

Appendix A

RF Test Data for BR_EDR(Conducted Measurement)

Product Name: SMARTPHONE

Trade Mark: SIRAGON

Test Model: SP-7200

Environmental Conditions

Temperature:	24.3℃
Relative Humidity:	43%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

Contents

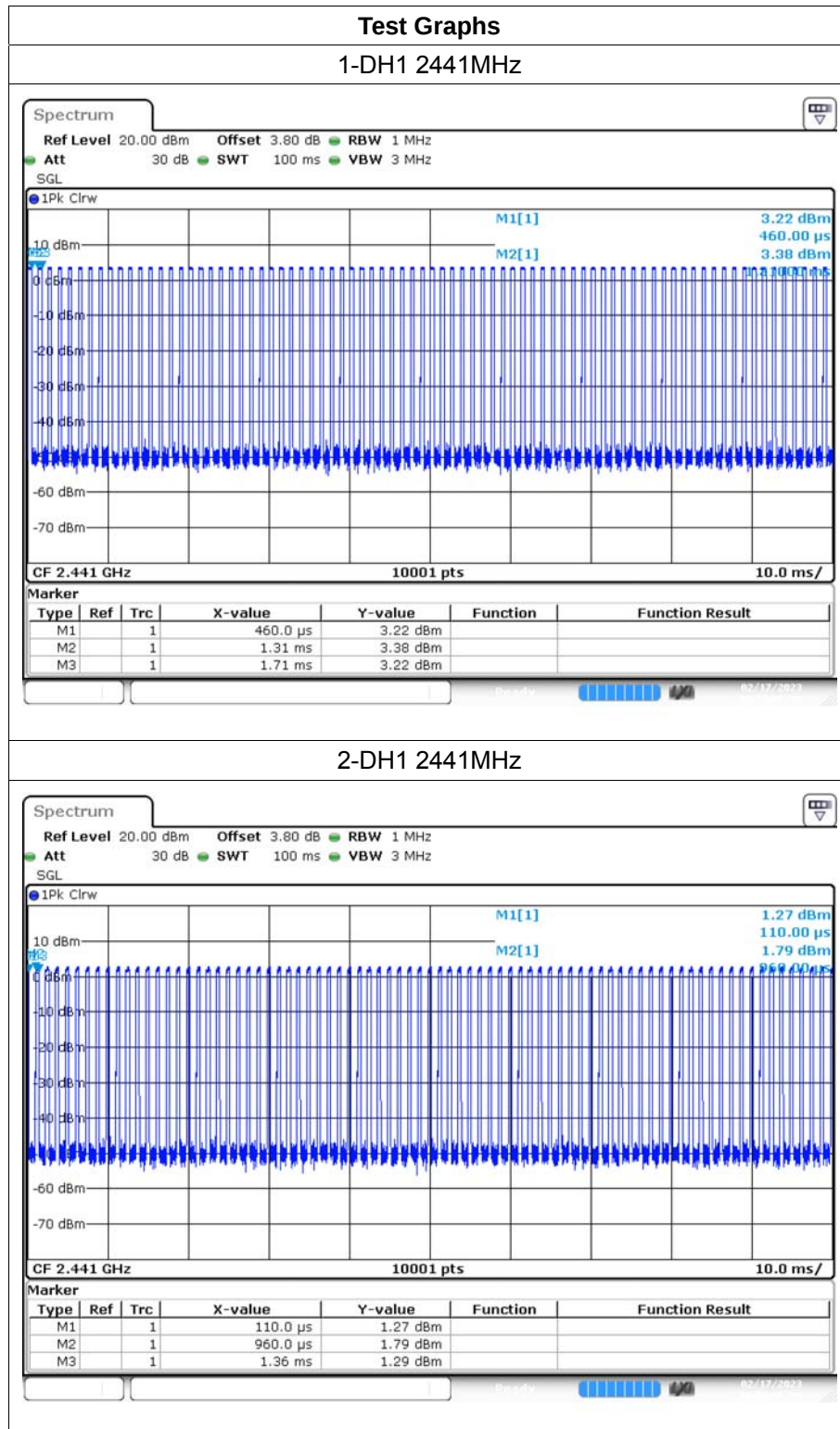
	Page
COVER PAGE	
1 .Duty Cycle.....	3
1.1 Test Result	3
1.2 Test Graphs	4
2 Maximum Conducted Peak Output Power.....	6
2.1 Test Result	6
2.2 Test Graphs	7
3 20dB Bandwidth.....	12
3.1 Test Result	12
3.2 Test Graphs	13
4 Carrier Frequency Separation.....	18
4.1 Test Result	18
4.2 Test Graphs	19
5 Hopping Channel Number	21
5.1 Test Result	21
5.2 Test Graphs	22
6 Dwell Time	24
6.1 Test Result	24
6.2 Test Graphs	25
7 RF Conducted Spurious Emissions	28
7.1 Test Result	28
7.2 Test Graphs	29
8 Band-edge for RF Conducted Emissions	38
8.1 Test Result	38
8.2 Test Graphs	39
9 Restrict-band band-edge measurements.....	51
9.1 Test Result	51
9.2 Test Graphs	53

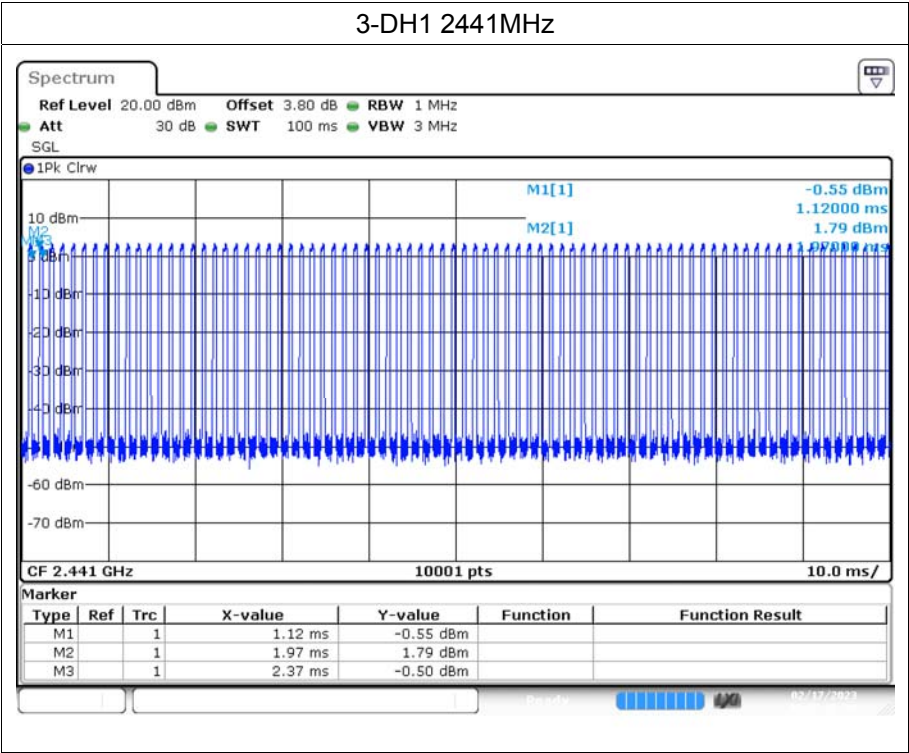
1 .Duty Cycle

1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2441	33.28	2.5
2-DH1	2441	32.81	2.5
3-DH1	2441	32.8	2.5

1.2 Test Graphs



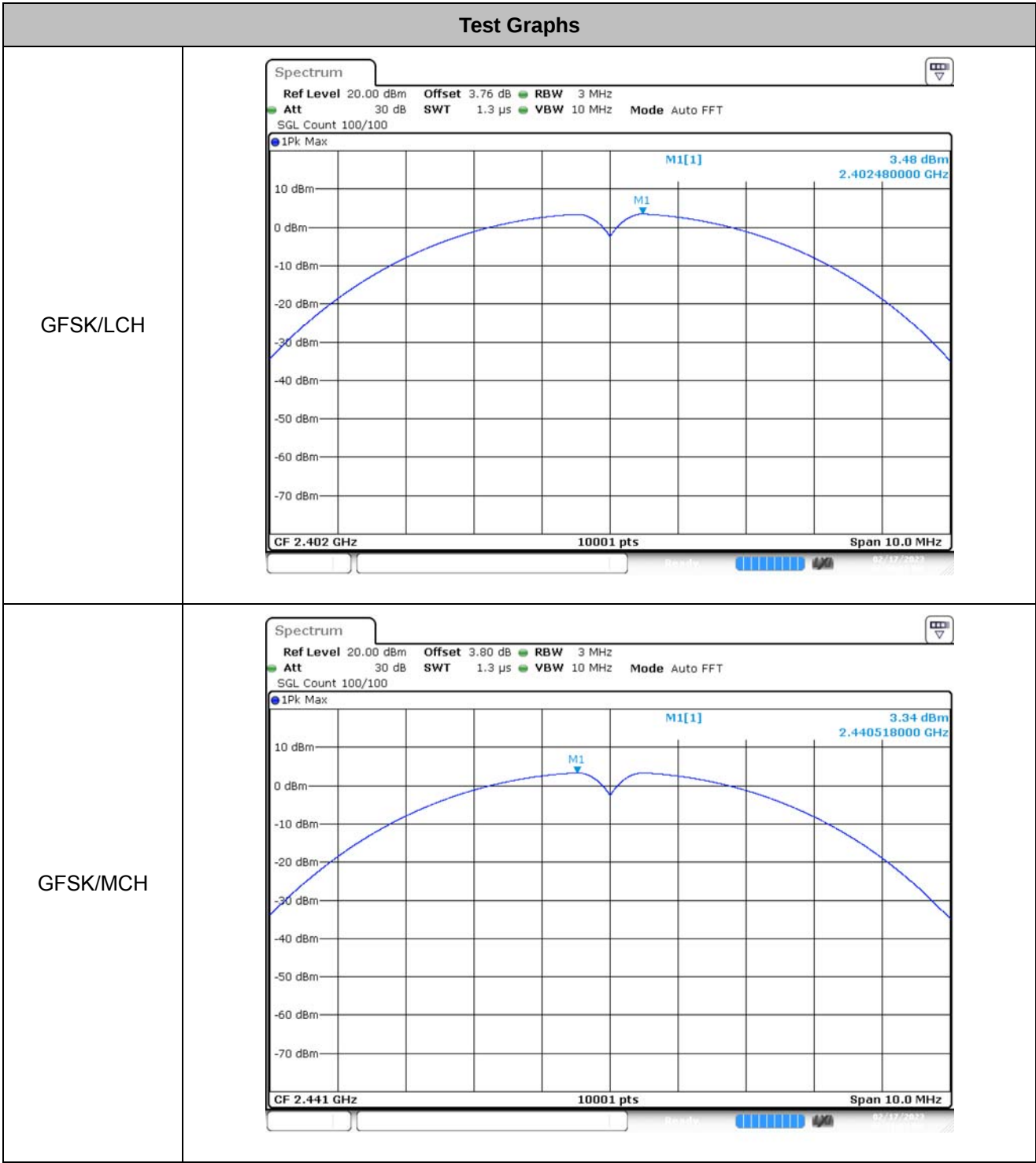


2 Maximum Conducted Peak Output Power

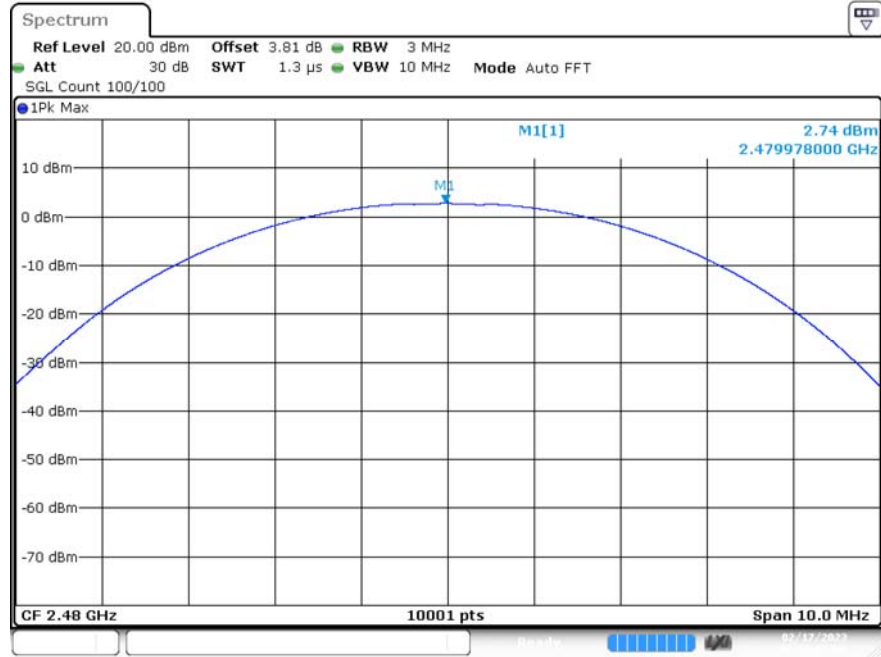
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.48	≤ 21	Pass
	MCH	3.34	≤ 21	Pass
	HCH	2.74	≤ 21	Pass
$\pi/4$ DQPSK	LCH	3.0	≤ 21	Pass
	MCH	3.25	≤ 21	Pass
	HCH	2.58	≤ 21	Pass
8DPSK	LCH	3.44	≤ 21	Pass
	MCH	3.37	≤ 21	Pass
	HCH	2.53	≤ 21	Pass

2.2 Test Graphs



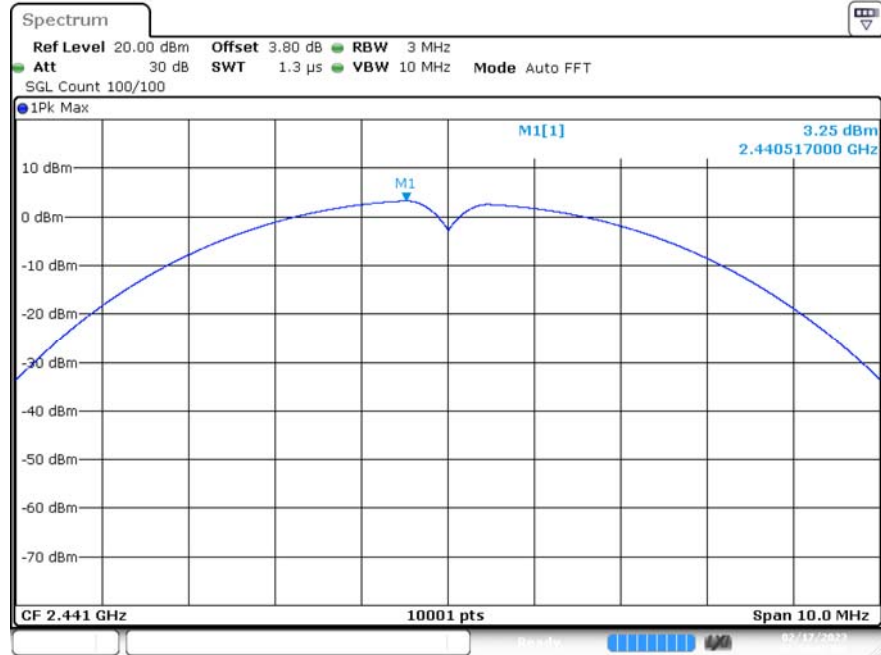
GFSK/HCH



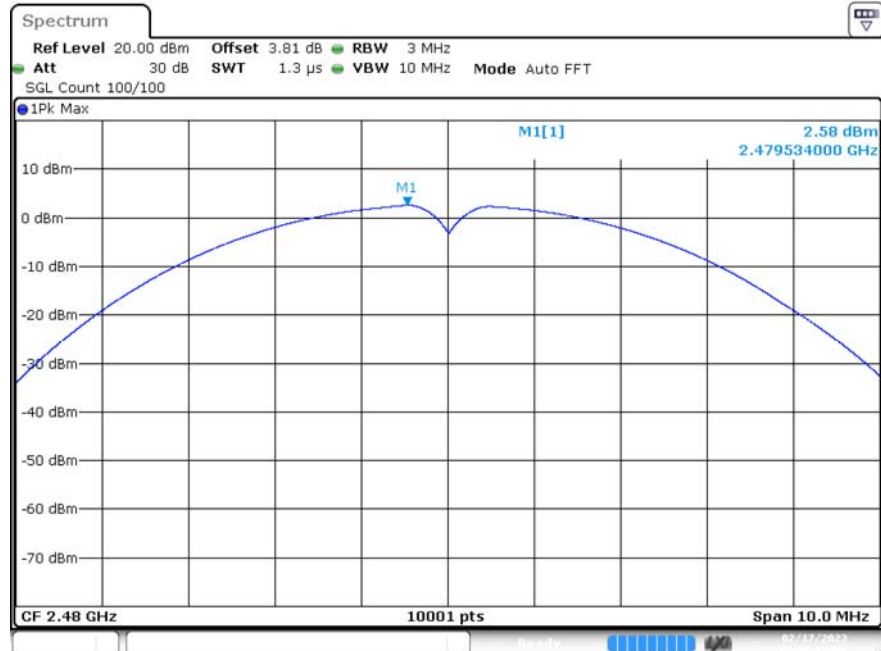
$\pi/4$ DQPSK/LCH



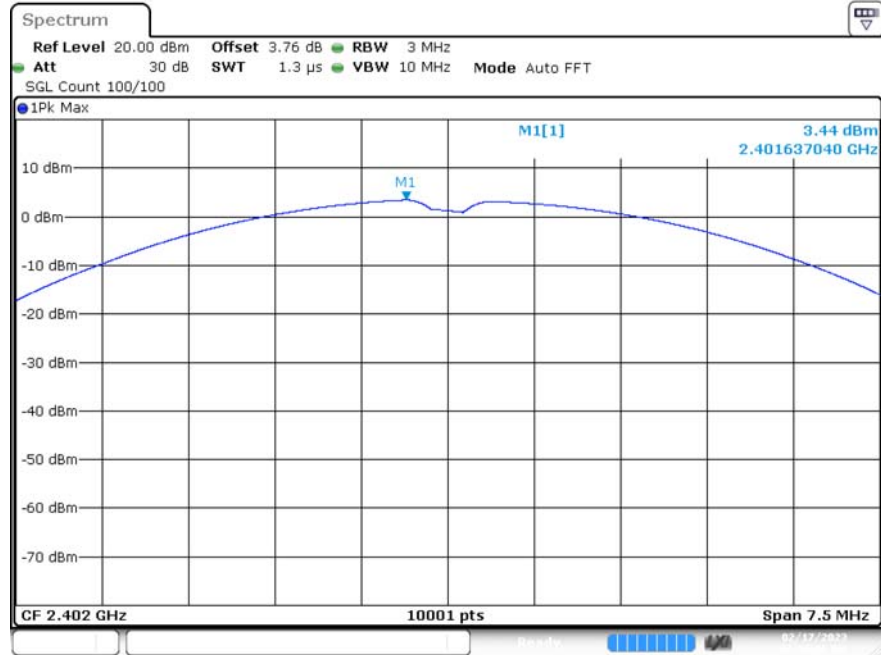
$\pi/4$ DQPSK/MC
H



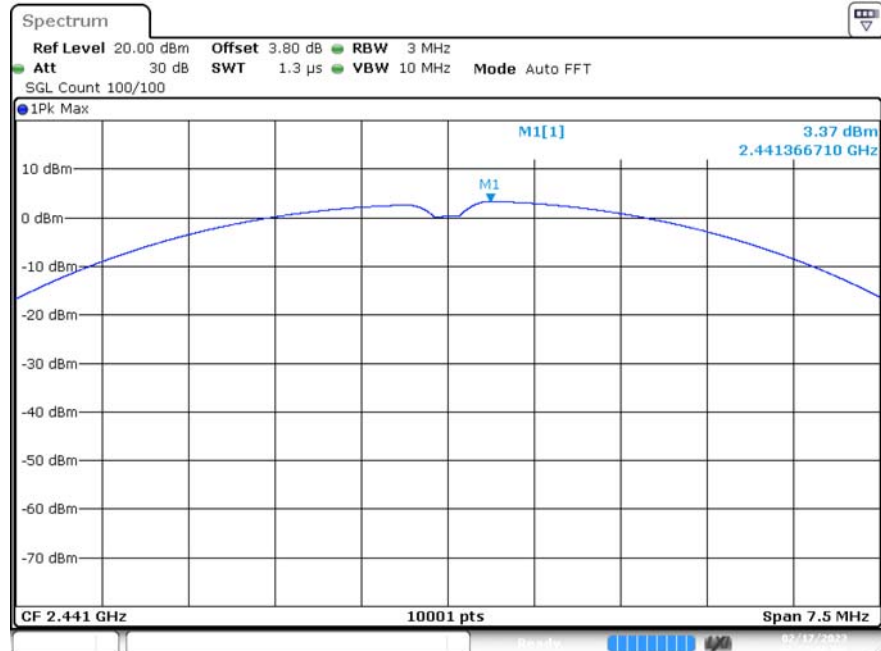
$\pi/4$ DQPSK/HCH



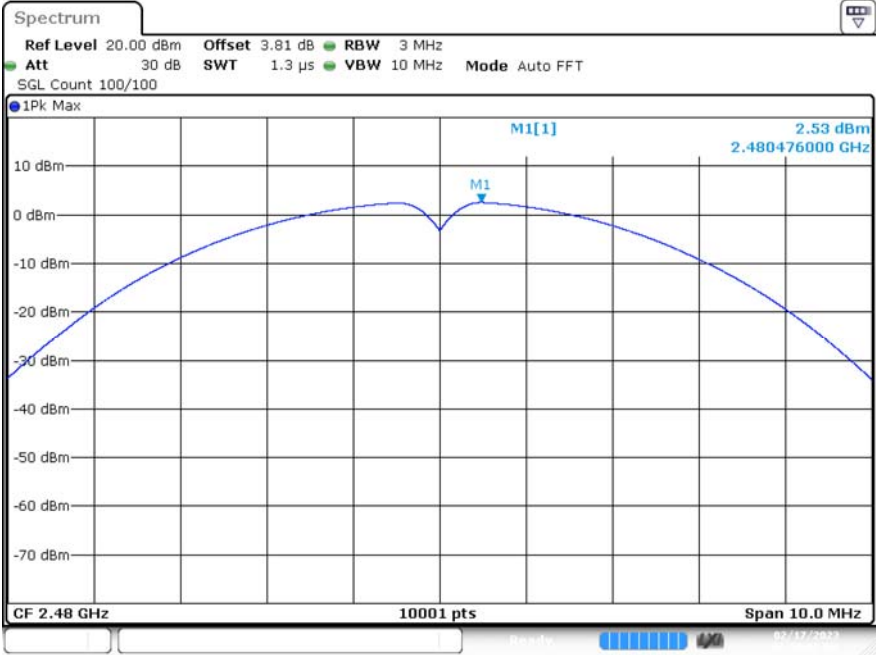
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

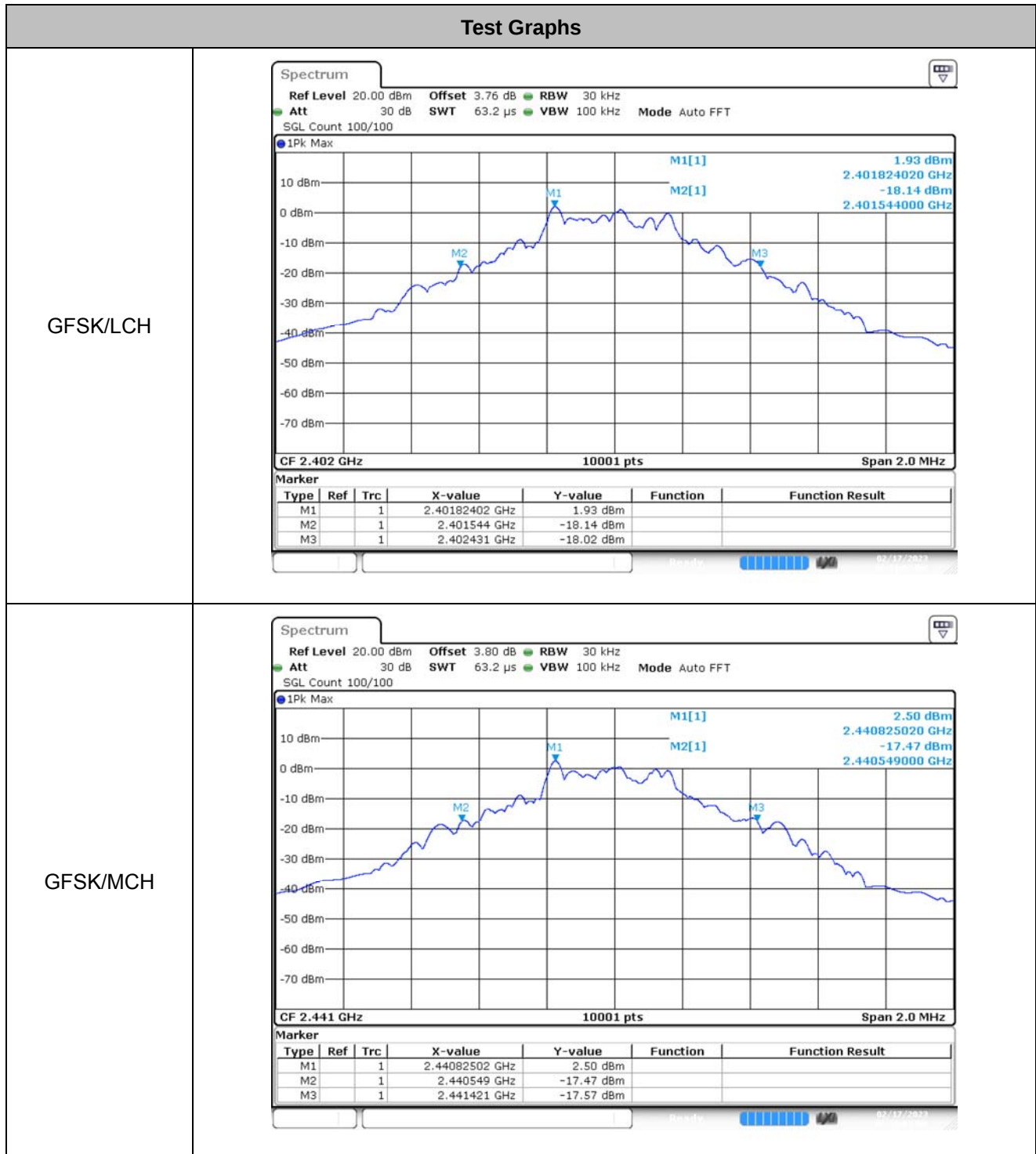


3 20dB Bandwidth

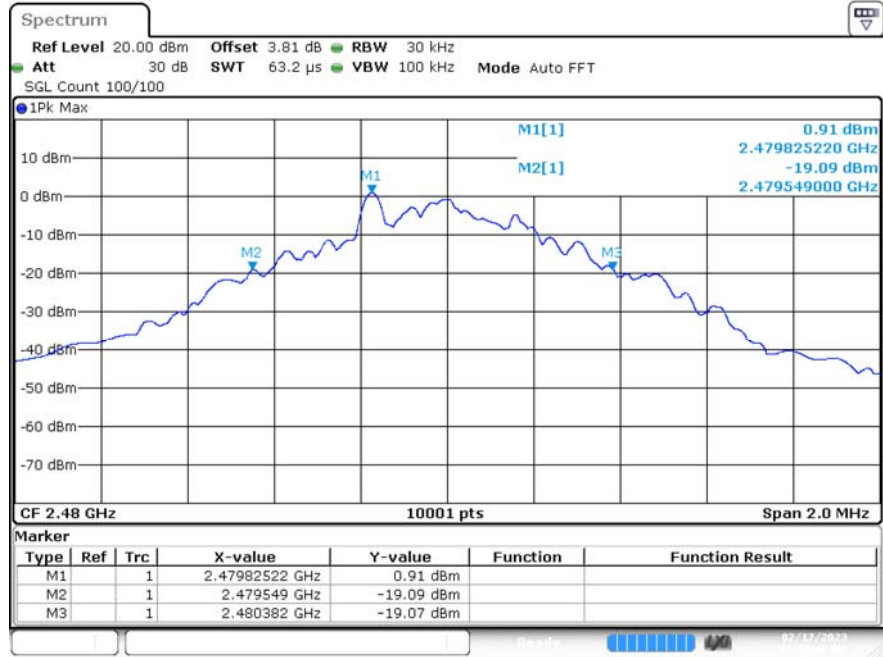
3.1 Test Result

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.887	Not Specified	Pass
	MCH	0.872	Not Specified	Pass
	HCH	0.833	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.25	Not Specified	Pass
	MCH	1.244	Not Specified	Pass
	HCH	1.255	Not Specified	Pass
8DPSK	LCH	1.222	Not Specified	Pass
	MCH	1.222	Not Specified	Pass
	HCH	1.249	Not Specified	Pass

3.2 Test Graphs



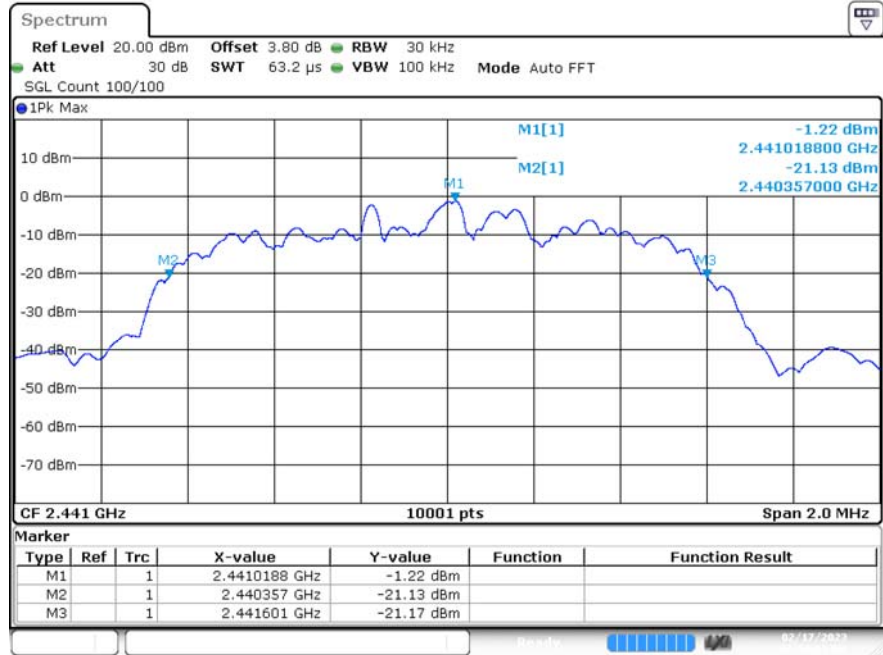
GFSK/HCH



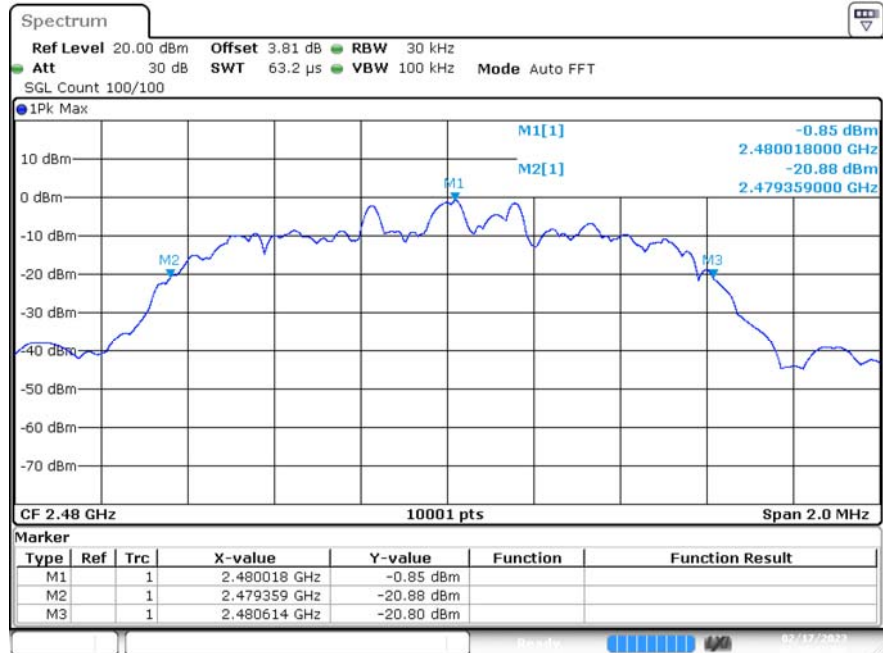
π /4DQPSK/LCH



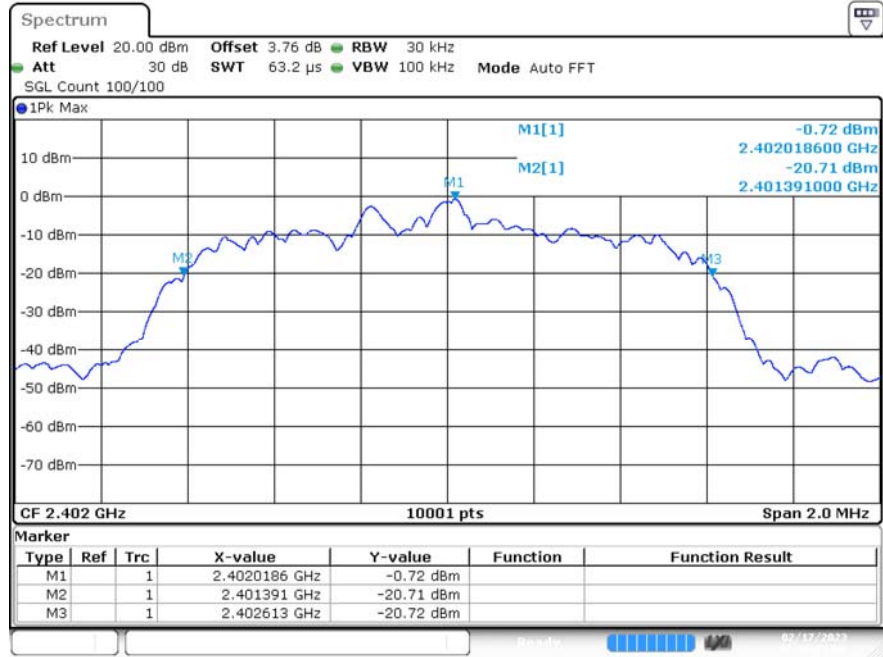
$\pi/4$ DQPSK/MCH



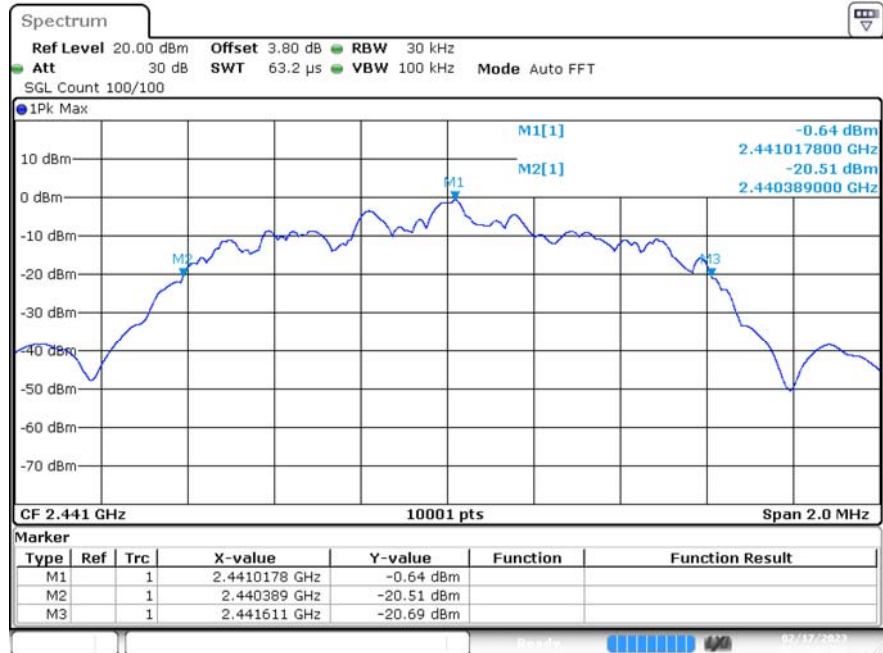
$\pi/4$ DQPSK/HCH



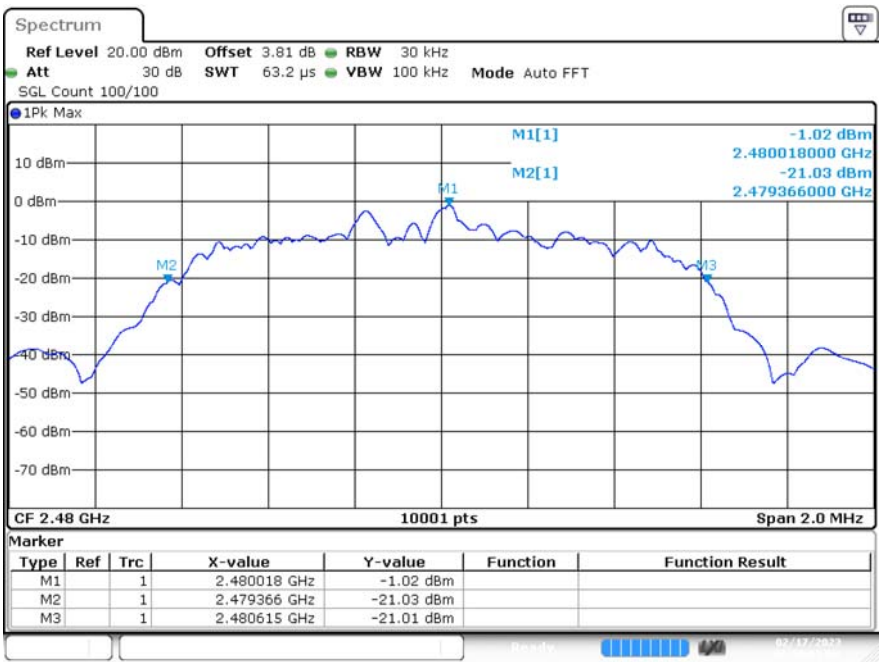
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

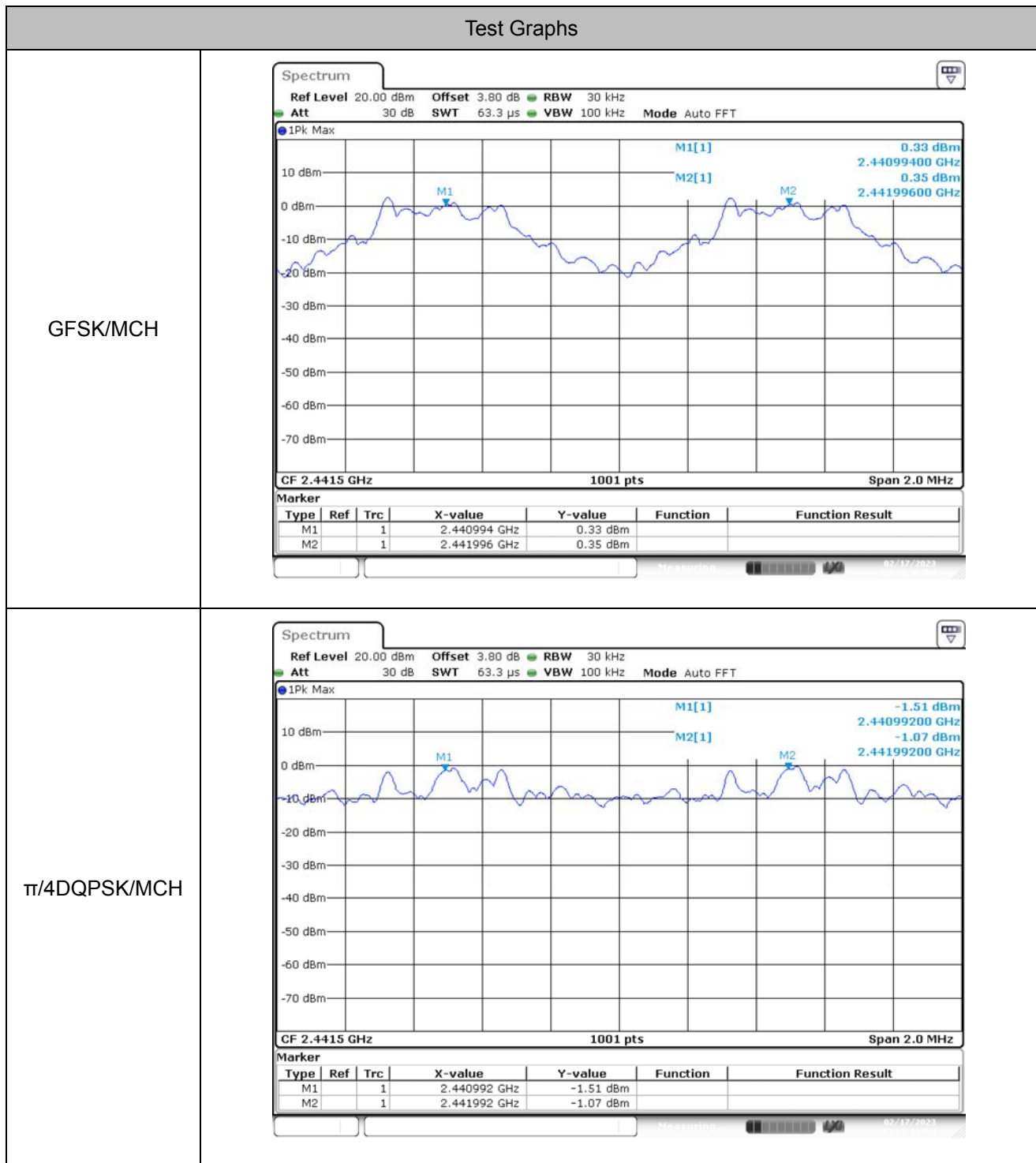


4 Carrier Frequency Separation

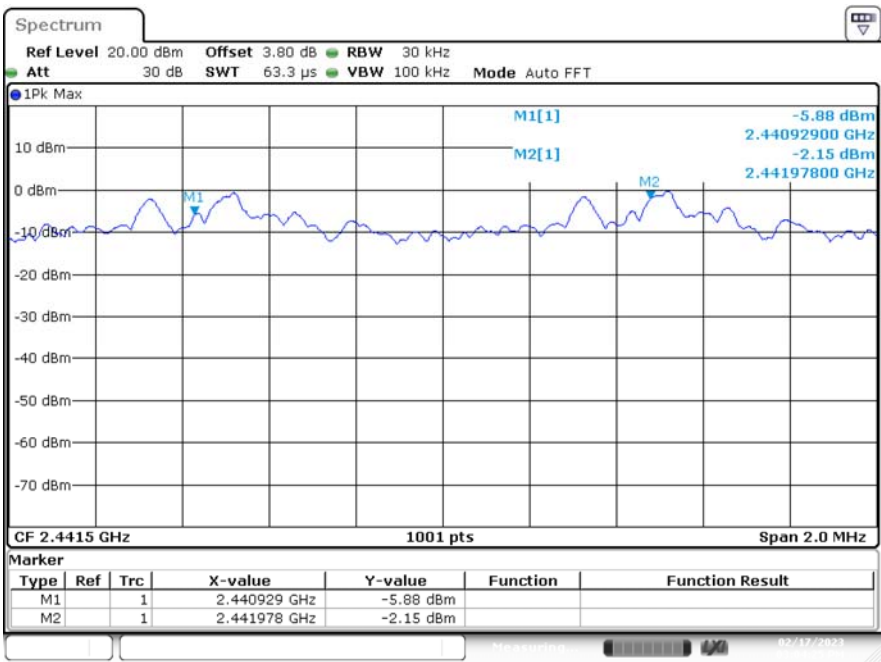
4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.002	0.581	Pass
$\pi/4$ DQPSK	MCH	1	0.829	Pass
8DPSK	MCH	1.049	0.815	Pass

4.2 Test Graphs



8DPSK/MCH

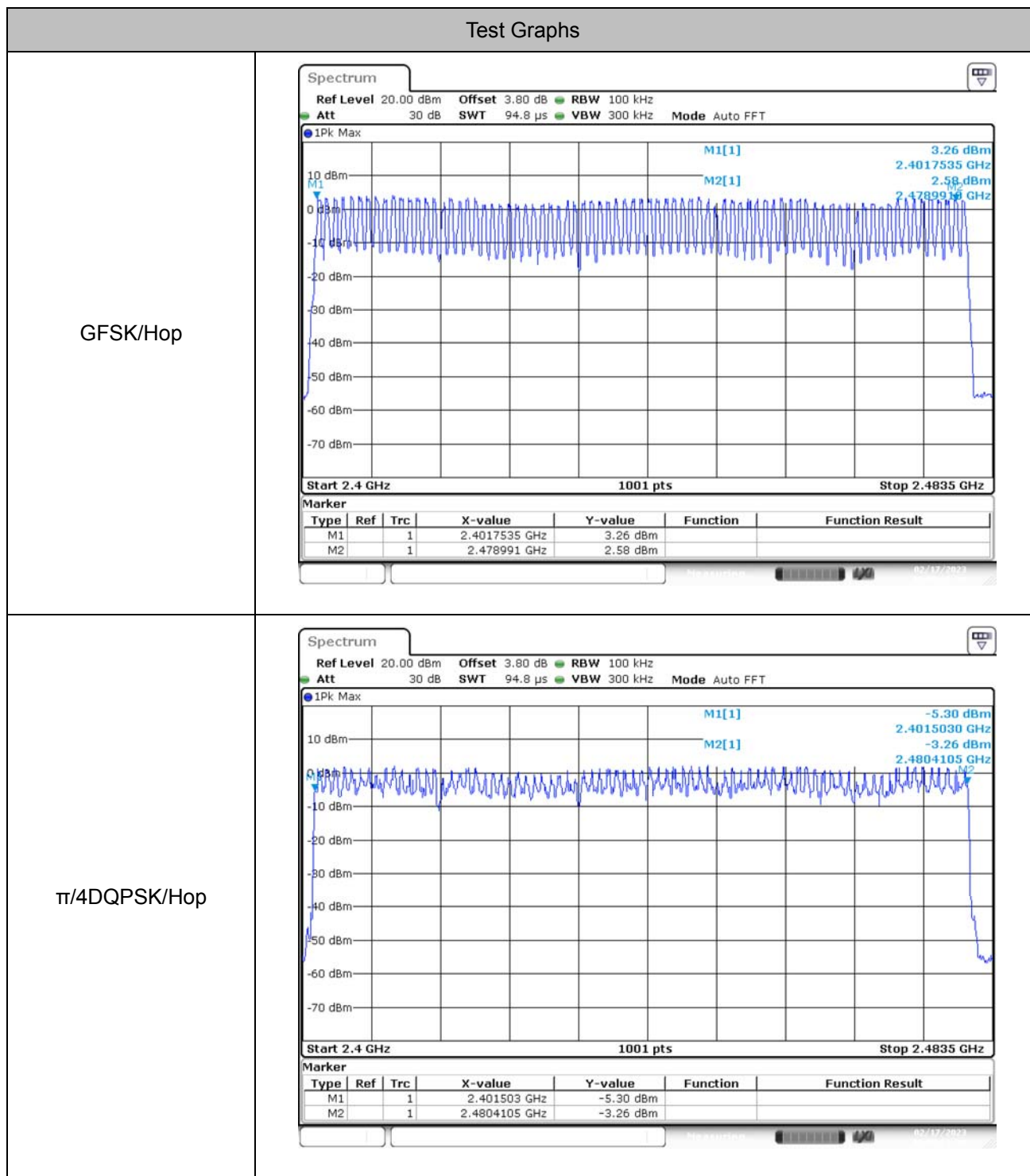


5 Hopping Channel Number

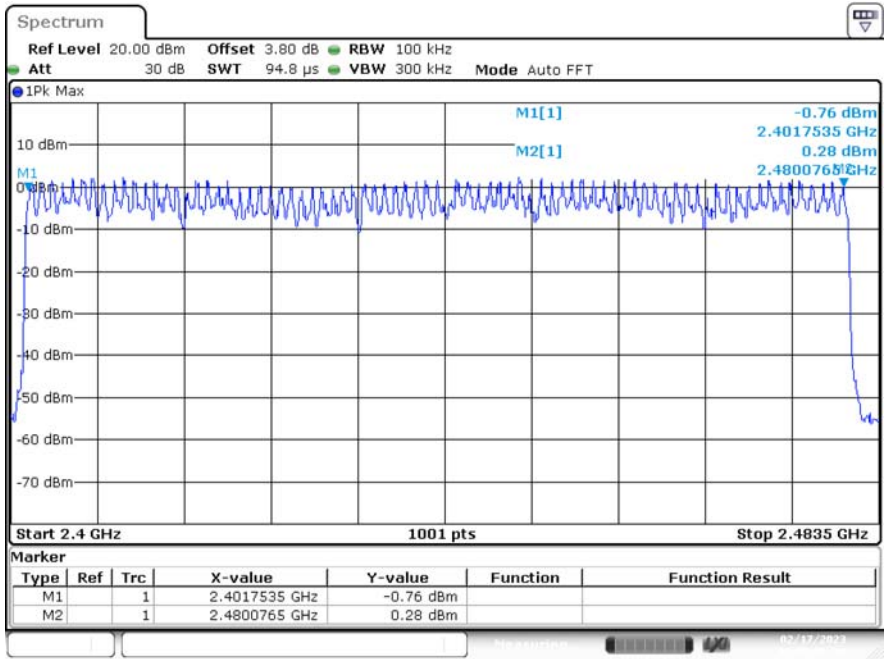
5.1 Test Result

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

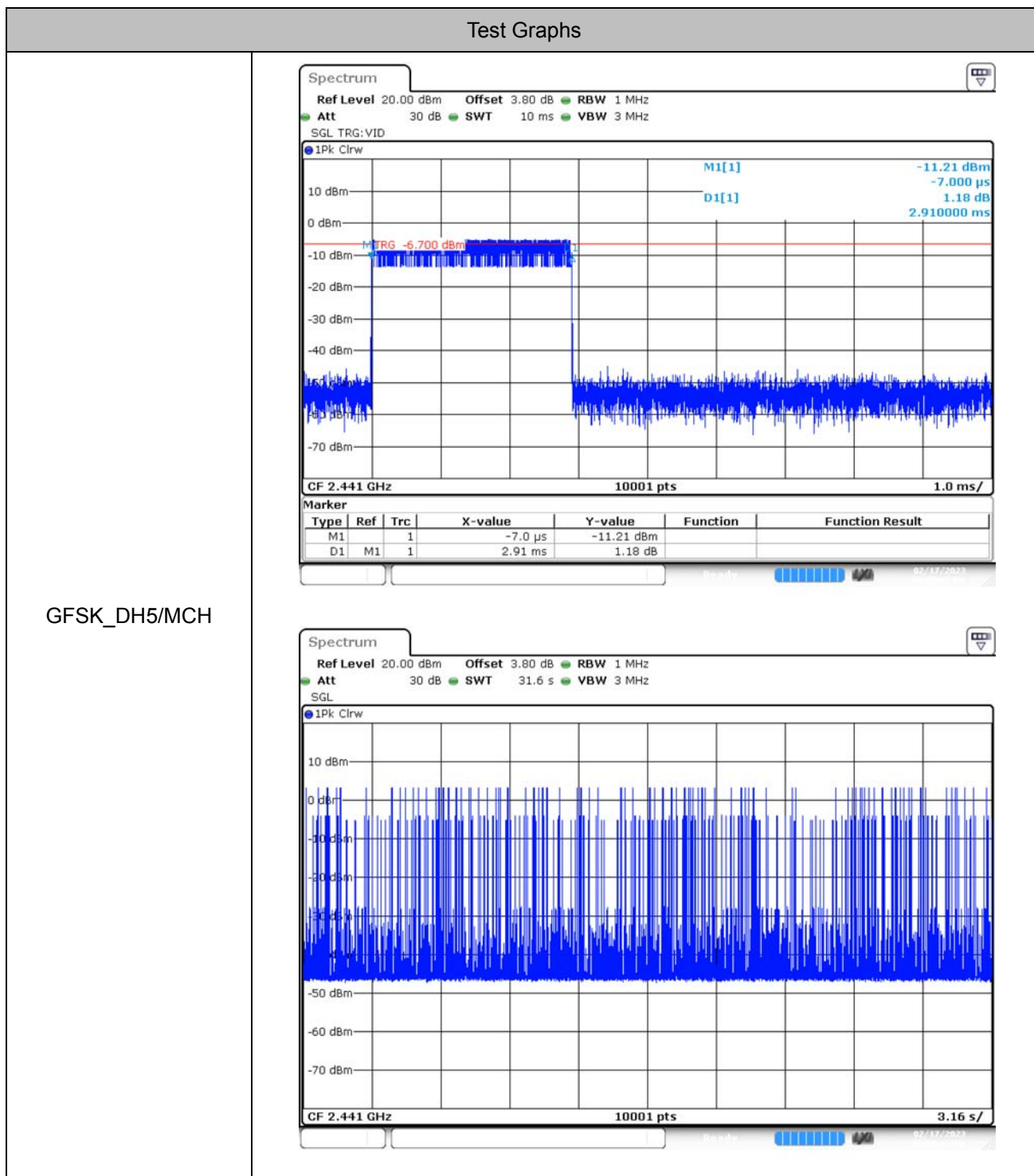


6 Dwell Time

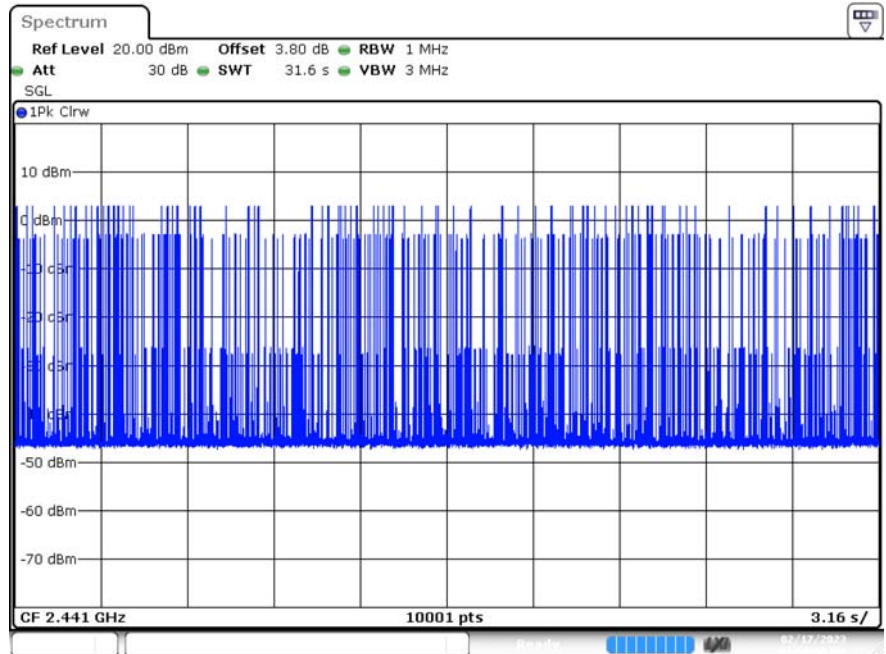
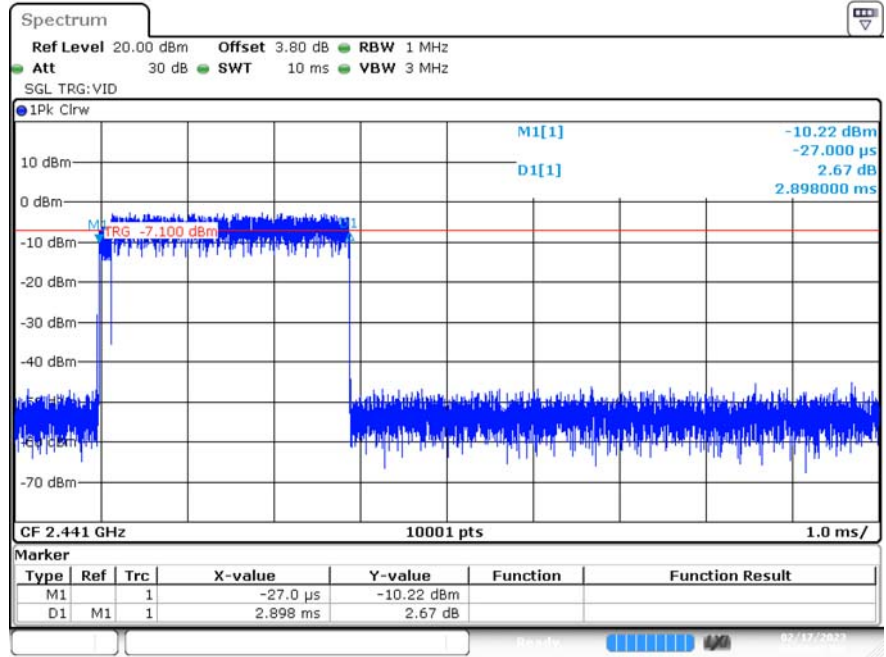
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.91	107	311.37	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.898	98	284.004	0.4	Pass
8DPSK	3DH5	MCH	2.898	116	336.168	0.4	Pass

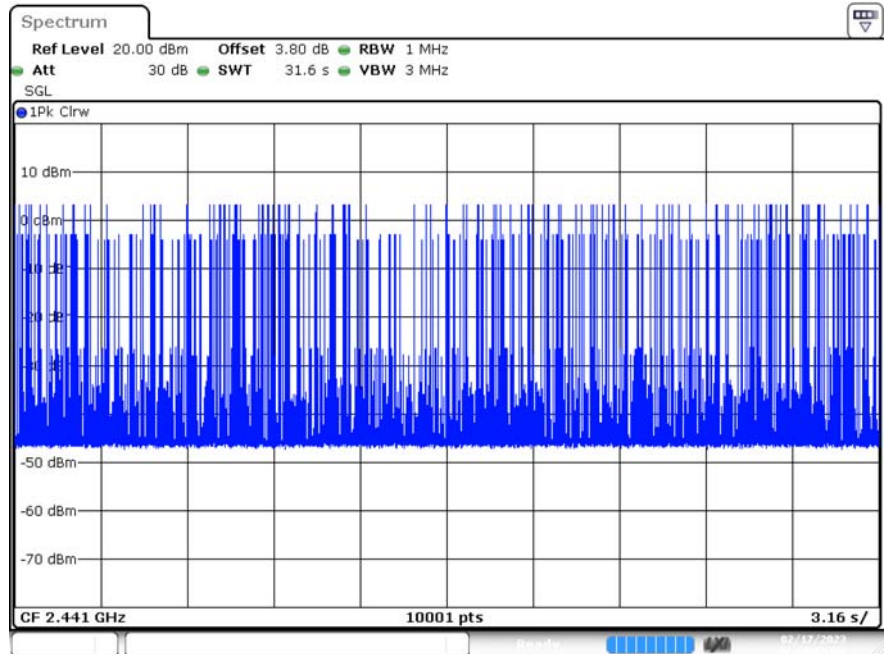
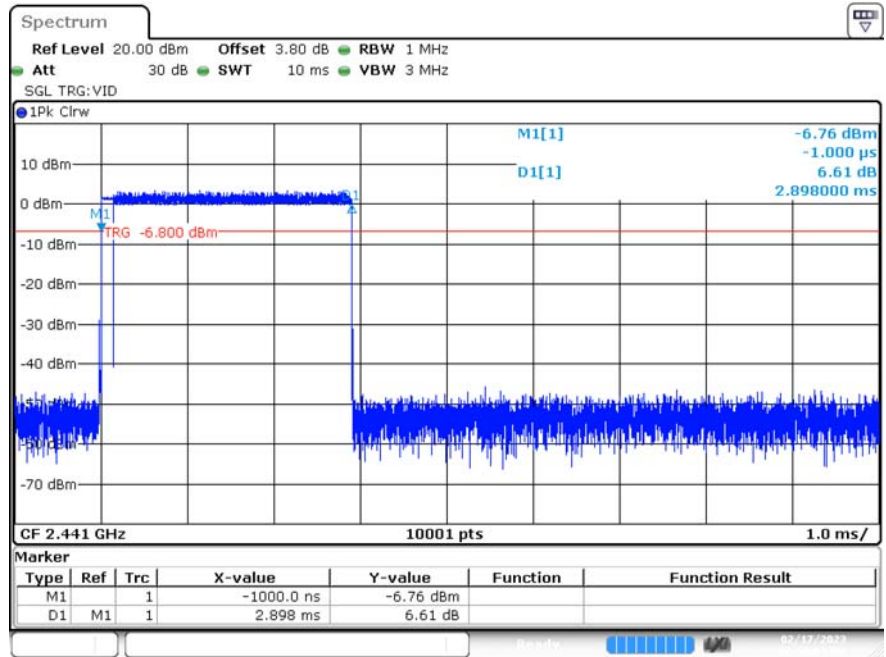
6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH



8DPSK_3DH5/MCH

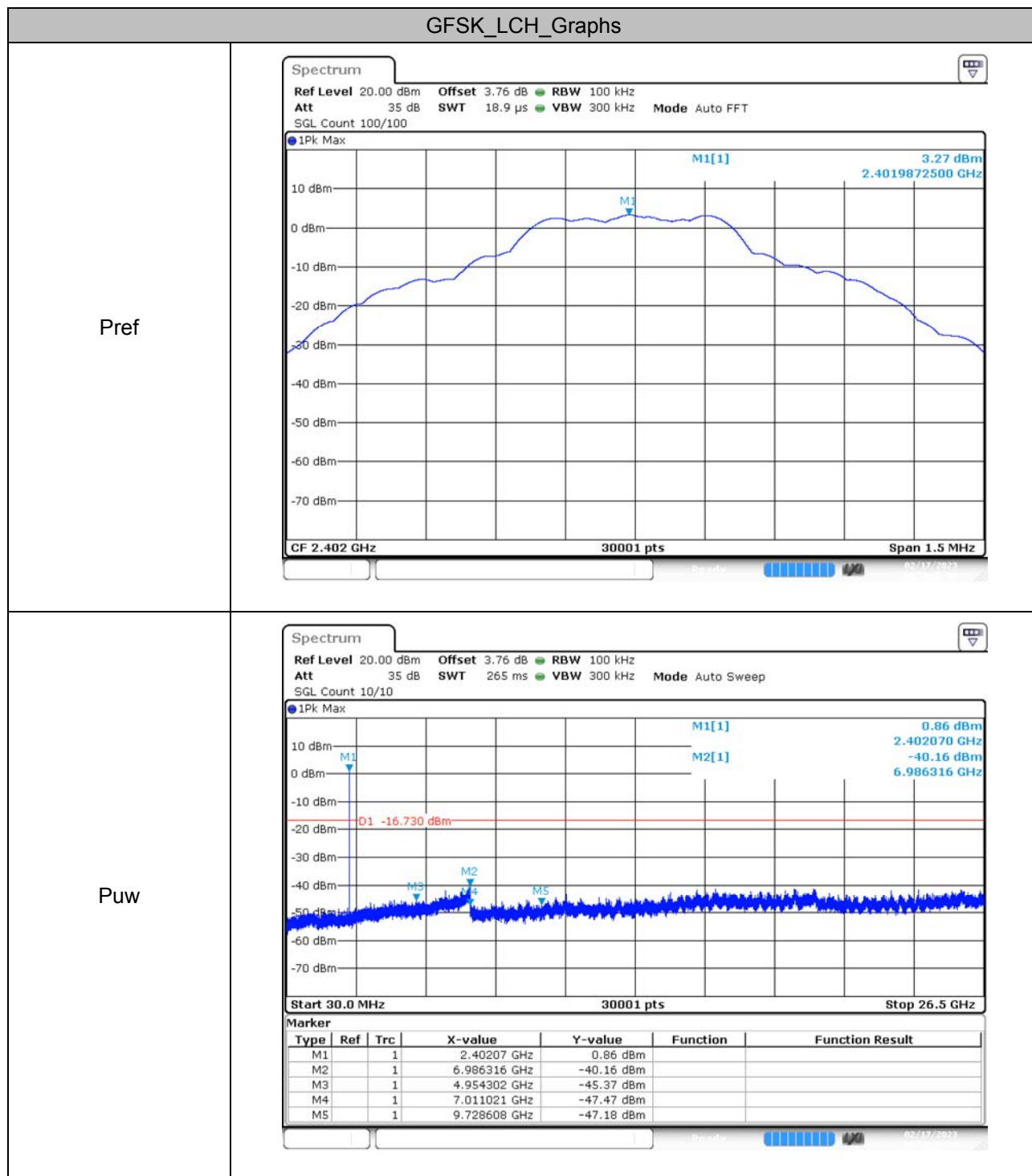


7 RF Conducted Spurious Emissions

7.1 Test Result

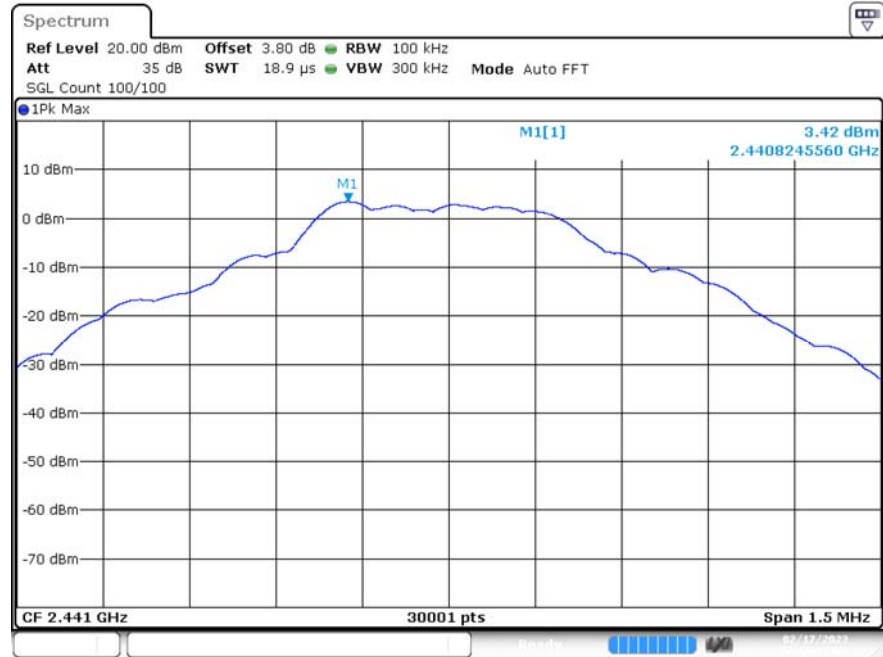
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-43.43	-20	Pass
	MCH	-43.94	-20	Pass
	HCH	-41.59	-20	Pass
$\pi/4$ DQPSK	LCH	-41.25	-20	Pass
	MCH	-42.29	-20	Pass
	HCH	-42.47	-20	Pass
8DPSK	LCH	-42.53	-20	Pass
	MCH	-41.48	-20	Pass
	HCH	-41.69	-20	Pass

7.2 Test Graphs

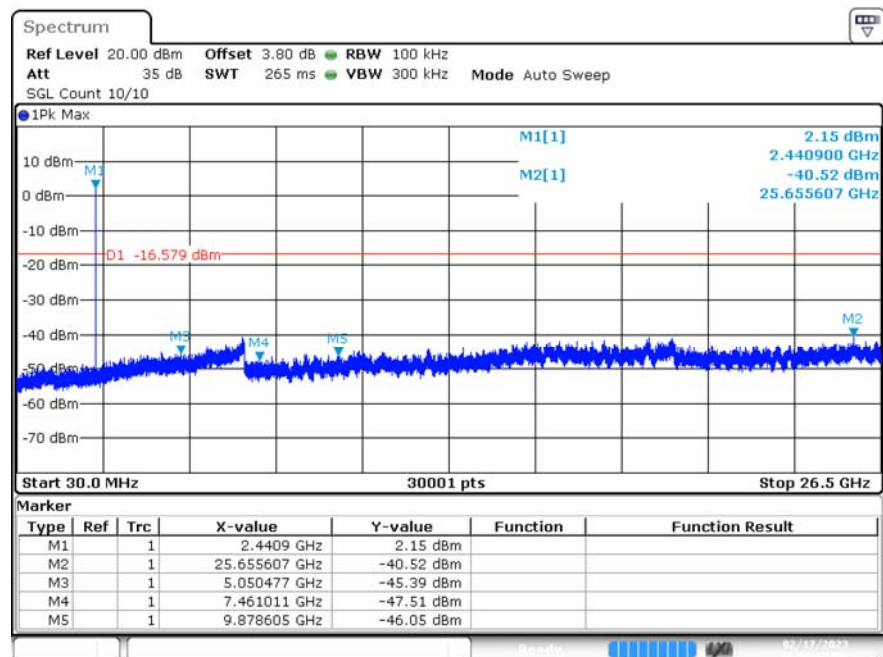


GFSK_MCH_Graphs

Pref

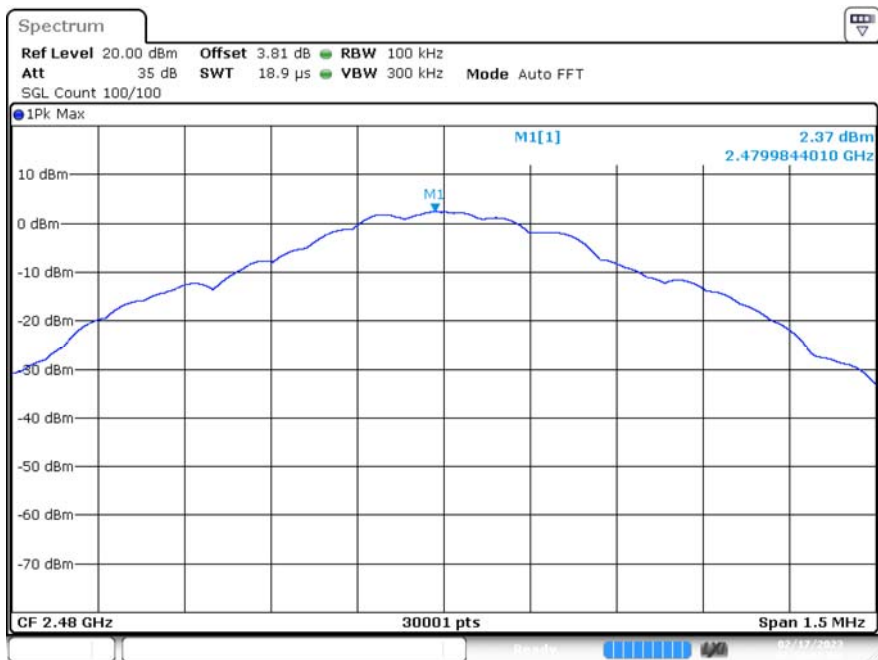


Puw

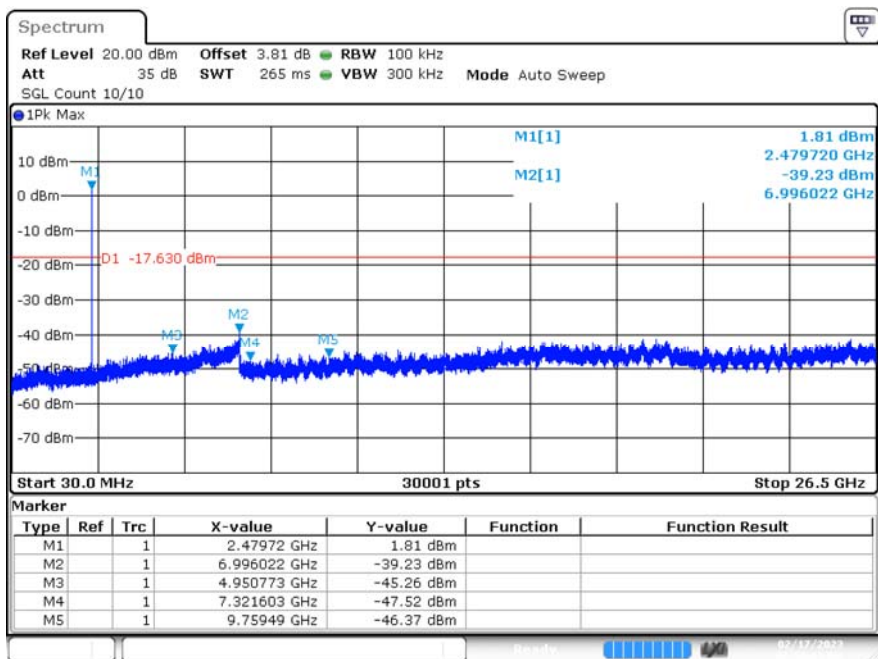


GFSK_HCH_Graphs

Pref

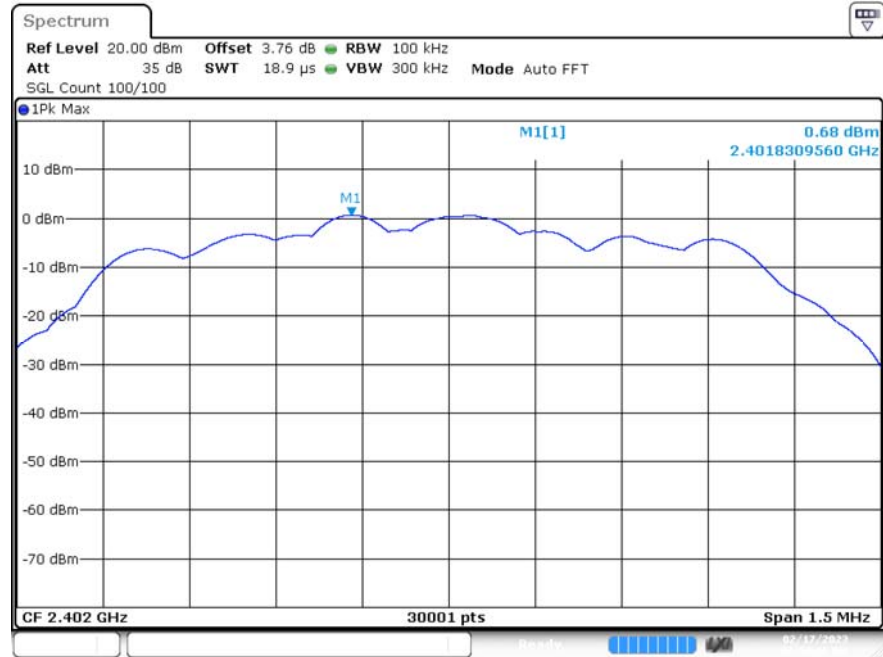


Puw

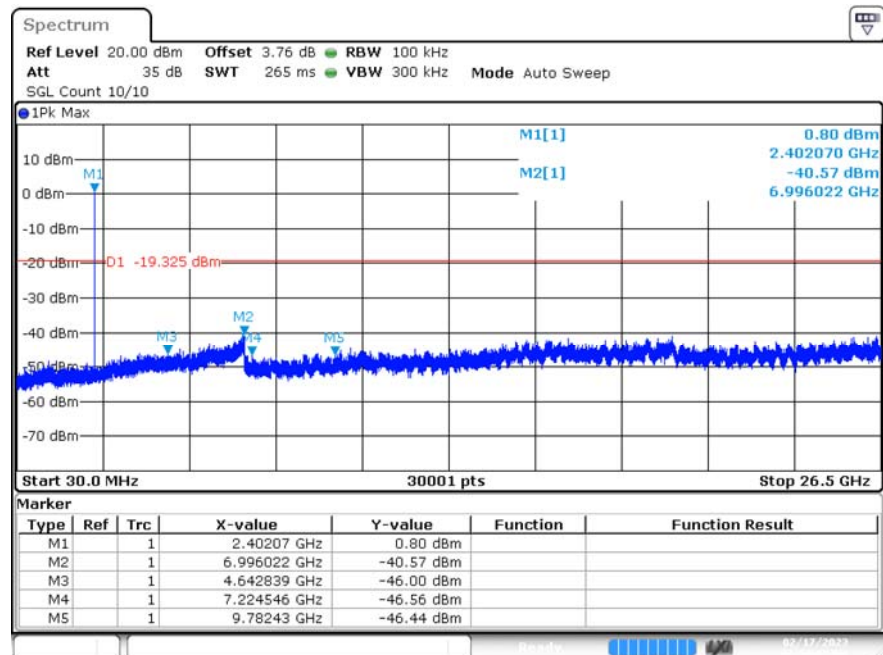


$\pi/4$ DQPSK_LCH_Graphs

Pref

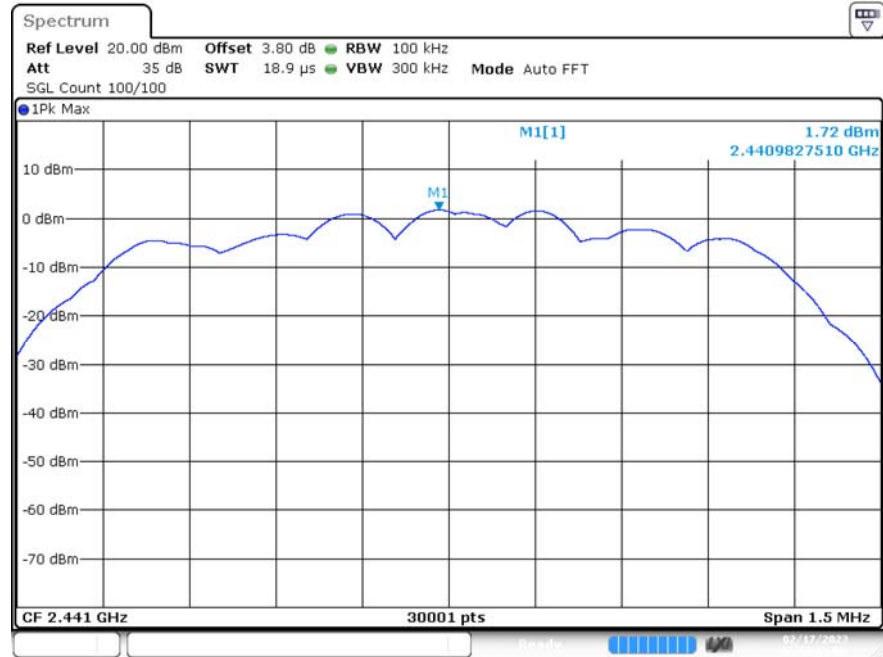


Puw

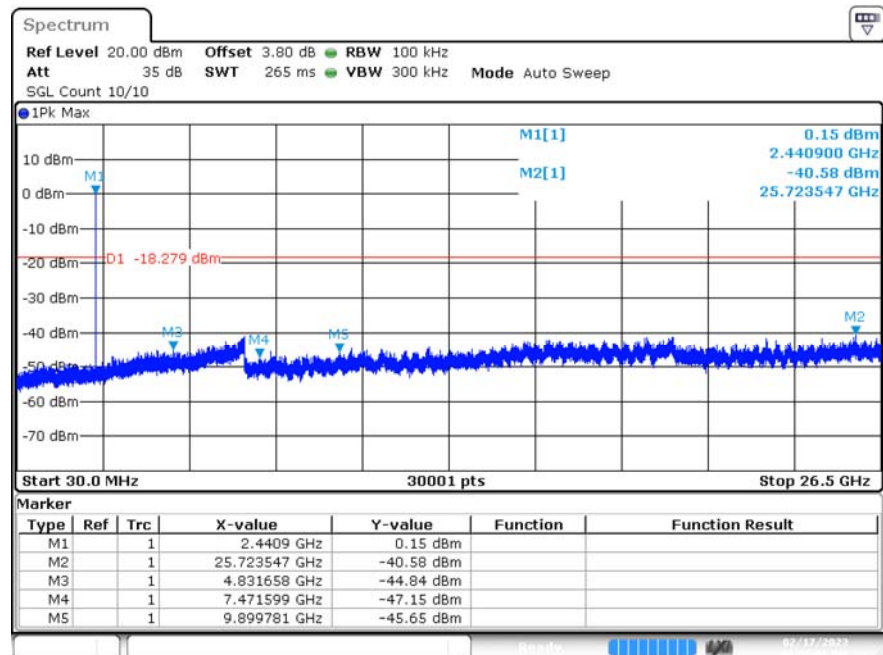


π /4DQPSK_MCH_Graphs

Pref

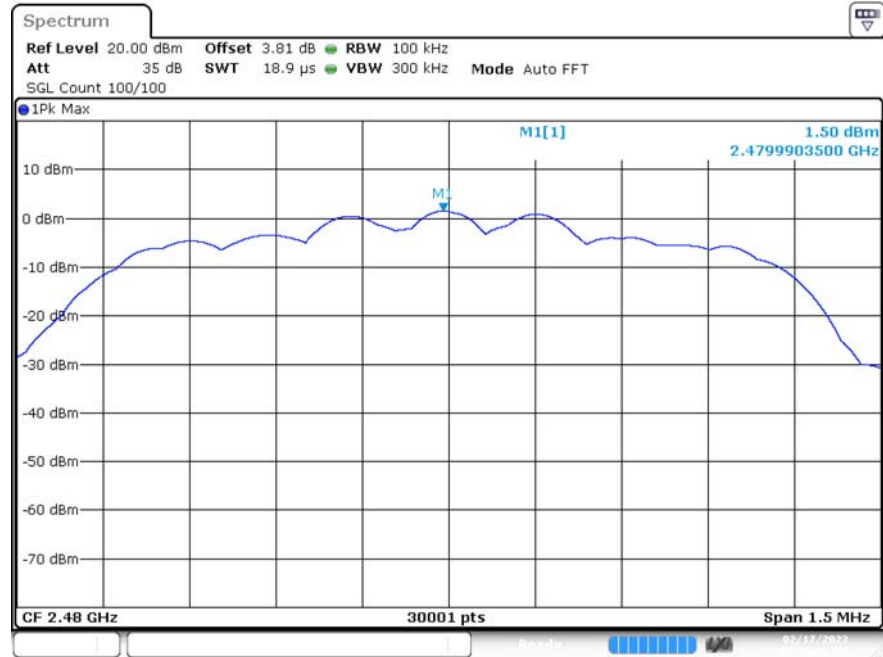


Puw

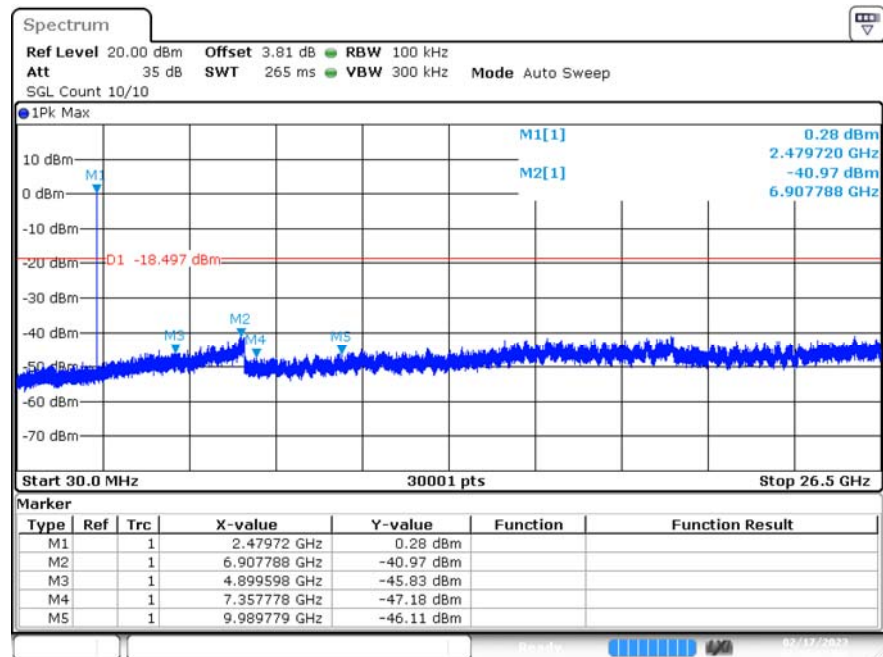


π /4DQPSK_HCH_Graphs

Pref

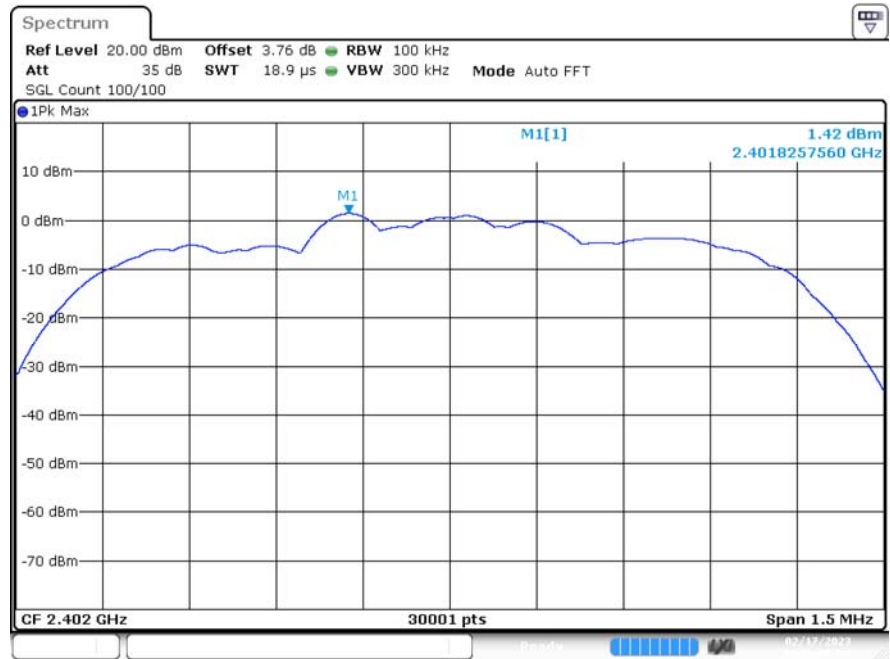


Puw

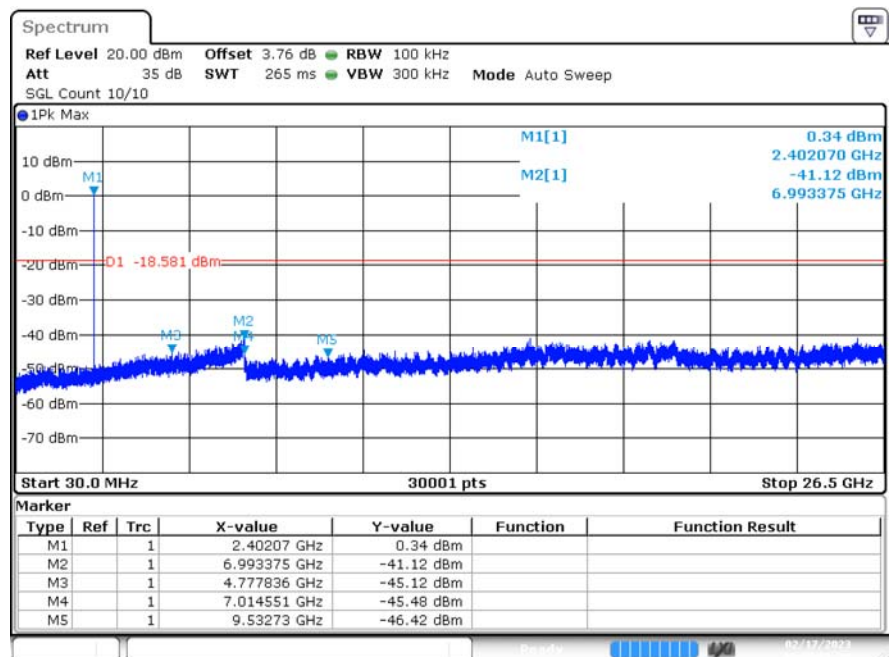


8DPSK_LCH_Graphs

Pref

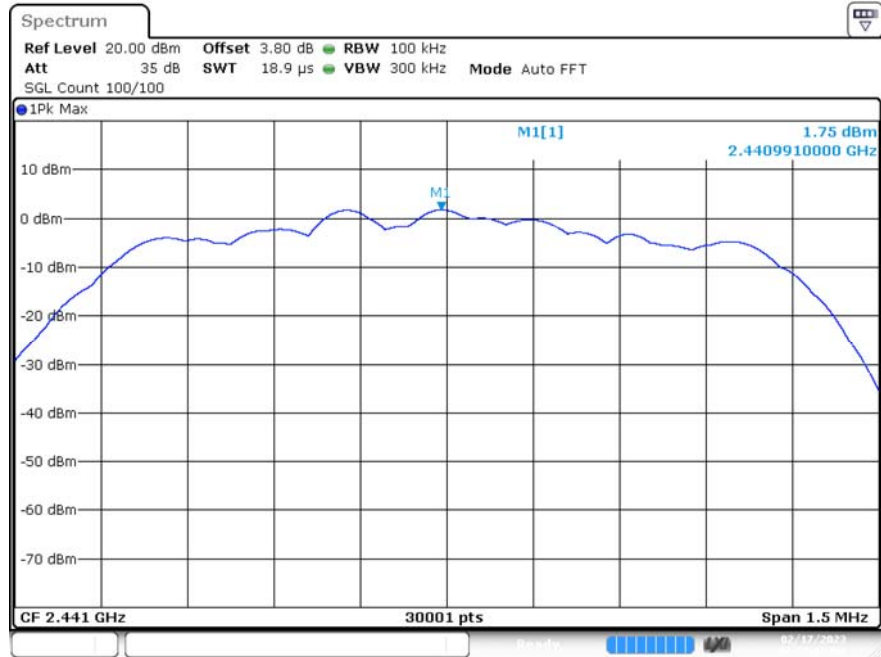


Puw

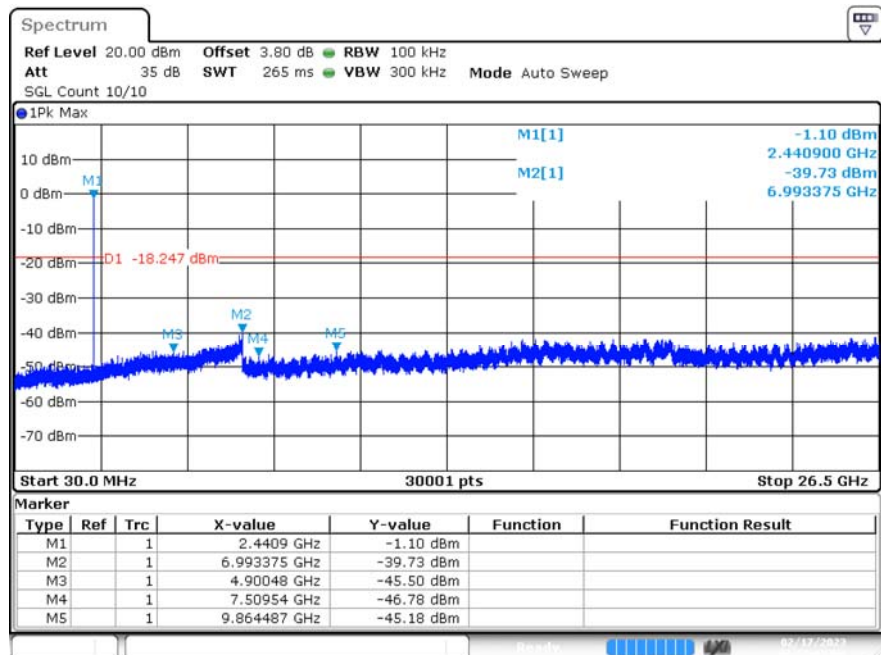


8DPSK_MCH_Graphs

Pref

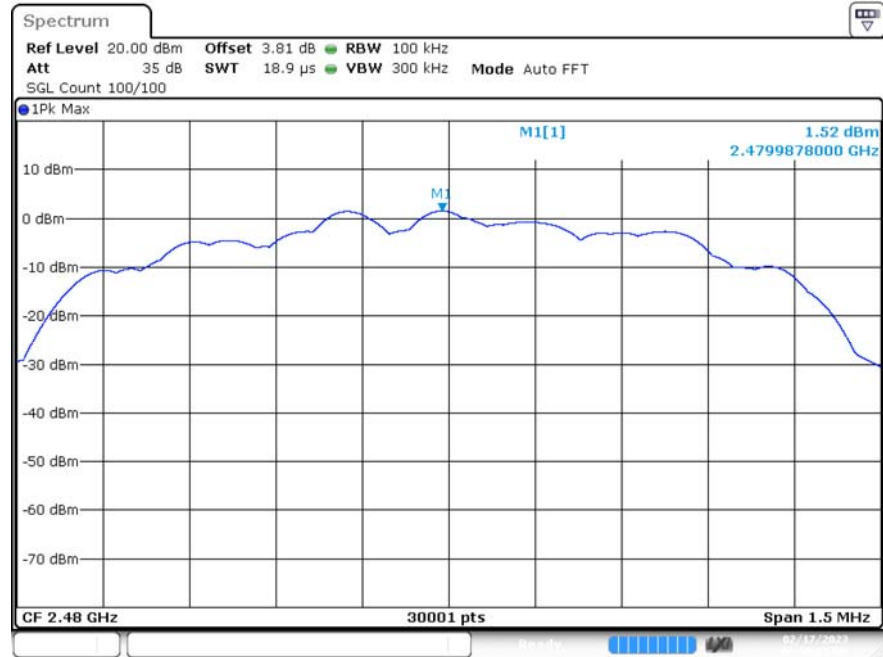


Puw

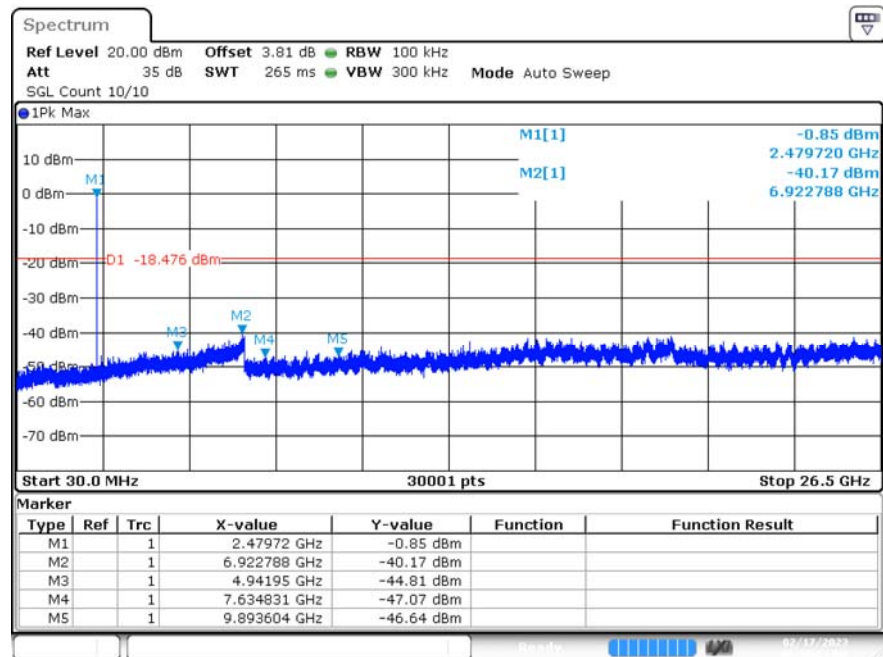


8DPSK_HCH_Graphs

Pref



Puw

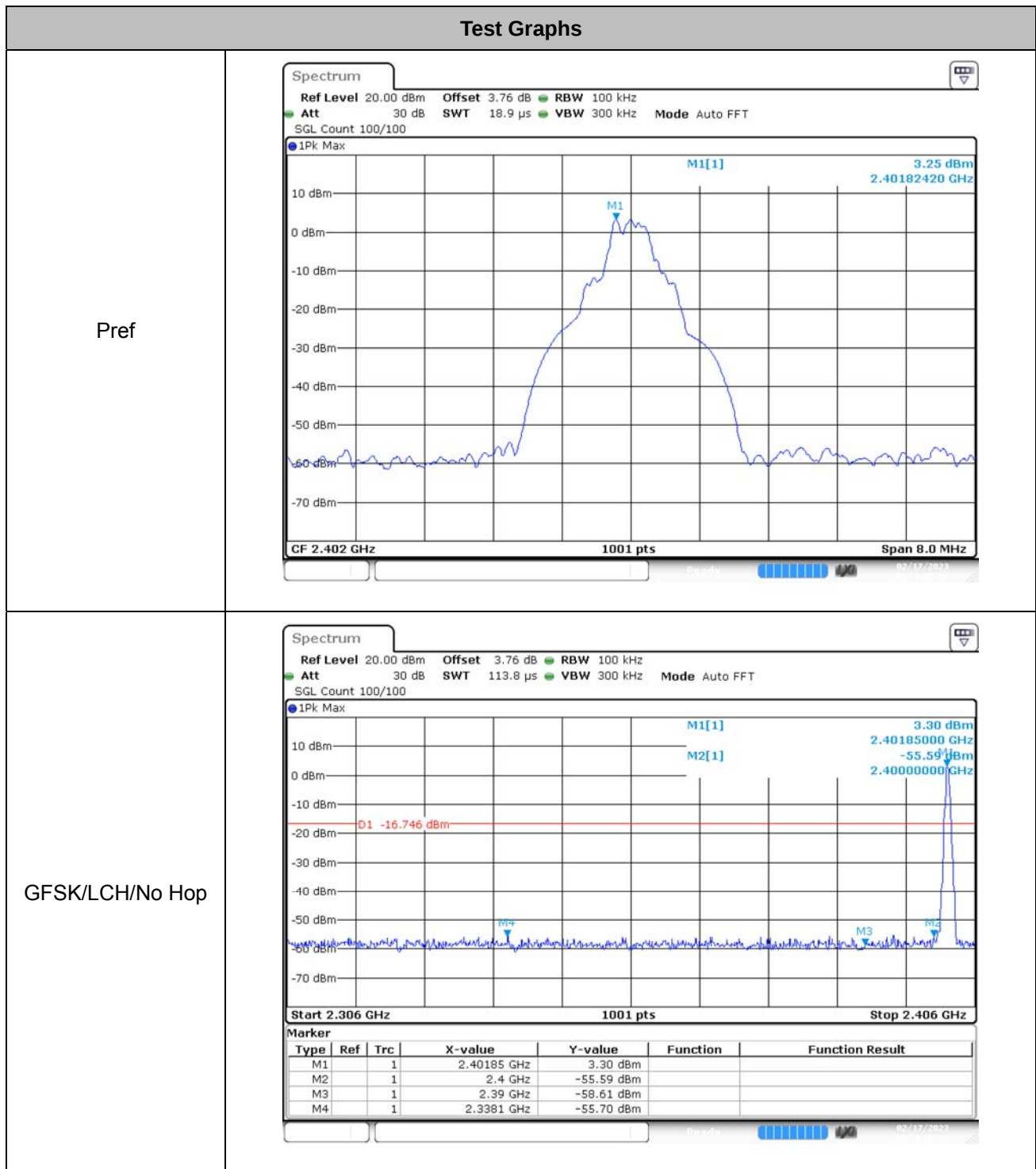


8 Band-edge for RF Conducted Emissions

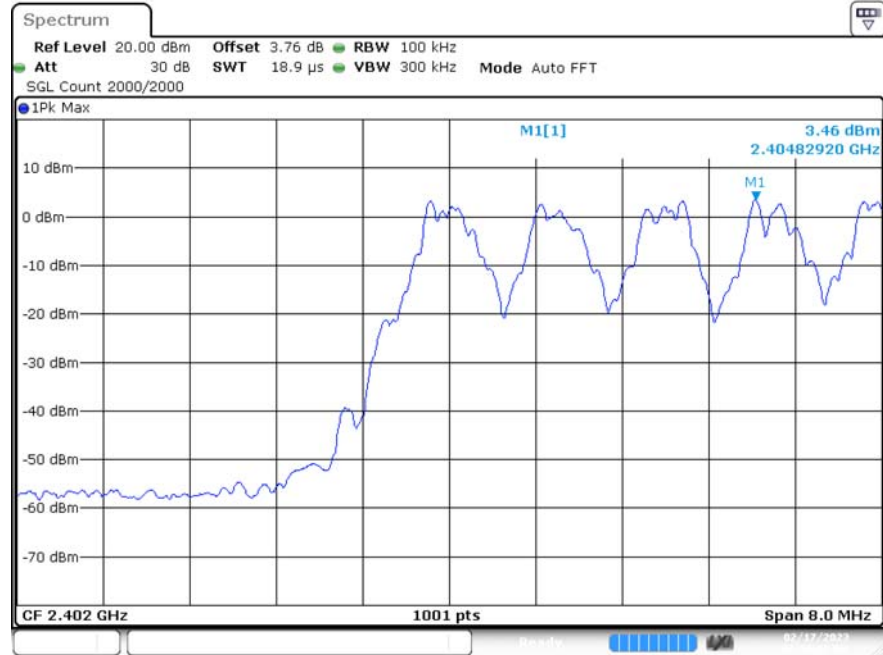
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-58.94	-20	Pass
			On	-57.95	-20	Pass
	HCH	2480	Off	-57.89	-20	Pass
			On	-57.13	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-56.45	-20	Pass
			On	-56.01	-20	Pass
	HCH	2480	Off	-56.54	-20	Pass
			On	-54.48	-20	Pass
8DPSK	LCH	2402	Off	-55.97	-20	Pass
			On	-56.22	-20	Pass
	HCH	2480	Off	-55.39	-20	Pass
			On	-54.84	-20	Pass

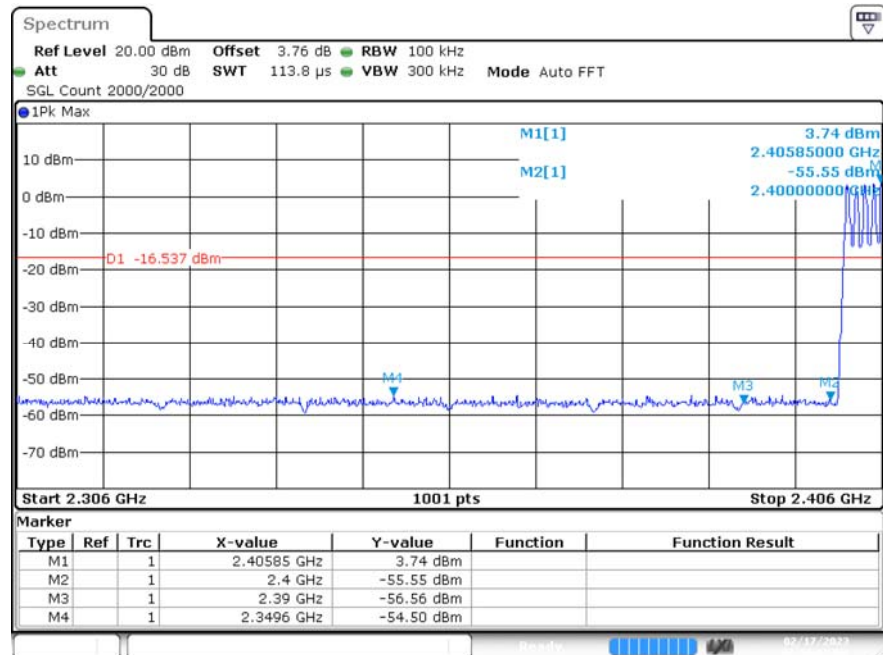
8.2 Test Graphs



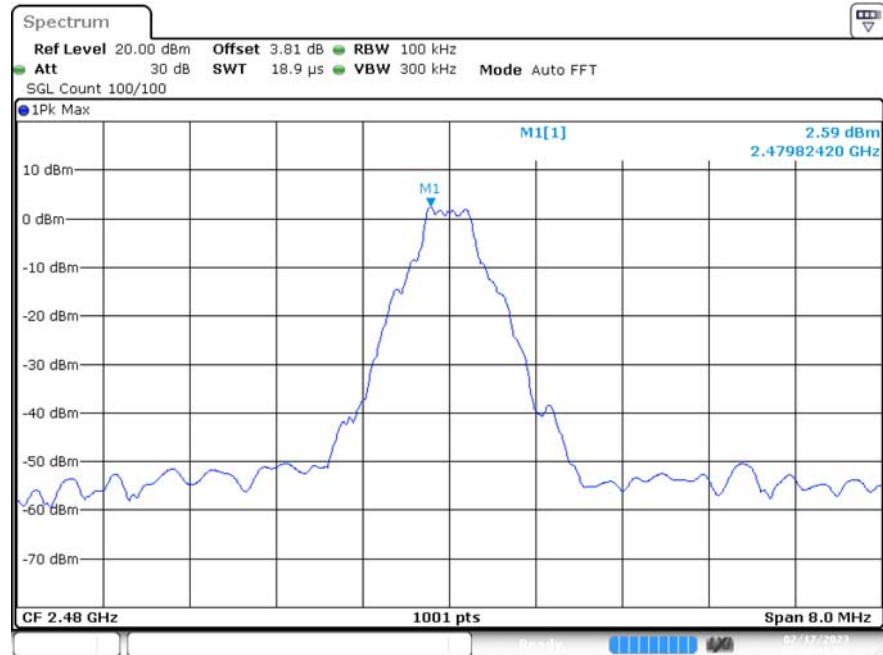
Ref



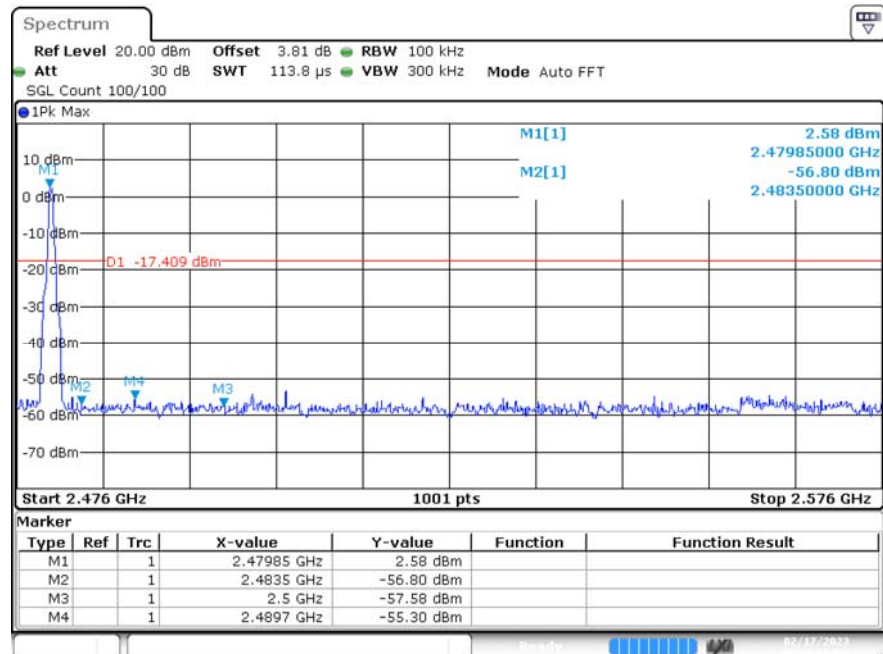
GFSK/LCH/Hop



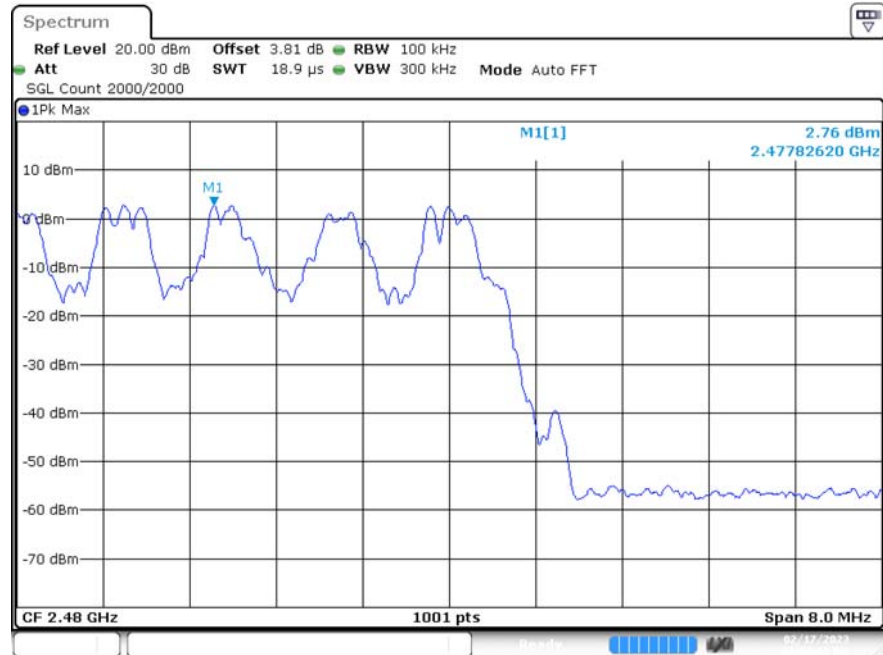
Ref



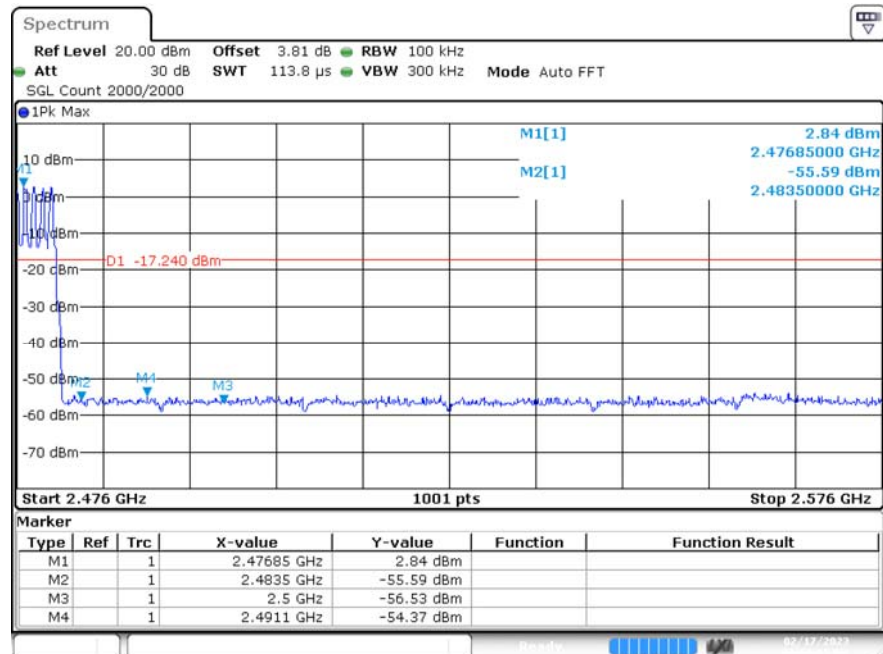
GFSK/HCH/No Hop



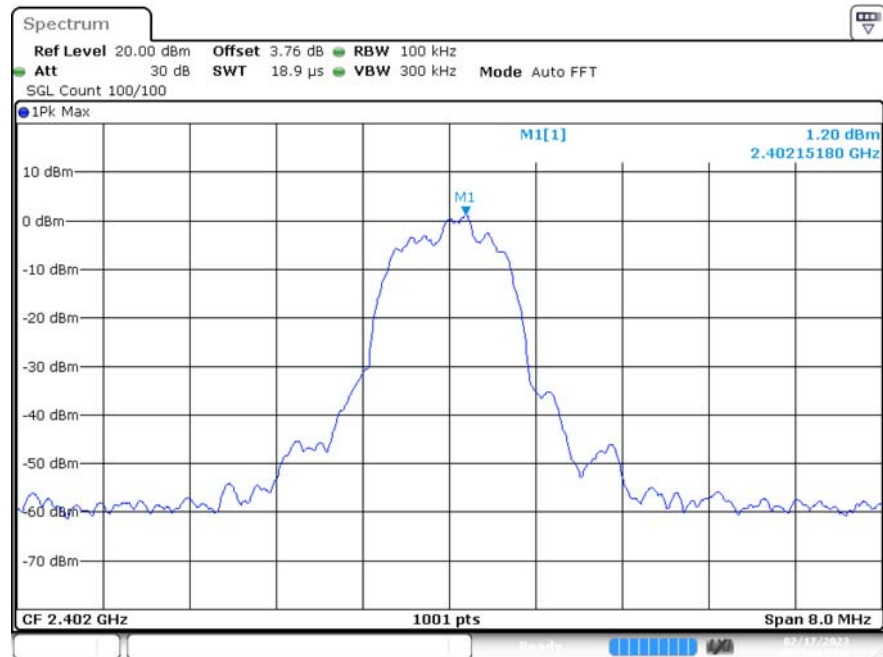
Ref.



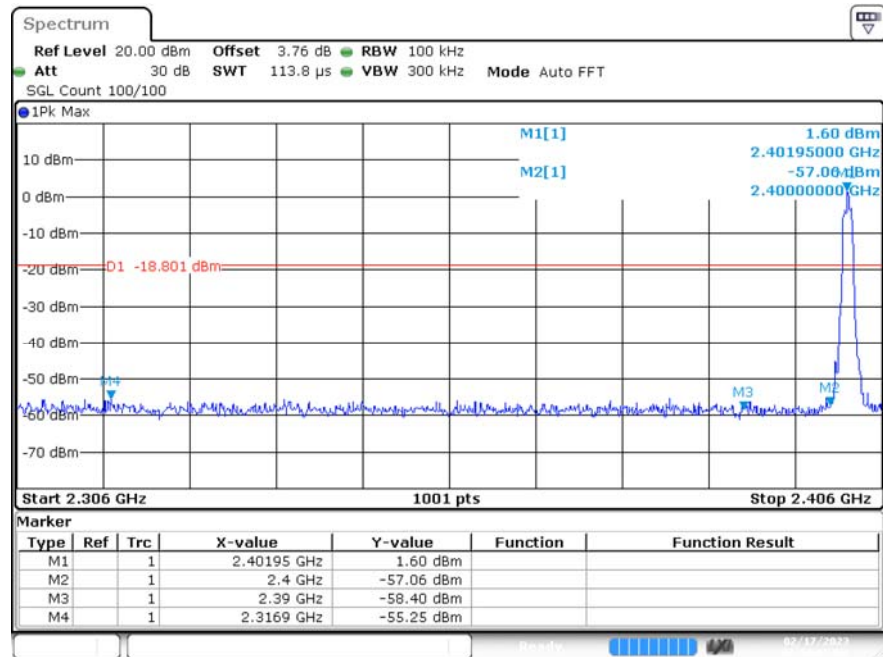
GFSK/HCH/Hop



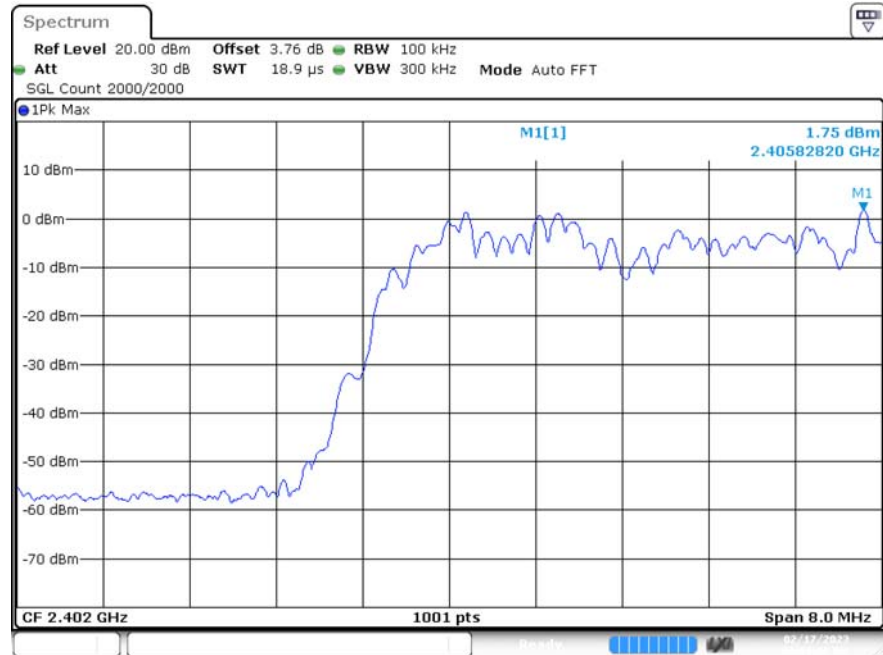
Ref



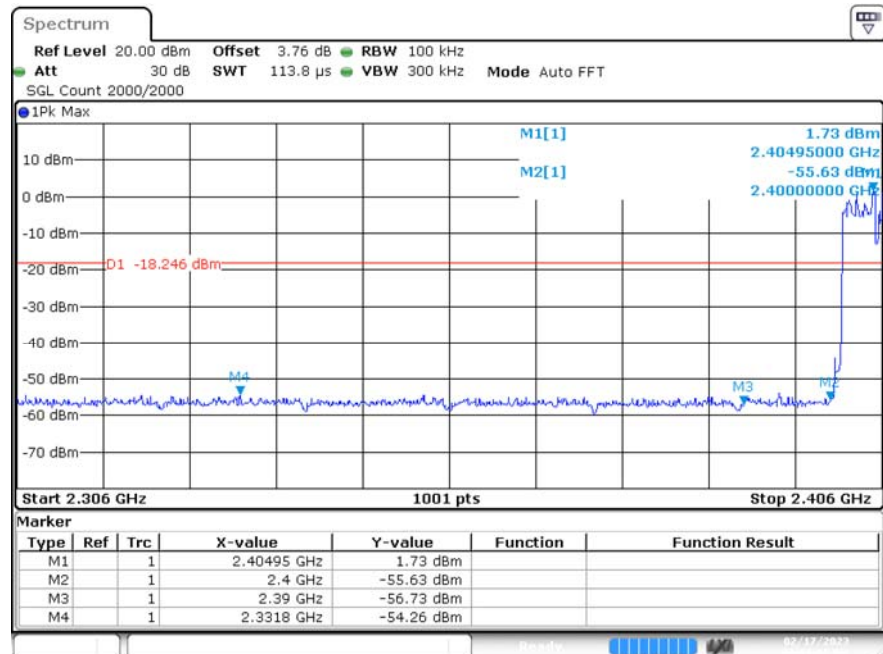
$\pi/4$ DQPSK/LCH/No
Hop



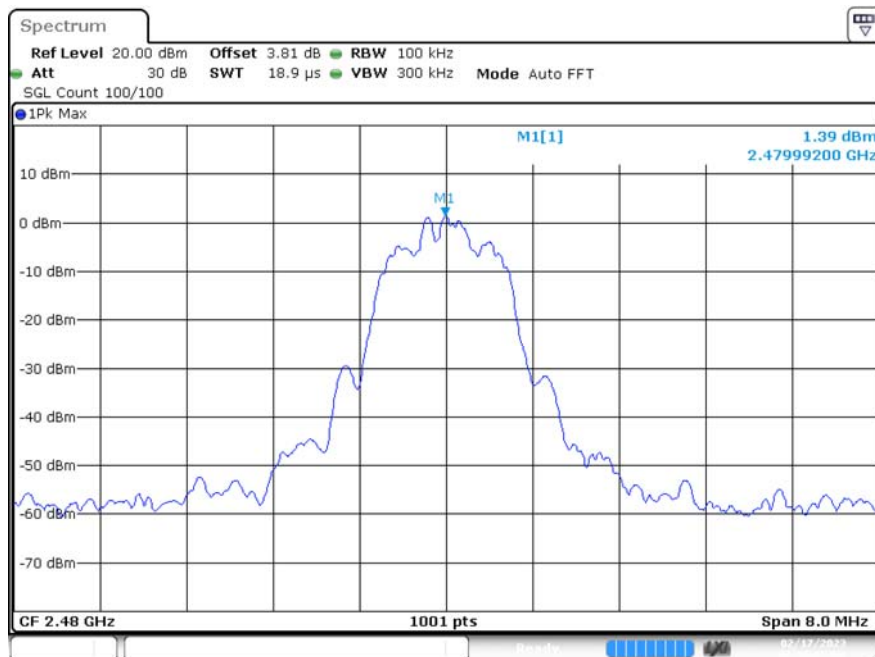
Ref



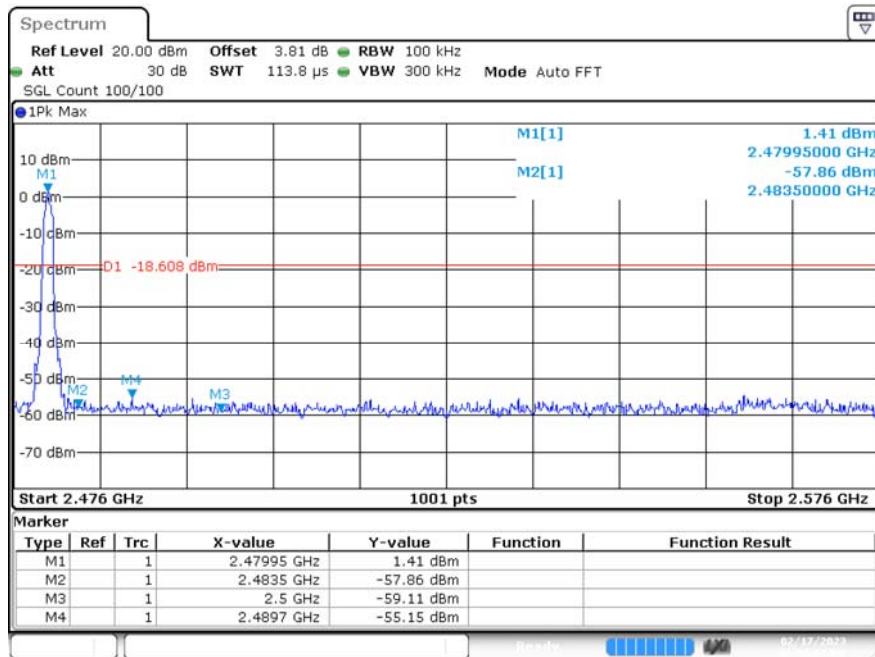
$\pi/4$ DQPSK/LCH/Hop



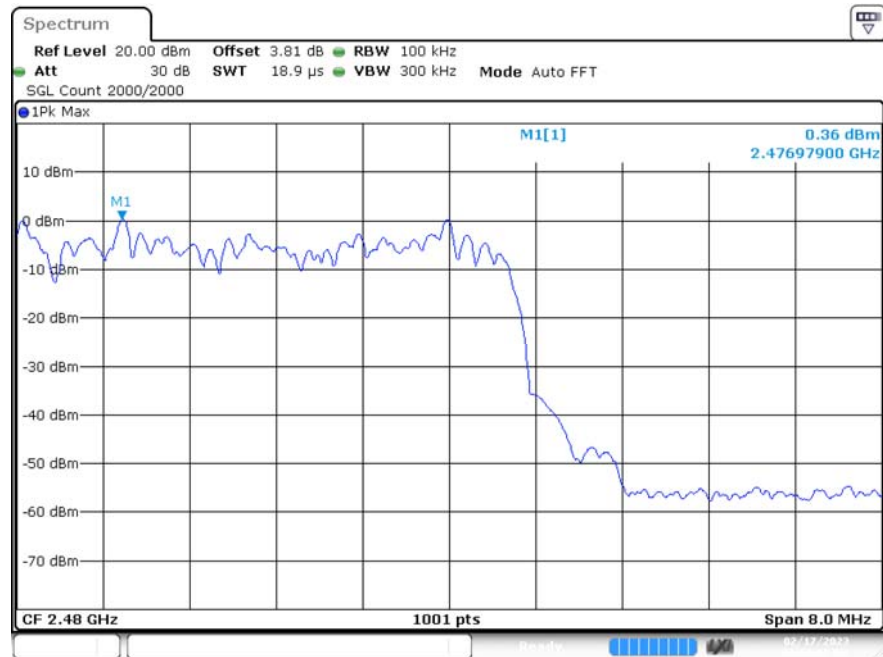
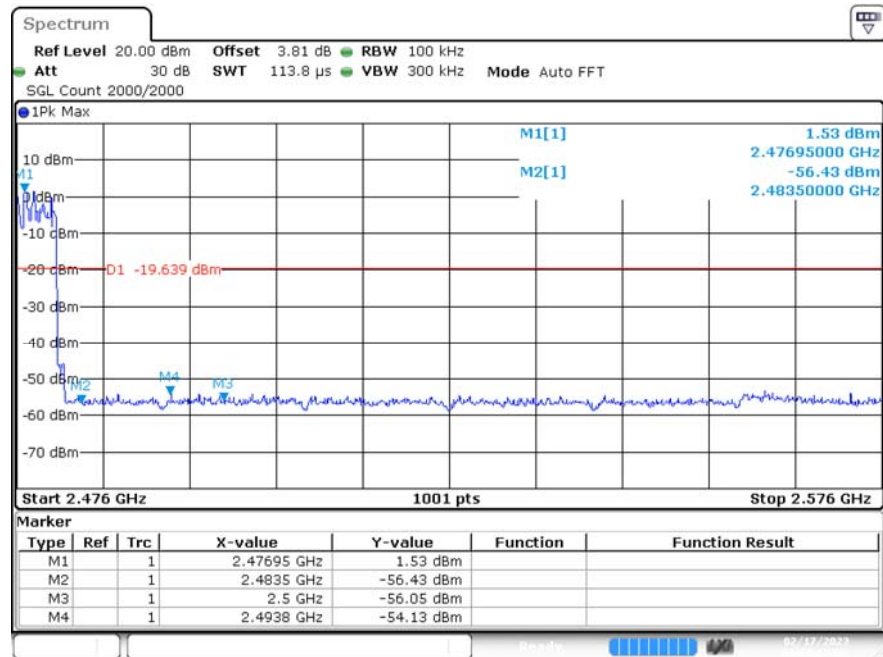
Ref



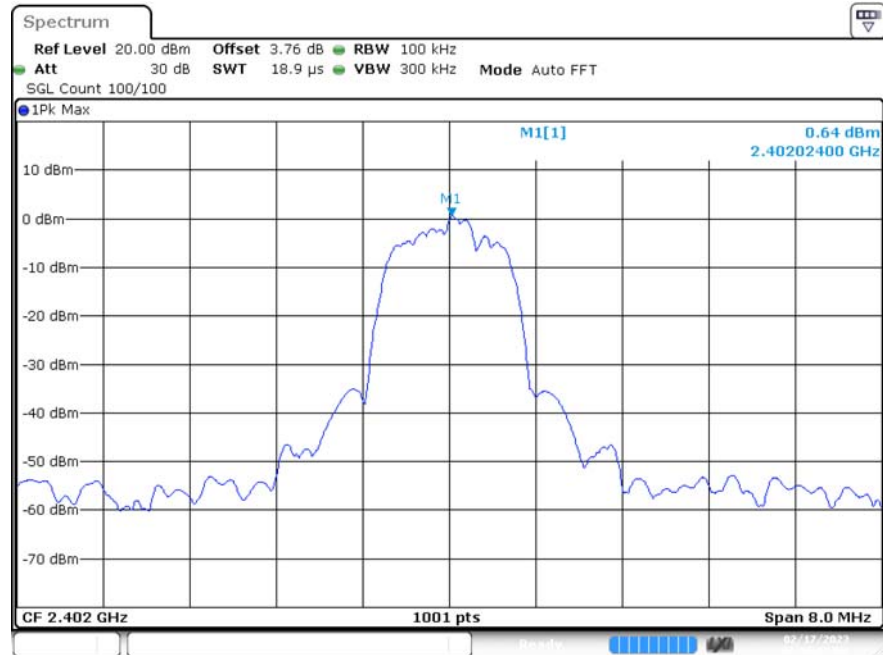
$\pi/4$ DQPSK/HCH/No
Hop



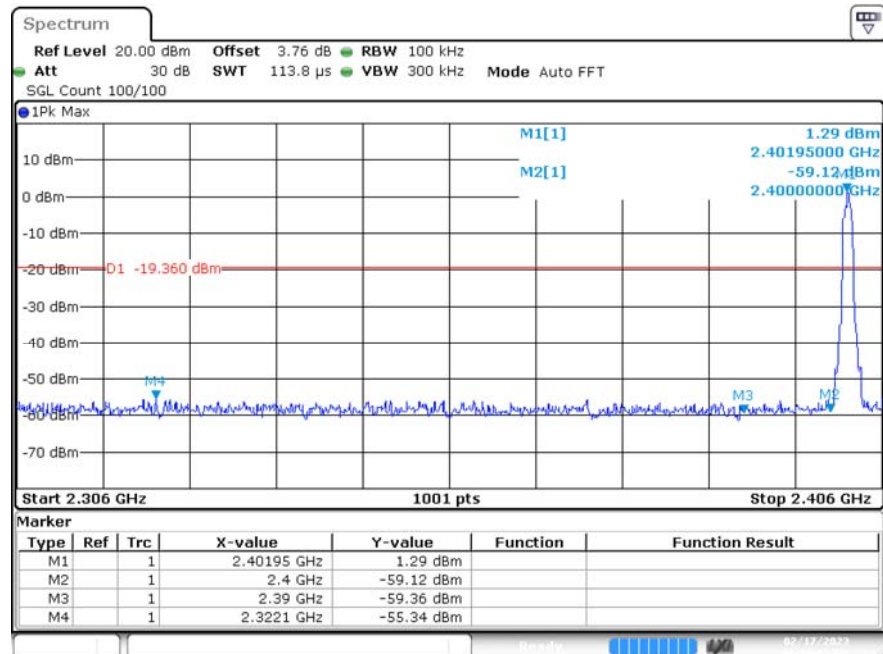
Ref


 $\pi/4$ DQPSK/HCH/Hop


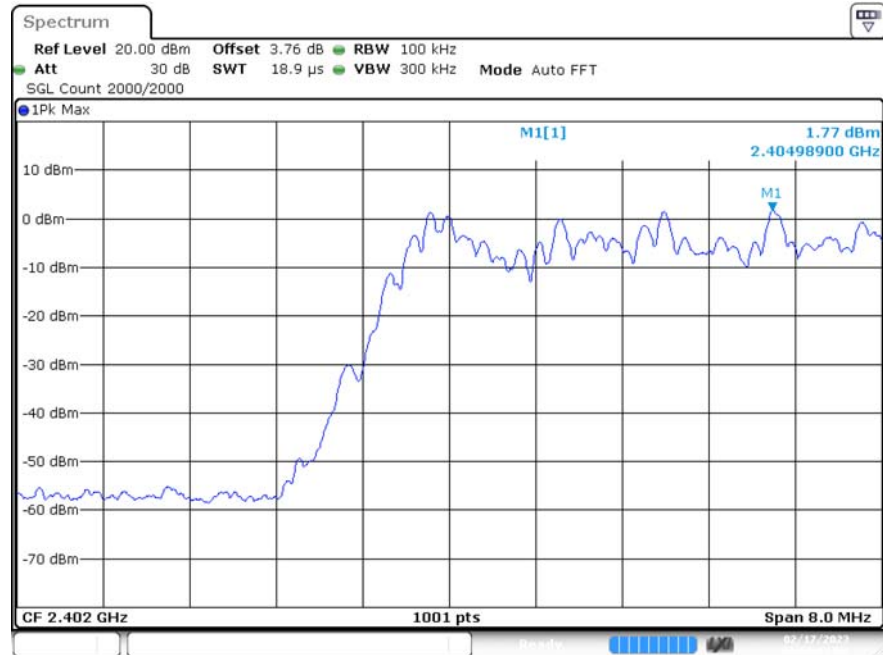
Ref



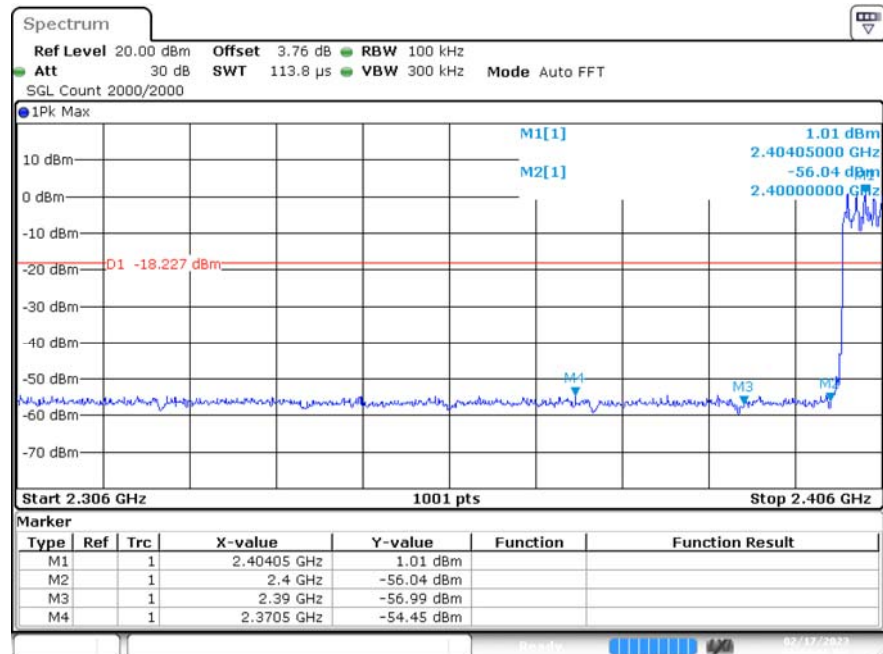
8DPSK/LCH/No Hop



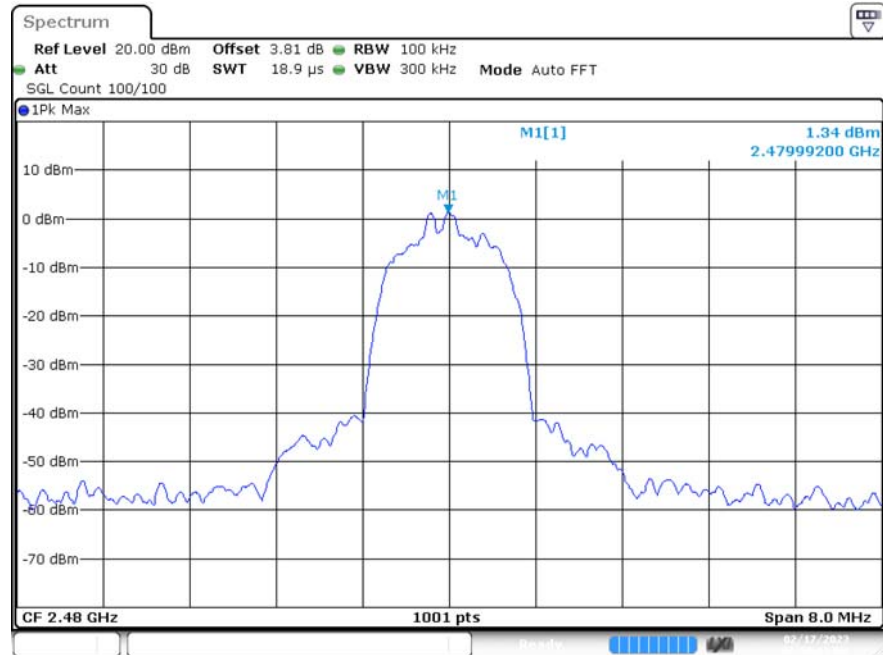
Ref



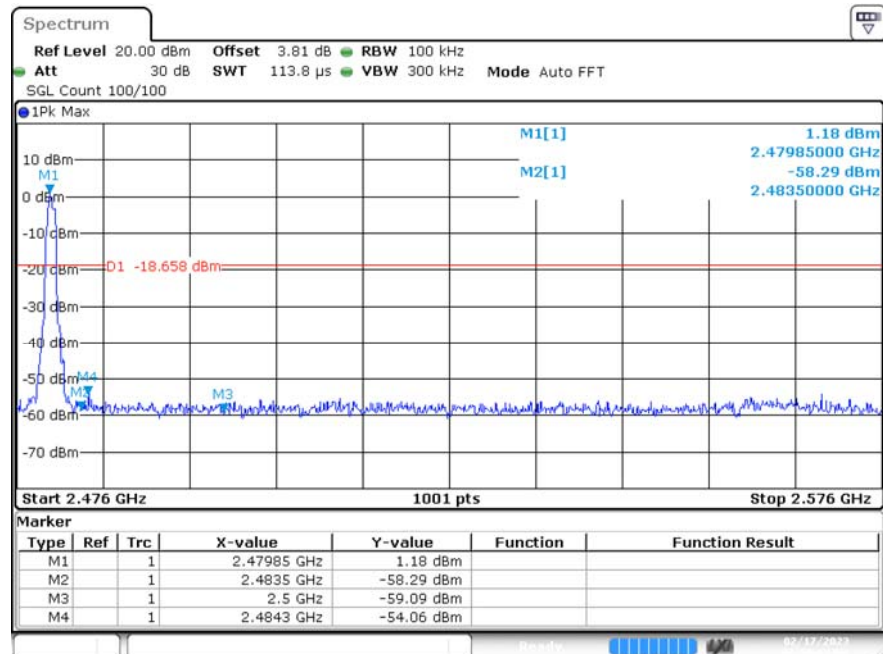
8DPSK/LCH/Hop



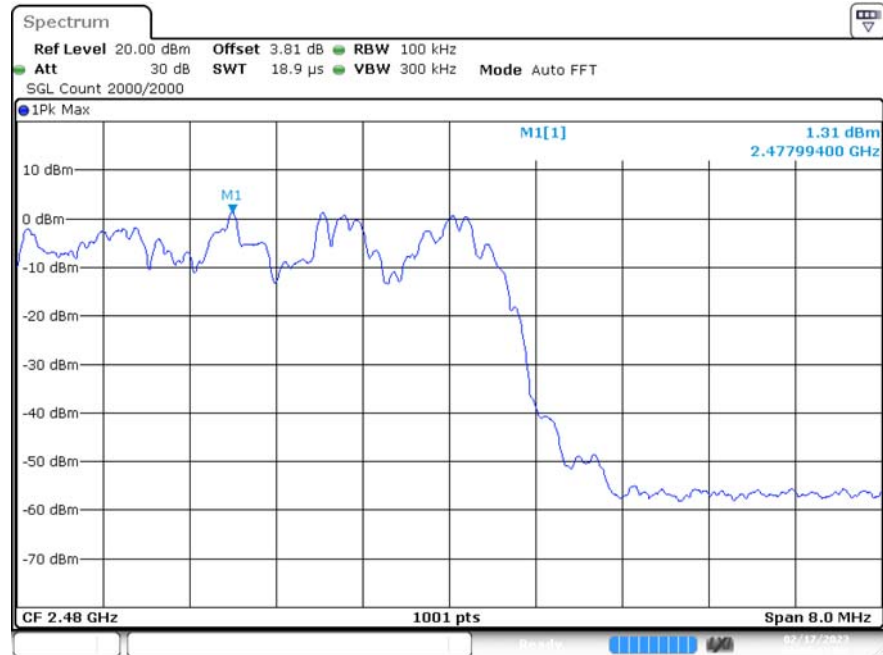
Ref



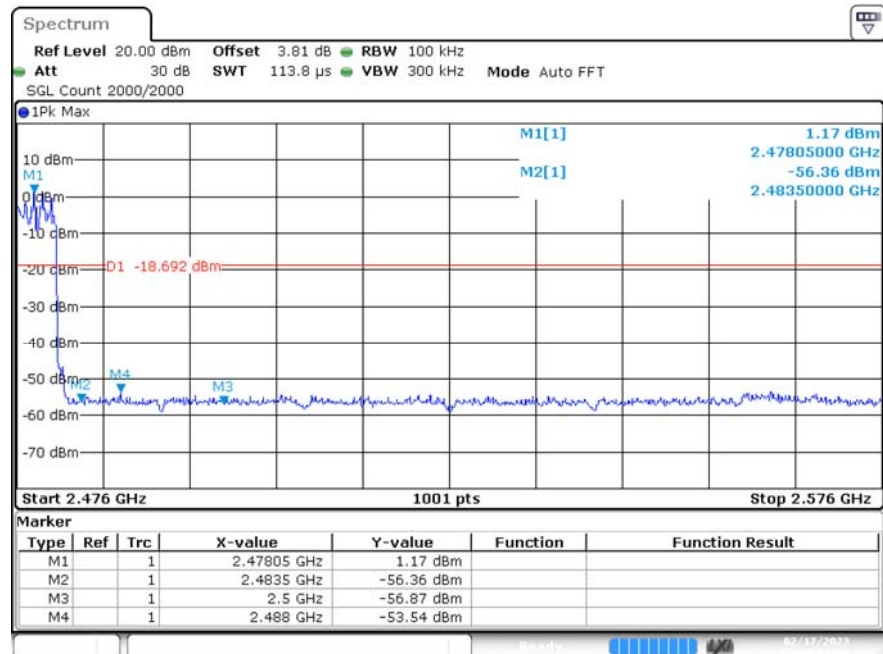
8DPSK/HCH/No Hop



Ref



8DPSK/HCH/Hop



9 Restrict-band band-edge measurements

9.1 Test Result

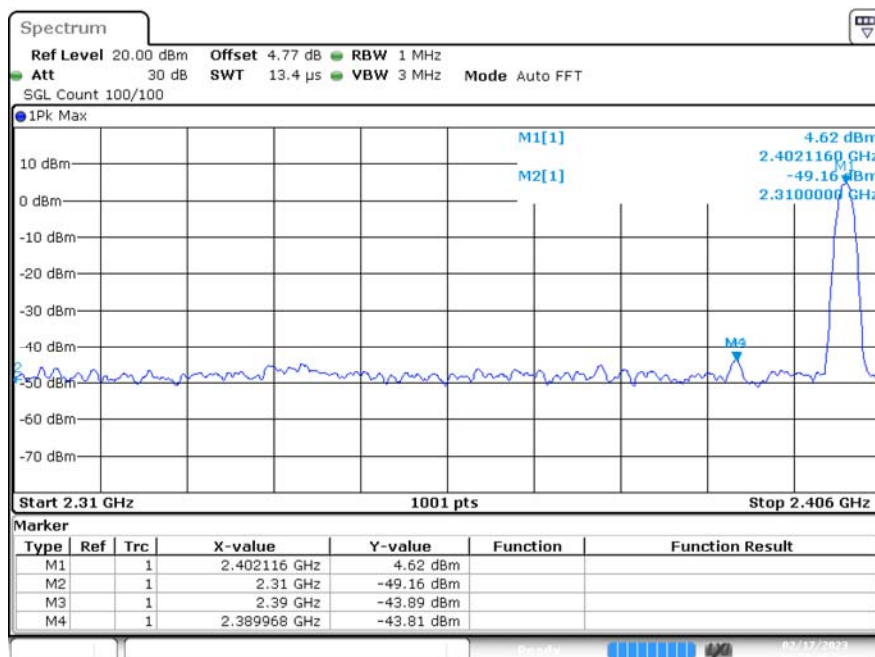
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-49.16	1.01	47.08	PEAK	74	Pass
	Off	2310.0	-56.35	1.01	39.89	AV	54	Pass
	Off	2389.968	-43.8	1.01	52.44	PEAK	74	Pass
	Off	2340.528	-54.27	1.01	41.97	AV	54	Pass
	Off	2390.0	-43.88	1.01	52.36	PEAK	74	Pass
	Off	2390.0	-56.25	1.01	39.99	AV	54	Pass
	Off	2483.5	-45.96	1.01	50.28	PEAK	74	Pass
	Off	2483.5	-55.46	1.01	40.78	AV	54	Pass
	Off	2496.76	-45.21	1.01	51.03	PEAK	74	Pass
	Off	2487.352	-55.34	1.01	40.9	AV	54	Pass
	Off	2500.0	-46.16	1.01	50.08	PEAK	74	Pass
	Off	2500.0	-56.29	1.01	39.95	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-46.85	1.01	49.39	PEAK	74	Pass
	Off	2310.0	-55.97	1.01	40.27	AV	54	Pass
	Off	2322.864	-44.74	1.01	51.5	PEAK	74	Pass
	Off	2338.032	-54.14	1.01	42.1	AV	54	Pass
	Off	2390.0	-49.9	1.01	46.34	PEAK	74	Pass
	Off	2390.0	-56.41	1.01	39.83	AV	54	Pass
	Off	2483.5	-47.85	1.01	48.39	PEAK	74	Pass
	Off	2483.5	-55.94	1.01	40.3	AV	54	Pass
	Off	2492.368	-45.65	1.01	50.59	PEAK	74	Pass
	Off	2488.984	-55.36	1.01	40.88	AV	54	Pass
	Off	2500.0	-47.04	1.01	49.2	PEAK	74	Pass
	Off	2500.0	-56	1.01	40.24	AV	54	Pass
8DPSK	Off	2310.0	-47.38	1.01	48.86	PEAK	74	Pass
	Off	2310.0	-56.12	1.01	40.12	AV	54	Pass
	Off	2385.456	-44.56	1.01	51.68	PEAK	74	Pass
	Off	2340.912	-54.22	1.01	42.02	AV	54	Pass
	Off	2390.0	-48.87	1.01	47.37	PEAK	74	Pass
	Off	2390.0	-56.2	1.01	40.04	AV	54	Pass



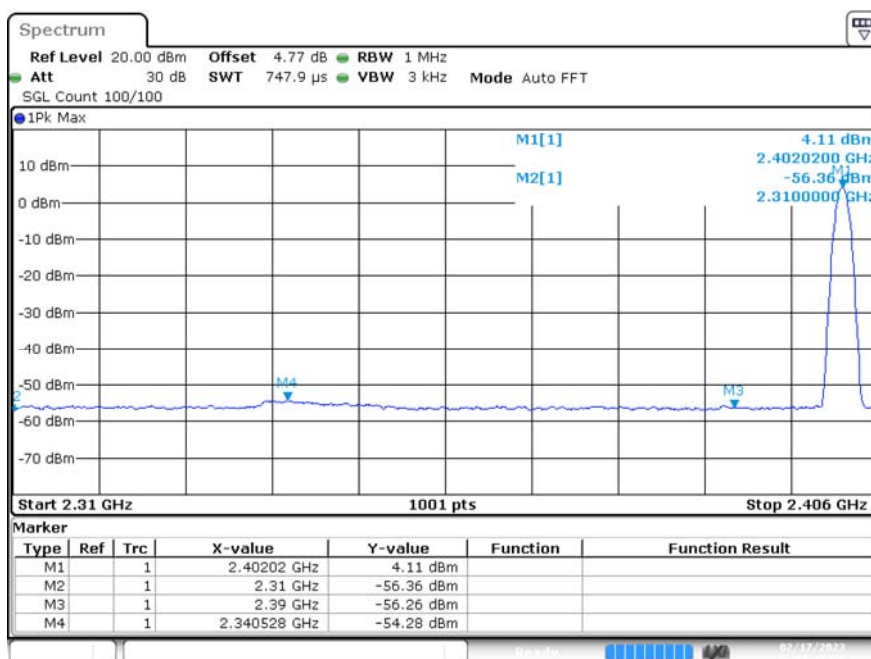
	Off	2483.5	-49.65	1.01	46.59	PEAK	74	Pass
	Off	2483.5	-55.91	1.01	40.33	AV	54	Pass
	Off	2495.68	-44.34	1.01	51.9	PEAK	74	Pass
	Off	2490.568	-55.13	1.01	41.11	AV	54	Pass
	Off	2500.0	-47.71	1.01	48.53	PEAK	74	Pass
	Off	2500.0	-56.01	1.01	40.23	AV	54	Pass

9.2 Test Graphs

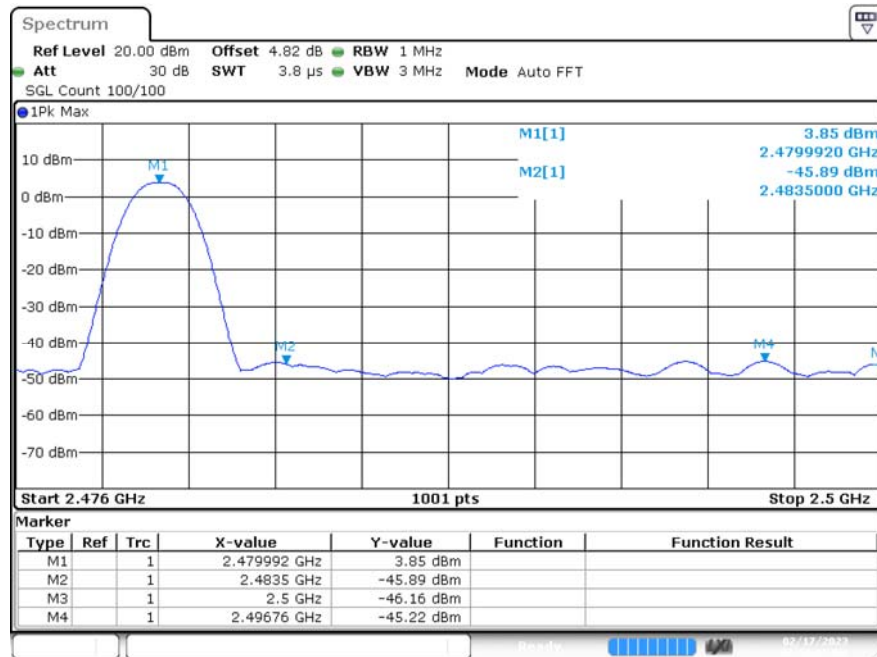
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



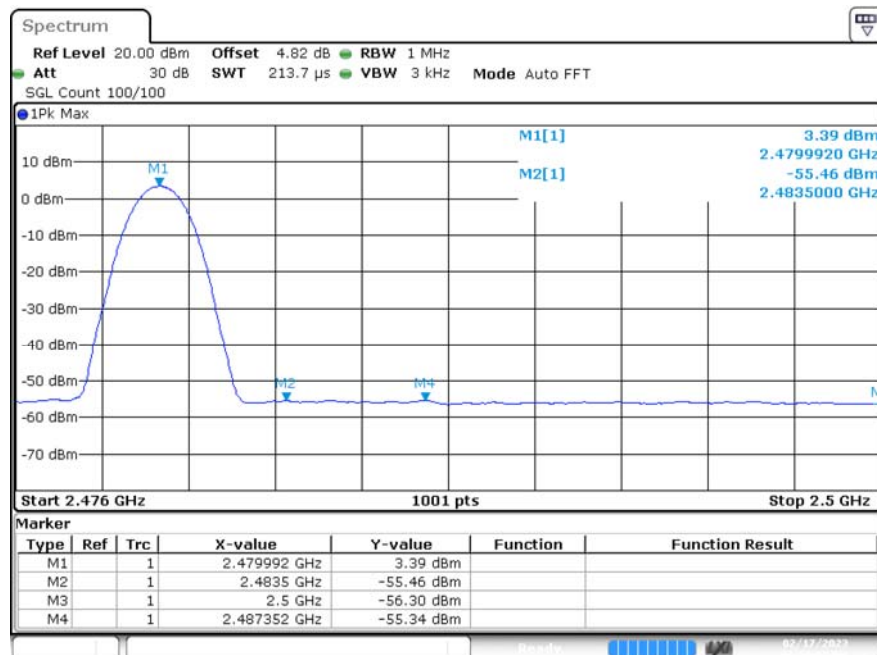
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



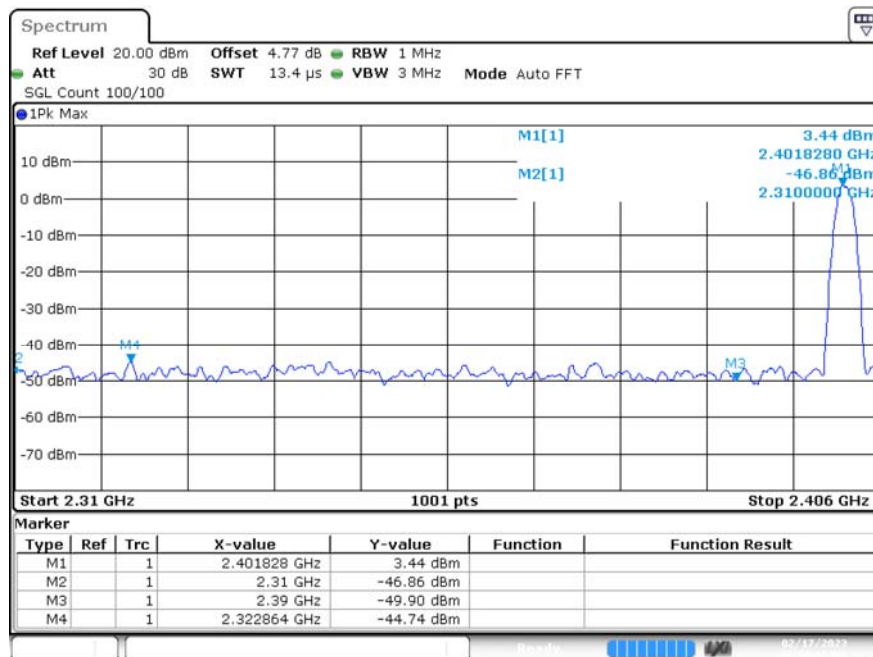
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



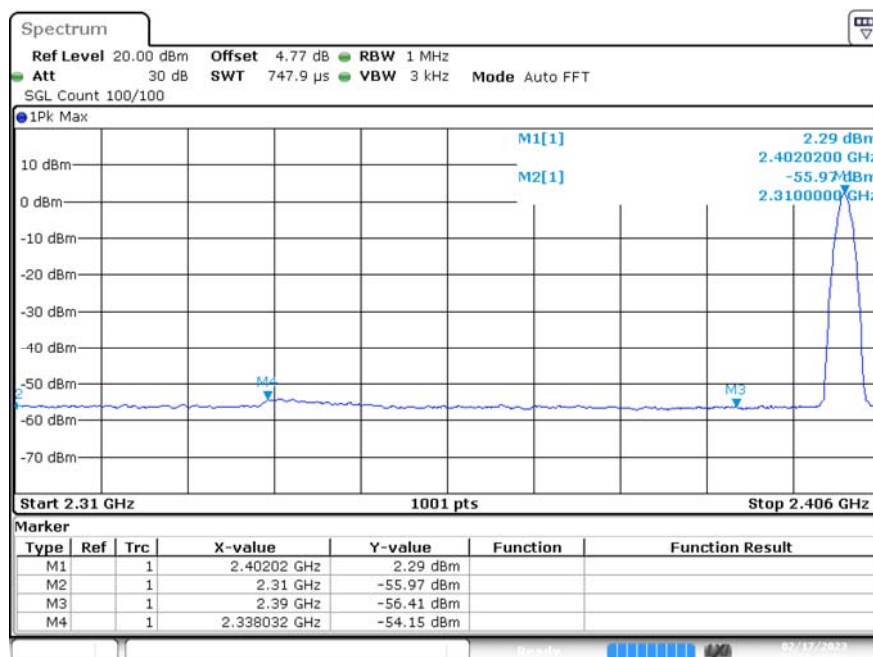
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



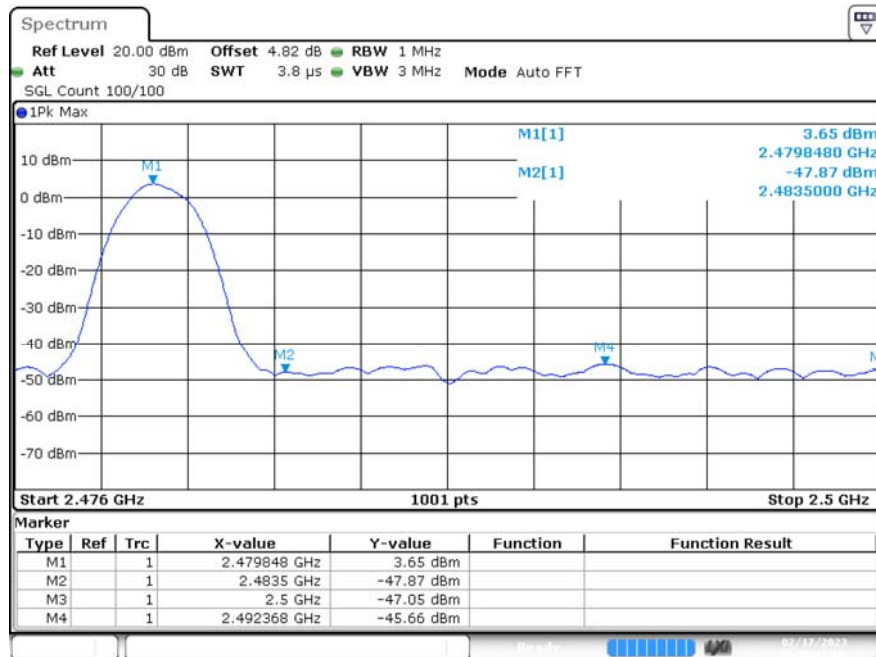
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



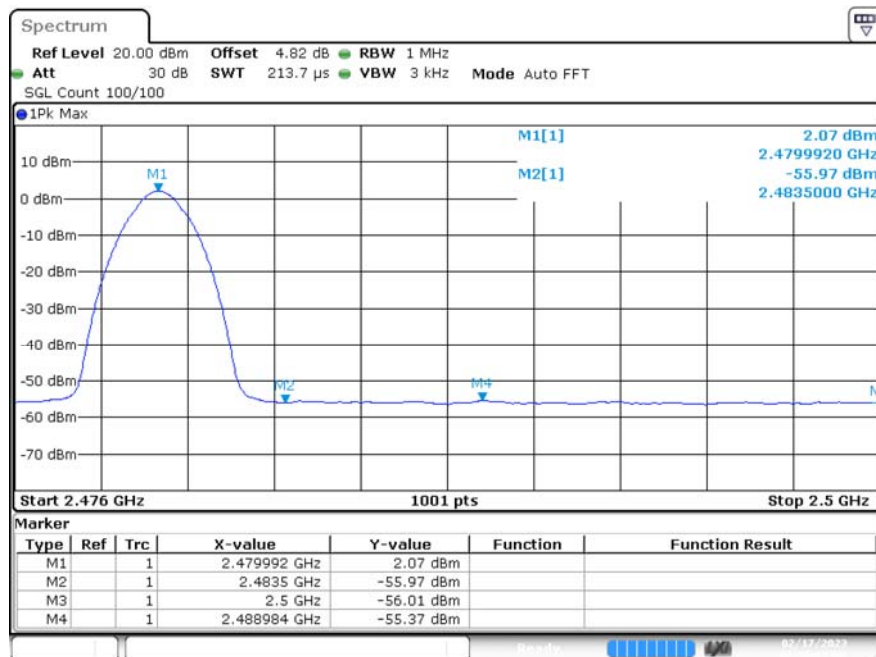
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



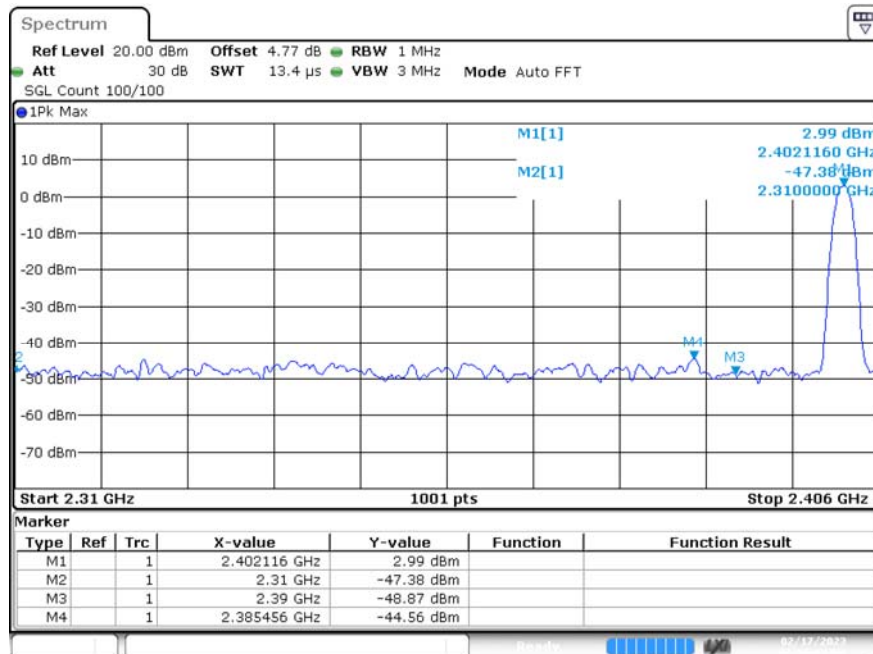
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



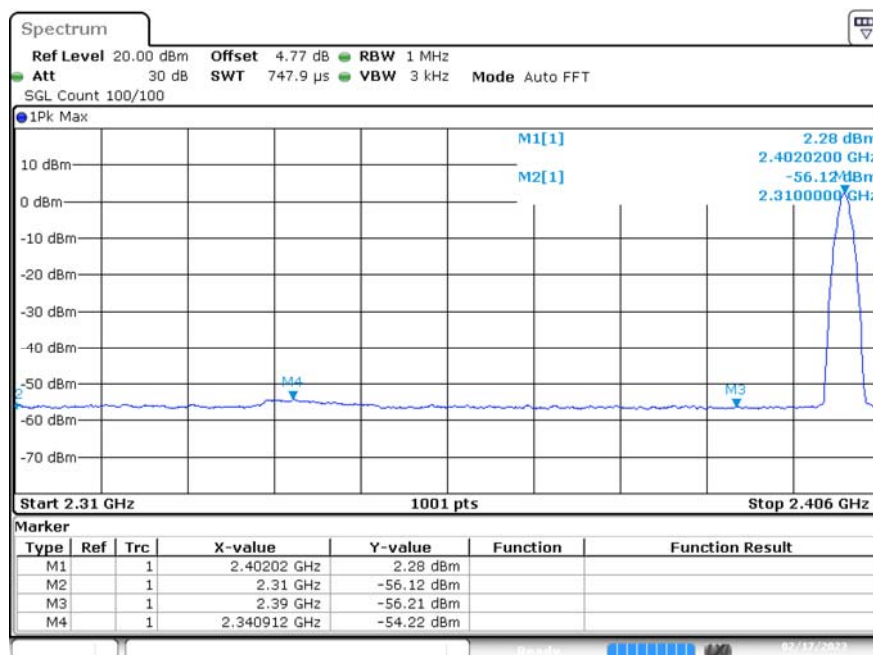
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



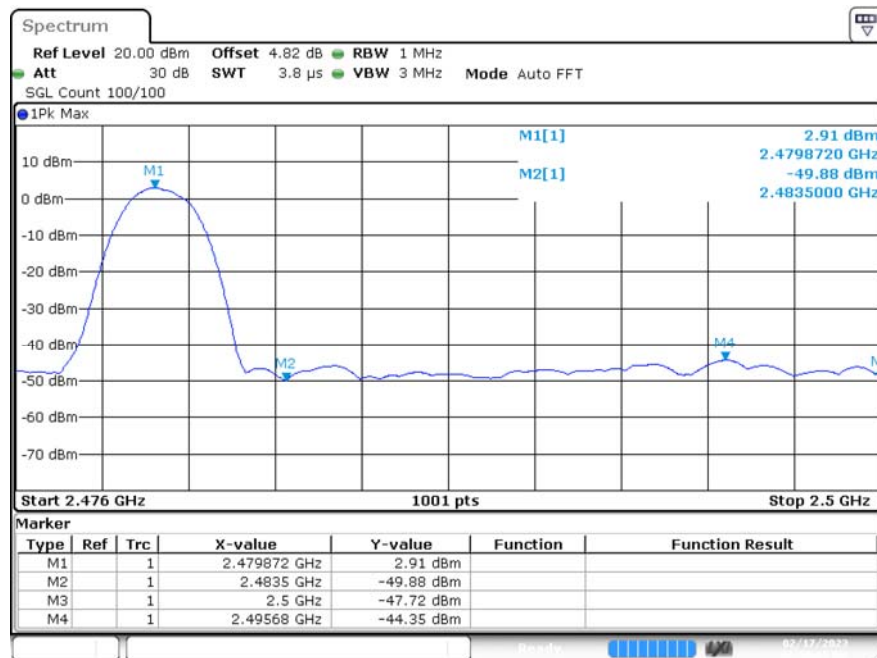
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



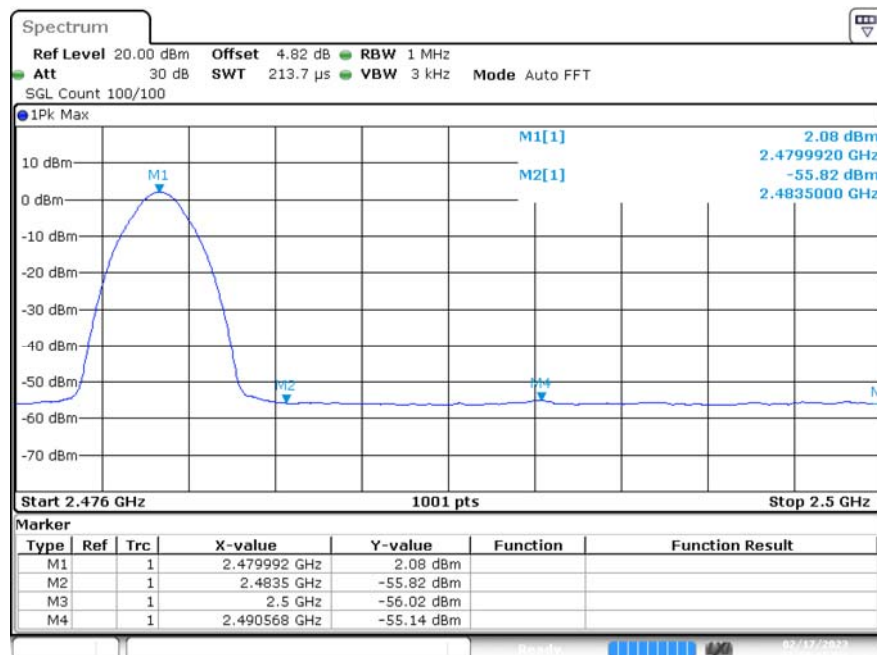
Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)



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



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



---The End---