



Appendix A

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

Product Name: True Wireless Earbuds

Trade Mark: AUKEY

Test Model: EP-M3A

Environmental Conditions

Temperature:	25.2℃
Relative Humidity:	52.4%
ATM Pressure:	101Kpa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung



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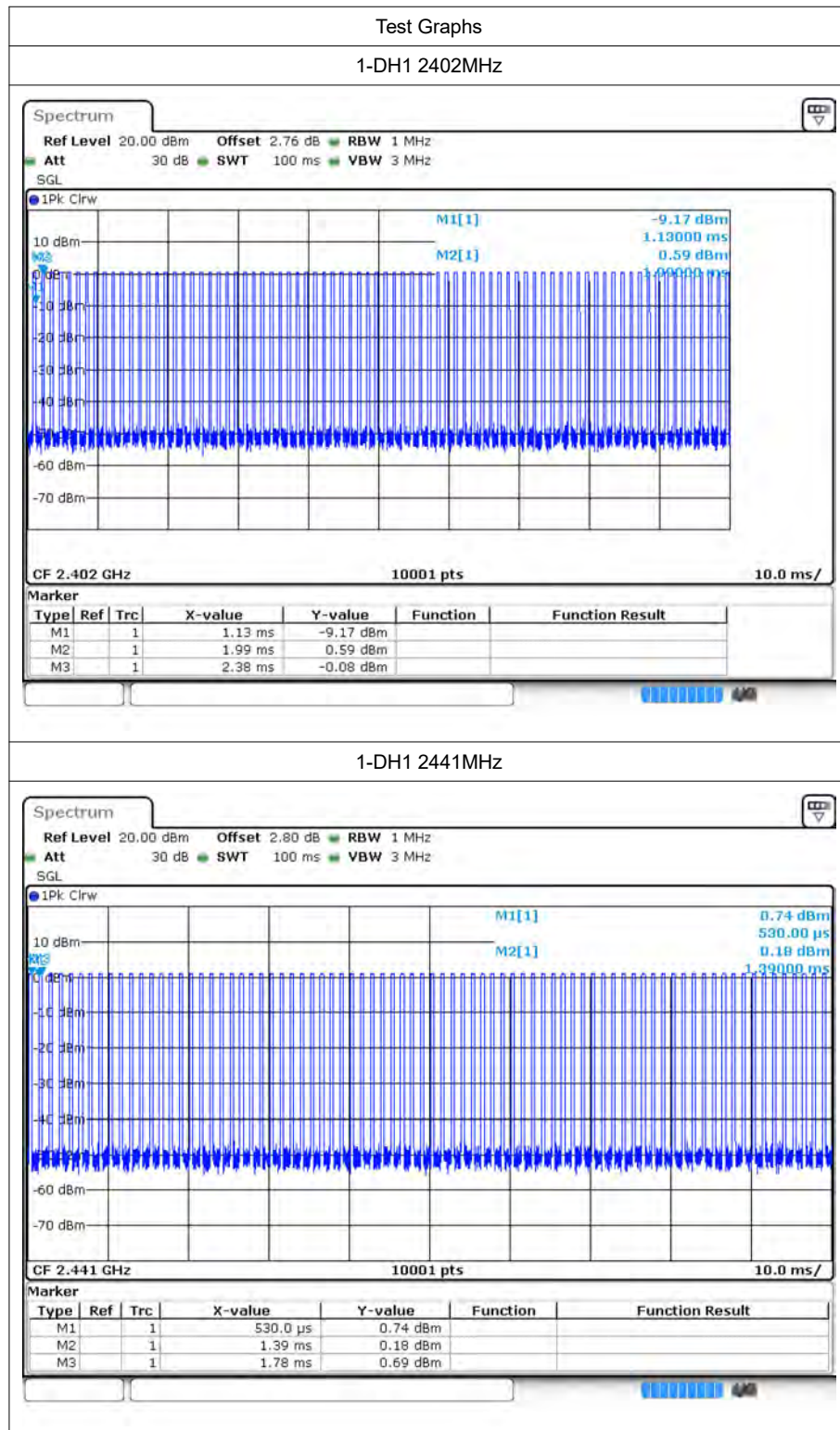
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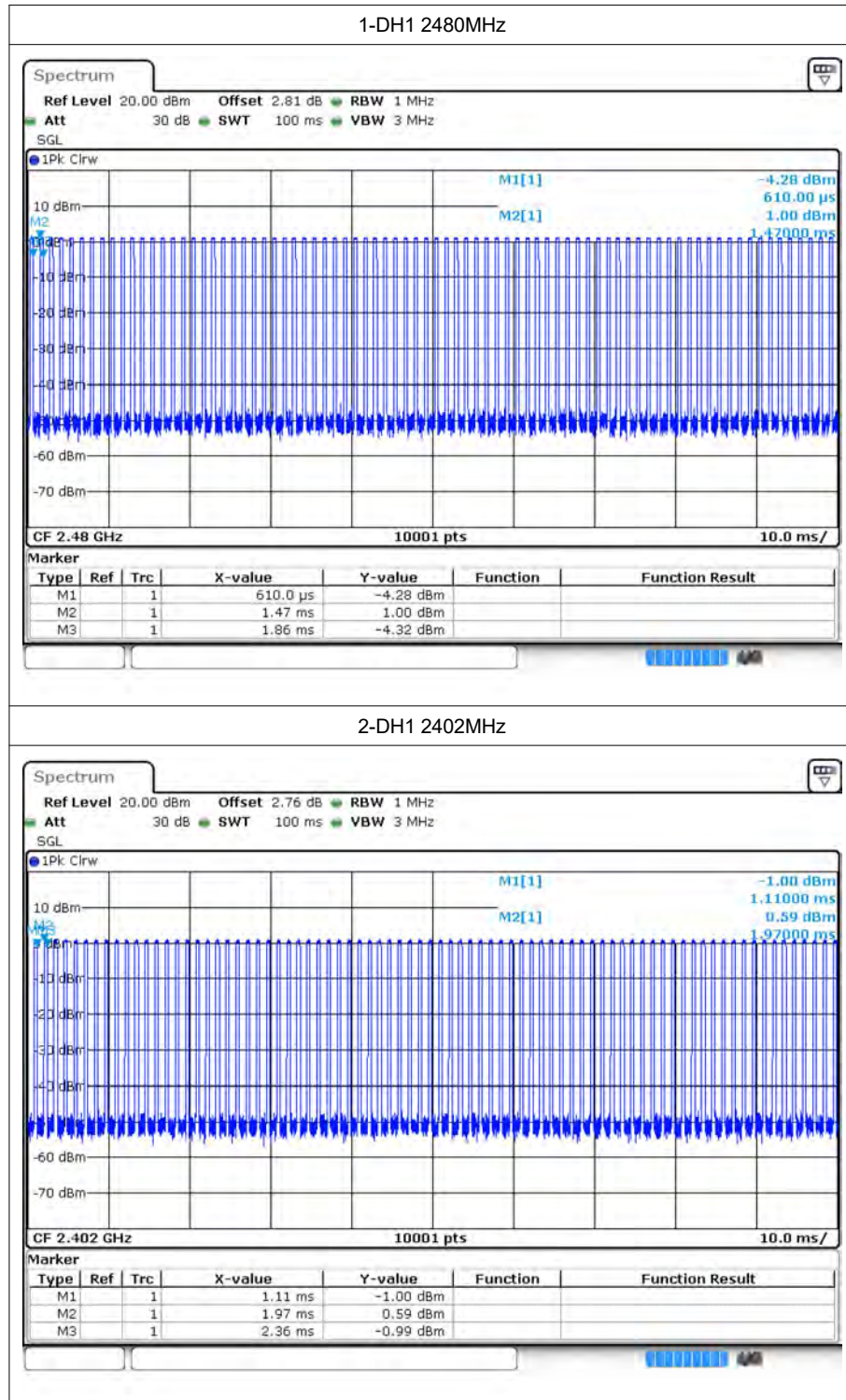
1 Duty Cycle

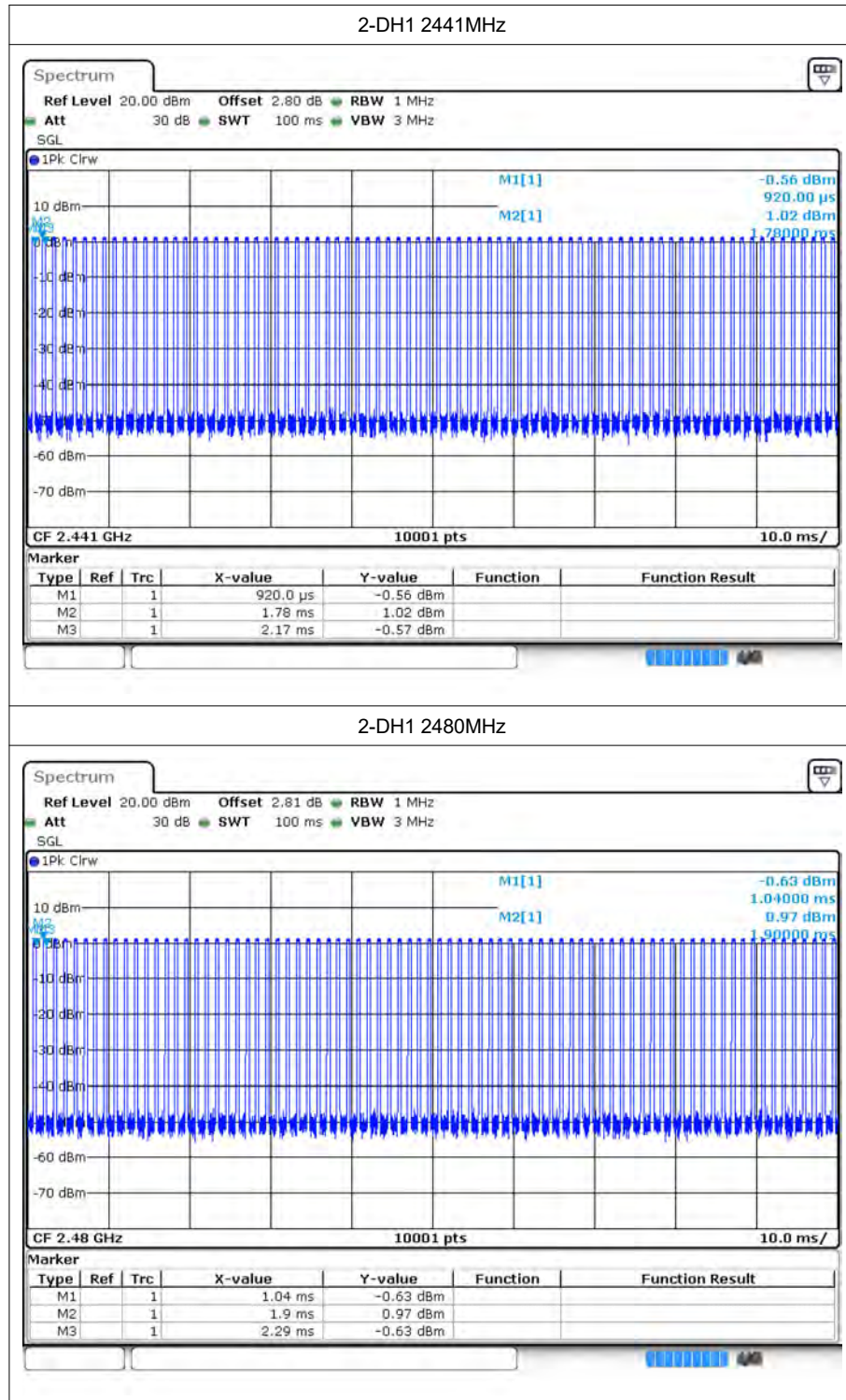
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	32	4.95	2.56
1-DH1	2441	32	4.95	2.56
1-DH1	2480	32	4.95	2.56
2-DH1	2402	32	4.95	2.56
2-DH1	2441	32	4.95	2.56
2-DH1	2480	32	4.95	2.56

1.2 Test Graphs





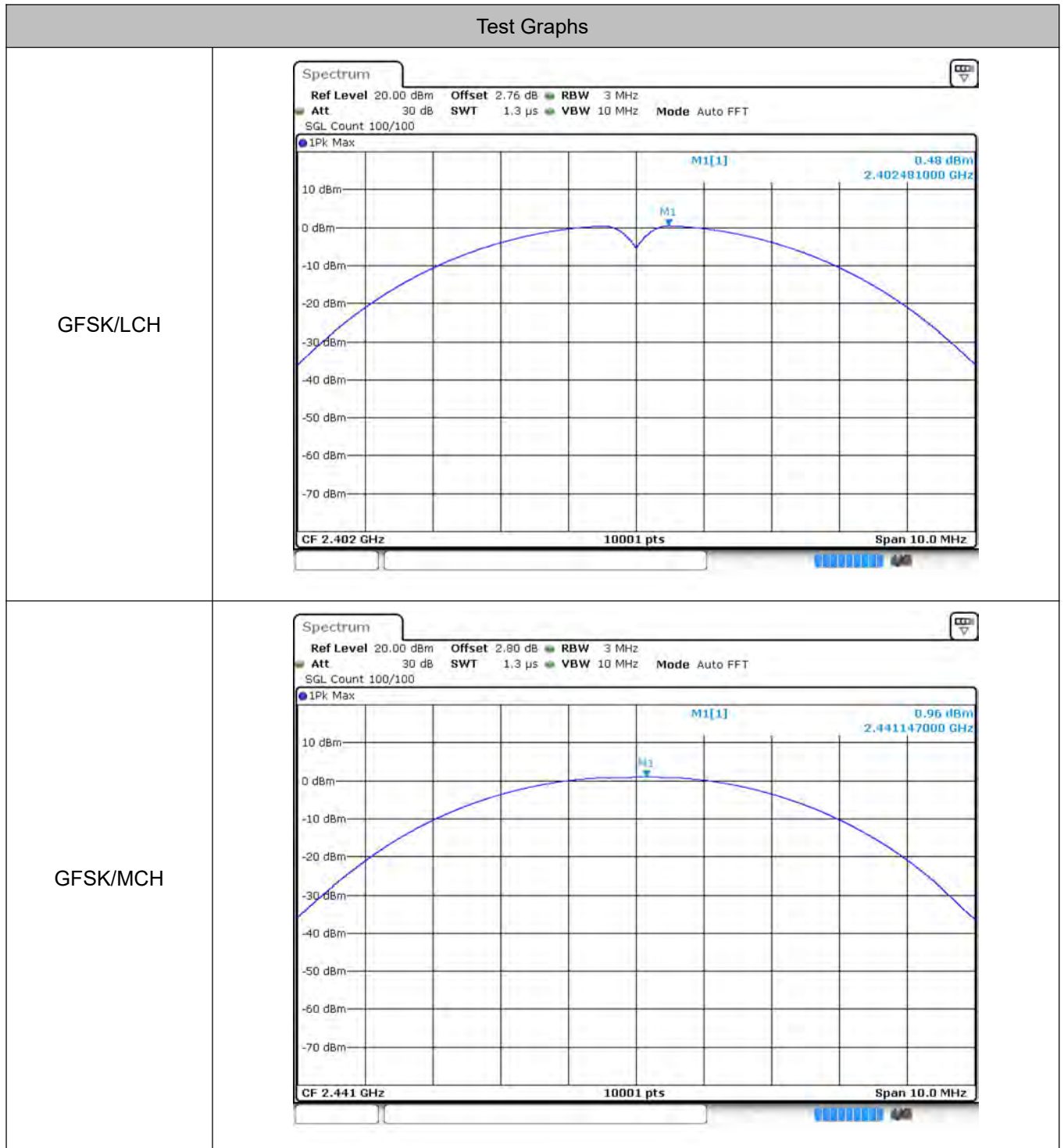


2 Maximum Conducted Peak Output Power

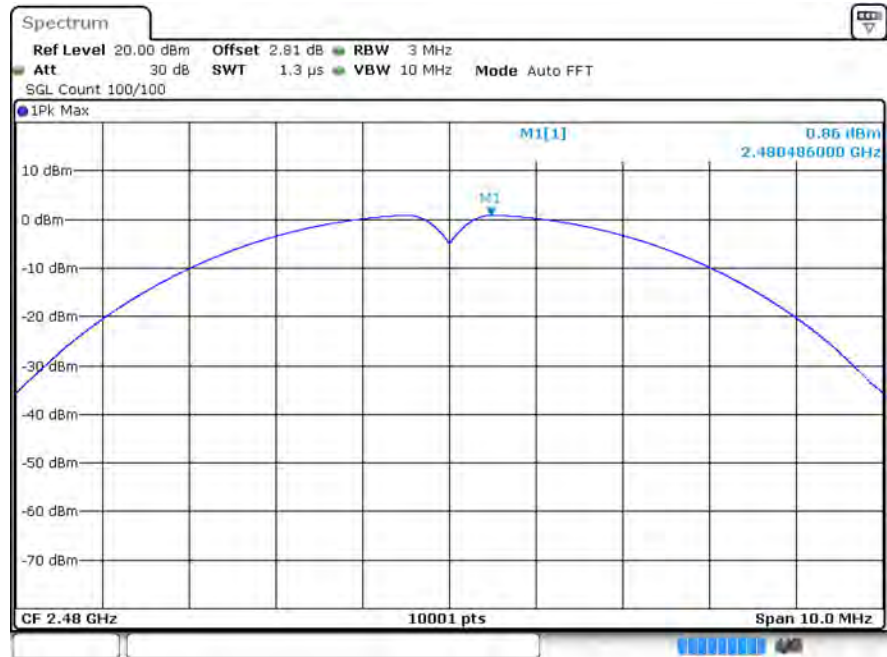
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.48	21	Pass
	MCH	0.96	21	Pass
	HCH	0.86	21	Pass
$\pi/4$ DQPSK	LCH	0.72	21	Pass
	MCH	1.46	21	Pass
	HCH	1.38	21	Pass

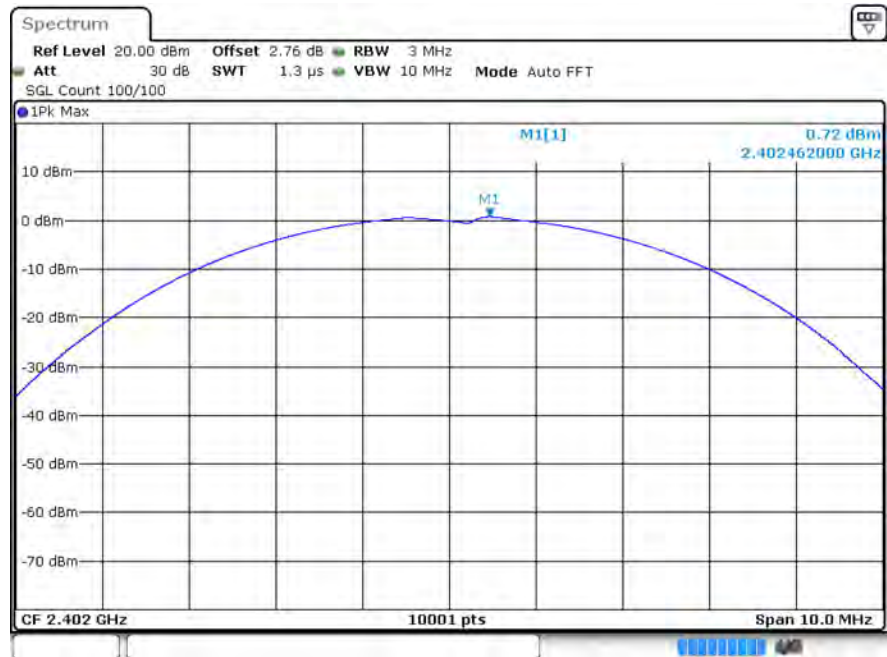
2.2 Test Graphs



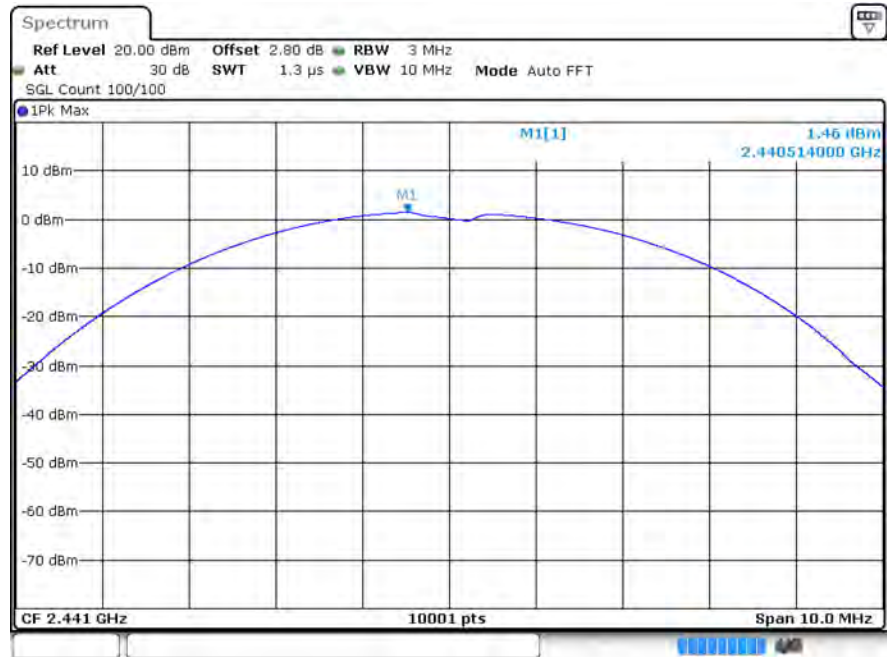
GFSK/HCH



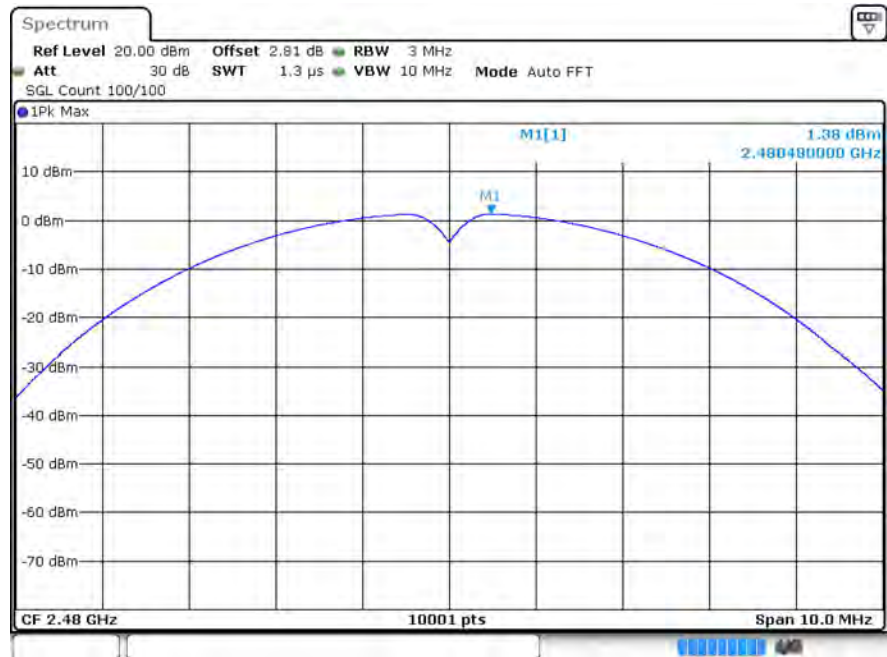
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

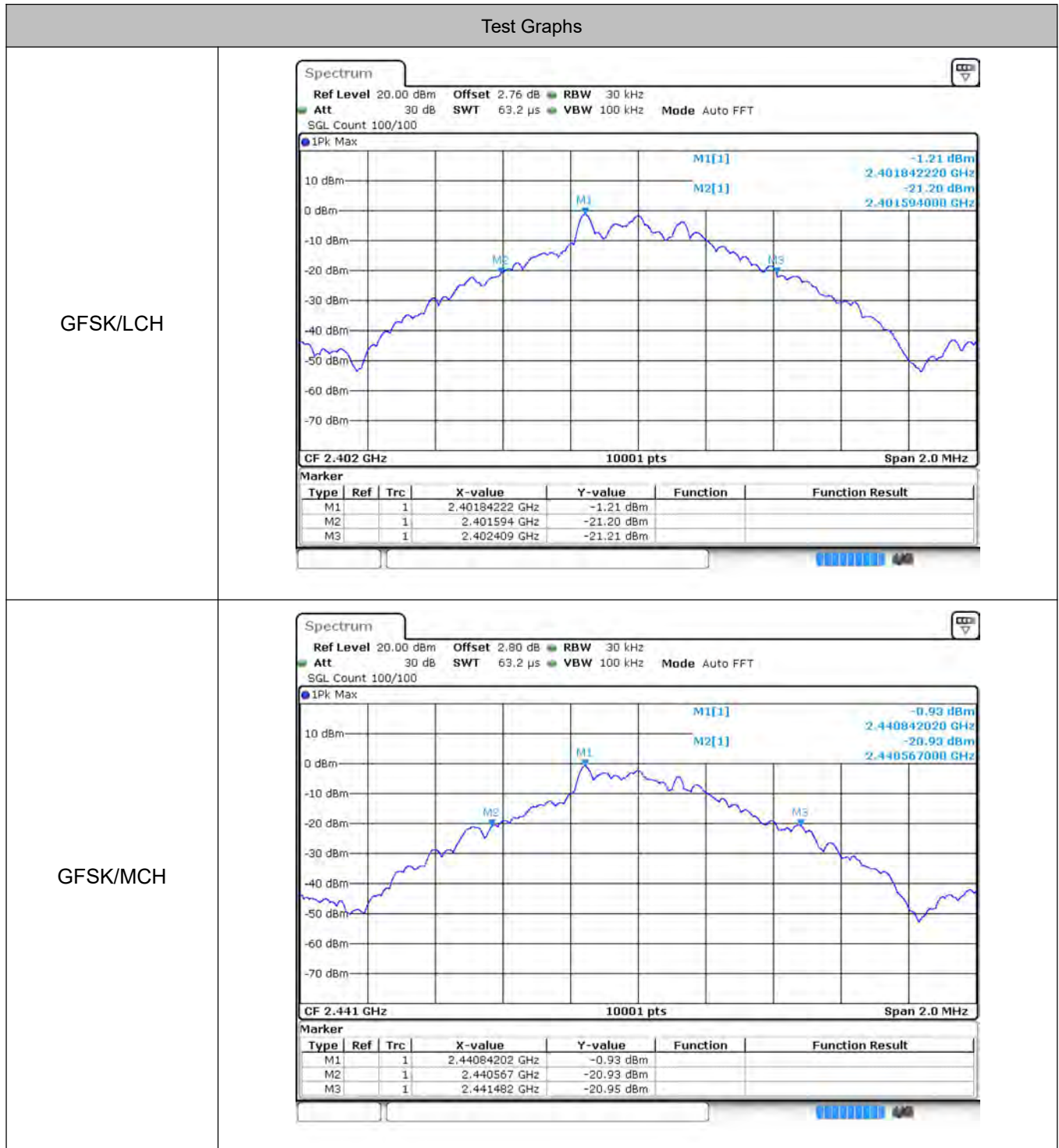


3 20dB Bandwidth

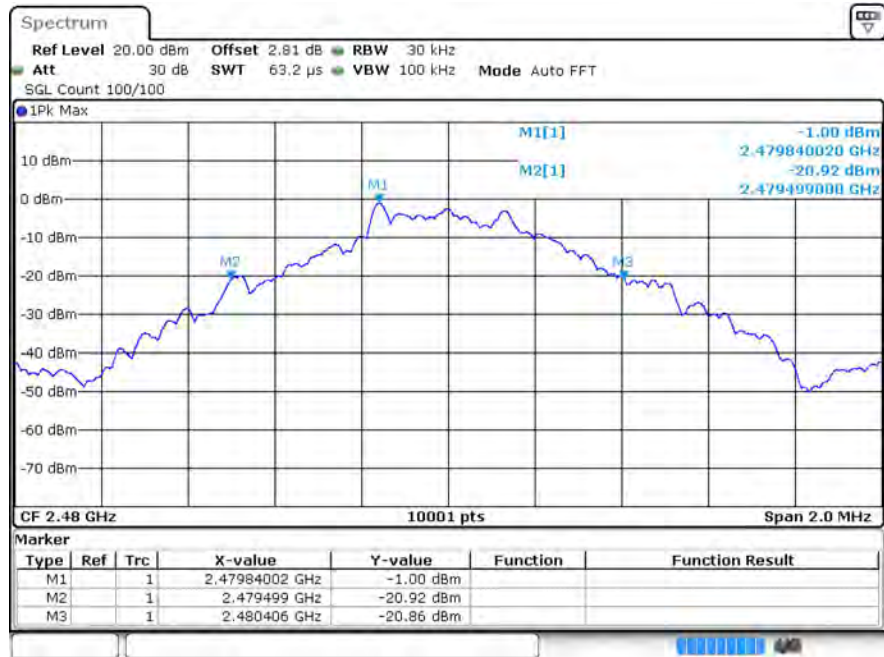
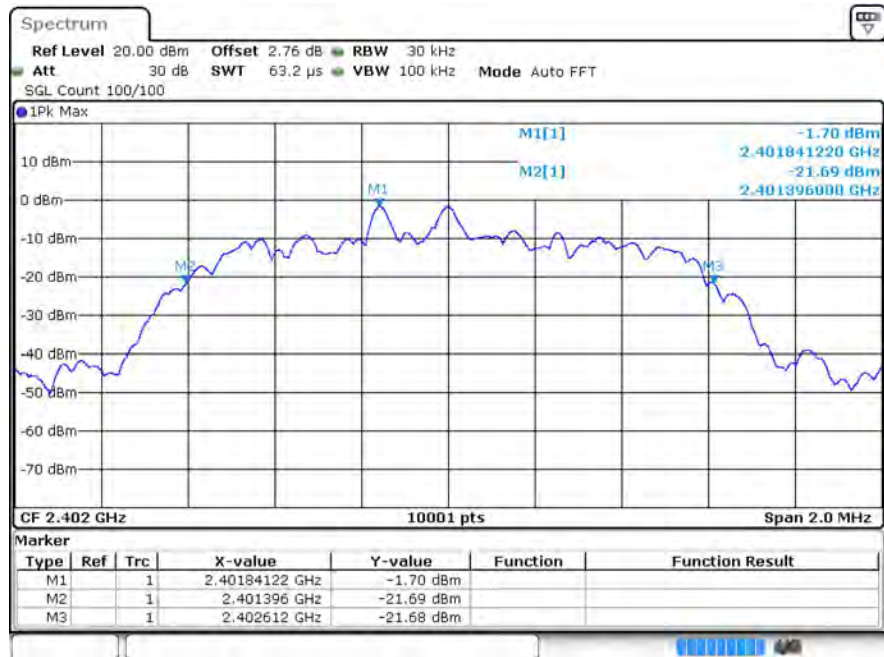
3.1 Test Result

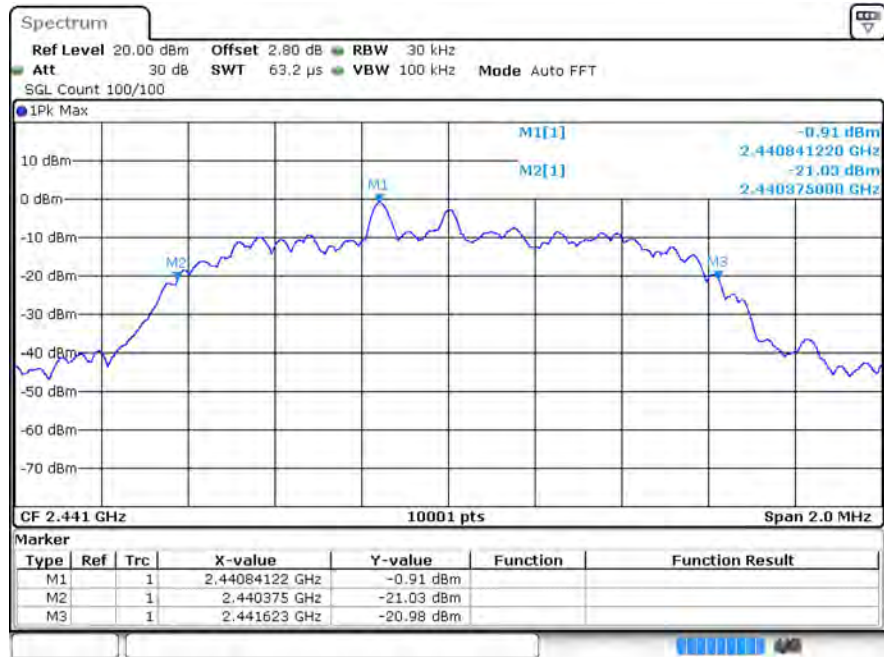
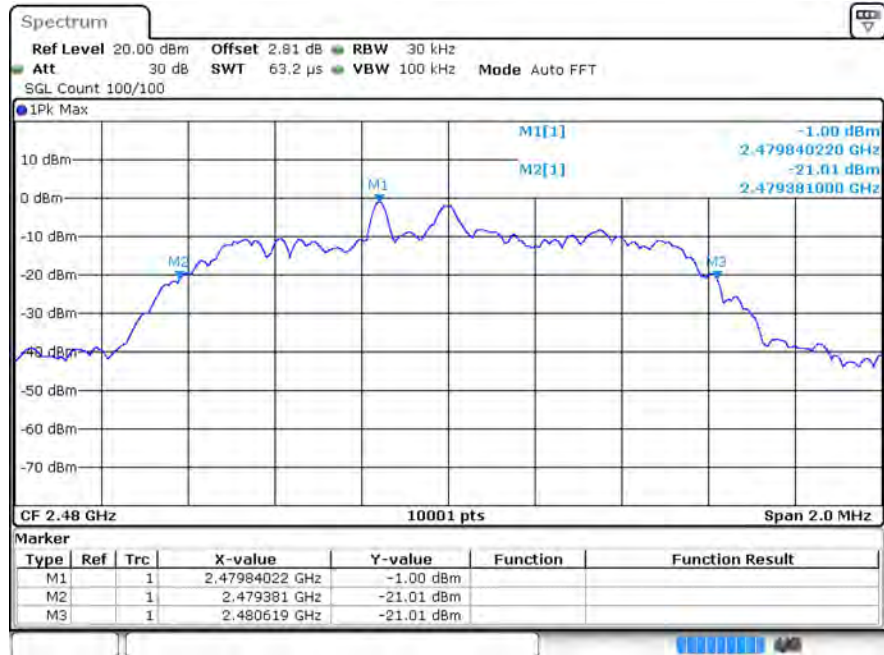
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.815	Not Specified	Pass
	MCH	0.915	Not Specified	Pass
	HCH	0.908	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.216	Not Specified	Pass
	MCH	1.247	Not Specified	Pass
	HCH	1.238	Not Specified	Pass

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	0.999	0.61	Pass
$\pi/4$ DQPSK	MCH	1.002	0.831	Pass

4.2 Test Graphs

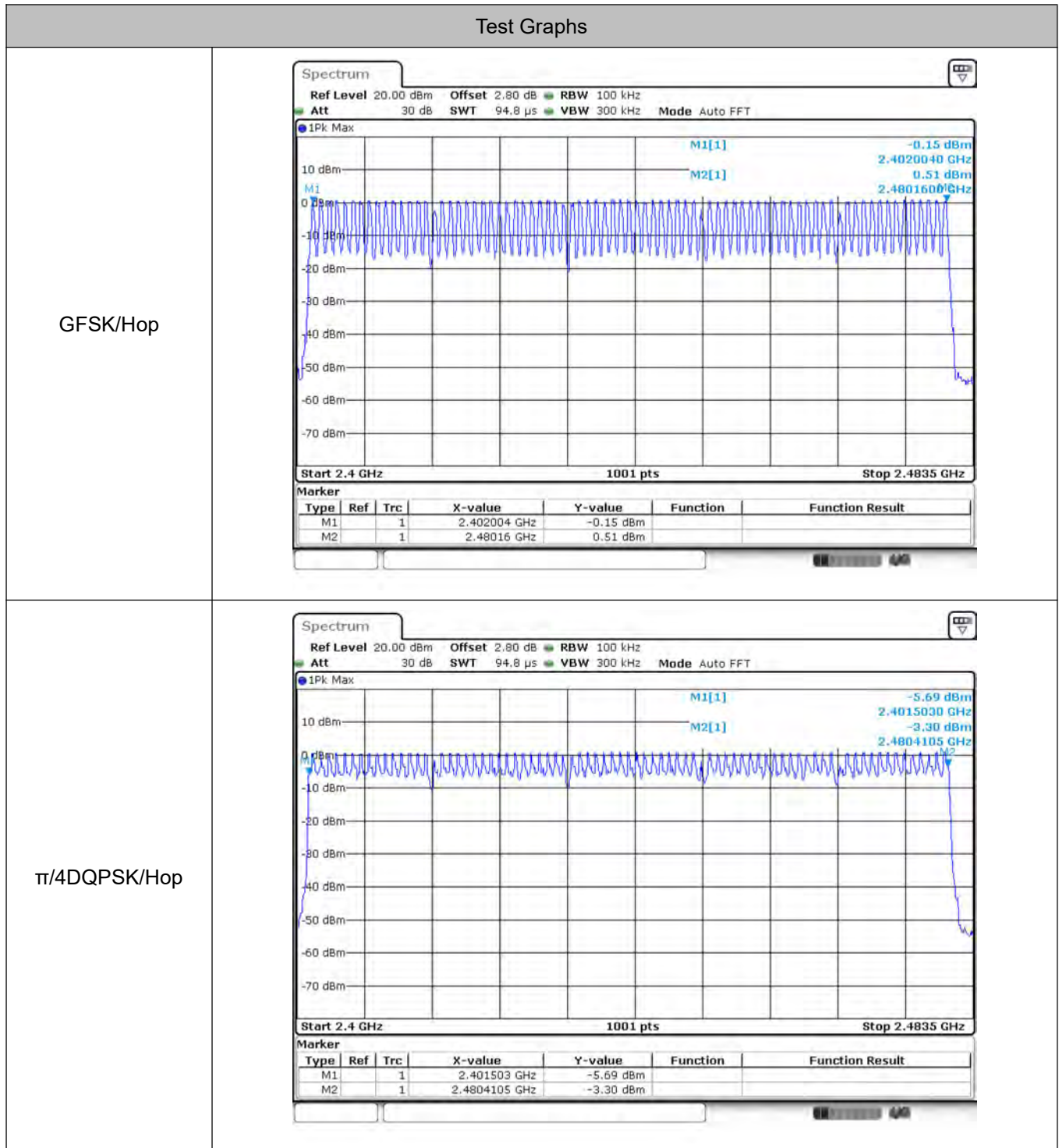


5 Hopping Channel Number

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

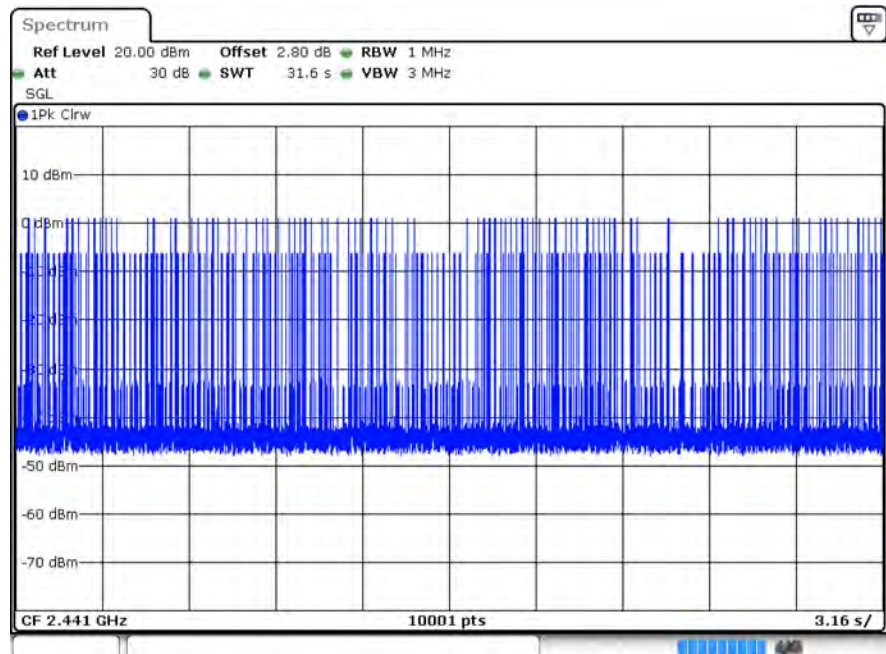
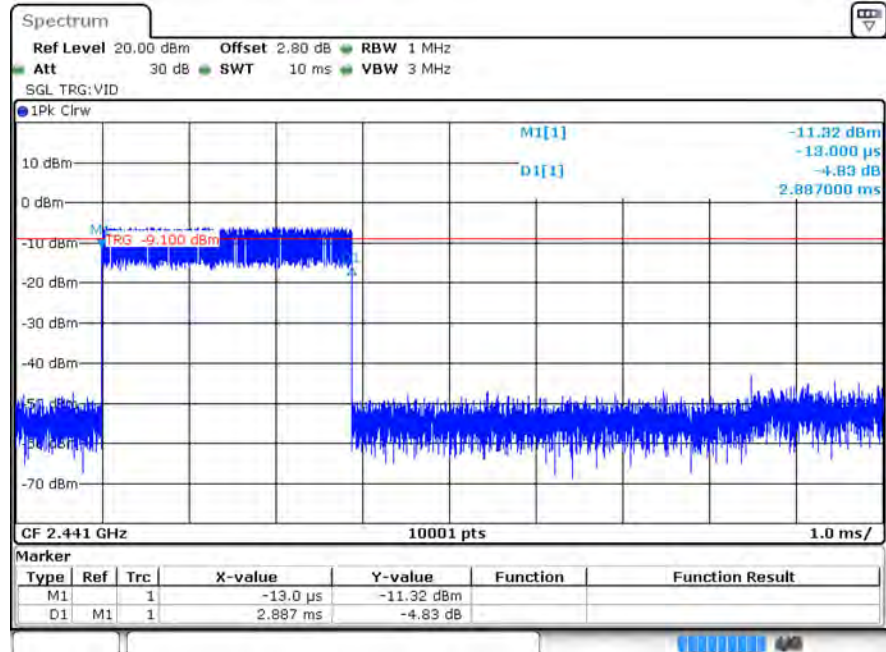
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.887	116	334.892	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.892	107	309.444	0.4	Pass

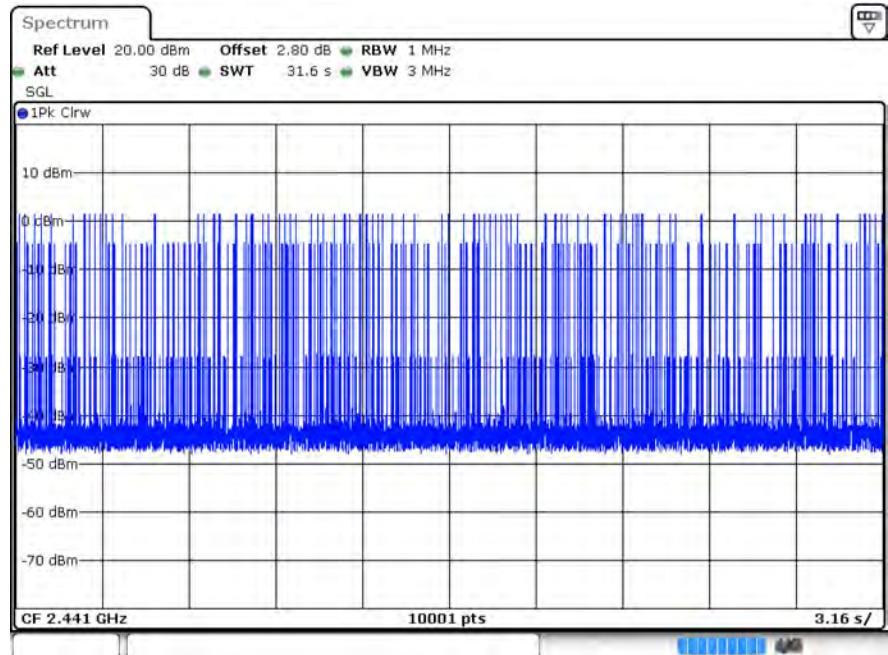
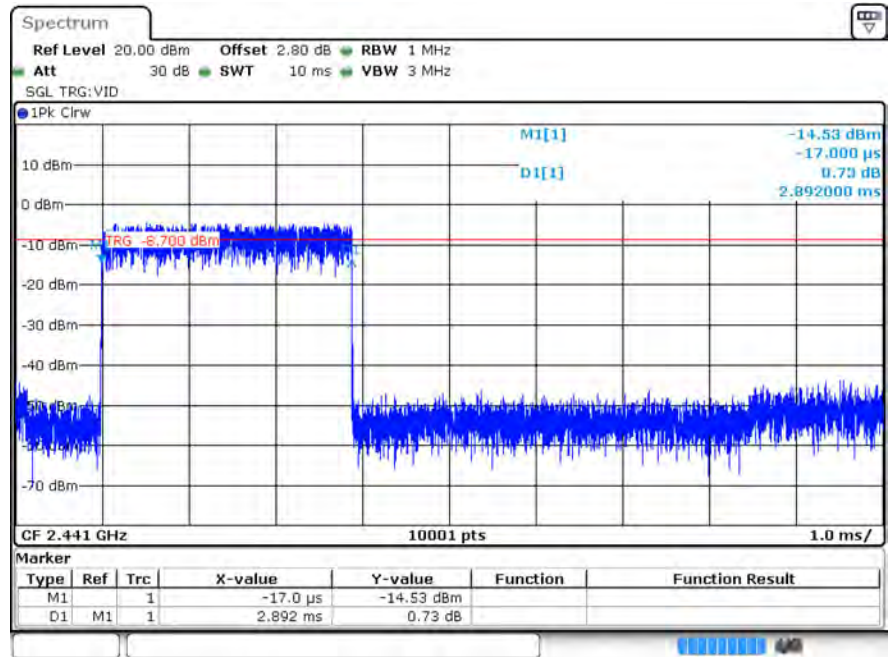
6.2 Test Graphs

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	-41.81	-20	Pass
	MCH	-41.57	-20	Pass
	HCH	-42.34	-20	Pass
$\pi/4$ DQPSK	LCH	-41.73	-20	Pass
	MCH	-42.49	-20	Pass
	HCH	-41.98	-20	Pass

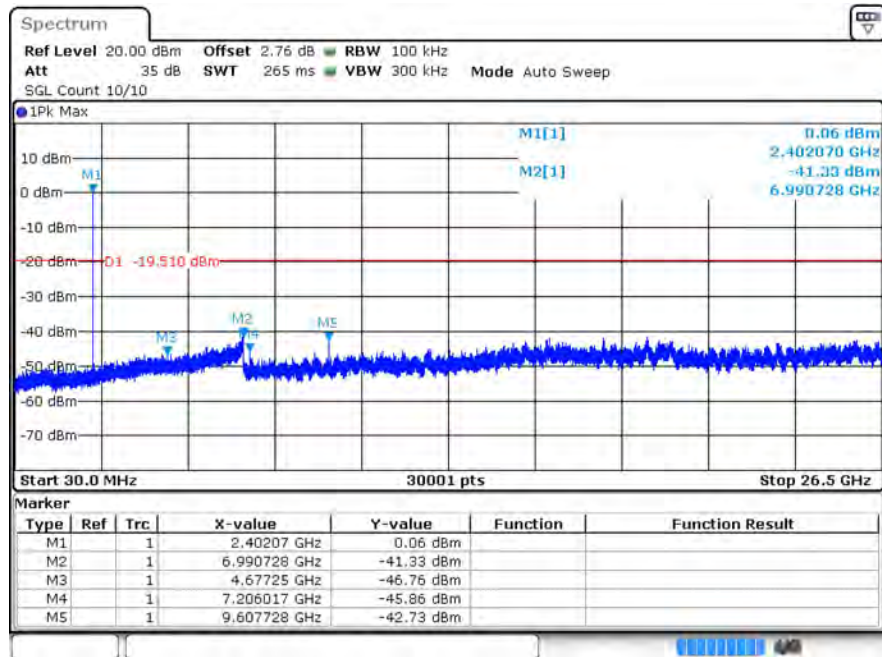
7.2 Test Graphs

GFSK_LCH_Graphs

Pref



Puw

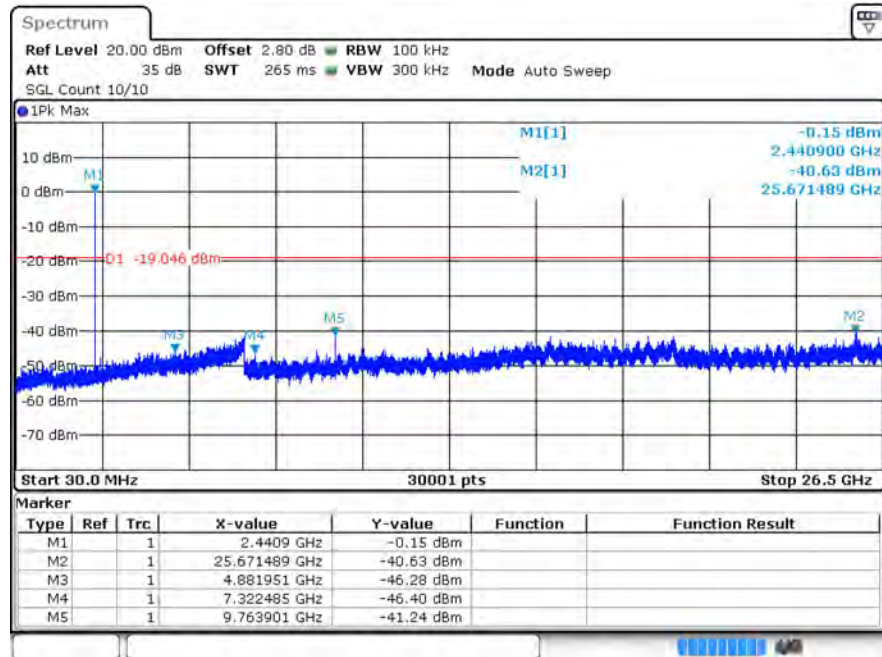


GFSK_MCH_Graphs

Pref



Puw

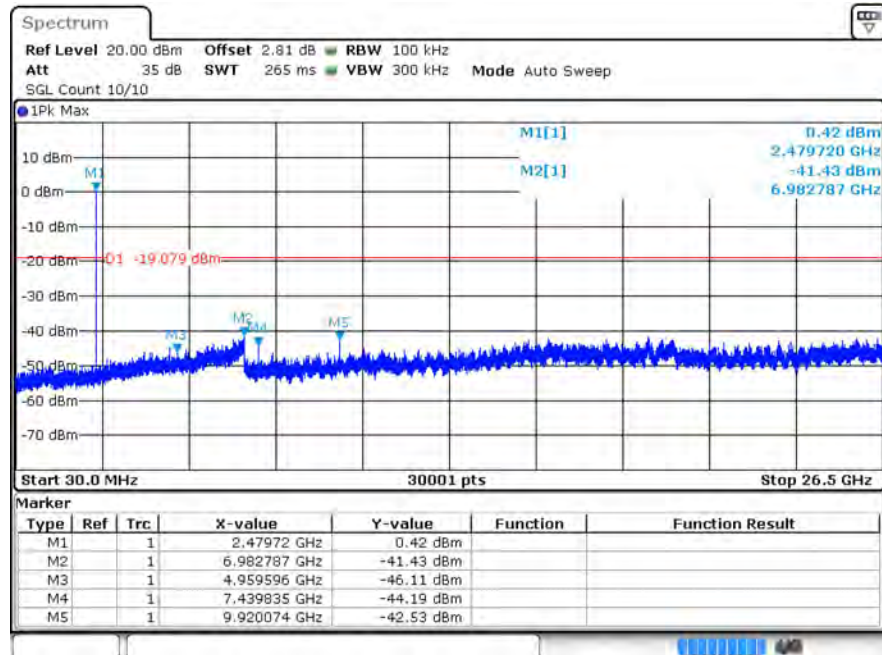


GFSK_HCH_Graphs

Pref



Puw

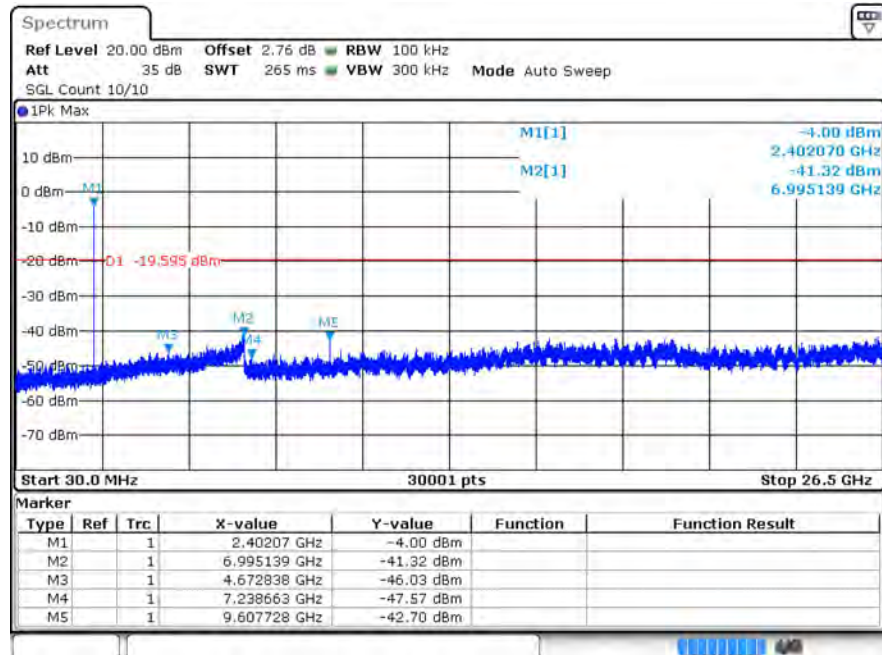


$\pi/4$ DQPSK_LCH_Graphs

Pref



Puw

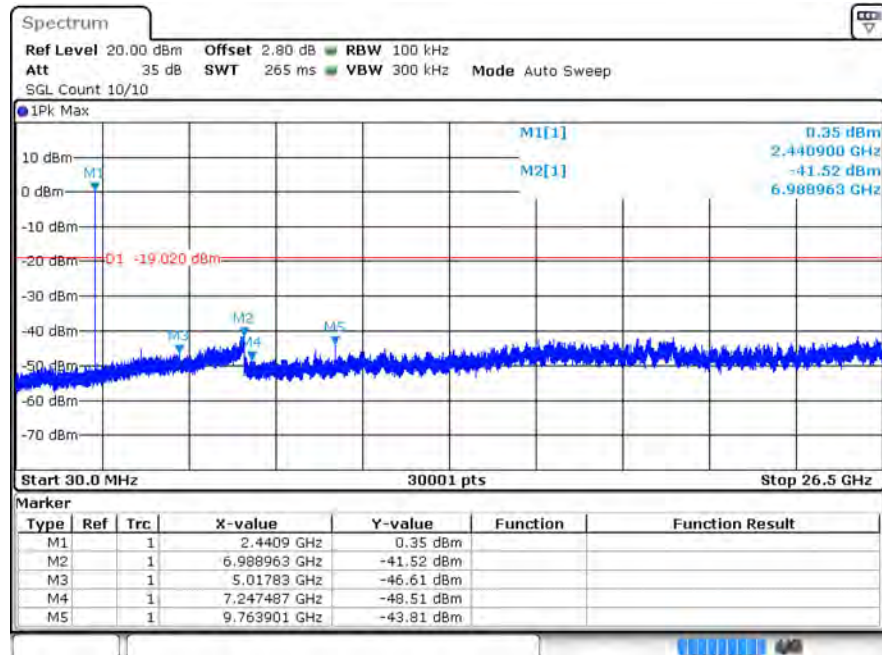


$\pi/4$ DQPSK_MCH_Graphs

Pref



Puw

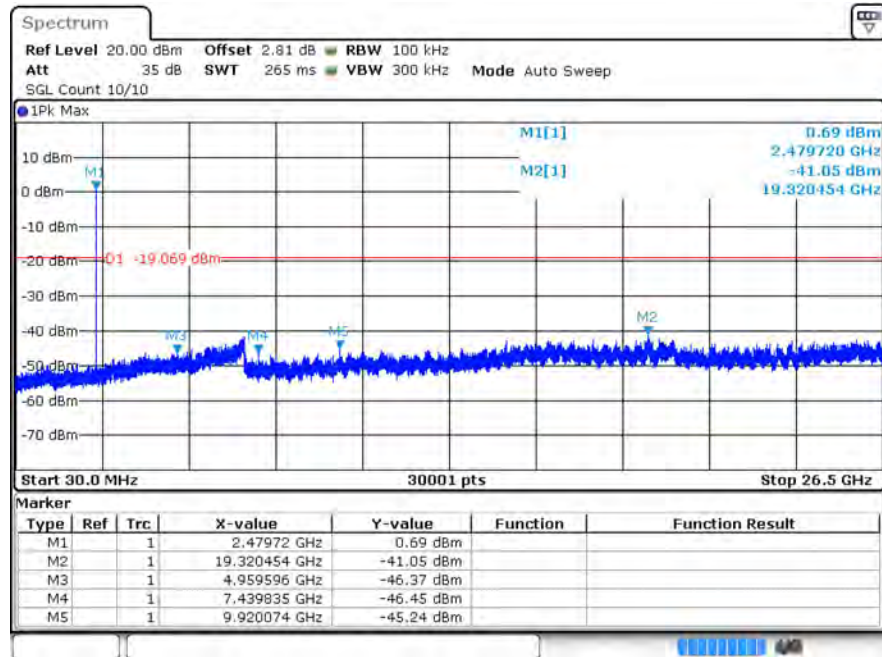


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

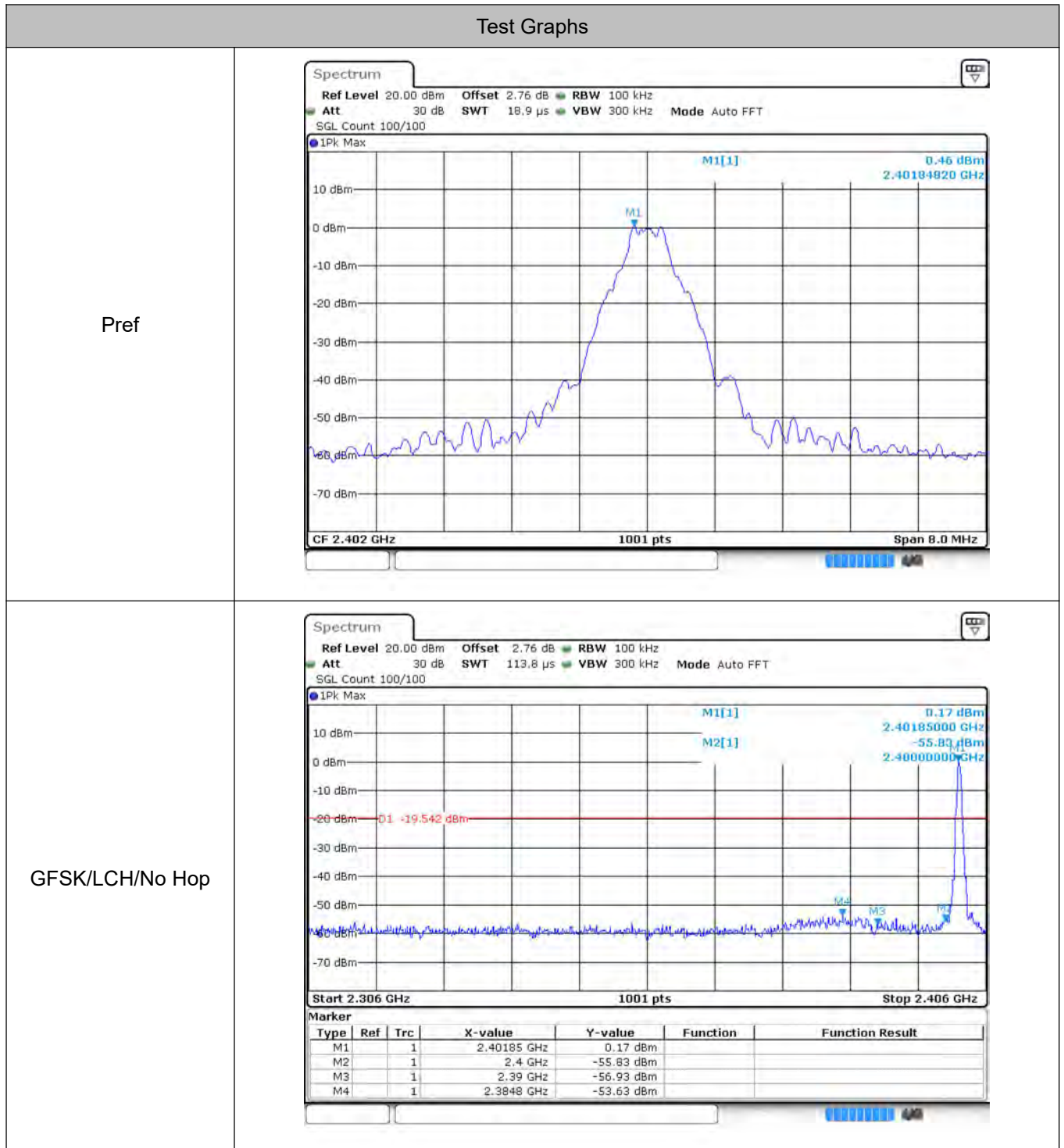


8 Band-edge for RF Conducted Emissions

8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-54.09	-20	Pass
			On	-53.18	-20	Pass
	HCH	2480	Off	-53.84	-20	Pass
			On	-52.01	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-54.54	-20	Pass
			On	-53.52	-20	Pass
	HCH	2480	Off	-53.63	-20	Pass
			On	-52.3	-20	Pass

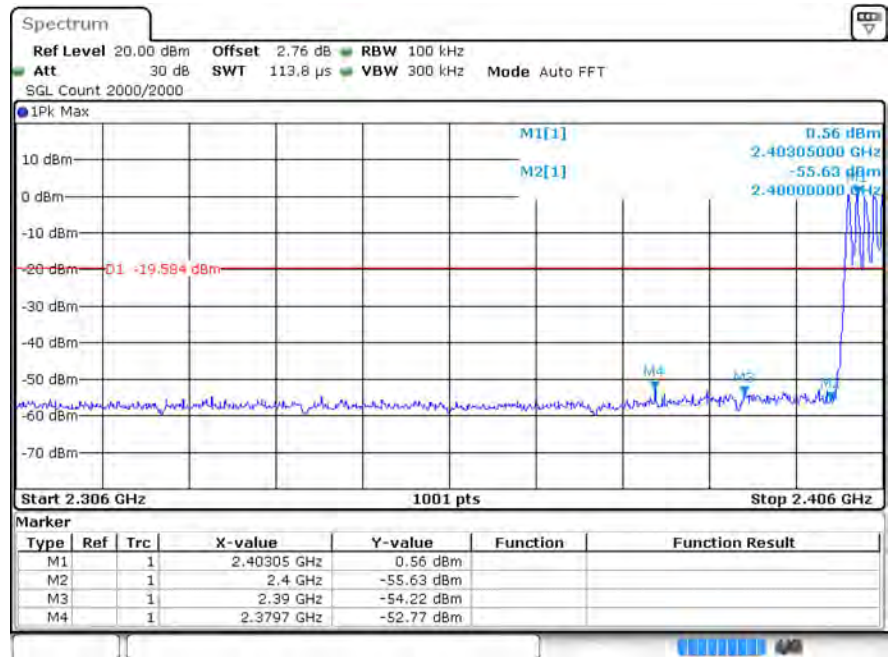
8.2 Test Graphs



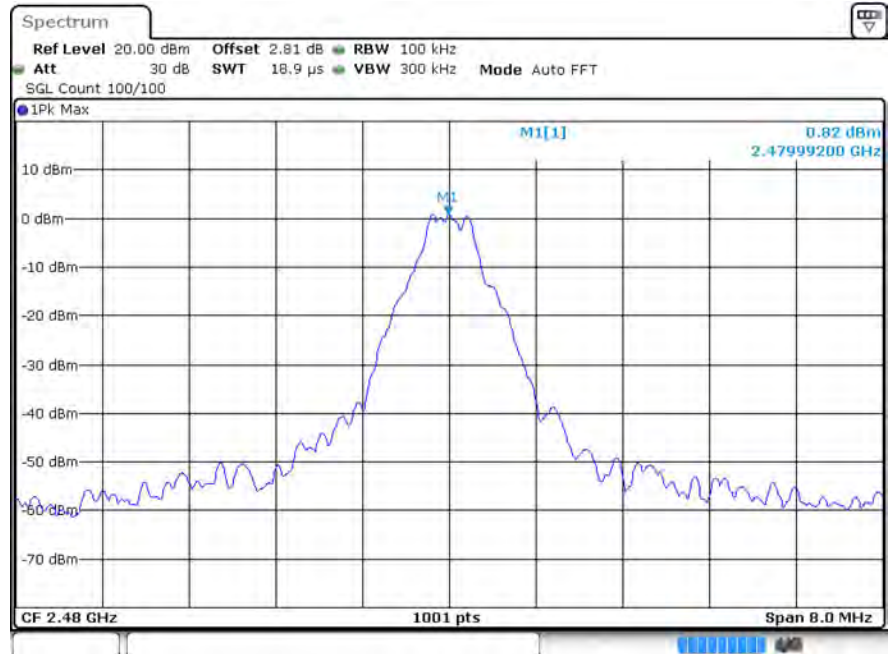
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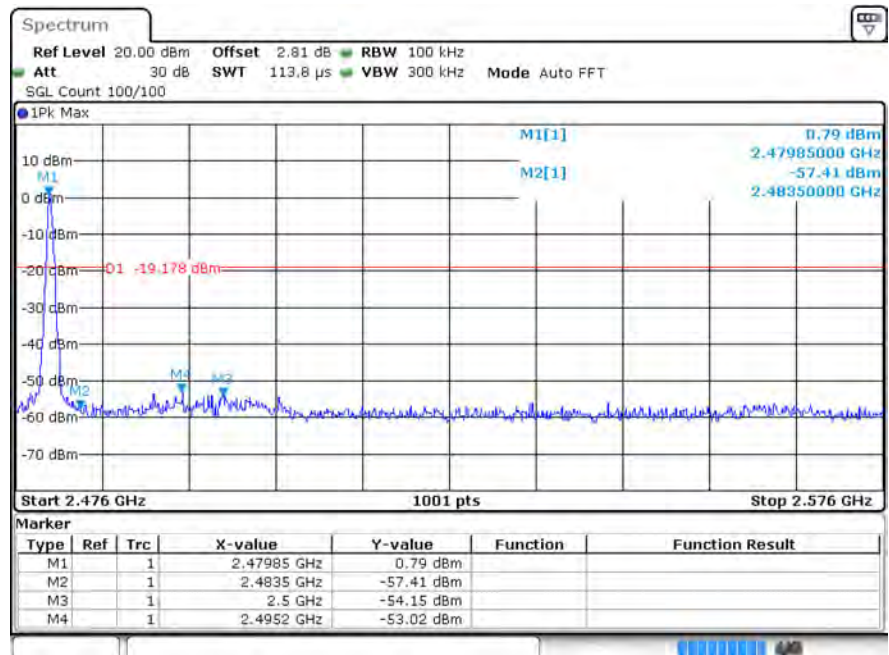
GFSK/LCH/Hop



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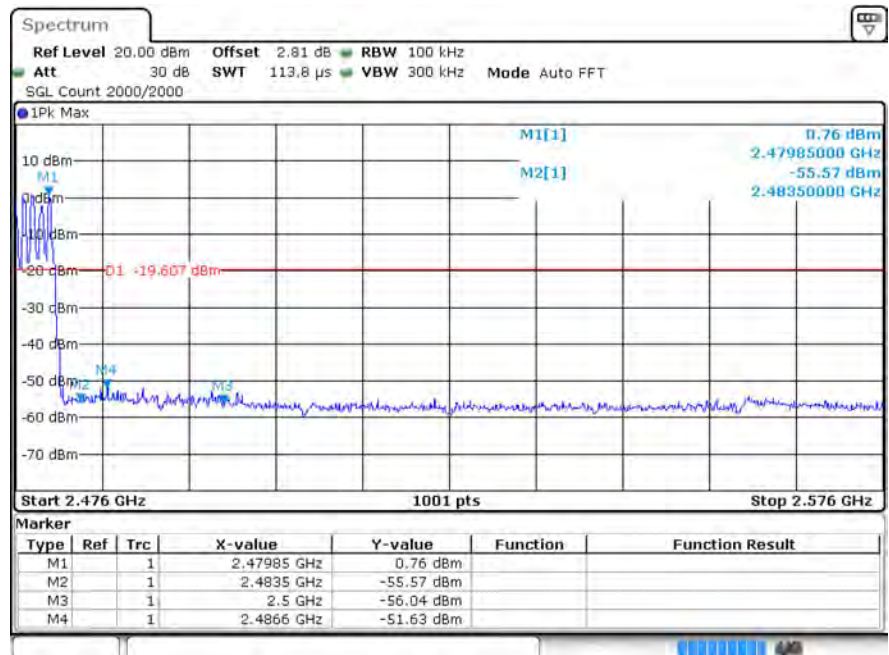
GFSK/HCH/No Hop



Ref.



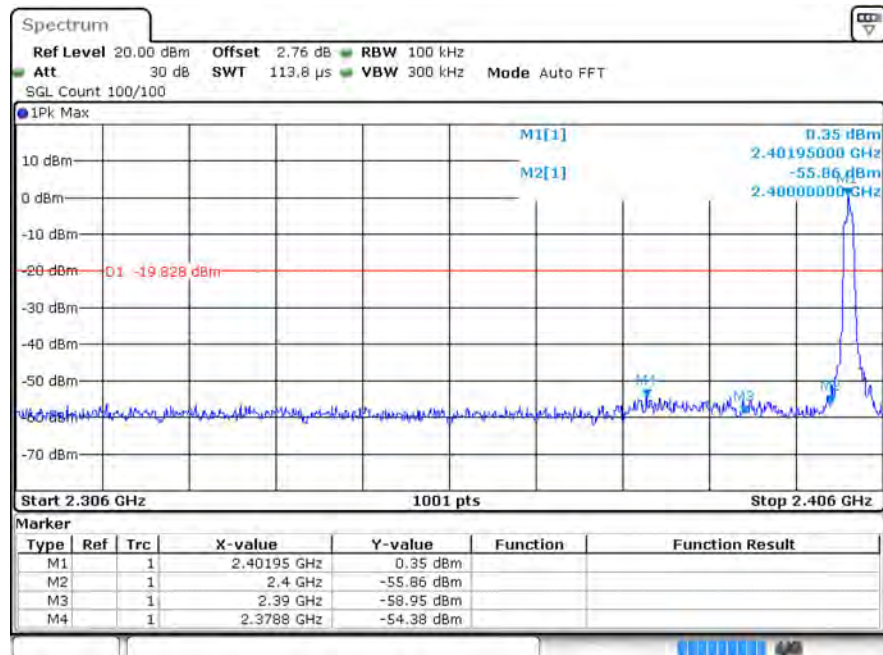
GFSK/HCH/Hop



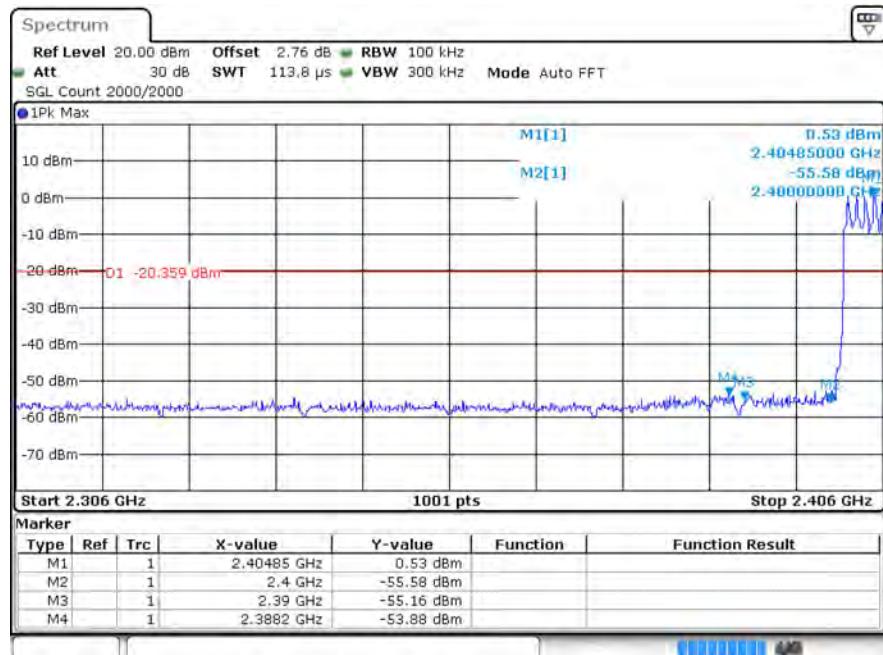
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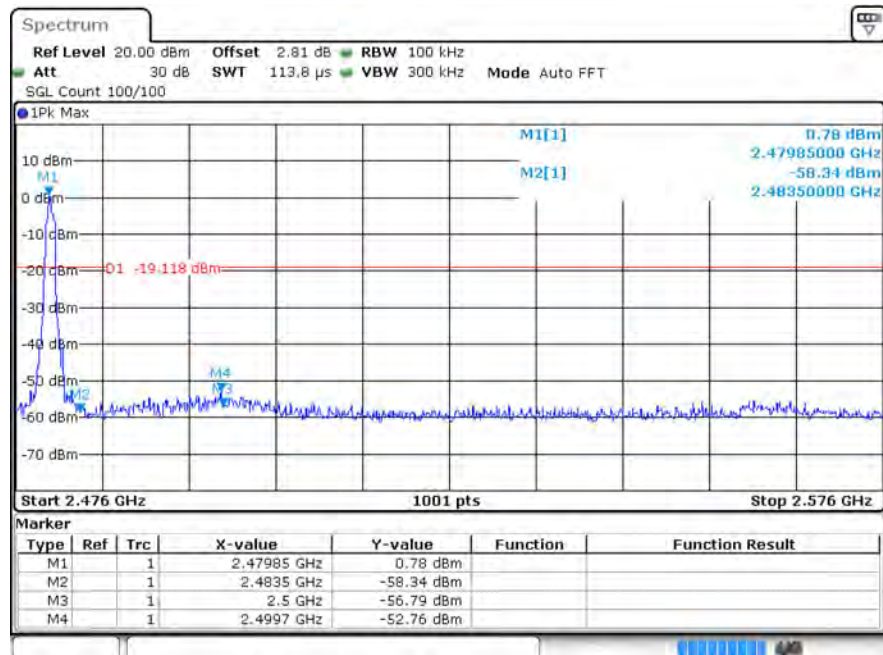
$\pi/4$ DQPSK/LCH/No
Hop



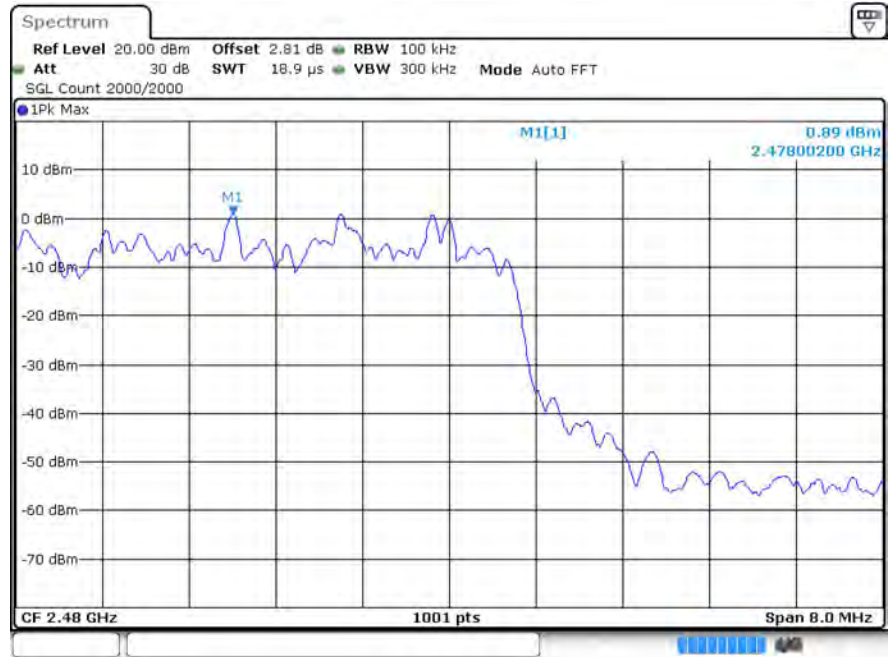
Ref


 $\pi/4$ DQPSK/LCH/Hop


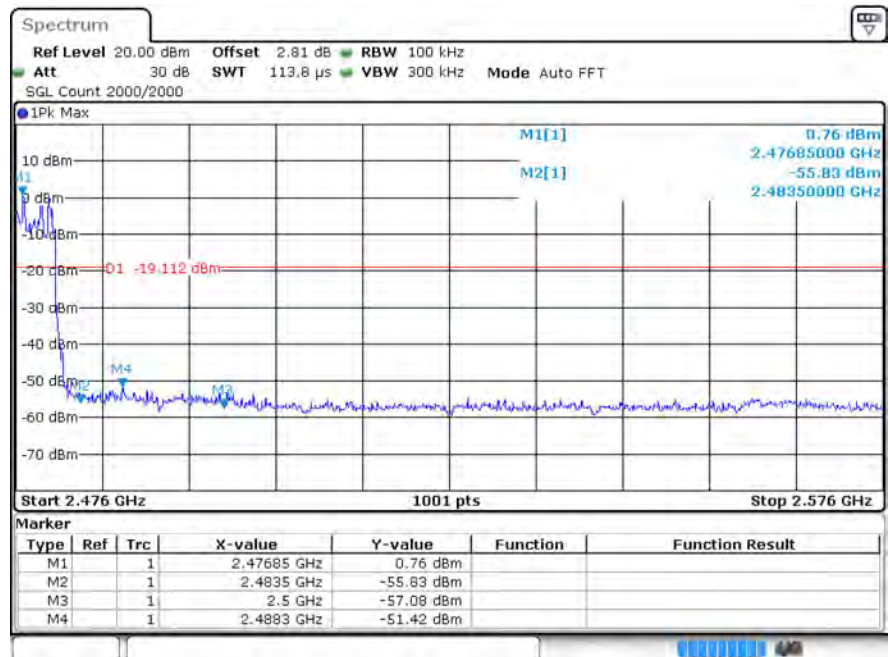
Ref


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


Ref



$\pi/4$ DQPSK/HCH/Hop



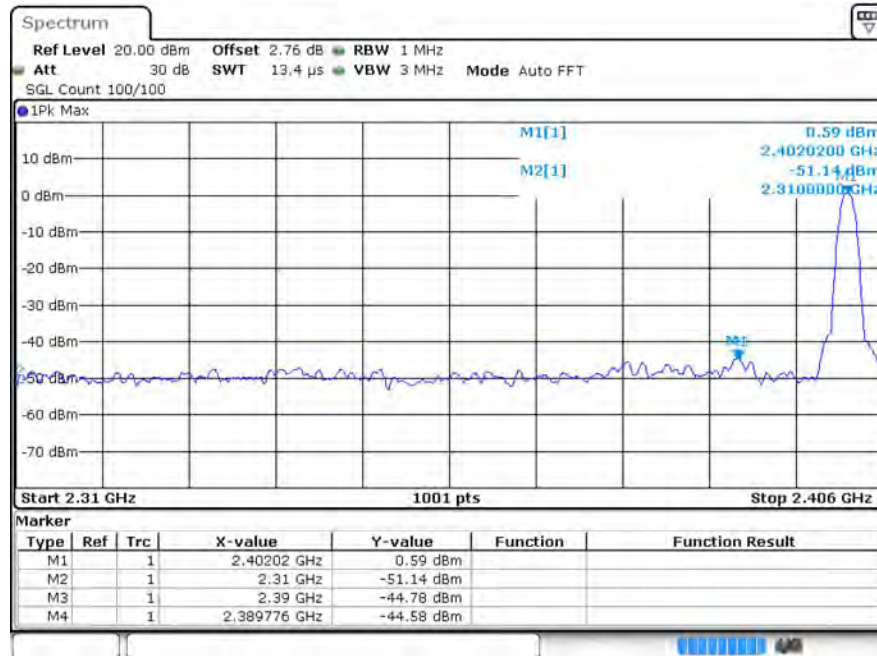
9 Restrict-band band-edge measurements

9.1 Test Result

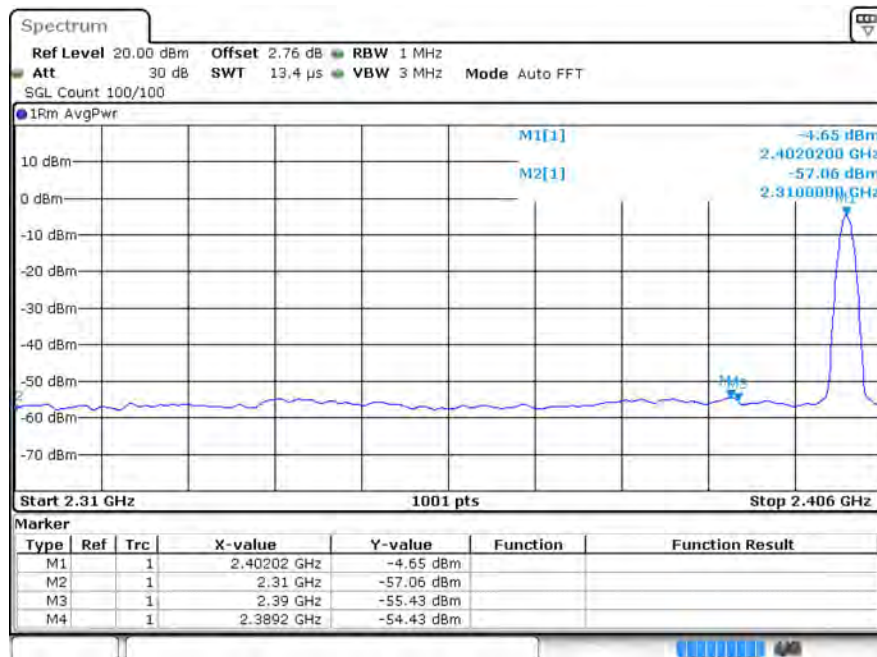
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Duty Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-51.14	2.78	-	46.9	PEAK	74	Pass
	Off	2310.0	-57.06	2.78	4.95	45.93	AV	54	Pass
	Off	2389.776	-44.57	2.78	-	53.47	PEAK	74	Pass
	Off	2389.2	-54.42	2.78	4.95	48.57	AV	54	Pass
	Off	2390.0	-44.78	2.78	-	53.26	PEAK	74	Pass
	Off	2390.0	-55.43	2.78	4.95	47.56	AV	54	Pass
	Off	2483.5	-50.23	2.78	-	47.81	PEAK	74	Pass
	Off	2483.5	-54.2	2.78	4.95	48.79	AV	54	Pass
	Off	2492.224	-44.85	2.78	-	53.19	PEAK	74	Pass
	Off	2499.232	-53.89	2.78	4.95	49.1	AV	54	Pass
	Off	2500.0	-45.03	2.78	-	53.01	PEAK	74	Pass
	Off	2500.0	-54.21	2.78	4.95	48.78	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-50.44	2.78	-	47.6	PEAK	74	Pass
	Off	2310.0	-56.83	2.78	4.95	46.16	AV	54	Pass
	Off	2380.752	-45.55	2.78	-	52.49	PEAK	74	Pass
	Off	2339.28	-54.24	2.78	4.95	48.75	AV	54	Pass
	Off	2390.0	-47.46	2.78	-	50.58	PEAK	74	Pass
	Off	2390.0	-56.34	2.78	4.95	46.65	AV	54	Pass
	Off	2483.5	-46	2.78	-	52.04	PEAK	74	Pass
	Off	2483.5	-55.8	2.78	4.95	47.19	AV	54	Pass
	Off	2498.296	-44.75	2.78	-	53.29	PEAK	74	Pass
	Off	2497.696	-53.83	2.78	4.95	49.16	AV	54	Pass
	Off	2500.0	-47.07	2.78	-	50.97	PEAK	74	Pass
	Off	2500.0	-54.37	2.78	4.95	48.62	AV	54	Pass

9.2 Test Graphs

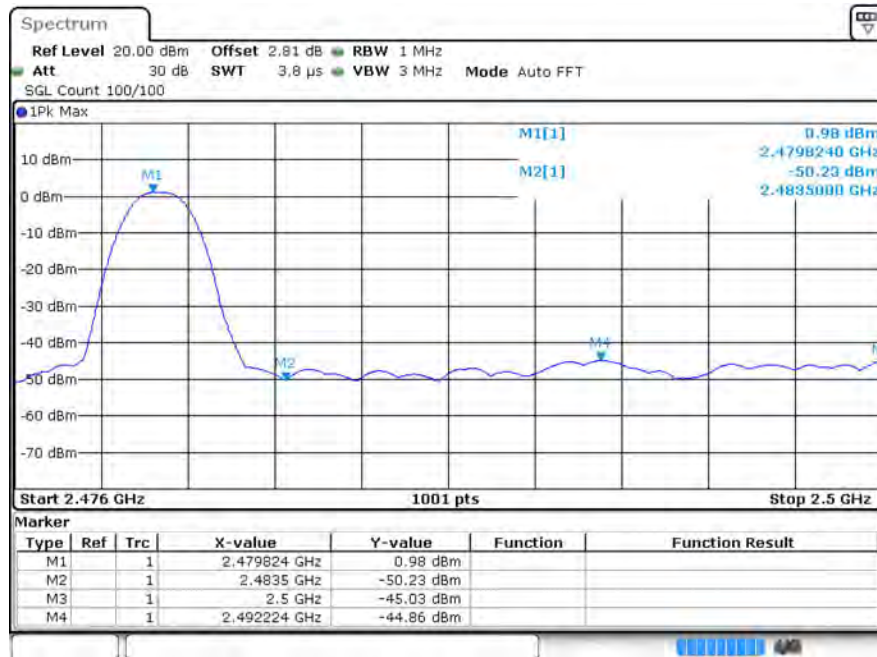
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



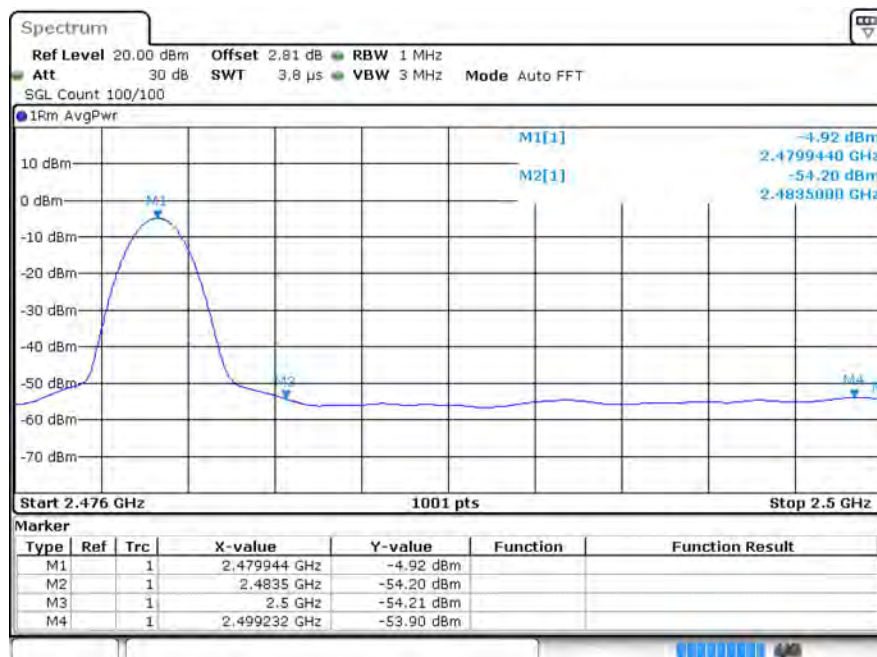
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



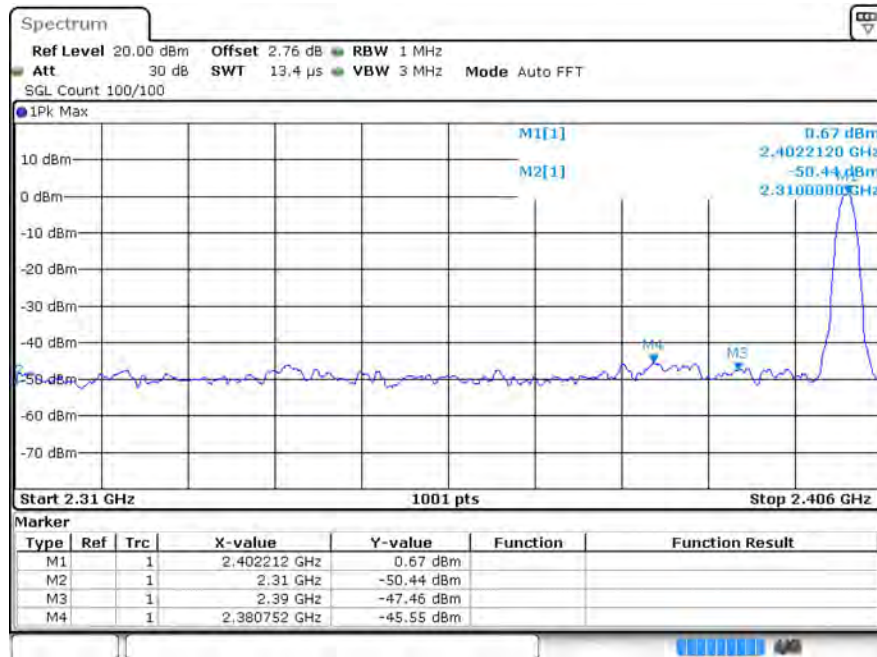
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



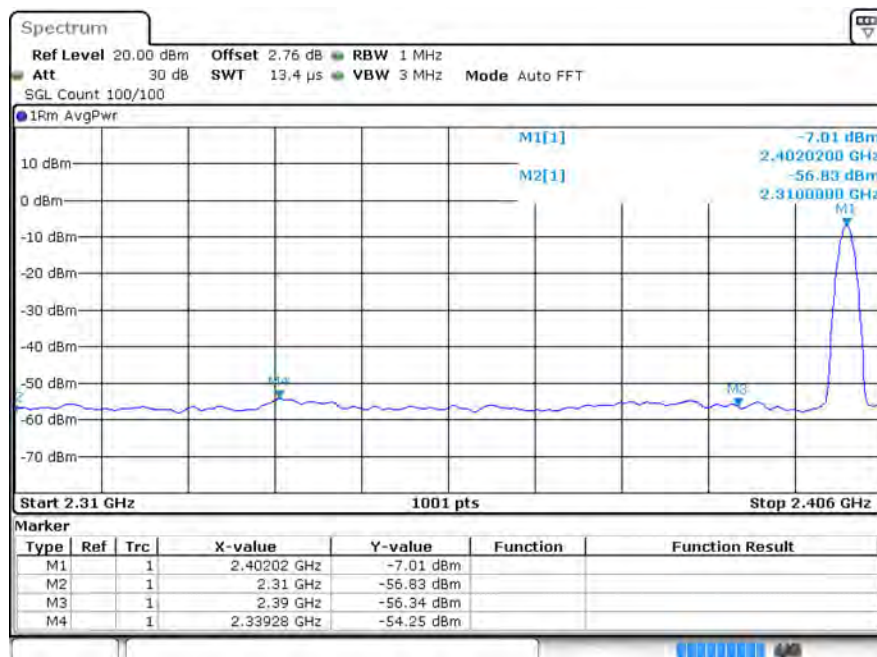
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



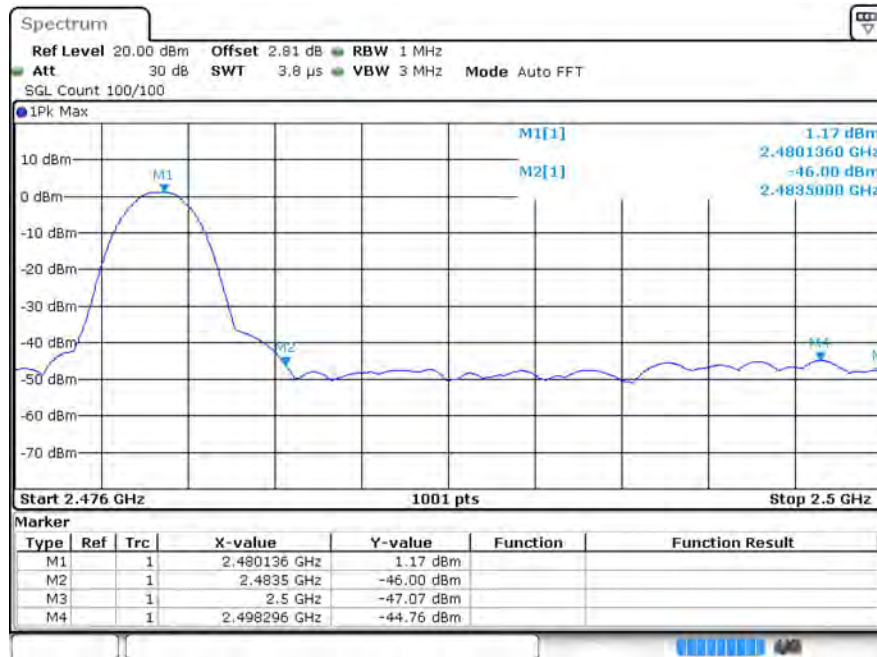
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



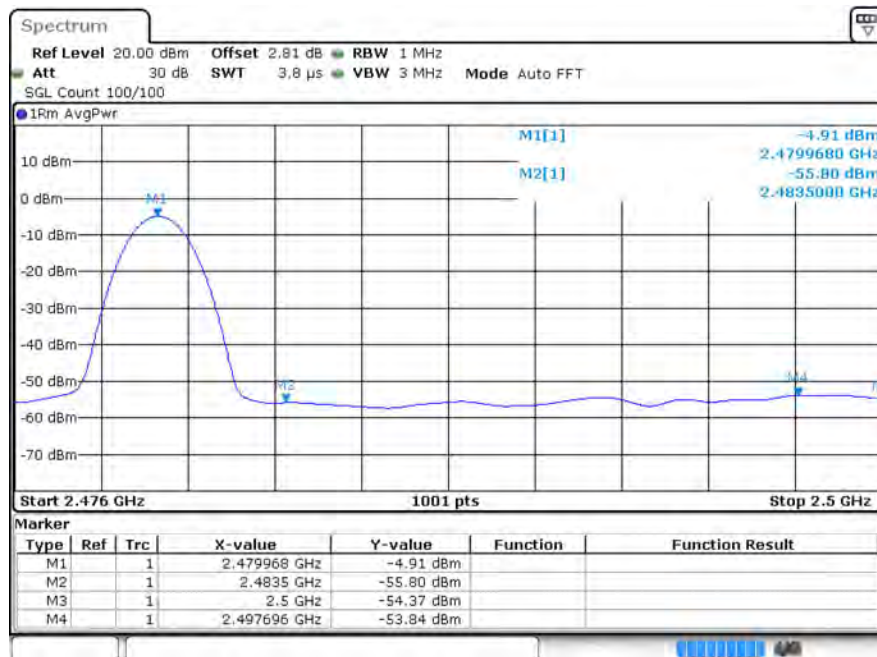
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---