

Appendix A

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

Product Name: WIRELESS LED SPEAKER

Trade Mark: borne

Test Model: BTSPK166

Environmental Conditions

| | |
|--------------------|-------------|
| Temperature: | 24.1°C |
| Relative Humidity: | 52.2% |
| ATM Pressure: | 101Kpa |
| Test Engineer: | Emiya lin |
| Supervised by: | Simba Haung |

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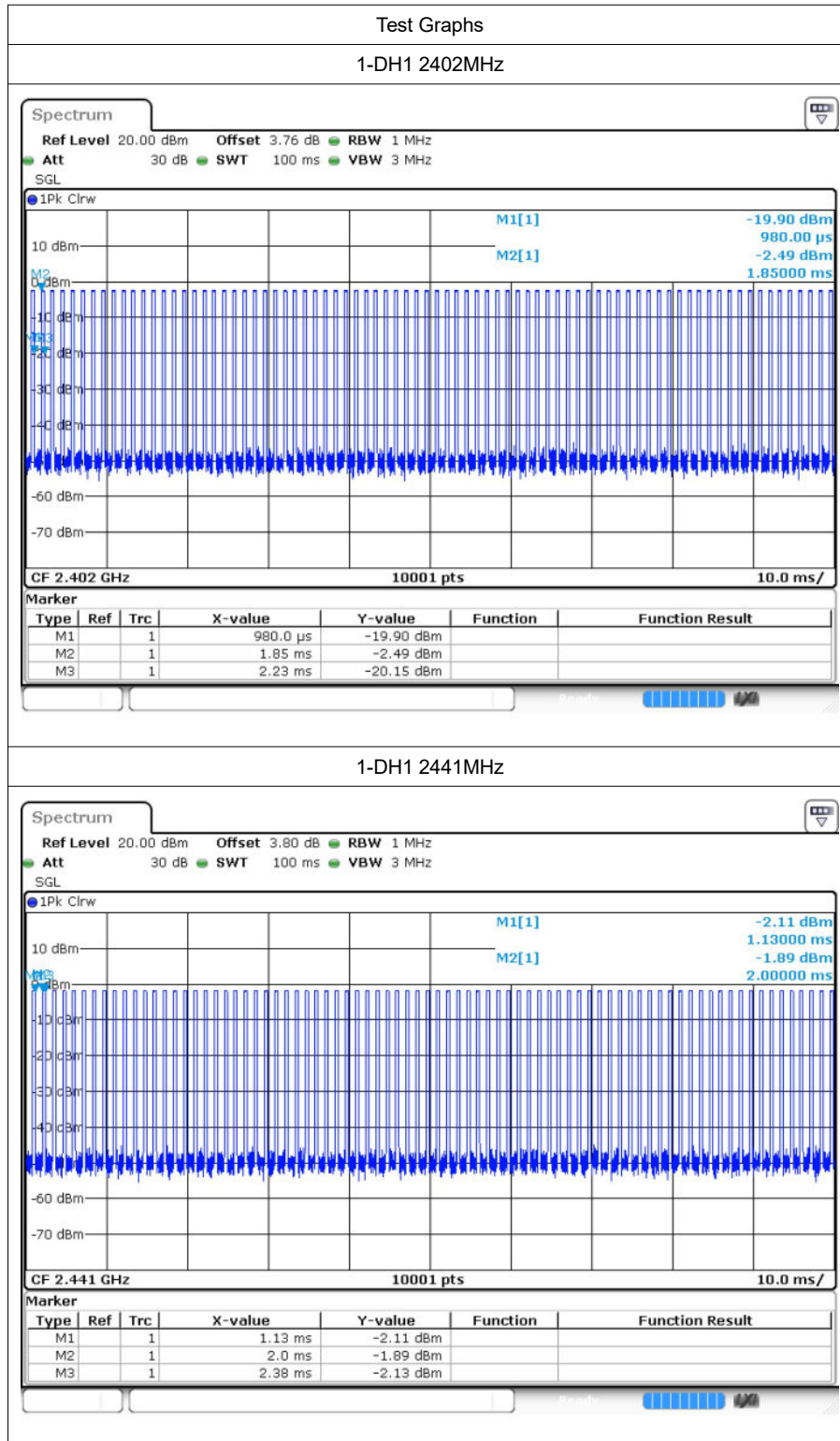
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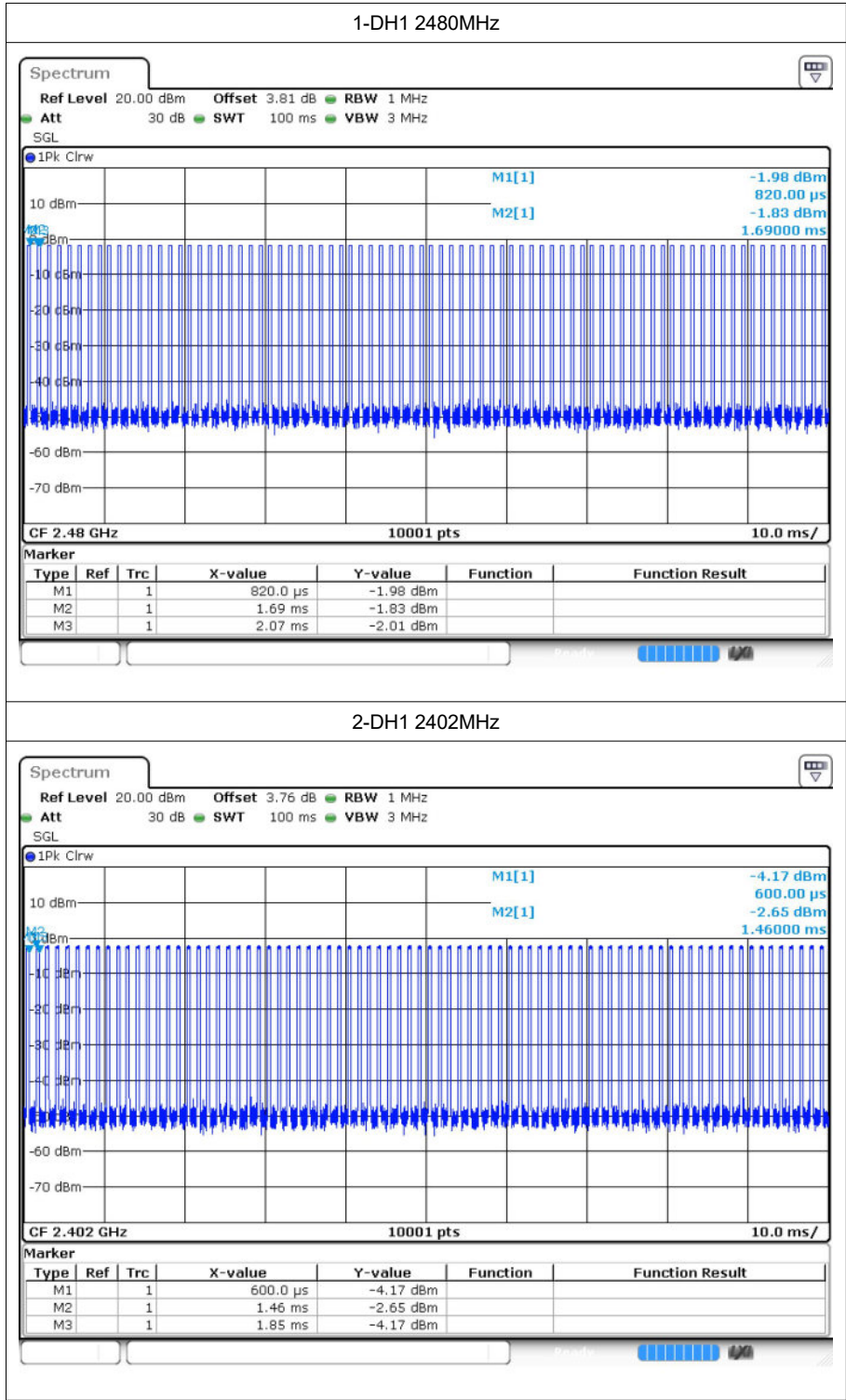
1 Duty Cycle

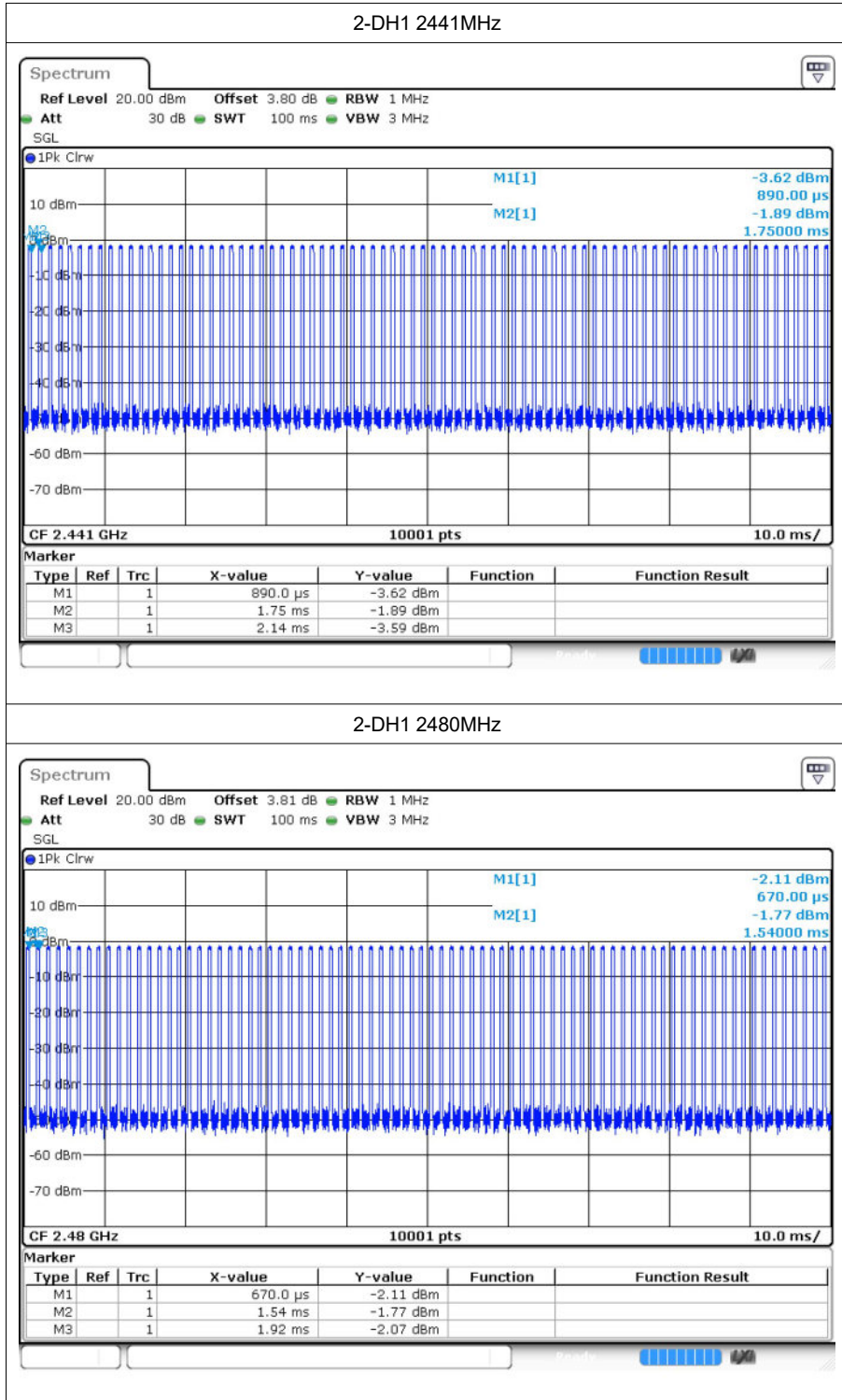
1.1 Test Result

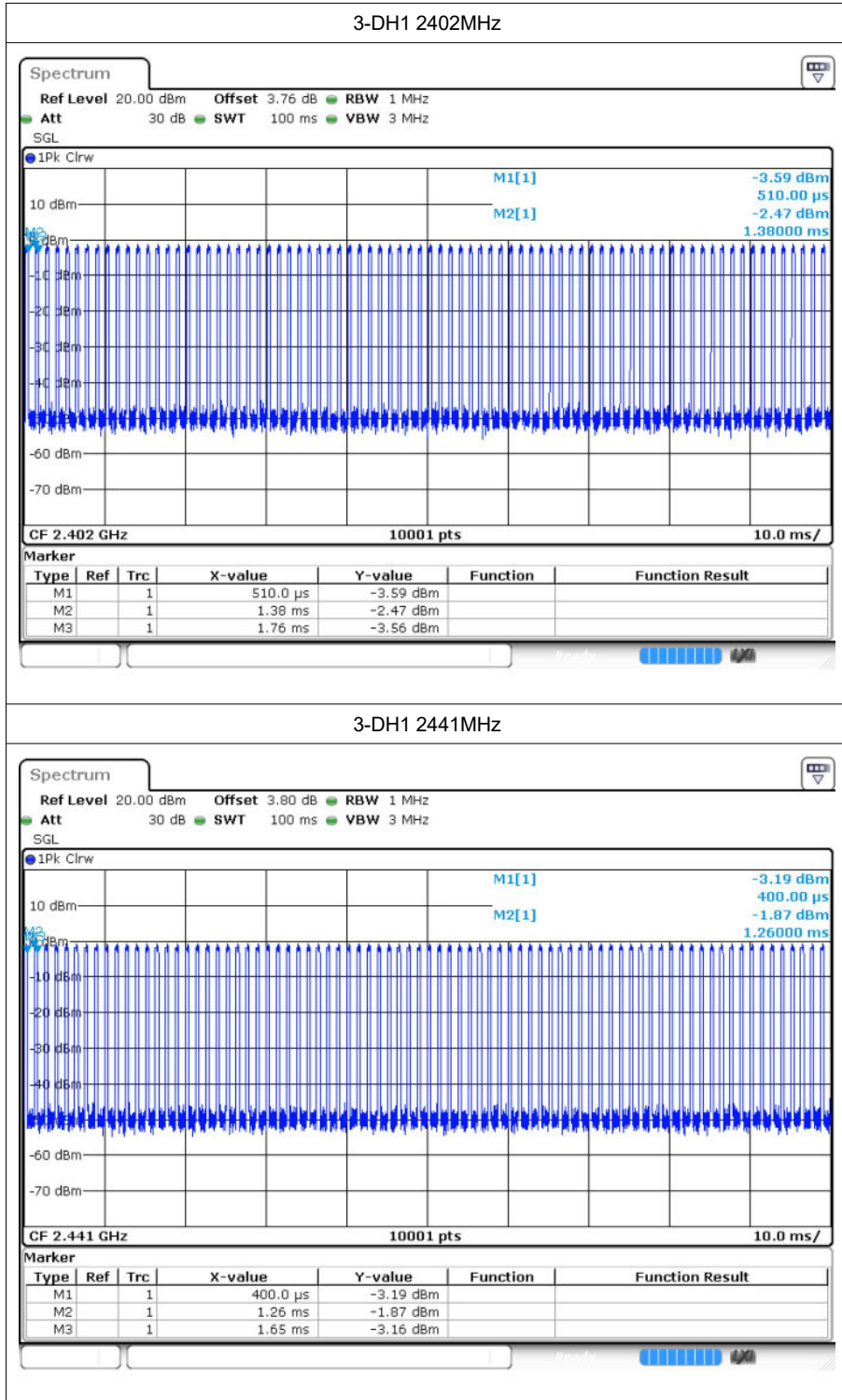
| Mode | Frequency (MHz) | Duty Cycle (%) | Correction Factor | 1/T (kHz) |
|-------|-----------------|----------------|-------------------|-----------|
| 1-DH1 | 2402 | 30.53 | 5.15 | 2.63 |
| 1-DH1 | 2441 | 31.2 | 5.06 | 2.63 |
| 1-DH1 | 2480 | 31.2 | 5.06 | 2.63 |
| 2-DH1 | 2402 | 32 | 4.95 | 2.56 |
| 2-DH1 | 2441 | 32 | 4.95 | 2.56 |
| 2-DH1 | 2480 | 31.2 | 5.06 | 2.63 |
| 3-DH1 | 2402 | 31.2 | 5.06 | 2.63 |
| 3-DH1 | 2441 | 32 | 4.95 | 2.56 |
| 3-DH1 | 2480 | 31.69 | 4.99 | 2.56 |

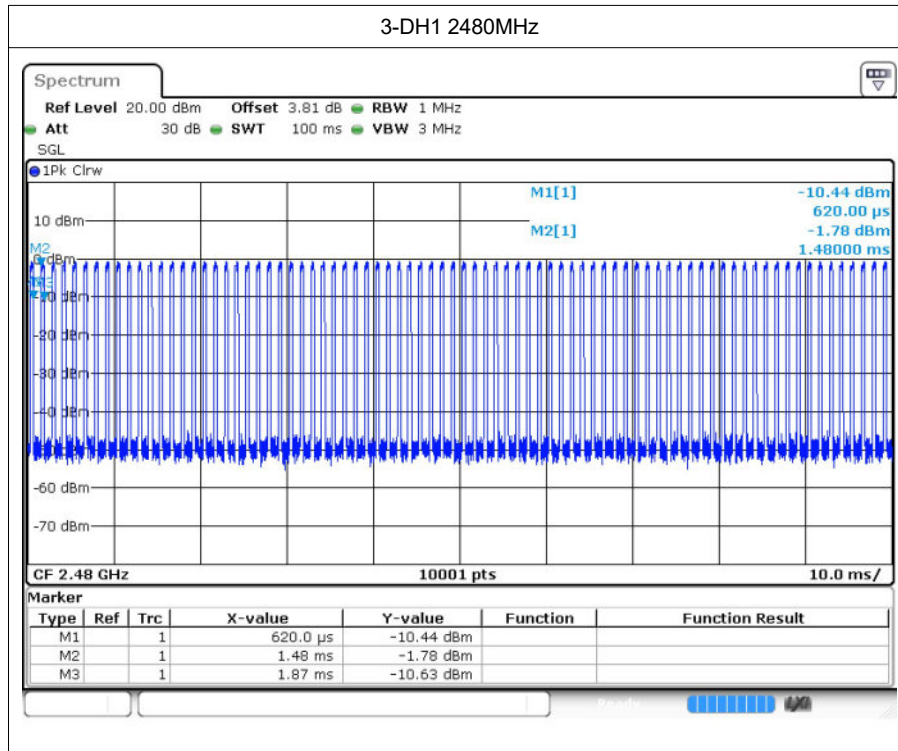
1.2 Test Graphs









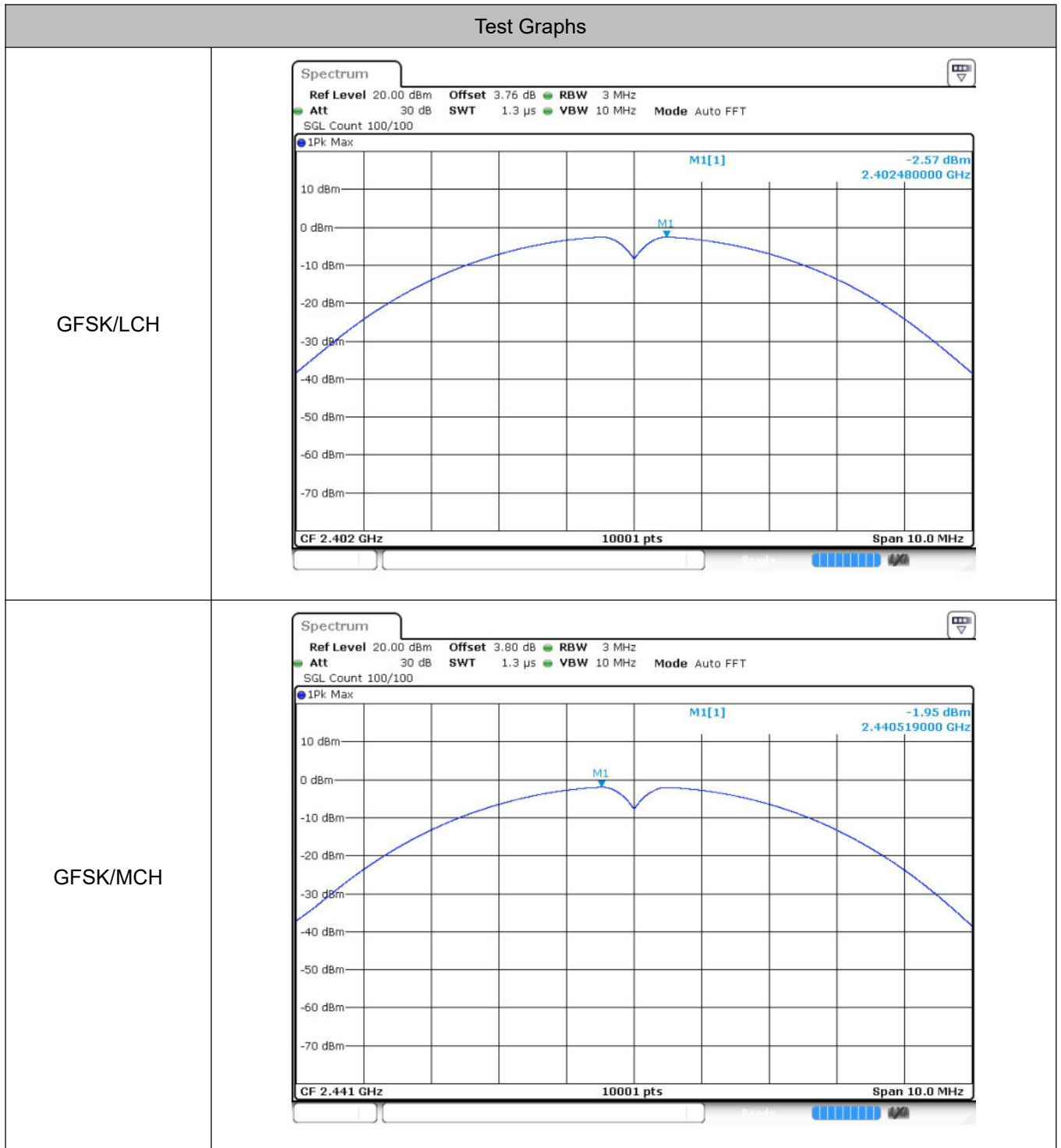


2 Maximum Conducted Peak Output Power

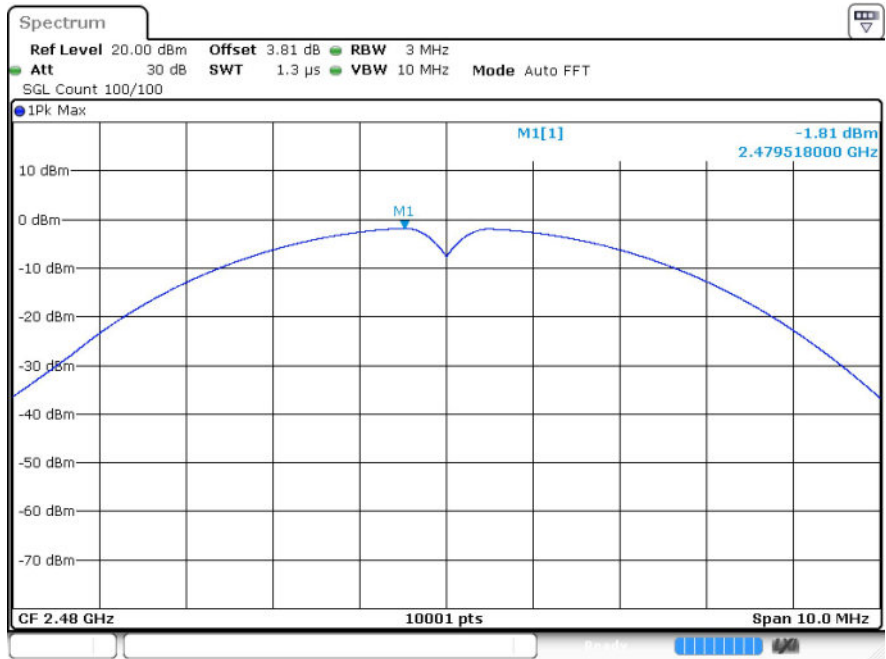
2.1 Test Result

| Mode | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK | LCH | -2.57 | 21 | Pass |
| | MCH | -1.95 | 21 | Pass |
| | HCH | -1.81 | 21 | Pass |
| $\pi/4$ DQPSK | LCH | -2 | 21 | Pass |
| | MCH | -1.53 | 21 | Pass |
| | HCH | -1.52 | 21 | Pass |
| 8DPSK | LCH | -1.78 | 21 | Pass |
| | MCH | -0.87 | 21 | Pass |
| | HCH | -0.82 | 21 | Pass |

2.2 Test Graphs

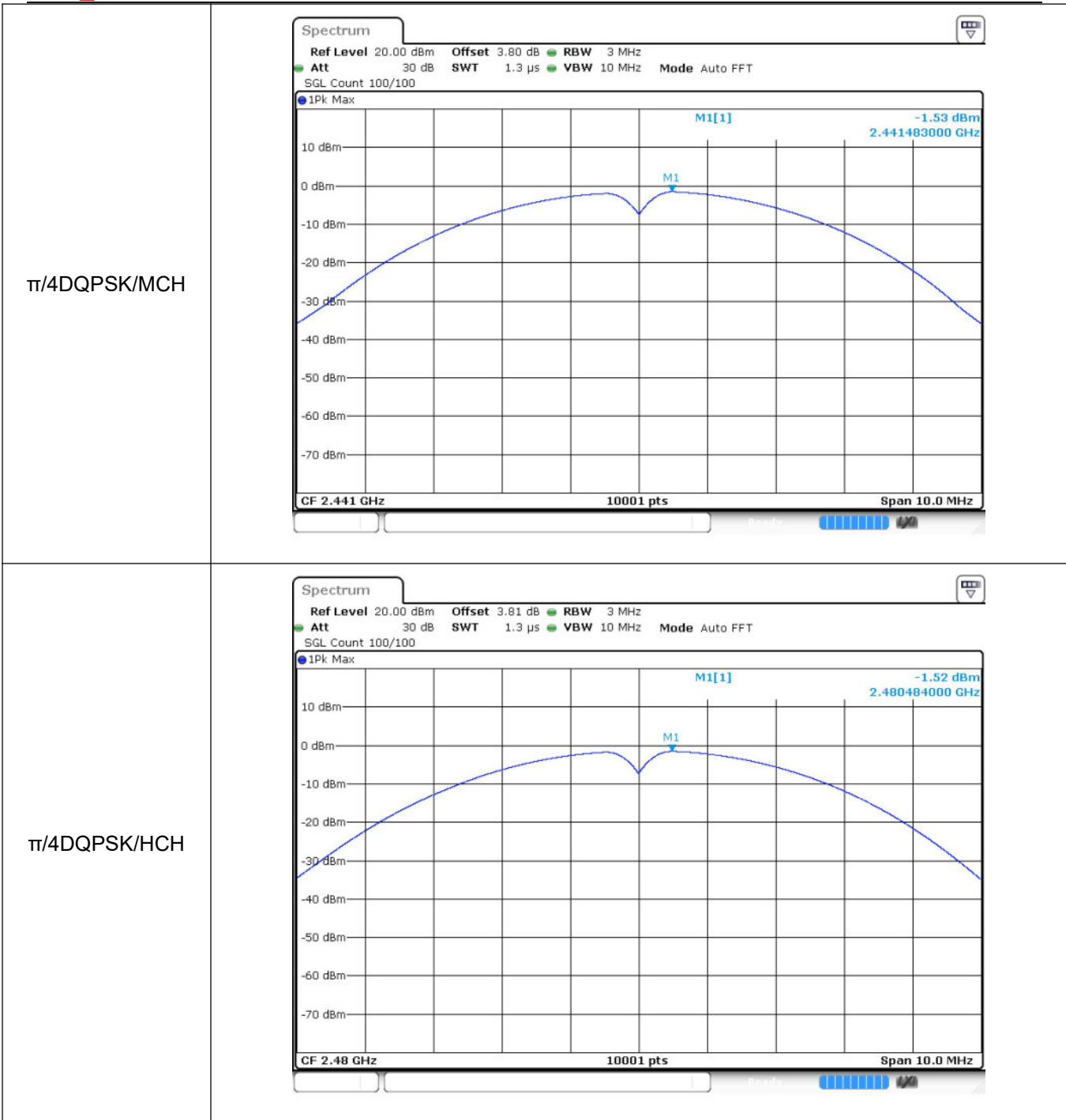


GFSK/HCH

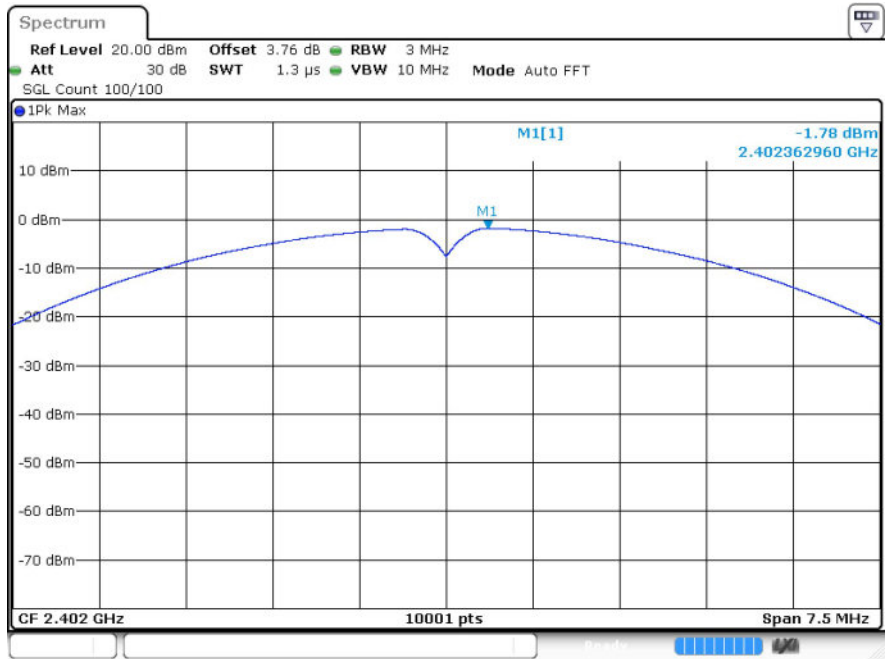


$\pi/4$ DQPSK/LCH

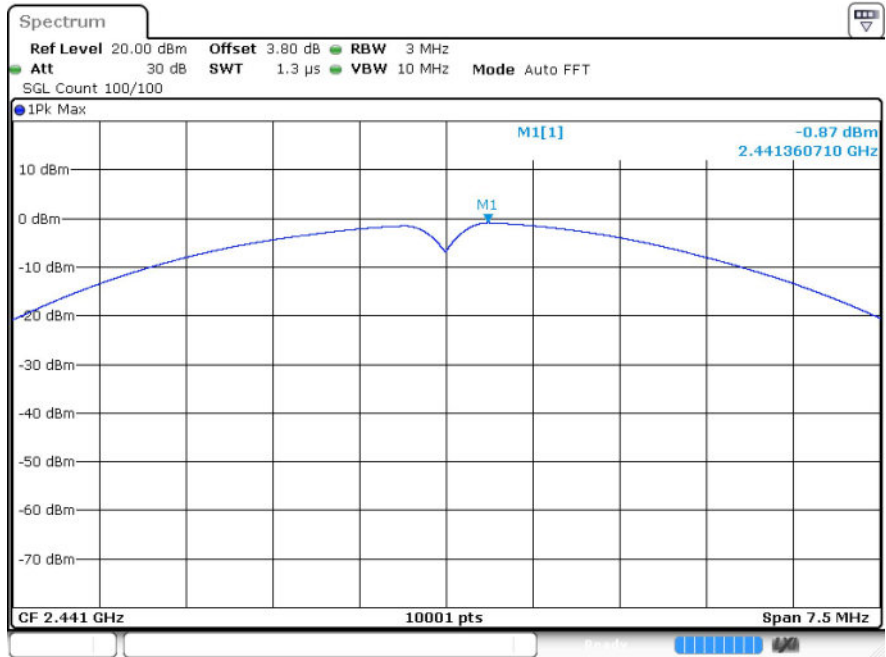




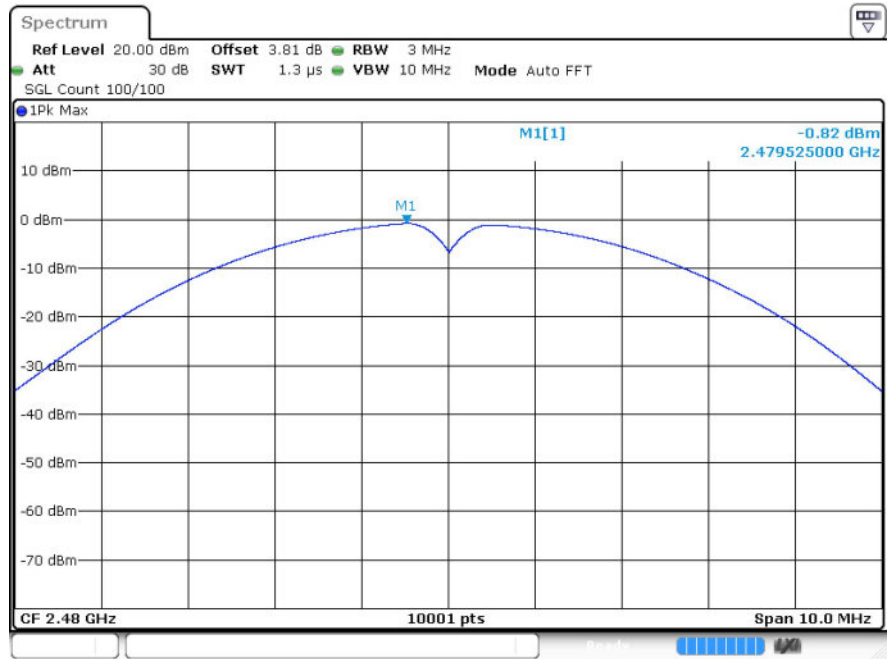
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

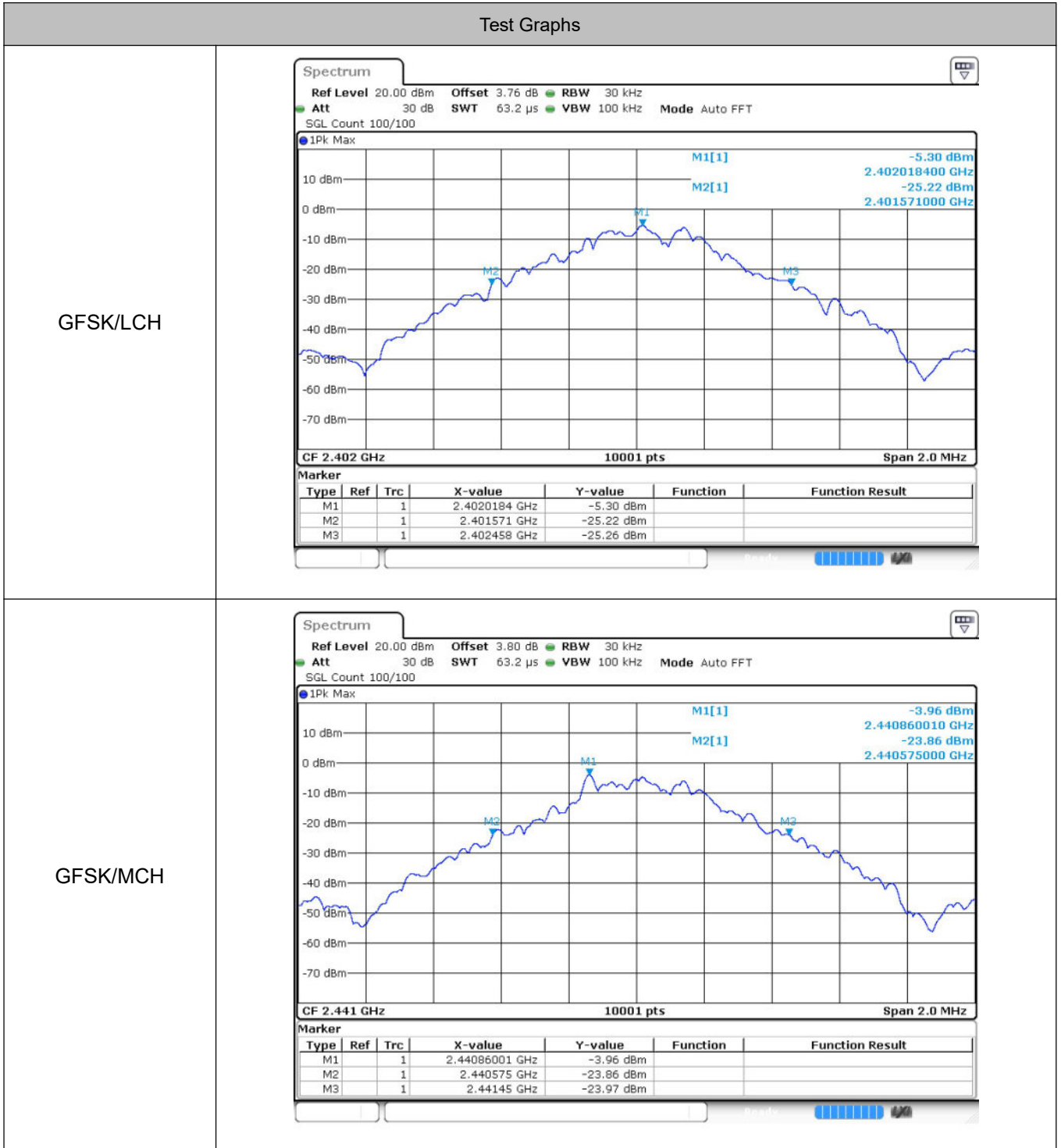


3 20dB Bandwidth

3.1 Test Result

| Mode | Channel. | 20dB Bandwidth [MHz] | Limit [MHz] | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK | LCH | 0.887 | Not Specified | Pass |
| | MCH | 0.875 | Not Specified | Pass |
| | HCH | 0.858 | Not Specified | Pass |
| $\pi/4$ DQPSK | LCH | 1.233 | Not Specified | Pass |
| | MCH | 1.227 | Not Specified | Pass |
| | HCH | 1.213 | Not Specified | Pass |
| 8DPSK | LCH | 1.186 | Not Specified | Pass |
| | MCH | 1.205 | Not Specified | Pass |
| | HCH | 1.207 | Not Specified | Pass |

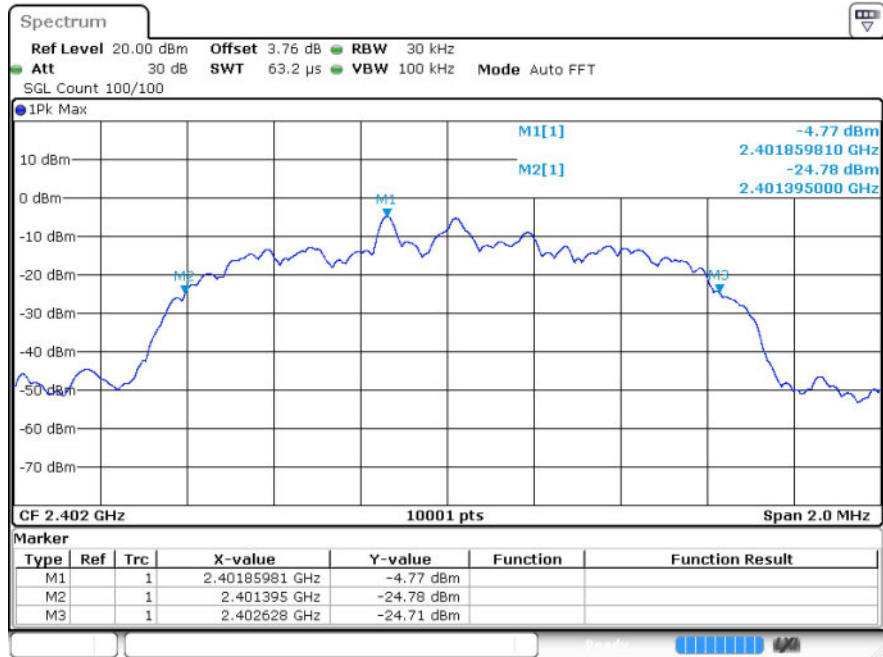
3.2 Test Graphs



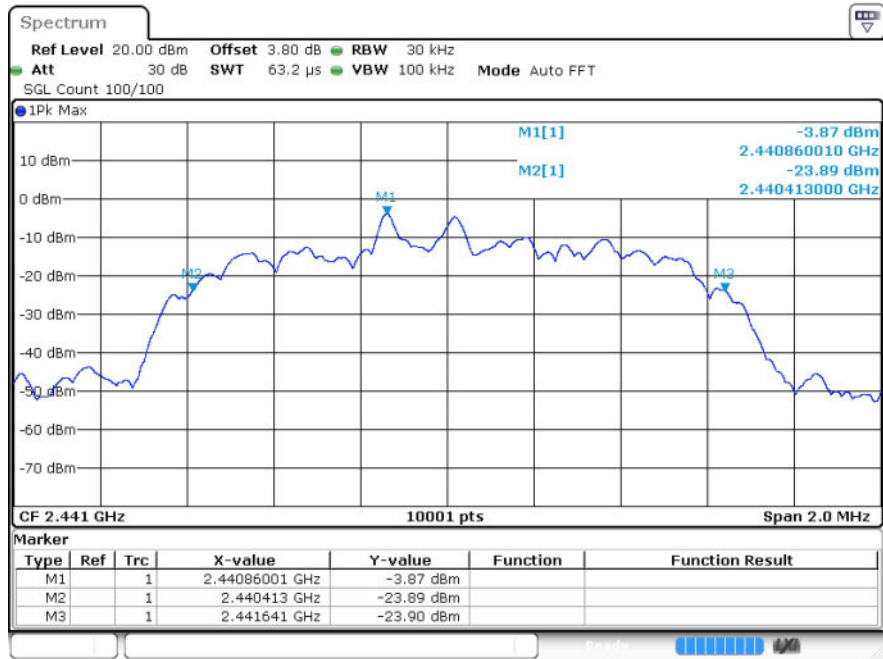
GFSK/HCH



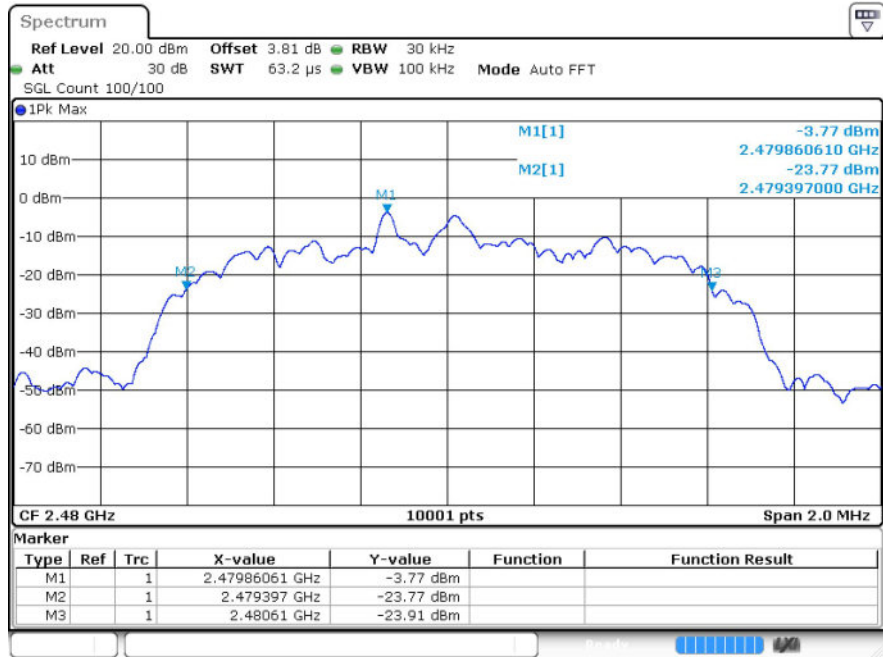
$\pi/4$ DQPSK/LCH



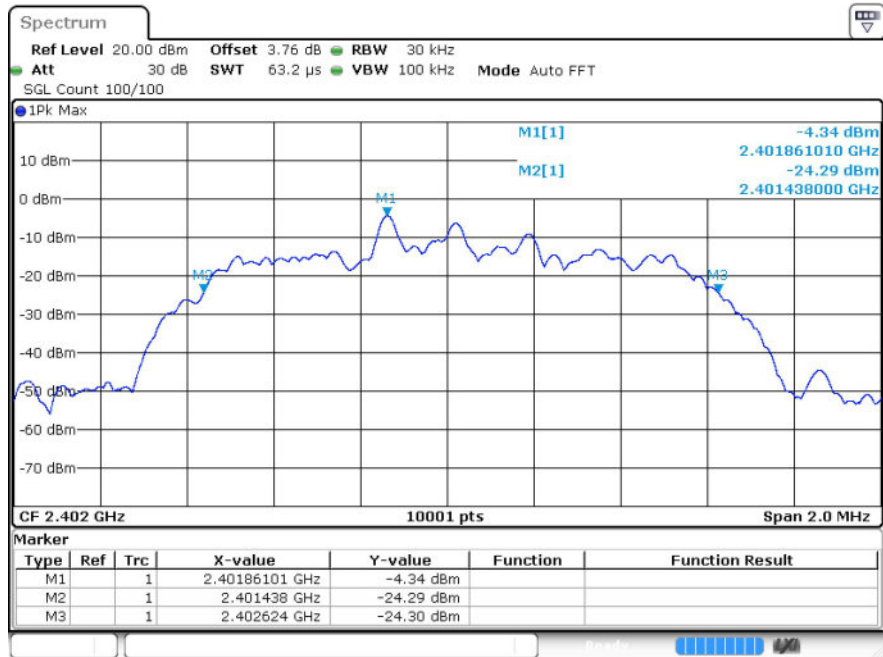
$\pi/4$ DQPSK/MCH



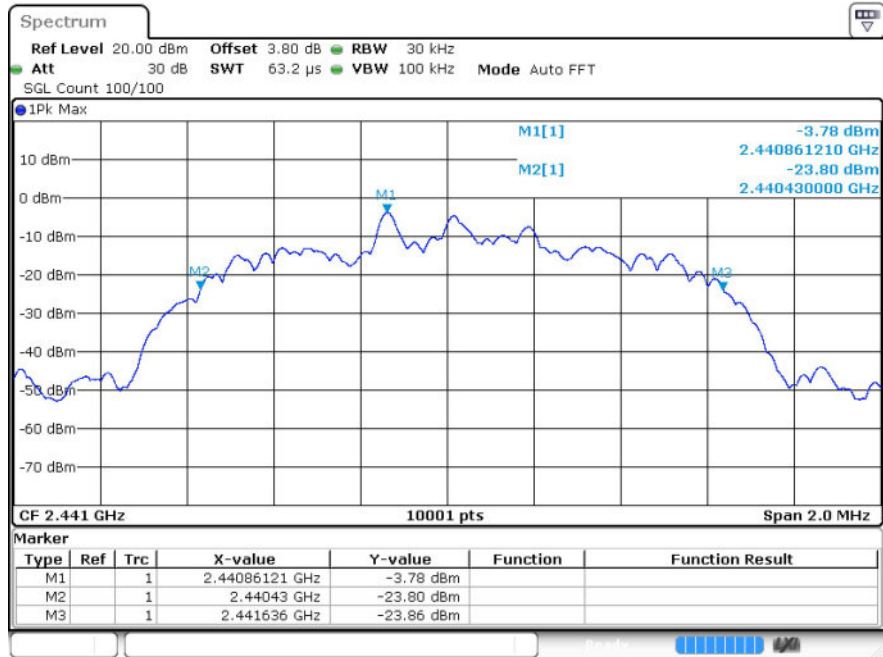
$\pi/4$ DQPSK/HCH



8DPSK/LCH



8DPSK/MCH





8DPSK/HCH

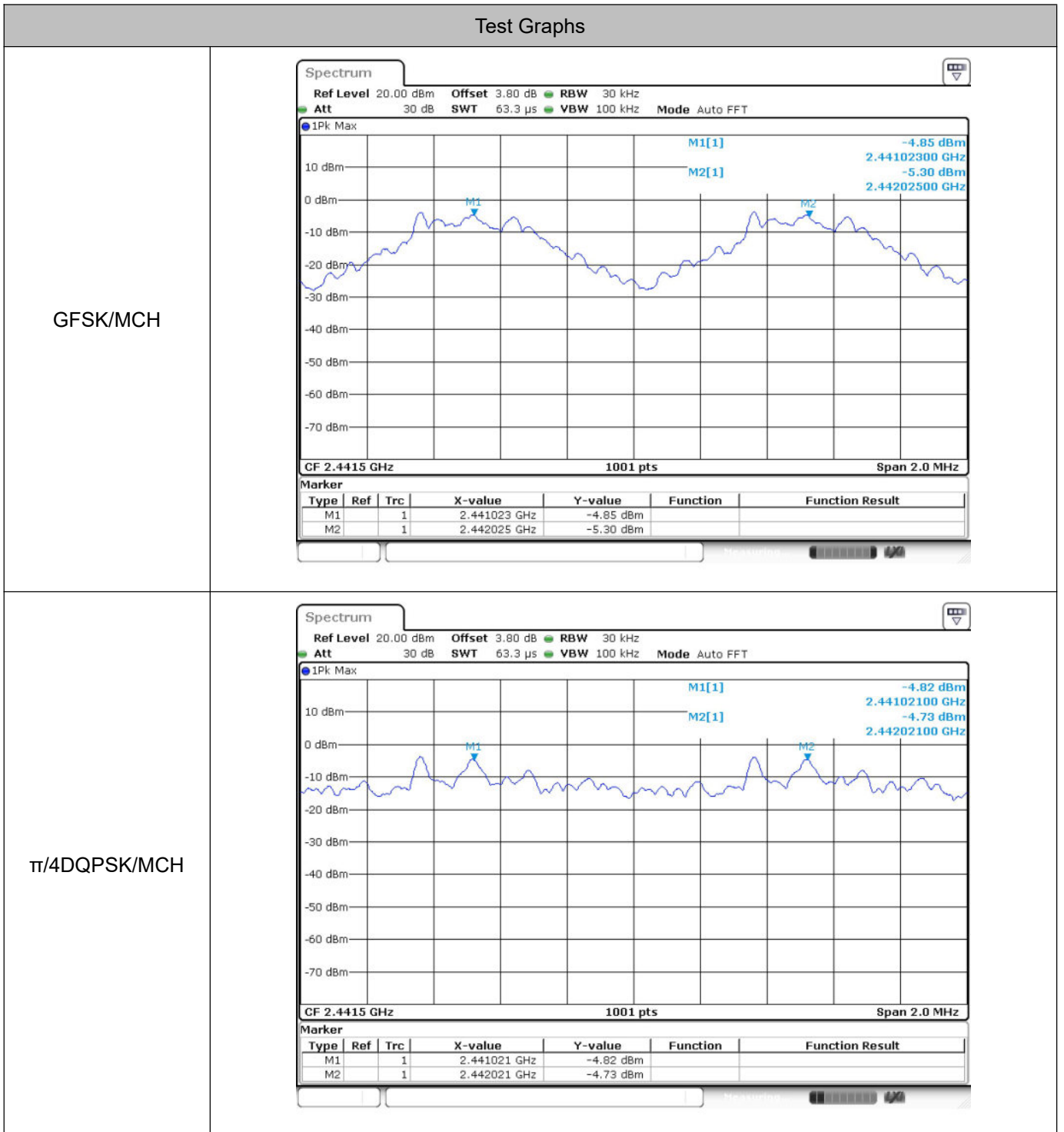


4 Carrier Frequency Separation

4.1 Test Result

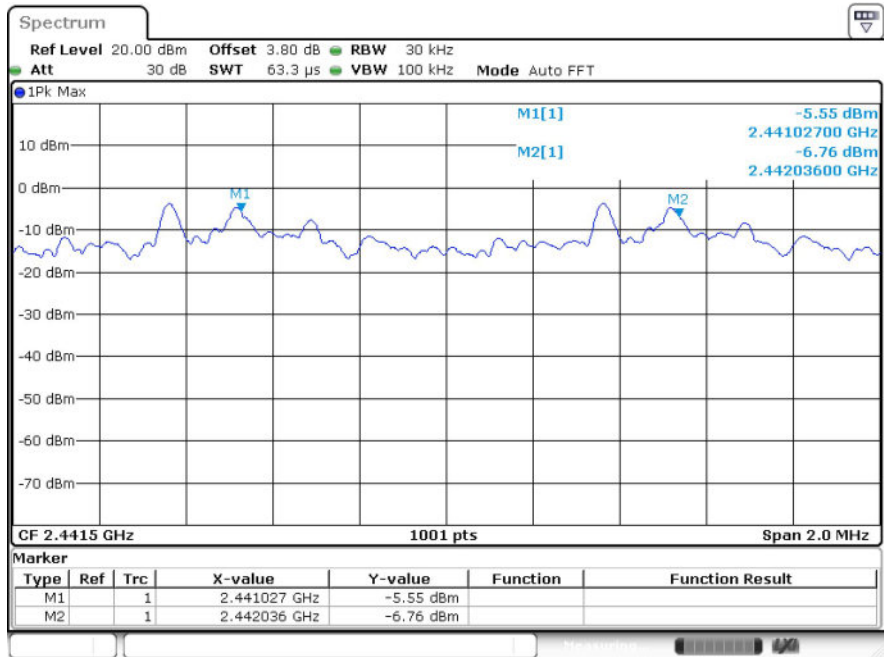
| Mode | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK | MCH | 1.002 | 0.583 | Pass |
| $\pi/4$ DQPSK | MCH | 1 | 0.818 | Pass |
| 8DPSK | MCH | 1.009 | 0.803 | Pass |

4.2 Test Graphs





8DPSK/MCH

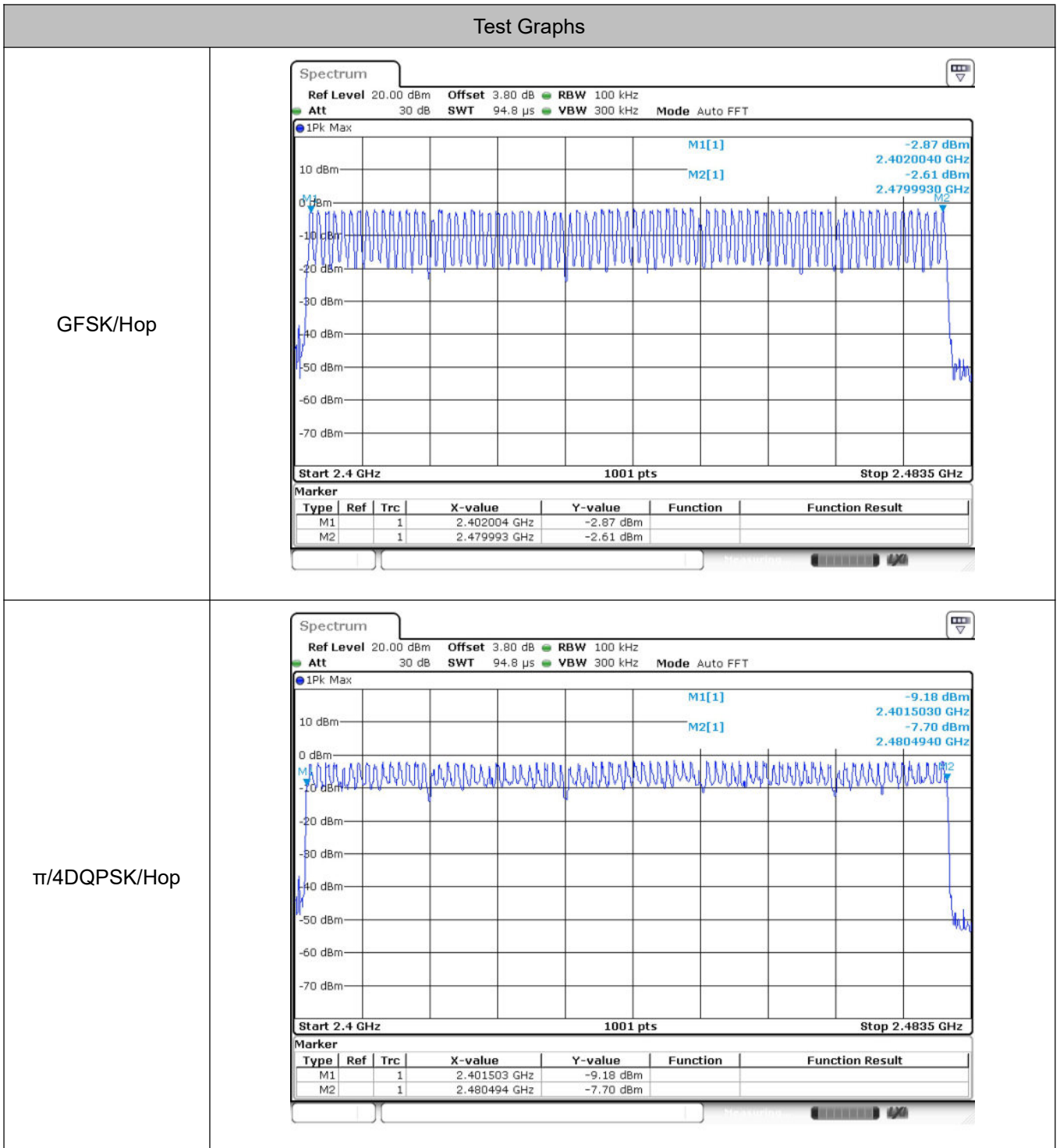


5 Hopping Channel Number

5.1 Test Result

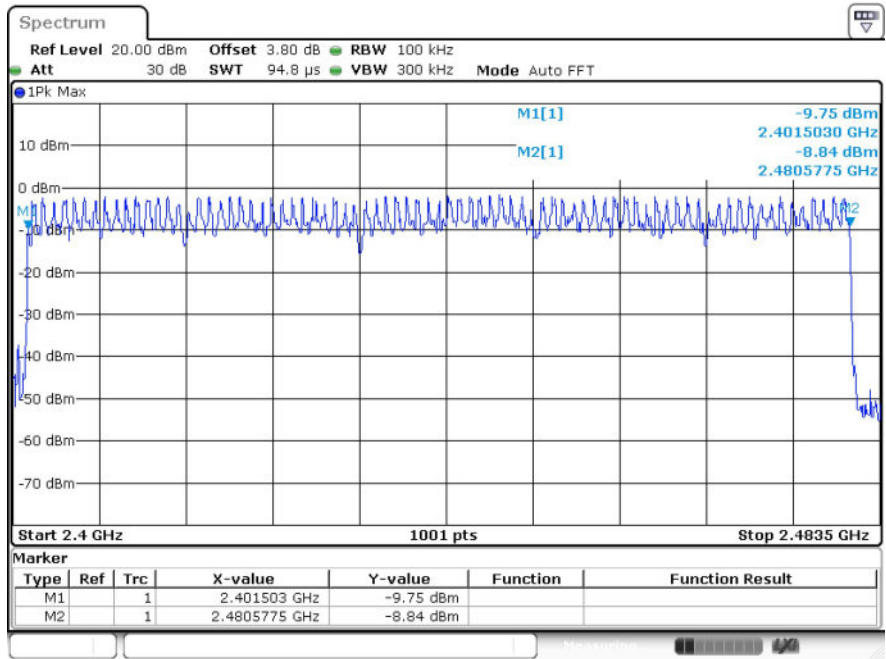
| Mode | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK | Hop | 79 | ≥ 15 | PASS |
| $\pi/4$ DQPSK | Hop | 79 | ≥ 15 | PASS |
| 8DPSK | Hop | 79 | ≥ 15 | PASS |

5.2 Test Graphs





8DPSK/Hop

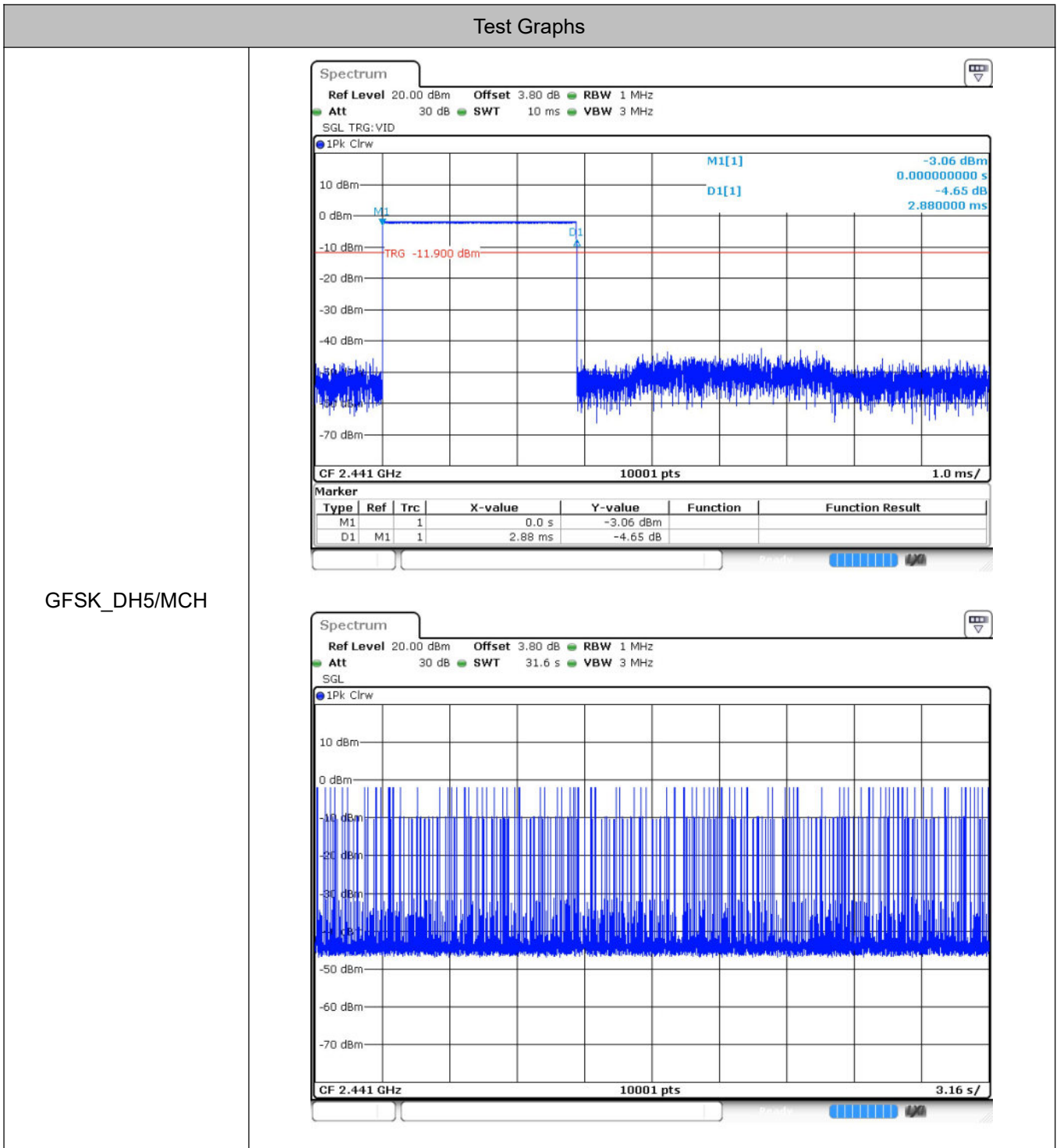


6 Dwell Time

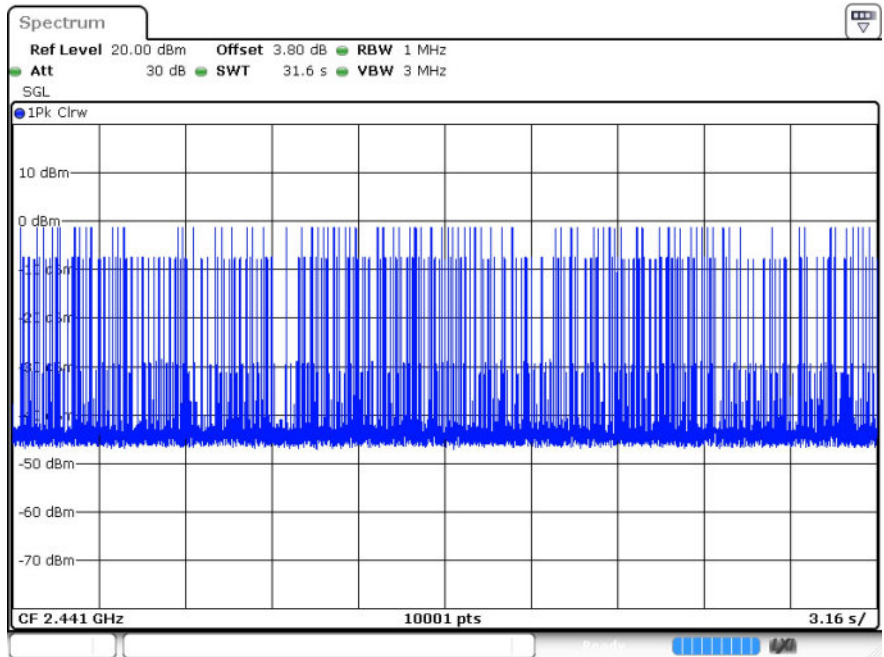
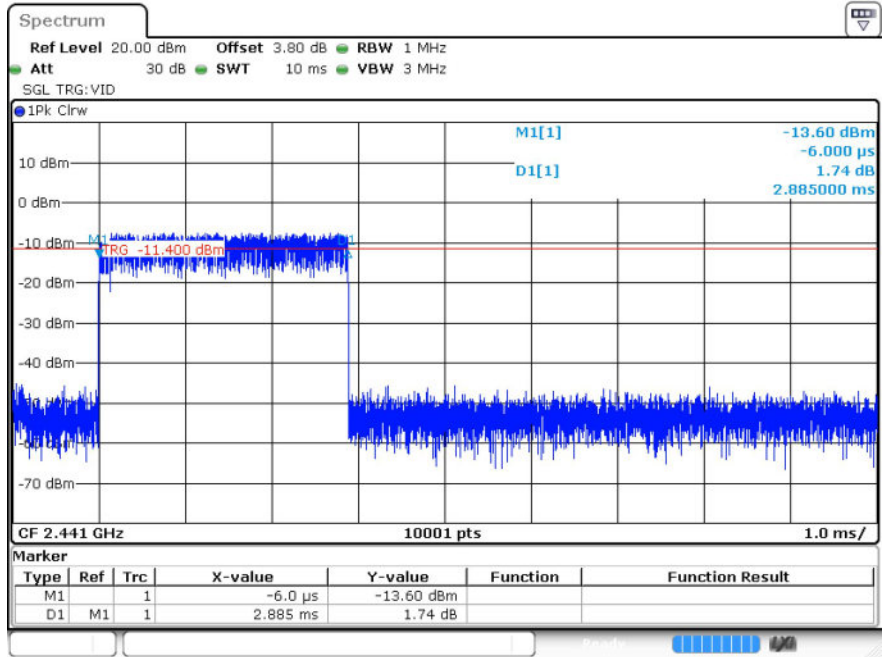
6.1 Test Result

| Mode | Packet | Channel | Burst Width [ms/hop/ch] | Total Hops[hop*ch] | Dwell Time[ms] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|----------------|-----------|---------|
| GFSK | DH5 | MCH | 2.88 | 112 | 322.56 | 0.4 | Pass |
| $\pi/4$ DQPSK | 2DH5 | MCH | 2.885 | 103 | 297.155 | 0.4 | Pass |
| 8DPSK | 3DH5 | MCH | 2.888 | 101 | 291.688 | 0.4 | Pass |

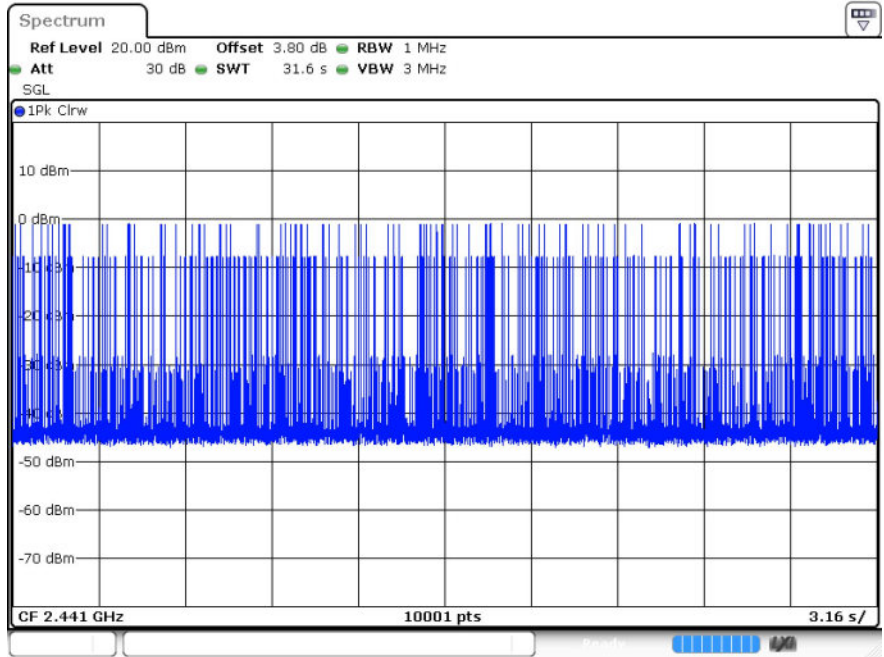
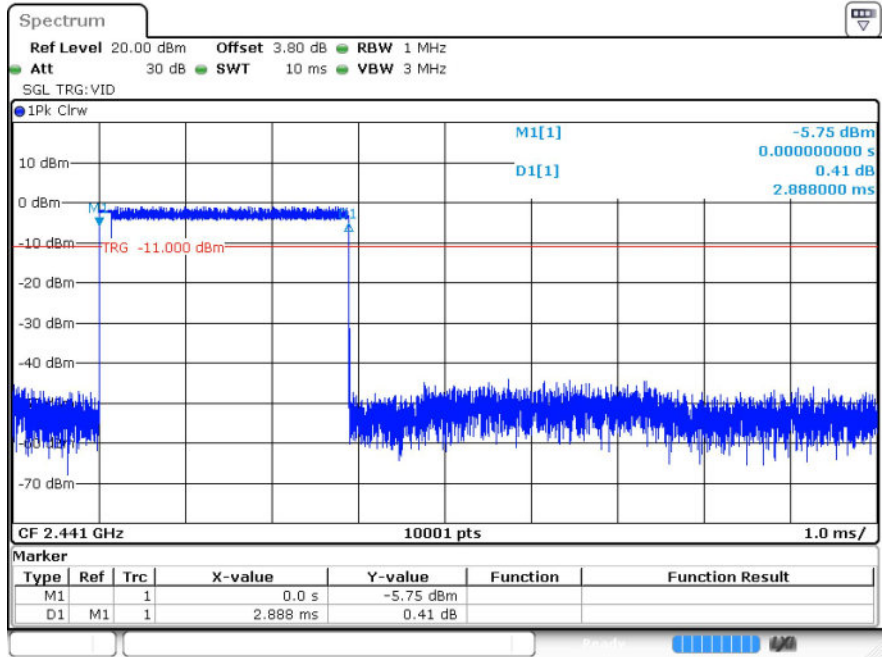
6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH



8DPSK_3DH5/MCH

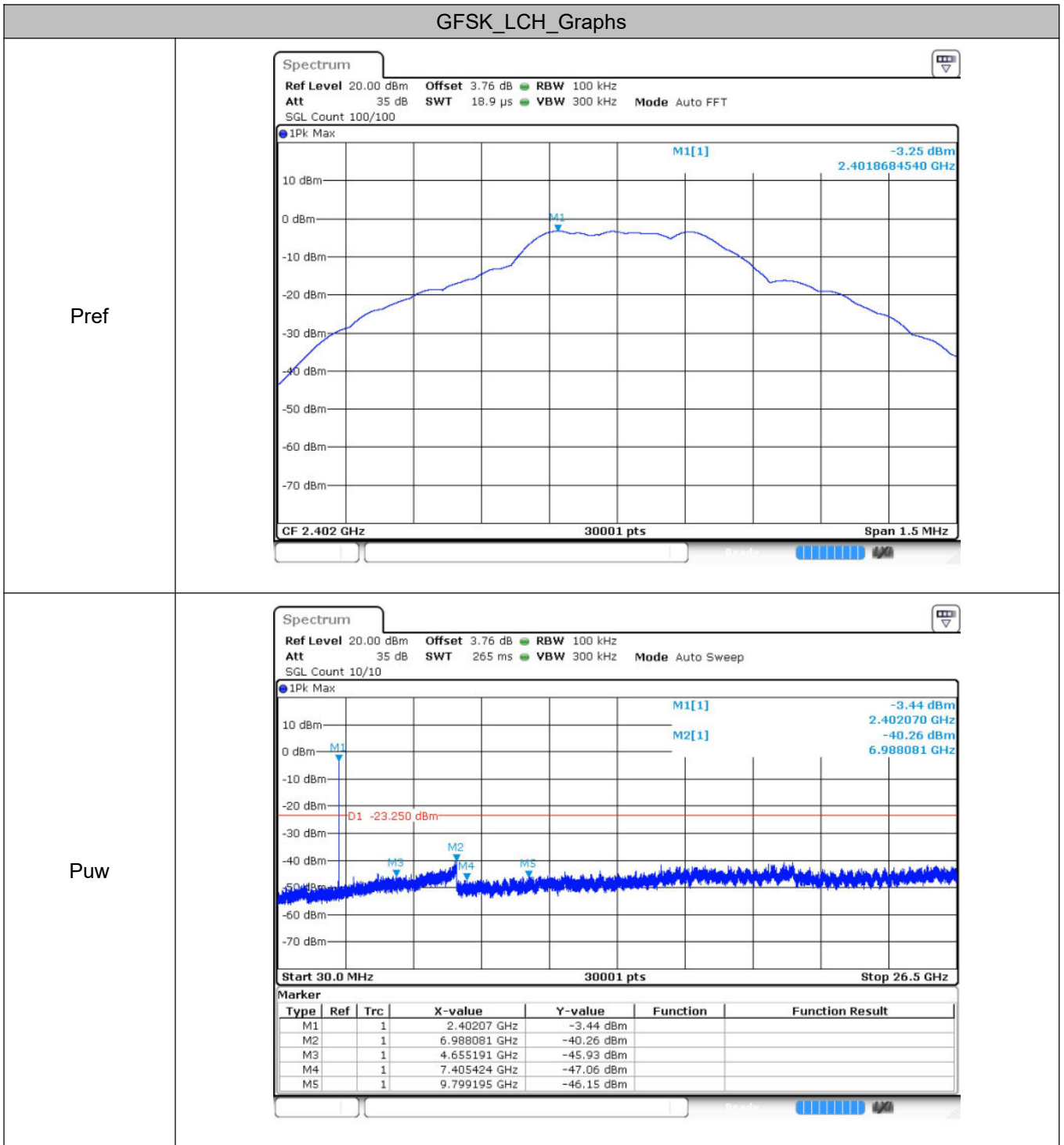


7 RF Conducted Spurious Emissions

7.1 Test Result

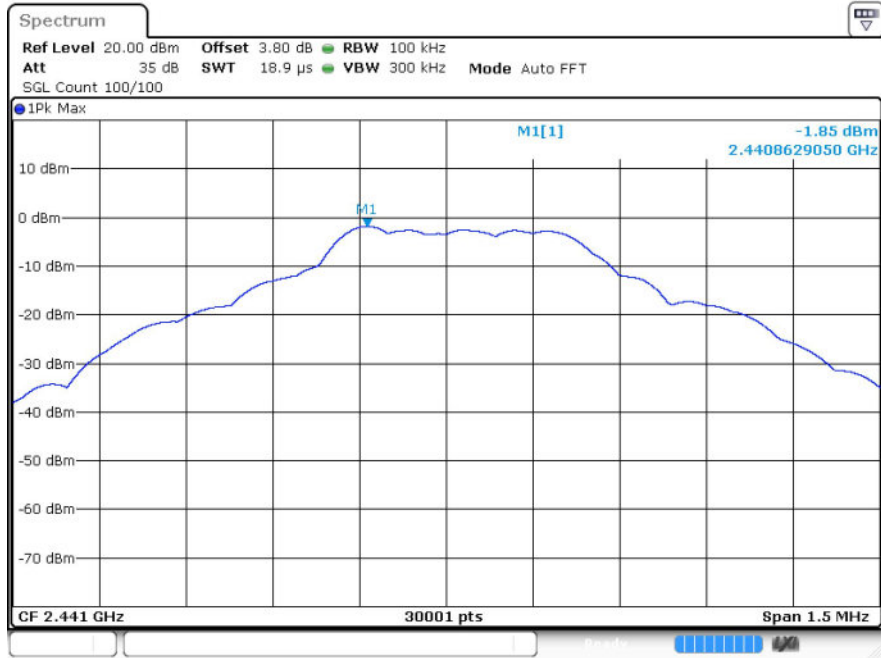
| Mode | Channel | Max. Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|------------------|-------------|---------|
| GFSK | LCH | -37 | -20 | Pass |
| | MCH | -38.28 | -20 | Pass |
| | HCH | -37.6 | -20 | Pass |
| $\pi/4$ DQPSK | LCH | -37.85 | -20 | Pass |
| | MCH | -36.94 | -20 | Pass |
| | HCH | -37.59 | -20 | Pass |
| 8DPSK | LCH | -37.08 | -20 | Pass |
| | MCH | -37.14 | -20 | Pass |
| | HCH | -38.28 | -20 | Pass |

7.2 Test Graphs

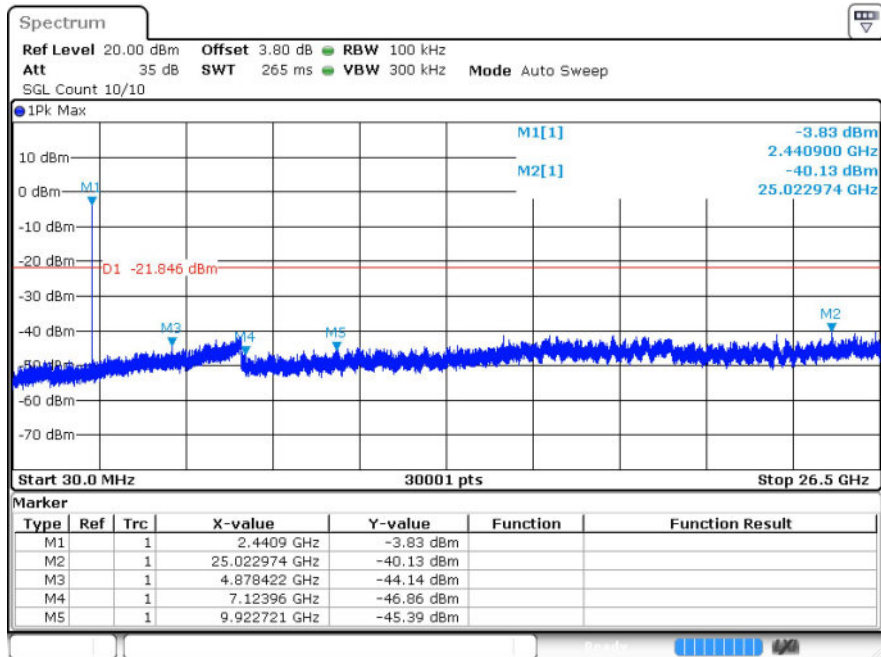


GFSK_MCH_Graphs

Pref

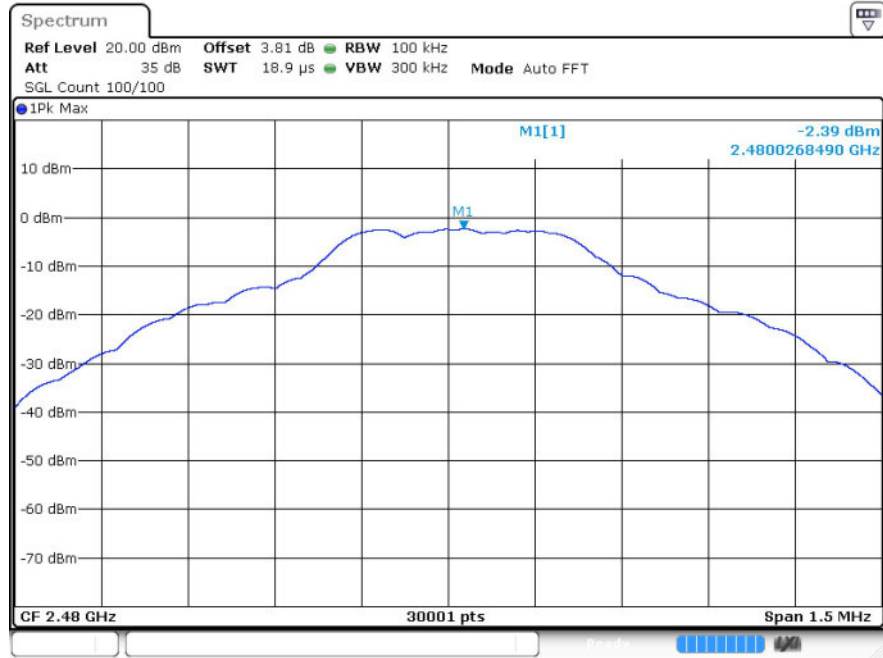


Puw



GFSK_HCH_Graphs

Pref



Puw

