



Appendix A

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

Product Name: BLUETOOTH SPEAKER

Trade Mark: N/A

Test Model: MPD668

Environmental Conditions

Temperature:	24.4°C
Relative Humidity:	52.5%
ATM Pressure:	101Kpa
Test Engineer:	Leon.yi
Supervised by:	Sean She



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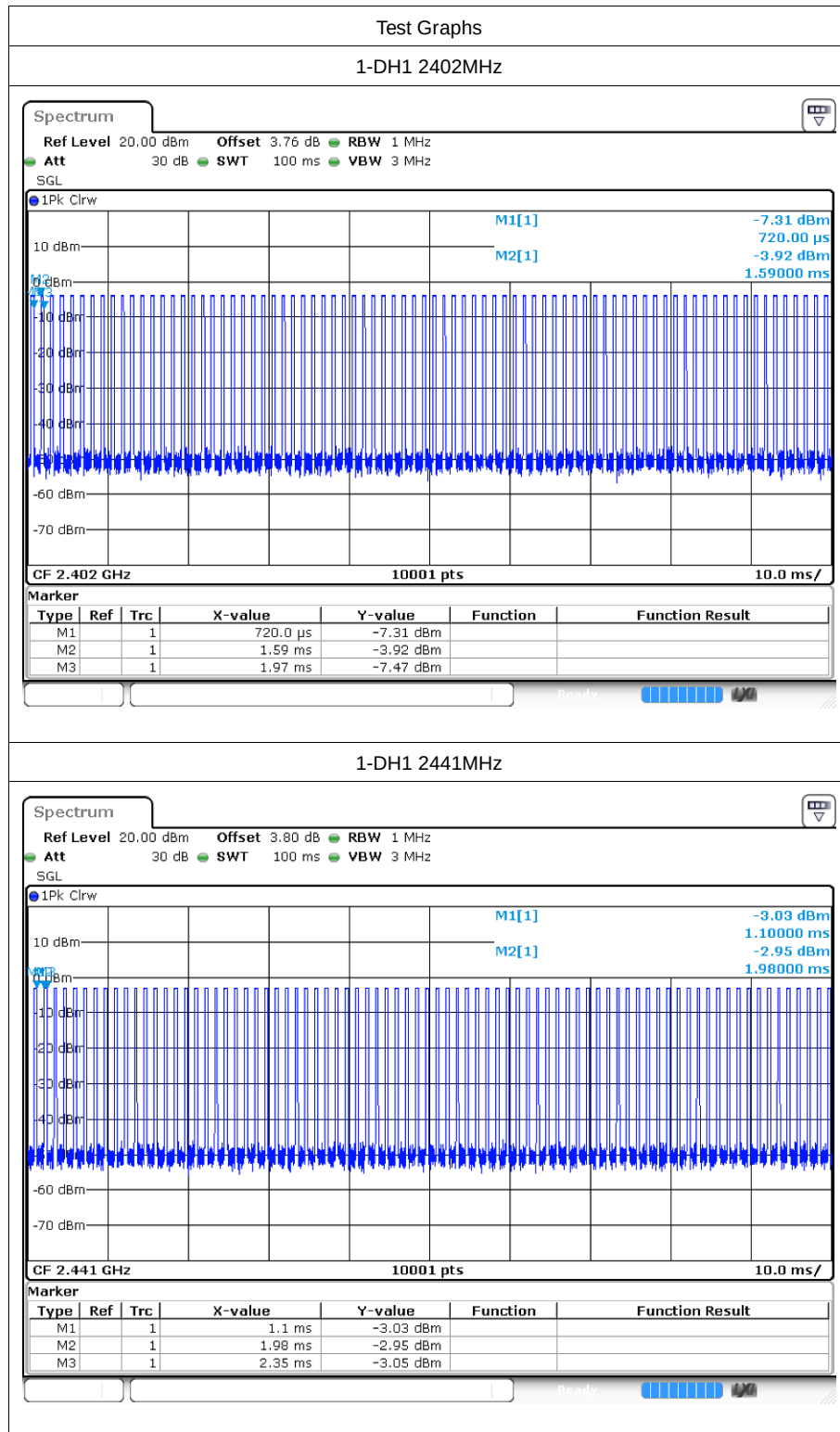
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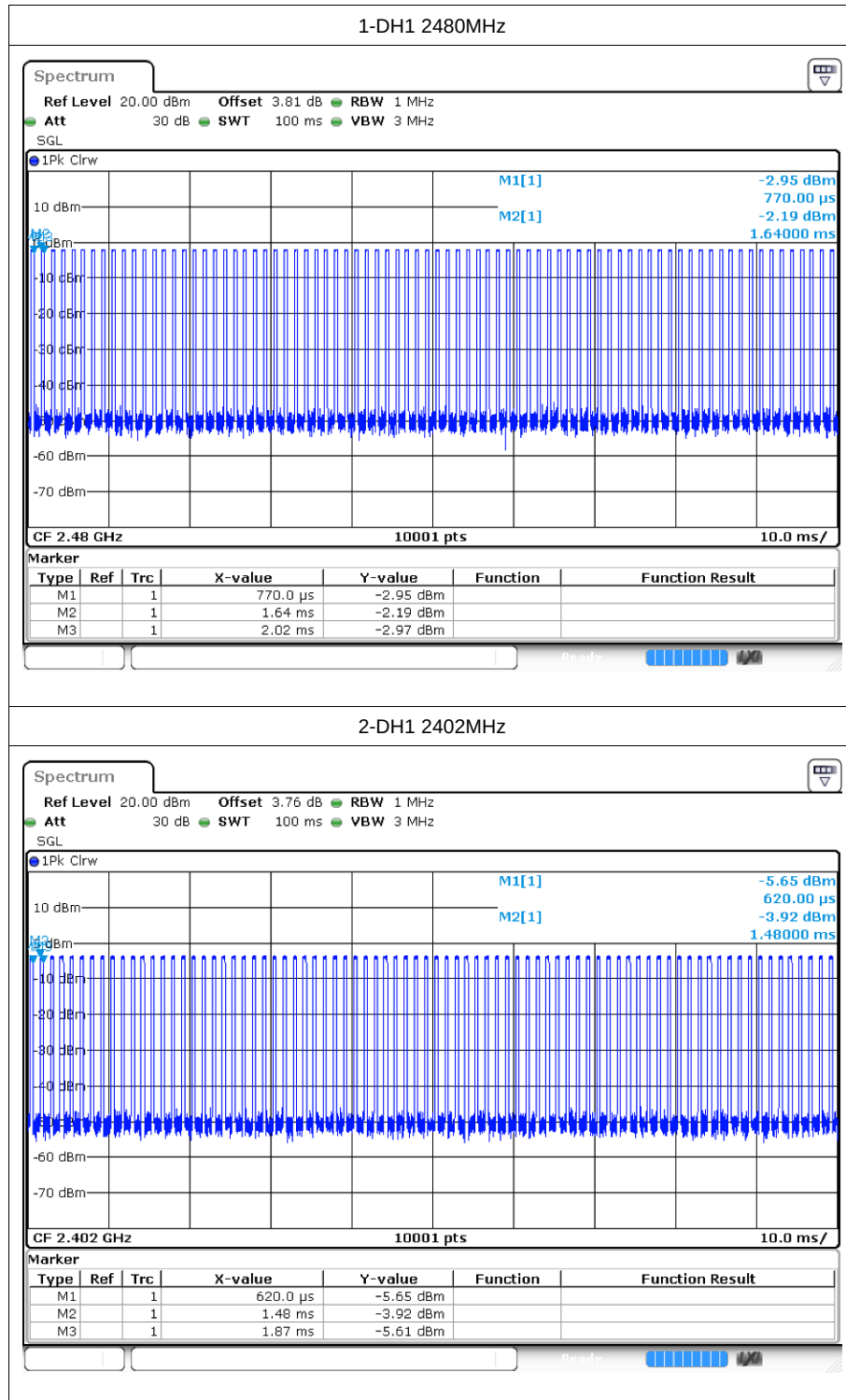
1 Duty Cycle

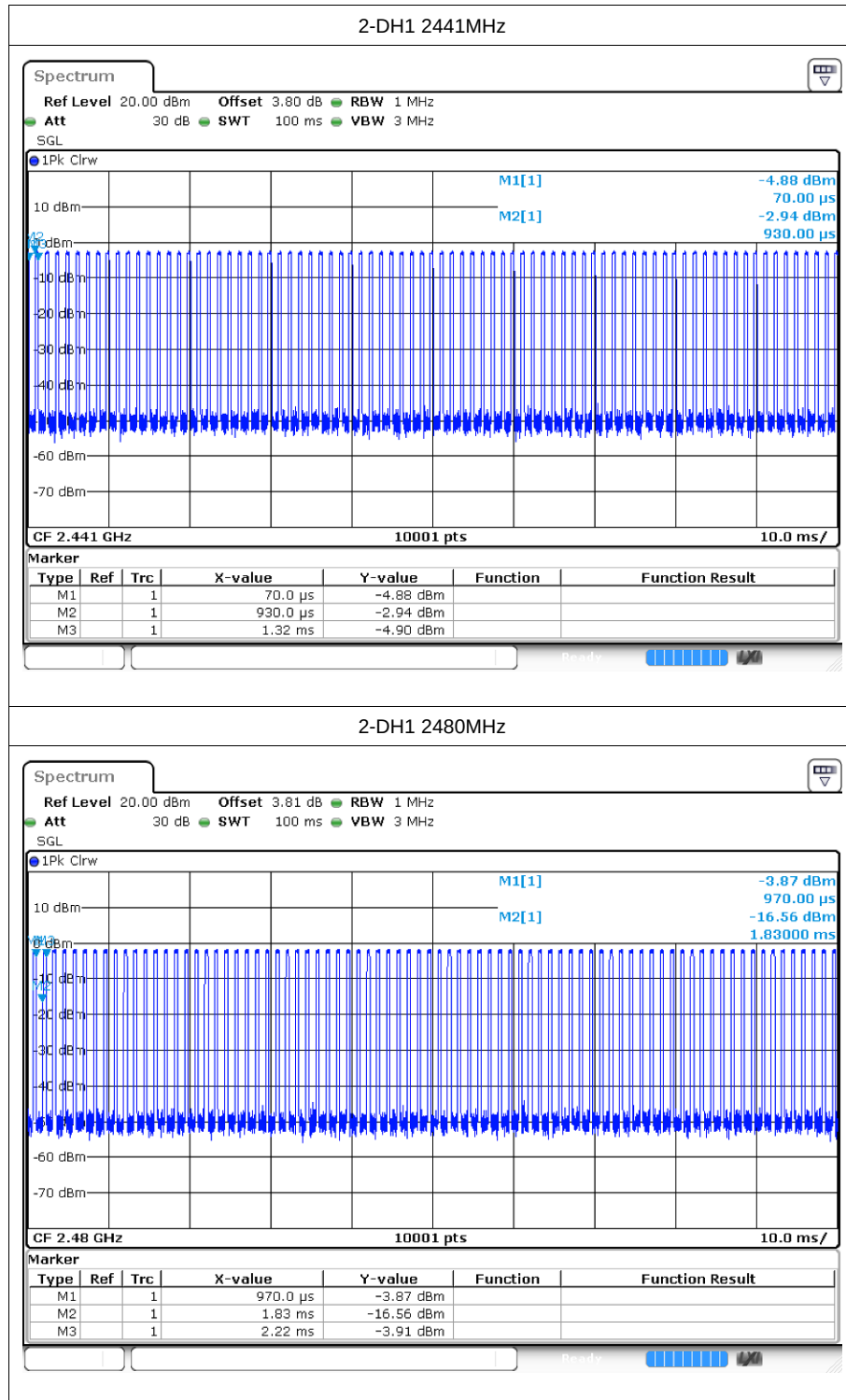
1.1 Test Result

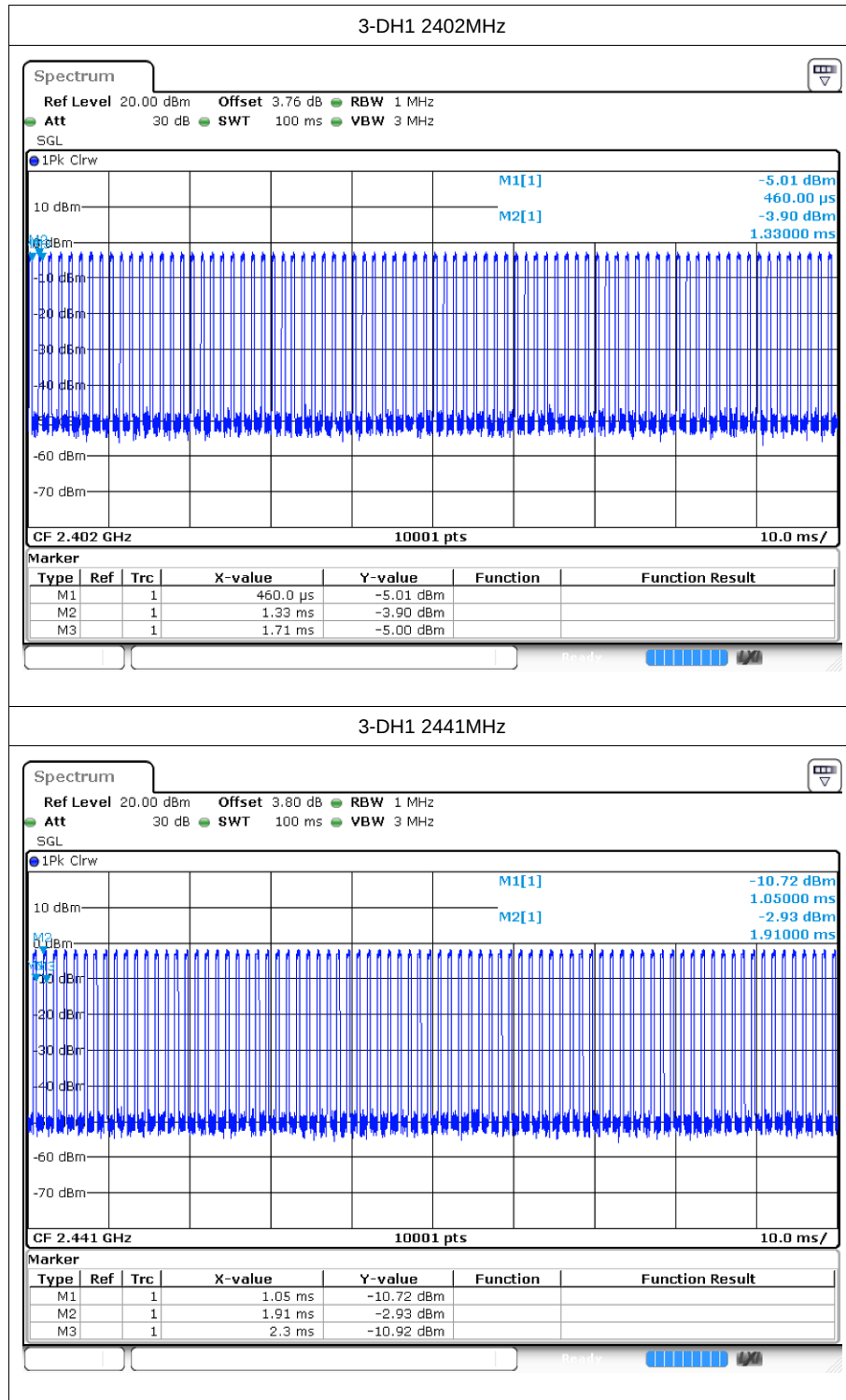
Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	31.05	2.63
1-DH1	2441	30.4	2.7
1-DH1	2480	31.2	2.63
2-DH1	2402	32	2.56
2-DH1	2441	32.01	2.56
2-DH1	2480	32	2.56
3-DH1	2402	31.76	2.63
3-DH1	2441	31.64	2.56
3-DH1	2480	32	2.56

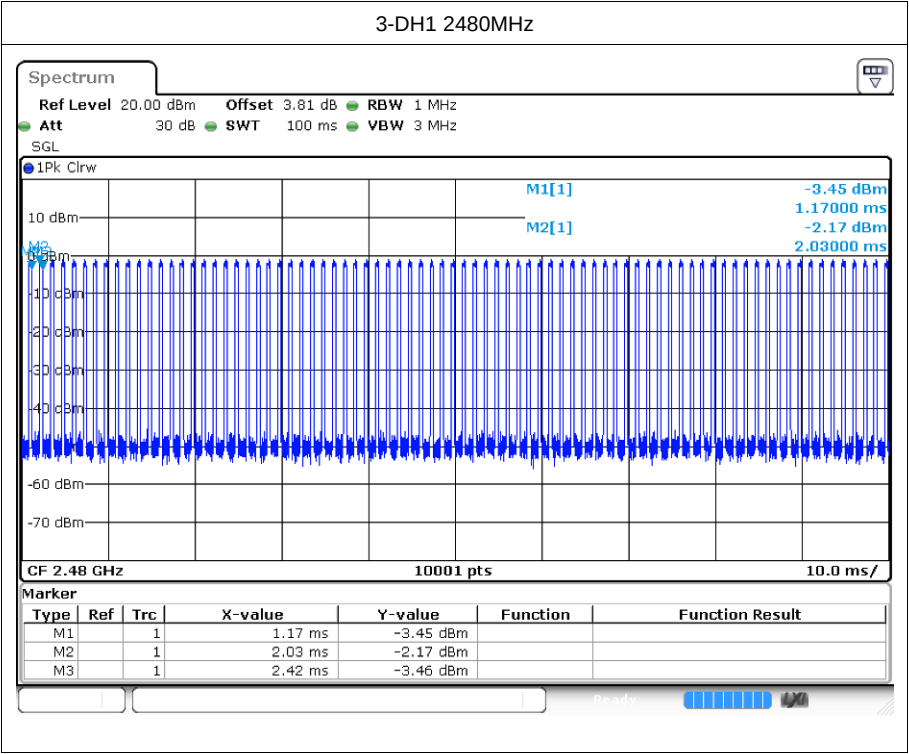
1.2 Test Graphs









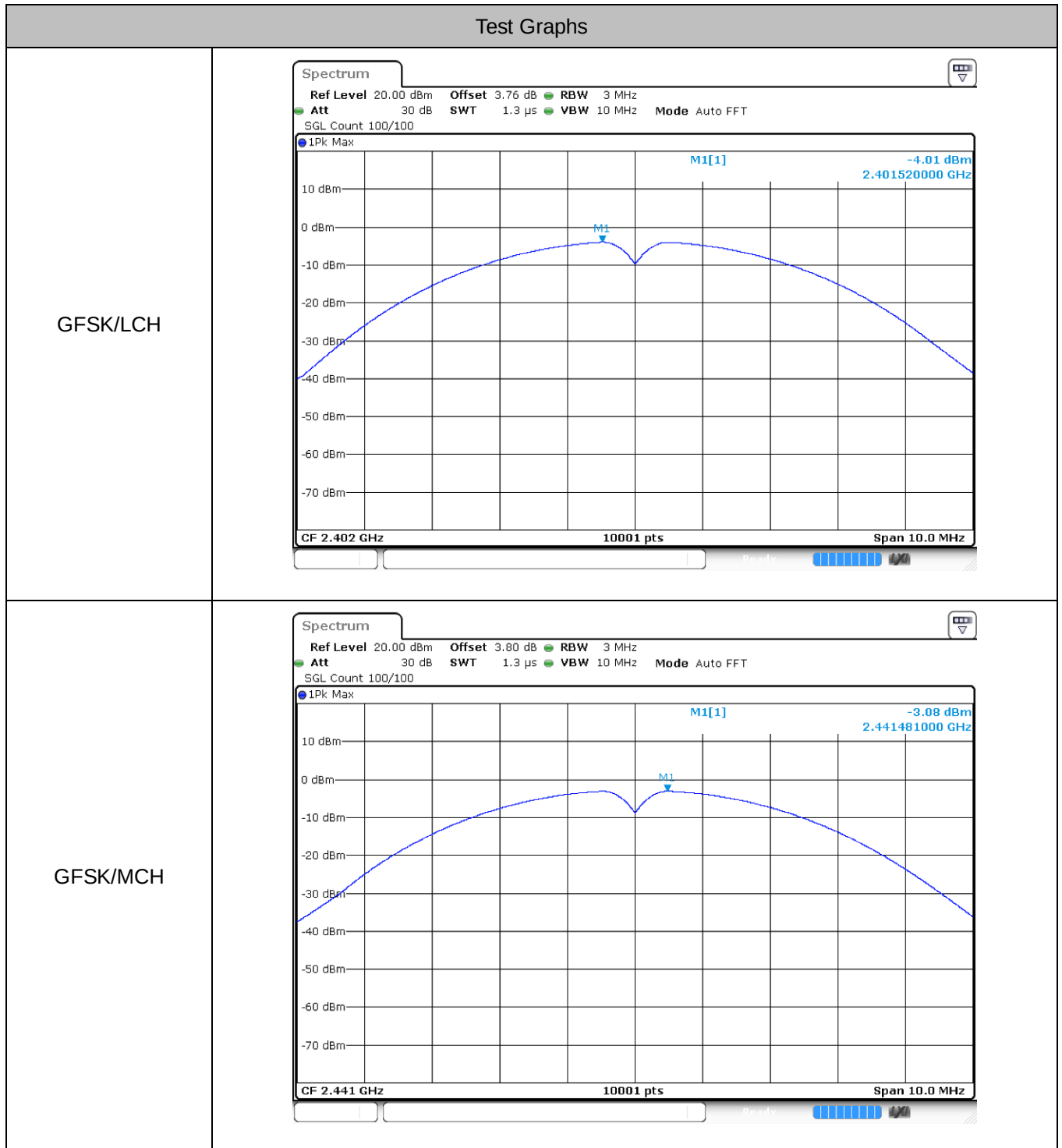


2 Maximum Conducted Peak Output Power

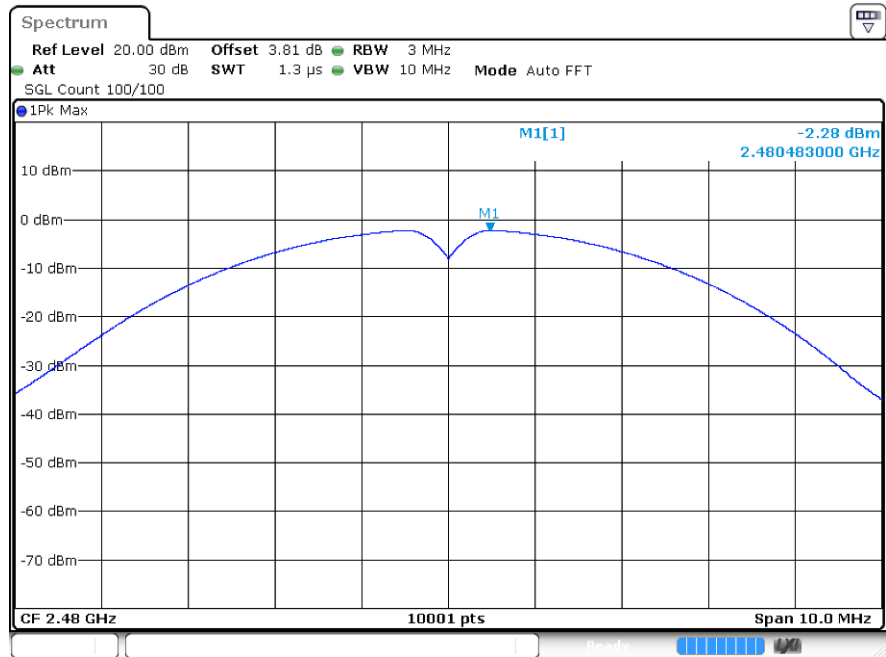
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-4.01	21	Pass
	MCH	-3.08	21	Pass
	HCH	-2.28	21	Pass
$\pi/4$ DQPSK	LCH	-3.33	21	Pass
	MCH	-2.39	21	Pass
	HCH	-1.81	21	Pass
8DPSK	LCH	-3.15	21	Pass
	MCH	-2.13	21	Pass
	HCH	-0.81	21	Pass

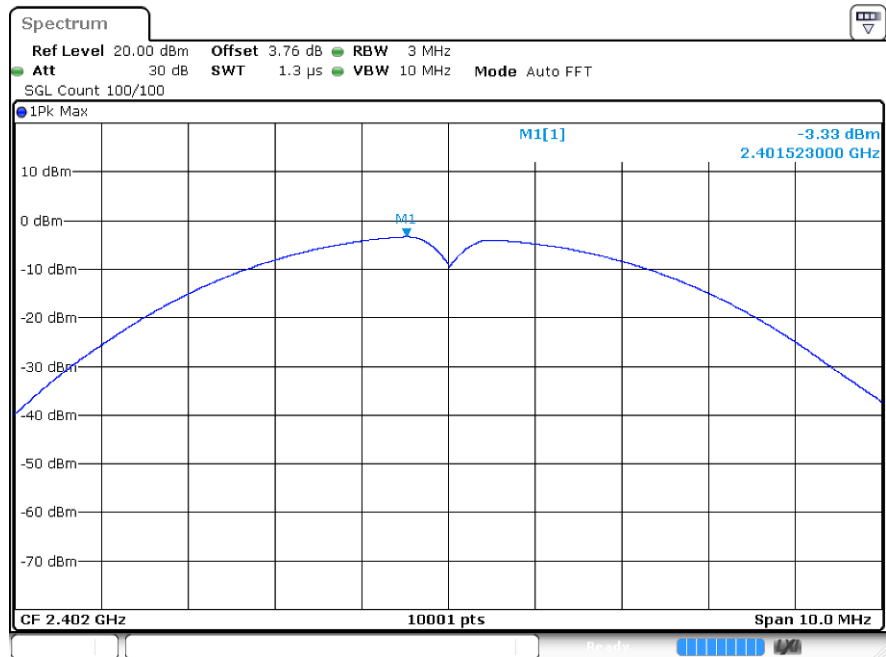
2.2 Test Graphs



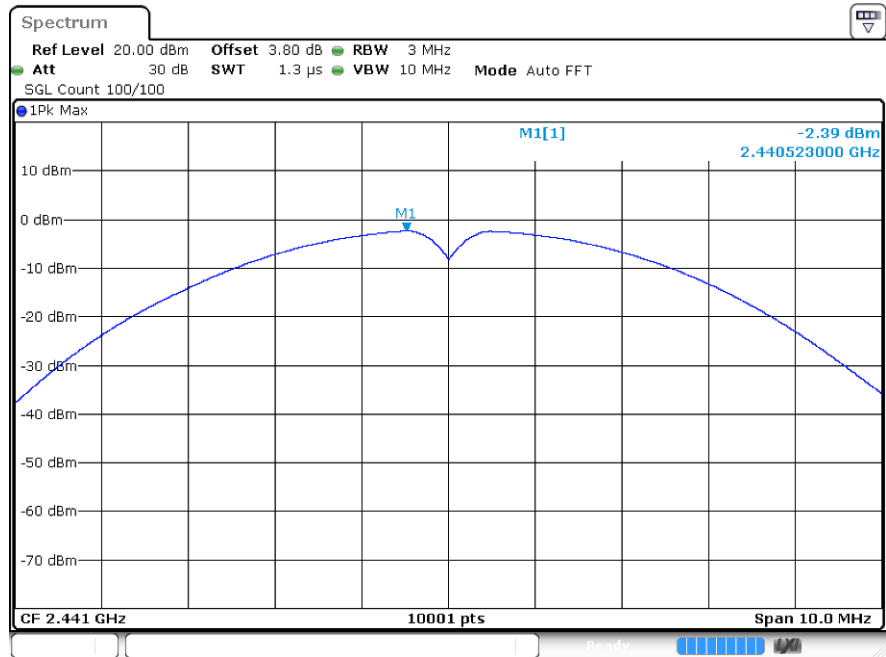
GFSK/HCH



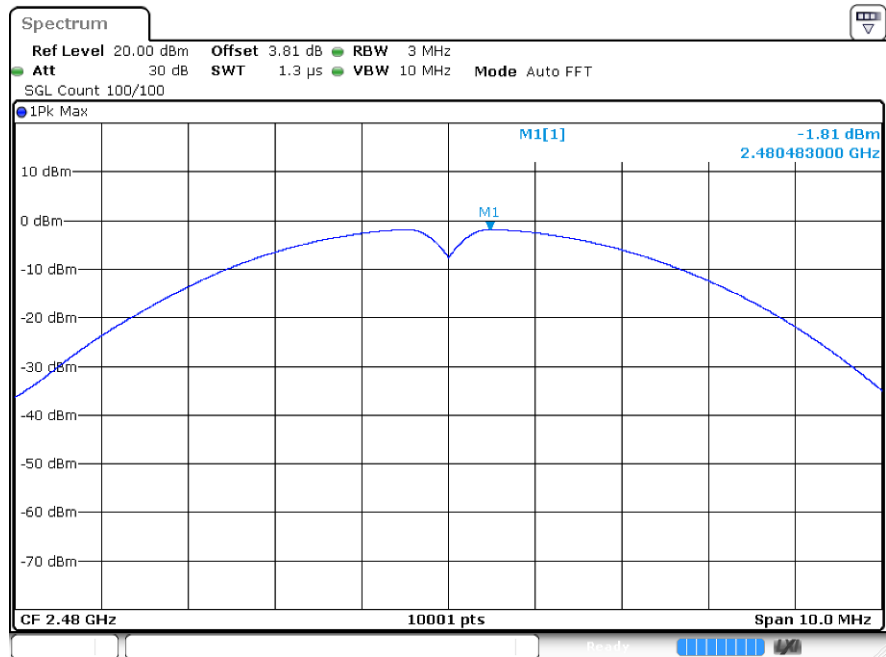
$\pi/4$ DQPSK/LCH



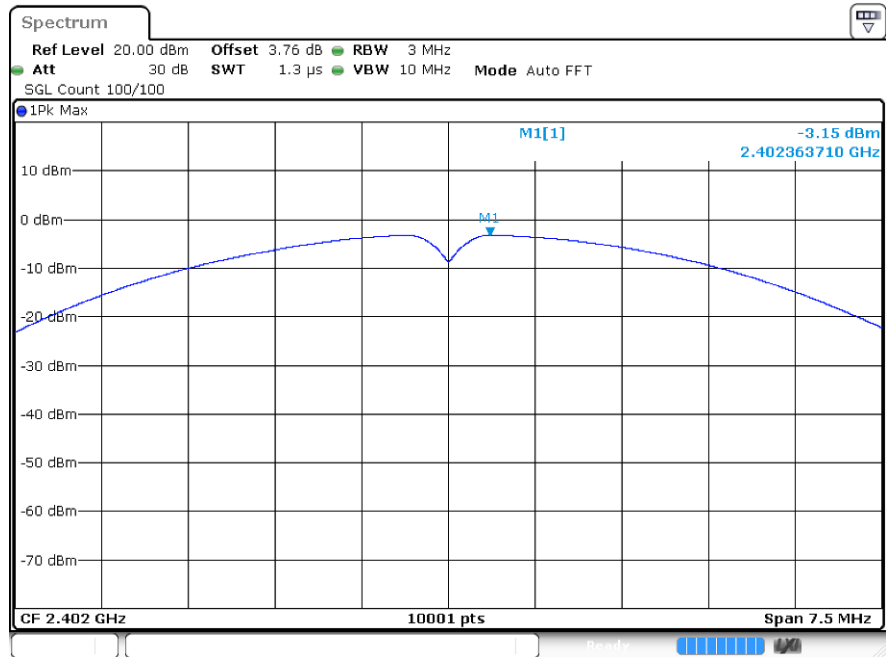
$\pi/4$ DQPSK/MCH



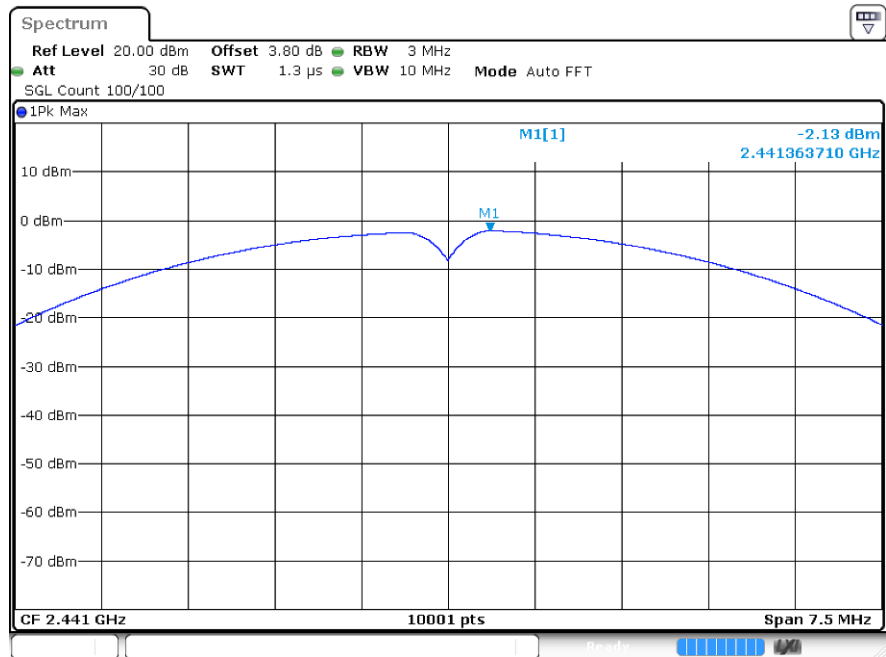
$\pi/4$ DQPSK/HCH



8DPSK/LCH

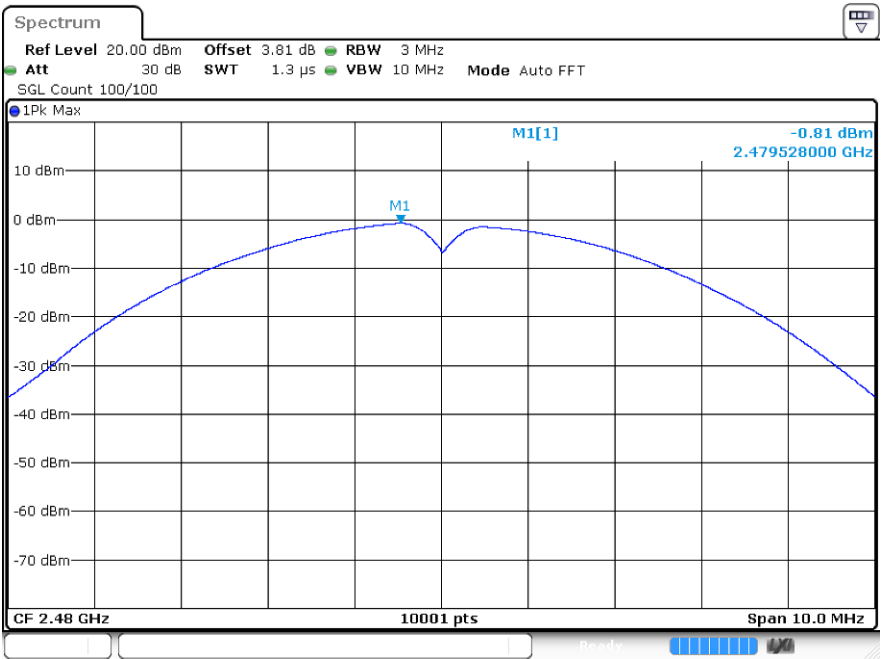


8DPSK/MCH





8DPSK/HCH

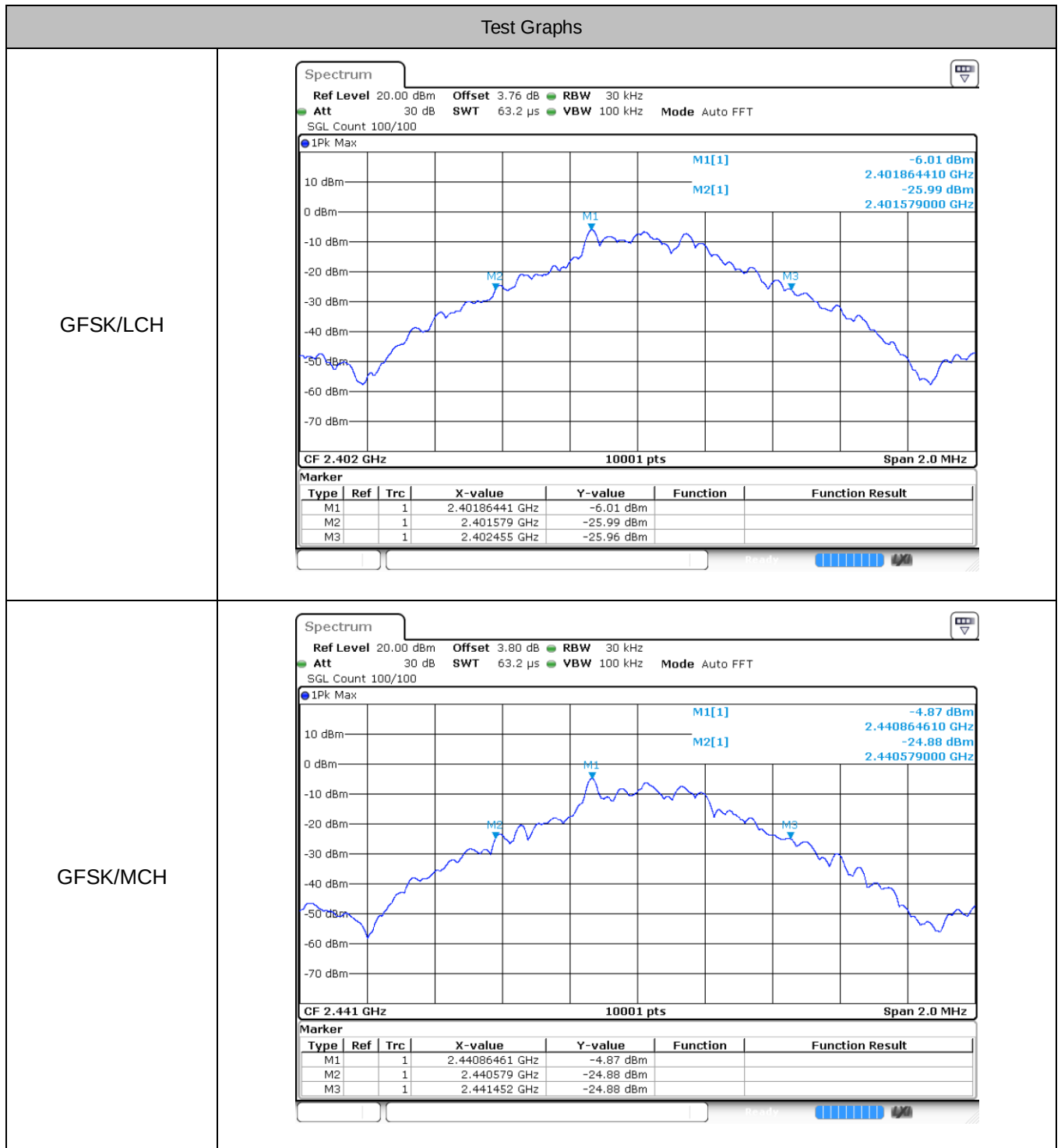


3 20dB Bandwidth

3.1 Test Result

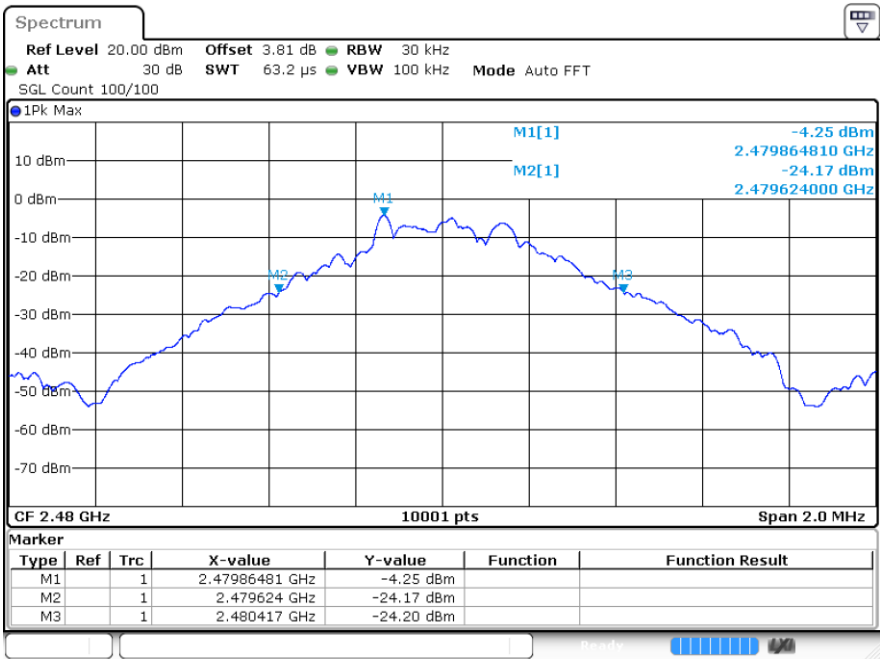
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.876	Not Specified	Pass
	MCH	0.873	Not Specified	Pass
	HCH	0.794	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.248	Not Specified	Pass
	MCH	1.218	Not Specified	Pass
	HCH	1.246	Not Specified	Pass
8DPSK	LCH	1.211	Not Specified	Pass
	MCH	1.206	Not Specified	Pass
	HCH	1.229	Not Specified	Pass

3.2 Test Graphs

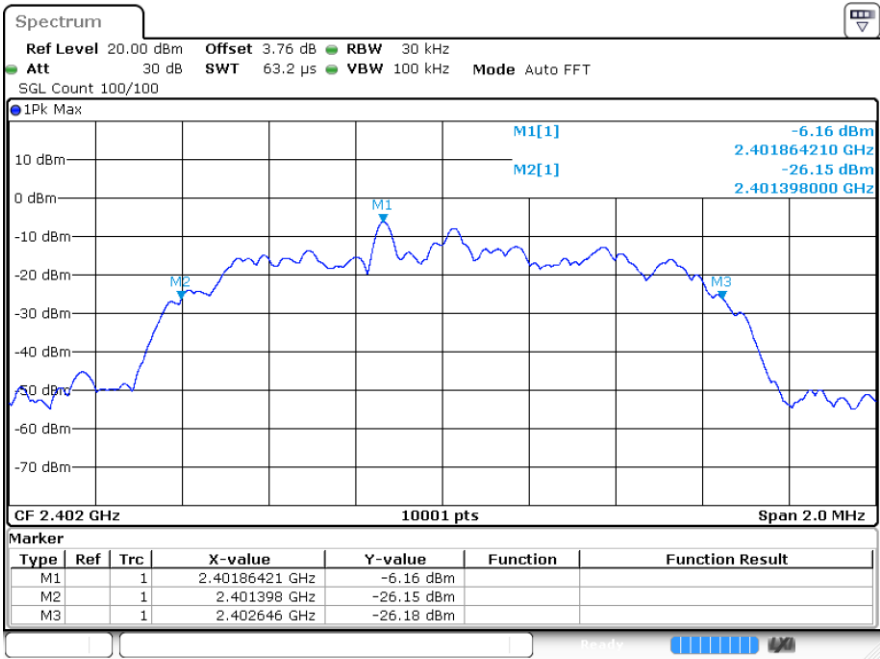


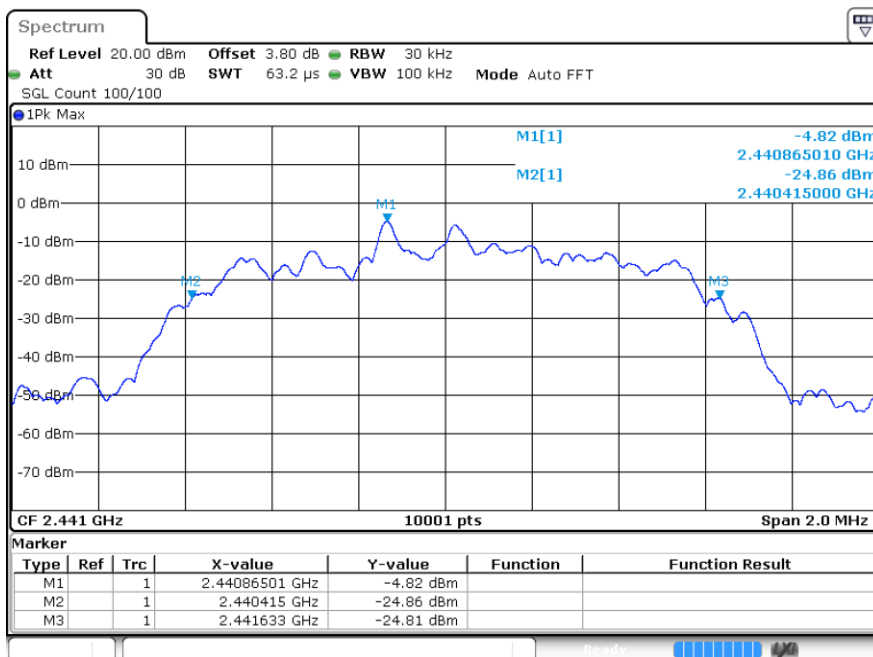
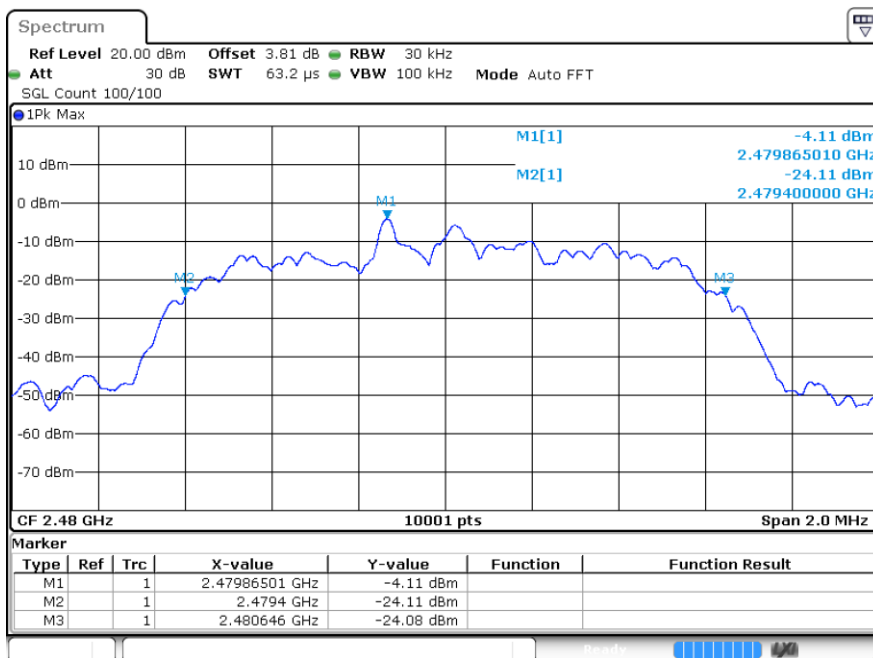


GFSK/HCH

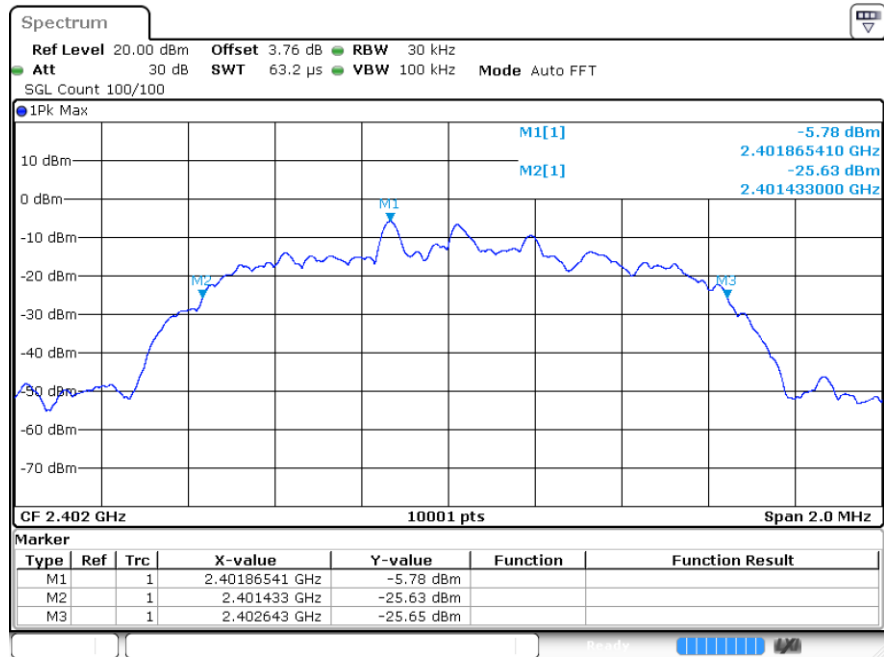


π /4DQPSK/LCH

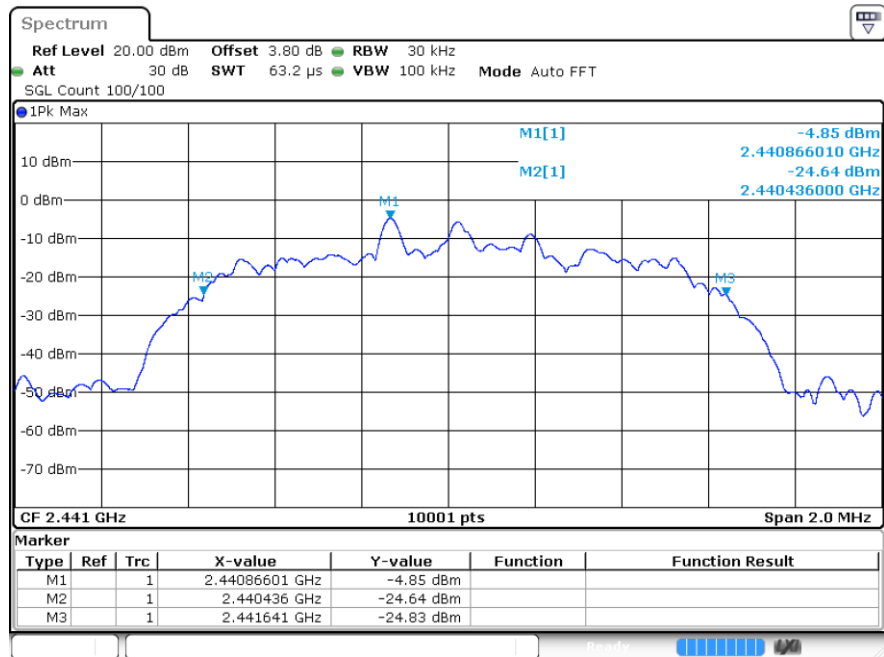


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


8DPSK/LCH

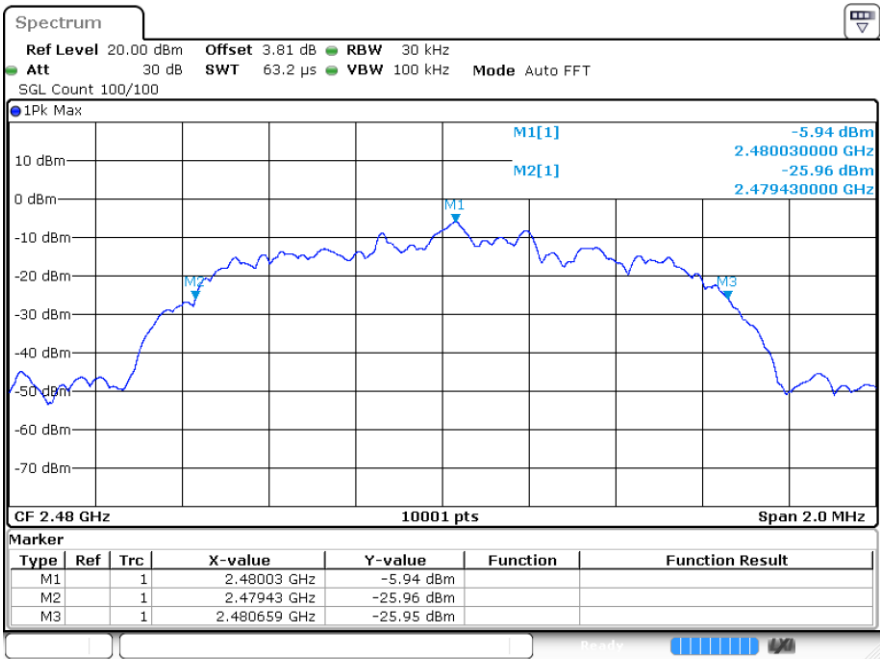


8DPSK/MCH





8DPSK/HCH

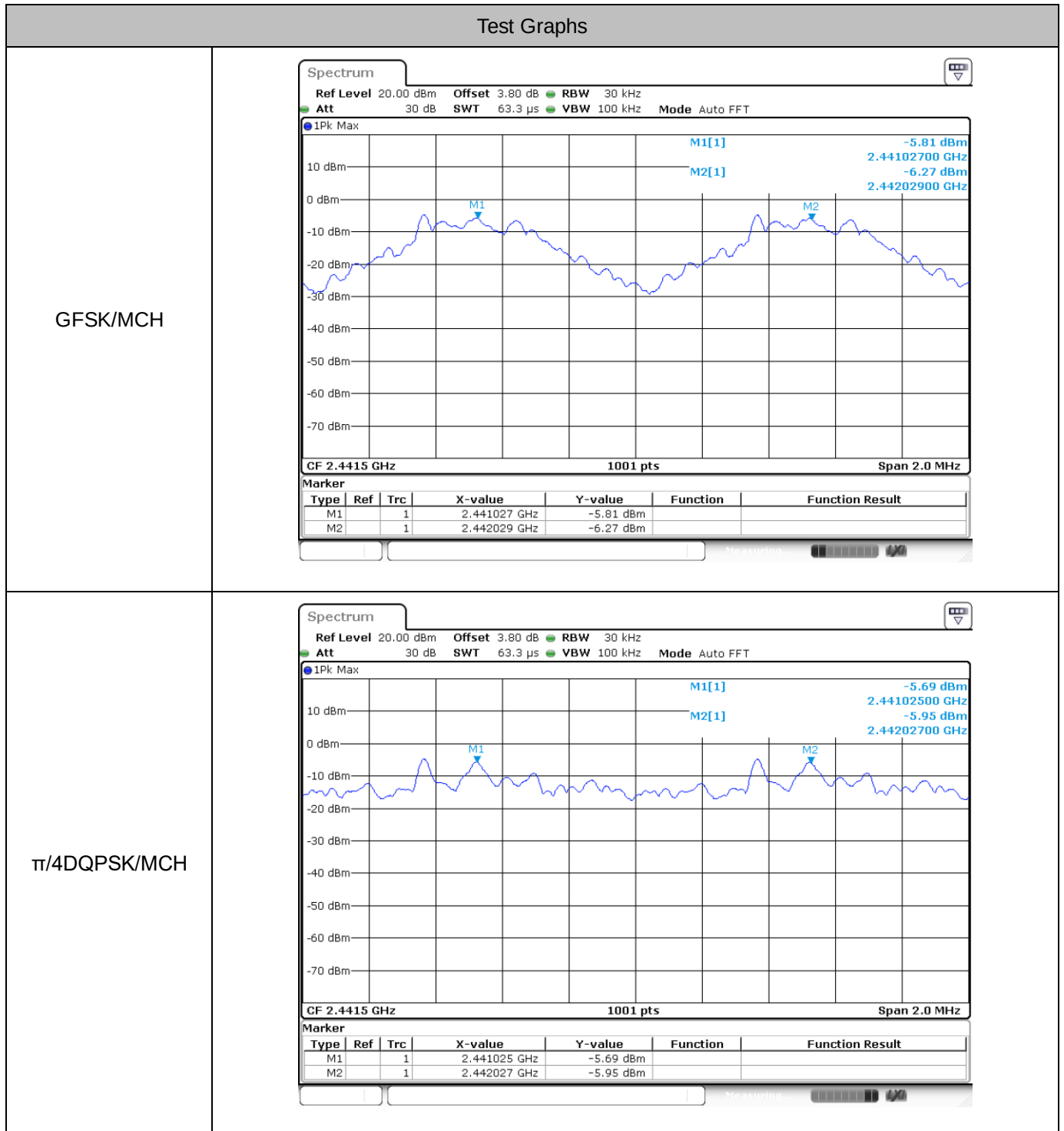


4 Carrier Frequency Separation

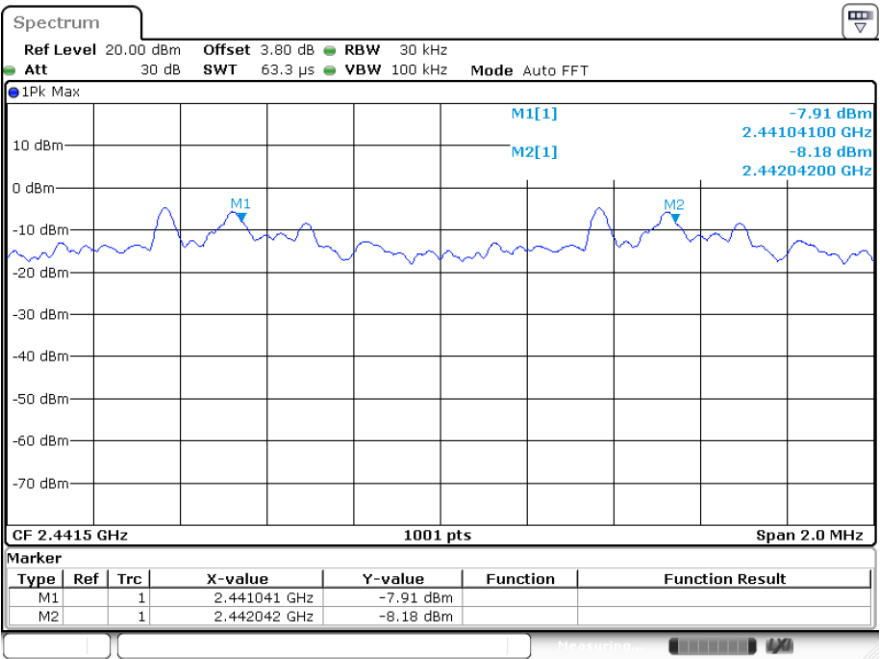
4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.002	0.582	Pass
$\pi/4$ DQPSK	MCH	1.002	0.812	Pass
8DPSK	MCH	1.001	0.804	Pass

4.2 Test Graphs



8DPSK/MCH

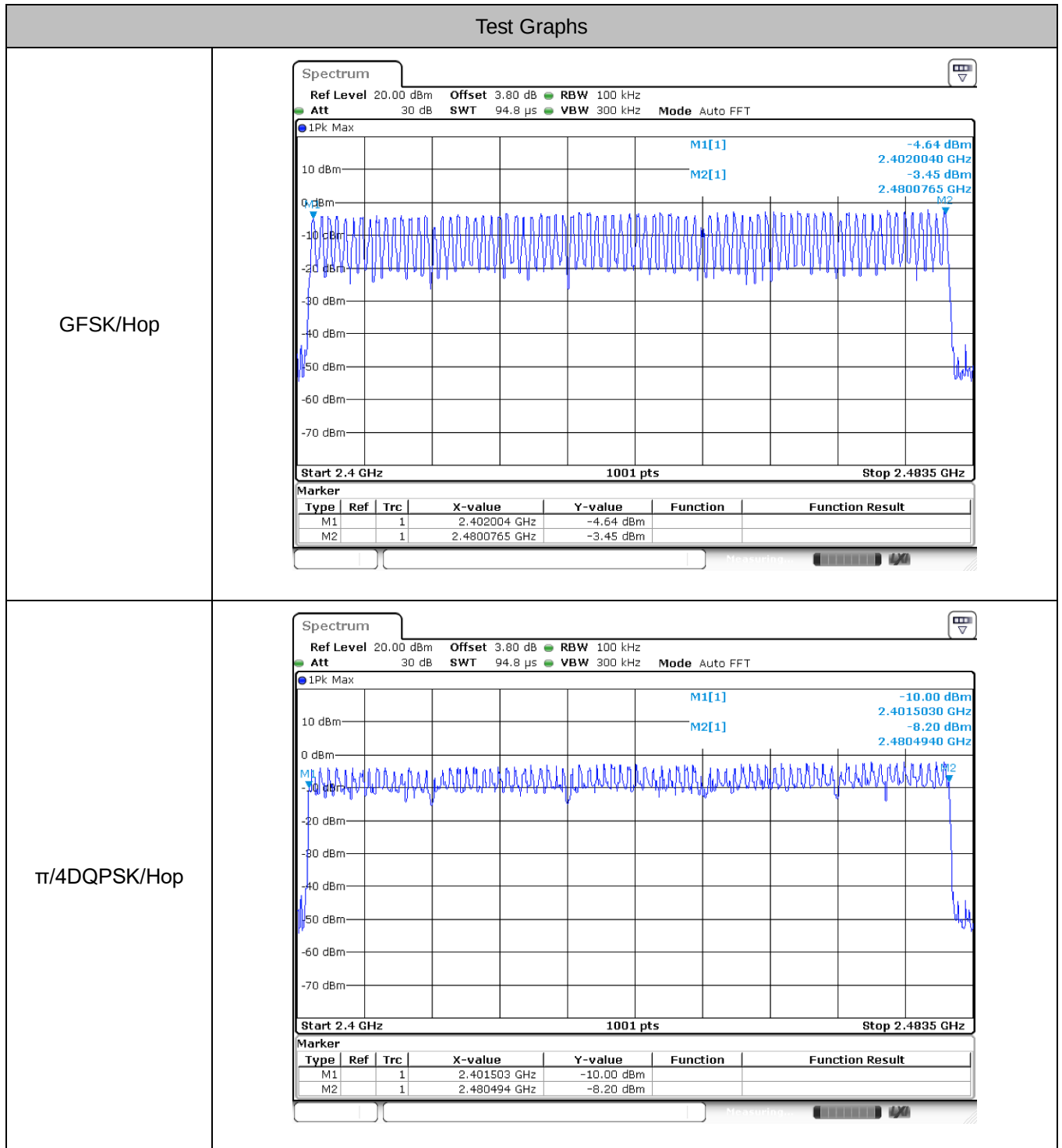


5 Hopping Channel Number

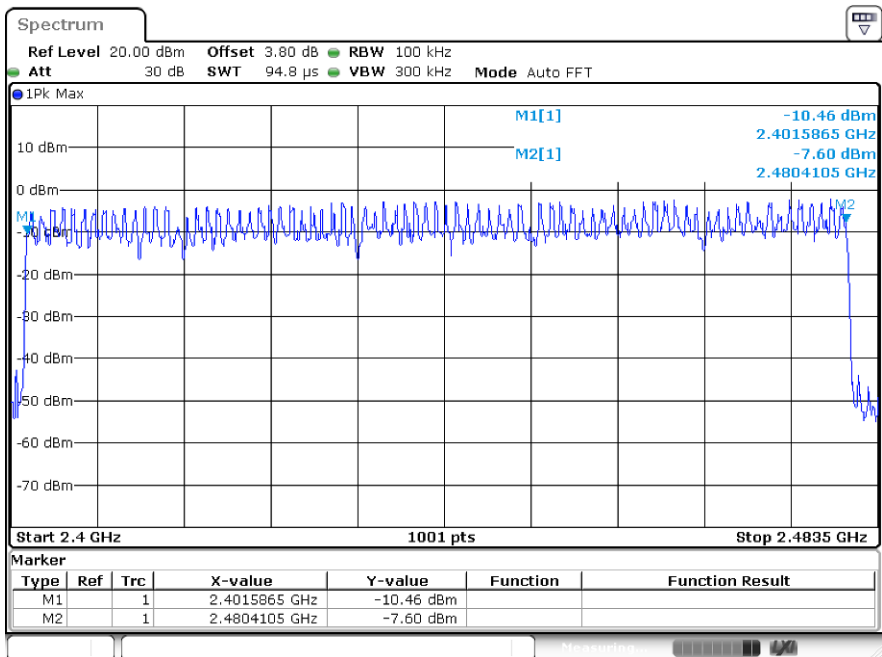
5.1 Test Result

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

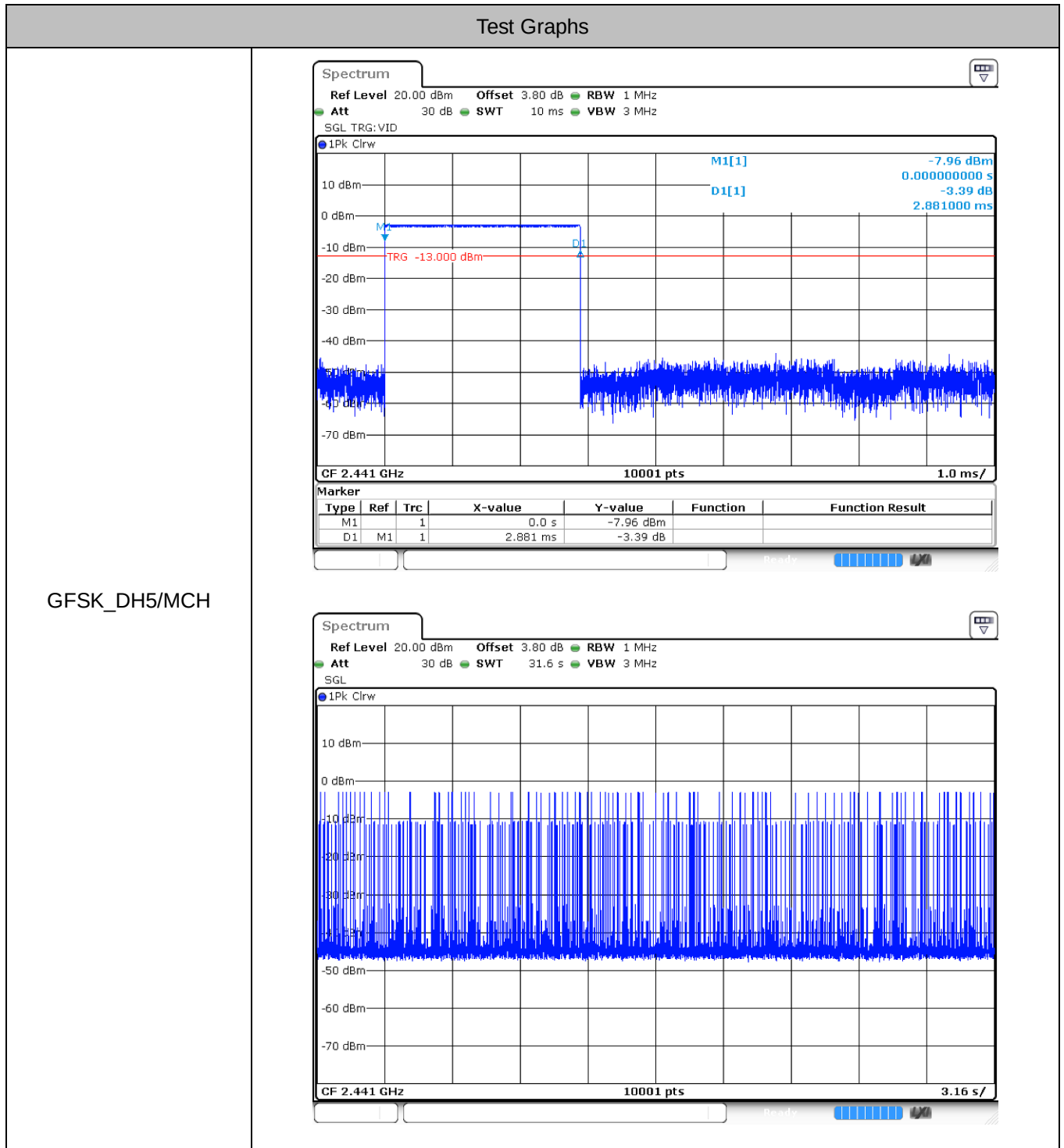


6 Dwell Time

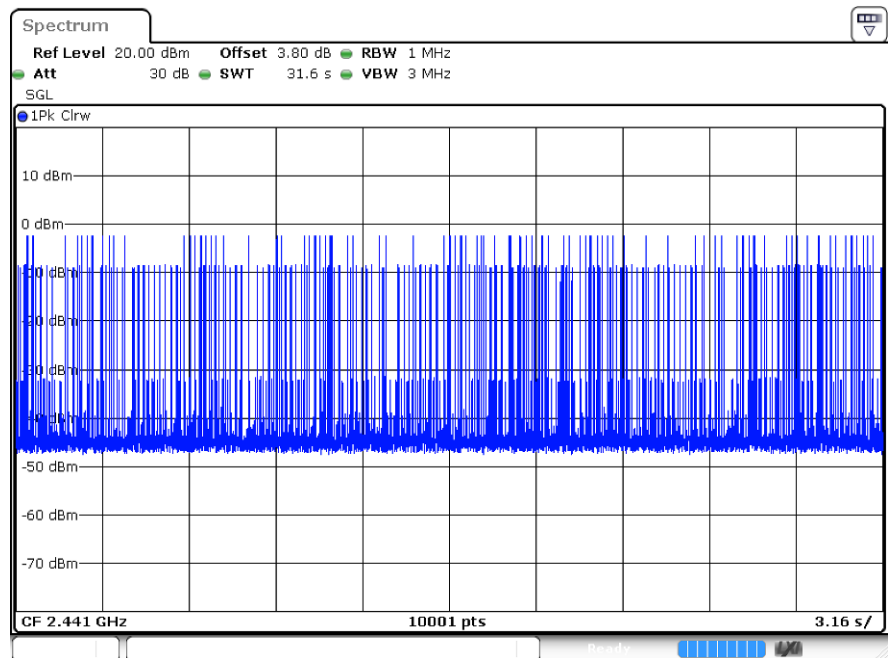
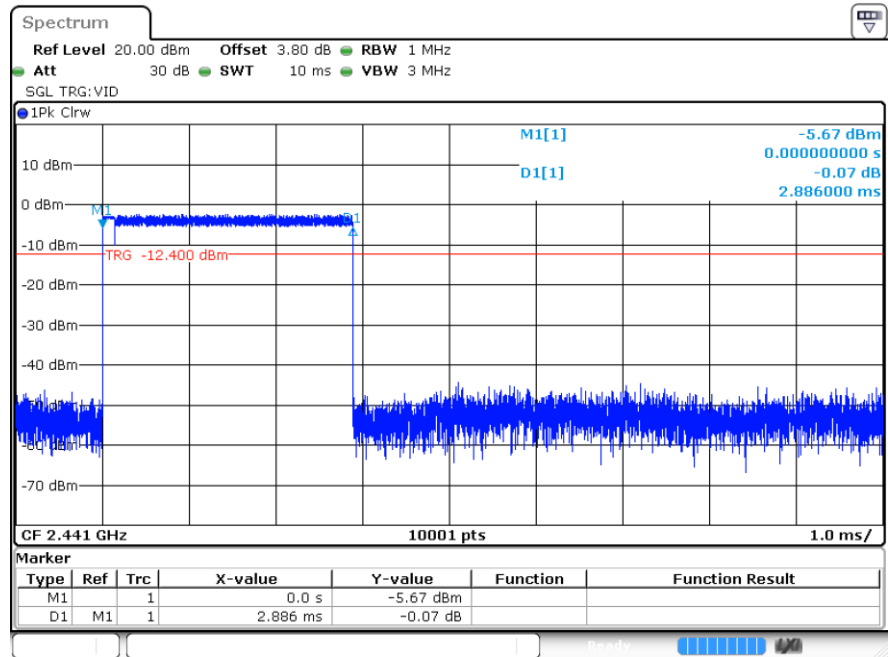
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.881	110	316.91	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.886	98	282.828	0.4	Pass
8DPSK	3DH5	MCH	2.888	117	337.896	0.4	Pass

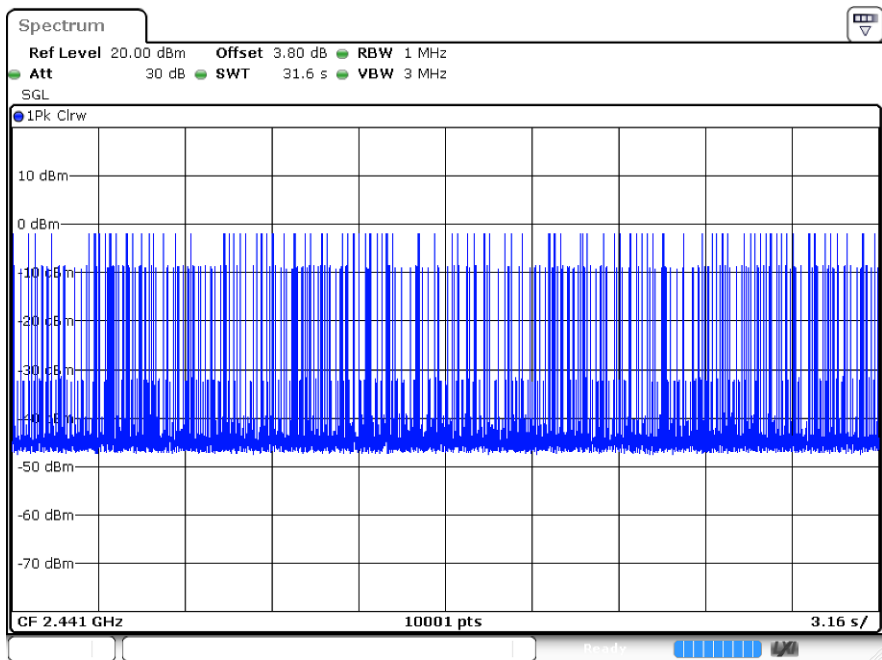
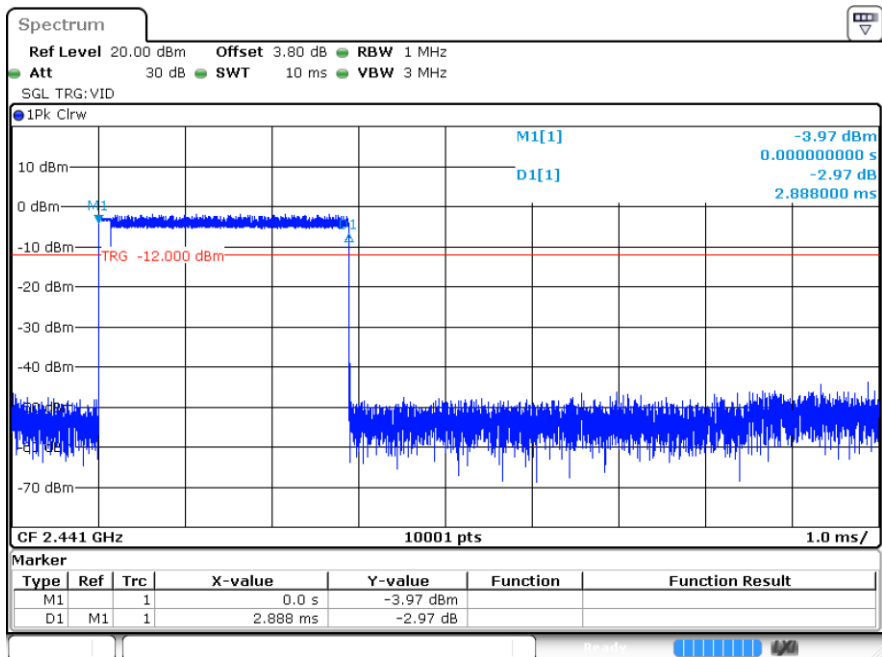
6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH



8DPSK_3DH5/MCH

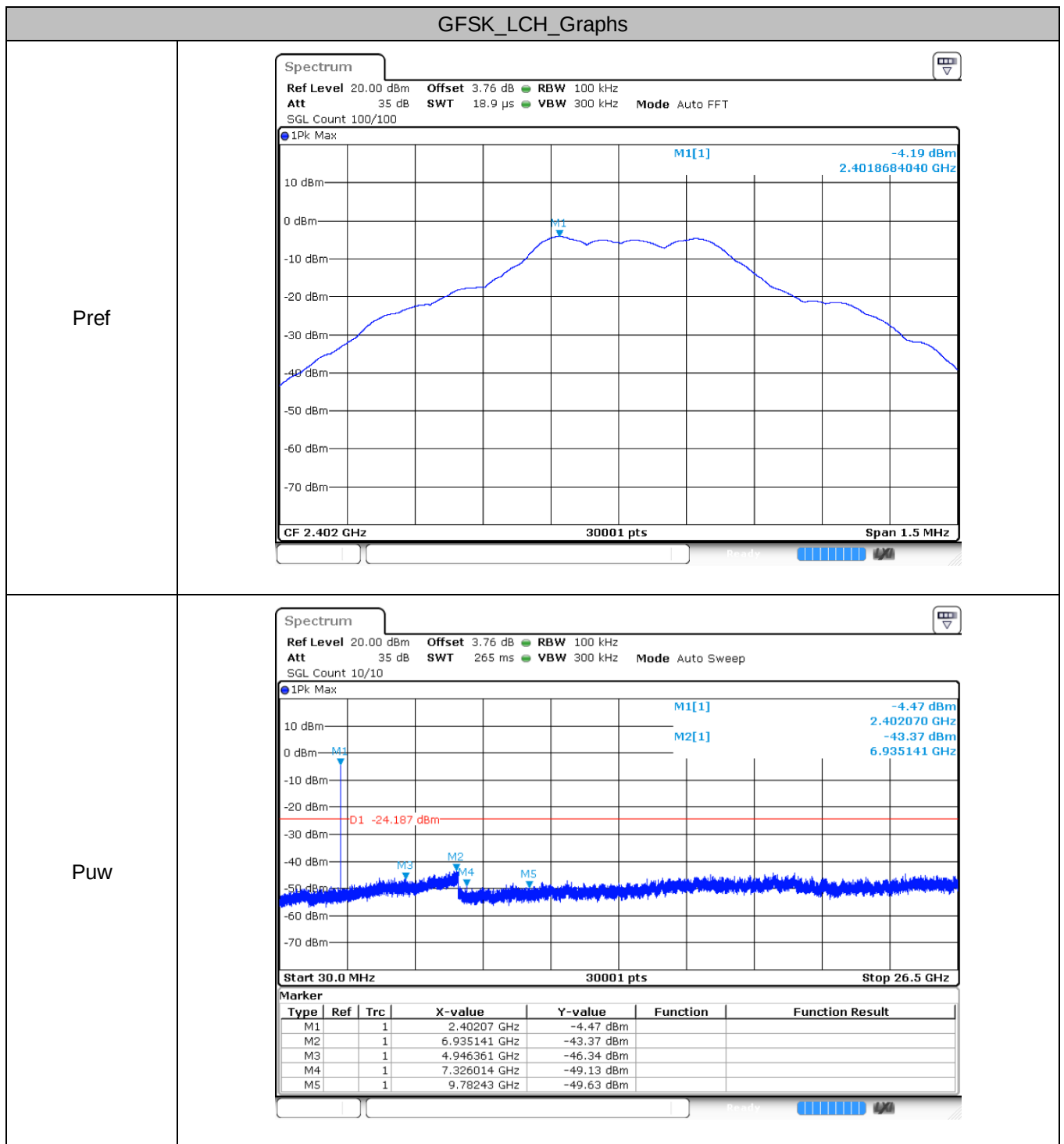


7 RF Conducted Spurious Emissions

7.1 Test Result

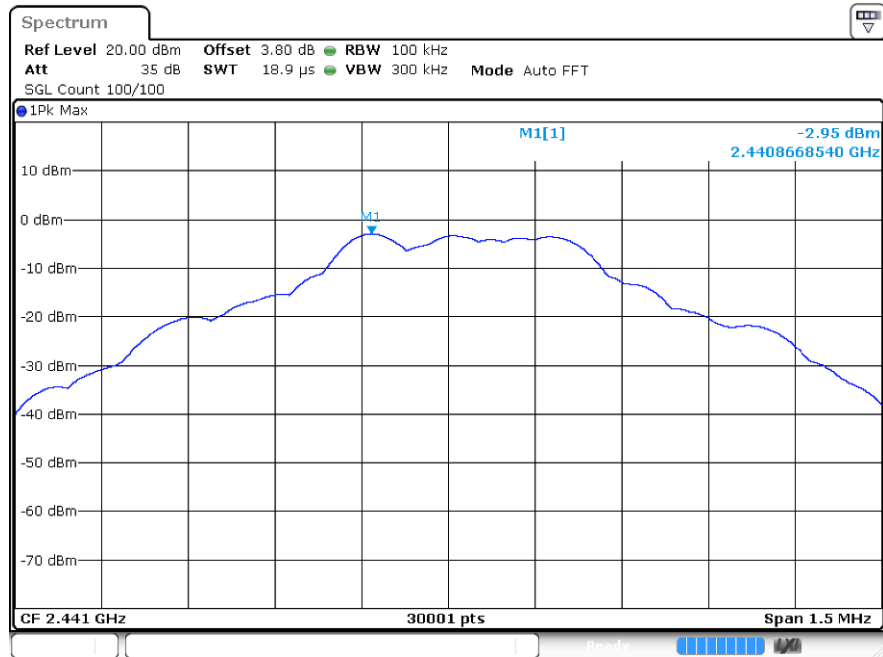
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-39.18	-20	Pass
	MCH	-40.55	-20	Pass
	HCH	-40.99	-20	Pass
π /4DQPSK	LCH	-39.87	-20	Pass
	MCH	-39.23	-20	Pass
	HCH	-39.59	-20	Pass
8DPSK	LCH	-39.1	-20	Pass
	MCH	-39.35	-20	Pass
	HCH	-40.43	-20	Pass

7.2 Test Graphs

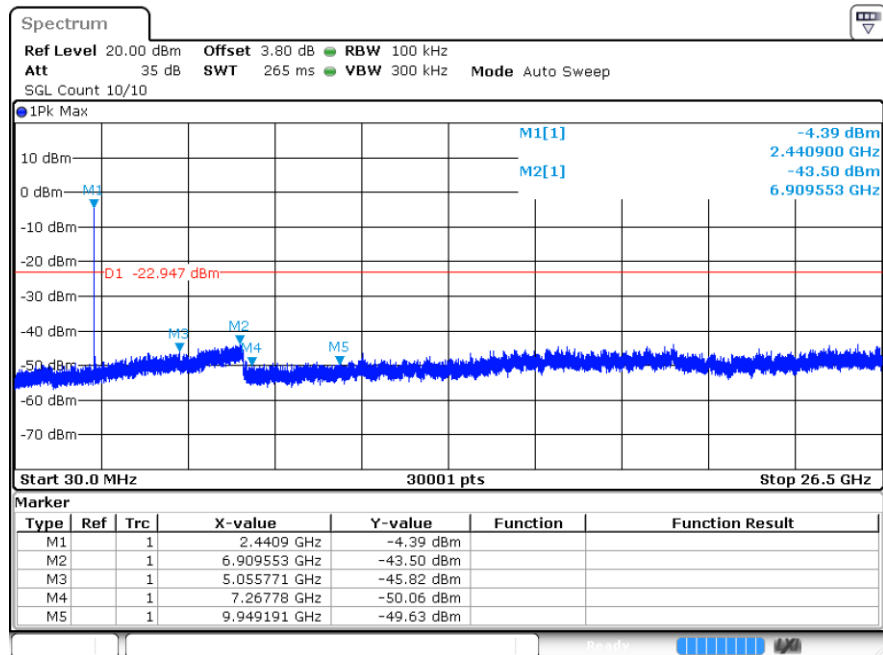


GFSK_MCH_Graphs

Pref

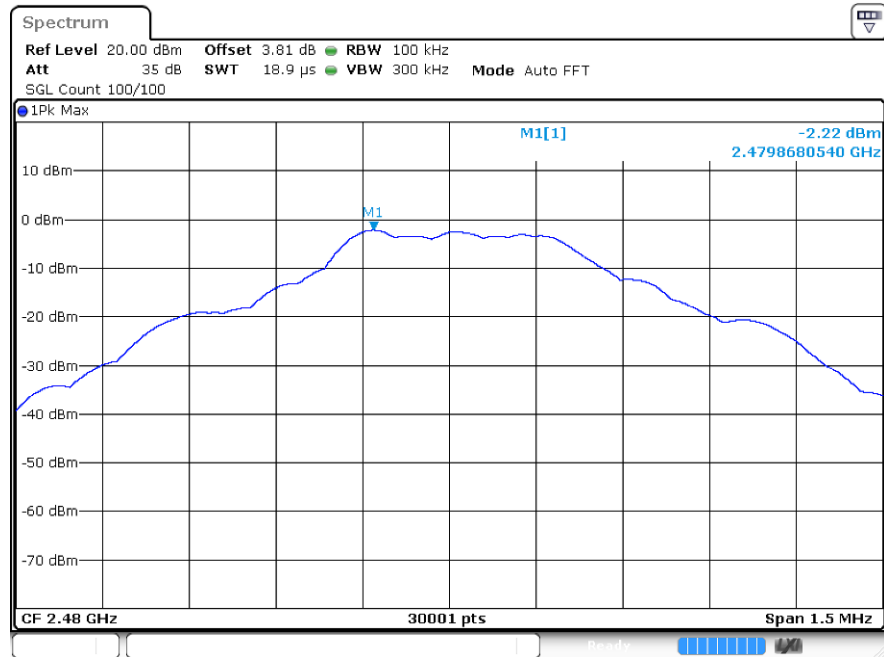


Puw

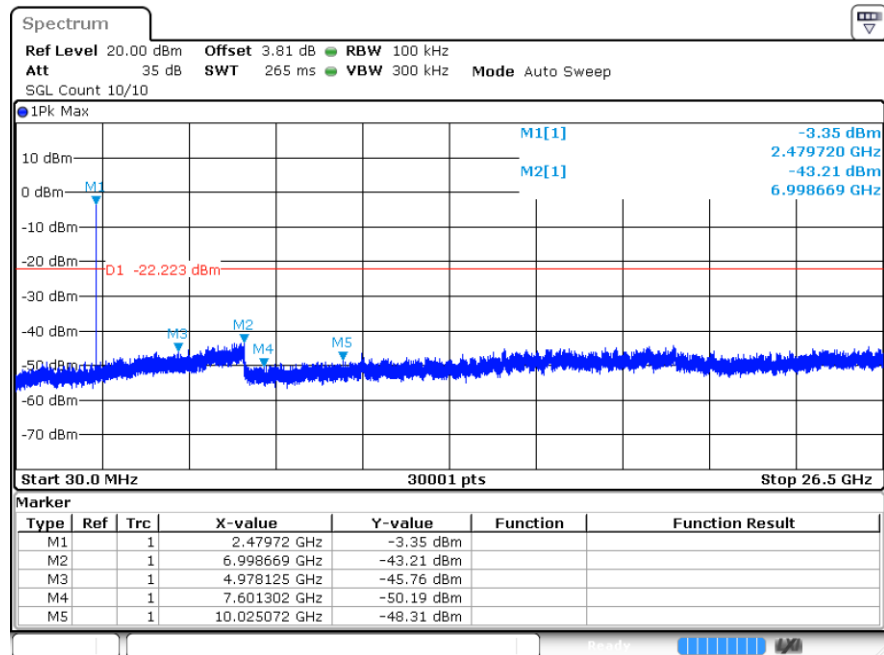


GFSK_HCH_Graphs

Pref

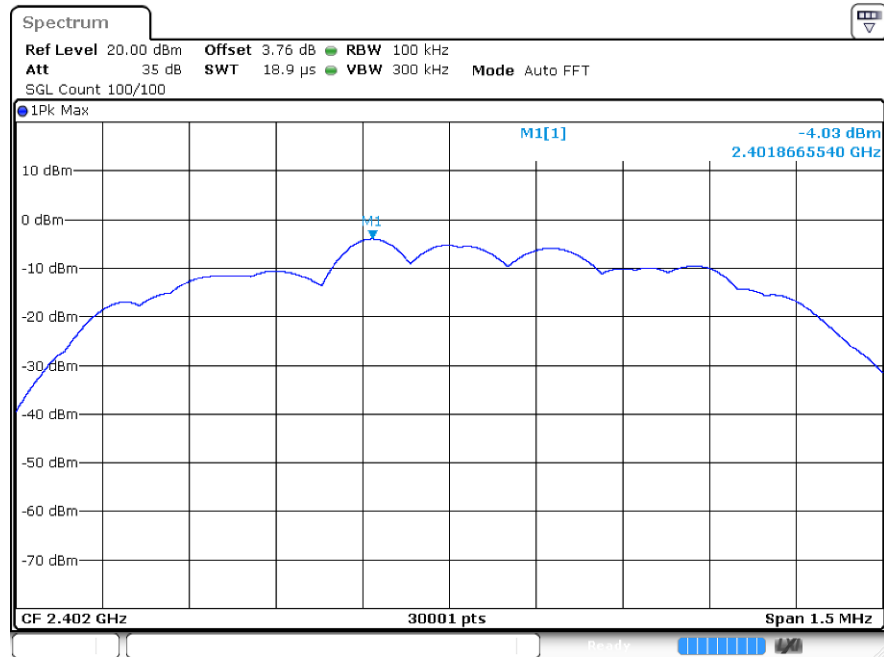


Puw

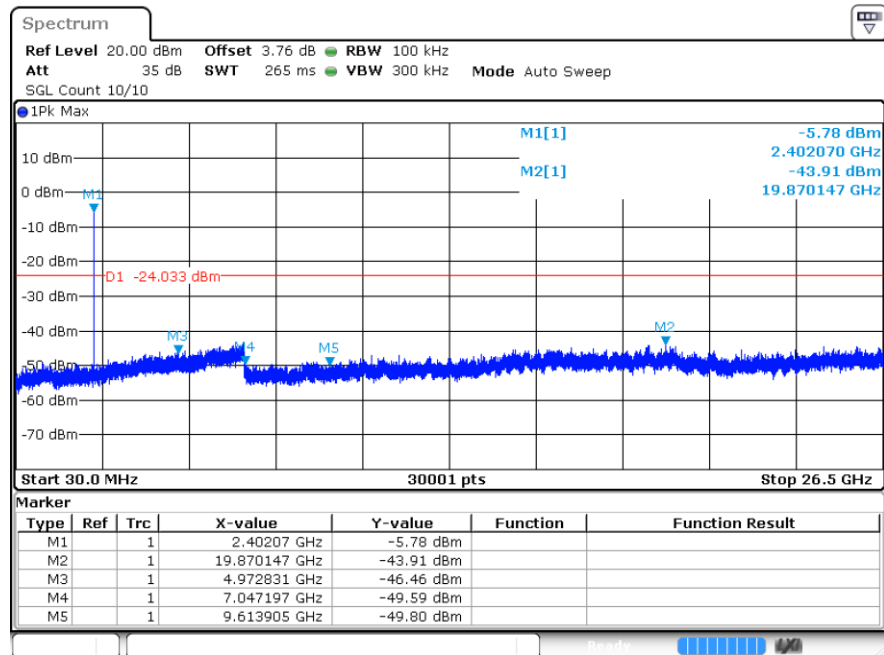


$\pi/4$ DQPSK_LCH_Graphs

Pref

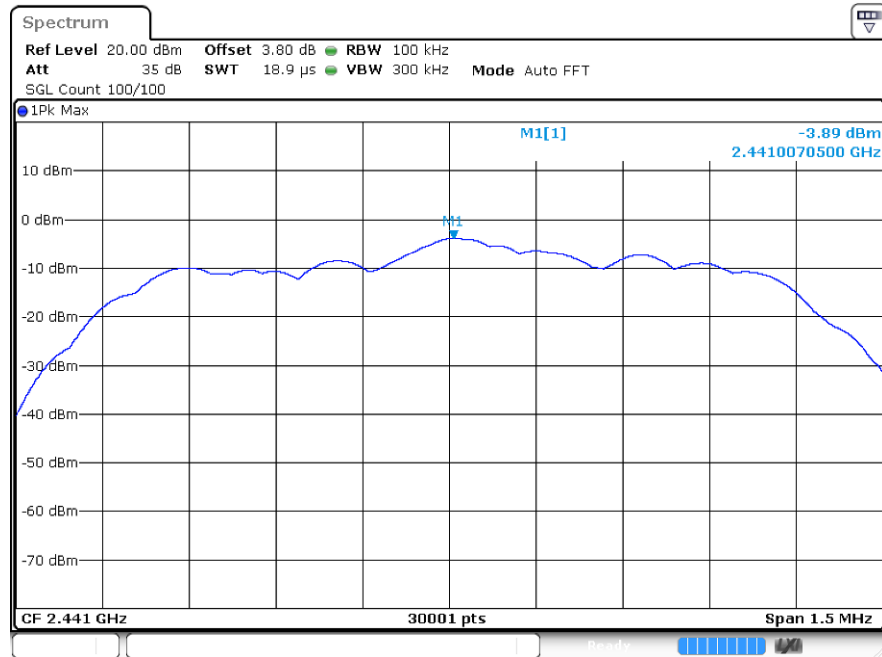


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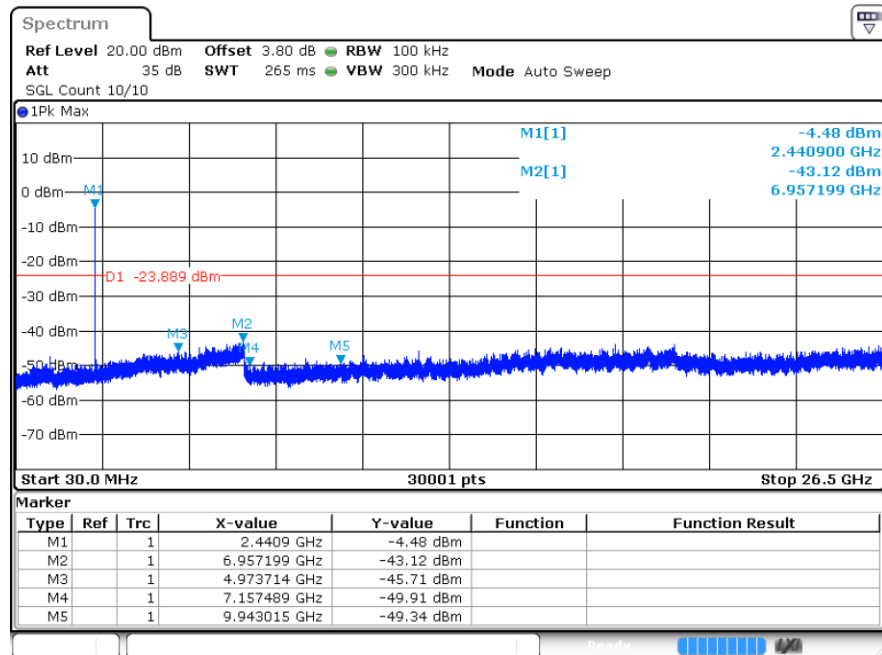


$\pi/4$ DQPSK_MCH_Graphs

Pref

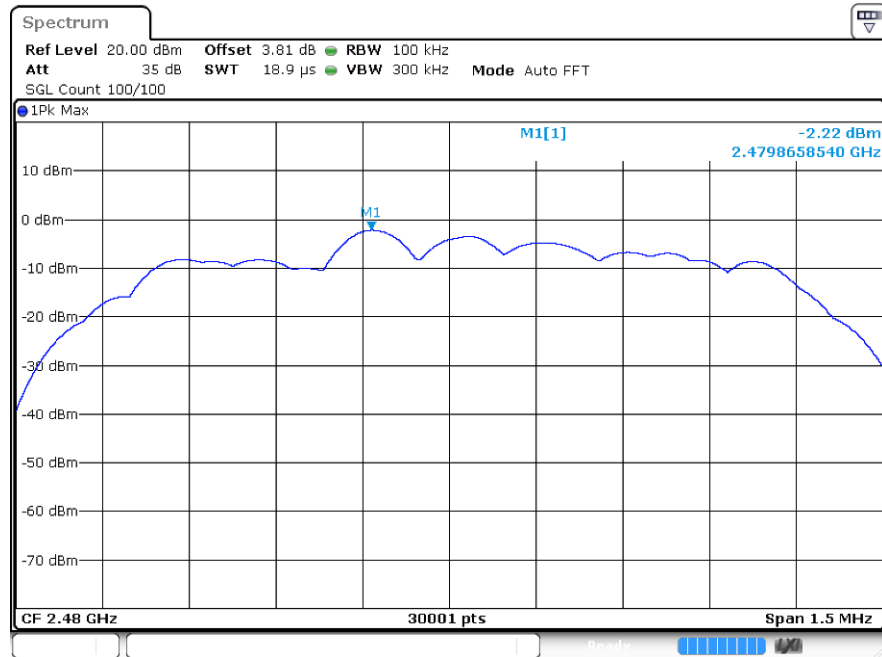


Puw

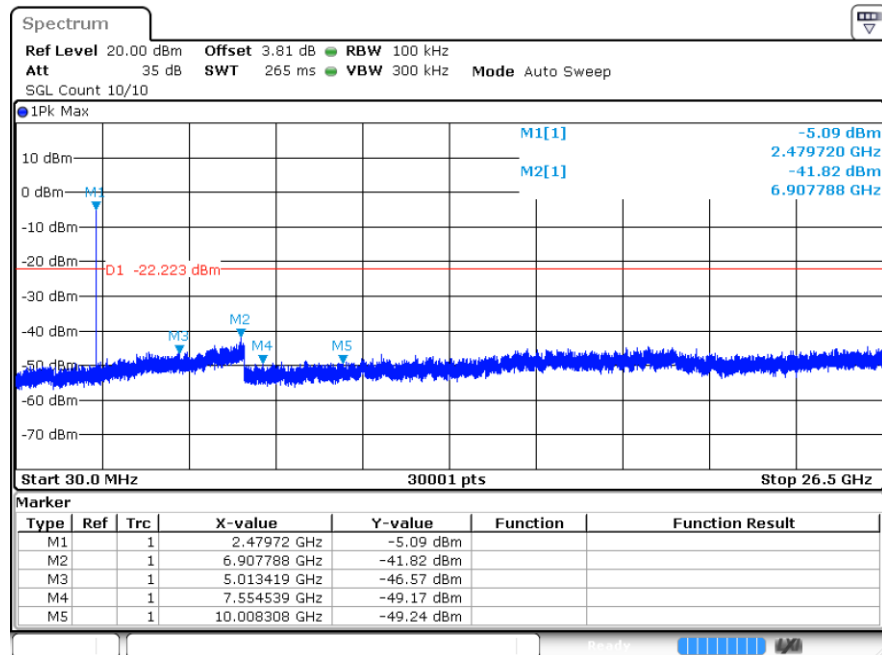


$\pi/4$ DQPSK_HCH_Graphs

Pref

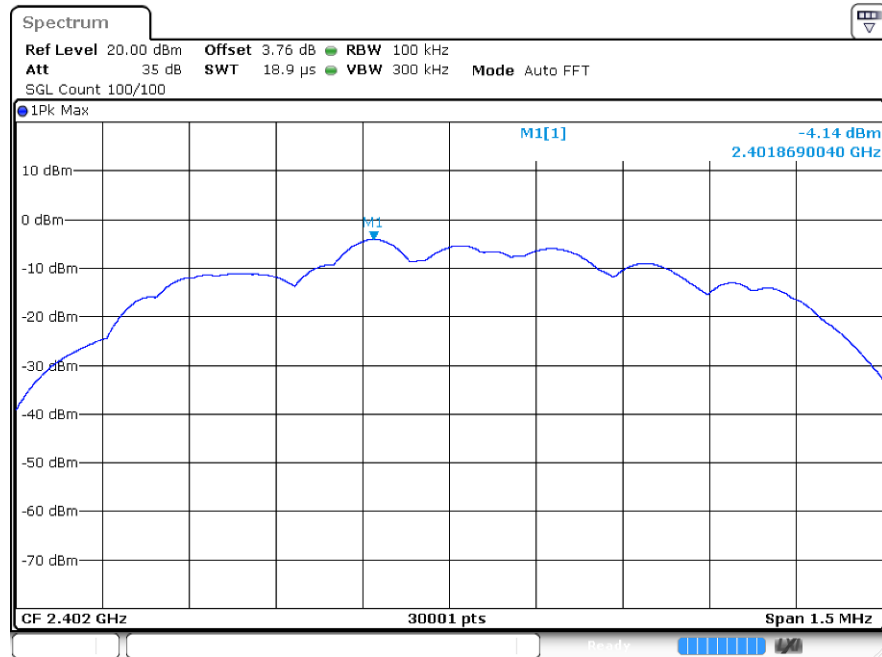


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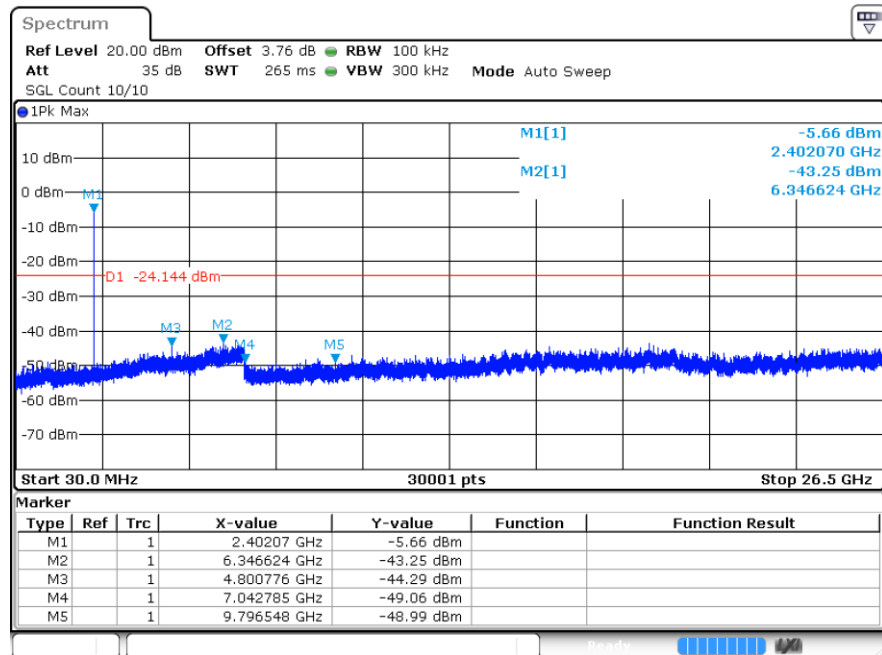


8DPSK_LCH_Graphs

Pref

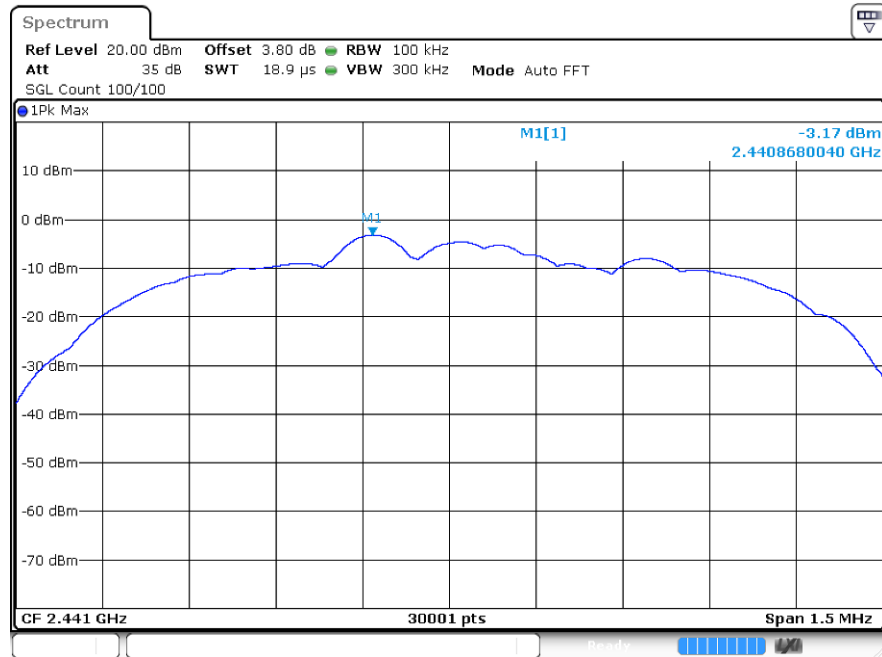


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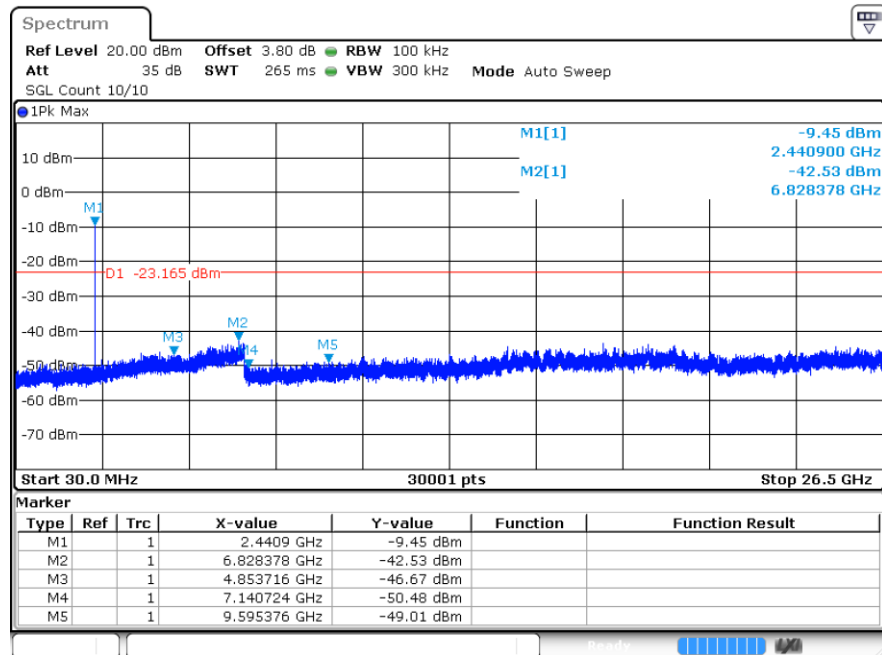


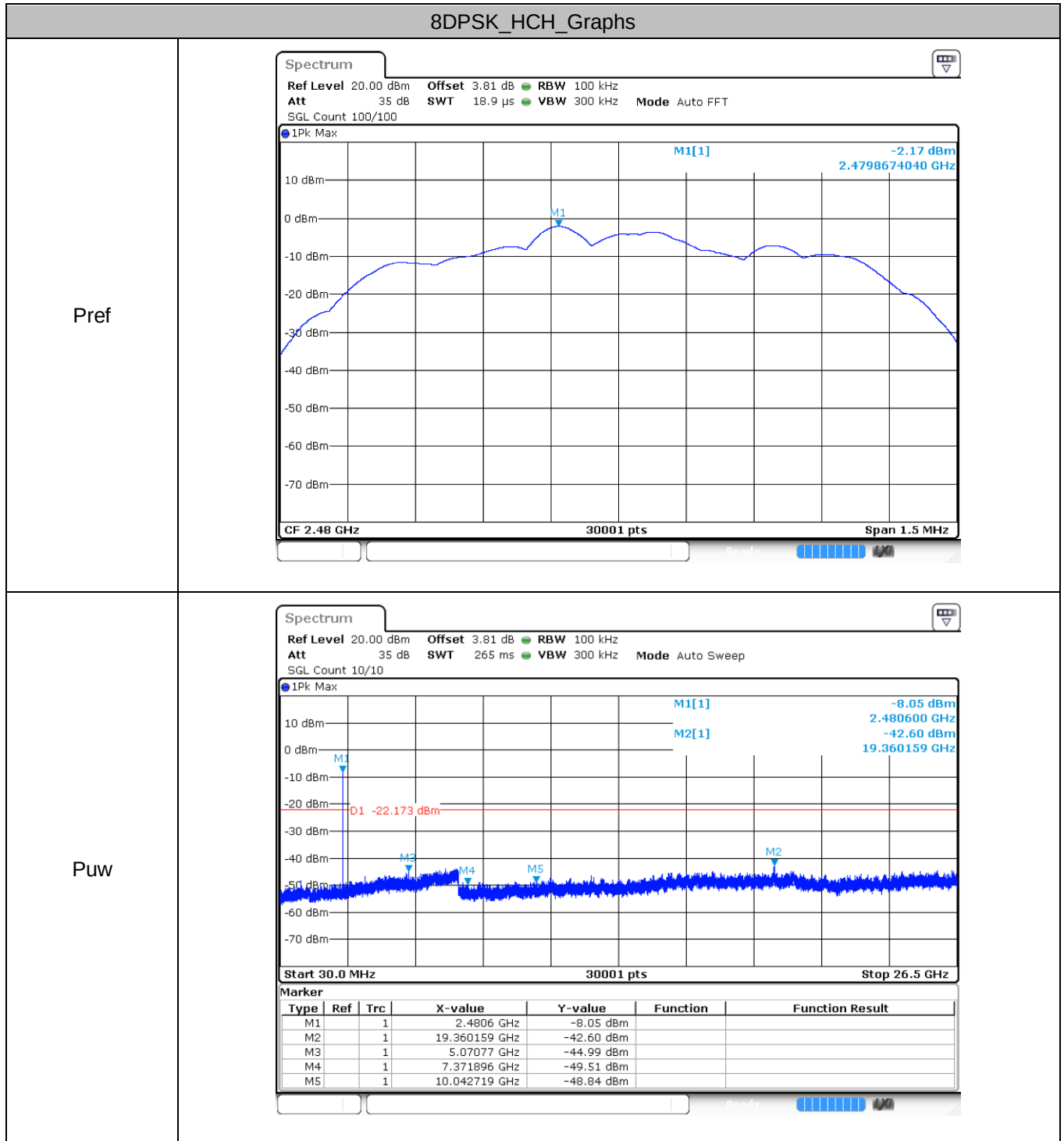
8DPSK_MCH_Graphs

Pref



Puw



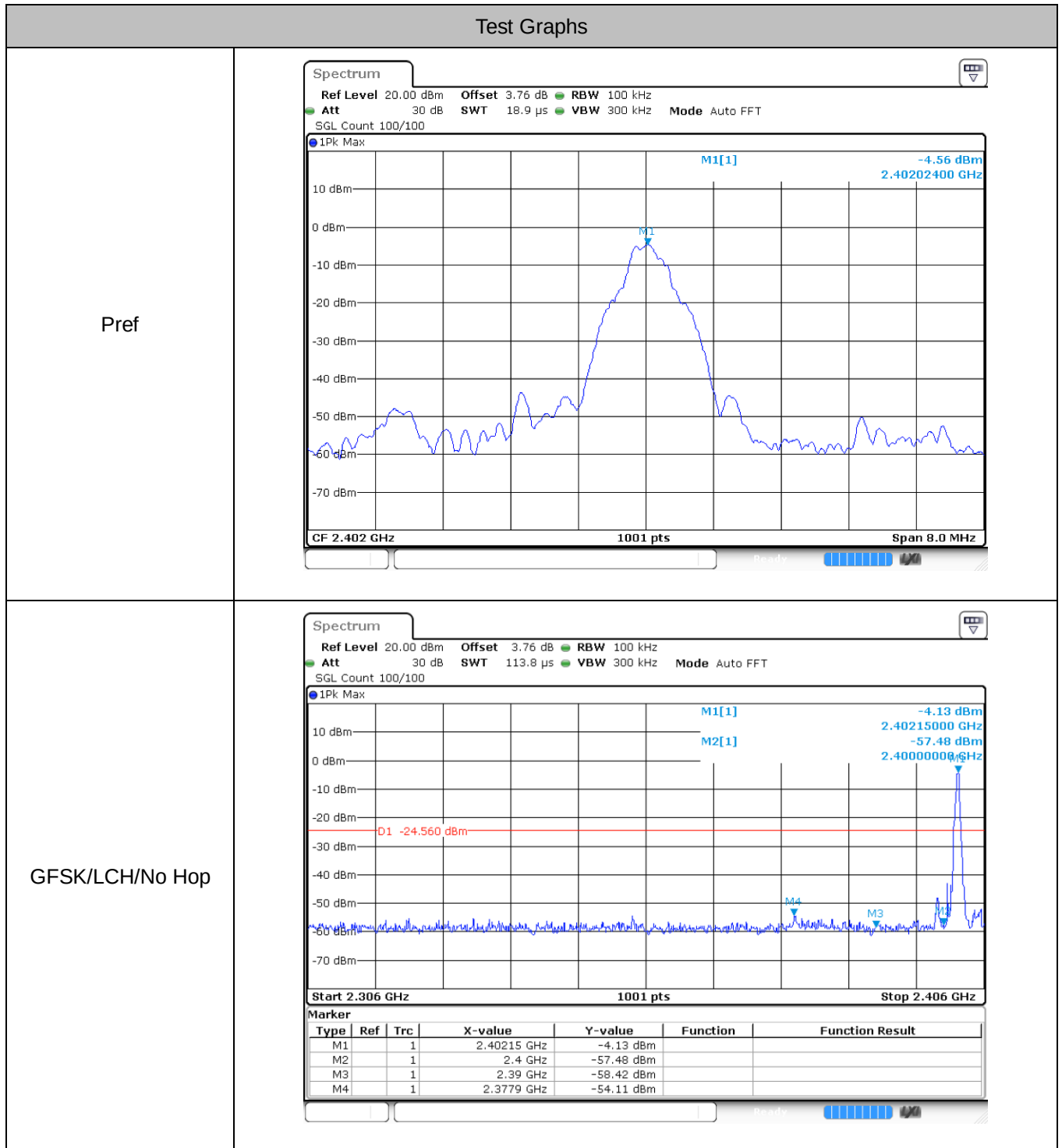


8 Band-edge for RF Conducted Emissions

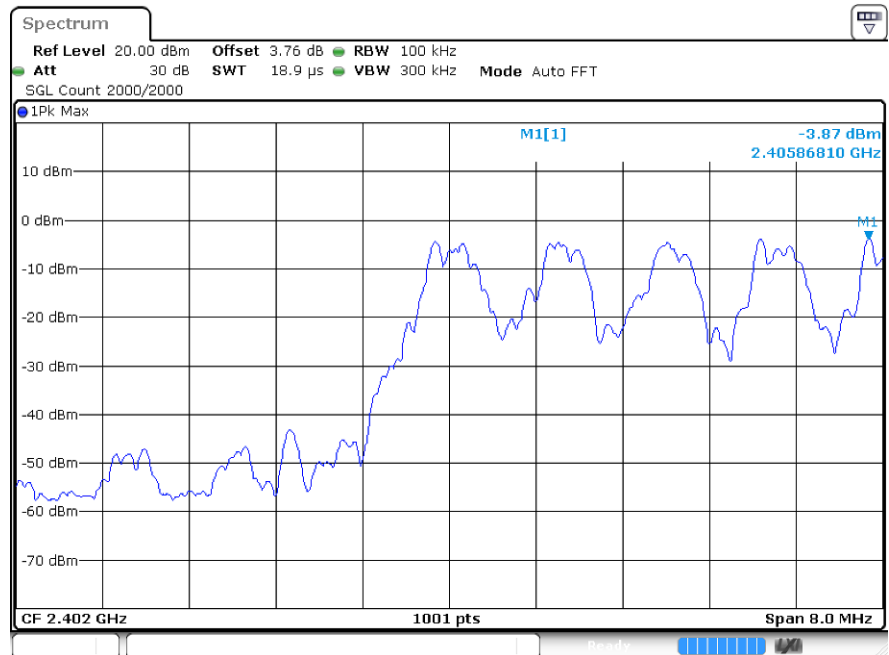
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-49.54	-20	Pass
			On	-48.65	-20	Pass
	HCH	2480	Off	-47.23	-20	Pass
			On	-46.79	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-49.8	-20	Pass
			On	-48.71	-20	Pass
	HCH	2480	Off	-47.42	-20	Pass
			On	-47.62	-20	Pass
8DPSK	LCH	2402	Off	-50.6	-20	Pass
			On	-47.73	-20	Pass
	HCH	2480	Off	-45.75	-20	Pass
			On	-47.39	-20	Pass

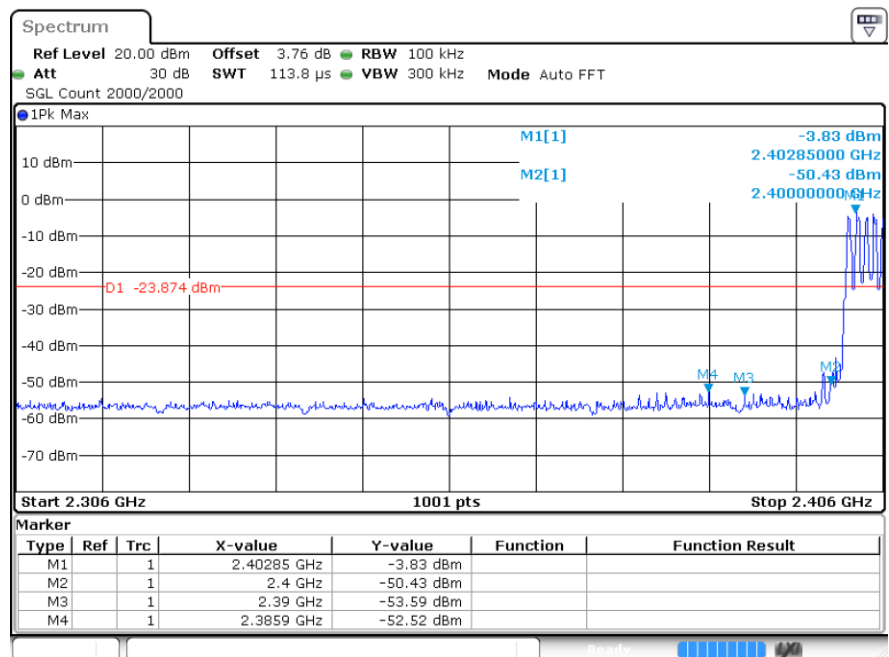
8.2 Test Graphs



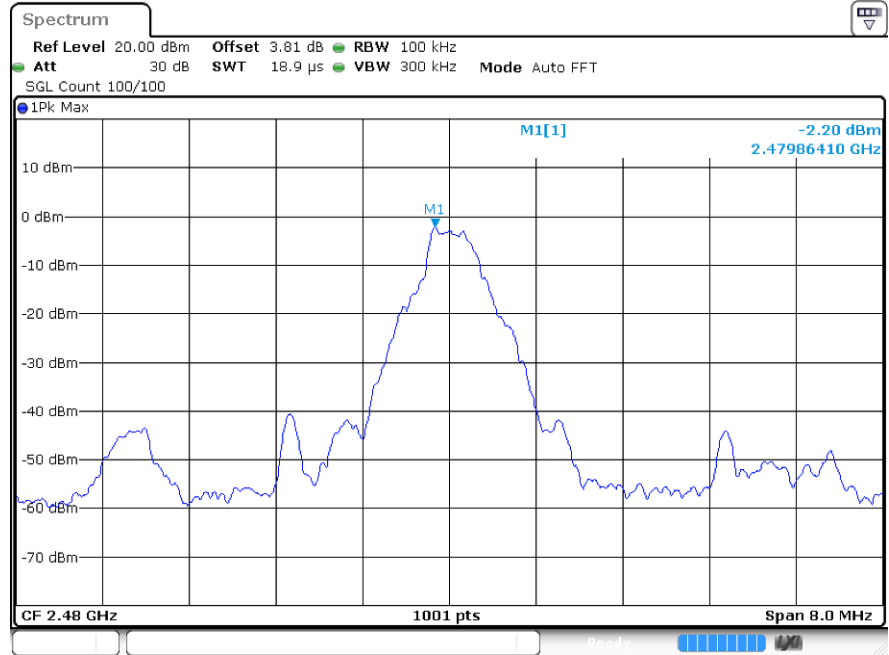
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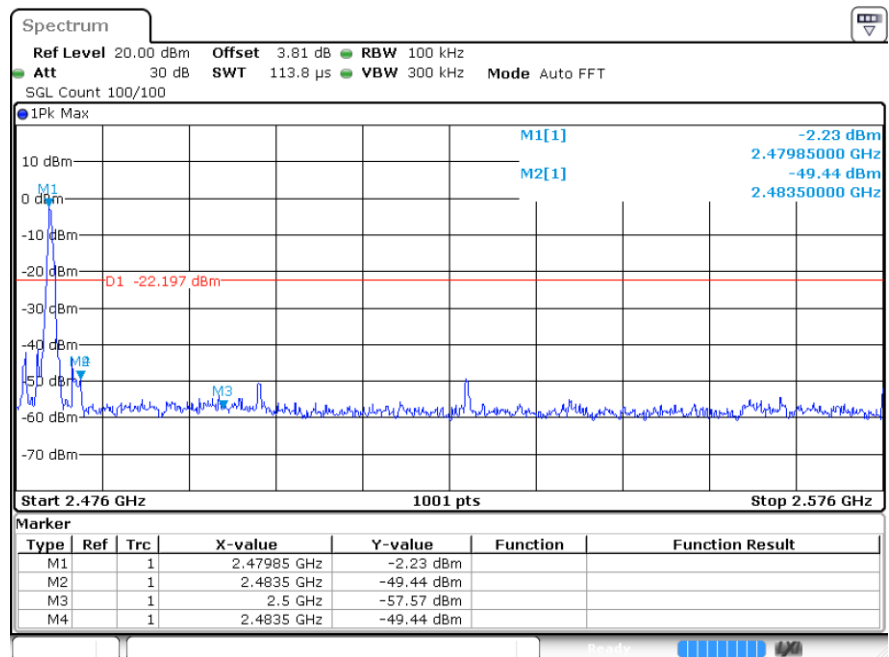
GFSK/LCH/Hop



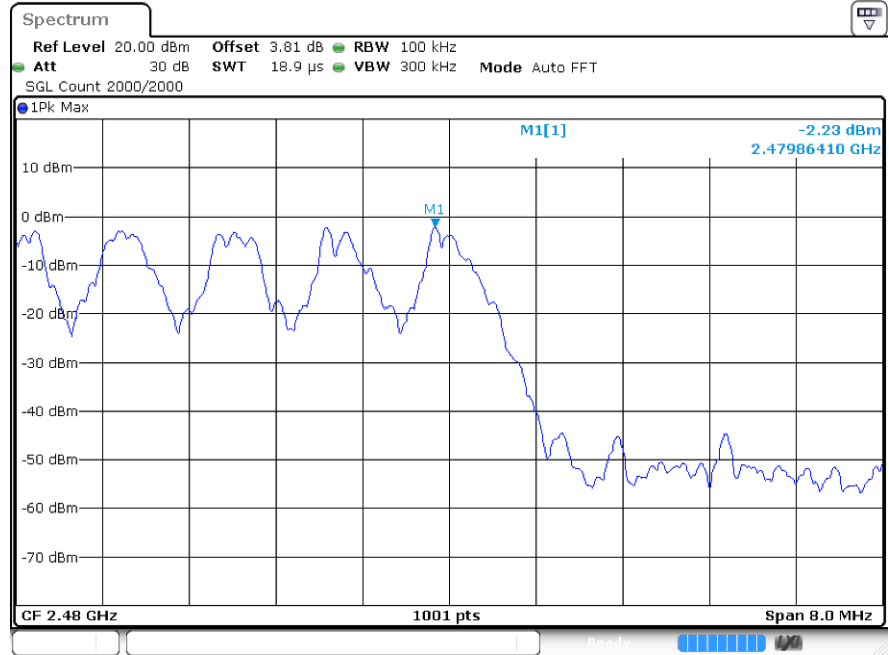
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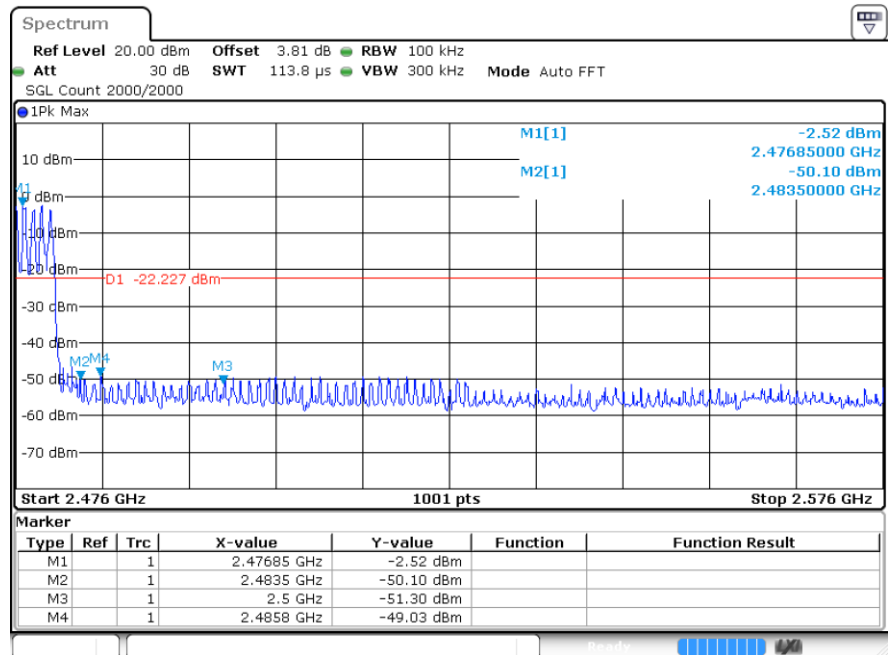
GFSK/HCH/No Hop



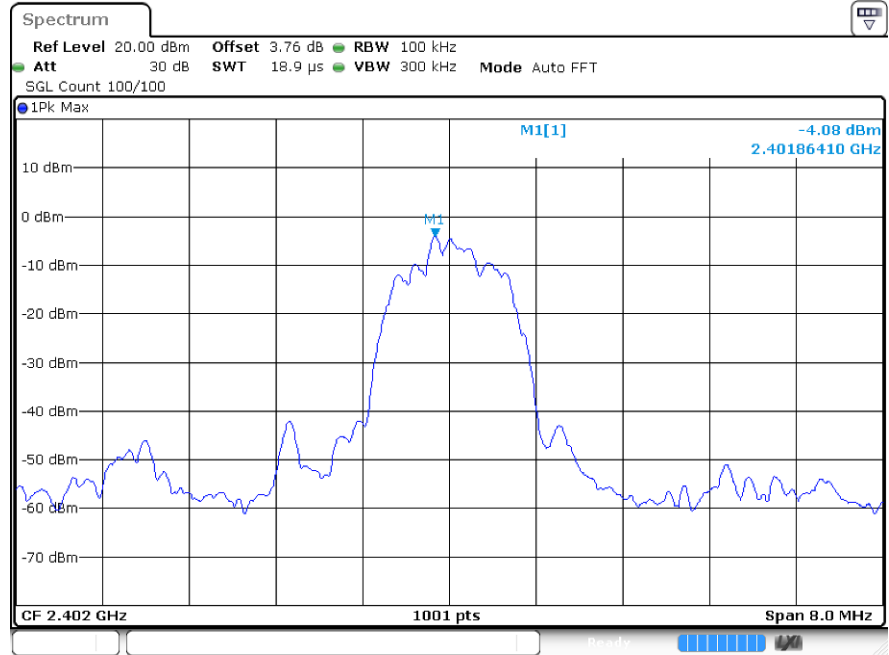
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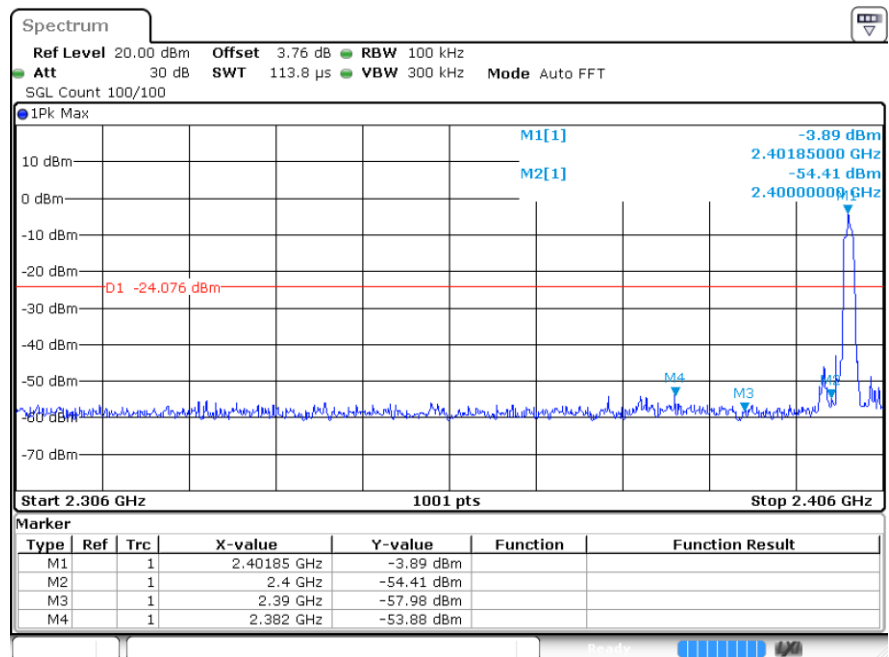
GFSK/HCH/Hop



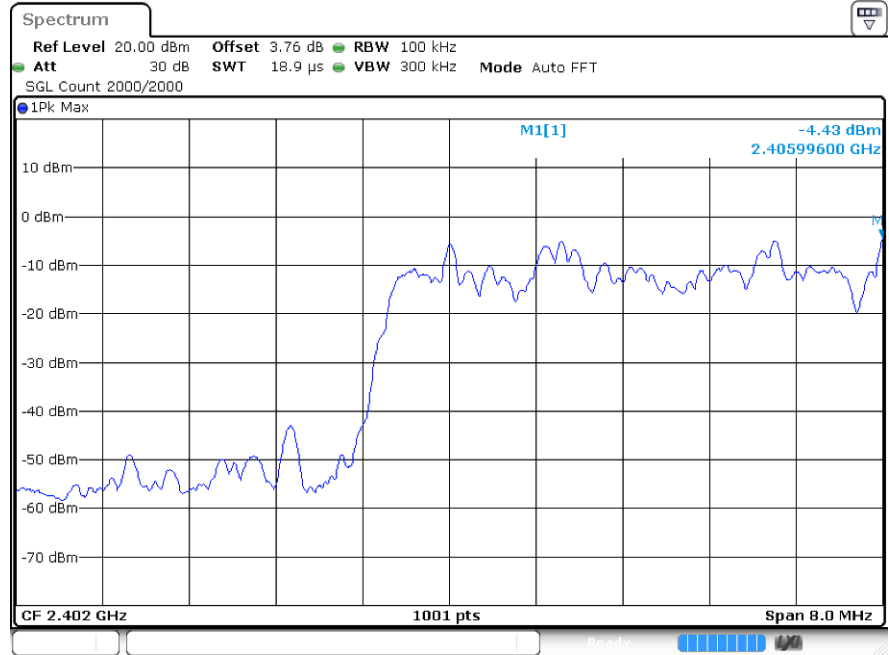
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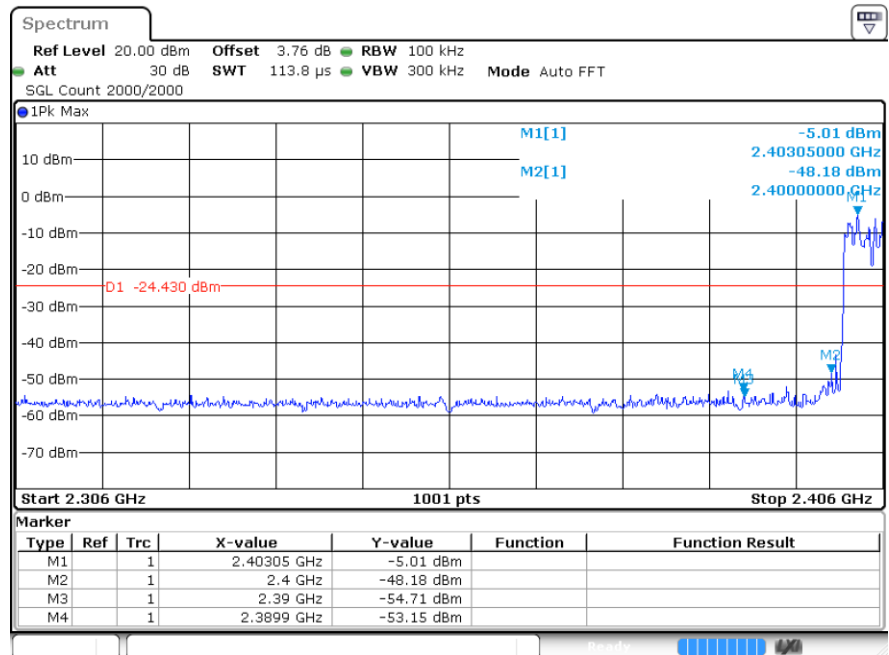
$\pi/4$ DQPSK/LCH/No
Hop



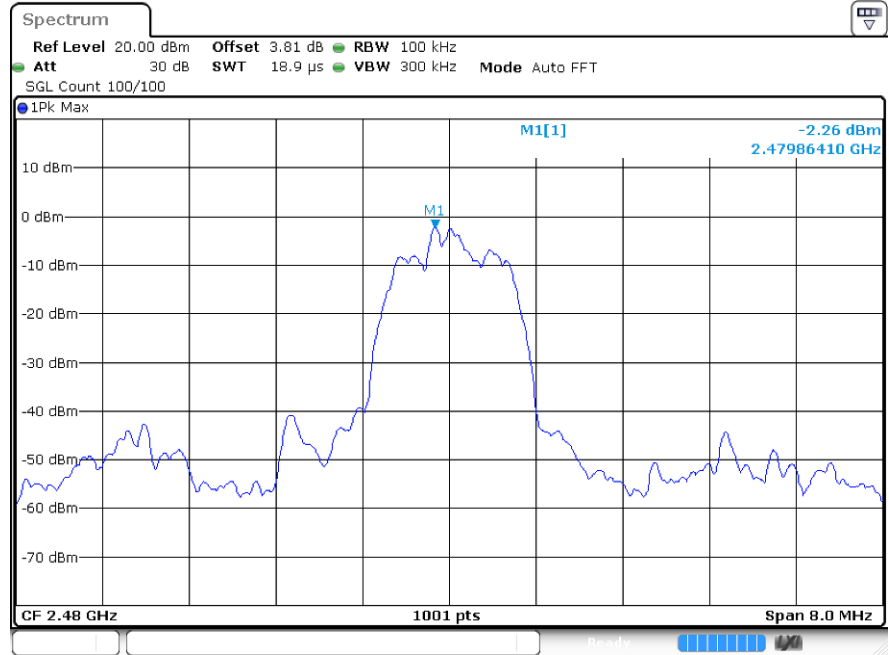
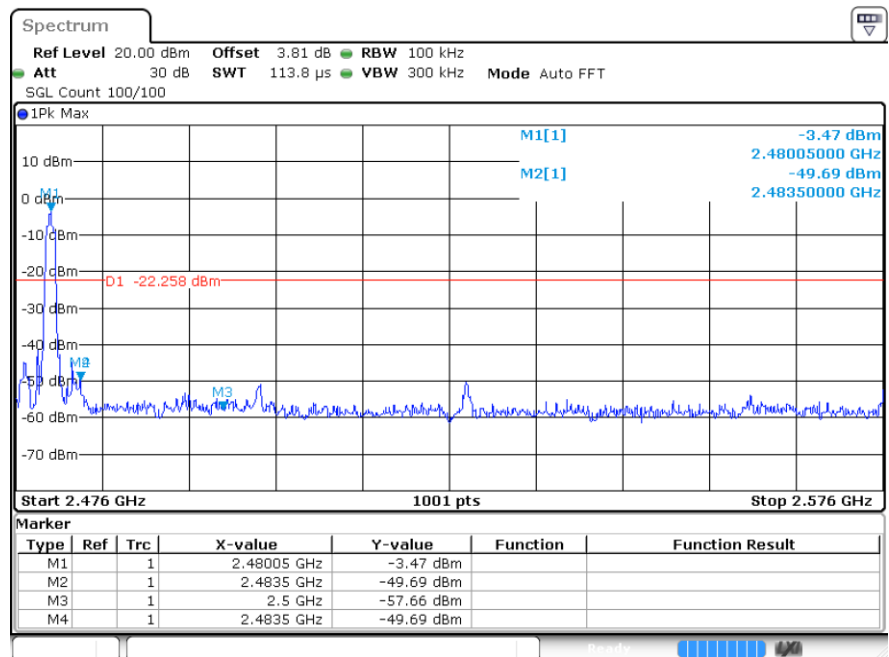
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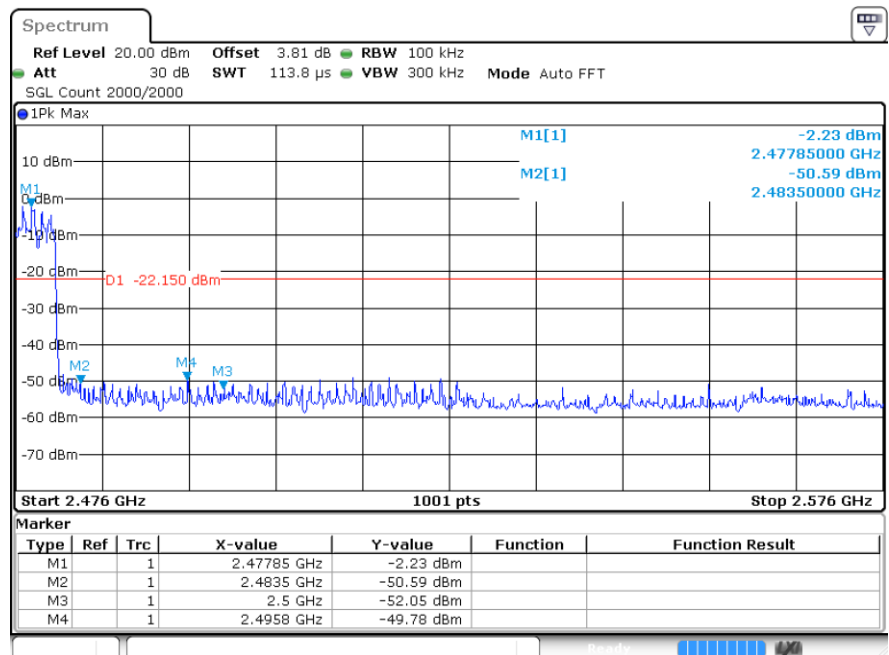
$\pi/4$ DQPSK/LCH/Hop

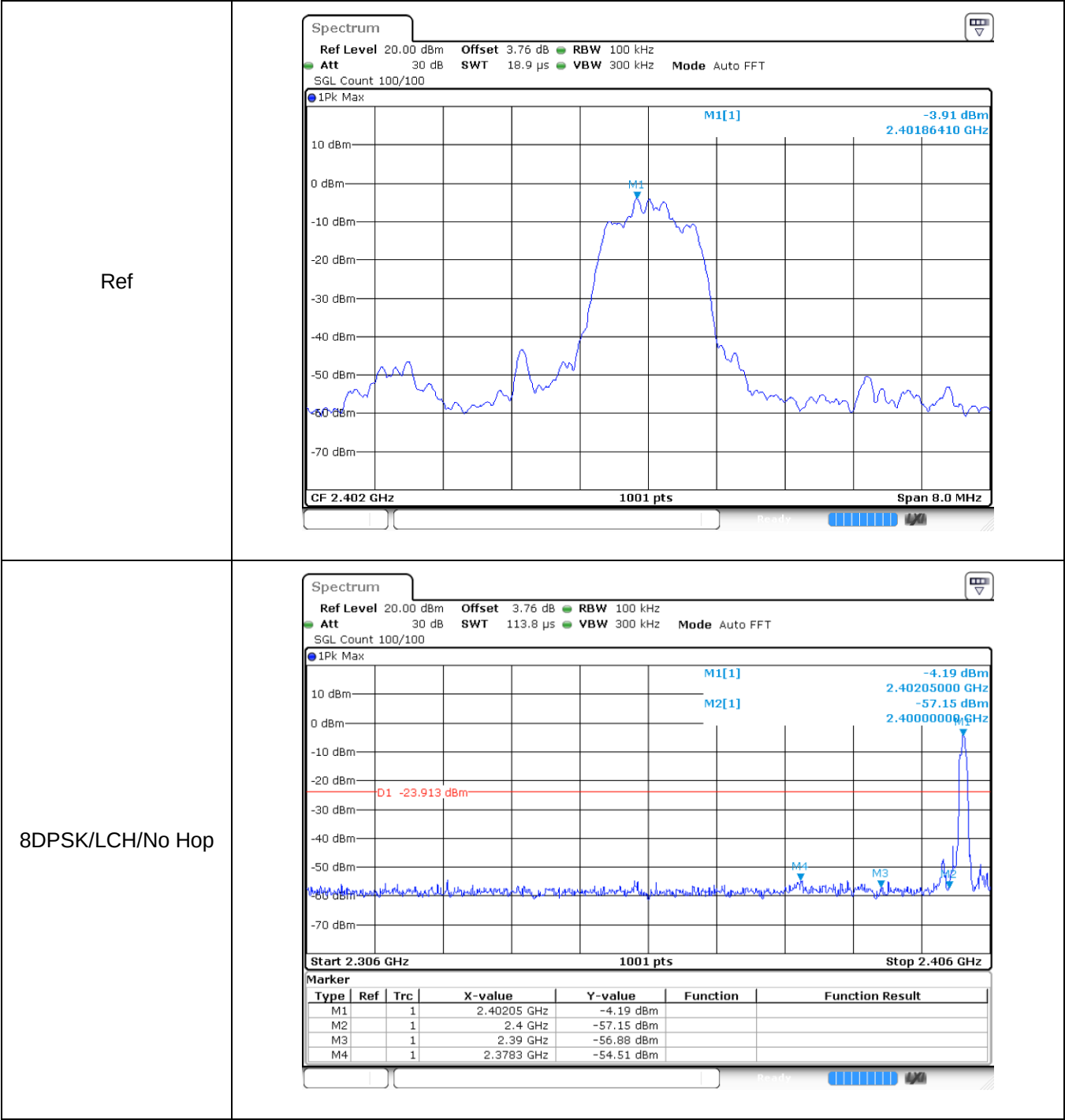


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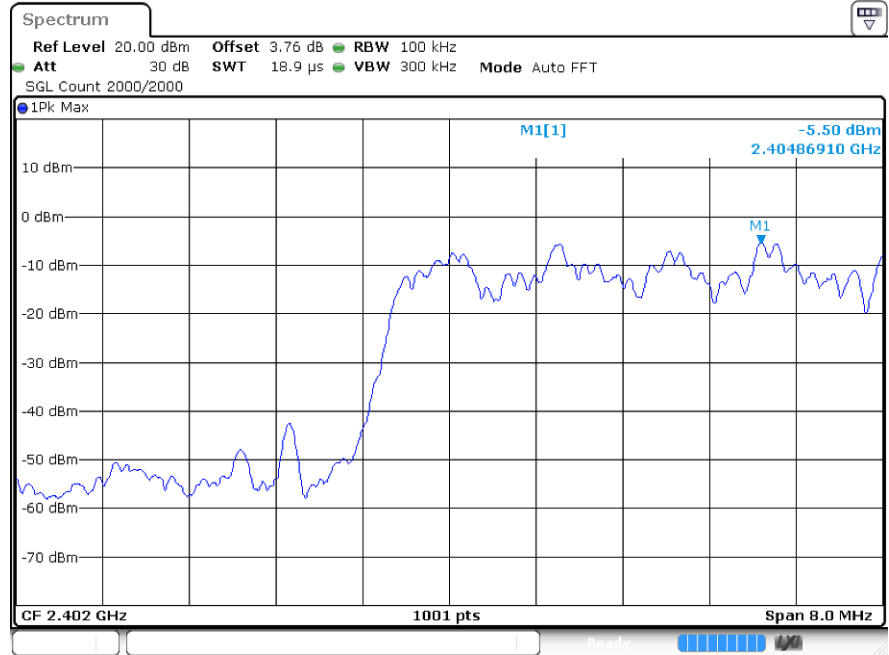

 $\pi/4$ DQPSK/HCH/No Hop


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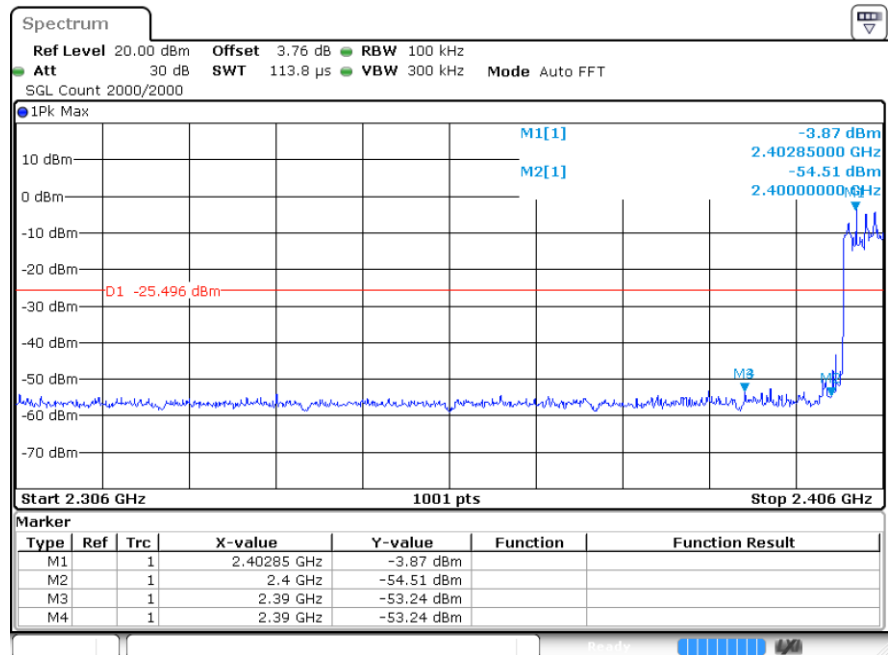

 $\pi/4$ DQPSK/HCH/Hop




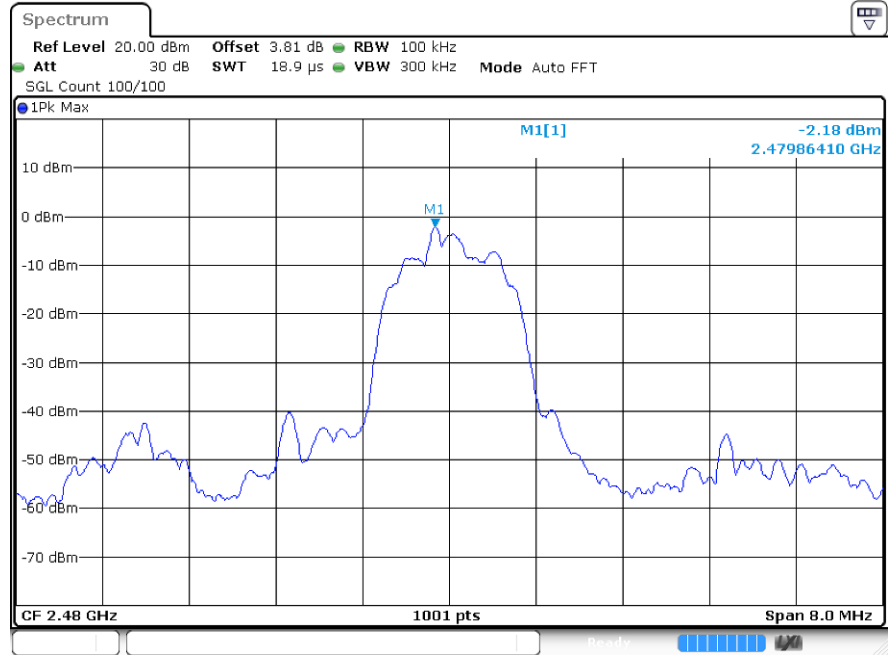
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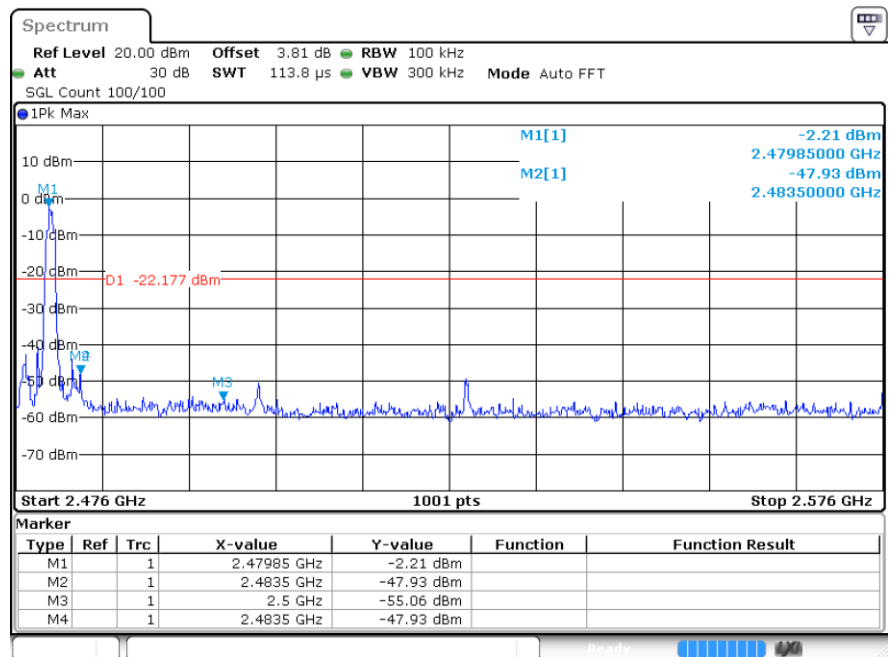
8DPSK/LCH/Hop



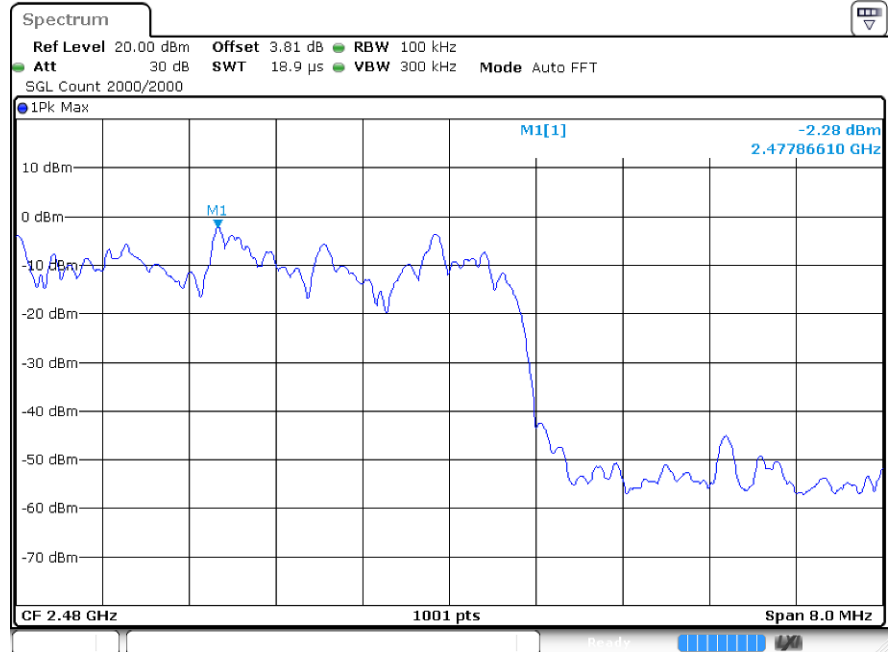
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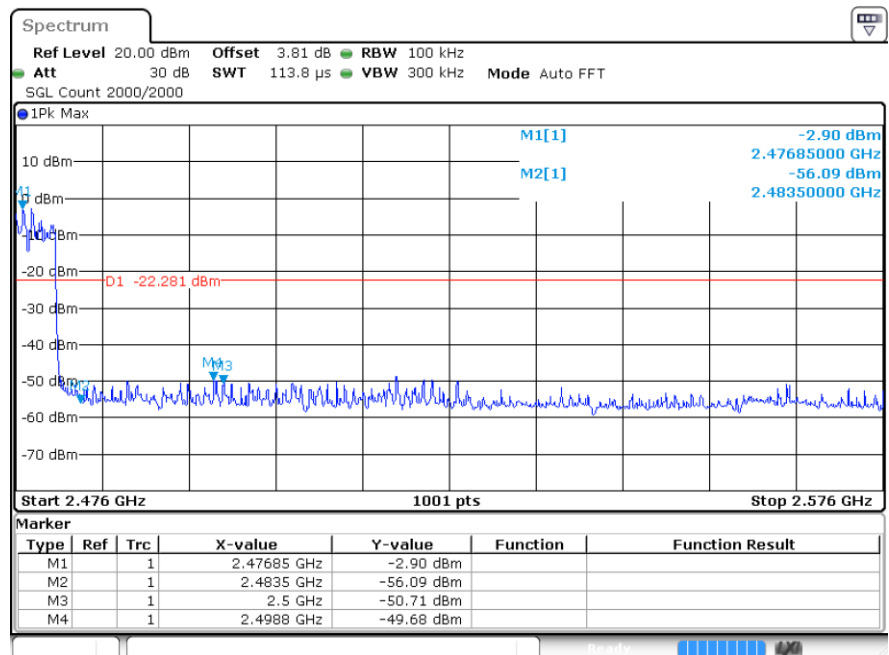
8DPSK/HCH/No Hop



Ref



8DPSK/HCH/Hop



---The End---