



Appendix A

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

Product Name: Wireless dual driver earbuds

Trade Mark: N/A

Test Model: CTPRO2

Environmental Conditions

Temperature:	24.5℃
Relative Humidity:	52.2%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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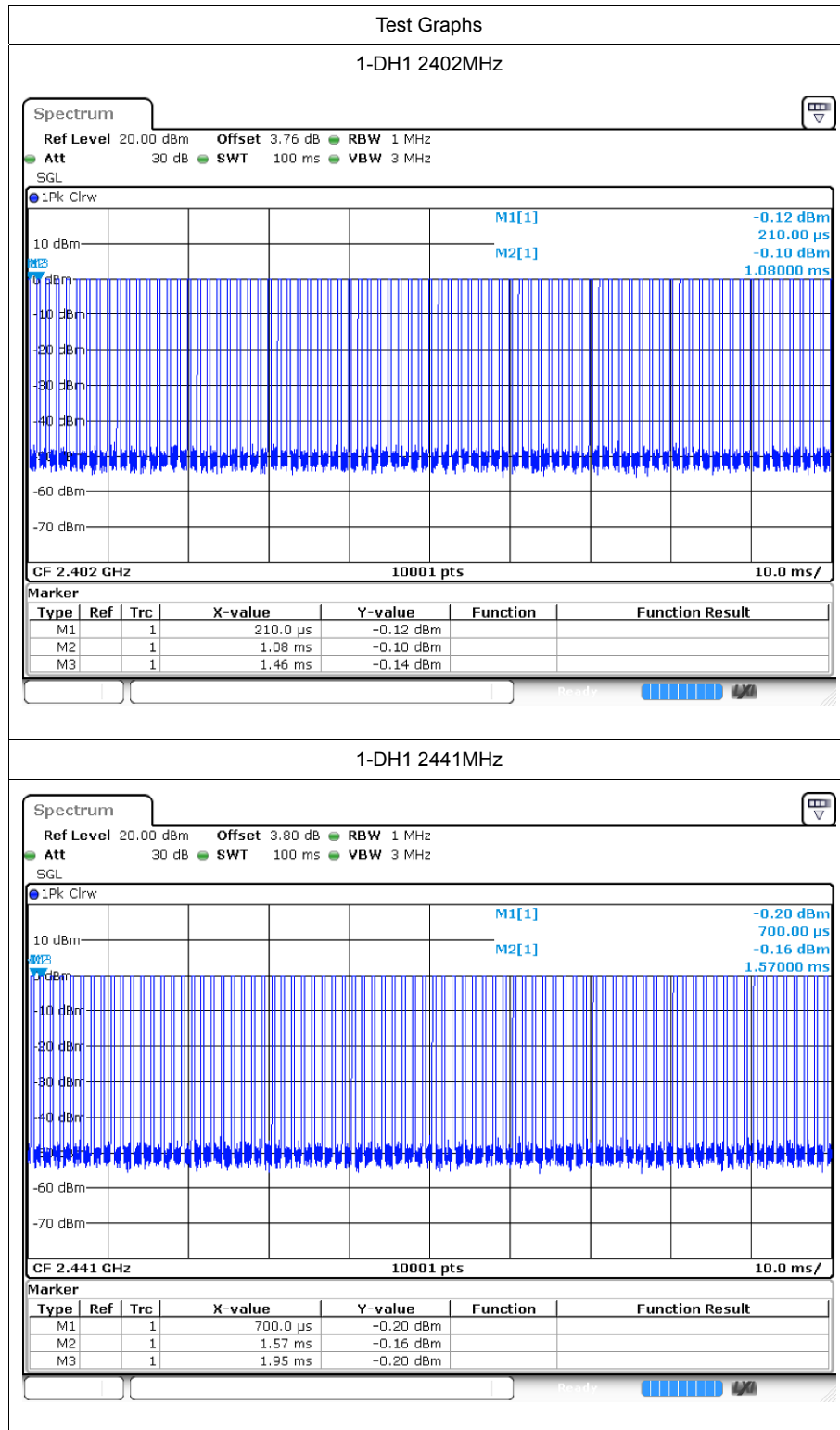
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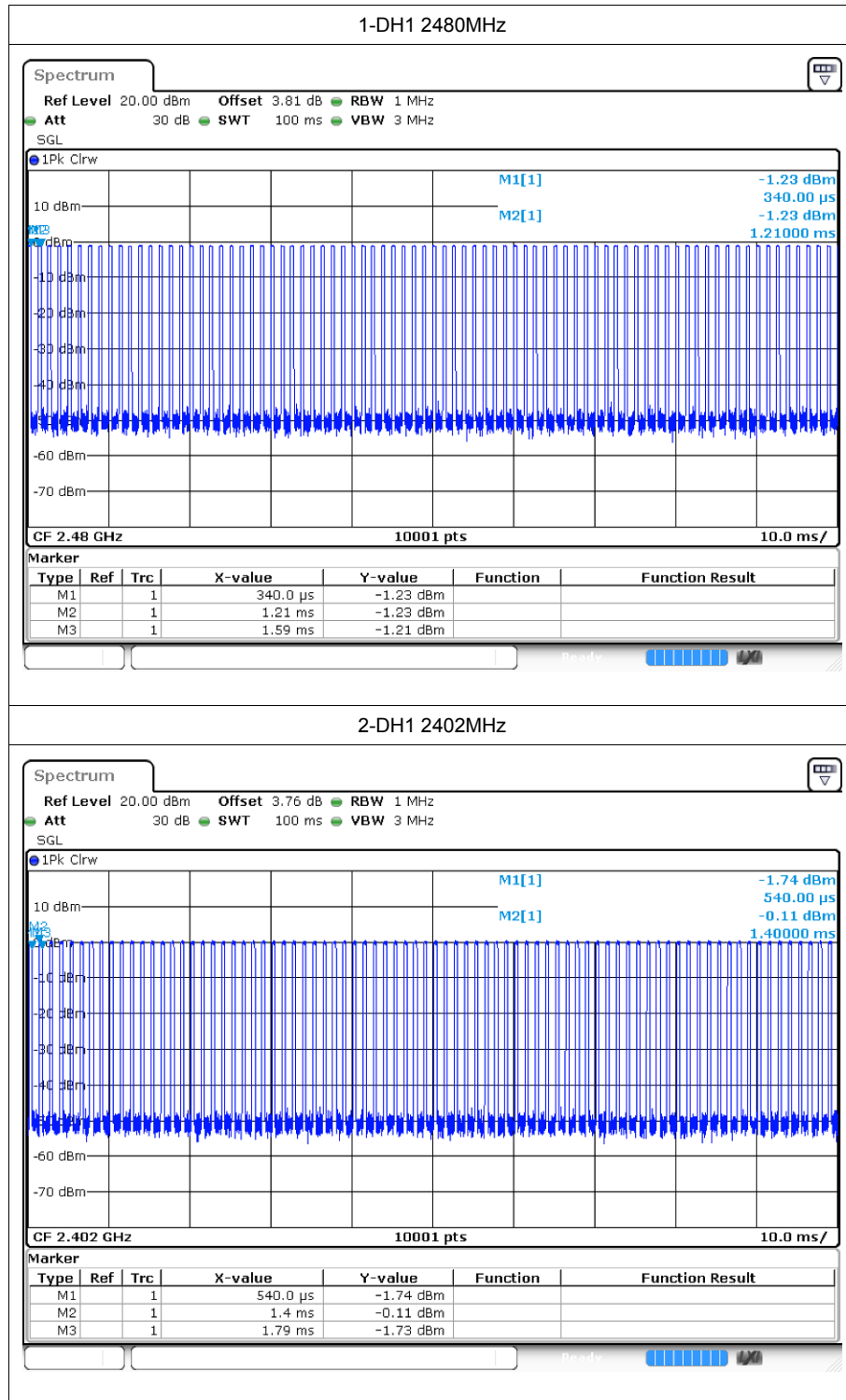
1 Duty Cycle

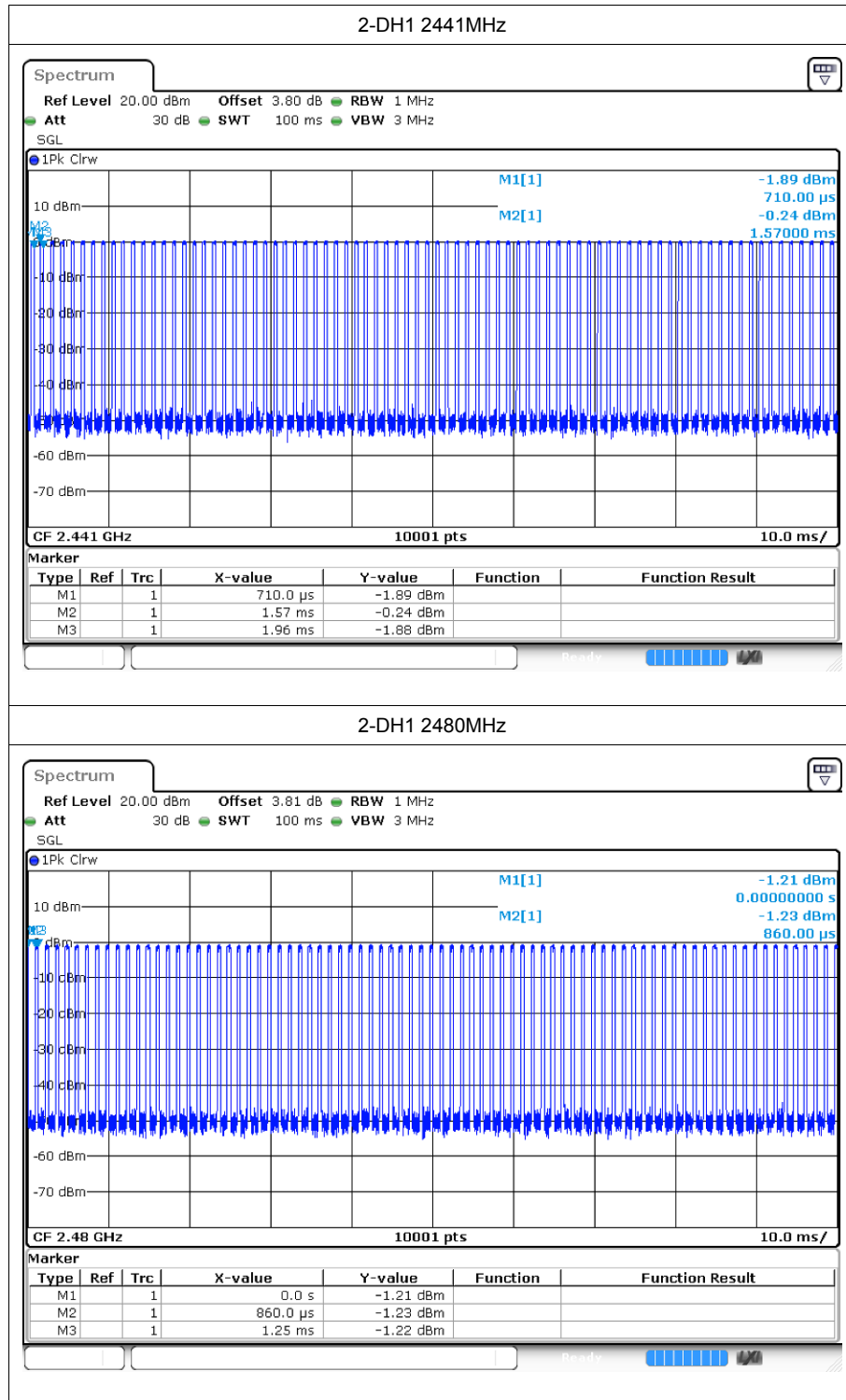
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	31.83	2.63
1-DH1	2441	31.65	2.63
1-DH1	2480	31.21	2.63
2-DH1	2402	32.23	2.56
2-DH1	2441	32.23	2.56
2-DH1	2480	32.01	2.56

1.2 Test Graphs





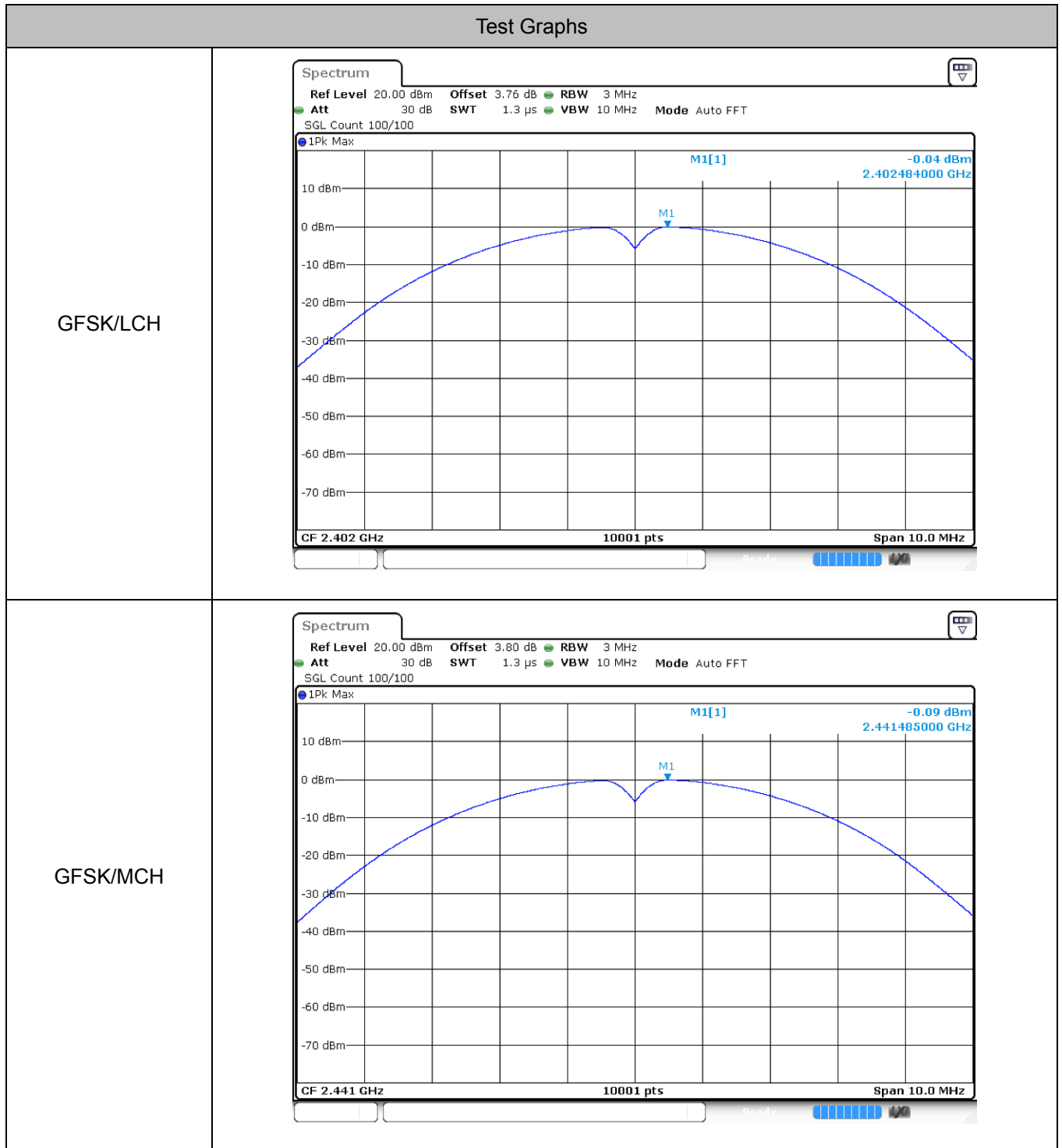


2 Maximum Conducted Peak Output Power

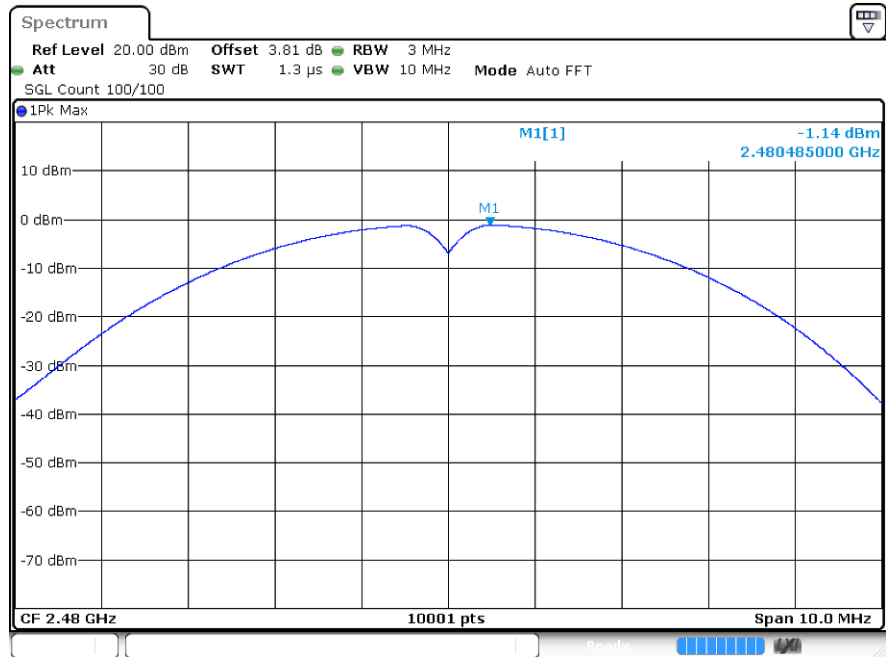
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.04	21	Pass
	MCH	-0.09	21	Pass
	HCH	-1.14	21	Pass
$\pi/4$ DQPSK	LCH	0.36	21	Pass
	MCH	0.44	21	Pass
	HCH	-0.47	21	Pass

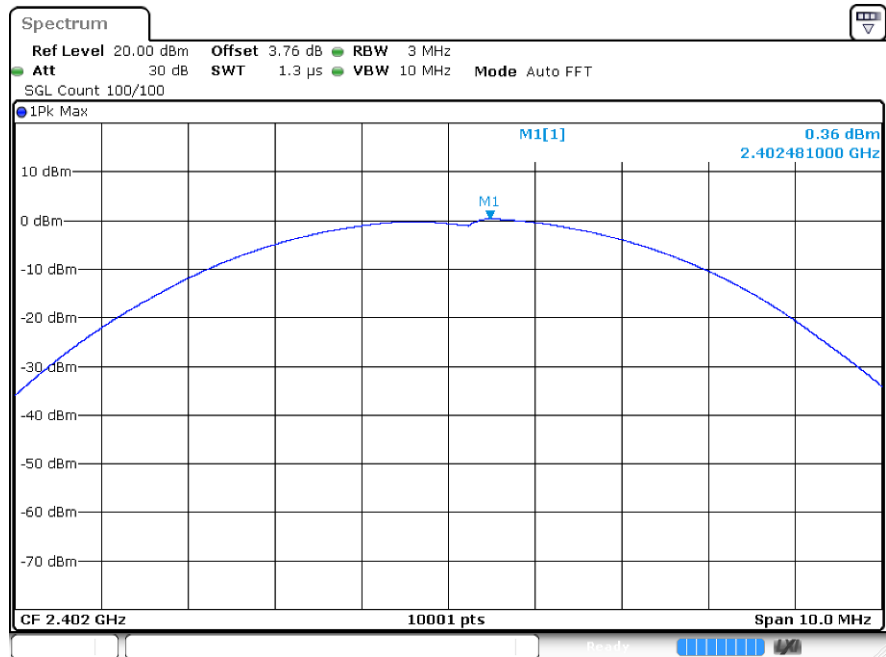
2.2 Test Graphs



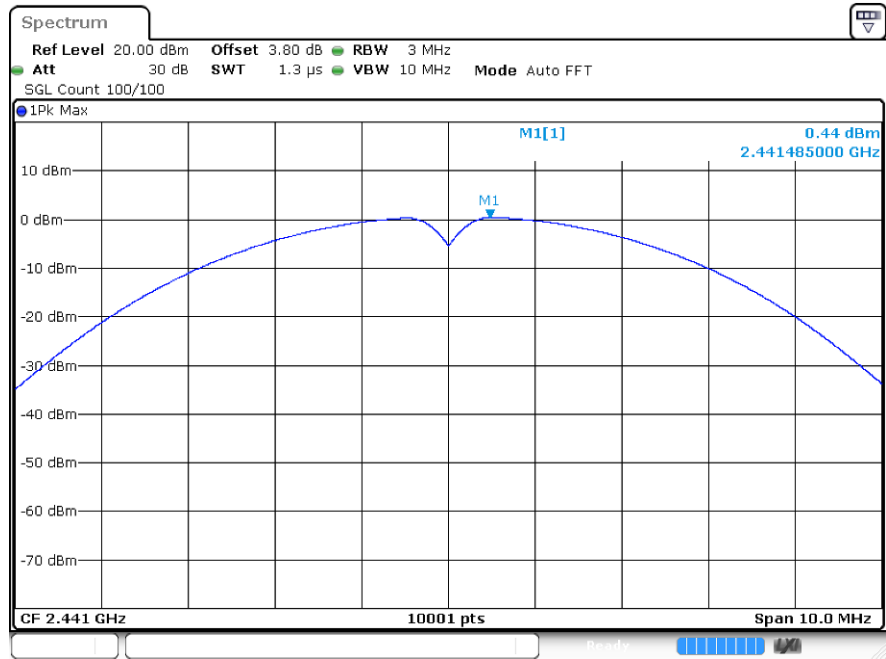
GFSK/HCH



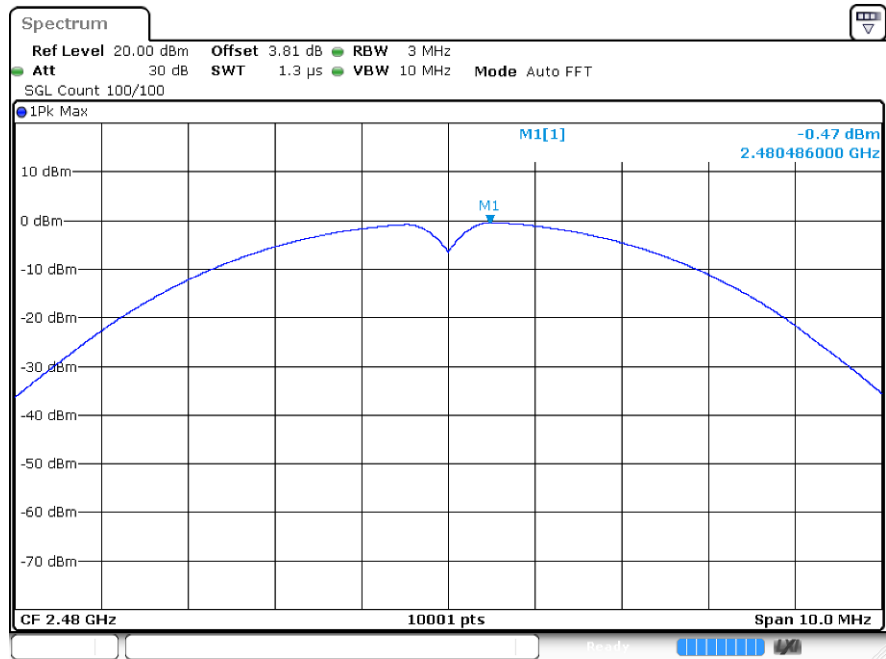
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

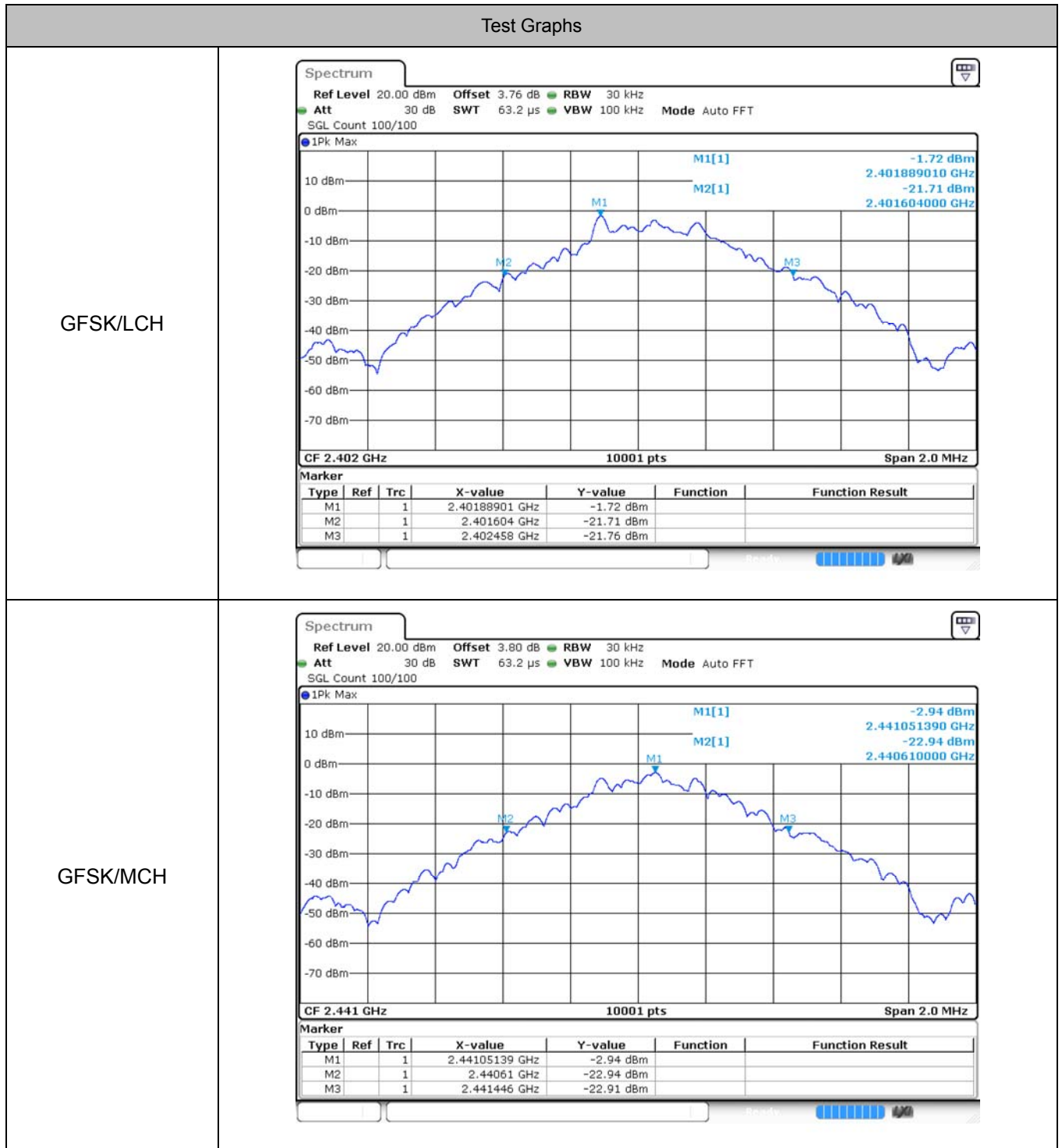


3 20dB Bandwidth

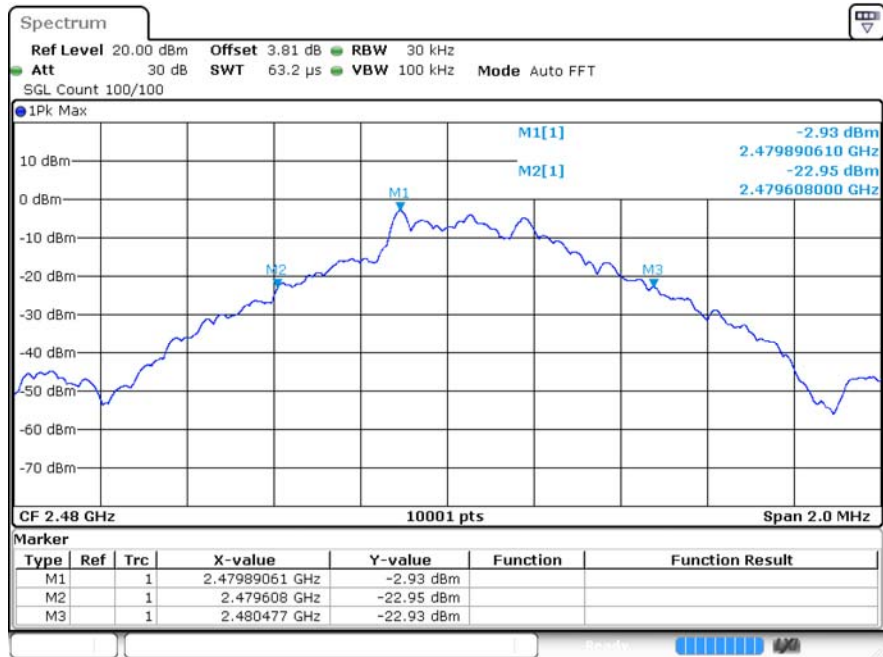
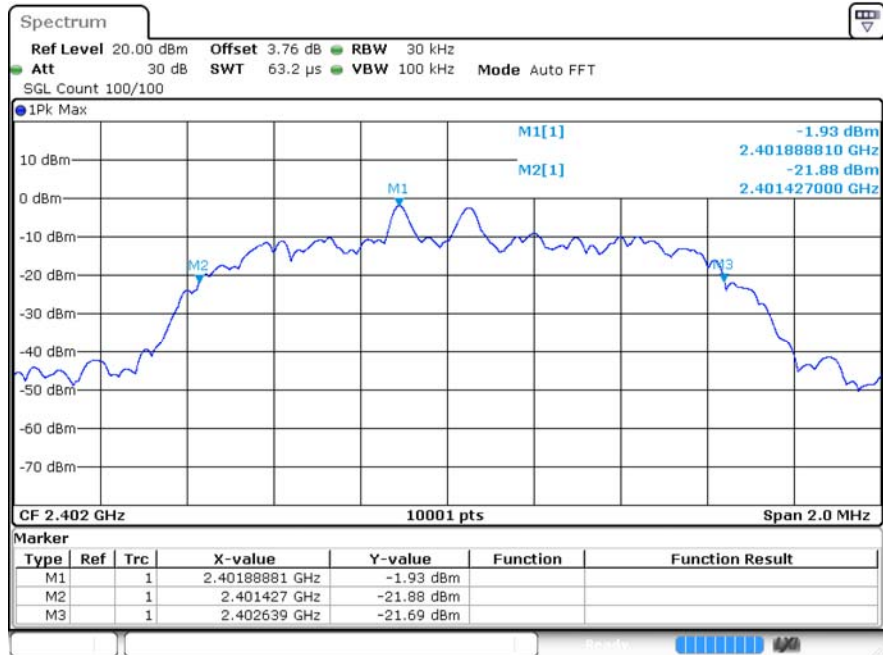
3.1 Test Result

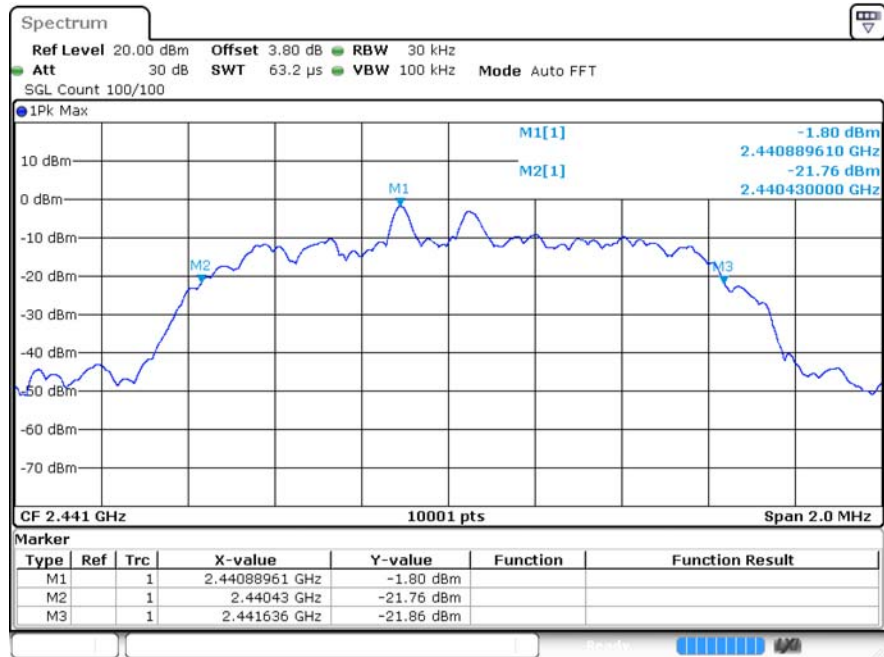
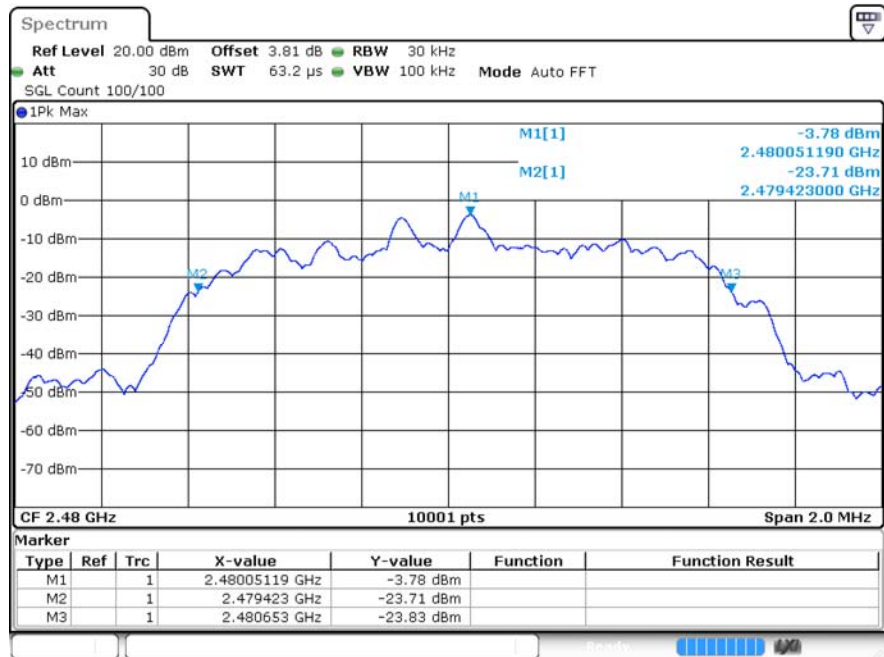
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.854	Not Specified	Pass
	MCH	0.836	Not Specified	Pass
	HCH	0.869	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.212	Not Specified	Pass
	MCH	1.206	Not Specified	Pass
	HCH	1.23	Not Specified	Pass

3.2 Test Graphs



GFSK/HCH


 $\pi/4$ DQPSK/LCH


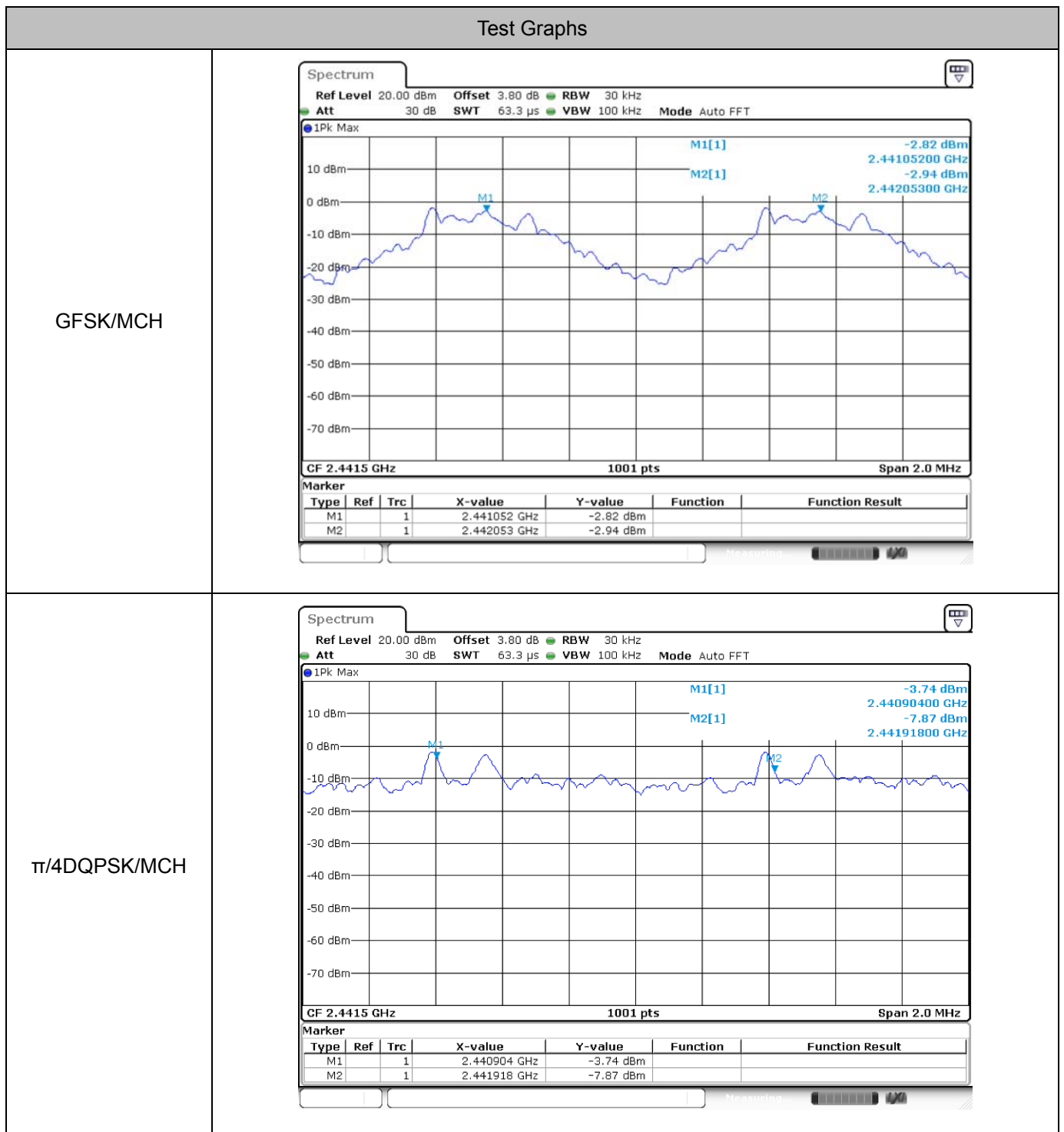
$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


4 Carrier Frequency Separation

4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.001	0.557	Pass
$\pi/4$ DQPSK	MCH	1.014	0.804	Pass

4.2 Test Graphs

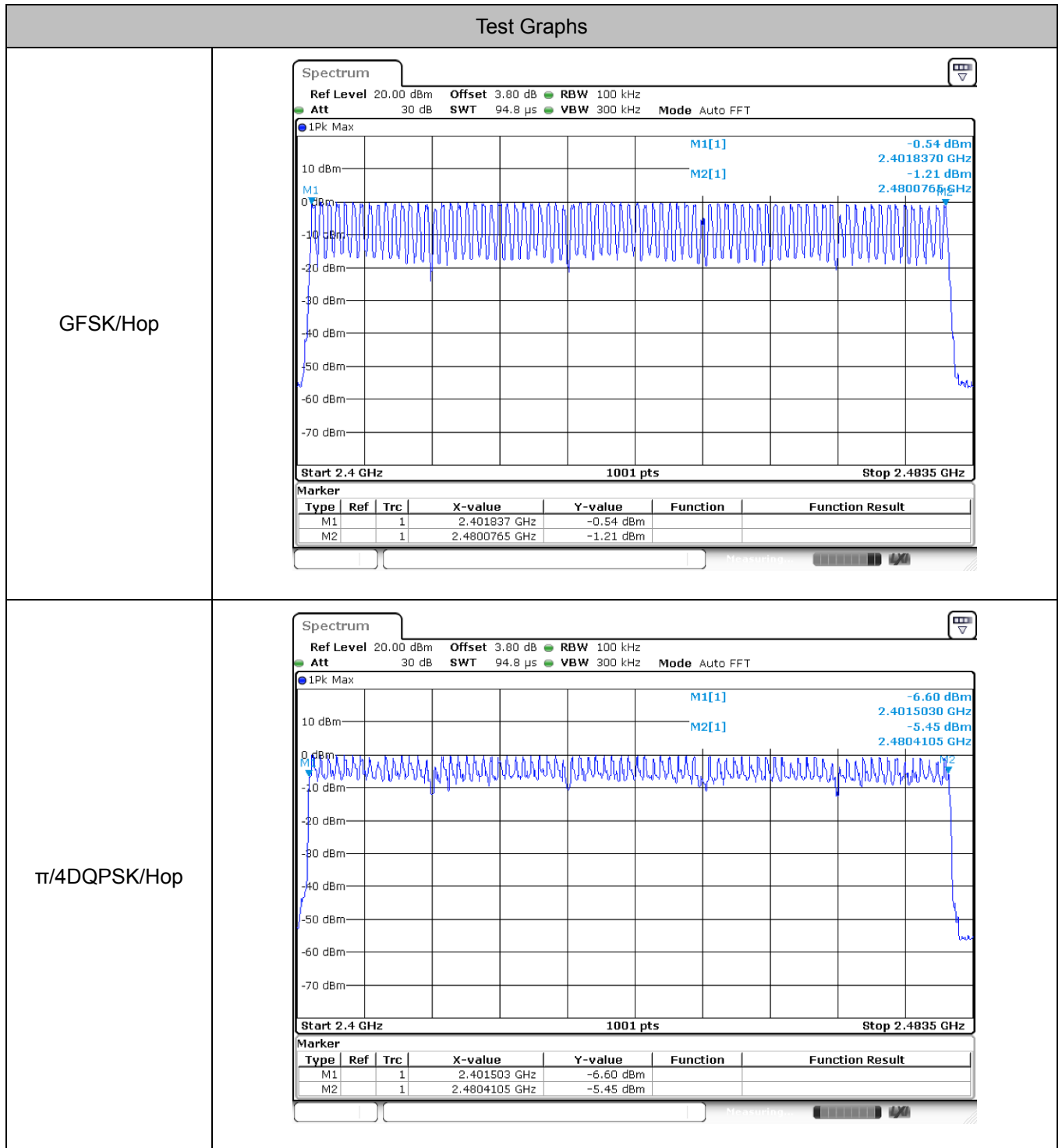


5 Hopping Channel Number

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

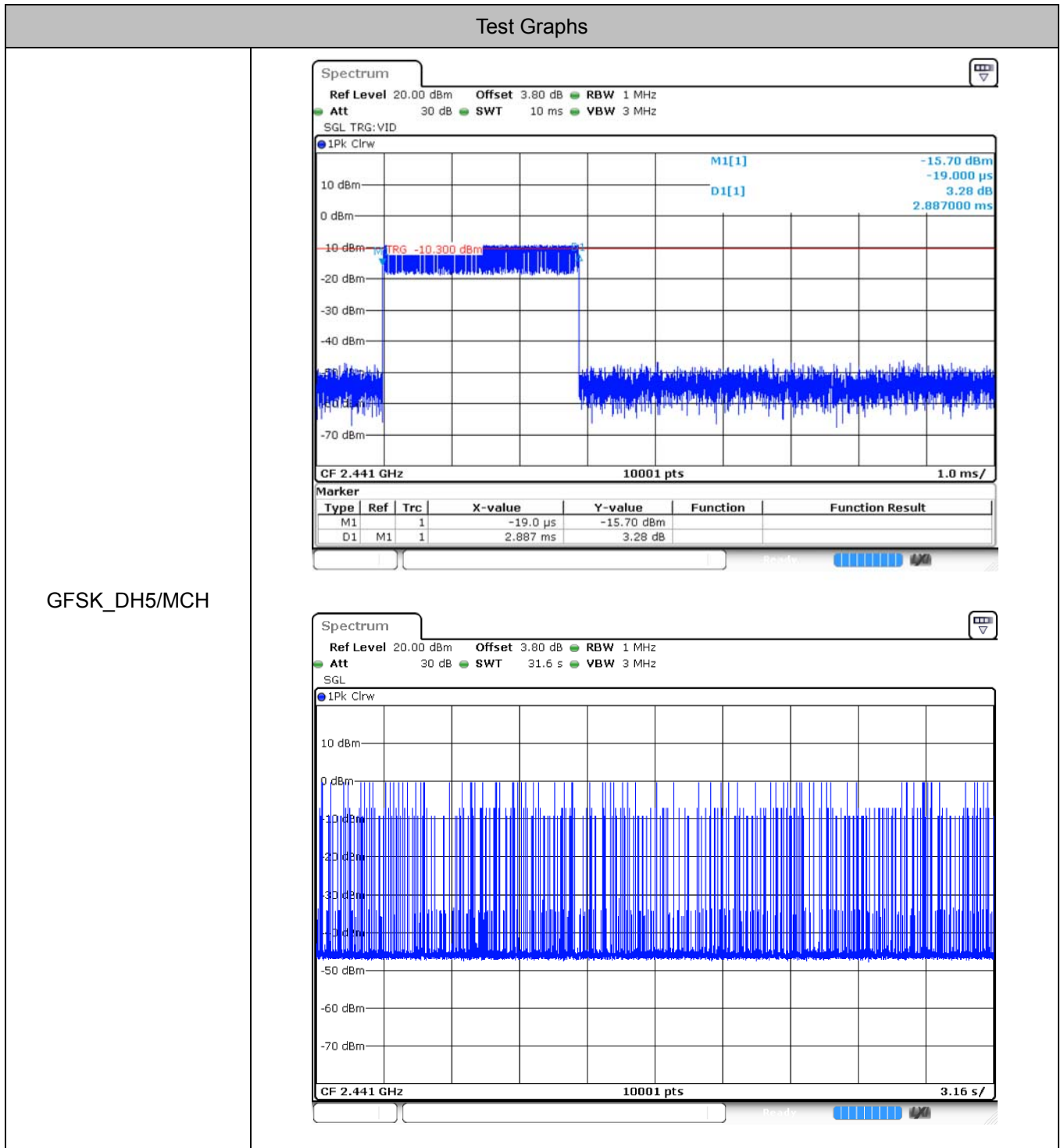


6 Dwell Time

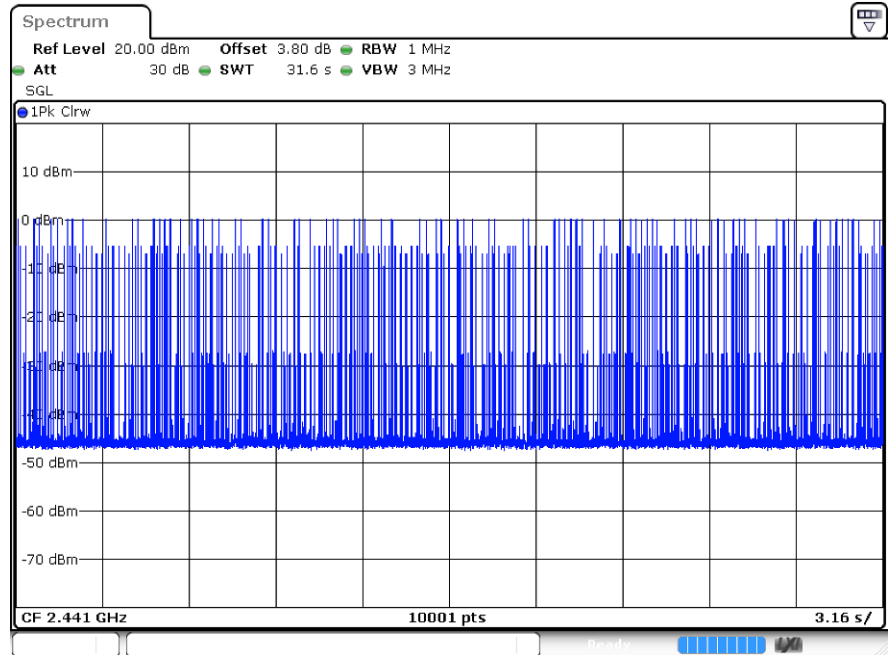
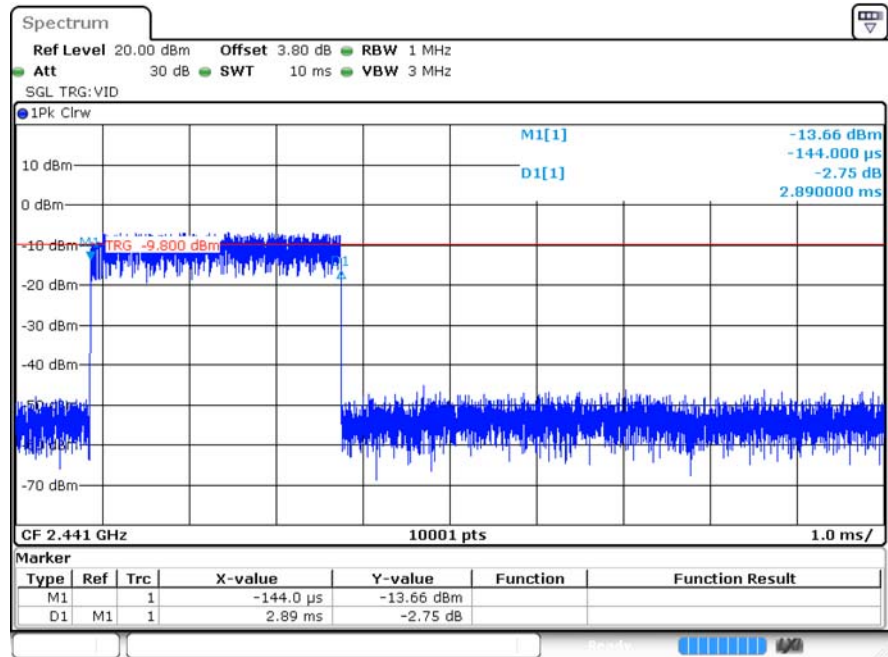
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.887	85	245.395	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.89	105	303.45	0.4	Pass

6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH

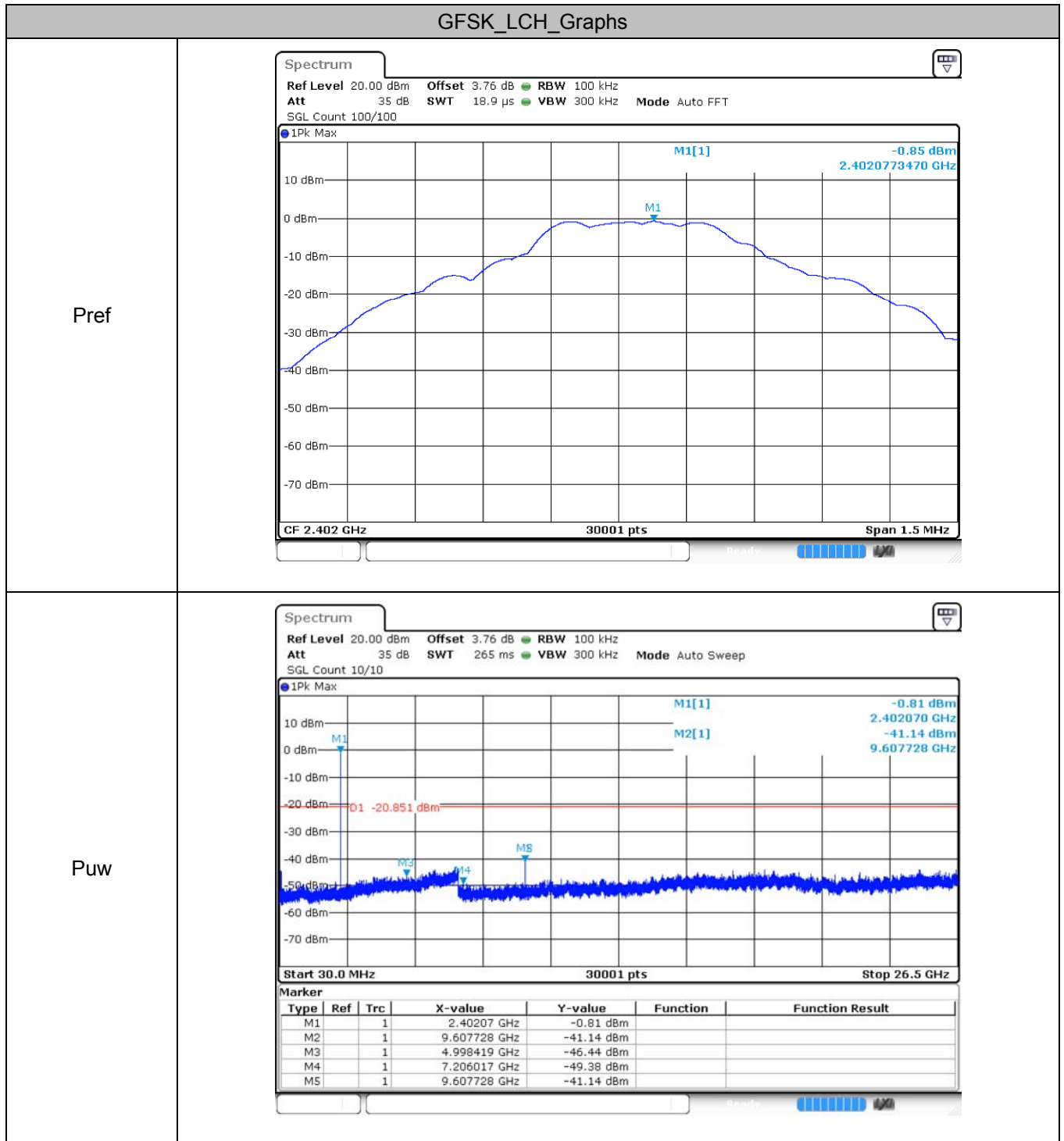


7 RF Conducted Spurious Emissions

7.1 Test Result

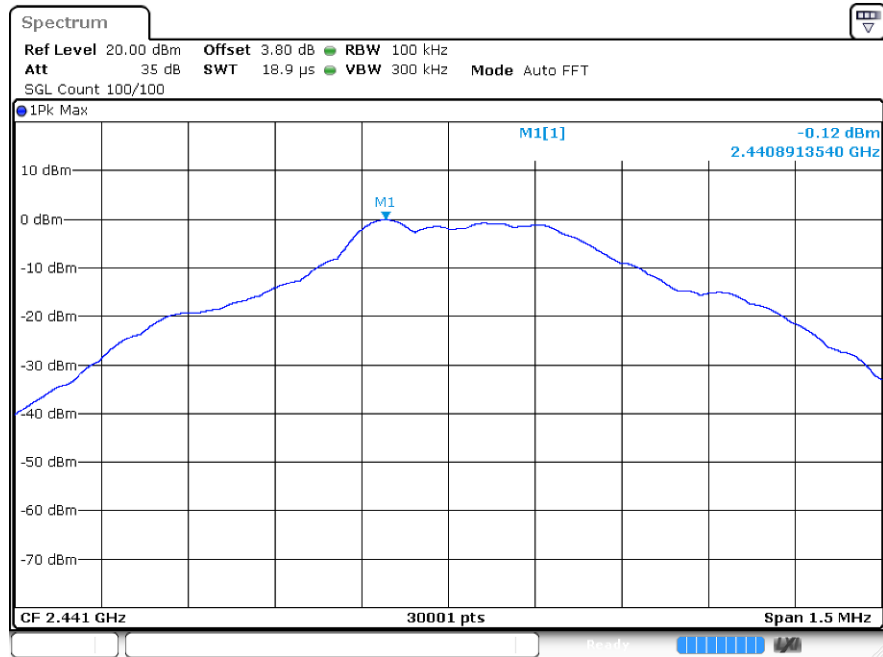
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-40.29	-20	Pass
	MCH	-41.69	-20	Pass
	HCH	-40.49	-20	Pass
$\pi/4$ DQPSK	LCH	-40.79	-20	Pass
	MCH	-40.23	-20	Pass
	HCH	-41.05	-20	Pass

7.2 Test Graphs

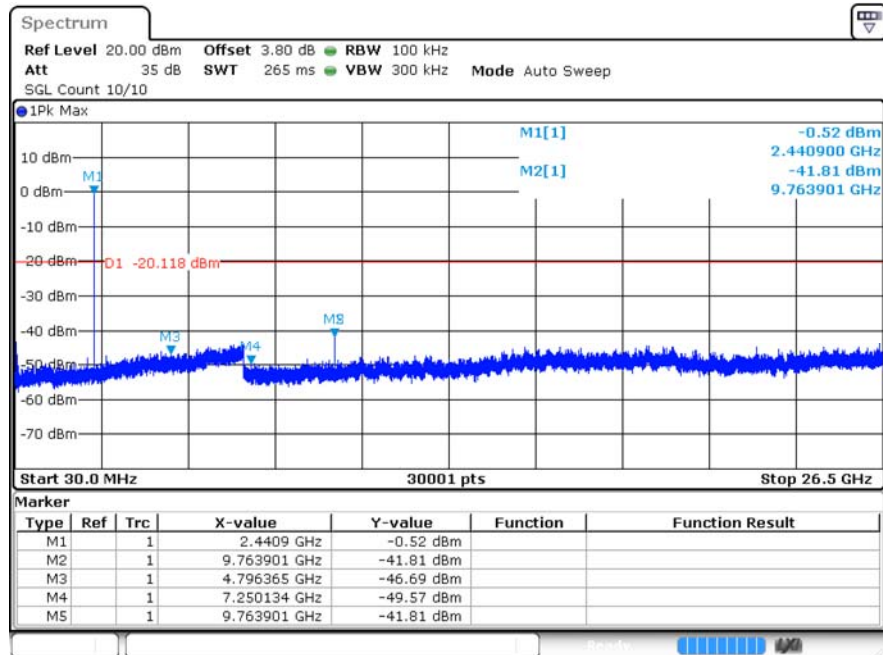


GFSK_MCH_Graphs

Pref

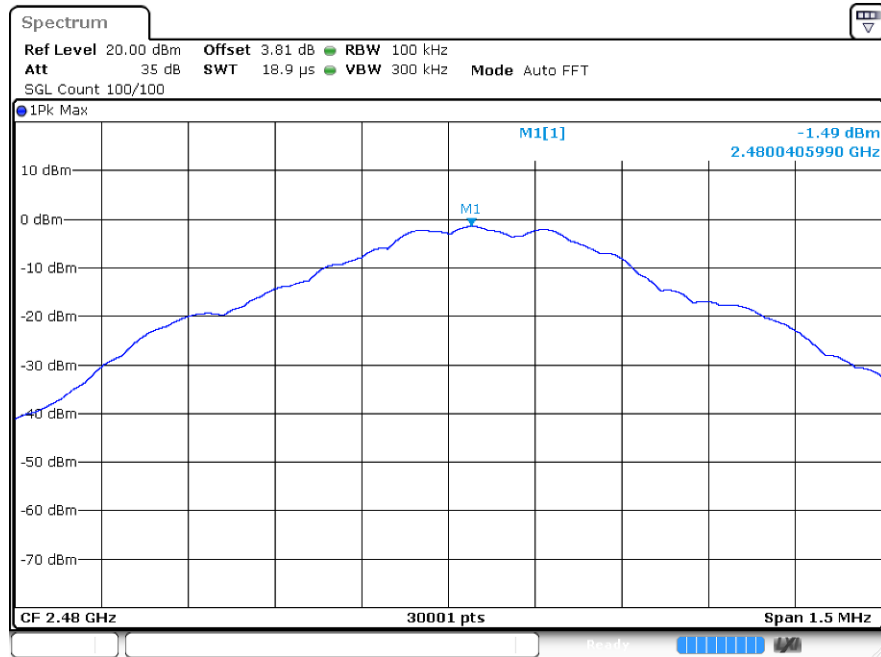


Puw

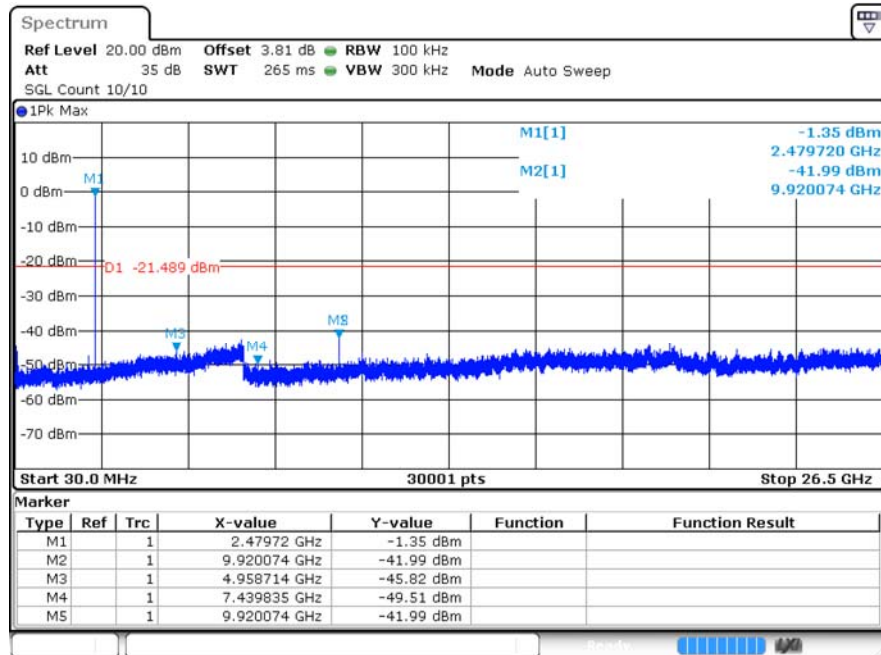


GFSK_HCH_Graphs

Pref

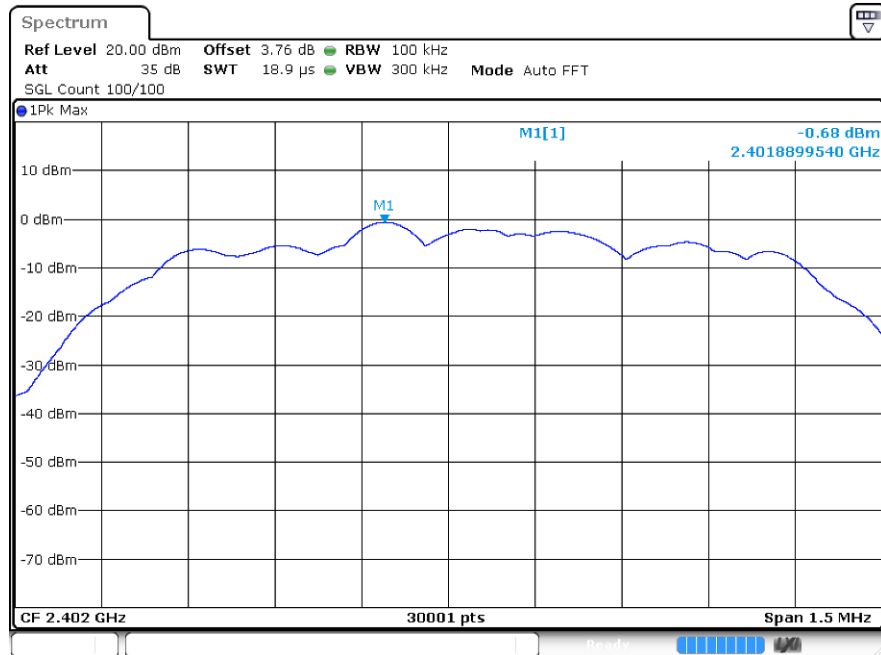


Puw

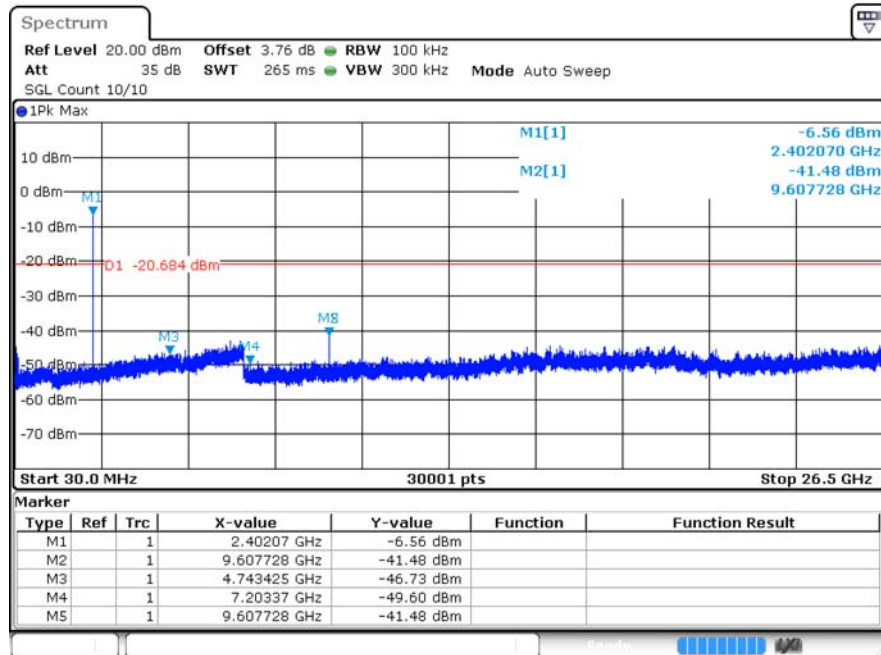


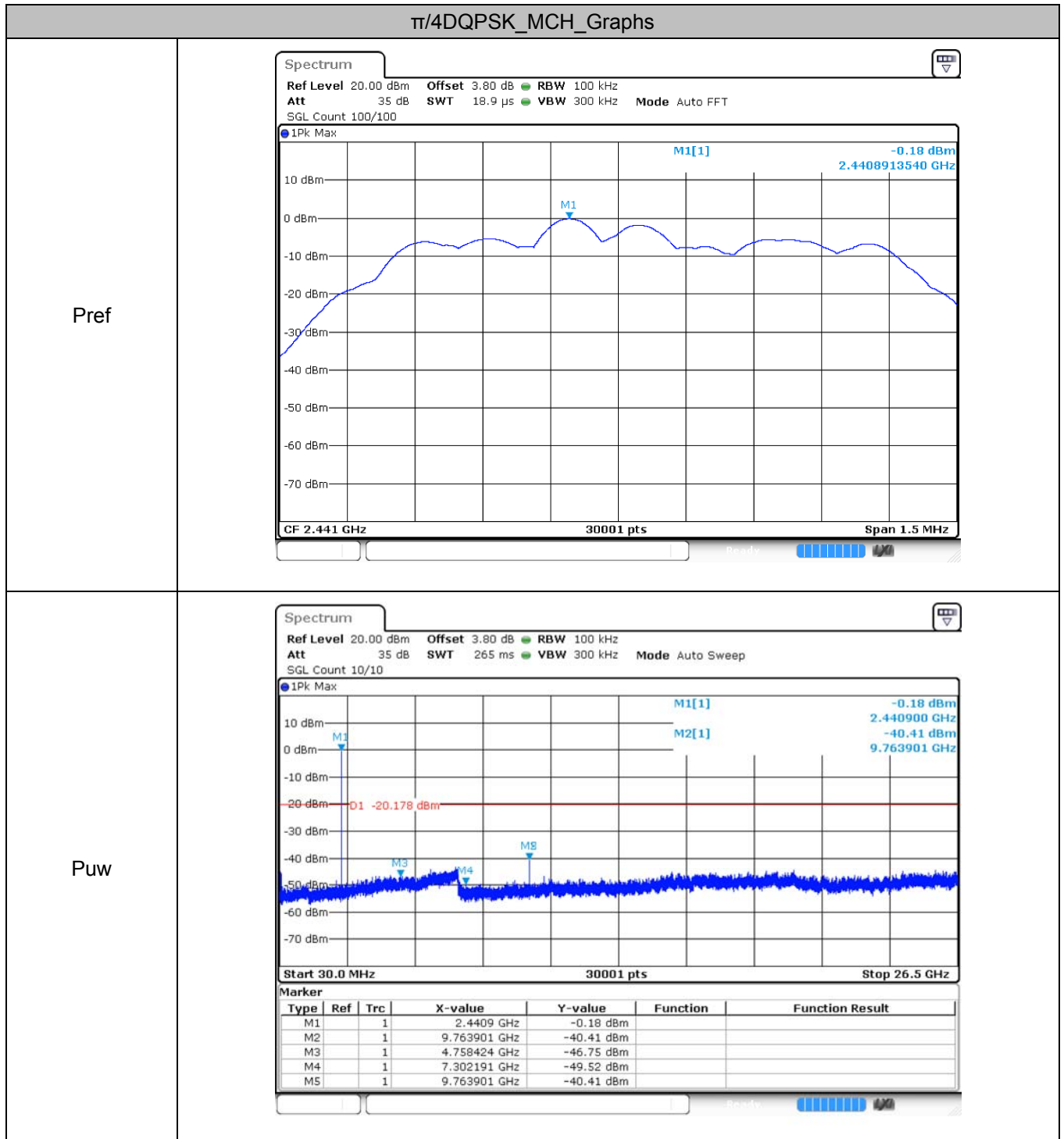
$\pi/4$ DQPSK_LCH_Graphs

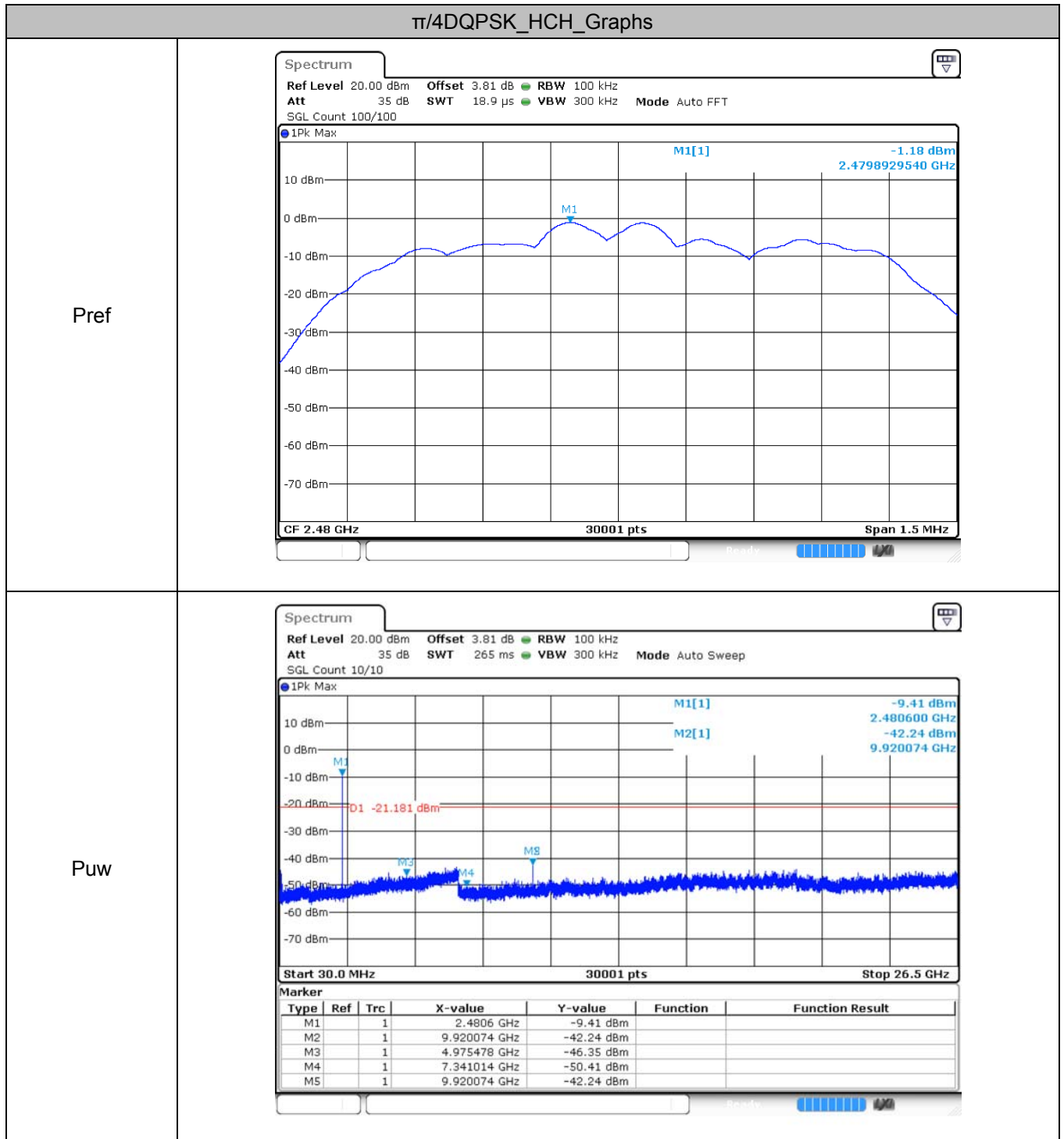
Pref



Puw





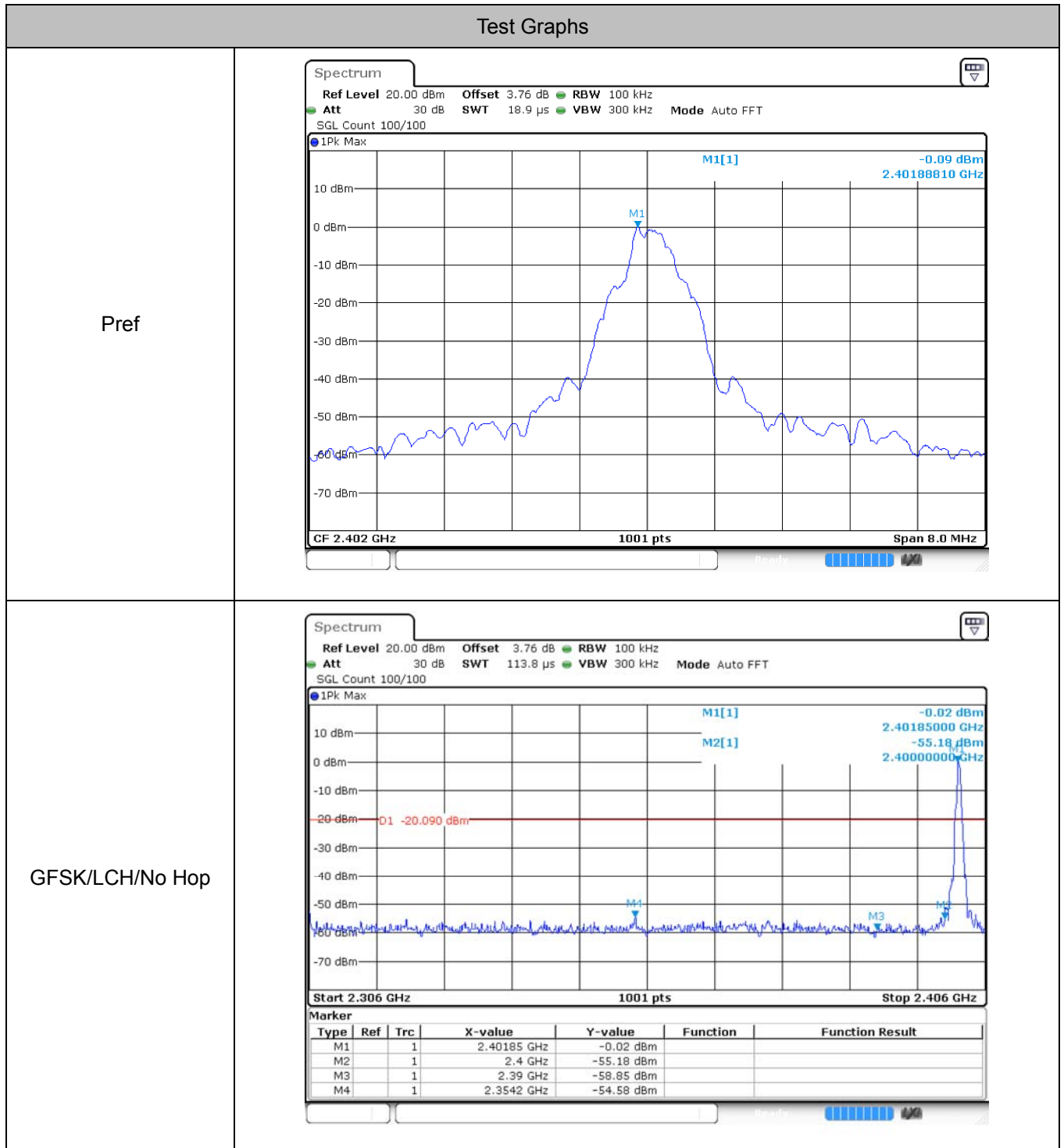


8 Band-edge for RF Conducted Emissions

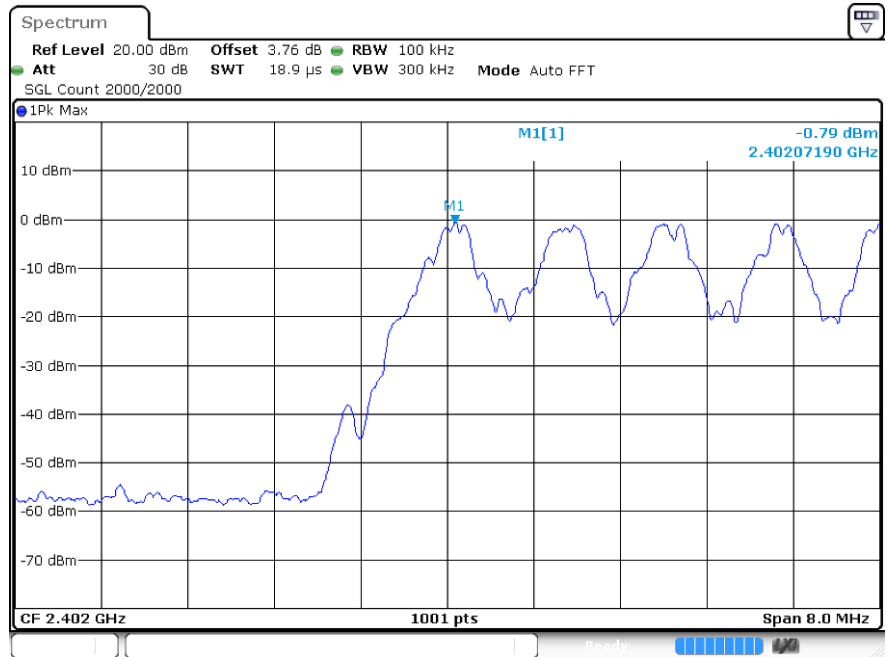
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-54.48	-20	Pass
			On	-49.5	-20	Pass
	HCH	2480	Off	-53.5	-20	Pass
			On	-50.29	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-54.91	-20	Pass
			On	-49.88	-20	Pass
	HCH	2480	Off	-53.27	-20	Pass
			On	-53.23	-20	Pass

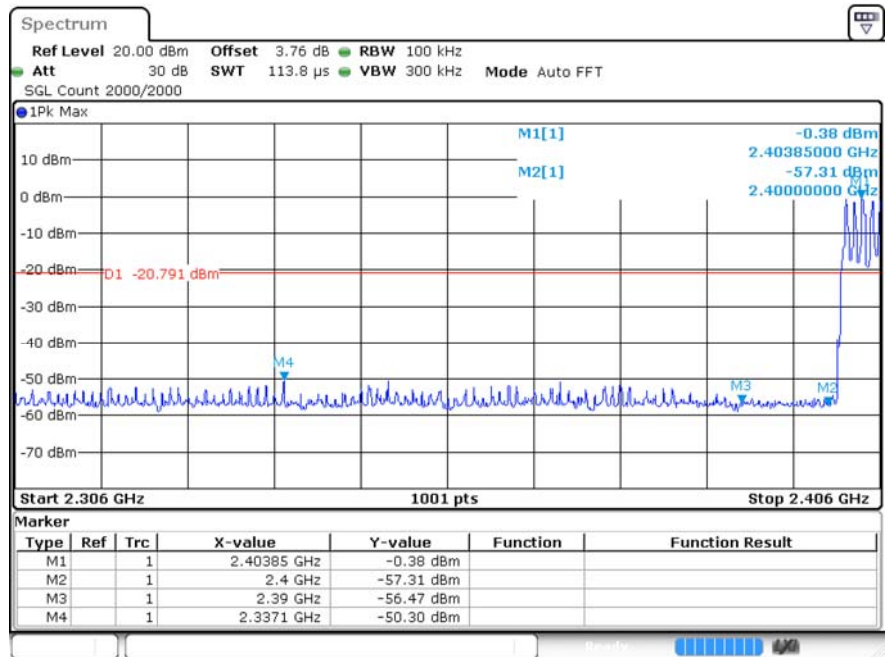
8.2 Test Graphs



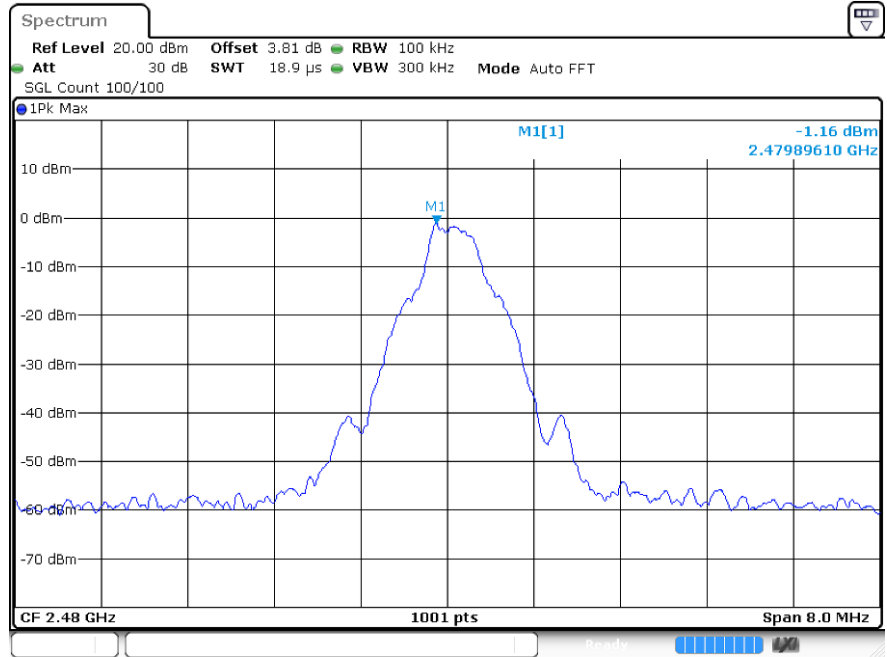
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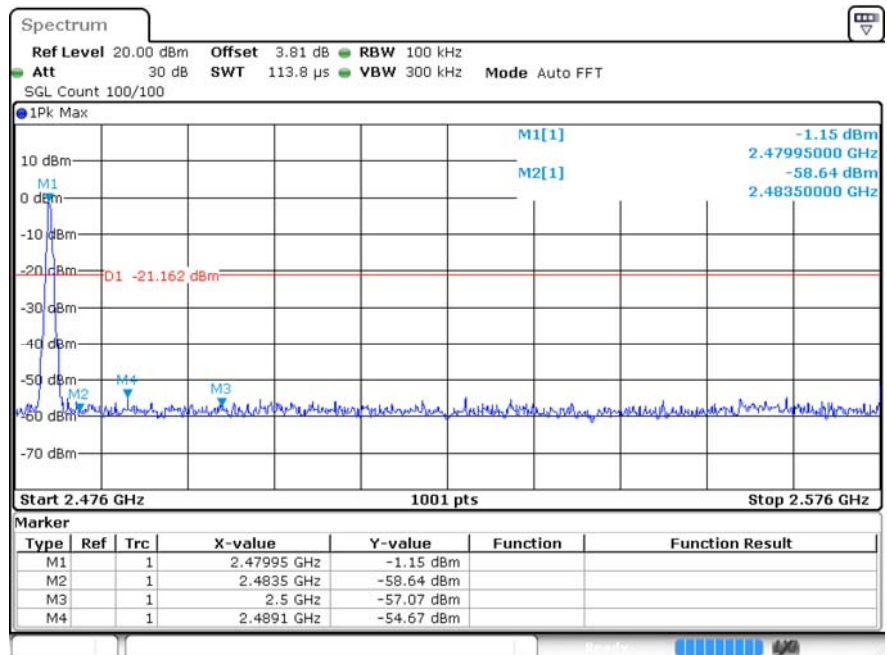
GFSK/LCH/Hop



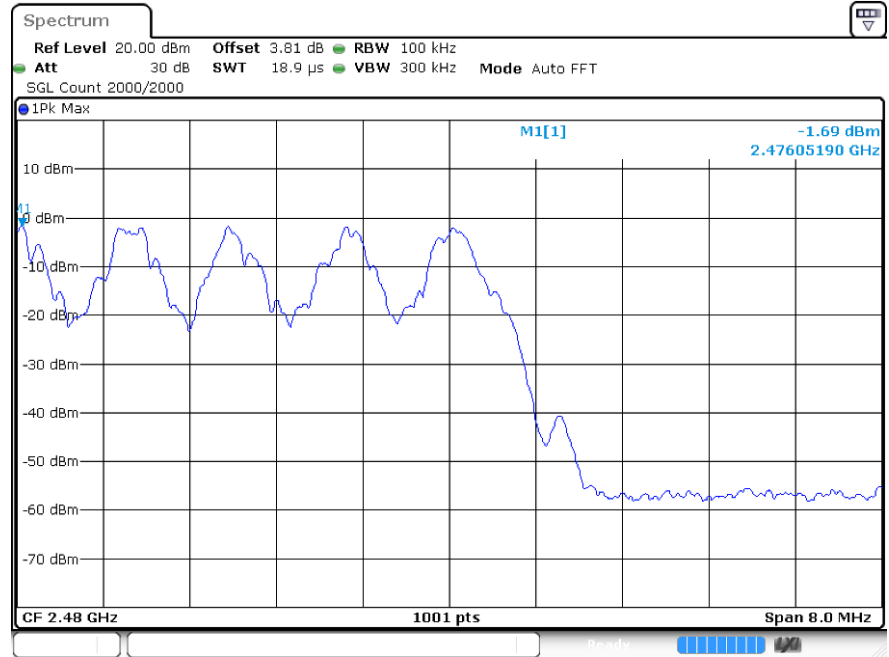
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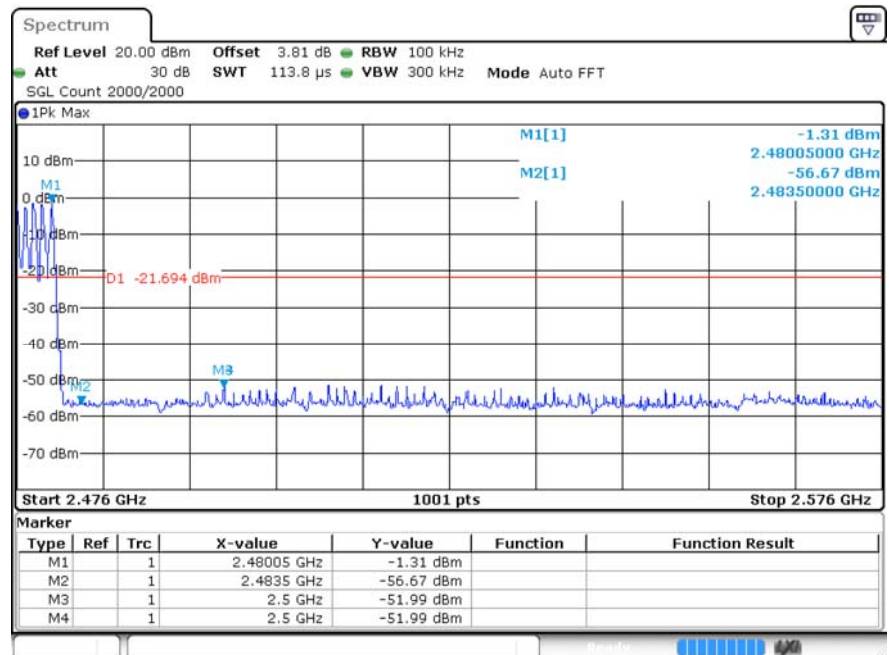
GFSK/HCH/No Hop



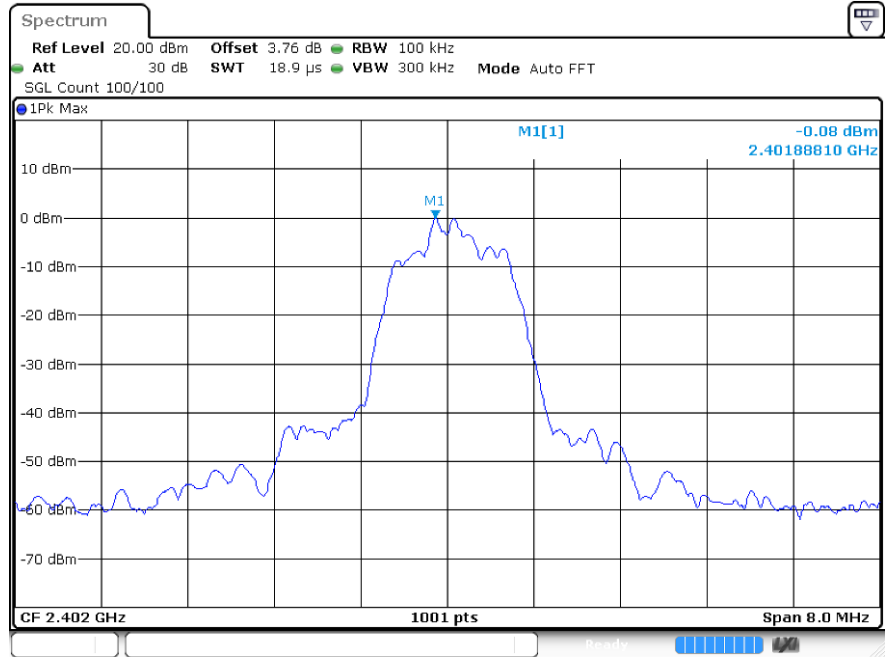
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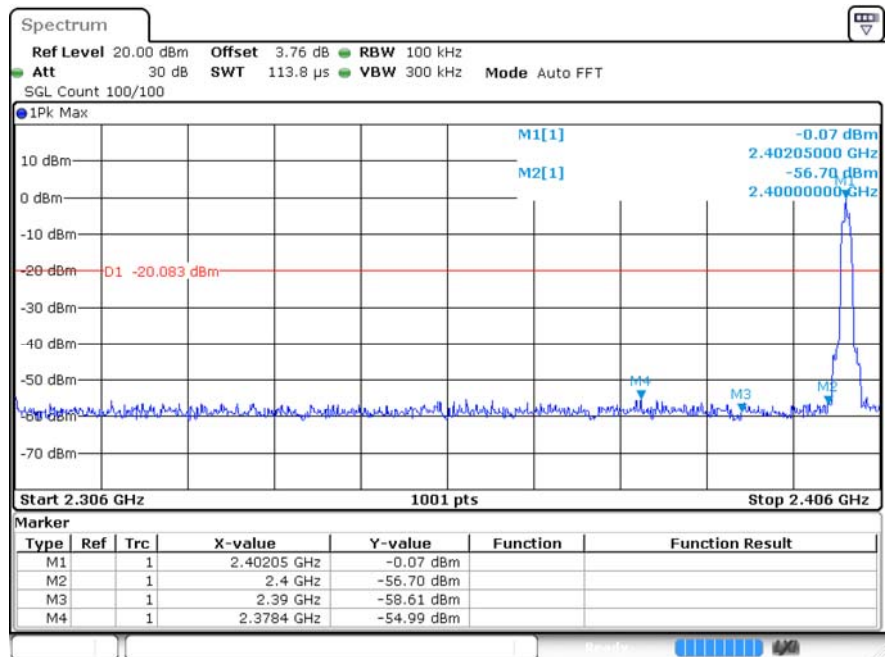
GFSK/HCH/Hop



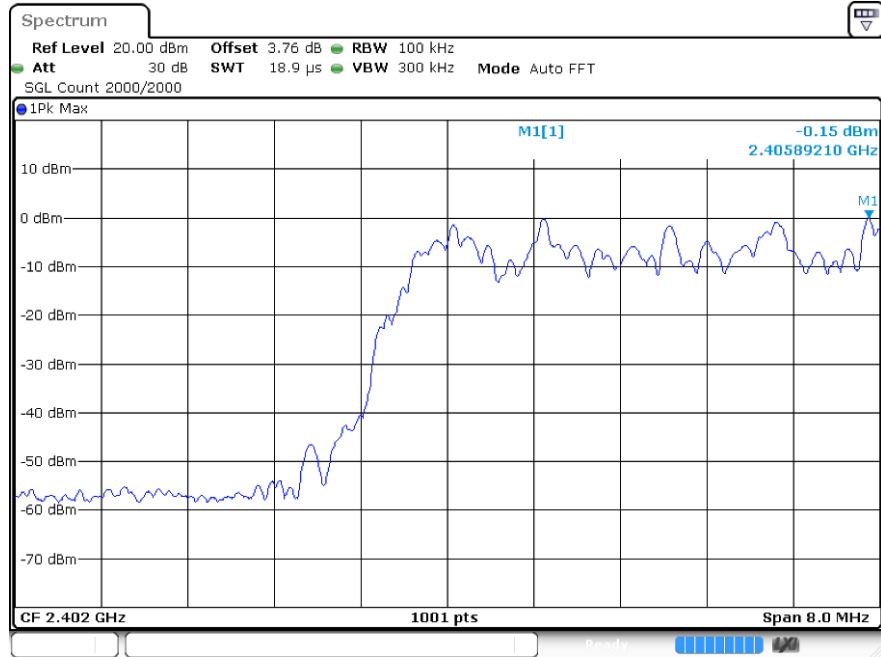
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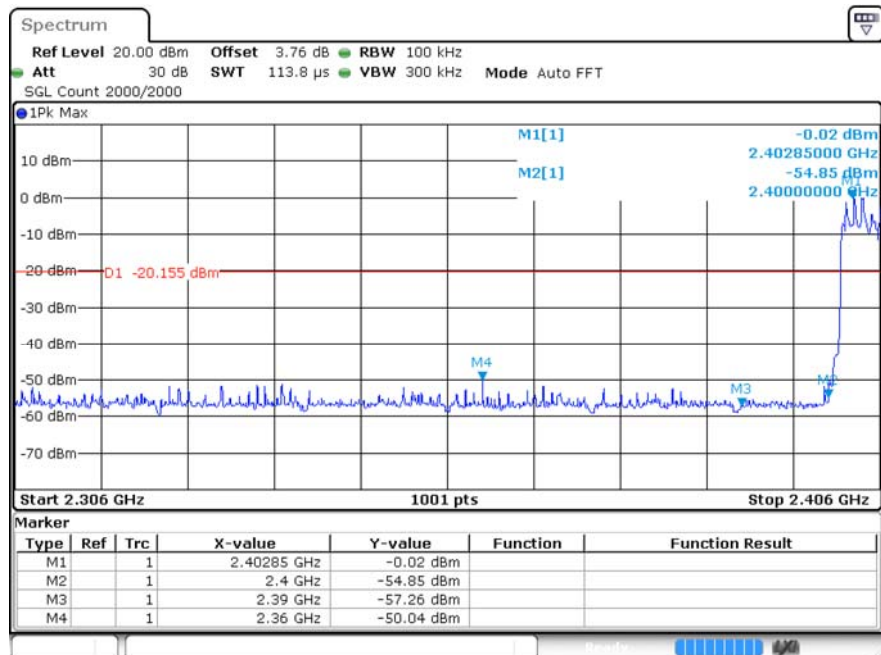
$\pi/4$ DQPSK/LCH/No
Hop



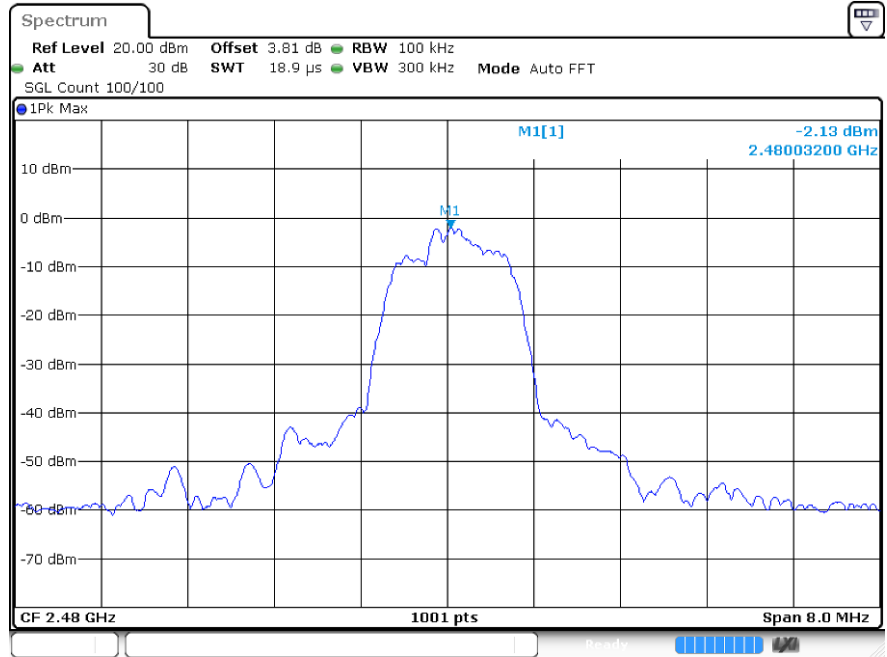
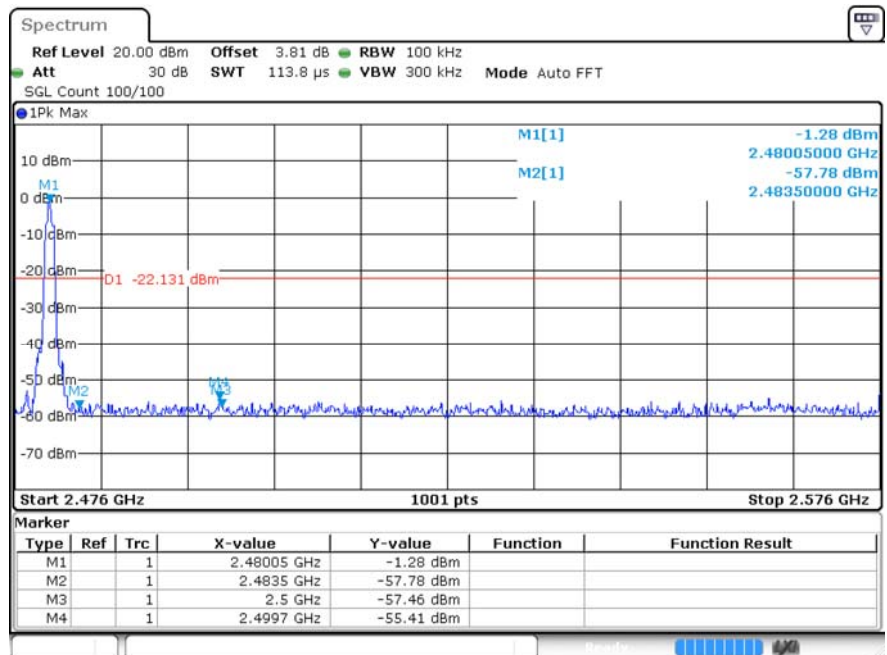
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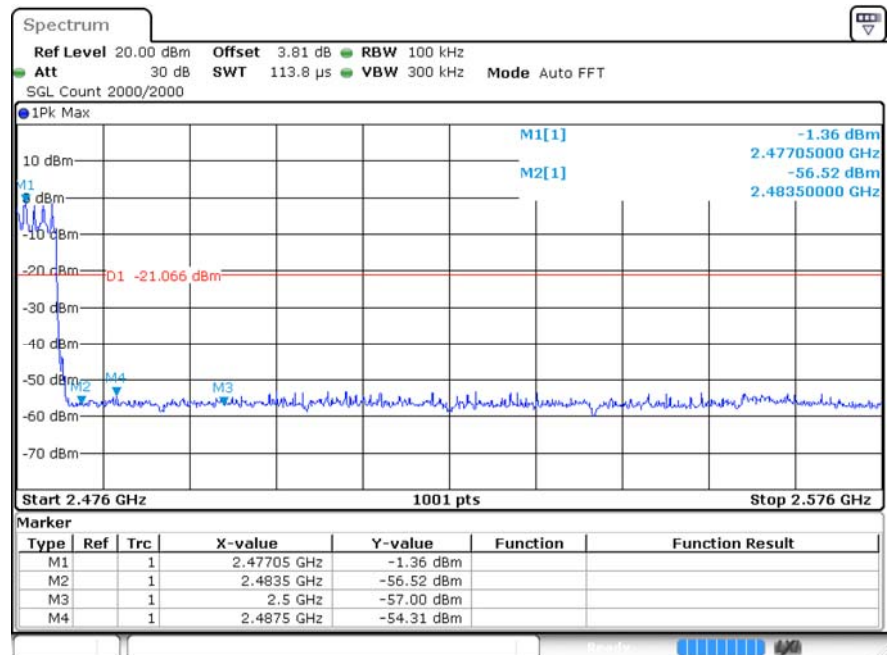
$\pi/4$ DQPSK/LCH/Hop



Ref


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


Ref


 $\pi/4$ DQPSK/HCH/Hop


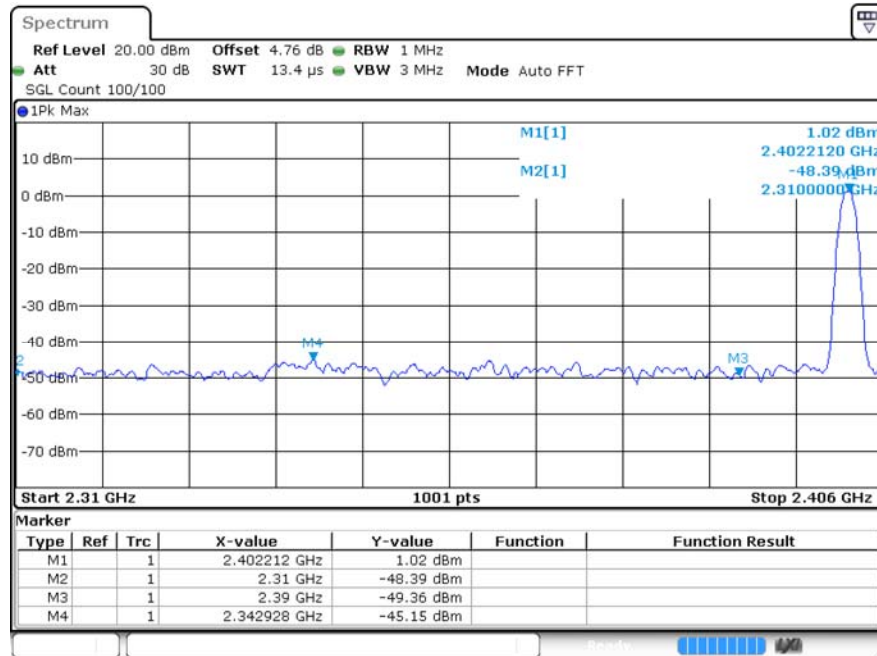
9 Restrict-band band-edge measurements

9.1 Test Result

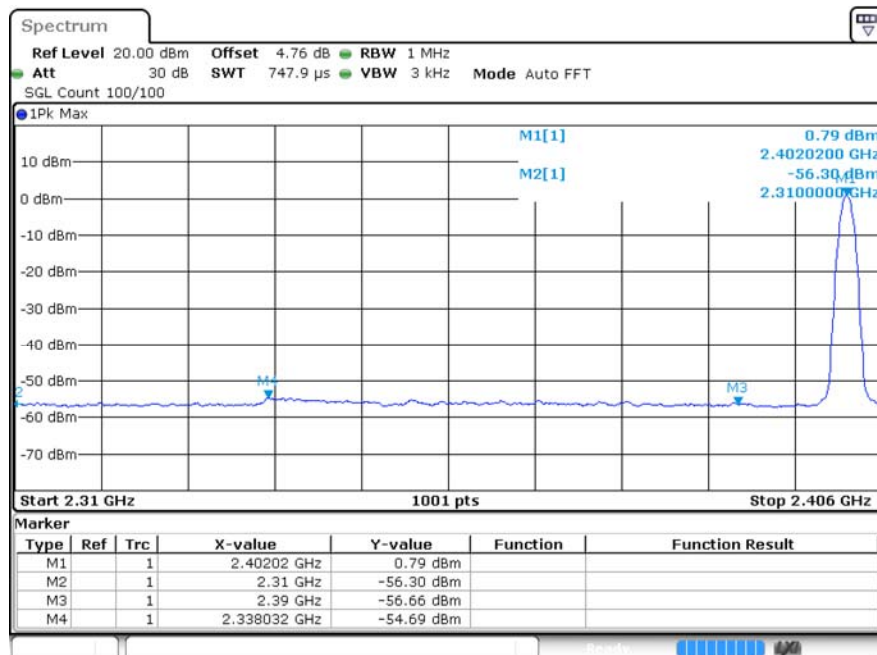
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-48.39	2	48.87	PEAK	74	Pass
	Off	2310.0	-56.29	2	40.97	AV	54	Pass
	Off	2342.928	-45.15	2	52.11	PEAK	74	Pass
	Off	2338.032	-54.68	2	42.58	AV	54	Pass
	Off	2390.0	-49.36	2	47.9	PEAK	74	Pass
	Off	2390.0	-56.65	2	40.61	AV	54	Pass
	Off	2483.5	-47.37	2	49.89	PEAK	74	Pass
	Off	2483.5	-56.25	2	41.01	AV	54	Pass
	Off	2489.512	-45.01	2	52.25	PEAK	74	Pass
	Off	2487.496	-55.88	2	41.38	AV	54	Pass
	Off	2500.0	-48.96	2	48.3	PEAK	74	Pass
	Off	2500.0	-56.04	2	41.22	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-48.7	2	48.56	PEAK	74	Pass
	Off	2310.0	-56.77	2	40.49	AV	54	Pass
	Off	2338.704	-45.45	2	51.81	PEAK	74	Pass
	Off	2338.224	-54.69	2	42.57	AV	54	Pass
	Off	2390.0	-49.14	2	48.12	PEAK	74	Pass
	Off	2390.0	-55.38	2	41.88	AV	54	Pass
	Off	2483.5	-47.48	2	49.78	PEAK	74	Pass
	Off	2483.5	-55.91	2	41.35	AV	54	Pass
	Off	2499.04	-46.63	2	50.63	PEAK	74	Pass
	Off	2493.784	-55.4	2	41.86	AV	54	Pass
	Off	2500.0	-50	2	47.26	PEAK	74	Pass
	Off	2500.0	-55.73	2	41.53	AV	54	Pass

9.2 Test Graphs

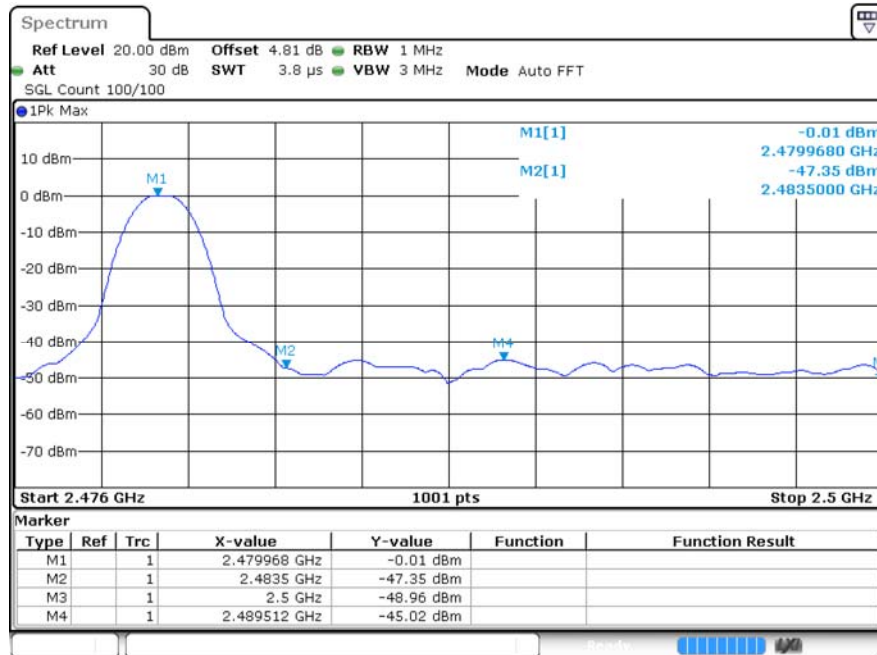
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



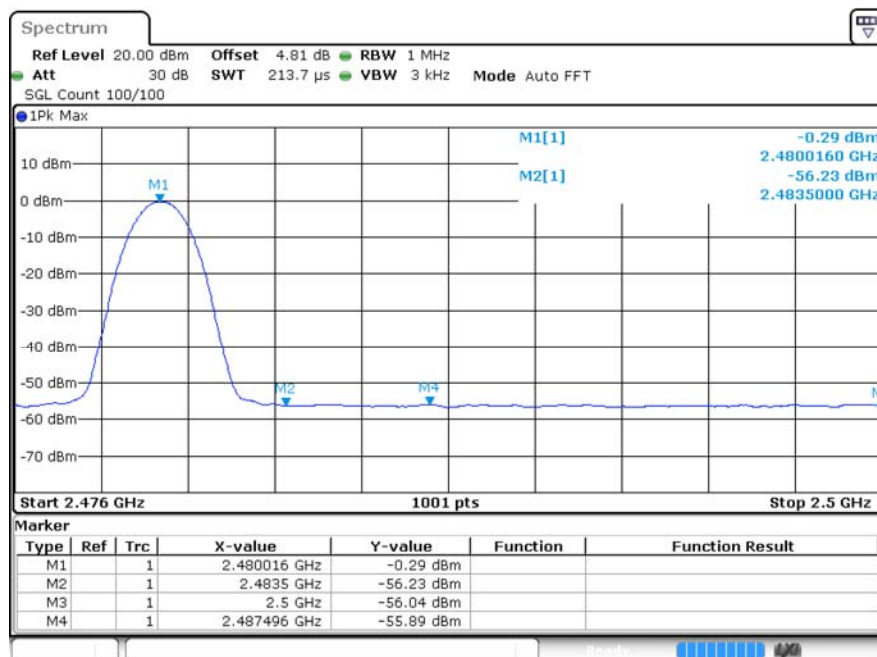
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



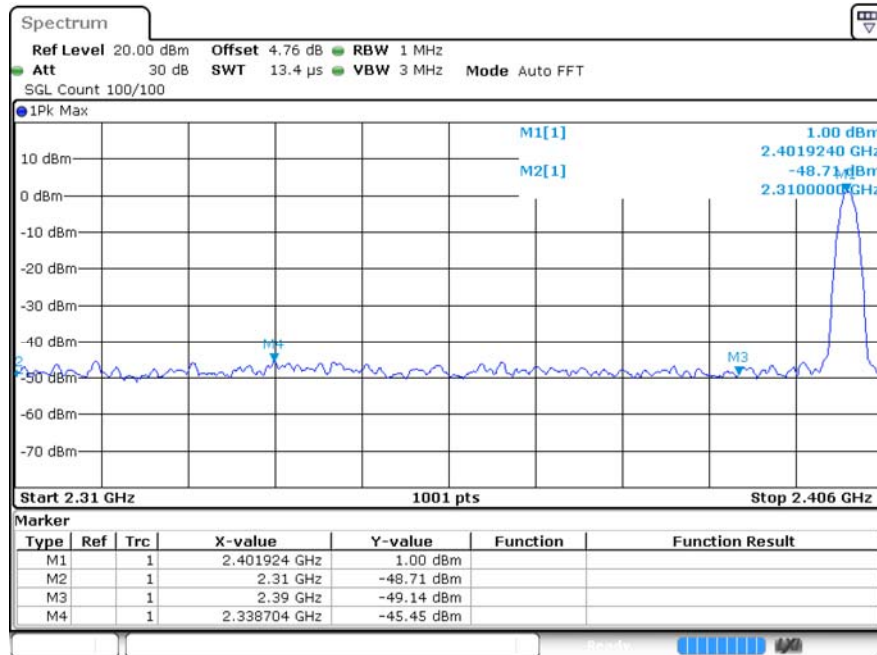
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



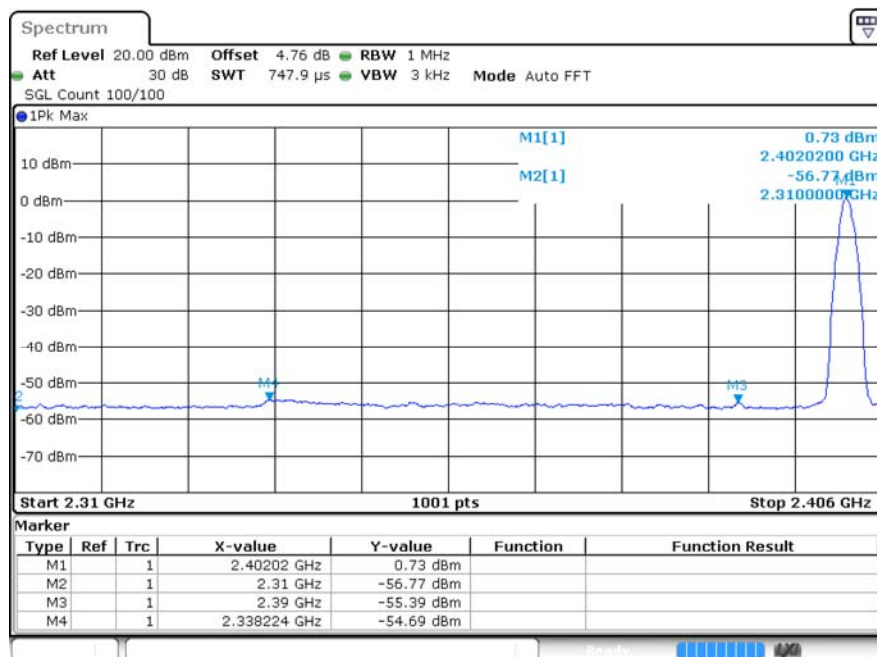
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



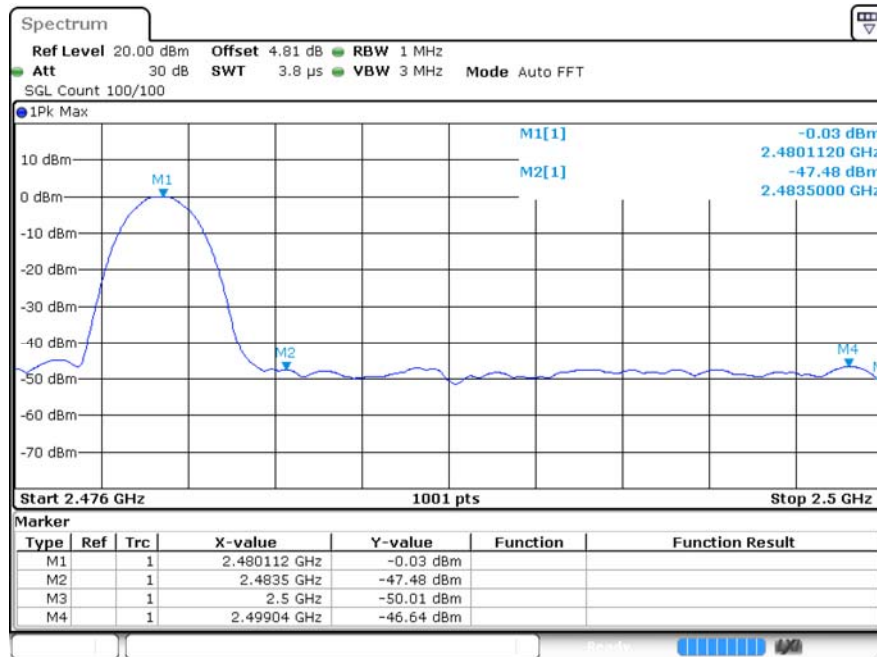
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



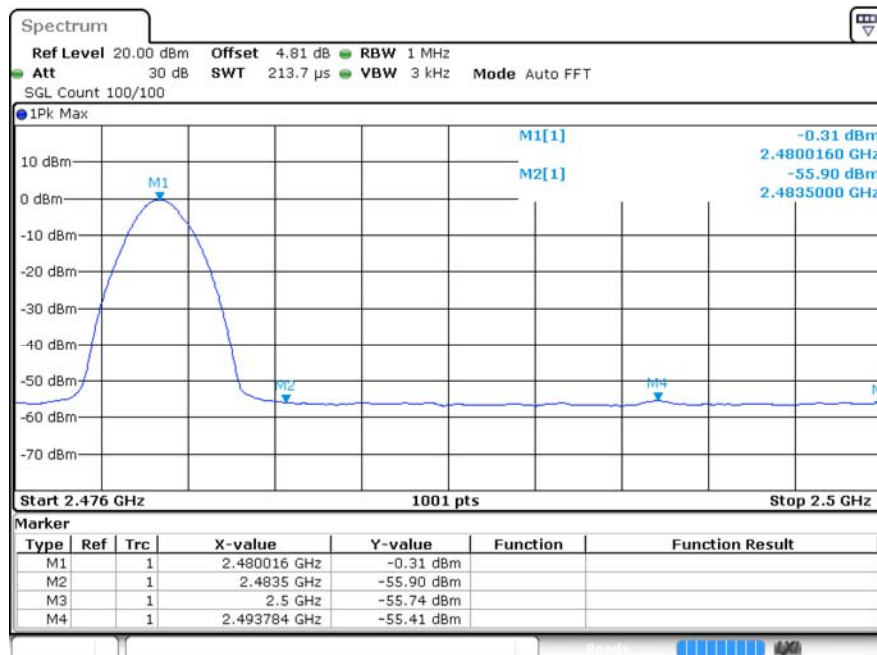
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---