



Appendix A

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

Product Name: BLUETOOTH SPEAKER

Trade Mark: N/A

Test Model: TD-SPBT16

Environmental Conditions

Temperature:	24.6℃
Relative Humidity:	52.8%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen



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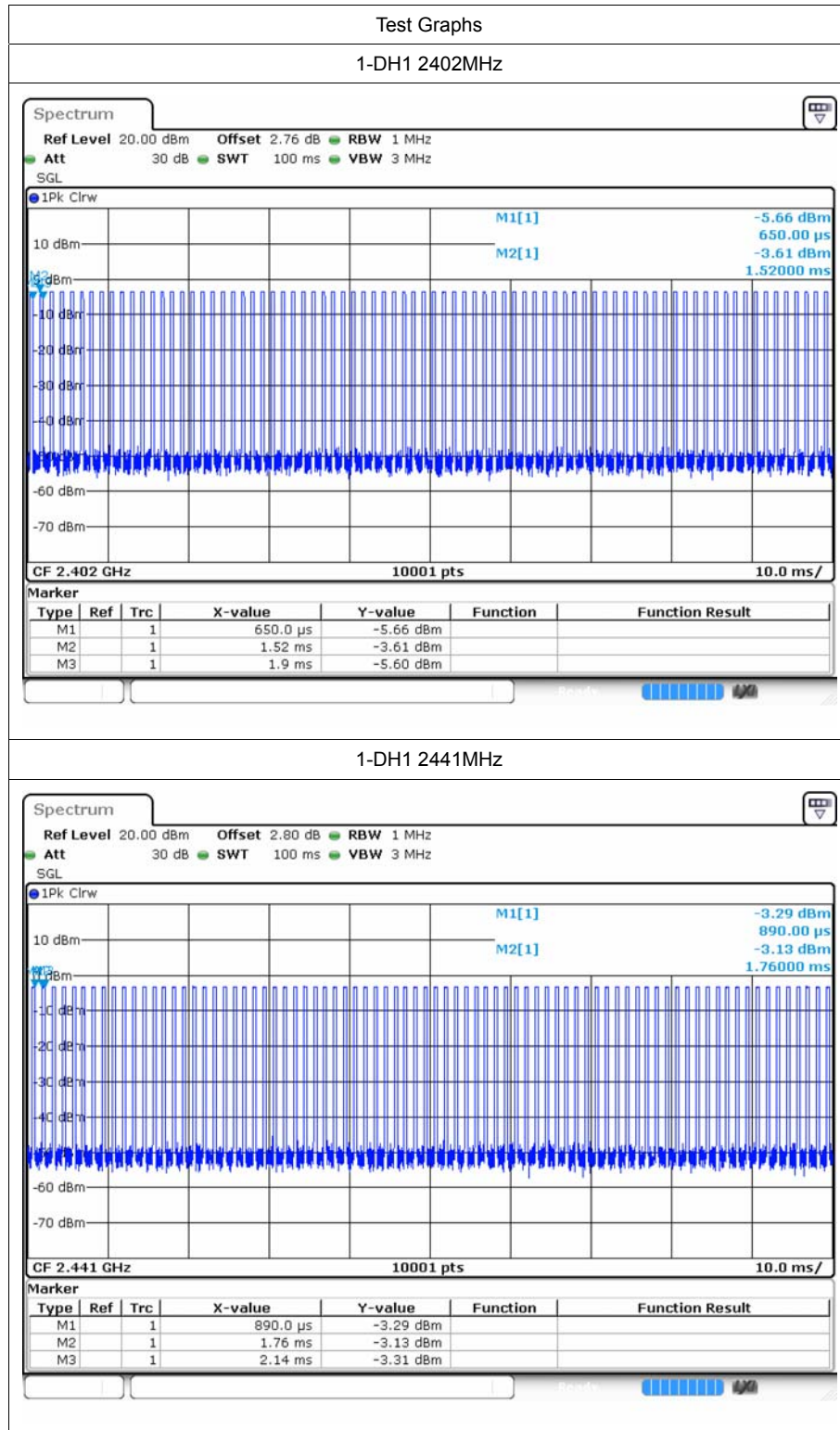
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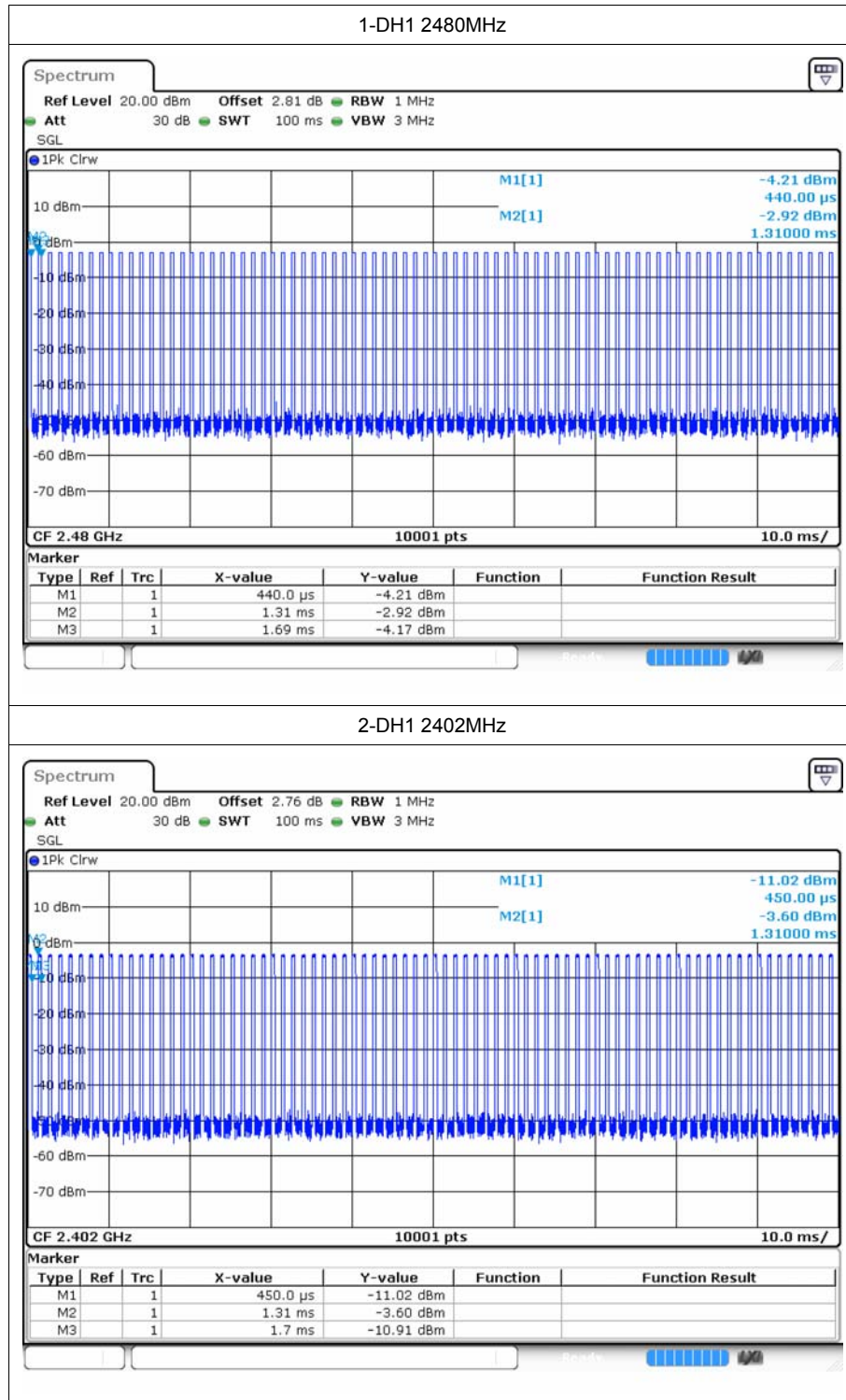
1 Duty Cycle

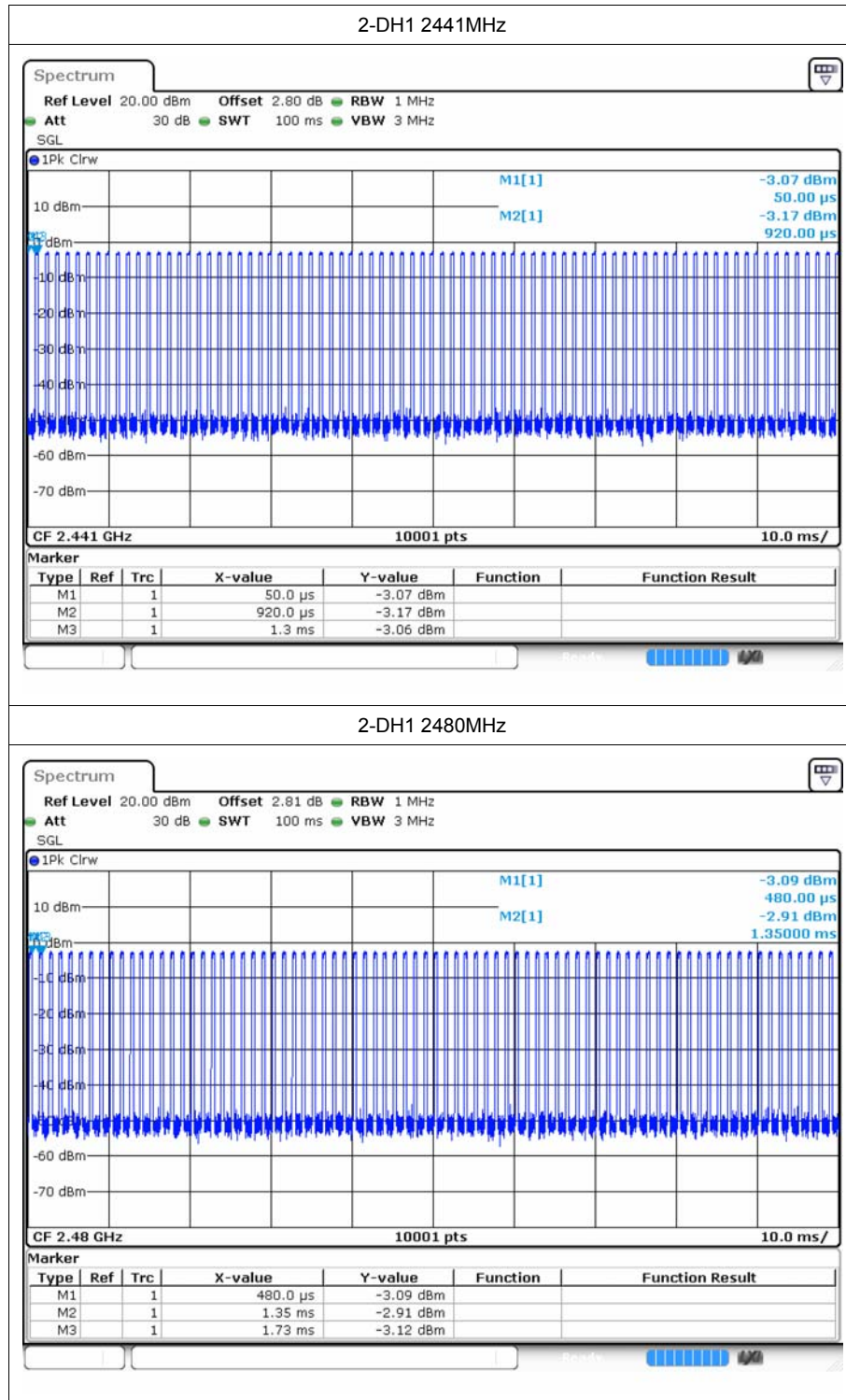
1.1 Test Result

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

1.2 Test Graphs





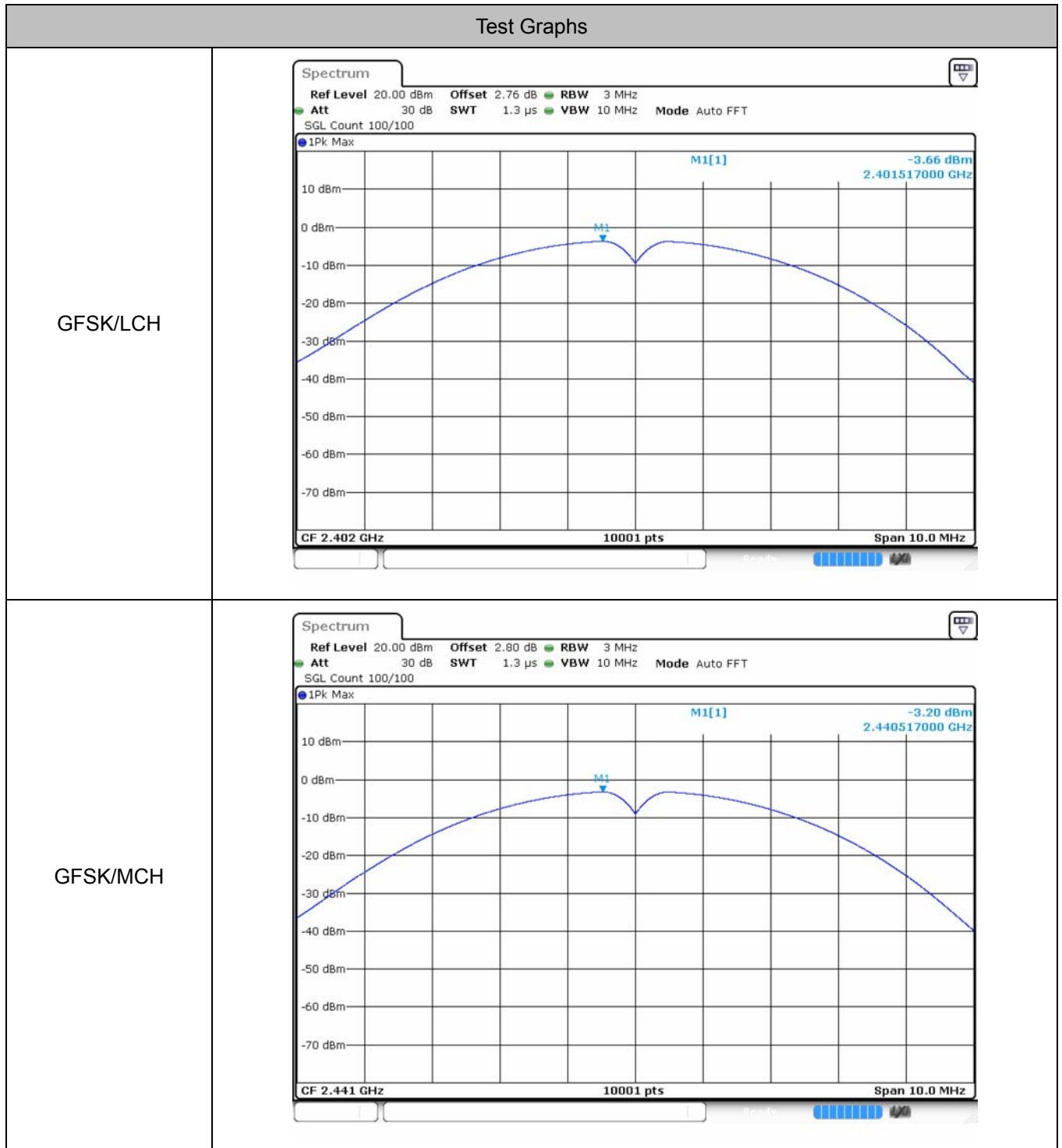


2 Maximum Conducted Peak Output Power

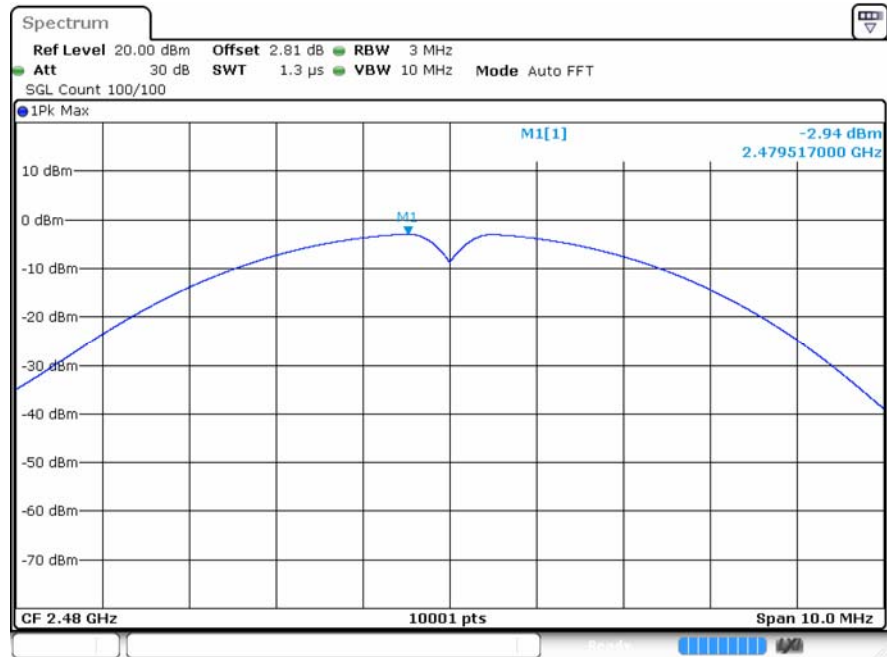
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.66	21	Pass
	MCH	-3.2	21	Pass
	HCH	-2.94	21	Pass
$\pi/4$ DQPSK	LCH	-3.43	21	Pass
	MCH	-2.84	21	Pass
	HCH	-2.63	21	Pass

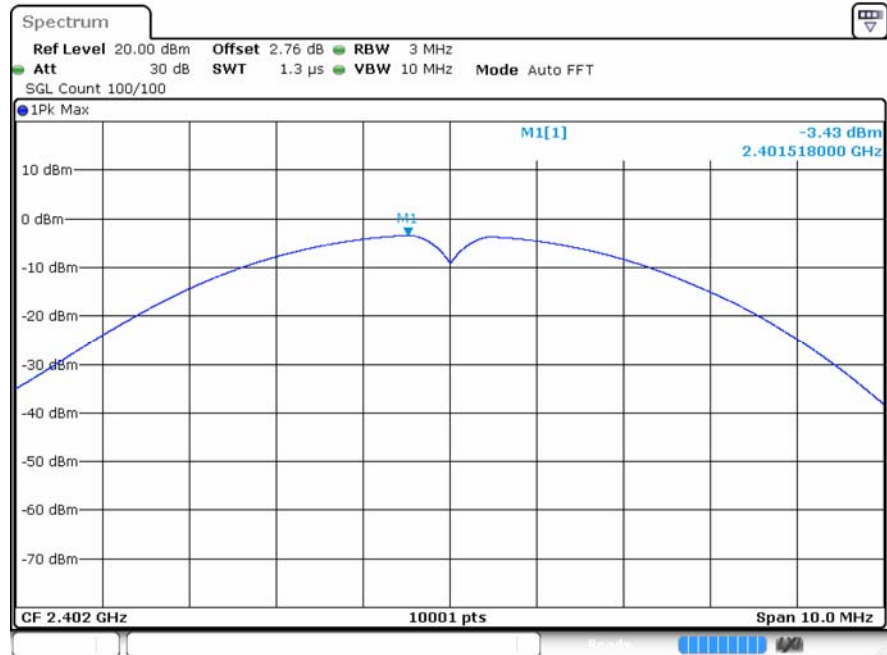
2.2 Test Graphs



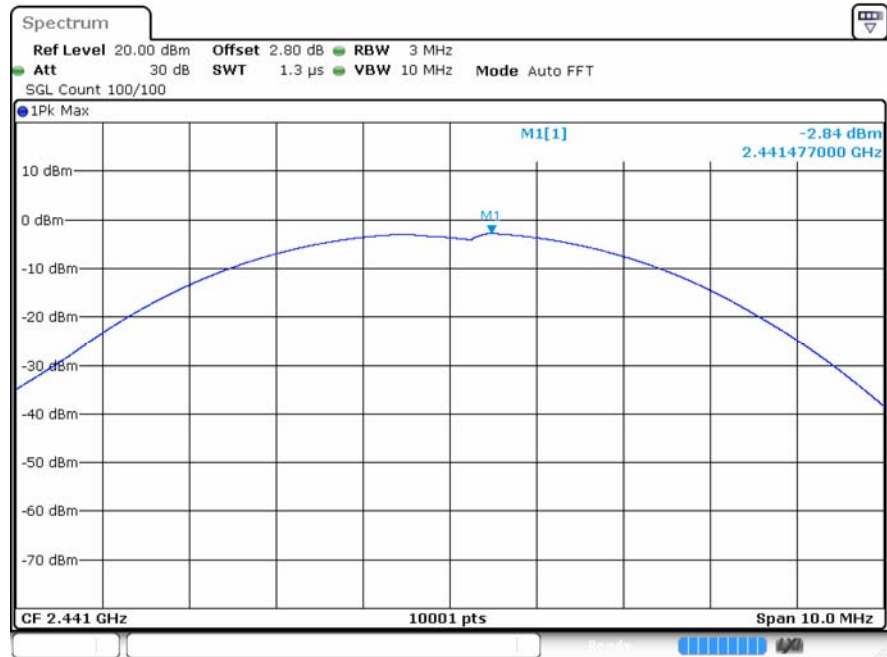
GFSK/HCH



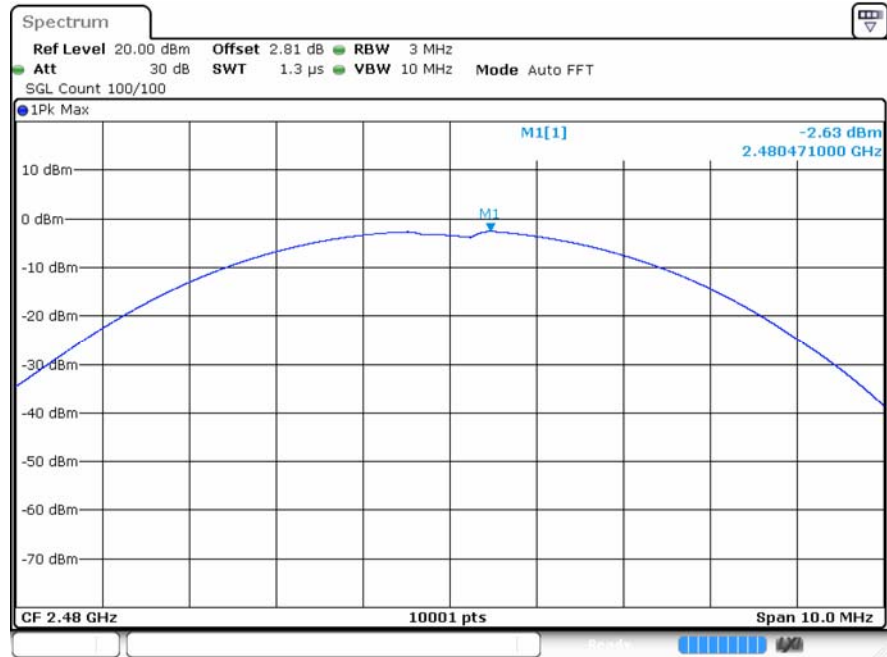
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

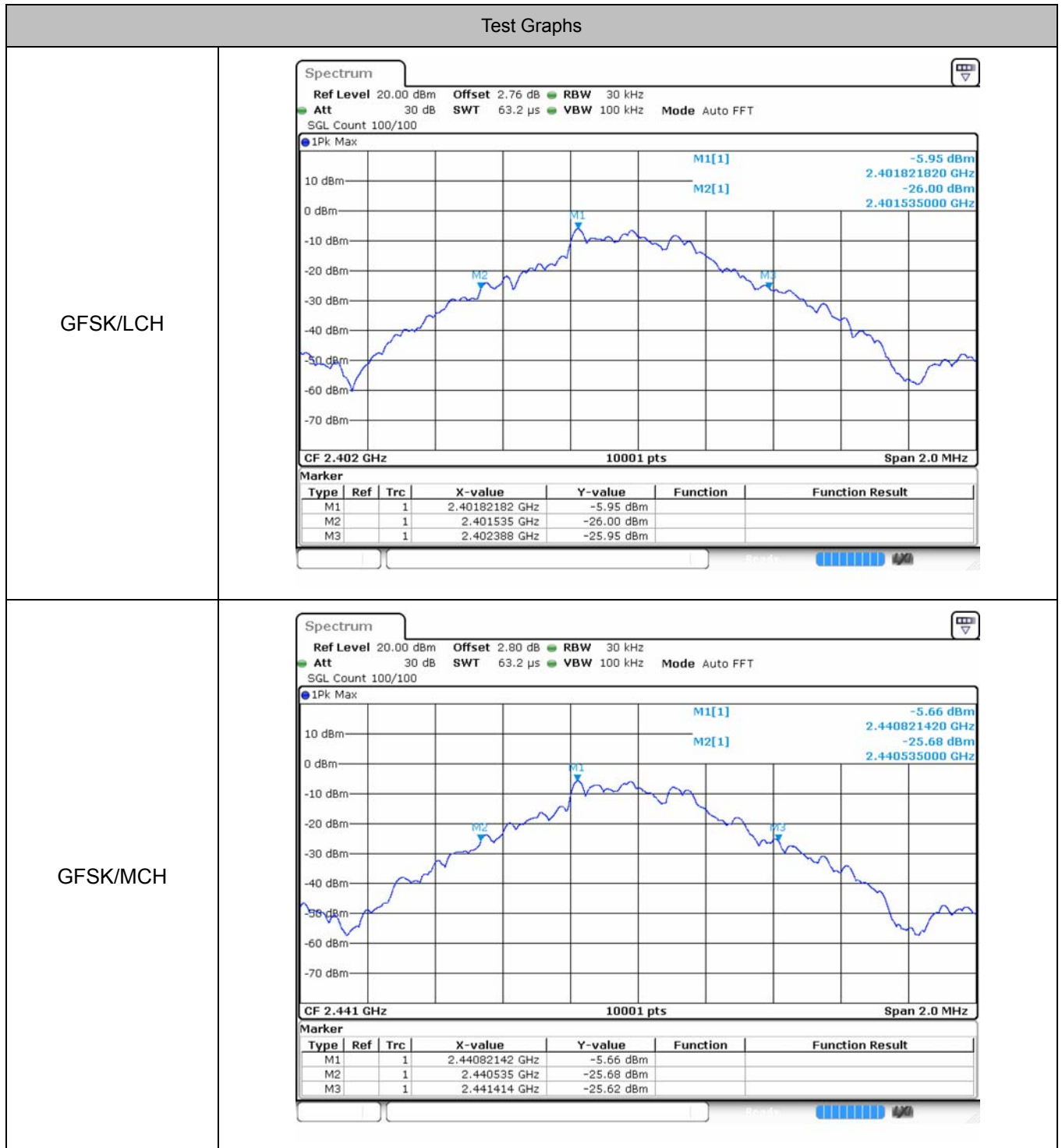


3 20dB Bandwidth

3.1 Test Result

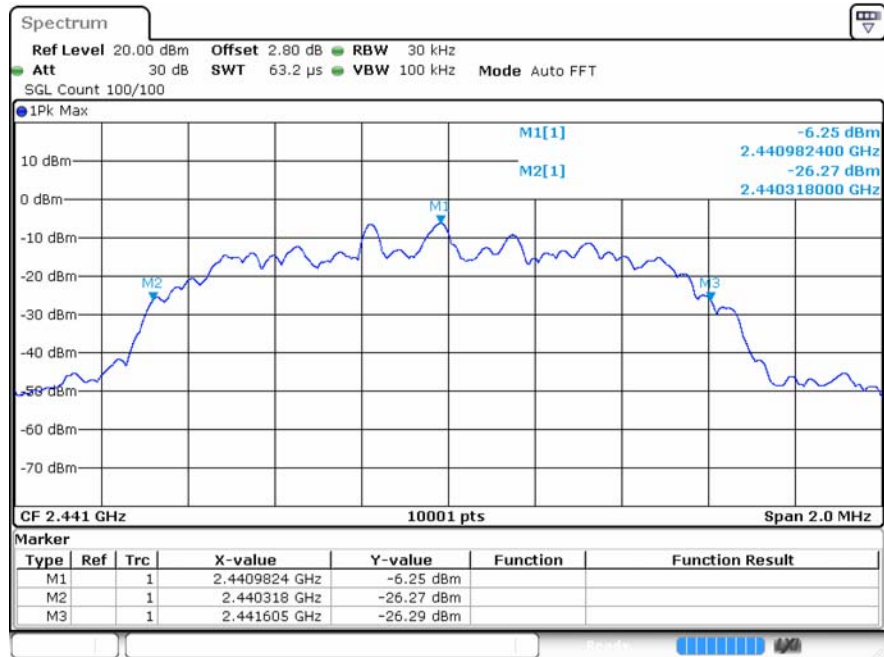
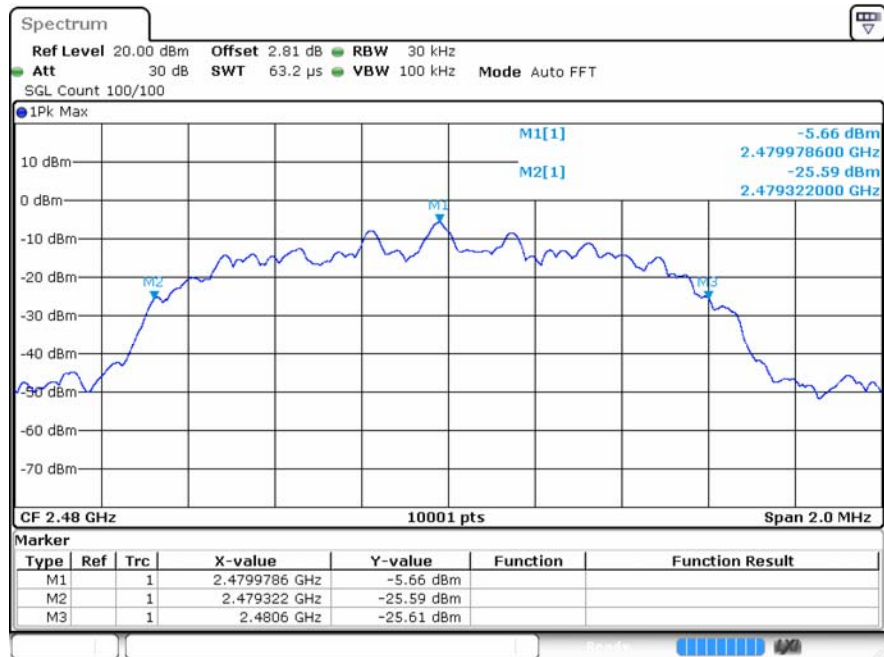
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.853	Not Specified	Pass
	MCH	0.879	Not Specified	Pass
	HCH	0.859	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.244	Not Specified	Pass
	MCH	1.287	Not Specified	Pass
	HCH	1.279	Not Specified	Pass

3.2 Test Graphs



GFSK/HCH


 $\pi/4$ DQPSK/LCH

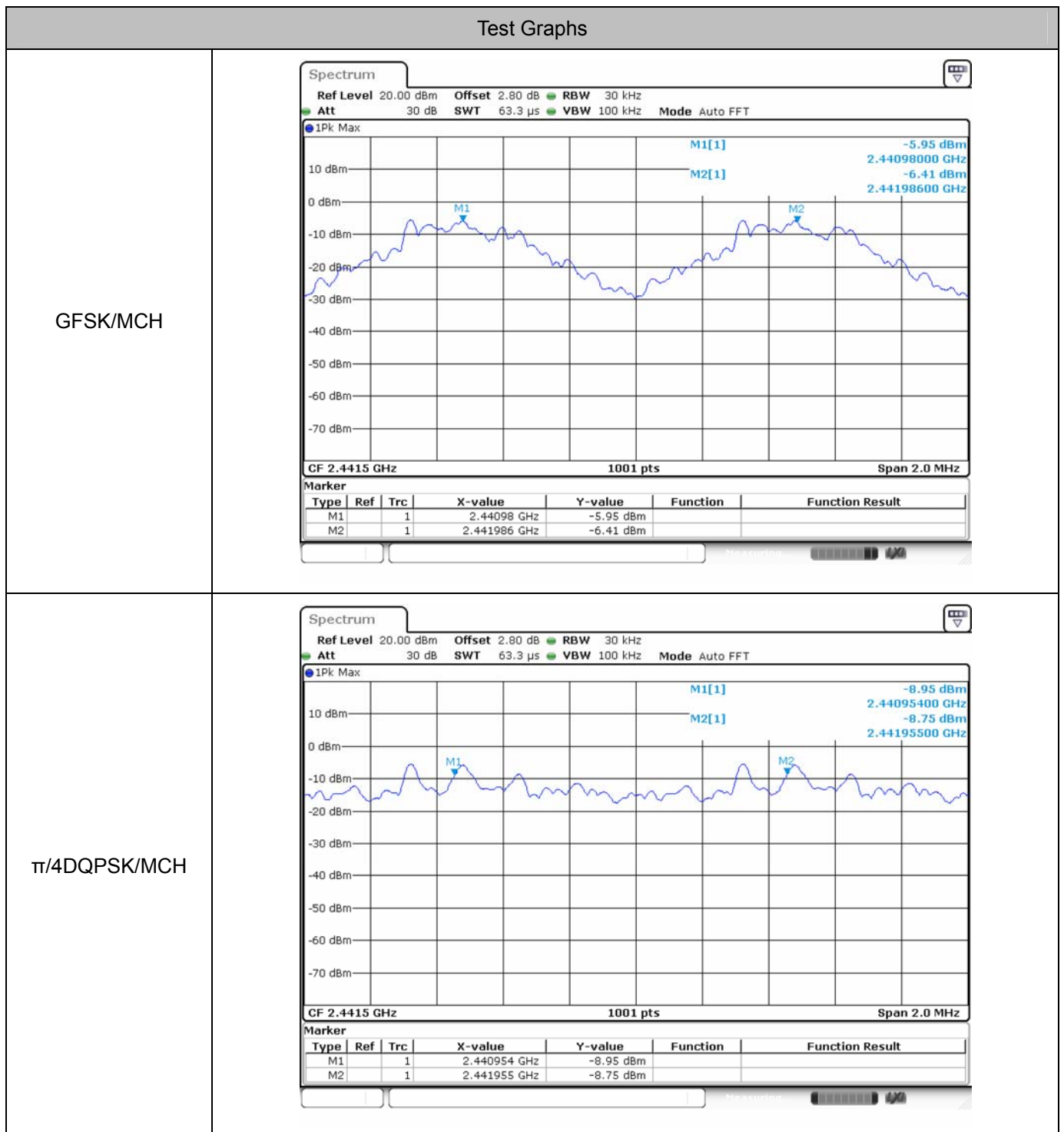

$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


4 Carrier Frequency Separation

4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.006	0.586	Pass
$\pi/4$ DQPSK	MCH	1.001	0.858	Pass

4.2 Test Graphs

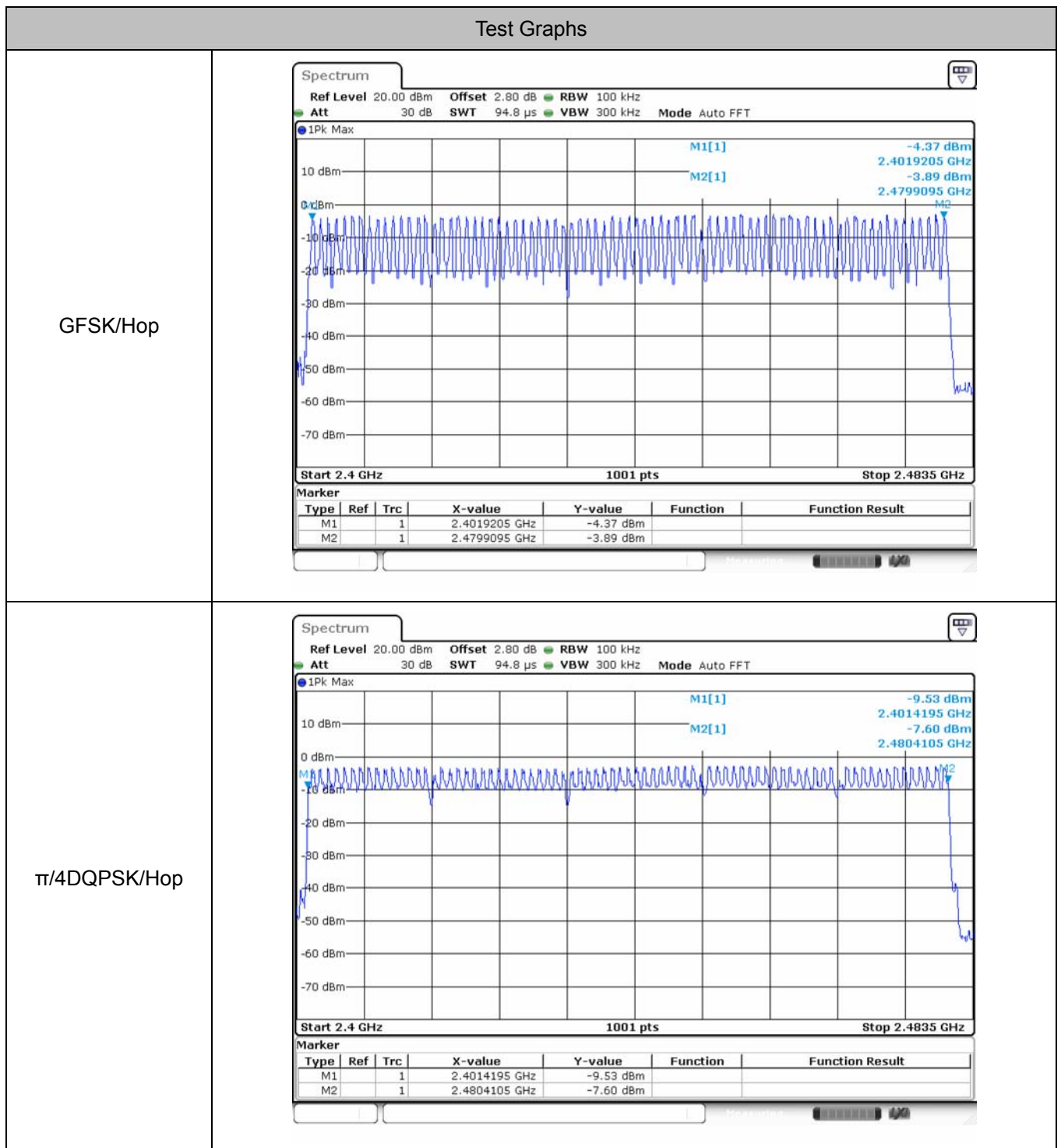


5 Hopping Channel Number

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

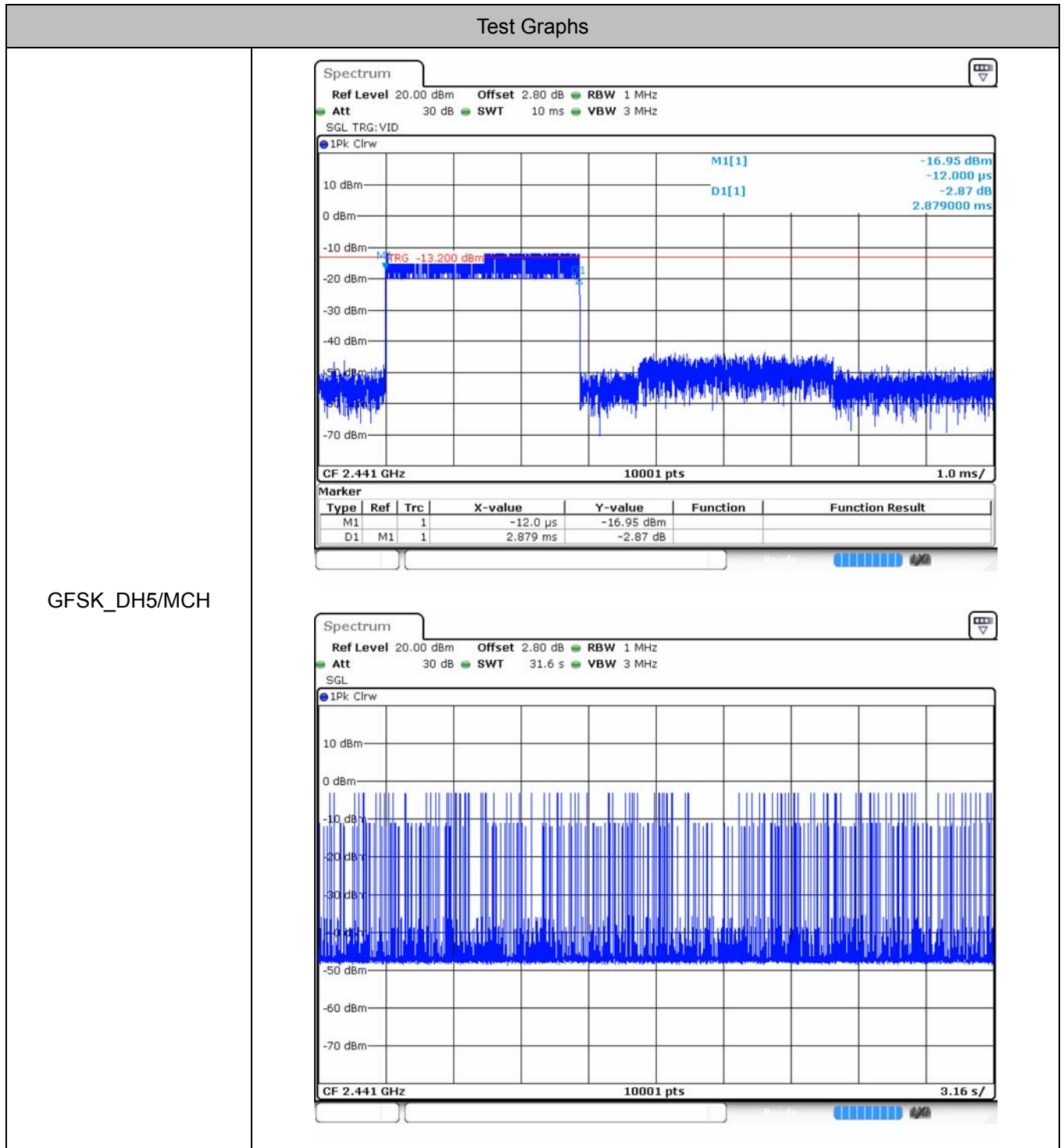


6 Dwell Time

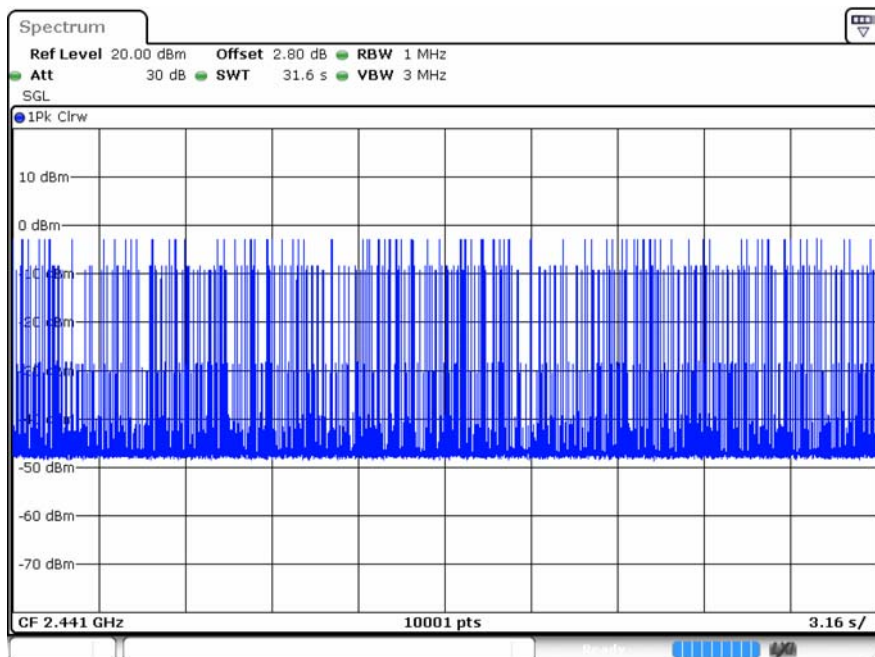
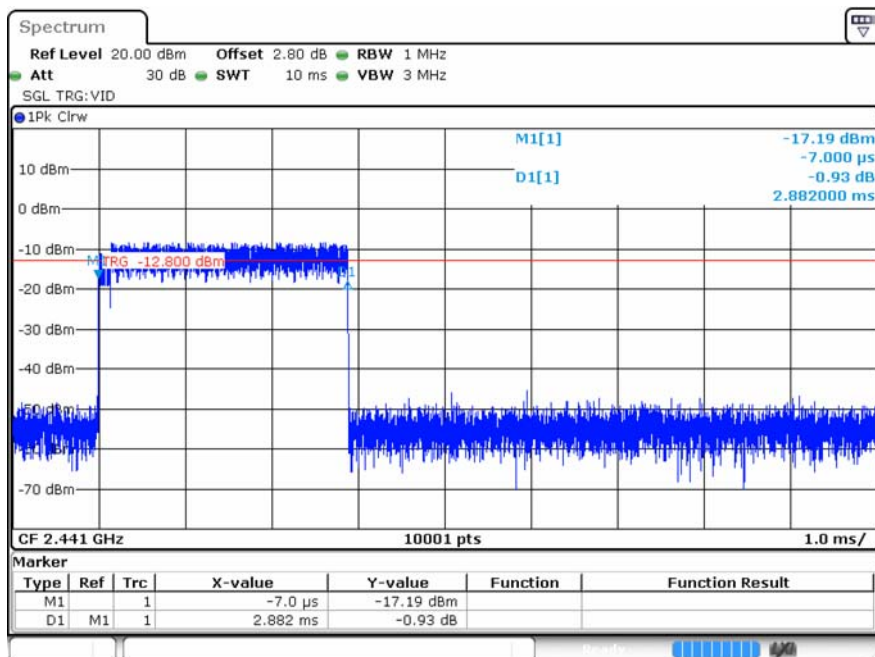
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.879	112	322.448	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.882	95	273.79	0.4	Pass

6.2 Test Graphs



$\pi/4$ DQPSK
 _2DH5/MCH

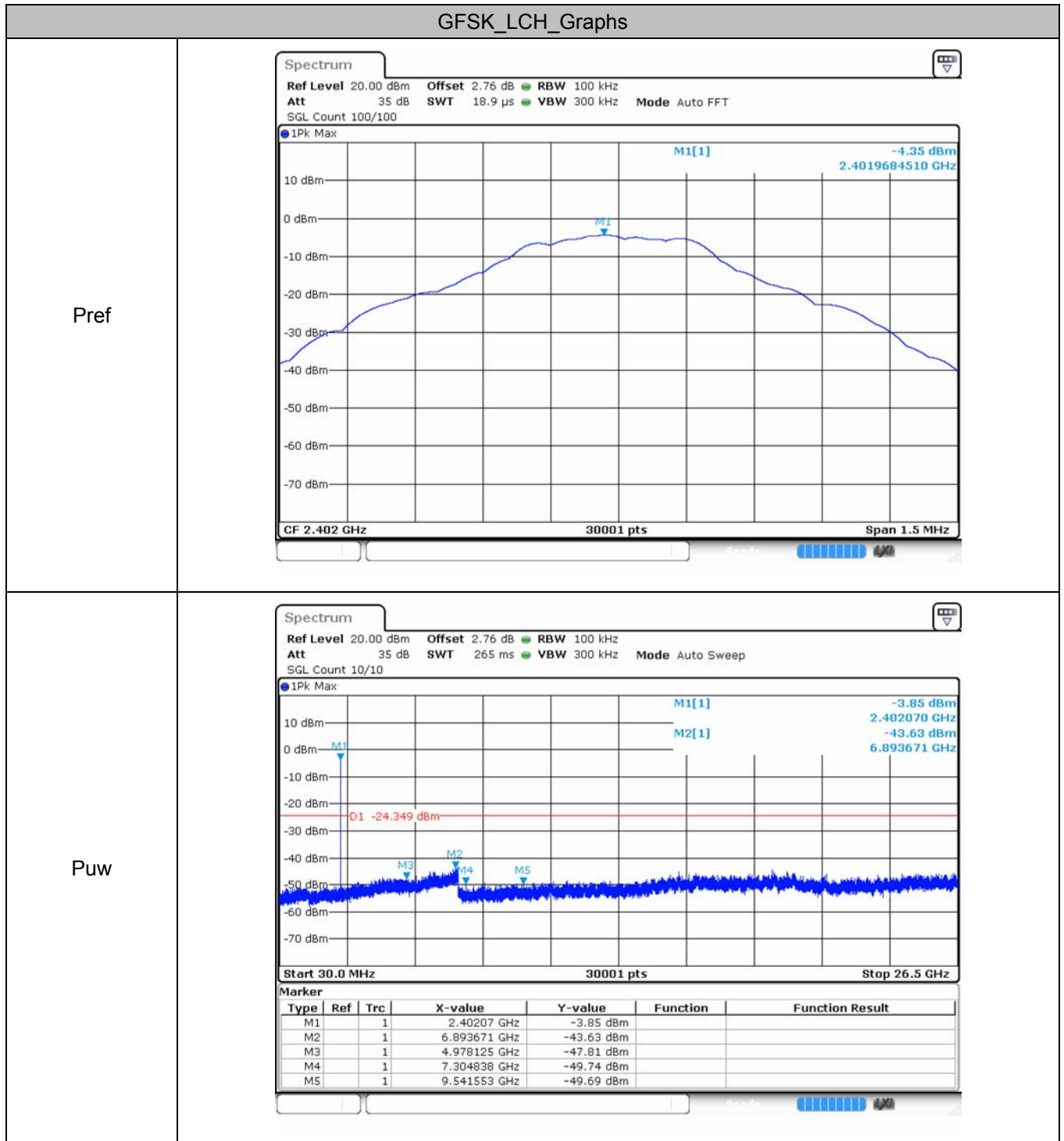


7 RF Conducted Spurious Emissions

7.1 Test Result

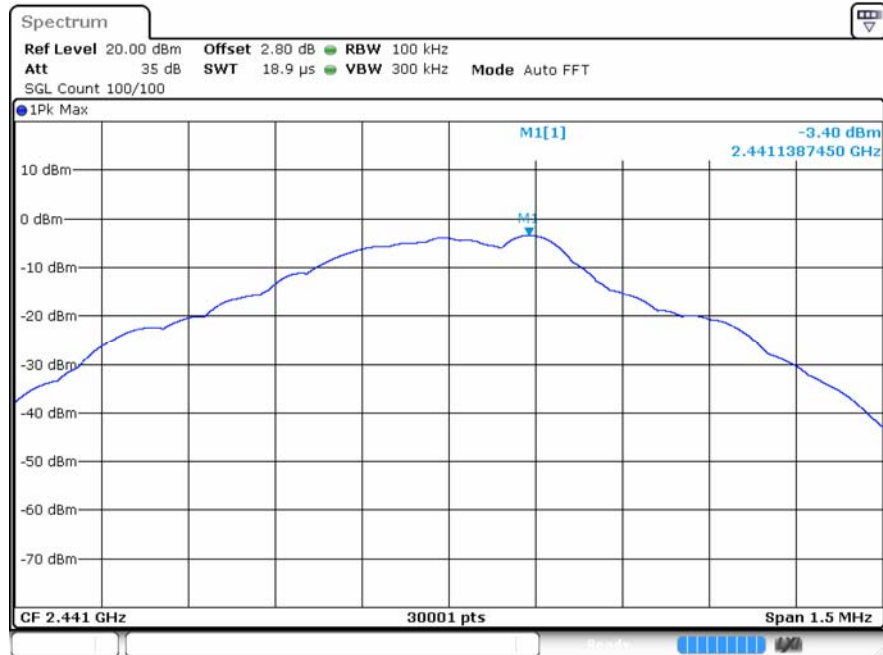
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-39.28	-20	Pass
	MCH	-39.89	-20	Pass
	HCH	-40.75	-20	Pass
$\pi/4$ DQPSK	LCH	-40.01	-20	Pass
	MCH	-41.38	-20	Pass
	HCH	-39.8	-20	Pass

7.2 Test Graphs

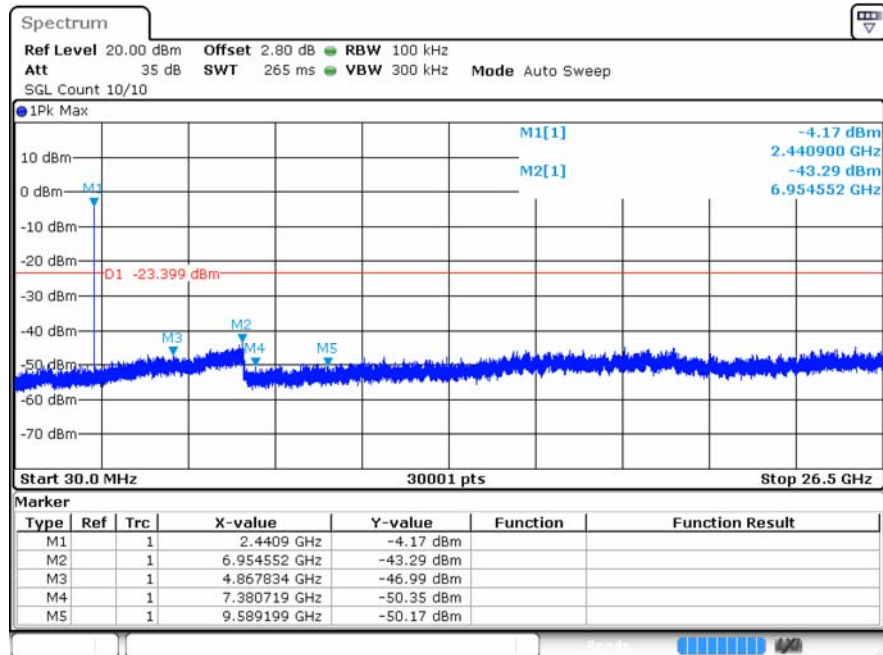


GFSK_MCH_Graphs

Pref



Puw

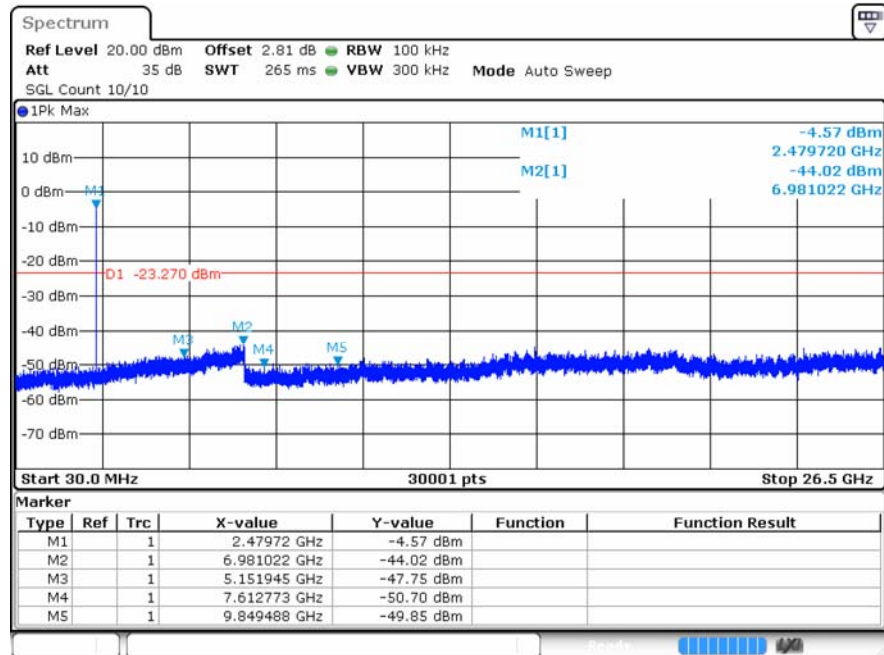


GFSK_HCH_Graphs

Pref

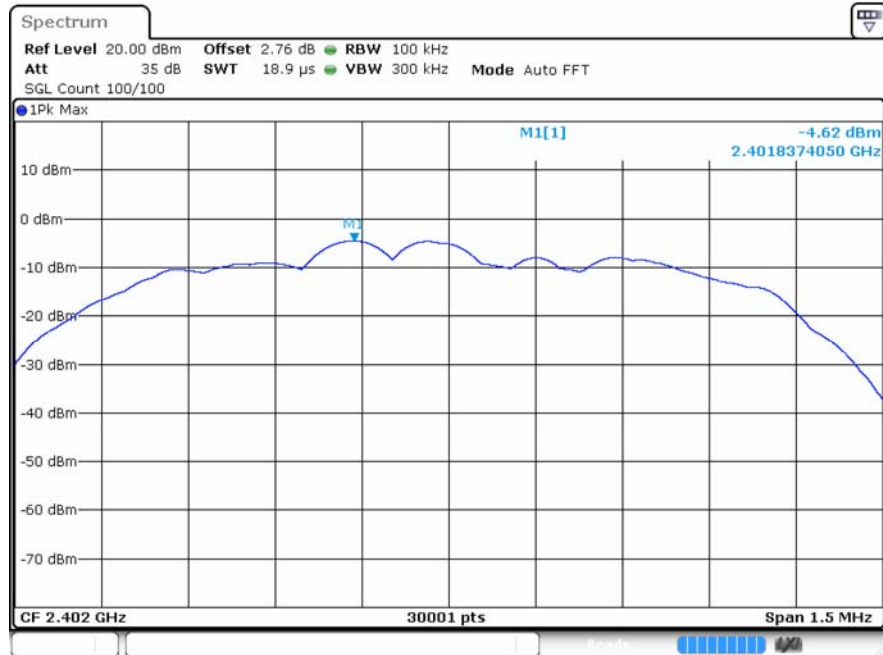


Puw

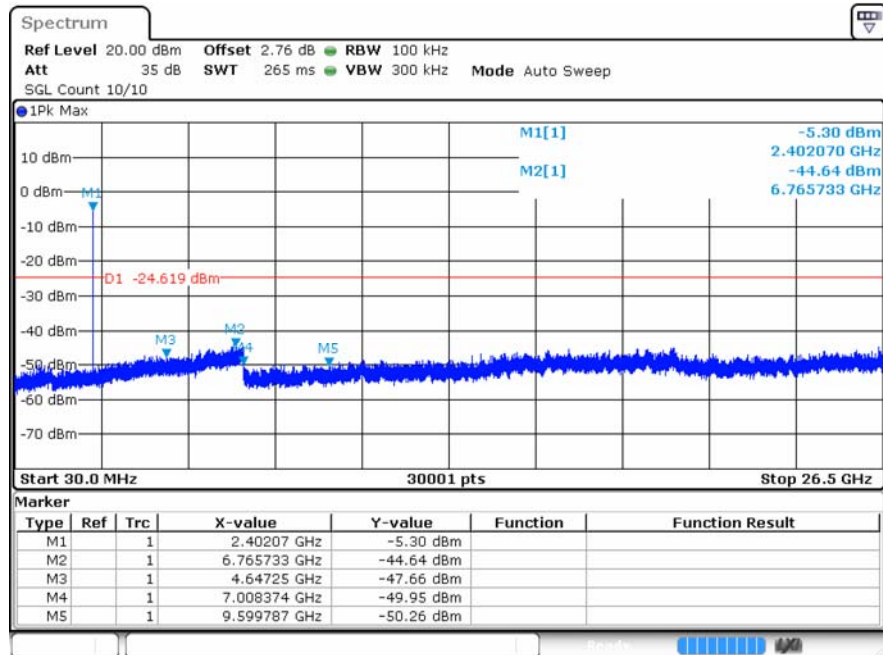


$\pi/4$ DQPSK_LCH_Graphs

Pref

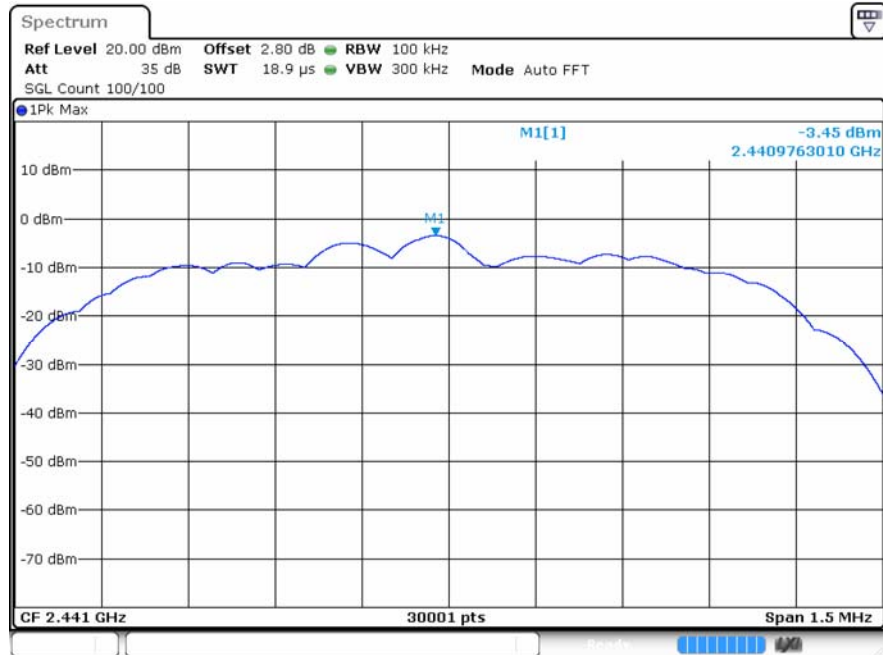


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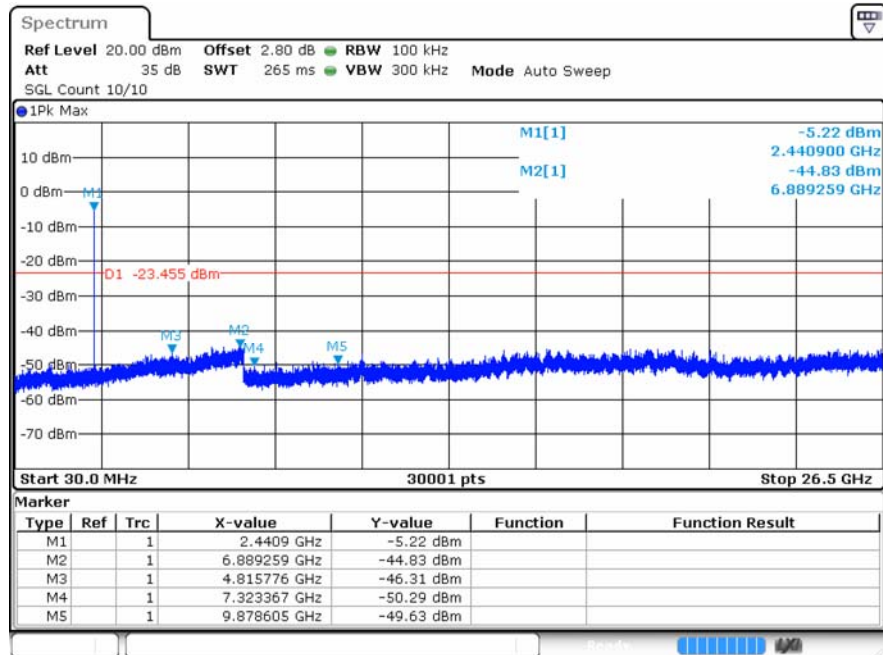


$\pi/4$ DQPSK_MCH_Graphs

Pref

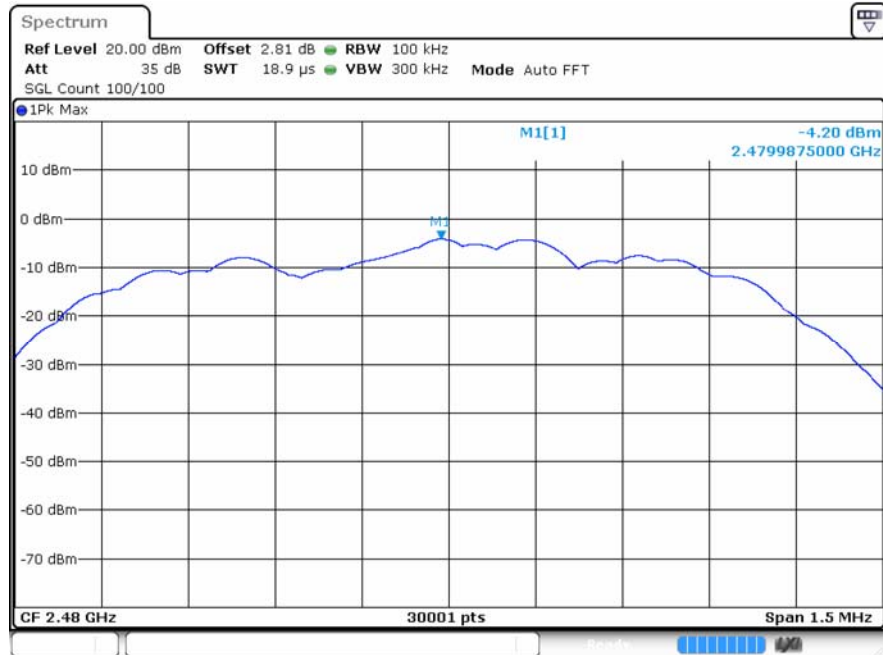


Puw

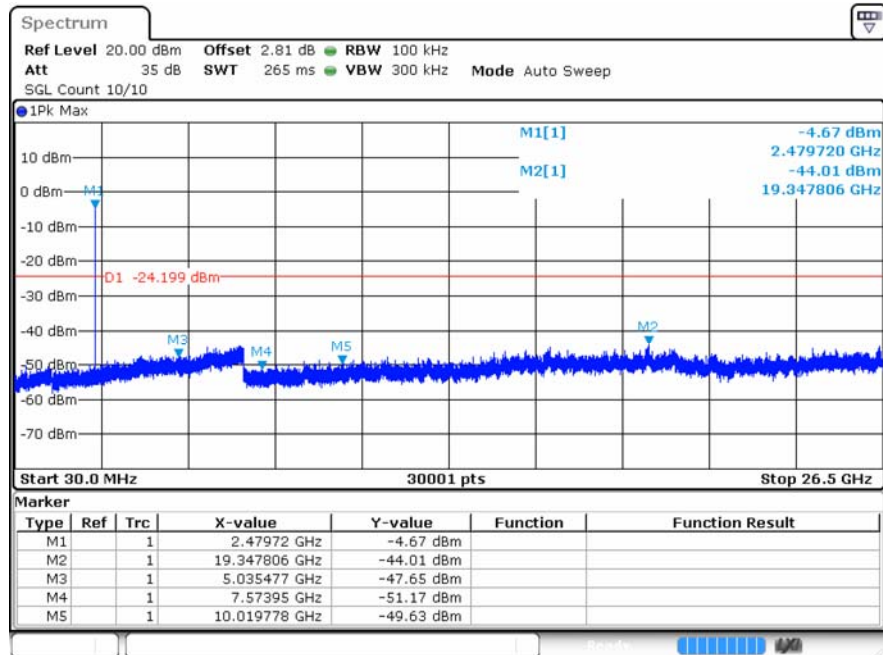


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

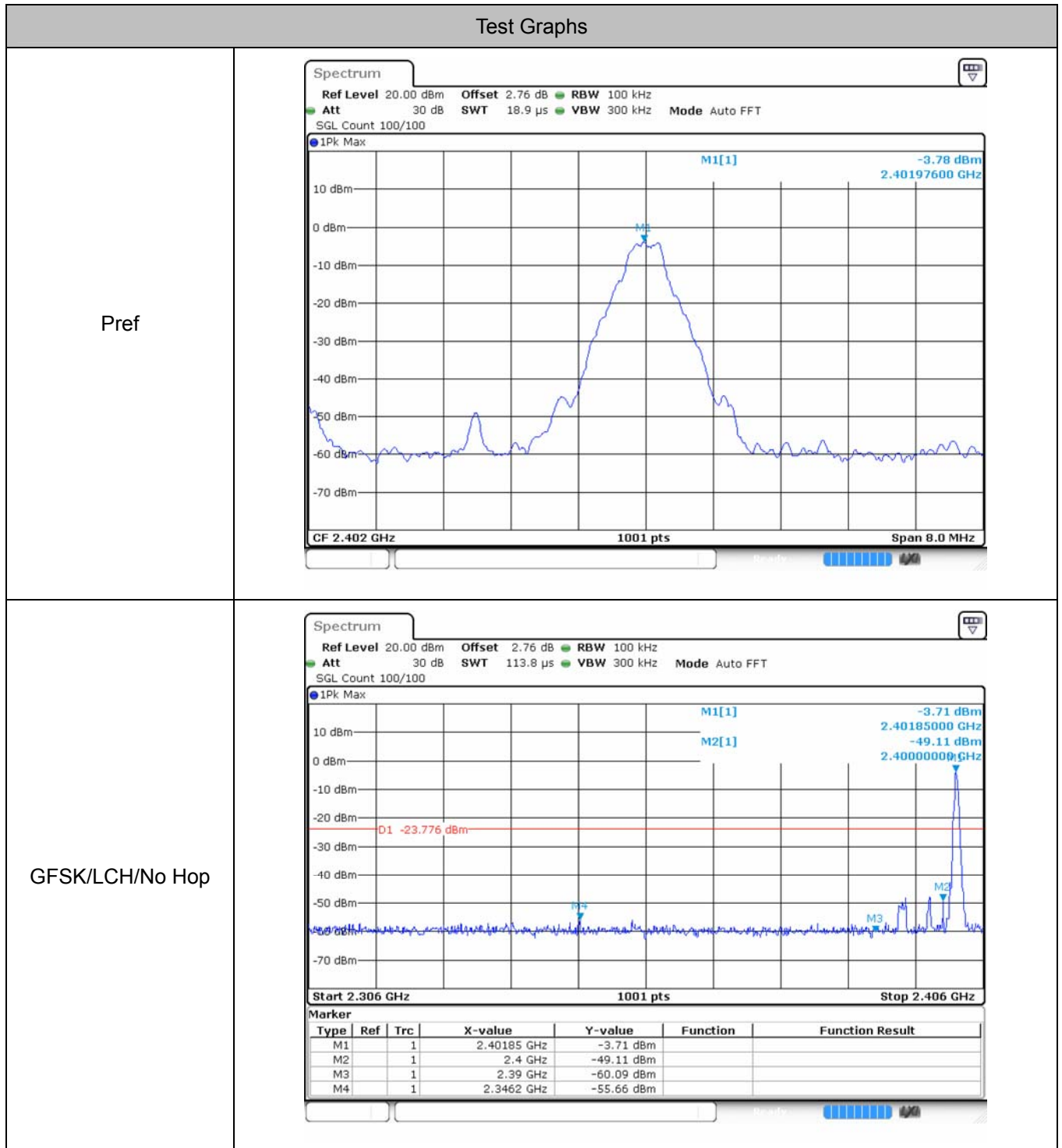


8 Band-edge for RF Conducted Emissions

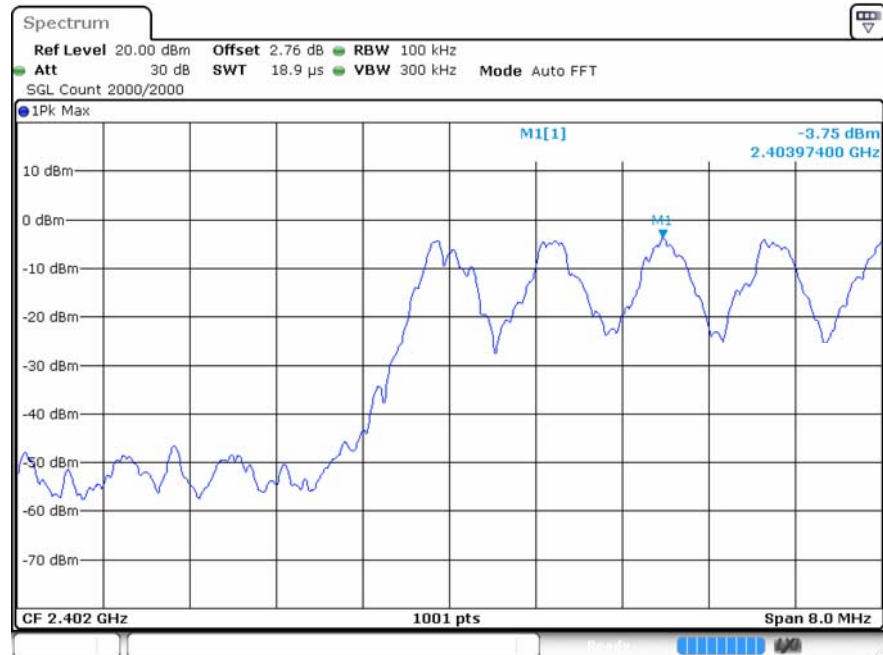
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-51.88	-20	Pass
			On	-50.83	-20	Pass
	HCH	2480	Off	-50.62	-20	Pass
			On	-49.99	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-52.39	-20	Pass
			On	-50.36	-20	Pass
	HCH	2480	Off	-49.76	-20	Pass
			On	-49.22	-20	Pass

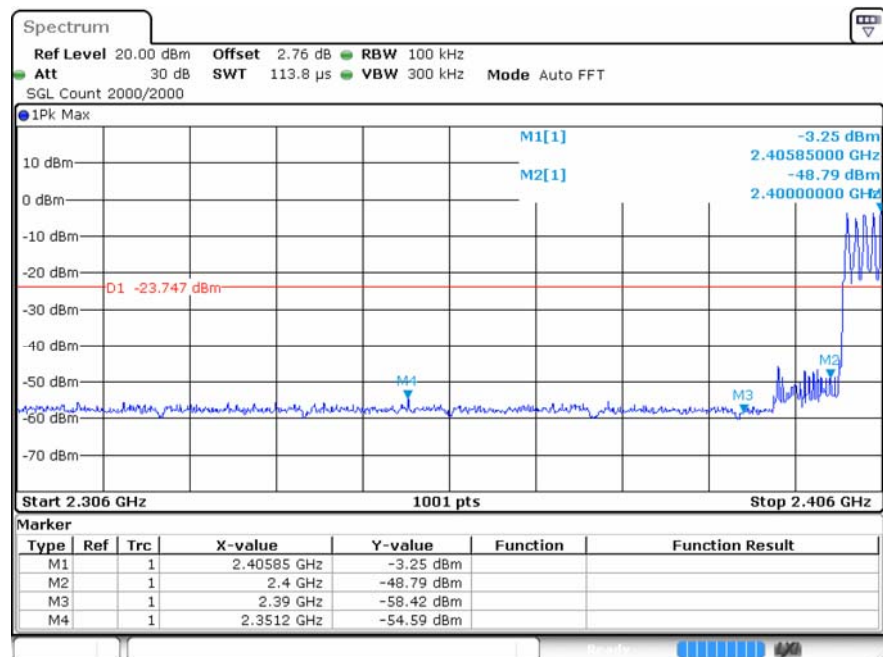
8.2 Test Graphs



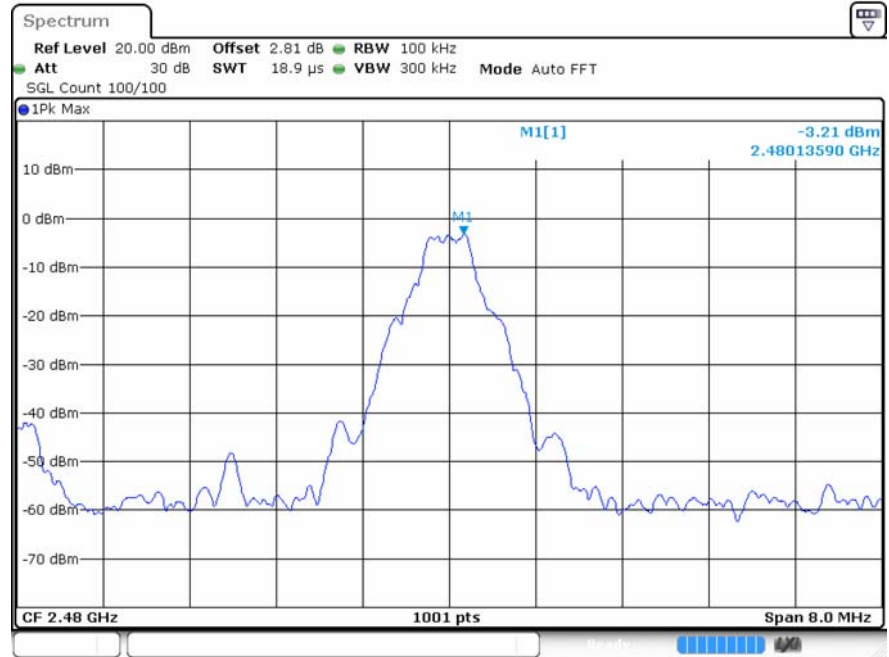
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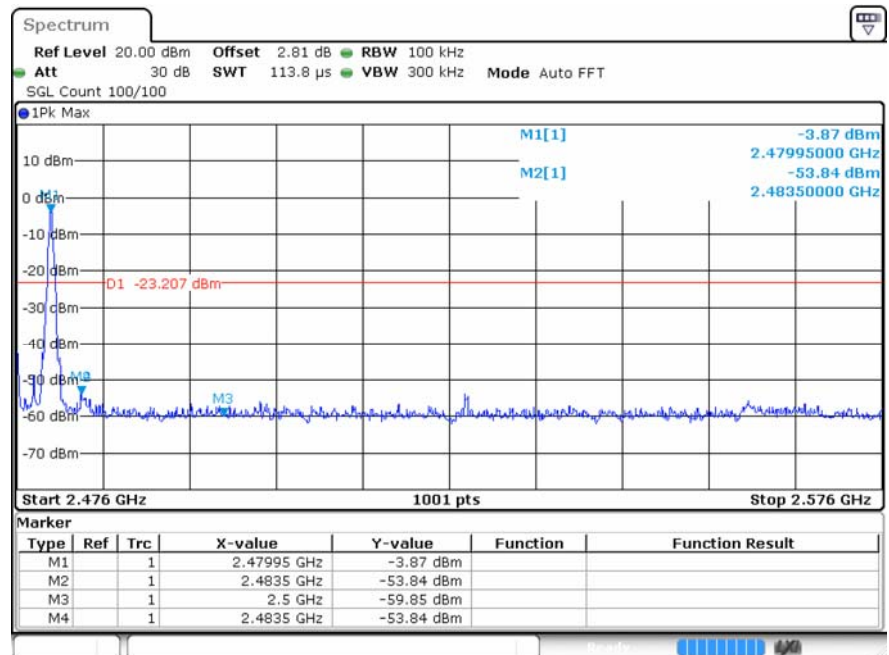
GFSK/LCH/Hop



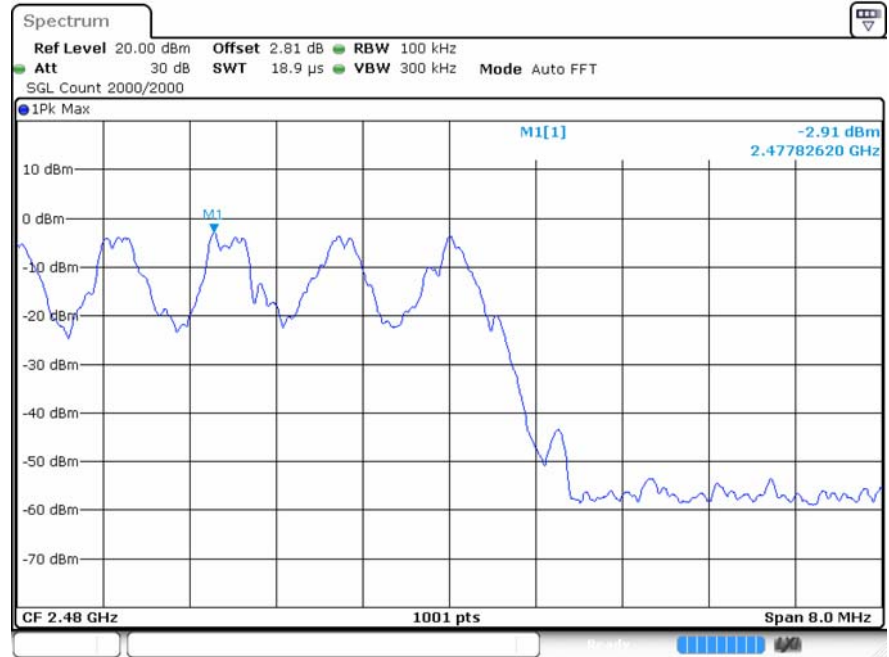
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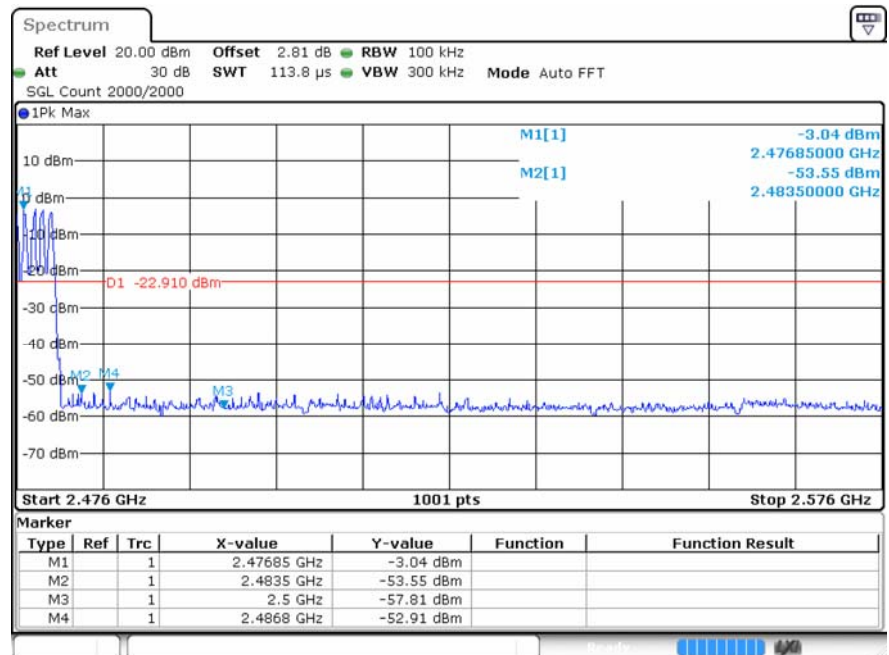
GFSK/HCH/No Hop



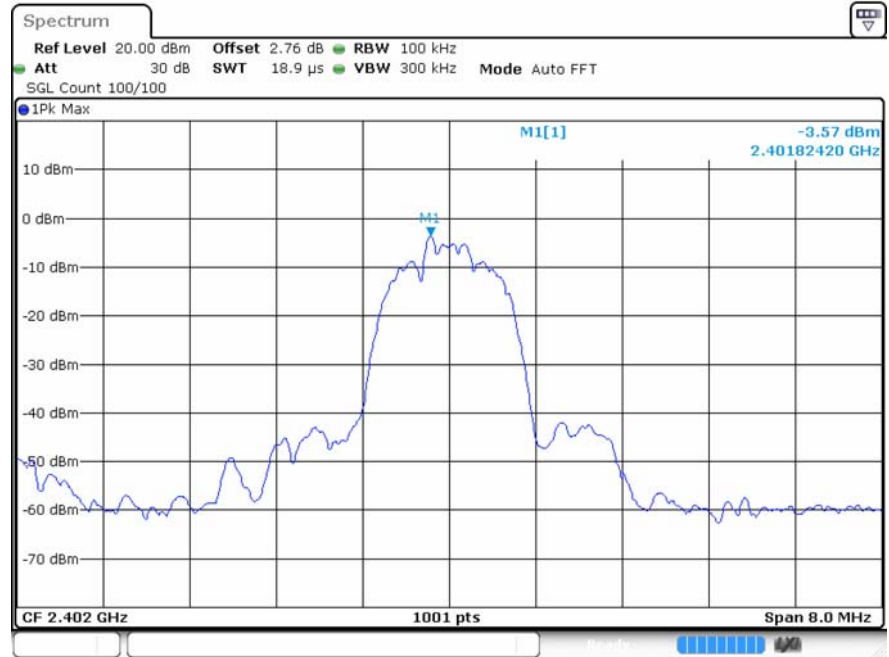
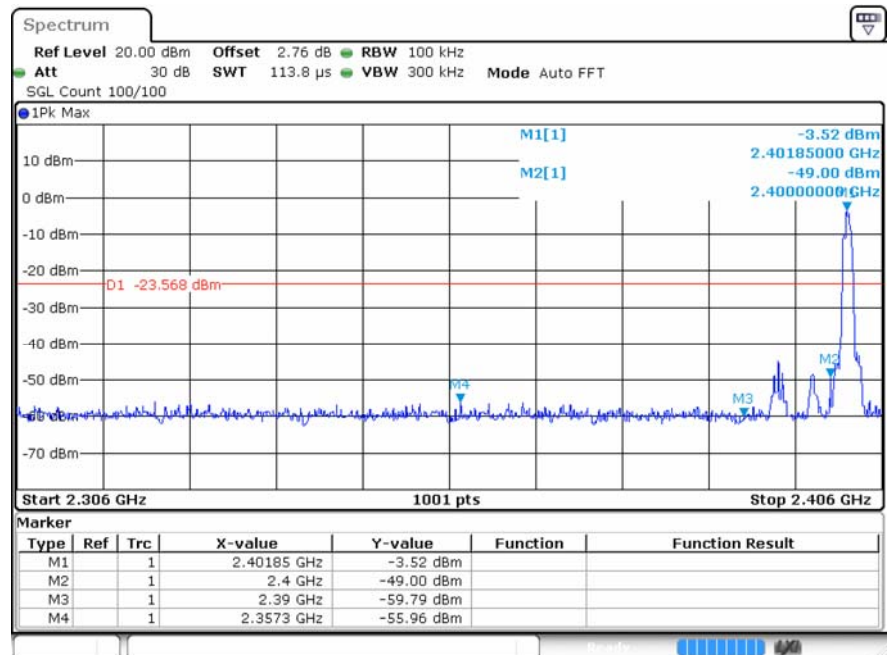
Ref.



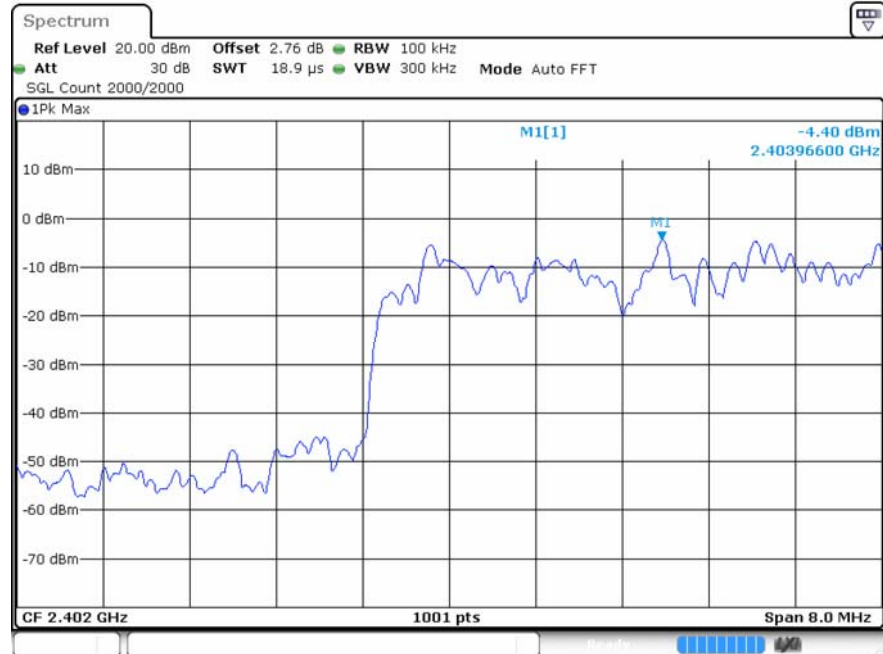
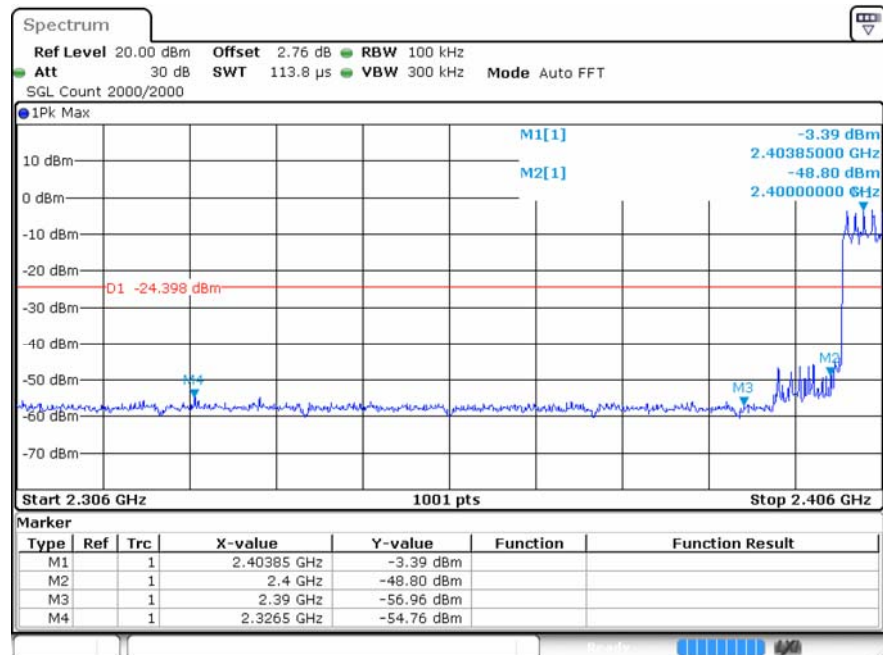
GFSK/HCH/Hop



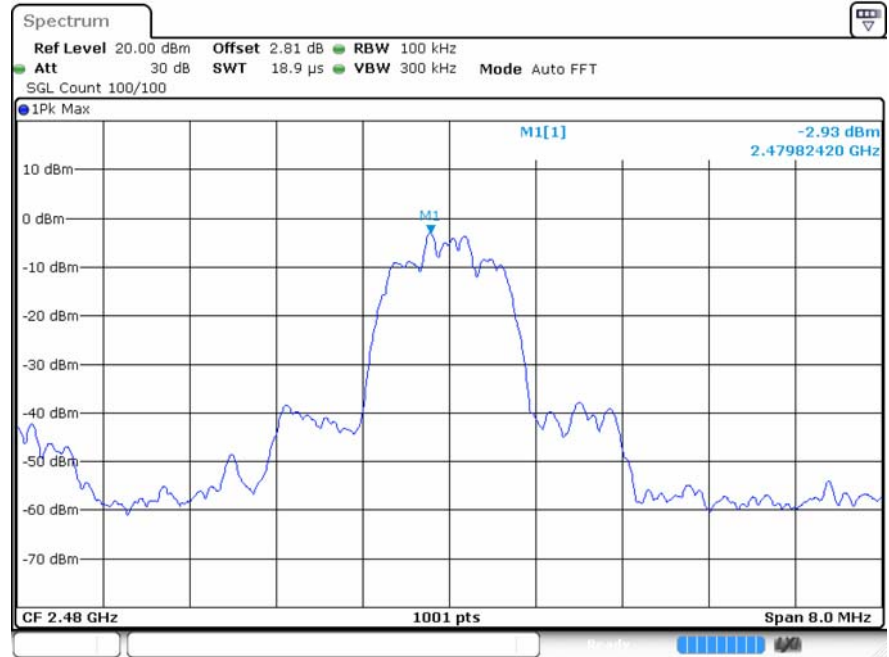
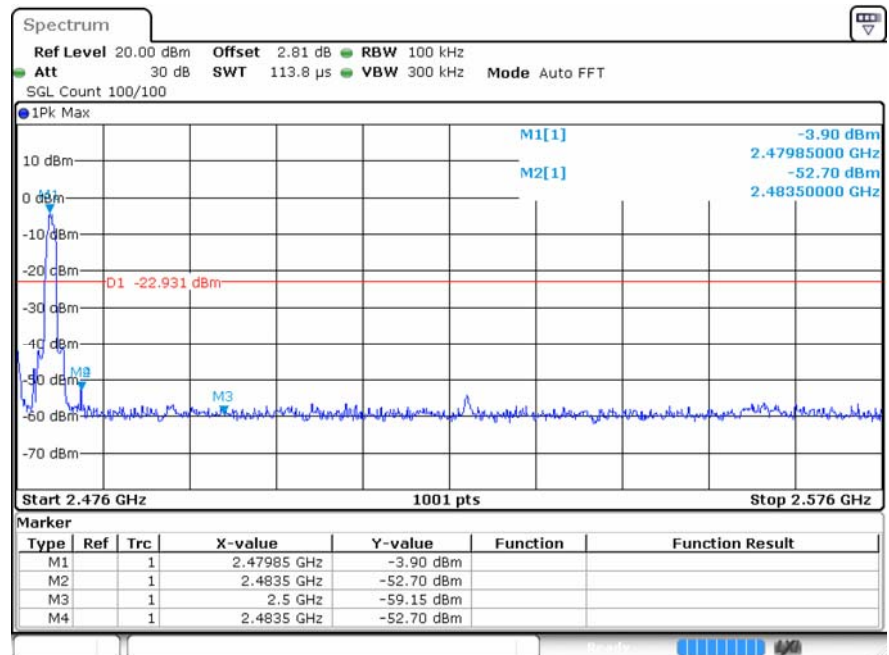
Ref


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


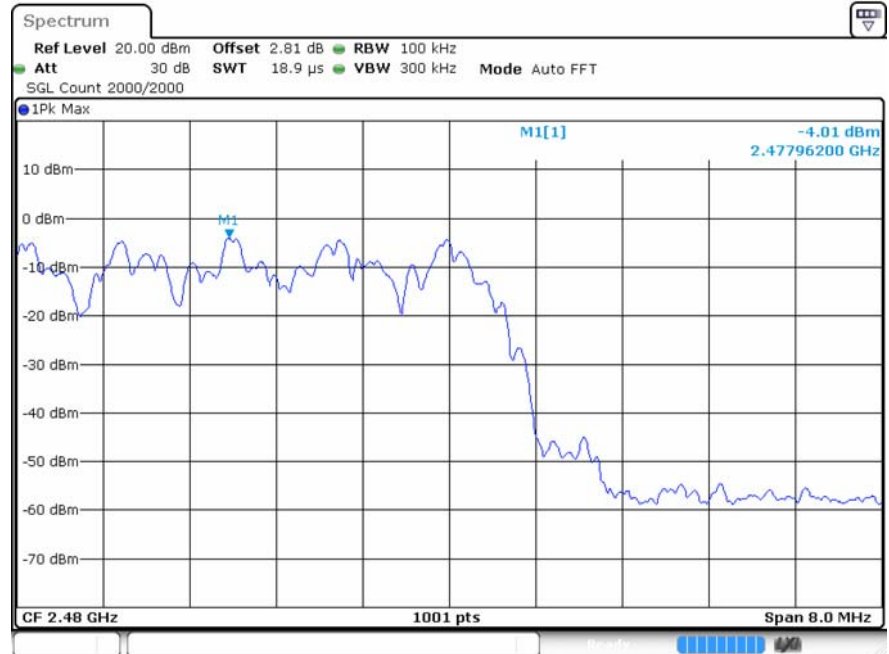
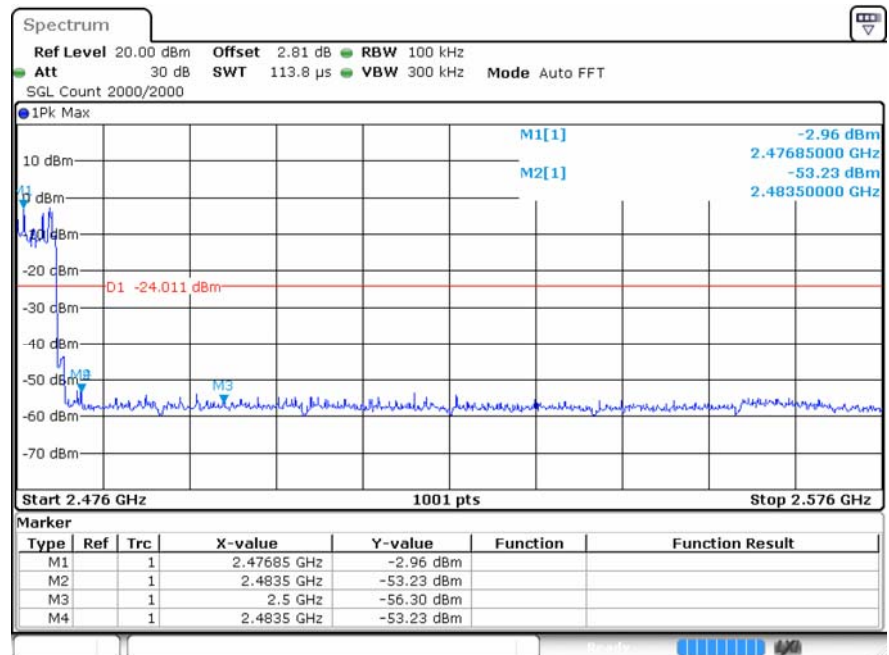
Ref


 $\pi/4$ DQPSK/LCH/Hop


Ref


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


Ref


 $\pi/4$ DQPSK/HCH/Hop


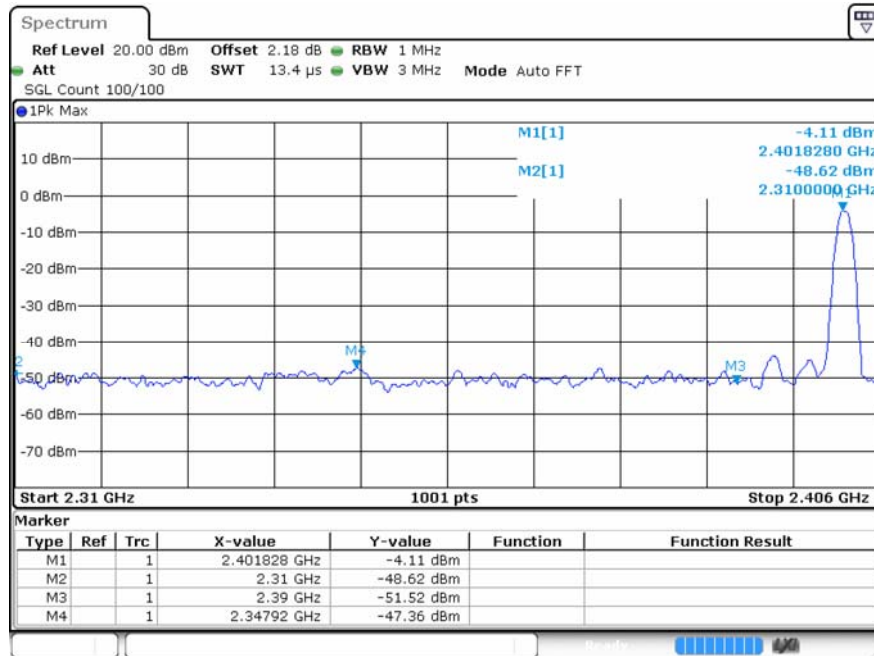
9 Restrict-band band-edge measurements

9.1 Test Result

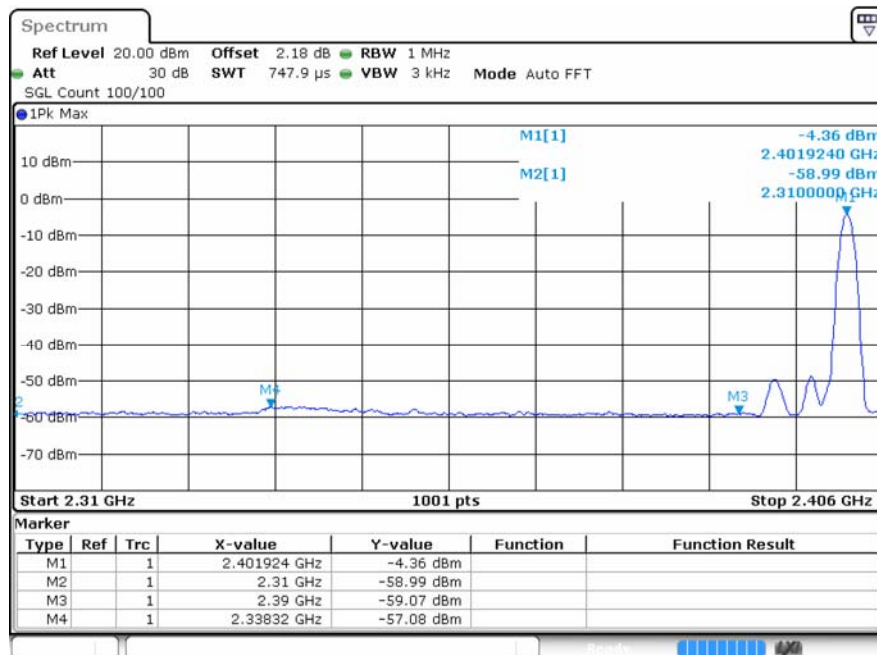
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-48.62	2	48.64	PEAK	74	Pass
	Off	2310.0	-58.98	2	38.28	AV	54	Pass
	Off	2347.92	-47.36	2	49.9	PEAK	74	Pass
	Off	2338.32	-57.08	2	40.18	AV	54	Pass
	Off	2390.0	-51.52	2	45.74	PEAK	74	Pass
	Off	2390.0	-59.07	2	38.19	AV	54	Pass
	Off	2483.5	-48.69	2	48.57	PEAK	74	Pass
	Off	2483.5	-54.79	2	42.47	AV	54	Pass
	Off	2486.992	-47.92	2	49.34	PEAK	74	Pass
	Off	2483.776	-54.32	2	42.94	AV	54	Pass
	Off	2500.0	-50.26	2	47	PEAK	74	Pass
	Off	2500.0	-58.7	2	38.56	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-51.19	2	46.07	PEAK	74	Pass
	Off	2310.0	-58.79	2	38.47	AV	54	Pass
	Off	2339.568	-45.94	2	51.32	PEAK	74	Pass
	Off	2339.856	-56.76	2	40.5	AV	54	Pass
	Off	2390.0	-49.95	2	47.31	PEAK	74	Pass
	Off	2390.0	-59.16	2	38.1	AV	54	Pass
	Off	2483.5	-48.73	2	48.53	PEAK	74	Pass
	Off	2483.5	-54.91	2	42.35	AV	54	Pass
	Off	2485.696	-47.84	2	49.42	PEAK	74	Pass
	Off	2483.848	-54.89	2	42.37	AV	54	Pass
	Off	2500.0	-51.24	2	46.02	PEAK	74	Pass
	Off	2500.0	-58.69	2	38.57	AV	54	Pass

9.2 Test Graphs

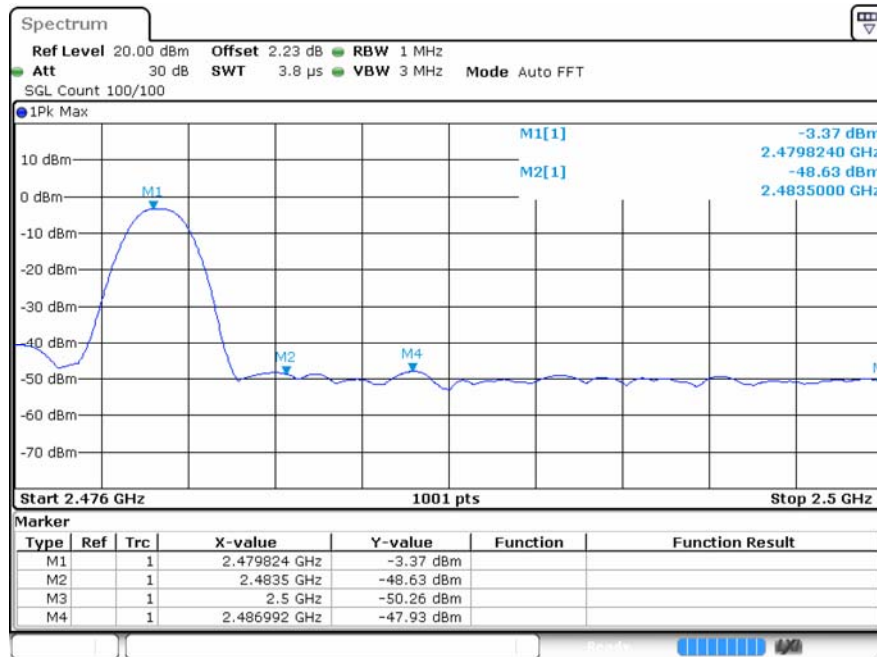
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



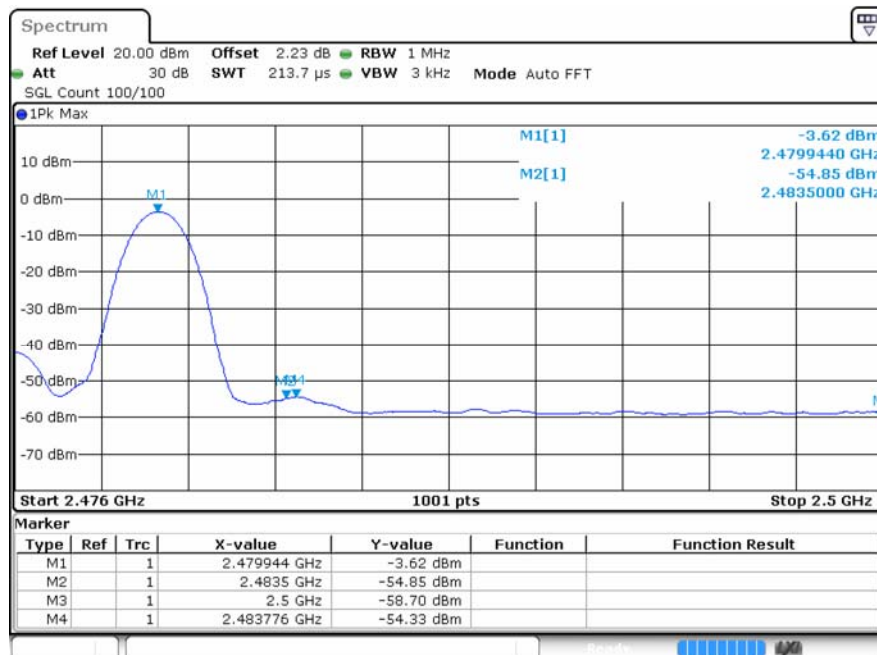
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



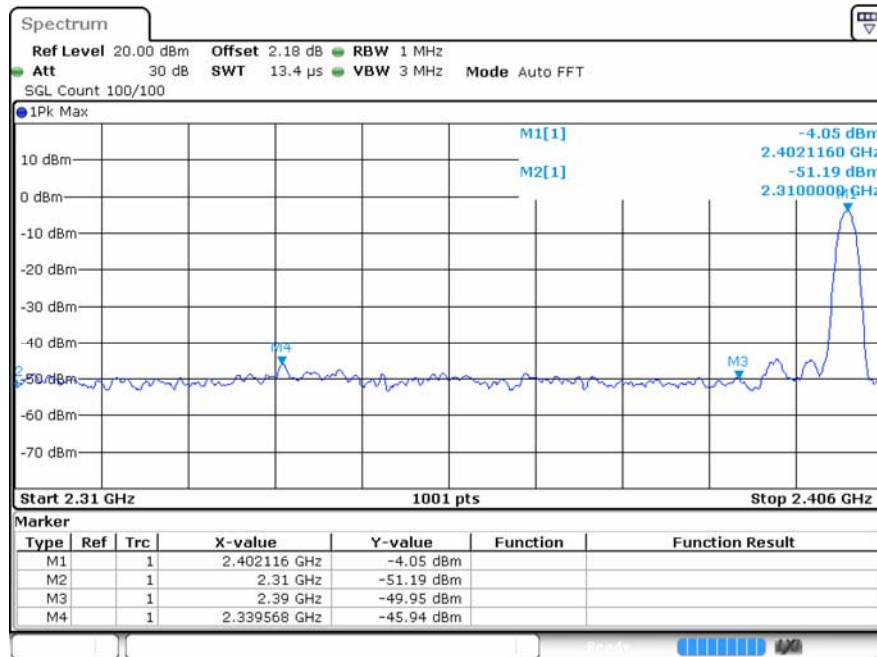
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



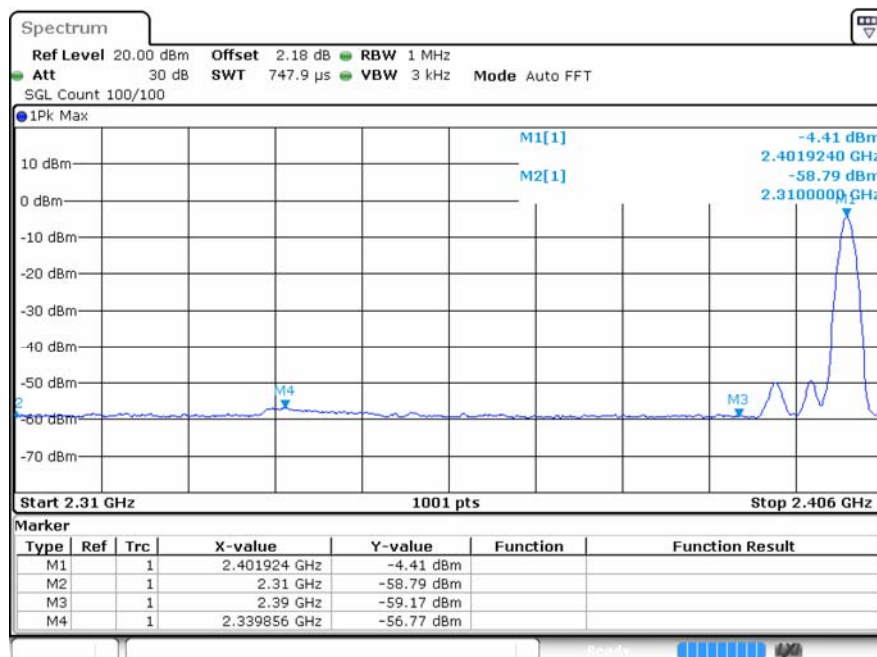
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



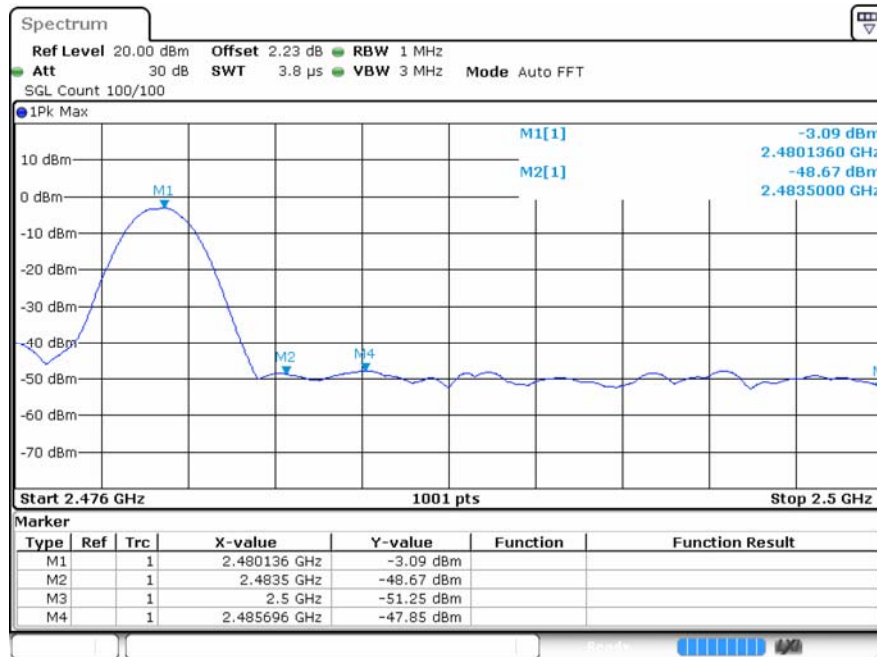
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



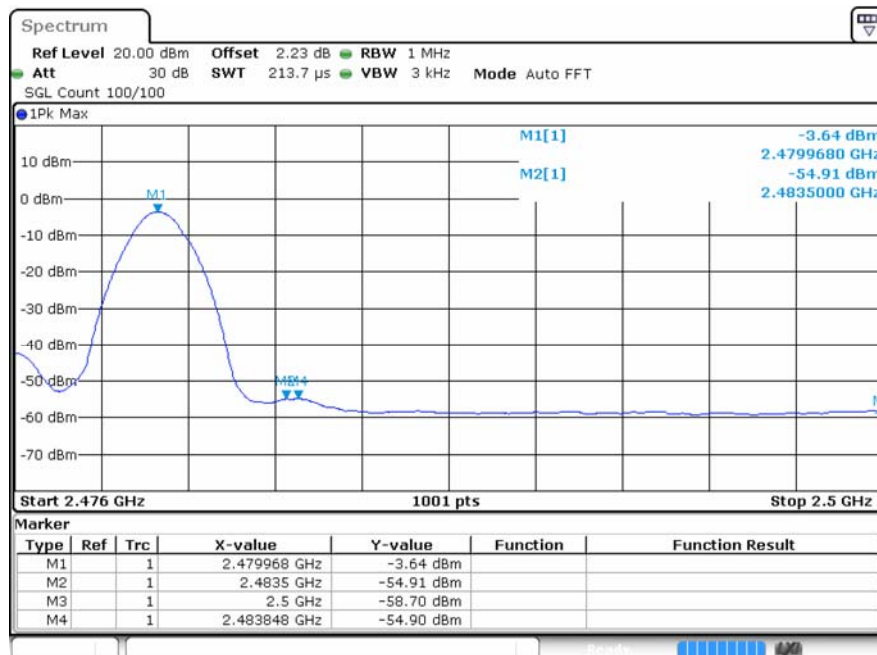
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---