



Appendix A

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

Product Name: Wireless earphones

Trade Mark: N/A

Test Model: X-Smart

Environmental Conditions

Temperature:	24.6° C
Relative Humidity:	52.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung



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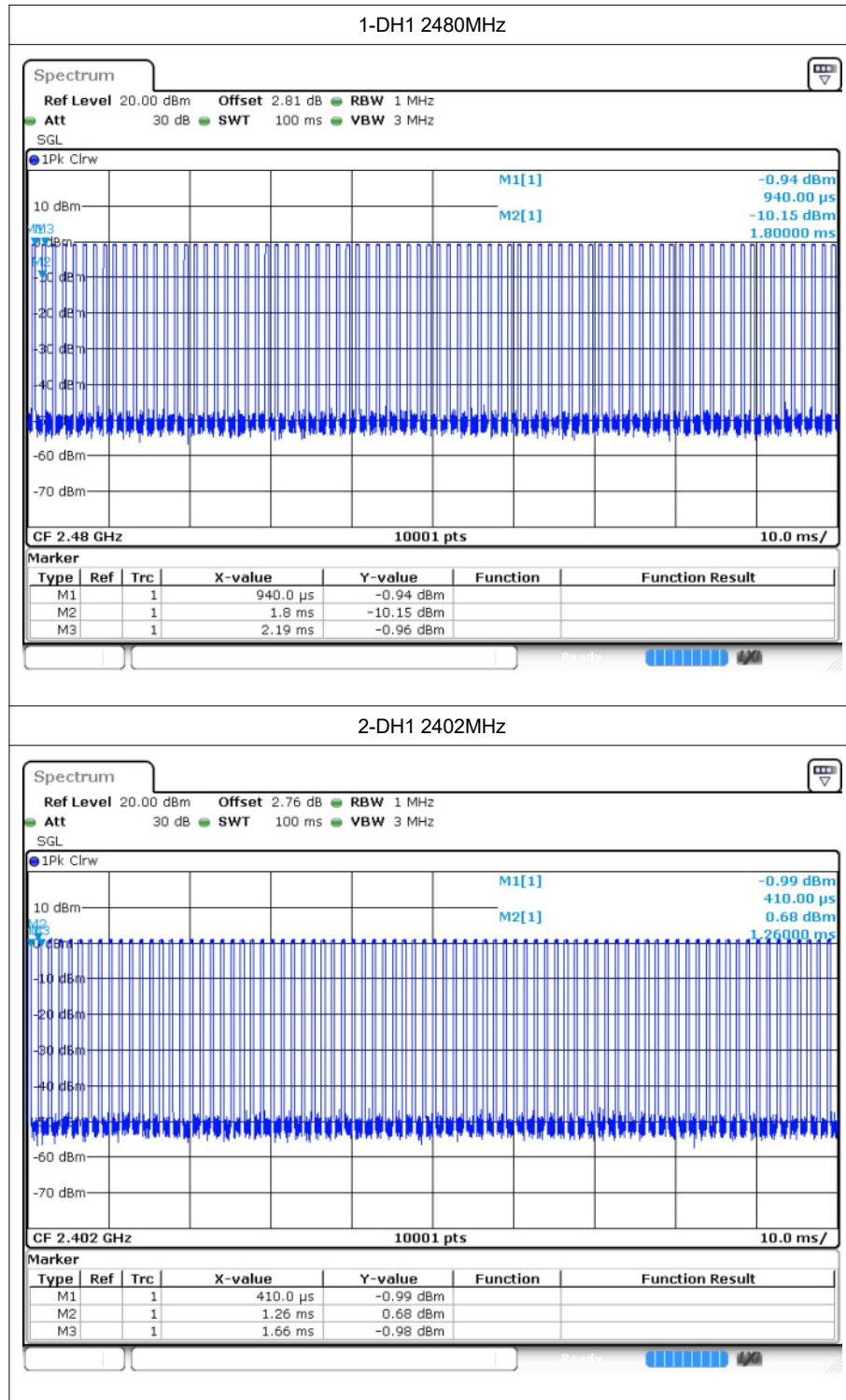
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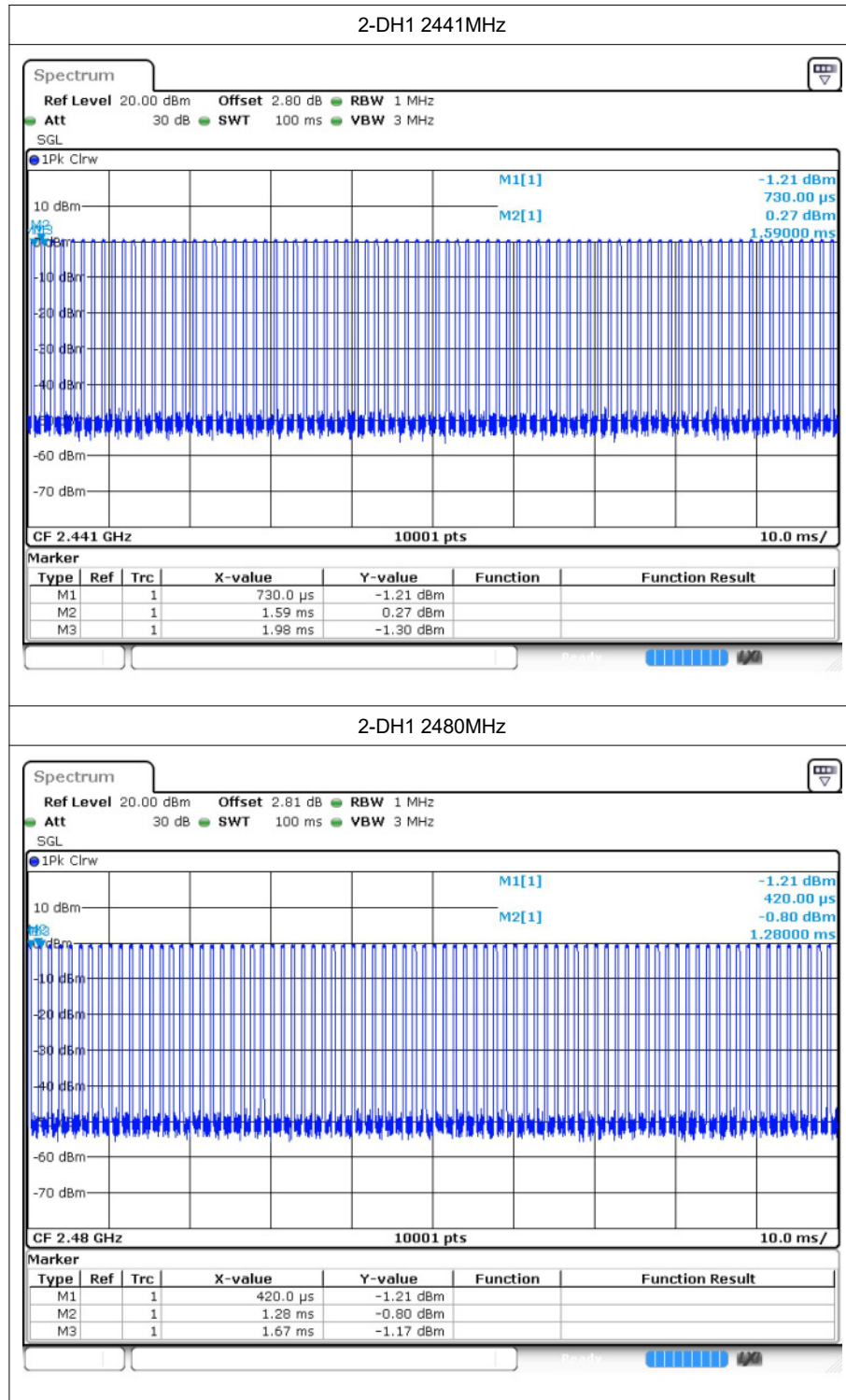
1 Duty Cycle

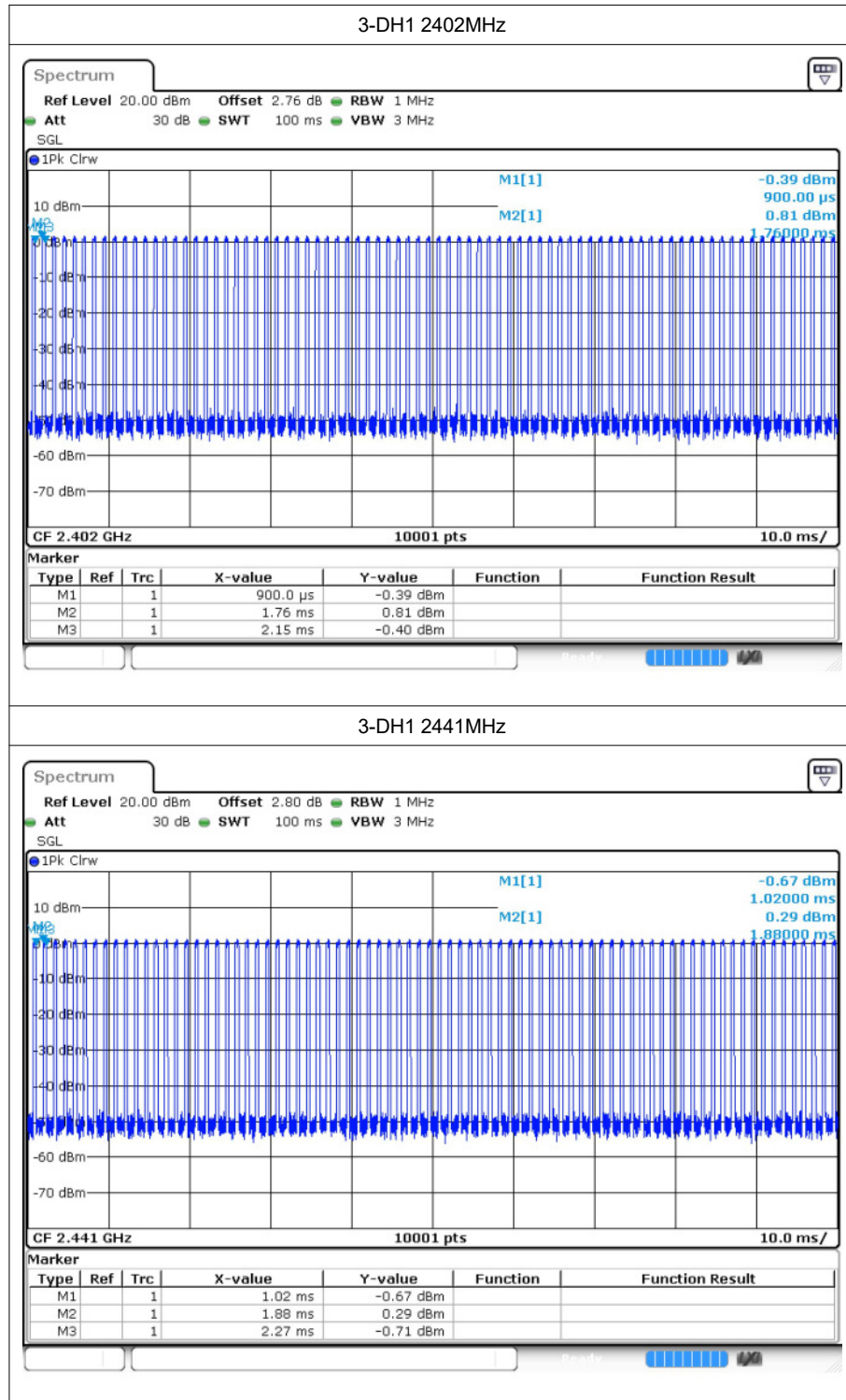
1.1 Test Result

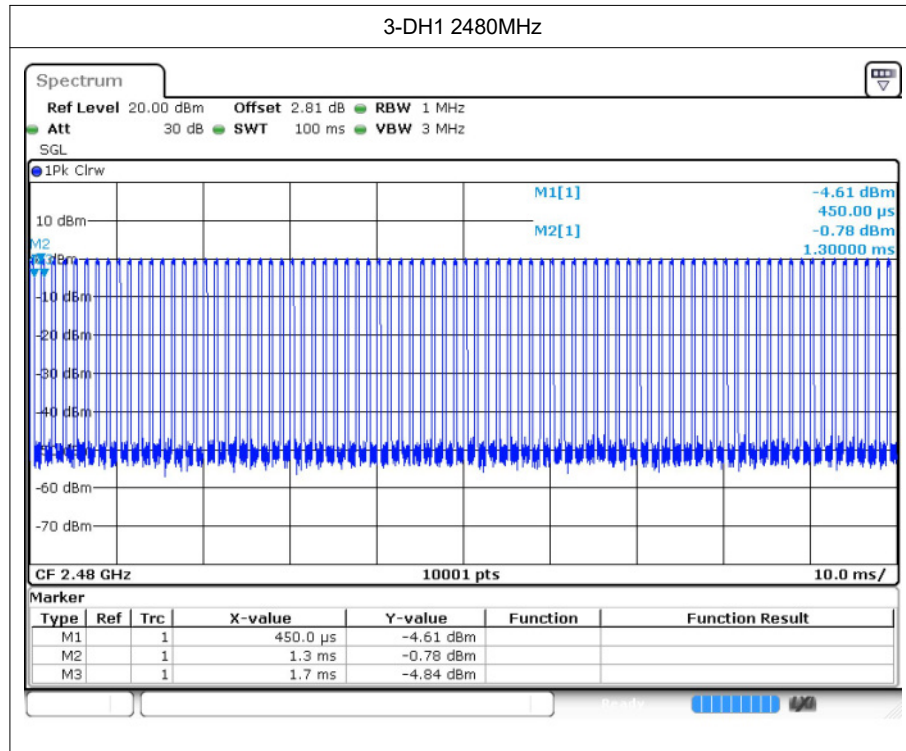
Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	31.2	5.06	2.63
1-DH1	2441	31.55	5.01	2.63
1-DH1	2480	32	4.95	2.56
2-DH1	2402	32.71	4.85	2.5
2-DH1	2441	32	4.95	2.56
2-DH1	2480	32	4.95	2.56
3-DH1	2402	32.74	4.85	2.56
3-DH1	2441	32	4.95	2.56
3-DH1	2480	32.41	4.89	2.5

Note: Left and right ear have been tested and the only shows the worst case mode.









2 Maximum Conducted Peak Output Power

2.1 Test Result

Left:

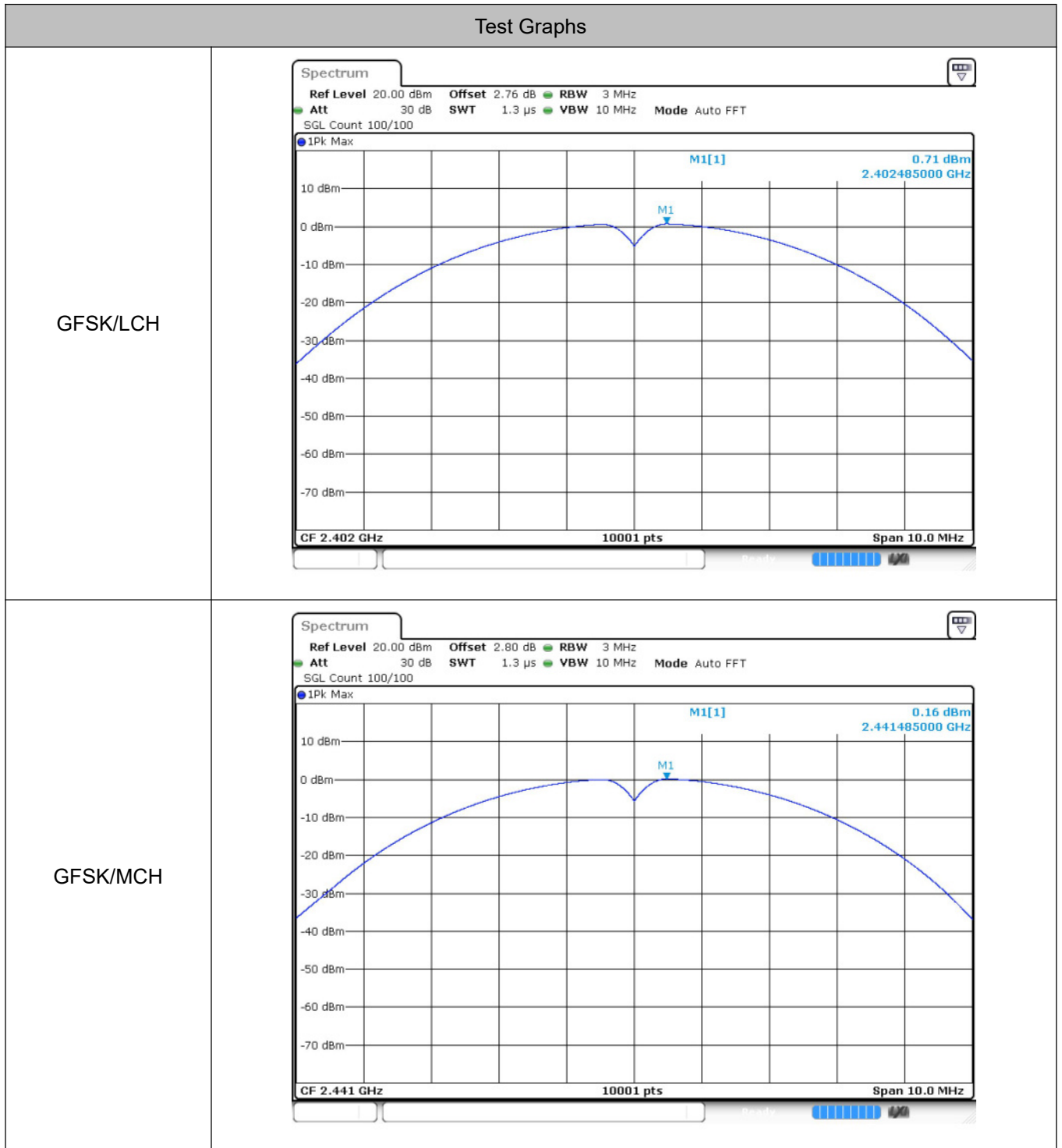
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.71	21	Pass
	MCH	0.16	21	Pass
	HCH	-0.88	21	Pass
$\pi/4$ DQPSK	LCH	1.01	21	Pass
	MCH	0.5	21	Pass
	HCH	-0.45	21	Pass
8DPSK	LCH	1.44	21	Pass
	MCH	0.94	21	Pass
	HCH	-0.81	21	Pass

Right:

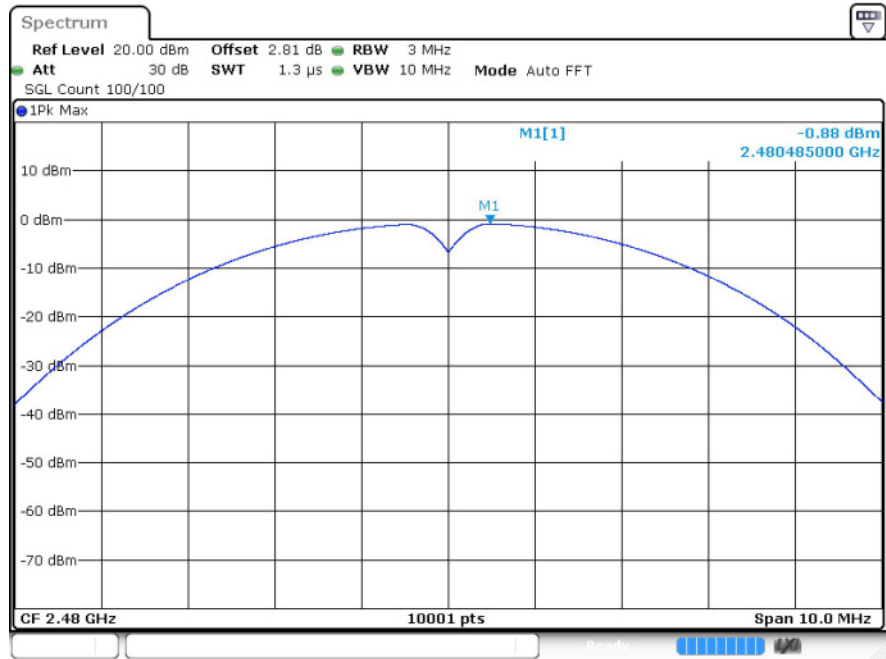
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.77	21	Pass
	MCH	0.61	21	Pass
	HCH	-0.27	21	Pass
$\pi/4$ DQPSK	LCH	1.34	21	Pass
	MCH	0.83	21	Pass
	HCH	0.27	21	Pass
8DPSK	LCH	1.16	21	Pass
	MCH	1.31	21	Pass
	HCH	0.55	21	Pass

2.2 Test Graphs

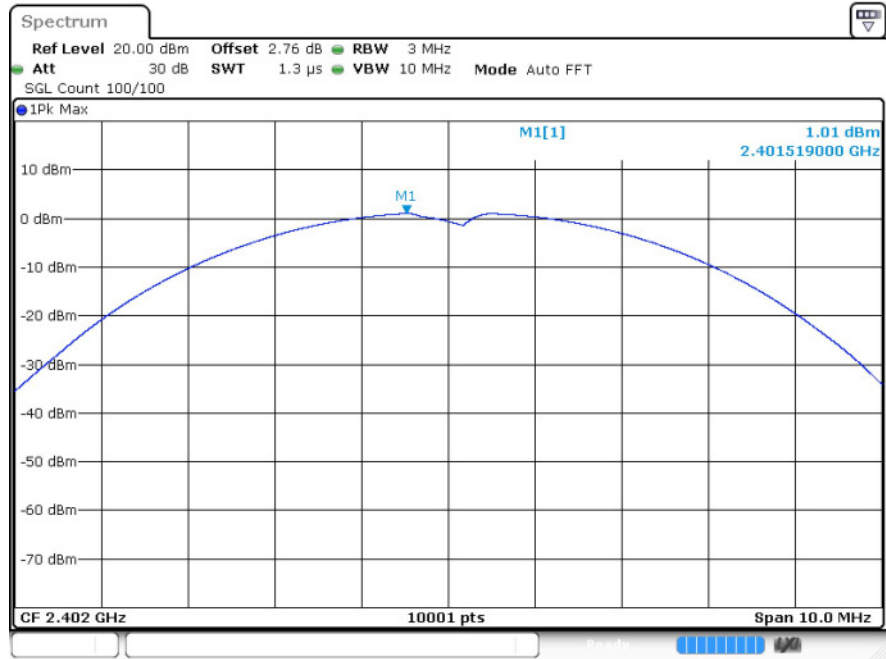
Left:



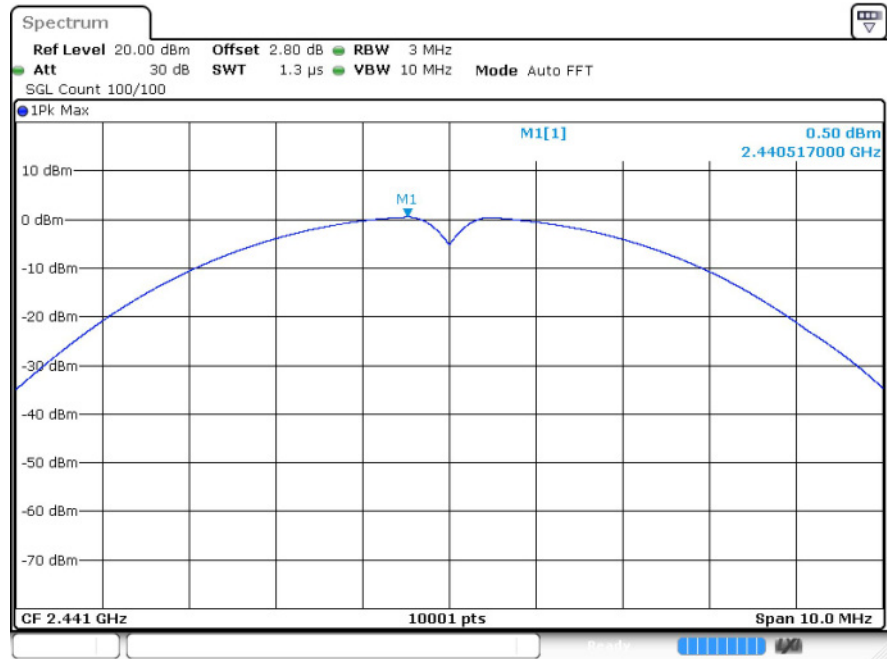
GFSK/HCH



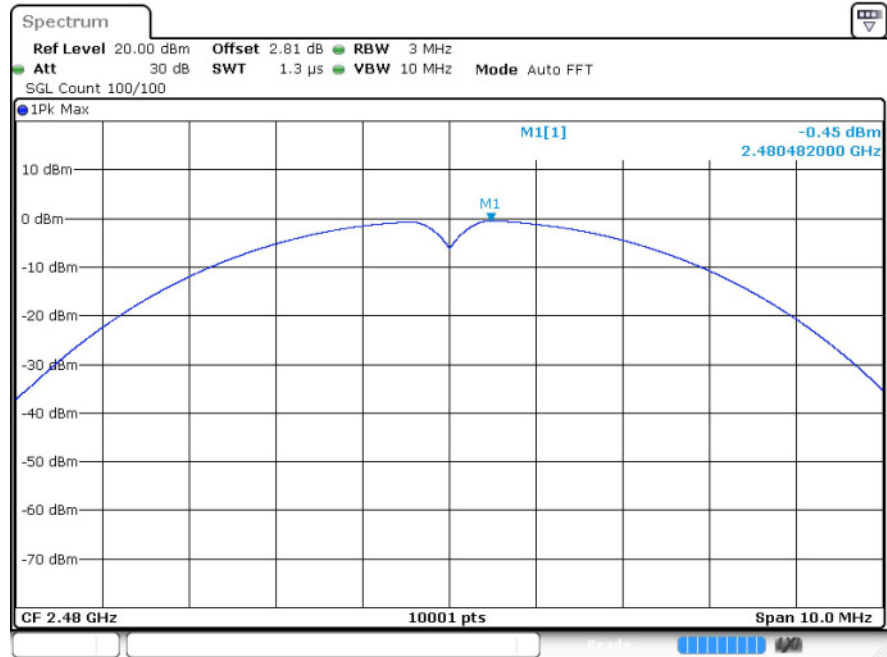
$\pi/4$ DQPSK/LCH



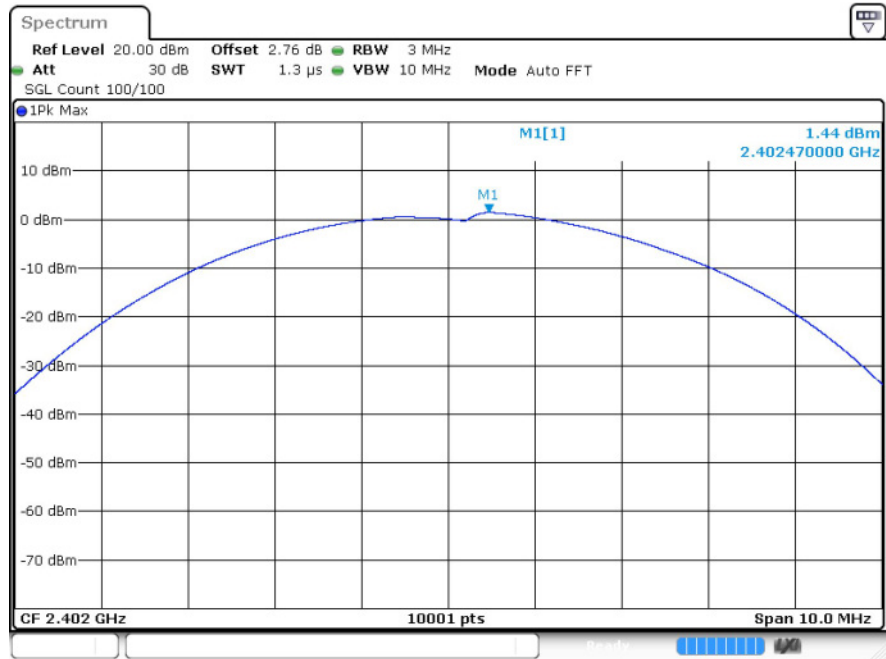
$\pi/4$ DQPSK/MCH



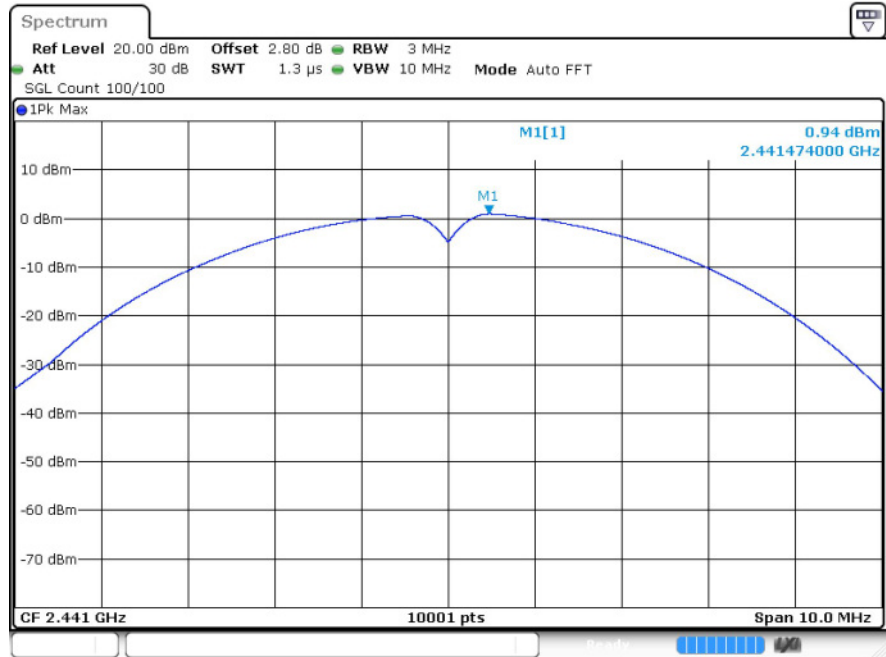
$\pi/4$ DQPSK/HCH



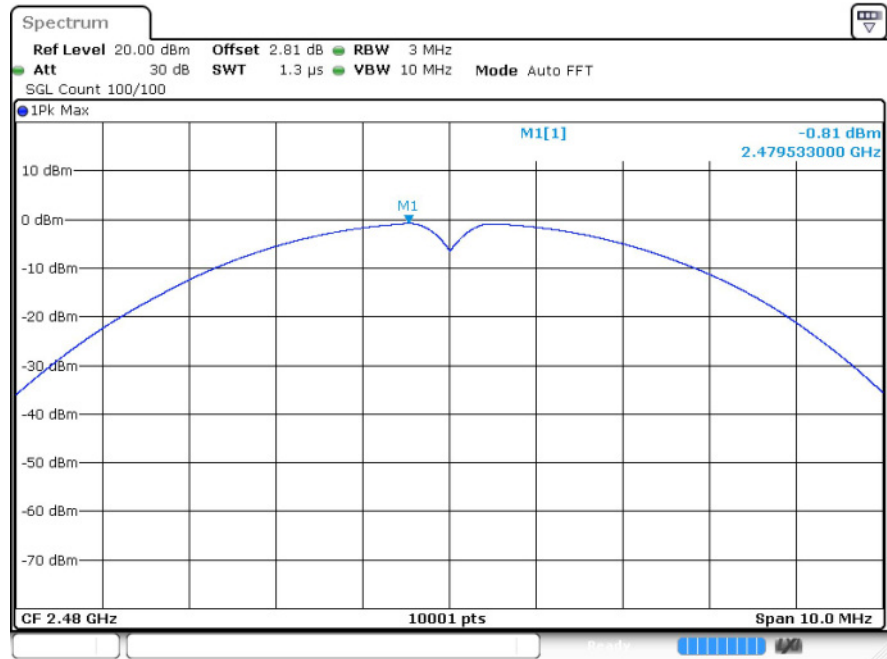
8DPSK/LCH



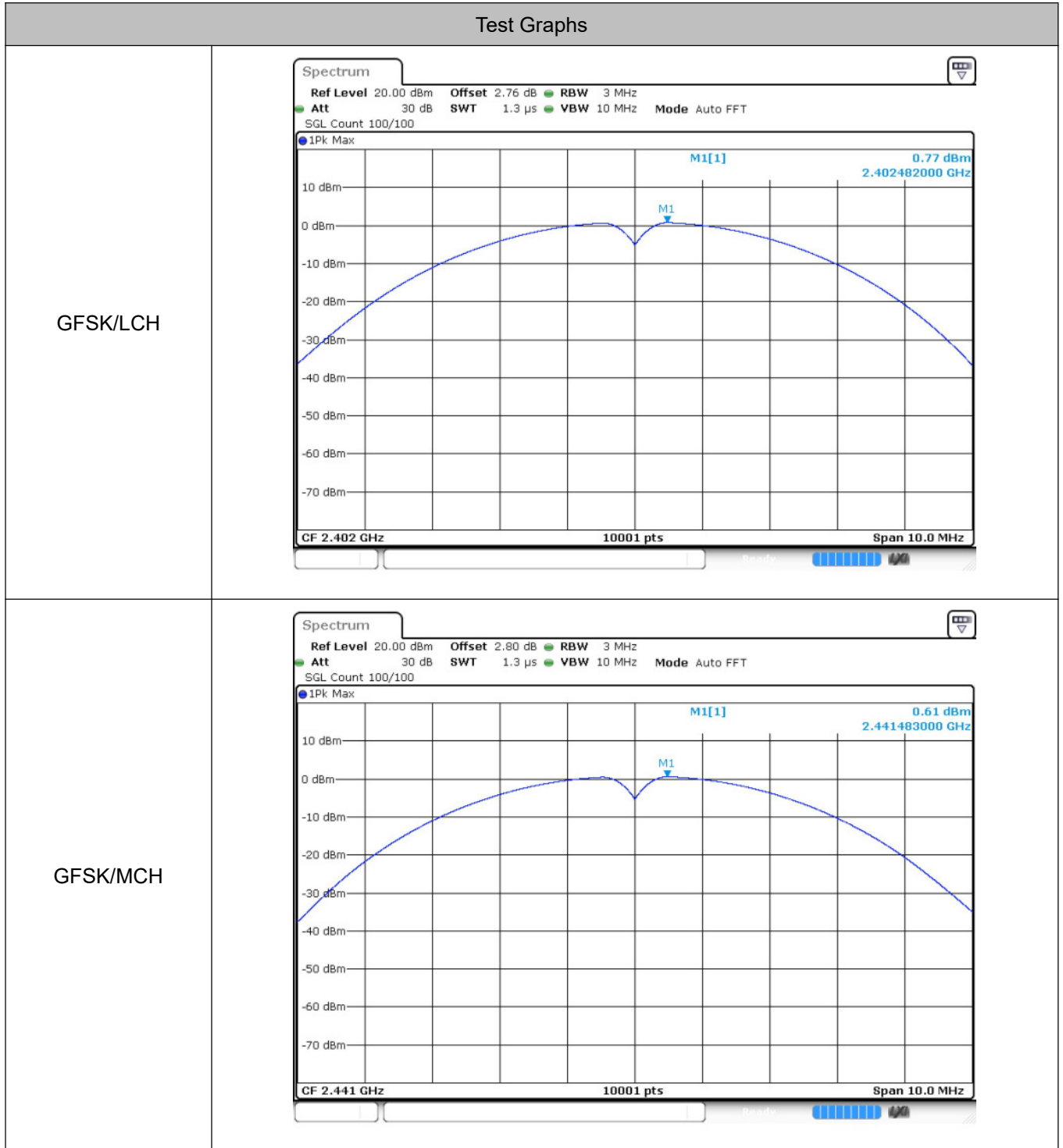
8DPSK/MCH



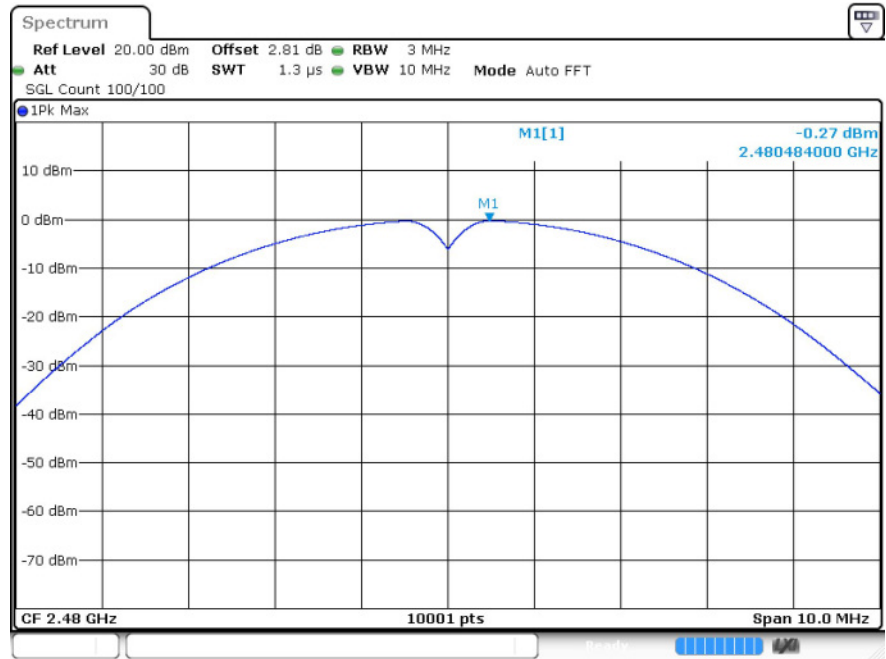
8DPSK/HCH



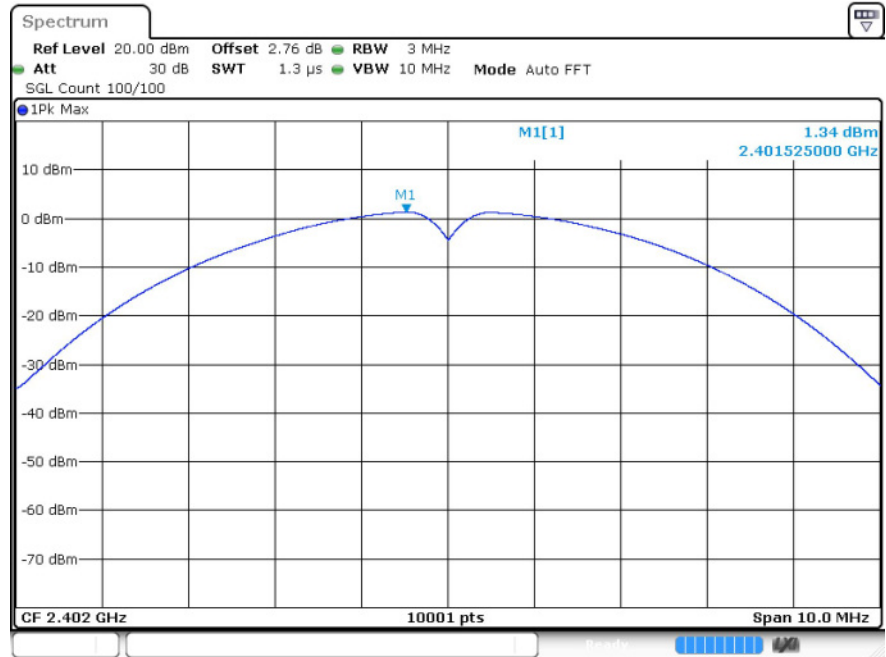
Right:

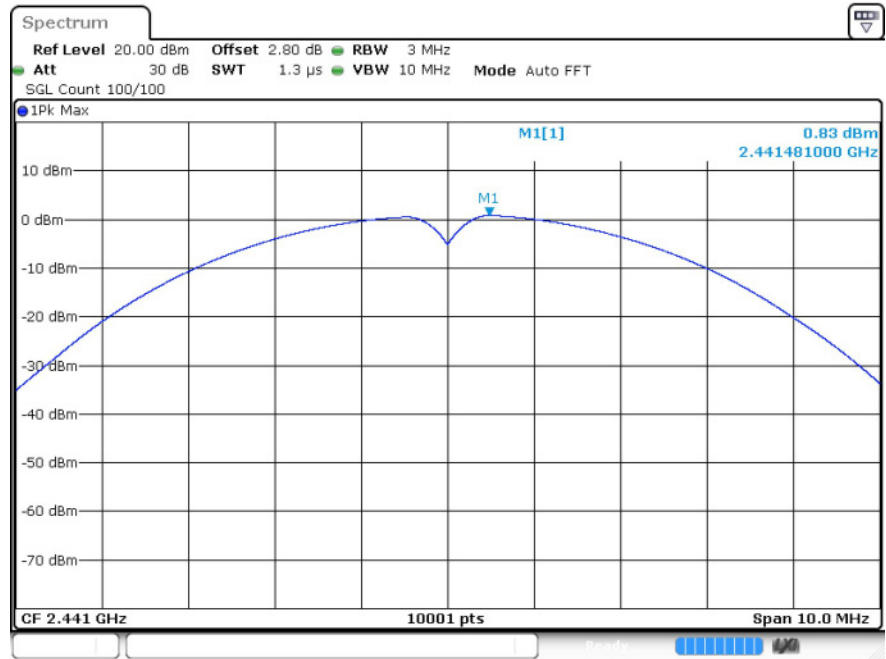
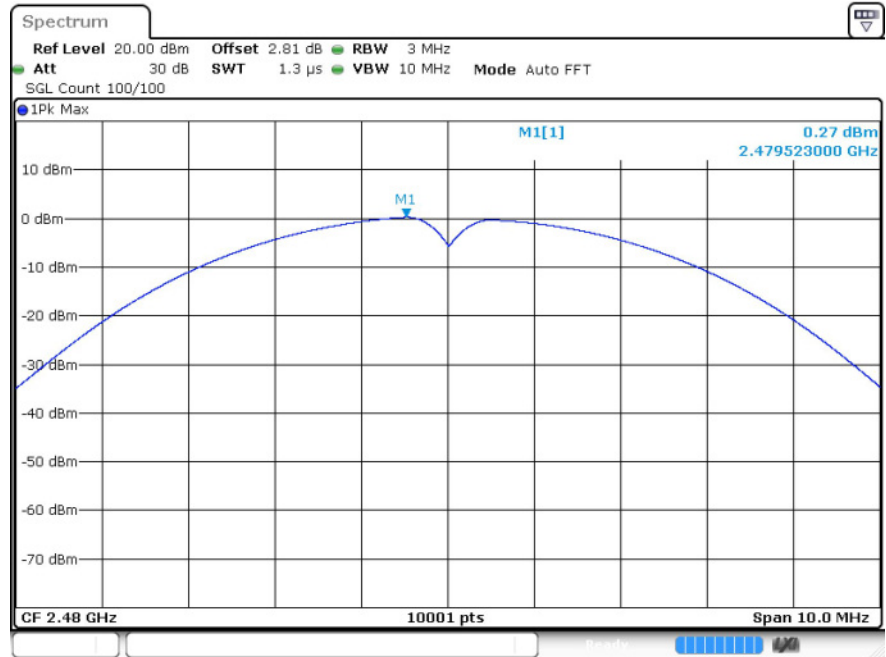


GFSK/HCH

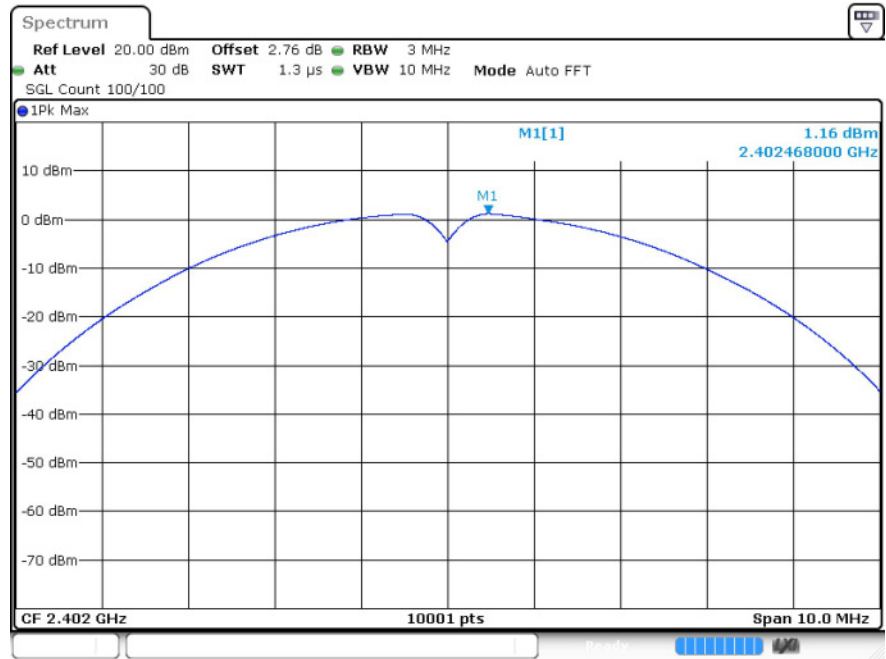


$\pi/4$ DQPSK/LCH

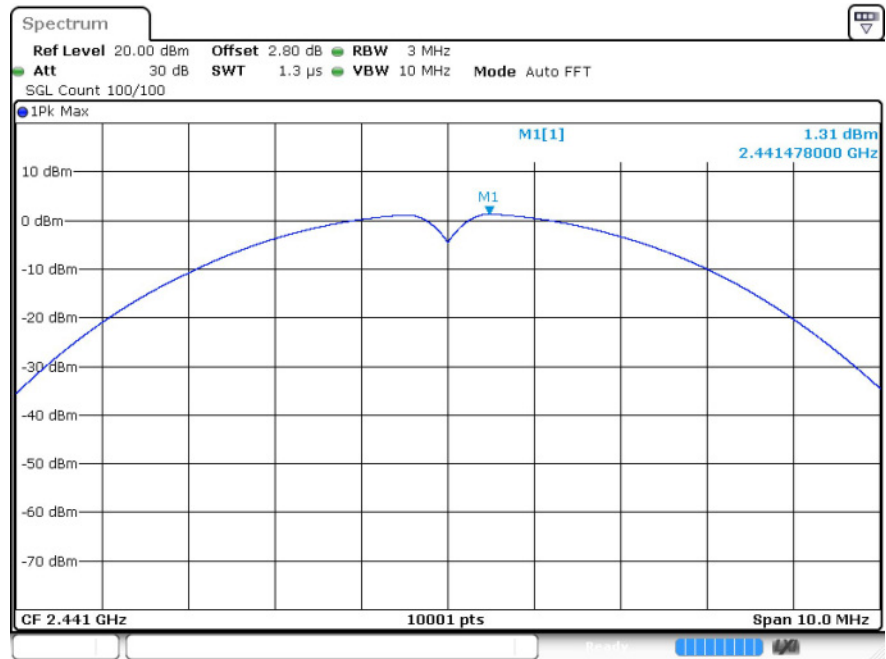


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


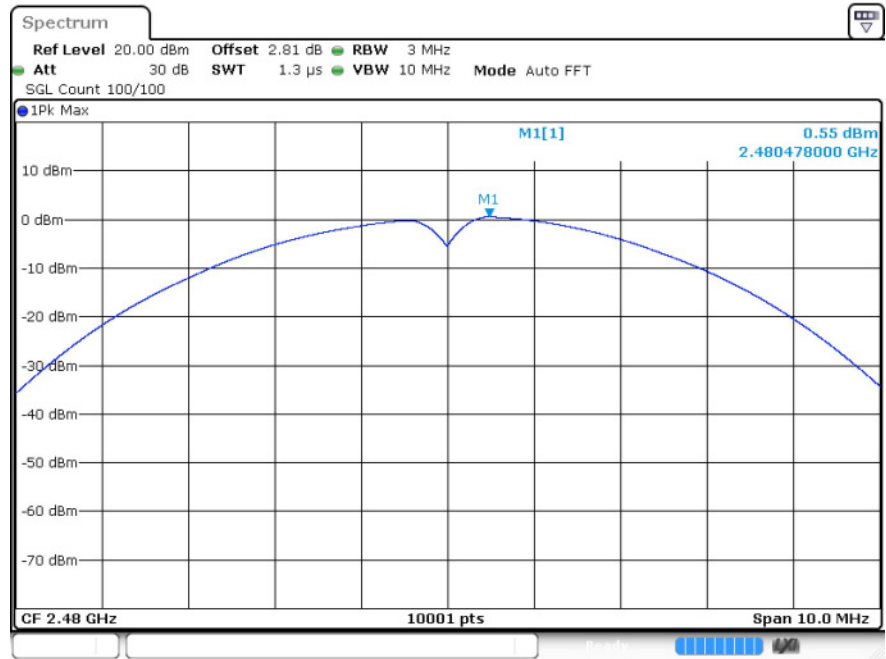
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



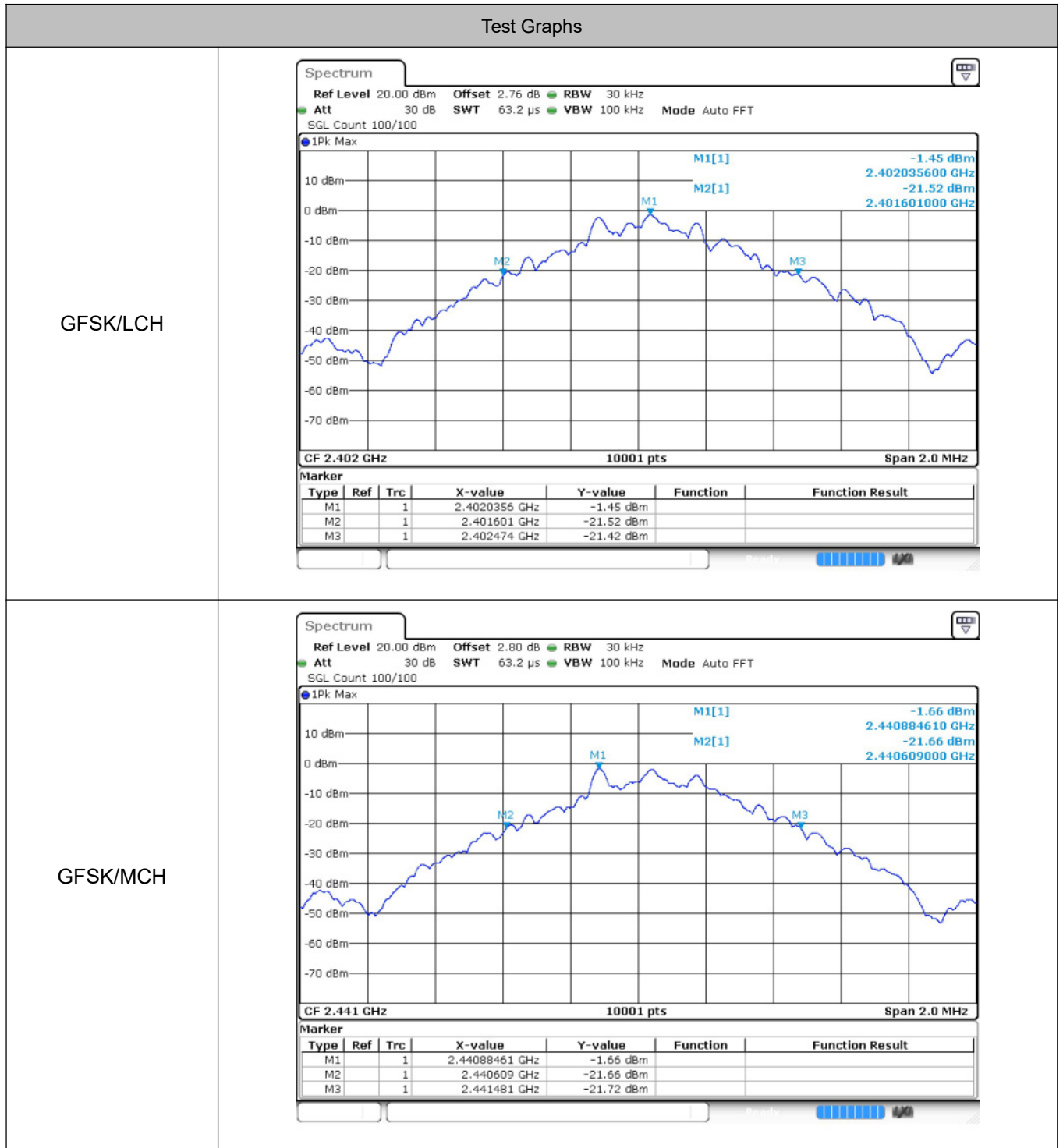
3 20dB Bandwidth

3.1 Test Result

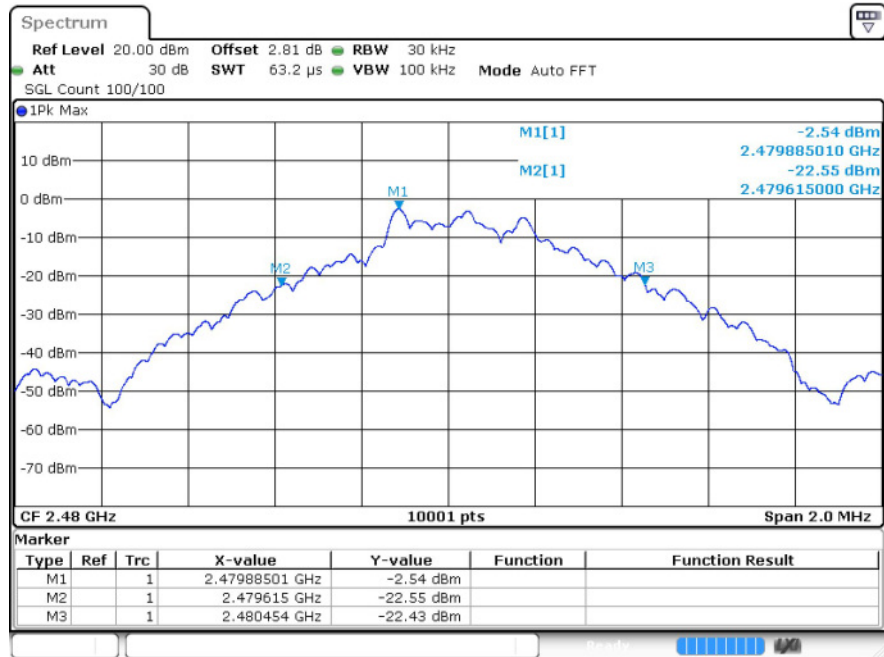
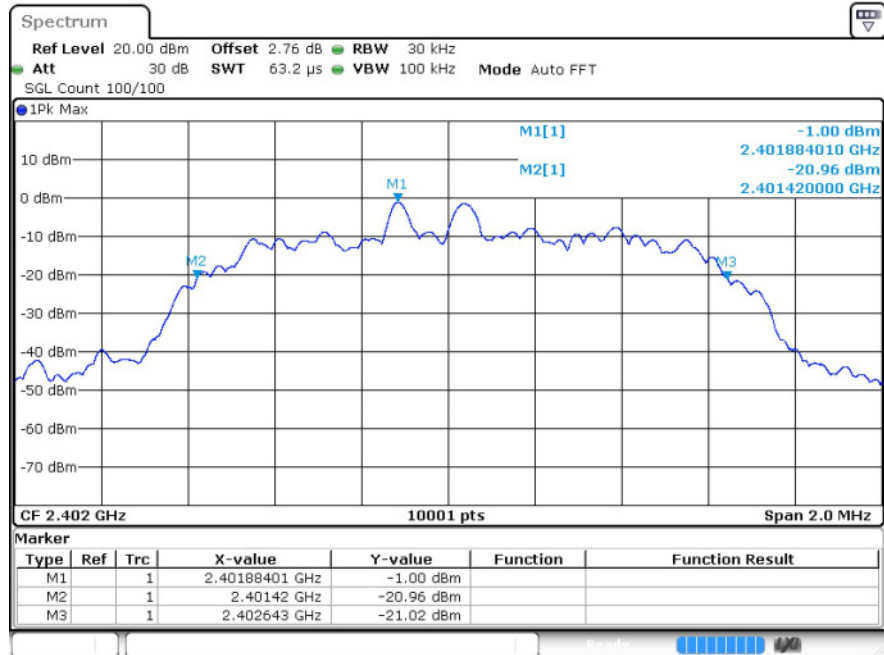
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.873	Not Specified	Pass
	MCH	0.872	Not Specified	Pass
	HCH	0.839	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.223	Not Specified	Pass
	MCH	1.184	Not Specified	Pass
	HCH	1.257	Not Specified	Pass
8DPSK	LCH	1.213	Not Specified	Pass
	MCH	1.211	Not Specified	Pass
	HCH	1.208	Not Specified	Pass

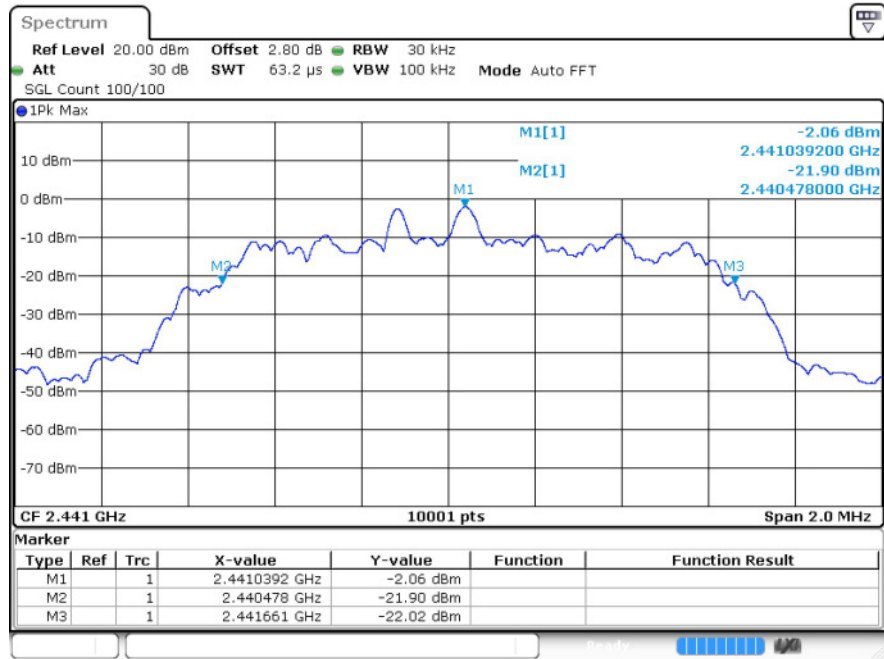
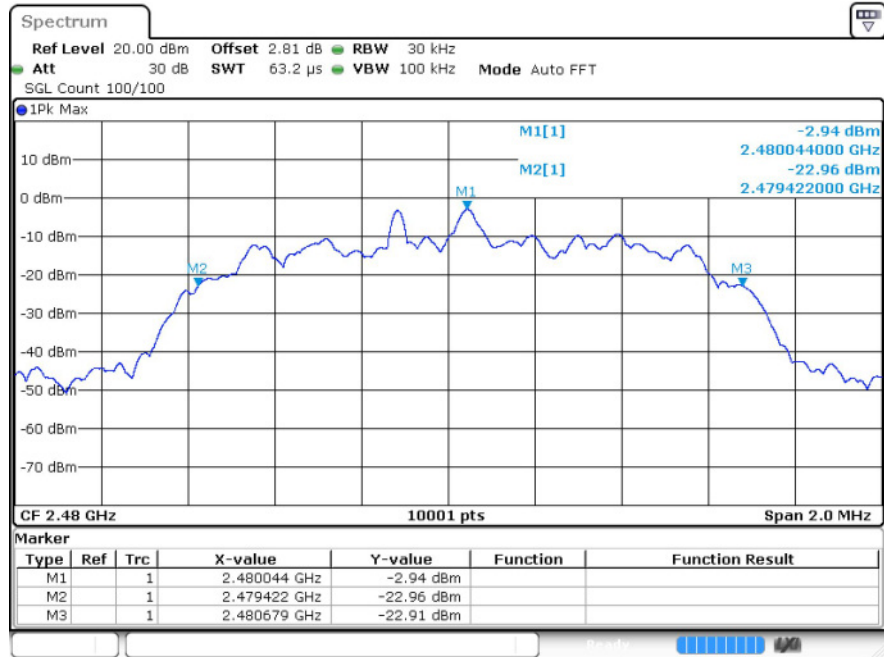
Note: Left and right ear have been tested and the only shows the worst case mode.

3.2 Test Graphs

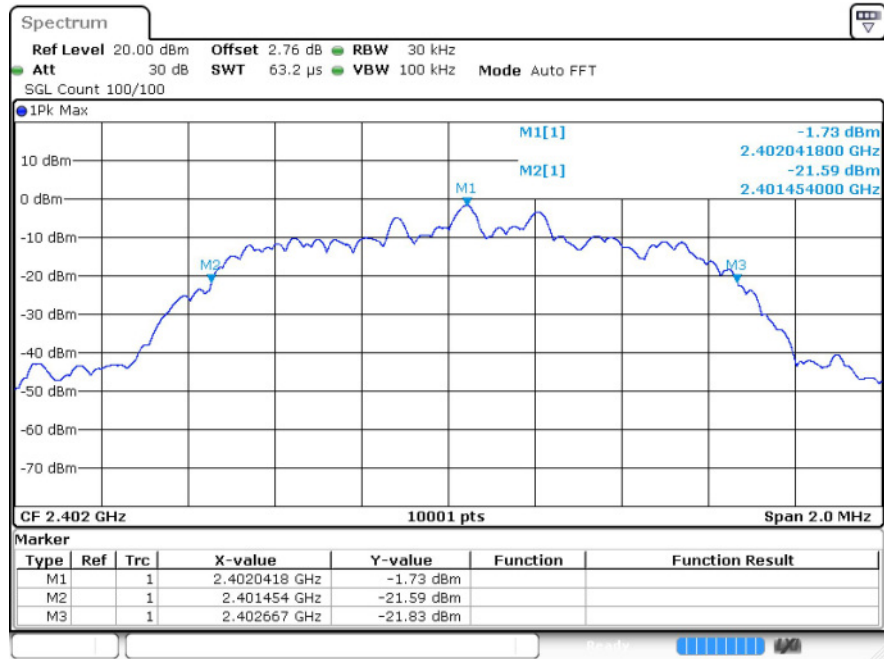


GFSK/HCH

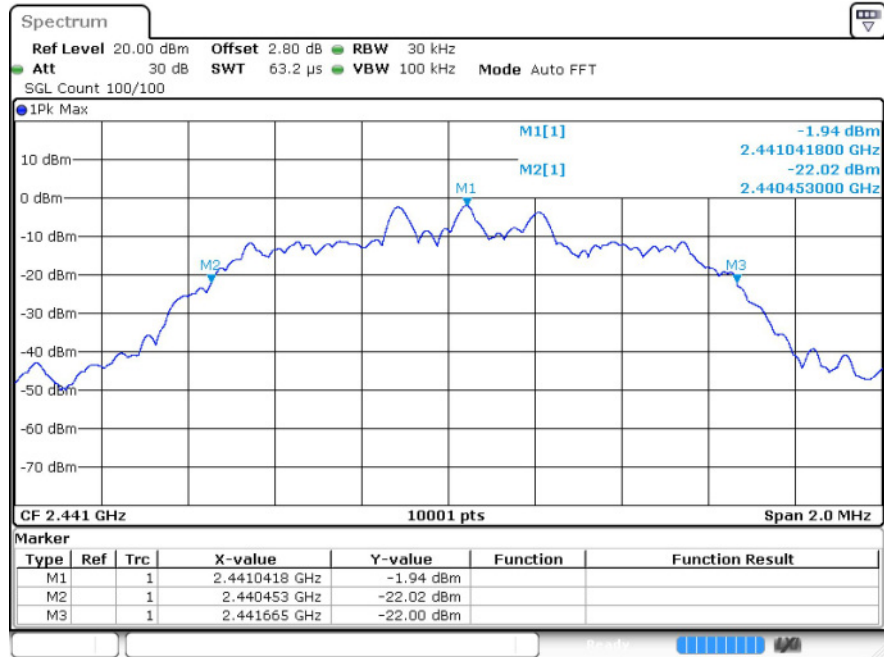

 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


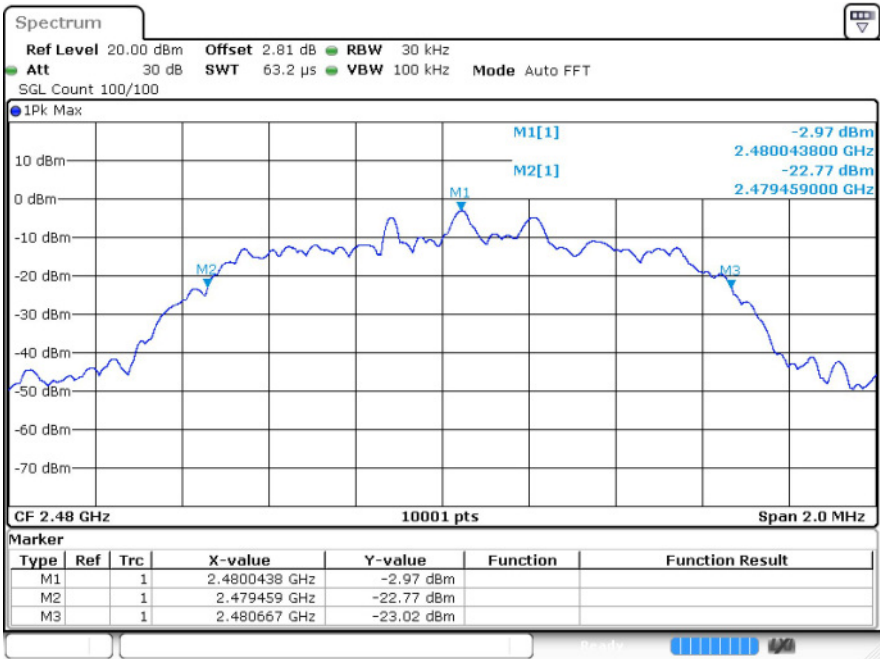
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



4 Carrier Frequency Separation

4.1 Test Result

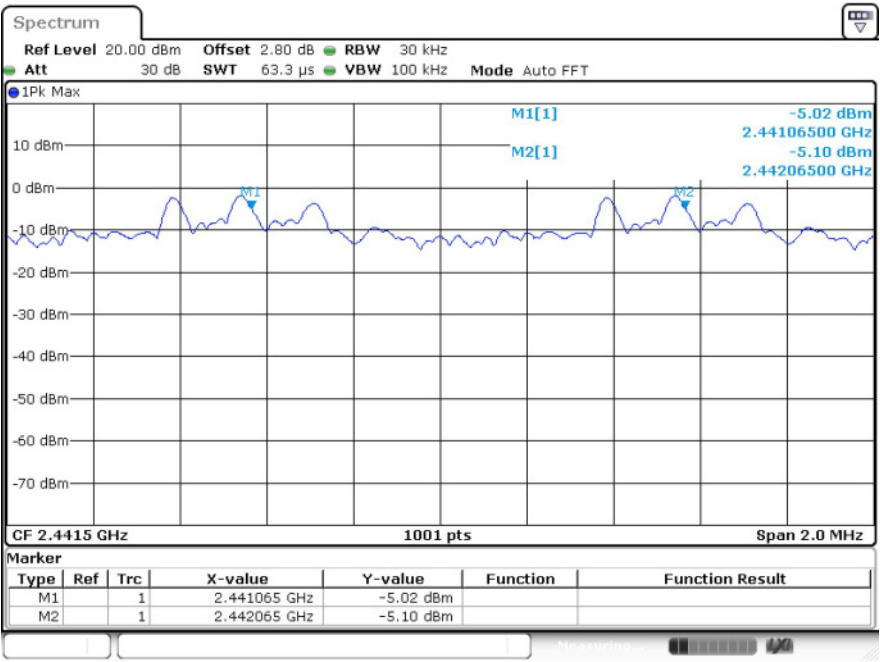
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	0.984	0.581	Pass
$\pi/4$ DQPSK	MCH	1.06	0.789	Pass
8DPSK	MCH	1	0.807	Pass

Note: Left and right ear have been tested and the only shows the worst case mode.

4.2 Test Graphs



8DPSK/MCH



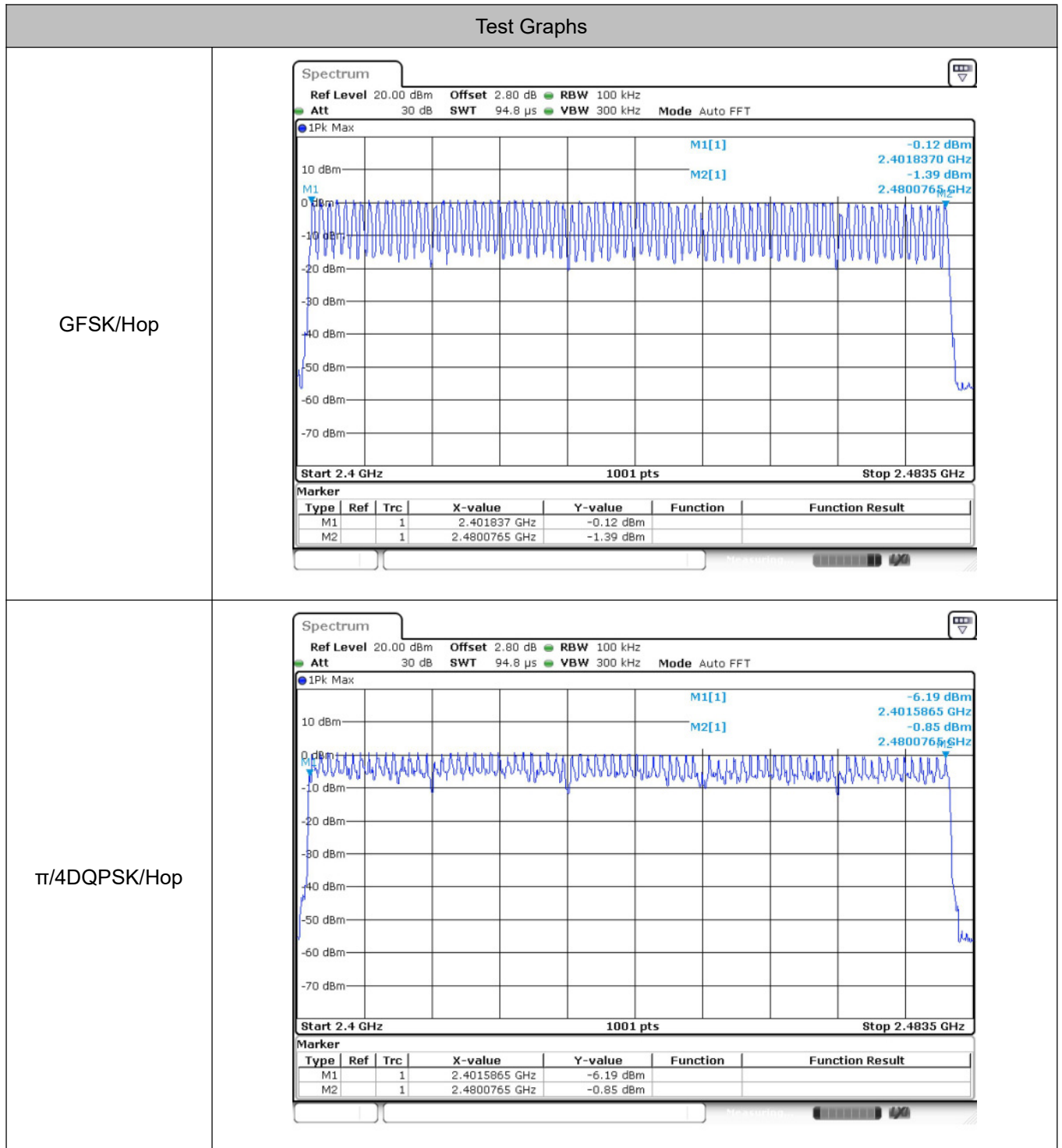
5 Hopping Channel Number

5.1 Test Result

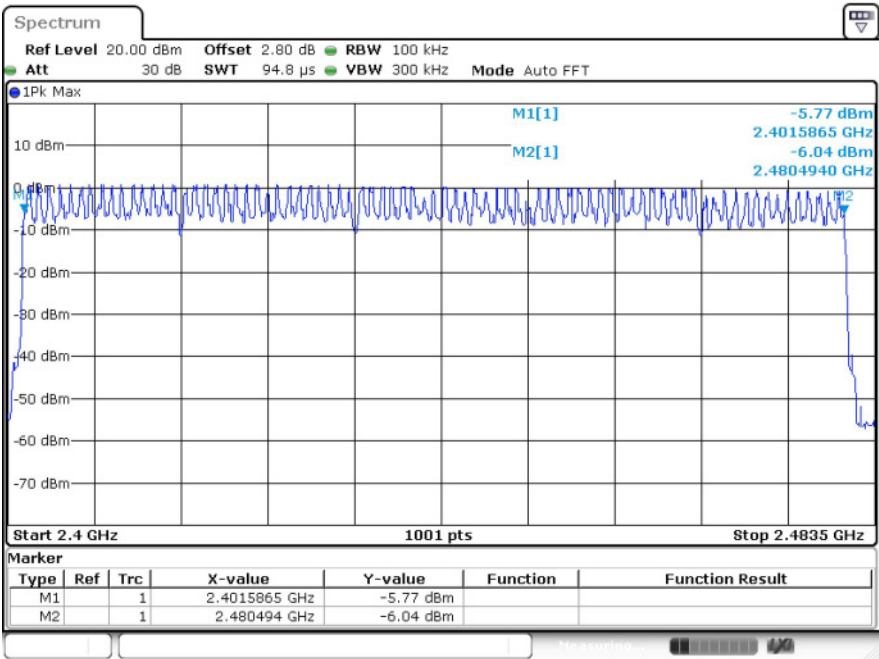
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Note: Left and right ear have been tested and the only shows the worst case mode.

5.2 Test Graphs



8DPSK/Hop



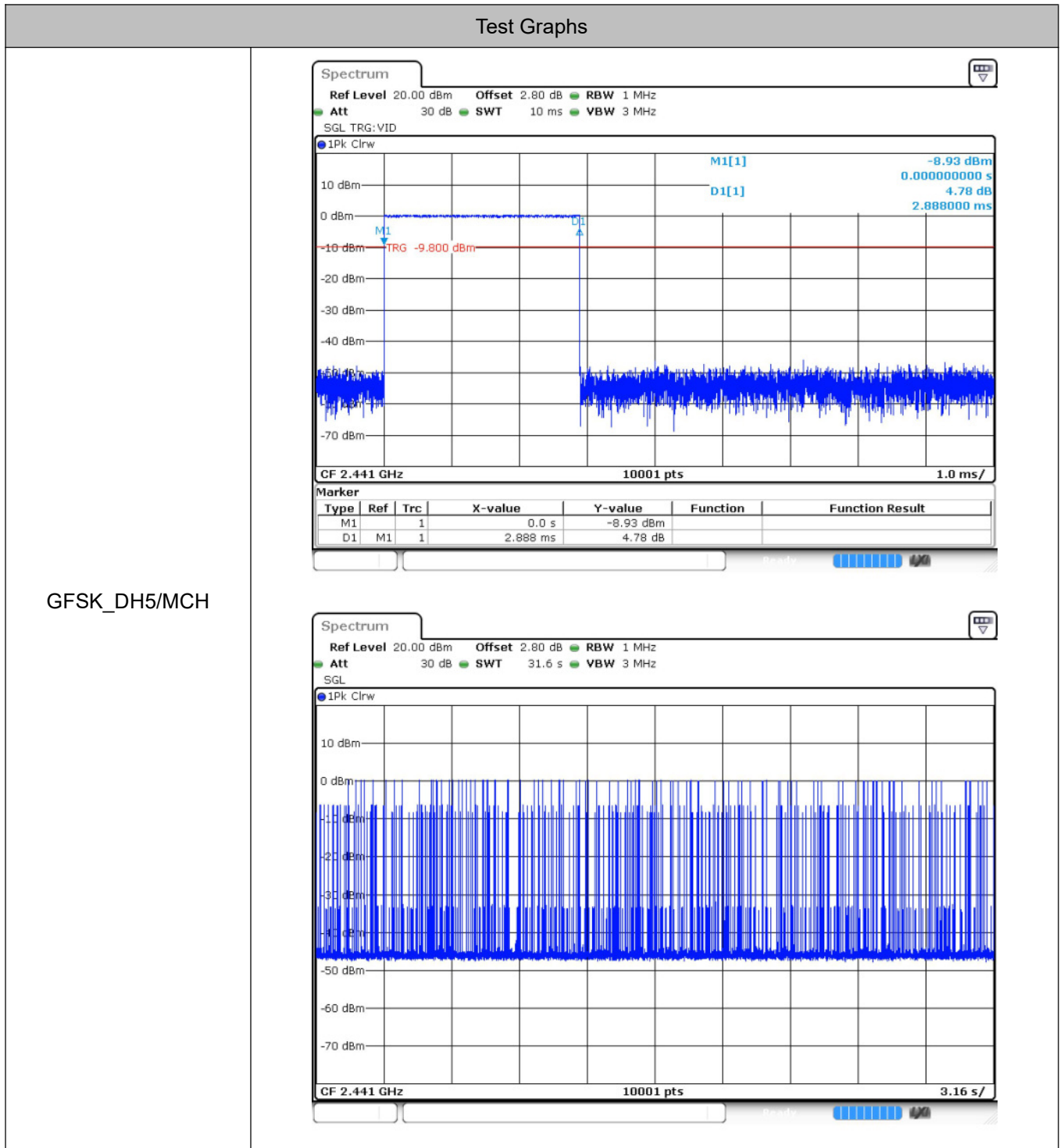
6 Dwell Time

6.1 Test Result

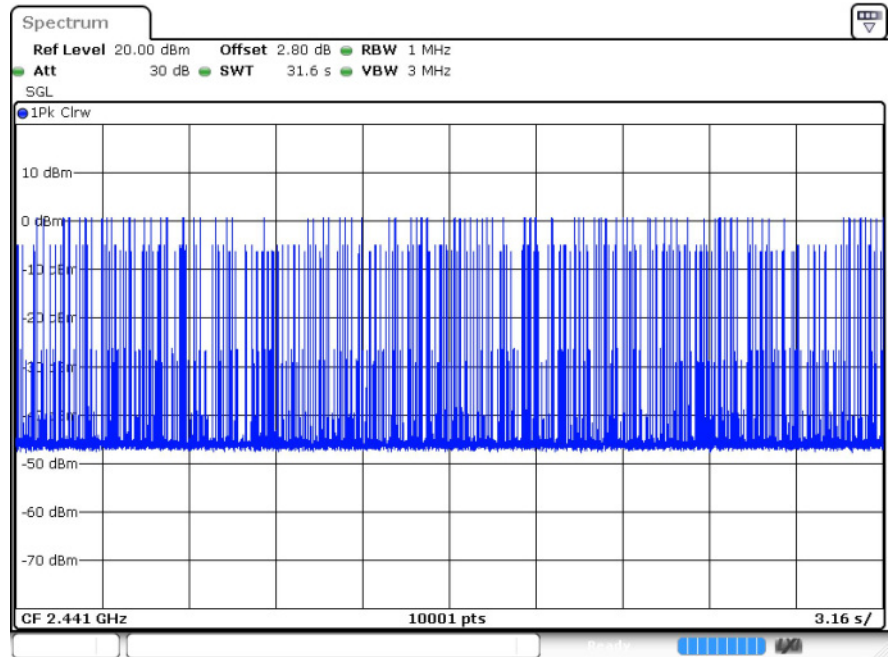
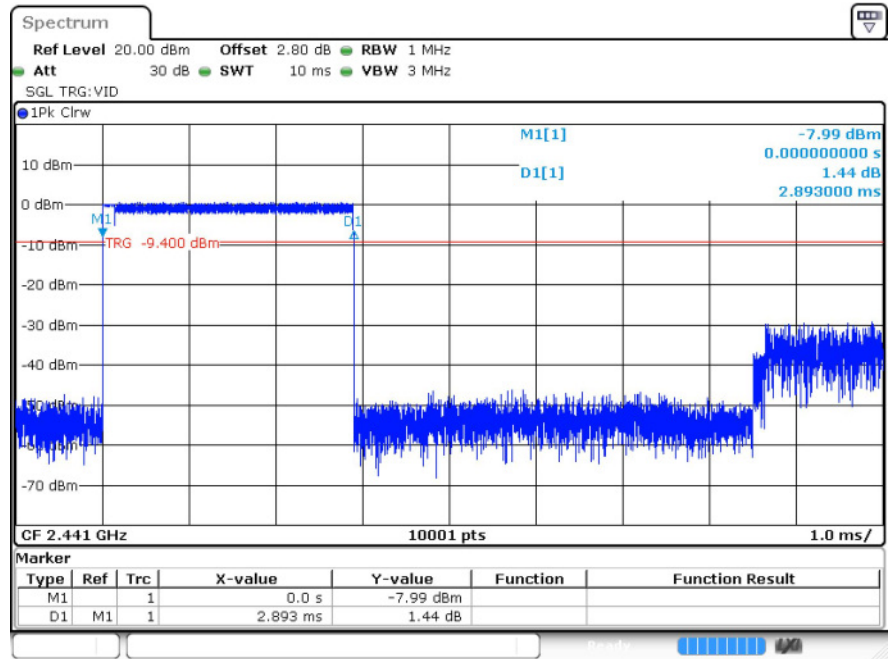
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.888	105	303.24	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.893	107	309.551	0.4	Pass
8DPSK	3DH5	MCH	2.894	104	300.976	0.4	Pass

Note: Left and right ear have been tested and the only shows the worst case mode.

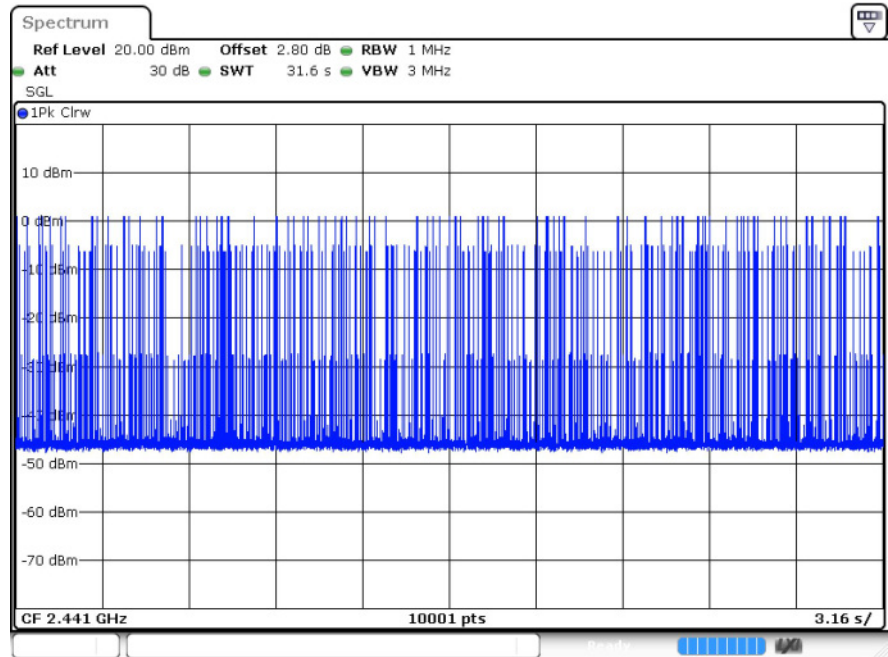
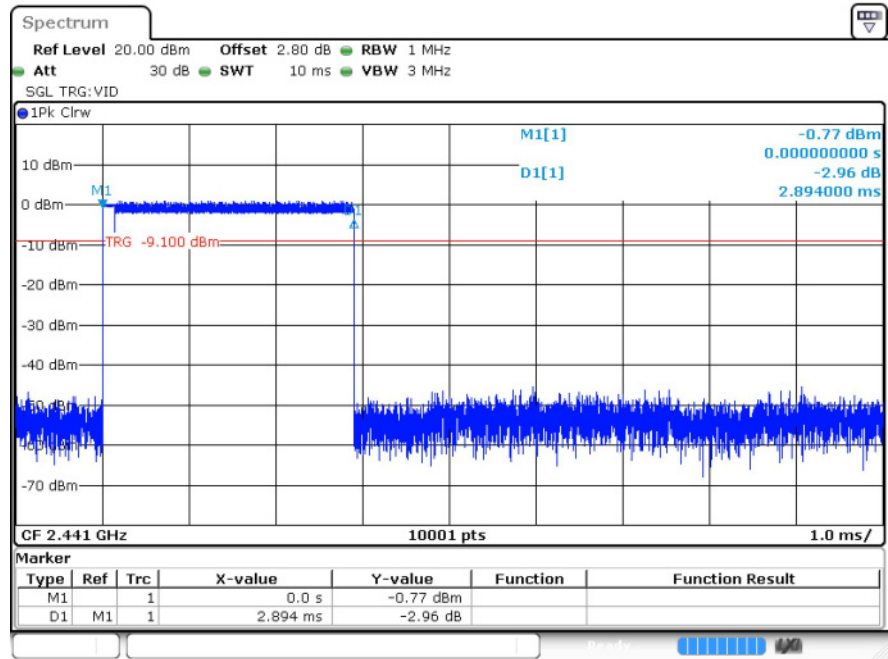
6.2 Test Graphs



$\pi/4$ DQPSK
_2DH5/MCH



8DPSK_3DH5/MCH



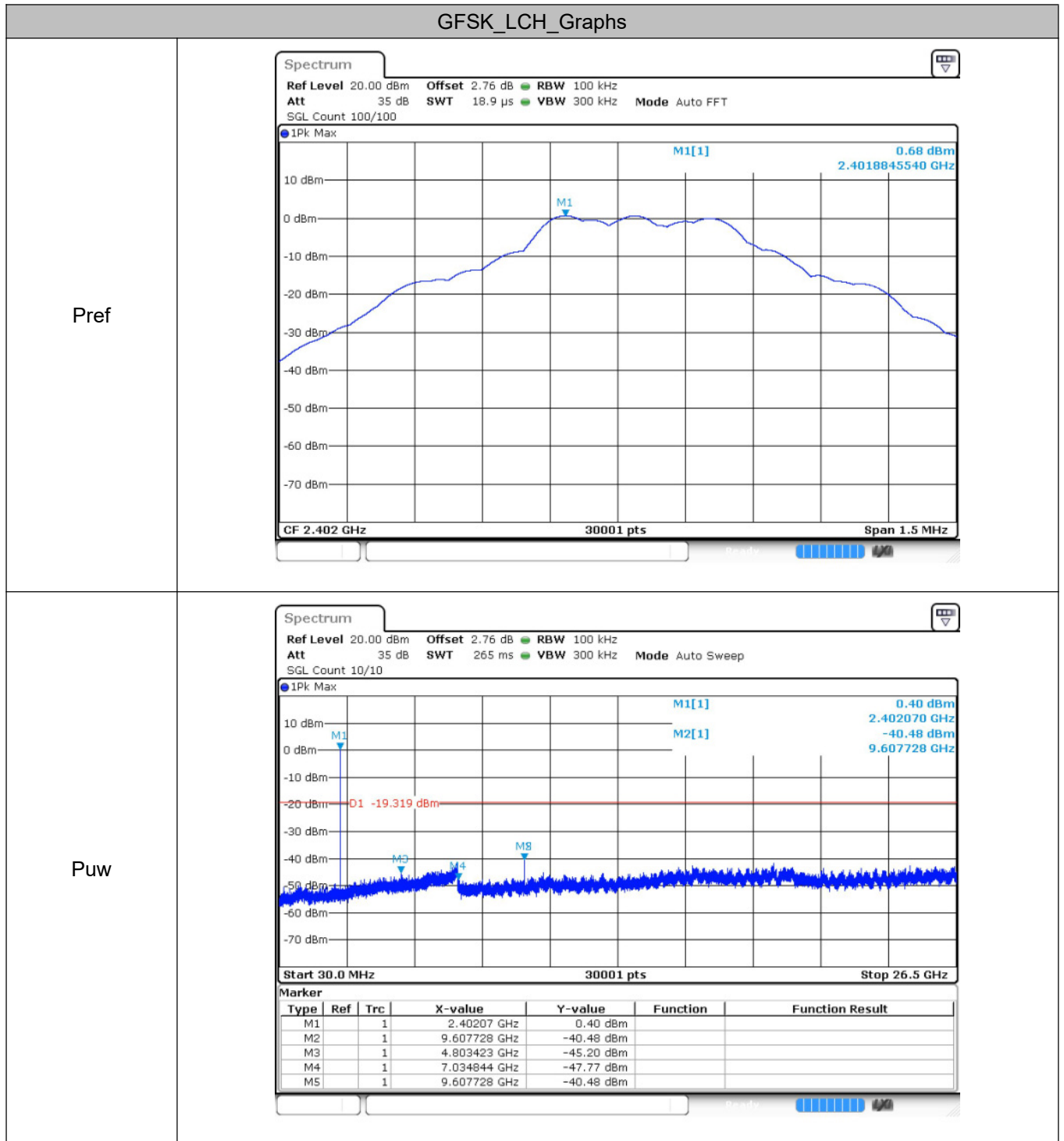
7 RF Conducted Spurious Emissions

7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-41.15	-20	Pass
	MCH	-40.9	-20	Pass
	HCH	-39.35	-20	Pass
π /4DQPSK	LCH	-40.47	-20	Pass
	MCH	-41.17	-20	Pass
	HCH	-40.29	-20	Pass
8DPSK	LCH	-41.13	-20	Pass
	MCH	-41.3	-20	Pass
	HCH	-39.47	-20	Pass

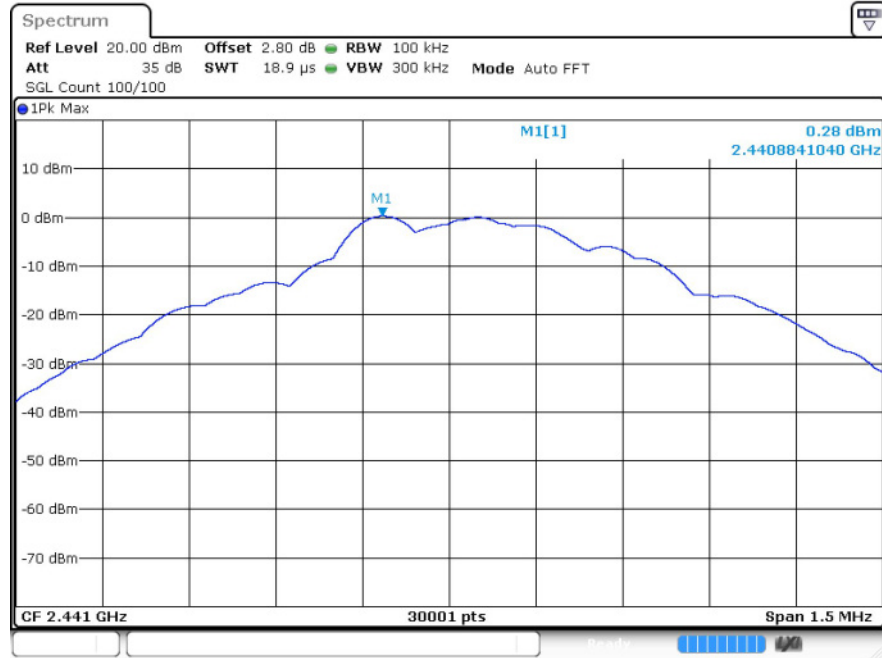
Note: Left and right ear have been tested and the only shows the worst case mode.

7.2 Test Graphs



GFSK_MCH_Graphs

Pref



Puw

