



Appendix A

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

Product Name:SMARTPHONE

Model No.:SP-7300

Brand Name:SIRAGON

Environmental Conditions

Temperature:	25℃
Relative Humidity:	56%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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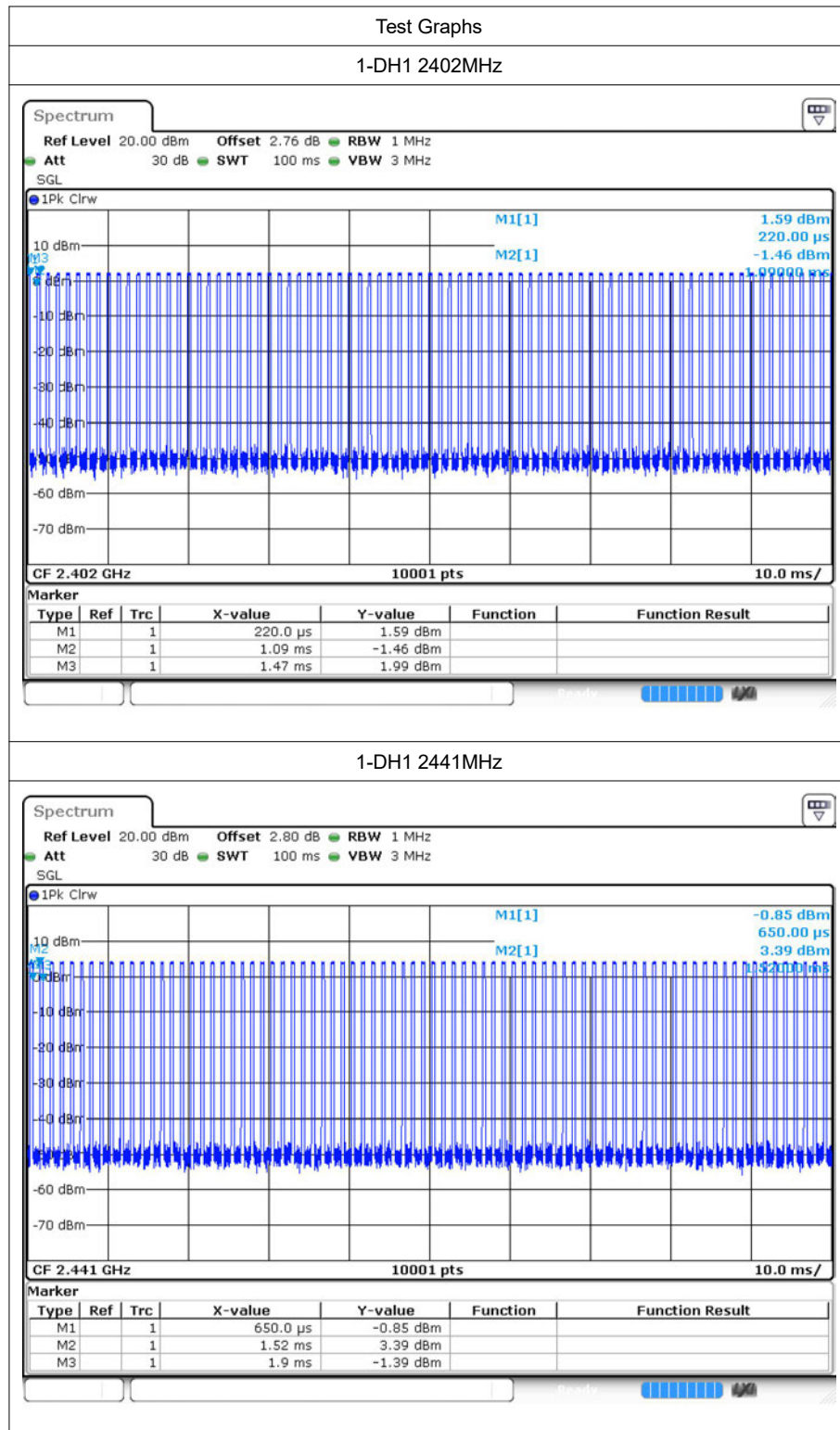
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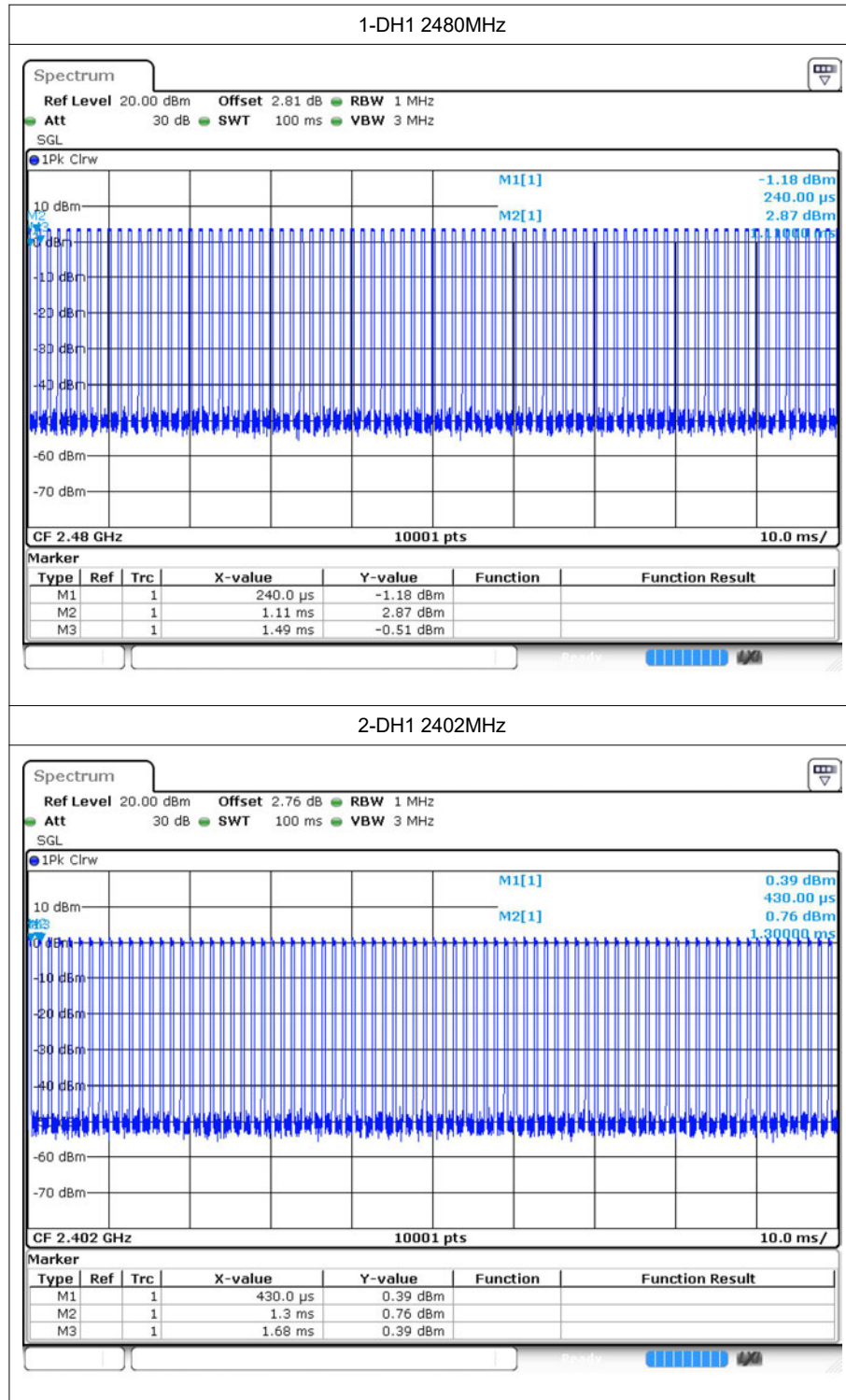
1 Duty Cycle

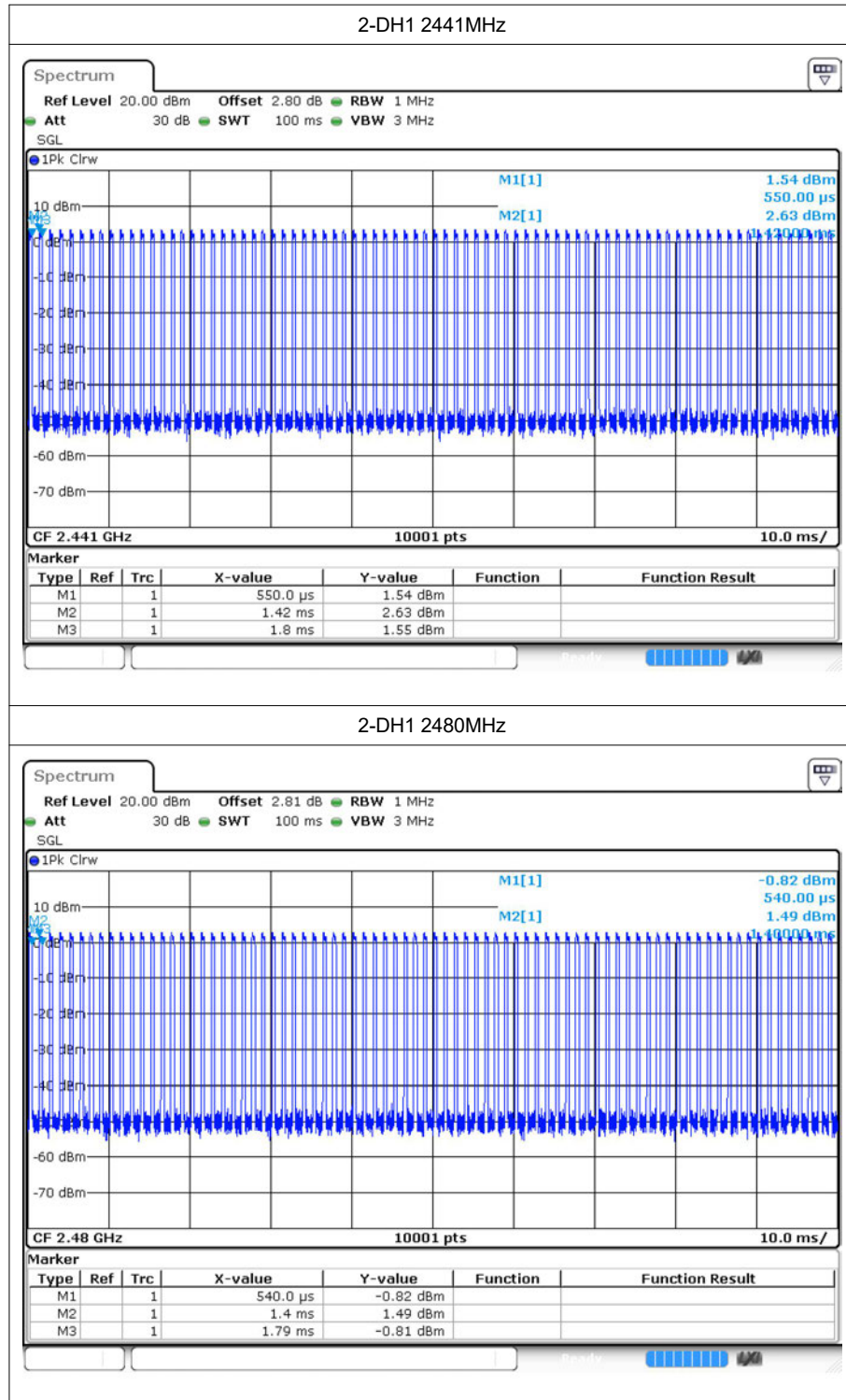
1.1 Test Result

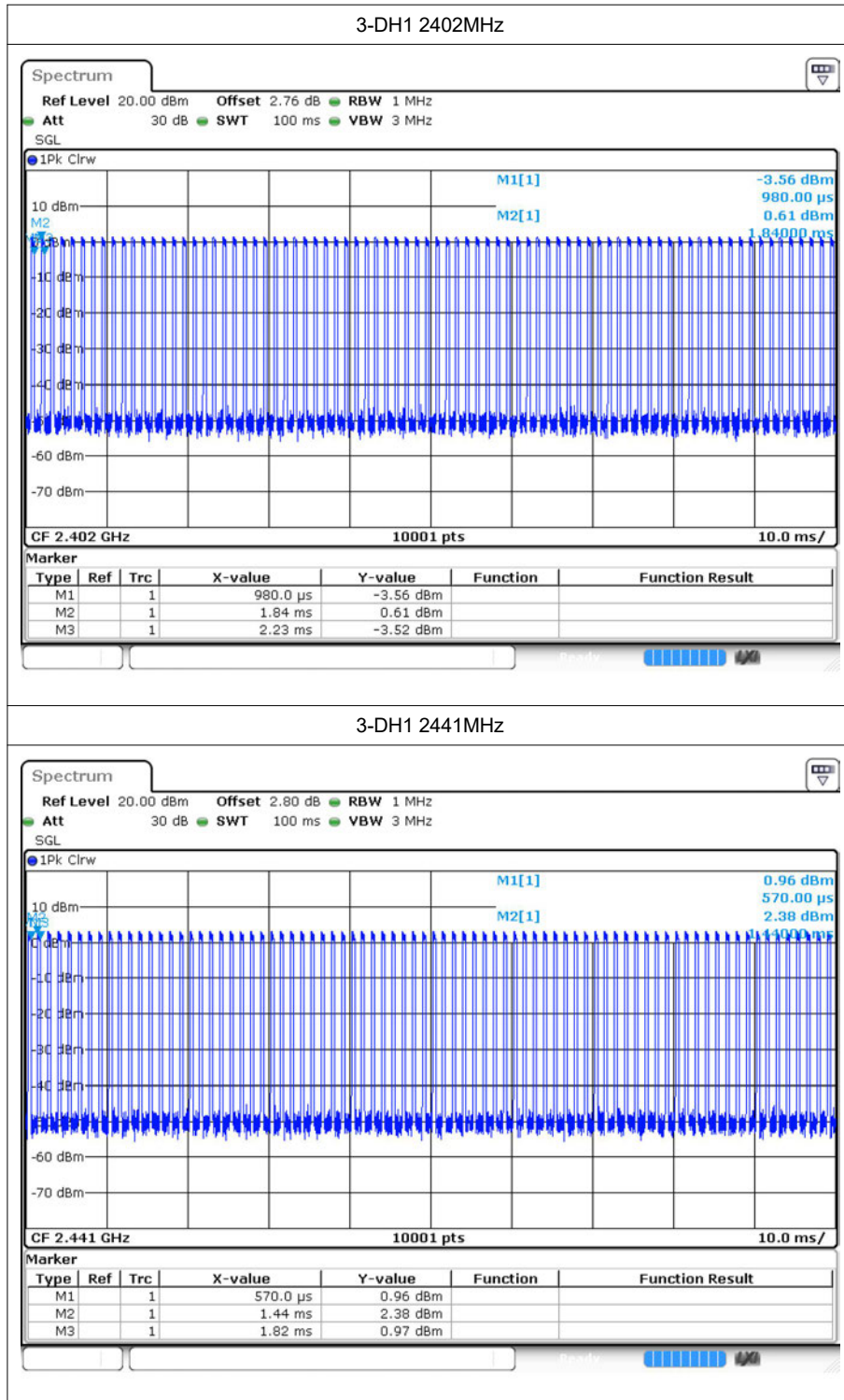
Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	31.21	2.63
1-DH1	2441	31.2	2.63
1-DH1	2480	31.21	2.63
2-DH1	2402	31.2	2.63
2-DH1	2441	31.2	2.63
2-DH1	2480	32	2.56
3-DH1	2402	32	2.56
3-DH1	2441	31.2	2.63
3-DH1	2480	31.2	2.63

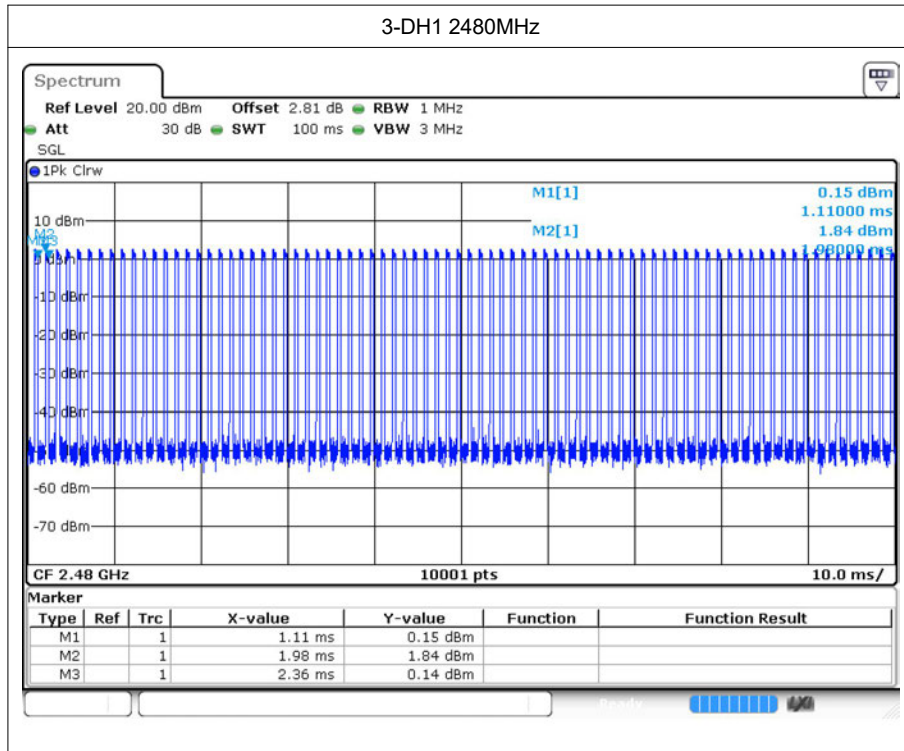
1.2 Test Graphs









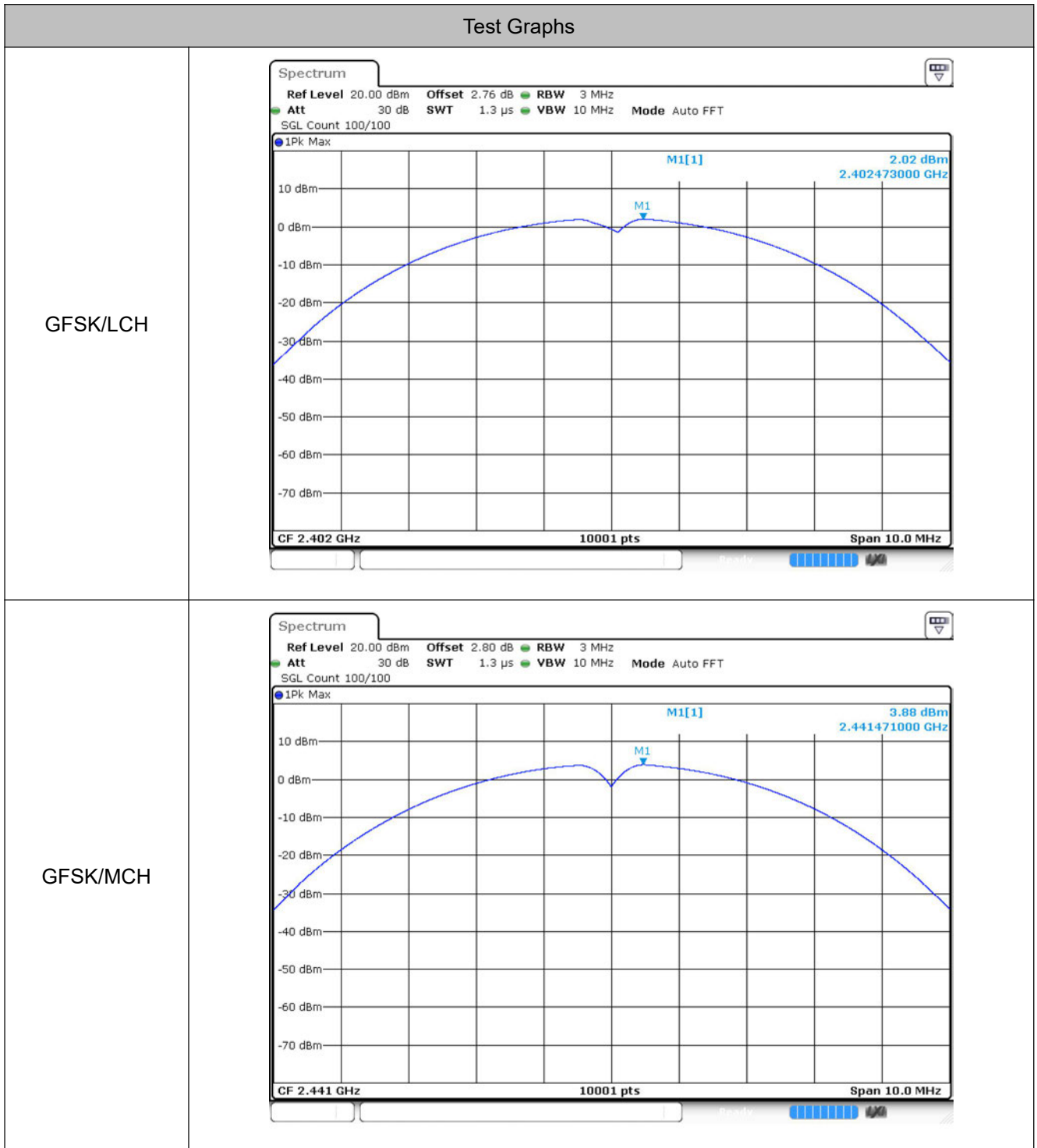


2 Maximum Conducted Peak Output Power

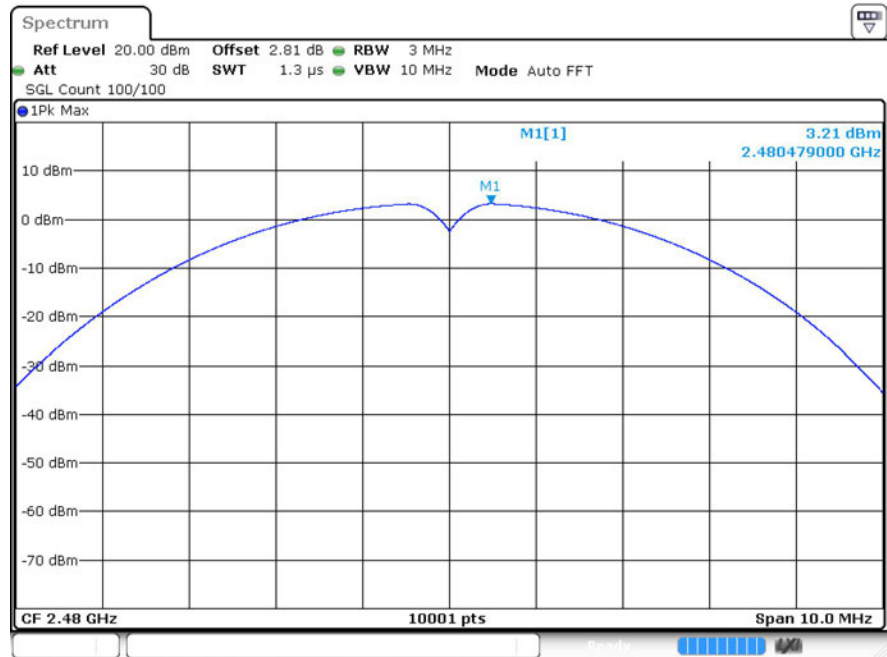
2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.02	21	Pass
	MCH	3.88	21	Pass
	HCH	3.21	21	Pass
$\pi/4$ DQPSK	LCH	1.31	21	Pass
	MCH	3.15	21	Pass
	HCH	2.6	21	Pass
8DPSK	LCH	1.16	21	Pass
	MCH	2.75	21	Pass
	HCH	2.28	21	Pass

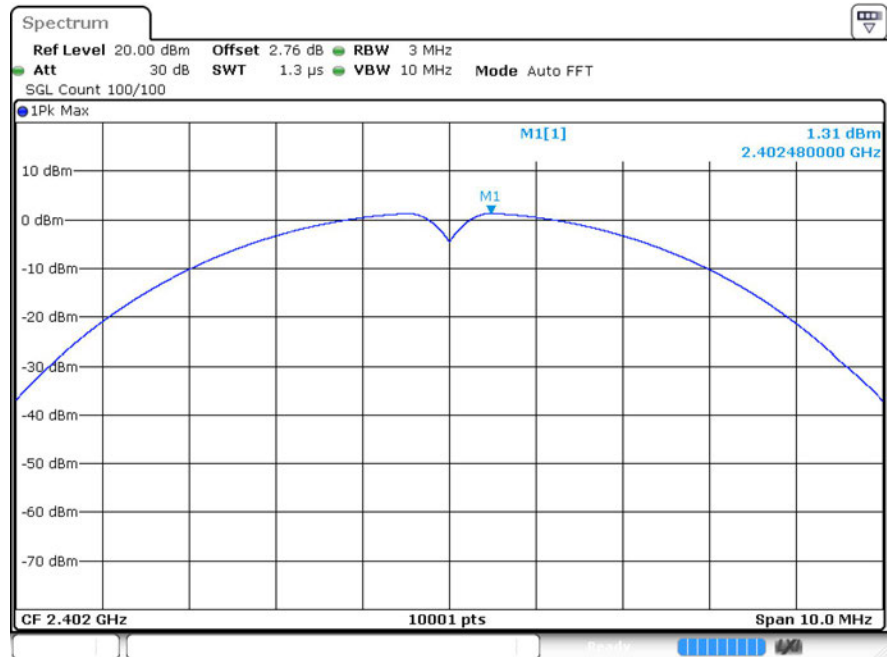
2.2 Test Graphs

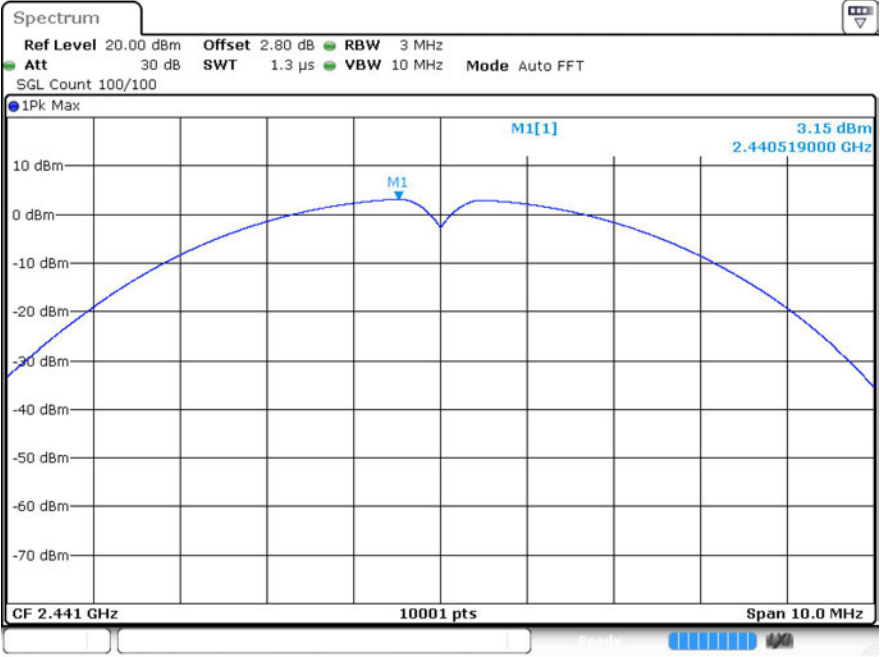
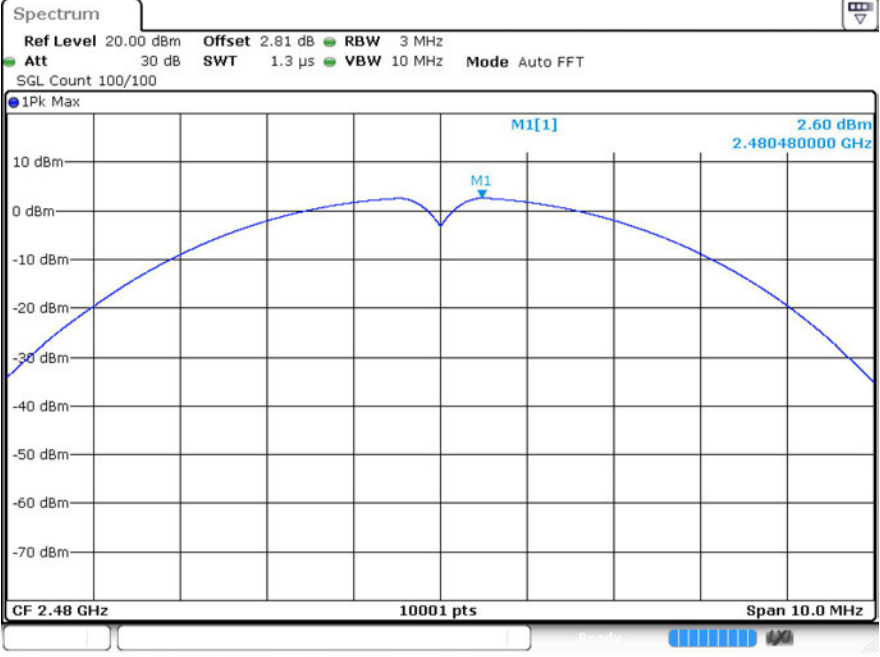


GFSK/HCH

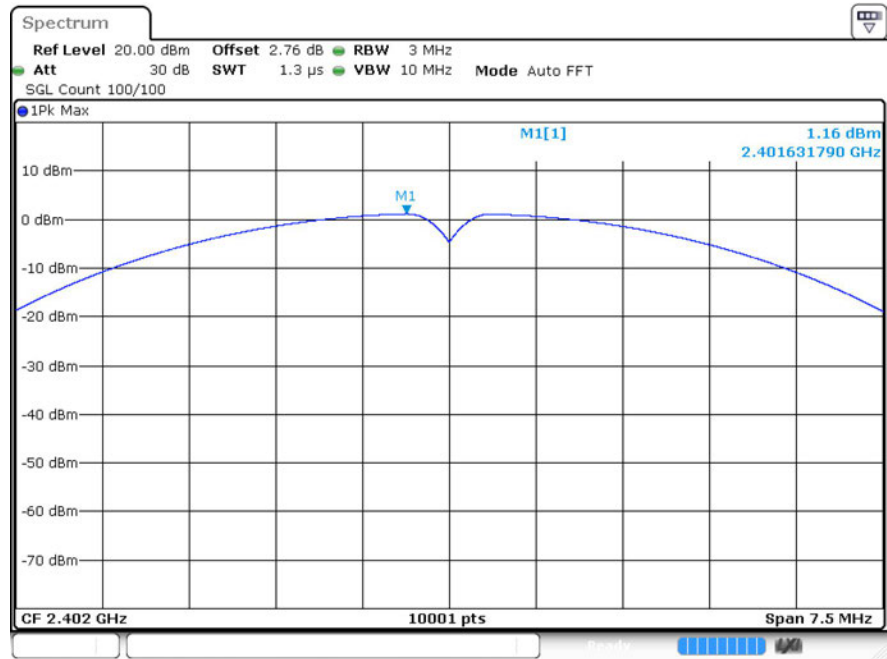


$\pi/4$ DQPSK/LCH

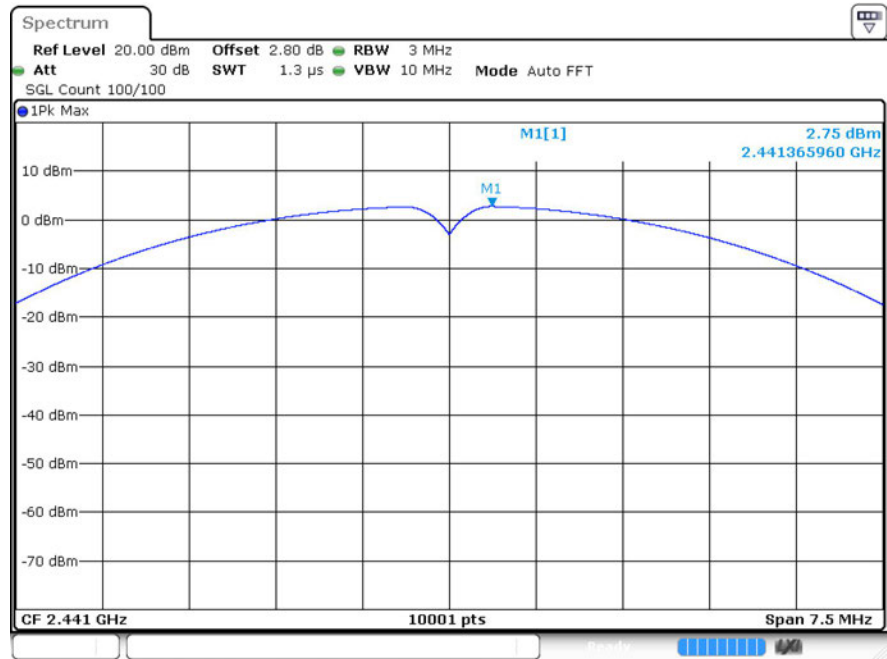


$\pi/4$DQPSK/MCH	 The spectrum plot for $\pi/4$DQPSK/MCH shows a signal centered at 2.441 GHz. The y-axis represents power in dBm, ranging from -70 to 10. The x-axis represents frequency in GHz, with a span of 10.0 MHz. The plot shows a main signal peak at 2.440519000 GHz with a power of 3.15 dBm. The plot is titled 'Spectrum' and includes parameters: Ref Level 20.00 dBm, Att 30 dB, Offset 2.80 dB, RBW 3 MHz, SWT 1.3 μs, VBW 10 MHz, Mode Auto FFT, and SGL Count 100/100. The plot also shows a peak at 2.441 GHz with a power of 3.15 dBm.
$\pi/4$DQPSK/HCH	 The spectrum plot for $\pi/4$DQPSK/HCH shows a signal centered at 2.48 GHz. The y-axis represents power in dBm, ranging from -70 to 10. The x-axis represents frequency in GHz, with a span of 10.0 MHz. The plot shows a main signal peak at 2.480480000 GHz with a power of 2.60 dBm. The plot is titled 'Spectrum' and includes parameters: Ref Level 20.00 dBm, Att 30 dB, Offset 2.81 dB, RBW 3 MHz, SWT 1.3 μs, VBW 10 MHz, Mode Auto FFT, and SGL Count 100/100. The plot also shows a peak at 2.48 GHz with a power of 2.60 dBm.

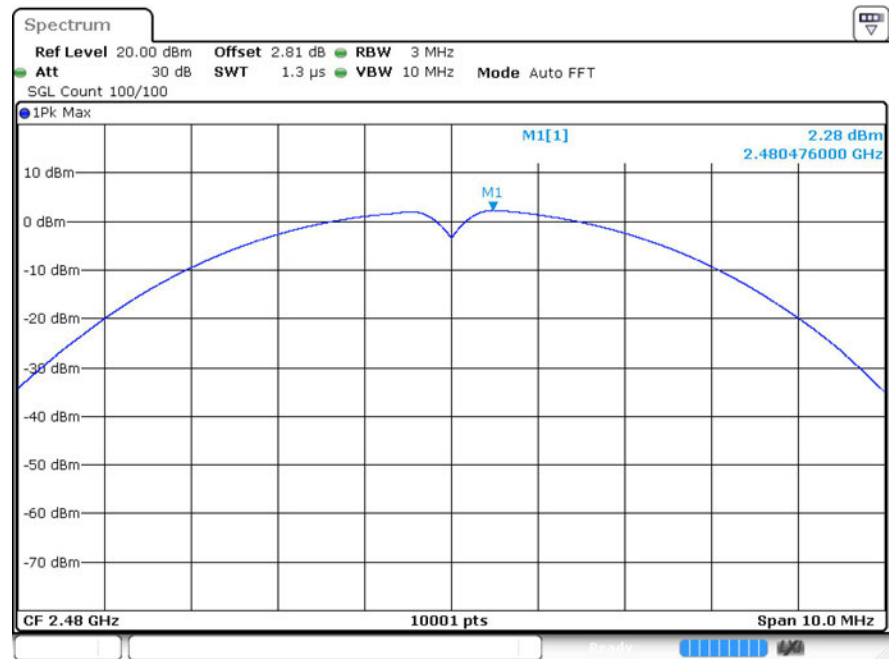
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

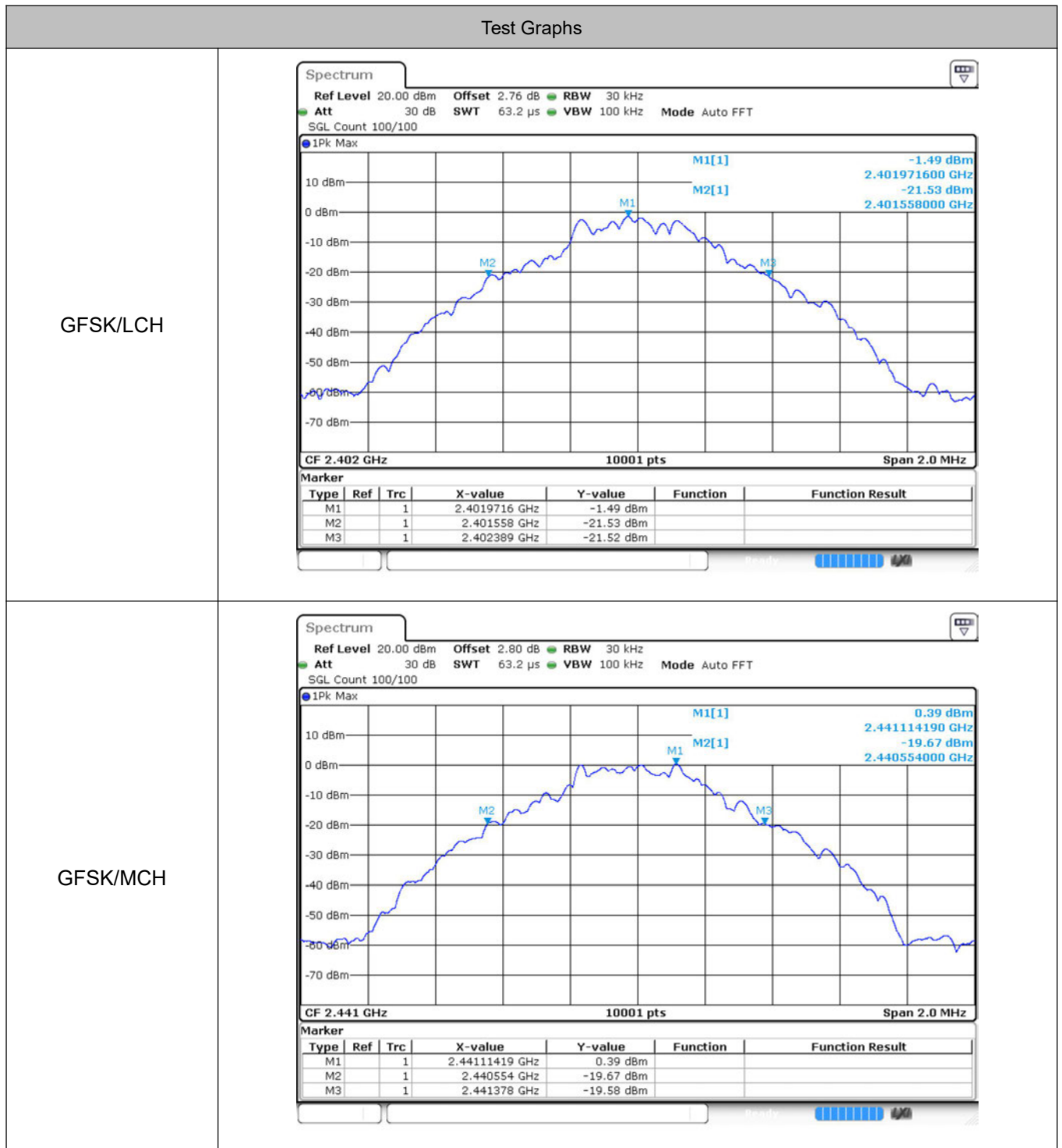


3 20dB Bandwidth

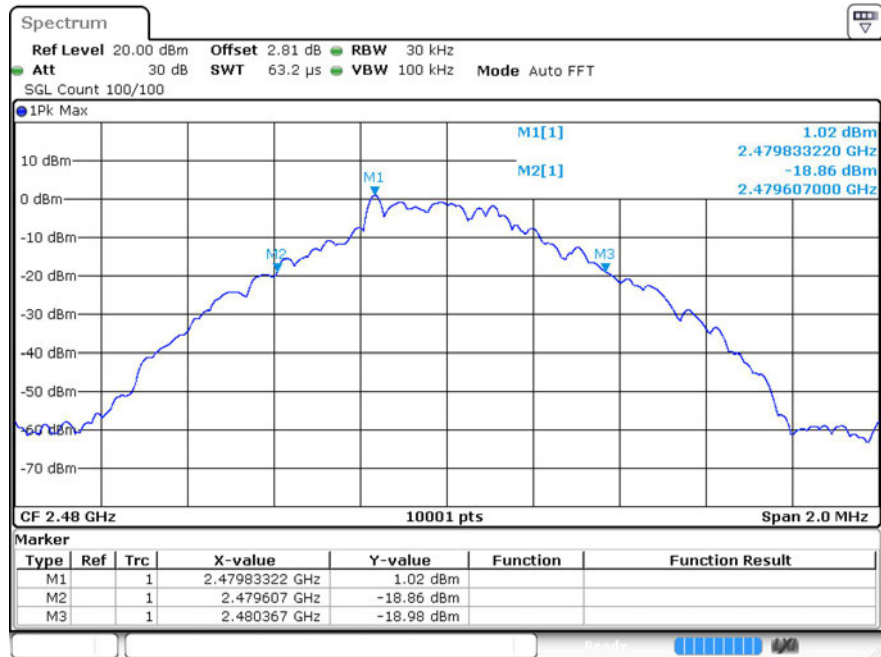
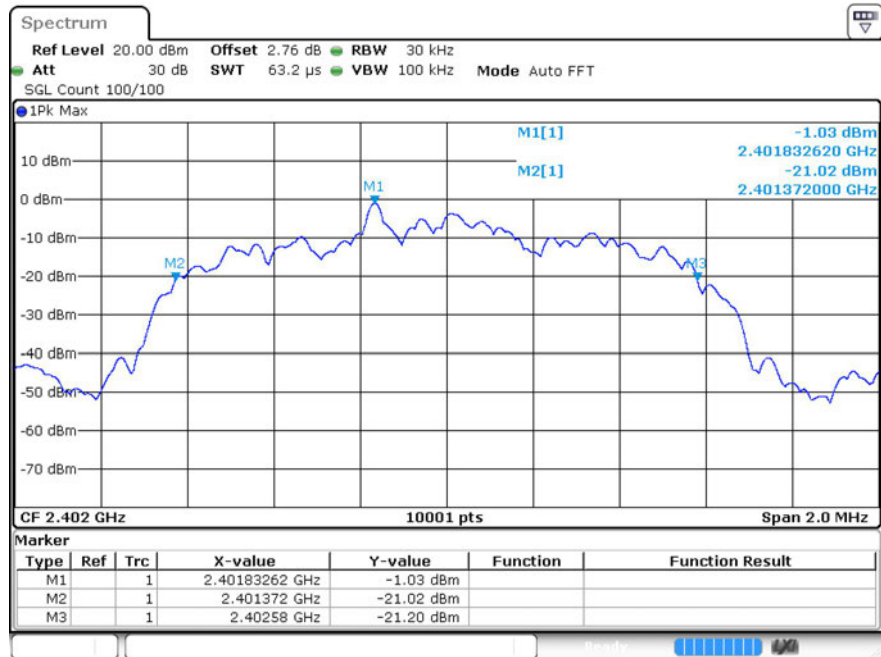
3.1 Test Result

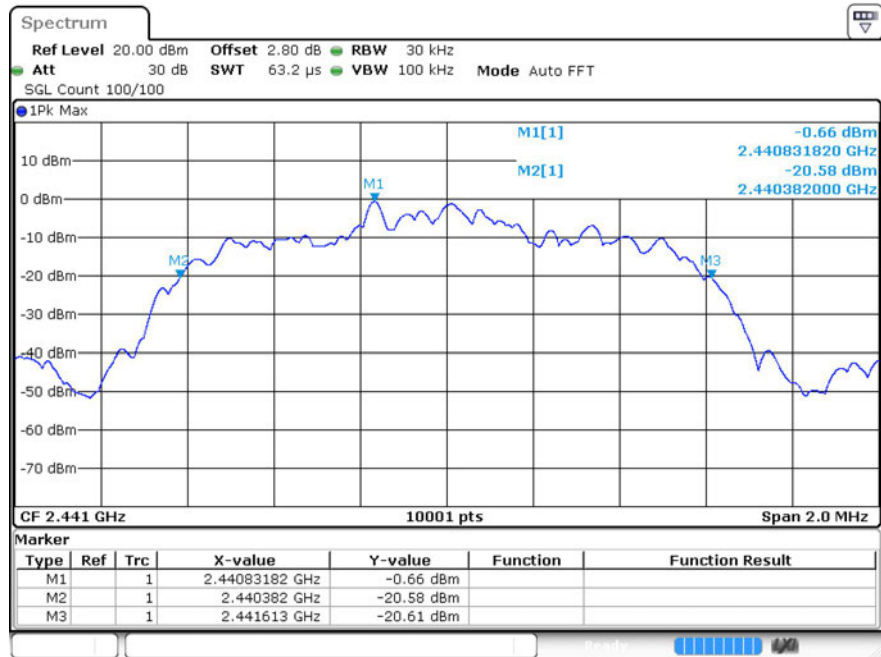
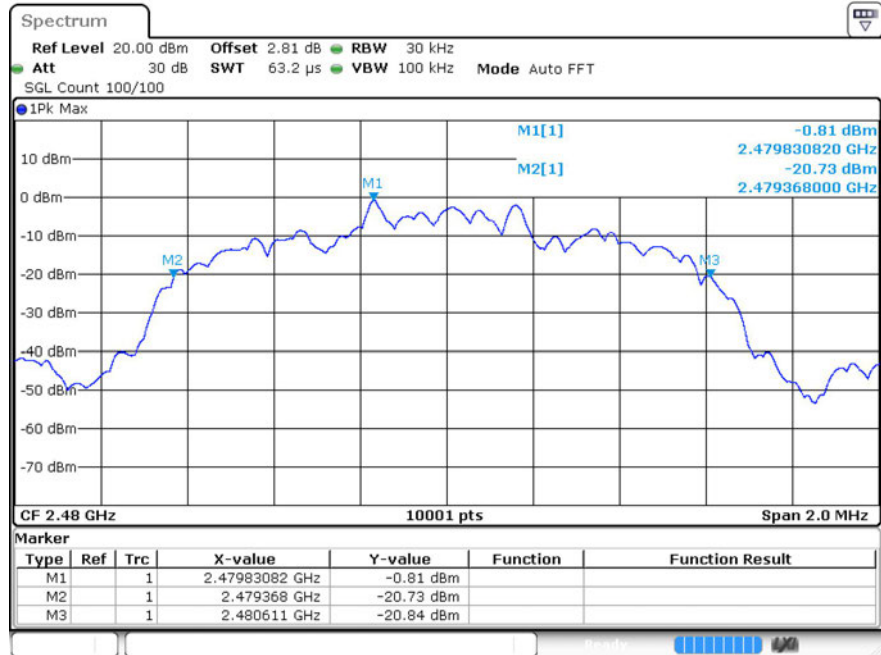
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.83	Not Specified	Pass
	MCH	0.824	Not Specified	Pass
	HCH	0.76	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.208	Not Specified	Pass
	MCH	1.232	Not Specified	Pass
	HCH	1.243	Not Specified	Pass
8DPSK	LCH	1.208	Not Specified	Pass
	MCH	1.203	Not Specified	Pass
	HCH	1.212	Not Specified	Pass

3.2 Test Graphs

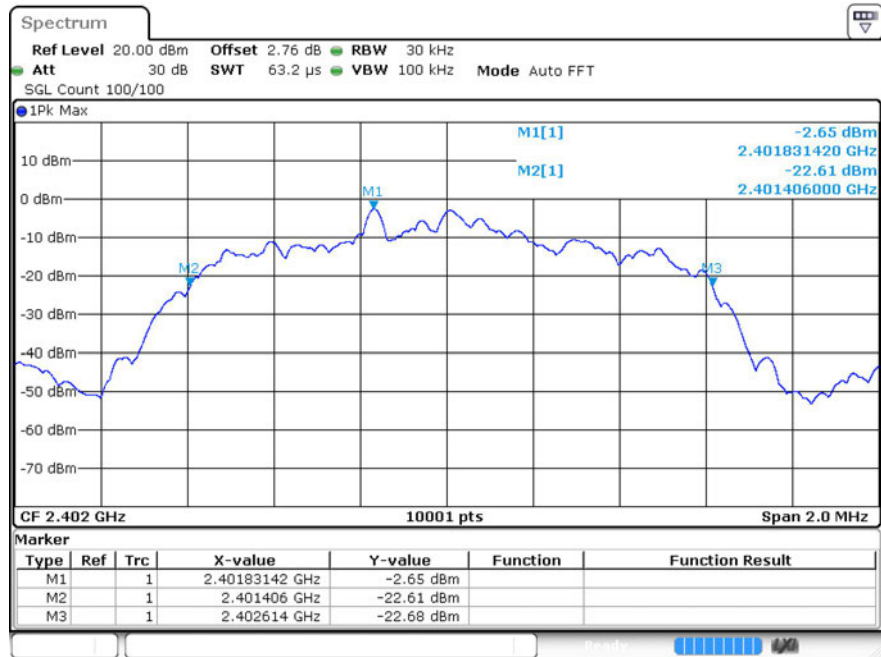


GFSK/HCH

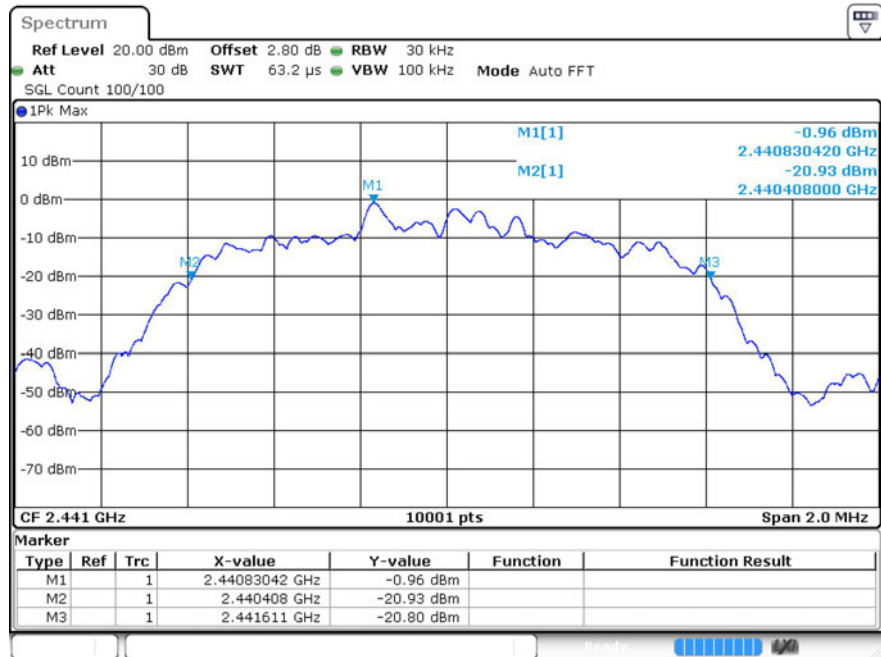

 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


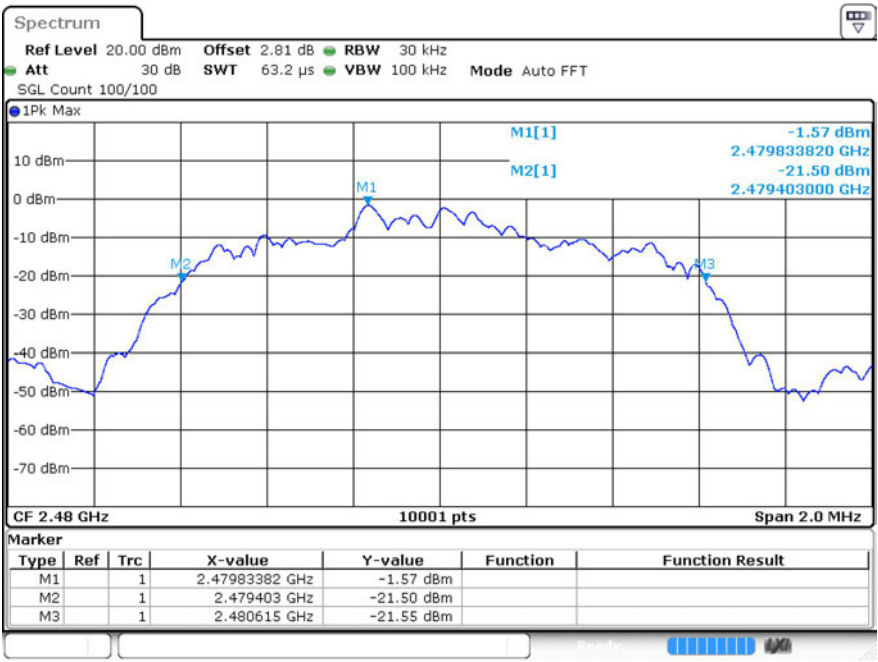
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



4 Carrier Frequency Separation

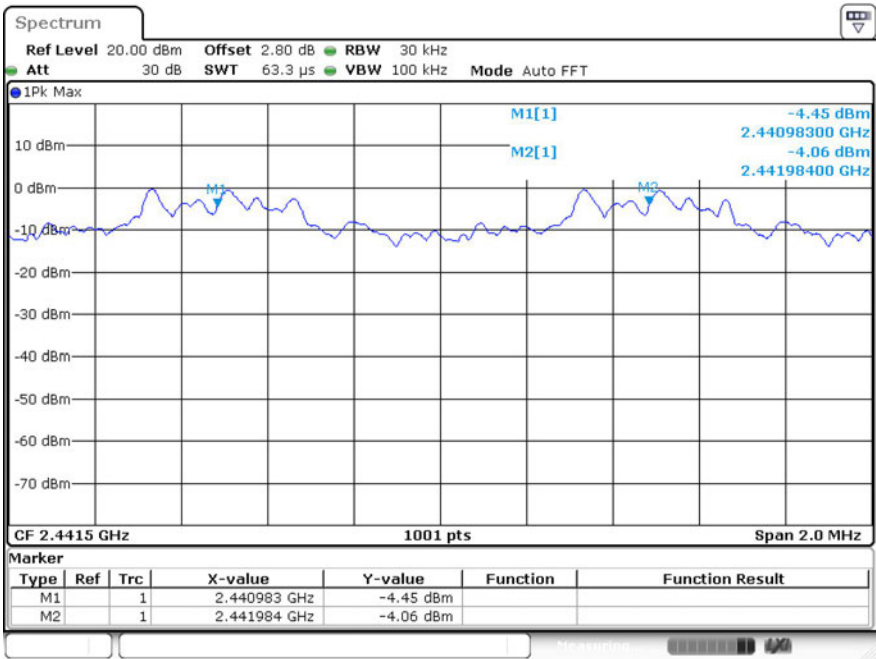
4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	0.999	0.549	Pass
$\pi/4$ DQPSK	MCH	1.003	0.821	Pass
8DPSK	MCH	1.001	0.802	Pass

4.2 Test Graphs



8DPSK/MCH

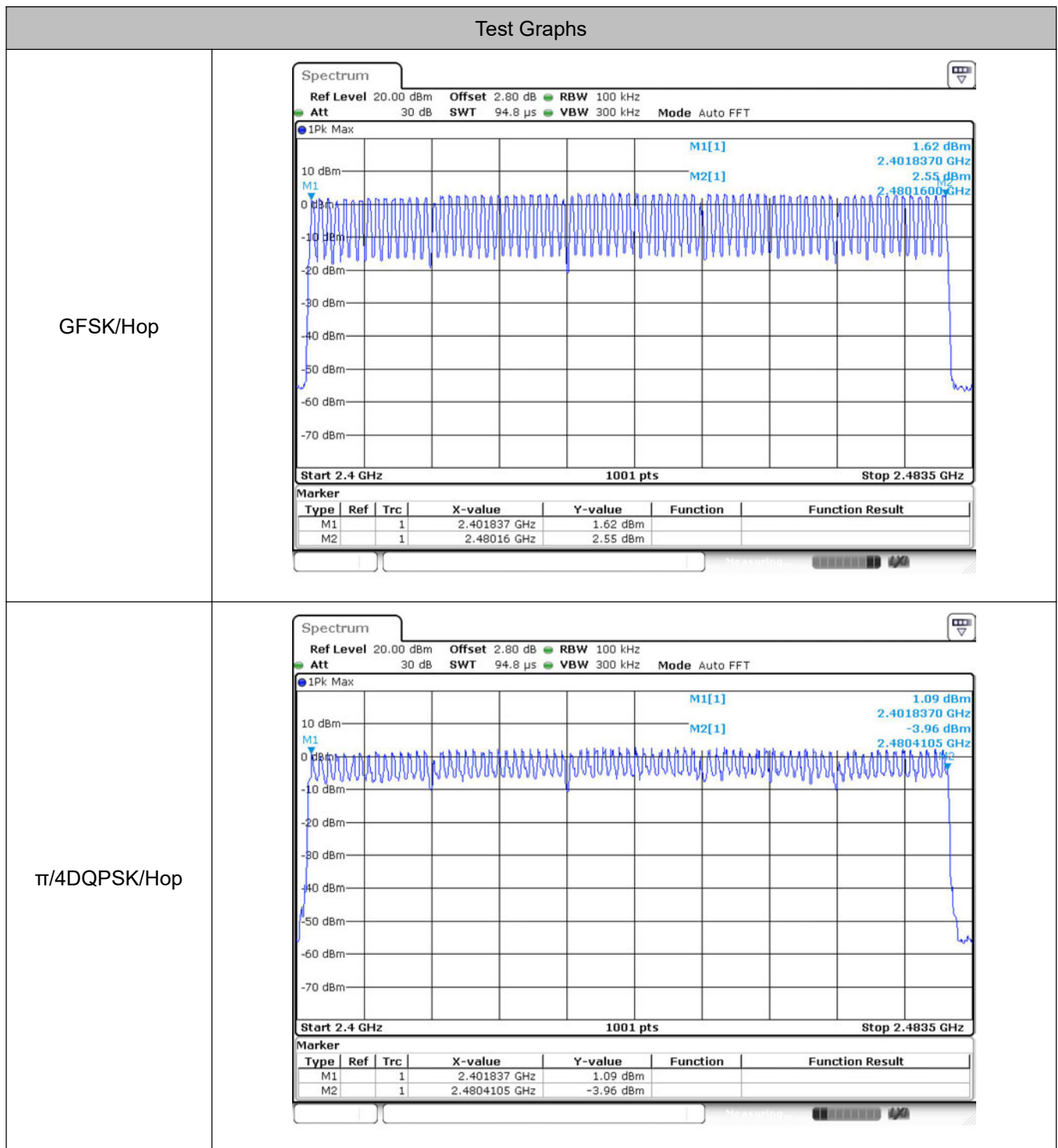


5 Hopping Channel Number

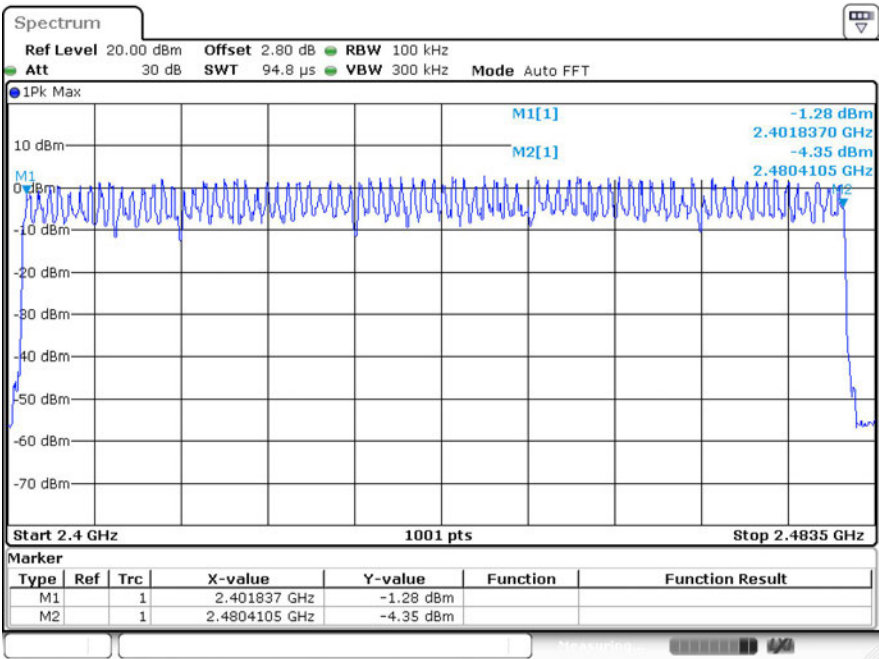
5.1 Test Result

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

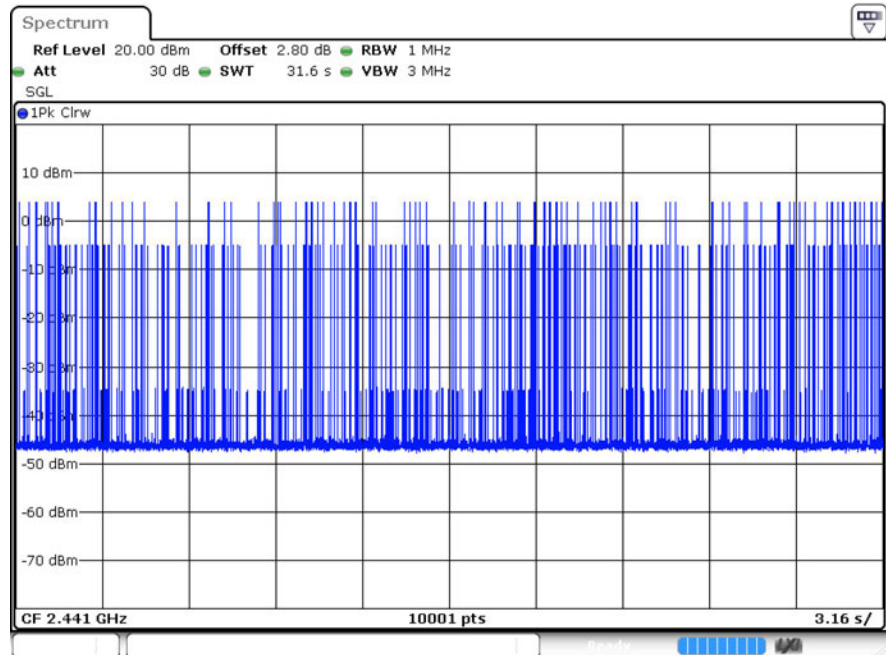
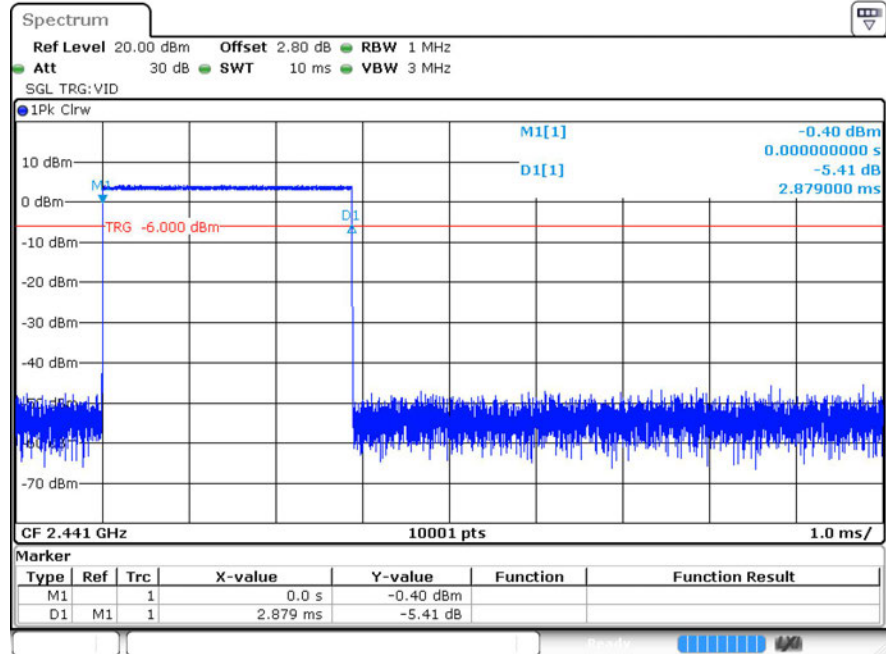
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.879	106	305.174	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.881	111	319.791	0.4	Pass
8DPSK	3DH5	MCH	2.884	112	323.008	0.4	Pass

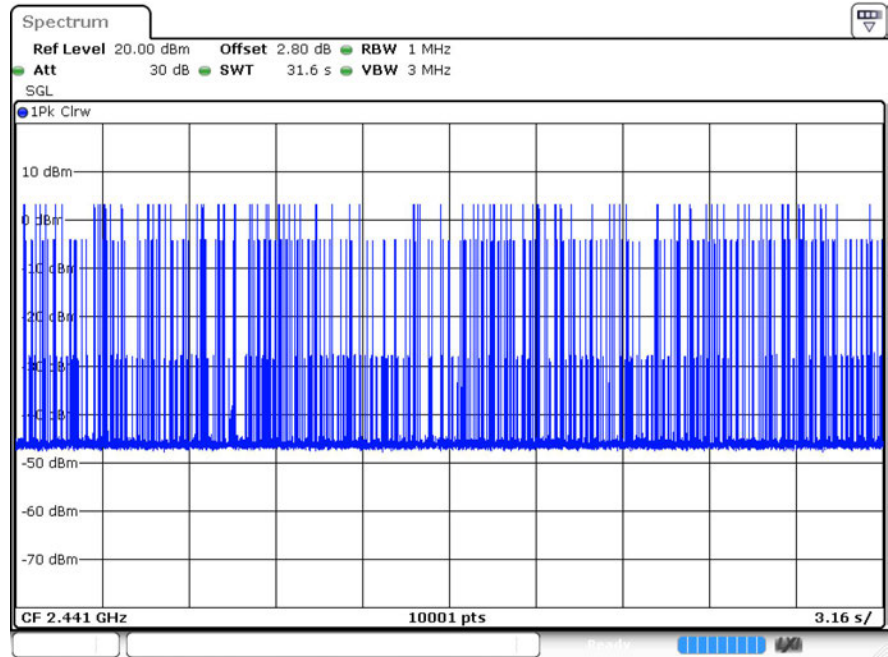
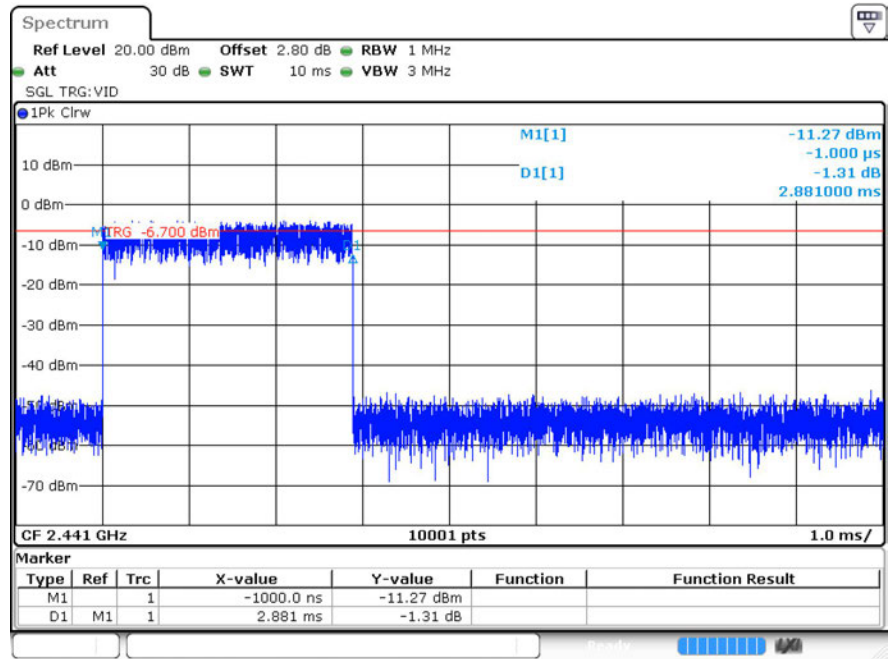
6.2 Test Graphs

Test Graphs

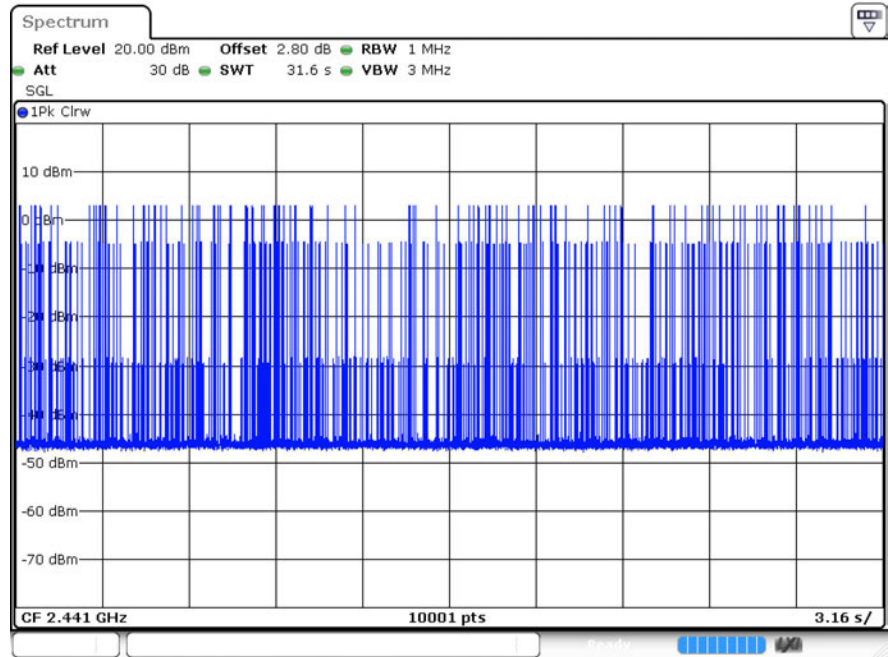
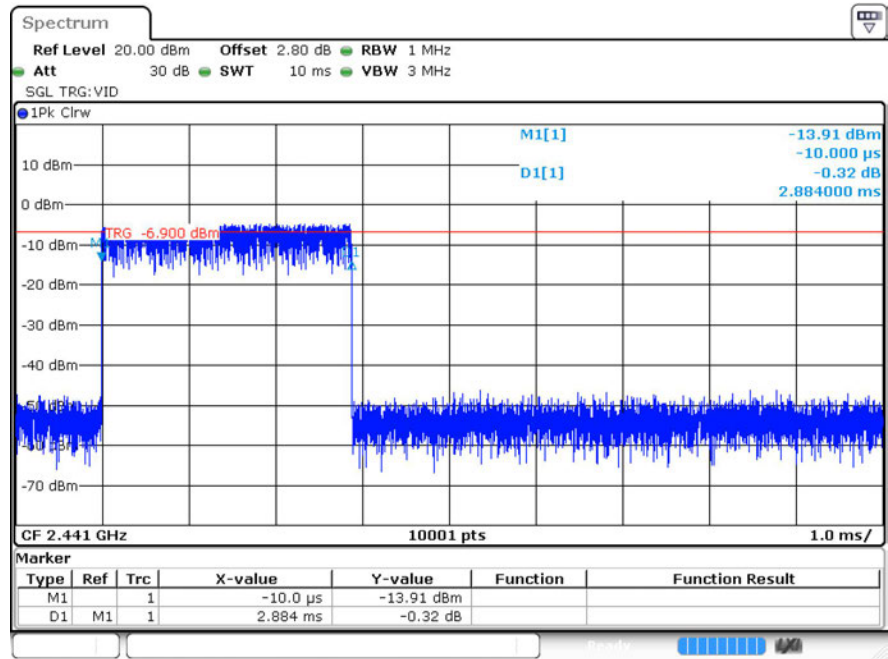
GFSK_DH5/MCH



$\pi/4$ DQPSK
_2DH5/MCH



8DPSK_3DH5/MCH

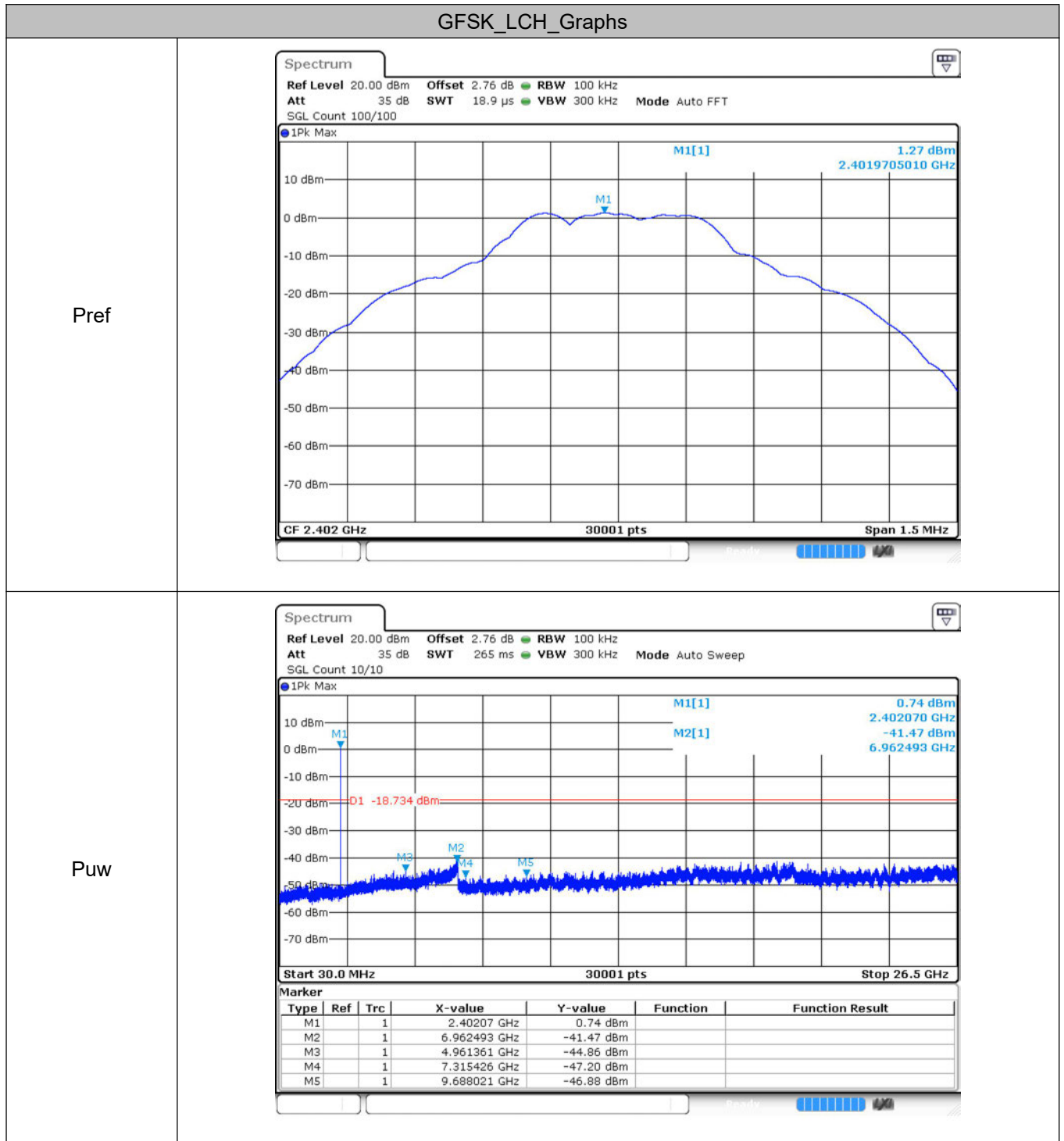


7 RF Conducted Spurious Emissions

7.1 Test Result

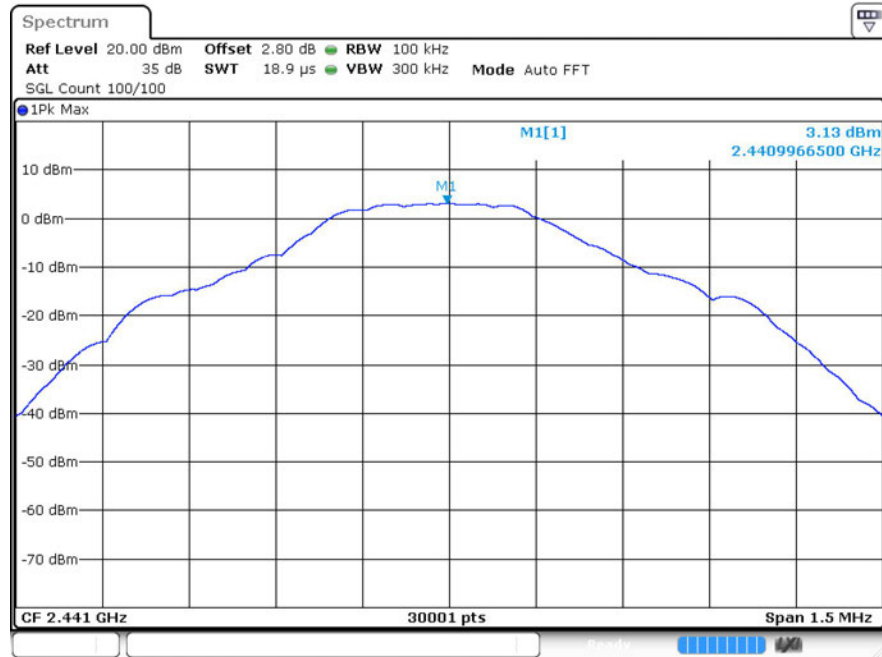
Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-42.73	-20	Pass
	MCH	-44.76	-20	Pass
	HCH	-44.03	-20	Pass
$\pi/4$ DQPSK	LCH	-41.06	-20	Pass
	MCH	-31.51	-20	Pass
	HCH	-42.71	-20	Pass
8DPSK	LCH	-41.62	-20	Pass
	MCH	-34.29	-20	Pass
	HCH	-42.1	-20	Pass

7.2 Test Graphs

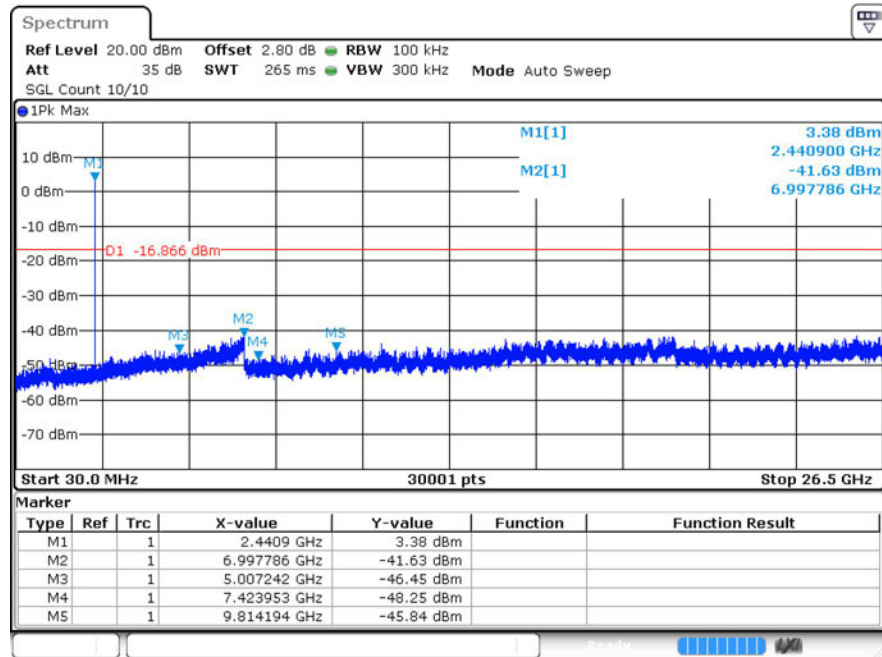


GFSK_MCH_Graphs

Pref

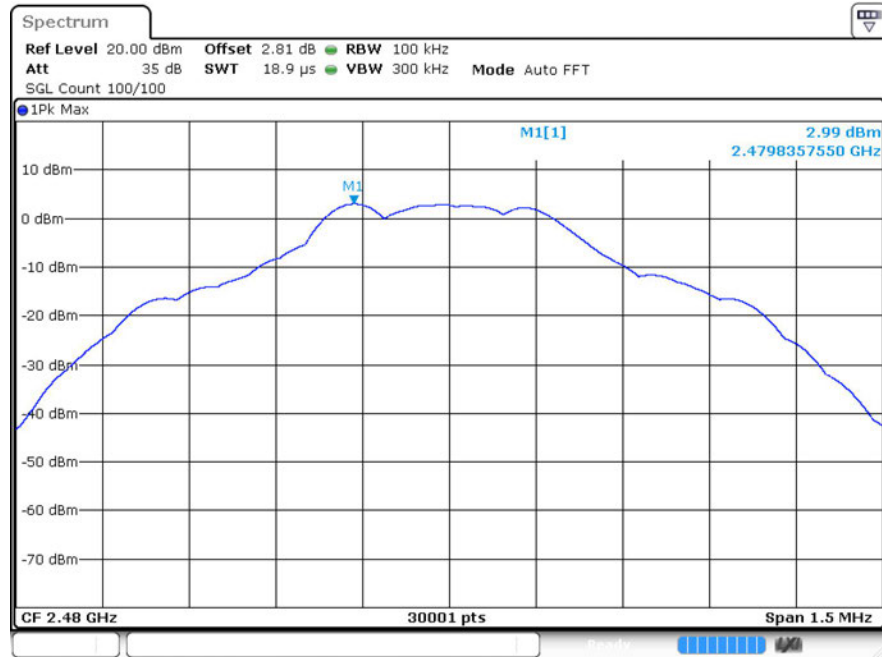


Puw

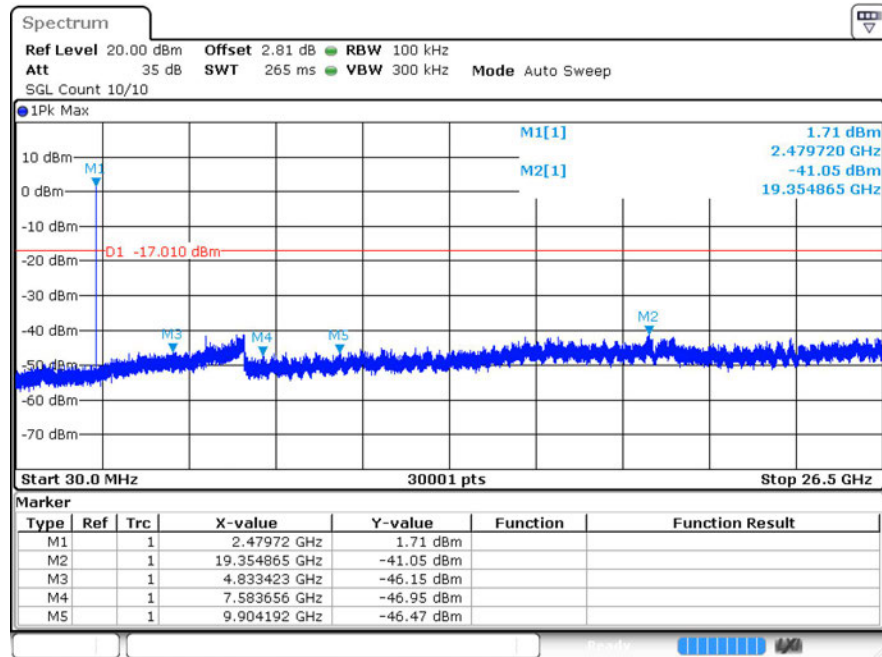


GFSK_HCH_Graphs

Pref

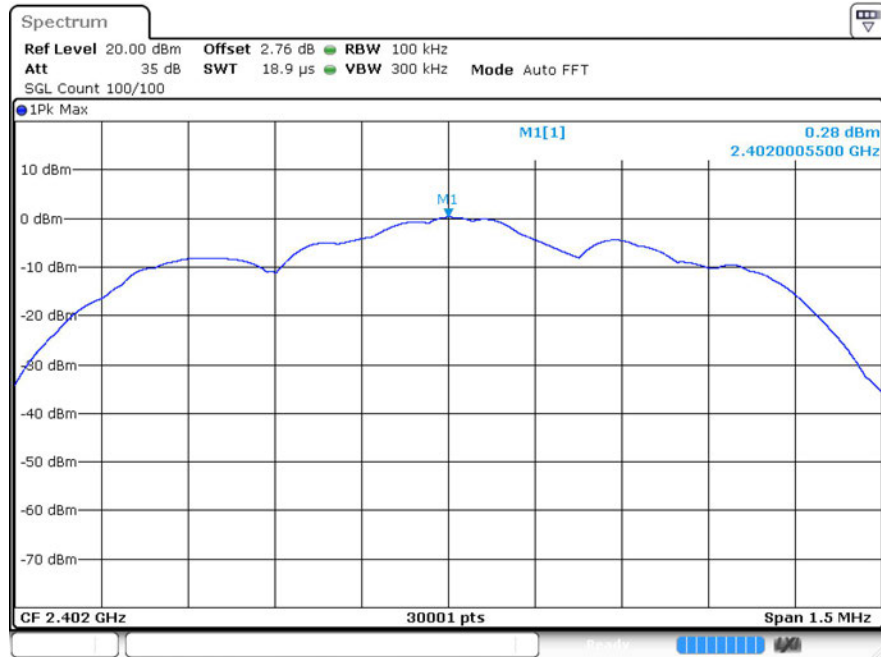


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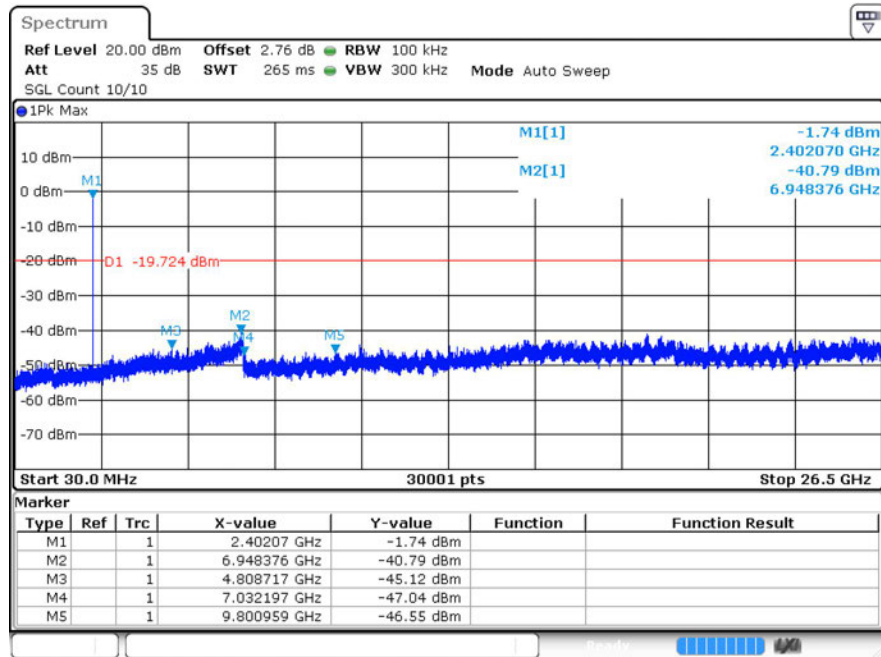


$\pi/4$ DQPSK_LCH_Graphs

Pref

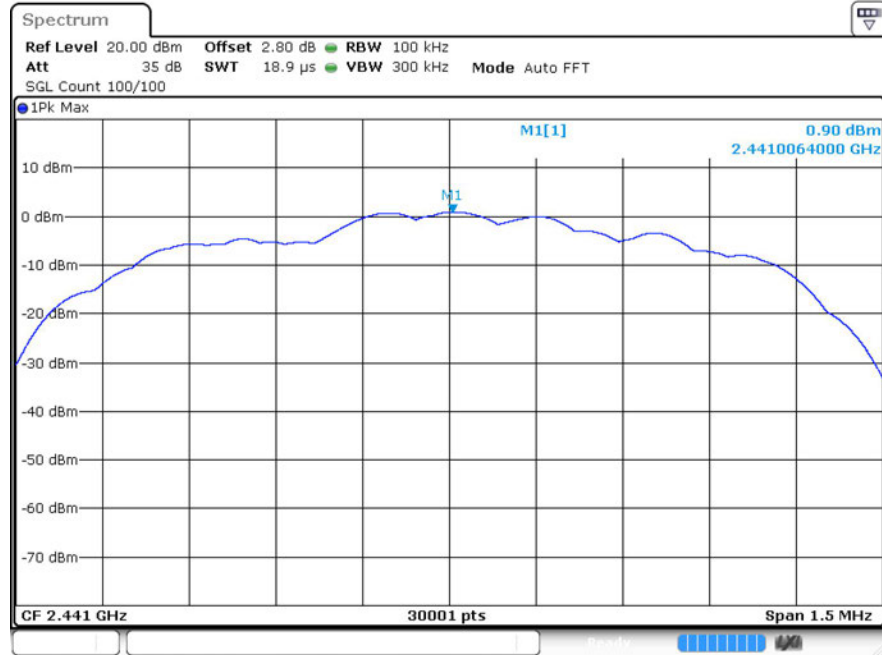


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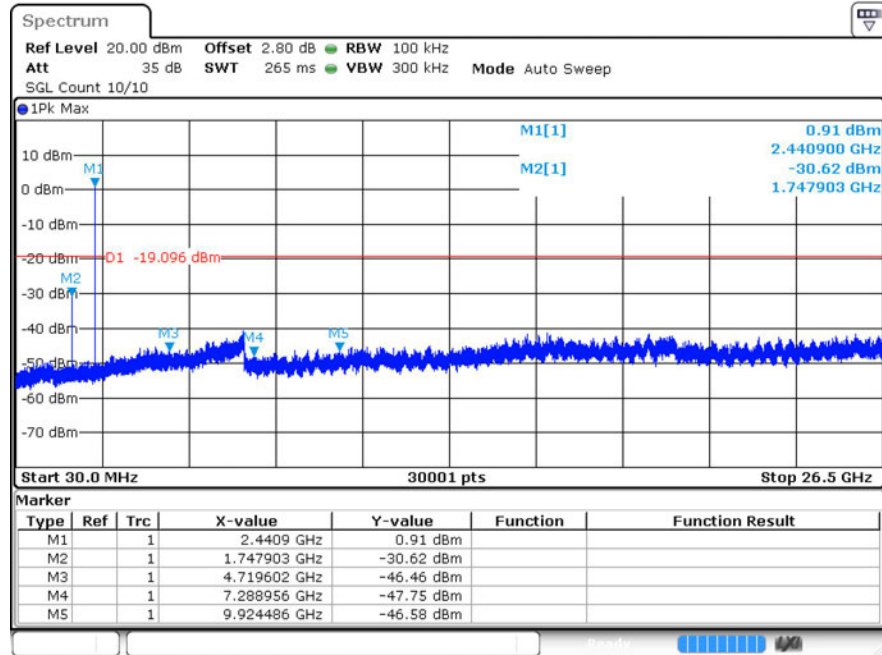


π /4DQPSK_MCH_Graphs

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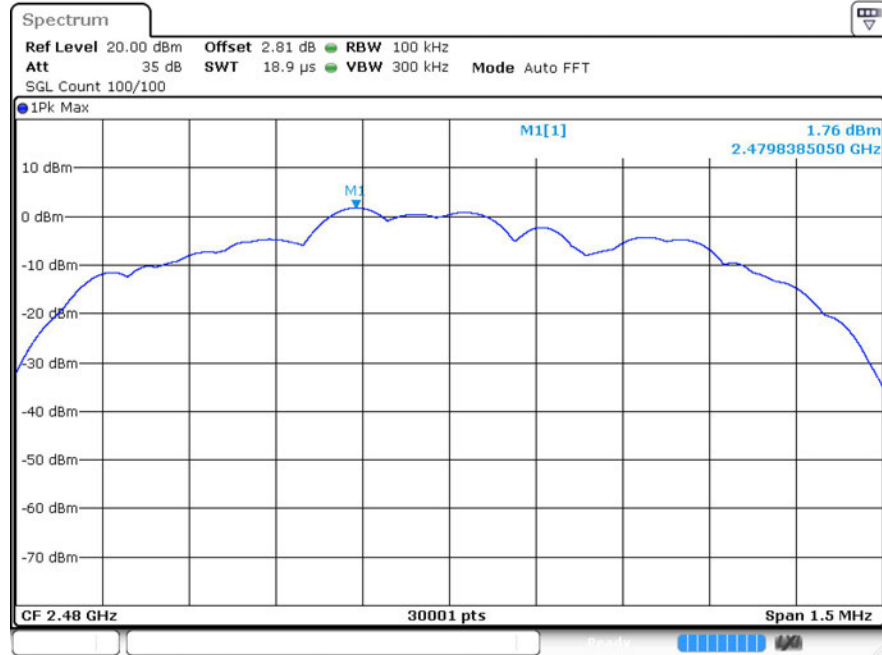


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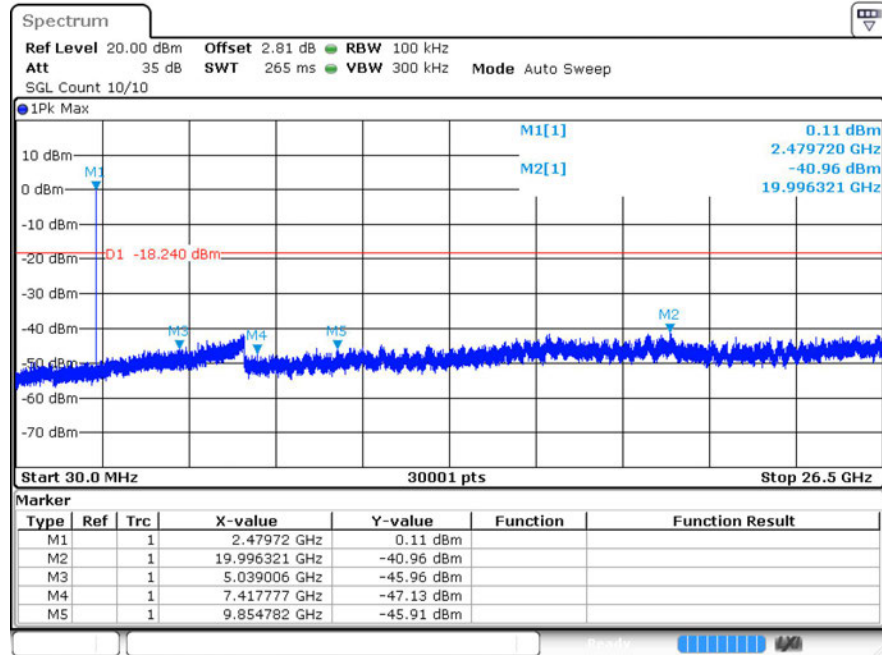


$\pi/4$ DQPSK_HCH_Graphs

Pref

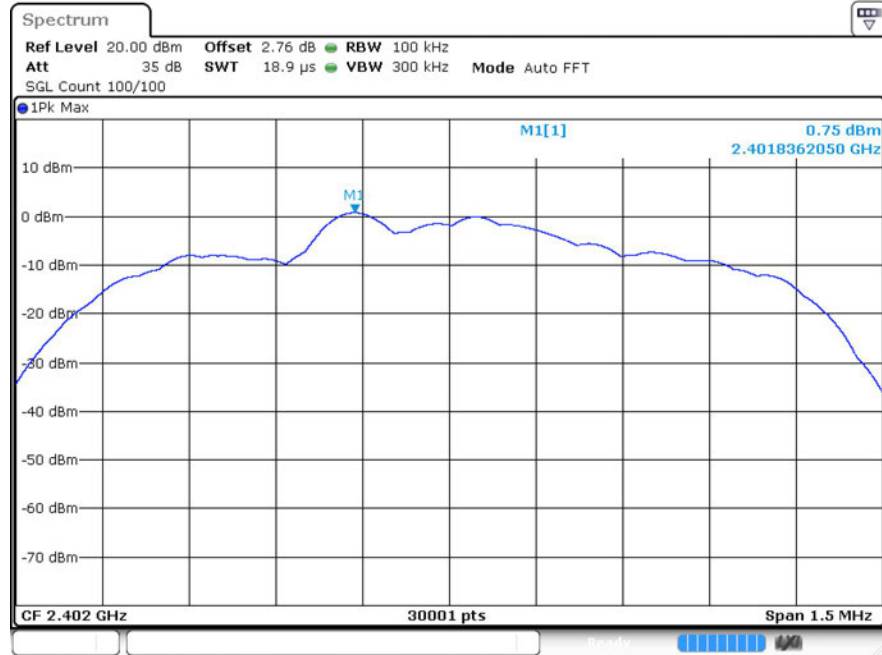


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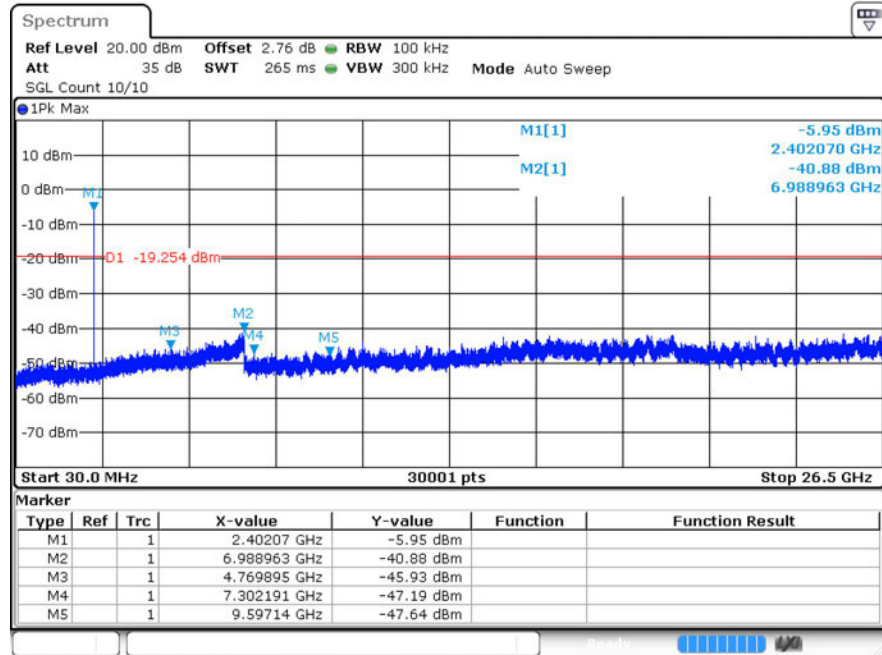


8DPSK_LCH_Graphs

Pref

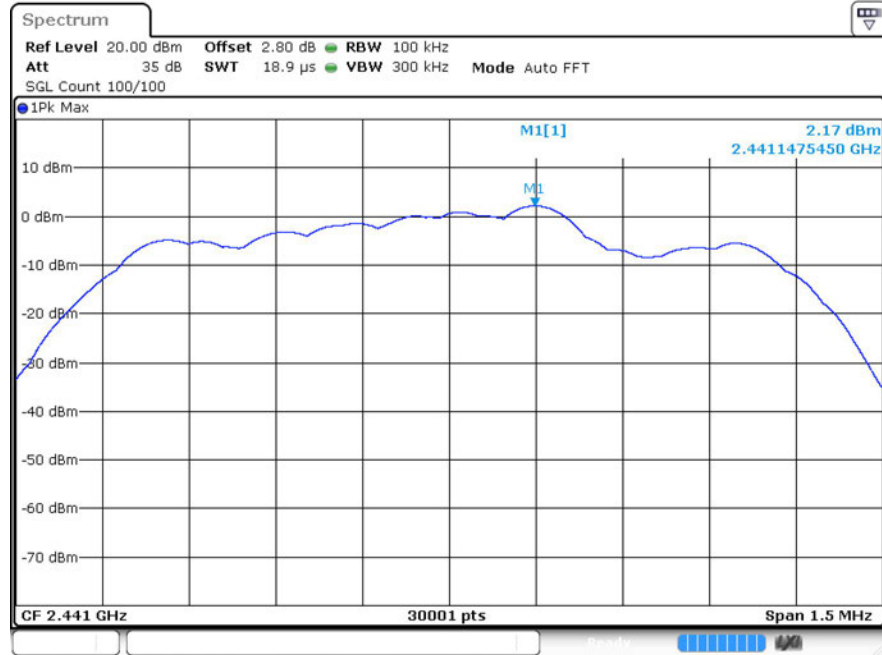


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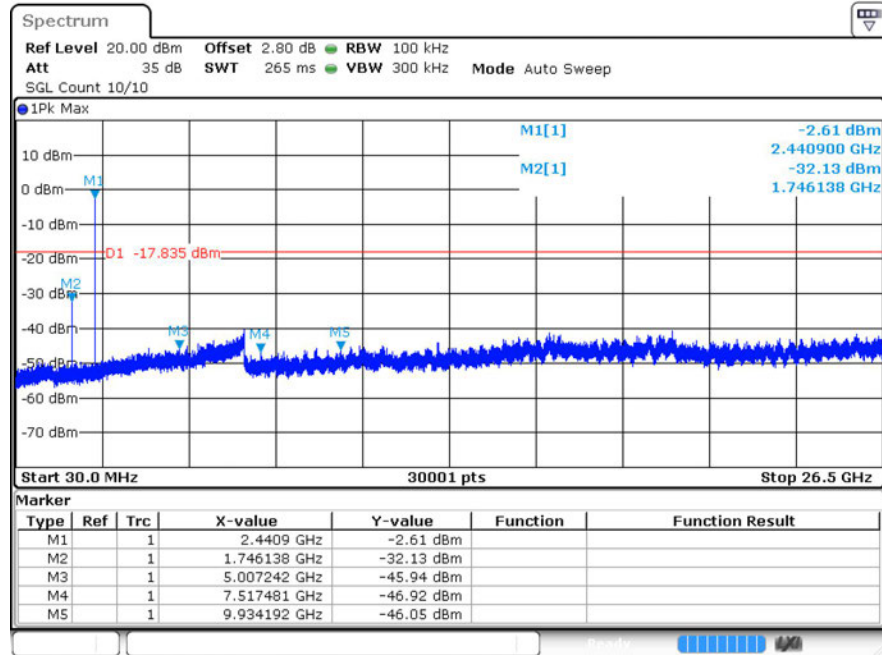


8DPSK_MCH_Graphs

Pref

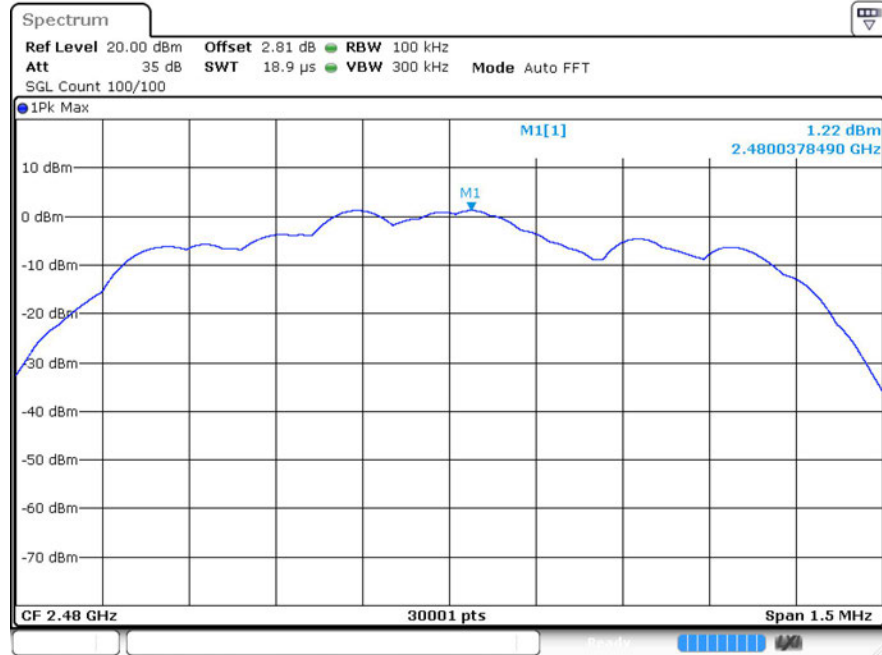


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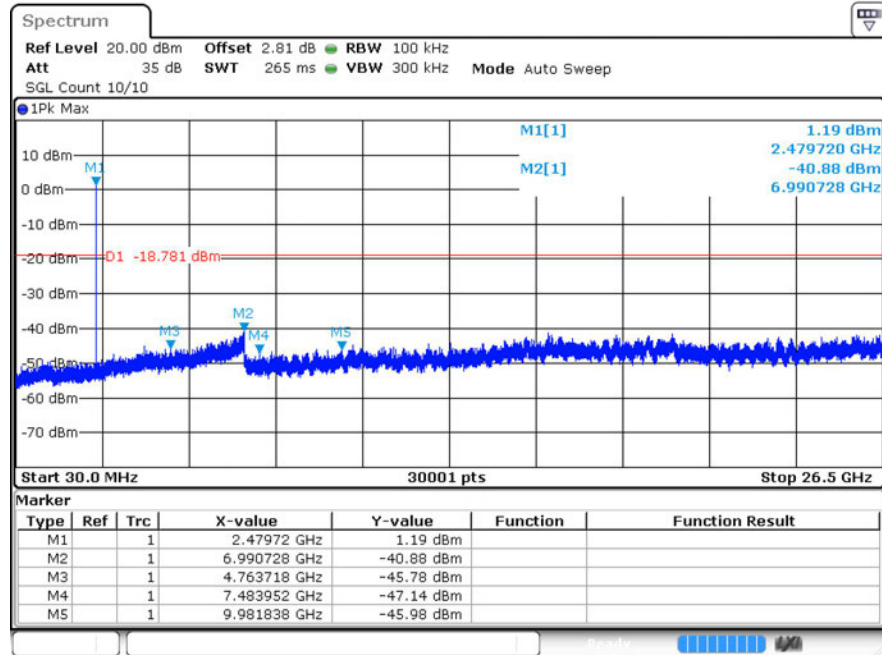


8DPSK_HCH_Graphs

Pref



Puw

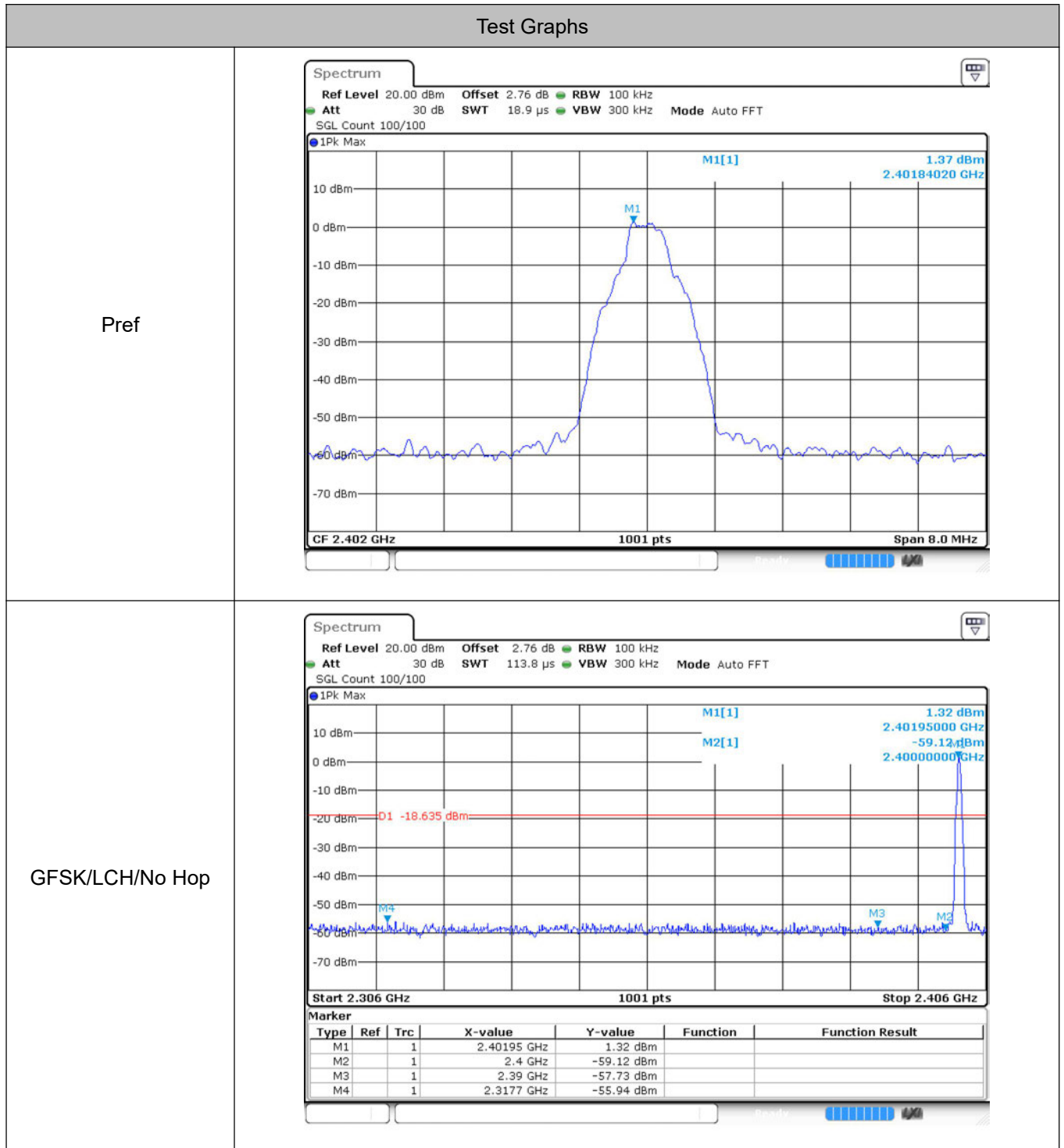


8 Band-edge for RF Conducted Emissions

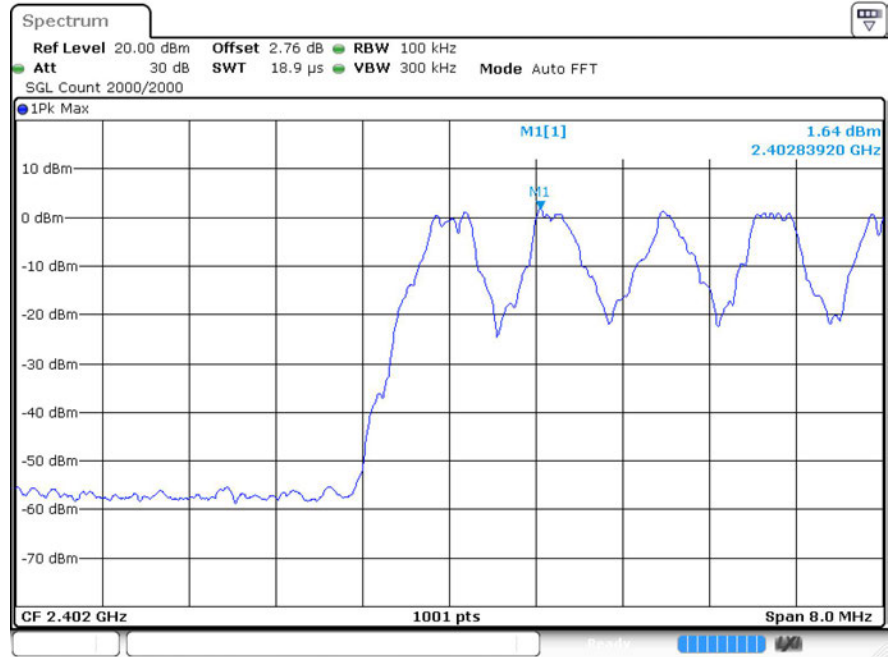
8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-57.3	-20	Pass
			On	-55.4	-20	Pass
	HCH	2480	Off	-58.95	-20	Pass
			On	-57.51	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-55.18	-20	Pass
			On	-55.17	-20	Pass
	HCH	2480	Off	-57.89	-20	Pass
			On	-55.85	-20	Pass
8DPSK	LCH	2402	Off	-55.46	-20	Pass
			On	-54.36	-20	Pass
	HCH	2480	Off	-57.51	-20	Pass
			On	-56.29	-20	Pass

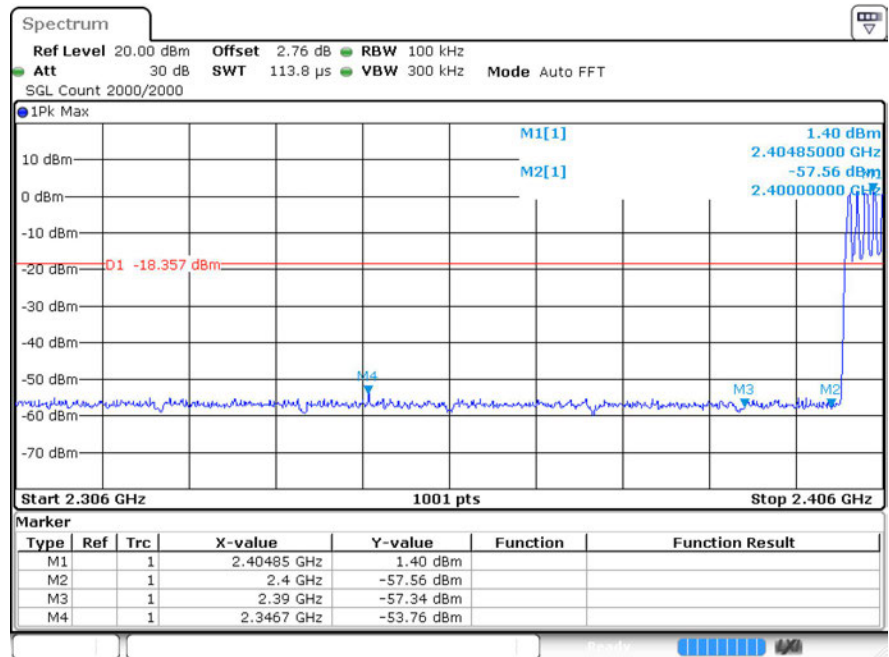
8.2 Test Graphs



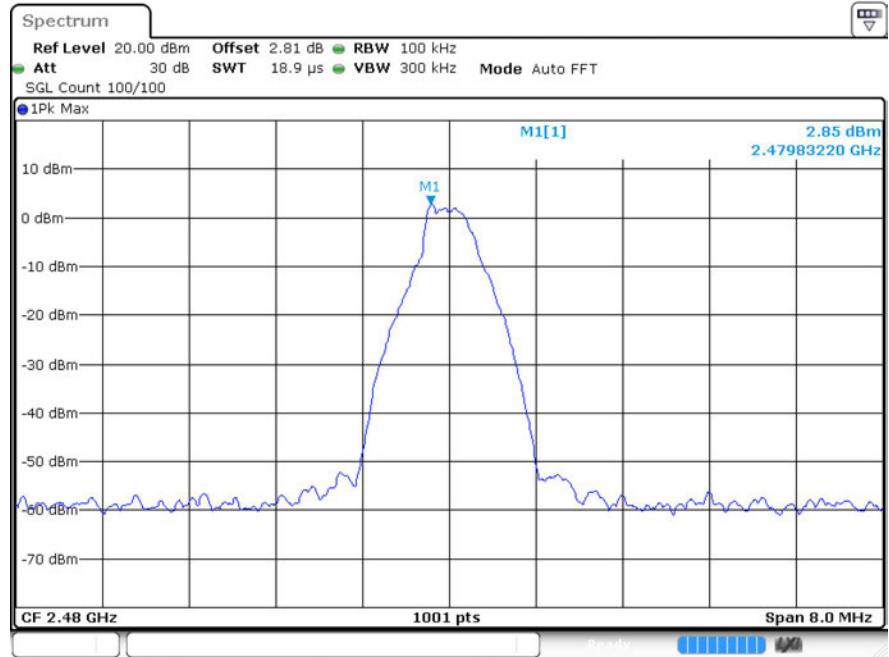
Ref



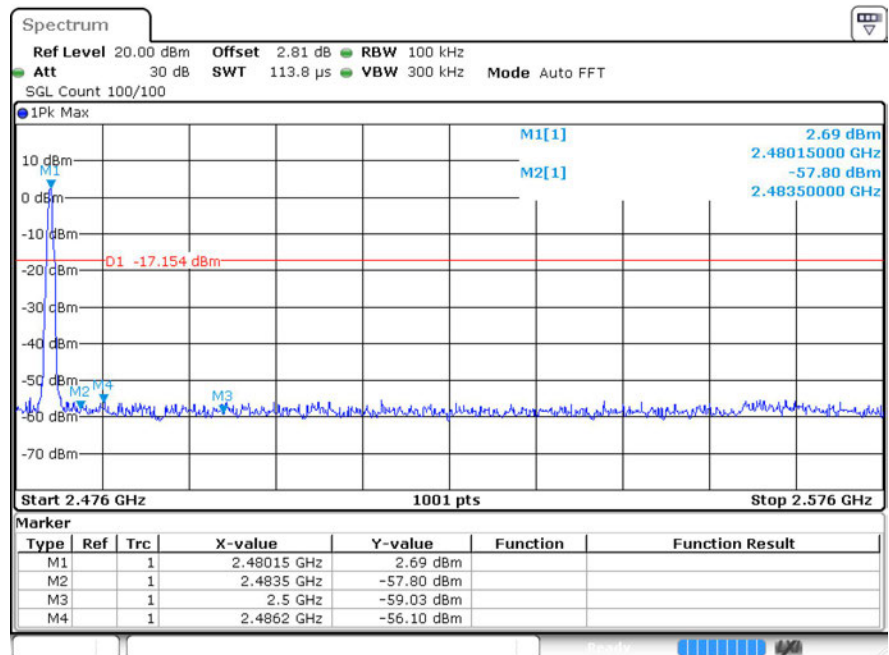
GFSK/LCH/Hop



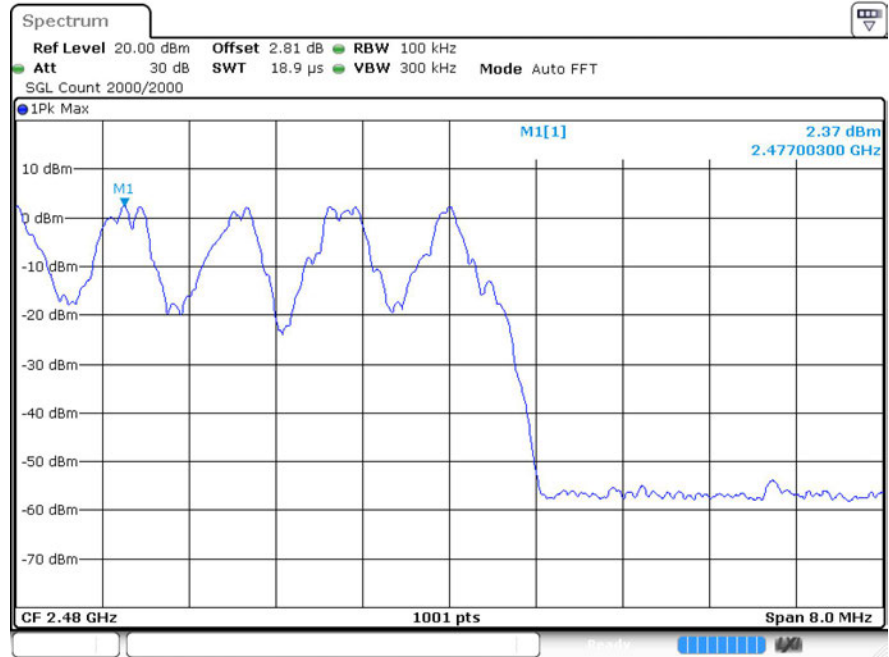
Ref



GFSK/HCH/No Hop



Ref.



GFSK/HCH/Hop

