0.879       | PASS    |
|               | MCH      | 1.110                              | 0.879       | PASS    |
|               | HCH      | 1.300                              | 0.879       | PASS    |
| 8DPSK         | LCH      | 1.130                              | 0.867       | PASS    |
|               | MCH      | 1.278                              | 0.867       | PASS    |
|               | HCH      | 0.942                              | 0.867       | PASS    |

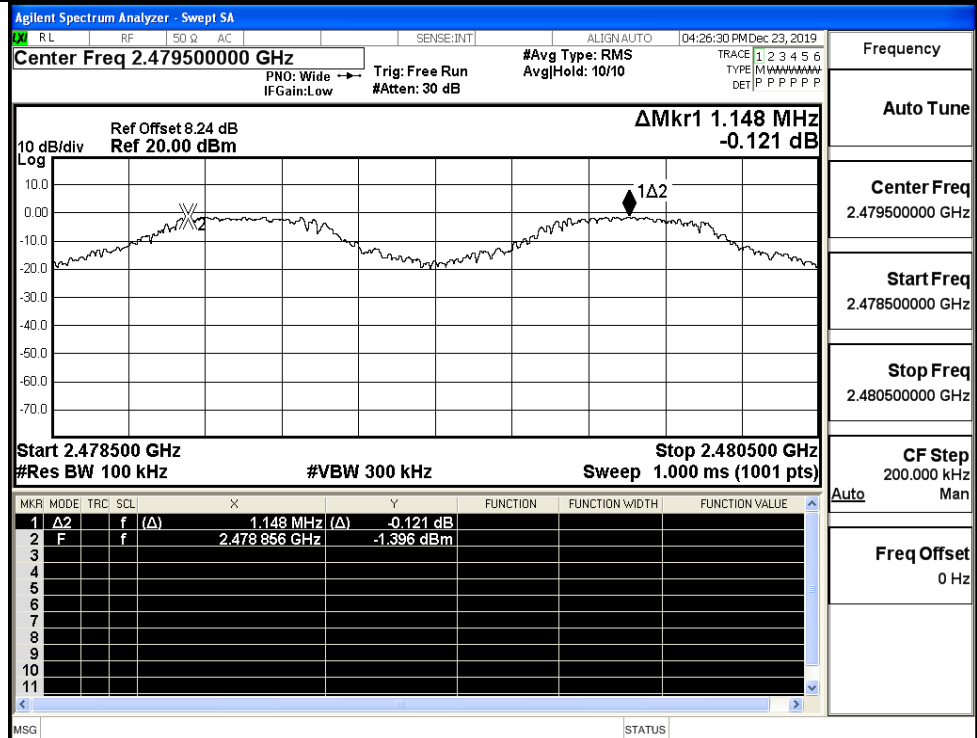
#### Test Graphs

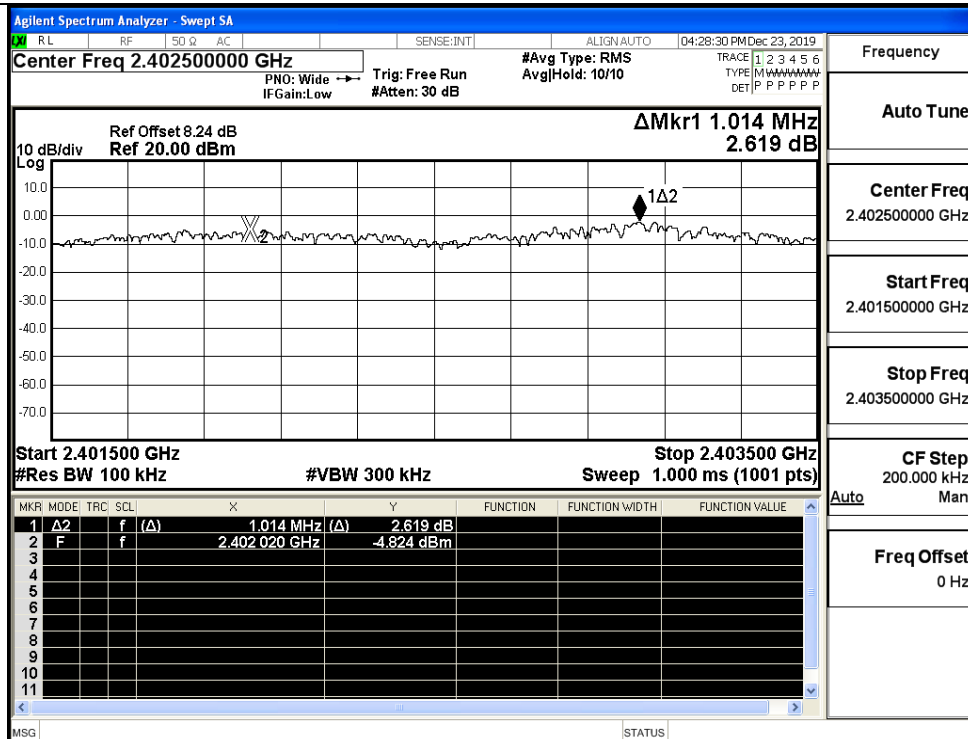
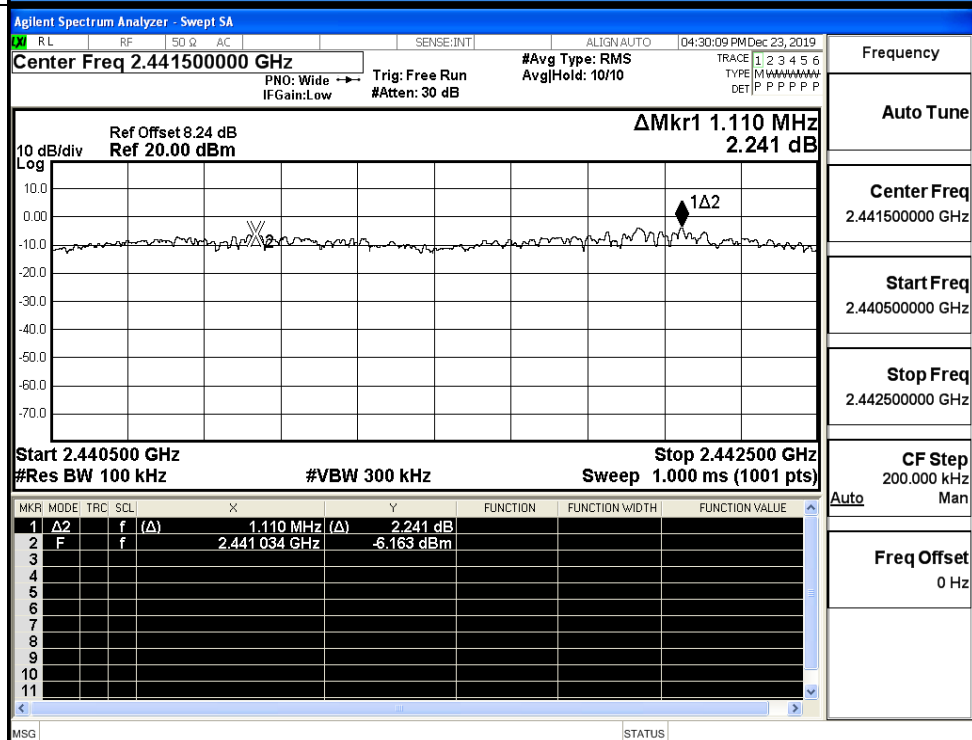


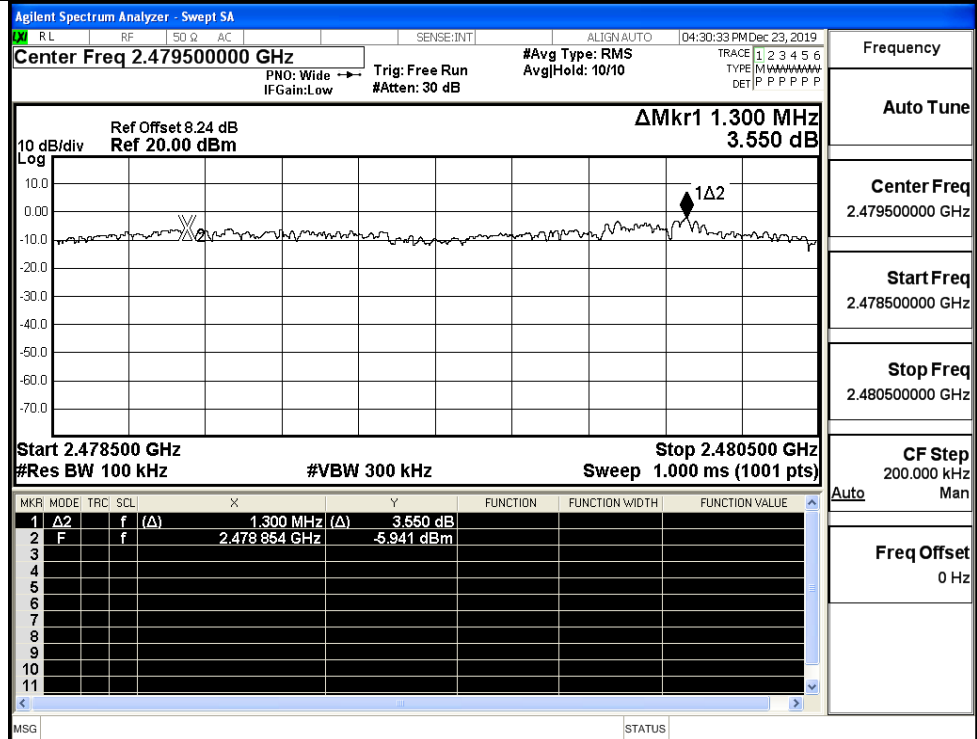
GFSK/MCH



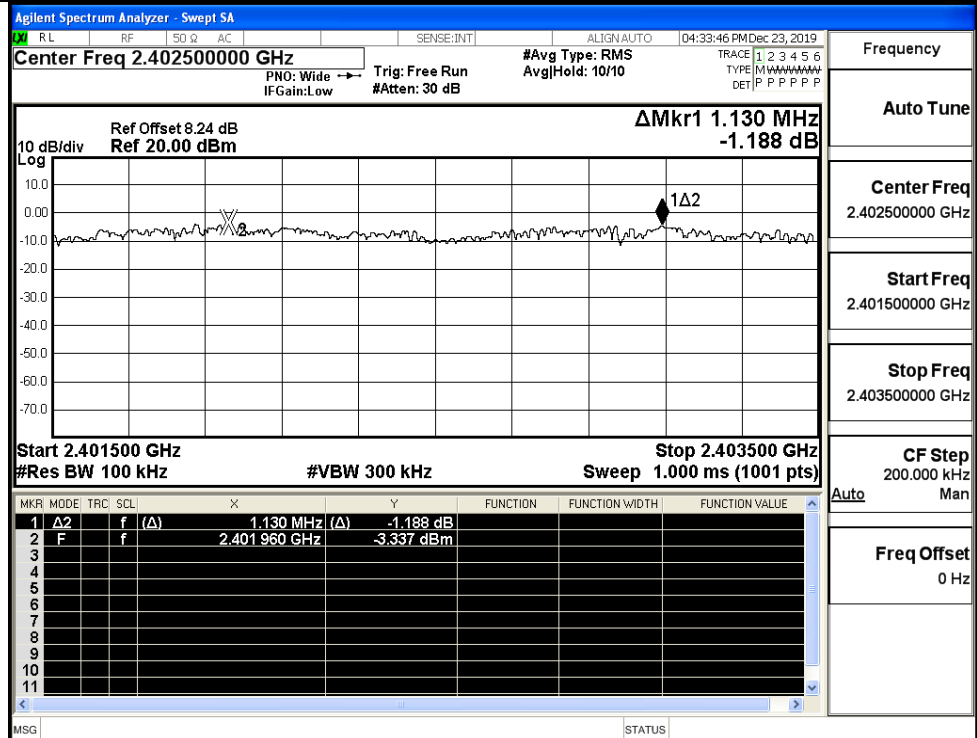
GFSK/HCH

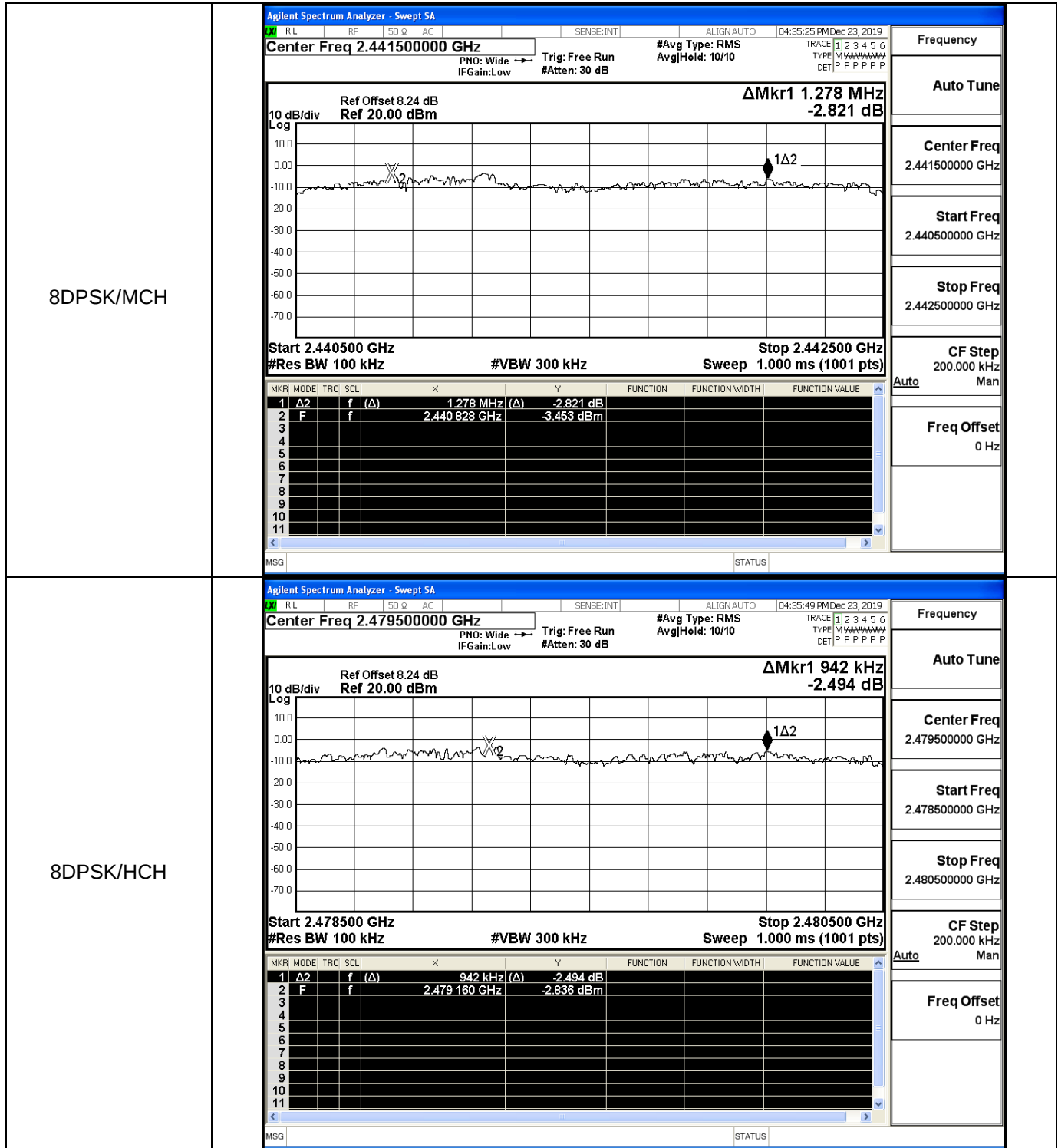


$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

8DPSK/LCH



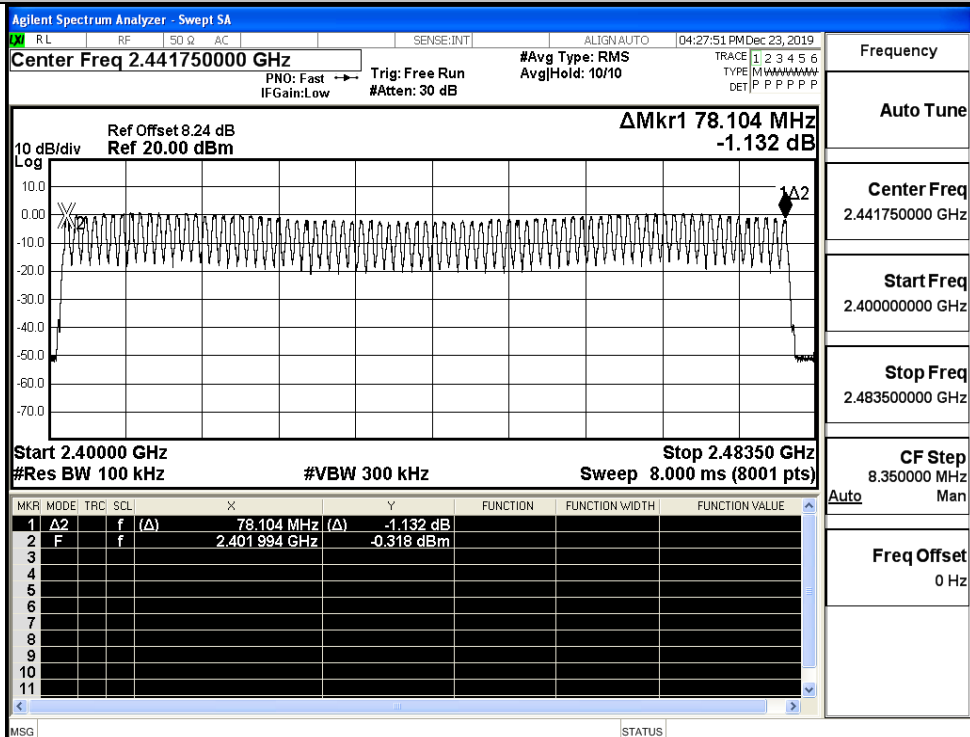
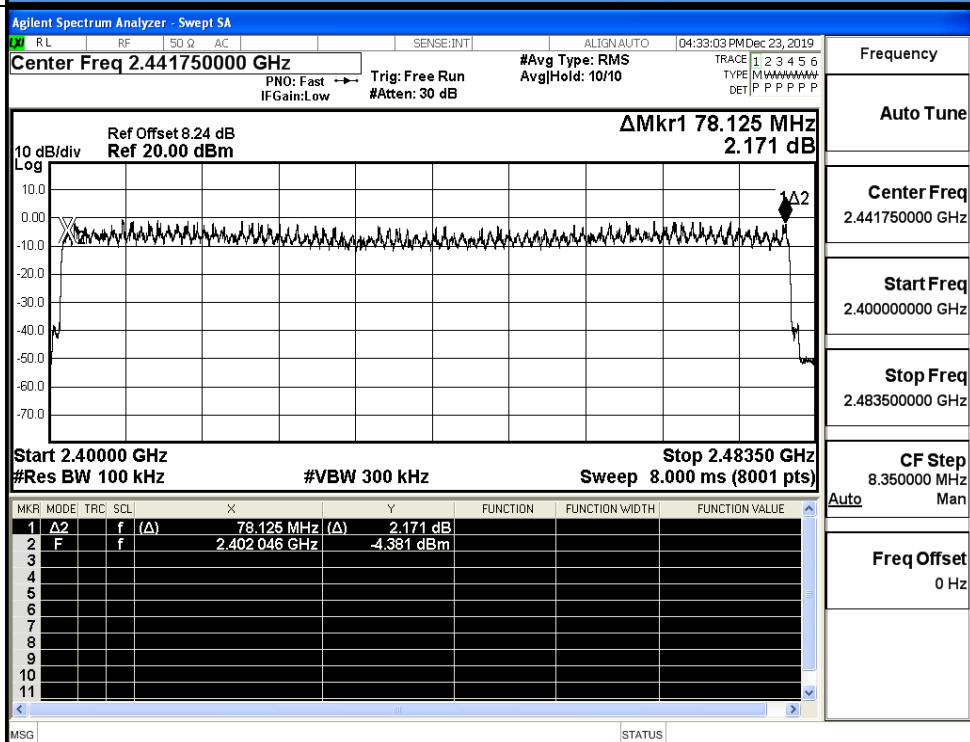


#### A.4 Hopping Channel Number

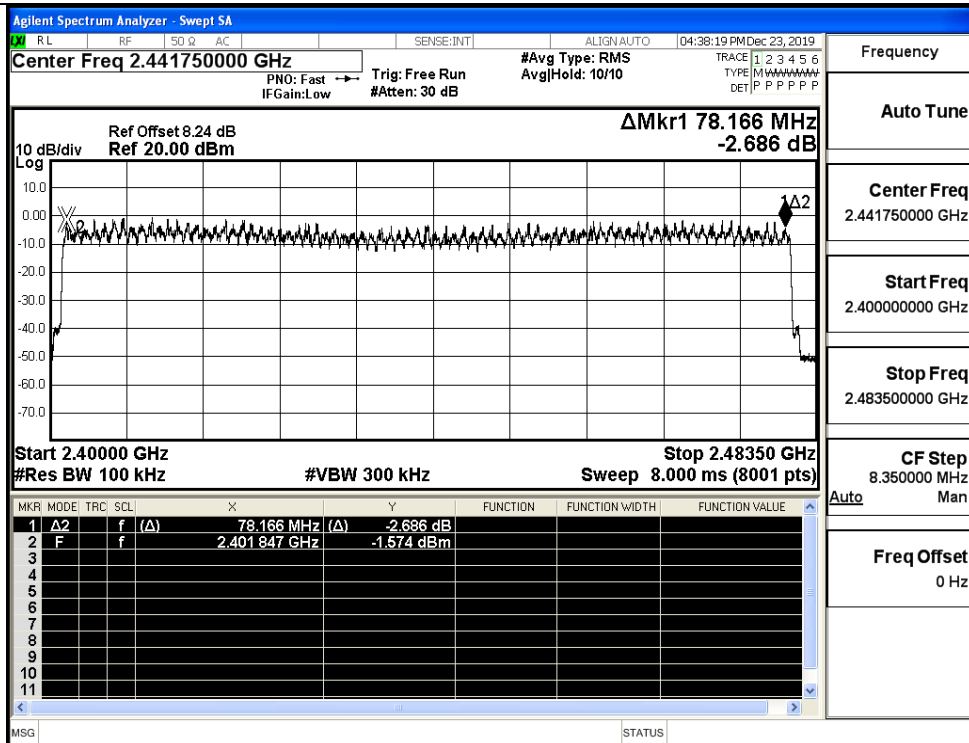
| Mode          | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK          | Hop      | 79                            | >=15      | PASS    |
| $\pi/4$ DQPSK | Hop      | 79                    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

## Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

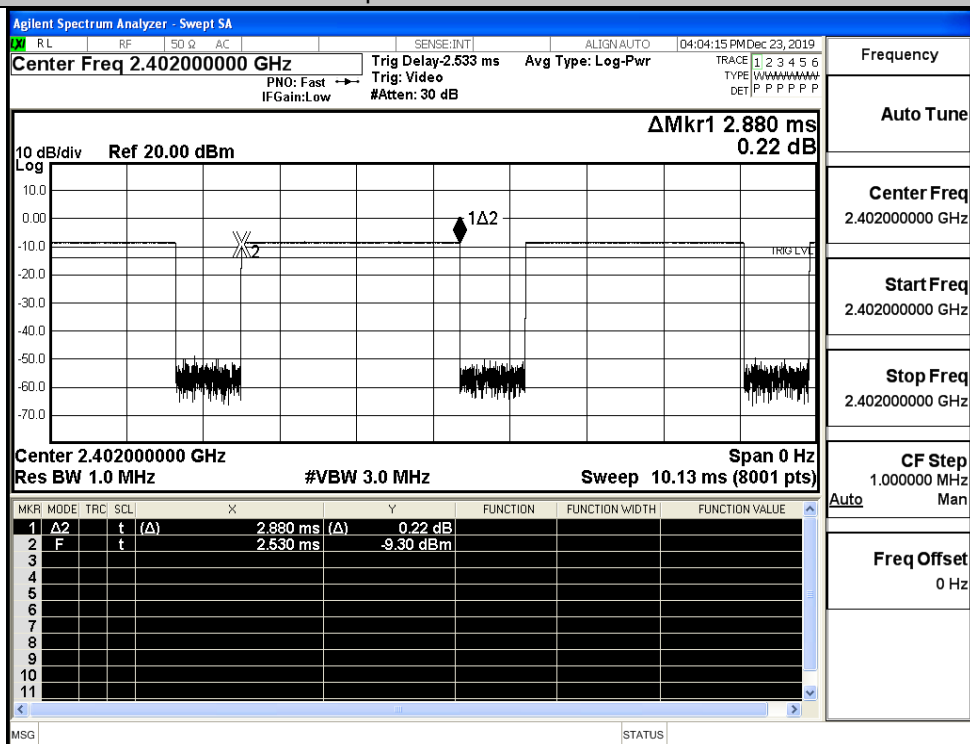


## A.5 Dwell Time

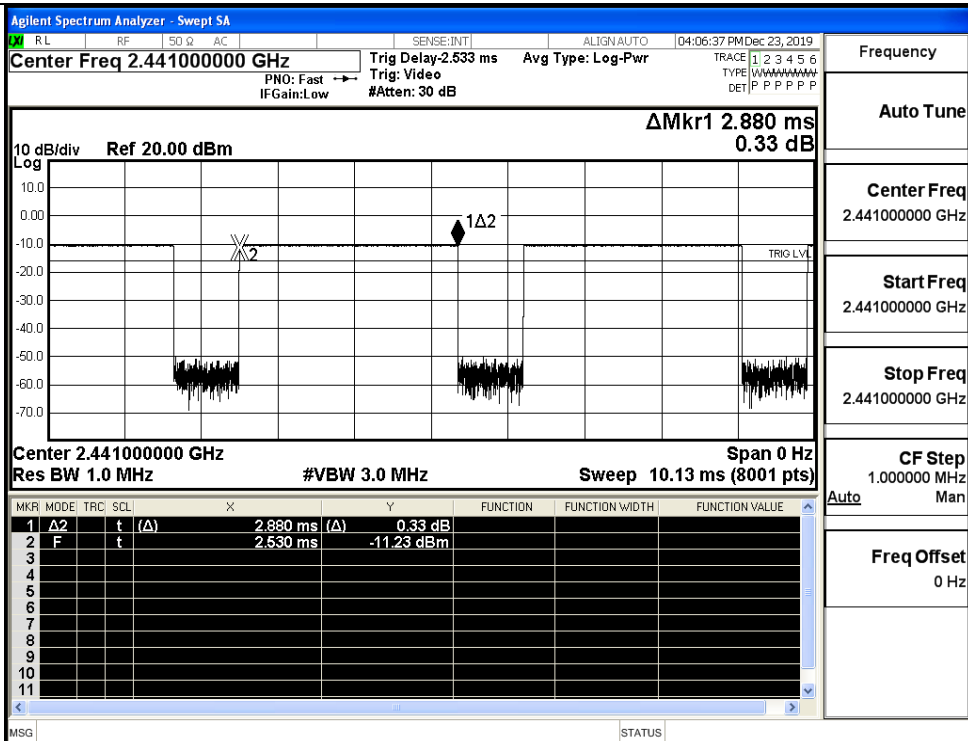
| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[s] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|---------------|-----------|---------|
| GFSK          | DH5    | LCH     | 2.88                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | DH5    | MCH     | 2.88                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | DH5    | HCH     | 2.88                       | 106.7                 | 0.307         | 0.4       | PASS    |
| $\pi/4$ DQPSK | 2DH5   | LCH     | 2.88                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 2DH5   | MCH     | 2.88                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 2DH5   | HCH     | 2.88                       | 106.7                 | 0.307         | 0.4       | PASS    |
| 8DPSK         | 3DH5   | LCH     | 2.88                       | 106.7                 | 0.308         | 0.4       | PASS    |
|               | 3DH5   | MCH     | 2.88                       | 106.7                 | 0.308         | 0.4       | PASS    |
|               | 3DH5   | HCH     | 2.88                       | 106.7                 | 0.308         | 0.4       | PASS    |

## Test Graphs

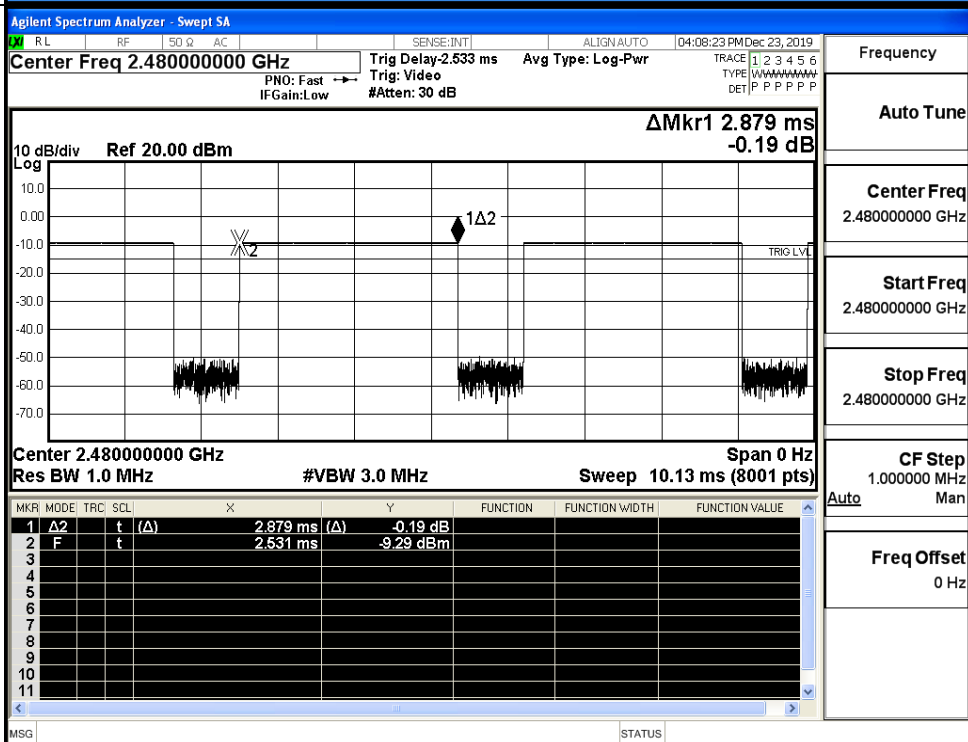
GFSK\_DH5/LCH



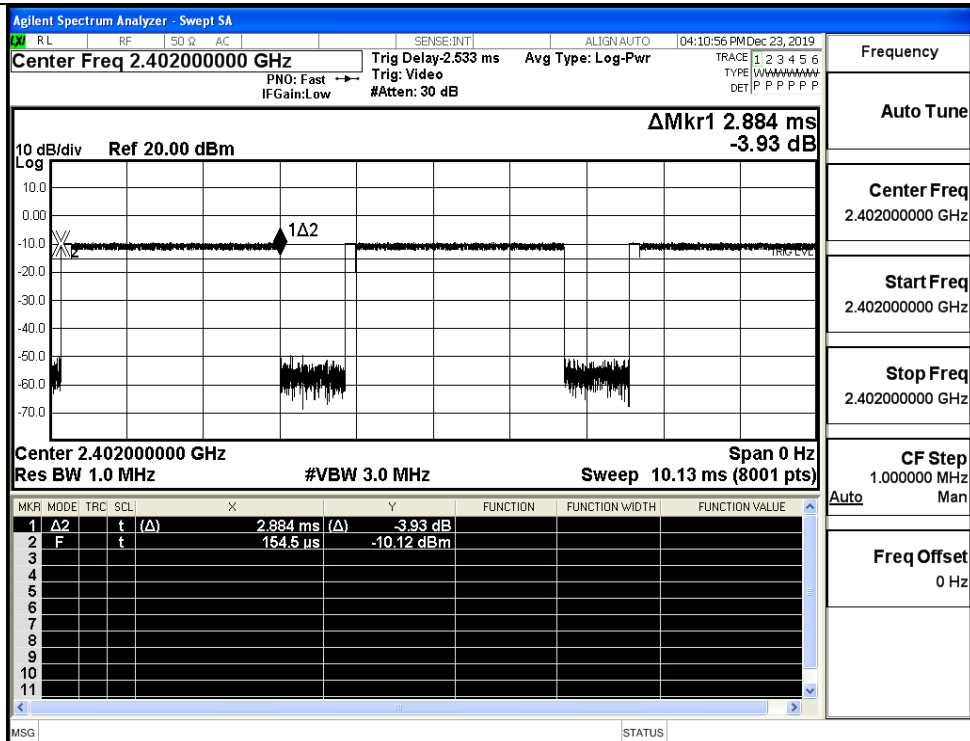
GFSK\_DH5/MCH



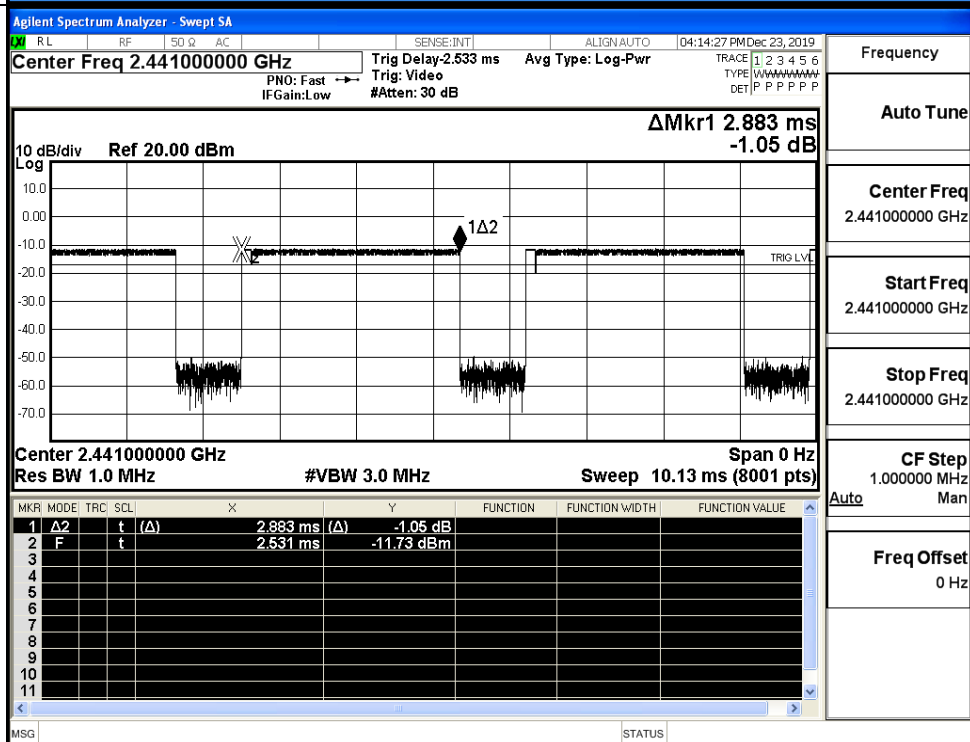
GFSK\_DH5/HCH



$\pi/4$ DQPSK  
\_2DH5/LCH



$\pi/4$ DQPSK  
\_2DH5/MCH



Agilent Spectrum Analyzer - Swept SA

RL RF 50  $\Omega$  AC SENSE:INT ALIGN: AUTO 04:16:10 PM Dec 23, 2019

Center Freq 2.480000000 GHz Trig Delay: 2.533 ms Avg Type: Log-Pwr PNO: Fast IF Gain: Low Trig: Video #Atten: 30 dB TRACE 1 2 3 4 5 6 TYPE P P P P P P P P DET P P P P P P P P

10 dB/div Ref 20.00 dBm  $\Delta$ Mkr1 2.884 ms -1.67 dB

Center Freq 2.480000000 GHz Span 0 Hz  
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)

| MKR | MODE       | TRC | SCL          | X             | Y                     | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |
|-----|------------|-----|--------------|---------------|-----------------------|----------|----------------|----------------|
| 1   | $\Delta$ 2 | t   | ( $\Delta$ ) | 2.884 ms      | ( $\Delta$ ) -1.67 dB |          |                |                |
| 2   | F          | t   |              | 481.3 $\mu$ s | -11.57 dBm            |          |                |                |
| 3   |            |     |              |               |                       |          |                |                |
| 4   |            |     |              |               |                       |          |                |                |
| 5   |            |     |              |               |                       |          |                |                |
| 6   |            |     |              |               |                       |          |                |                |
| 7   |            |     |              |               |                       |          |                |                |
| 8   |            |     |              |               |                       |          |                |                |
| 9   |            |     |              |               |                       |          |                |                |
| 10  |            |     |              |               |                       |          |                |                |
| 11  |            |     |              |               |                       |          |                |                |

MSG STATUS

Frequency 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

**Agilent Spectrum Analyzer - Swept SA**

RL RF 50 Ω AC SENSE:INT ALIGN:AUTO [04:18:58 PM Dec 23, 2019]

**Center Freq 2.402000000 GHz** Trig Delay: 2.533 ms Avg Type: Log-Pwr  
PNO: Fast → Trg: Video IF Gain: Low #Atten: 30 dB TRACE 1 2 3 4 5 6  
TYPE P P P P P P DET P P P P P P

**ΔMkr1 2.885 ms**  
**0.67 dB**

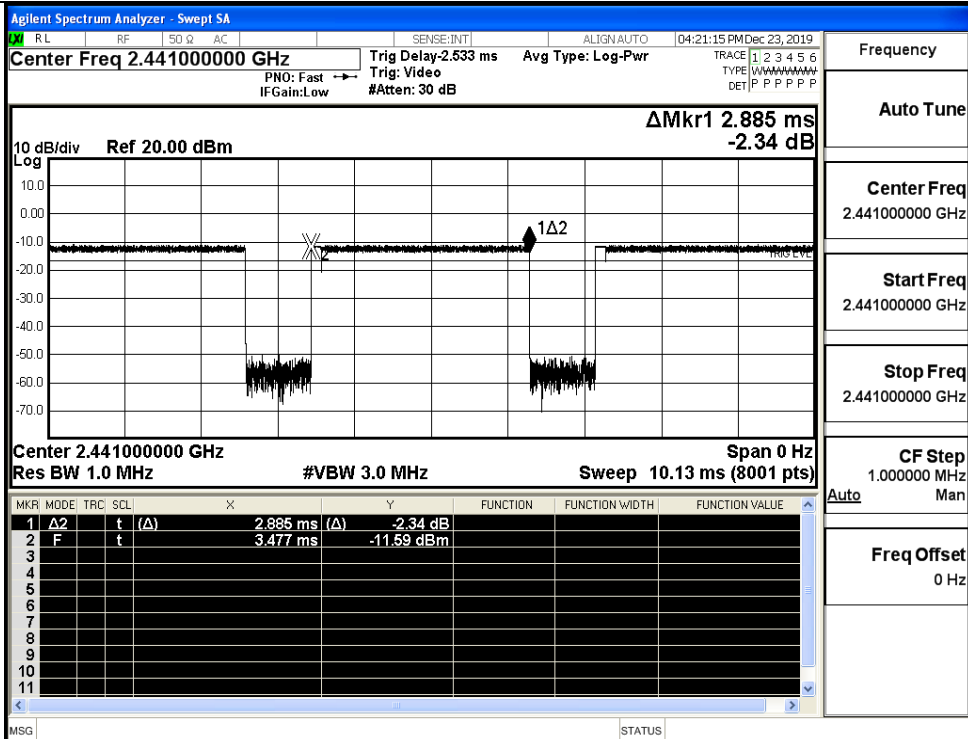
10 dB/div Ref 20.00 dBm

| MKR | MODE | TRC | SCL | X        | Y           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |
|-----|------|-----|-----|----------|-------------|----------|----------------|----------------|
| 1   | Δ2   | t   | (Δ) | 2.885 ms | (Δ) 0.67 dB |          |                |                |
| 2   | F    | t   |     | 1.191 ms | -11.73 dBm  |          |                |                |
| 3   |      |     |     |          |             |          |                |                |
| 4   |      |     |     |          |             |          |                |                |
| 5   |      |     |     |          |             |          |                |                |
| 6   |      |     |     |          |             |          |                |                |
| 7   |      |     |     |          |             |          |                |                |
| 8   |      |     |     |          |             |          |                |                |
| 9   |      |     |     |          |             |          |                |                |
| 10  |      |     |     |          |             |          |                |                |
| 11  |      |     |     |          |             |          |                |                |

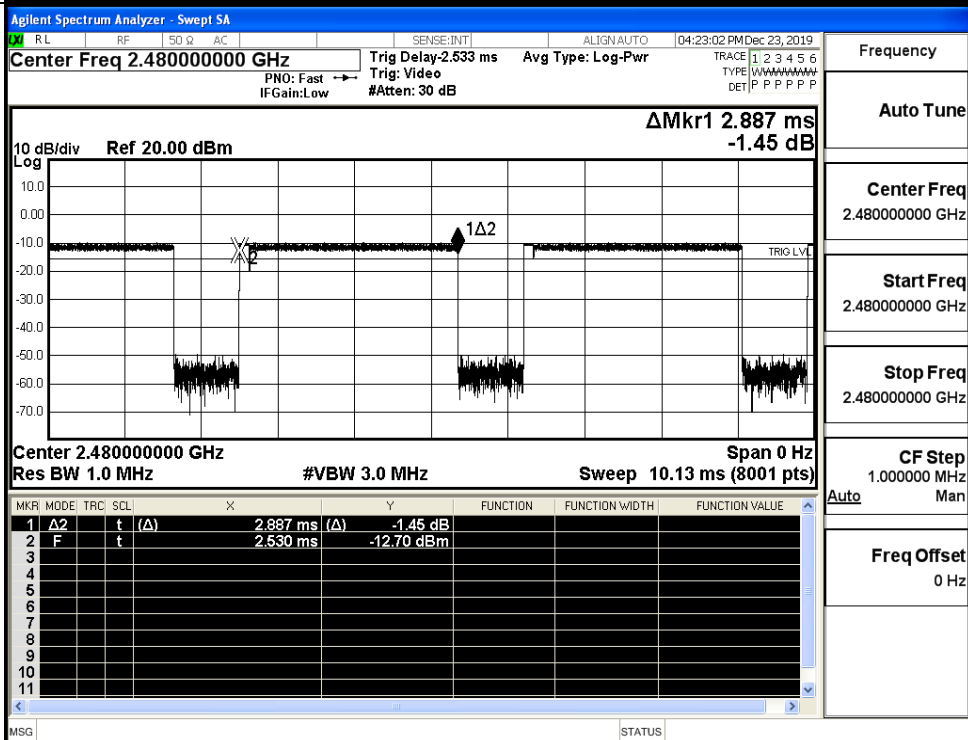
**Center 2.402000000 GHz** Span 0 Hz  
**Res BW 1.0 MHz** #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)  
Auto Man

**Freq Offset**  
0 Hz

8DPSK\_3DH5/MCH



8DPSK\_3DH5/HCH

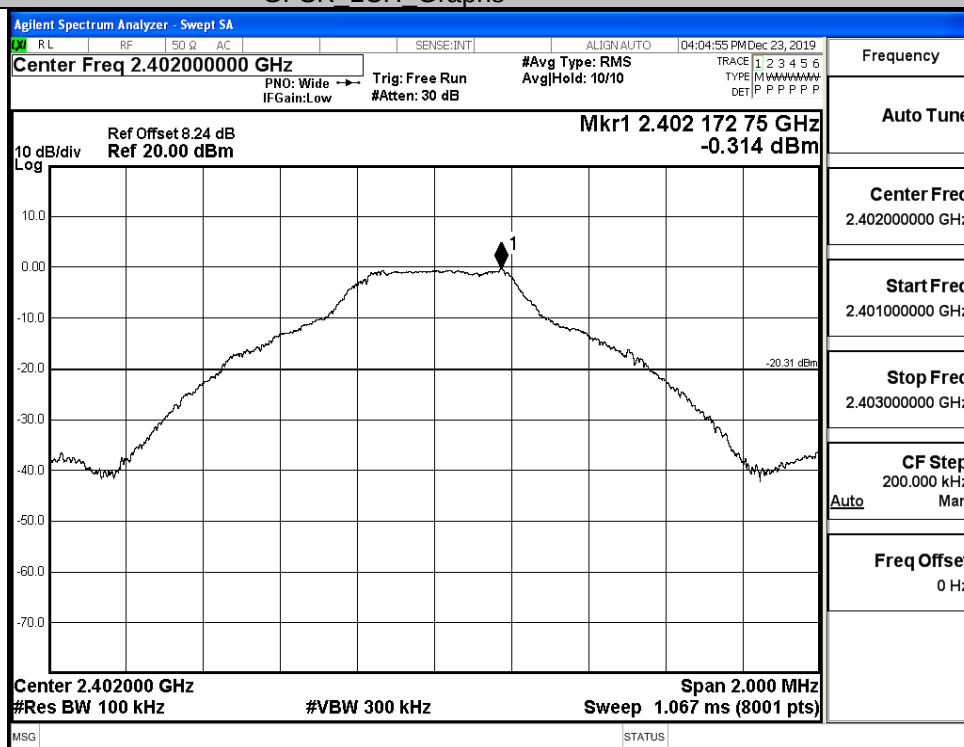


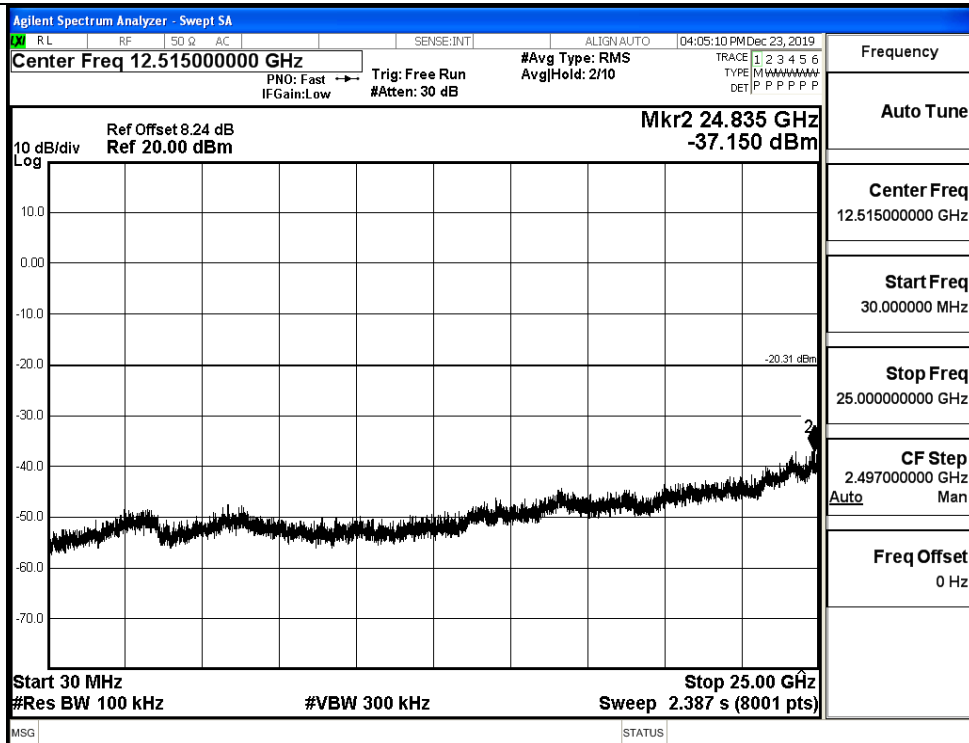
## A.6 RF Conducted Spurious Emissions

| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK          | LCH     | -0.314     | -37.150          | -20.314     | PASS    |
|               | MCH     | -2.144     | -37.887          | -22.144     | PASS    |
|               | HCH     | -0.983     | -36.461          | -20.983     | PASS    |
| $\pi/4$ DQPSK | LCH     | -1.64      | -37.307          | -21.640     | PASS    |
|               | MCH     | -3.438     | -37.347          | -23.438     | PASS    |
|               | HCH     | -2.363     | -36.635          | -22.363     | PASS    |
| 8DPSK         | LCH     | -1.472     | -36.968          | -21.472     | PASS    |
|               | MCH     | -3.844     | -37.064          | -23.844     | PASS    |
|               | HCH     | -2.983     | -37.197          | -22.983     | PASS    |

GFSK LCH Graphs

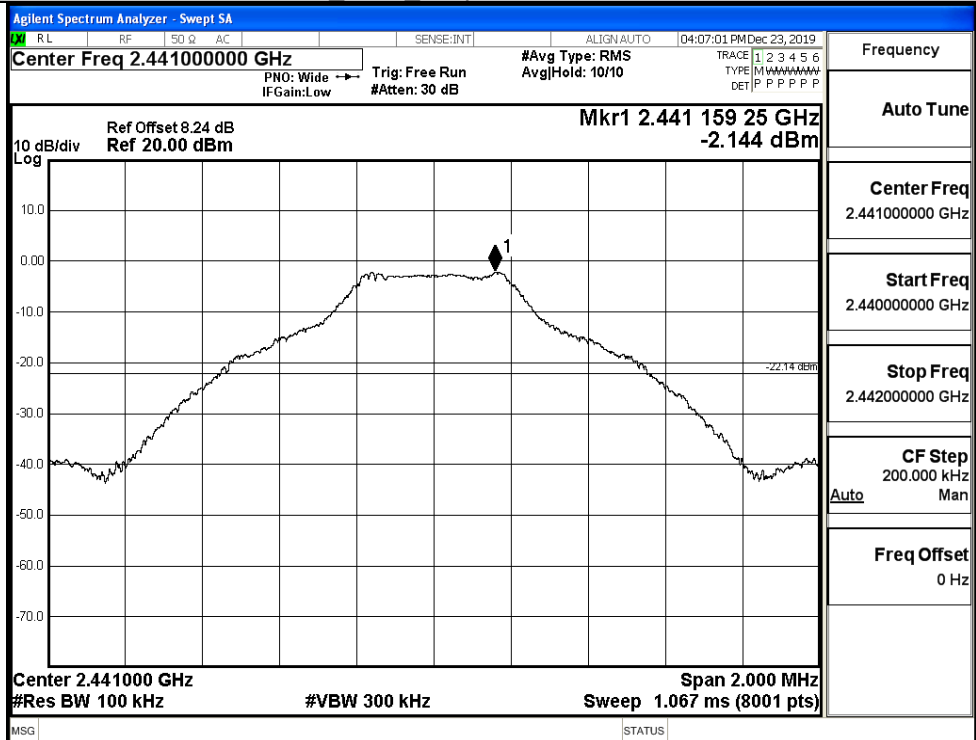
Pref



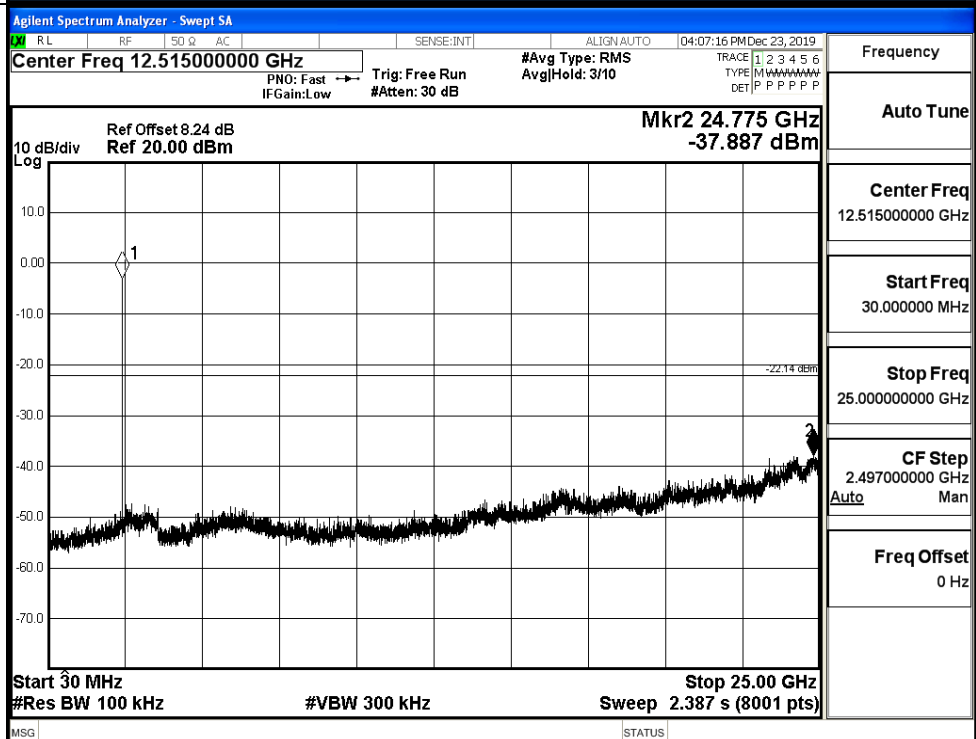
P<sub>u</sub>w

## GFSK\_MCH\_Graphs

Pref

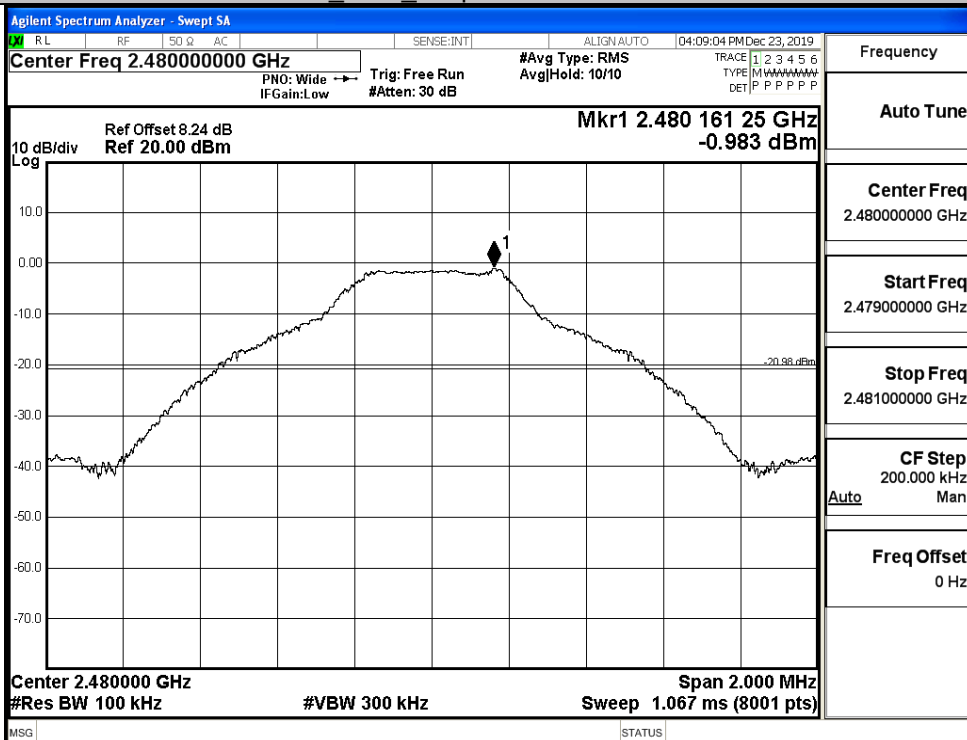


Puw

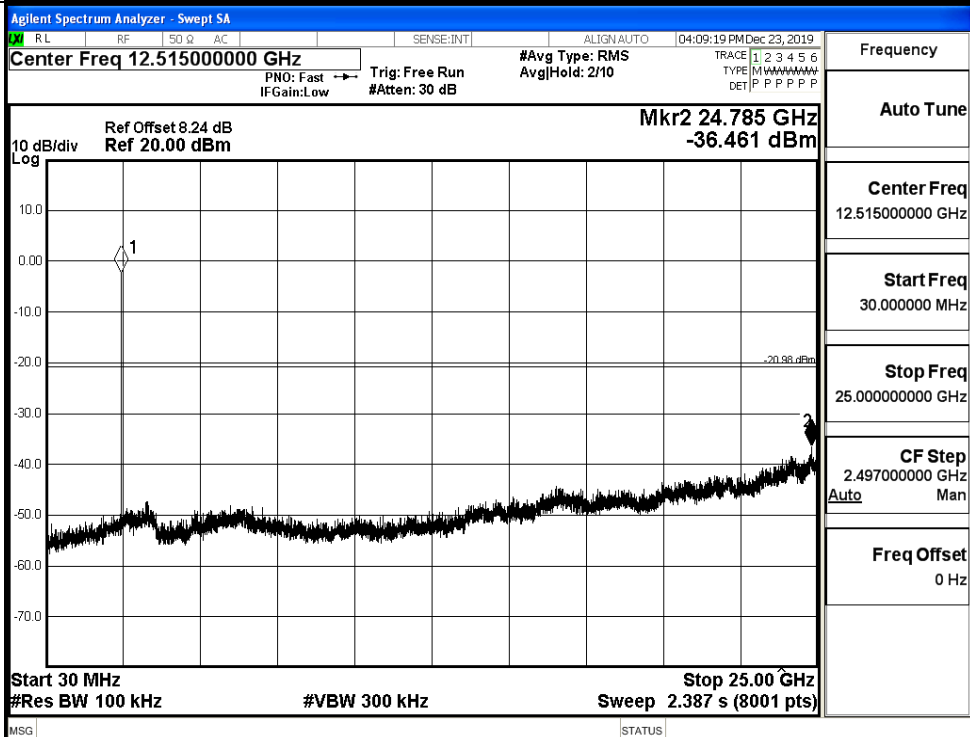


## GFSK\_HCH\_Graphs

Pref

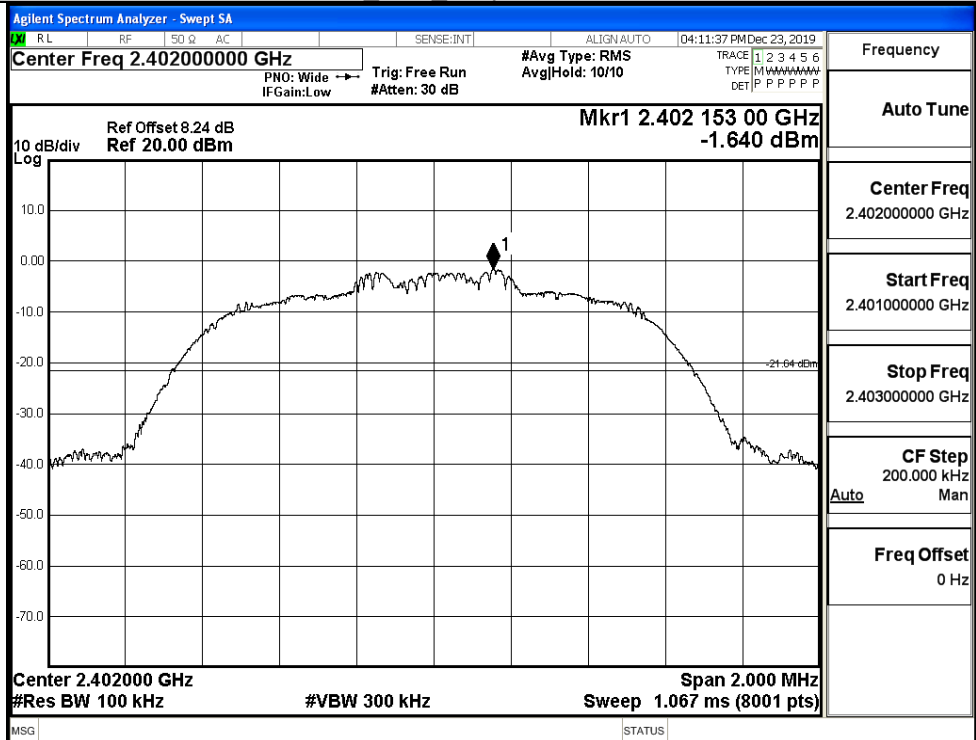


Puw

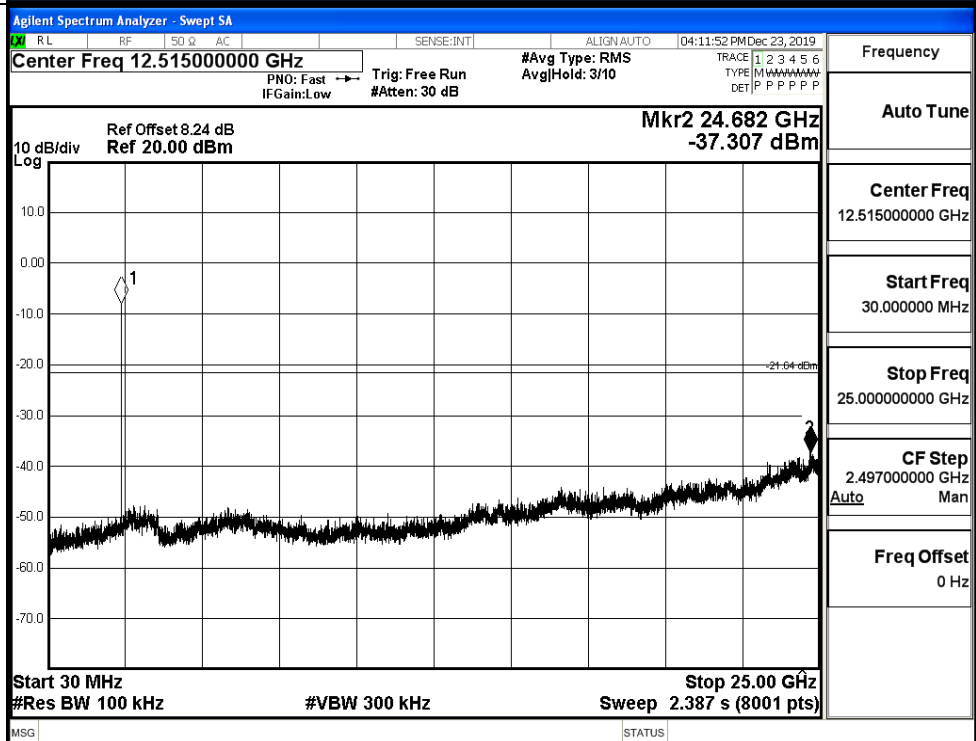


$\pi$ /4DQPSK\_LCH\_Graphs

Pref

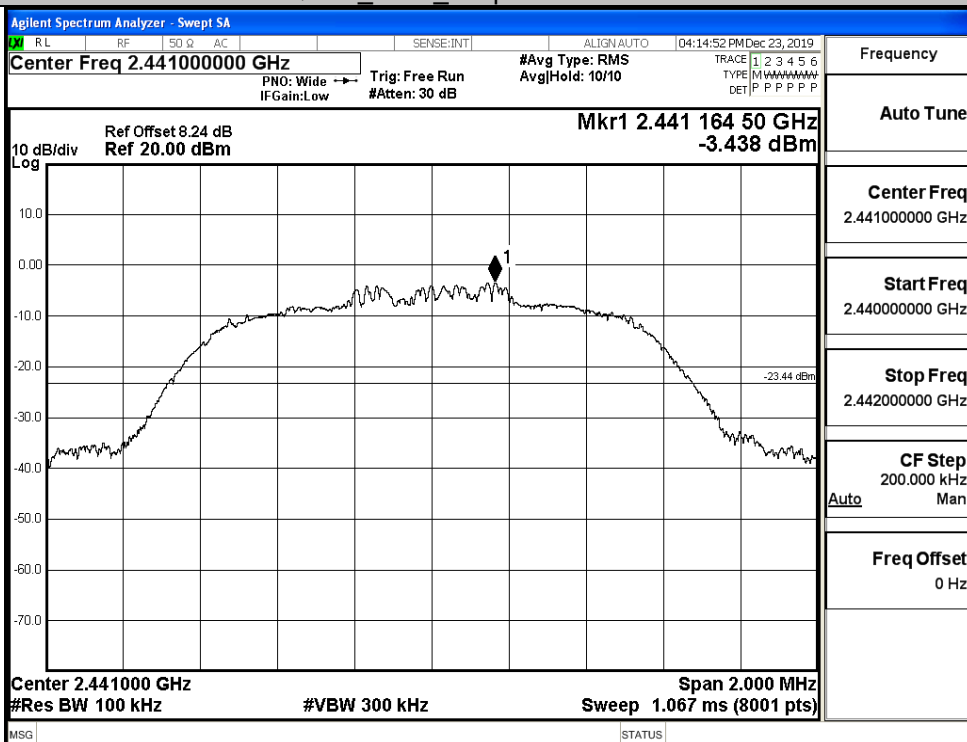


Puw

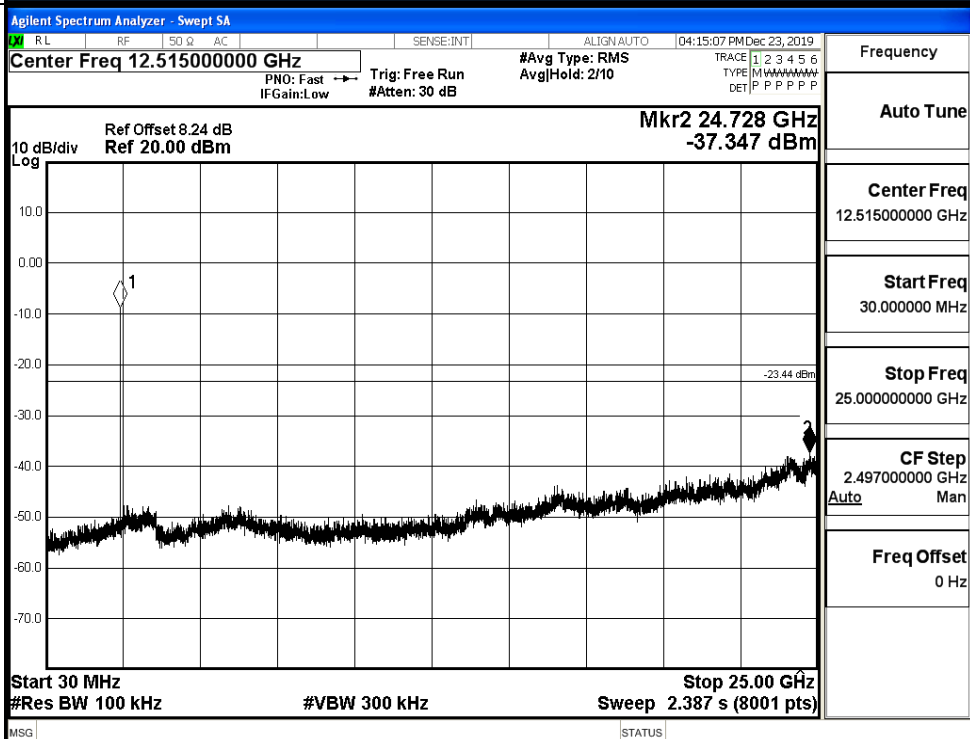


$\pi$ /4DQPSK\_MCH\_Graphs

Pref

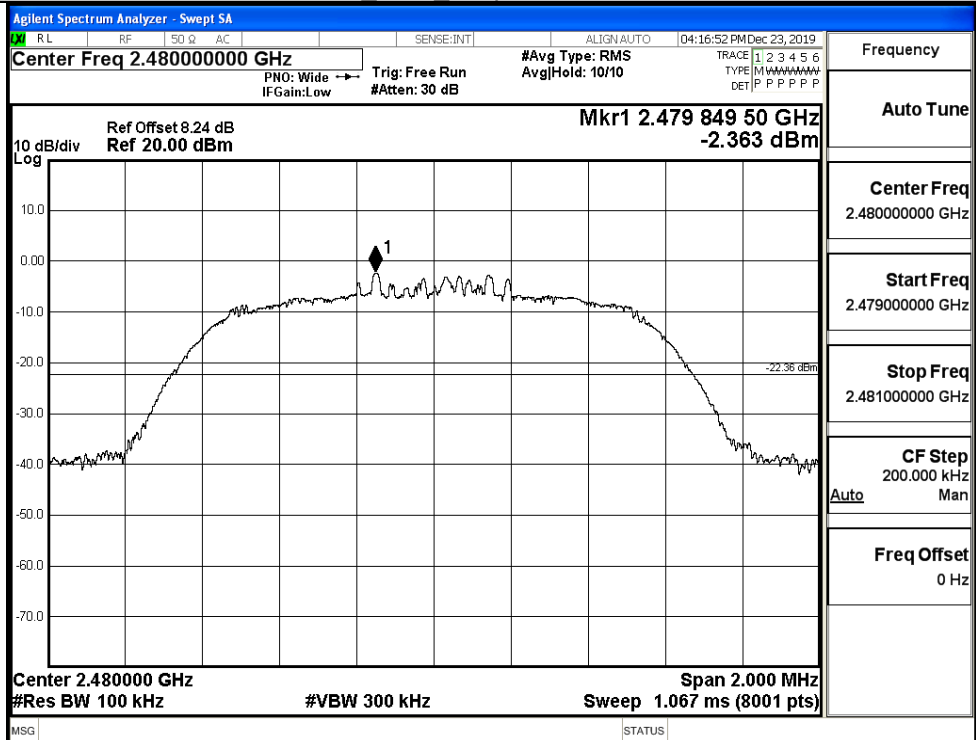


Puw

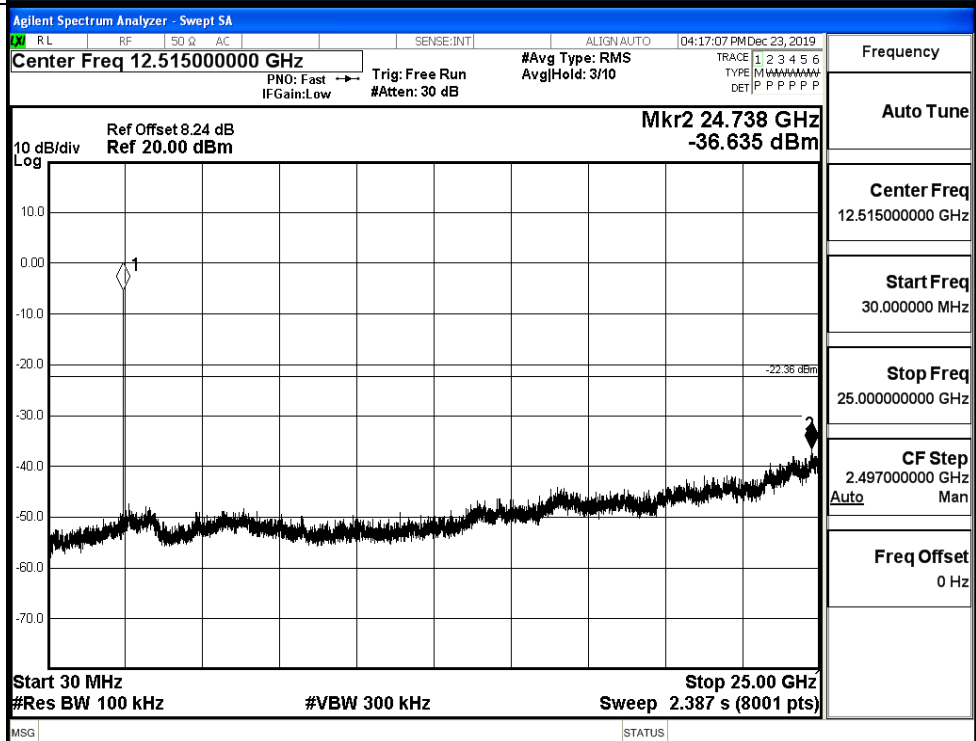


$\pi$ /4DQPSK\_HCH\_Graphs

Pref

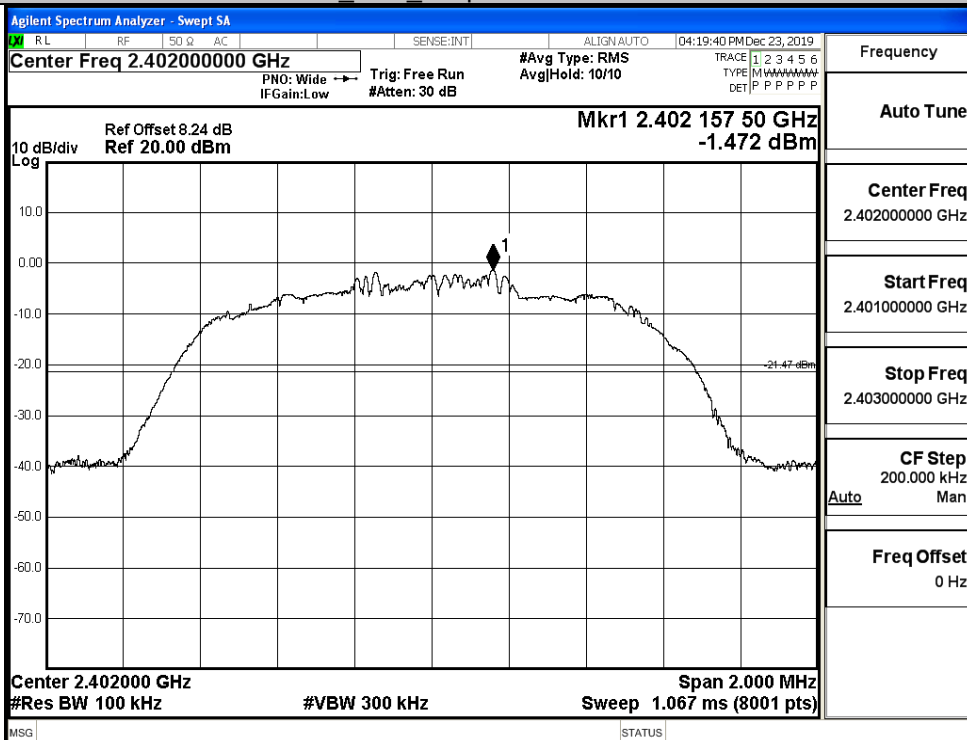


Puw

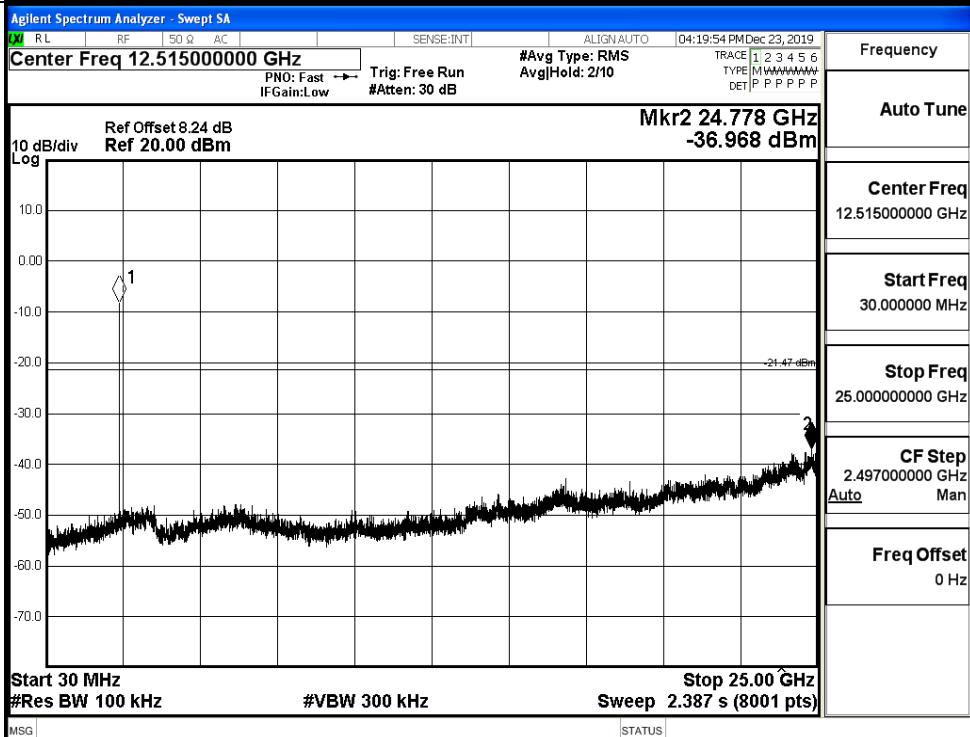


## 8DPSK\_LCH\_Graphs

Pref

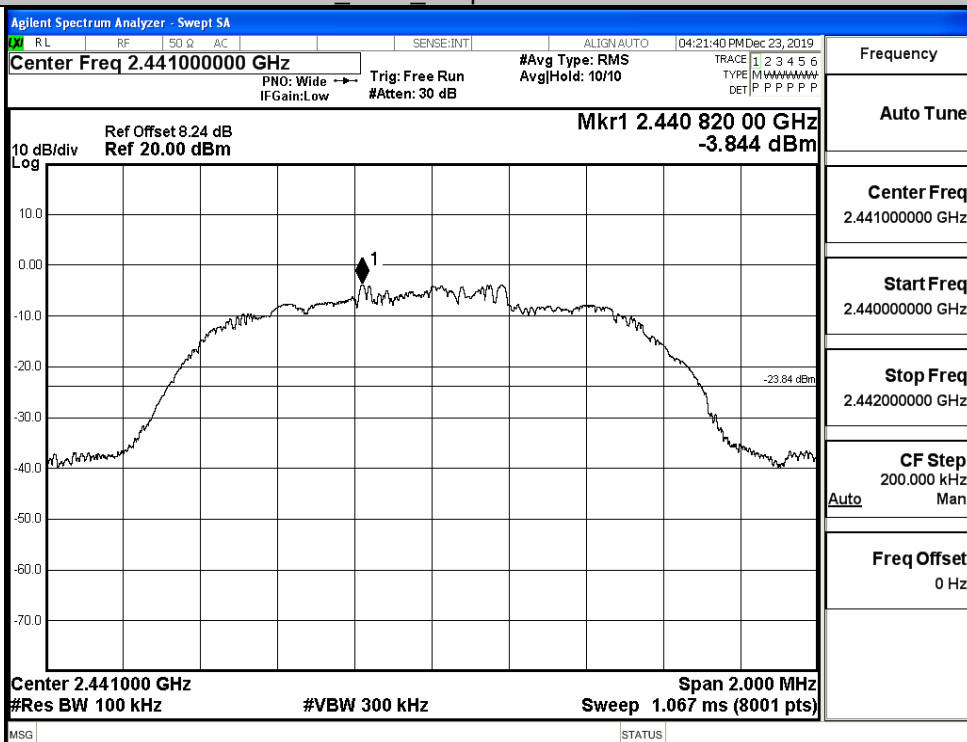


Puw

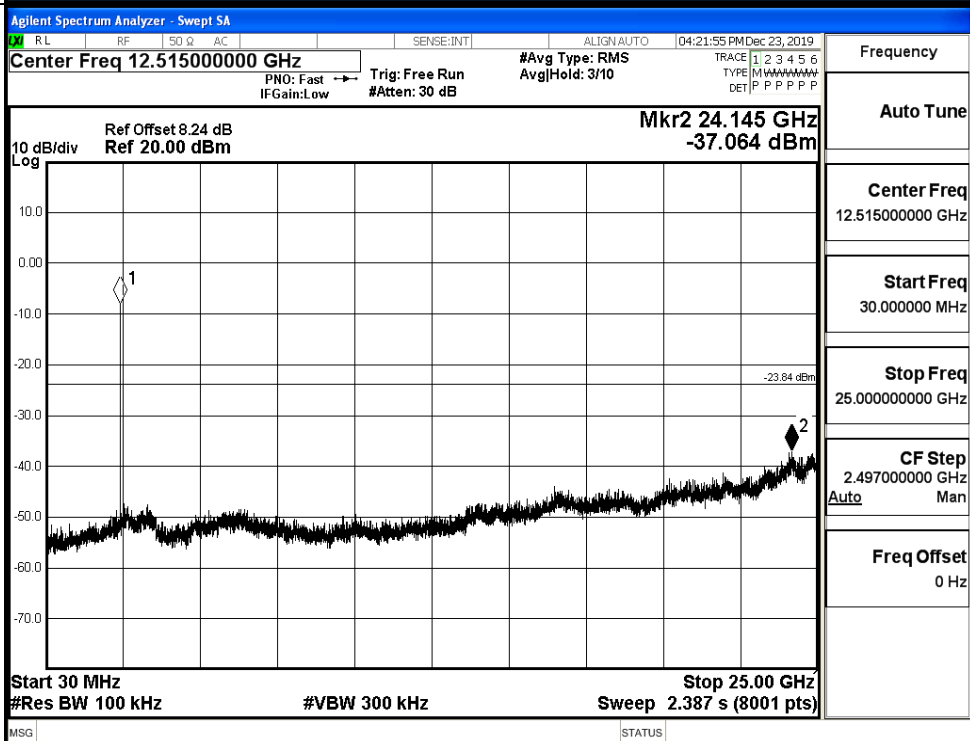


## 8DPSK\_MCH\_Graphs

Pref

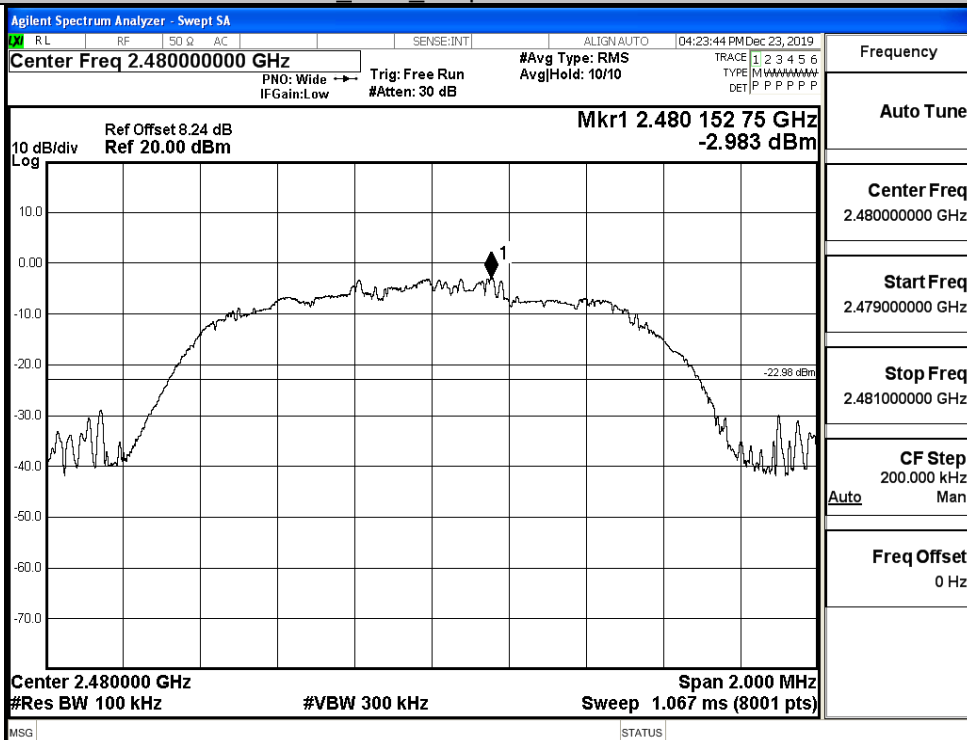


Puw

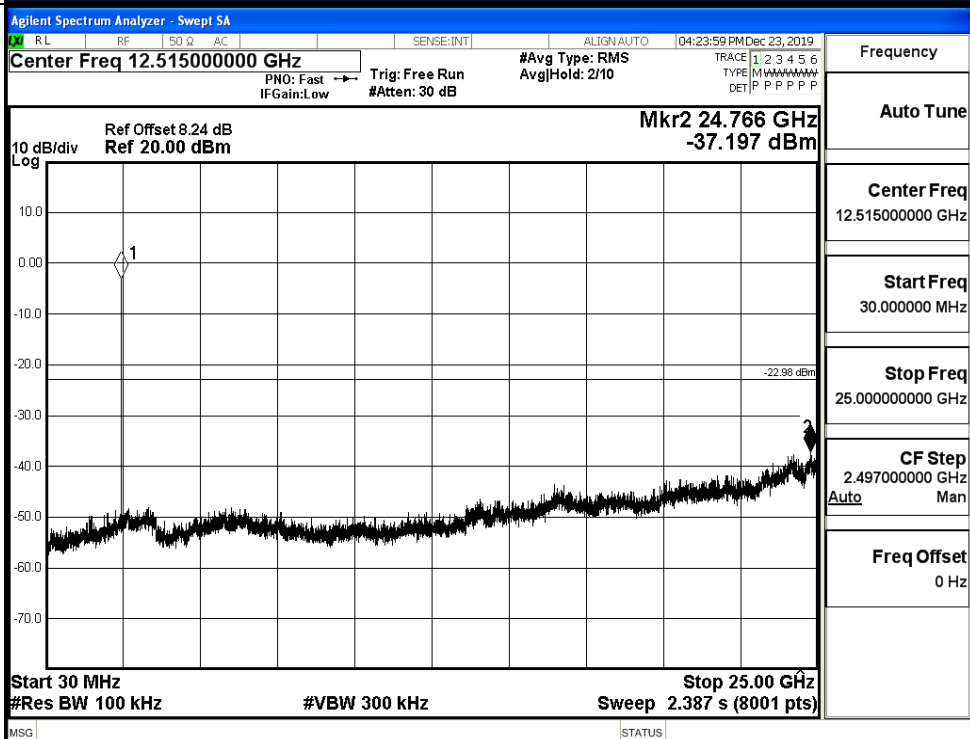


## 8DPSK\_HCH\_Graphs

Pref



Puw

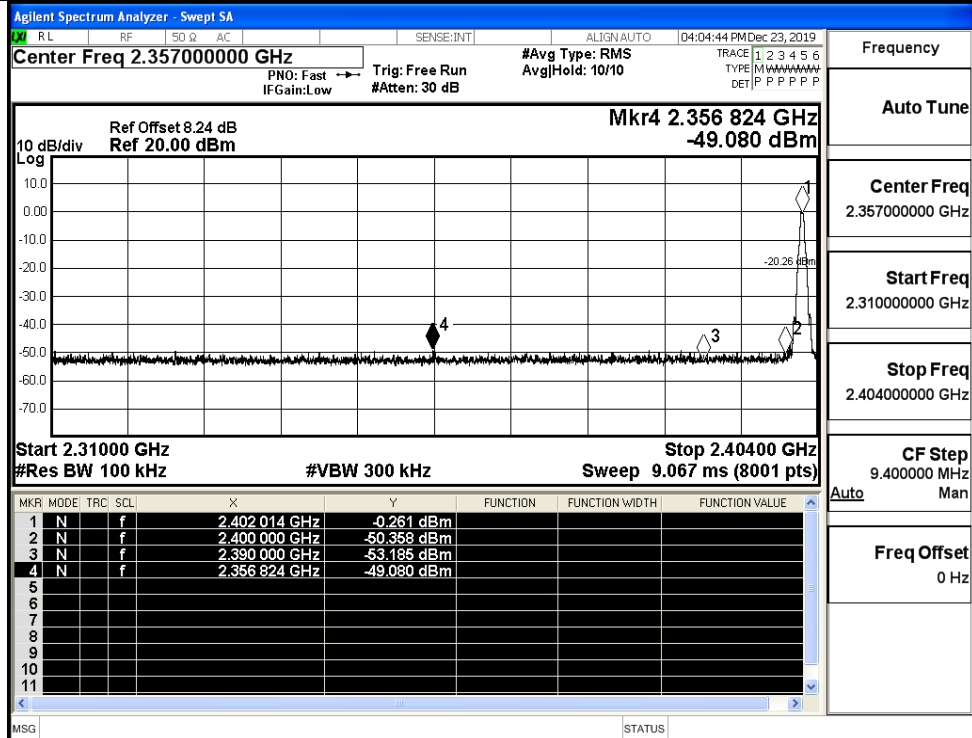


## A.7 Band-edge for RF Conducted Emissions

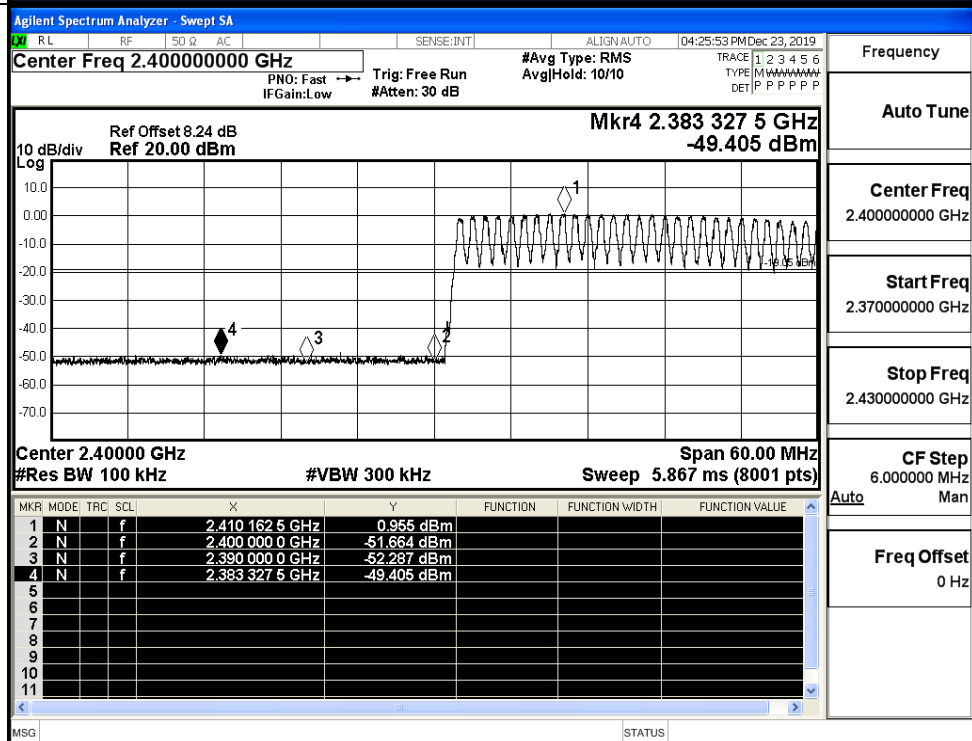
| Mode          | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | -0.261              | Off               | -49.080                  | -20.26      | PASS    |
|               |         |                         | 0.955               | On                | -49.405                  | -19.05      | PASS    |
|               | HCH     | 2480                    | -1.024              | Off               | -48.747                  | -21.02      | PASS    |
|               |         |                         | 0.563               | On                | -48.617                  | -19.44      | PASS    |
| $\pi/4$ DQPSK | LCH     | 2402                    | -4.313              | Off               | -49.727                  | -24.31      | PASS    |
|               |         |                         | -0.005              | On                | -48.846                  | -20.01      | PASS    |
|               | HCH     | 2480                    | -2.433              | Off               | -47.918                  | -22.43      | PASS    |
|               |         |                         | -1.349              | On                | -47.924                  | -21.35      | PASS    |
| 8DPSK         | LCH     | 2402                    | -3.290              | Off               | -48.842                  | -23.29      | PASS    |
|               |         |                         | -0.602              | On                | -48.588                  | -20.6       | PASS    |
|               | HCH     | 2480                    | -2.251              | Off               | -48.172                  | -22.25      | PASS    |
|               |         |                         | -1.623              | On                | -48.286                  | -21.62      | PASS    |

## Test Graphs

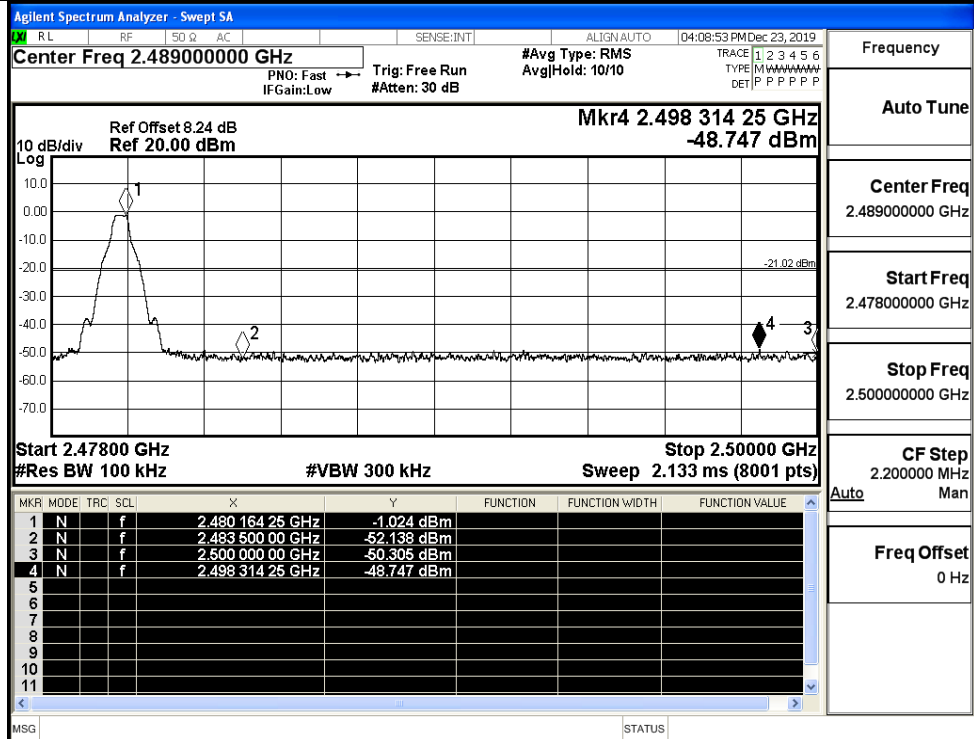
GFSK/LCH/No Hop



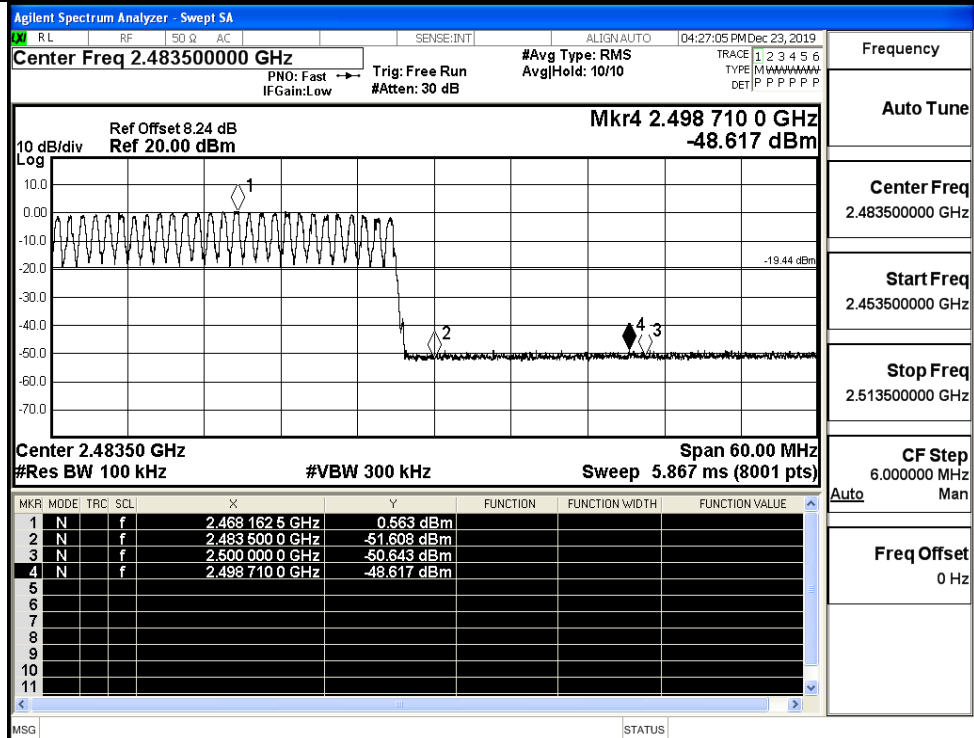
GFSK/LCH/Hop



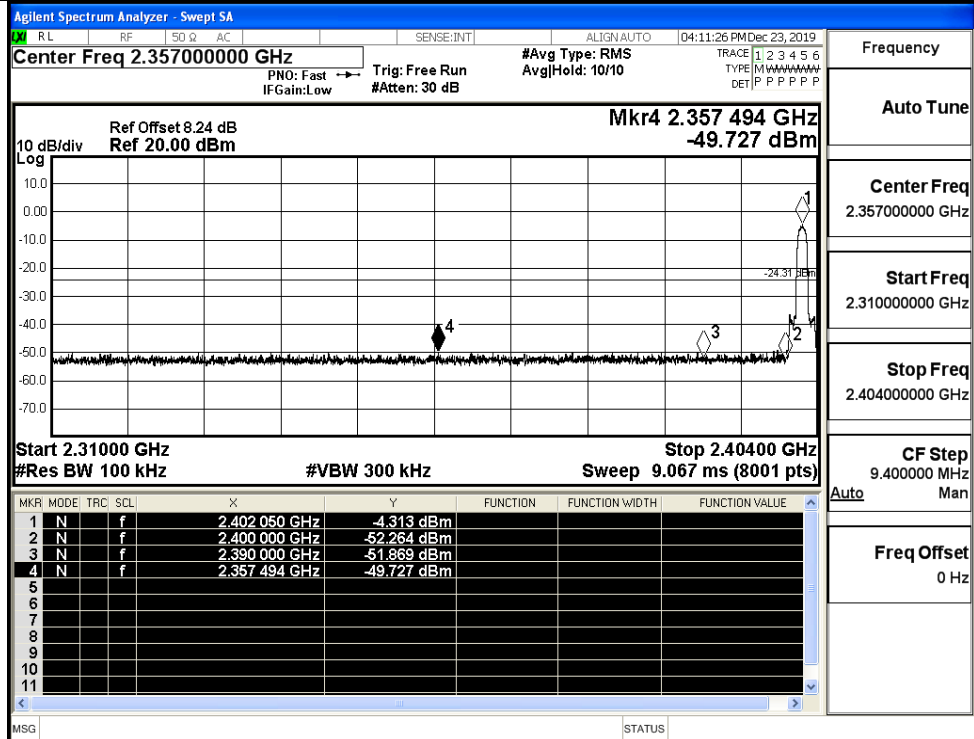
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq  
2.357000000 GHz

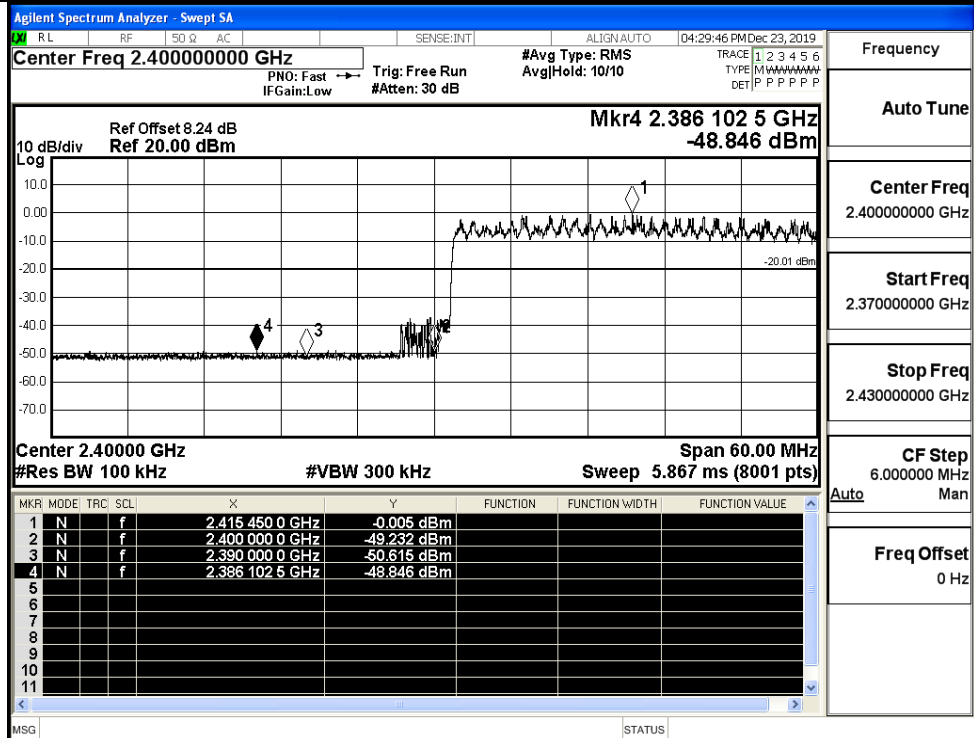
Start Freq  
2.310000000 GHz

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

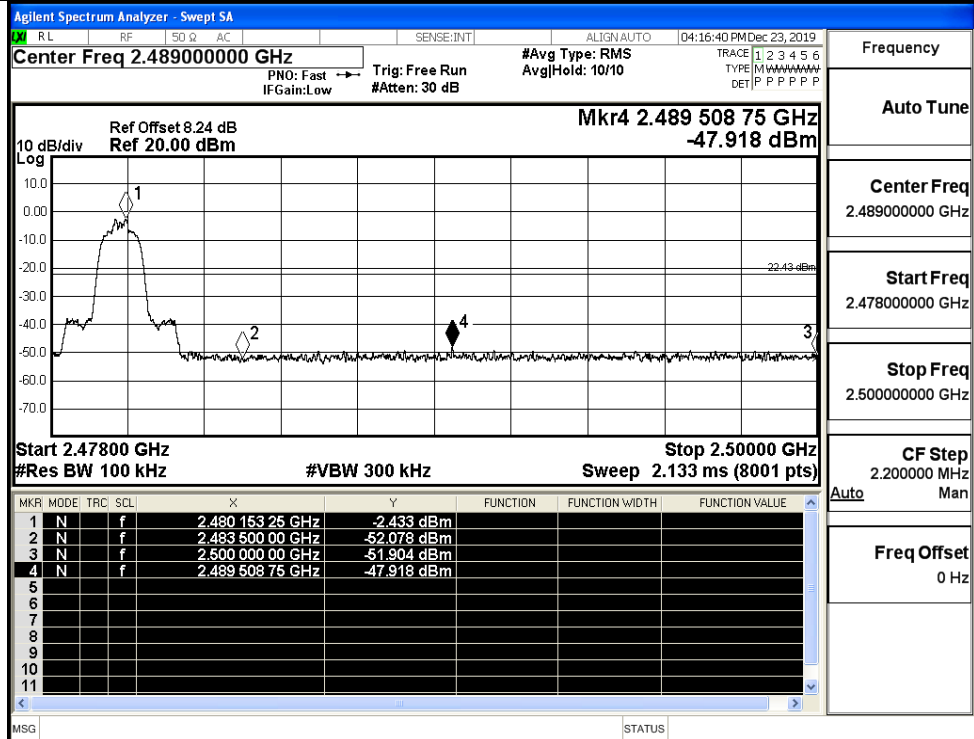
Start Freq  
2.370000000 GHz

Stop Freq  
2.430000000 GHz

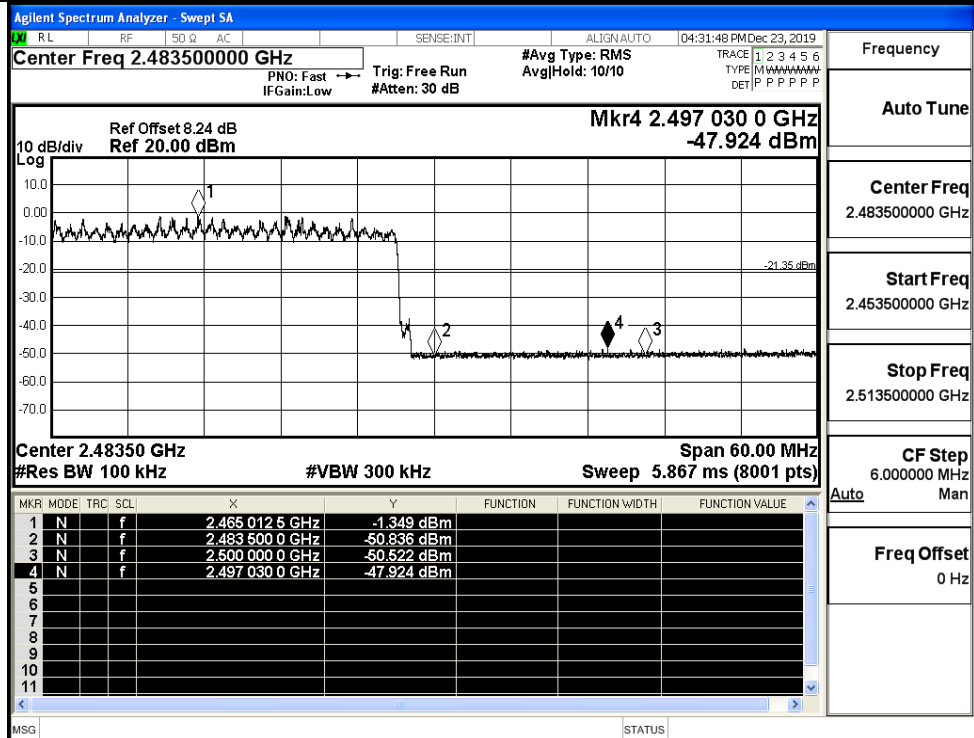
CF Step  
6.000000 MHz  
Auto Man

Freq Offset  
0 Hz

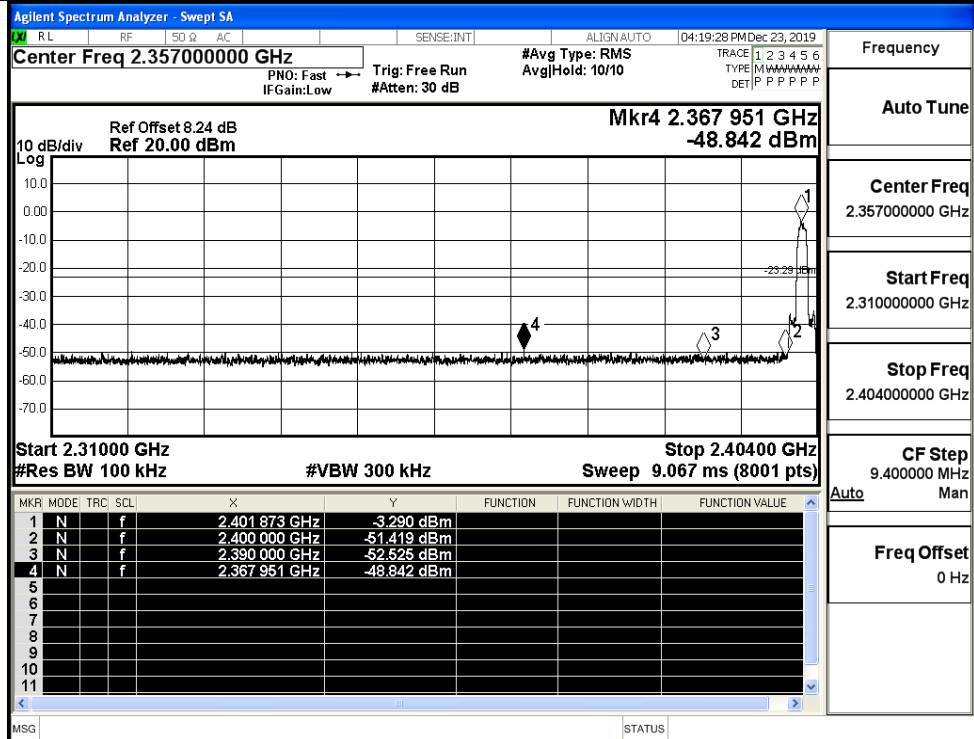
$\pi/4$ DQPSK/HCH/No  
Hop



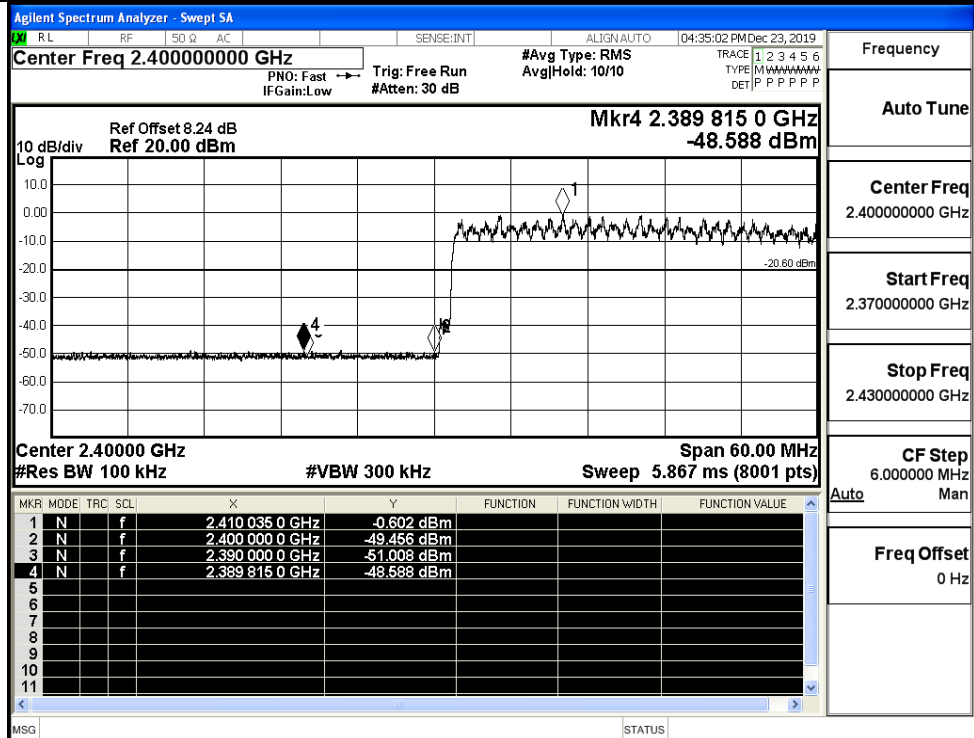
$\pi/4$ DQPSK/HCH/Hop



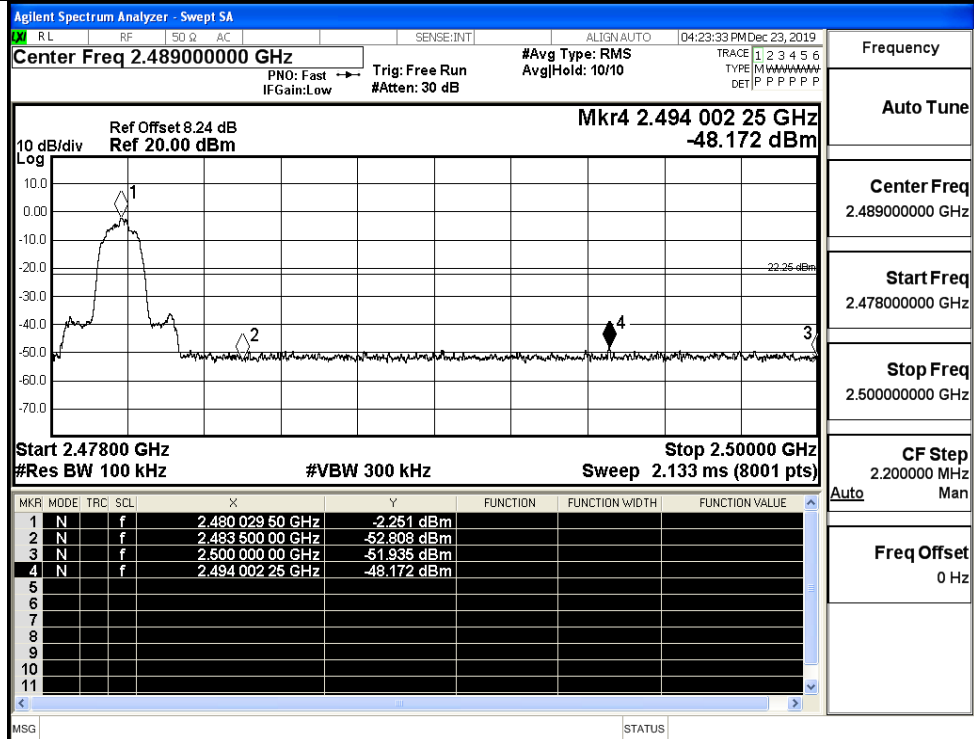
8DPSK/LCH/No Hop



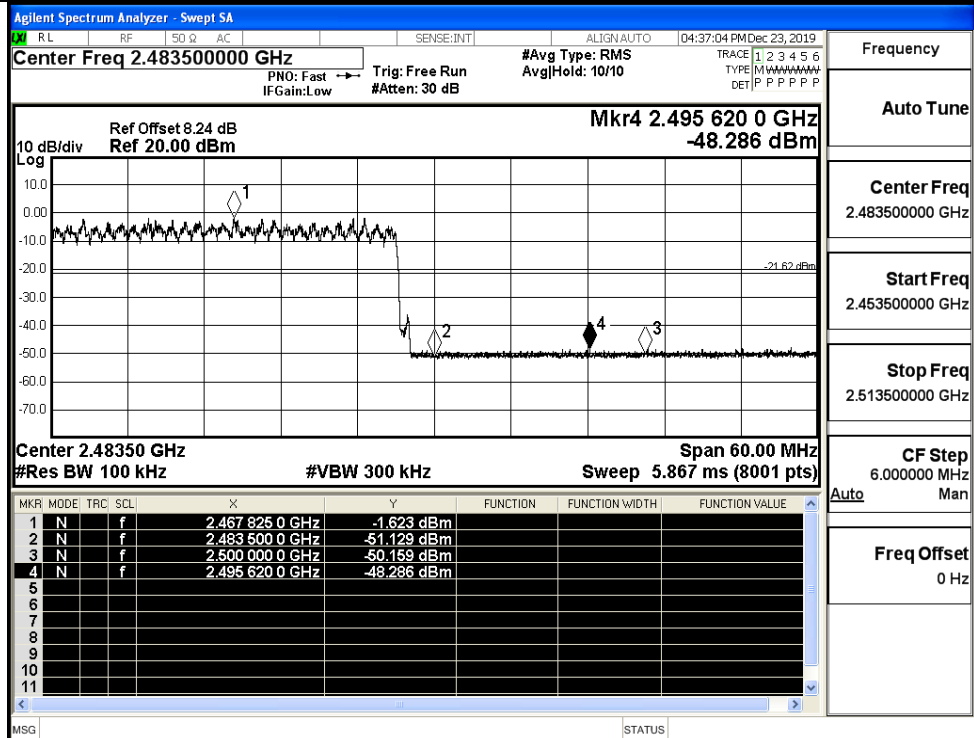
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



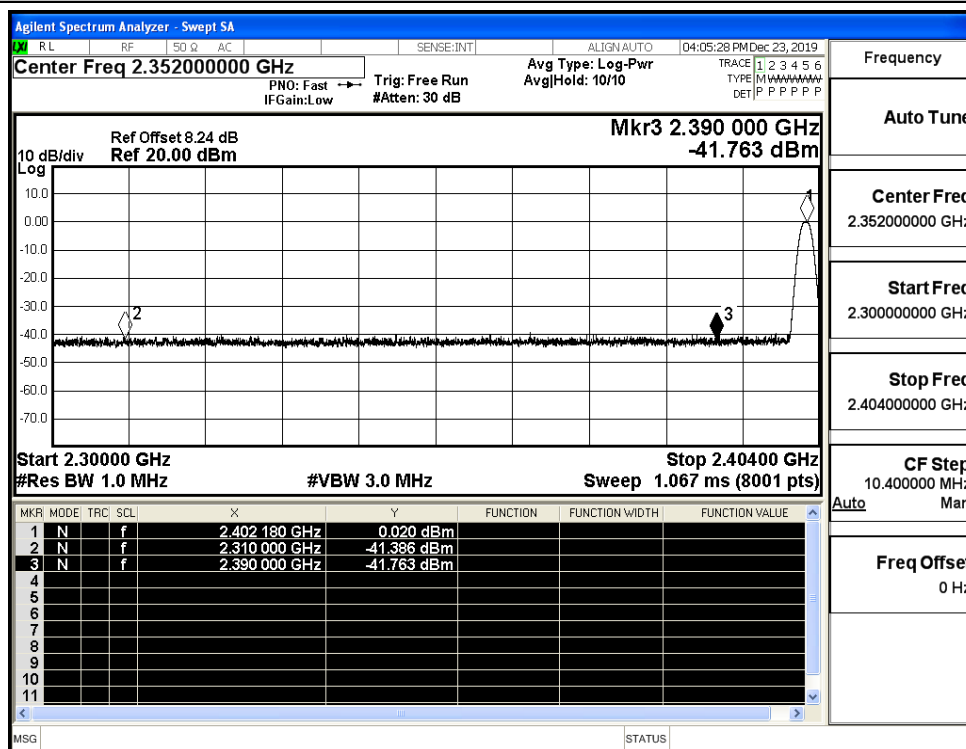
8DPSK/HCH/Hop



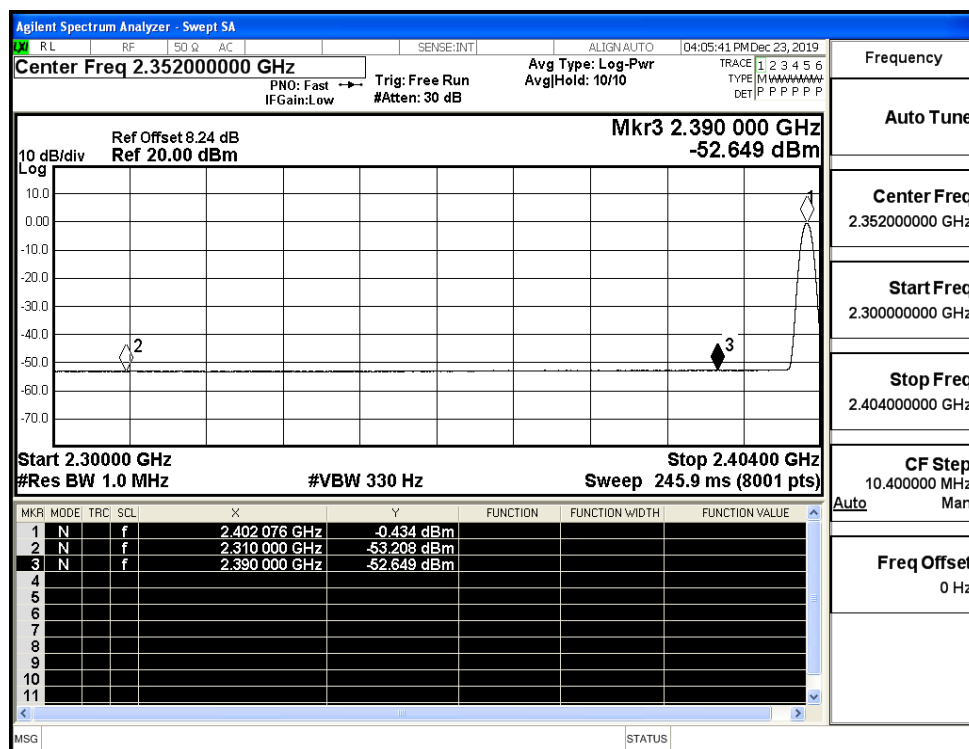
## A.8 Restrict-band band-edge measurements

| Test Mode     | Hopping | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0 | -41.39      | 2.0  | 0             | 55.87      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.21      | 2.0  | 0             | 44.05      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -41.76      | 2.0  | 0             | 55.49      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.65      | 2.0  | 0             | 44.61      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -41.96      | 2.0  | 0             | 55.30      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.26      | 2.0  | 0             | 45.00      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -40.59      | 2.0  | 0             | 56.66      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.00      | 2.0  | 0             | 45.26      | AV       | 54             | PASS    |
| $\pi/4$ DQPSK | Off     | 2310.0 | -43.64      | 2.0  | 0             | 53.62      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.08      | 2.0  | 0             | 44.18      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -41.04      | 2.0  | 0             | 56.21      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.75      | 2.0  | 0             | 44.50      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -42.81      | 2.0  | 0             | 54.45      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.26      | 2.0  | 0             | 45.00      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -41.17      | 2.0  | 0             | 56.09      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.08      | 2.0  | 0             | 45.18      | AV       | 54             | PASS    |
| 8DPSK         | Off     | 2310.0 | -43.36      | 2.0  | 0             | 53.90      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.08      | 2.0  | 0             | 44.18      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -41.78      | 2.0  | 0             | 55.48      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.77      | 2.0  | 0             | 44.49      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -42.35      | 2.0  | 0             | 54.90      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.27      | 2.0  | 0             | 44.99      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -41.76      | 2.0  | 0             | 55.50      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.08      | 2.0  | 0             | 45.18      | AV       | 54             | PASS    |

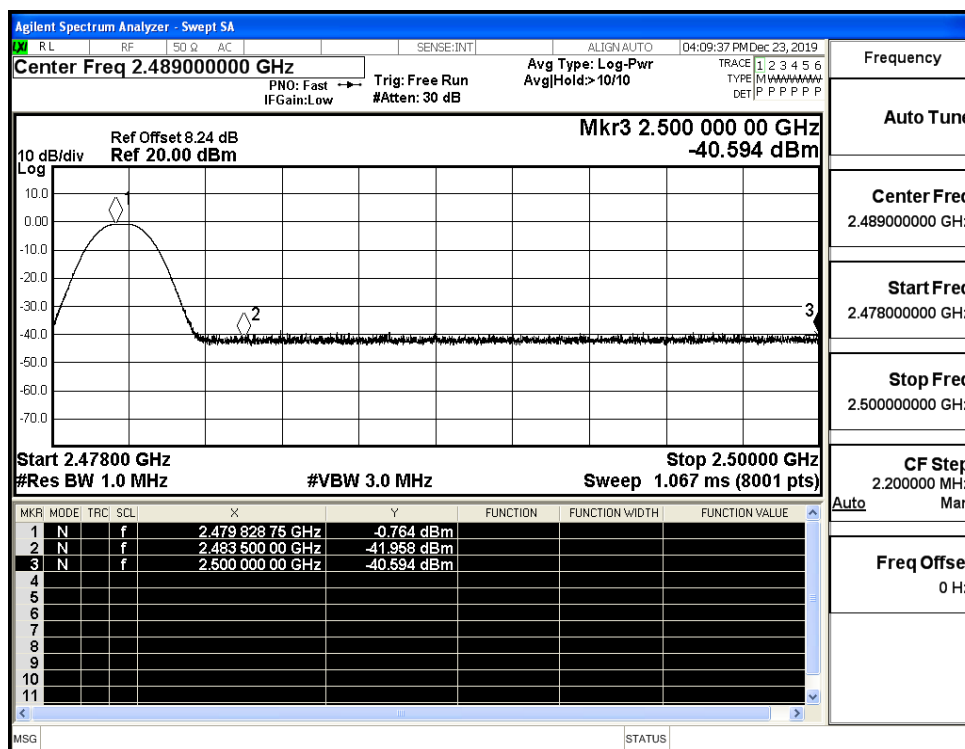
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



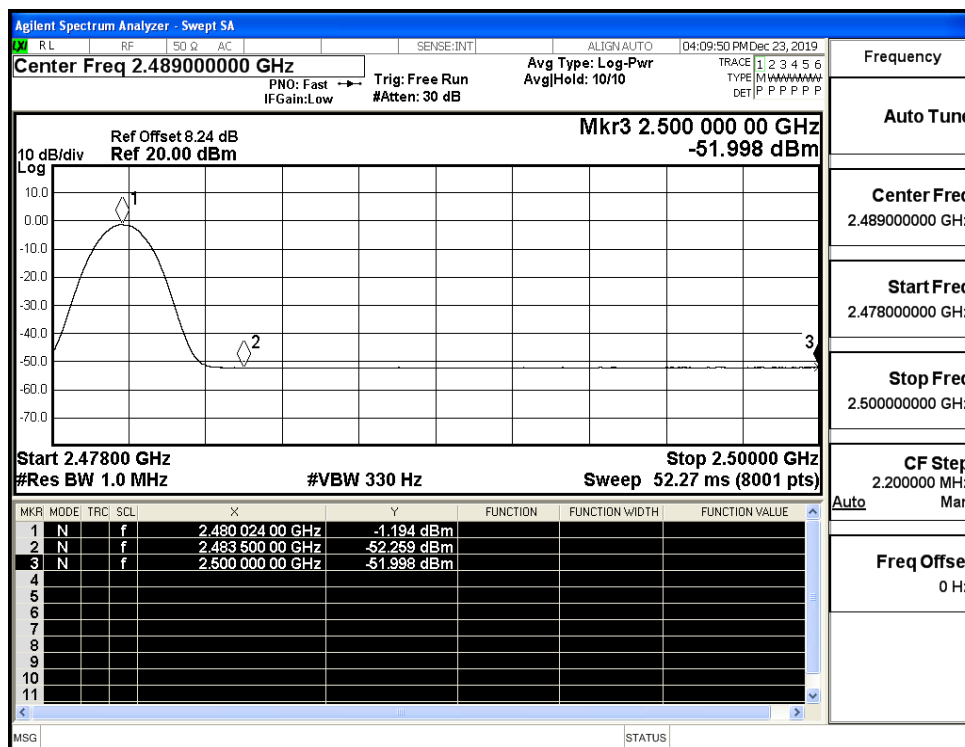
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)

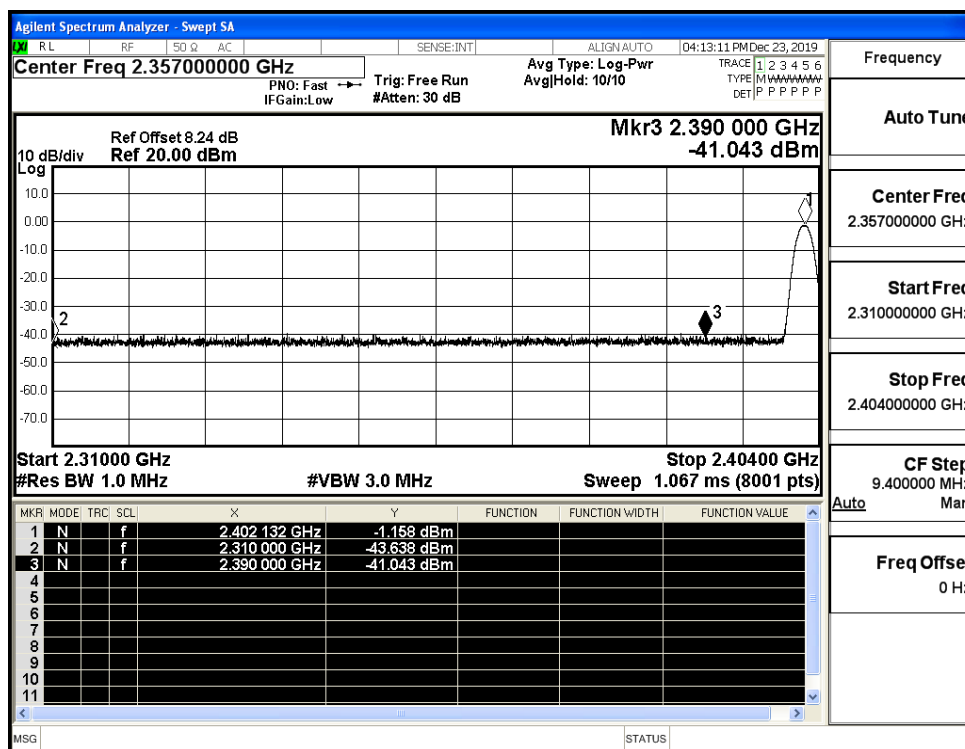
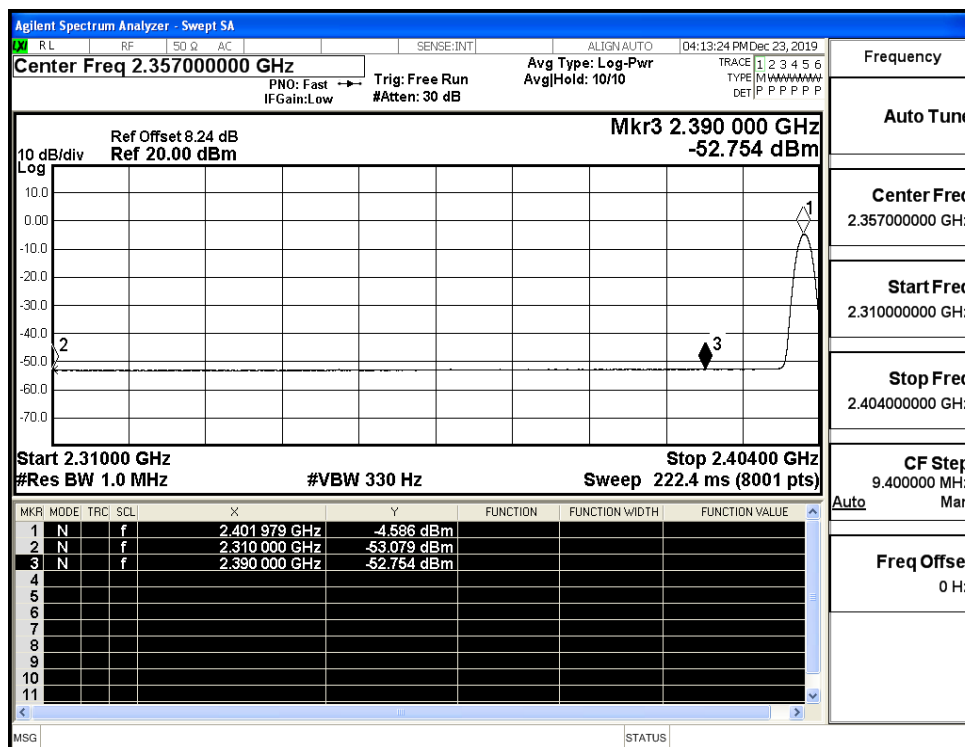


## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)

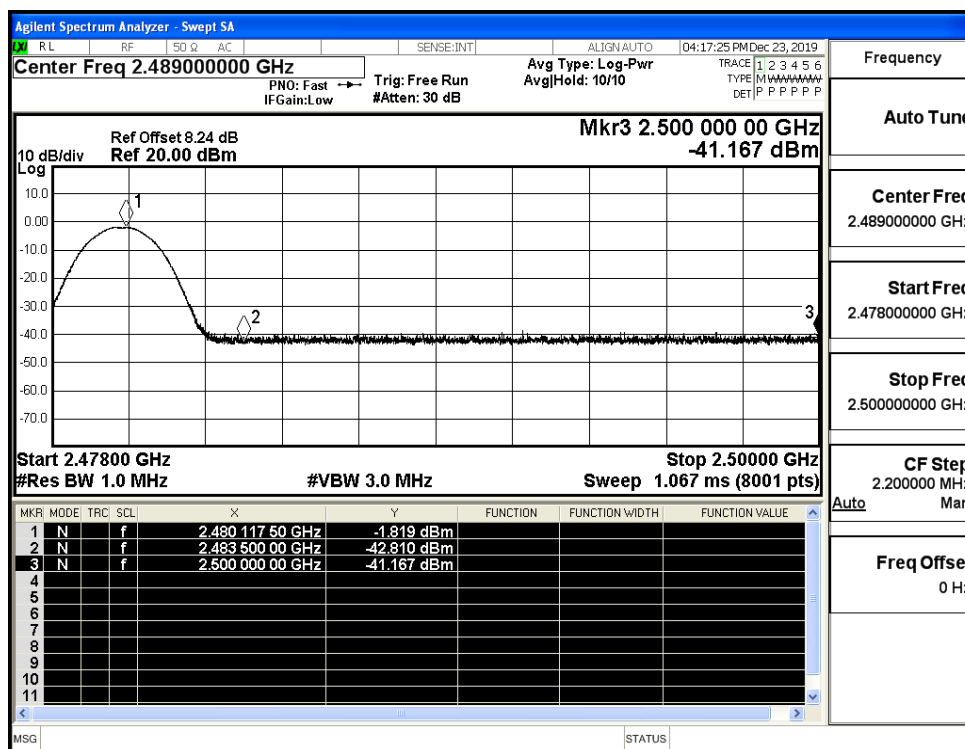


## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)

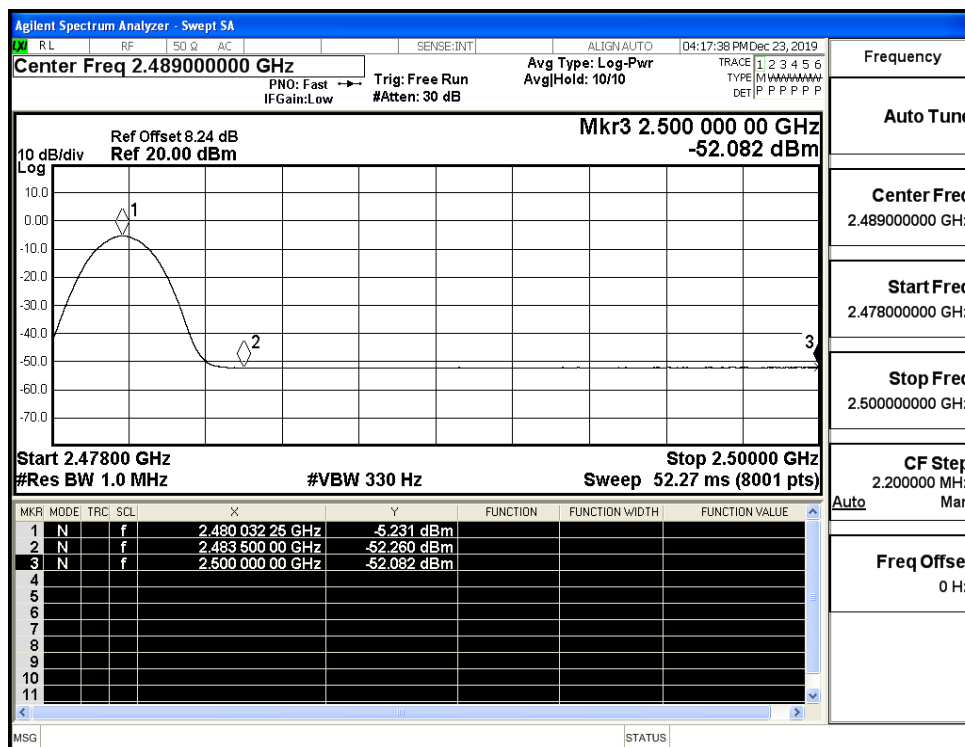


Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)

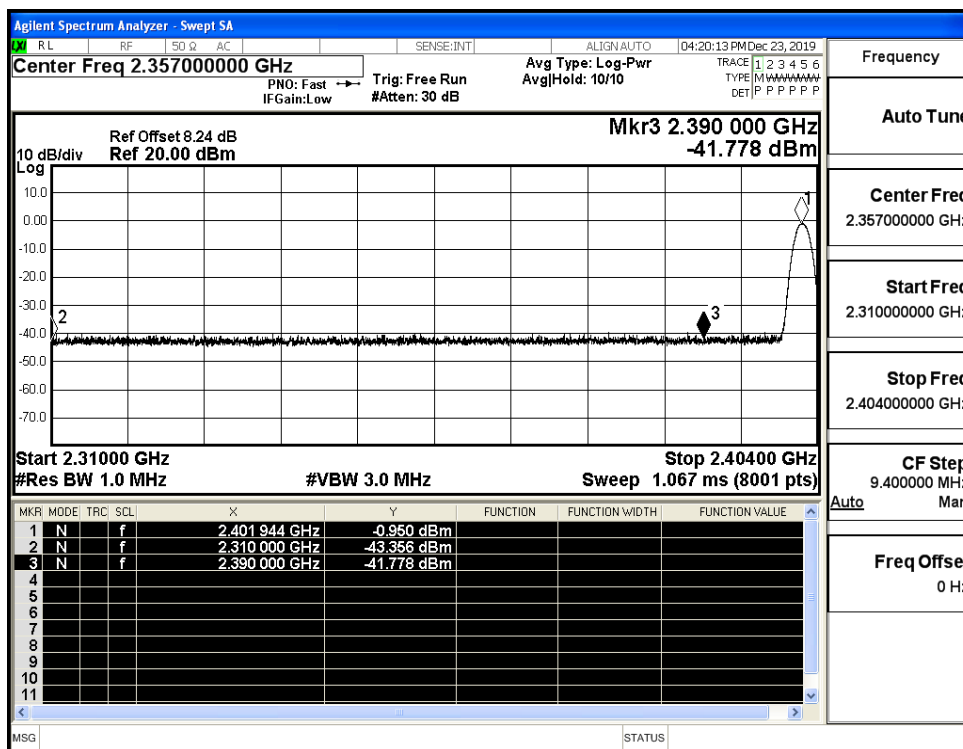
## Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



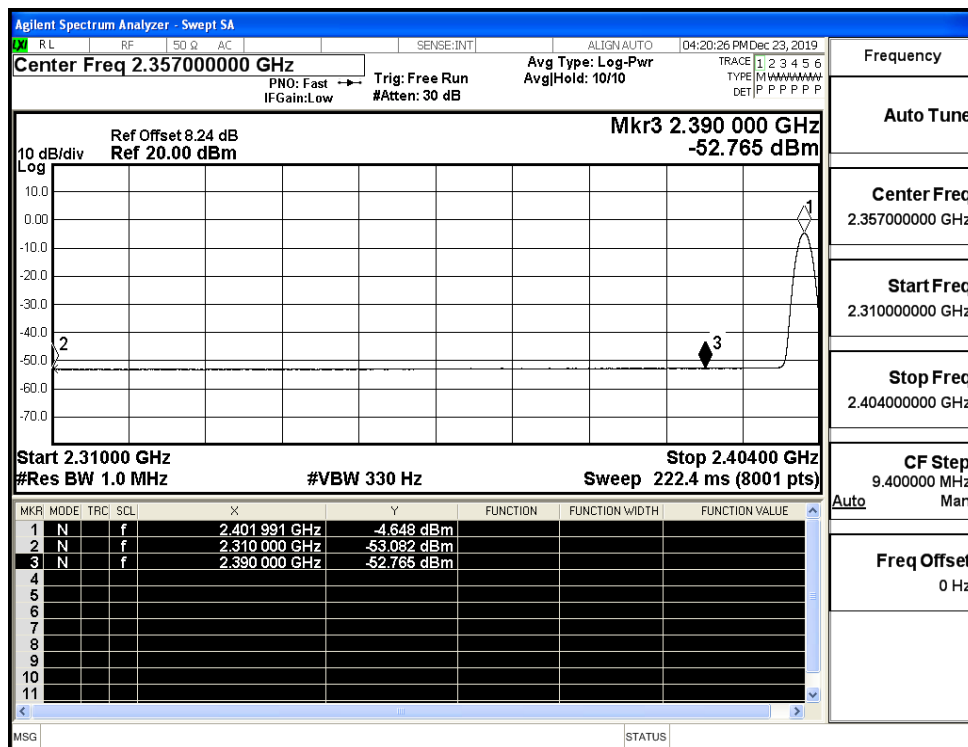
## Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



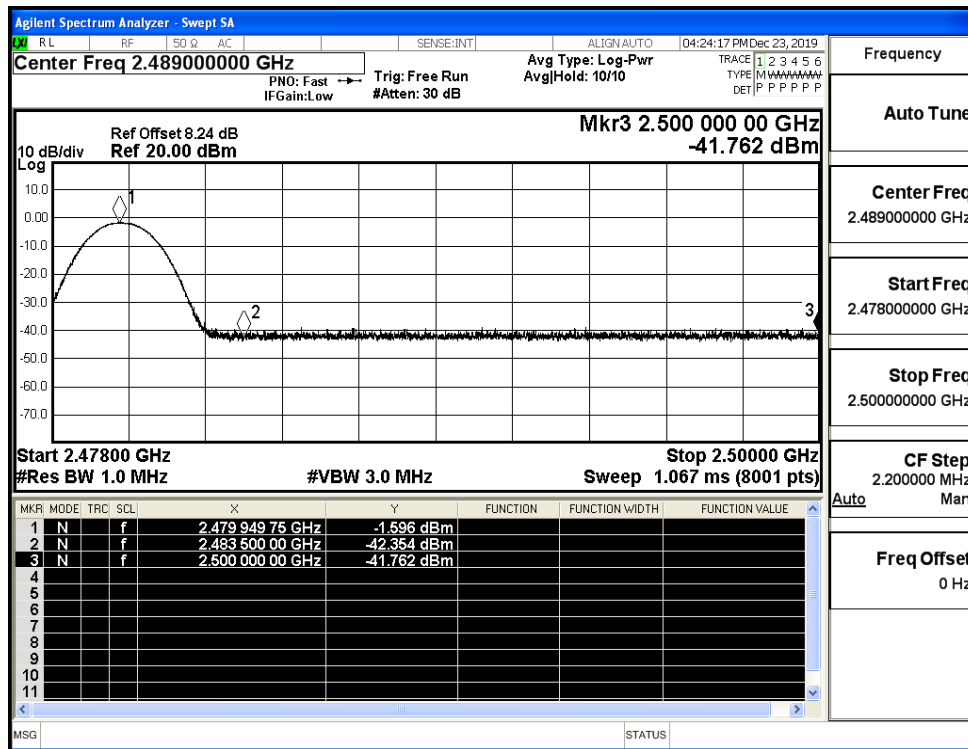
## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



## 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)

