

## Appendix A

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

Product Name: Smartphone

Trade Mark: S Smooth

Test Model: Smooth 6.5

#### Environmental Conditions

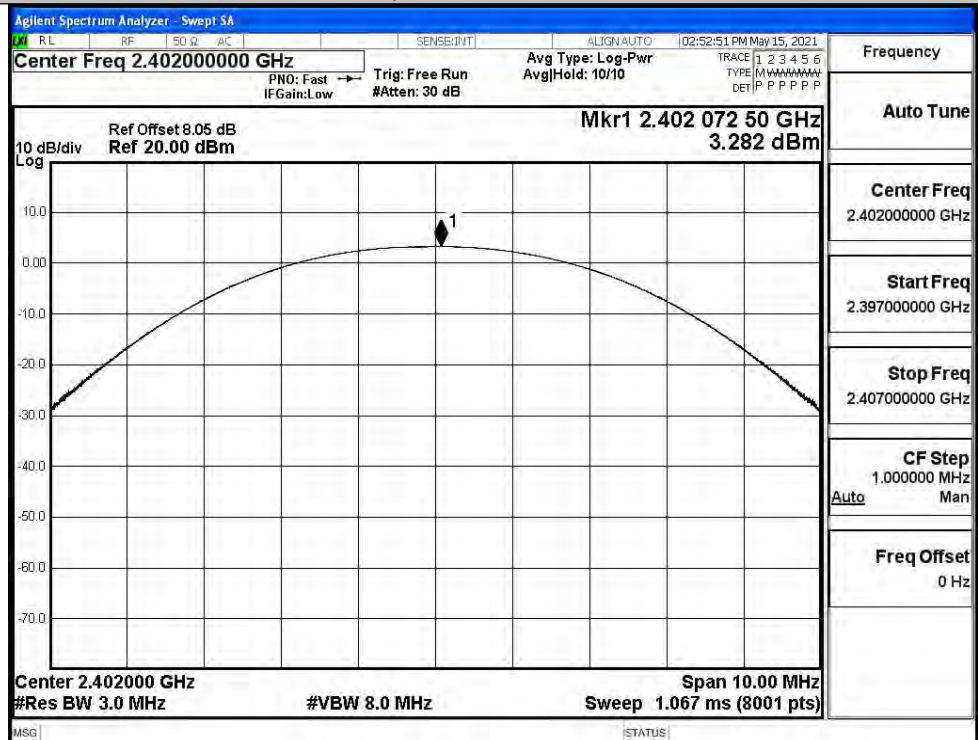
|                    |           |
|--------------------|-----------|
| Temperature:       | 24.6° C   |
| Relative Humidity: | 54.1%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Ken He    |
| Supervised by:     | Li Huan   |

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

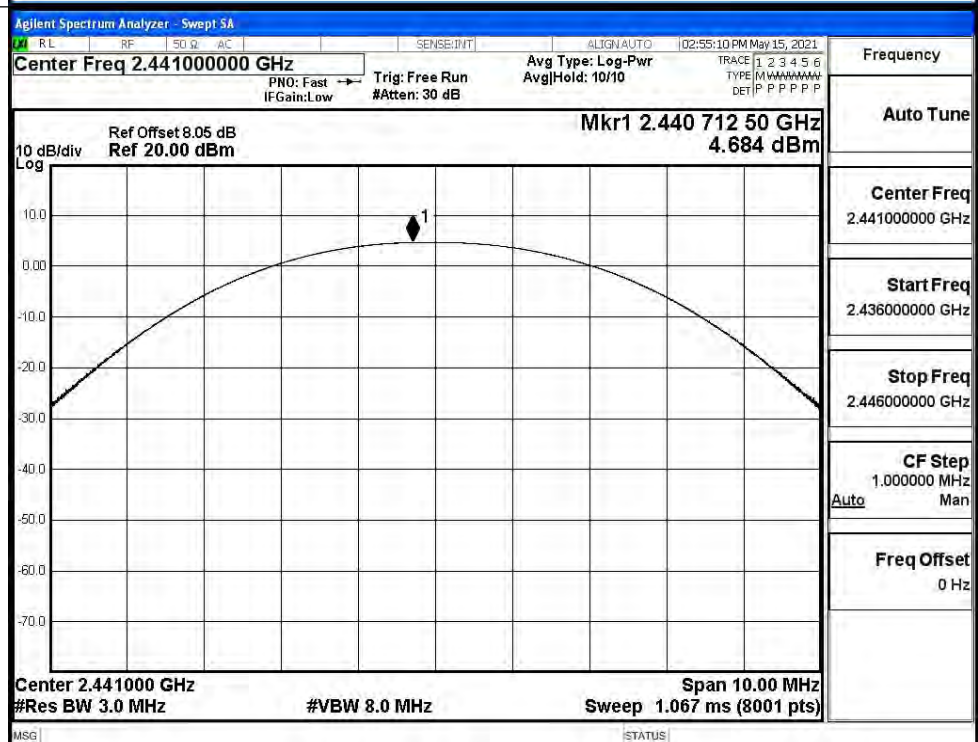
| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | 3.282                           | 21          | PASS    |
|               | MCH      | 4.684                           | 21          | PASS    |
|               | HCH      | 3.024                           | 21          | PASS    |
| $\pi/4$ DQPSK | LCH      | 2.469                           | 21          | PASS    |
|               | MCH      | 3.887                           | 21          | PASS    |
|               | HCH      | 2.327                           | 21          | PASS    |
| 8DPSK         | LCH      | 2.600                           | 21          | PASS    |
|               | MCH      | 4.072                           | 21          | PASS    |
|               | HCH      | 2.500                           | 21          | PASS    |

## Test Graphs

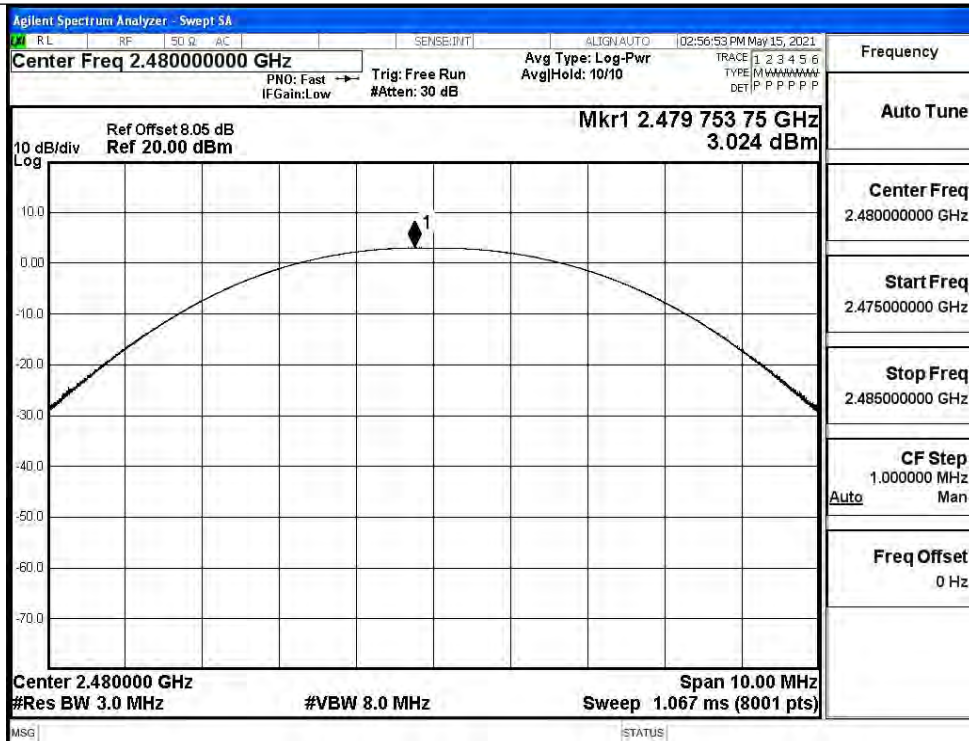
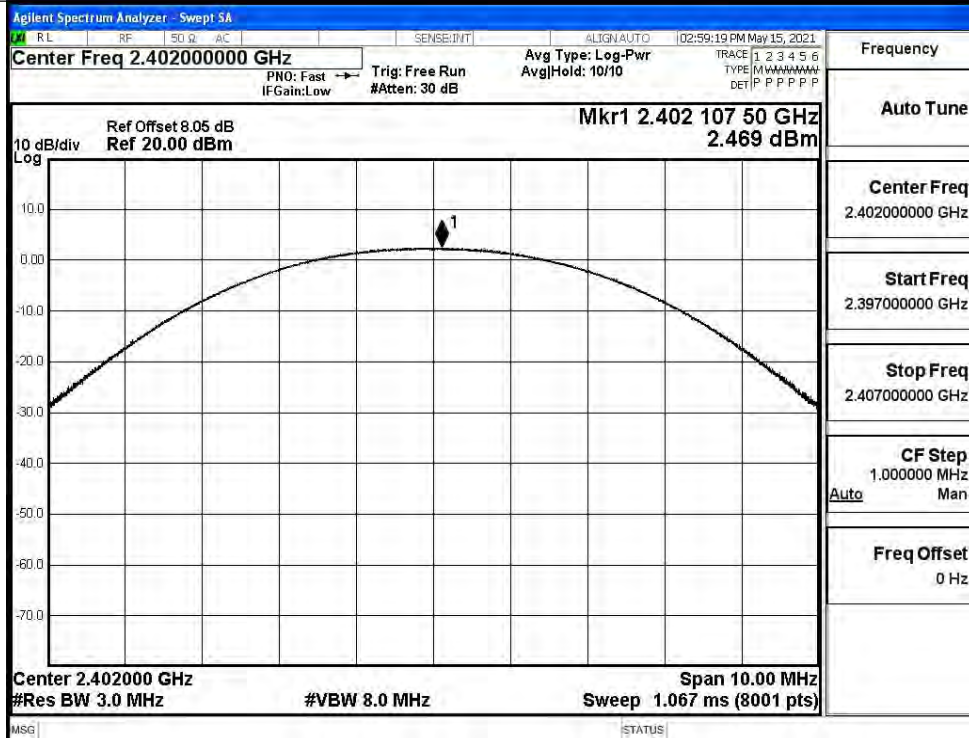
GFSK/LCH

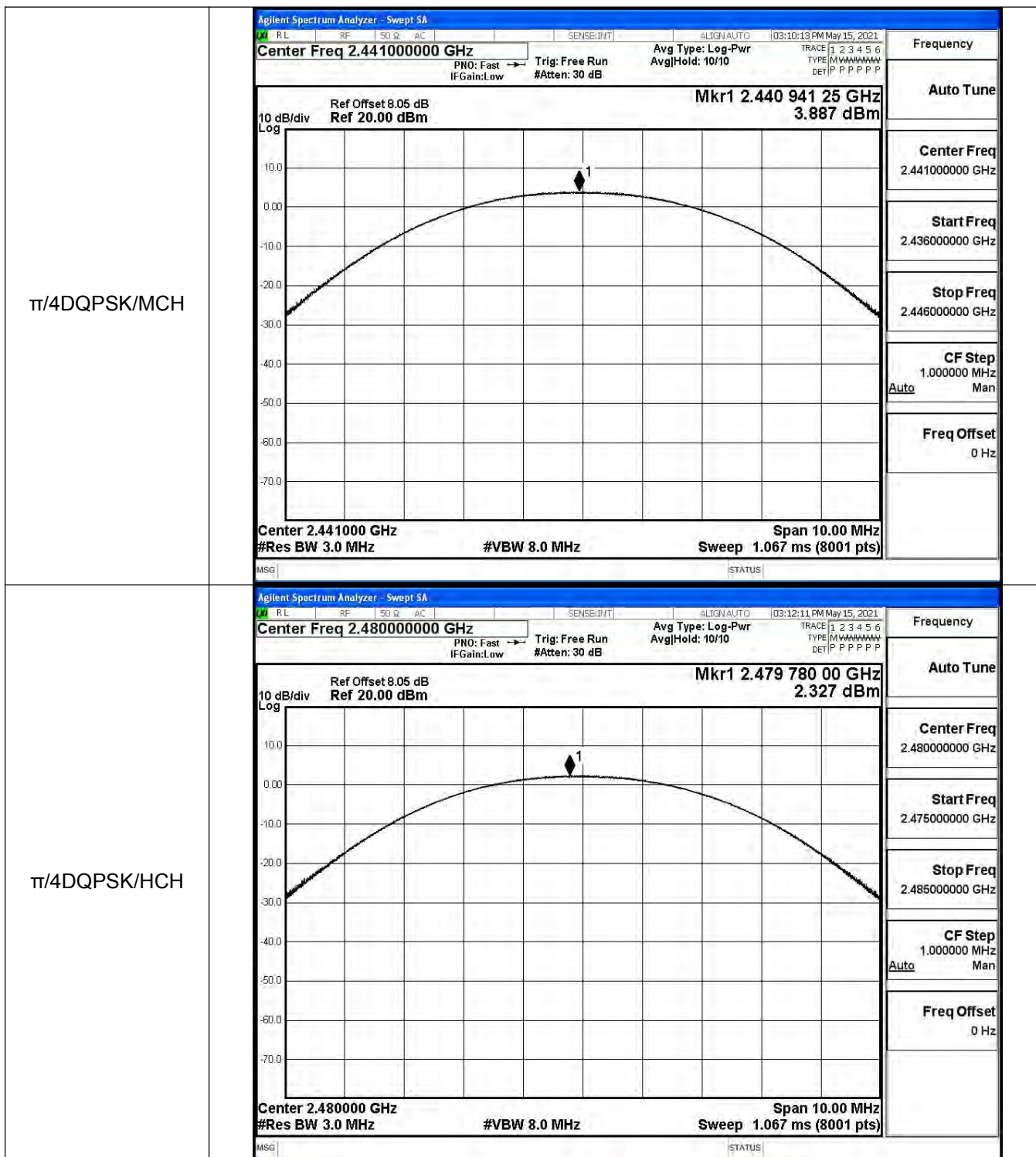


GFSK/MCH

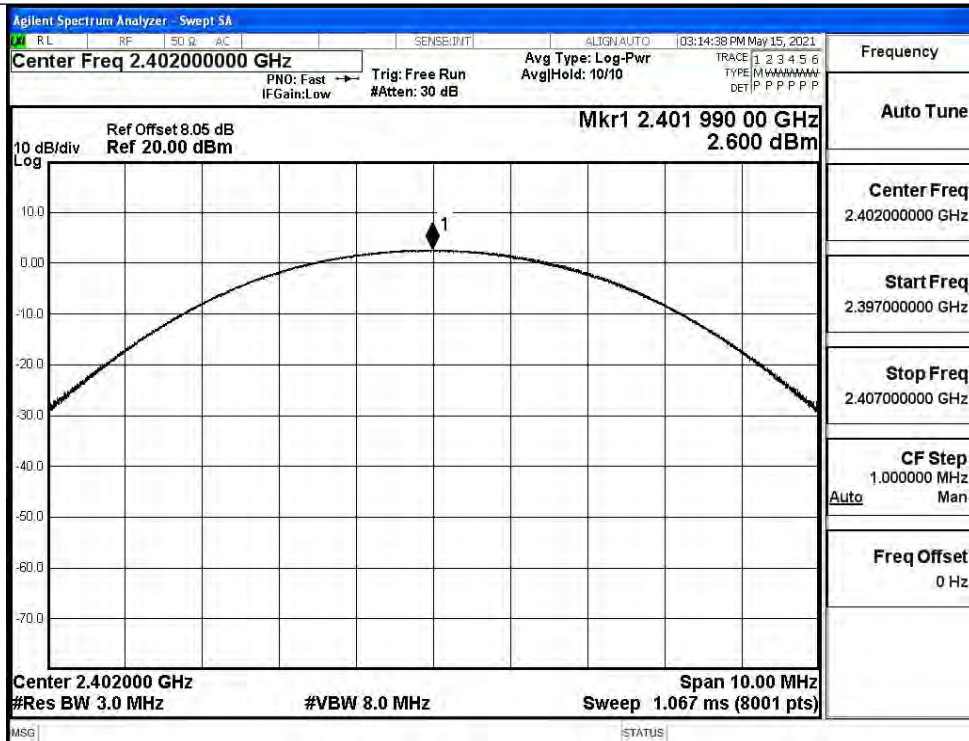


GFSK/HCH

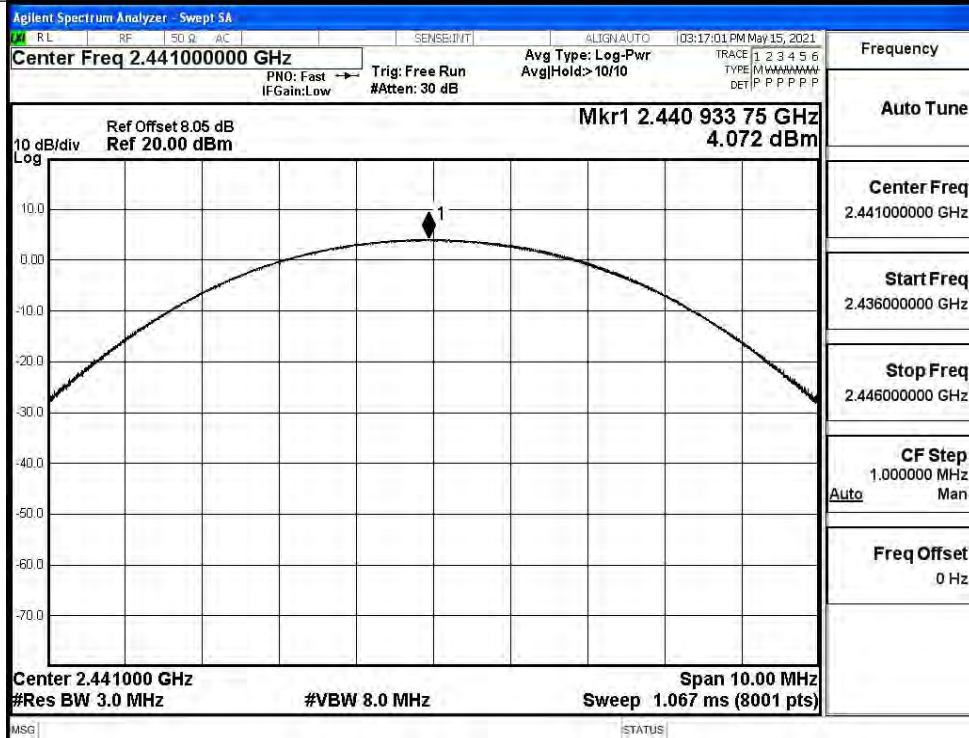
 $\pi$ /4DQPSK/LCH



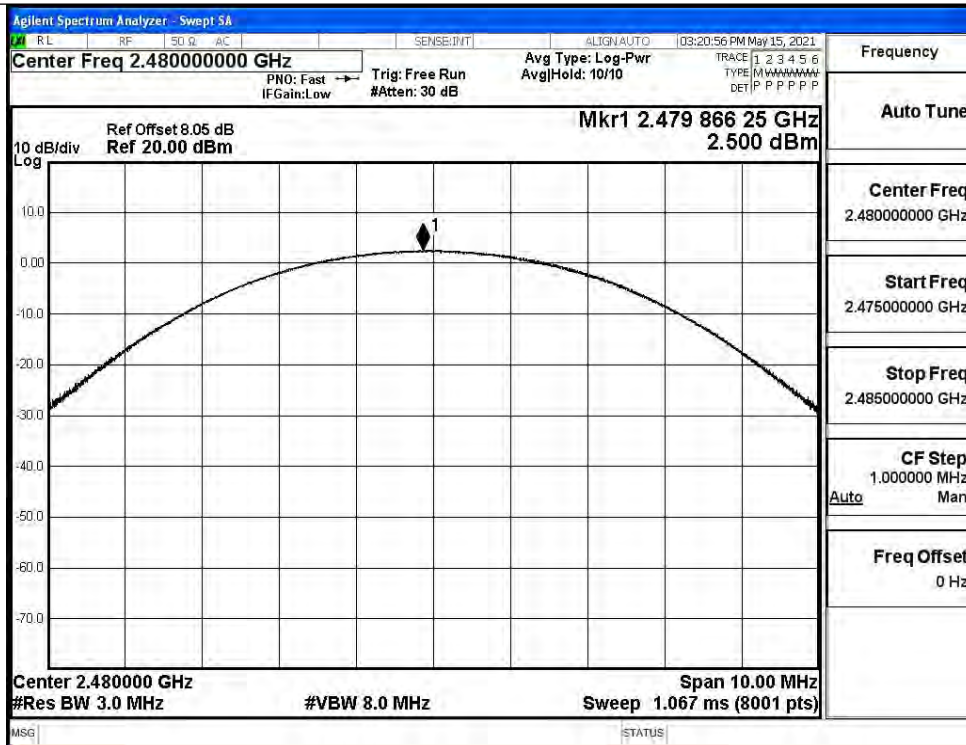
8DPSK/LCH



8DPSK/MCH



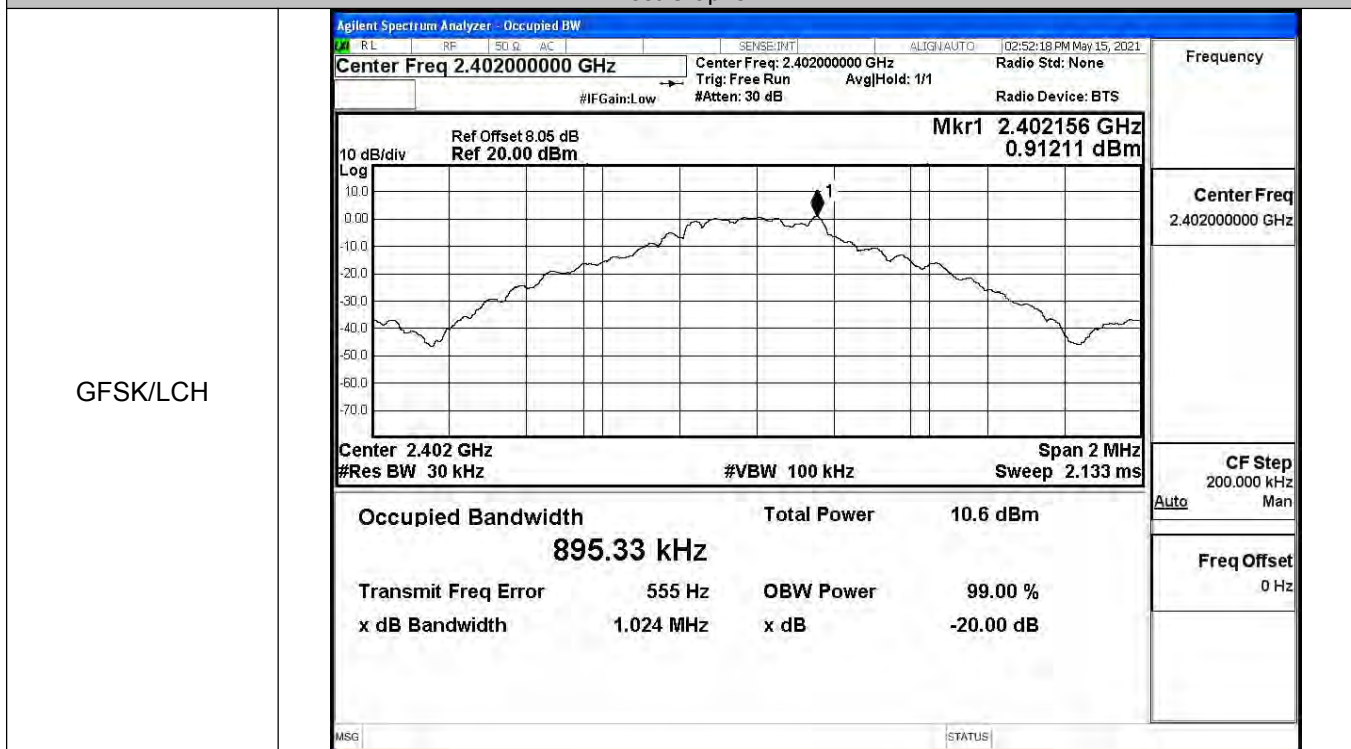
8DPSK/HCH



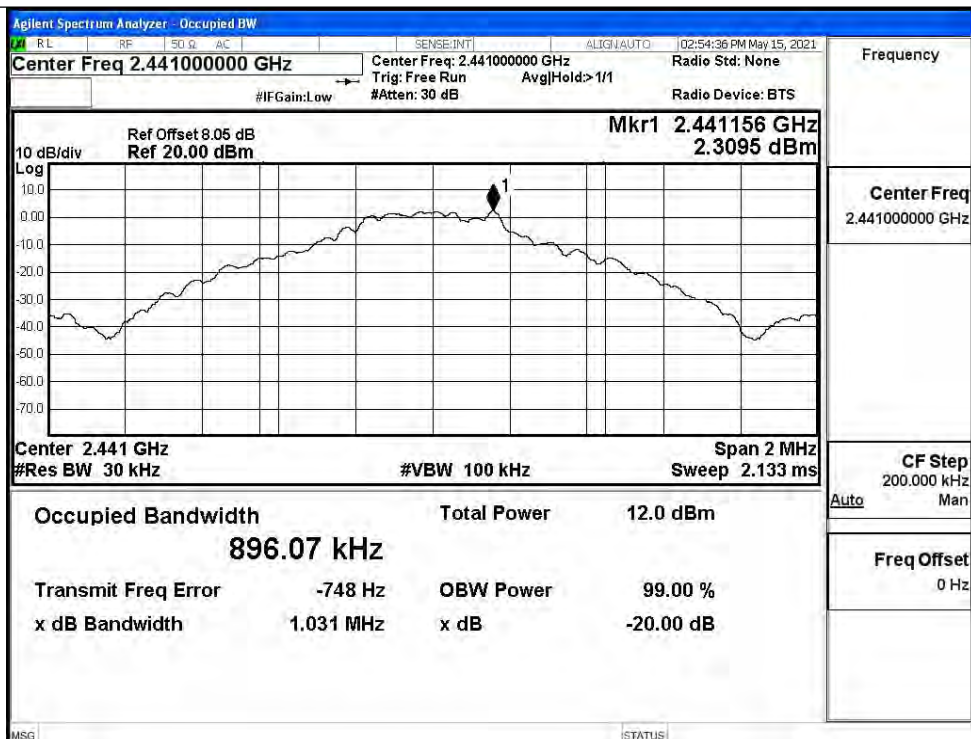
## A.2 20dB Bandwidth

| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 1.024                | Not Specified | PASS    |
|               | MCH      | 1.031                | Not Specified | PASS    |
|               | HCH      | 1.032                | Not Specified | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.318                | Not Specified | PASS    |
|               | MCH      | 1.289                | Not Specified | PASS    |
|               | HCH      | 1.291                | Not Specified | PASS    |
| 8DPSK         | LCH      | 1.291                | Not Specified | PASS    |
|               | MCH      | 1.294                | Not Specified | PASS    |
|               | HCH      | 1.292                | Not Specified | PASS    |

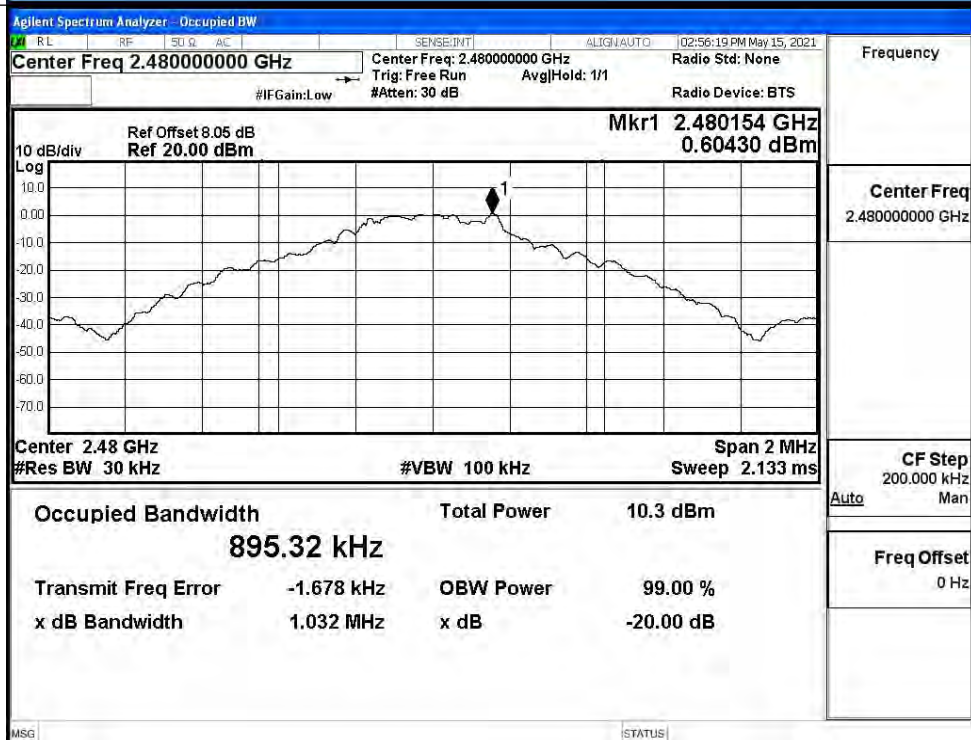
Test Graphs

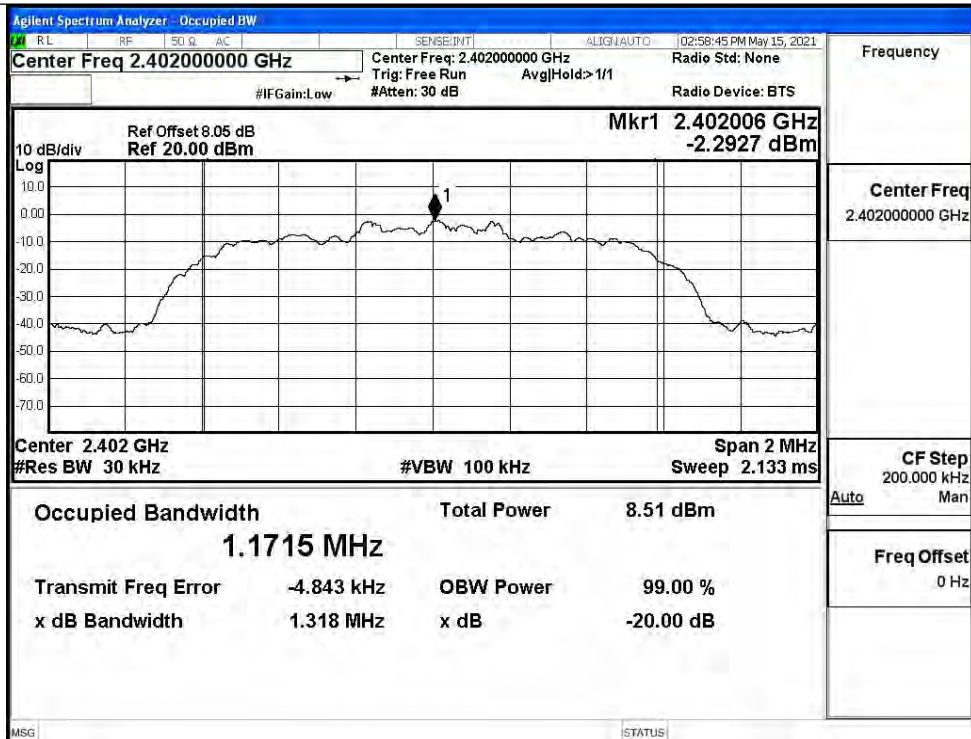
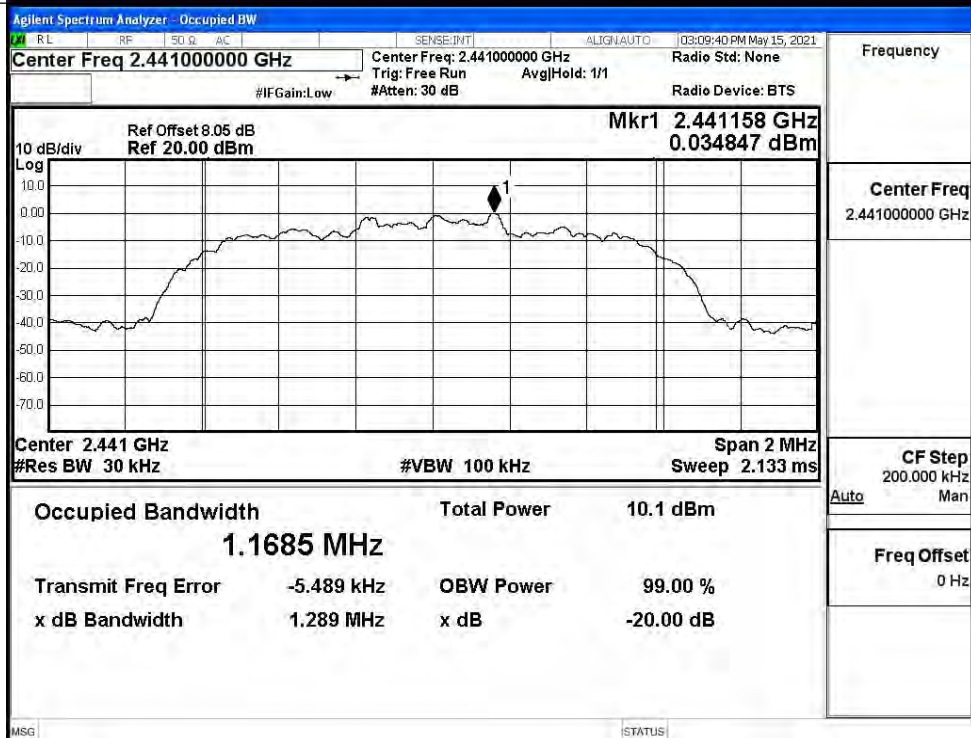


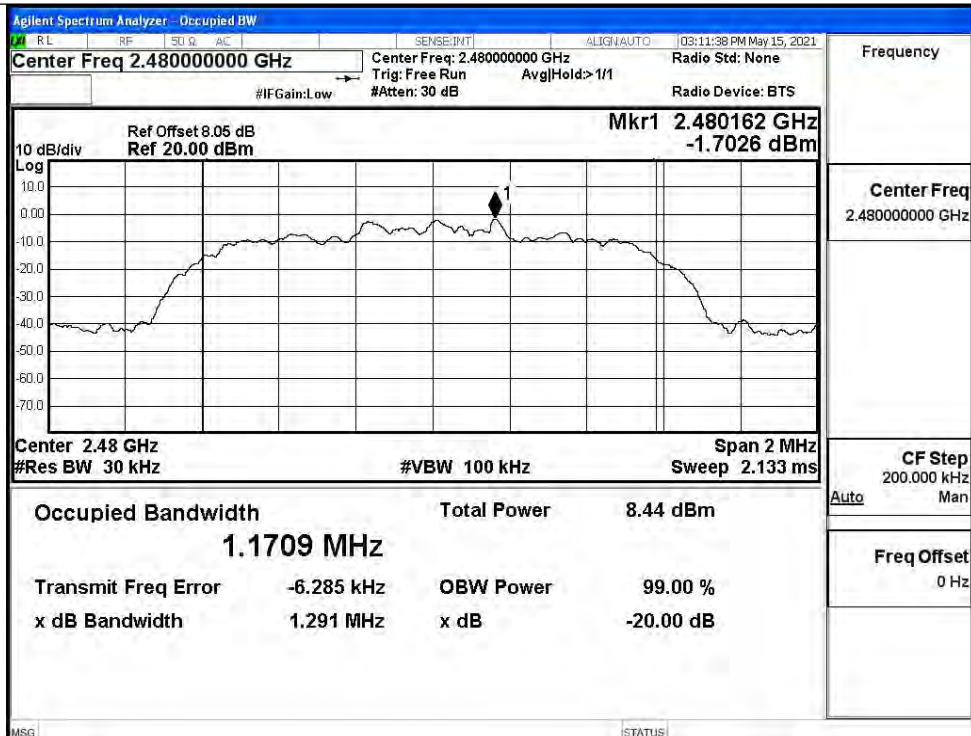
GFSK/MCH



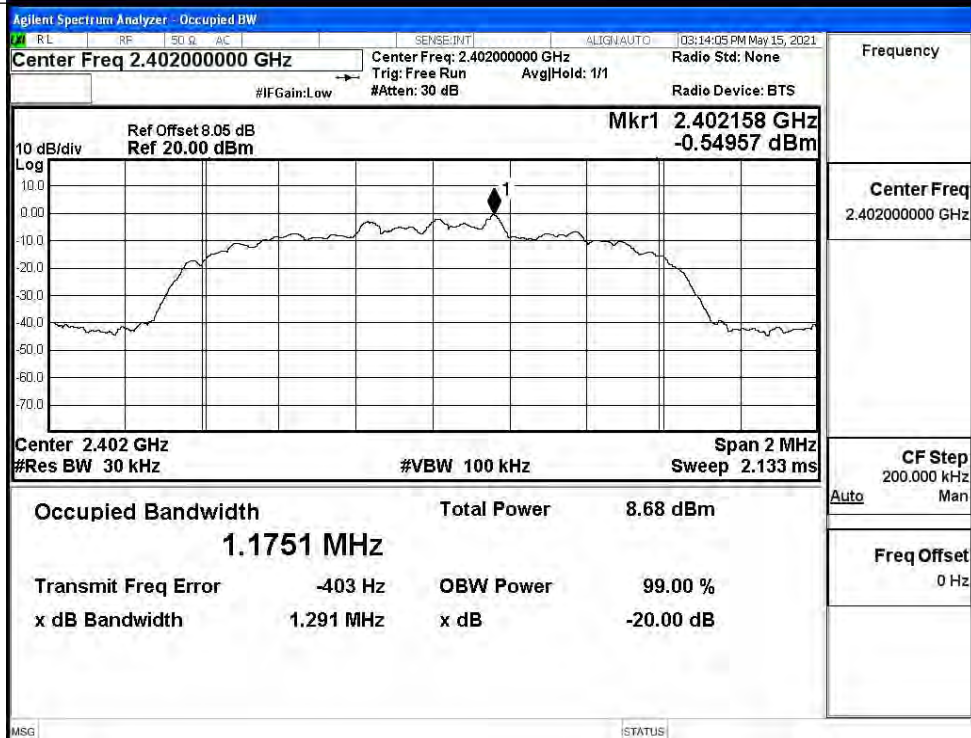
GFSK/HCH



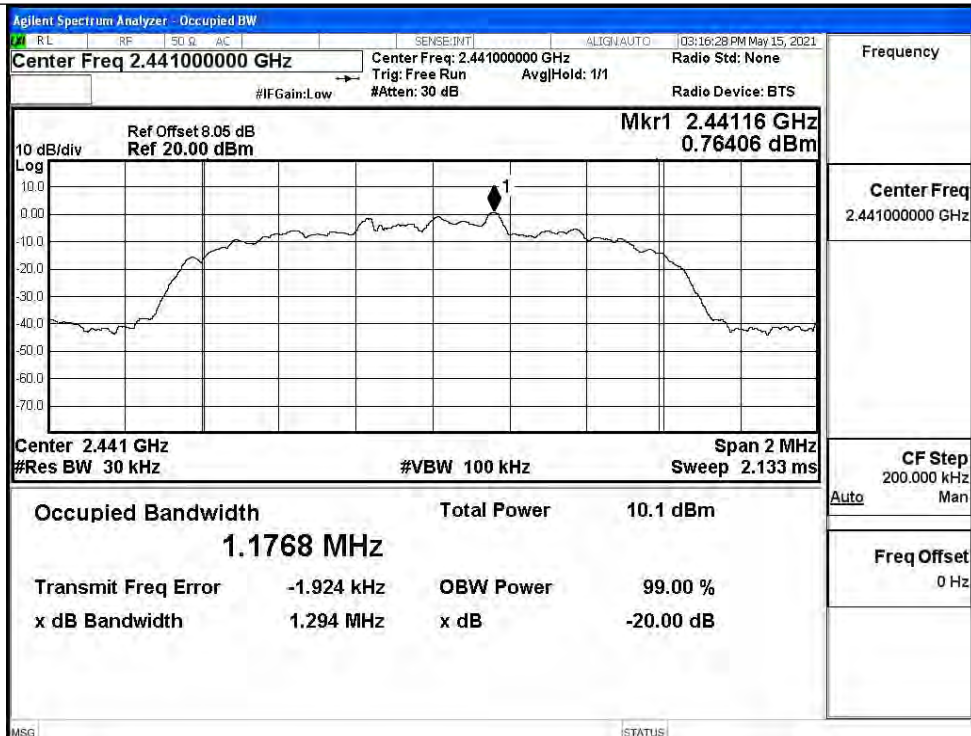
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

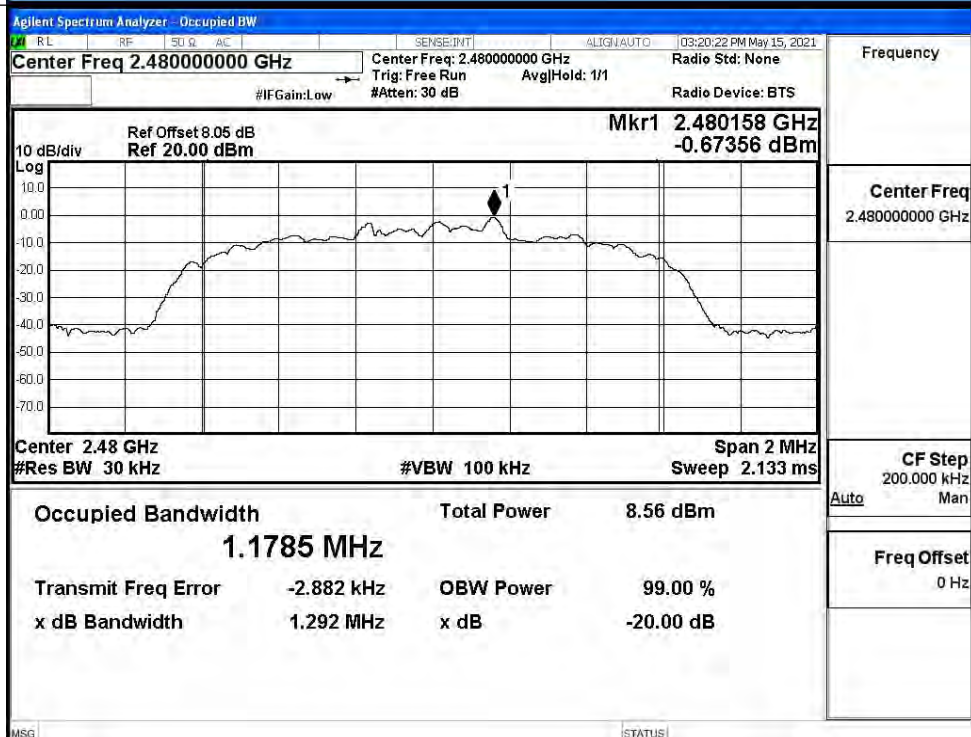
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

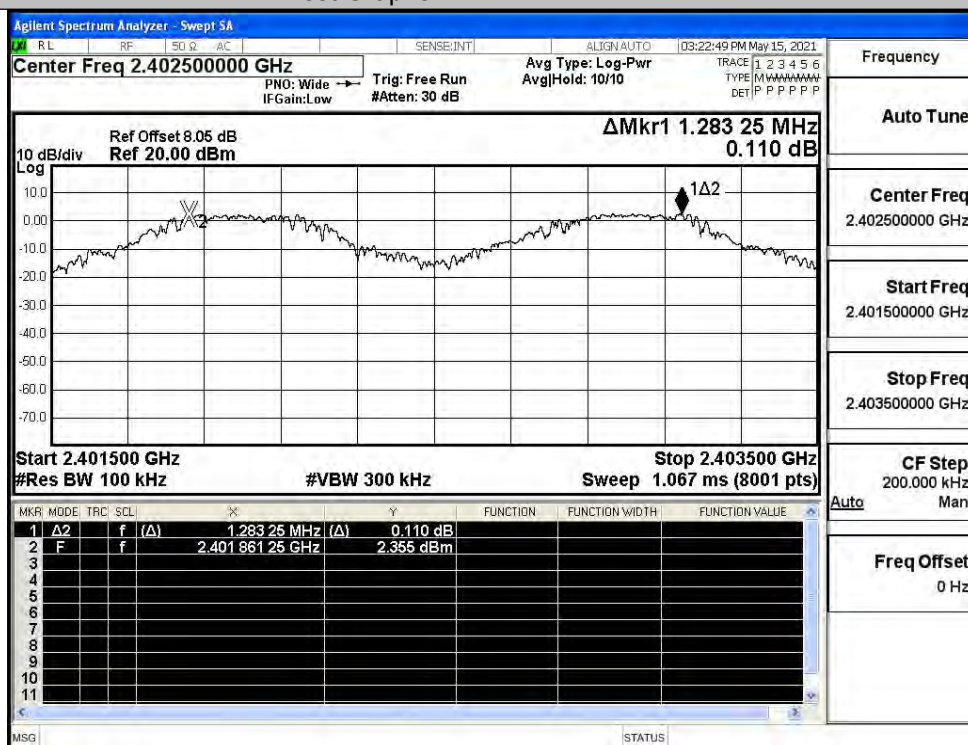


### A.3 Carrier Frequency Separation

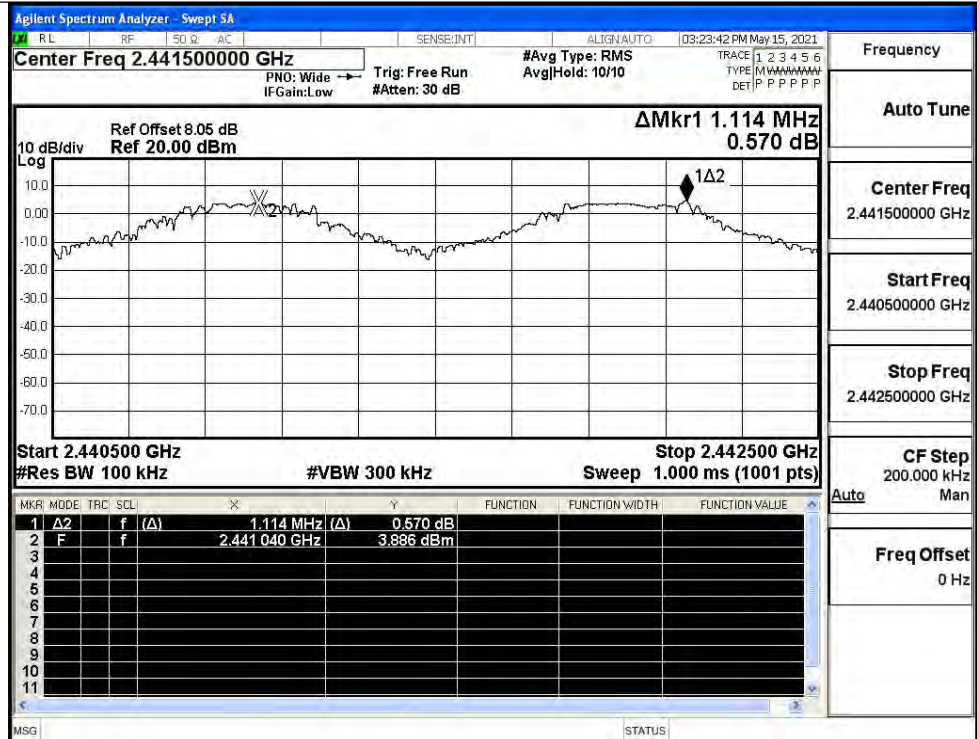
| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | LCH      | 1.283                              | 0.683       | PASS    |
|               | MCH      | 1.114                              | 0.687       | PASS    |
|               | HCH      | 1.204                              | 0.688       | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.228                              | 0.879       | PASS    |
|               | MCH      | 1.028                              | 0.859       | PASS    |
|               | HCH      | 1.192                              | 0.861       | PASS    |
| 8DPSK         | LCH      | 1.098                              | 0.861       | PASS    |
|               | MCH      | 0.964                              | 0.863       | PASS    |
|               | HCH      | 0.876                              | 0.861       | PASS    |

#### Test Graphs

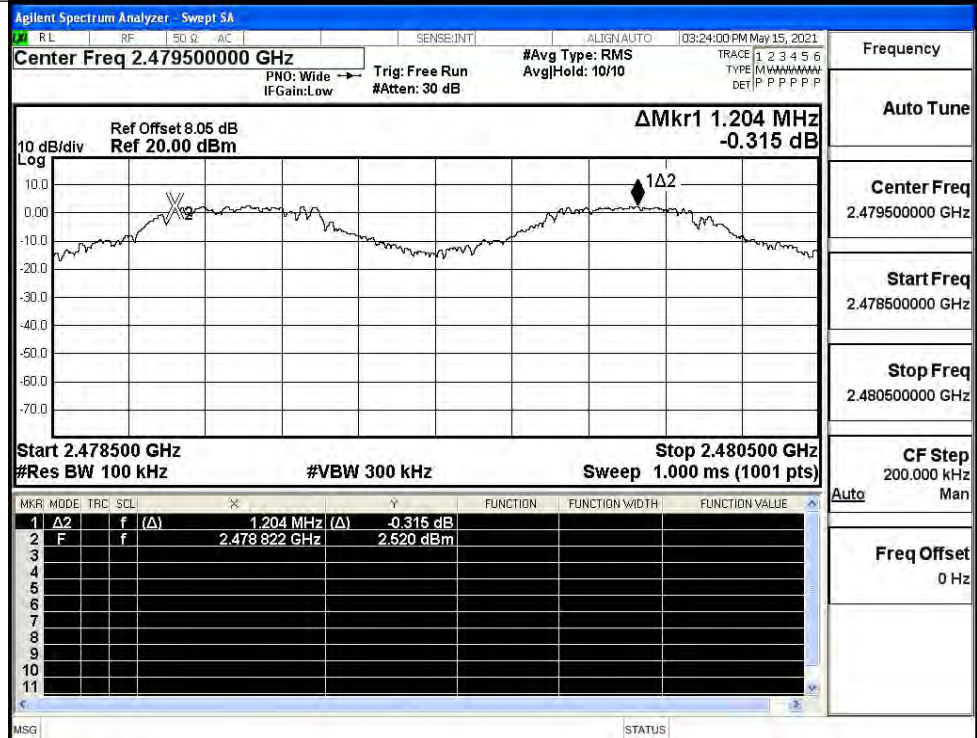
GFSK/LCH

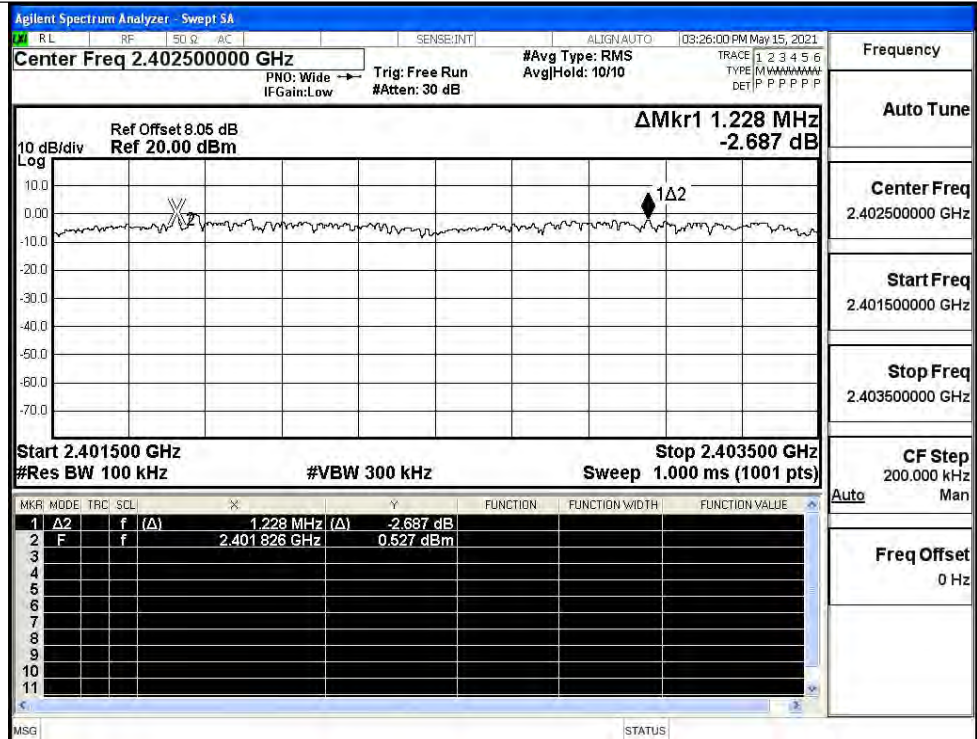
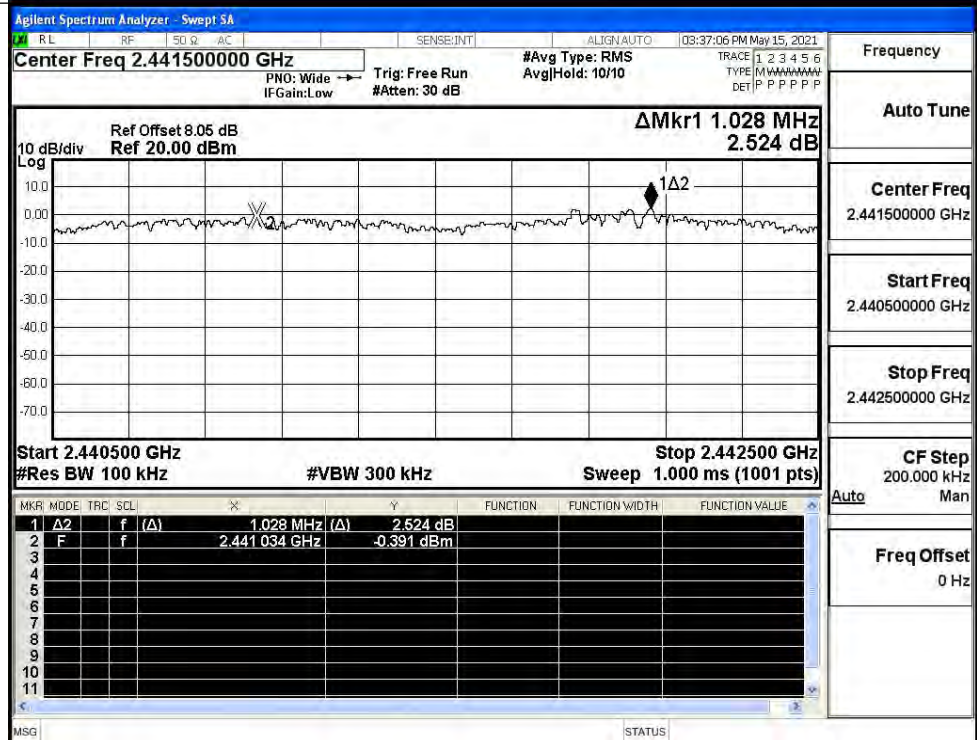


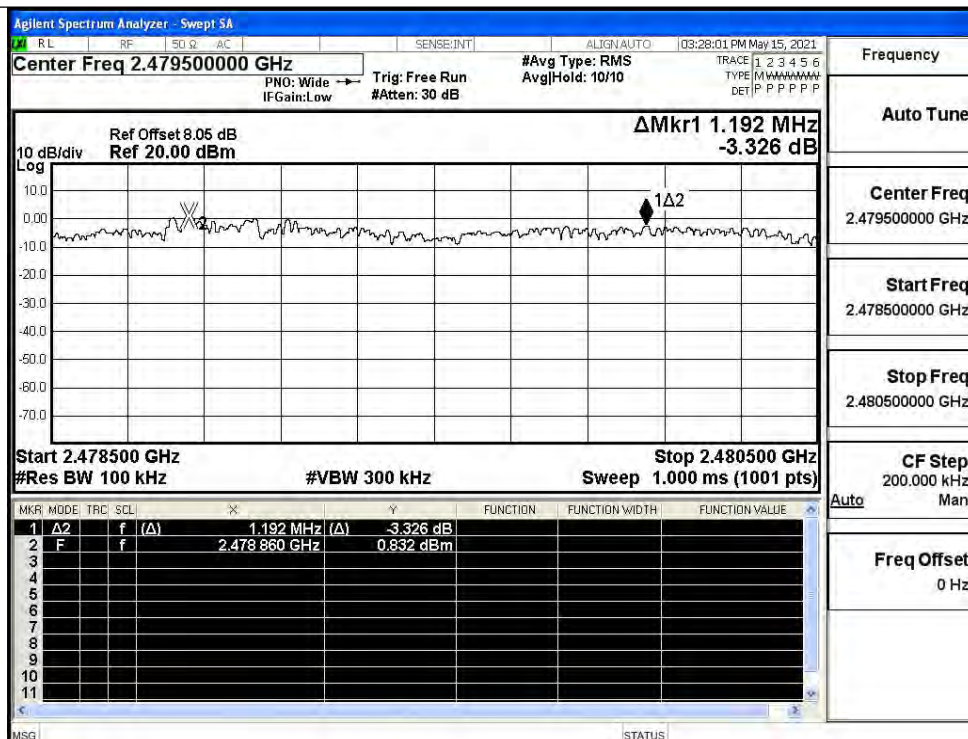
GFSK/MCH



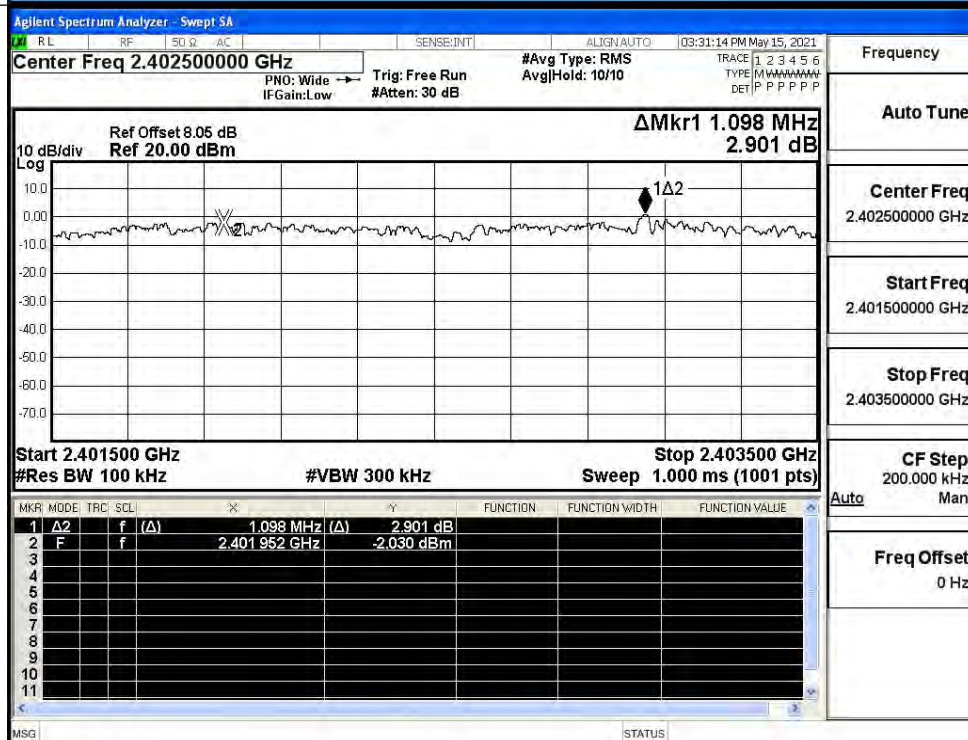
GFSK/HCH



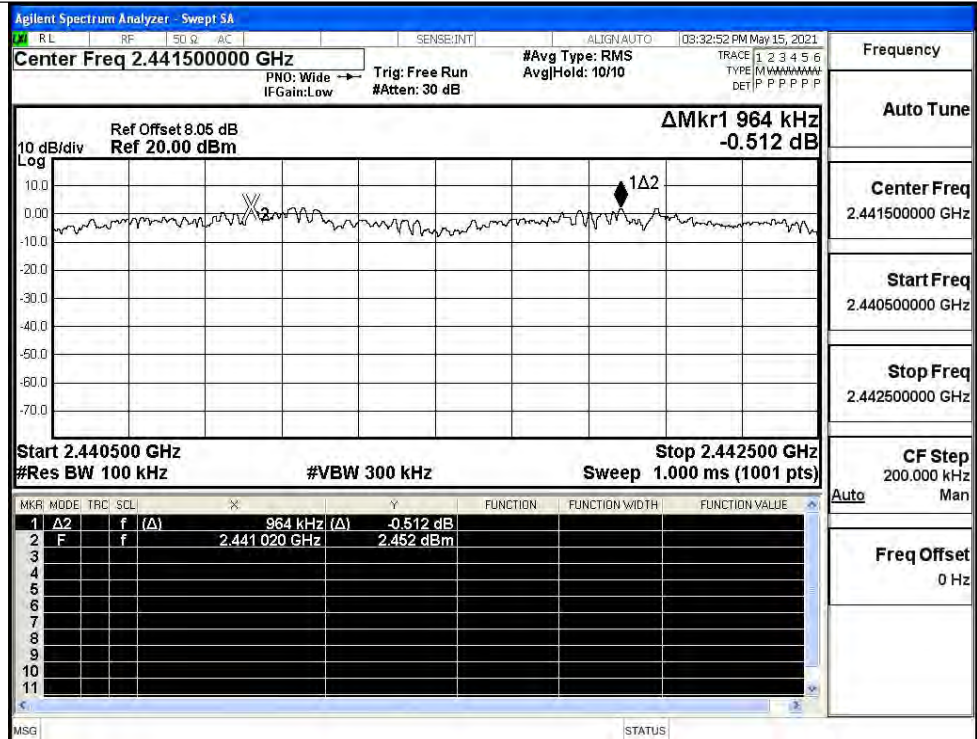
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

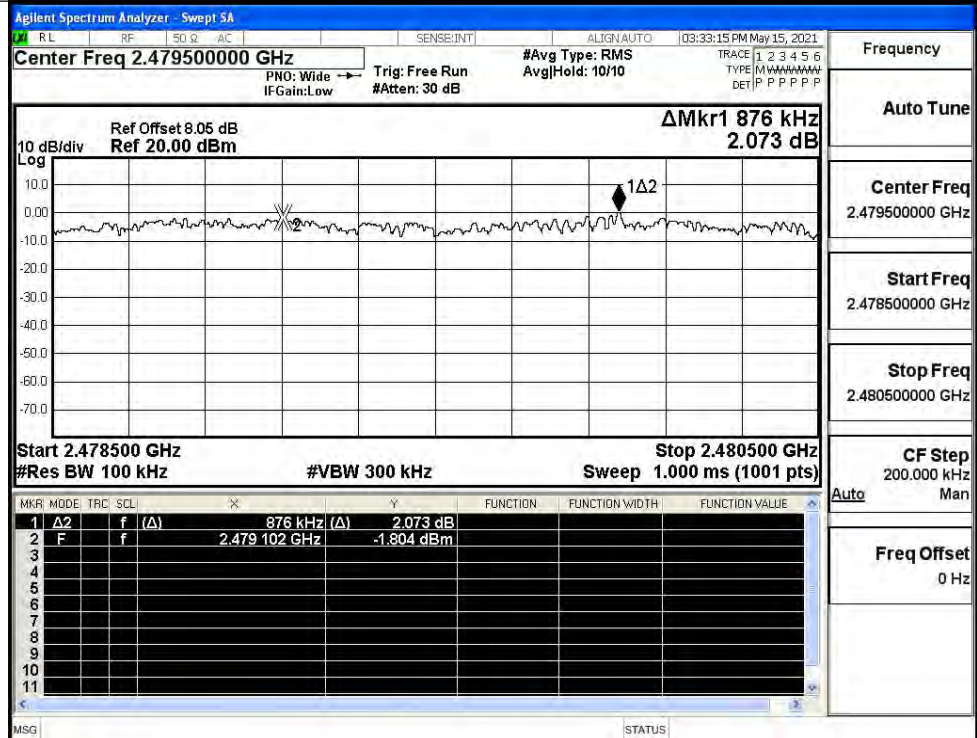
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

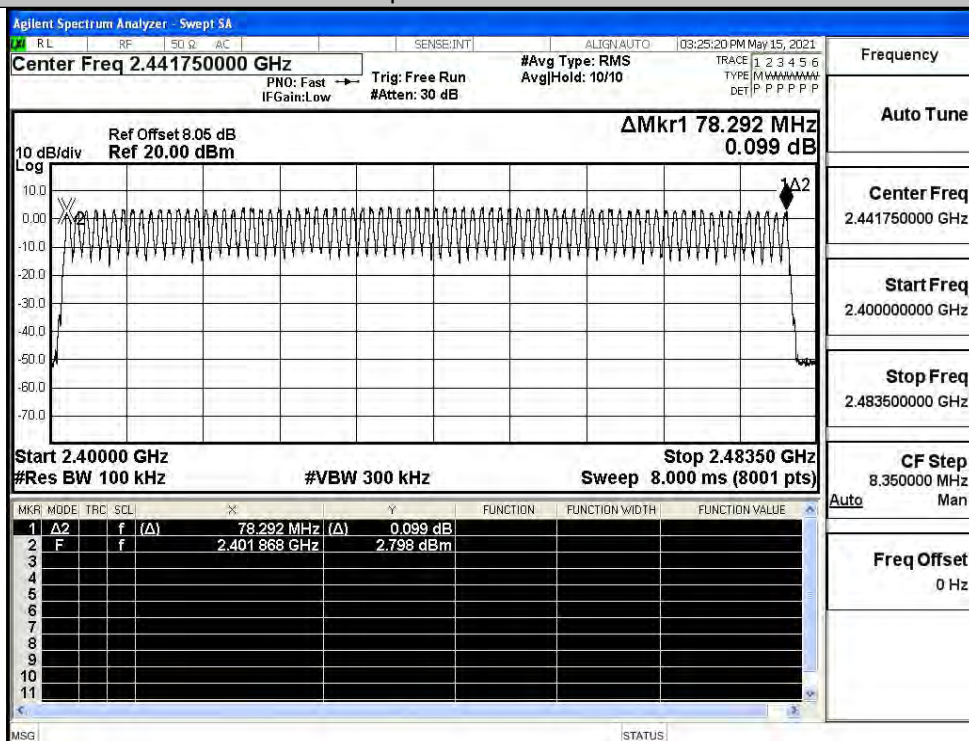
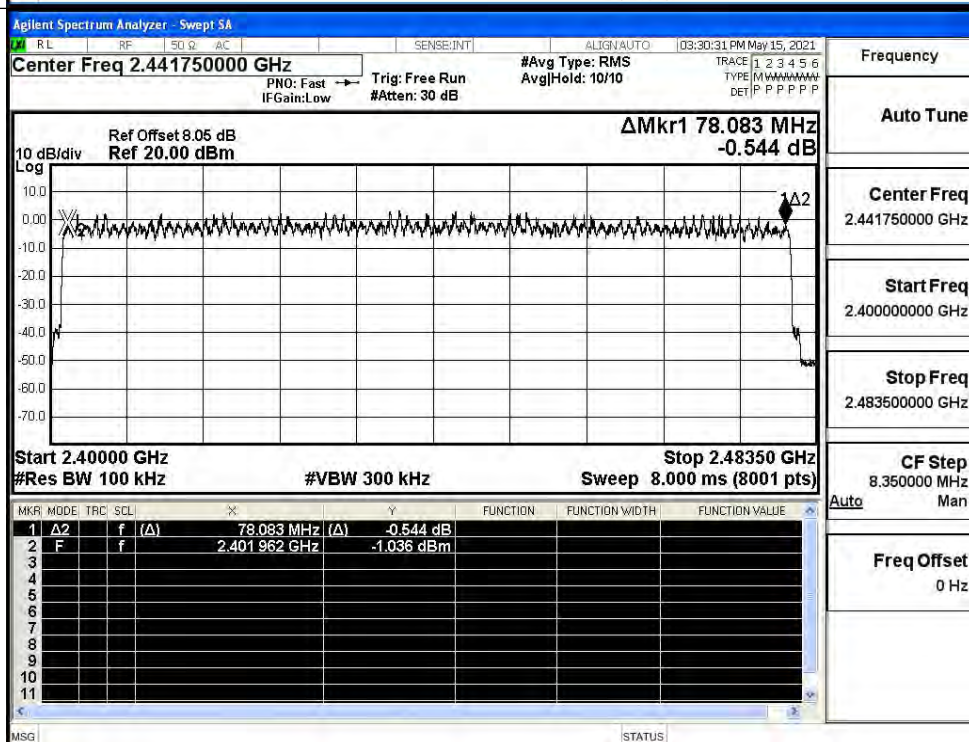


## A.4 Hopping Channel Number

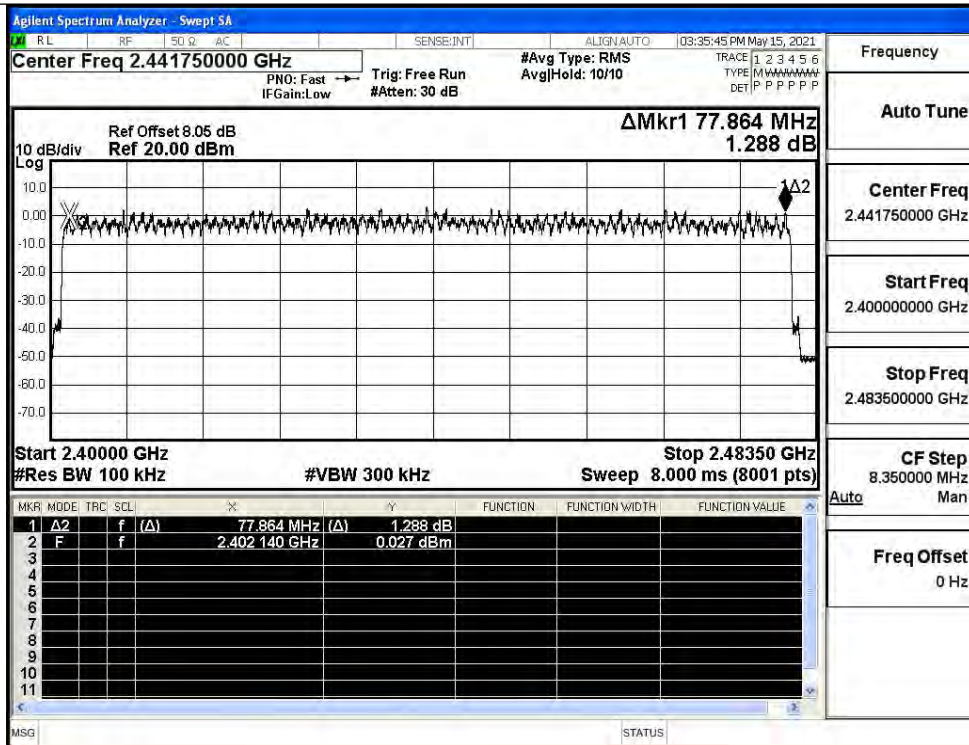
| Mode          | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK          | Hop      | 79                            | $\geq 15$ | PASS    |
| $\pi/4$ DQPSK | Hop      | 79                    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

### Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

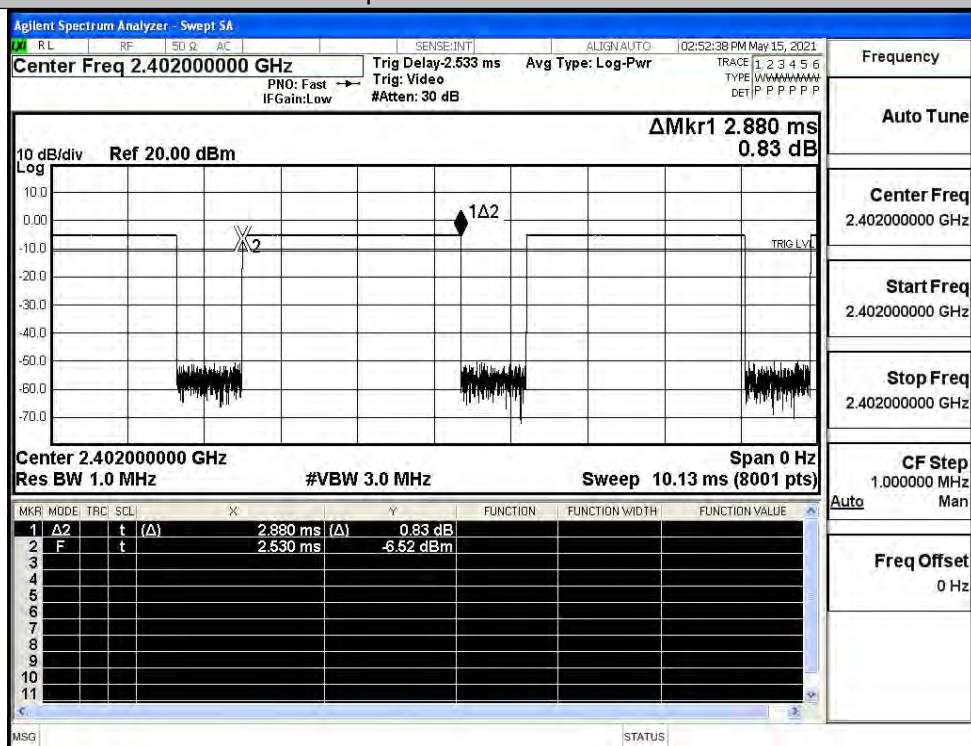


## A.5 Dwell Time

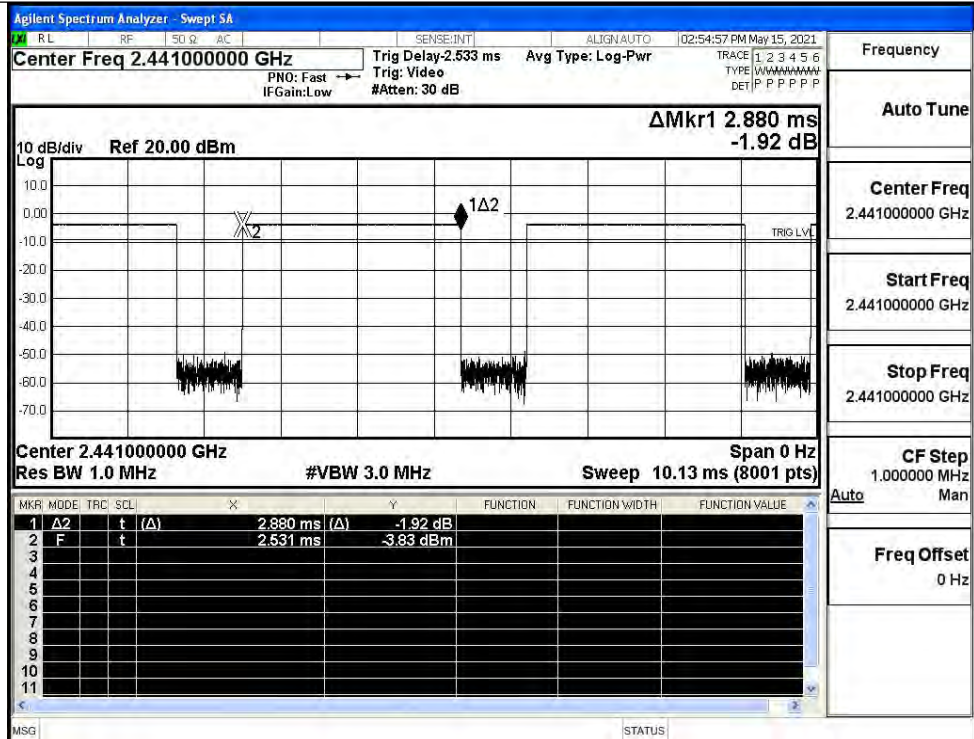
| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[s] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|---------------|-----------|---------|
| GFSK          | DH5    | LCH     | 2.88                       | 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     | 2.89                       | 106.7                 | 0.308         | 0.4       | PASS    |
|               | 3DH5   | MCH     | 2.89                       | 106.7                 | 0.308         | 0.4       | PASS    |
|               | 3DH5   | HCH     | 2.89                       | 106.7                 | 0.308         | 0.4       | PASS    |

Test Graphs

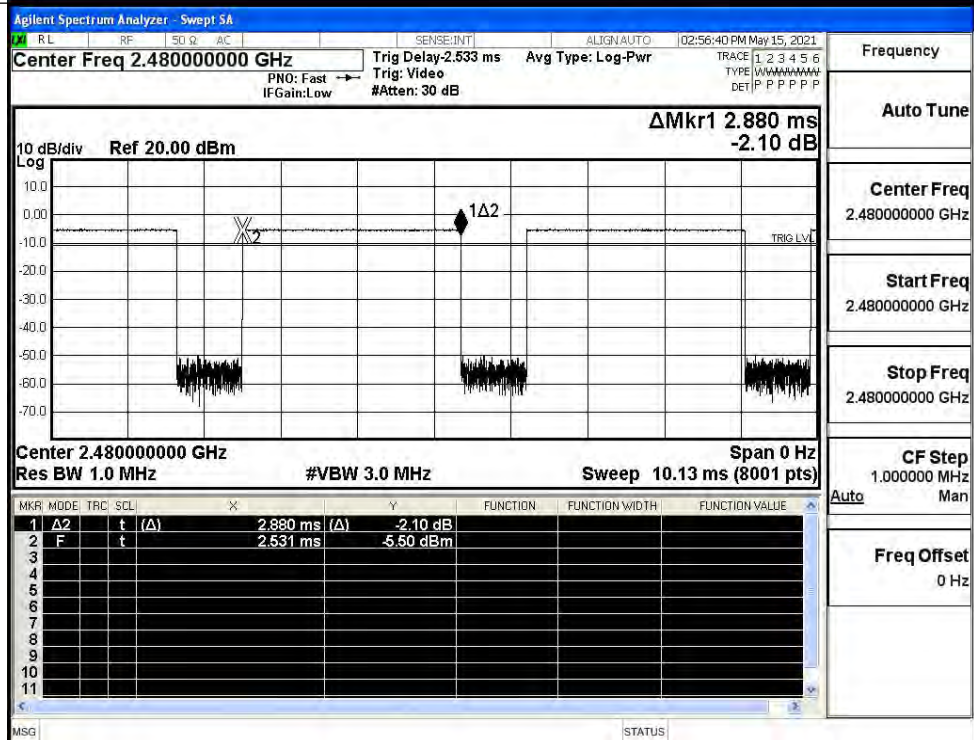
GFSK\_DH5/LCH



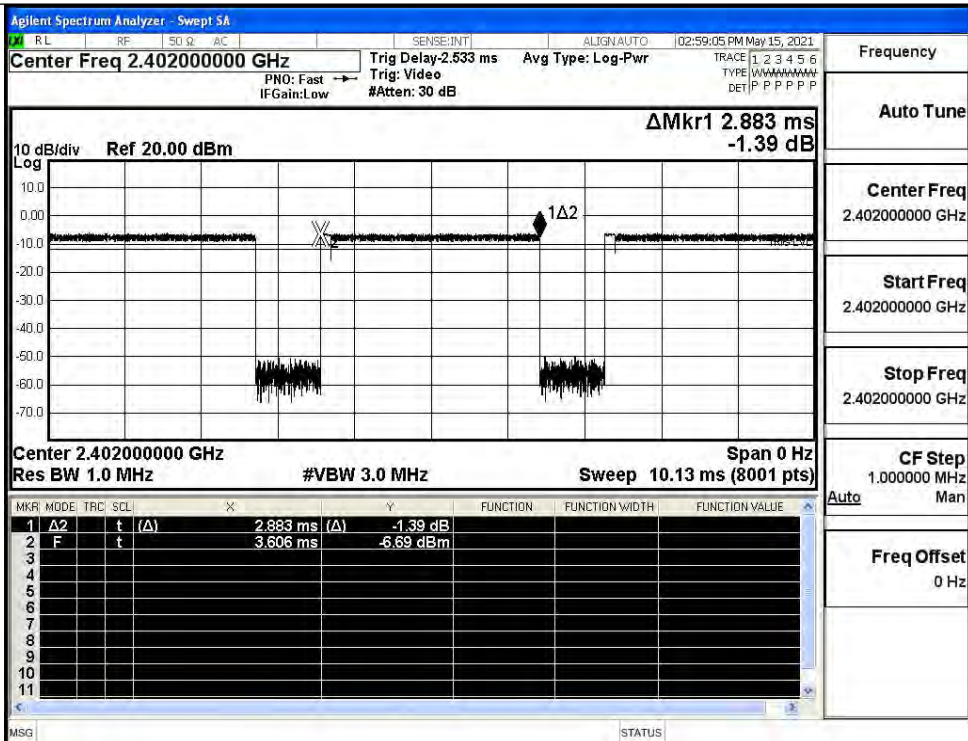
GFSK\_DH5/MCH



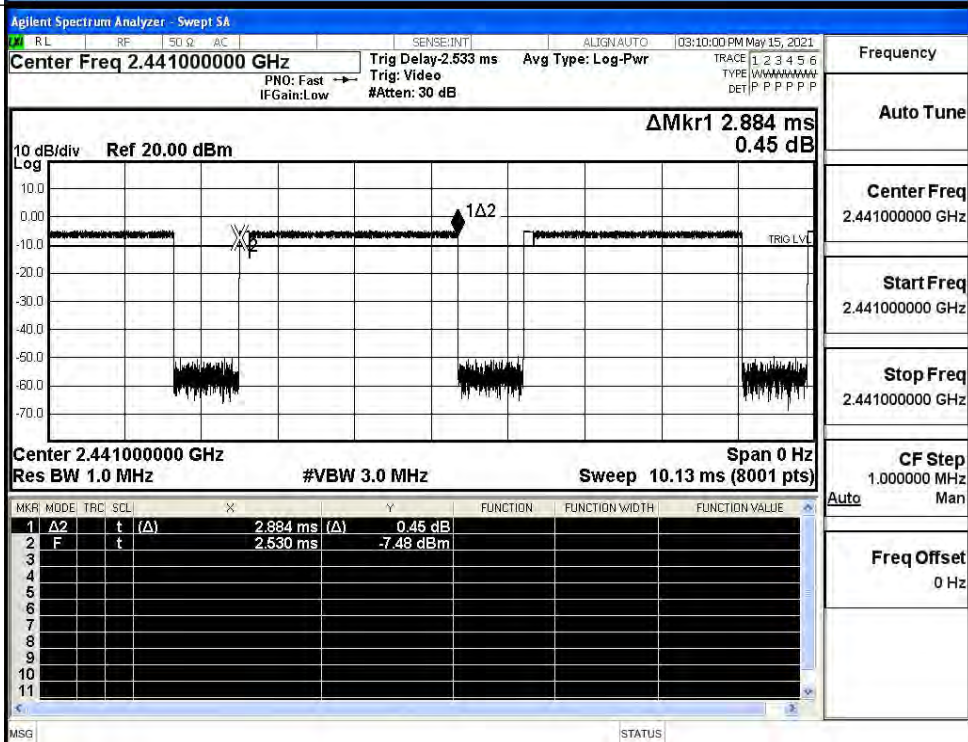
GFSK\_DH5/HCH



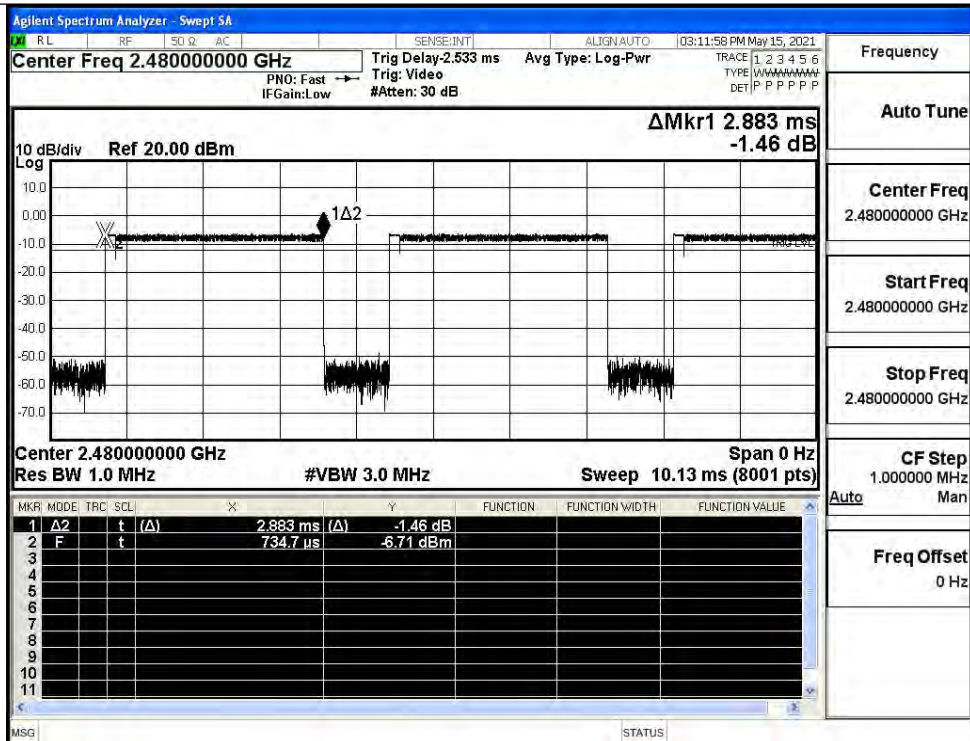
$\pi/4$ DQPSK  
\_2DH5/LCH



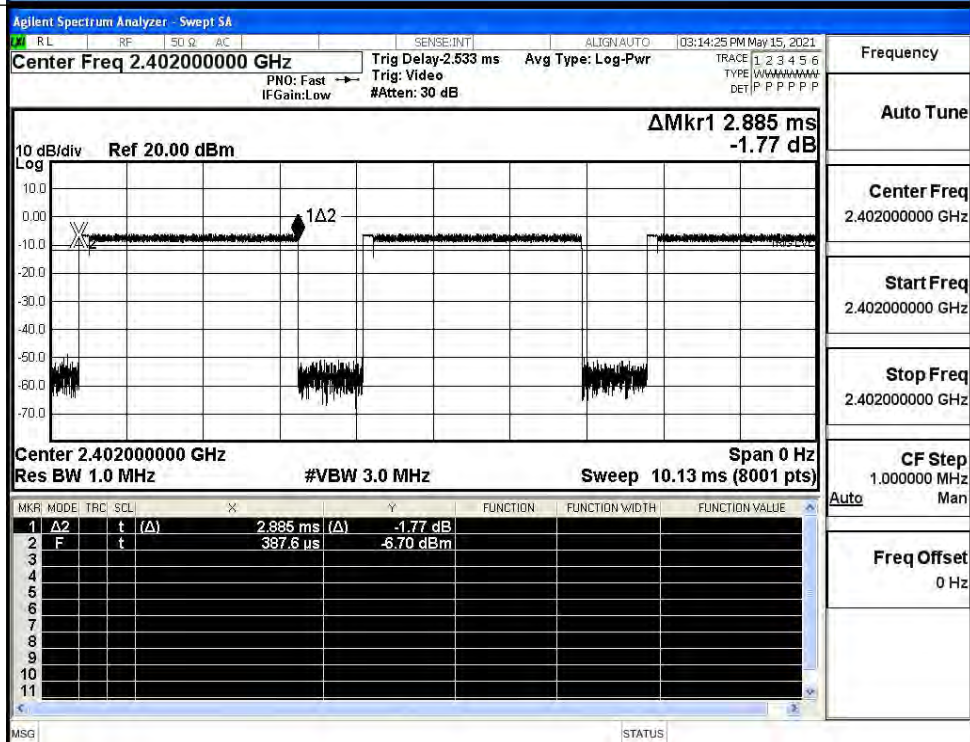
$\pi/4$ DQPSK  
\_2DH5/MCH



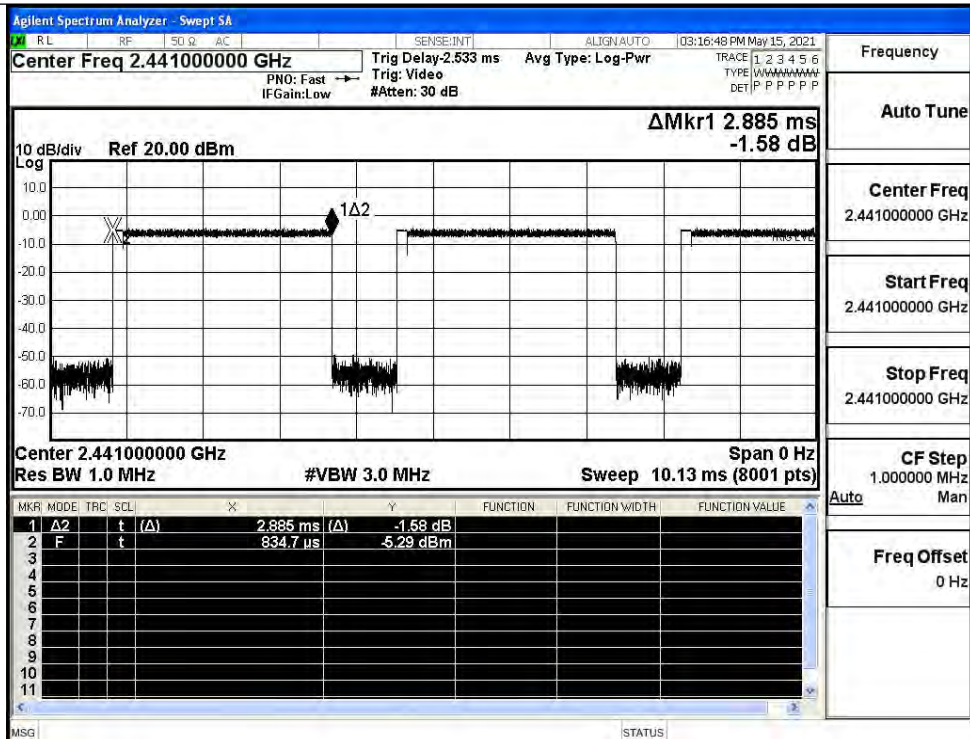
$\pi/4$ DQPSK  
\_2DH5/HCH



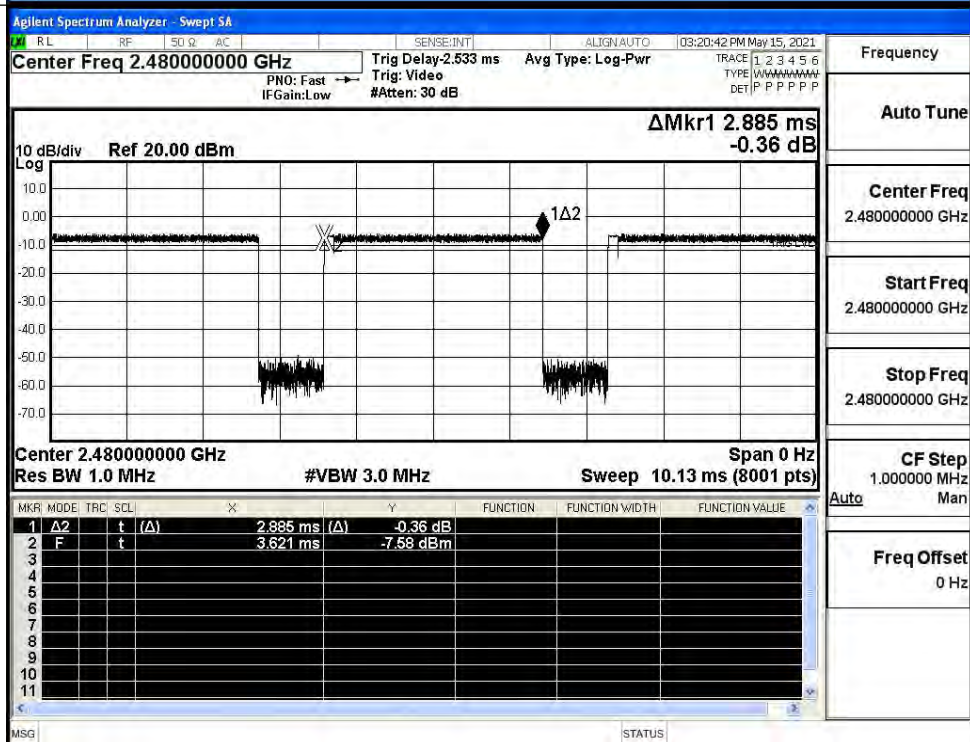
8DPSK \_3DH5/LCH



8DPSK\_3DH5/MCH



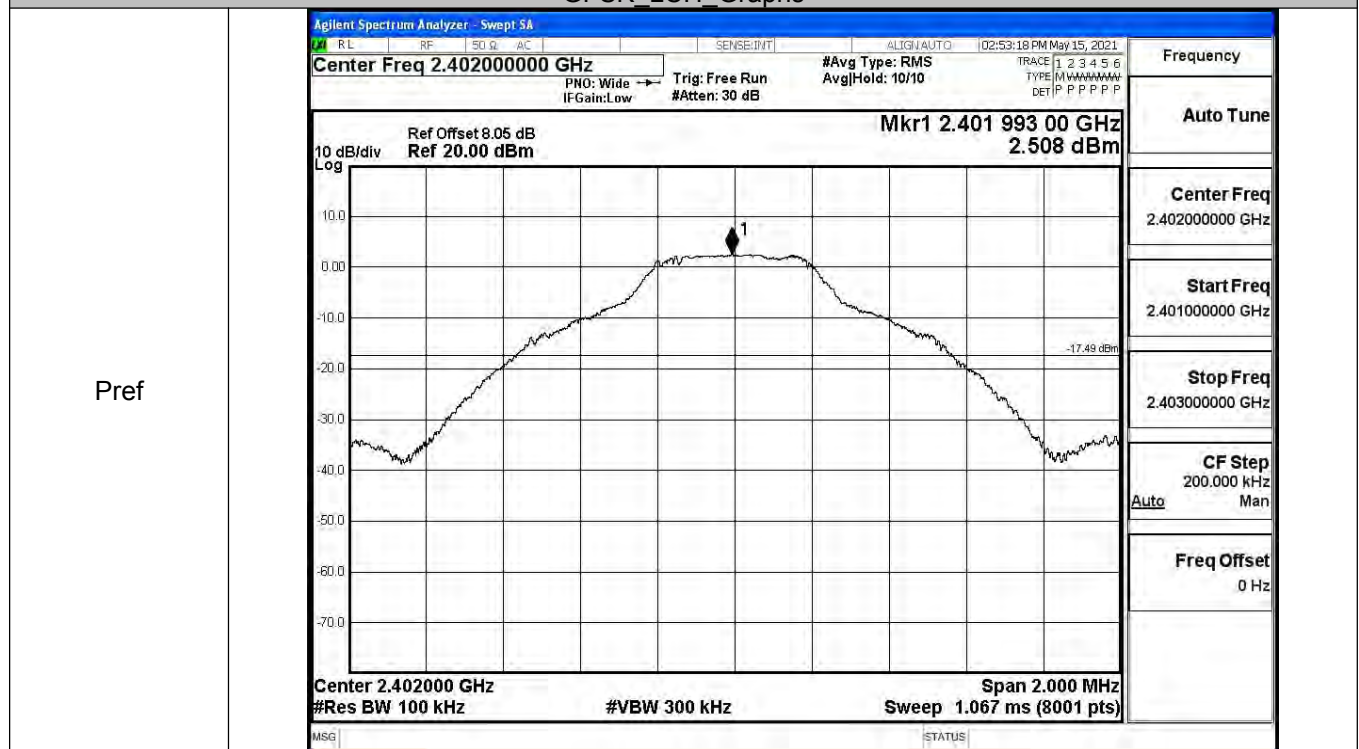
8DPSK\_3DH5/HCH



## A.6 RF Conducted Spurious Emissions

| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK          | LCH     | 2.508      | -37.739          | -17.492     | PASS    |
|               | MCH     | 4.150      | -36.686          | -15.850     | PASS    |
|               | HCH     | 2.656      | -37.076          | -17.344     | PASS    |
| $\pi/4$ DQPSK | LCH     | 1.359      | -37.562          | -18.641     | PASS    |
|               | MCH     | 2.663      | -37.907          | -17.337     | PASS    |
|               | HCH     | 0.904      | -37.553          | -19.096     | PASS    |
| 8DPSK         | LCH     | 1.319      | -36.622          | -18.681     | PASS    |
|               | MCH     | 2.91       | -37.843          | -17.090     | PASS    |
|               | HCH     | 1.383      | -37.532          | -18.617     | PASS    |

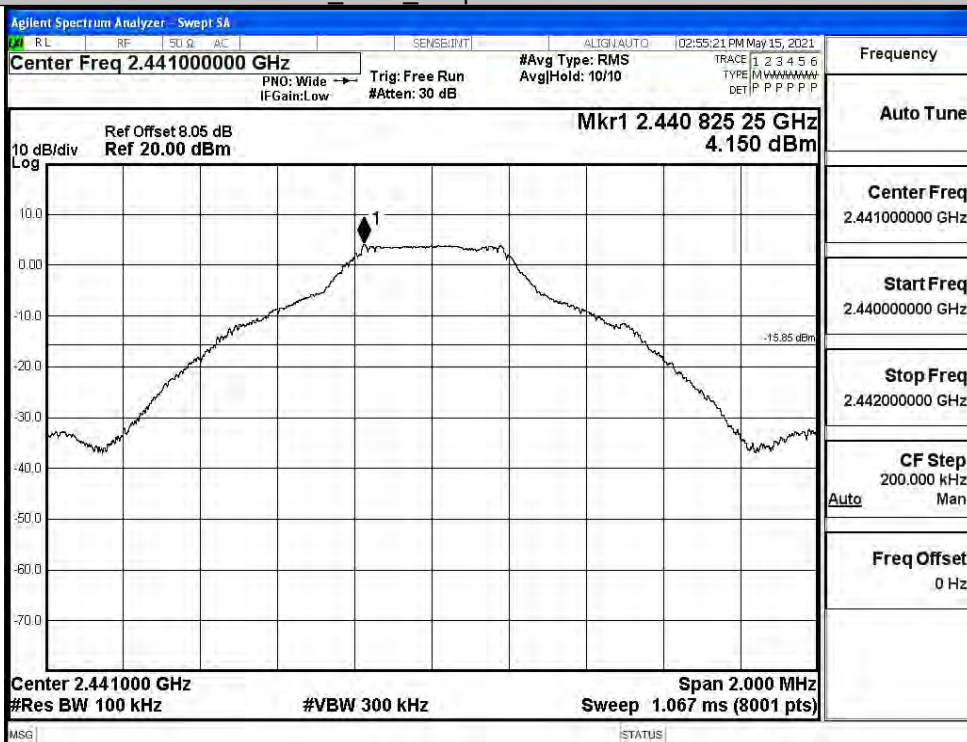
GFSK LCH Graphs



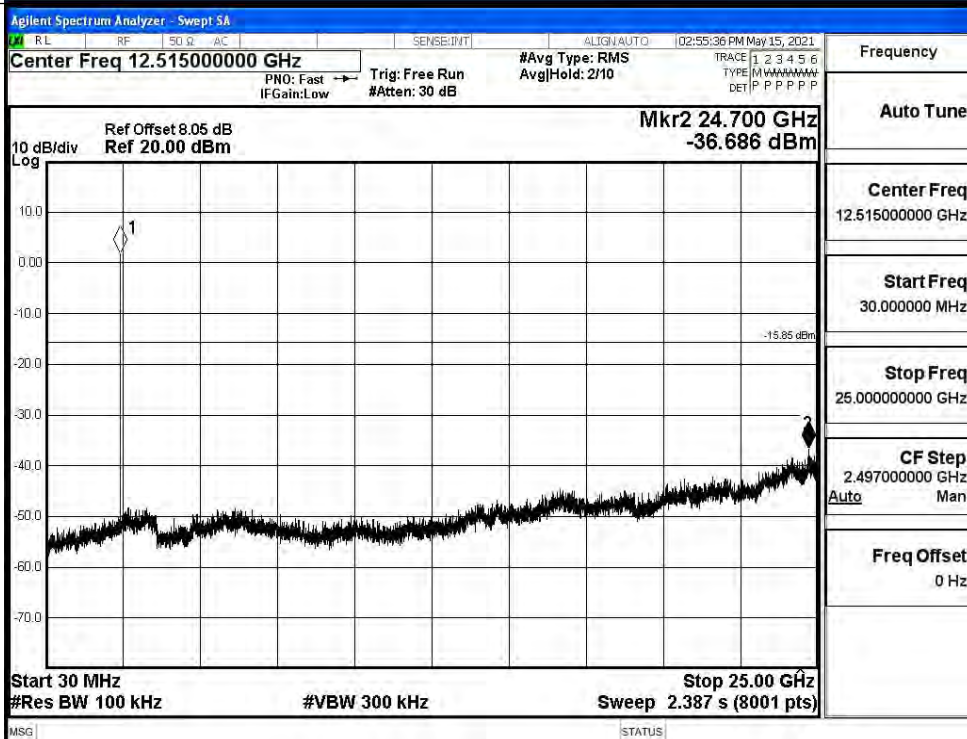


## GFSK\_MCH\_Graphs

Pref

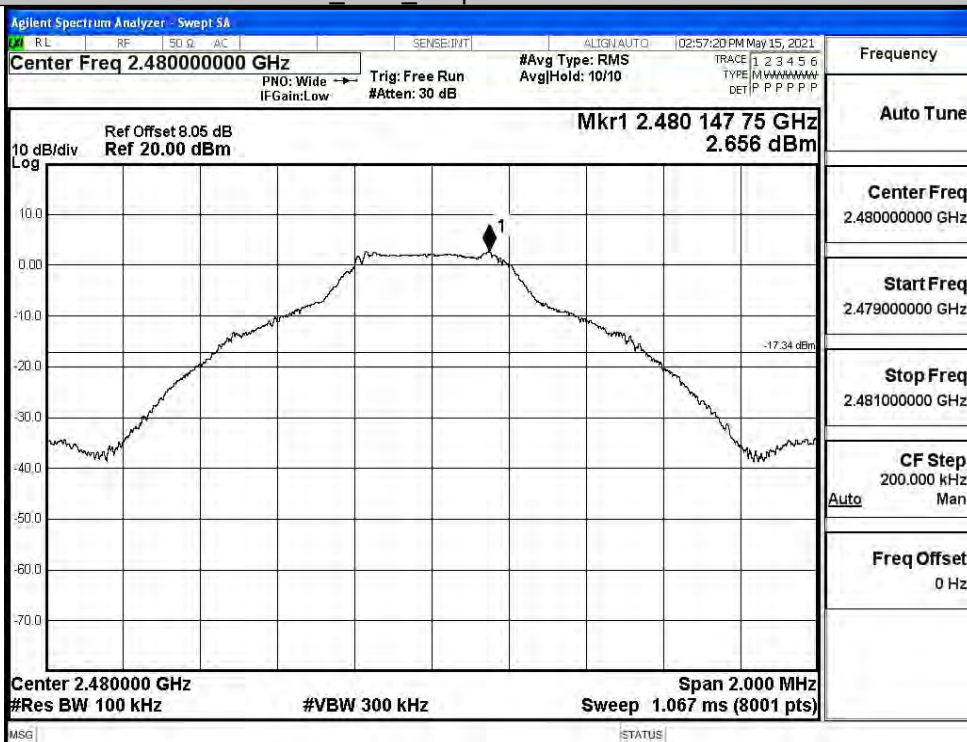


Puw

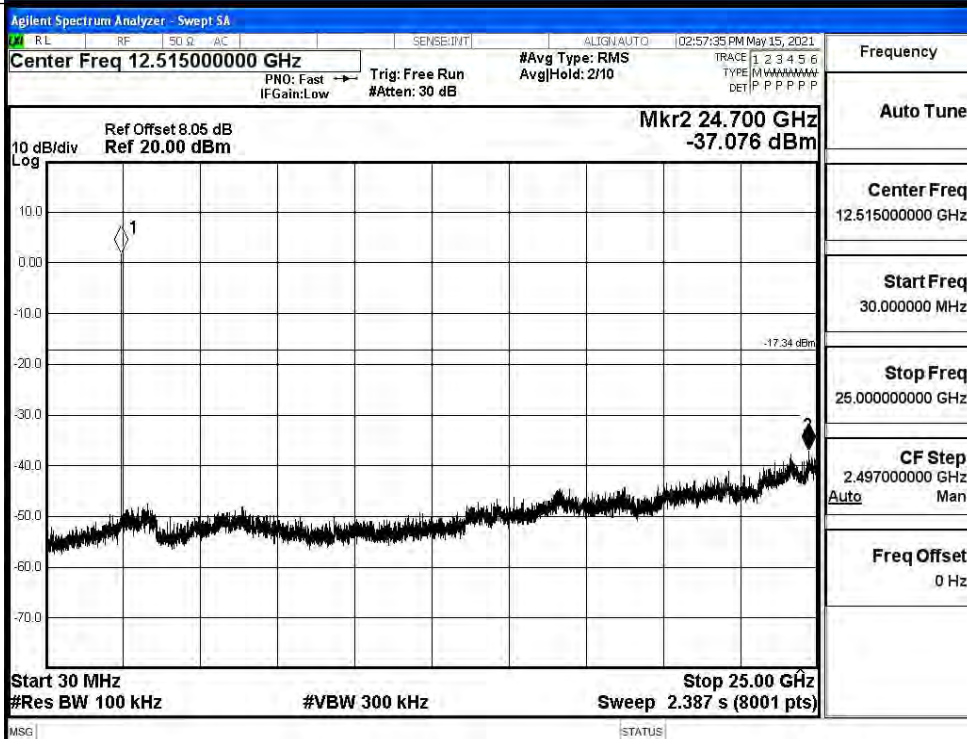


## GFSK\_HCH\_Graphs

Pref

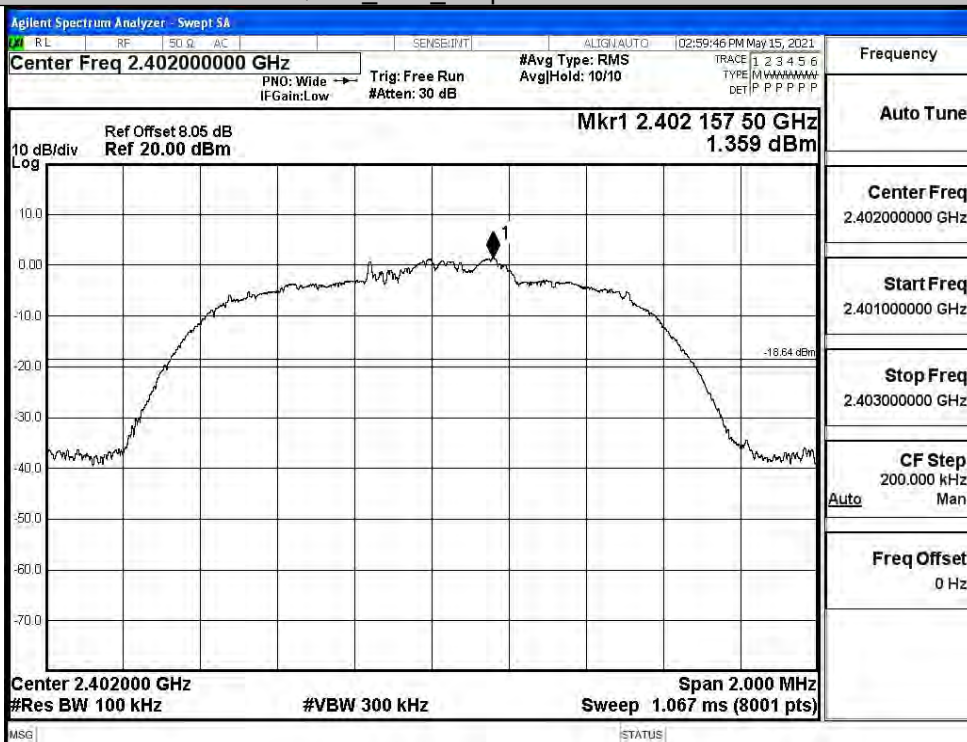


Puw

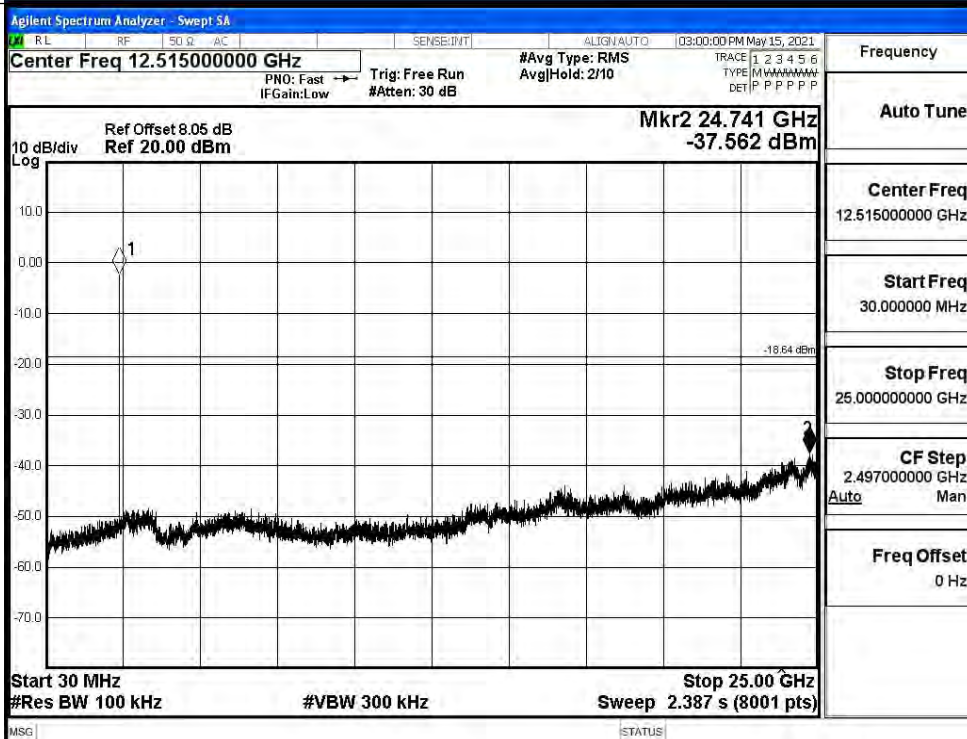


$\pi/4$ DQPSK\_LCH\_Graphs

Pref

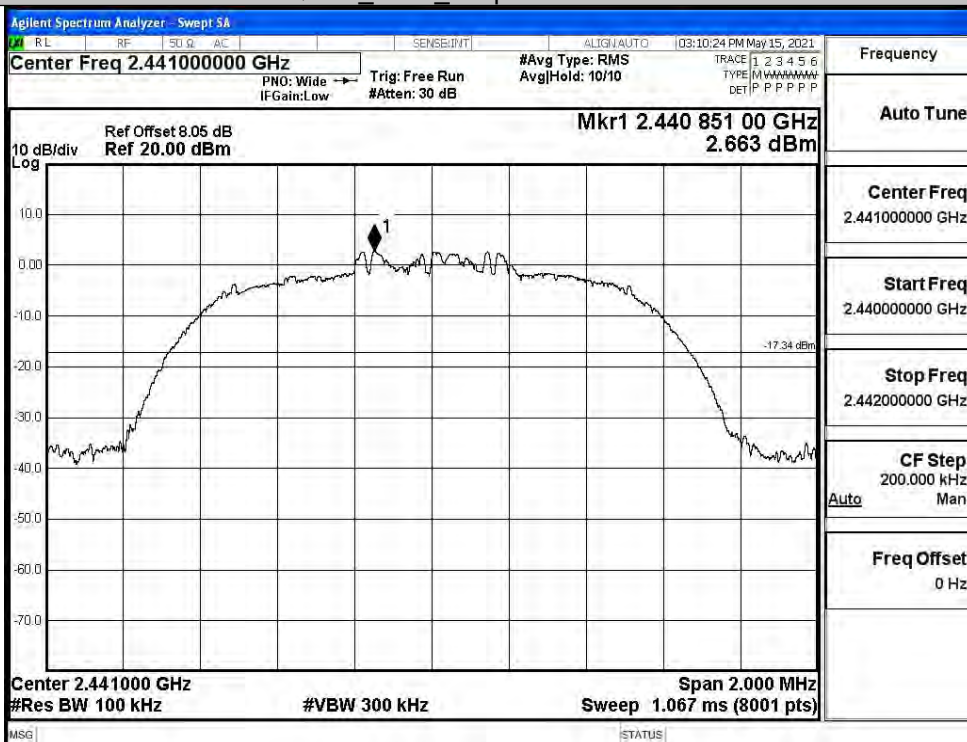


Puw

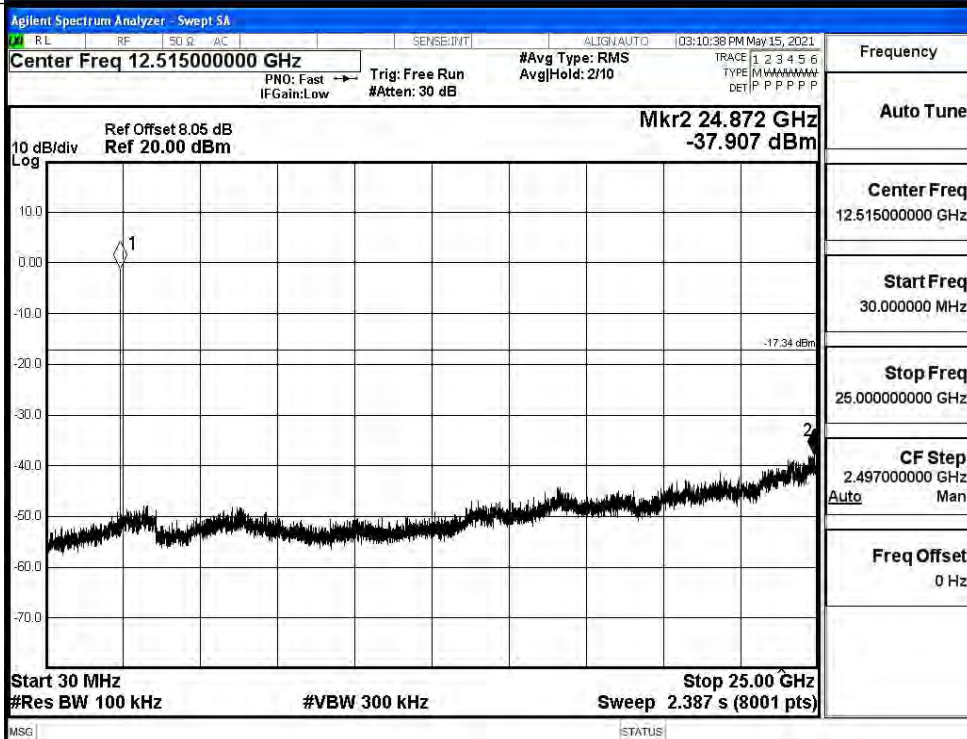


$\pi$ /4DQPSK\_MCH\_Graphs

Pref

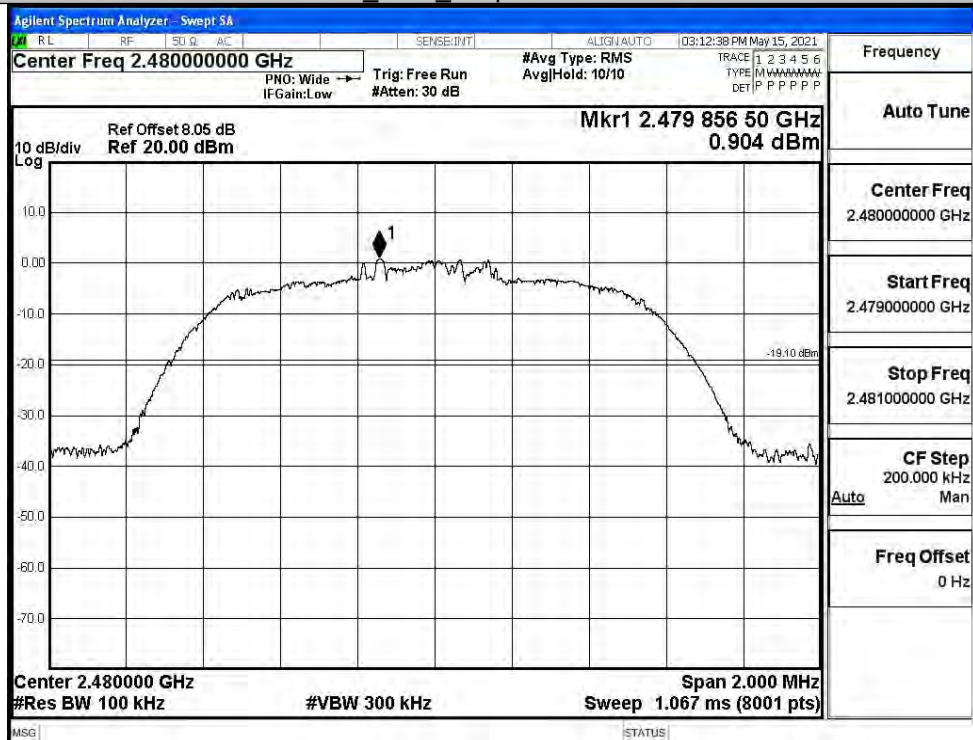


Puw

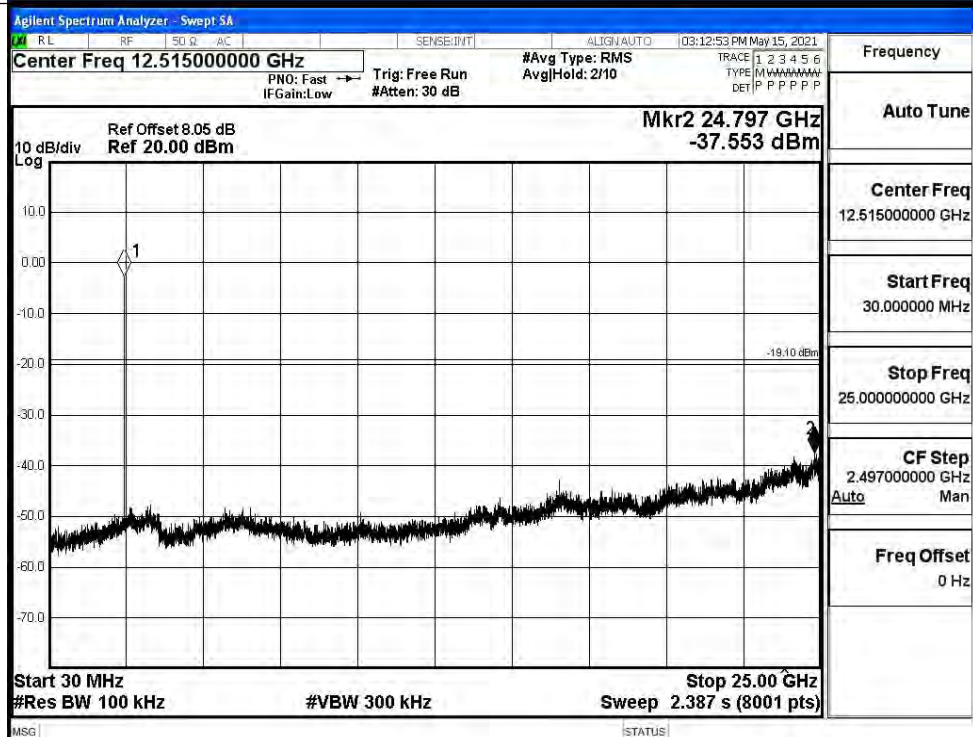


$\pi/4$ DQPSK\_HCH\_Graphs

Pref

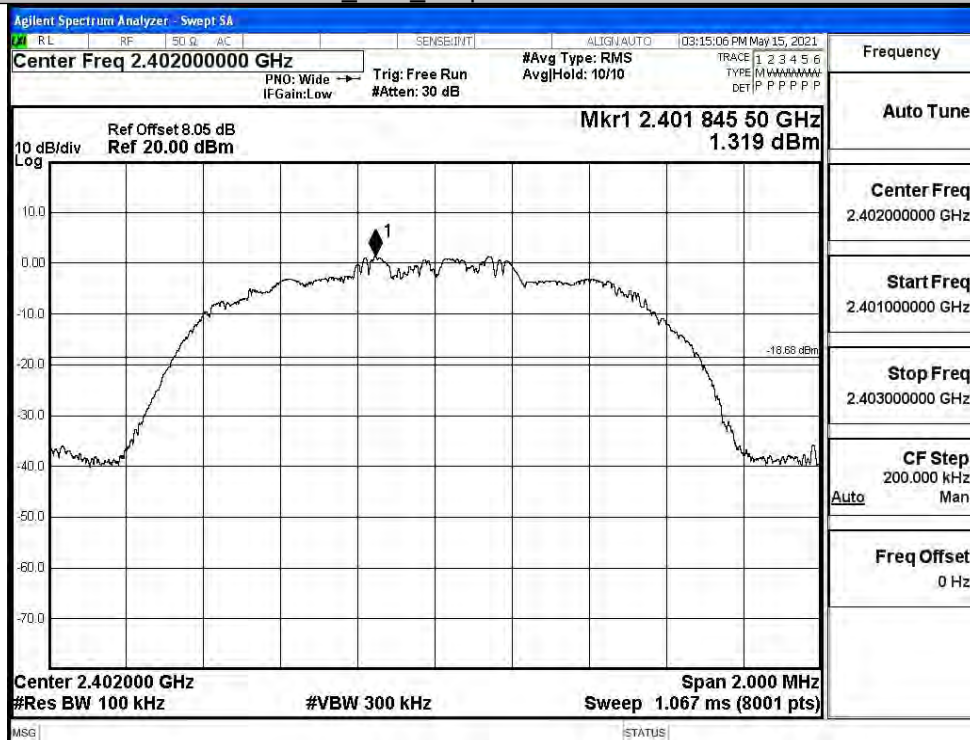


Puw

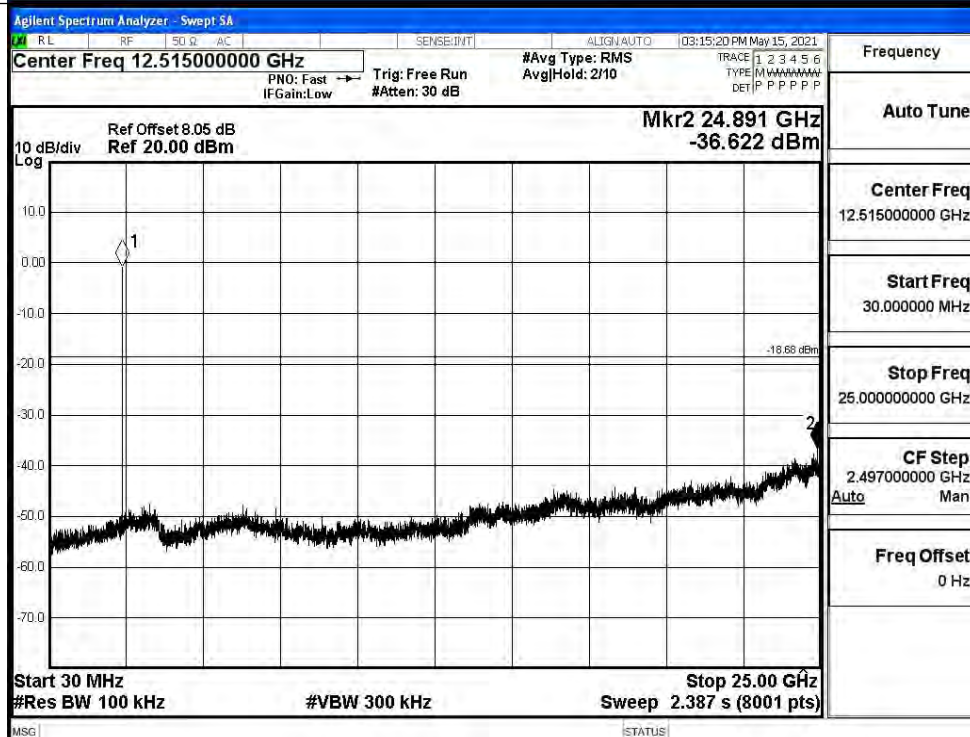


## 8DPSK\_LCH\_Graphs

Pref

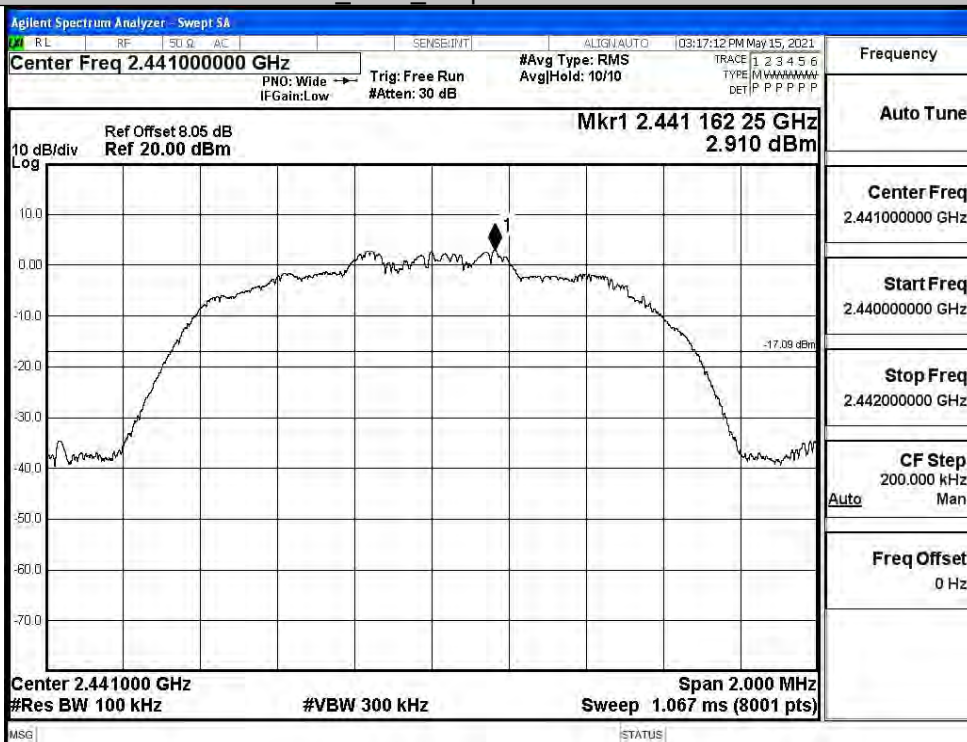


Puw

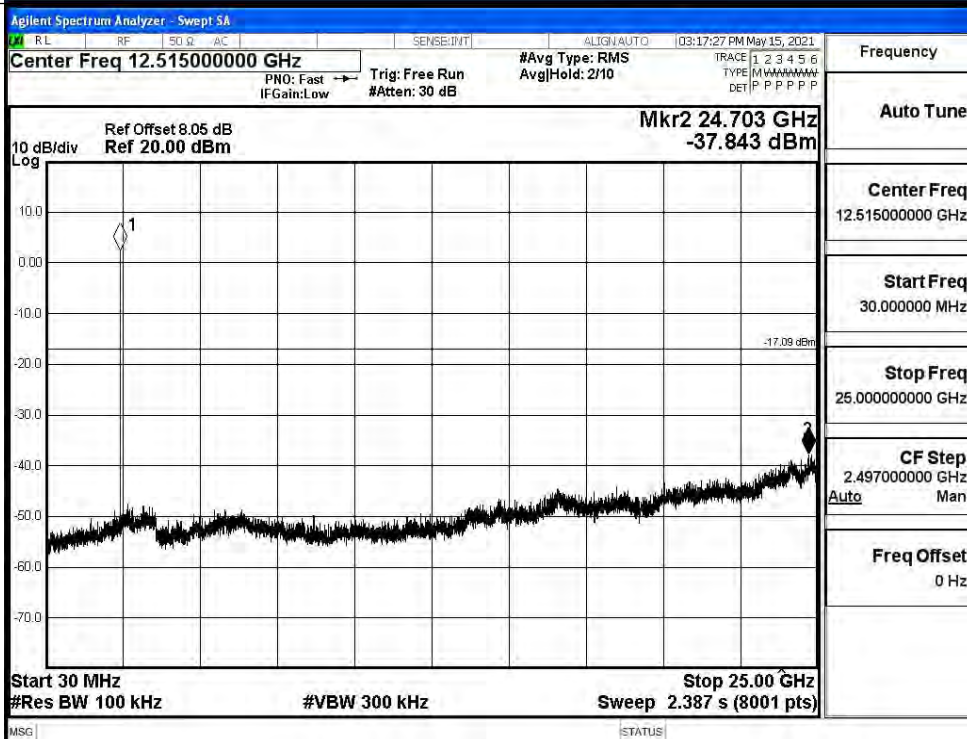


## 8DPSK\_MCH\_Graphs

Pref

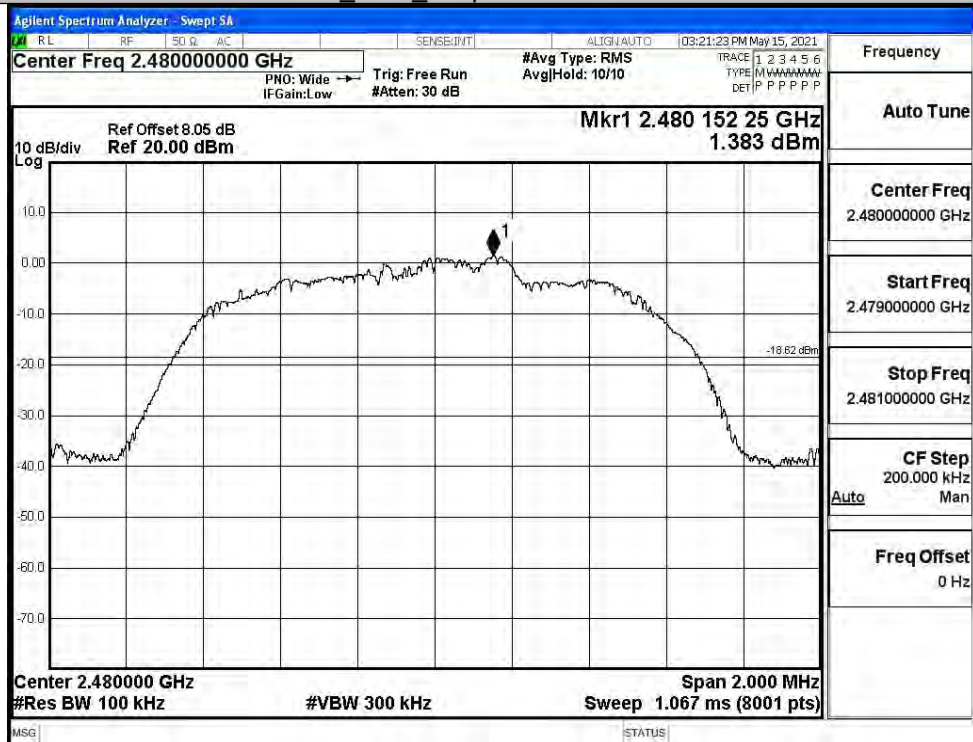


Puw

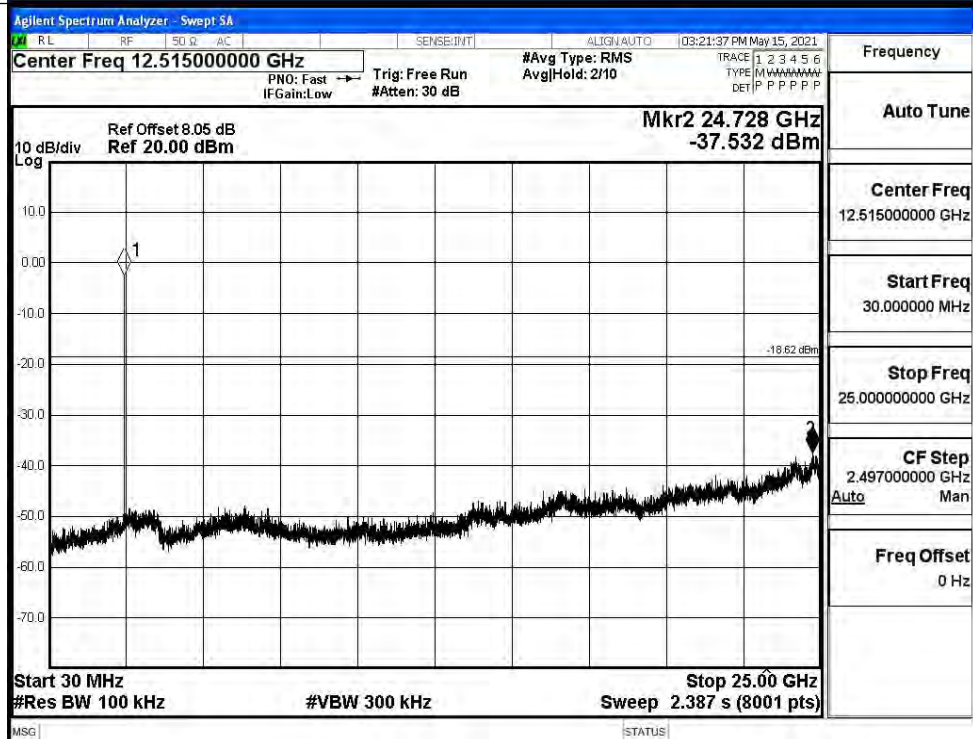


## 8DPSK\_HCH\_Graphs

Pref



Puw

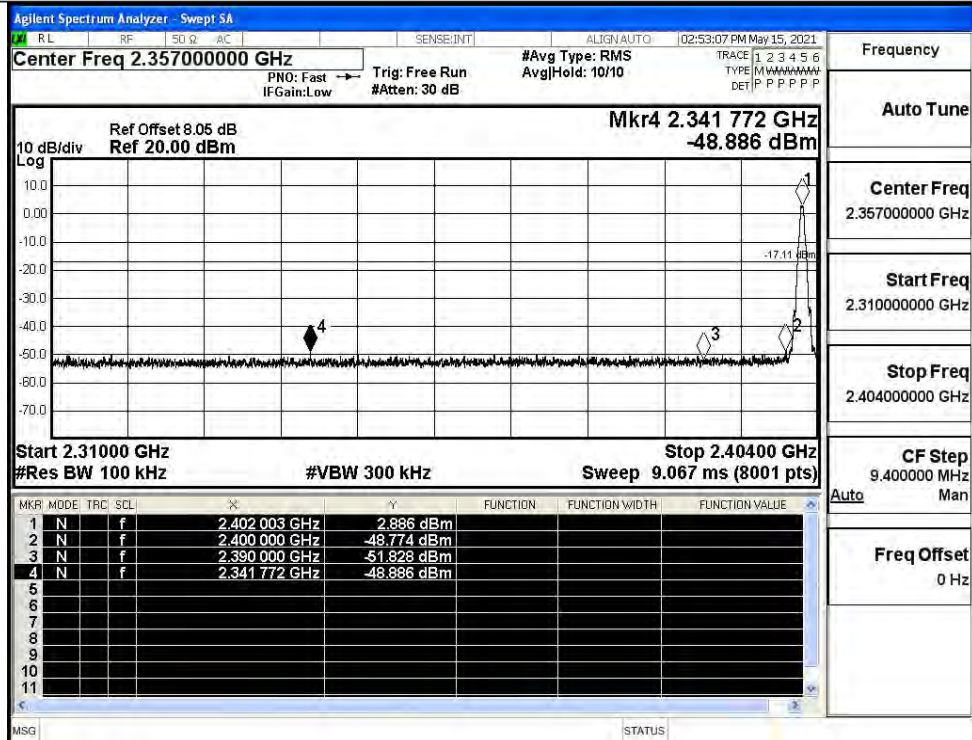


## A.7 Band-edge for RF Conducted Emissions

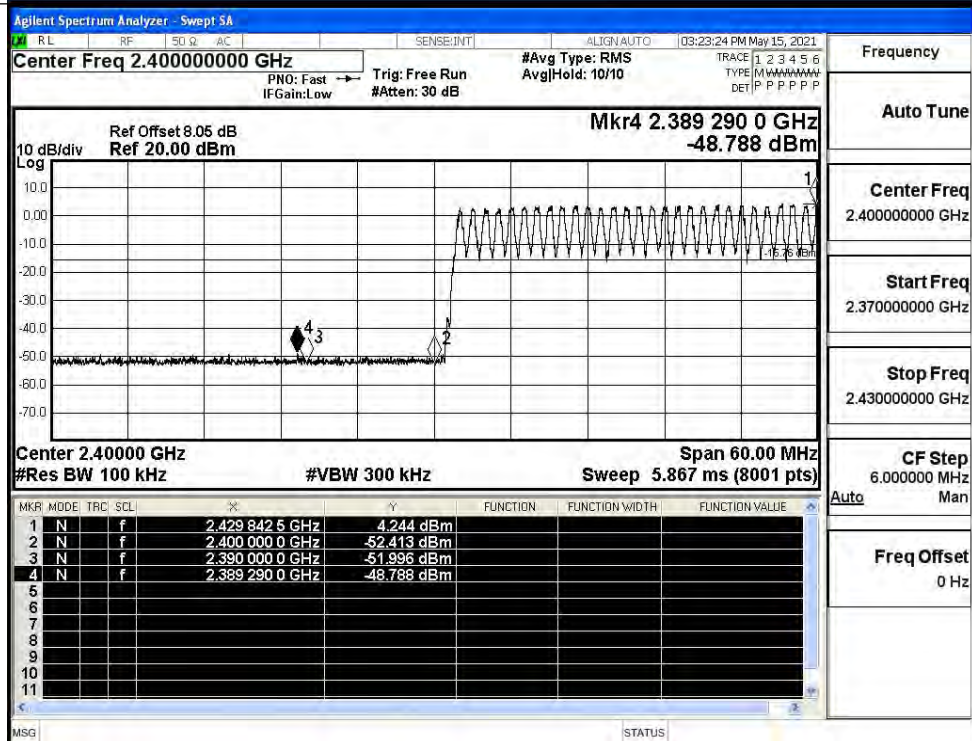
| Mode          | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | 2.886               | Off               | -48.886                  | -17.11      | PASS    |
|               |         |                         | 4.244               | On                | -48.788                  | -15.76      | PASS    |
|               | HCH     | 2480                    | 2.796               | Off               | -49.384                  | -17.2       | PASS    |
|               |         |                         | 3.961               | On                | -48.612                  | -16.04      | PASS    |
| $\pi/4$ DQPSK | LCH     | 2402                    | 1.487               | Off               | -49.773                  | -18.51      | PASS    |
|               |         |                         | 2.689               | On                | -48.896                  | -17.31      | PASS    |
|               | HCH     | 2480                    | 1.500               | Off               | -48.922                  | -18.5       | PASS    |
|               |         |                         | 2.570               | On                | -48.623                  | -17.43      | PASS    |
| 8DPSK         | LCH     | 2402                    | 1.425               | Off               | -49.697                  | -18.58      | PASS    |
|               |         |                         | 2.687               | On                | -49.093                  | -17.31      | PASS    |
|               | HCH     | 2480                    | 1.441               | Off               | -49.178                  | -18.56      | PASS    |
|               |         |                         | 2.338               | On                | -48.268                  | -17.66      | PASS    |

## Test Graphs

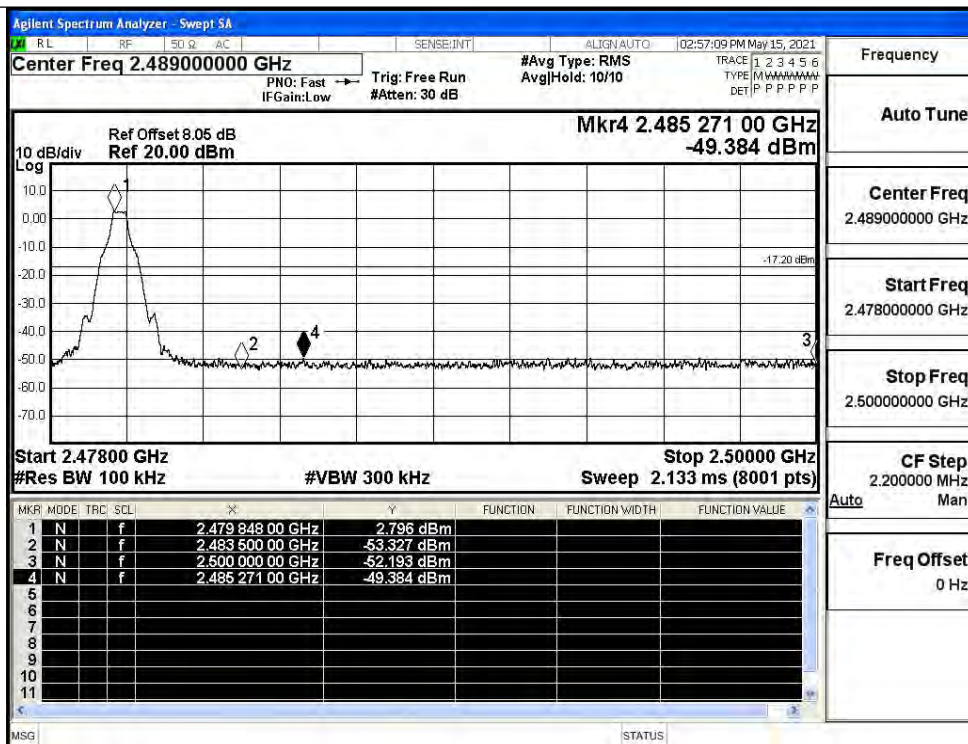
GFSK/LCH/No Hop



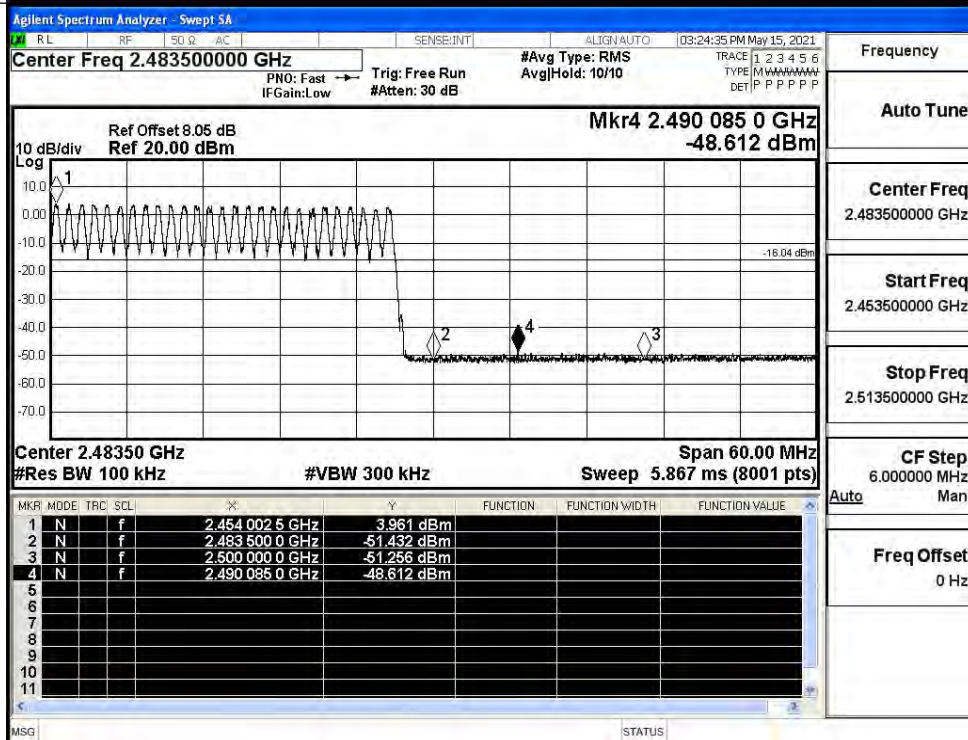
GFSK/LCH/Hop



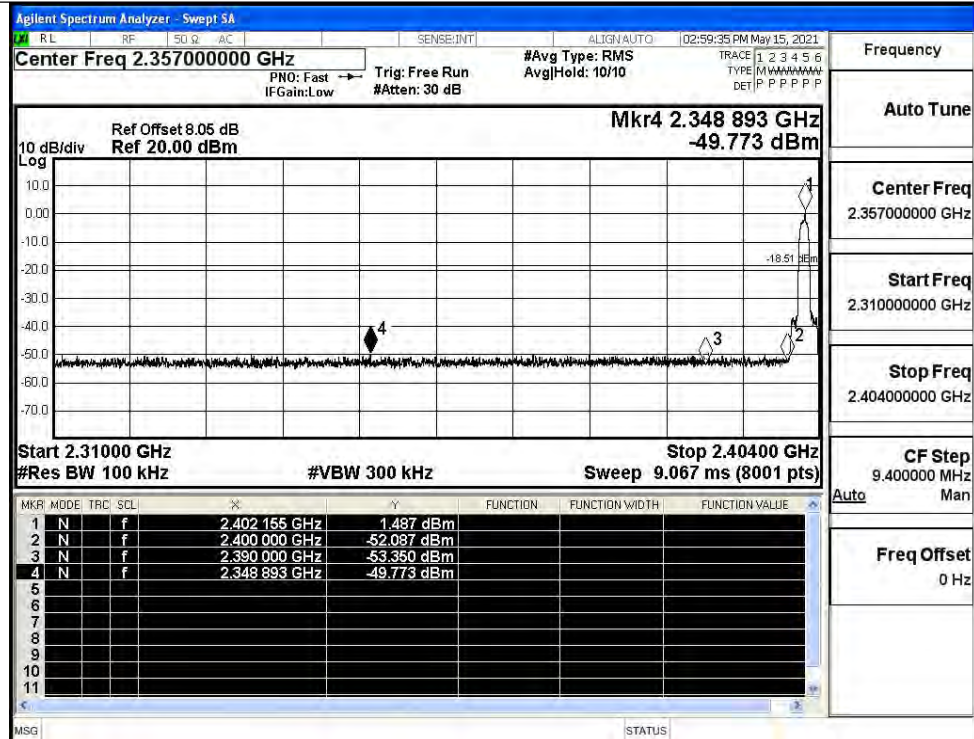
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq  
2.357000000 GHz

Start Freq  
2.310000000 GHz

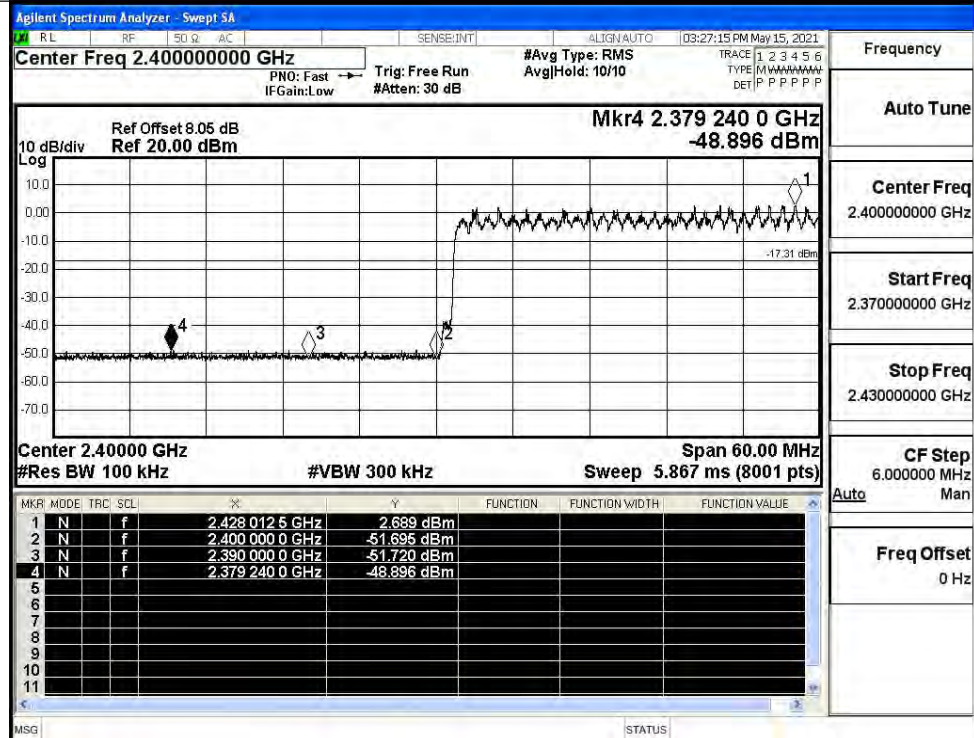
Stop Freq  
2.404000000 GHz

CF Step  
9.400000 MHz

Auto

Freq Offset  
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq  
2.400000000 GHz

Start Freq  
2.370000000 GHz

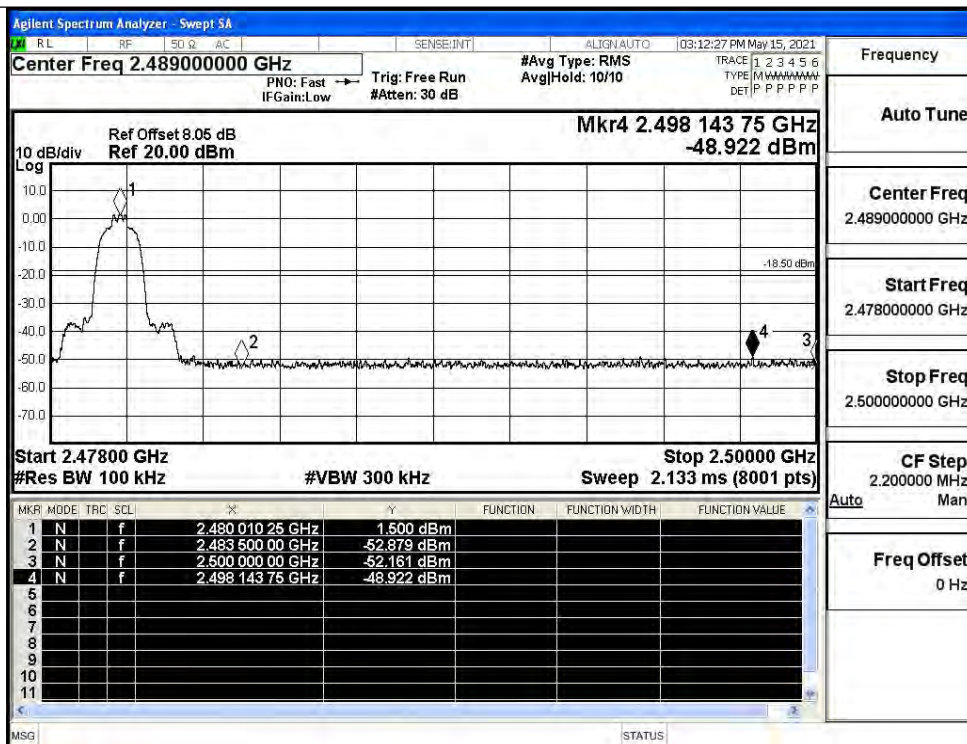
Stop Freq  
2.430000000 GHz

CF Step  
6.000000 MHz

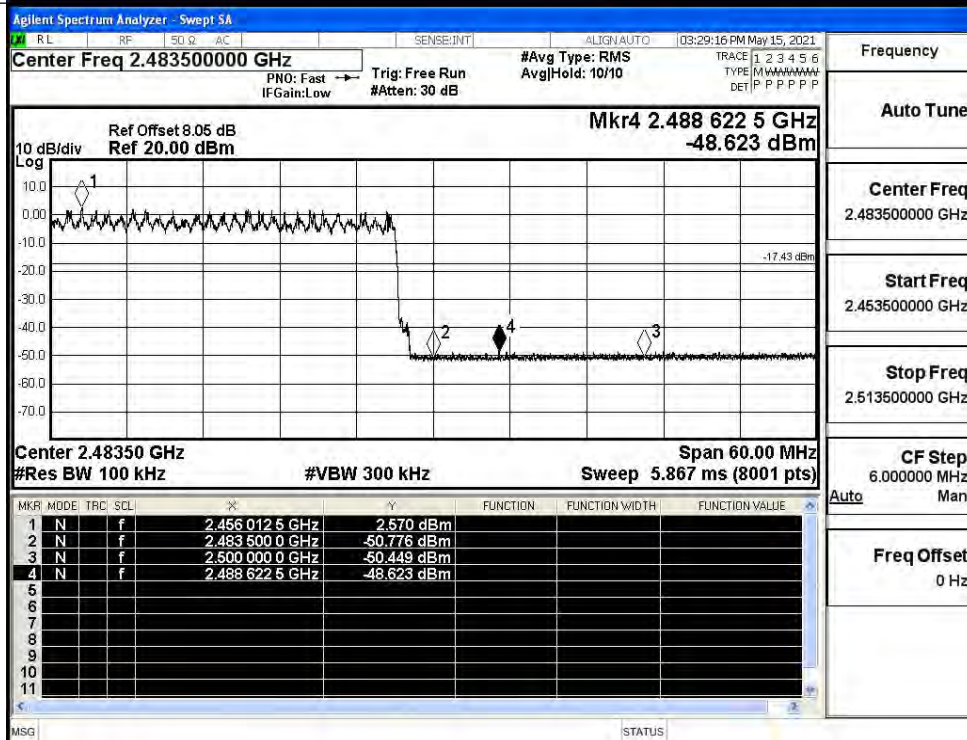
Auto

Freq Offset  
0 Hz

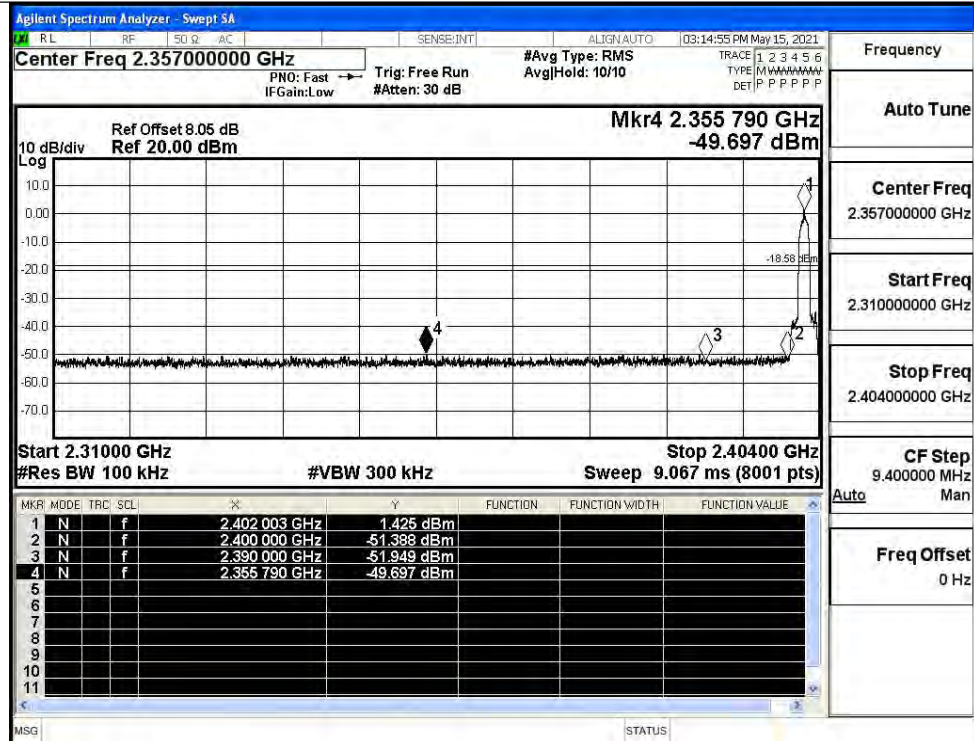
$\pi/4$ DQPSK/HCH/No  
Hop



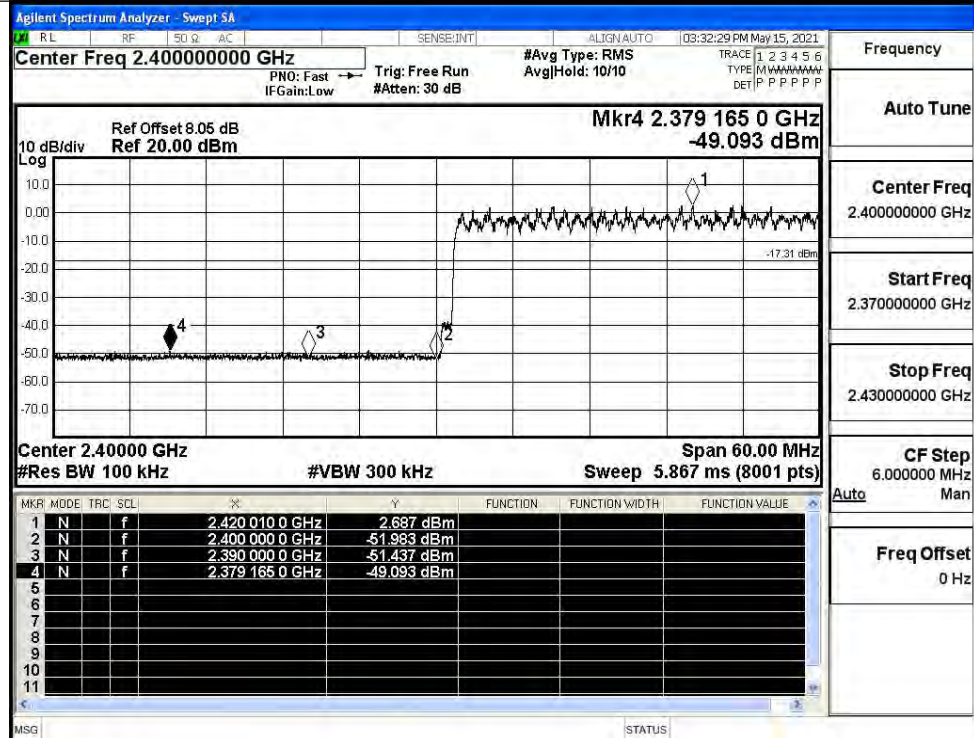
$\pi/4$ DQPSK/HCH/Hop



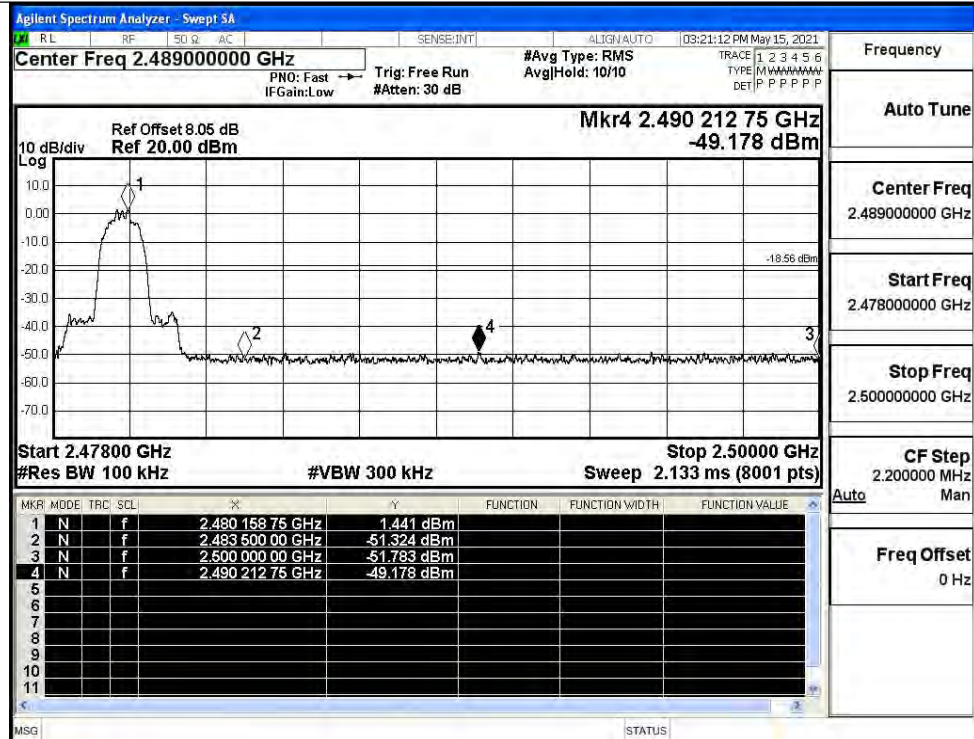
8DPSK/LCH/No Hop



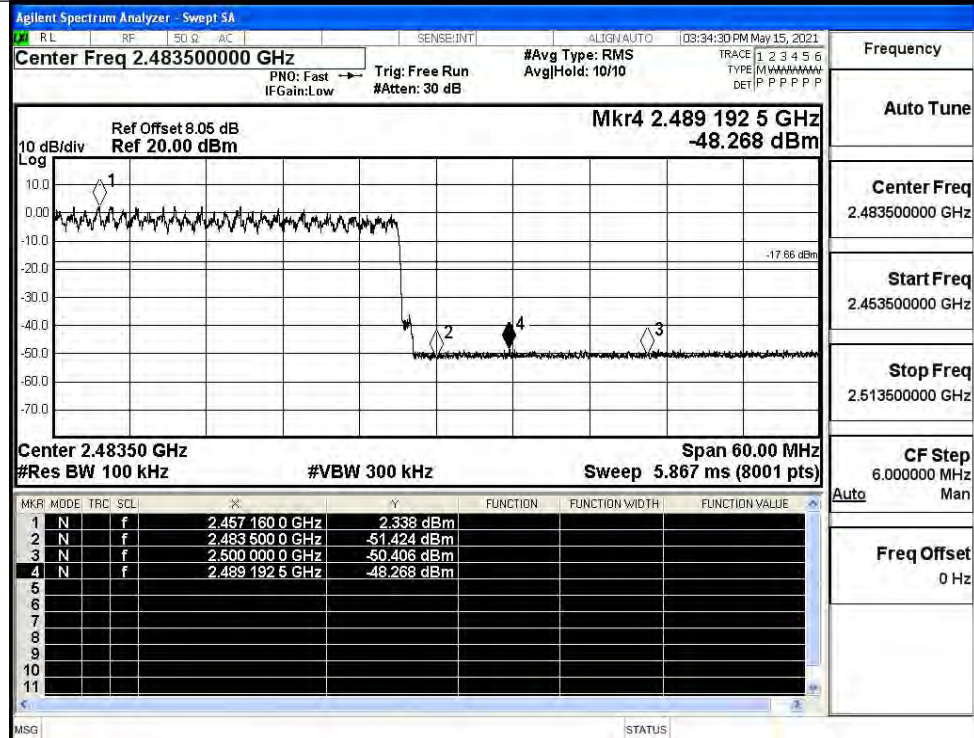
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



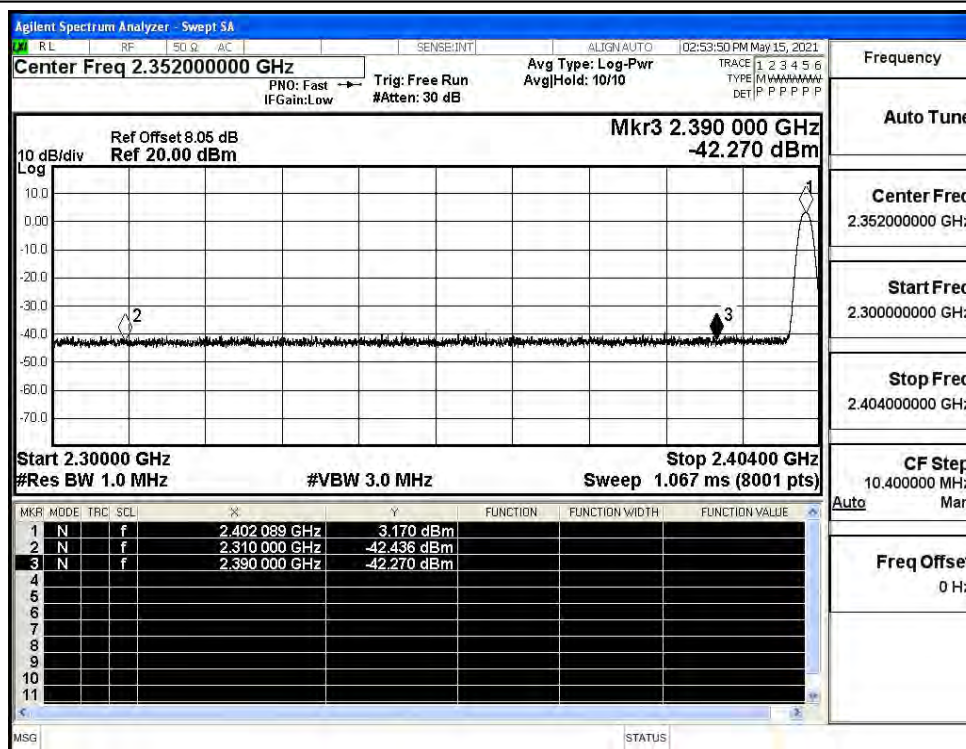
8DPSK/HCH/Hop



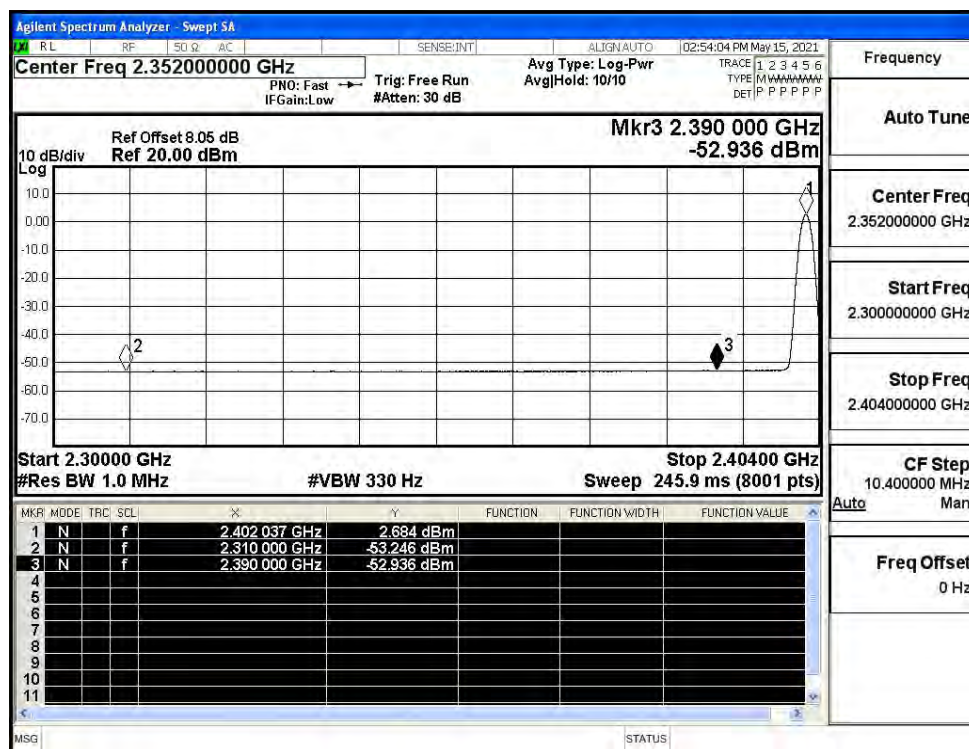
## A.8 Restrict-band band-edge measurements

| Test Mode     | Hopping | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0 | -42.44      | 2.0  | 0             | 54.79      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.25      | 2.0  | 0             | 43.98      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -42.27      | 2.0  | 0             | 54.96      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.94      | 2.0  | 0             | 44.29      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -41.48      | 2.0  | 0             | 55.75      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.27      | 2.0  | 0             | 44.96      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -42.04      | 2.0  | 0             | 55.19      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.21      | 2.0  | 0             | 45.02      | AV       | 54             | PASS    |
| $\pi/4$ DQPSK | Off     | 2310.0 | -43.62      | 2.0  | 0             | 53.61      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.20      | 2.0  | 0             | 44.03      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -42.82      | 2.0  | 0             | 54.41      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.98      | 2.0  | 0             | 44.25      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -41.73      | 2.0  | 0             | 55.50      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.35      | 2.0  | 0             | 44.88      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -41.64      | 2.0  | 0             | 55.59      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.20      | 2.0  | 0             | 45.03      | AV       | 54             | PASS    |
| 8DPSK         | Off     | 2310.0 | -42.69      | 2.0  | 0             | 54.54      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.36      | 2.0  | 0             | 43.87      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -41.52      | 2.0  | 0             | 55.71      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.87      | 2.0  | 0             | 44.36      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -41.69      | 2.0  | 0             | 55.54      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.30      | 2.0  | 0             | 44.93      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -41.82      | 2.0  | 0             | 55.41      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.28      | 2.0  | 0             | 44.95      | AV       | 54             | PASS    |

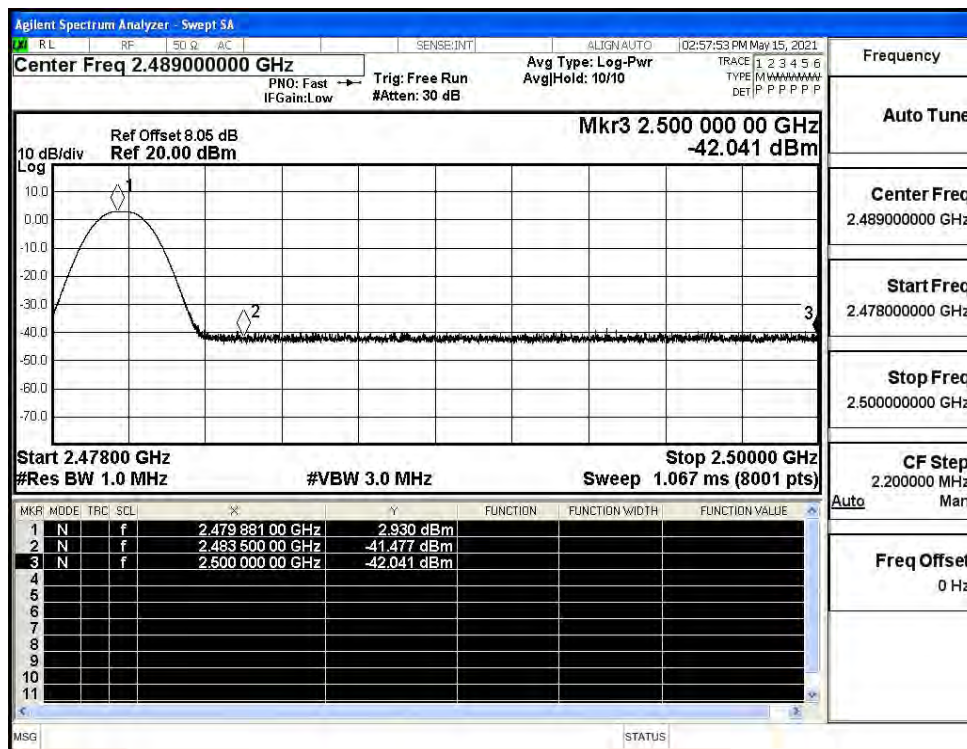
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



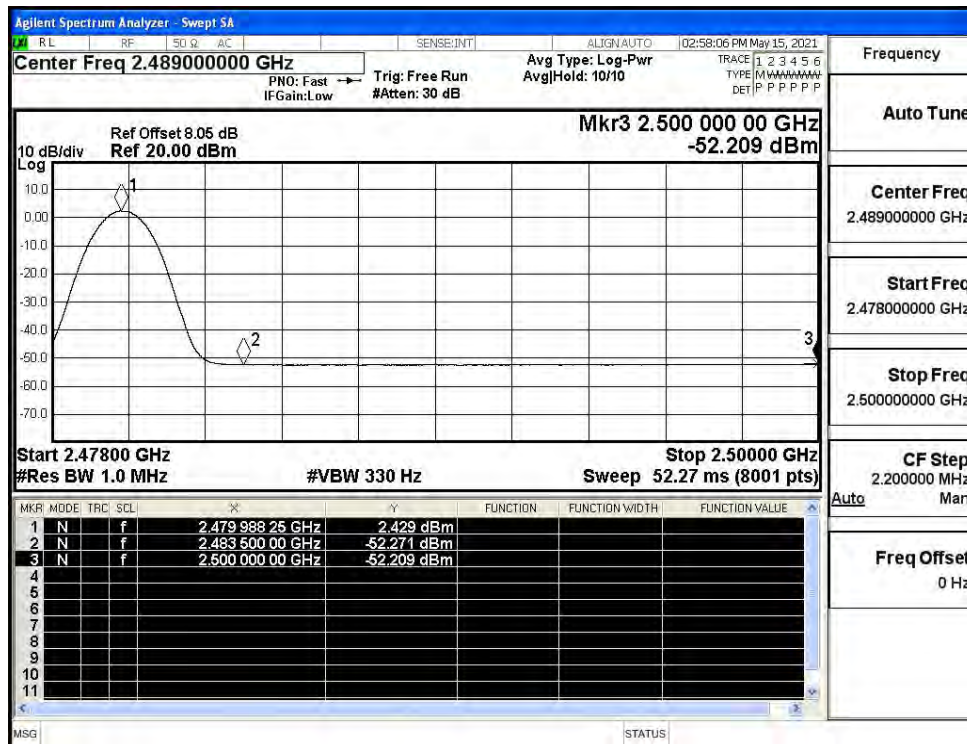
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)

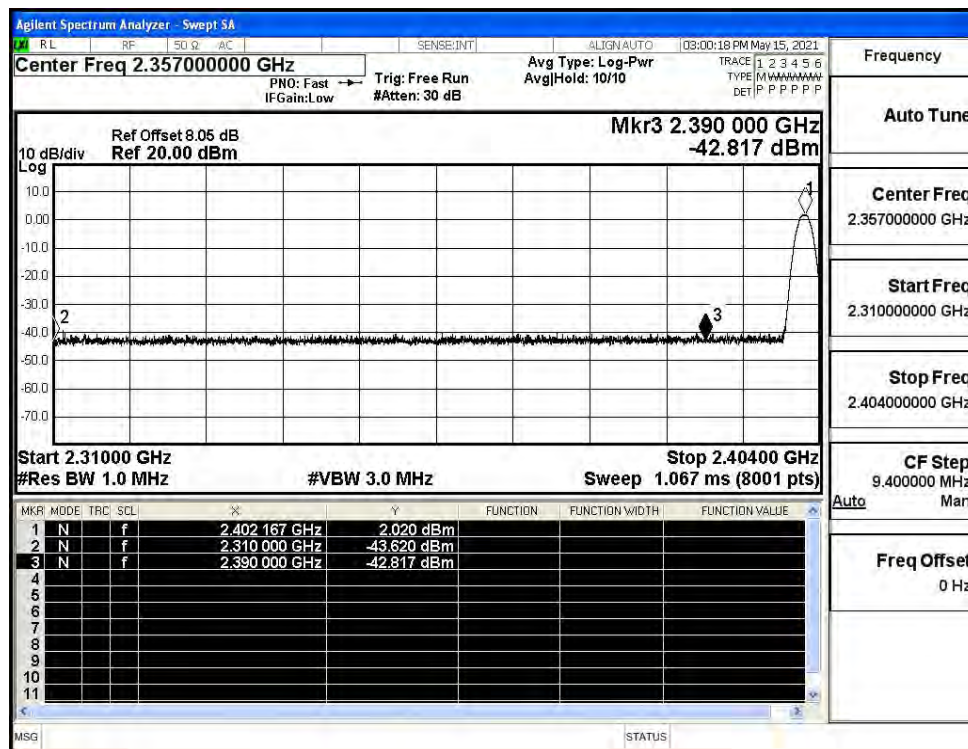
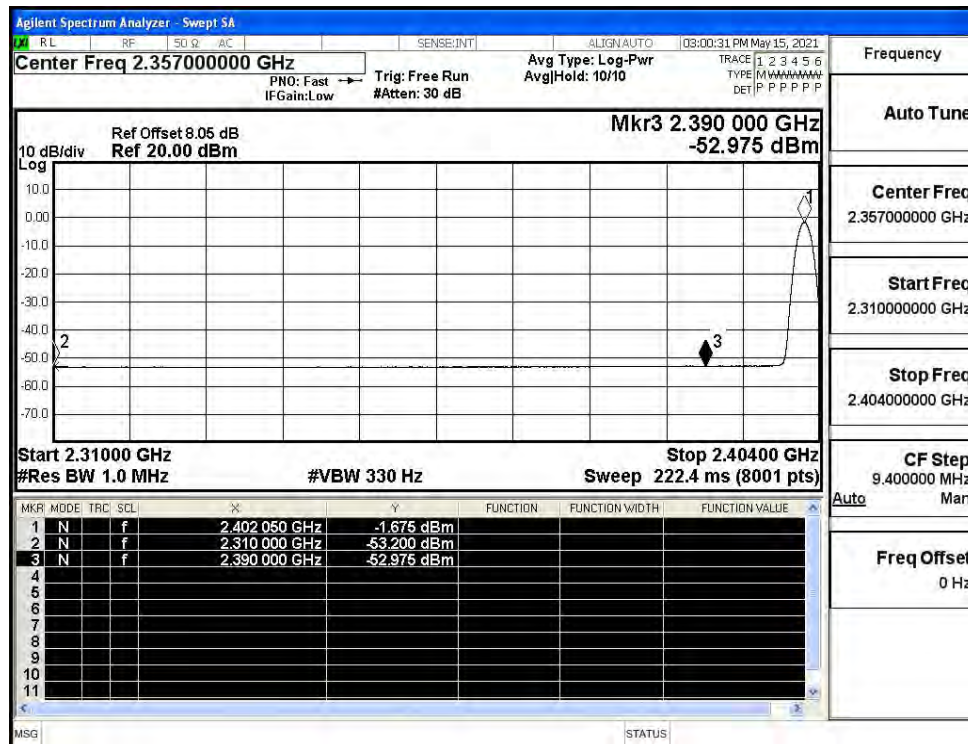


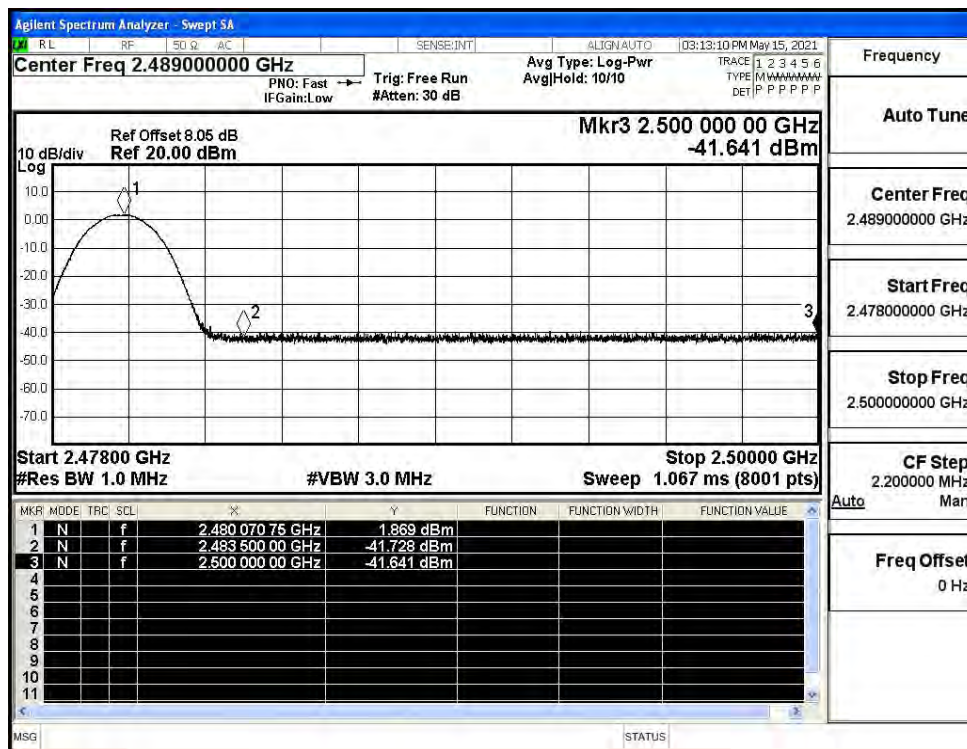
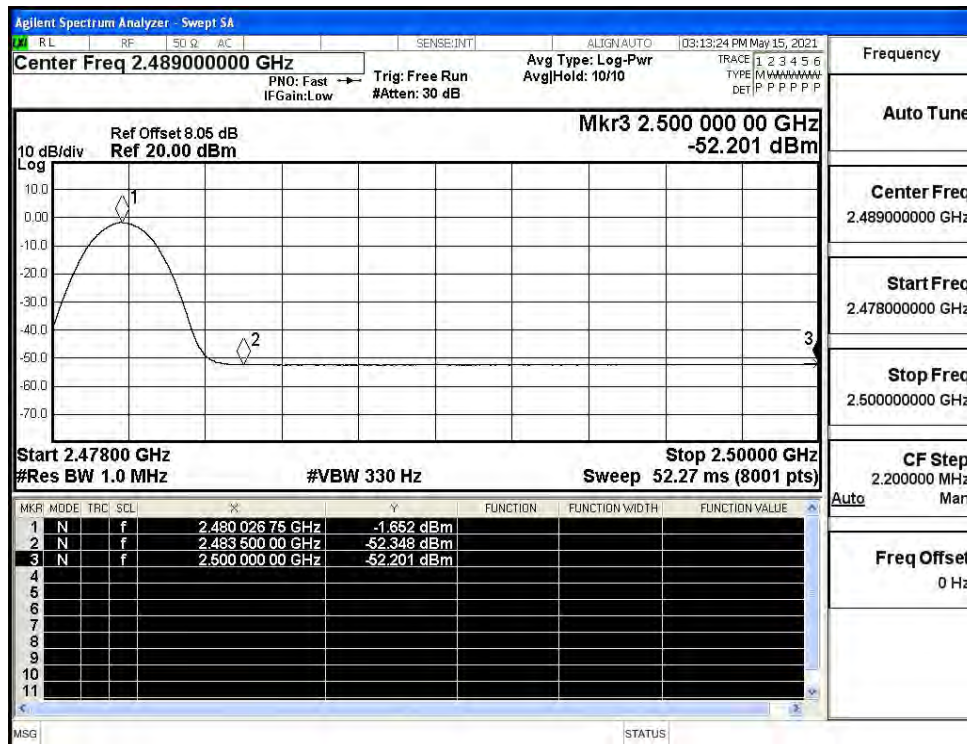
## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_PEAK (High Channel)



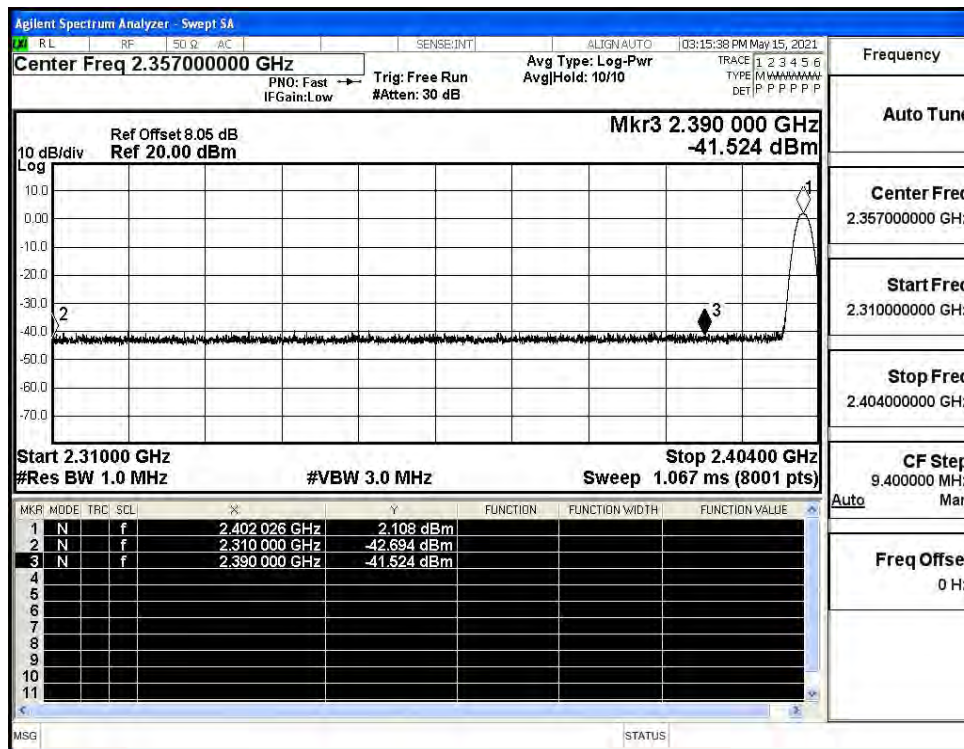
## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_Average (High Channel)



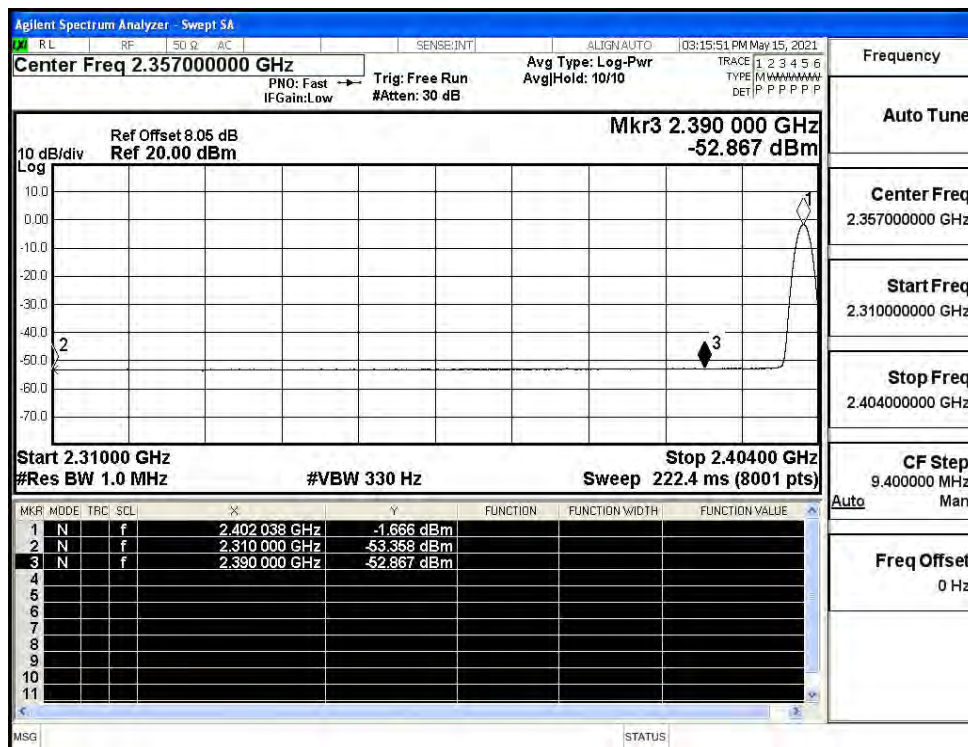
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)

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

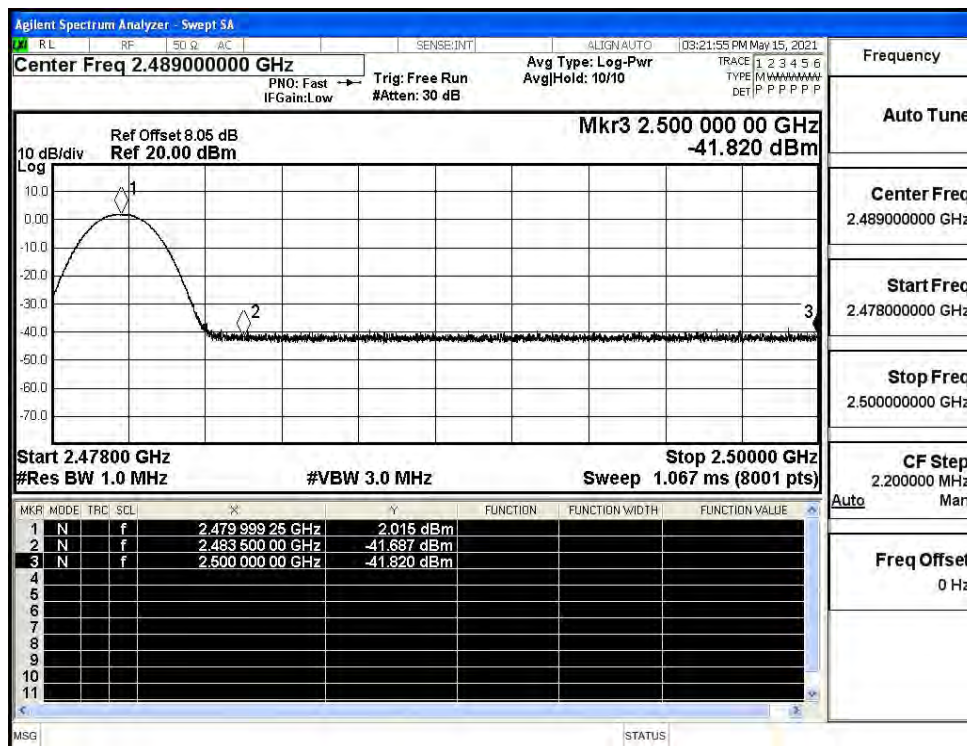
## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



## 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)

