



Appendix A

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

Product Name: Air-Powered STEM Building Toys

Trade Mark: N/A

Test Model: AWALVY-Blue

Environmental Conditions

Temperature:	24.4° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Emiya lin
Supervised by:	Simba Huang



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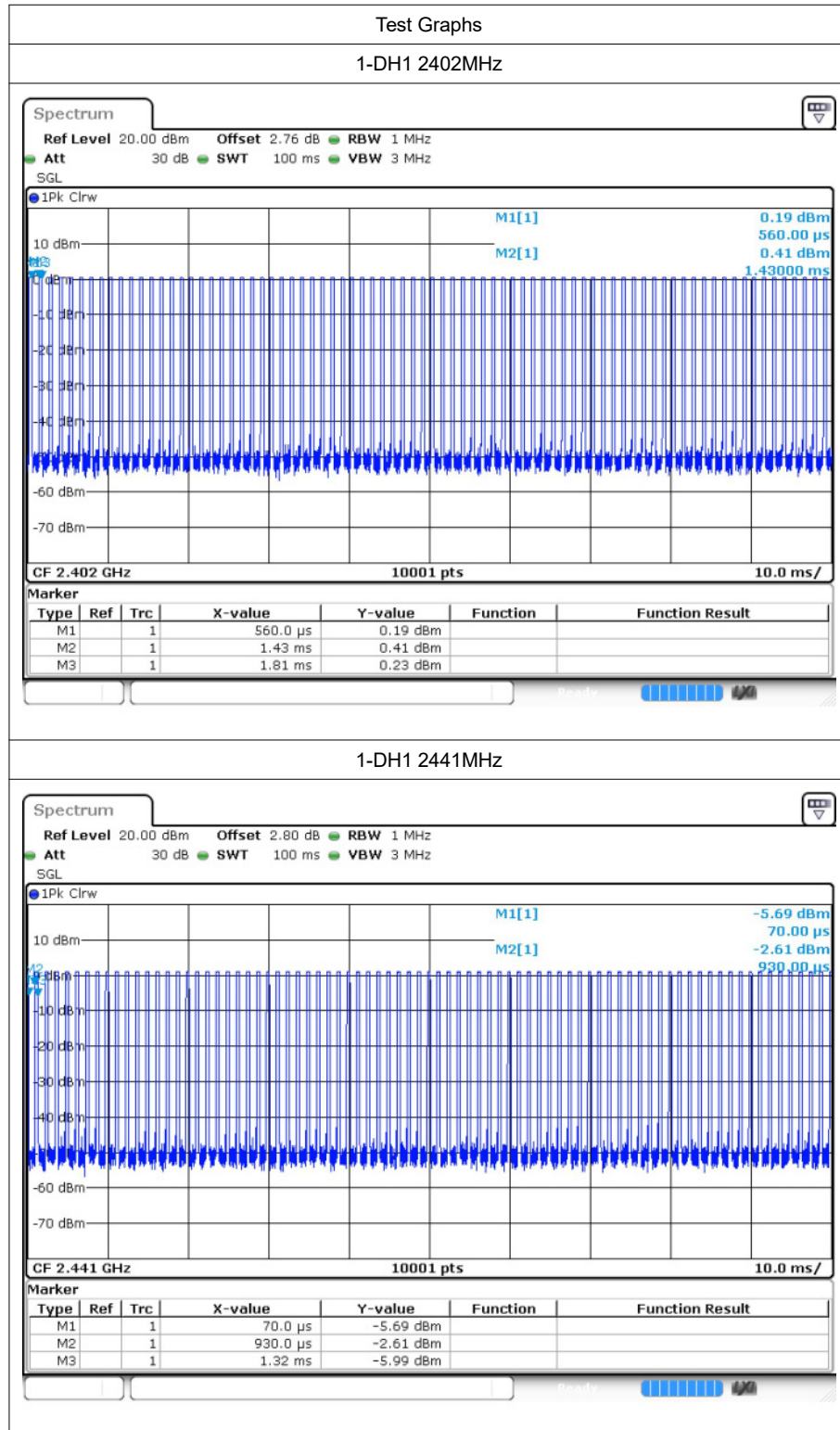
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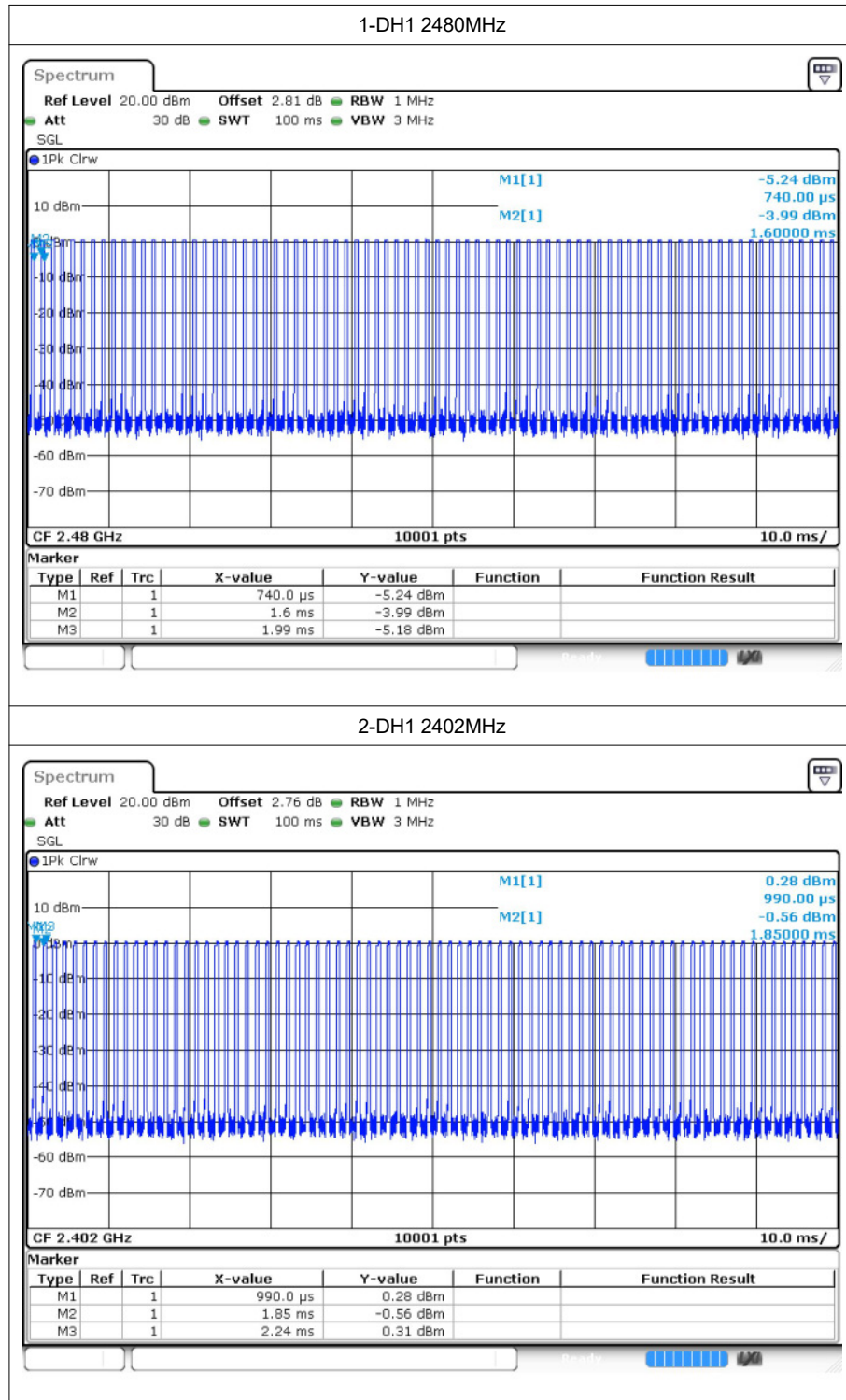
1 Duty Cycle

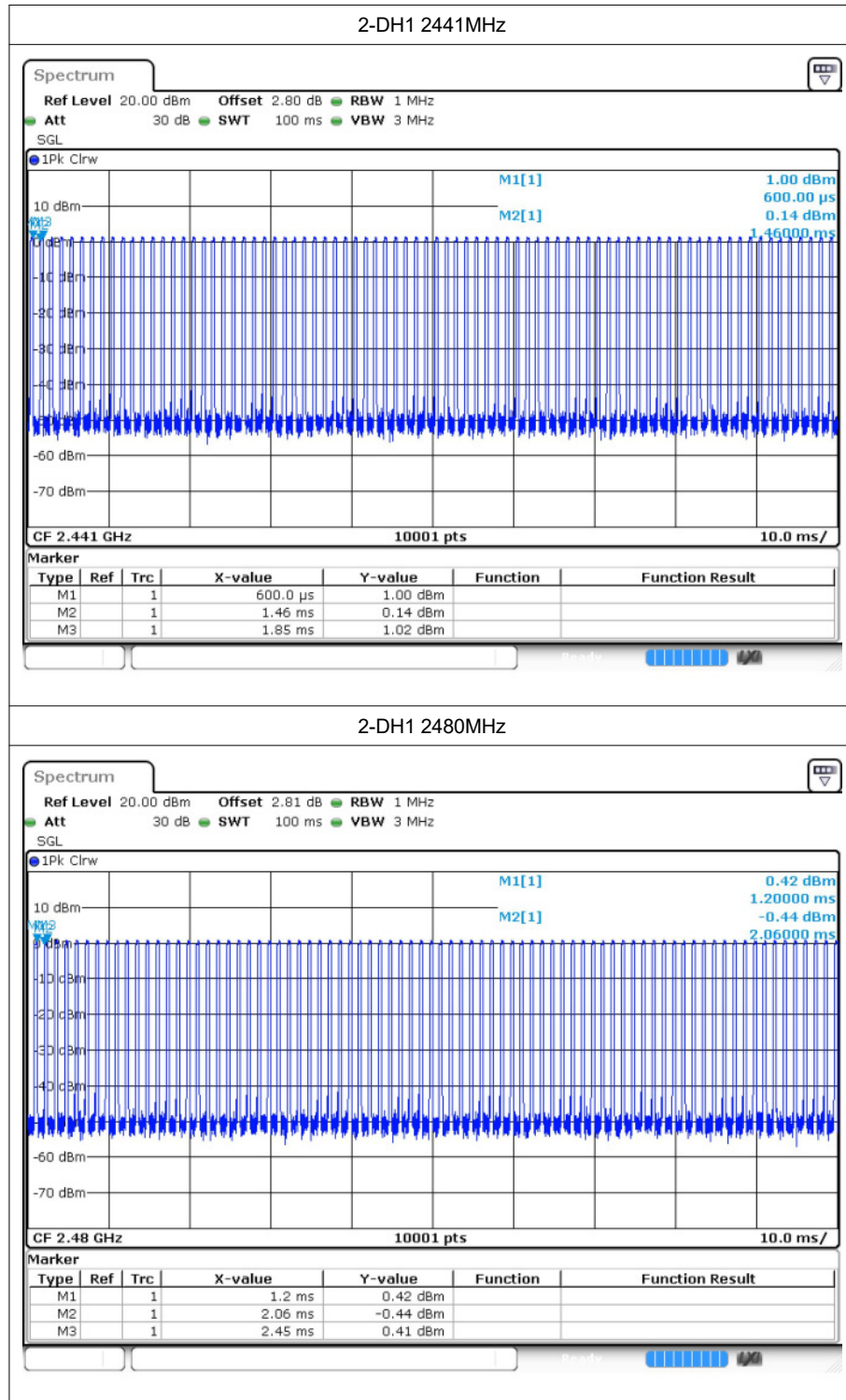
1.1 Test Result

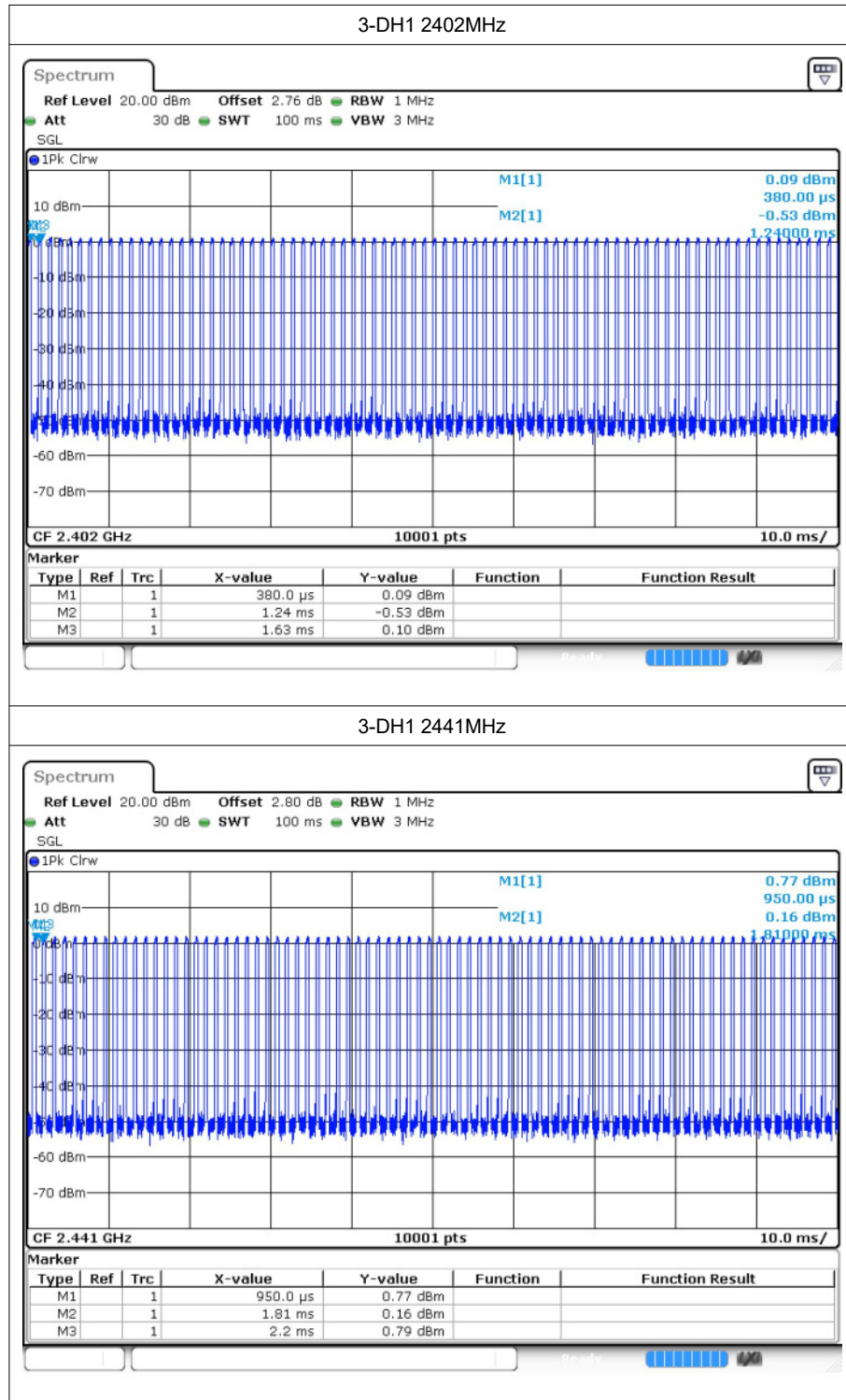
Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	31.2	5.06	2.63
1-DH1	2441	31.69	4.99	2.56
1-DH1	2480	31.63	5	2.56
2-DH1	2402	32	4.95	2.56
2-DH1	2441	32	4.95	2.56
2-DH1	2480	32	4.95	2.56
3-DH1	2402	32.01	4.95	2.56
3-DH1	2441	32	4.95	2.56
3-DH1	2480	32.01	4.95	2.56

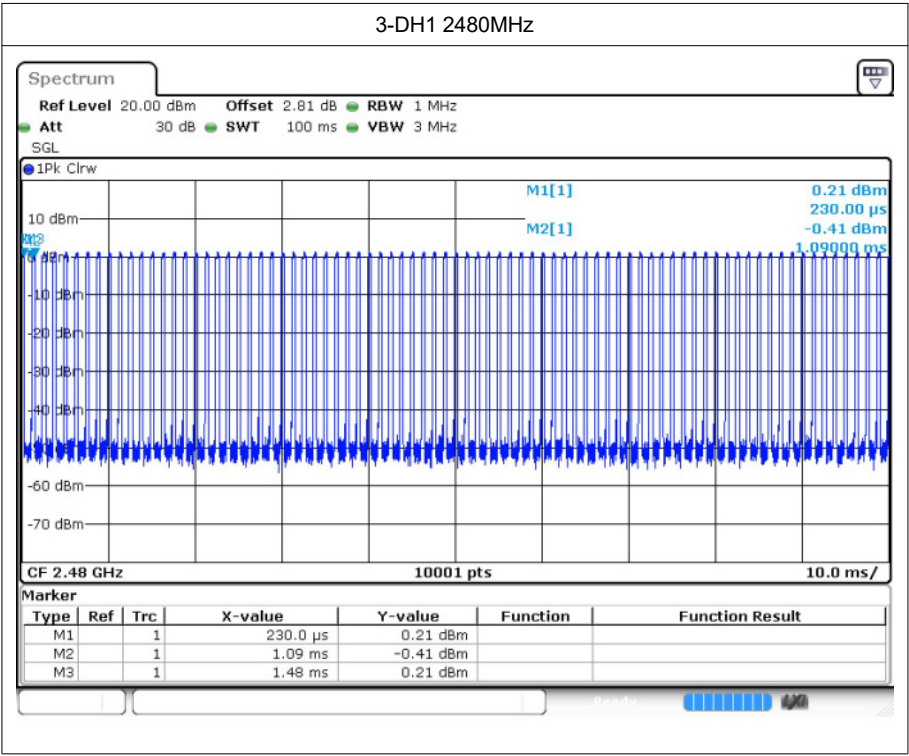
1.2 Test Graphs









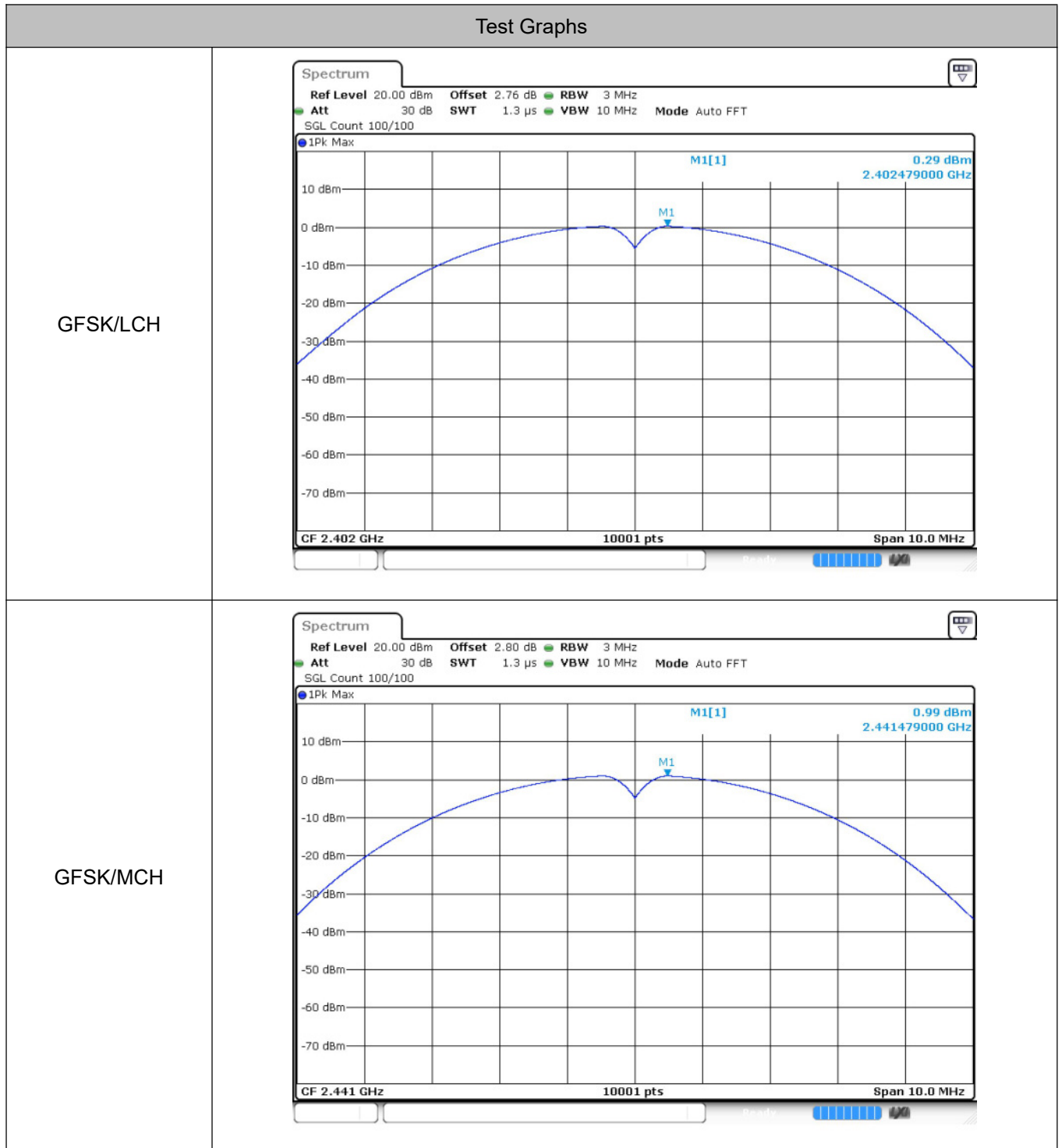


2 Maximum Conducted Peak Output Power

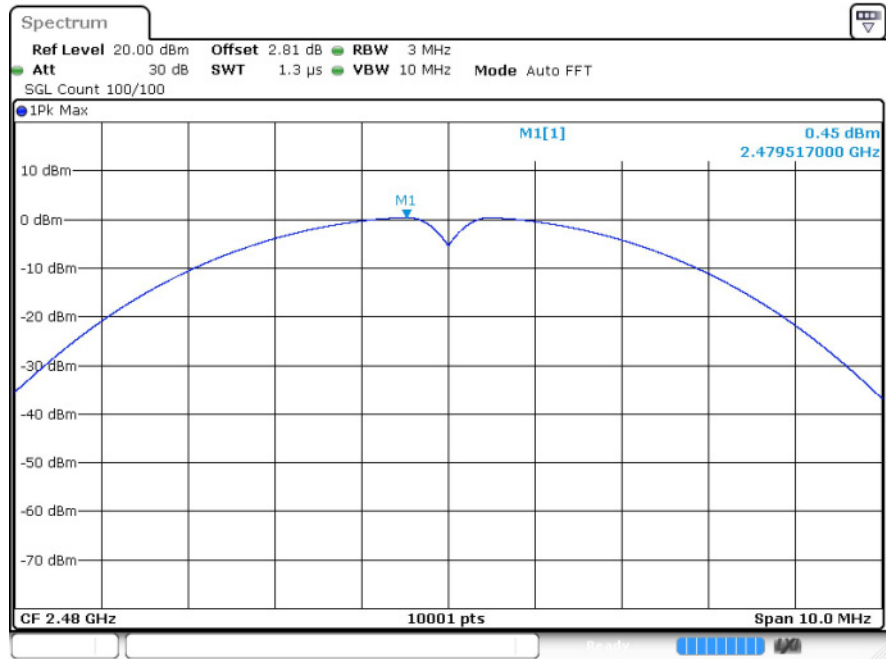
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.29	21	Pass
	MCH	0.99	21	Pass
	HCH	0.45	21	Pass
$\pi/4$ DQPSK	LCH	1.55	21	Pass
	MCH	2.25	21	Pass
	HCH	1.64	21	Pass
8DPSK	LCH	1.95	21	Pass
	MCH	2.27	21	Pass
	HCH	1.62	21	Pass

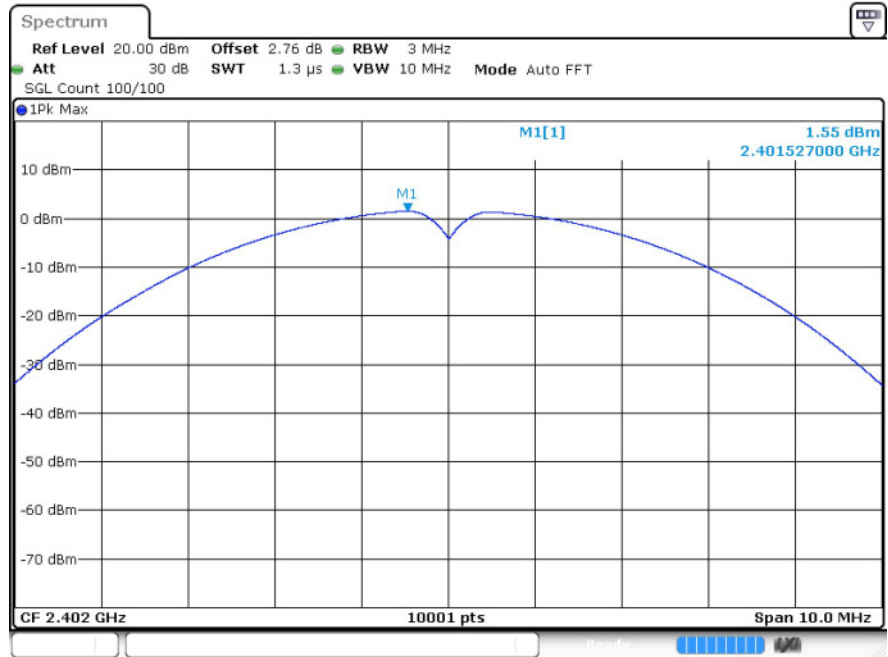
2.2 Test Graphs



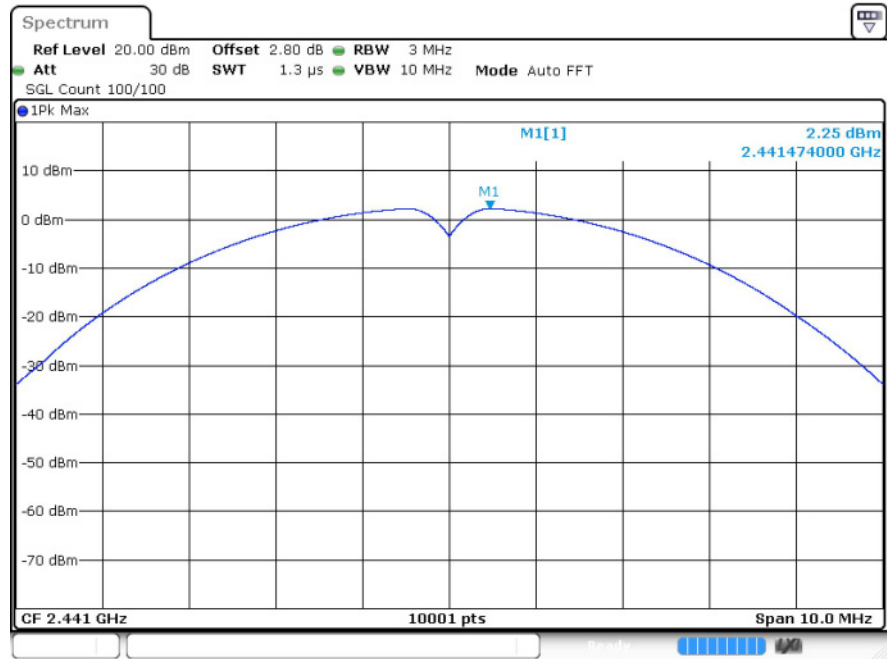
GFSK/HCH



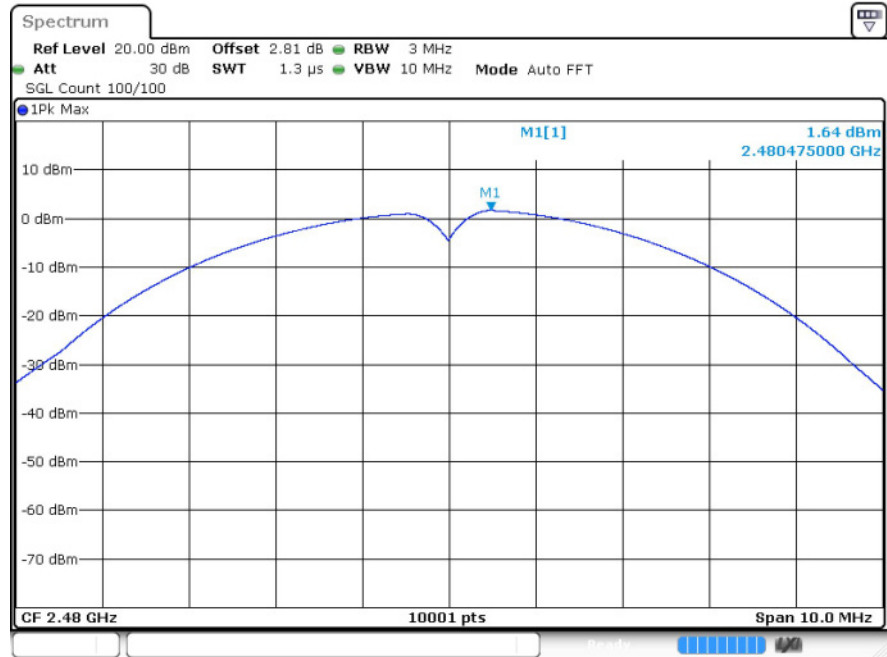
π /4DQPSK/LCH



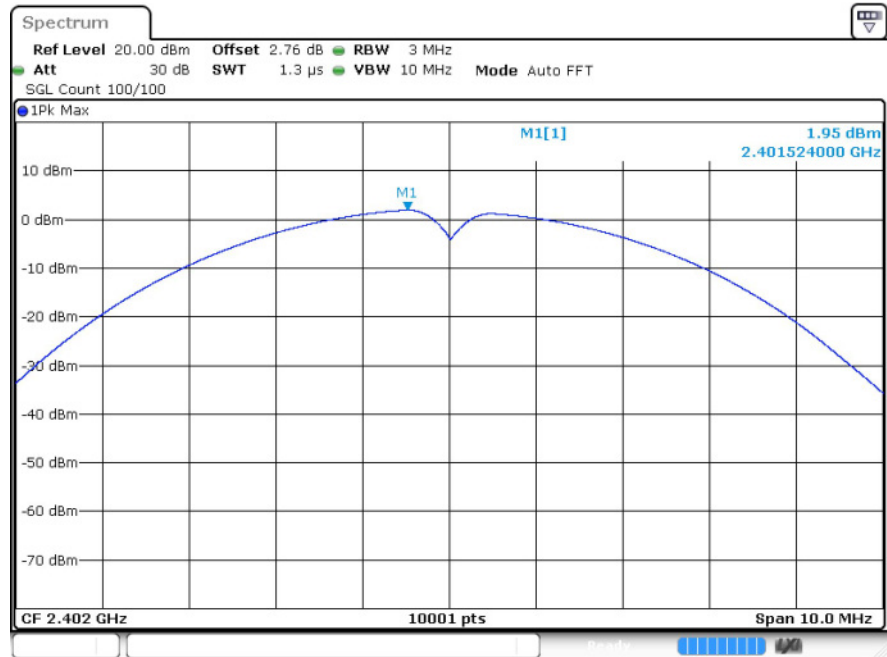
$\pi/4$ DQPSK/MCH



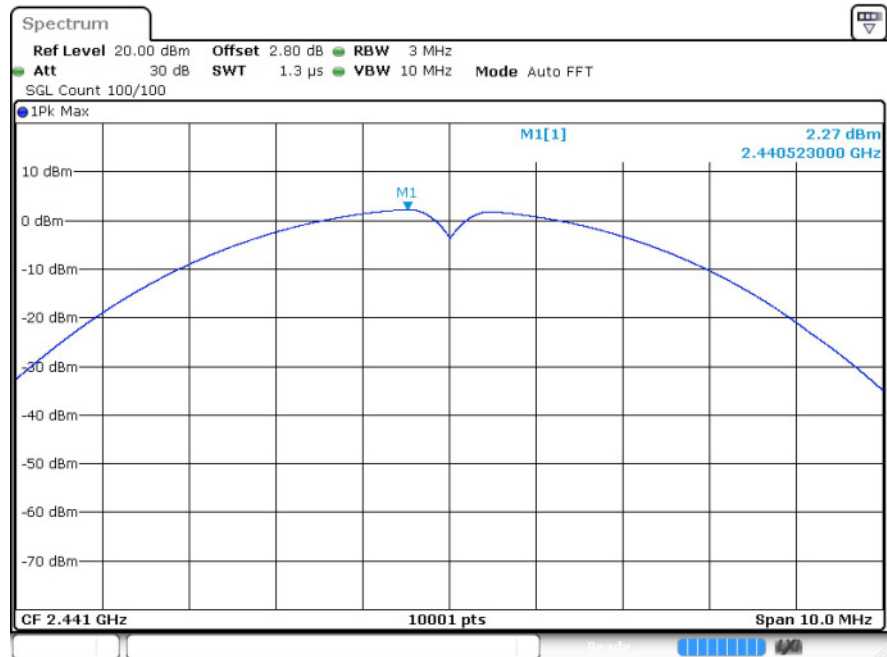
$\pi/4$ DQPSK/HCH



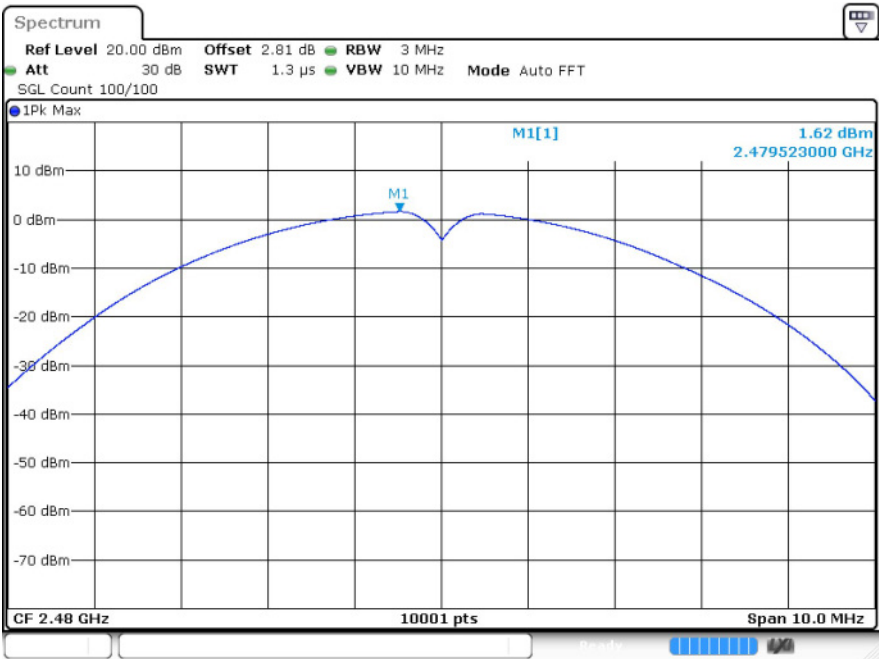
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

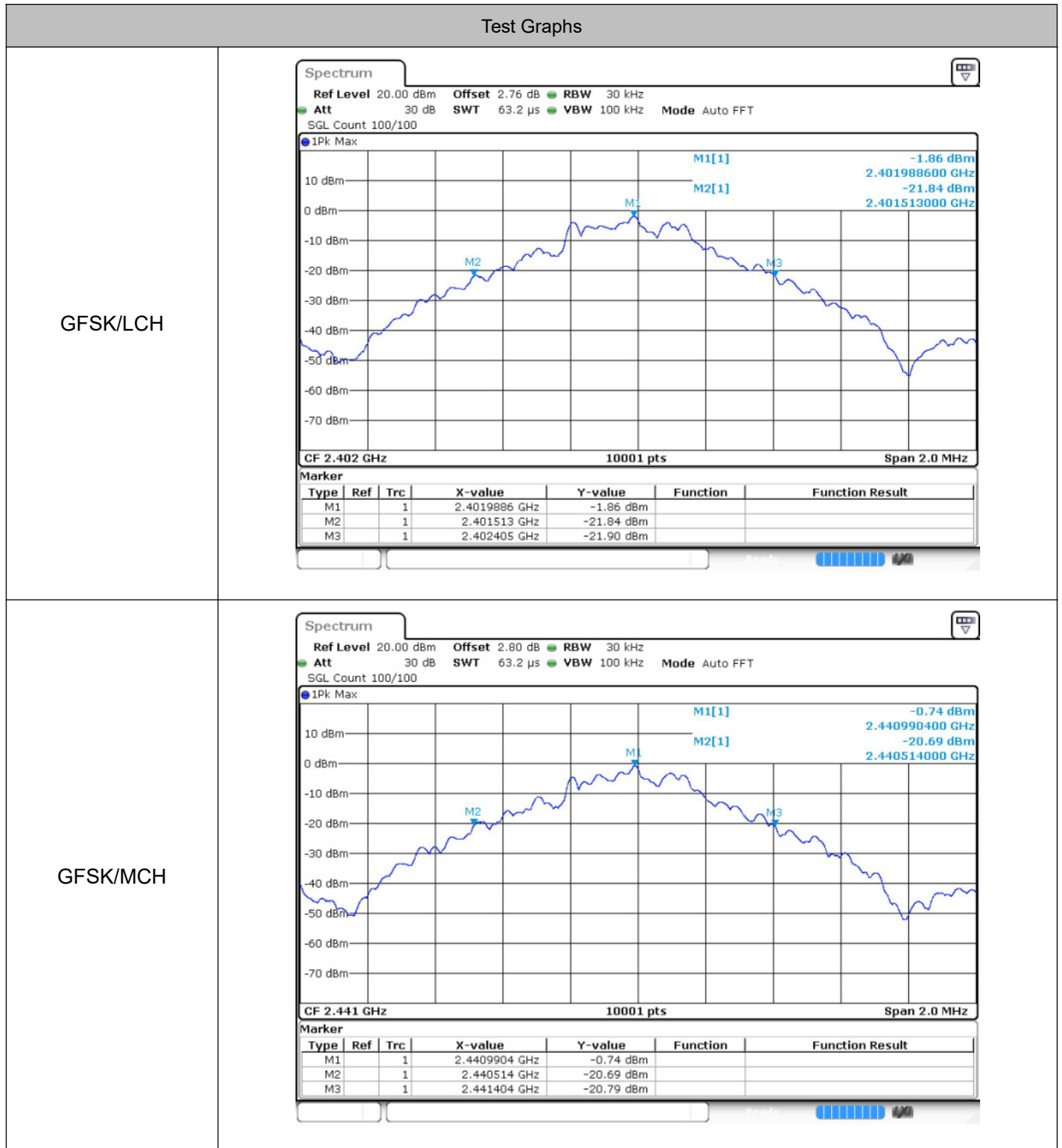


3 20dB Bandwidth

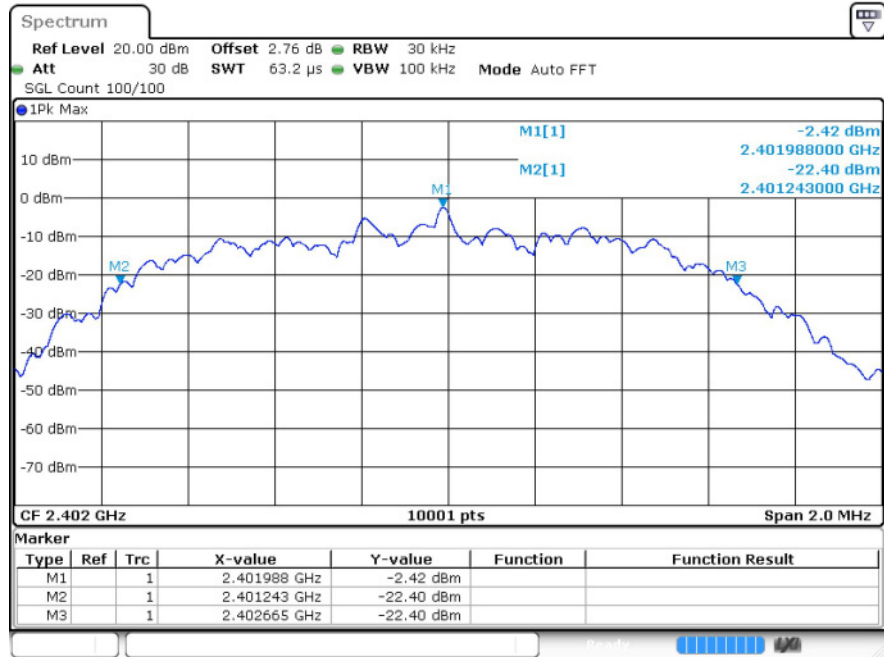
3.1 Test Result

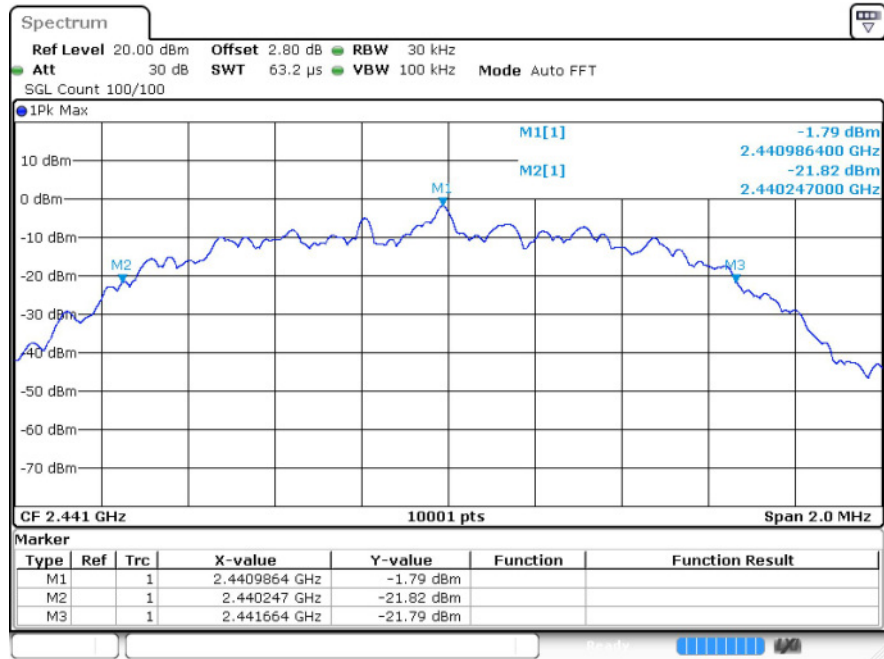
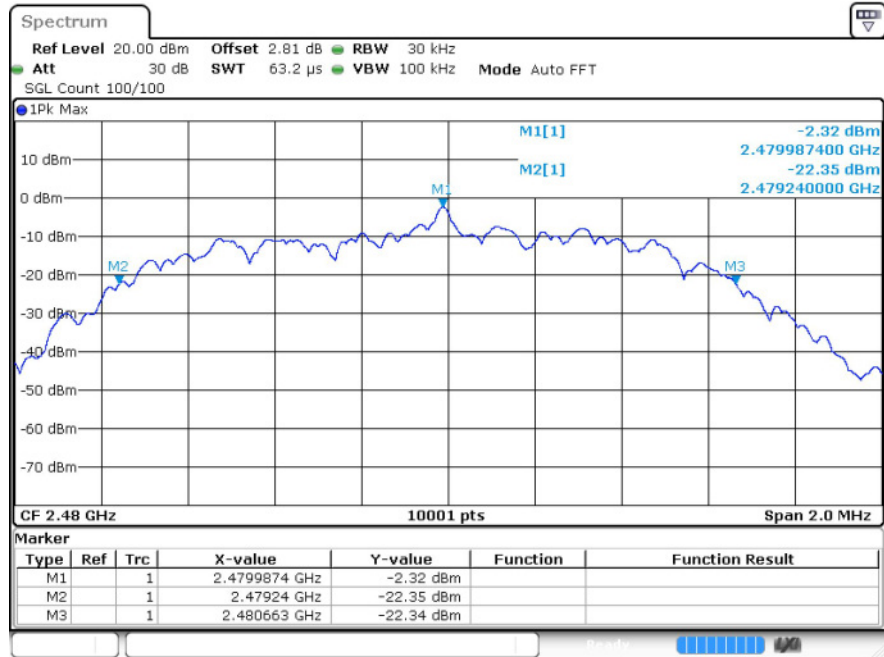
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.892	Not Specified	Pass
	MCH	0.89	Not Specified	Pass
	HCH	0.947	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.422	Not Specified	Pass
	MCH	1.417	Not Specified	Pass
	HCH	1.423	Not Specified	Pass
8DPSK	LCH	1.416	Not Specified	Pass
	MCH	1.431	Not Specified	Pass
	HCH	1.414	Not Specified	Pass

3.2 Test Graphs

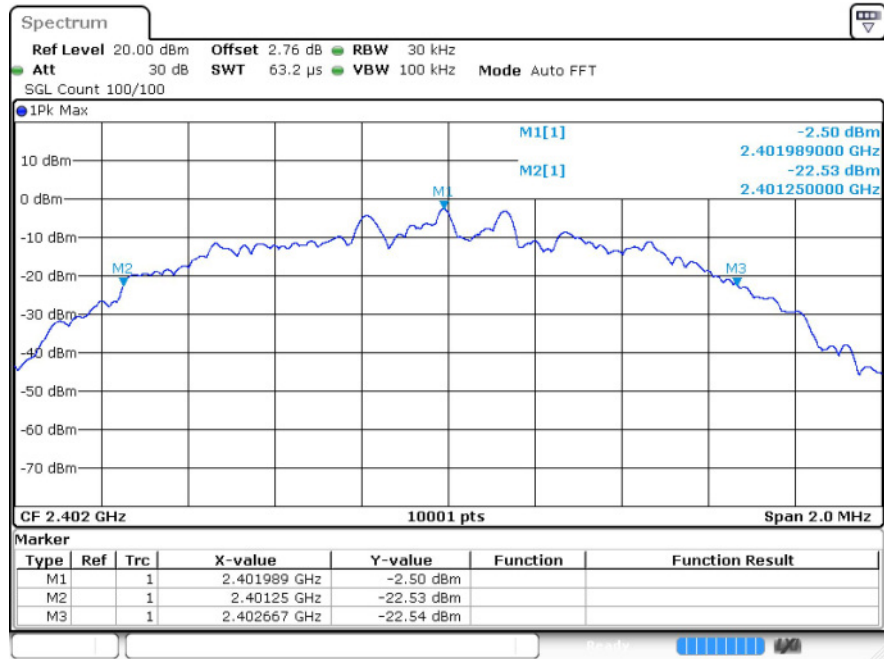


GFSK/HCH

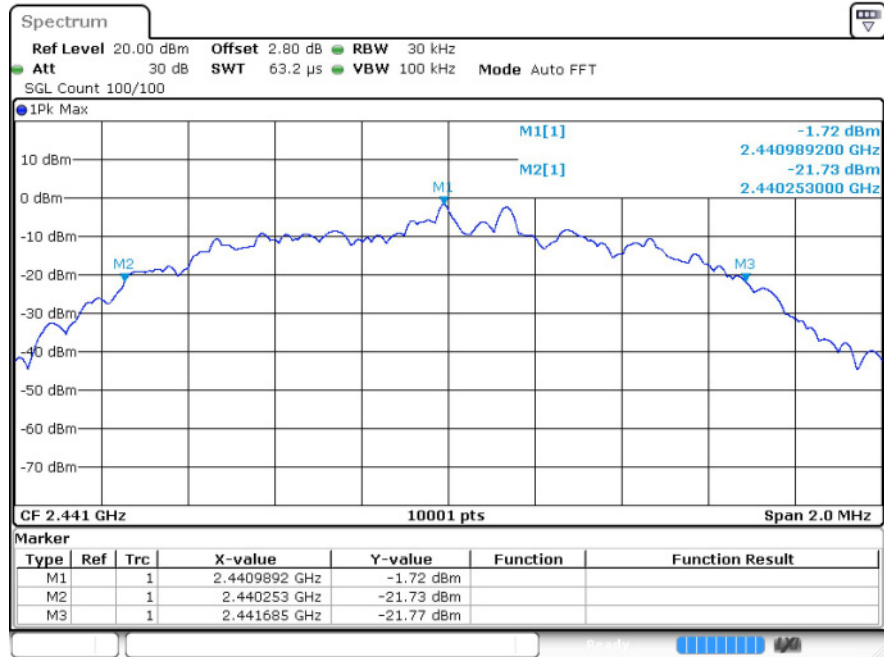

 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


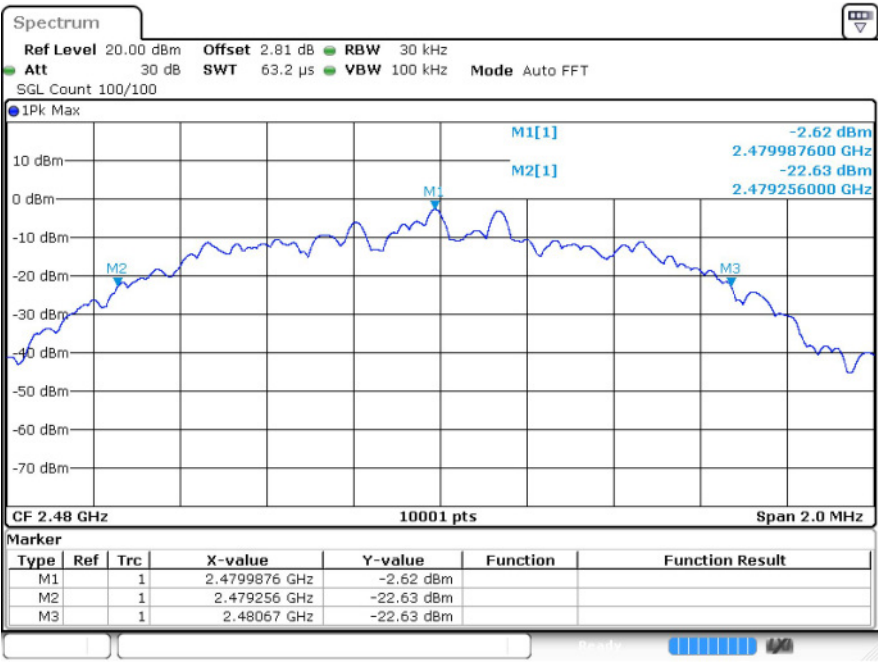
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



4 Carrier Frequency Separation

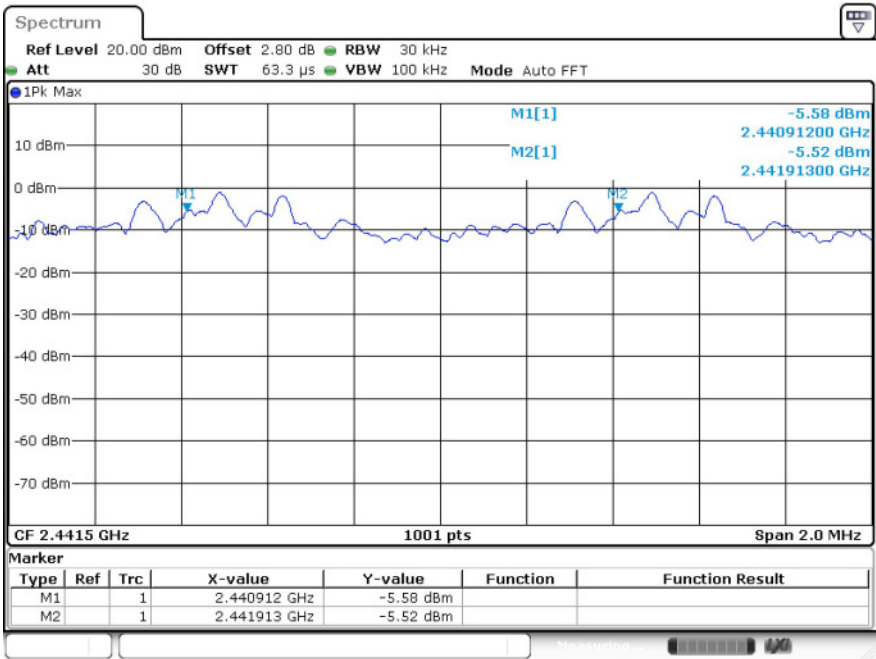
4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.004	0.593	Pass
$\pi/4$ DQPSK	MCH	0.996	0.945	Pass
8DPSK	MCH	1.001	0.954	Pass

4.2 Test Graphs



8DPSK/MCH

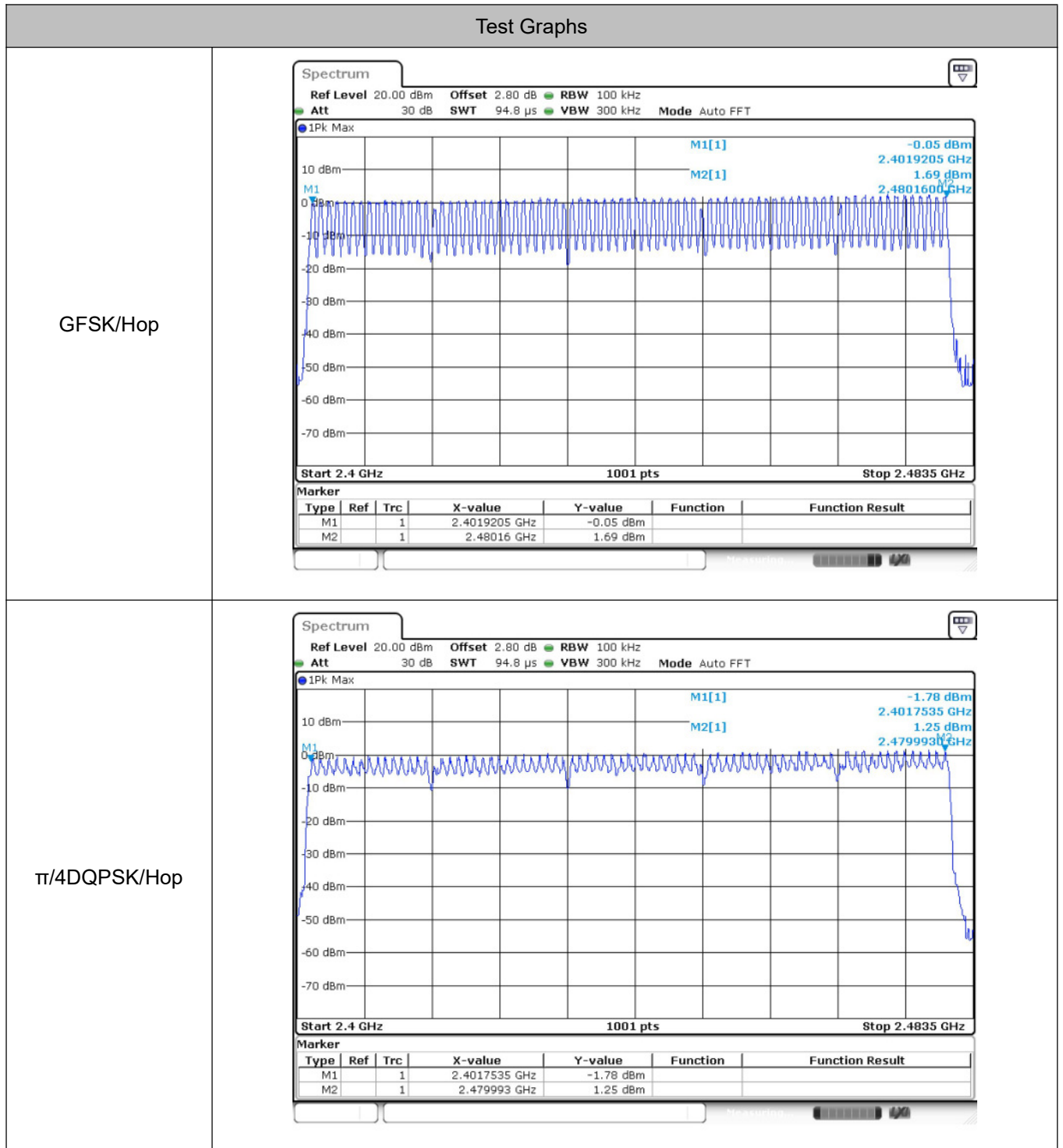


5 Hopping Channel Number

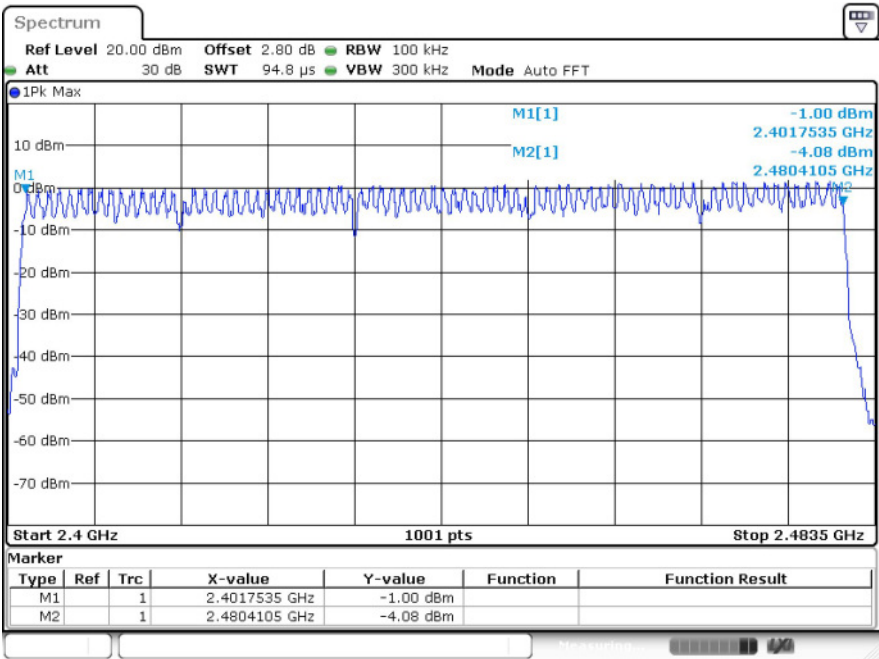
5.1 Test Result

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

5.2 Test Graphs



8DPSK/Hop



6 Dwell Time

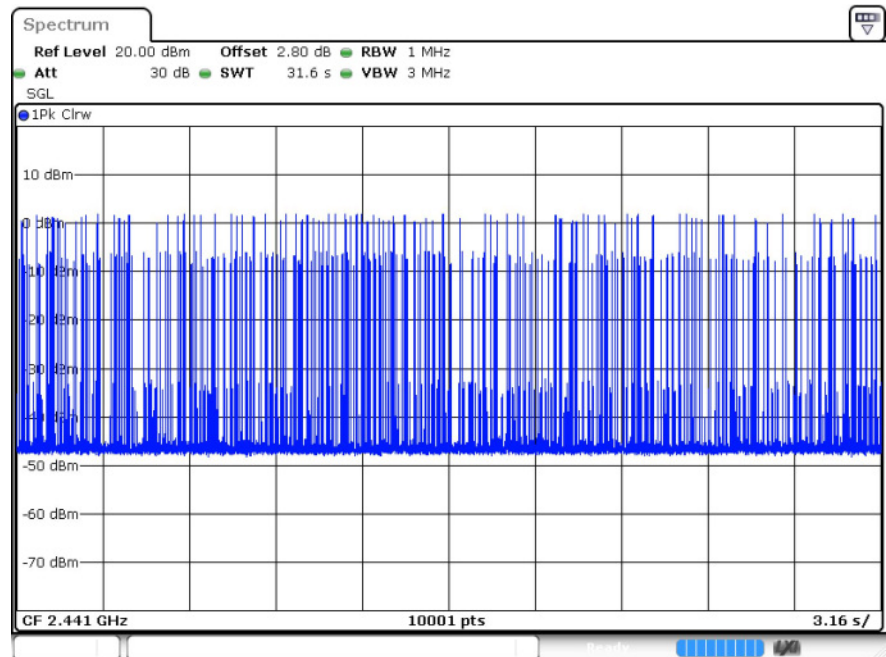
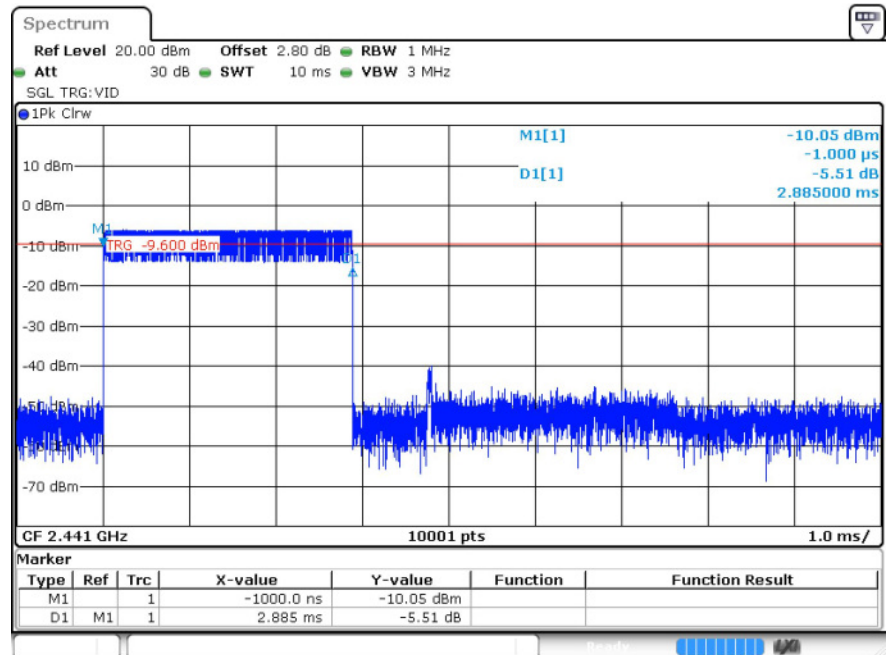
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.885	115	331.775	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.889	115	332.235	0.4	Pass
8DPSK	3DH5	MCH	2.891	100	289.1	0.4	Pass

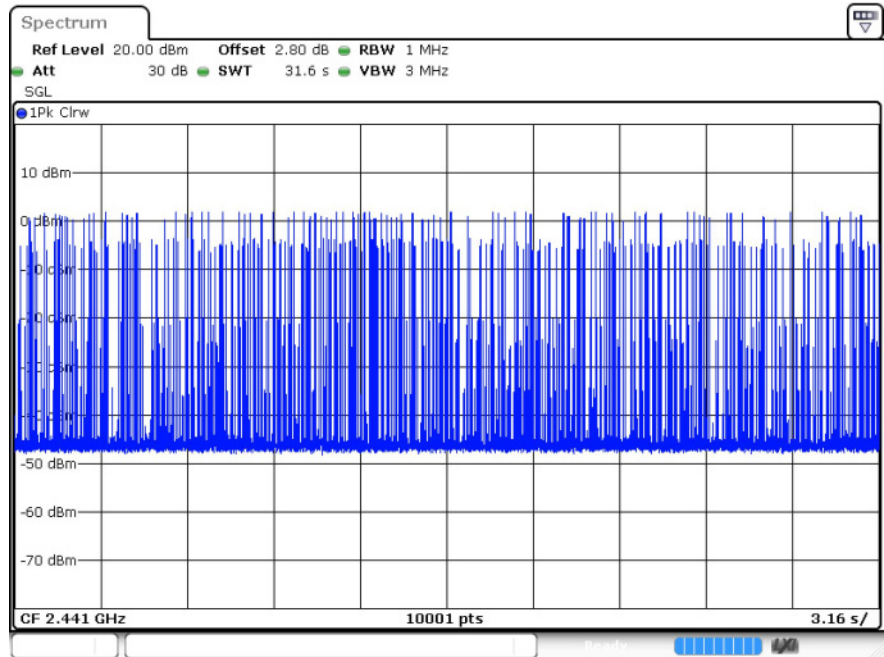
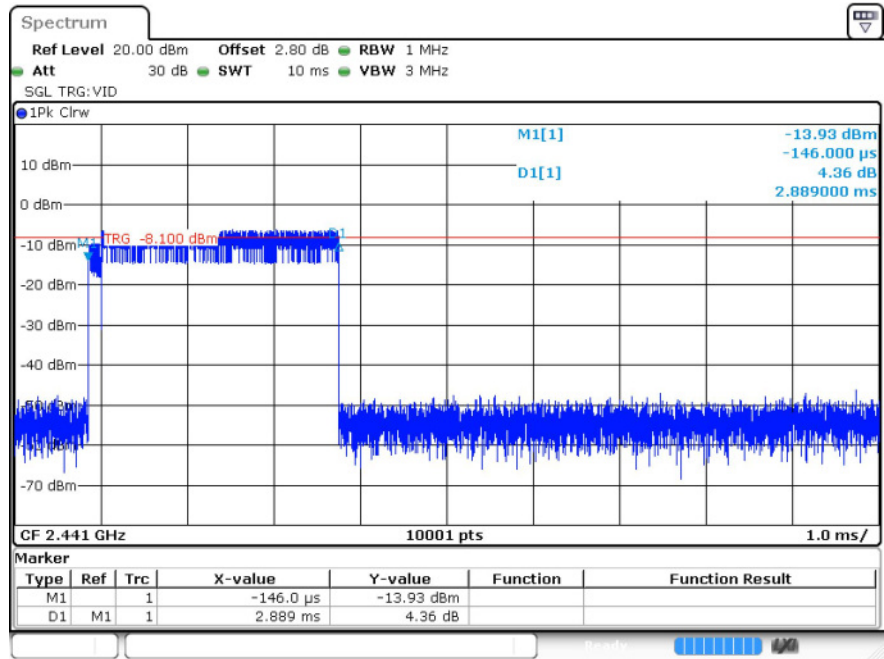
6.2 Test Graphs

Test Graphs

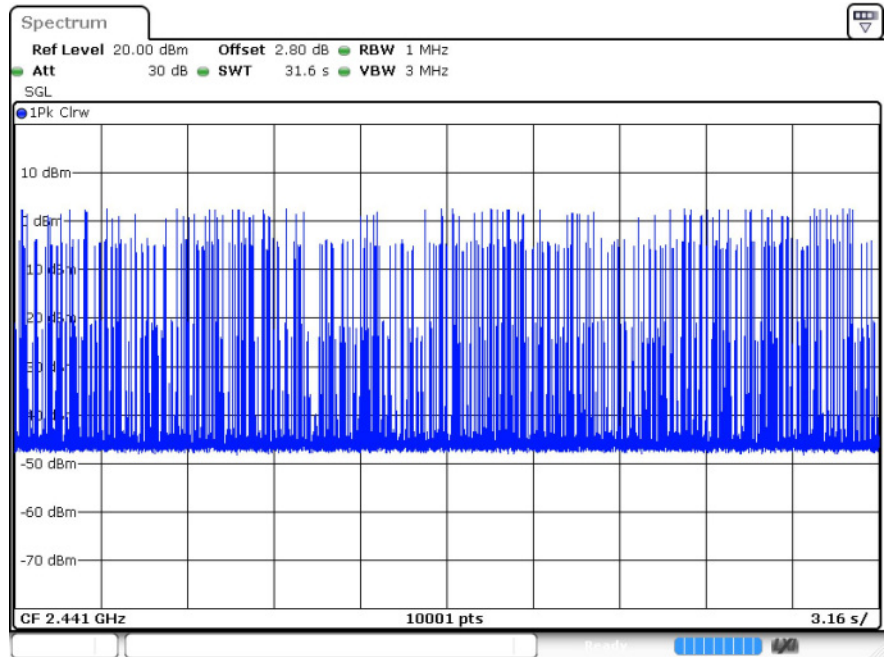
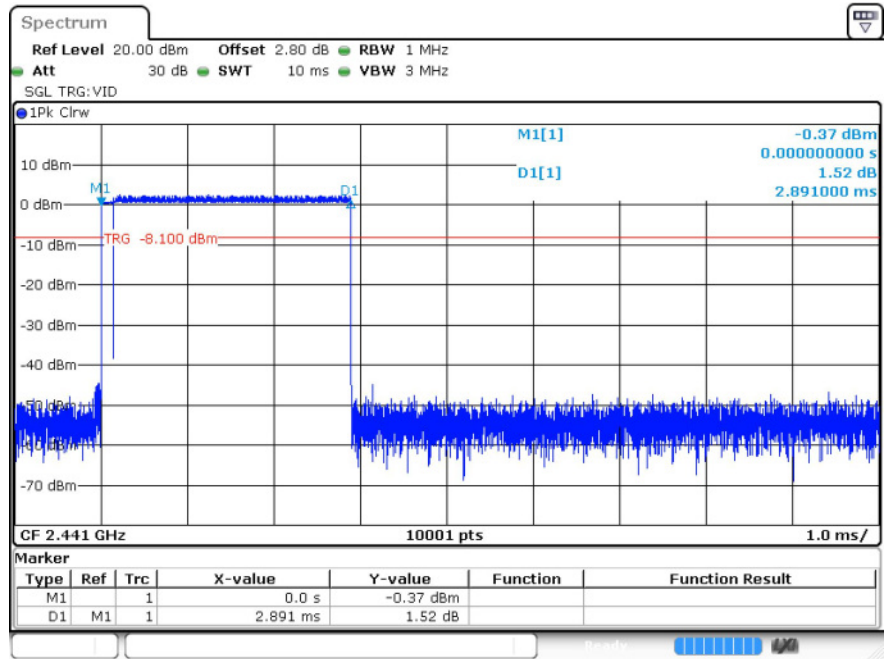
GFSK_DH5/MCH



$\pi/4$ DQPSK
_2DH5/MCH



8DPSK_3DH5/MCH



7 RF Conducted Spurious Emissions

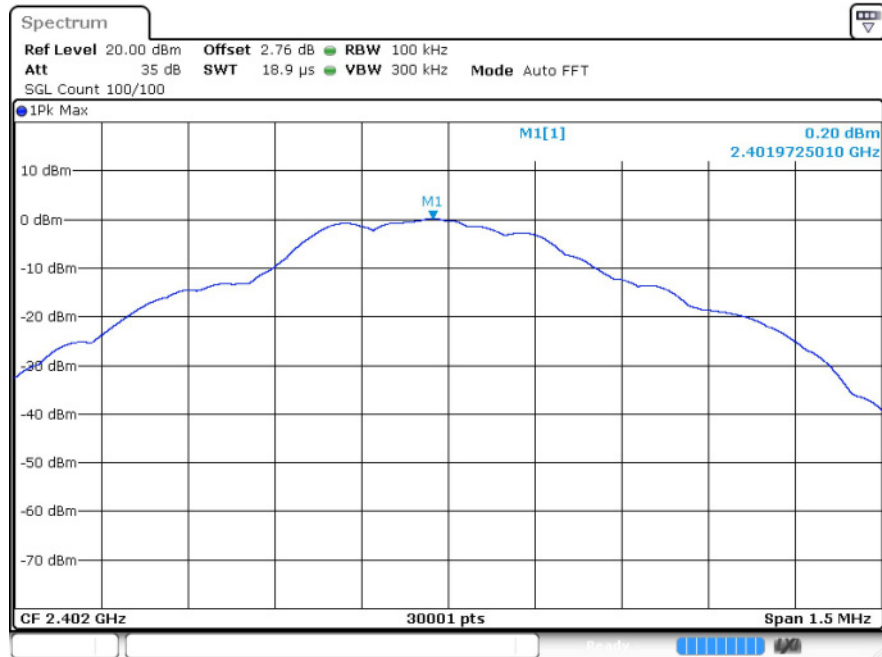
7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-41.95	-20	Pass
	MCH	-41.7	-20	Pass
	HCH	-40.87	-20	Pass
$\pi/4$ DQPSK	LCH	-40.13	-20	Pass
	MCH	-41.95	-20	Pass
	HCH	-40.64	-20	Pass
8DPSK	LCH	-40.58	-20	Pass
	MCH	-39.81	-20	Pass
	HCH	-40.81	-20	Pass

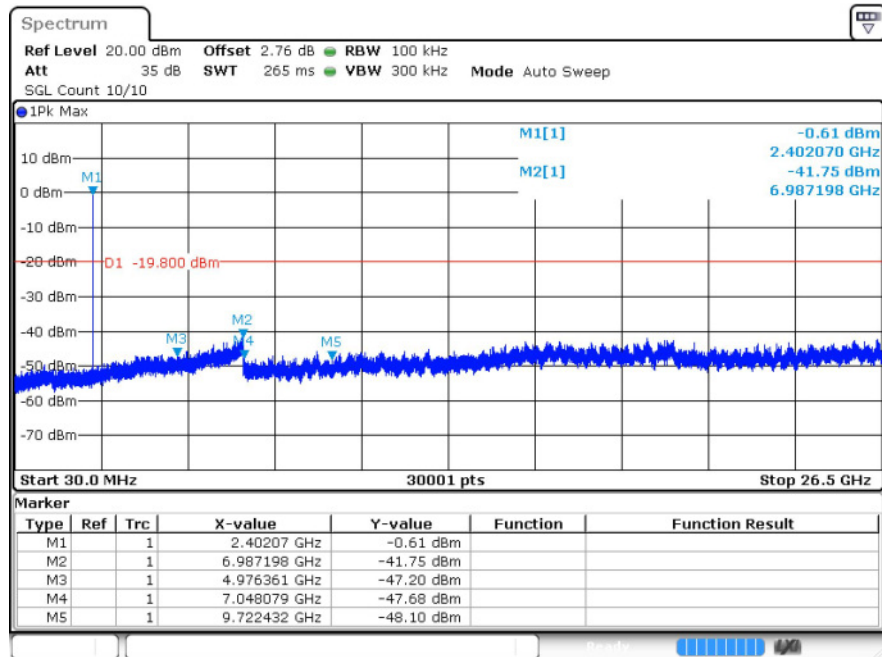
7.2 Test Graphs

GFSK_LCH_Graphs

Pref

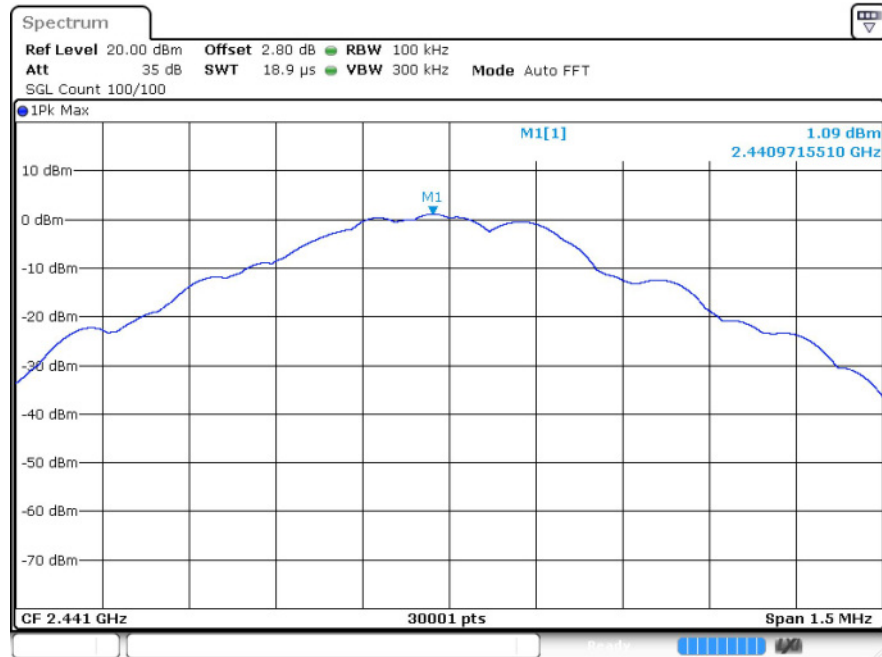


Puw

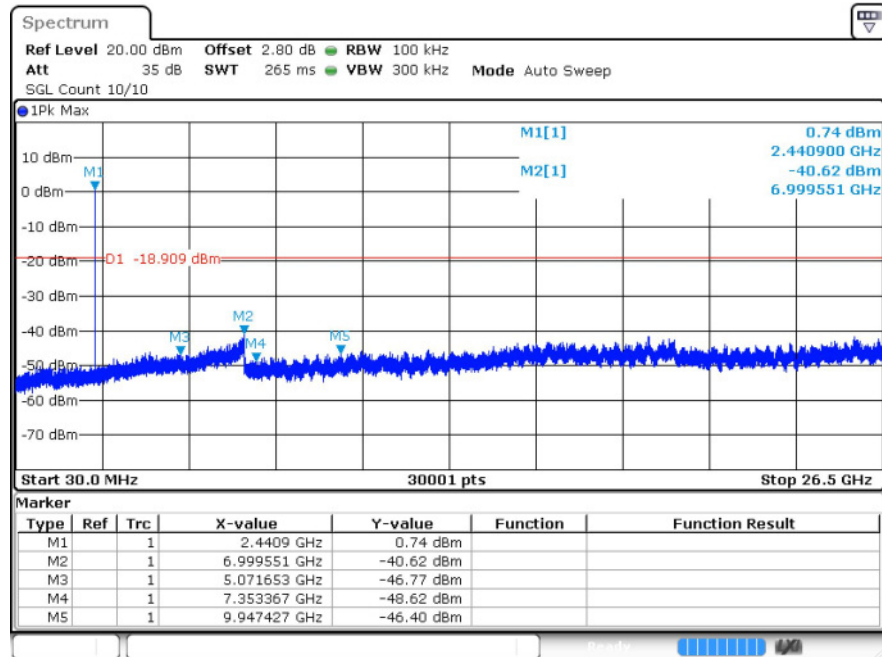


GFSK_MCH_Graphs

Pref

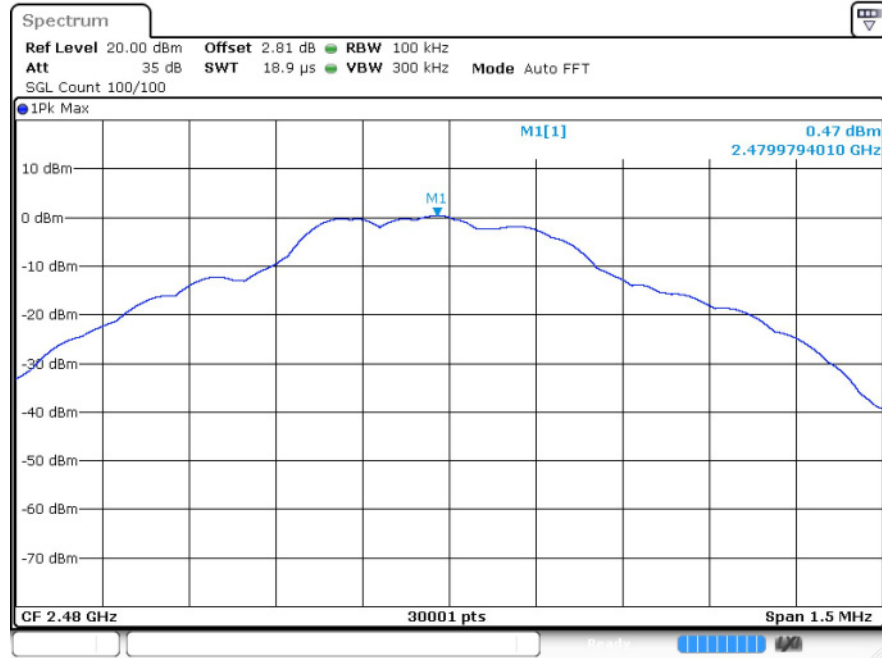


Puw

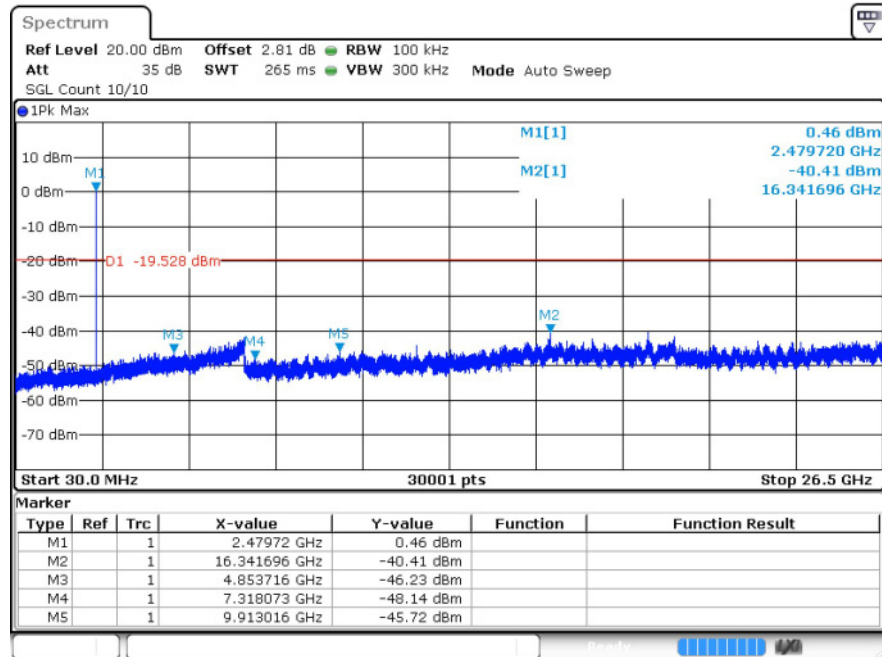


GFSK_HCH_Graphs

Pref

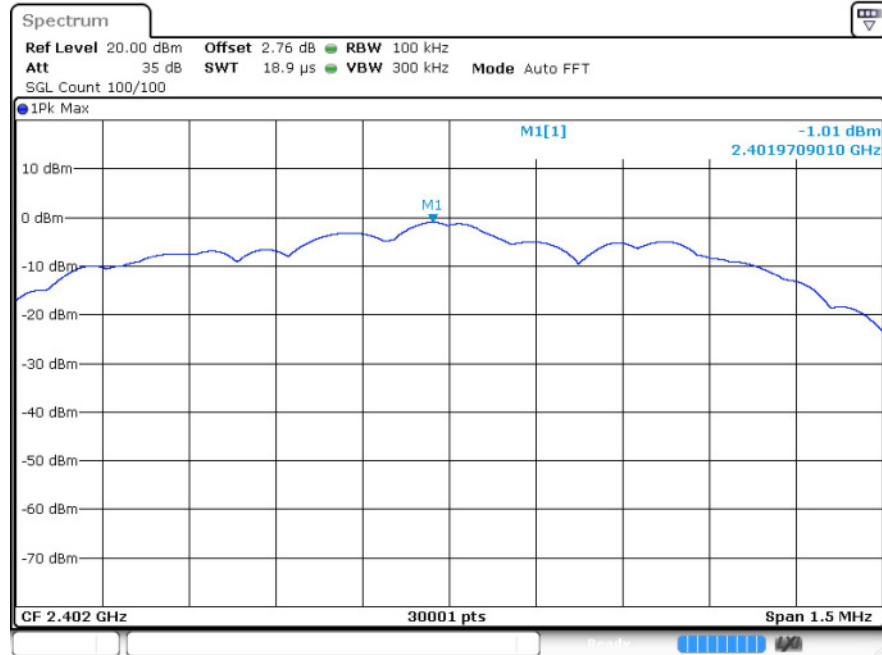


Puw

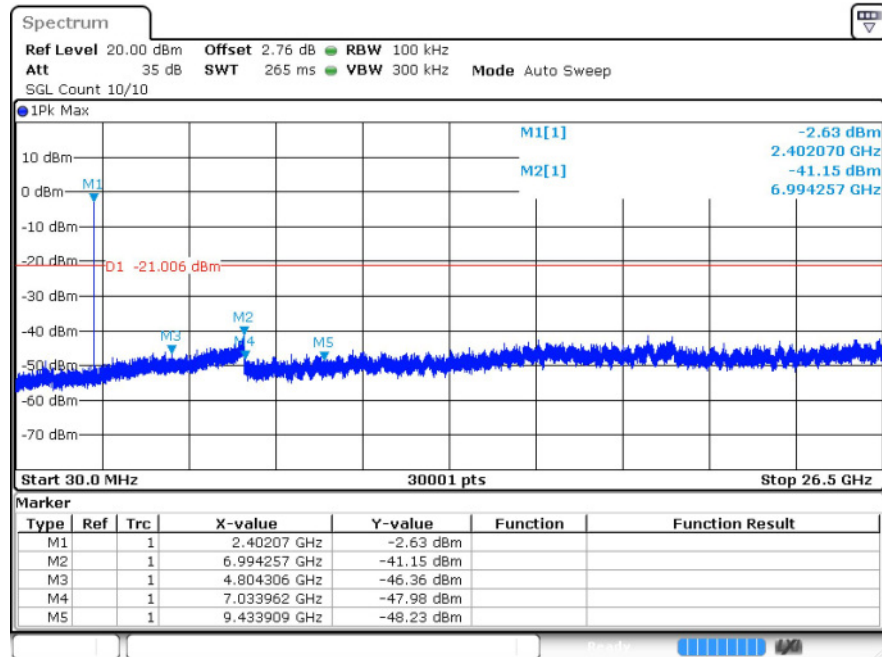


$\pi/4$ DQPSK_LCH_Graphs

Pref

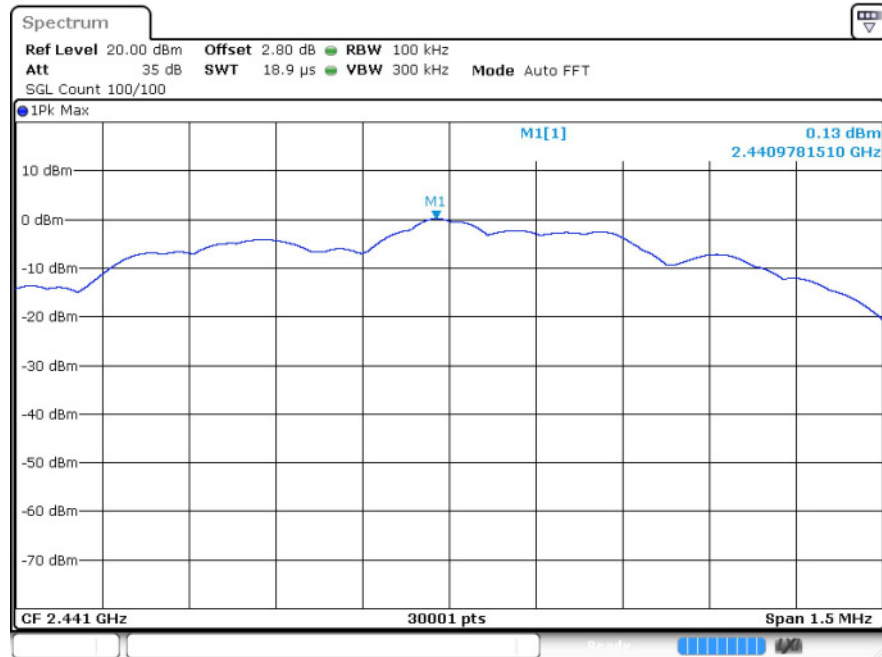


Puw

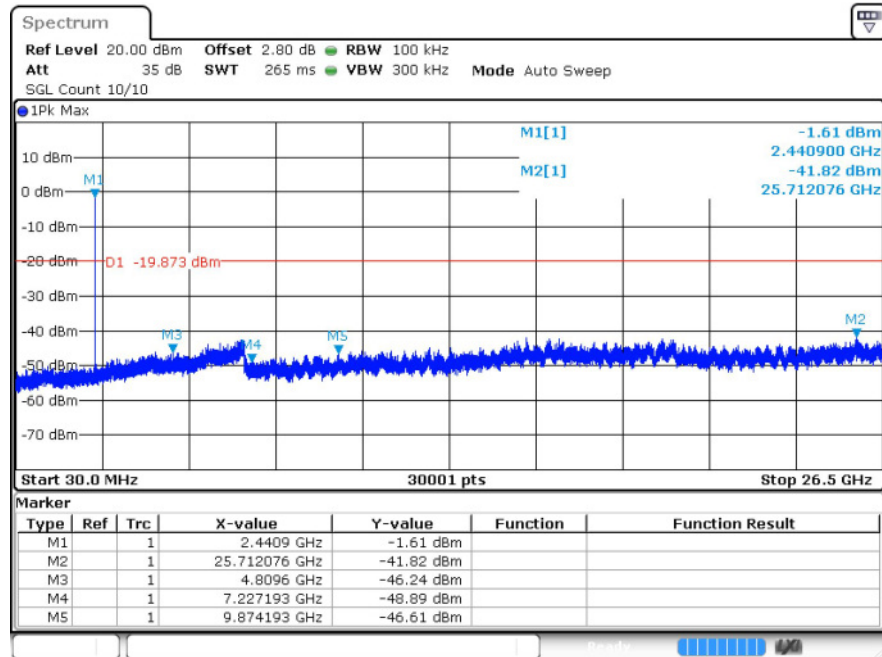


π /4DQPSK_MCH_Graphs

Pref

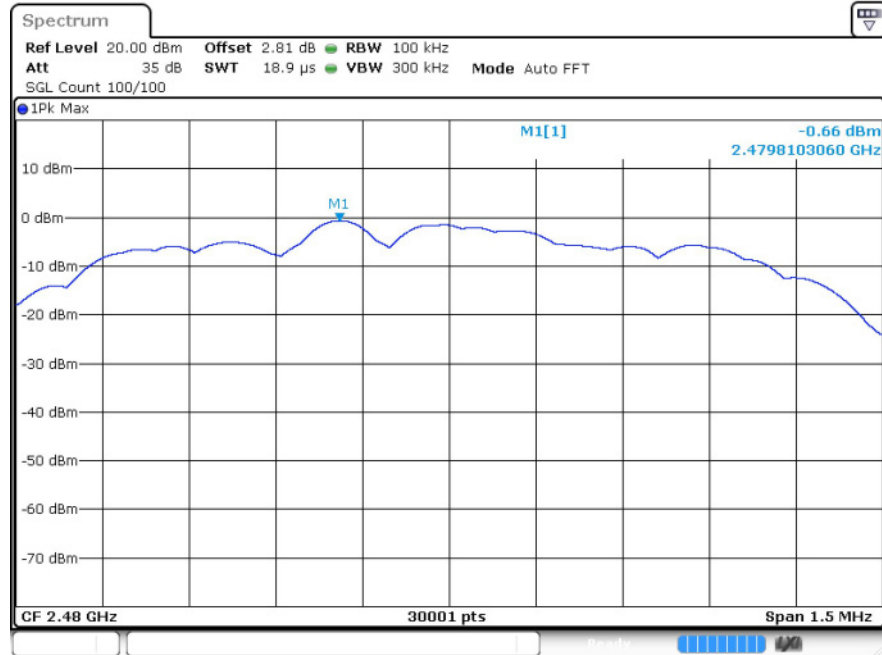


Puw



$\pi/4$ DQPSK_HCH_Graphs

Pref



Puw

