

## Appendix A

### RF Test Data for BT V4.1 (BDR/EDR) (Conducted Measurement)

Product Name: Wireless Bone Conduction Headphones

Trade Mark: Vidonn

Test Model: Q2

#### Environmental Conditions

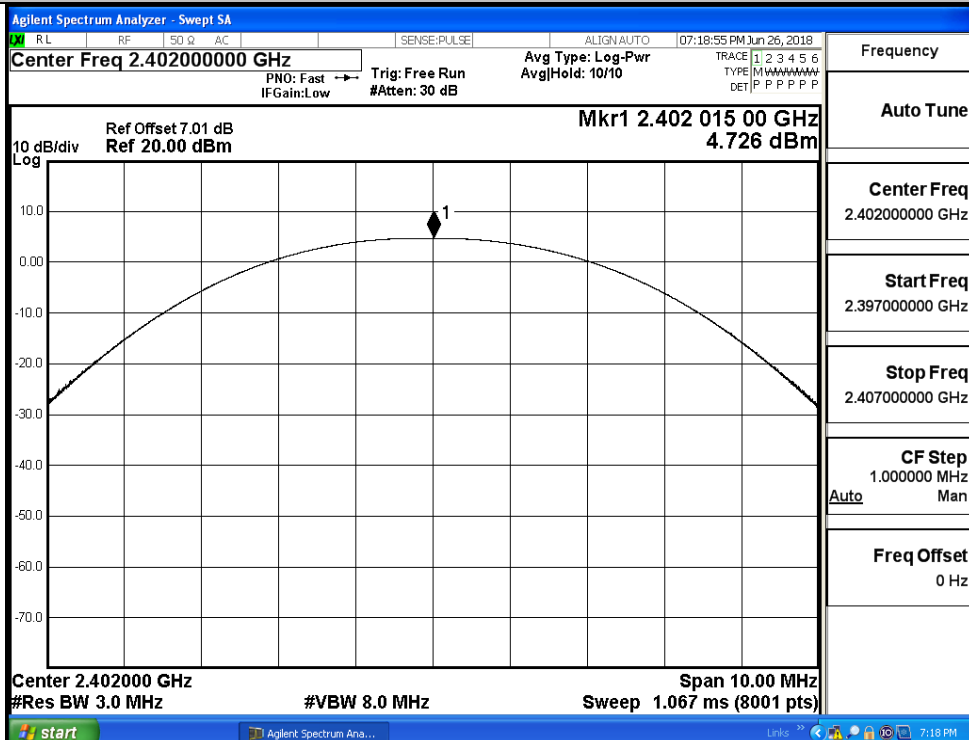
|                    |             |
|--------------------|-------------|
| Temperature:       | 23.4 ° C    |
| Relative Humidity: | 53.6%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | Wilson.Hong |
| Supervised by:     | Jayden.Zhuo |

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

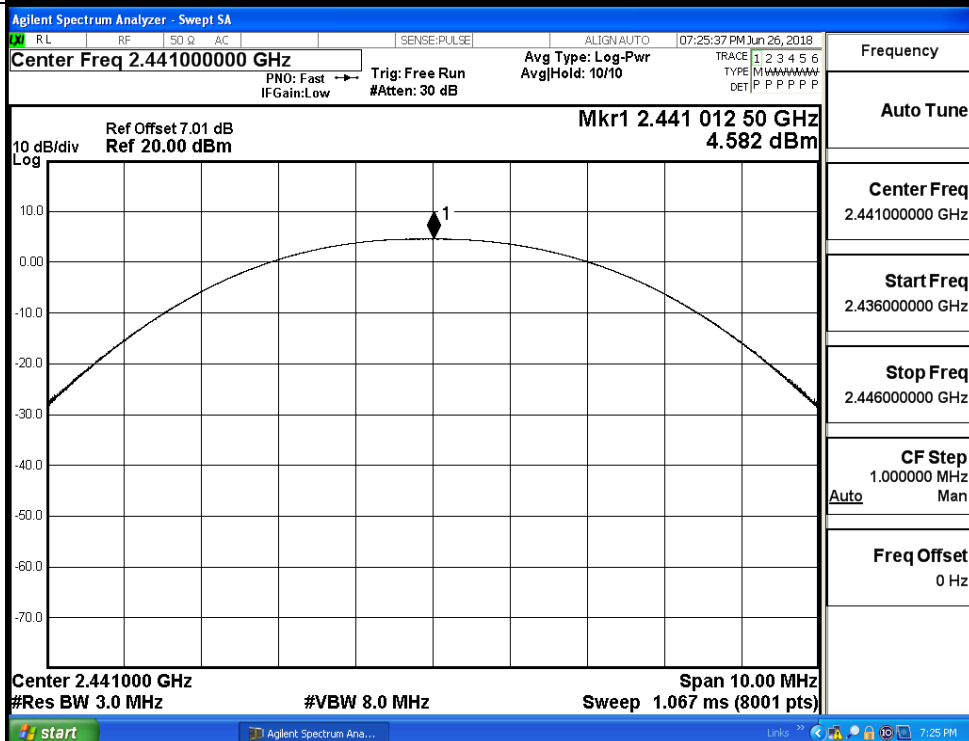
| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | 4.726                           | 30          | PASS    |
|               | MCH      | 4.582                           | 30          | PASS    |
|               | HCH      | 4.639                           | 30          | PASS    |
| $\pi/4$ DQPSK | LCH      | 4.504                           | 21          | PASS    |
|               | MCH      | 4.586                           | 21          | PASS    |
|               | HCH      | 4.614                           | 21          | PASS    |
| 8DPSK         | LCH      | 4.681                           | 21          | PASS    |
|               | MCH      | 4.718                           | 21          | PASS    |
|               | HCH      | 4.848                           | 21          | PASS    |

## Test Graphs

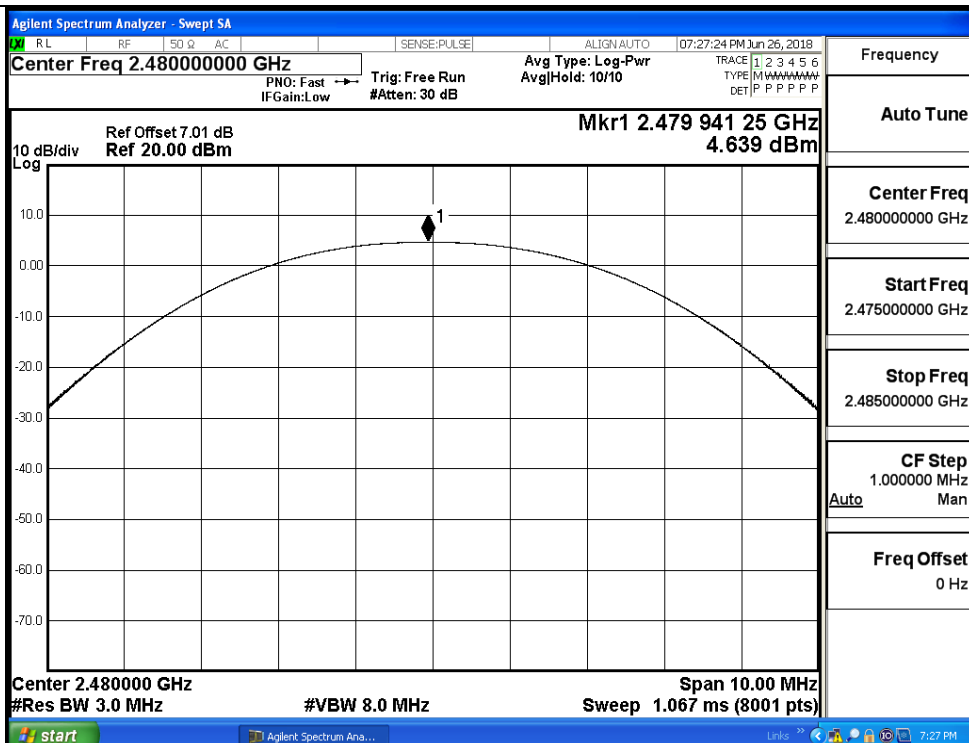
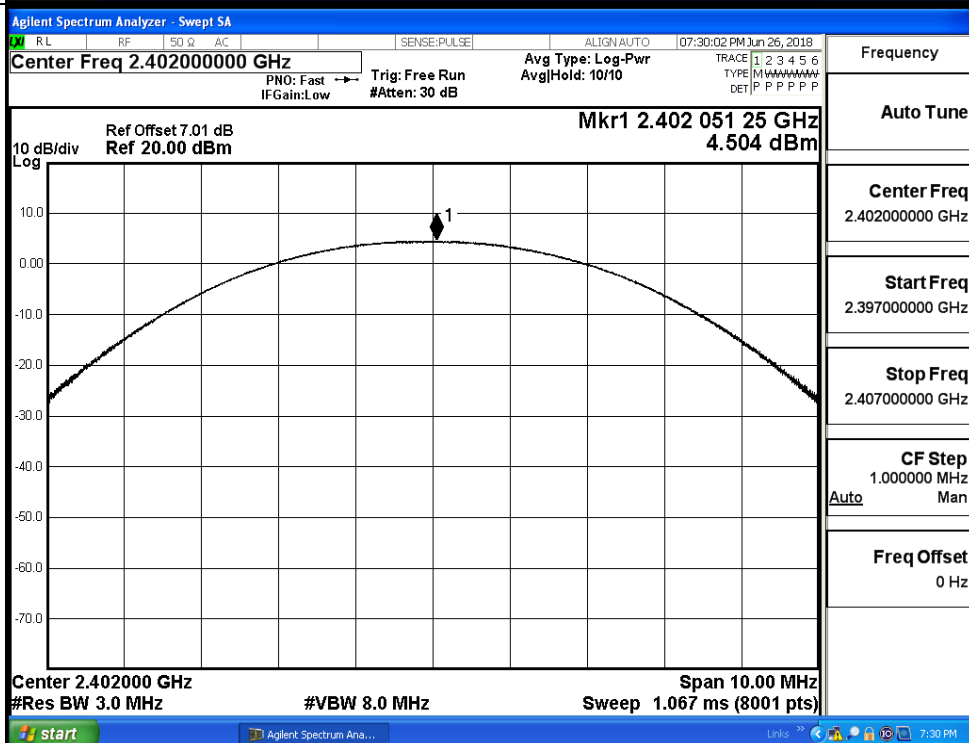
GFSK/LCH

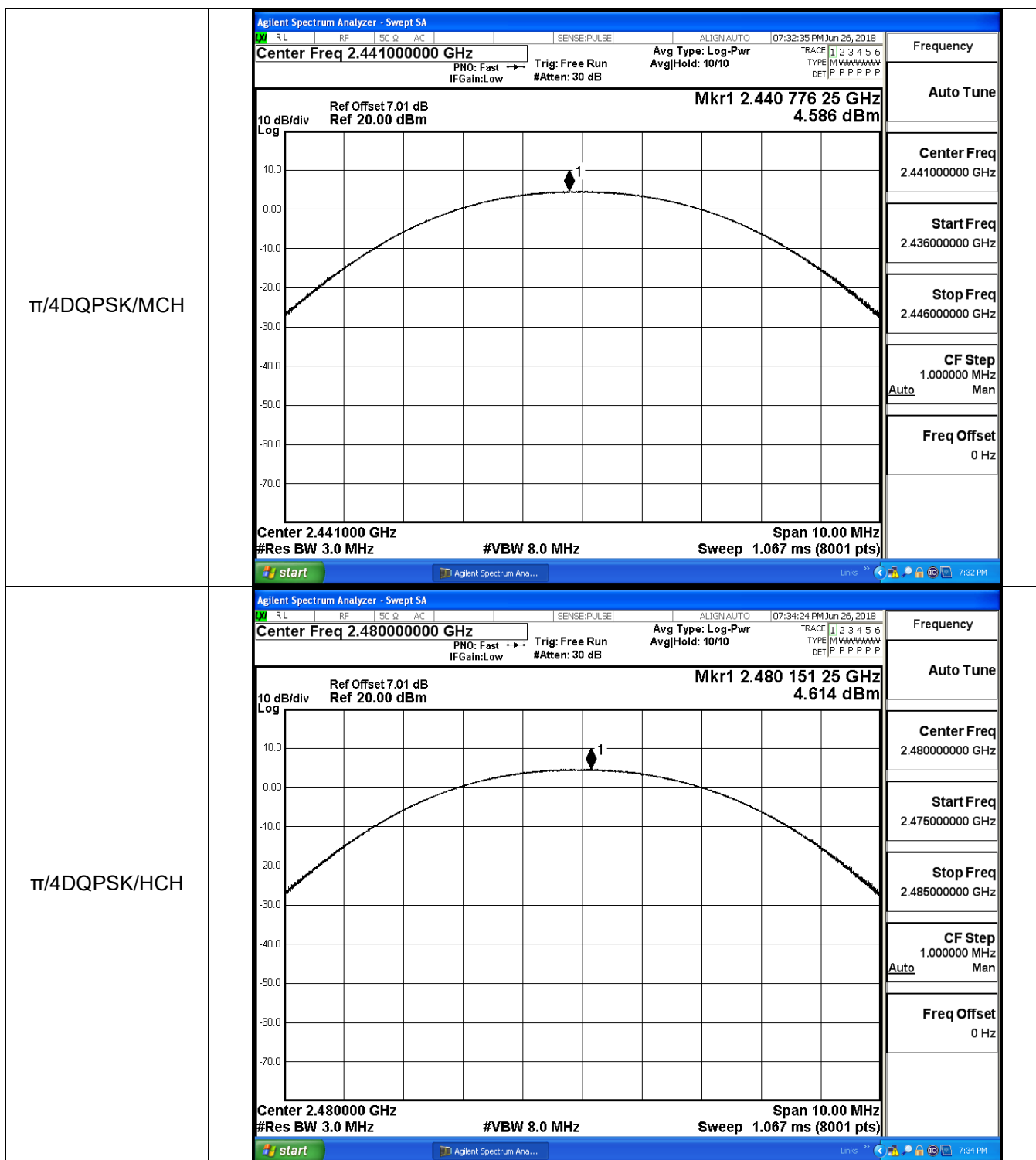


GFSK/MCH

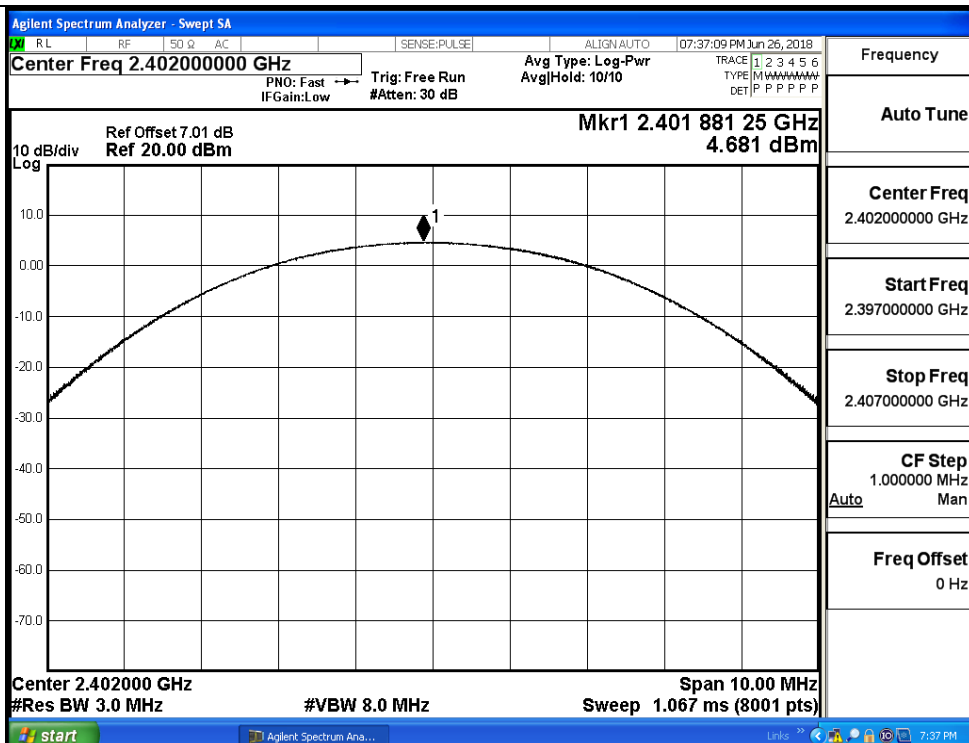


GFSK/HCH

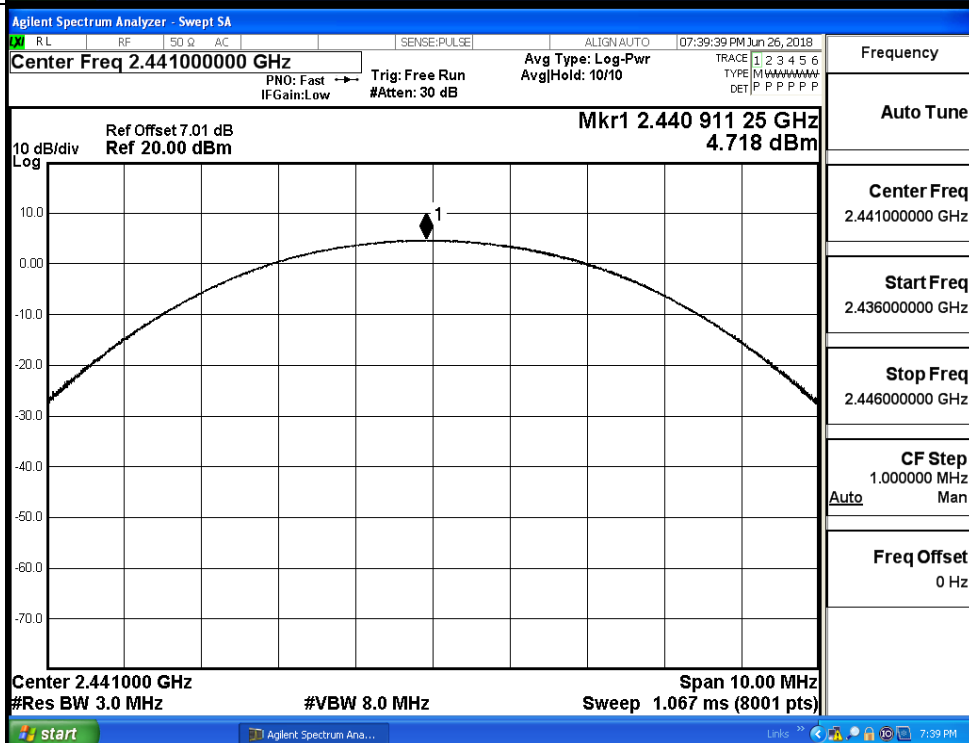
 $\pi$ /4DQPSK/LCH



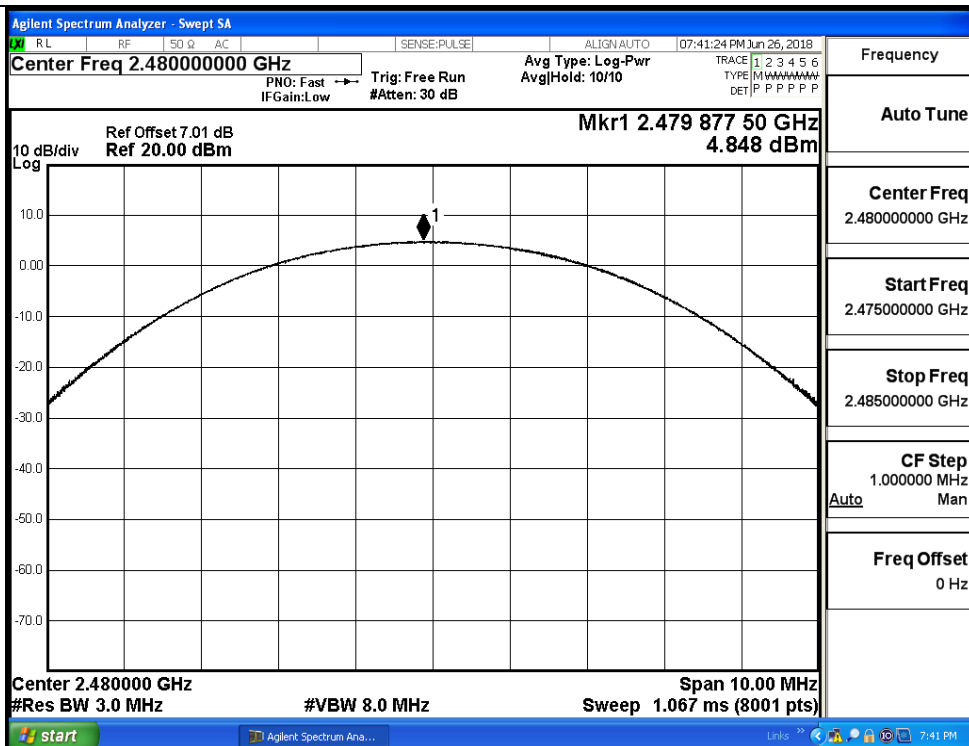
8DPSK/LCH



8DPSK/MCH



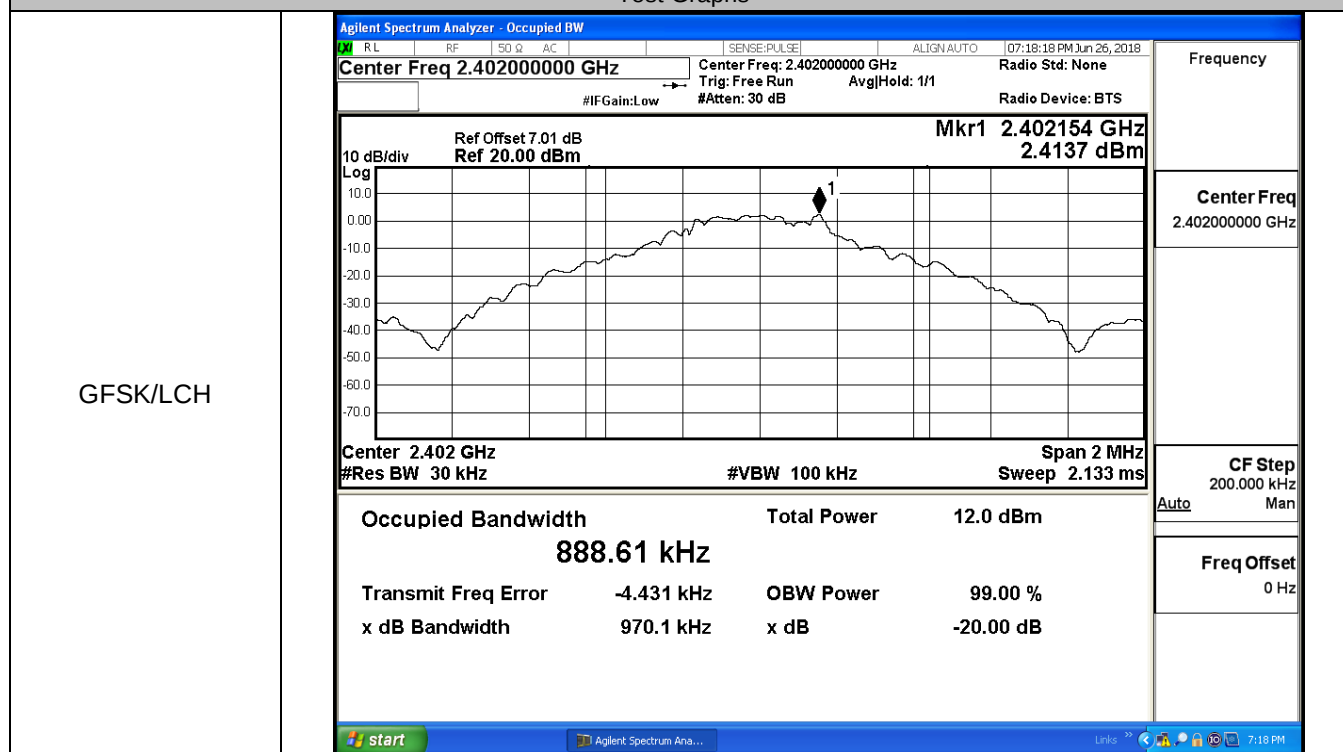
8DPSK/HCH



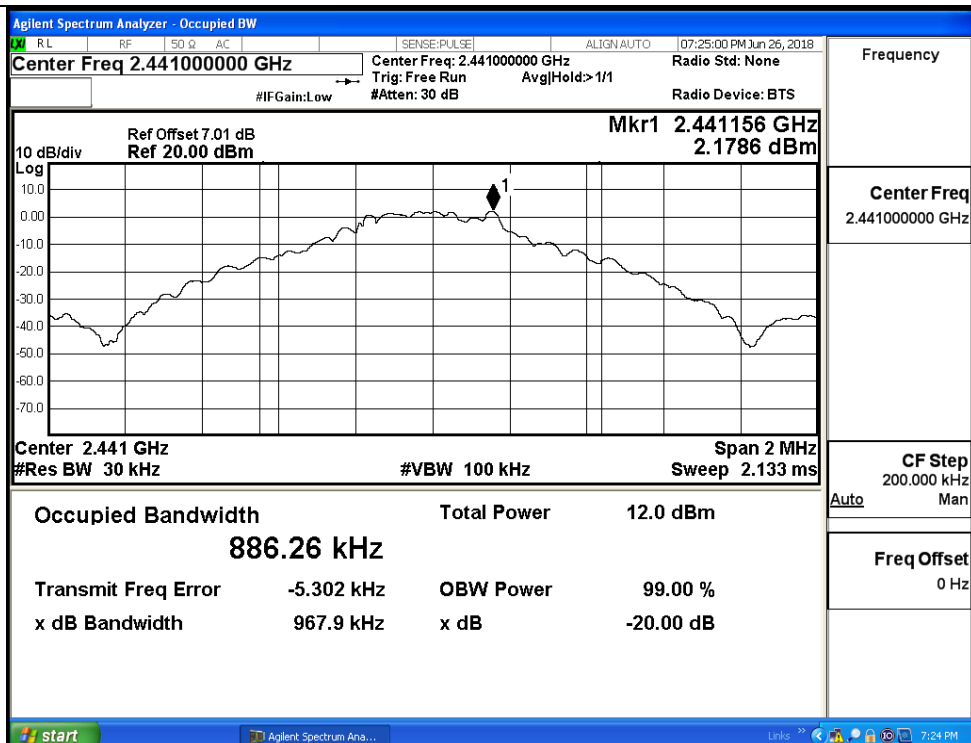
## A.2 99% Occupied Bandwidth and 20dB Bandwidth

| Mode          | Channel. | 99% Occupied Bandwidth (MHz) | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|------------------------------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.88861                      | 0.9701               | Not Specified | PASS    |
|               | MCH      | 0.88626                      | 0.9679               | Not Specified | PASS    |
|               | HCH      | 0.88653                      | 1.031                | Not Specified | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.1721                       | 1.293                | Not Specified | PASS    |
|               | MCH      | 1.1659                       | 1.288                | Not Specified | PASS    |
|               | HCH      | 1.1678                       | 1.288                | Not Specified | PASS    |
| 8DPSK         | LCH      | 1.1792                       | 1.292                | Not Specified | PASS    |
|               | MCH      | 1.1753                       | 1.291                | Not Specified | PASS    |
|               | HCH      | 1.1727                       | 1.291                | Not Specified | PASS    |

Test Graphs



GFSK/MCH



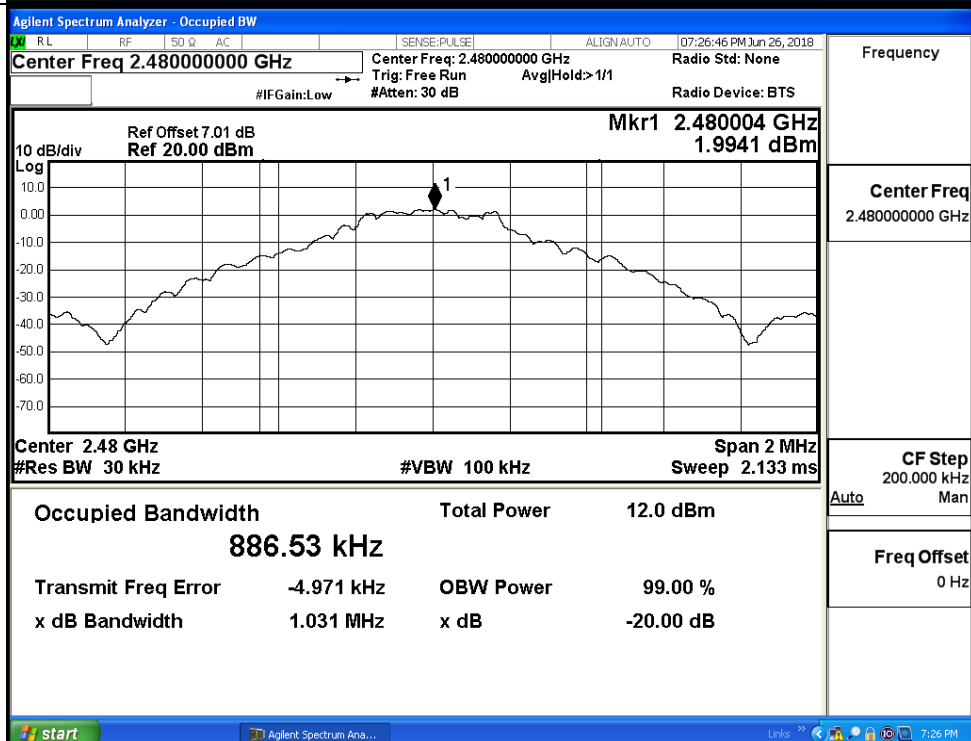
Frequency

Center Freq  
2.441000000 GHzCF Step  
200.000 kHz  
Man

Auto

Freq Offset  
0 Hz

GFSK/HCH

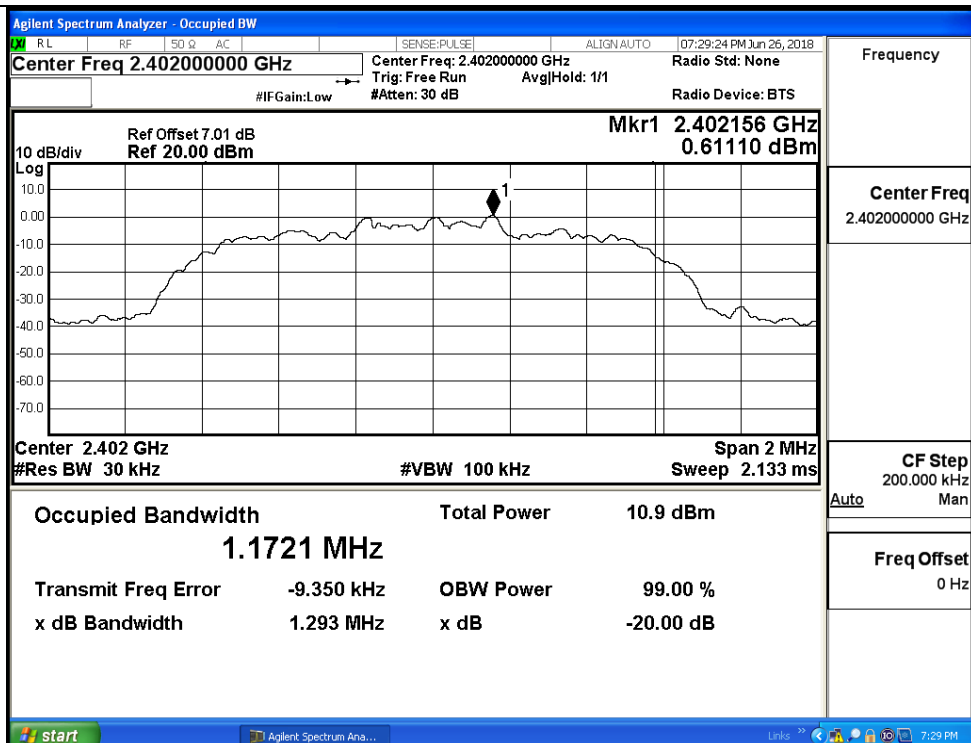


Frequency

Center Freq  
2.480000000 GHzCF Step  
200.000 kHz  
Man

Auto

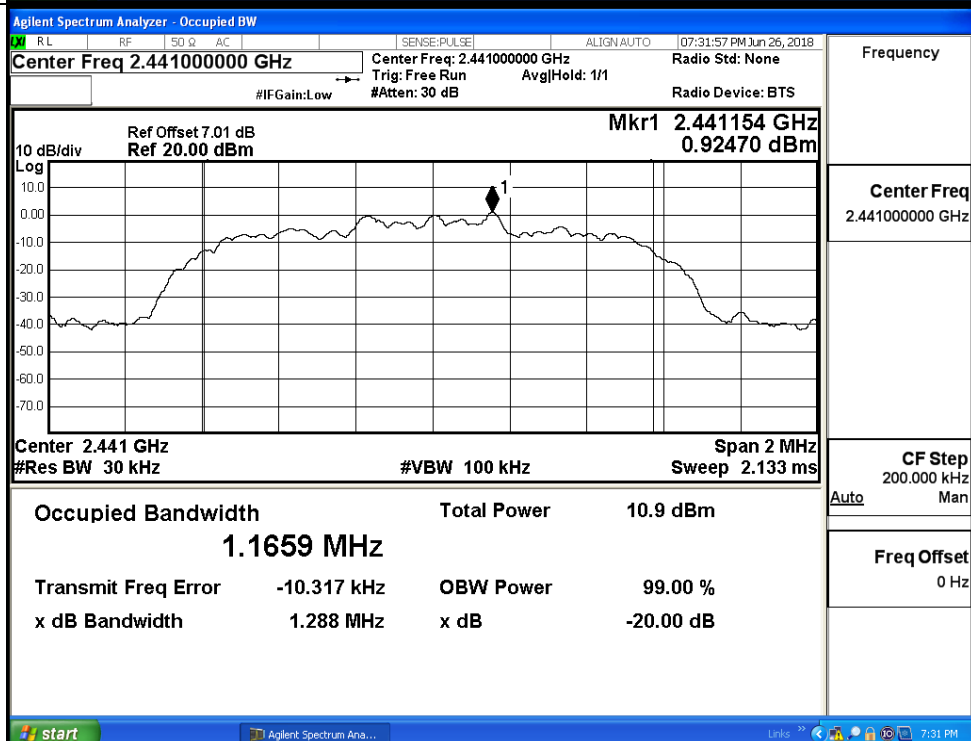
Freq Offset  
0 Hz

$\pi/4$ DQPSK/LCH

Frequency

Center Freq  
2.402000000 GHzCF Step  
200.000 kHz  
Man

Auto

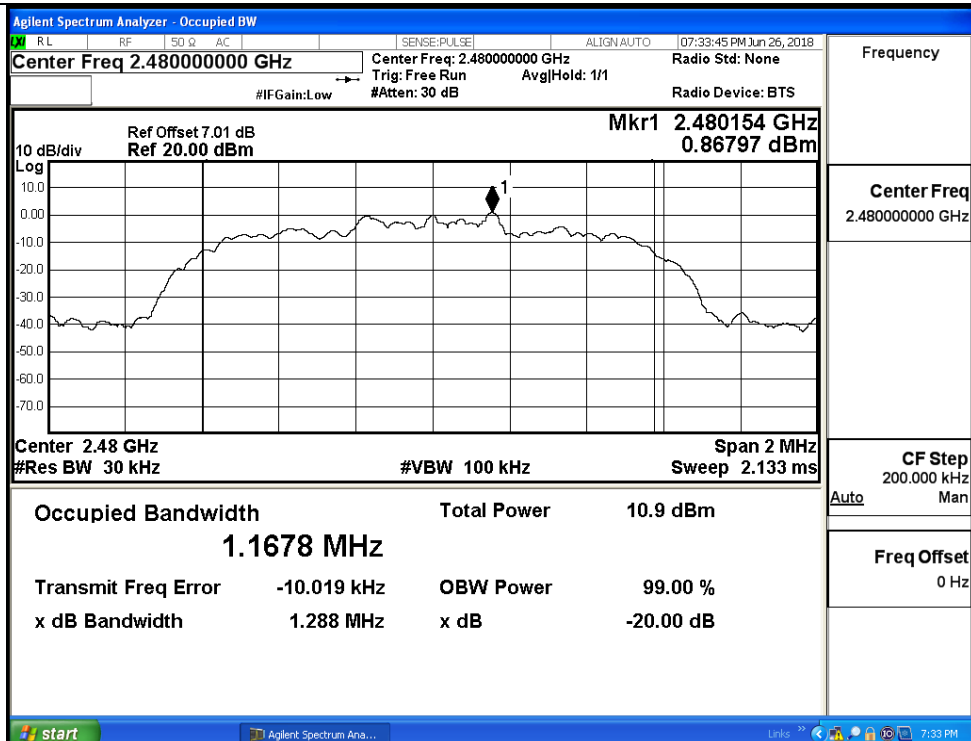
Freq Offset  
0 Hz $\pi/4$ DQPSK/MCH

Frequency

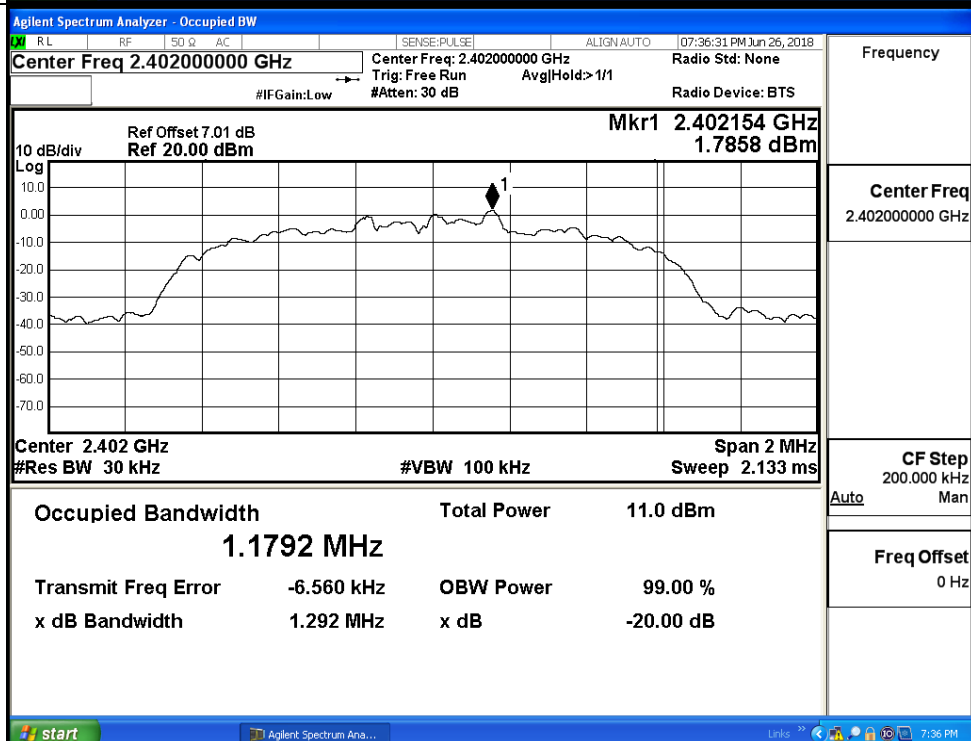
Center Freq  
2.441000000 GHzCF Step  
200.000 kHz  
Man

Auto

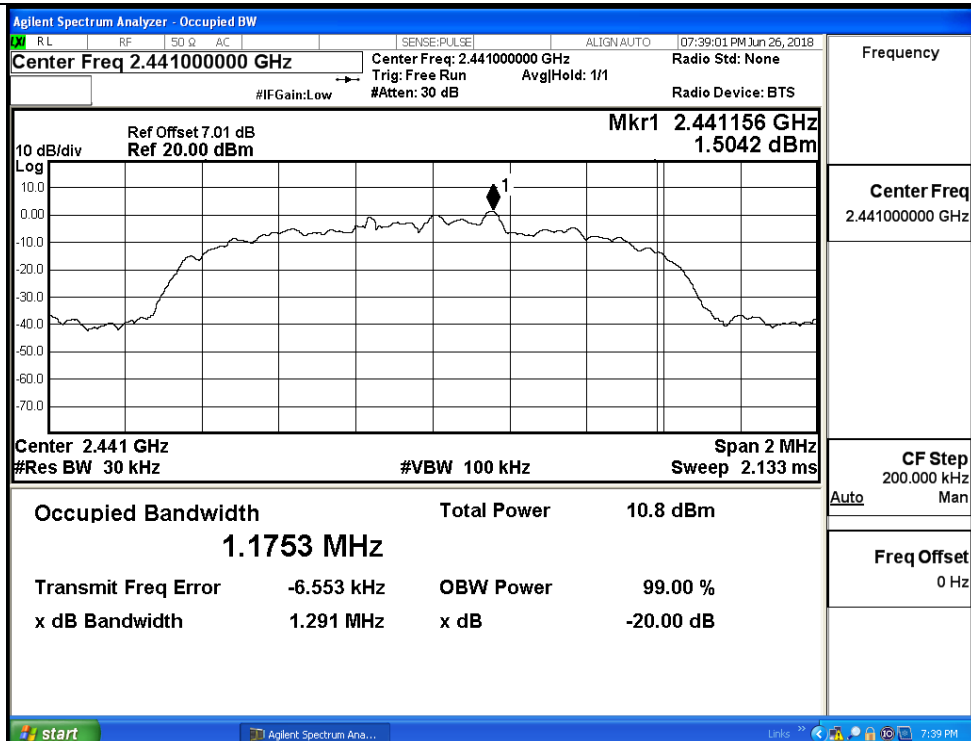
Freq Offset  
0 Hz

$\pi/4$ DQPSK/HCH

8DPSK/LCH



8DPSK/MCH



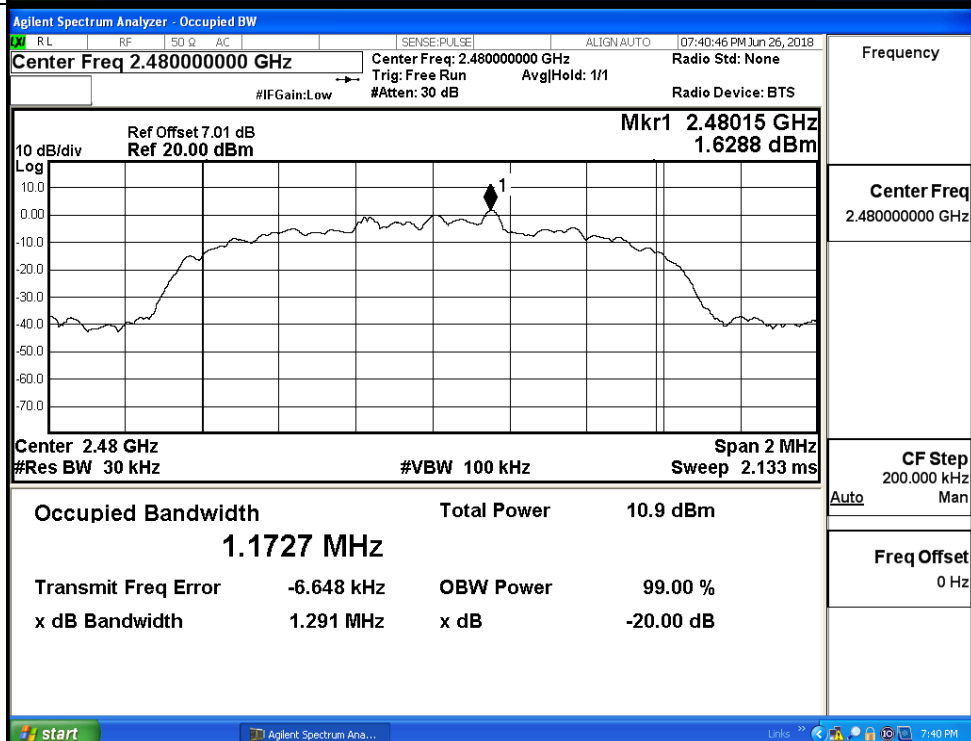
Frequency

Center Freq  
2.441000000 GHzCF Step  
200.000 kHz  
Man

Auto

Freq Offset  
0 Hz

8DPSK/HCH



Frequency

Center Freq  
2.480000000 GHzCF Step  
200.000 kHz  
Man

Auto

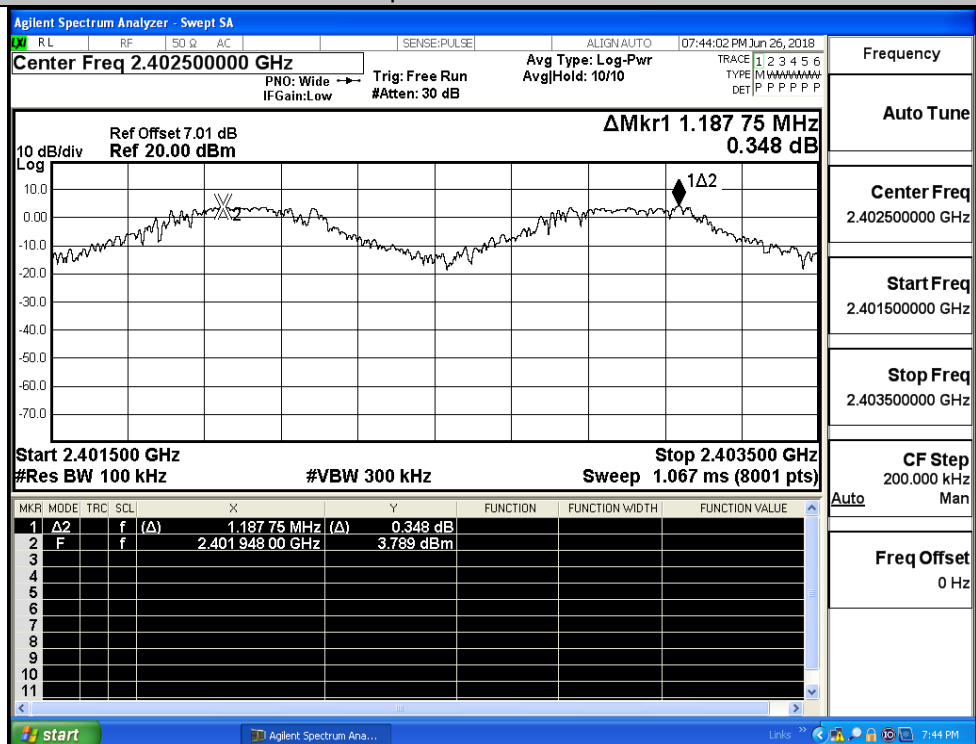
Freq Offset  
0 Hz

### A.3 Carrier Frequency Separation

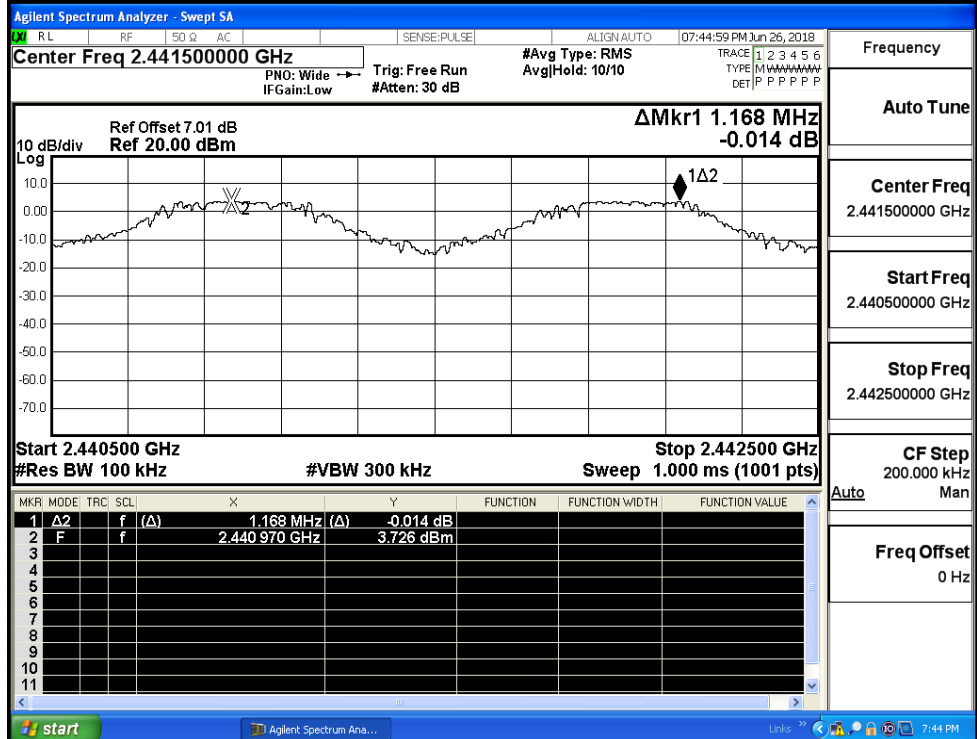
| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | LCH      | 1.188                              | 0.647       | PASS    |
|               | MCH      | 1.168                              | 0.645       | PASS    |
|               | HCH      | 1.012                              | 0.687       | PASS    |
| $\pi$ /4DQPSK | LCH      | 1.098                              | 0.862       | PASS    |
|               | MCH      | 1.046                              | 0.859       | PASS    |
|               | HCH      | 1.210                              | 0.859       | PASS    |
| 8DPSK         | LCH      | 1.308                              | 0.861       | PASS    |
|               | MCH      | 1.144                              | 0.861       | PASS    |
|               | HCH      | 1.018                              | 0.861       | PASS    |

Test Graphs

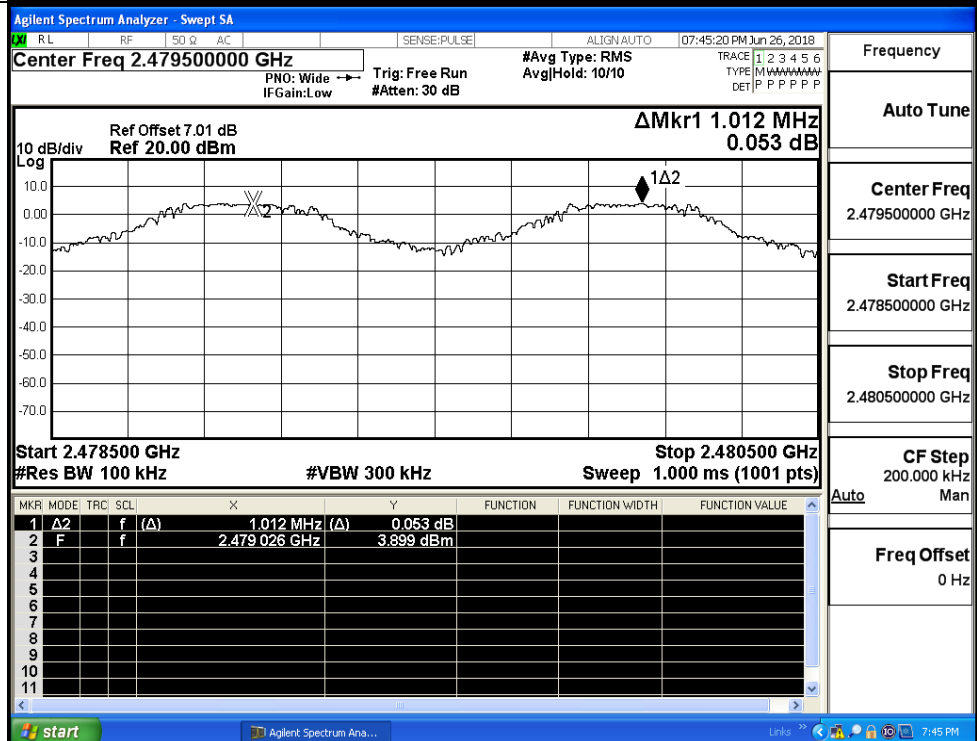
GFSK/LCH

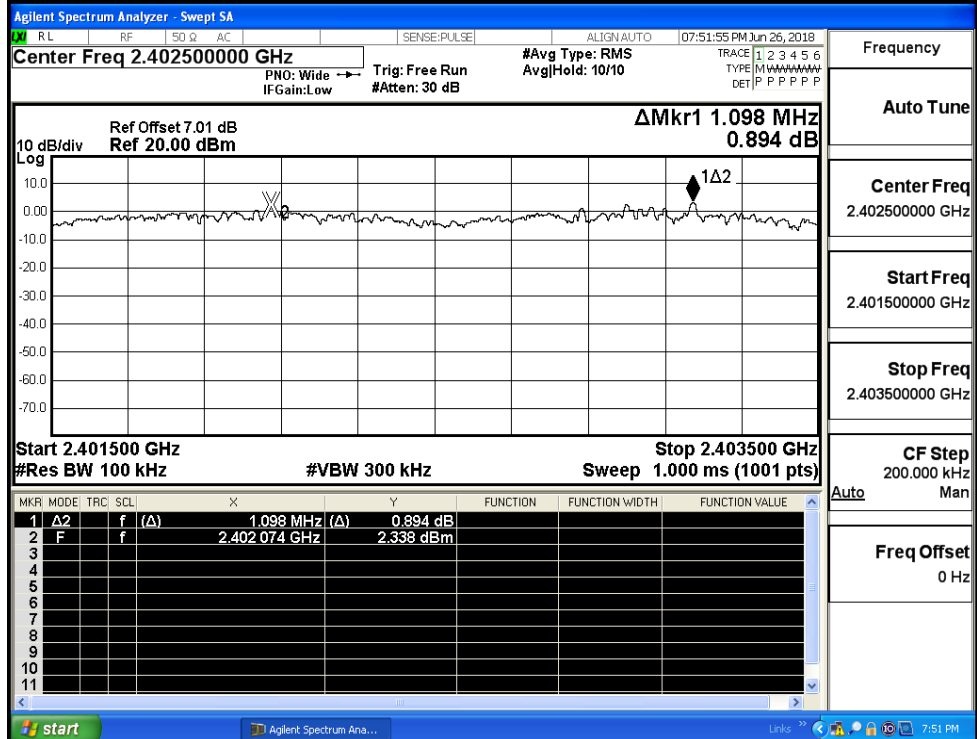
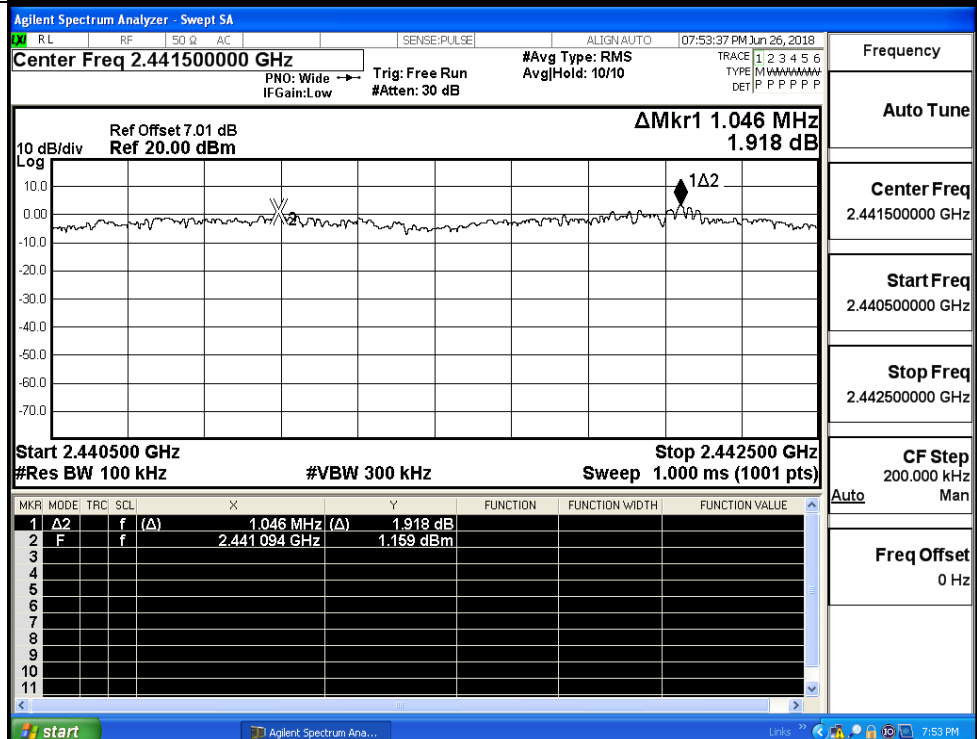


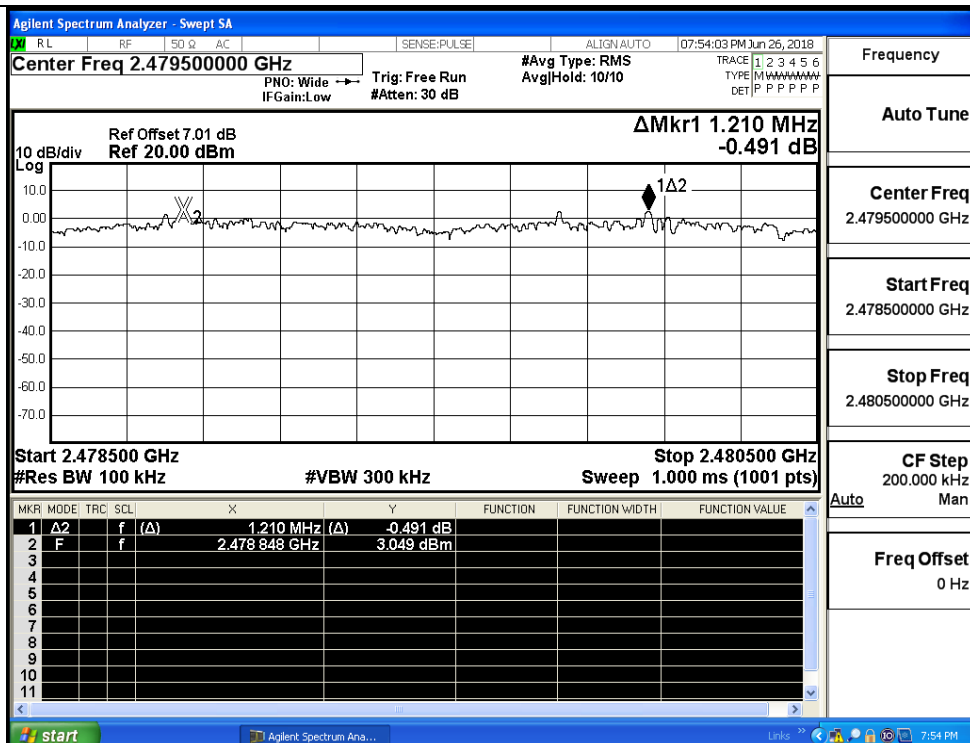
GFSK/MCH



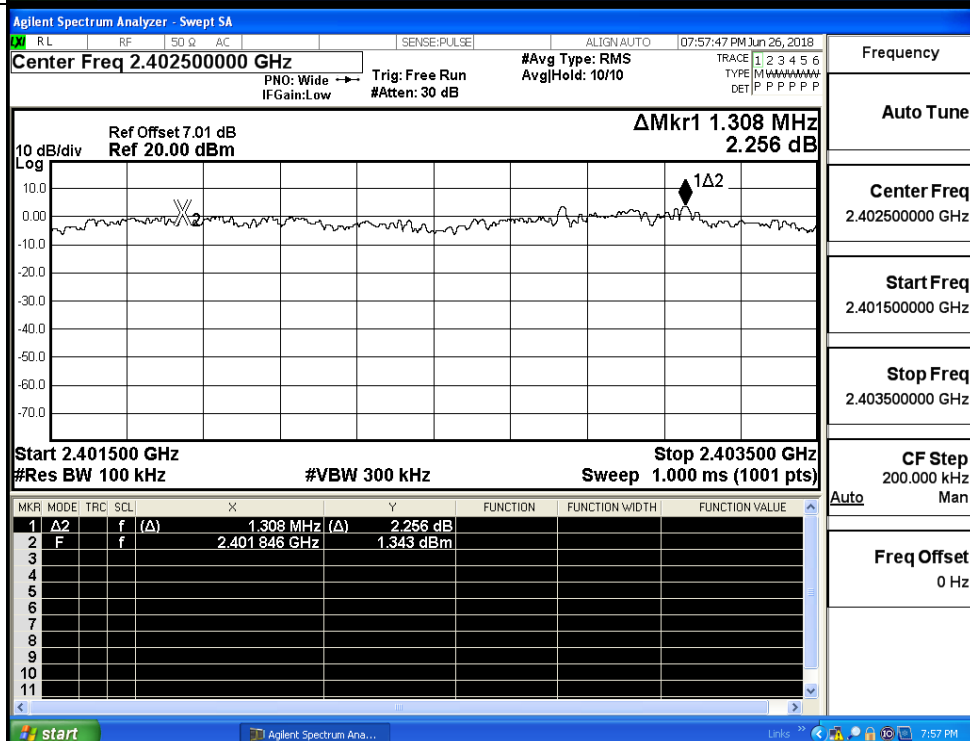
GFSK/HCH



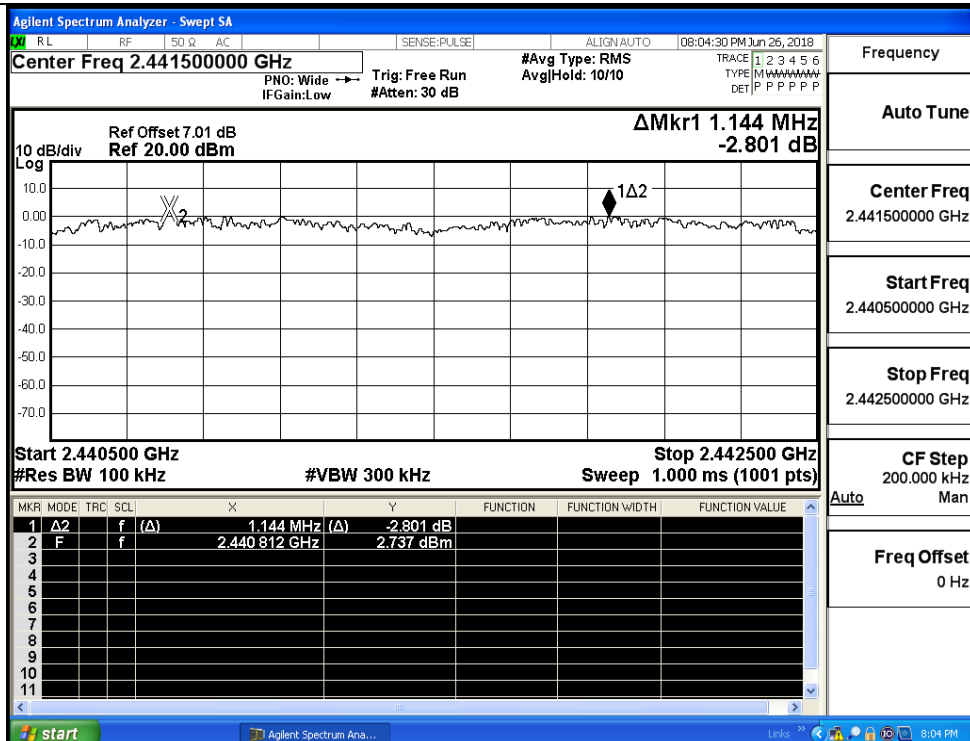
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

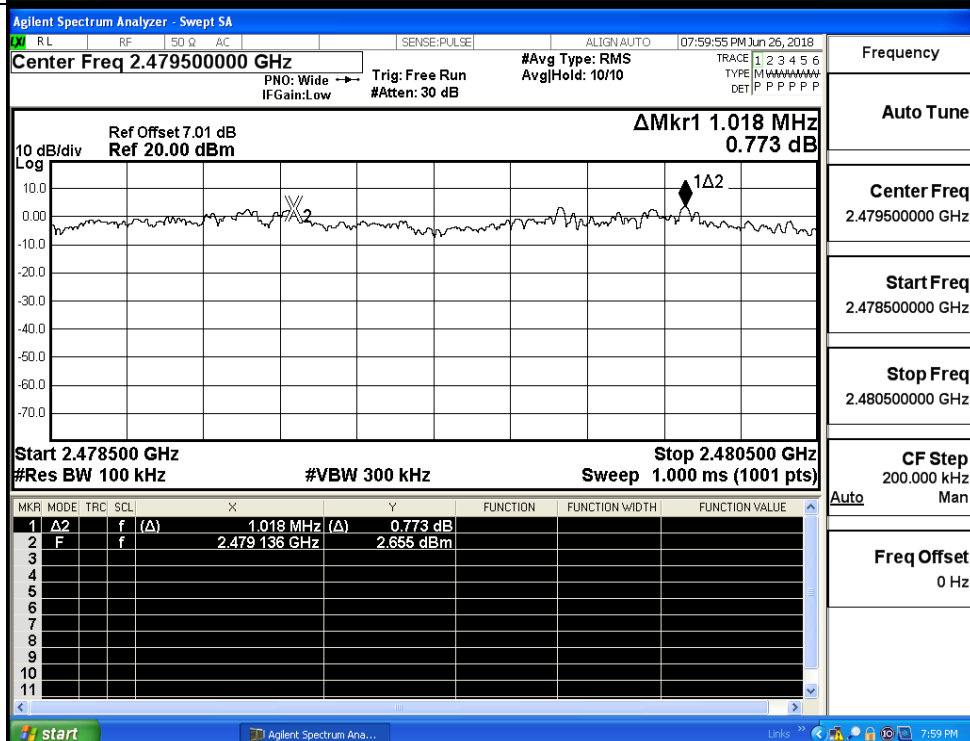
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

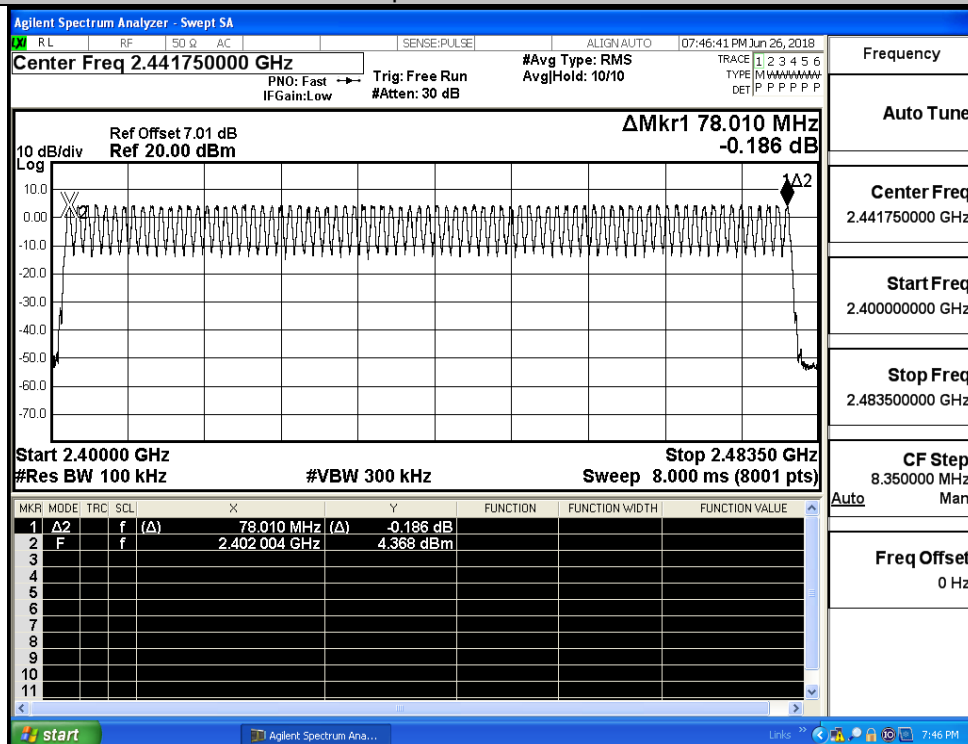


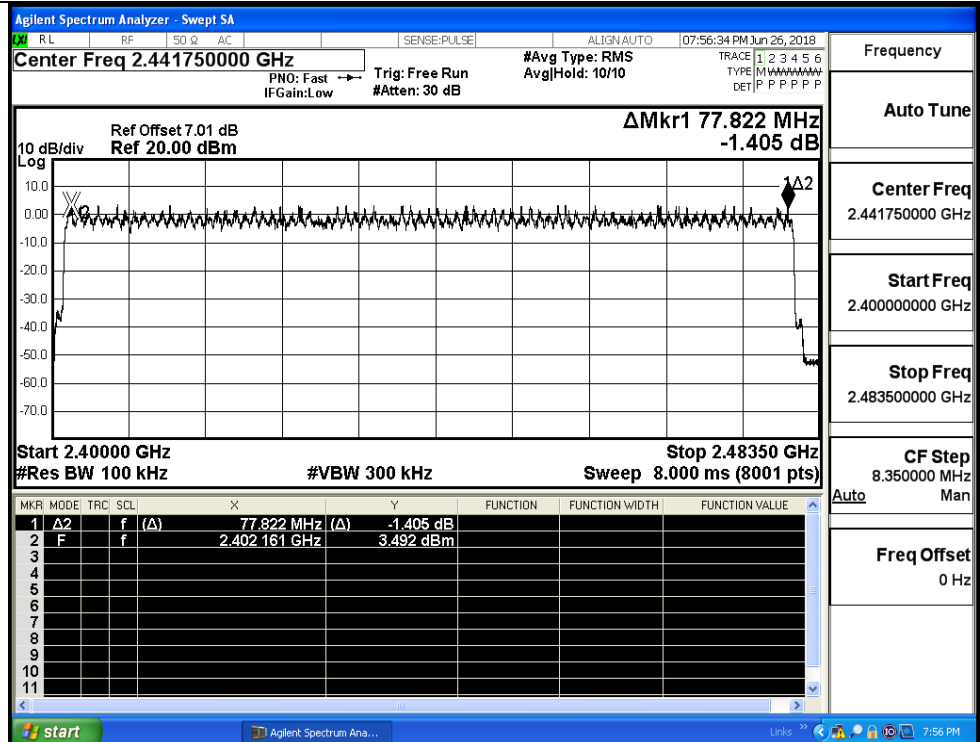
## A.4 Hopping Channel Number

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

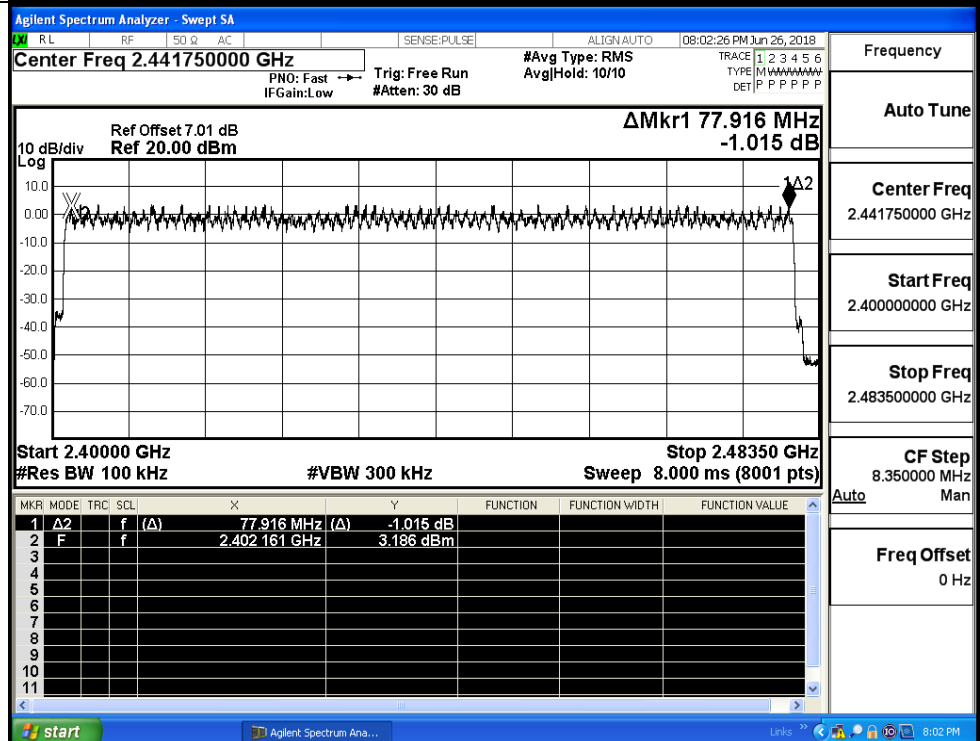
Test Graphs

GFSK/Hop



$\pi/4$ DQPSK/Hop

8DPSK/Hop

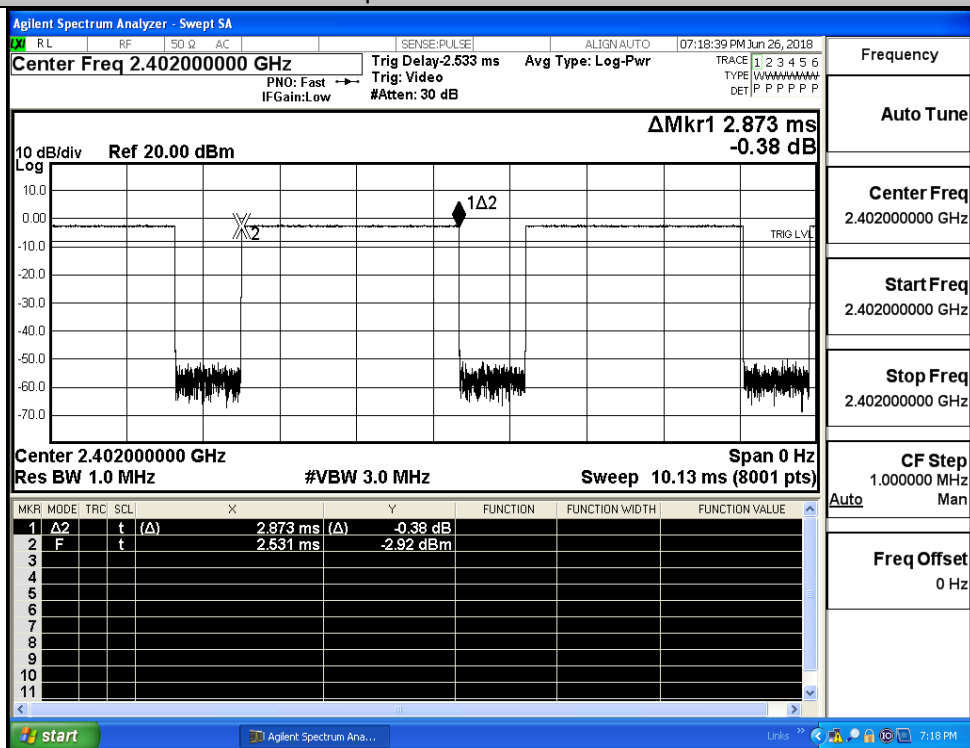


## A.5 Dwell Time

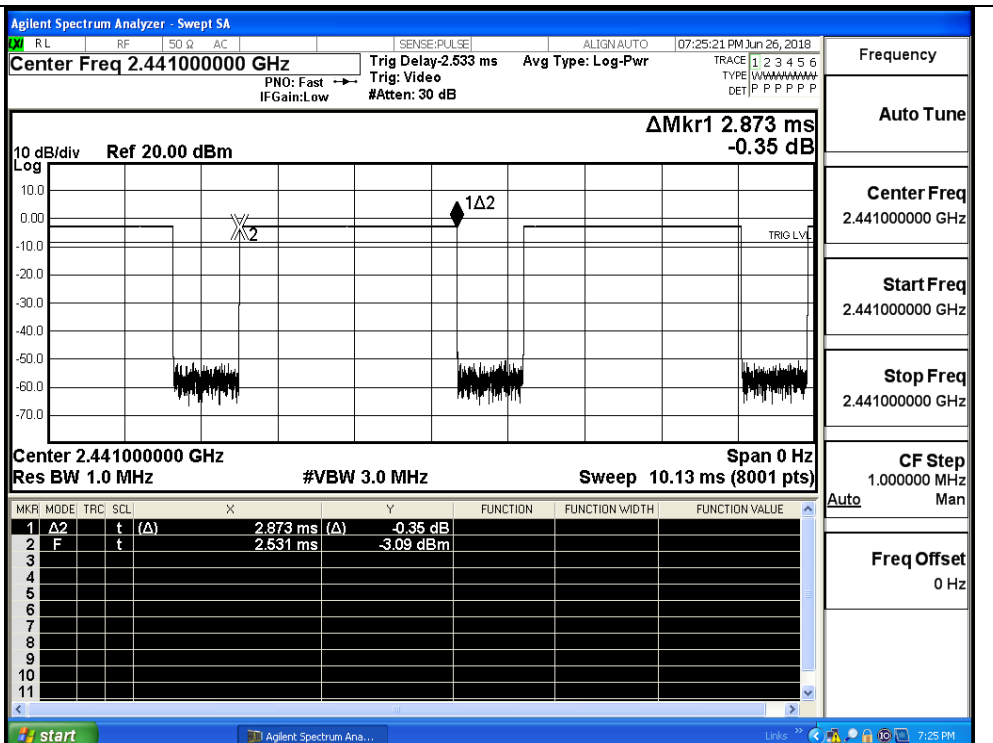
| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[s] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|---------------|-----------|---------|
| GFSK          | DH5    | LCH     | 2.87                       | 106.7                 | 0.306         | 0.4       | PASS    |
|               | DH5    | MCH     | 2.87                       | 106.7                 | 0.306         | 0.4       | PASS    |
|               | DH5    | HCH     | 2.87                       | 106.7                 | 0.306         | 0.4       | PASS    |
| $\pi/4$ DQPSK | 2DH5   | LCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 2DH5   | MCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 2DH5   | HCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
| 8DPSK         | 3DH5   | LCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 3DH5   | MCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 3DH5   | HCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |

### Test Graphs

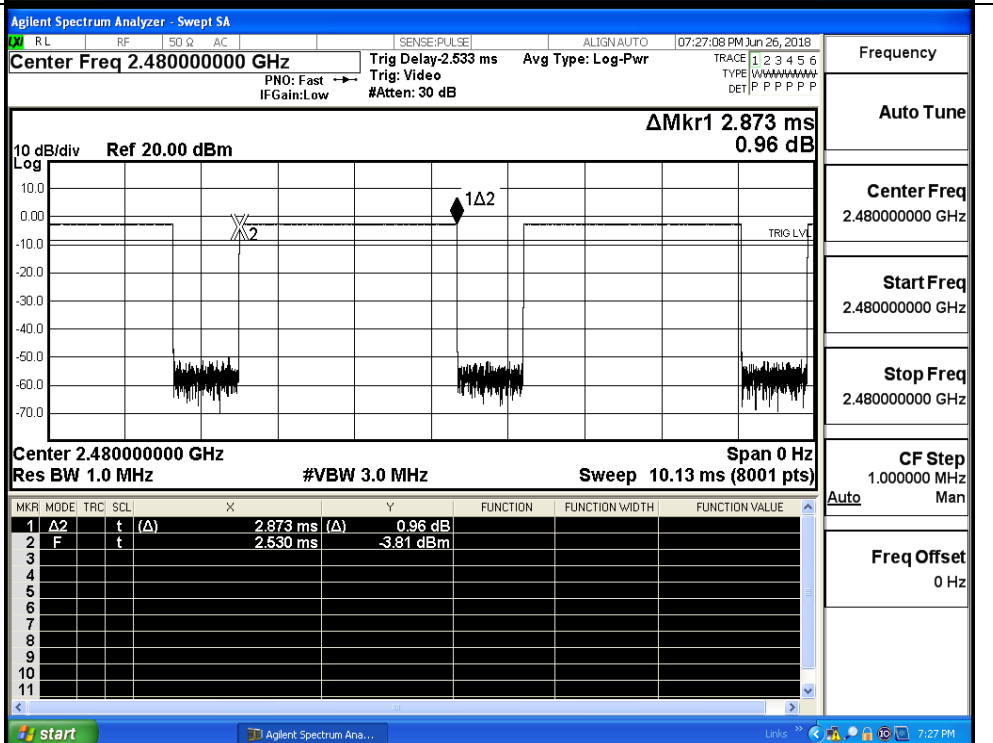
GFSK\_DH5/LCH



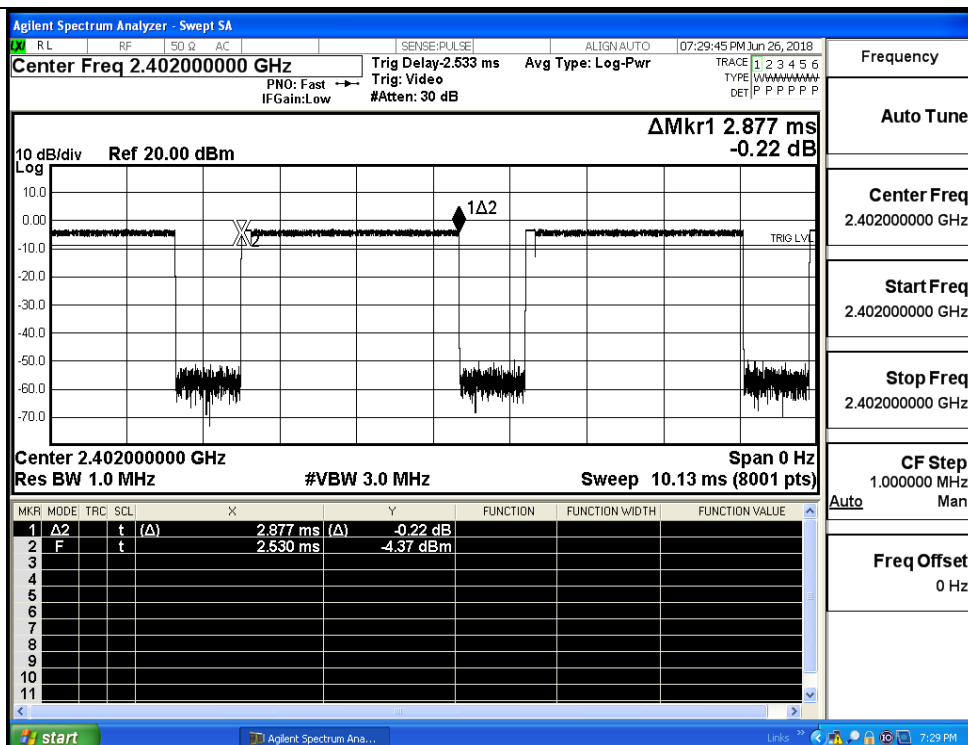
GFSK\_DH5/MCH



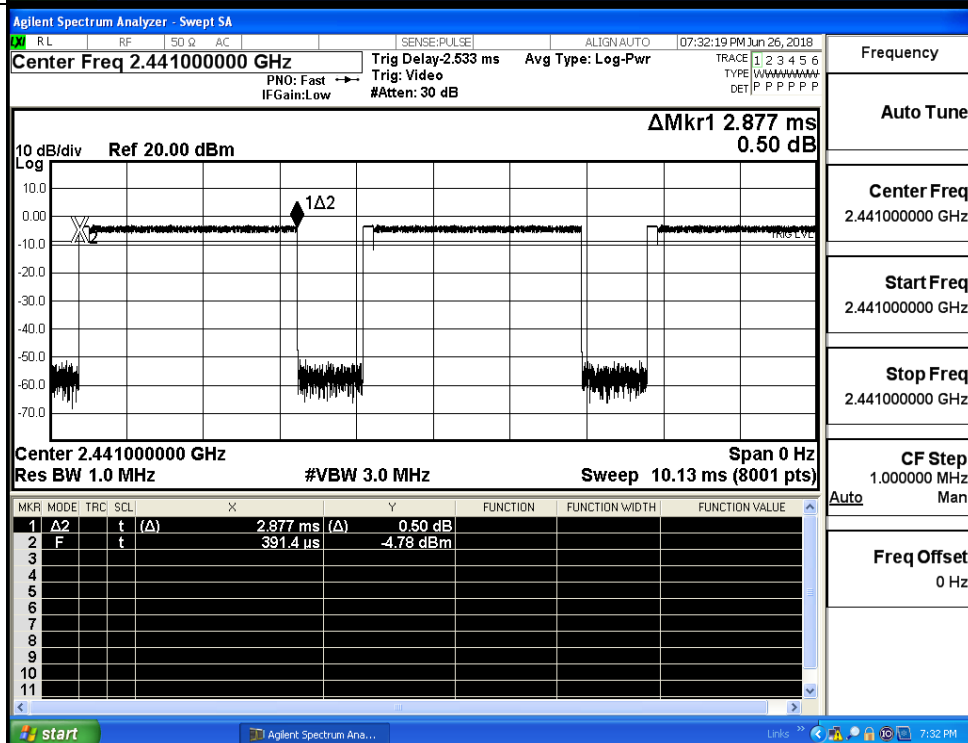
GFSK\_DH5/HCH



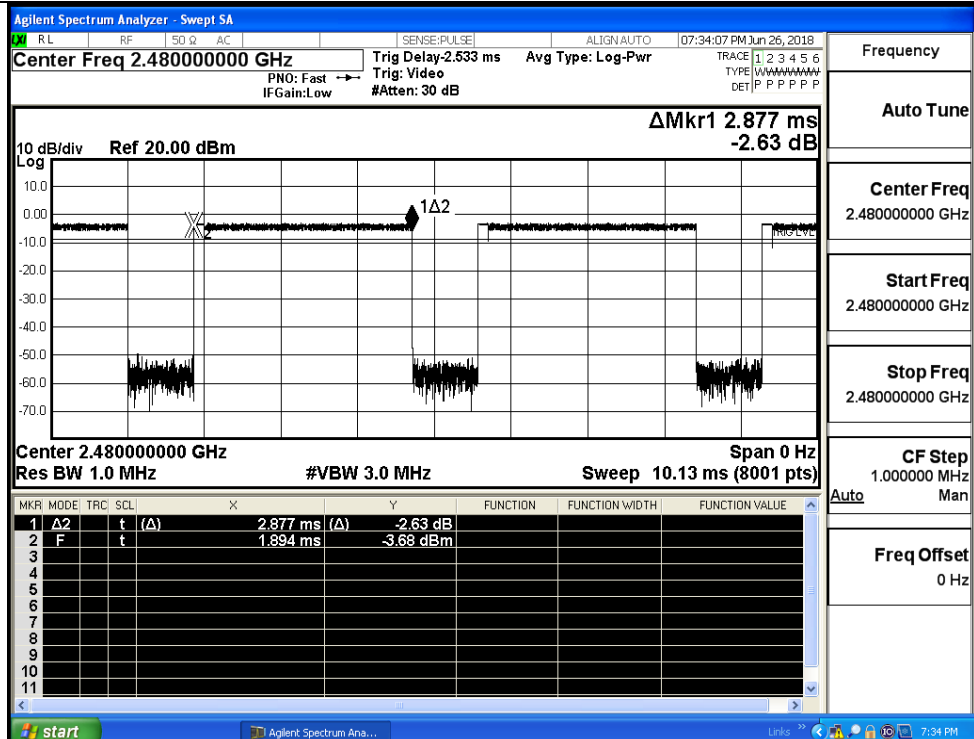
$\pi/4$ DQPSK  
\_2DH5/LCH



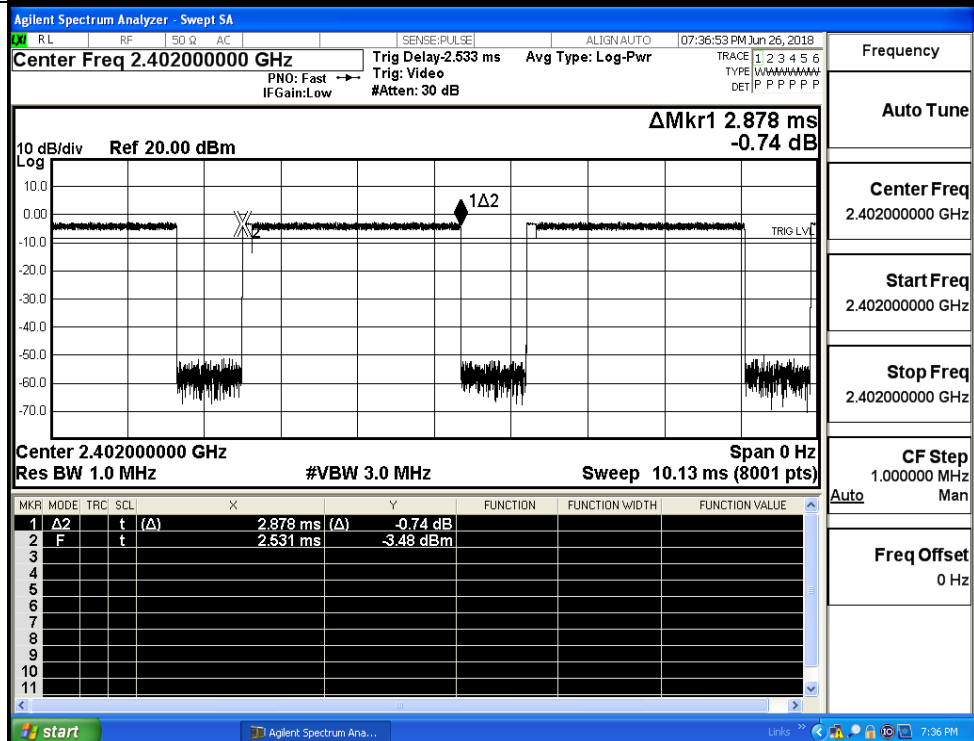
$\pi/4$ DQPSK  
\_2DH5/MCH



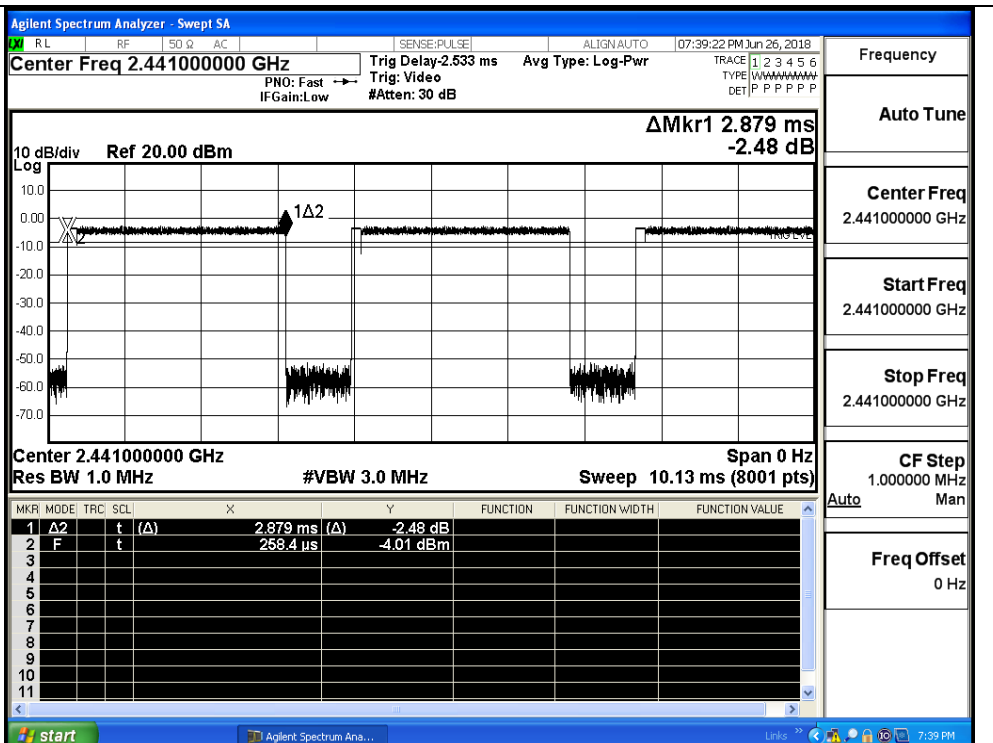
$\pi/4$ DQPSK  
\_2DH5/HCH



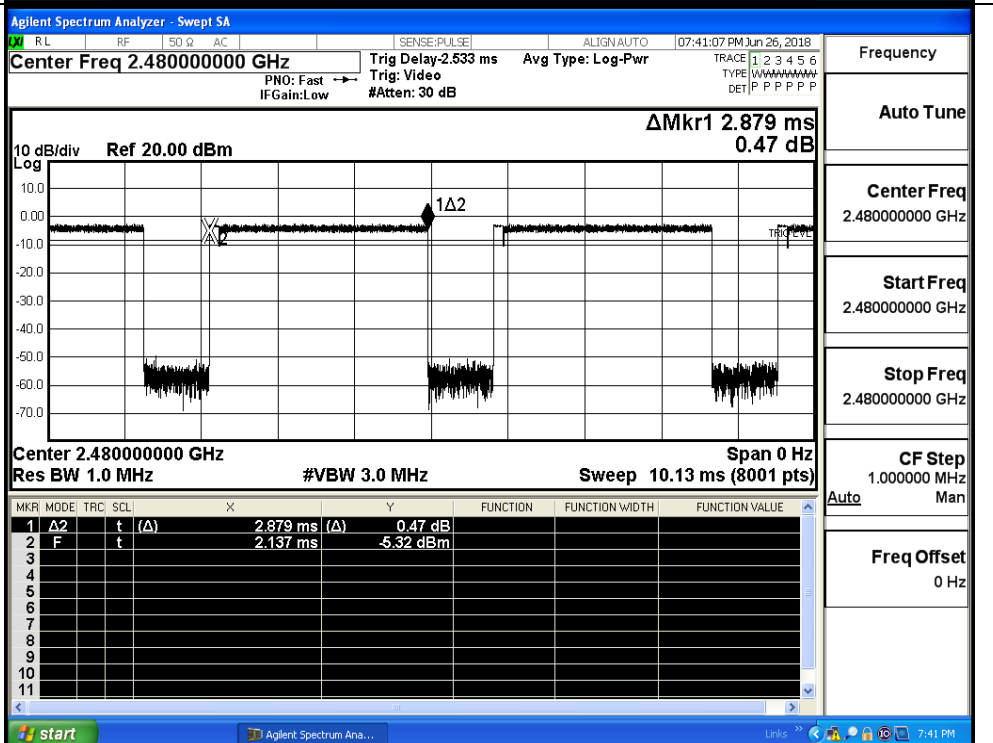
8DPSK\_3DH5/LCH



8DPSK\_3DH5/MCH



8DPSK\_3DH5/HCH

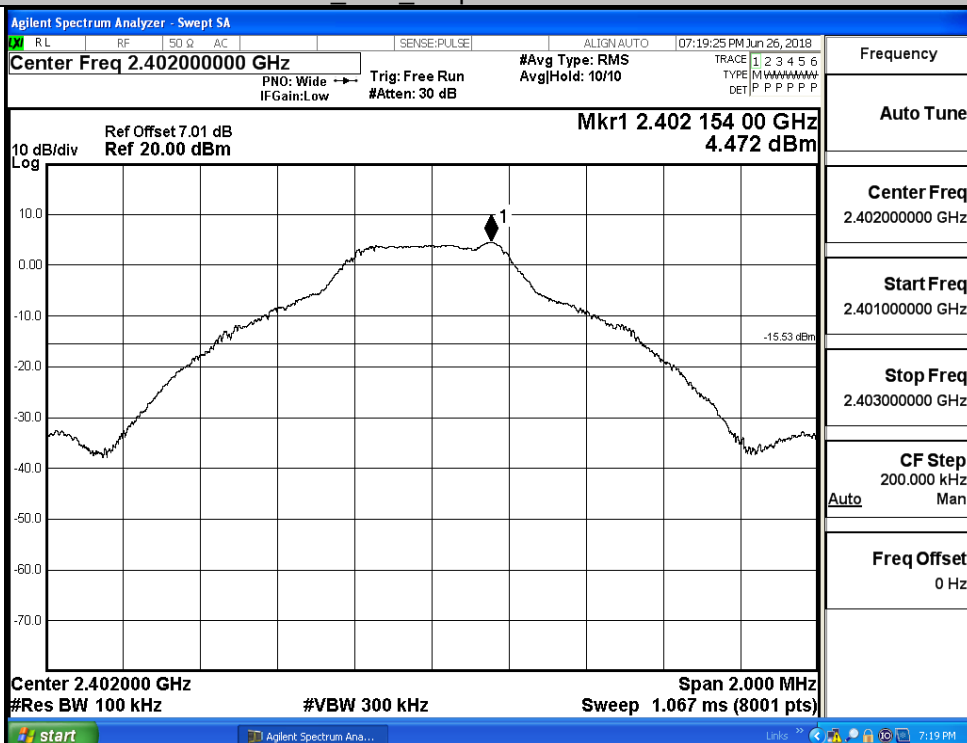


**A.6 RF Conducted Spurious Emissions**

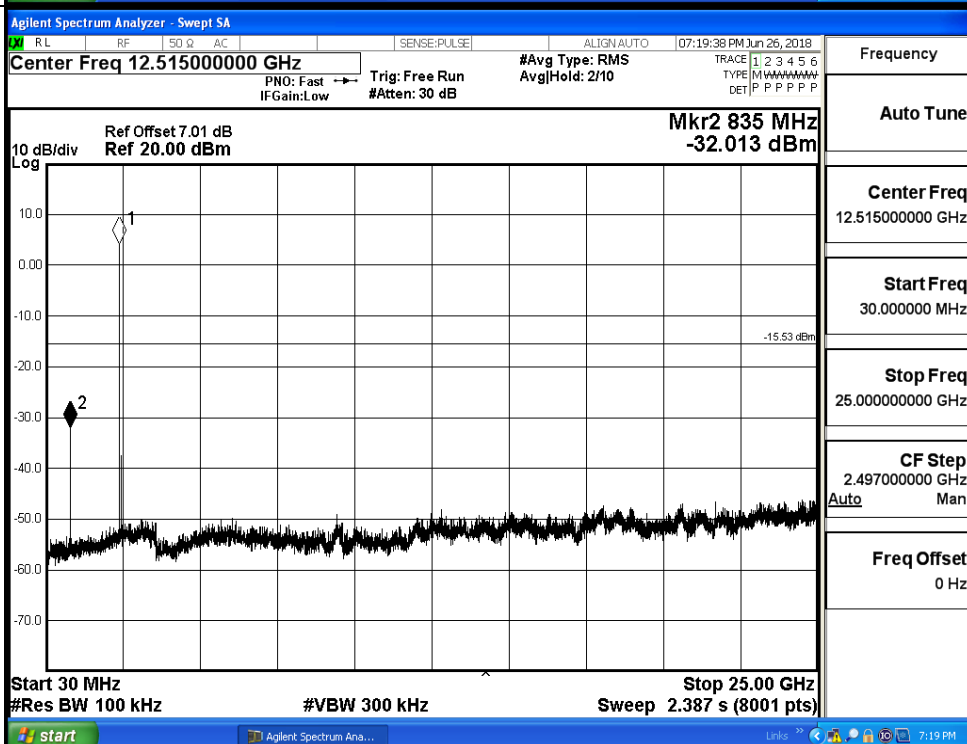
| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK          | LCH     | 4.472      | -32.013          | -15.528     | PASS    |
|               | MCH     | 4.317      | -38.732          | -15.683     | PASS    |
|               | HCH     | 4.429      | -32.581          | -15.571     | PASS    |
| $\pi/4$ DQPSK | LCH     | 3.517      | -39.028          | -16.483     | PASS    |
|               | MCH     | 3.686      | -33.676          | -16.314     | PASS    |
|               | HCH     | 3.669      | -45.817          | -16.331     | PASS    |
| 8DPSK         | LCH     | 3.548      | -34.065          | -16.452     | PASS    |
|               | MCH     | 3.743      | -38.886          | -16.257     | PASS    |
|               | HCH     | 3.794      | -37.746          | -16.206     | PASS    |

## GFSK LCH Graphs

Pref

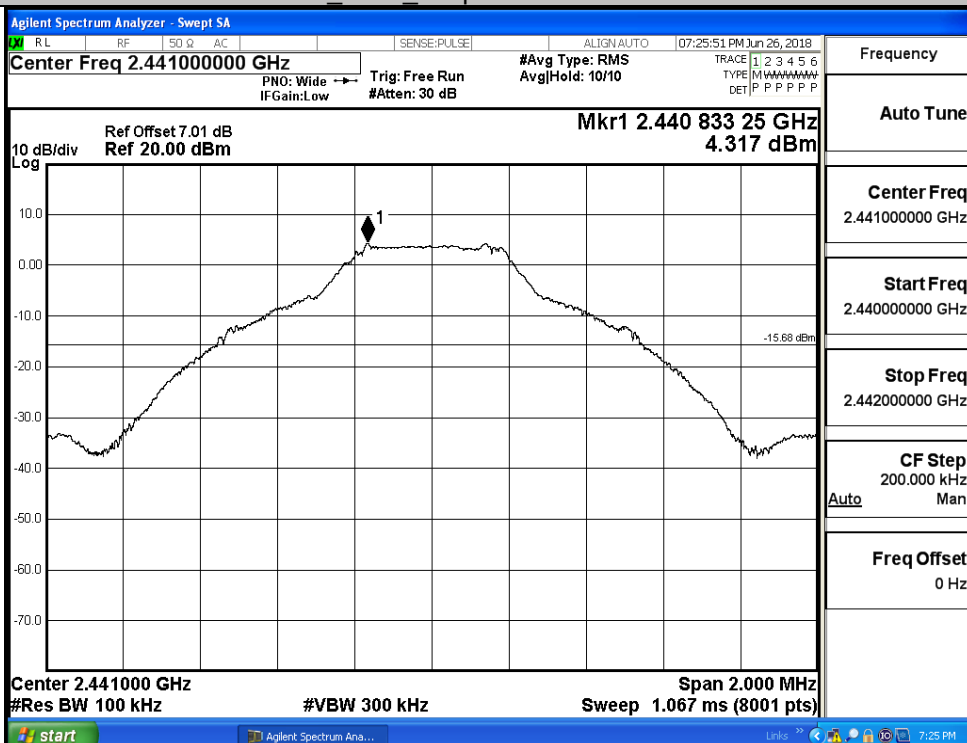


Puw

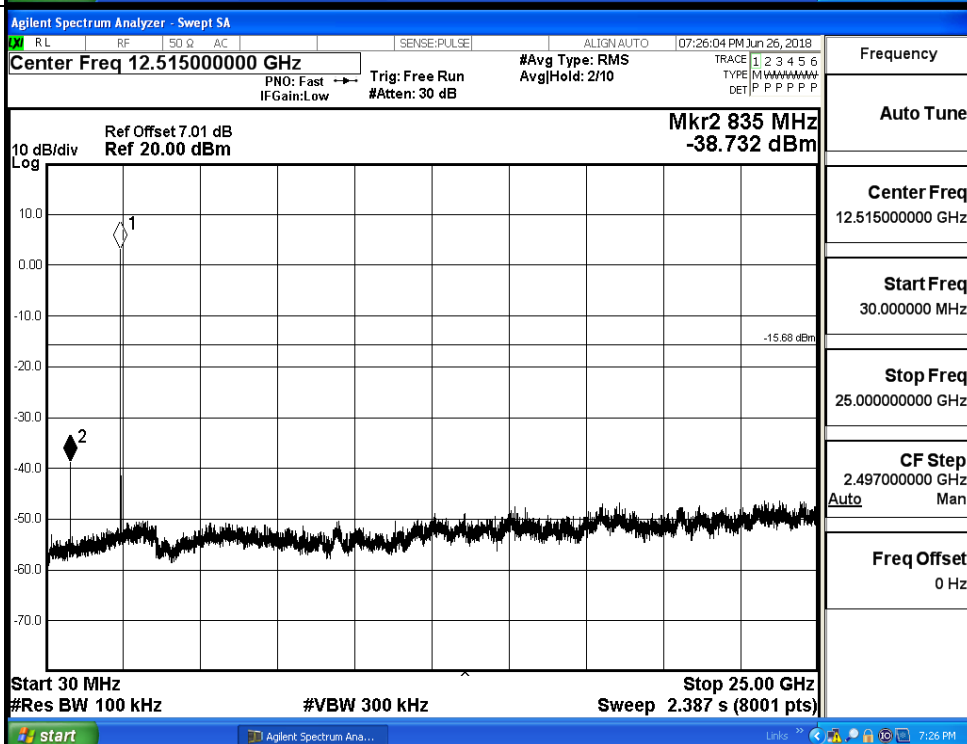


## GFSK MCH\_Graphs

Pref

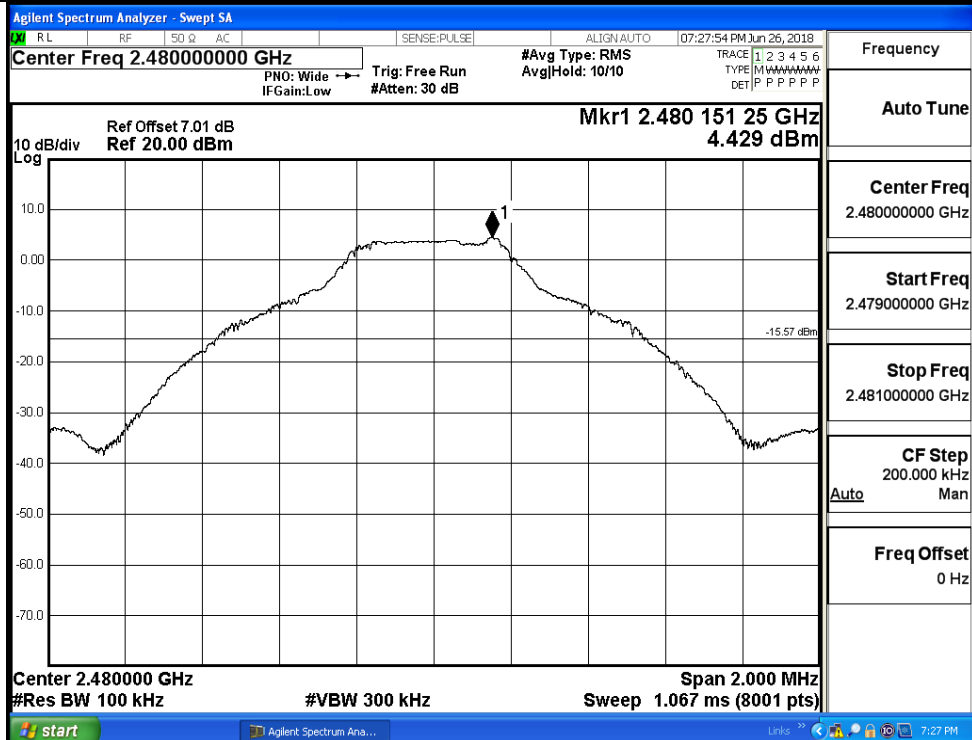


Puw

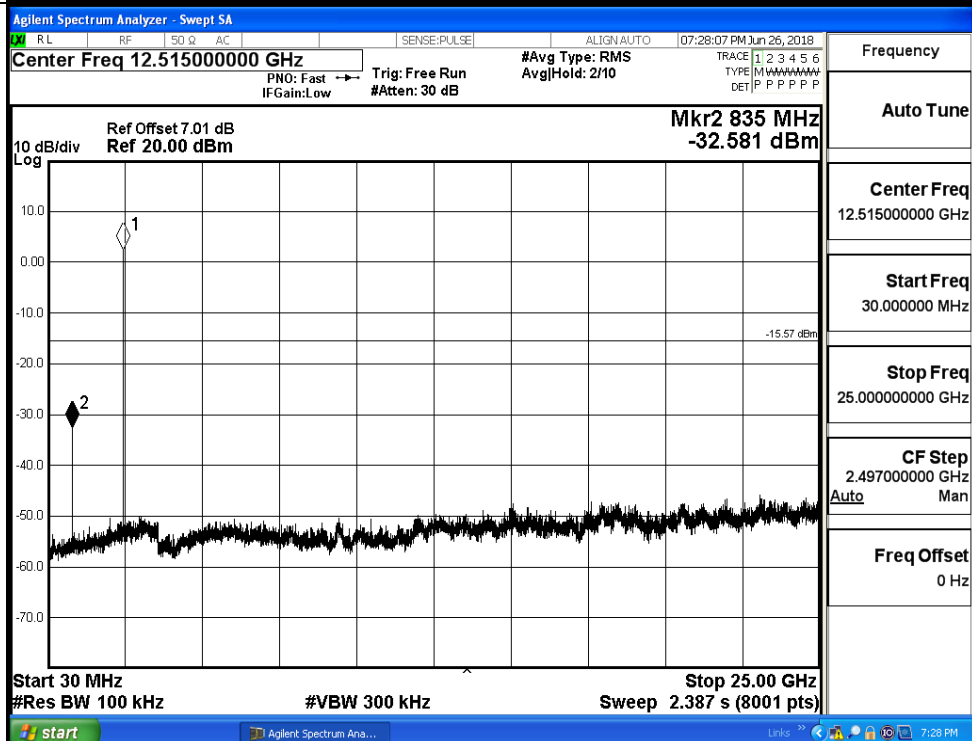


## GFSK HCH Graphs

Pref

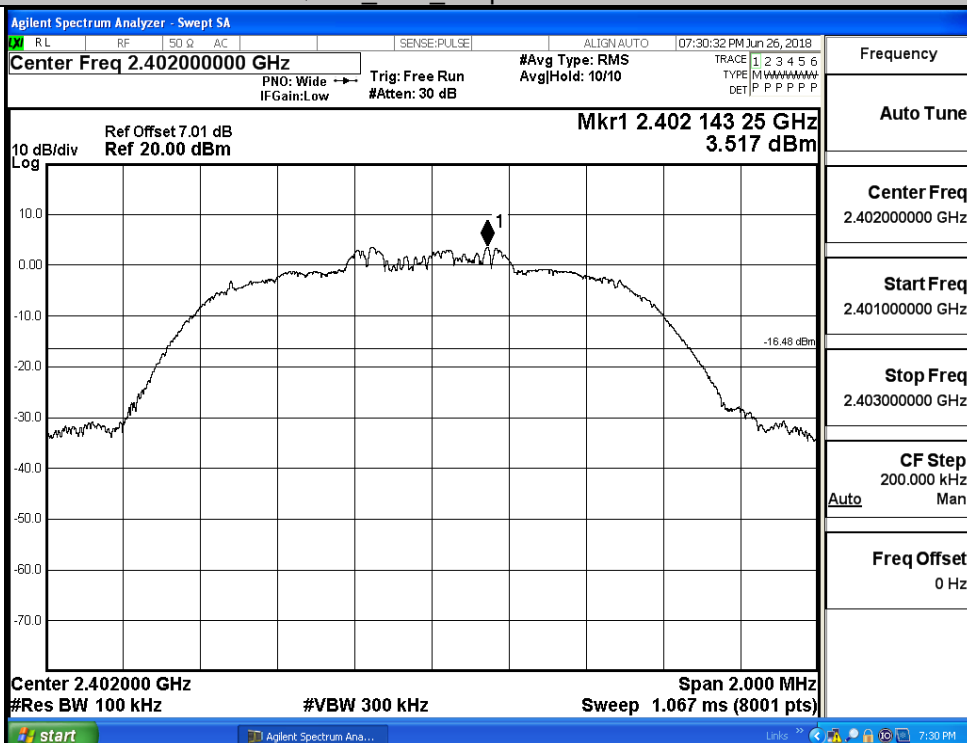


Puw

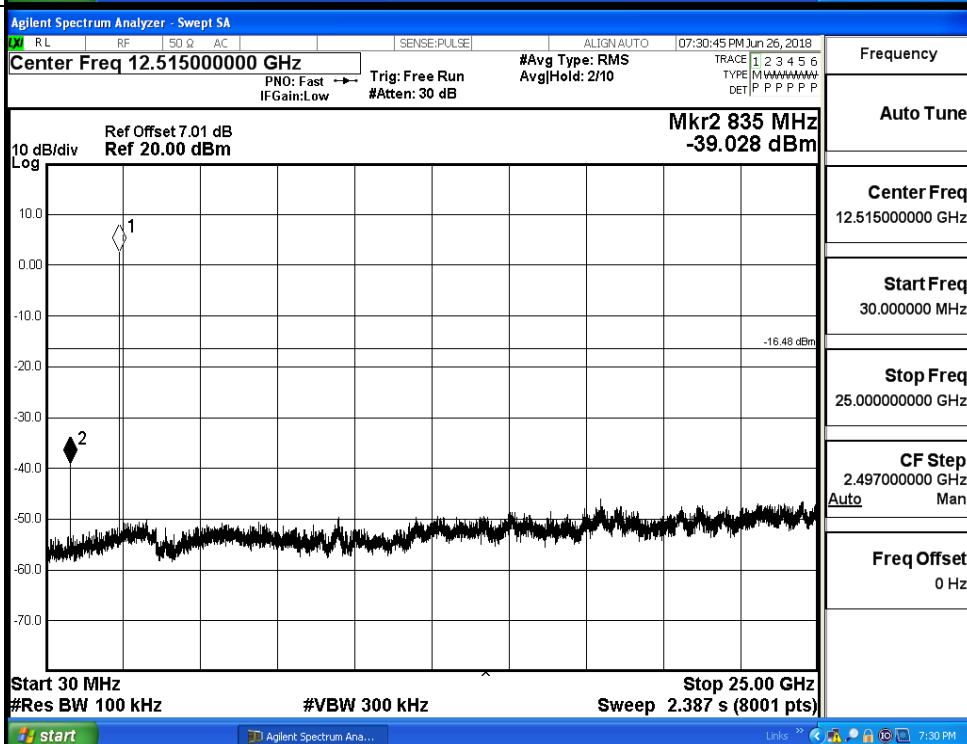


$\pi/4$ DQPSK LCH\_Graphs

Pref

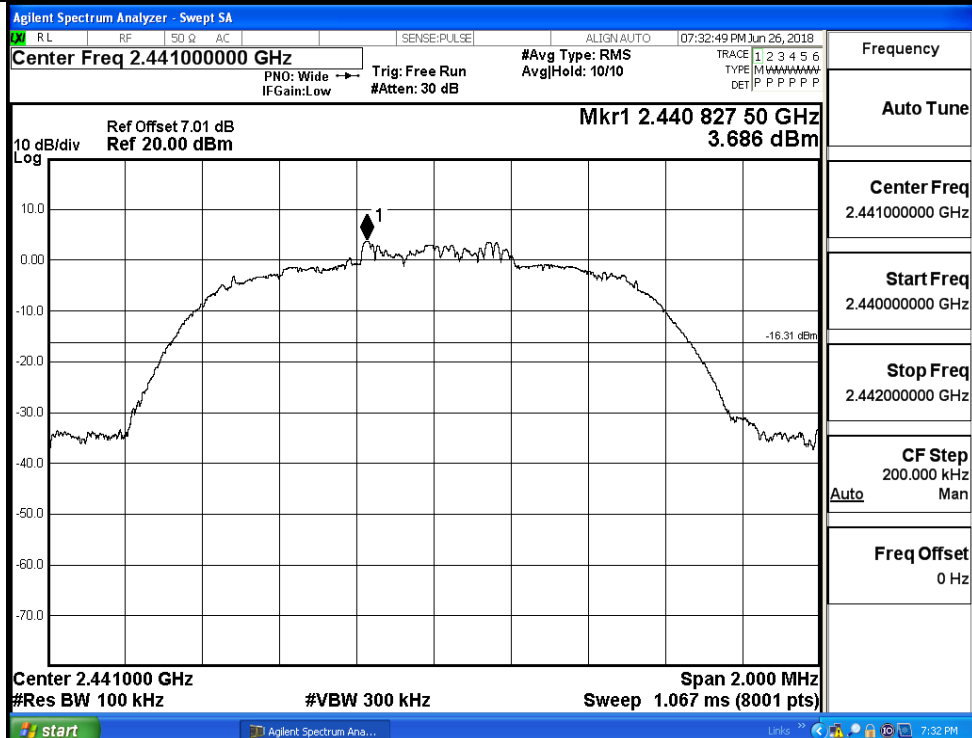


Puw

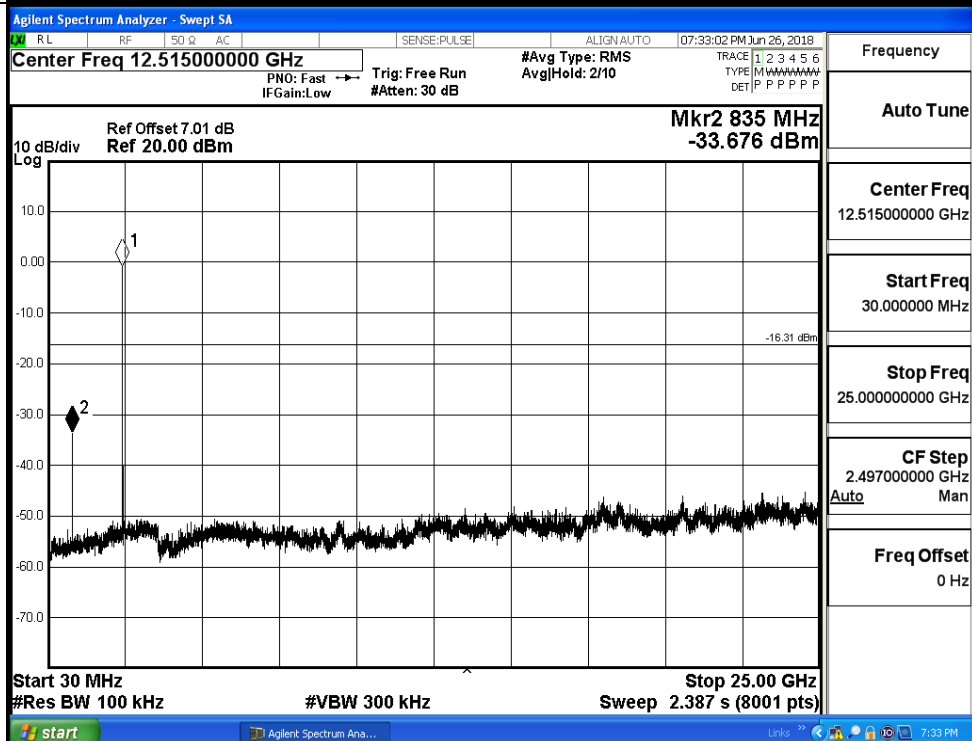


$\pi/4$ DQPSK MCH Graphs

Pref

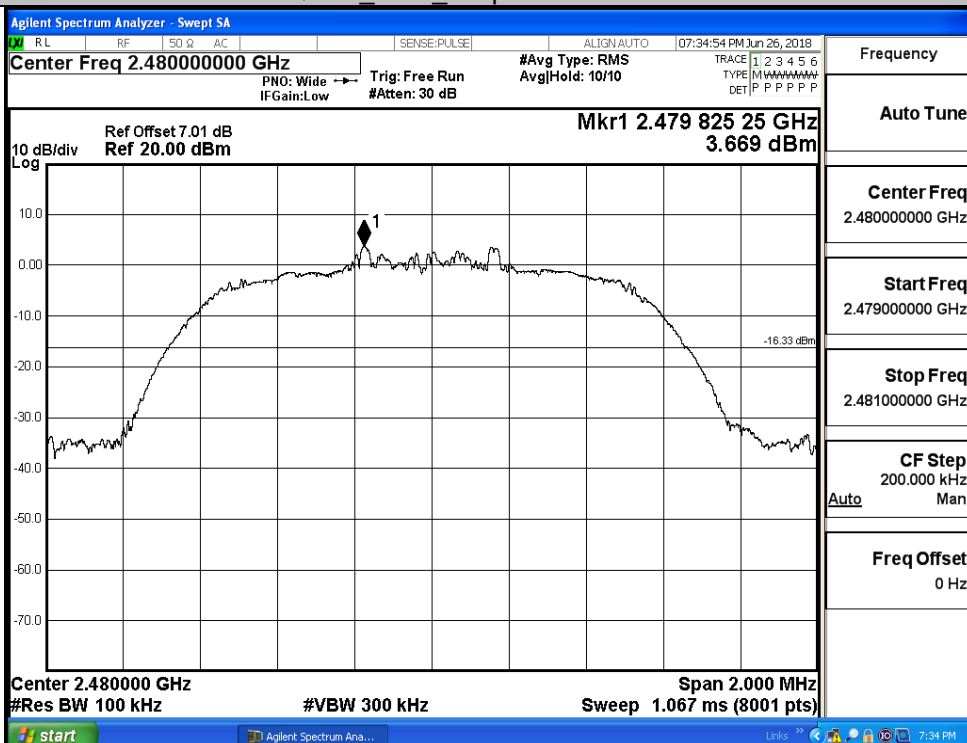


Puw

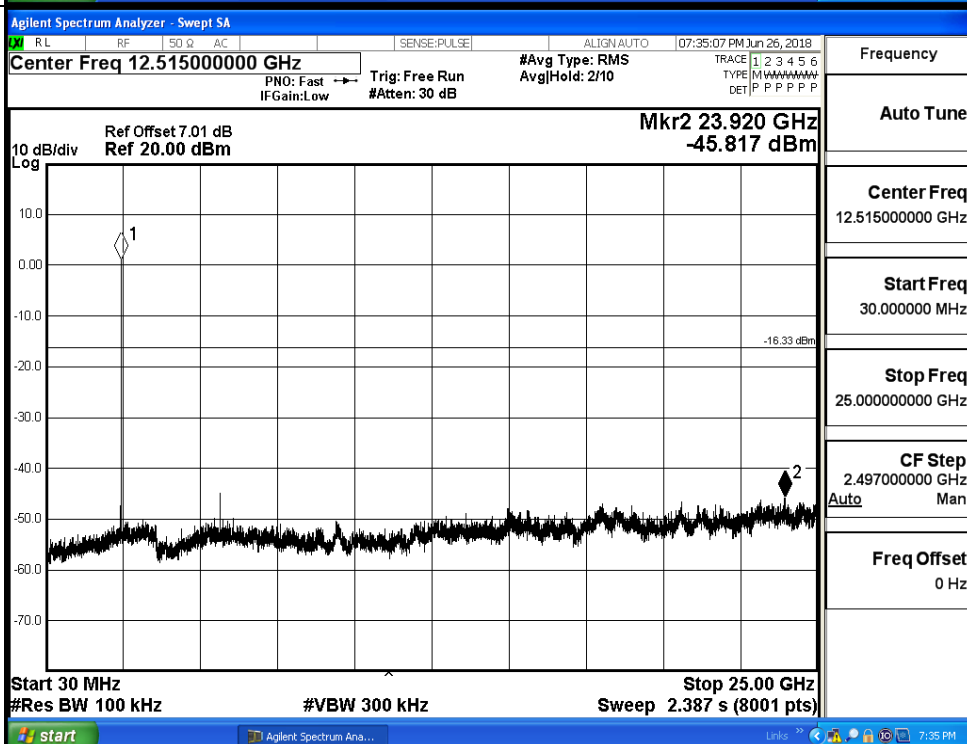


$\pi/4$ DQPSK HCH Graphs

Pref

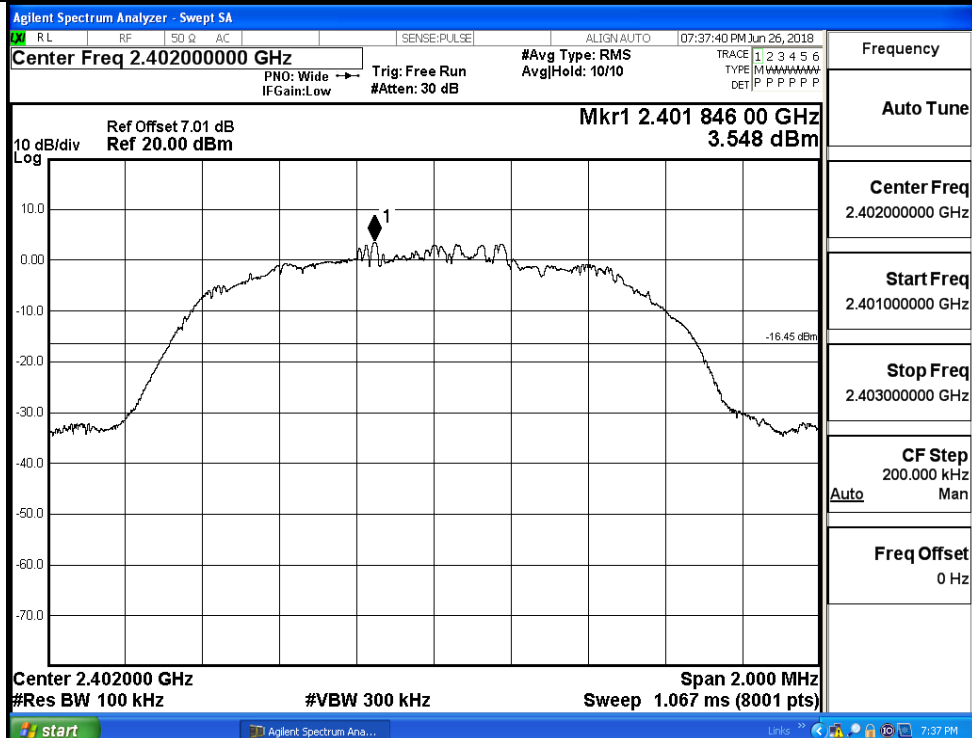


Puw

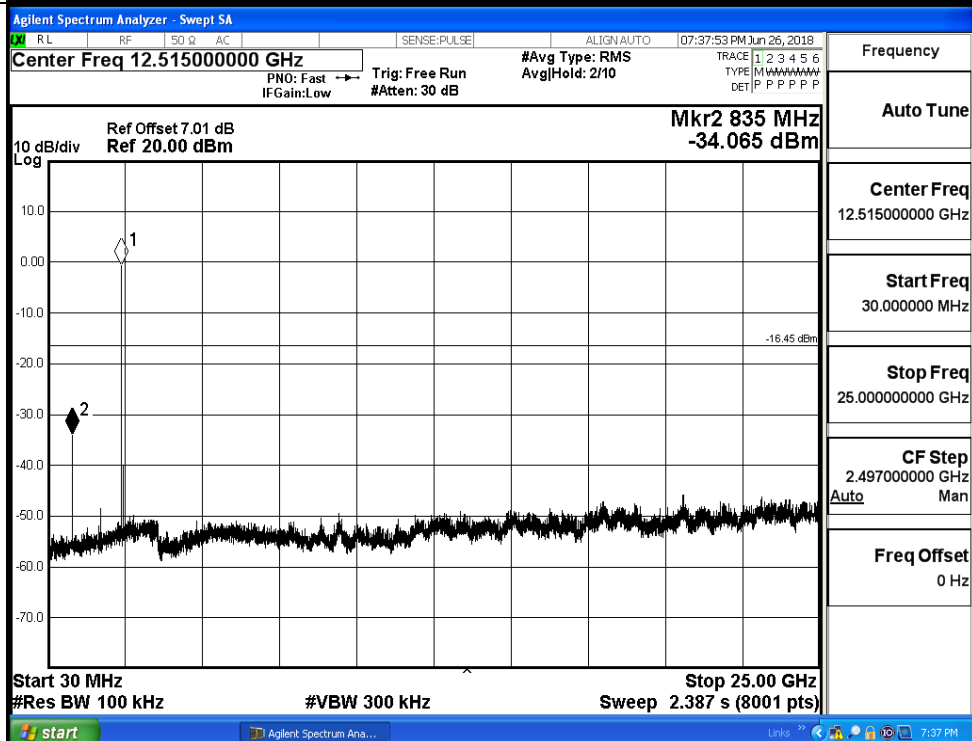


## 8DPSK\_LCH\_Graphs

Pref

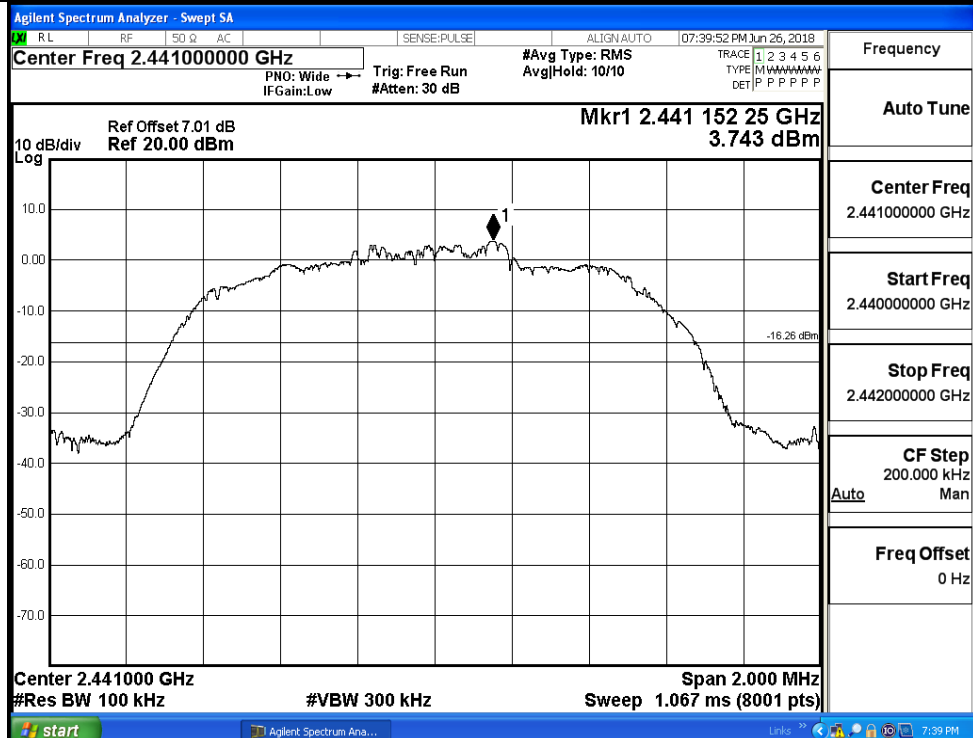


Puw

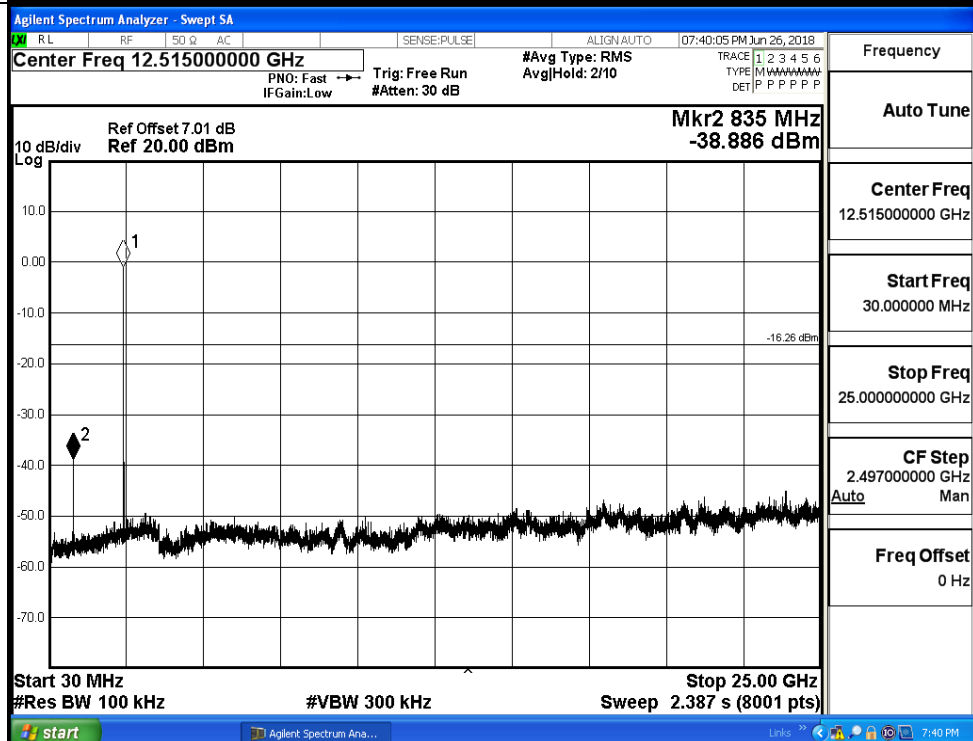


## 8DPSK MCH\_Graphs

Pref

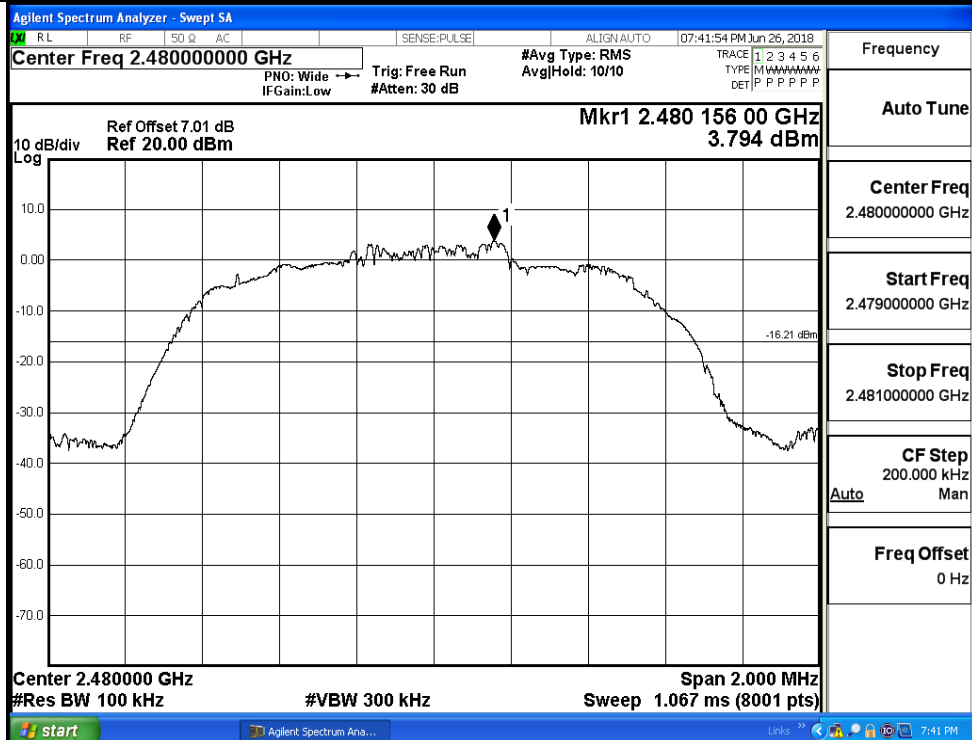


Puw

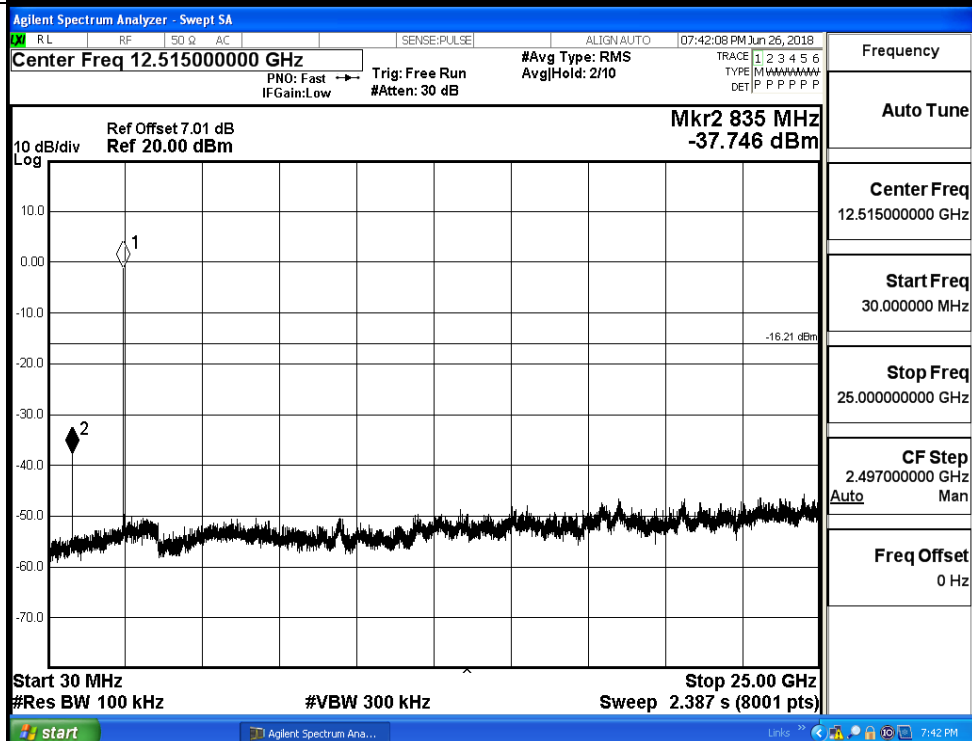


## 8DPSK\_HCH\_Graphs

Pref



Puw

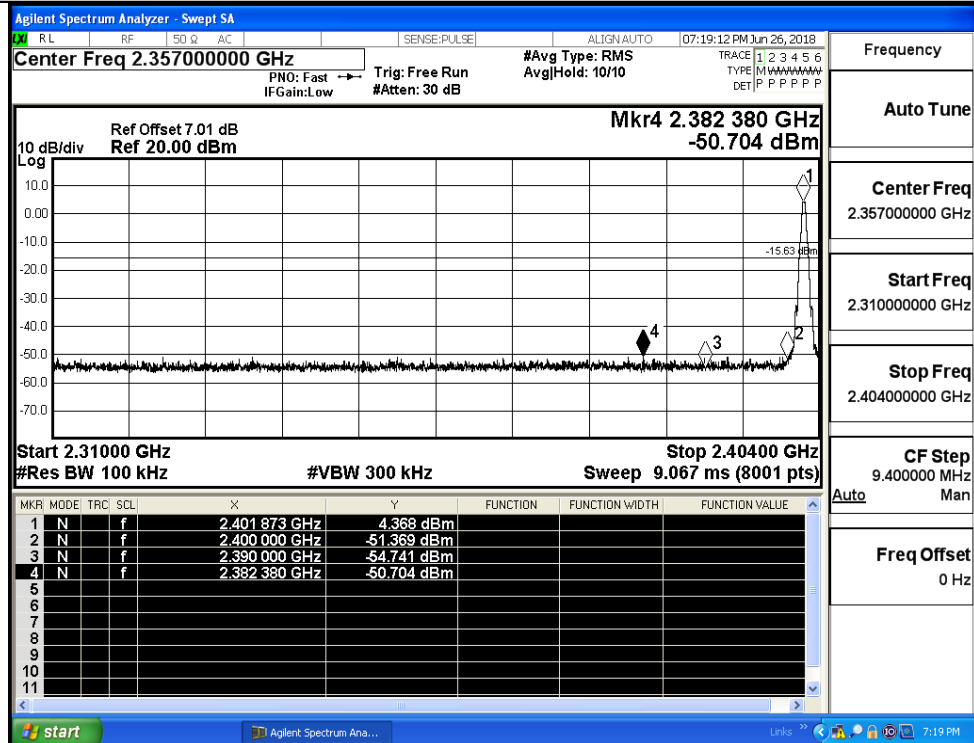


## A.7 Band-edge for RF Conducted Emissions

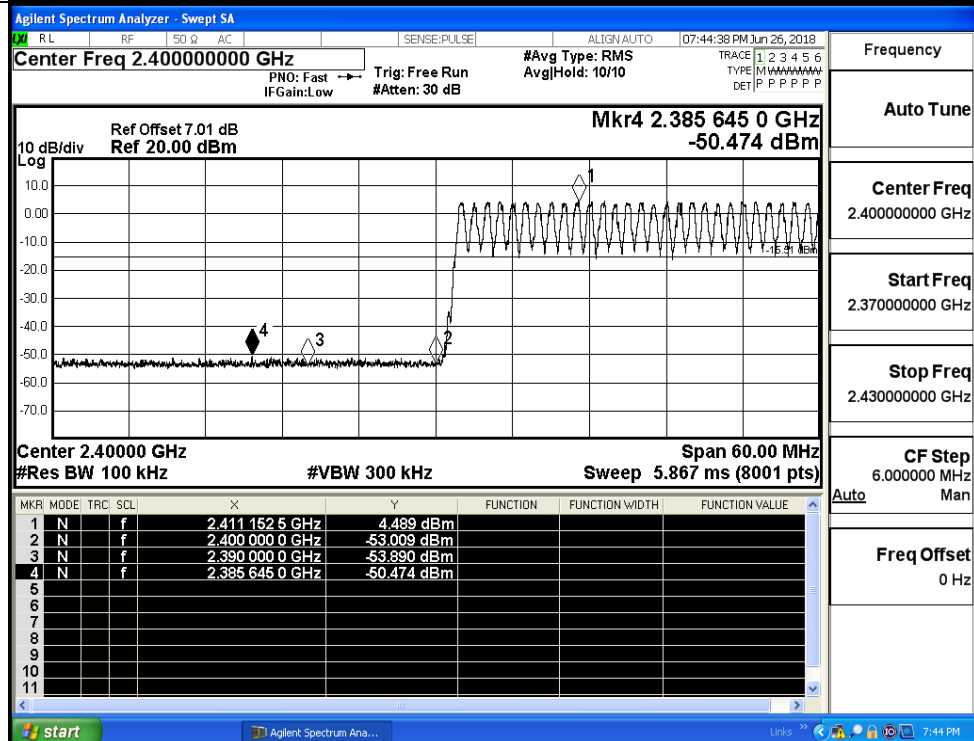
| Mode          | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | 4.368               | Off               | -50.704                  | -15.63      | PASS    |
|               |         |                         | 4.489               | On                | -50.474                  | -15.51      | PASS    |
|               | HCH     | 2480                    | 4.501               | Off               | -50.203                  | -15.50      | PASS    |
|               |         |                         | 4.453               | On                | -50.557                  | -15.55      | PASS    |
| $\pi$ /4DQPSK | LCH     | 2402                    | 3.611               | Off               | -50.917                  | -16.39      | PASS    |
|               |         |                         | 3.235               | On                | -50.400                  | -16.77      | PASS    |
|               | HCH     | 2480                    | 3.781               | Off               | -51.231                  | -16.22      | PASS    |
|               |         |                         | 3.459               | On                | -50.259                  | -16.54      | PASS    |
| 8DPSK         | LCH     | 2402                    | 3.873               | Off               | -50.156                  | -16.13      | PASS    |
|               |         |                         | 3.659               | On                | -50.048                  | -16.34      | PASS    |
|               | HCH     | 2480                    | 3.903               | Off               | -50.822                  | -16.10      | PASS    |
|               |         |                         | 3.536               | On                | -49.573                  | -16.46      | PASS    |

## Test Graphs

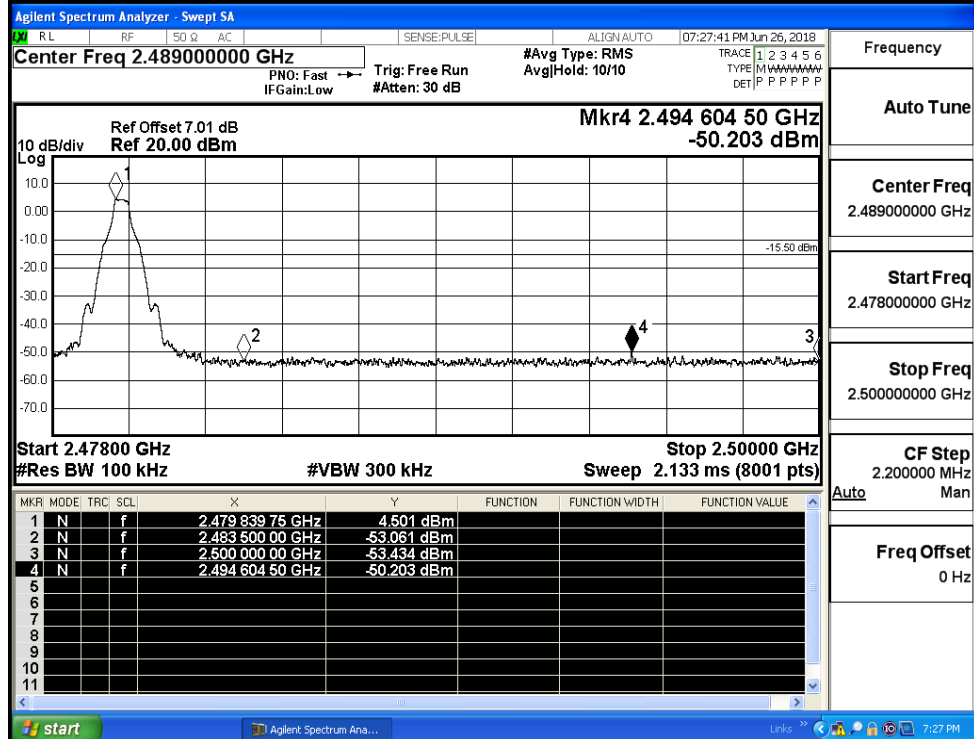
GFSK/LCH/No Hop



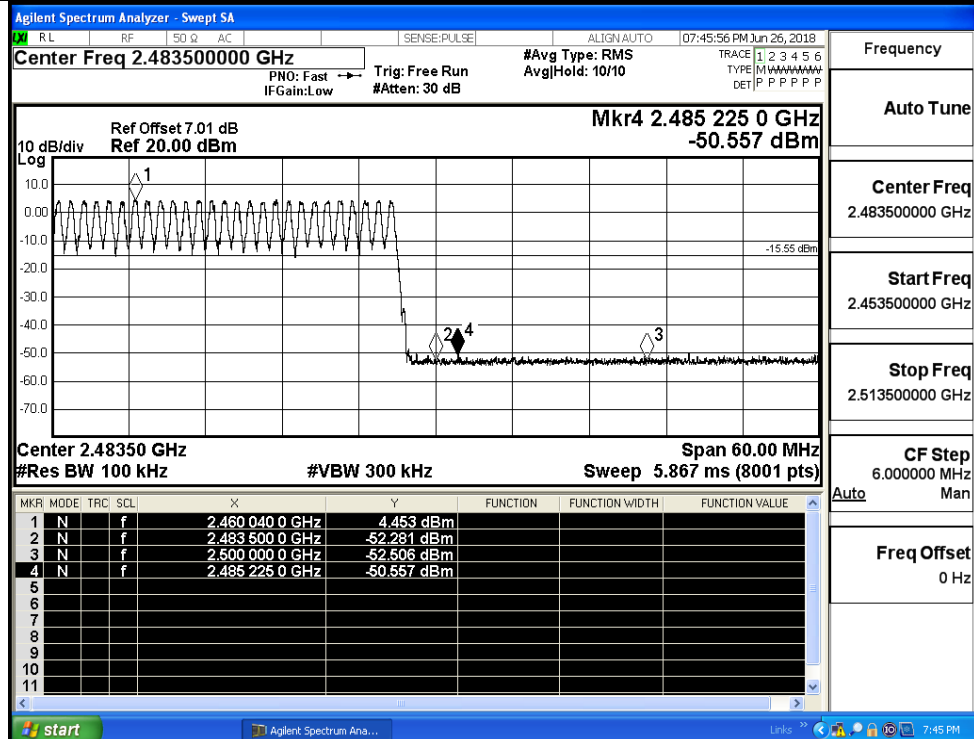
GFSK/LCH/Hop



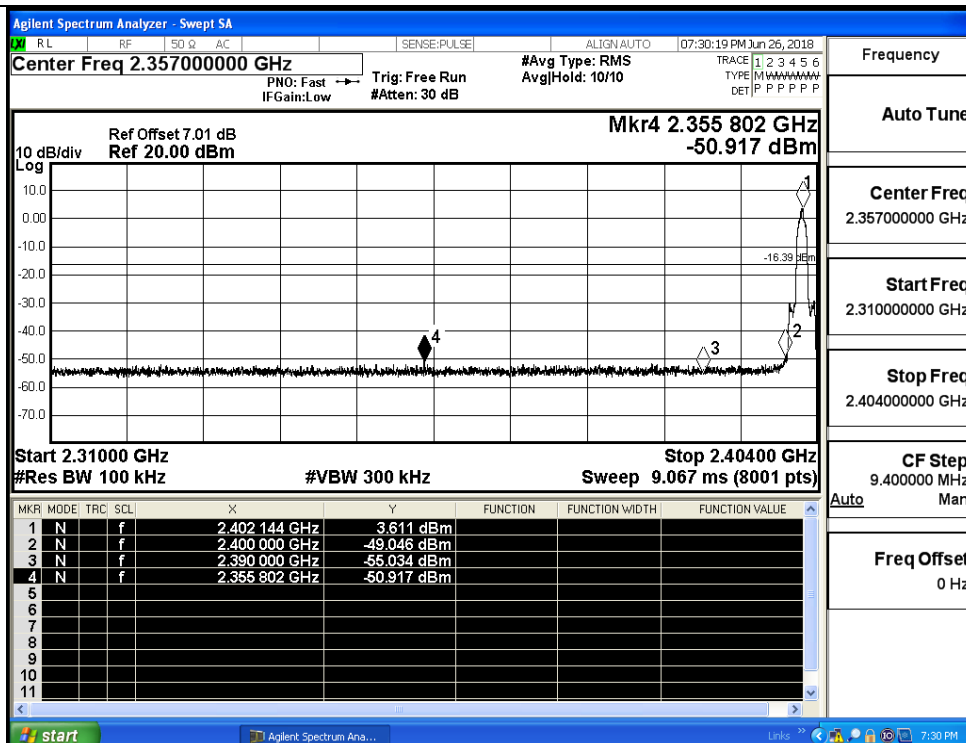
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq  
2.357000000 GHz

Start Freq  
2.310000000 GHz

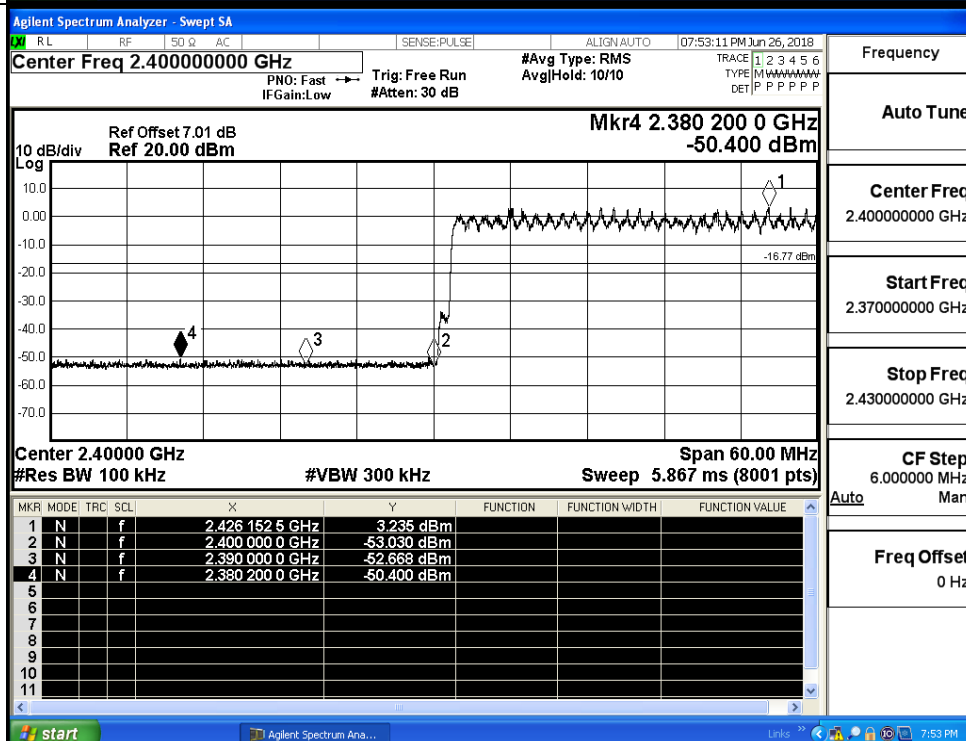
Stop Freq  
2.404000000 GHz

CF Step  
9.400000 MHz

Auto Man

Freq Offset  
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq  
2.400000000 GHz

Start Freq  
2.370000000 GHz

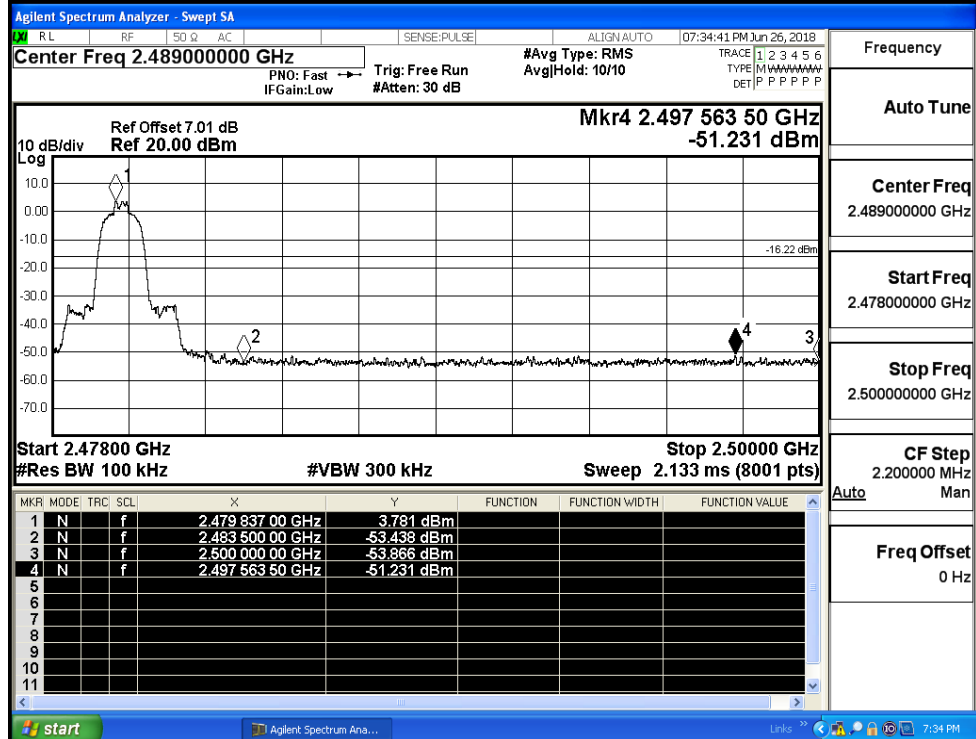
Stop Freq  
2.430000000 GHz

CF Step  
6.000000 MHz

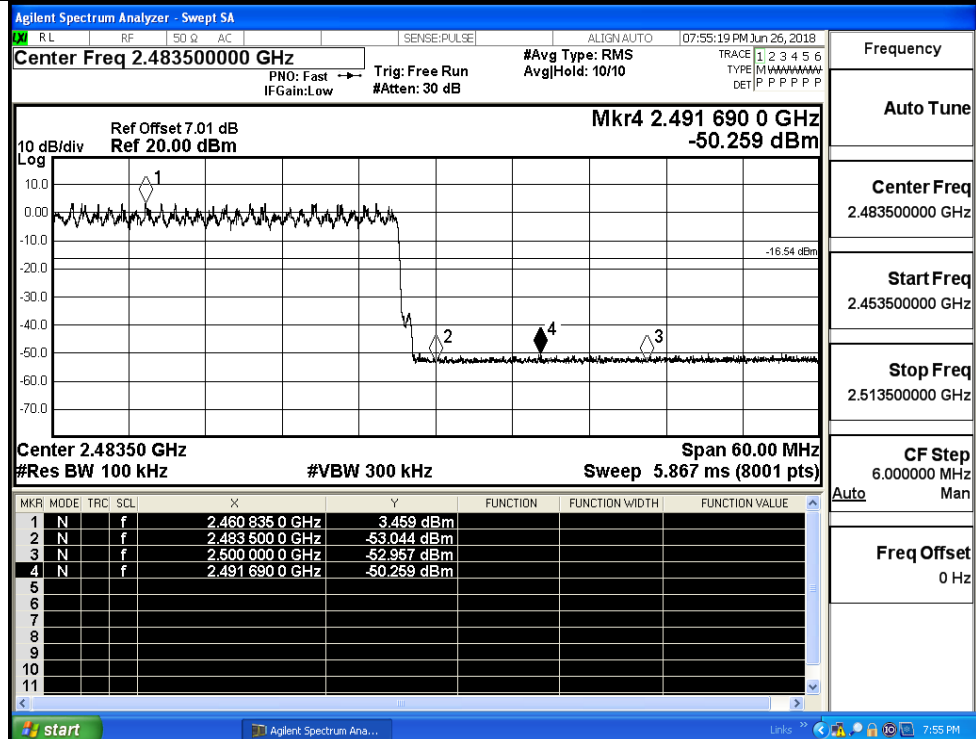
Auto Man

Freq Offset  
0 Hz

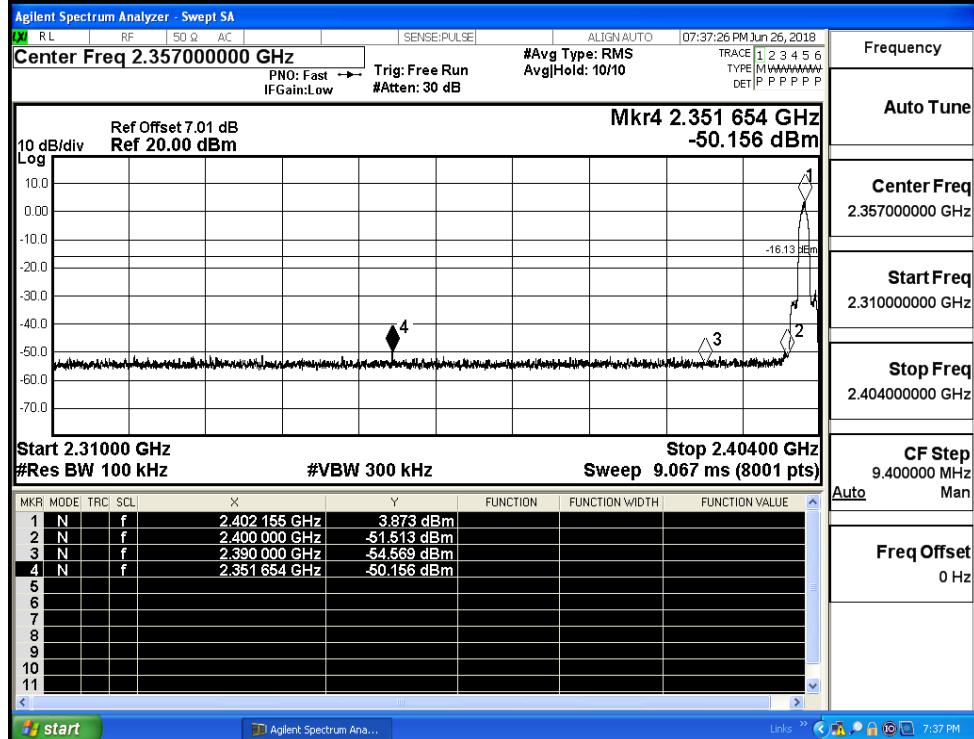
$\pi/4$ DQPSK/HCH/No  
Hop



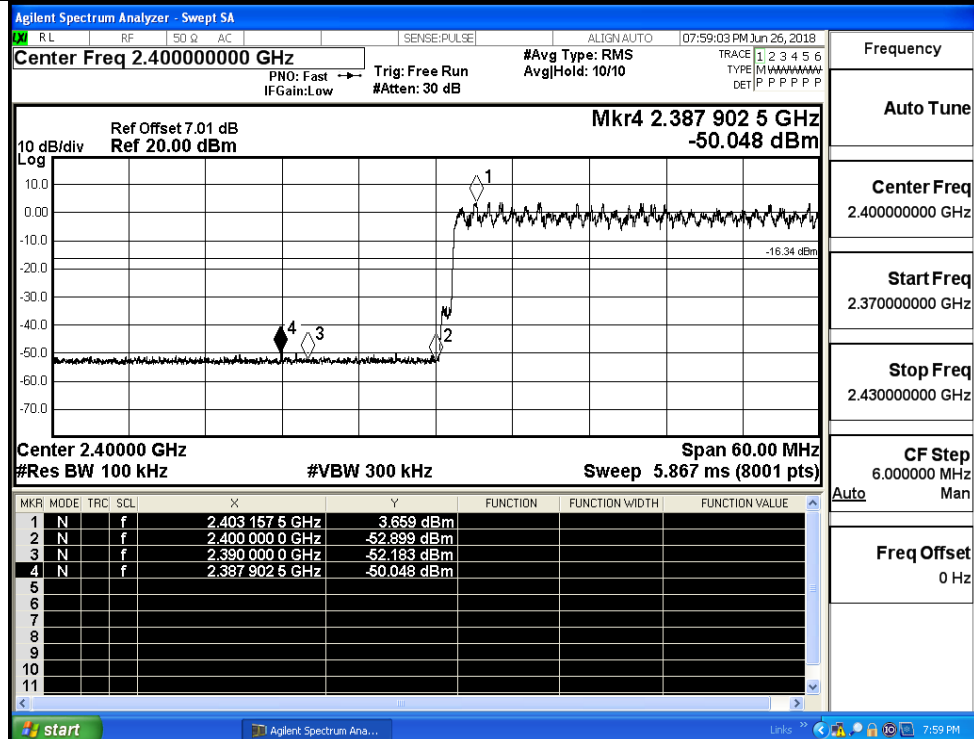
$\pi/4$ DQPSK/HCH/Hop



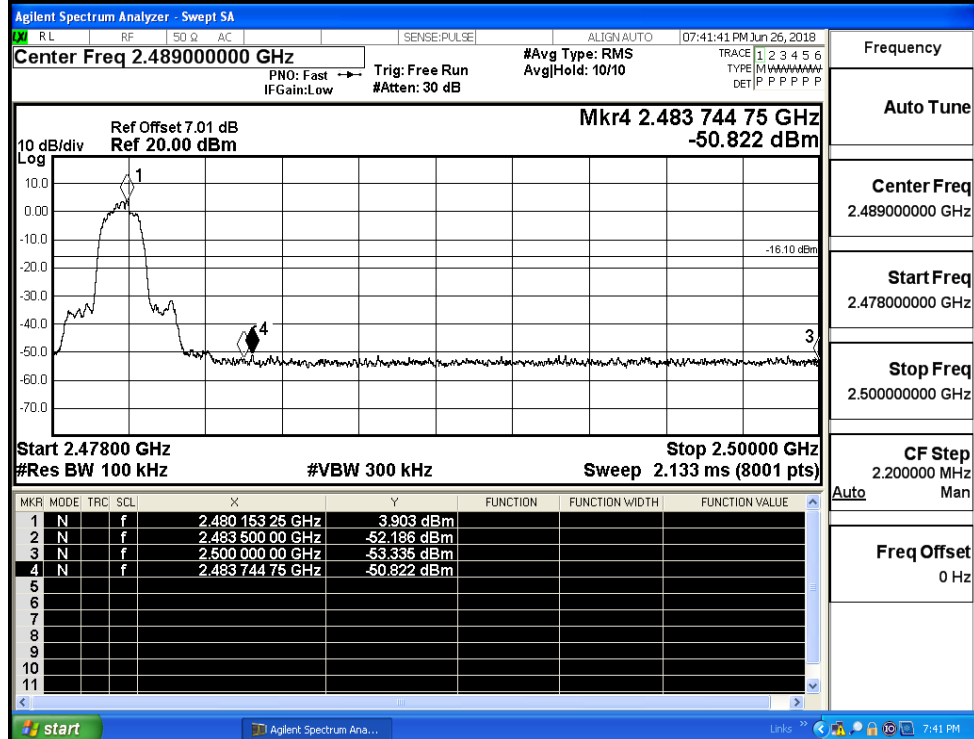
8DPSK/LCH/No Hop



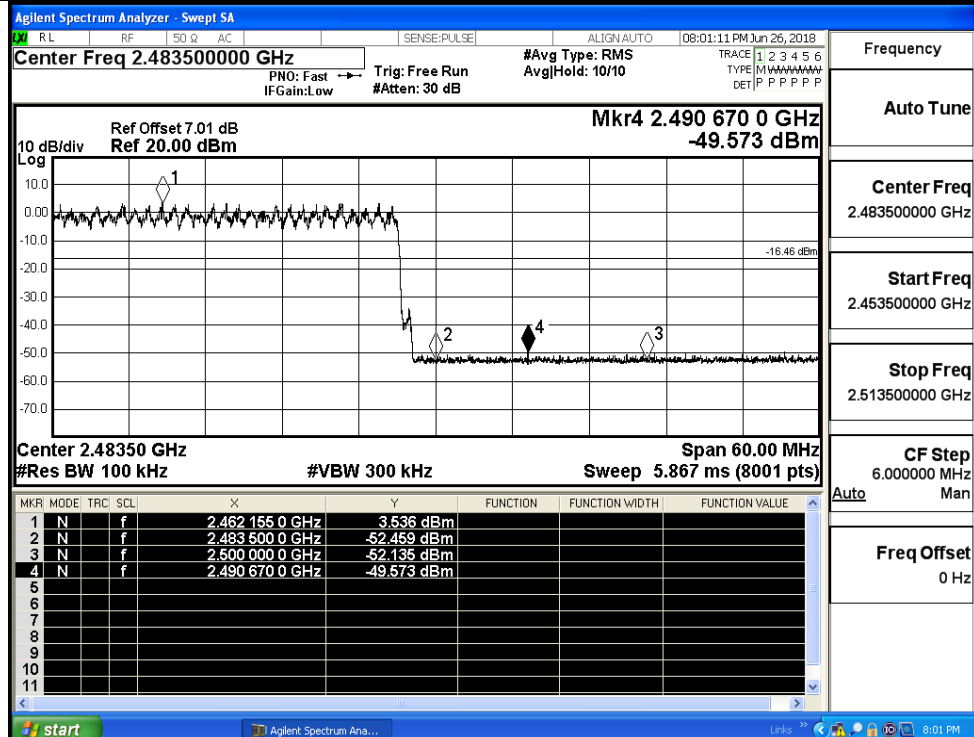
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



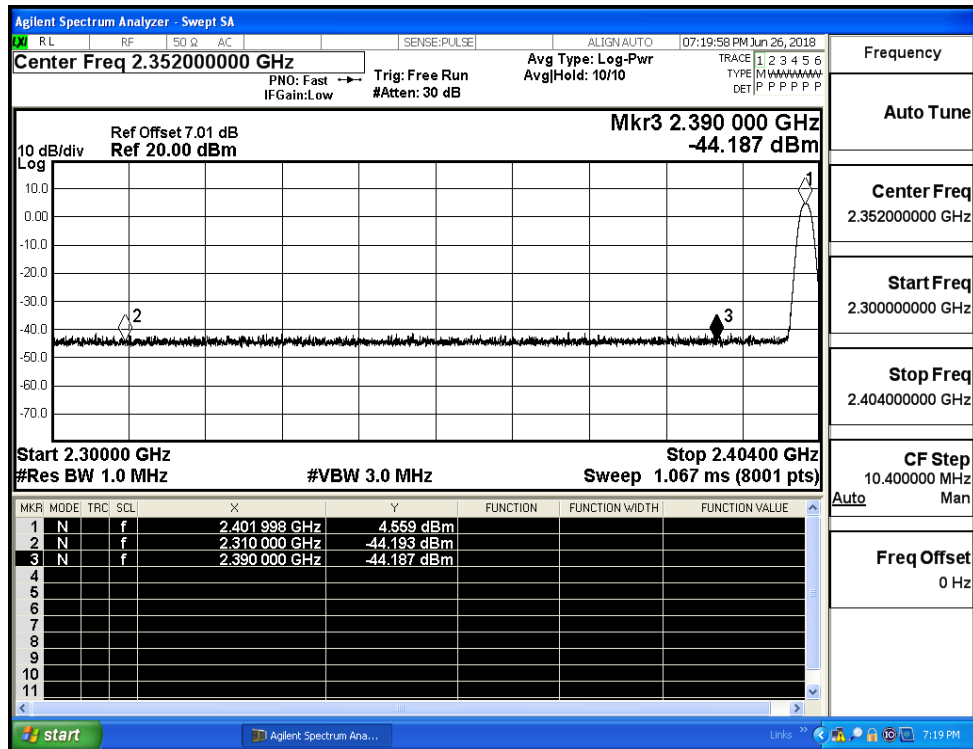
8DPSK/HCH/Hop



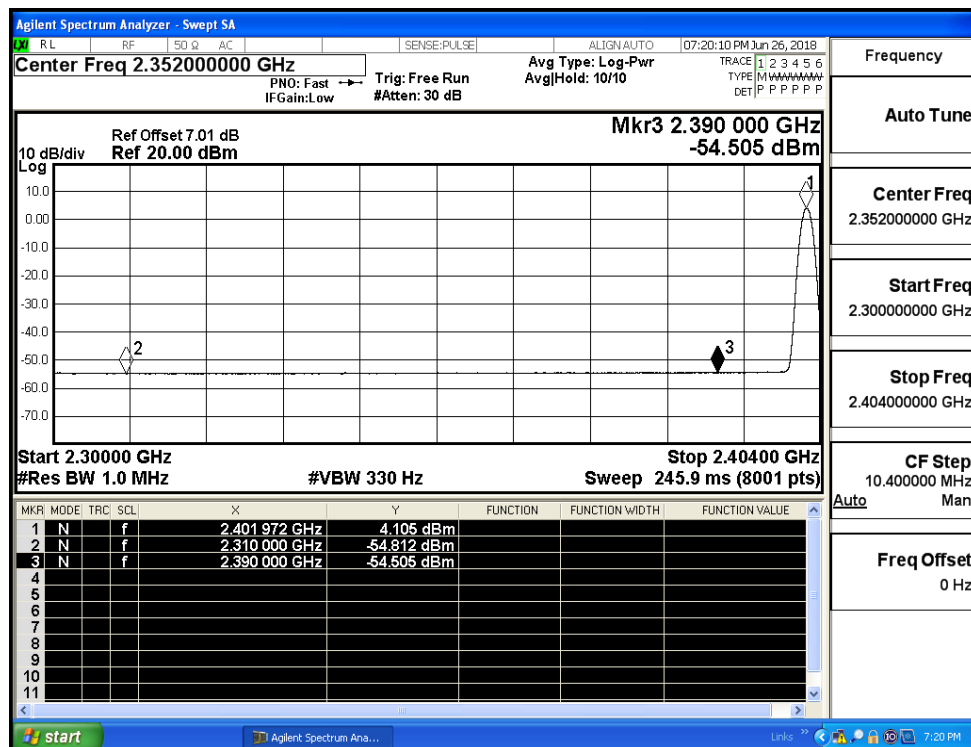
## A.8 Restrict-band band-edge measurements

| Test Mode     | Hopping | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0 | -44.19      | 2.0  | 0             | 53.06      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -54.81      | 2.0  | 0             | 42.45      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -44.19      | 2.0  | 0             | 53.07      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -54.51      | 2.0  | 0             | 42.75      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -44.11      | 2.0  | 0             | 53.15      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -53.98      | 2.0  | 0             | 43.27      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.62      | 2.0  | 0             | 53.64      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -54.13      | 2.0  | 0             | 43.13      | AV       | 54             | PASS    |
| $\pi/4$ DQPSK | Off     | 2310.0 | -44.06      | 2.0  | 0             | 53.19      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -54.77      | 2.0  | 0             | 42.49      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -45.24      | 2.0  | 0             | 52.02      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -54.41      | 2.0  | 0             | 42.84      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -44.39      | 2.0  | 0             | 52.87      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -53.81      | 2.0  | 0             | 43.45      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.88      | 2.0  | 0             | 53.38      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -54.07      | 2.0  | 0             | 43.19      | AV       | 54             | PASS    |
| 8DPSK         | Off     | 2310.0 | -45.15      | 2.0  | 0             | 52.11      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -54.82      | 2.0  | 0             | 42.44      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -44.00      | 2.0  | 0             | 53.26      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -54.39      | 2.0  | 0             | 42.87      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -42.38      | 2.0  | 0             | 54.88      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -53.73      | 2.0  | 0             | 43.53      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -44.14      | 2.0  | 0             | 53.12      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -54.13      | 2.0  | 0             | 43.13      | AV       | 54             | PASS    |

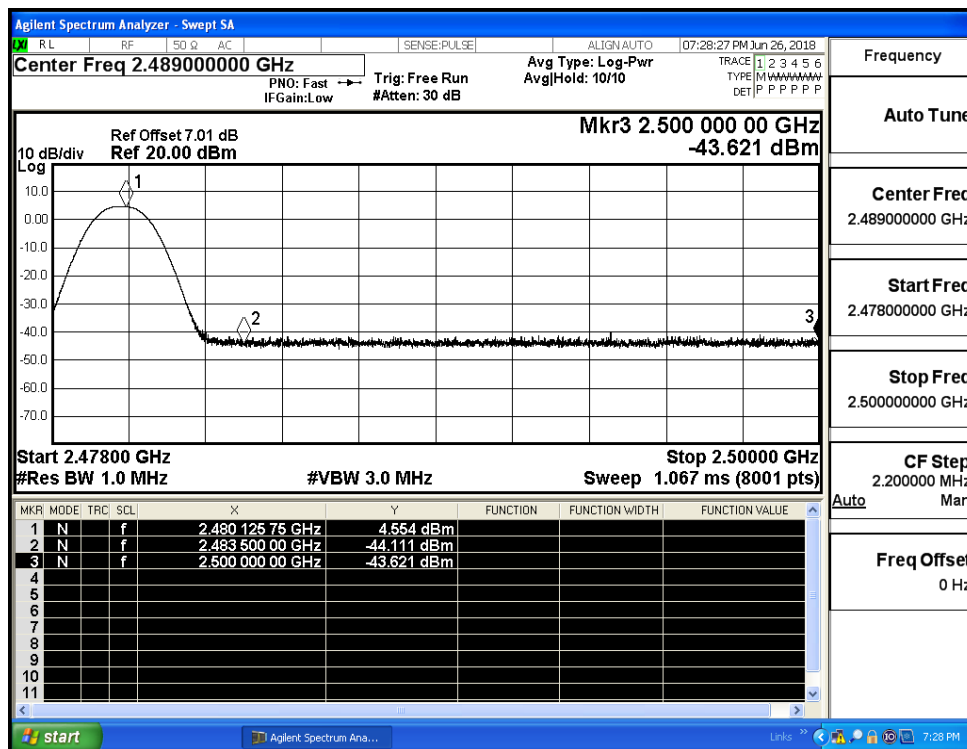
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



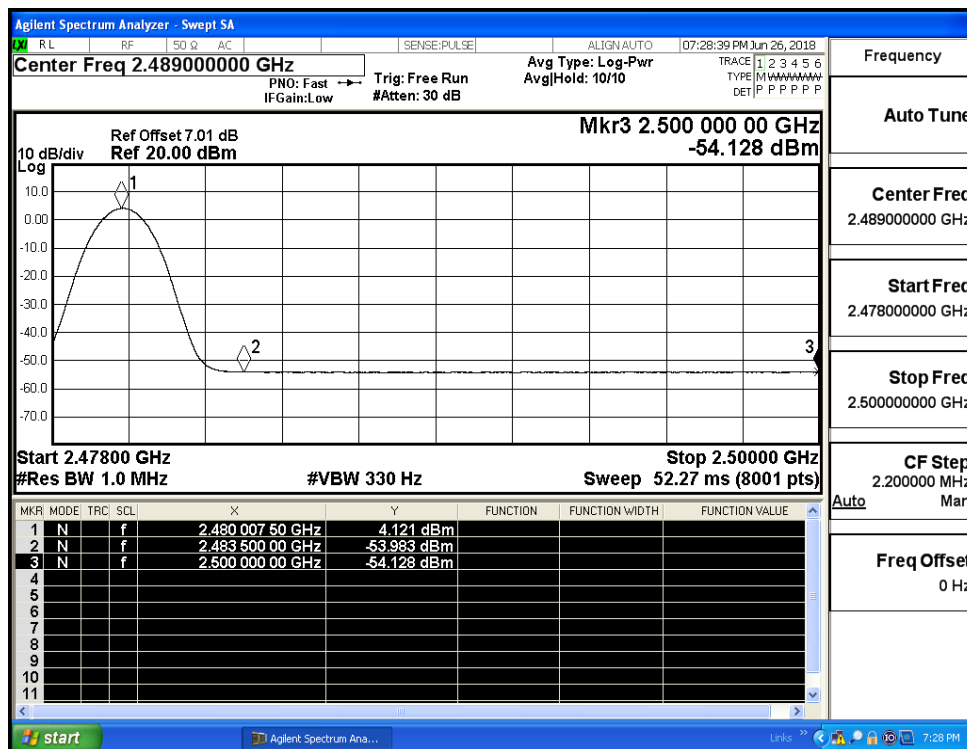
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)

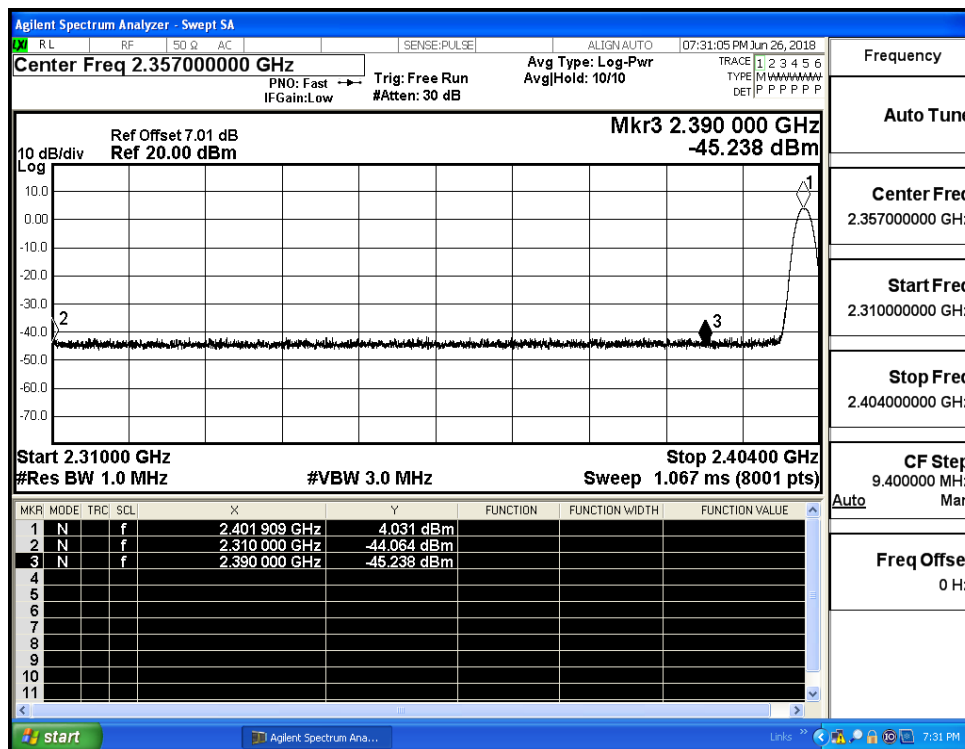
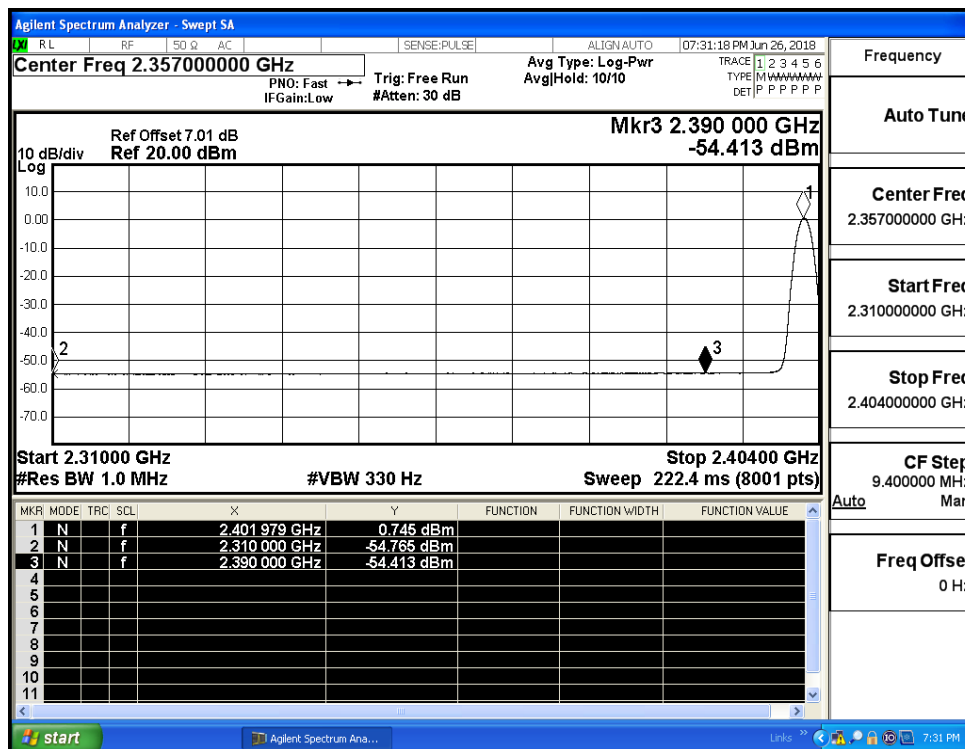


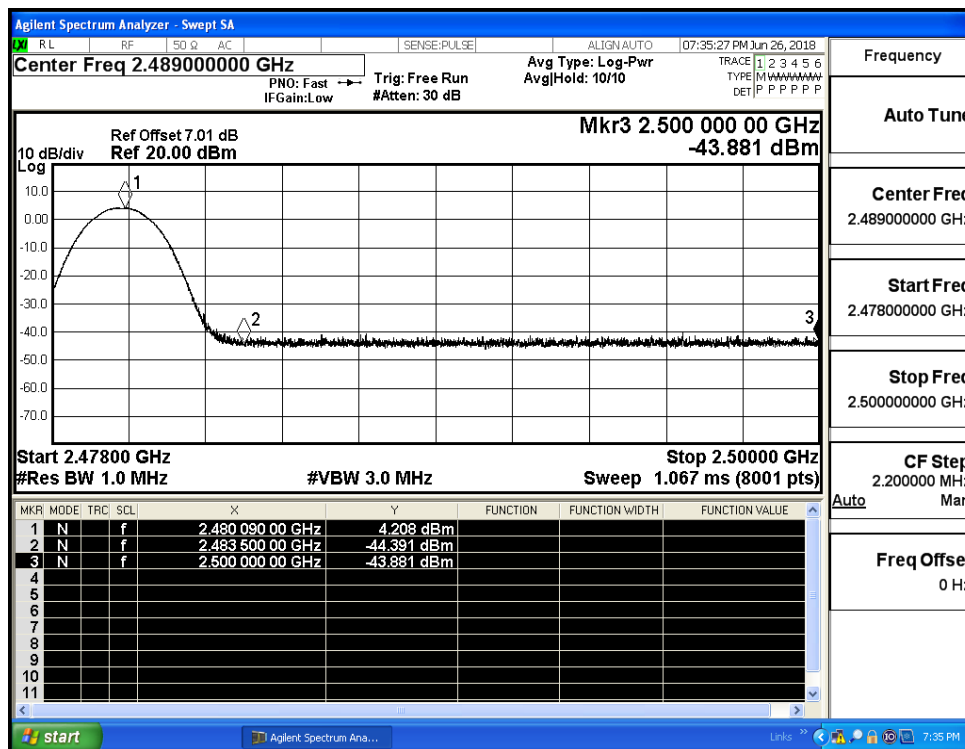
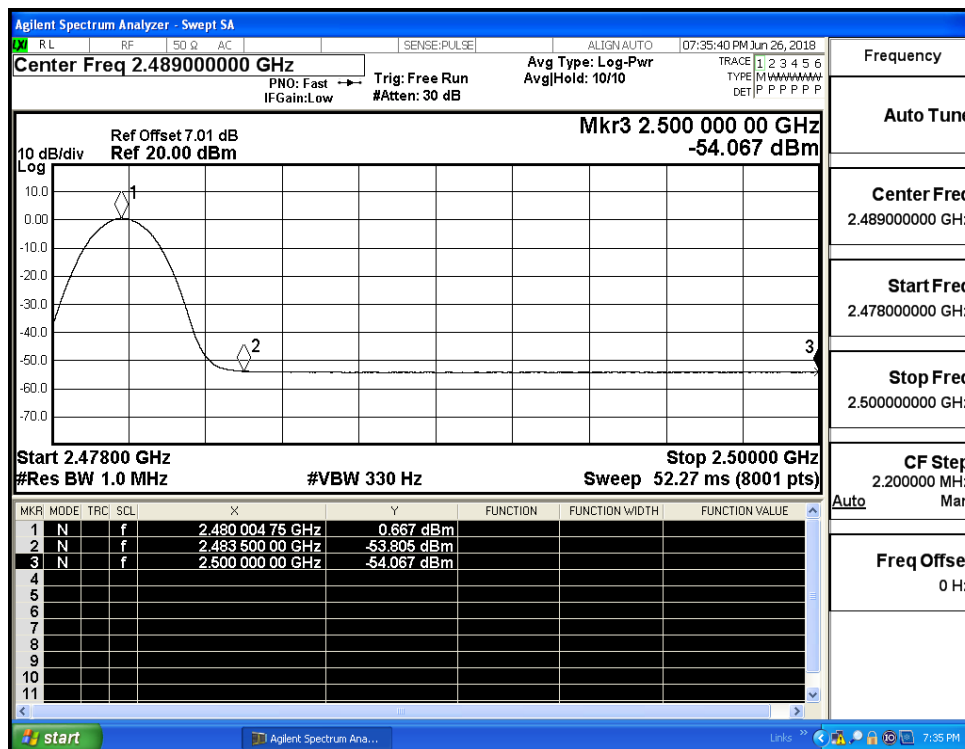
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



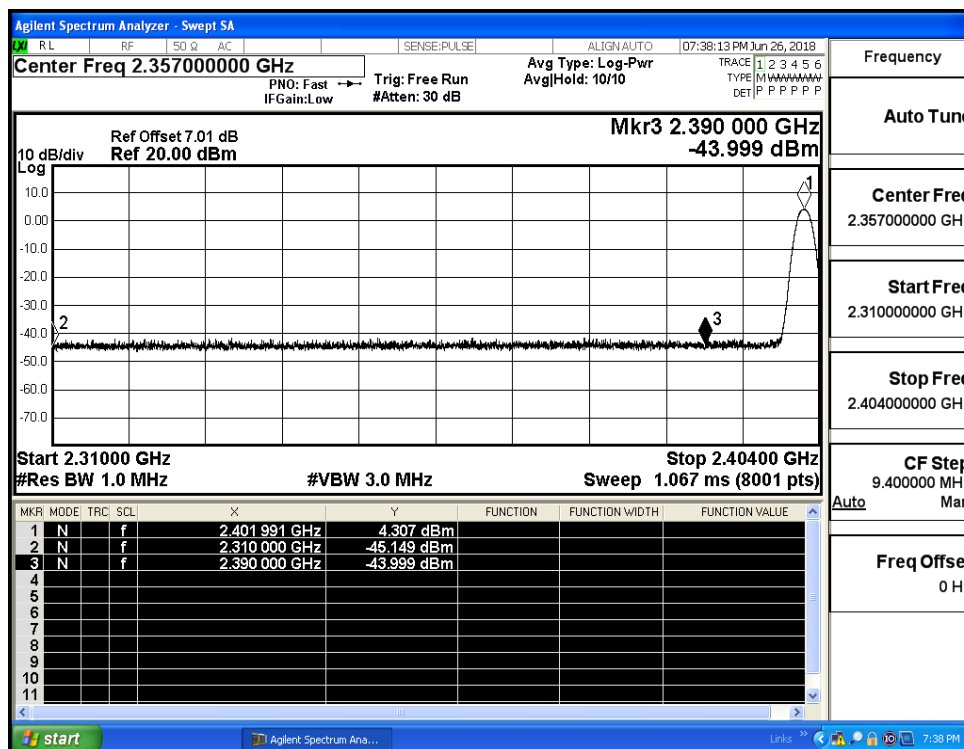
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



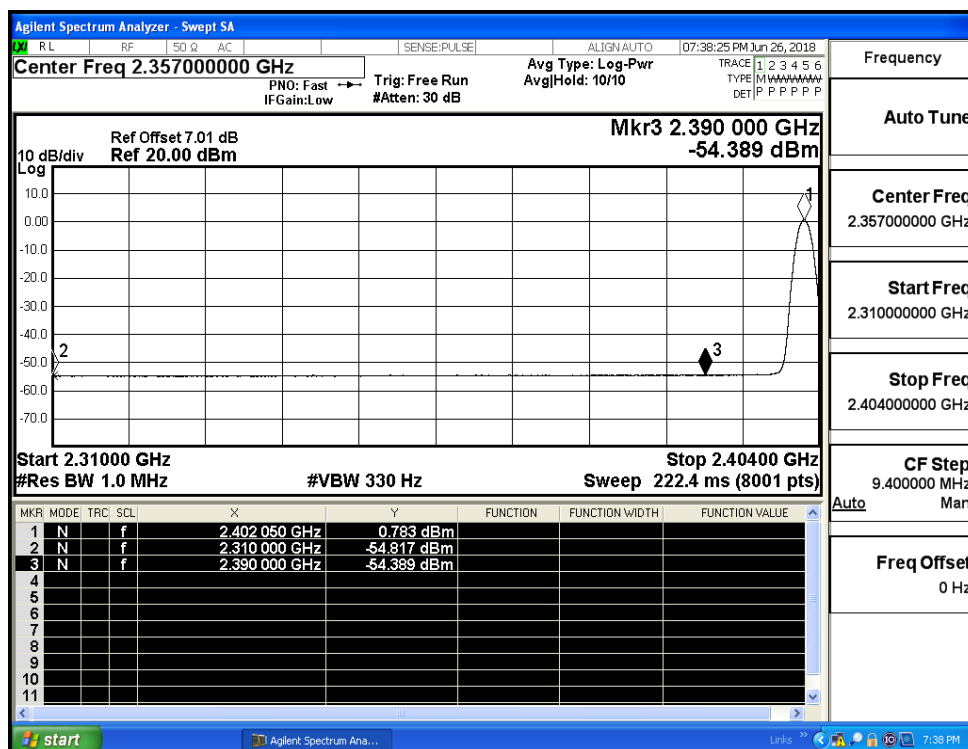
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)

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)

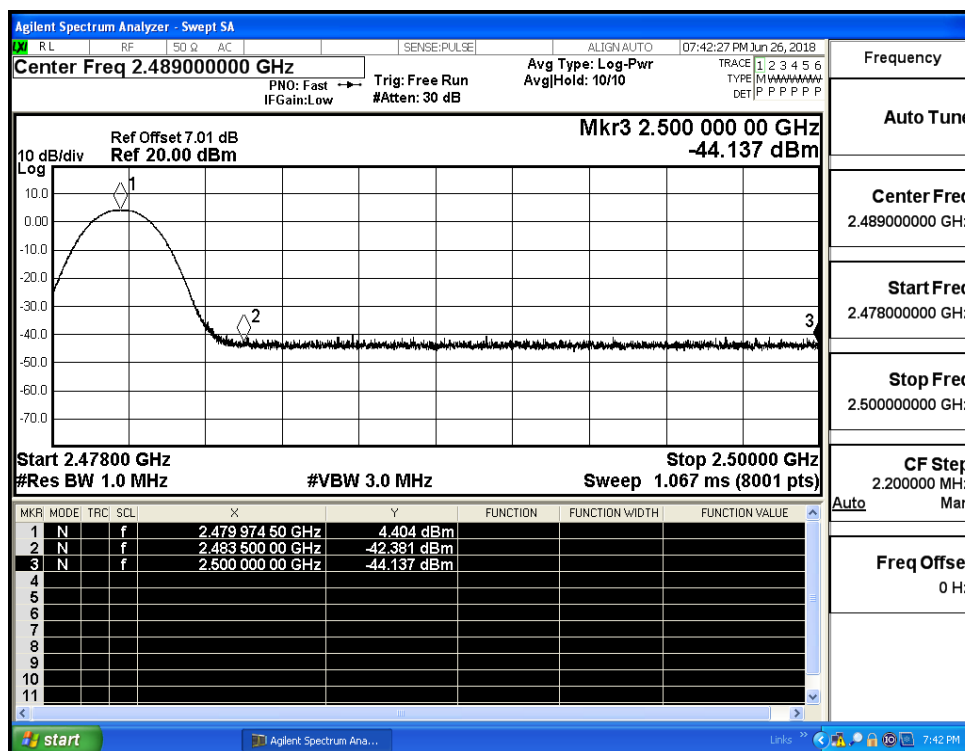
## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



## 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)

