

Appendix A

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

Product Name: Sleep Headphones

Trade Mark: N/A

Test Model: 8392B

Environmental Conditions

Temperature:	26.2℃
Relative Humidity:	54.2%
ATM Pressure:	101Kpa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung



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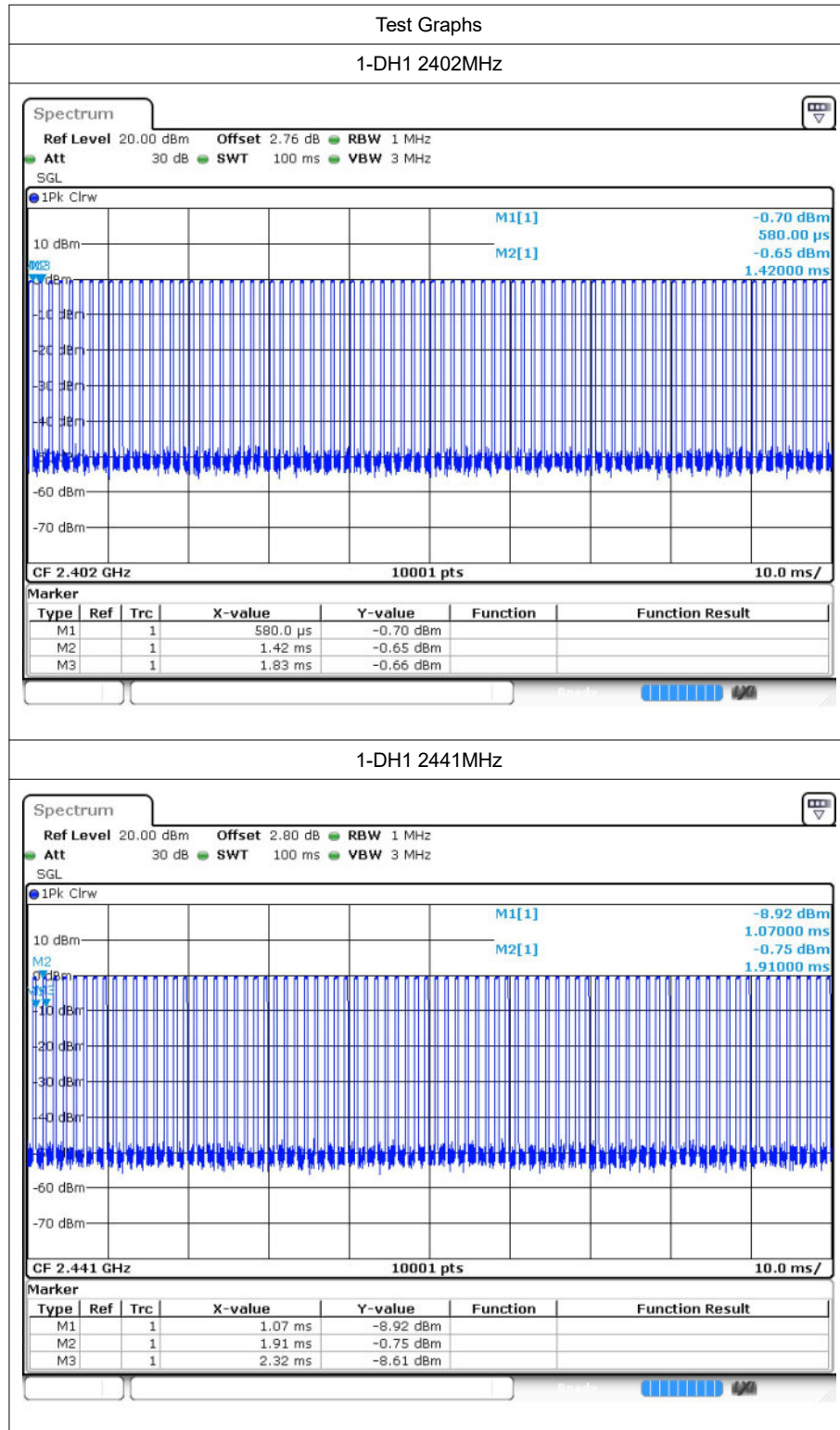
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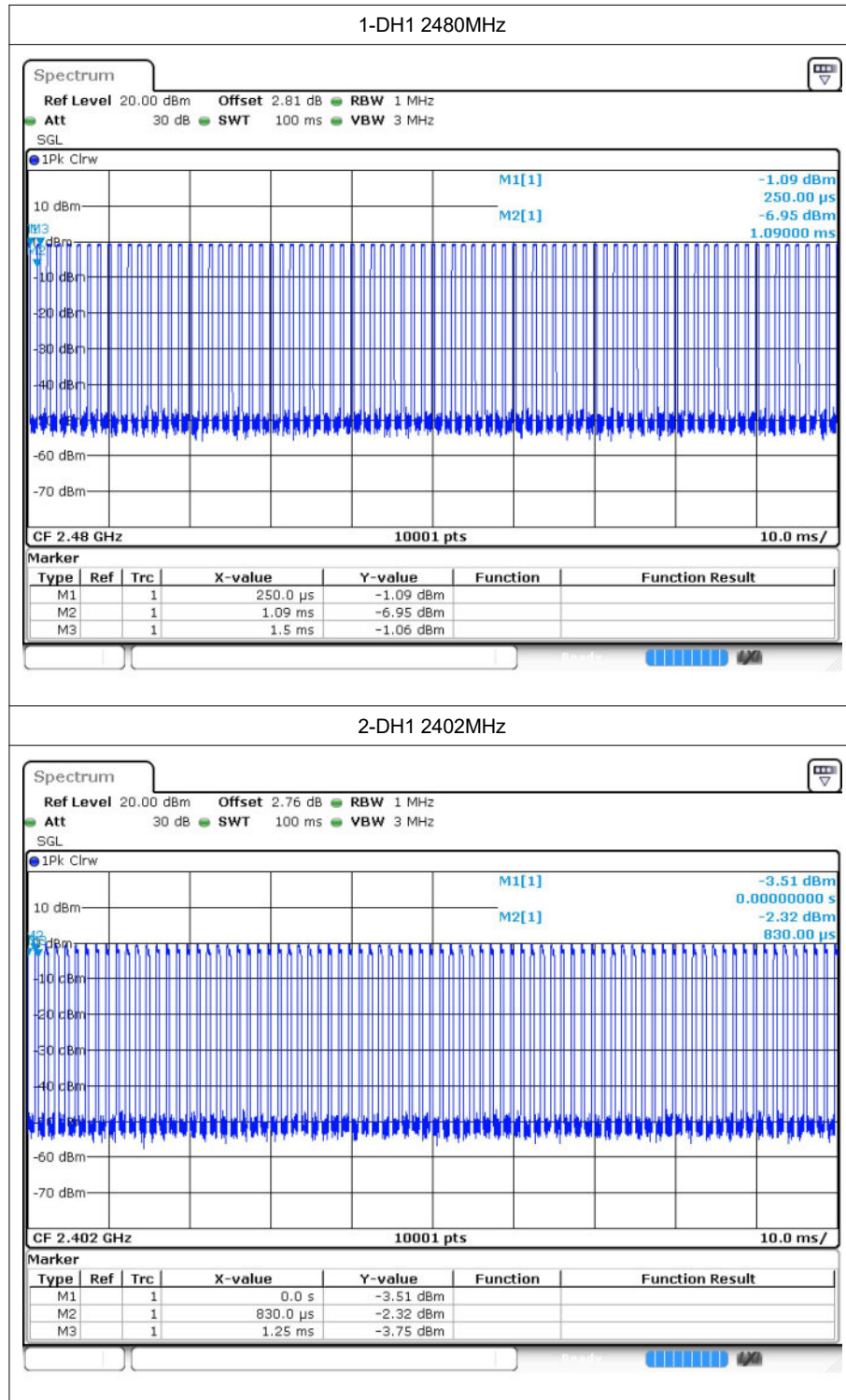
1 Duty Cycle

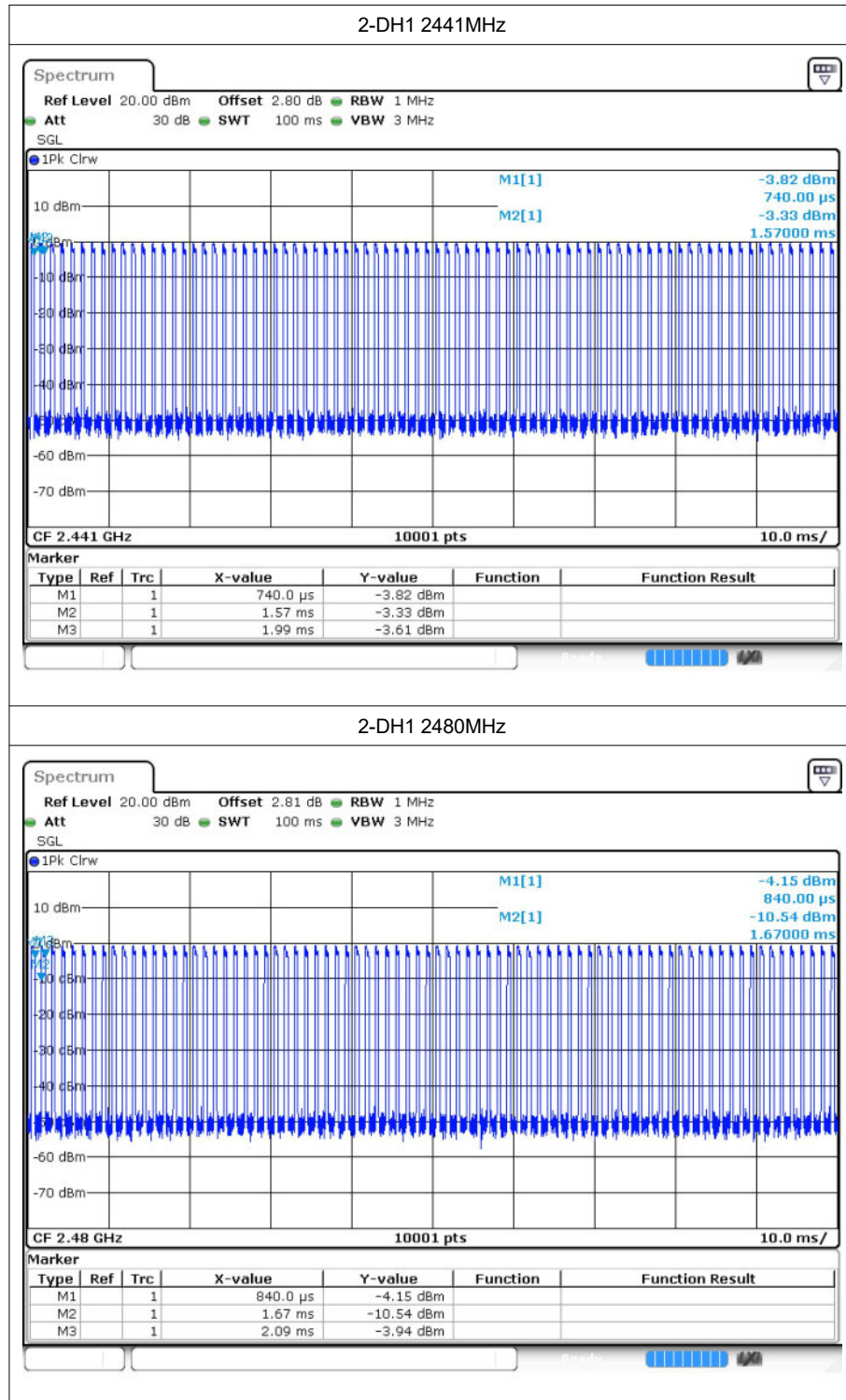
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	33.6	4.74	2.44
1-DH1	2441	33.6	4.74	2.44
1-DH1	2480	33.61	4.74	2.44
2-DH1	2402	34.41	4.63	2.38
2-DH1	2441	34.4	4.63	2.38
2-DH1	2480	34.4	4.63	2.38

1.2 Test Graphs





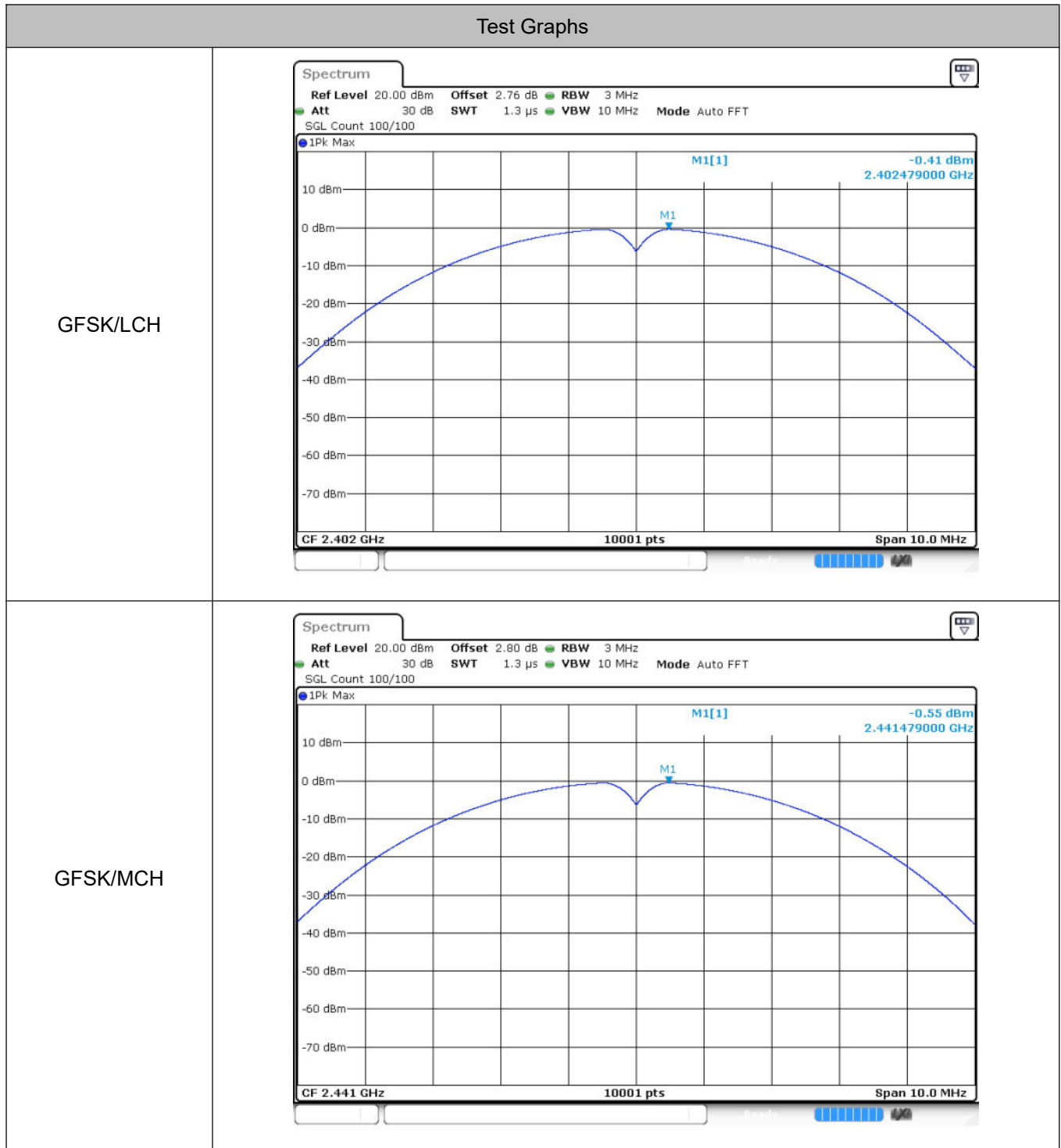


2 Maximum Conducted Peak Output Power

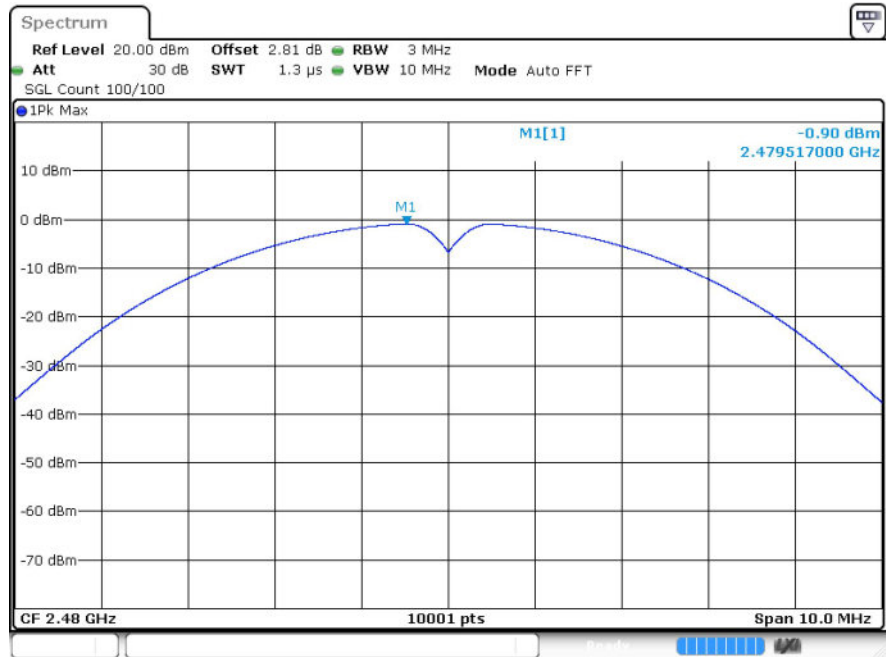
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.41	21	Pass
	MCH	-0.55	21	Pass
	HCH	-0.9	21	Pass
$\pi/4$ DQPSK	LCH	-0.41	21	Pass
	MCH	-0.52	21	Pass
	HCH	-0.97	21	Pass

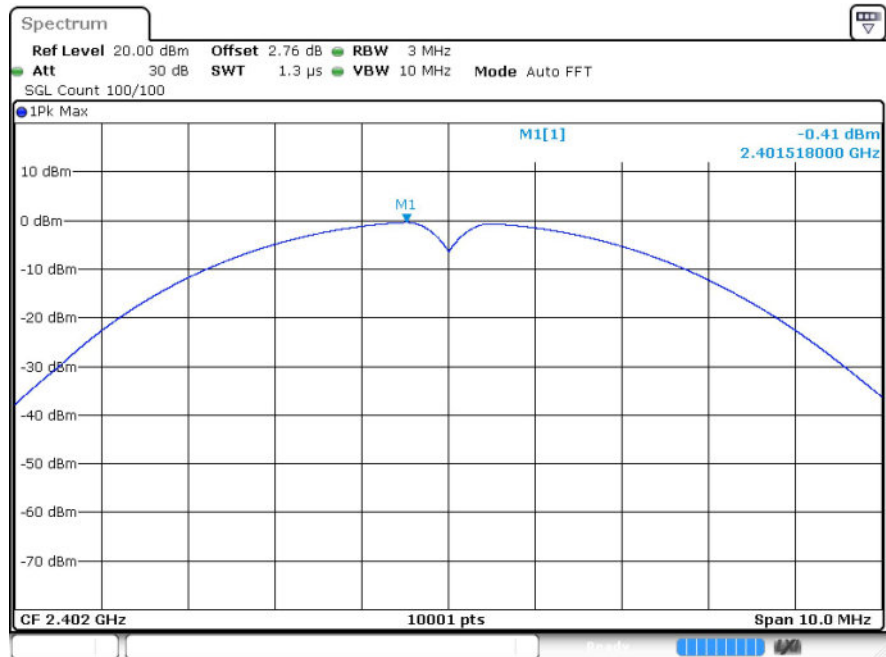
2.2 Test Graphs



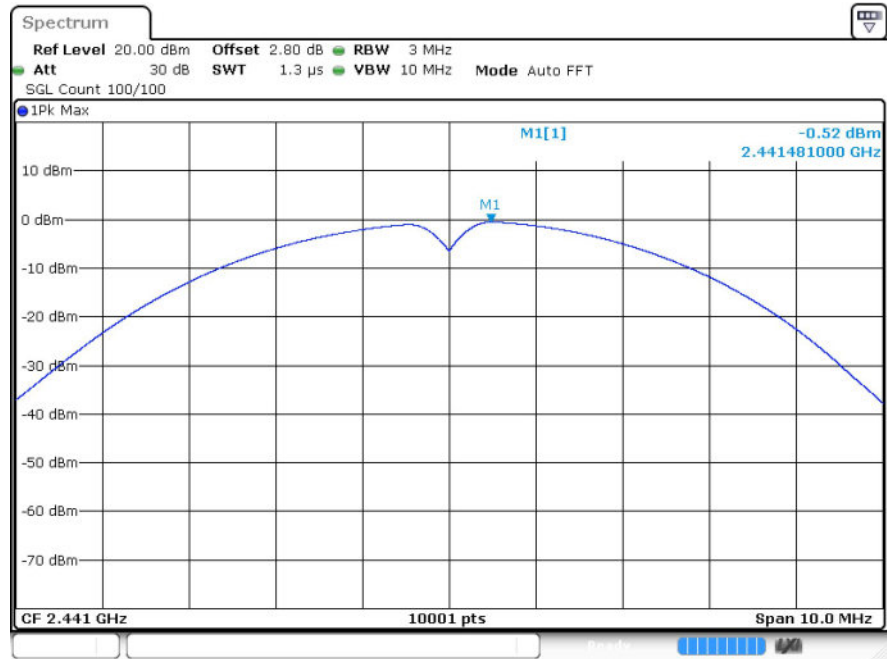
GFSK/HCH



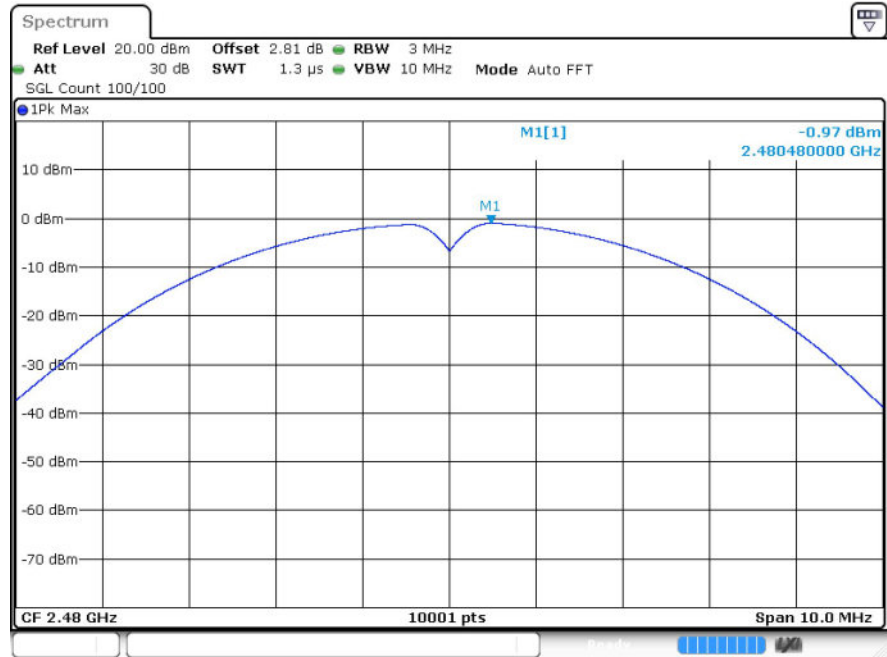
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

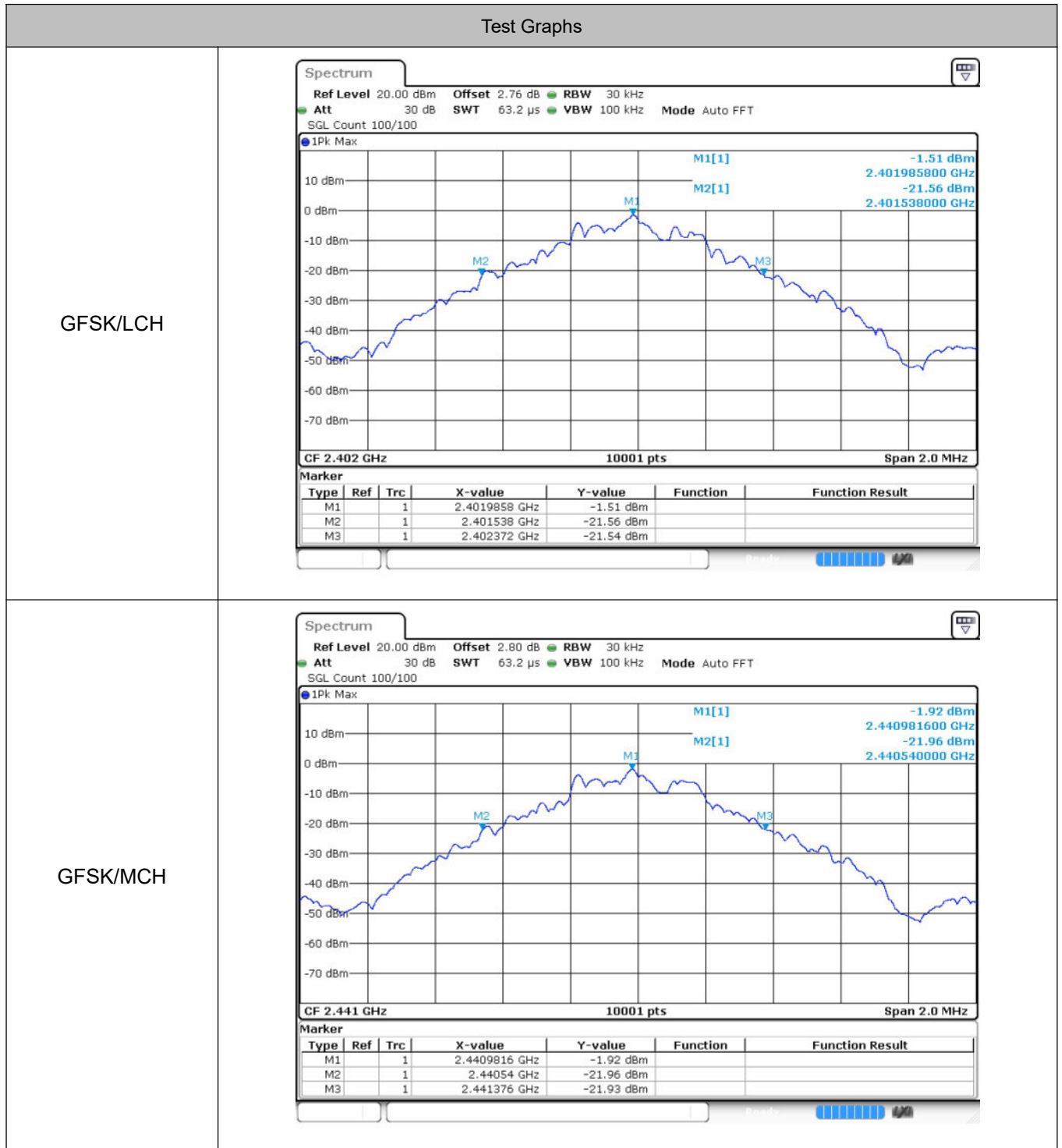


3 20dB Bandwidth

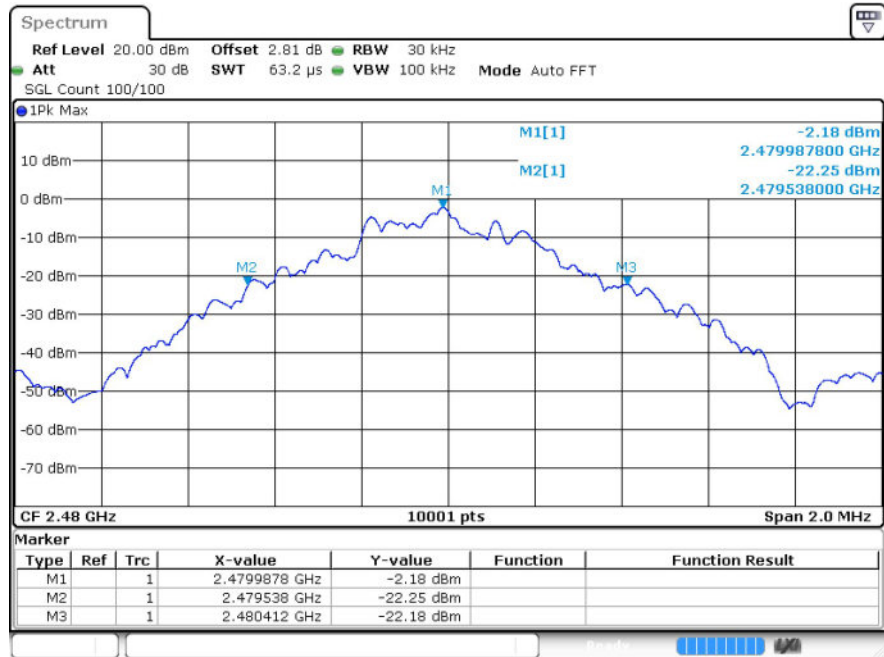
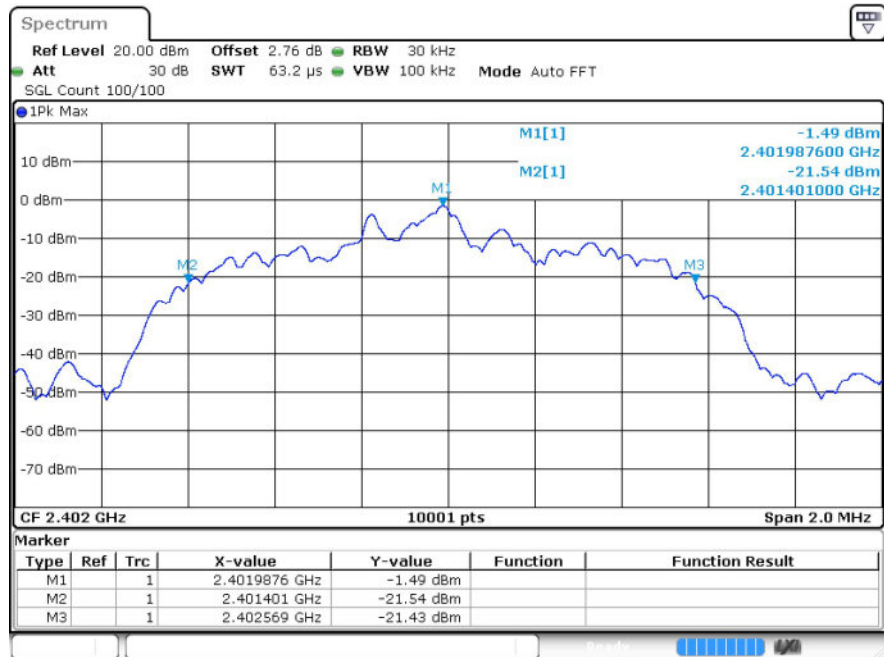
3.1 Test Result

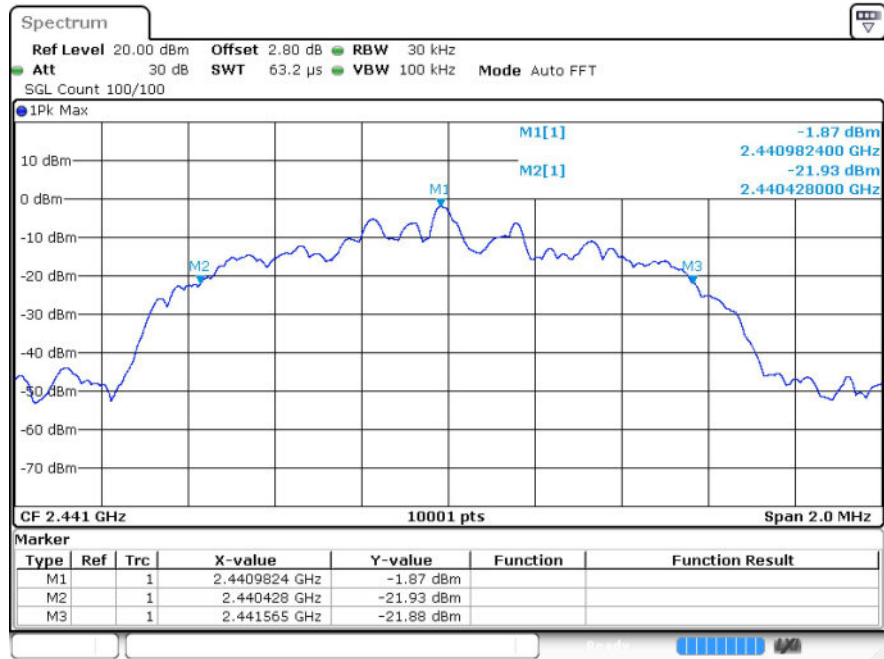
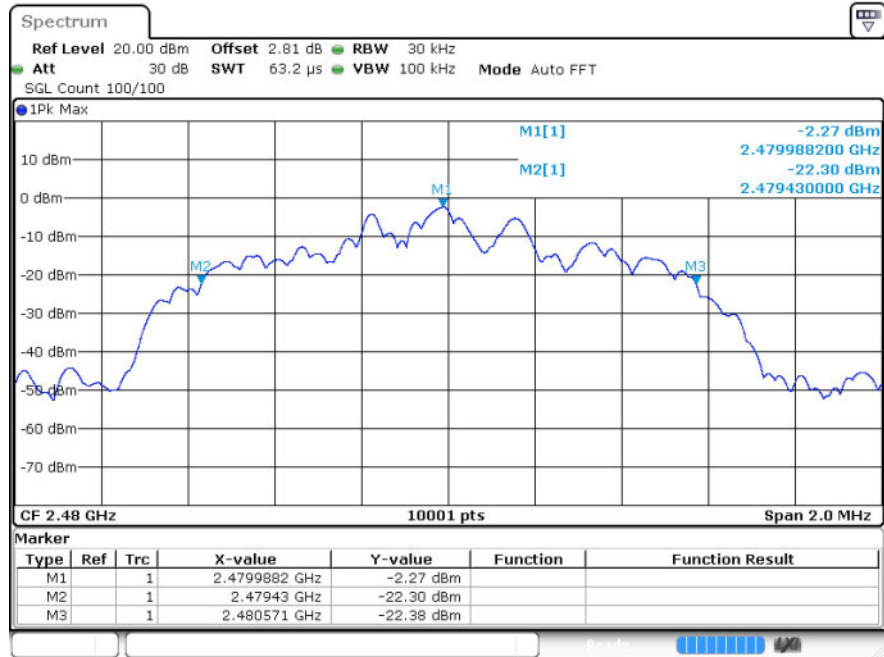
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.833	Not Specified	Pass
	MCH	0.835	Not Specified	Pass
	HCH	0.874	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.168	Not Specified	Pass
	MCH	1.136	Not Specified	Pass
	HCH	1.14	Not Specified	Pass

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	1.002	0.557	Pass
$\pi/4$ DQPSK	MCH	0.998	0.757	Pass

4.2 Test Graphs

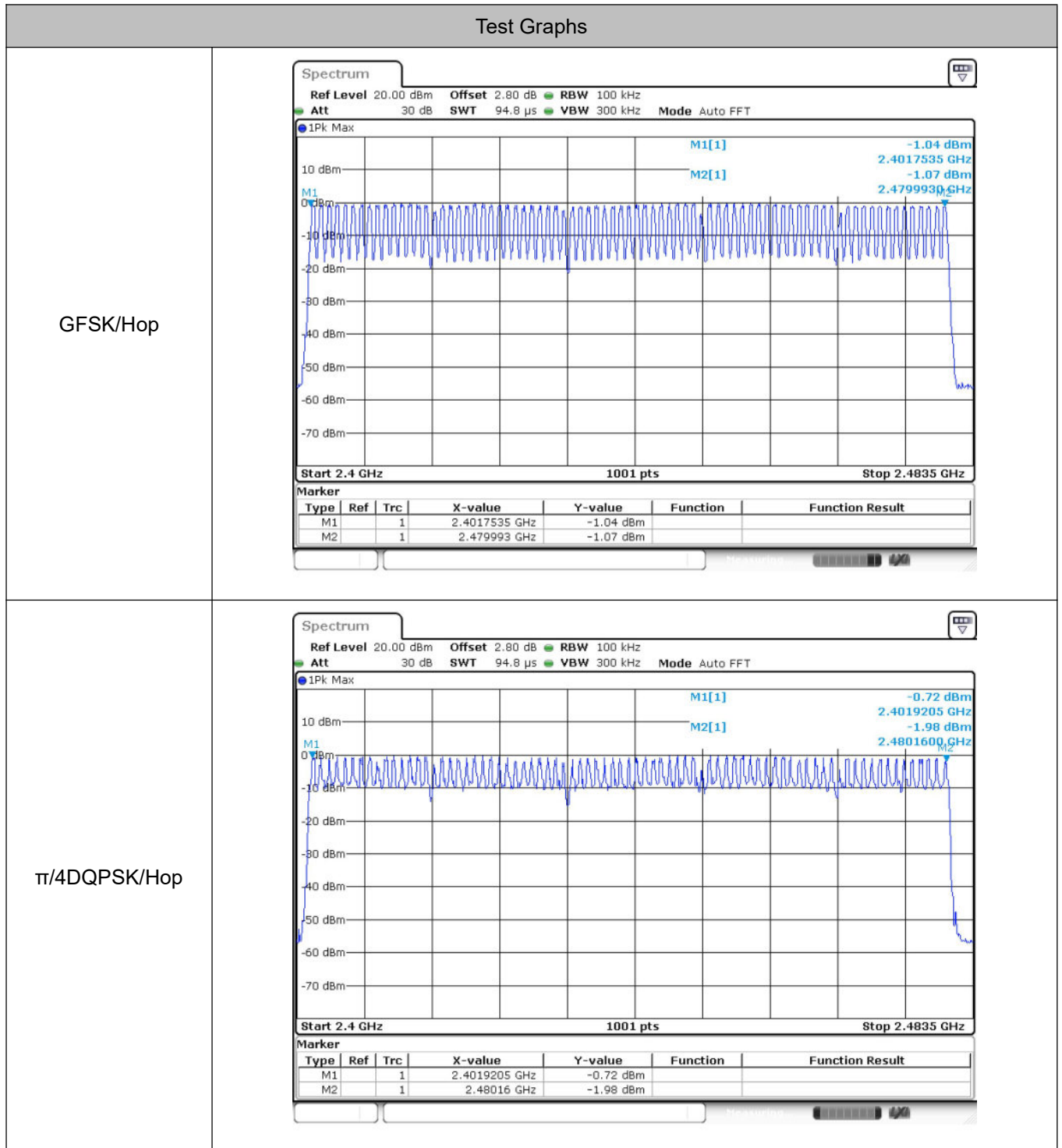


5 Hopping Channel Number

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

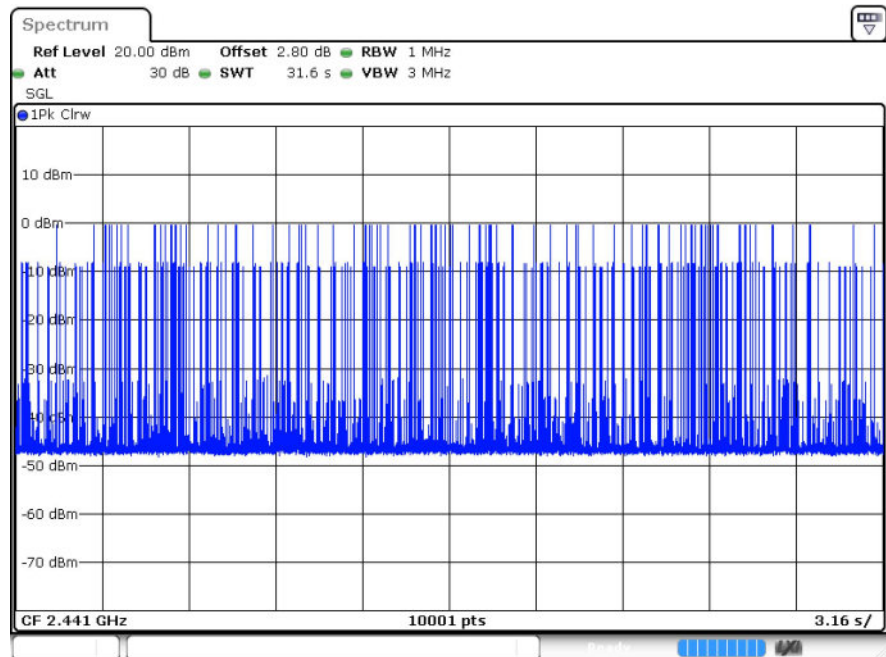
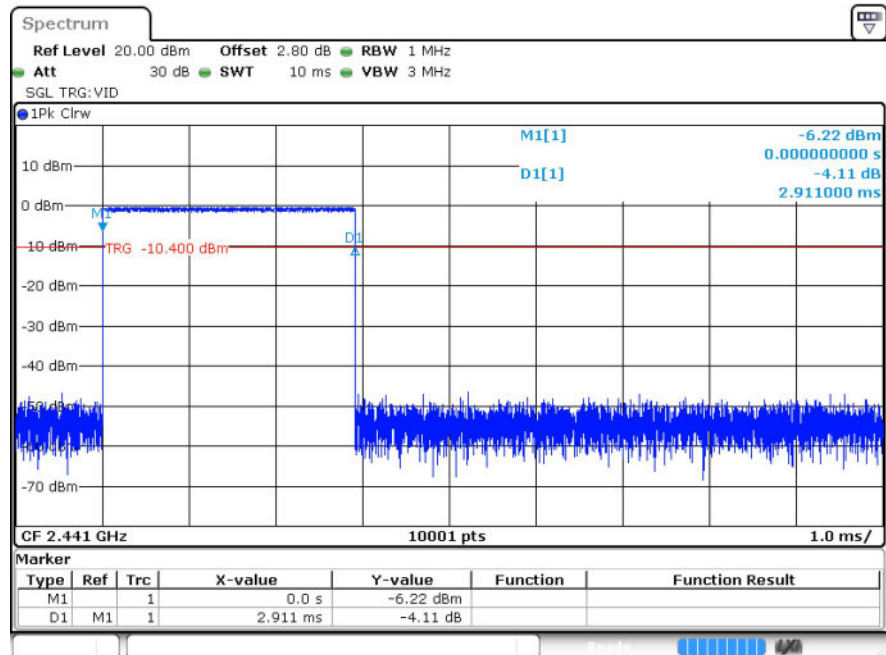
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.911	101	294.011	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.916	126	367.416	0.4	Pass

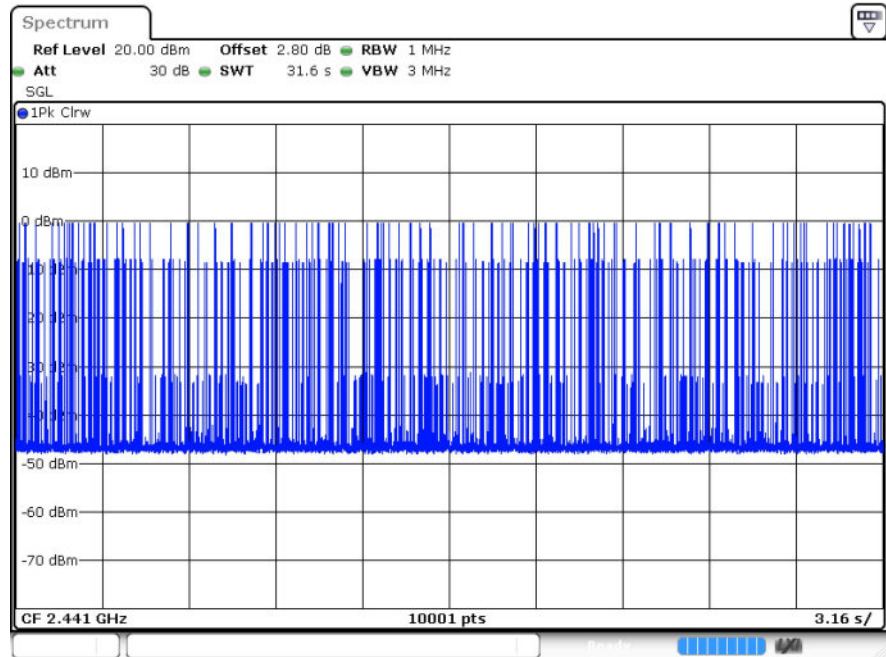
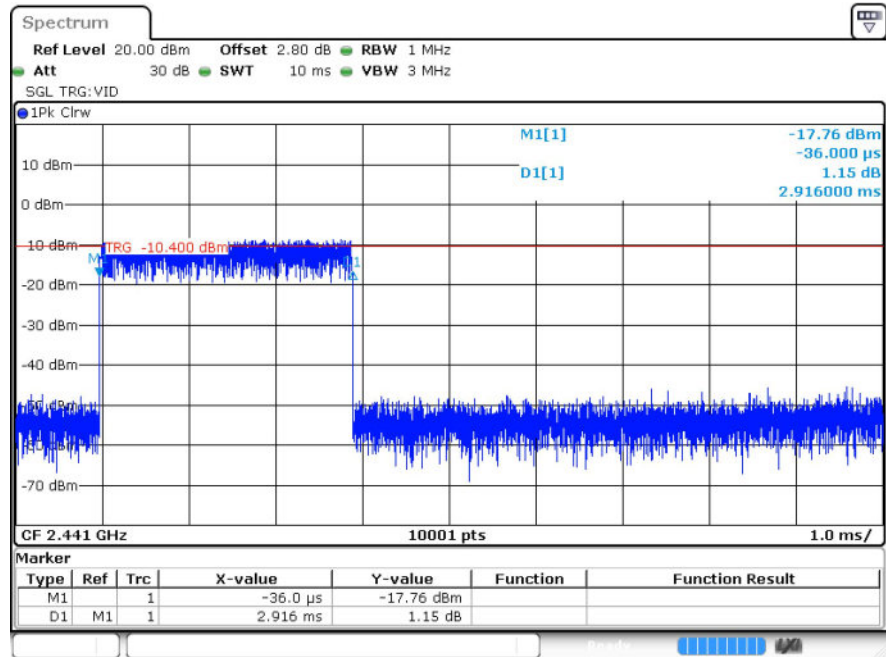
6.2 Test Graphs

Test Graphs

GFSK_DH5/MCH



$\pi/4$ DQPSK
_2DH5/MCH



7 RF Conducted Spurious Emissions

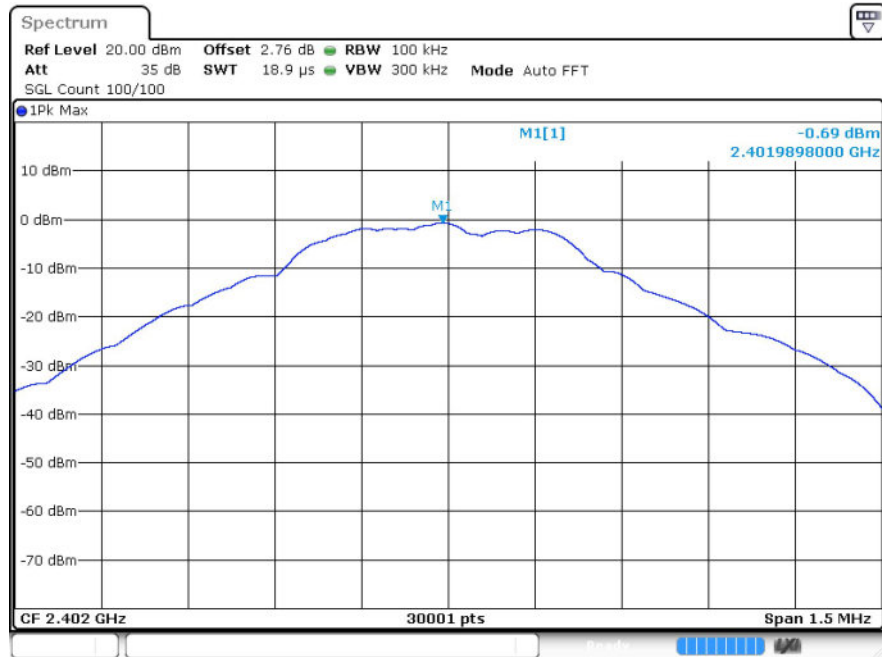
7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-29.83	-20	Pass
	MCH	-31.78	-20	Pass
	HCH	-31.9	-20	Pass
$\pi/4$ DQPSK	LCH	-39.91	-20	Pass
	MCH	-29.33	-20	Pass
	HCH	-28.2	-20	Pass

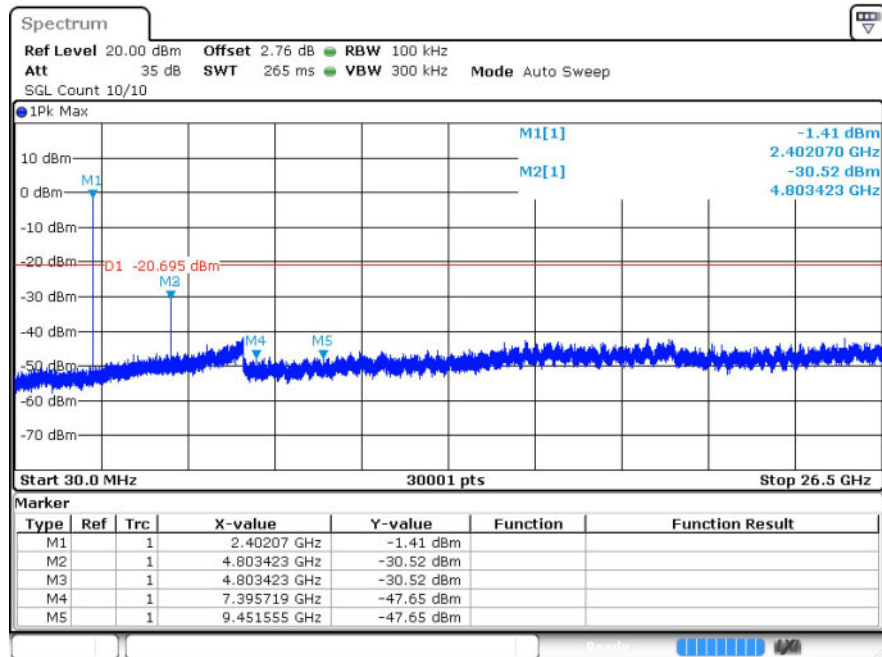
7.2 Test Graphs

GFSK_LCH_Graphs

Pref

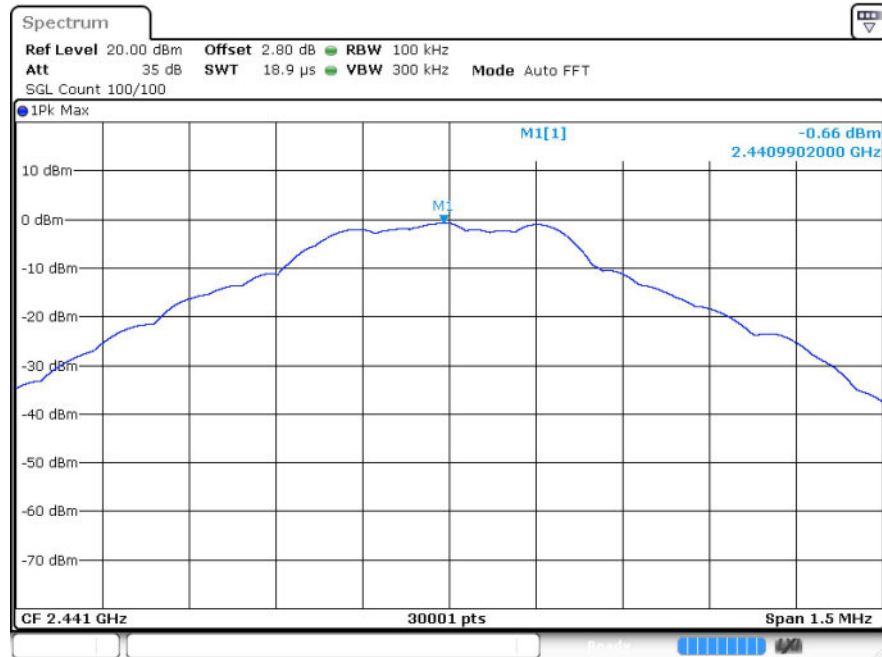


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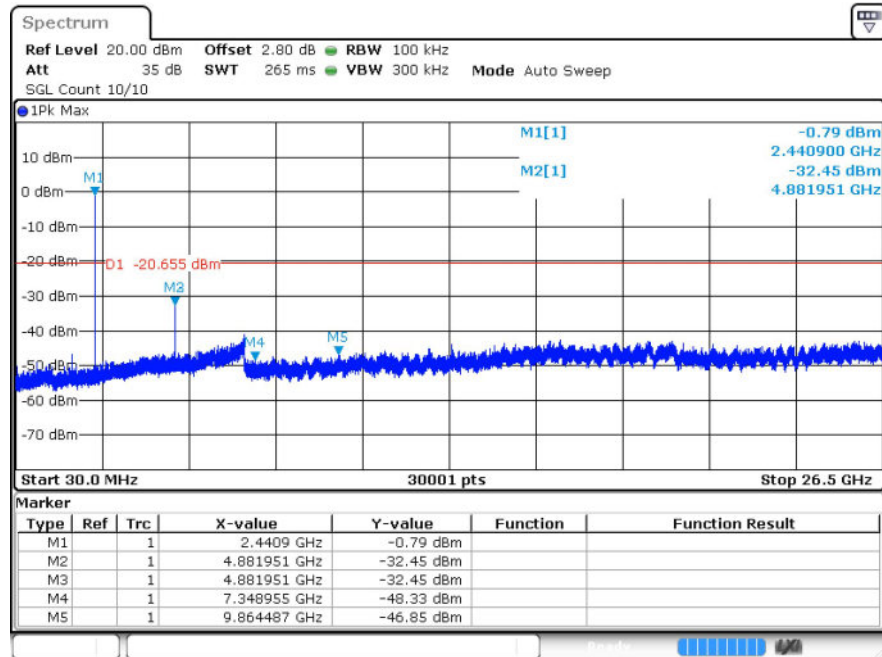


GFSK_MCH_Graphs

Pref

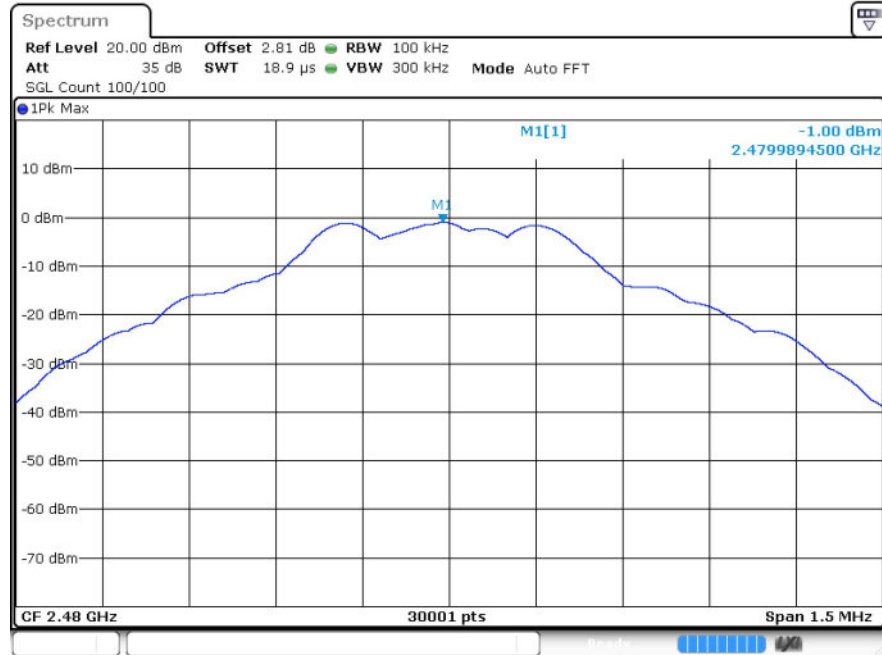


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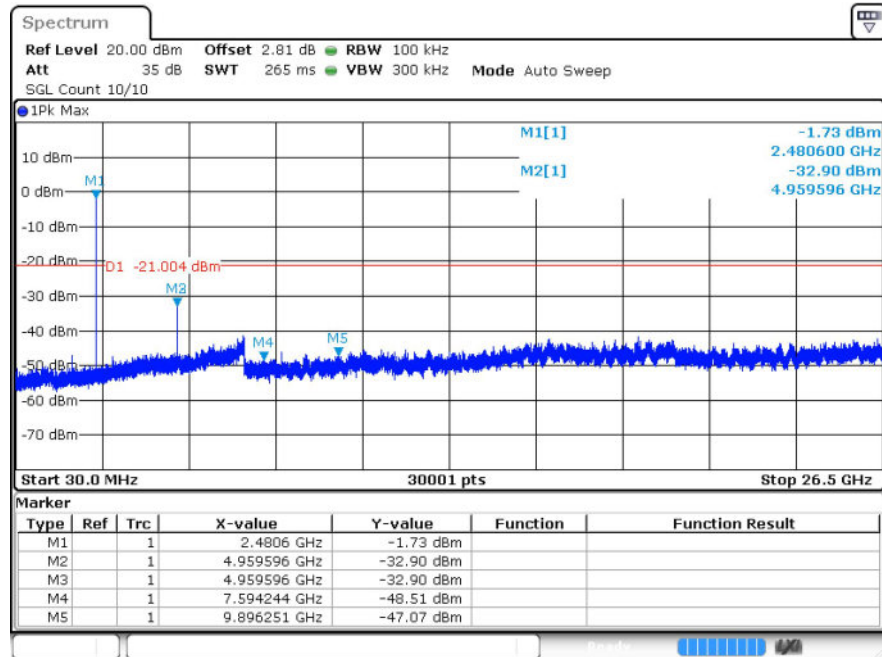


GFSK_HCH_Graphs

Pref

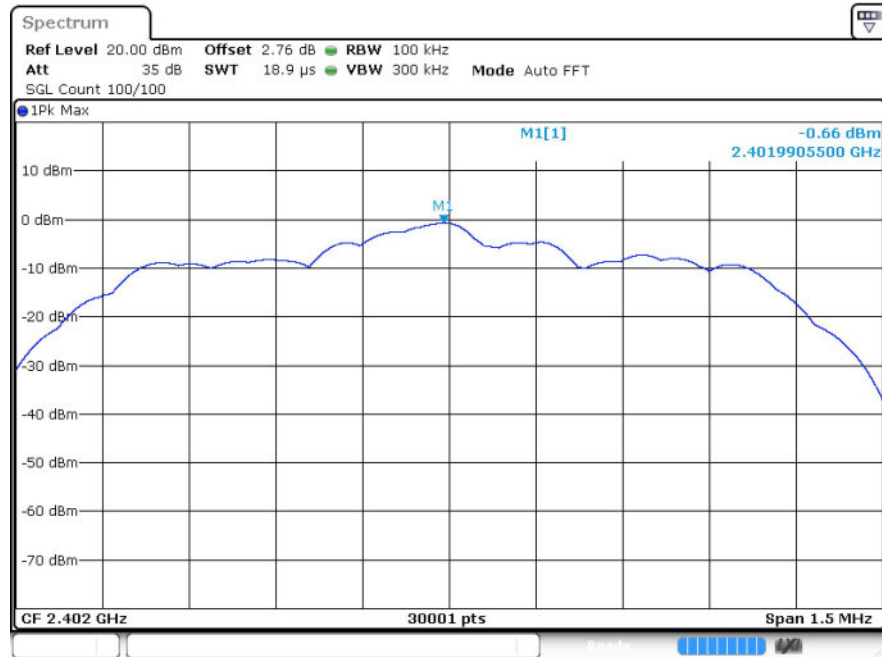


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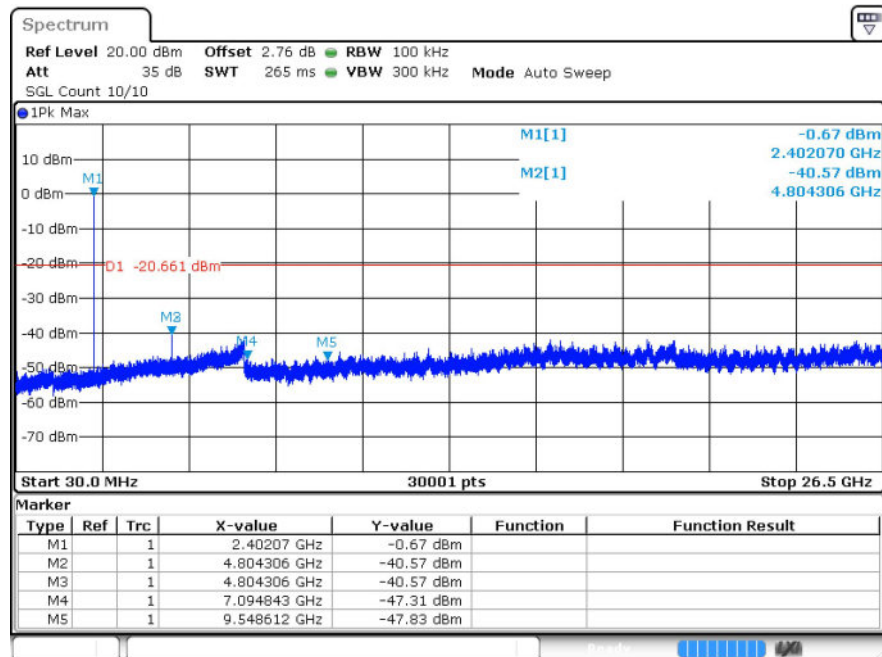


$\pi/4$ DQPSK_LCH_Graphs

Pref

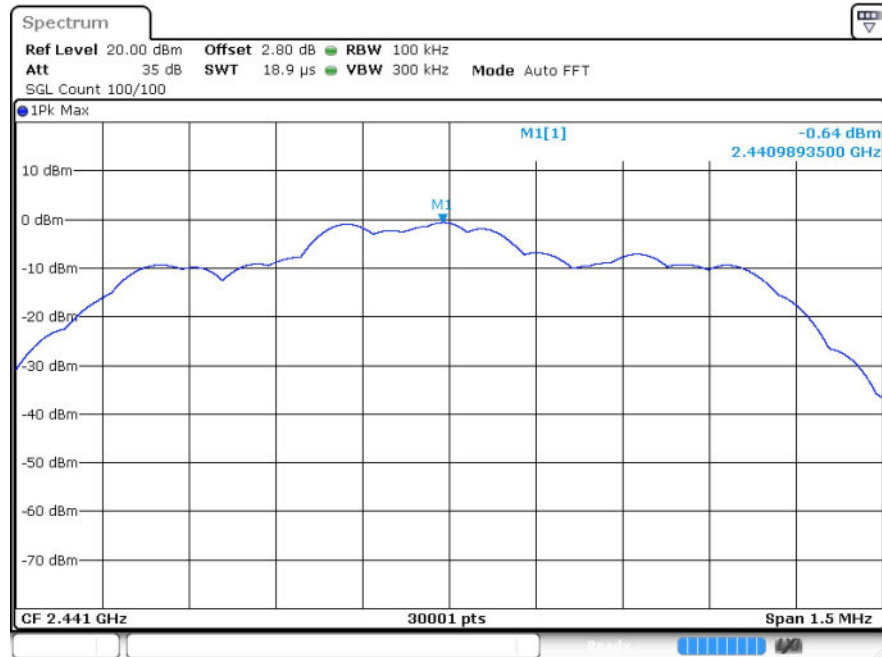


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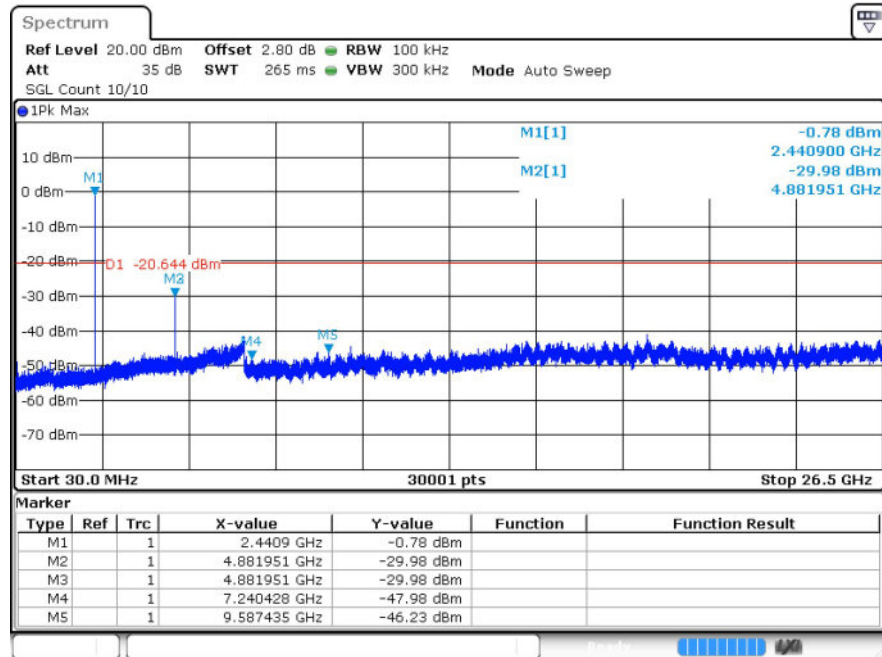


$\pi/4$ DQPSK_MCH_Graphs

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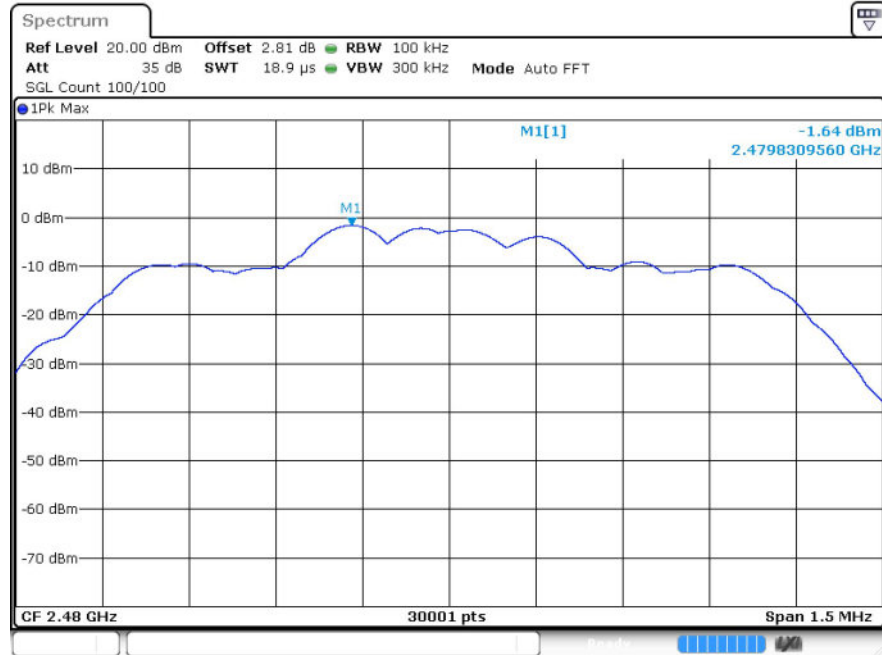


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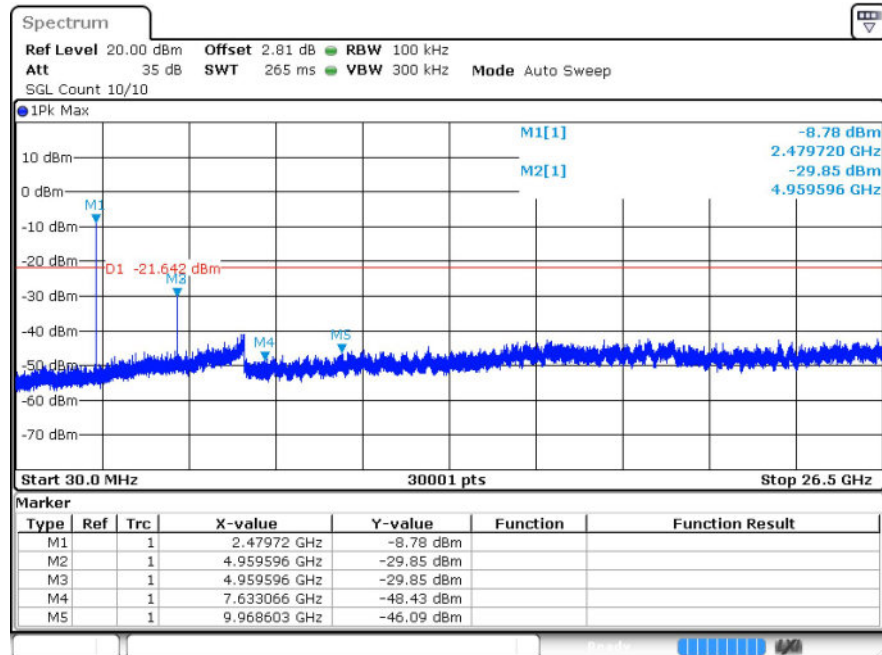


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

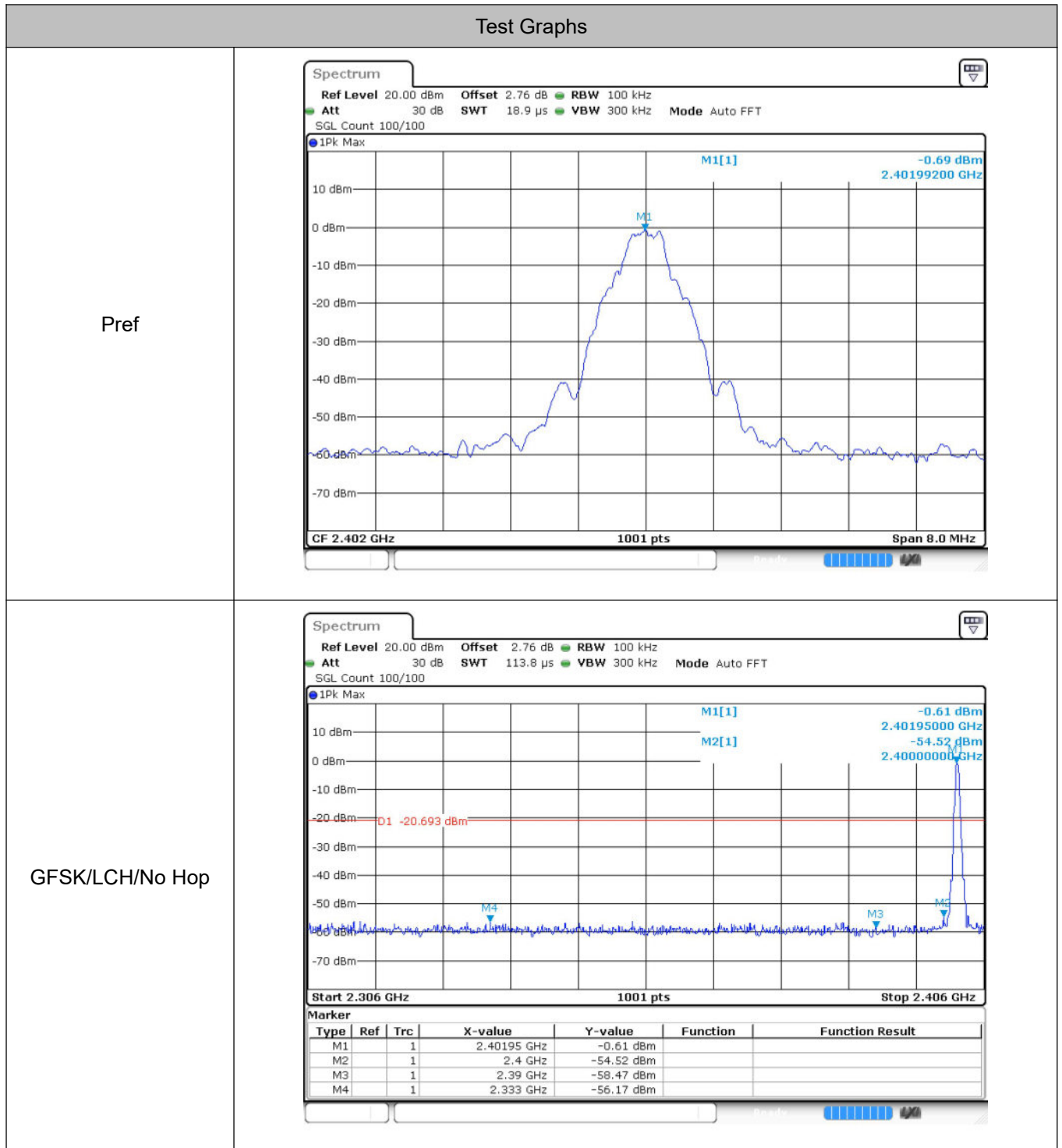


8 Band-edge for RF Conducted Emissions

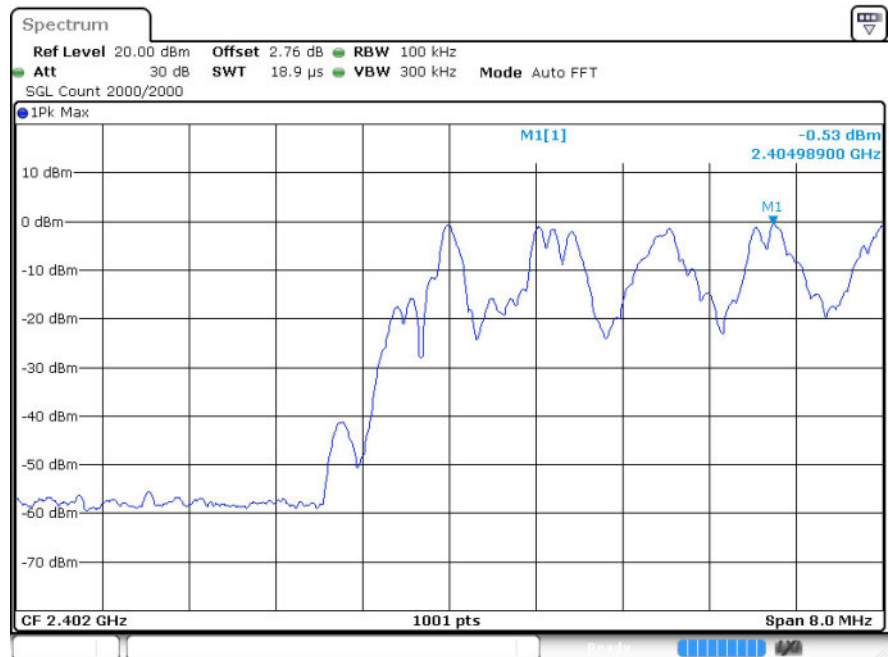
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-55.48	-20	Pass
			On	-54.5	-20	Pass
	HCH	2480	Off	-54.99	-20	Pass
			On	-53.71	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-55.34	-20	Pass
			On	-54.92	-20	Pass
	HCH	2480	Off	-55.3	-20	Pass
			On	-53.9	-20	Pass

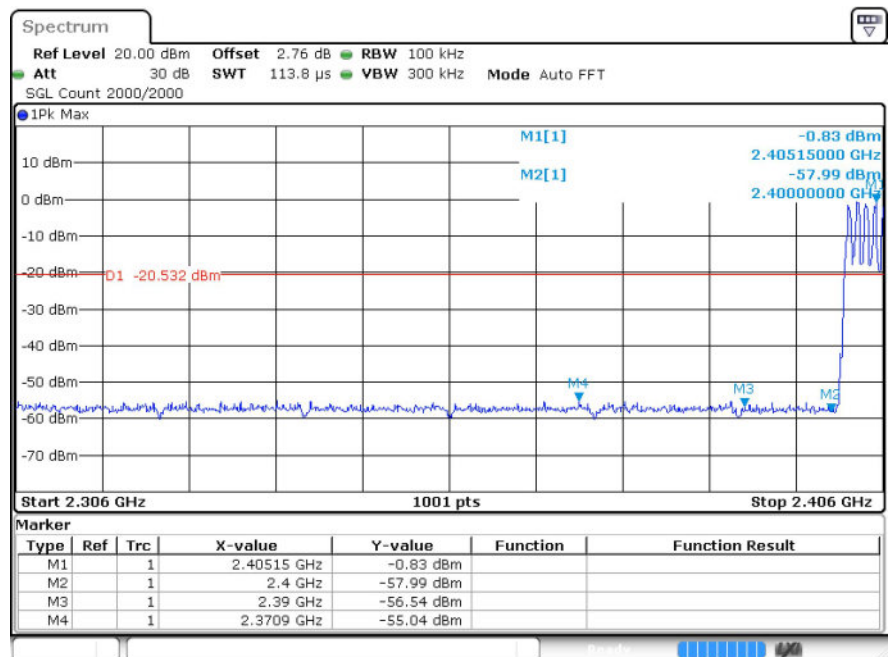
8.2 Test Graphs



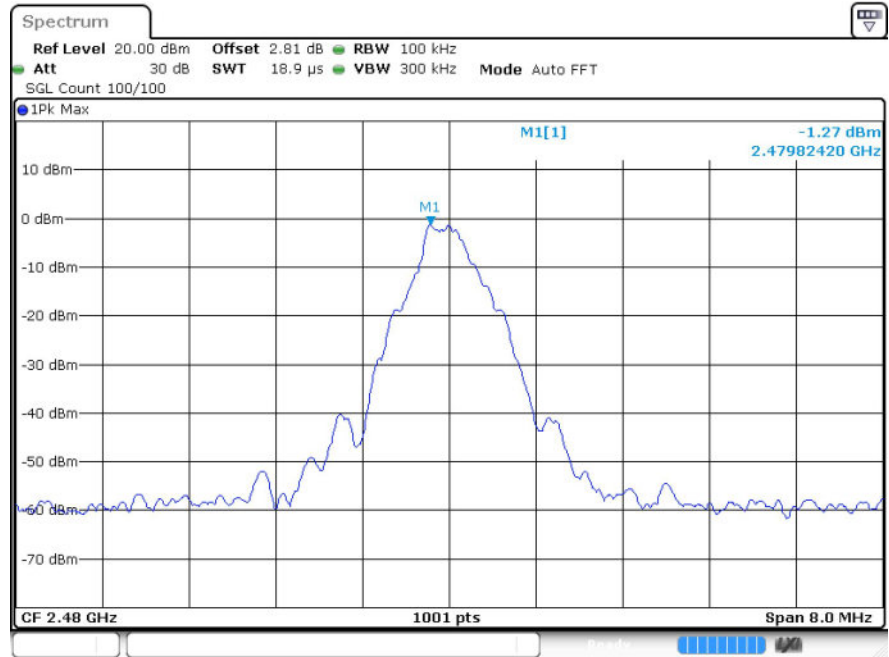
Ref



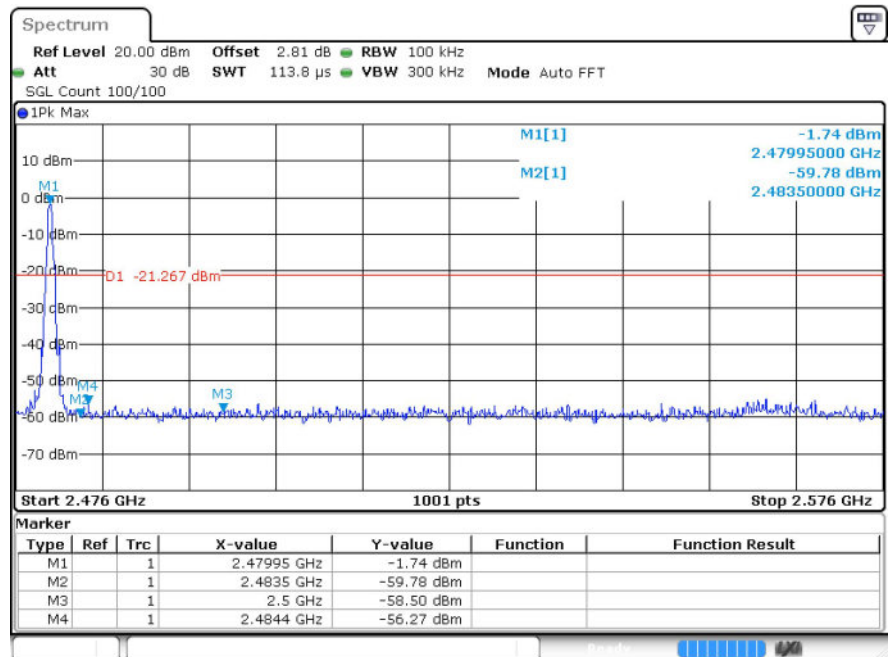
GFSK/LCH/Hop



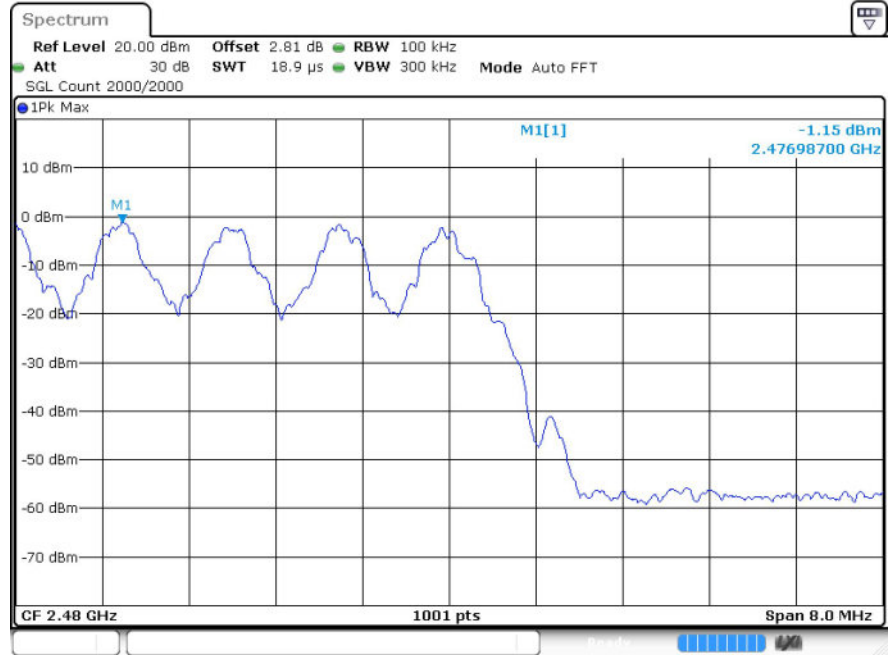
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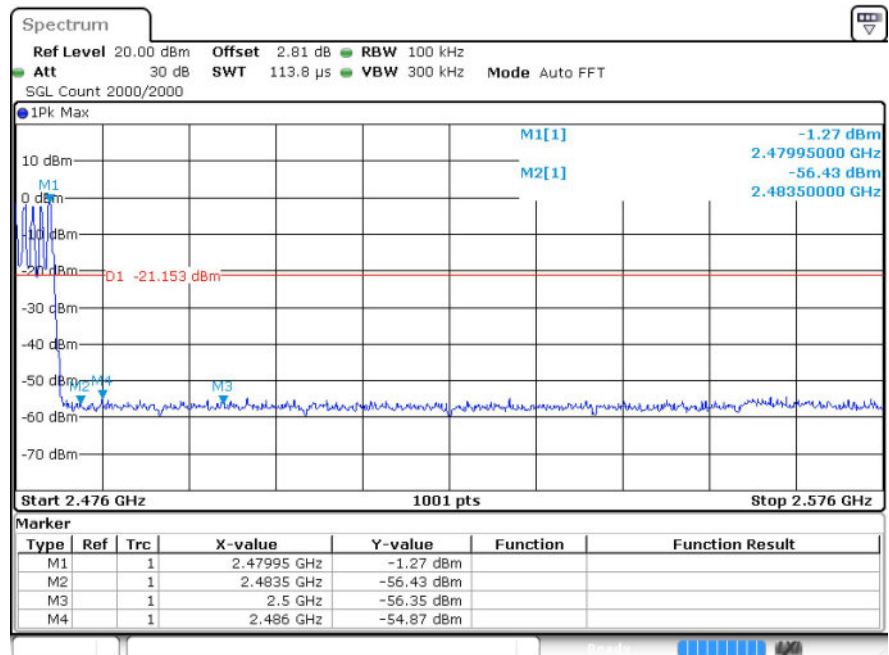
GFSK/HCH/No Hop



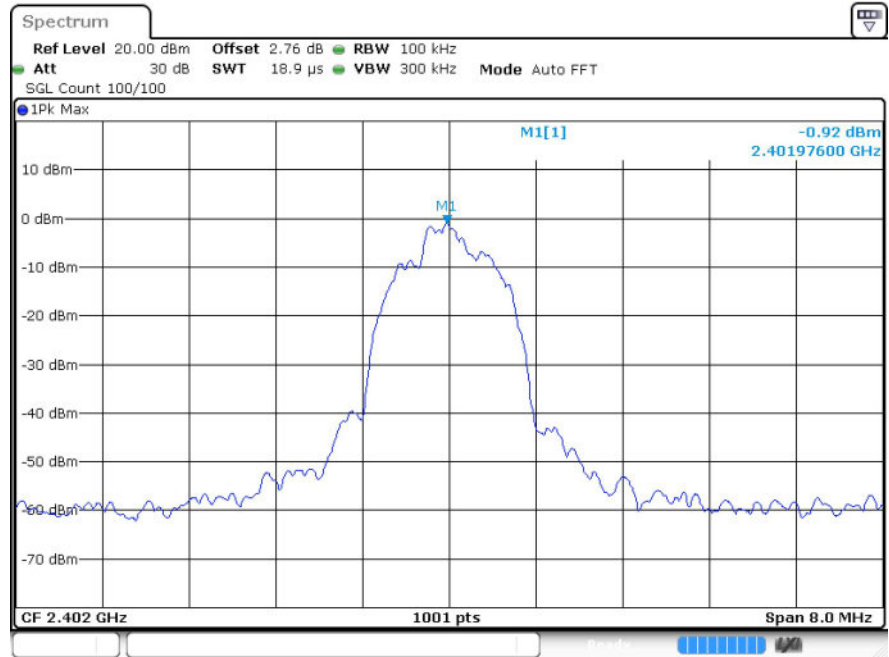
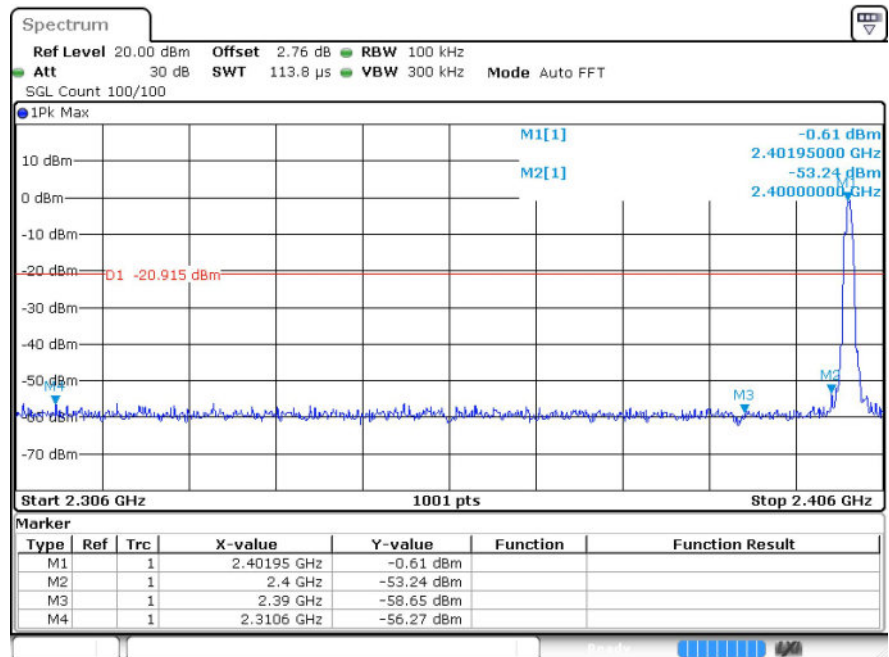
Ref.



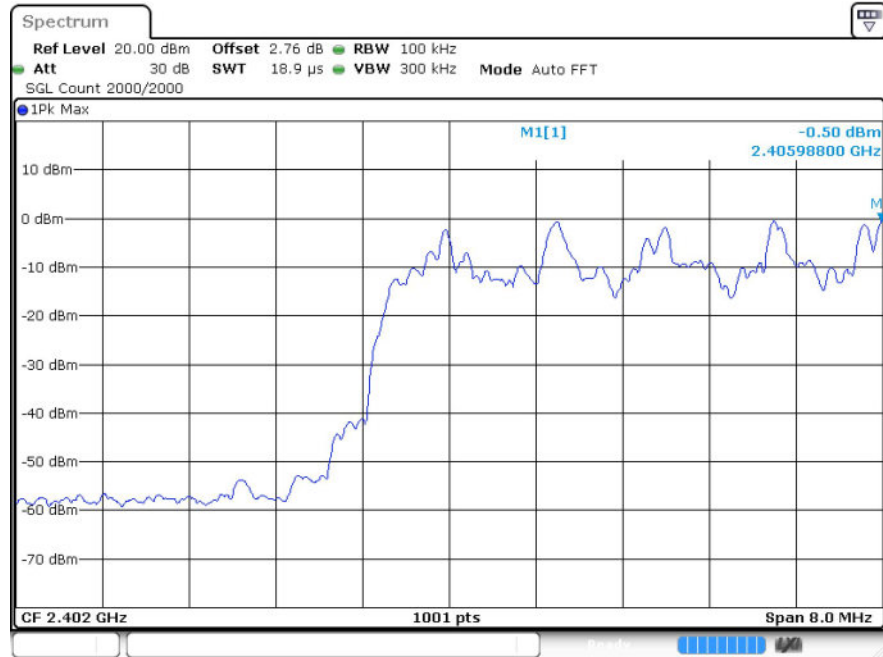
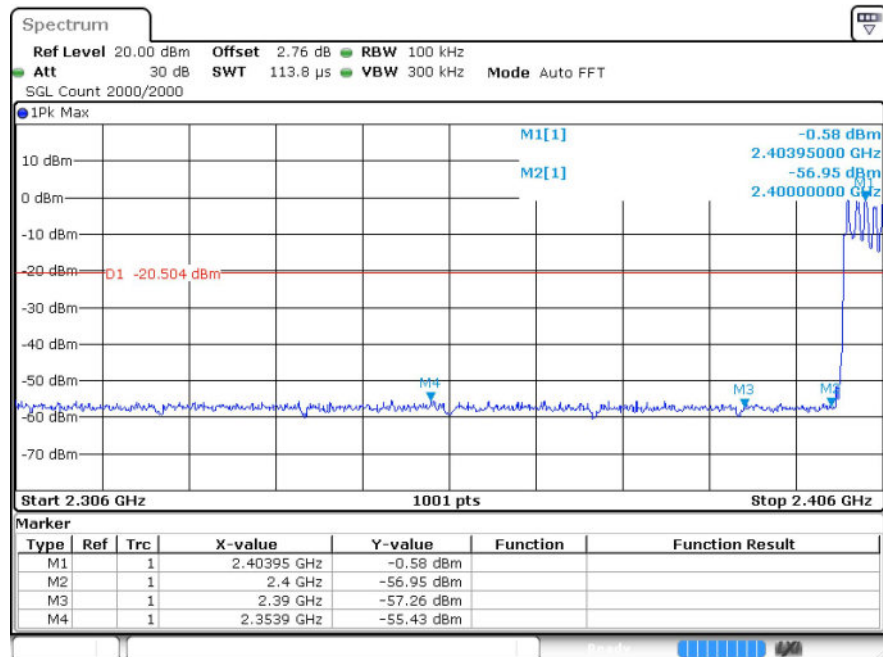
GFSK/HCH/Hop

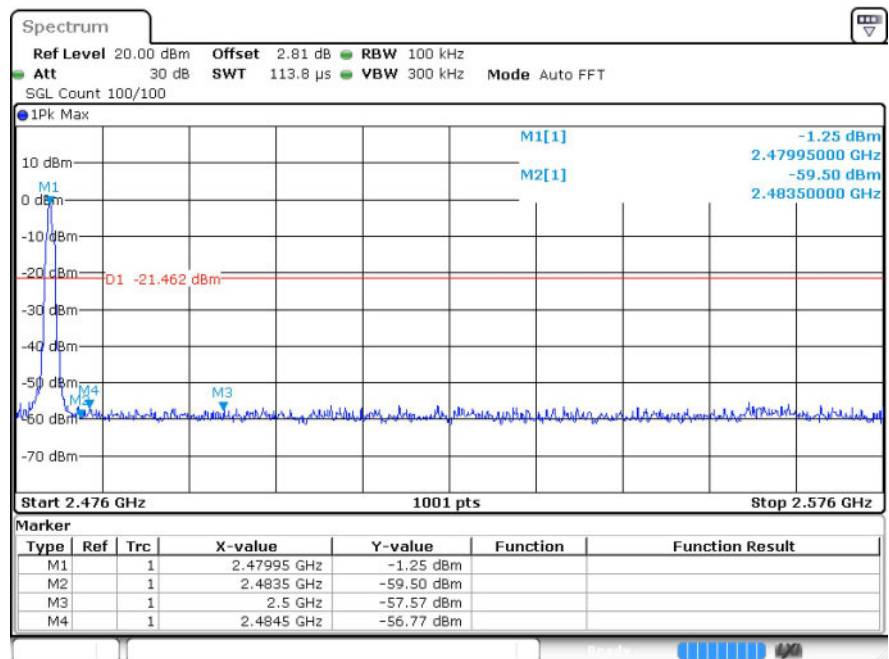


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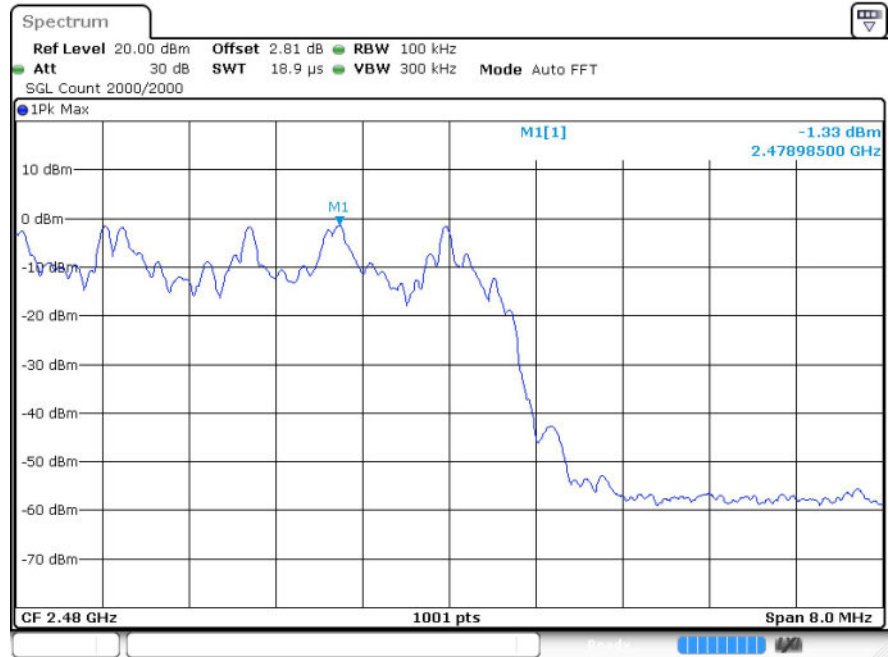
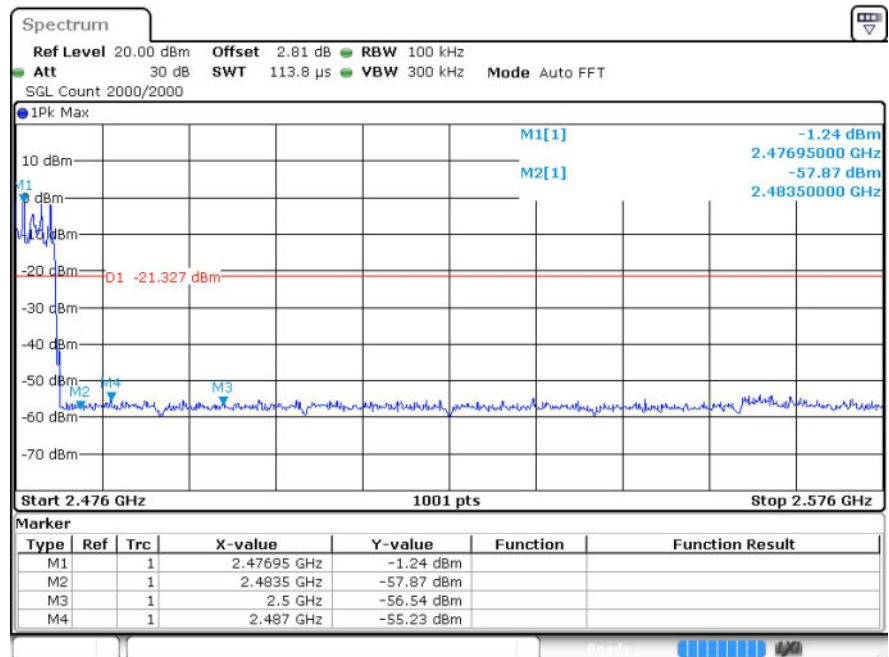

 $\pi/4$ DQPSK/LCH/No
Hop


Ref


 $\pi/4$ DQPSK/LCH/Hop




Ref


 $\pi/4$ DQPSK/HCH/Hop


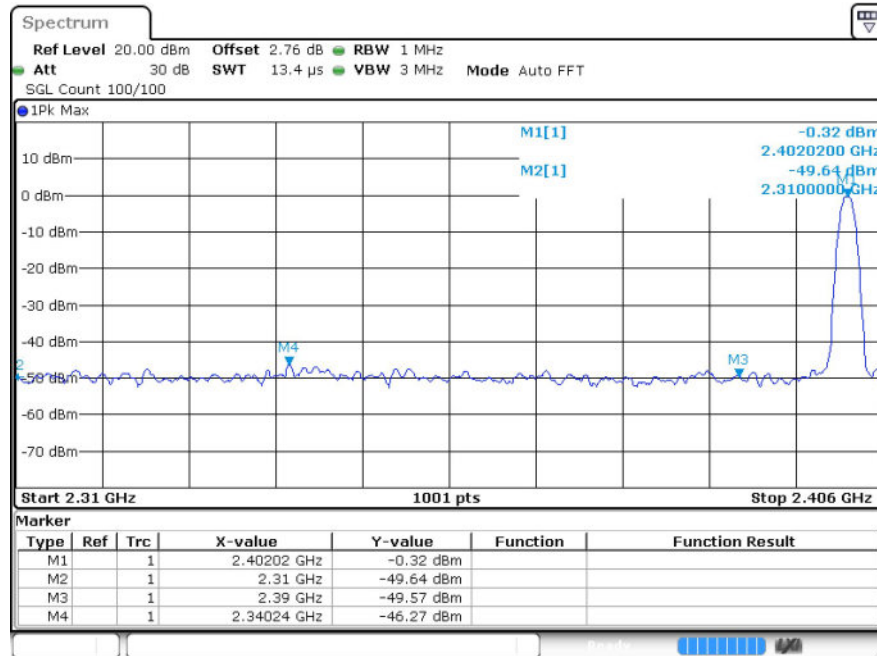
9 Restrict-band band-edge measurements

9.1 Test Result

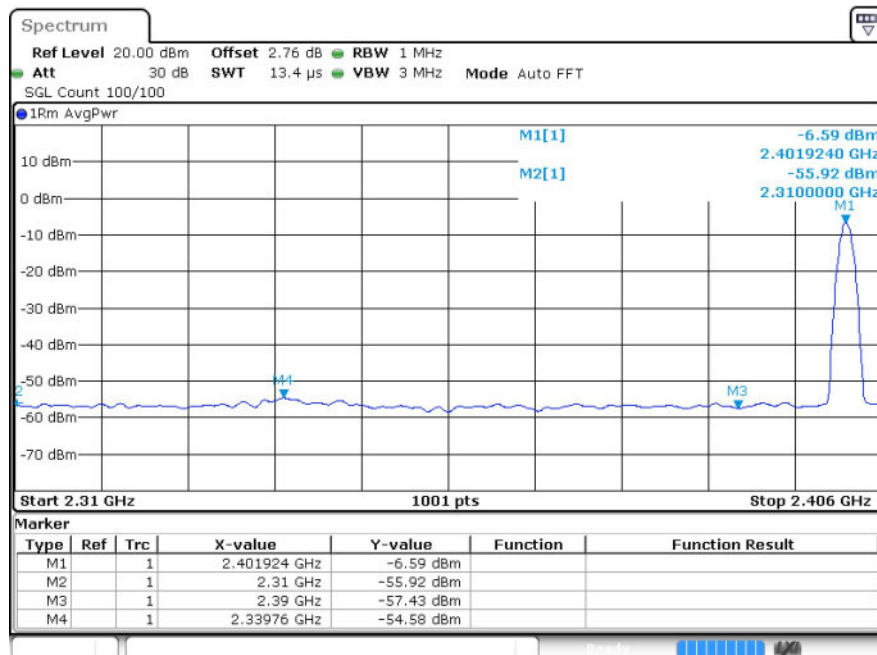
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Duty Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-49.64	2	-	47.62	PEAK	74	Pass
	Off	2310.0	-55.92	2	4.74	46.08	AV	54	Pass
	Off	2340.24	-46.26	2	-	51	PEAK	74	Pass
	Off	2339.76	-54.57	2	4.74	47.43	AV	54	Pass
	Off	2390.0	-49.57	2	-	47.69	PEAK	74	Pass
	Off	2390.0	-57.43	2	4.74	44.57	AV	54	Pass
	Off	2483.5	-50.46	2	-	46.8	PEAK	74	Pass
	Off	2483.5	-56.37	2	4.74	45.63	AV	54	Pass
	Off	2498.8	-48.12	2	-	49.14	PEAK	74	Pass
	Off	2484.16	-55.8	2	4.74	46.2	AV	54	Pass
	Off	2500.0	-50.34	2	-	46.92	PEAK	74	Pass
	Off	2500.0	-56.55	2	4.74	45.45	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-49.43	2	-	47.83	PEAK	74	Pass
	Off	2310.0	-56.95	2	4.63	44.94	AV	54	Pass
	Off	2338.128	-46.37	2	-	50.89	PEAK	74	Pass
	Off	2338.704	-54.12	2	4.63	47.77	AV	54	Pass
	Off	2390.0	-49.32	2	-	47.94	PEAK	74	Pass
	Off	2390.0	-56.98	2	4.63	44.91	AV	54	Pass
	Off	2483.5	-46.37	2	-	50.89	PEAK	74	Pass
	Off	2483.5	-56.32	2	4.63	45.57	AV	54	Pass
	Off	2483.656	-46.14	2	-	51.12	PEAK	74	Pass
	Off	2490.232	-56.05	2	4.63	45.84	AV	54	Pass
	Off	2500.0	-48.06	2	-	49.2	PEAK	74	Pass
	Off	2500.0	-57.24	2	4.63	44.65	AV	54	Pass

9.2 Test Graphs

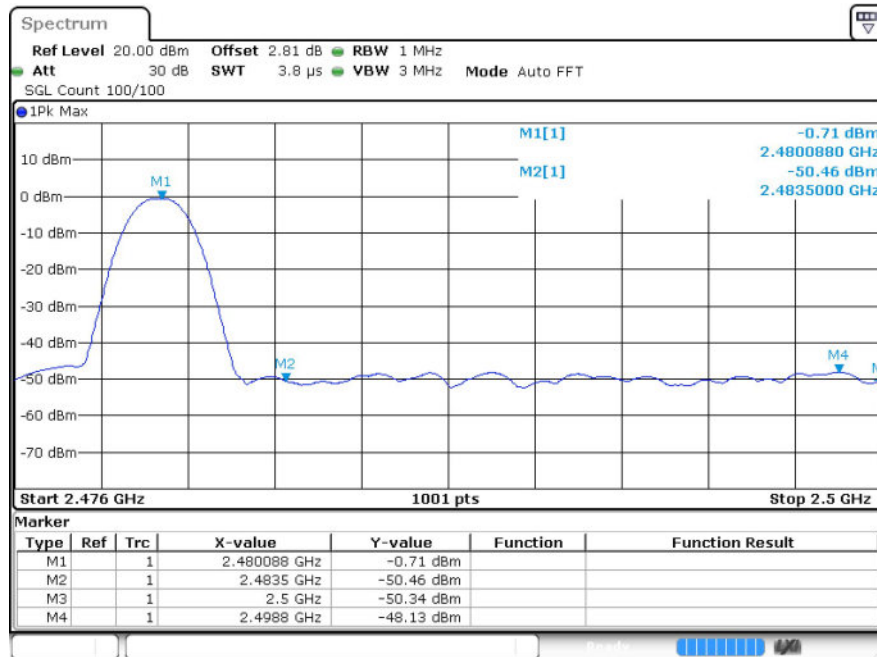
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



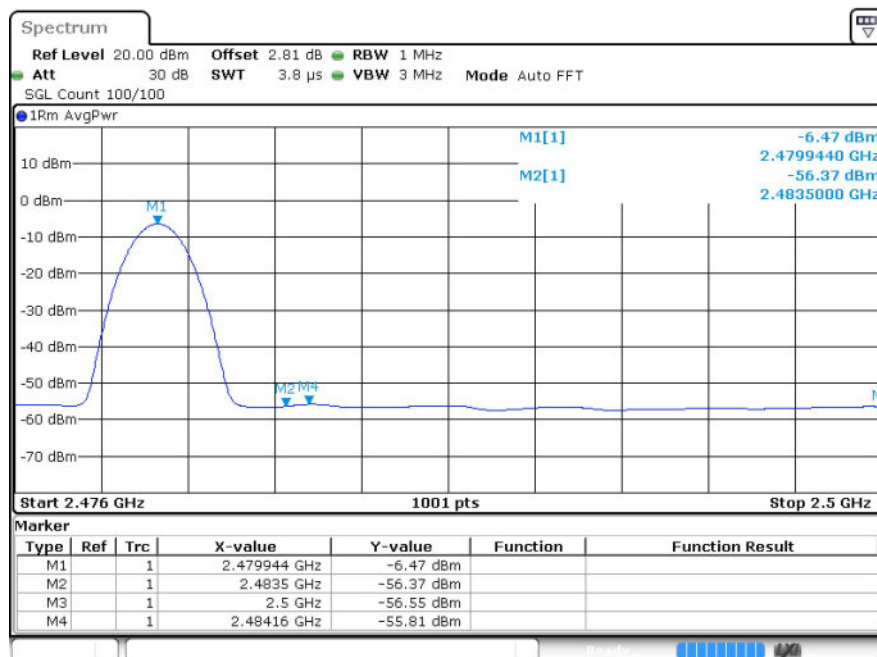
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



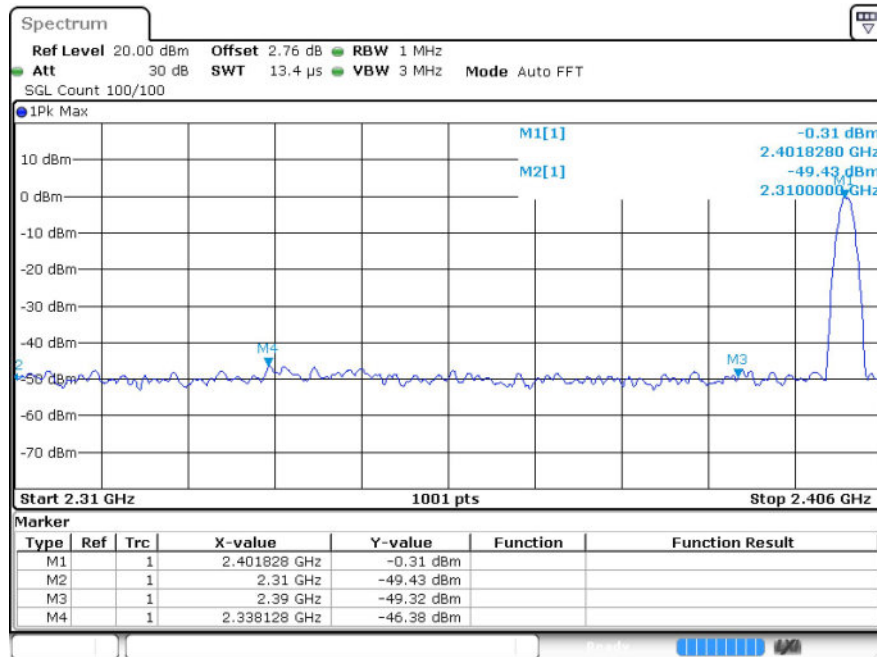
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



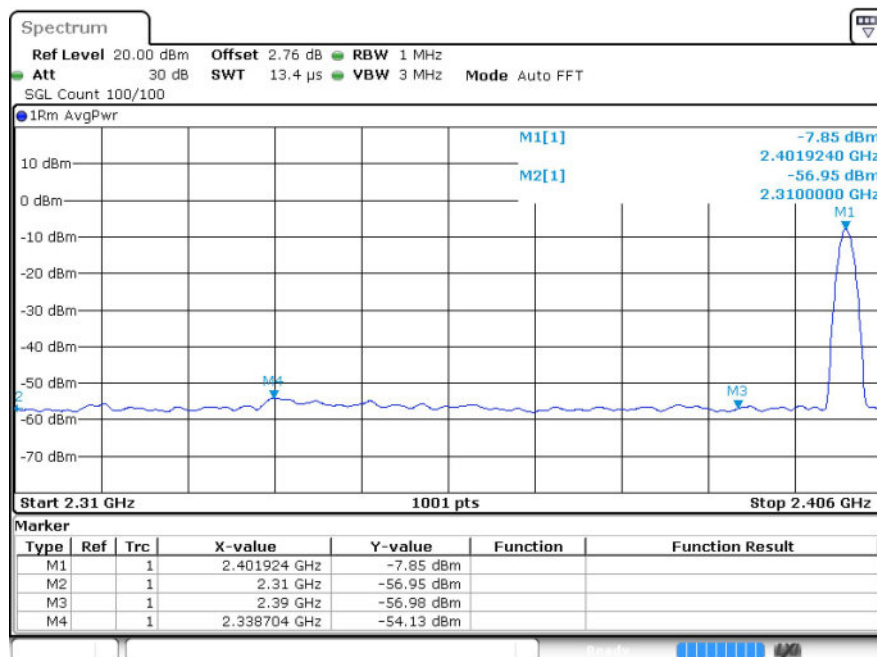
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



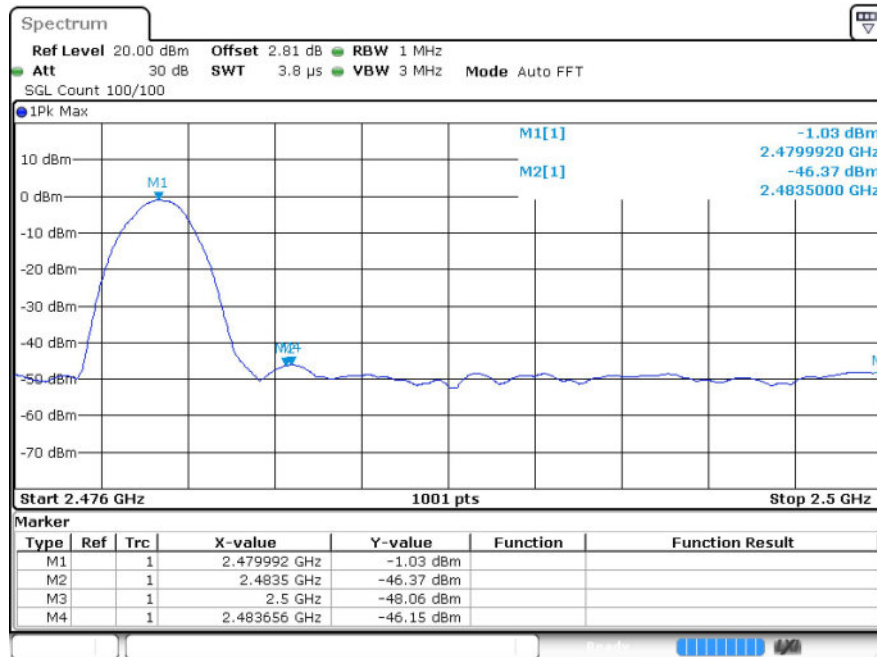
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



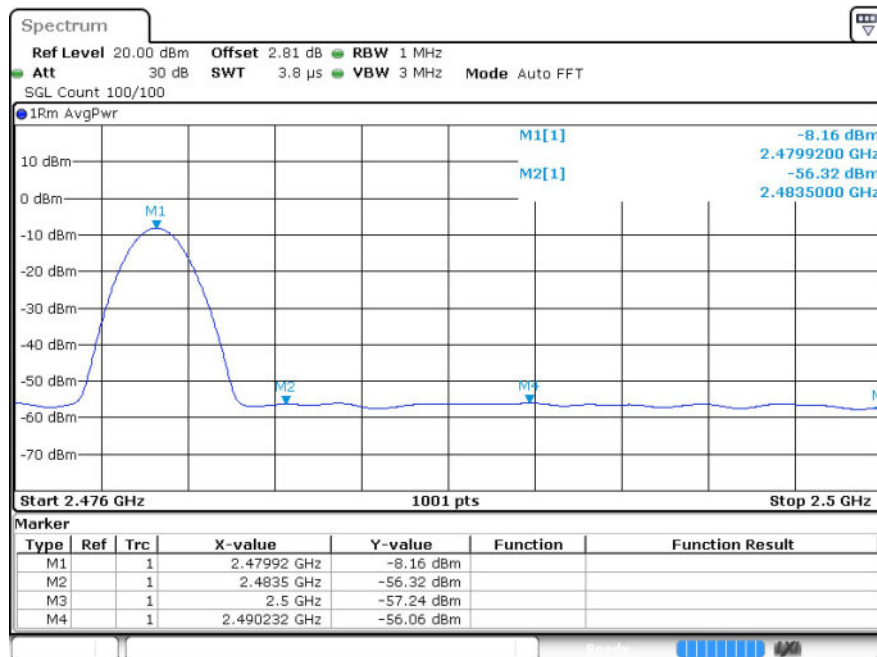
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---