

## Appendix A

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

Product Name: Wireless Bluetooth Earbuds

Trade Mark: DESTEK

Test Model: T1

#### Environmental Conditions

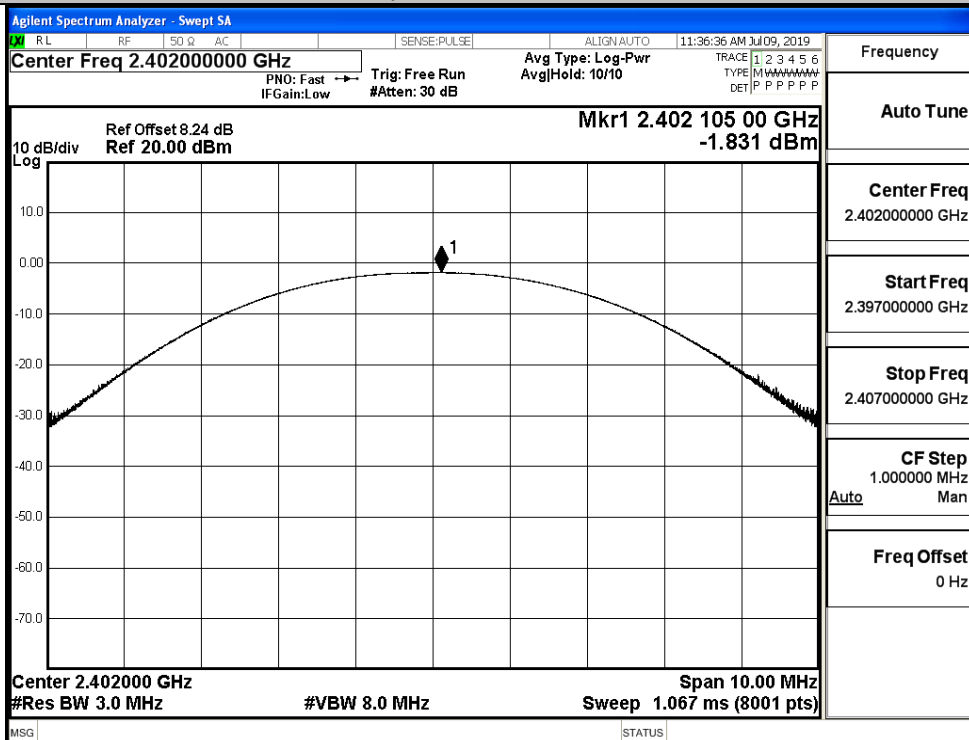
|                    |             |
|--------------------|-------------|
| Temperature:       | 24.6 ° C    |
| Relative Humidity: | 53.7%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | JERRY ZENG  |
| Supervised by:     | Wang.Chuang |

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

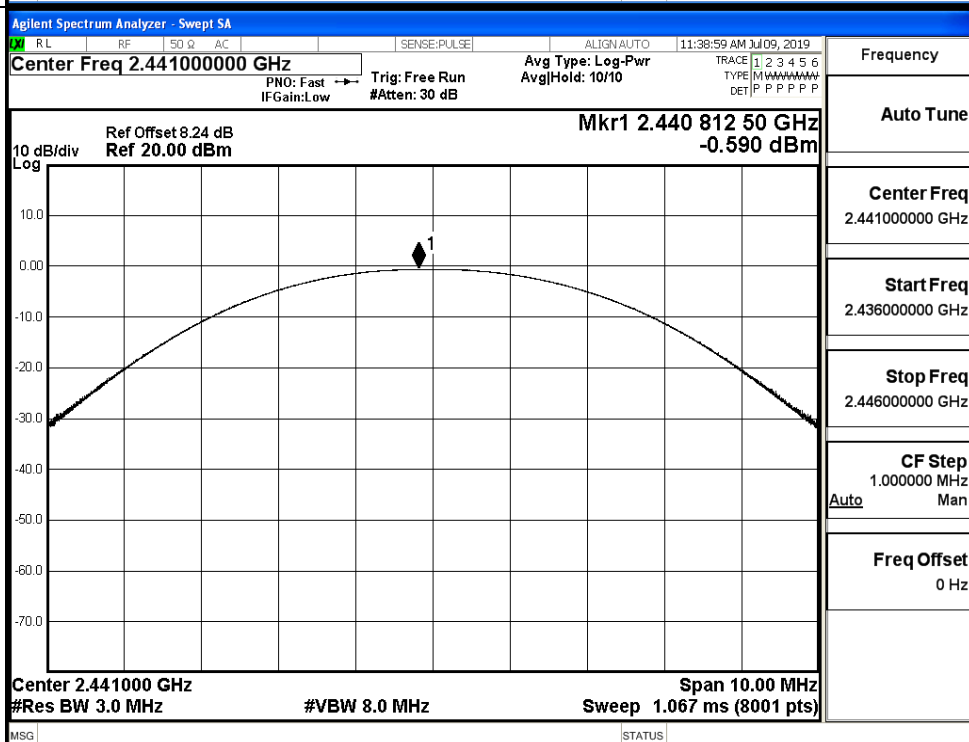
| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | -1.831                          | 30          | PASS    |
|               | MCH      | -0.590                          | 30          | PASS    |
|               | HCH      | -1.428                          | 30          | PASS    |
| $\pi/4$ DQPSK | LCH      | -2.369                          | 21          | PASS    |
|               | MCH      | -1.313                          | 21          | PASS    |
|               | HCH      | -2.044                          | 21          | PASS    |
| 8DPSK         | LCH      | -2.330                          | 21          | PASS    |
|               | MCH      | -1.340                          | 21          | PASS    |
|               | HCH      | -2.158                          | 21          | PASS    |

## Test Graphs

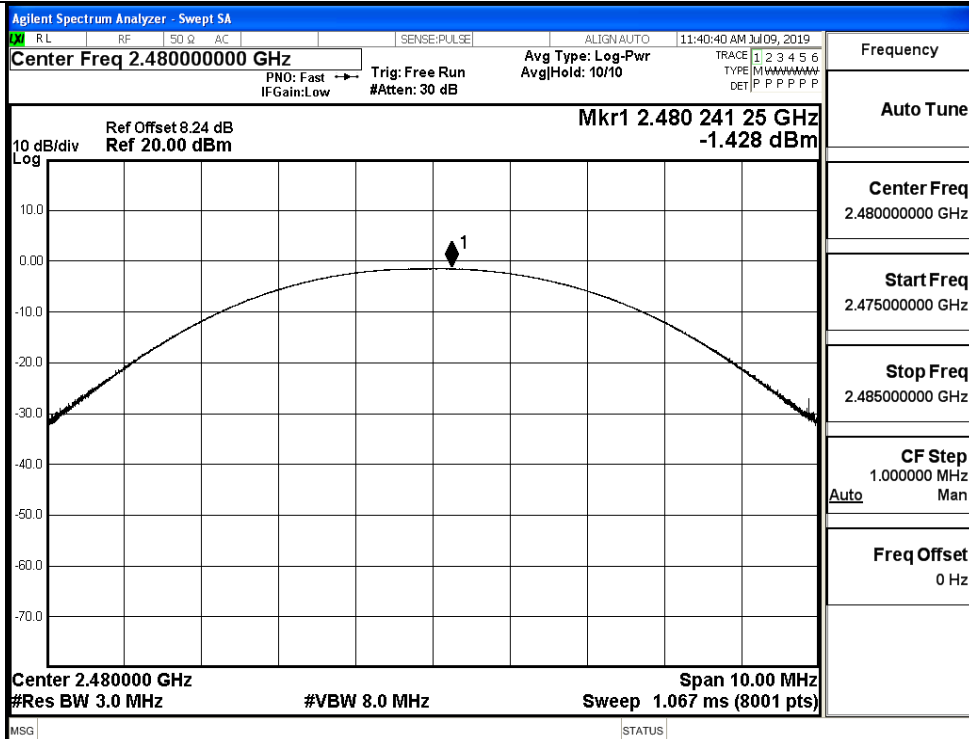
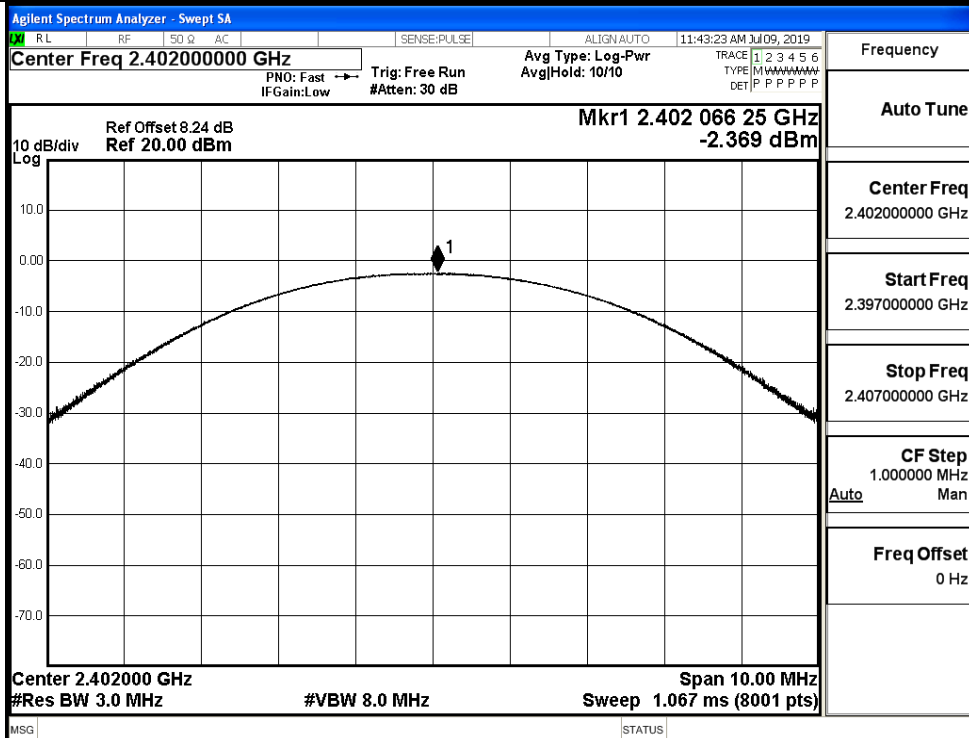
GFSK/LCH

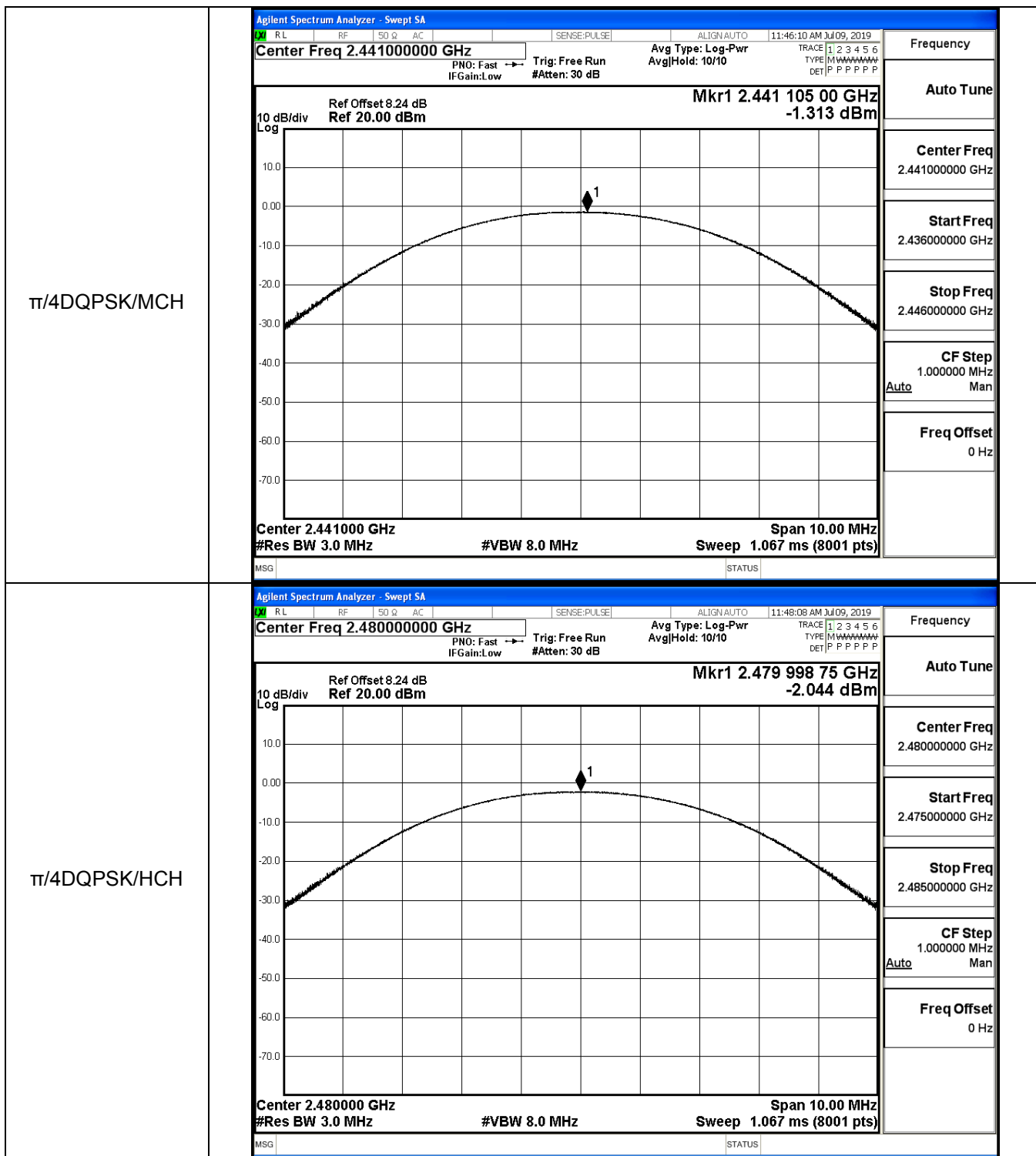


GFSK/MCH

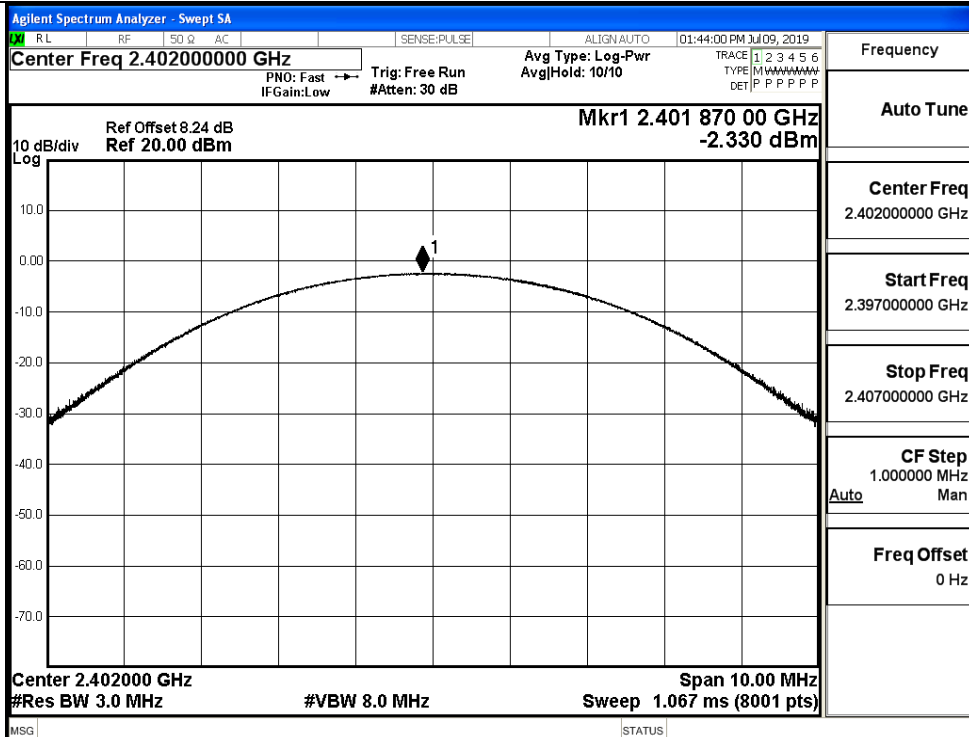


GFSK/HCH

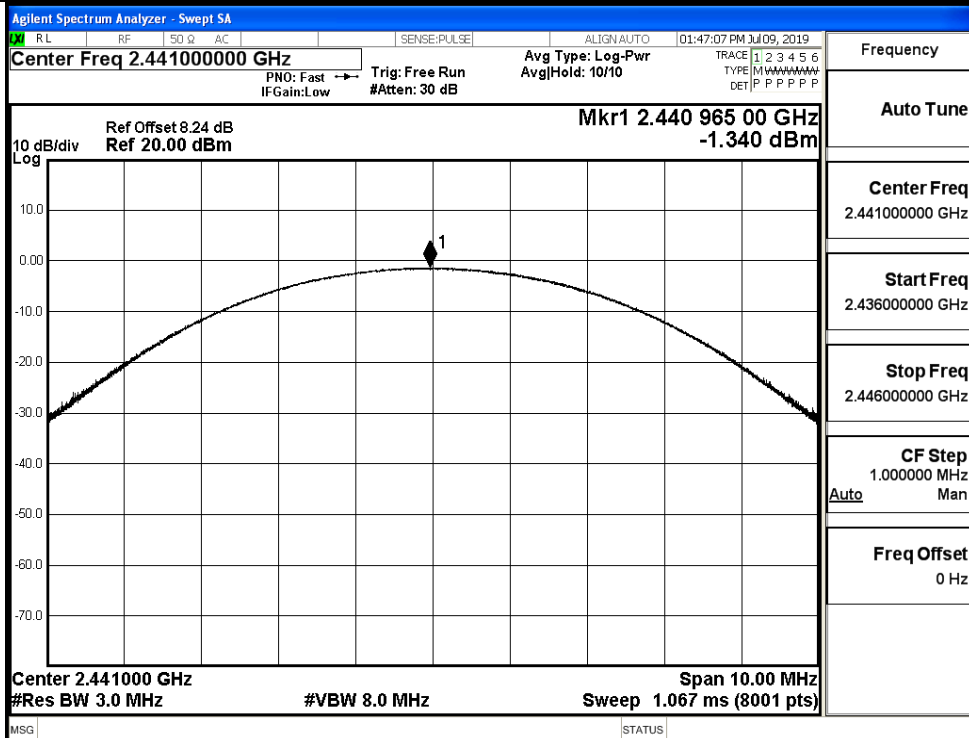
 $\pi$ /4DQPSK/LCH



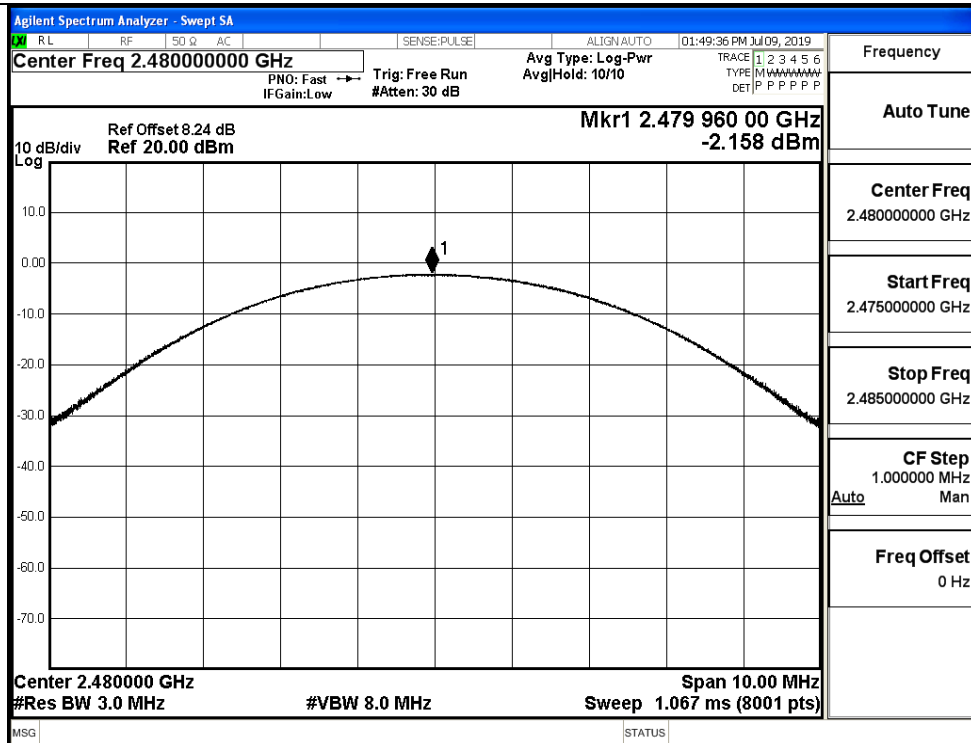
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

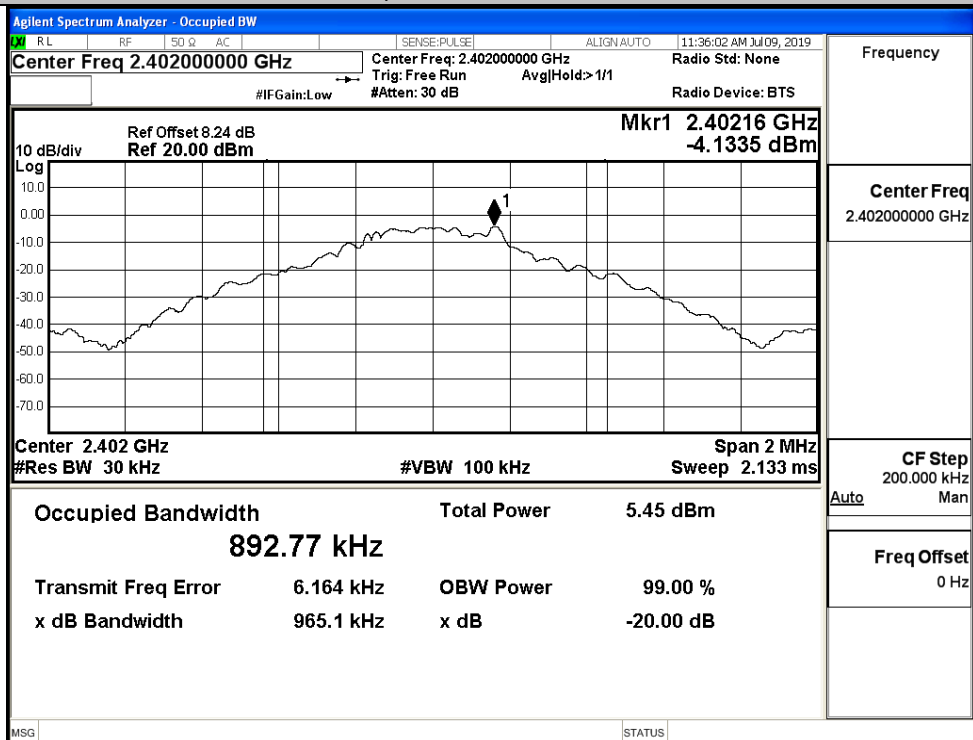


## A.2 20dB Bandwidth

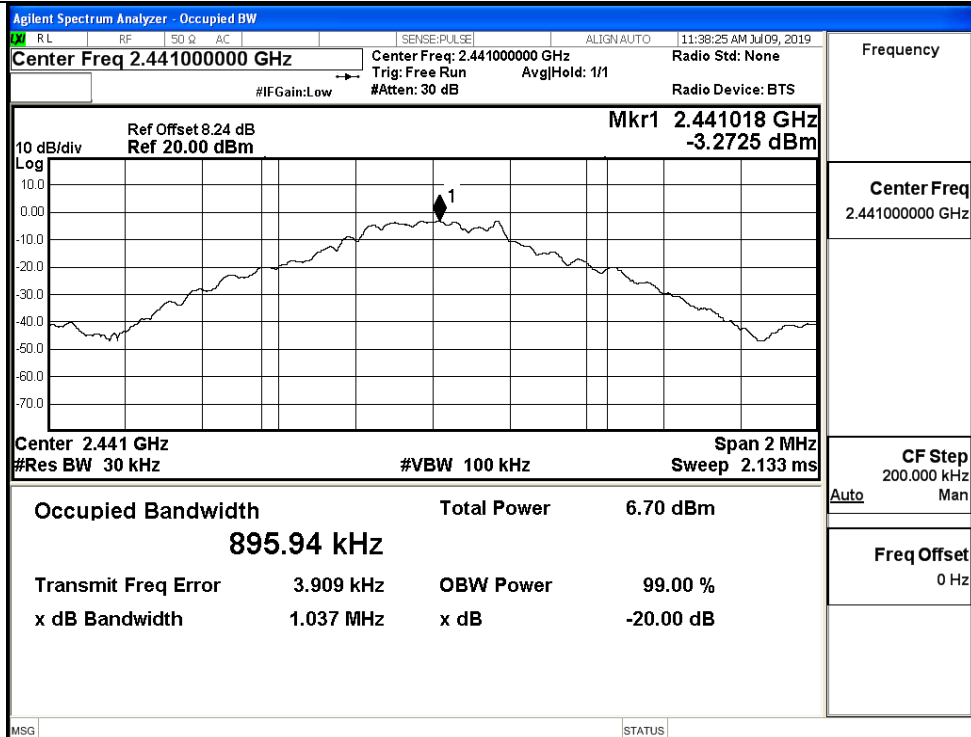
| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.9651               | Not Specified | PASS    |
|               | MCH      | 1.037                | Not Specified | PASS    |
|               | HCH      | 1.033                | Not Specified | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.293                | Not Specified | PASS    |
|               | MCH      | 1.314                | Not Specified | PASS    |
|               | HCH      | 1.291                | Not Specified | PASS    |
| 8DPSK         | LCH      | 1.297                | Not Specified | PASS    |
|               | MCH      | 1.304                | Not Specified | PASS    |
|               | HCH      | 1.296                | Not Specified | PASS    |

## Test Graphs

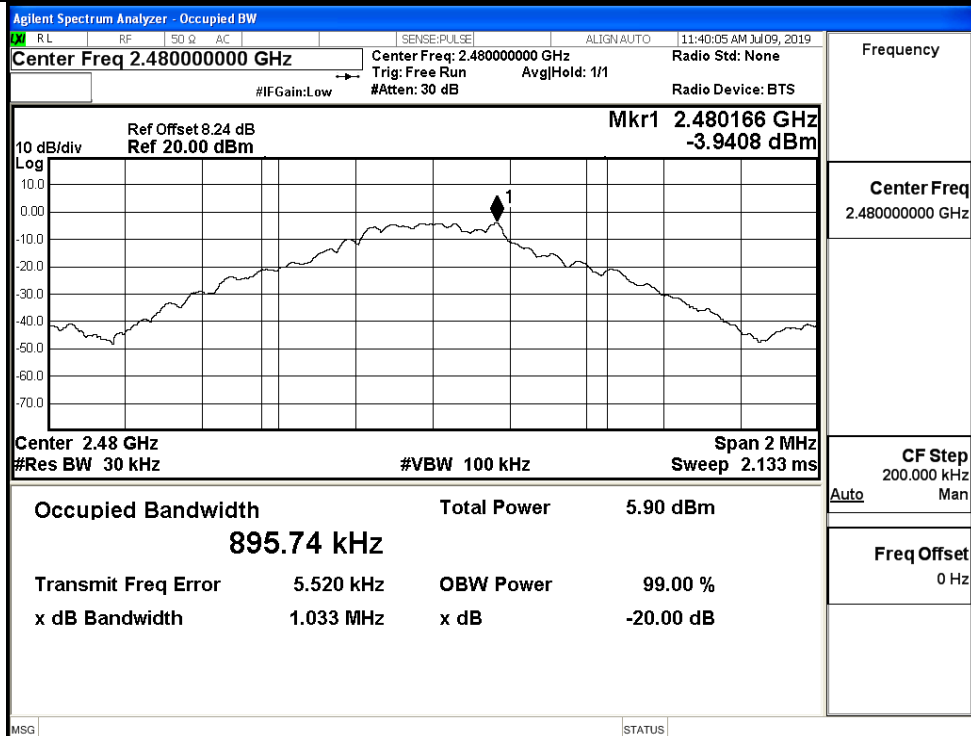
GFSK/LCH

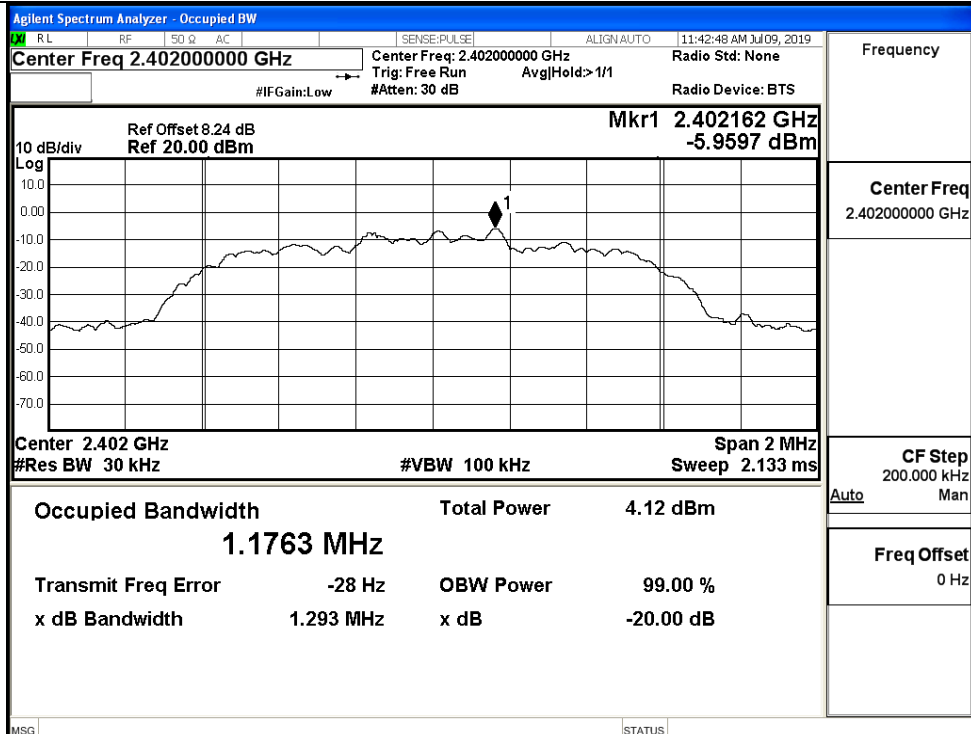
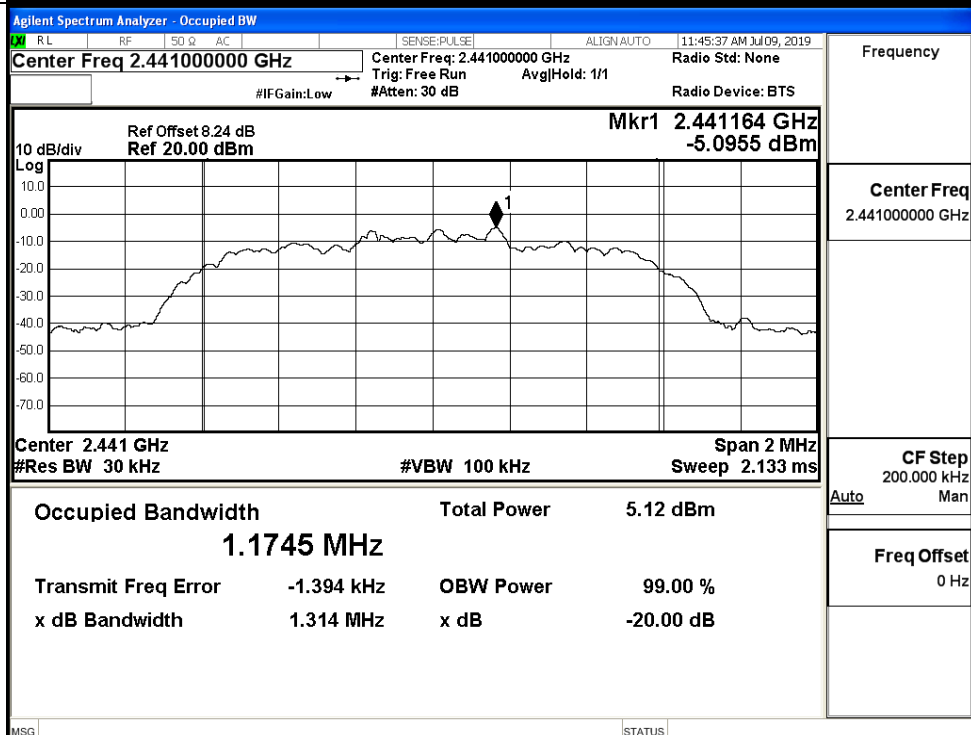


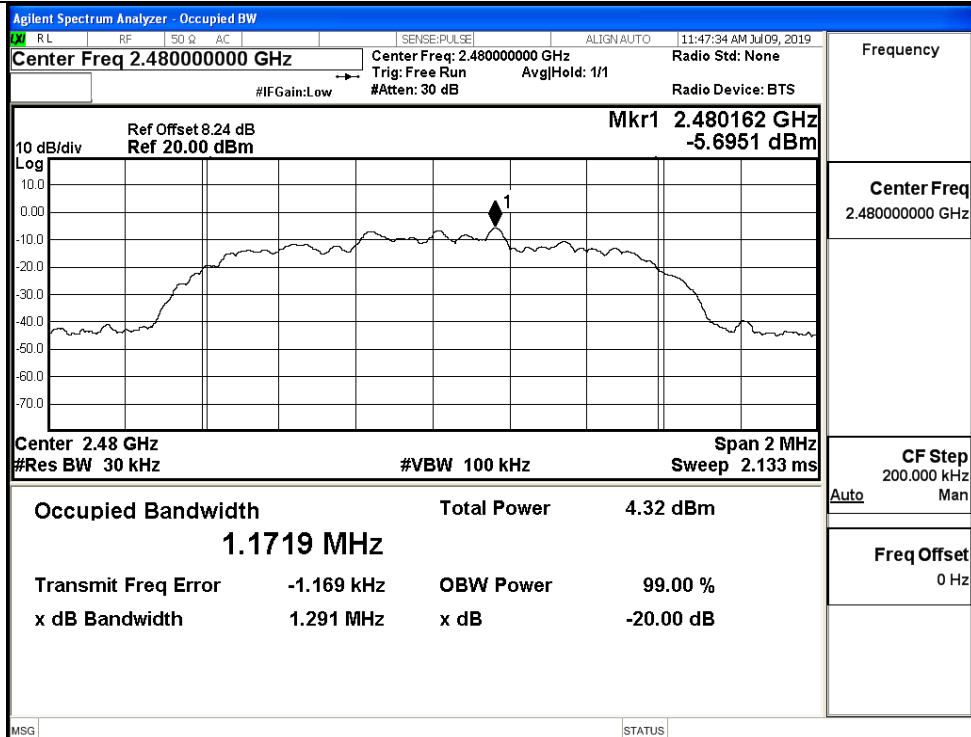
GFSK/MCH



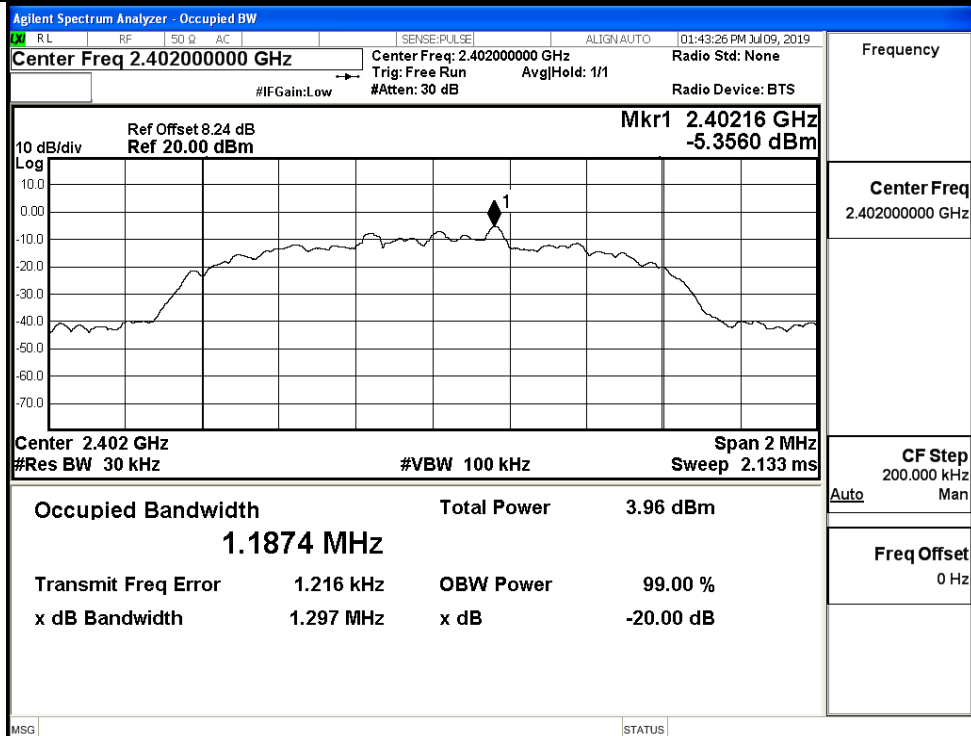
GFSK/HCH



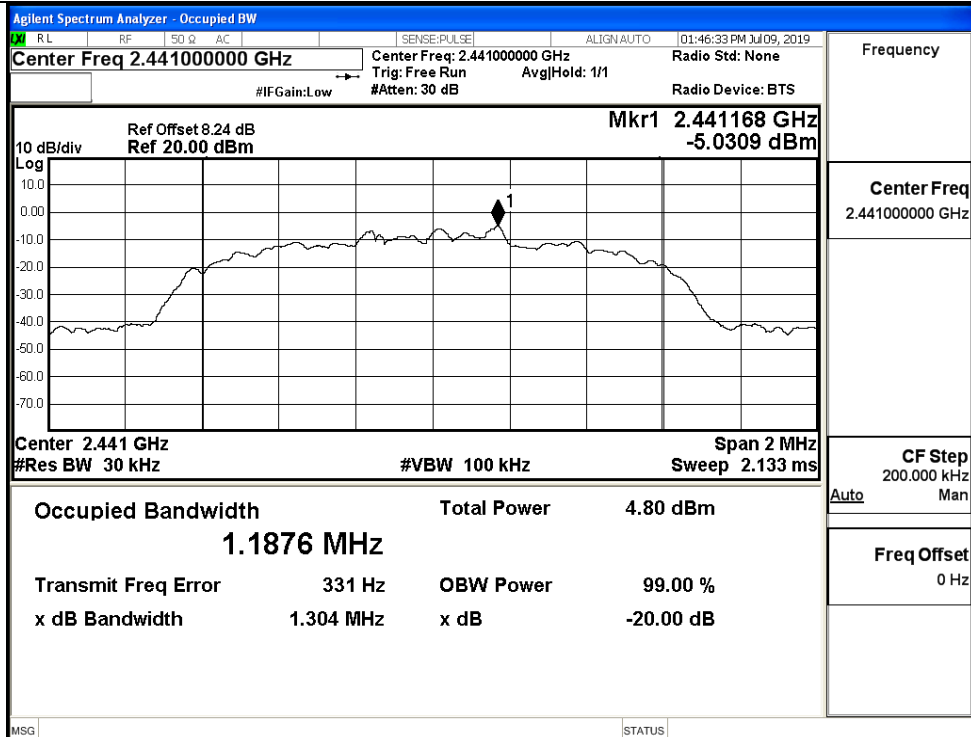
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

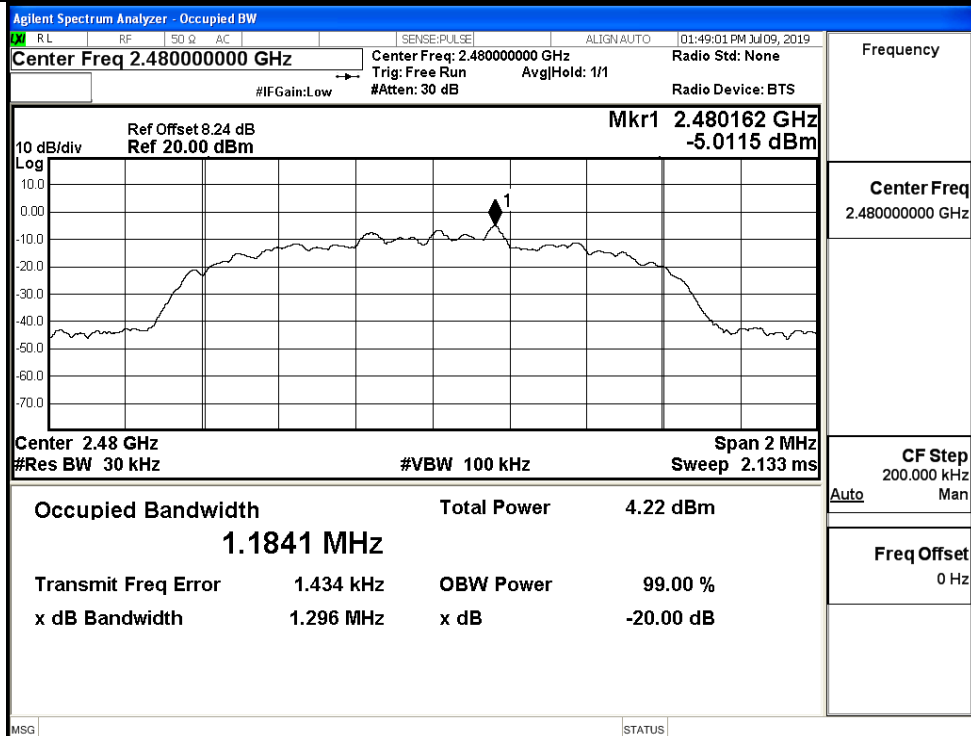
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

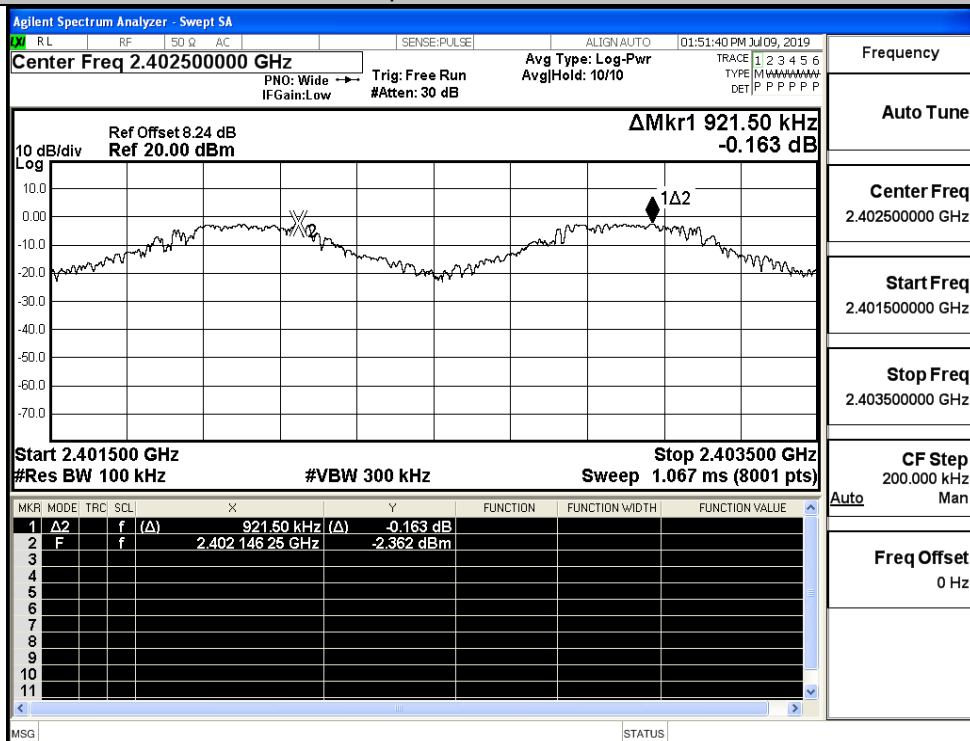


### A.3 Carrier Frequency Separation

| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | LCH      | 0.922                              | 0.691       | PASS    |
|               | MCH      | 0.836                              | 0.691       | PASS    |
|               | HCH      | 0.934                              | 0.691       | PASS    |
| $\pi/4$ DQPSK | LCH      | 0.972                              | 0.876       | PASS    |
|               | MCH      | 1.112                              | 0.876       | PASS    |
|               | HCH      | 0.668                              | 0.876       | PASS    |
| 8DPSK         | LCH      | 1.120                              | 0.869       | PASS    |
|               | MCH      | 1.044                              | 0.869       | PASS    |
|               | HCH      | 1.188                              | 0.869       | PASS    |

#### Test Graphs

GFSK/LCH

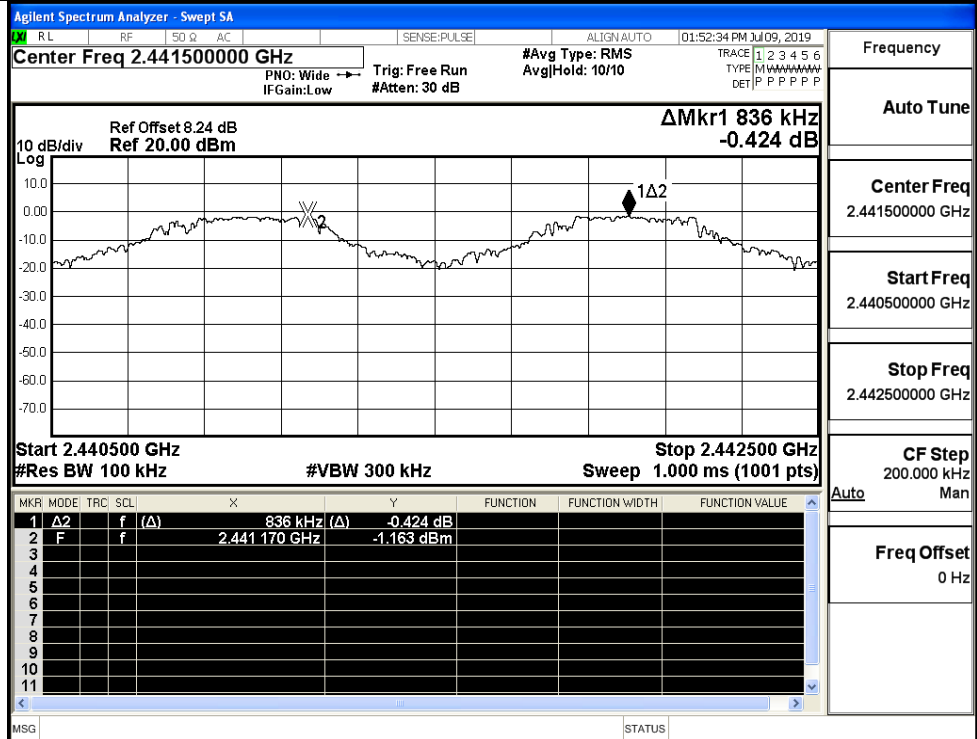


Frequency

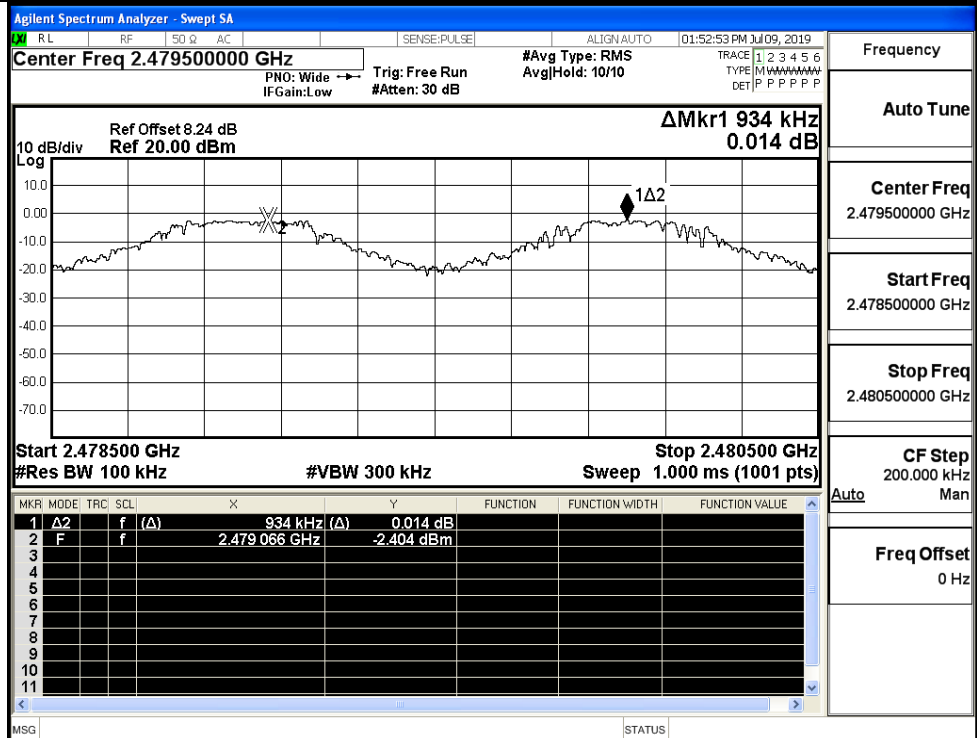
Auto Tune

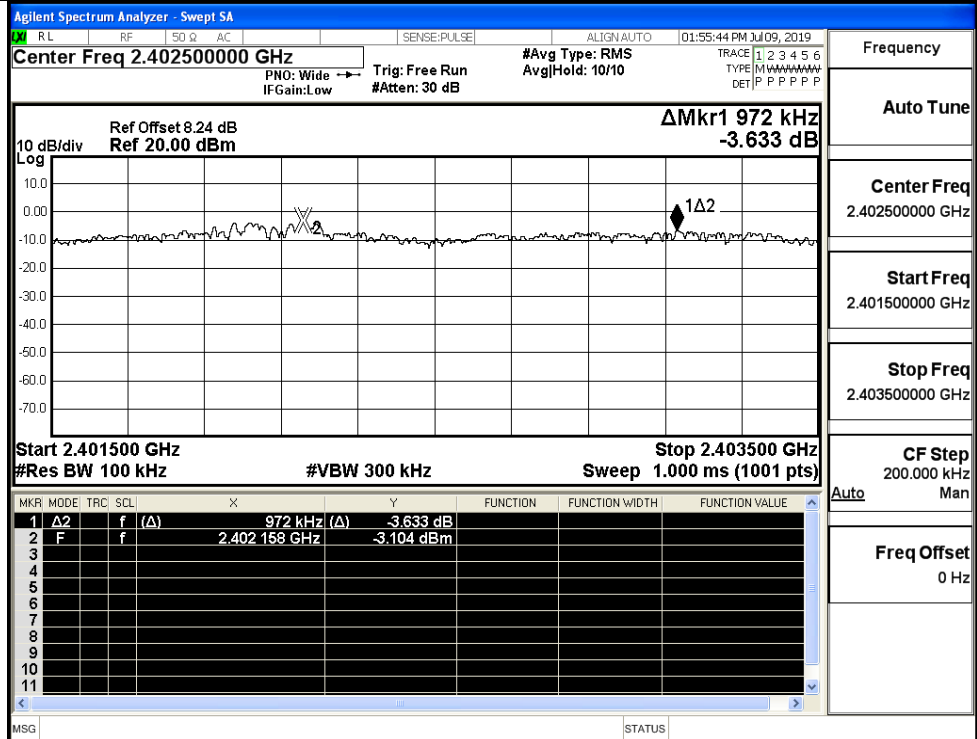
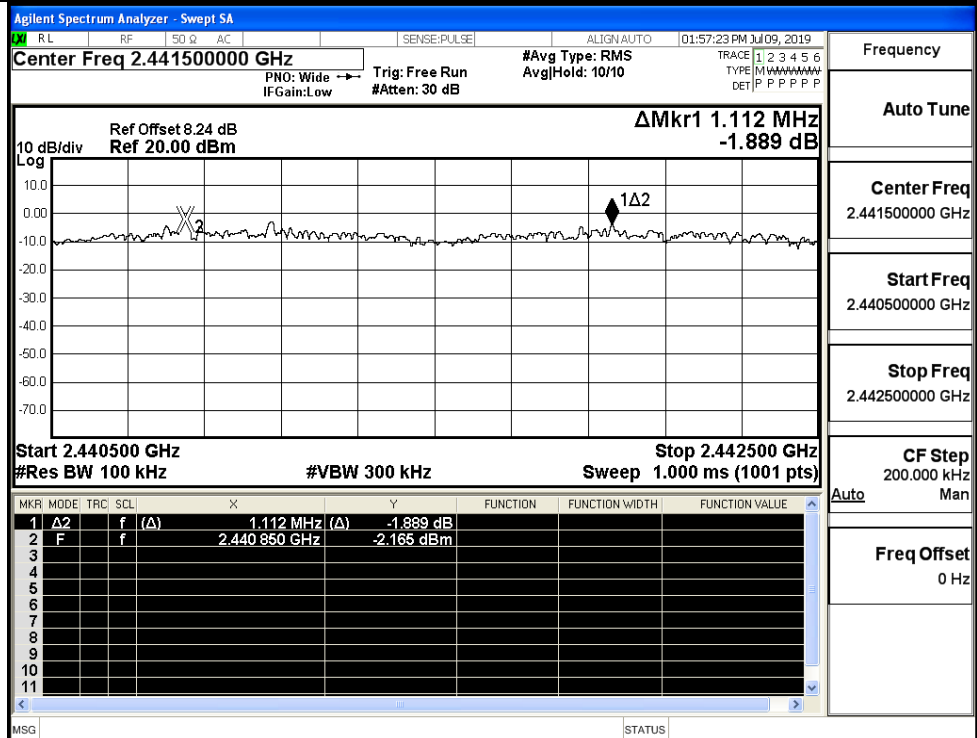
Center Freq  
2.402500000 GHzStart Freq  
2.401500000 GHzStop Freq  
2.403500000 GHzCF Step  
200.000 kHz  
ManFreq Offset  
0 Hz

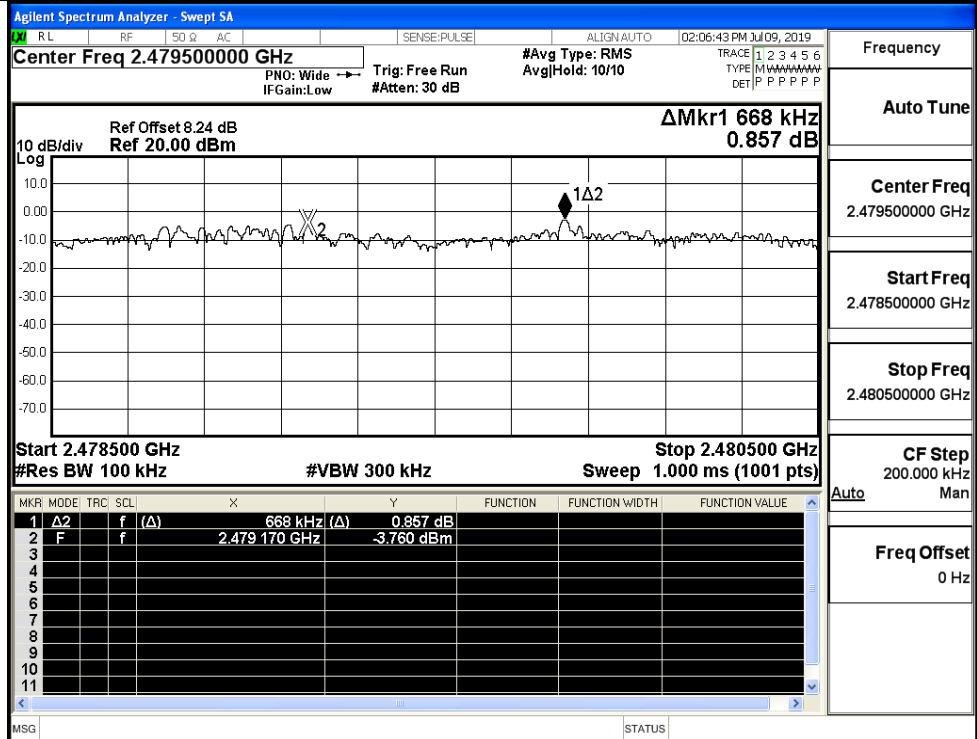
GFSK/MCH



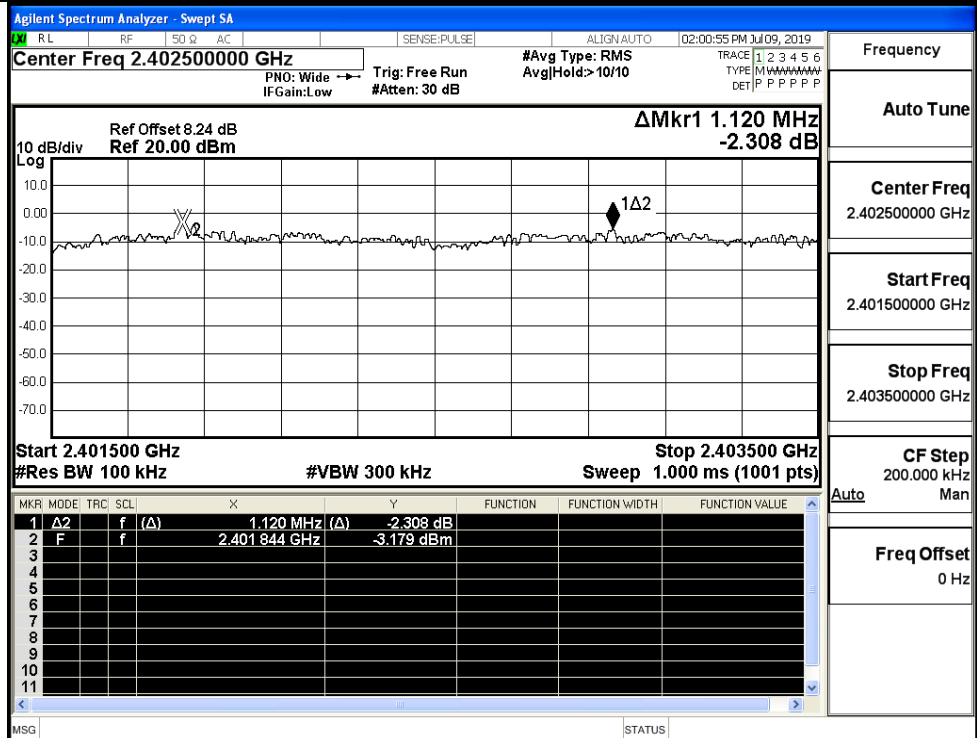
GFSK/HCH



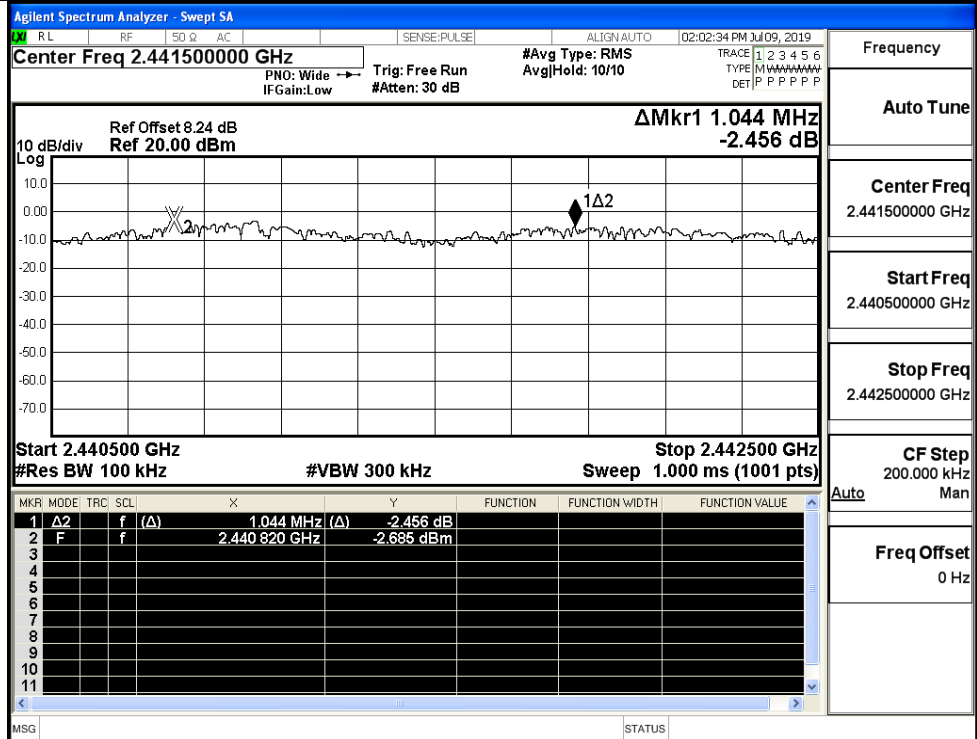
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

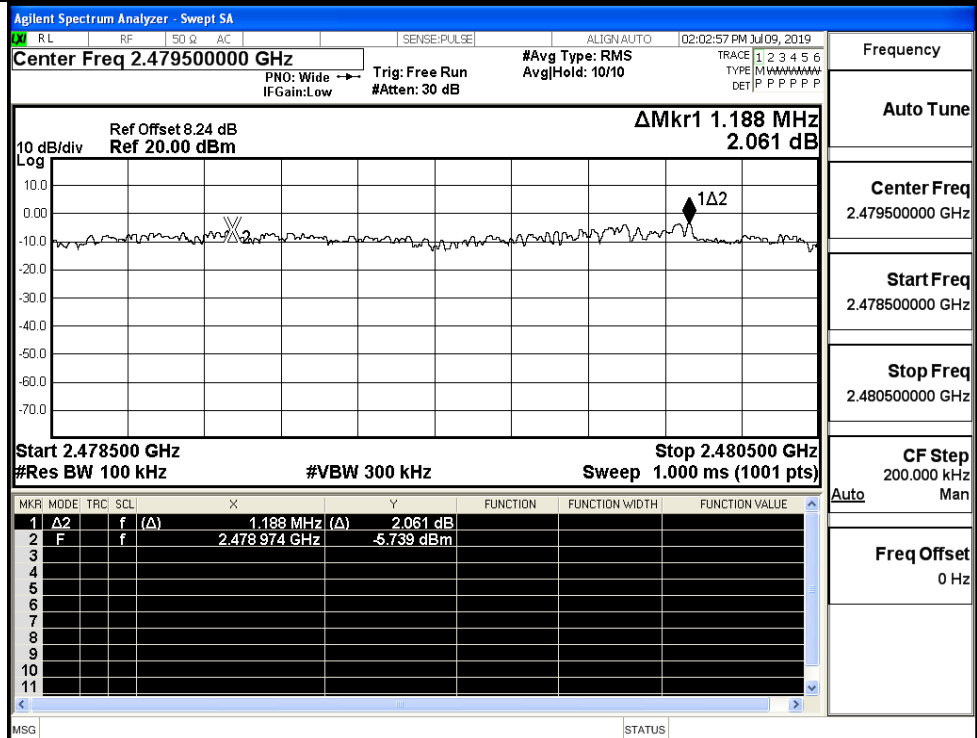
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

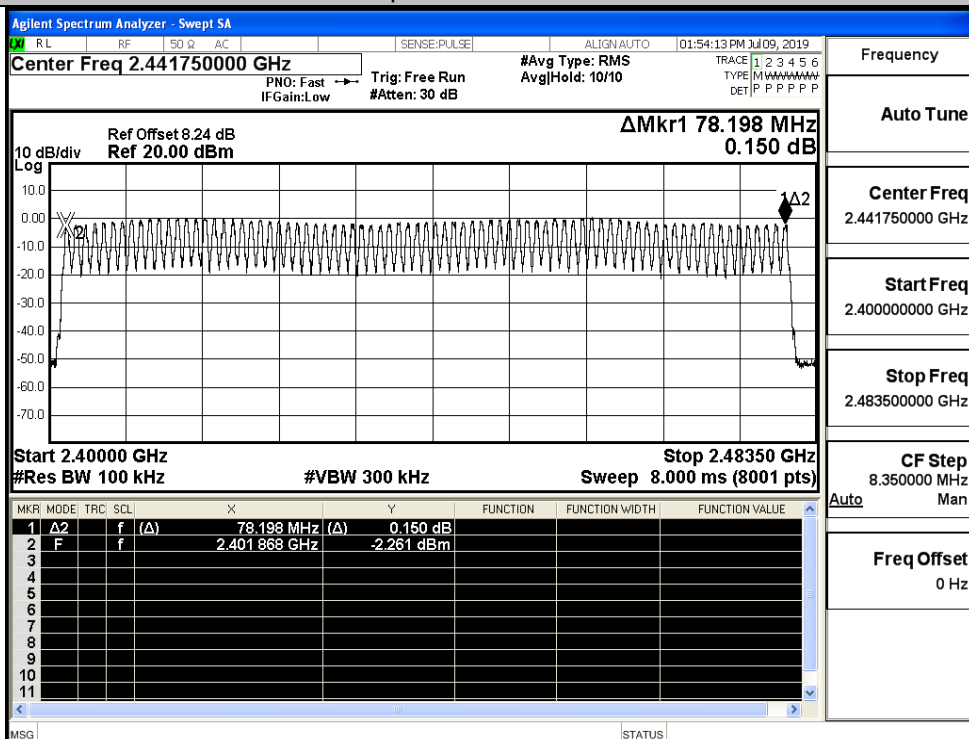


## A.4 Hopping Channel Number

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

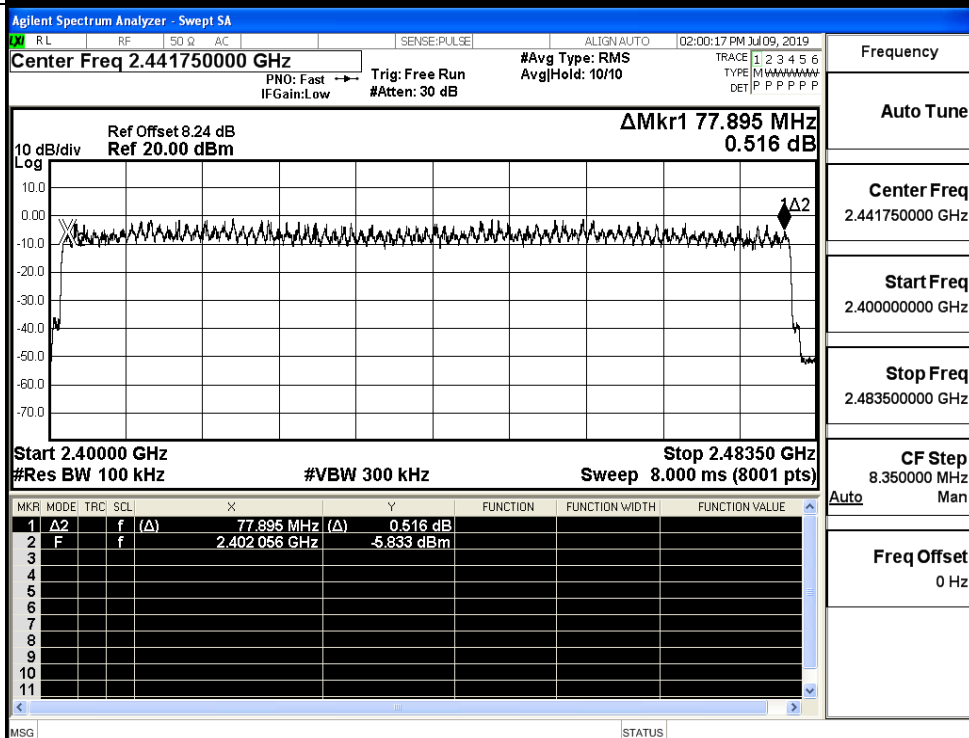
## Test Graphs

GFSK/Hop



Frequency

Auto Tune

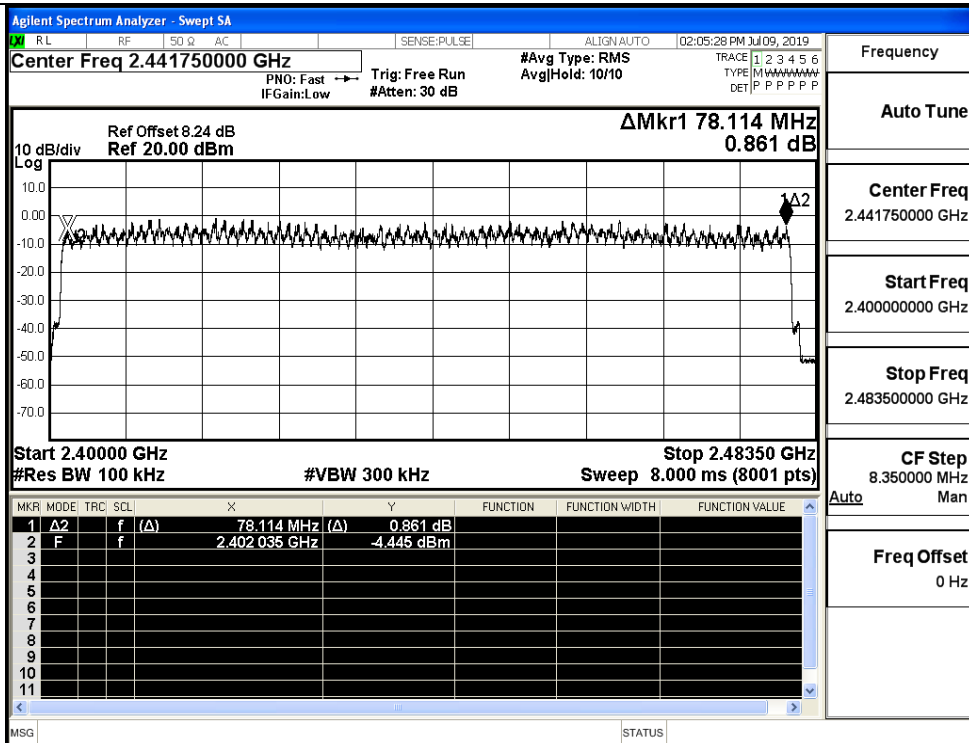
Center Freq  
2.441750000 GHzStart Freq  
2.400000000 GHzStop Freq  
2.483500000 GHzCF Step  
8.350000 MHz  
ManFreq Offset  
0 Hz $\pi/4$ DQPSK/Hop

Frequency

Auto Tune

Center Freq  
2.441750000 GHzStart Freq  
2.400000000 GHzStop Freq  
2.483500000 GHzCF Step  
8.350000 MHz  
ManFreq Offset  
0 Hz

8DPSK/Hop

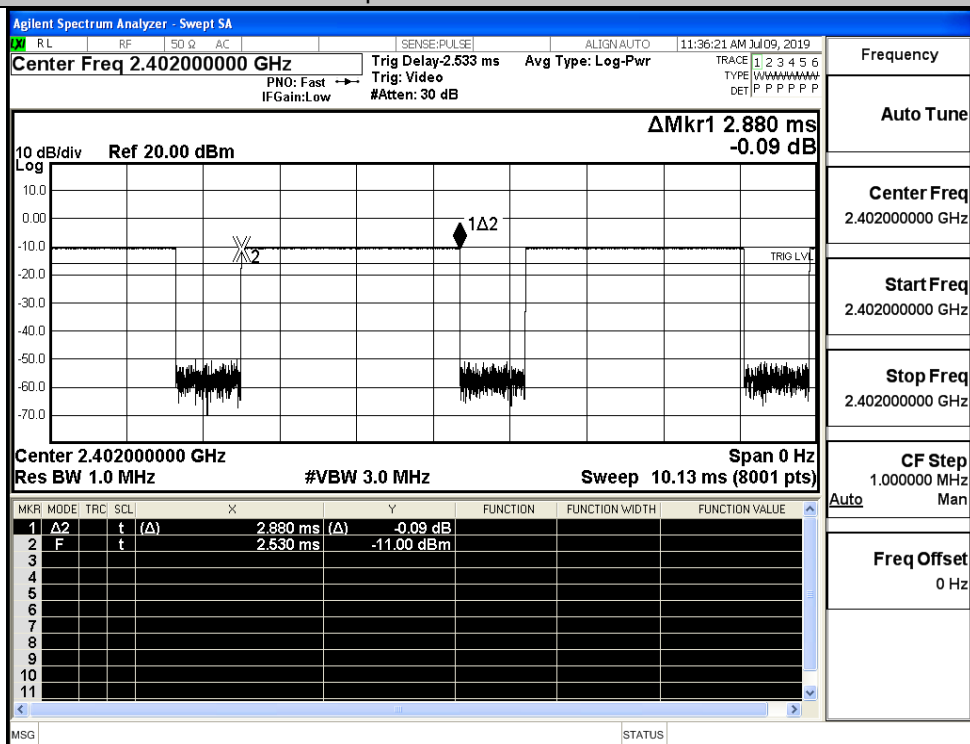


## A.5 Dwell Time

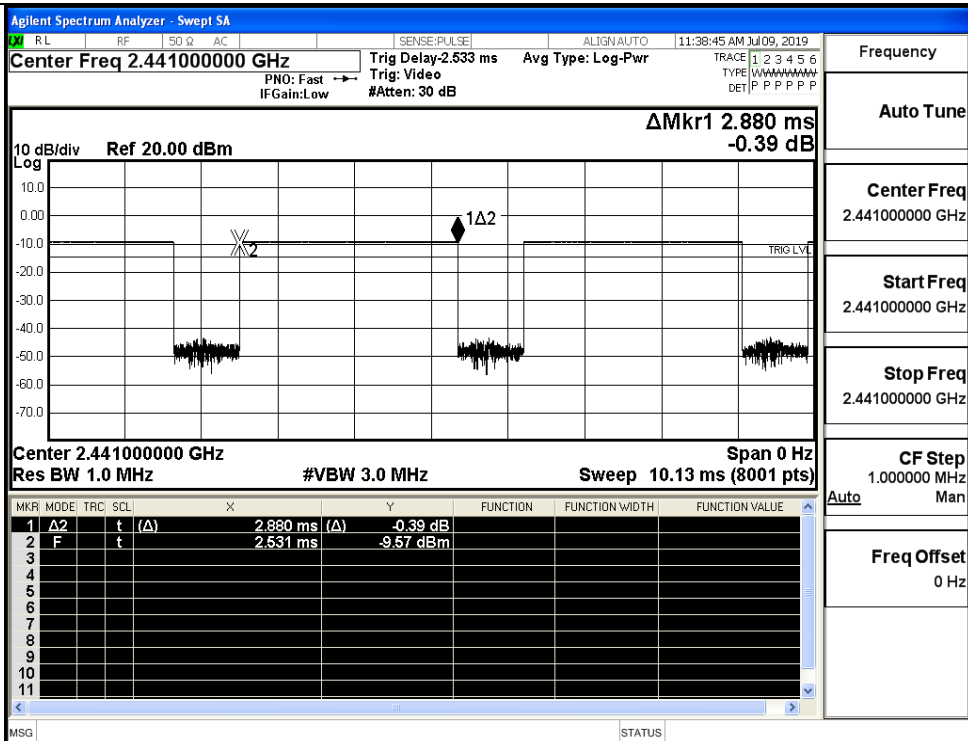
| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[s] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|---------------|-----------|---------|
| GFSK          | DH5    | LCH     | 2.88   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

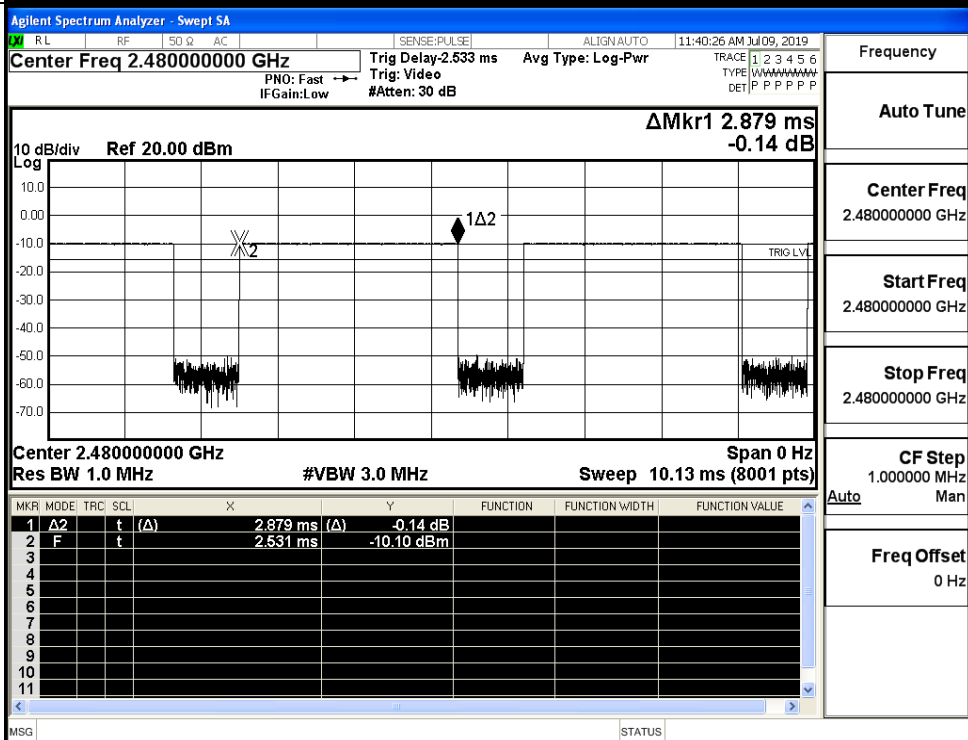
GFSK\_DH5/LCH



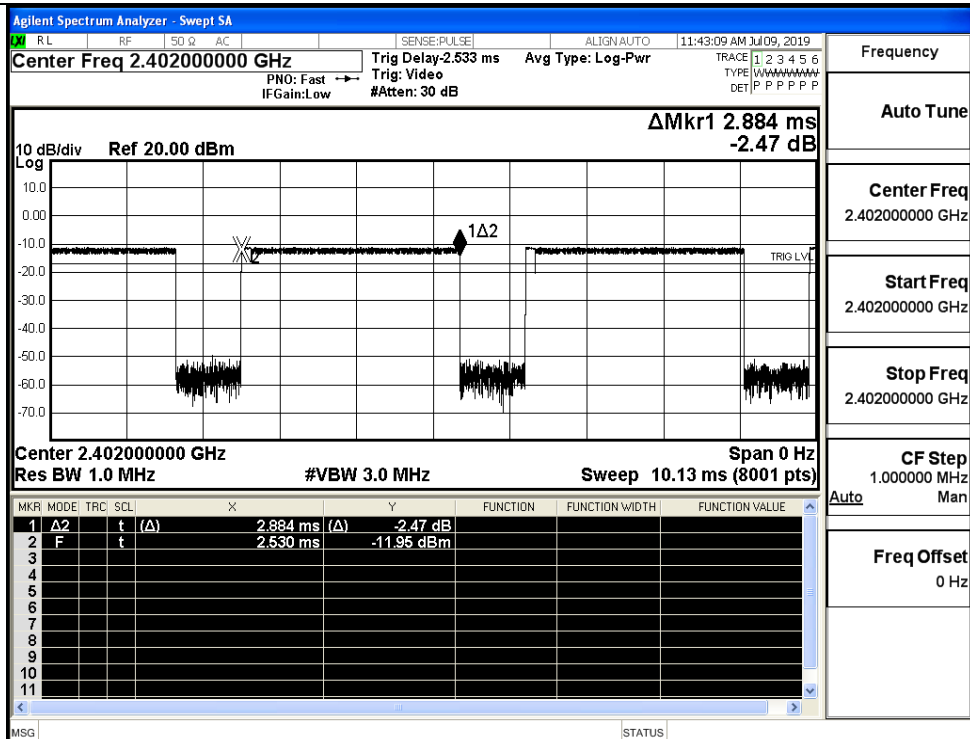
GFSK\_DH5/MCH



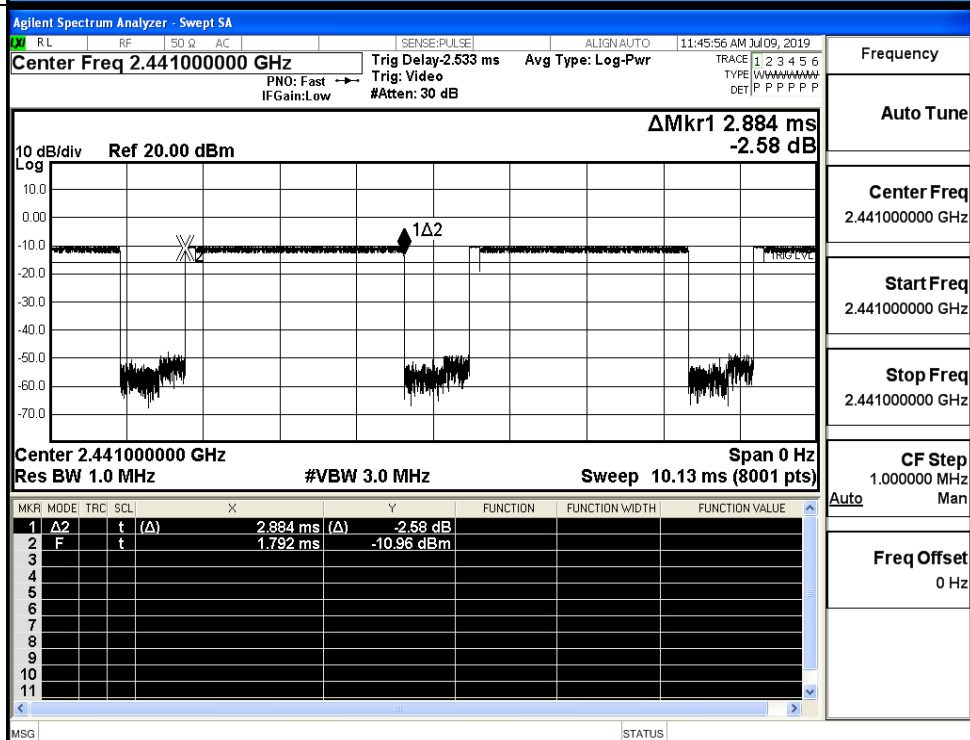
GFSK\_DH5/HCH



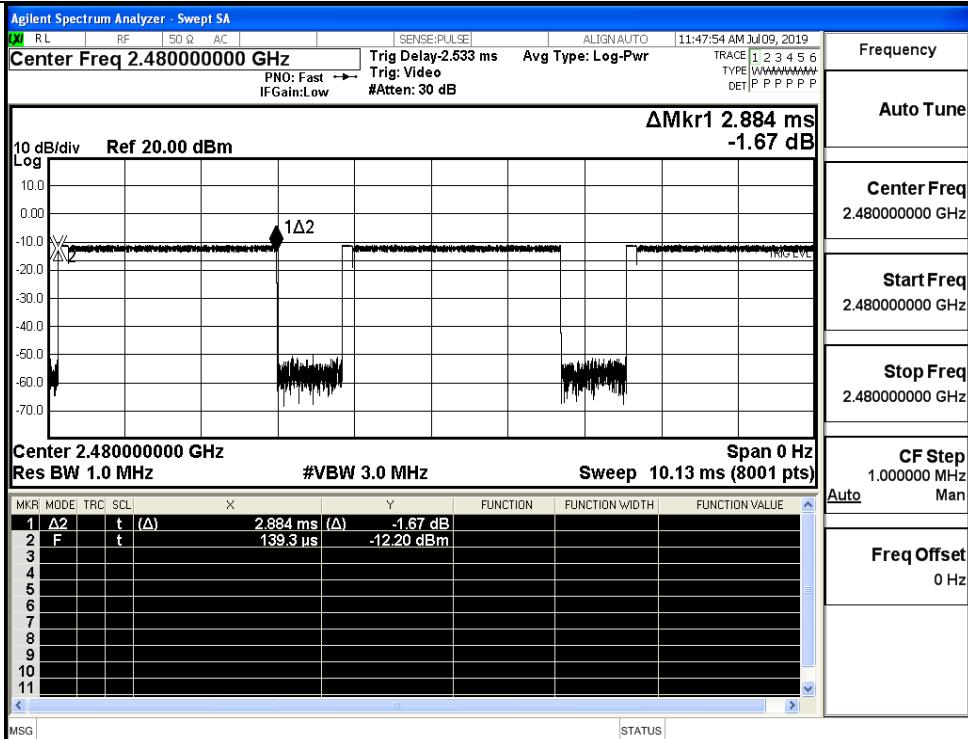
$\pi/4$ DQPSK  
\_2DH5/LCH



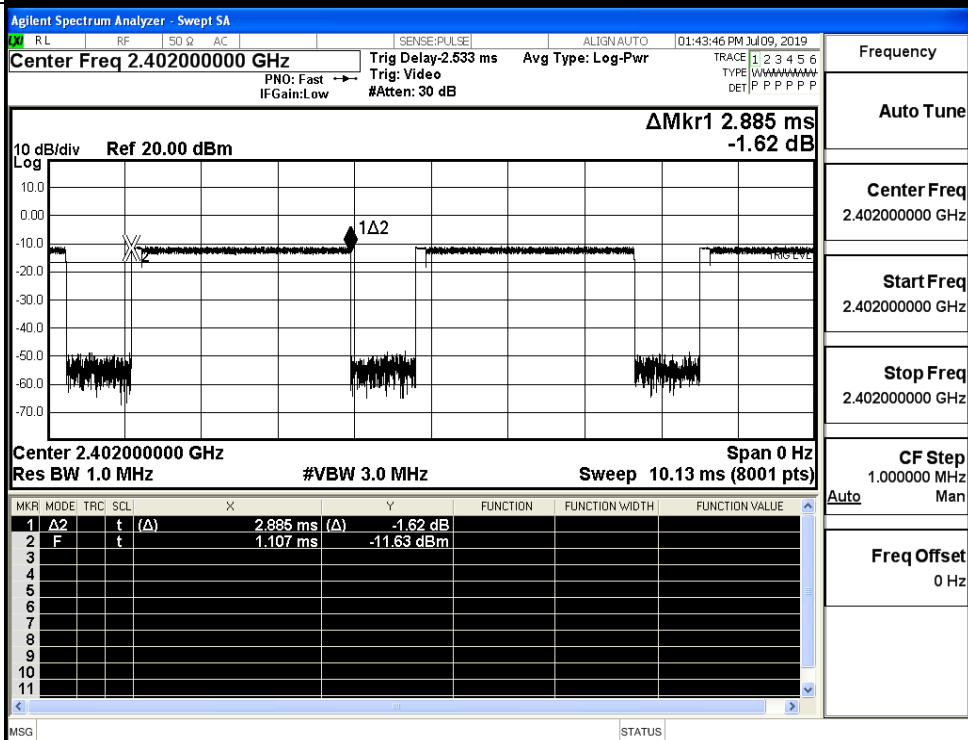
$\pi/4$ DQPSK  
\_2DH5/MCH



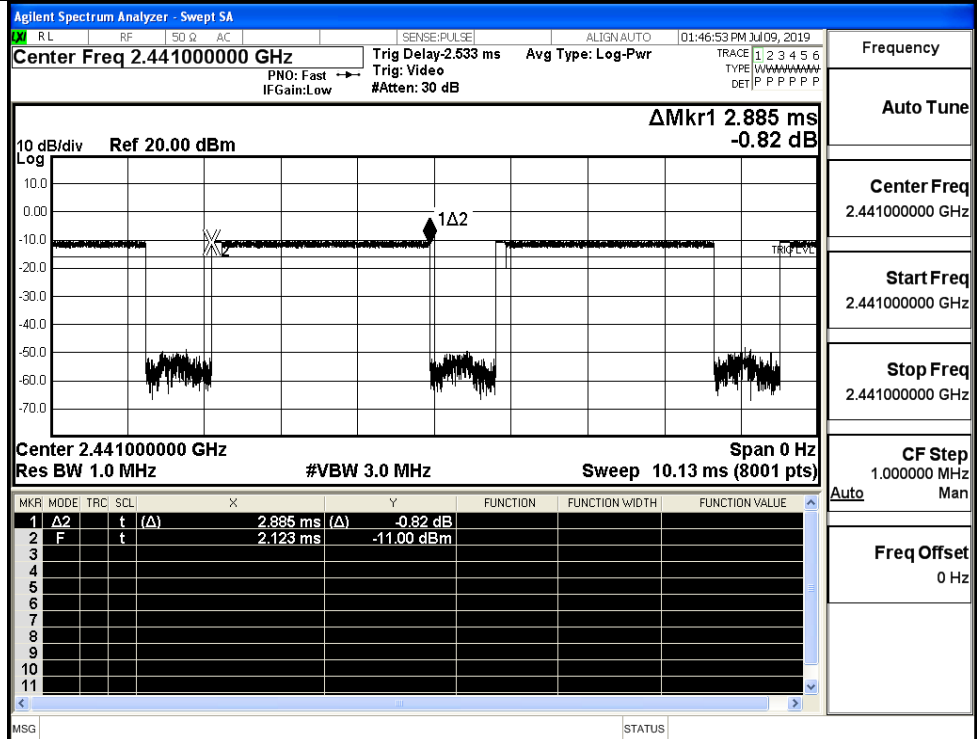
$\pi/4$ DQPSK  
\_2DH5/HCH



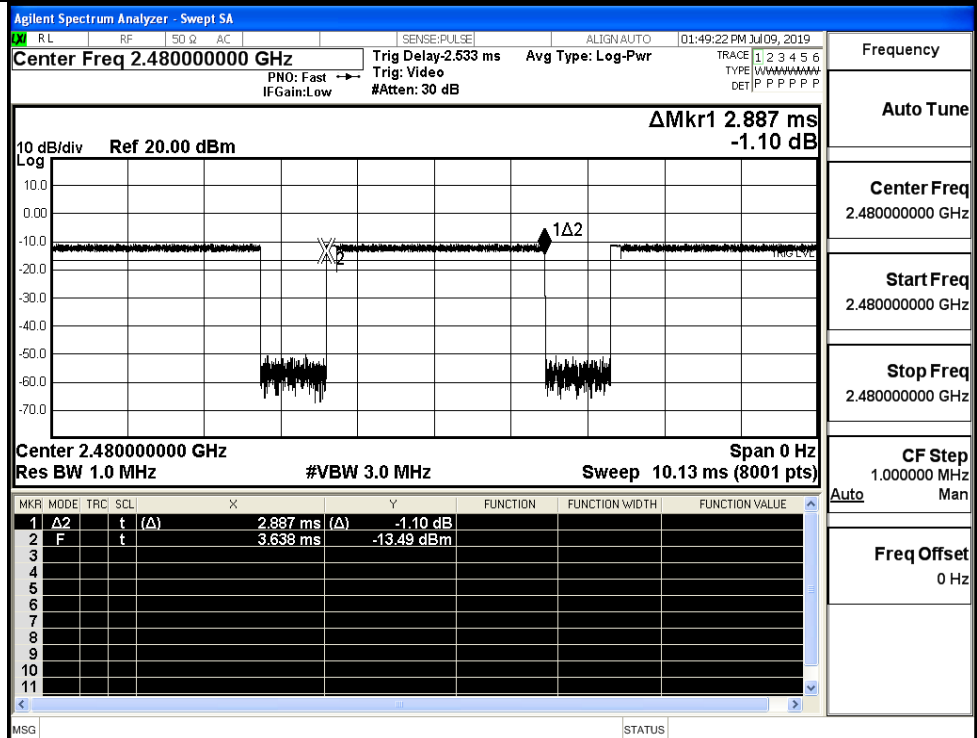
8DPSK \_3DH5/LCH



8DPSK\_3DH5/MCH



8DPSK\_3DH5/HCH

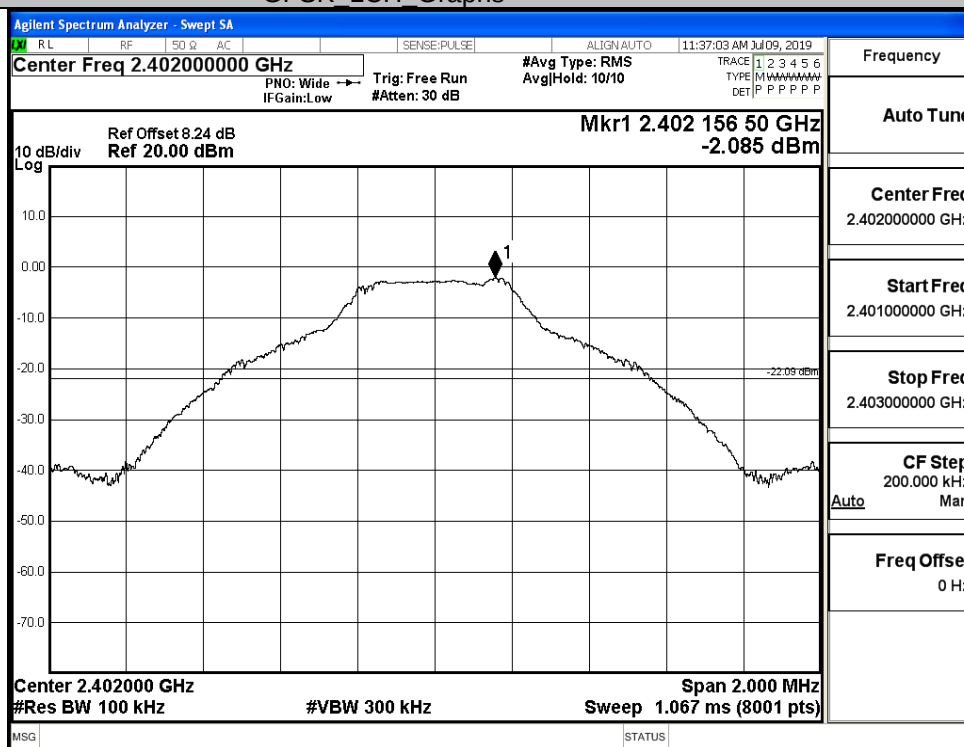


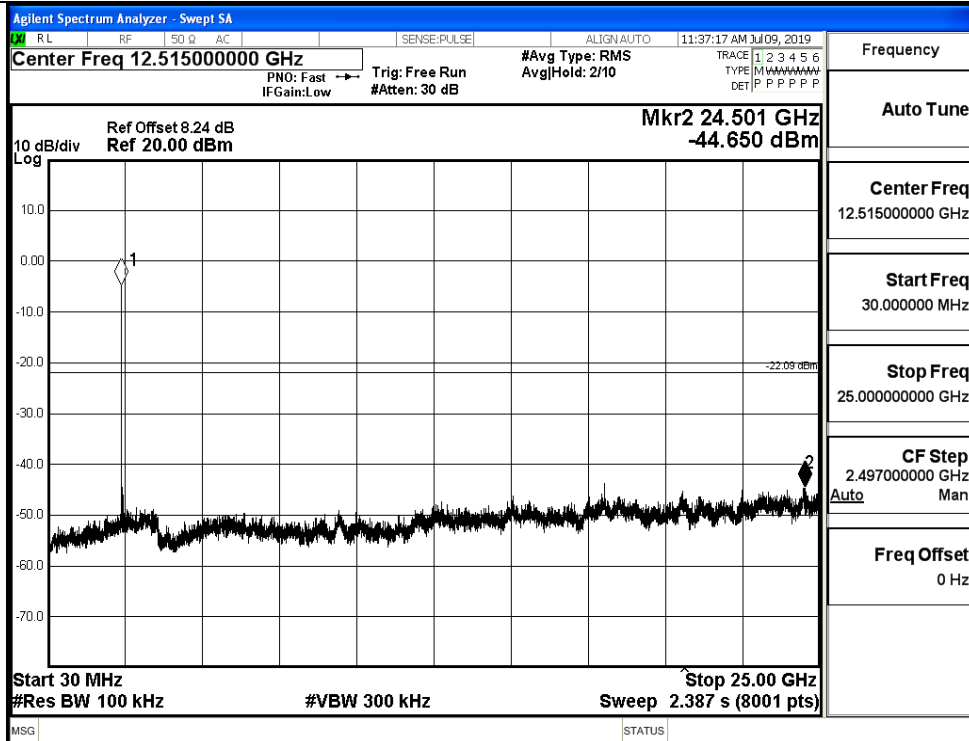
## A.6 RF Conducted Spurious Emissions

| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK          | LCH     | -2.085     | -44.650          | -22.085     | PASS    |
|               | MCH     | -0.844     | -44.467          | -20.844     | PASS    |
|               | HCH     | -1.743     | -44.326          | -21.743     | PASS    |
| $\pi/4$ DQPSK | LCH     | -3.293     | -43.515          | -23.293     | PASS    |
|               | MCH     | -2.173     | -44.252          | -22.173     | PASS    |
|               | HCH     | -3.008     | -45.342          | -23.008     | PASS    |
| 8DPSK         | LCH     | -4.494     | -45.363          | -24.494     | PASS    |
|               | MCH     | -2.415     | -44.258          | -22.415     | PASS    |
|               | HCH     | -3.164     | -44.640          | -23.164     | PASS    |

GFSK LCH Graphs

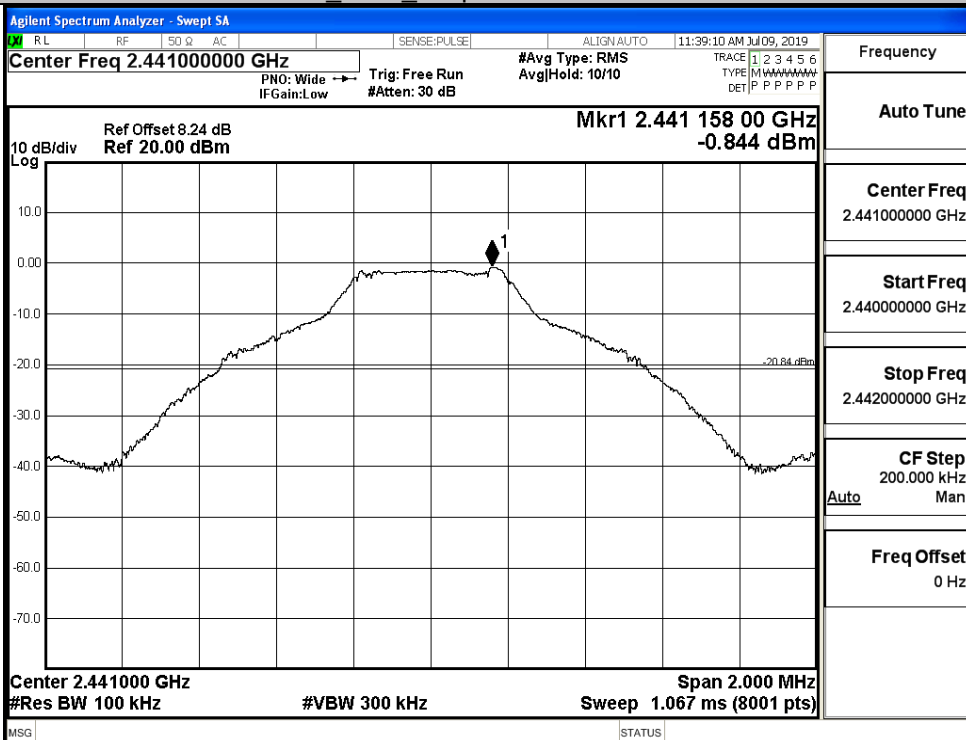
Pref



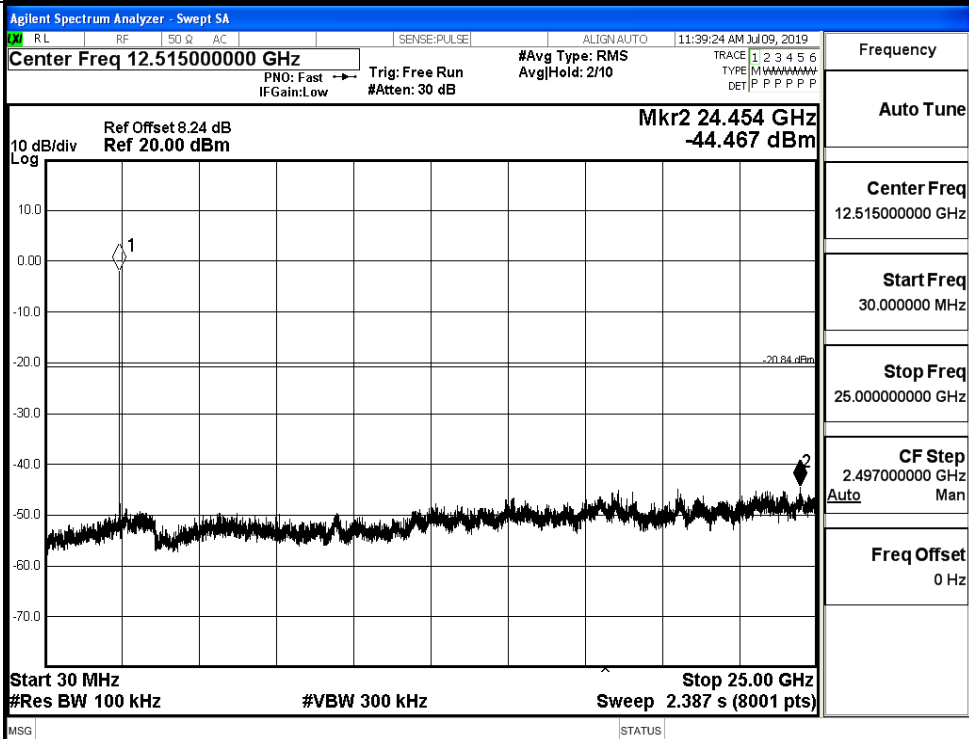
P<sub>uw</sub>

## GFSK\_MCH\_Graphs

Pref

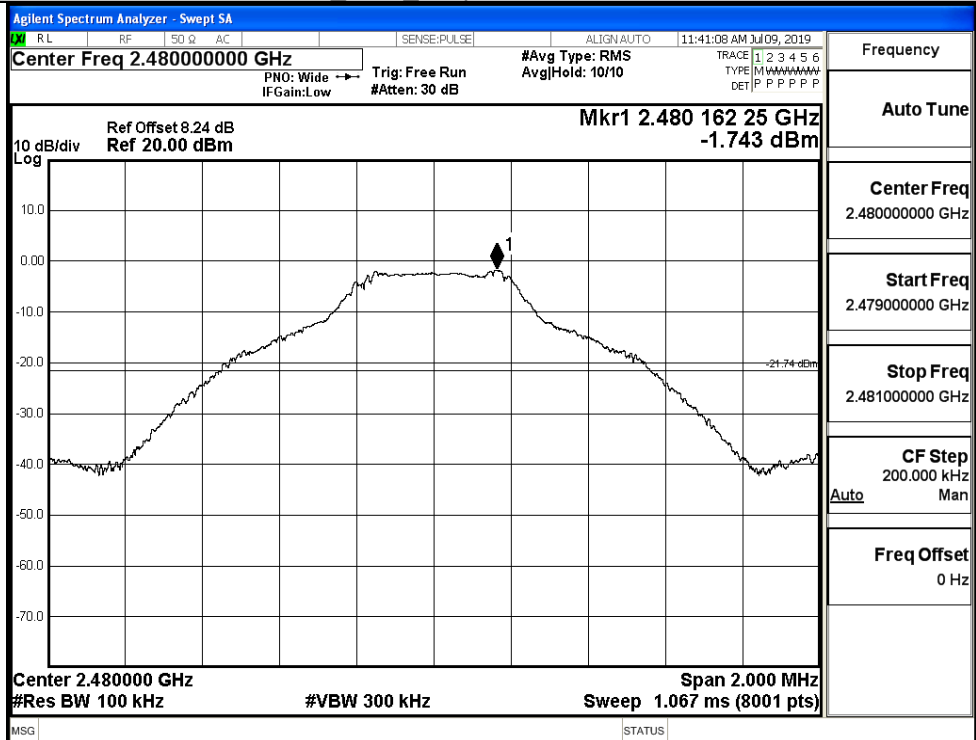


Puw

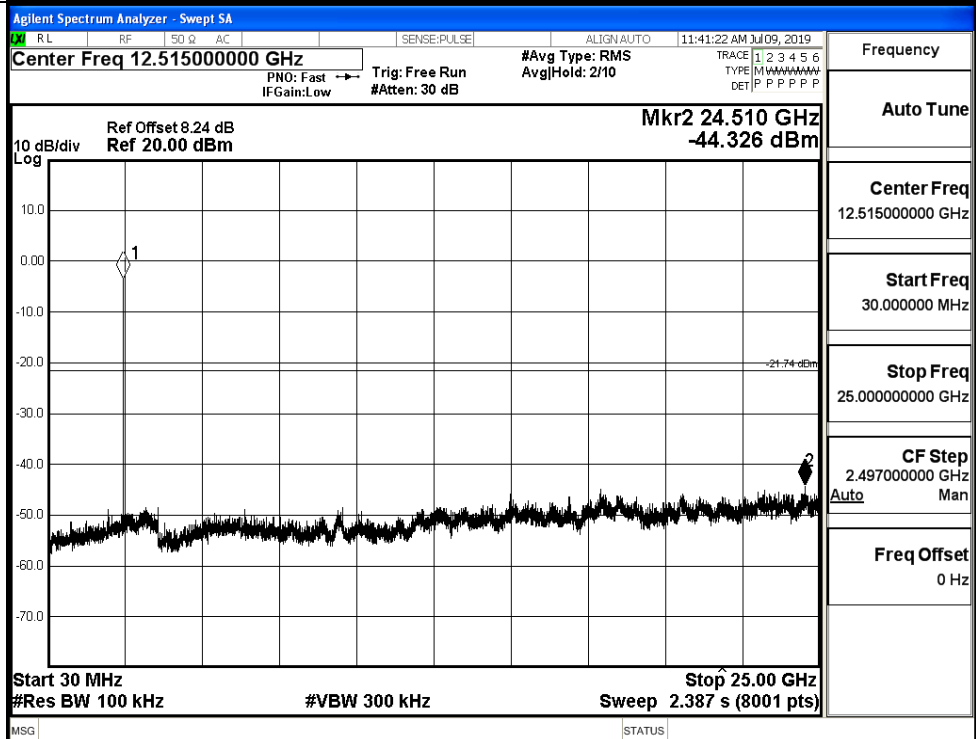


## GFSK\_HCH\_Graphs

Pref

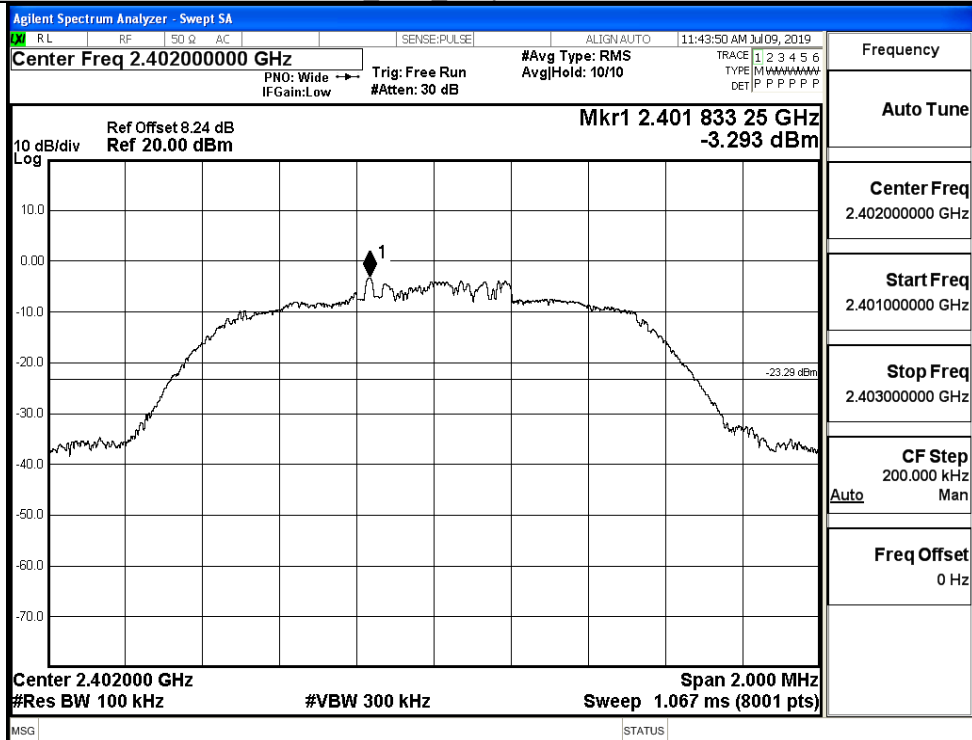


Puw

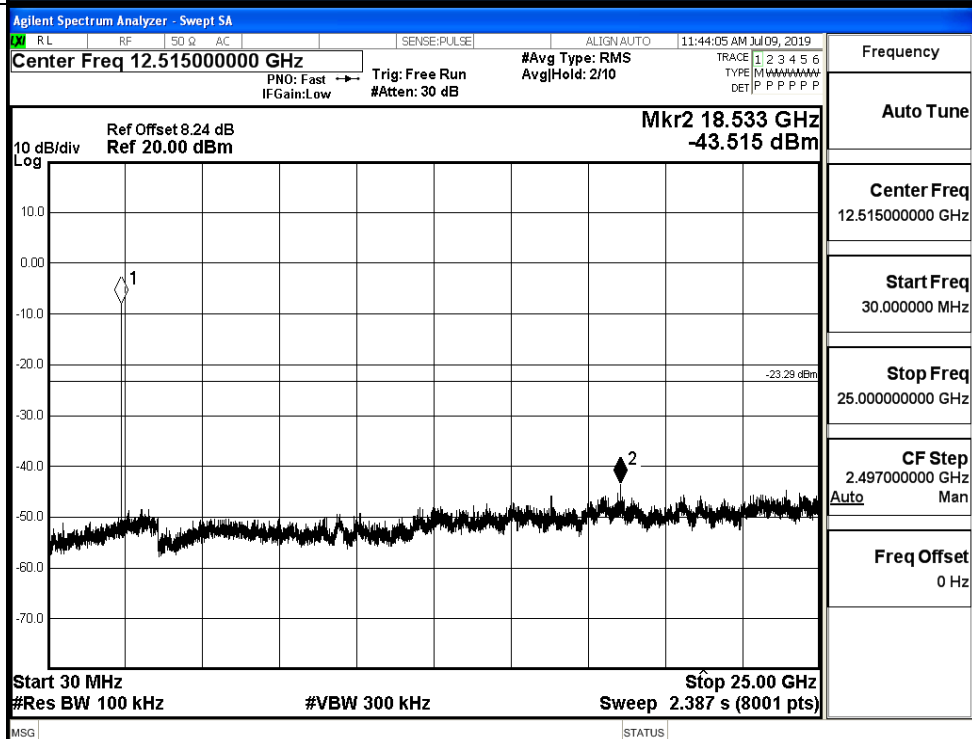


$\pi/4$ DQPSK\_LCH\_Graphs

Pref

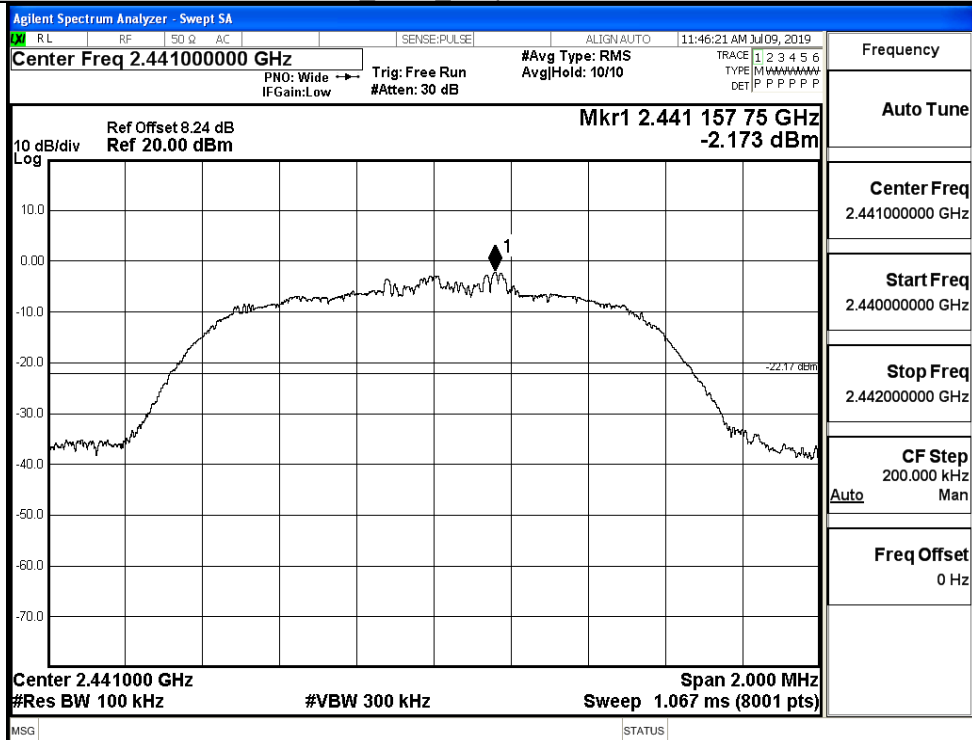


Puw

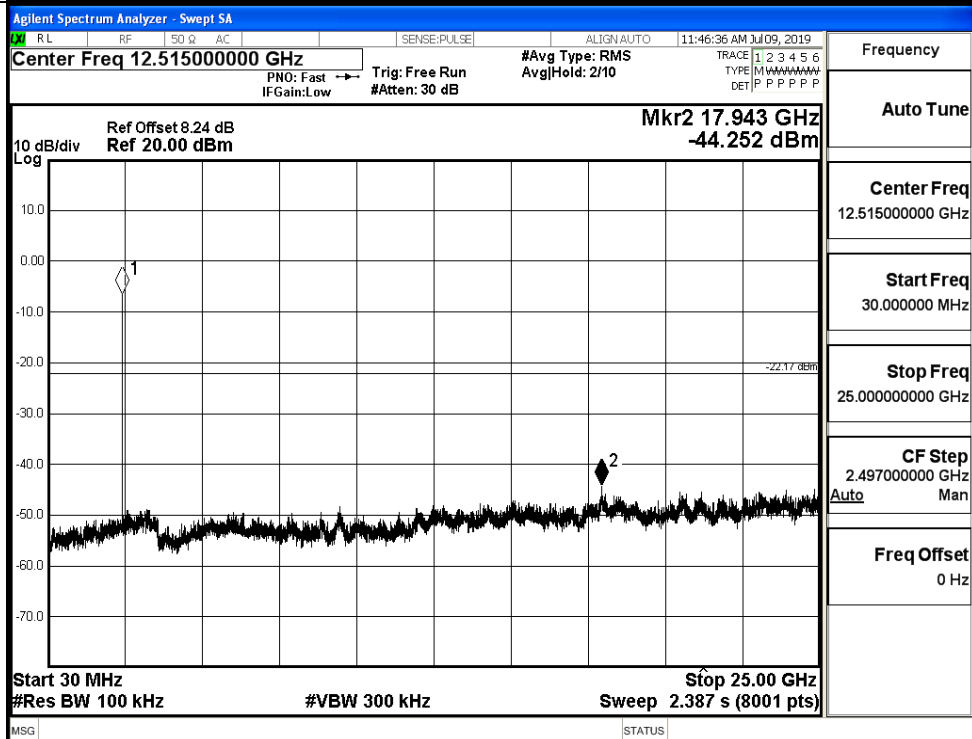


$\pi$ /4DQPSK\_MCH\_Graphs

Pref

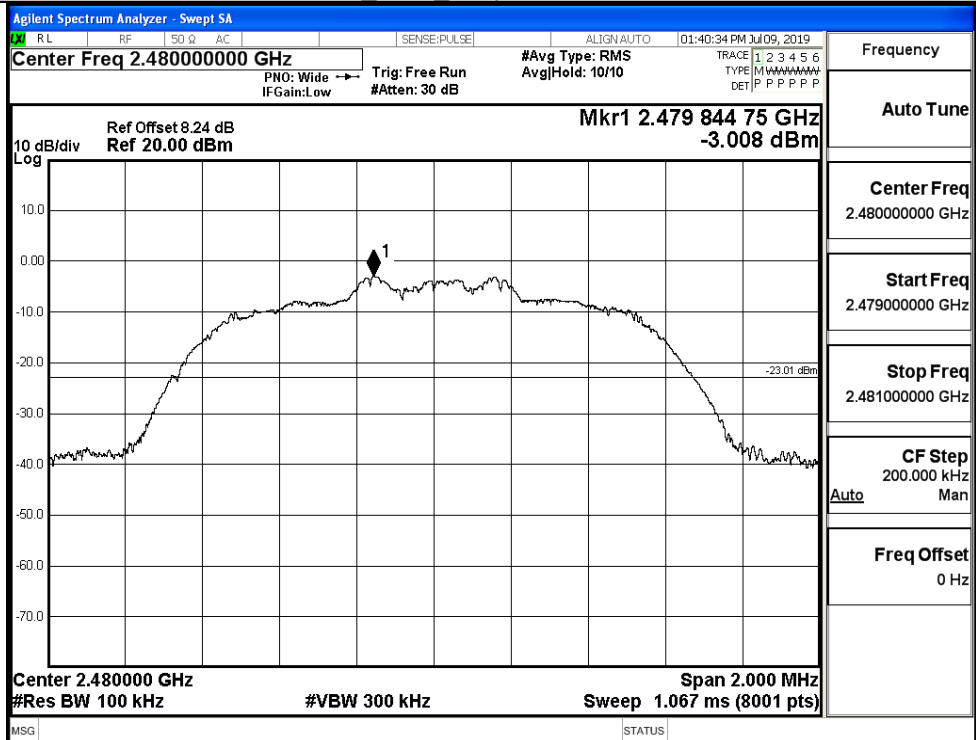


Puw

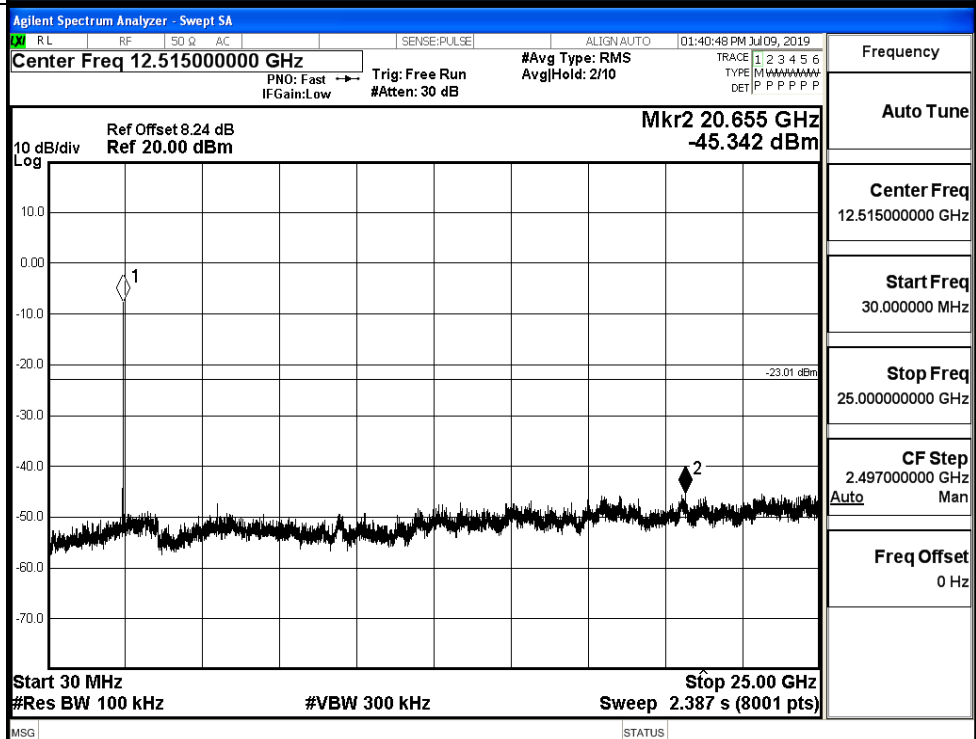


$\pi$ /4DQPSK\_HCH\_Graphs

Pref

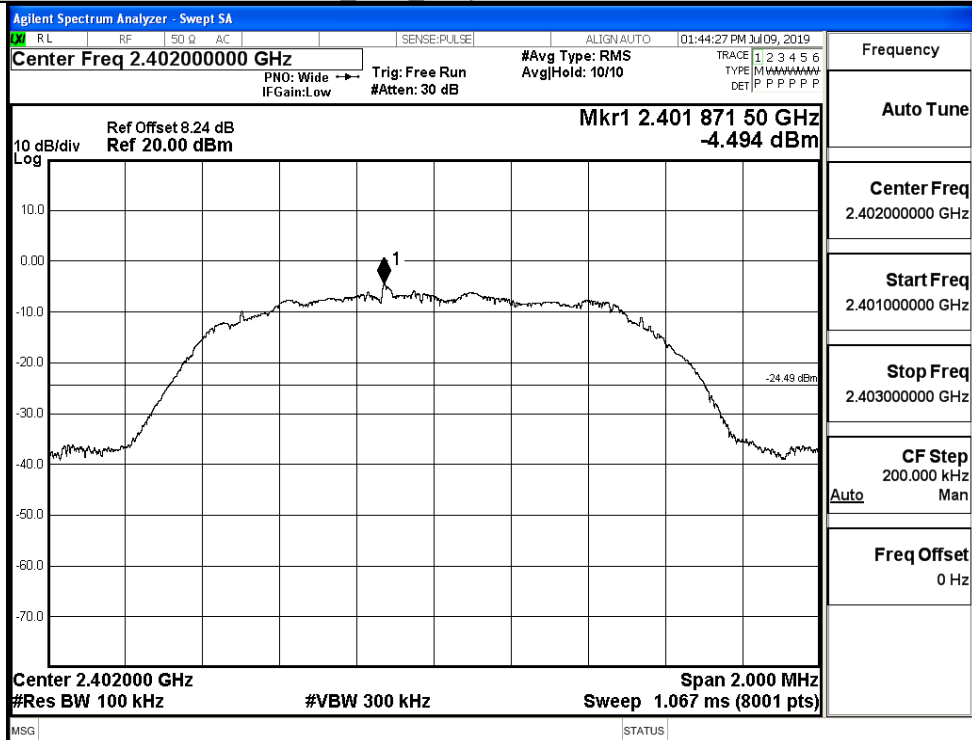


Puw

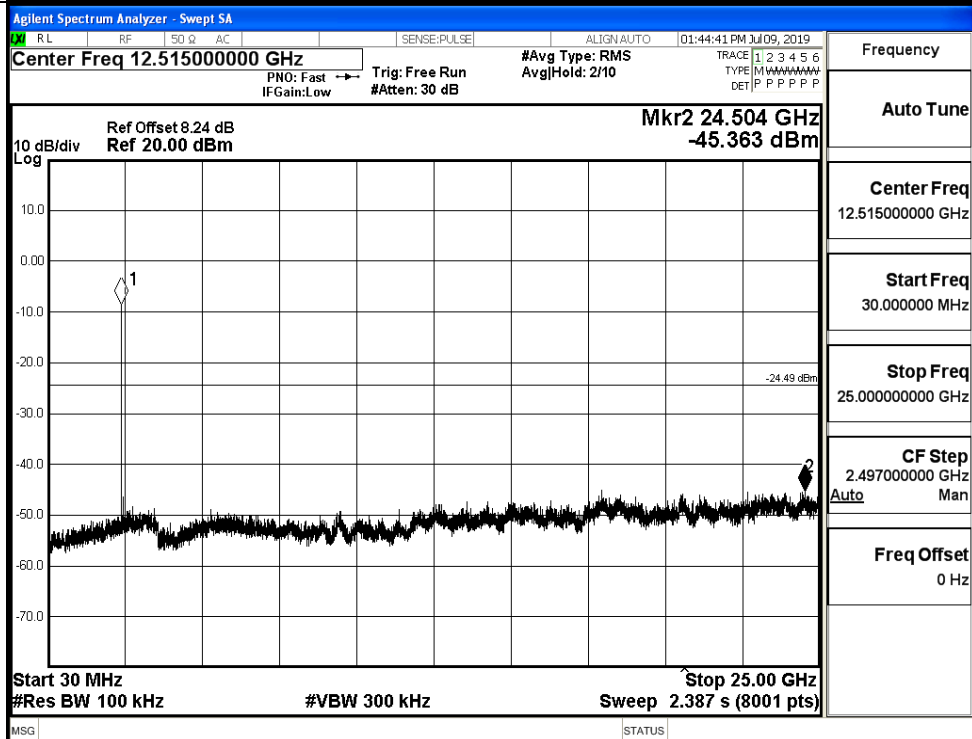


## 8DPSK\_LCH\_Graphs

Pref

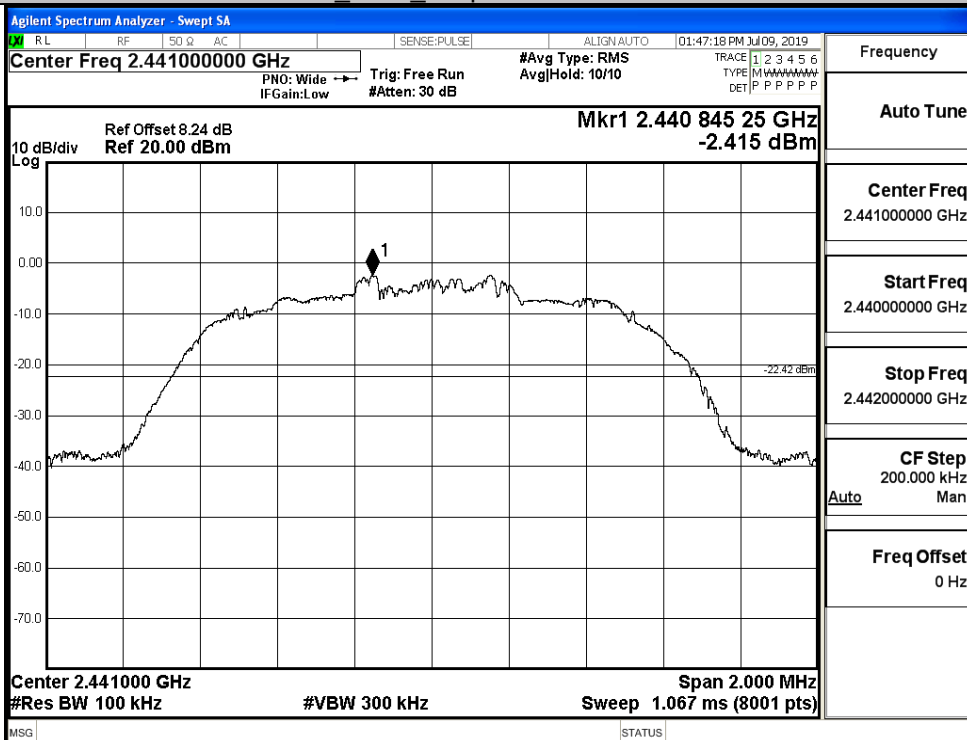


Puw

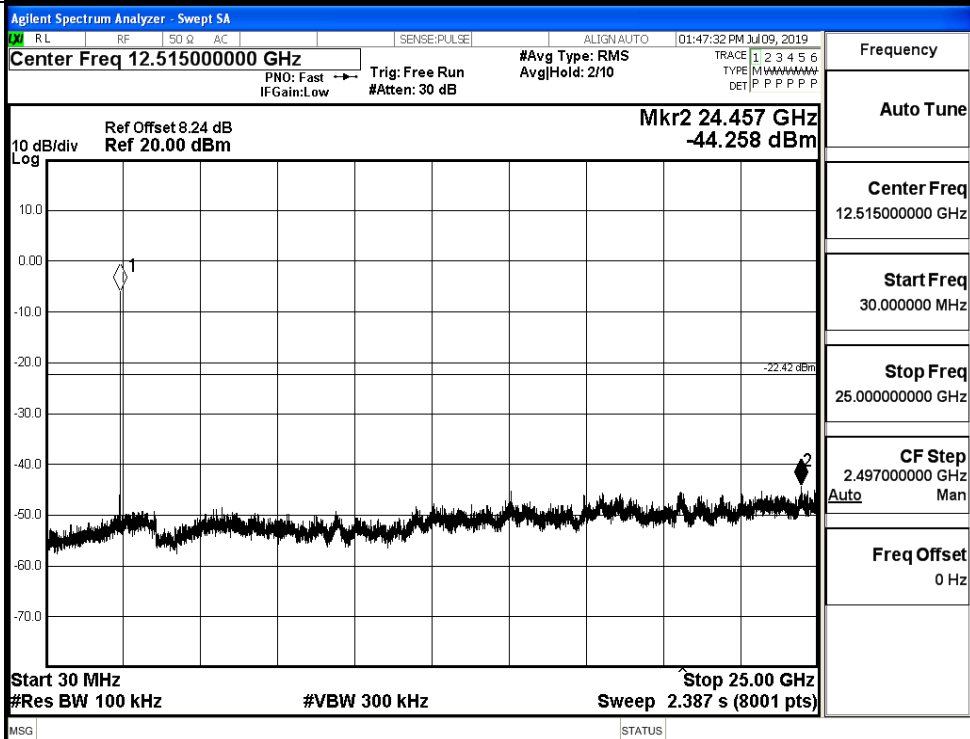


## 8DPSK\_MCH\_Graphs

Pref

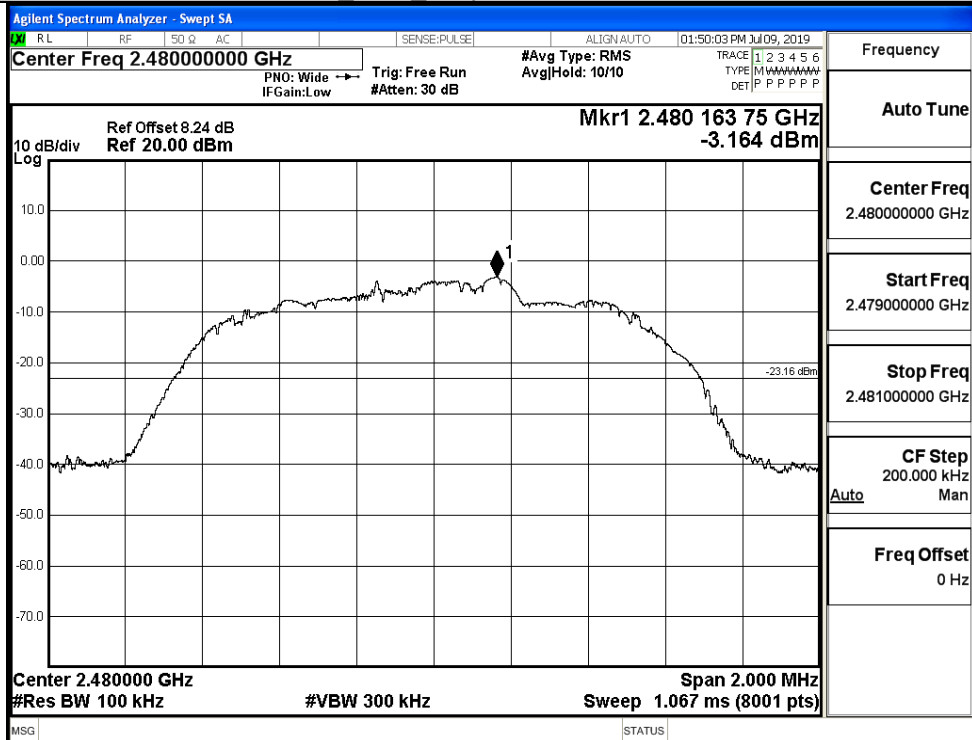


Puw

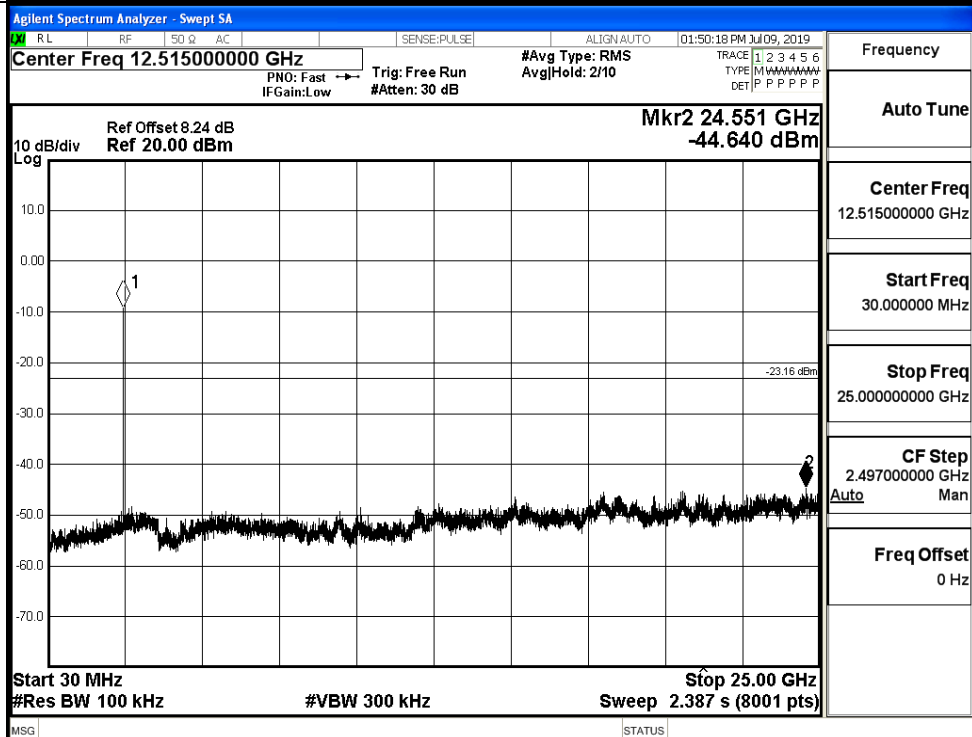


## 8DPSK\_HCH\_Graphs

Pref



Puw

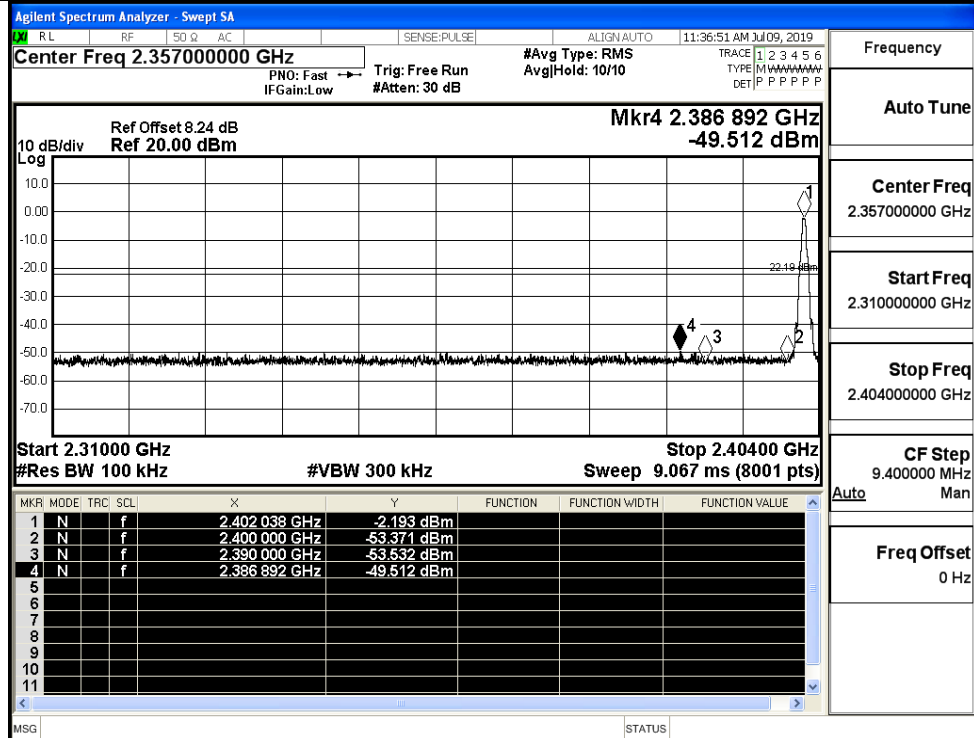


## A.7 Band-edge for RF Conducted Emissions

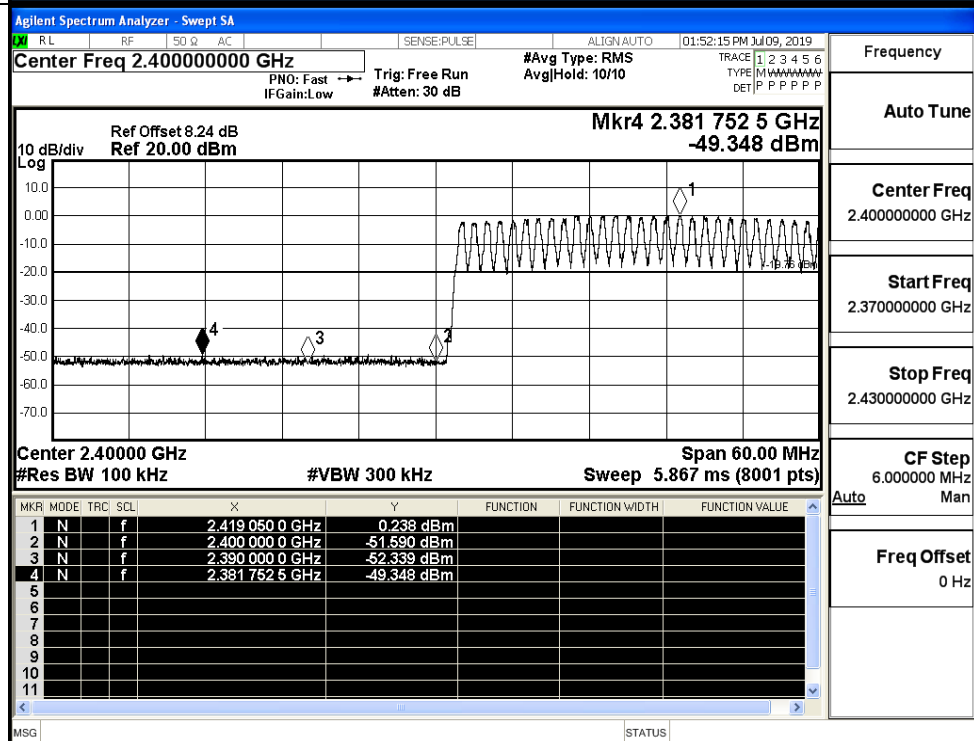
| Mode          | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | -2.193              | Off               | -49.512                  | -22.19      | PASS    |
|               |         |                         | 0.238               | On                | -49.348                  | -19.76      | PASS    |
|               | HCH     | 2480                    | -1.833              | Off               | -49.499                  | -21.83      | PASS    |
|               |         |                         | 0.034               | On                | -48.757                  | -19.97      | PASS    |
| $\pi/4$ DQPSK | LCH     | 2402                    | -3.585              | Off               | -49.421                  | -23.59      | PASS    |
|               |         |                         | -1.096              | On                | -48.792                  | -21.1       | PASS    |
|               | HCH     | 2480                    | -2.957              | Off               | -49.469                  | -22.96      | PASS    |
|               |         |                         | -1.104              | On                | -48.652                  | -21.1       | PASS    |
| 8DPSK         | LCH     | 2402                    | -5.294              | Off               | -49.890                  | -25.29      | PASS    |
|               |         |                         | -1.082              | On                | -48.686                  | -21.08      | PASS    |
|               | HCH     | 2480                    | -3.391              | Off               | -49.478                  | -23.39      | PASS    |
|               |         |                         | -1.170              | On                | -49.147                  | -21.17      | PASS    |

## Test Graphs

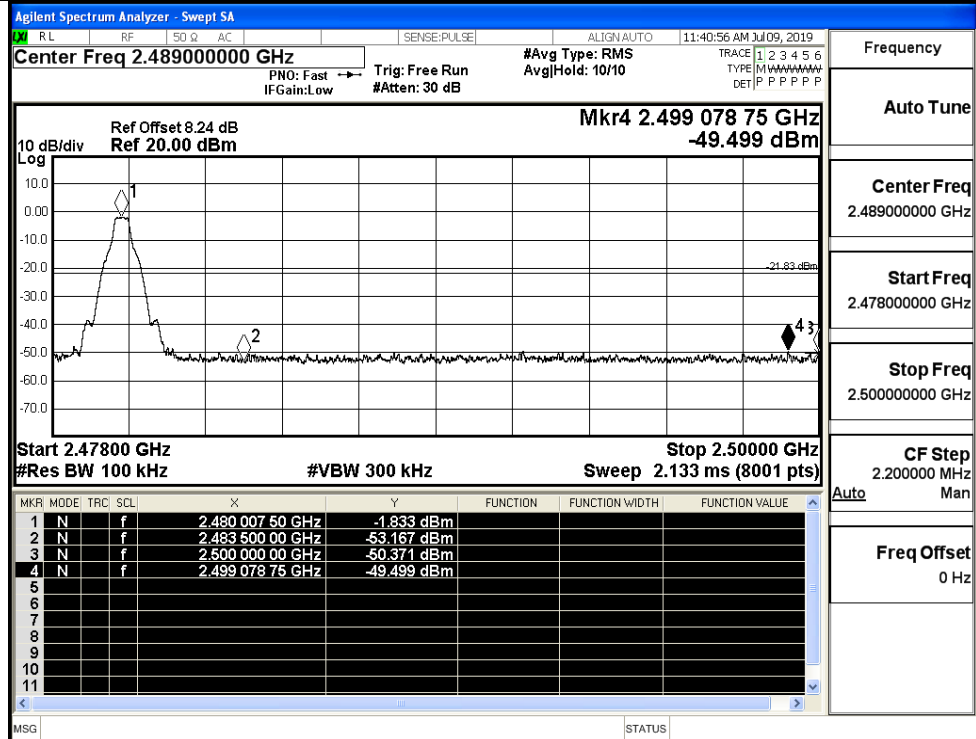
GFSK/LCH/No Hop



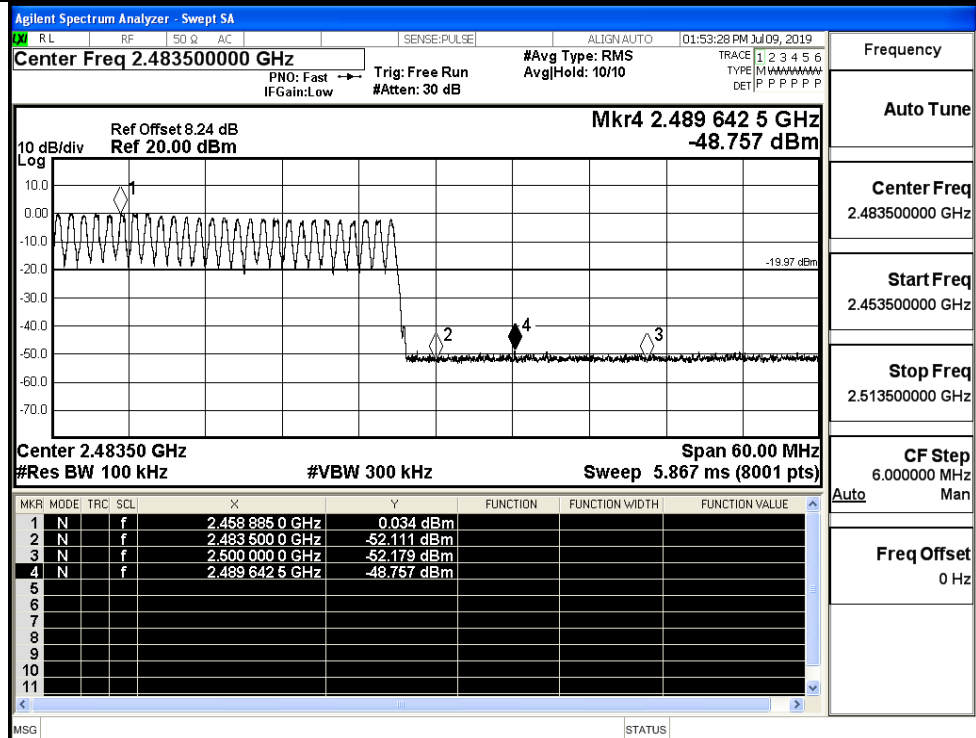
GFSK/LCH/Hop



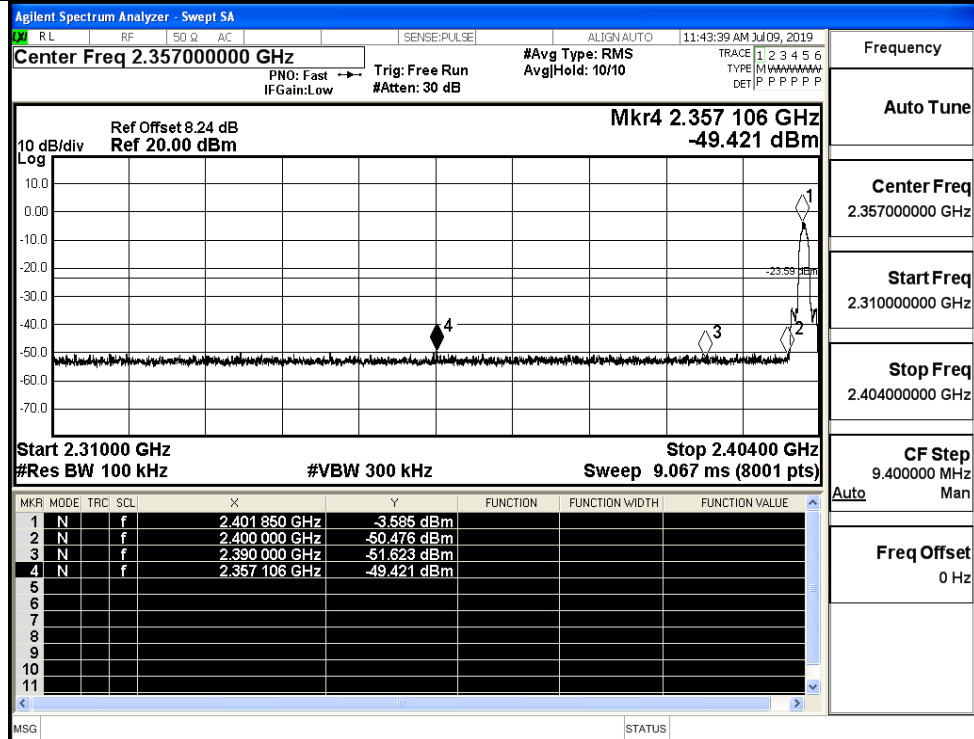
GFSK/HCH/No Hop



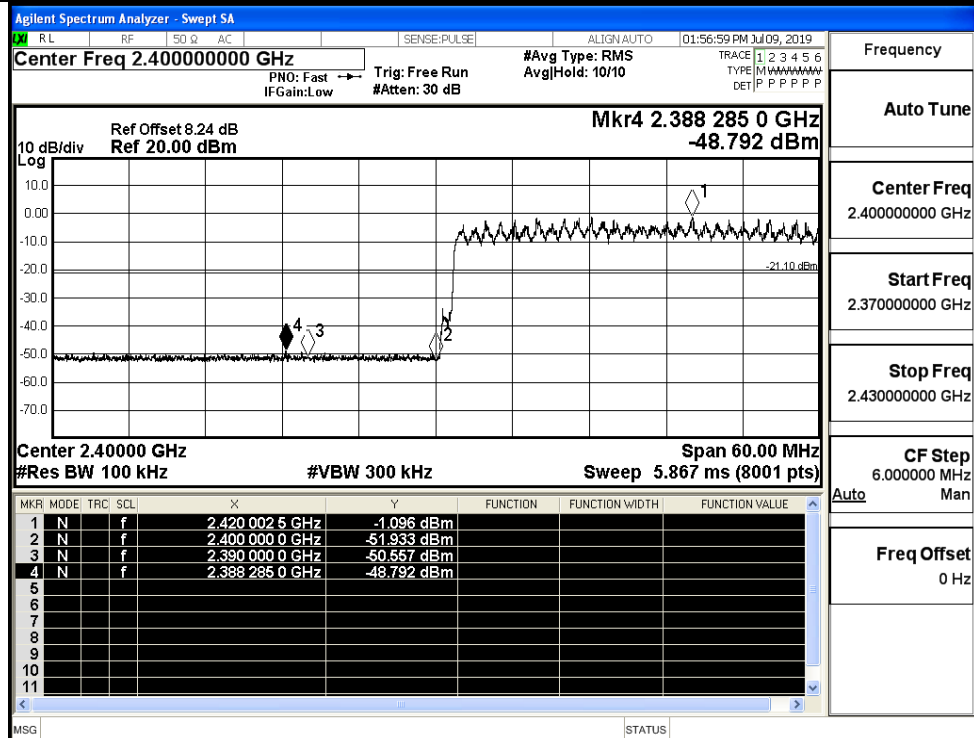
GFSK/HCH/Hop



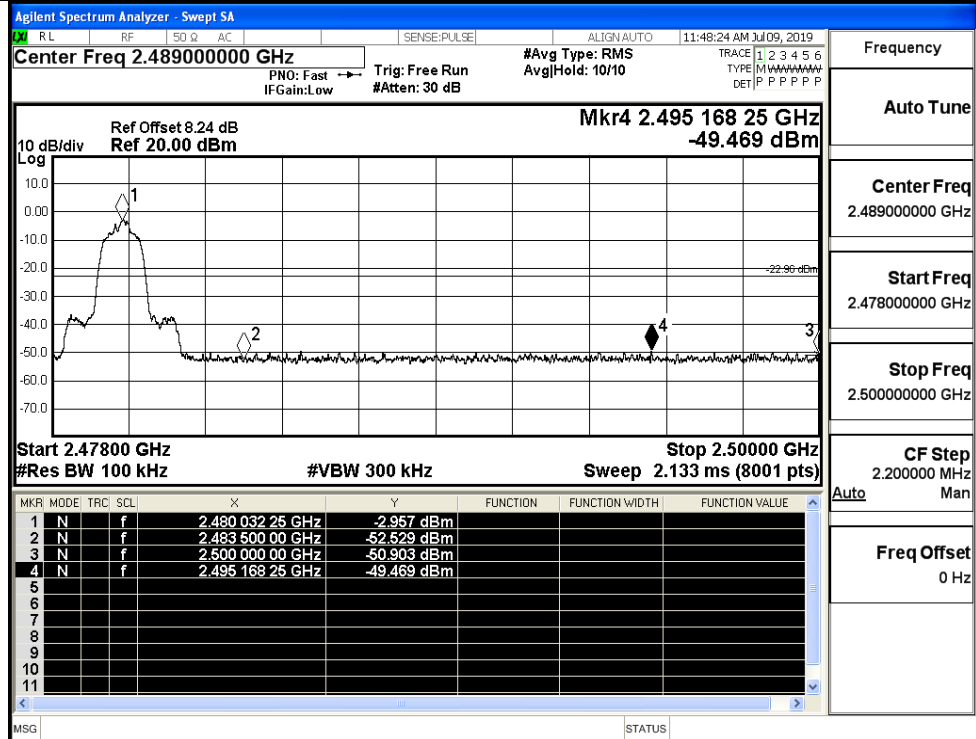
$\pi/4$ DQPSK/LCH/No  
Hop



$\pi/4$ DQPSK/LCH/Hop



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

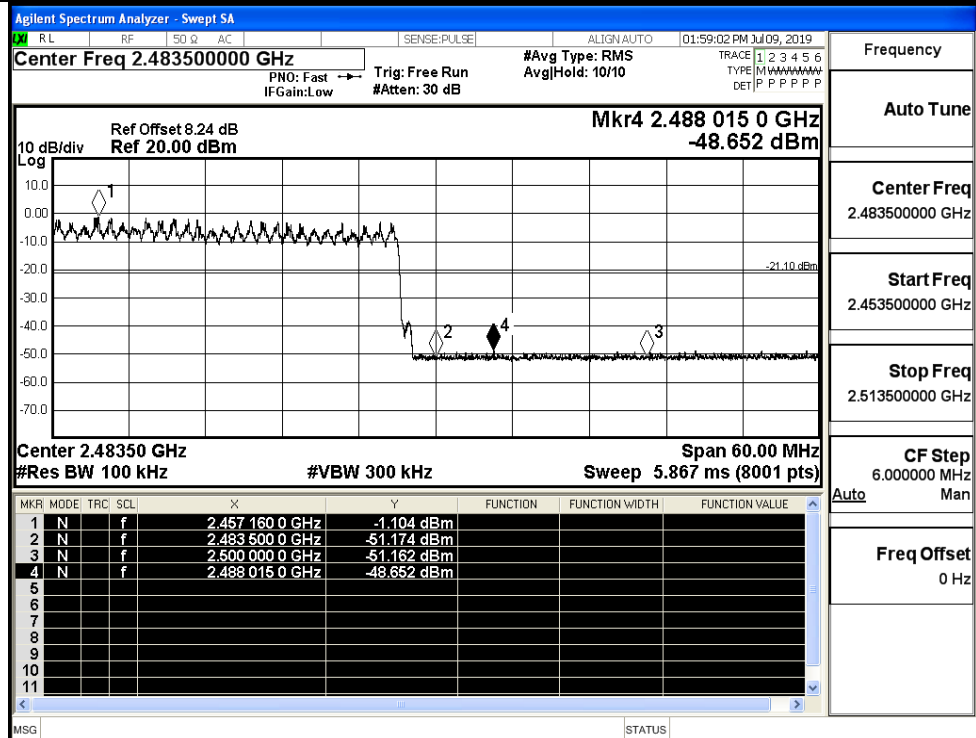


Frequency

Auto Tune

Center Freq  
2.489000000 GHzStart Freq  
2.478000000 GHzStop Freq  
2.500000000 GHzCF Step  
2.200000 MHz  
Auto ManFreq Offset  
0 Hz

$\pi/4$ DQPSK/HCH/Hop

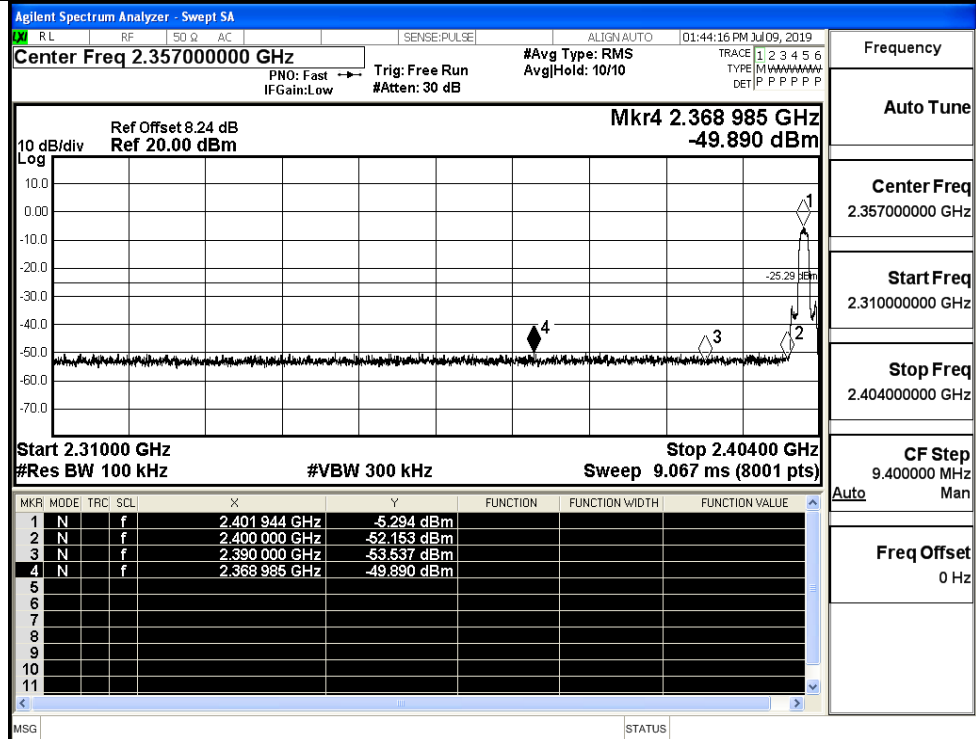


Frequency

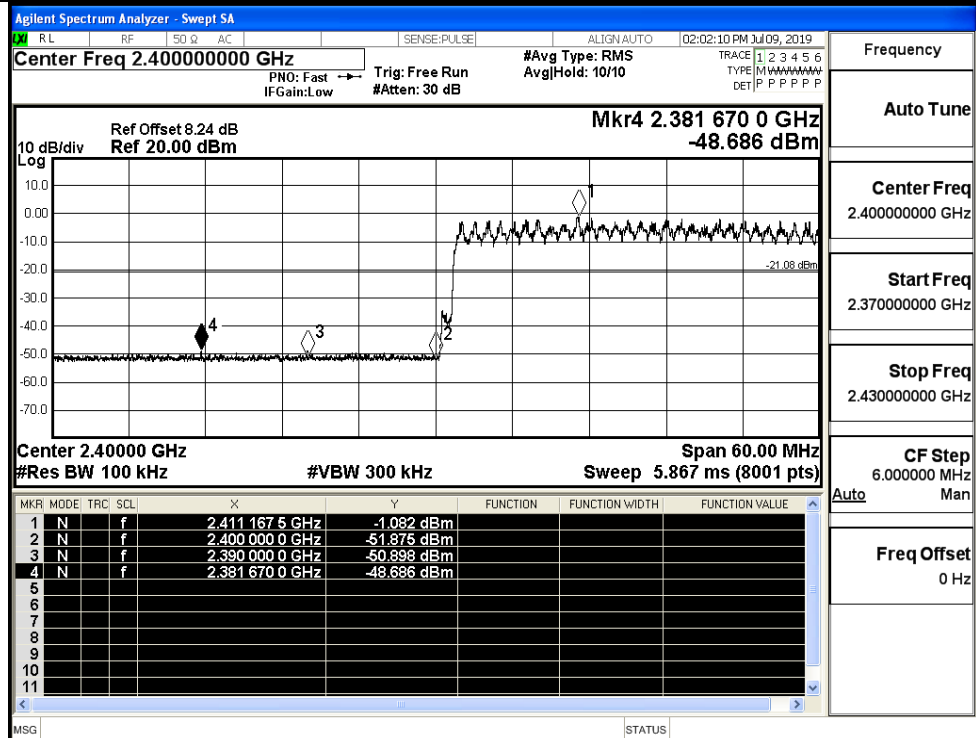
Auto Tune

Center Freq  
2.483500000 GHzStart Freq  
2.453500000 GHzStop Freq  
2.513500000 GHzCF Step  
6.000000 MHz  
Auto ManFreq Offset  
0 Hz

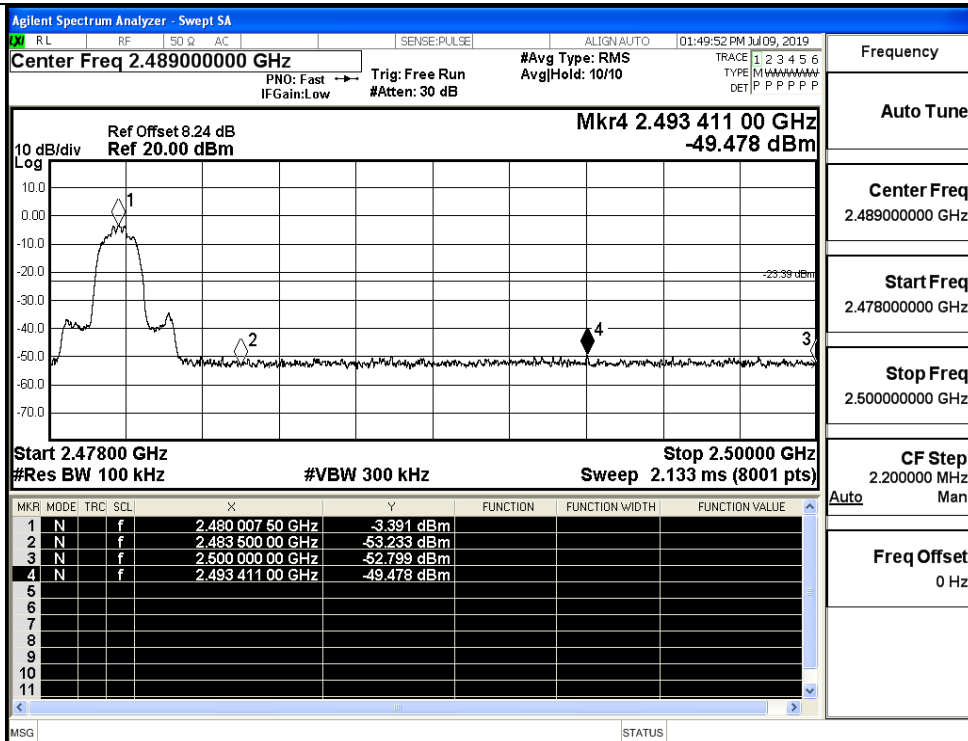
8DPSK/LCH/No Hop



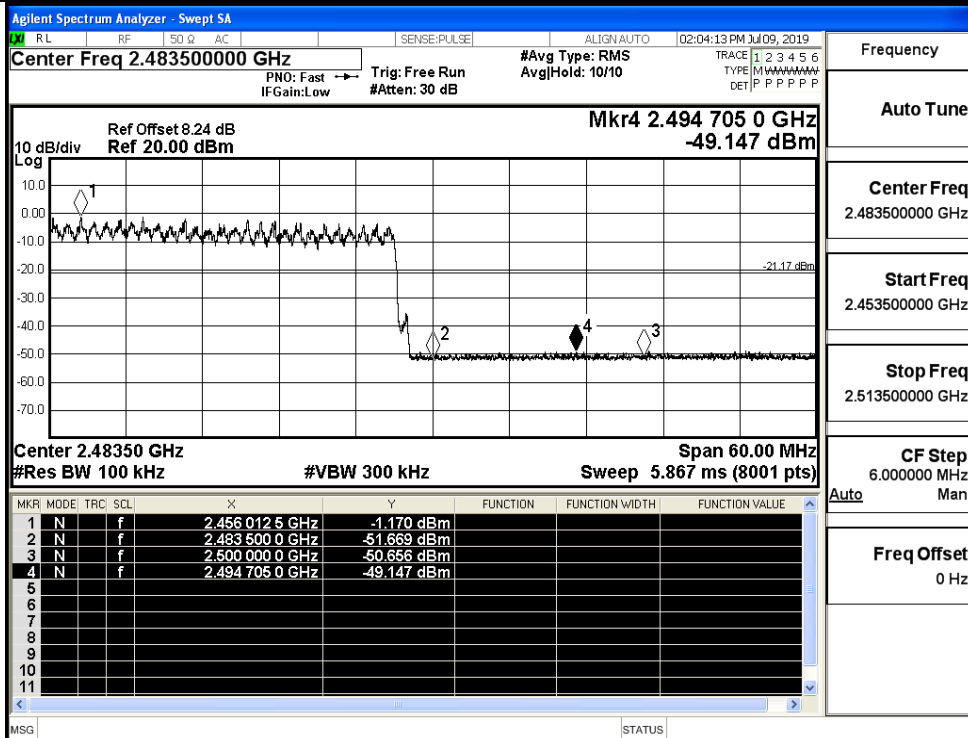
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



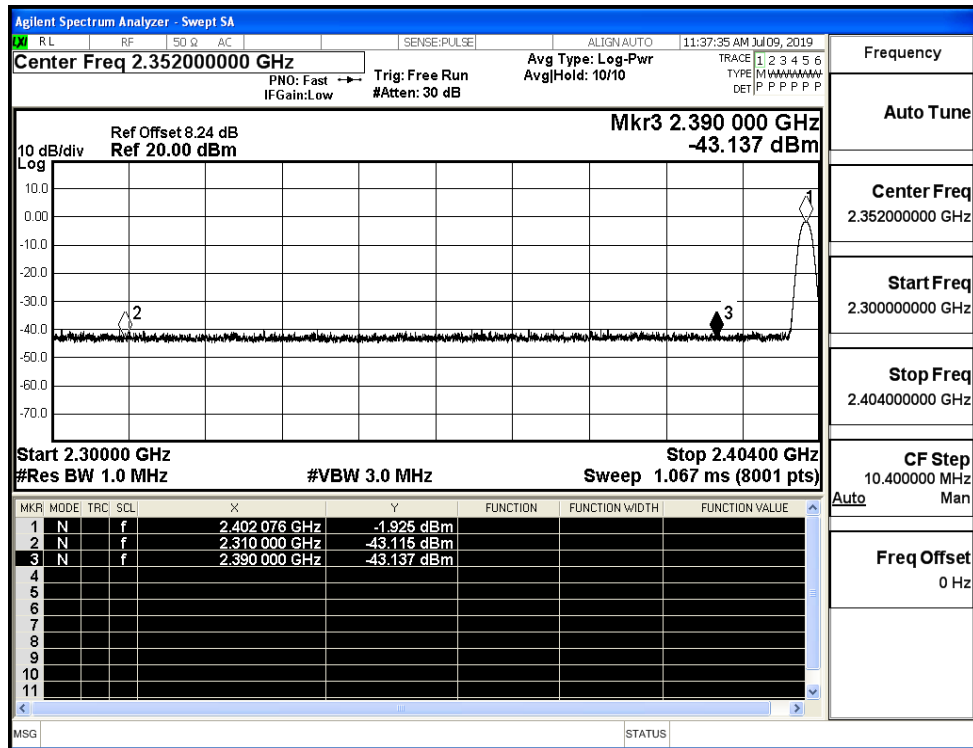
8DPSK/HCH/Hop



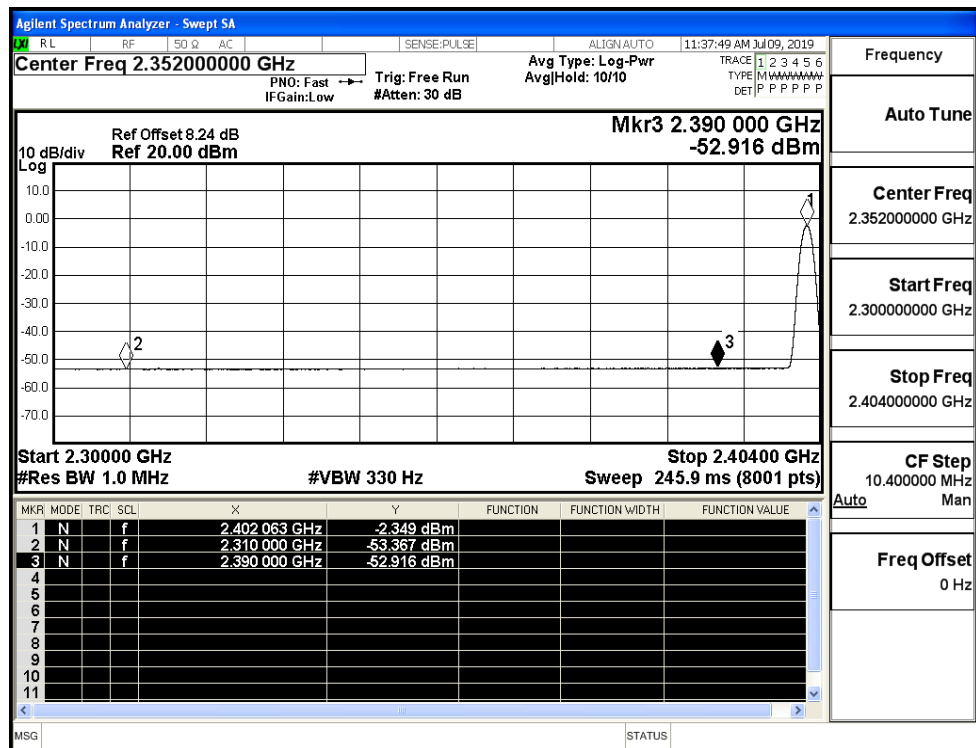
## A.8 Restrict-band band-edge measurements

| Test Mode     | Hopping | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0 | -43.12      | 2.0  | 0             | 52.14      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.37      | 2.0  | 0             | 41.89      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -43.14      | 2.0  | 0             | 52.12      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -52.92      | 2.0  | 0             | 42.34      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -42.27      | 2.0  | 0             | 52.99      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.85      | 2.0  | 0             | 42.41      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.04      | 2.0  | 0             | 52.21      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.74      | 2.0  | 0             | 42.52      | AV       | 54             | PASS    |
| $\pi/4$ DQPSK | Off     | 2310.0 | -41.96      | 2.0  | 0             | 53.29      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.40      | 2.0  | 0             | 41.85      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -41.66      | 2.0  | 0             | 53.59      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -53.12      | 2.0  | 0             | 42.14      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -40.80      | 2.0  | 0             | 54.46      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.89      | 2.0  | 0             | 42.37      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.48      | 2.0  | 0             | 51.77      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.73      | 2.0  | 0             | 42.53      | AV       | 54             | PASS    |
| 8DPSK         | Off     | 2310.0 | -43.61      | 2.0  | 0             | 51.65      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -53.45      | 2.0  | 0             | 41.81      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -41.81      | 2.0  | 0             | 53.45      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -53.29      | 2.0  | 0             | 41.97      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -42.71      | 2.0  | 0             | 52.55      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -52.83      | 2.0  | 0             | 42.42      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.14      | 2.0  | 0             | 52.12      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -52.75      | 2.0  | 0             | 42.51      | AV       | 54             | PASS    |

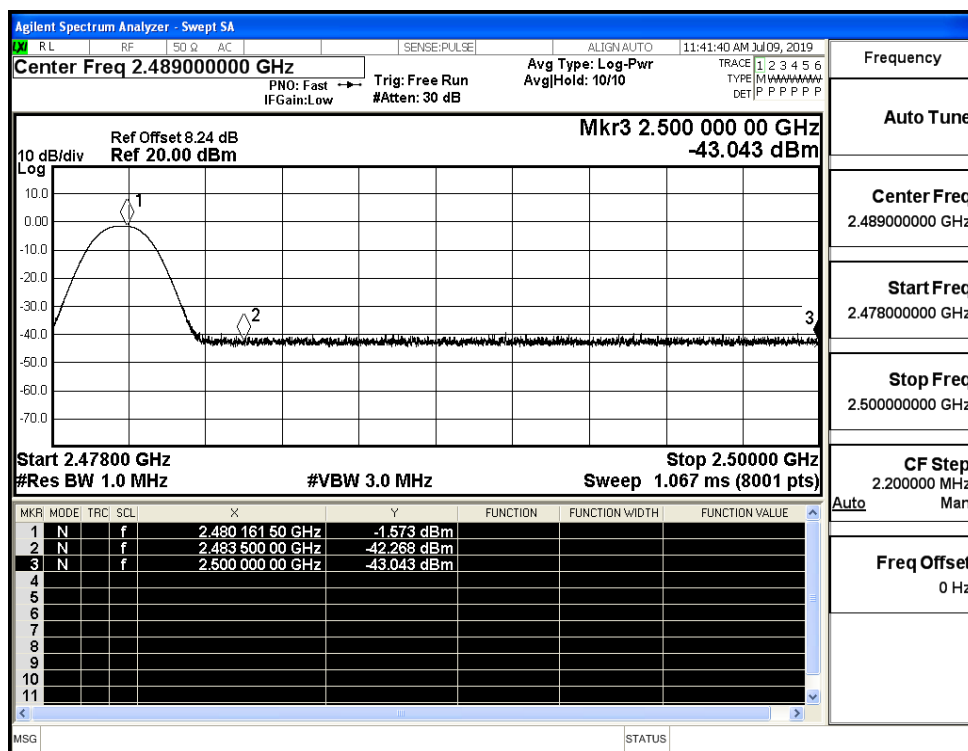
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



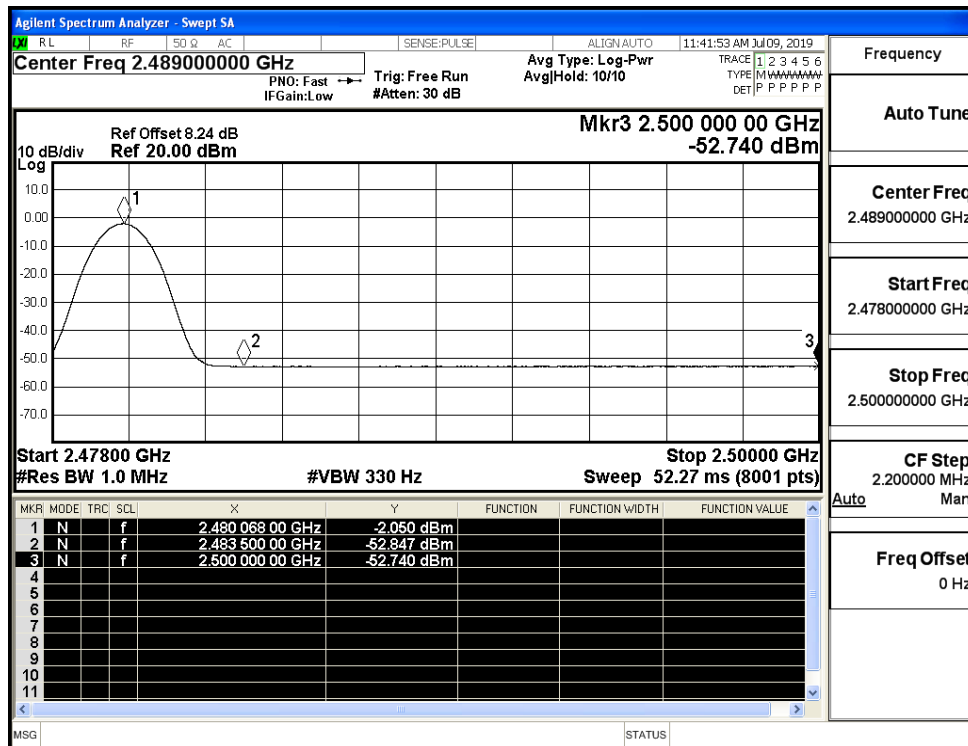
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)

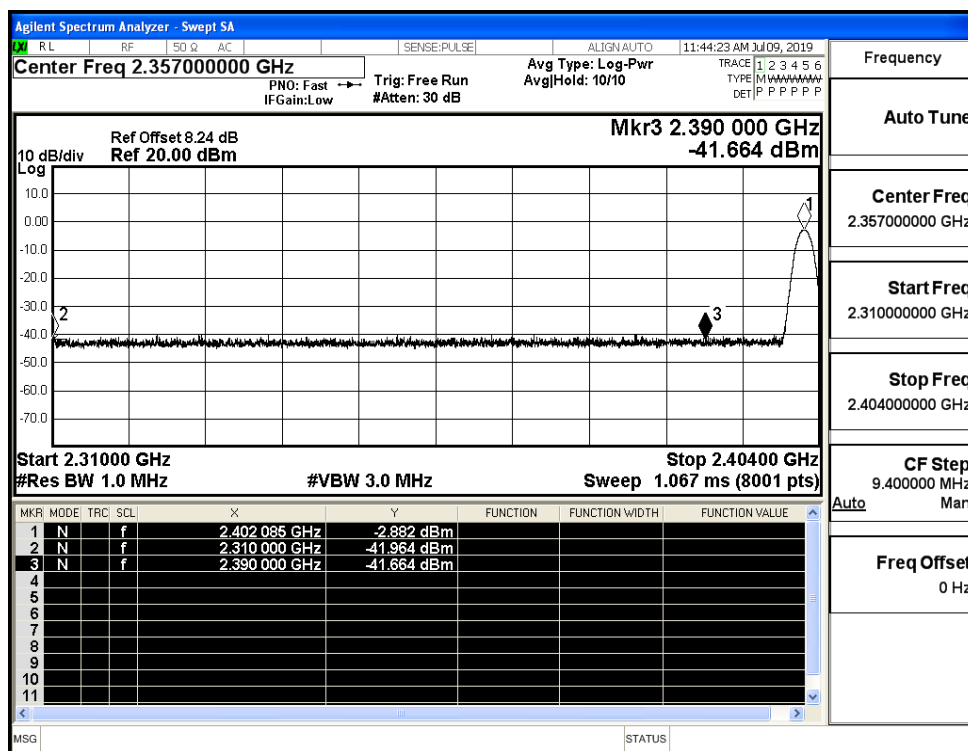
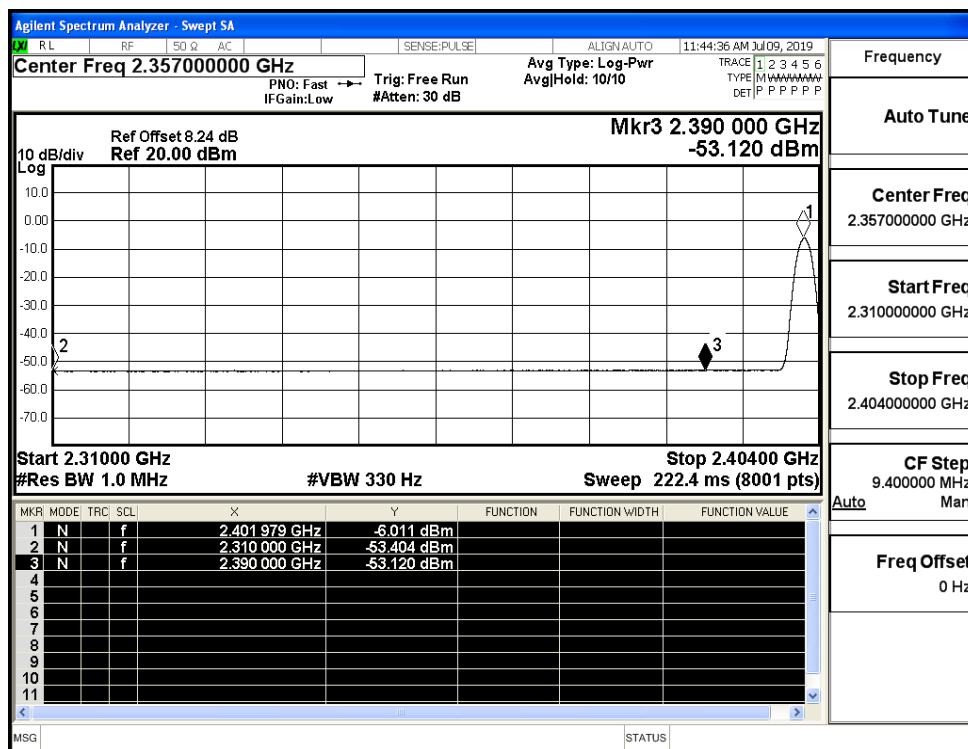


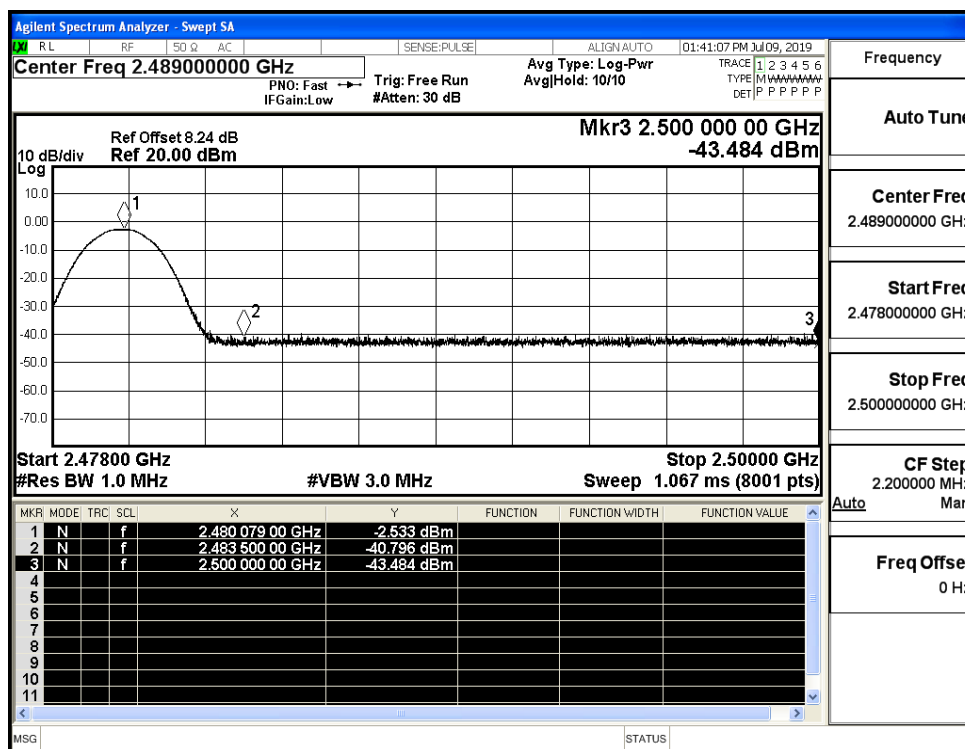
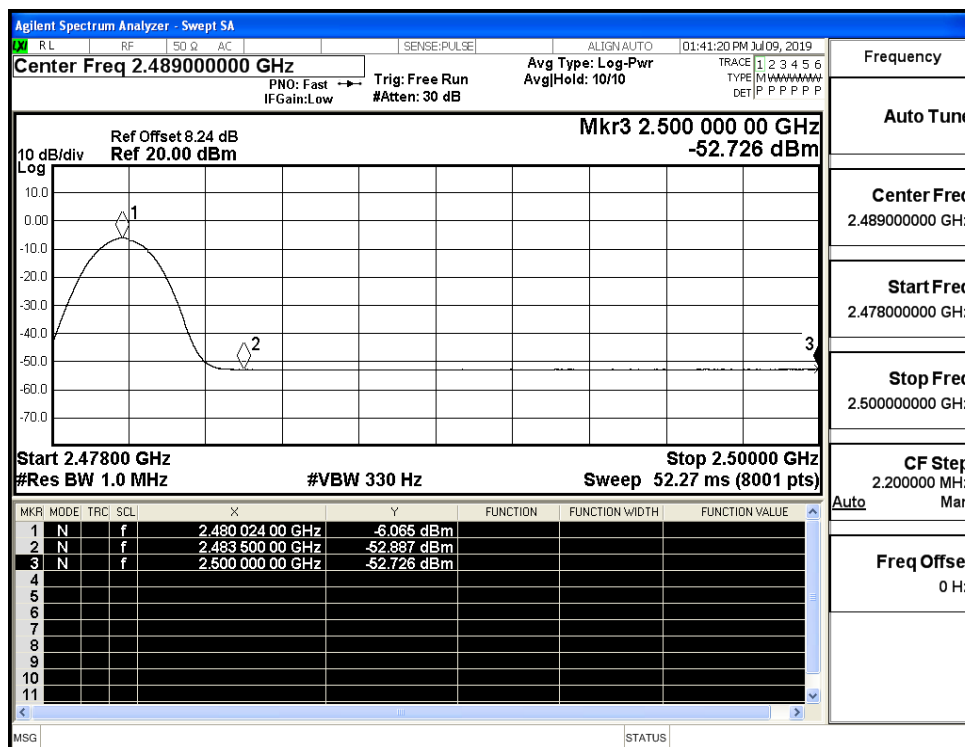
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



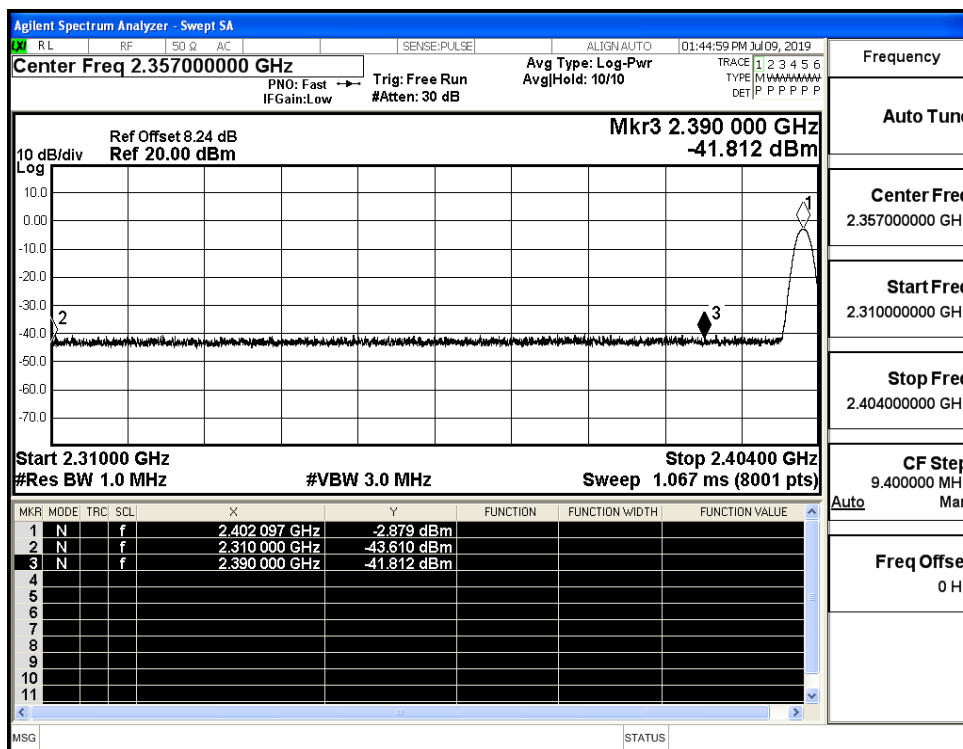
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



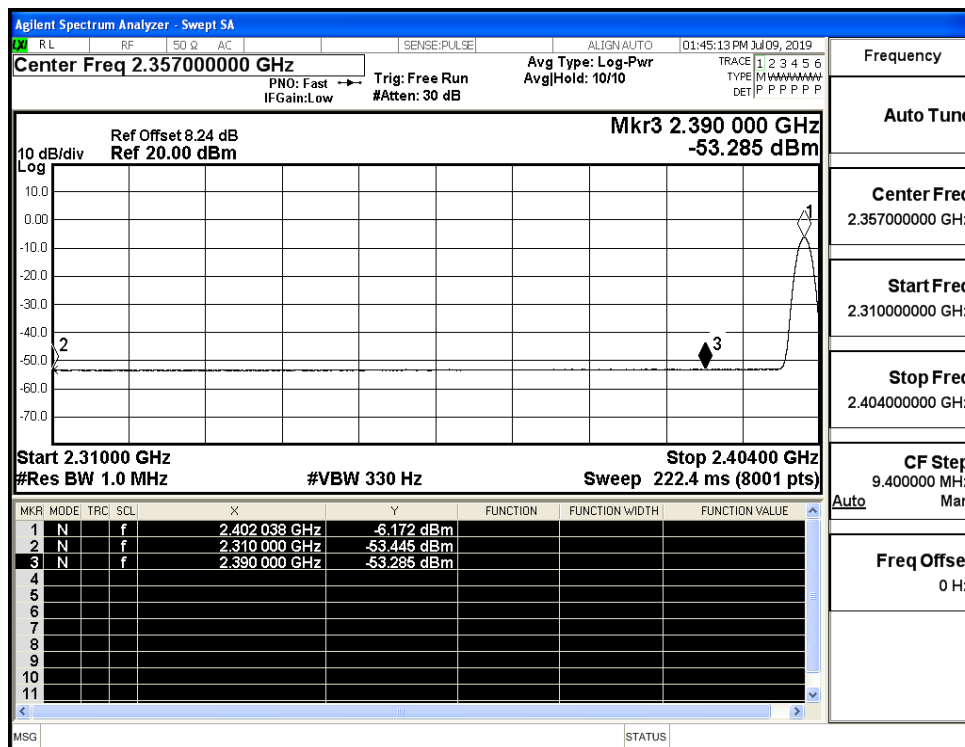
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)

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)

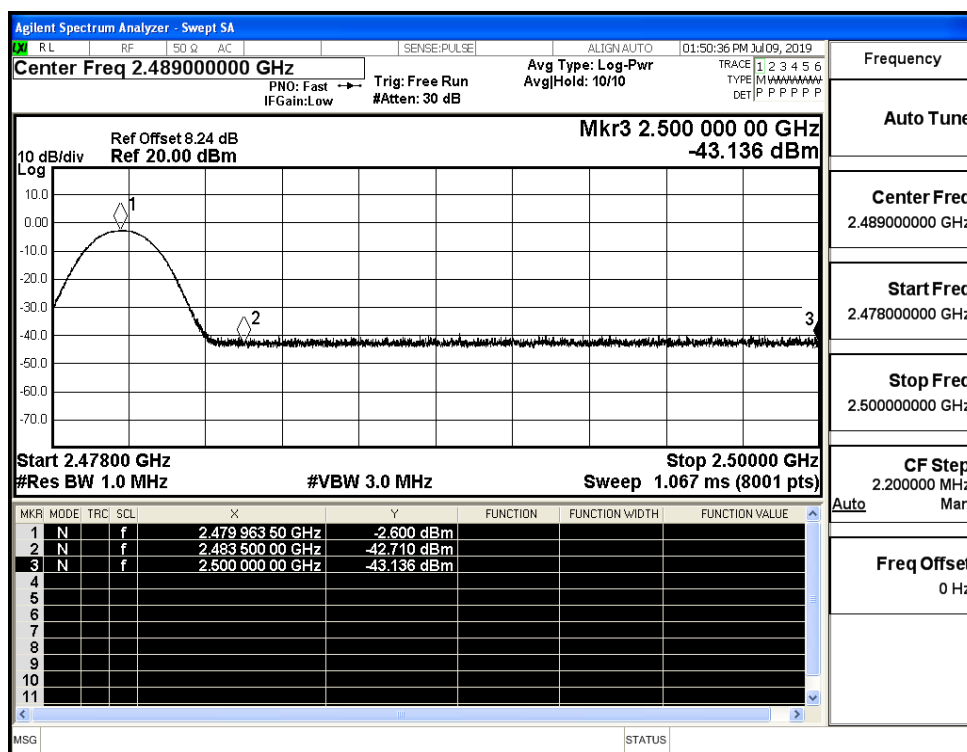
## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



## 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)

