



Appendix B

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

Product Name: Wireless Earphone

Trade Mark: OSCAL

Test Model: HiBuds 6

Environmental Conditions

Temperature:	24.9℃
Relative Humidity:	52.3%
ATM Pressure:	101Kpa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung



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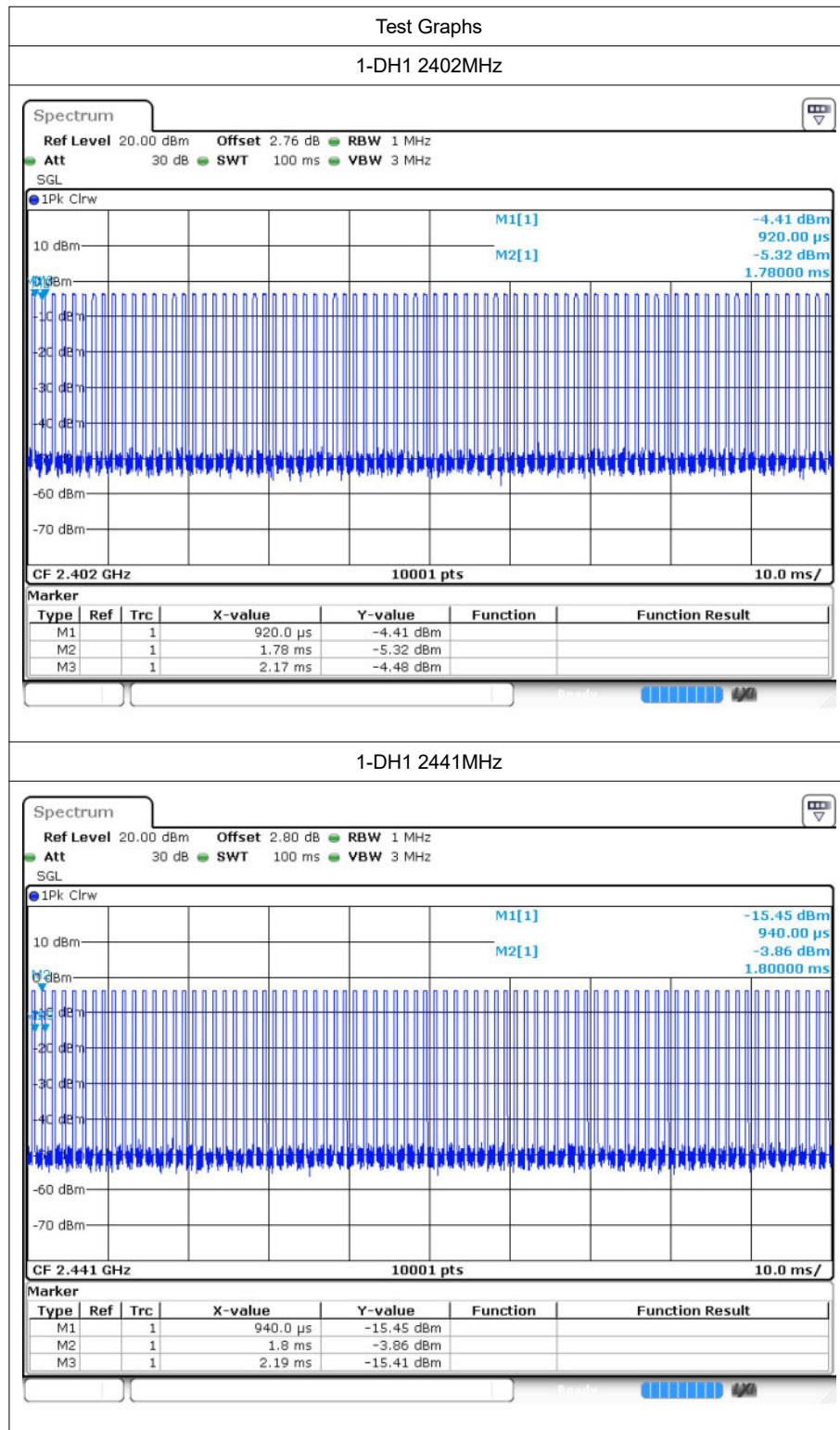
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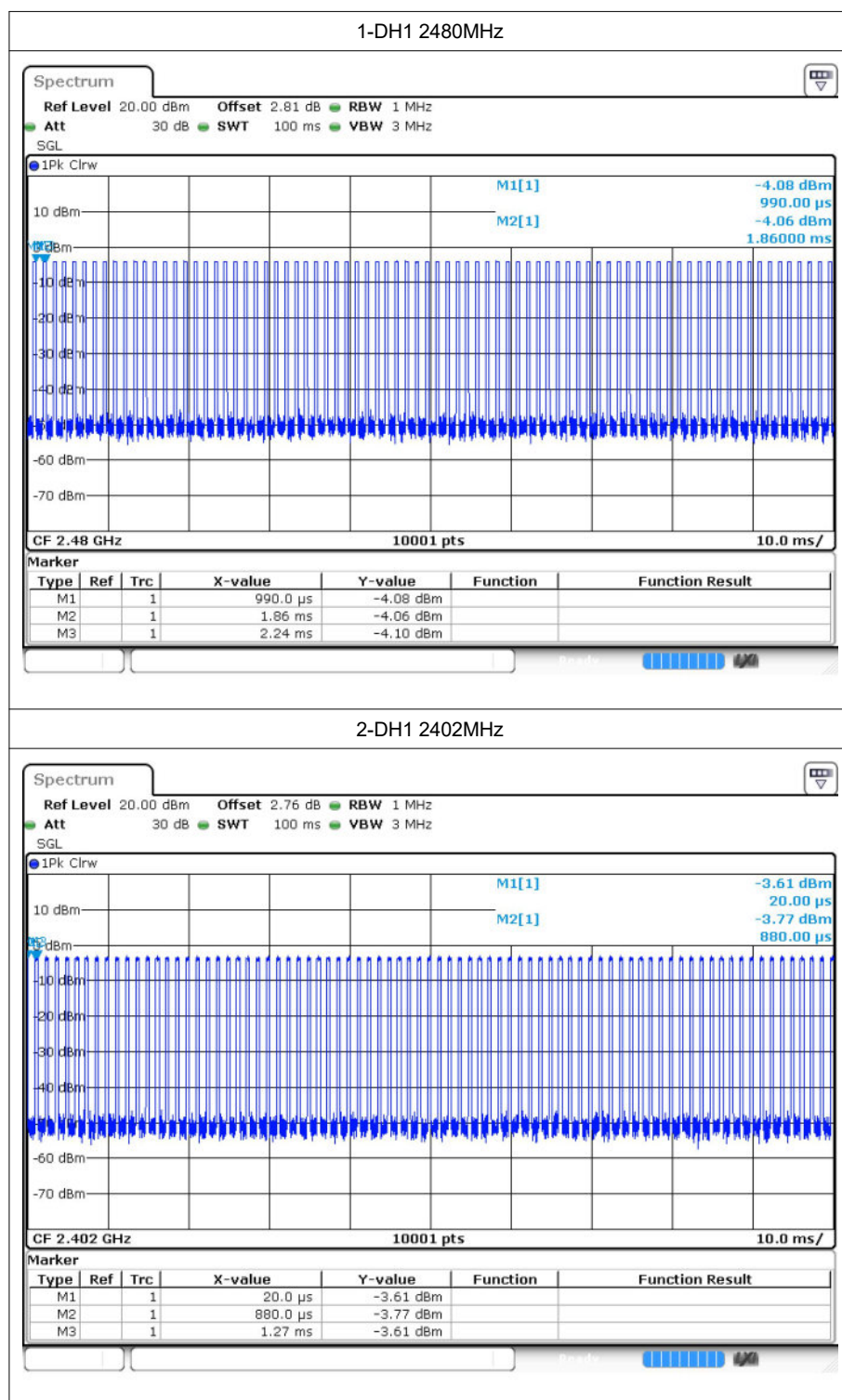
1 Duty Cycle

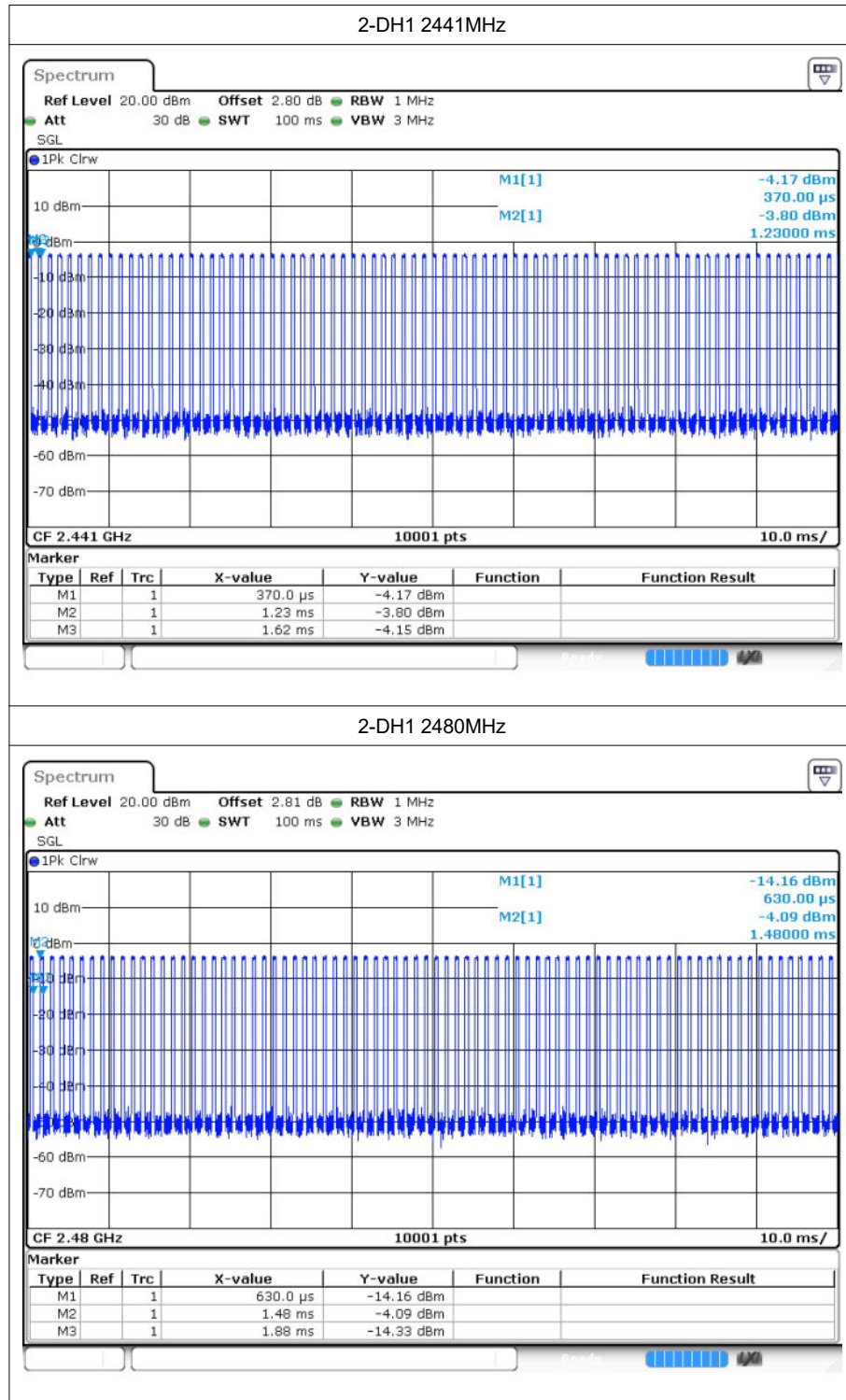
1.1 Test Result

Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	32	4.95	2.56
1-DH1	2441	31.38	5.03	2.56
1-DH1	2480	31.2	5.06	2.63
2-DH1	2402	32.01	4.95	2.56
2-DH1	2441	32.01	4.95	2.56
2-DH1	2480	32.8	4.84	2.5

1.2 Test Graphs





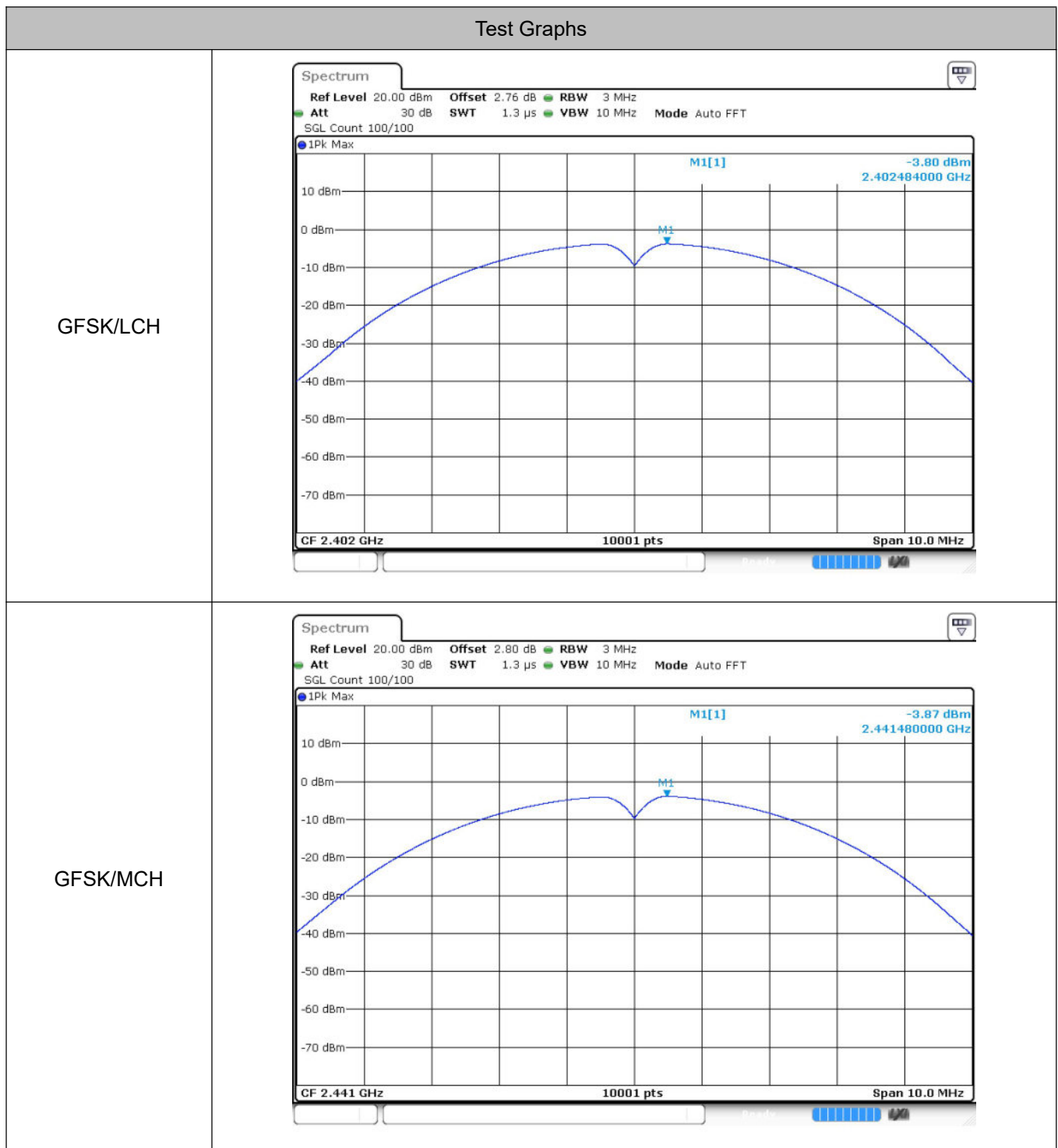


2 Maximum Conducted Peak Output Power

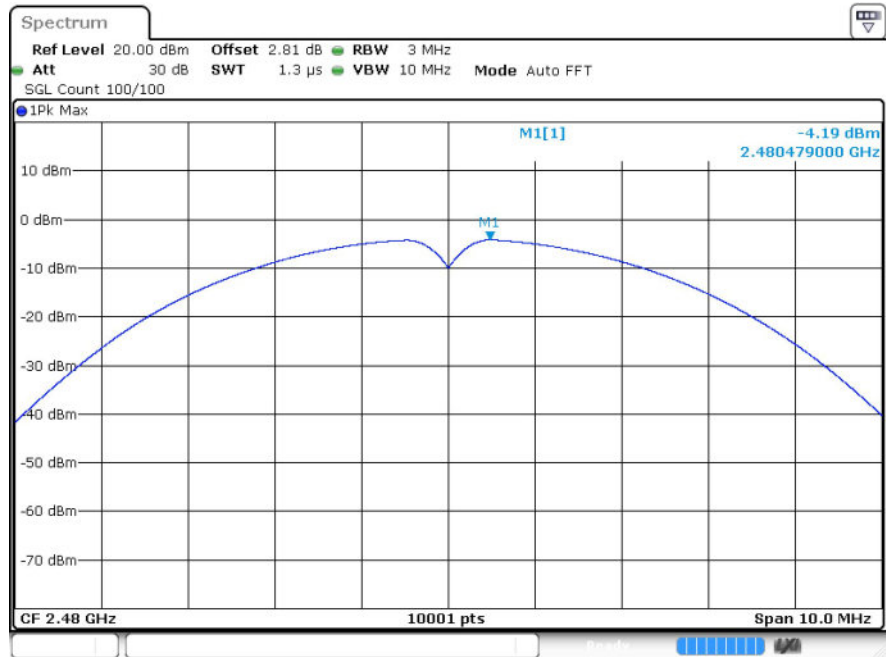
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.8	21	Pass
	MCH	-3.87	21	Pass
	HCH	-4.19	21	Pass
$\pi/4$ DQPSK	LCH	-3.18	21	Pass
	MCH	-3.45	21	Pass
	HCH	-3.7	21	Pass

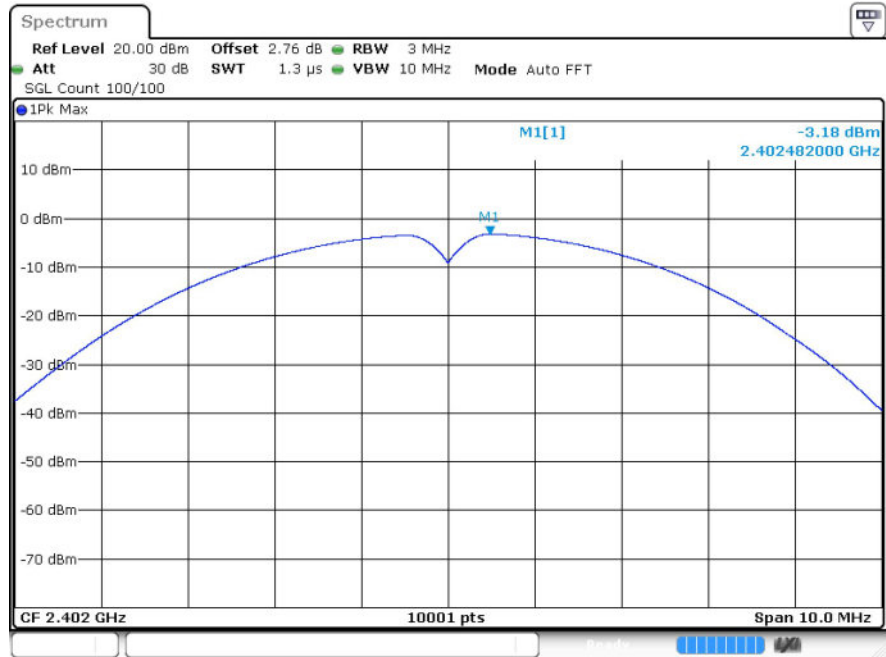
2.2 Test Graphs



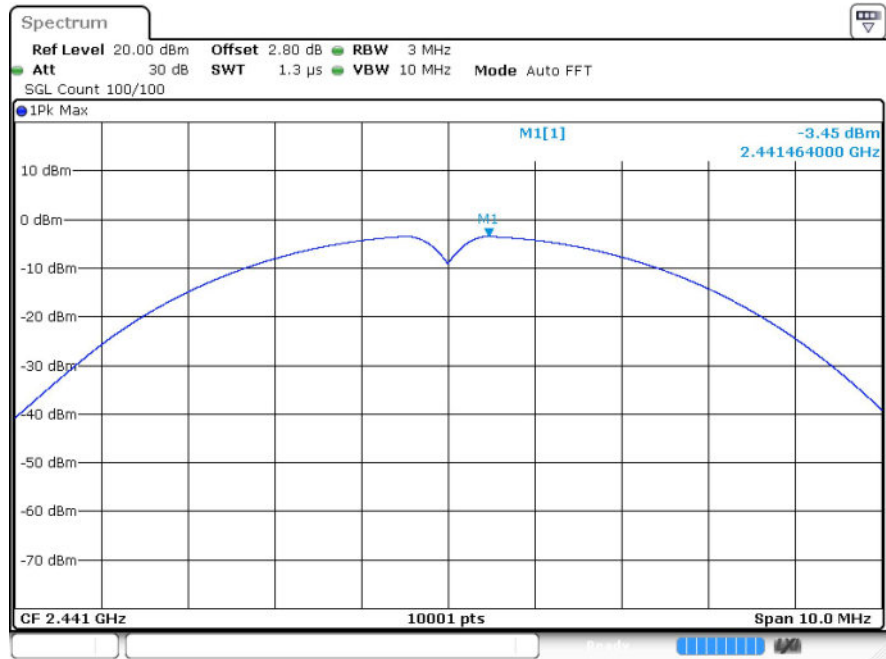
GFSK/HCH



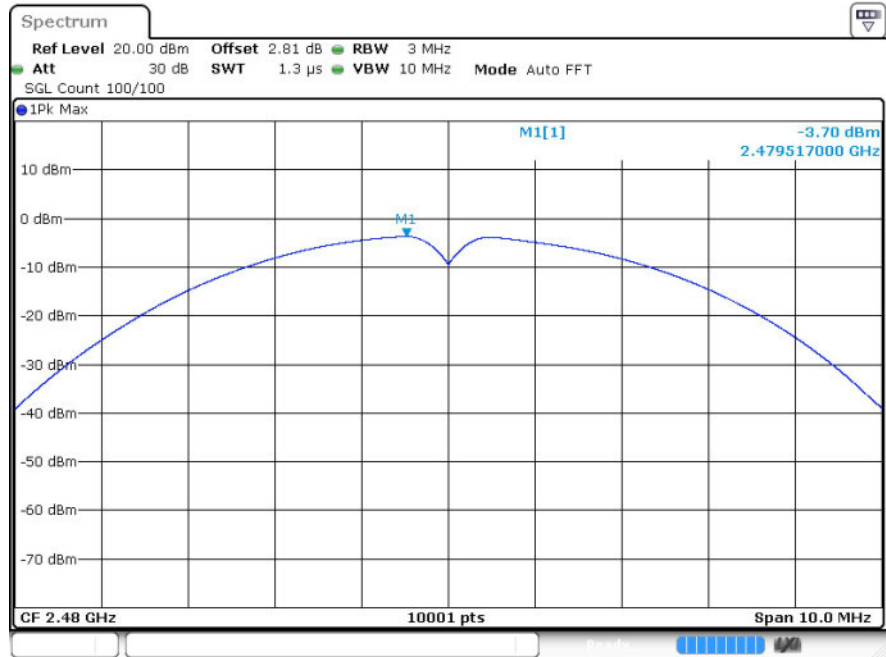
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

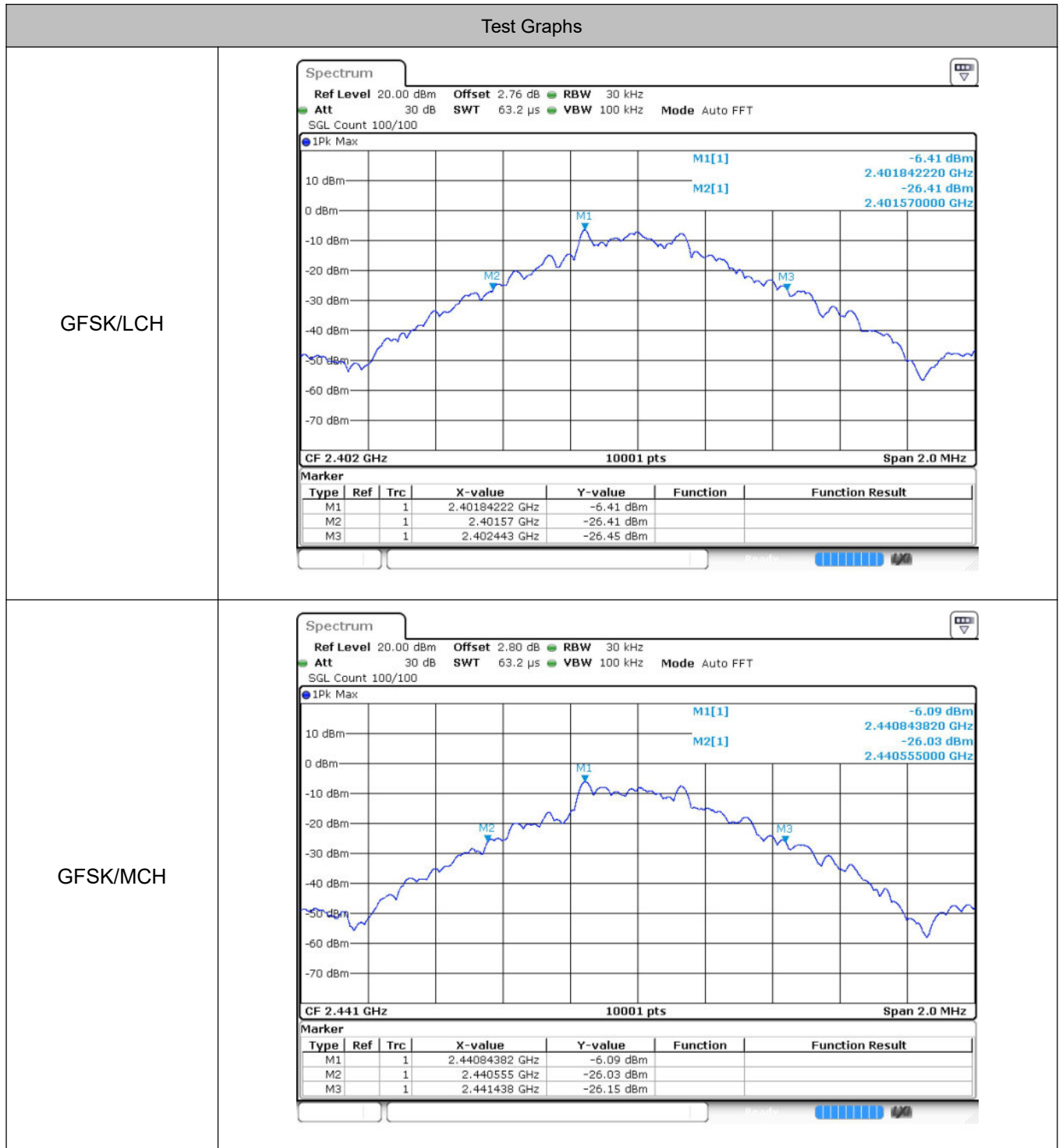


3 20dB Bandwidth

3.1 Test Result

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.873	Not Specified	Pass
	MCH	0.883	Not Specified	Pass
	HCH	0.882	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.252	Not Specified	Pass
	MCH	1.218	Not Specified	Pass
	HCH	1.195	Not Specified	Pass

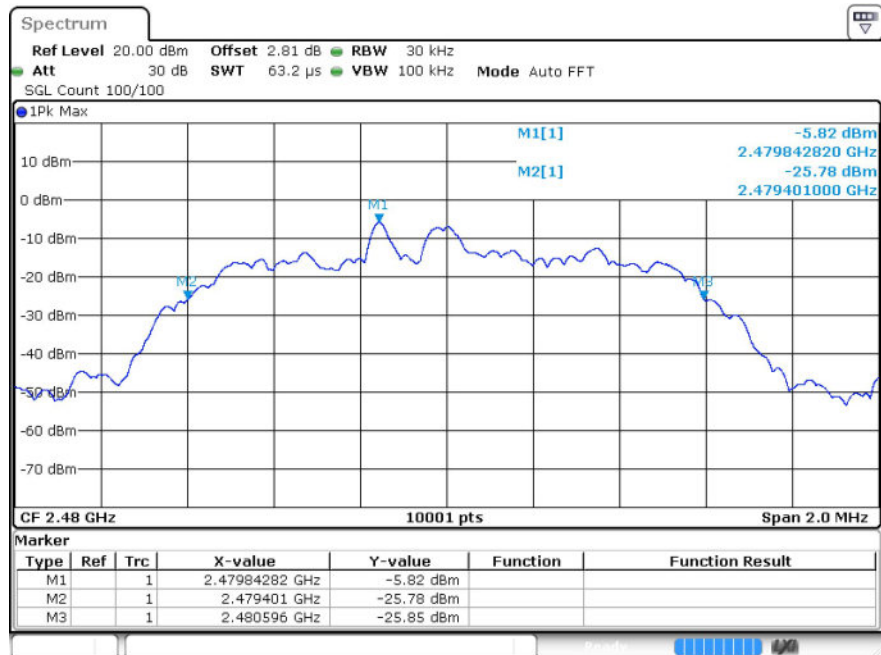
3.2 Test Graphs



GFSK/HCH


 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

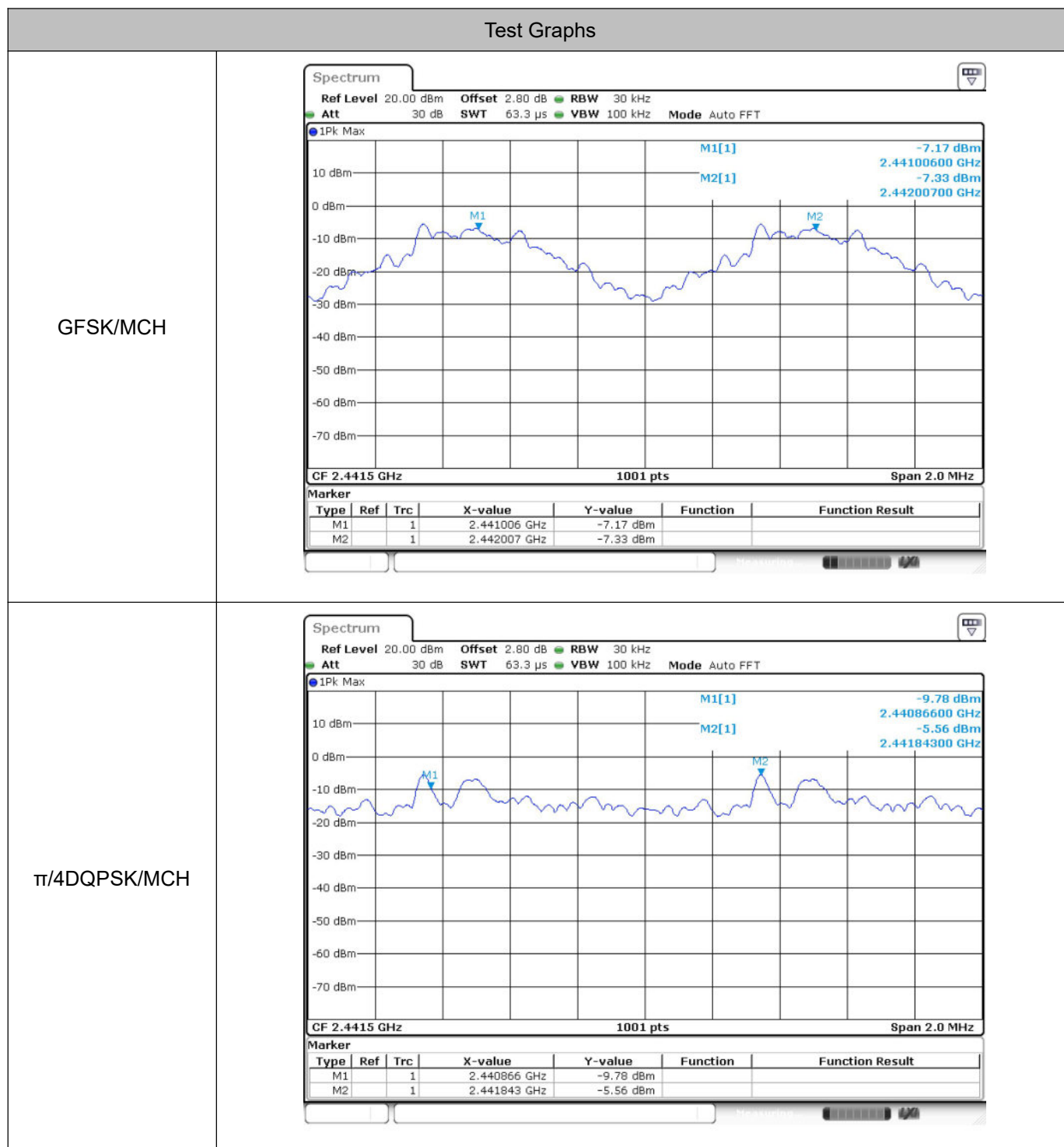
 $\pi/4$ DQPSK/HCH


4 Carrier Frequency Separation

4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.001	0.589	Pass
$\pi/4$ DQPSK	MCH	0.977	0.812	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

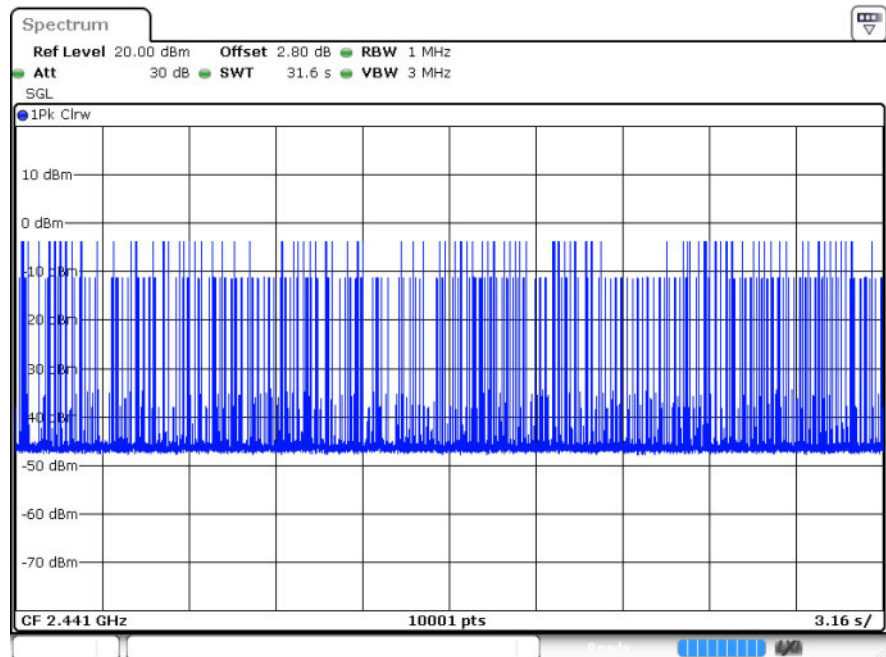
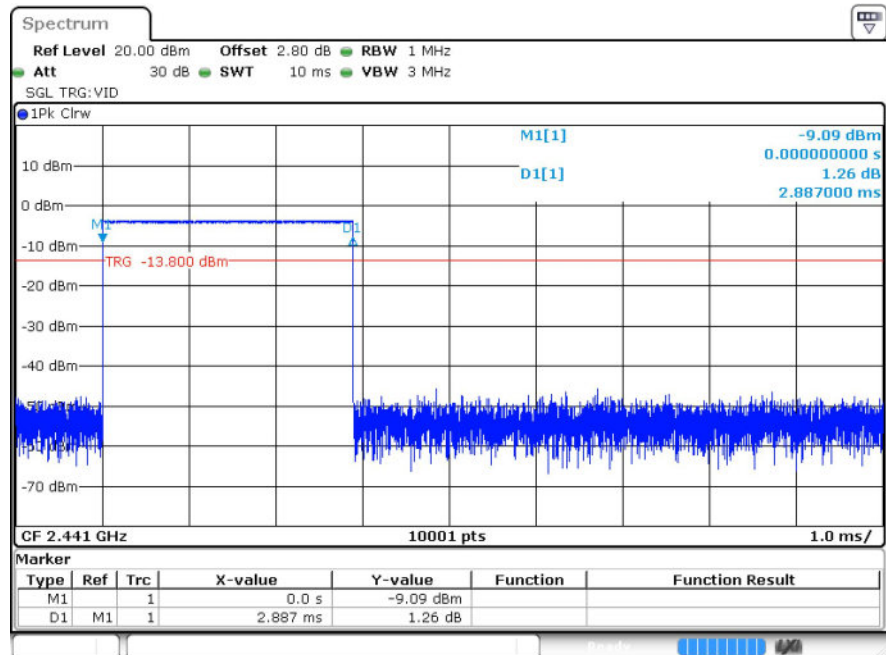
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.887	112	323.344	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.892	109	315.228	0.4	Pass

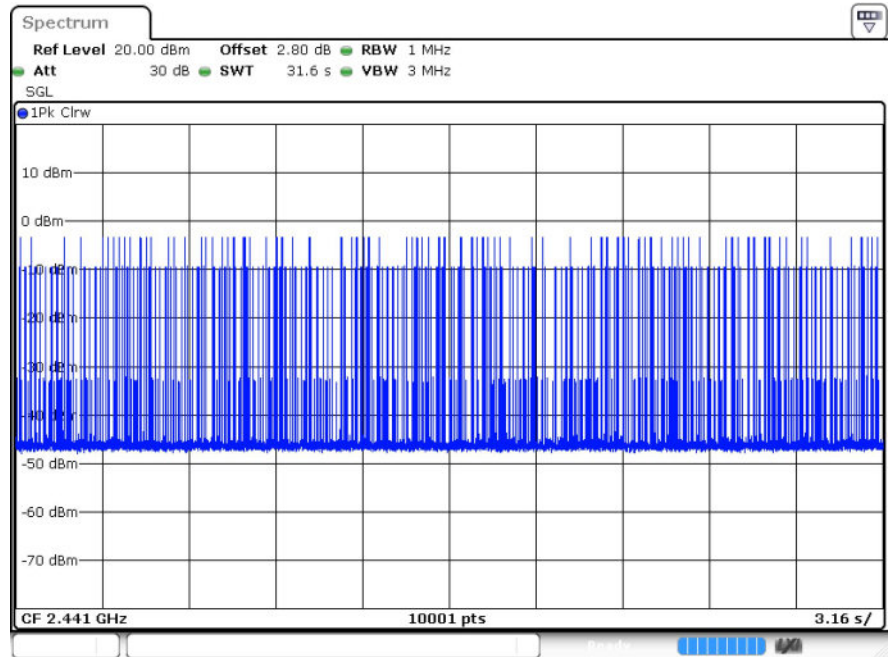
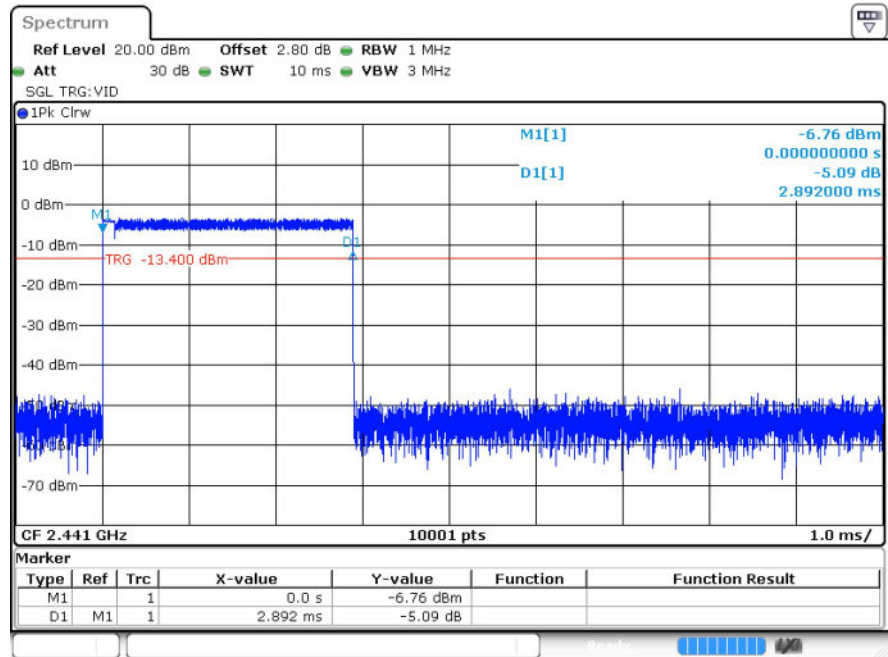
6.2 Test Graphs

Test Graphs

GFSK_DH5/MCH



$\pi/4$ DQPSK
_2DH5/MCH



7 RF Conducted Spurious Emissions

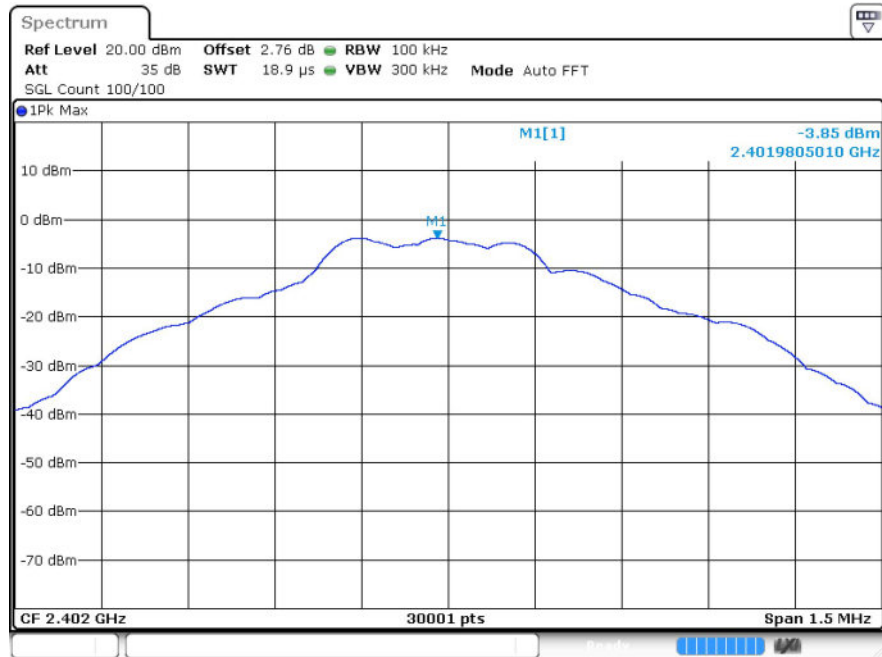
7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-36.41	-20	Pass
	MCH	-37.64	-20	Pass
	HCH	-36.32	-20	Pass
$\pi/4$ DQPSK	LCH	-37.7	-20	Pass
	MCH	-37.83	-20	Pass
	HCH	-37.08	-20	Pass

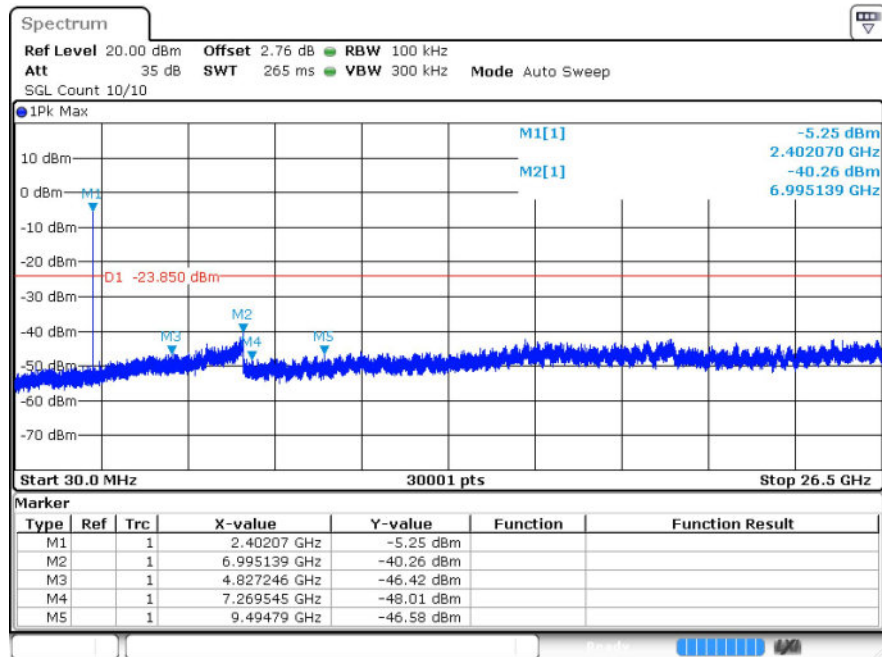
7.2 Test Graphs

GFSK_LCH_Graphs

Pref

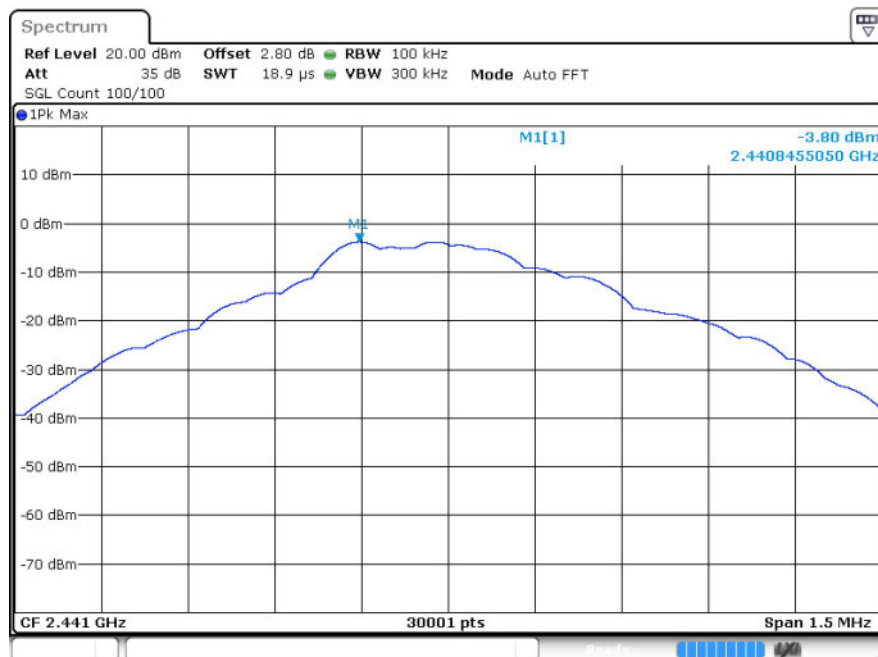


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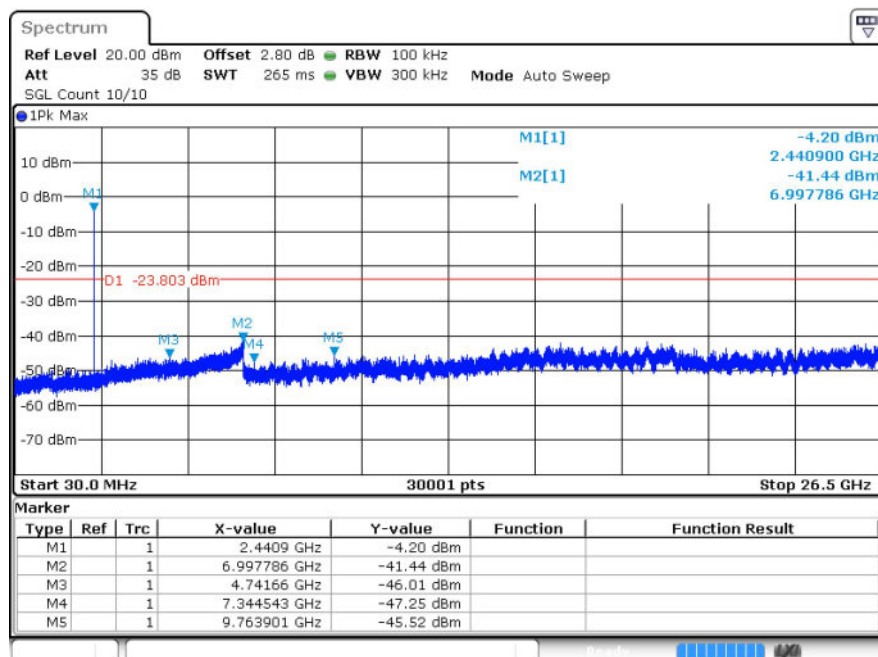


GFSK_MCH_Graphs

Pref

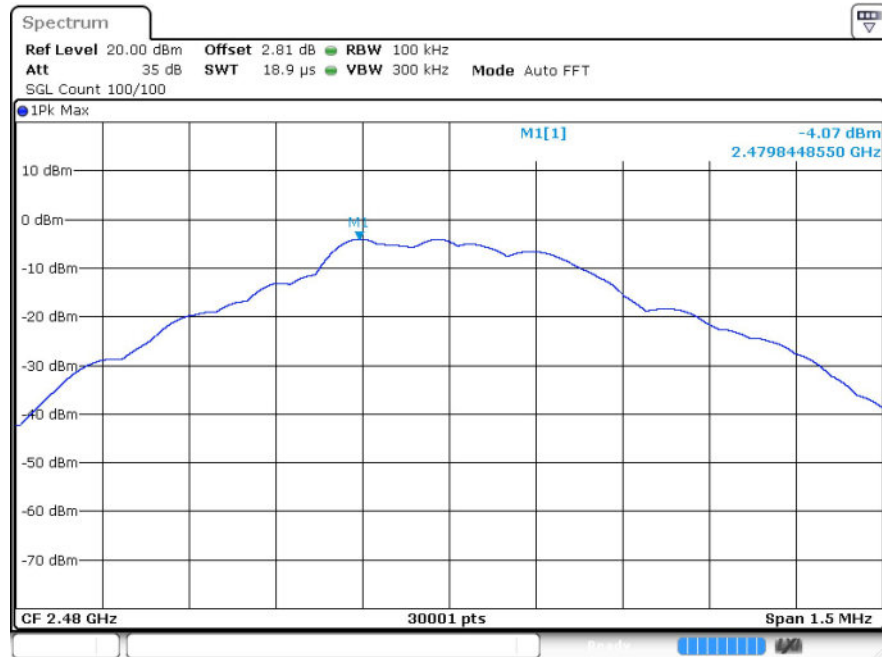


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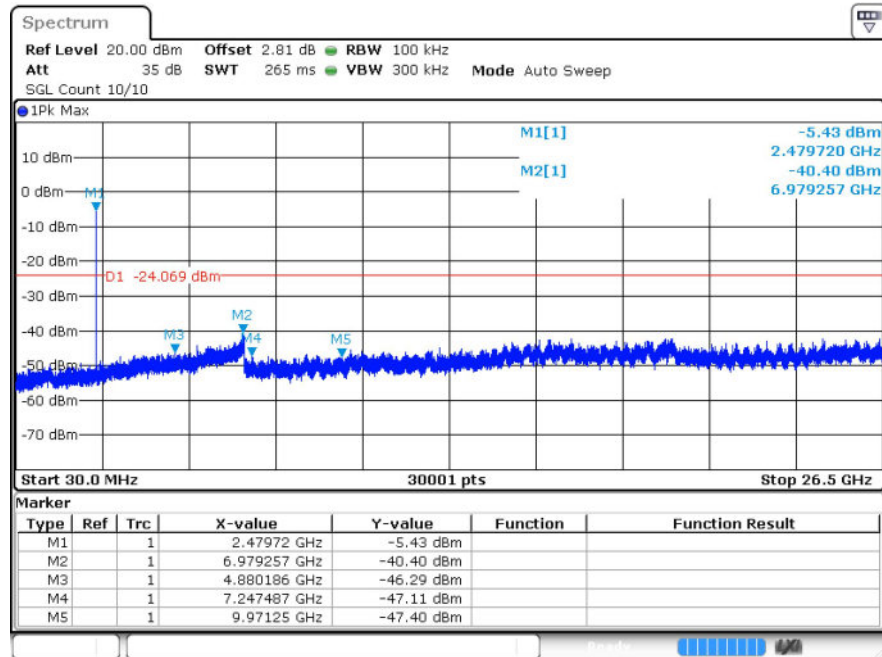


GFSK_HCH_Graphs

Pref

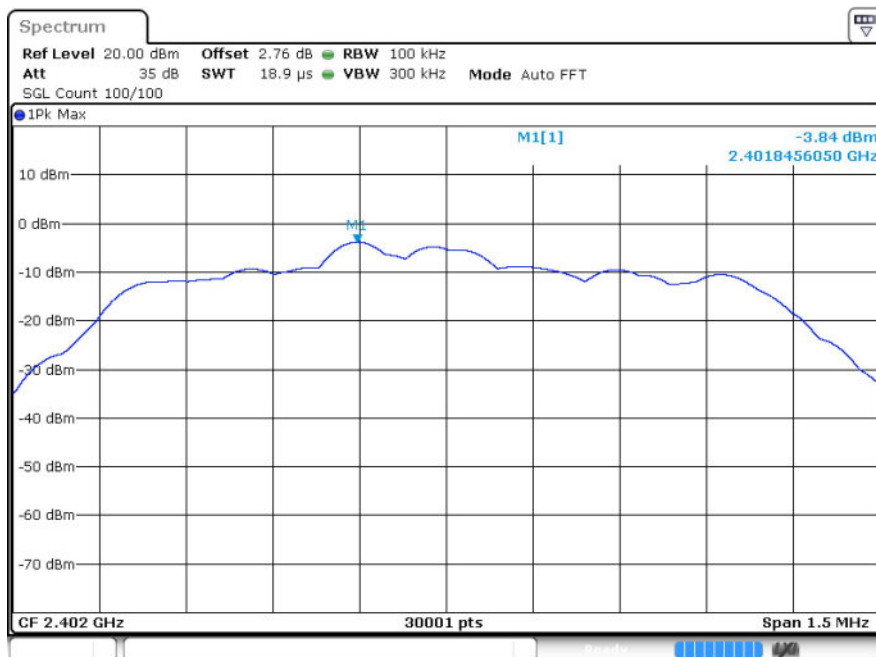


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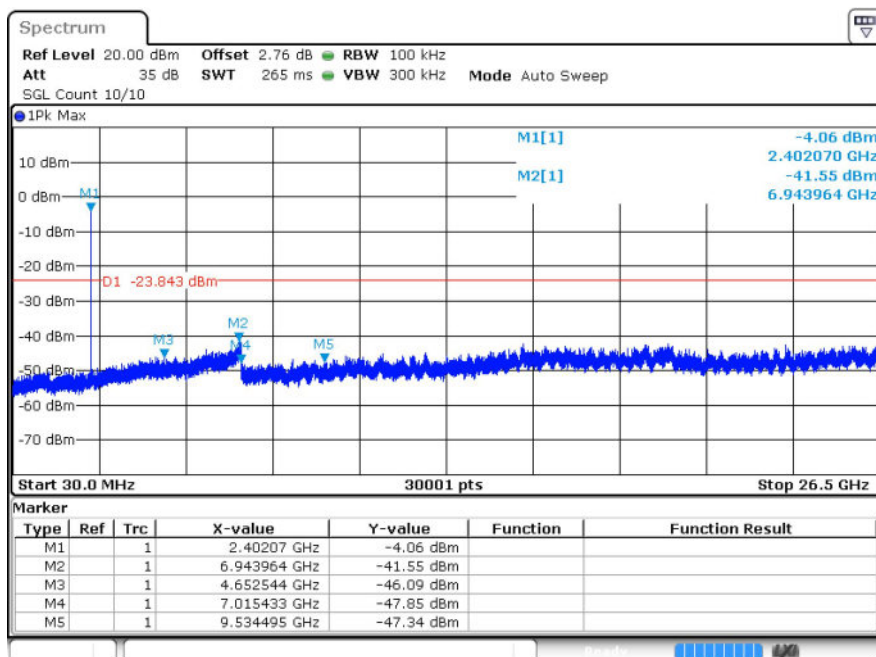


$\pi/4$ DQPSK_LCH_Graphs

Pref

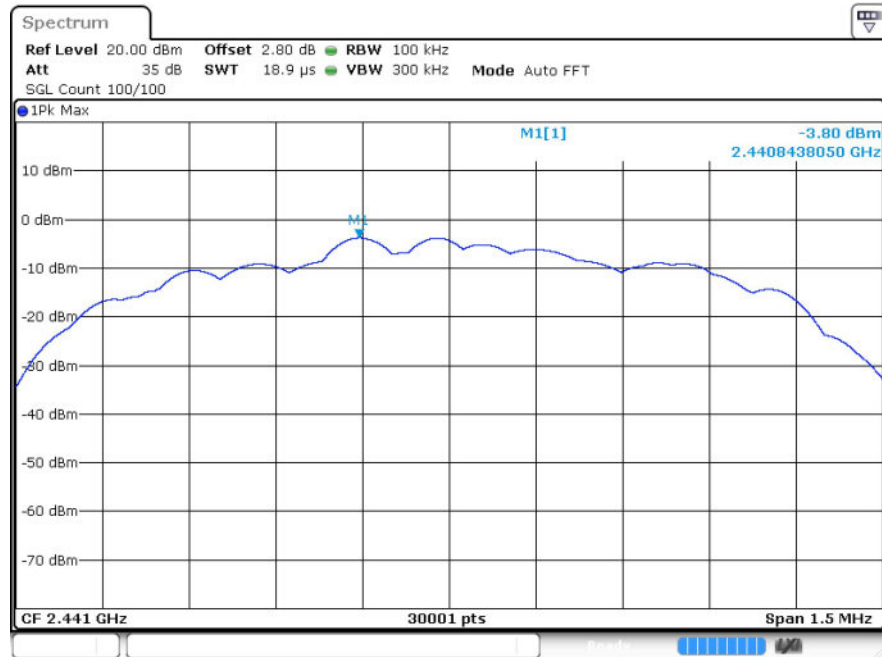


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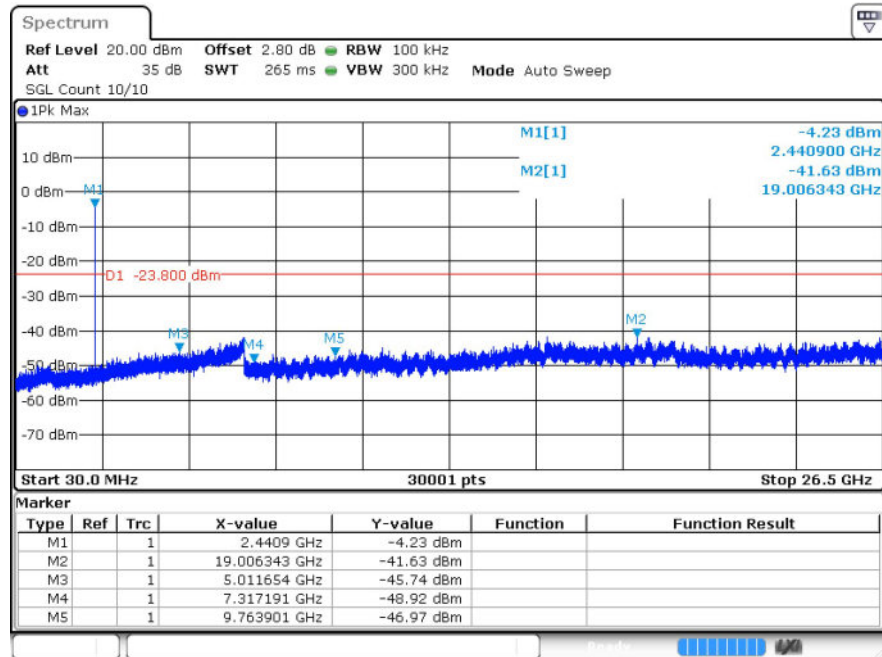


π /4DQPSK_MCH_Graphs

Pref

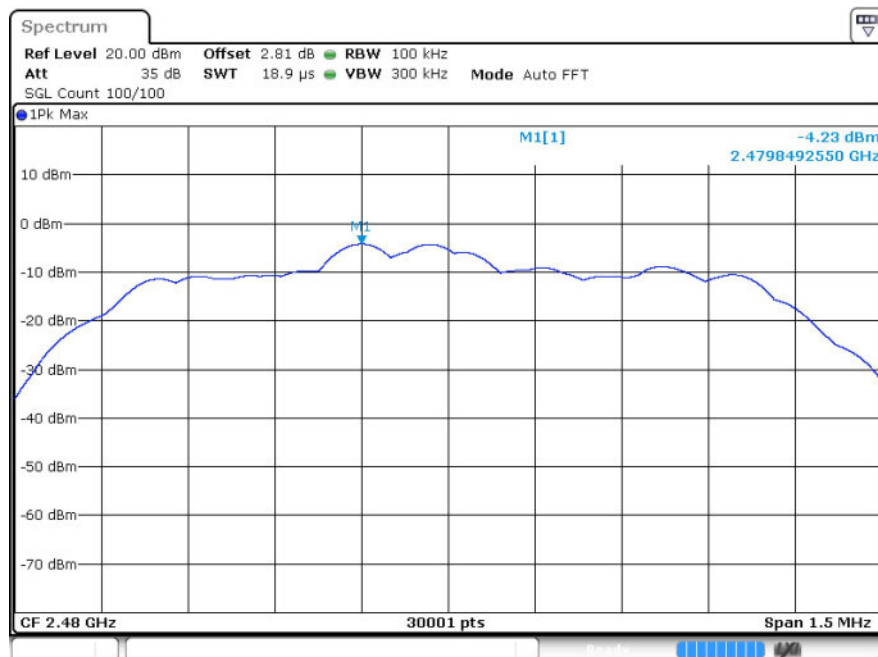


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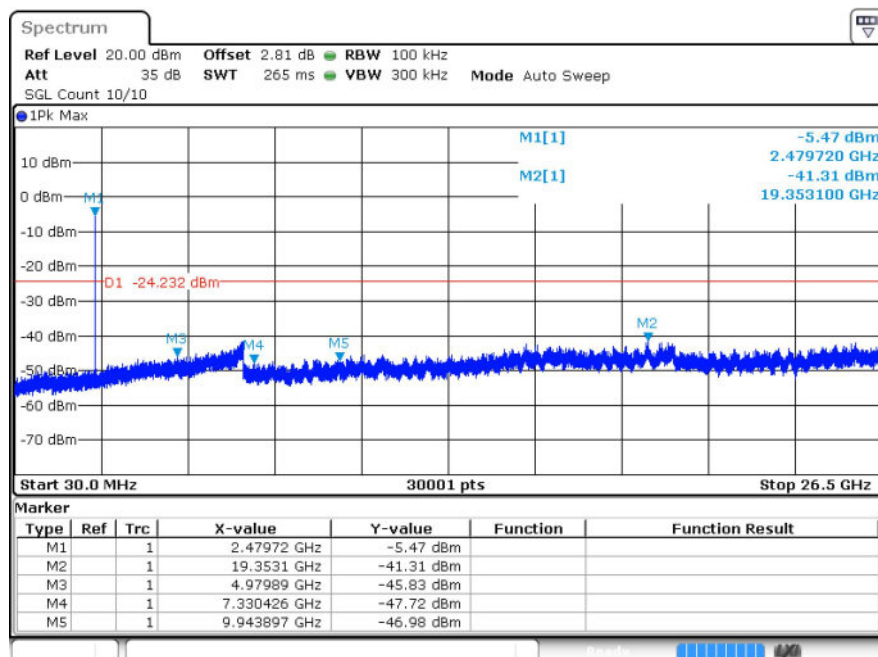


$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

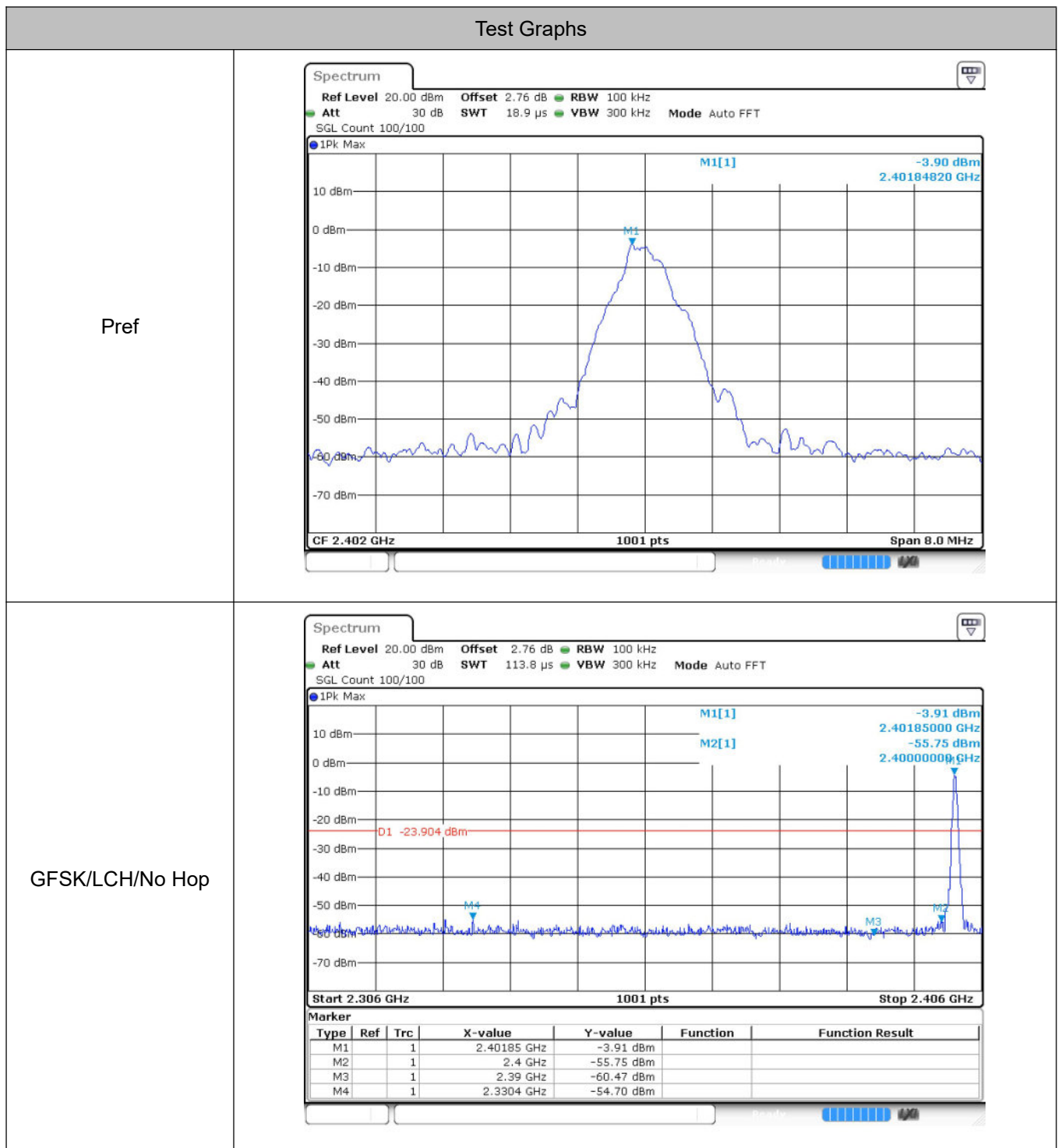


8 Band-edge for RF Conducted Emissions

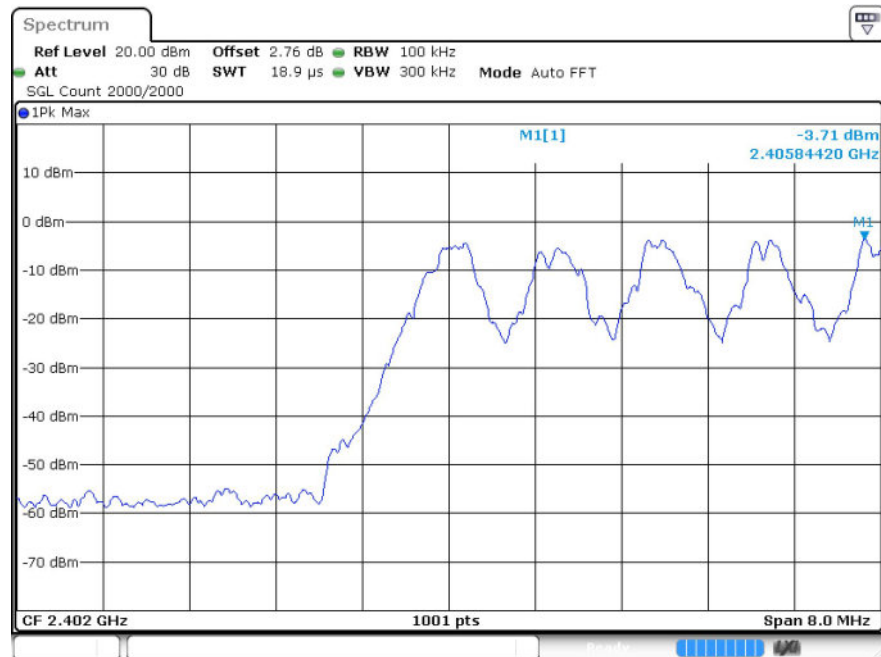
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-50.79	-20	Pass
			On	-51.31	-20	Pass
	HCH	2480	Off	-51.29	-20	Pass
			On	-49.39	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-51.8	-20	Pass
			On	-51.45	-20	Pass
	HCH	2480	Off	-51.51	-20	Pass
			On	-50.79	-20	Pass

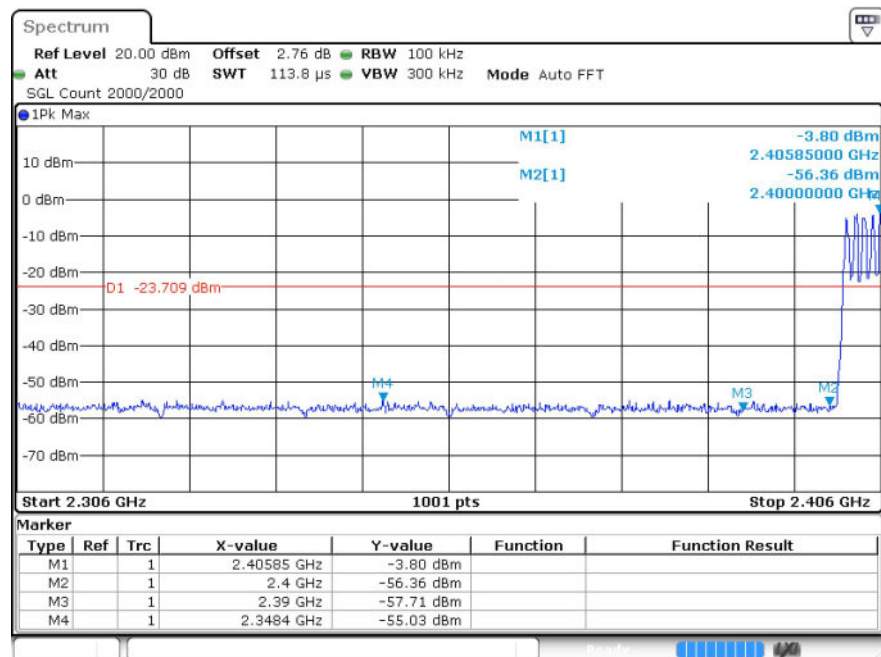
8.2 Test Graphs



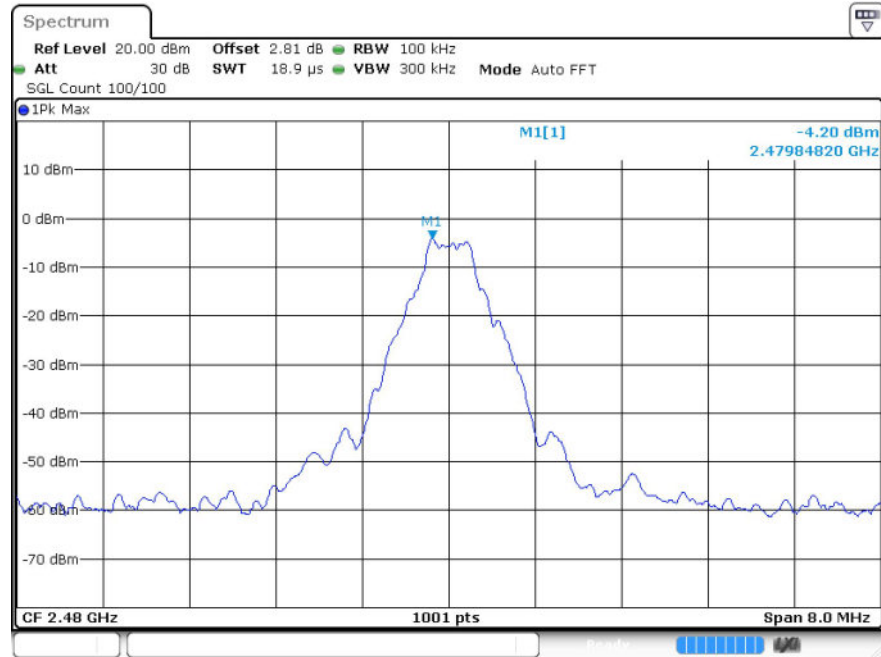
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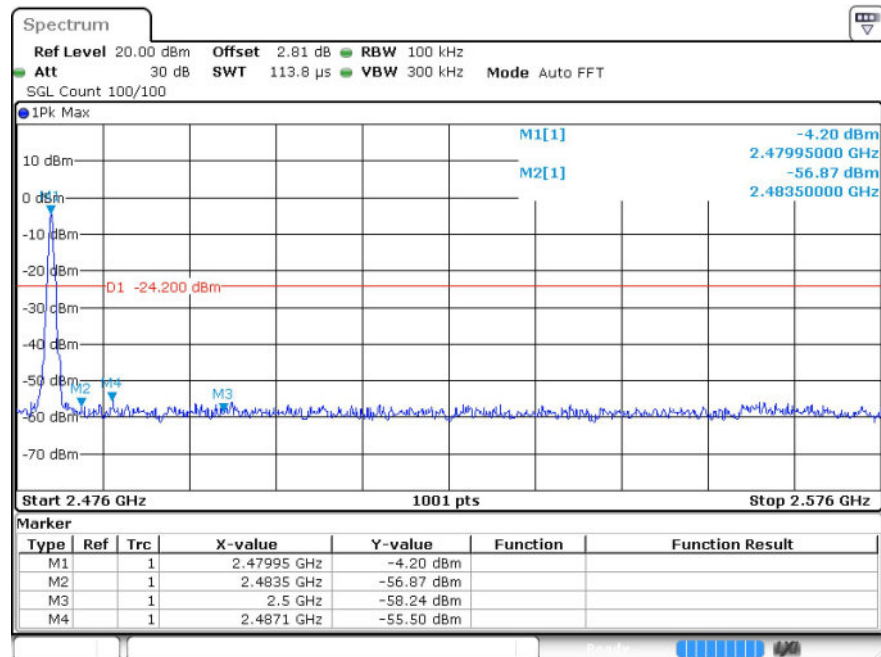
GFSK/LCH/Hop



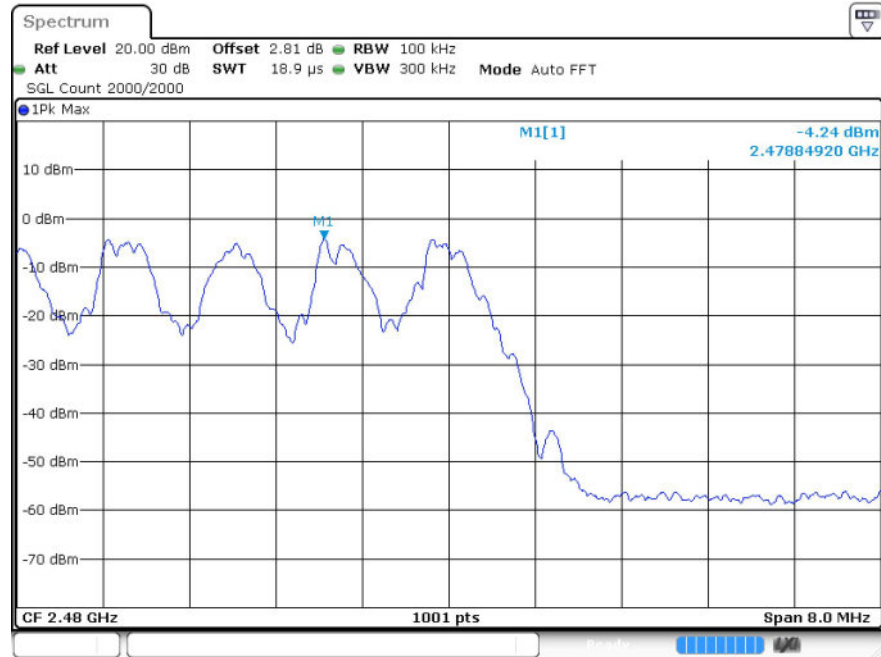
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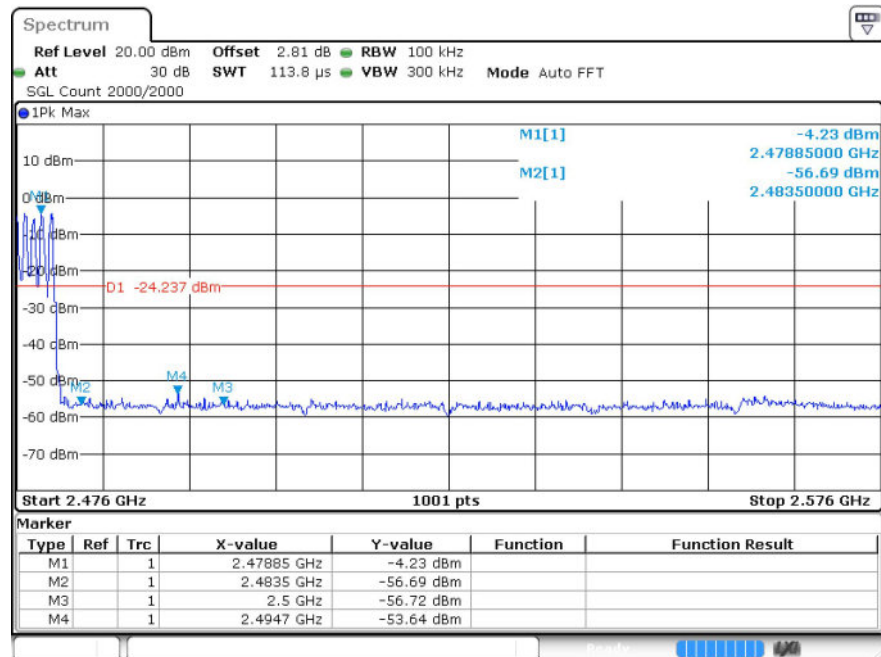
GFSK/HCH/No Hop



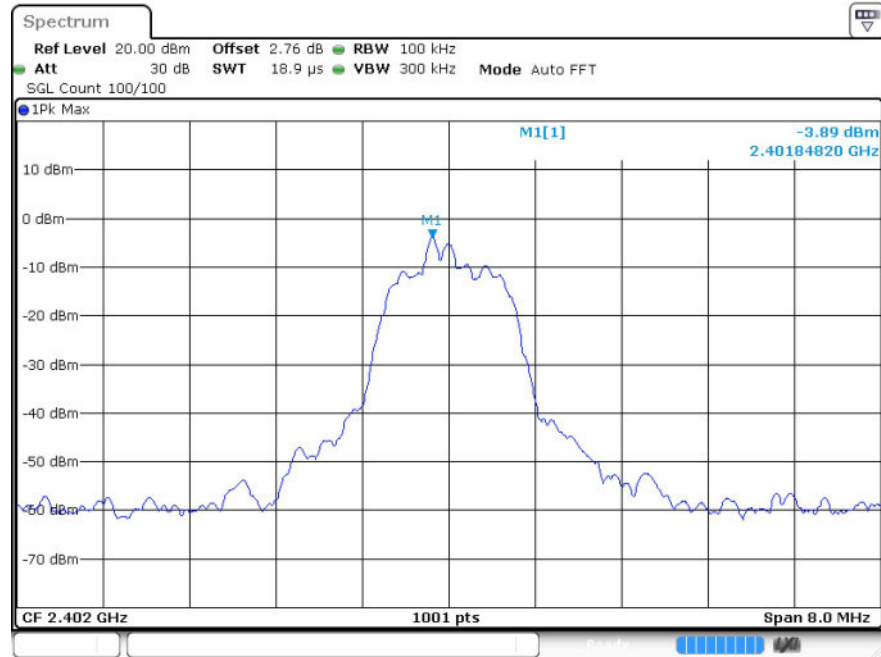
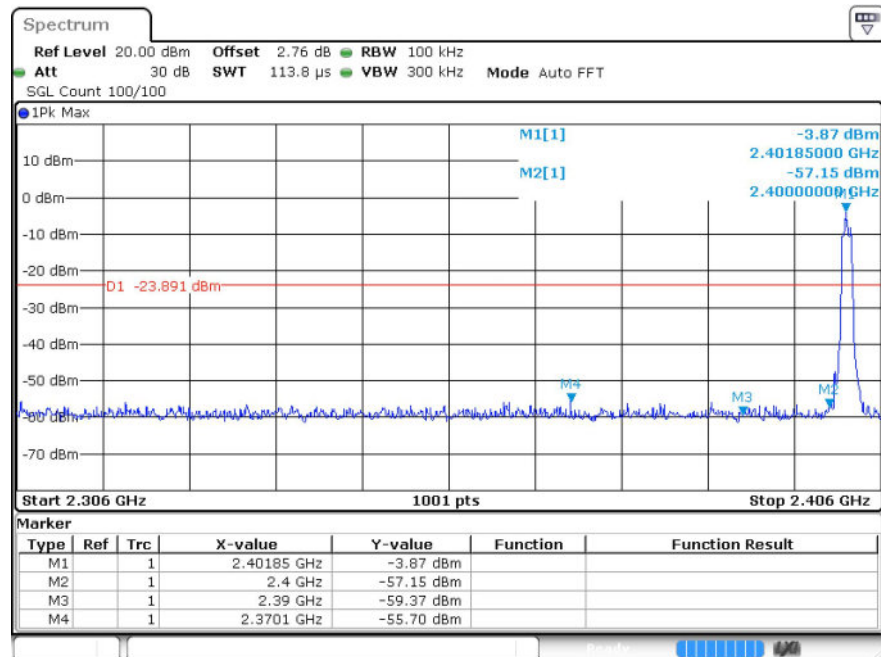
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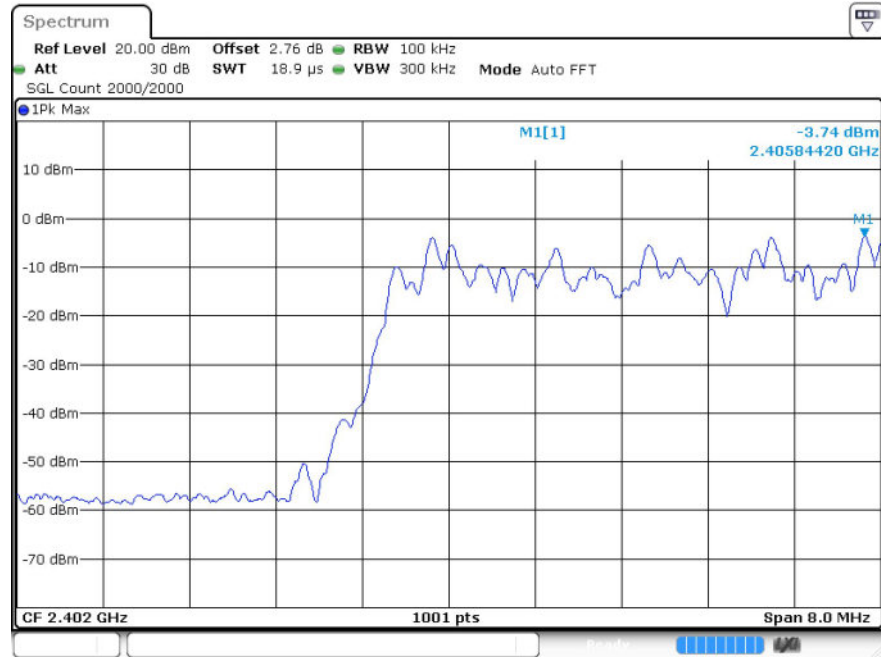
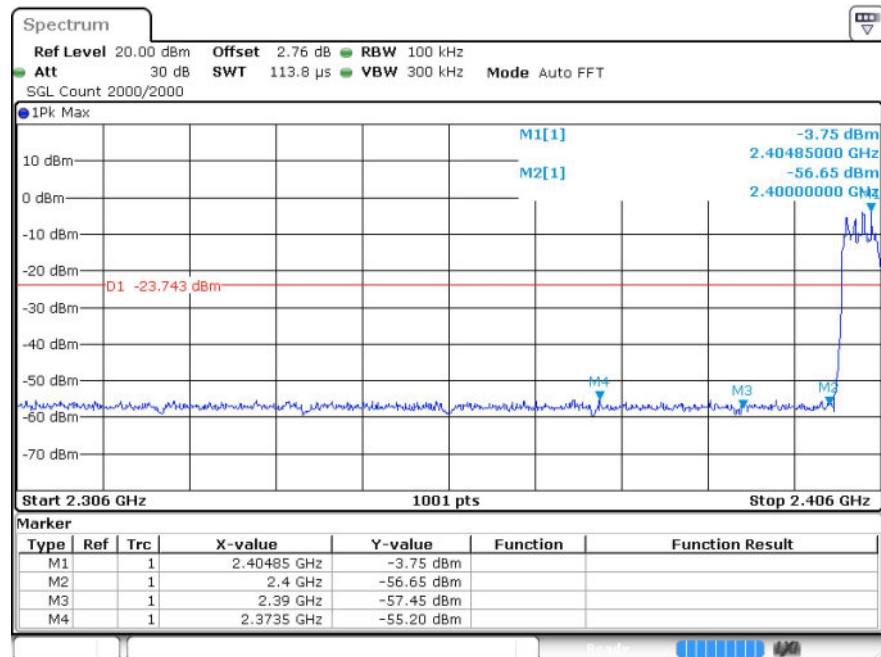
GFSK/HCH/Hop



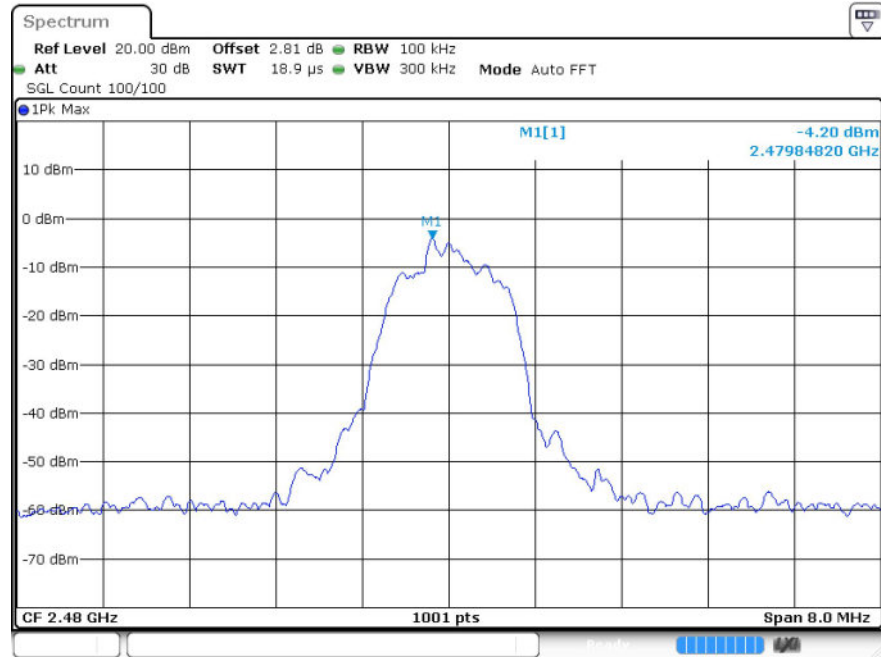
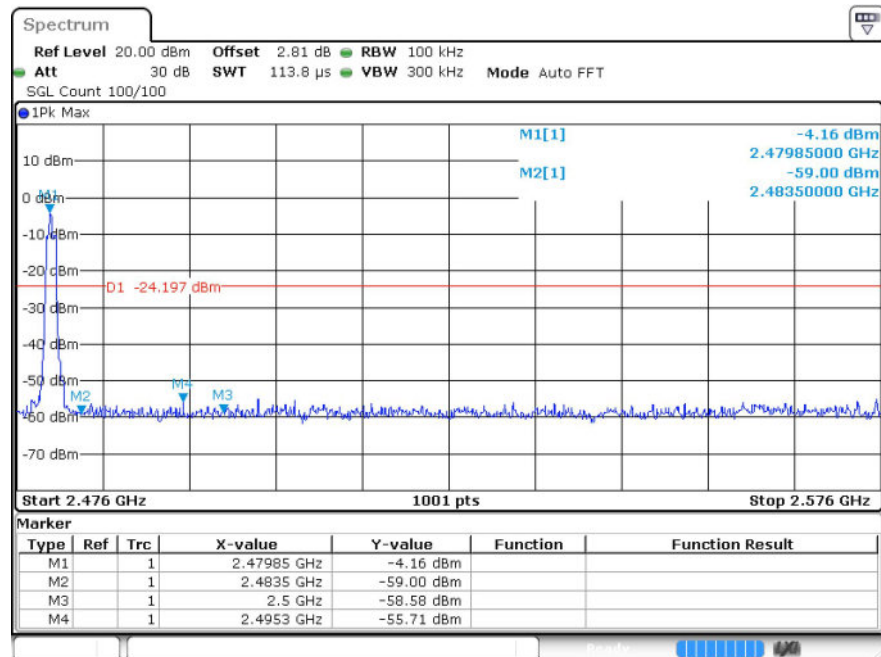
Ref


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


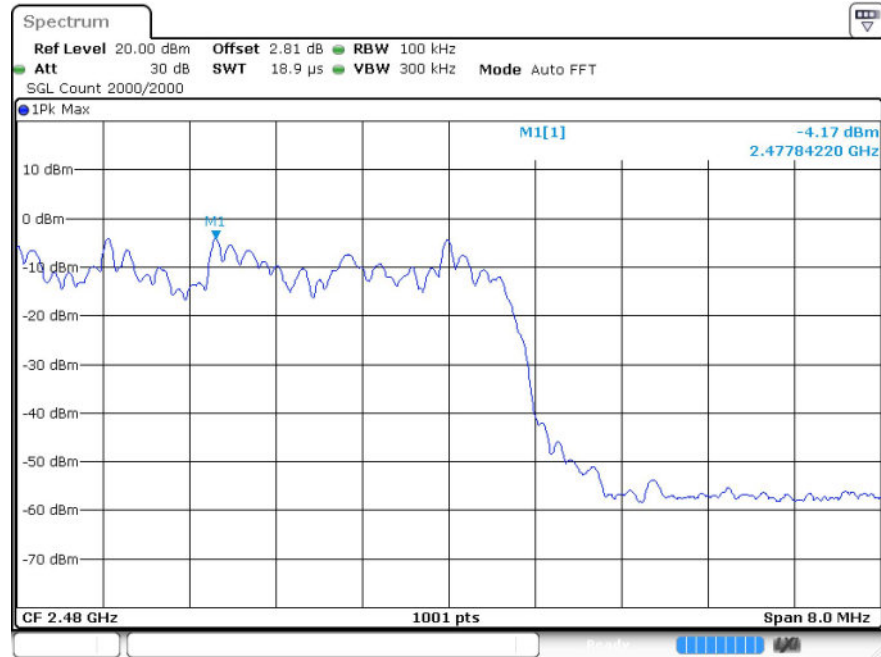
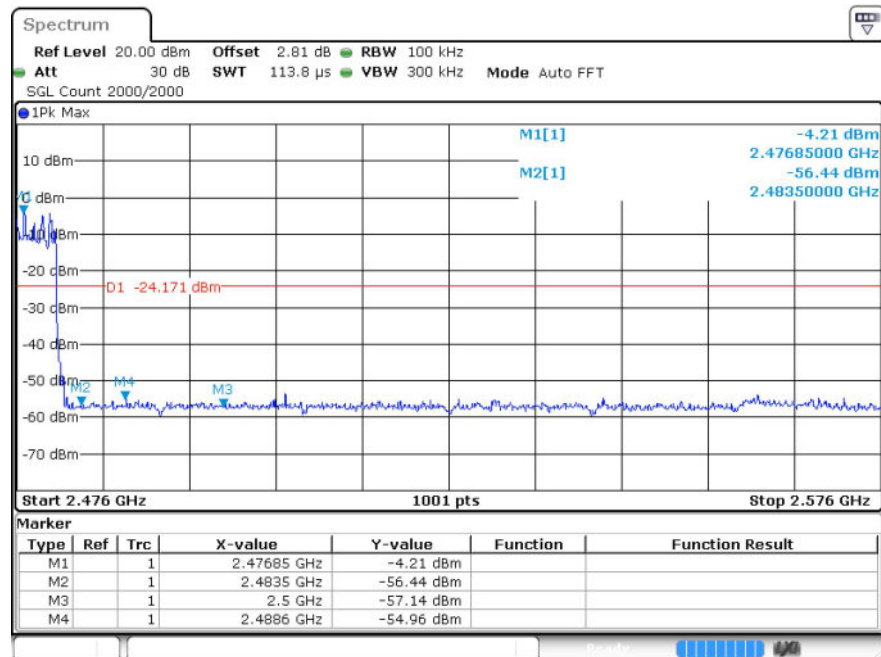
Ref


 $\pi/4$ DQPSK/LCH/Hop


Ref


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


Ref


 $\pi/4$ DQPSK/HCH/Hop


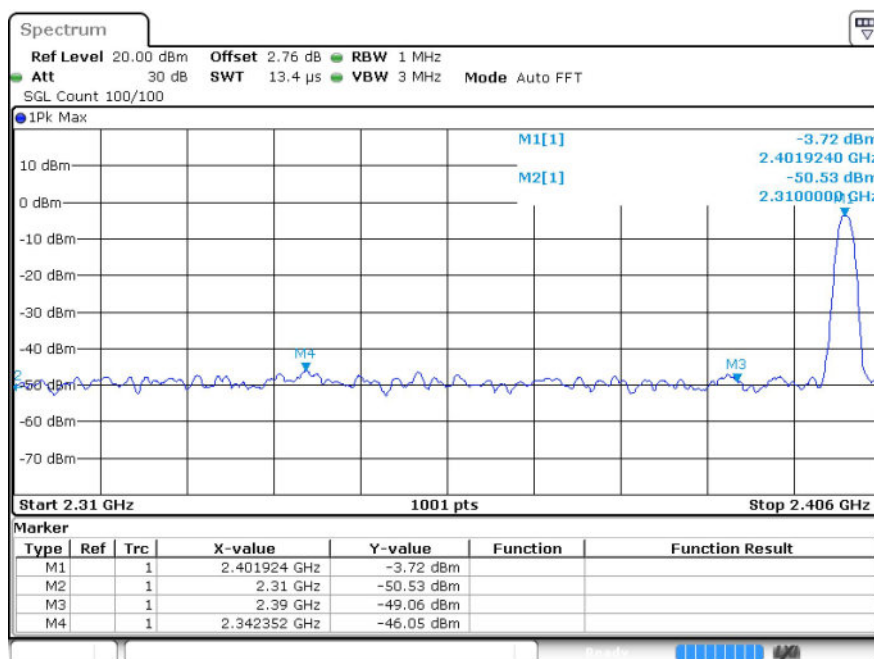
9 Restrict-band band-edge measurements

9.1 Test Result

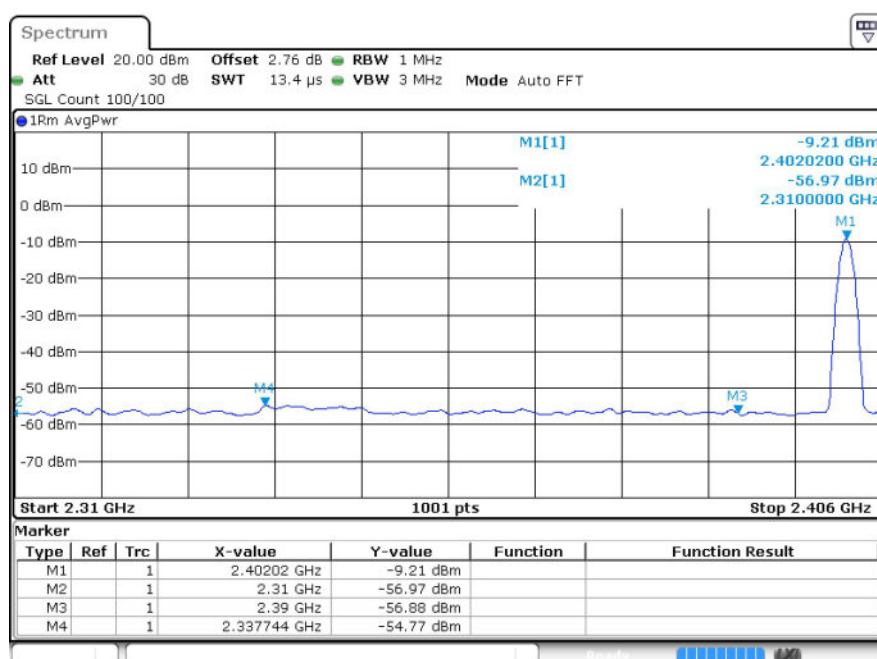
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Duty Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-50.53	2	-	46.73	PEAK	74	Pass
	Off	2310.0	-56.97	2	4.95	45.24	AV	54	Pass
	Off	2342.352	-46.04	2	-	51.22	PEAK	74	Pass
	Off	2337.744	-54.76	2	4.95	47.45	AV	54	Pass
	Off	2390.0	-49.06	2	-	48.2	PEAK	74	Pass
	Off	2390.0	-56.88	2	4.95	45.33	AV	54	Pass
	Off	2483.5	-49.4	2	-	47.86	PEAK	74	Pass
	Off	2483.5	-56.54	2	5.06	45.78	AV	54	Pass
	Off	2484.208	-47.66	2	-	49.6	PEAK	74	Pass
	Off	2484.856	-55.33	2	5.06	46.99	AV	54	Pass
	Off	2500.0	-50.42	2	-	46.84	PEAK	74	Pass
	Off	2500.0	-56.81	2	5.06	45.51	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-49.41	2	-	47.85	PEAK	74	Pass
	Off	2310.0	-56.61	2	4.95	45.6	AV	54	Pass
	Off	2340.816	-46.3	2	-	50.96	PEAK	74	Pass
	Off	2341.488	-54.28	2	4.95	47.93	AV	54	Pass
	Off	2390.0	-49.35	2	-	47.91	PEAK	74	Pass
	Off	2390.0	-56.91	2	4.95	45.3	AV	54	Pass
	Off	2483.5	-51.05	2	-	46.21	PEAK	74	Pass
	Off	2483.5	-55.71	2	4.84	46.39	AV	54	Pass
	Off	2499.4	-47.28	2	-	49.98	PEAK	74	Pass
	Off	2495.632	-55.18	2	4.84	46.92	AV	54	Pass
	Off	2500.0	-48.72	2	-	48.54	PEAK	74	Pass
	Off	2500.0	-56.64	2	4.84	45.46	AV	54	Pass

9.2 Test Graphs

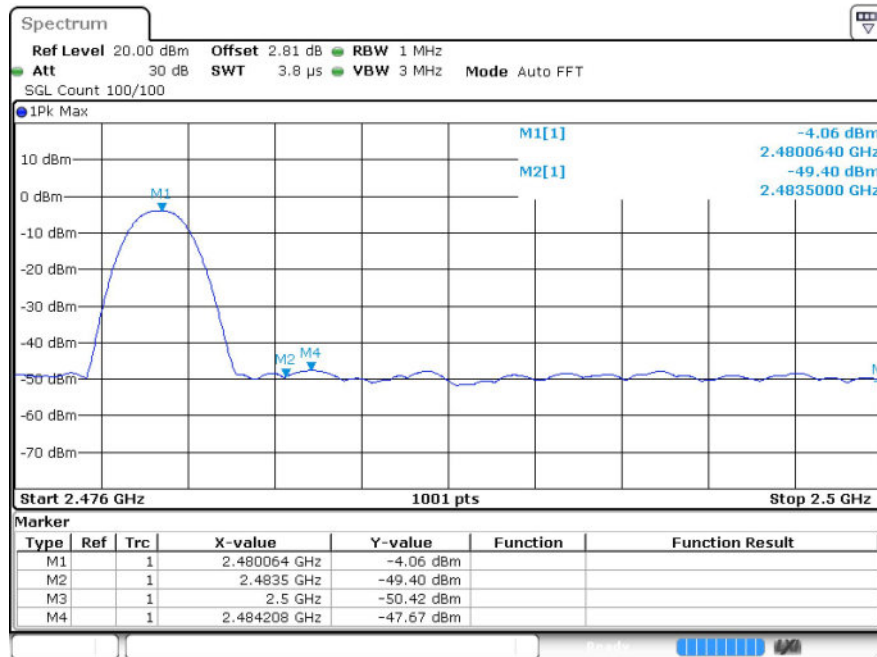
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



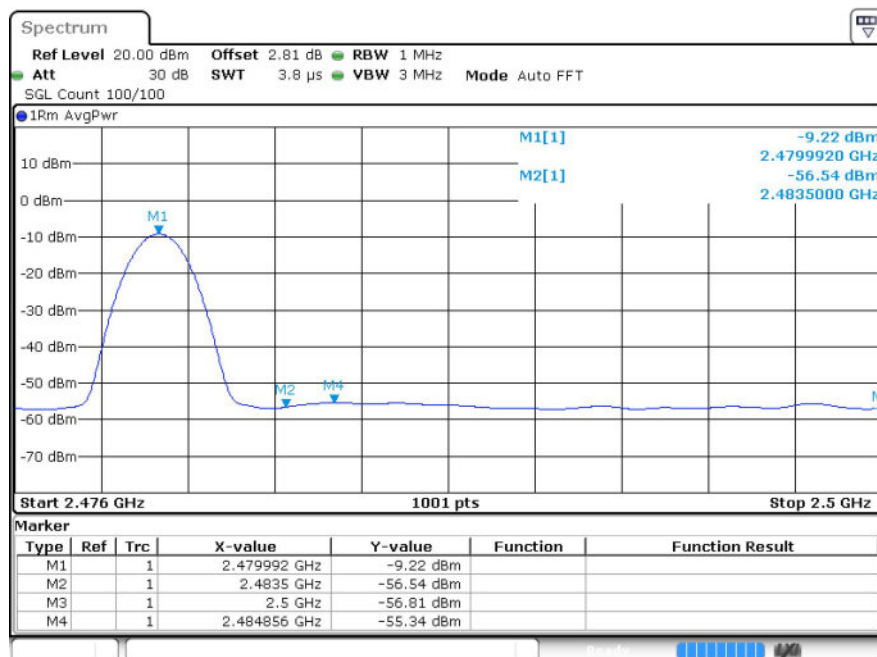
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



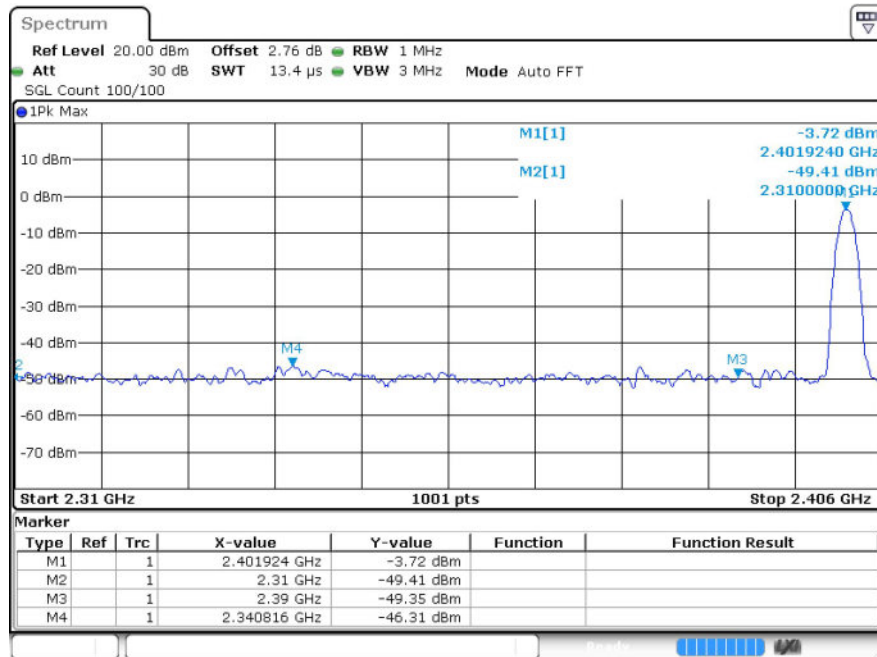
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



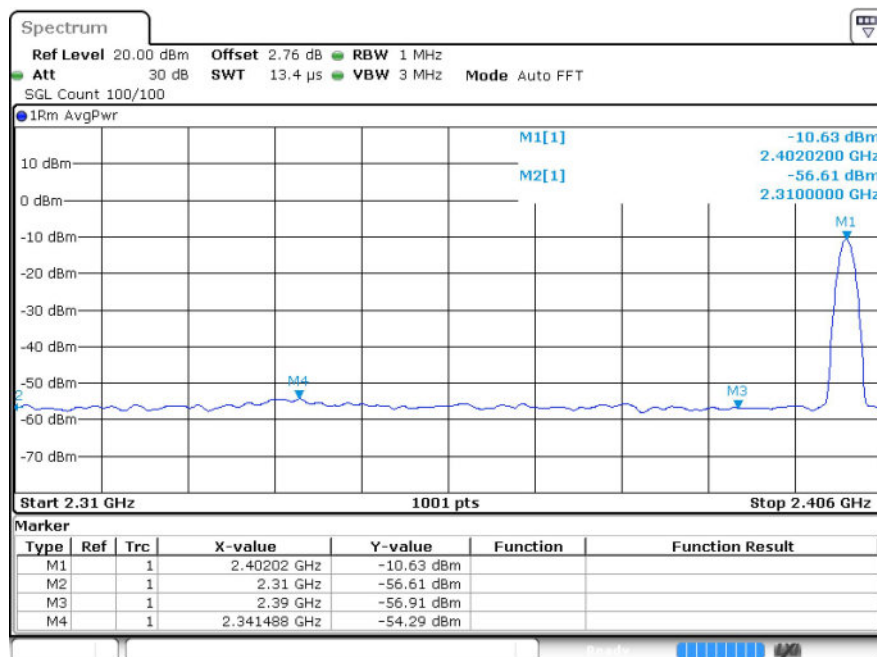
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



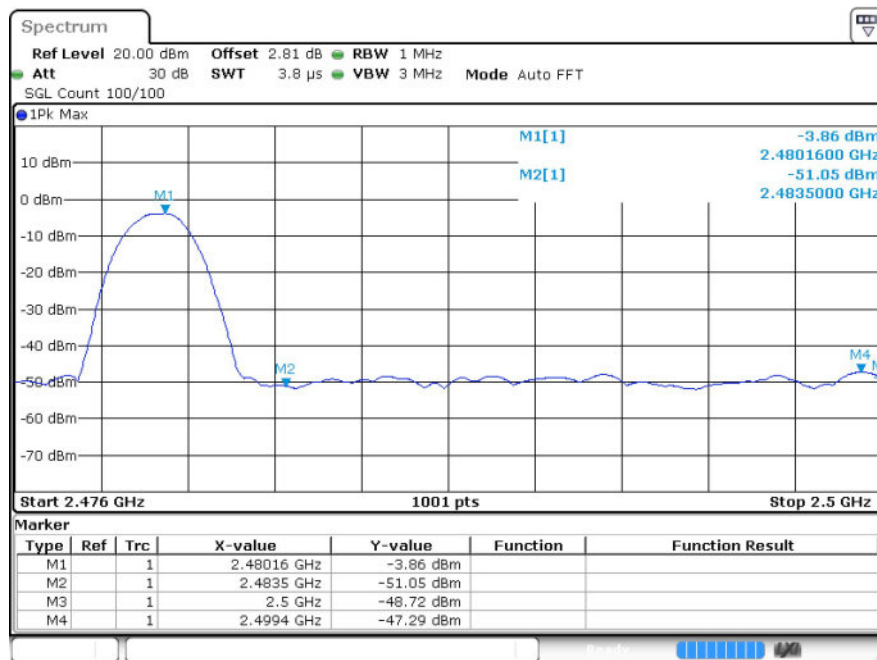
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



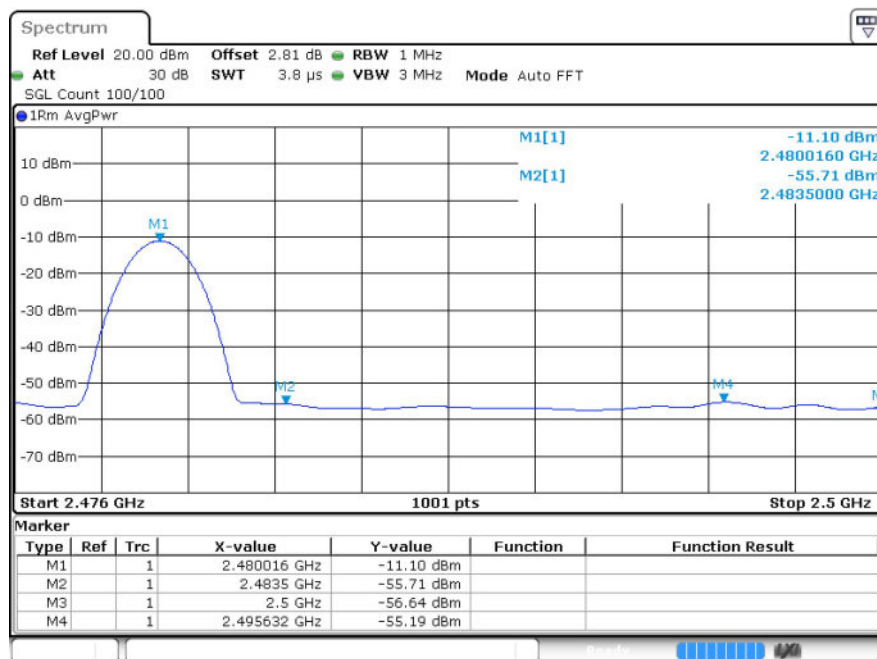
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



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---