



Appendix A

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

Product Name: bluetooth speaker

Trade Mark: N/A

Test Model: BS-68

Environmental Conditions

Temperature:	26.3°C
Relative Humidity:	56.6%
ATM Pressure:	101Kpa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung

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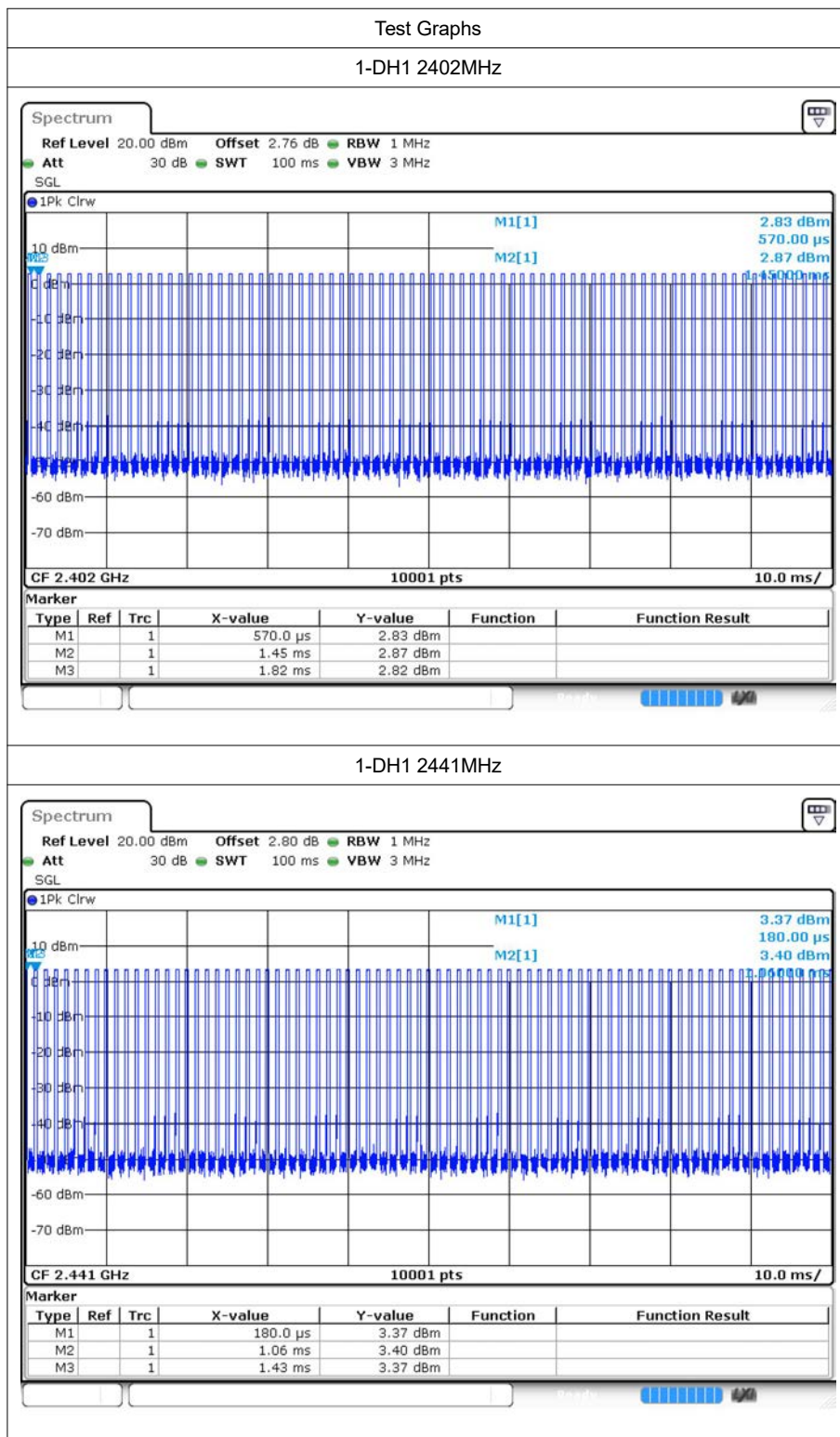
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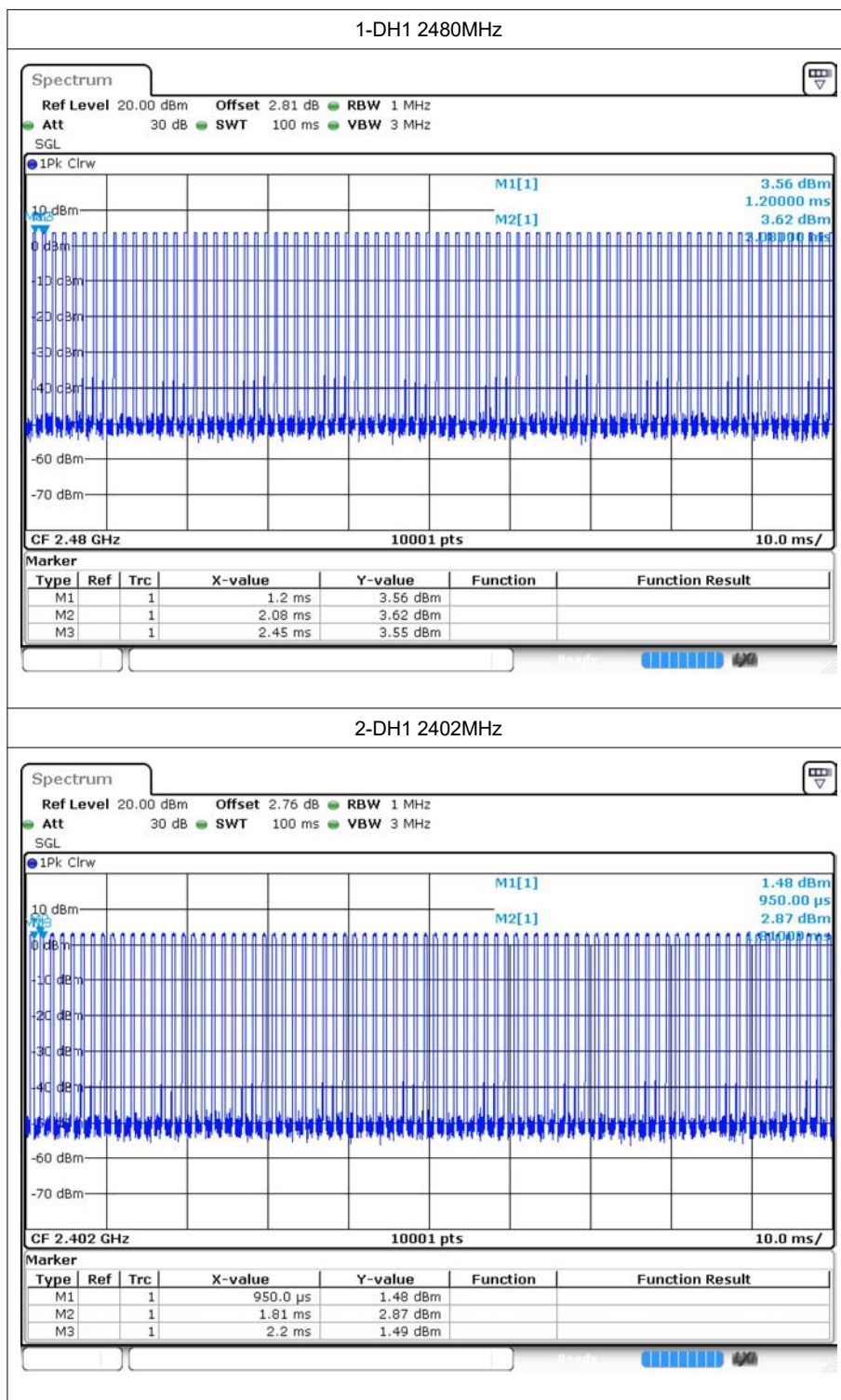
1 Duty Cycle

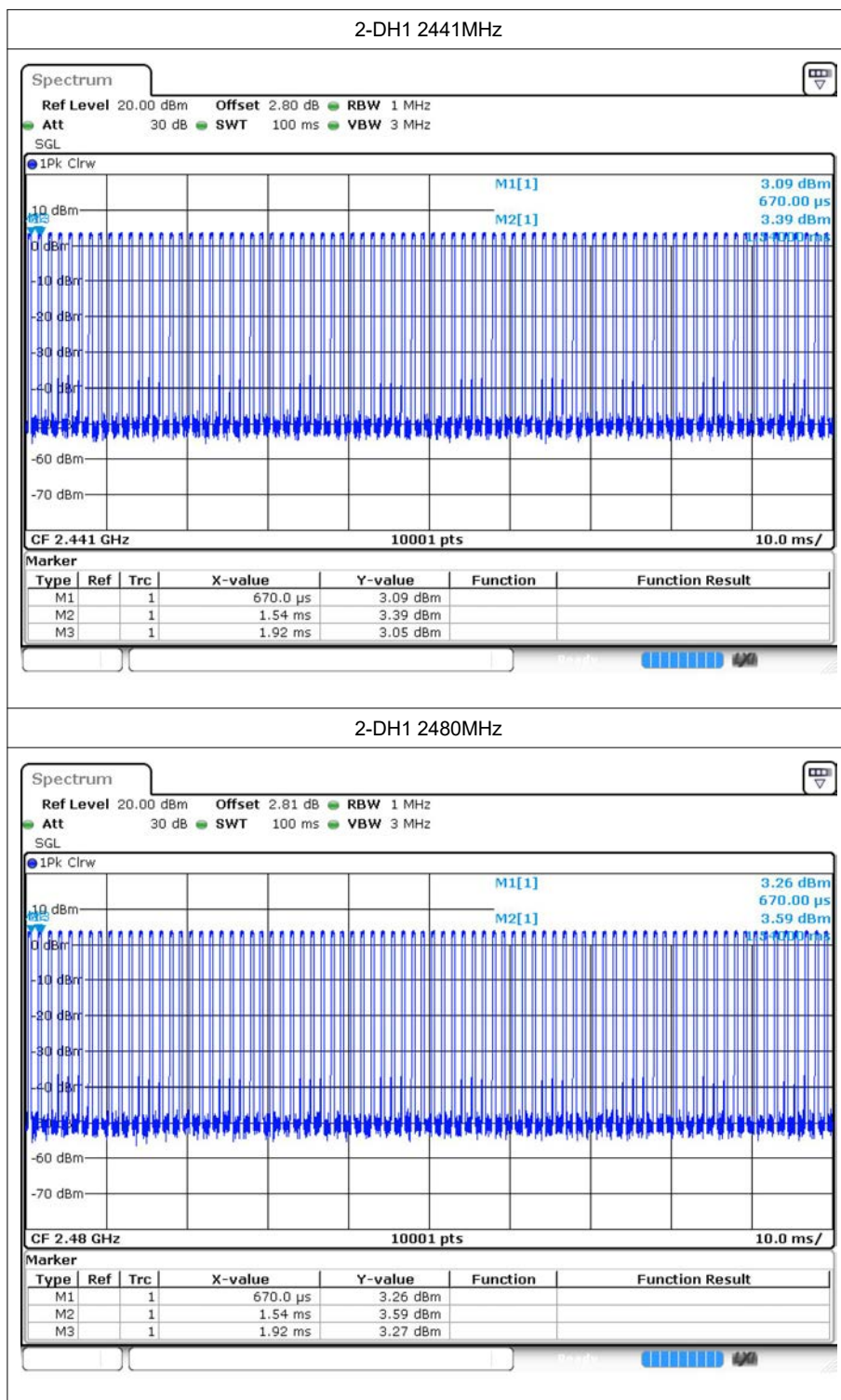
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	30.4	5.17	2.7
1-DH1	2441	30.41	5.17	2.7
1-DH1	2480	30.4	5.17	2.7
2-DH1	2402	32	4.95	2.56
2-DH1	2441	31.2	5.06	2.63
2-DH1	2480	31.2	5.06	2.63

1.2 Test Graphs





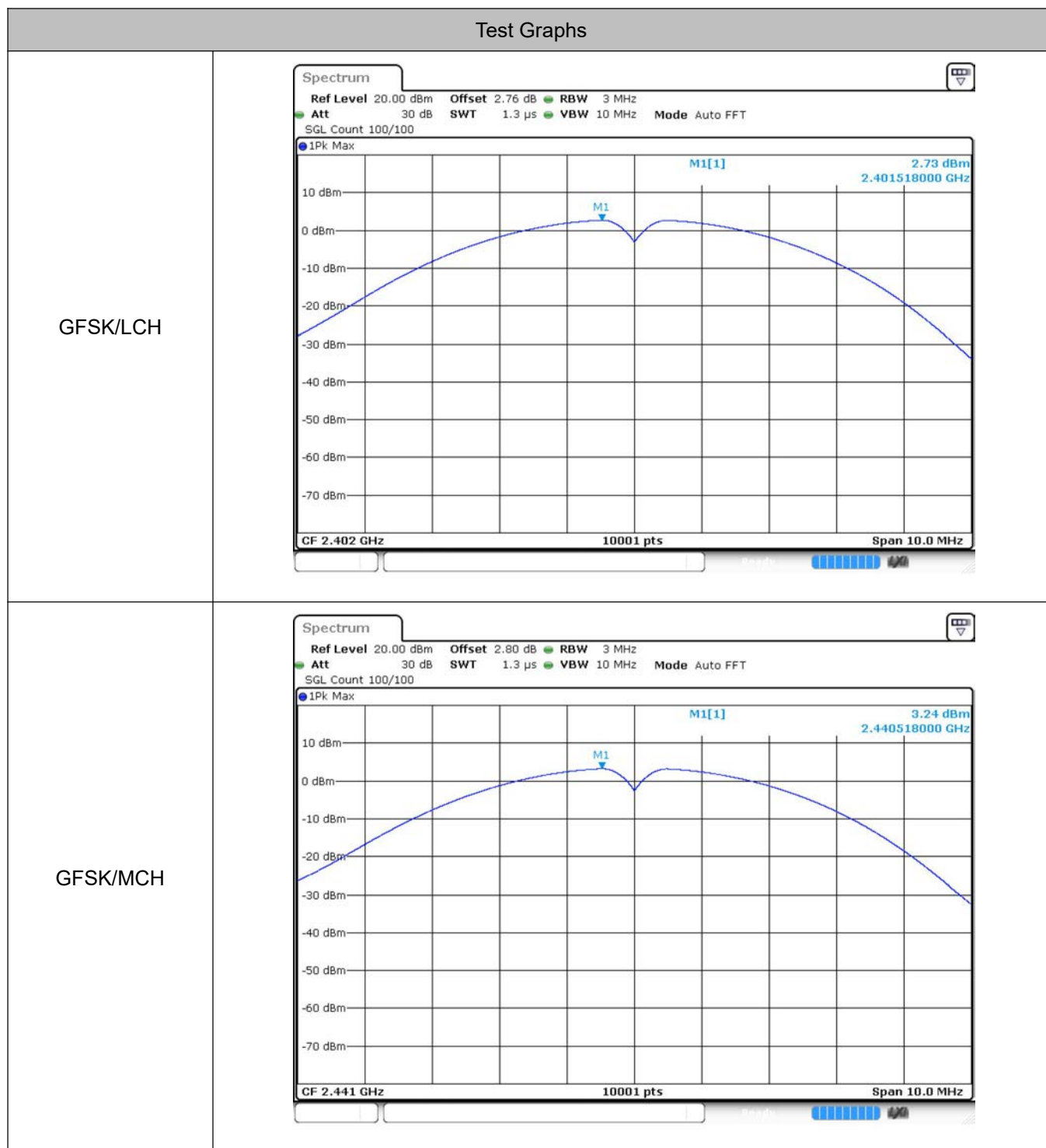


2 Maximum Conducted Peak Output Power

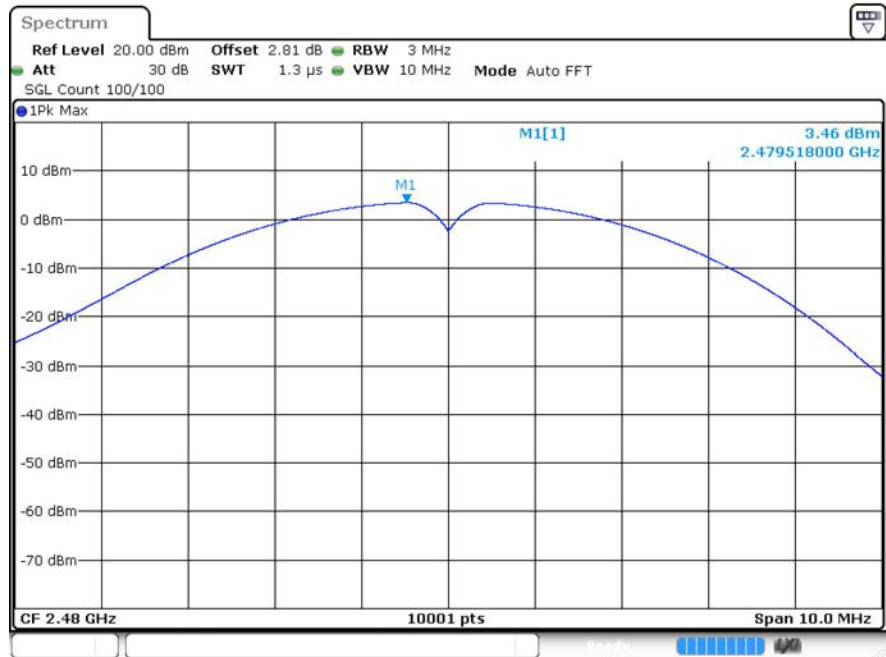
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.73	21	Pass
	MCH	3.24	21	Pass
	HCH	3.46	21	Pass
$\pi/4$ DQPSK	LCH	3.2	21	Pass
	MCH	3.54	21	Pass
	HCH	3.88	21	Pass

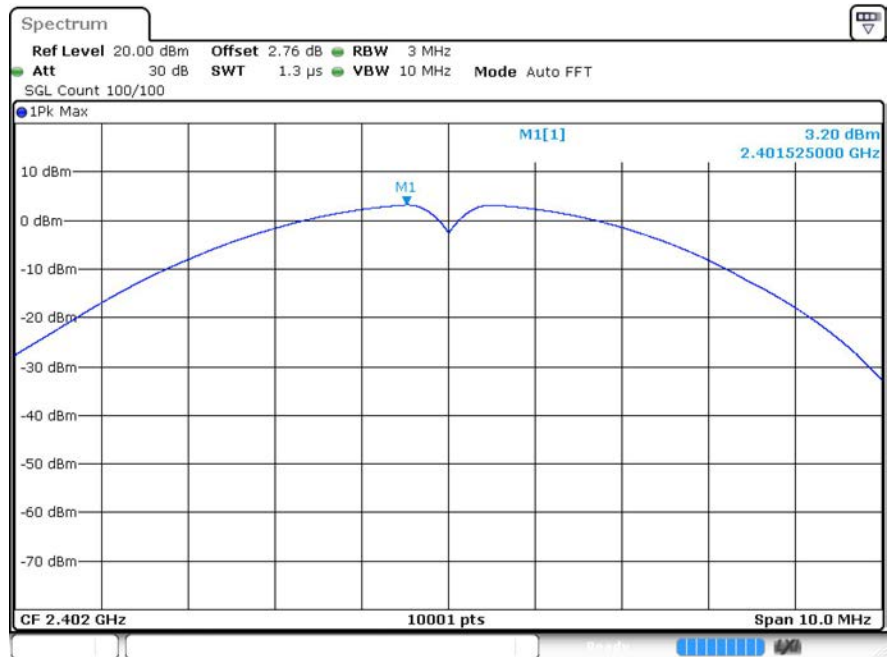
2.2 Test Graphs



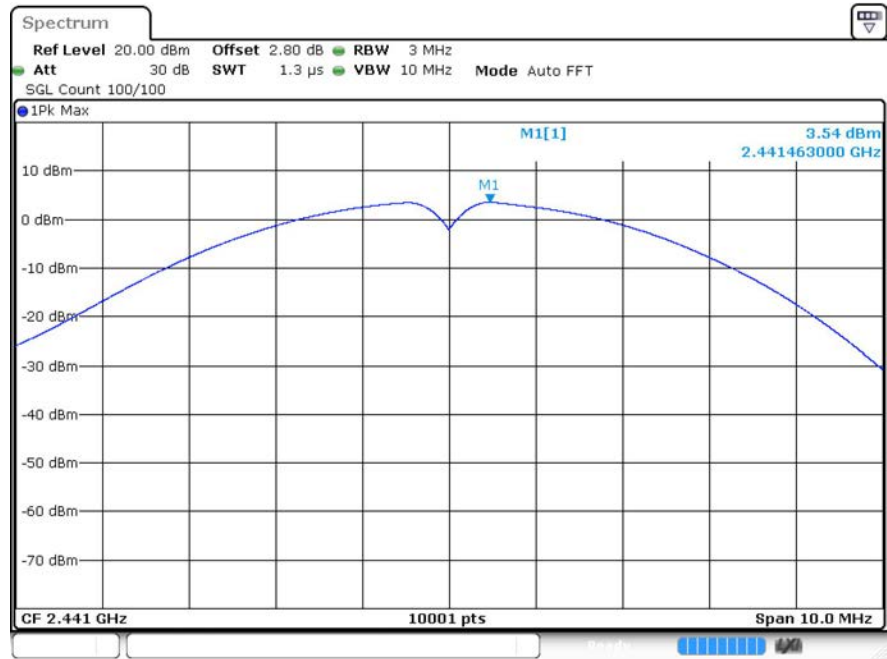
GFSK/HCH



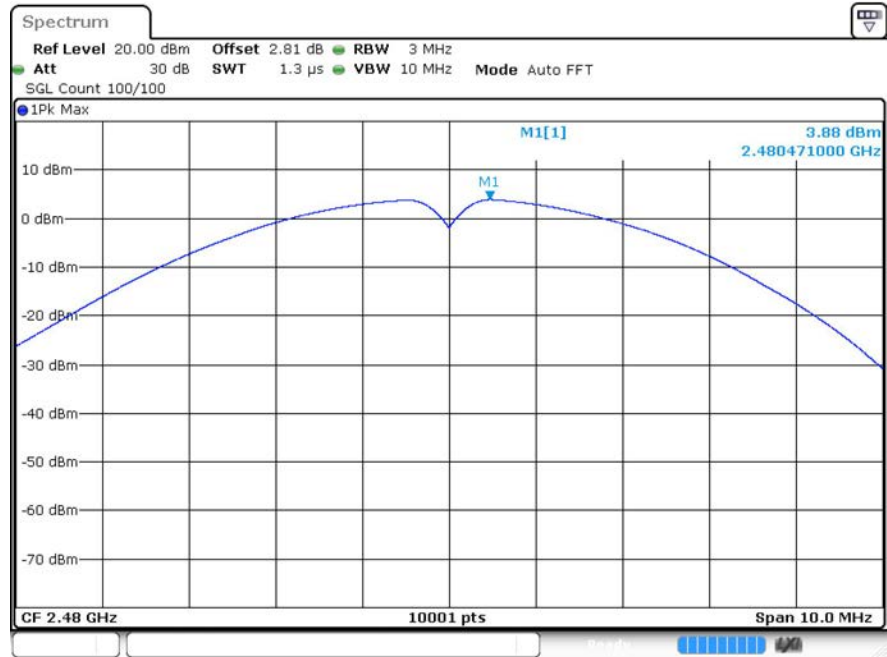
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

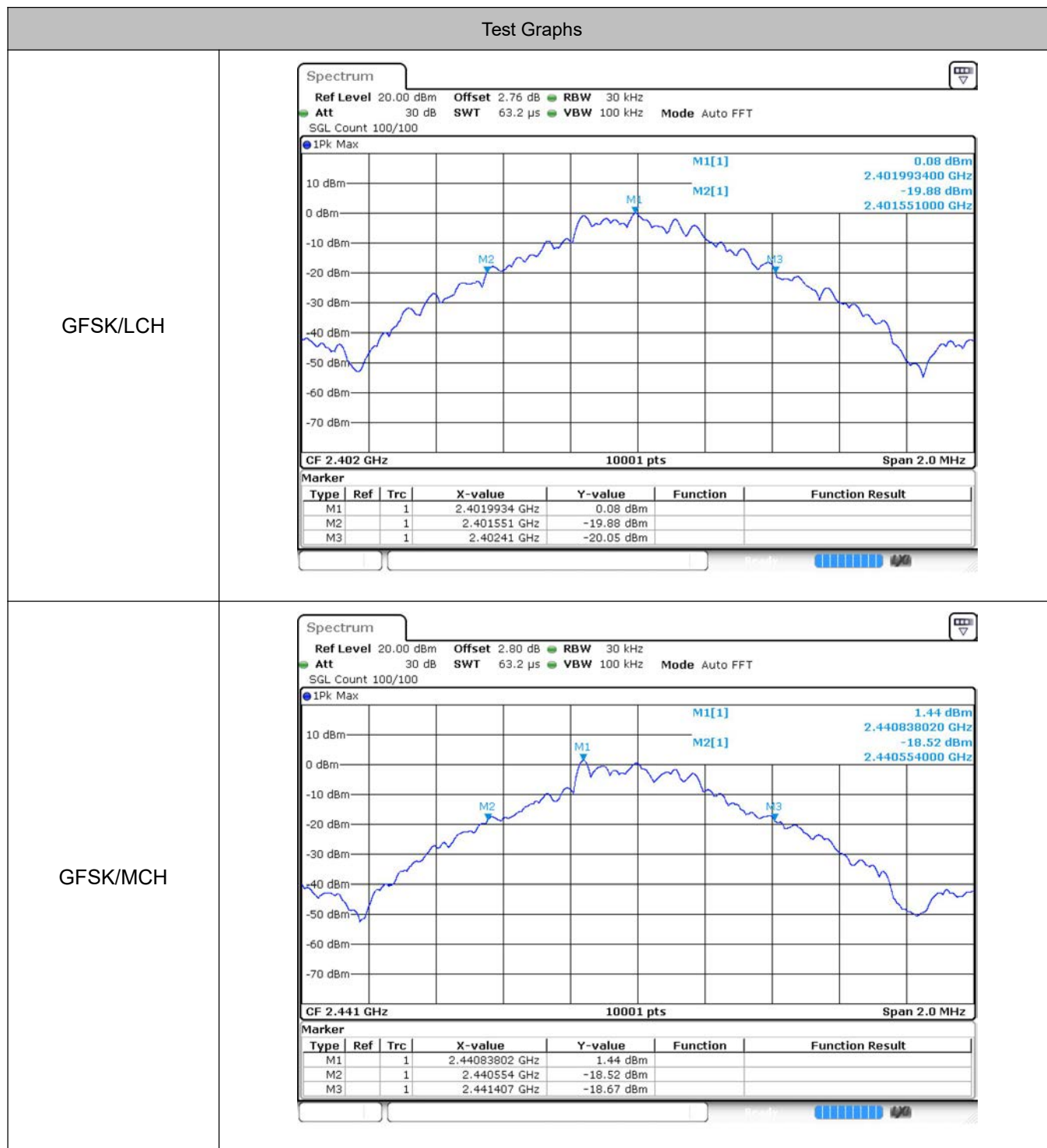


3 20dB Bandwidth

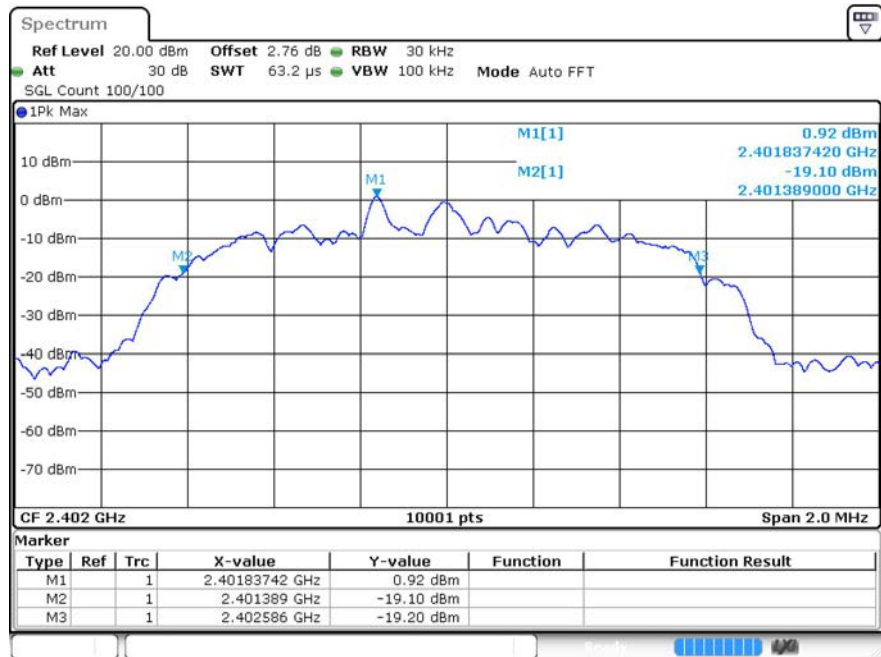
3.1 Test Result

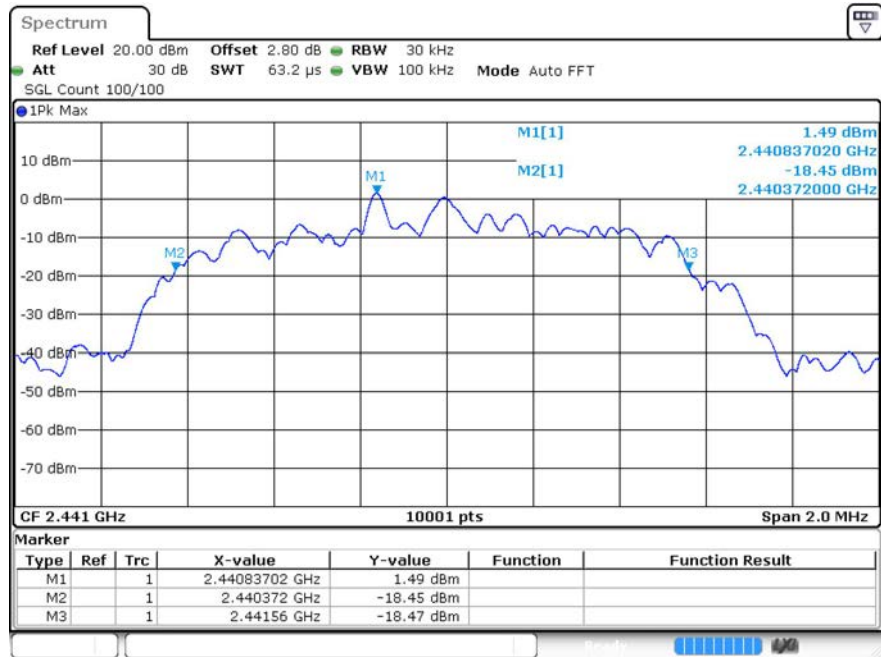
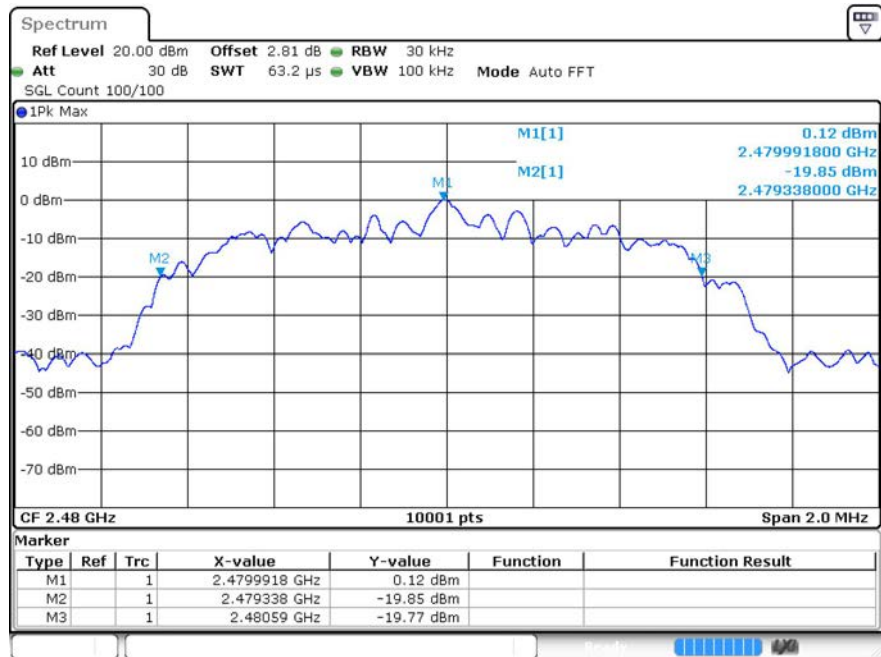
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.859	Not Specified	Pass
	MCH	0.853	Not Specified	Pass
	HCH	0.839	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.196	Not Specified	Pass
	MCH	1.188	Not Specified	Pass
	HCH	1.252	Not Specified	Pass

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	0.569	Pass
$\pi/4$ DQPSK	MCH	1.138	0.792	Pass

4.2 Test Graphs

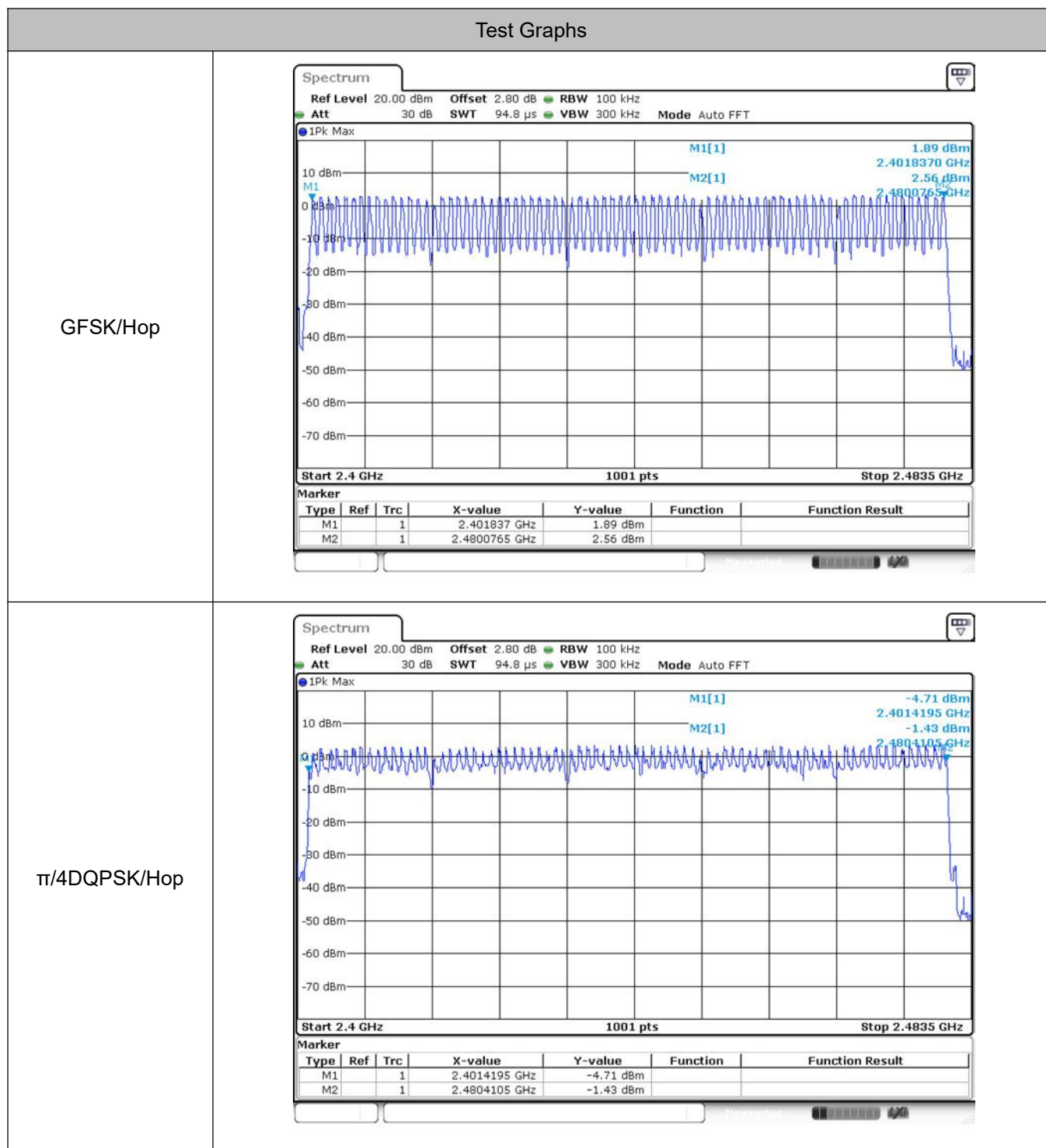


5 Hopping Channel Number

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

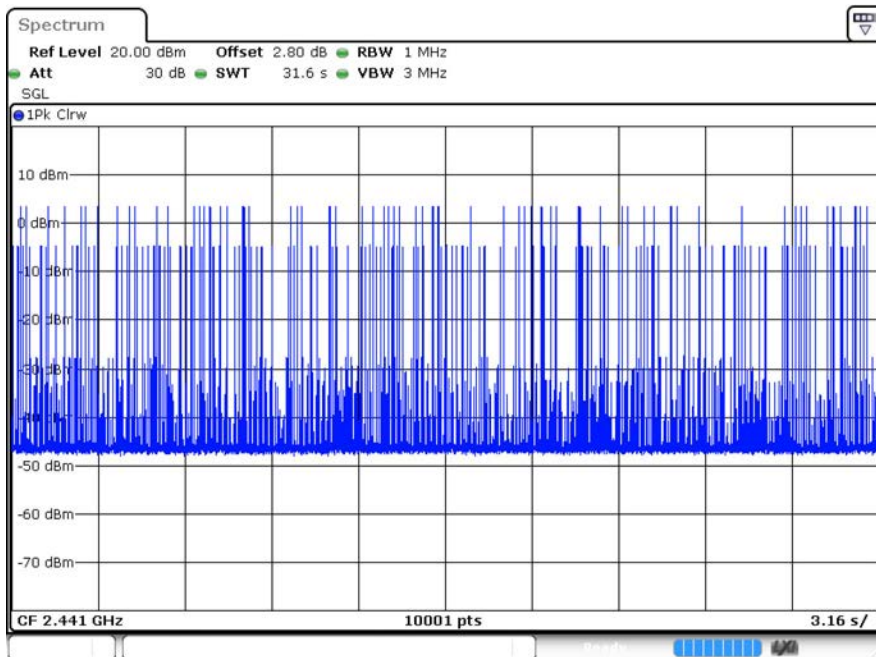
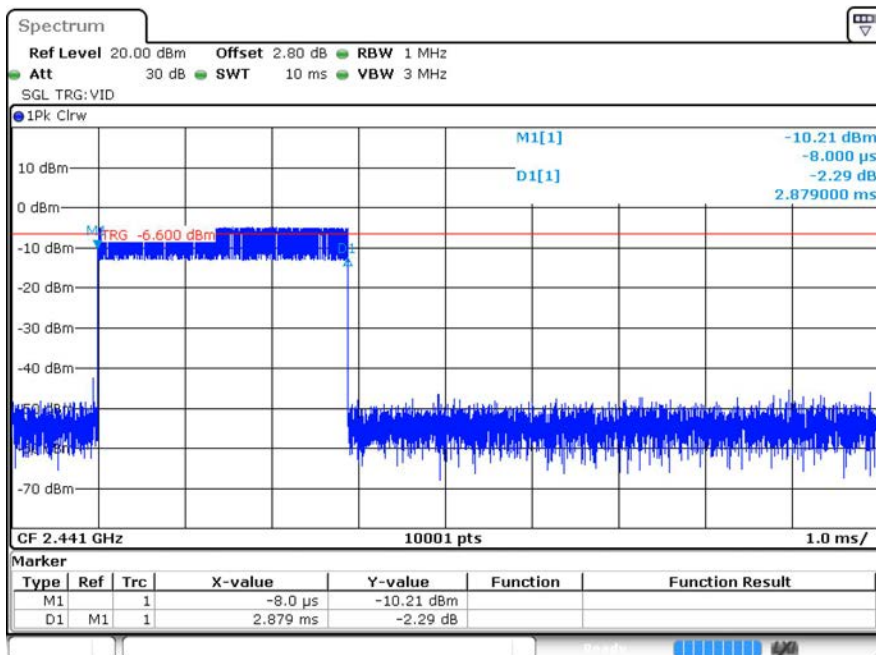
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.879	72	207.288	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.886	75	216.45	0.4	Pass

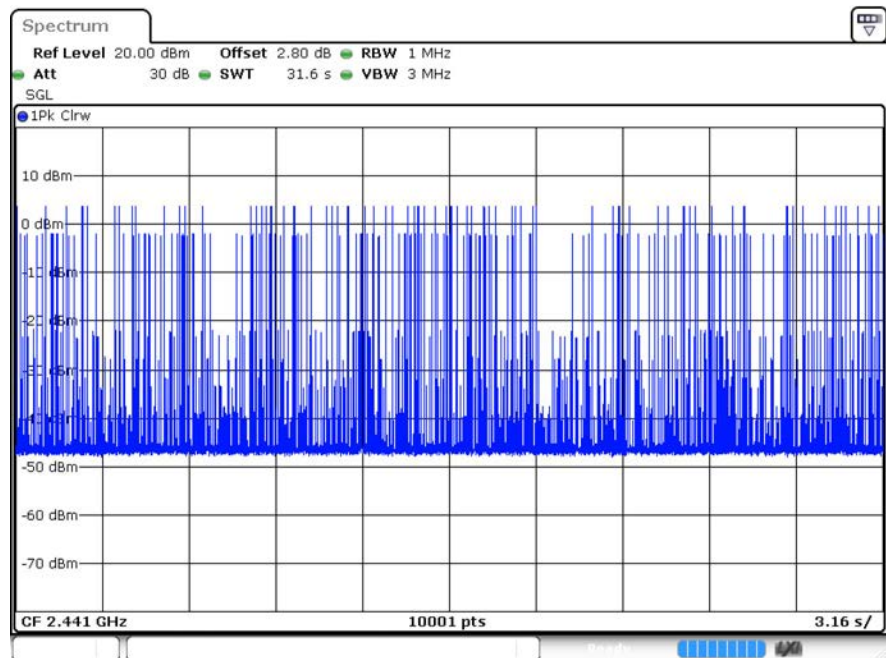
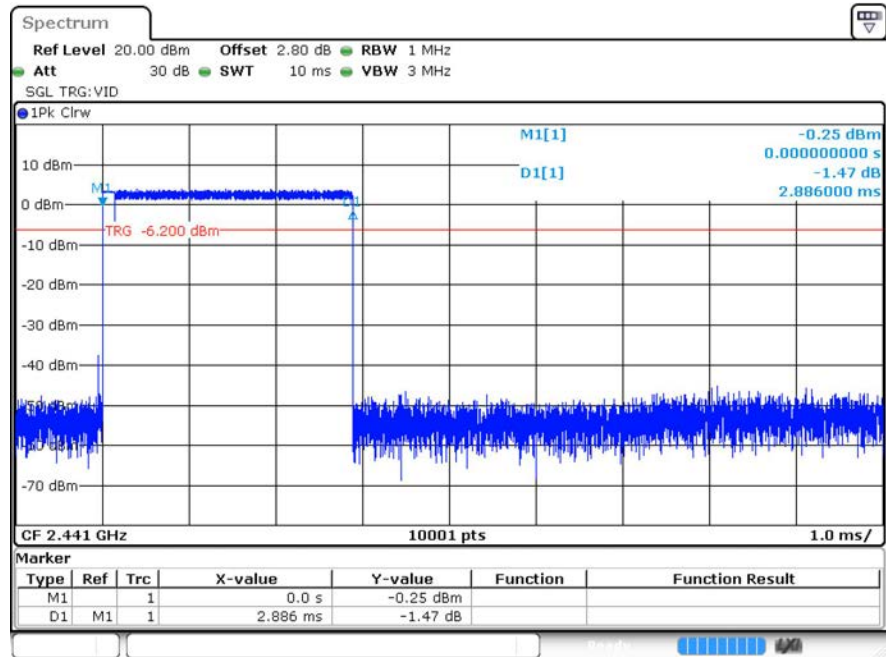
6.2 Test Graphs

Test Graphs

GFSK_DH5/MCH



$\pi/4$ DQPSK
_2DH5/MCH



7 RF Conducted Spurious Emissions

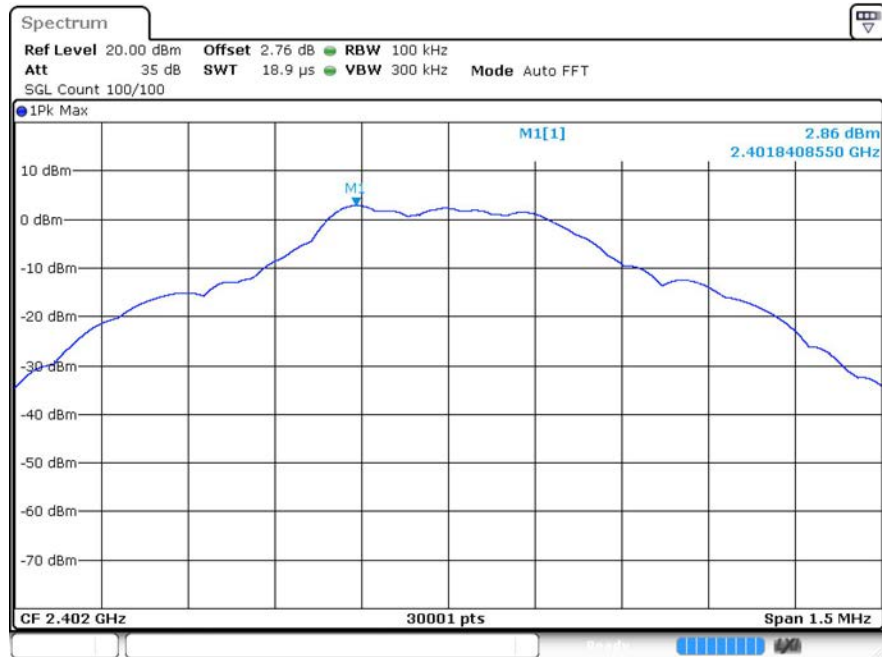
7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-44.49	-20	Pass
	MCH	-44.79	-20	Pass
	HCH	-42.8	-20	Pass
$\pi/4$ DQPSK	LCH	-43.89	-20	Pass
	MCH	-43.93	-20	Pass
	HCH	-44.53	-20	Pass

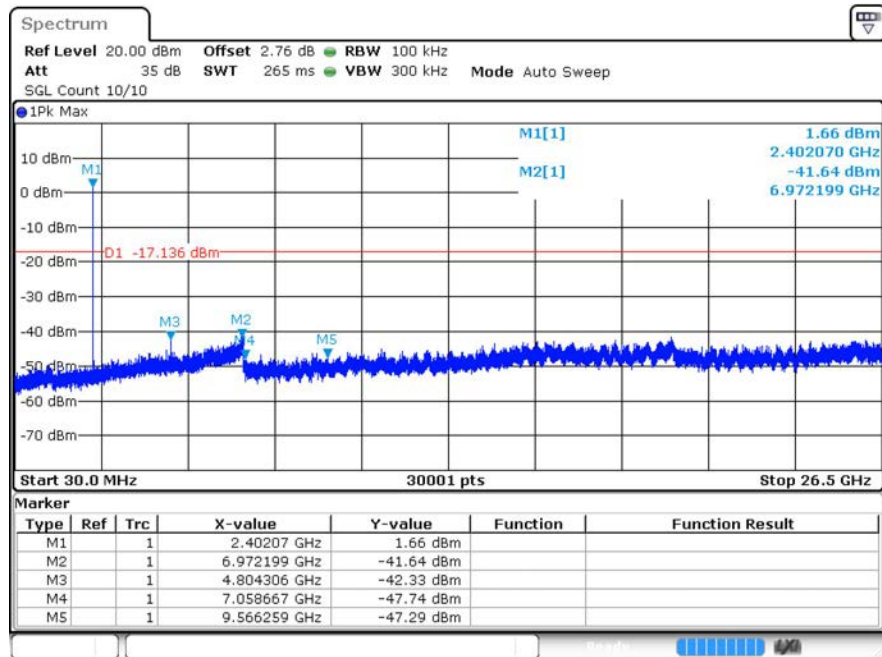
7.2 Test Graphs

GFSK_LCH_Graphs

Pref



Puw

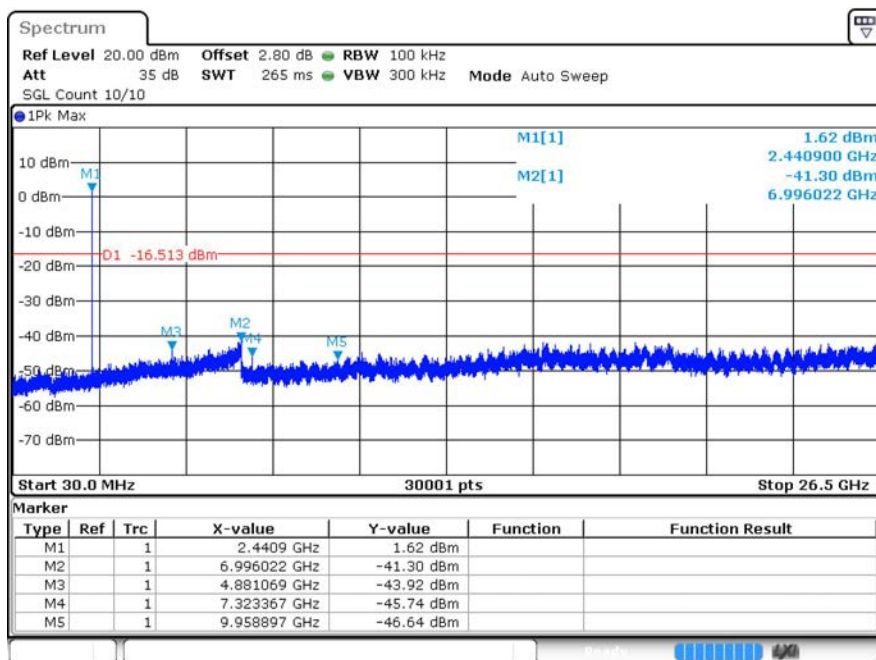


GFSK_MCH_Graphs

Pref

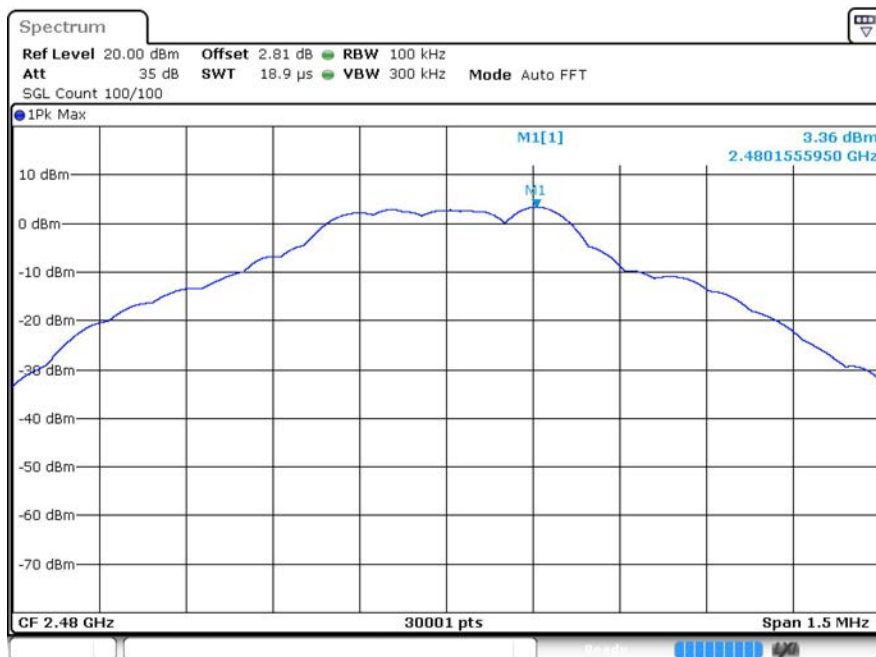


Puw

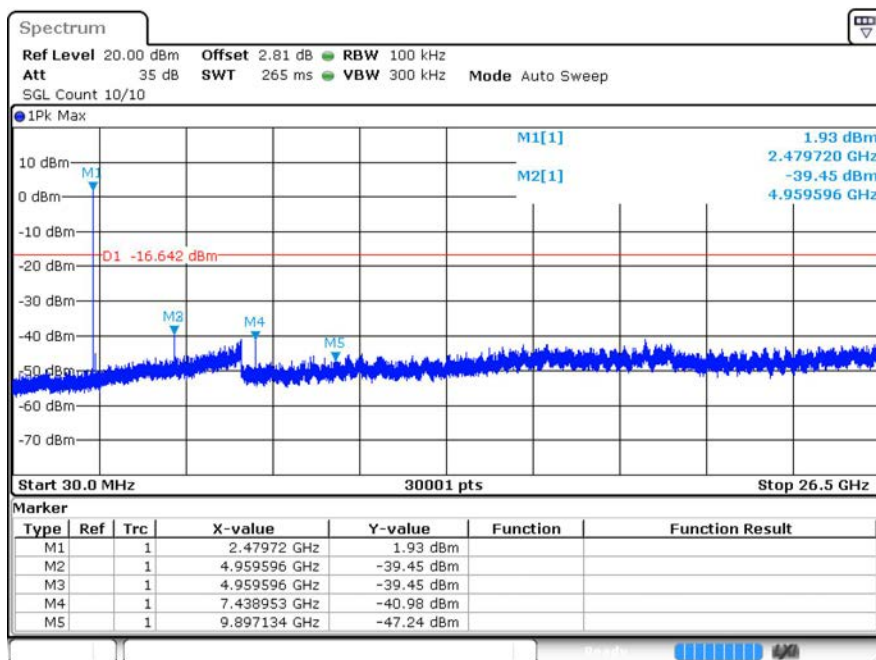


GFSK_HCH_Graphs

Pref

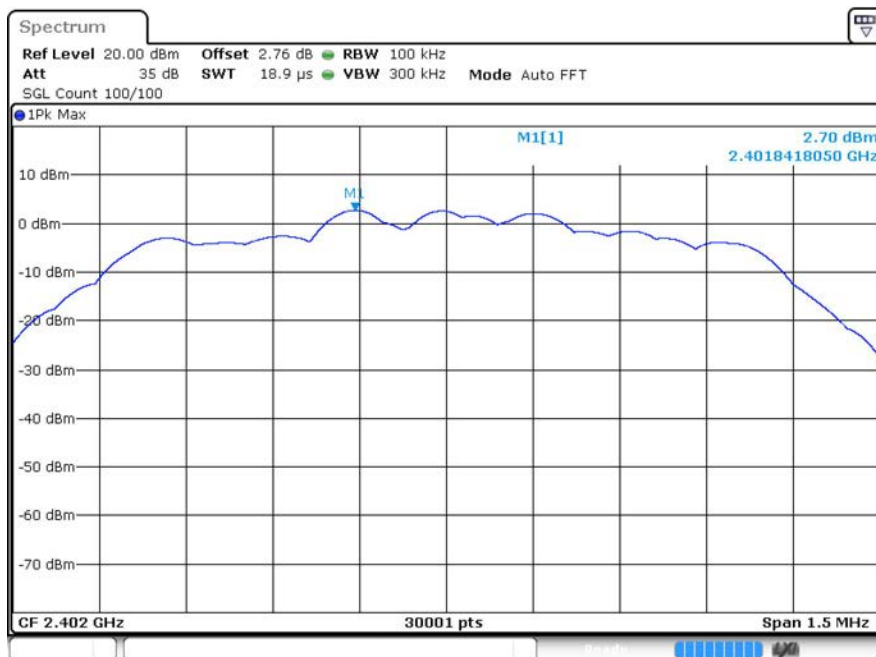


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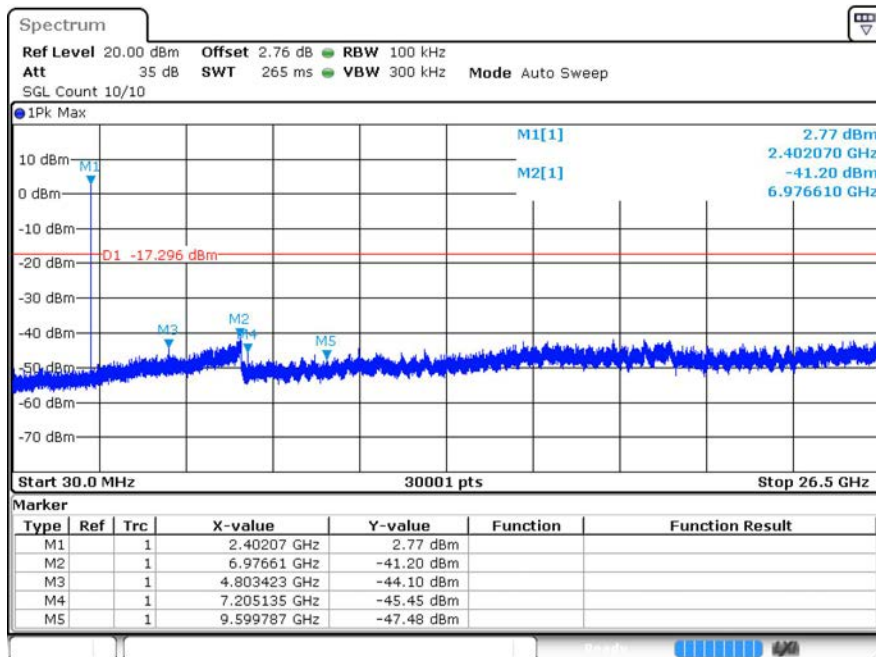


$\pi/4$ DQPSK_LCH_Graphs

Pref

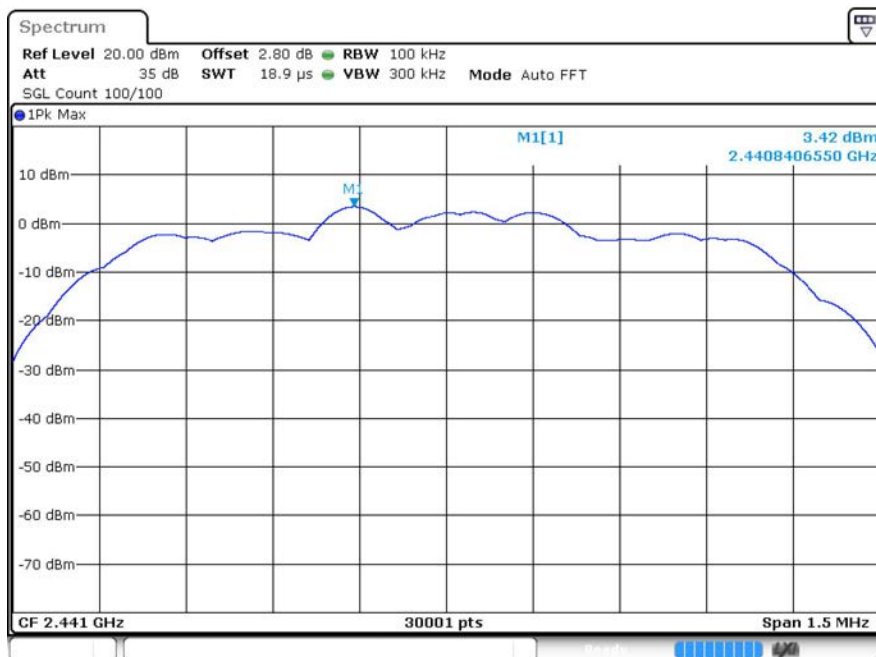


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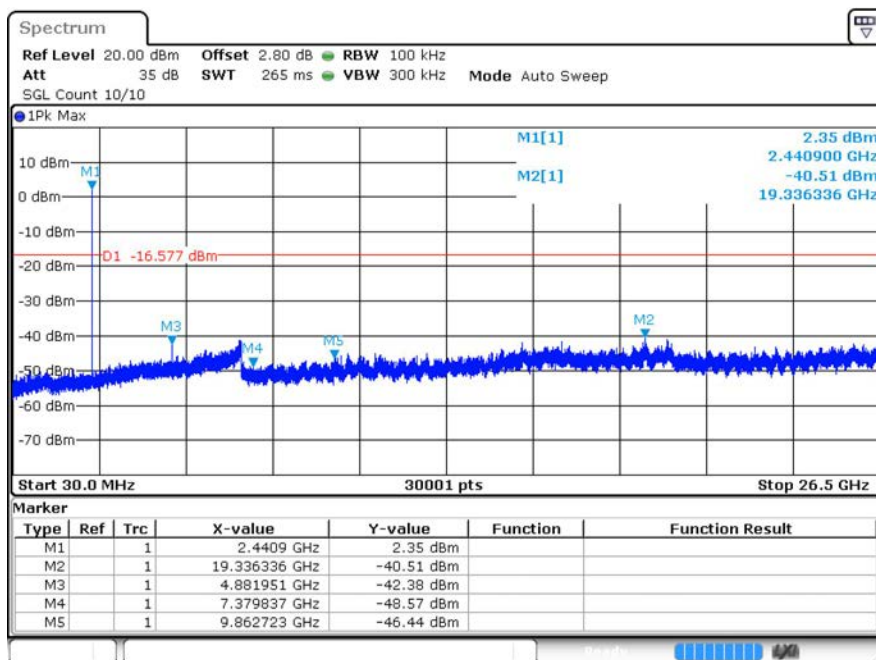


π /4DQPSK_MCH_Graphs

Pref

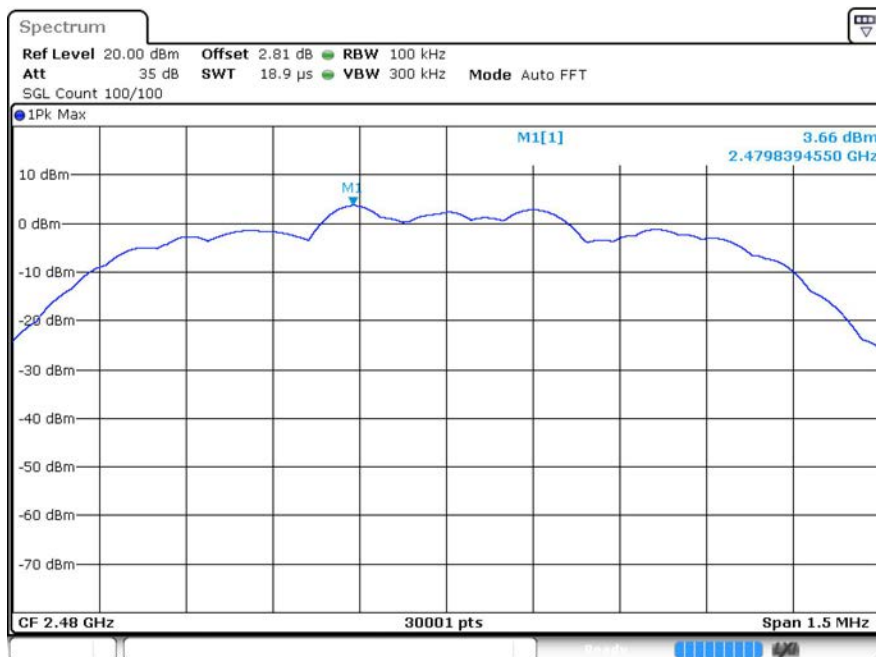


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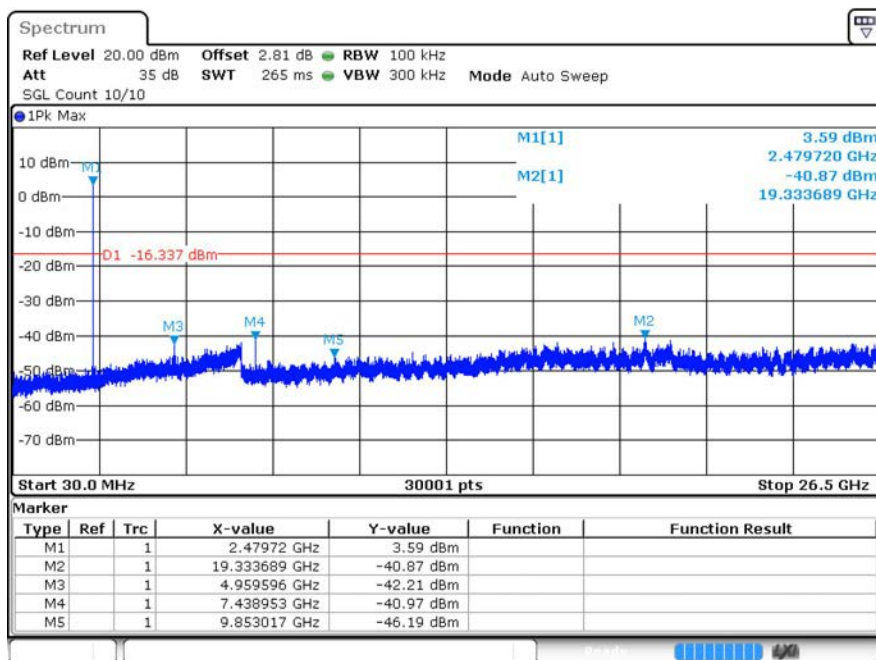


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

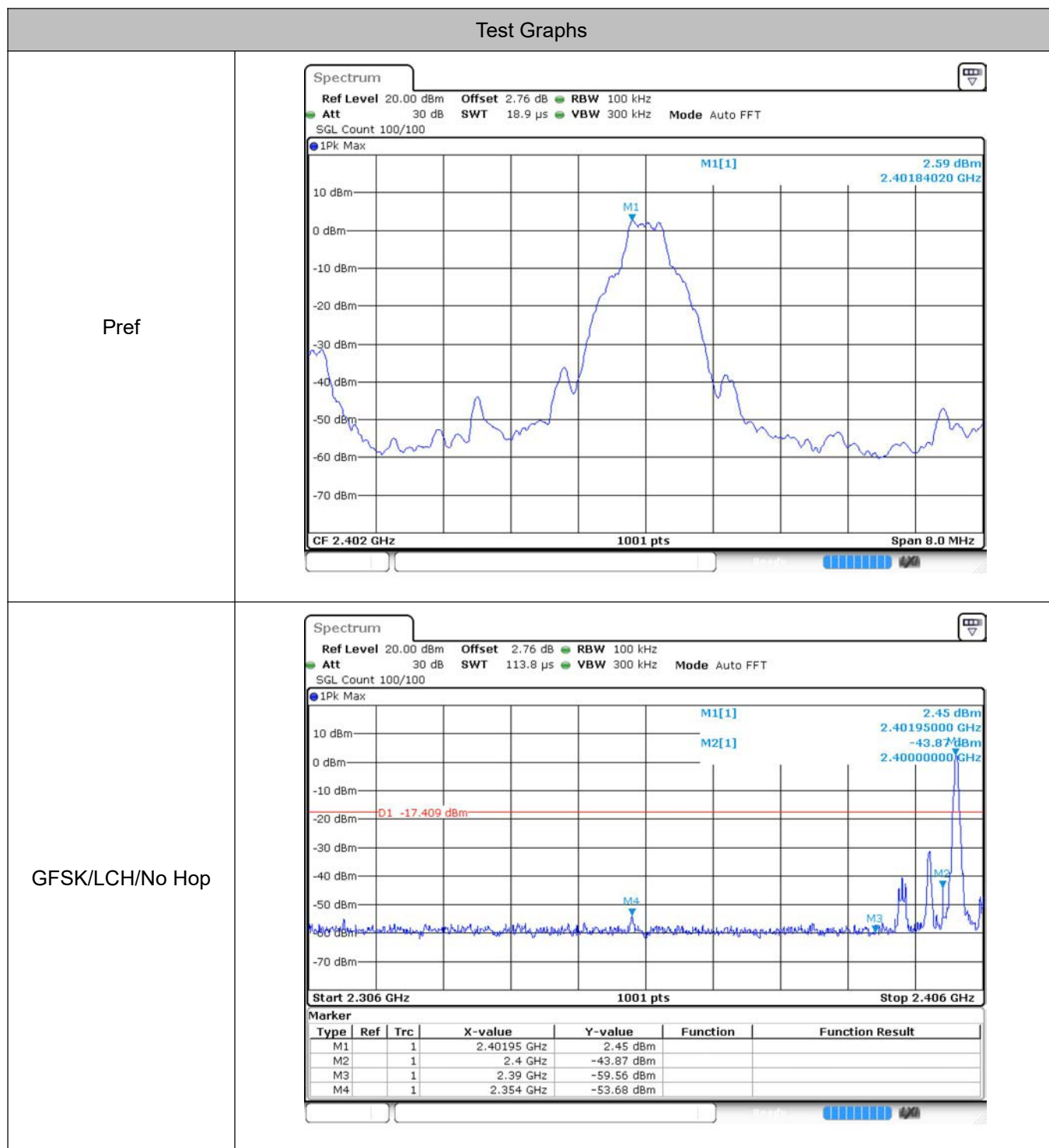


8 Band-edge for RF Conducted Emissions

8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-56.27	-20	Pass
			On	-54.72	-20	Pass
	HCH	2480	Off	-44.98	-20	Pass
			On	-47.96	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-56.09	-20	Pass
			On	-55.46	-20	Pass
	HCH	2480	Off	-45.94	-20	Pass
			On	-49.57	-20	Pass

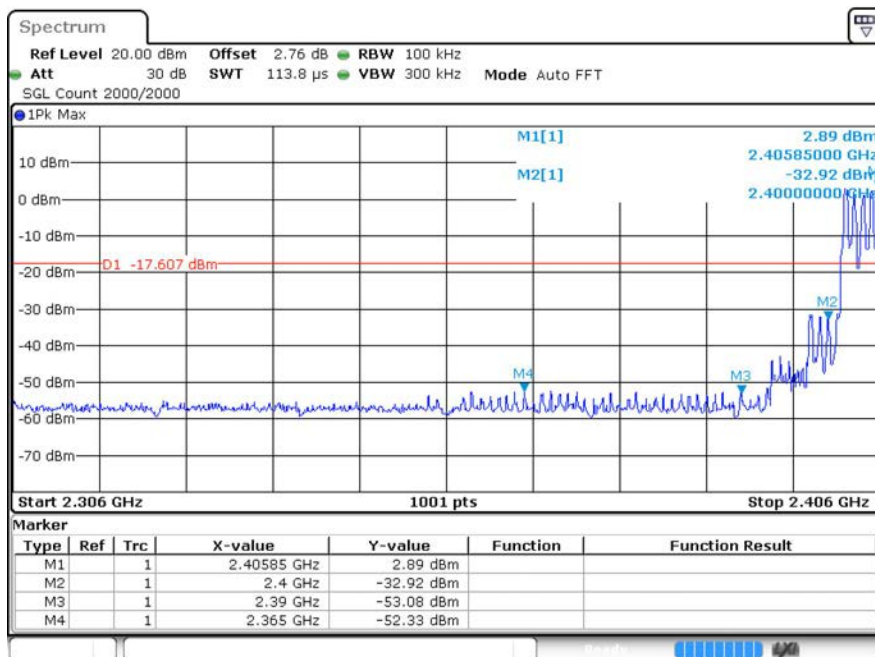
8.2 Test Graphs



Ref



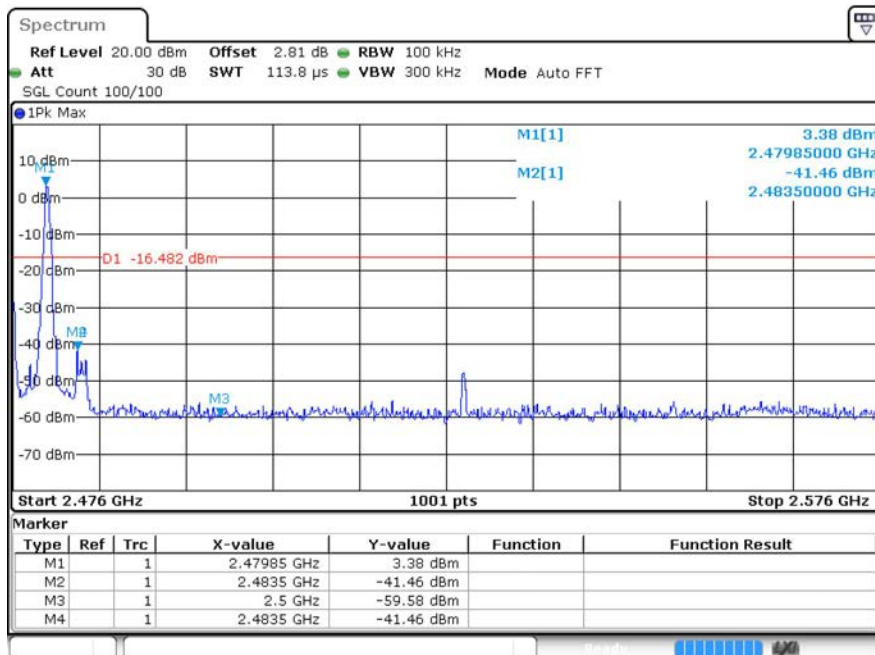
GFSK/LCH/Hop



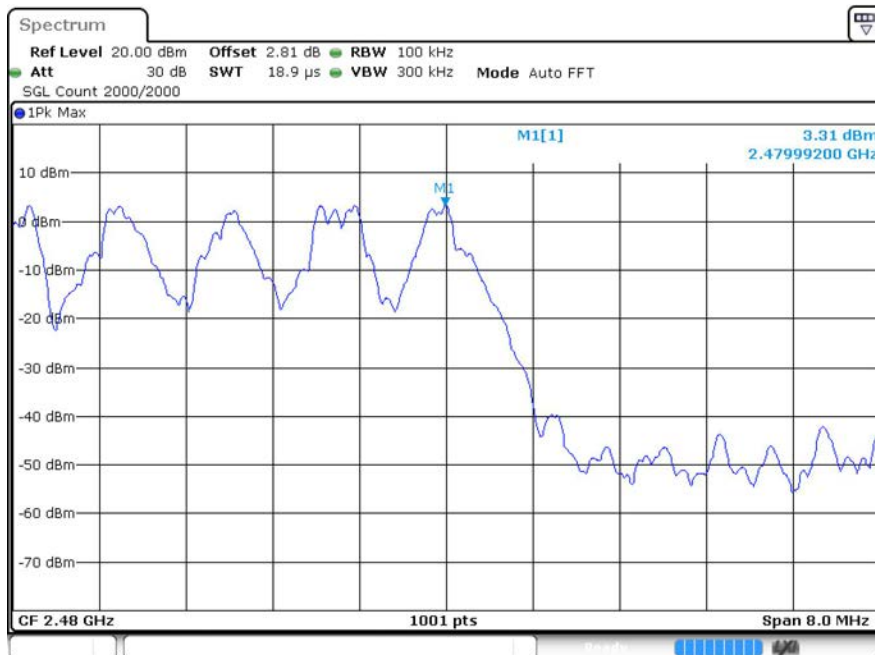
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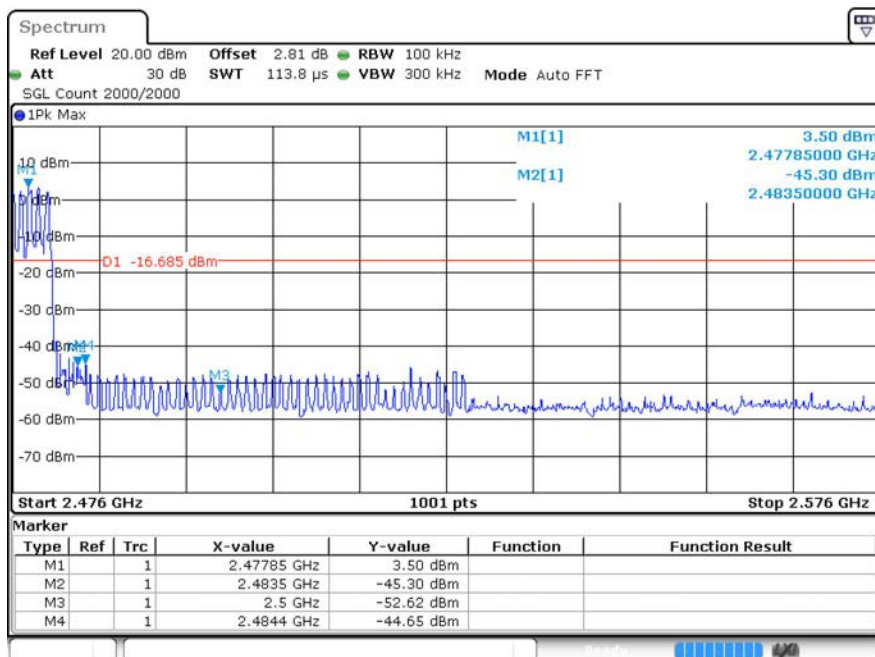
GFSK/HCH/No Hop



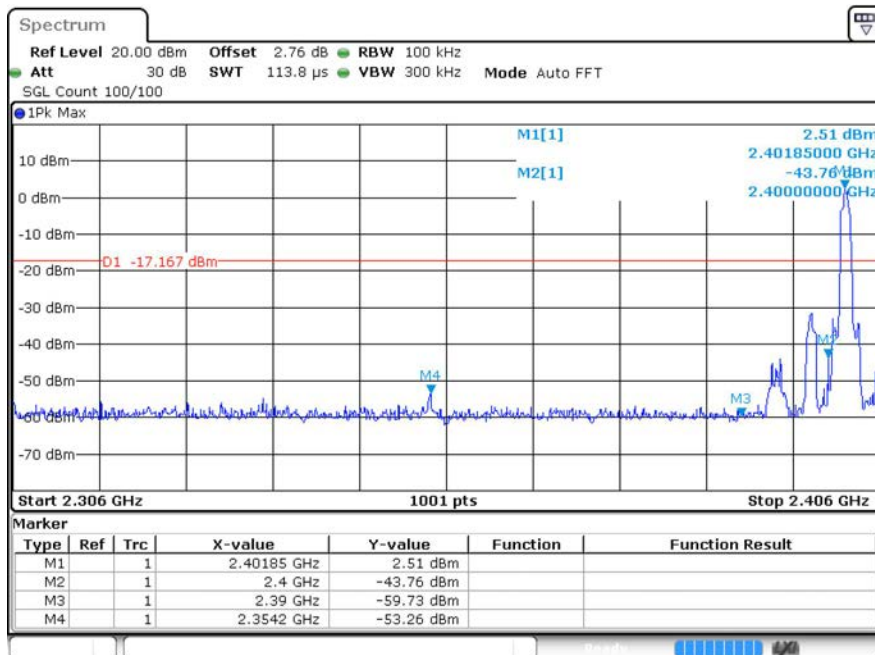
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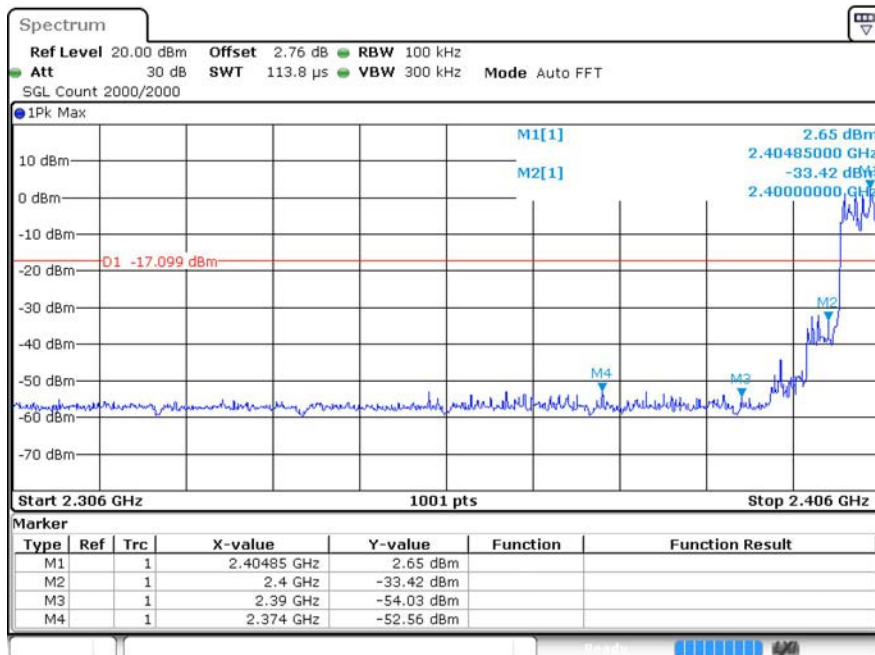
GFSK/HCH/Hop



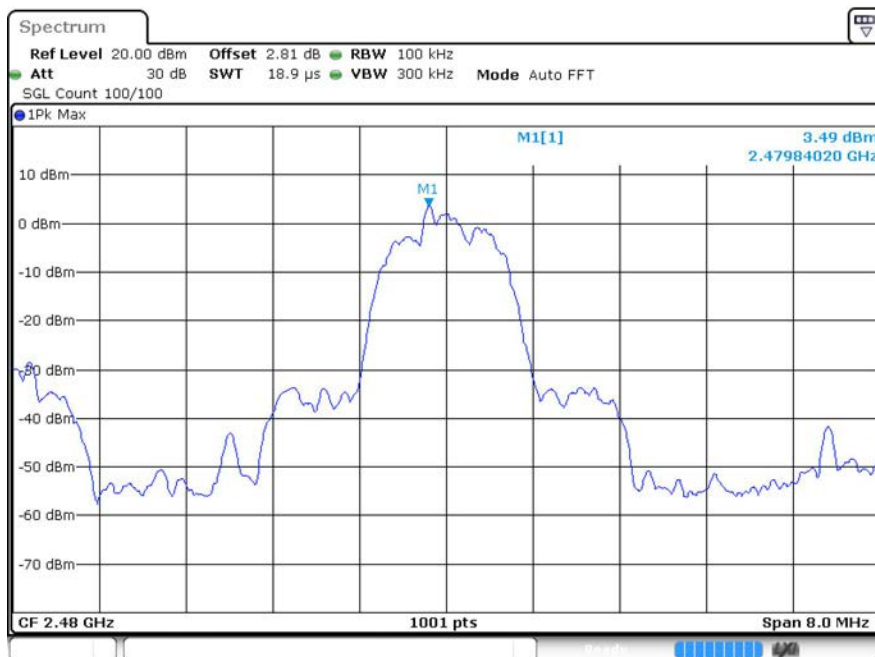
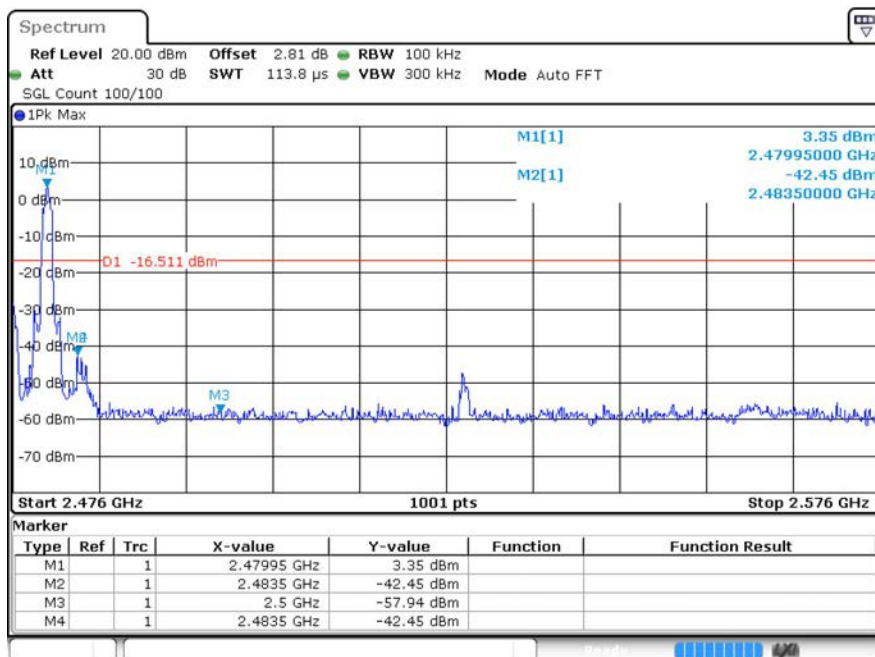
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 $\pi/4$ DQPSK/LCH/No Hop


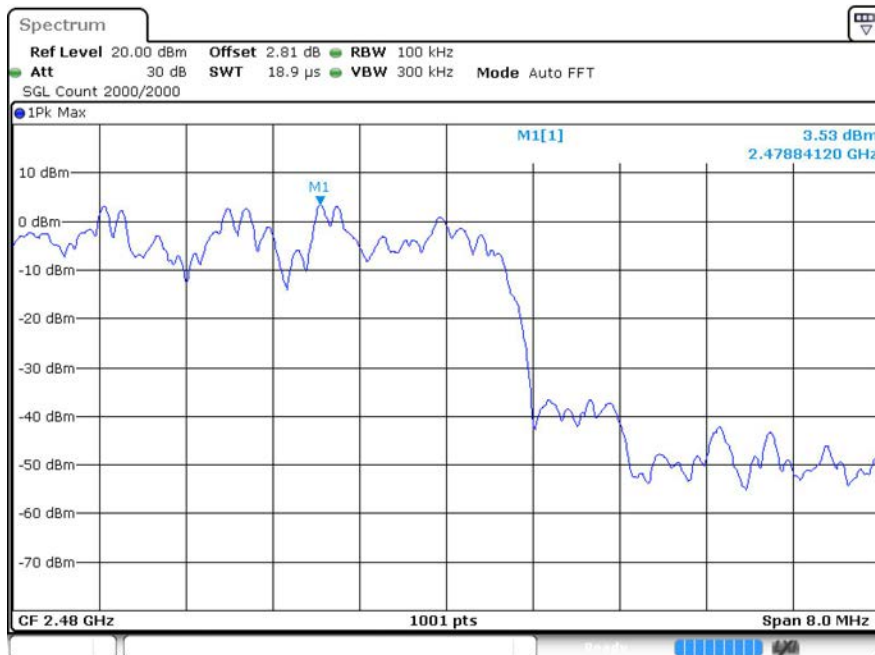
Ref


 $\pi/4$ DQPSK/LCH/Hop


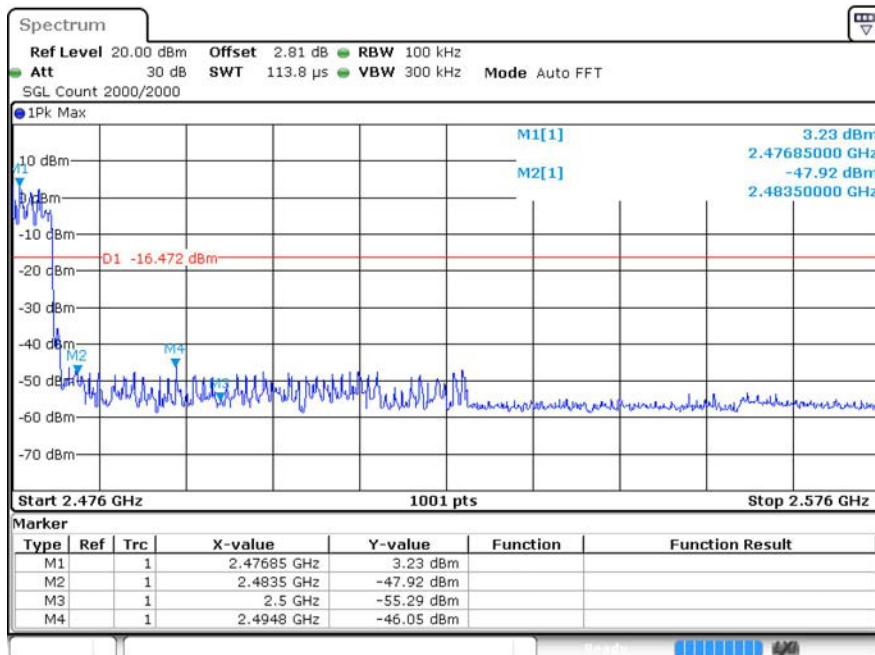
Ref


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


Ref



$\pi/4$ DQPSK/HCH/Hop



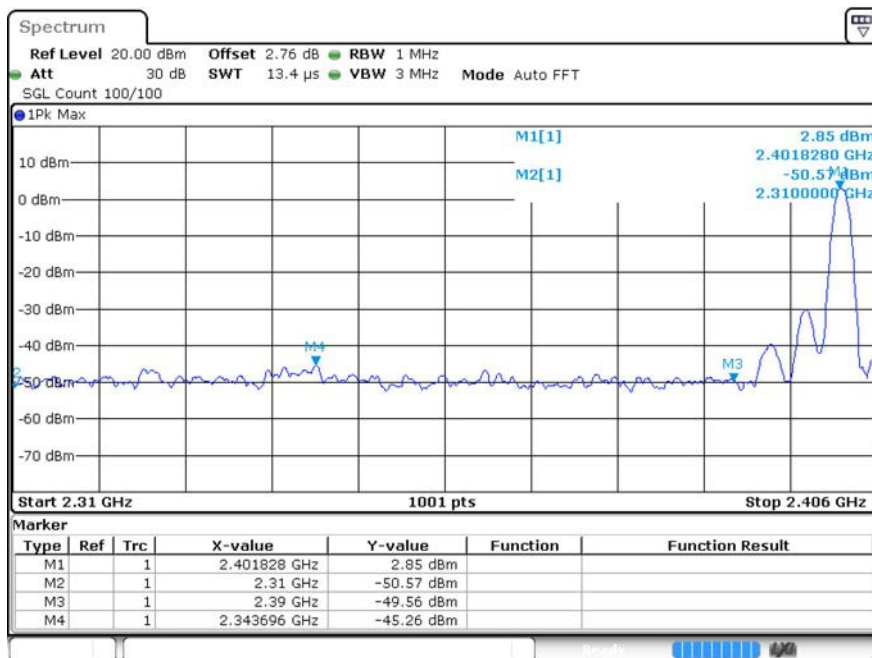
9 Restrict-band band-edge measurements

9.1 Test Result

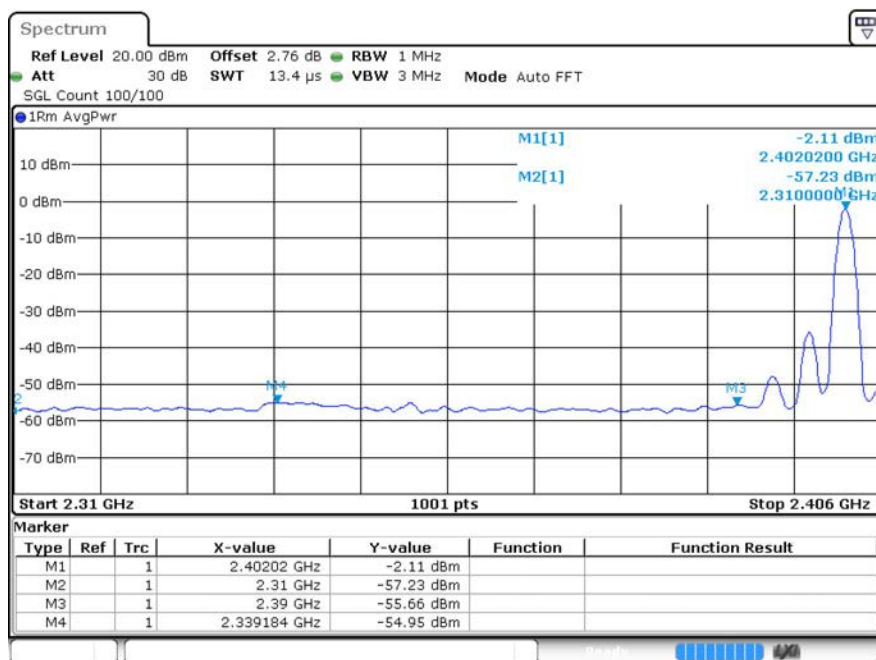
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Duty Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-50.57	2	-	46.69	PEAK	74	Pass
	Off	2310.0	-57.23	2	5.17	45.2	AV	54	Pass
	Off	2343.696	-45.25	2	-	52.01	PEAK	74	Pass
	Off	2339.184	-54.94	2	5.17	47.49	AV	54	Pass
	Off	2390.0	-49.56	2	-	47.7	PEAK	74	Pass
	Off	2390.0	-55.66	2	5.17	46.77	AV	54	Pass
	Off	2483.5	-40.34	2	-	56.92	PEAK	74	Pass
	Off	2483.5	-49.58	2	5.17	52.85	AV	54	Pass
	Off	2483.68	-39.95	2	-	57.31	PEAK	74	Pass
	Off	2483.704	-49.28	2	5.17	53.15	AV	54	Pass
	Off	2500.0	-50.26	2	-	47	PEAK	74	Pass
	Off	2500.0	-55.53	2	5.17	46.9	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-49.92	2	-	47.34	PEAK	74	Pass
	Off	2310.0	-56.22	2	4.95	45.99	AV	54	Pass
	Off	2338.032	-45.94	2	-	51.32	PEAK	74	Pass
	Off	2339.376	-53.92	2	4.95	48.29	AV	54	Pass
	Off	2390.0	-49.77	2	-	47.49	PEAK	74	Pass
	Off	2390.0	-56.35	2	4.95	45.86	AV	54	Pass
	Off	2483.5	-40.99	2	-	56.27	PEAK	74	Pass
	Off	2483.5	-51.8	2	5.06	50.52	AV	54	Pass
	Off	2484.376	-39.81	2	-	57.45	PEAK	74	Pass
	Off	2484.16	-50.63	2	5.06	51.69	AV	54	Pass
	Off	2500.0	-48.31	2	-	48.95	PEAK	74	Pass
	Off	2500.0	-56.79	2	5.06	45.53	AV	54	Pass

9.2 Test Graphs

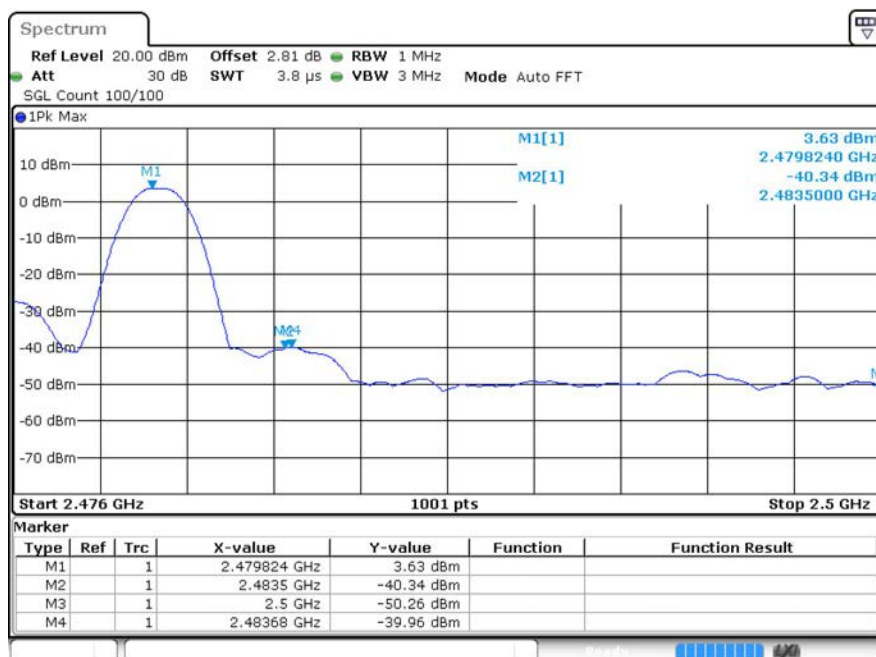
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



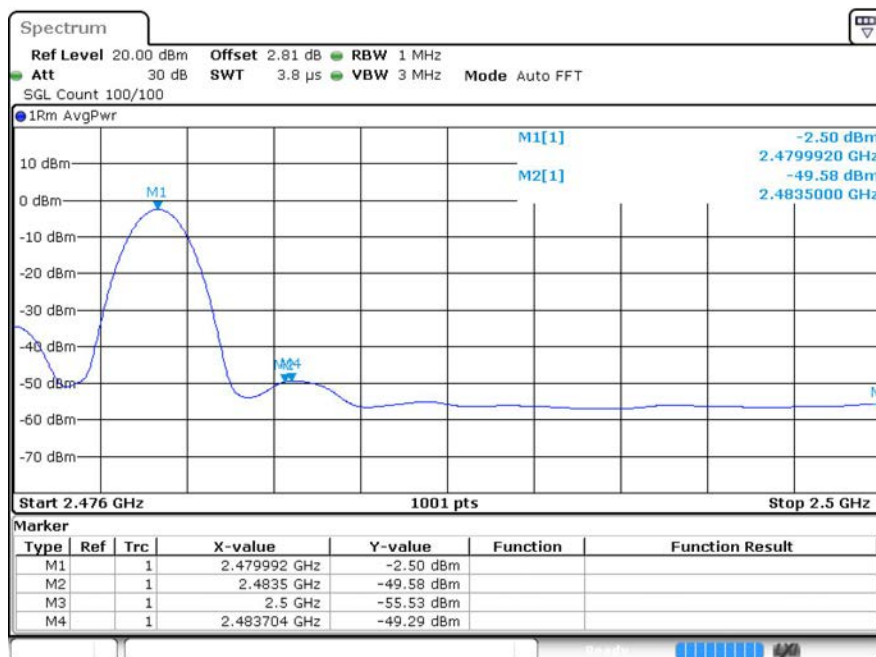
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



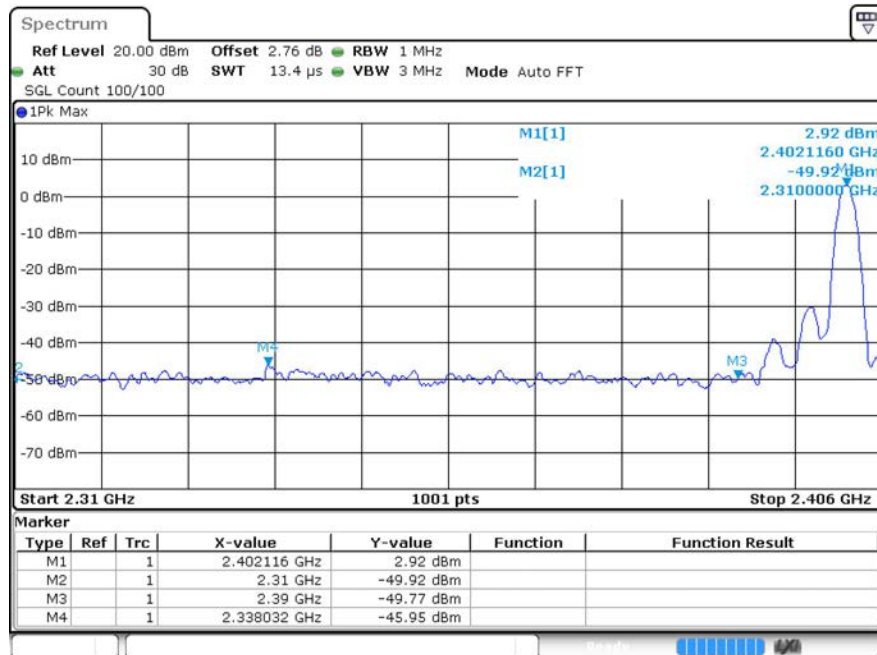
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



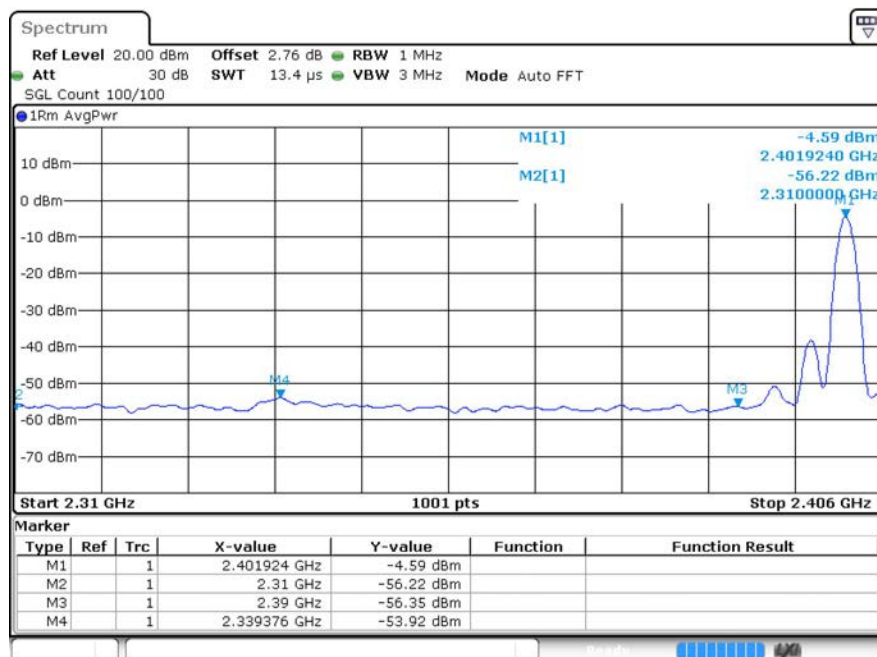
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



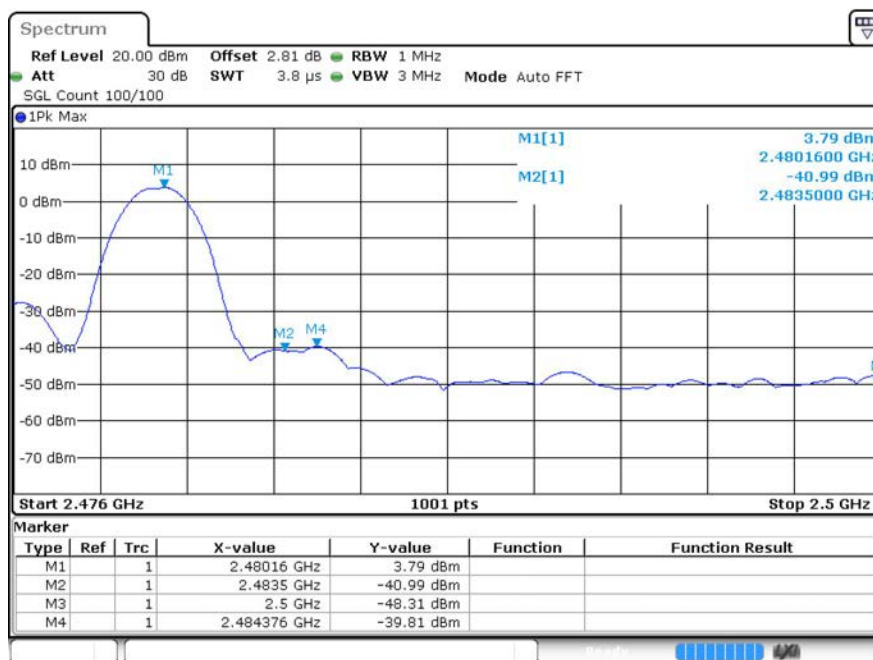
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



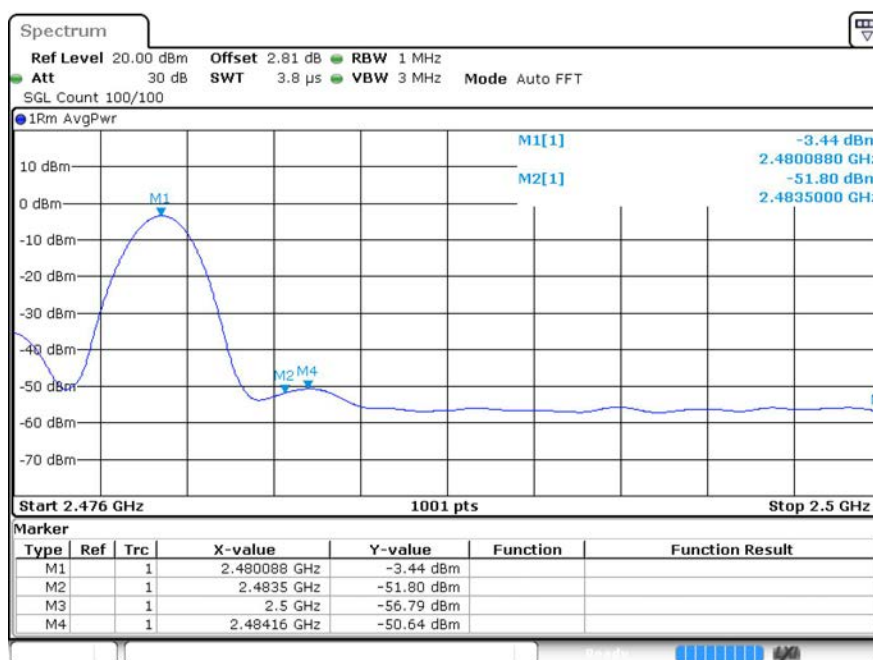
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---