



Appendix A

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

Product Name: Wireless Headphones

Trade Mark: N/A

Test Model: Y-12

Environmental Conditions

| | |
|--------------------|-------------|
| Temperature: | 25.3°C |
| Relative Humidity: | 51.2% |
| ATM Pressure: | 101Kpa |
| Test Engineer: | Emiya lin |
| Supervised by: | Simba Haung |



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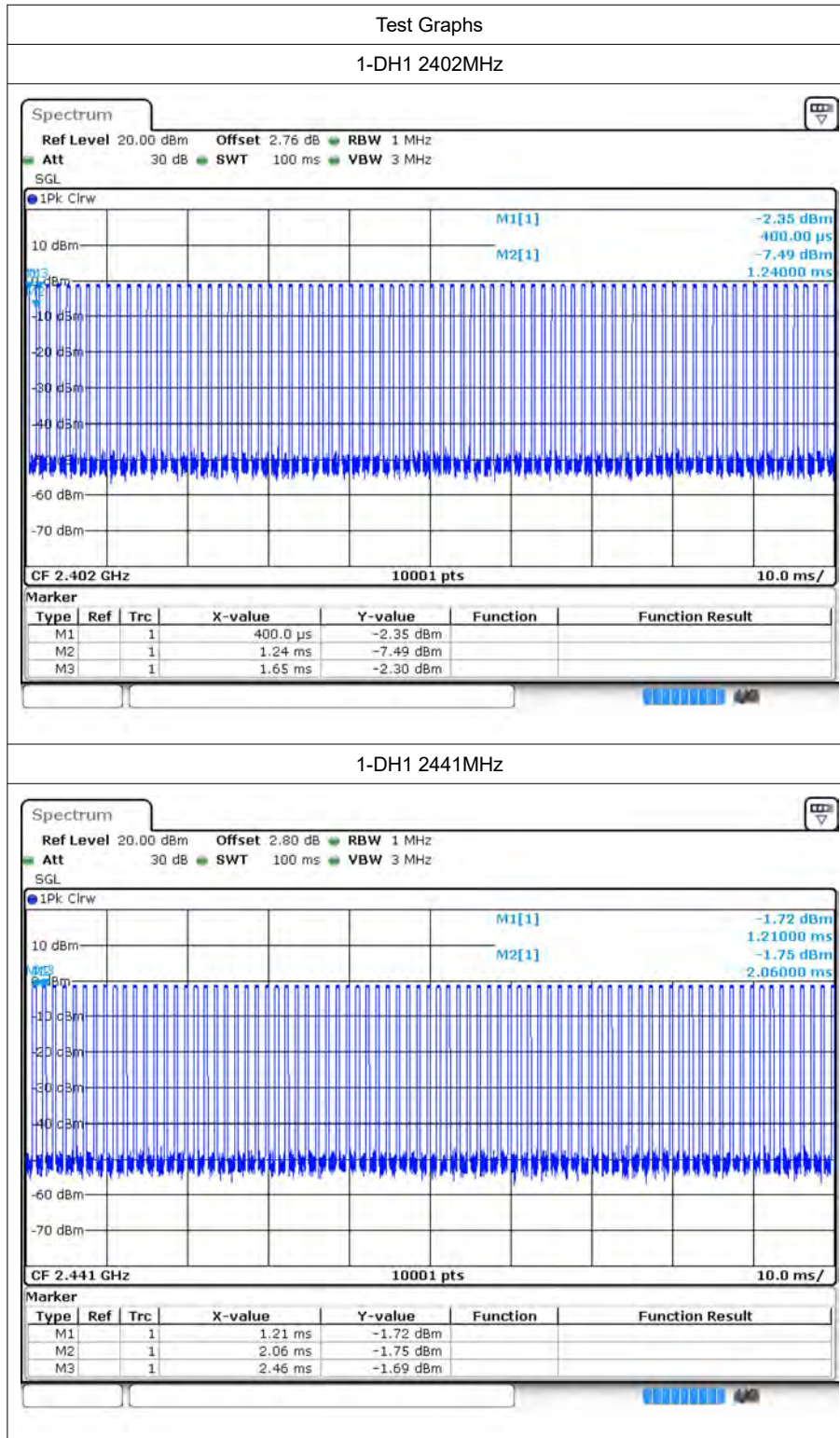


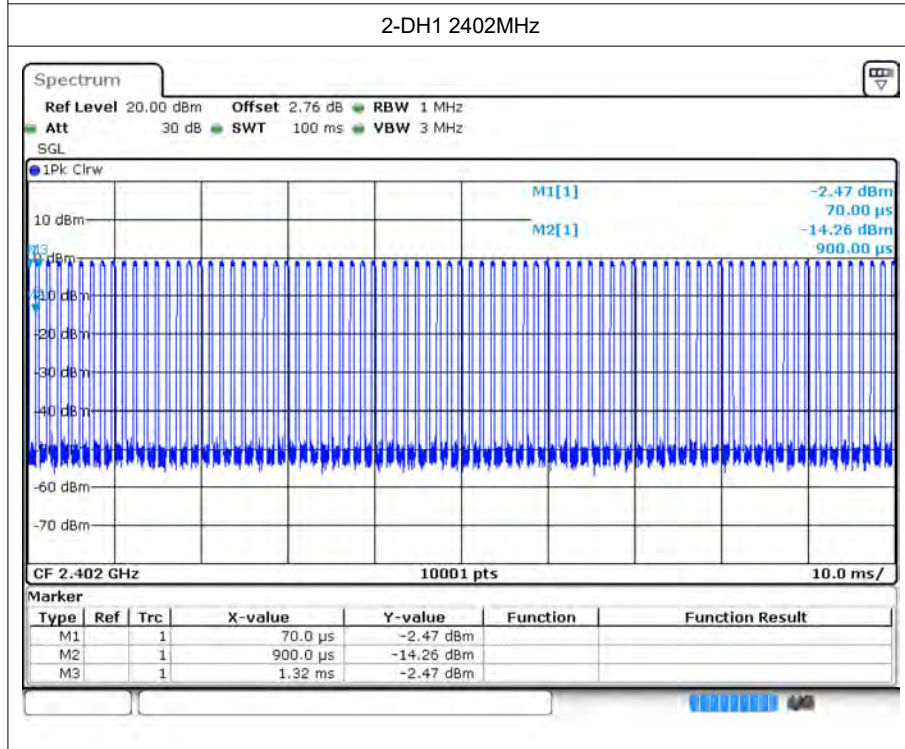
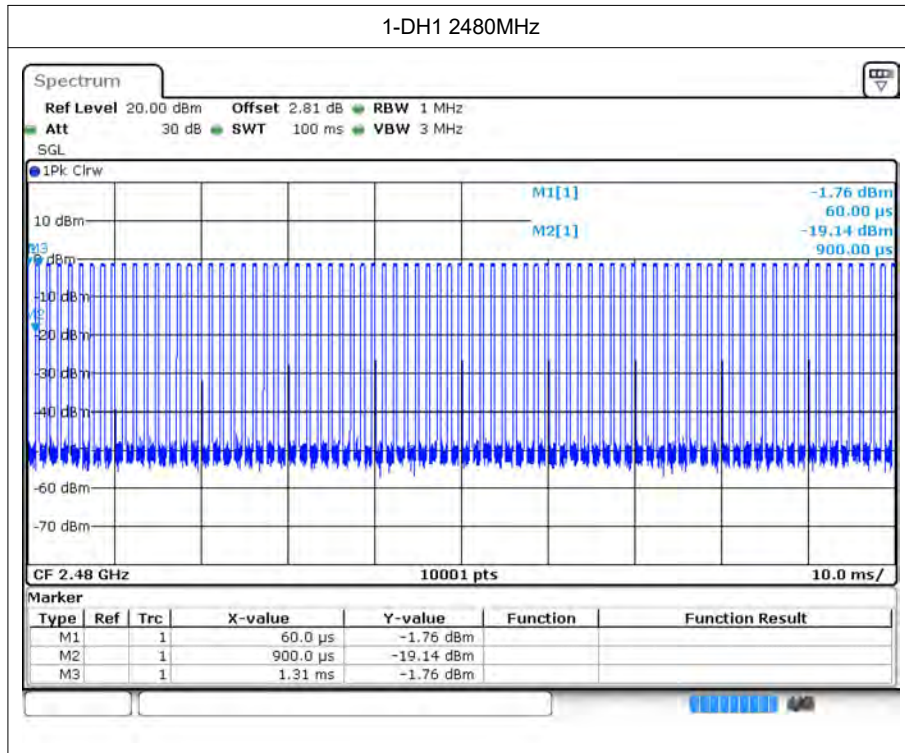
1 Duty Cycle

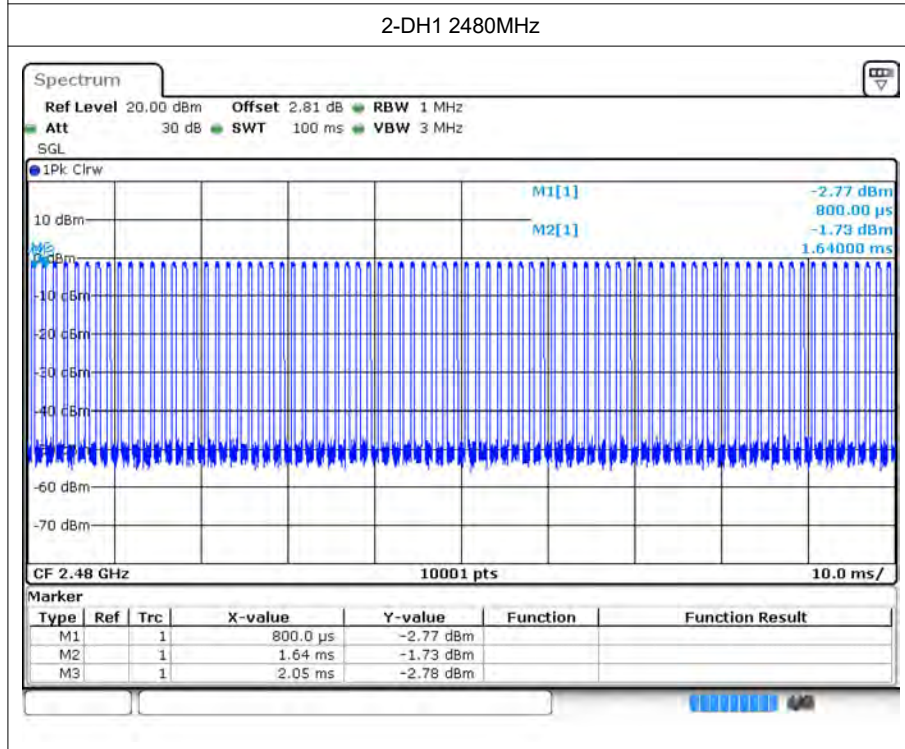
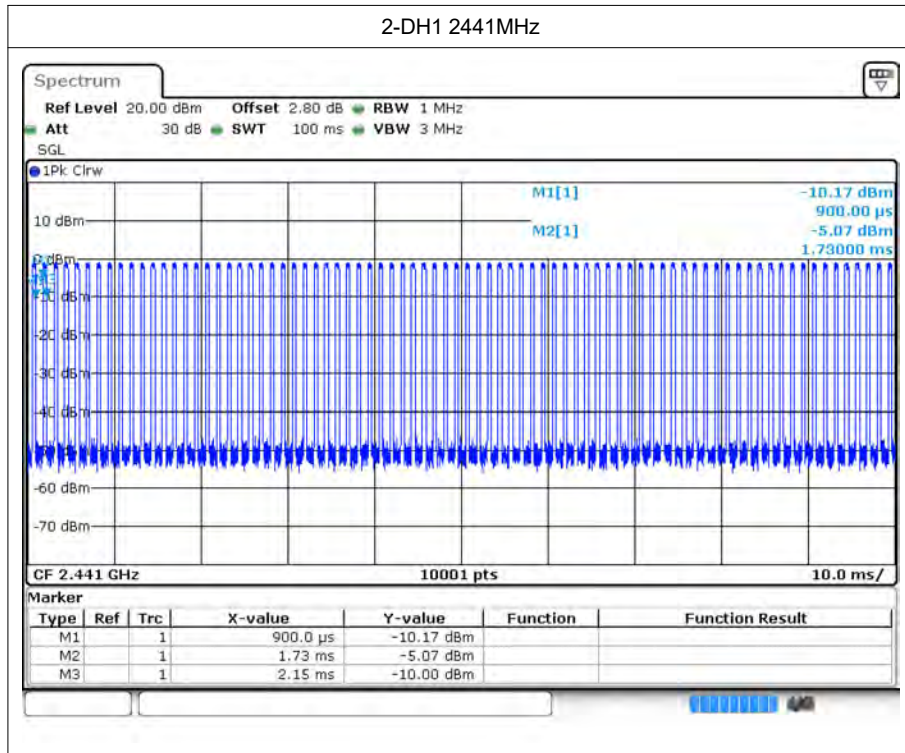
1.1 Test Result

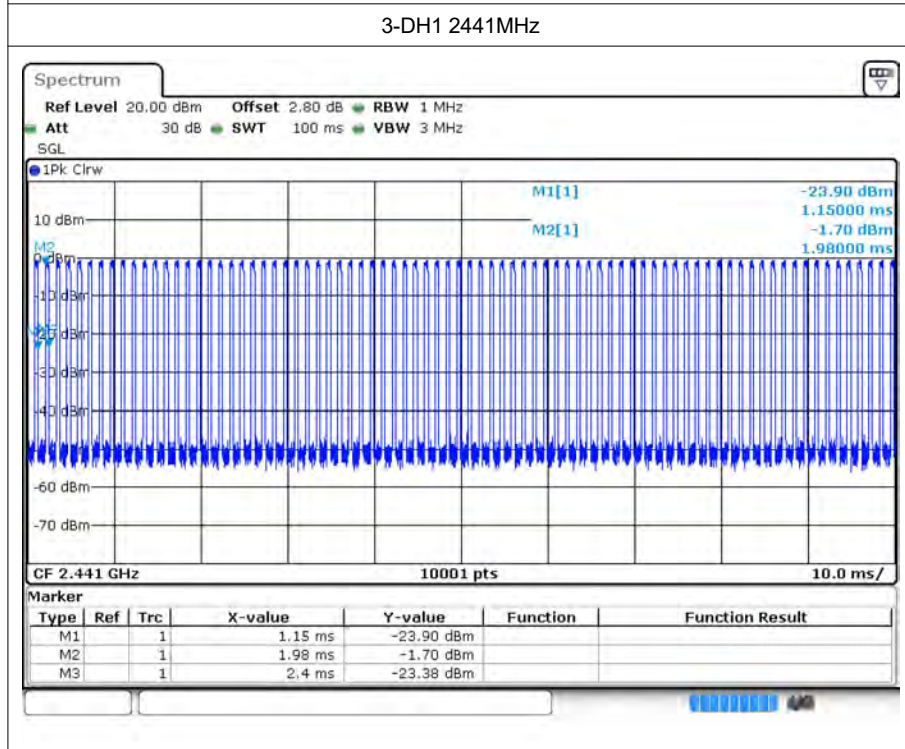
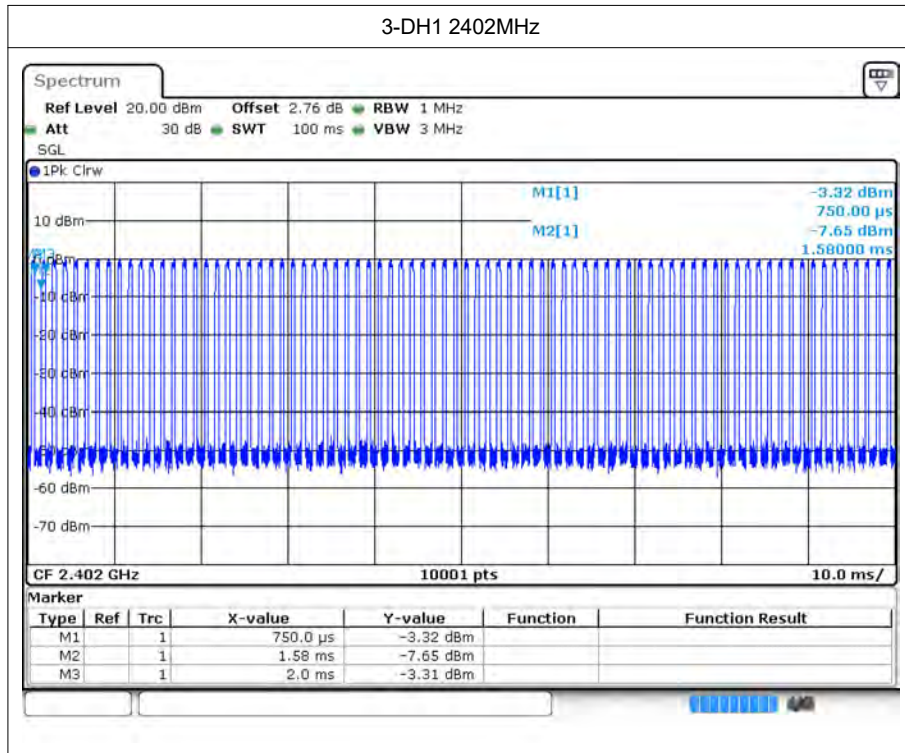
| Mode | Frequency (MHz) | Duty Cycle (%) | Correction Factor | 1/T (kHz) |
|-------|-----------------|----------------|-------------------|-----------|
| 1-DH1 | 2402 | 33.61 | 4.74 | 2.44 |
| 1-DH1 | 2441 | 33.28 | 4.78 | 2.5 |
| 1-DH1 | 2480 | 32.93 | 4.82 | 2.44 |
| 2-DH1 | 2402 | 34.29 | 4.65 | 2.38 |
| 2-DH1 | 2441 | 34.4 | 4.63 | 2.38 |
| 2-DH1 | 2480 | 33.7 | 4.72 | 2.44 |
| 3-DH1 | 2402 | 34.4 | 4.63 | 2.38 |
| 3-DH1 | 2441 | 34.4 | 4.63 | 2.38 |
| 3-DH1 | 2480 | 34.41 | 4.63 | 2.38 |

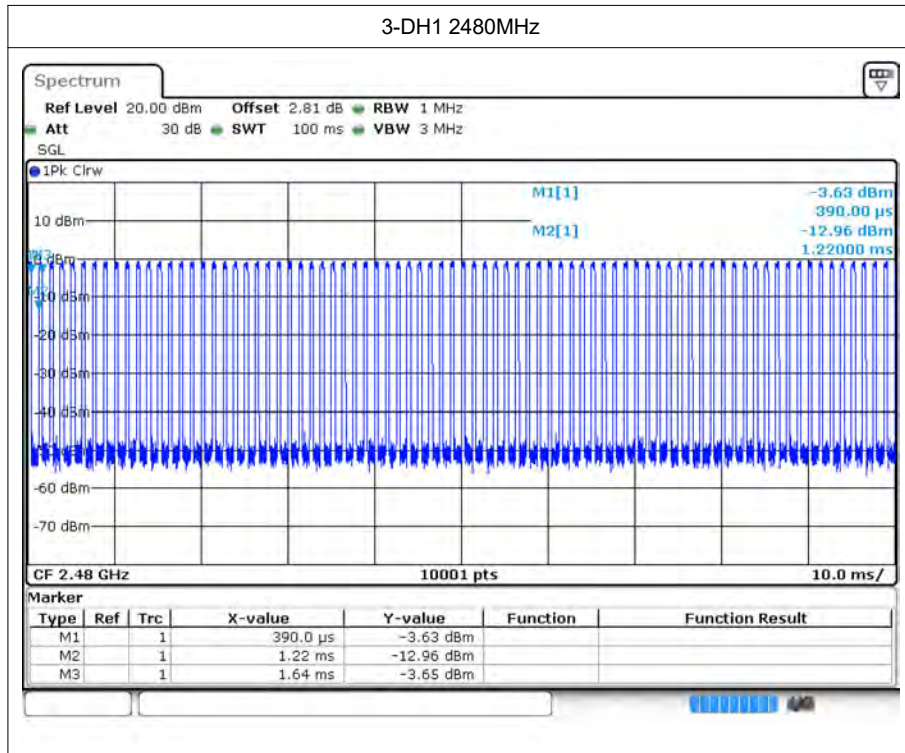
1.2 Test Graphs









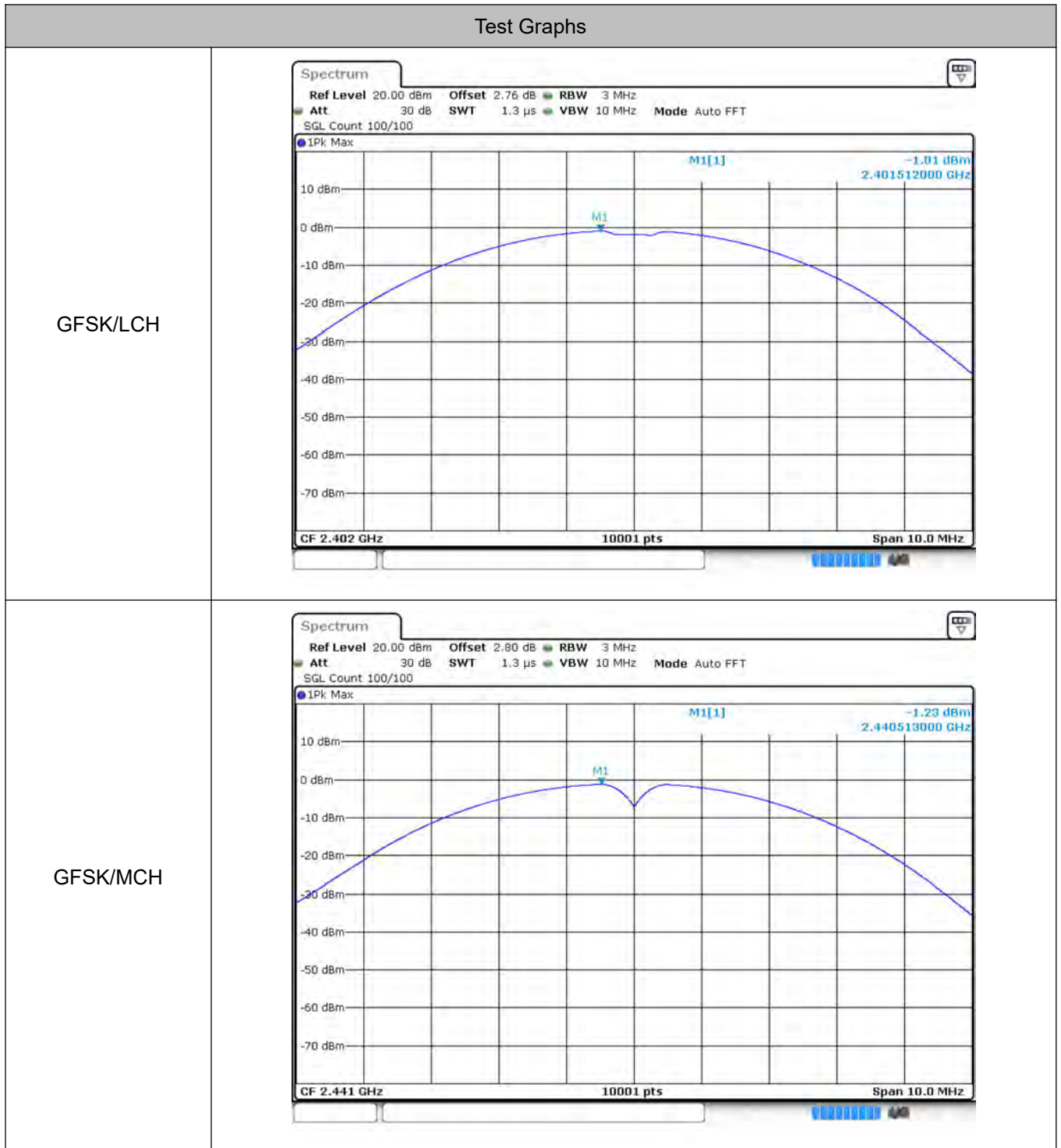


2 Maximum Conducted Peak Output Power

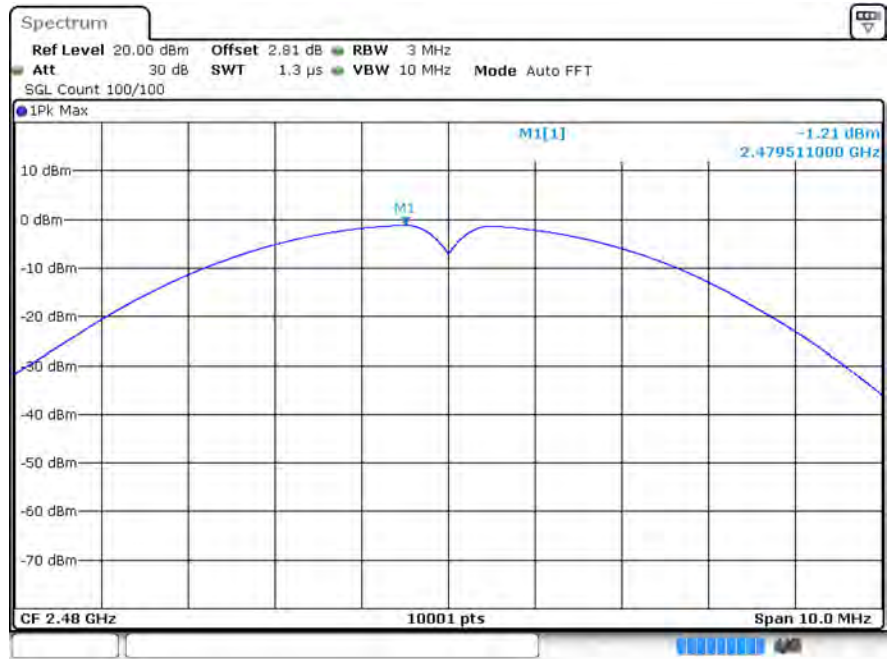
2.1 Test Result

| Mode | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK | LCH | -1.01 | 21 | Pass |
| | MCH | -1.23 | 21 | Pass |
| | HCH | -1.21 | 21 | Pass |
| $\pi/4$ DQPSK | LCH | -0.52 | 21 | Pass |
| | MCH | -1.24 | 21 | Pass |
| | HCH | -1.29 | 21 | Pass |
| 8DPSK | LCH | -0.88 | 21 | Pass |
| | MCH | -1.14 | 21 | Pass |
| | HCH | -0.36 | 21 | Pass |

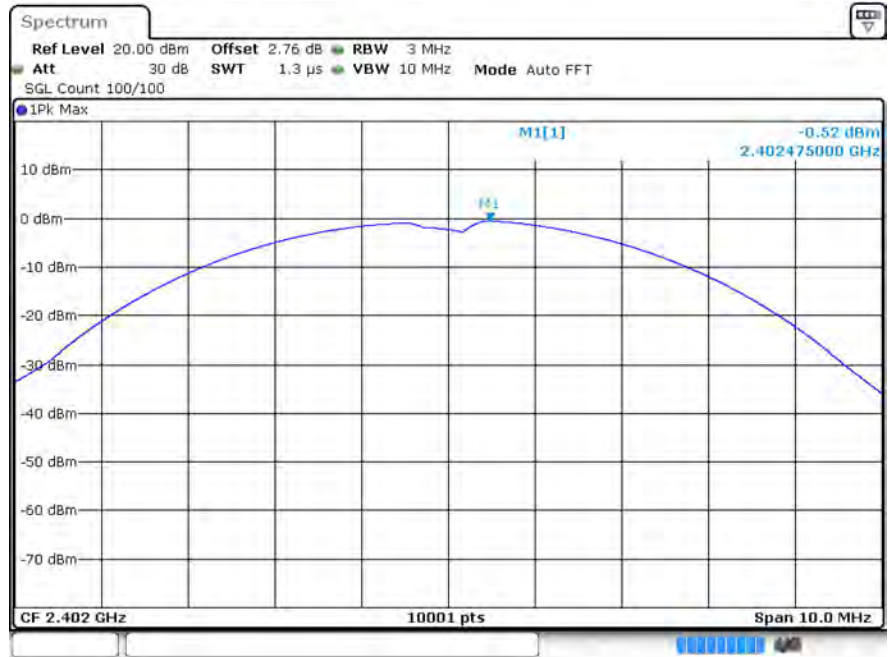
2.2 Test Graphs



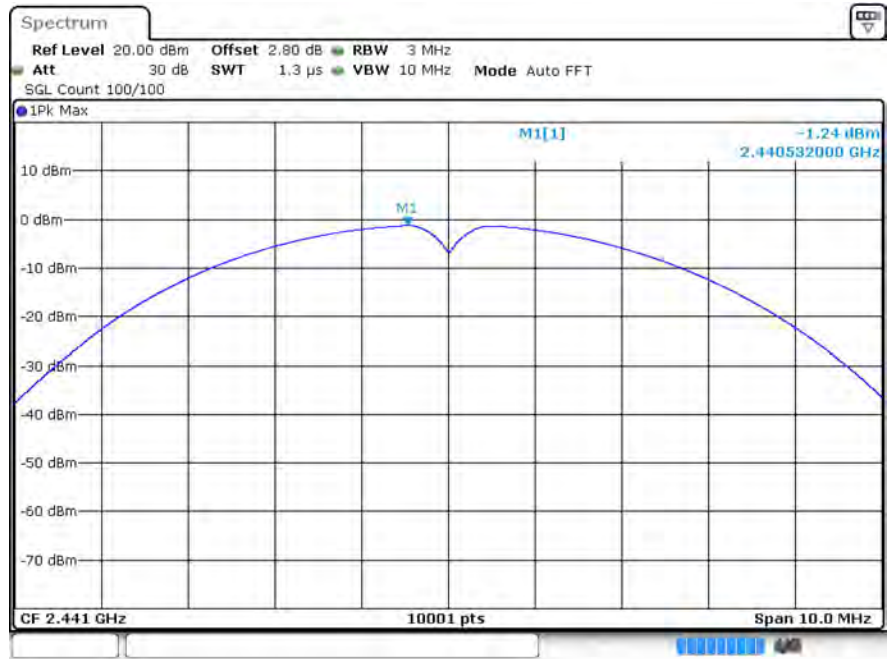
GFSK/HCH



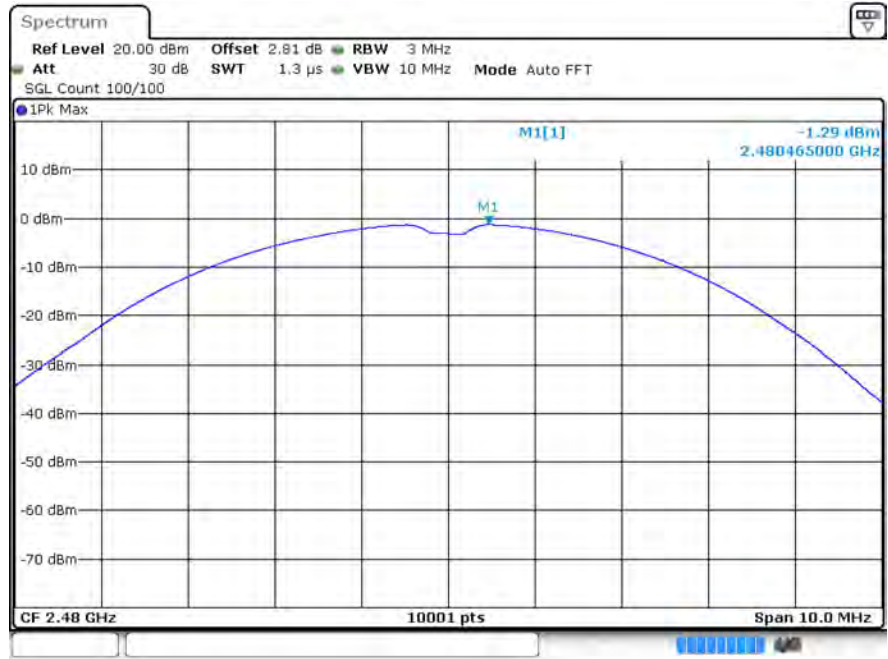
$\pi/4$ DQPSK/LCH



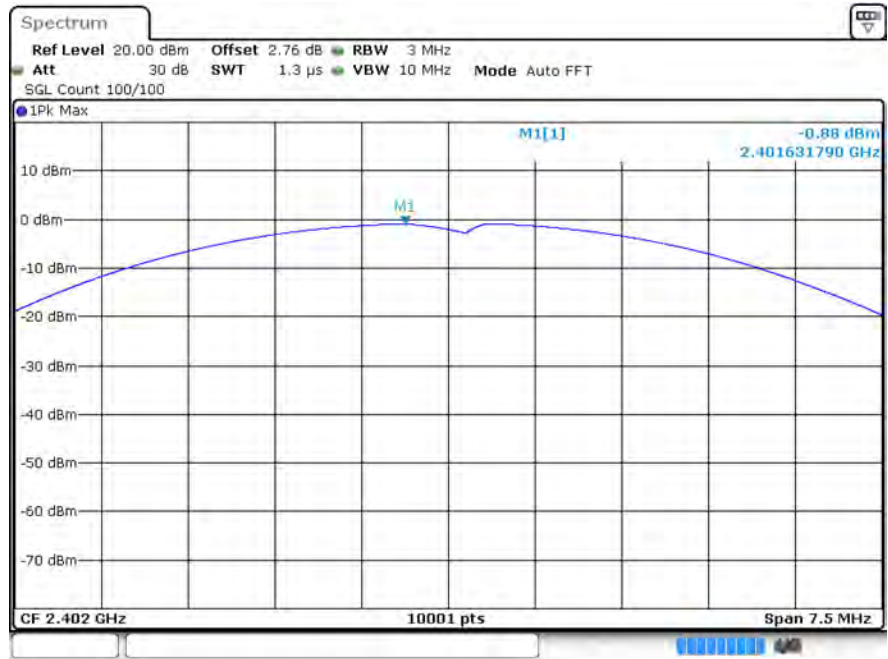
$\pi/4$ DQPSK/MCH



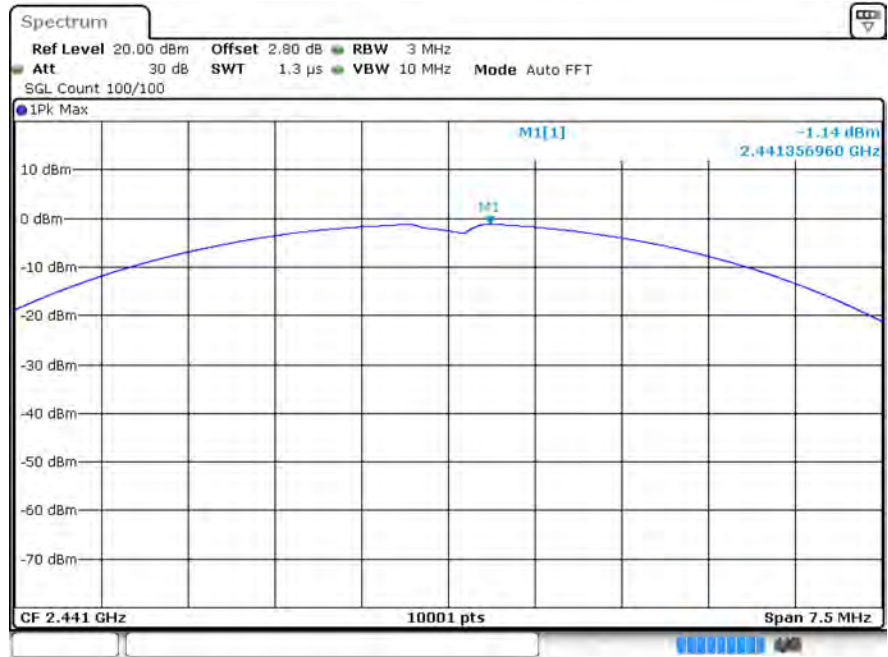
$\pi/4$ DQPSK/HCH



8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

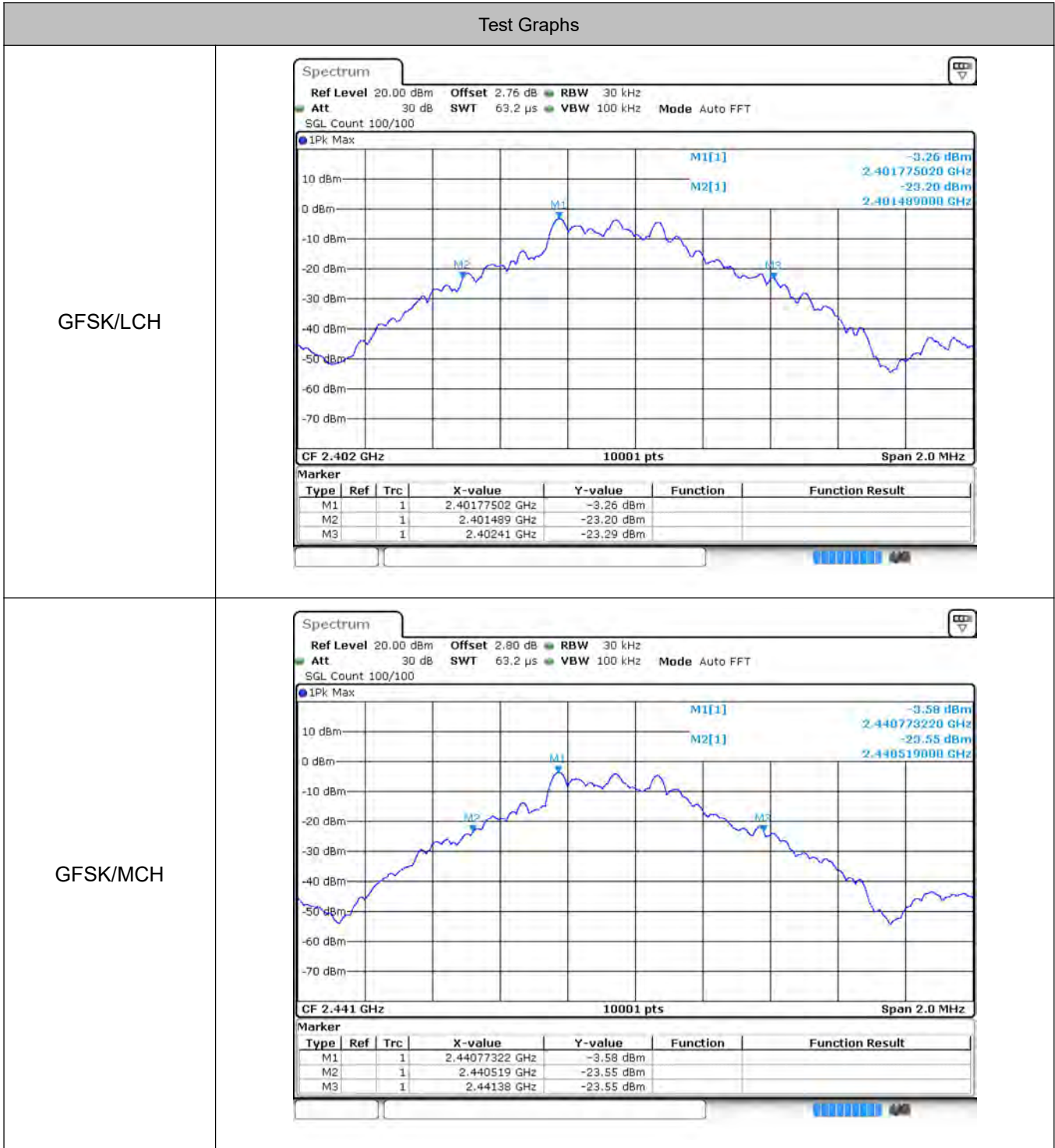


3 20dB Bandwidth

3.1 Test Result

| Mode | Channel. | 20dB Bandwidth [MHz] | Limit [MHz] | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK | LCH | 0.921 | Not Specified | Pass |
| | MCH | 0.861 | Not Specified | Pass |
| | HCH | 0.909 | Not Specified | Pass |
| $\pi/4$ DQPSK | LCH | 1.232 | Not Specified | Pass |
| | MCH | 1.225 | Not Specified | Pass |
| | HCH | 1.249 | Not Specified | Pass |
| 8DPSK | LCH | 1.207 | Not Specified | Pass |
| | MCH | 1.205 | Not Specified | Pass |
| | HCH | 1.204 | Not Specified | Pass |

3.2 Test Graphs



GFSK/HCH



$\pi/4$ DQPSK/LCH



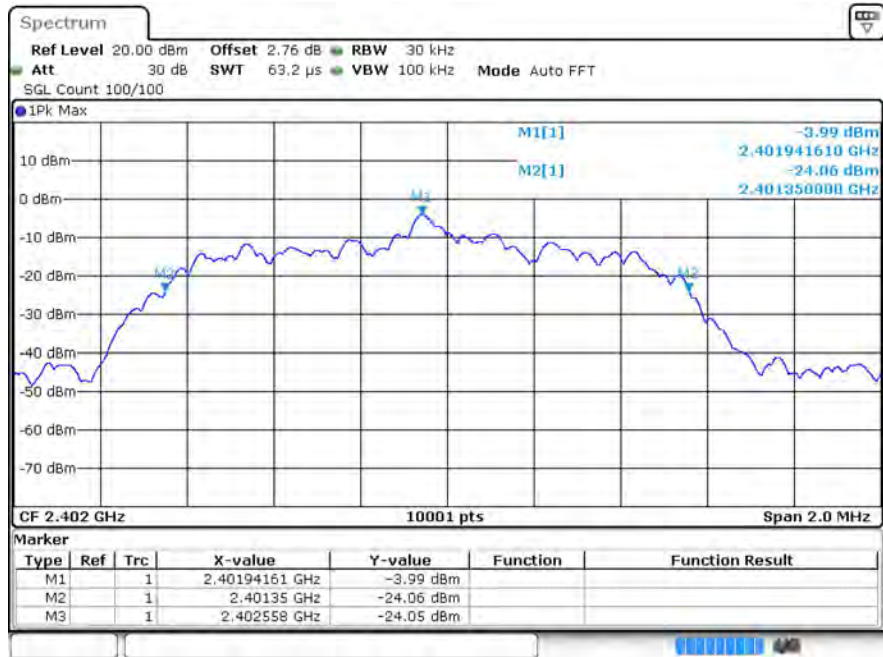
$\pi/4$ DQPSK/MCH



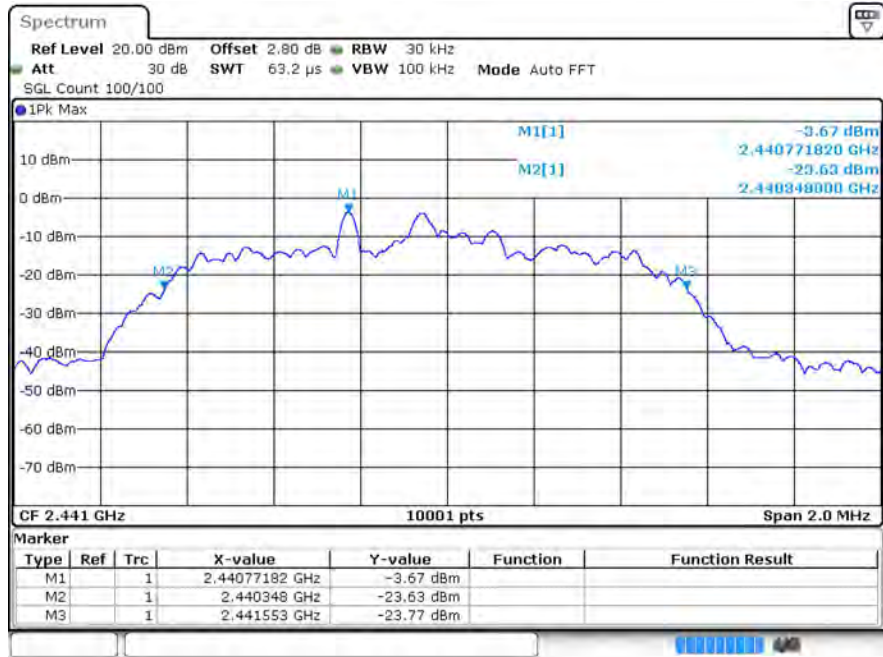
$\pi/4$ DQPSK/HCH



8DPSK/LCH



8DPSK/MCH





8DPSK/HCH

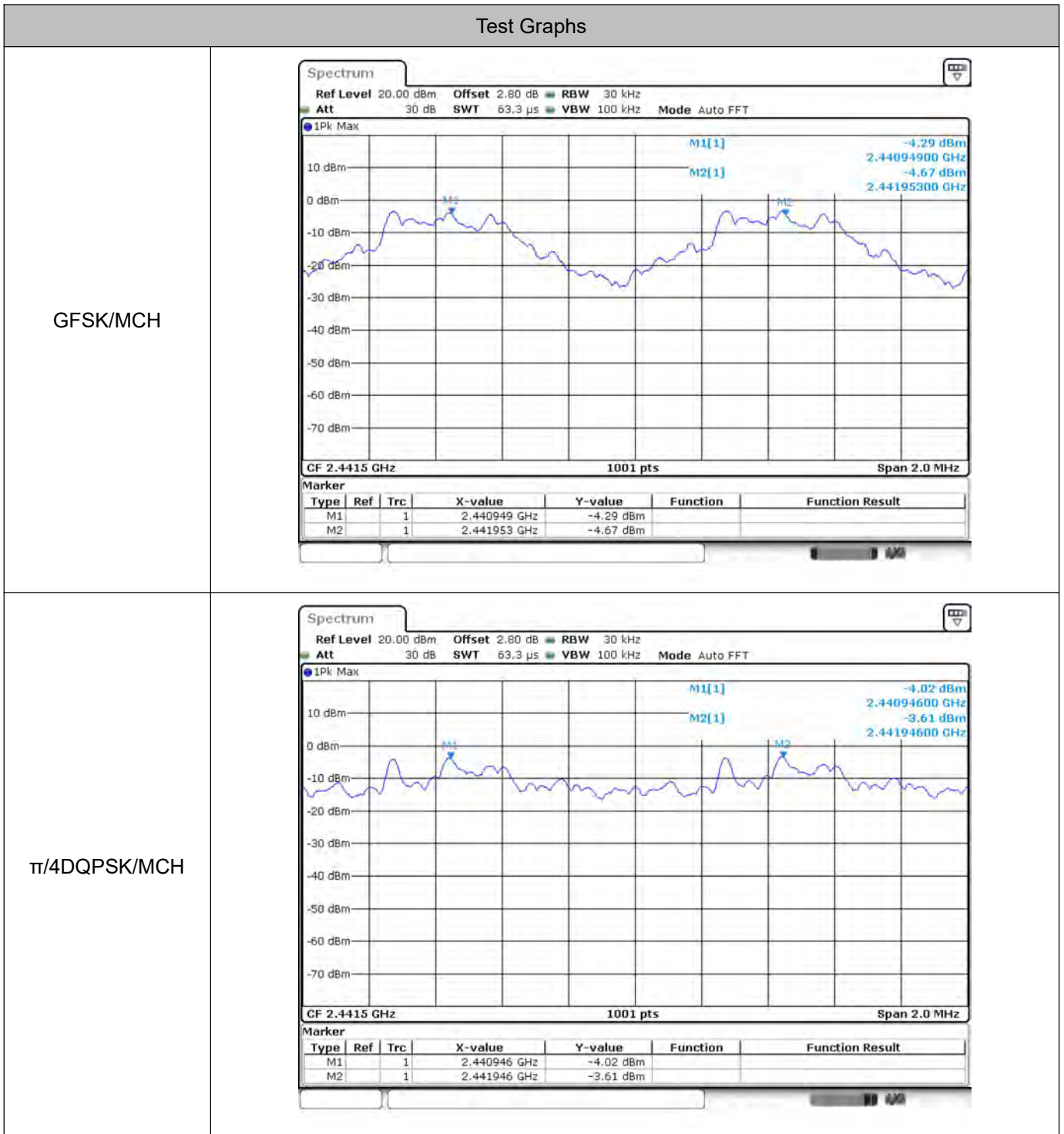


4 Carrier Frequency Separation

4.1 Test Result

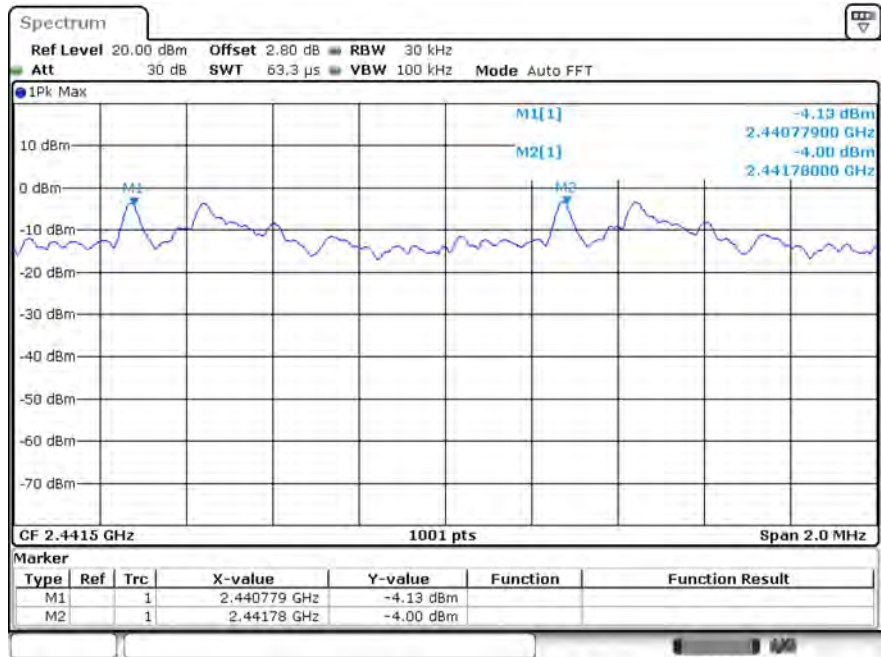
| Mode | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK | MCH | 1.004 | 0.574 | Pass |
| $\pi/4$ DQPSK | MCH | 1 | 0.817 | Pass |
| 8DPSK | MCH | 1.001 | 0.803 | Pass |

4.2 Test Graphs





8DPSK/MCH



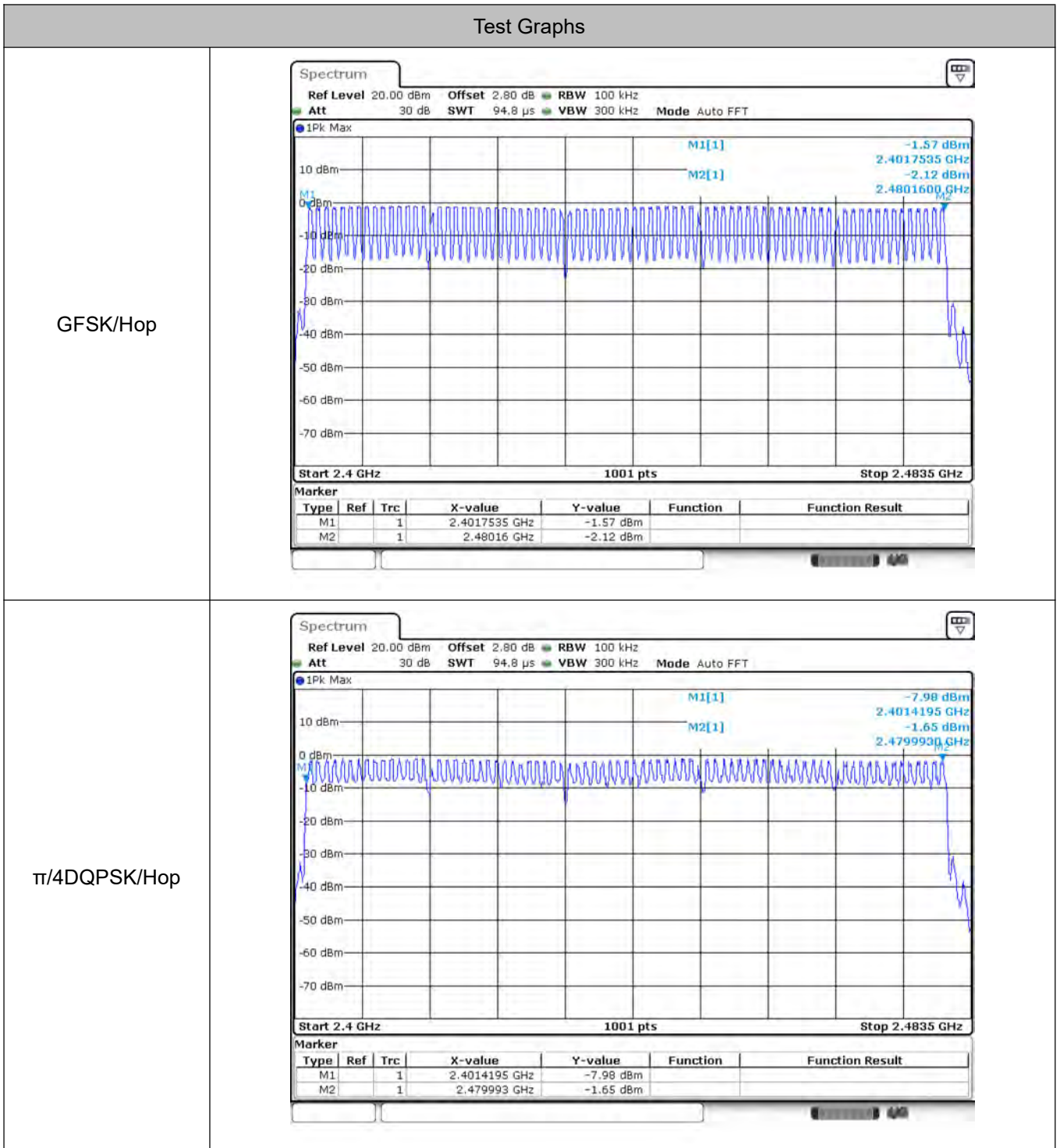


5 Hopping Channel Number

5.1 Test Result

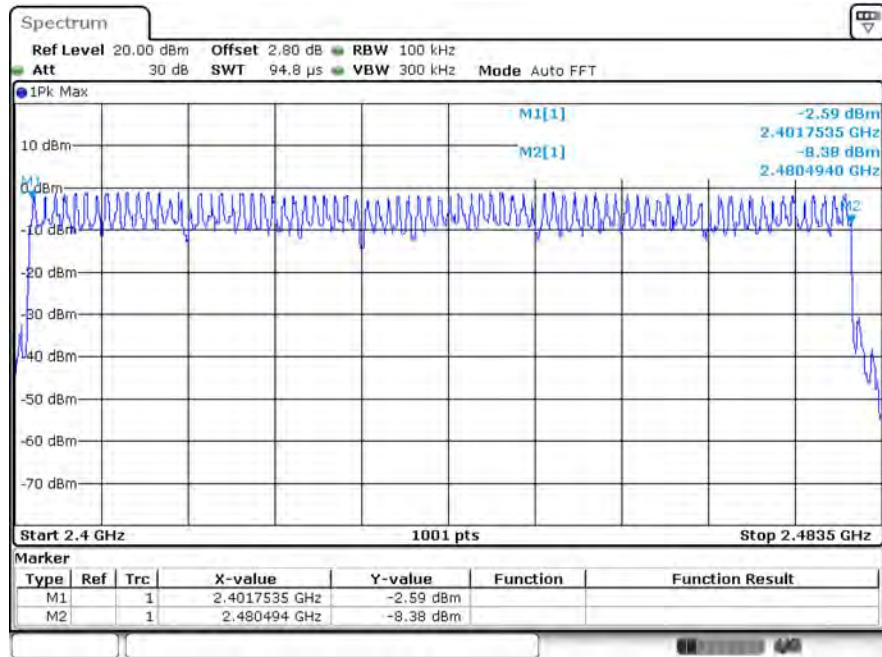
| Mode | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK | Hop | 79 | ≥ 15 | PASS |
| $\pi/4$ DQPSK | Hop | 79 | ≥ 15 | PASS |
| 8DPSK | Hop | 79 | ≥ 15 | PASS |

5.2 Test Graphs





8DPSK/Hop



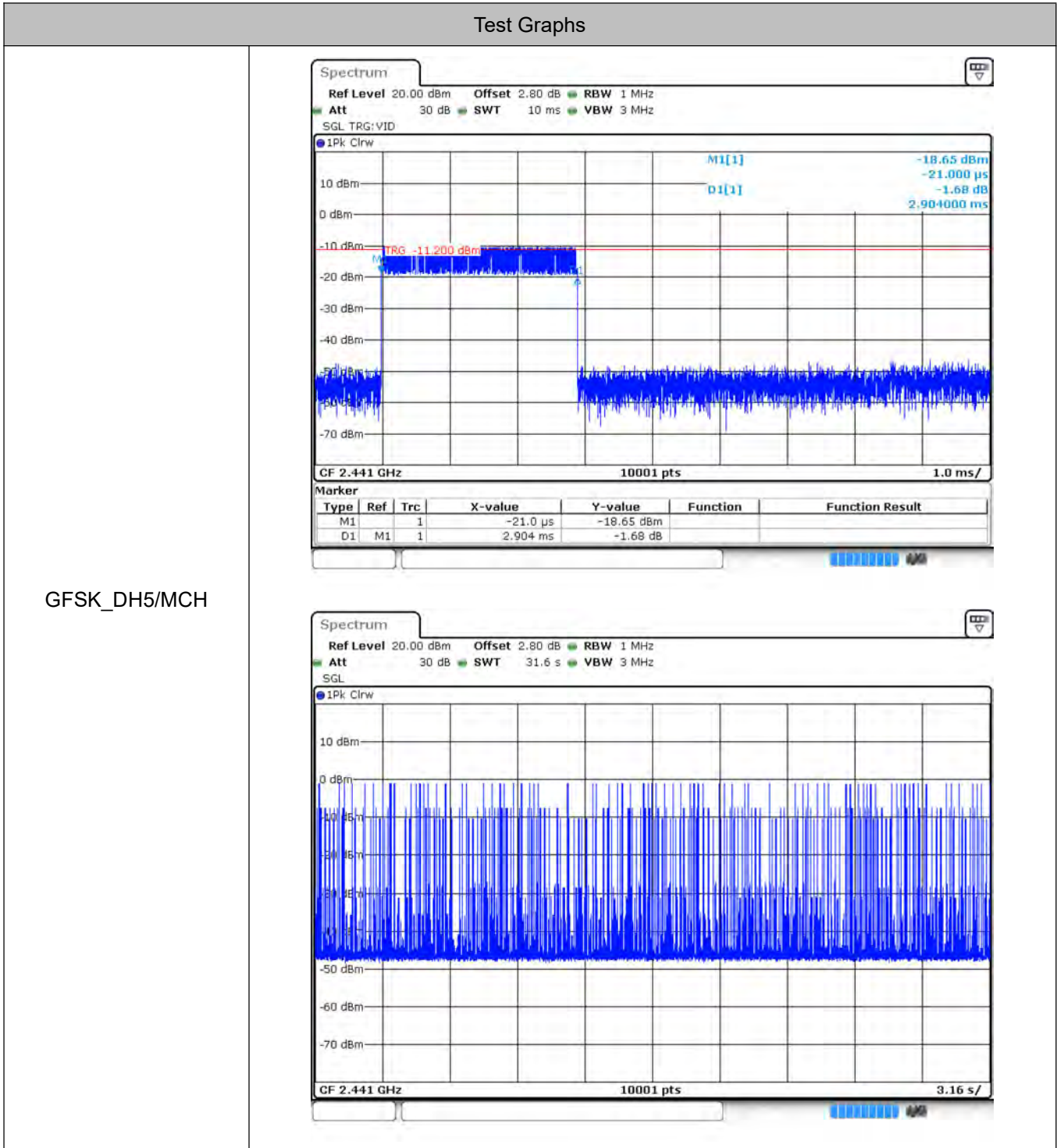


6 Dwell Time

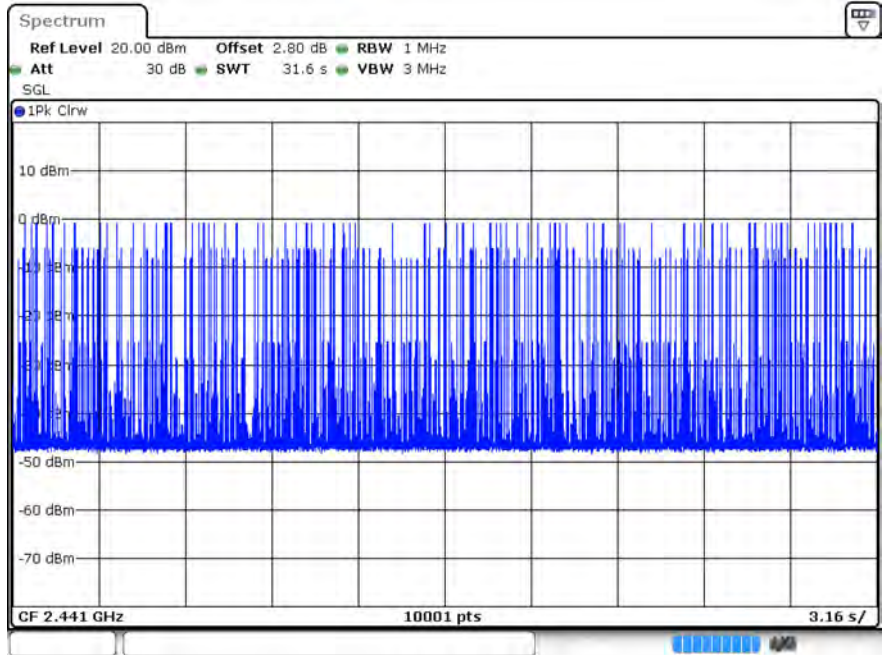
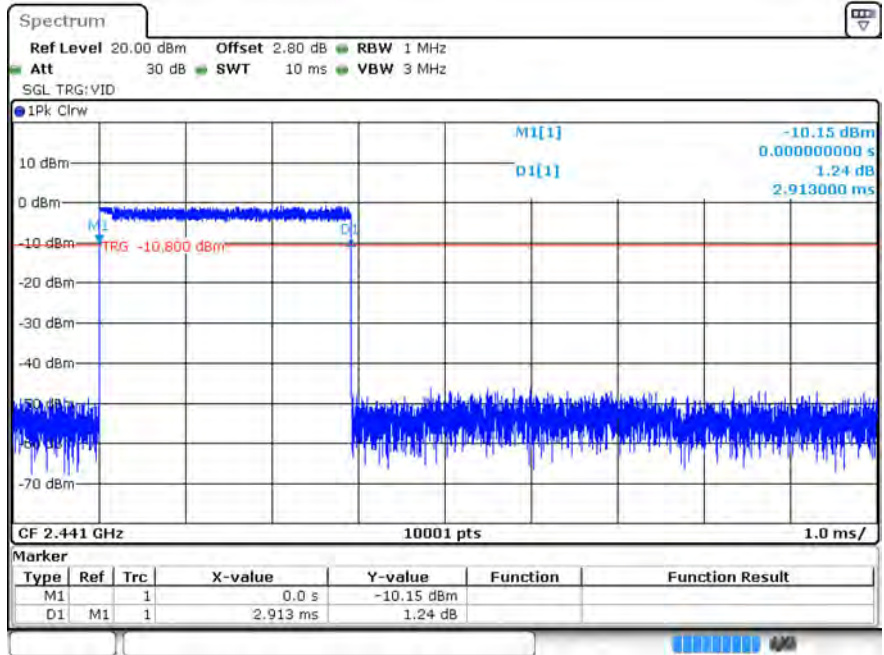
6.1 Test Result

| Mode | Packet | Channel | Burst Width [ms/hop/ch] | Total Hops[hop*ch] | Dwell Time[ms] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|----------------|-----------|---------|
| GFSK | DH5 | MCH | 2.904 | 98 | 284.592 | 0.4 | Pass |
| $\pi/4$ DQPSK | 2DH5 | MCH | 2.913 | 99 | 288.387 | 0.4 | Pass |
| 8DPSK | 3DH5 | MCH | 2.915 | 115 | 335.225 | 0.4 | Pass |

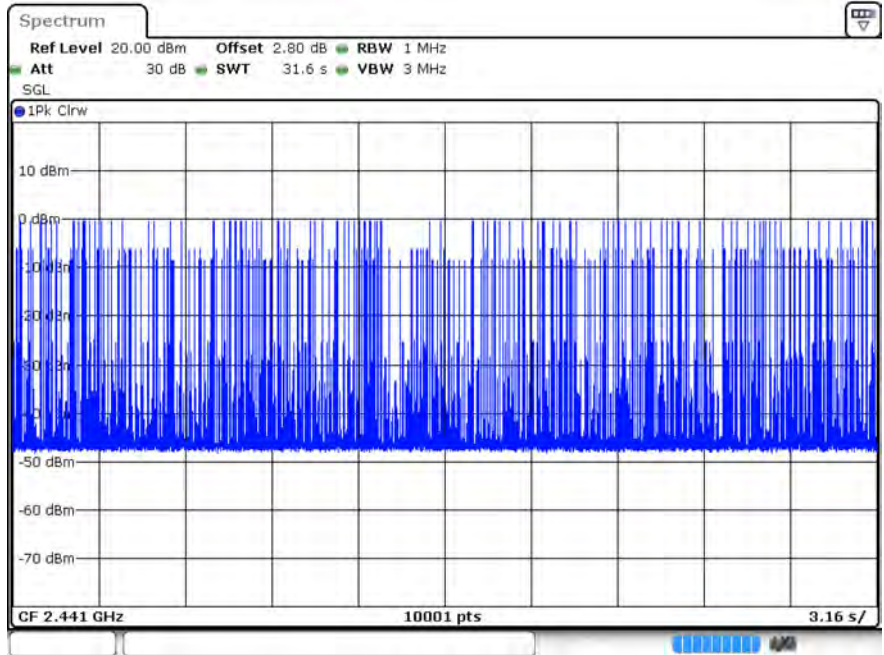
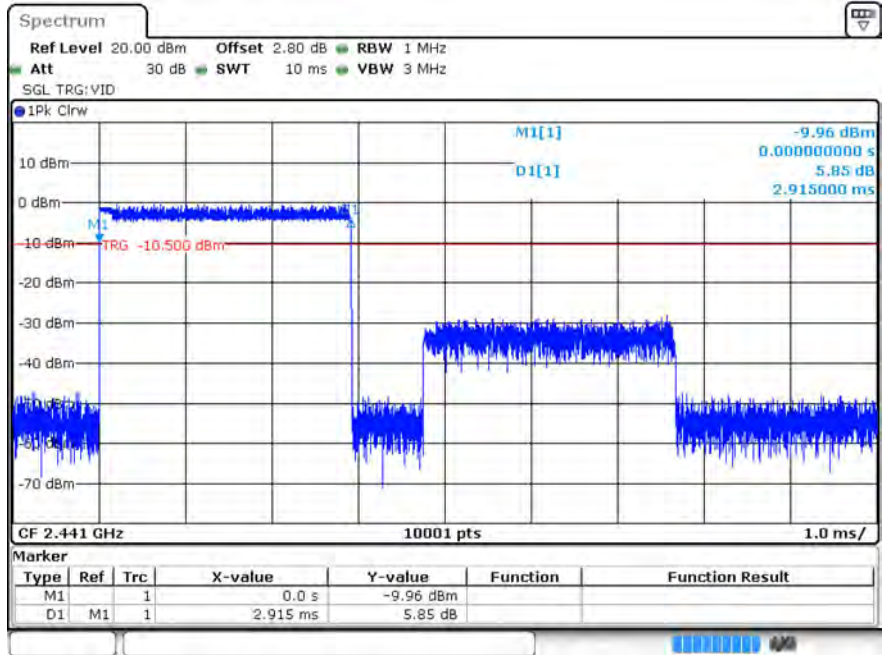
6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH



8DPSK_3DH5/MCH

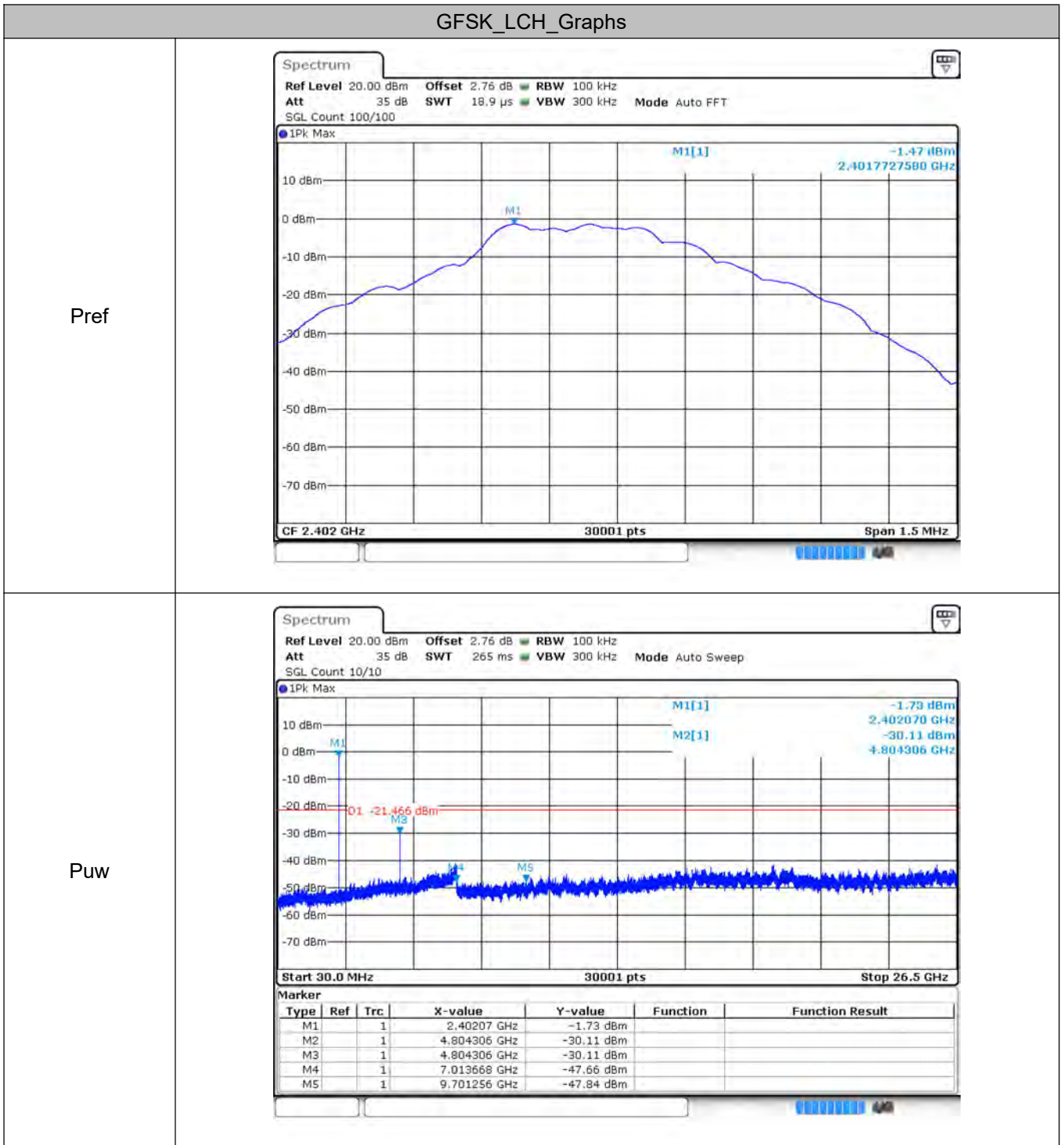


7 RF Conducted Spurious Emissions

7.1 Test Result

| Mode | Channel | Max. Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|------------------|-------------|---------|
| GFSK | LCH | -28.64 | -20 | Pass |
| | MCH | -32.36 | -20 | Pass |
| | HCH | -33.4 | -20 | Pass |
| $\pi/4$ DQPSK | LCH | -28.83 | -20 | Pass |
| | MCH | -38.16 | -20 | Pass |
| | HCH | -37.09 | -20 | Pass |
| 8DPSK | LCH | -31.08 | -20 | Pass |
| | MCH | -33.08 | -20 | Pass |
| | HCH | -31.51 | -20 | Pass |

7.2 Test Graphs

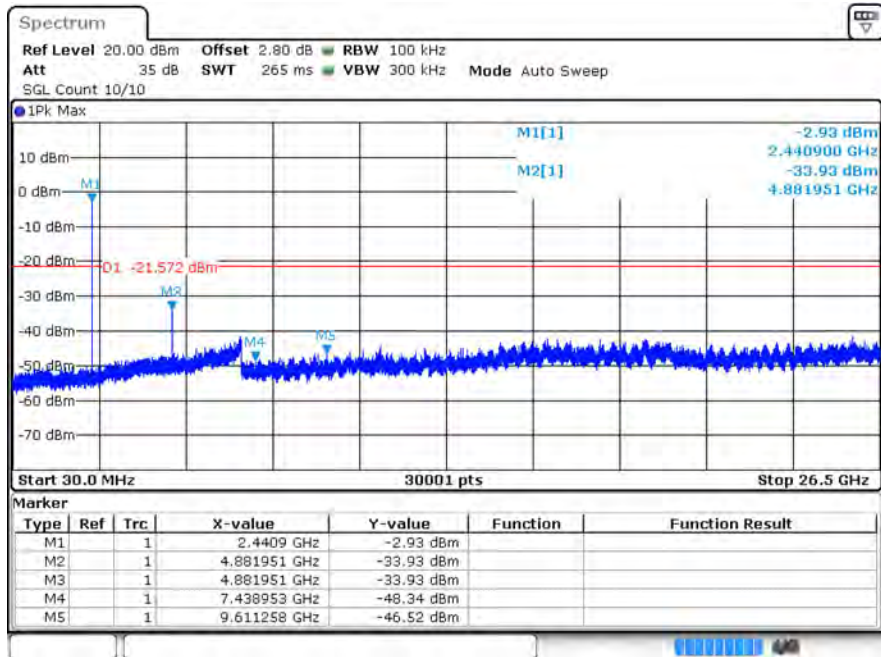


GFSK_MCH_Graphs

Pref



Puw

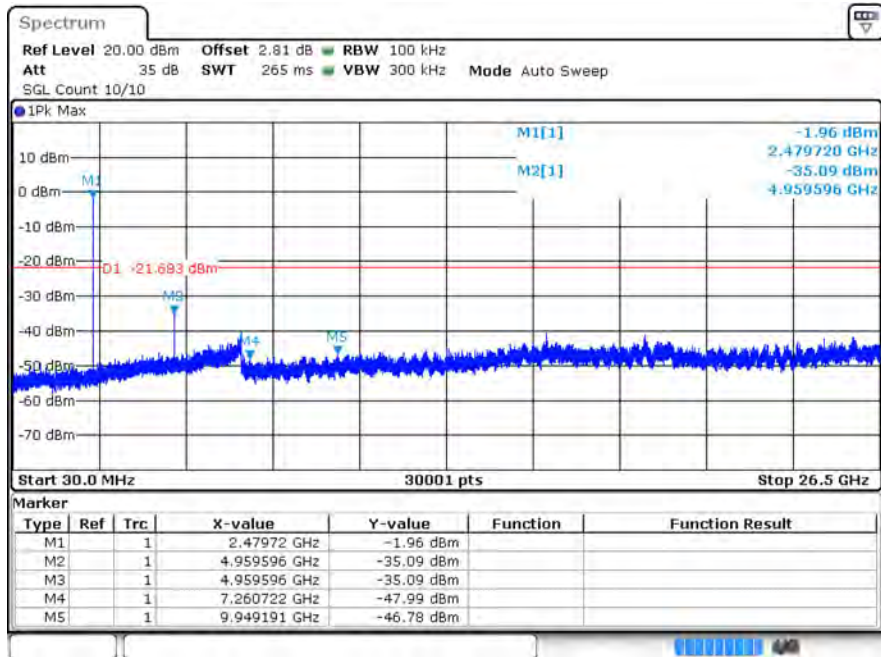


GFSK_HCH_Graphs

Pref



Puw

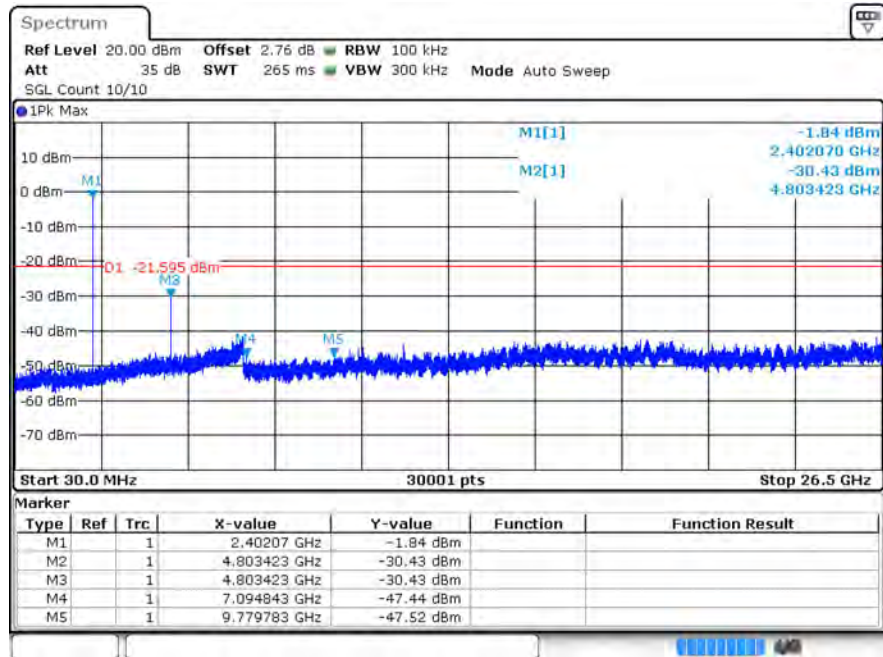


$\pi/4$ DQPSK_LCH_Graphs

Pref



Puw

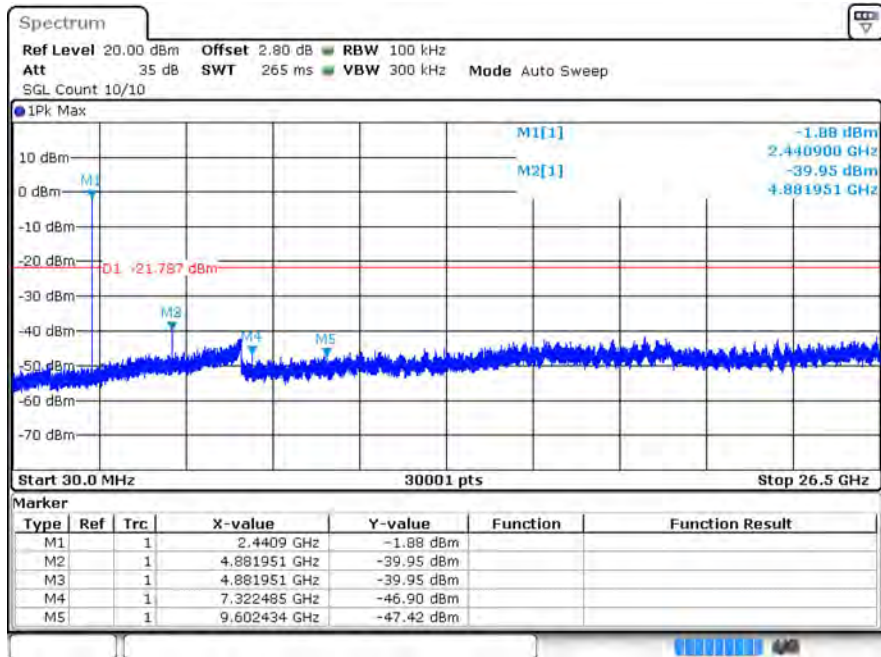


π /4DQPSK_MCH_Graphs

Pref



Puw

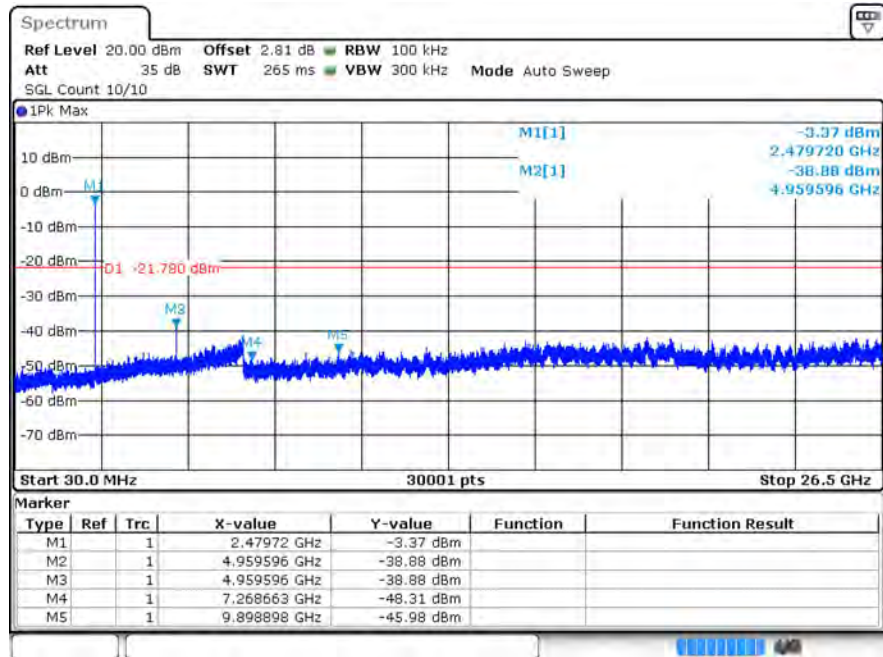


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

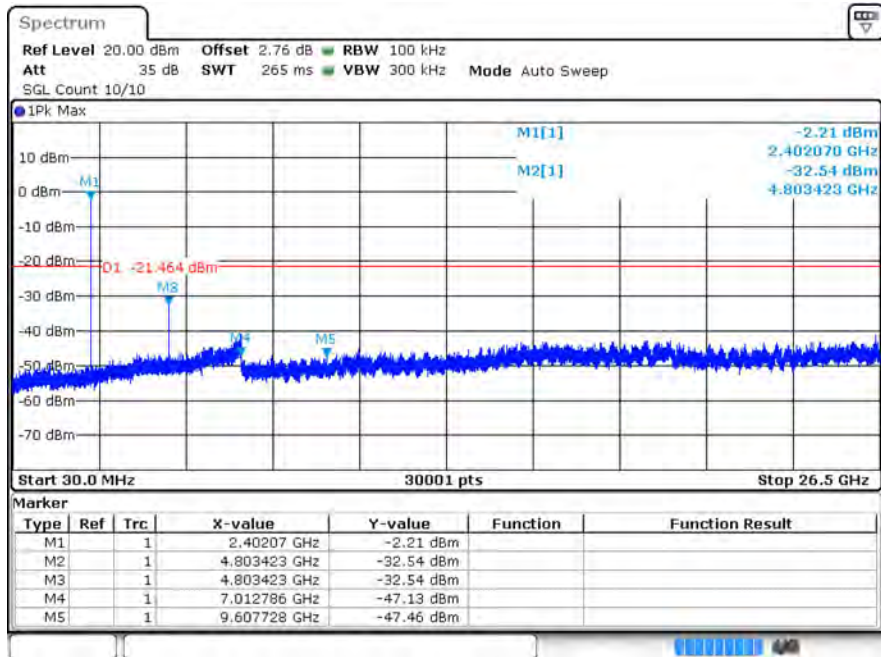


8DPSK_LCH_Graphs

Pref



Puw

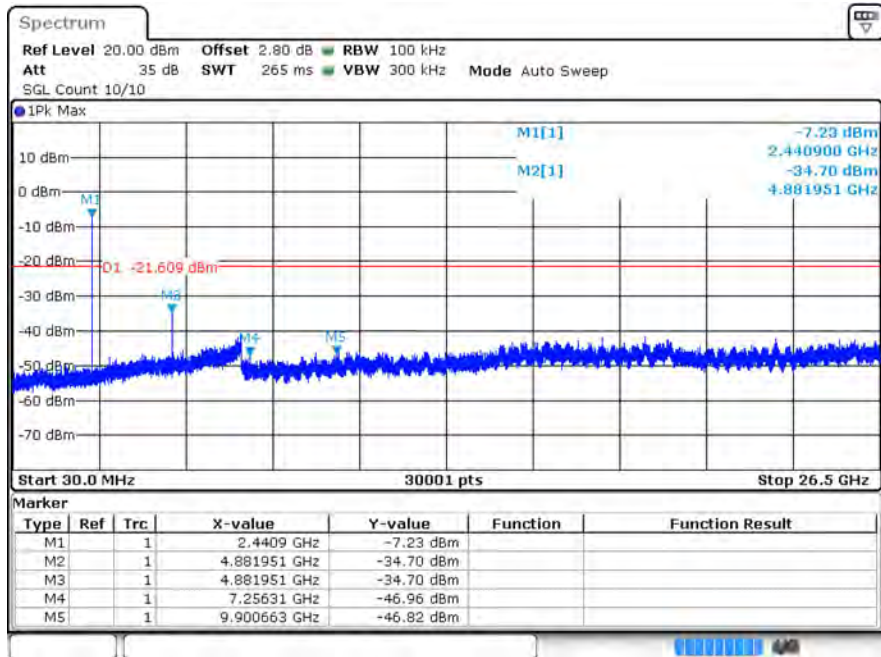


8DPSK_MCH_Graphs

Pref



Puw

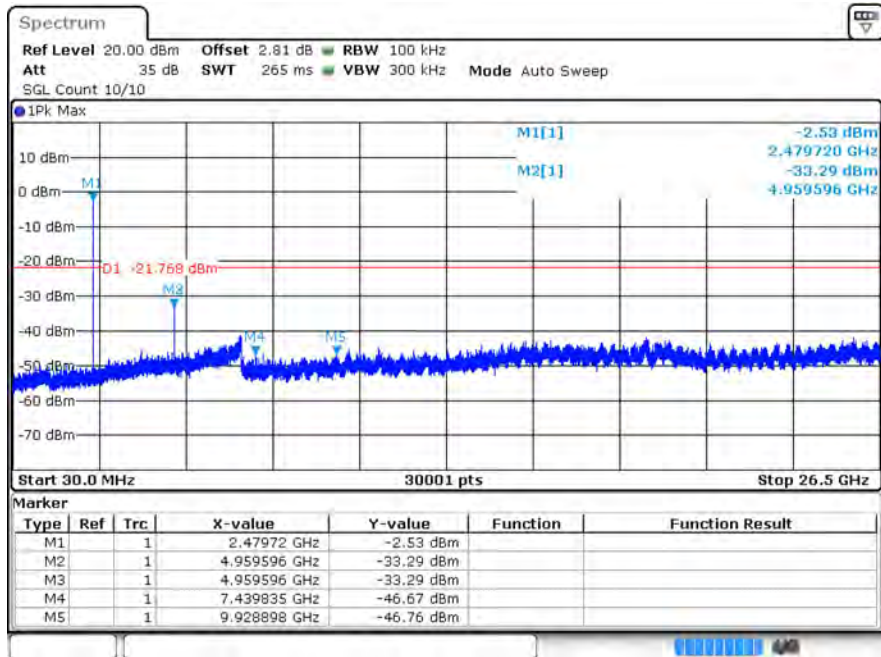


8DPSK_HCH_Graphs

Pref



Puw

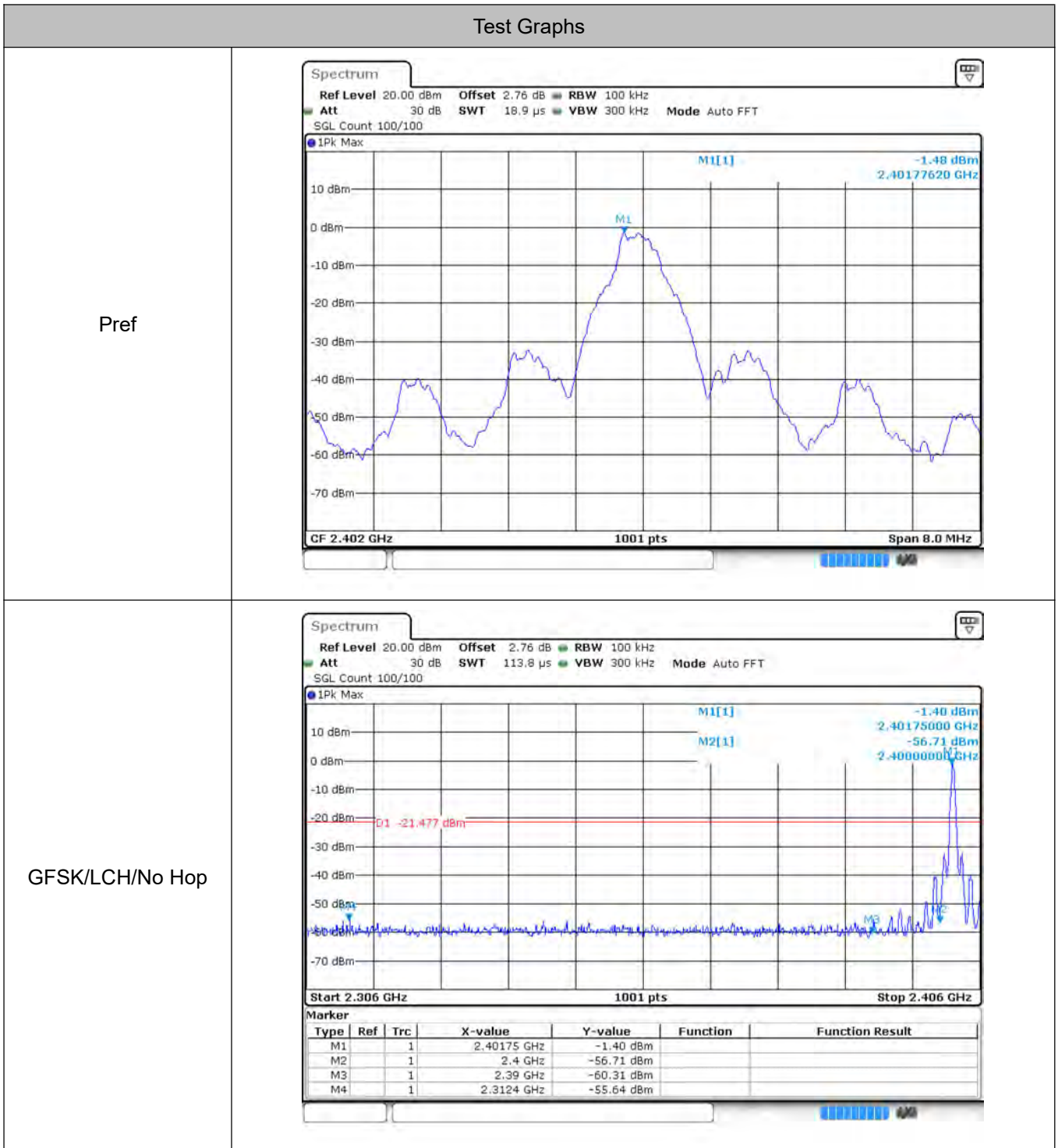


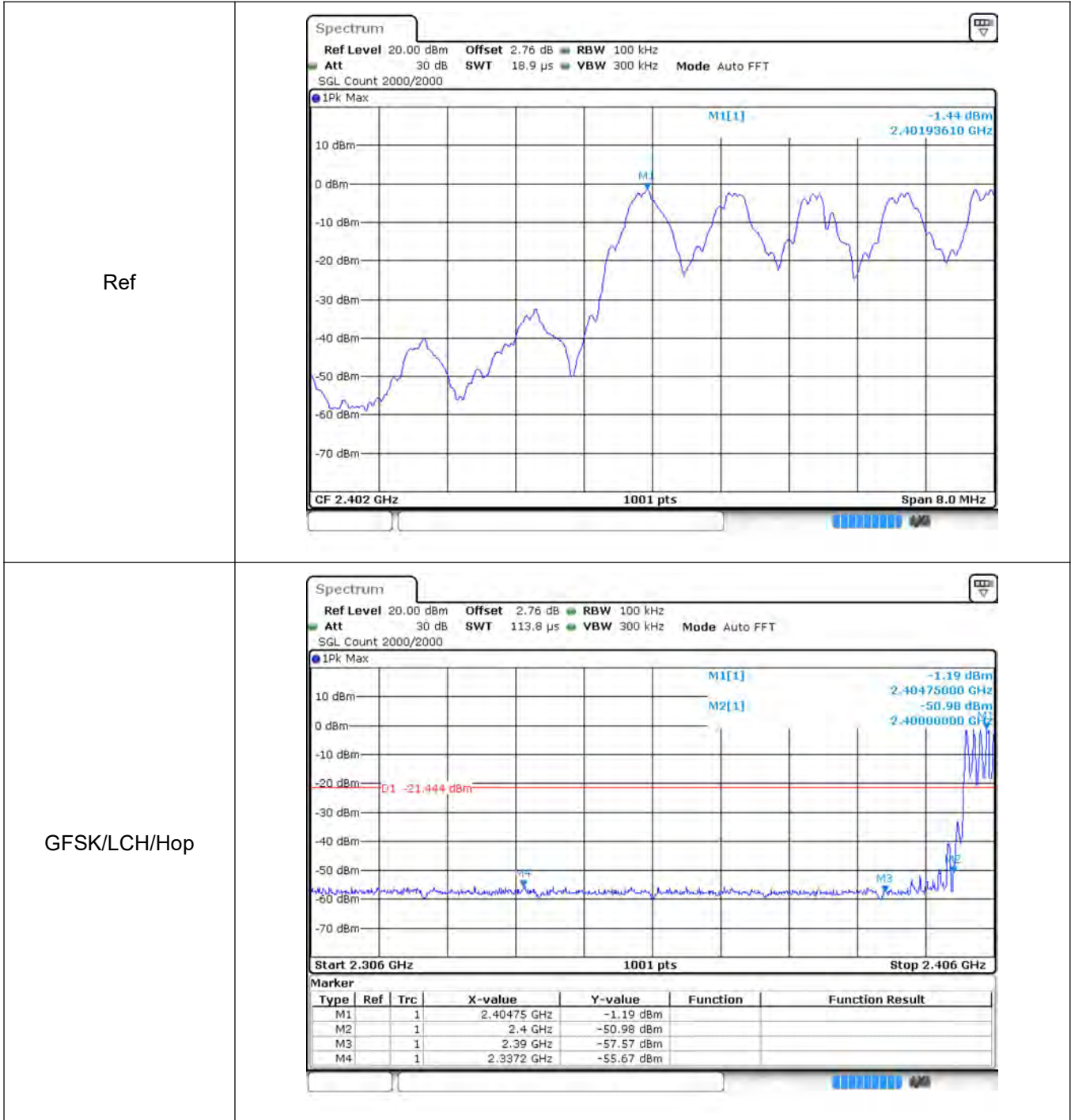
8 Band-edge for RF Conducted Emissions

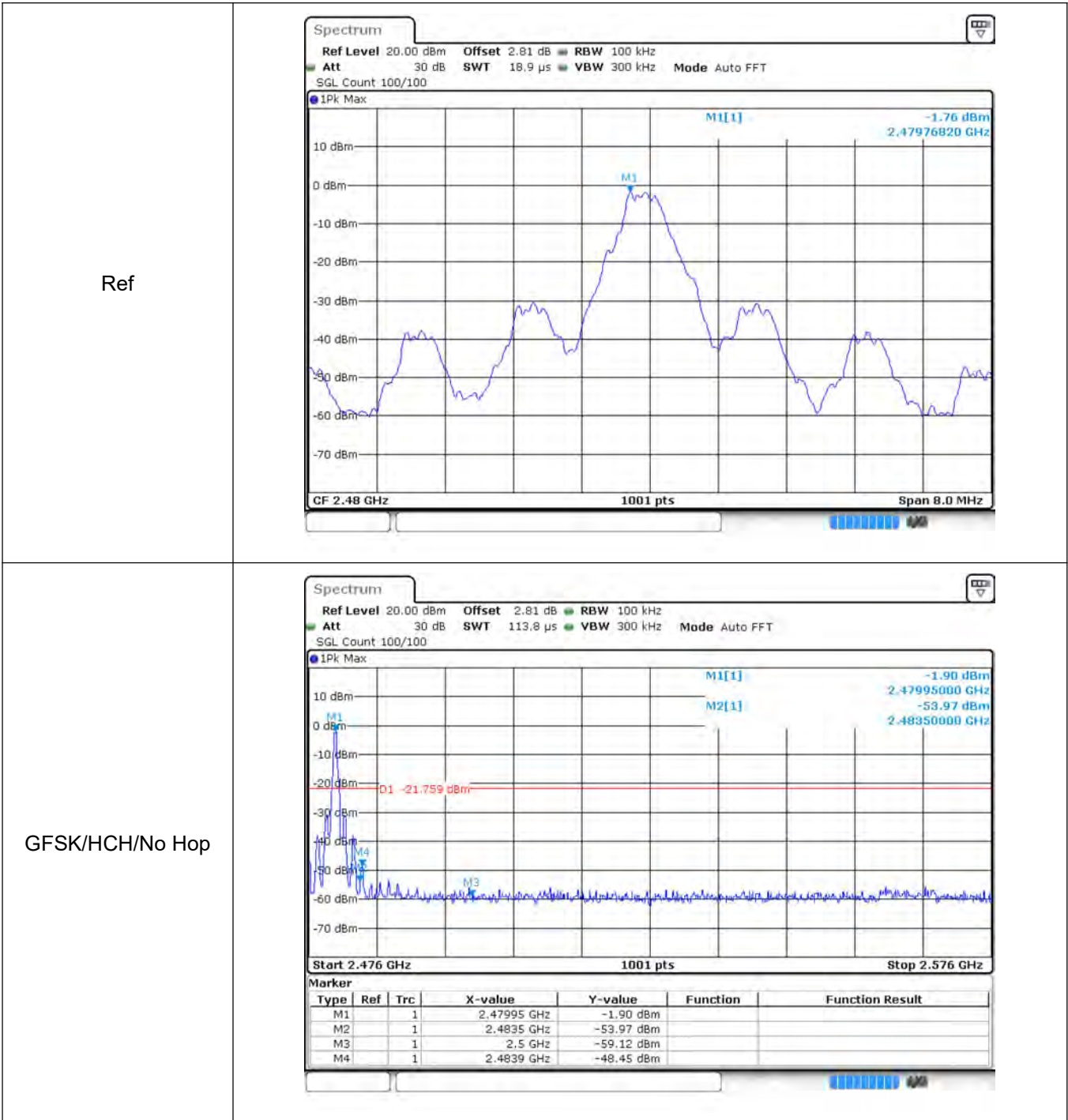
8.1 Test Result

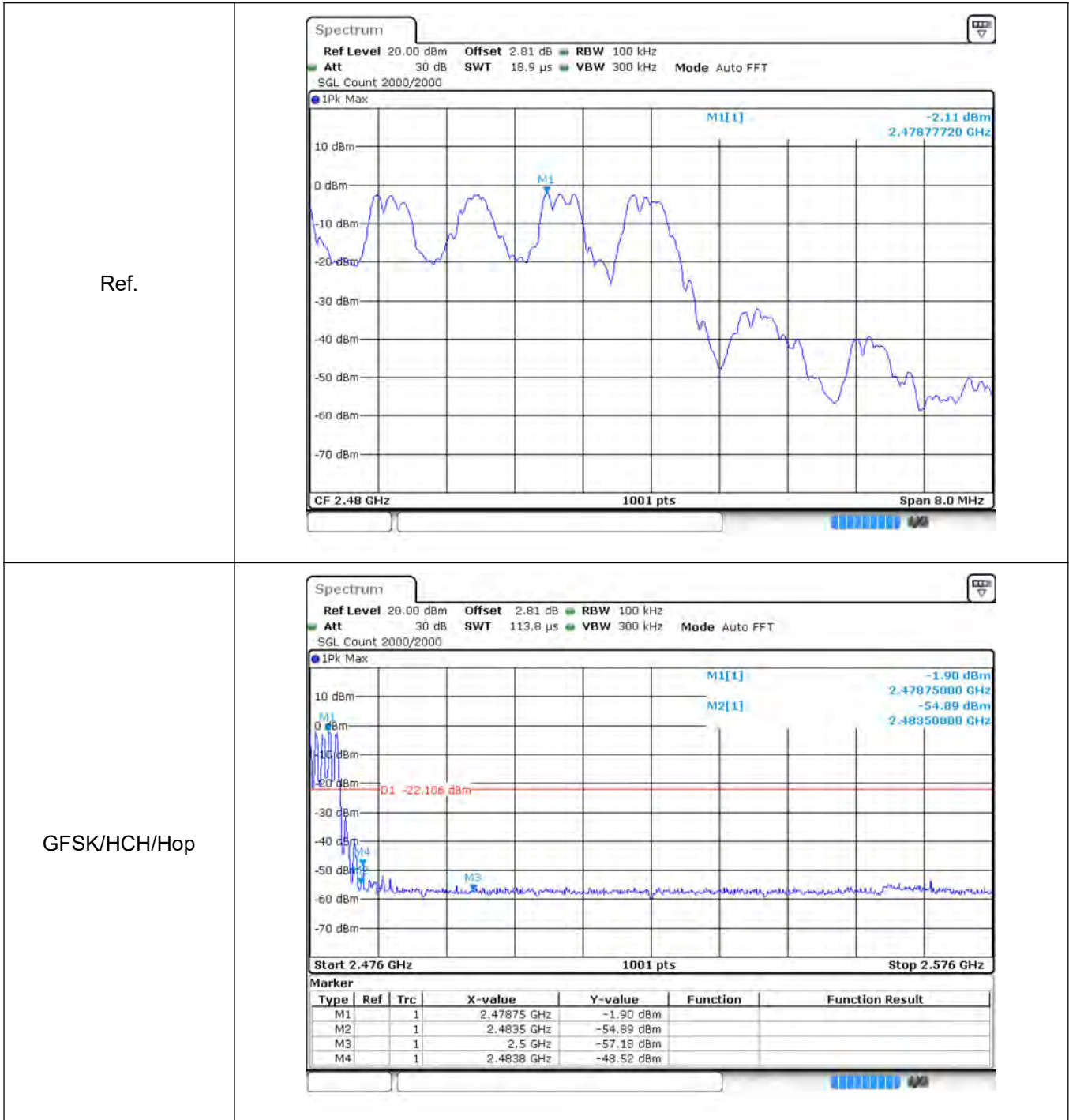
| Mode | Channel | Carrier Frequency [MHz] | Frequency Hopping | Max Spurious Level [dBc] | Limit [dBc] | Verdict |
|---------------|---------|-------------------------|-------------------|--------------------------|-------------|---------|
| GFSK | LCH | 2402 | Off | -54.15 | -20 | Pass |
| | | | On | -54.23 | -20 | Pass |
| | HCH | 2480 | Off | -46.68 | -20 | Pass |
| | | | On | -46.41 | -20 | Pass |
| $\pi/4$ DQPSK | LCH | 2402 | Off | -54.52 | -20 | Pass |
| | | | On | -53.82 | -20 | Pass |
| | HCH | 2480 | Off | -47.12 | -20 | Pass |
| | | | On | -49.54 | -20 | Pass |
| 8DPSK | LCH | 2402 | Off | -53.4 | -20 | Pass |
| | | | On | -53.63 | -20 | Pass |
| | HCH | 2480 | Off | -45.69 | -20 | Pass |
| | | | On | -48.96 | -20 | Pass |

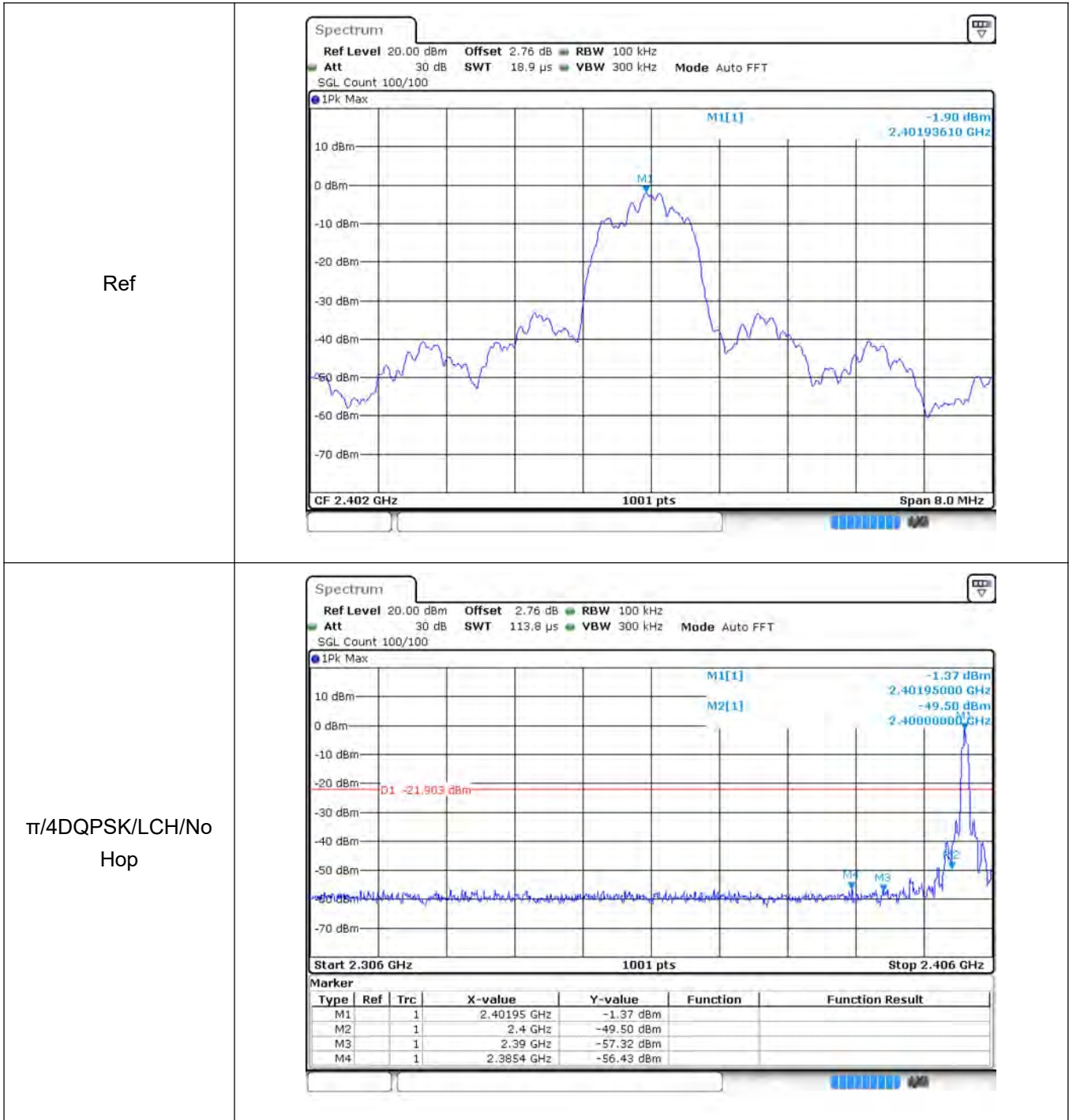
8.2 Test Graphs

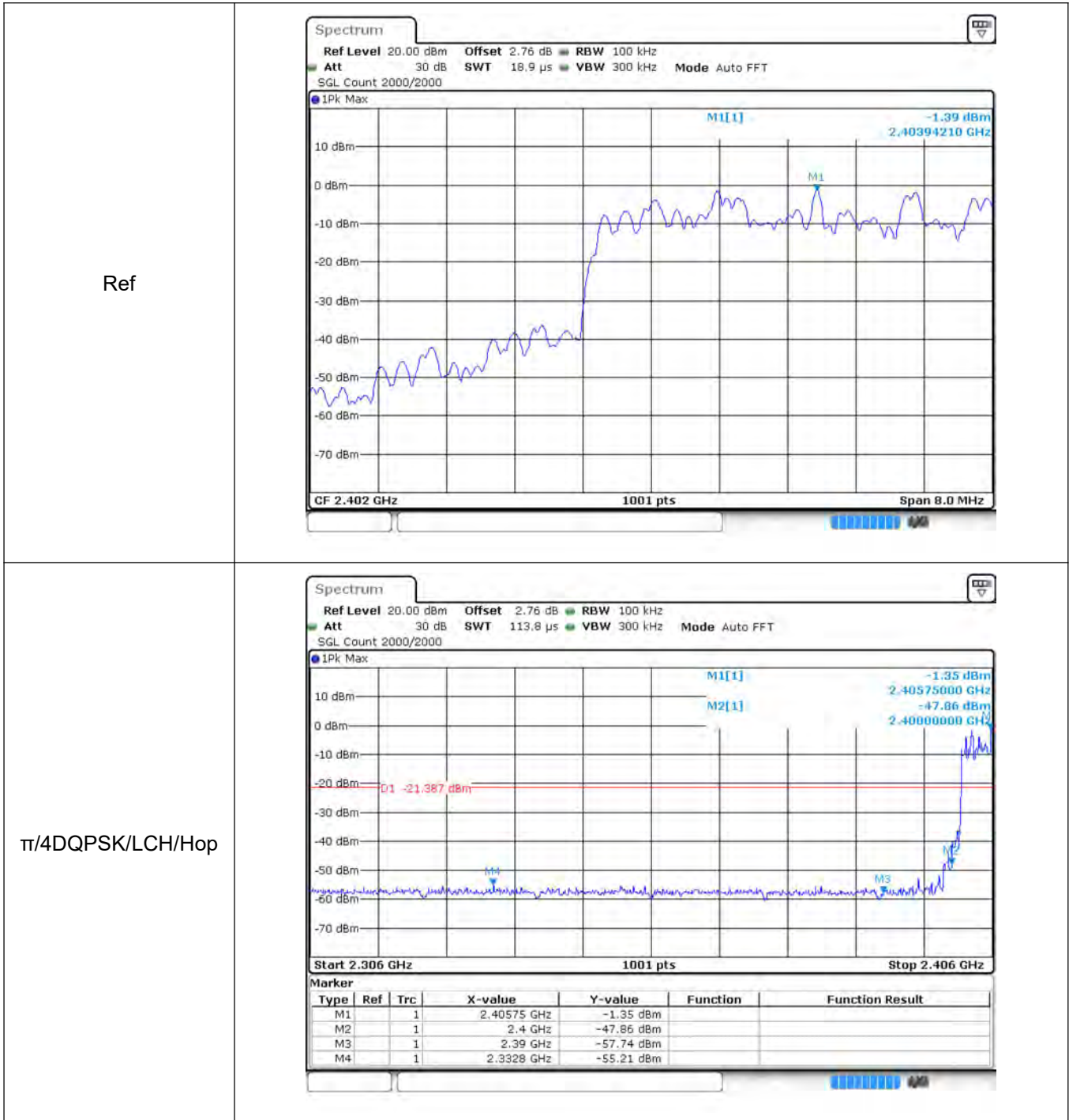


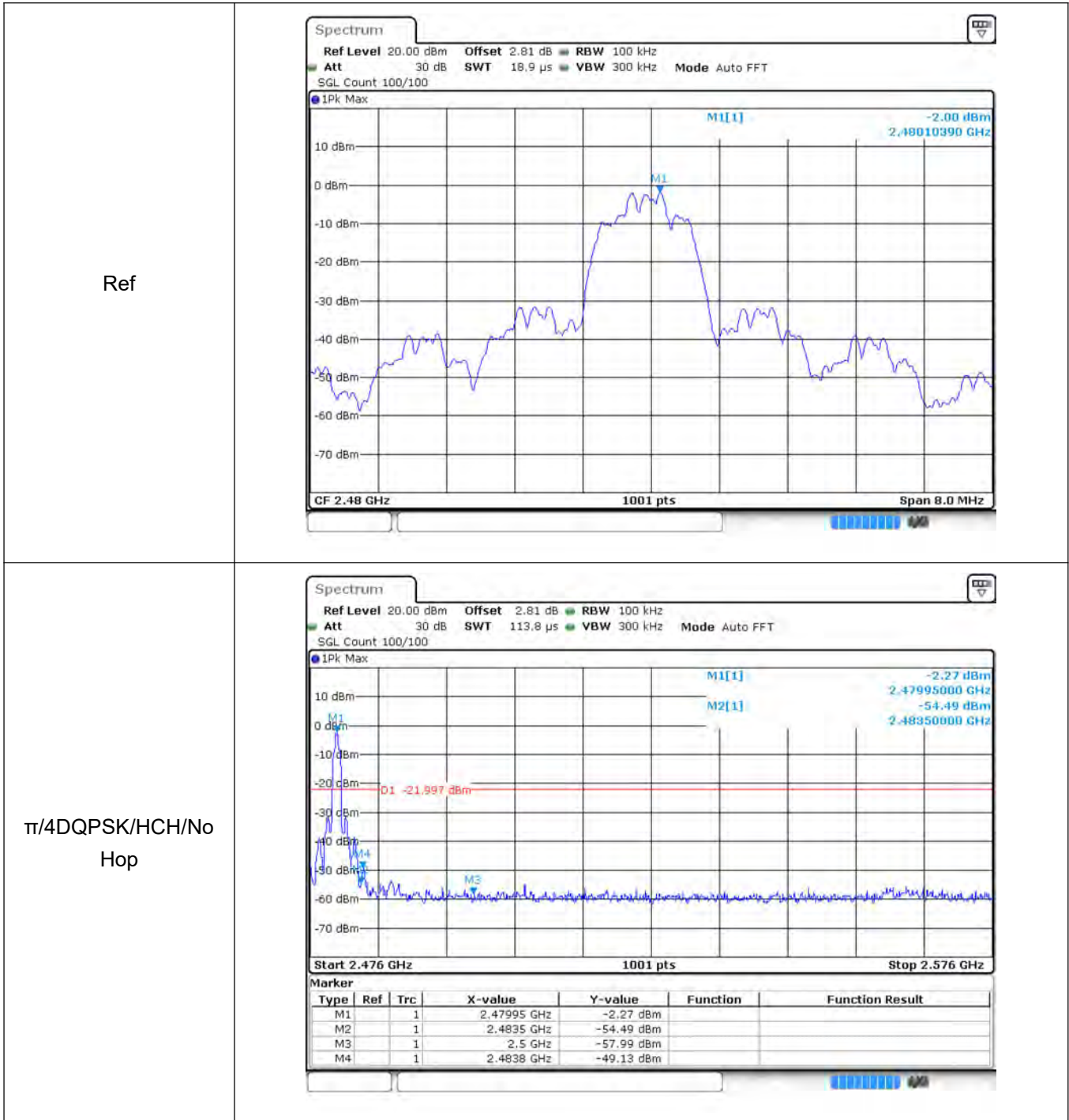


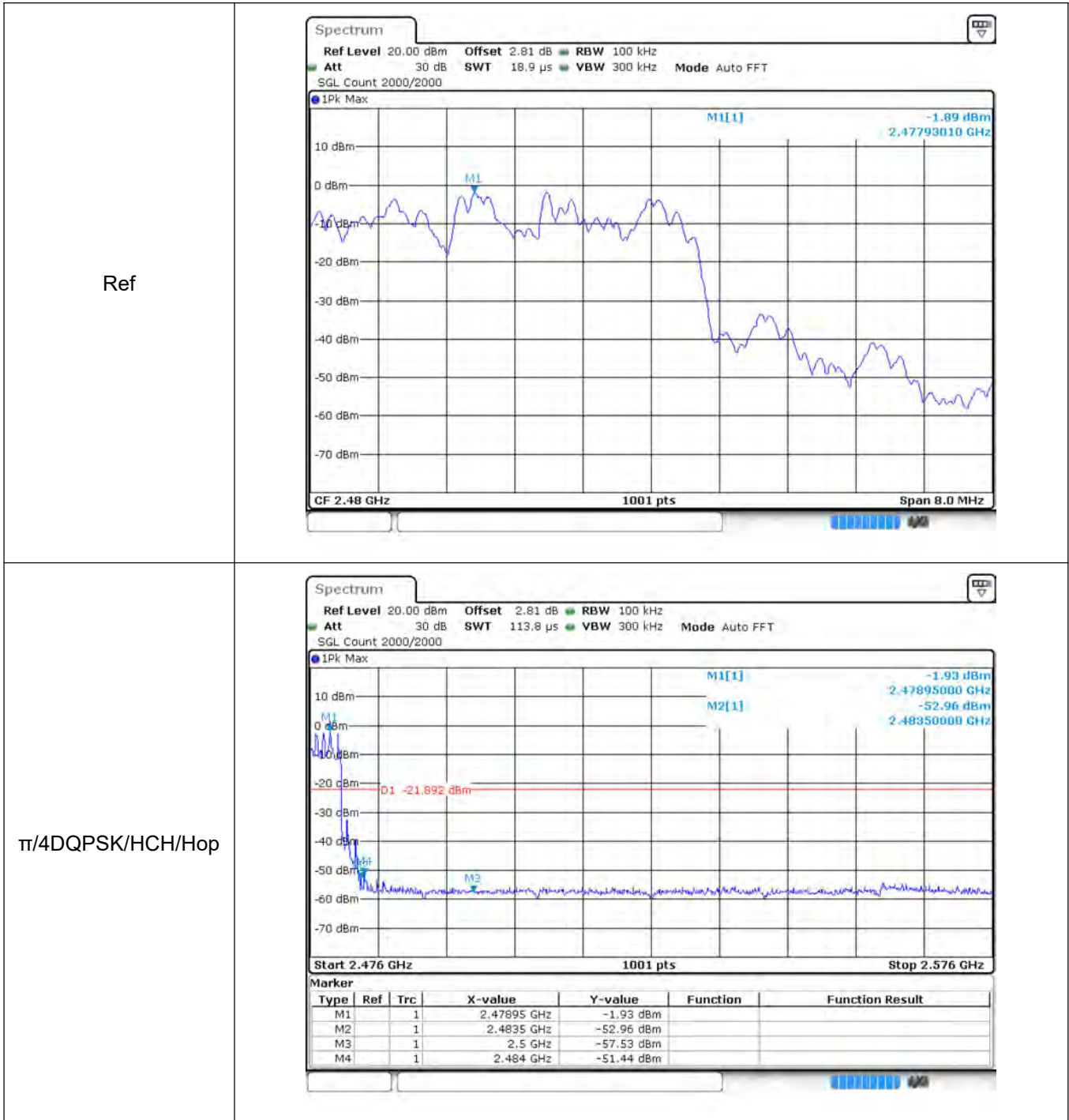


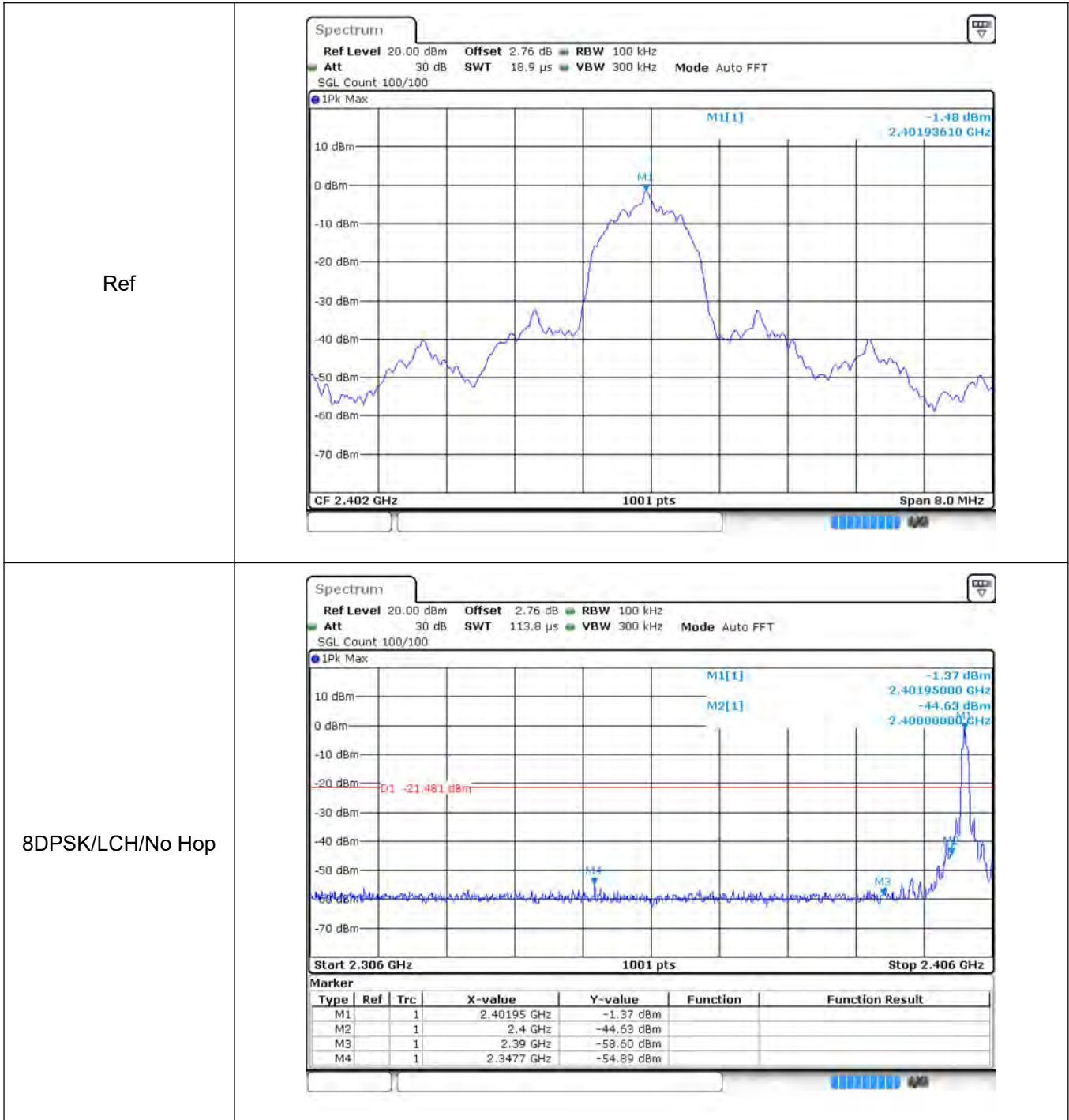


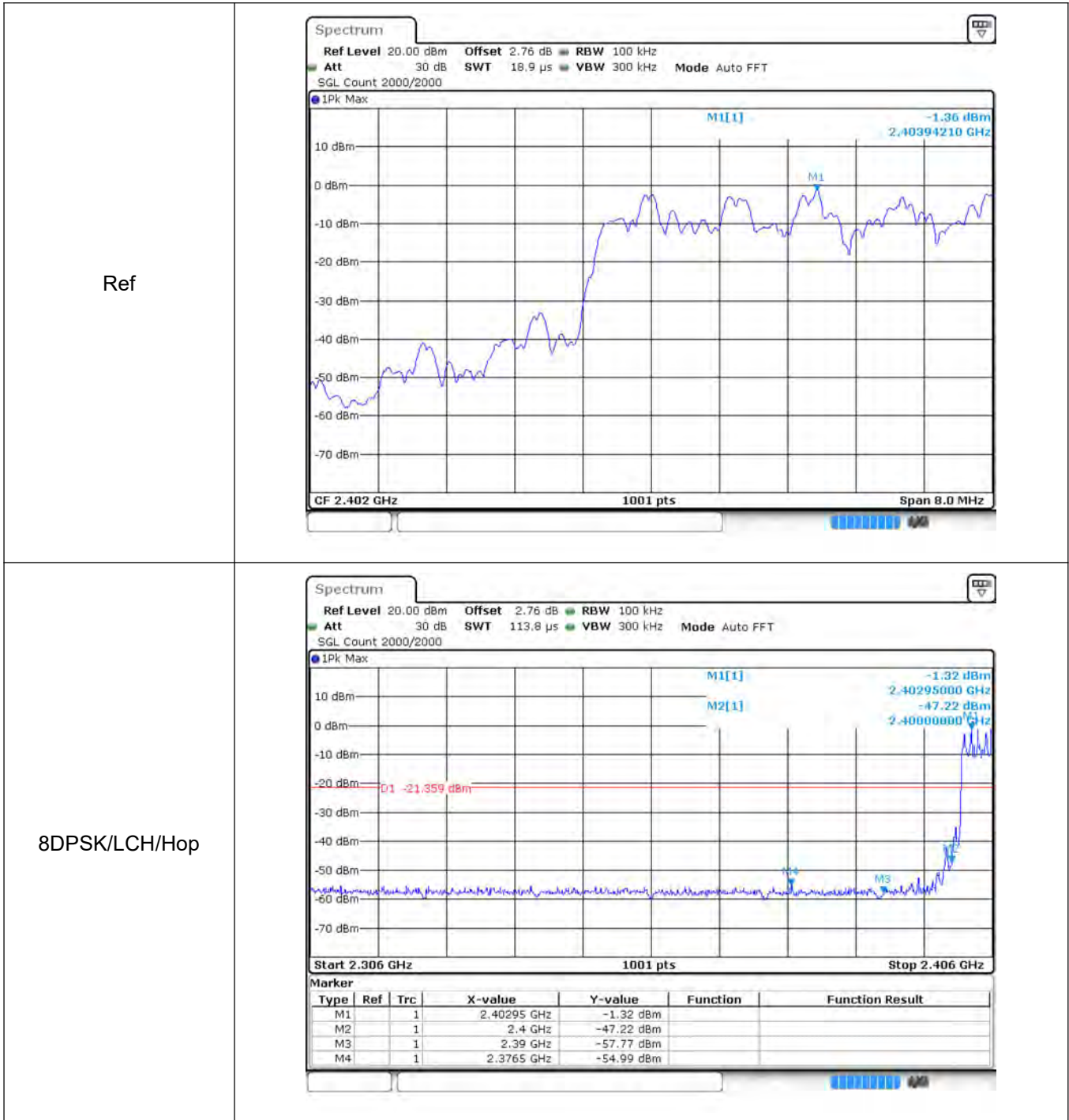


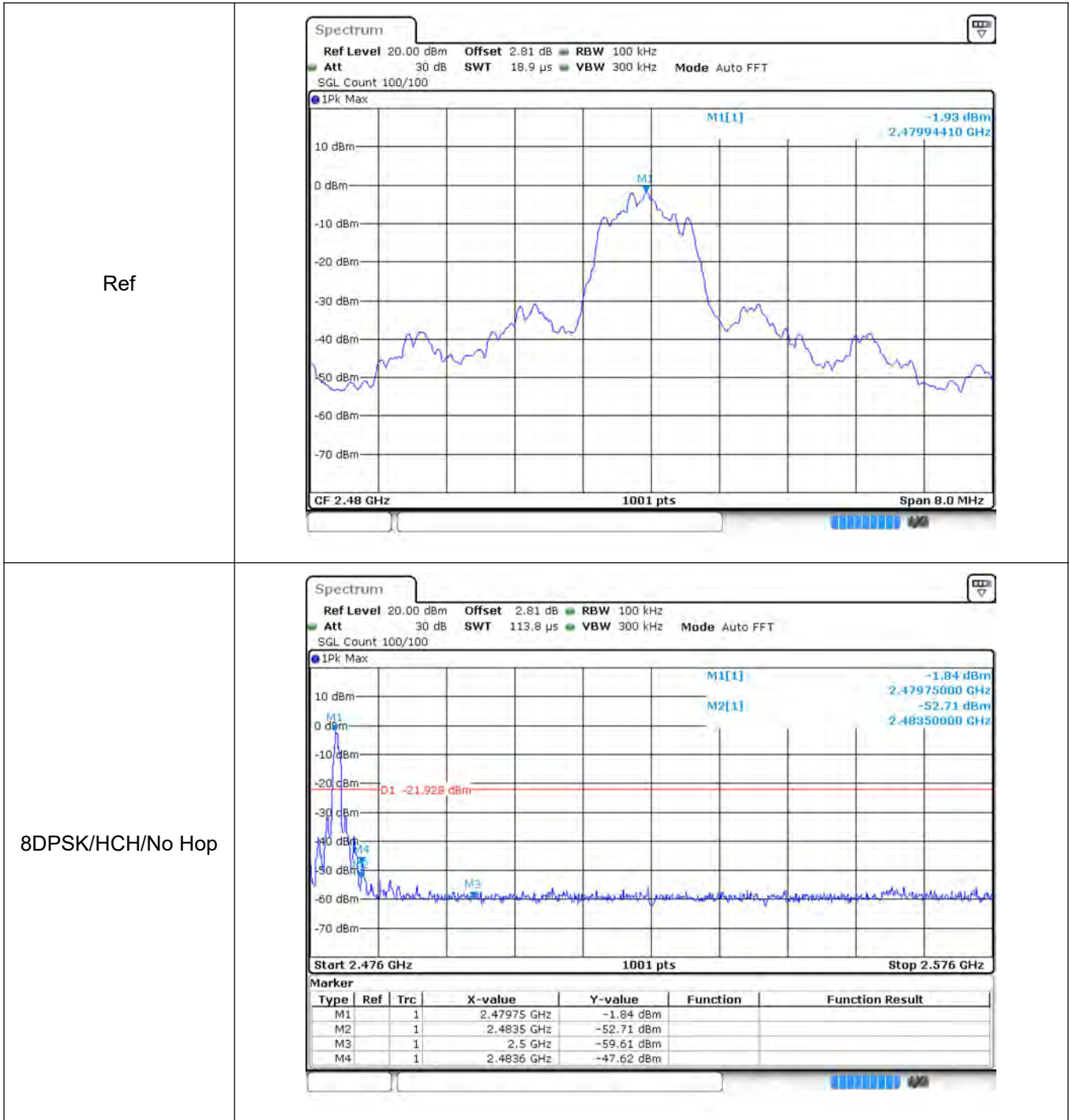


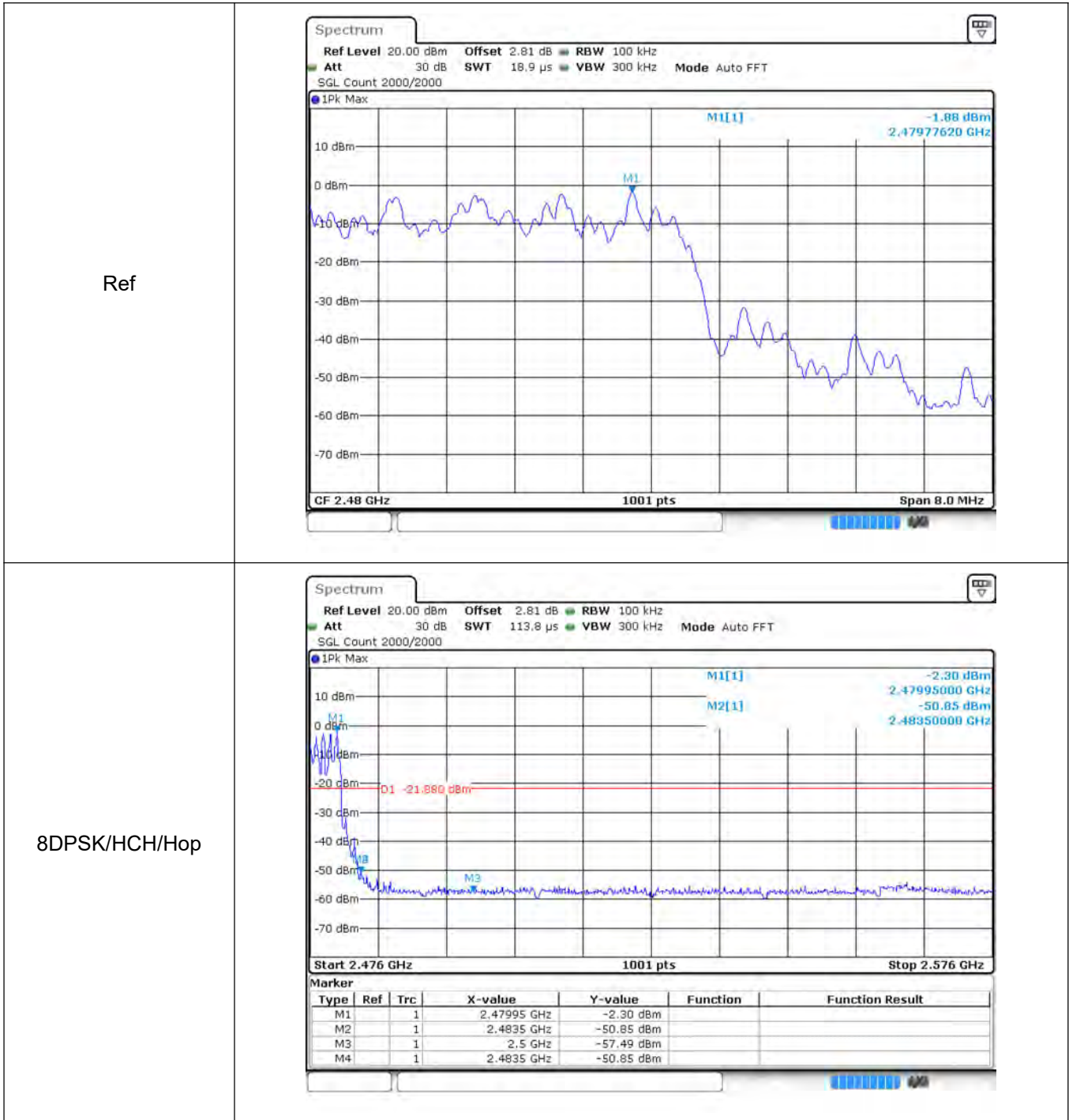












9 Restrict-band band-edge measurements

9.1 Test Result

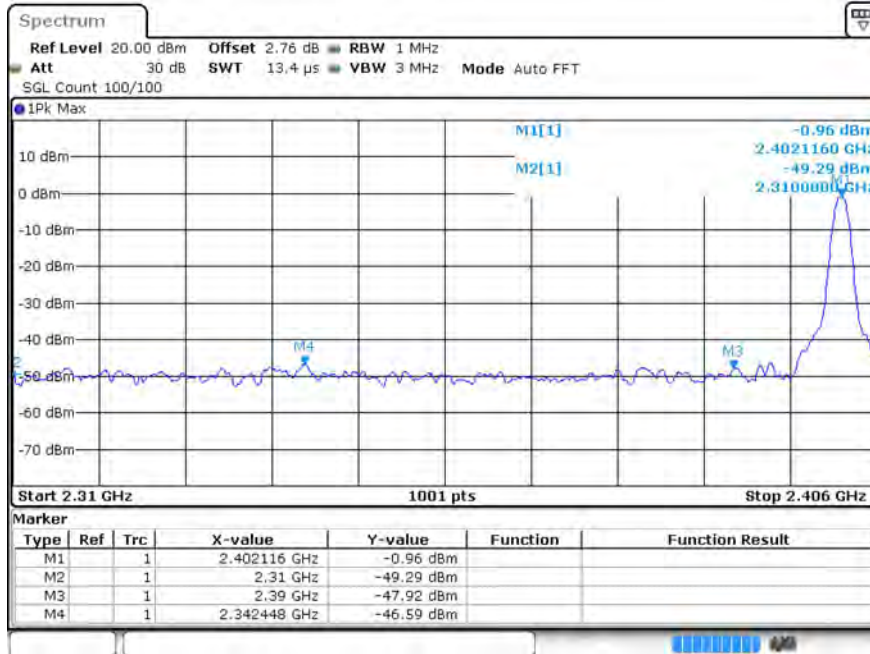
| Test Mode | Hopping | Freq. | Power [dBm] | Gain | Duty Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|----------|-------------|------|-------------|------------|----------|----------------|---------|
| GFSK | Off | 2310.0 | -49.29 | 2 | - | 47.97 | PEAK | 74 | Pass |
| | Off | 2310.0 | -57.34 | 2 | 4.74 | 44.66 | AV | 54 | Pass |
| | Off | 2342.448 | -46.58 | 2 | - | 50.68 | PEAK | 74 | Pass |
| | Off | 2339.472 | -54.01 | 2 | 4.74 | 47.99 | AV | 54 | Pass |
| | Off | 2390.0 | -47.92 | 2 | - | 49.34 | PEAK | 74 | Pass |
| | Off | 2390.0 | -56.68 | 2 | 4.74 | 45.32 | AV | 54 | Pass |
| | Off | 2483.5 | -42.61 | 2 | - | 54.65 | PEAK | 74 | Pass |
| | Off | 2483.5 | -51.08 | 2 | 4.82 | 51 | AV | 54 | Pass |
| | Off | 2483.512 | -42.78 | 2 | - | 54.48 | PEAK | 74 | Pass |
| | Off | 2483.512 | -51.26 | 2 | 4.82 | 50.82 | AV | 54 | Pass |
| | Off | 2500.0 | -49.01 | 2 | - | 48.25 | PEAK | 74 | Pass |
| | Off | 2500.0 | -56.72 | 2 | 4.82 | 45.36 | AV | 54 | Pass |
| $\pi/4$ DQPSK | Off | 2310.0 | -49.74 | 2 | - | 47.52 | PEAK | 74 | Pass |
| | Off | 2310.0 | -56.18 | 2 | 4.65 | 45.73 | AV | 54 | Pass |
| | Off | 2340.144 | -46.62 | 2 | - | 50.64 | PEAK | 74 | Pass |
| | Off | 2340.72 | -54.98 | 2 | 4.65 | 46.93 | AV | 54 | Pass |
| | Off | 2390.0 | -49.35 | 2 | - | 47.91 | PEAK | 74 | Pass |
| | Off | 2390.0 | -56.59 | 2 | 4.65 | 45.32 | AV | 54 | Pass |
| | Off | 2483.5 | -41.78 | 2 | - | 55.48 | PEAK | 74 | Pass |
| | Off | 2483.5 | -50.93 | 2 | 4.72 | 51.05 | AV | 54 | Pass |
| | Off | 2483.512 | -41.98 | 2 | - | 55.28 | PEAK | 74 | Pass |
| | Off | 2483.512 | -51.08 | 2 | 4.72 | 50.9 | AV | 54 | Pass |
| | Off | 2500.0 | -50.52 | 2 | - | 46.74 | PEAK | 74 | Pass |
| | Off | 2500.0 | -56.15 | 2 | 4.72 | 45.83 | AV | 54 | Pass |
| 8DPSK | Off | 2310.0 | -47.29 | 2 | - | 49.97 | PEAK | 74 | Pass |
| | Off | 2310.0 | -57.07 | 2 | 4.63 | 44.82 | AV | 54 | Pass |
| | Off | 2341.584 | -46.85 | 2 | - | 50.41 | PEAK | 74 | Pass |
| | Off | 2338.032 | -54.52 | 2 | 4.63 | 47.37 | AV | 54 | Pass |



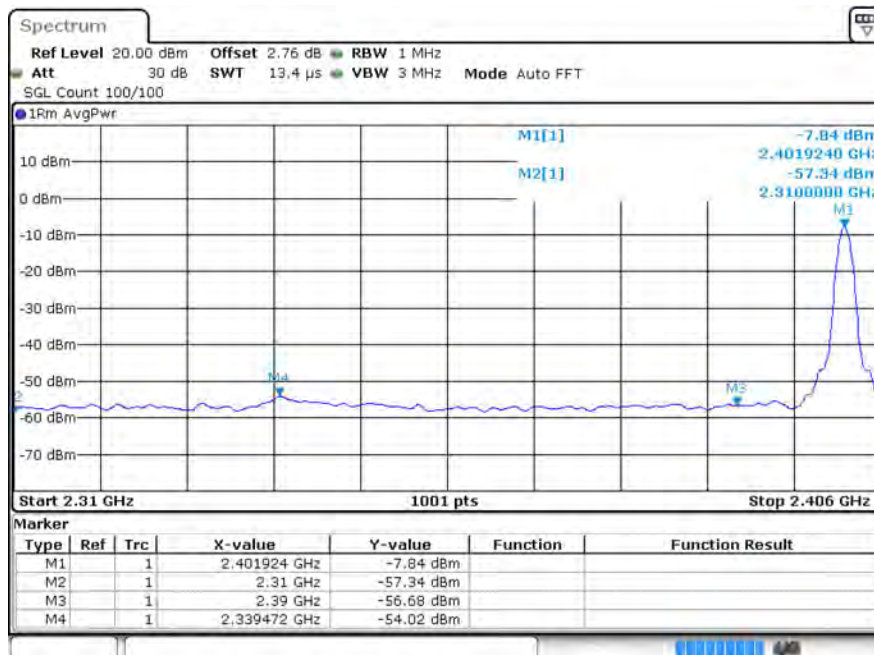
| | | | | | | | | |
|-----|----------|--------|---|------|-------|------|----|------|
| Off | 2390.0 | -49.78 | 2 | - | 47.48 | PEAK | 74 | Pass |
| Off | 2390.0 | -56.74 | 2 | 4.63 | 45.15 | AV | 54 | Pass |
| Off | 2483.5 | -41.82 | 2 | - | 55.44 | PEAK | 74 | Pass |
| Off | 2483.5 | -50.66 | 2 | 4.63 | 51.23 | AV | 54 | Pass |
| Off | 2483.512 | -41.98 | 2 | - | 55.28 | PEAK | 74 | Pass |
| Off | 2483.512 | -50.84 | 2 | 4.63 | 51.05 | AV | 54 | Pass |
| Off | 2500.0 | -49.77 | 2 | - | 47.49 | PEAK | 74 | Pass |
| Off | 2500.0 | -55.86 | 2 | 4.63 | 46.03 | AV | 54 | Pass |

9.2 Test Graphs

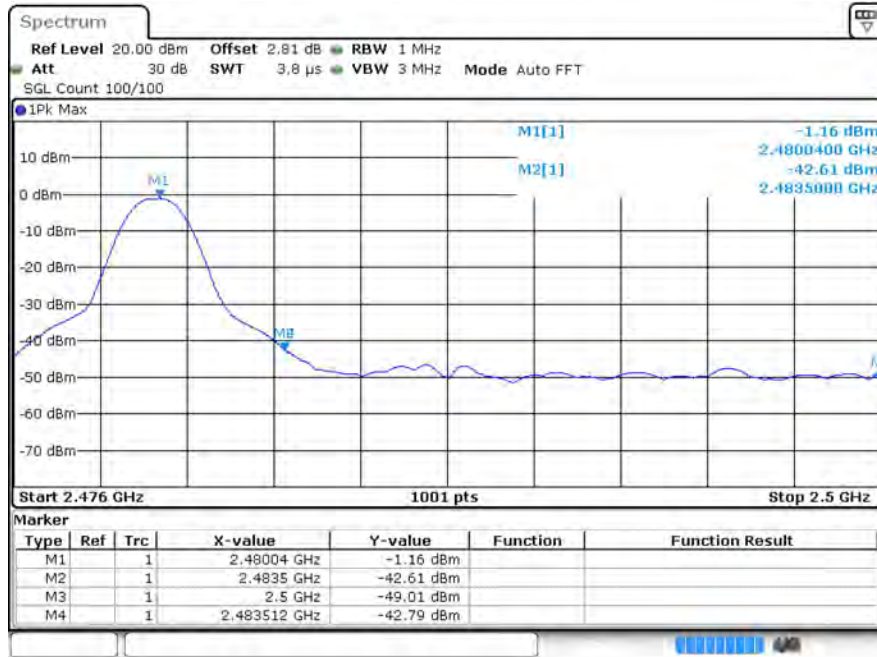
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



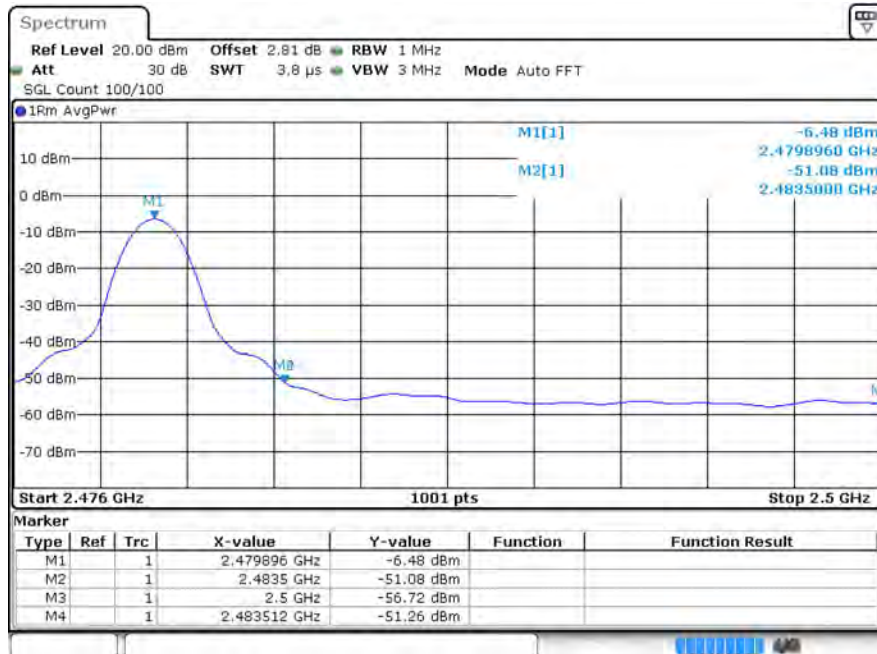
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



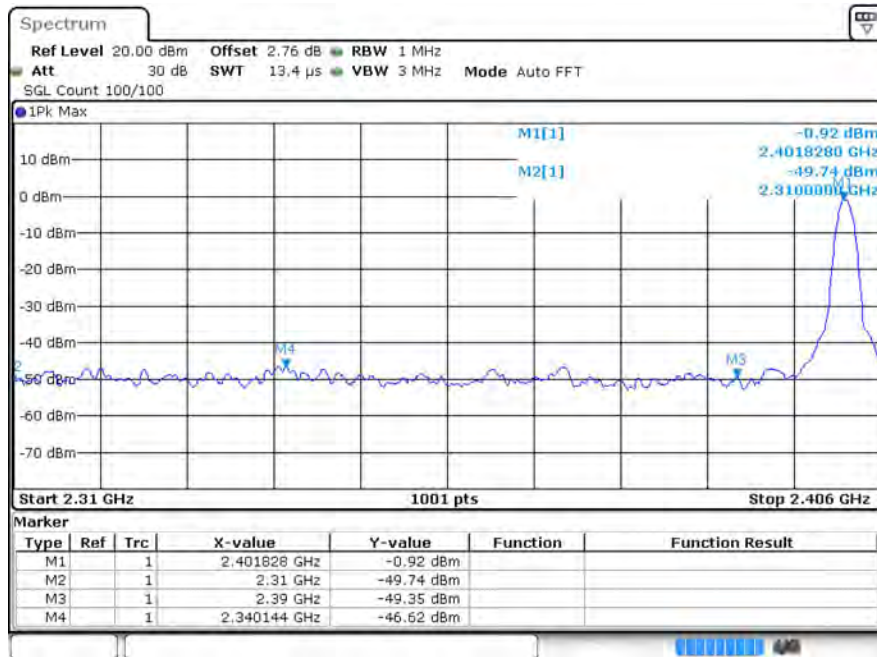
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



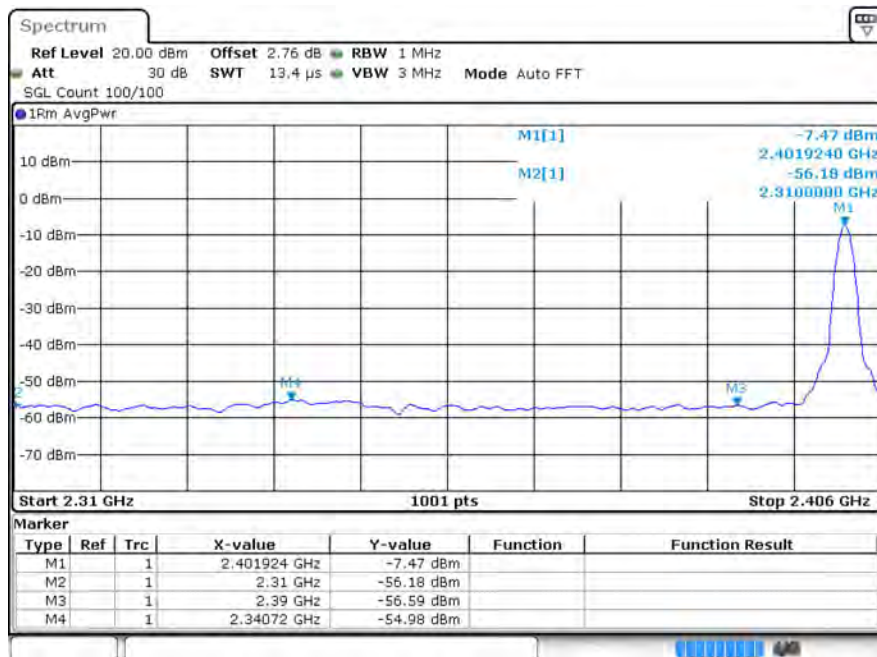
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



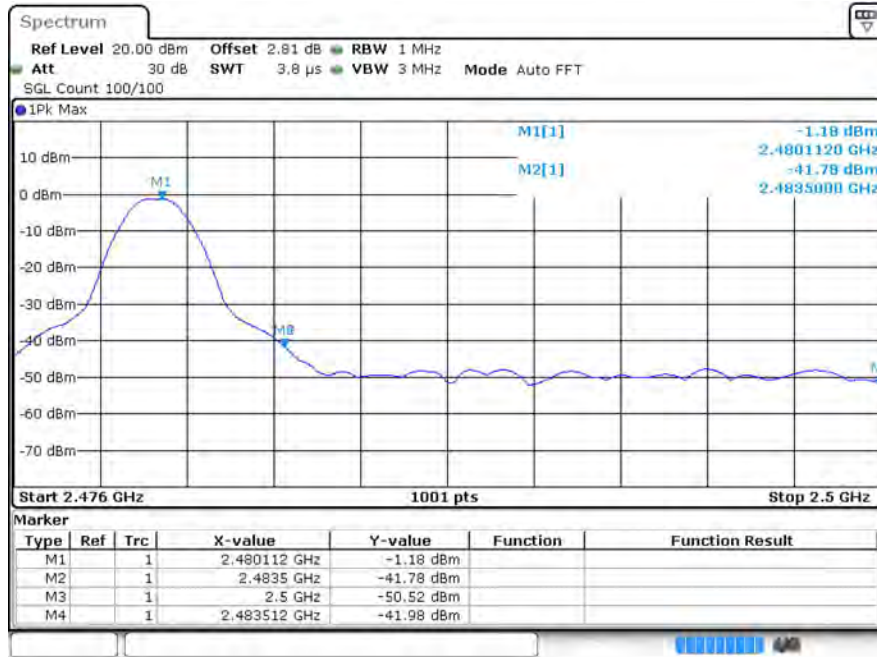
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



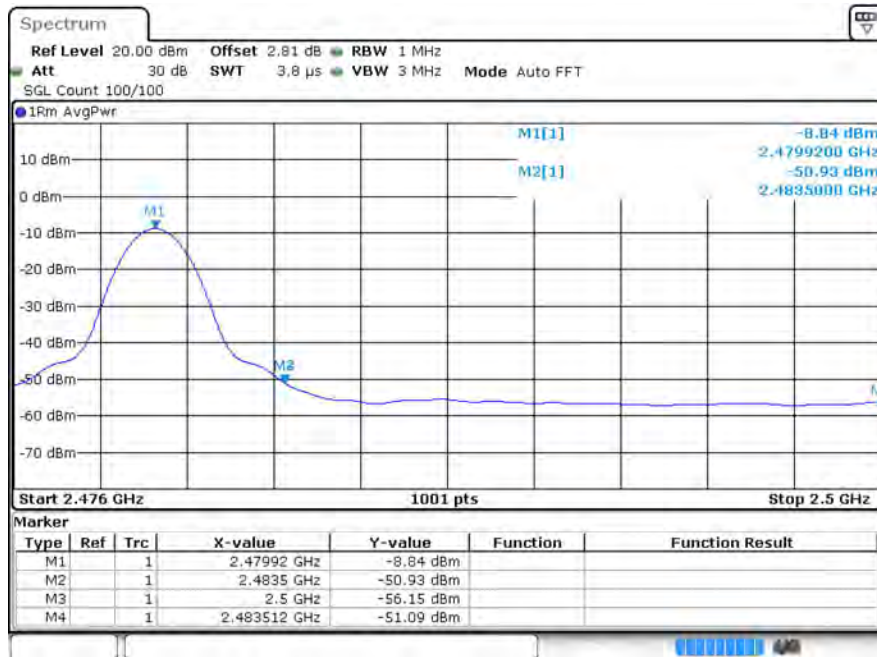
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



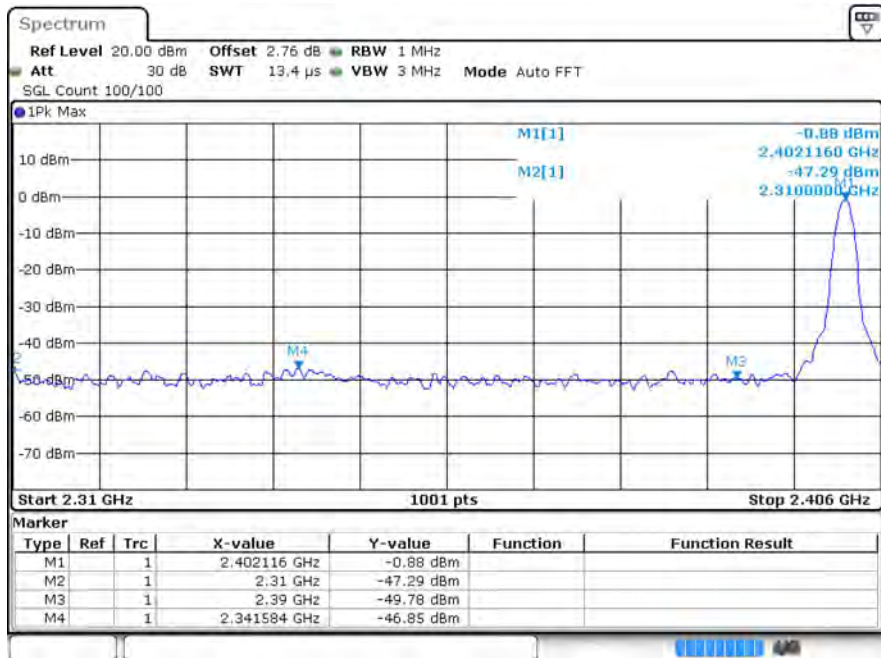
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



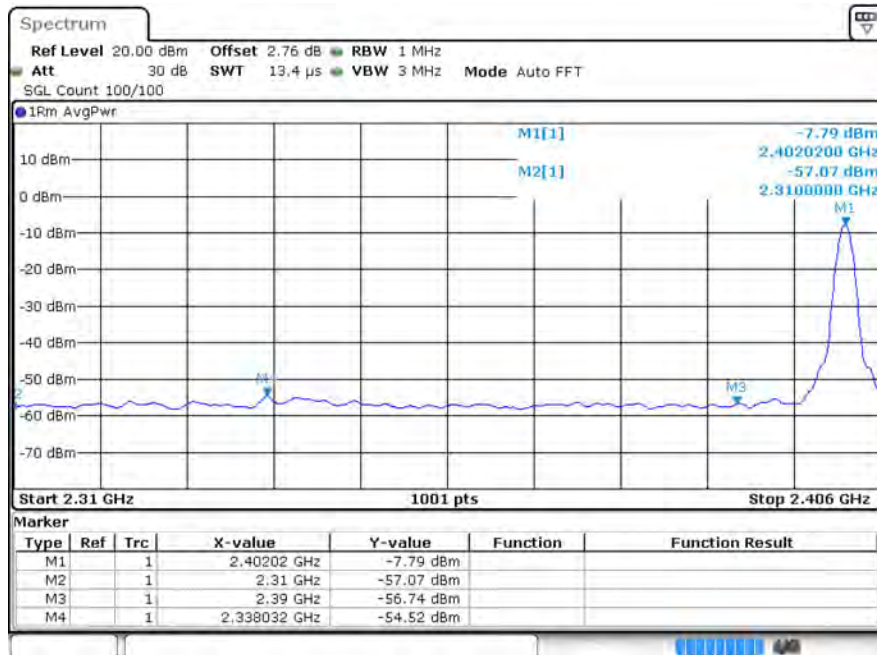
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



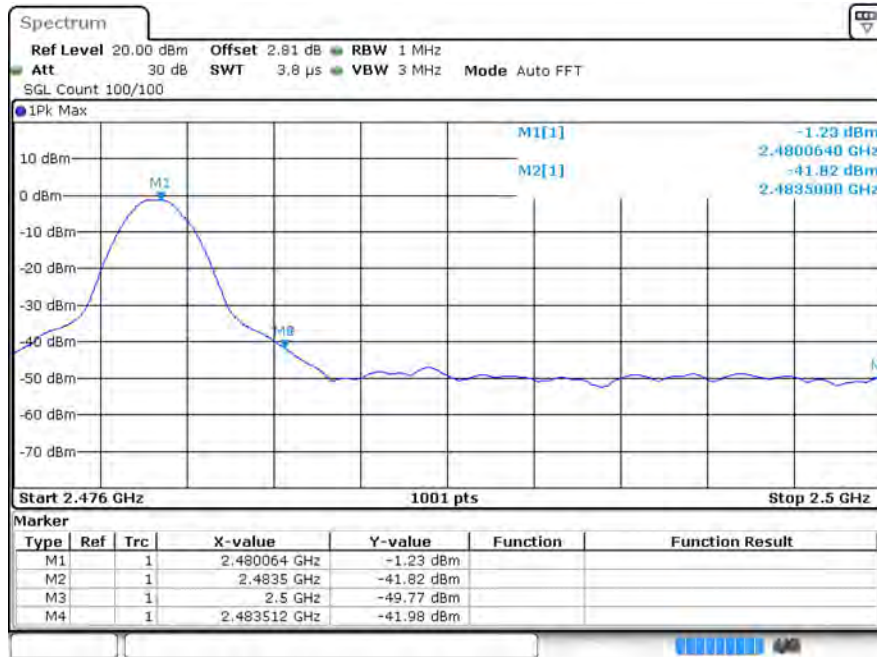
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



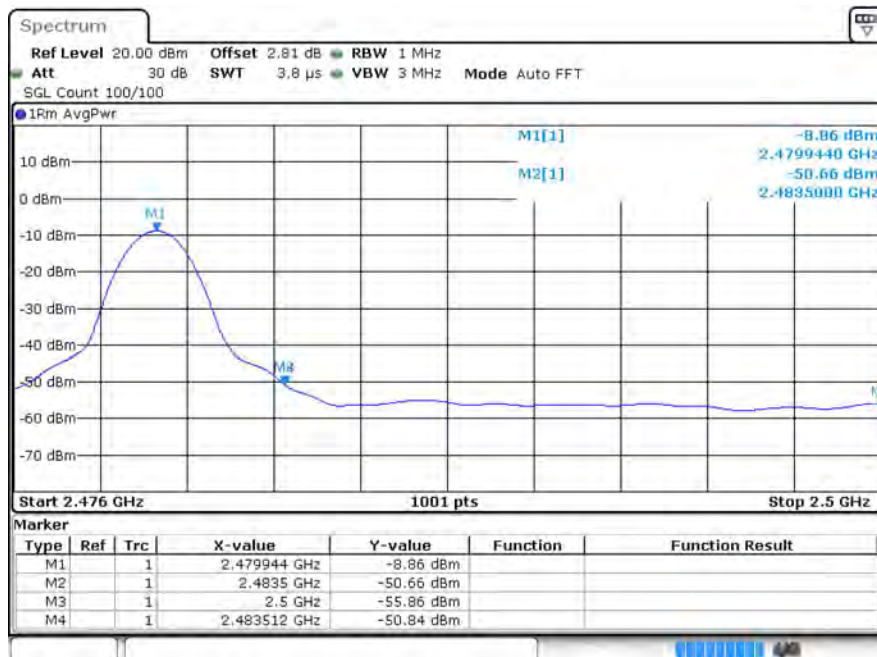
Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (High Channel)



Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (High Channel)



---The End---