



## Appendix A

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

Product Name: Smartphone Stabilizer

Trade Mark: FUNSNAP

Test Model: CM8

#### Environmental Conditions

|                    |             |
|--------------------|-------------|
| Temperature:       | 24.5℃       |
| Relative Humidity: | 52.3%       |
| ATM Pressure:      | 101Kpa      |
| Test Engineer:     | Emiya lin   |
| Supervised by:     | Simba Haung |



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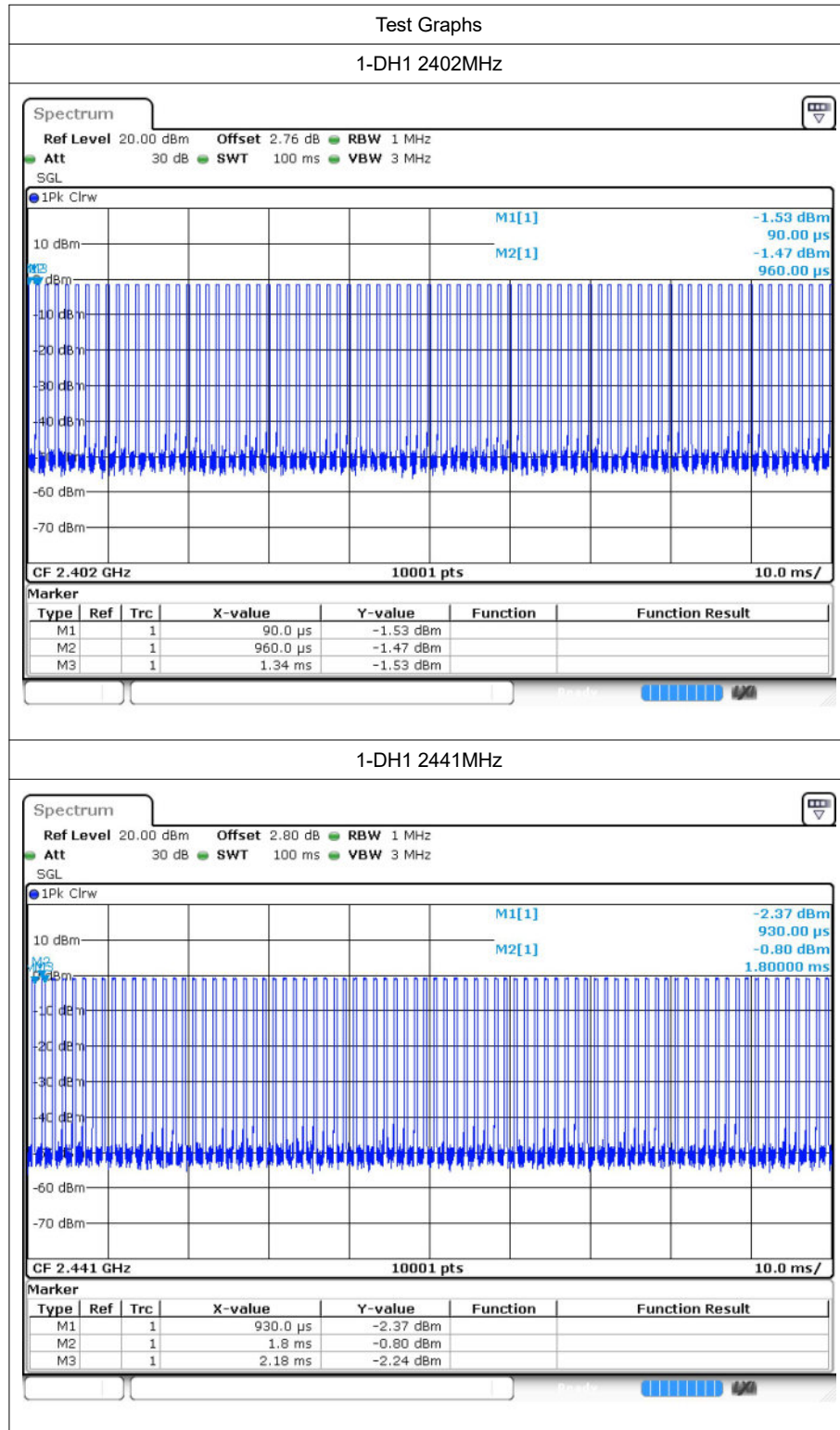
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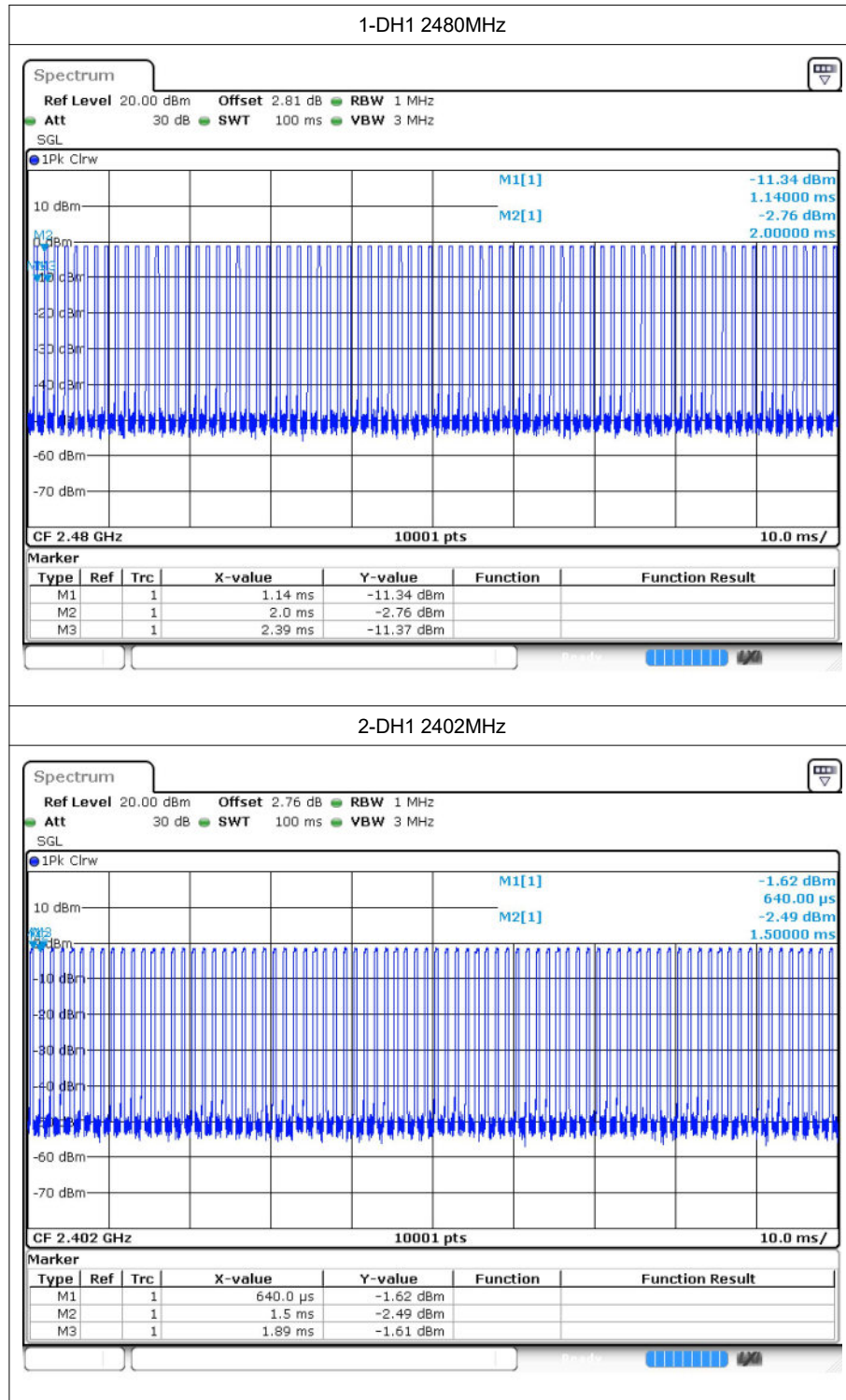
# 1 Duty Cycle

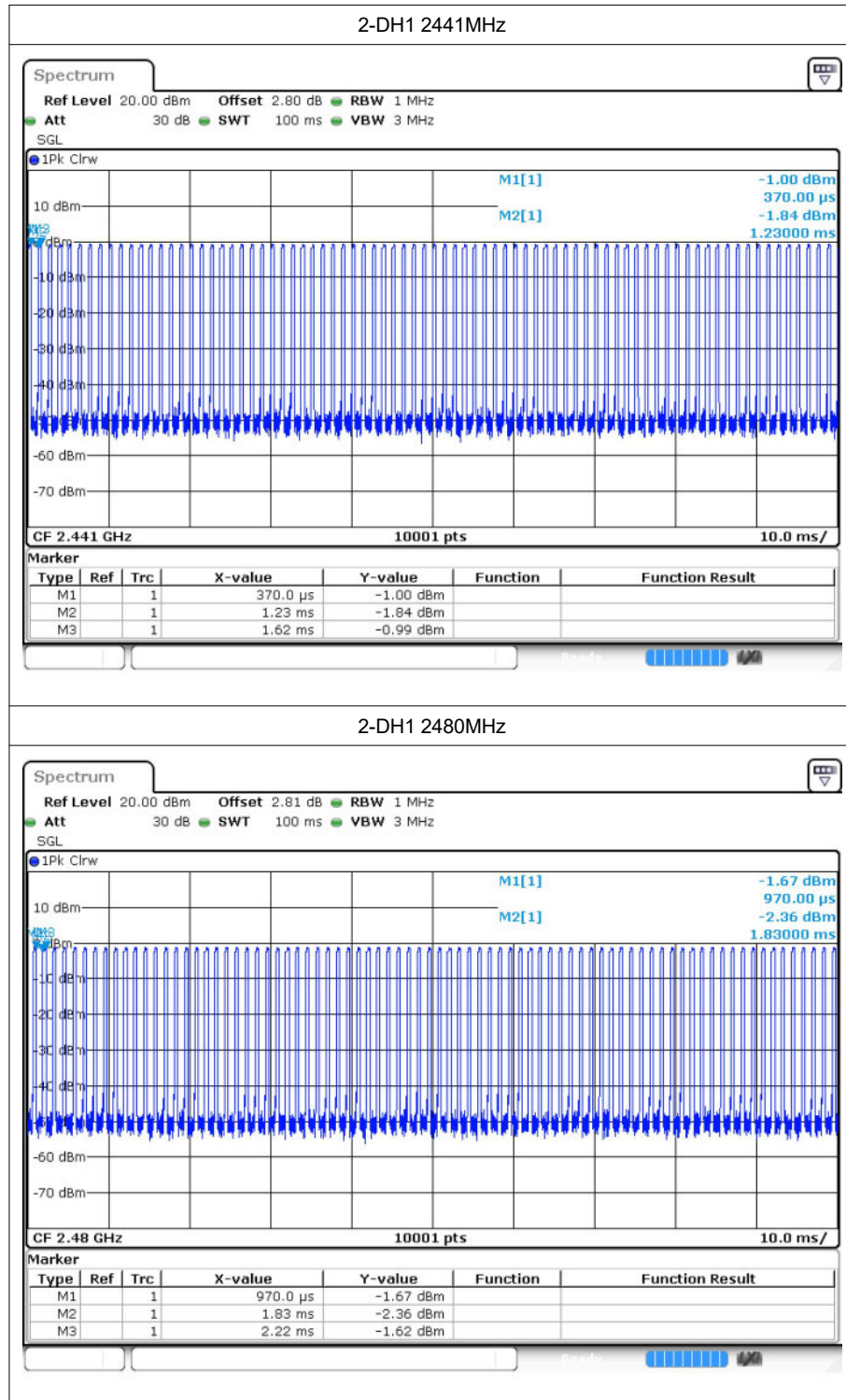
## 1.1 Test Result

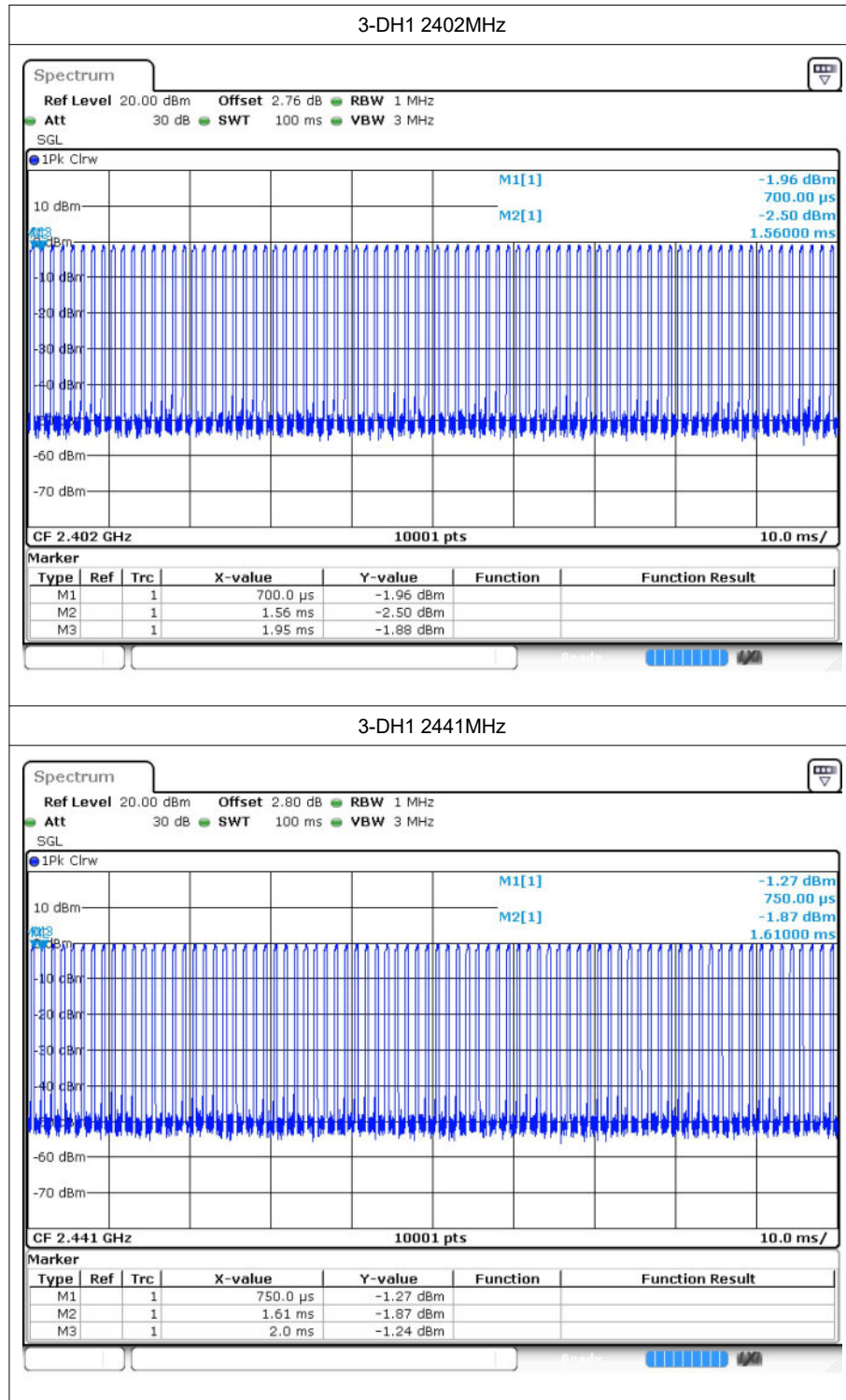
| Mode  | Frequency (MHz) | Duty Cycle (%) | Correction Factor | 1/T (kHz) |
|-------|-----------------|----------------|-------------------|-----------|
| 1-DH1 | 2402            | 31.21          | 5.06              | 2.63      |
| 1-DH1 | 2441            | 31.2           | 5.06              | 2.63      |
| 1-DH1 | 2480            | 31.84          | 4.97              | 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            | 32.01          | 4.95              | 2.56      |

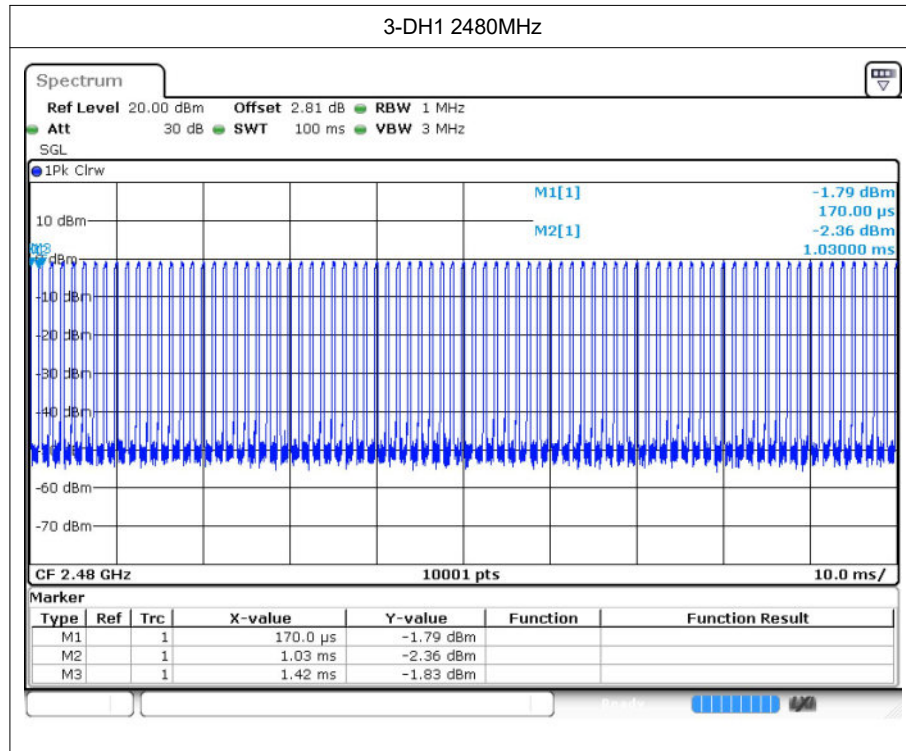
## 1.2 Test Graphs









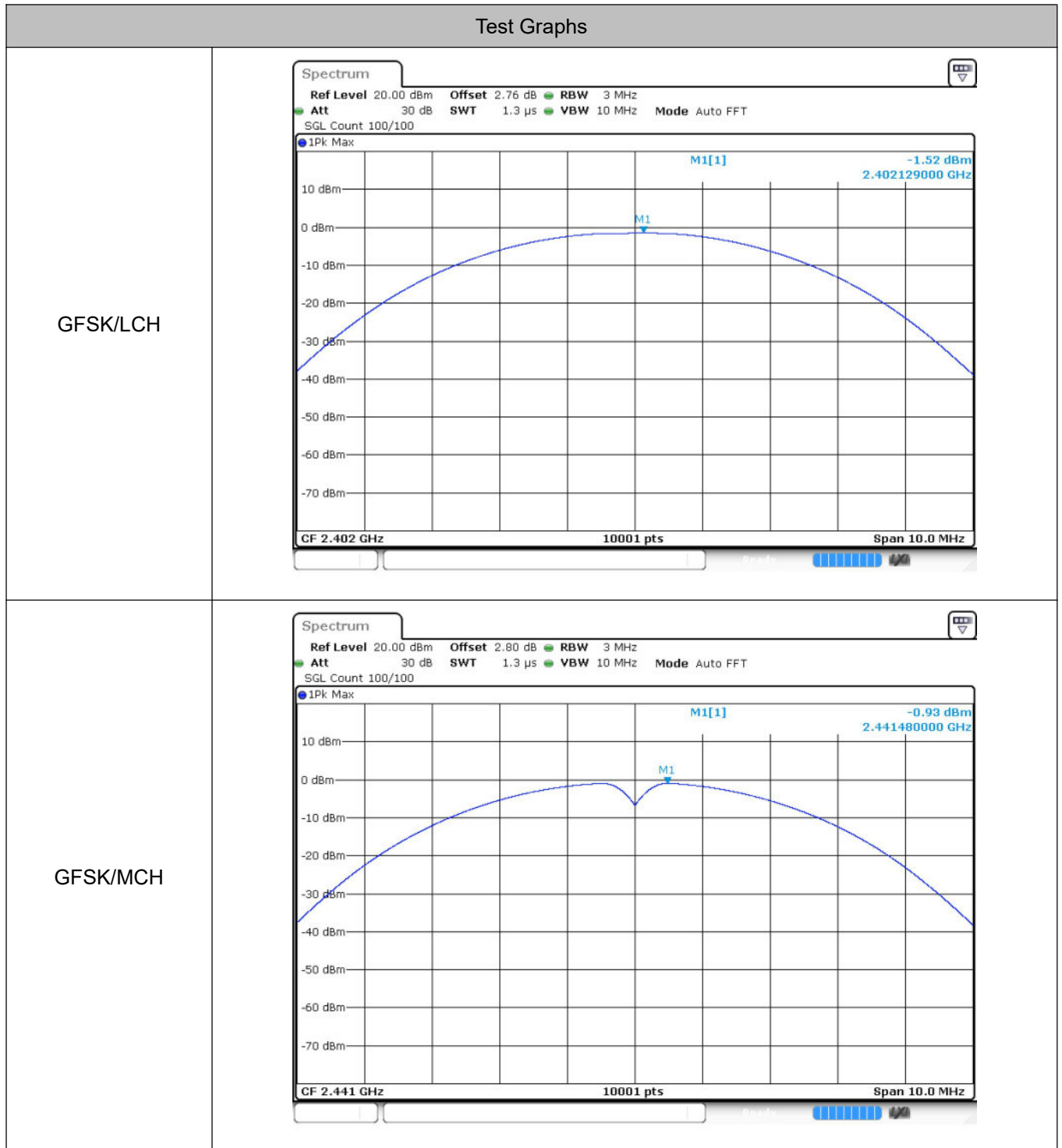


## 2 Maximum Conducted Peak Output Power

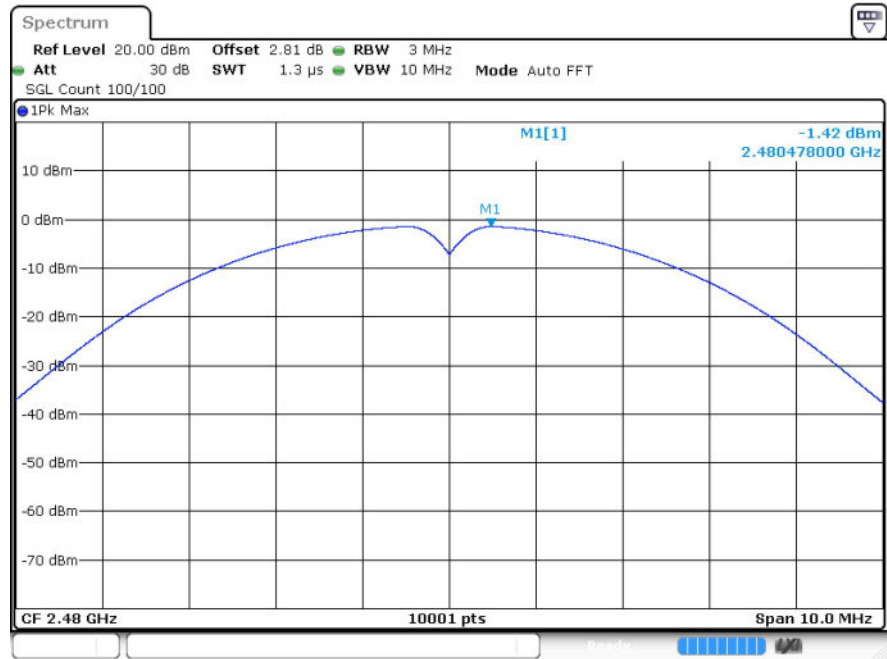
### 2.1 Test Result

| Mode          | Channel. | Maximum Peak Output Power<br>[dBm] | Limit<br>[dBm] | Verdict |
|---------------|----------|------------------------------------|----------------|---------|
| GFSK          | LCH      | -1.52                              | 21             | Pass    |
|               | MCH      | -0.93                              | 21             | Pass    |
|               | HCH      | -1.42                              | 21             | Pass    |
| $\pi/4$ DQPSK | LCH      | -0.63                              | 21             | Pass    |
|               | MCH      | 0.06                               | 21             | Pass    |
|               | HCH      | -0.28                              | 21             | Pass    |
| 8DPSK         | LCH      | -0.36                              | 21             | Pass    |
|               | MCH      | 0.27                               | 21             | Pass    |
|               | HCH      | -0.58                              | 21             | Pass    |

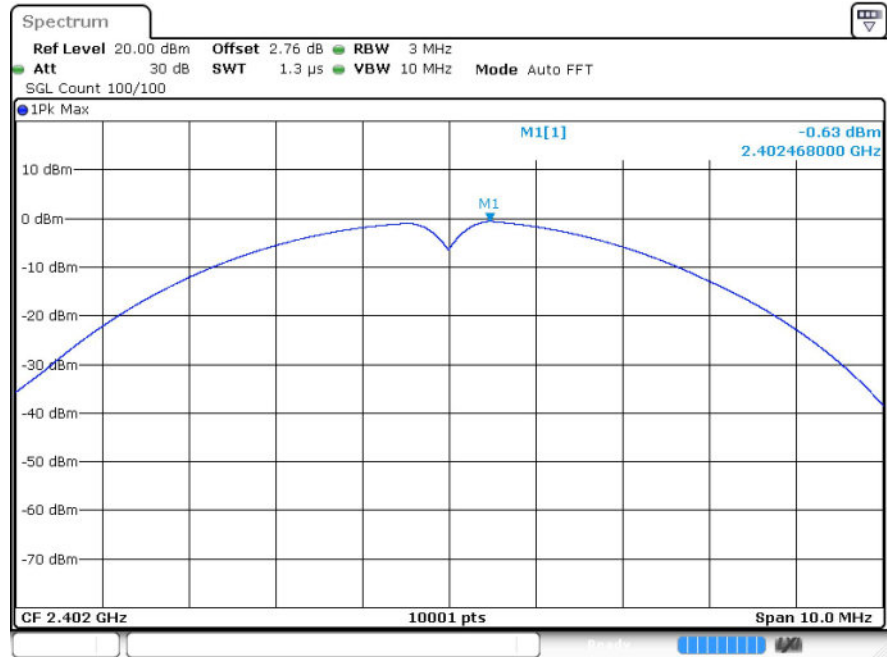
## 2.2 Test Graphs



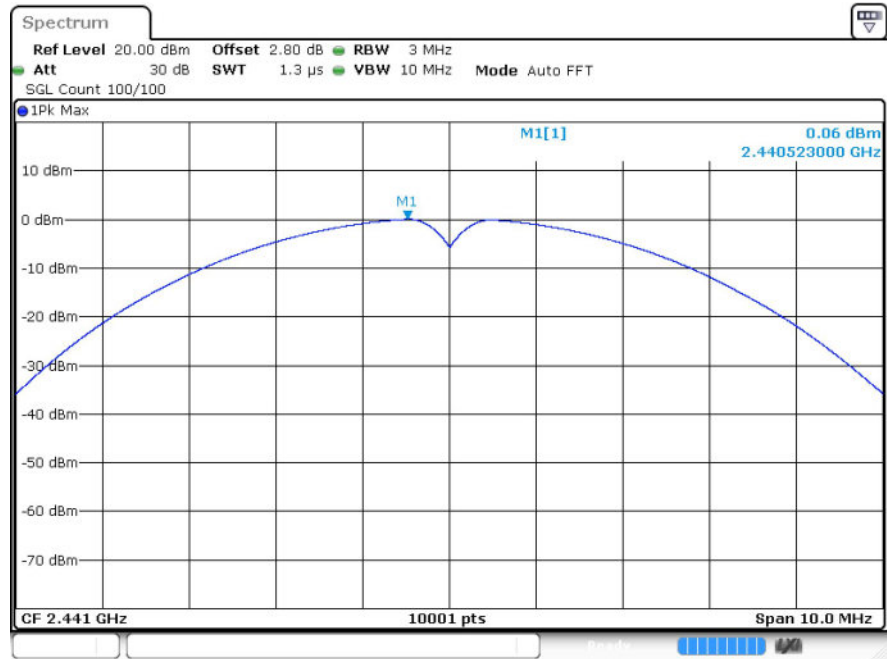
GFSK/HCH



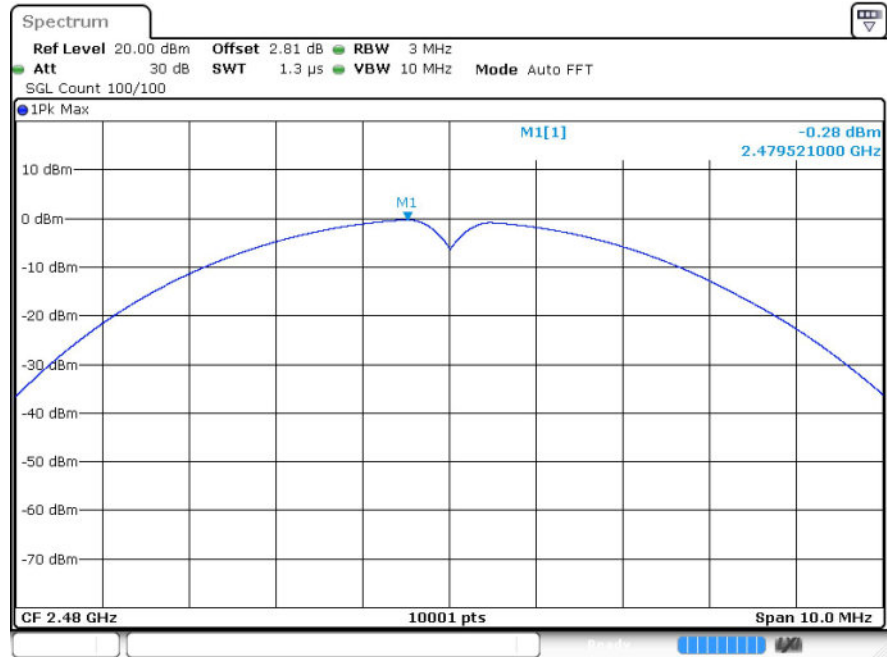
$\pi/4$ DQPSK/LCH



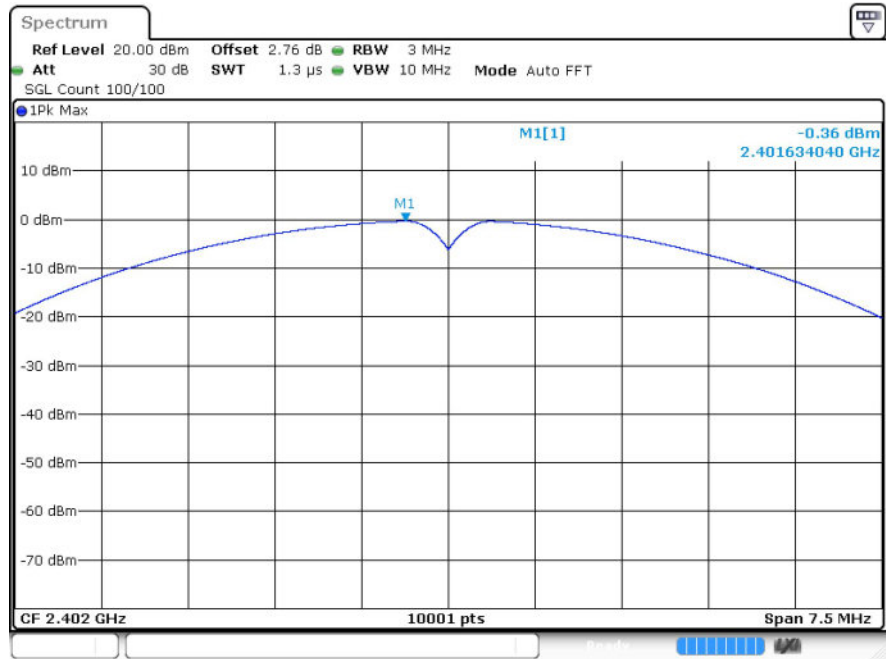
$\pi/4$ DQPSK/MCH



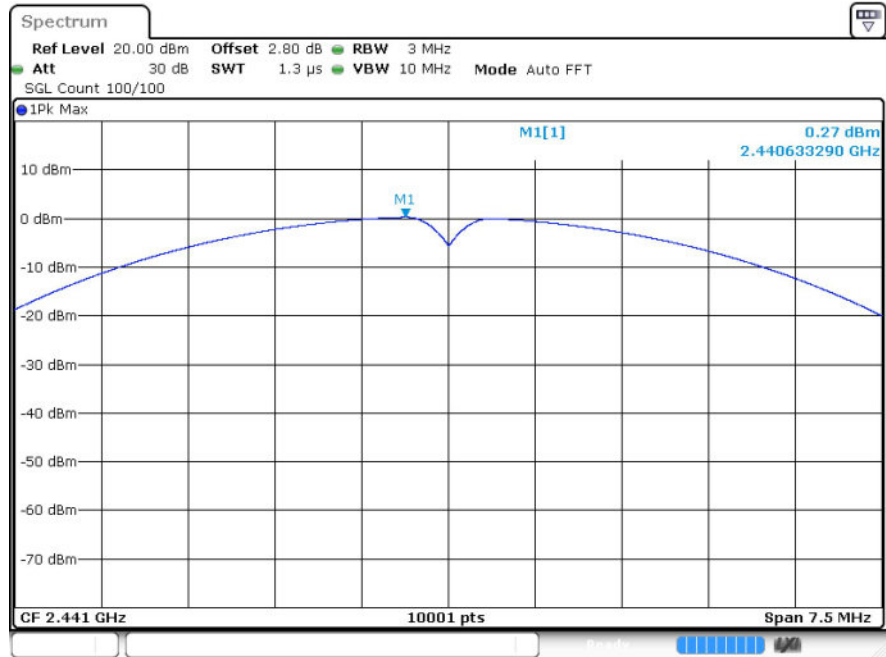
$\pi/4$ DQPSK/HCH



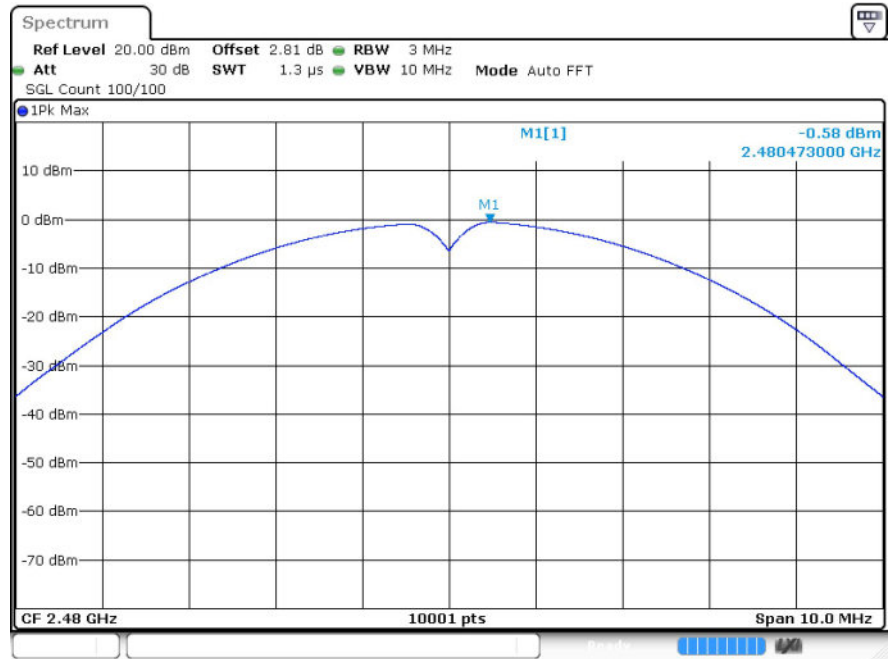
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

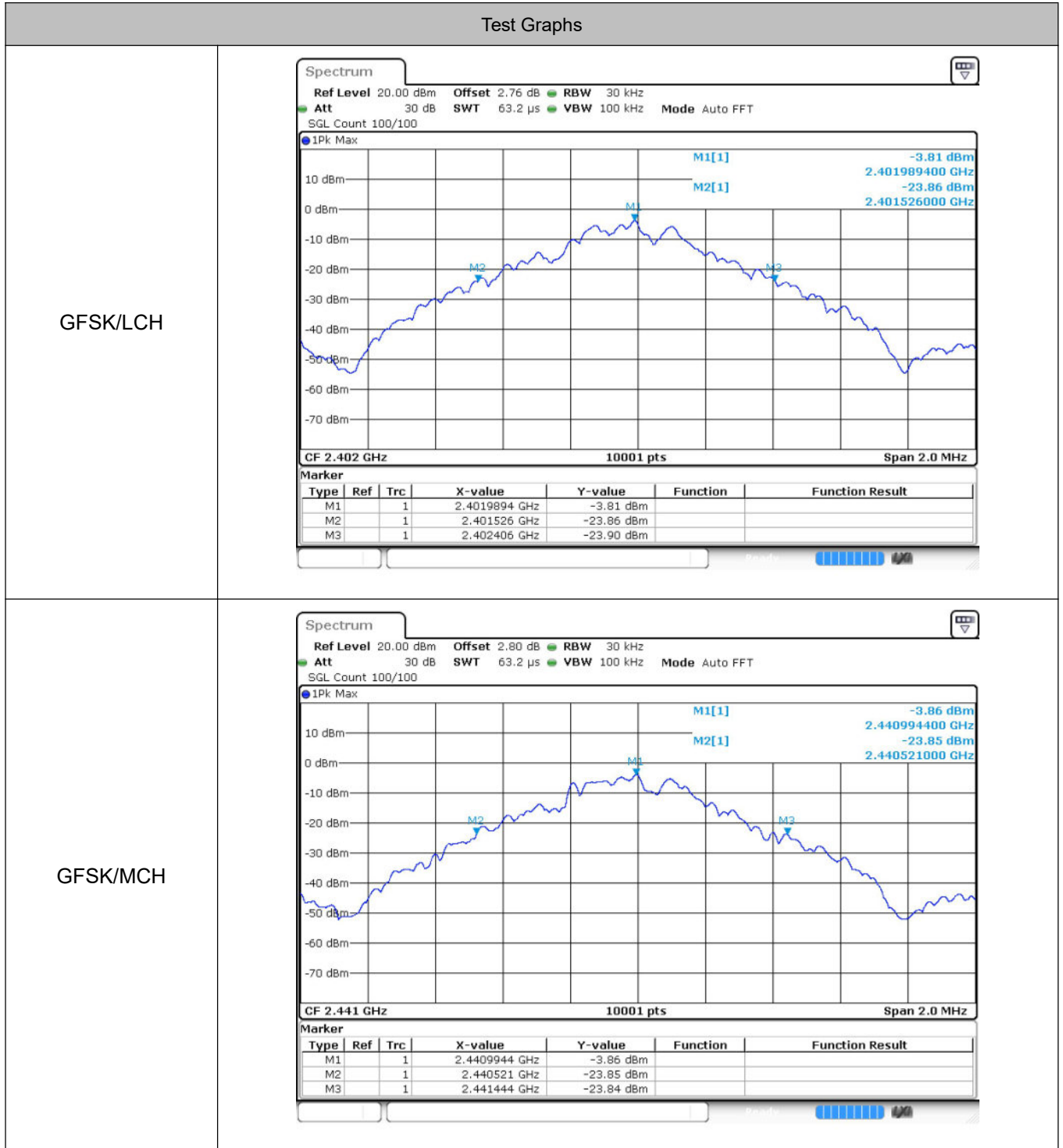


### 3 20dB Bandwidth

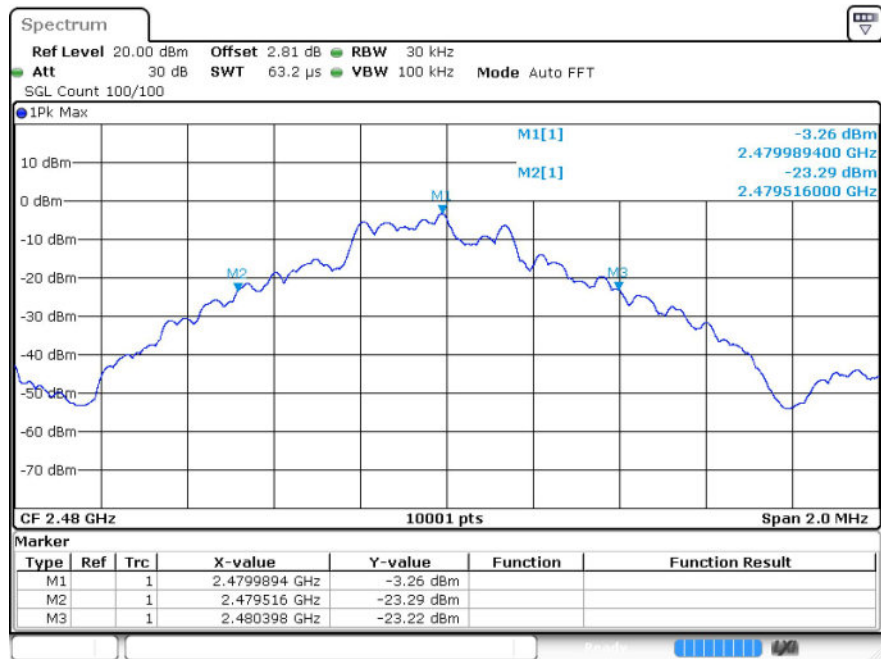
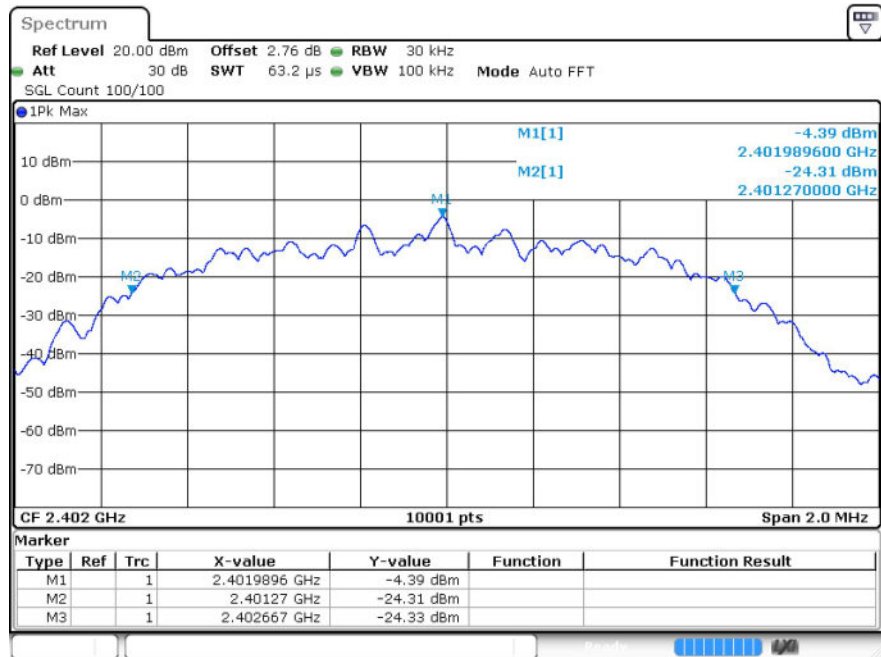
#### 3.1 Test Result

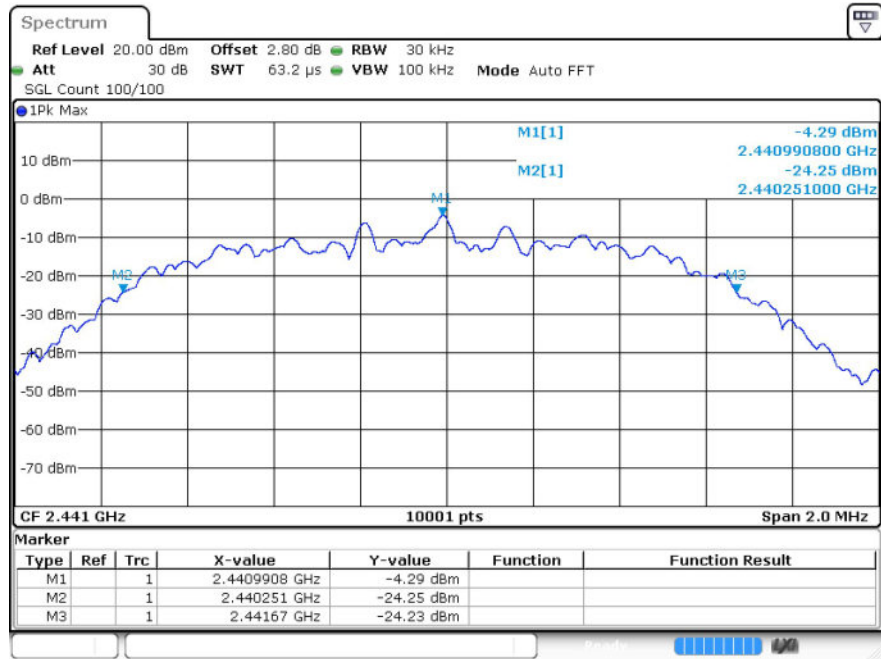
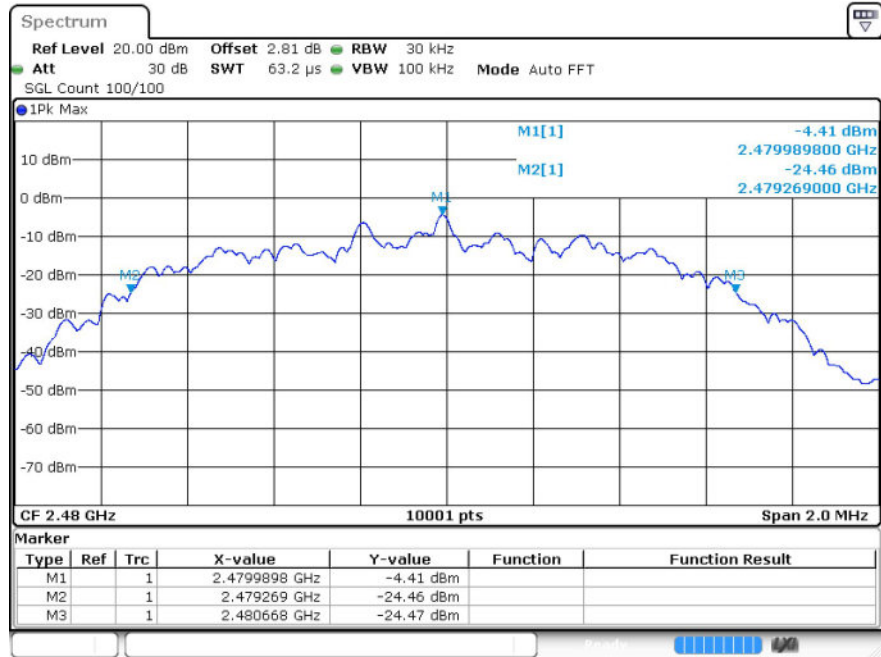
| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.879                | Not Specified | Pass    |
|               | MCH      | 0.923                | Not Specified | Pass    |
|               | HCH      | 0.882                | Not Specified | Pass    |
| $\pi/4$ DQPSK | LCH      | 1.398                | Not Specified | Pass    |
|               | MCH      | 1.42                 | Not Specified | Pass    |
|               | HCH      | 1.398                | Not Specified | Pass    |
| 8DPSK         | LCH      | 1.41                 | Not Specified | Pass    |
|               | MCH      | 1.419                | Not Specified | Pass    |
|               | HCH      | 1.436                | Not Specified | Pass    |

### 3.2 Test Graphs

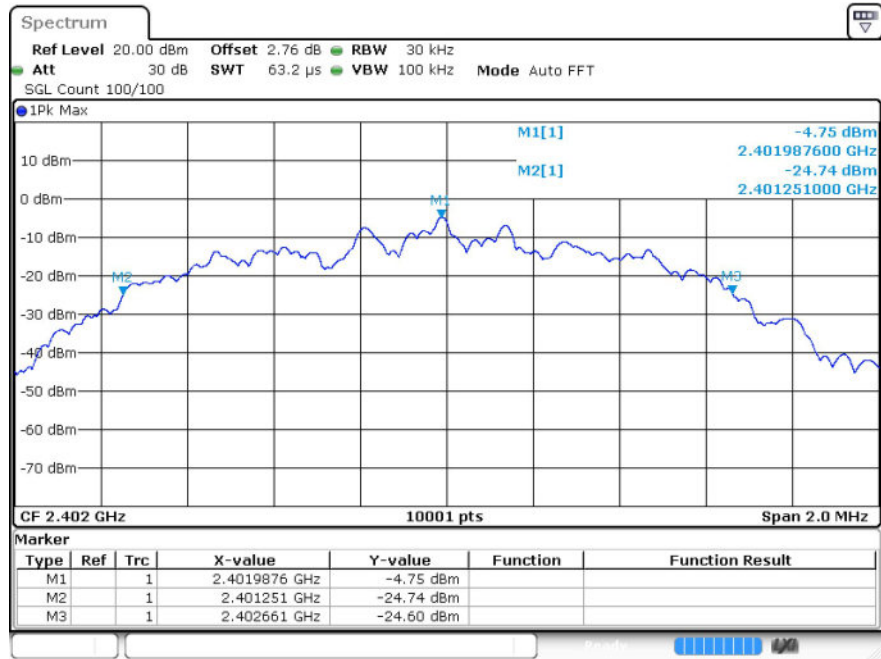


GFSK/HCH

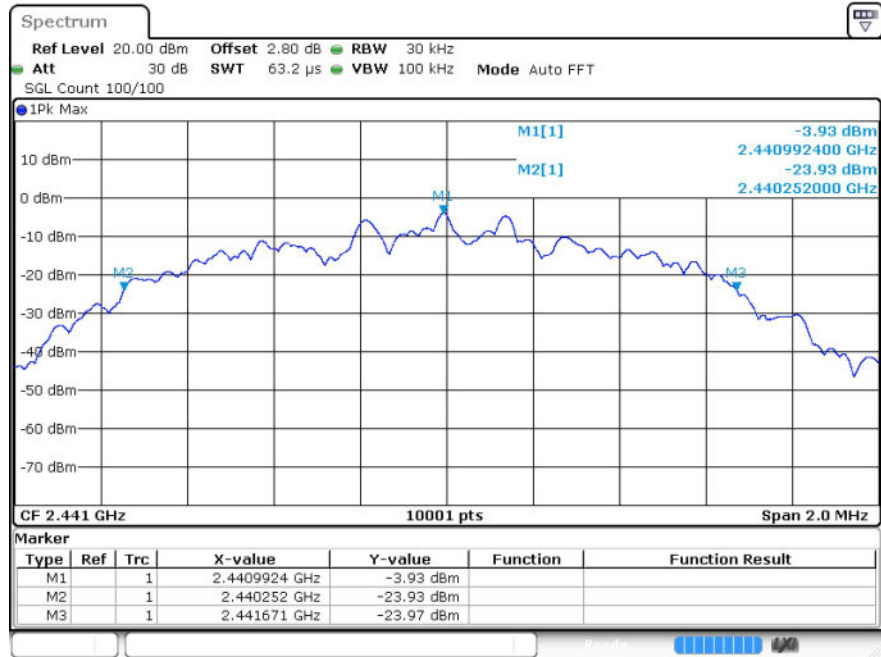

 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


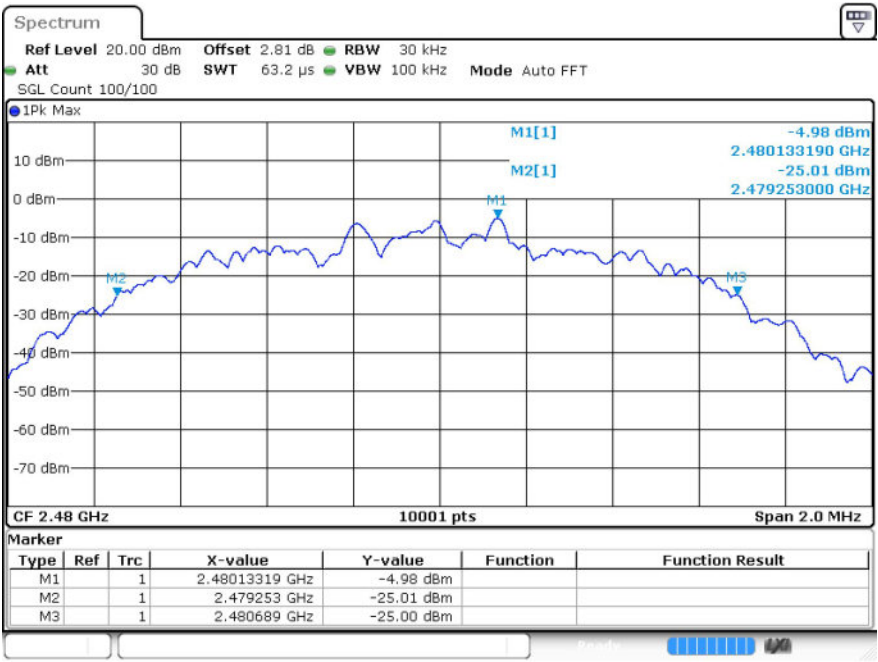
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

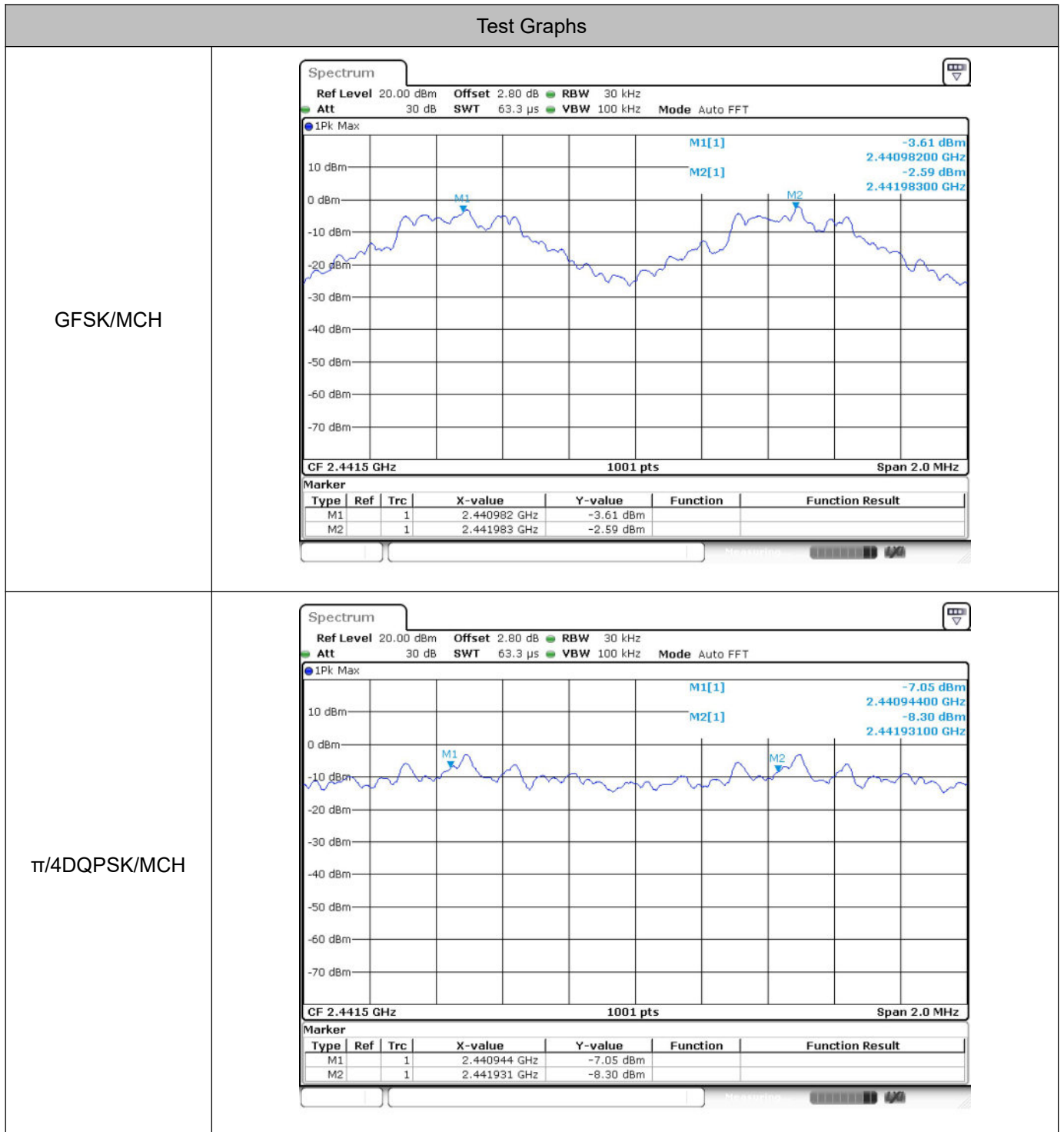


## 4 Carrier Frequency Separation

### 4.1 Test Result

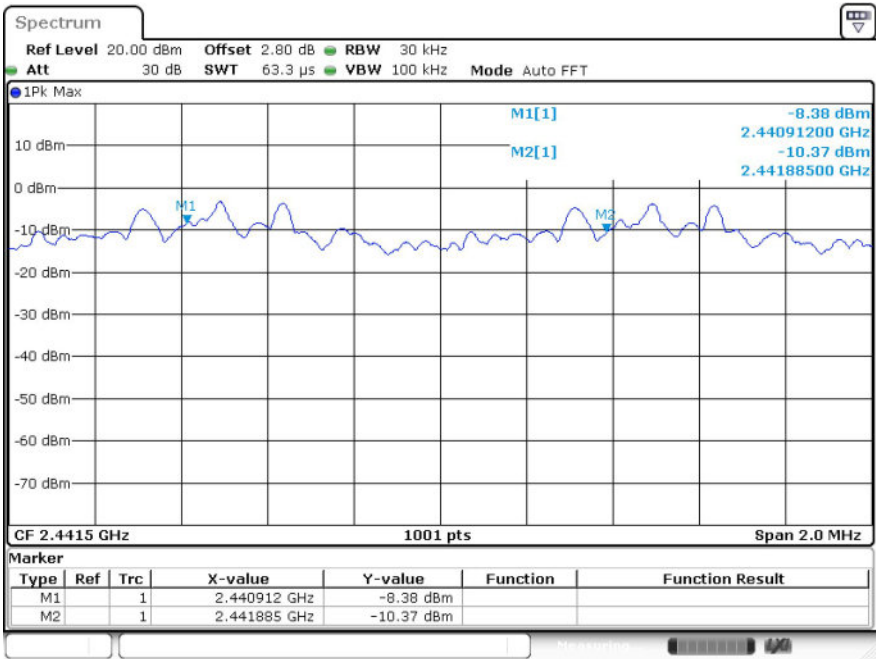
| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | MCH      | 1.001                              | 0.615       | Pass    |
| $\pi/4$ DQPSK | MCH      | 0.987                              | 0.947       | Pass    |
| 8DPSK         | MCH      | 0.973                              | 0.946       | Pass    |

## 4.2 Test Graphs





8DPSK/MCH

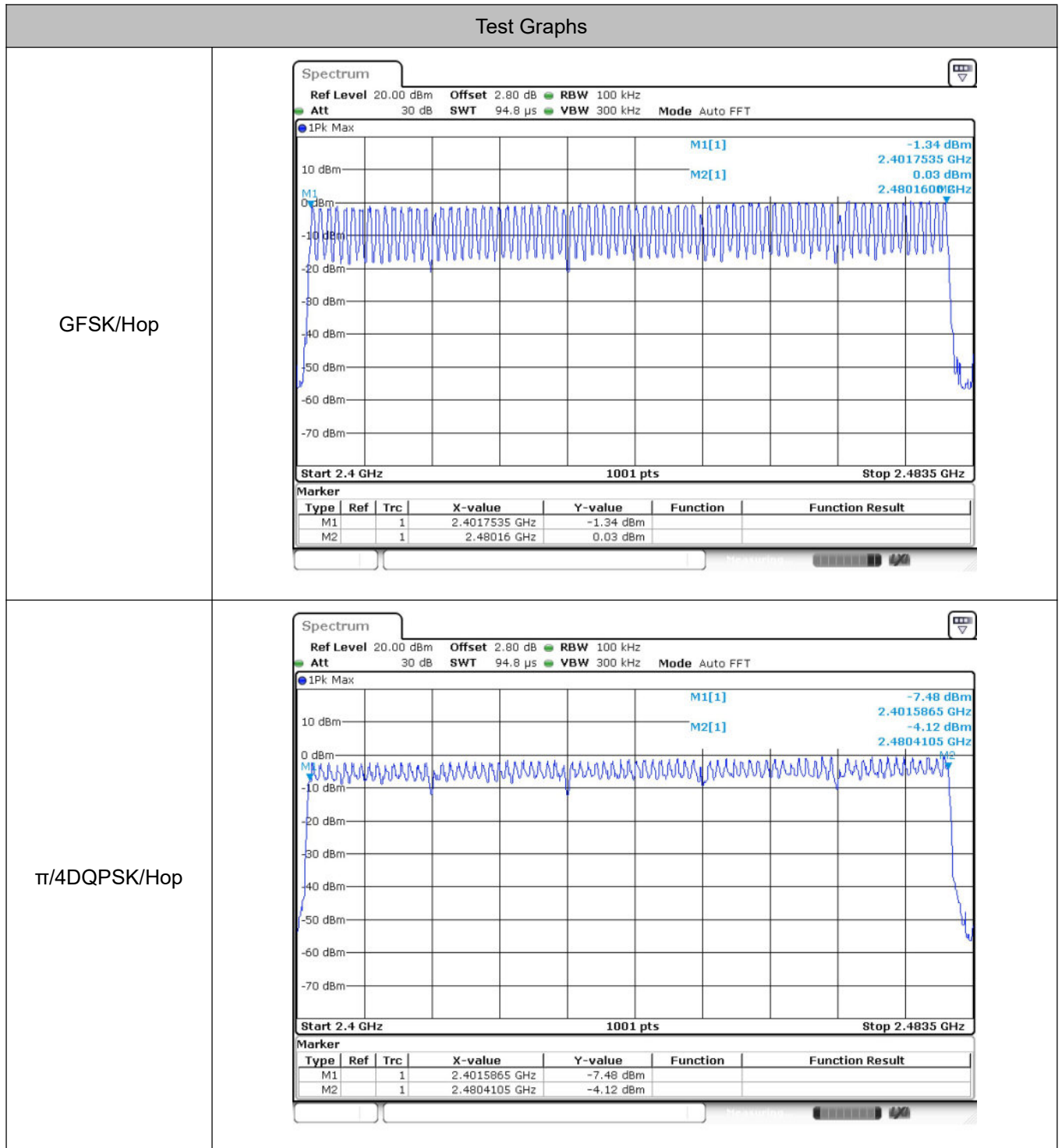


## 5 Hopping Channel Number

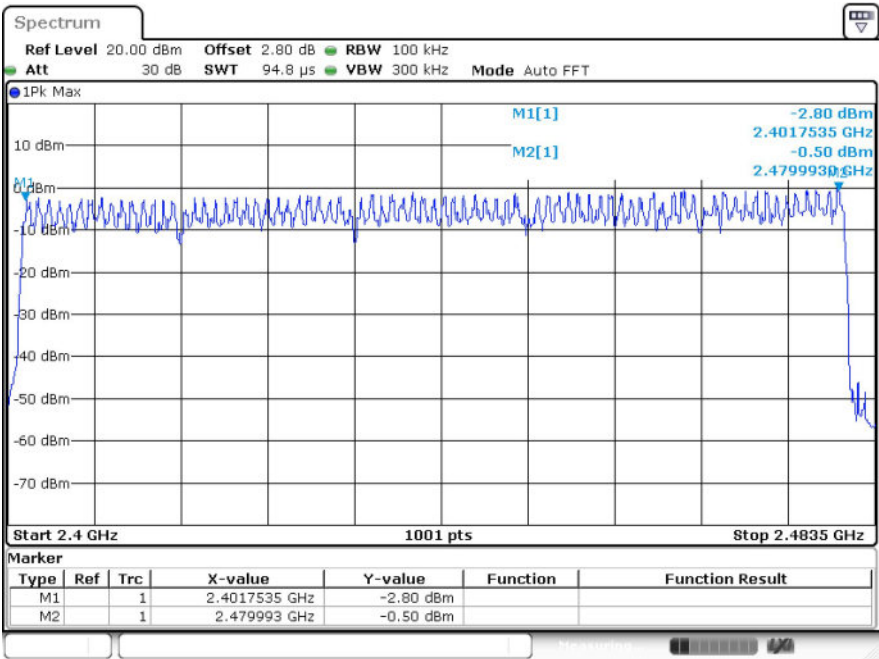
### 5.1 Test Result

| 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

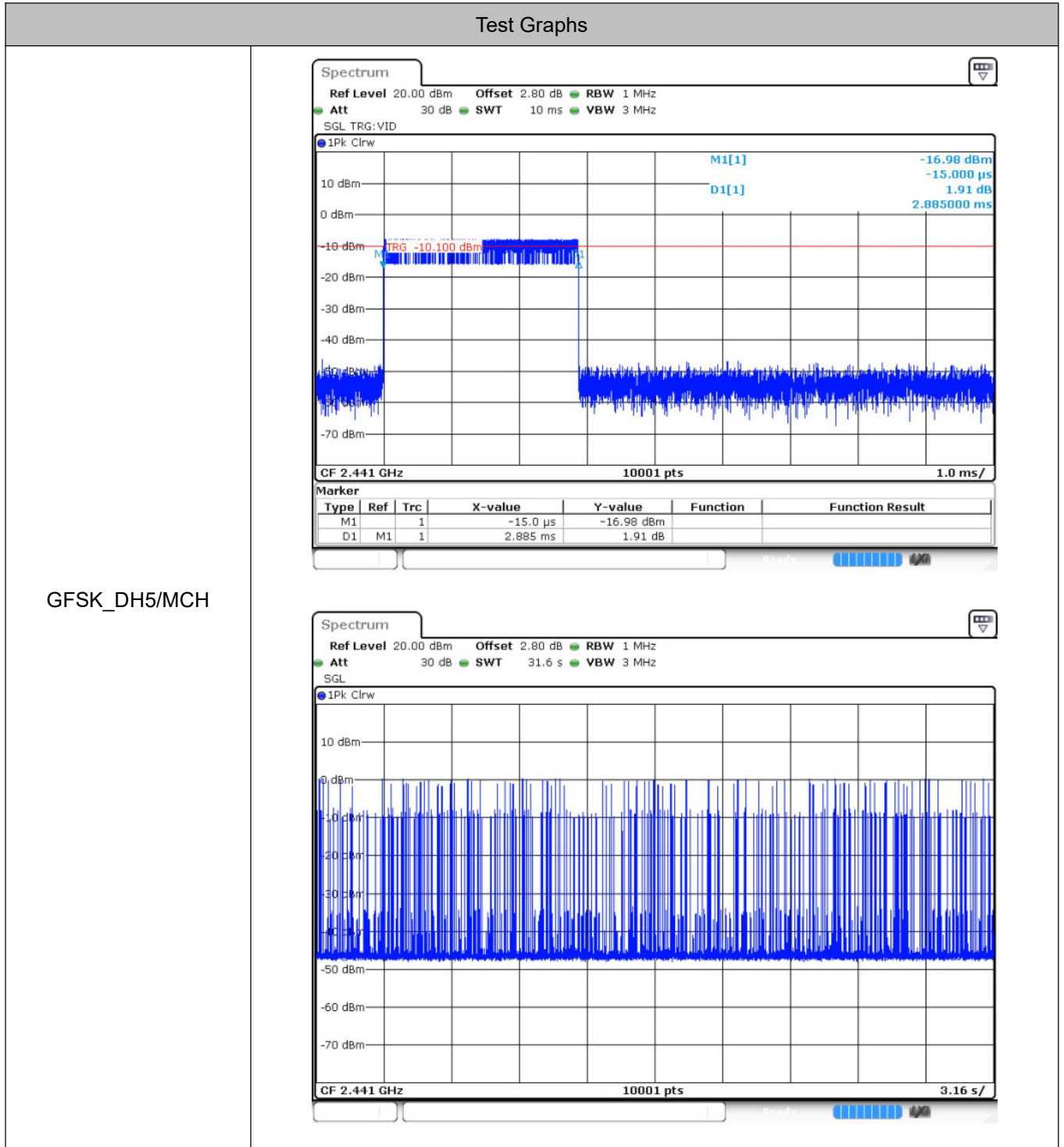


## 6 Dwell Time

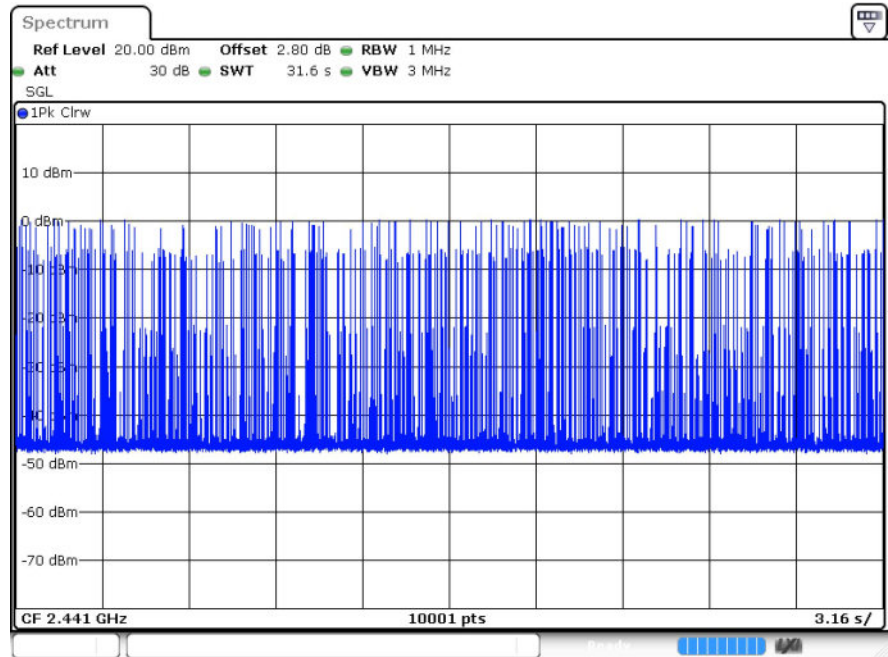
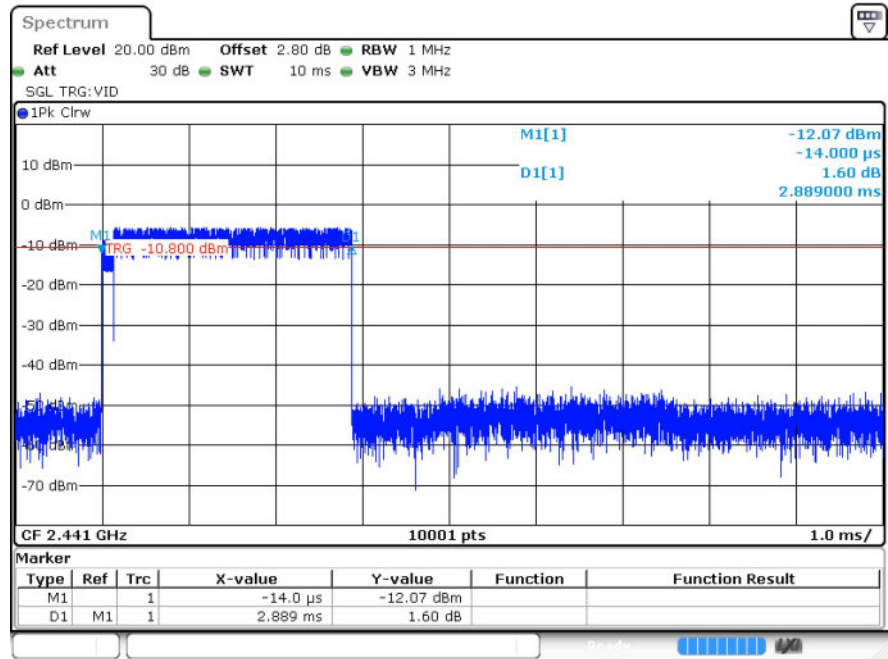
### 6.1 Test Result

| 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                      | 101                   | 291.385        | 0.4       | Pass    |
| $\pi/4$ DQPSK | 2DH5   | MCH     | 2.889                      | 120                   | 346.68         | 0.4       | Pass    |
| 8DPSK         | 3DH5   | MCH     | 2.891                      | 103                   | 297.773        | 0.4       | Pass    |

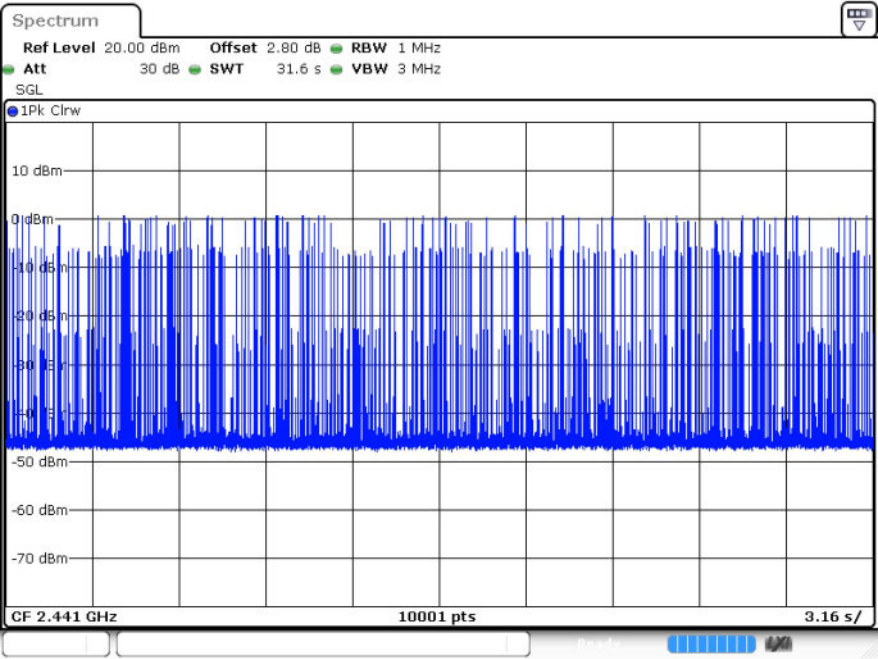
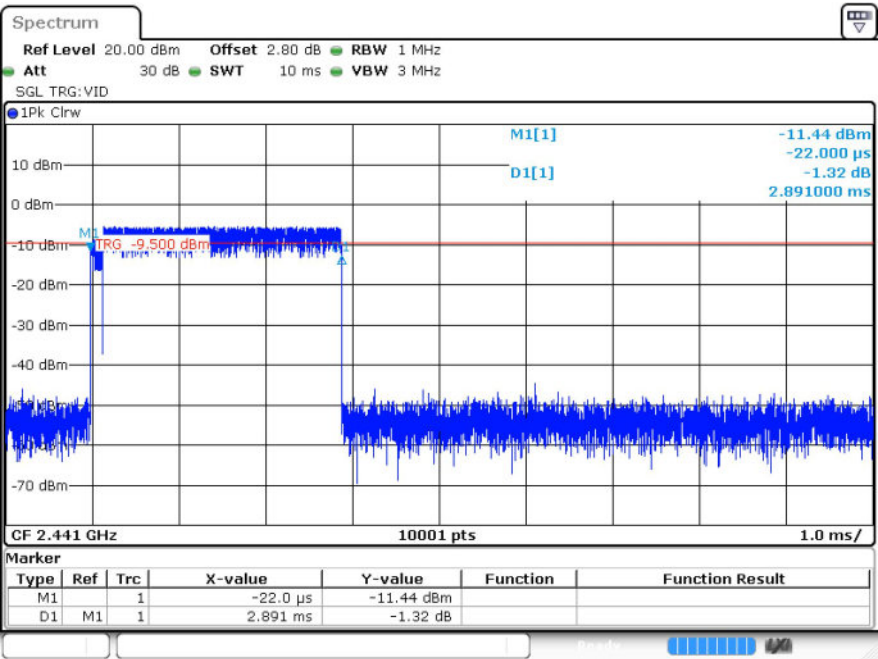
## 6.2 Test Graphs



$\pi/4$ DQPSK  
\_2DH5/MCH



8DPSK\_3DH5/MCH

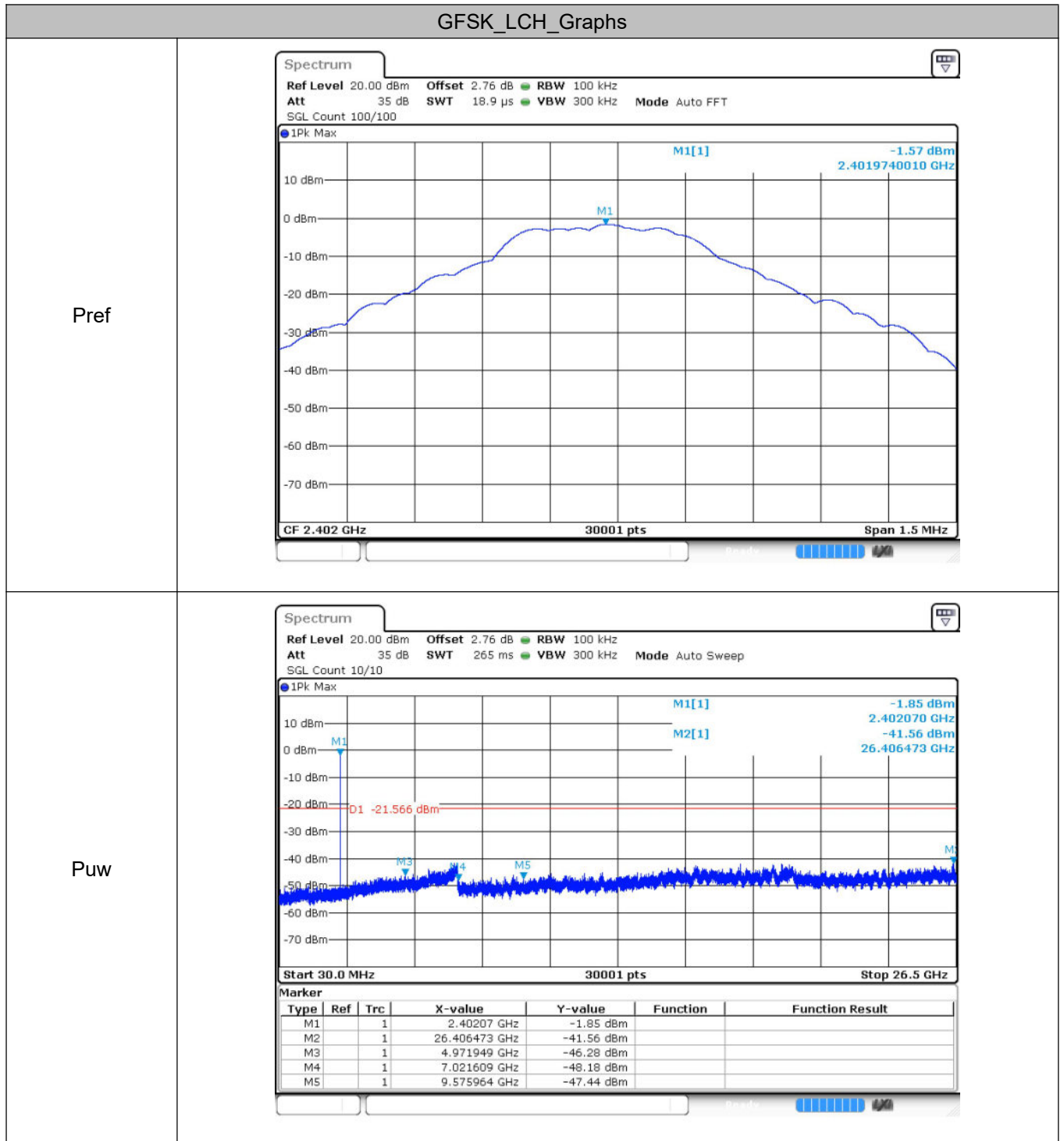


## 7 RF Conducted Spurious Emissions

### 7.1 Test Result

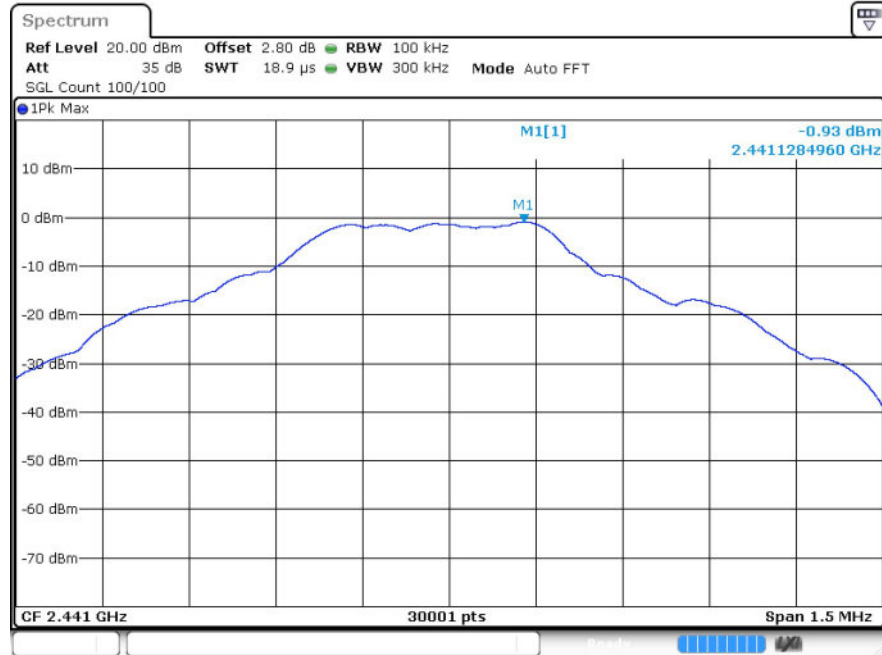
| Mode          | Channel | Max. Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|------------------|-------------|---------|
| GFSK          | LCH     | -39.99           | -20         | Pass    |
|               | MCH     | -39.8            | -20         | Pass    |
|               | HCH     | -39.03           | -20         | Pass    |
| $\pi/4$ DQPSK | LCH     | -38.03           | -20         | Pass    |
|               | MCH     | -37.72           | -20         | Pass    |
|               | HCH     | -38.88           | -20         | Pass    |
| 8DPSK         | LCH     | -38.91           | -20         | Pass    |
|               | MCH     | -38.27           | -20         | Pass    |
|               | HCH     | -39.05           | -20         | Pass    |

## 7.2 Test Graphs

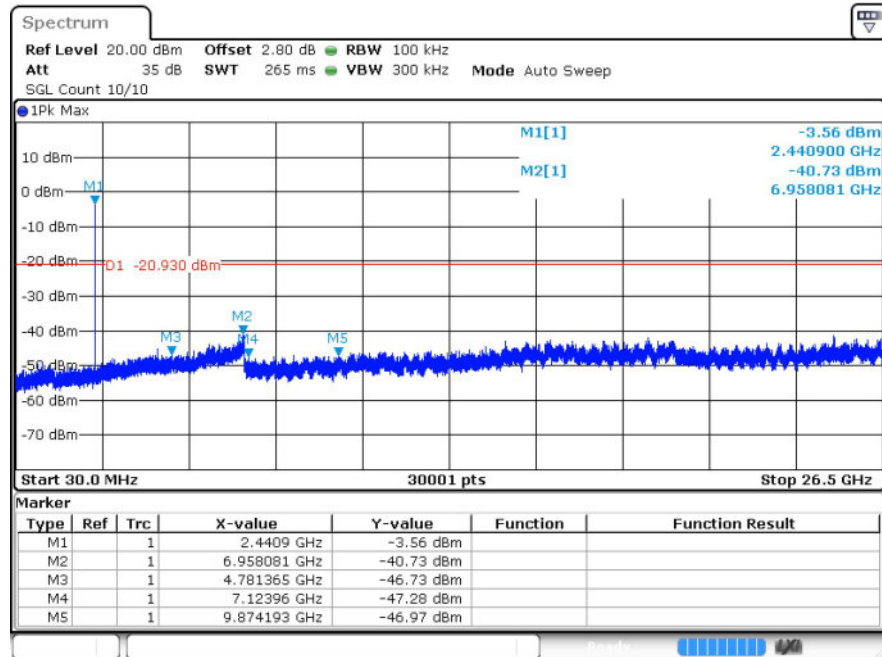


## GFSK\_MCH\_Graphs

Pref

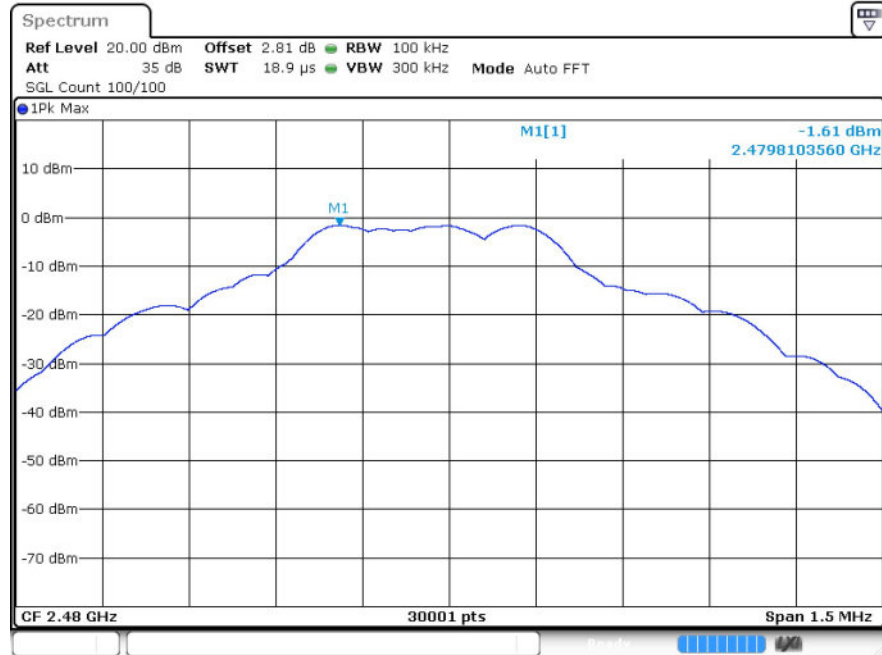


Puw

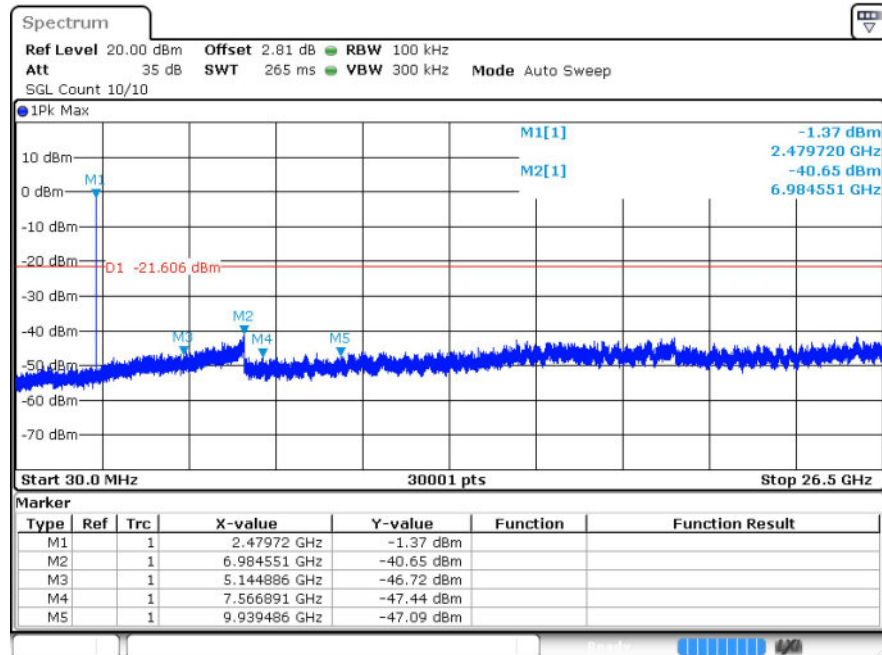


## GFSK\_HCH\_Graphs

Pref

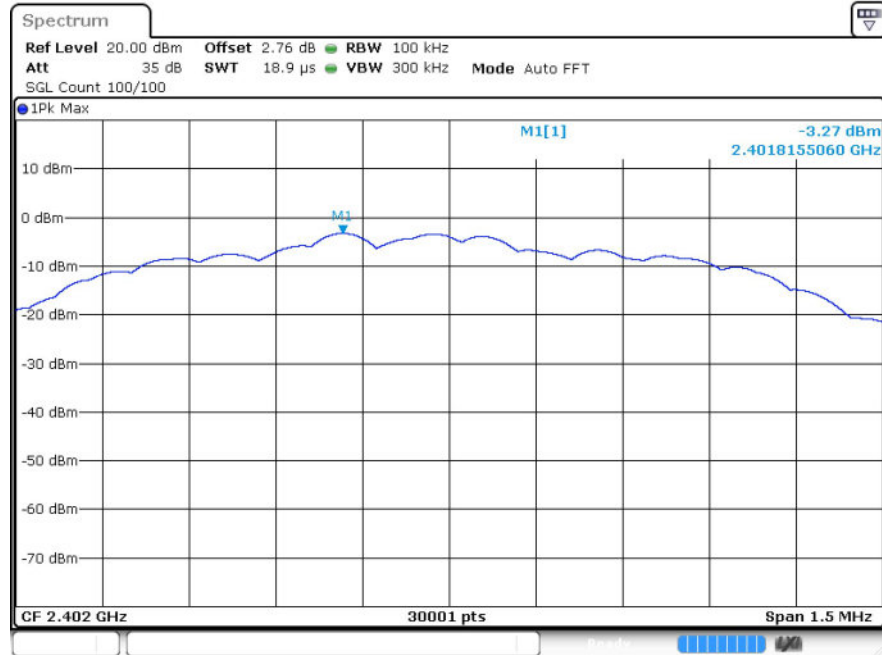


Puw

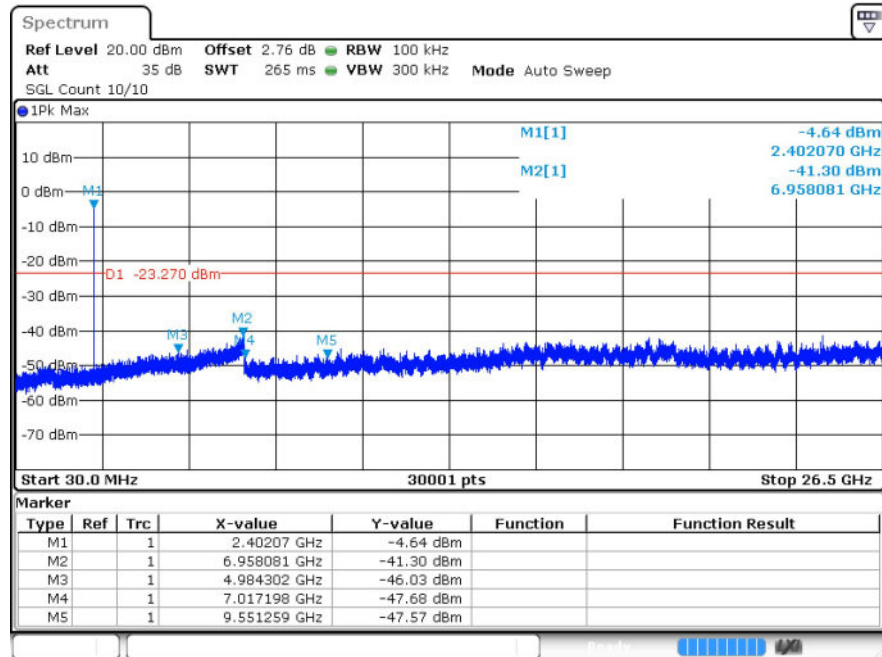


### $\pi/4$ DQPSK\_LCH\_Graphs

Pref

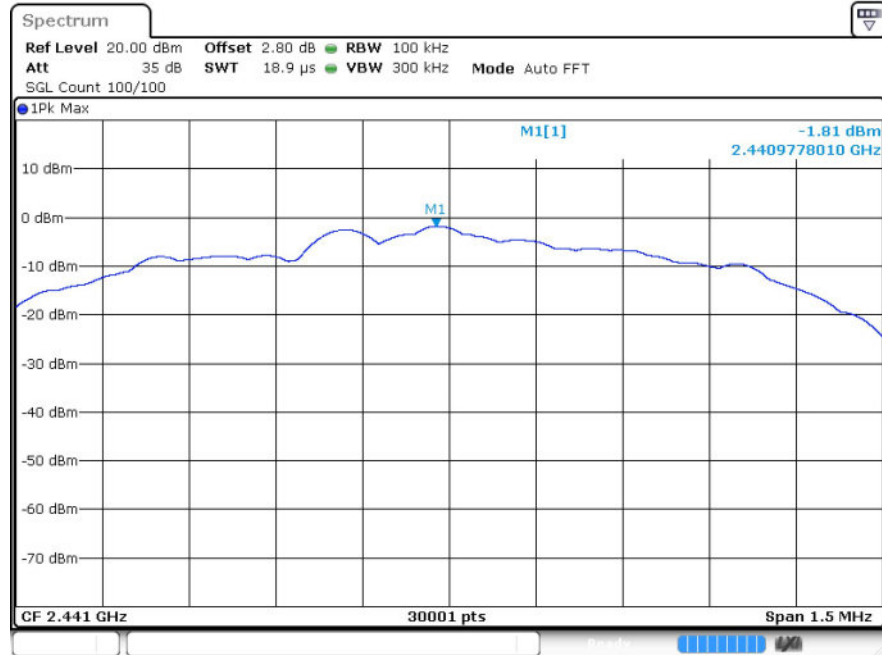


Puw

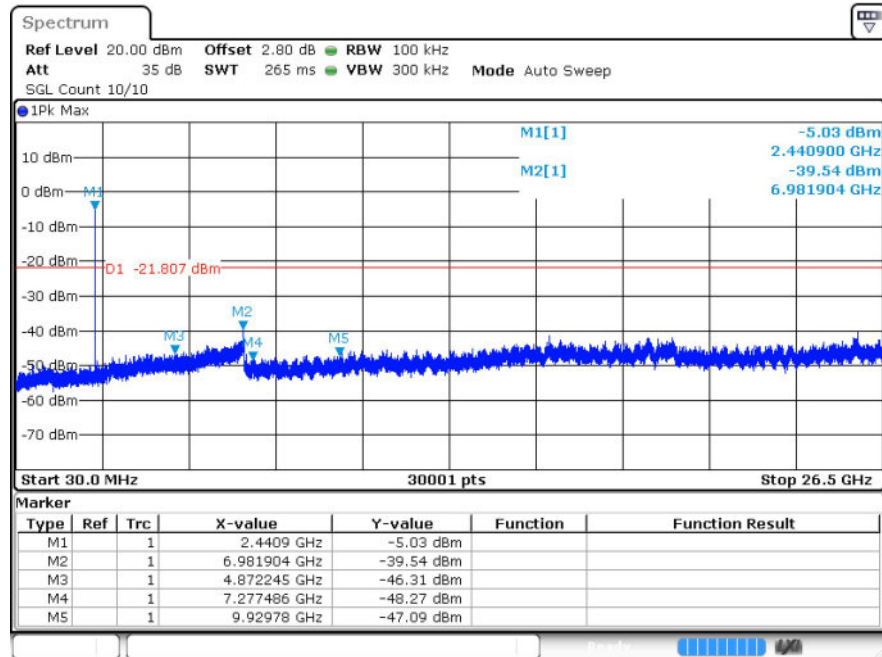


### $\pi$ /4DQPSK\_MCH\_Graphs

Pref

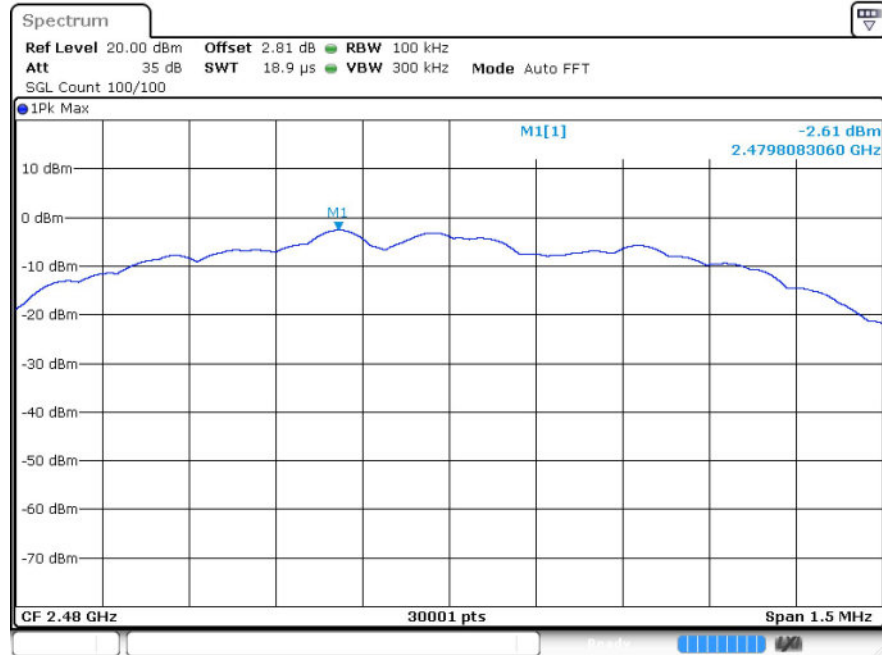


Puw

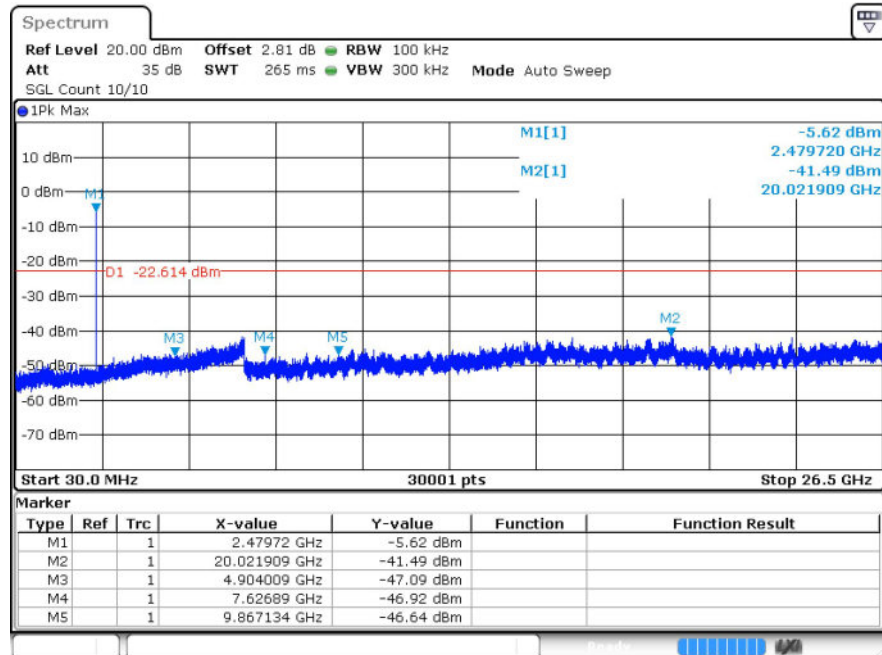


### $\pi/4$ DQPSK\_HCH\_Graphs

Pref

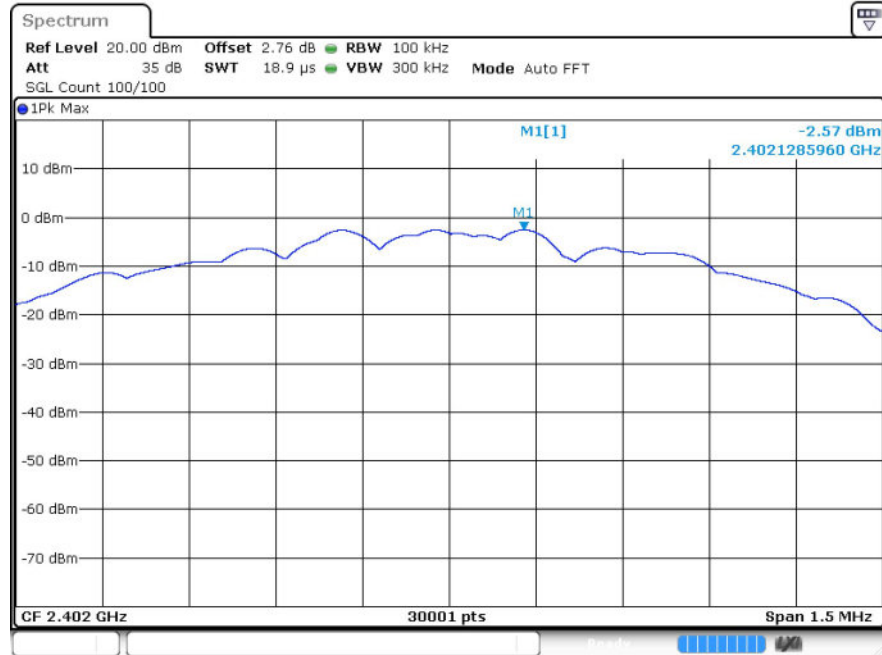


Puw

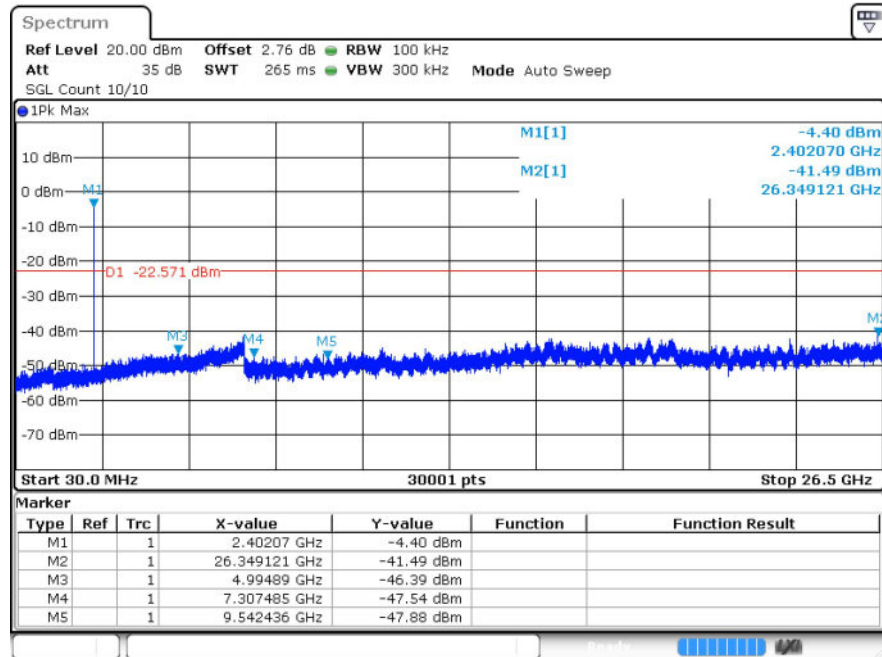


## 8DPSK\_LCH\_Graphs

Pref

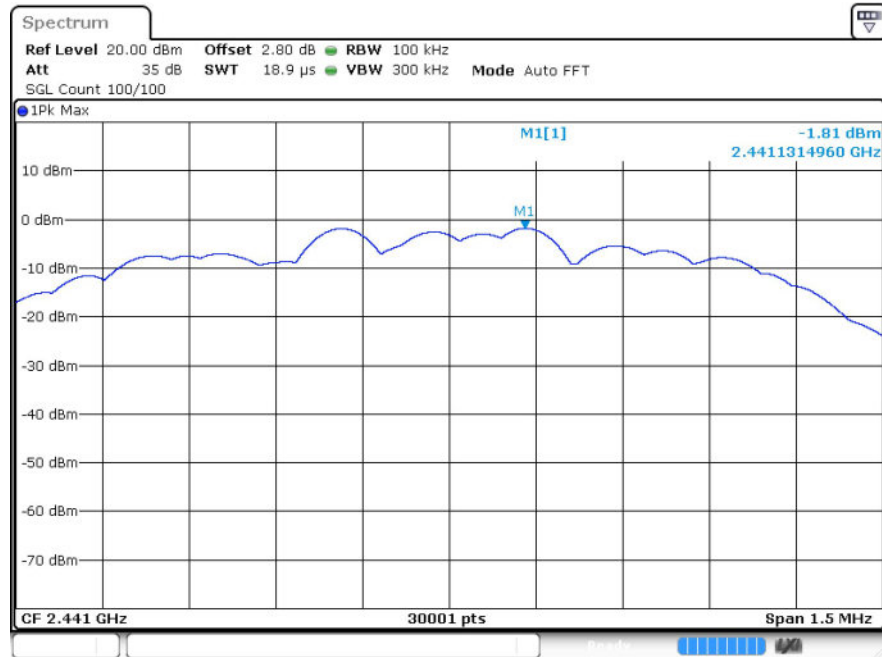


Puw

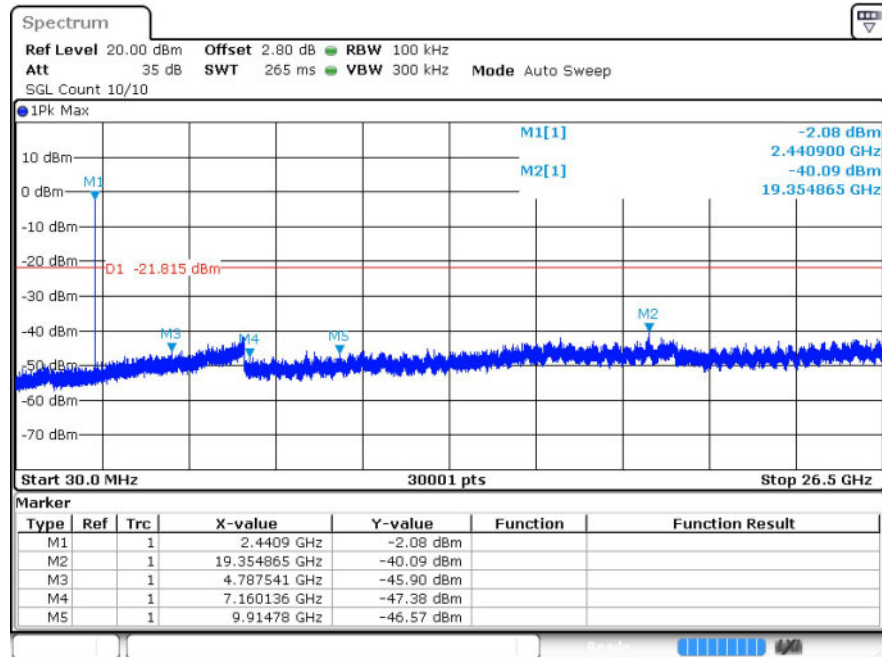


## 8DPSK\_MCH\_Graphs

Pref

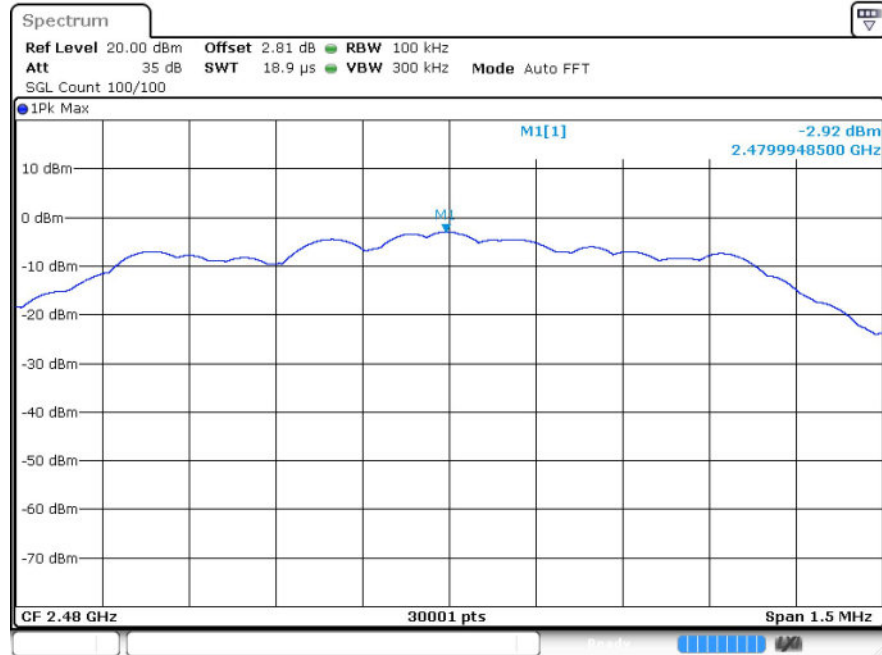


Puw

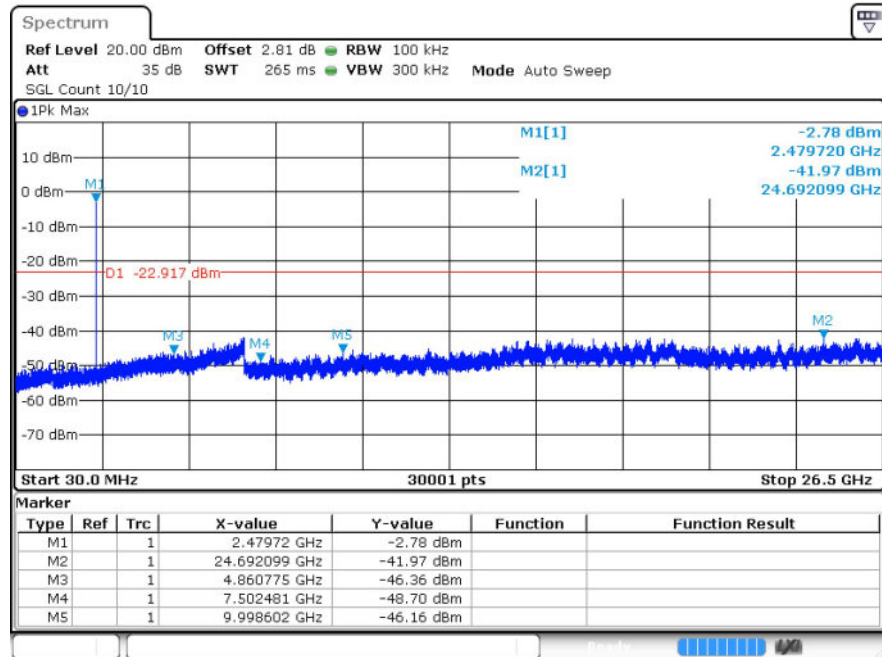


## 8DPSK\_HCH\_Graphs

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               | -53.98                   | -20         | Pass    |
|               |         |                         | On                | -53.35                   | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -48.52                   | -20         | Pass    |
|               |         |                         | On                | -46.57                   | -20         | Pass    |
| $\pi/4$ DQPSK | LCH     | 2402                    | Off               | -52.45                   | -20         | Pass    |
|               |         |                         | On                | -51.48                   | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -43.91                   | -20         | Pass    |
|               |         |                         | On                | -45.14                   | -20         | Pass    |
| 8DPSK         | LCH     | 2402                    | Off               | -52.99                   | -20         | Pass    |
|               |         |                         | On                | -51.7                    | -20         | Pass    |
|               | HCH     | 2480                    | Off               | -43.05                   | -20         | Pass    |
|               |         |                         | On                | -54.2                    | -20         | Pass    |

## 8.2 Test Graphs

