



## Appendix A

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

Product Name: Portable radio

Trade Mark: N/A

Test Model: MG003

Environmental Conditions

|                    |             |
|--------------------|-------------|
| Temperature:       | 25.4°C      |
| Relative Humidity: | 52.4%       |
| ATM Pressure:      | 101Kpa      |
| Test Engineer:     | Emiya lin   |
| Supervised by:     | Simba Haung |



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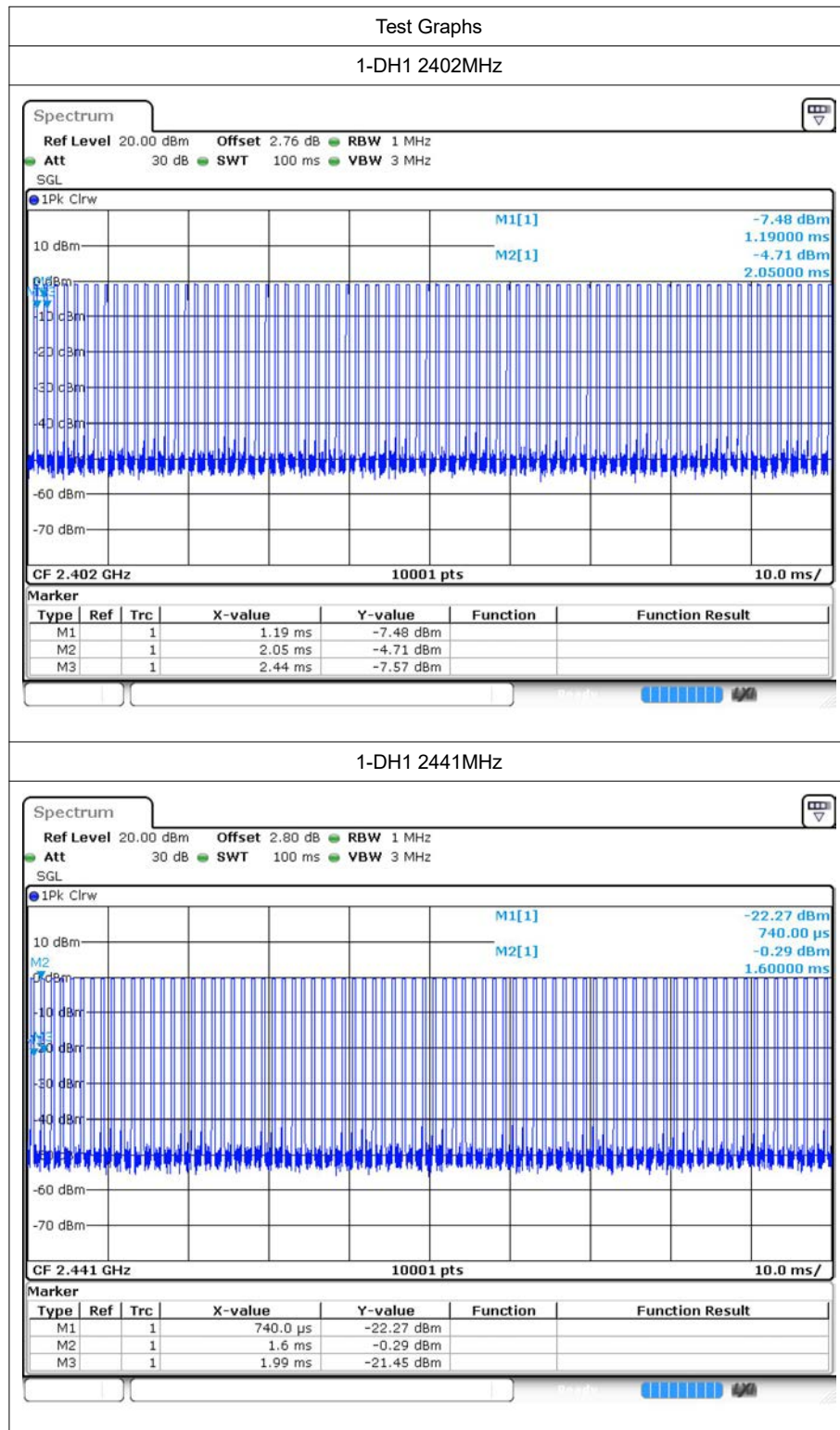
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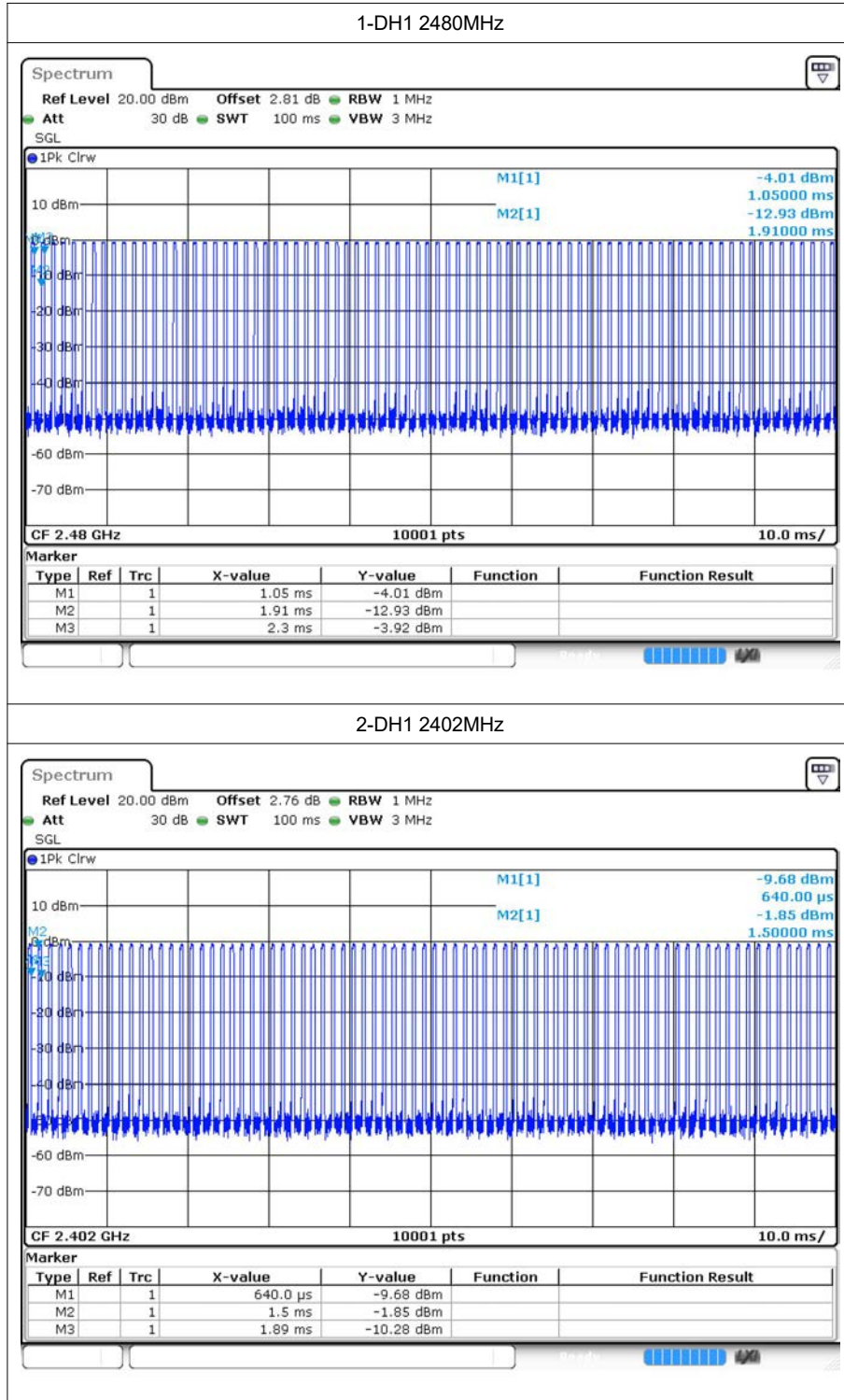
# 1 Duty Cycle

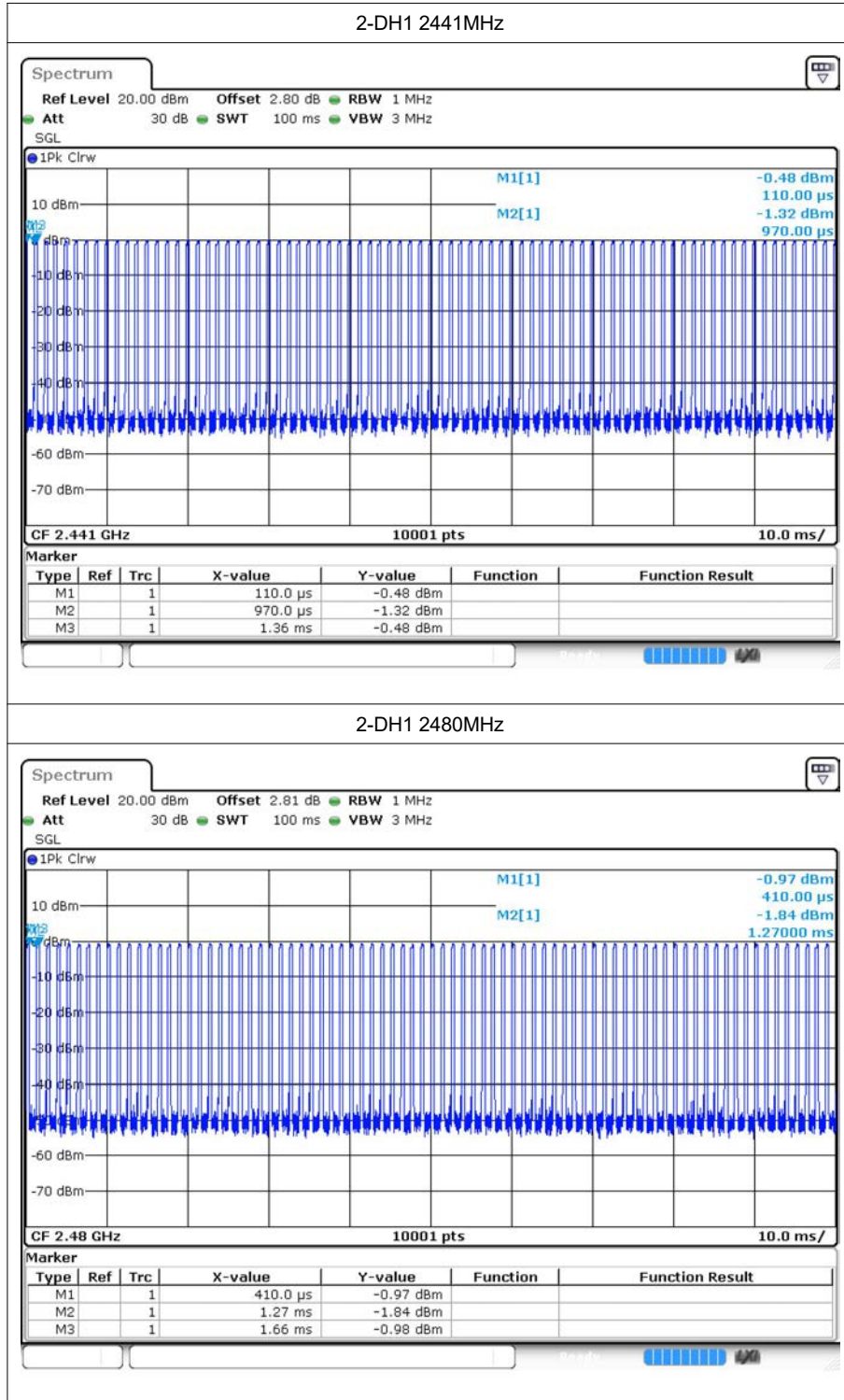
## 1.1 Test Result

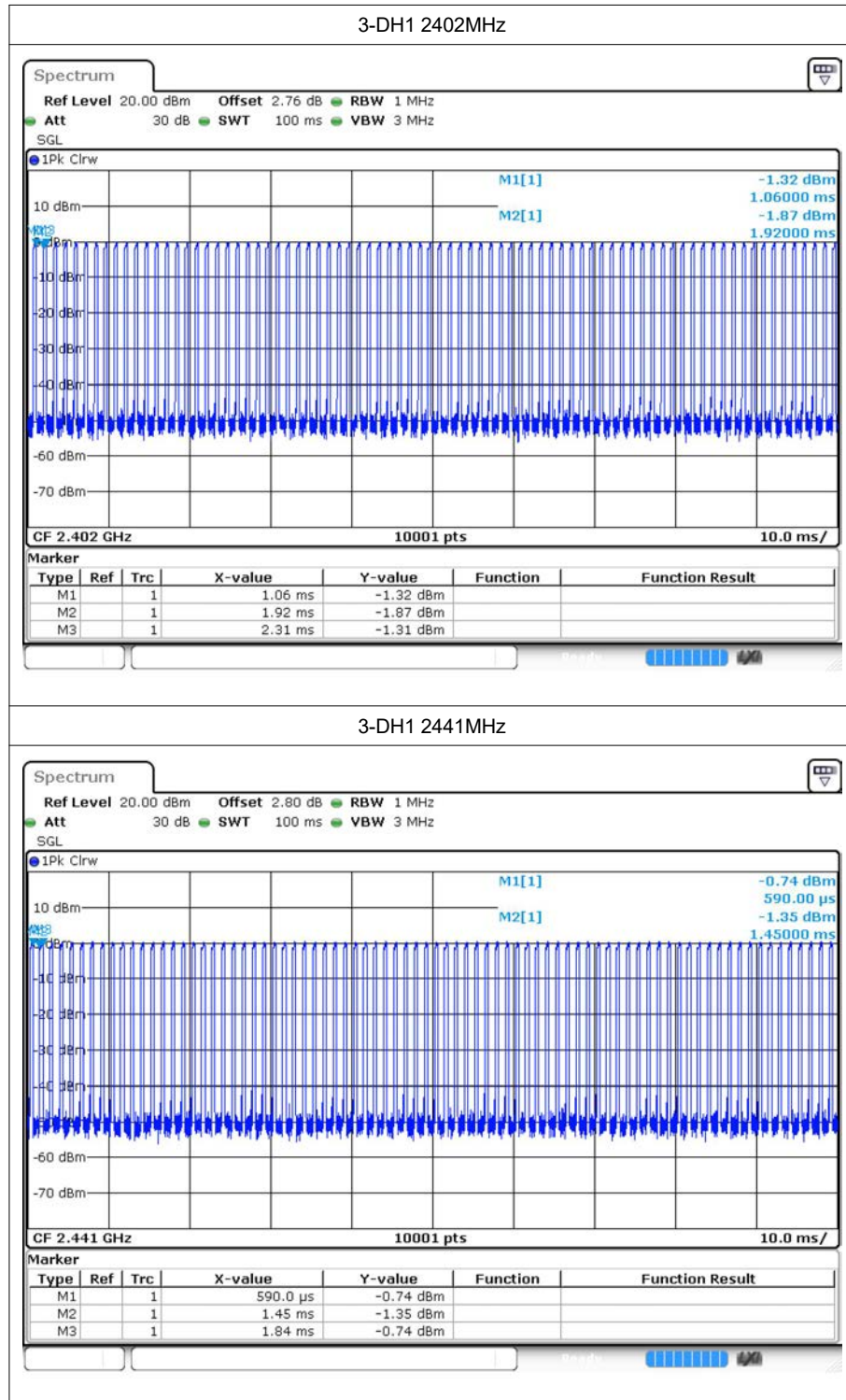
| Mode  | Frequency (MHz) | Duty Cycle (%) | Correction Factor | 1/T (kHz) |
|-------|-----------------|----------------|-------------------|-----------|
| 1-DH1 | 2402            | 31.66          | 5                 | 2.56      |
| 1-DH1 | 2441            | 32             | 4.95              | 2.56      |
| 1-DH1 | 2480            | 31.37          | 5.04              | 2.56      |
| 2-DH1 | 2402            | 32             | 4.95              | 2.56      |
| 2-DH1 | 2441            | 32.01          | 4.95              | 2.56      |
| 2-DH1 | 2480            | 32             | 4.95              | 2.56      |
| 3-DH1 | 2402            | 32             | 4.95              | 2.56      |
| 3-DH1 | 2441            | 32             | 4.95              | 2.56      |
| 3-DH1 | 2480            | 32             | 4.95              | 2.56      |

## 1.2 Test Graphs

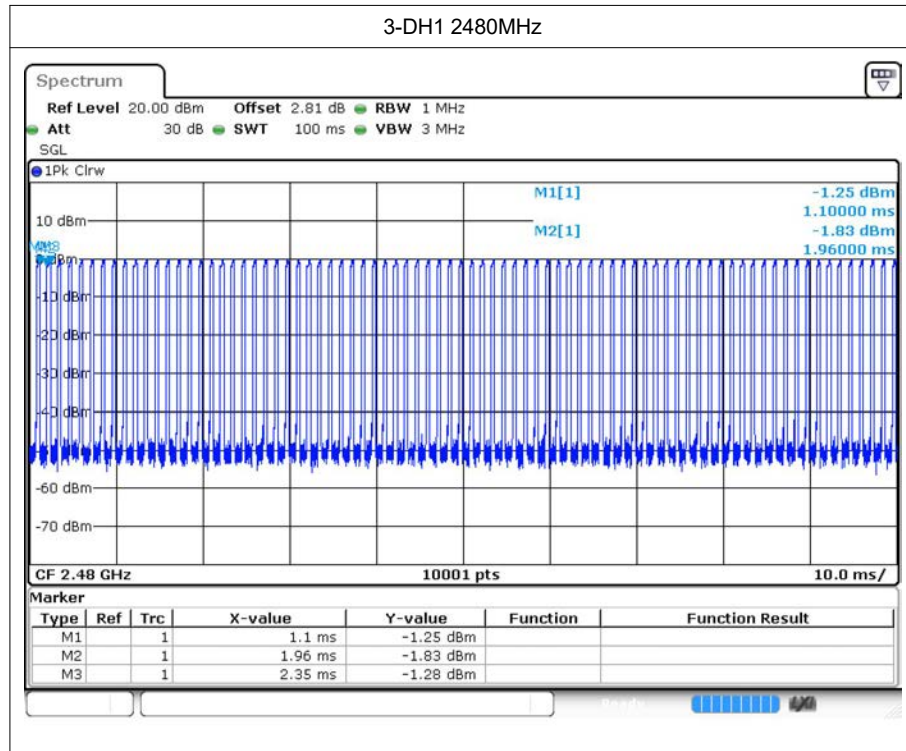












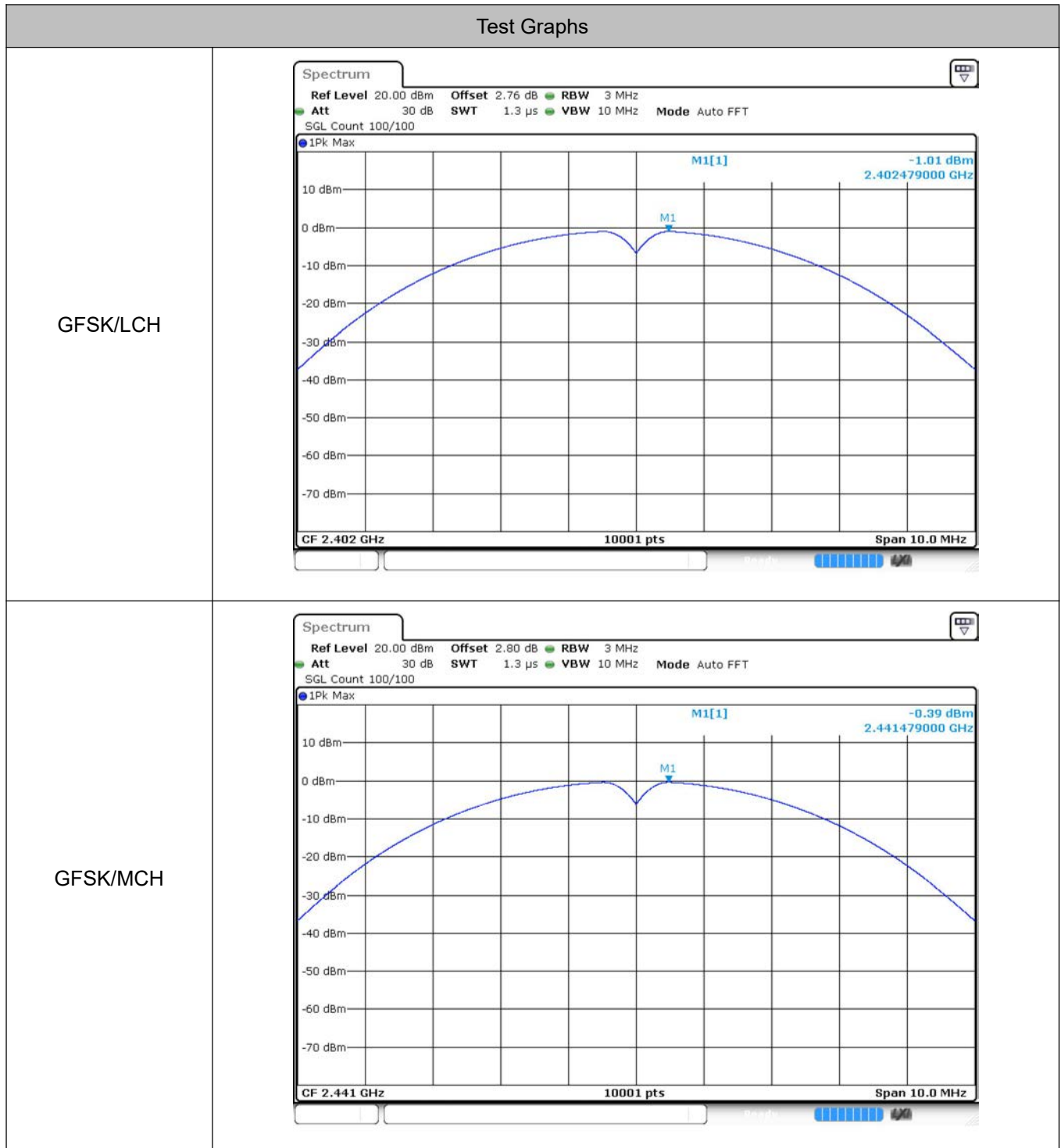


## 2 Maximum Conducted Peak Output Power

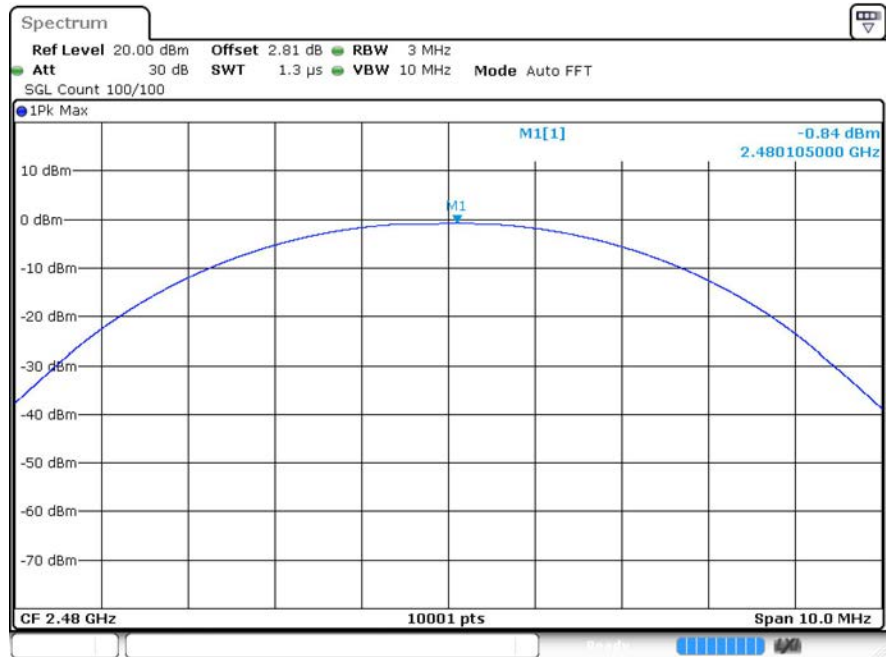
### 2.1 Test Result

| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | -1.01                           | 21          | Pass    |
|               | MCH      | -0.39                           | 21          | Pass    |
|               | HCH      | -0.84                           | 21          | Pass    |
| $\pi/4$ DQPSK | LCH      | 0.12                            | 21          | Pass    |
|               | MCH      | 0.7                             | 21          | Pass    |
|               | HCH      | 0.22                            | 21          | Pass    |
| 8DPSK         | LCH      | 0.25                            | 21          | Pass    |
|               | MCH      | 0.88                            | 21          | Pass    |
|               | HCH      | 0.24                            | 21          | Pass    |

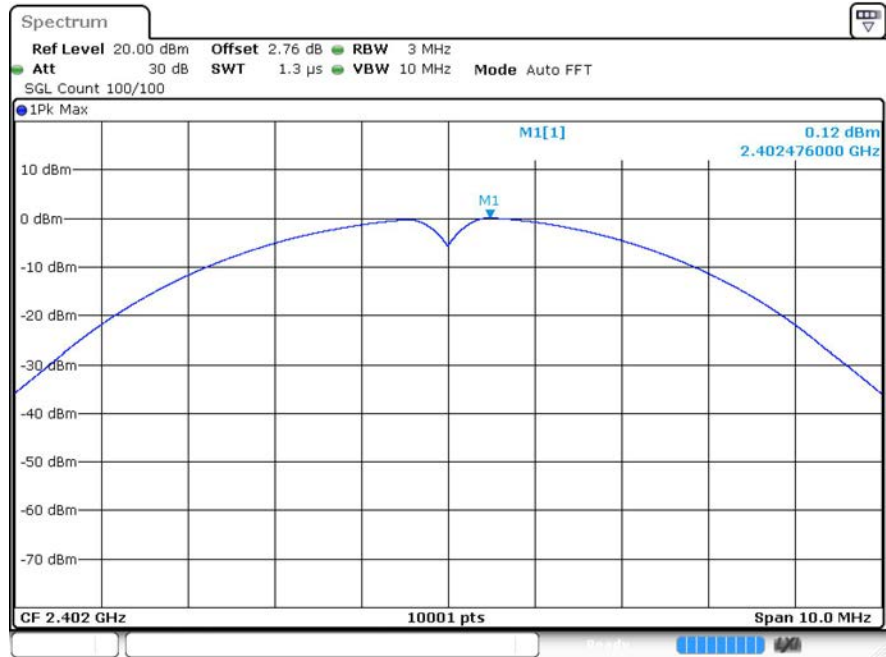
## 2.2 Test Graphs



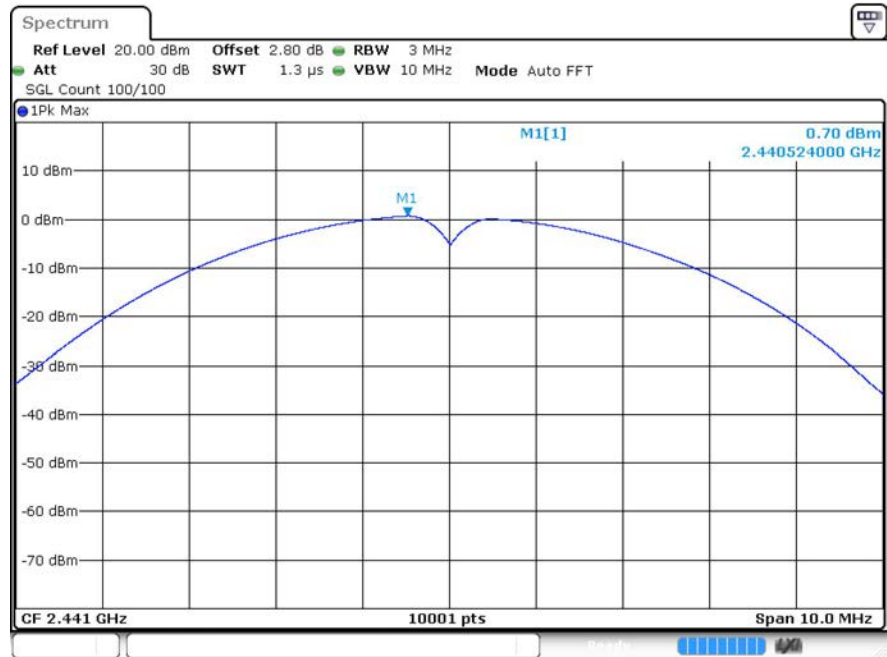
GFSK/HCH



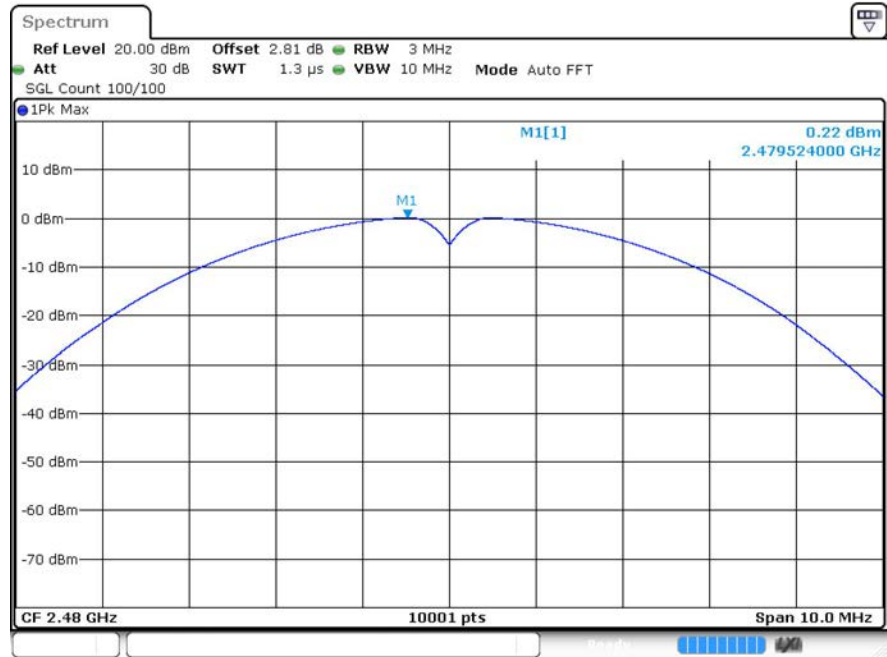
$\pi/4$ DQPSK/LCH



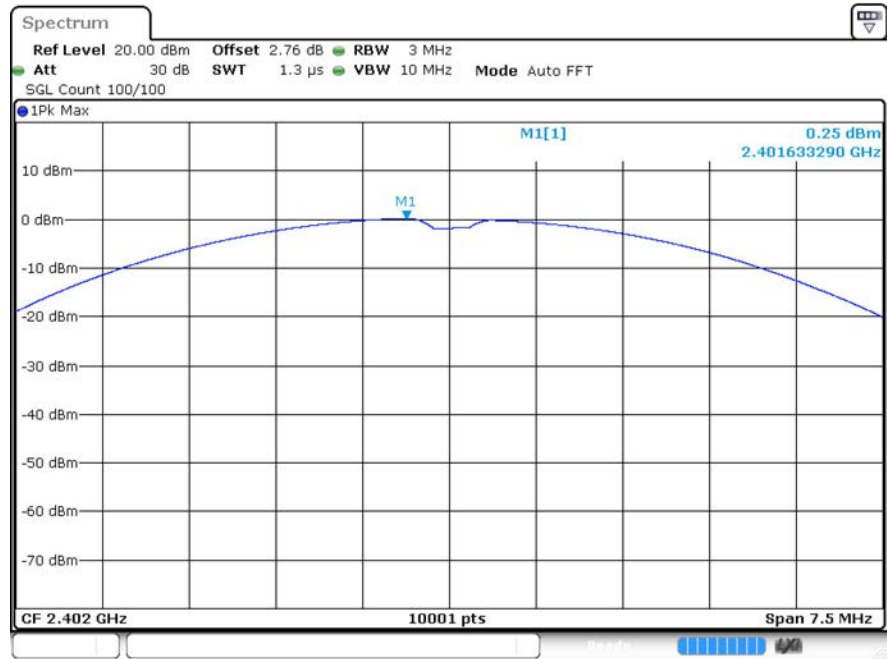
$\pi/4$ DQPSK/MCH



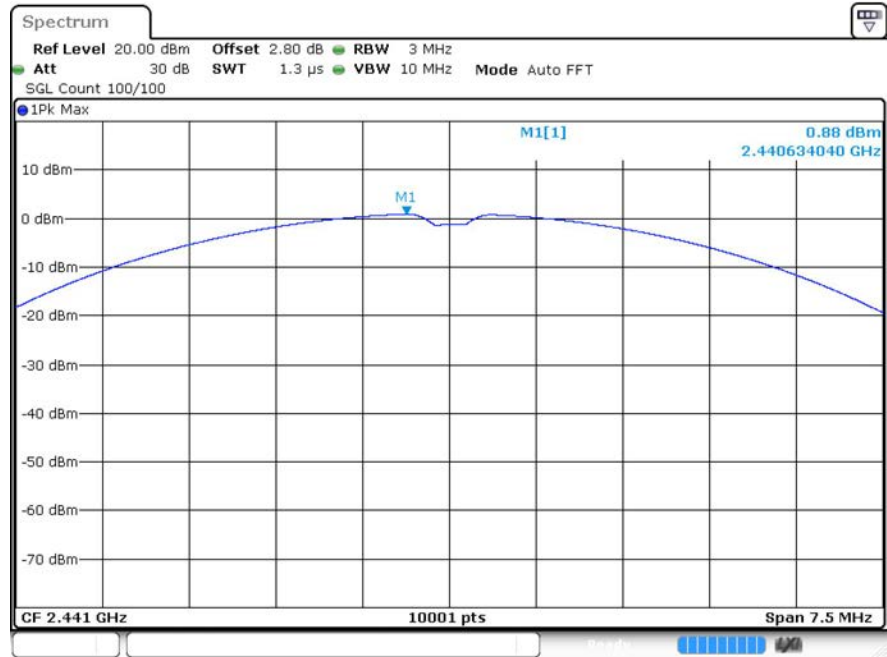
$\pi/4$ DQPSK/HCH



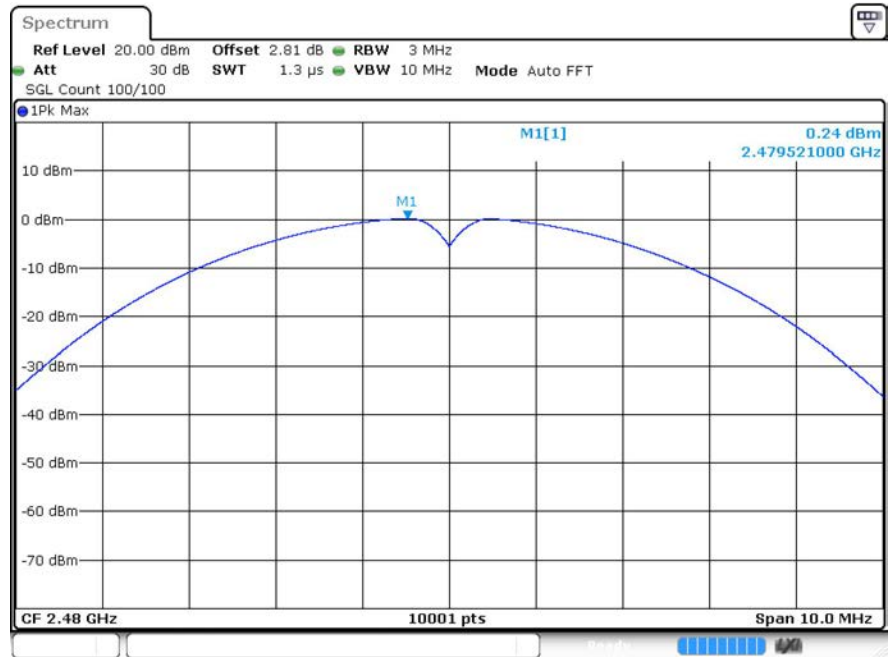
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



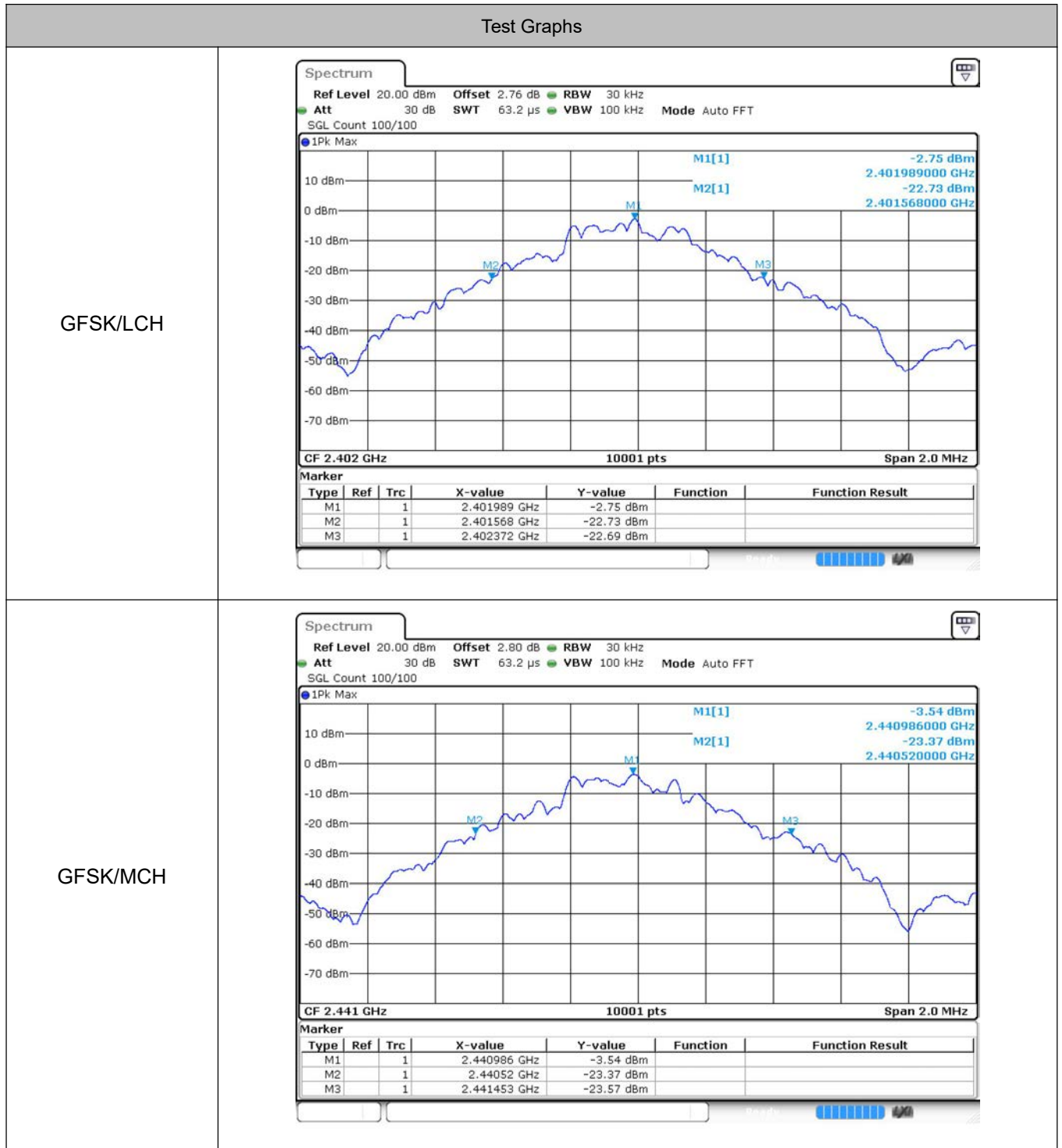
### 3 20dB Bandwidth

#### 3.1 Test Result

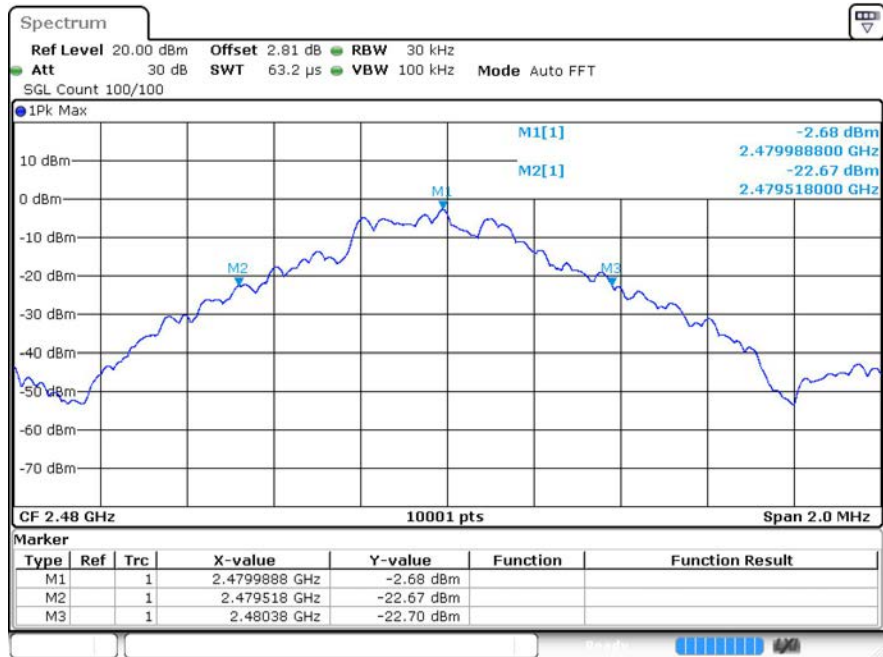
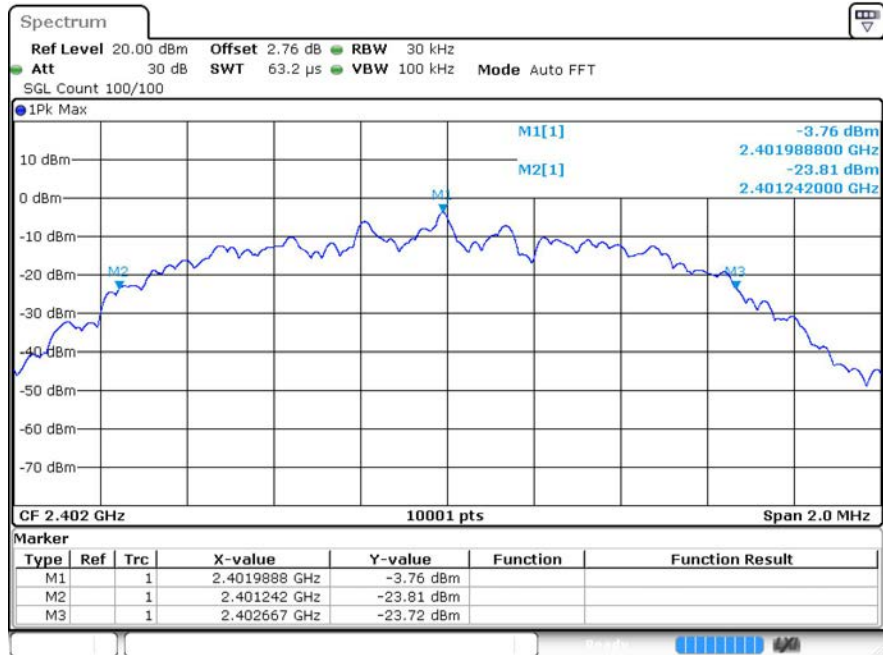
| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.804                | Not Specified | Pass    |
|               | MCH      | 0.933                | Not Specified | Pass    |
|               | HCH      | 0.862                | Not Specified | Pass    |
| $\pi/4$ DQPSK | LCH      | 1.425                | Not Specified | Pass    |
|               | MCH      | 1.488                | Not Specified | Pass    |
|               | HCH      | 1.422                | Not Specified | Pass    |
| 8DPSK         | LCH      | 1.435                | Not Specified | Pass    |
|               | MCH      | 1.427                | Not Specified | Pass    |
|               | HCH      | 1.432                | Not Specified | Pass    |

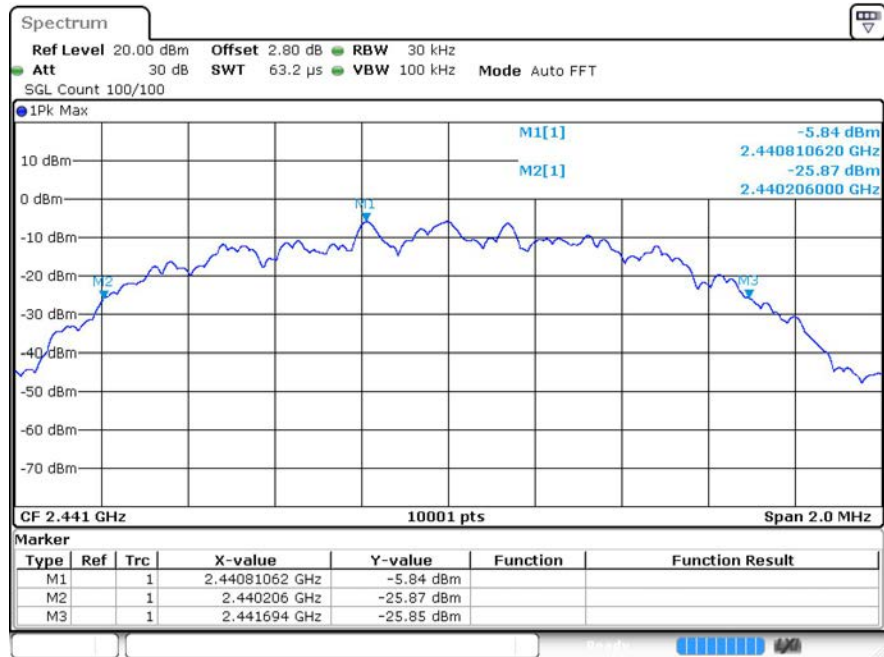
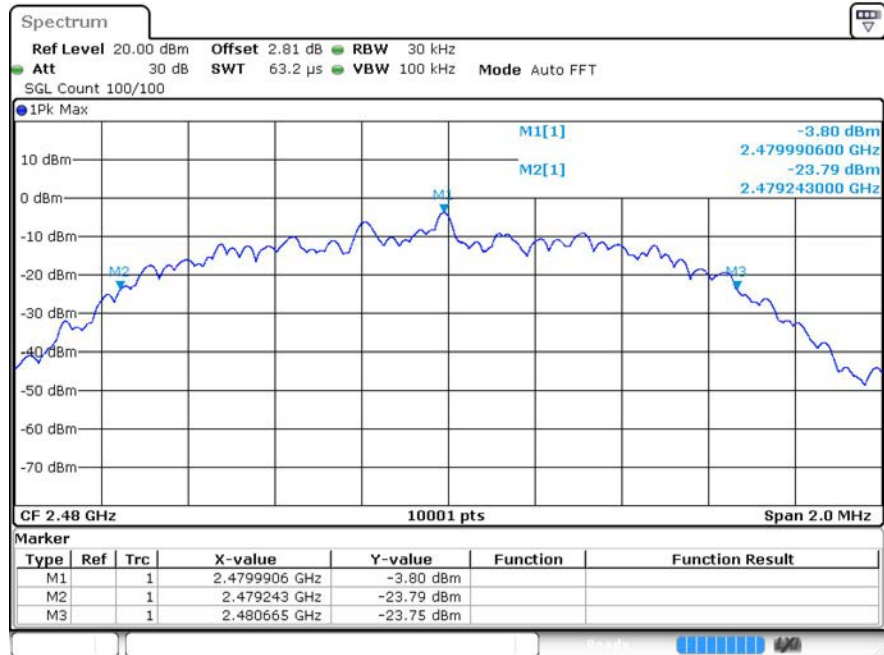


### 3.2 Test Graphs



GFSK/HCH

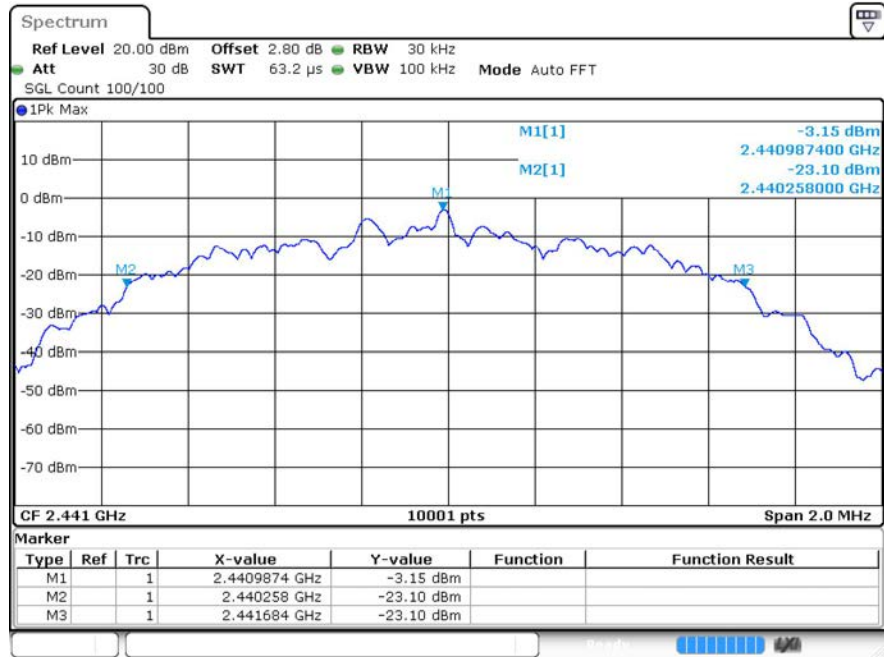

 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


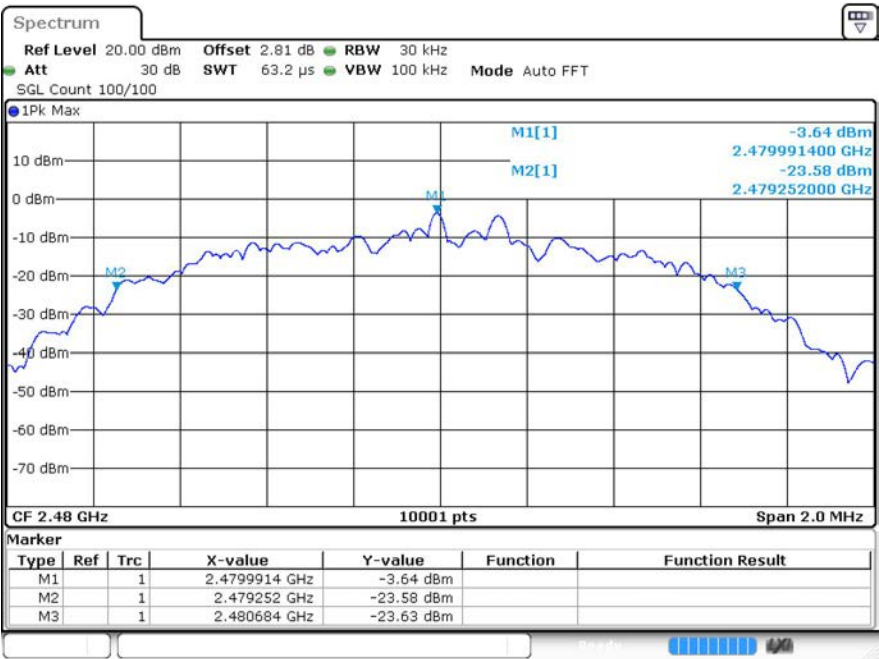
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

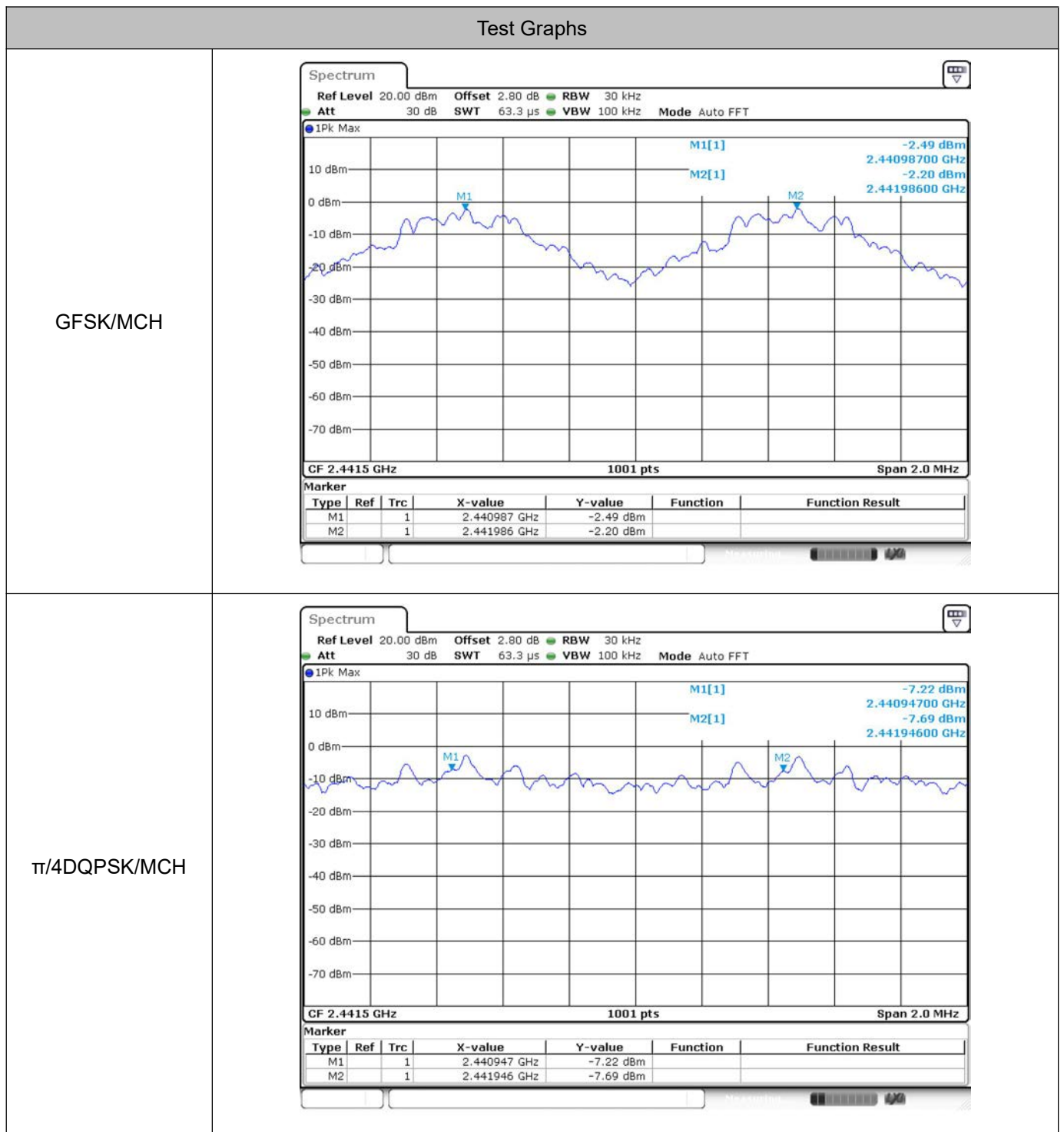


## 4 Carrier Frequency Separation

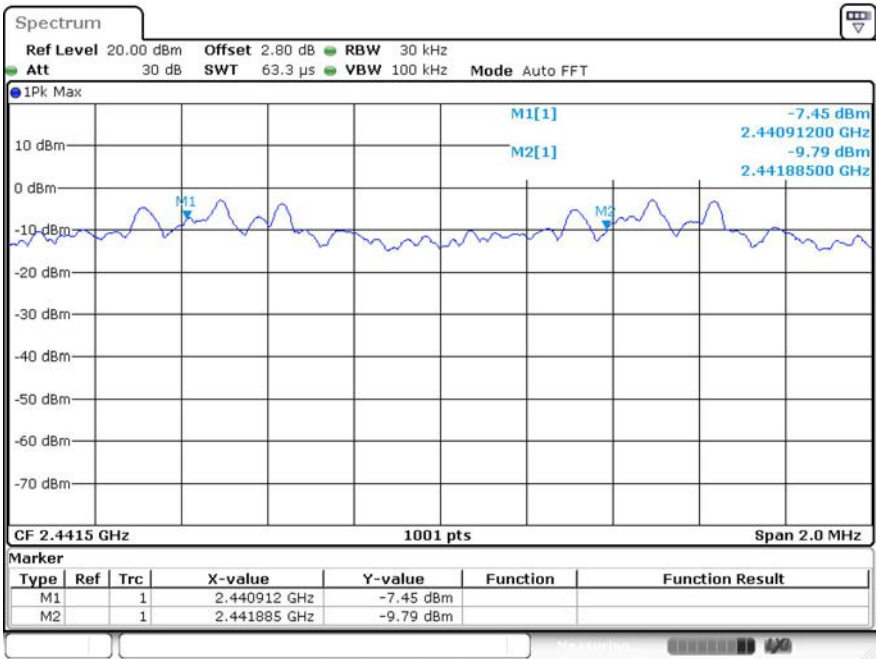
### 4.1 Test Result

| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | MCH      | 0.999                              | 0.622       | Pass    |
| $\pi/4$ DQPSK | MCH      | 0.999                              | 0.992       | Pass    |
| 8DPSK         | MCH      | 0.973                              | 0.951       | Pass    |

## 4.2 Test Graphs



8DPSK/MCH



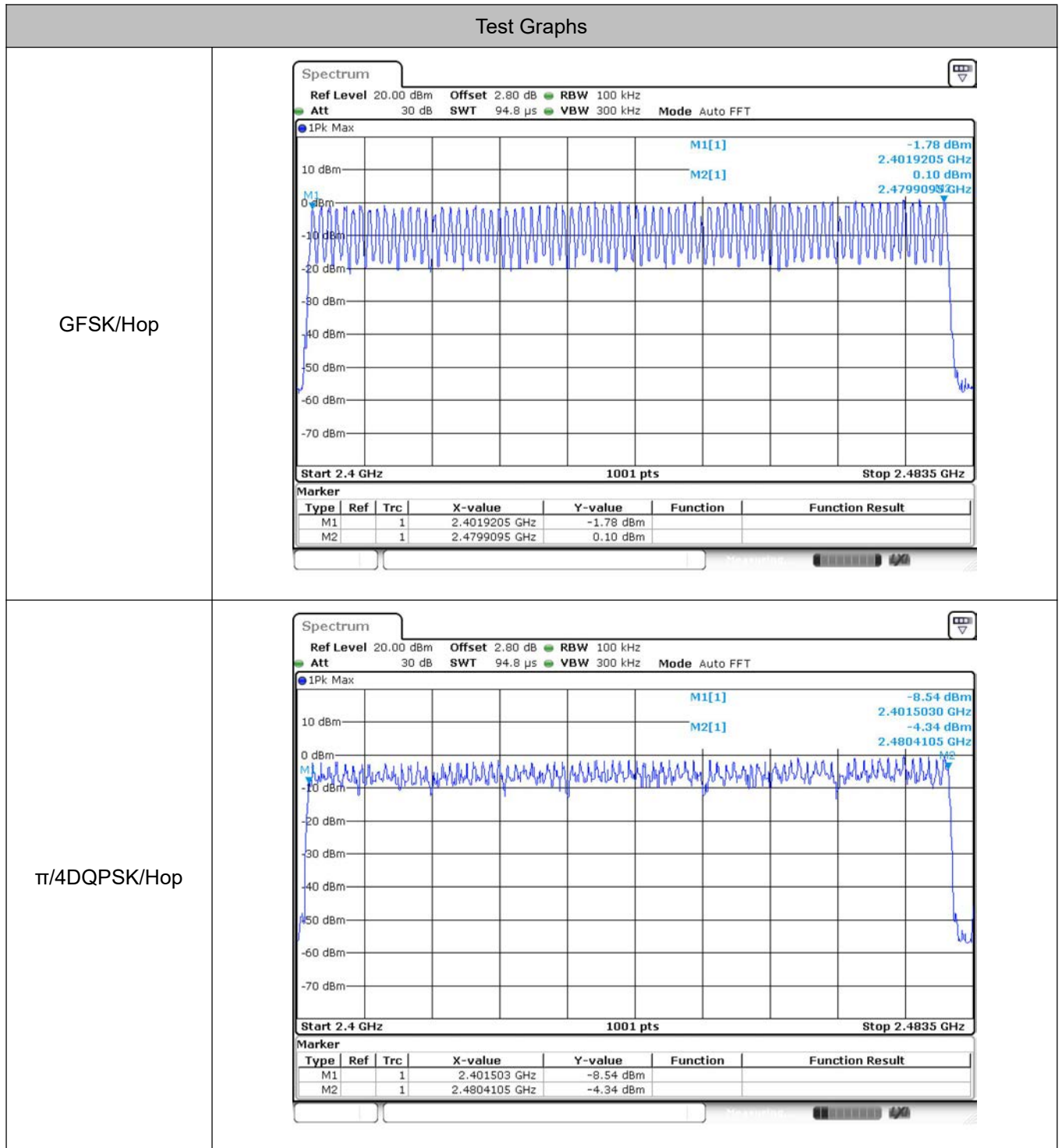


## 5 Hopping Channel Number

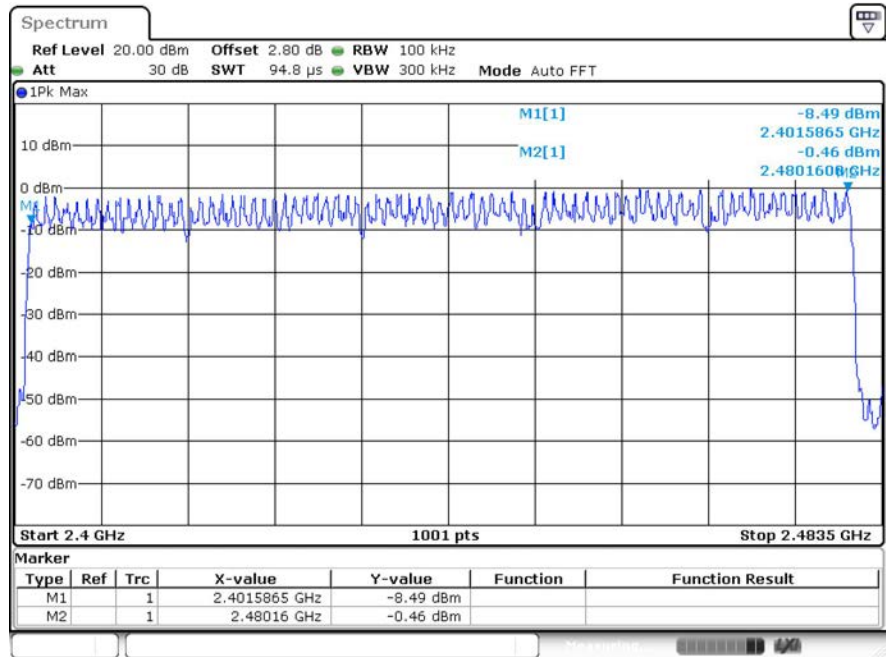
### 5.1 Test Result

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

## 5.2 Test Graphs



8DPSK/Hop



## 6 Dwell Time

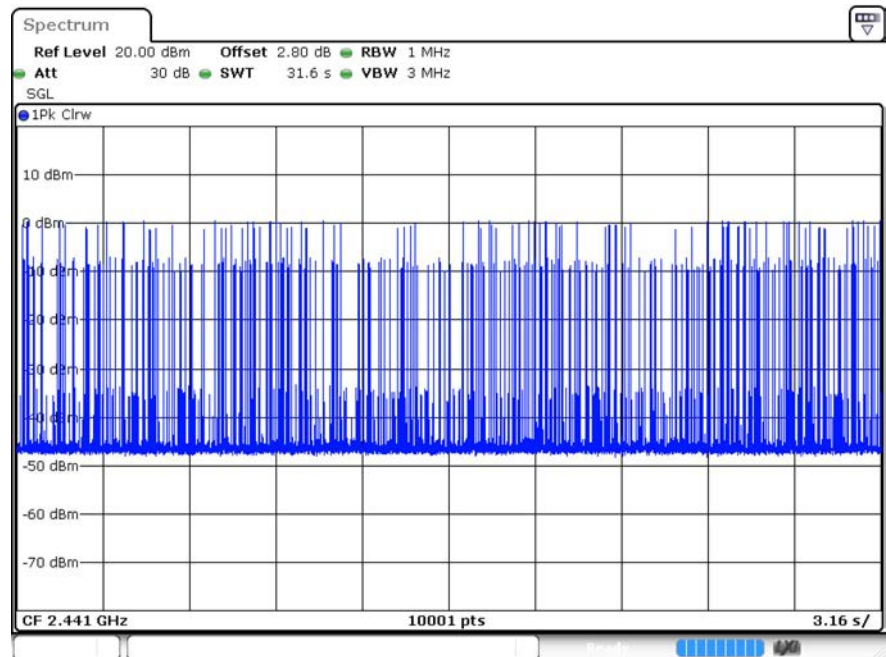
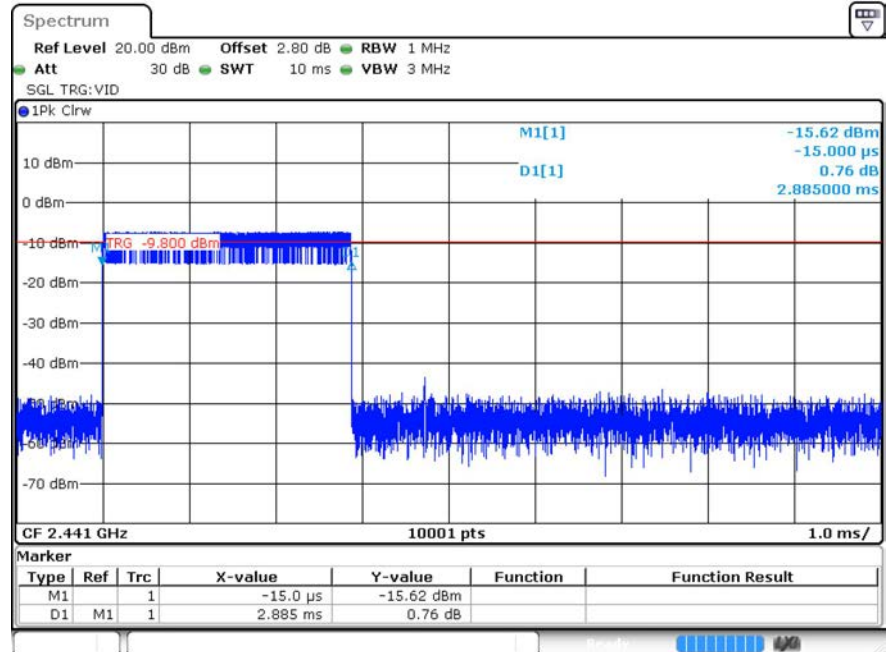
### 6.1 Test Result

| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[ms] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|----------------|-----------|---------|
| GFSK          | DH5    | MCH     | 2.885                      | 102                   | 294.27         | 0.4       | Pass    |
| $\pi/4$ DQPSK | 2DH5   | MCH     | 2.889                      | 104                   | 300.456        | 0.4       | Pass    |
| 8DPSK         | 3DH5   | MCH     | 2.891                      | 113                   | 326.683        | 0.4       | Pass    |

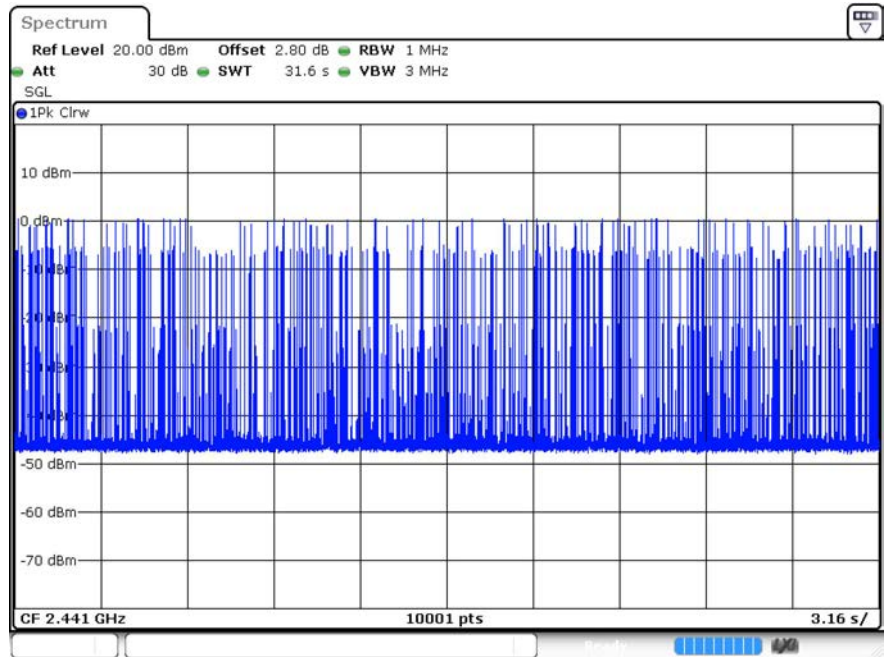
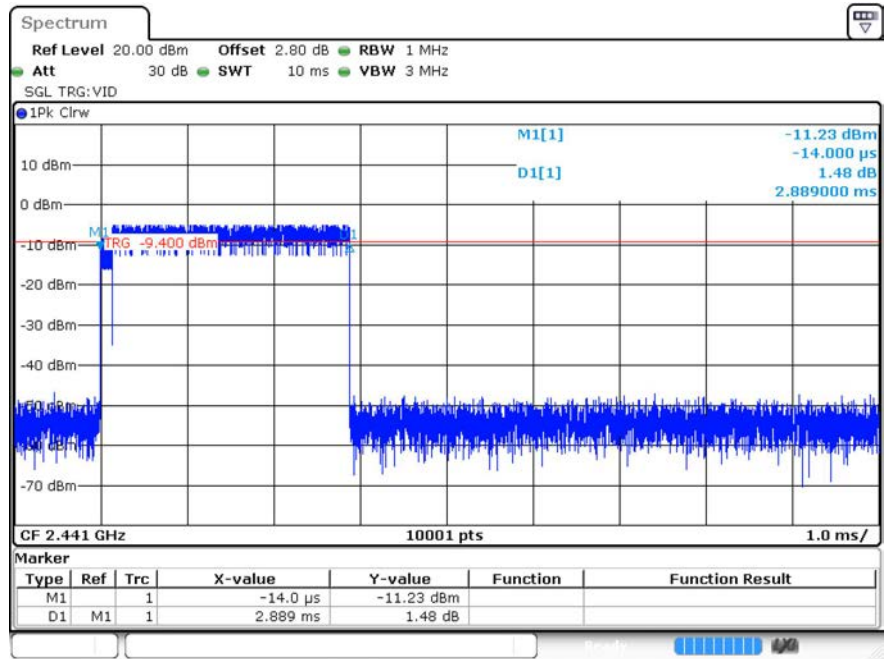
## 6.2 Test Graphs

### Test Graphs

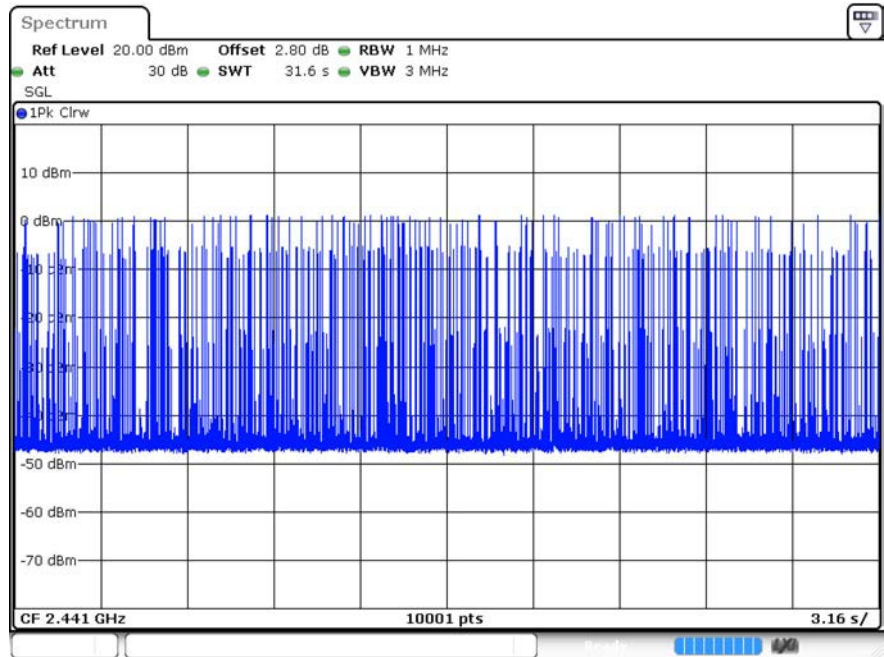
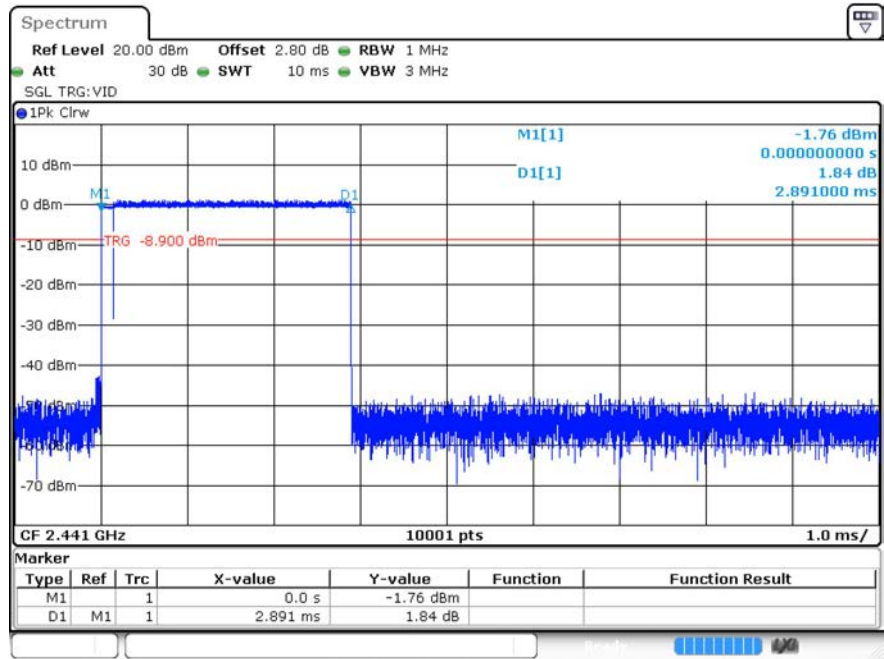
GFSK\_DH5/MCH



$\pi/4$ DQPSK  
\_2DH5/MCH



8DPSK\_3DH5/MCH



## 7 RF Conducted Spurious Emissions

### 7.1 Test Result

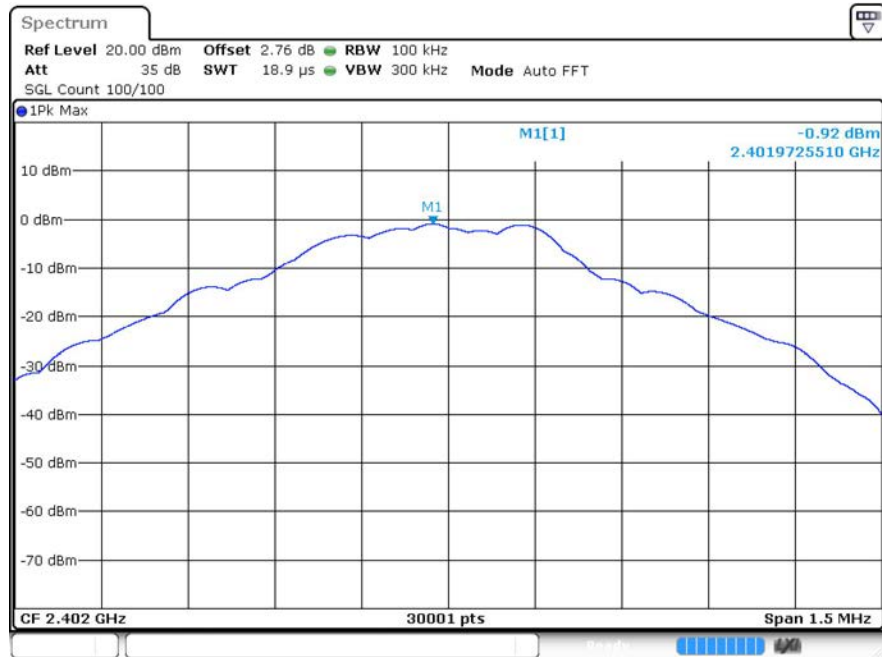
| Mode          | Channel | Max. Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|------------------|-------------|---------|
| GFSK          | LCH     | -40.2            | -20         | Pass    |
|               | MCH     | -40.87           | -20         | Pass    |
|               | HCH     | -40.51           | -20         | Pass    |
| $\pi/4$ DQPSK | LCH     | -39.15           | -20         | Pass    |
|               | MCH     | -39.71           | -20         | Pass    |
|               | HCH     | -39.37           | -20         | Pass    |
| 8DPSK         | LCH     | -39.25           | -20         | Pass    |
|               | MCH     | -40.51           | -20         | Pass    |
|               | HCH     | -39.26           | -20         | Pass    |



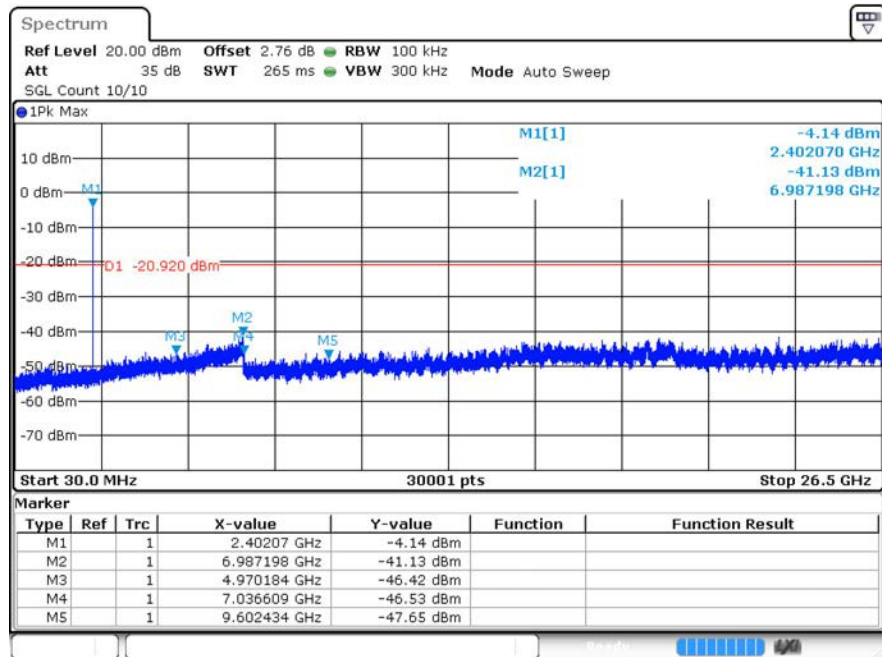
## 7.2 Test Graphs

GFSK\_LCH\_Graphs

Pref



Puw

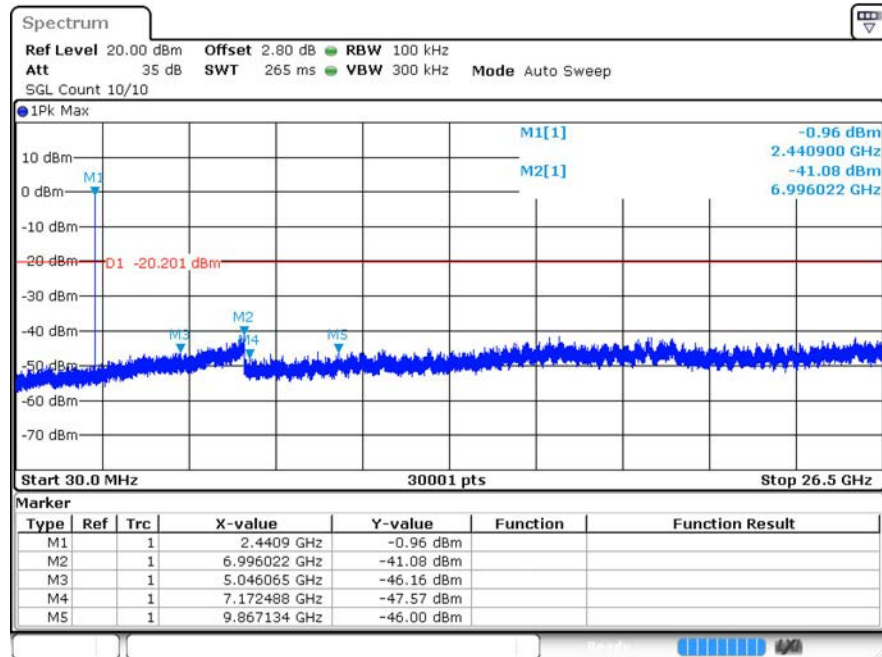


# GFSK\_MCH\_Graphs

Pref

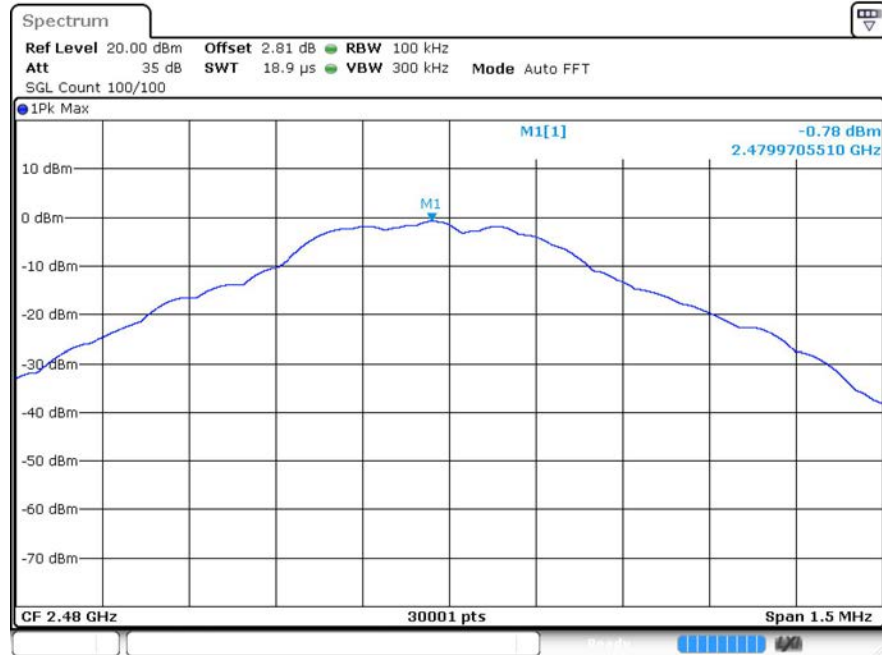


Puw

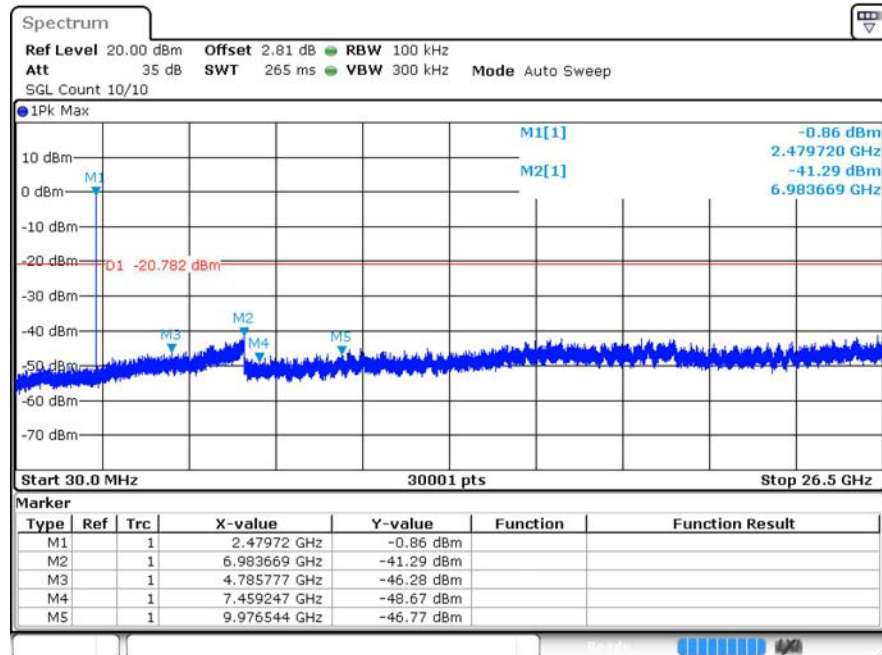


## GFSK\_HCH\_Graphs

Pref

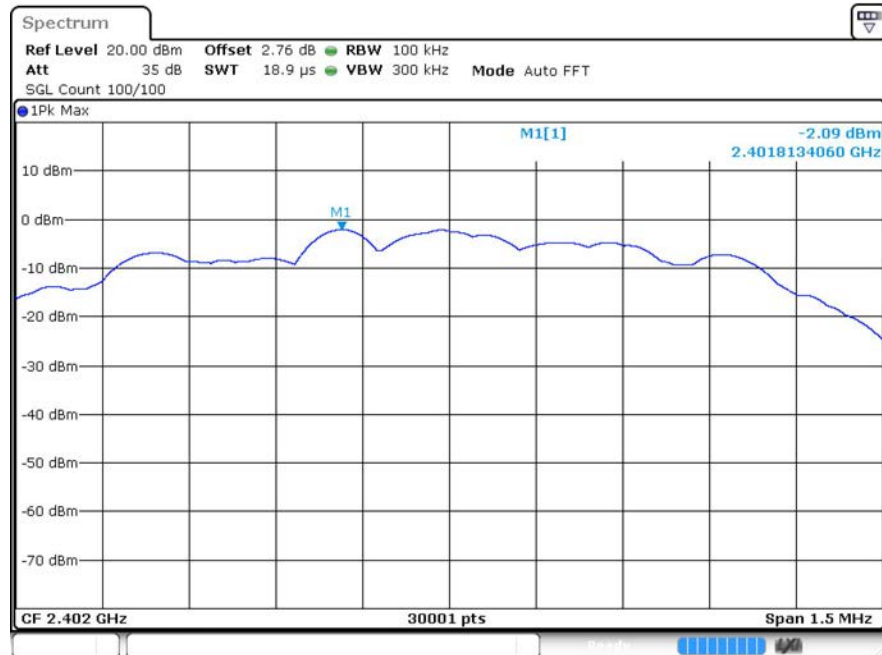


Puw

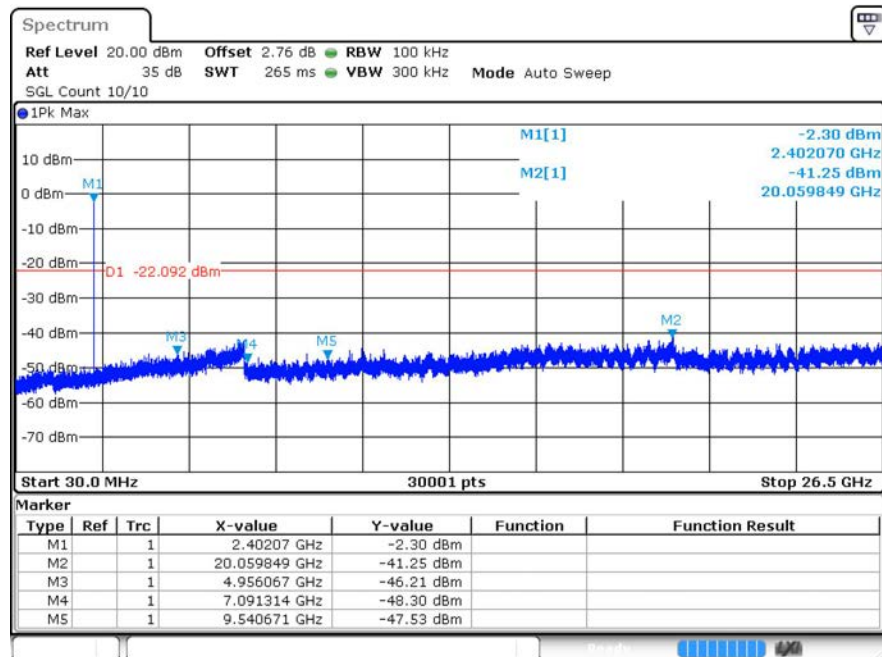


### $\pi/4$ DQPSK\_LCH\_Graphs

Pref

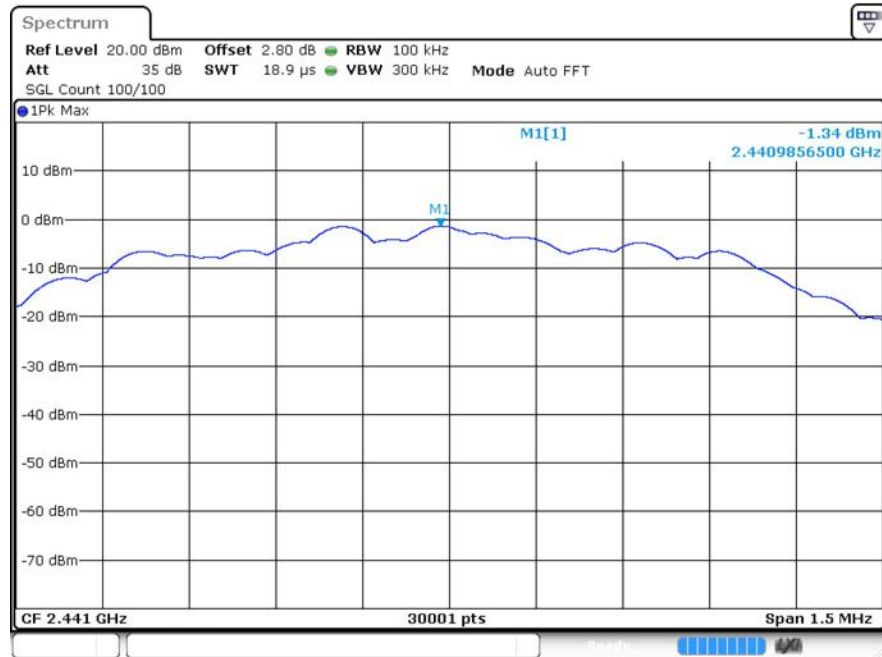


Puw

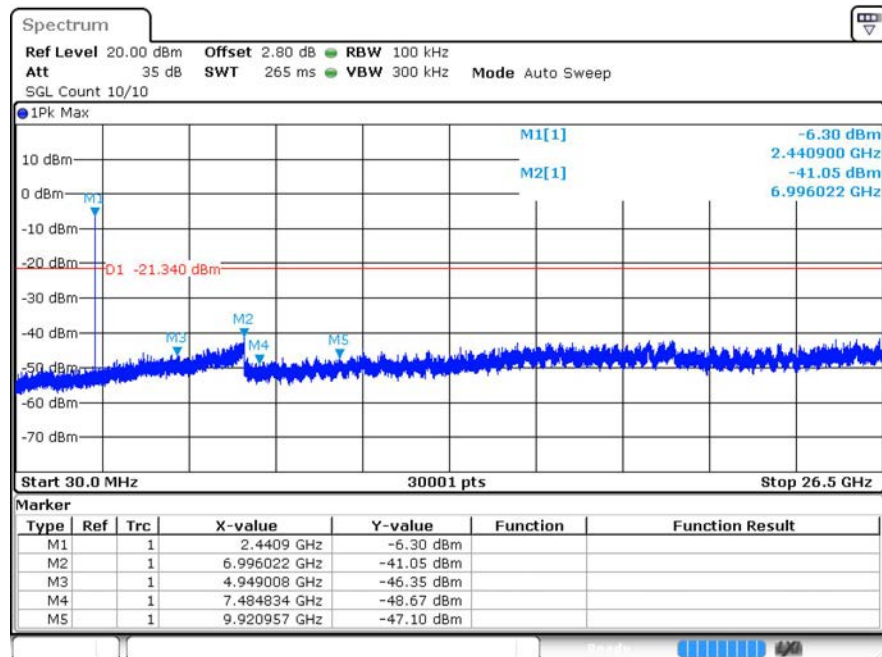


### $\pi$ /4DQPSK\_MCH\_Graphs

Pref

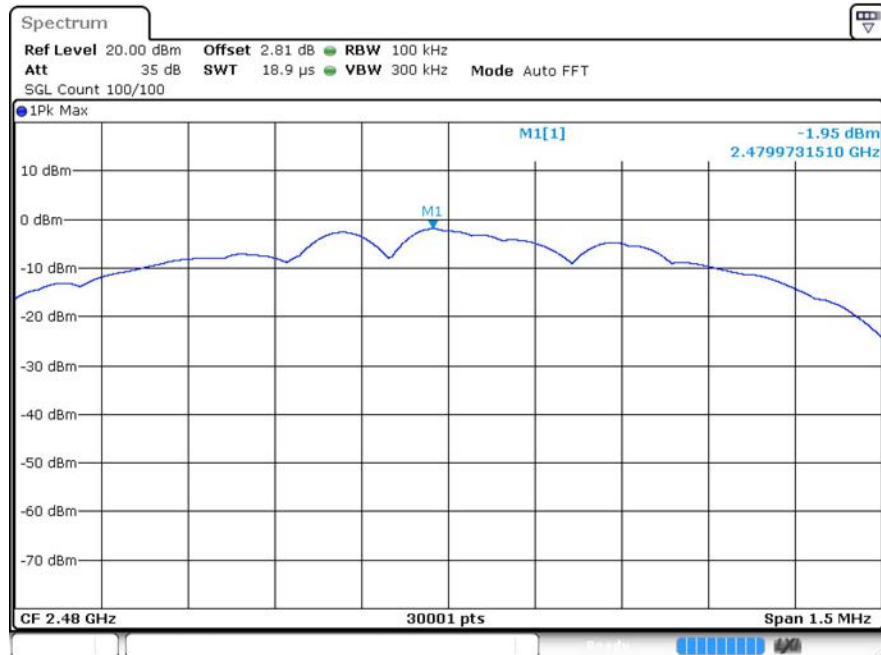


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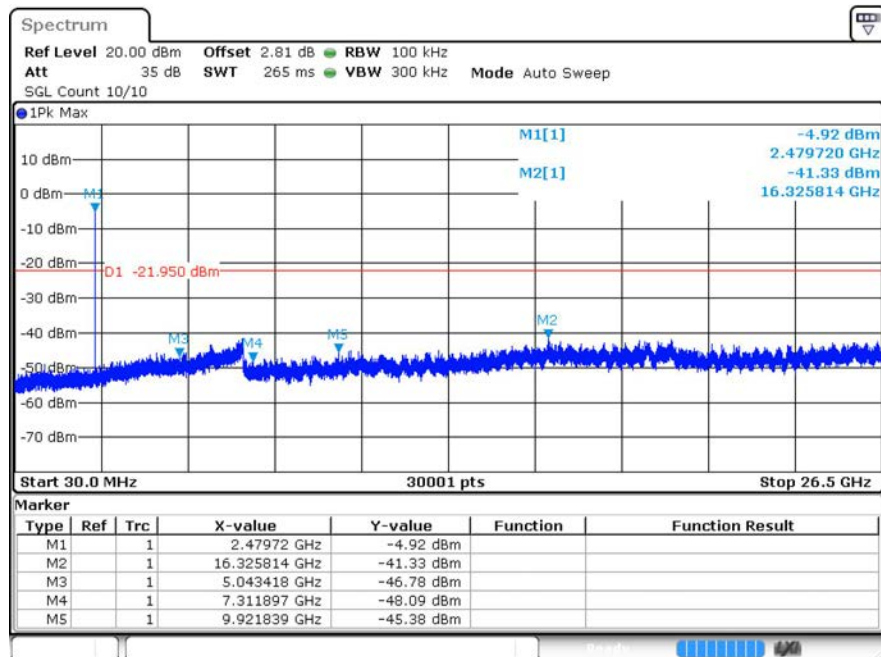


$\pi/4$ DQPSK\_HCH\_Graphs

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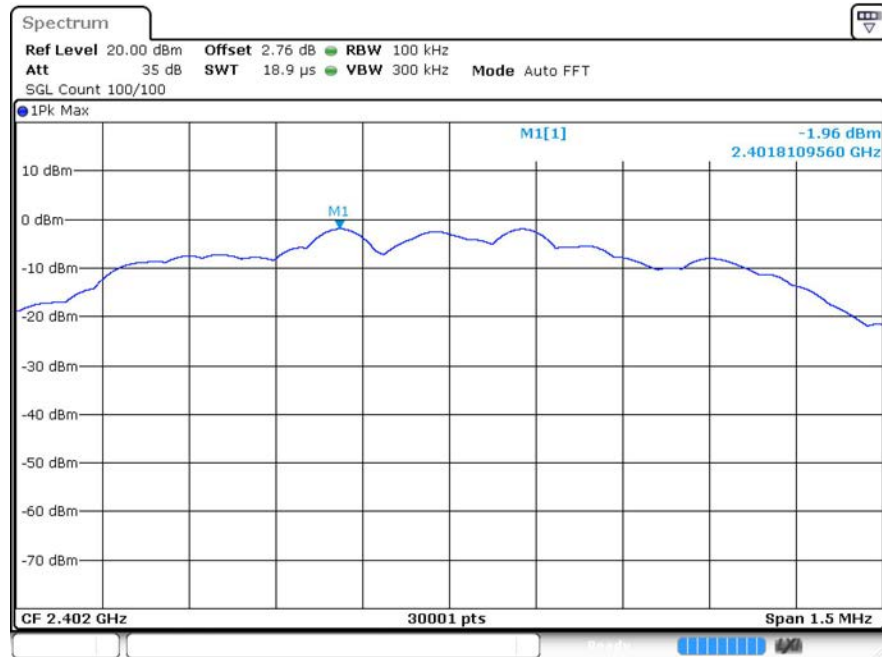


Puw

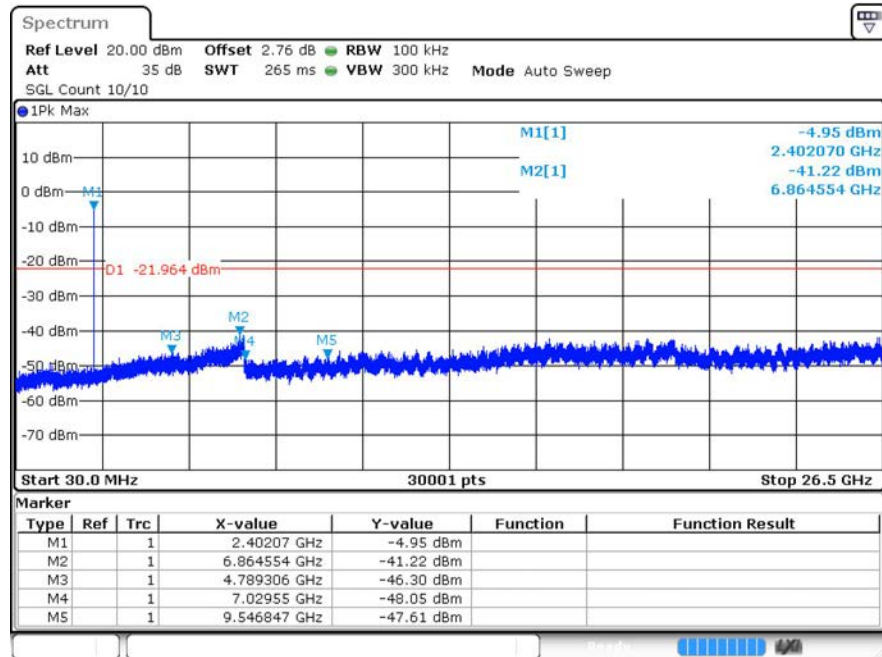


## 8DPSK\_LCH\_Graphs

Pref



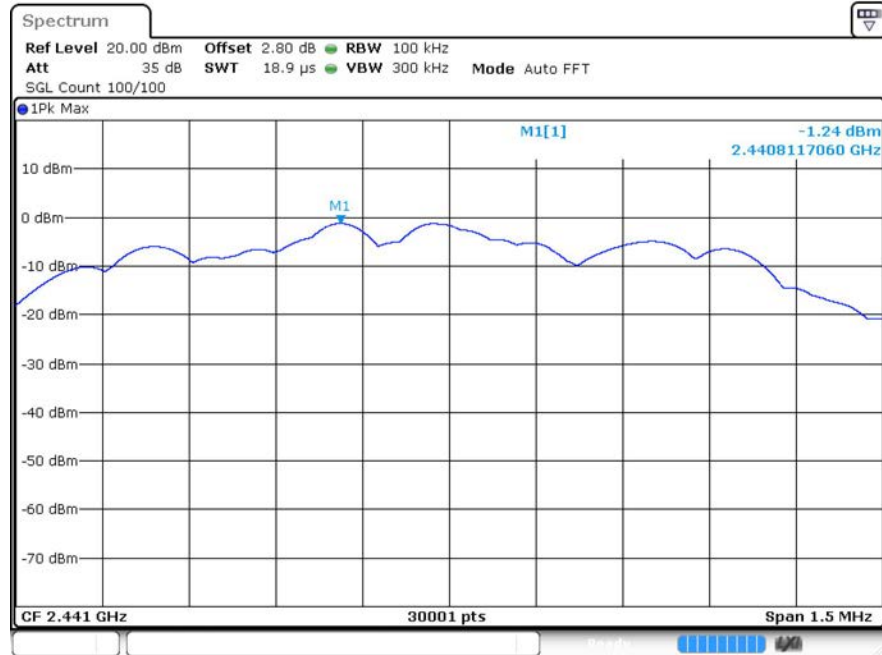
Puw



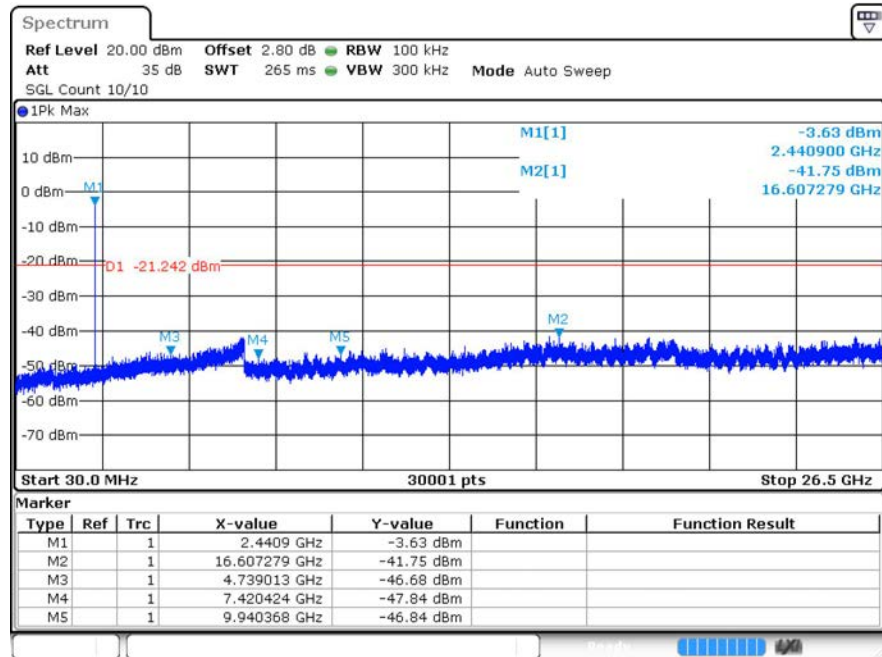


## 8DPSK\_MCH\_Graphs

Pref



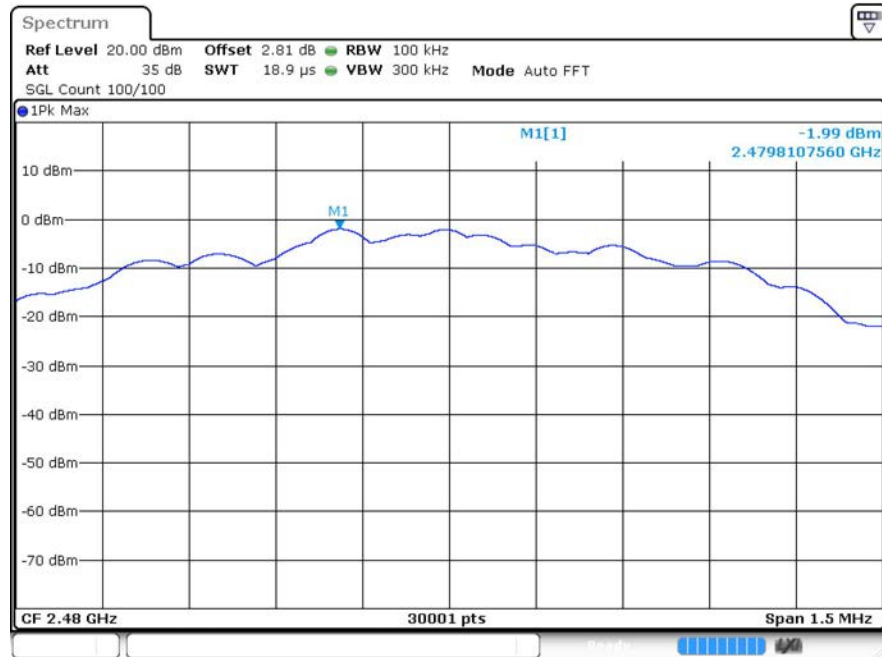
Puw



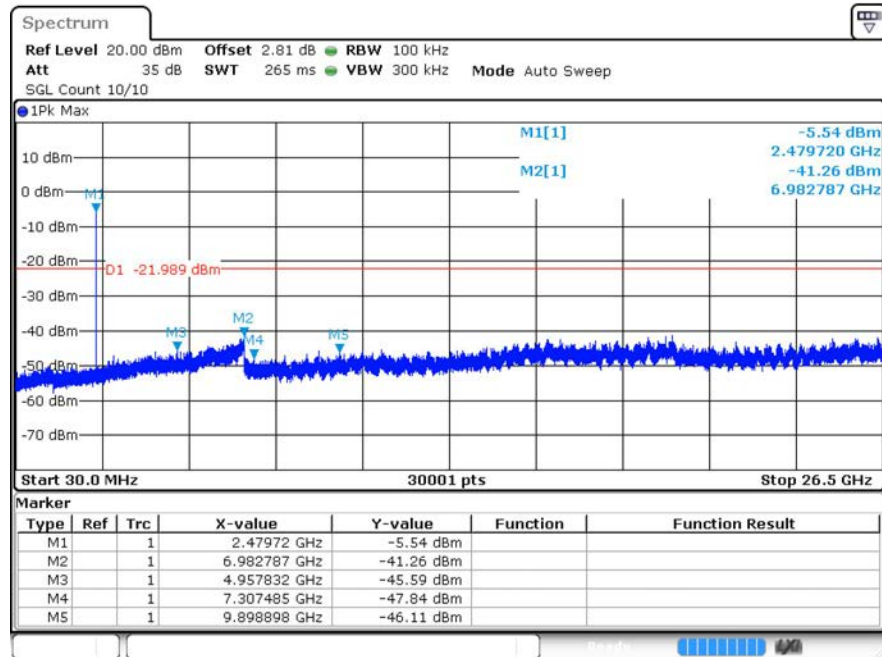


## 8DPSK\_HCH\_Graphs

Pref



Puw

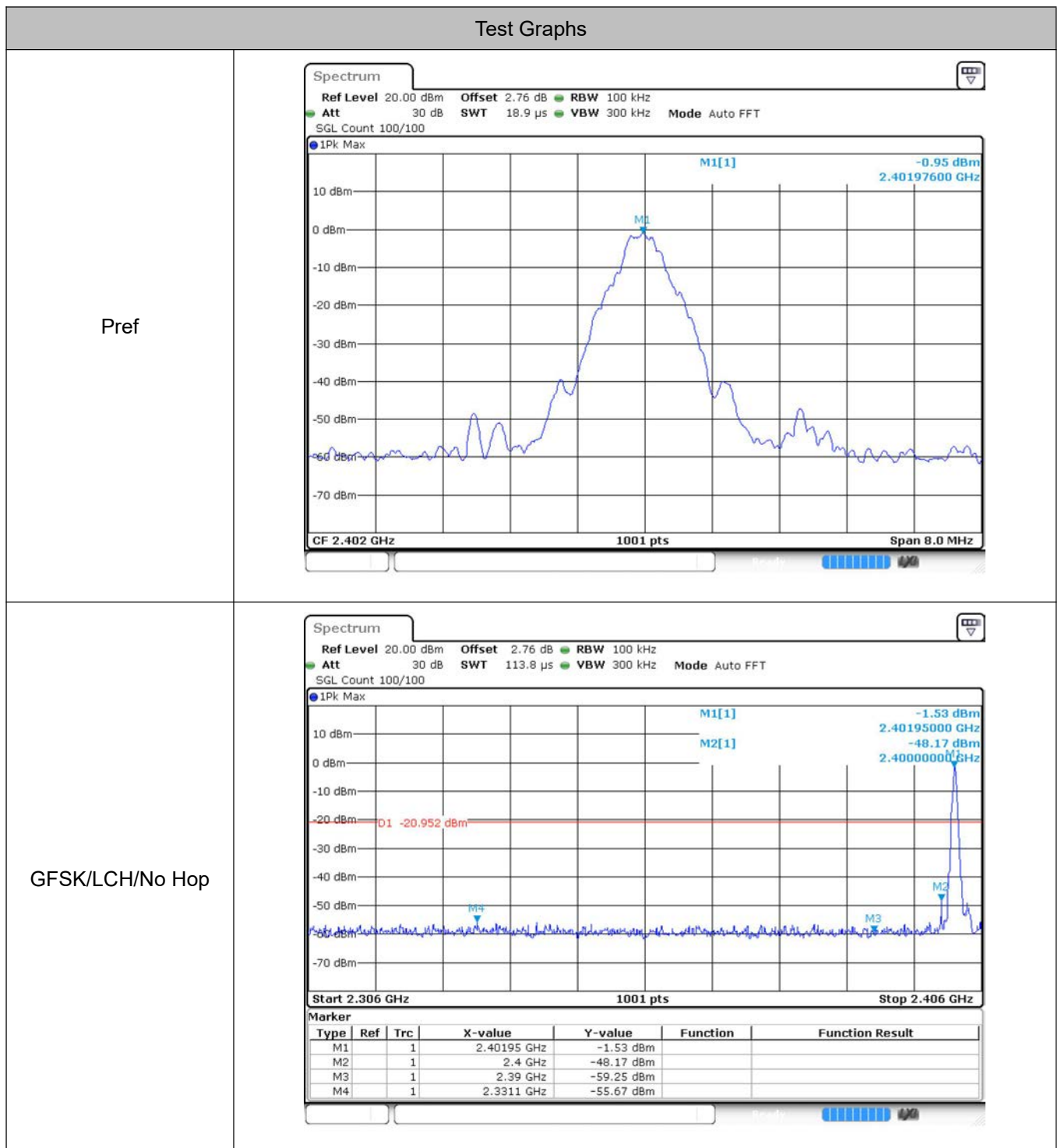


## 8 Band-edge for RF Conducted Emissions

### 8.1 Test Result

| Mode          | Channel | Carrier Frequency [MHz] | Frequency Hopping | Max Spurious Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|-------------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | Off               | -54.72                   | -20         | Pass    |
|               |         |                         | On                | -53.85                   | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -48.13                   | -20         | Pass    |
|               |         |                         | On                | -49.34                   | -20         | Pass    |
| $\pi/4$ DQPSK | LCH     | 2402                    | Off               | -52.73                   | -20         | Pass    |
|               |         |                         | On                | -52.59                   | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -43.81                   | -20         | Pass    |
|               |         |                         | On                | -52.29                   | -20         | Pass    |
| 8DPSK         | LCH     | 2402                    | Off               | -53.78                   | -20         | Pass    |
|               |         |                         | On                | -52.42                   | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -53.18                   | -20         | Pass    |
|               |         |                         | On                | -45.45                   | -20         | Pass    |

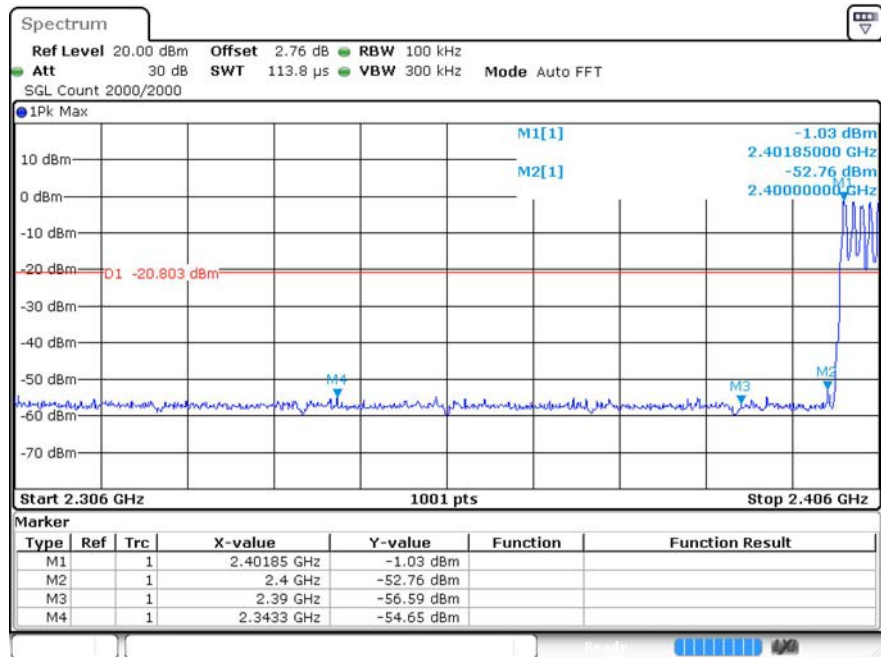
## 8.2 Test Graphs



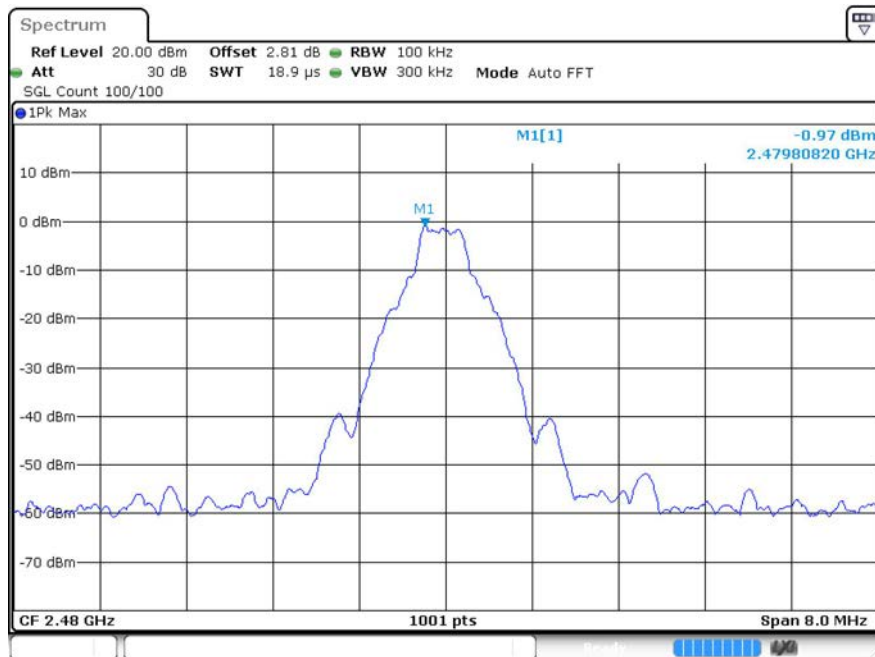
Ref



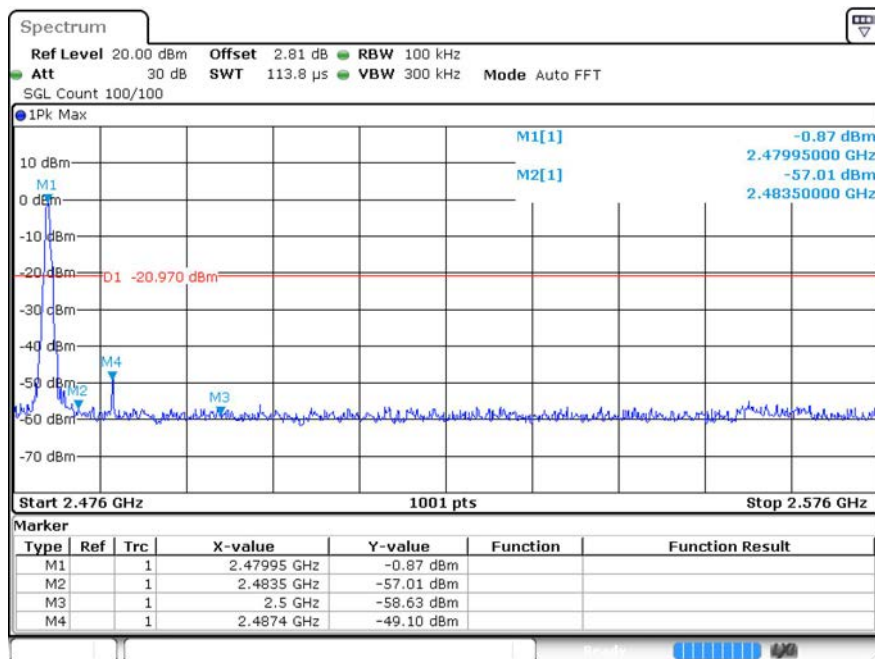
GFSK/LCH/Hop



Ref



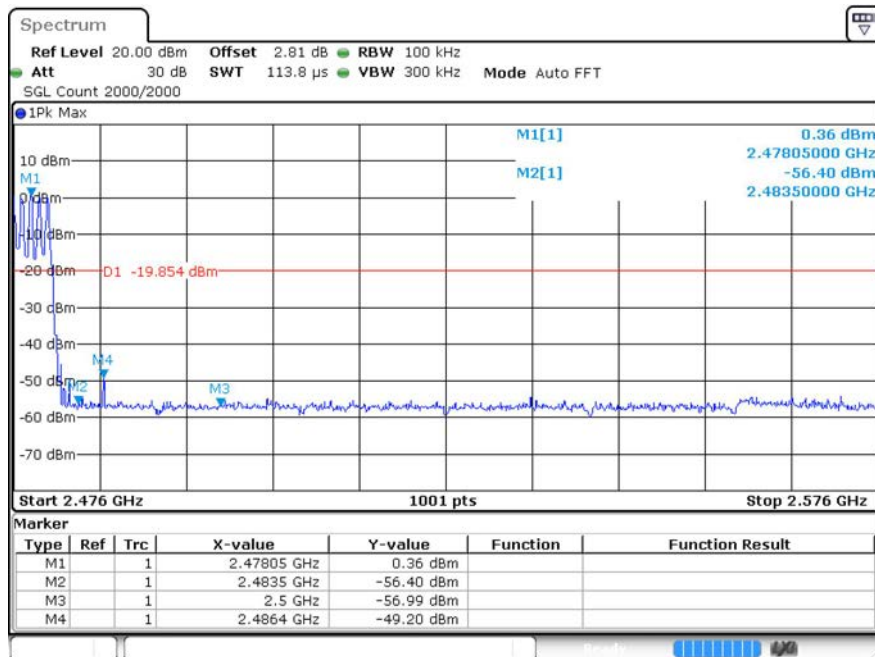
GFSK/HCH/No Hop



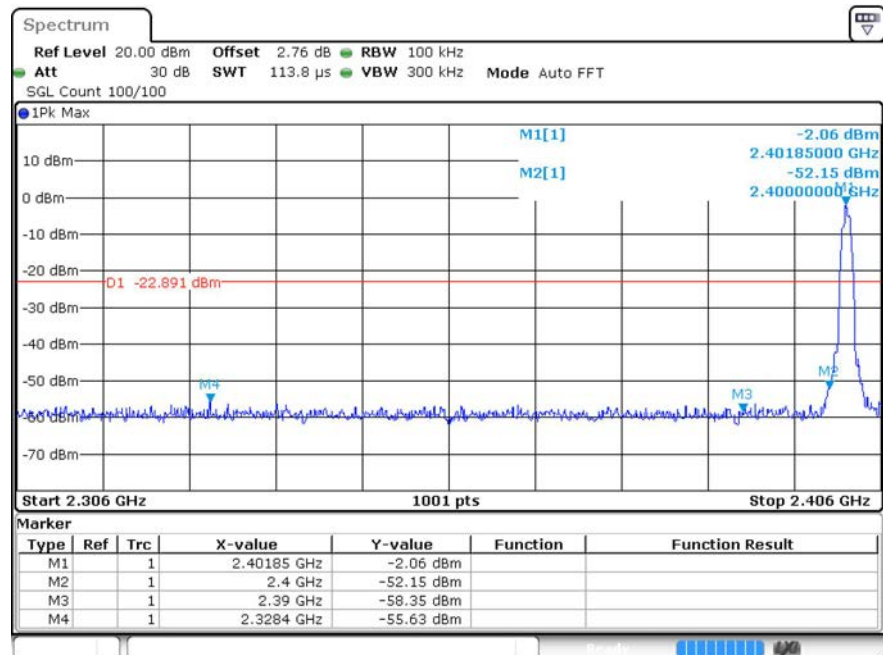
Ref.



GFSK/HCH/Hop

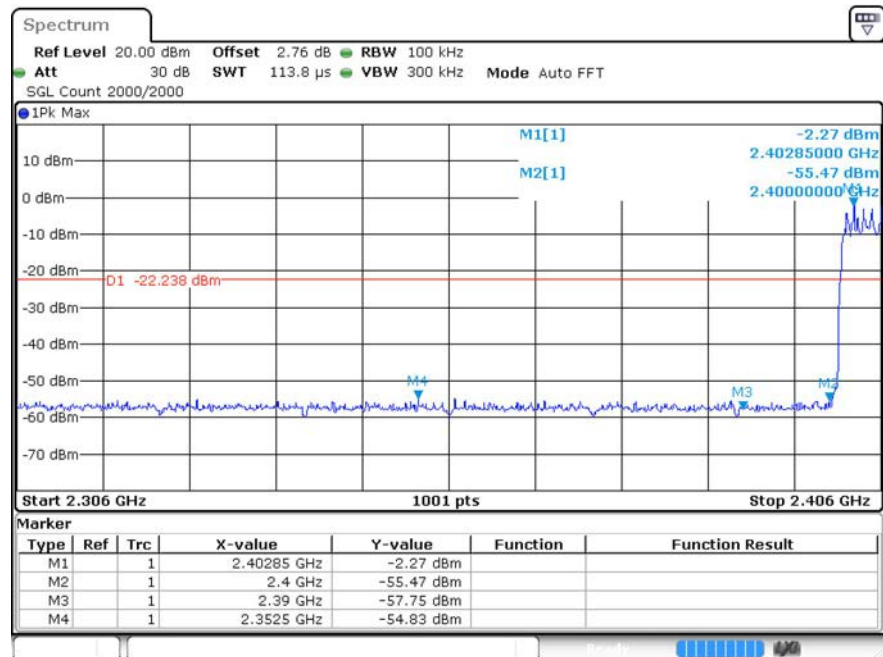


Ref


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


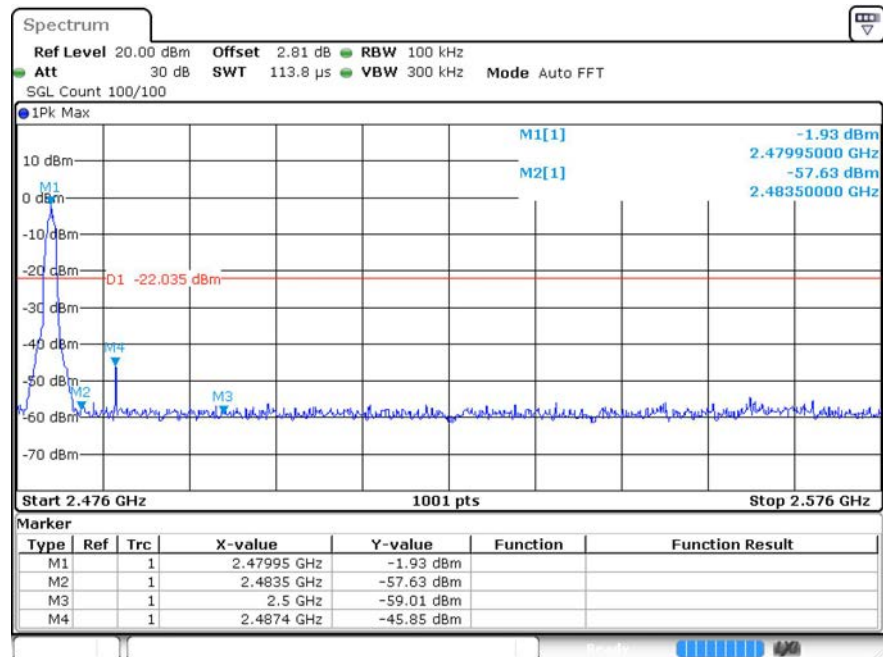


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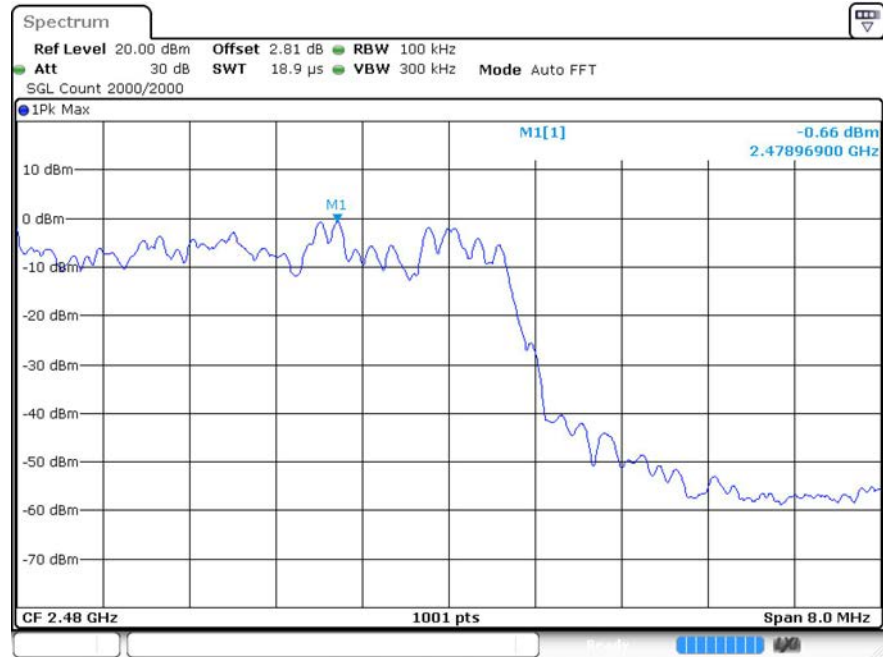
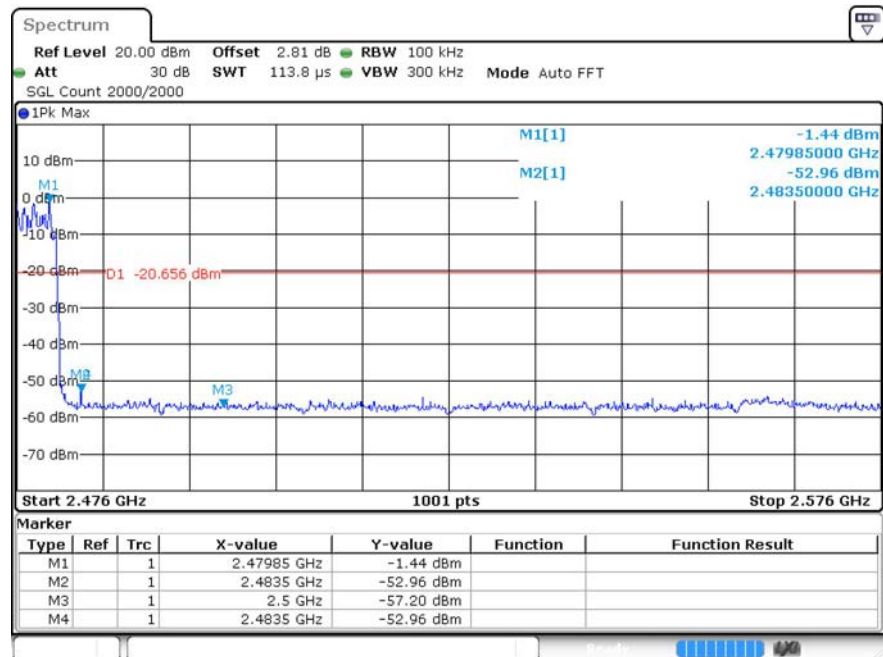

 $\pi/4$ DQPSK/LCH/Hop




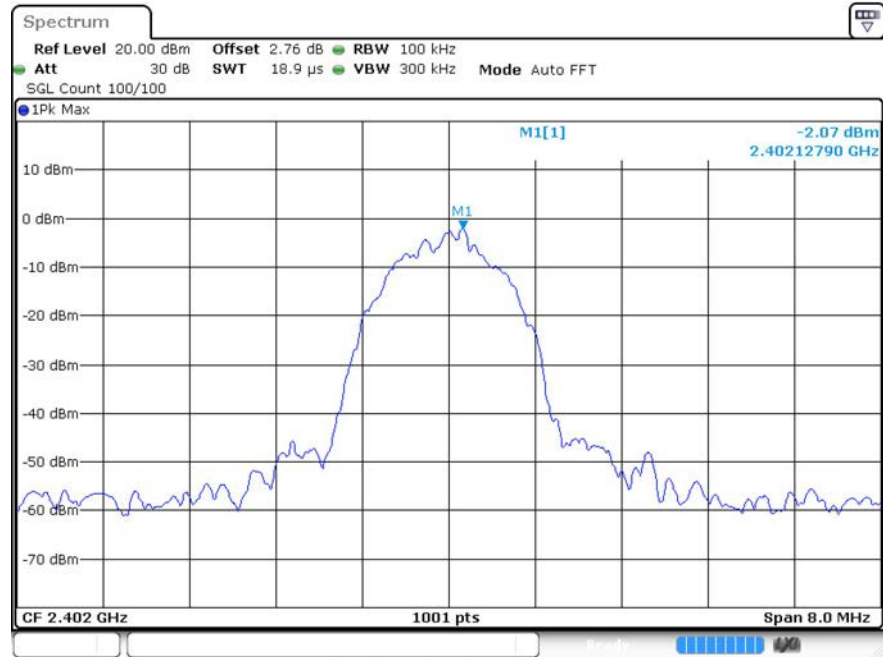
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 $\pi/4$ DQPSK/HCH/No Hop


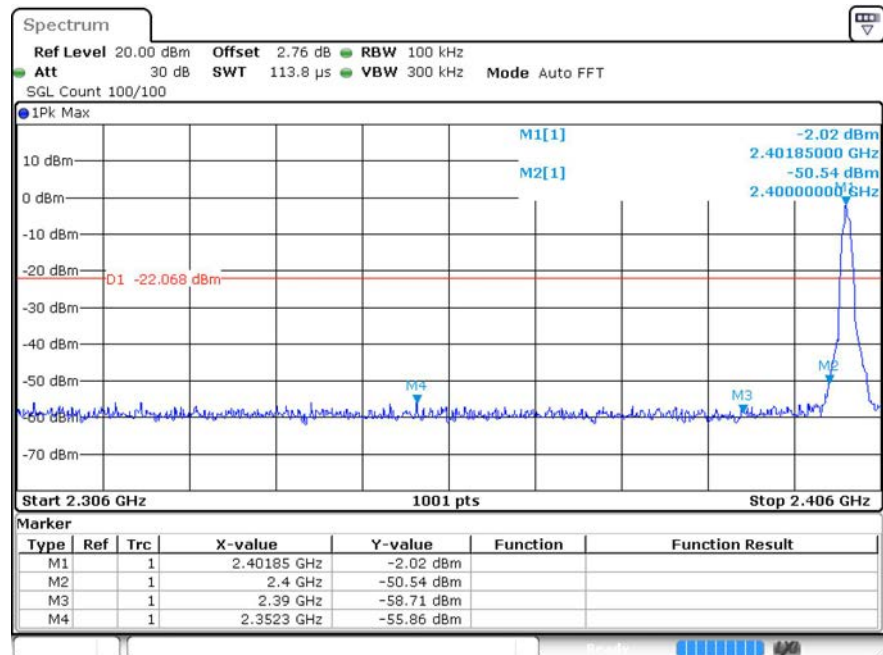
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 $\pi/4$ DQPSK/HCH/Hop


Ref



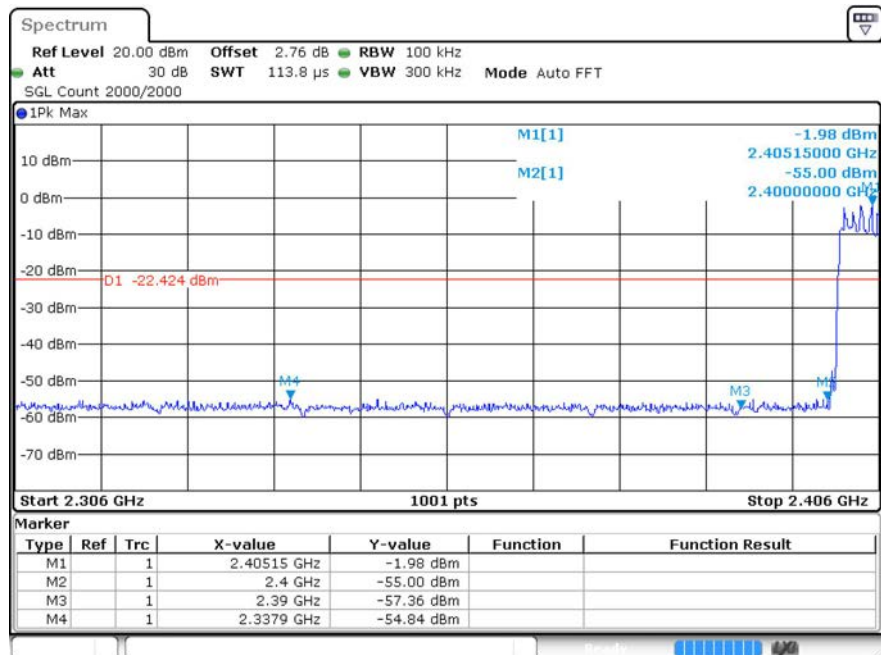
8DPSK/LCH/No Hop



Ref



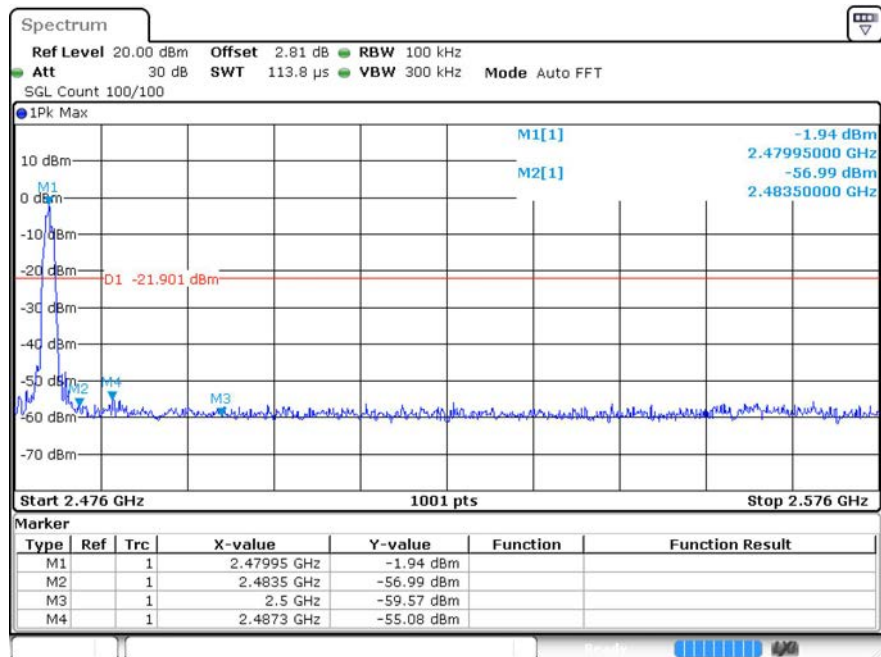
8DPSK/LCH/Hop



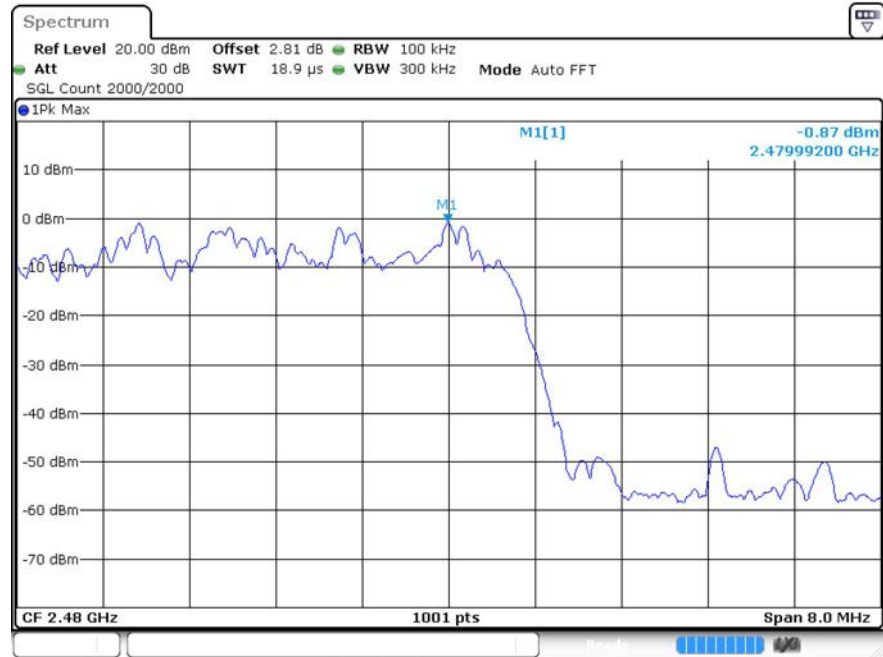
Ref



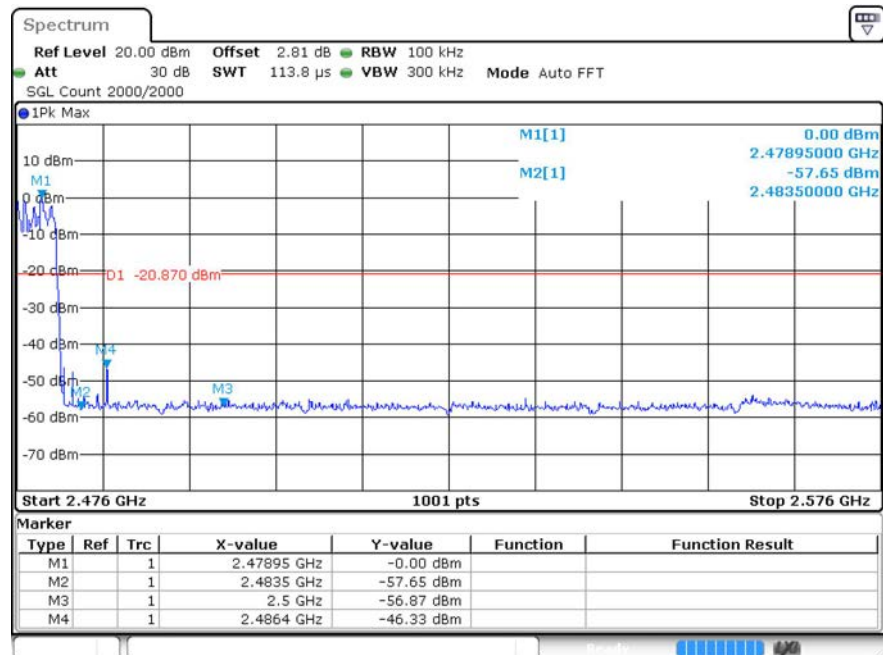
8DPSK/HCH/No Hop



Ref



8DPSK/HCH/Hop



## 9 Restrict-band band-edge measurements

### 9.1 Test Result

| Test Mode     | Hopping | Freq.    | Power [dBm] | Gain | Duty Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|----------|-------------|------|-------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0   | -47.61      | 2    | -           | 49.65      | PEAK     | 74             | Pass    |
|               | Off     | 2310.0   | -57.18      | 2    | 5           | 45.08      | AV       | 54             | Pass    |
|               | Off     | 2344.272 | -45.34      | 2    | -           | 51.92      | PEAK     | 74             | Pass    |
|               | Off     | 2341.008 | -54.57      | 2    | 5           | 47.69      | AV       | 54             | Pass    |
|               | Off     | 2390.0   | -49.16      | 2    | -           | 48.1       | PEAK     | 74             | Pass    |
|               | Off     | 2390.0   | -56.75      | 2    | 5           | 45.51      | AV       | 54             | Pass    |
|               | Off     | 2483.5   | -48.82      | 2    | -           | 48.44      | PEAK     | 74             | Pass    |
|               | Off     | 2483.5   | -57.06      | 2    | 5.04        | 45.24      | AV       | 54             | Pass    |
|               | Off     | 2487.472 | -45.93      | 2    | -           | 51.33      | PEAK     | 74             | Pass    |
|               | Off     | 2496.256 | -55.35      | 2    | 5.04        | 46.95      | AV       | 54             | Pass    |
|               | Off     | 2500.0   | -49.38      | 2    | -           | 47.88      | PEAK     | 74             | Pass    |
|               | Off     | 2500.0   | -56.13      | 2    | 5.04        | 46.17      | AV       | 54             | Pass    |
| $\pi/4$ DQPSK | Off     | 2310.0   | -50.77      | 2    | -           | 46.49      | PEAK     | 74             | Pass    |
|               | Off     | 2310.0   | -57.22      | 2    | 4.95        | 44.99      | AV       | 54             | Pass    |
|               | Off     | 2338.416 | -44.41      | 2    | -           | 52.85      | PEAK     | 74             | Pass    |
|               | Off     | 2339.76  | -54.8       | 2    | 4.95        | 47.41      | AV       | 54             | Pass    |
|               | Off     | 2390.0   | -50.09      | 2    | -           | 47.17      | PEAK     | 74             | Pass    |
|               | Off     | 2390.0   | -56.68      | 2    | 4.95        | 45.53      | AV       | 54             | Pass    |
|               | Off     | 2483.5   | -48.84      | 2    | -           | 48.42      | PEAK     | 74             | Pass    |
|               | Off     | 2483.5   | -55.9       | 2    | 4.95        | 46.31      | AV       | 54             | Pass    |
|               | Off     | 2487.448 | -45.99      | 2    | -           | 51.27      | PEAK     | 74             | Pass    |
|               | Off     | 2487.304 | -55.33      | 2    | 4.95        | 46.88      | AV       | 54             | Pass    |
|               | Off     | 2500.0   | -49.08      | 2    | -           | 48.18      | PEAK     | 74             | Pass    |
|               | Off     | 2500.0   | -56.76      | 2    | 4.95        | 45.45      | AV       | 54             | Pass    |
| 8DPSK         | Off     | 2310.0   | -49.46      | 2    | -           | 47.8       | PEAK     | 74             | Pass    |
|               | Off     | 2310.0   | -56.62      | 2    | 4.95        | 45.59      | AV       | 54             | Pass    |
|               | Off     | 2340.72  | -46.89      | 2    | -           | 50.37      | PEAK     | 74             | Pass    |
|               | Off     | 2339.088 | -54         | 2    | 4.95        | 48.21      | AV       | 54             | Pass    |

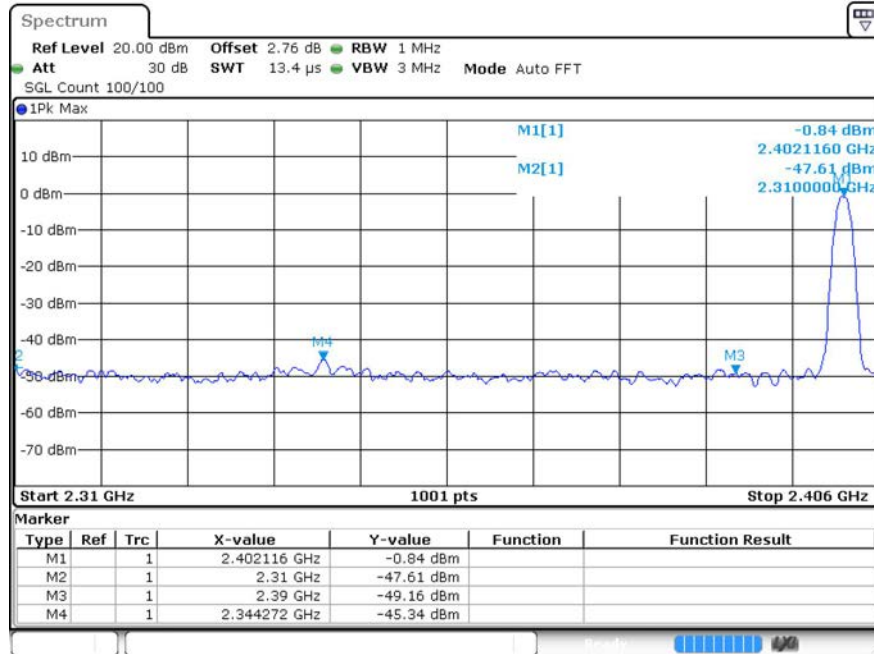


|     |          |        |   |      |       |      |    |      |
|-----|----------|--------|---|------|-------|------|----|------|
| Off | 2390.0   | -50.03 | 2 | -    | 47.23 | PEAK | 74 | Pass |
| Off | 2390.0   | -56.88 | 2 | 4.95 | 45.33 | AV   | 54 | Pass |
| Off | 2483.5   | -47.6  | 2 | -    | 49.66 | PEAK | 74 | Pass |
| Off | 2483.5   | -55.33 | 2 | 4.95 | 46.88 | AV   | 54 | Pass |
| Off | 2488.528 | -44.19 | 2 | -    | 53.07 | PEAK | 74 | Pass |
| Off | 2484.112 | -54.72 | 2 | 4.95 | 47.49 | AV   | 54 | Pass |
| Off | 2500.0   | -49.39 | 2 | -    | 47.87 | PEAK | 74 | Pass |
| Off | 2500.0   | -56.68 | 2 | 4.95 | 45.53 | AV   | 54 | Pass |

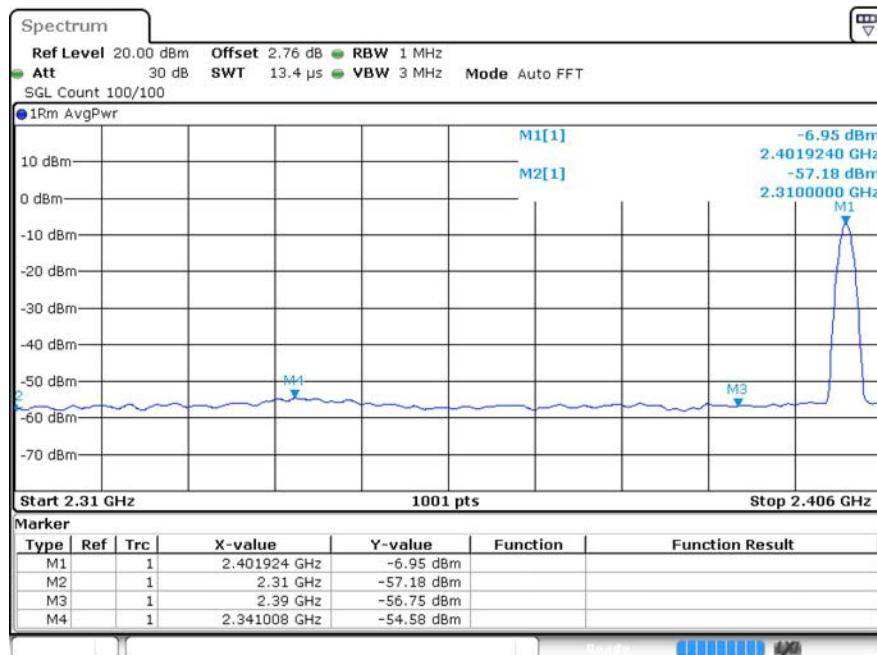


## 9.2 Test Graphs

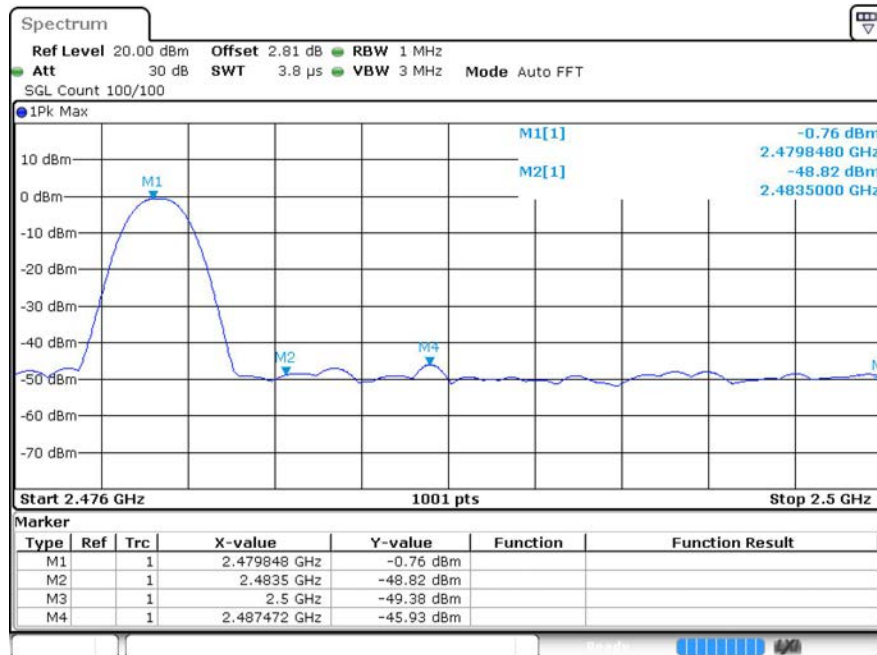
Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_PEAK (Low Channel)



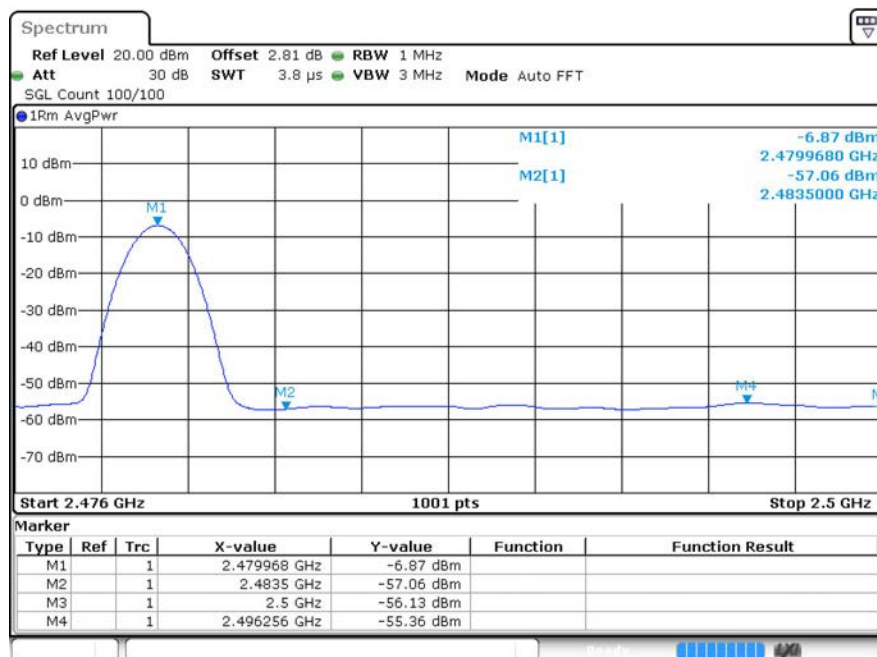
Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_Average (Low Channel)



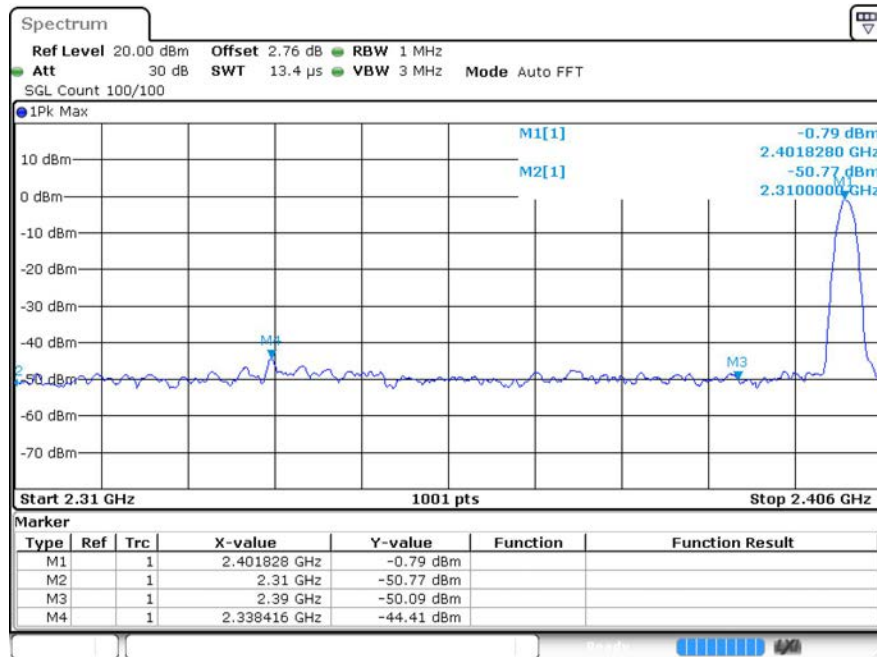
## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_PEAK (High Channel)



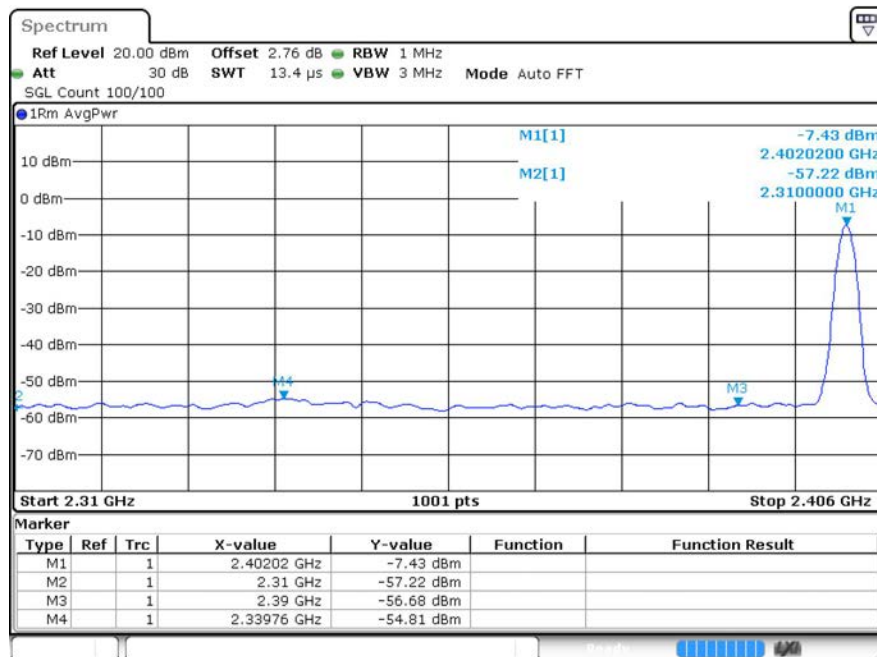
## Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_Average (High Channel)



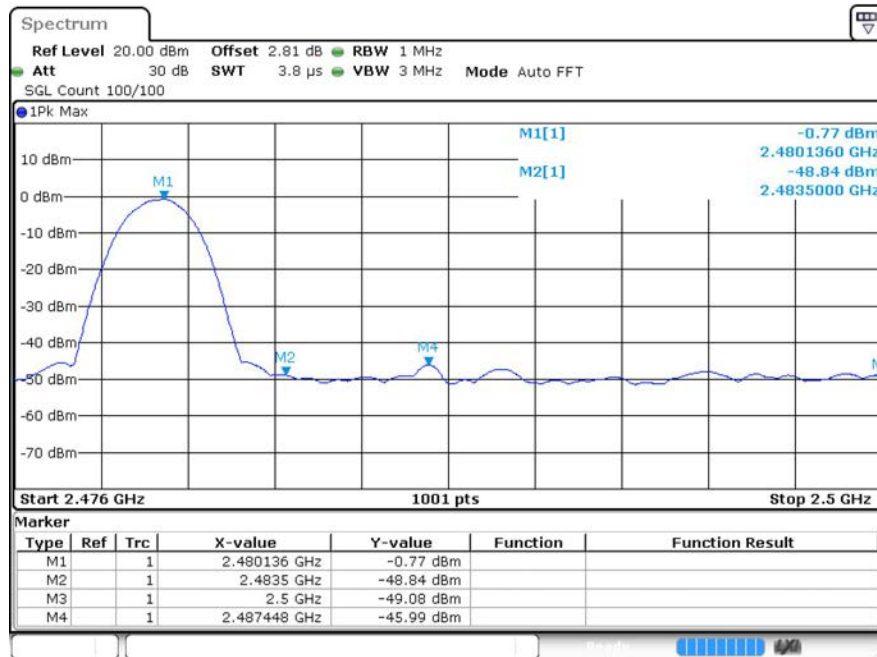
## Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (Low Channel)



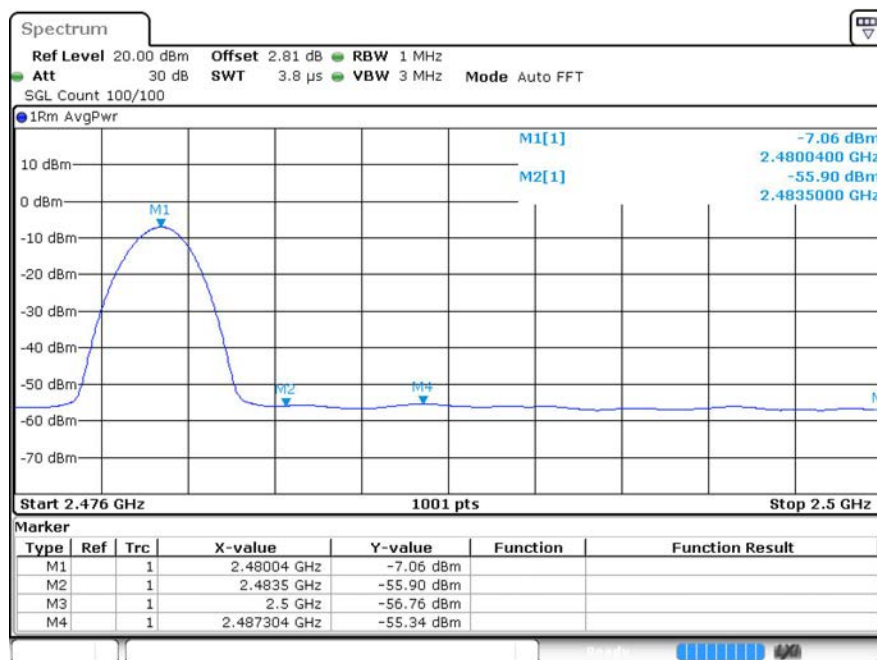
## Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (Low Channel)



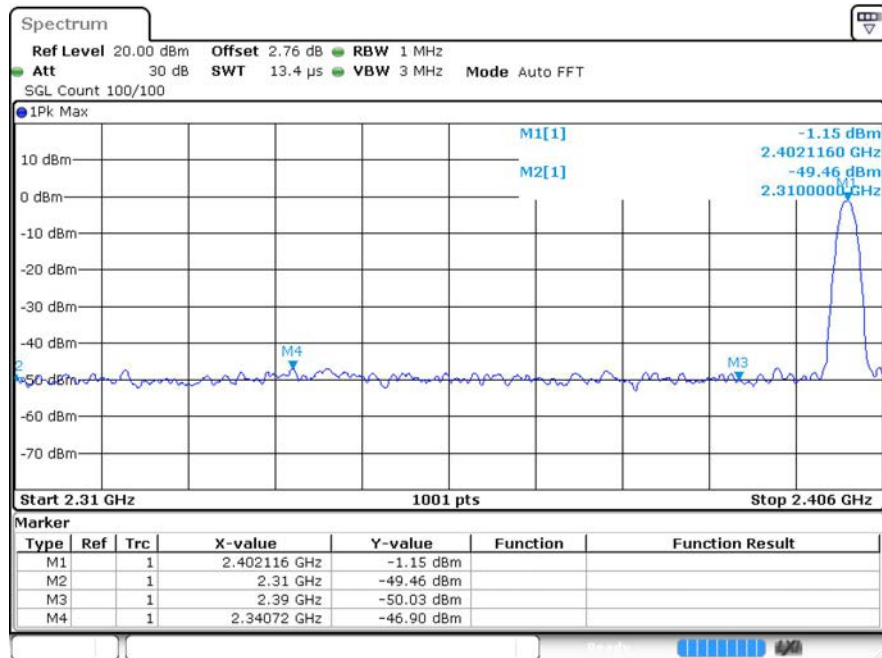
## Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



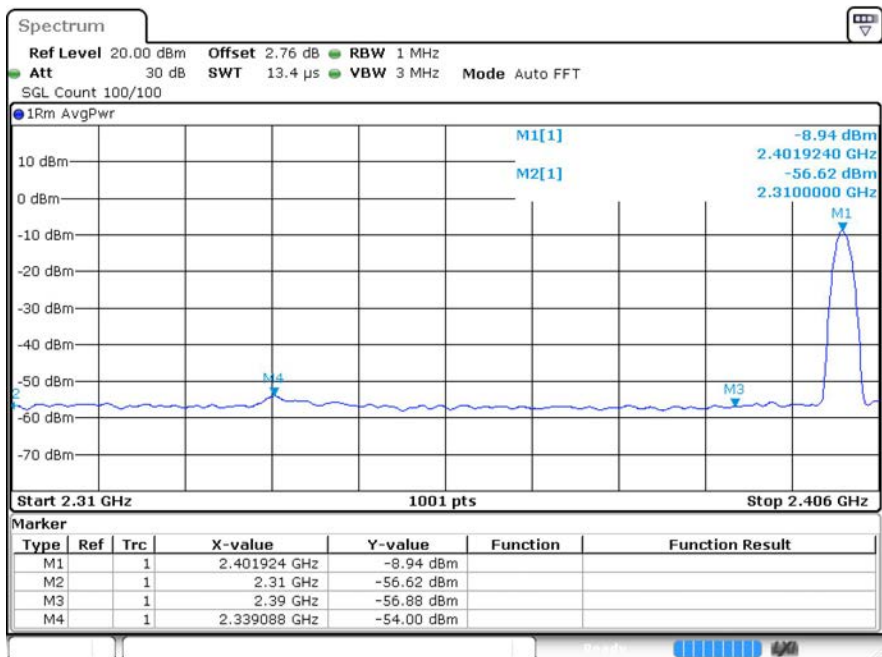
## Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



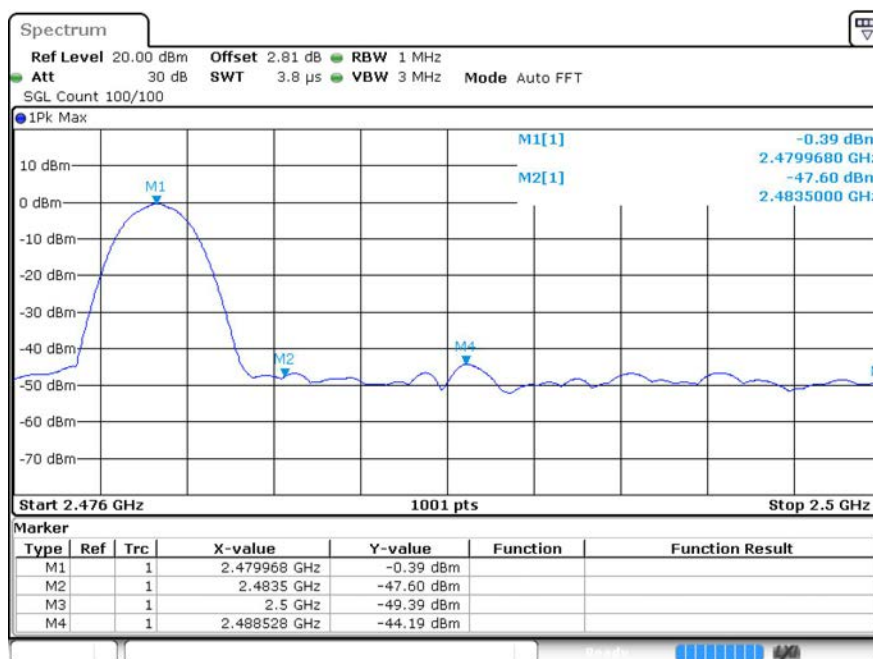
## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



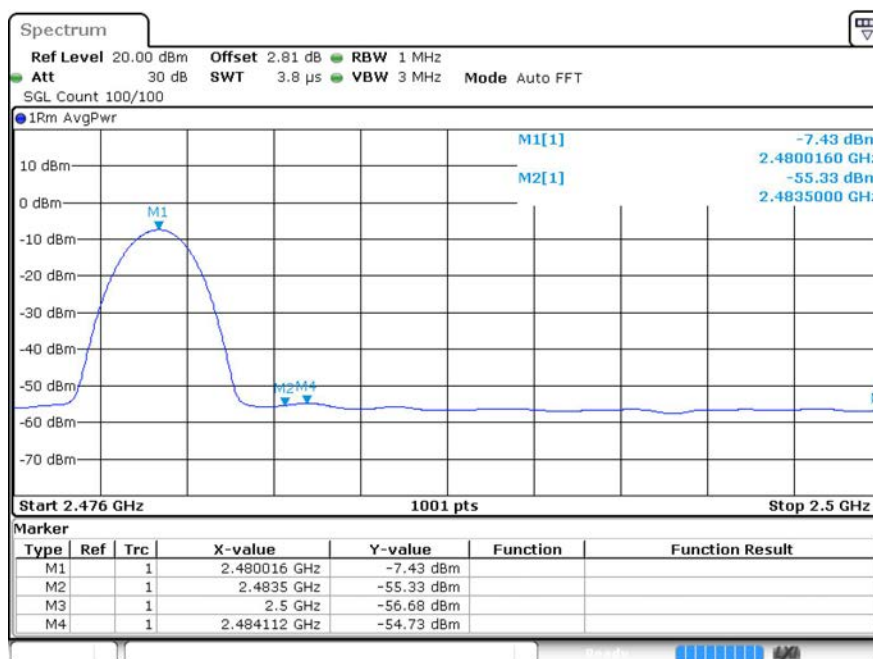
## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (Low Channel)



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



## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (High Channel)



---The End---