

## Appendix A

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

Product Name: True Wireless Stereo headset

Trade Mark: N/A

Test Model: T9S

#### Environmental Conditions

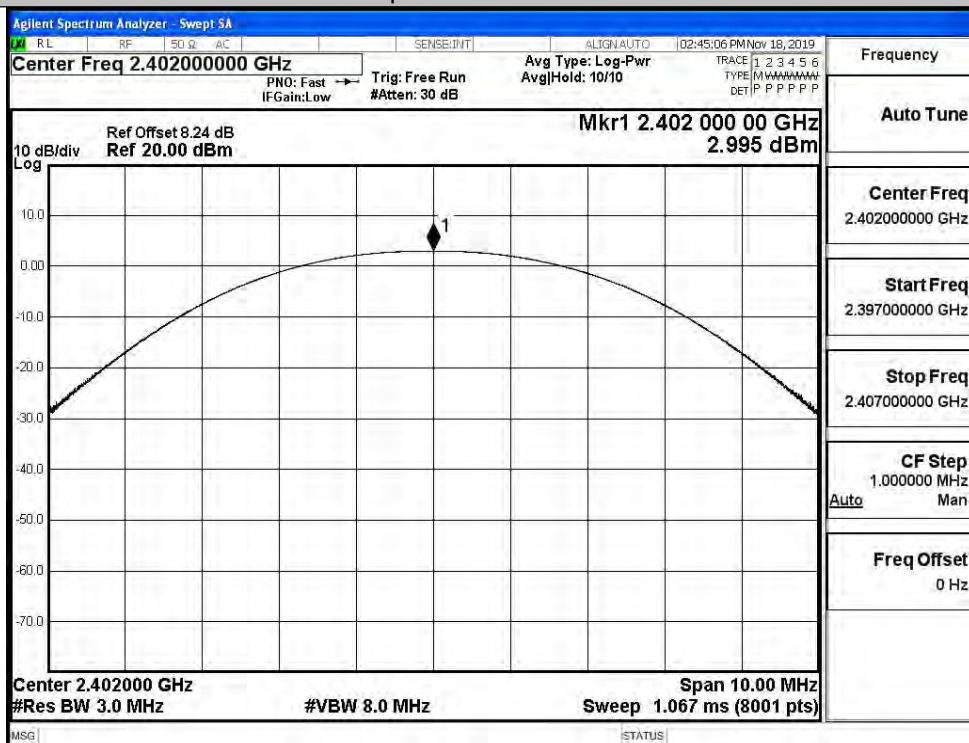
|                    |             |
|--------------------|-------------|
| Temperature:       | 24.3 ° C    |
| Relative Humidity: | 53.7%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | Scout Wu    |
| Supervised by:     | Wang Chuang |

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

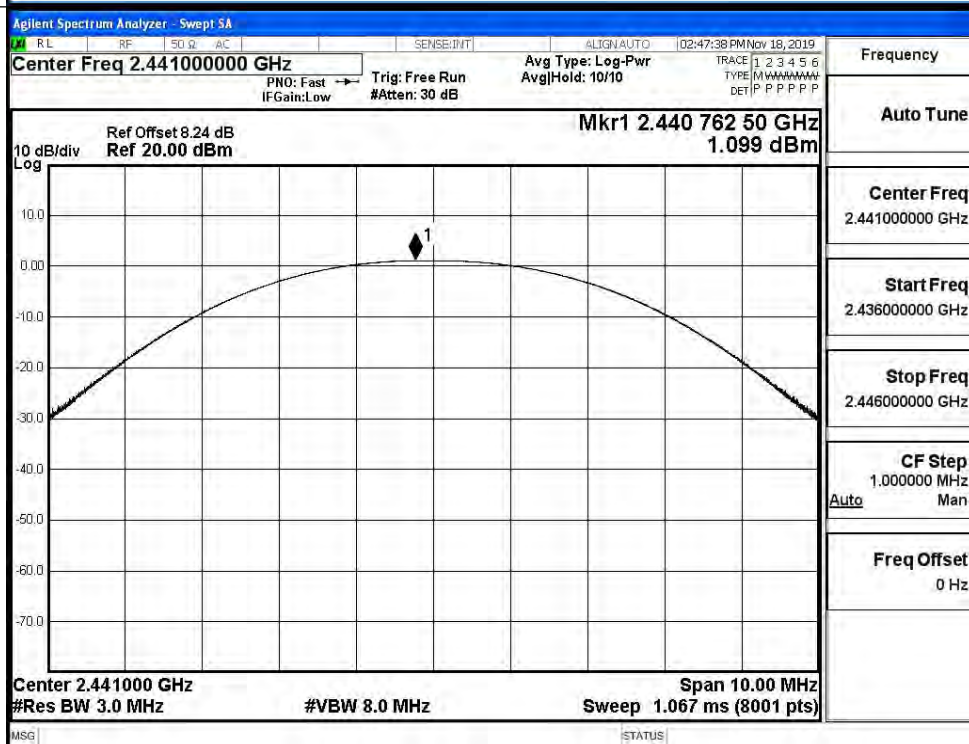
| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | 2.995                           | 30          | PASS    |
|               | MCH      | 1.099                           | 30          | PASS    |
|               | HCH      | 2.302                           | 30          | PASS    |
| $\pi/4$ DQPSK | LCH      | 2.264                           | 21          | PASS    |
|               | MCH      | 0.497                           | 21          | PASS    |
|               | HCH      | 1.582                           | 21          | PASS    |

## Test Graphs

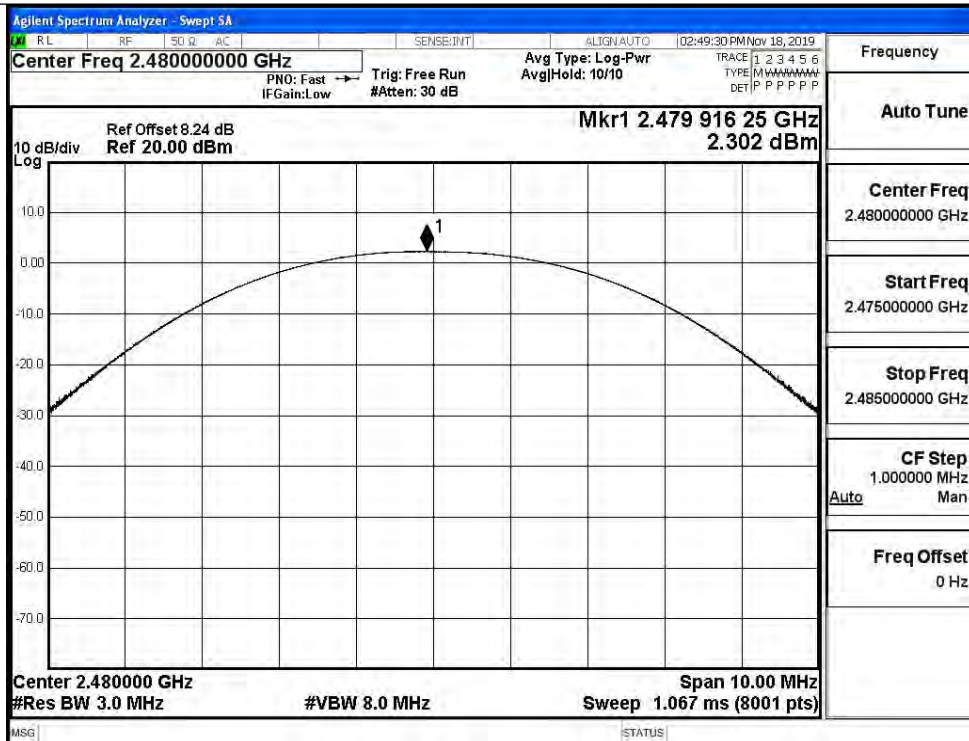
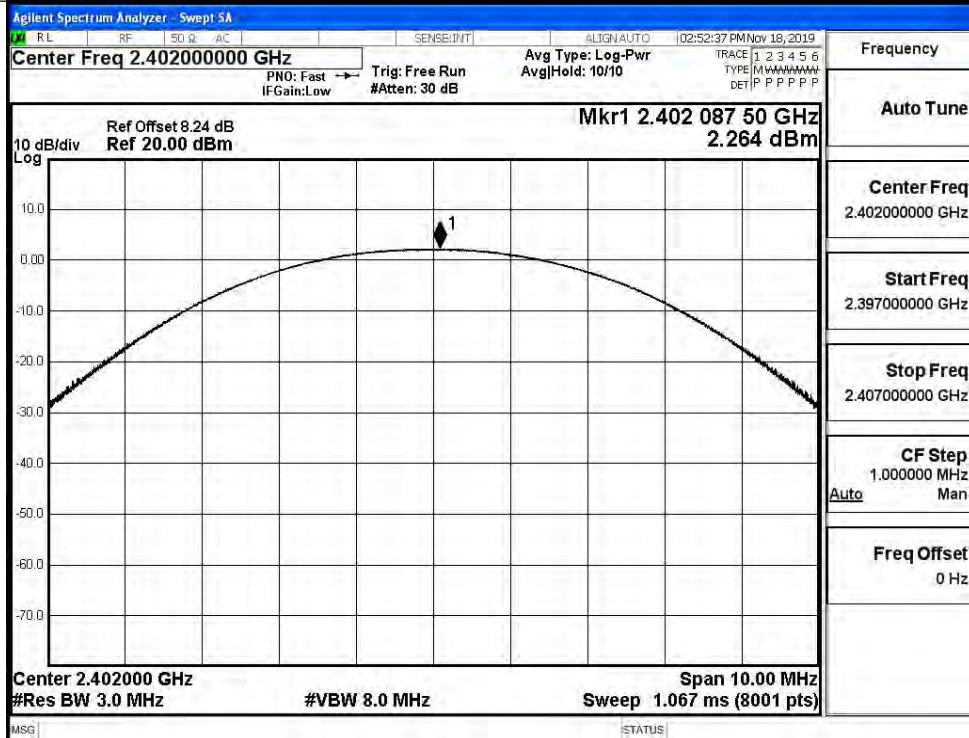
GFSK/LCH

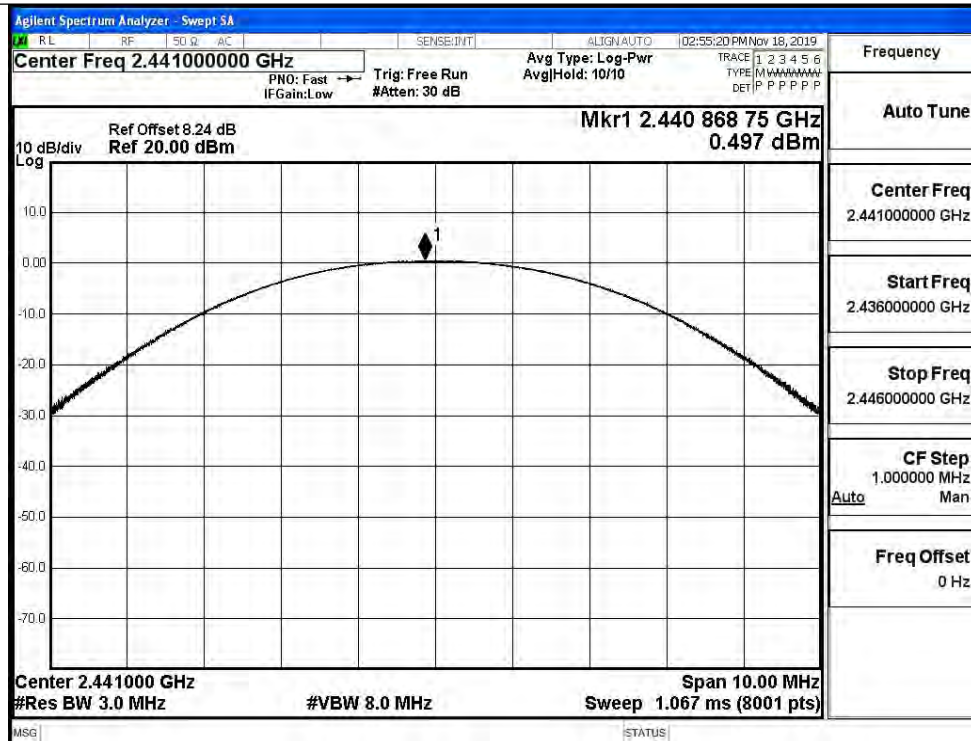
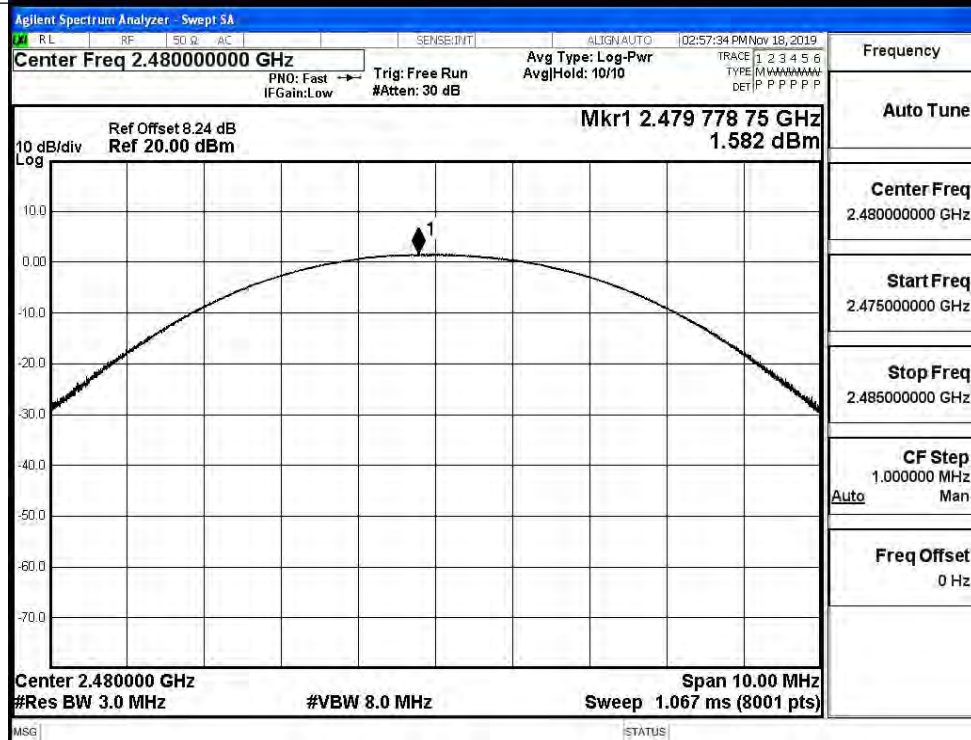


GFSK/MCH



GFSK/HCH

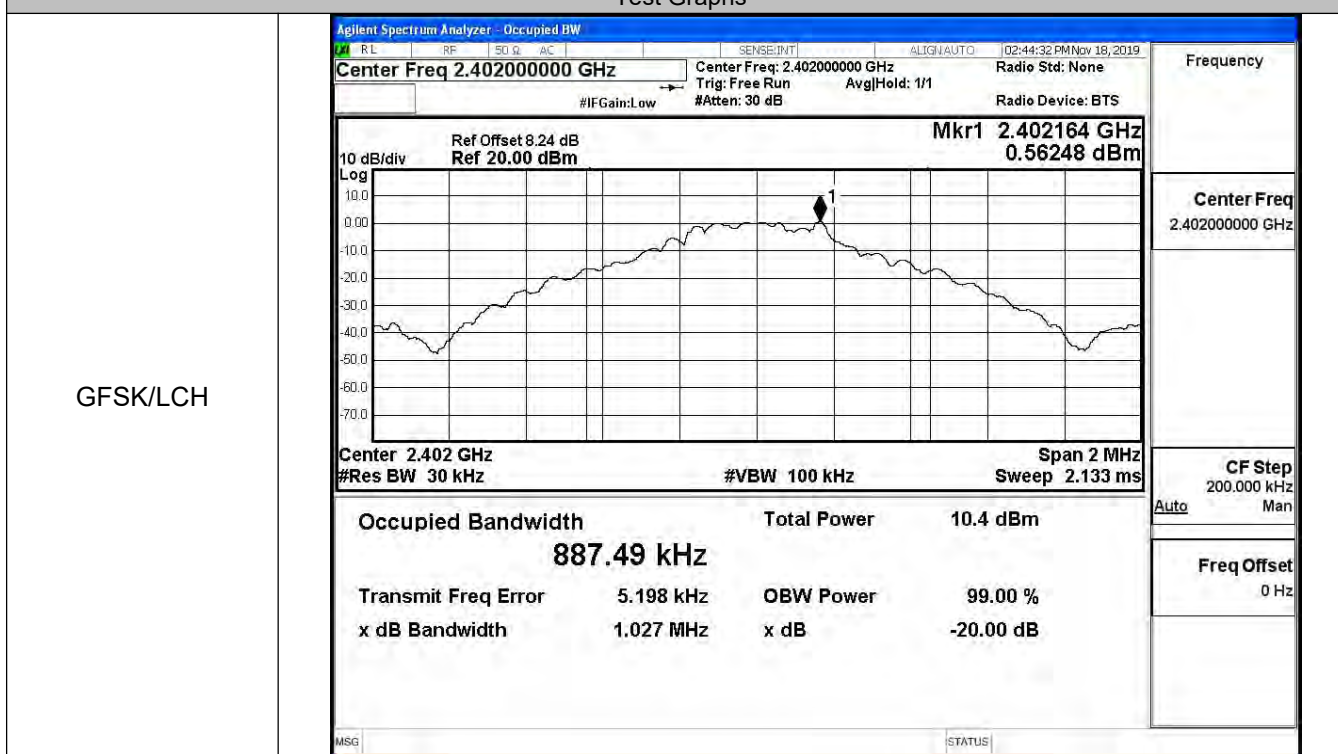
 $\pi$ /4DQPSK/LCH

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

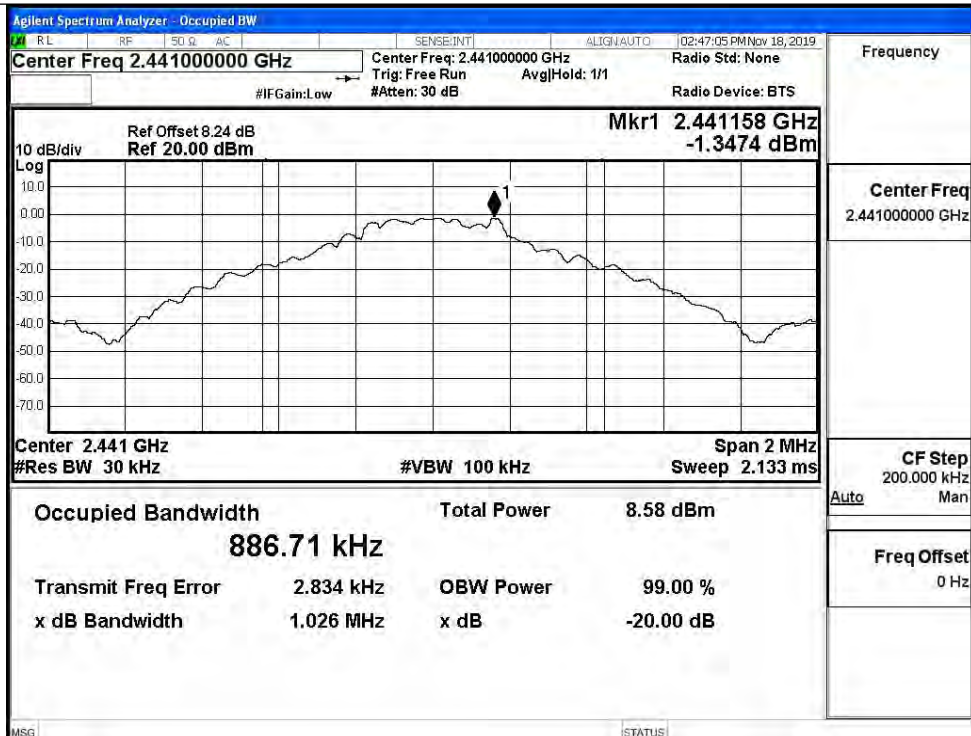
## A.2 20dB Bandwidth

| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 1.027                | Not Specified | PASS    |
|               | MCH      | 1.026                | Not Specified | PASS    |
|               | HCH      | 1.029                | Not Specified | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.288                | Not Specified | PASS    |
|               | MCH      | 1.310                | Not Specified | PASS    |
|               | HCH      | 1.290                | Not Specified | PASS    |

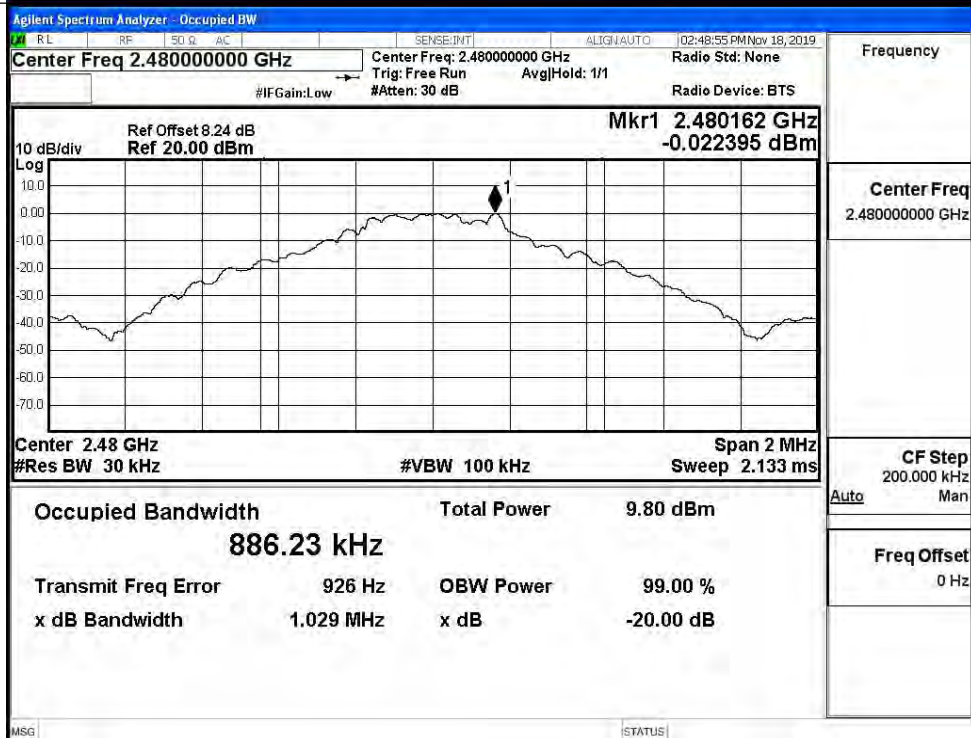
Test Graphs

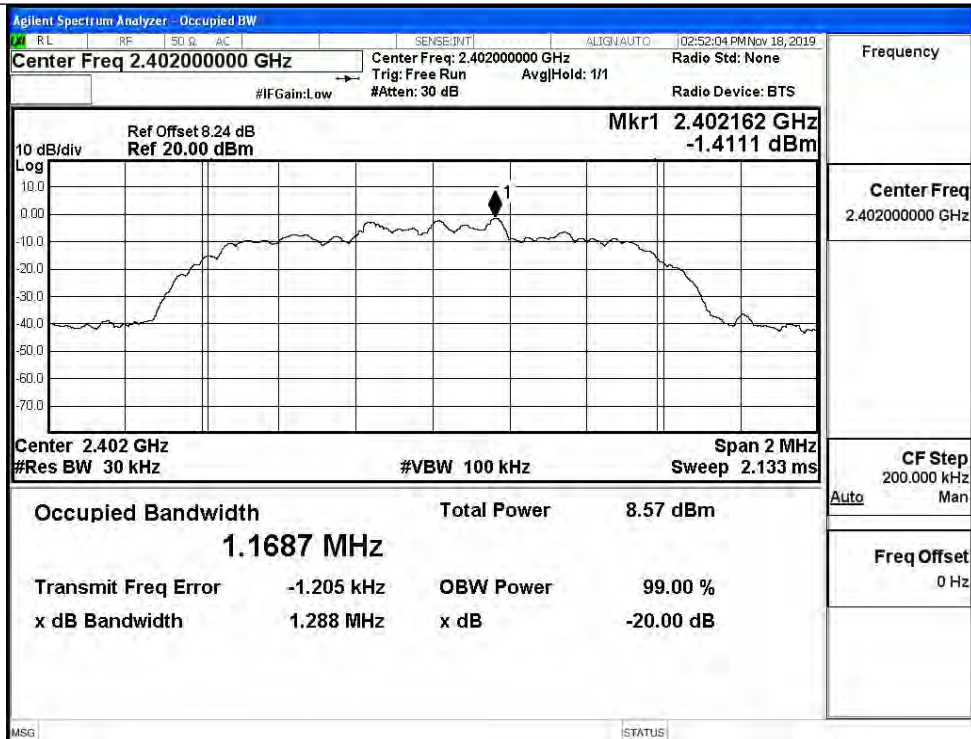
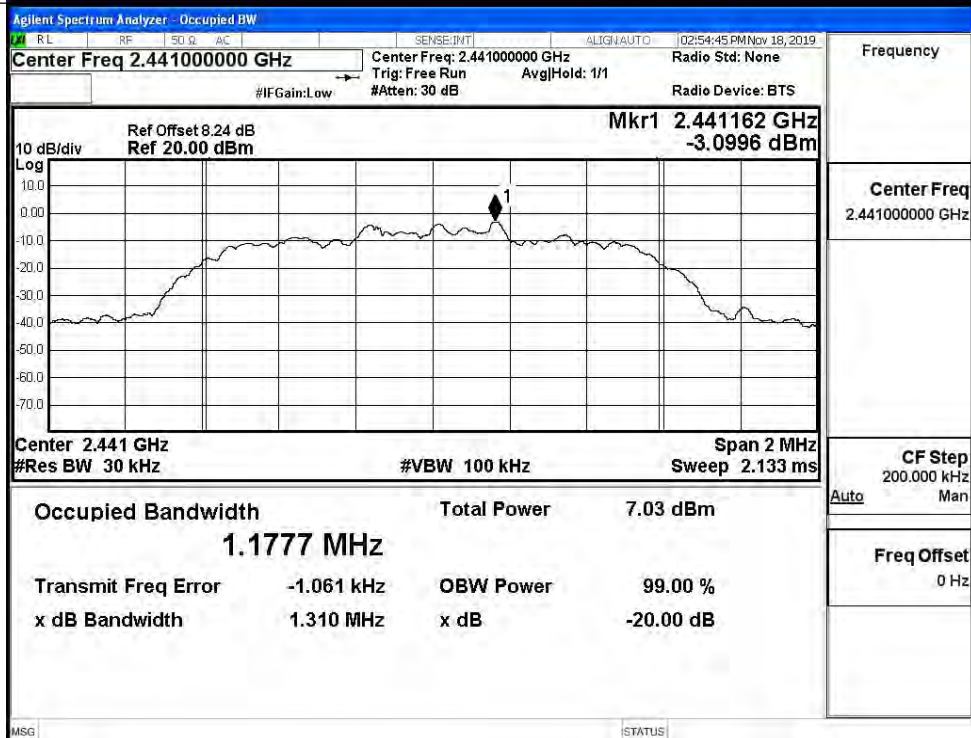


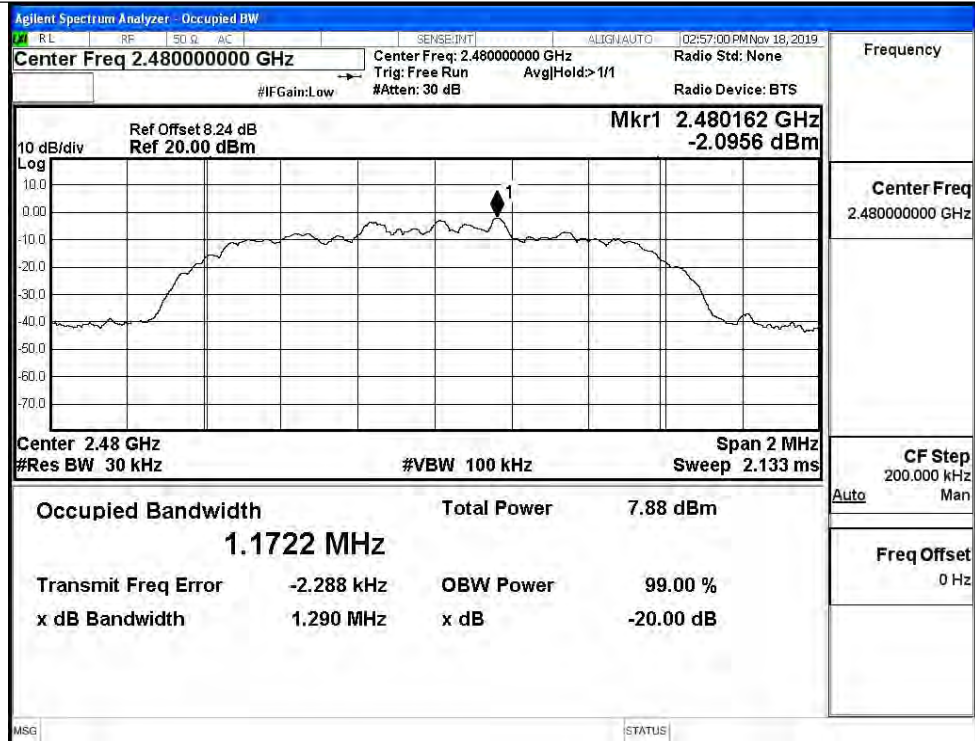
GFSK/MCH



GFSK/HCH



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

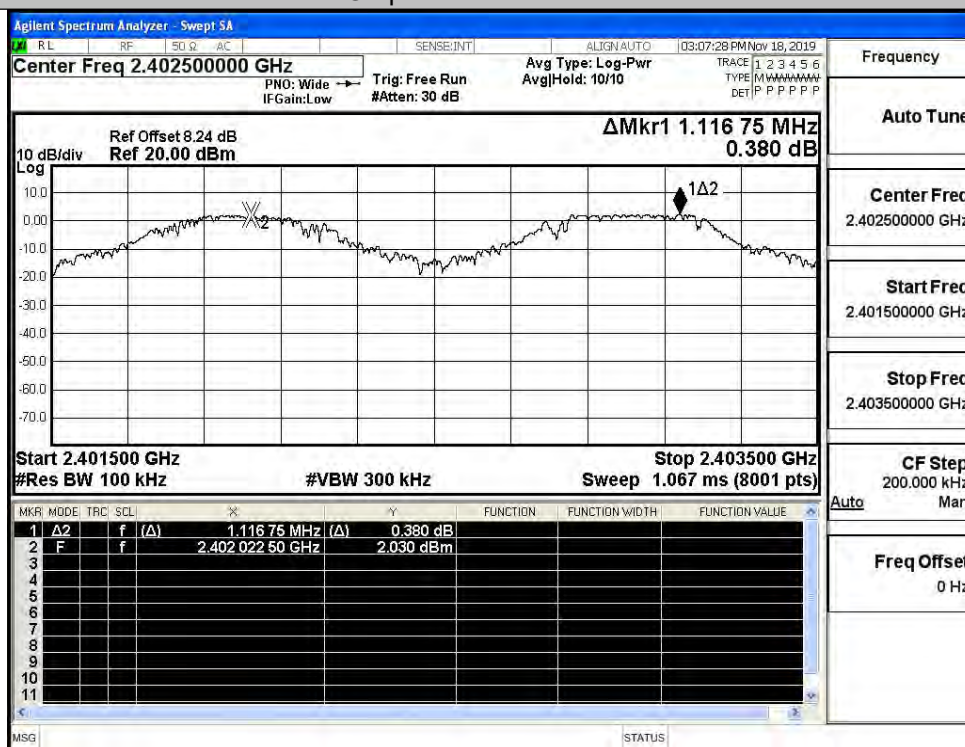
$\pi/4$ DQPSK/HCH

### A.3 Carrier Frequency Separation

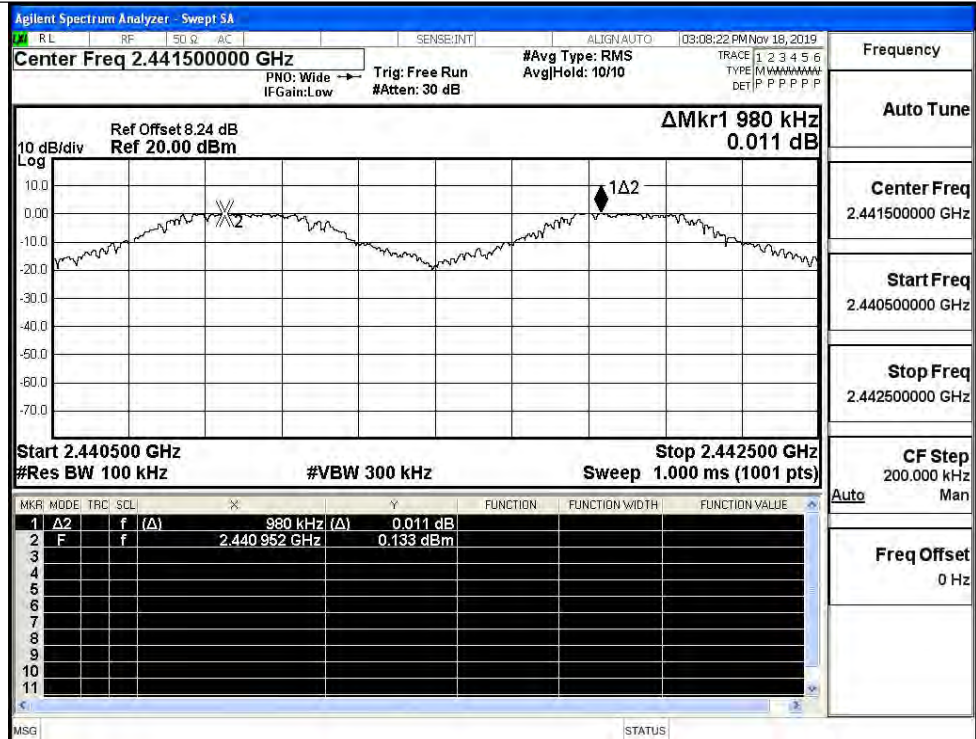
| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | LCH      | 1.117                              | 0.684       | PASS    |
|               | MCH      | 0.980                              | 0.684       | PASS    |
|               | HCH      | 0.884                              | 0.686       | PASS    |
| $\pi/4$ DQPSK | LCH      | 0.948                              | 0.858       | PASS    |
|               | MCH      | 1.026                              | 0.873       | PASS    |
|               | HCH      | 1.018                              | 0.860       | PASS    |

Test Graphs

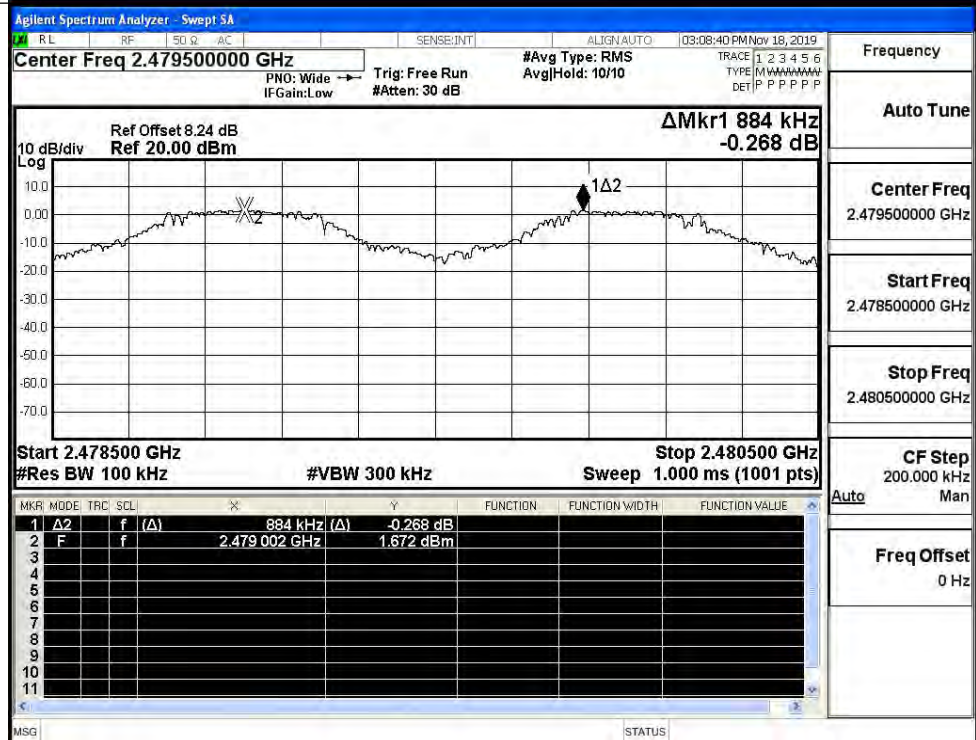
GFSK/LCH

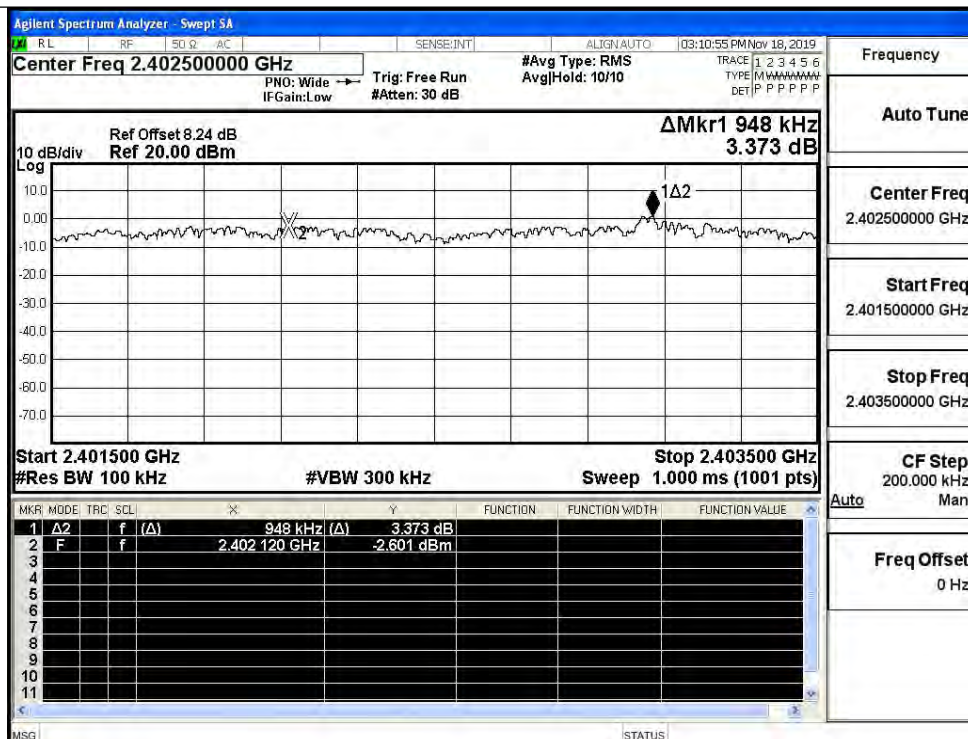
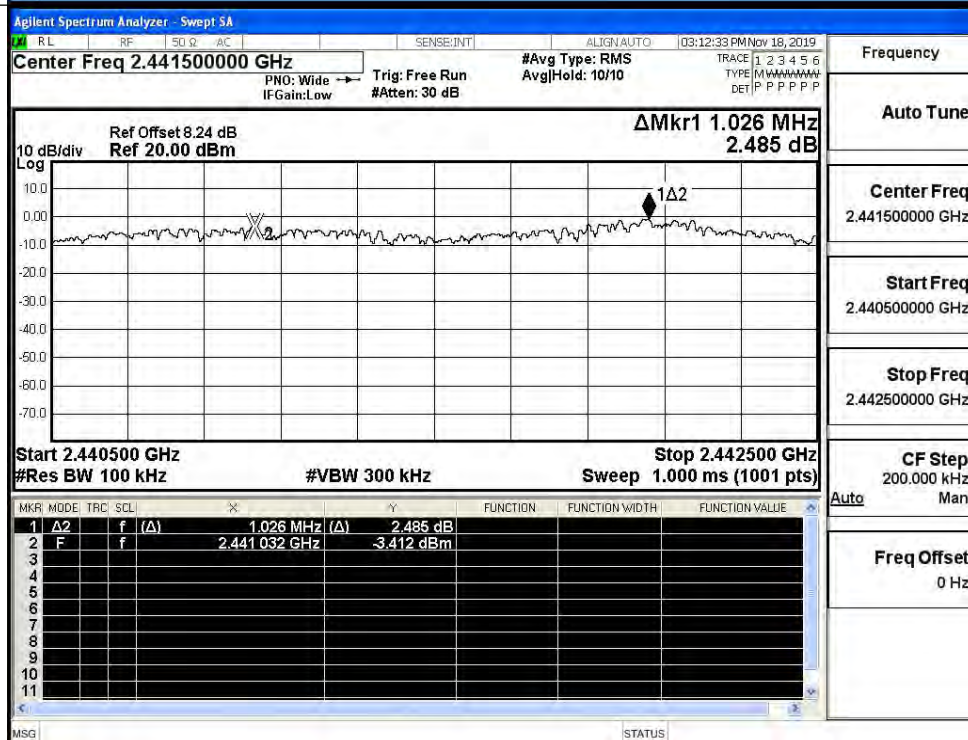


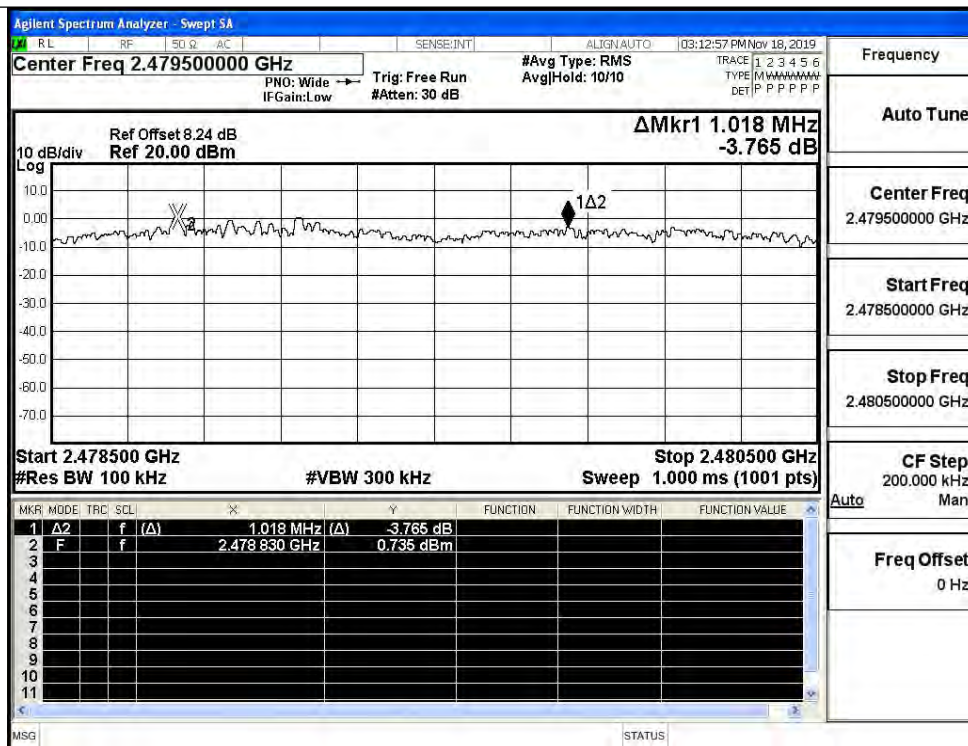
GFSK/MCH



GFSK/HCH



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

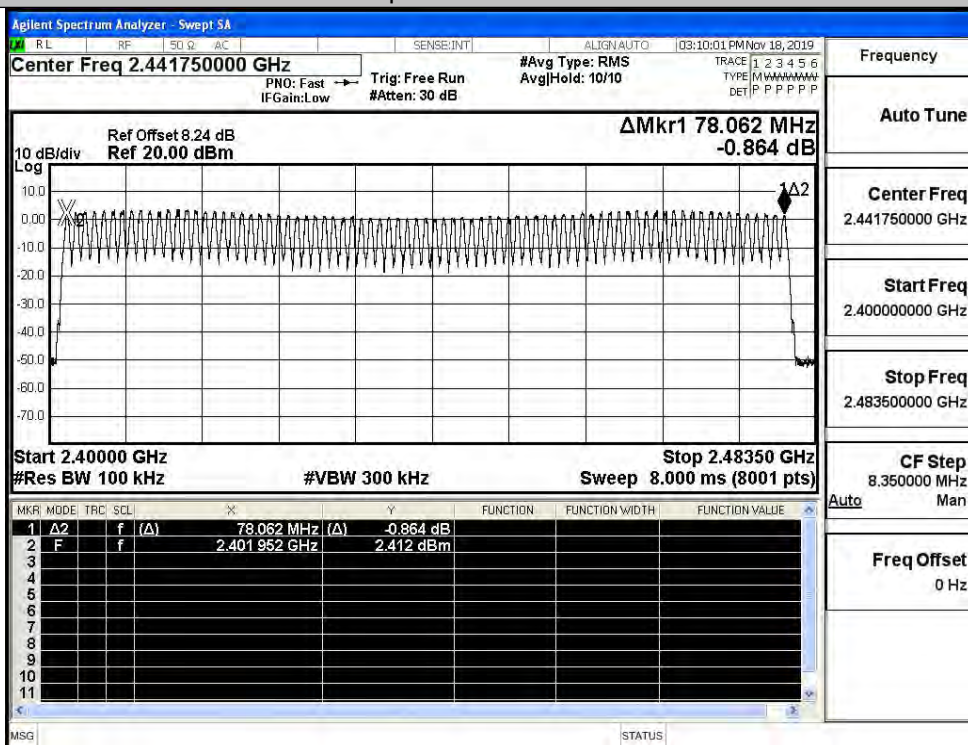
$\pi/4$ DQPSK/HCH

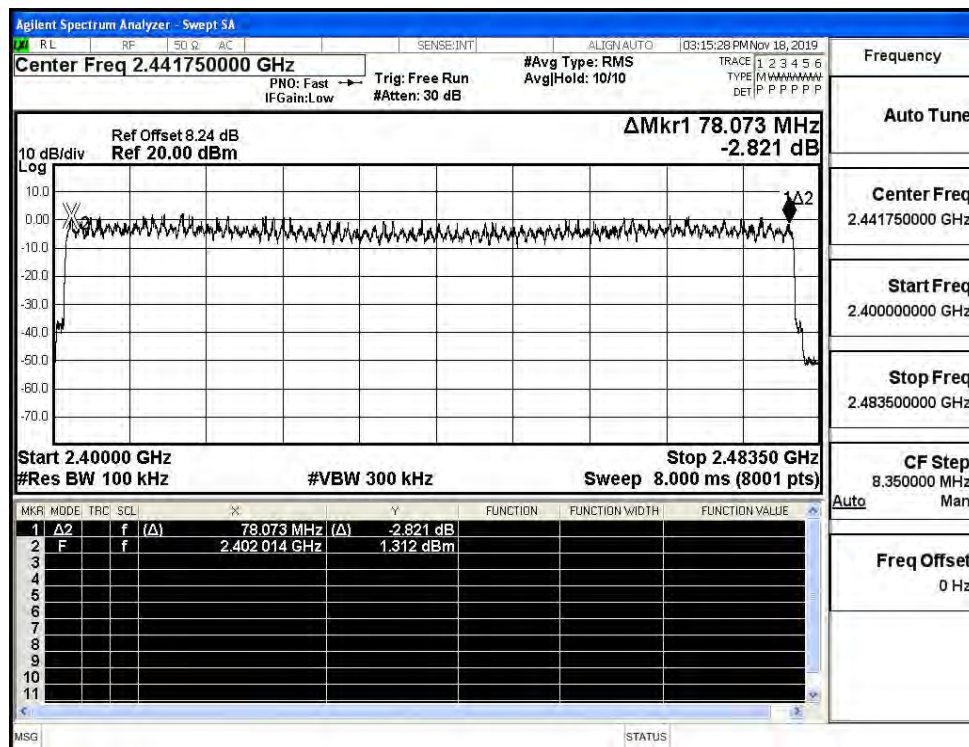
#### A.4 Hopping Channel Number

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

#### Test Graphs

GFSK/Hop



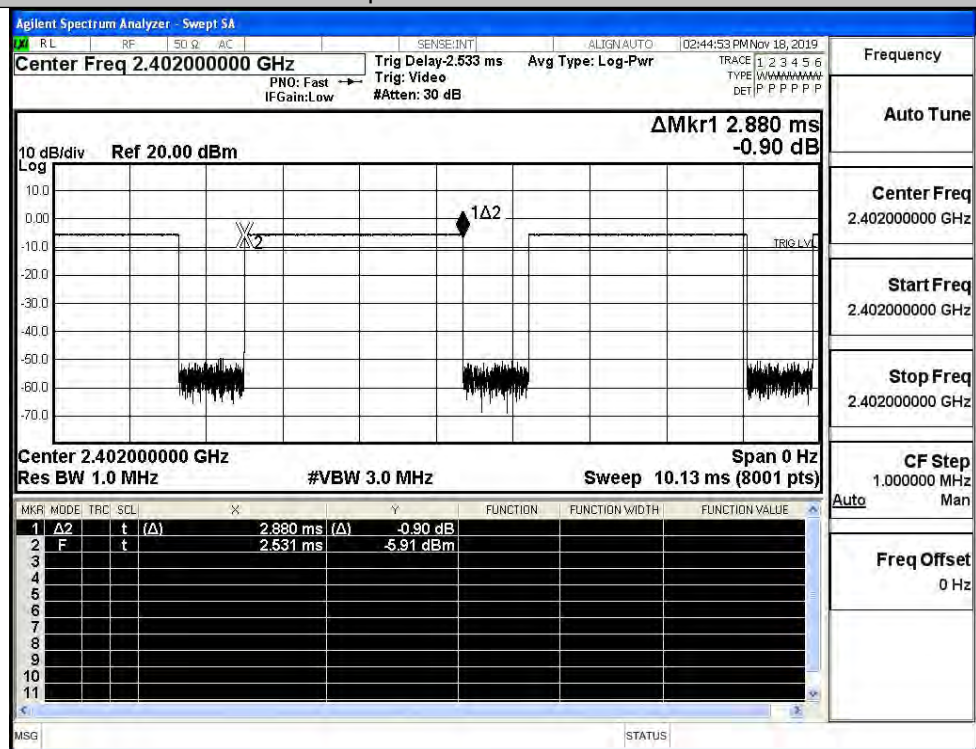
$\pi/4$ DQPSK/Hop

## A.5 Dwell Time

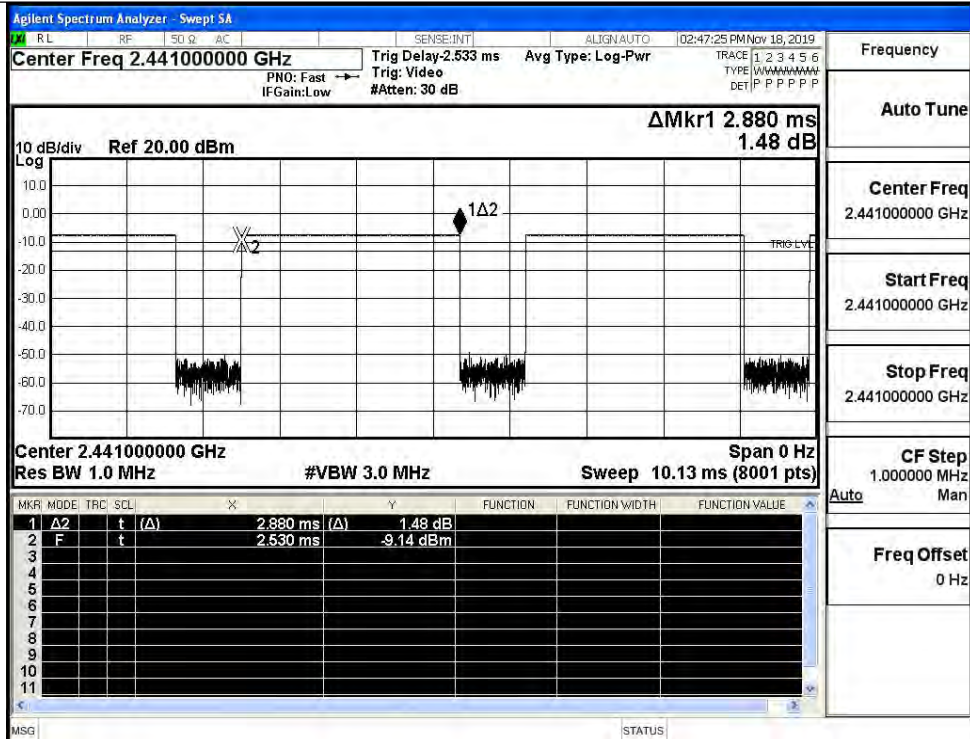
| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[s] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|---------------|-----------|---------|
| GFSK          | DH5    | LCH     | 2.88   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

### Test Graphs

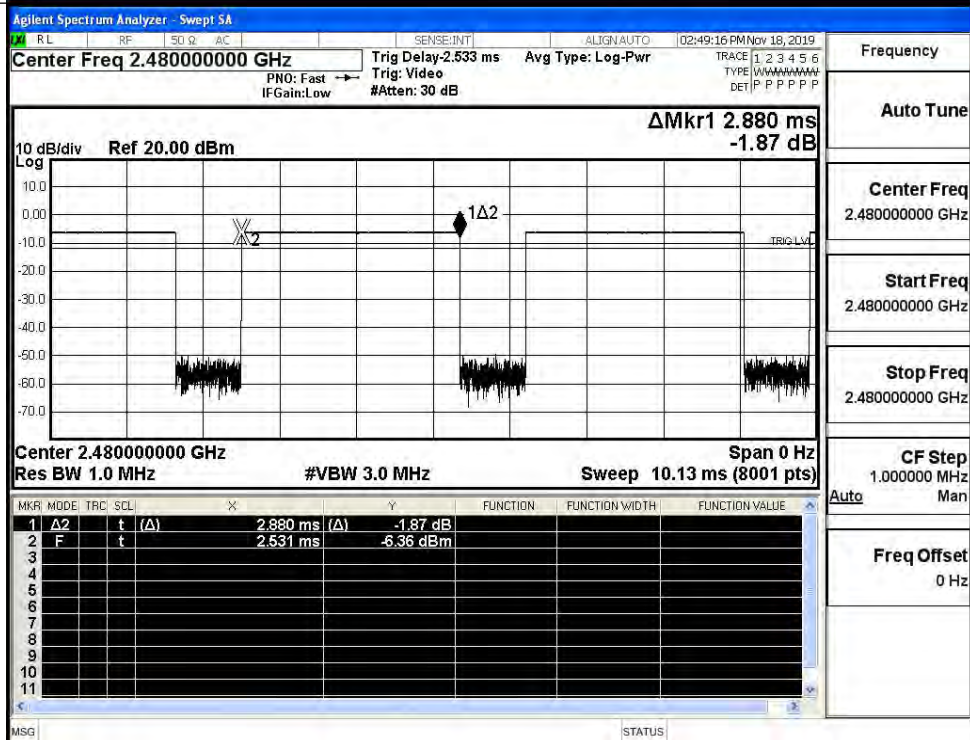
GFSK\_DH5/LCH



GFSK\_DH5/MCH

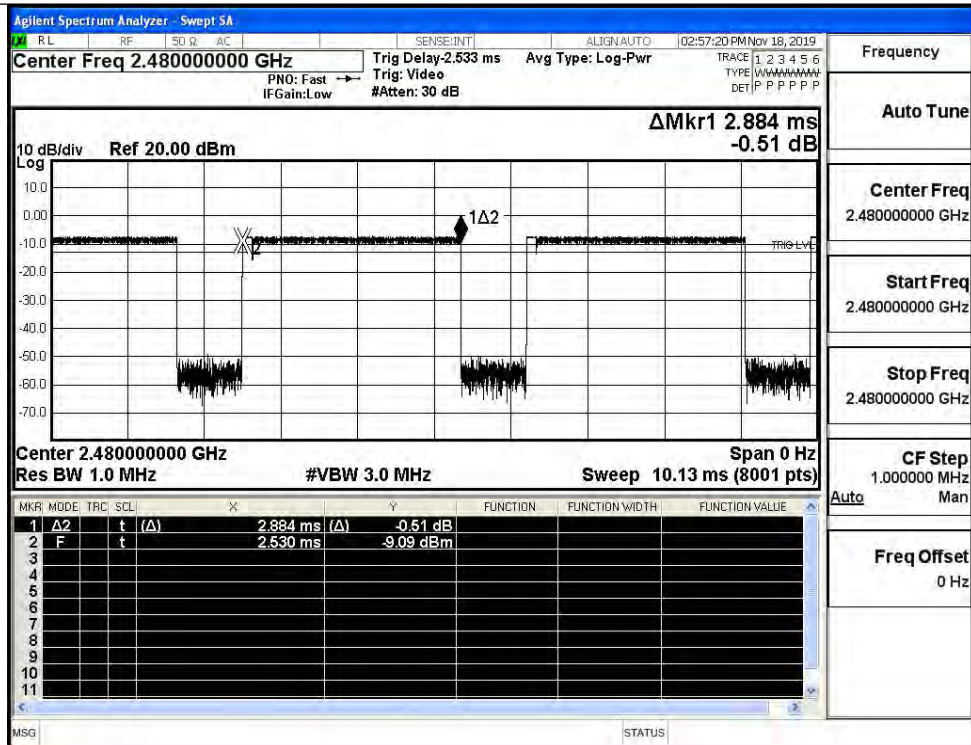


GFSK\_DH5/HCH



[illegible][illegible]

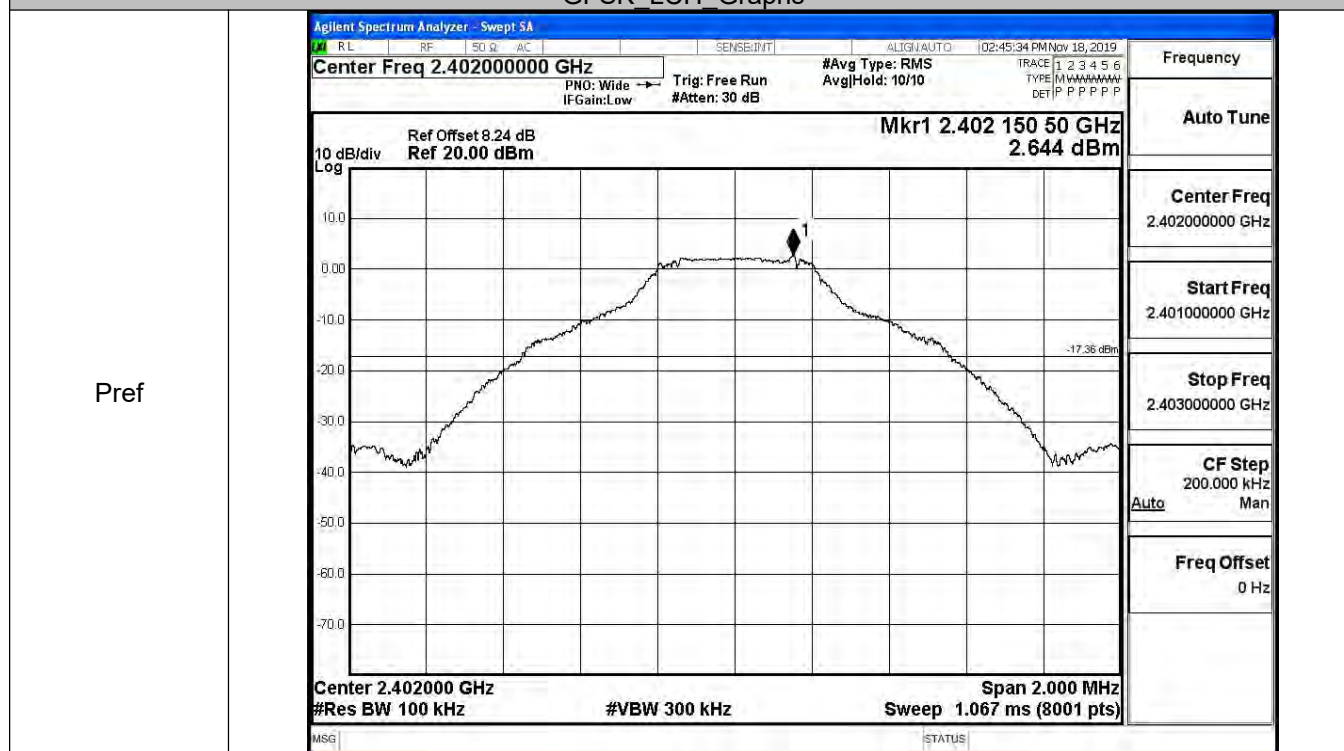
$\pi/4$ DQPSK  
\_2DH5/HCH



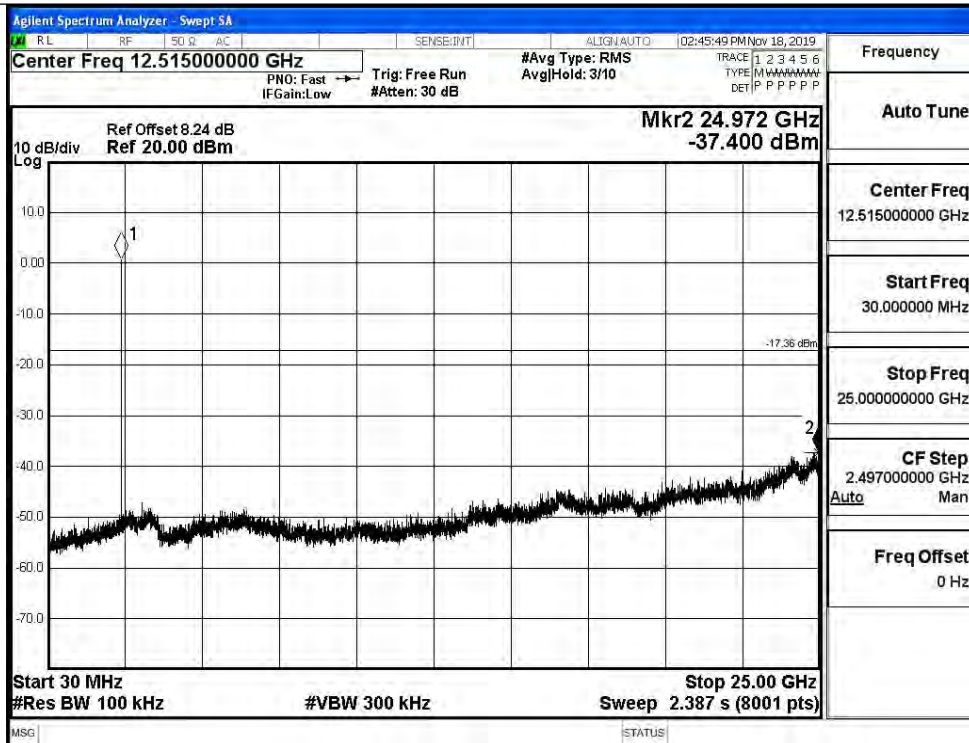
## A.6 RF Conducted Spurious Emissions

| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK          | LCH     | 2.644      | -37.400          | -17.356     | PASS    |
|               | MCH     | 0.826      | -38.087          | -19.174     | PASS    |
|               | HCH     | 1.968      | -36.073          | -18.032     | PASS    |
| $\pi/4$ DQPSK | LCH     | 1.195      | -36.762          | -18.805     | PASS    |
|               | MCH     | -0.333     | -37.349          | -20.333     | PASS    |
|               | HCH     | 0.601      | -36.797          | -19.399     | PASS    |

GFSK LCH Graphs

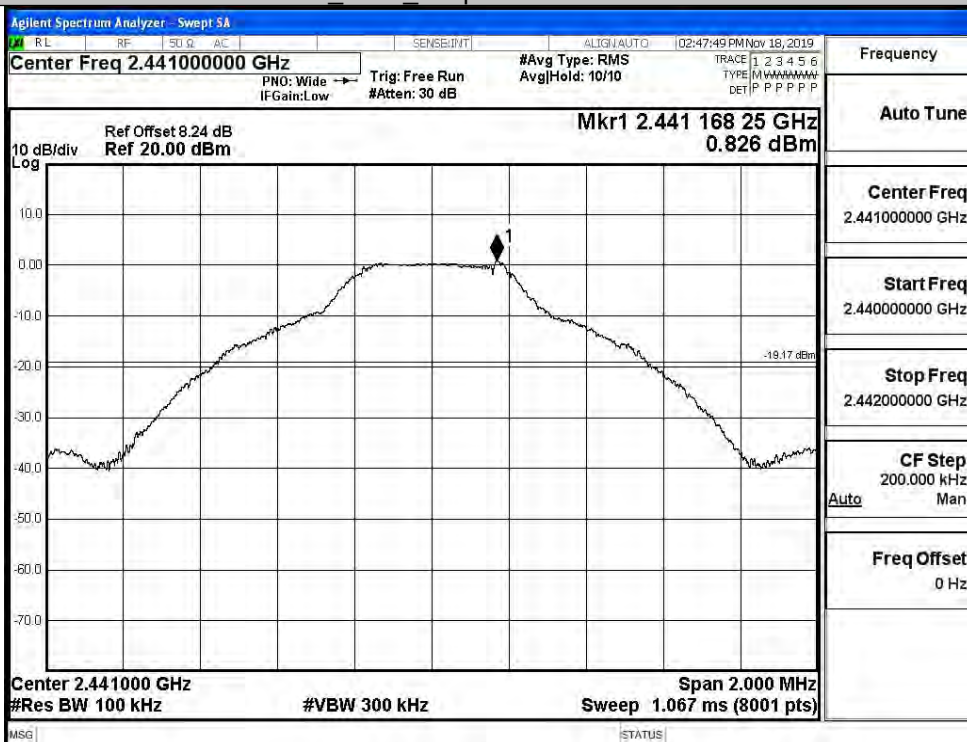


Puw

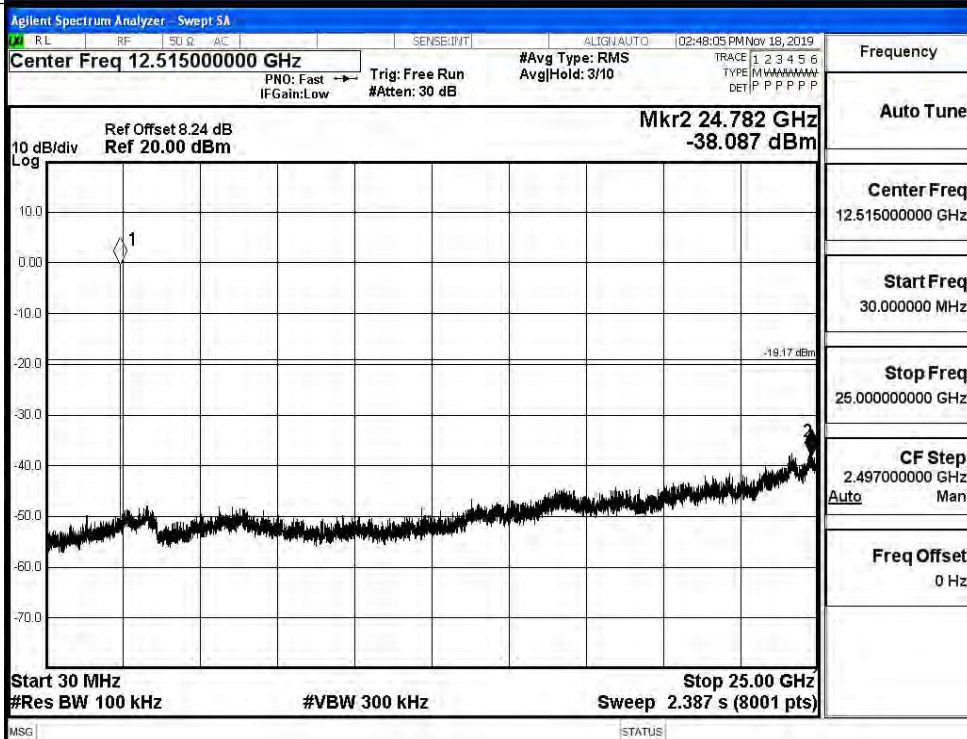


## GFSK\_MCH\_Graphs

Pref

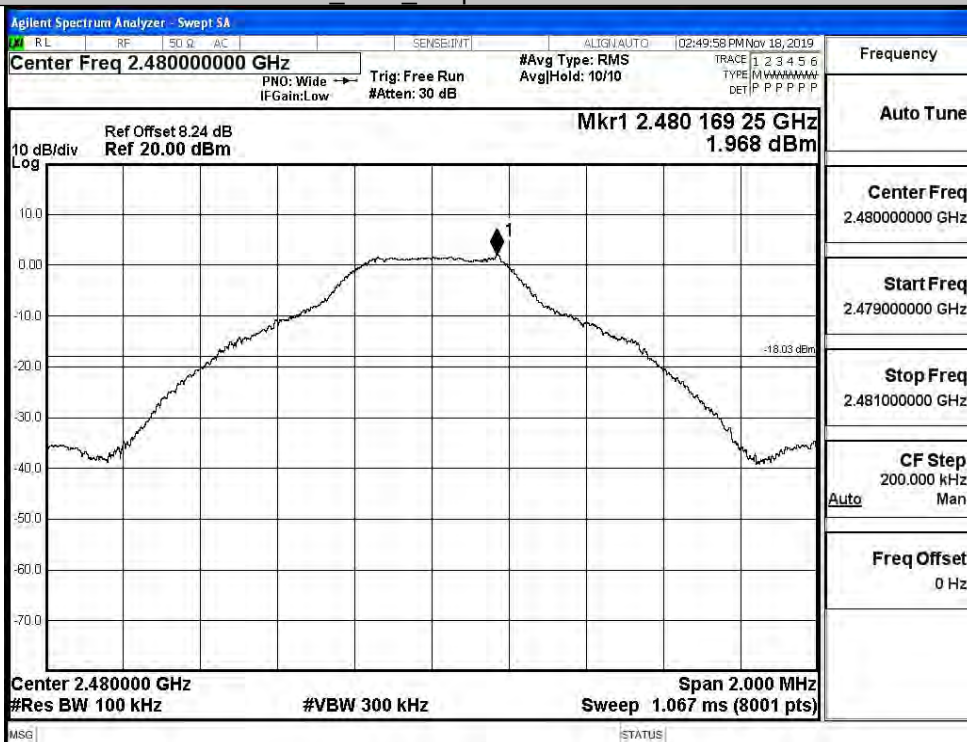


Puw

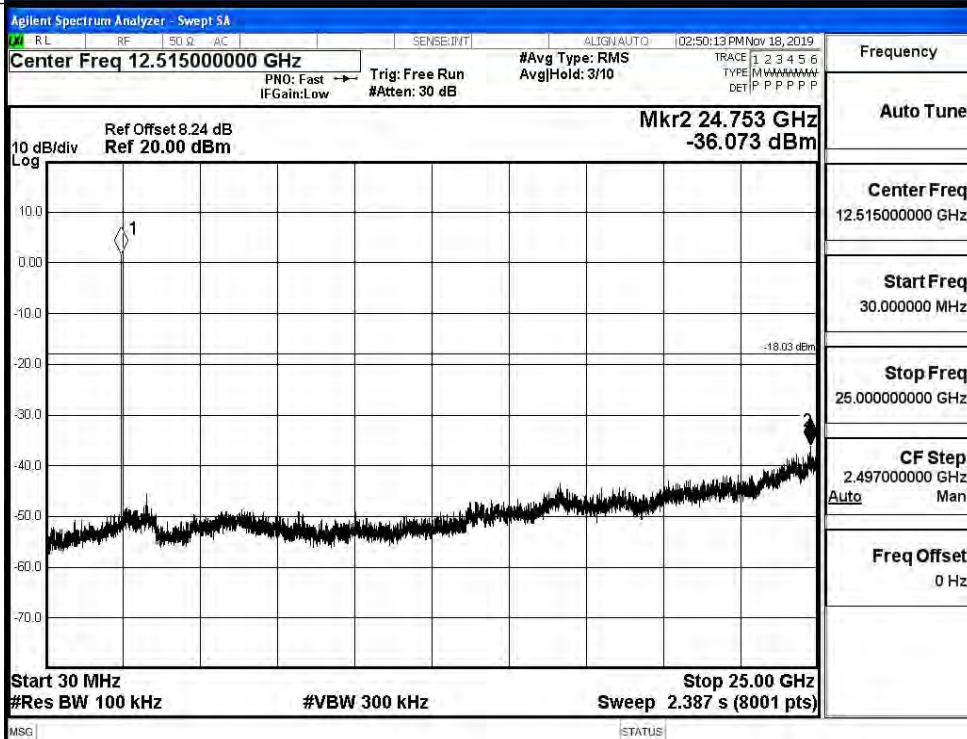


## GFSK HCH\_Graphs

Pref

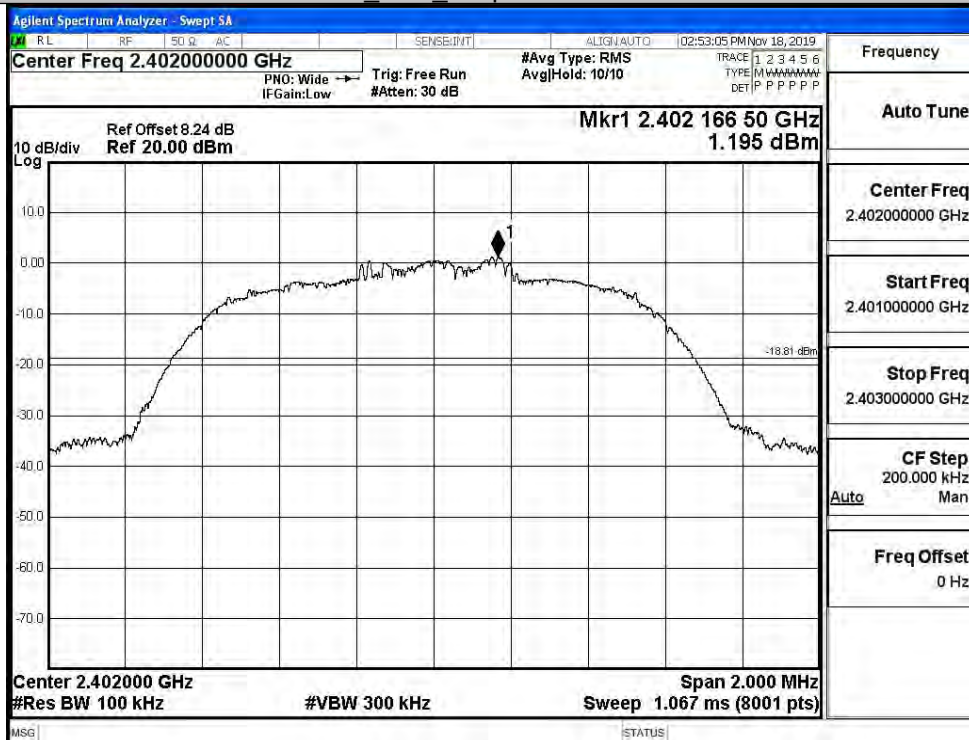


Puw

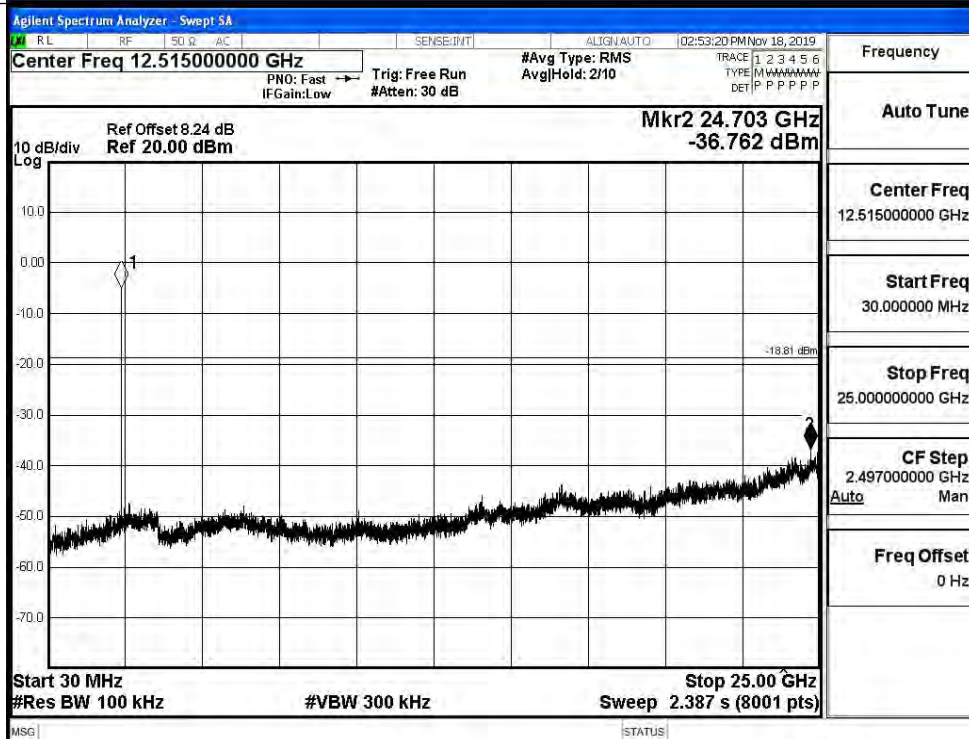


$\pi$ /4DQPSK LCH\_Graphs

Pref

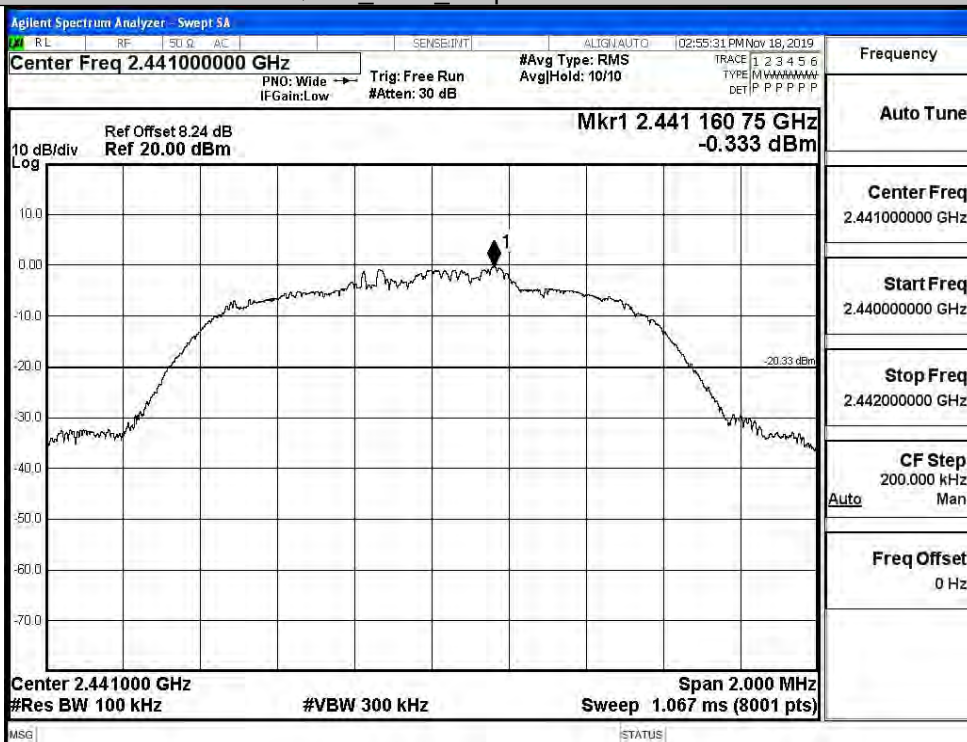


Puw

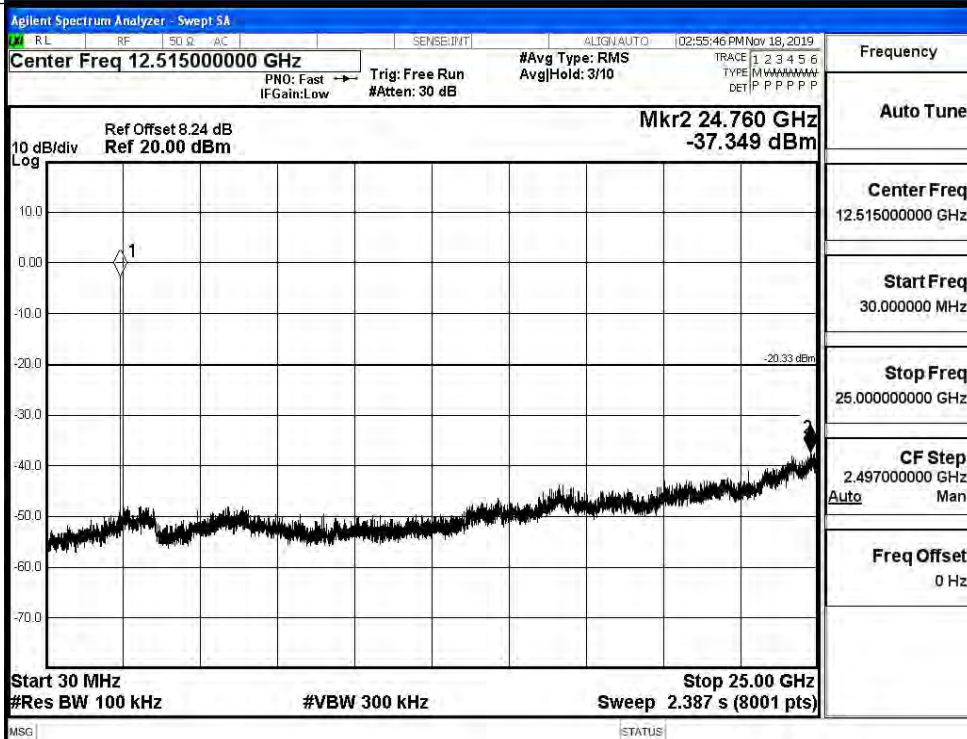


$\pi$ /4DQPSK\_MCH\_Graphs

Pref

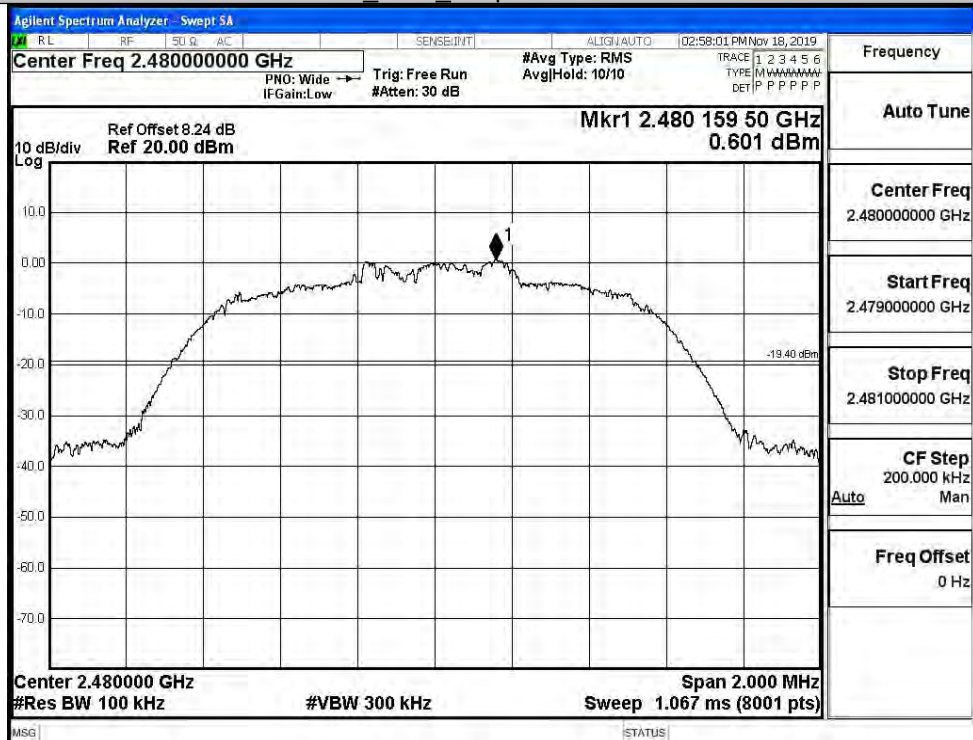


Puw

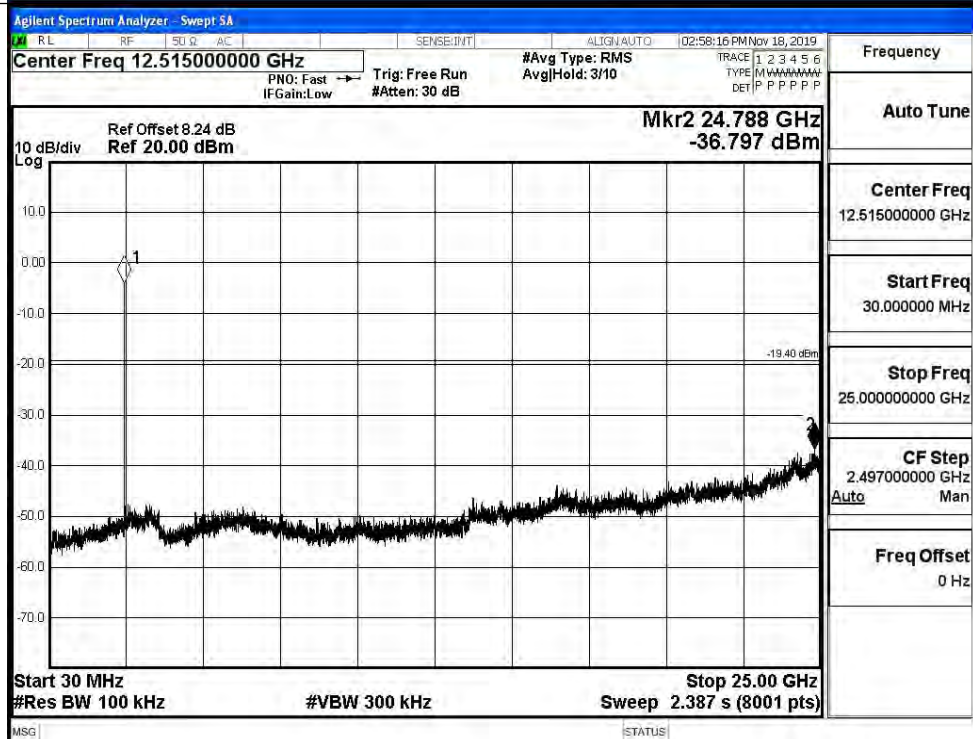


$\pi$ /4DQPSK HCH\_Graphs

Pref



Puw

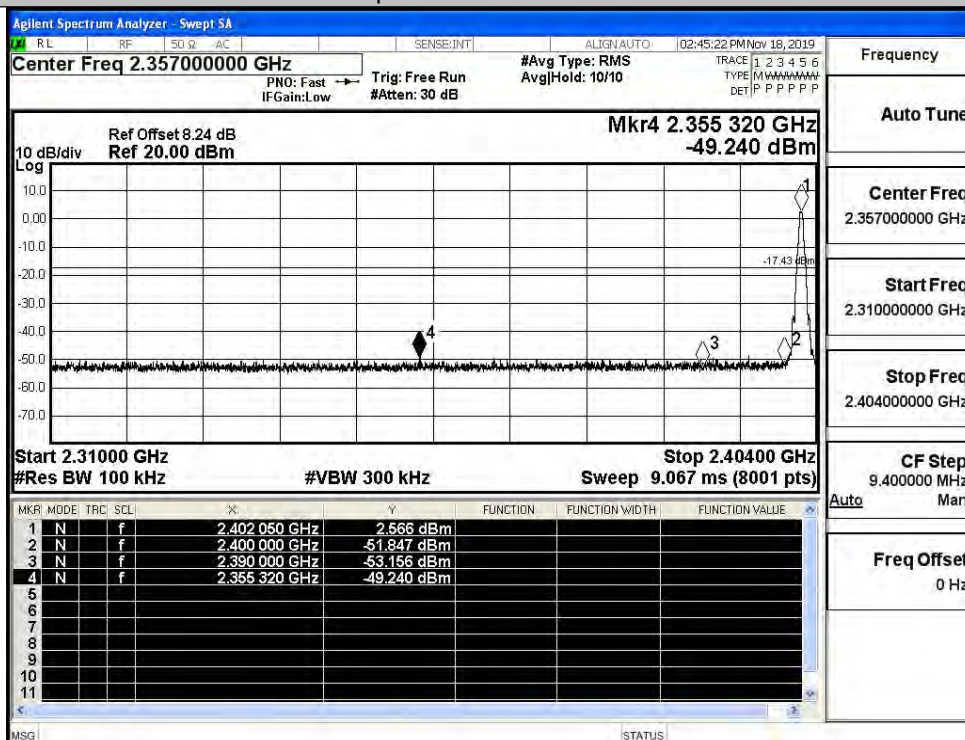


## A.7 Band-edge for RF Conducted Emissions

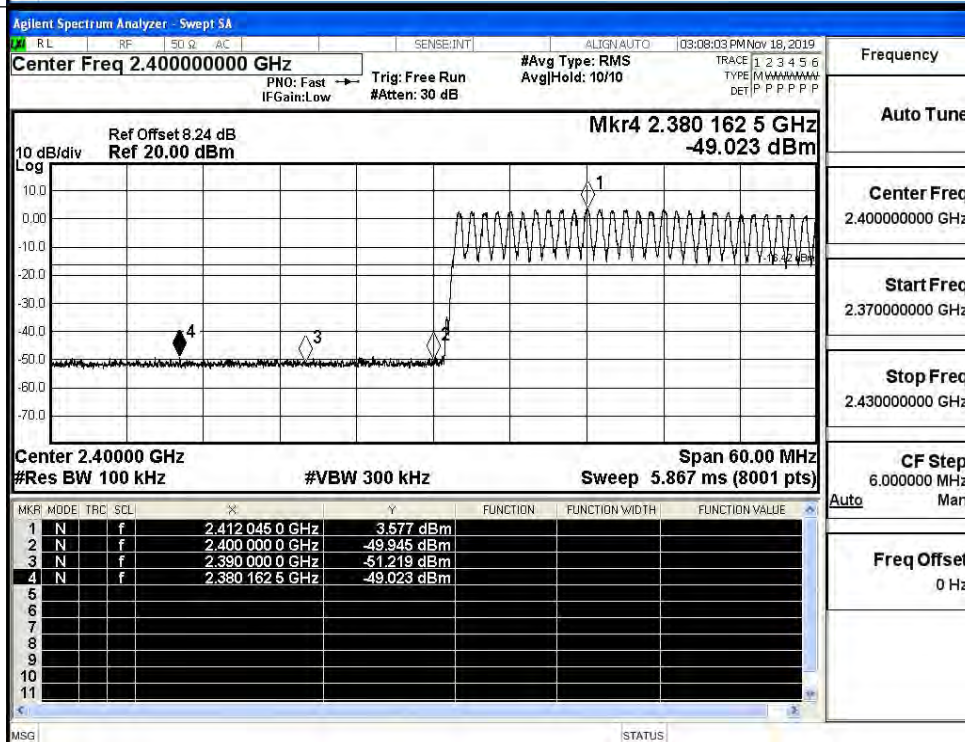
| Mode          | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | 2.566               | Off               | -49.240                  | -17.43      | PASS    |
|               |         |                         | 3.577               | On                | -49.023                  | -16.42      | PASS    |
|               | HCH     | 2480                    | 1.979               | Off               | -48.228                  | -18.02      | PASS    |
|               |         |                         | 3.317               | On                | -48.801                  | -16.68      | PASS    |
| $\pi$ /4DQPSK | LCH     | 2402                    | 1.327               | Off               | -49.371                  | -18.67      | PASS    |
|               |         |                         | 2.075               | On                | -48.456                  | -17.93      | PASS    |
|               | HCH     | 2480                    | 0.696               | Off               | -49.226                  | -19.3       | PASS    |
|               |         |                         | 1.733               | On                | -48.047                  | -18.27      | PASS    |

## Test Graphs

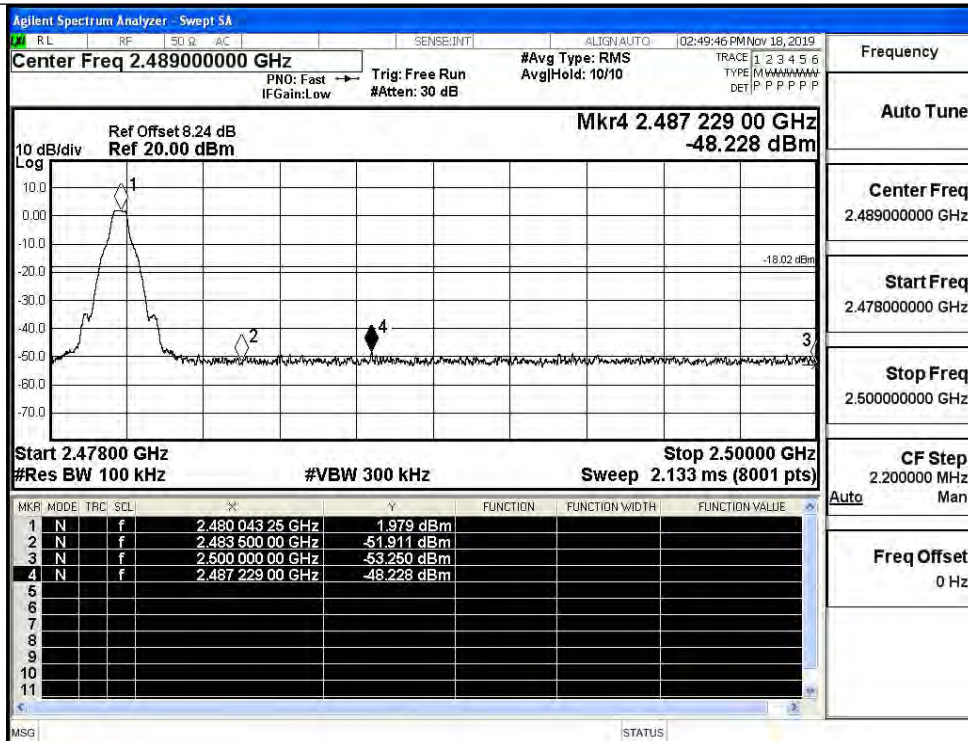
GFSK/LCH/No Hop



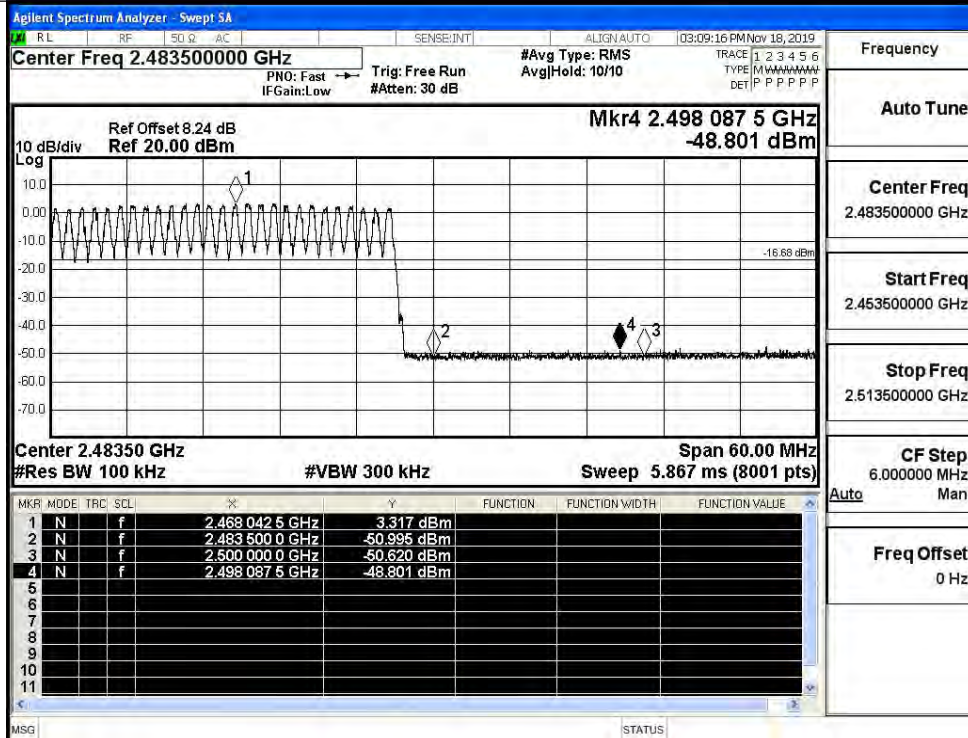
GFSK/LCH/Hop



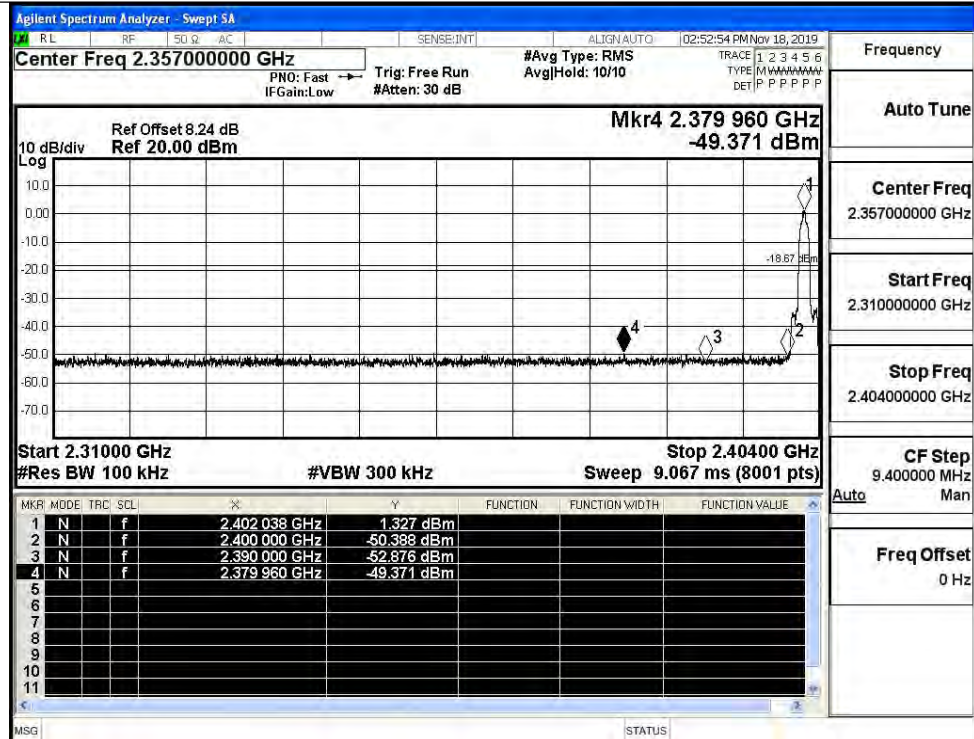
GFSK/HCH/No Hop



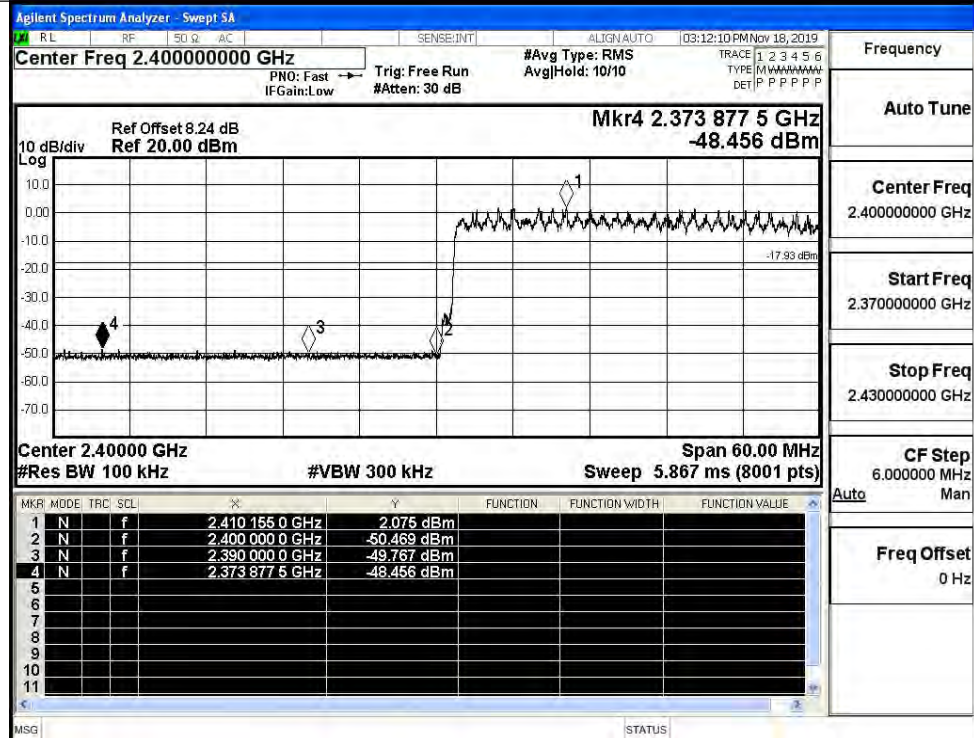
GFSK/HCH/Hop



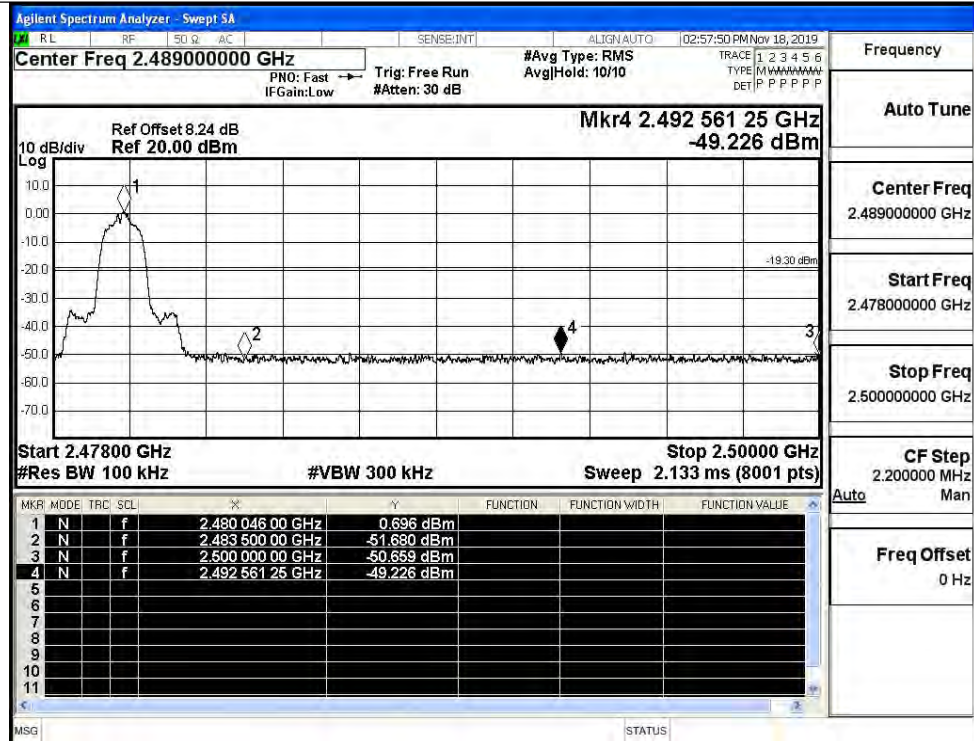
$\pi/4$ DQPSK/LCH/No  
Hop



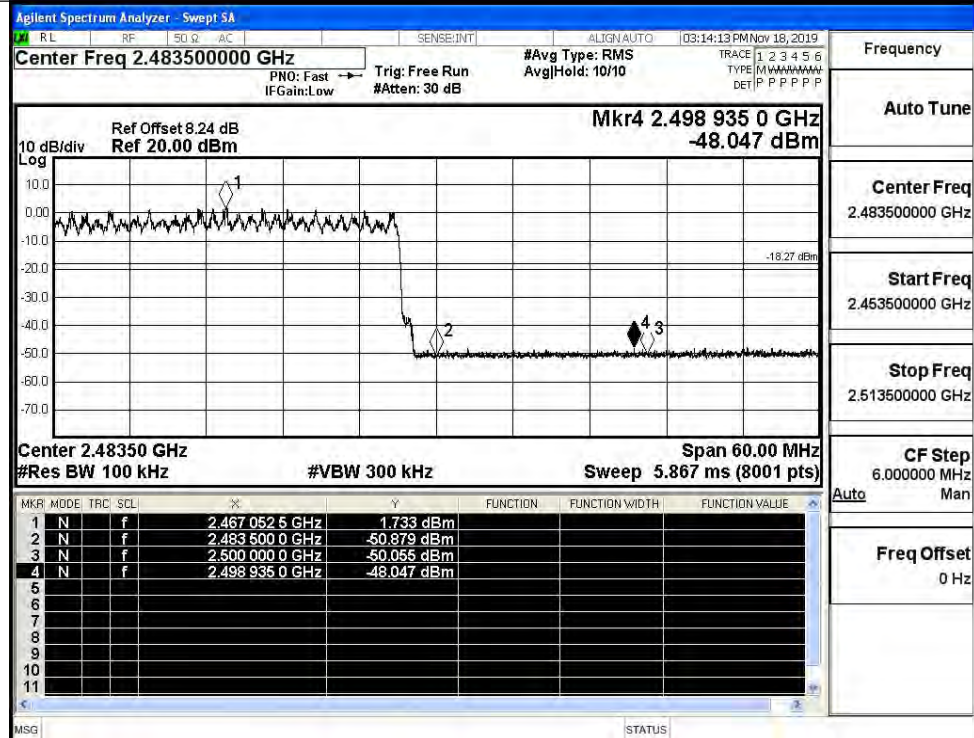
$\pi/4$ DQPSK/LCH/Hop



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



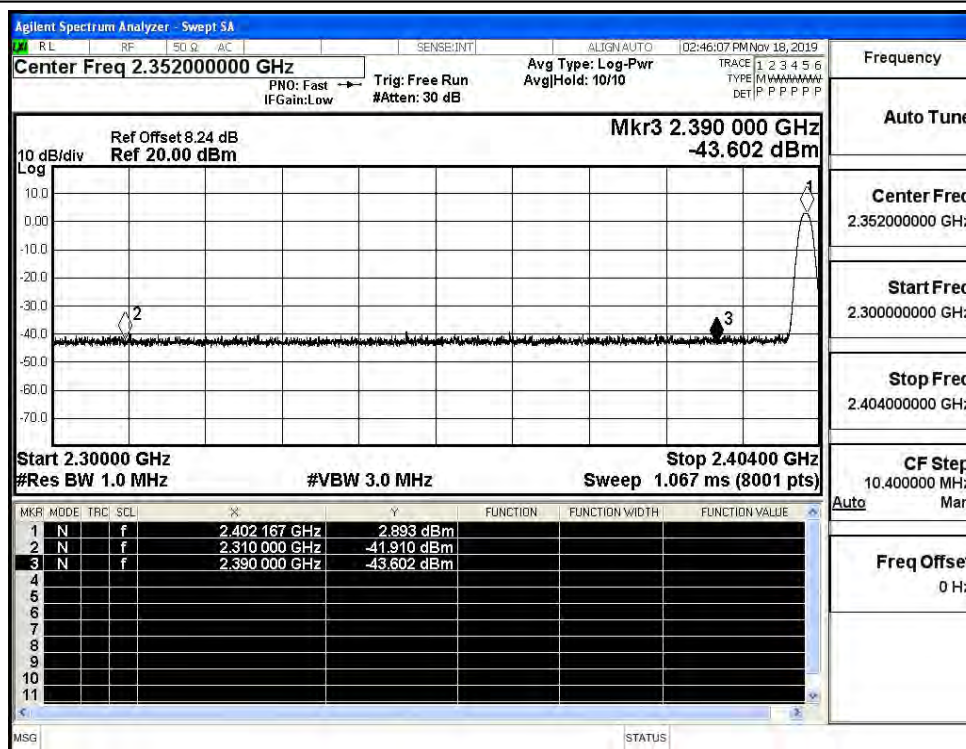
$\pi/4$ DQPSK/HCH/Hop



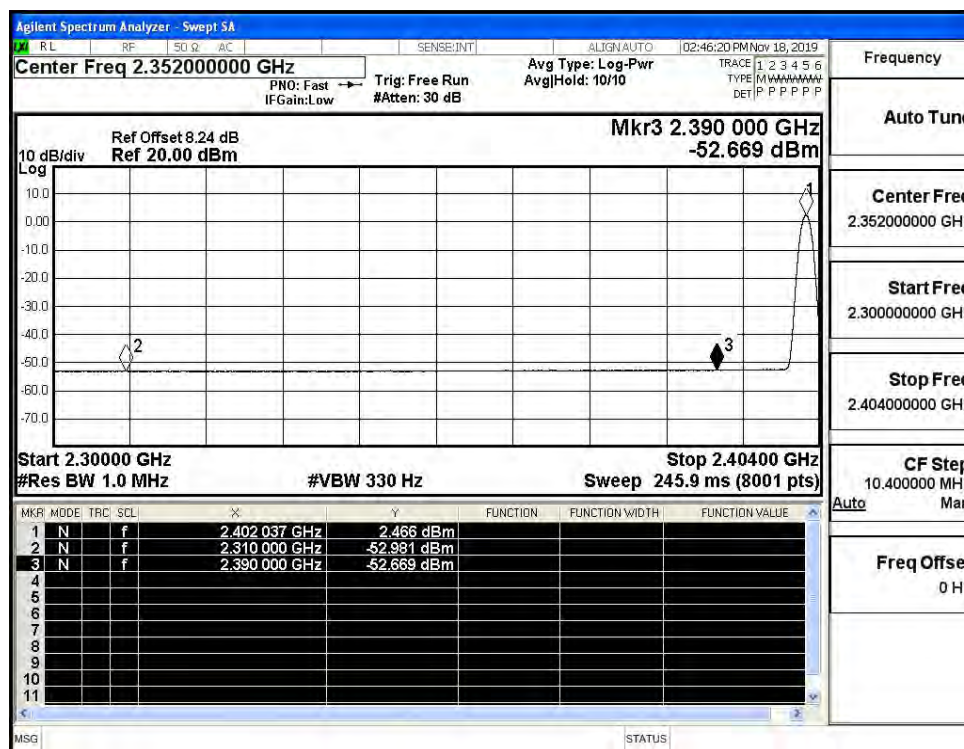
## A.8 Restrict-band band-edge measurements

| Test Mode     | Hopping | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0 | -41.91      | 2.0  | 0             | 53.35      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -52.98      | 2.0  | 0             | 42.28      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -43.60      | 2.0  | 0             | 51.66      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.67      | 2.0  | 0             | 42.59      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -42.48      | 2.0  | 0             | 52.77      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.25      | 2.0  | 0             | 43.01      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -40.78      | 2.0  | 0             | 54.48      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.08      | 2.0  | 0             | 43.18      | AV       | 54             | PASS    |
| $\pi/4$ DQPSK | Off     | 2310.0 | -42.33      | 2.0  | 0             | 52.93      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.01      | 2.0  | 0             | 42.25      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -43.15      | 2.0  | 0             | 52.11      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.69      | 2.0  | 0             | 42.57      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -42.03      | 2.0  | 0             | 53.23      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.13      | 2.0  | 0             | 43.12      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.27      | 2.0  | 0             | 51.99      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.09      | 2.0  | 0             | 43.16      | AV       | 54             | PASS    |

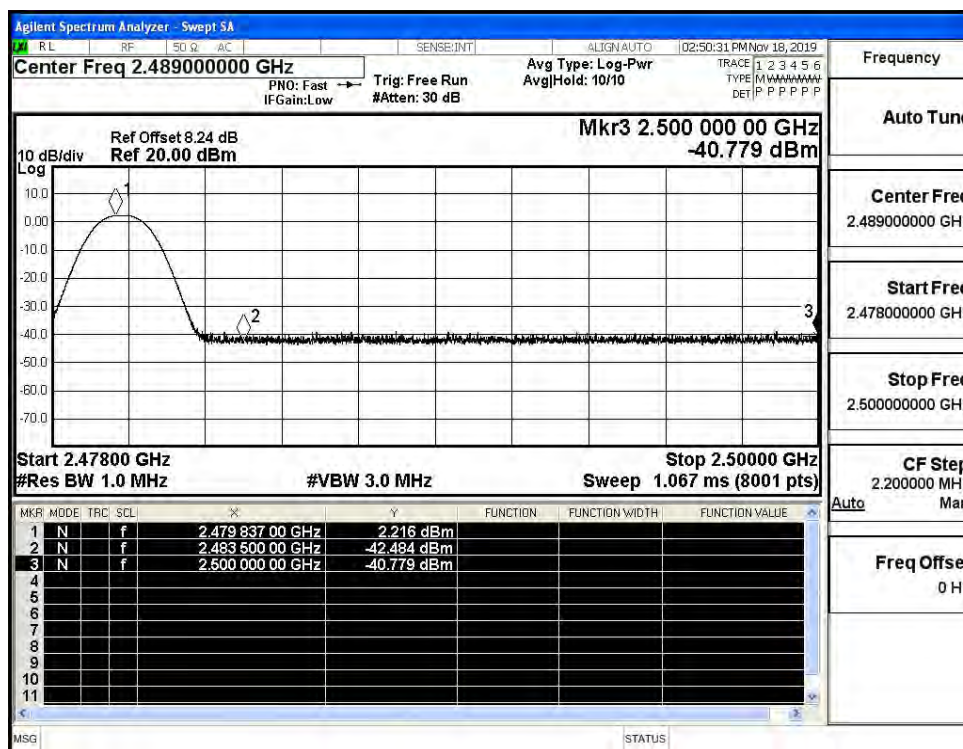
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



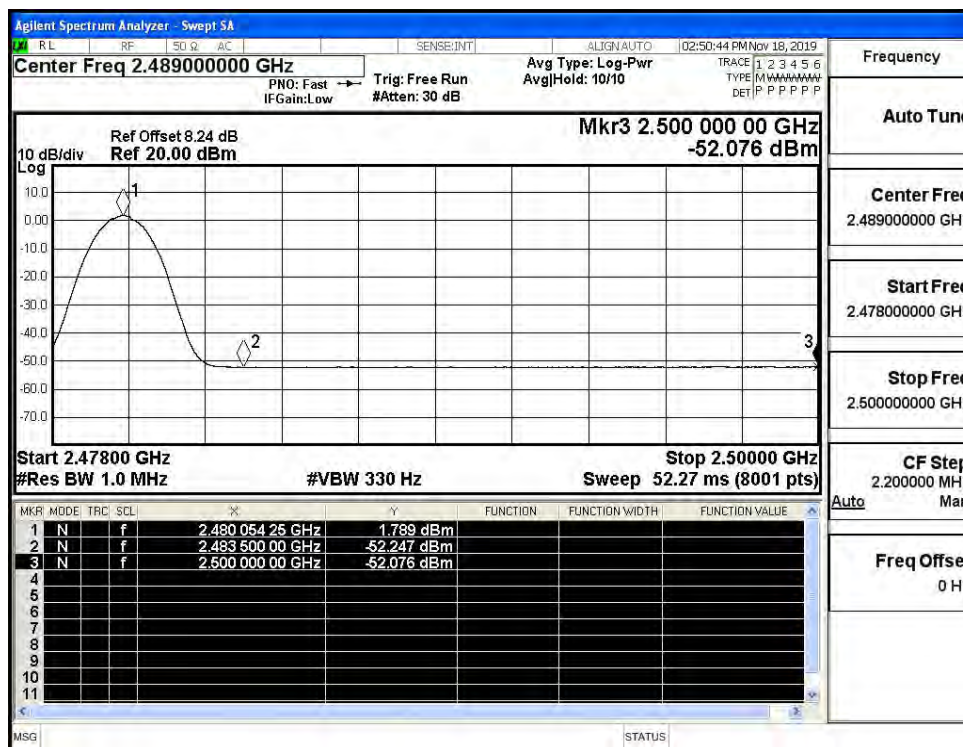
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)

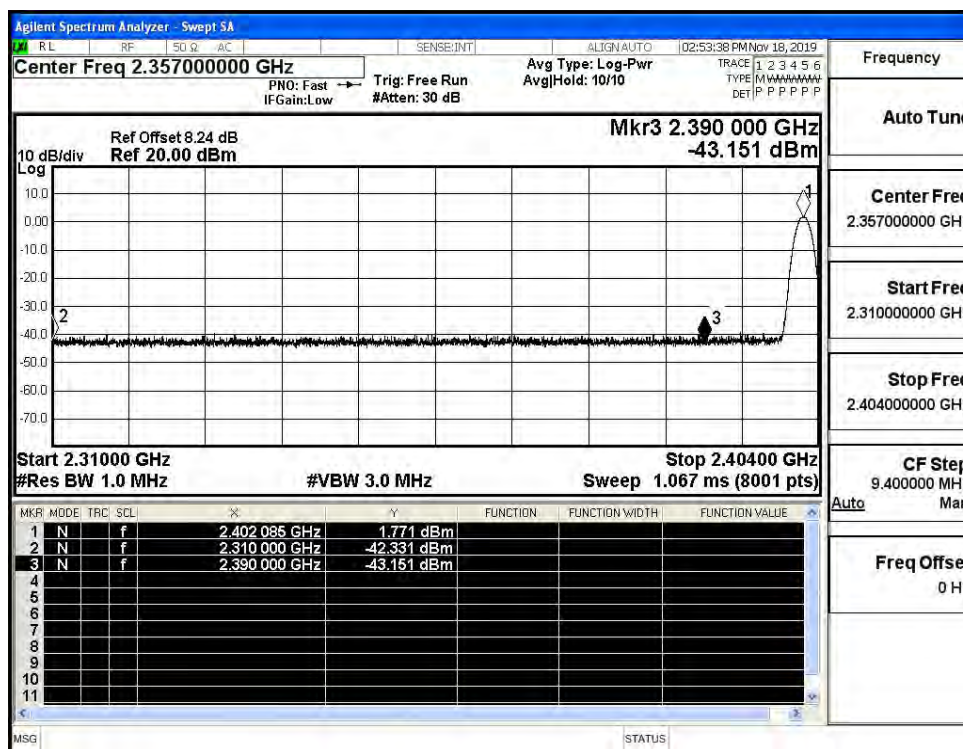
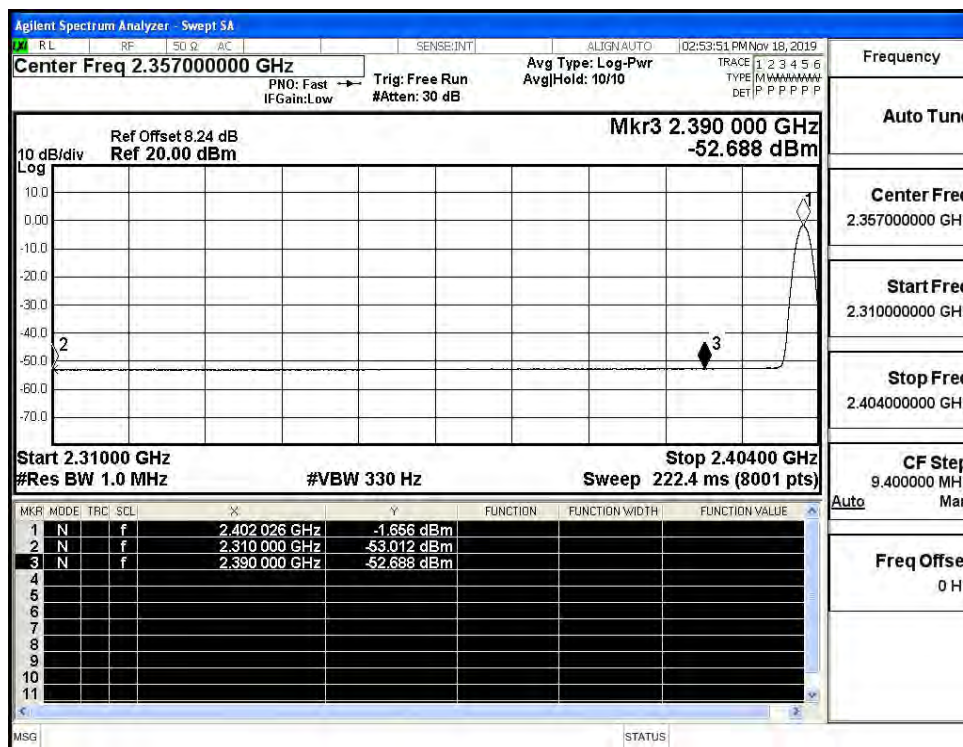


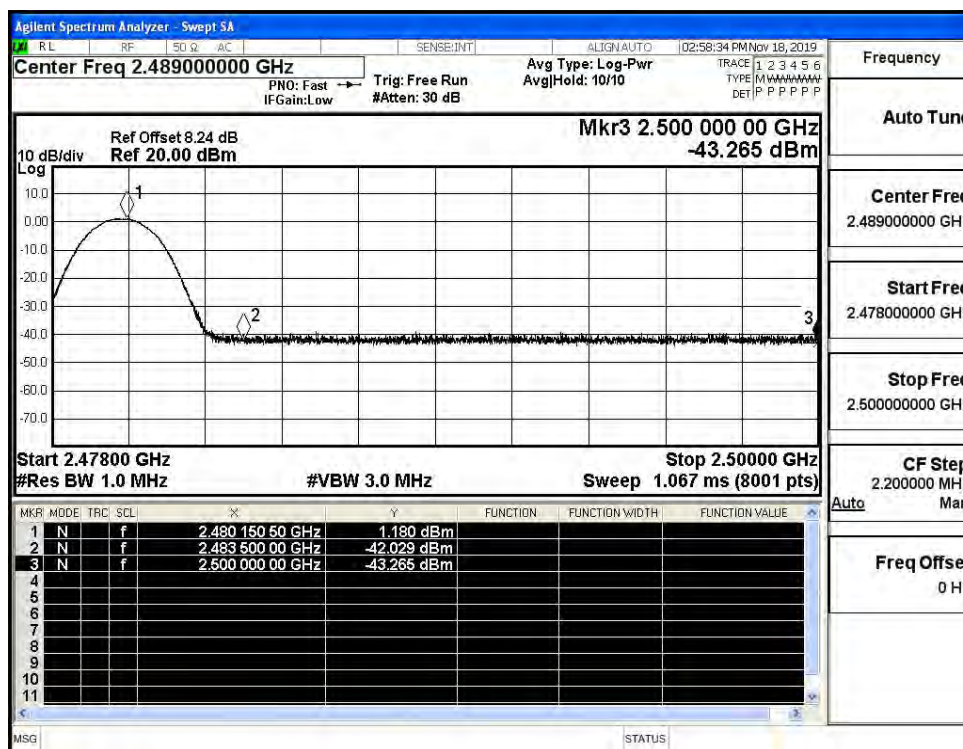
## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_PEAK (High Channel)



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