



Appendix A

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

Product Name: ACREO OpenBuds Kids

Trade Mark: N/A

Test Model: SY-O511BT

Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	52.8%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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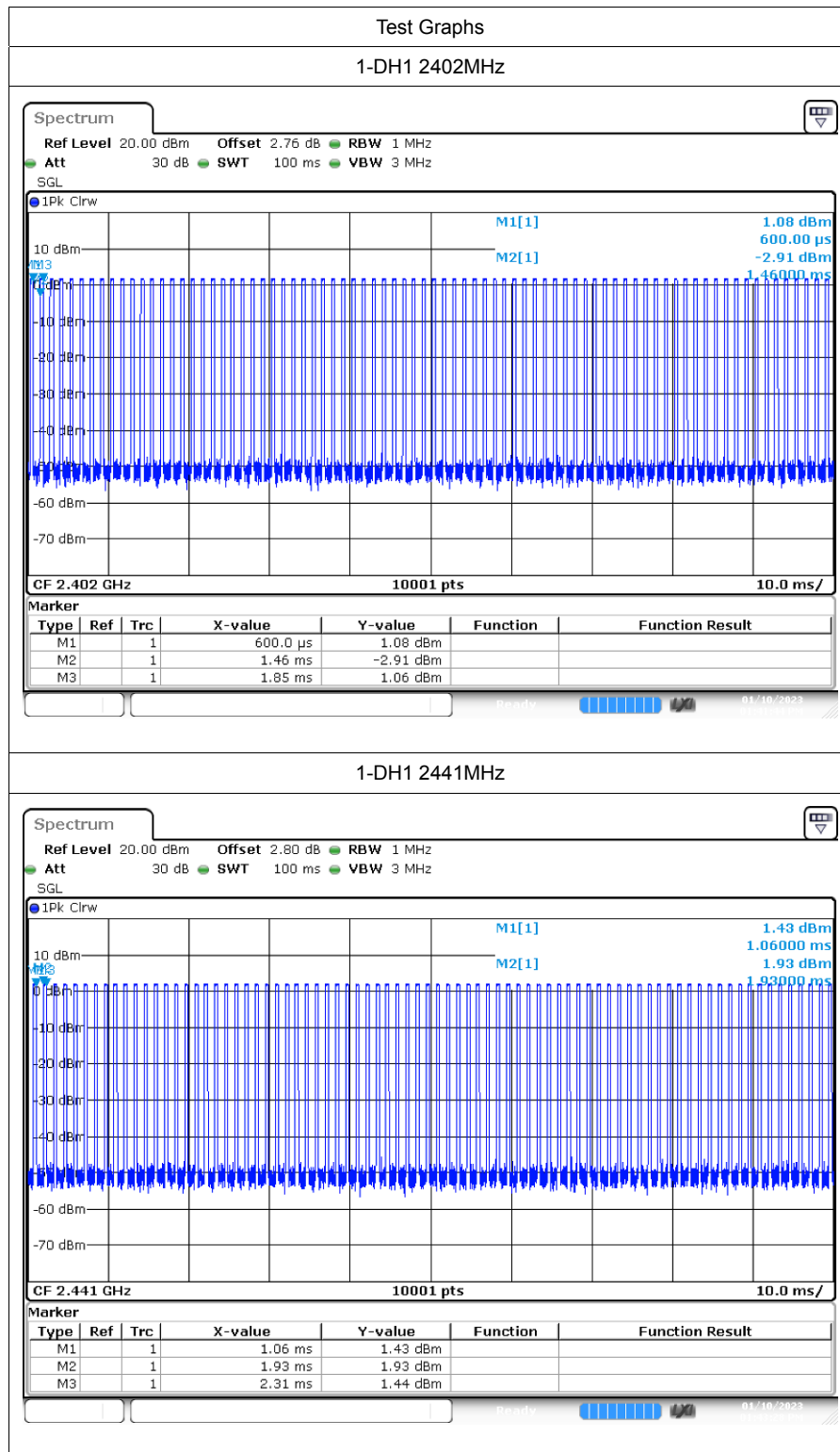
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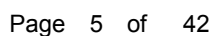
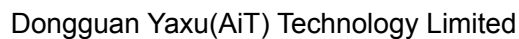
1 Duty Cycle

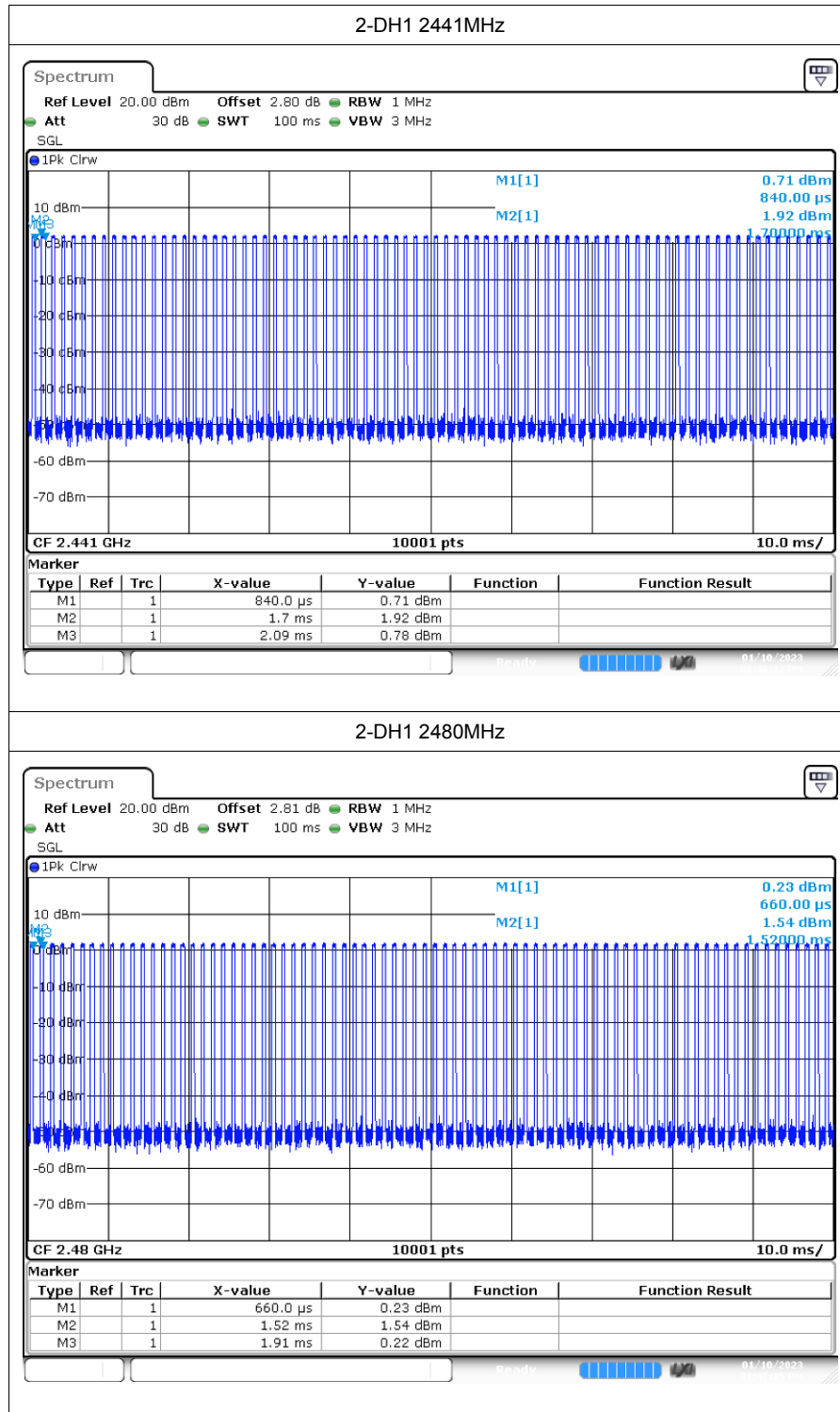
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	31.46	2.56
1-DH1	2441	31.2	2.63
1-DH1	2480	31.92	2.56
2-DH1	2402	32	2.56
2-DH1	2441	32	2.56
2-DH1	2480	32	2.56

1.2 Test Graphs





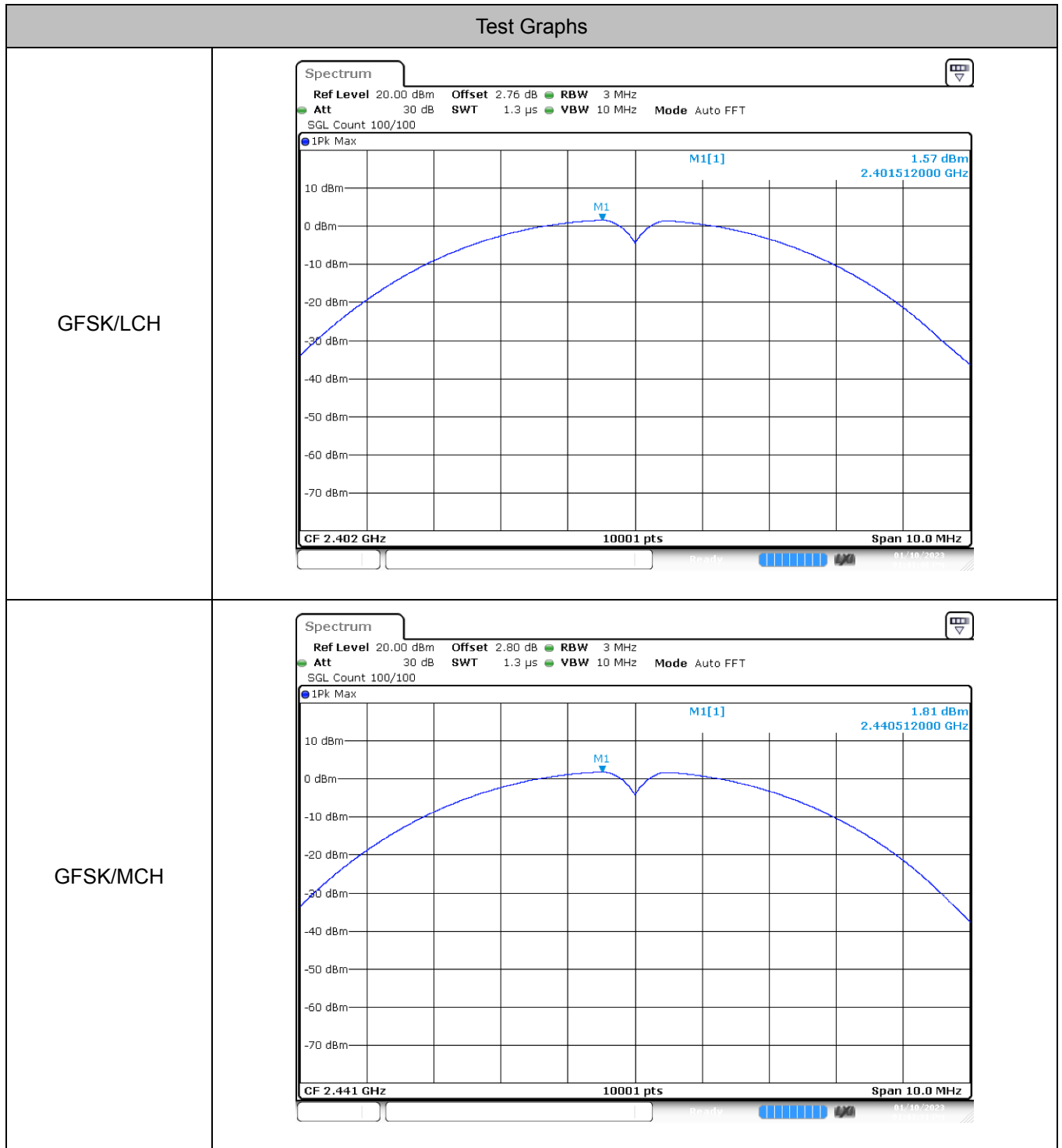


2 Maximum Conducted Peak Output Power

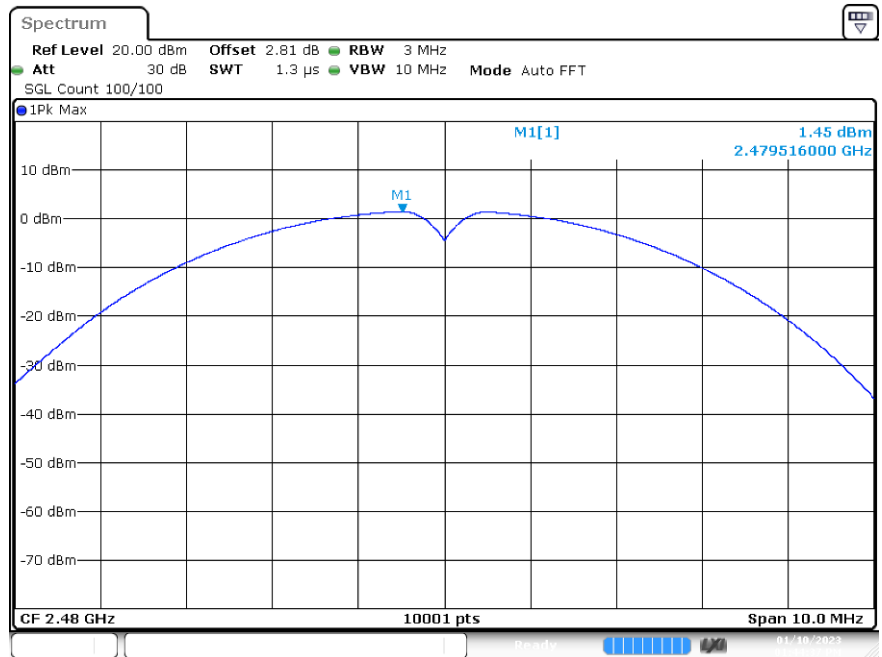
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.57	21	Pass
	MCH	1.81	21	Pass
	HCH	1.45	21	Pass
$\pi/4$ DQPSK	LCH	2.19	21	Pass
	MCH	2.12	21	Pass
	HCH	1.4	21	Pass

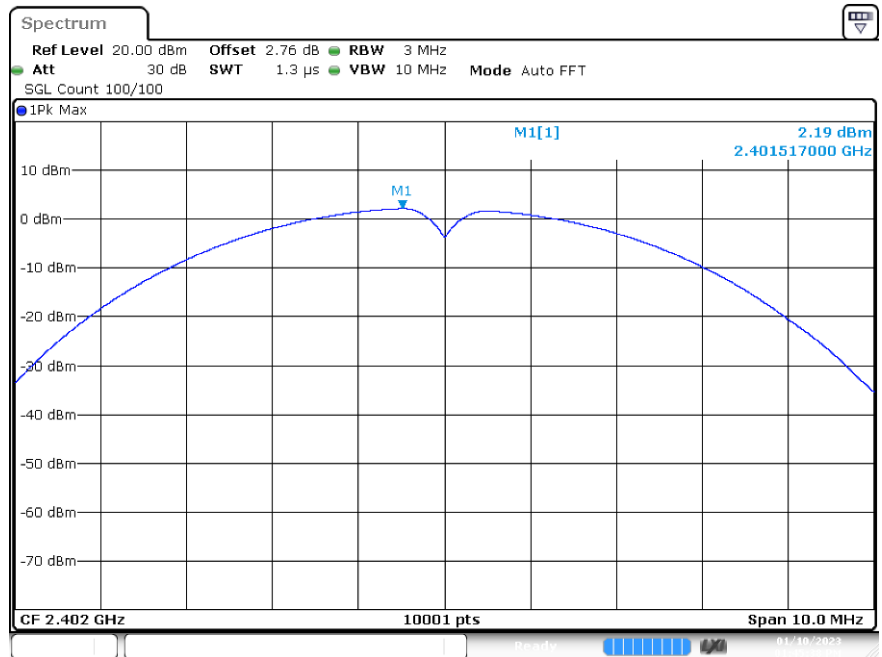
2.2 Test Graphs



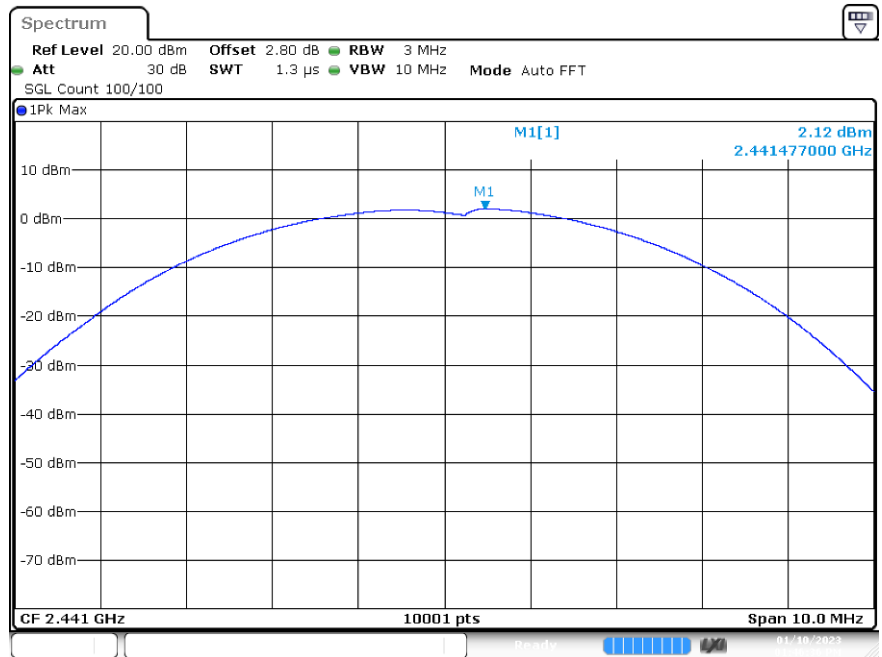
GFSK/HCH



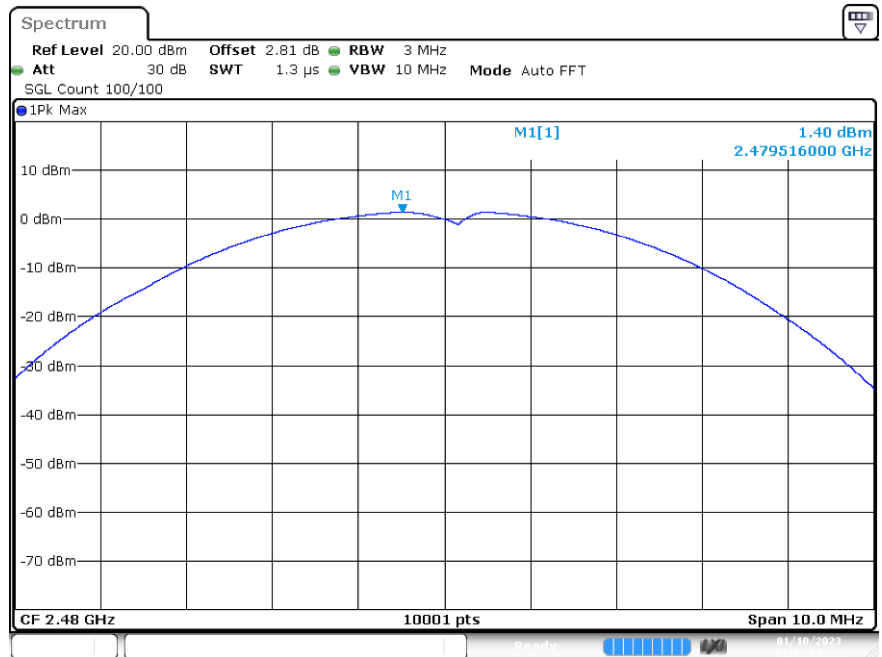
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

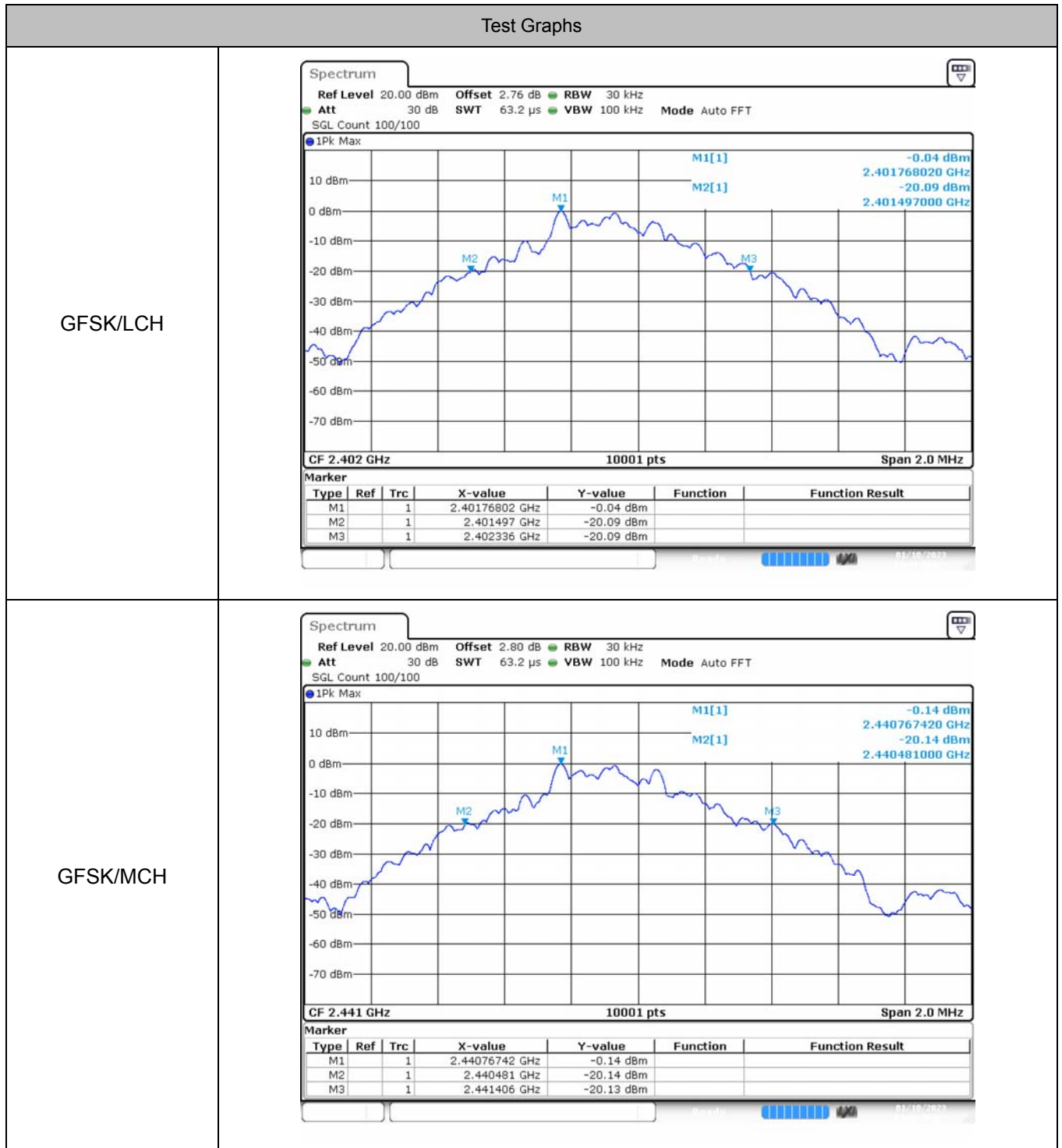


3 20dB Bandwidth

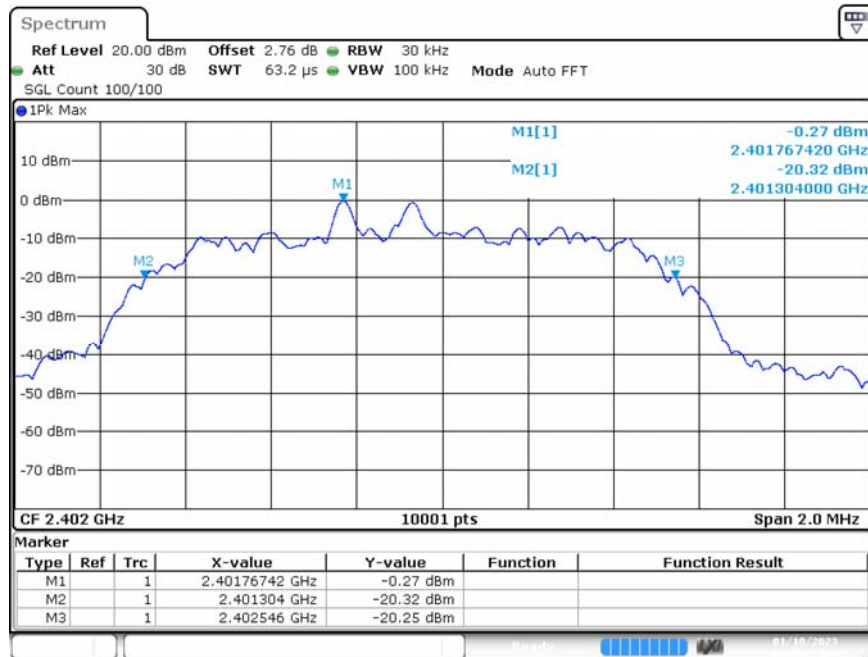
3.1 Test Result

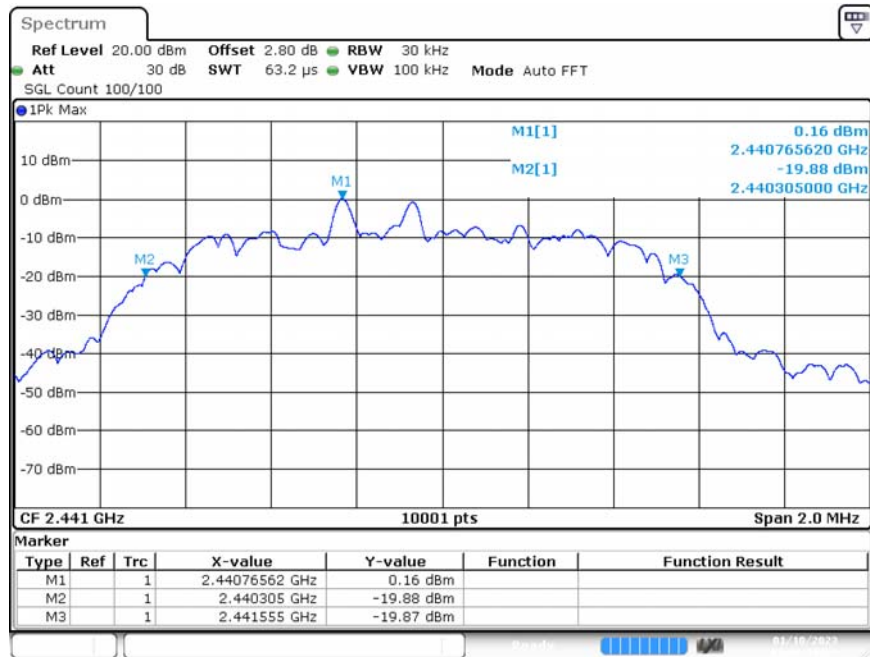
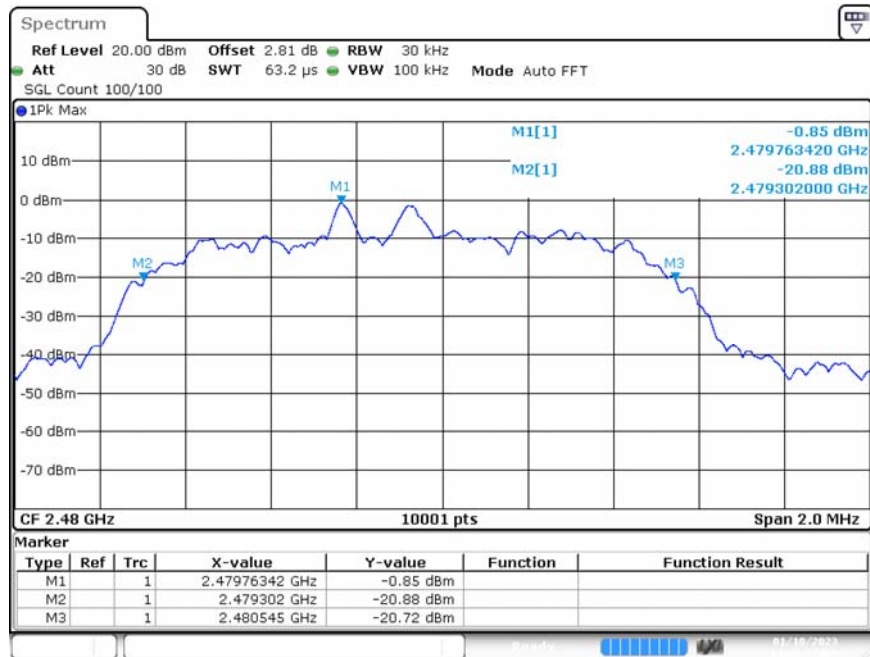
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.838	Not Specified	Pass
	MCH	0.925	Not Specified	Pass
	HCH	0.916	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.242	Not Specified	Pass
	MCH	1.25	Not Specified	Pass
	HCH	1.243	Not Specified	Pass

3.2 Test Graphs



GFSK/HCH


 $\pi/4$ DQPSK/LCH


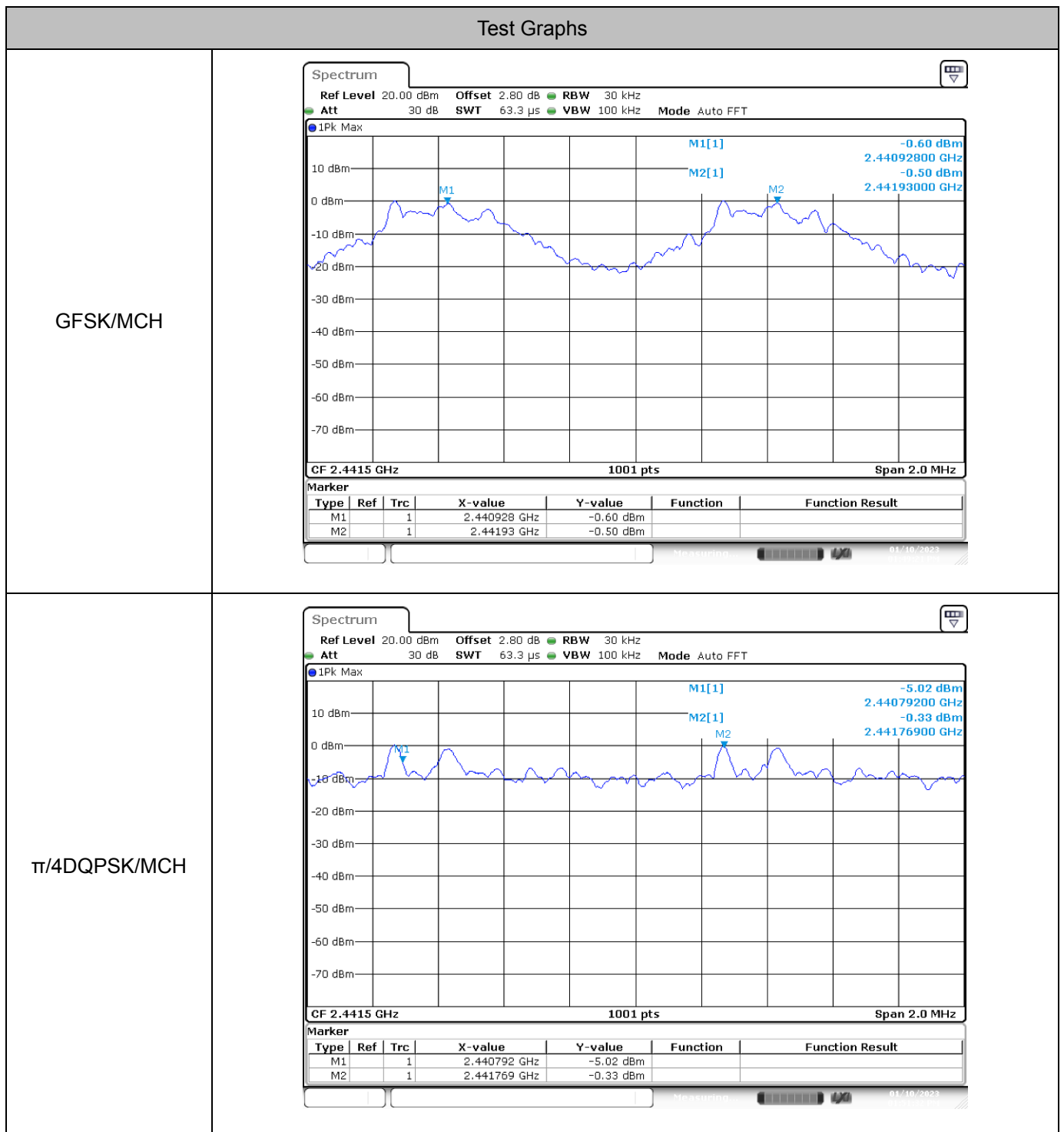
$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


4 Carrier Frequency Separation

4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.002	0.617	Pass
$\pi/4$ DQPSK	MCH	0.977	0.833	Pass

4.2 Test Graphs

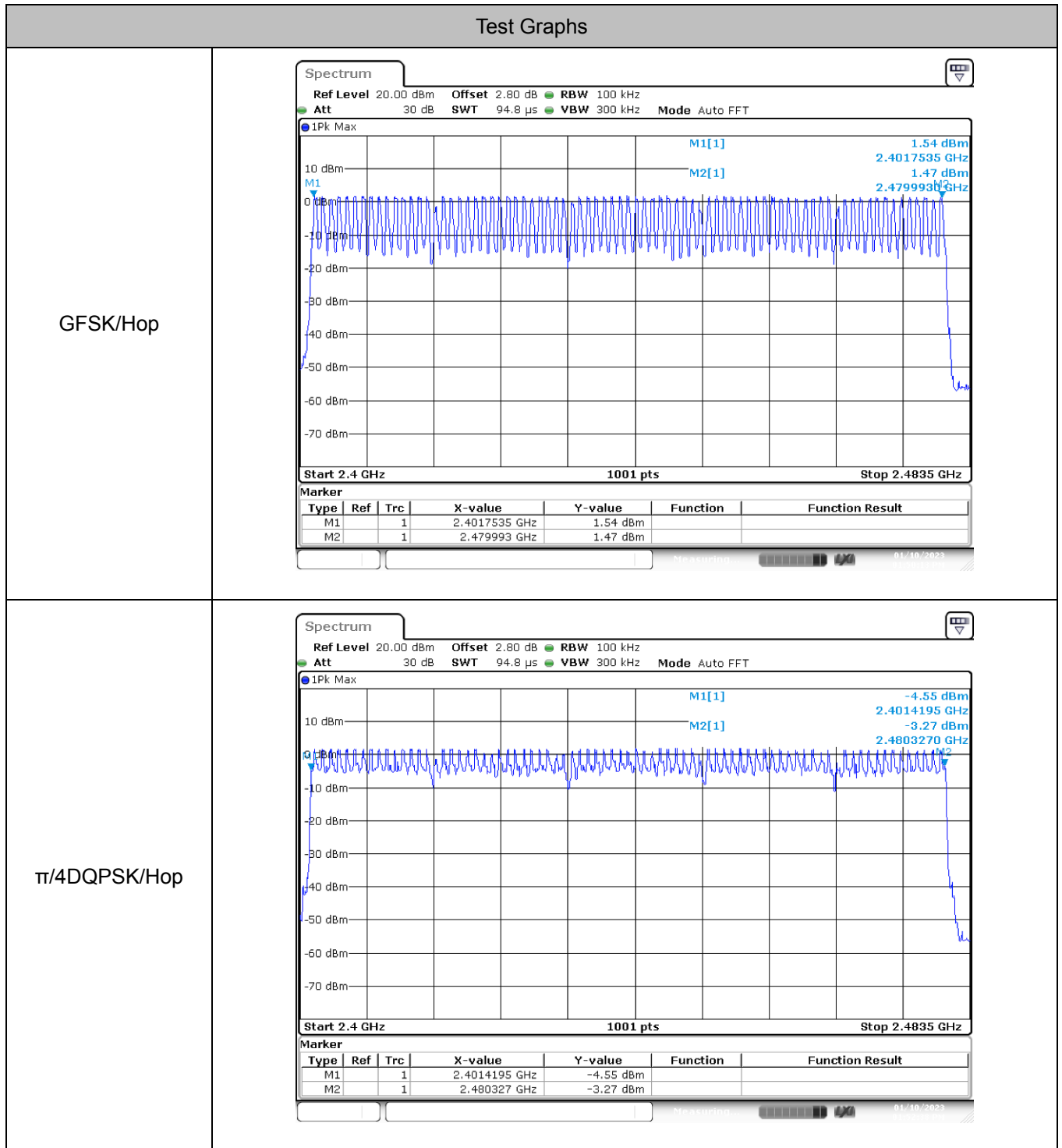


5 Hopping Channel Number

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

5.2 Test Graphs

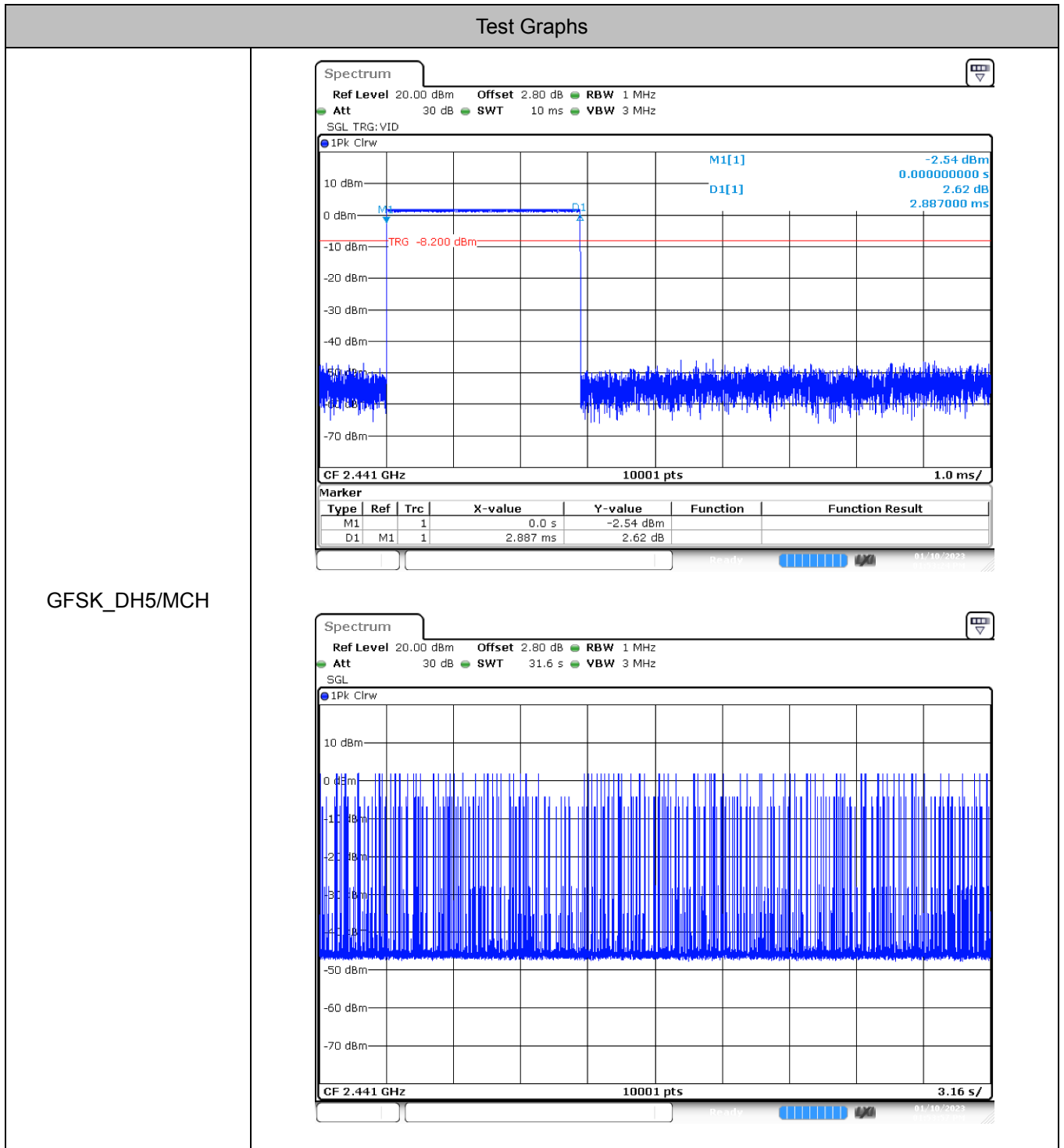


6 Dwell Time

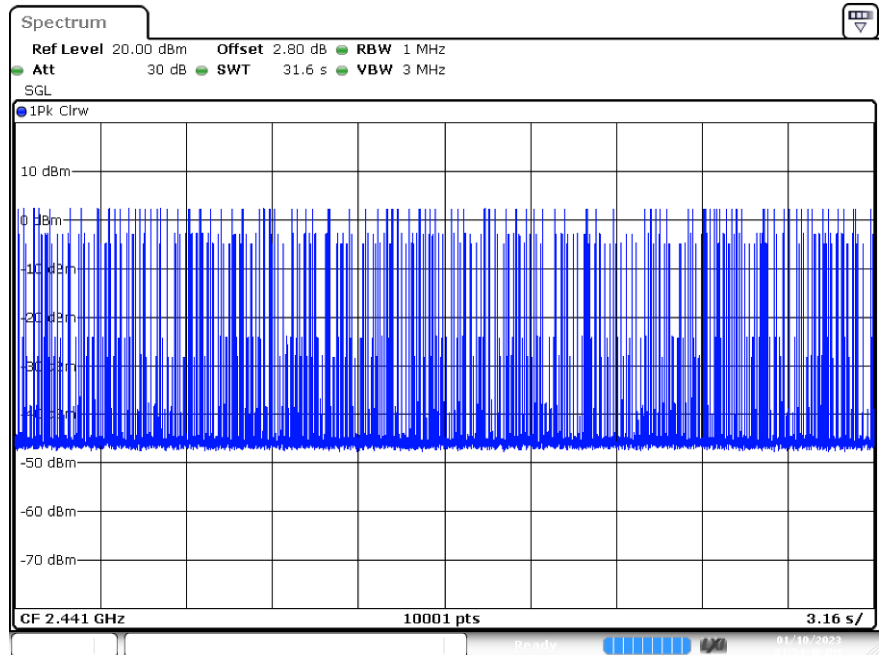
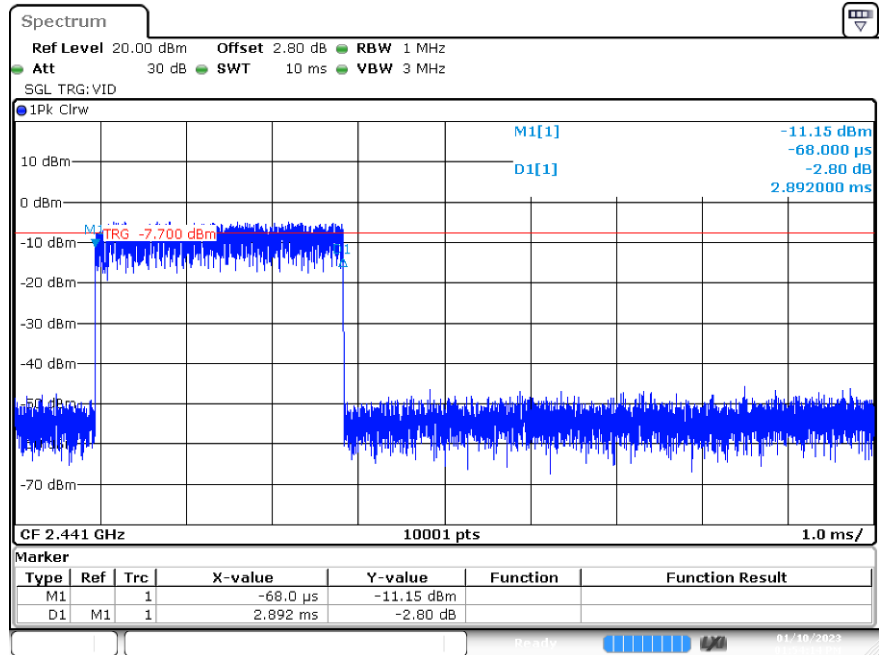
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.887	105	303.135	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.892	115	332.58	0.4	Pass

6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH

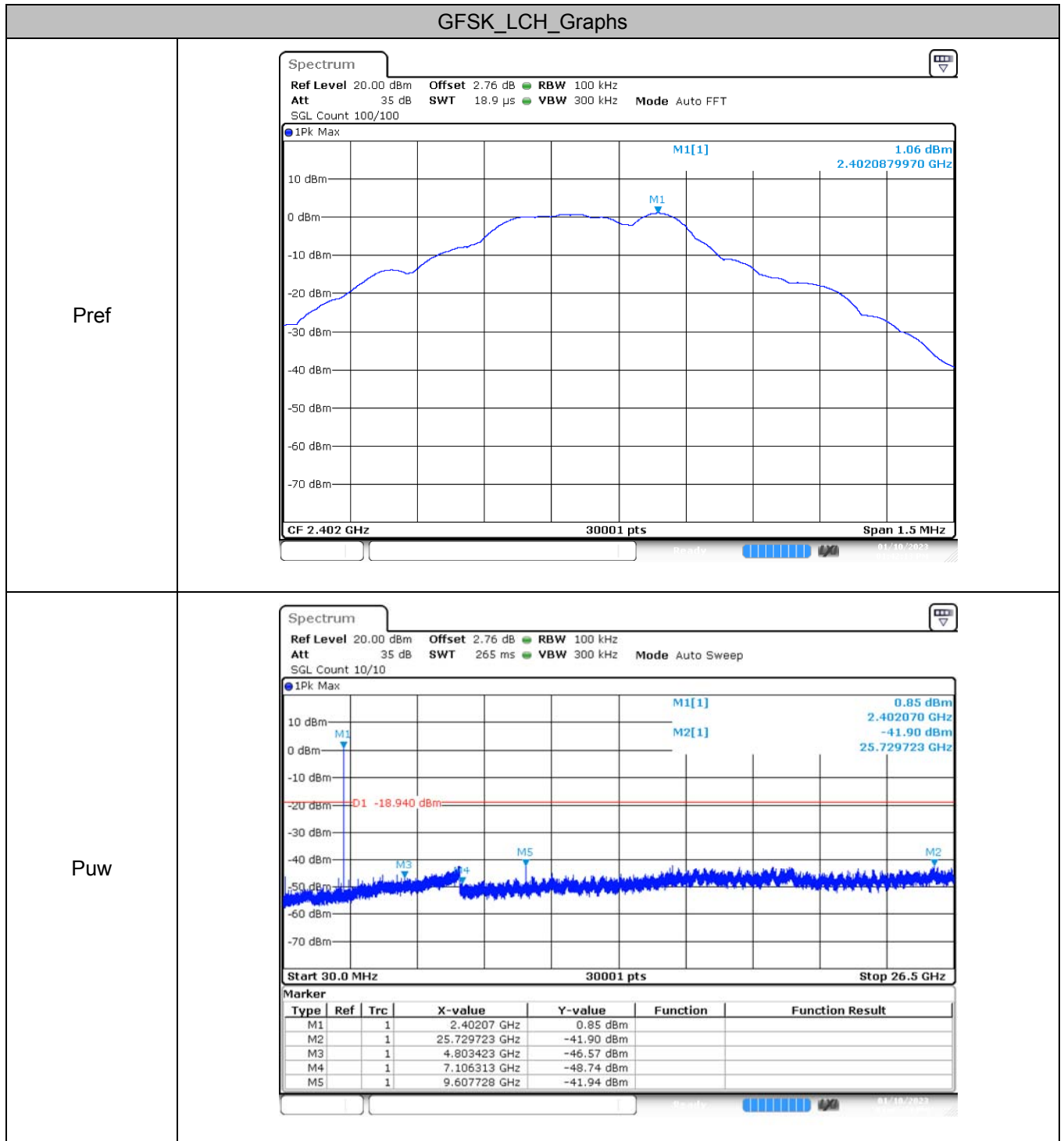


7 RF Conducted Spurious Emissions

7.1 Test Result

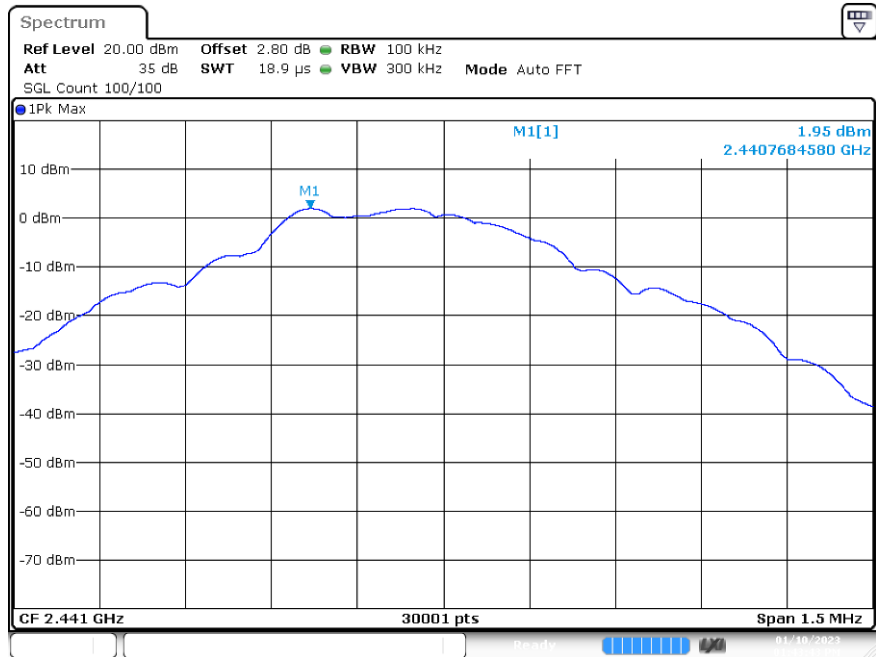
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-42.95	-20	Pass
	MCH	-43.1	-20	Pass
	HCH	-42.68	-20	Pass
$\pi/4$ DQPSK	LCH	-42.8	-20	Pass
	MCH	-42.13	-20	Pass
	HCH	-41.88	-20	Pass

7.2 Test Graphs

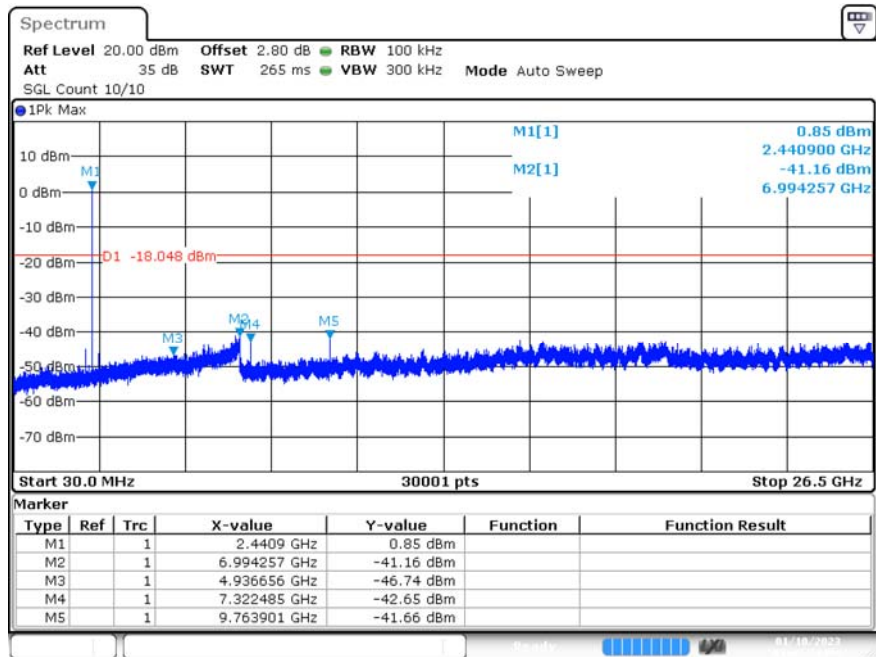


GFSK_MCH_Graphs

Pref

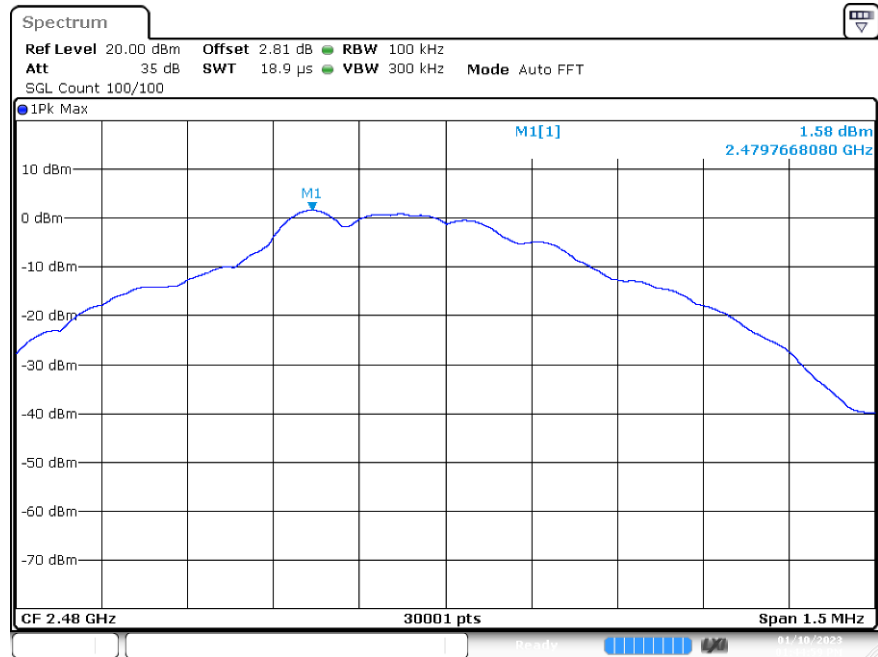


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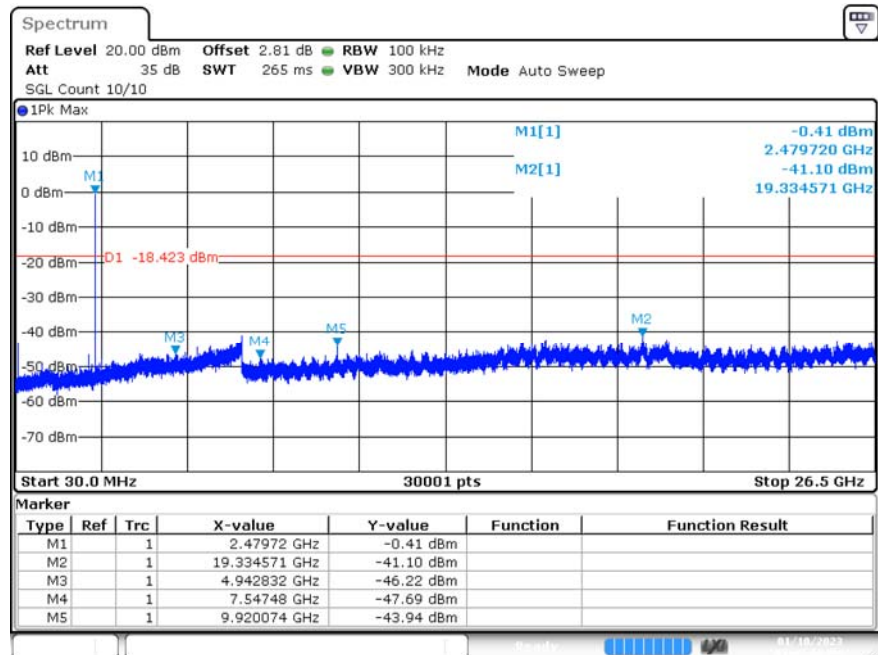


GFSK_HCH_Graphs

Pref

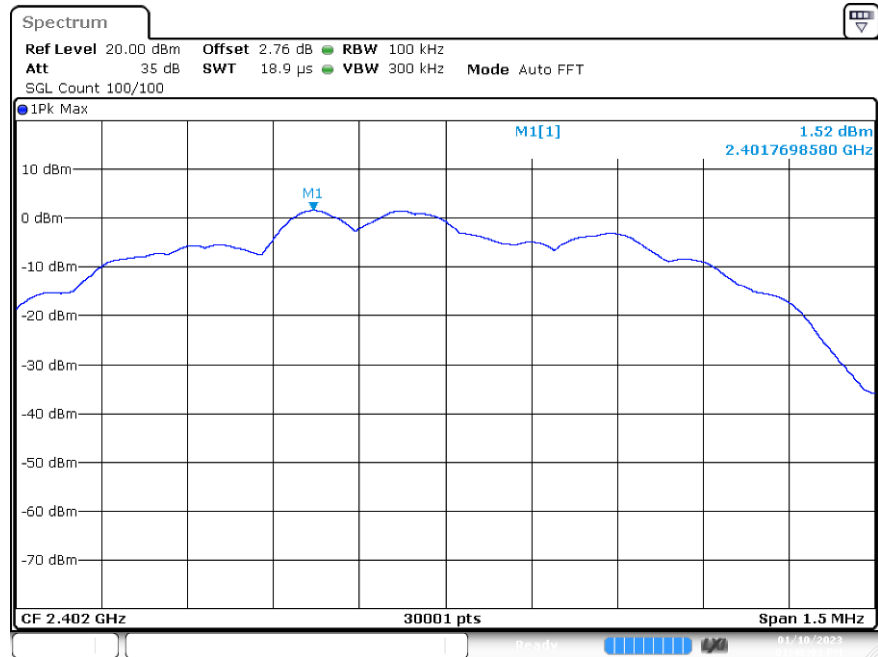


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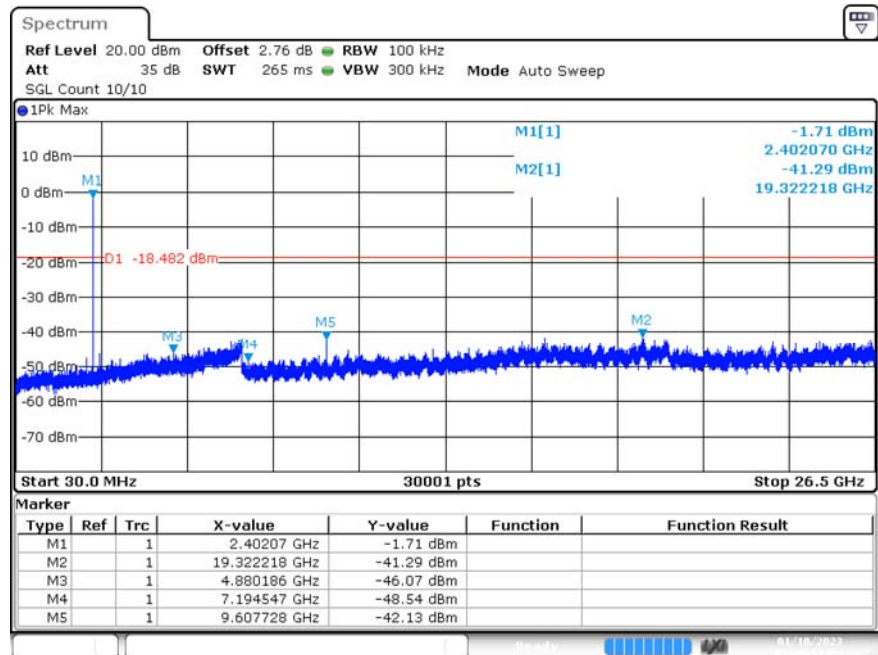


$\pi/4$ DQPSK_LCH_Graphs

Pref

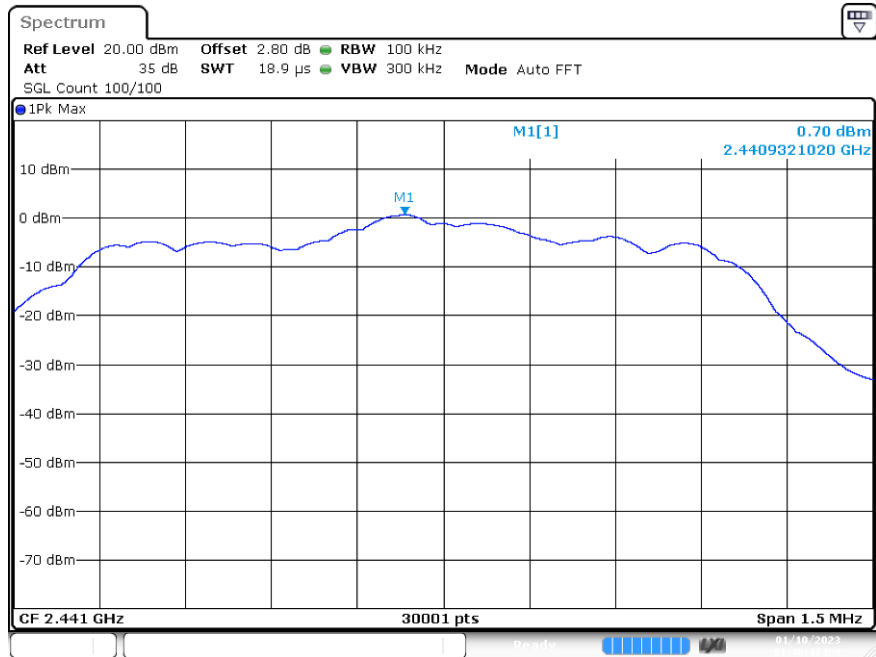


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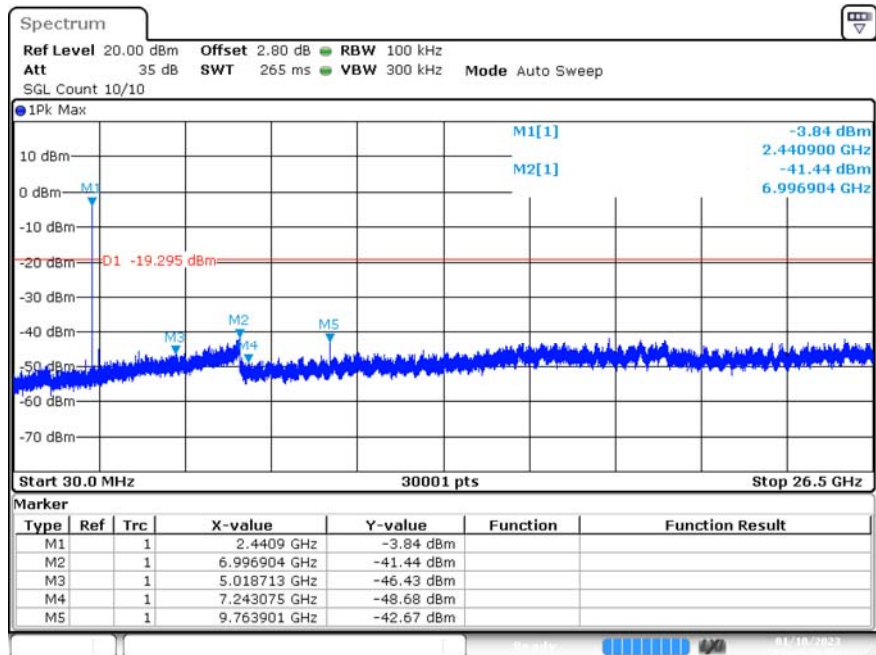


$\pi/4$ DQPSK_MCH_Graphs

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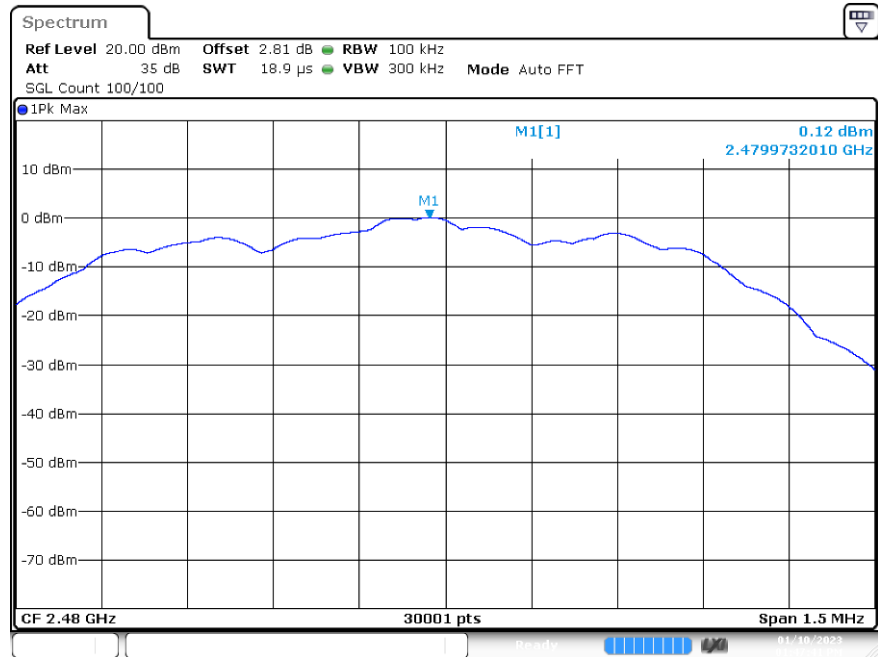


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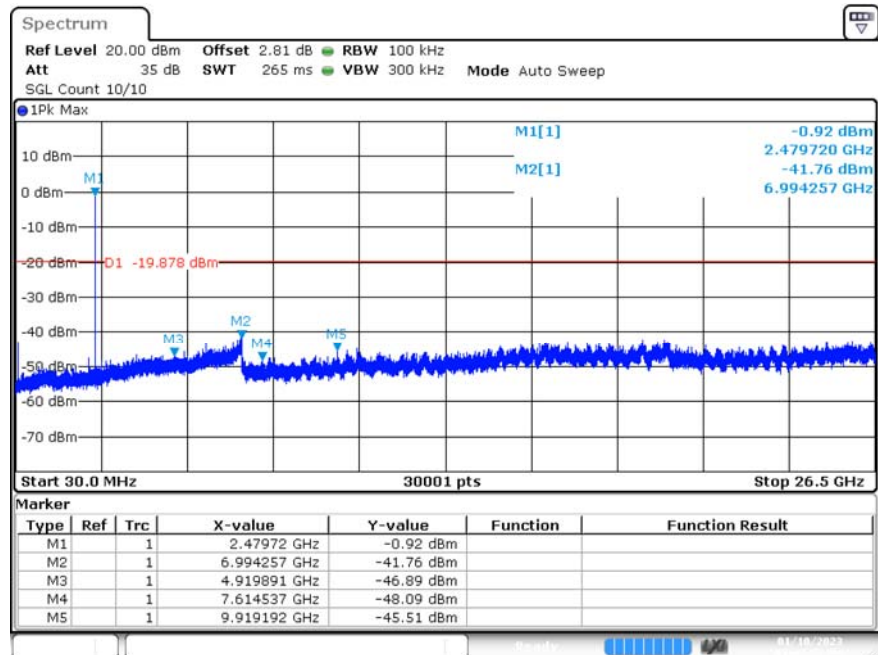


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

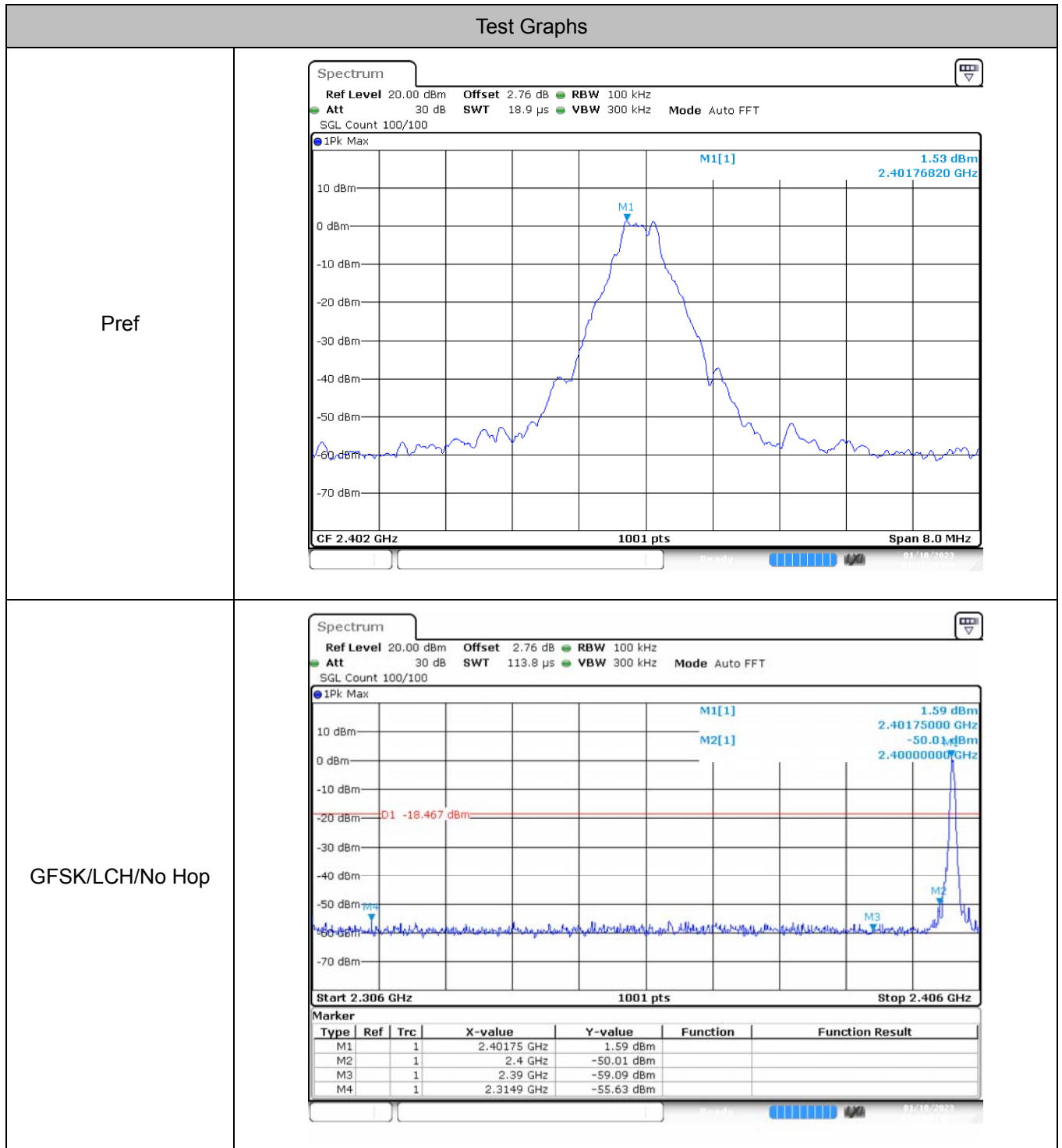


8 Band-edge for RF Conducted Emissions

8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-57.16	-20	Pass
			On	-49.68	-20	Pass
	HCH	2480	Off	-57.62	-20	Pass
			On	-48.04	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-56.78	-20	Pass
			On	-50.63	-20	Pass
	HCH	2480	Off	-57.04	-20	Pass
			On	-49	-20	Pass

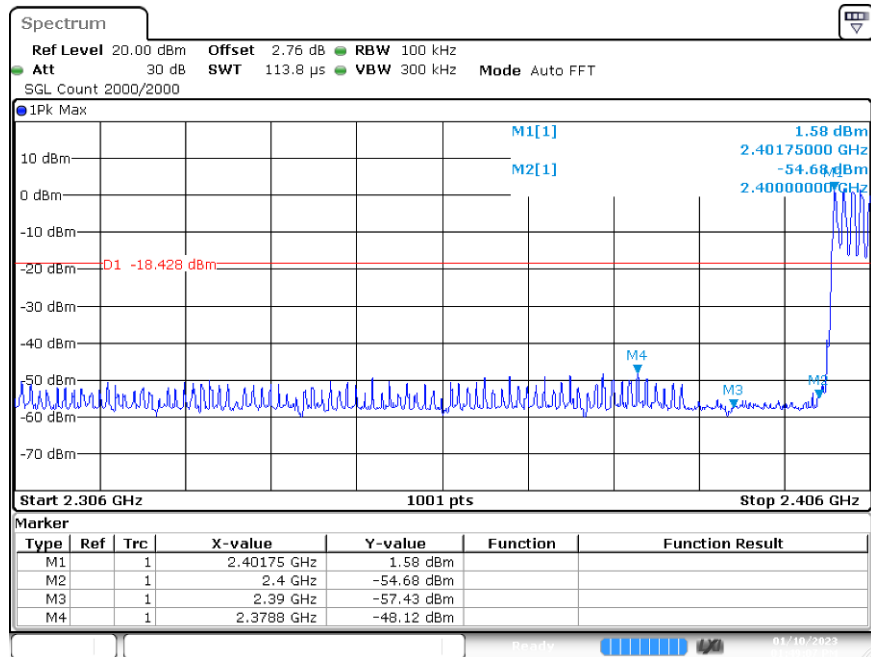
8.2 Test Graphs



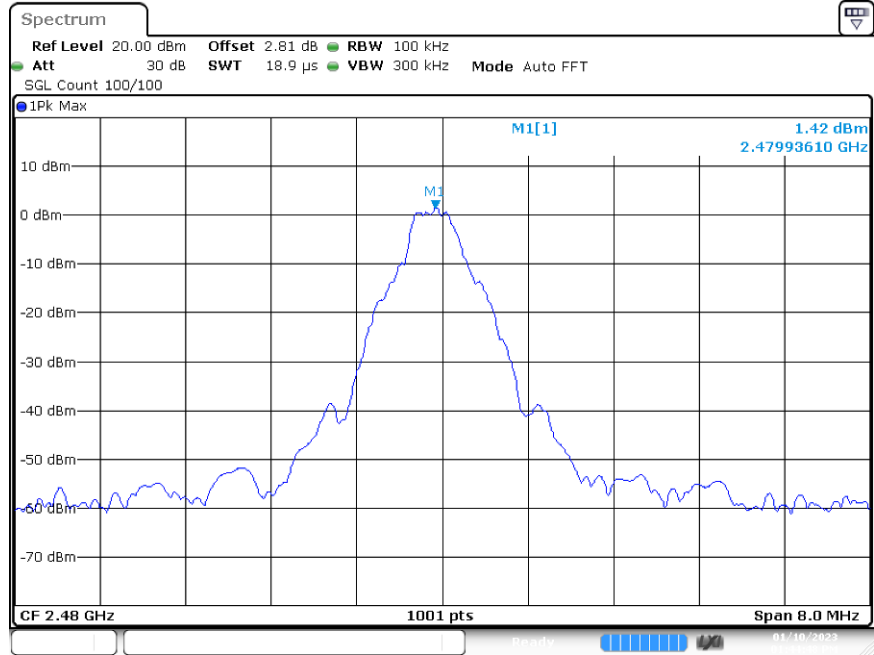
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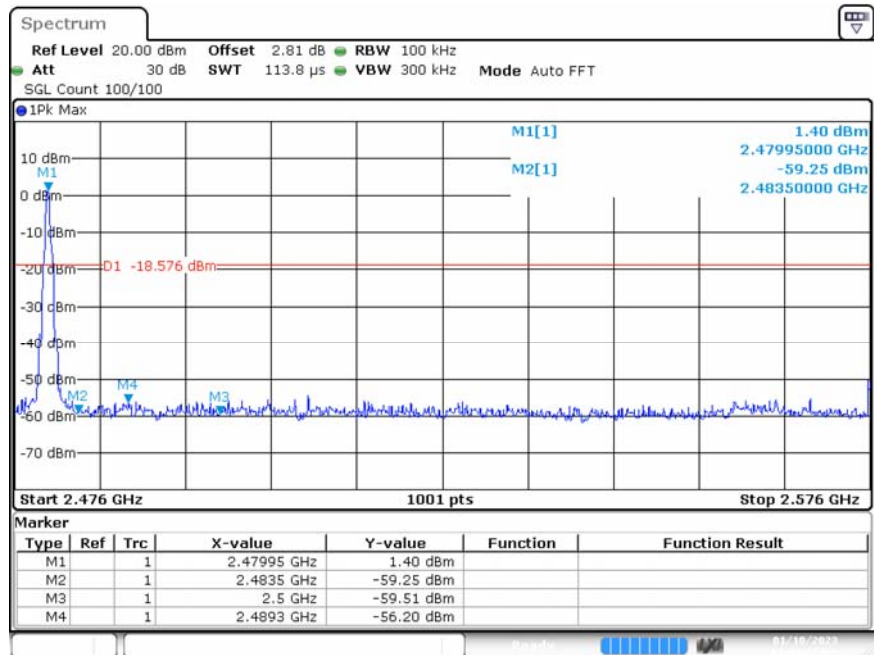
GFSK/LCH/Hop



Ref



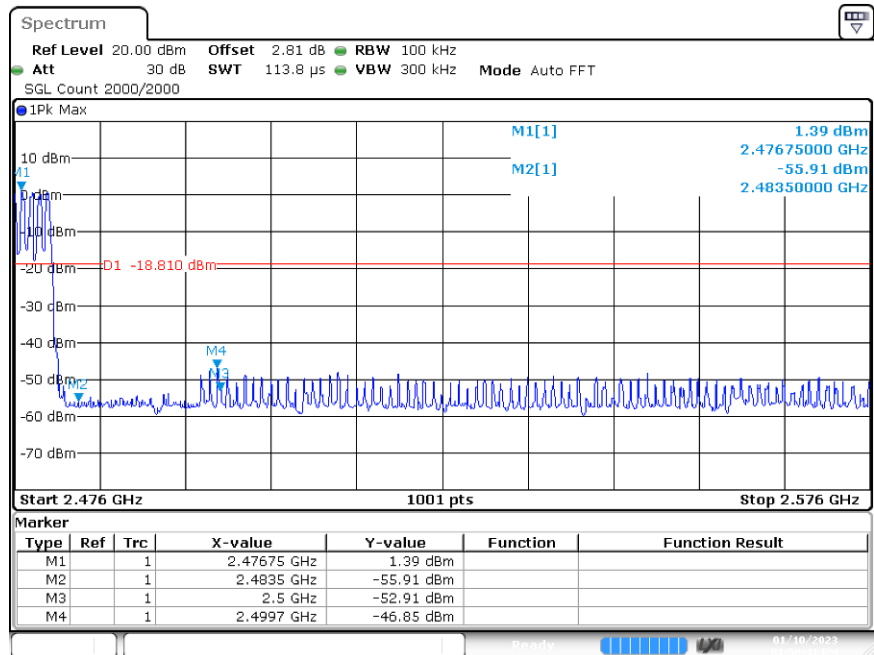
GFSK/HCH/No Hop



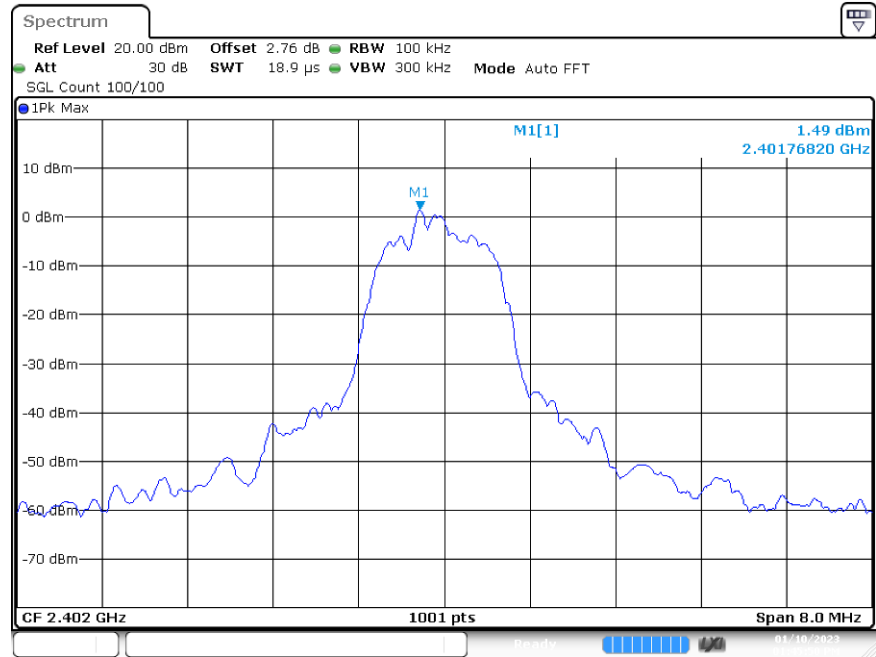
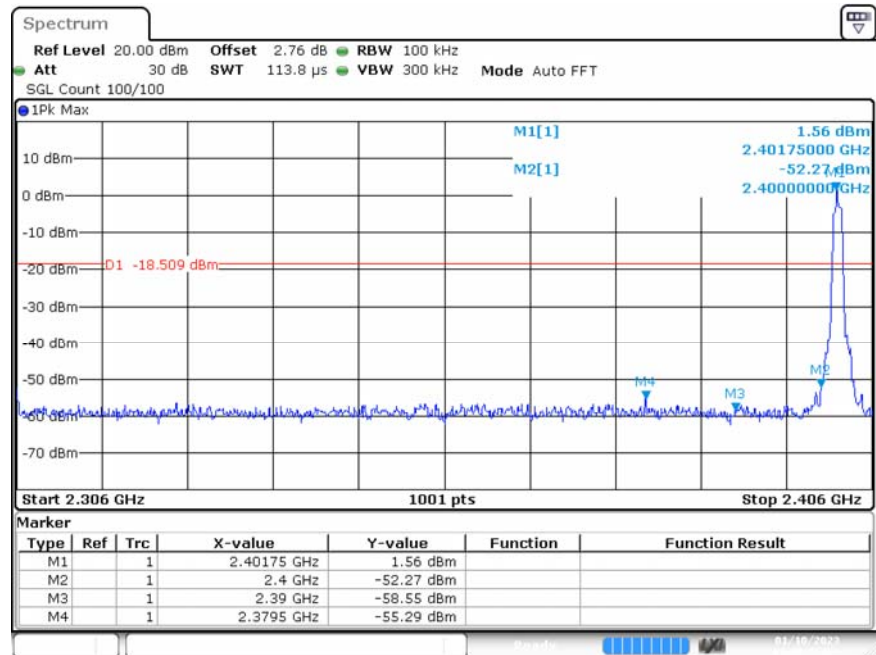
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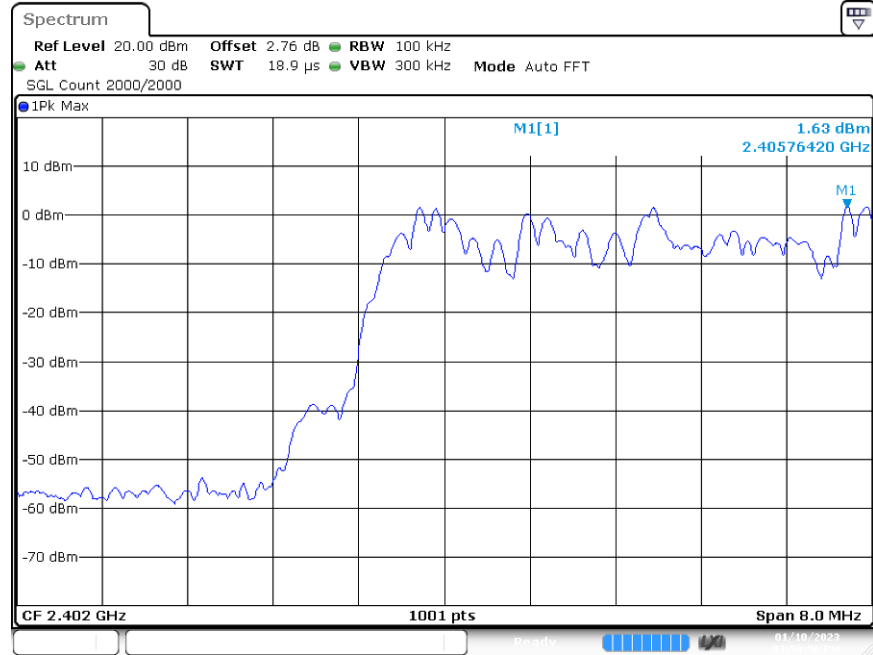
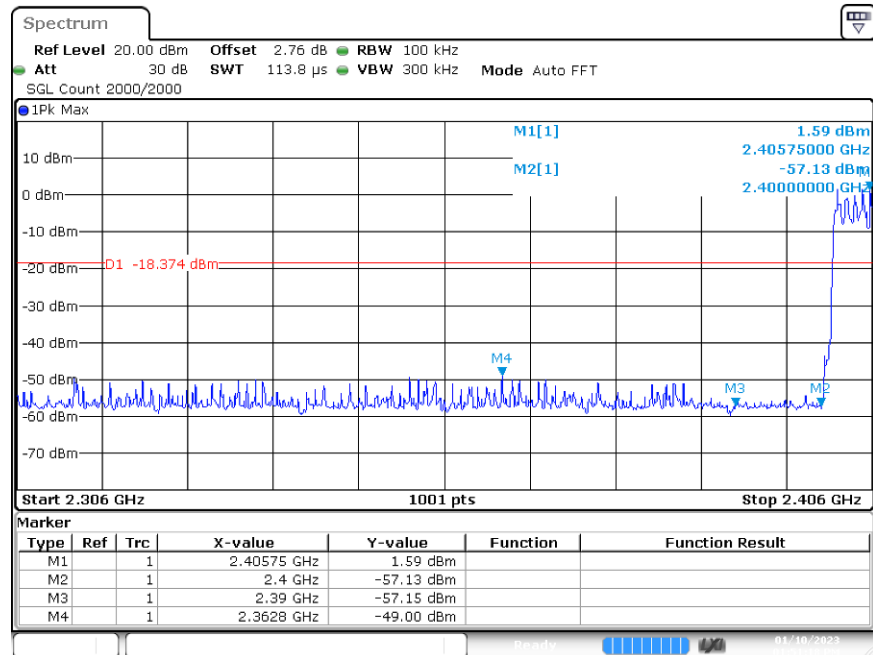
GFSK/HCH/Hop



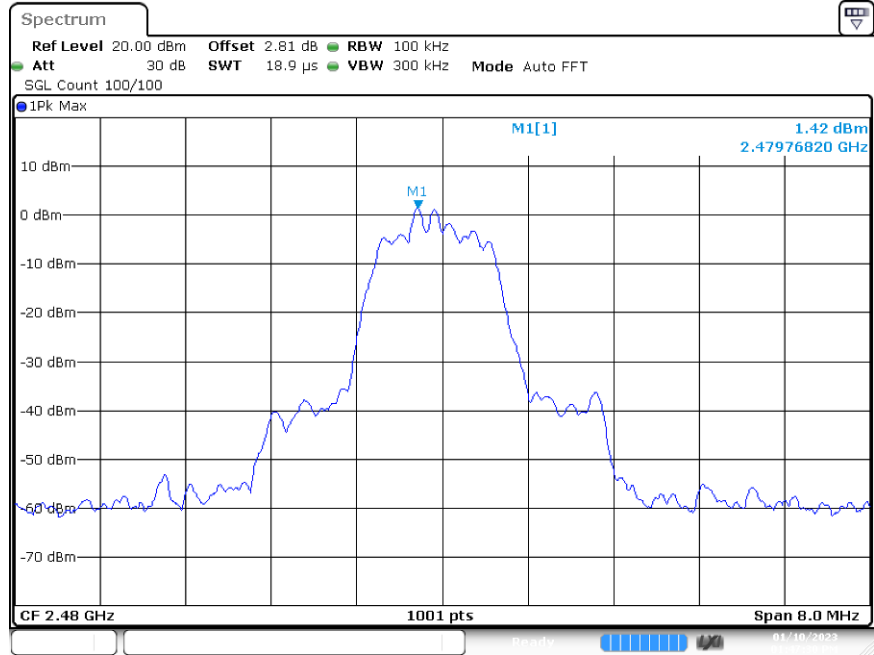
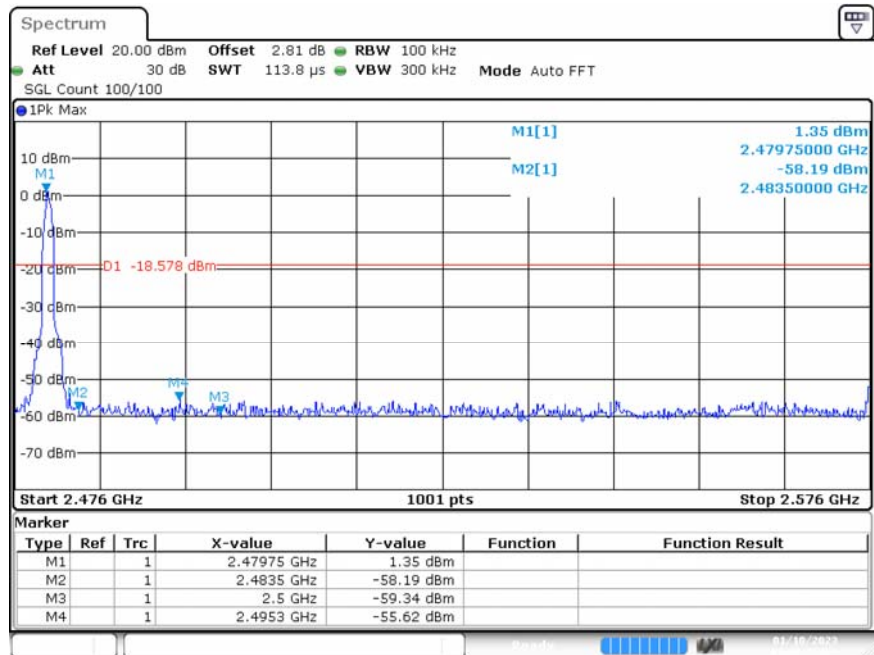
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 $\pi/4$ DQPSK/LCH/No Hop


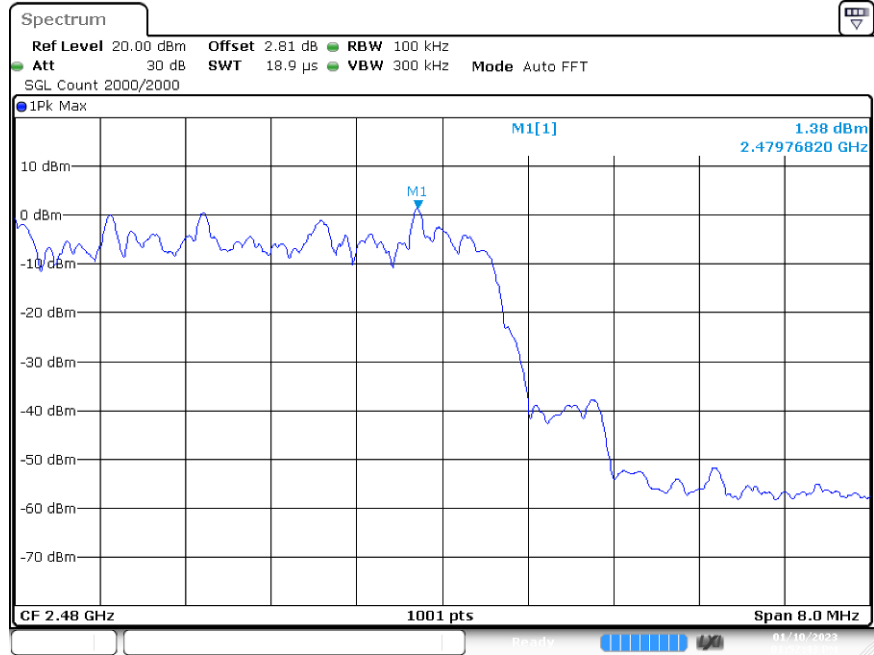
Ref


 $\pi/4$ DQPSK/LCH/Hop


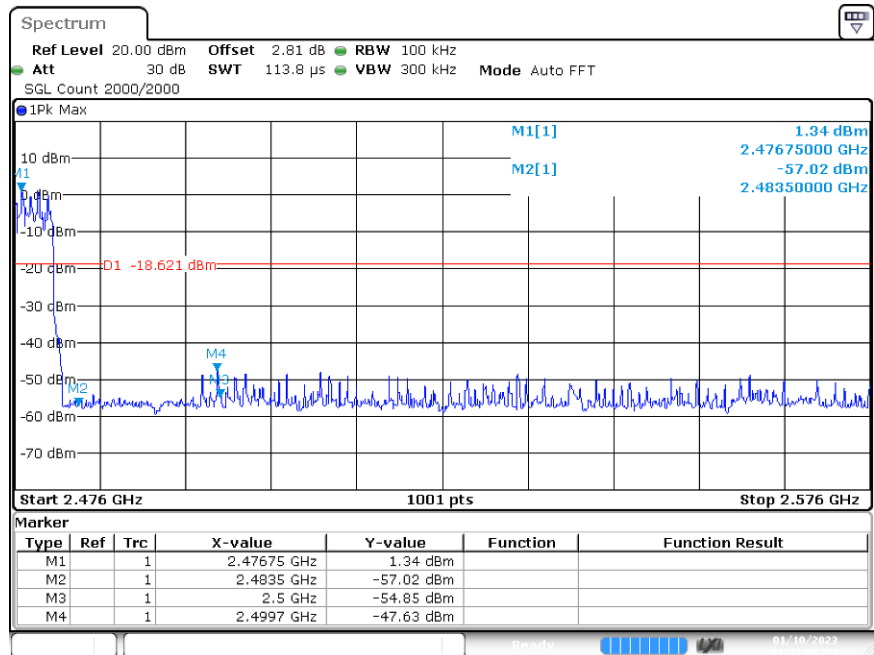
Ref


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


Ref



$\pi/4$ DQPSK/HCH/Hop



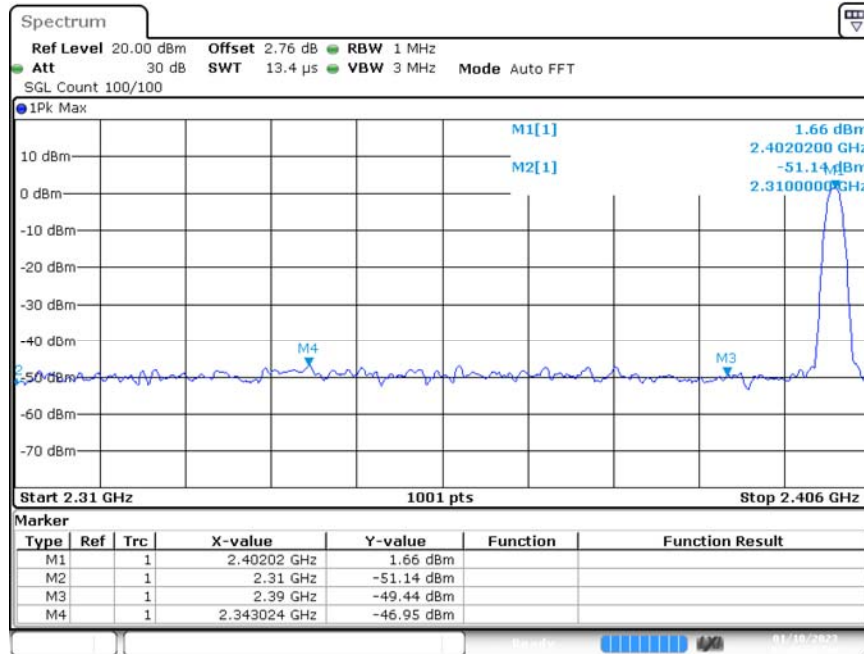
9 Restrict-band band-edge measurements

9.1 Test Result

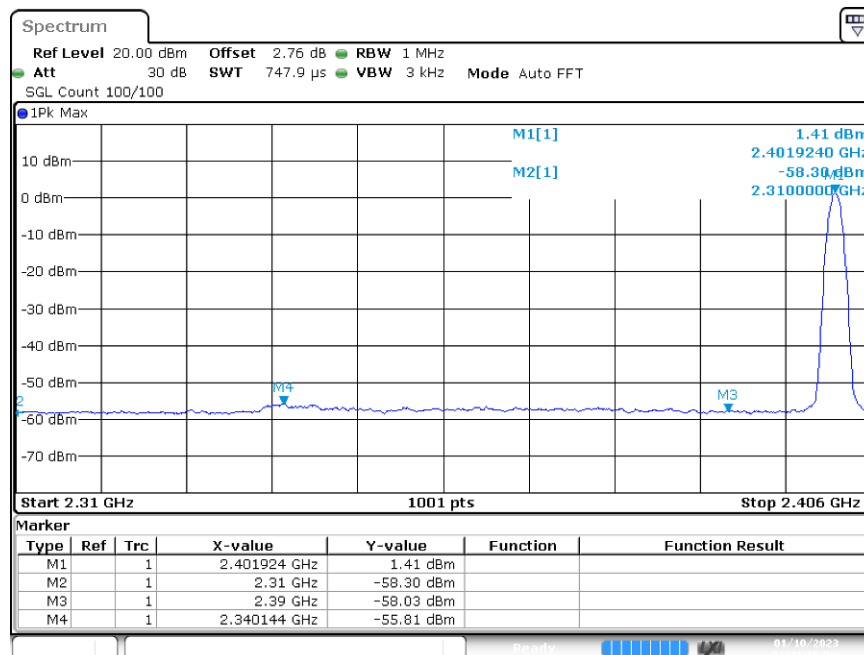
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-51.13	2	46.13	PEAK	74	Pass
	Off	2310.0	-58.29	2	38.97	AV	54	Pass
	Off	2343.024	-46.95	2	50.31	PEAK	74	Pass
	Off	2340.144	-55.8	2	41.46	AV	54	Pass
	Off	2390.0	-49.43	2	47.83	PEAK	74	Pass
	Off	2390.0	-58.02	2	39.24	AV	54	Pass
	Off	2483.5	-49.16	2	48.1	PEAK	74	Pass
	Off	2483.5	-56.79	2	40.47	AV	54	Pass
	Off	2497.744	-47.19	2	50.07	PEAK	74	Pass
	Off	2483.512	-56.79	2	40.47	AV	54	Pass
	Off	2500.0	-48.31	2	48.95	PEAK	74	Pass
	Off	2500.0	-57.15	2	40.11	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-50.02	2	47.24	PEAK	74	Pass
	Off	2310.0	-58.12	2	39.14	AV	54	Pass
	Off	2369.232	-47.23	2	50.03	PEAK	74	Pass
	Off	2338.608	-56.15	2	41.11	AV	54	Pass
	Off	2390.0	-48.55	2	48.71	PEAK	74	Pass
	Off	2390.0	-58.08	2	39.18	AV	54	Pass
	Off	2483.5	-48.95	2	48.31	PEAK	74	Pass
	Off	2483.5	-56.61	2	40.65	AV	54	Pass
	Off	2498.872	-46.53	2	50.73	PEAK	74	Pass
	Off	2483.512	-56.61	2	40.65	AV	54	Pass
	Off	2500.0	-48.37	2	48.89	PEAK	74	Pass
	Off	2500.0	-57.67	2	39.59	AV	54	Pass

9.2 Test Graphs

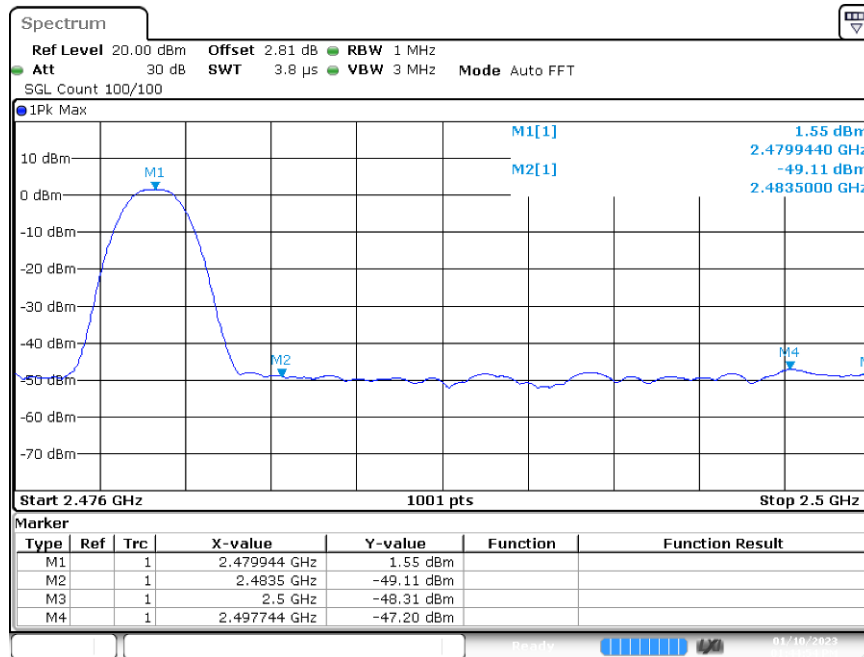
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



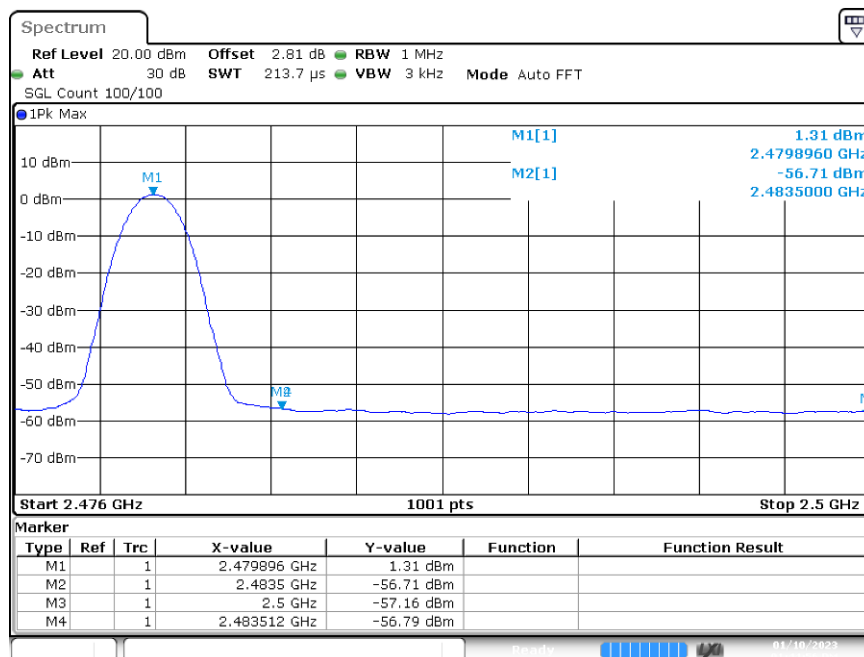
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



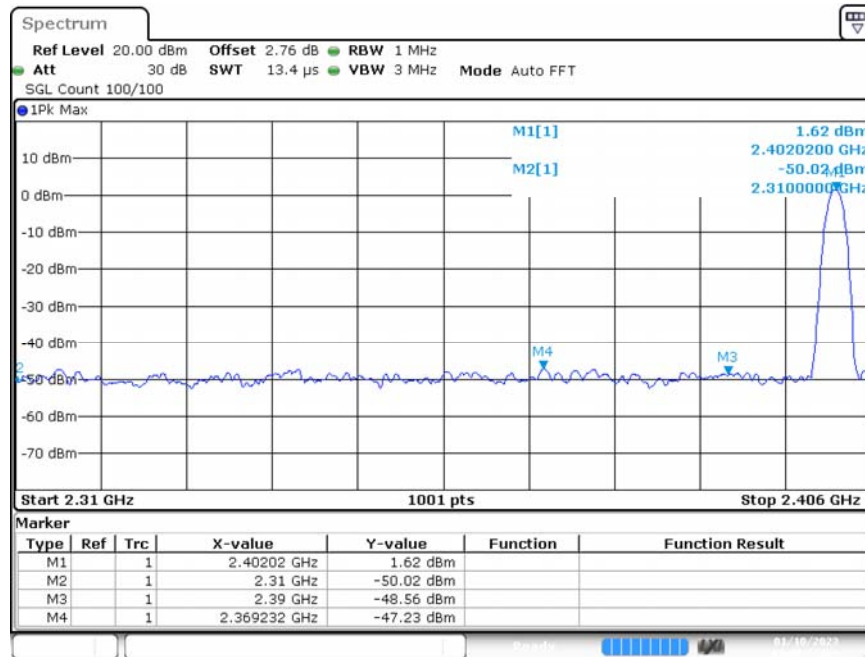
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



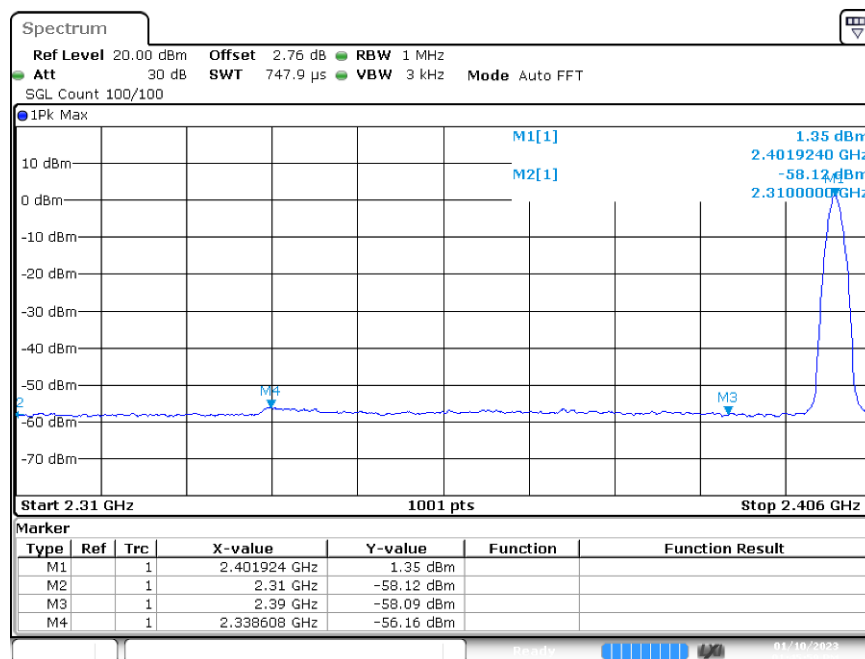
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



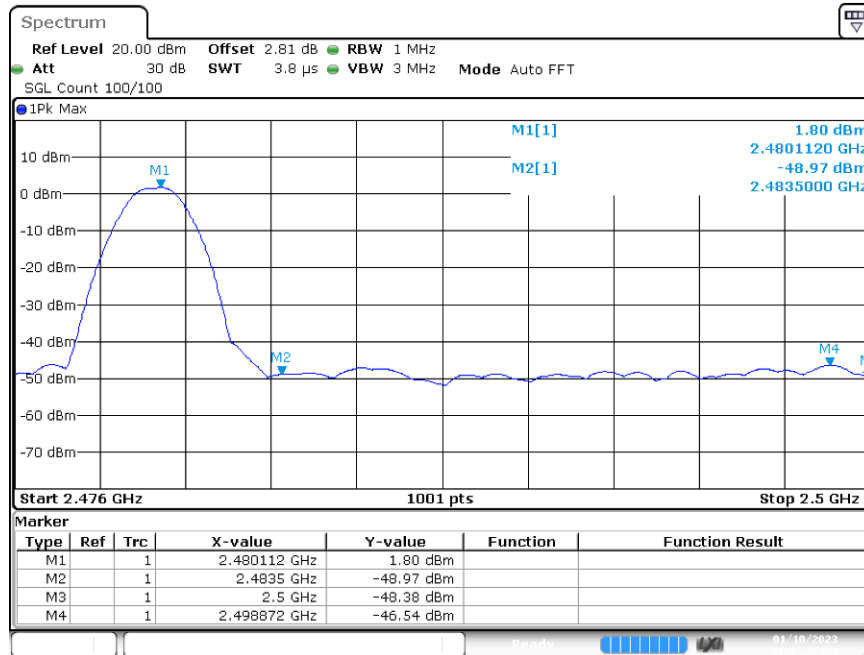
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



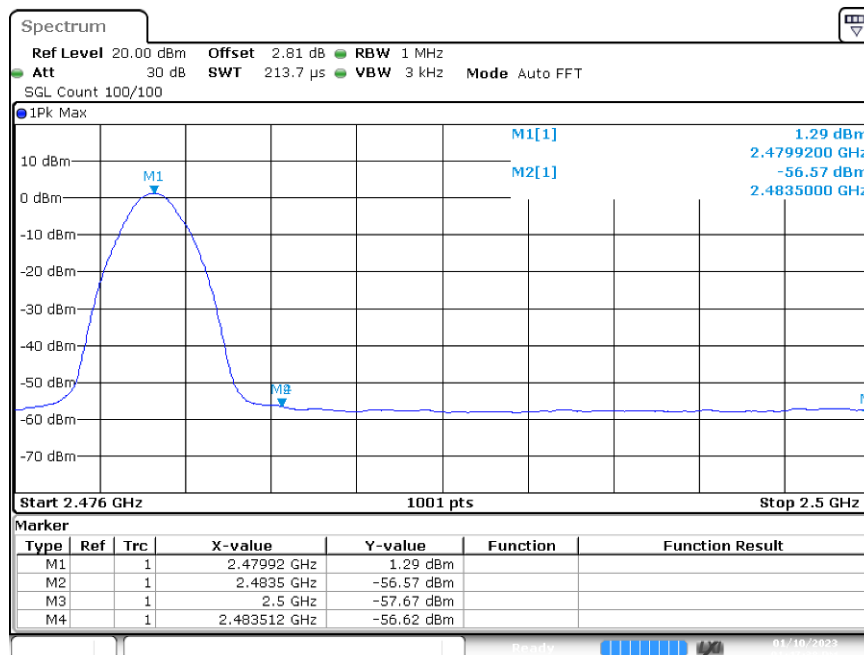
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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)



---The End---