



Appendix A

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

Product Name: True wireless headphones

Trade Mark: N/A

Test Model: FE18

Environmental Conditions

Temperature:	25.5°C
Relative Humidity:	52.1%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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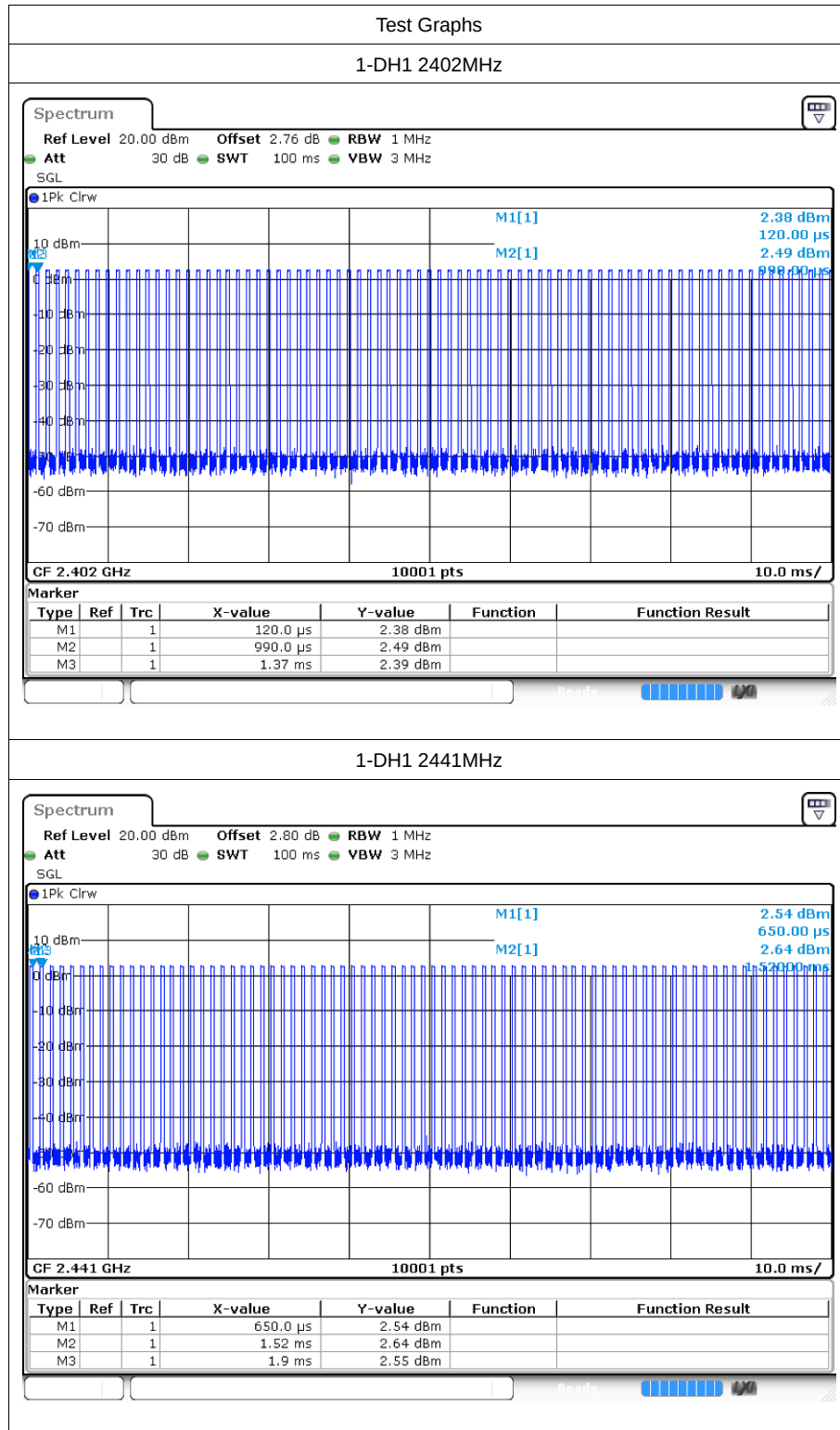
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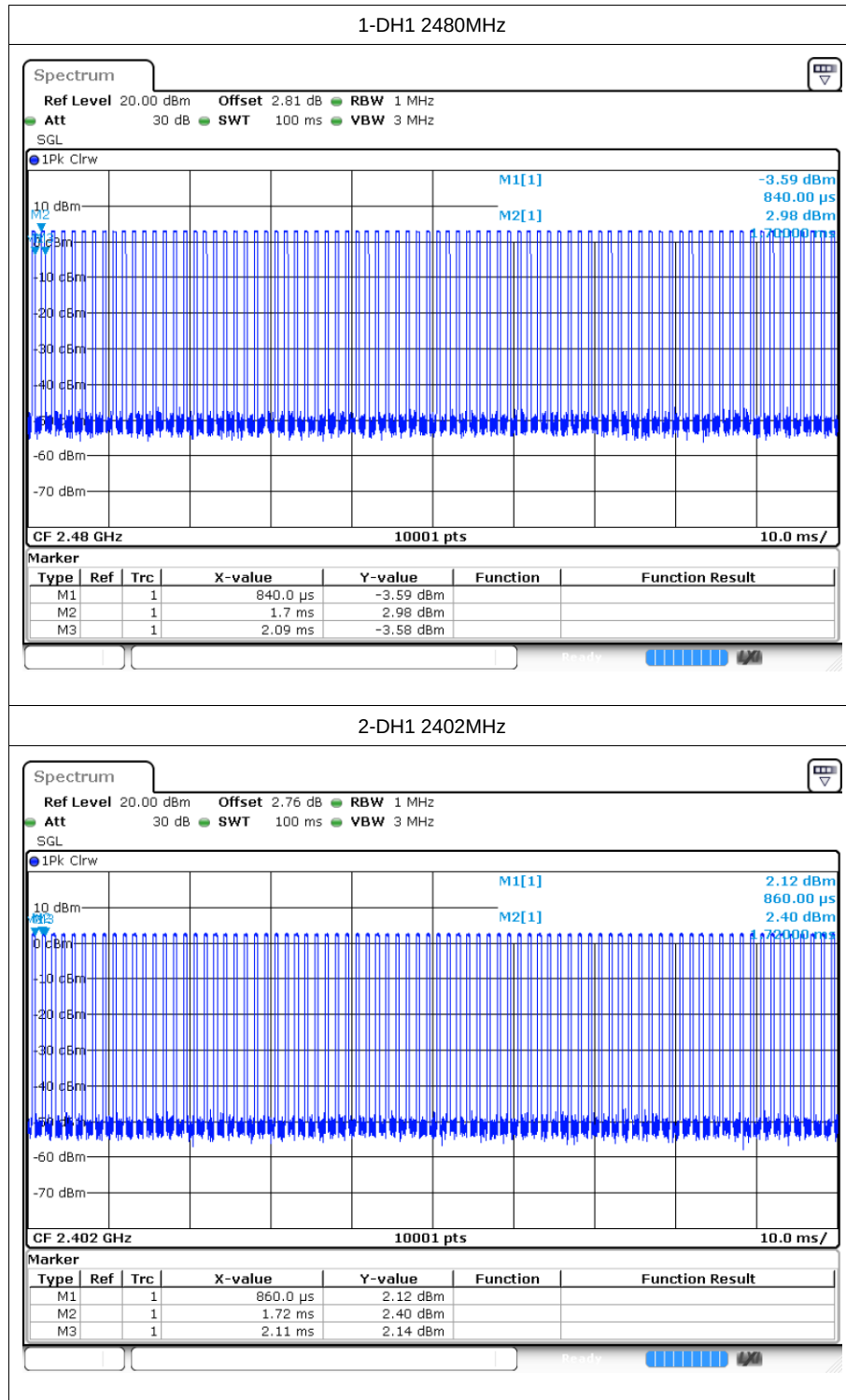
1 Duty Cycle

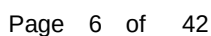
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	31.21	2.63
1-DH1	2441	31.2	2.63
1-DH1	2480	32	2.56
2-DH1	2402	32	2.56
2-DH1	2441	32	2.56
2-DH1	2480	32.01	2.56

1.2 Test Graphs





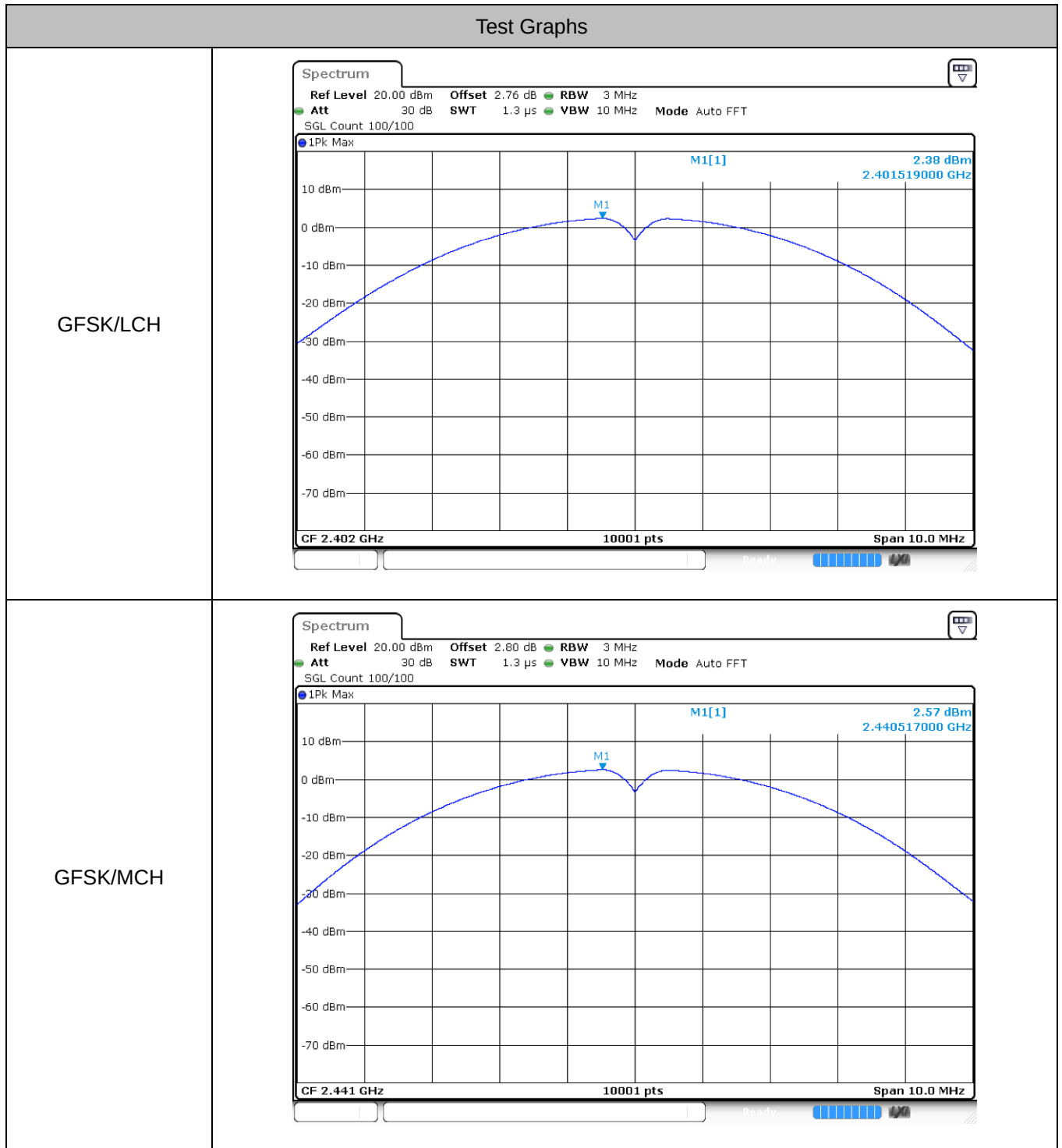


2 Maximum Conducted Peak Output Power

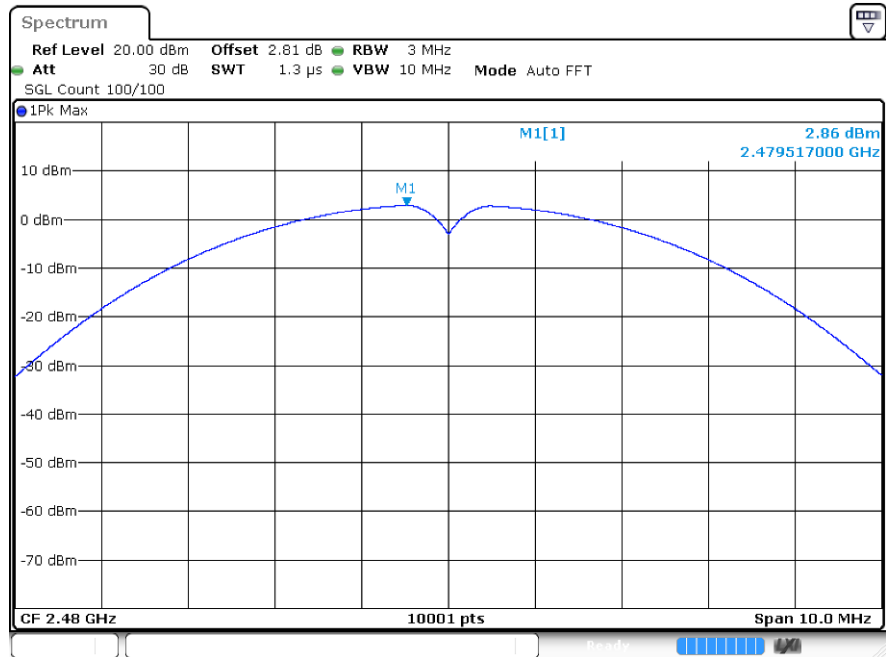
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.38	21	Pass
	MCH	2.57	21	Pass
	HCH	2.86	21	Pass
$\pi/4$ DQPSK	LCH	2.91	21	Pass
	MCH	2.65	21	Pass
	HCH	3.41	21	Pass

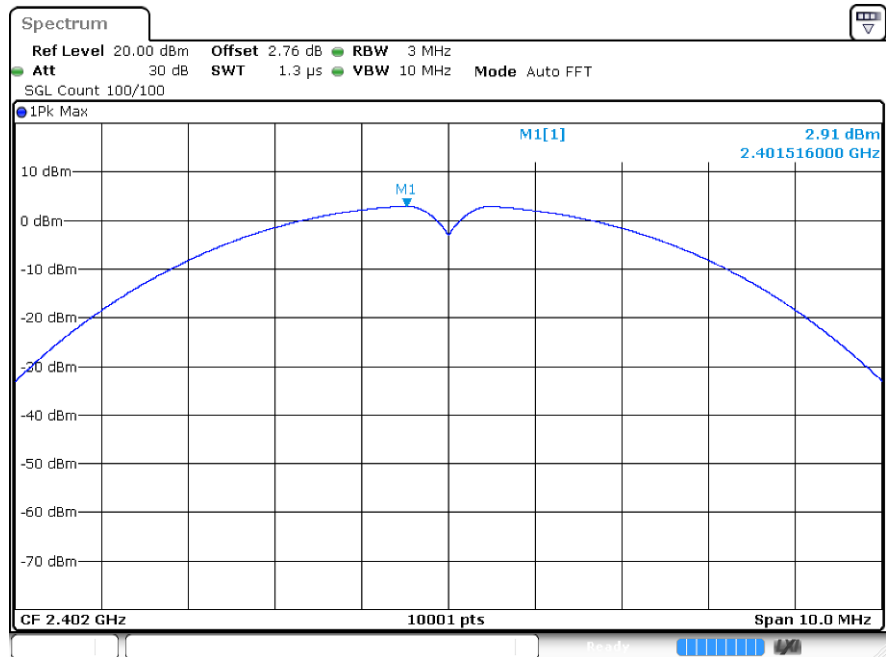
2.2 Test Graphs



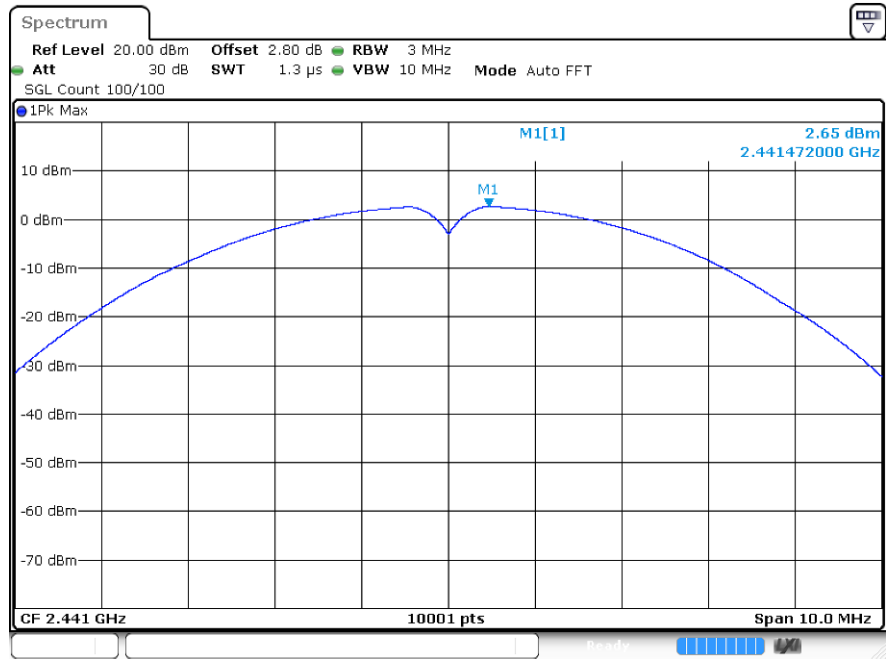
GFSK/HCH



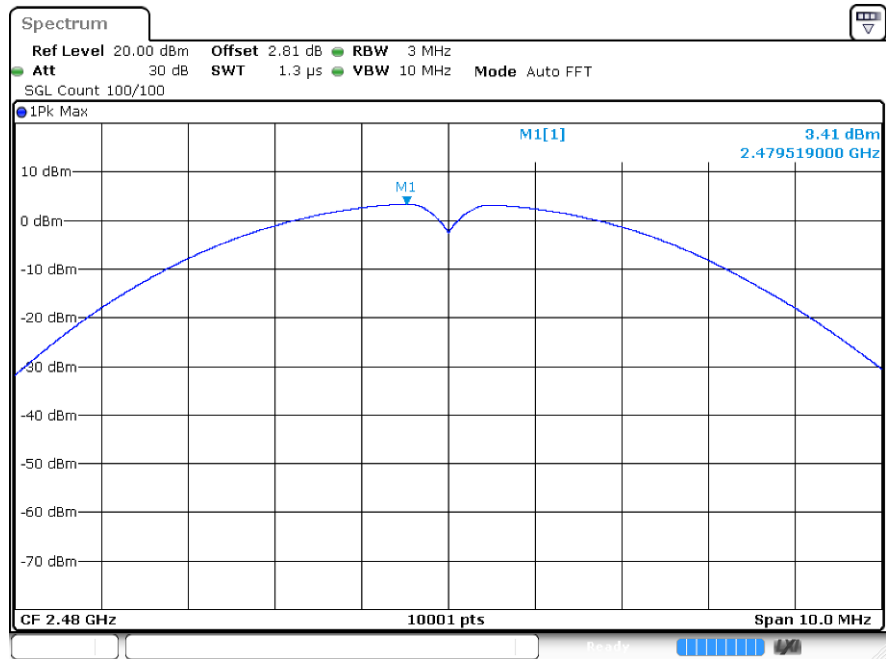
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

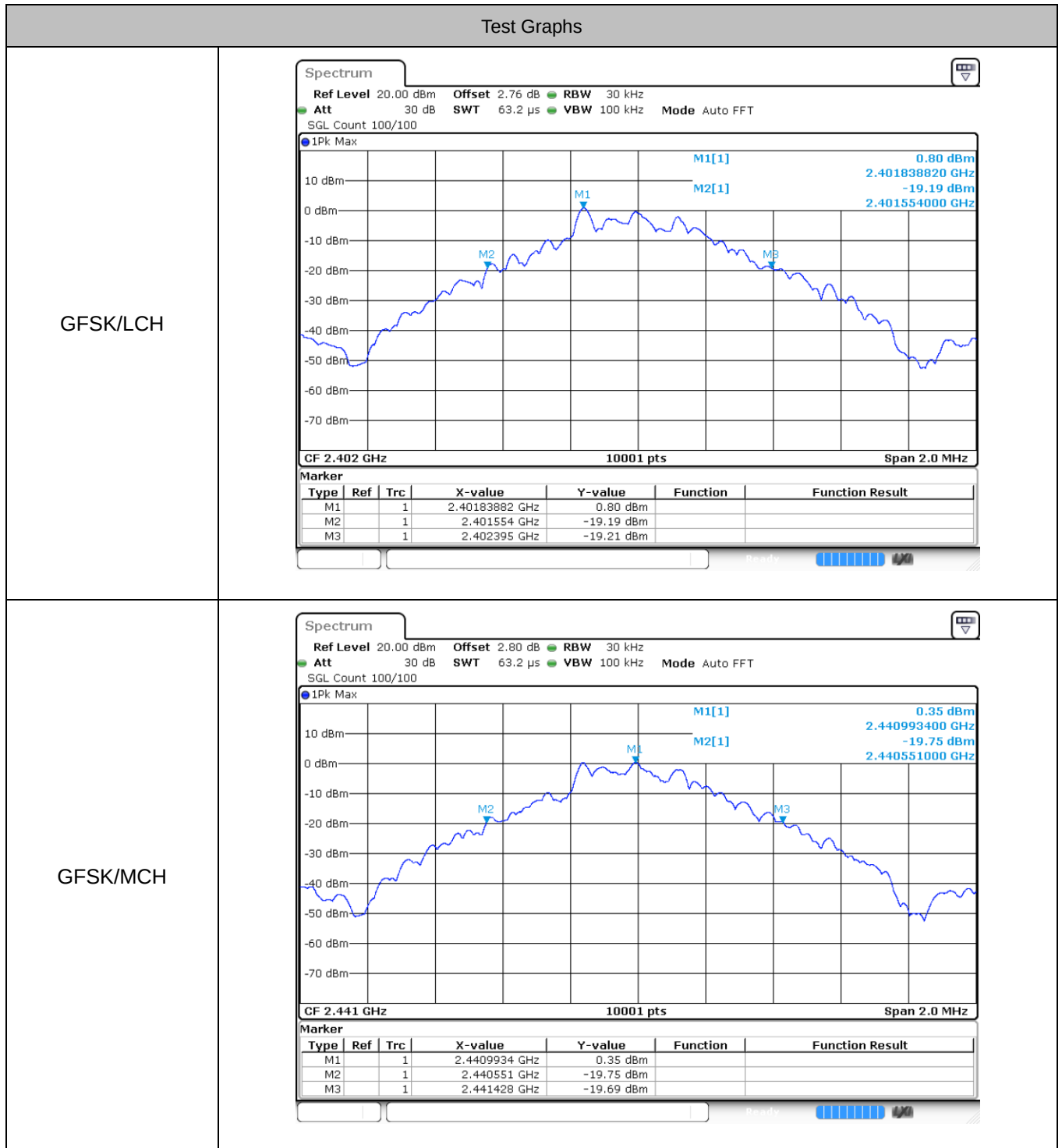


3 20dB Bandwidth

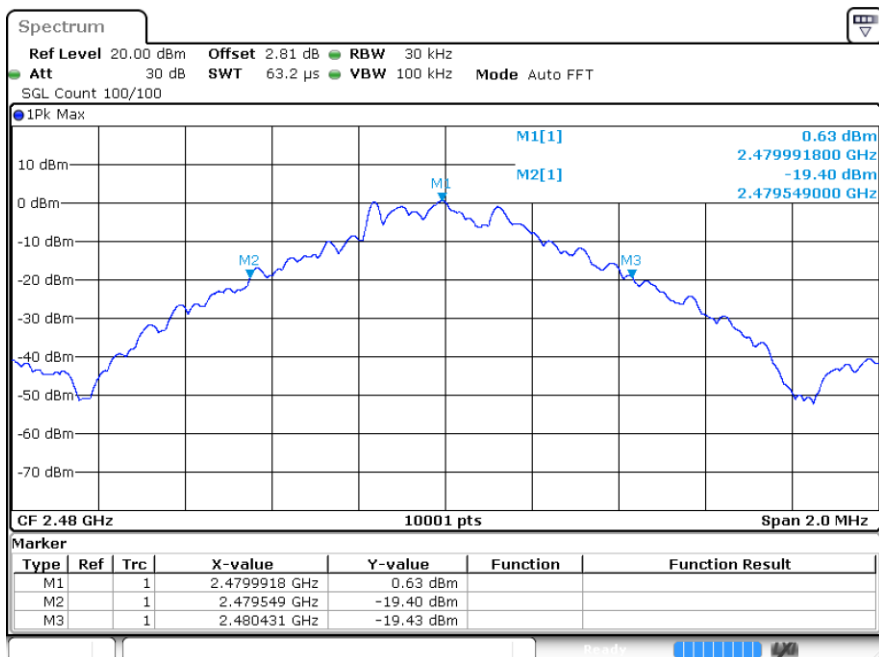
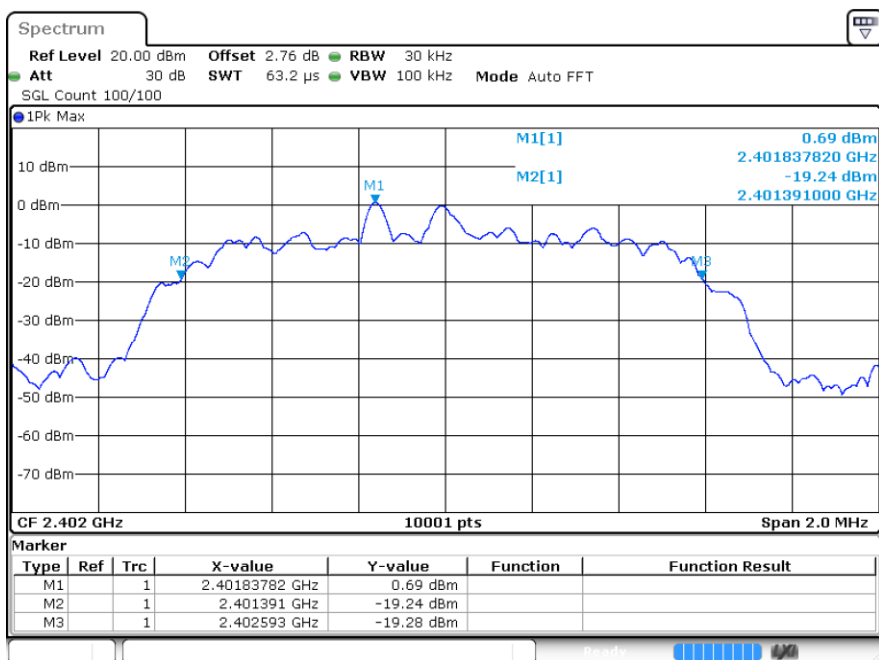
3.1 Test Result

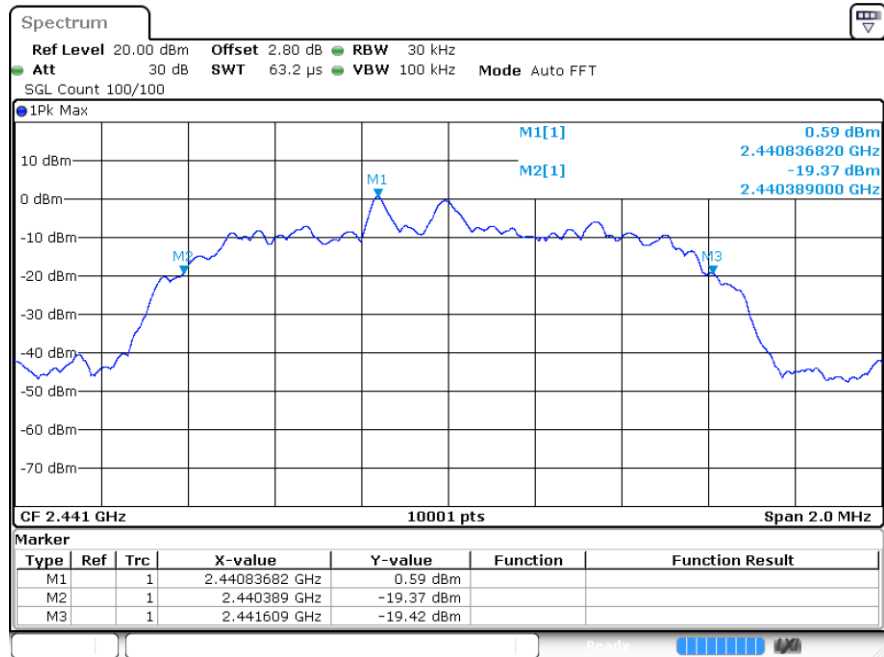
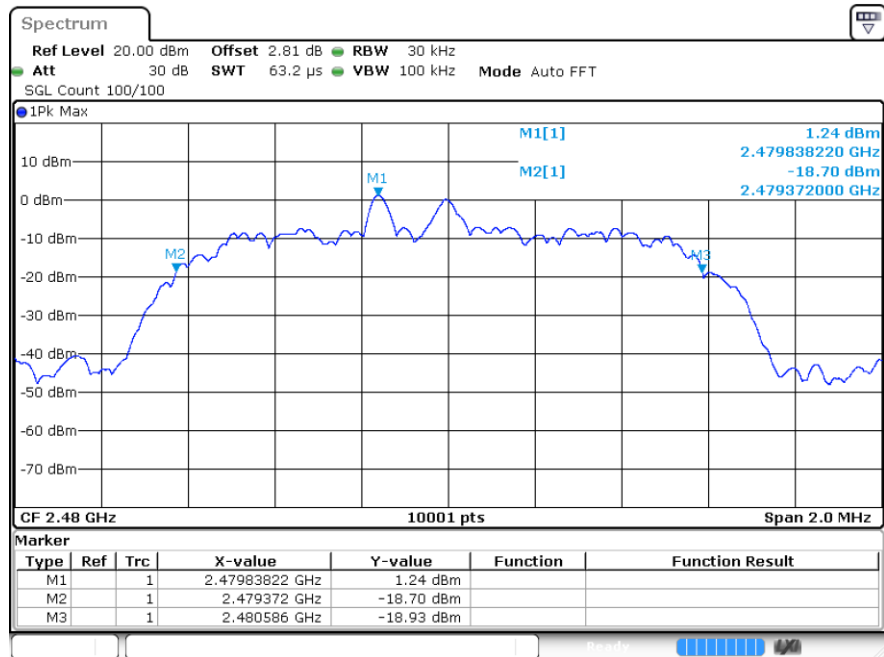
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.841	Not Specified	Pass
	MCH	0.876	Not Specified	Pass
	HCH	0.881	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.202	Not Specified	Pass
	MCH	1.22	Not Specified	Pass
	HCH	1.214	Not Specified	Pass

3.2 Test Graphs



GFSK/HCH


 $\pi/4$ DQPSK/LCH


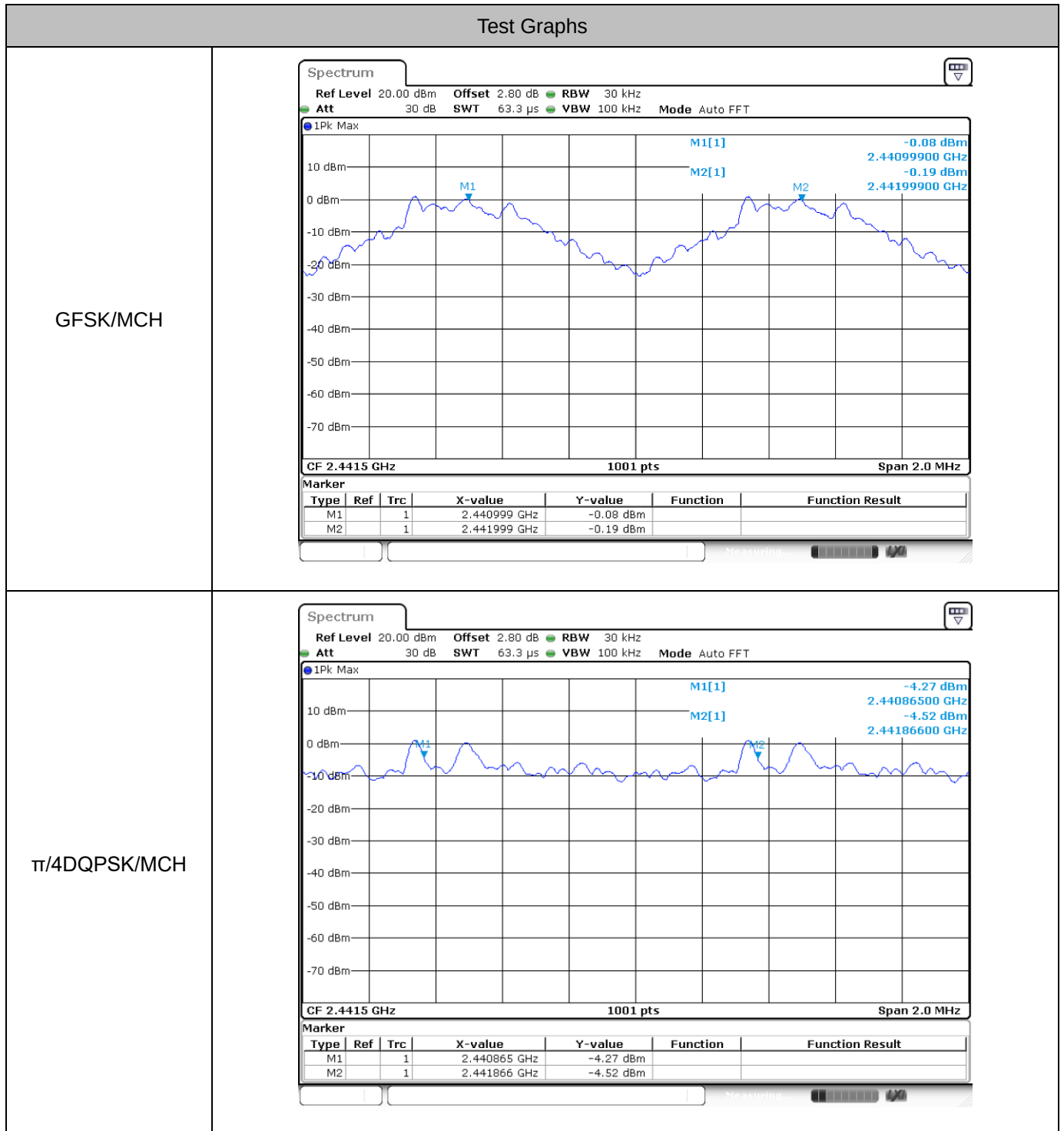
$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


4 Carrier Frequency Separation

4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1	0.025	Pass
$\pi/4$ DQPSK	MCH	1.001	0.813	Pass

4.2 Test Graphs

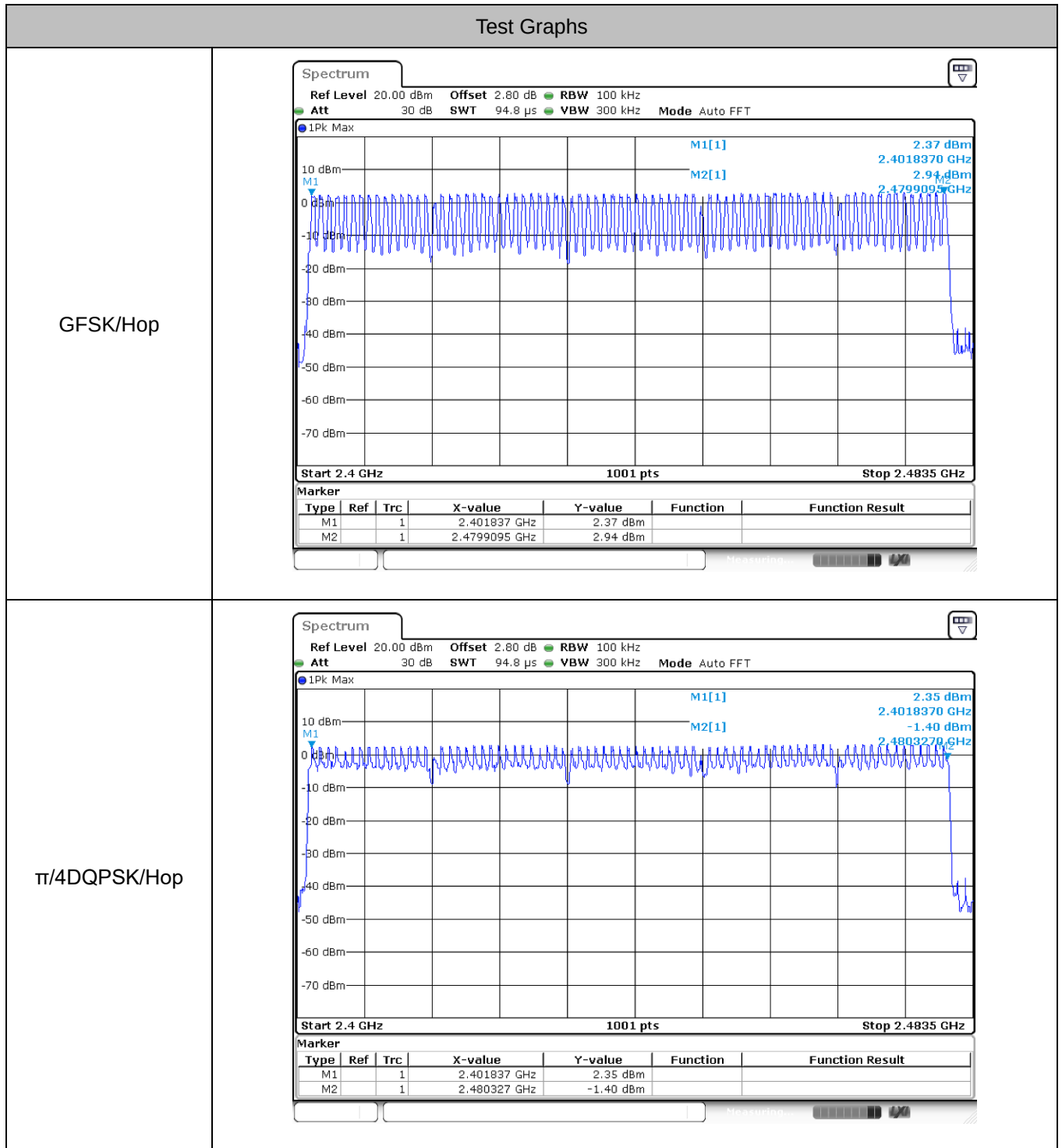


5 Hopping Channel Number

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

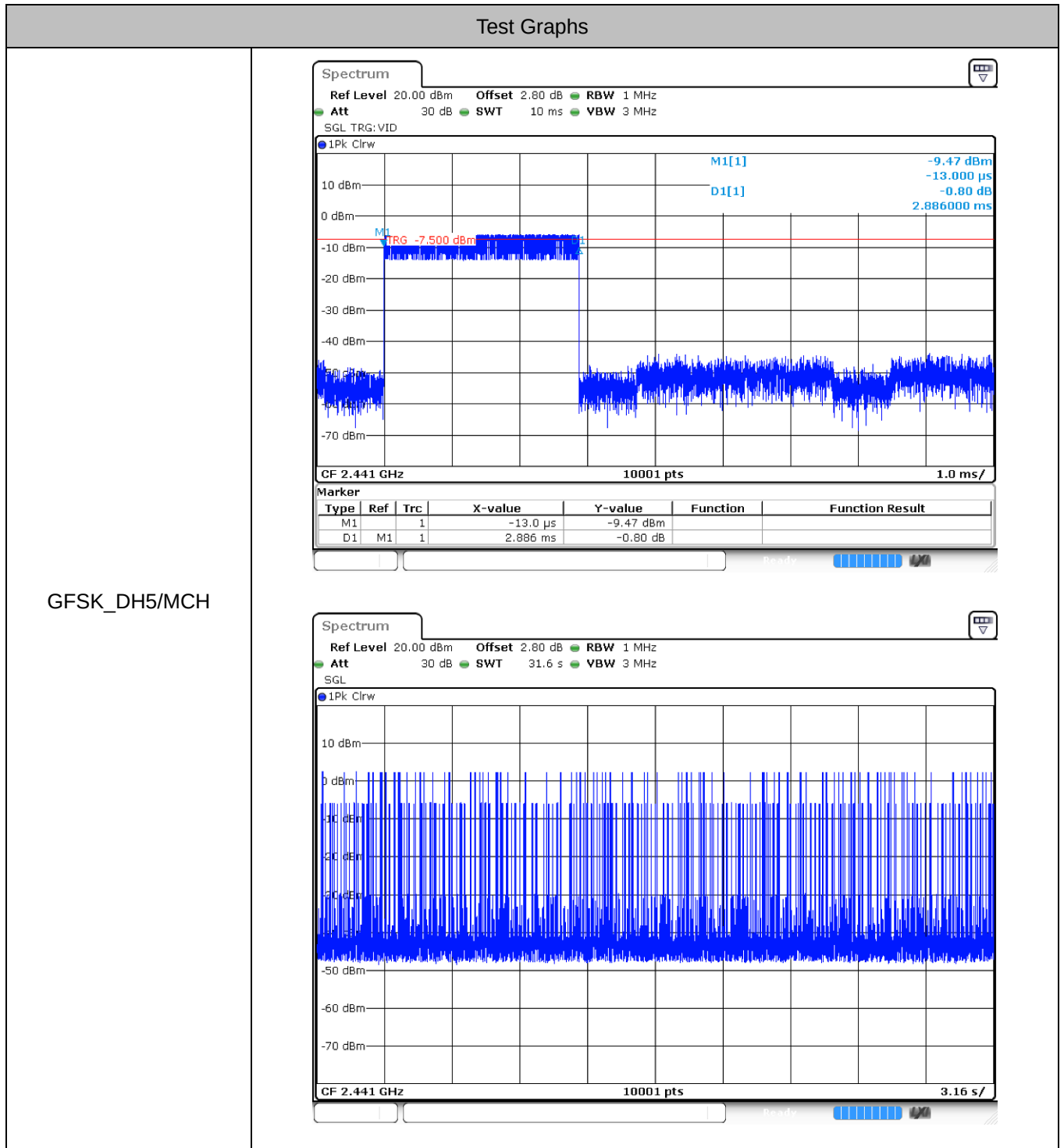


6 Dwell Time

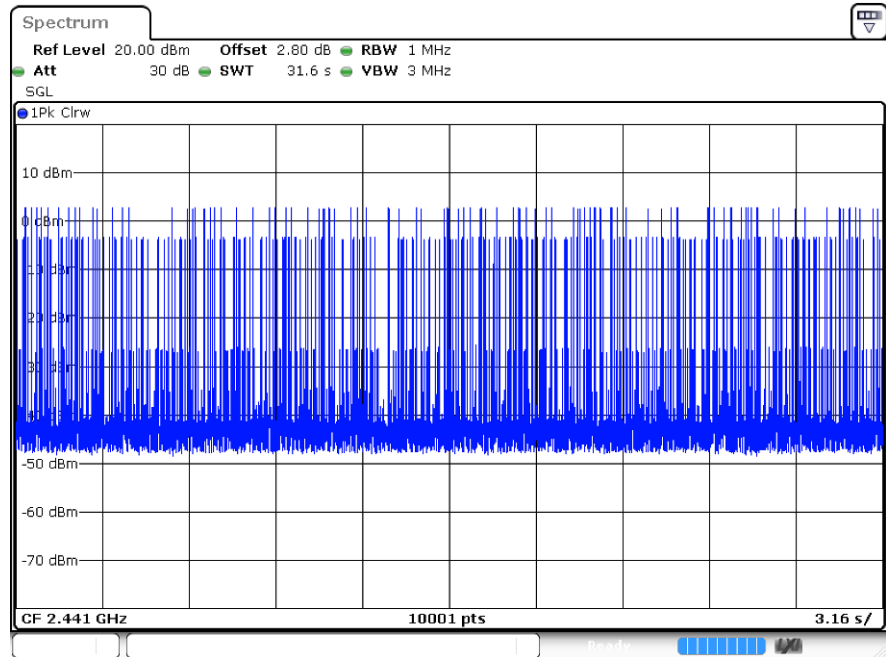
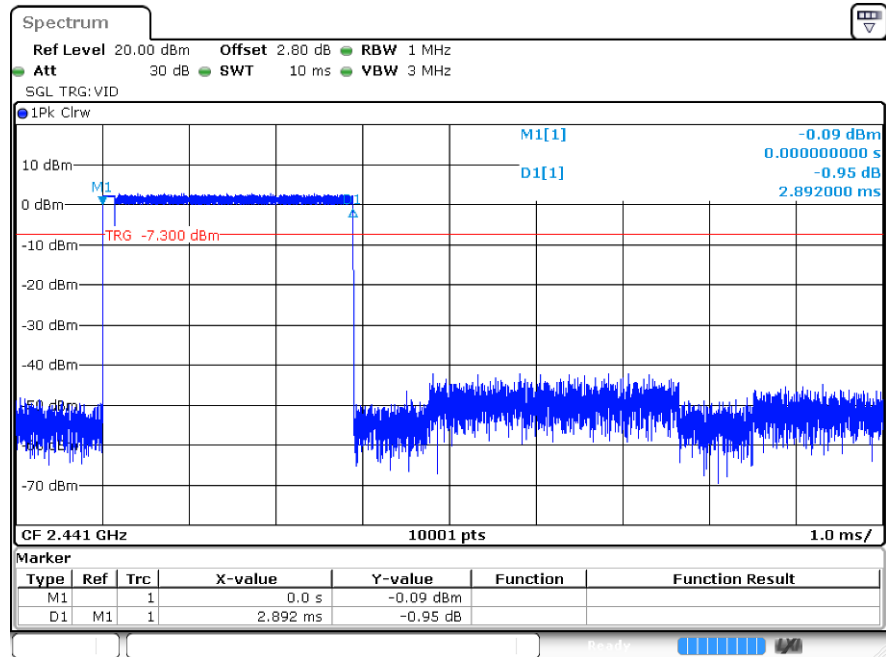
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.886	110	317.46	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.892	104	300.768	0.4	Pass

6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH

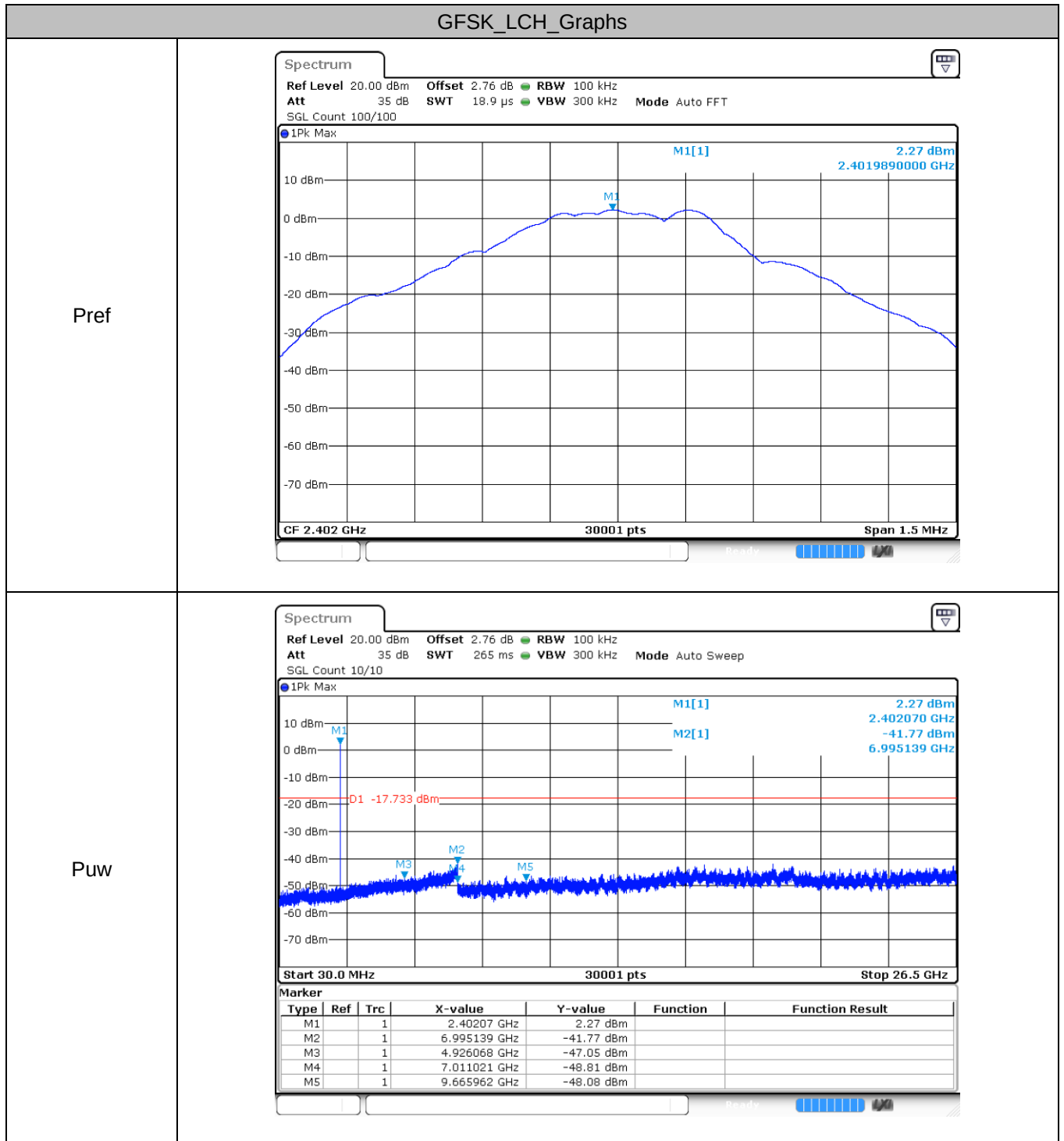


7 RF Conducted Spurious Emissions

7.1 Test Result

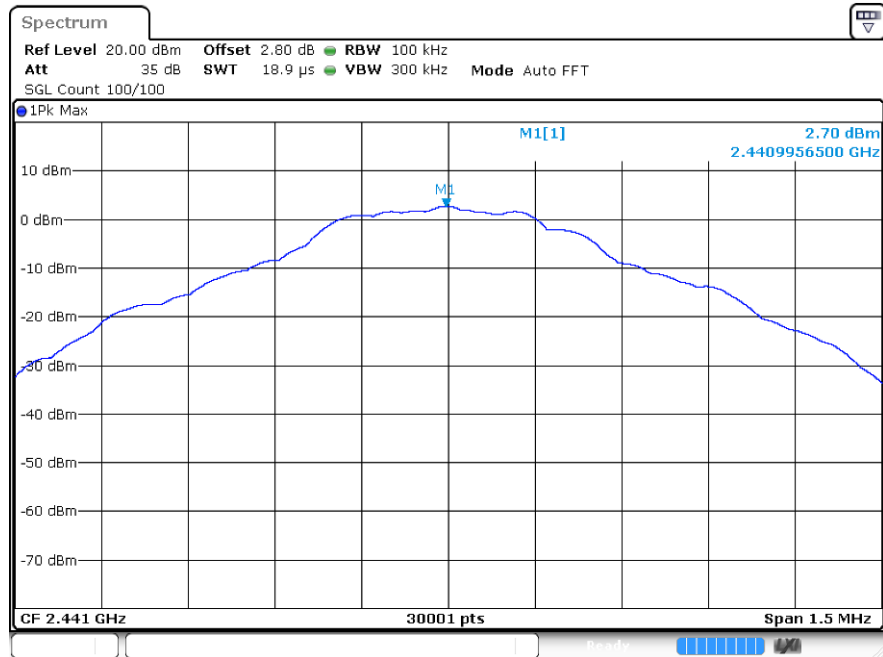
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-44.03	-20	Pass
	MCH	-44.22	-20	Pass
	HCH	-44.83	-20	Pass
$\pi/4$ DQPSK	LCH	-42.99	-20	Pass
	MCH	-43.13	-20	Pass
	HCH	-44.23	-20	Pass

7.2 Test Graphs

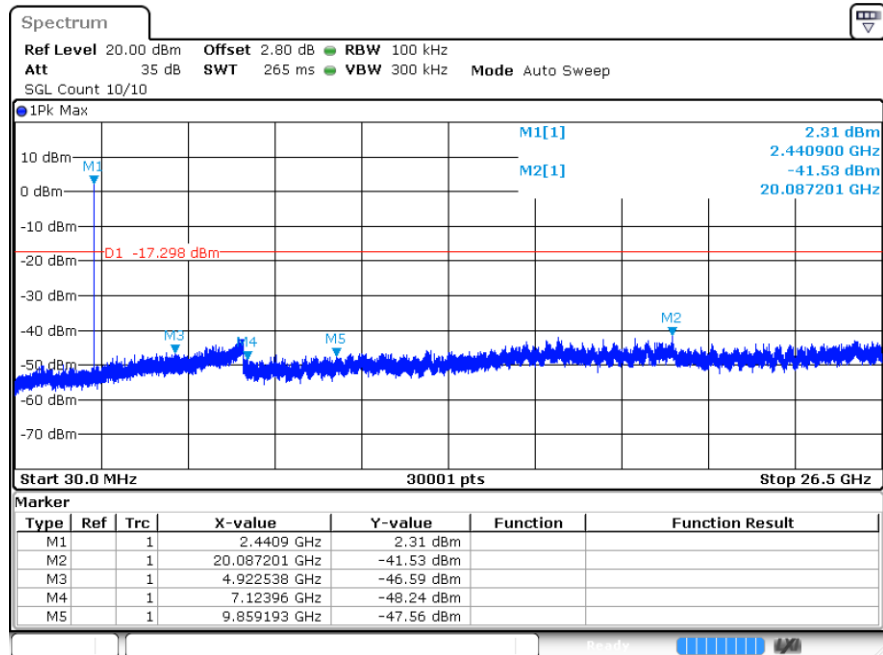


GFSK_MCH_Graphs

Pref

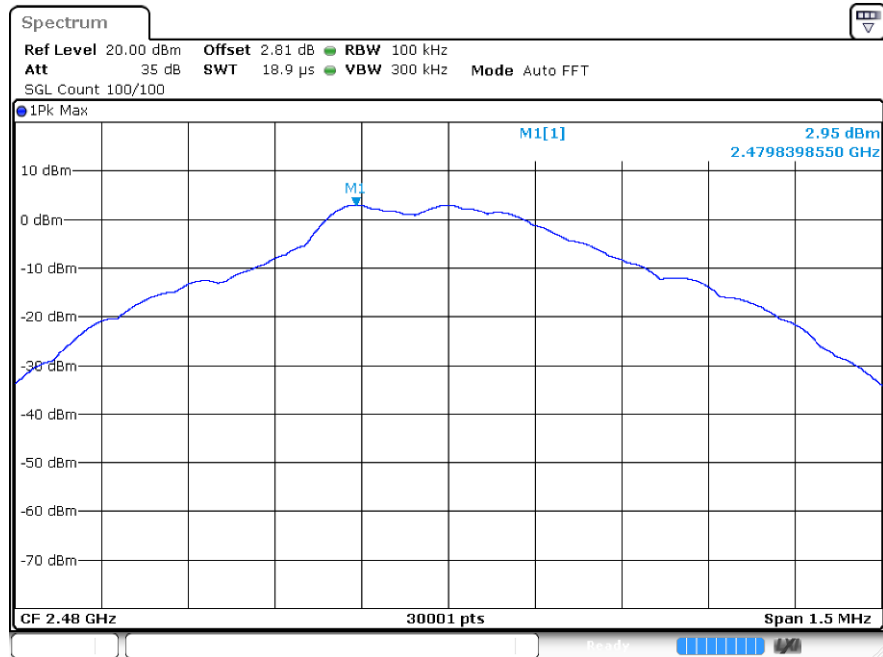


Puw

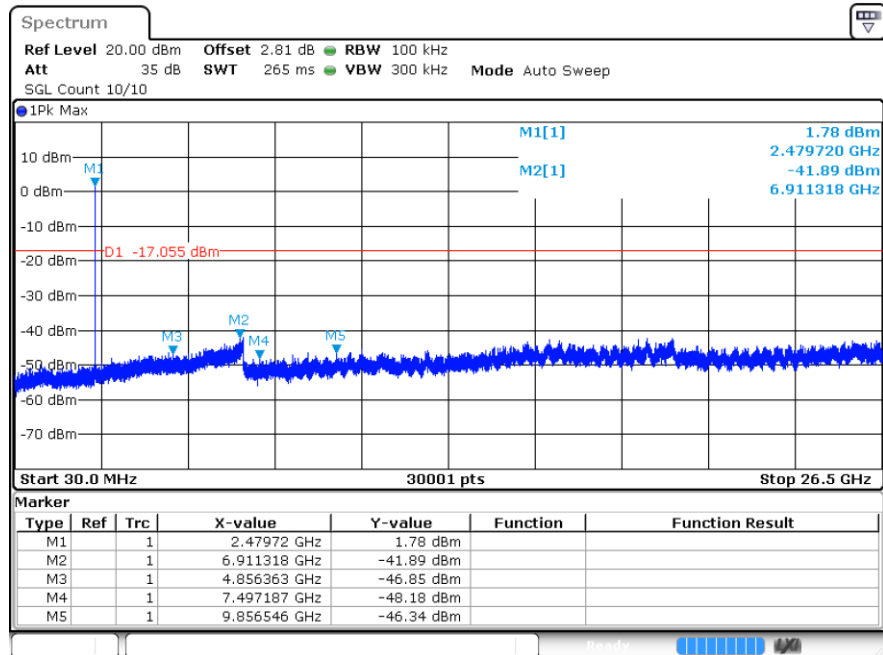


GFSK_HCH_Graphs

Pref

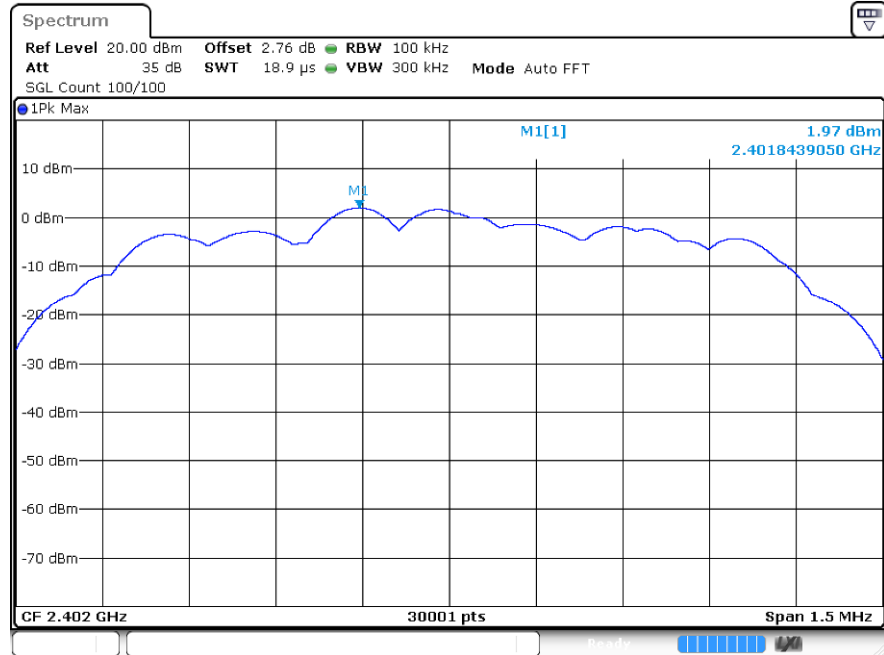


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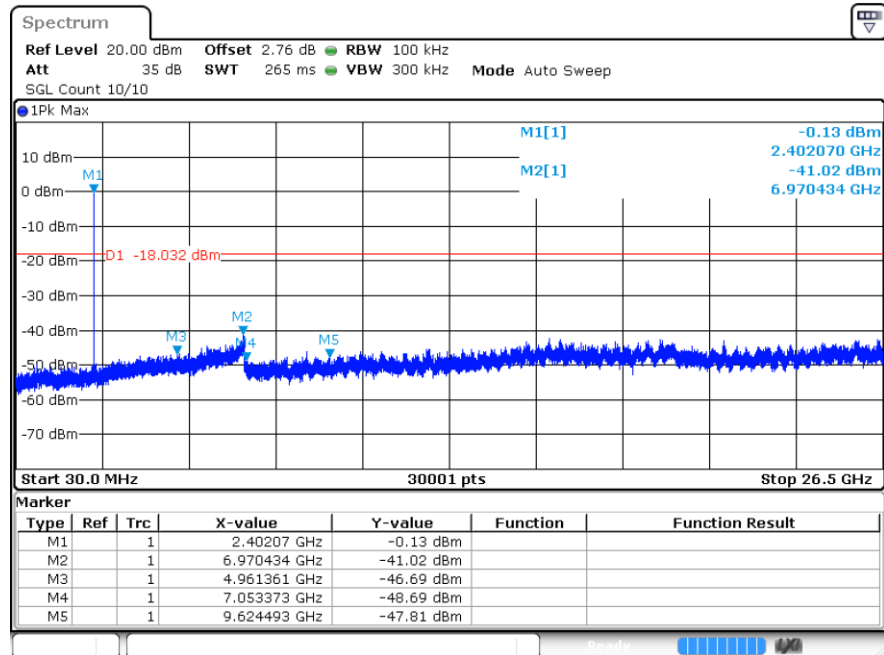


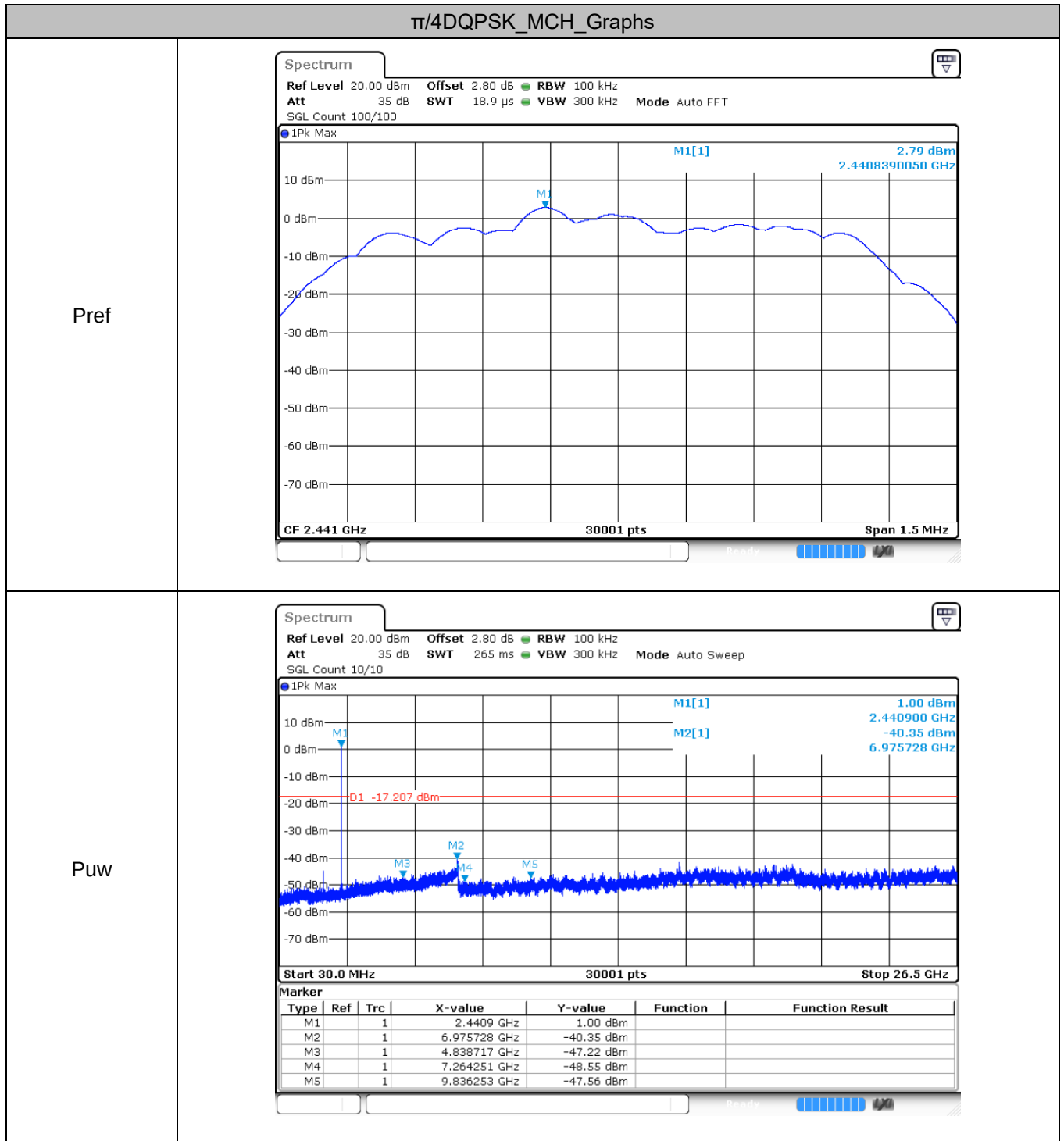
$\pi/4$ DQPSK_LCH_Graphs

Pref



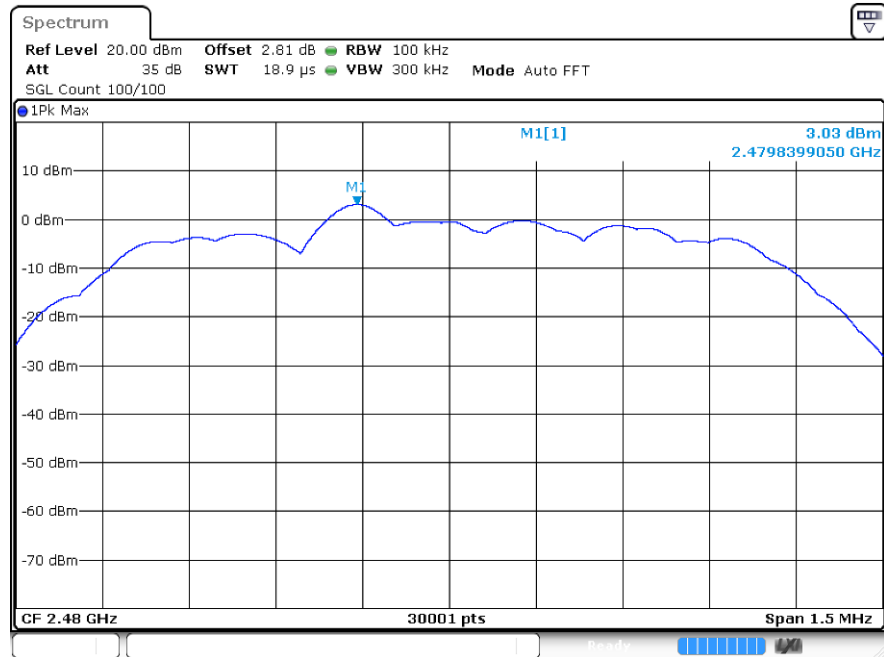
Puw



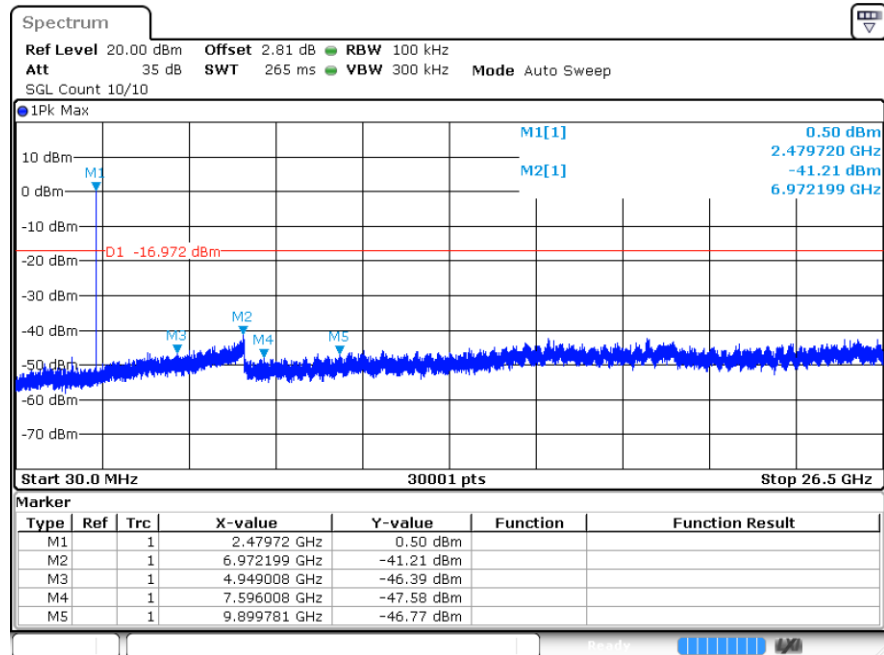


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

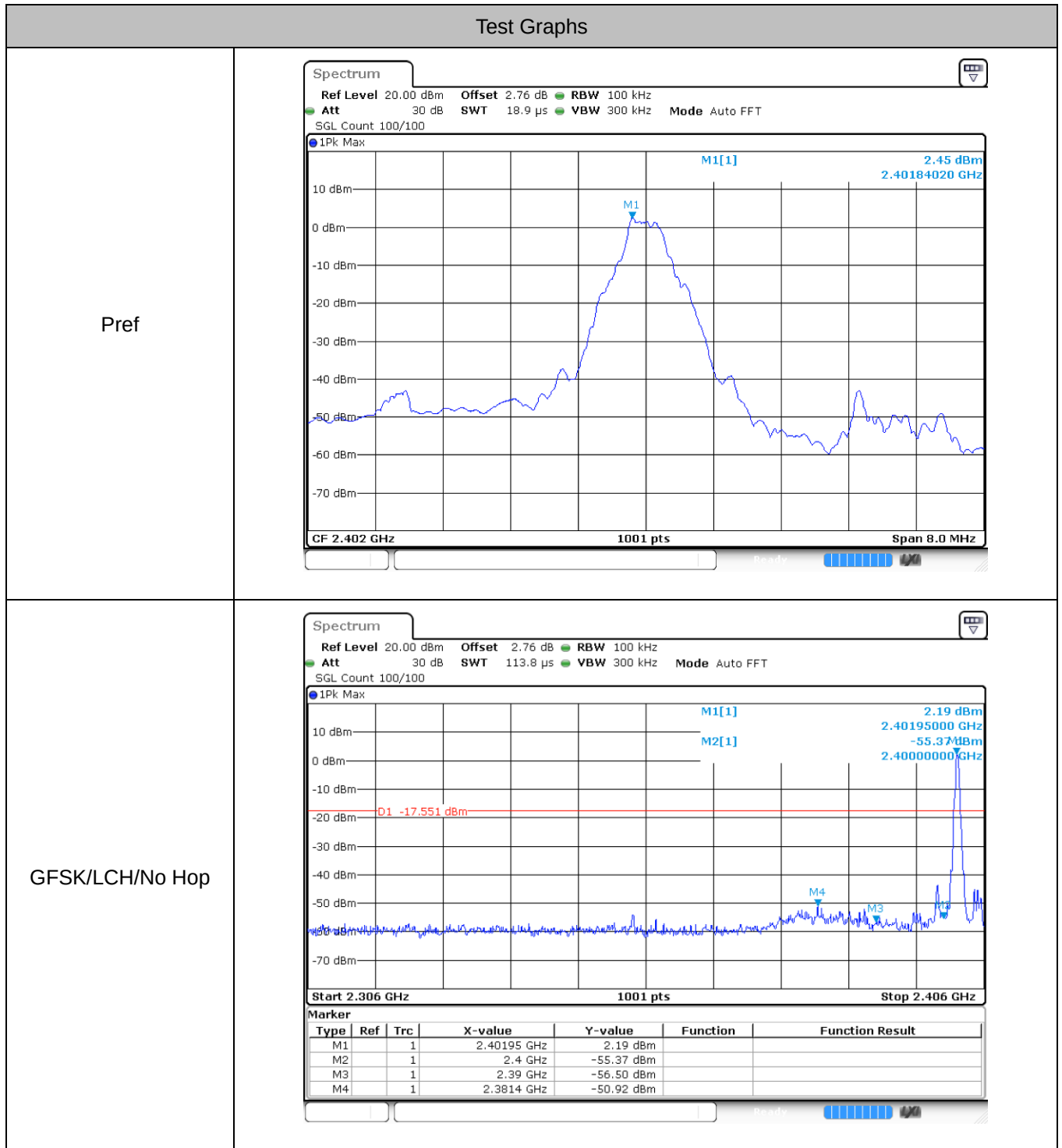


8 Band-edge for RF Conducted Emissions

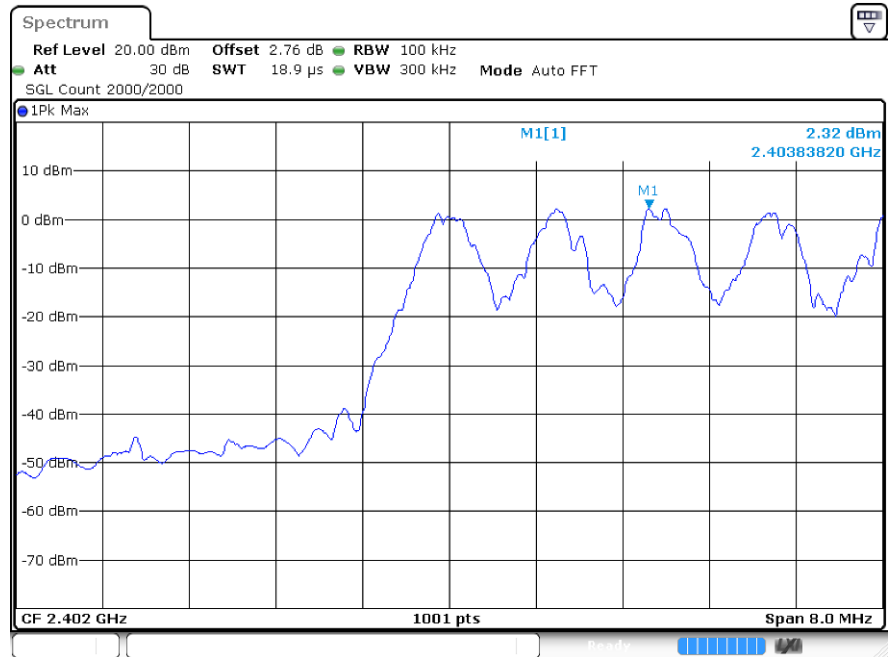
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-53.36	-20	Pass
			On	-54.45	-20	Pass
	HCH	2480	Off	-46.75	-20	Pass
			On	-47.69	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-54.09	-20	Pass
			On	-53.75	-20	Pass
	HCH	2480	Off	-48.59	-20	Pass
			On	-50.2	-20	Pass

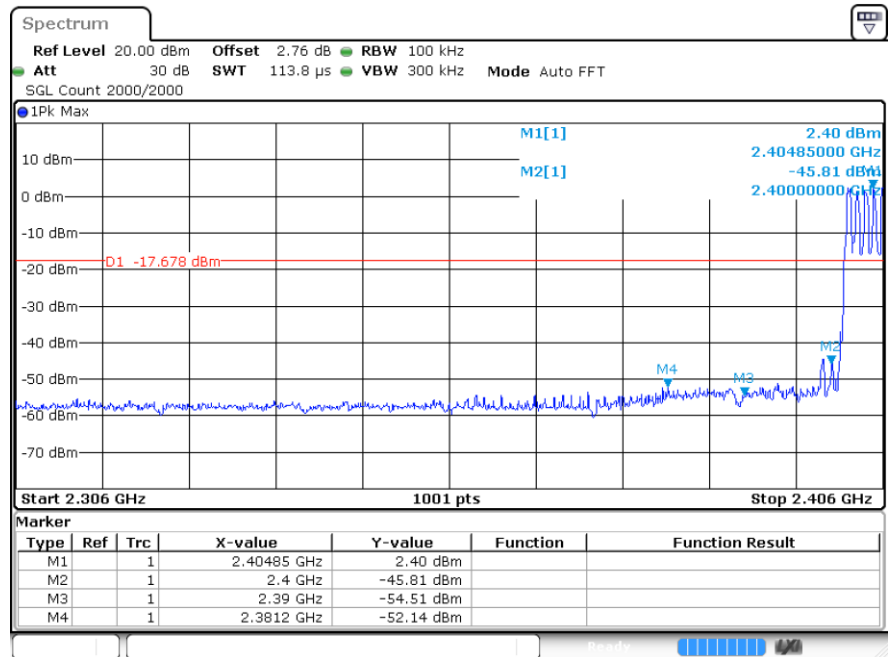
8.2 Test Graphs



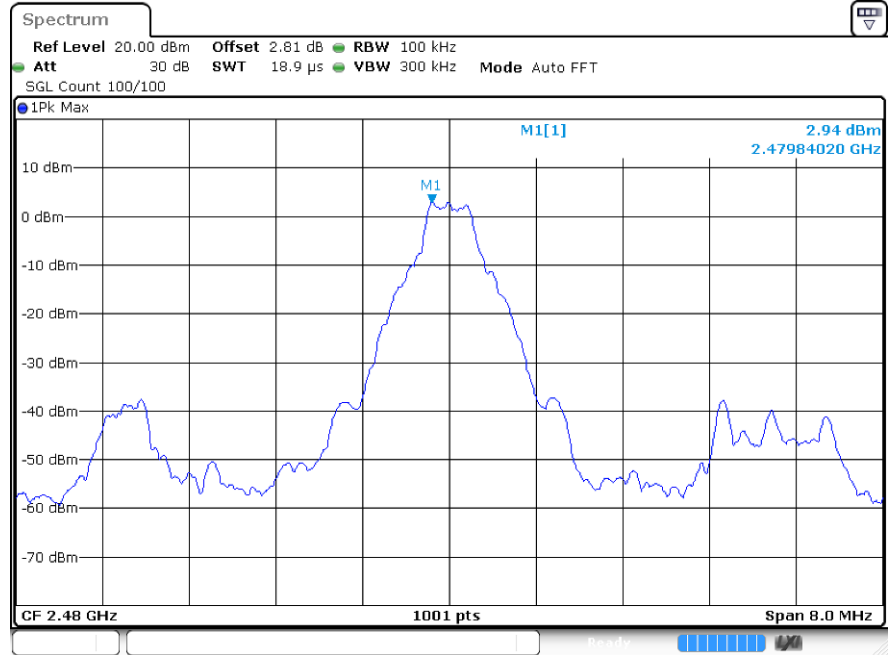
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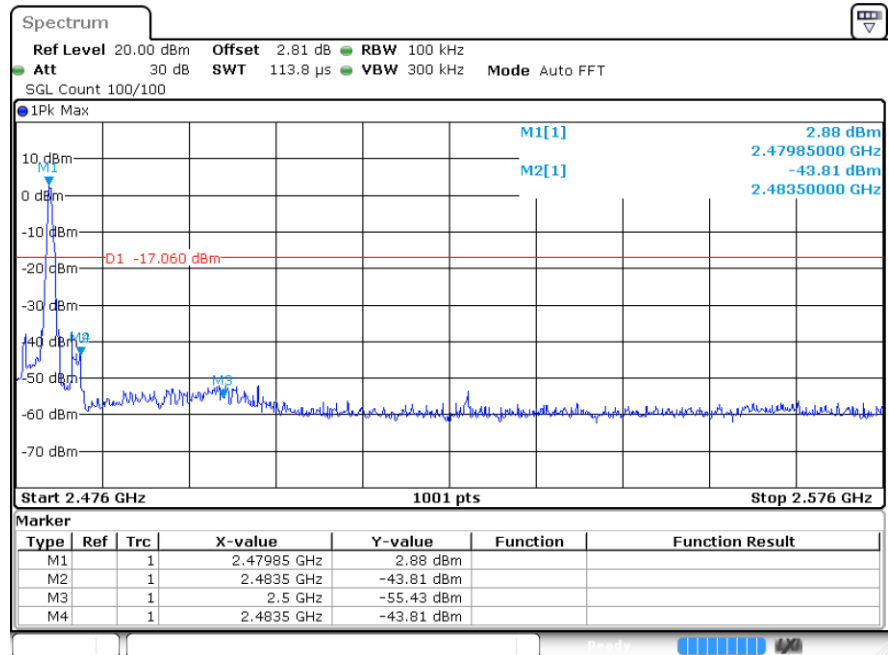
GFSK/LCH/Hop



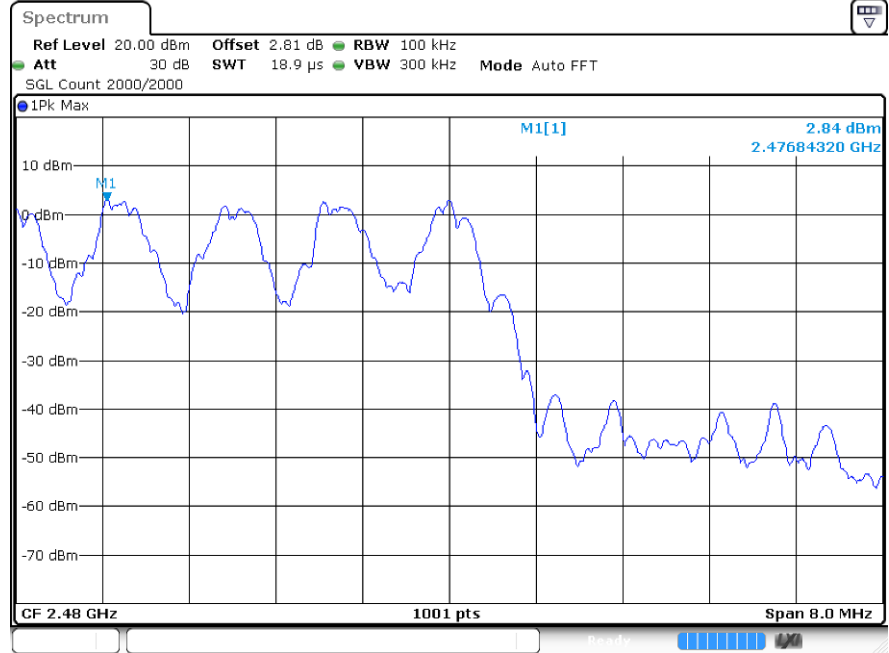
Ref



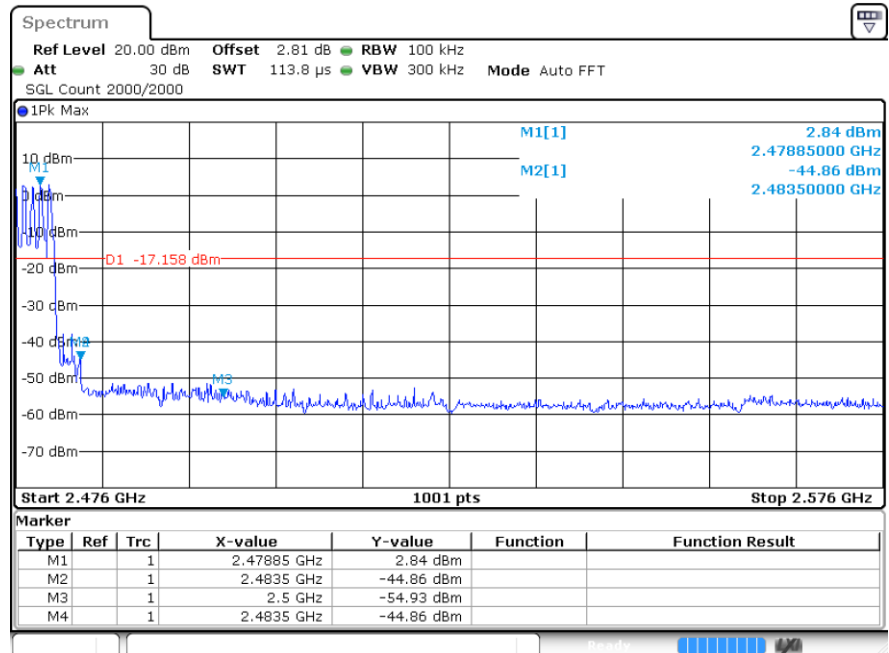
GFSK/HCH/No Hop



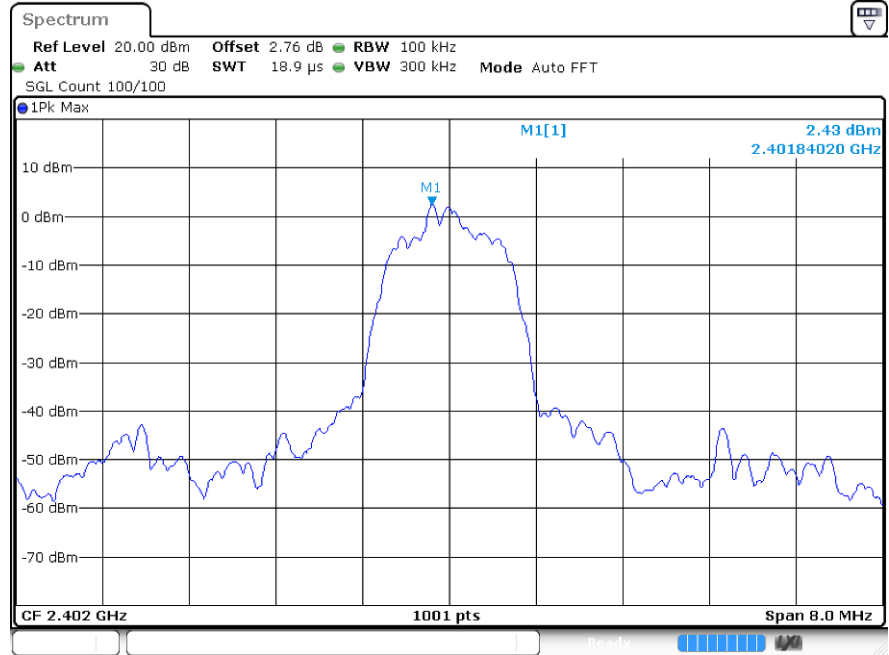
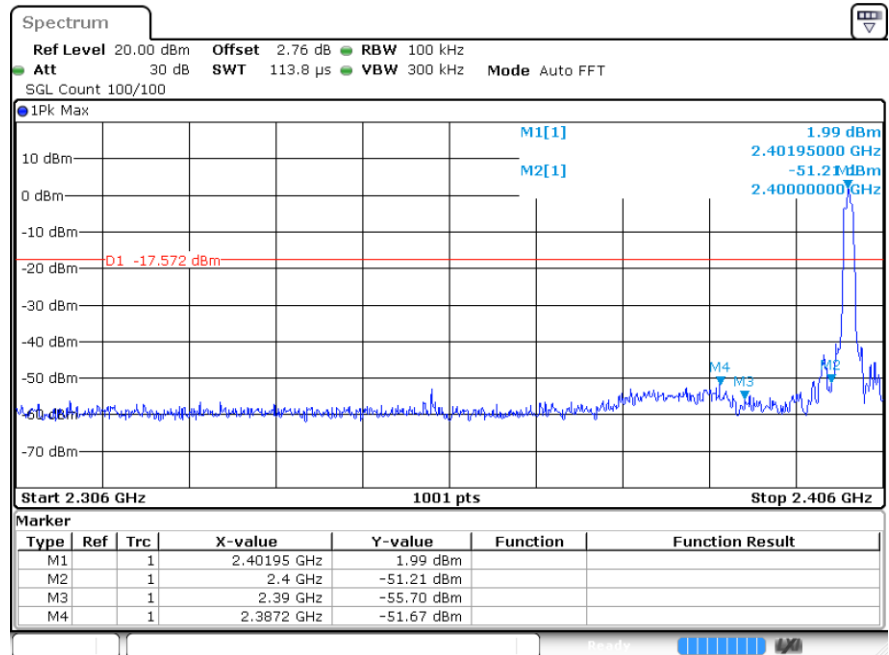
Ref.



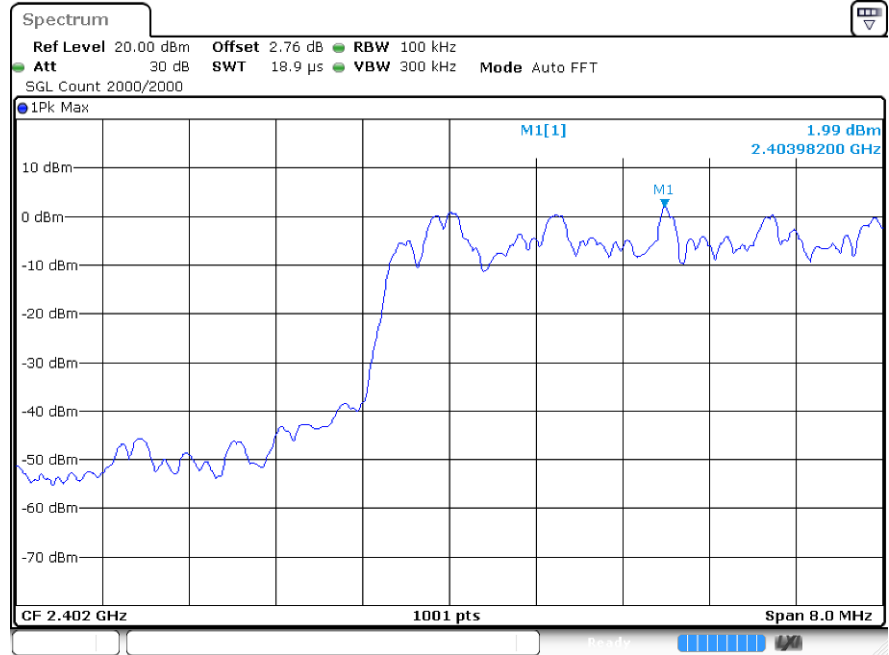
GFSK/HCH/Hop



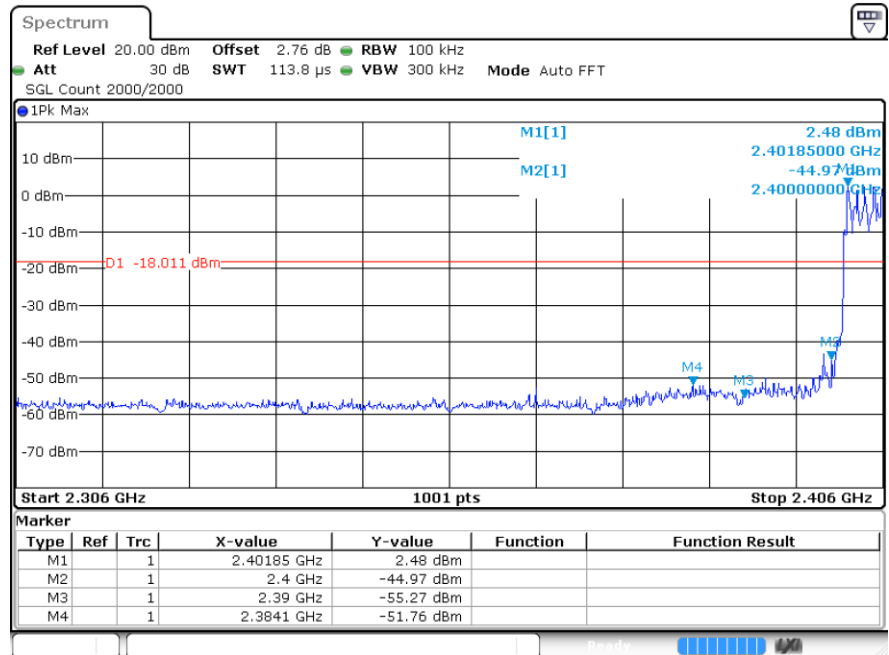
Ref


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


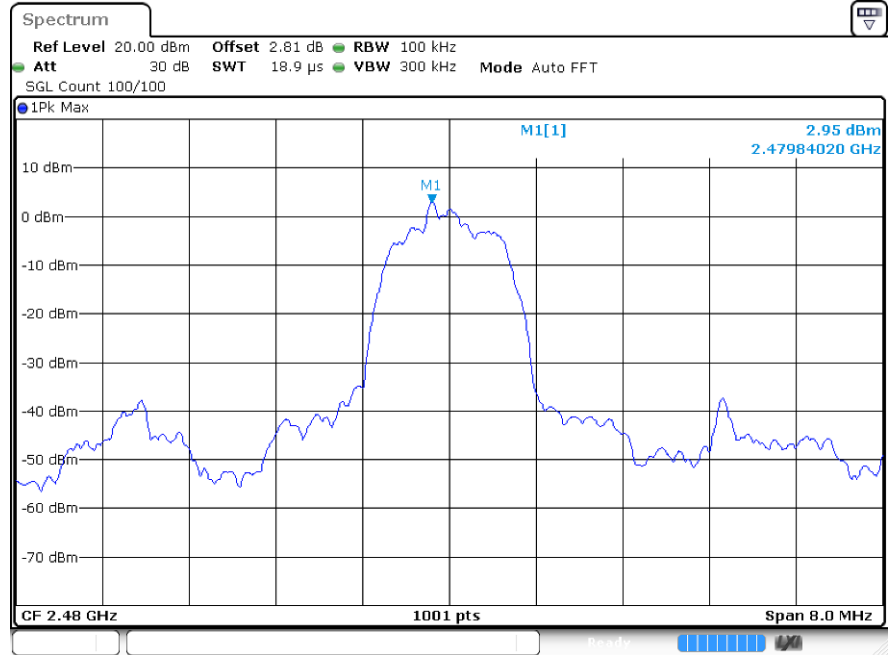
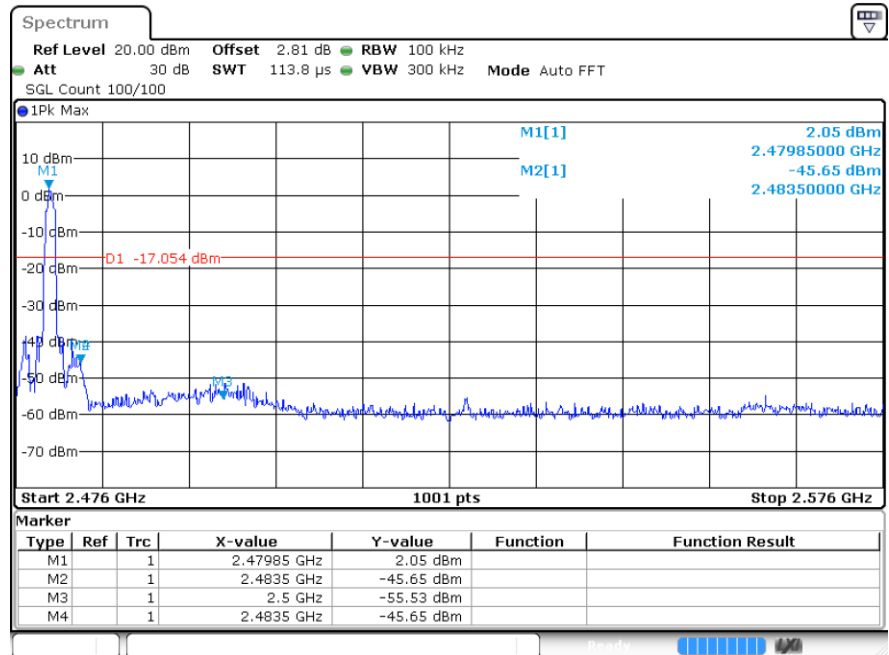
Ref



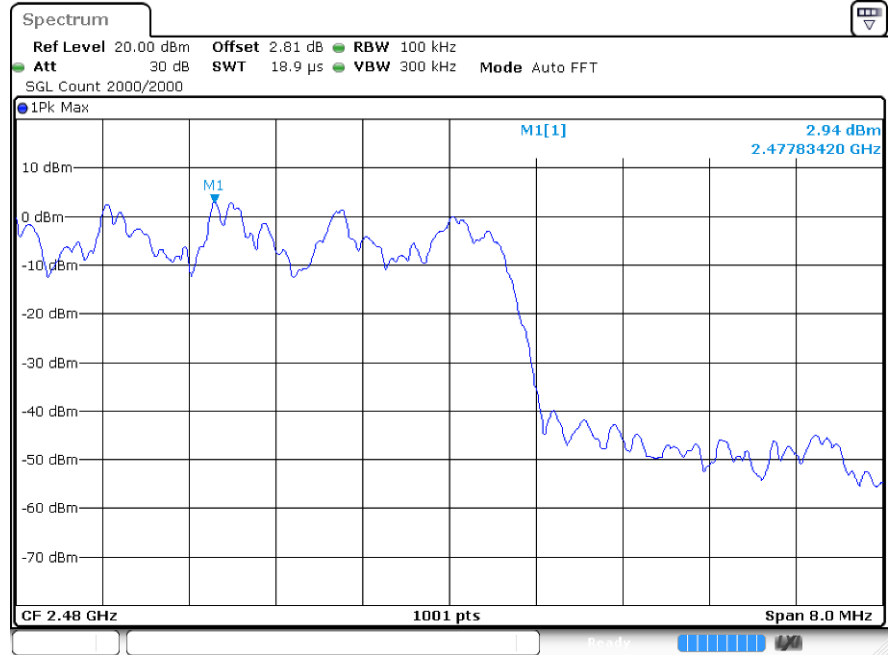
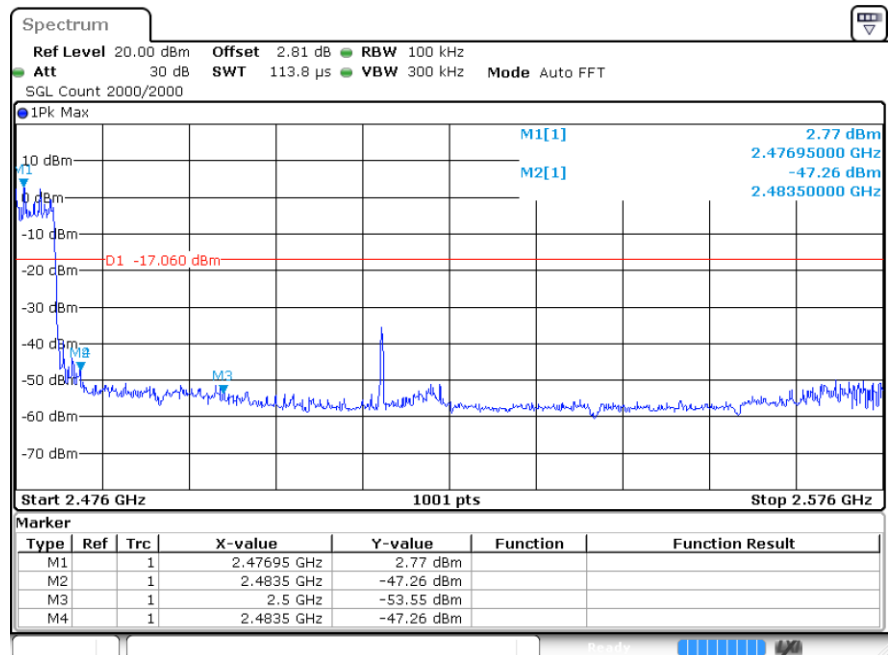
$\pi/4$ DQPSK/LCH/Hop



Ref


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


Ref


 $\pi/4$ DQPSK/HCH/Hop


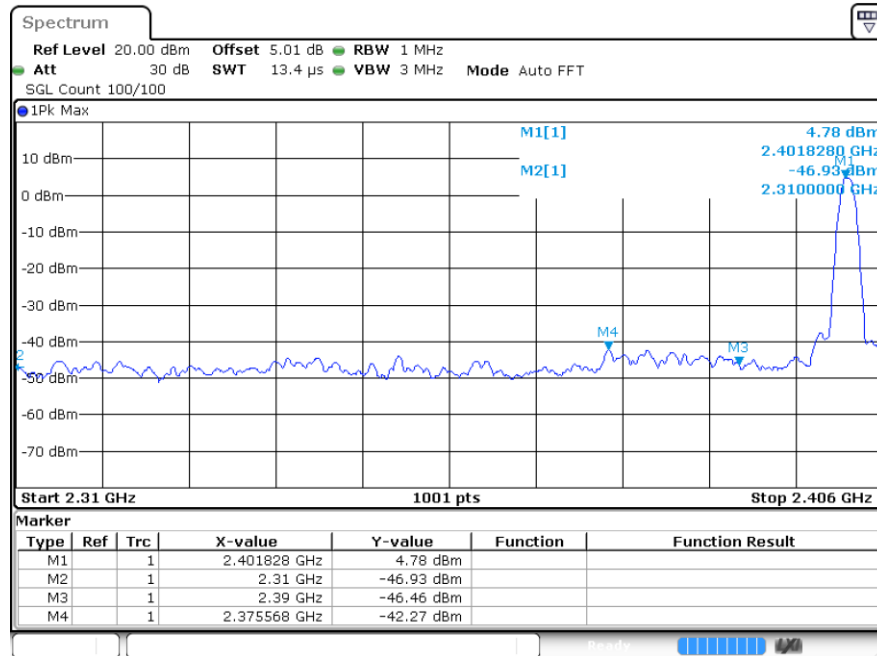
9 Restrict-band band-edge measurements

9.1 Test Result

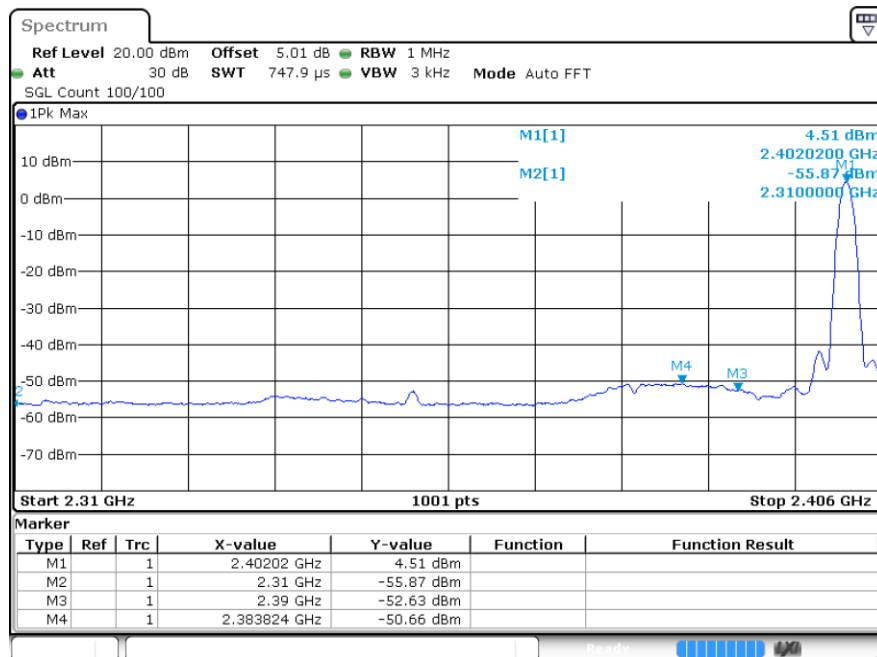
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-46.93	2.25	50.58	PEAK	74	Pass
	Off	2310.0	-55.87	2.25	41.64	AV	54	Pass
	Off	2375.568	-42.26	2.25	55.25	PEAK	74	Pass
	Off	2383.824	-50.65	2.25	46.86	AV	54	Pass
	Off	2390.0	-46.45	2.25	51.06	PEAK	74	Pass
	Off	2390.0	-52.63	2.25	44.88	AV	54	Pass
	Off	2483.5	-38.9	2.25	58.61	PEAK	74	Pass
	Off	2483.5	-46.13	2.25	51.38	AV	54	Pass
	Off	2483.512	-38.9	2.25	58.61	PEAK	74	Pass
	Off	2483.512	-46.13	2.25	51.38	AV	54	Pass
	Off	2500.0	-43.73	2.25	53.78	PEAK	74	Pass
	Off	2500.0	-52.15	2.25	45.36	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-47.03	2.25	50.48	PEAK	74	Pass
	Off	2310.0	-55.98	2.25	41.53	AV	54	Pass
	Off	2381.616	-39.52	2.25	57.99	PEAK	74	Pass
	Off	2379.408	-50.24	2.25	47.27	AV	54	Pass
	Off	2390.0	-43.84	2.25	53.67	PEAK	74	Pass
	Off	2390.0	-52.28	2.25	45.23	AV	54	Pass
	Off	2483.5	-39.32	2.25	58.19	PEAK	74	Pass
	Off	2483.5	-46.11	2.25	51.4	AV	54	Pass
	Off	2483.512	-39.32	2.25	58.19	PEAK	74	Pass
	Off	2483.512	-46.11	2.25	51.4	AV	54	Pass
	Off	2500.0	-43.94	2.25	53.57	PEAK	74	Pass
	Off	2500.0	-51.65	2.25	45.86	AV	54	Pass

9.2 Test Graphs

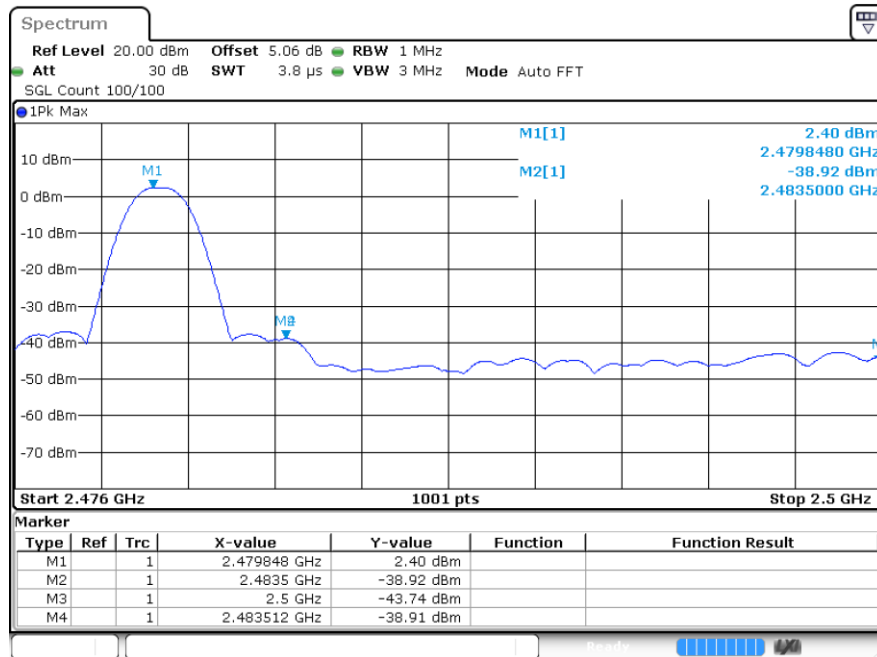
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



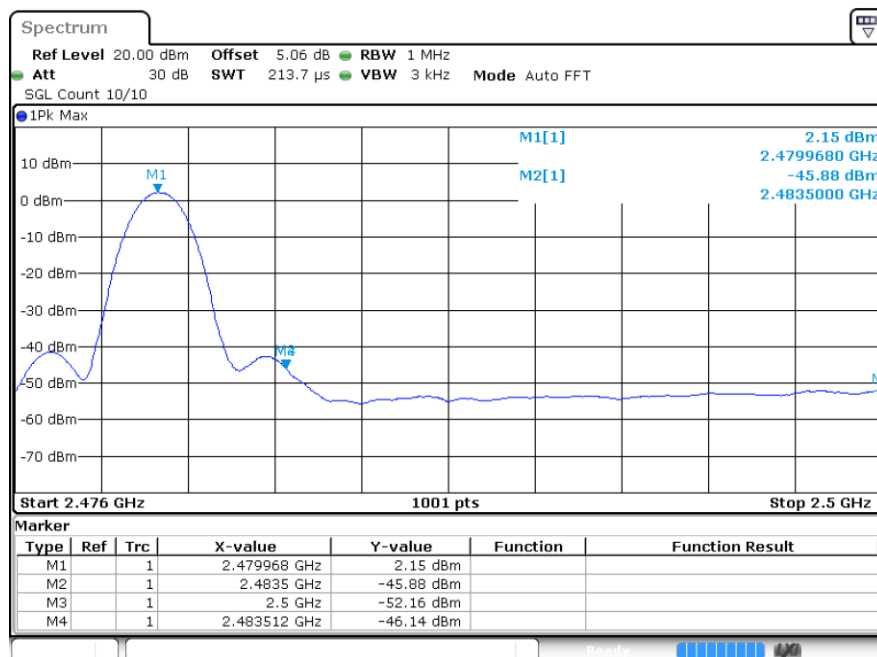
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



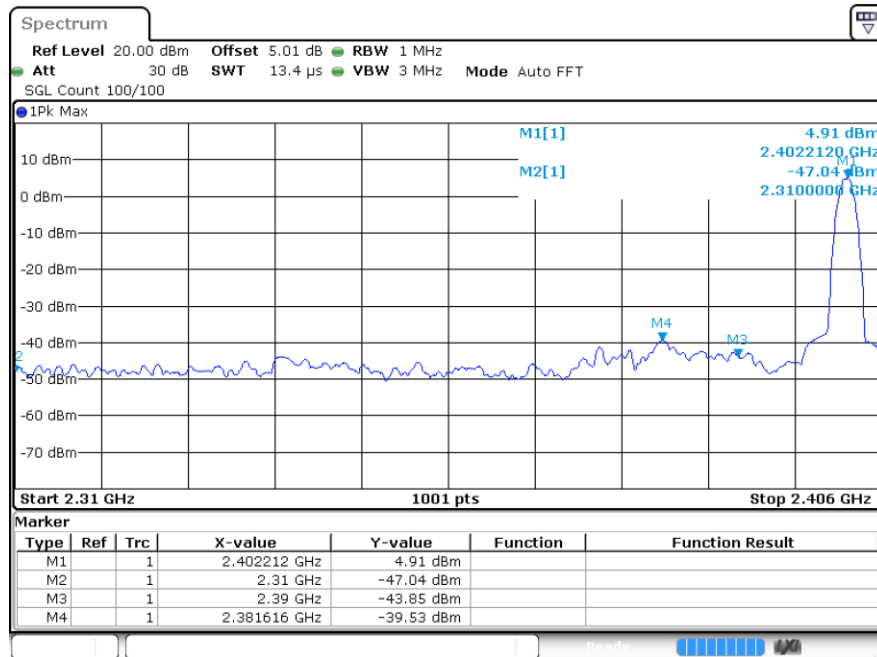
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



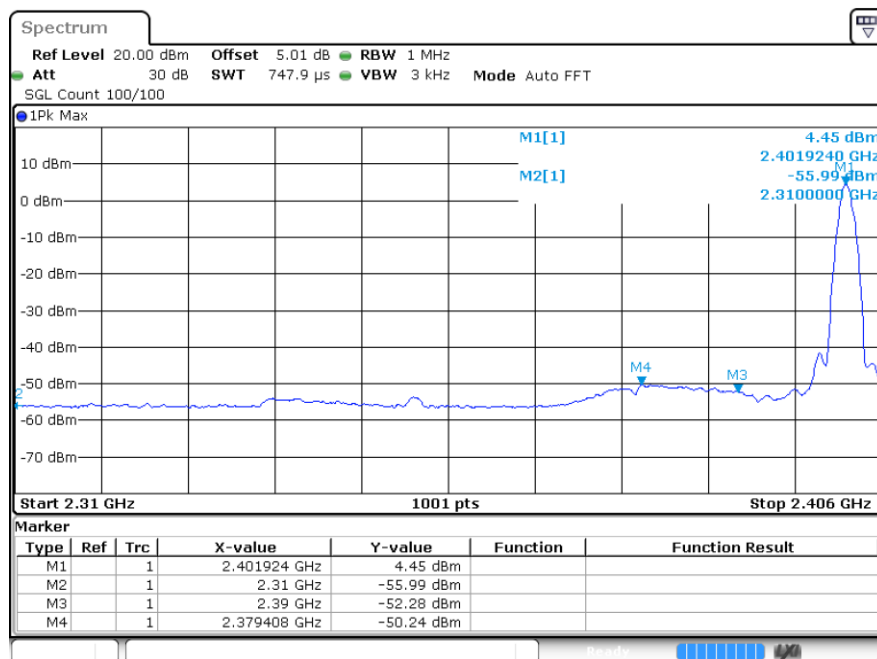
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



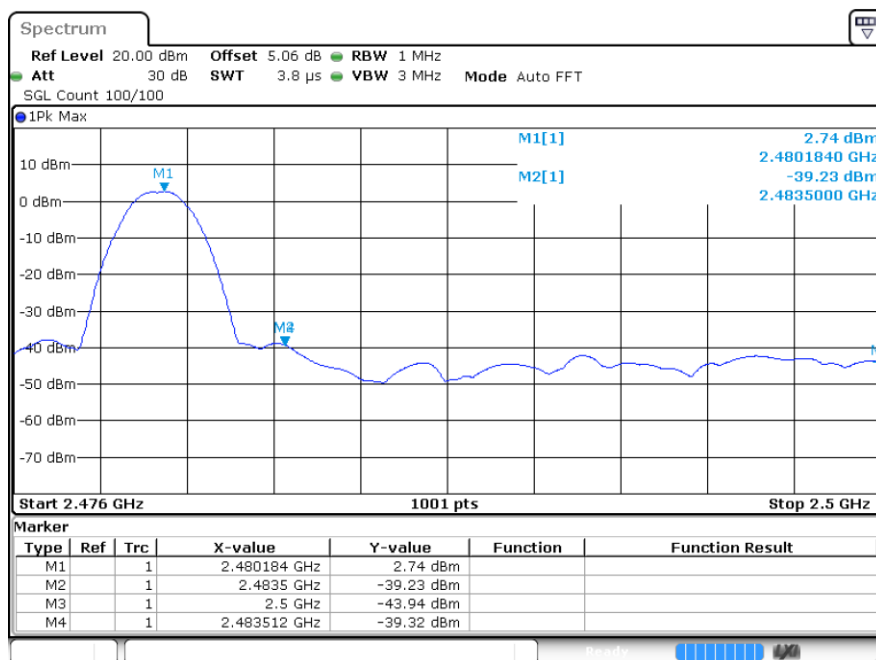
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



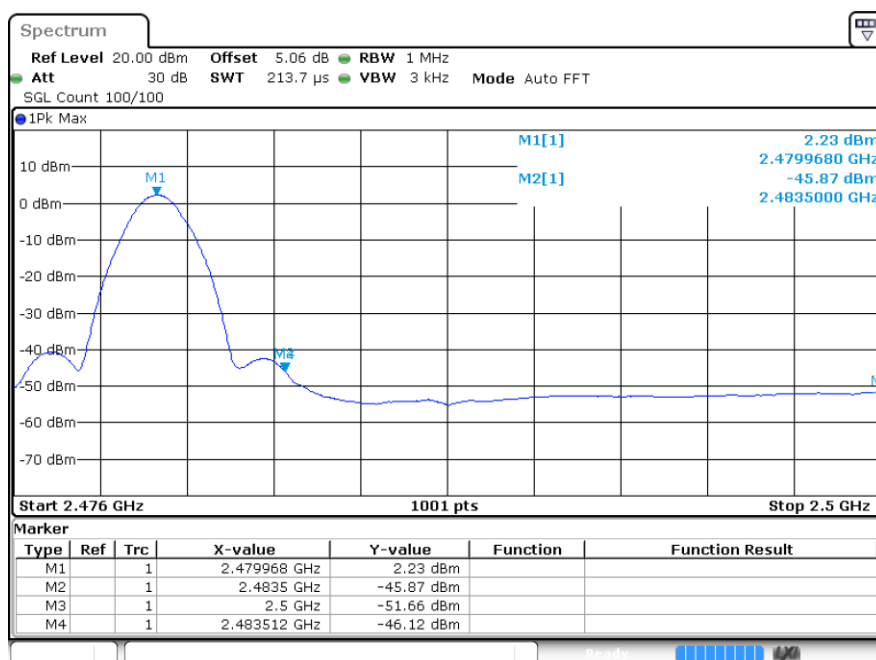
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---