



## Appendix A

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

Product Name: translating machine

Trade Mark: N/A

Test Model: T21

#### Environmental Conditions

|                    |             |
|--------------------|-------------|
| Temperature:       | 24.4℃       |
| Relative Humidity: | 52.5%       |
| ATM Pressure:      | 101Kpa      |
| Test Engineer:     | Emiya lin   |
| Supervised by:     | Simba Haung |



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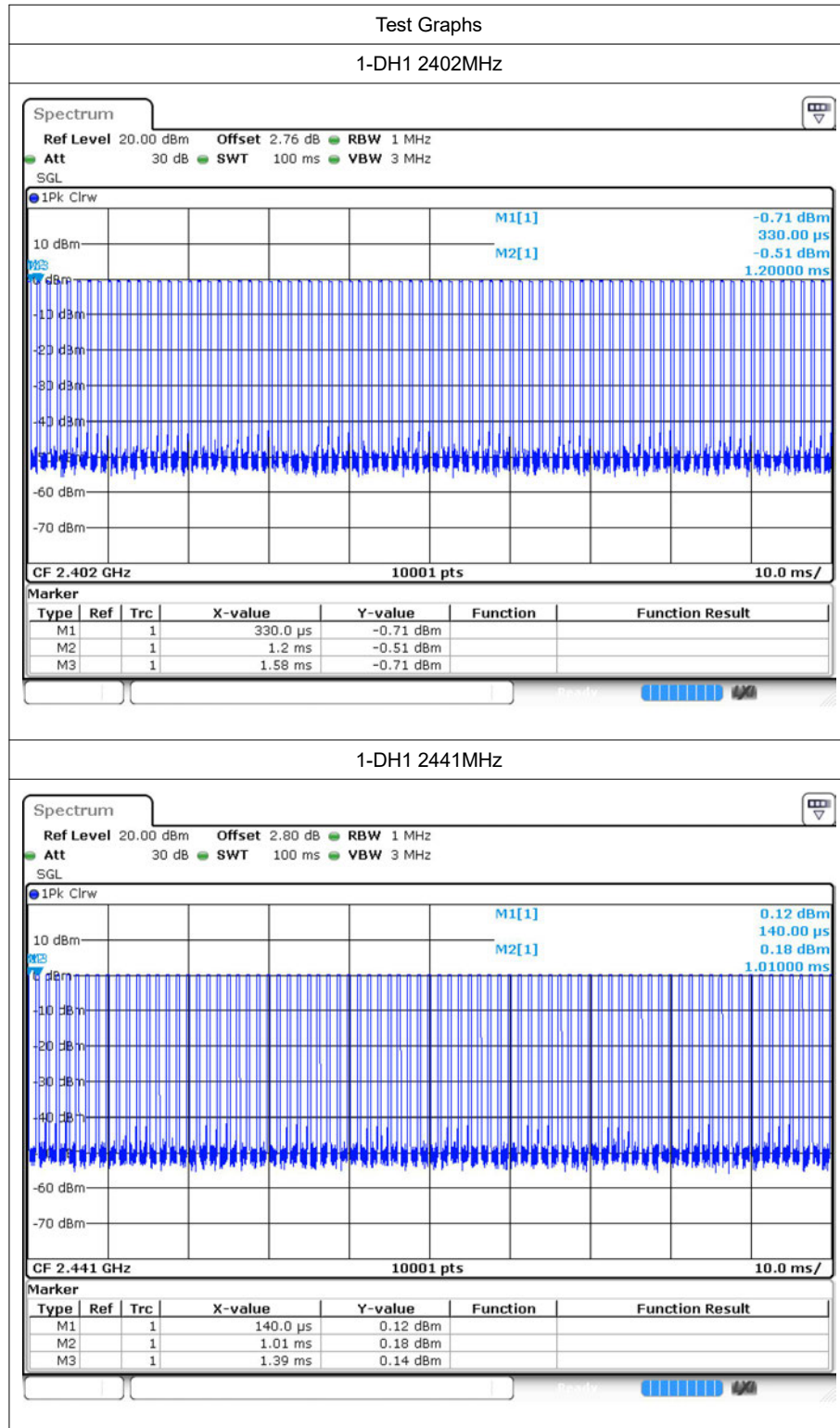
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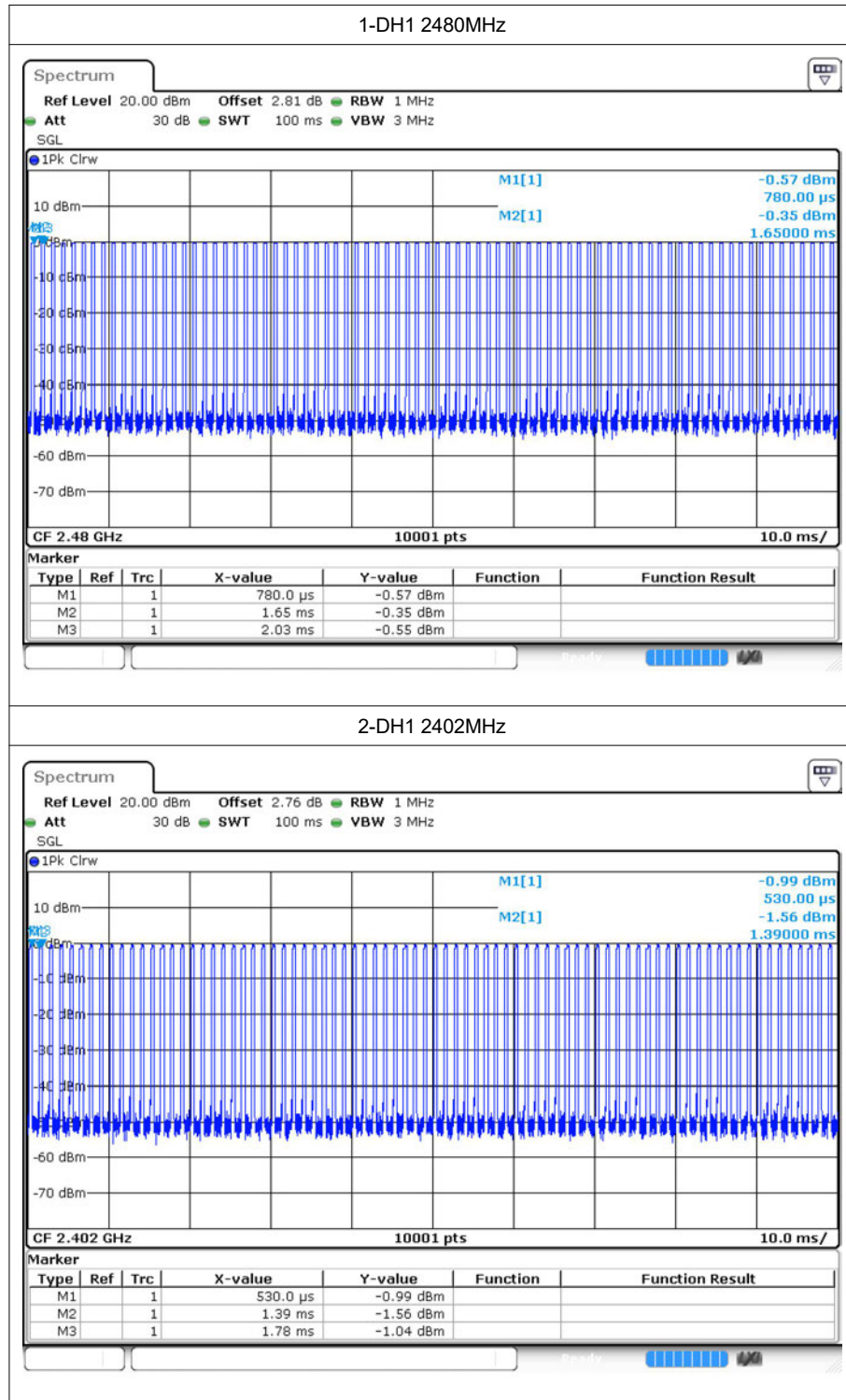
# 1 Duty Cycle

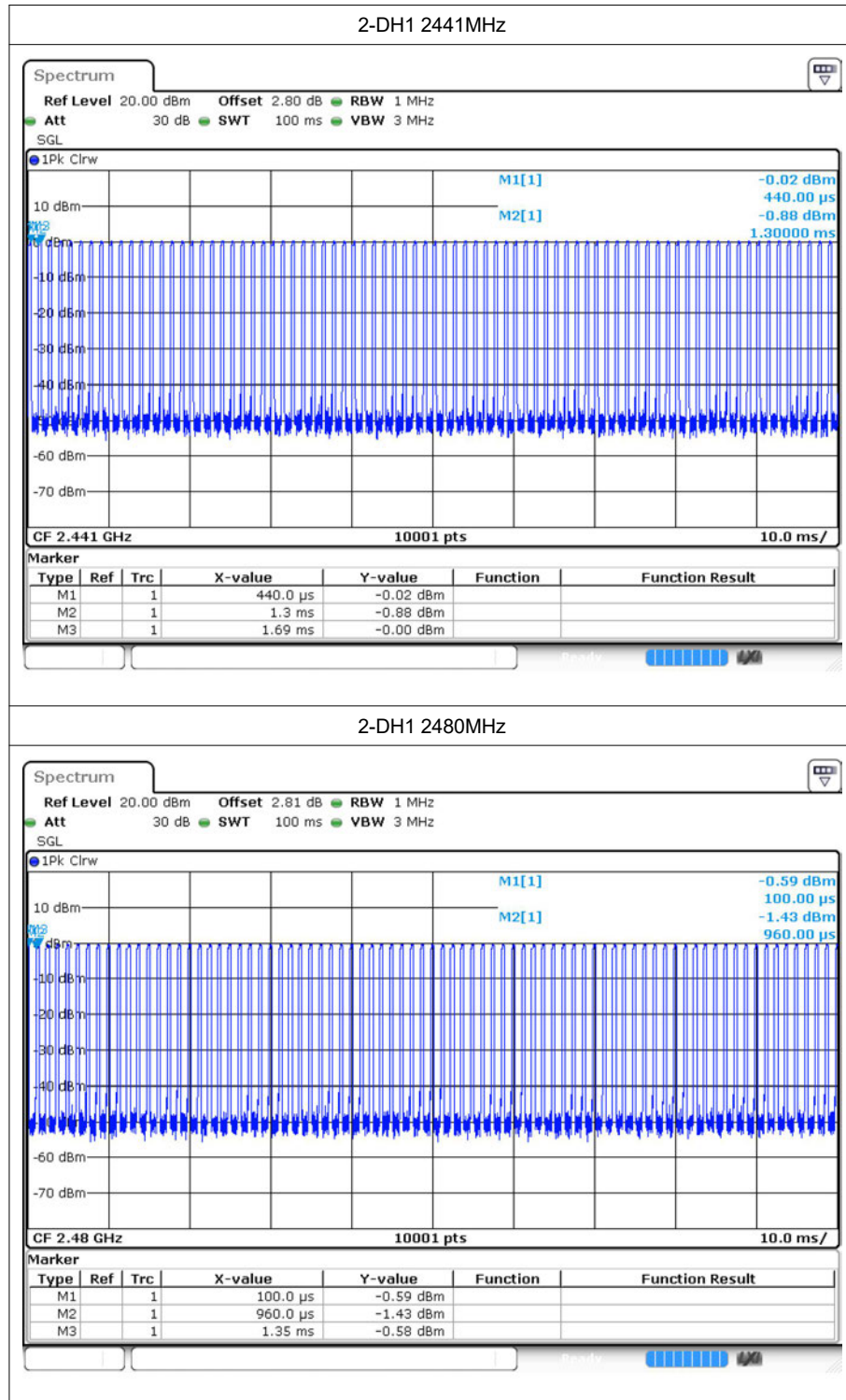
## 1.1 Test Result

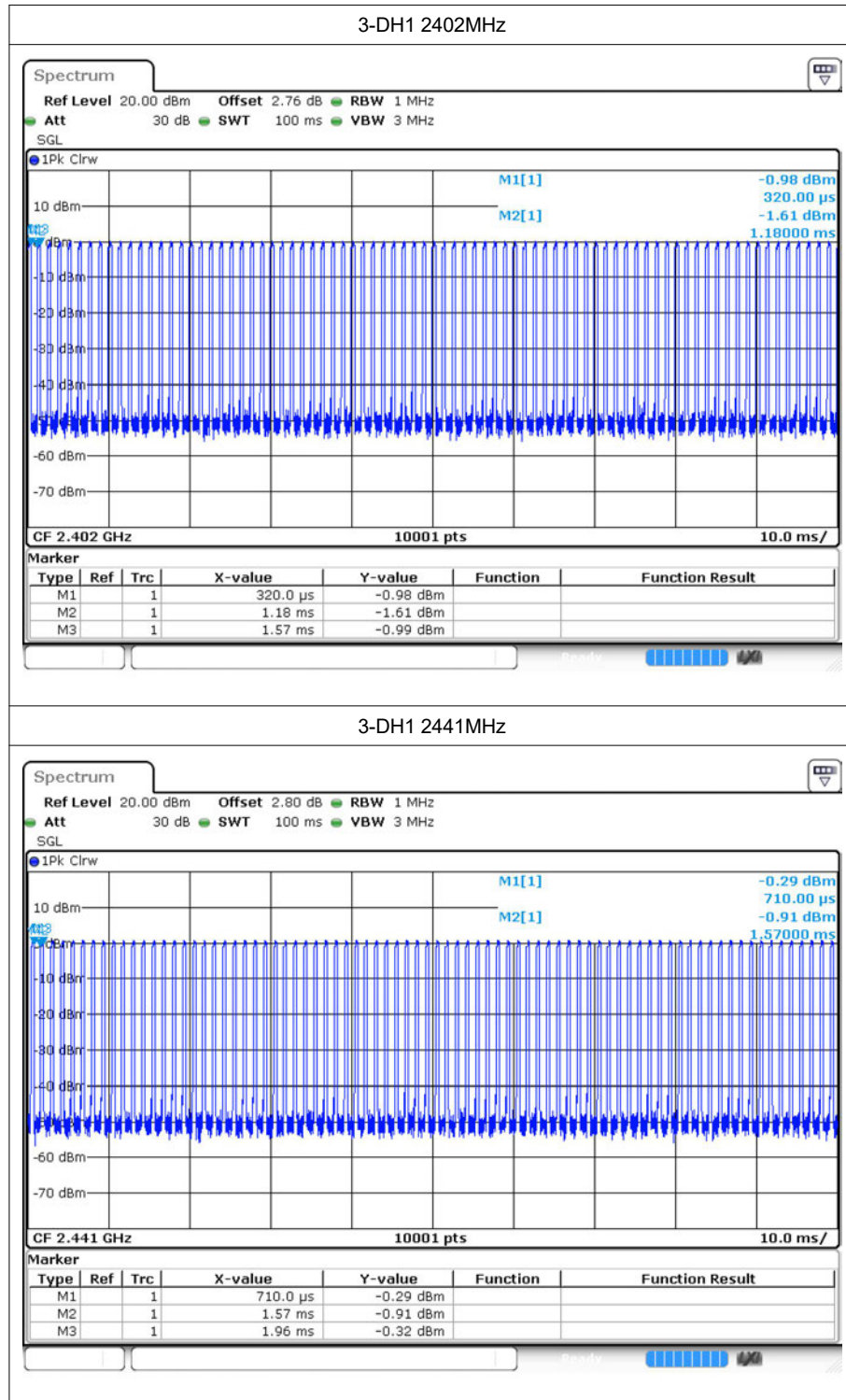
| Mode  | Frequency (MHz) | Duty Cycle (%) | Correction Factor | 1/T (kHz) |
|-------|-----------------|----------------|-------------------|-----------|
| 1-DH1 | 2402            | 31.21          | 5.06              | 2.63      |
| 1-DH1 | 2441            | 31.73          | 4.99              | 2.63      |
| 1-DH1 | 2480            | 31.2           | 5.06              | 2.63      |
| 2-DH1 | 2402            | 32             | 4.95              | 2.56      |
| 2-DH1 | 2441            | 32             | 4.95              | 2.56      |
| 2-DH1 | 2480            | 32.01          | 4.95              | 2.56      |
| 3-DH1 | 2402            | 32.01          | 4.95              | 2.56      |
| 3-DH1 | 2441            | 32             | 4.95              | 2.56      |
| 3-DH1 | 2480            | 32             | 4.95              | 2.56      |

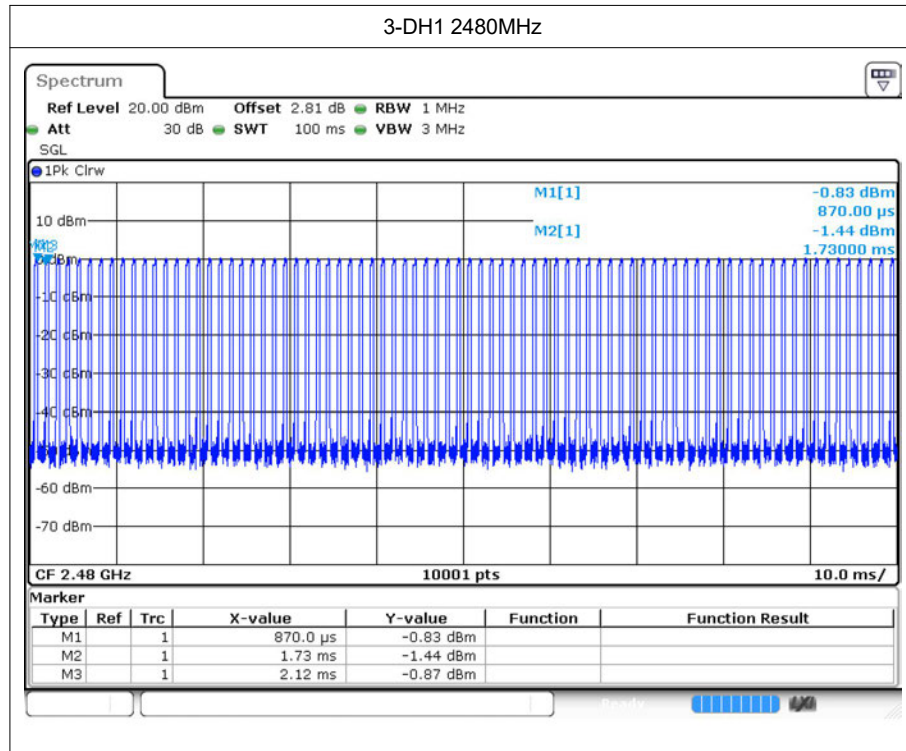
## 1.2 Test Graphs











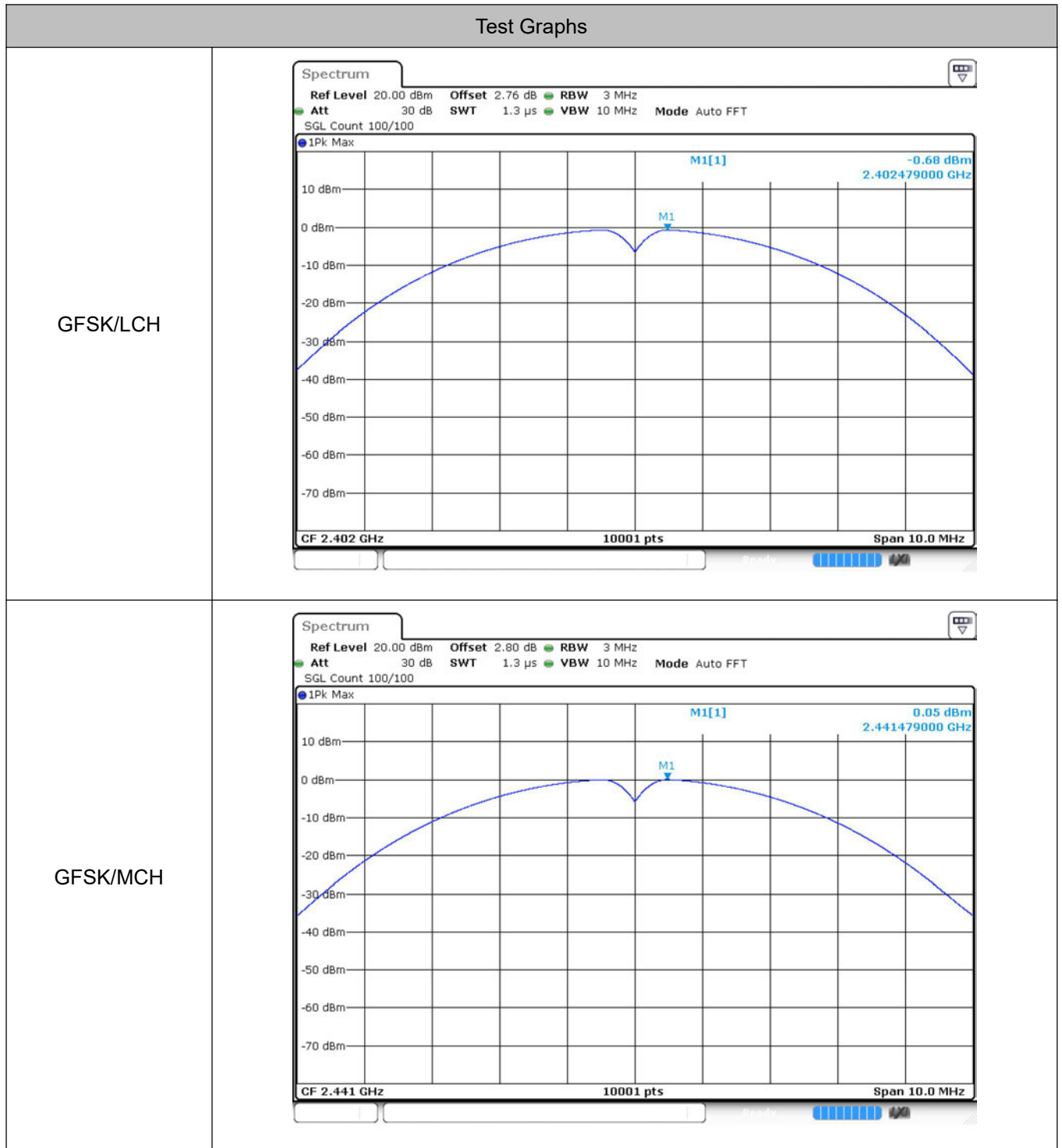


## 2 Maximum Conducted Peak Output Power

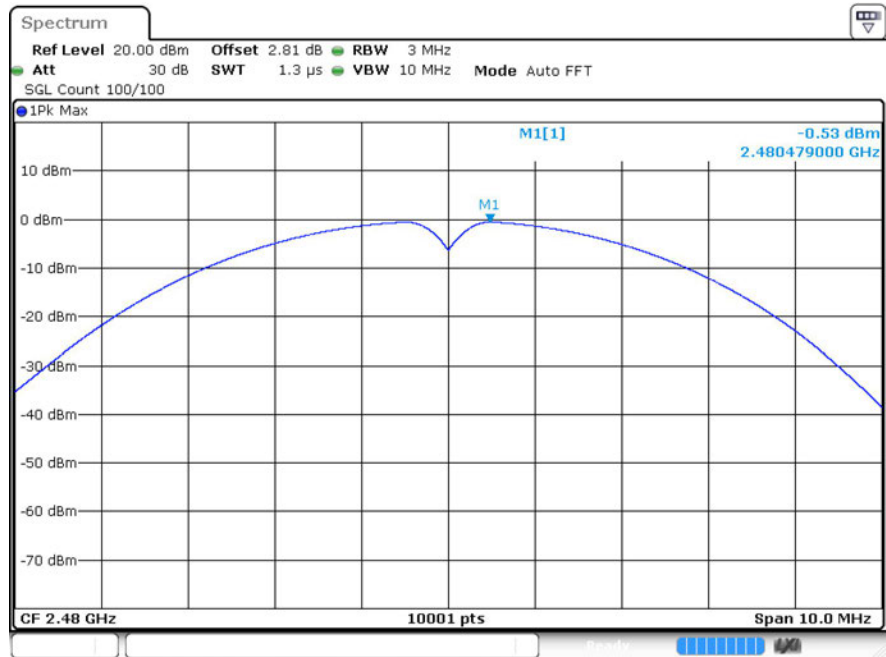
### 2.1 Test Result

| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | -0.68                           | 21          | Pass    |
|               | MCH      | 0.05                            | 21          | Pass    |
|               | HCH      | -0.53                           | 21          | Pass    |
| $\pi/4$ DQPSK | LCH      | -0.01                           | 21          | Pass    |
|               | MCH      | 0.78                            | 21          | Pass    |
|               | HCH      | 0.63                            | 21          | Pass    |
| 8DPSK         | LCH      | 0.35                            | 21          | Pass    |
|               | MCH      | 1.43                            | 21          | Pass    |
|               | HCH      | 0.8                             | 21          | Pass    |

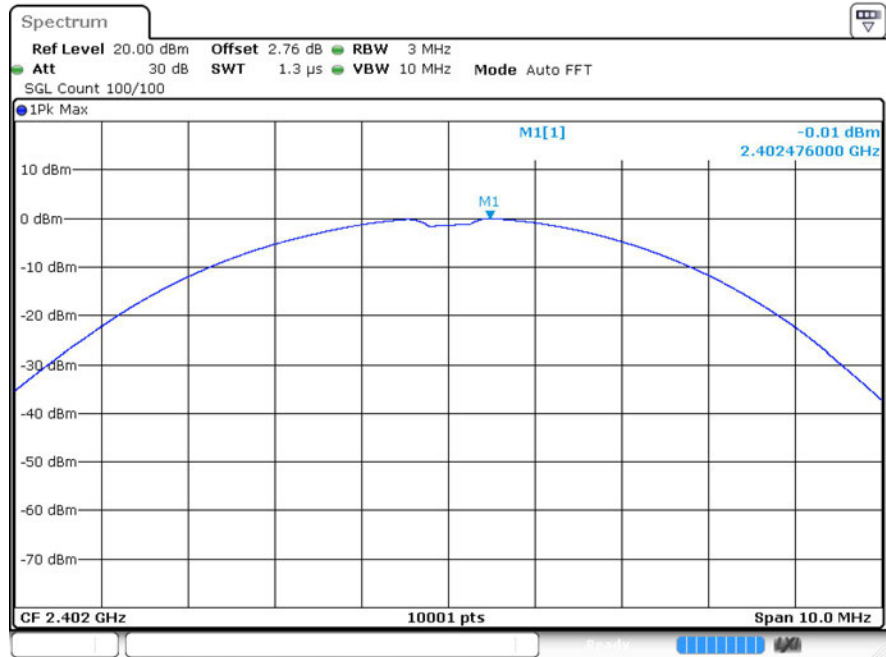
## 2.2 Test Graphs



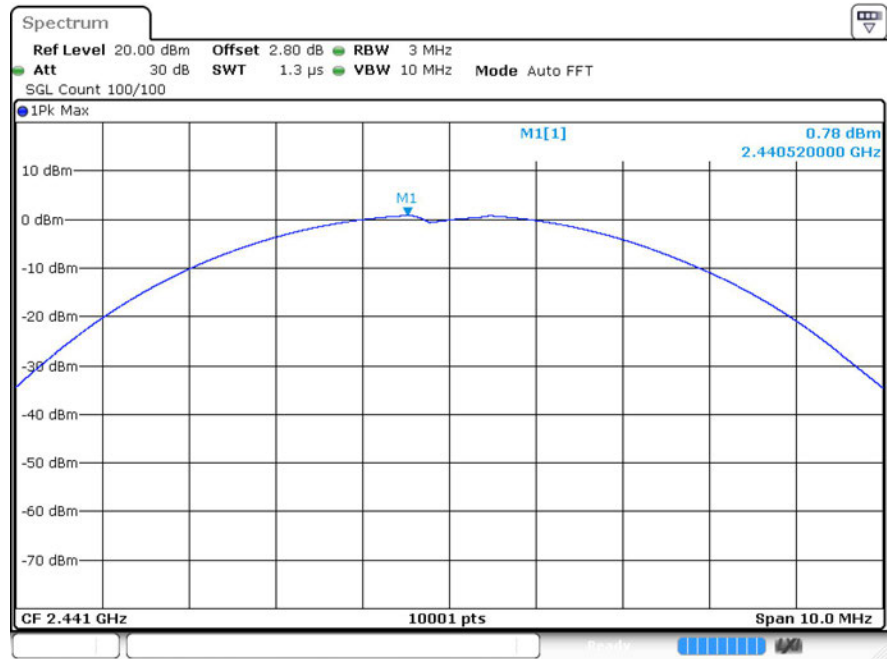
GFSK/HCH



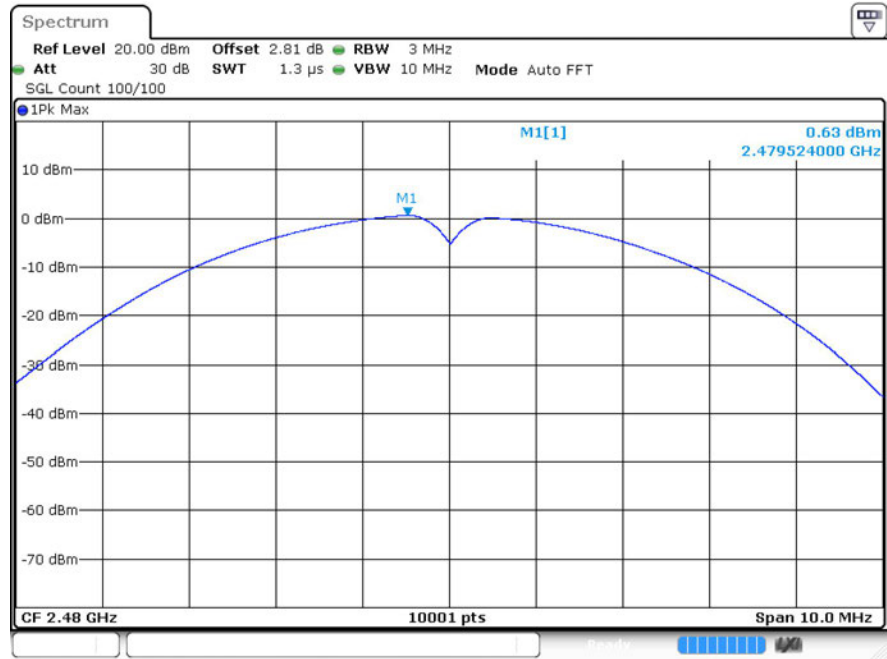
$\pi/4$ DQPSK/LCH



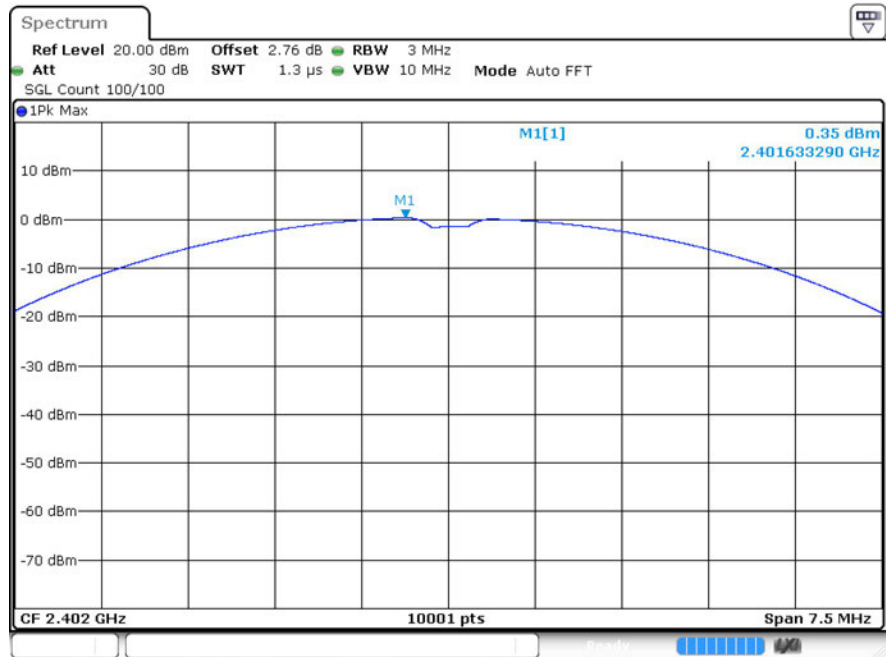
$\pi/4$ DQPSK/MCH



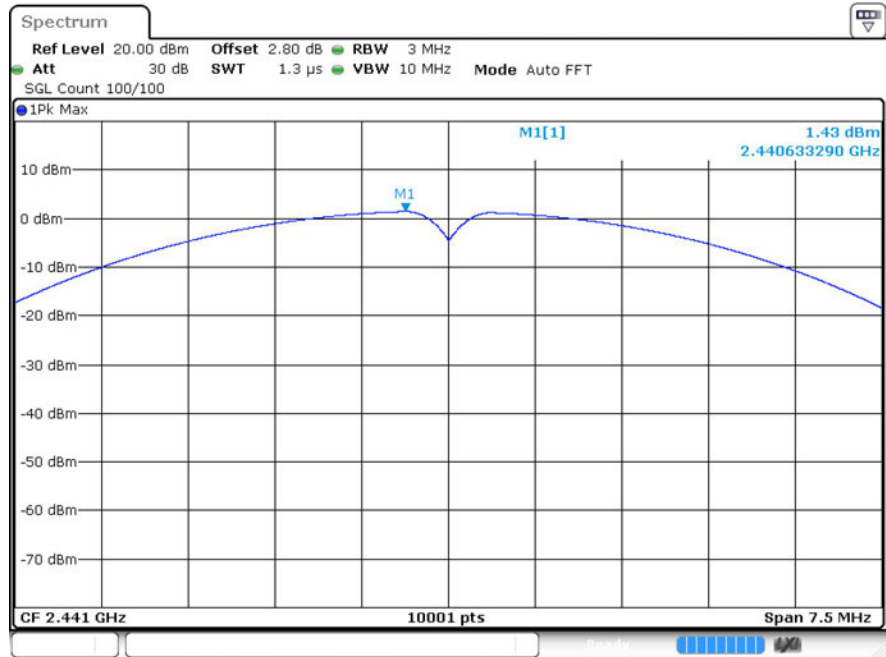
$\pi/4$ DQPSK/HCH



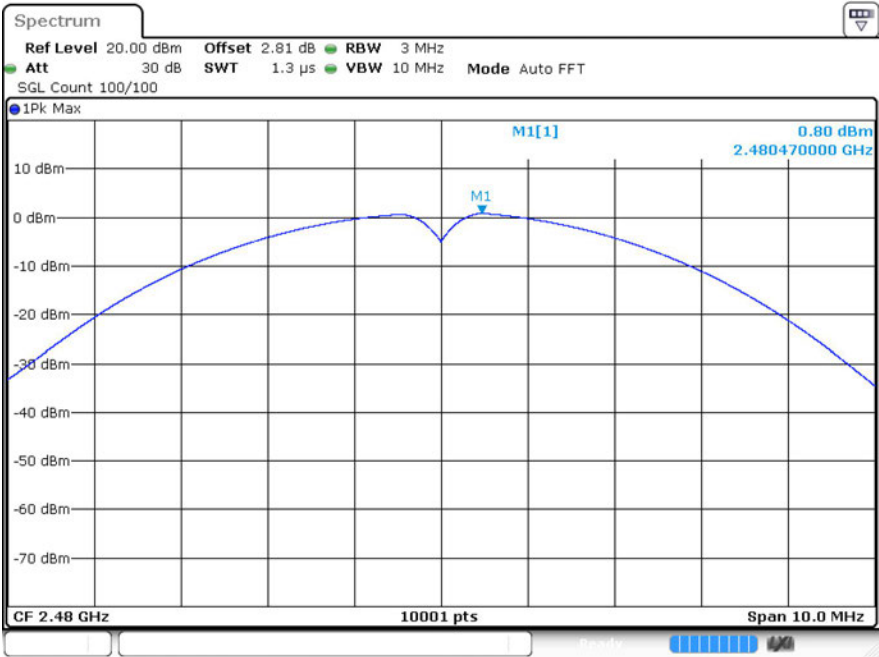
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

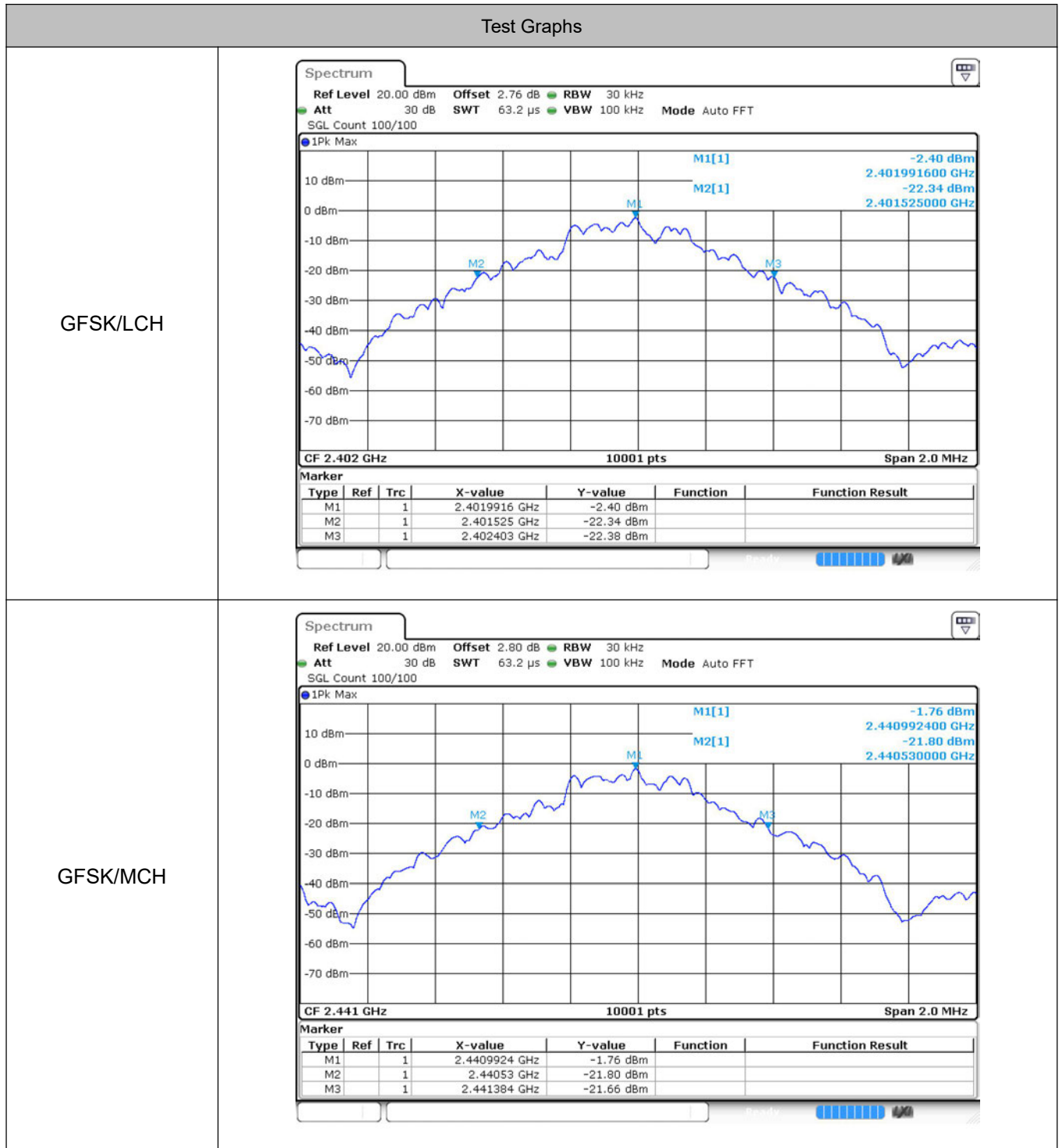


### 3 20dB Bandwidth

#### 3.1 Test Result

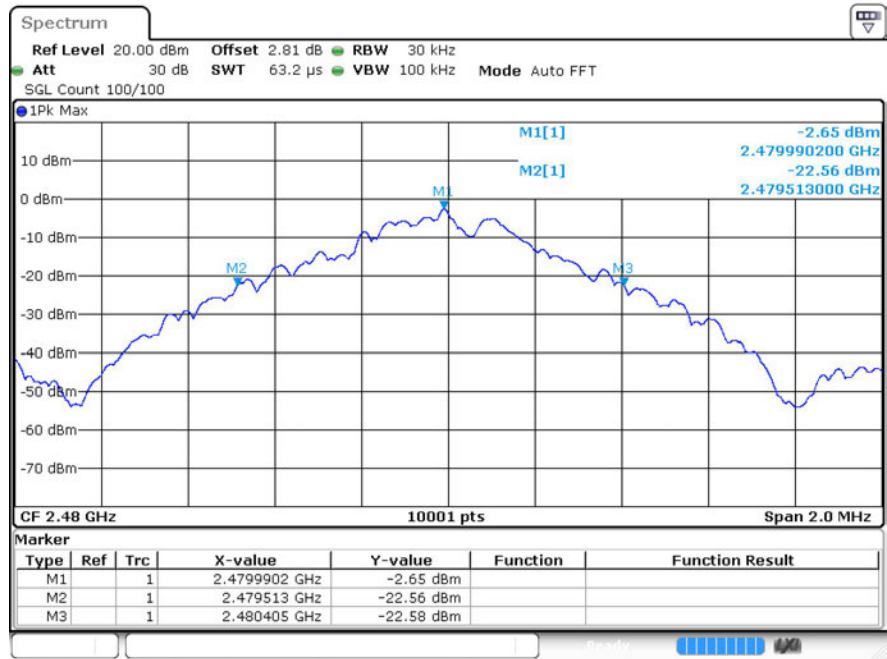
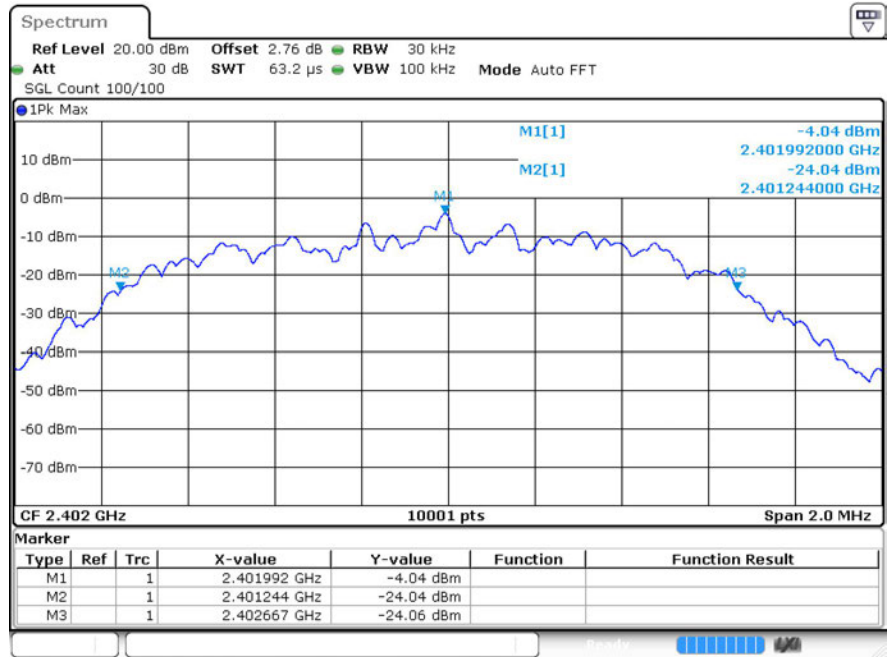
| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.878                | Not Specified | Pass    |
|               | MCH      | 0.854                | Not Specified | Pass    |
|               | HCH      | 0.893                | Not Specified | Pass    |
| $\pi/4$ DQPSK | LCH      | 1.423                | Not Specified | Pass    |
|               | MCH      | 1.465                | Not Specified | Pass    |
|               | HCH      | 1.395                | Not Specified | Pass    |
| 8DPSK         | LCH      | 1.435                | Not Specified | Pass    |
|               | MCH      | 1.436                | Not Specified | Pass    |
|               | HCH      | 1.442                | Not Specified | Pass    |

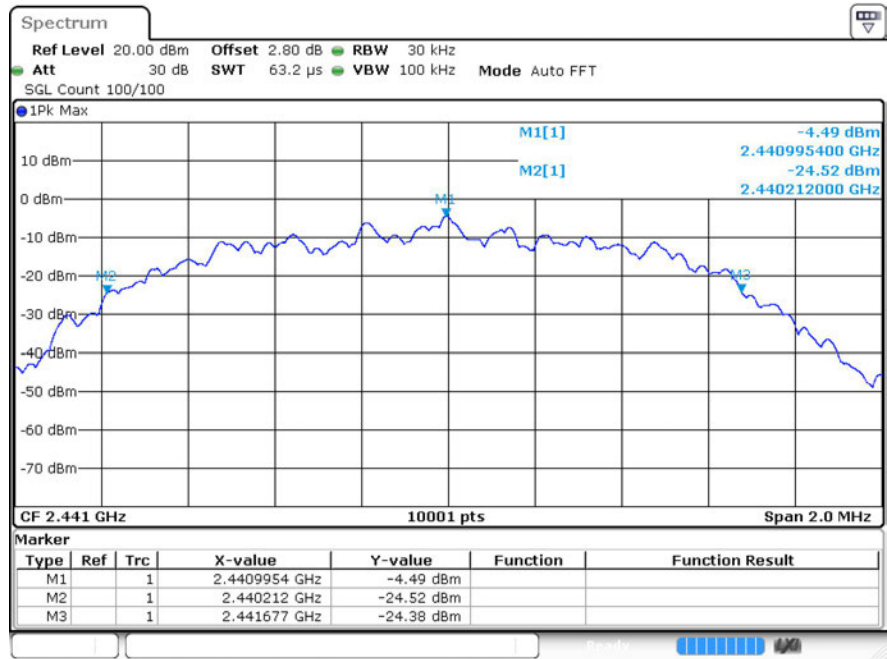
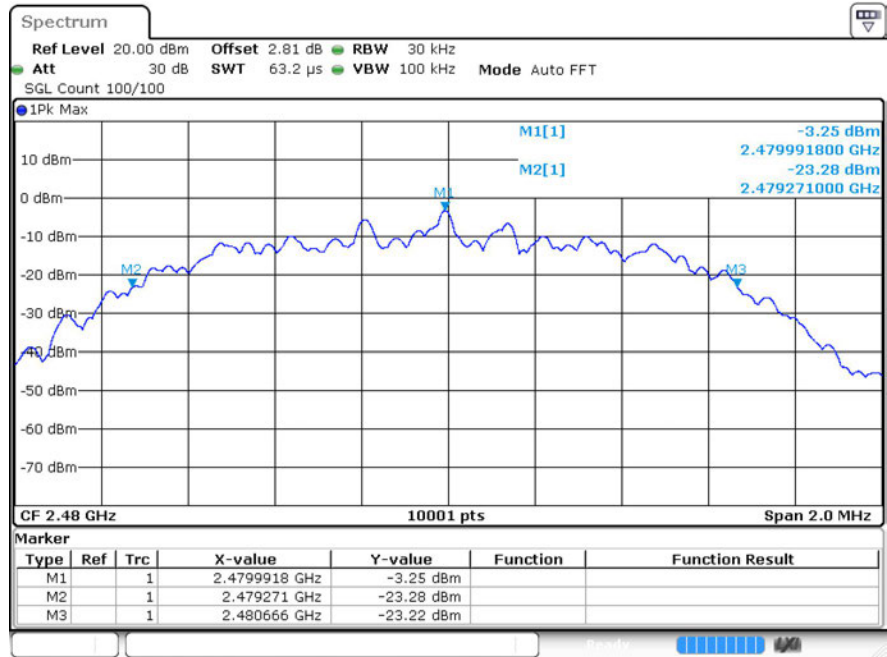
### 3.2 Test Graphs



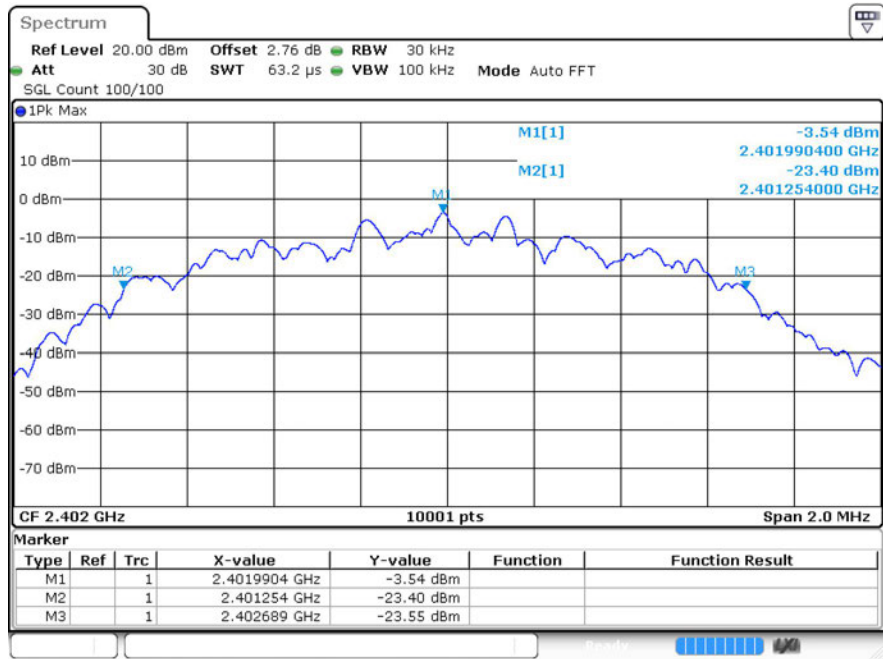


GFSK/HCH

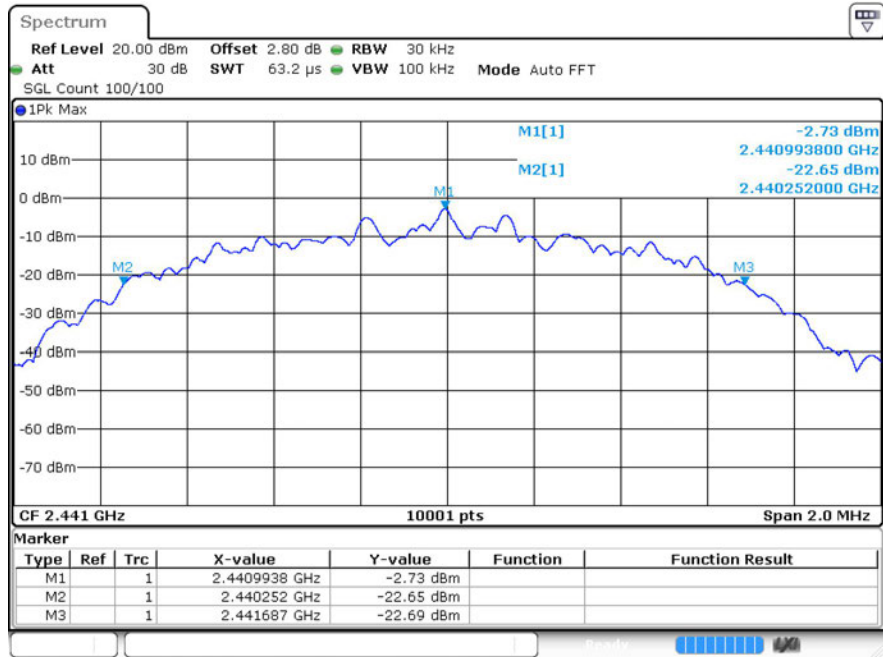

 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


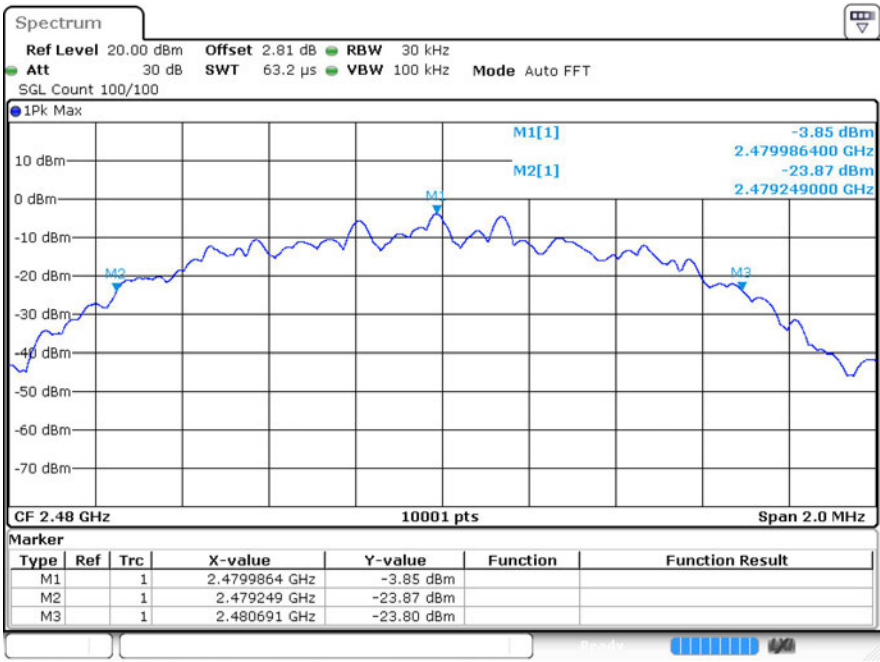
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

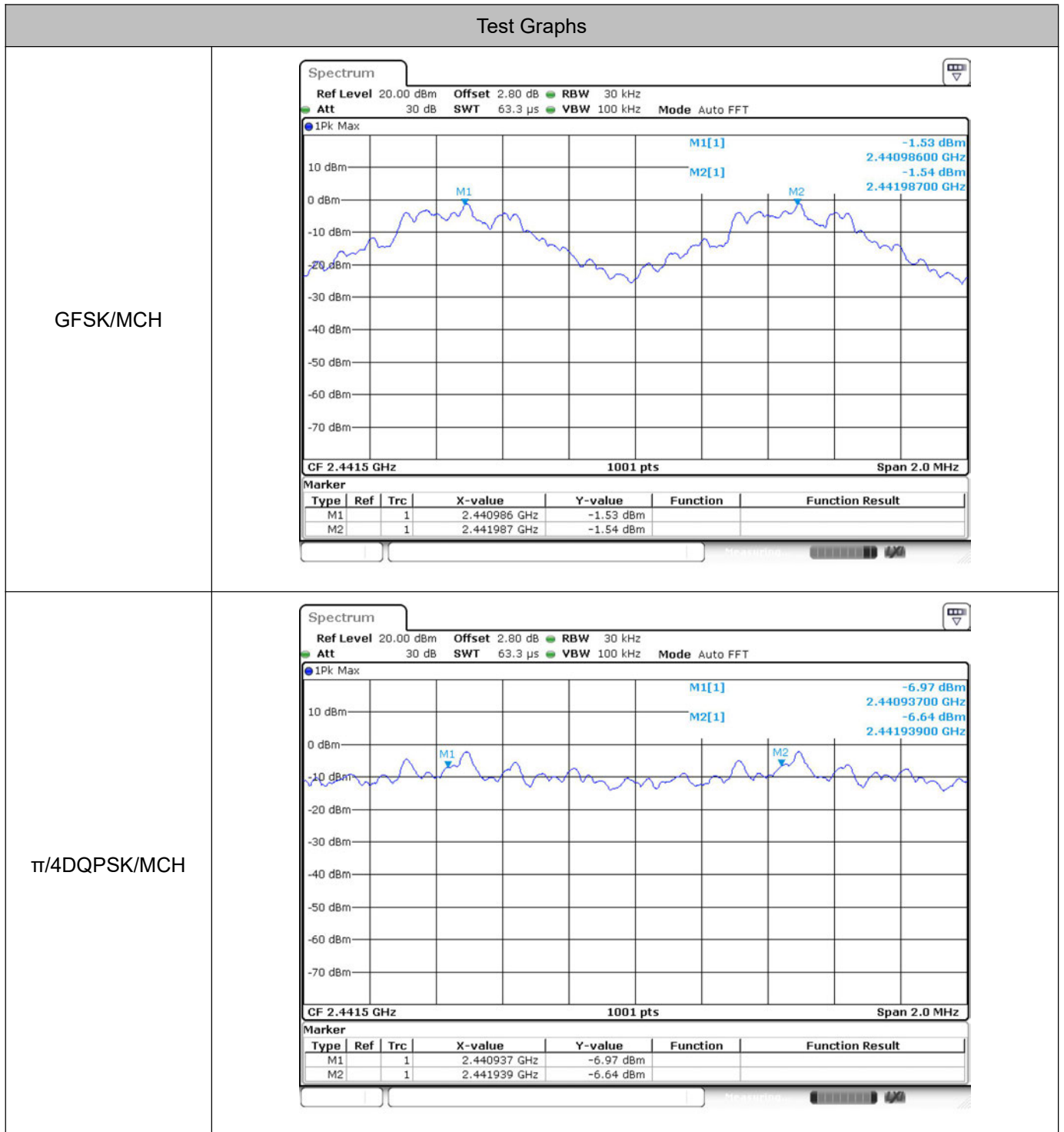


## 4 Carrier Frequency Separation

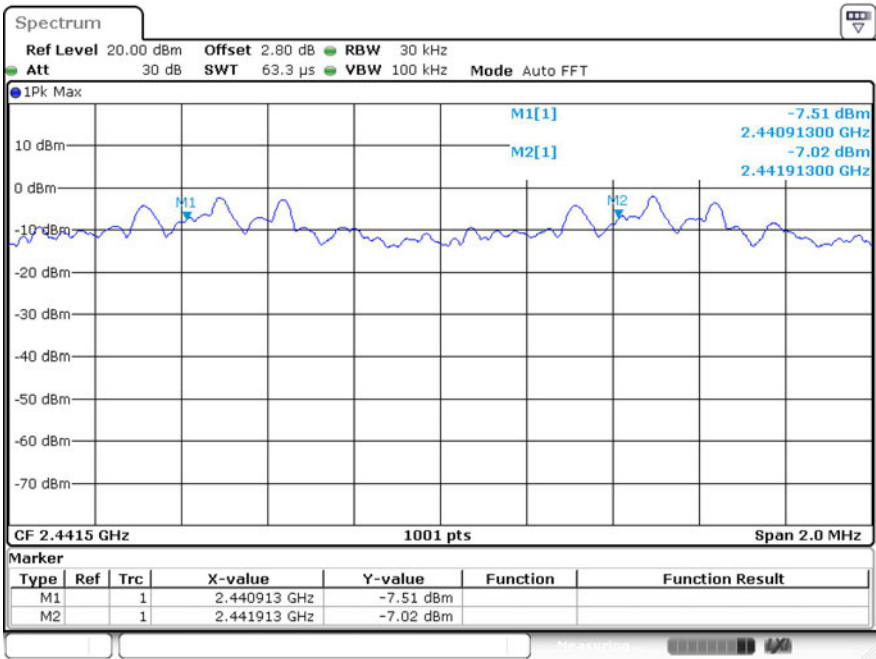
### 4.1 Test Result

| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | MCH      | 1.001                              | 0.569       | Pass    |
| $\pi/4$ DQPSK | MCH      | 1.002                              | 0.977       | Pass    |
| 8DPSK         | MCH      | 1                                  | 0.957       | Pass    |

## 4.2 Test Graphs



8DPSK/MCH



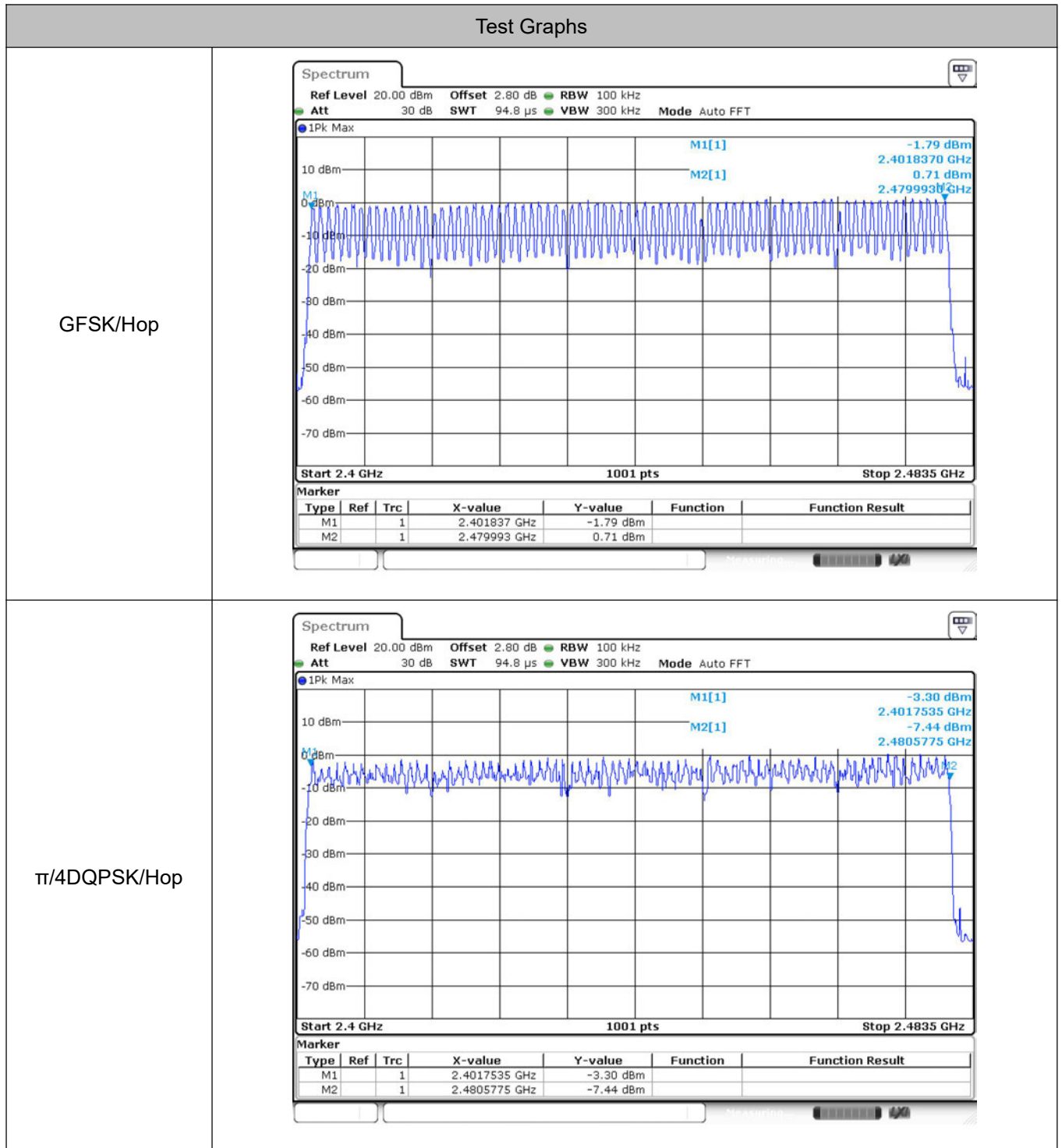
## 5 Hopping Channel Number

### 5.1 Test Result

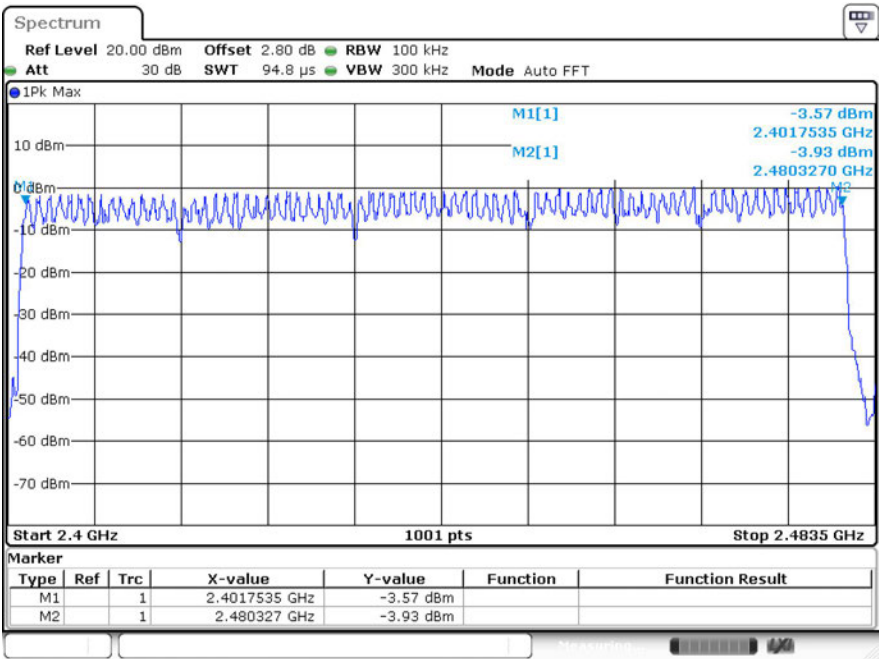
| Mode          | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK          | Hop      | 79                            | $\geq 15$ | PASS    |
| $\pi/4$ DQPSK | Hop      | 79                    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



## 5.2 Test Graphs



8DPSK/Hop

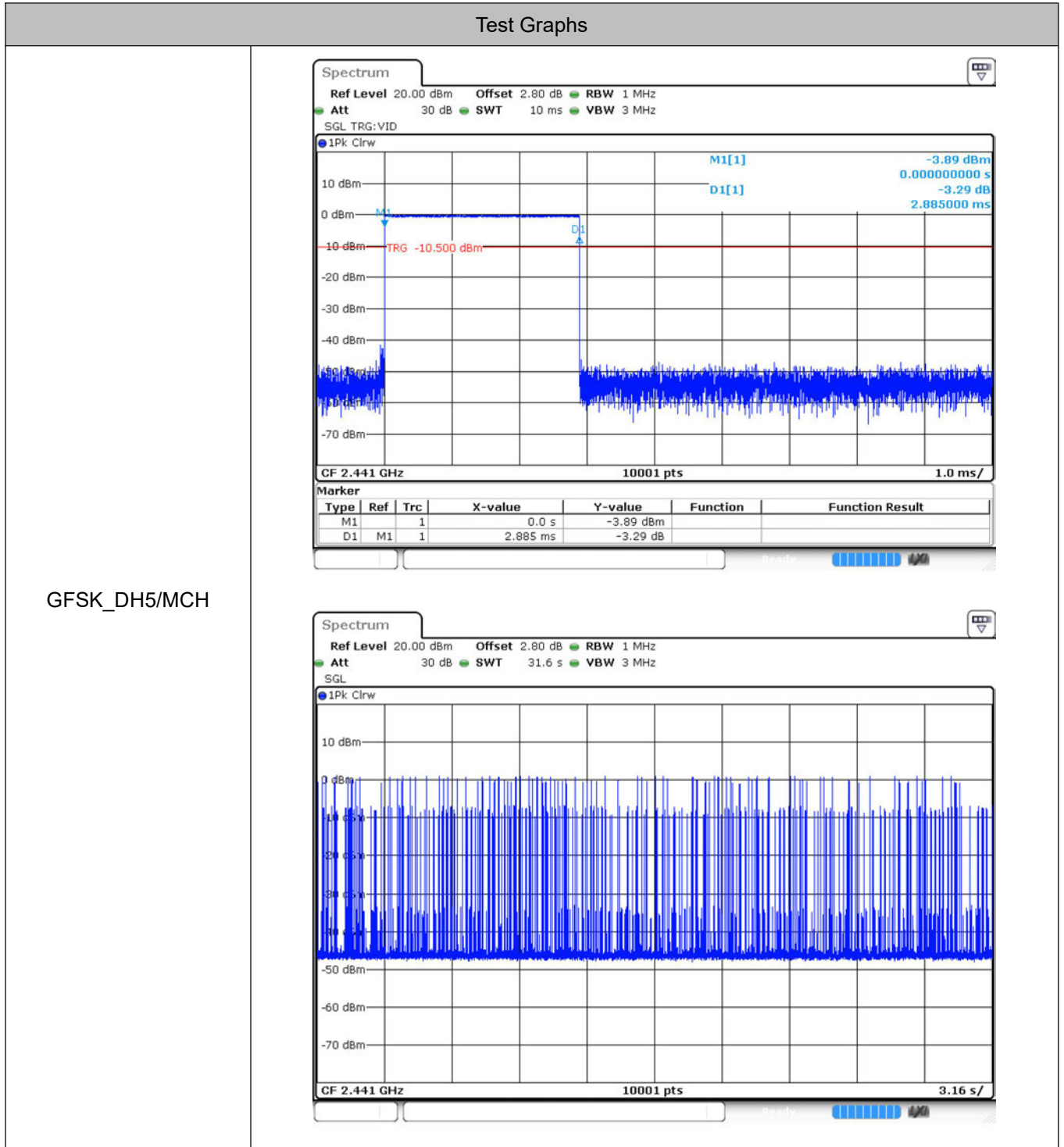


## 6 Dwell Time

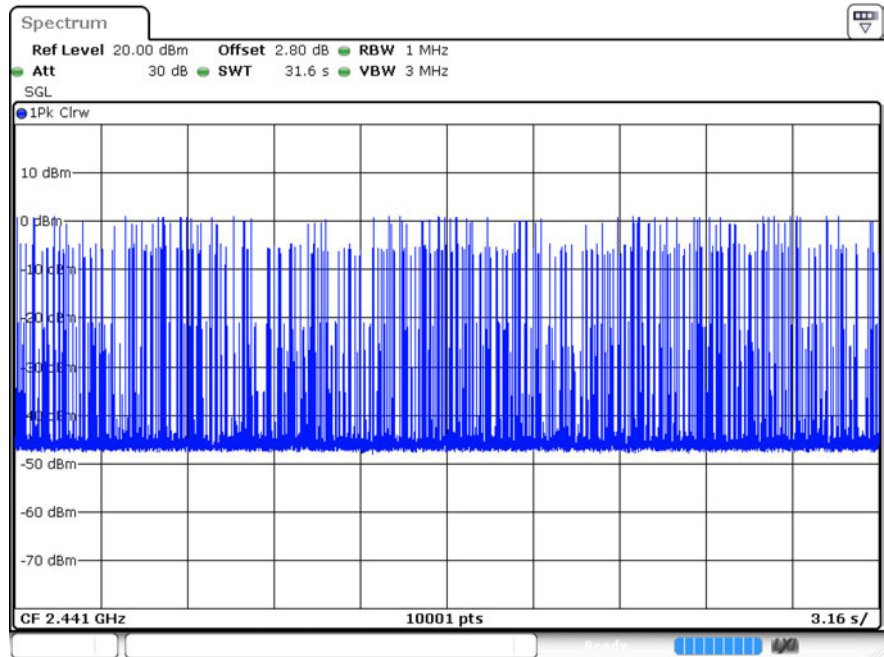
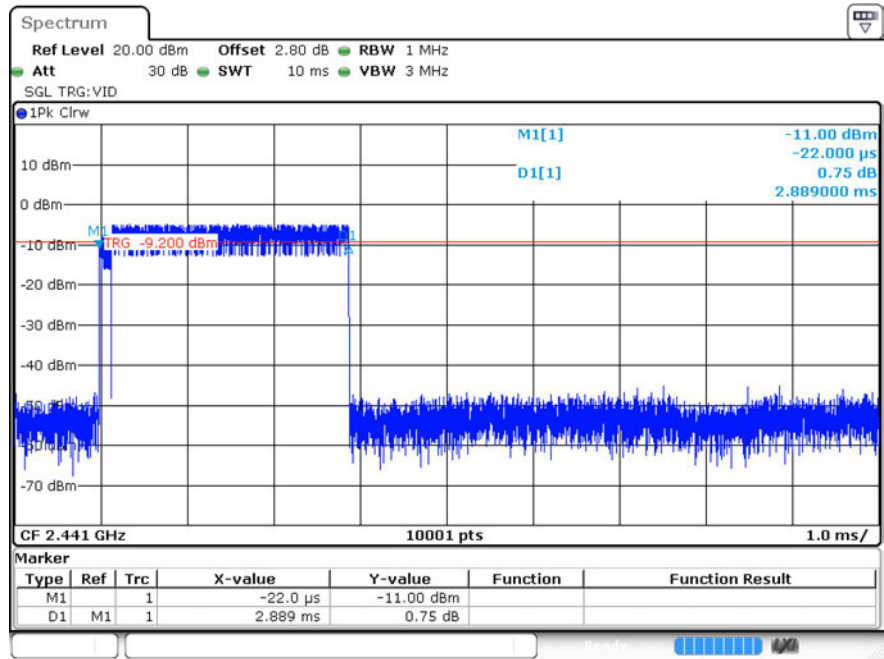
### 6.1 Test Result

| 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                      | 110                   | 317.35         | 0.4       | Pass    |
| $\pi/4$ DQPSK | 2DH5   | MCH     | 2.889                      | 100                   | 288.9          | 0.4       | Pass    |
| 8DPSK         | 3DH5   | MCH     | 2.891                      | 104                   | 300.664        | 0.4       | Pass    |

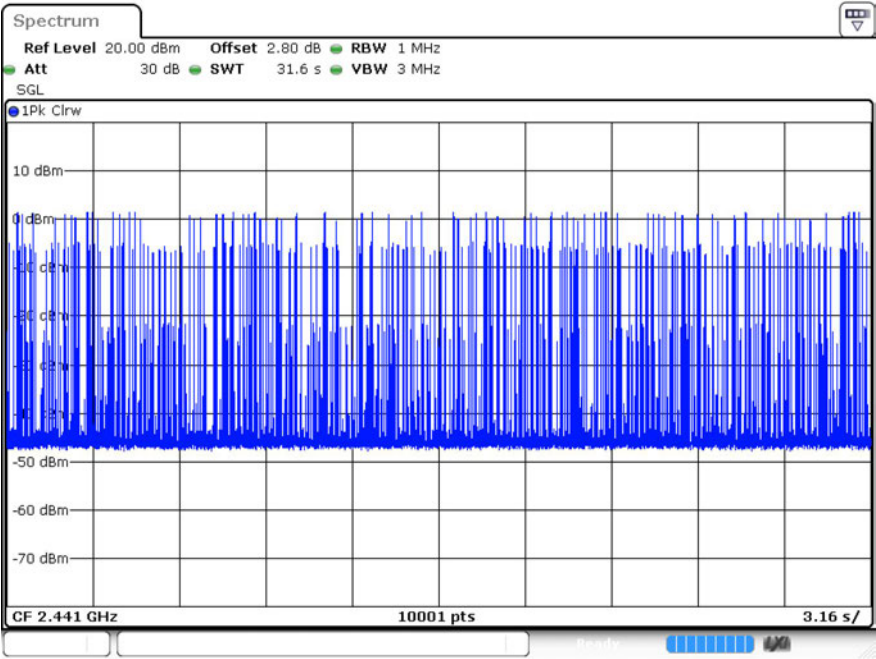
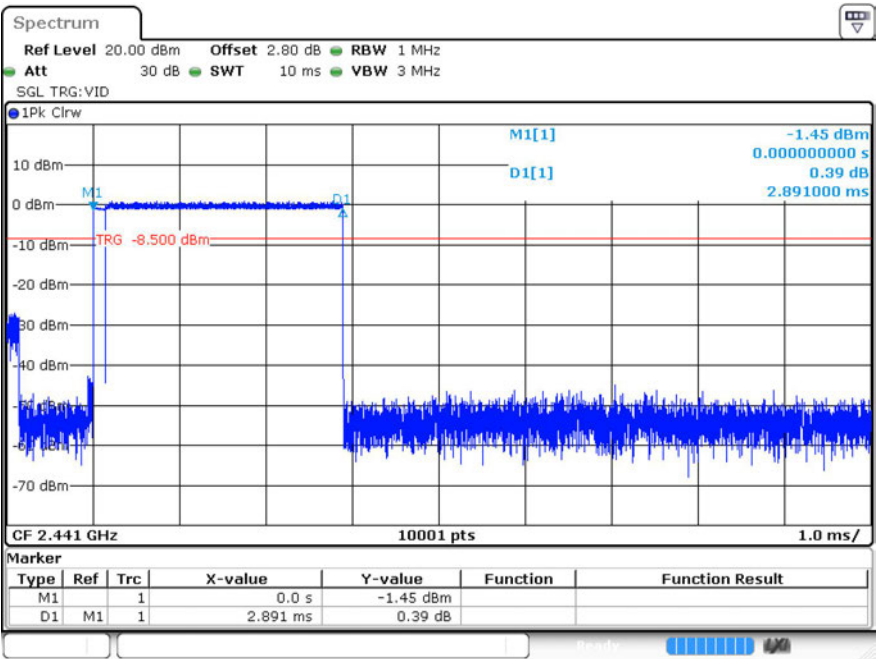
## 6.2 Test Graphs



$\pi/4$ DQPSK  
\_2DH5/MCH



8DPSK\_3DH5/MCH

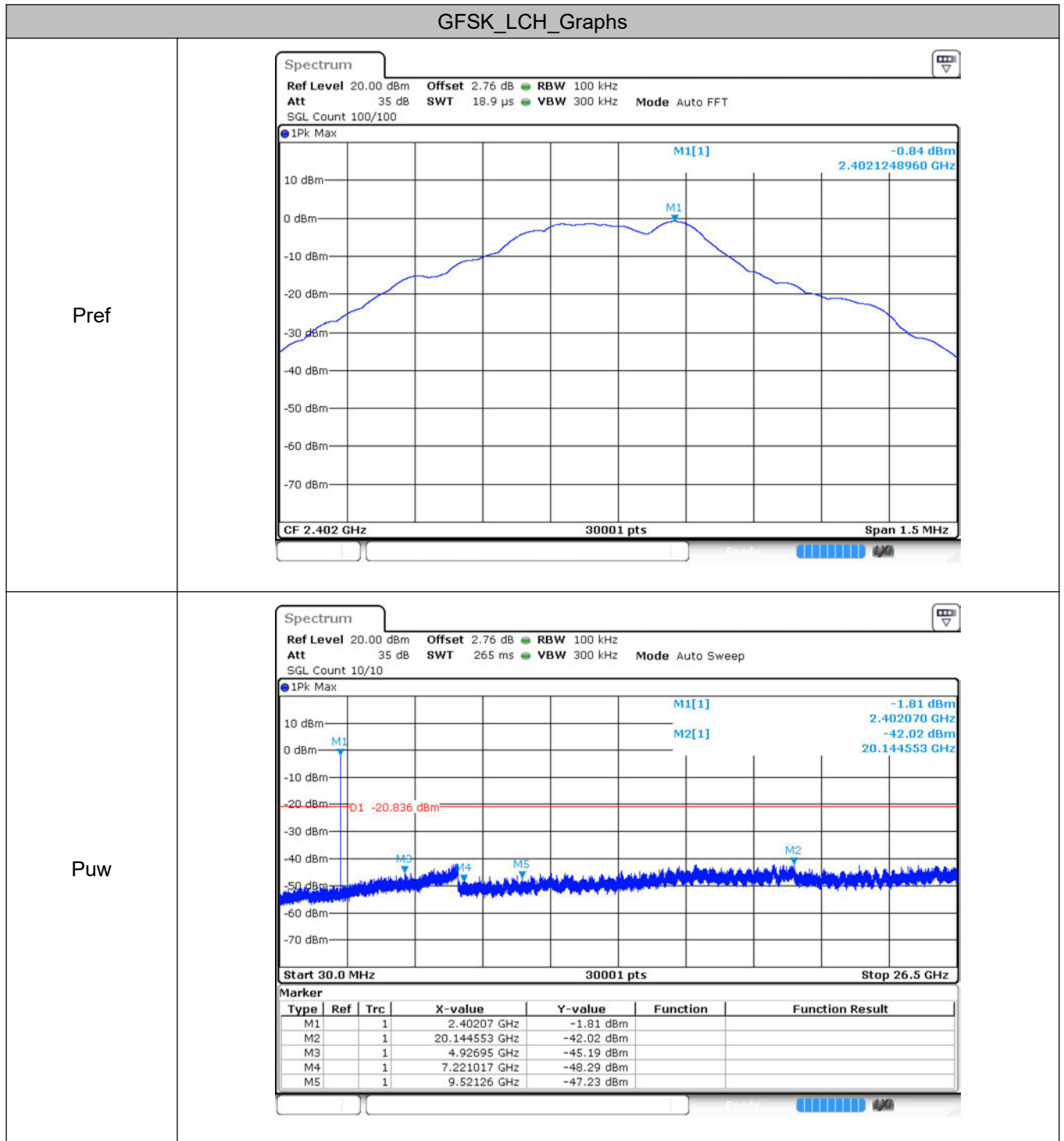


## 7 RF Conducted Spurious Emissions

### 7.1 Test Result

| Mode          | Channel | Max. Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|------------------|-------------|---------|
| GFSK          | LCH     | -41.17           | -20         | Pass    |
|               | MCH     | -40.77           | -20         | Pass    |
|               | HCH     | -40.11           | -20         | Pass    |
| $\pi/4$ DQPSK | LCH     | -39.08           | -20         | Pass    |
|               | MCH     | -40.87           | -20         | Pass    |
|               | HCH     | -39.61           | -20         | Pass    |
| 8DPSK         | LCH     | -39.05           | -20         | Pass    |
|               | MCH     | -40.87           | -20         | Pass    |
|               | HCH     | -39.89           | -20         | Pass    |

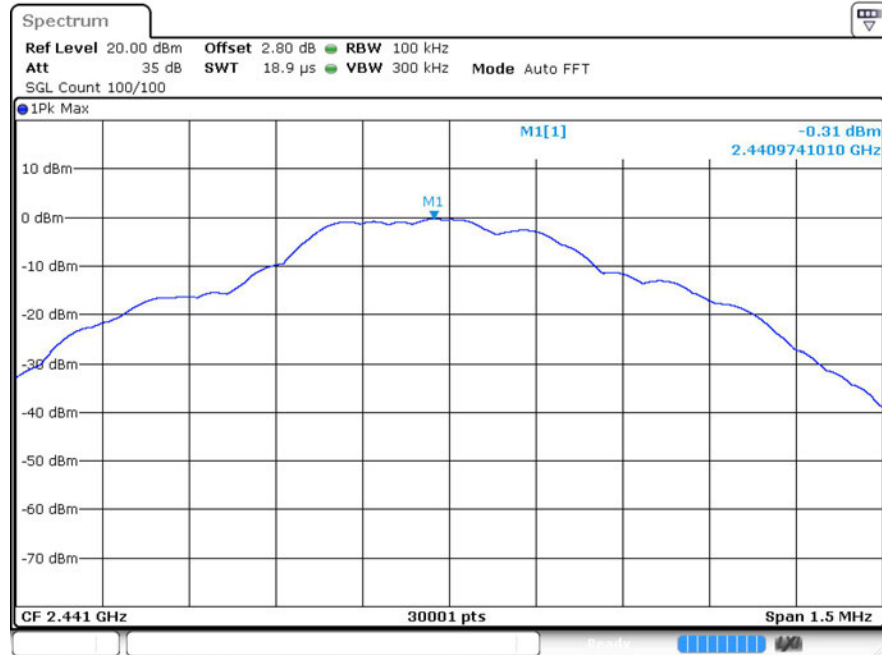
## 7.2 Test Graphs



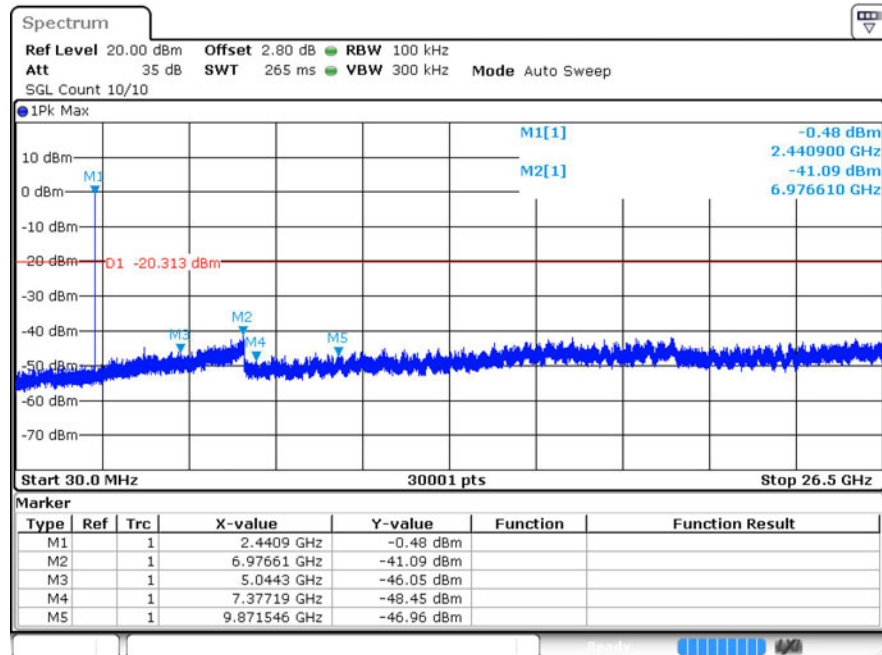


## GFSK\_MCH\_Graphs

Pref

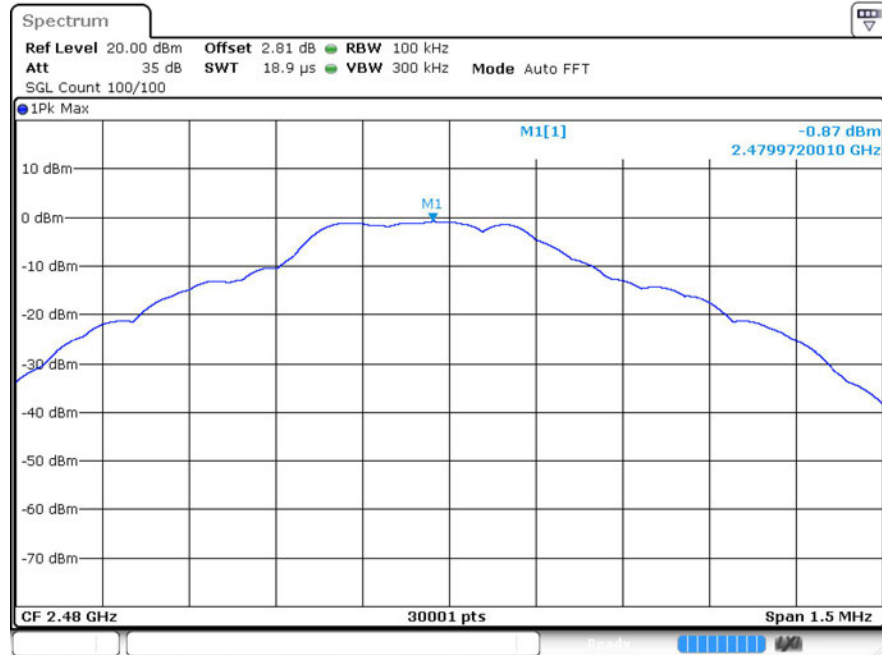


Puw

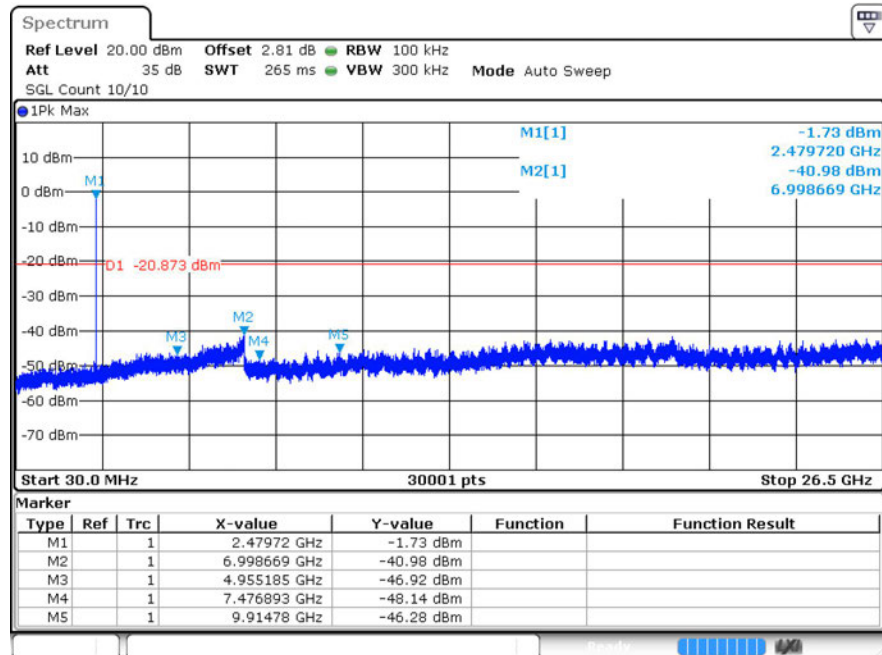


## GFSK\_HCH\_Graphs

Pref

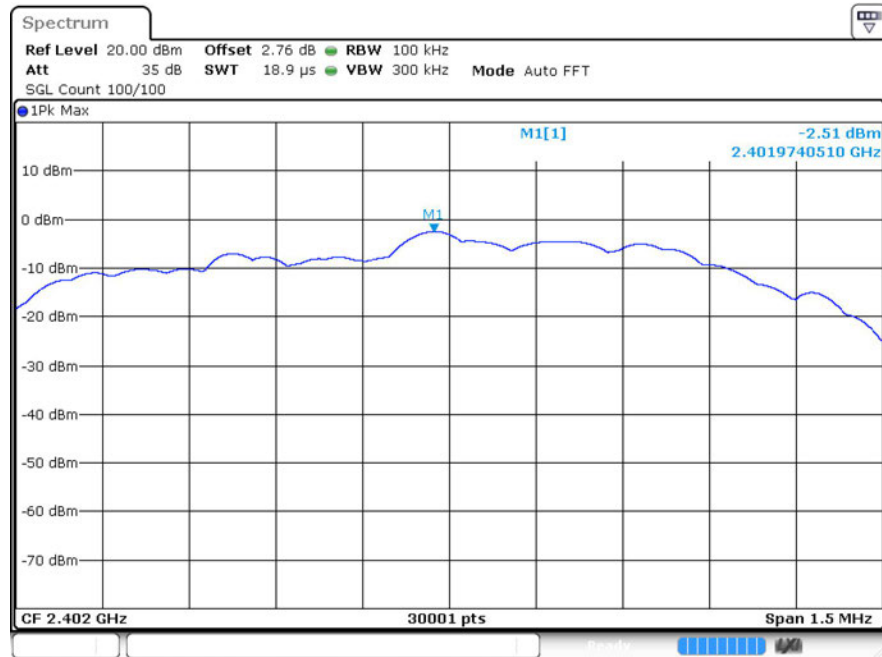


Puw

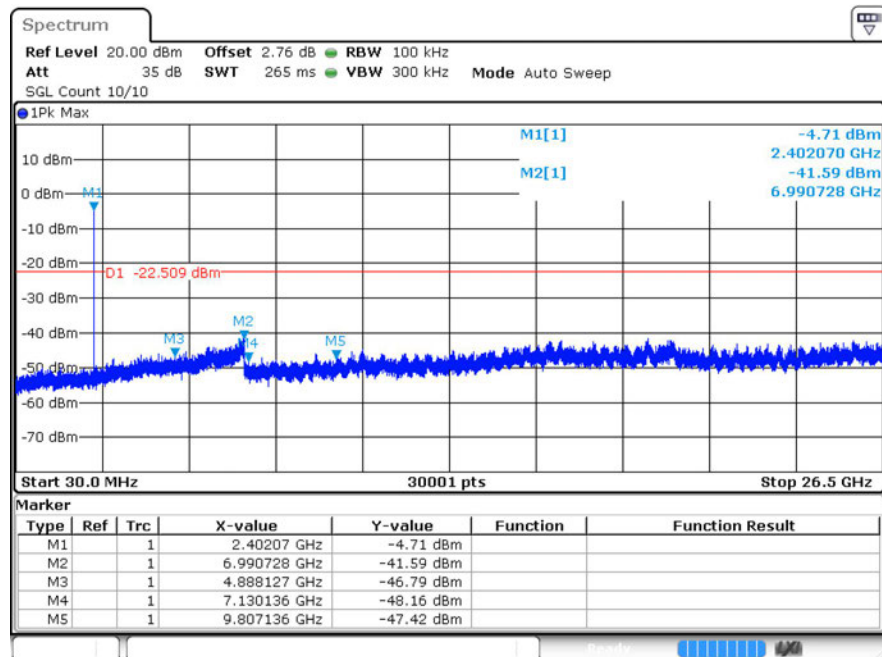


# $\pi/4$ DQPSK\_LCH\_Graphs

Pref

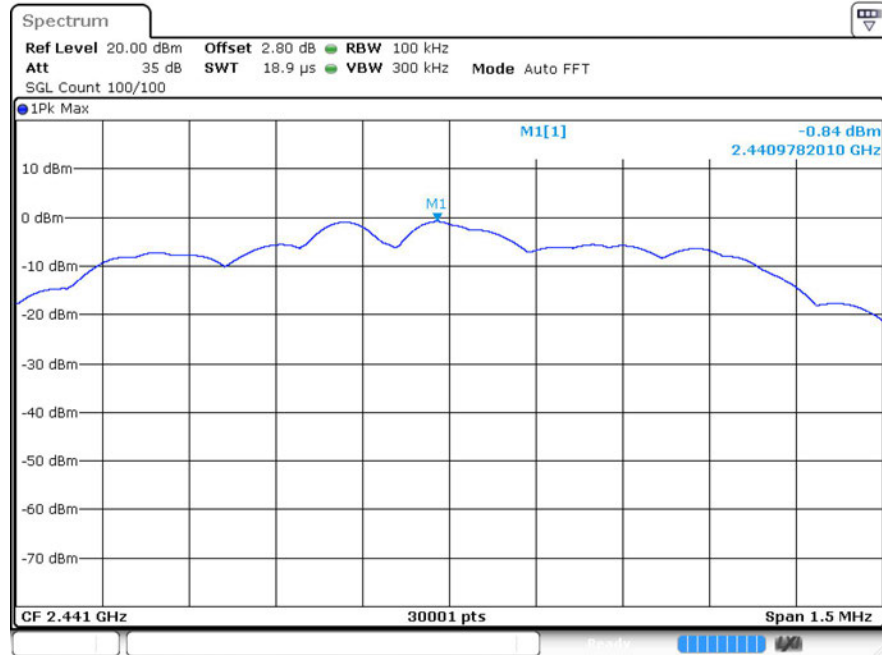


Puw

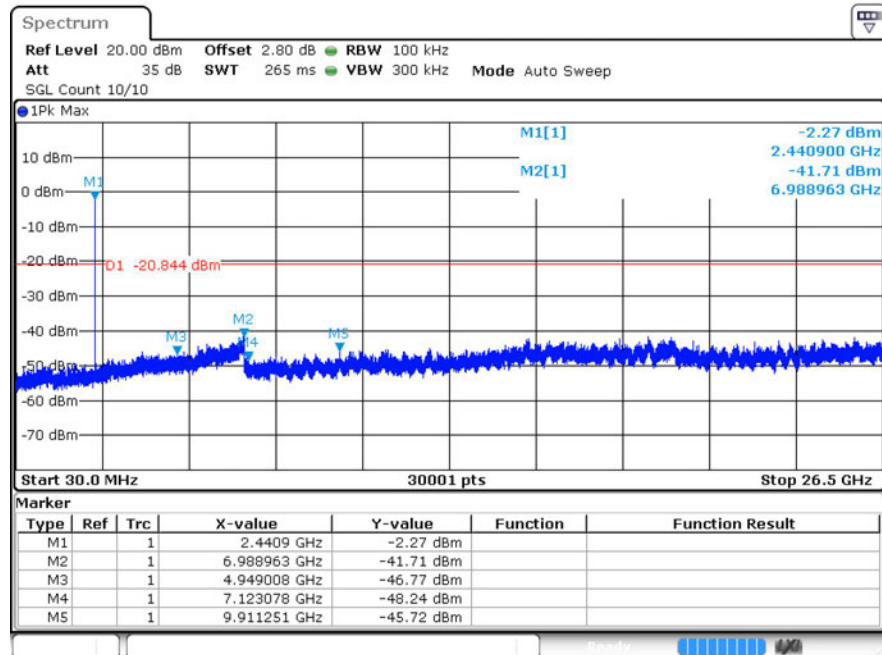


### $\pi$ /4DQPSK\_MCH\_Graphs

Pref

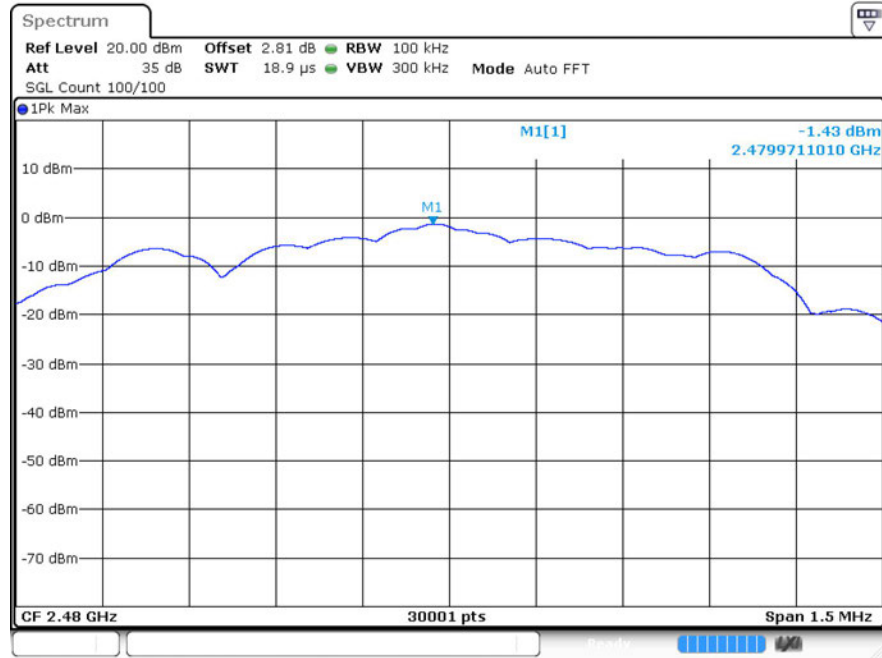


Puw

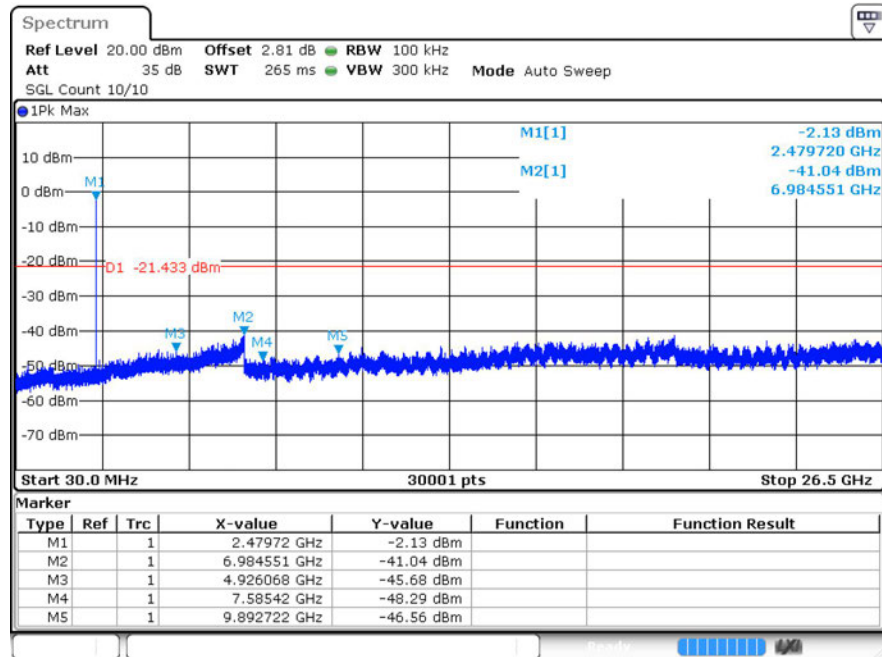


### $\pi$ /4DQPSK\_HCH\_Graphs

Pref

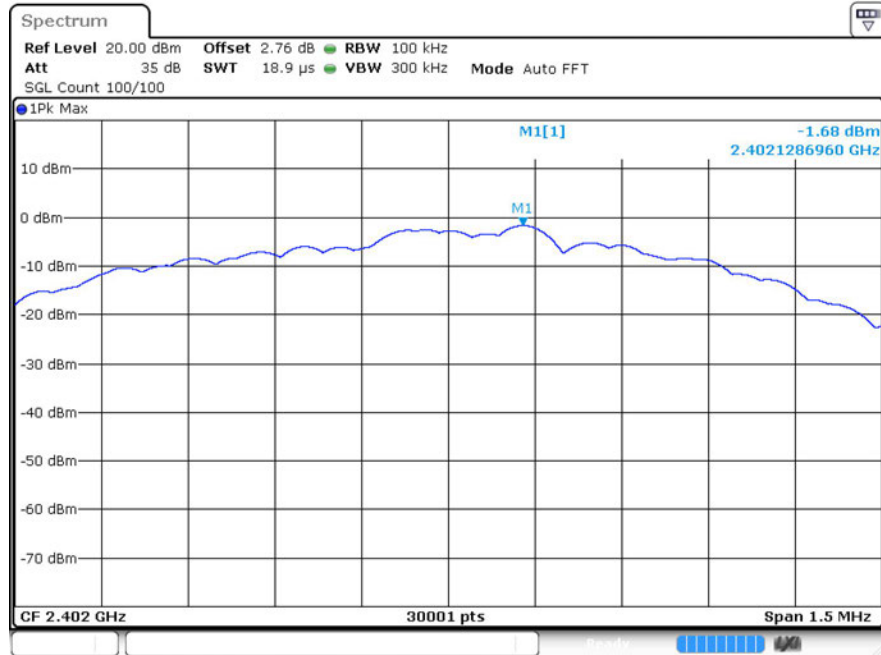


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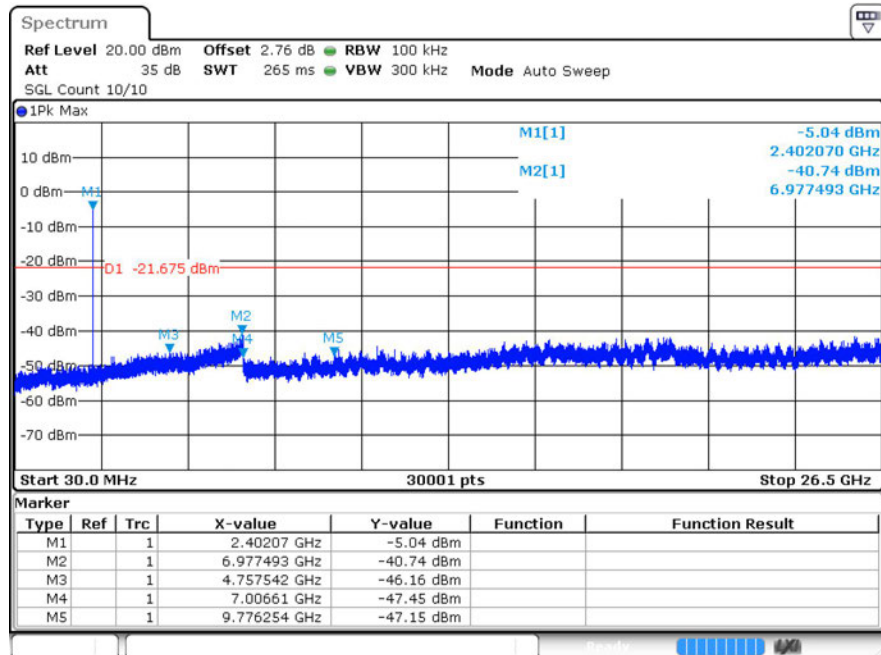


## 8DPSK\_LCH\_Graphs

Pref

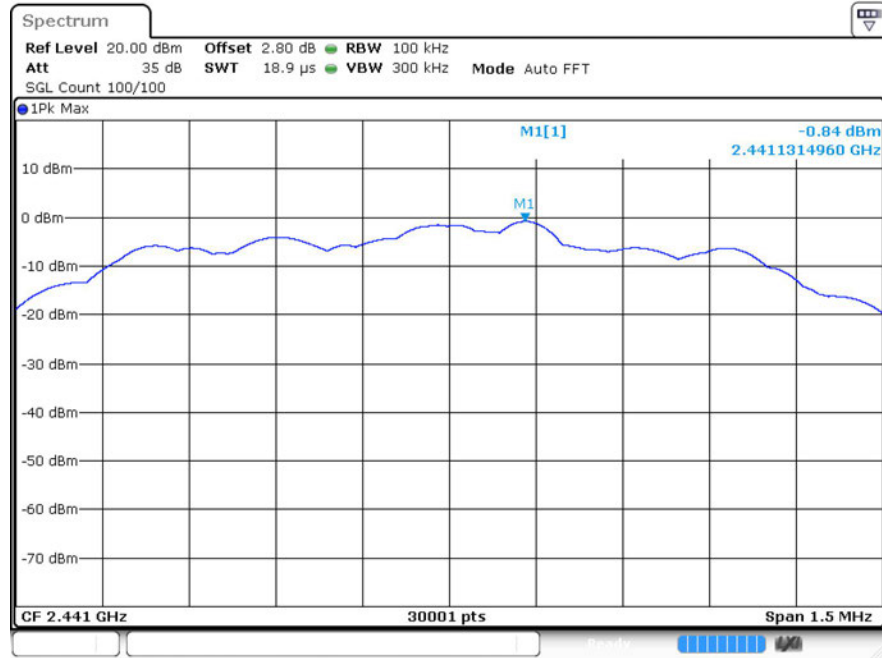


Puw

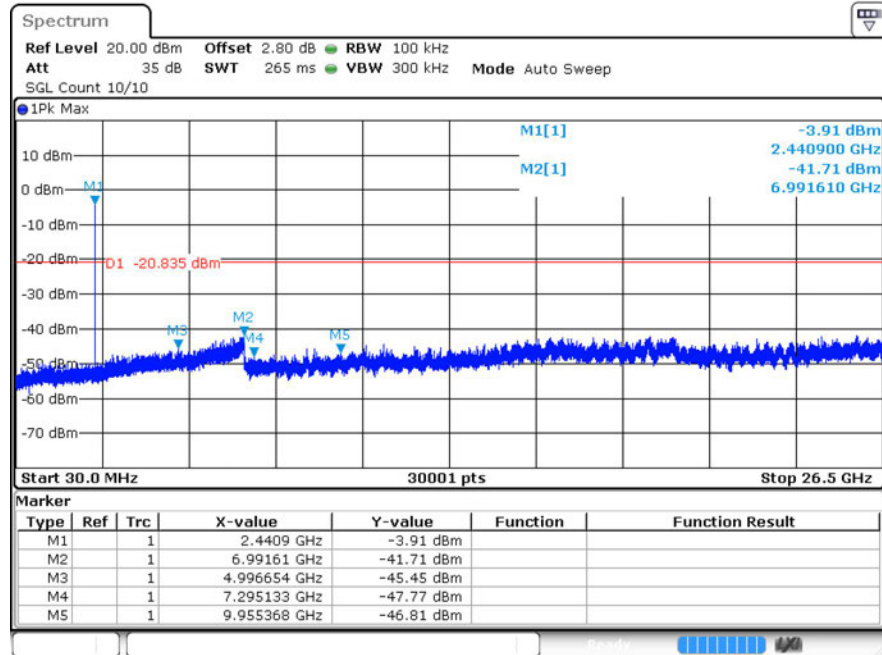


## 8DPSK\_MCH\_Graphs

Pref



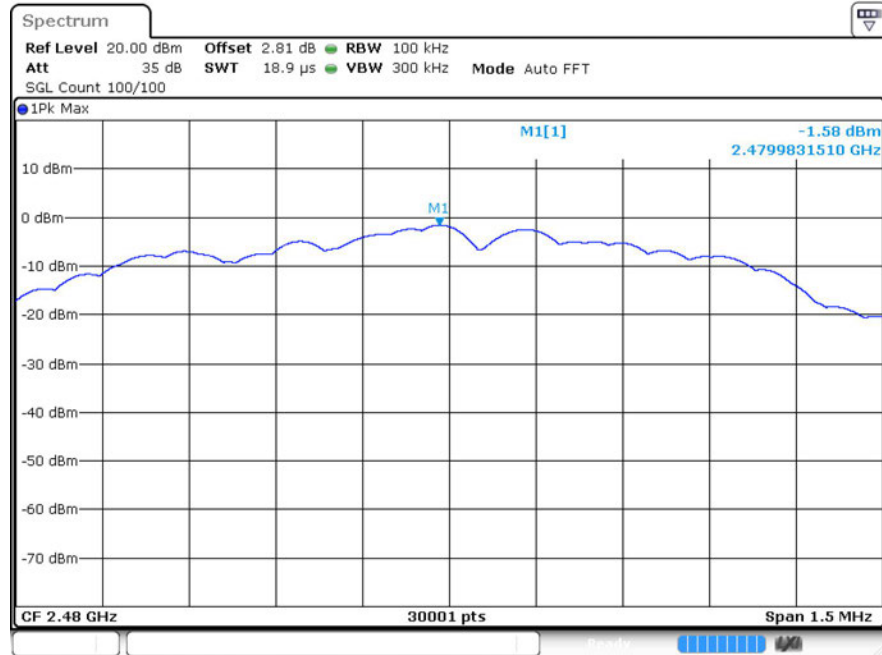
Puw



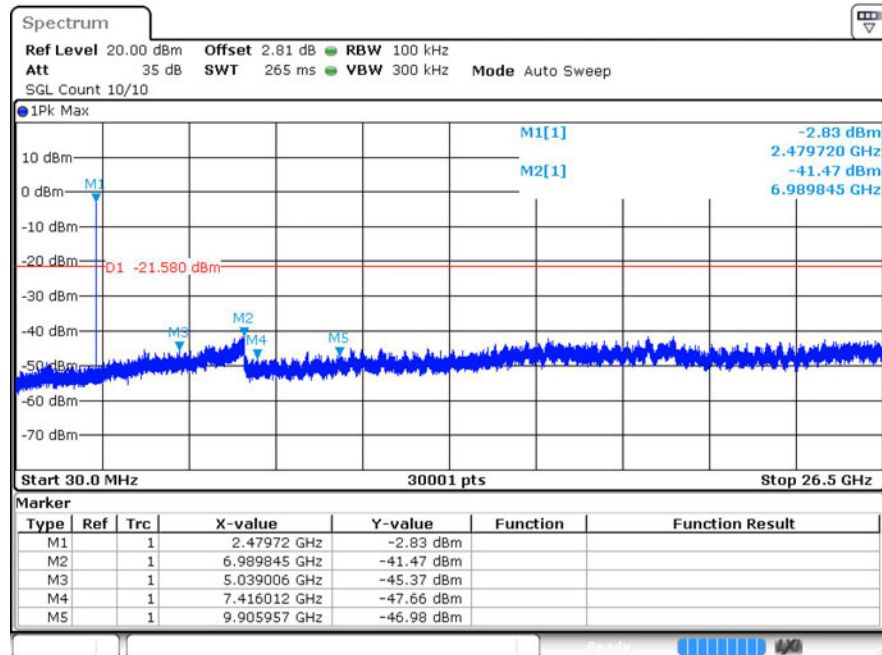


## 8DPSK\_HCH\_Graphs

Pref



Puw



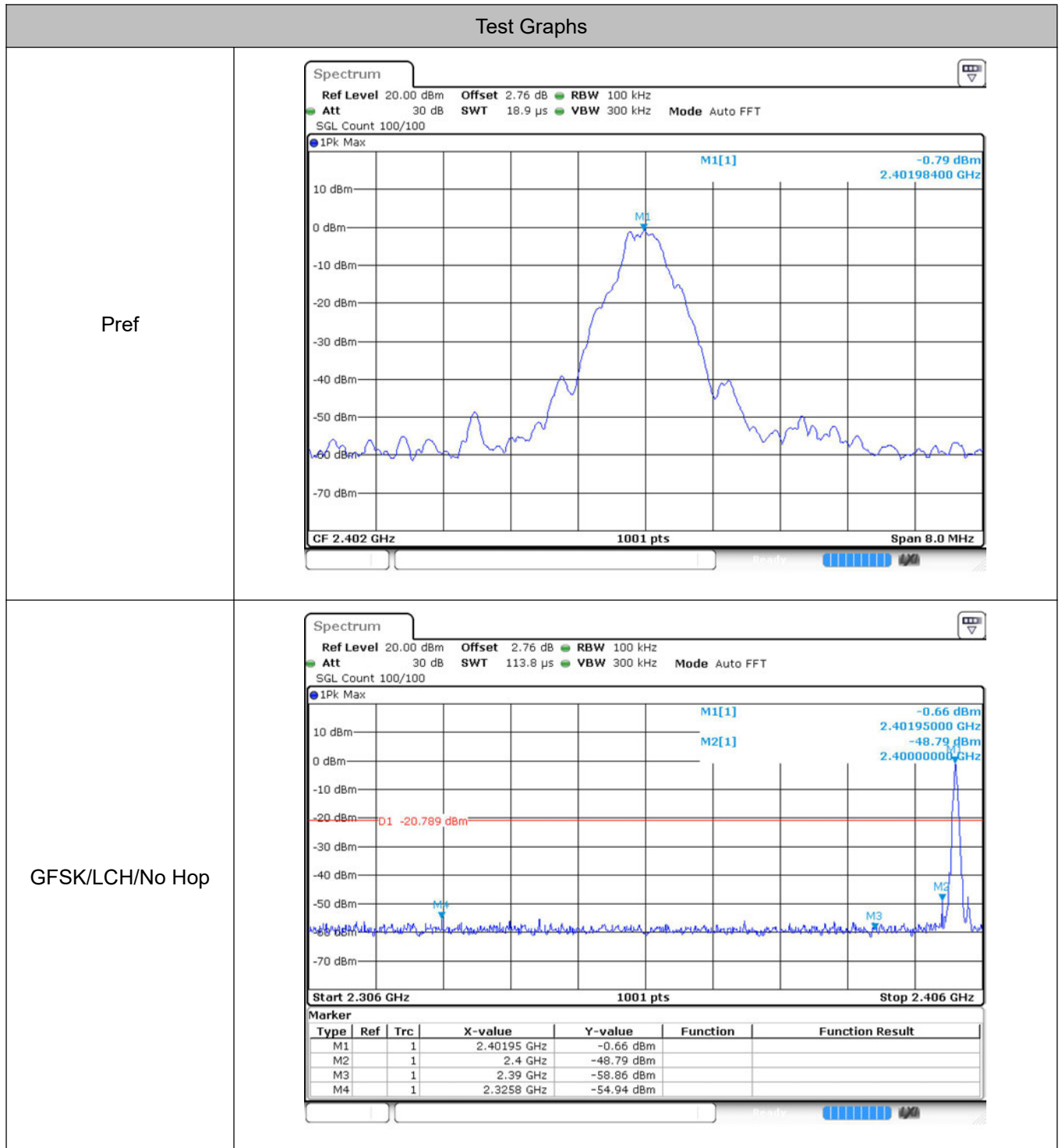


## 8 Band-edge for RF Conducted Emissions

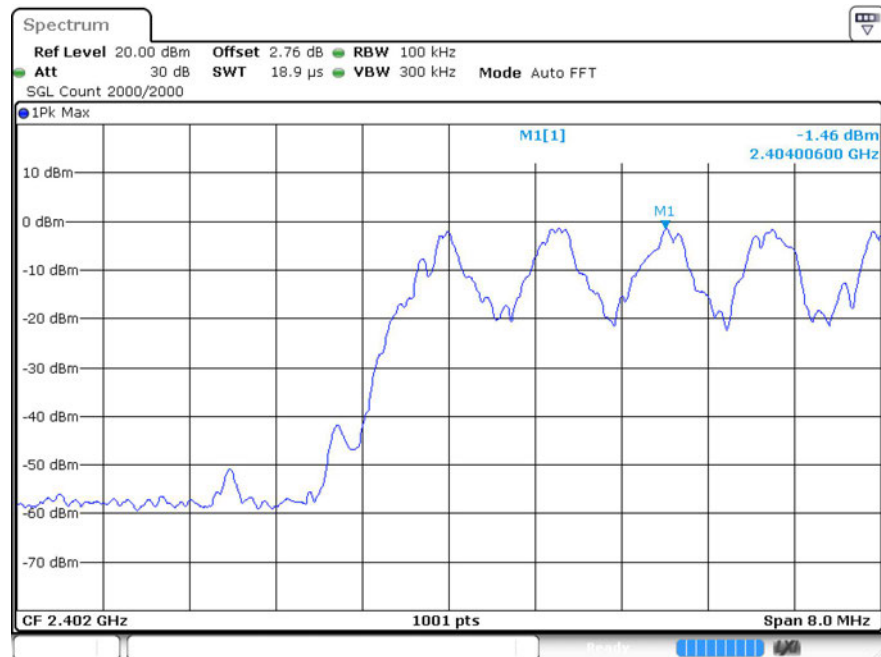
### 8.1 Test Result

| Mode          | Channel | Carrier Frequency [MHz] | Frequency Hopping | Max Spurious Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|-------------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | Off               | -54.15                   | -20         | Pass    |
|               |         |                         | On                | -53.29                   | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -47.98                   | -20         | Pass    |
|               |         |                         | On                | -56.64                   | -20         | Pass    |
| $\pi/4$ DQPSK | LCH     | 2402                    | Off               | -53.55                   | -20         | Pass    |
|               |         |                         | On                | -53                      | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -53.95                   | -20         | Pass    |
|               |         |                         | On                | -54.56                   | -20         | Pass    |
| 8DPSK         | LCH     | 2402                    | Off               | -54.23                   | -20         | Pass    |
|               |         |                         | On                | -52.73                   | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -43.42                   | -20         | Pass    |
|               |         |                         | On                | -46.7                    | -20         | Pass    |

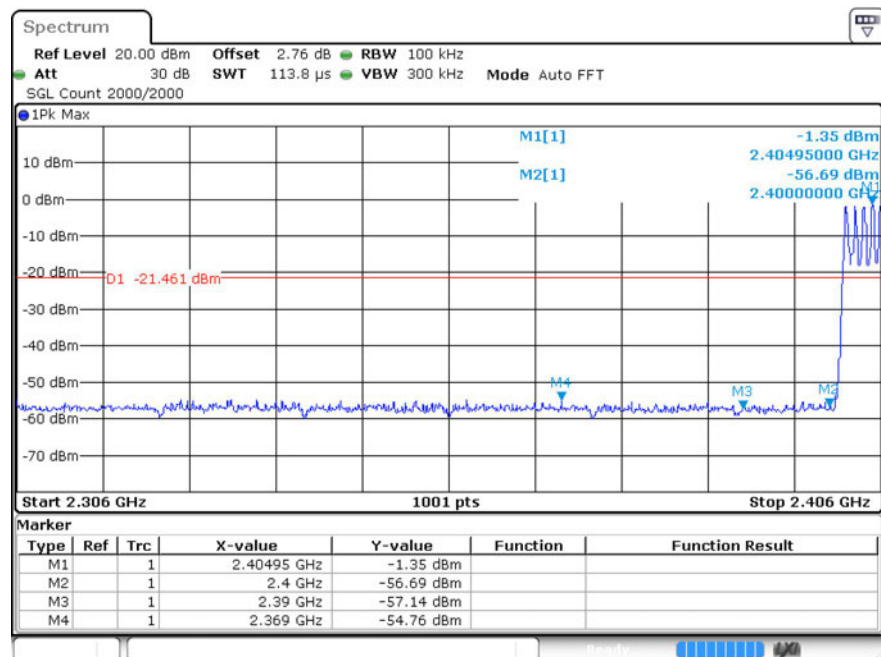
## 8.2 Test Graphs



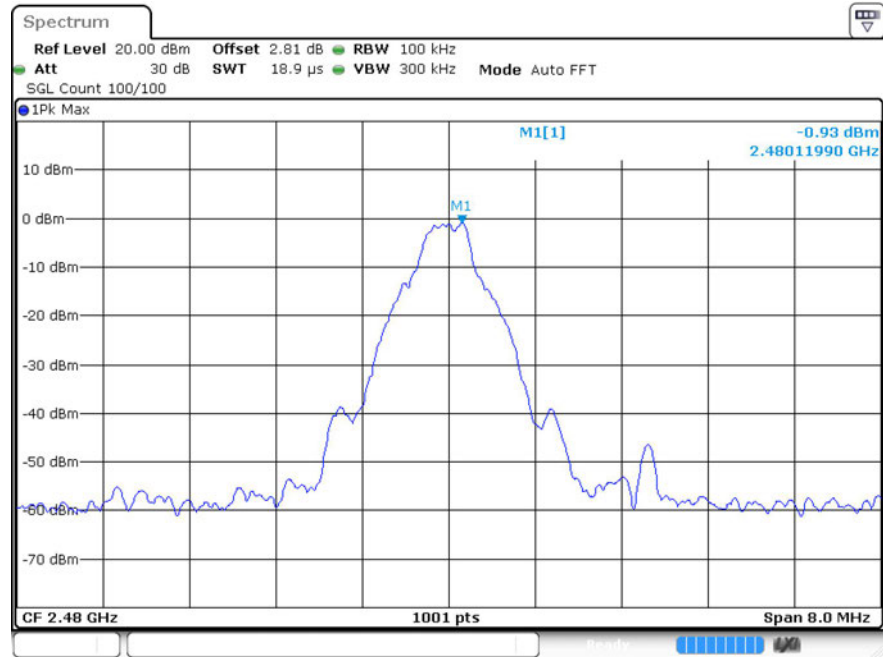
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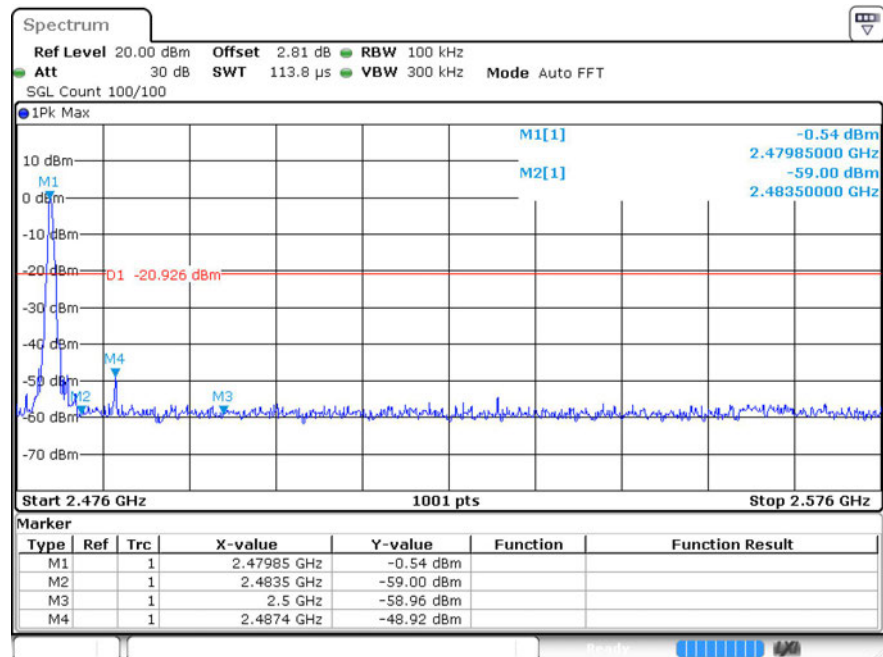
GFSK/LCH/Hop



Ref



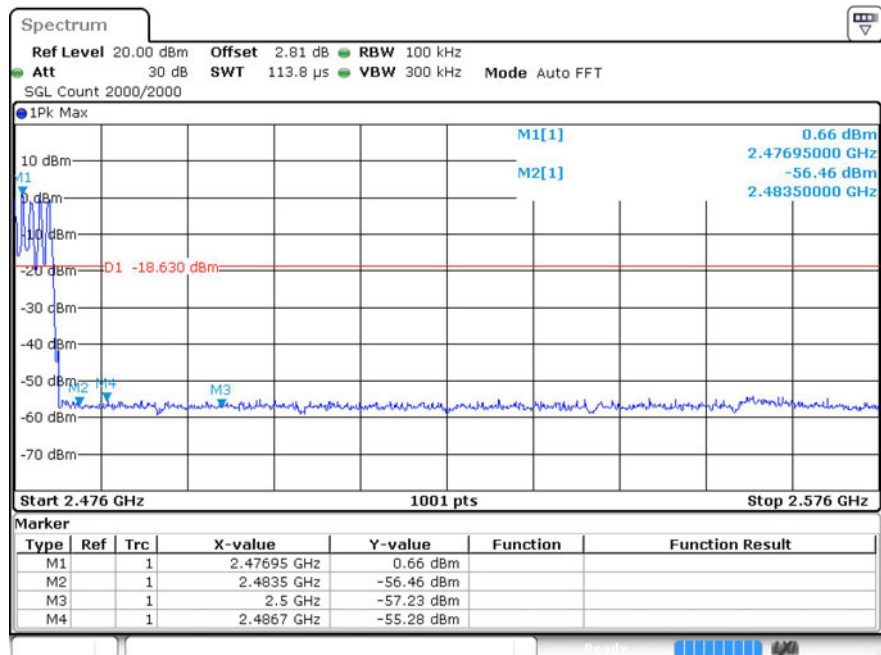
GFSK/HCH/No Hop



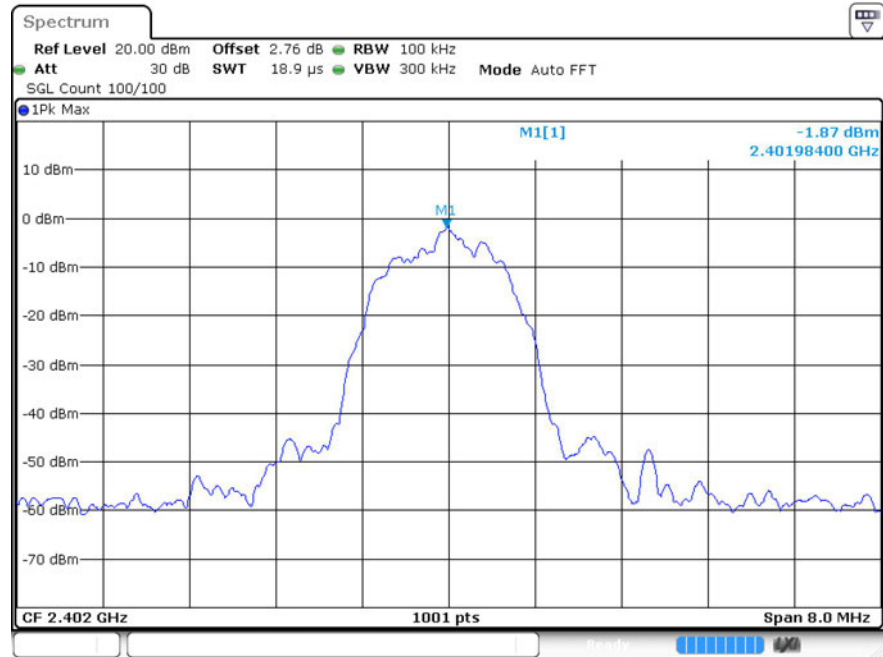
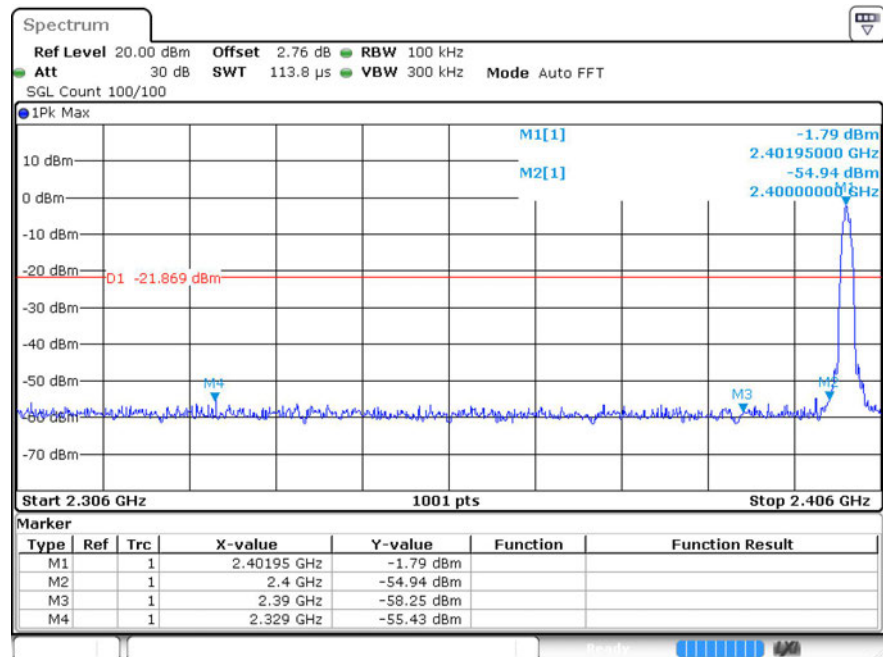
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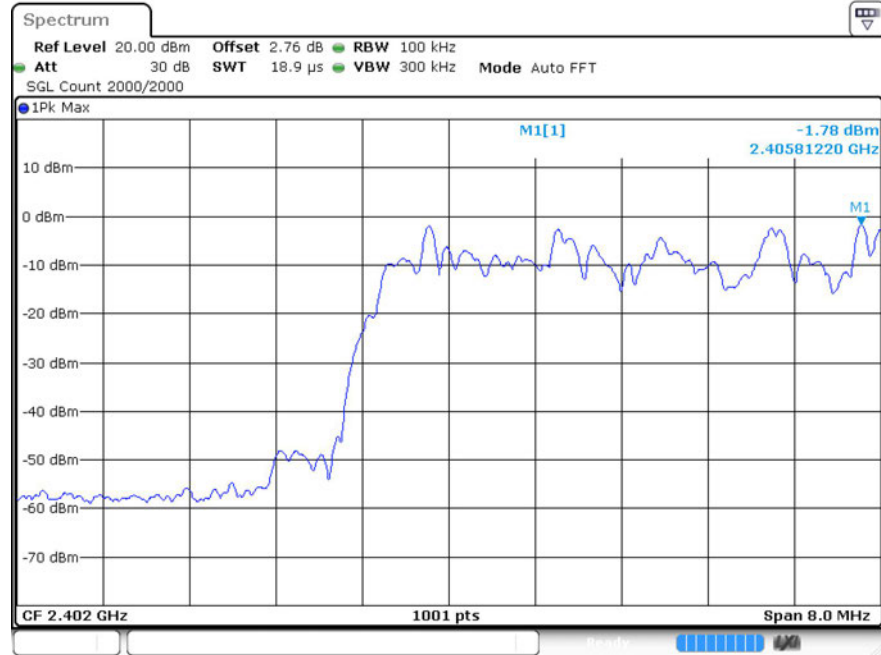
GFSK/HCH/Hop



Ref


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


Ref


 $\pi/4$ DQPSK/LCH/Hop
