



Appendix A

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

Product Name: Headphone

Trade Mark: TCJJ

Test Model: B088NKF1RK

Environmental Conditions

Temperature:	24.5℃
Relative Humidity:	51.4%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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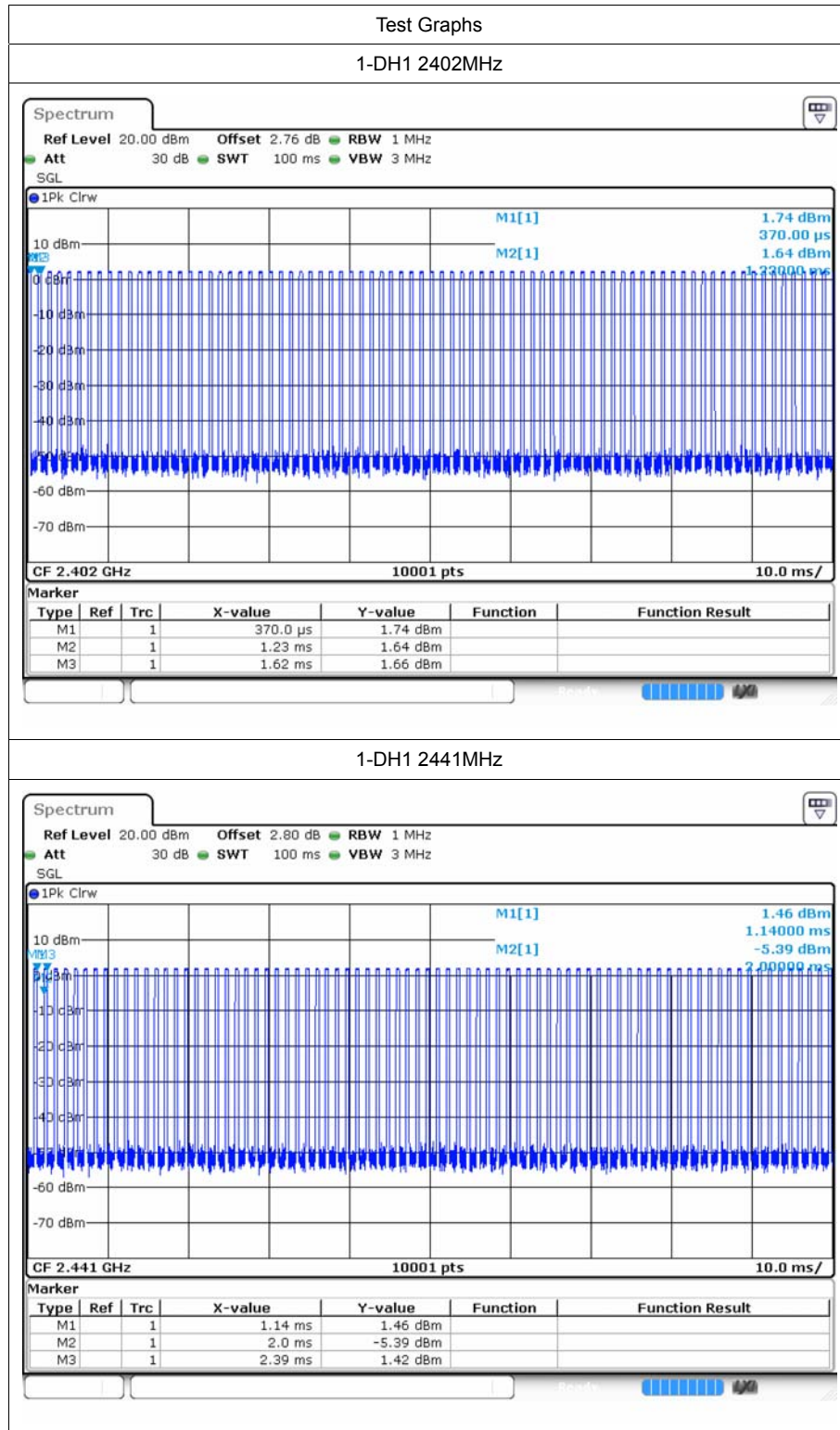
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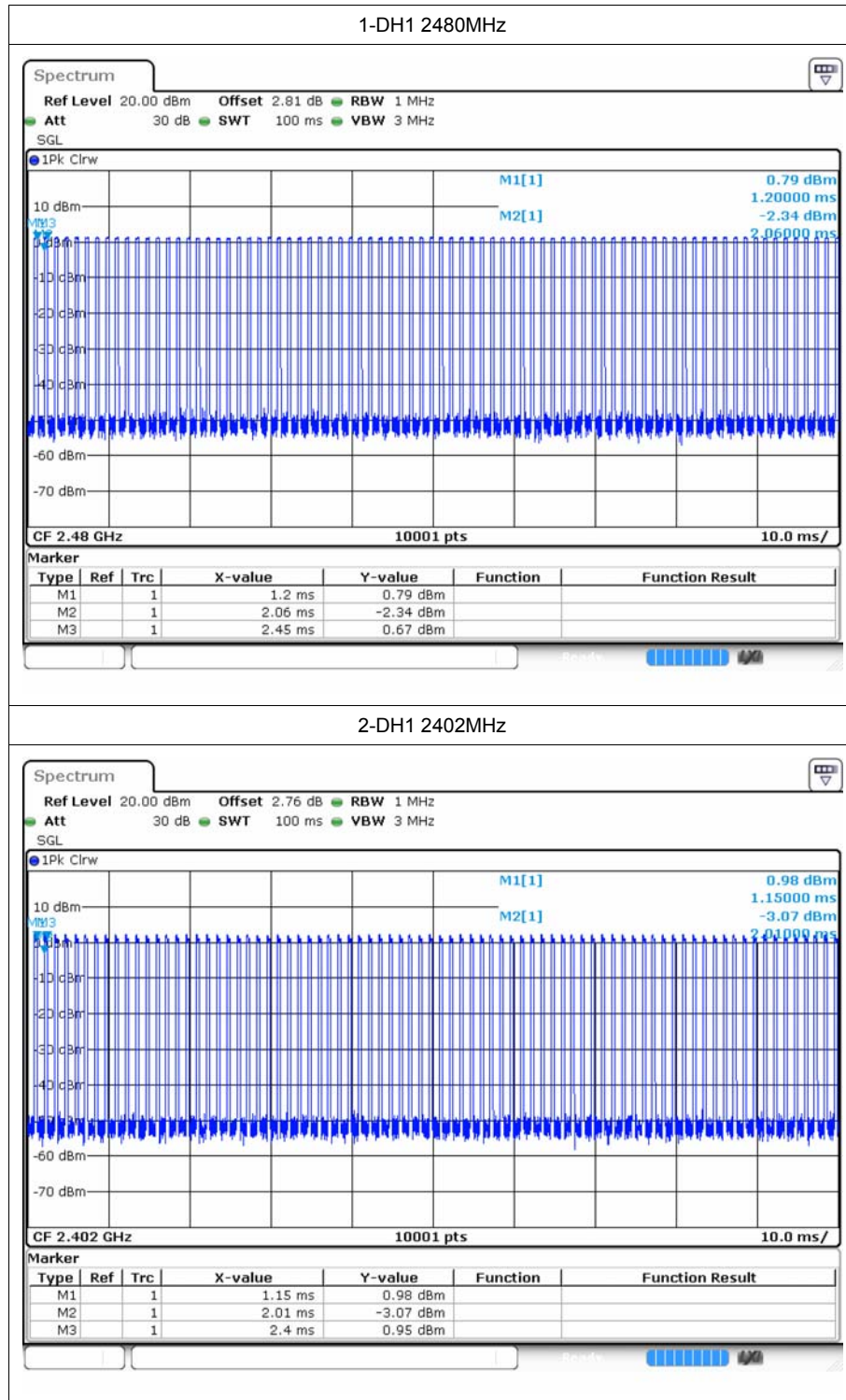
1 Duty Cycle

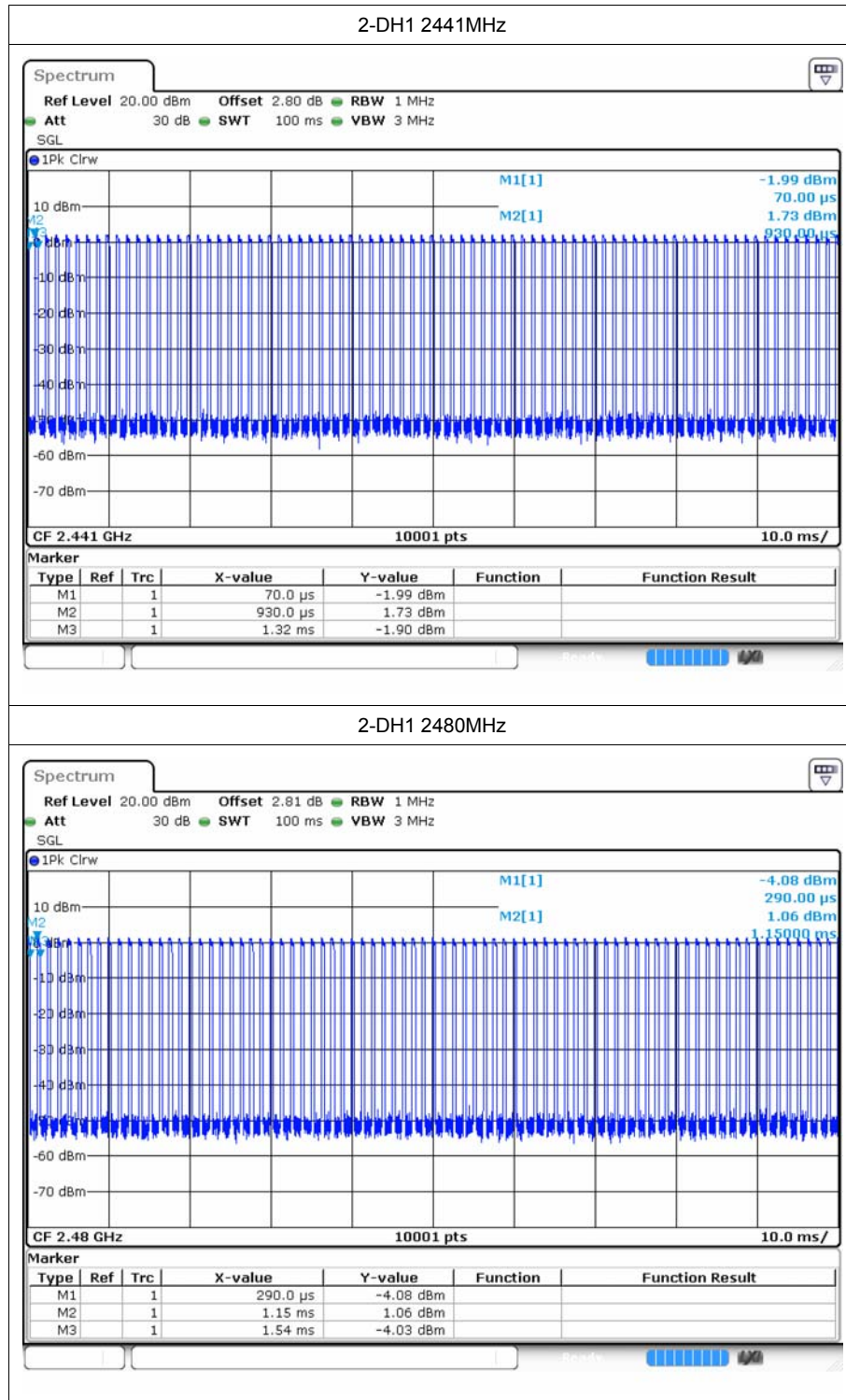
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	32.01	2.56
1-DH1	2441	32.31	2.56
1-DH1	2480	32	2.56
2-DH1	2402	32	2.56
2-DH1	2441	32.01	2.56
2-DH1	2480	32.01	2.56

1.2 Test Graphs





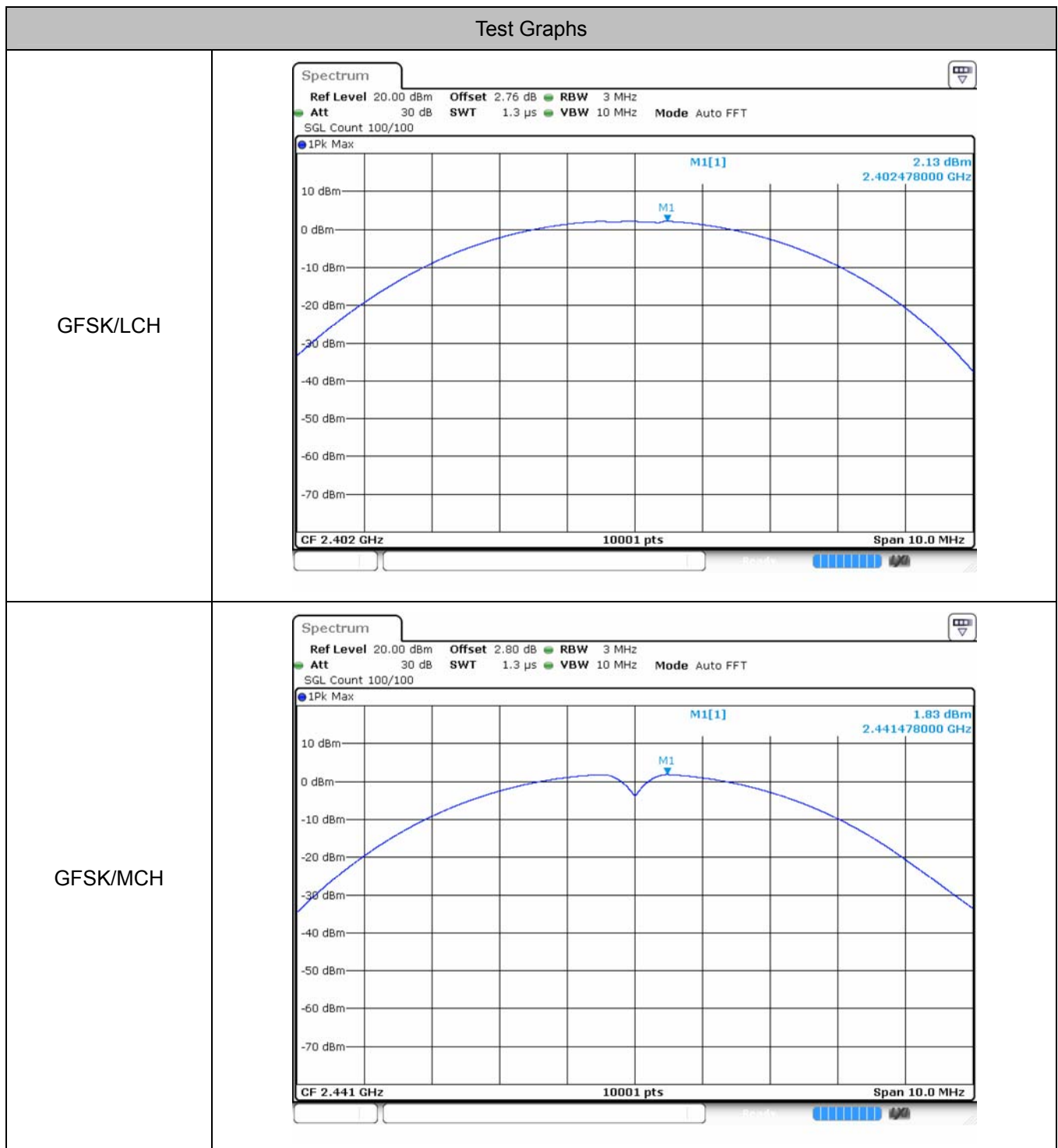


2 Maximum Conducted Peak Output Power

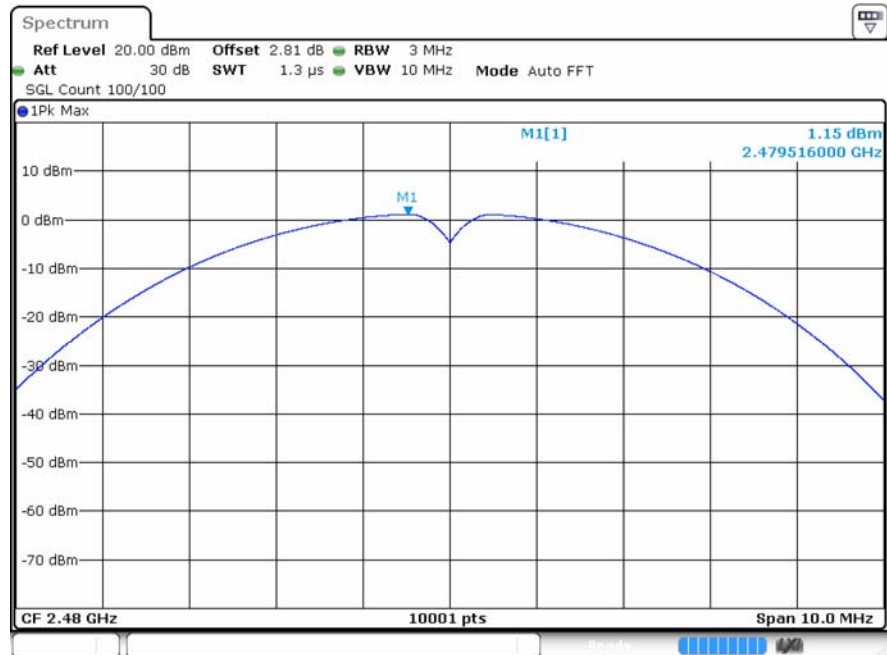
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.13	21	Pass
	MCH	1.83	21	Pass
	HCH	1.15	21	Pass
$\pi/4$ DQPSK	LCH	2.13	21	Pass
	MCH	1.93	21	Pass
	HCH	1.07	21	Pass

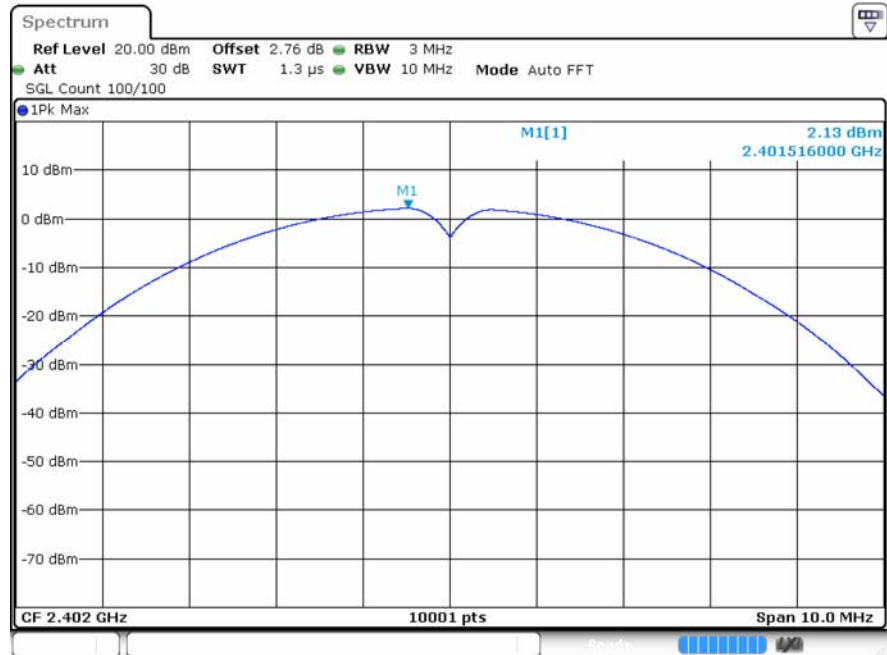
2.2 Test Graphs



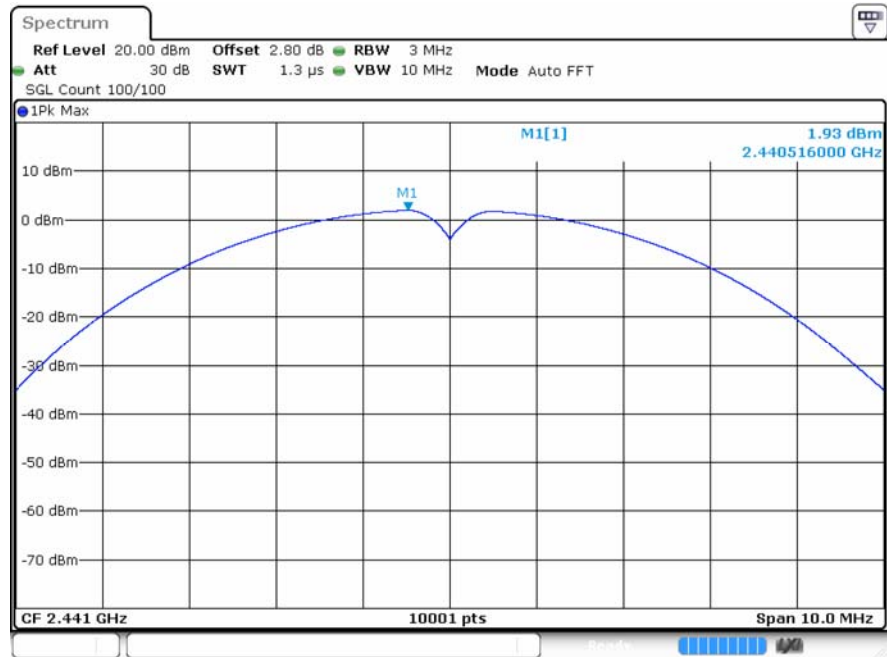
GFSK/HCH



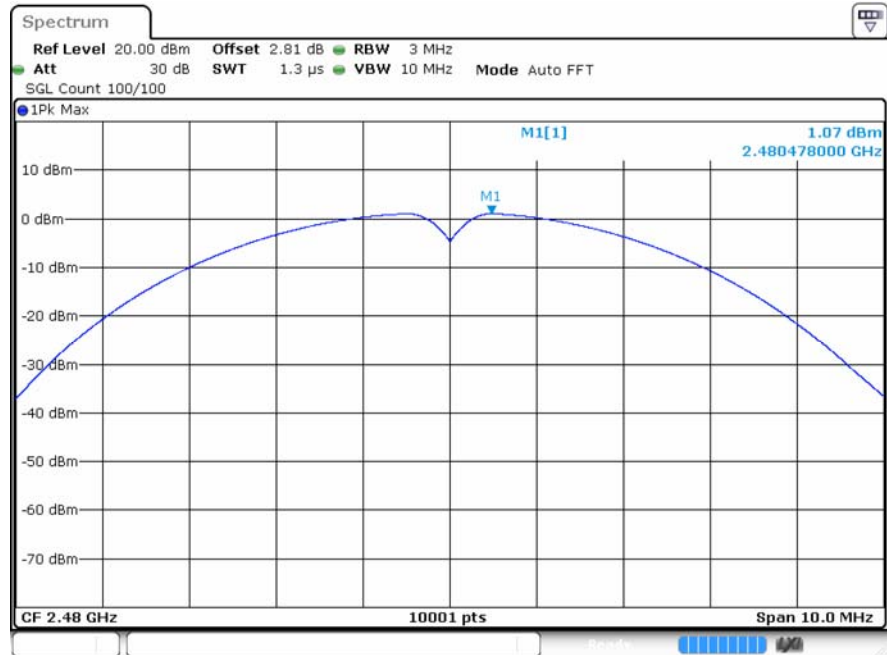
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

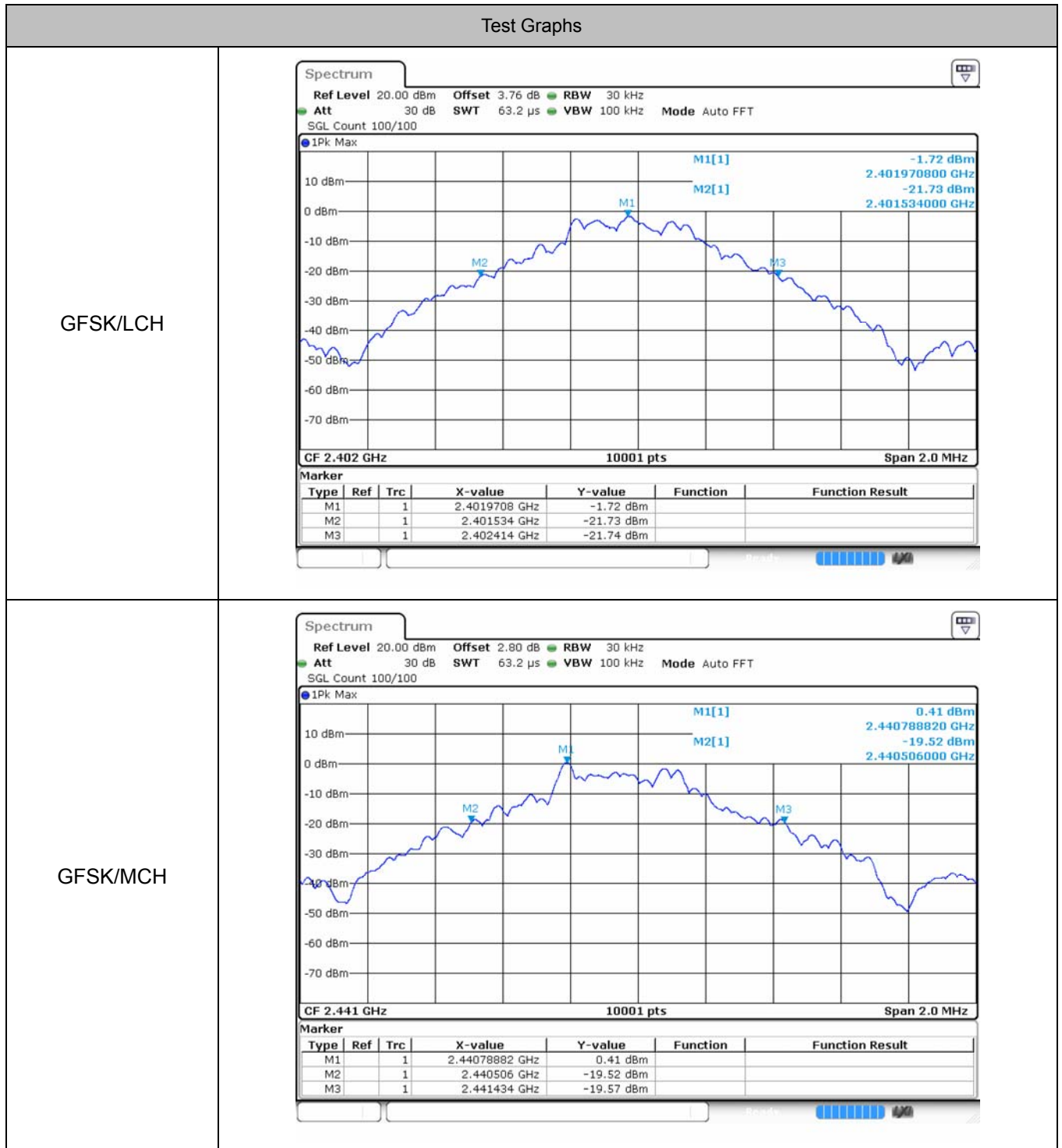


3 20dB Bandwidth

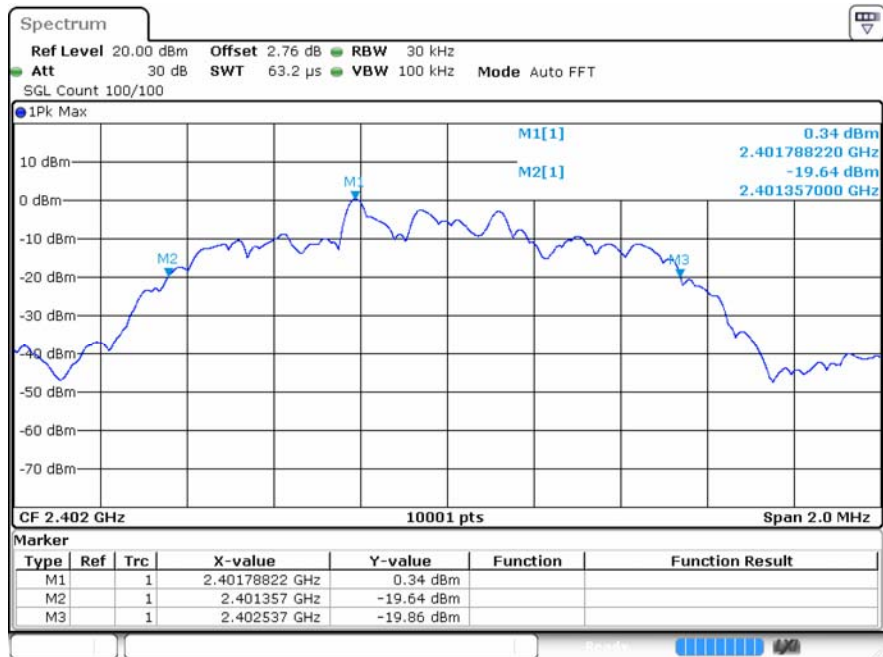
3.1 Test Result

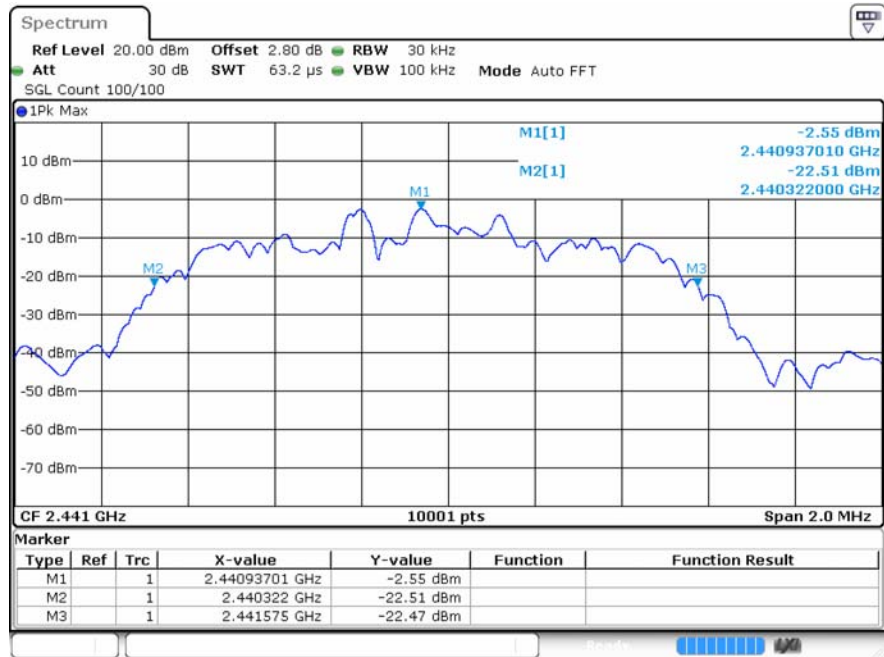
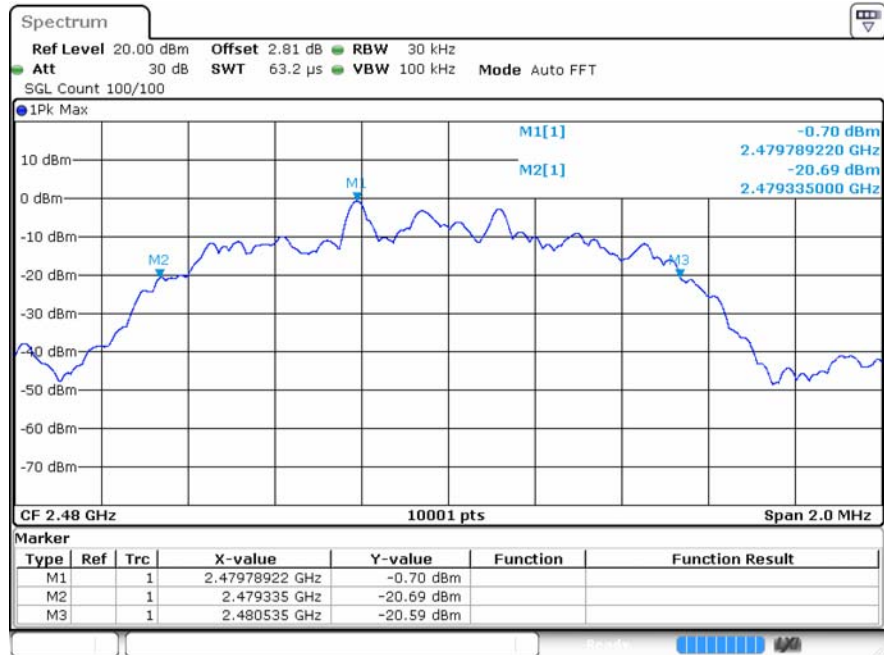
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.880	Not Specified	Pass
	MCH	0.928	Not Specified	Pass
	HCH	1.045	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.18	Not Specified	Pass
	MCH	1.253	Not Specified	Pass
	HCH	1.2	Not Specified	Pass

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	0.619	Pass
$\pi/4$ DQPSK	MCH	1	0.835	Pass

4.2 Test Graphs

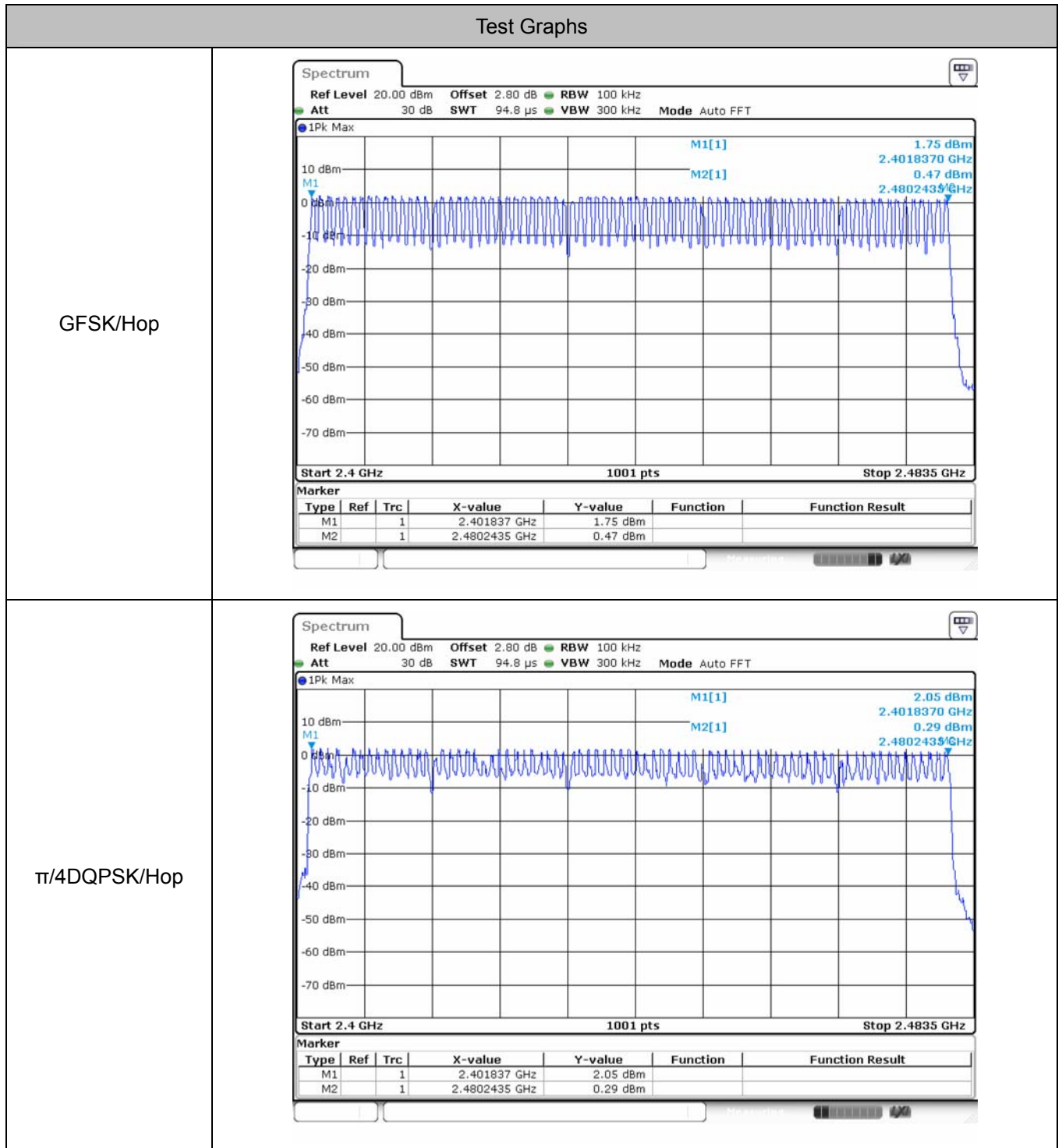


5 Hopping Channel Number

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

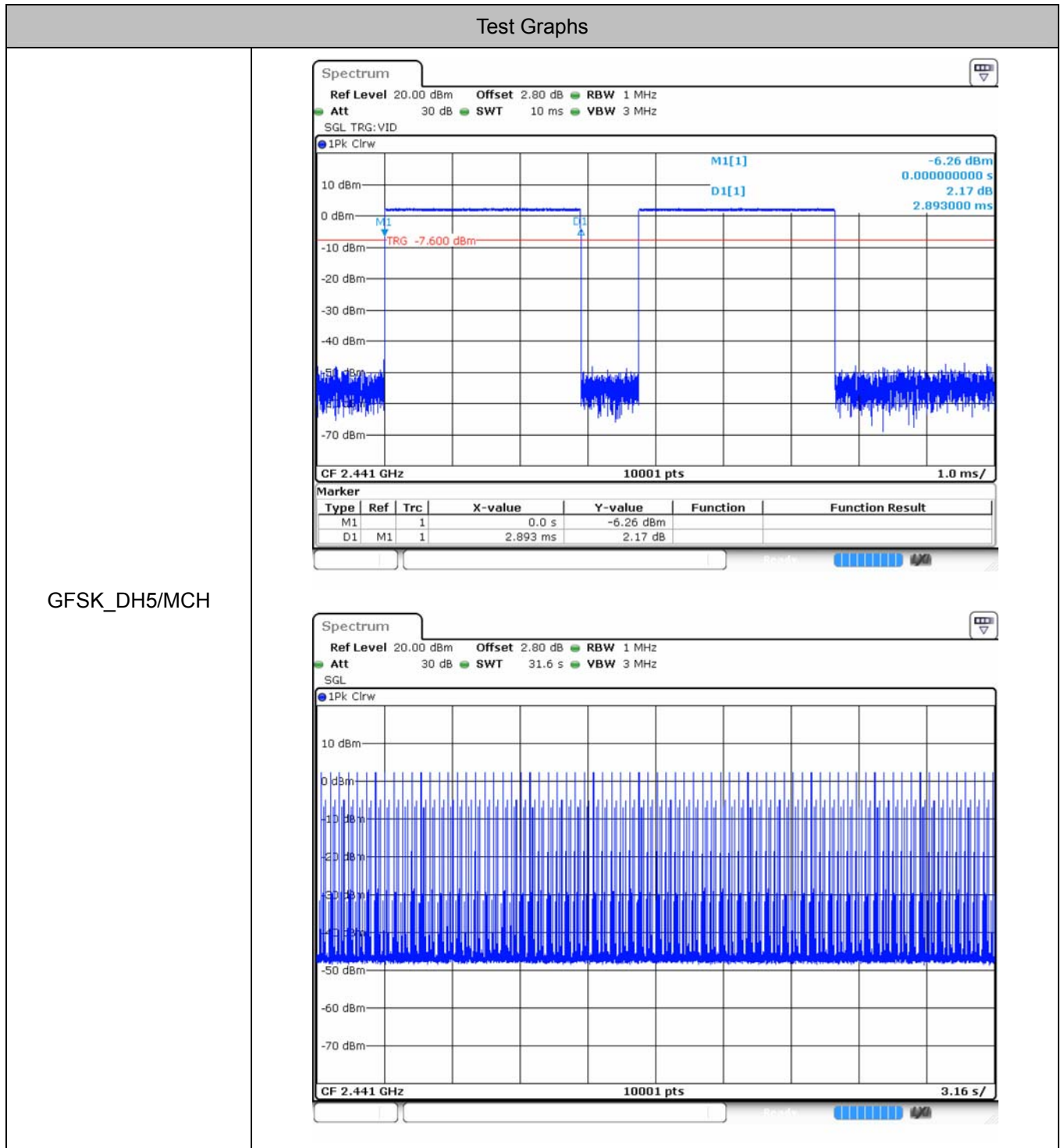


6 Dwell Time

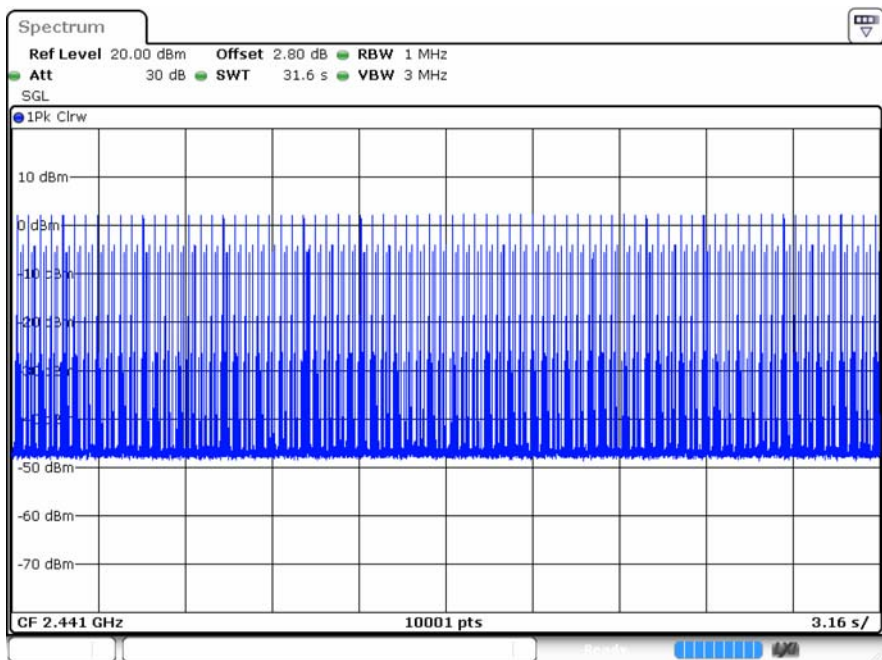
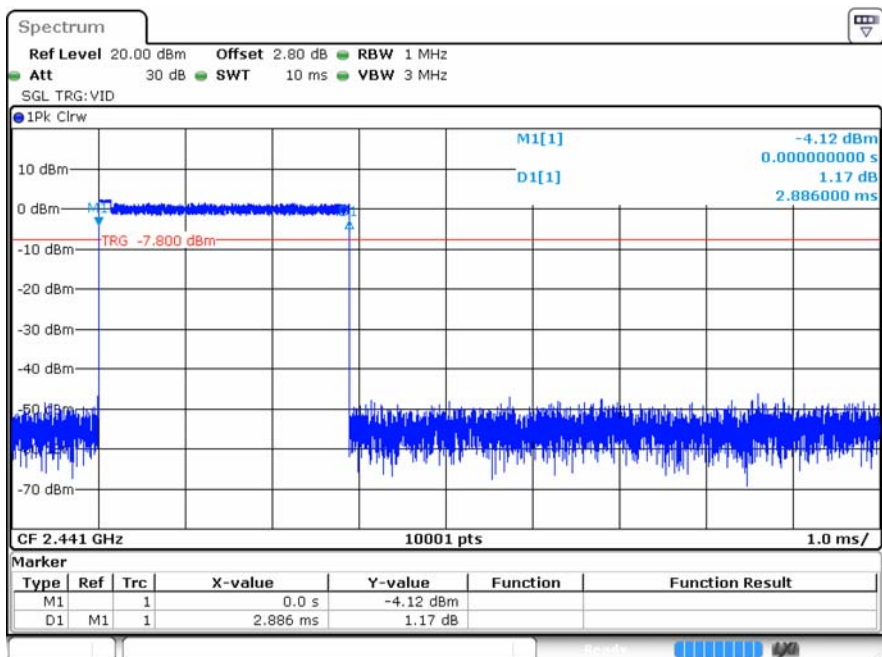
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.893	75	216.975	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.886	76	219.336	0.4	Pass

6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH

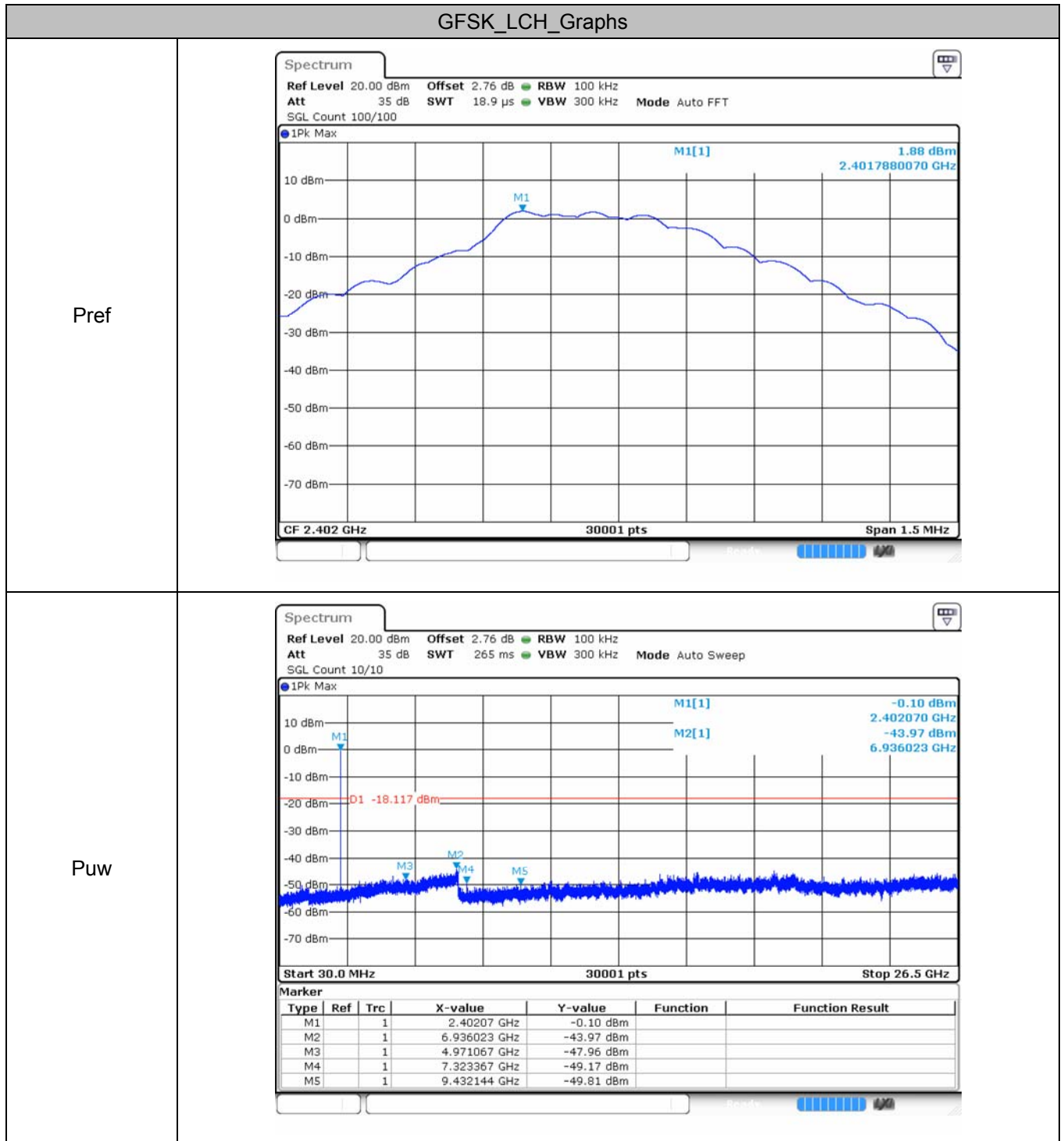


7 RF Conducted Spurious Emissions

7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-45.84	-20	Pass
	MCH	-45.38	-20	Pass
	HCH	-45.28	-20	Pass
$\pi/4$ DQPSK	LCH	-45.23	-20	Pass
	MCH	-45.9	-20	Pass
	HCH	-45.19	-20	Pass

7.2 Test Graphs

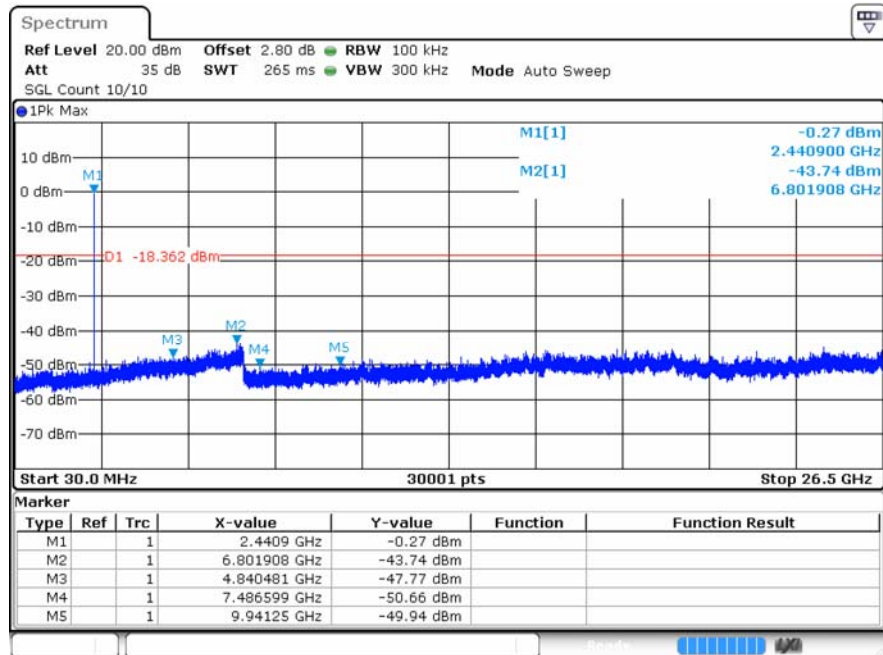


GFSK_MCH_Graphs

Pref

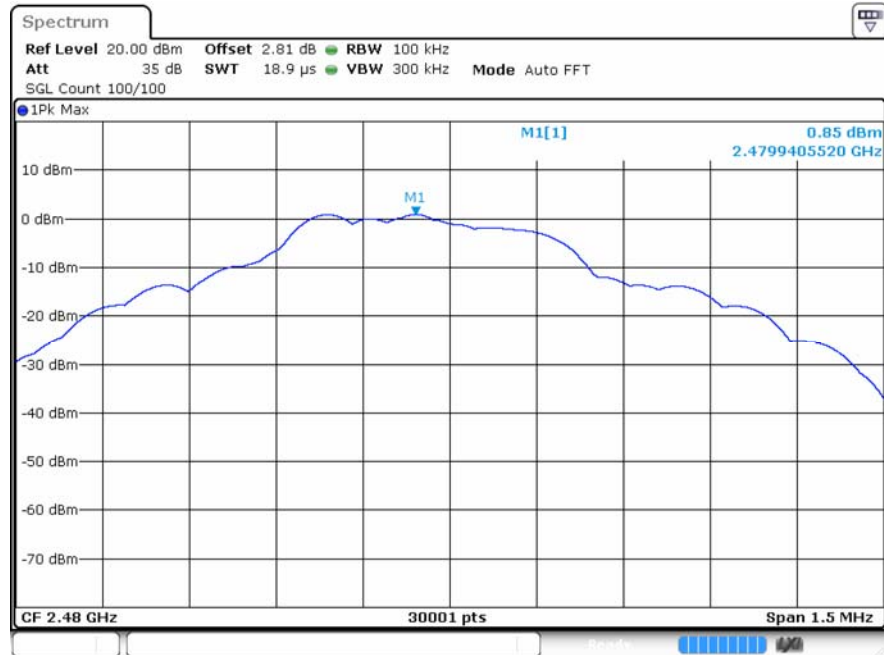


Puw

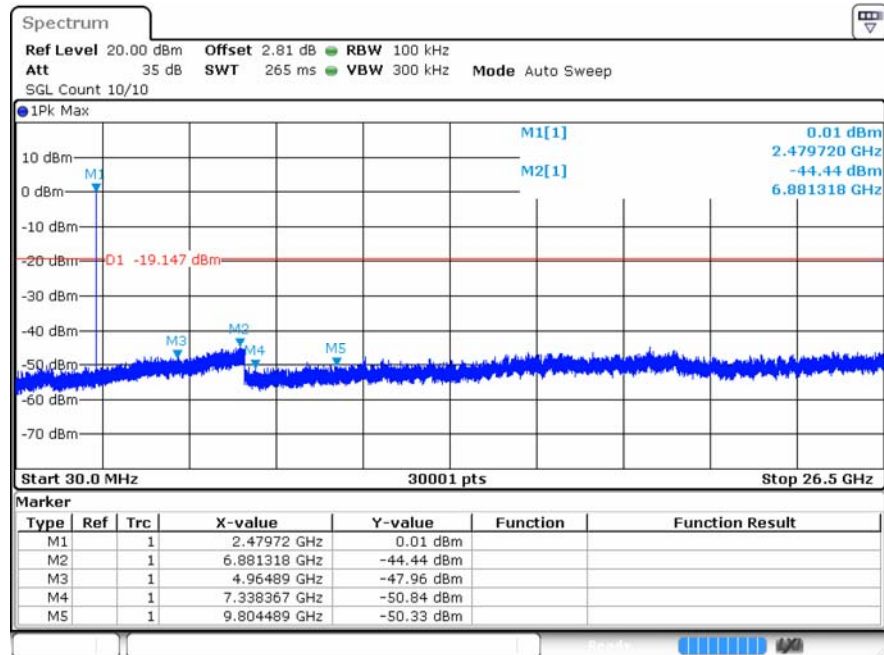


GFSK_HCH_Graphs

Pref

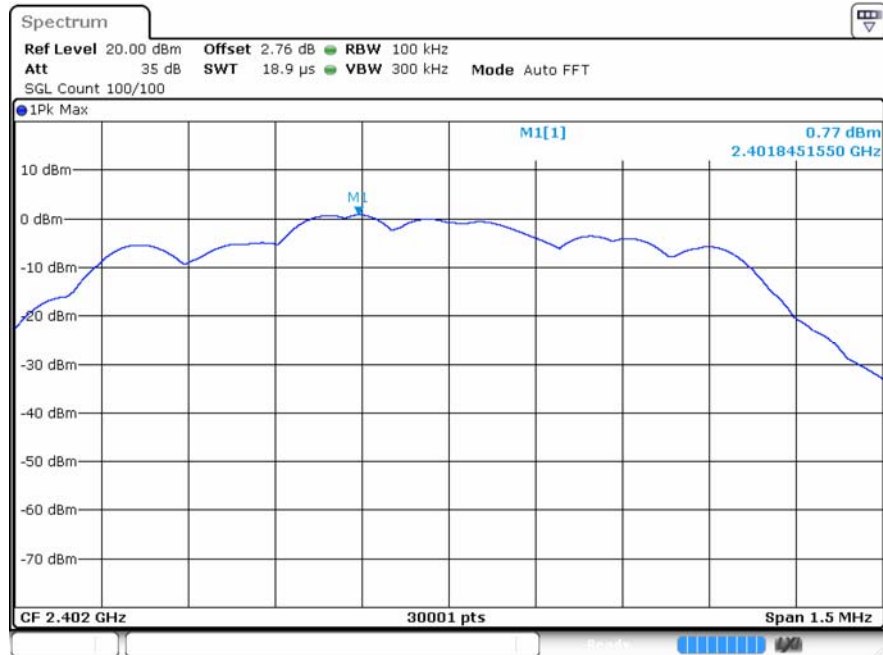


Puw

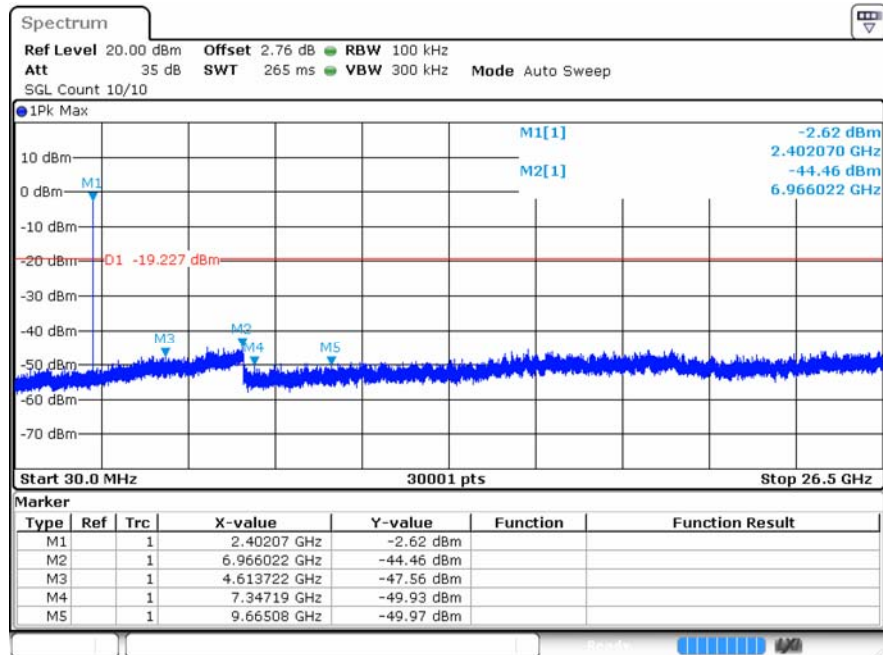


$\pi/4$ DQPSK_LCH_Graphs

Pref



Puw

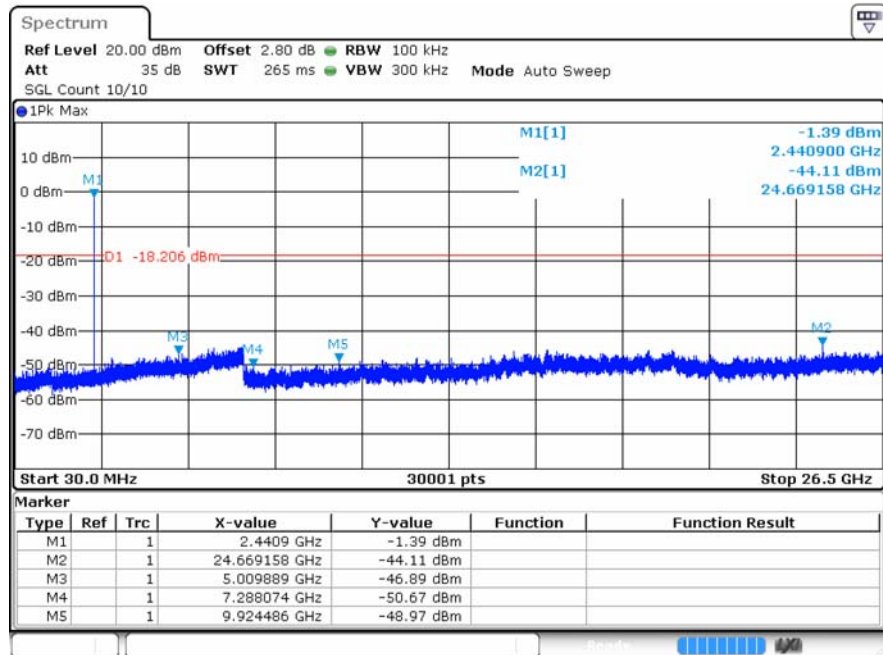


π /4DQPSK_MCH_Graphs

Pref



Puw

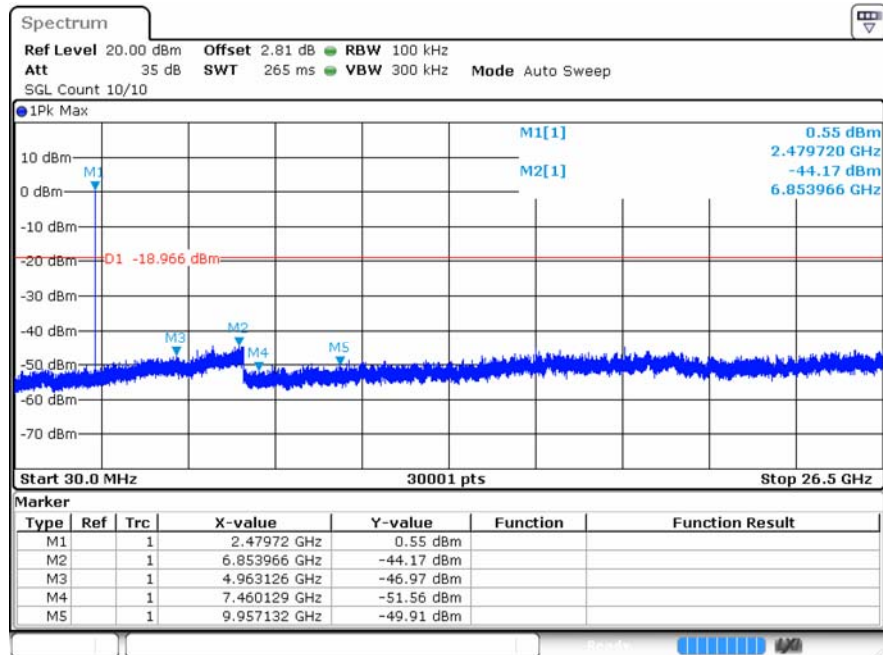


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

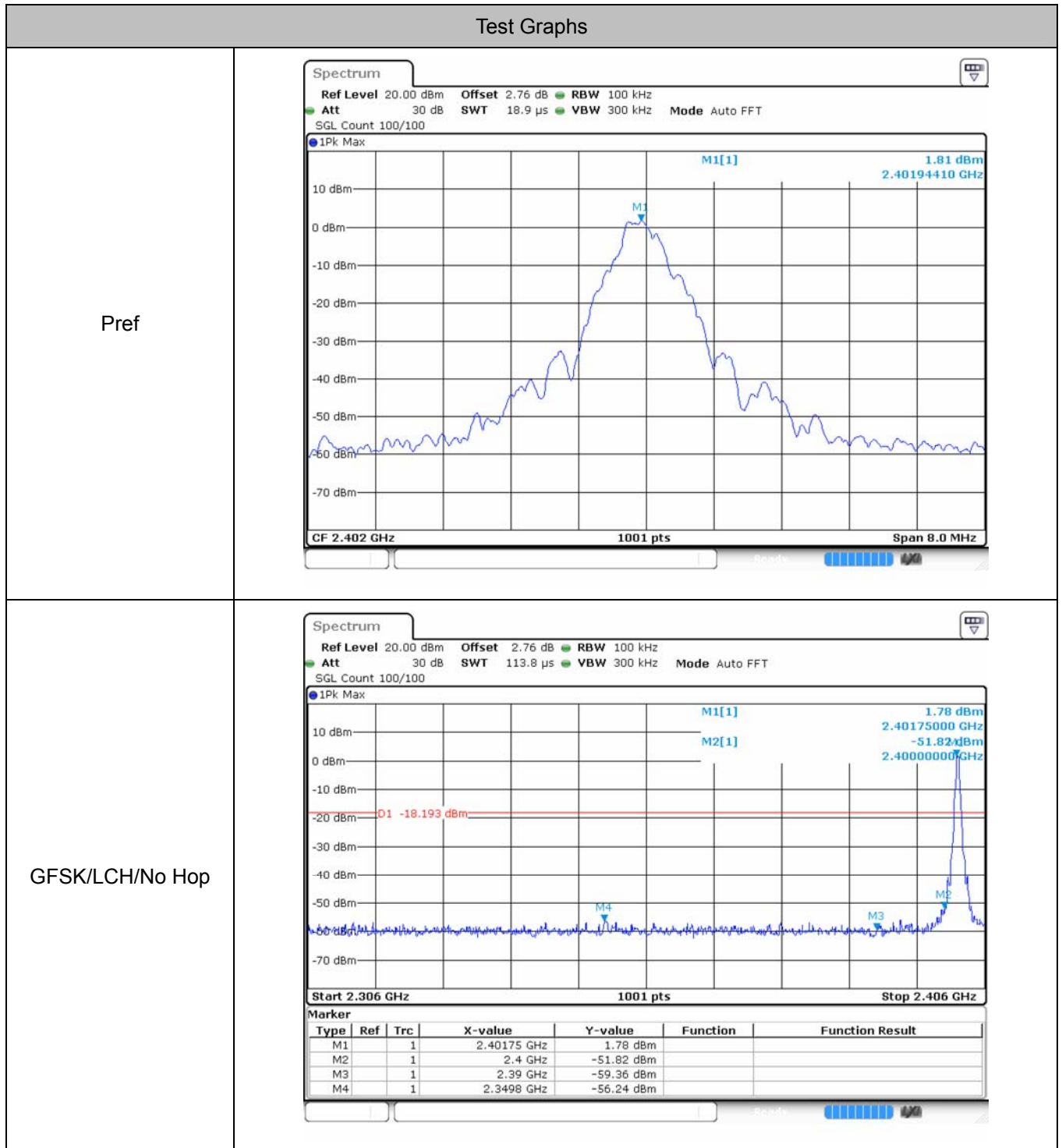


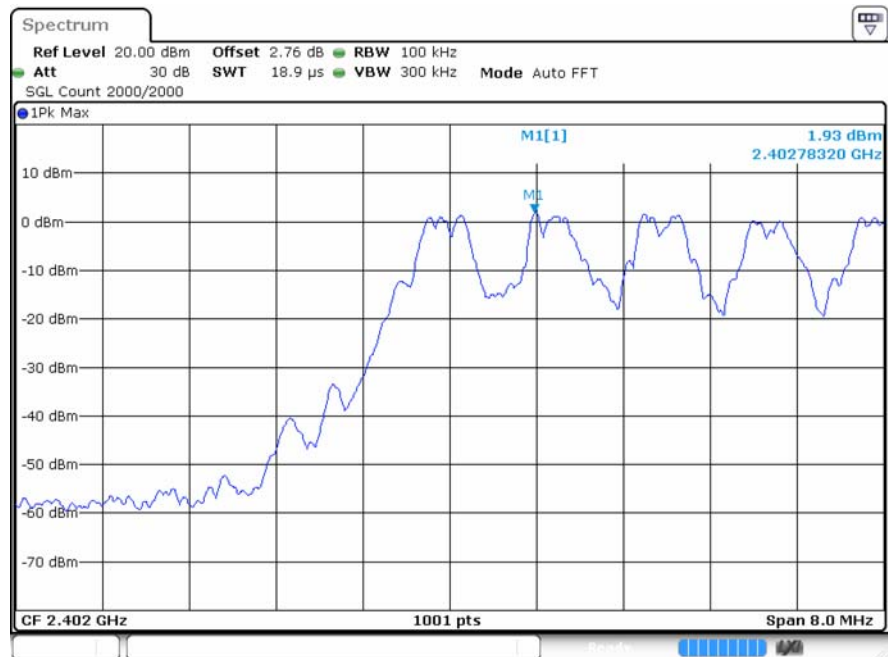
8 Band-edge for RF Conducted Emissions

8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-58.05	-20	Pass
			On	-55.98	-20	Pass
	HCH	2480	Off	-56.94	-20	Pass
			On	-55.22	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-57.78	-20	Pass
			On	-55.51	-20	Pass
	HCH	2480	Off	-57.55	-20	Pass
			On	-54.91	-20	Pass

8.2 Test Graphs





Spectrum

Ref Level 20.00 dBm Offset 2.76 dB RBW 100 kHz
 Att 30 dB SWT 113.8 μs VBW 300 kHz Mode Auto FFT
 SGL Count 2000/2000

● IPk Max

10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm

M1[1] 2.09 dBm 2.40275000 GHz
 M2[1] -52.35 dBm 2.40000000 GHz
 O1 -18.072 dBm
 M4 -54.99 dBm 2.3598 GHz
 M3 -54.06 dBm 2.39 GHz
 M2 -52.35 dBm 2.4 GHz

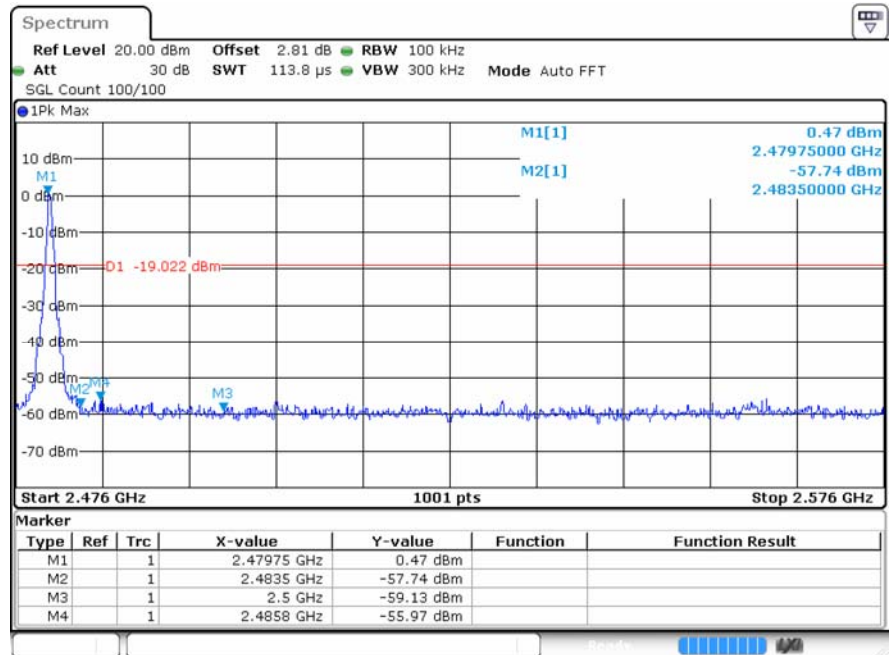
Start 2.306 GHz 1001 pts Stop 2.406 GHz

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40275 GHz	2.09 dBm		
M2		1	2.4 GHz	-52.35 dBm		
M3		1	2.39 GHz	-54.99 dBm		
M4		1	2.3598 GHz	-54.06 dBm		

Ref



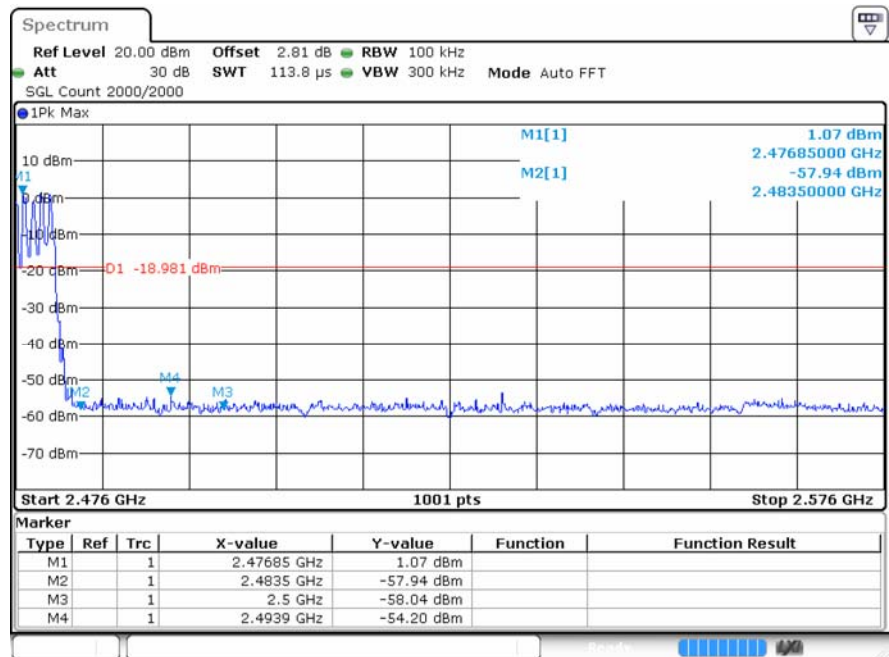
GFSK/HCH/No Hop



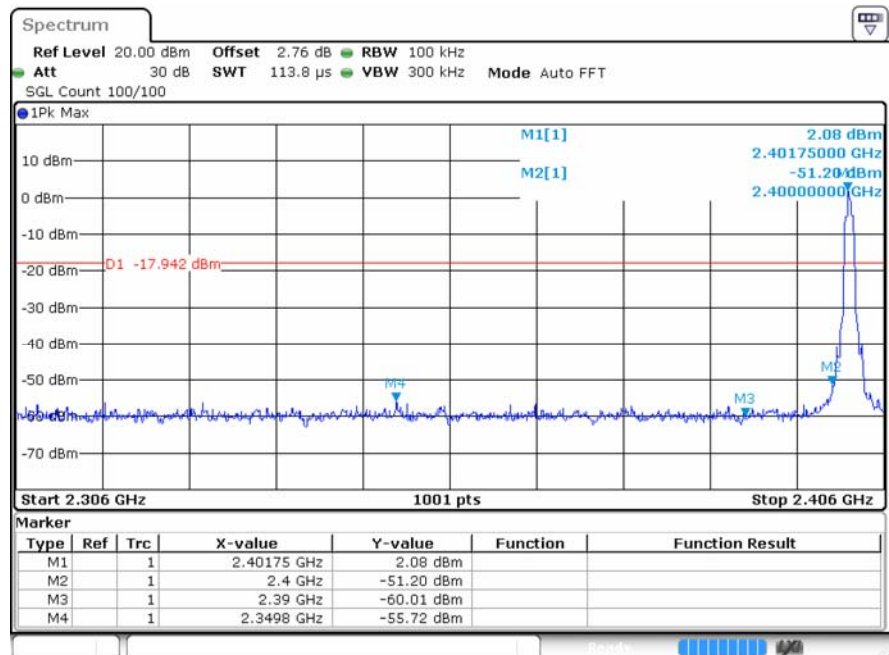
Ref.



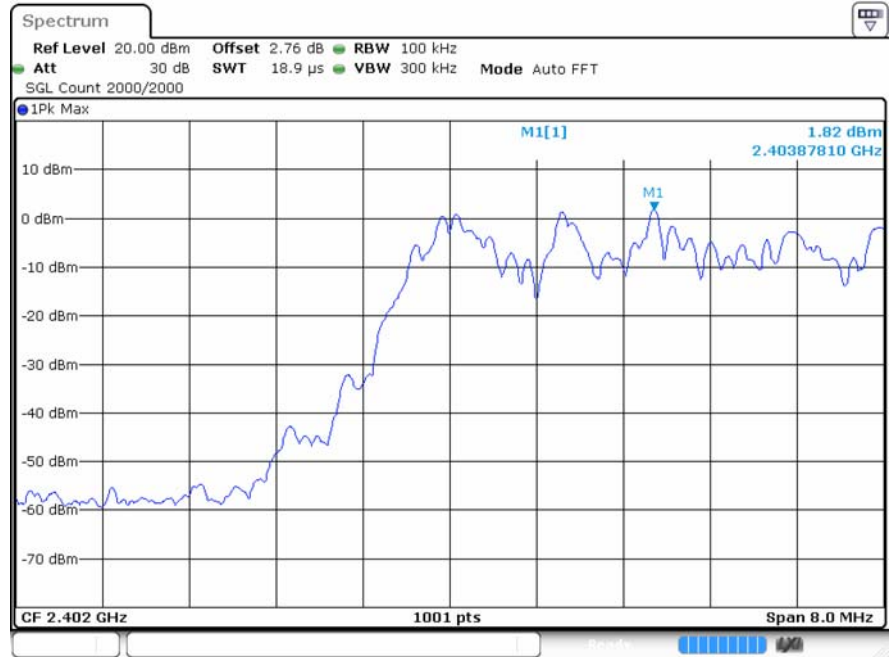
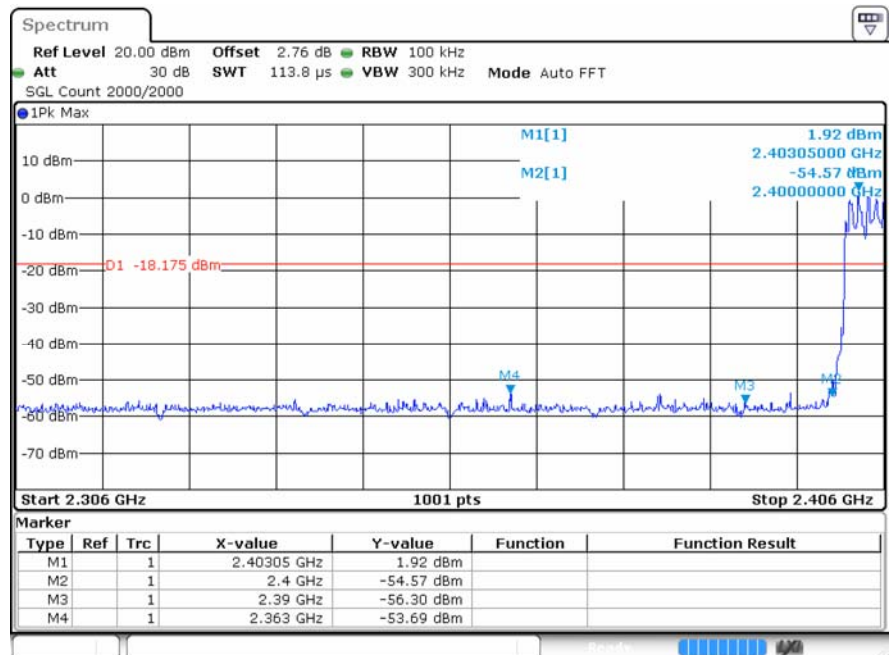
GFSK/HCH/Hop



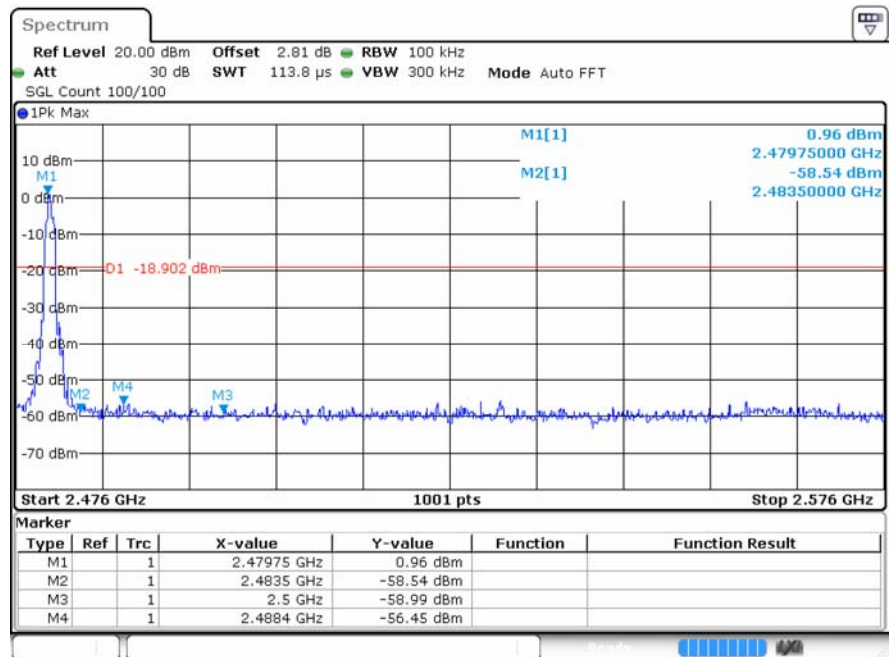
Ref


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


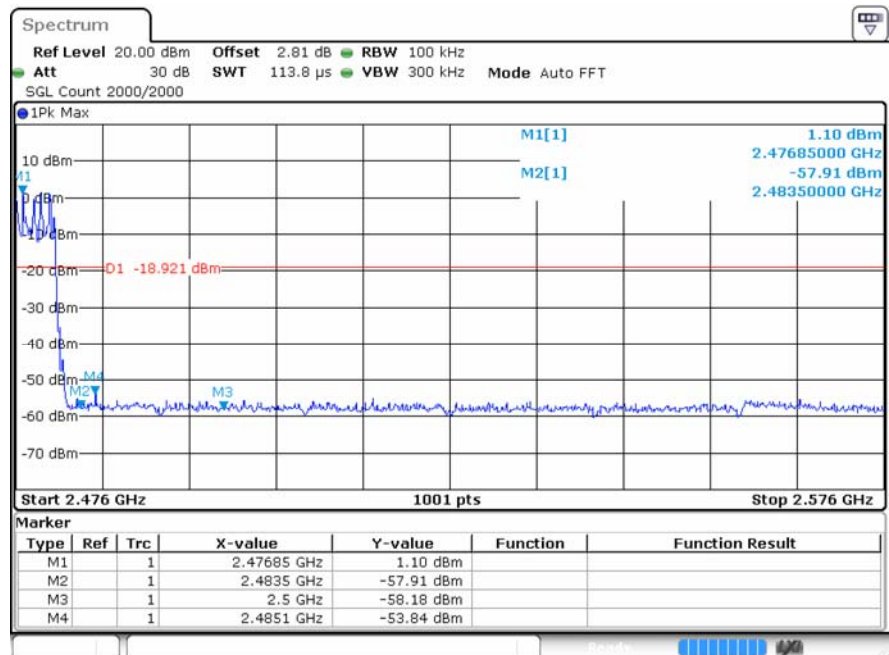
Ref


 $\pi/4$ DQPSK/LCH/Hop


Ref


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


Ref


 $\pi/4$ DQPSK/HCH/Hop


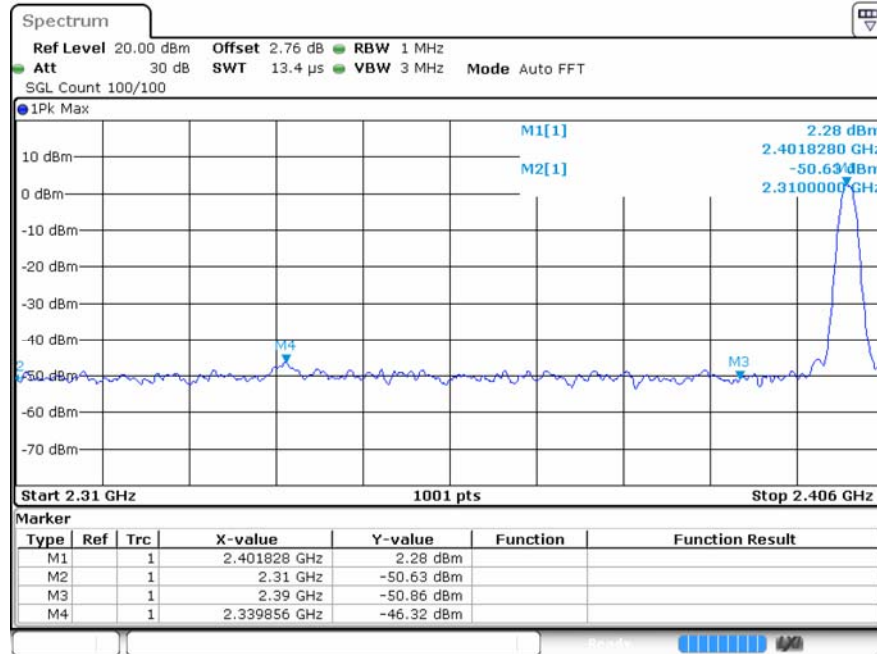
9 Restrict-band band-edge measurements

9.1 Test Result

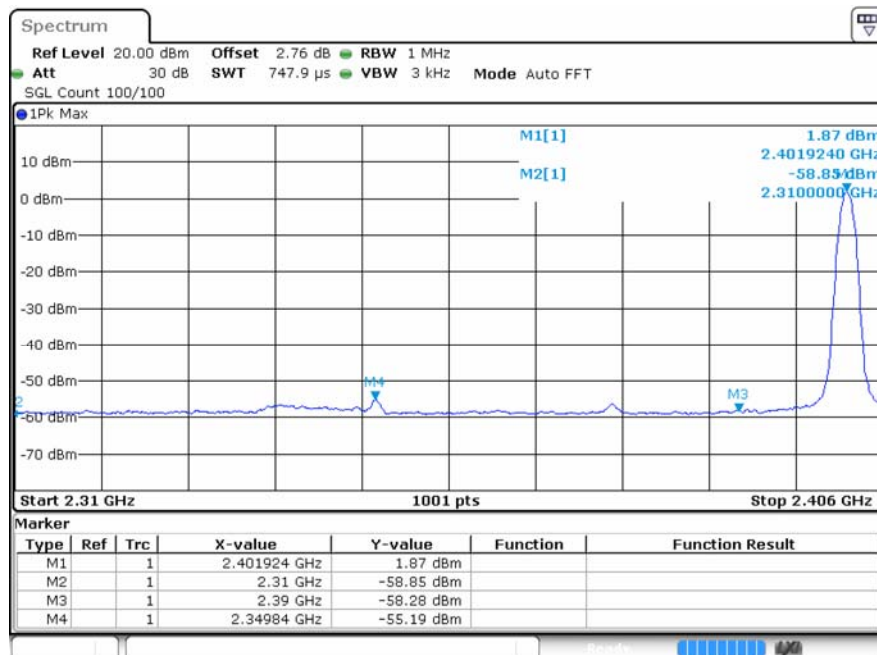
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-50.63	2	46.63	PEAK	74	Pass
	Off	2310.0	-58.85	2	38.41	AV	54	Pass
	Off	2339.856	-46.31	2	50.95	PEAK	74	Pass
	Off	2349.84	-55.19	2	42.07	AV	54	Pass
	Off	2390.0	-50.85	2	46.41	PEAK	74	Pass
	Off	2390.0	-58.27	2	38.99	AV	54	Pass
	Off	2483.5	-46.77	2	50.49	PEAK	74	Pass
	Off	2483.5	-55.85	2	41.41	AV	54	Pass
	Off	2483.8	-46	2	51.26	PEAK	74	Pass
	Off	2483.536	-55.84	2	41.42	AV	54	Pass
	Off	2500.0	-50.97	2	46.29	PEAK	74	Pass
	Off	2500.0	-58.14	2	39.12	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-50.22	2	47.04	PEAK	74	Pass
	Off	2310.0	-58.55	2	38.71	AV	54	Pass
	Off	2338.8	-46.96	2	50.3	PEAK	74	Pass
	Off	2338.992	-56.38	2	40.88	AV	54	Pass
	Off	2390.0	-51.19	2	46.07	PEAK	74	Pass
	Off	2390.0	-58.35	2	38.91	AV	54	Pass
	Off	2483.5	-45.63	2	51.63	PEAK	74	Pass
	Off	2483.5	-56.31	2	40.95	AV	54	Pass
	Off	2483.512	-45.63	2	51.63	PEAK	74	Pass
	Off	2483.512	-56.31	2	40.95	AV	54	Pass
	Off	2500.0	-49.65	2	47.61	PEAK	74	Pass
	Off	2500.0	-57.82	2	39.44	AV	54	Pass

9.2 Test Graphs

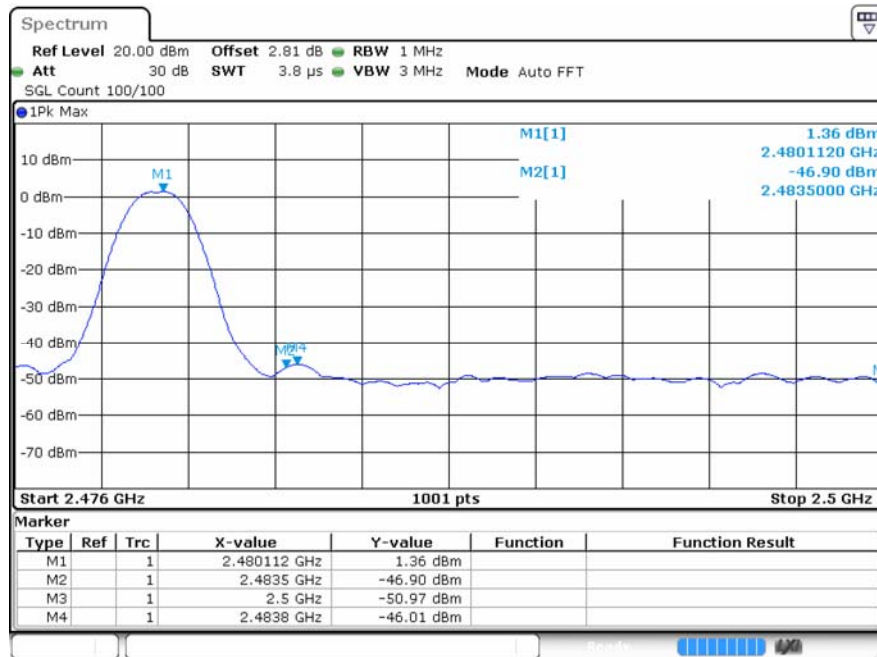
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



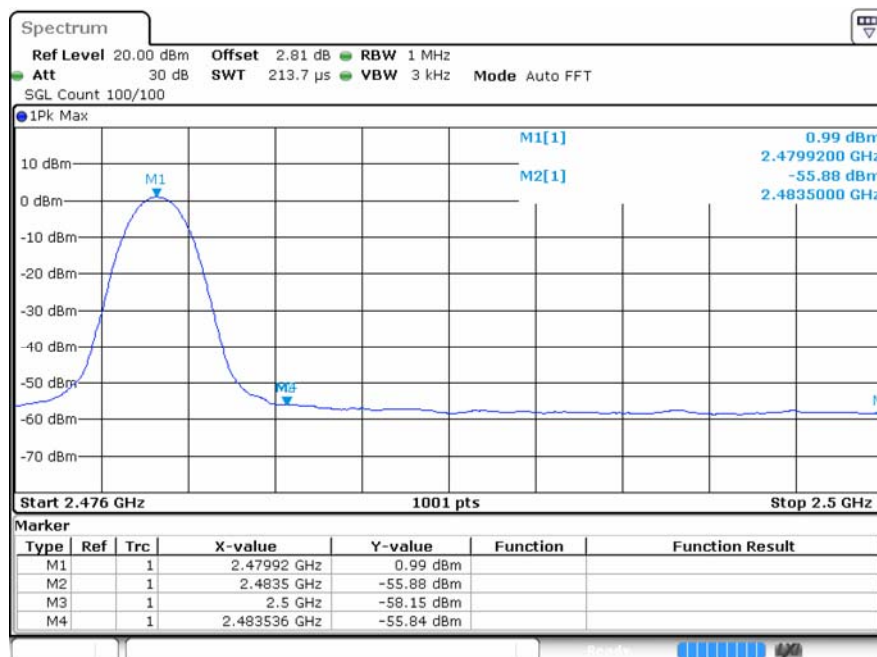
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



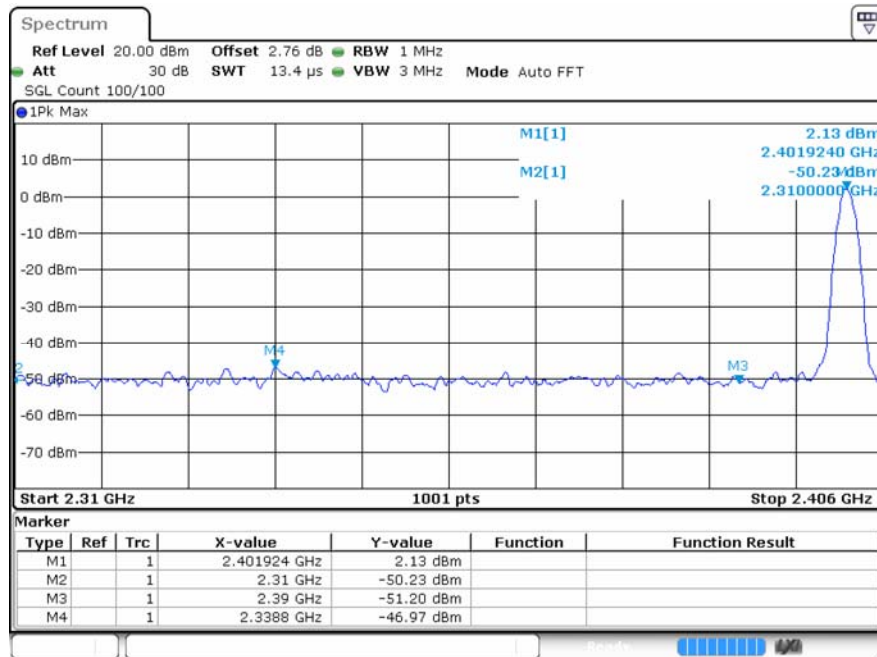
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



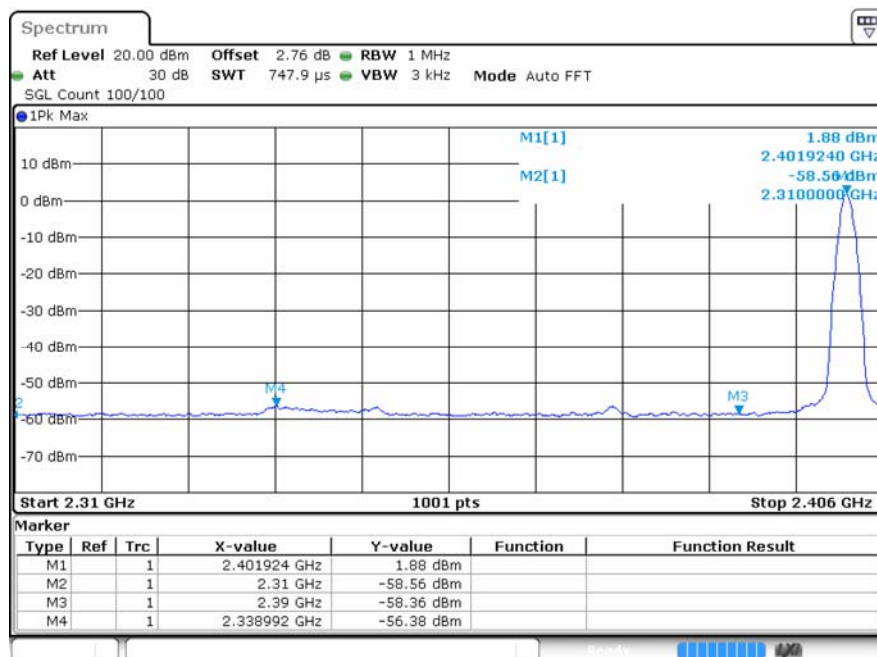
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



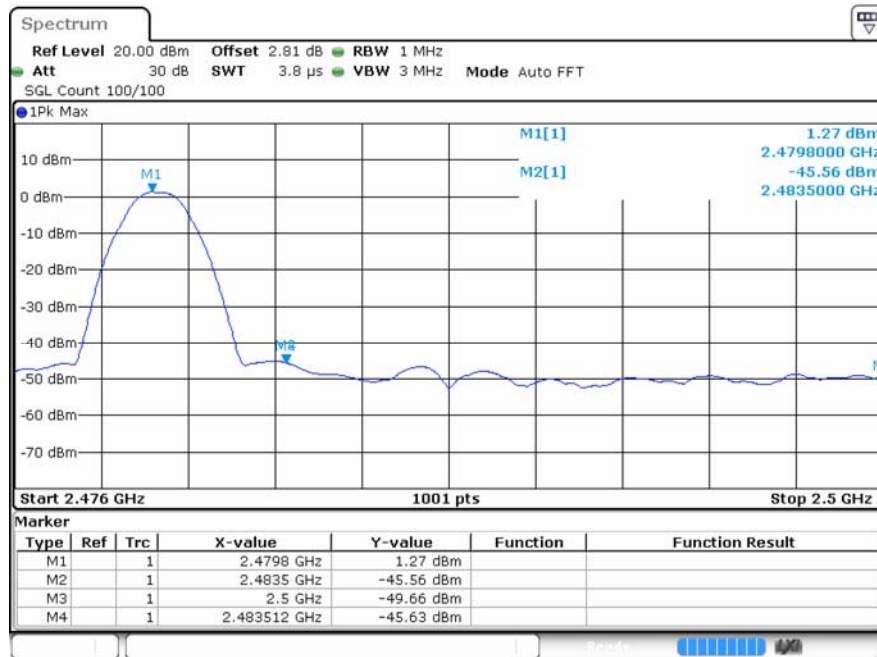
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



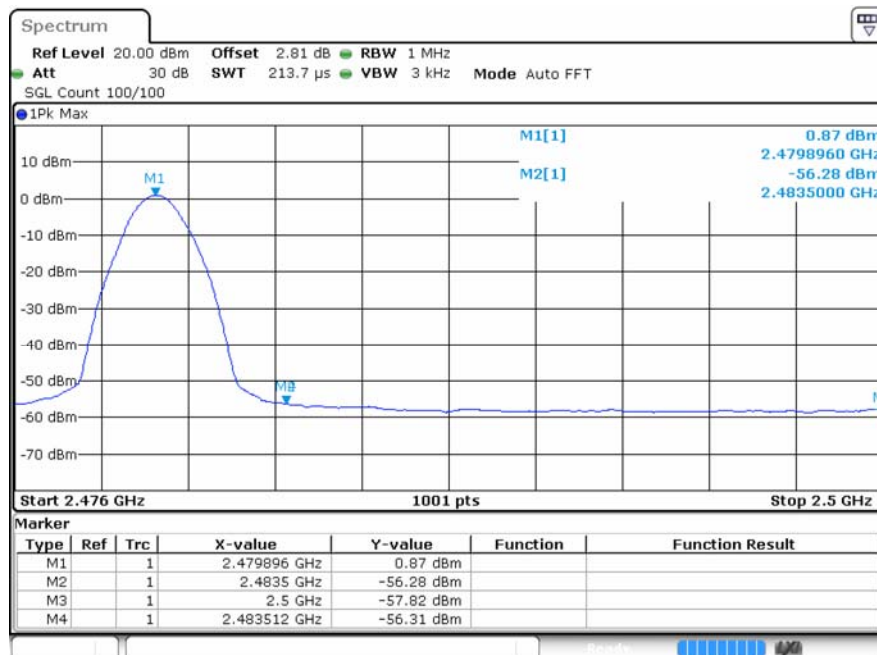
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---