



## Appendix A

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

Product Name: Colorful aromatherapy sleep speaker

Trade Mark: N/A

Test Model: SY810

#### Environmental Conditions

|                    |             |
|--------------------|-------------|
| Temperature:       | 25.3℃       |
| Relative Humidity: | 52.4%       |
| ATM Pressure:      | 101Kpa      |
| Test Engineer:     | Emiya lin   |
| Supervised by:     | Simba Haung |



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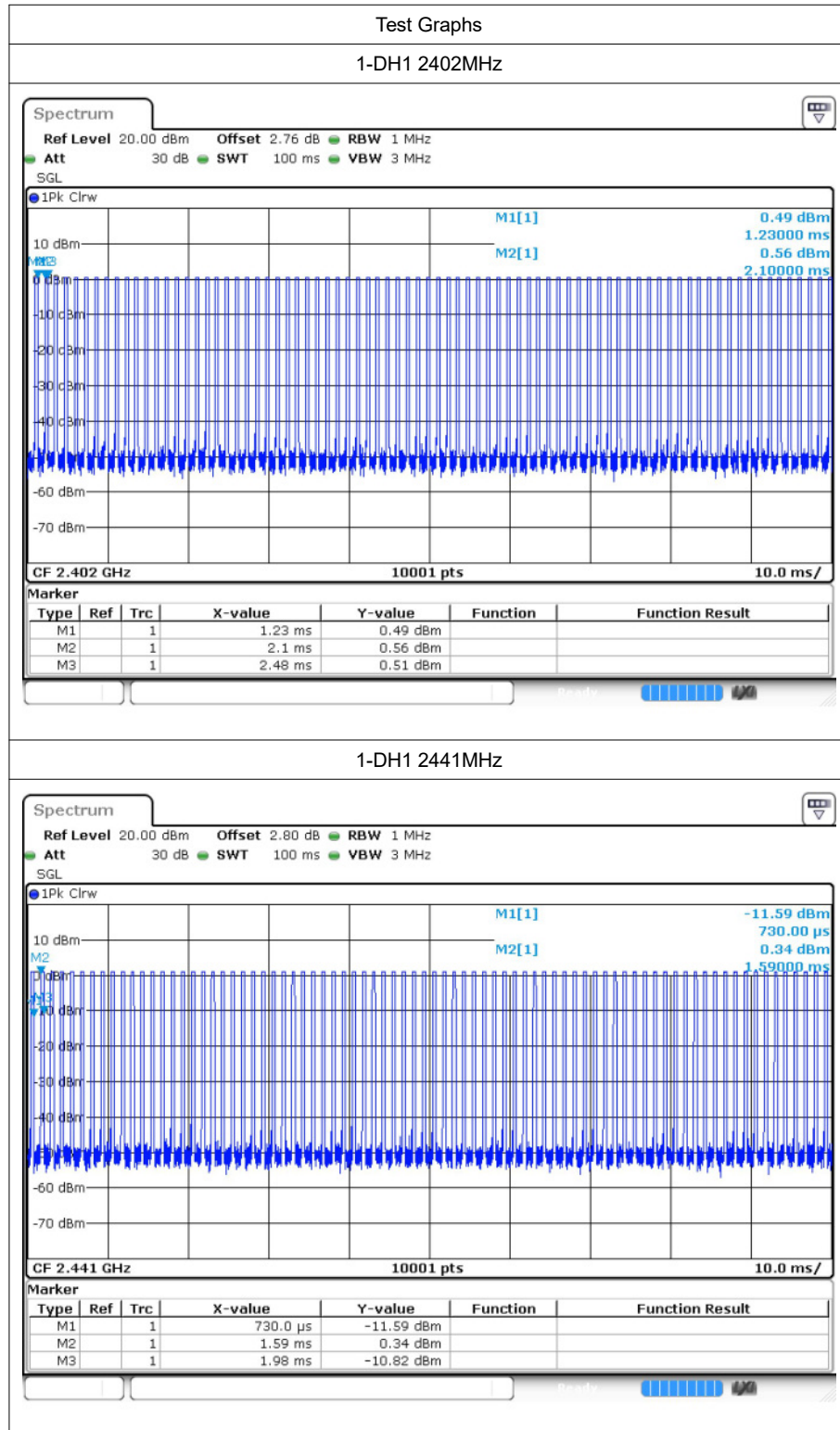
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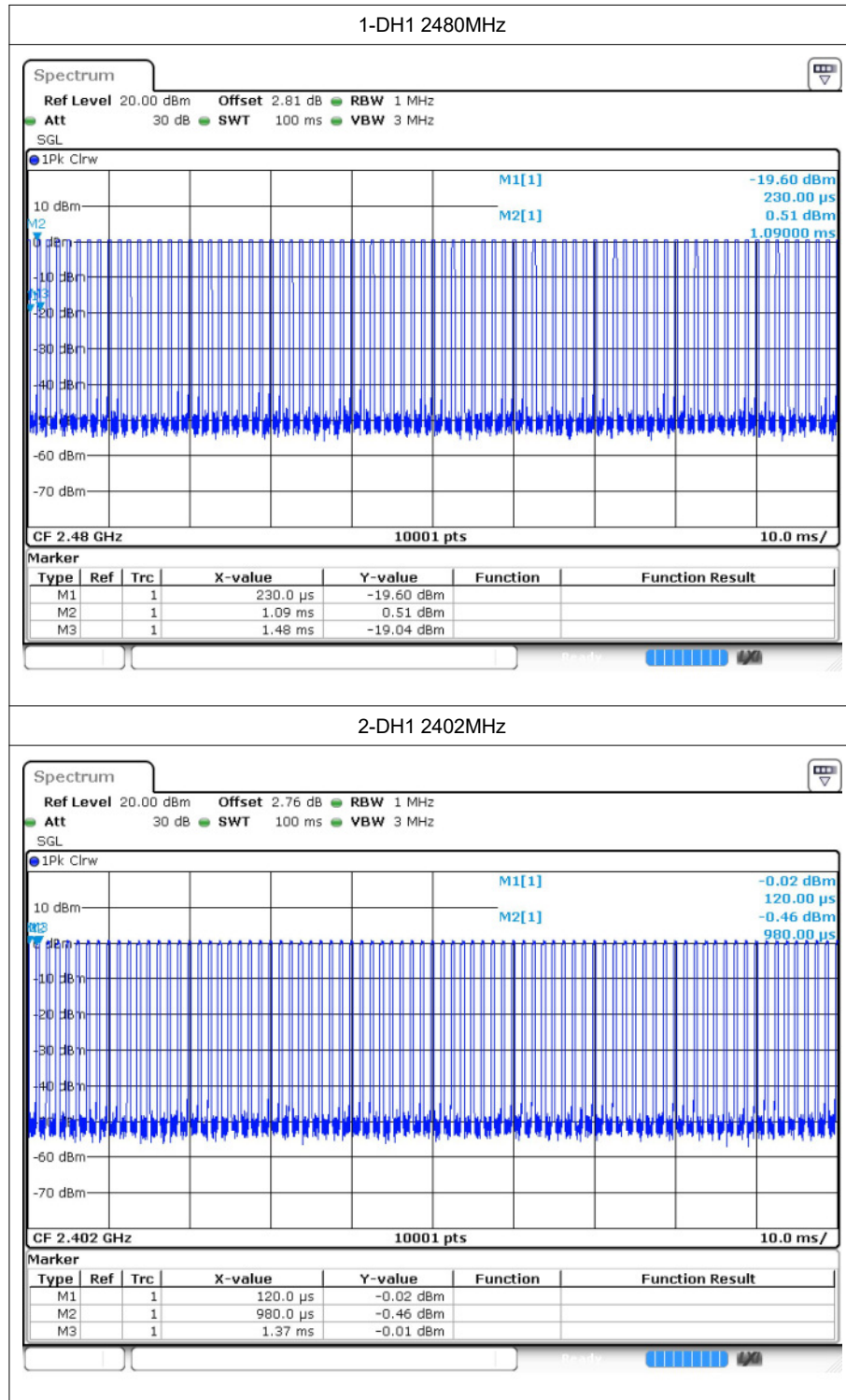
# 1 Duty Cycle

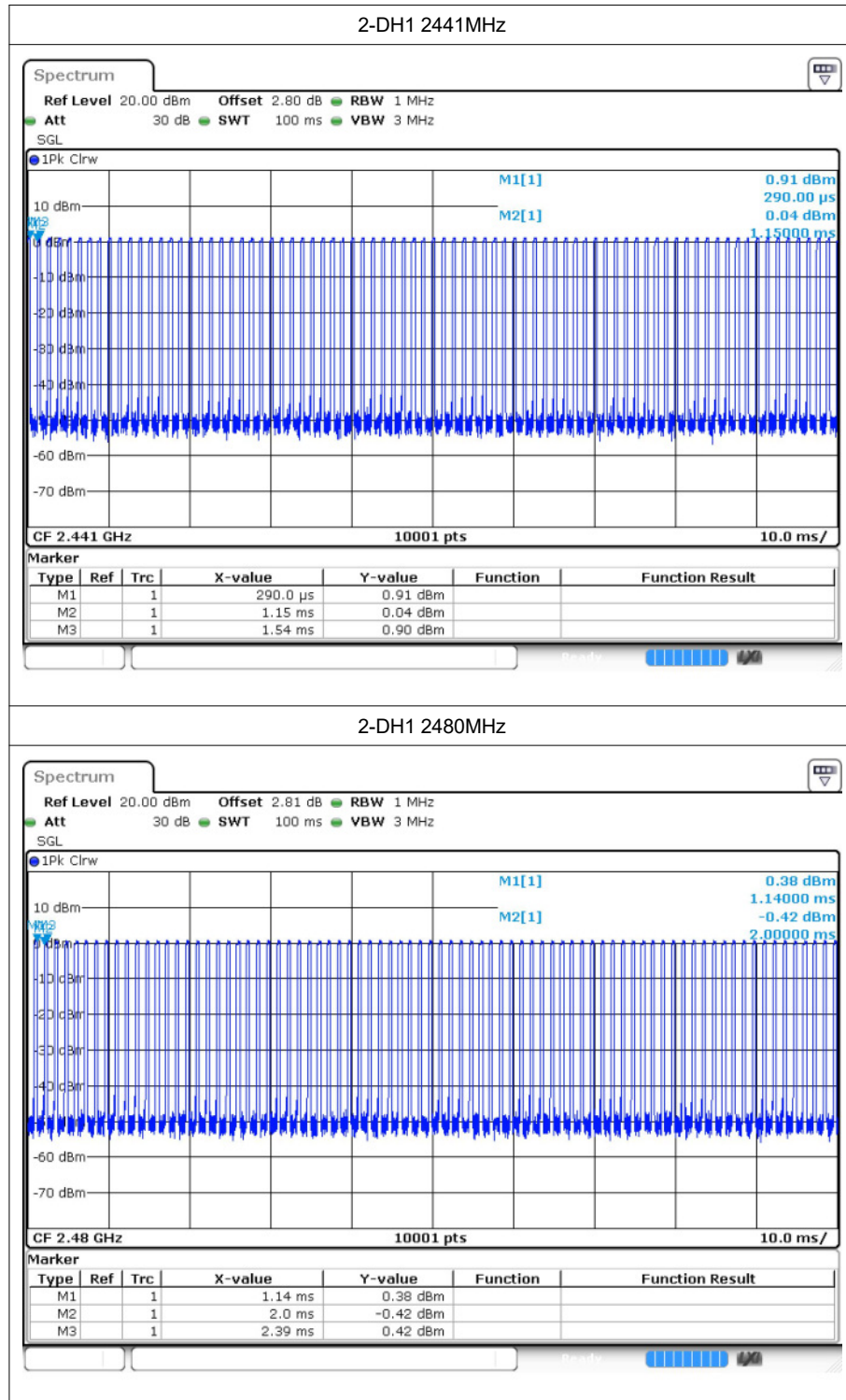
## 1.1 Test Result

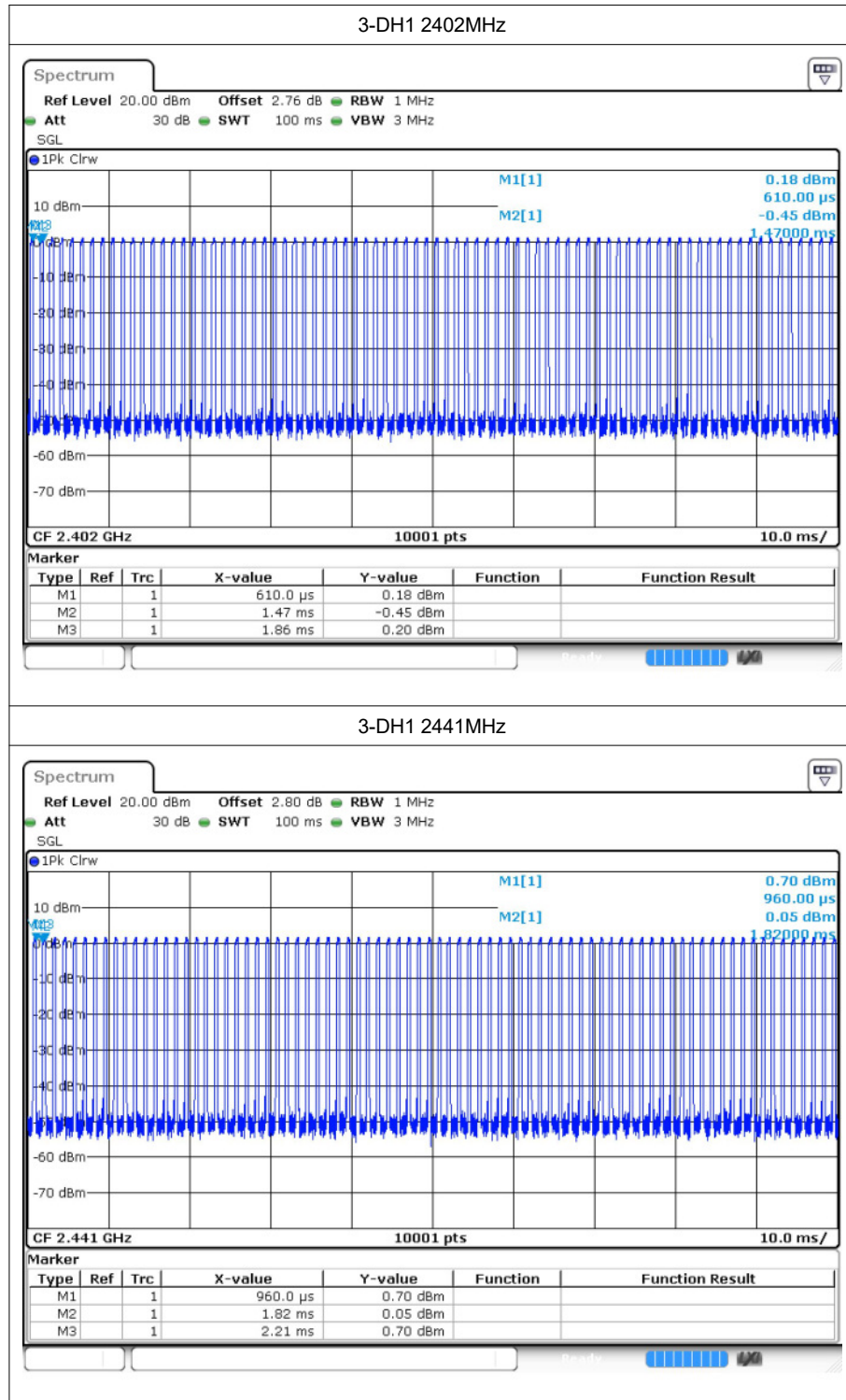
| Mode  | Frequency (MHz) | Duty Cycle (%) | Correction Factor | 1/T (kHz) |
|-------|-----------------|----------------|-------------------|-----------|
| 1-DH1 | 2402            | 31.2           | 5.06              | 2.63      |
| 1-DH1 | 2441            | 31.97          | 4.95              | 2.56      |
| 1-DH1 | 2480            | 32.01          | 4.95              | 2.56      |
| 2-DH1 | 2402            | 32.01          | 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            | 32.01          | 4.95              | 2.56      |

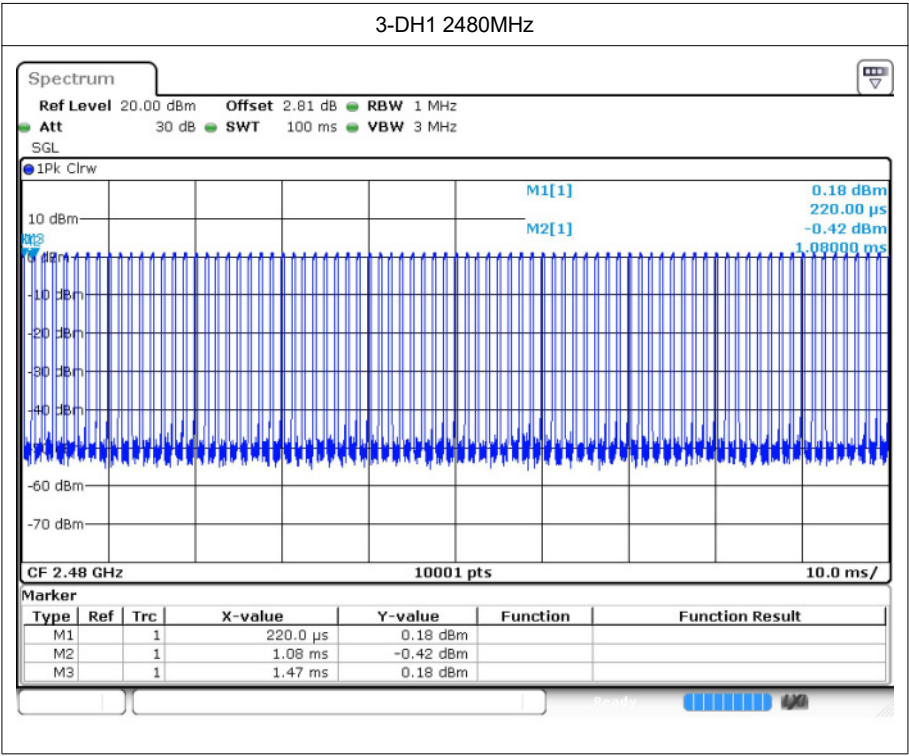
## 1.2 Test Graphs











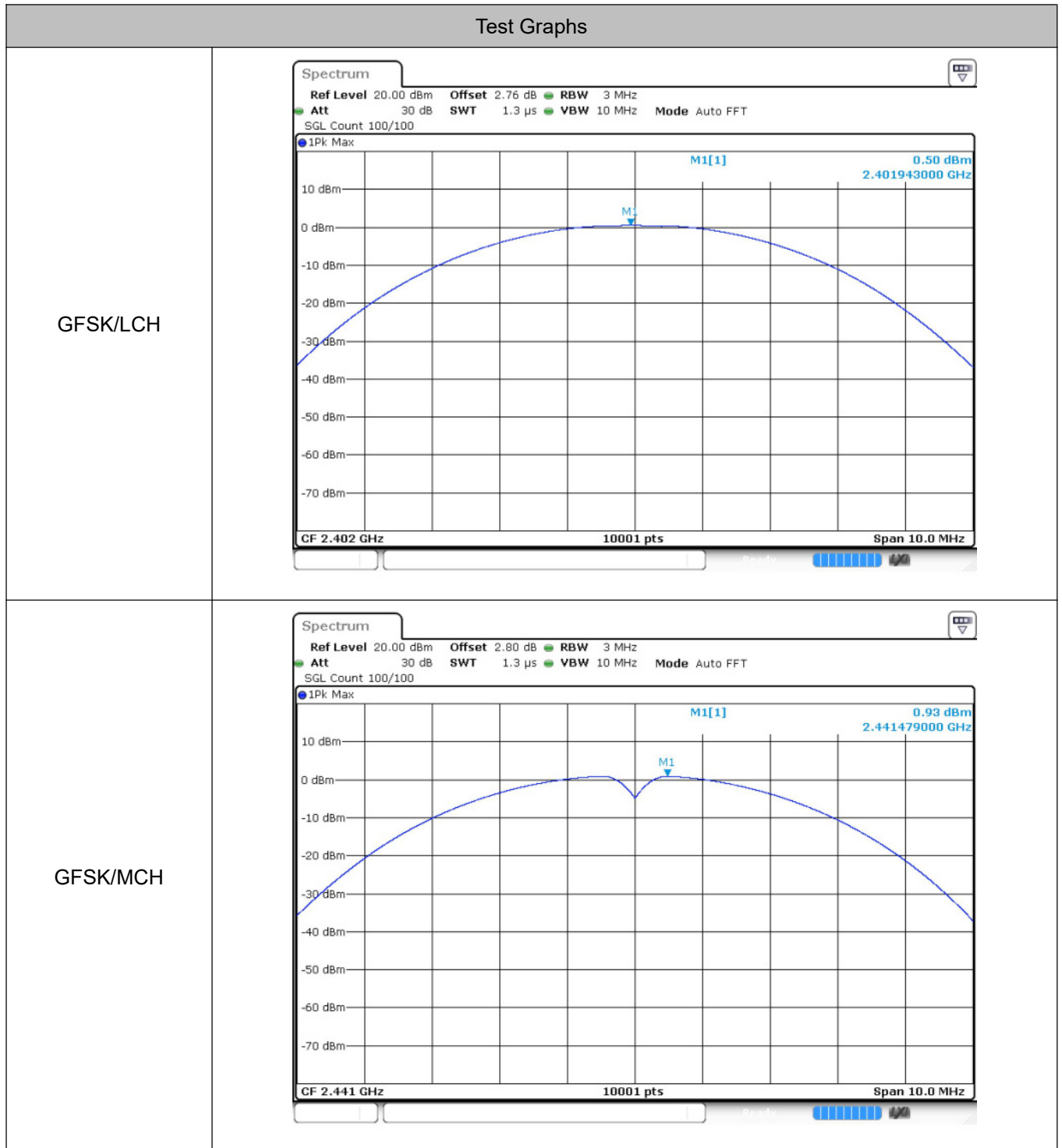


## 2 Maximum Conducted Peak Output Power

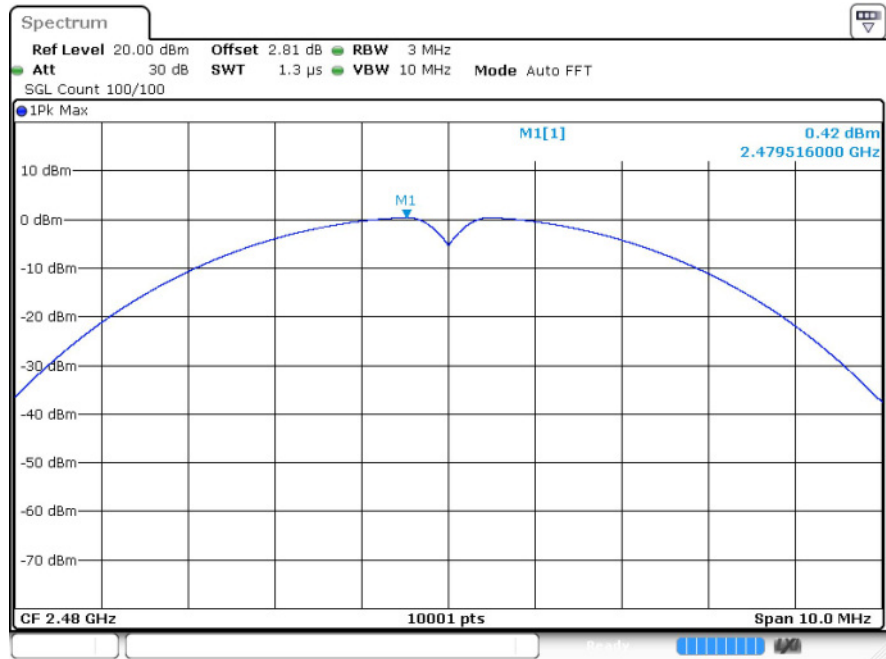
### 2.1 Test Result

| Mode          | Channel. | Maximum Peak Output Power<br>[dBm] | Limit<br>[dBm] | Verdict |
|---------------|----------|------------------------------------|----------------|---------|
| GFSK          | LCH      | 0.5                                | 21             | Pass    |
|               | MCH      | 0.93                               | 21             | Pass    |
|               | HCH      | 0.42                               | 21             | Pass    |
| $\pi/4$ DQPSK | LCH      | 1.67                               | 21             | Pass    |
|               | MCH      | 2.01                               | 21             | Pass    |
|               | HCH      | 1.63                               | 21             | Pass    |
| 8DPSK         | LCH      | 0.99                               | 21             | Pass    |
|               | MCH      | 2.16                               | 21             | Pass    |
|               | HCH      | 1.21                               | 21             | Pass    |

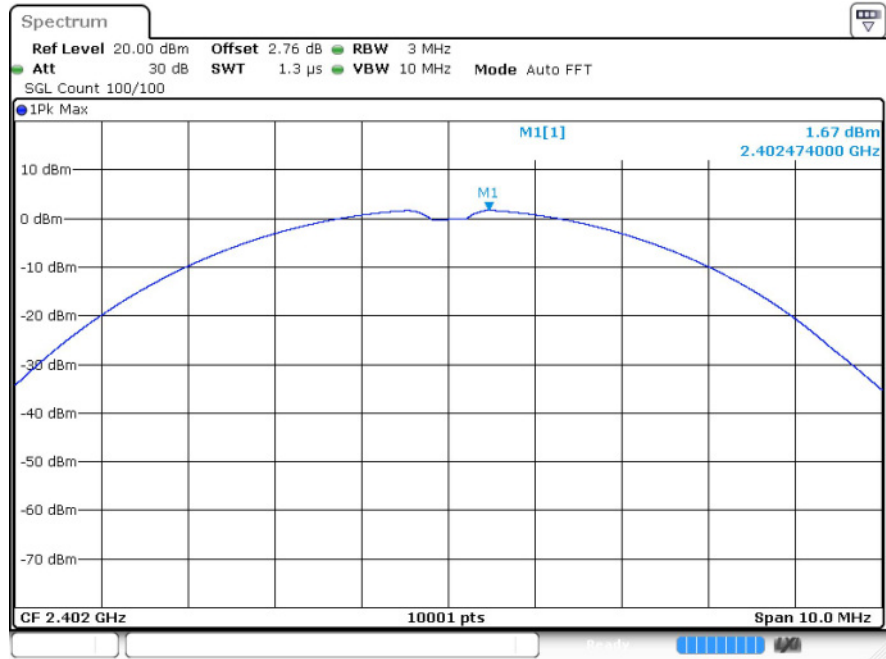
## 2.2 Test Graphs



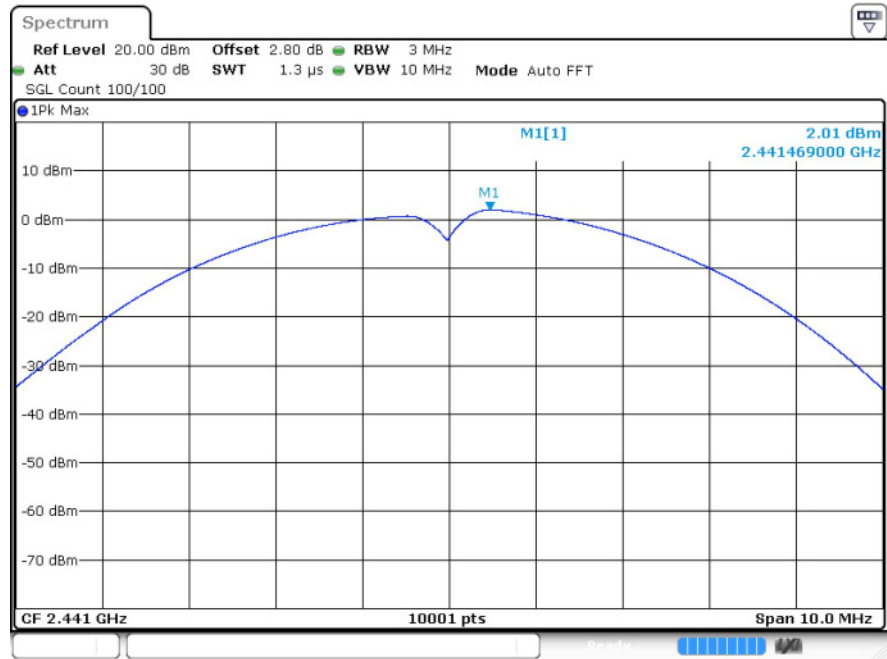
GFSK/HCH



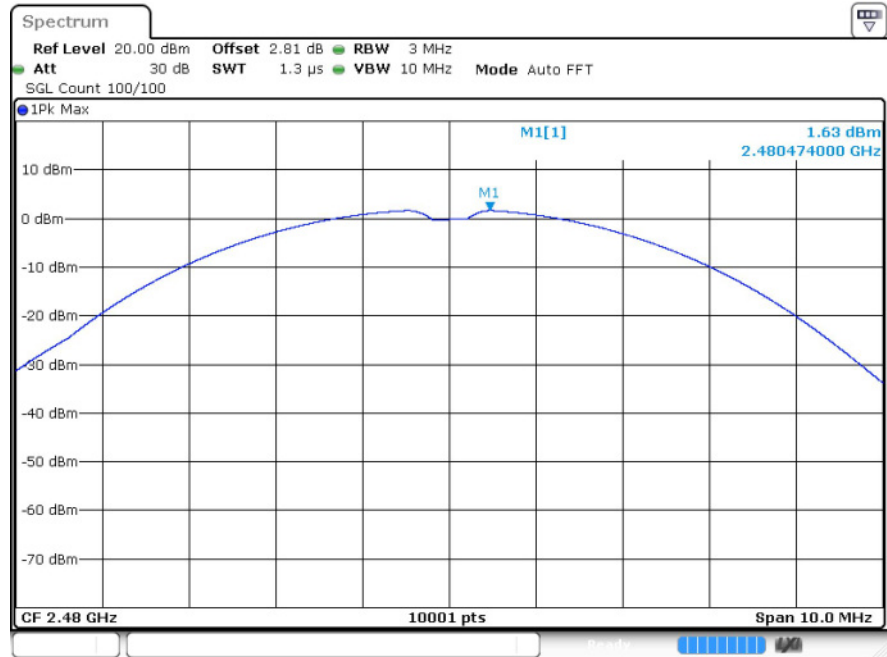
$\pi/4$ DQPSK/LCH



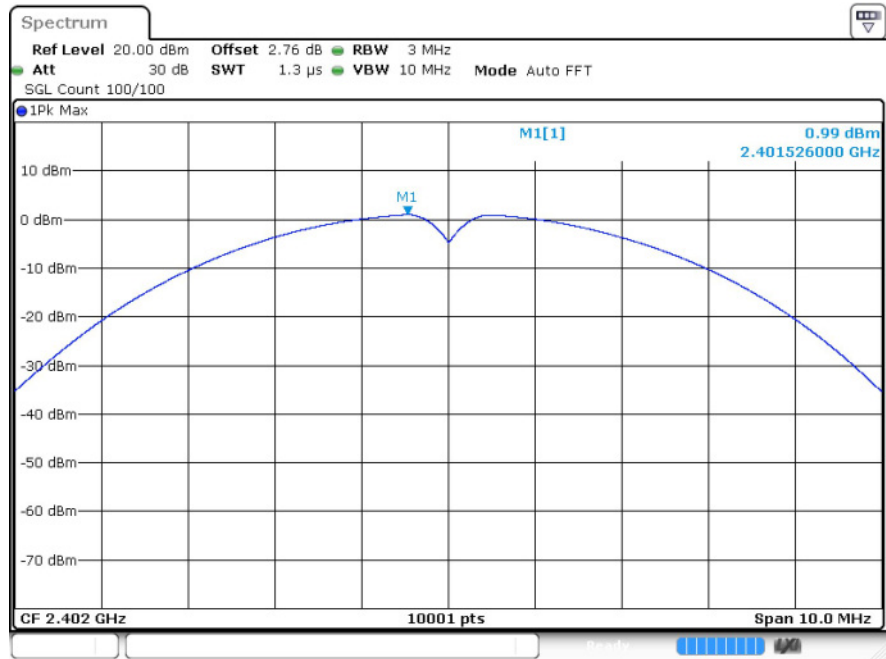
$\pi/4$ DQPSK/MCH



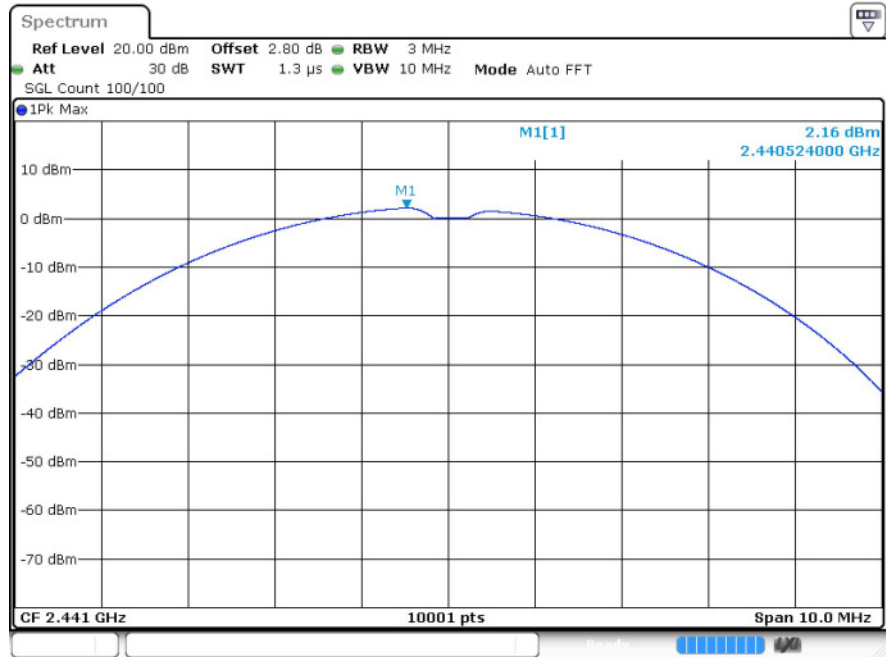
$\pi/4$ DQPSK/HCH



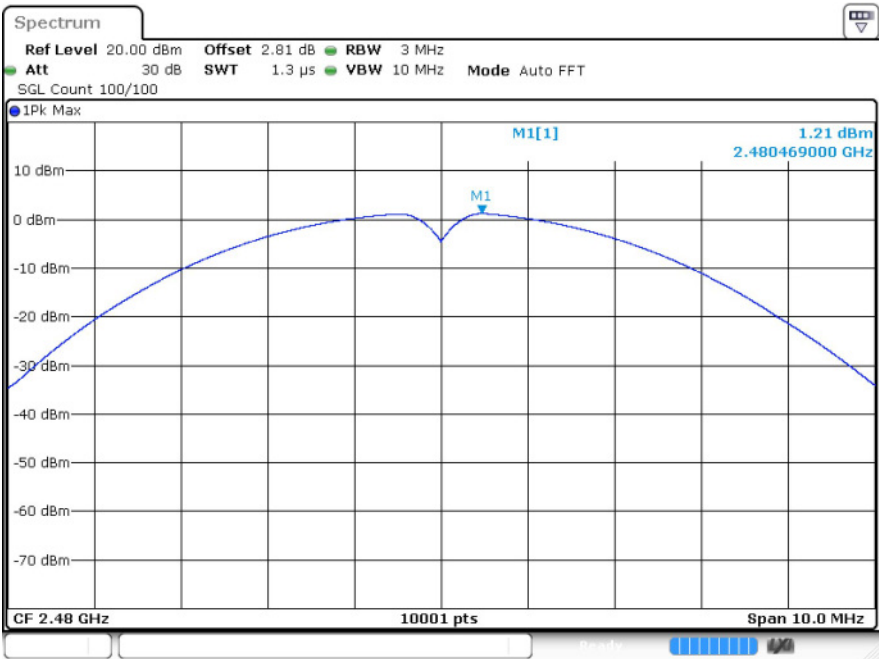
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

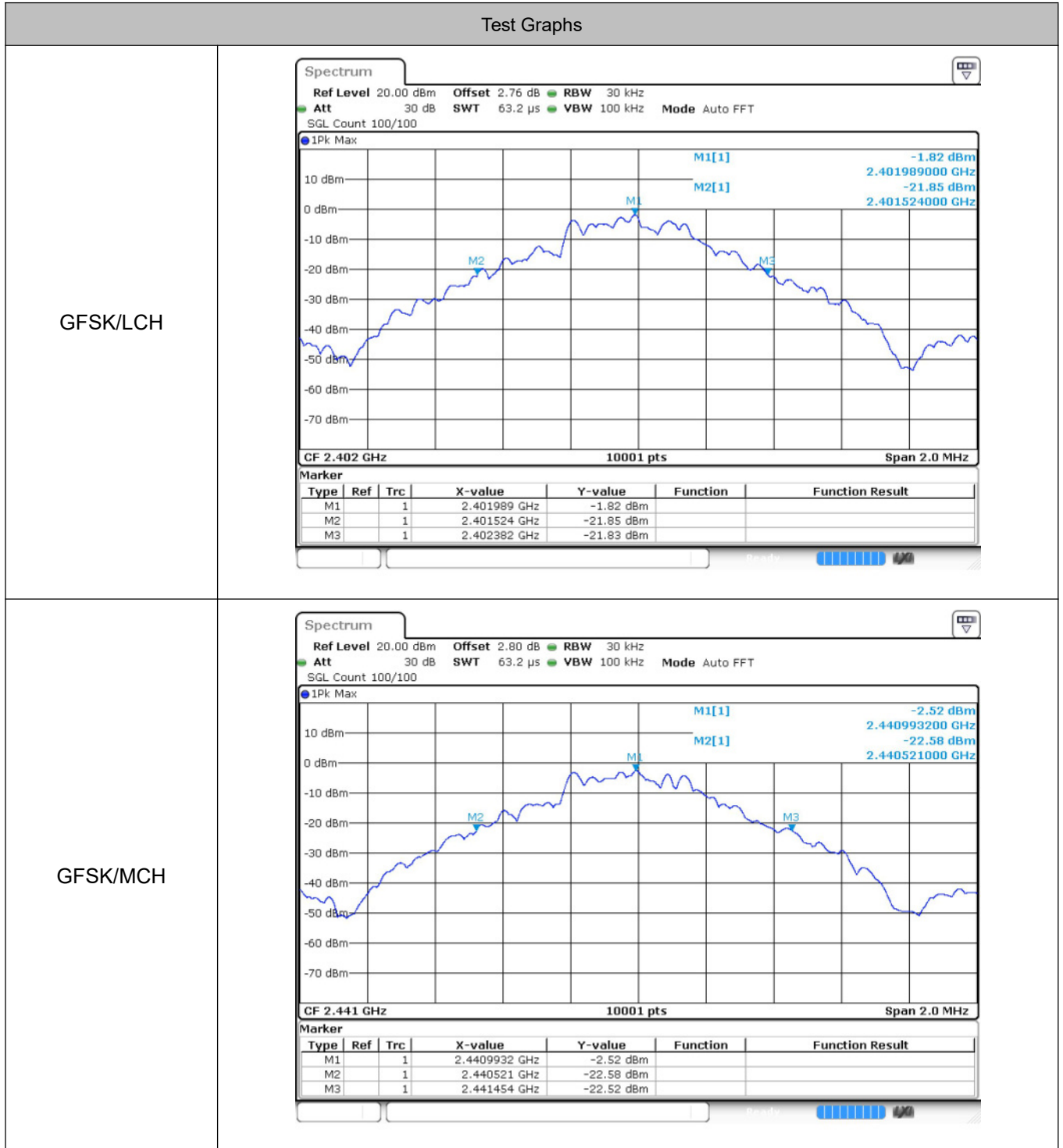


### 3 20dB Bandwidth

#### 3.1 Test Result

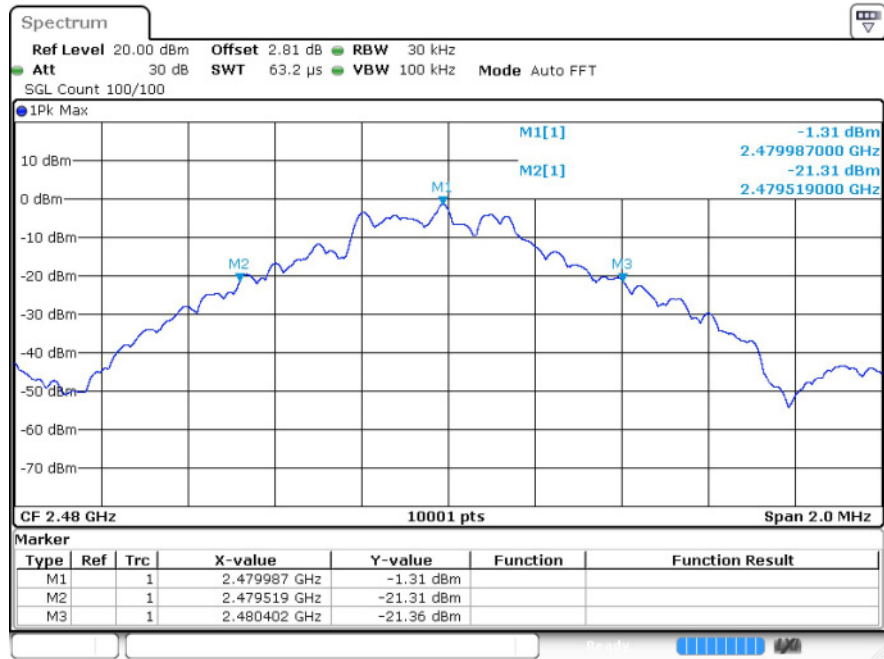
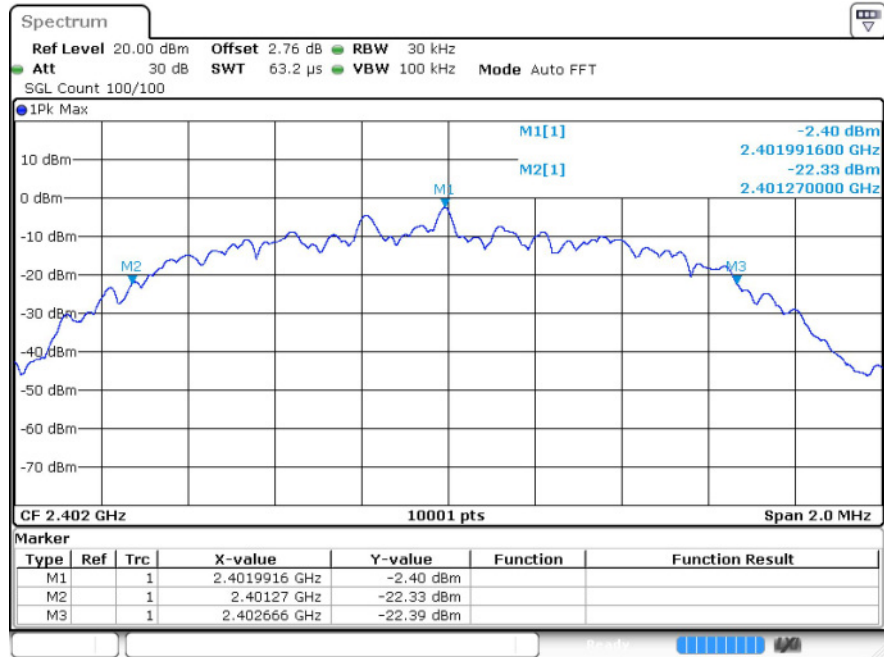
| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.858                | Not Specified | Pass    |
|               | MCH      | 0.933                | Not Specified | Pass    |
|               | HCH      | 0.883                | Not Specified | Pass    |
| $\pi/4$ DQPSK | LCH      | 1.396                | Not Specified | Pass    |
|               | MCH      | 1.424                | Not Specified | Pass    |
|               | HCH      | 1.426                | Not Specified | Pass    |
| 8DPSK         | LCH      | 1.432                | Not Specified | Pass    |
|               | MCH      | 1.414                | Not Specified | Pass    |
|               | HCH      | 1.468                | Not Specified | Pass    |

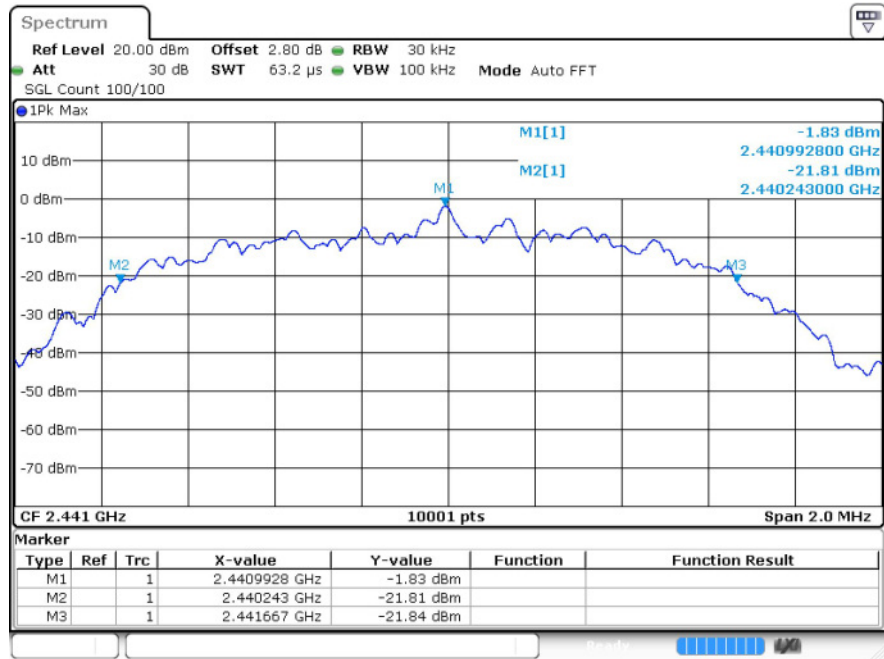
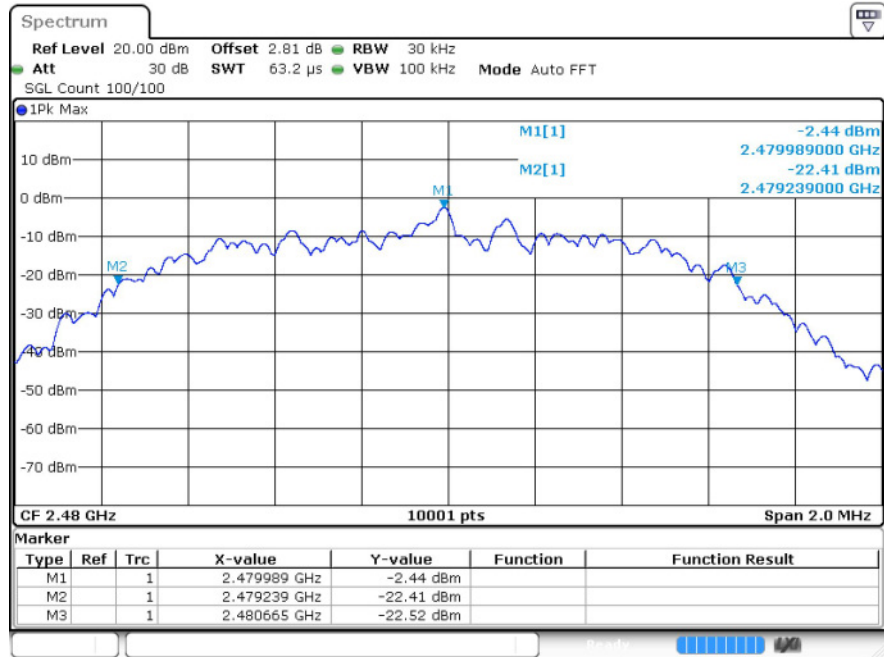
### 3.2 Test Graphs



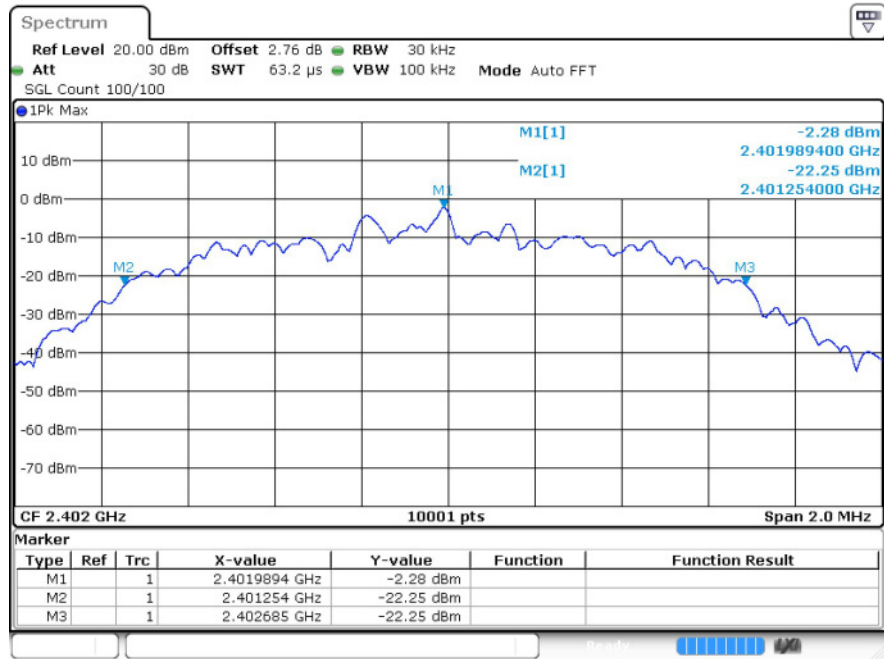


GFSK/HCH

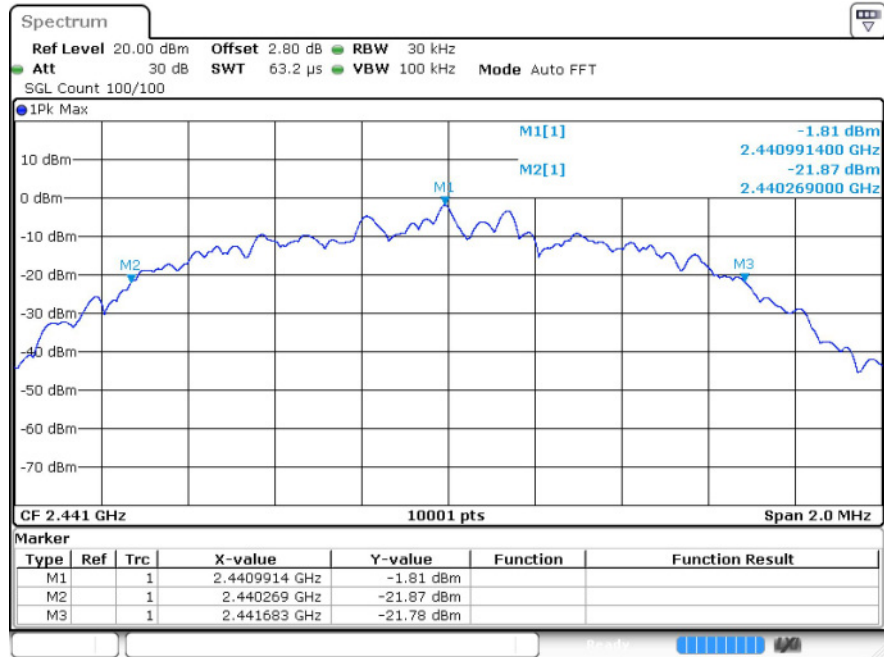

 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


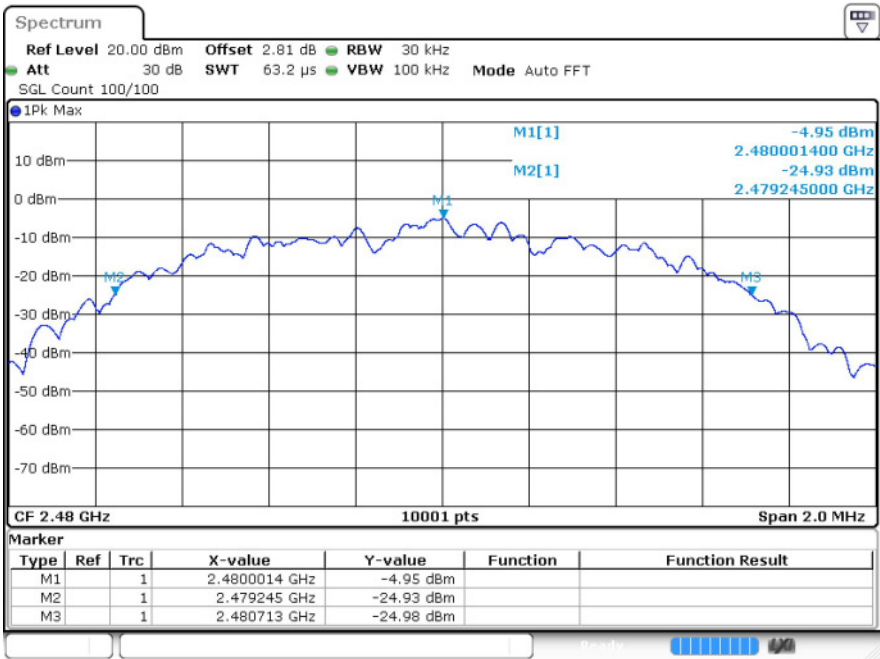
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

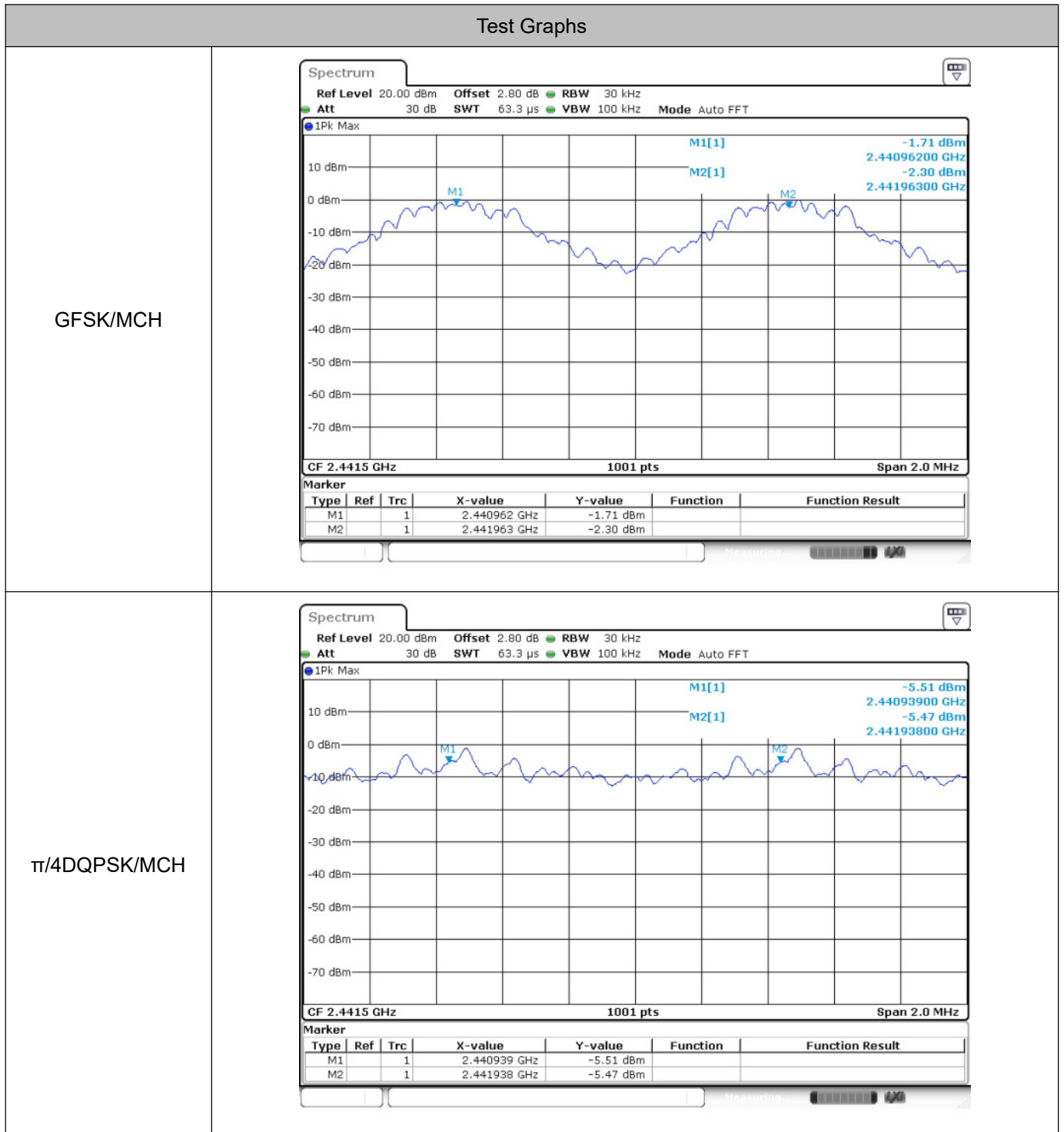


## 4 Carrier Frequency Separation

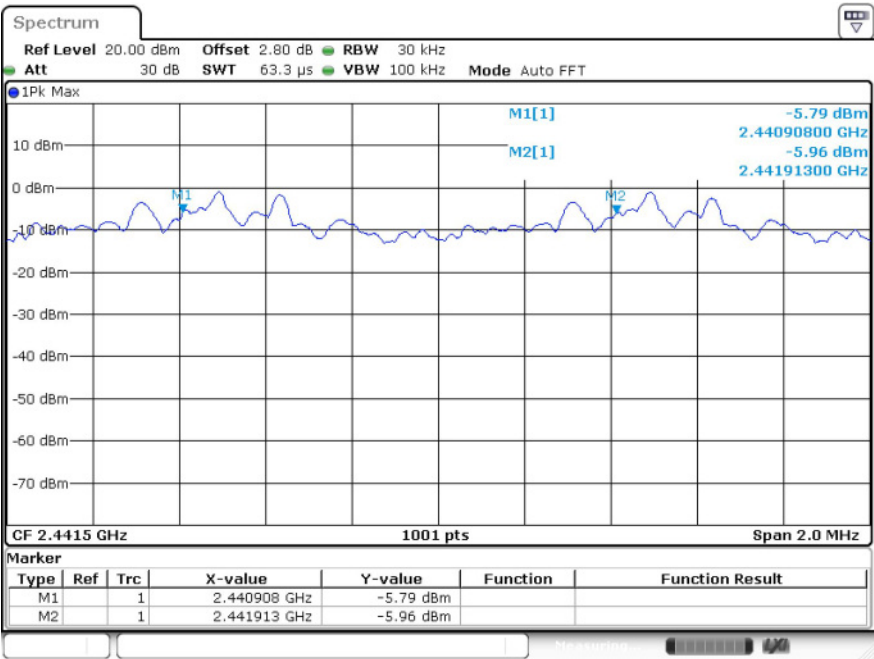
### 4.1 Test Result

| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | MCH      | 1.001                              | 0.622       | Pass    |
| $\pi/4$ DQPSK | MCH      | 0.999                              | 0.949       | Pass    |
| 8DPSK         | MCH      | 1.005                              | 0.943       | Pass    |

## 4.2 Test Graphs



8DPSK/MCH



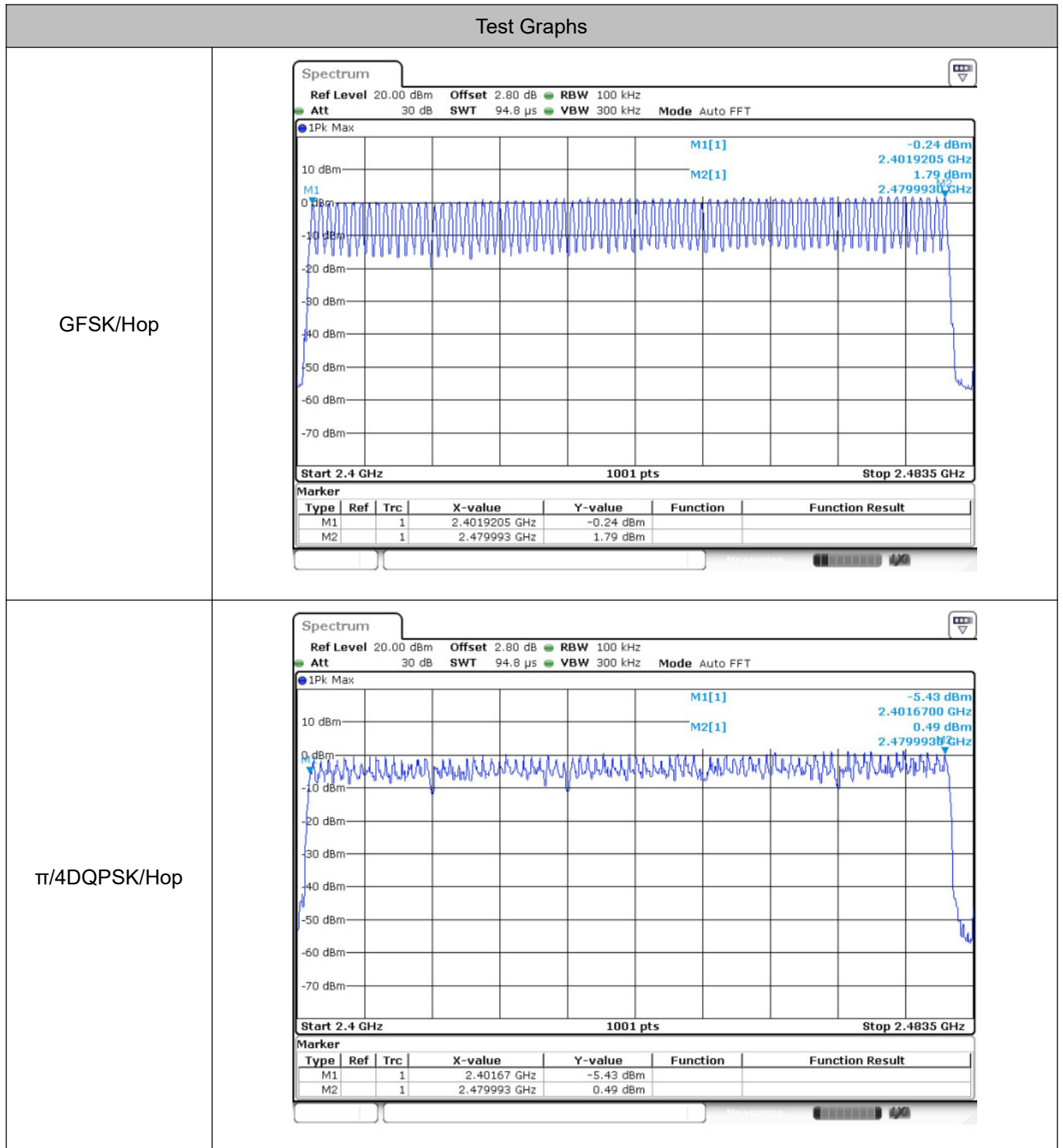
## 5 Hopping Channel Number

### 5.1 Test Result

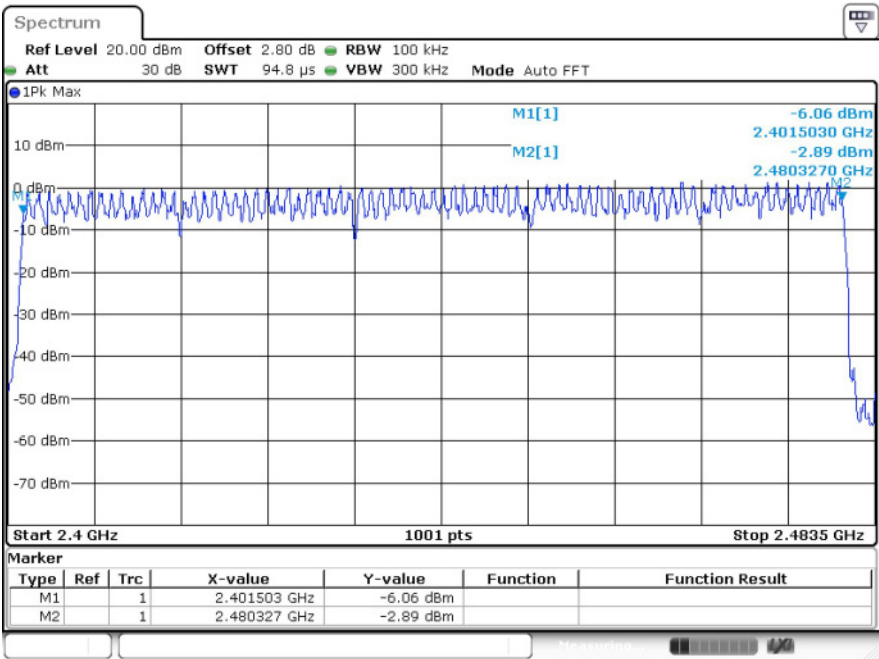
| Mode          | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK          | Hop      | 79                            | $\geq 15$ | PASS    |
| $\pi/4$ DQPSK | Hop      | 79                    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



## 5.2 Test Graphs



8DPSK/Hop

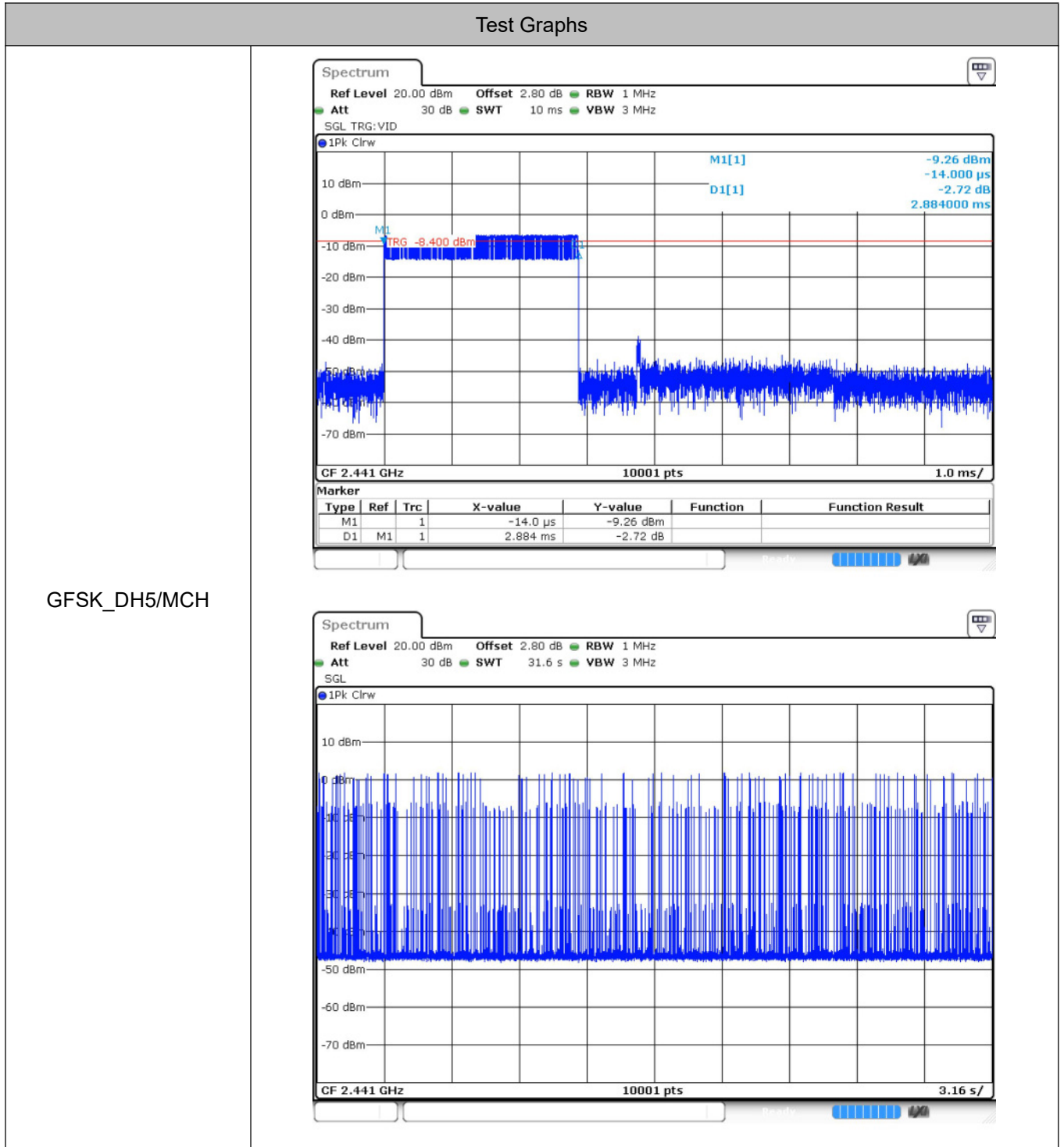


## 6 Dwell Time

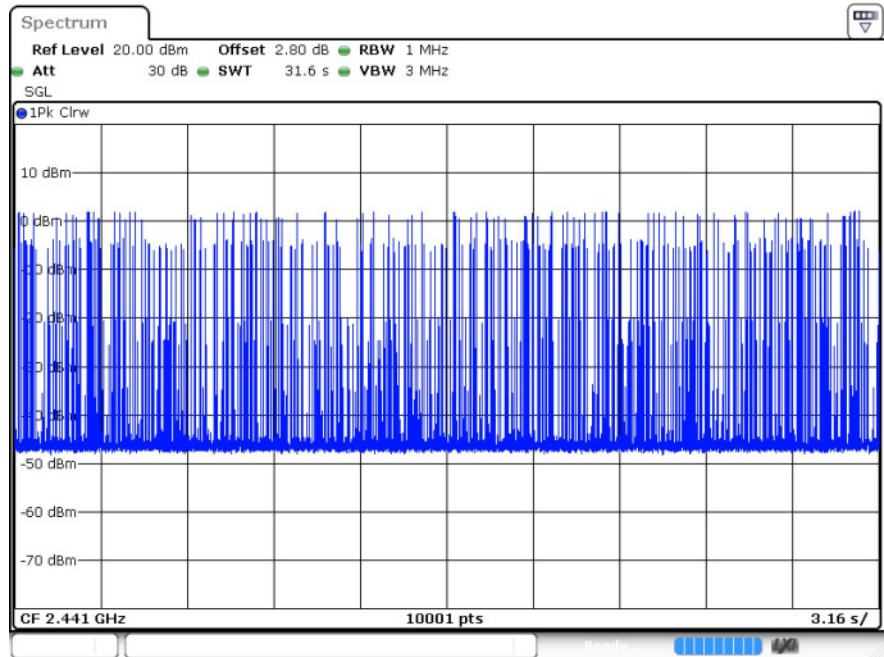
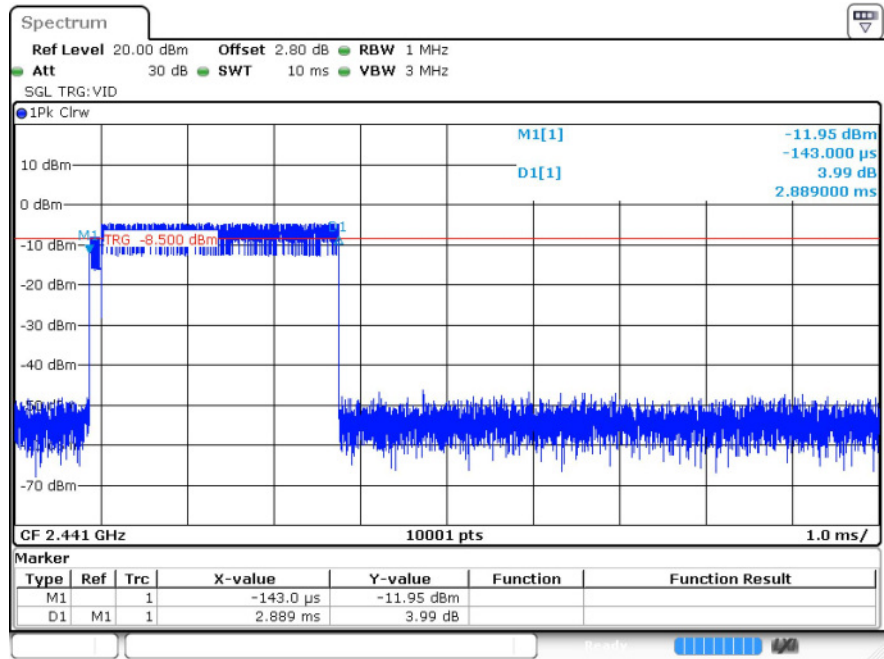
### 6.1 Test Result

| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[ms] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|----------------|-----------|---------|
| GFSK          | DH5    | MCH     | 2.884                      | 108                   | 311.472        | 0.4       | Pass    |
| $\pi/4$ DQPSK | 2DH5   | MCH     | 2.889                      | 104                   | 300.456        | 0.4       | Pass    |
| 8DPSK         | 3DH5   | MCH     | 2.891                      | 103                   | 297.773        | 0.4       | Pass    |

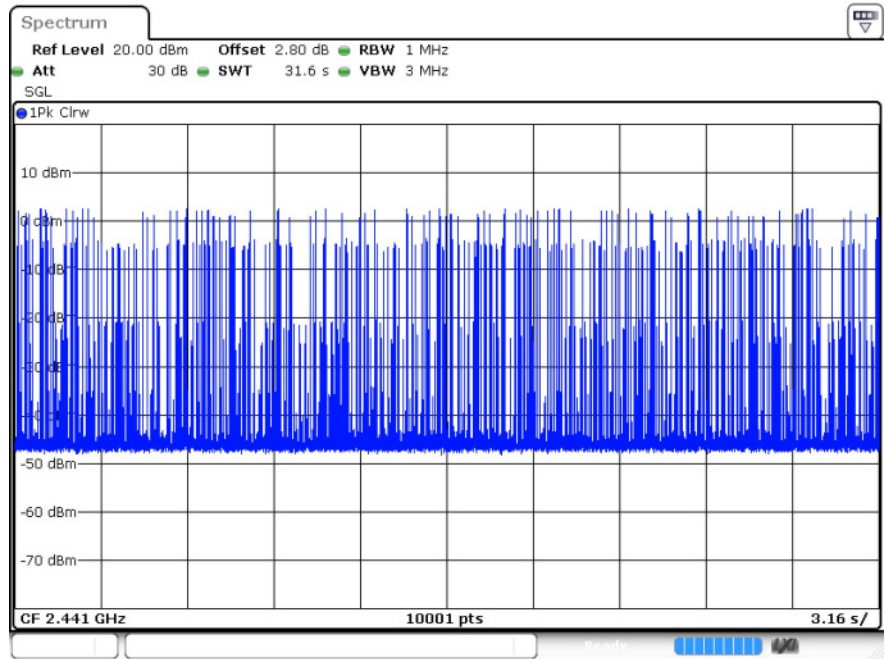
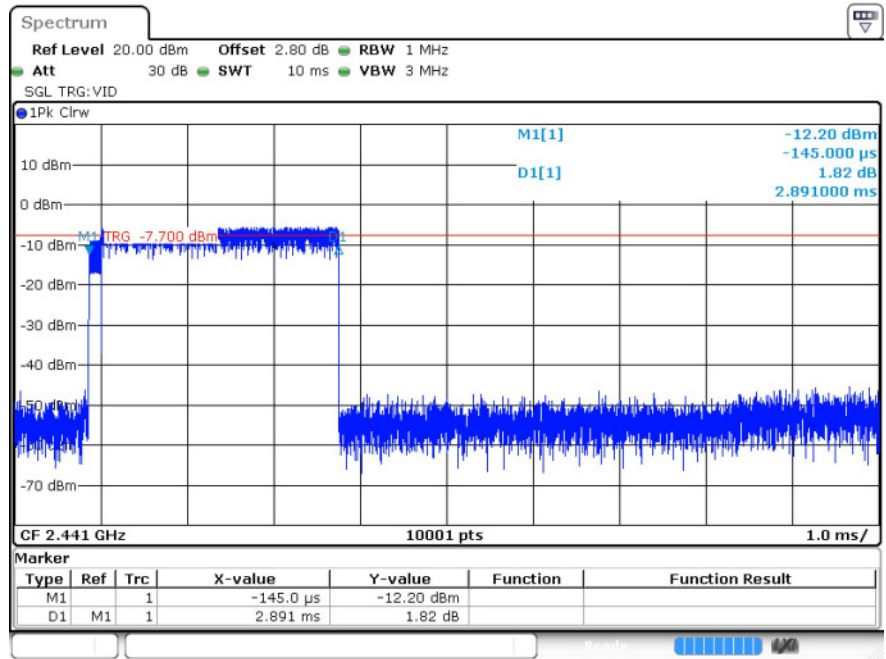
## 6.2 Test Graphs



$\pi/4$ DQPSK  
\_2DH5/MCH



8DPSK\_3DH5/MCH



## 7 RF Conducted Spurious Emissions

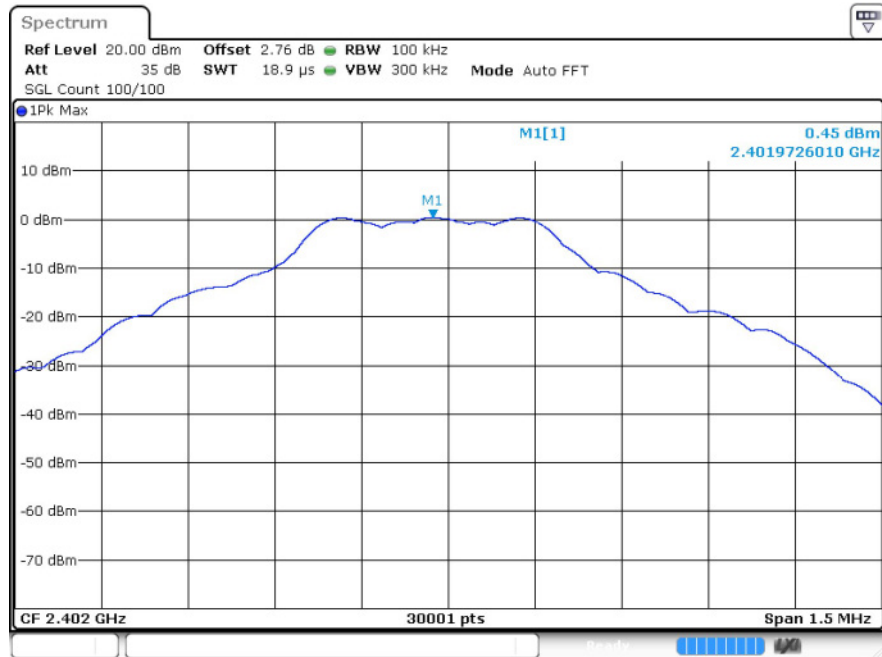
### 7.1 Test Result

| Mode          | Channel | Max. Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|------------------|-------------|---------|
| GFSK          | LCH     | -41.71           | -20         | Pass    |
|               | MCH     | -42.99           | -20         | Pass    |
|               | HCH     | -40.73           | -20         | Pass    |
| $\pi/4$ DQPSK | LCH     | -40.48           | -20         | Pass    |
|               | MCH     | -41.48           | -20         | Pass    |
|               | HCH     | -40.72           | -20         | Pass    |
| 8DPSK         | LCH     | -39.46           | -20         | Pass    |
|               | MCH     | -40.91           | -20         | Pass    |
|               | HCH     | -40.11           | -20         | Pass    |

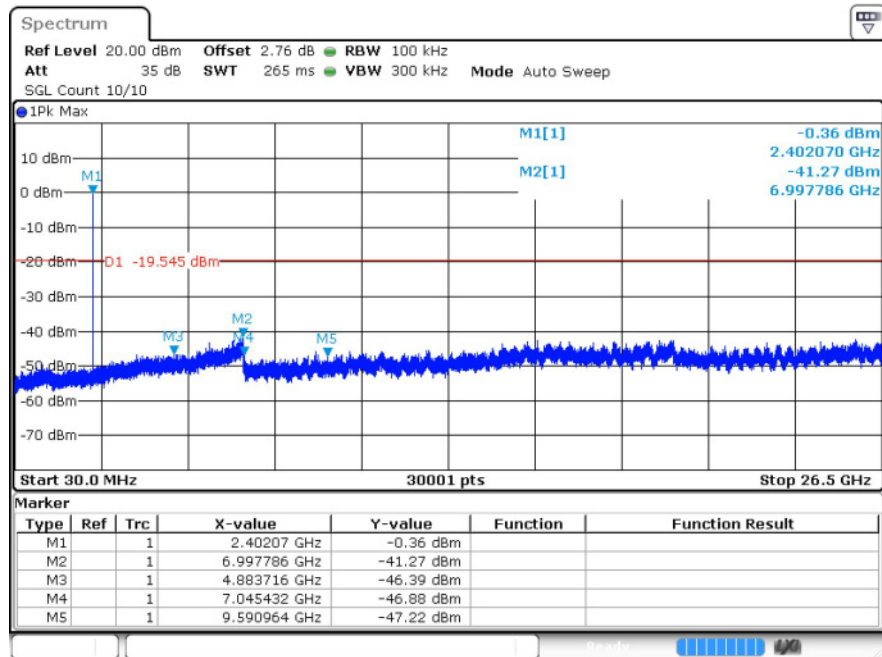
## 7.2 Test Graphs

GFSK\_LCH\_Graphs

Pref



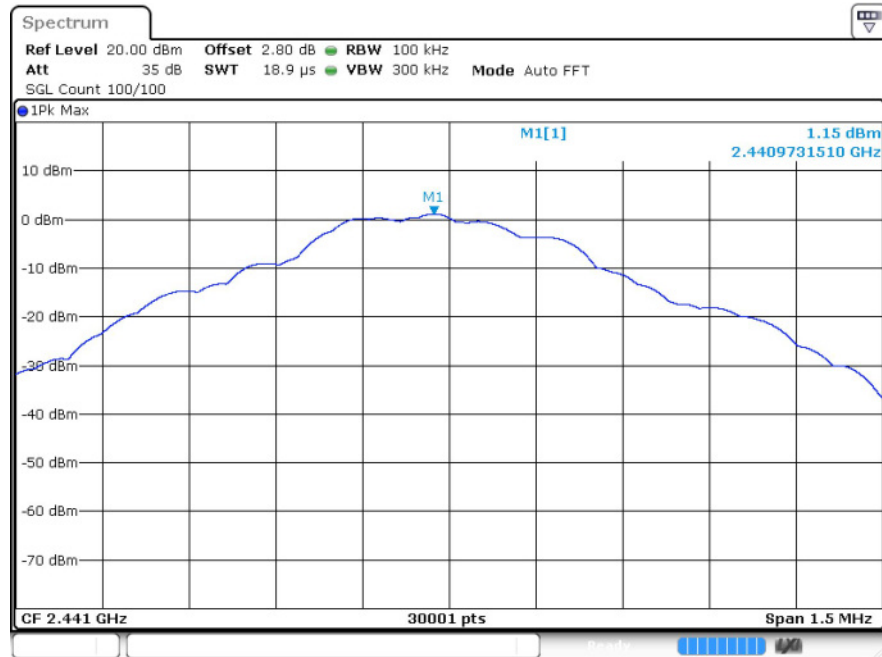
Puw



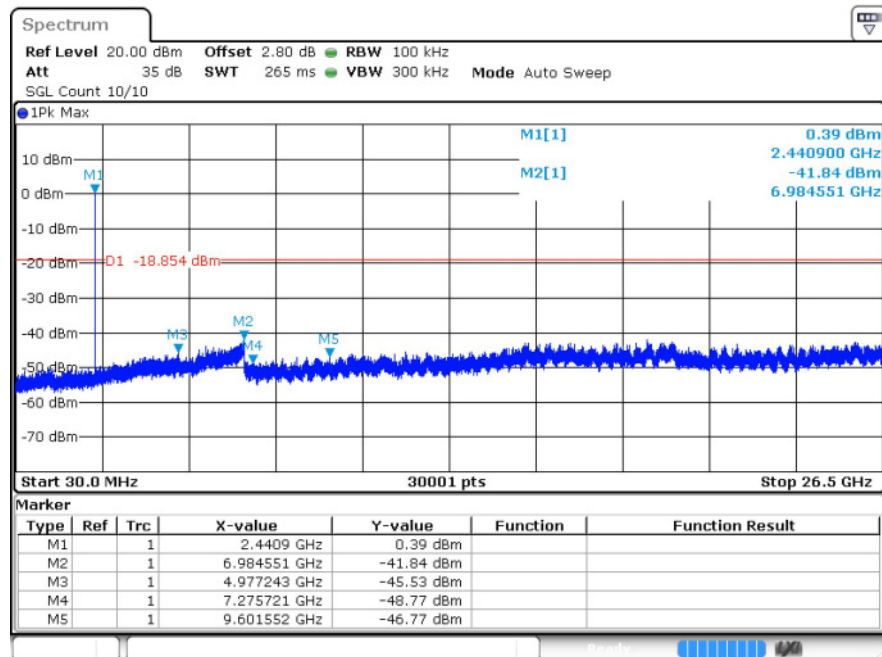


## GFSK\_MCH\_Graphs

Pref

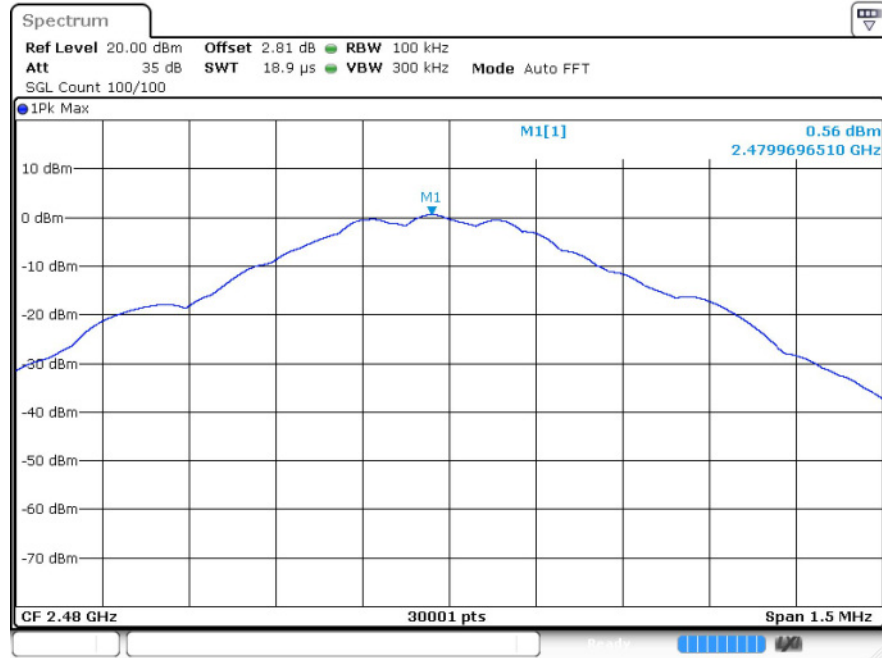


Puw

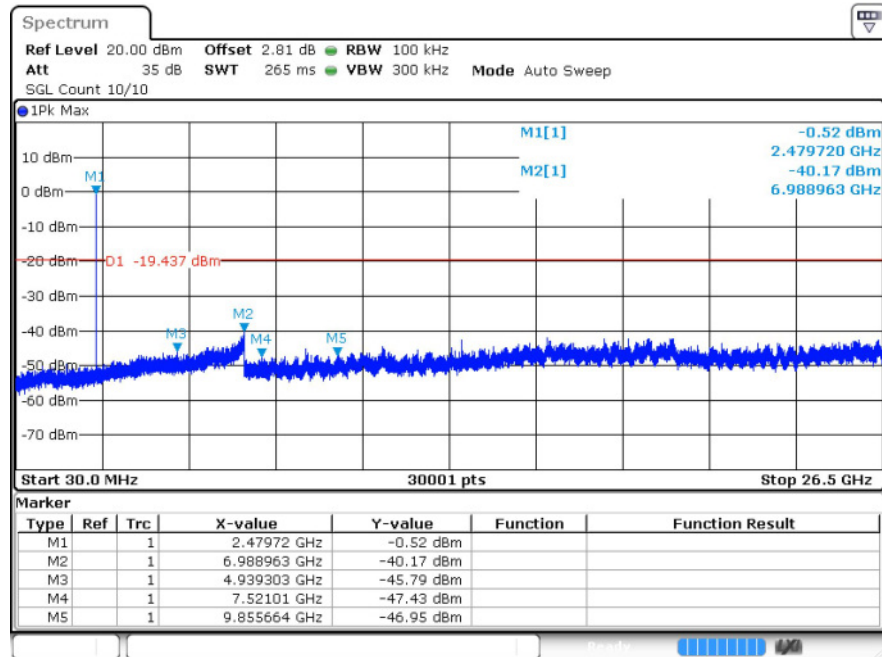


## GFSK\_HCH\_Graphs

Pref

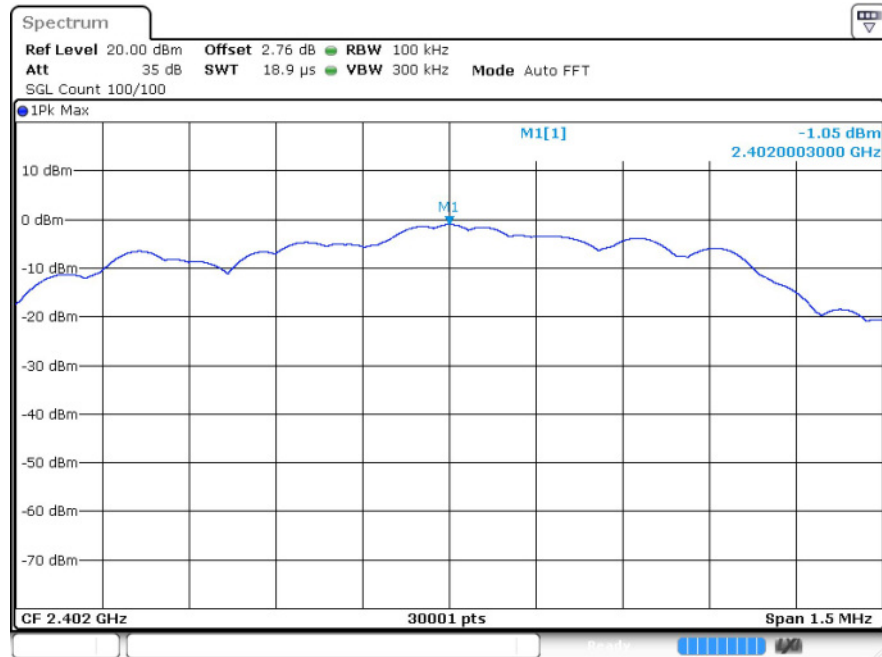


Puw

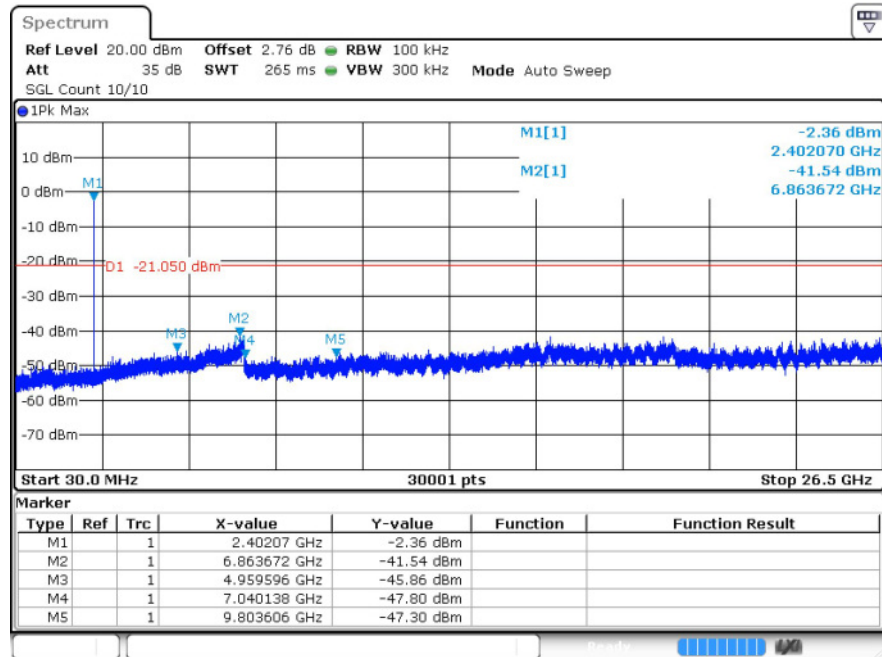


# $\pi/4$ DQPSK\_LCH\_Graphs

Pref

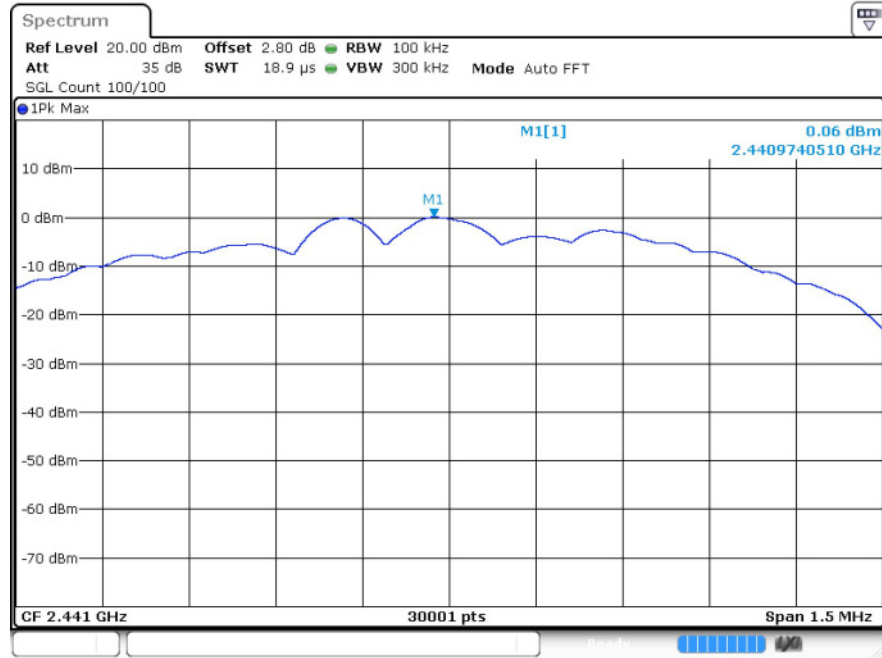


Puw

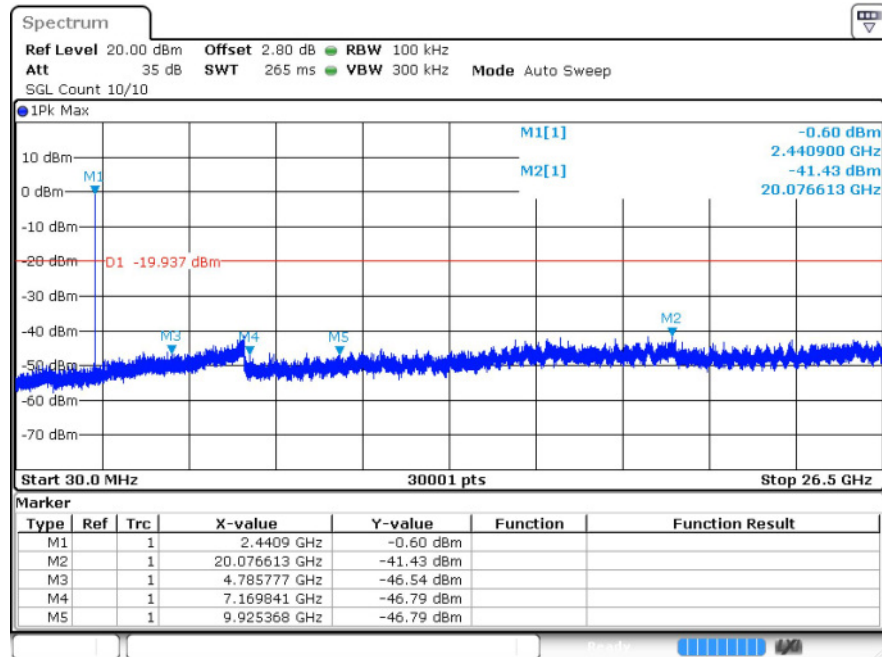


# $\pi$ /4DQPSK\_MCH\_Graphs

Pref

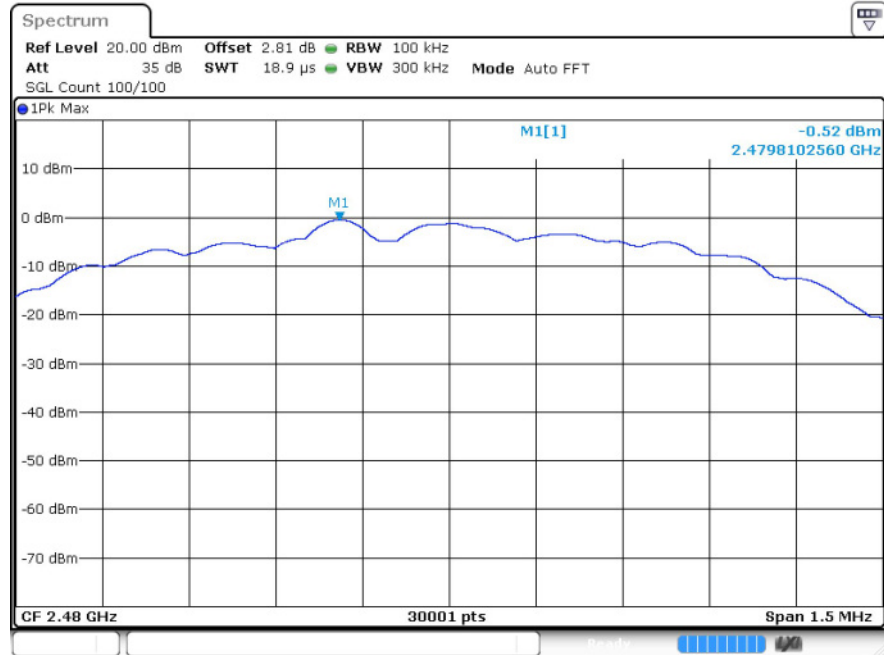


Puw



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

Pref



Puw

