

## Appendix A

### RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: Bedside Alarm Clock with Wireless Charging

Trade Mark: i-box

Test Model: WJ-018

#### Environmental Conditions

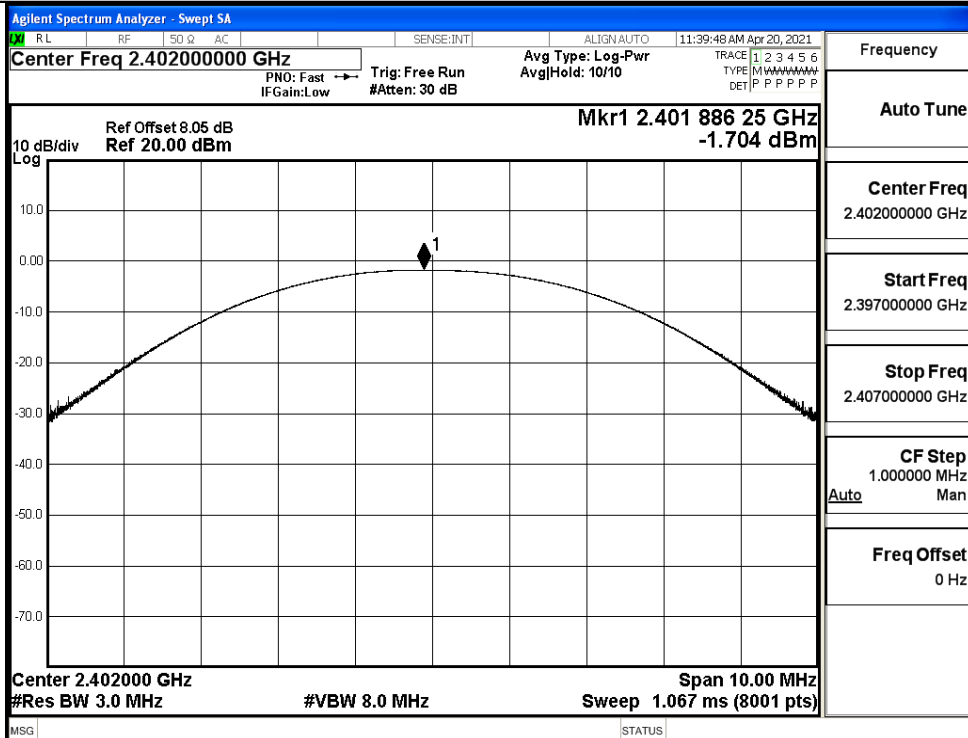
|                    |           |
|--------------------|-----------|
| Temperature:       | 24.6 ° C  |
| Relative Humidity: | 54.1%     |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Kay Hu    |
| Supervised by:     | Li Huan   |

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

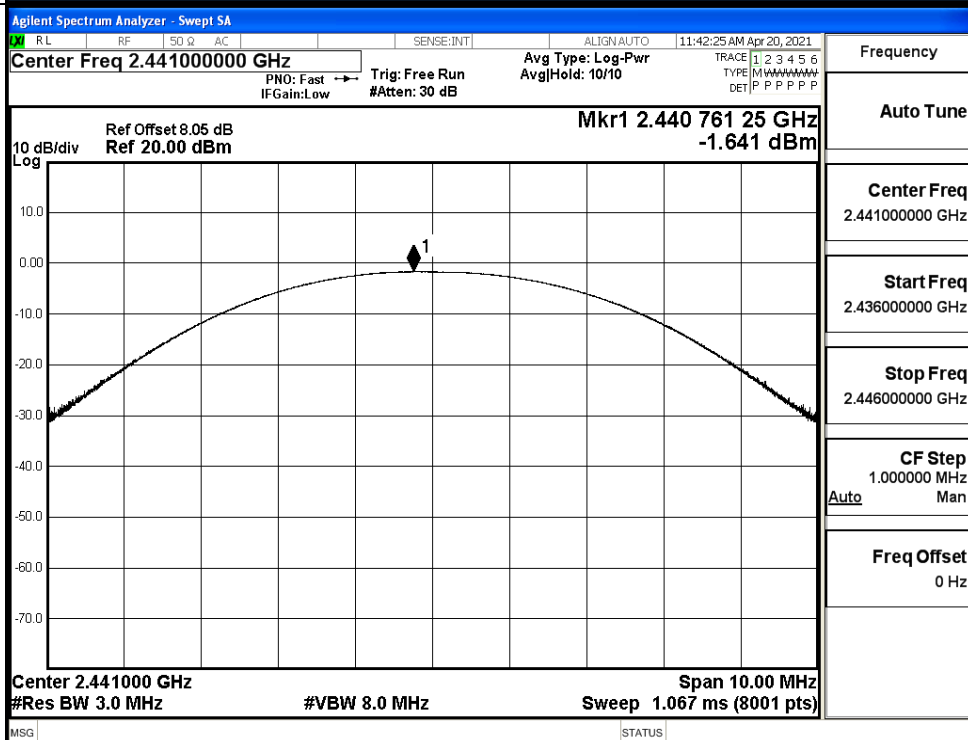
| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | -1.704                          | 21          | PASS    |
|               | MCH      | -1.641                          | 21          | PASS    |
|               | HCH      | -2.489                          | 21          | PASS    |
| $\pi/4$ DQPSK | LCH      | -0.817                          | 21          | PASS    |
|               | MCH      | -0.705                          | 21          | PASS    |
|               | HCH      | -1.589                          | 21          | PASS    |

## Test Graphs

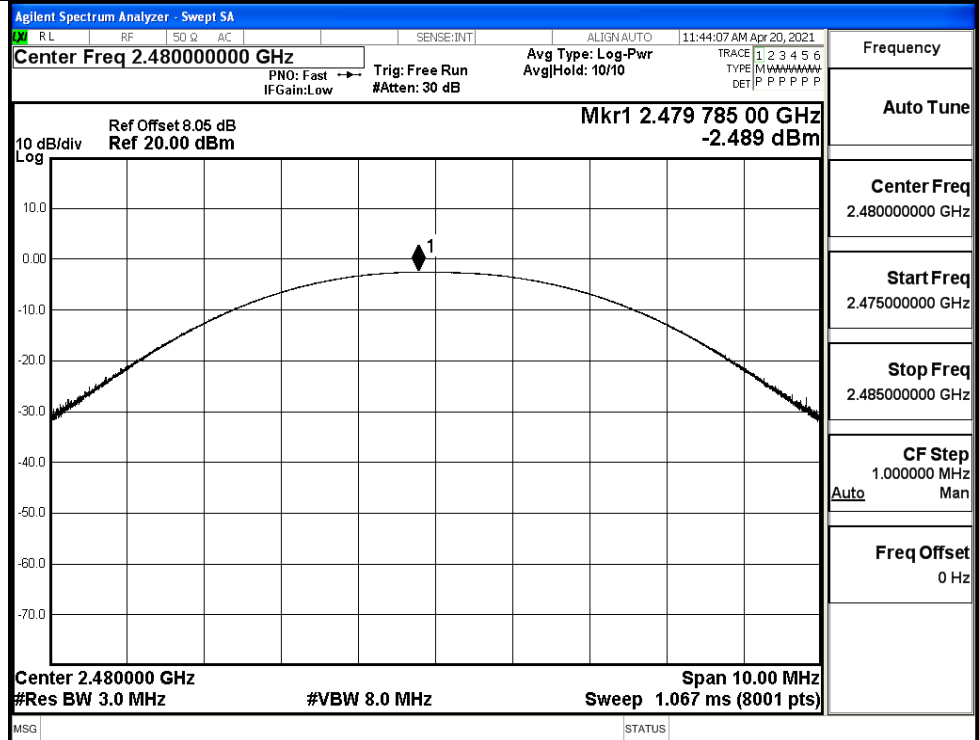
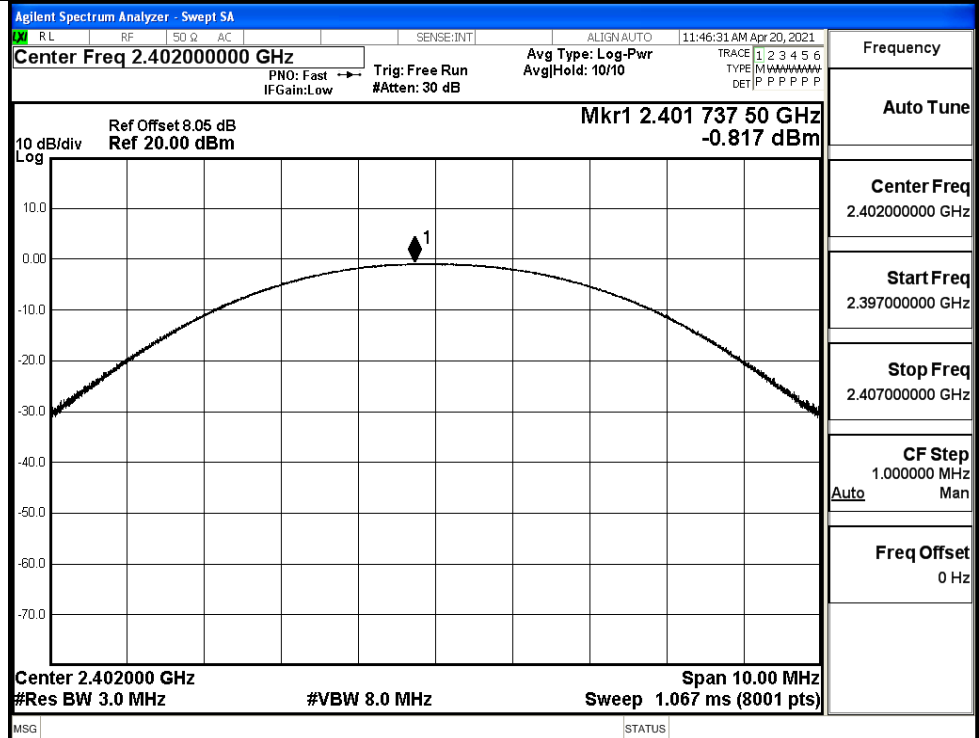
GFSK/LCH



GFSK/MCH



GFSK/HCH

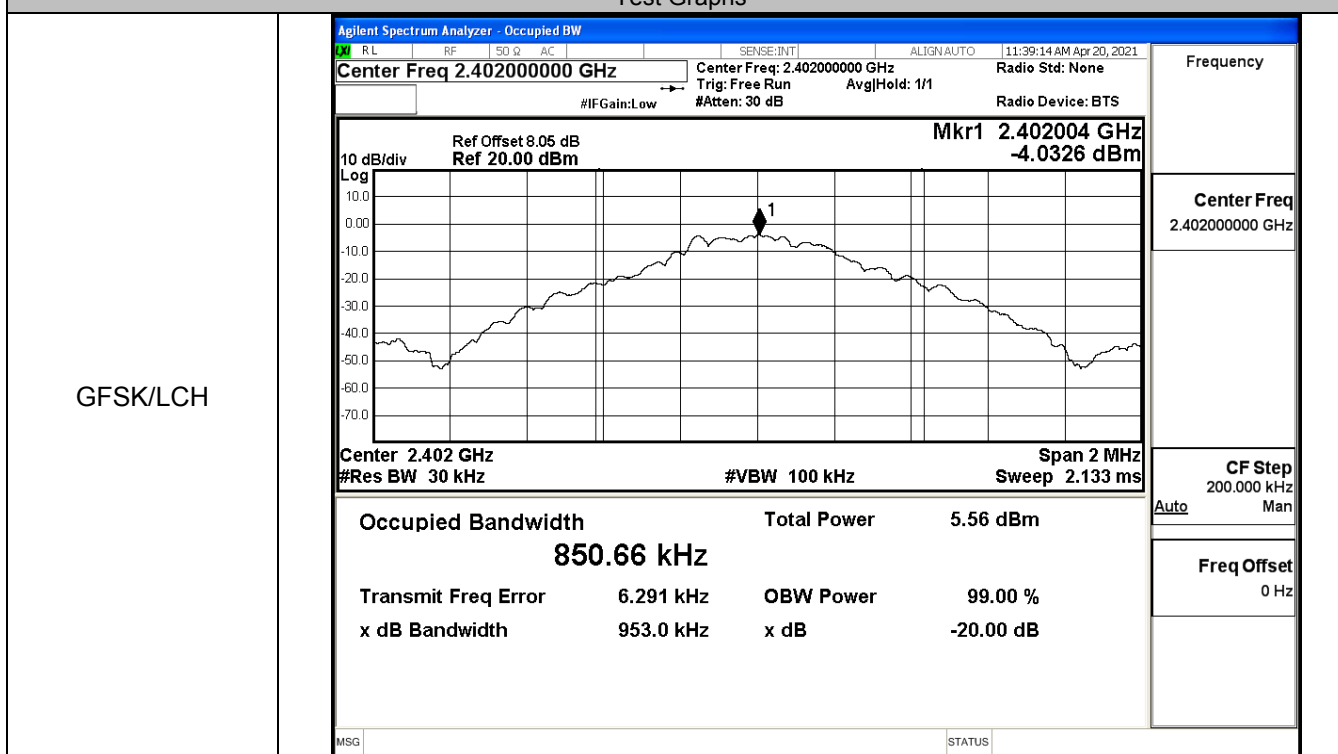
 $\pi/4$ DQPSK/LCH

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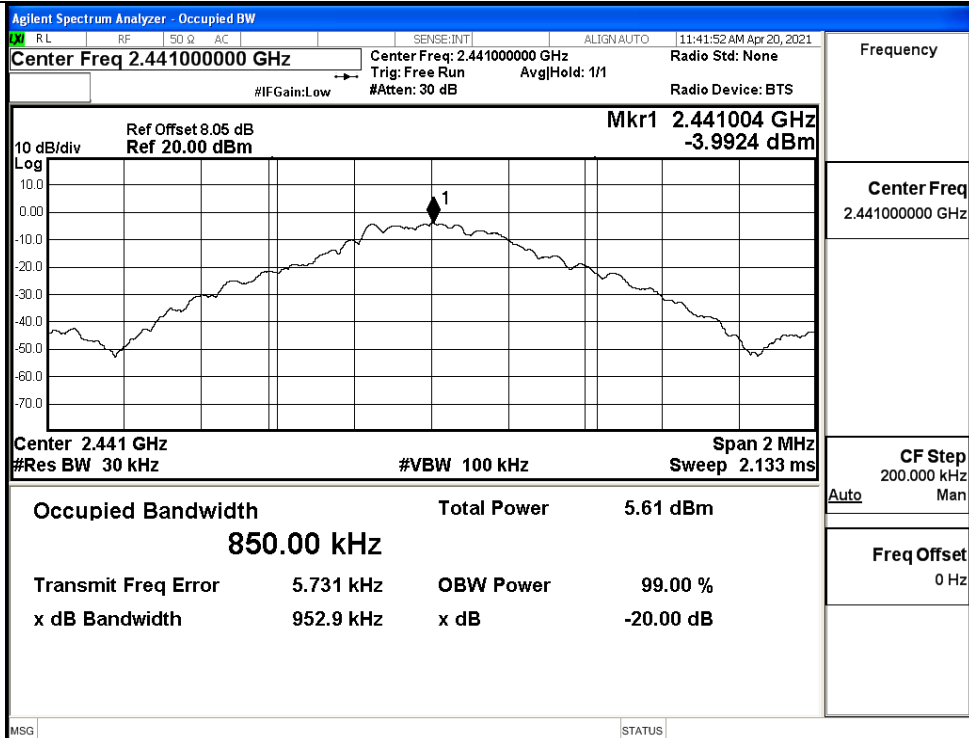
## A.2 20dB Bandwidth

| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.9530               | Not Specified | PASS    |
|               | MCH      | 0.9529               | Not Specified | PASS    |
|               | HCH      | 0.9539               | Not Specified | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.282                | Not Specified | PASS    |
|               | MCH      | 1.282                | Not Specified | PASS    |
|               | HCH      | 1.284                | Not Specified | PASS    |

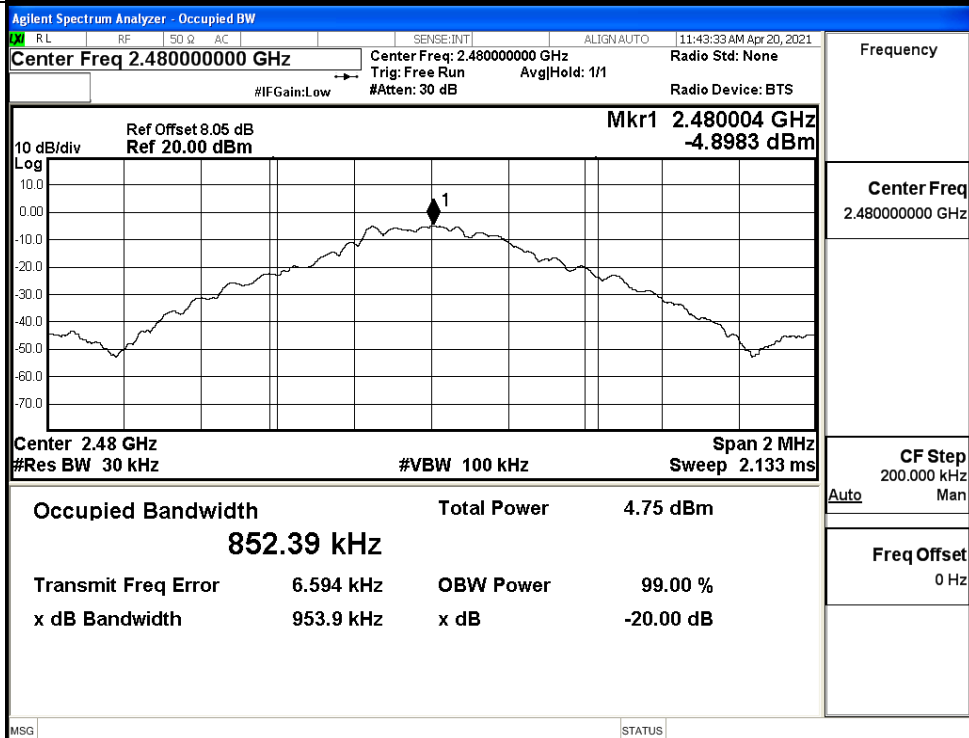
Test Graphs

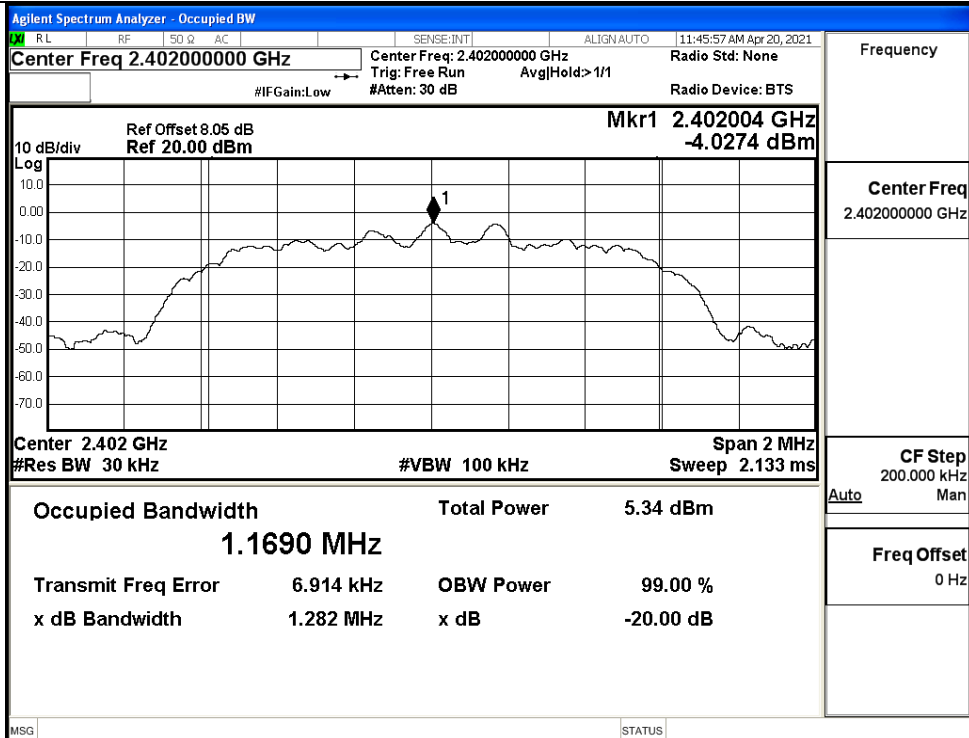


GFSK/MCH

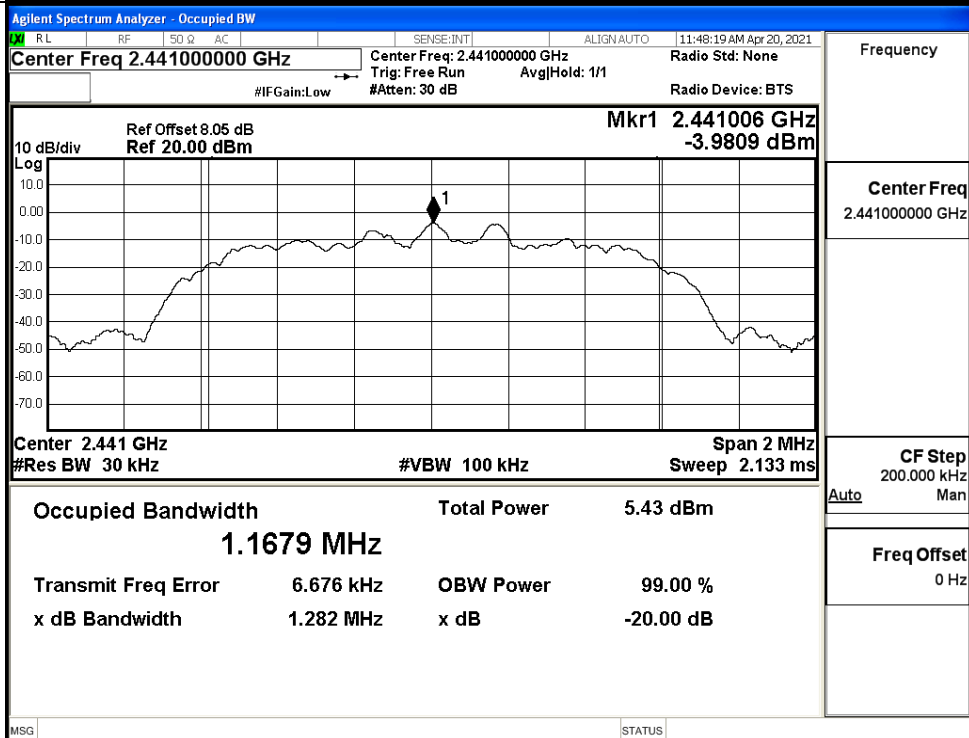


GFSK/HCH



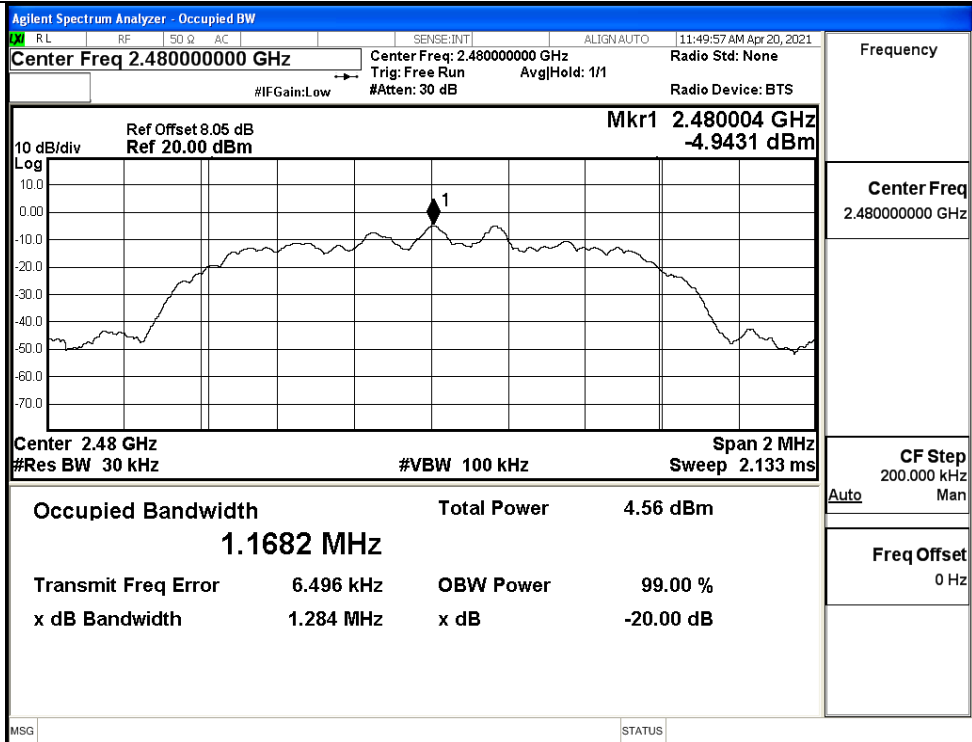
$\pi/4$ DQPSK/LCH

Frequency

Center Freq  
2.40200000 GHzCF Step  
200.000 kHz  
ManFreq Offset  
0 Hz $\pi/4$ DQPSK/MCH

Frequency

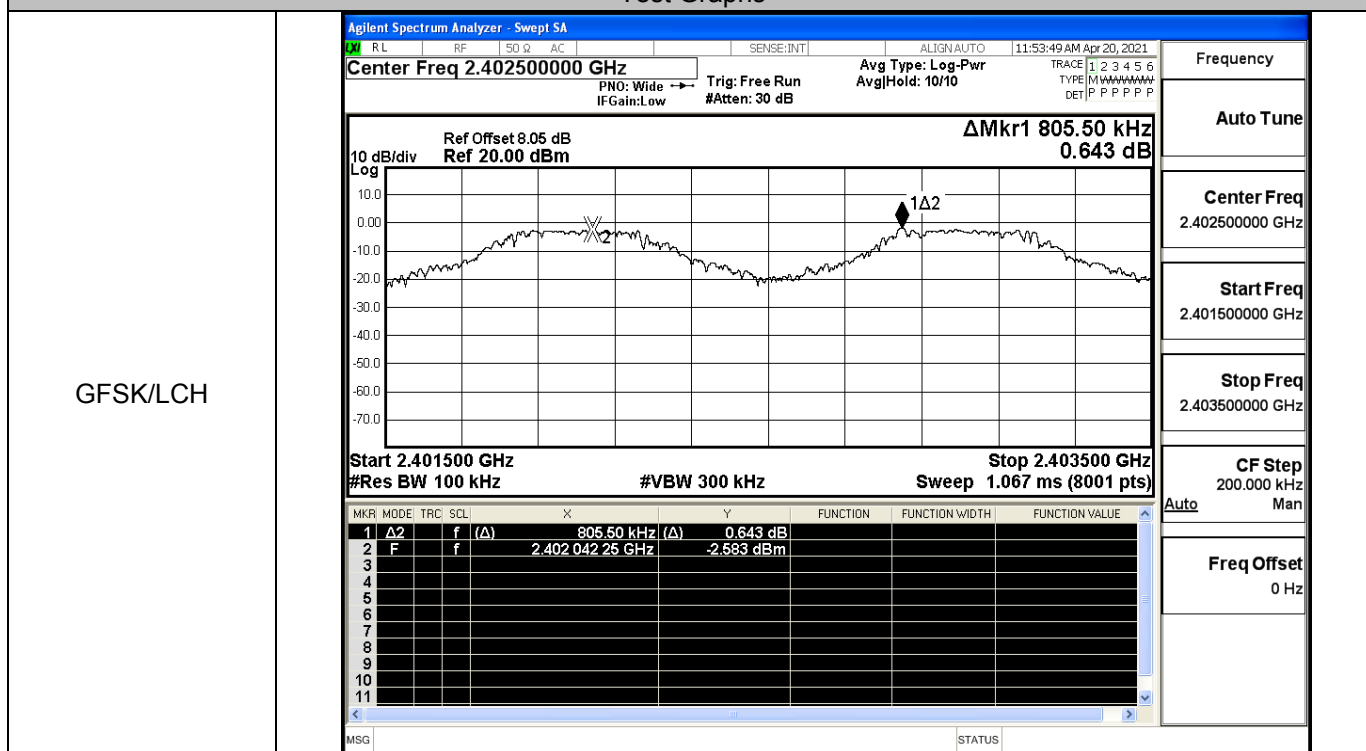
Center Freq  
2.44100000 GHzCF Step  
200.000 kHz  
ManFreq Offset  
0 Hz

$\pi/4$ DQPSK/HCH

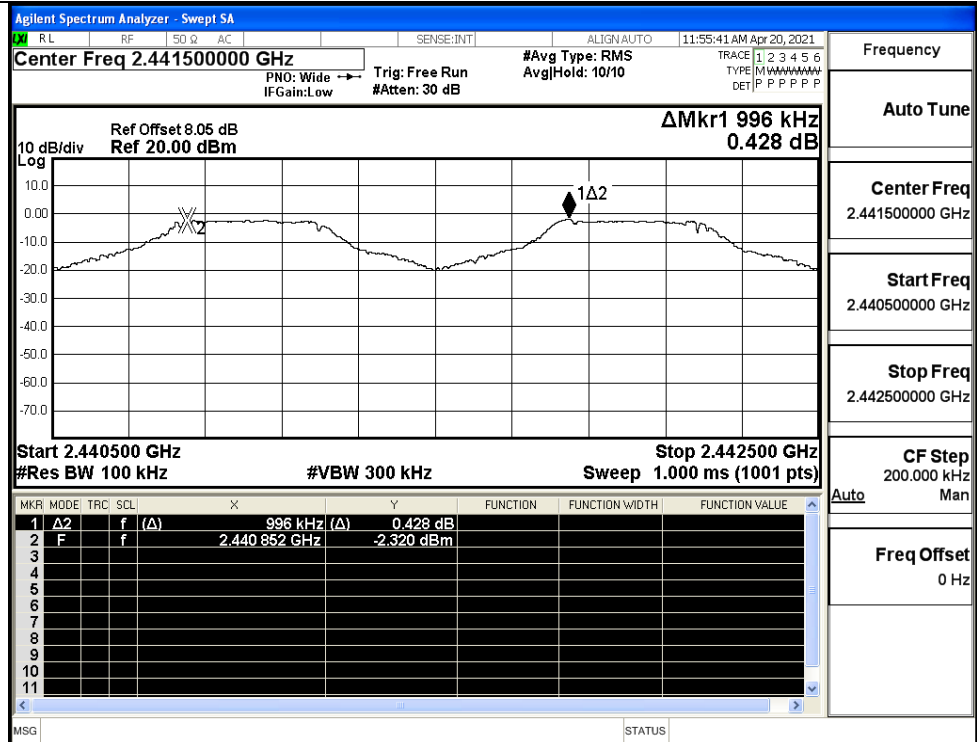
### A.3 Carrier Frequency Separation

| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | LCH      | 0.805                              | 0.636       | PASS    |
|               | MCH      | 0.996                              | 0.636       | PASS    |
|               | HCH      | 0.798                              | 0.636       | PASS    |
| $\pi$ /4DQPSK | LCH      | 0.998                              | 0.856       | PASS    |
|               | MCH      | 1.004                              | 0.856       | PASS    |
|               | HCH      | 1.326                              | 0.856       | PASS    |

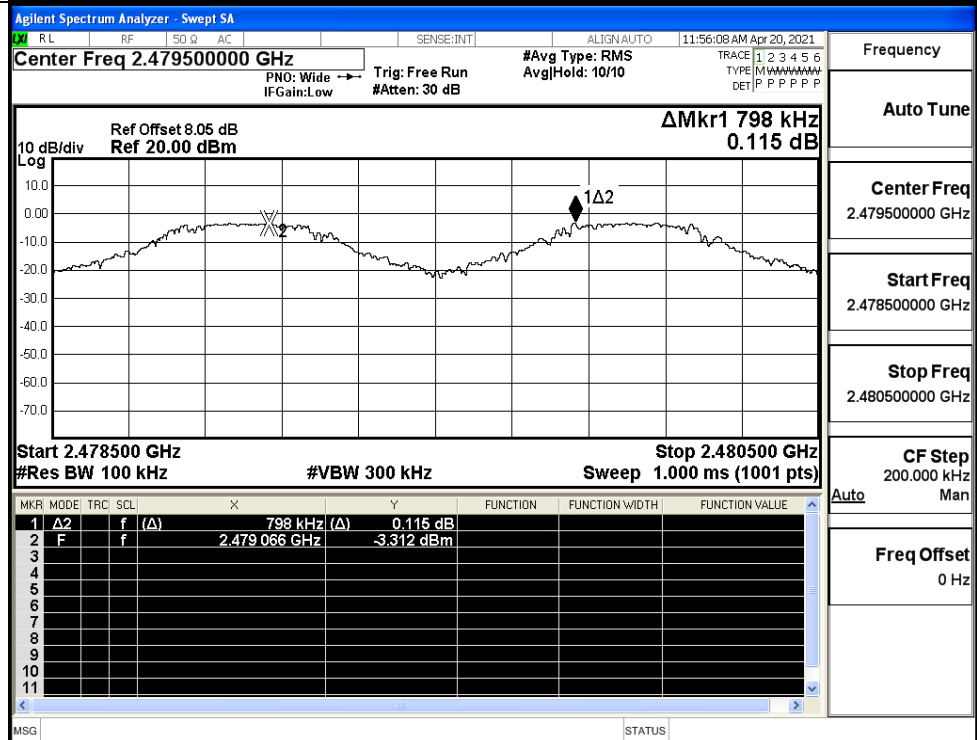
#### Test Graphs

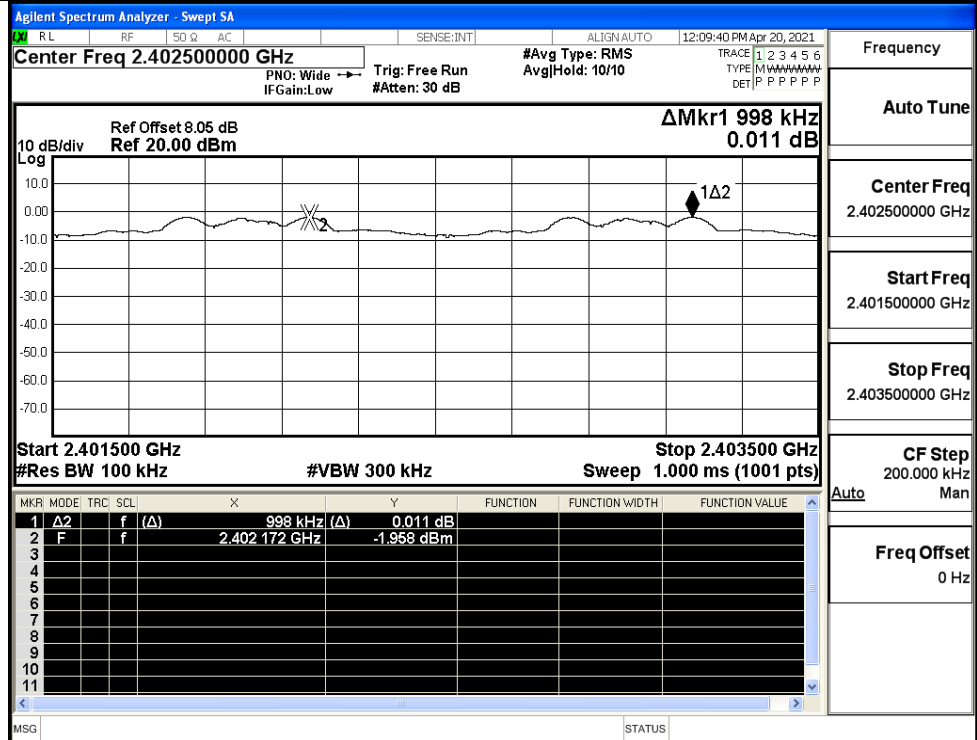
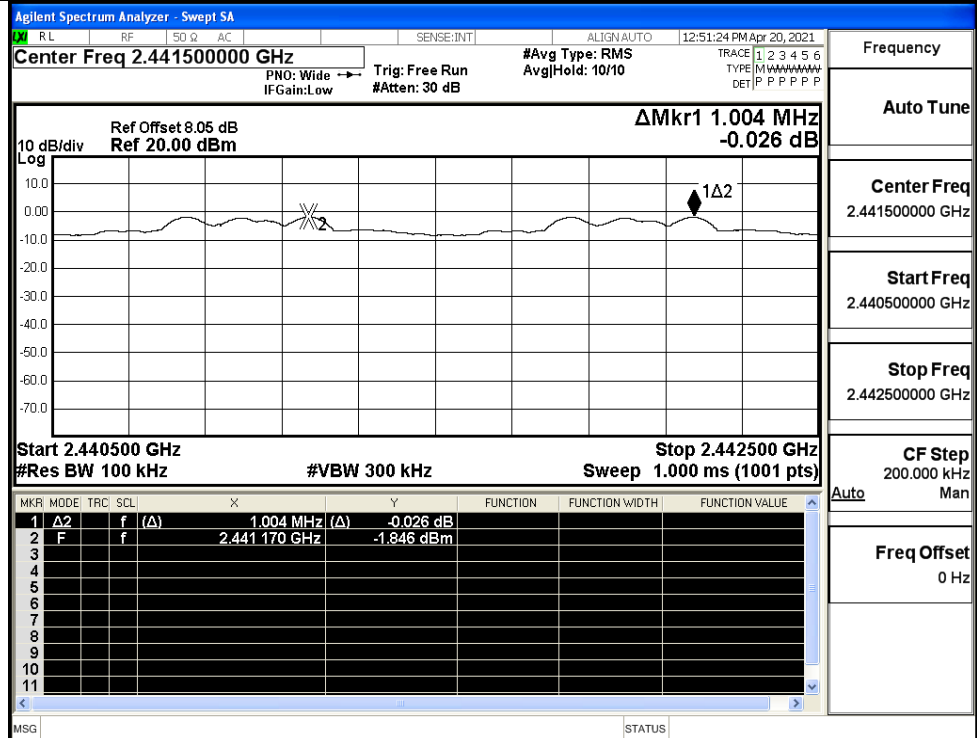


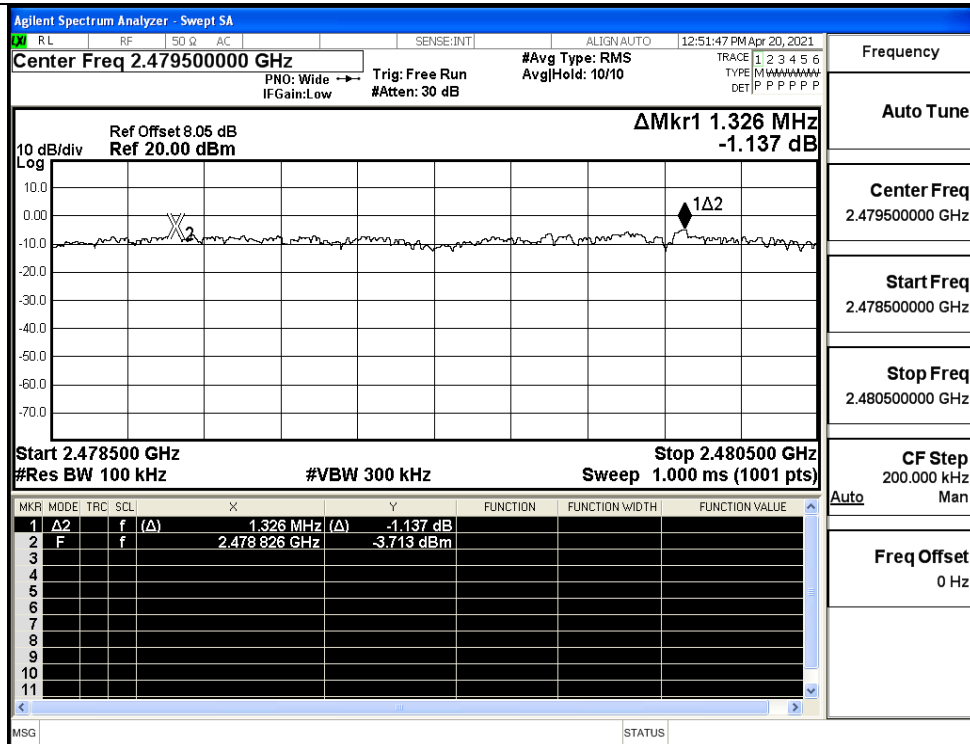
GFSK/MCH



GFSK/HCH



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

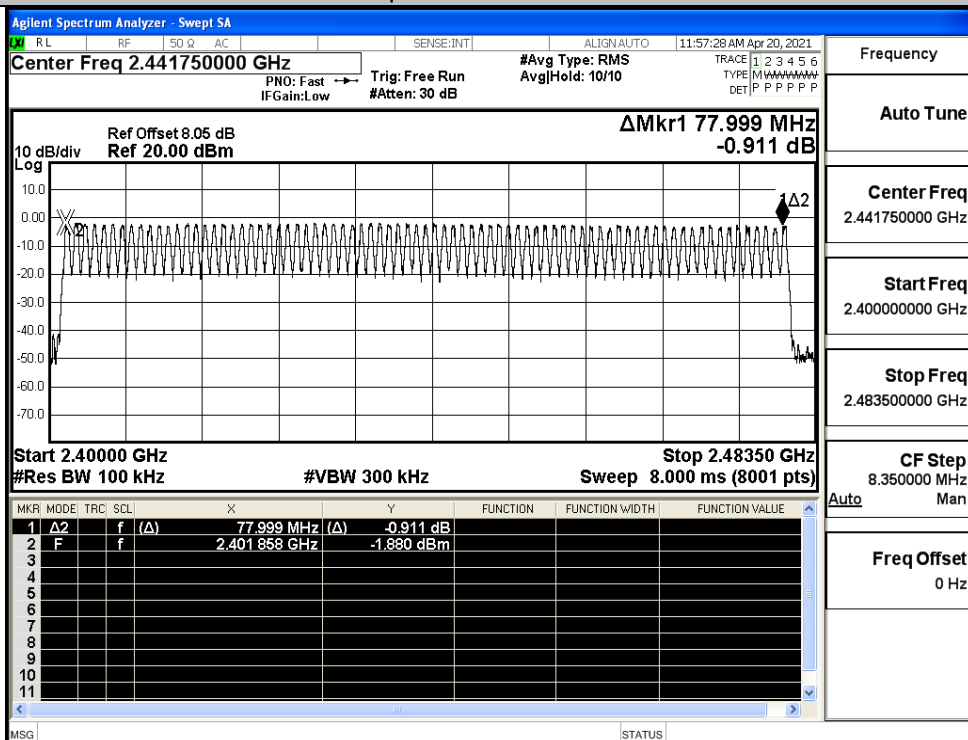
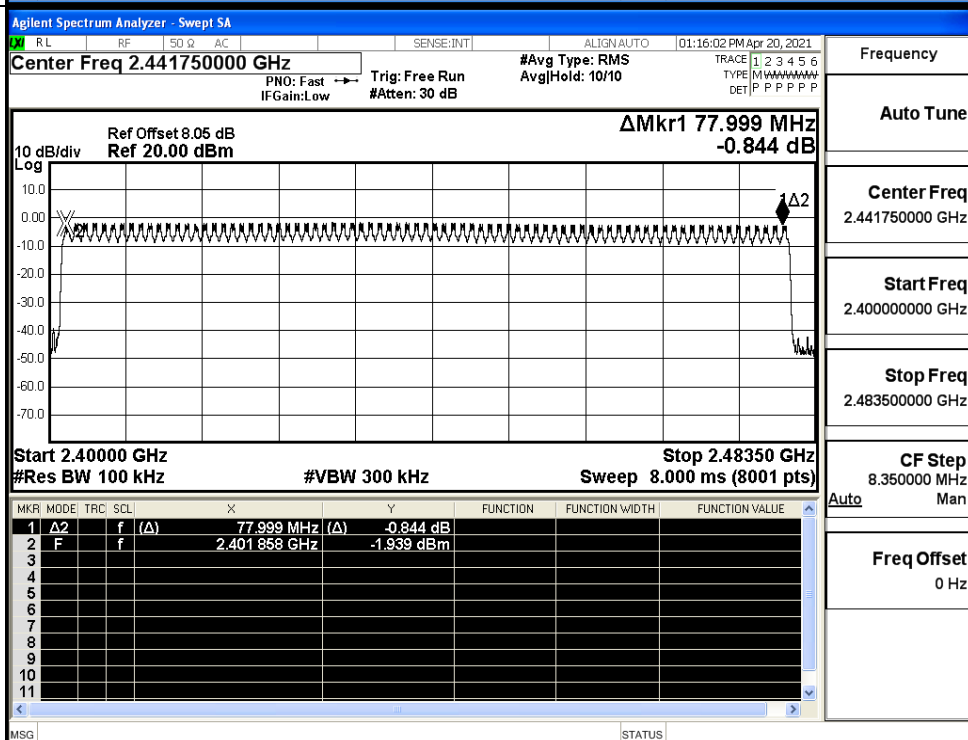
$\pi/4$ DQPSK/HCH

## 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    |

## Test Graphs

GFSK/Hop

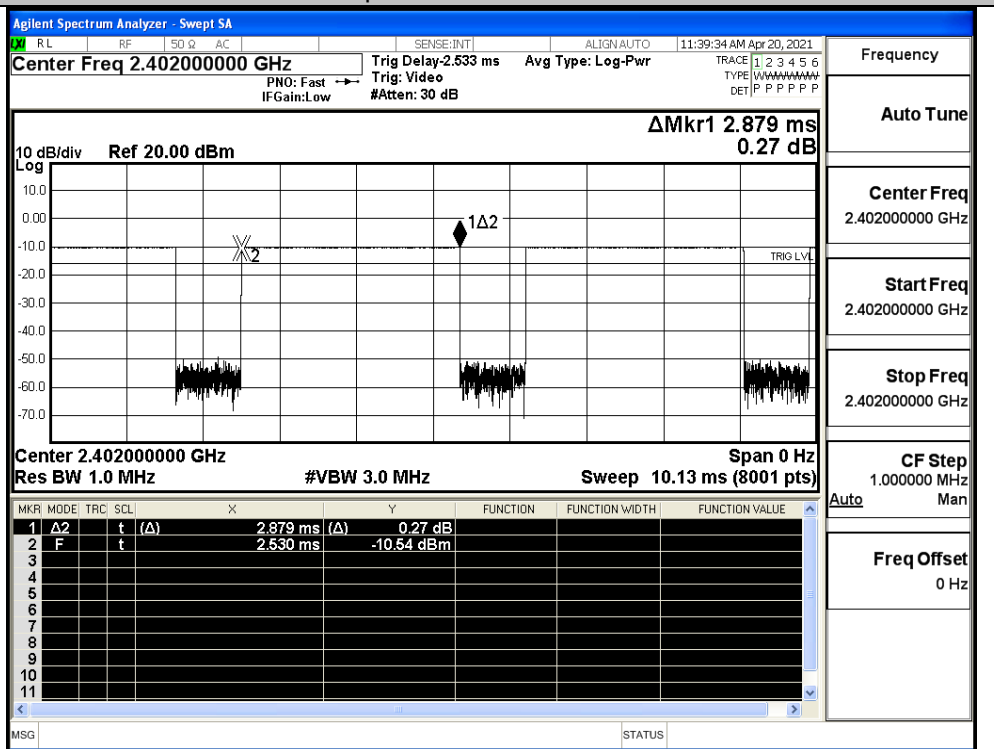
 $\pi/4$ DQPSK/Hop

## A.5 Dwell Time

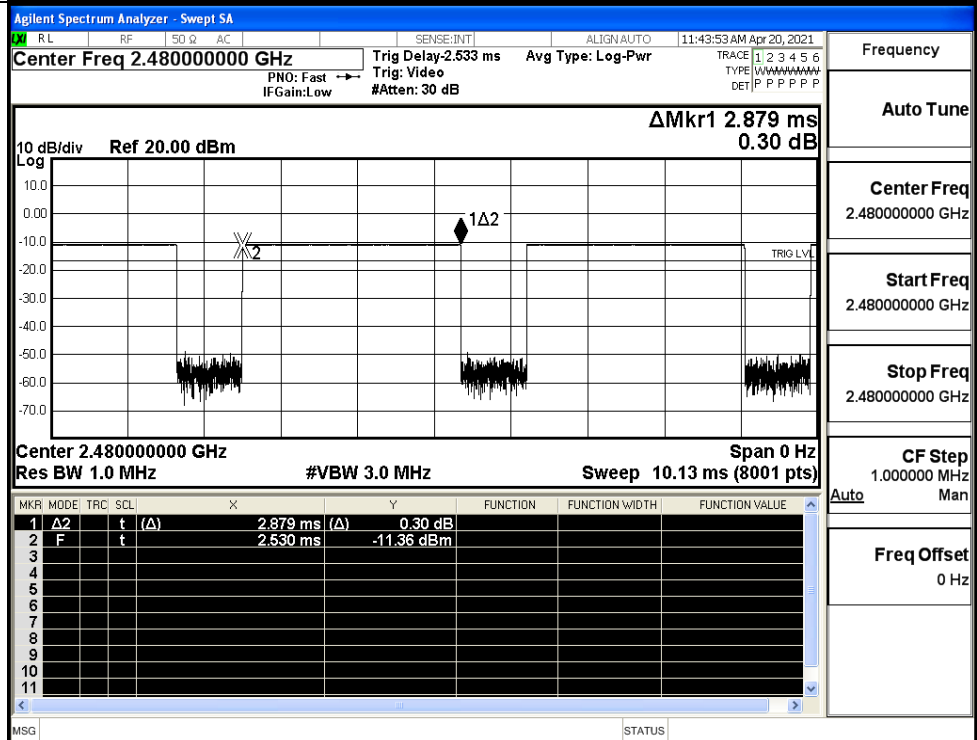
| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[s] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|---------------|-----------|---------|
| GFSK          | DH5    | LCH     | 2.88                       | 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                 | 0.308         | 0.4       | PASS    |
|               | 2DH5   | HCH     | 2.88                       | 106.7                 | 0.307         | 0.4       | PASS    |

## Test Graphs

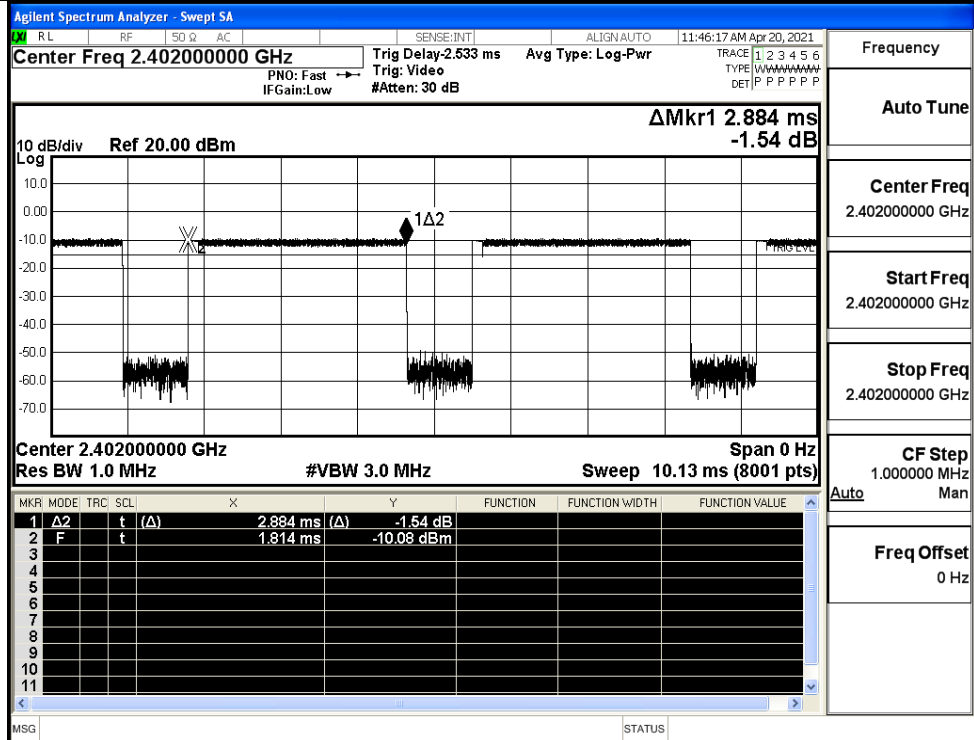
GFSK\_DH5/LCH



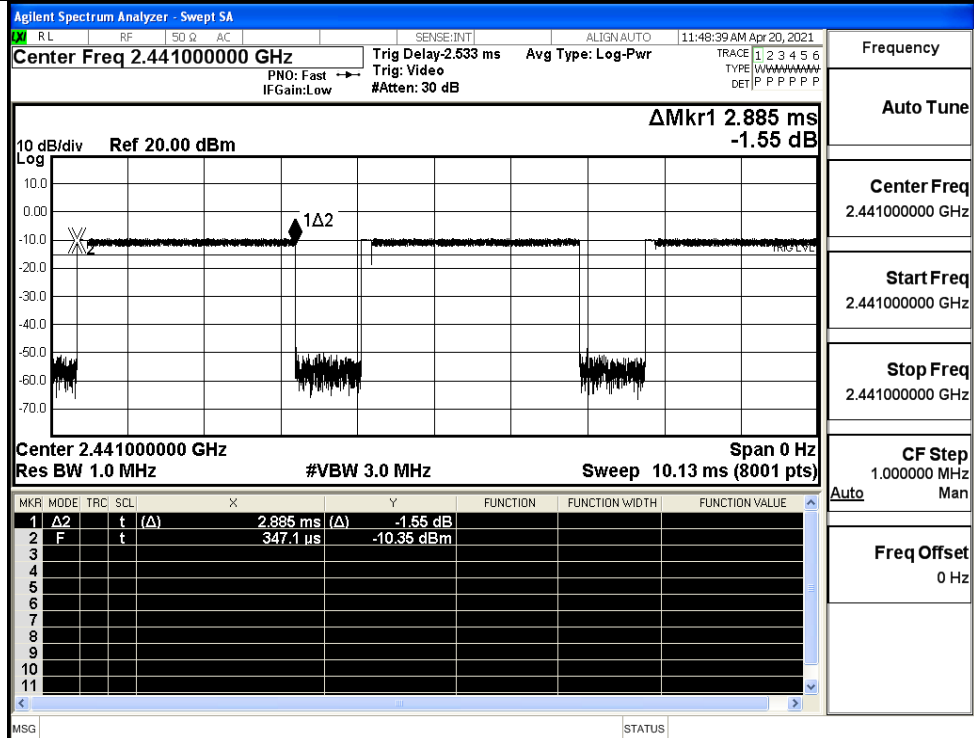
GFSK\_DH5/HCH



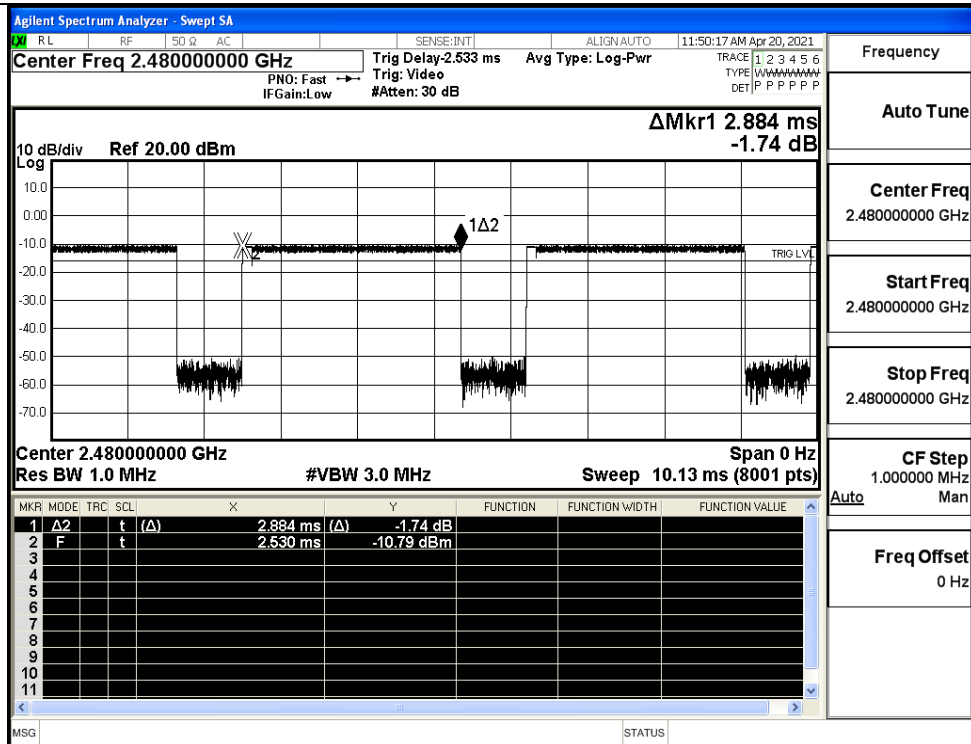
$\pi/4$ DQPSK  
\_2DH5/LCH



$\pi/4$ DQPSK  
\_2DH5/MCH



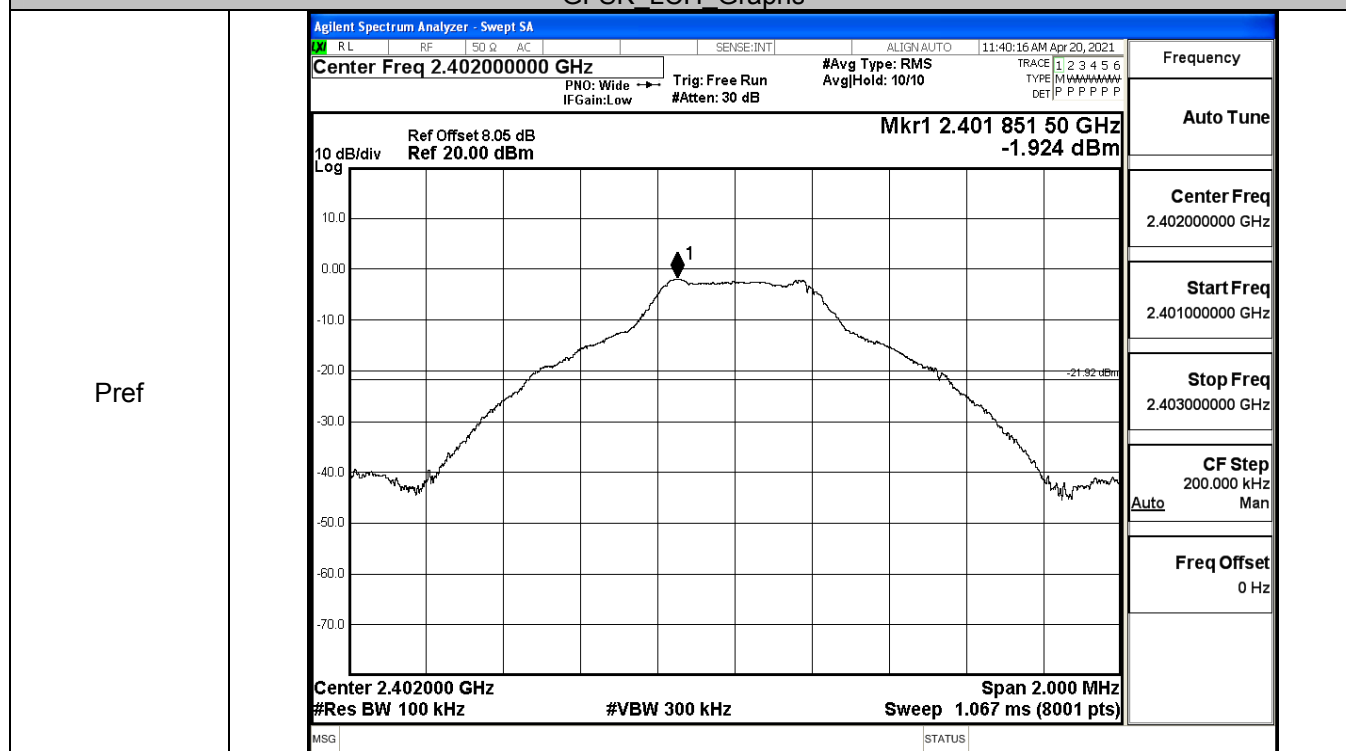
π/4DQPSK  
\_2DH5/HCH



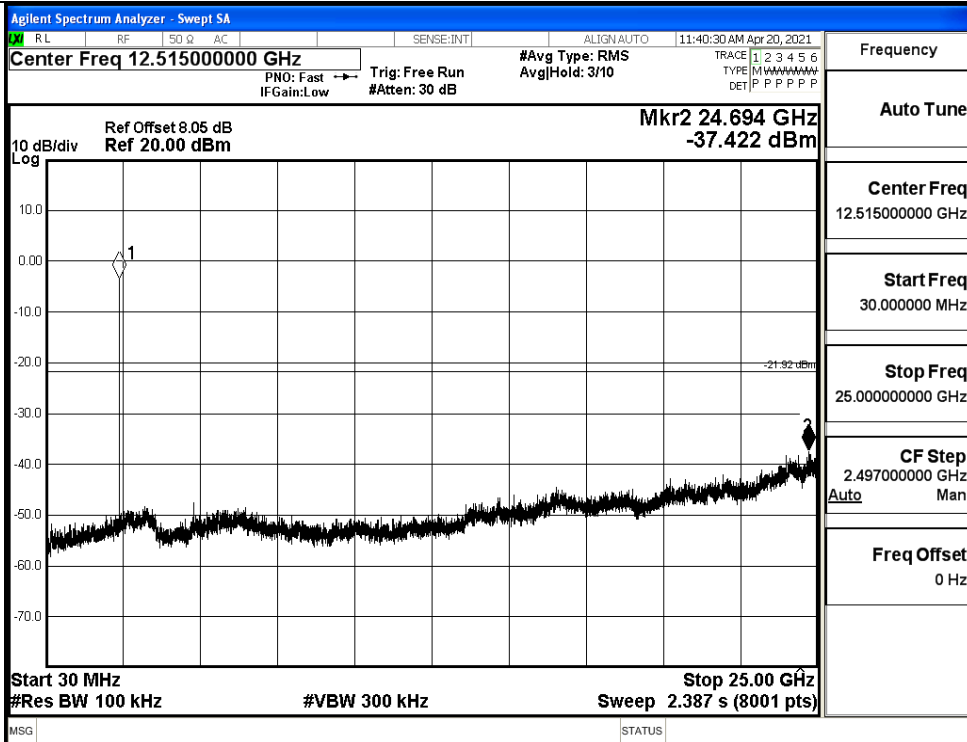
## A.6 RF Conducted Spurious Emissions

| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK          | LCH     | -1.924     | -37.422          | -21.924     | PASS    |
|               | MCH     | -1.921     | -37.284          | -21.921     | PASS    |
|               | HCH     | -2.782     | -37.468          | -22.782     | PASS    |
| $\pi/4$ DQPSK | LCH     | -1.973     | -37.772          | -21.973     | PASS    |
|               | MCH     | -1.904     | -37.035          | -21.904     | PASS    |
|               | HCH     | -2.833     | -38.409          | -22.833     | PASS    |

GFSK LCH Graphs

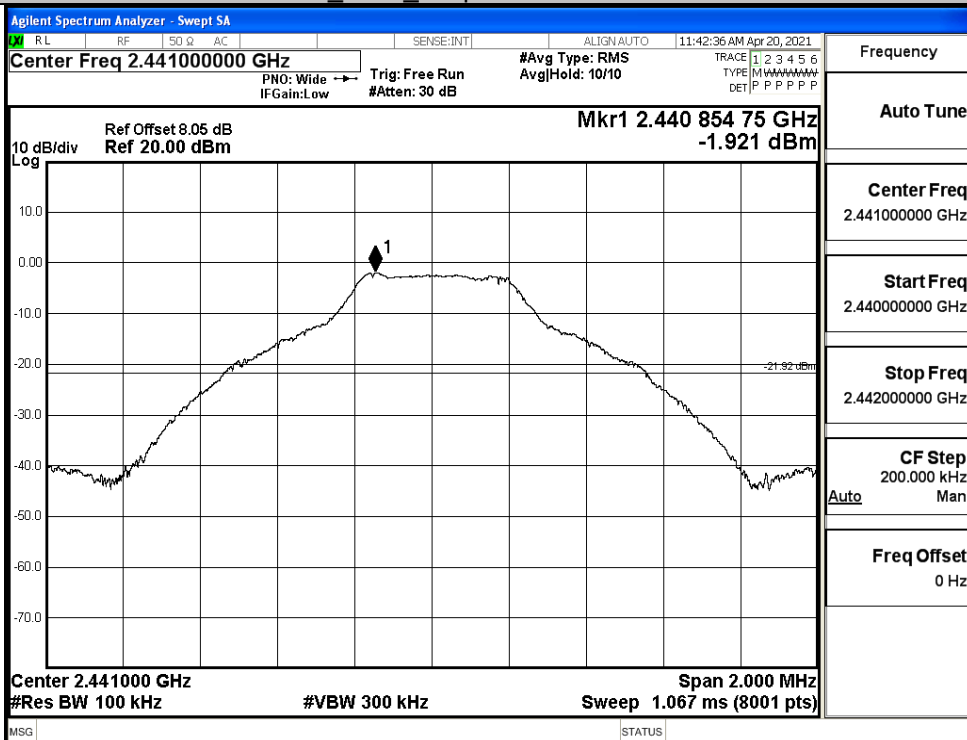


Puw

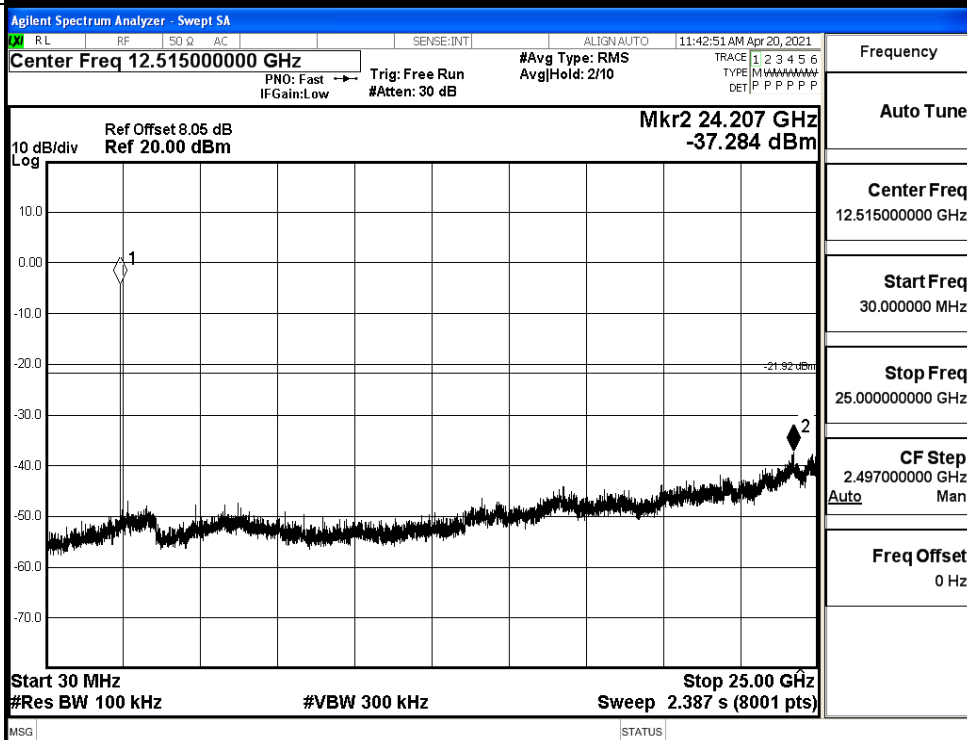


## GFSK\_MCH\_Graphs

Pref

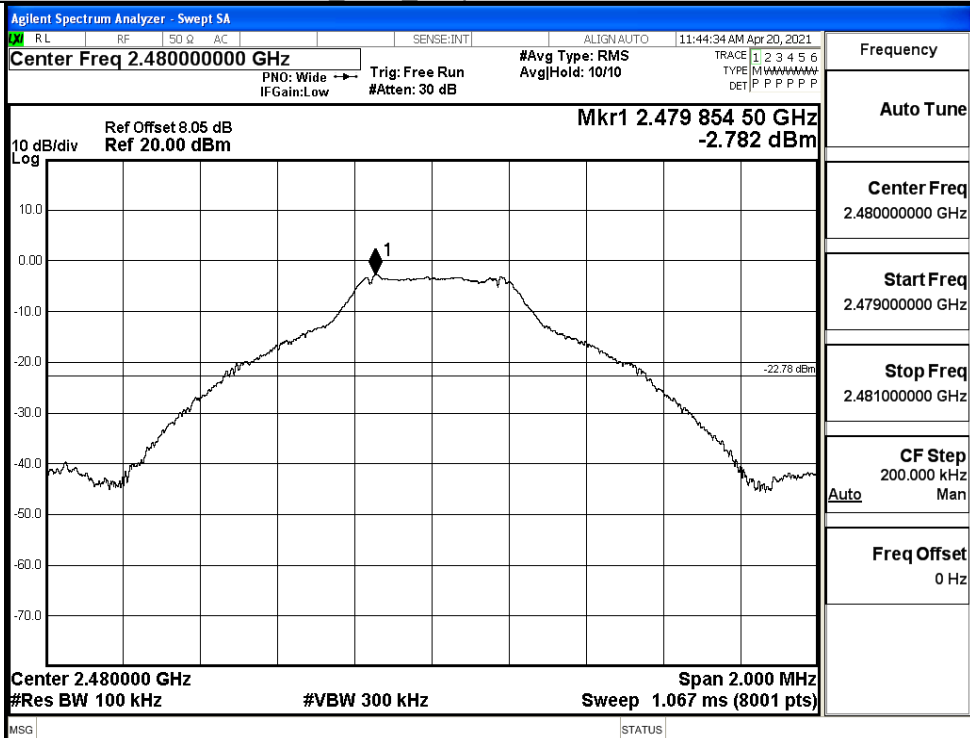


Puw

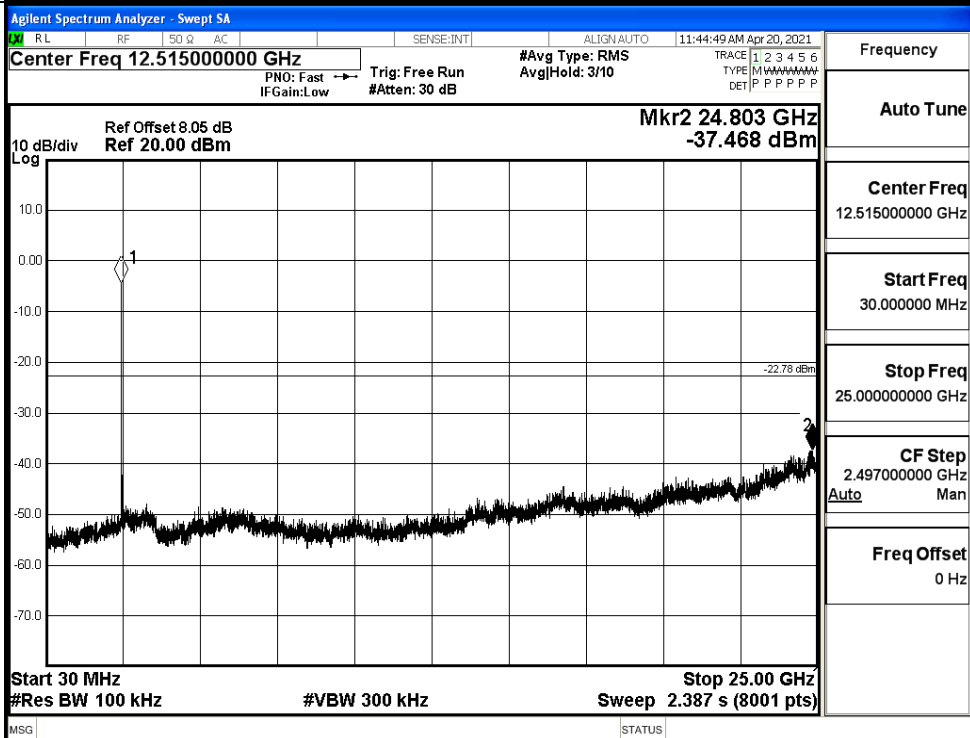


## GFSK\_HCH\_Graphs

Pref

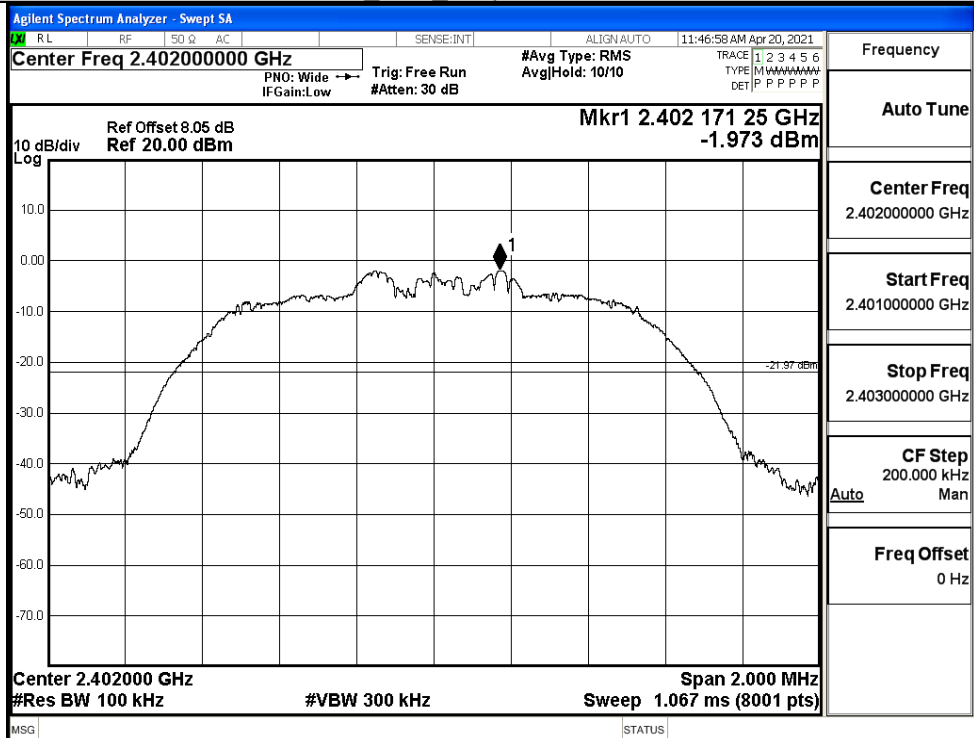


Puw

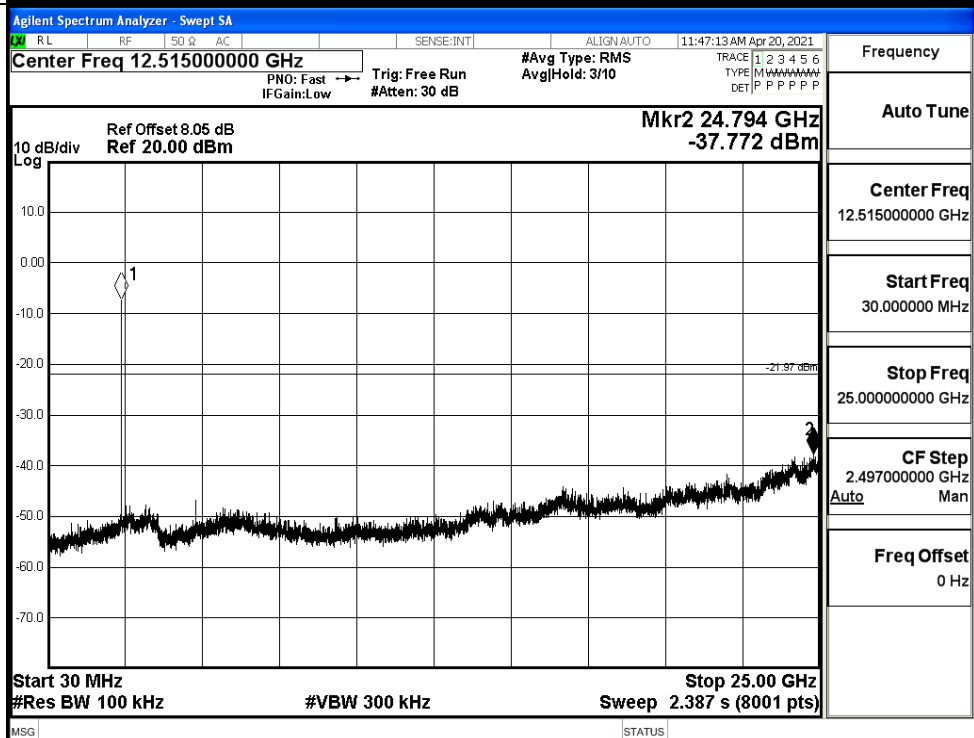


$\pi/4$ DQPSK\_LCH\_Graphs

Pref

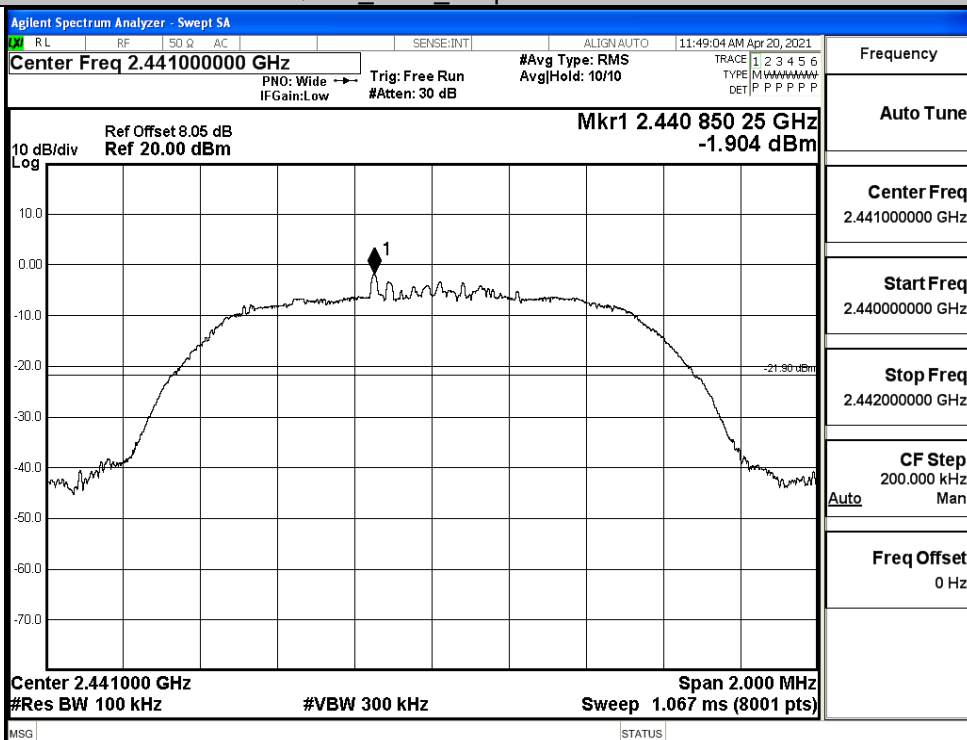


Puw

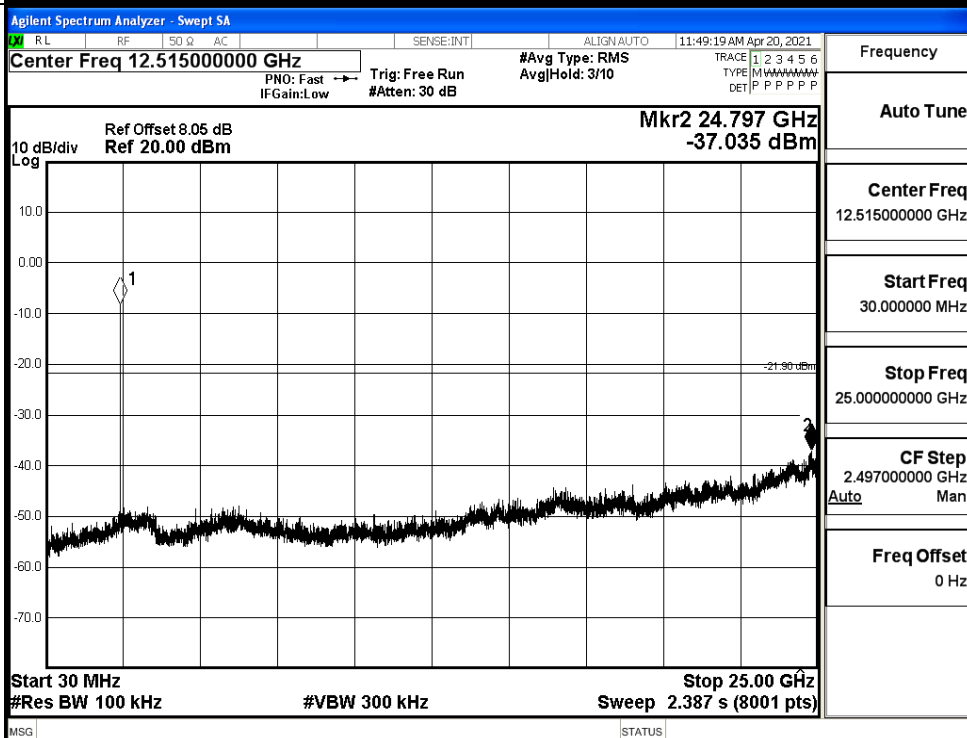


$\pi$ /4DQPSK\_MCH\_Graphs

Pref

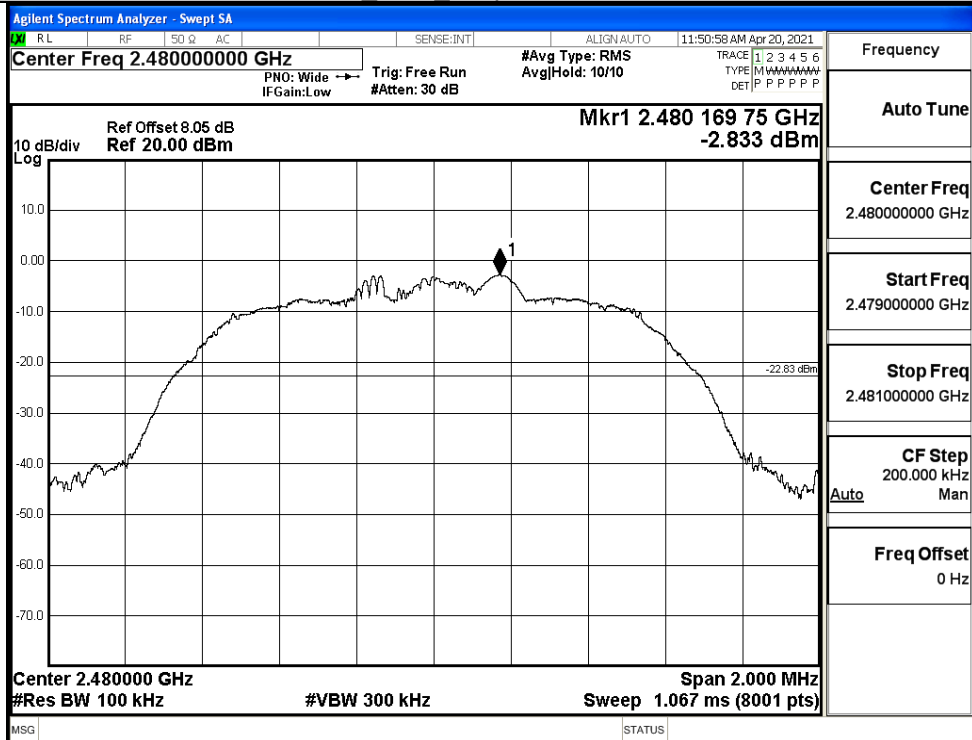


Puw

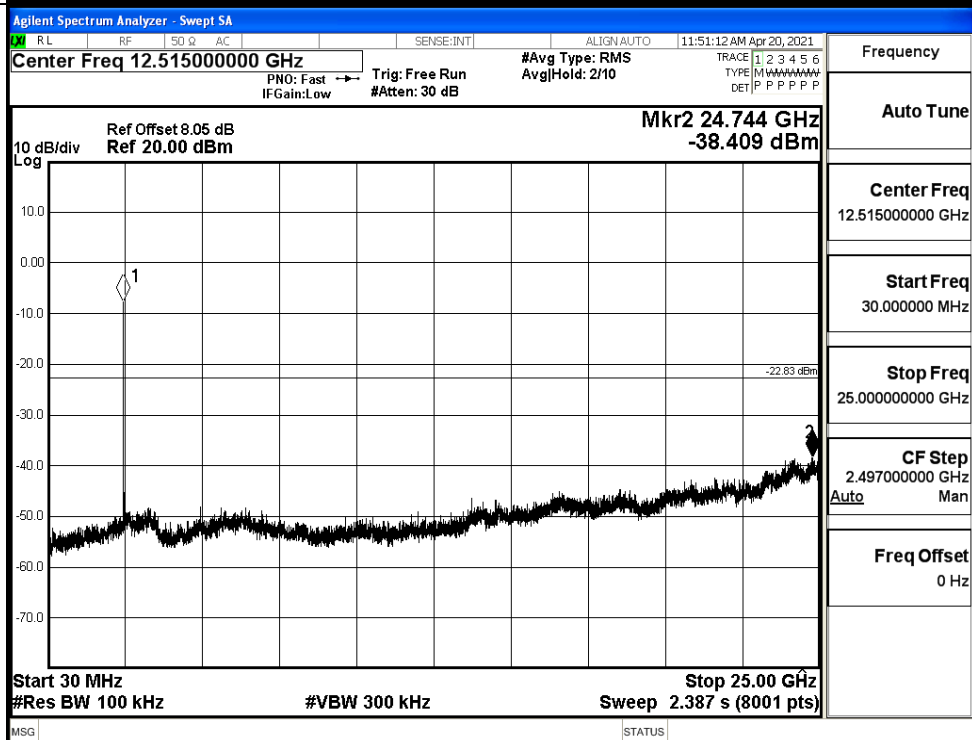


$\pi$ /4DQPSK\_HCH\_Graphs

Pref



Puw

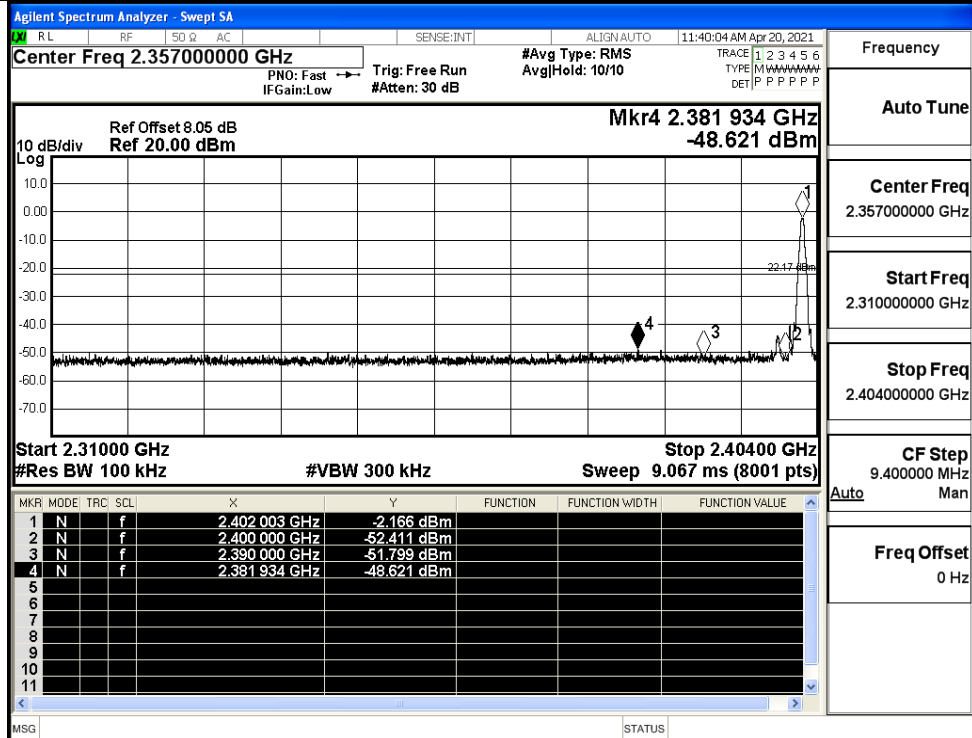


## A.7 Band-edge for RF Conducted Emissions

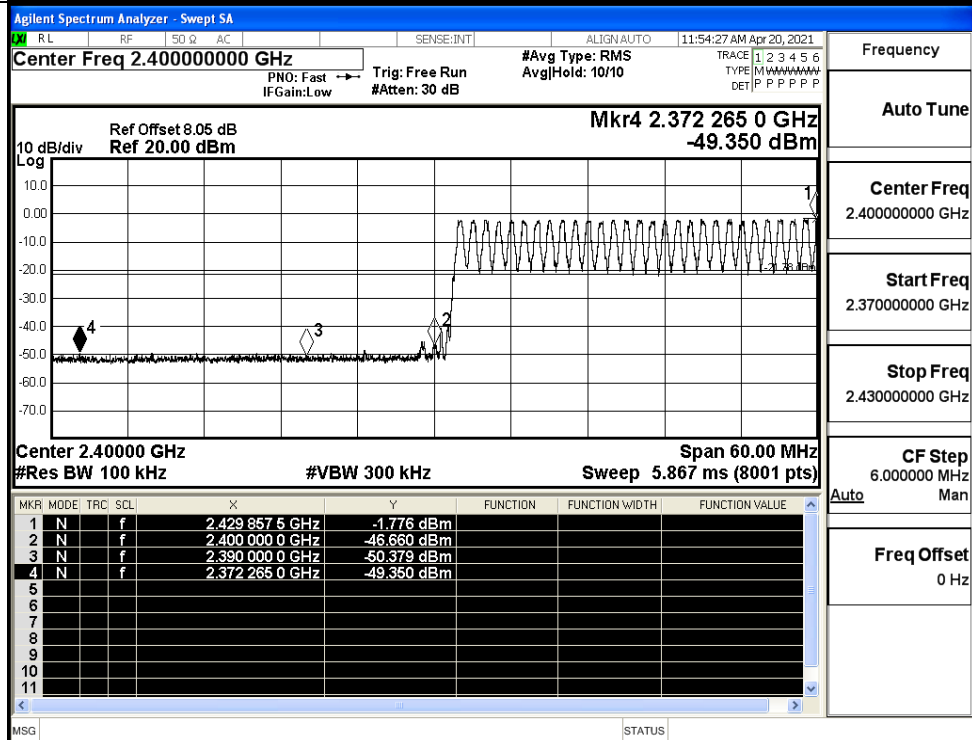
| Mode          | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | -2.166              | Off               | -48.621                  | -22.17      | PASS    |
|               |         |                         | -1.776              | On                | -49.350                  | -21.78      | PASS    |
|               | HCH     | 2480                    | -2.879              | Off               | -44.987                  | -22.88      | PASS    |
|               |         |                         | -2.521              | On                | -46.512                  | -22.52      | PASS    |
| $\pi/4$ DQPSK | LCH     | 2402                    | -4.665              | Off               | -49.330                  | -24.67      | PASS    |
|               |         |                         | -1.796              | On                | -47.906                  | -21.8       | PASS    |
|               | HCH     | 2480                    | -2.845              | Off               | -43.817                  | -22.85      | PASS    |
|               |         |                         | -2.346              | On                | -48.202                  | -22.35      | PASS    |

## Test Graphs

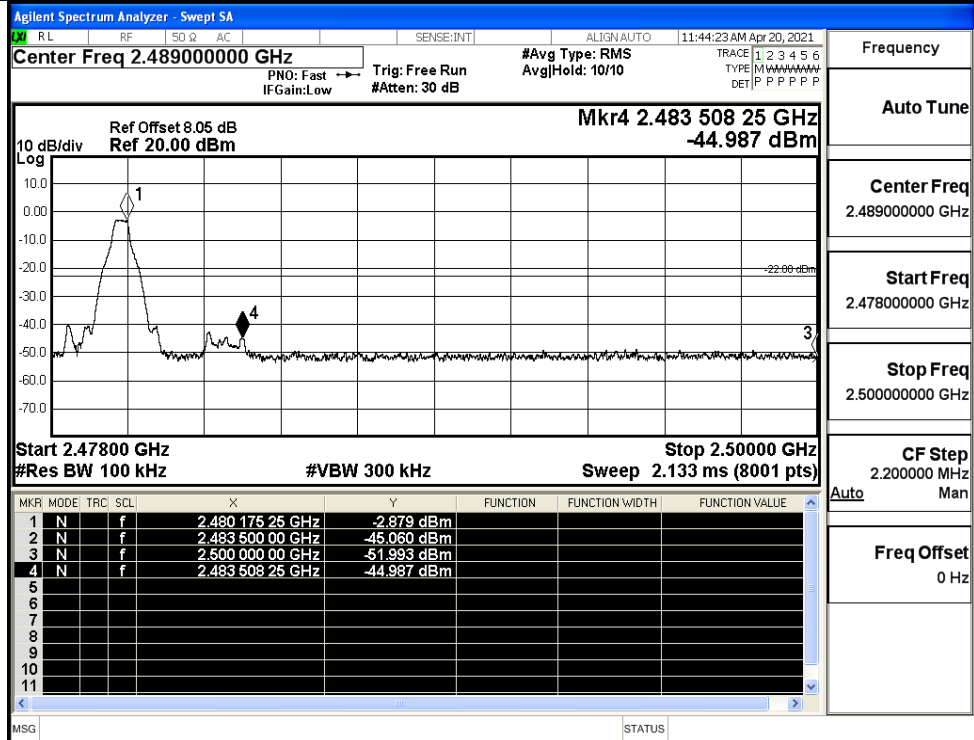
GFSK/LCH/No Hop



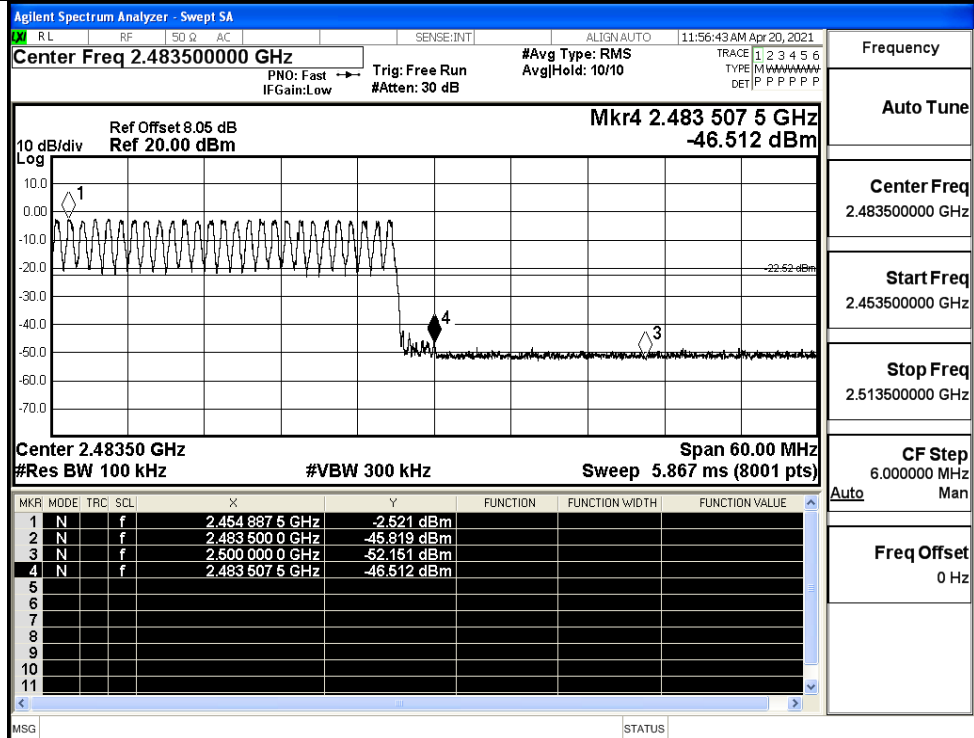
GFSK/LCH/Hop



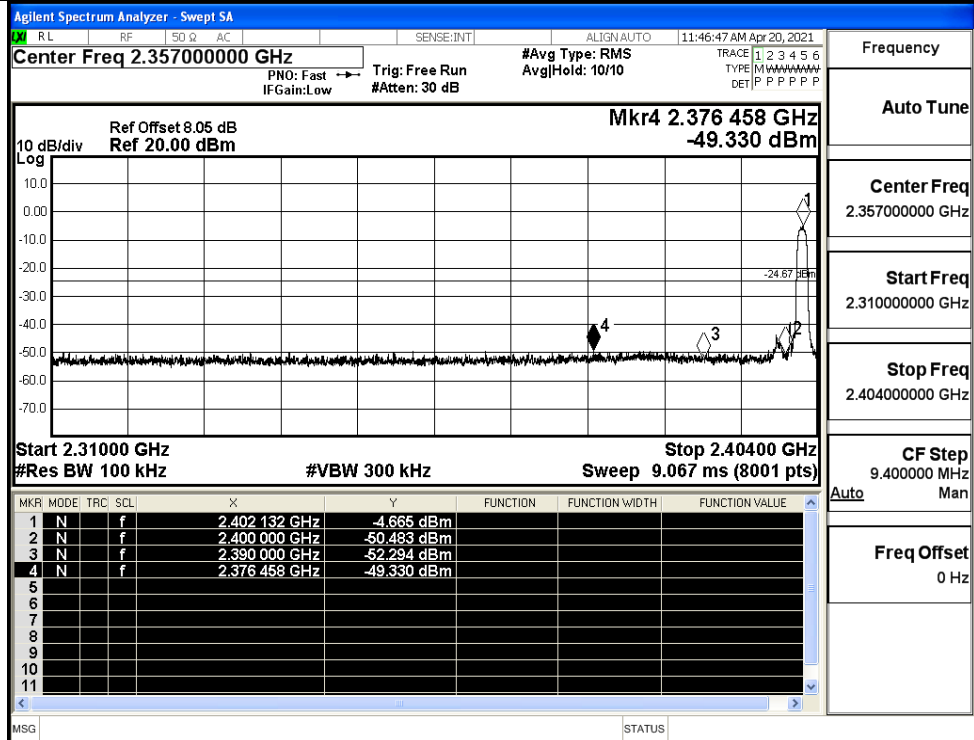
GFSK/HCH/No Hop



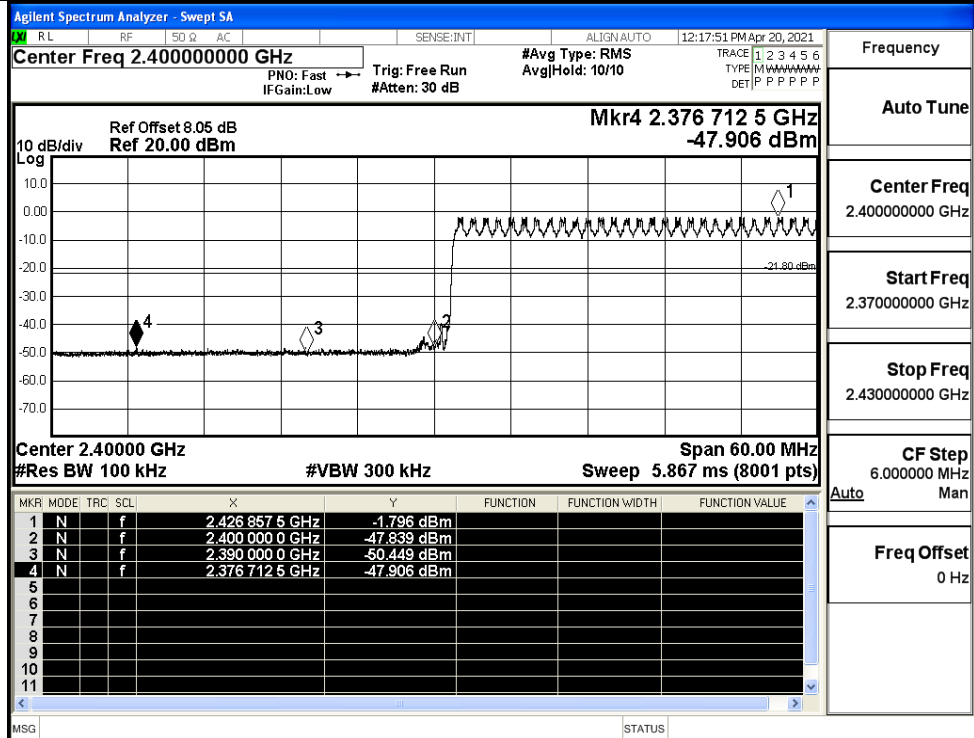
GFSK/HCH/Hop



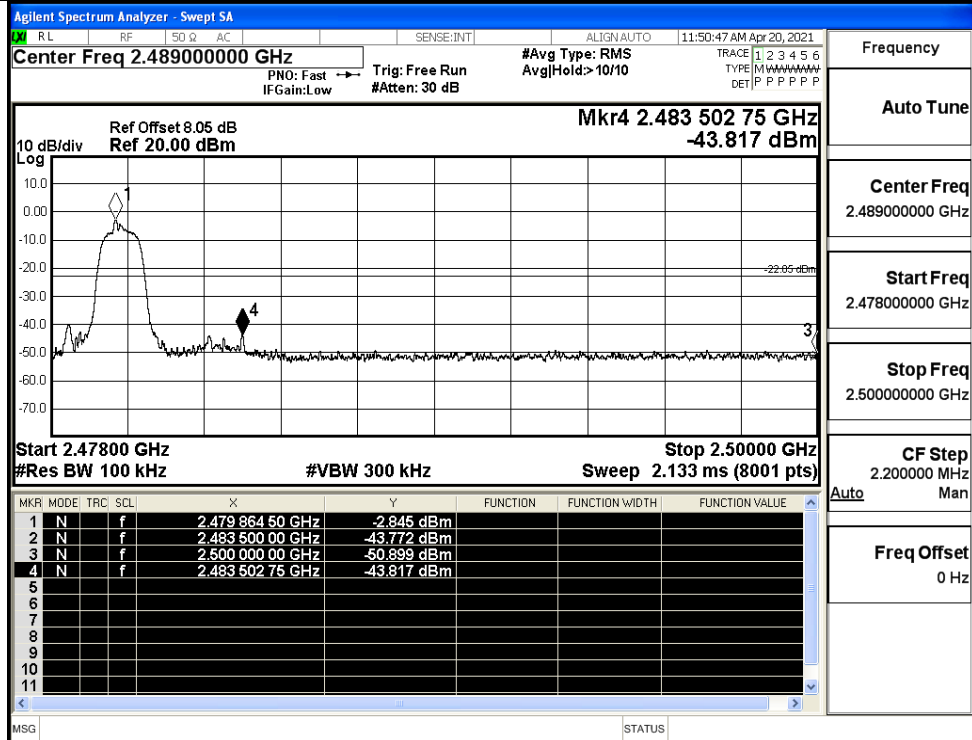
$\pi/4$ DQPSK/LCH/No  
Hop



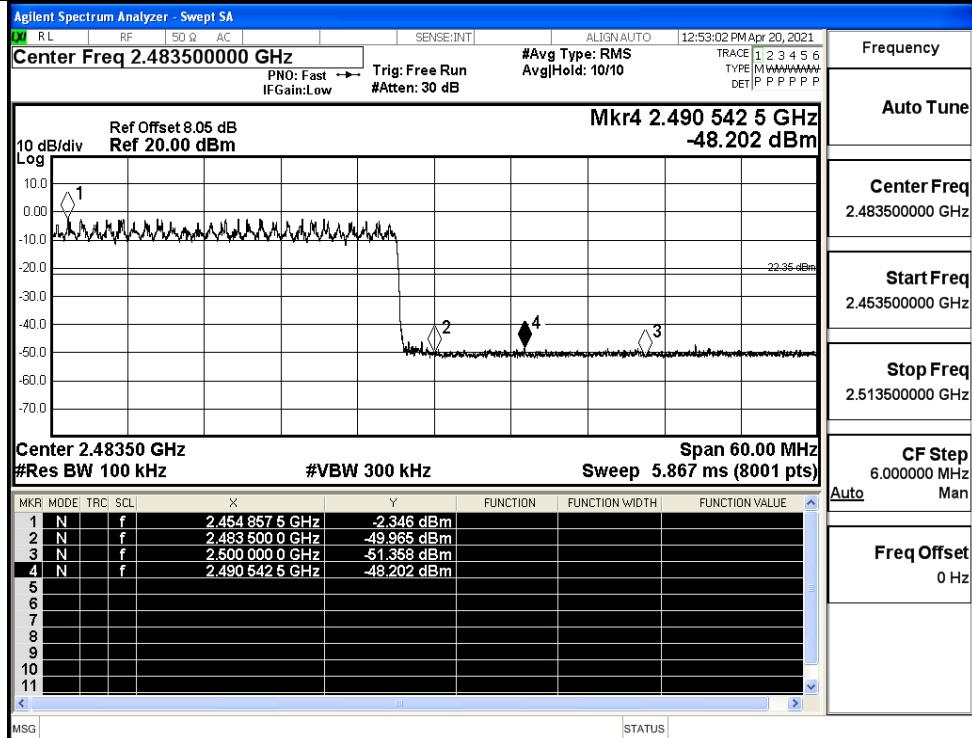
$\pi/4$ DQPSK/LCH/Hop



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



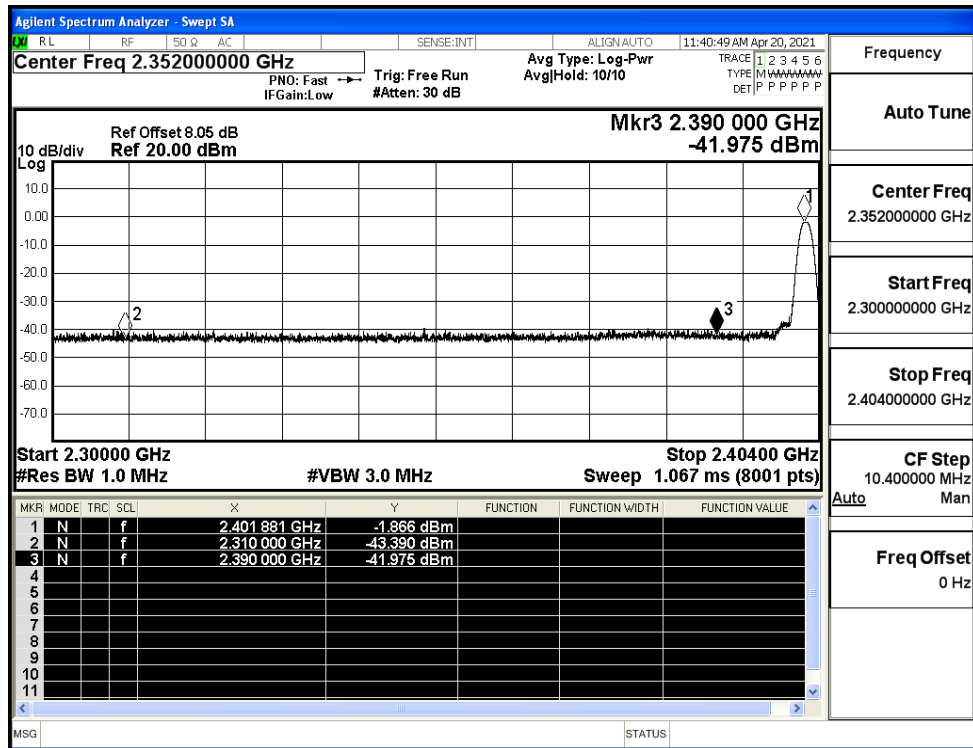
$\pi/4$ DQPSK/HCH/Hop



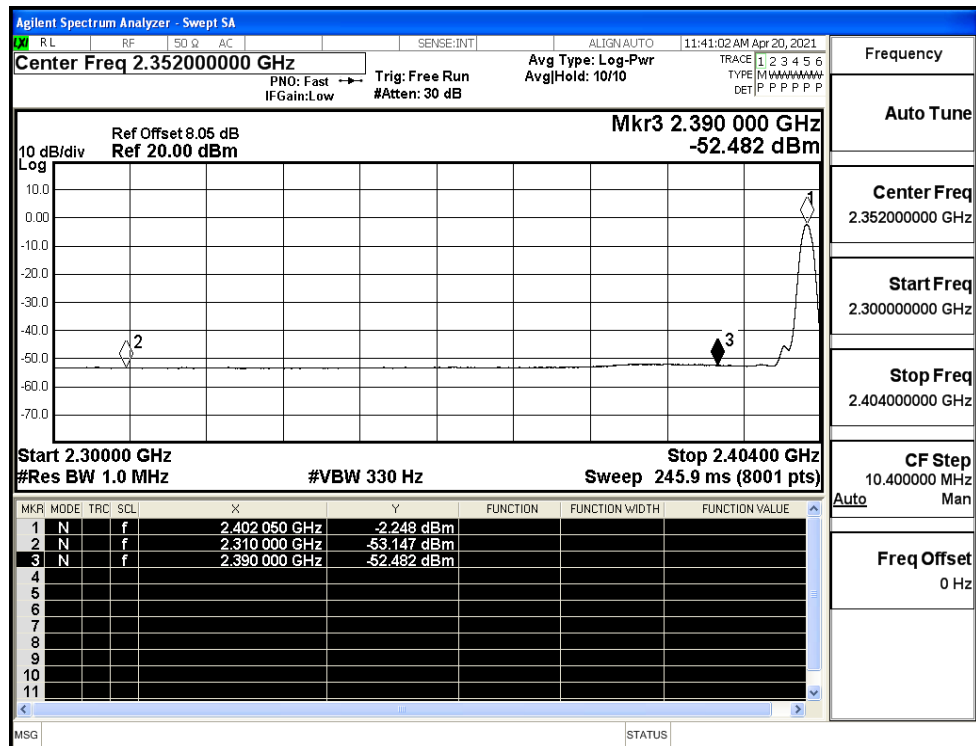
## A.8 Restrict-band band-edge measurements

| Test Mode     | Hopping | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0 | -43.39      | 2.0  | 0             | 53.84      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.15      | 2.0  | 0             | 44.08      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -41.98      | 2.0  | 0             | 55.25      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.48      | 2.0  | 0             | 44.75      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -39.63      | 2.0  | 0             | 57.60      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -47.42      | 2.0  | 0             | 49.81      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -41.40      | 2.0  | 0             | 55.83      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -51.57      | 2.0  | 0             | 45.66      | AV       | 54             | PASS    |
| $\pi/4$ DQPSK | Off     | 2310.0 | -43.74      | 2.0  | 0             | 53.49      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.32      | 2.0  | 0             | 43.91      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -42.99      | 2.0  | 0             | 54.24      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.38      | 2.0  | 0             | 44.85      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -39.43      | 2.0  | 0             | 57.80      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -49.40      | 2.0  | 0             | 47.83      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -41.12      | 2.0  | 0             | 56.11      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -51.69      | 2.0  | 0             | 45.54      | AV       | 54             | PASS    |

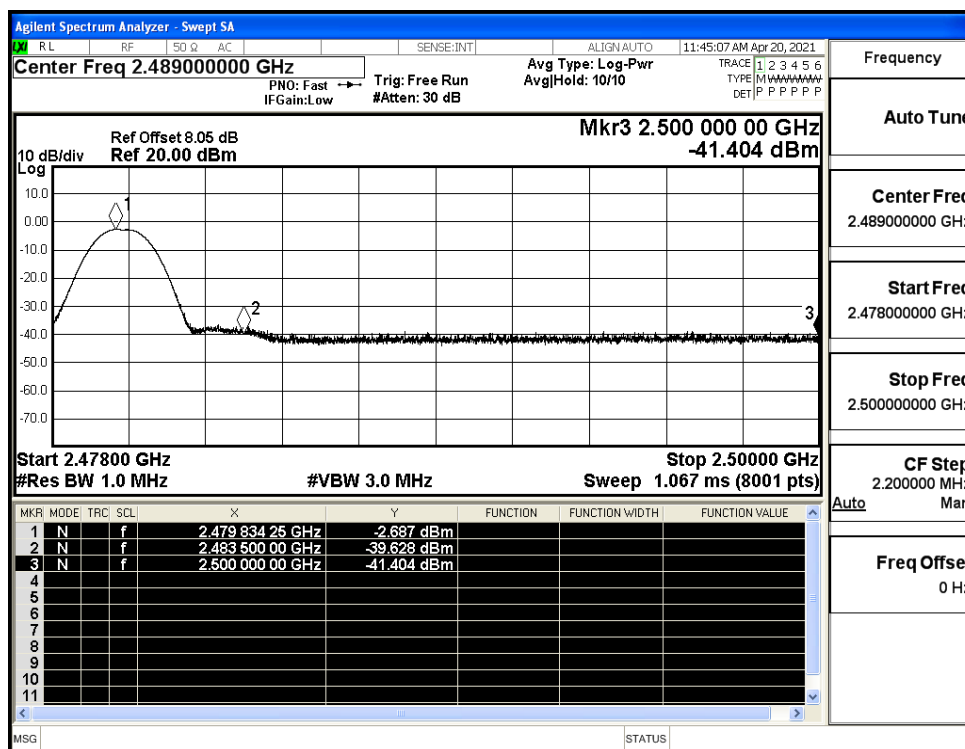
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



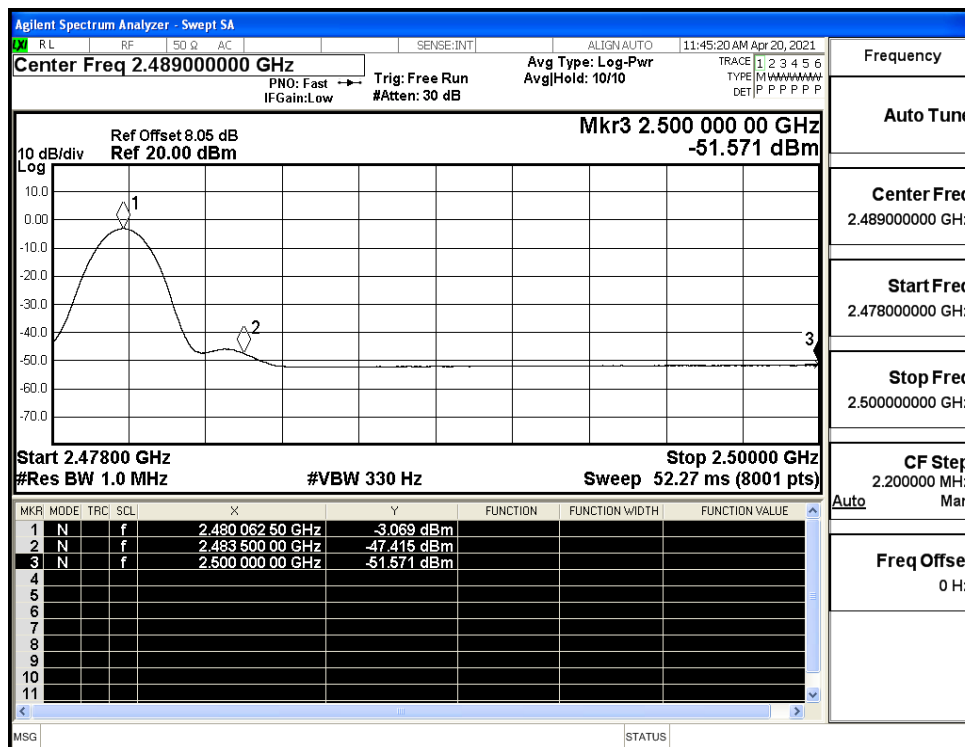
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)

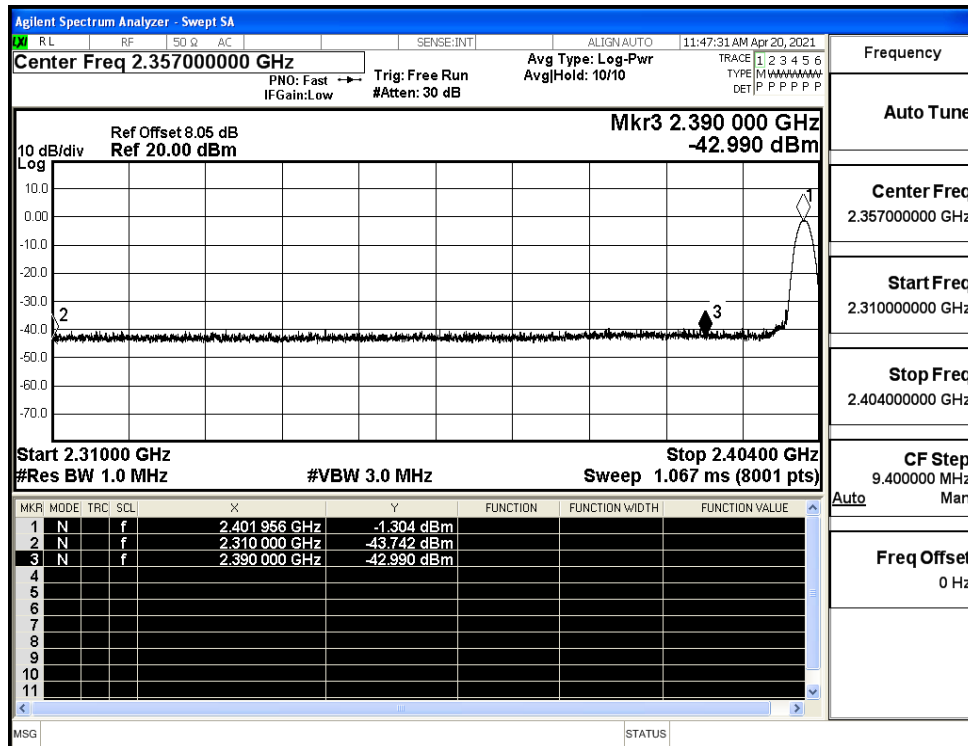
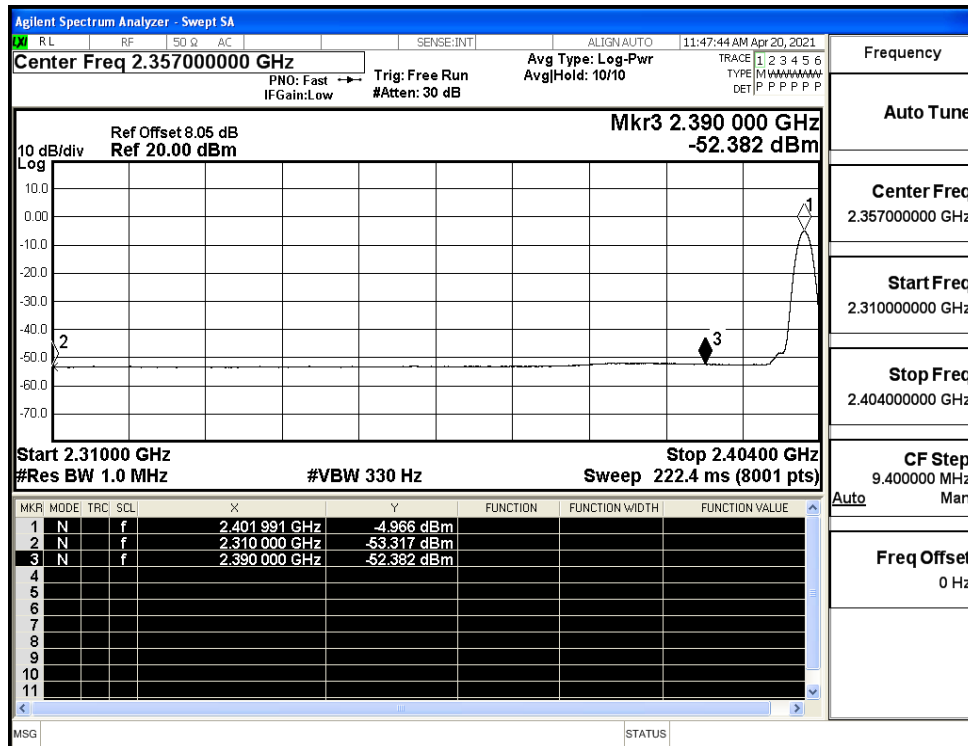


## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_PEAK (High Channel)

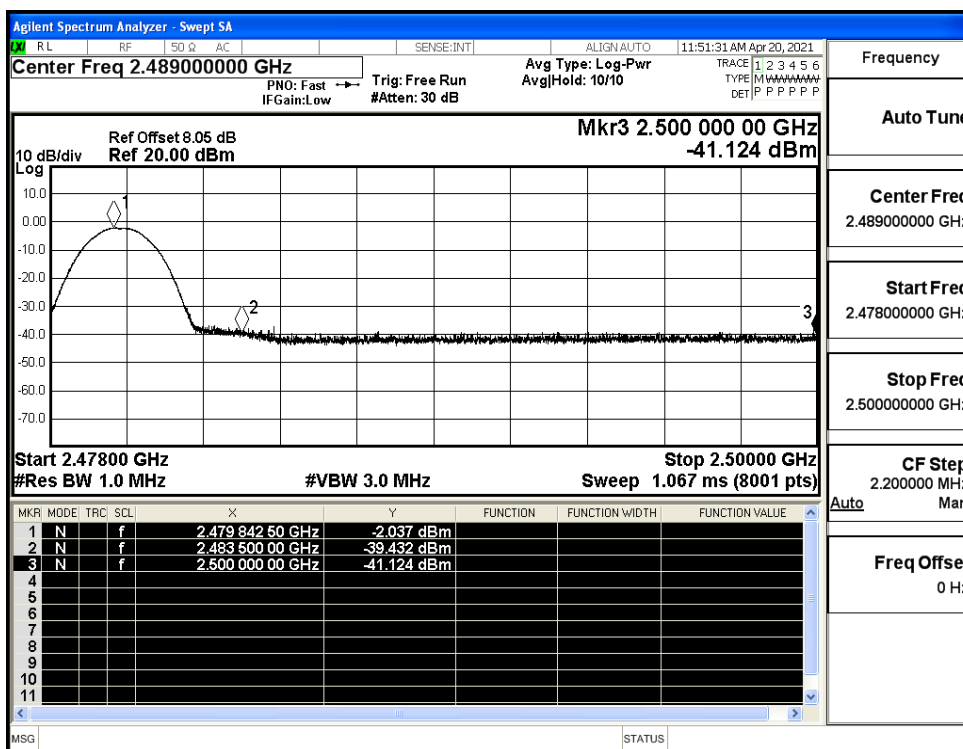


## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_Average (High Channel)



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)

