



Appendix A

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

Product Name: Wireless Neckband Earphone

Trade Mark: N/A

Test Model: QFIT

Environmental Conditions

Temperature:	24.5℃
Relative Humidity:	52.2%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen



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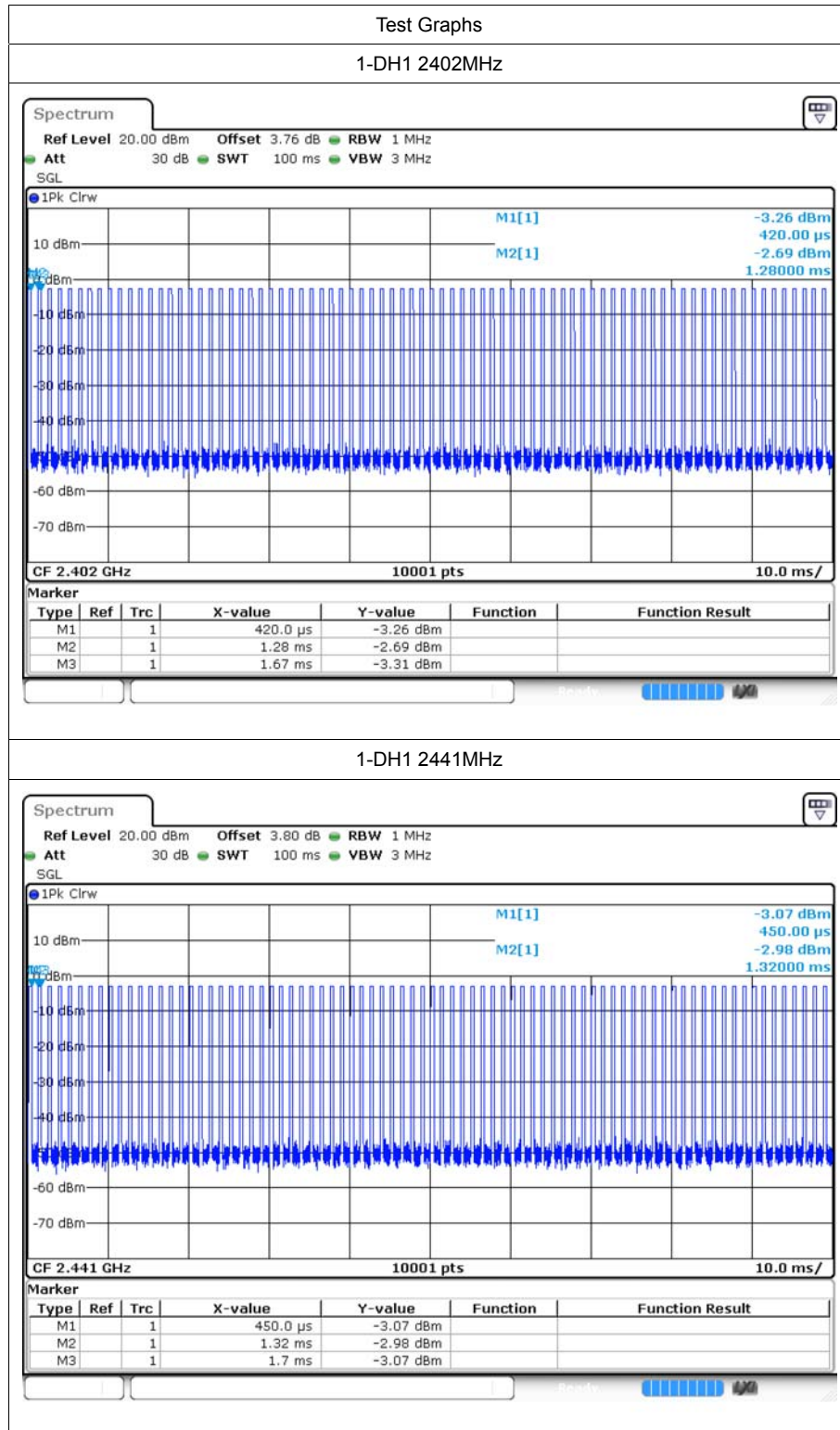
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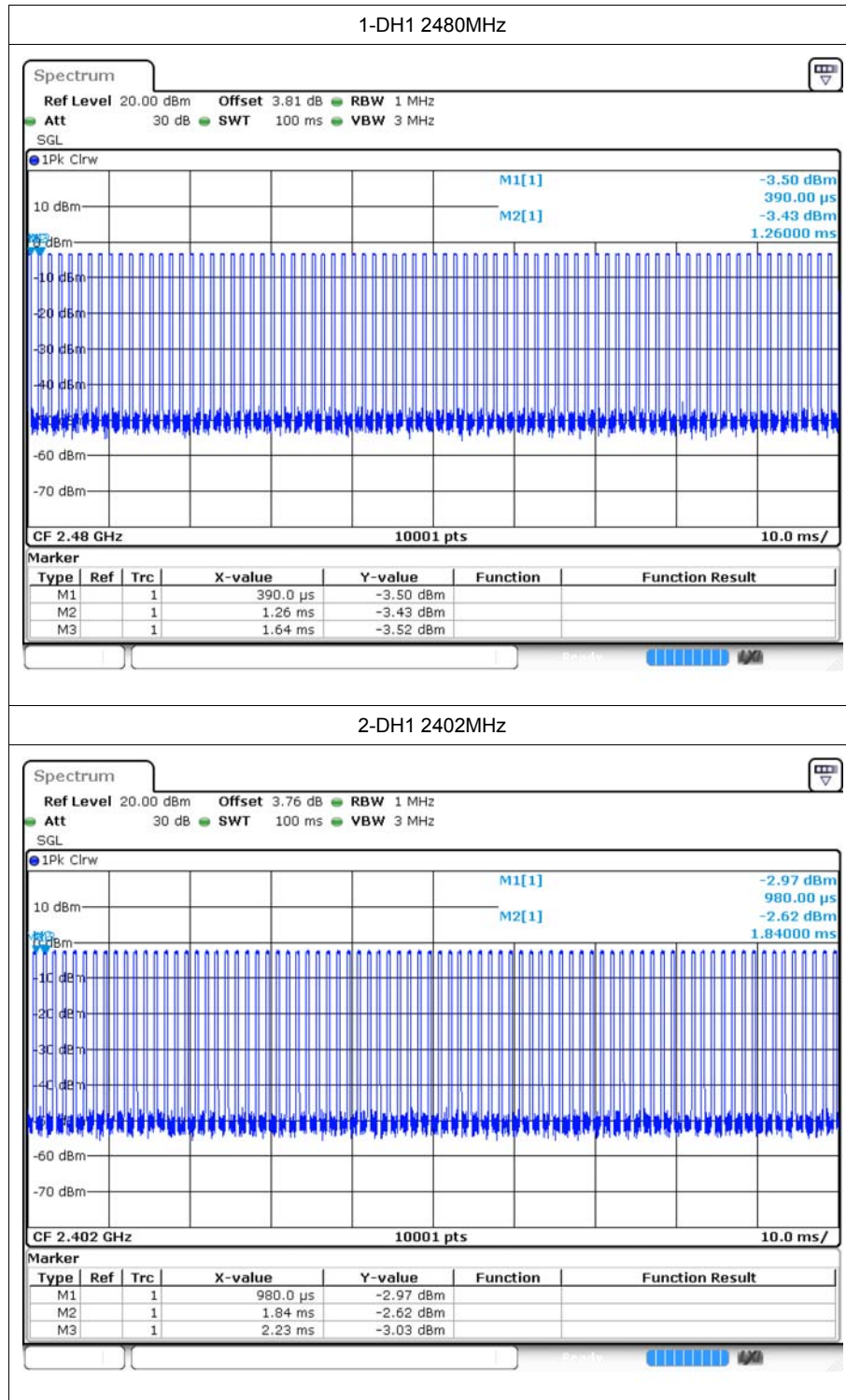
1 Duty Cycle

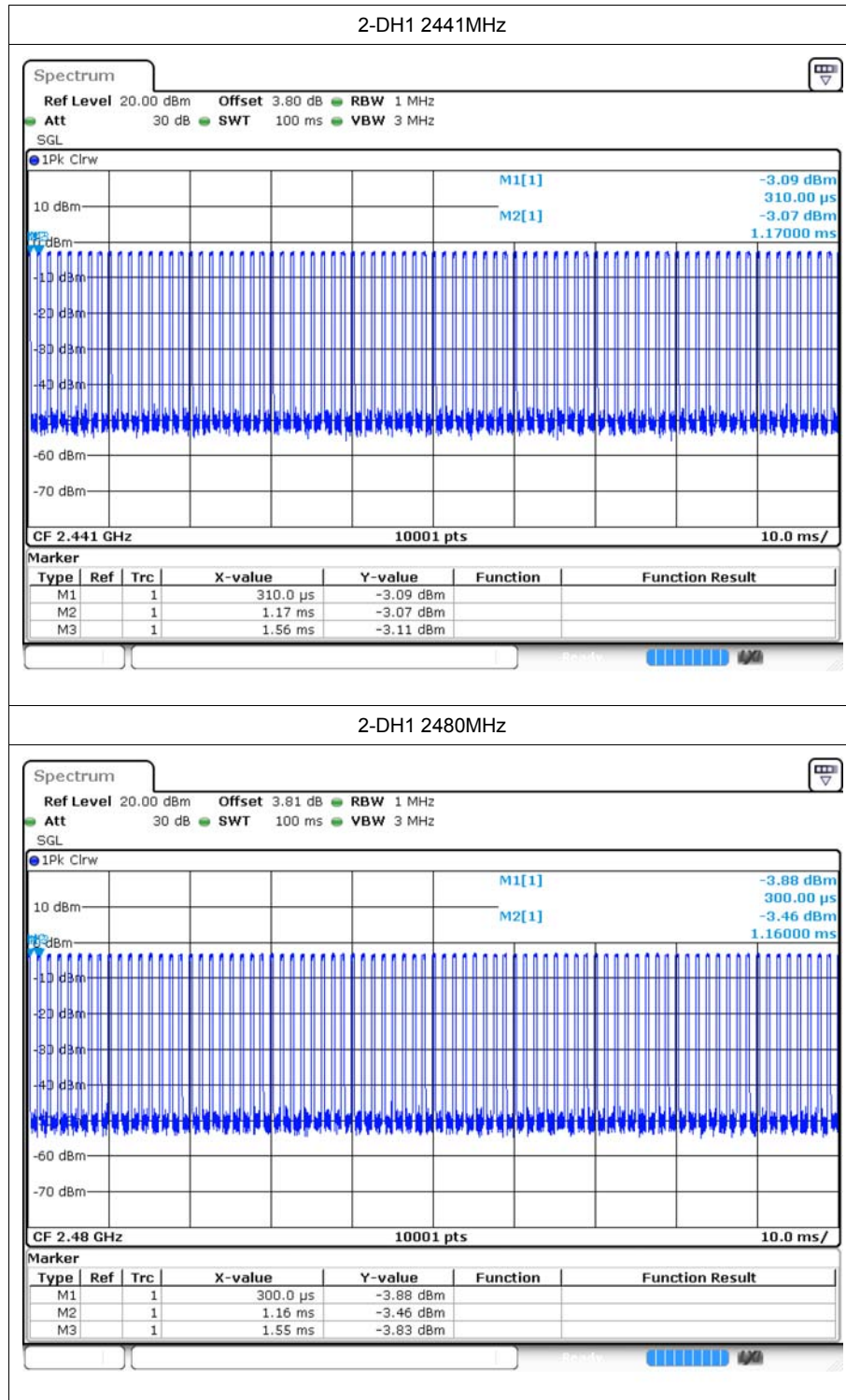
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	31.89	2.56
1-DH1	2441	31.9	2.63
1-DH1	2480	31.38	2.63
2-DH1	2402	32	2.56
2-DH1	2441	32.01	2.56
2-DH1	2480	32.01	2.56

1.2 Test Graphs





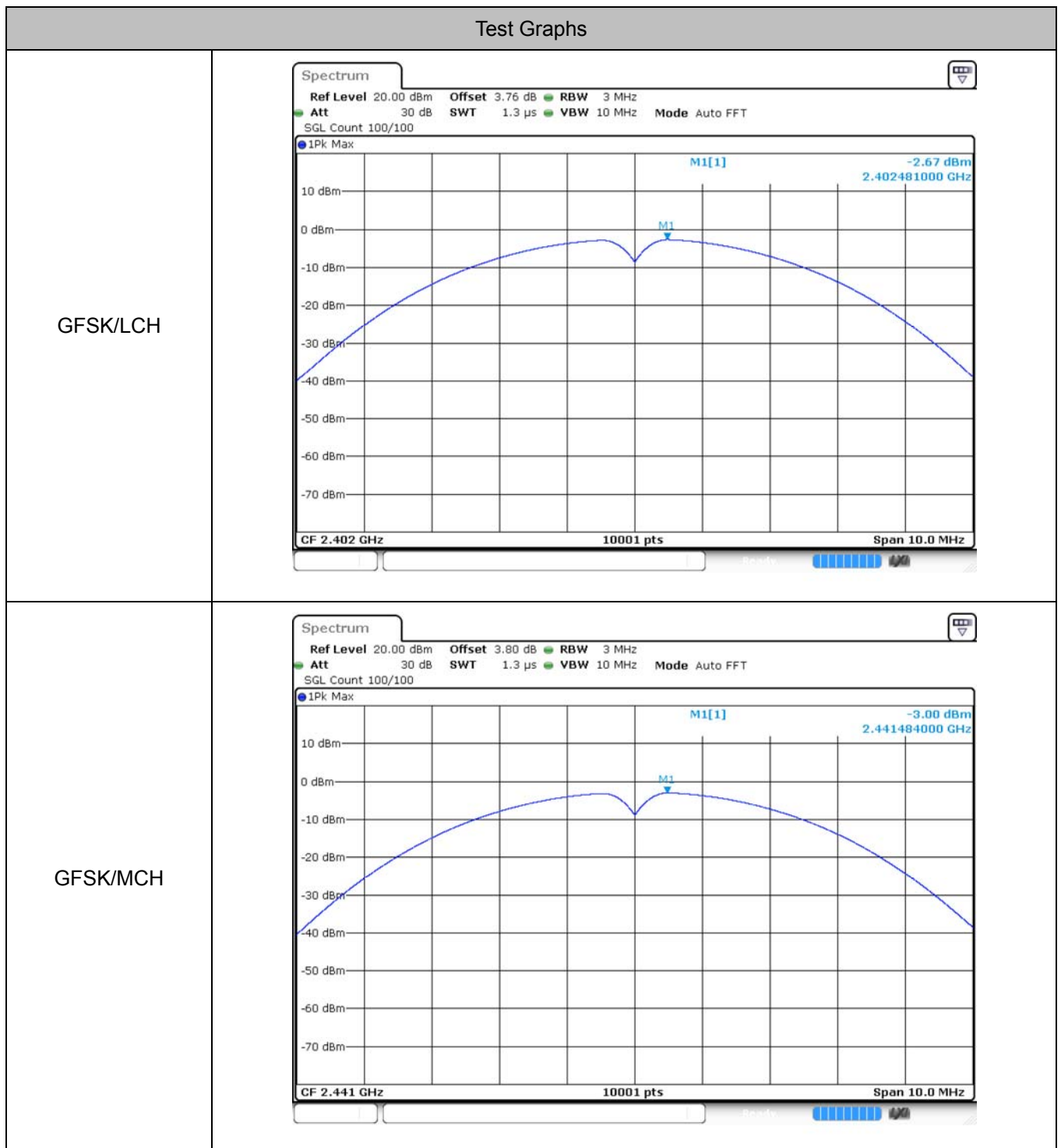


2 Maximum Conducted Peak Output Power

2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.67	21	Pass
	MCH	-3	21	Pass
	HCH	-3.4	21	Pass
$\pi/4$ DQPSK	LCH	-2.21	21	Pass
	MCH	-2.25	21	Pass
	HCH	-2.95	21	Pass

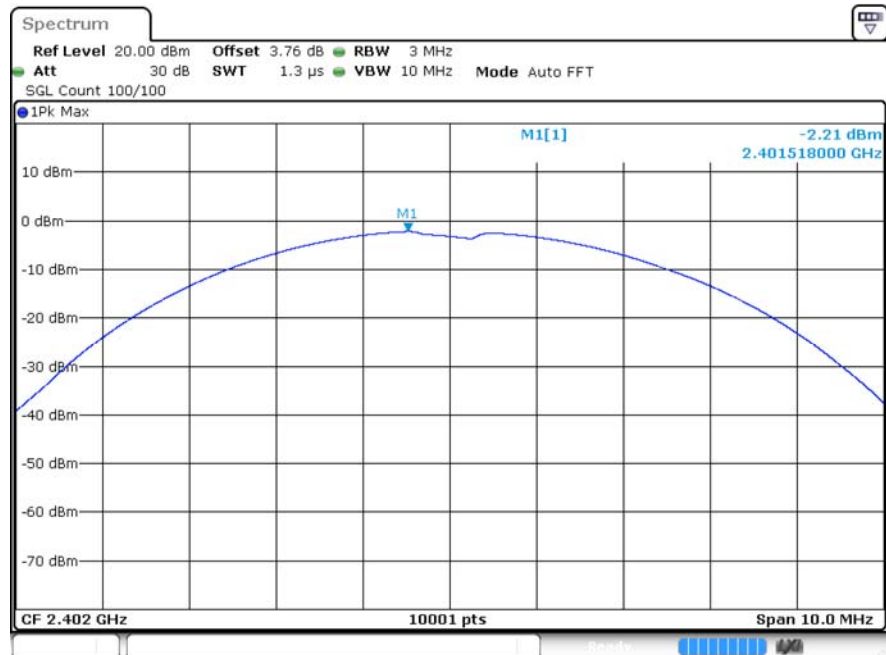
2.2 Test Graphs



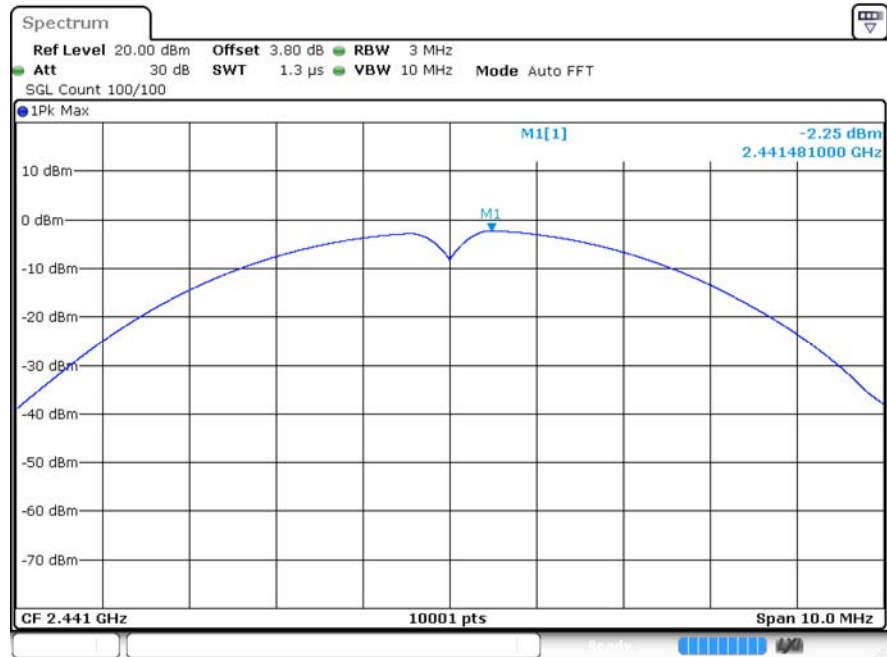
GFSK/HCH



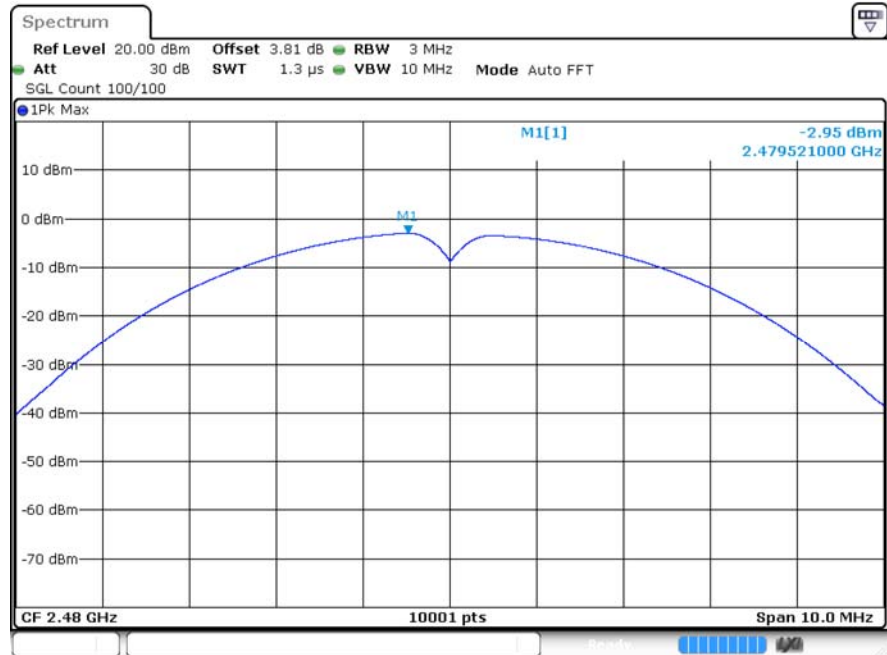
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

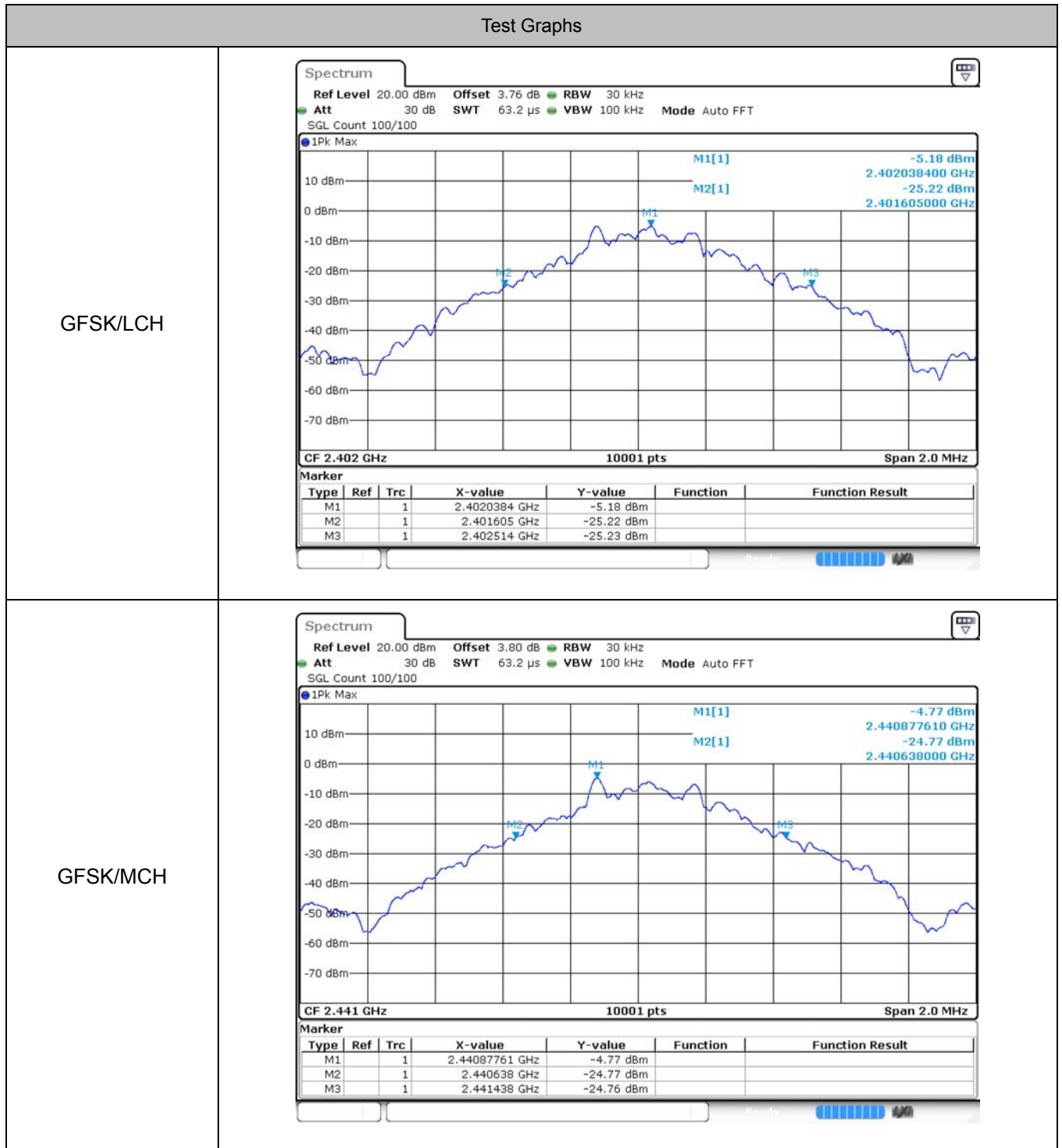


3 20dB Bandwidth

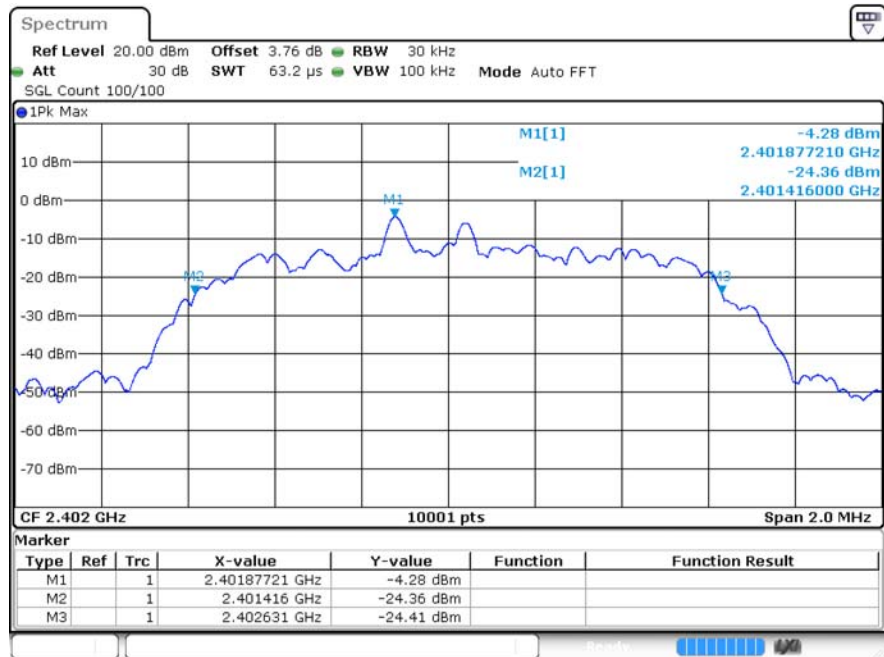
3.1 Test Result

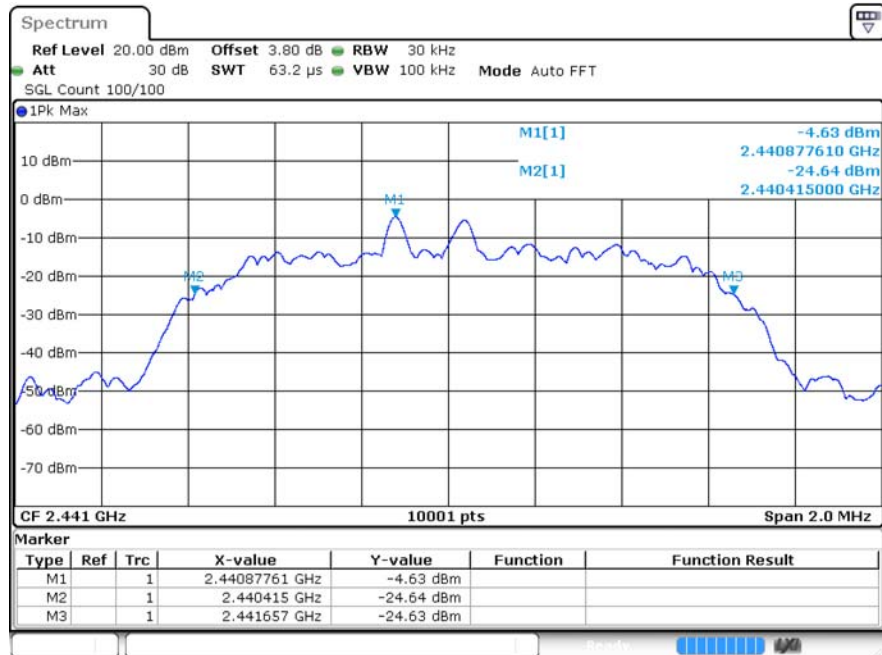
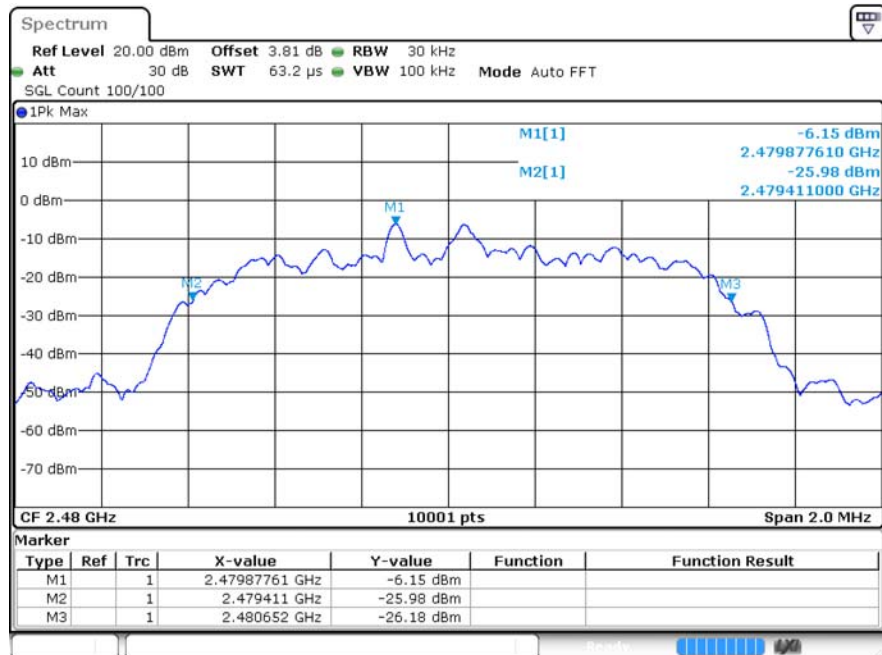
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.908	Not Specified	Pass
	MCH	0.8	Not Specified	Pass
	HCH	0.874	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.214	Not Specified	Pass
	MCH	1.242	Not Specified	Pass
	HCH	1.241	Not Specified	Pass

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	0.533	Pass
$\pi/4$ DQPSK	MCH	1.015	0.828	Pass

4.2 Test Graphs

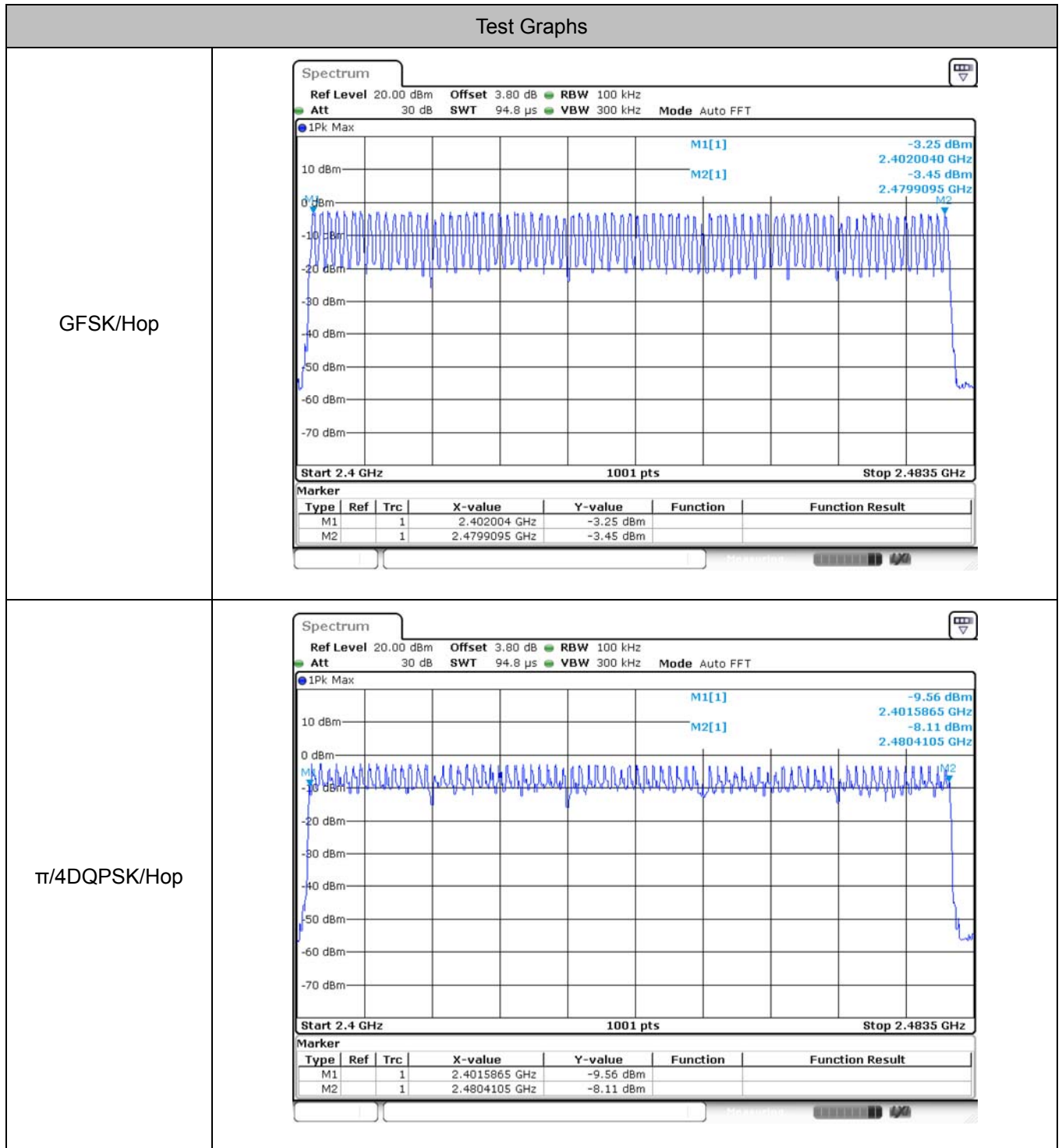


5 Hopping Channel Number

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

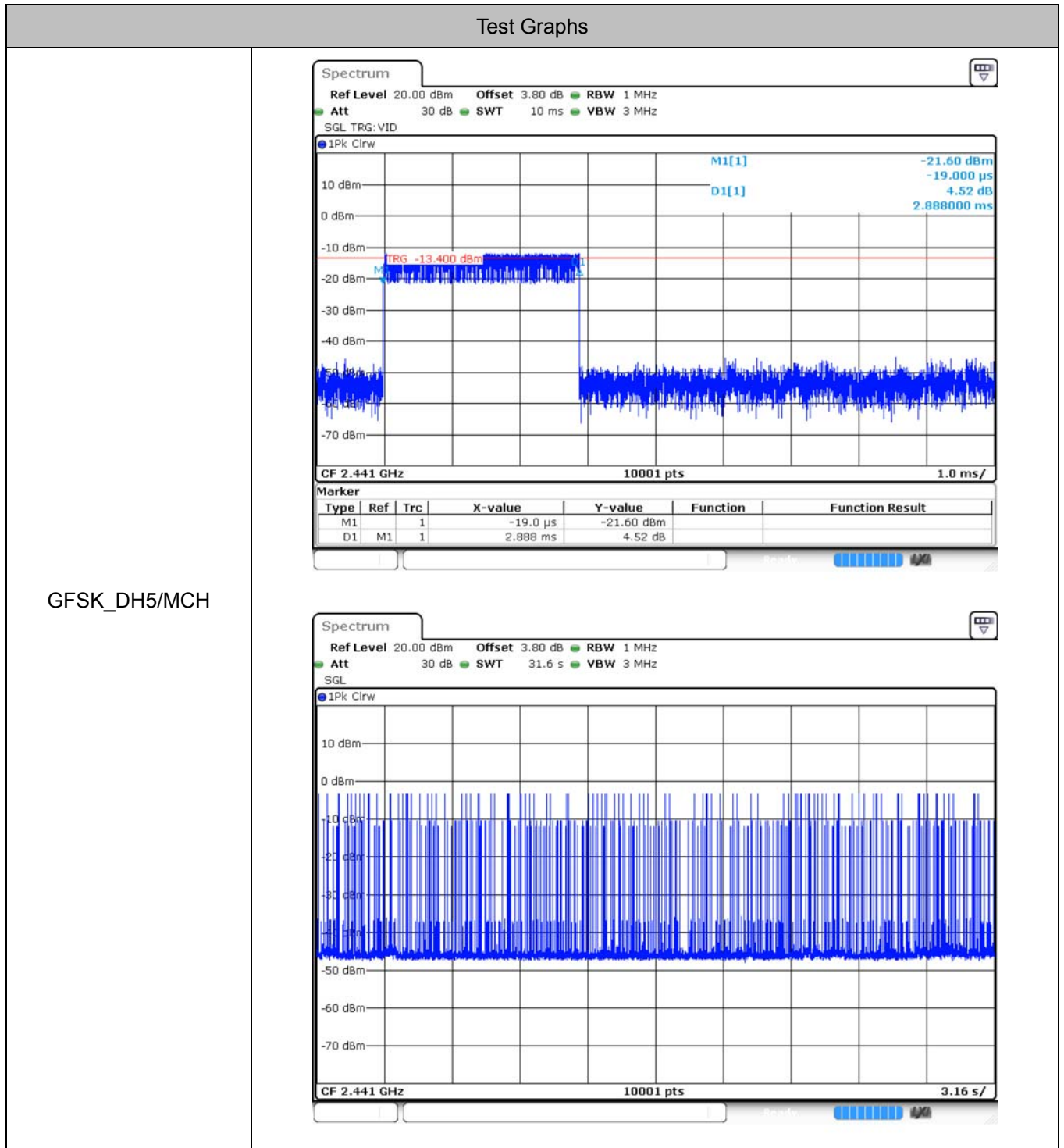


6 Dwell Time

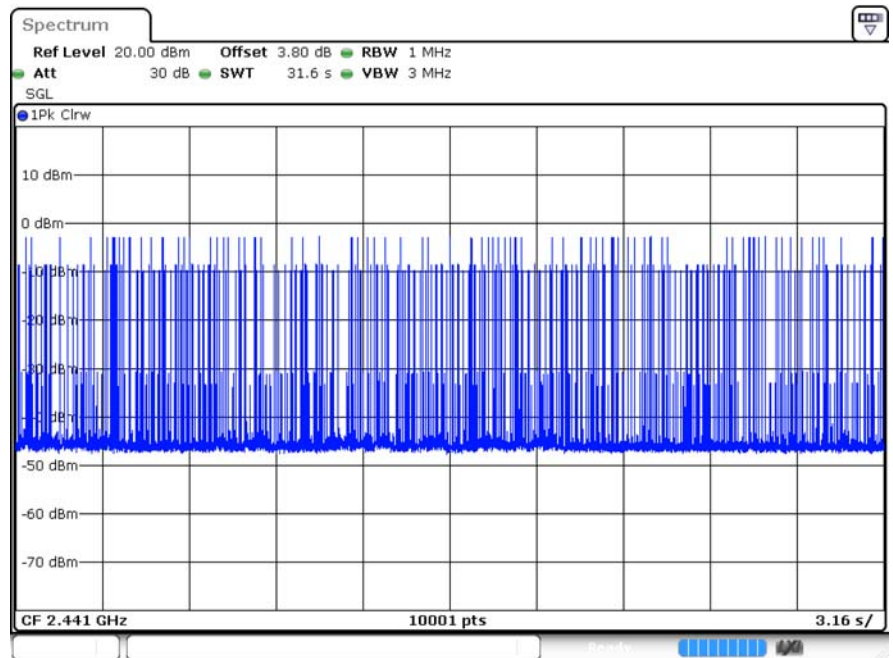
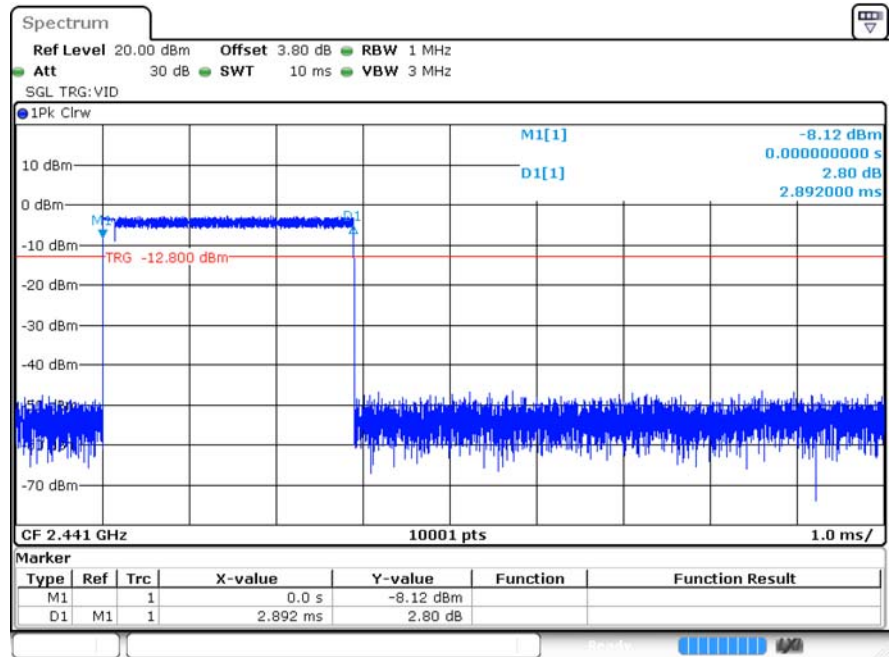
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.888	101	291.688	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.892	85	245.82	0.4	Pass

6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH

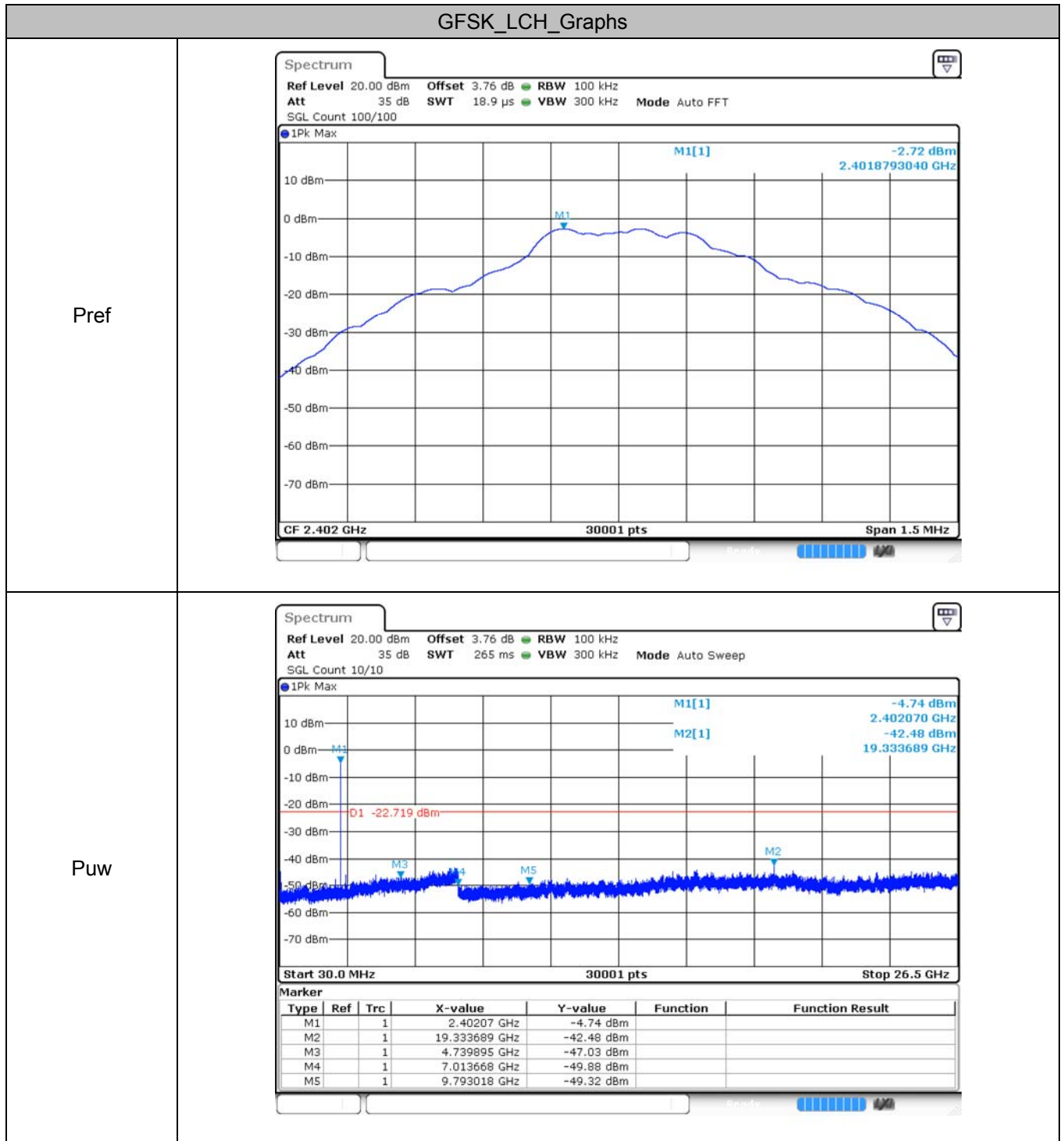


7 RF Conducted Spurious Emissions

7.1 Test Result

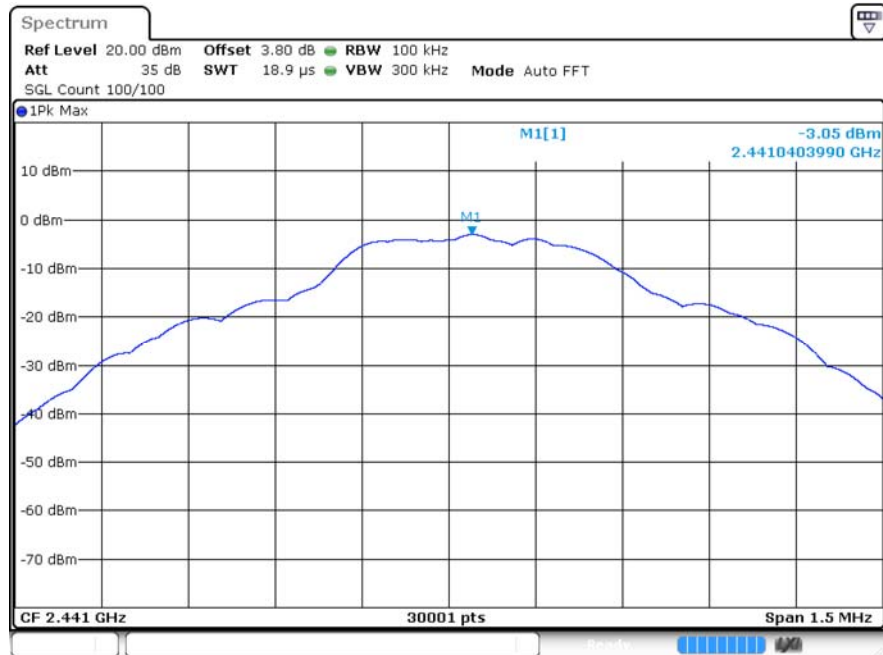
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-39.76	-20	Pass
	MCH	-39.76	-20	Pass
	HCH	-39.44	-20	Pass
$\pi/4$ DQPSK	LCH	-39.73	-20	Pass
	MCH	-39.14	-20	Pass
	HCH	-40.12	-20	Pass

7.2 Test Graphs

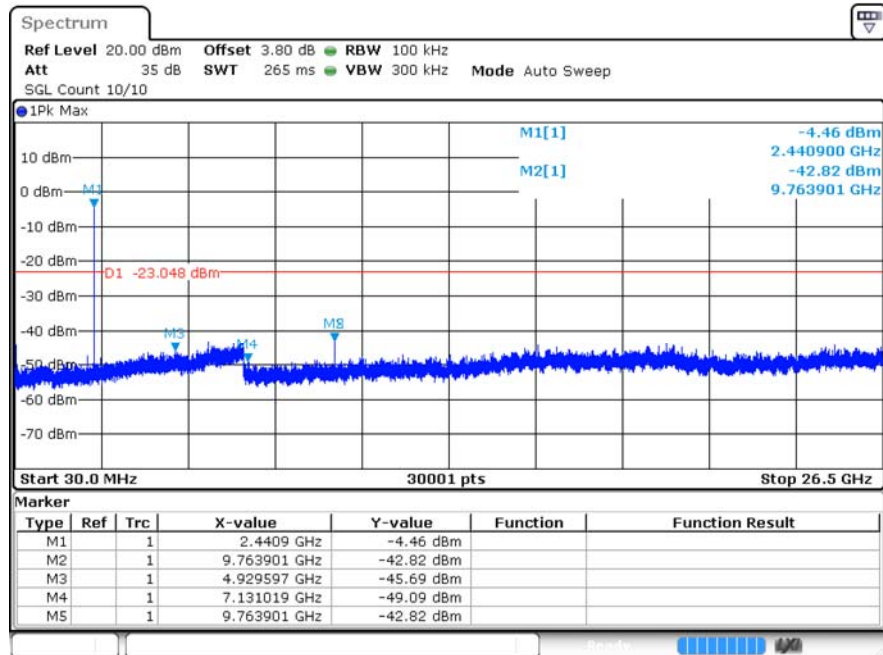


GFSK_MCH_Graphs

Pref



Puw

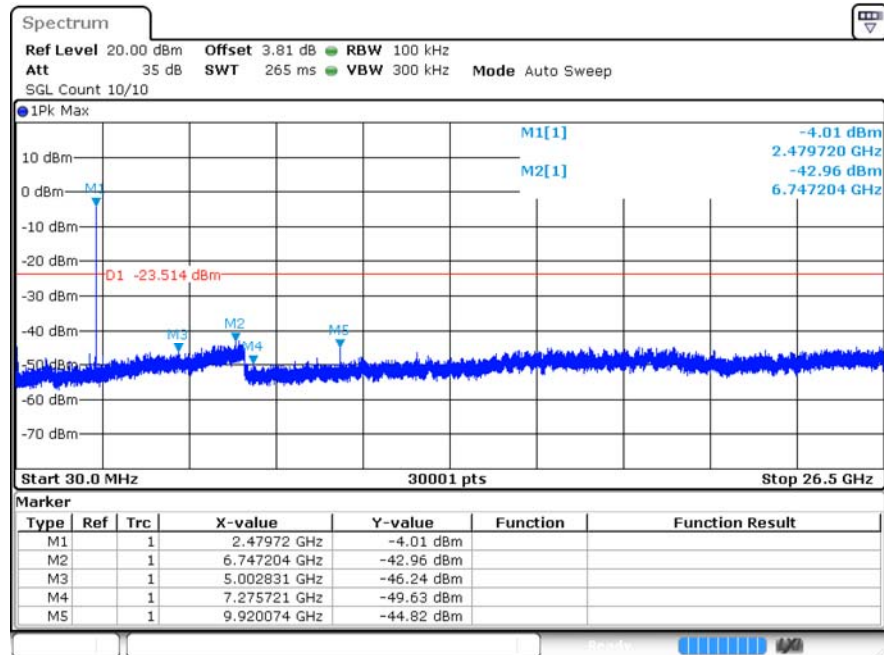


GFSK_HCH_Graphs

Pref

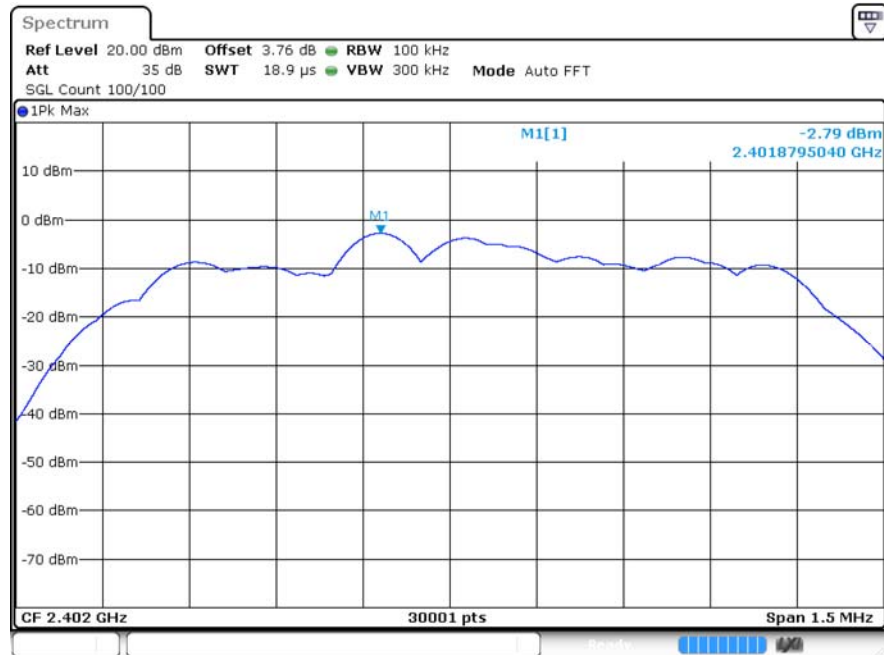


Puw

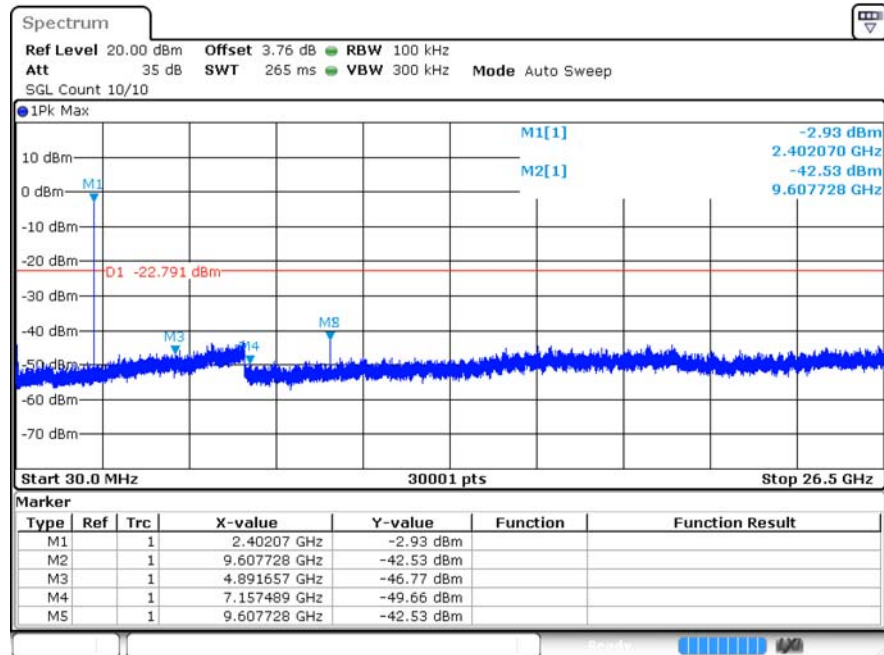


$\pi/4$ DQPSK_LCH_Graphs

Pref

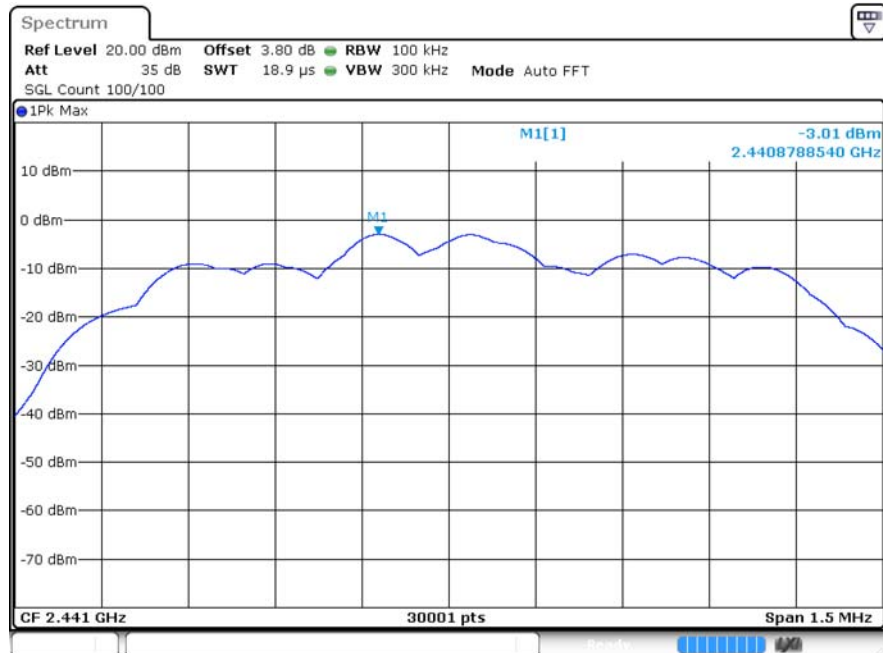


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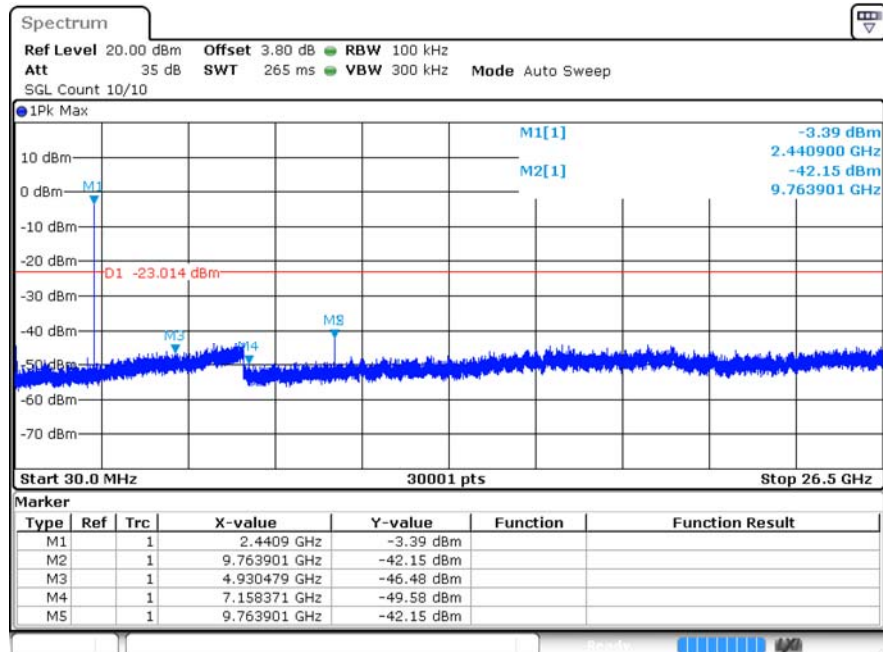


$\pi/4$ DQPSK_MCH_Graphs

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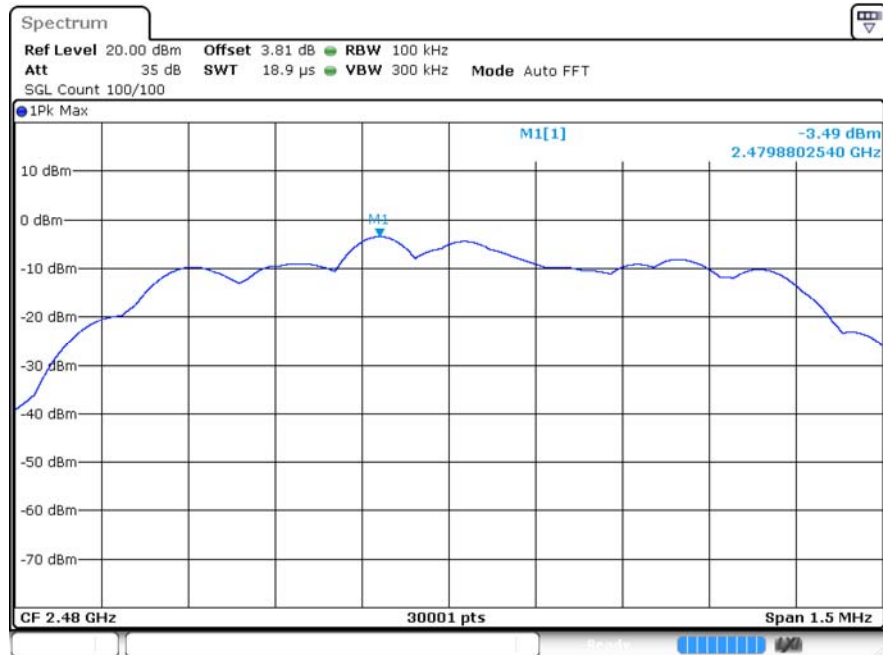


Puw

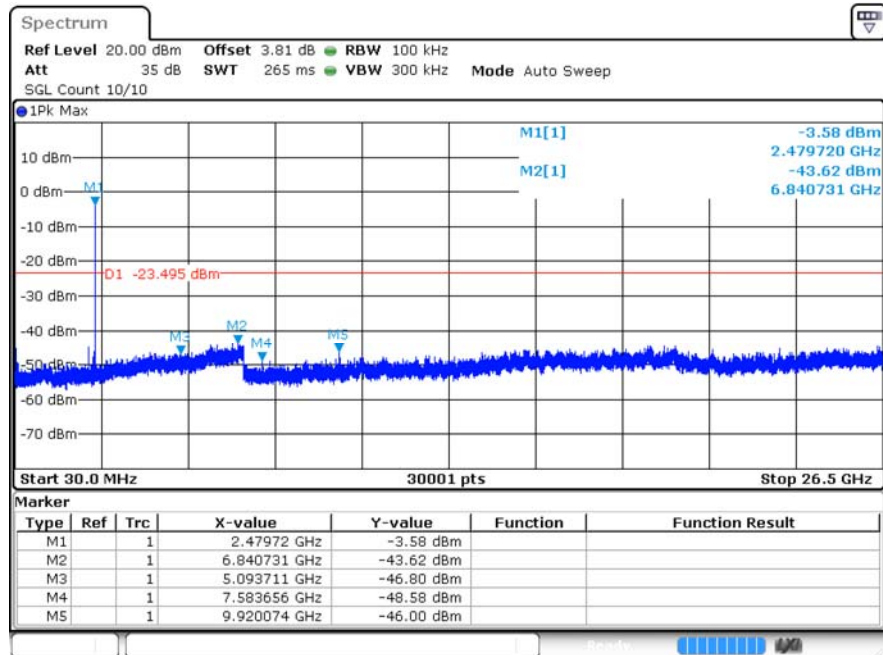


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

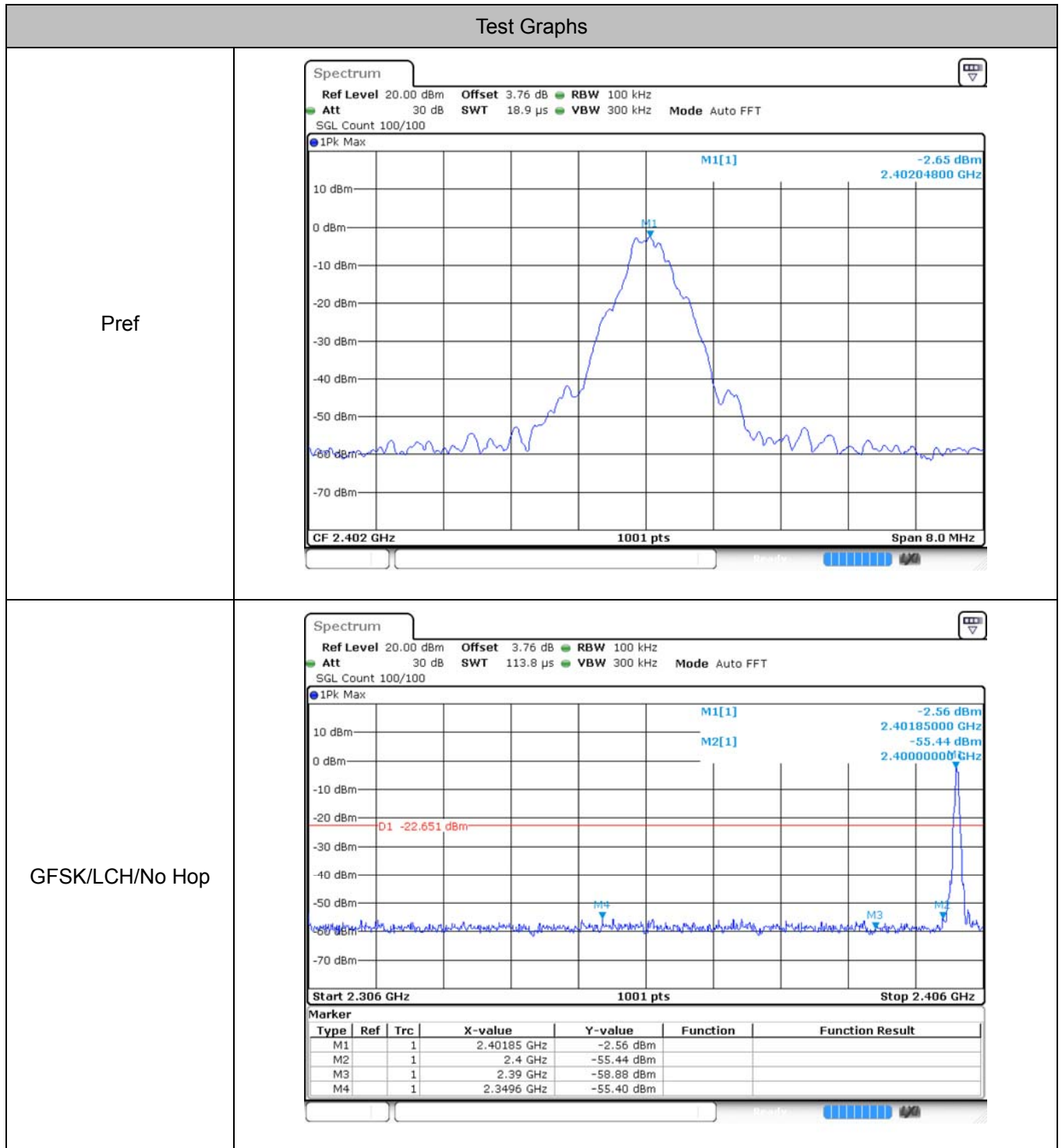


8 Band-edge for RF Conducted Emissions

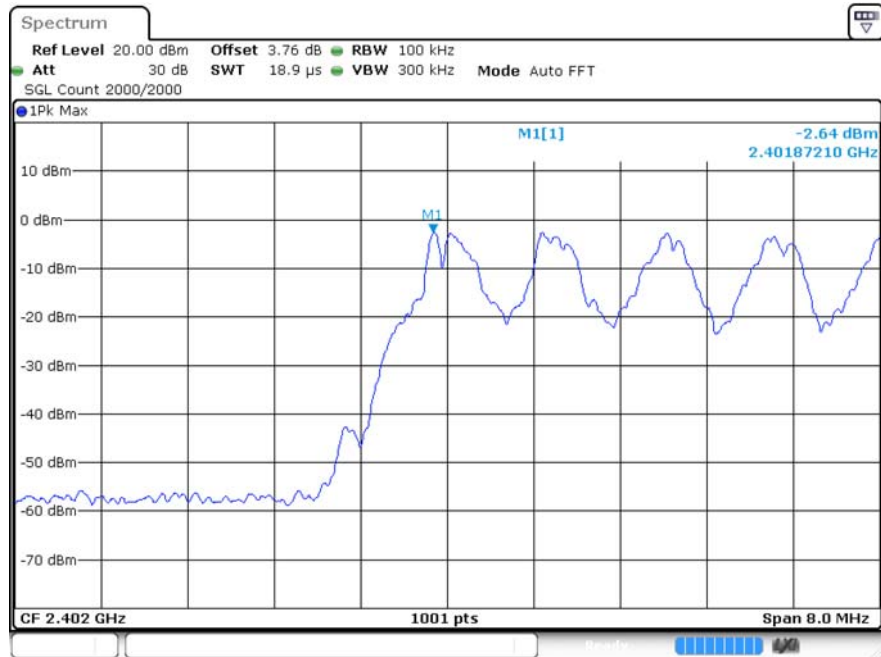
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-52.74	-20	Pass
			On	-50.56	-20	Pass
	HCH	2480	Off	-52.49	-20	Pass
			On	-51.08	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-53.1	-20	Pass
			On	-50.62	-20	Pass
	HCH	2480	Off	-52.28	-20	Pass
			On	-50.96	-20	Pass

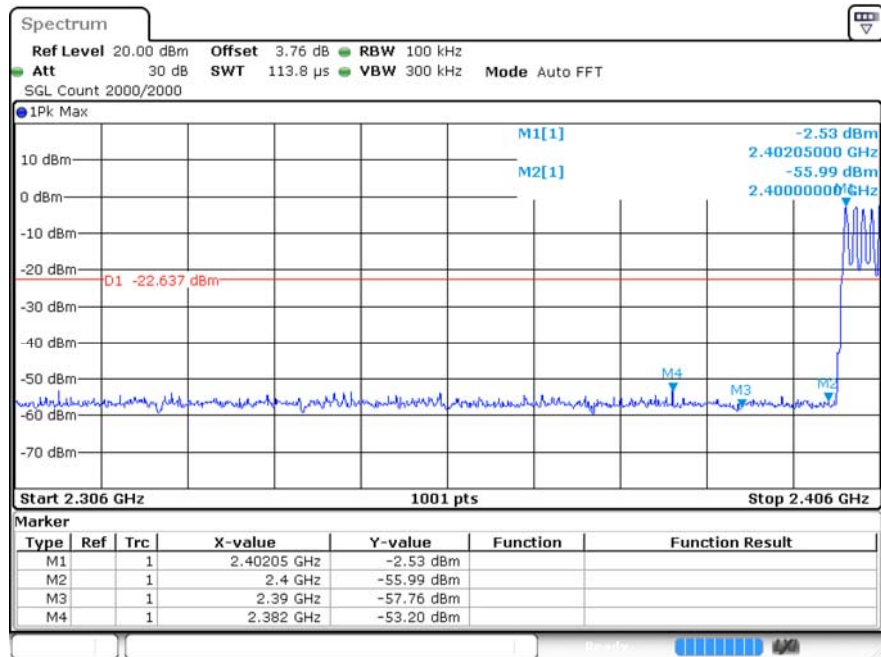
8.2 Test Graphs



Ref



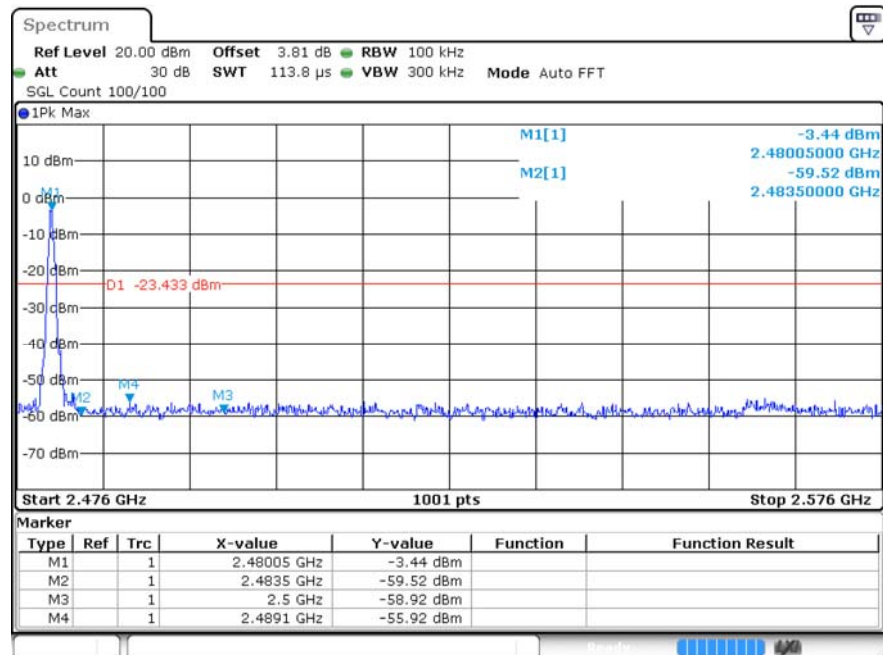
GFSK/LCH/Hop



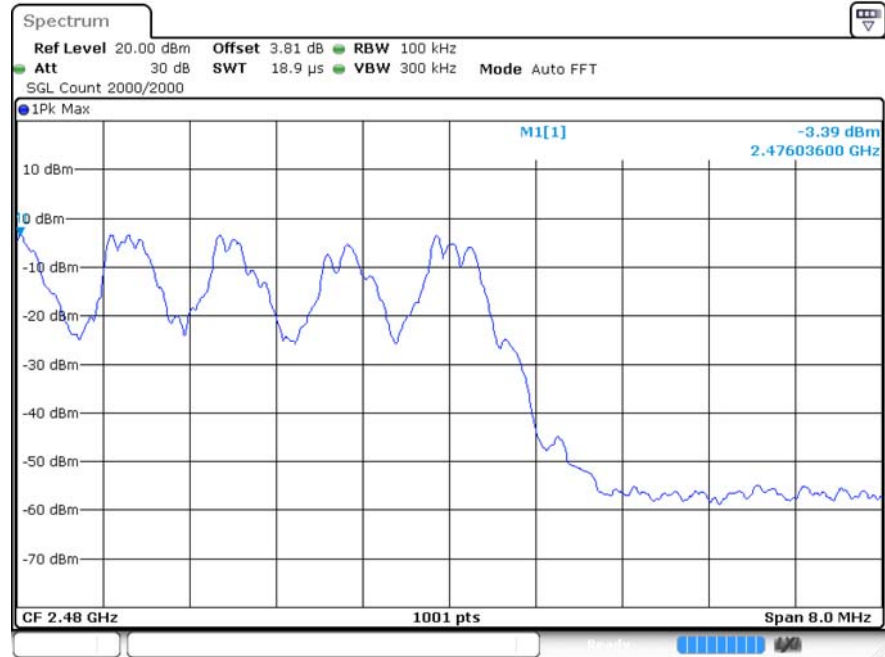
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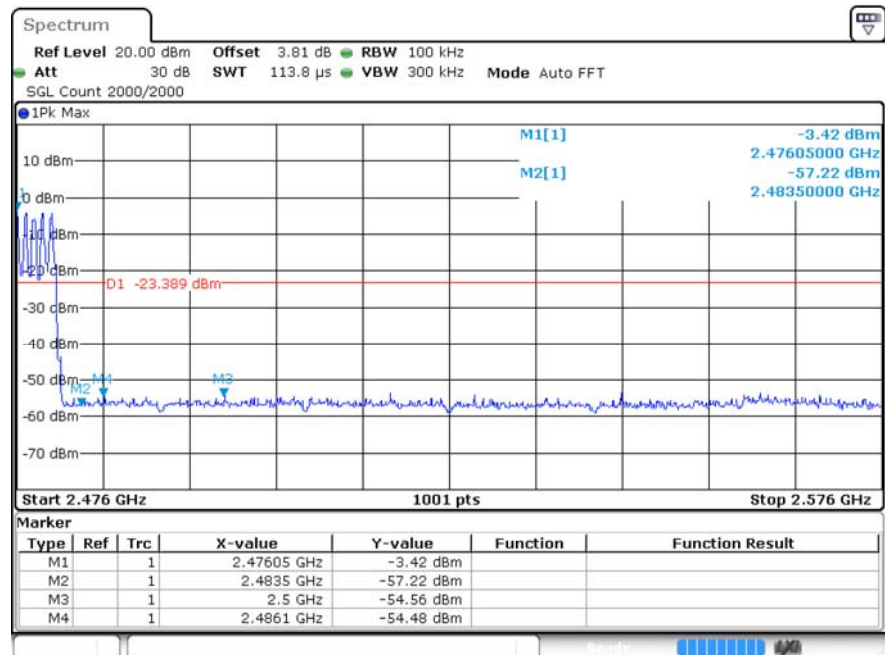
GFSK/HCH/No Hop



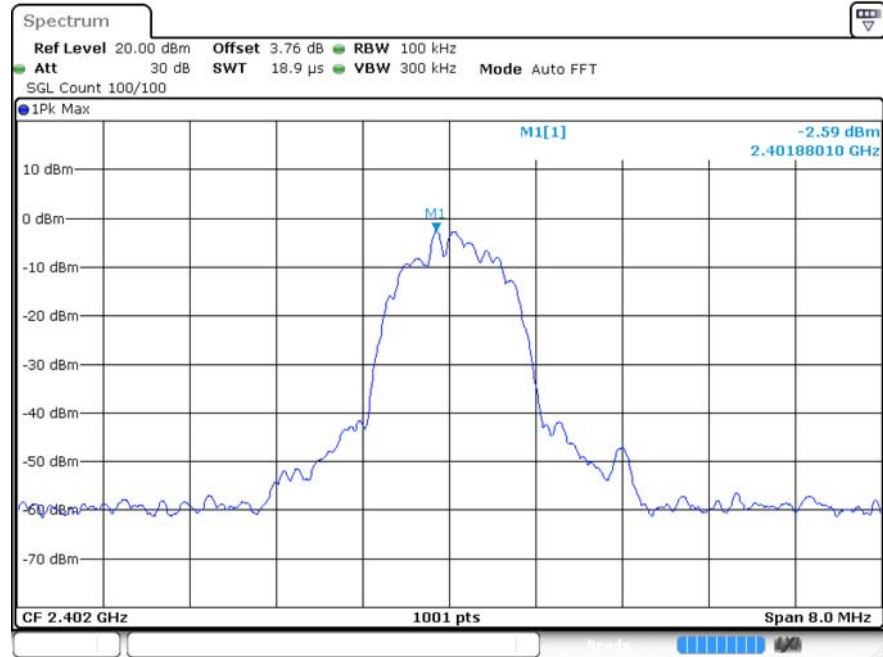
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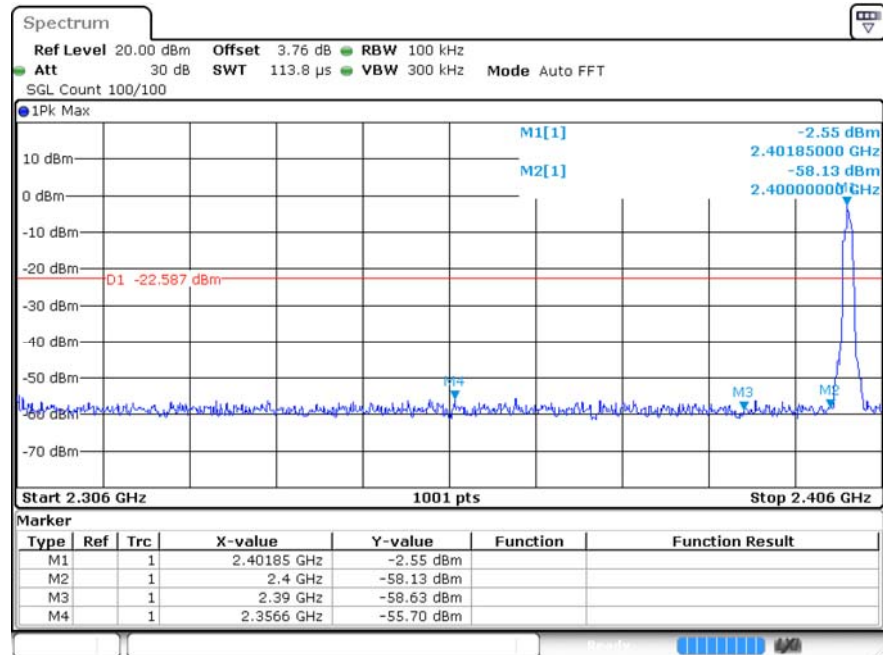
GFSK/HCH/Hop



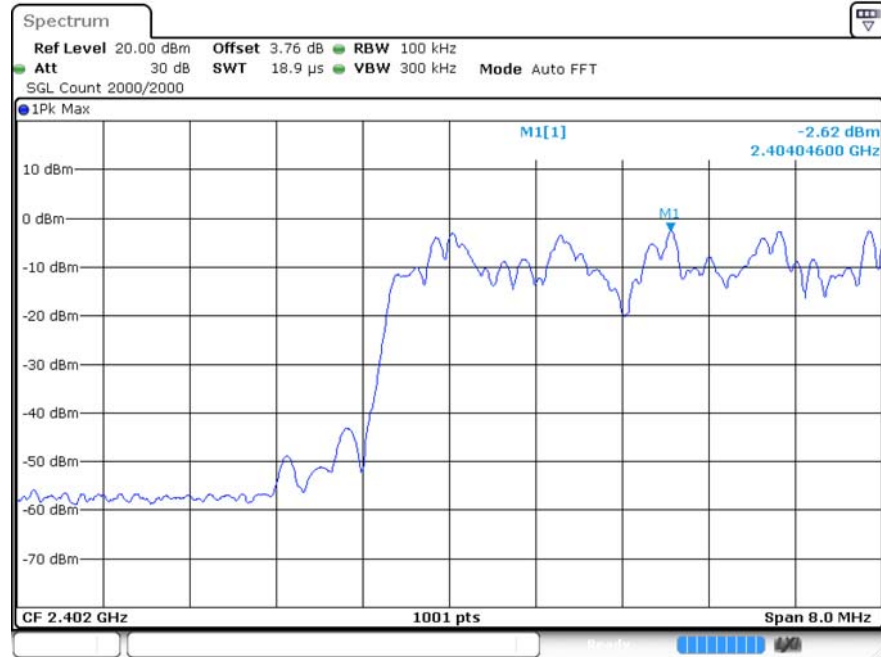
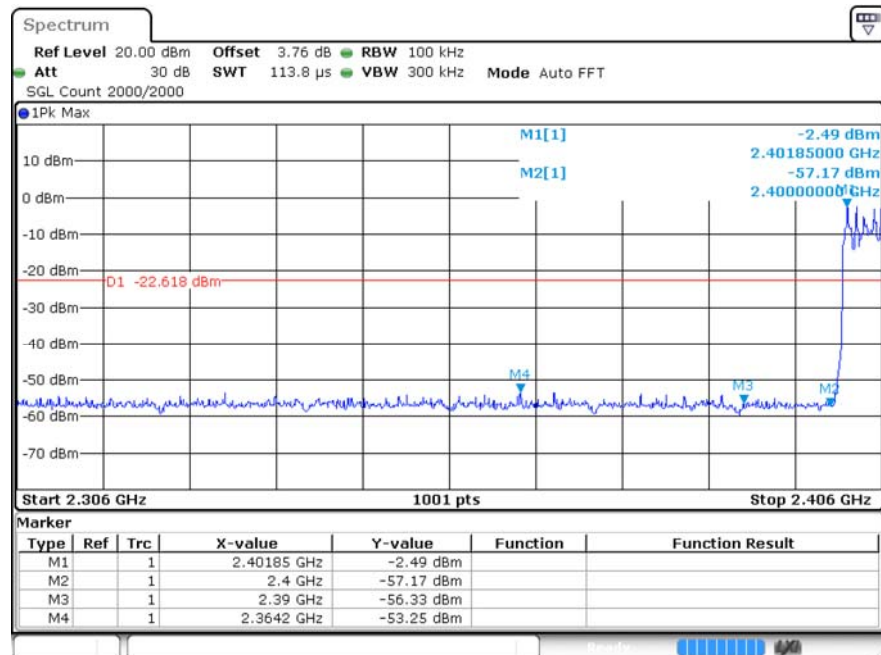
Ref



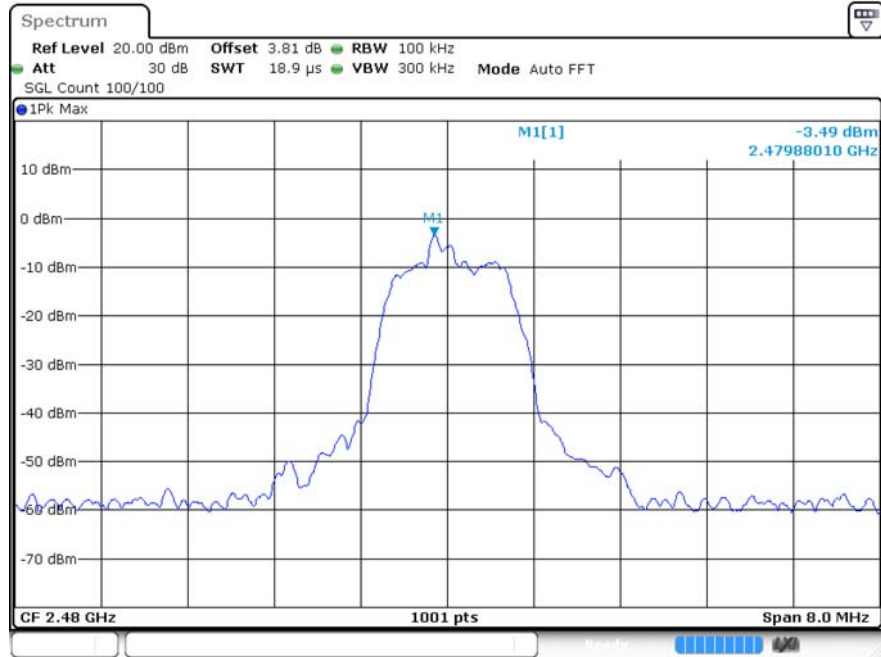
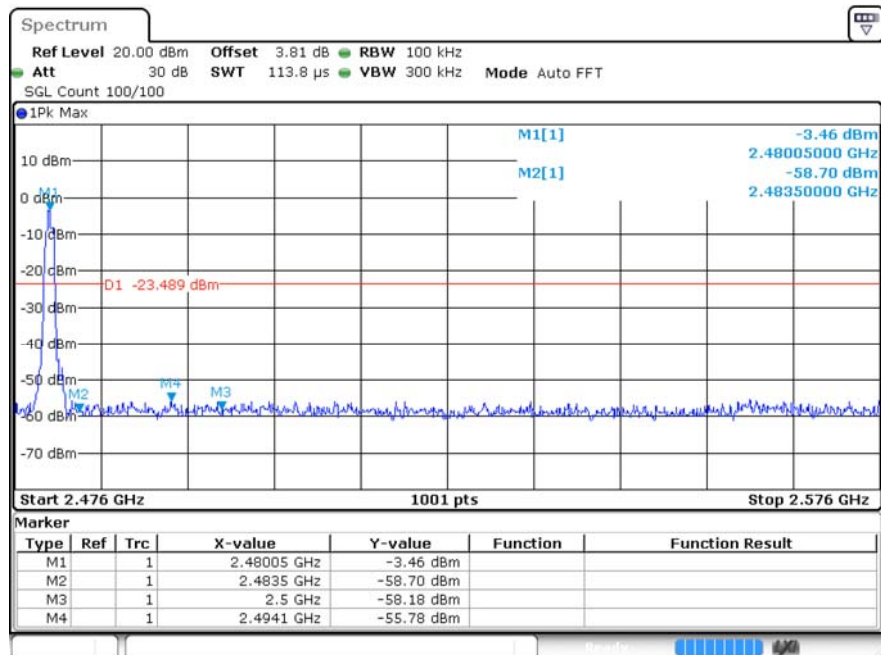
$\pi/4$ DQPSK/LCH/No
Hop



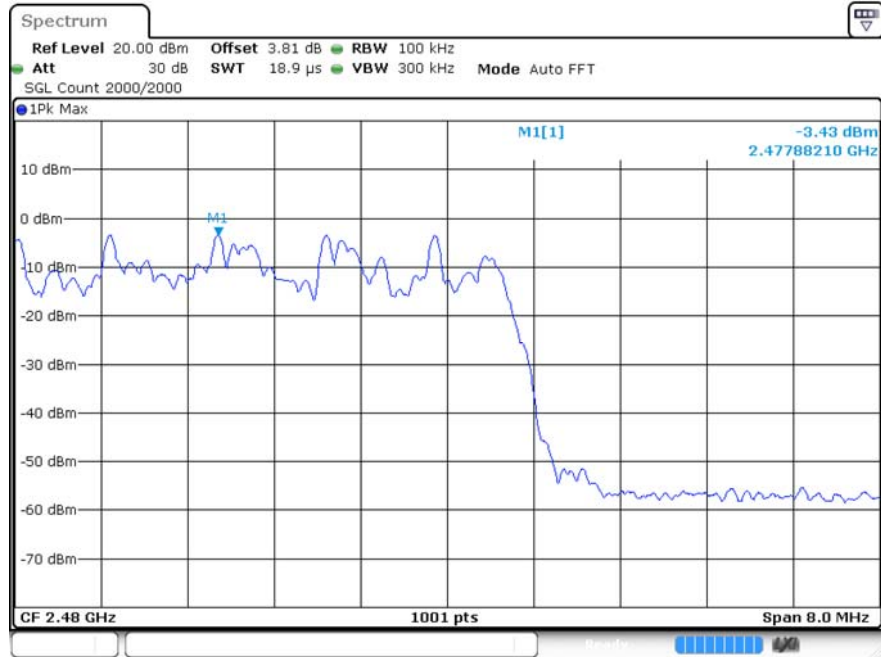
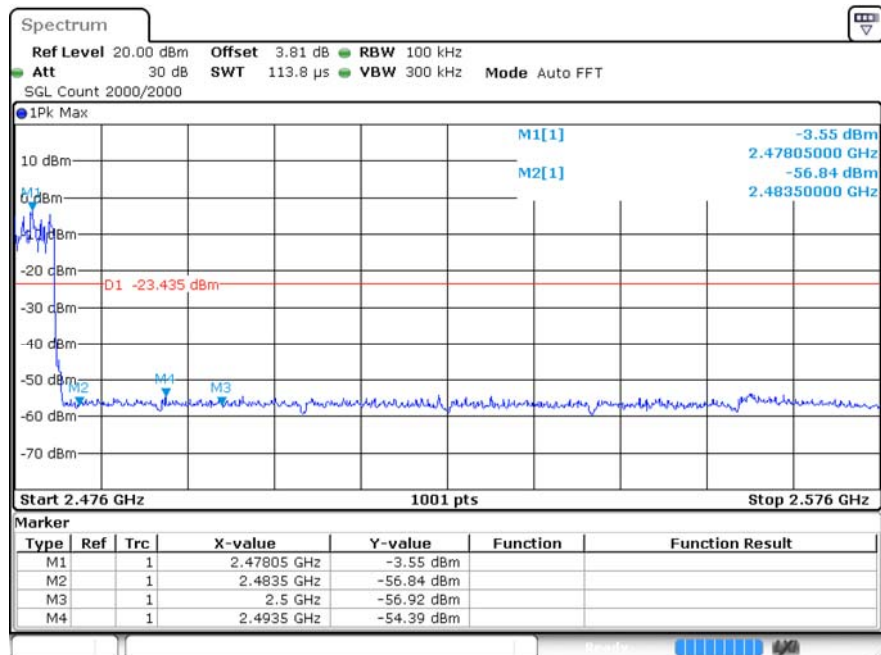
Ref


 $\pi/4$ DQPSK/LCH/Hop


Ref


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


Ref


 $\pi/4$ DQPSK/HCH/Hop


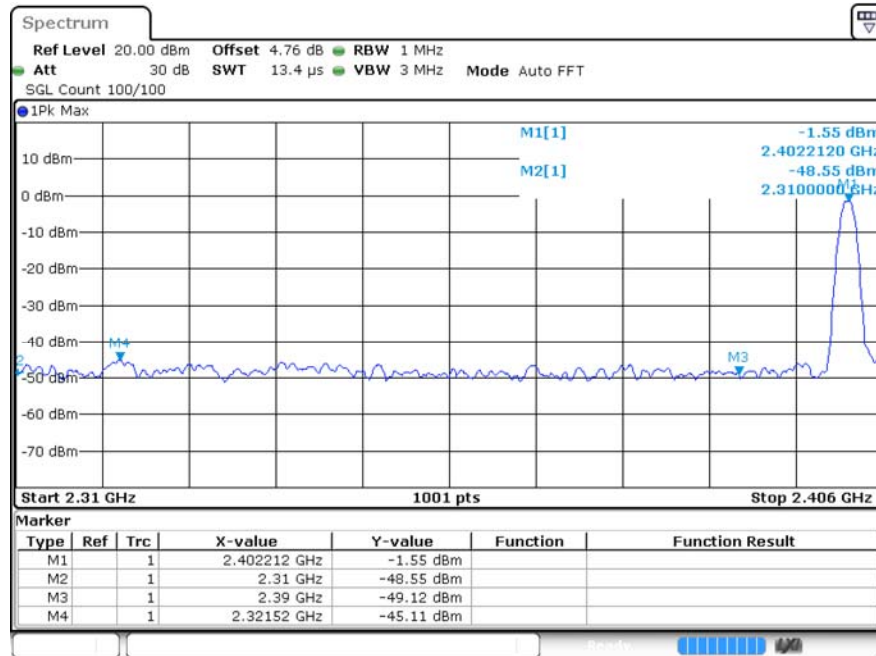
9 Restrict-band band-edge measurements

9.1 Test Result

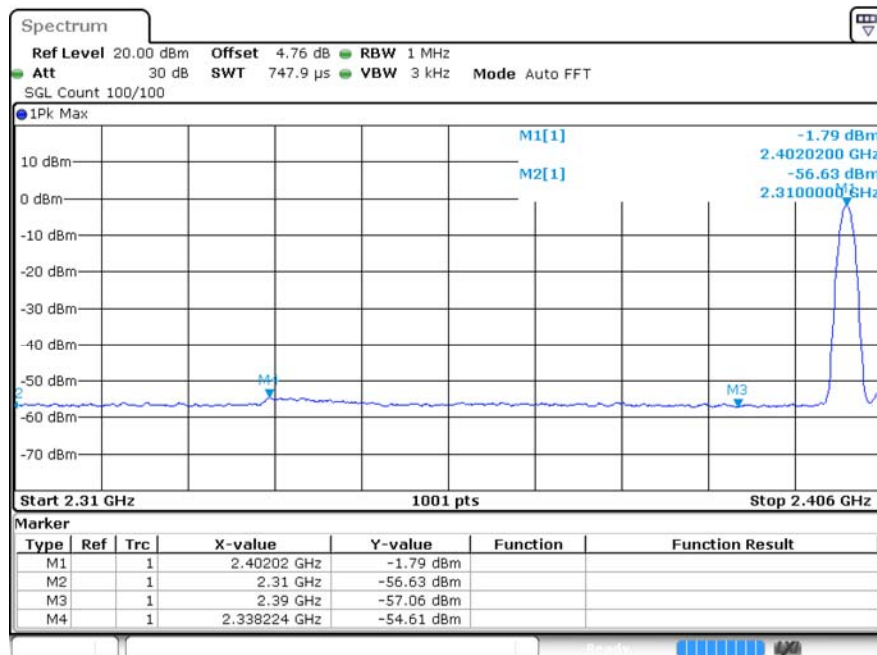
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-48.54	2	48.72	PEAK	74	Pass
	Off	2310.0	-56.63	2	40.63	AV	54	Pass
	Off	2321.52	-45.11	2	52.15	PEAK	74	Pass
	Off	2338.224	-54.61	2	42.65	AV	54	Pass
	Off	2390.0	-49.12	2	48.14	PEAK	74	Pass
	Off	2390.0	-57.05	2	40.21	AV	54	Pass
	Off	2483.5	-47.72	2	49.54	PEAK	74	Pass
	Off	2483.5	-56.34	2	40.92	AV	54	Pass
	Off	2496.088	-45.97	2	51.29	PEAK	74	Pass
	Off	2493.52	-55.74	2	41.52	AV	54	Pass
	Off	2500.0	-47.8	2	49.46	PEAK	74	Pass
	Off	2500.0	-56.36	2	40.9	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-48.33	2	48.93	PEAK	74	Pass
	Off	2310.0	-56.7	2	40.56	AV	54	Pass
	Off	2380.56	-44.63	2	52.63	PEAK	74	Pass
	Off	2340.336	-54.66	2	42.6	AV	54	Pass
	Off	2390.0	-48.18	2	49.08	PEAK	74	Pass
	Off	2390.0	-56.69	2	40.57	AV	54	Pass
	Off	2483.5	-48.84	2	48.42	PEAK	74	Pass
	Off	2483.5	-56.04	2	41.22	AV	54	Pass
	Off	2489.992	-46.65	2	50.61	PEAK	74	Pass
	Off	2485.192	-55.99	2	41.27	AV	54	Pass
	Off	2500.0	-48.97	2	48.29	PEAK	74	Pass
	Off	2500.0	-56.15	2	41.11	AV	54	Pass

9.2 Test Graphs

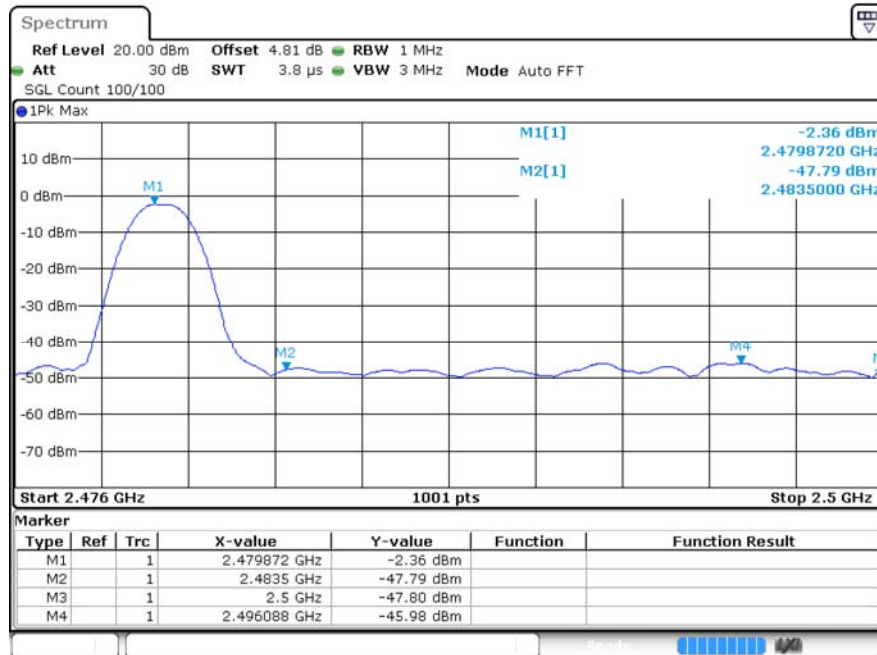
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



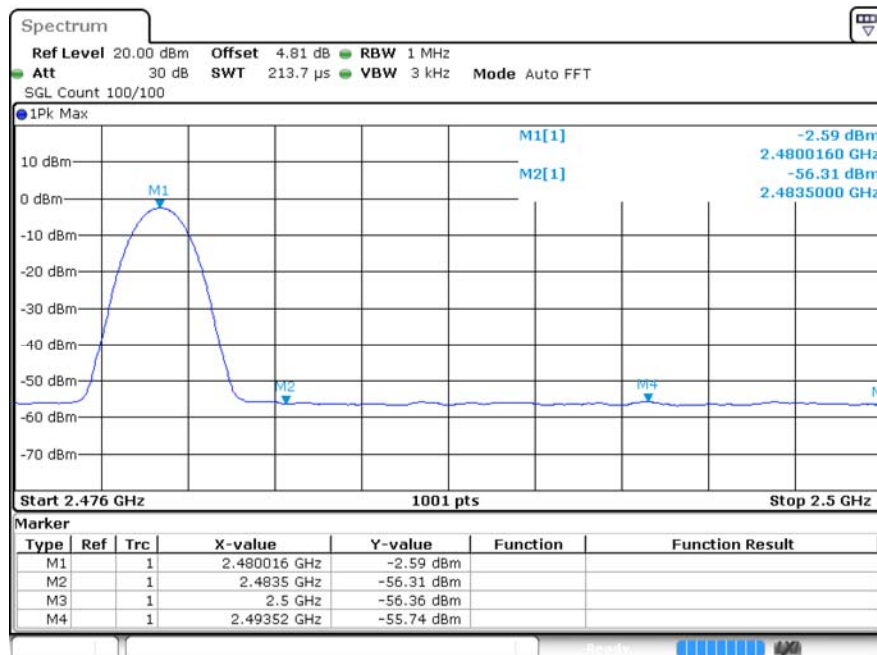
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



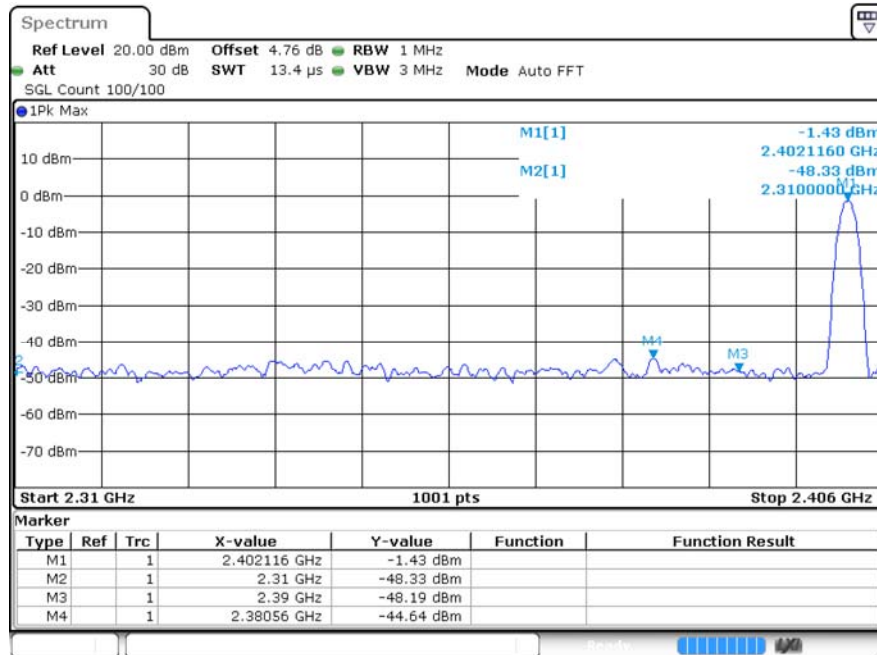
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



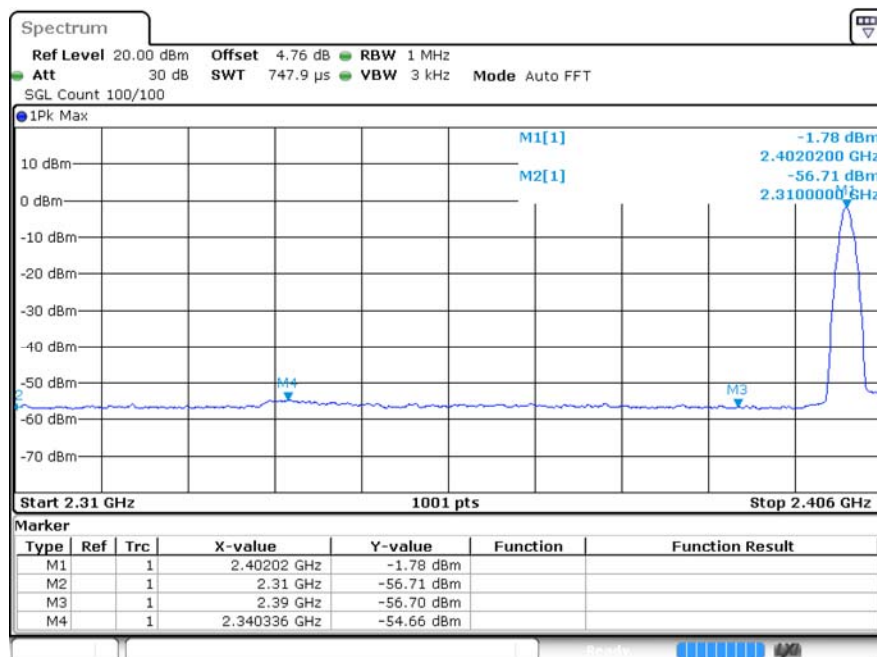
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



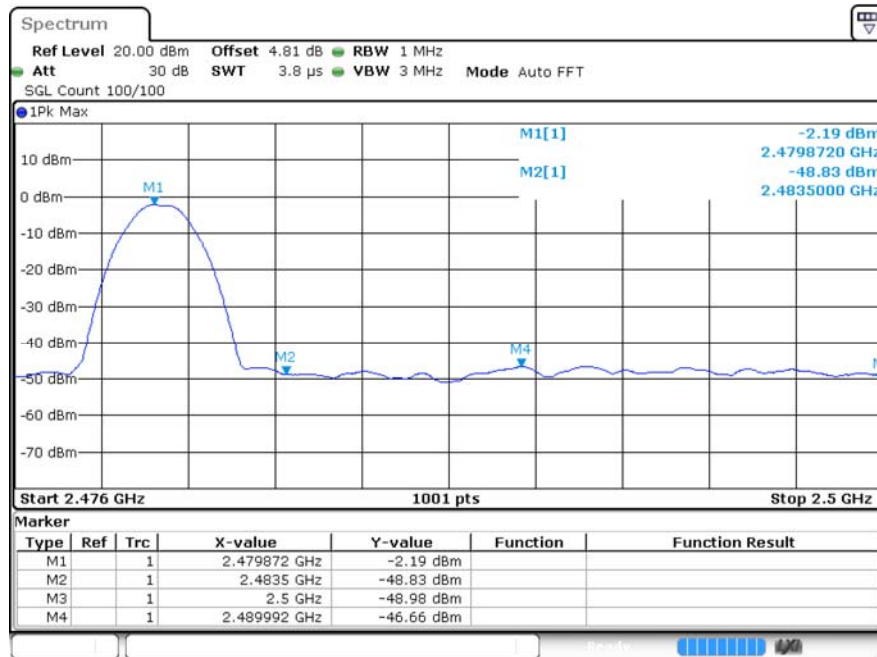
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



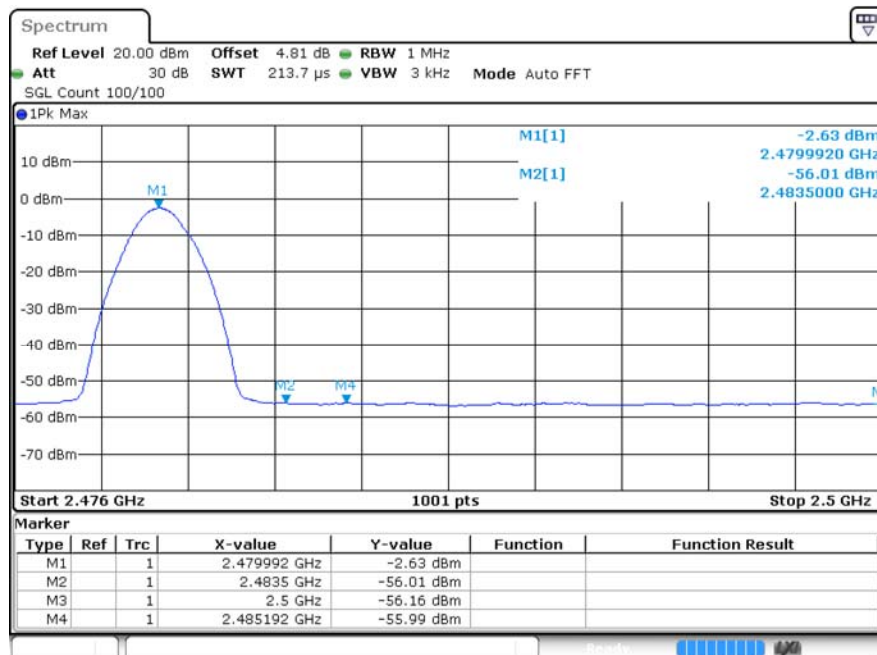
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---