

Appendix A

RF Test Data for BR_EDR Conducted Measurement

FCC ID:2BGNI-P30

Product Name:Smart POS Terminal

Test Model:P30

Environmental Conditions

Temperature:	23.5°C
Relative Humidity:	52.6%
ATM Pressure:	101Kpa
Test Engineer:	Emiya Lin
Supervised by:	Simba Huang

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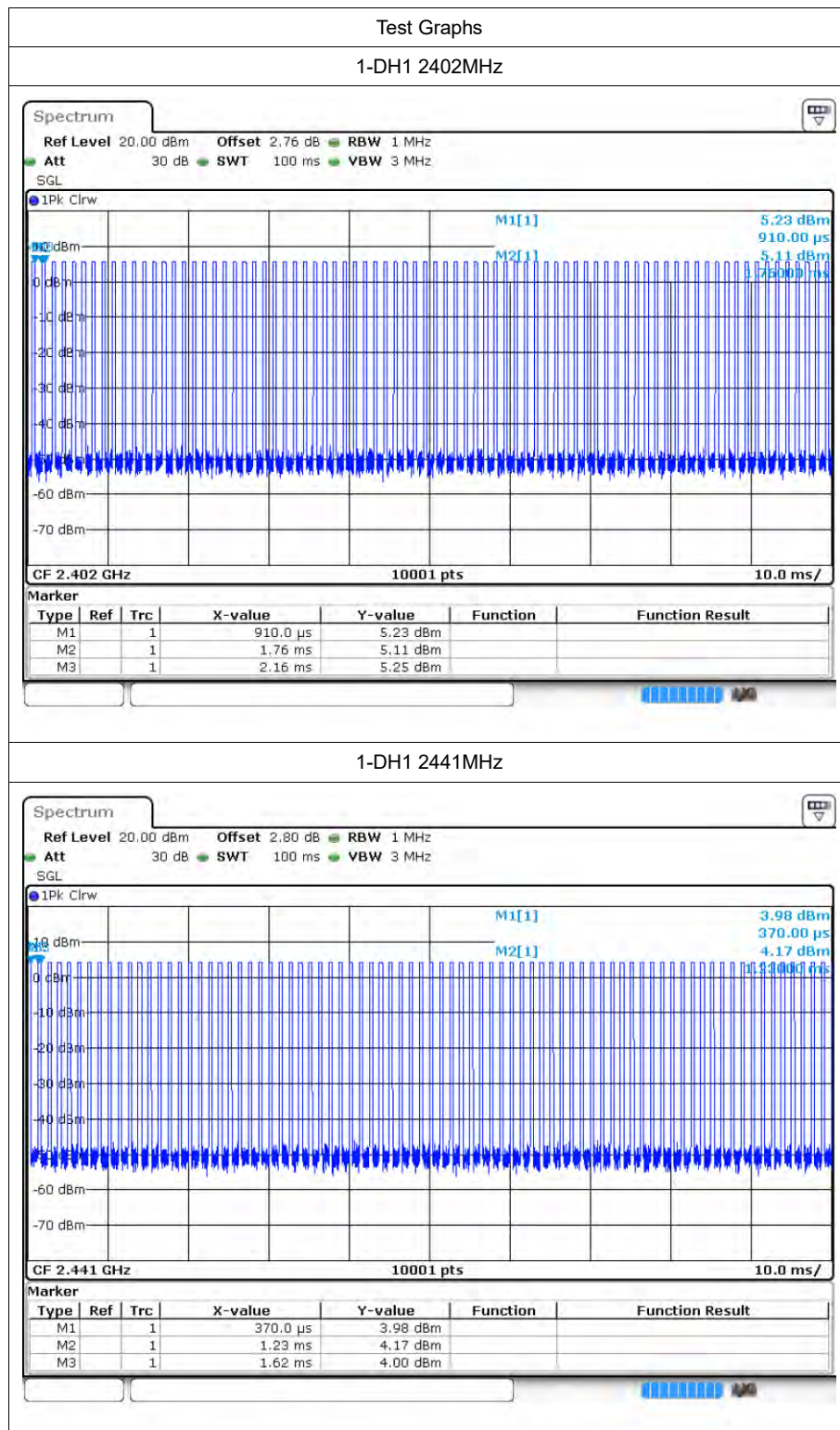
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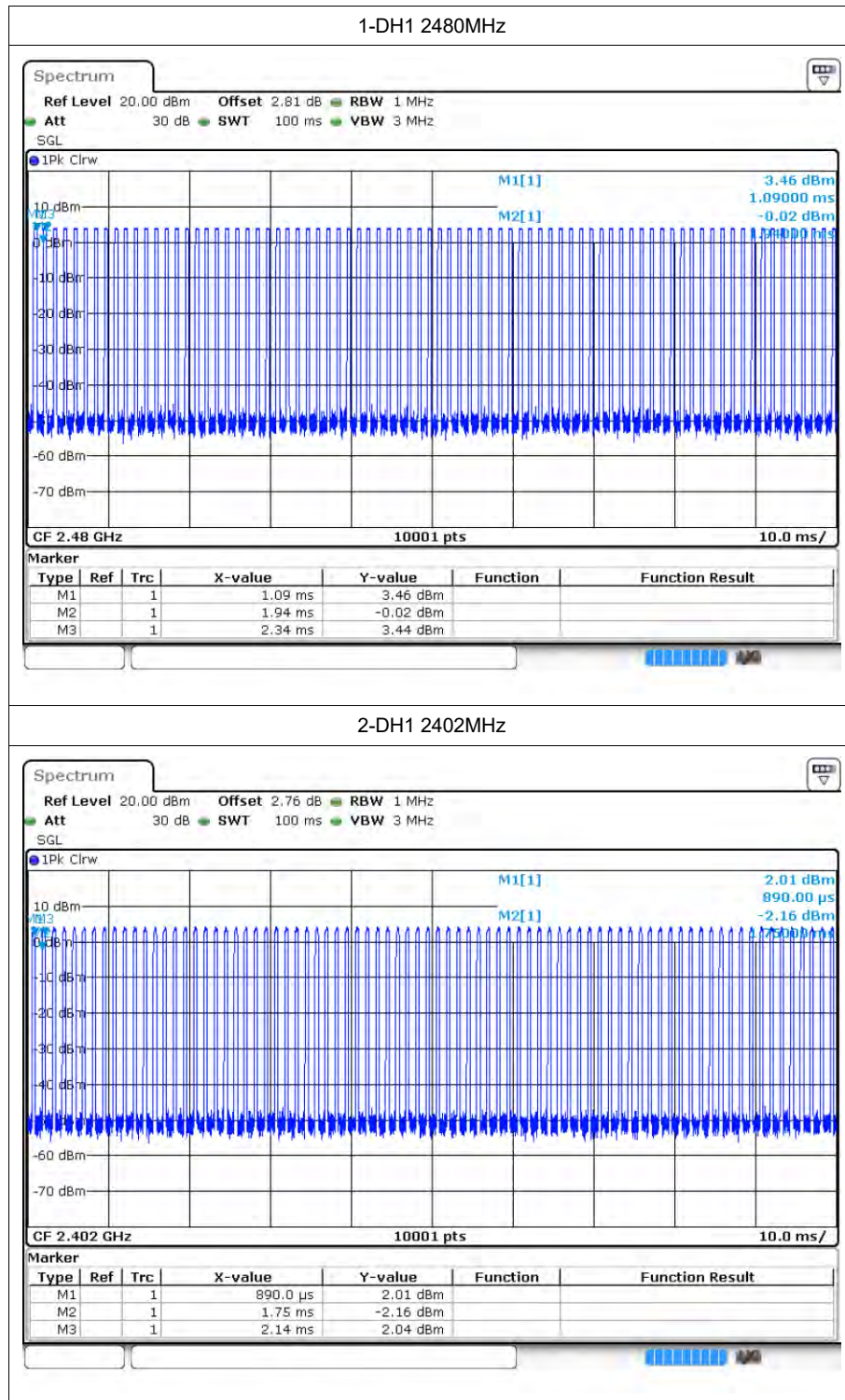
1 Duty Cycle

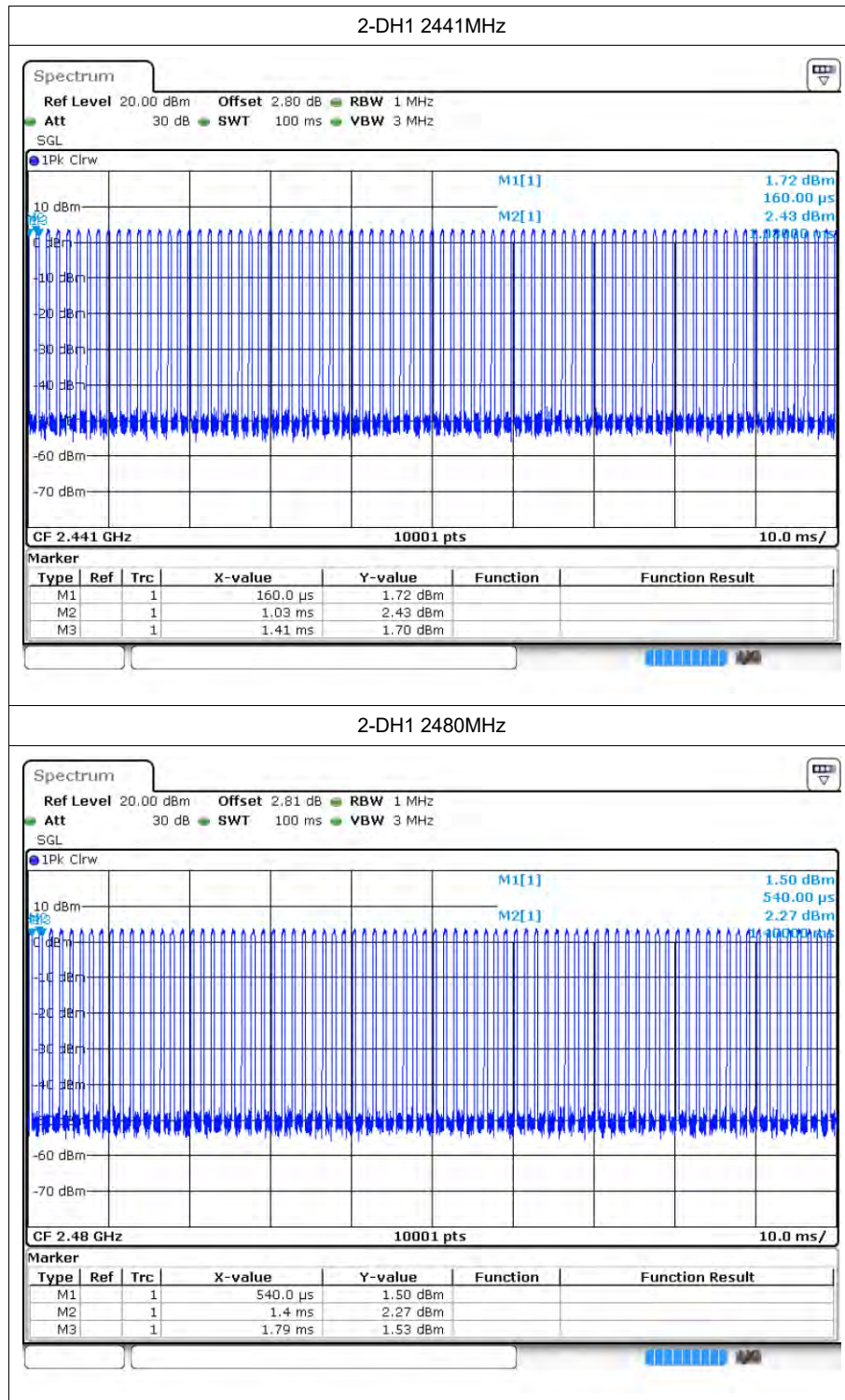
1.1 Test Result

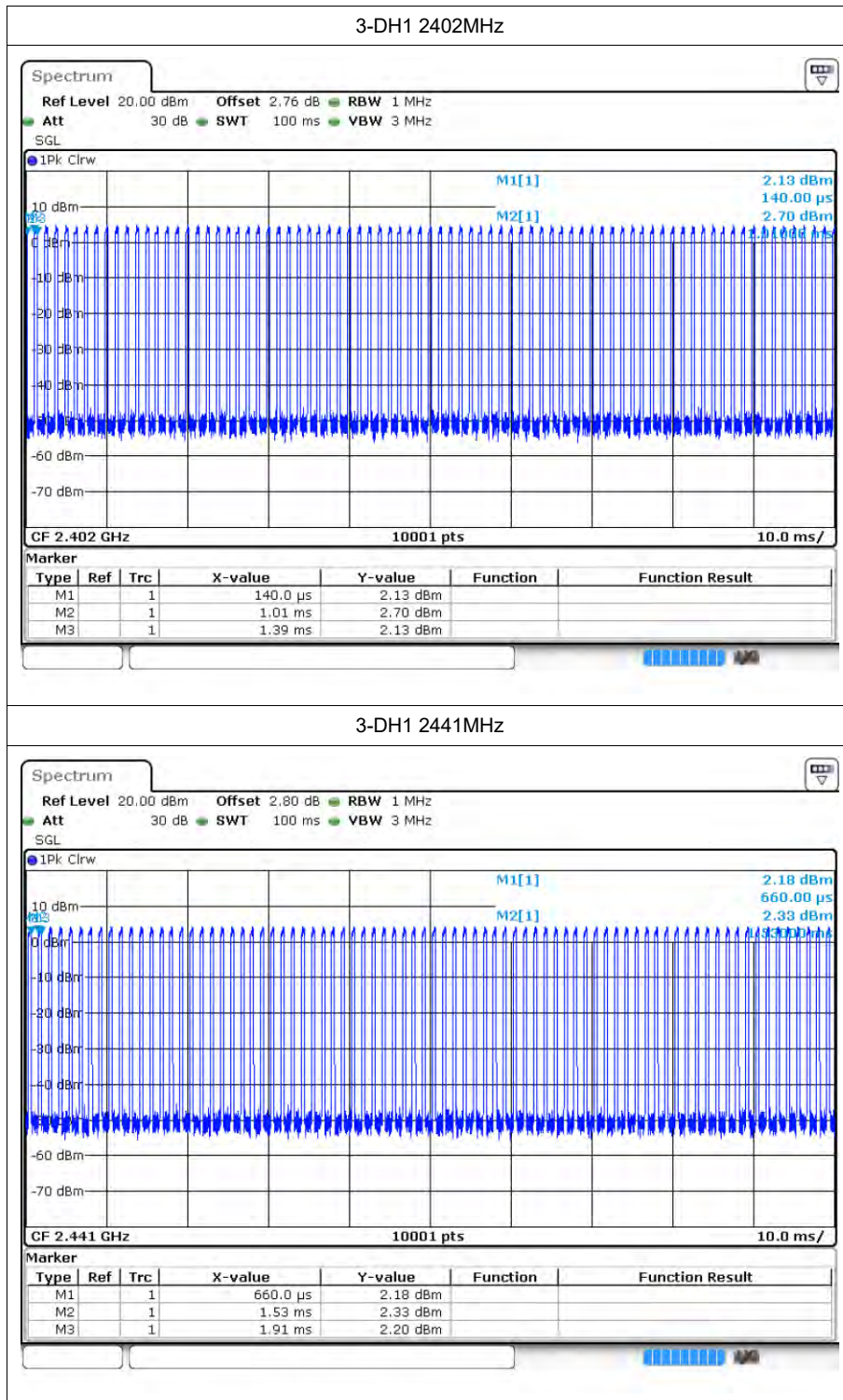
Mode	Frequency (MHz)	Duty Cycle (%)	Duty Factor (dB)	1/T (kHz)
1-DH1	2402	32.8	4.84	2.5
1-DH1	2441	32.36	4.90	2.56
1-DH1	2480	32.8	4.84	2.5
2-DH1	2402	32	4.95	2.56
2-DH1	2441	31.21	5.06	2.63
2-DH1	2480	32	4.95	2.56
3-DH1	2402	31.21	5.06	2.63
3-DH1	2441	31.2	5.06	2.63
3-DH1	2480	31.2	5.06	2.63

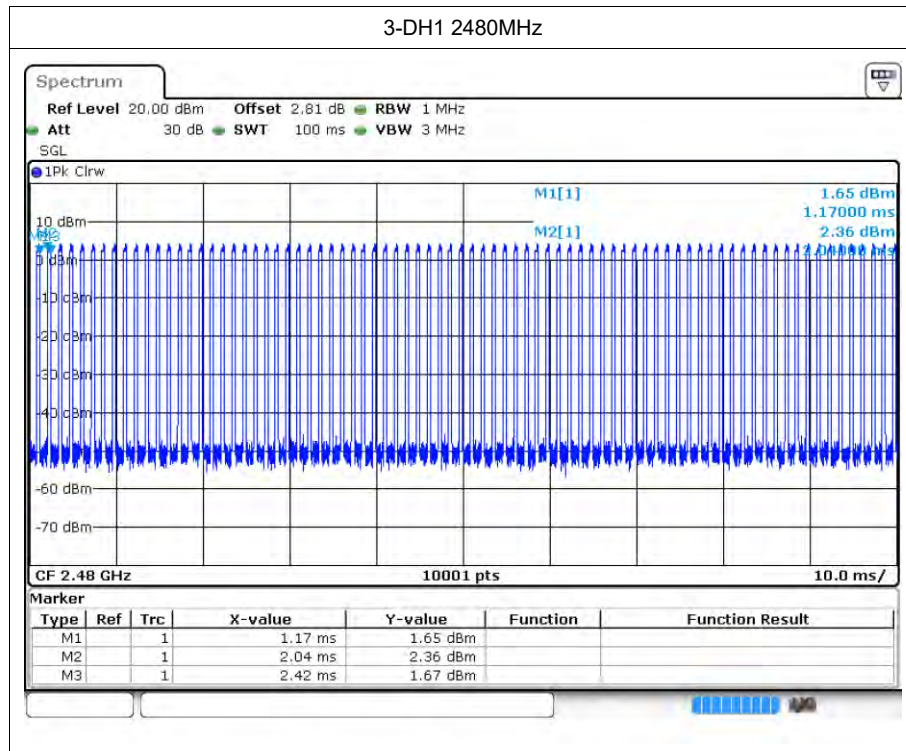
1.2 Test Graphs









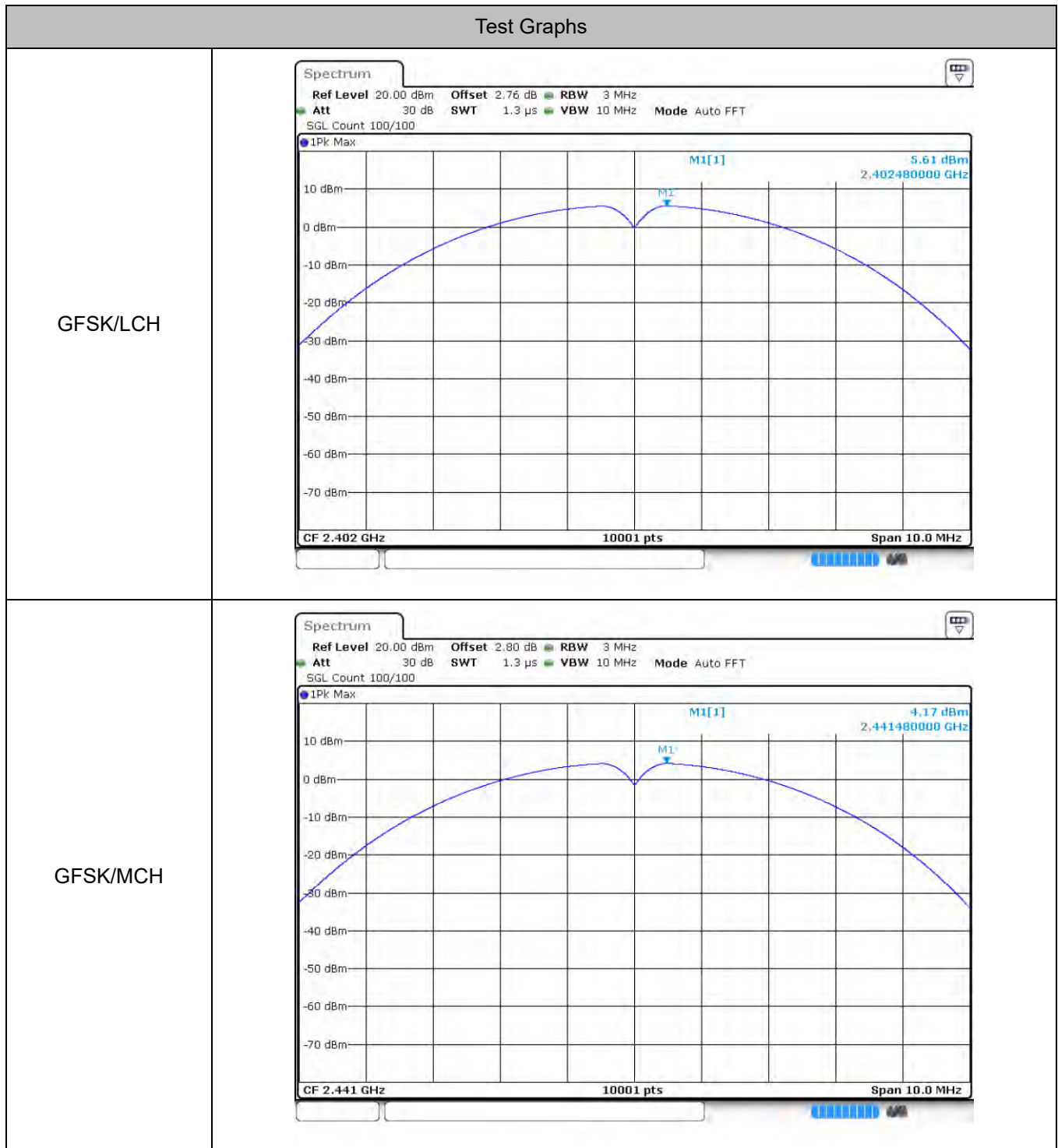


2 Maximum Conducted Peak Output Power

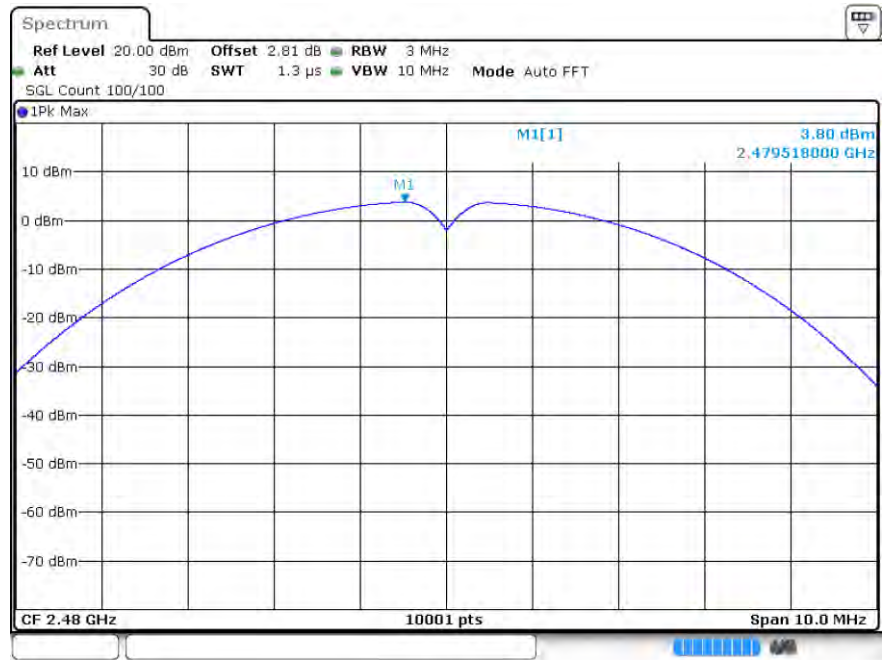
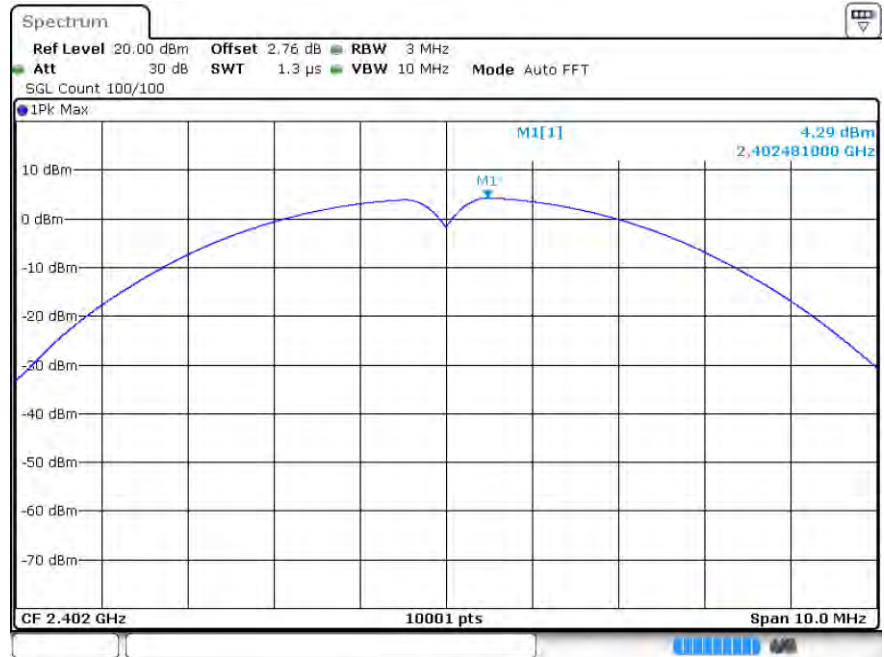
2.1 Test Result

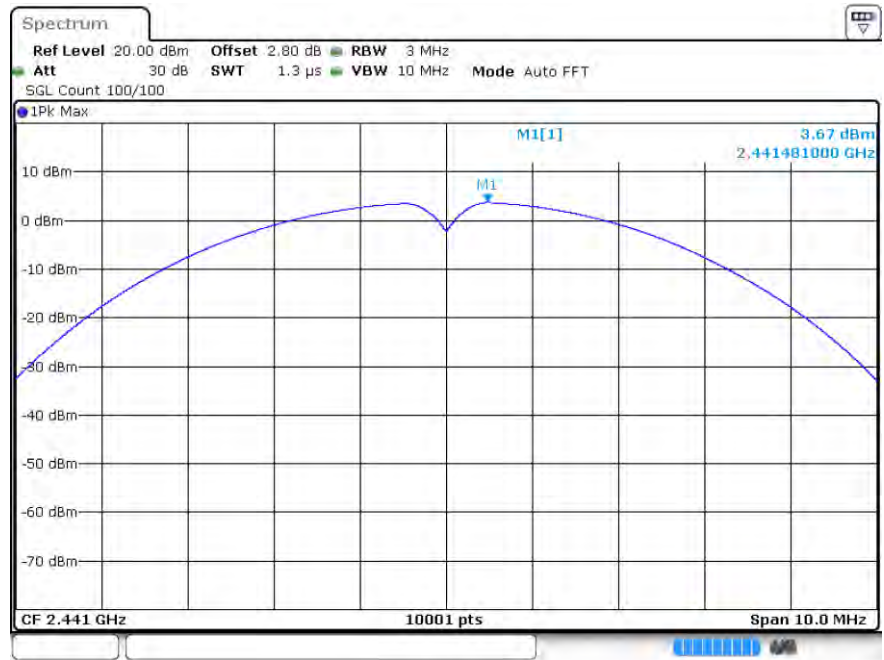
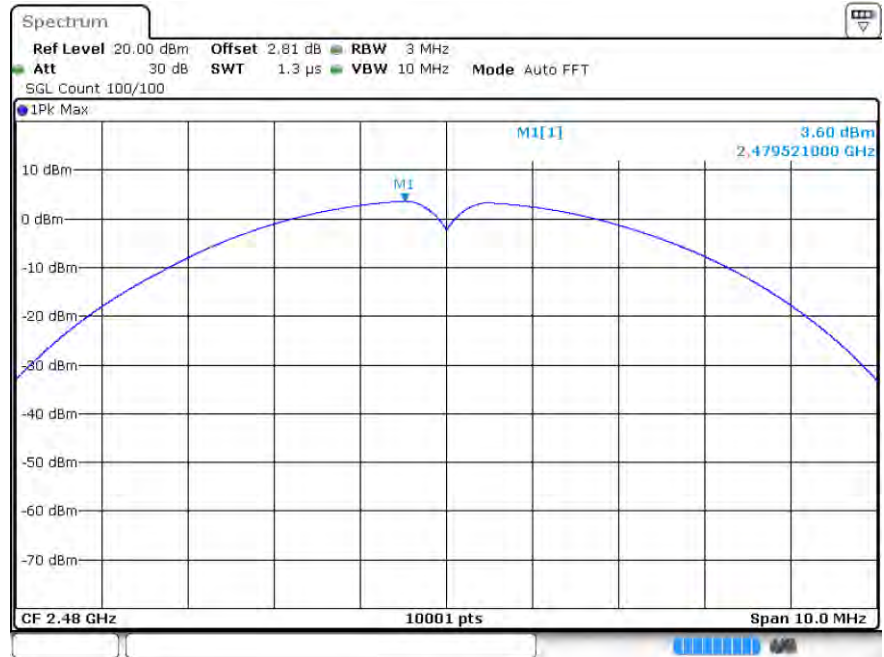
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	5.61	21	Pass
	MCH	4.17	21	Pass
	HCH	3.8	21	Pass
$\pi/4$ DQPSK	LCH	4.29	21	Pass
	MCH	3.67	21	Pass
	HCH	3.6	21	Pass
8DPSK	LCH	4.68	21	Pass
	MCH	3.39	21	Pass
	HCH	3.3	21	Pass

2.2 Test Graphs

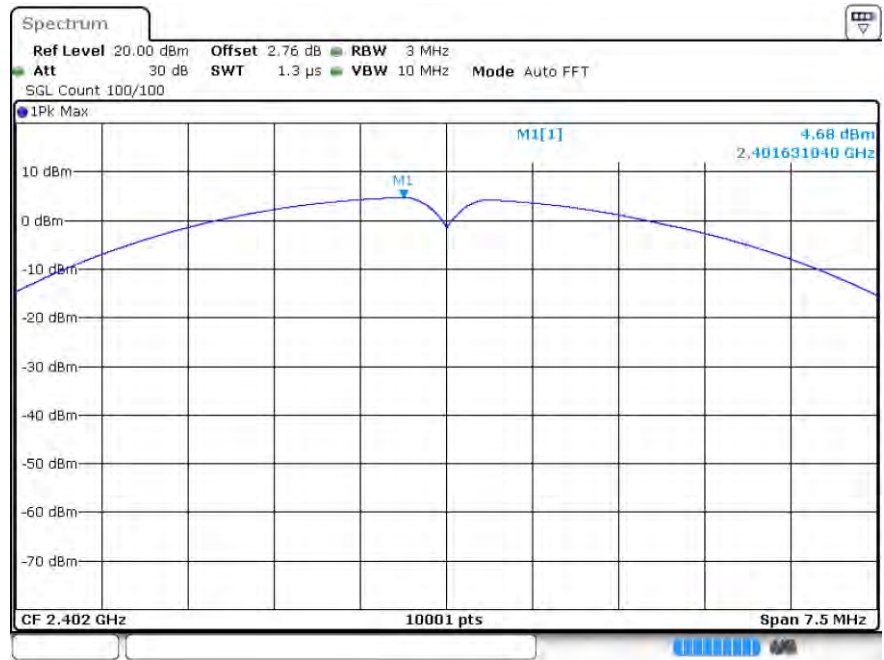


GFSK/HCH

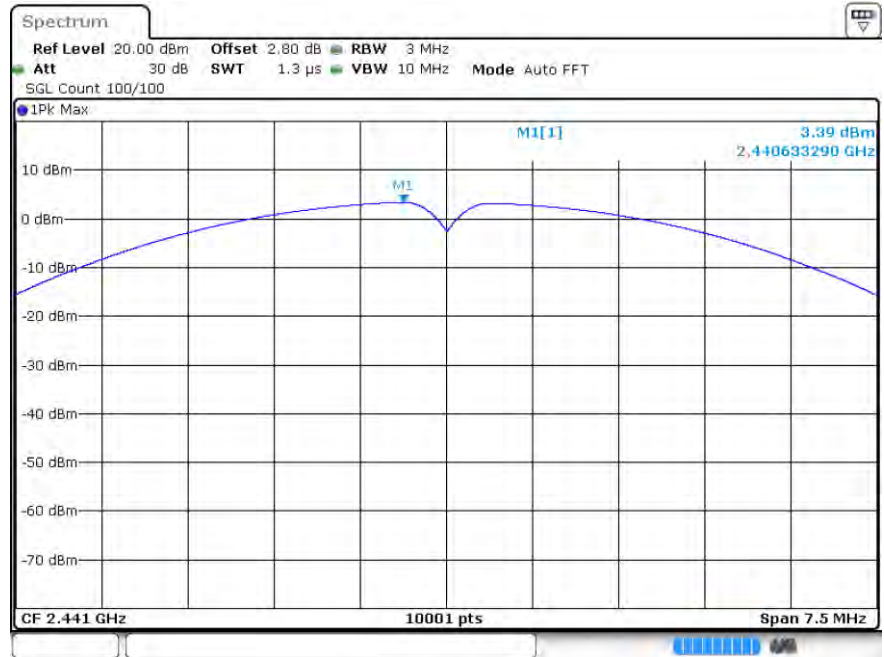

 $\pi/4$ DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


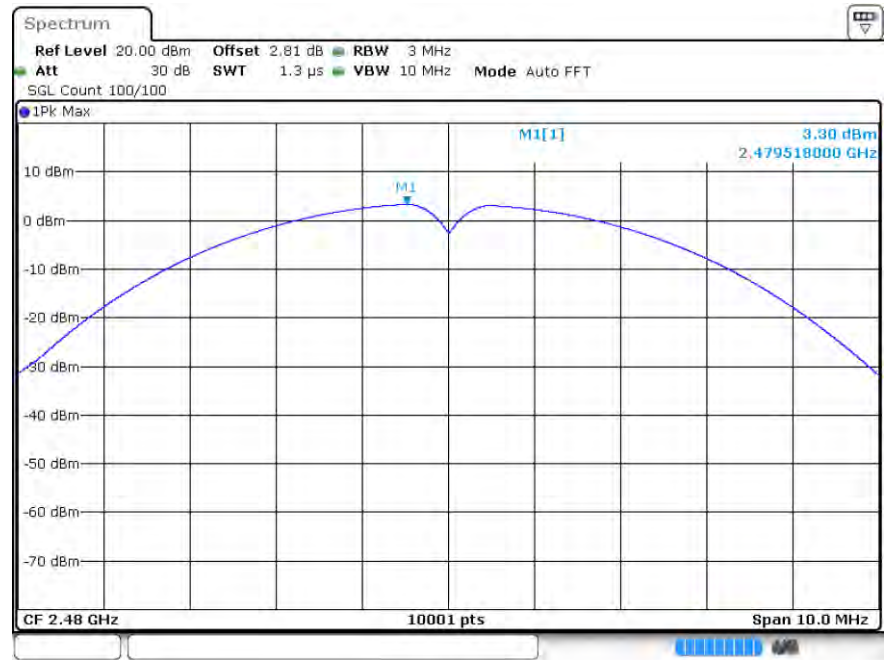
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

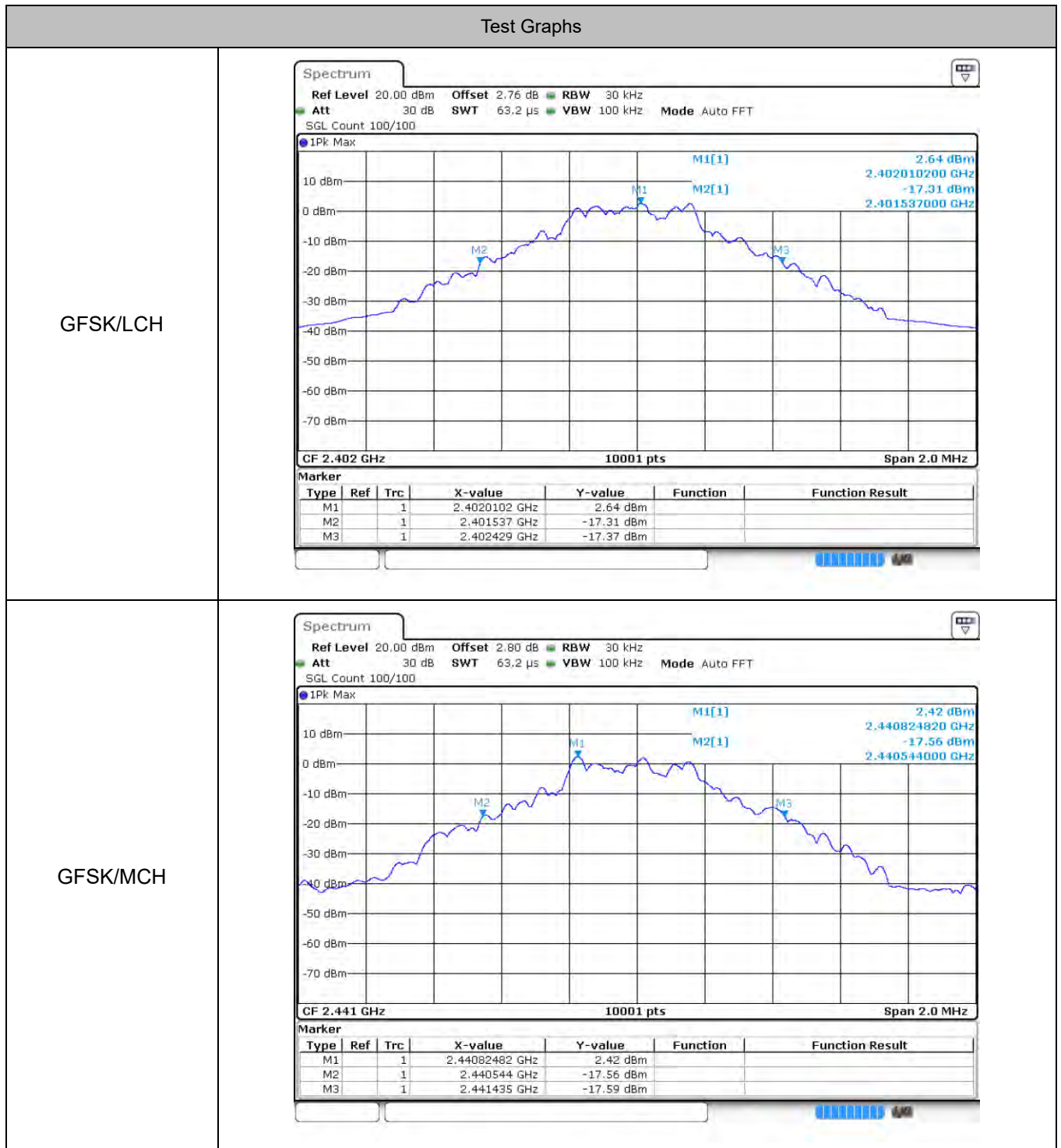


3 20dB Bandwidth

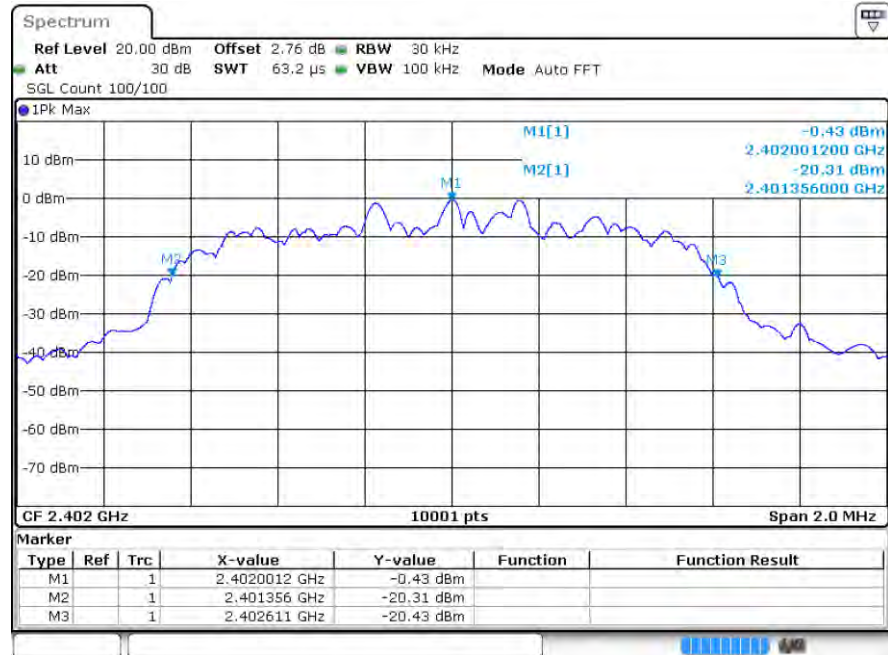
3.1 Test Result

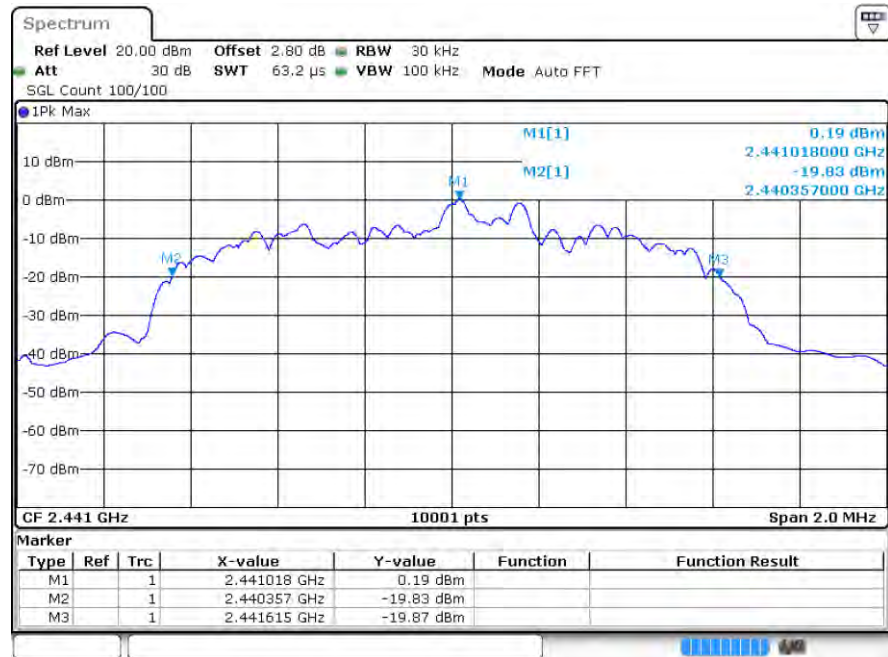
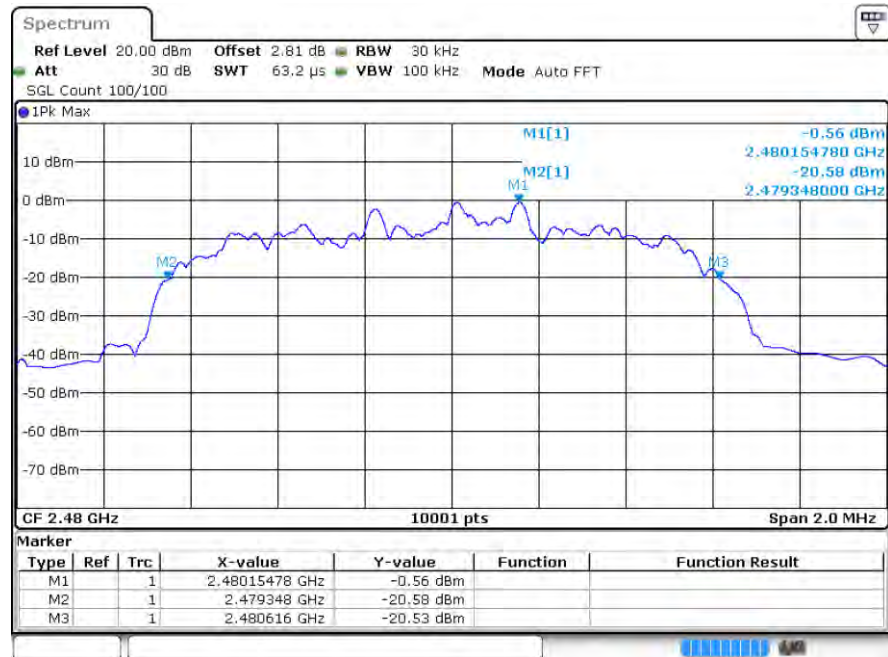
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.892	Not Specified	Pass
	MCH	0.891	Not Specified	Pass
	HCH	0.89	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.255	Not Specified	Pass
	MCH	1.258	Not Specified	Pass
	HCH	1.268	Not Specified	Pass
8DPSK	LCH	1.262	Not Specified	Pass
	MCH	1.265	Not Specified	Pass
	HCH	1.251	Not Specified	Pass

3.2 Test Graphs

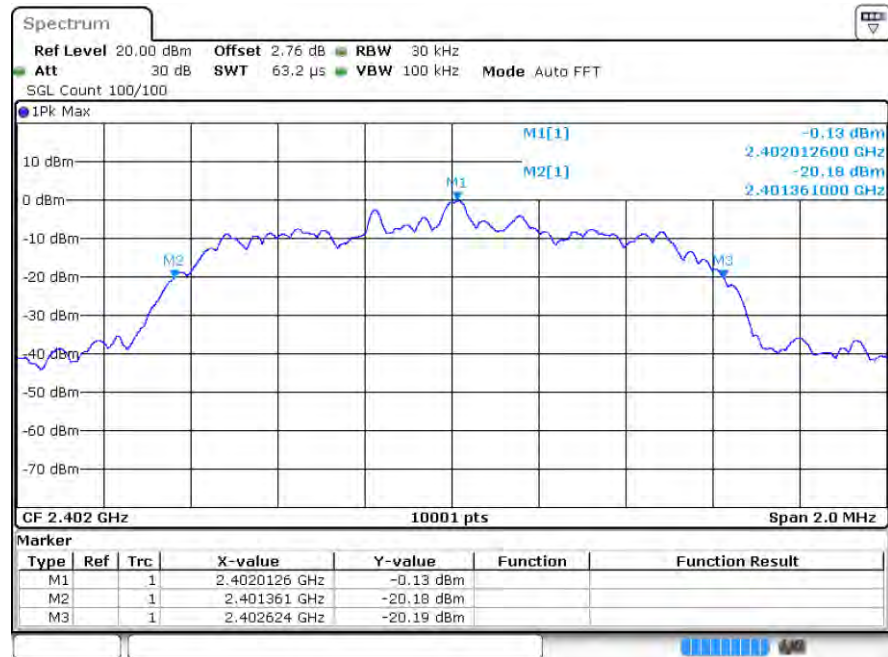


GFSK/HCH

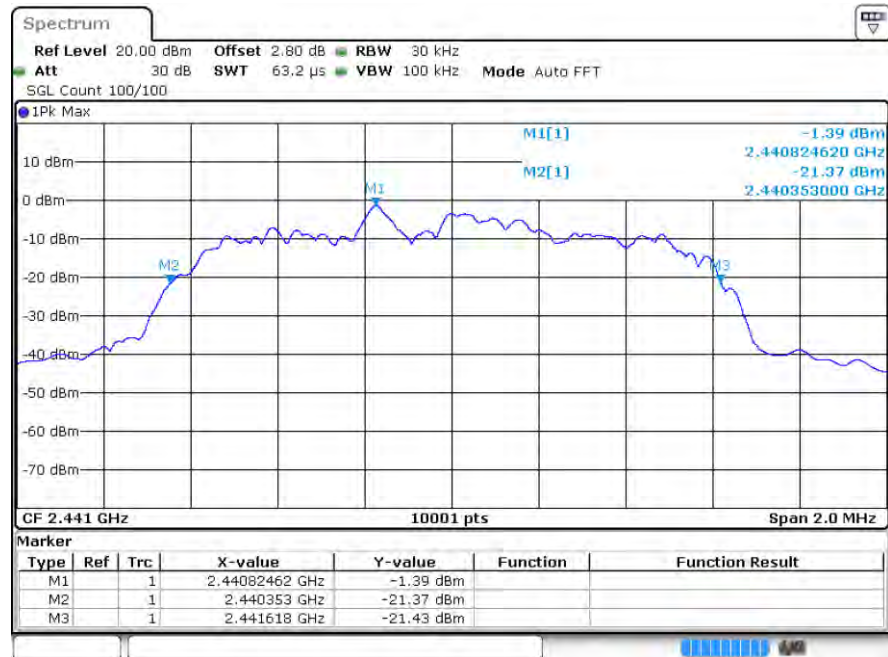

 π /4DQPSK/LCH


$\pi/4$ DQPSK/MCH

 $\pi/4$ DQPSK/HCH


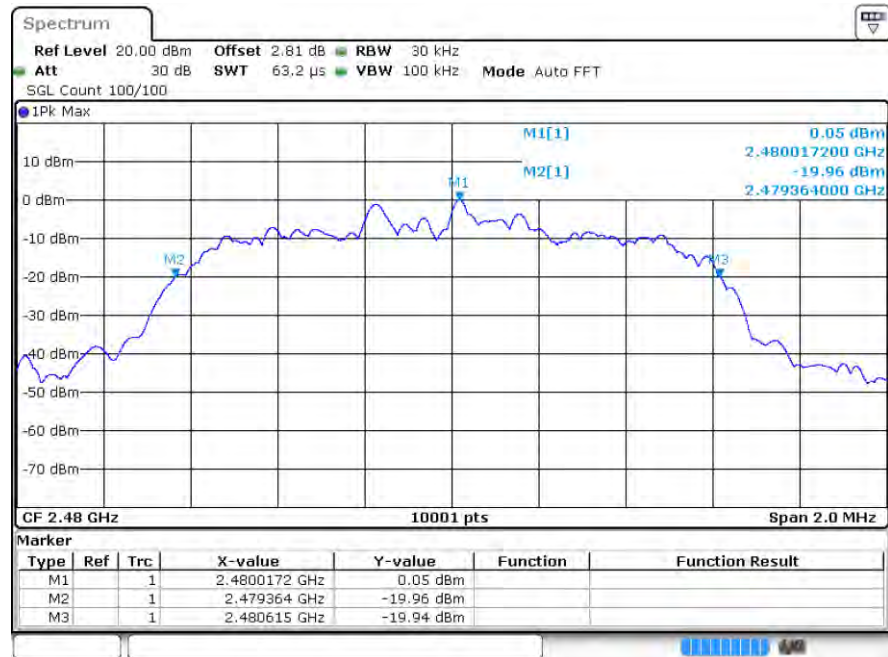
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

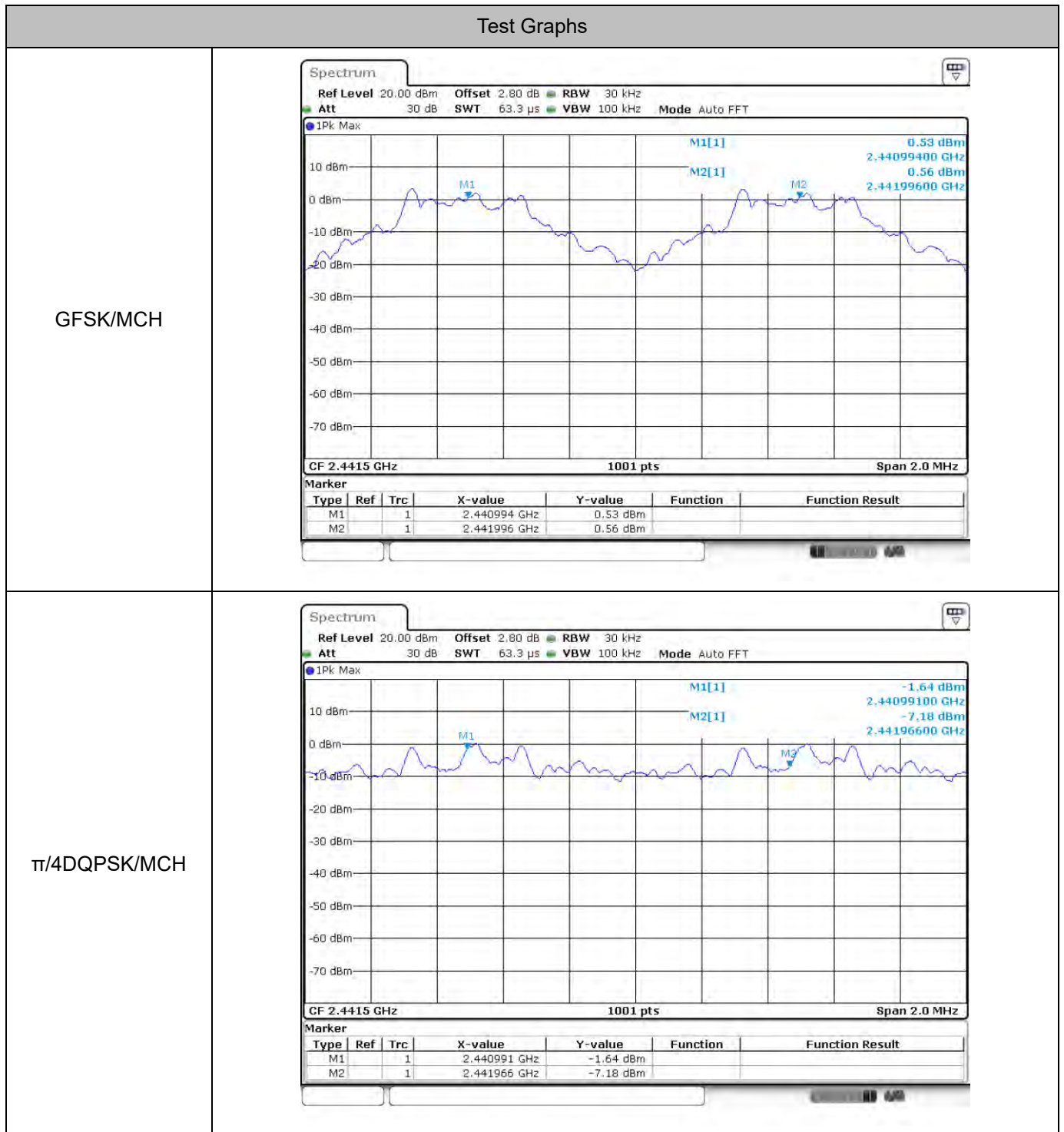


4 Carrier Frequency Separation

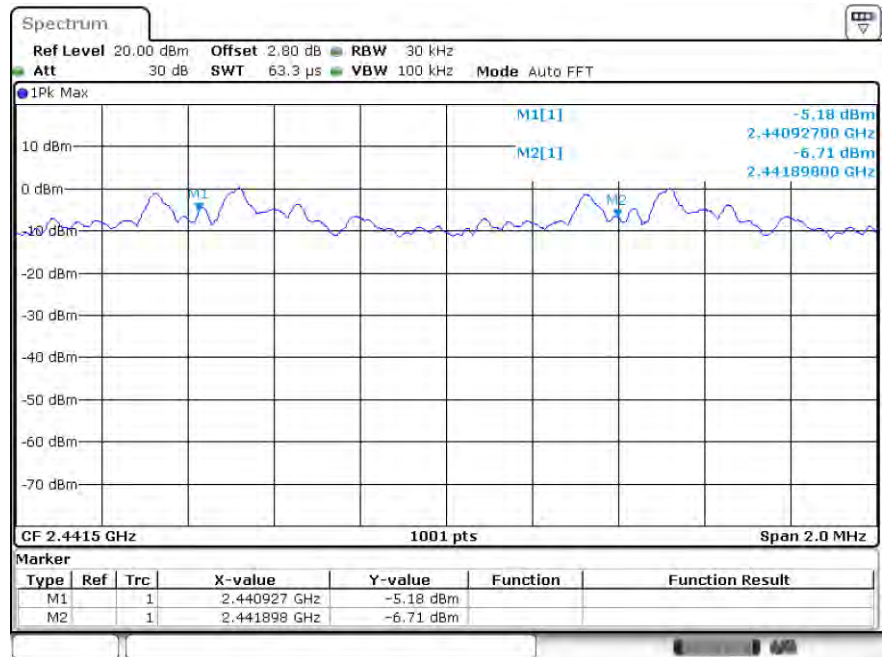
4.1 Test Result

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.002	0.594	Pass
$\pi/4$ DQPSK	MCH	0.975	0.839	Pass
8DPSK	MCH	0.971	0.843	Pass

4.2 Test Graphs



8DPSK/MCH

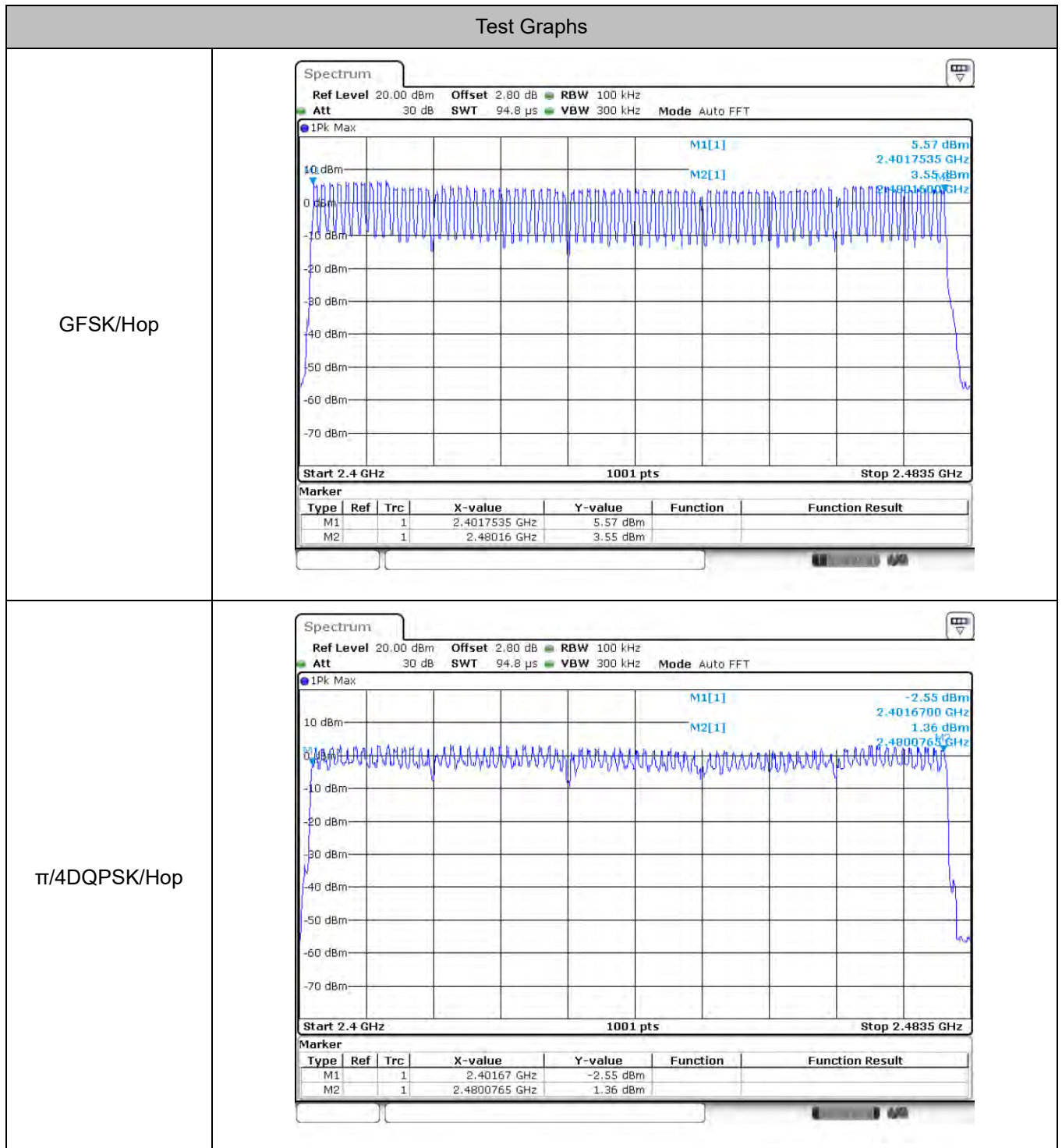


5 Hopping Channel Number

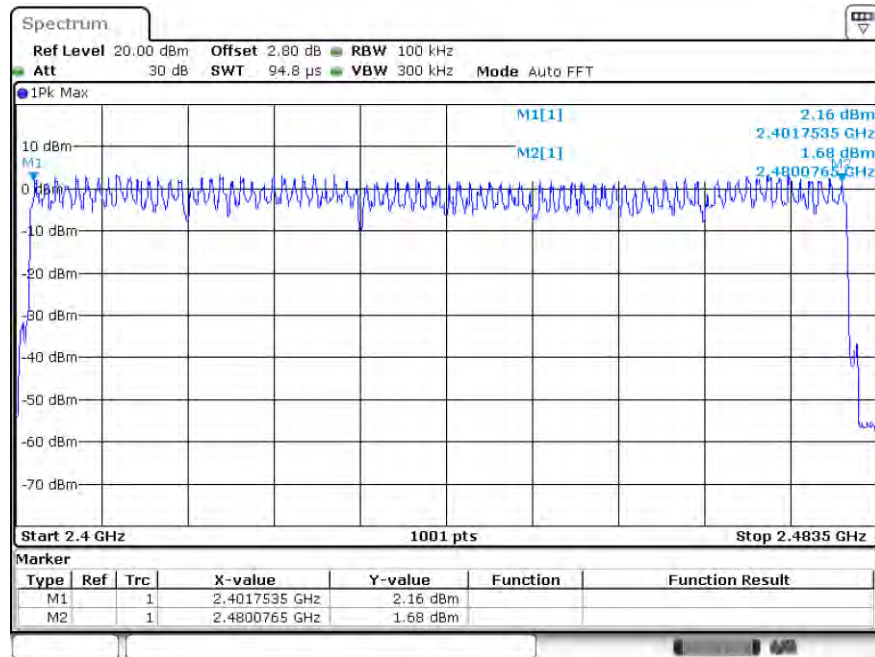
5.1 Test Result

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

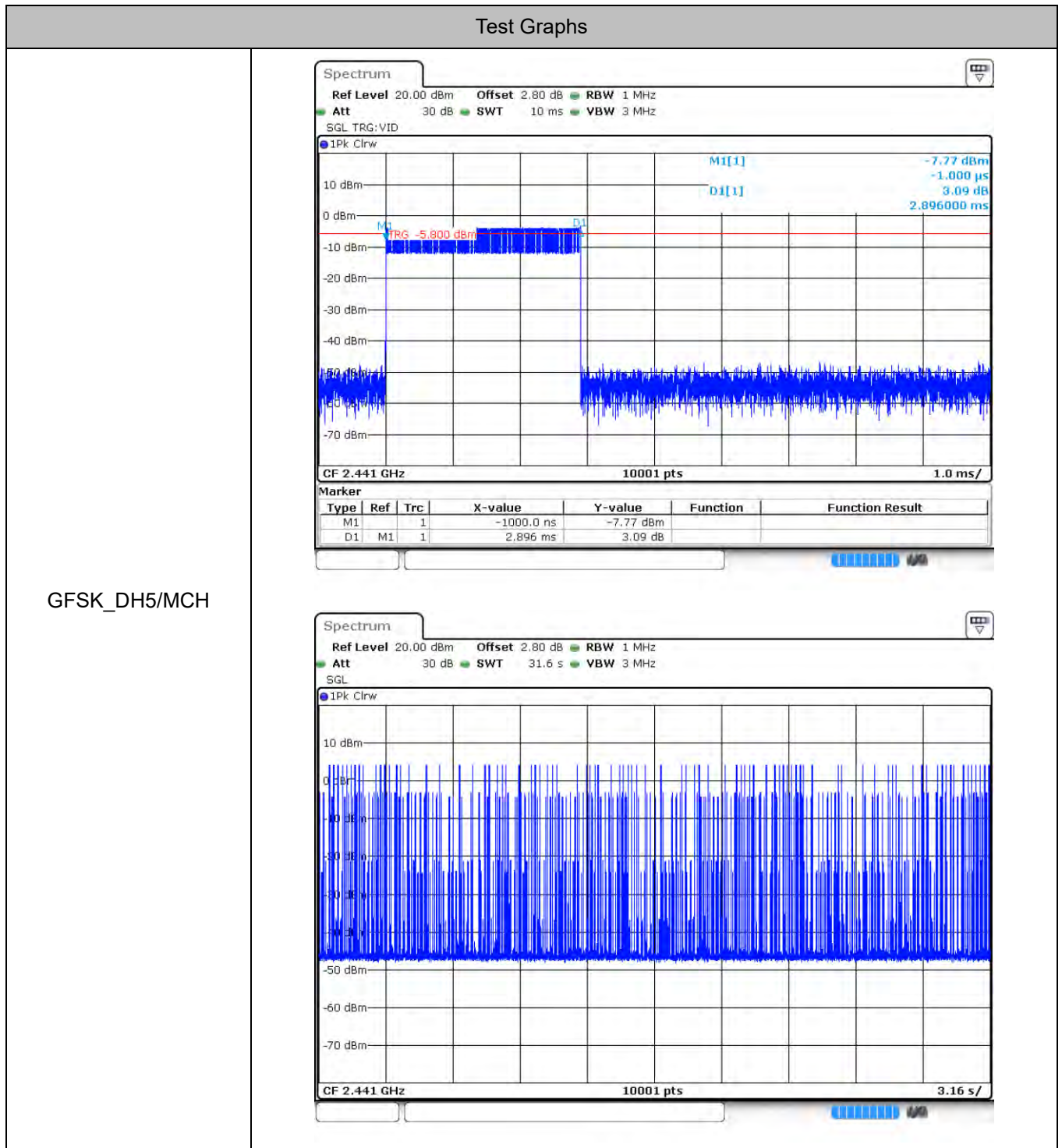


6 Dwell Time

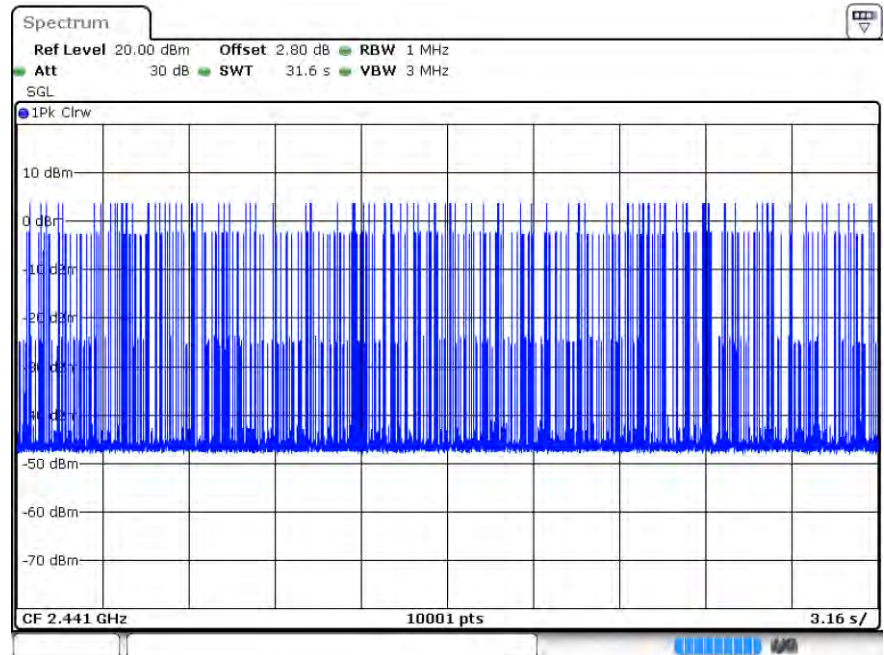
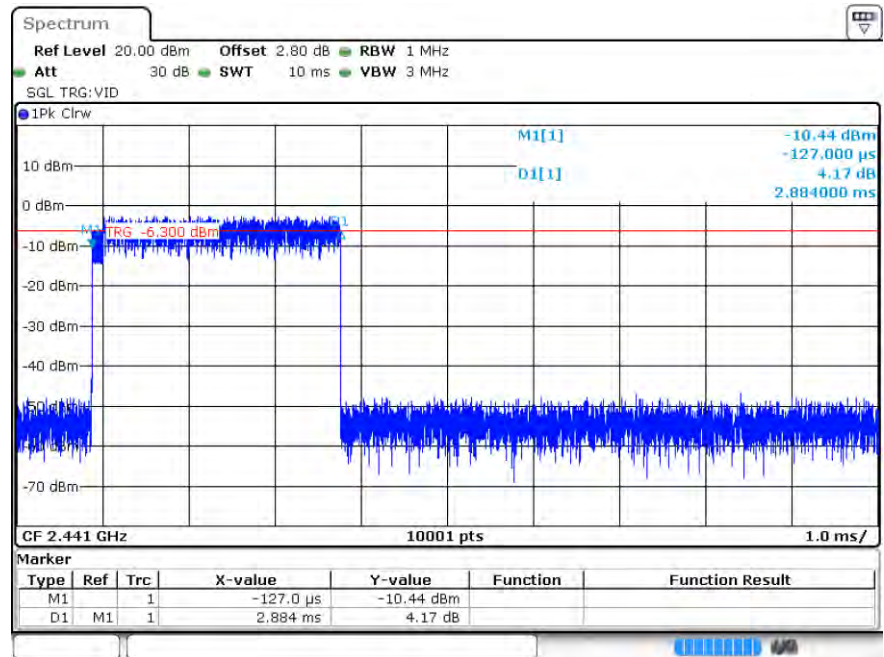
6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.896	113	327.248	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.884	110	317.24	0.4	Pass
8DPSK	3DH5	MCH	2.883	114	328.662	0.4	Pass

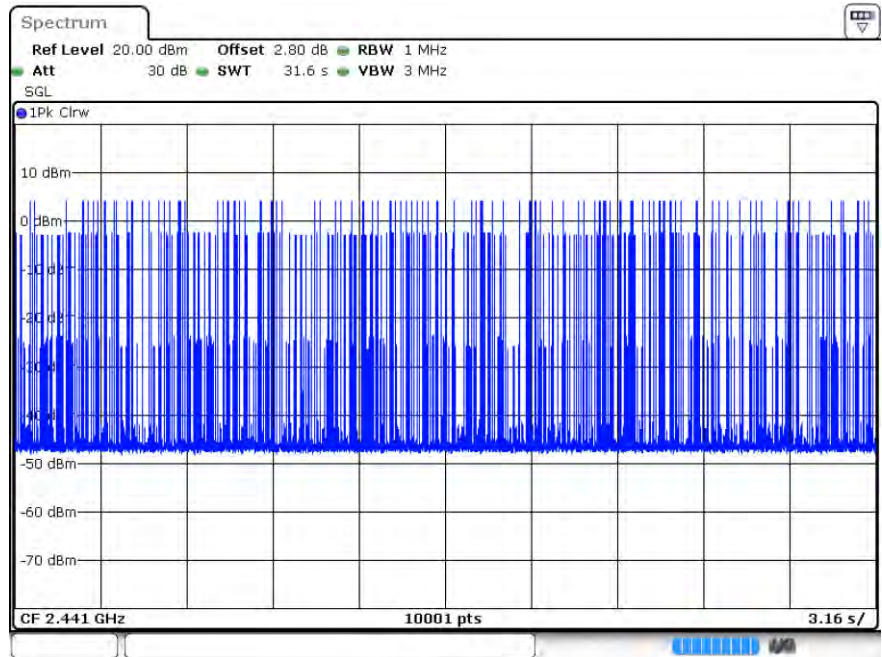
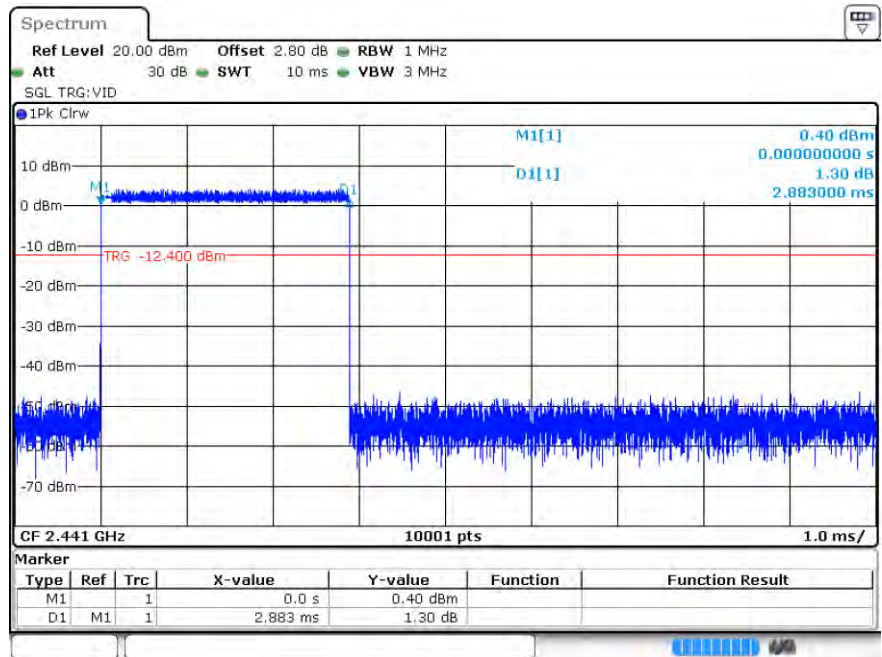
6.2 Test Graphs



$\pi/4$ DQPSK
 _2DH5/MCH



8DPSK_3DH5/MCH

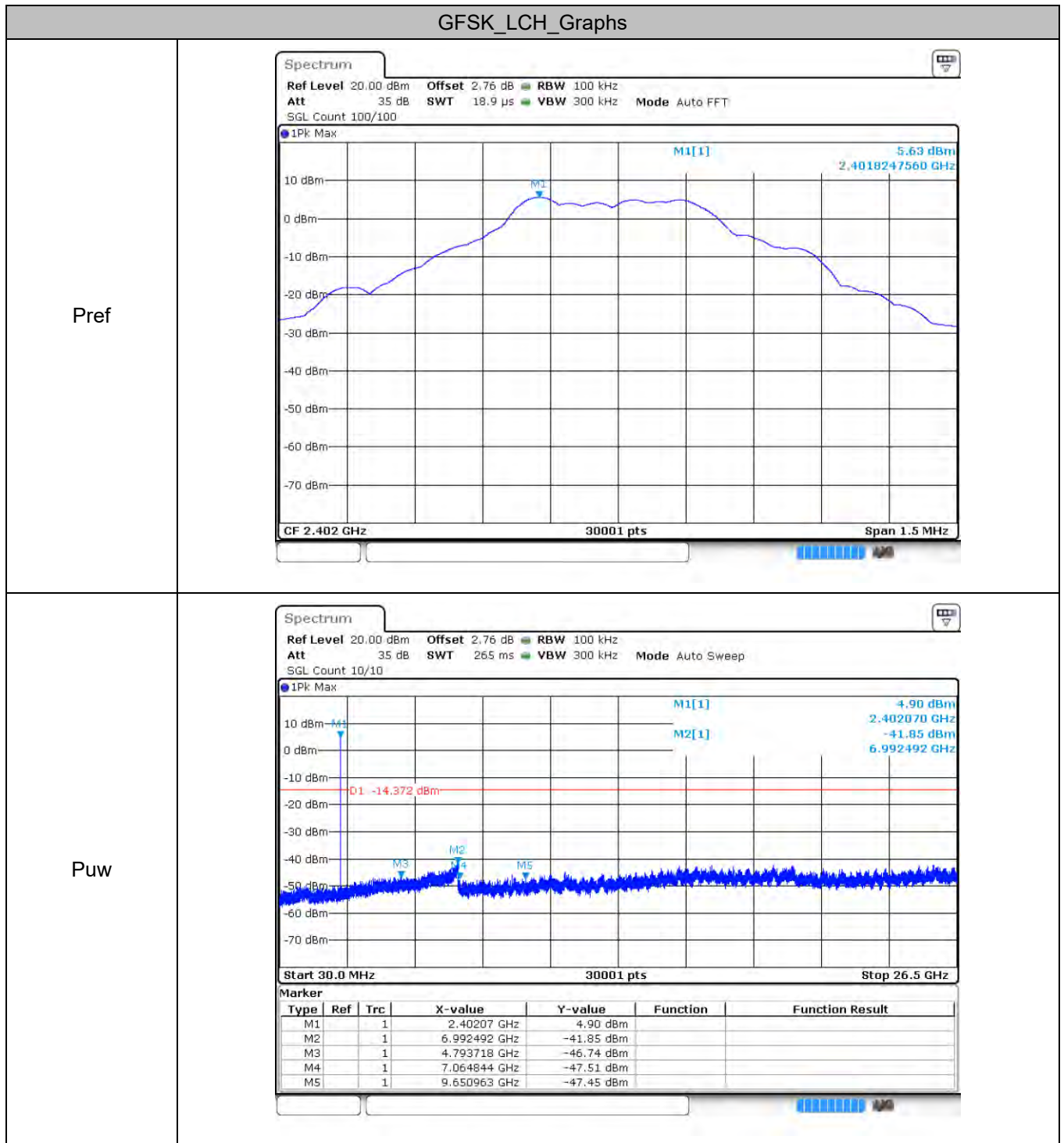


7 RF Conducted Spurious Emissions

7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-47.47	-20	Pass
	MCH	-45.1	-20	Pass
	HCH	-45.52	-20	Pass
$\pi/4$ DQPSK	LCH	-43.6	-20	Pass
	MCH	-43.59	-20	Pass
	HCH	-43.41	-20	Pass
8DPSK	LCH	-44.34	-20	Pass
	MCH	-41	-20	Pass
	HCH	-42.83	-20	Pass

7.2 Test Graphs

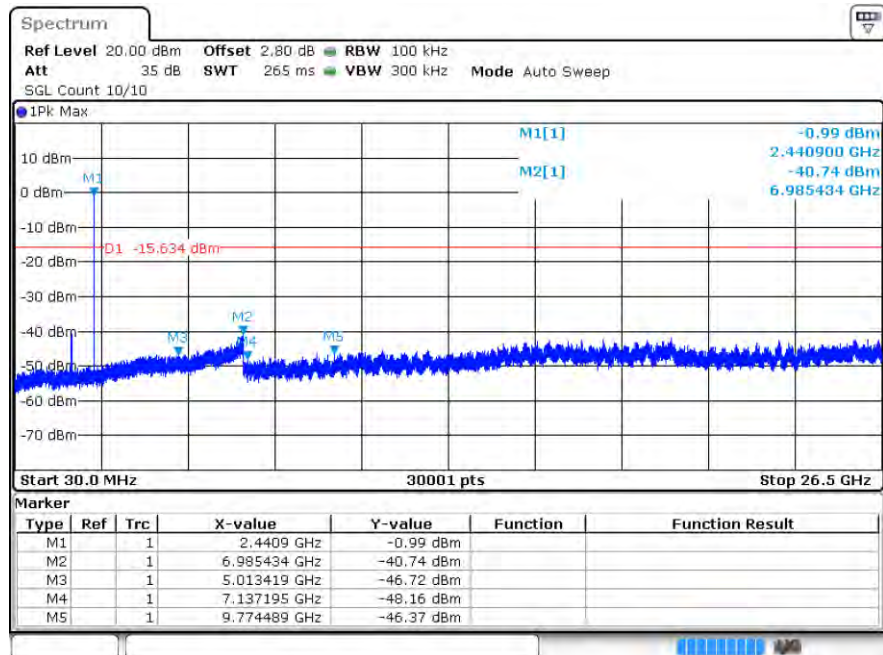


GFSK_MCH_Graphs

Pref



Puw

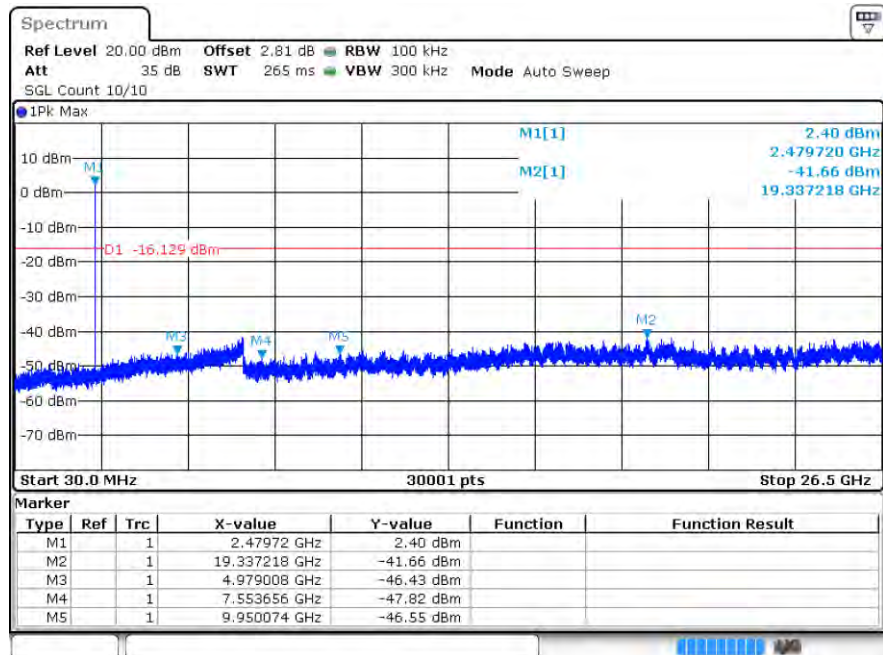


GFSK_HCH_Graphs

Pref

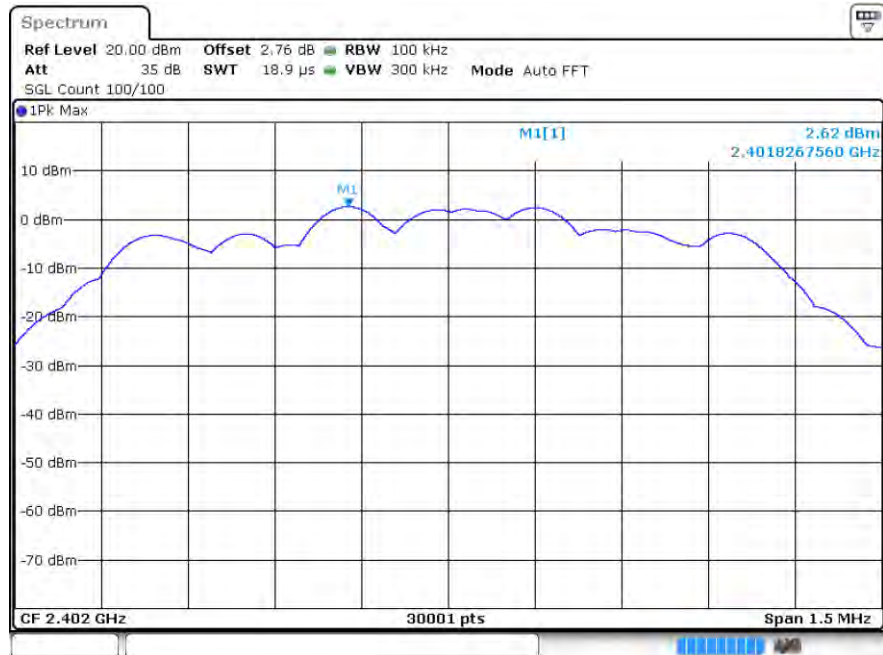


Puw

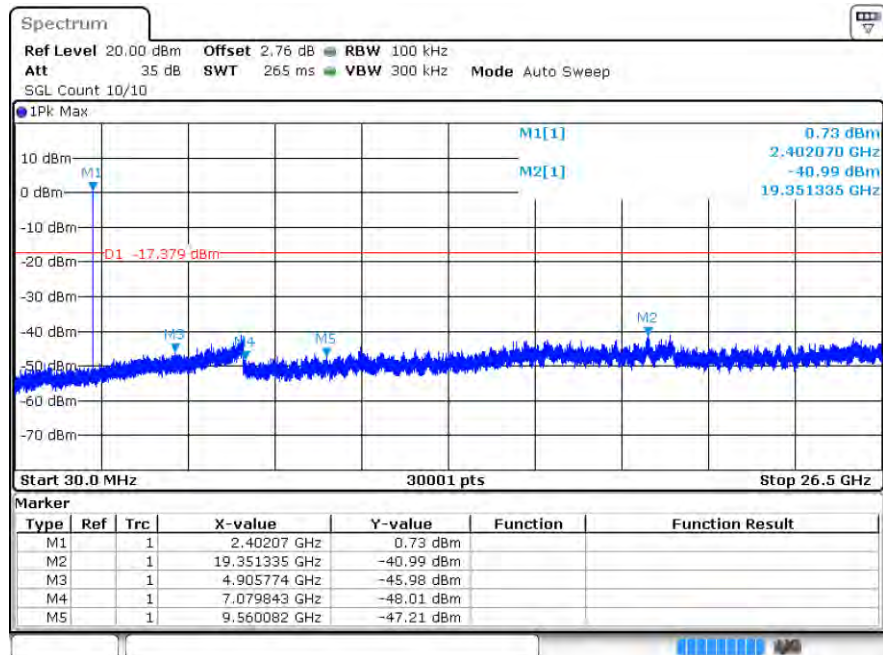


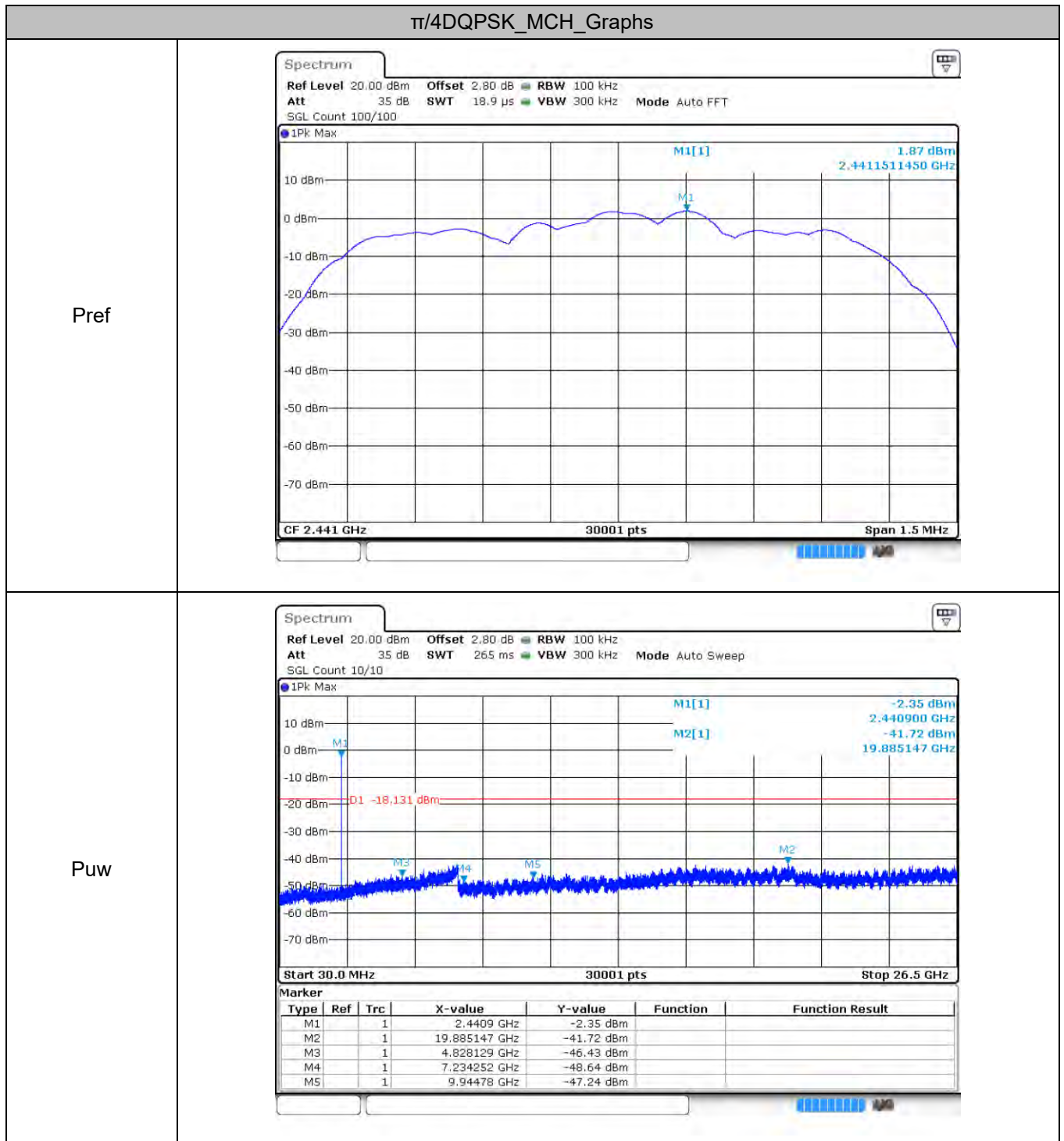
$\pi/4$ DQPSK_LCH_Graphs

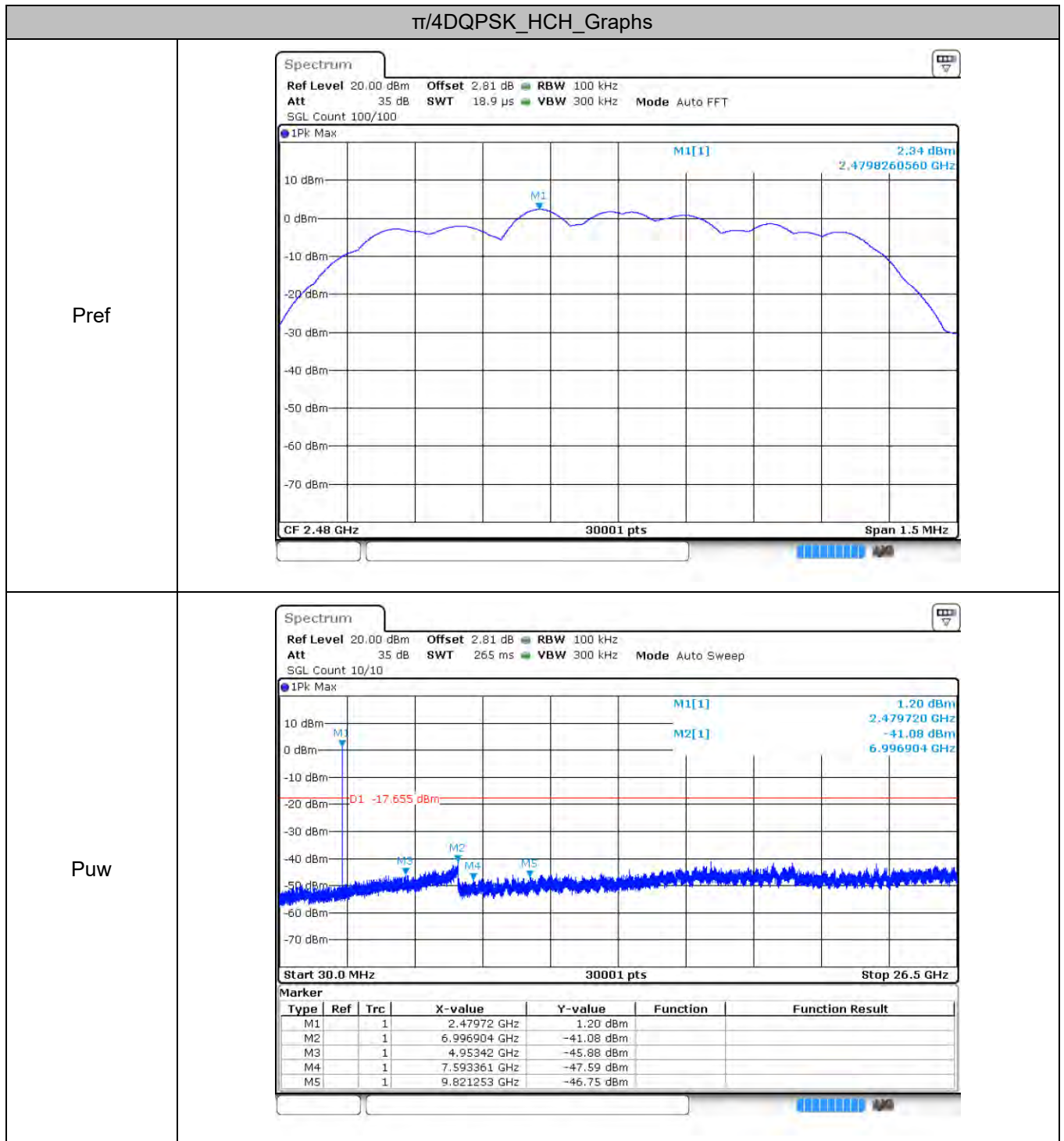
Pref



Puw

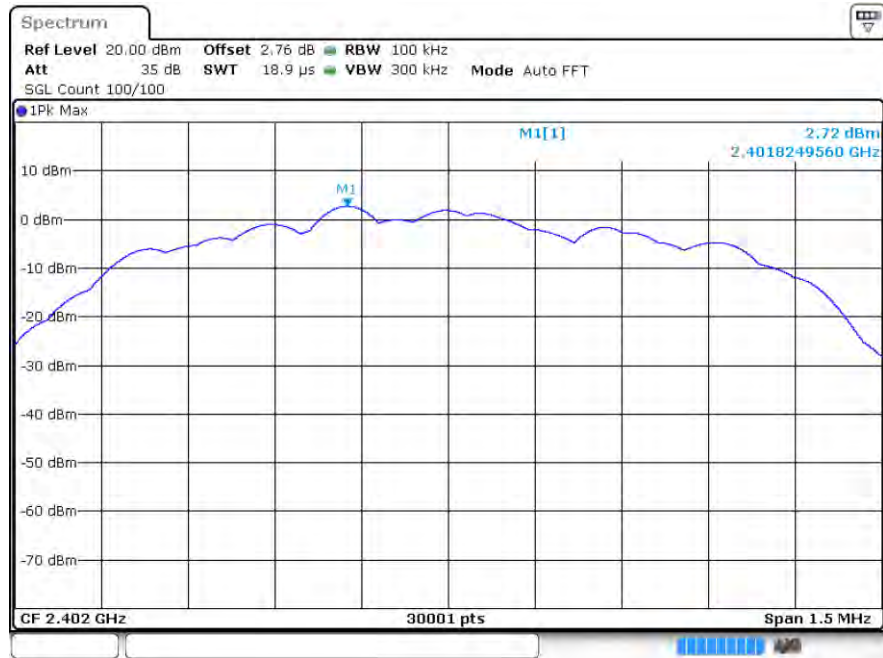




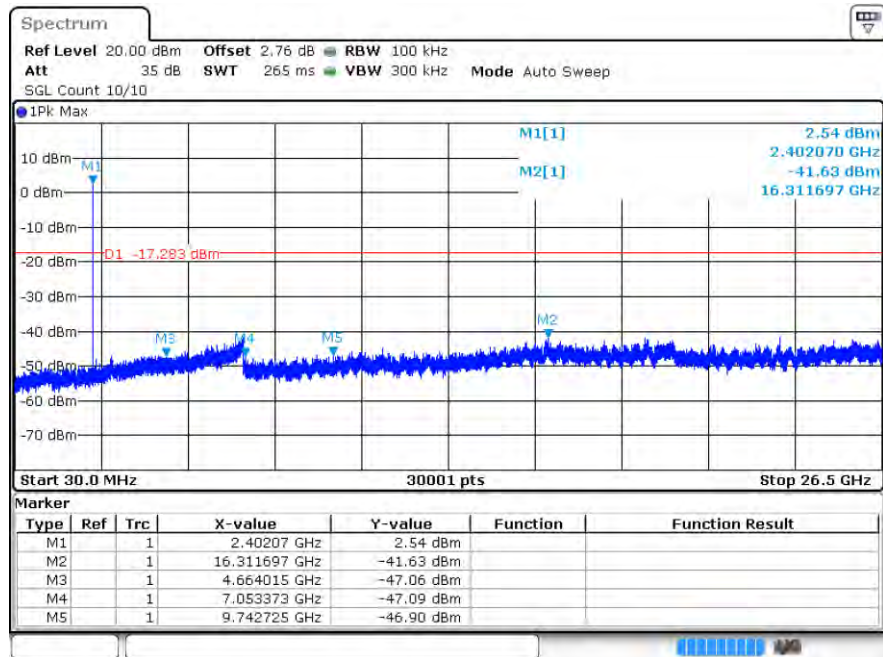


8DPSK_LCH_Graphs

Pref

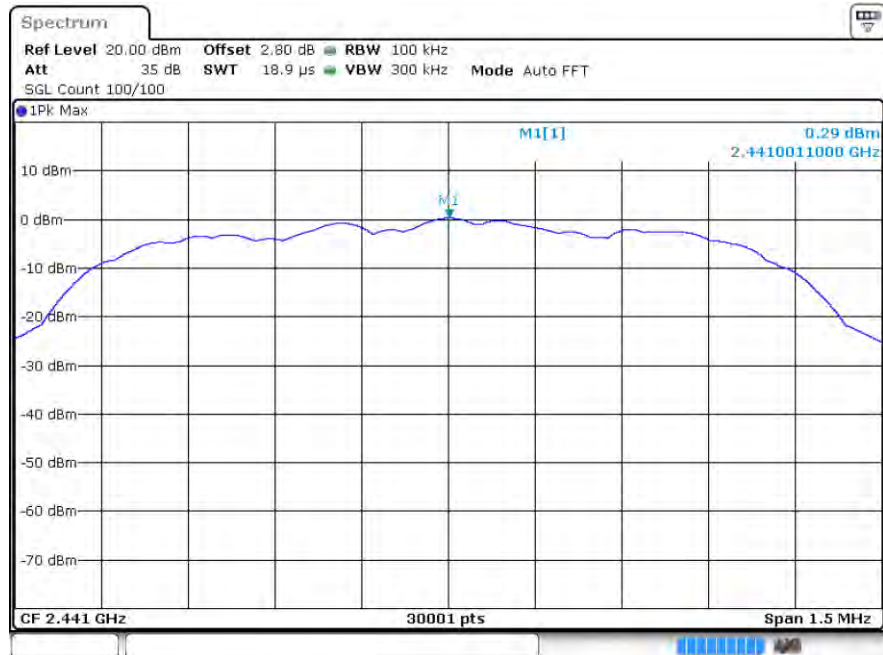


Puw

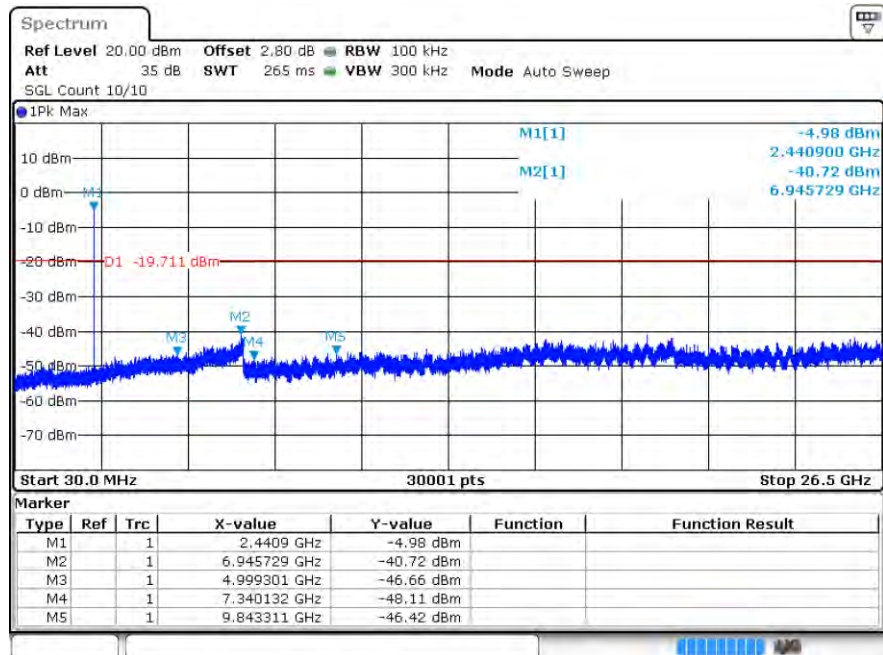


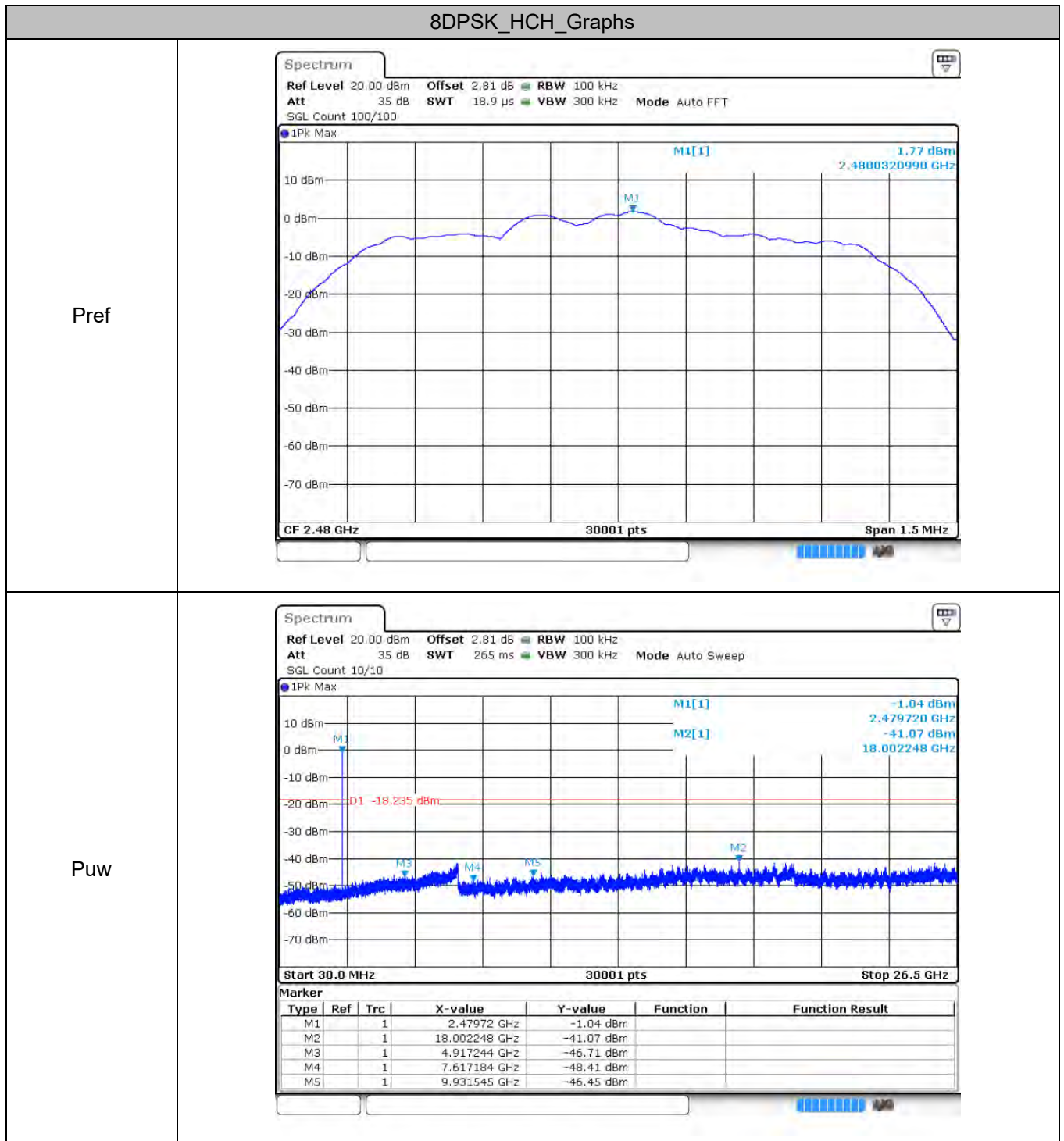
8DPSK_MCH_Graphs

Pref



Puw



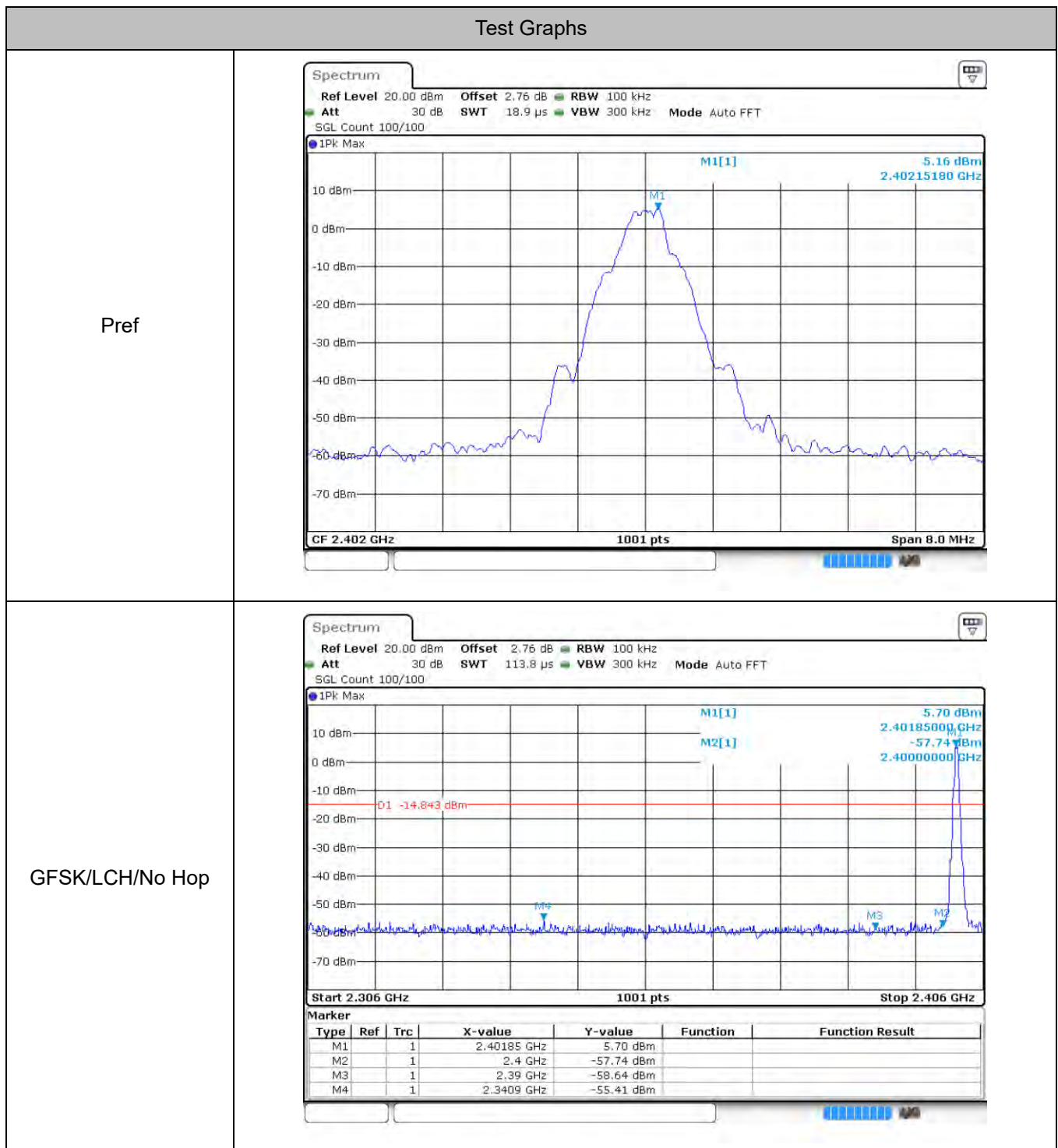


8 Band-edge for RF Conducted Emissions

8.1 Test Result

Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-60.56	-20	Pass
			On	-60.76	-20	Pass
	HCH	2480	Off	-59.66	-20	Pass
			On	-58.81	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-57.72	-20	Pass
			On	-57.75	-20	Pass
	HCH	2480	Off	-58.3	-20	Pass
			On	-57.32	-20	Pass
8DPSK	LCH	2402	Off	-58.58	-20	Pass
			On	-58.16	-20	Pass
	HCH	2480	Off	-57.94	-20	Pass
			On	-56.67	-20	Pass

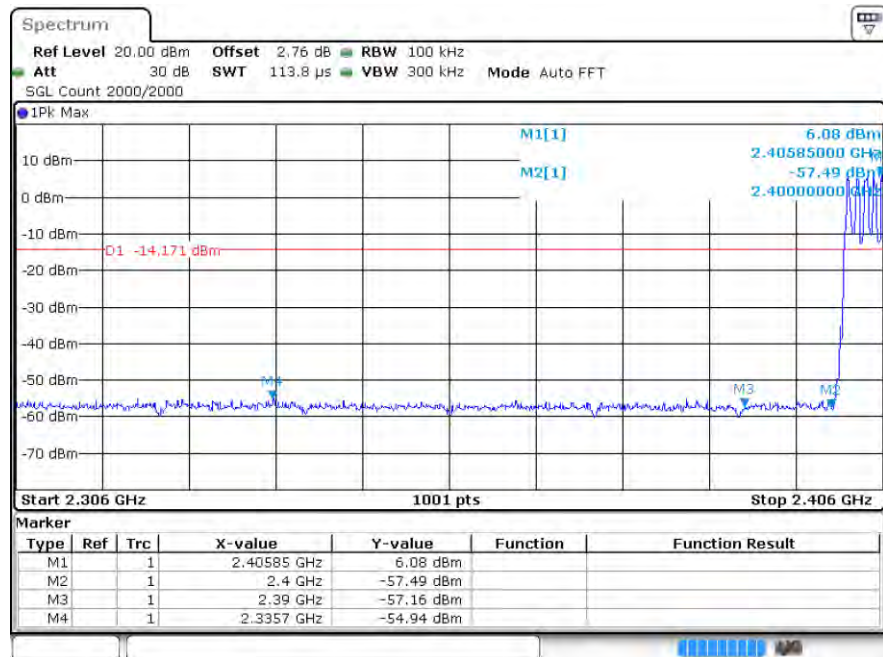
8.2 Test Graphs



Ref



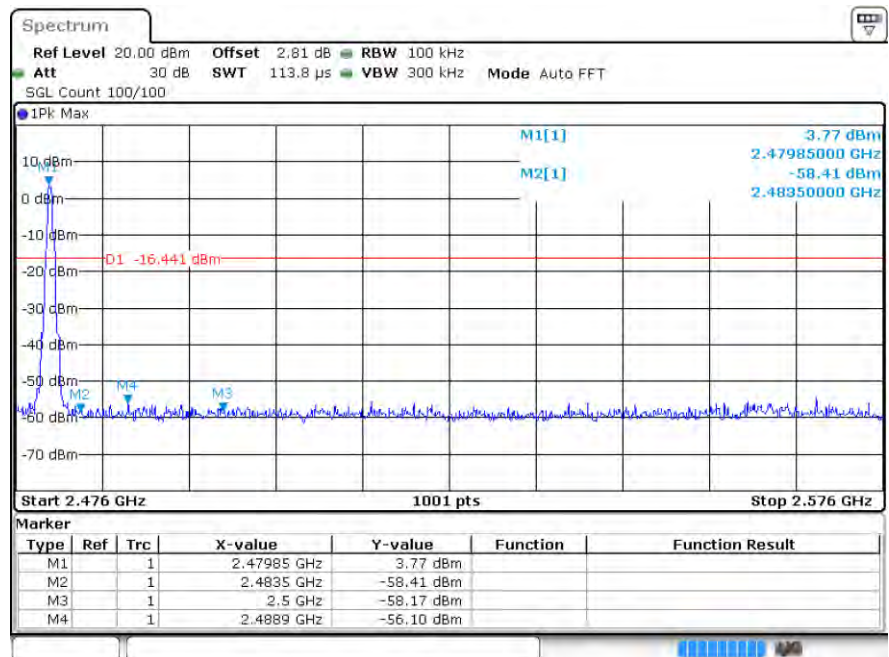
GFSK/LCH/Hop



Ref



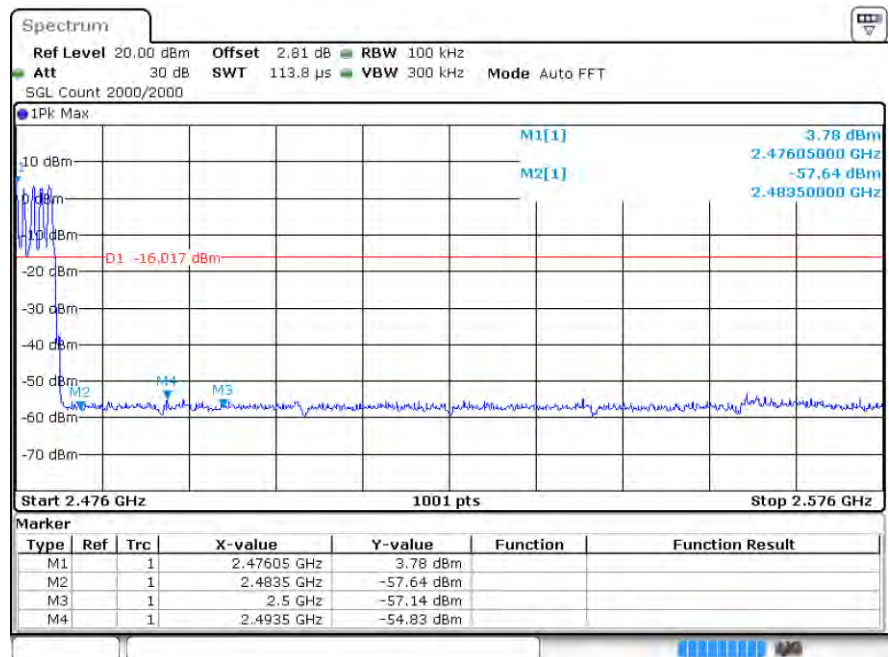
GFSK/HCH/No Hop



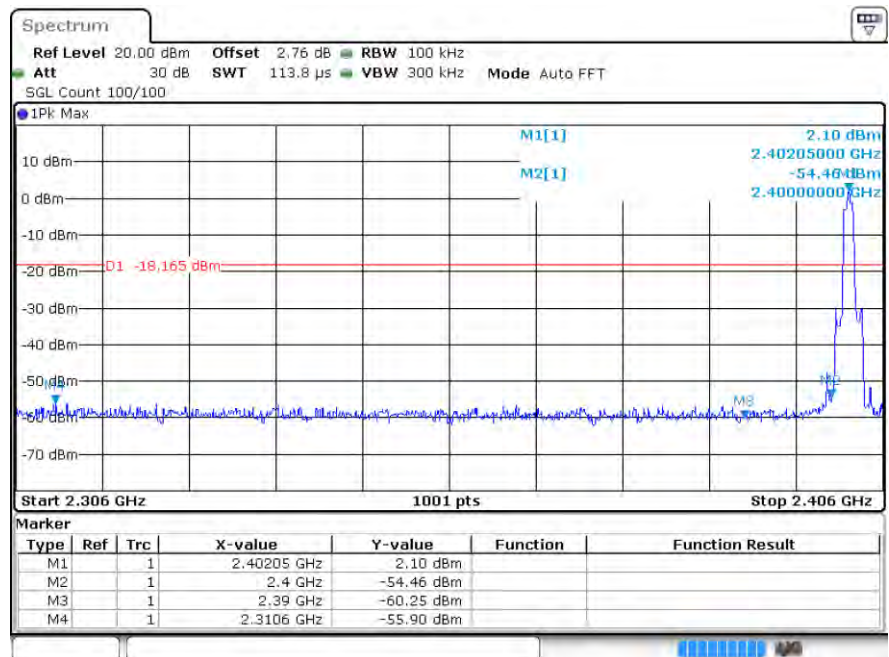
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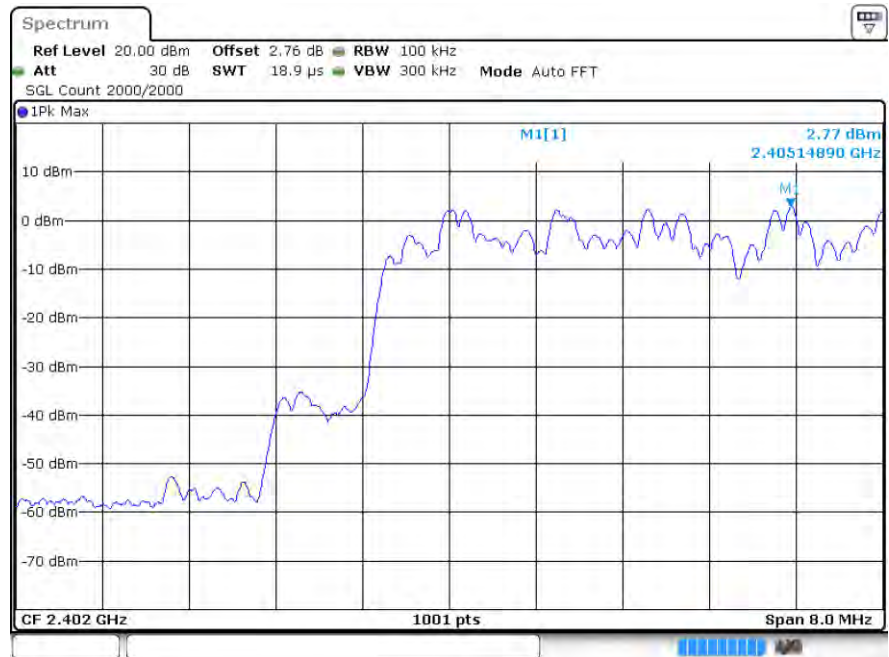
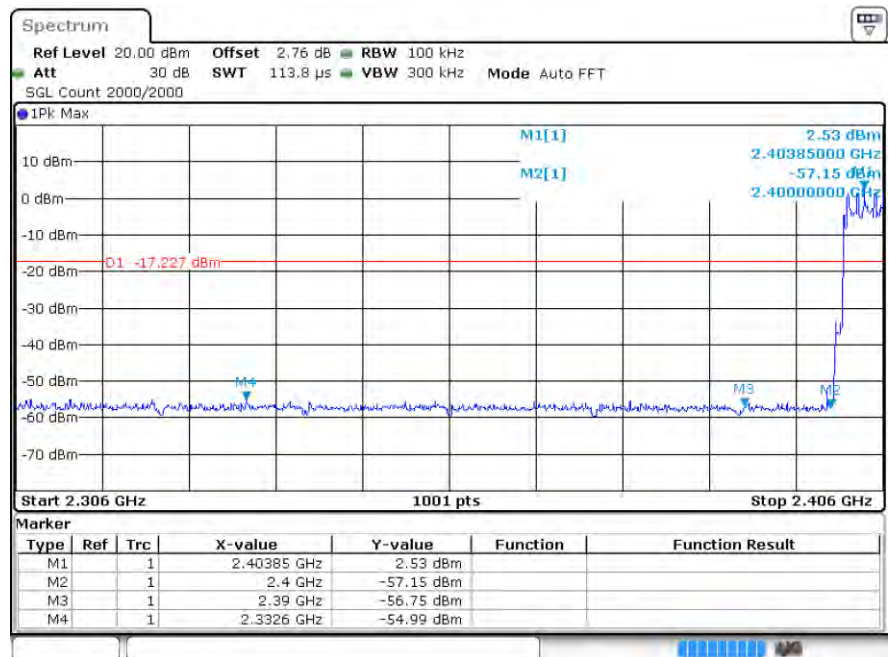
GFSK/HCH/Hop



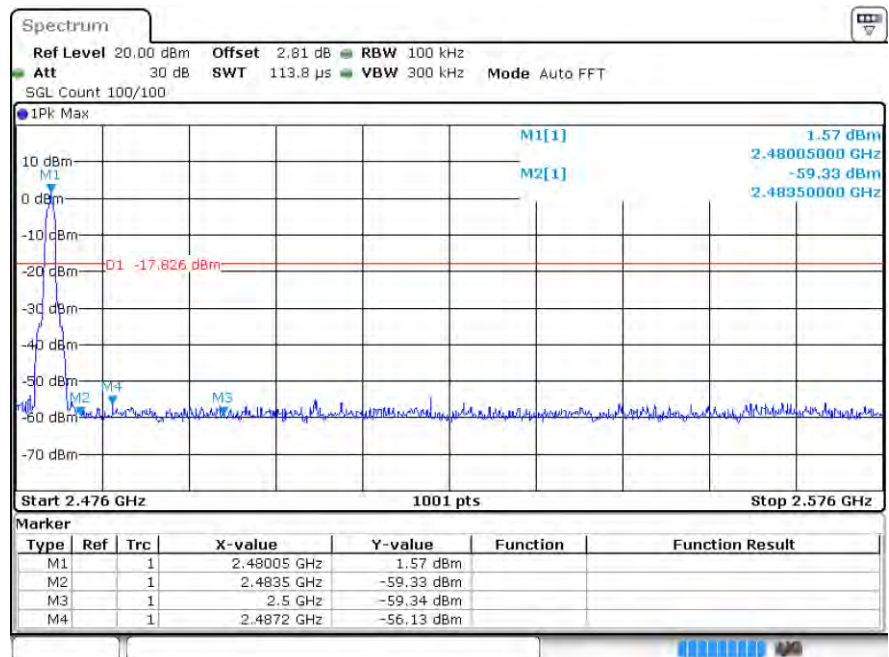
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 $\pi/4$ DQPSK/LCH/No
Hop


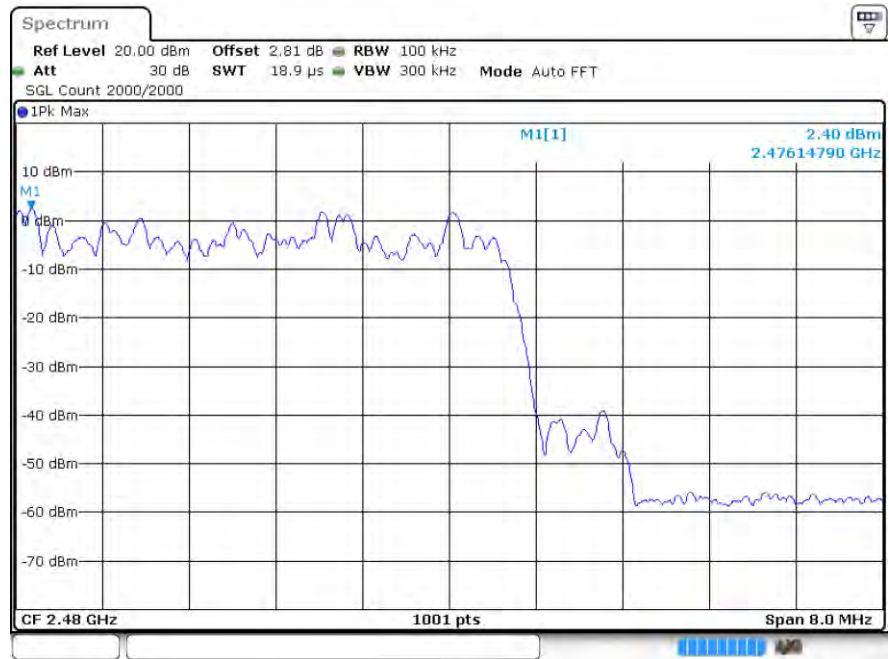
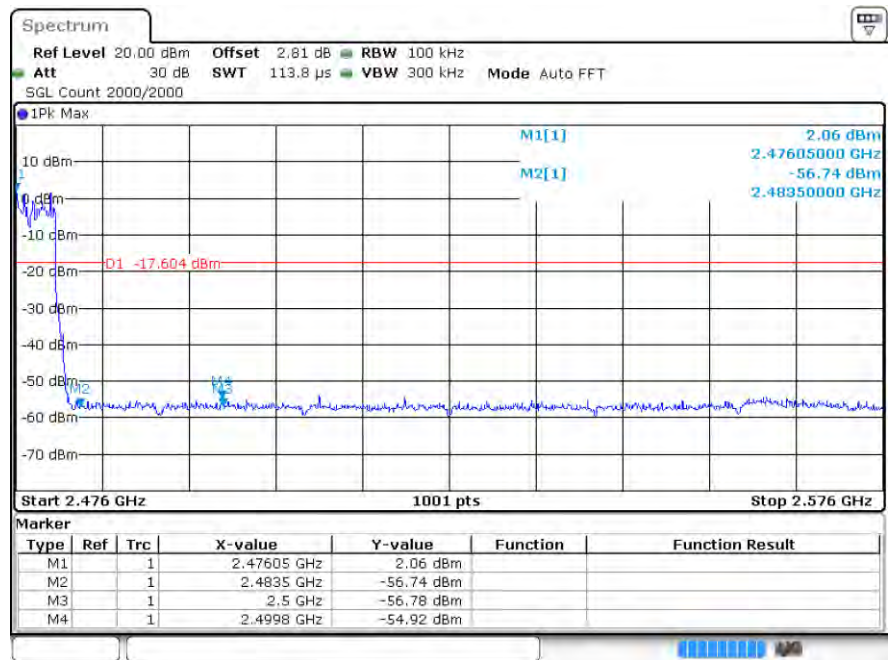
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 $\pi/4$ DQPSK/LCH/Hop


Ref


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


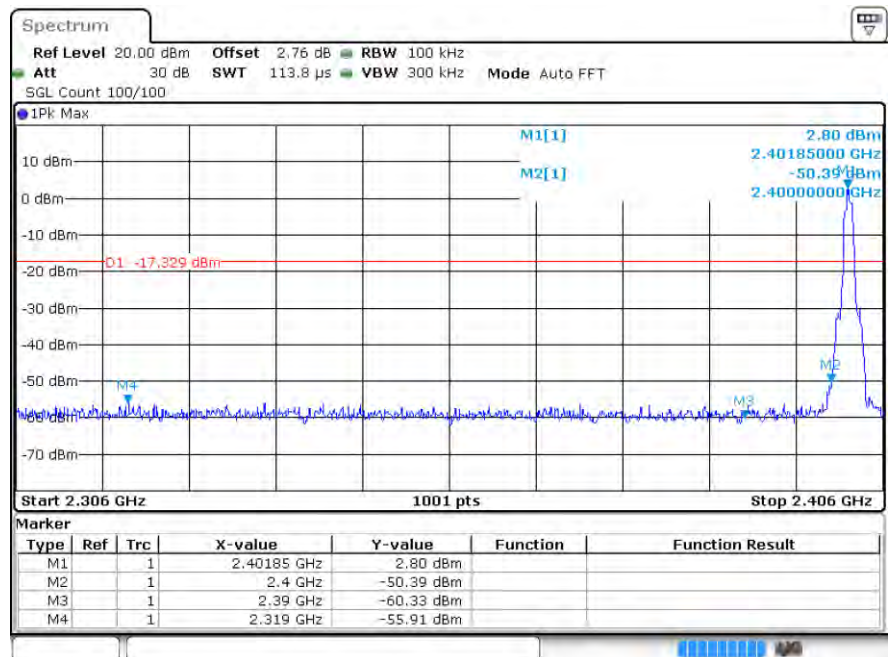
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 $\pi/4$ DQPSK/HCH/Hop


Ref



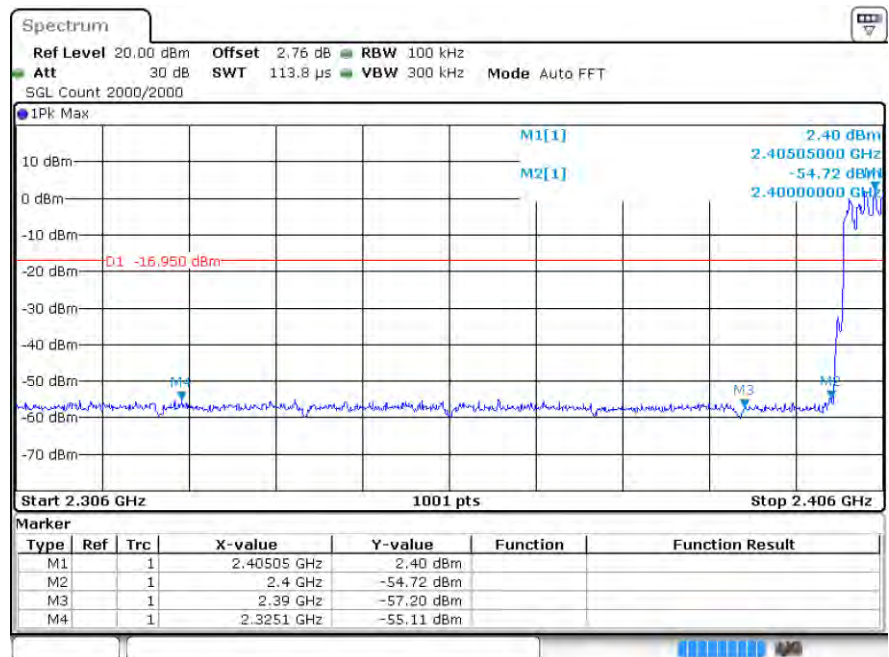
8DPSK/LCH/No Hop



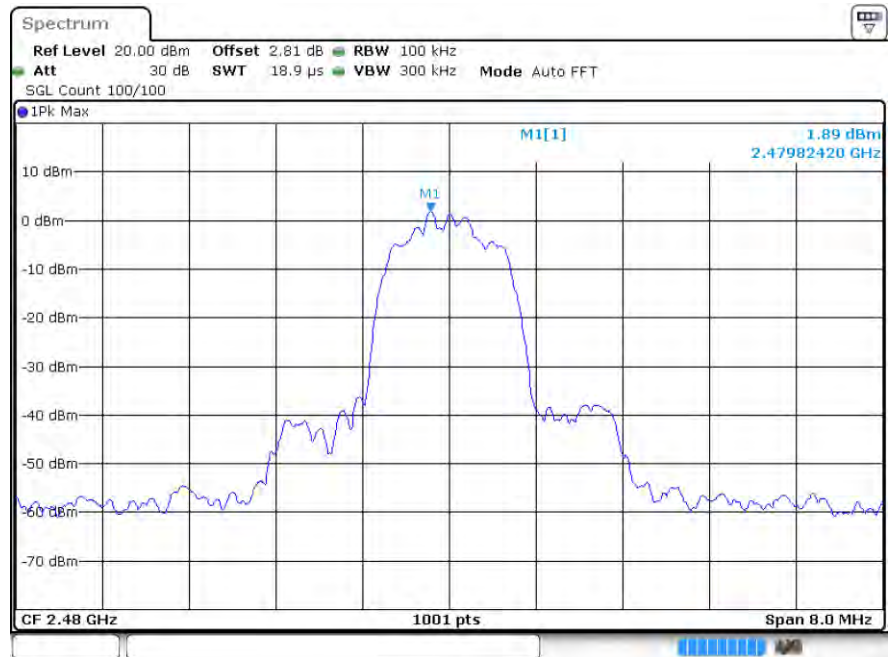
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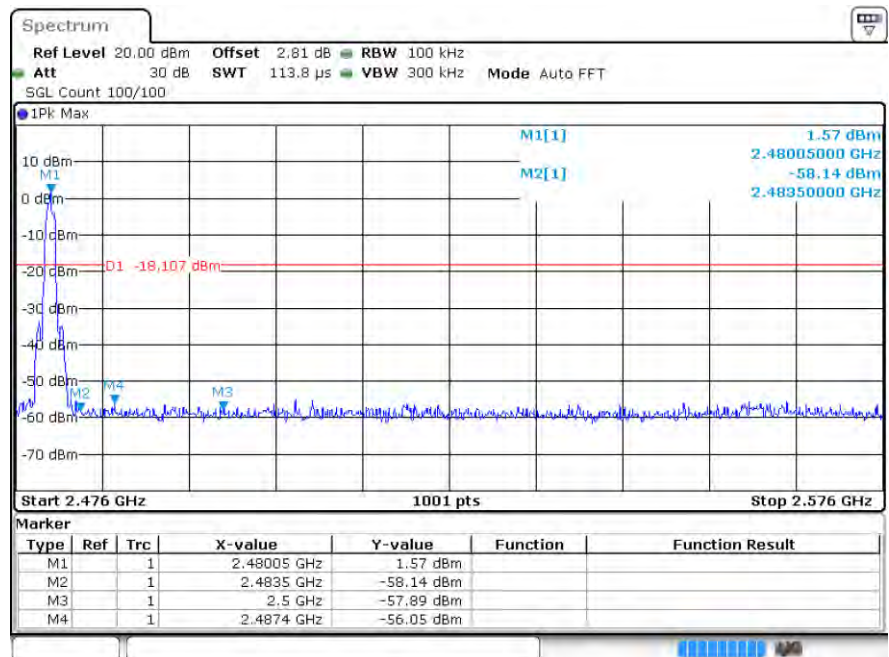
8DPSK/LCH/Hop



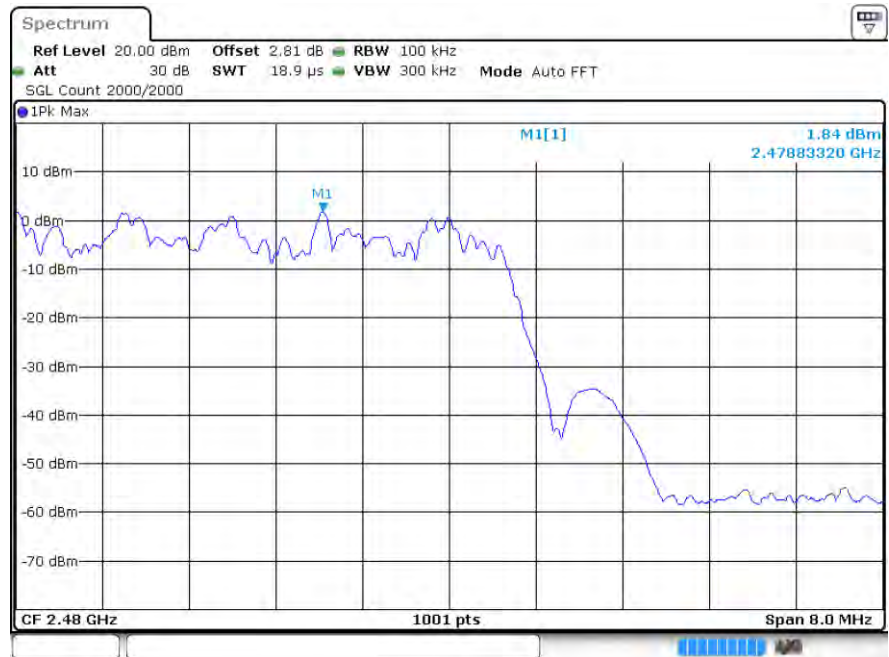
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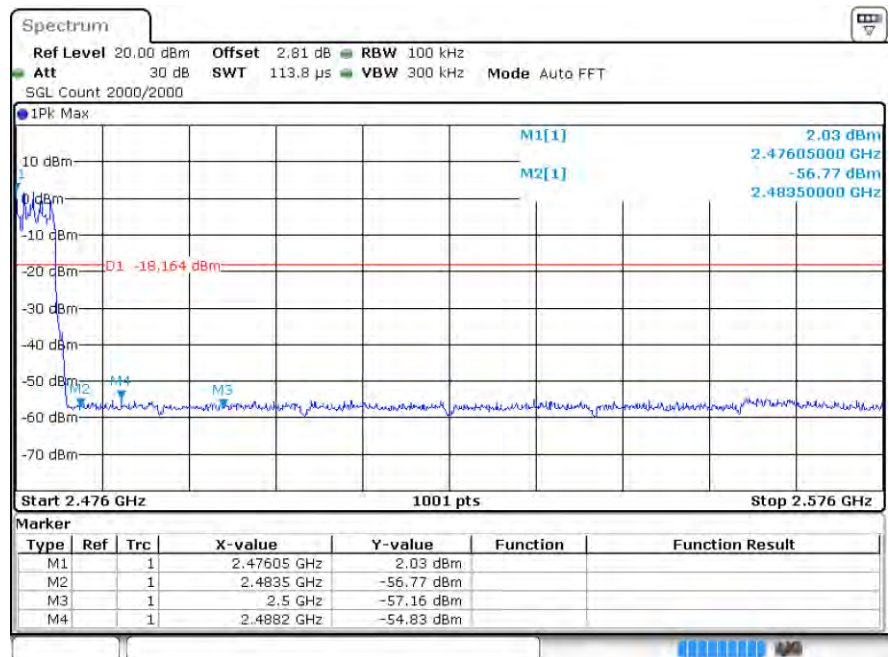
8DPSK/HCH/No Hop



Ref



8DPSK/HCH/Hop



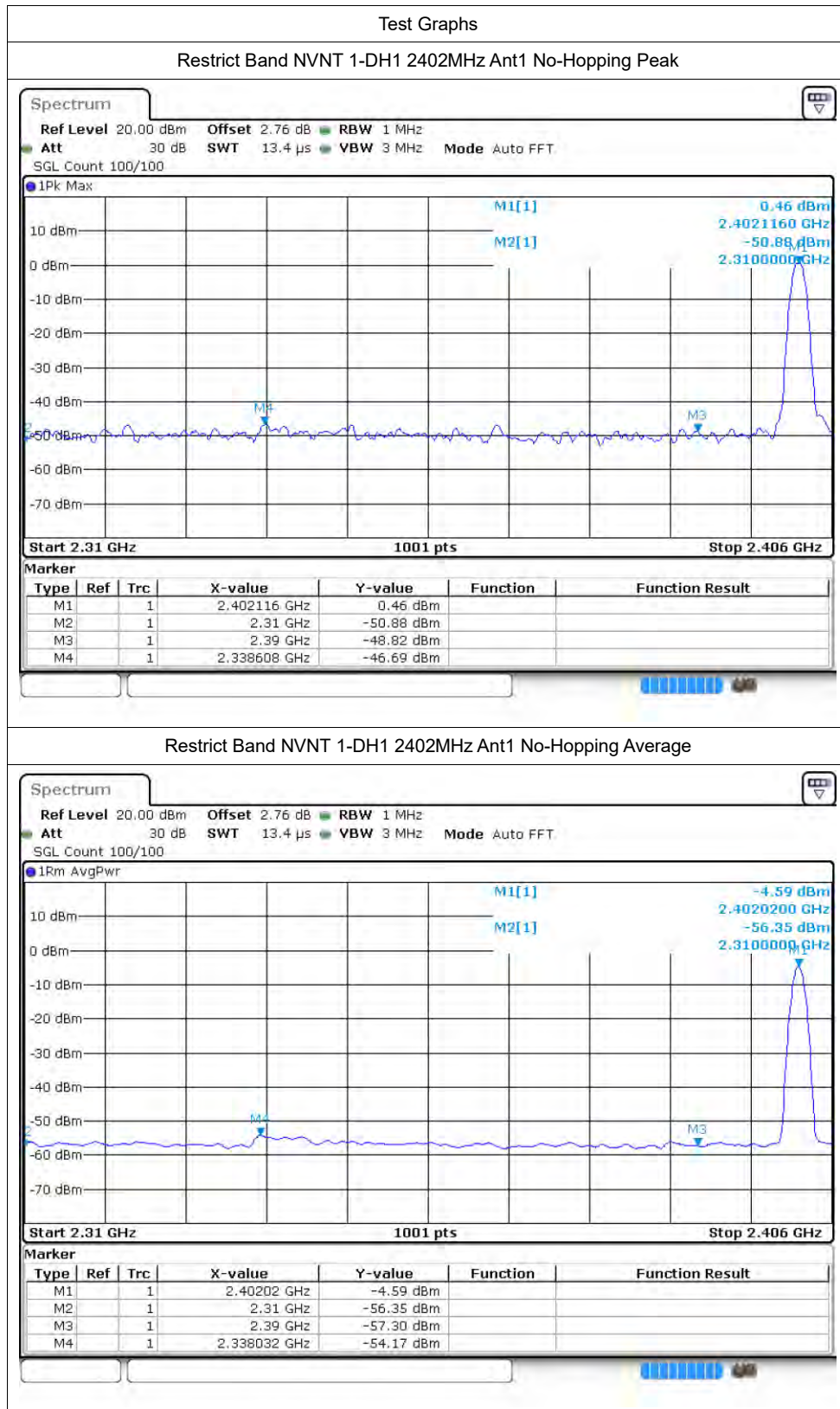
9 Restrict-band band-edge measurements

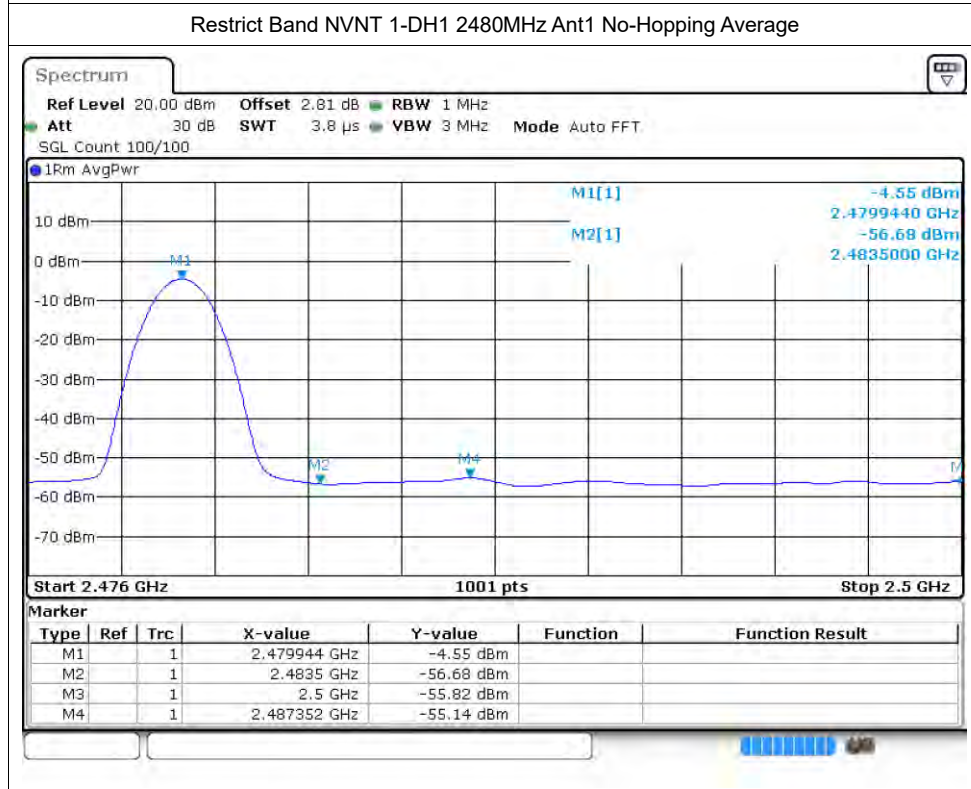
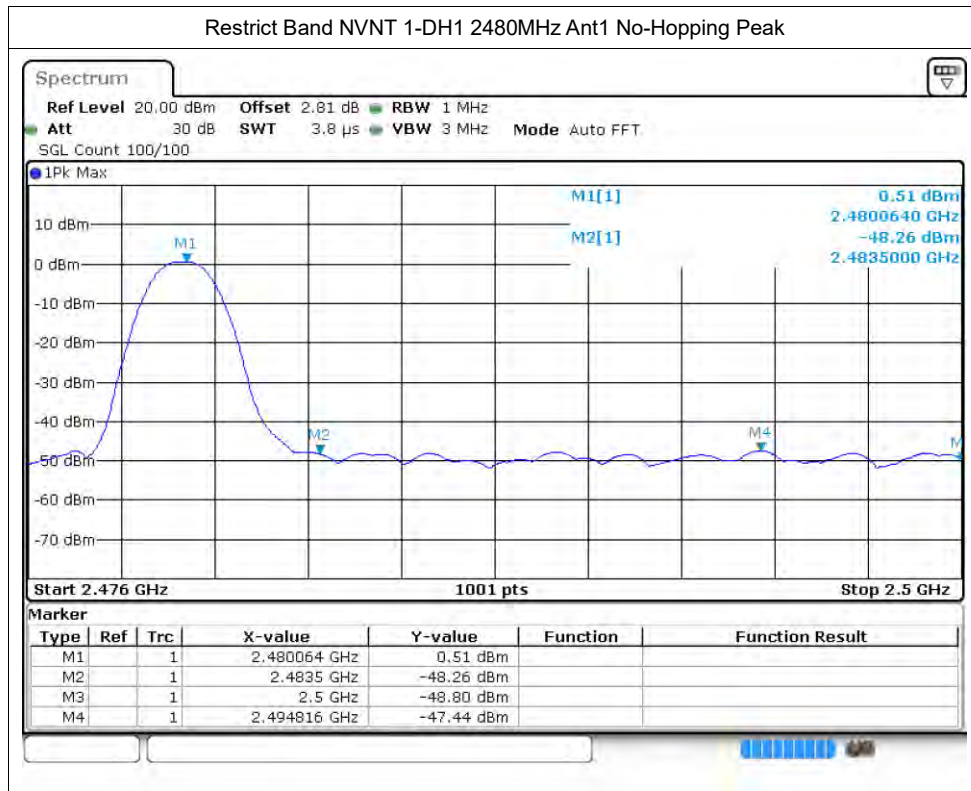
9.1 Test Result

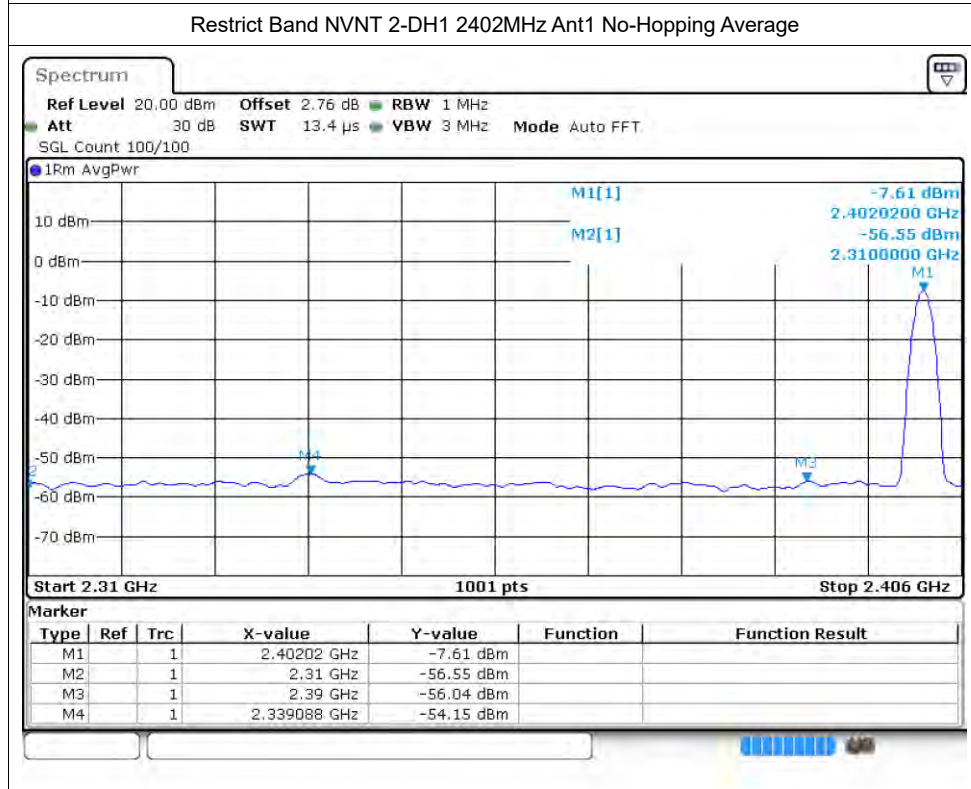
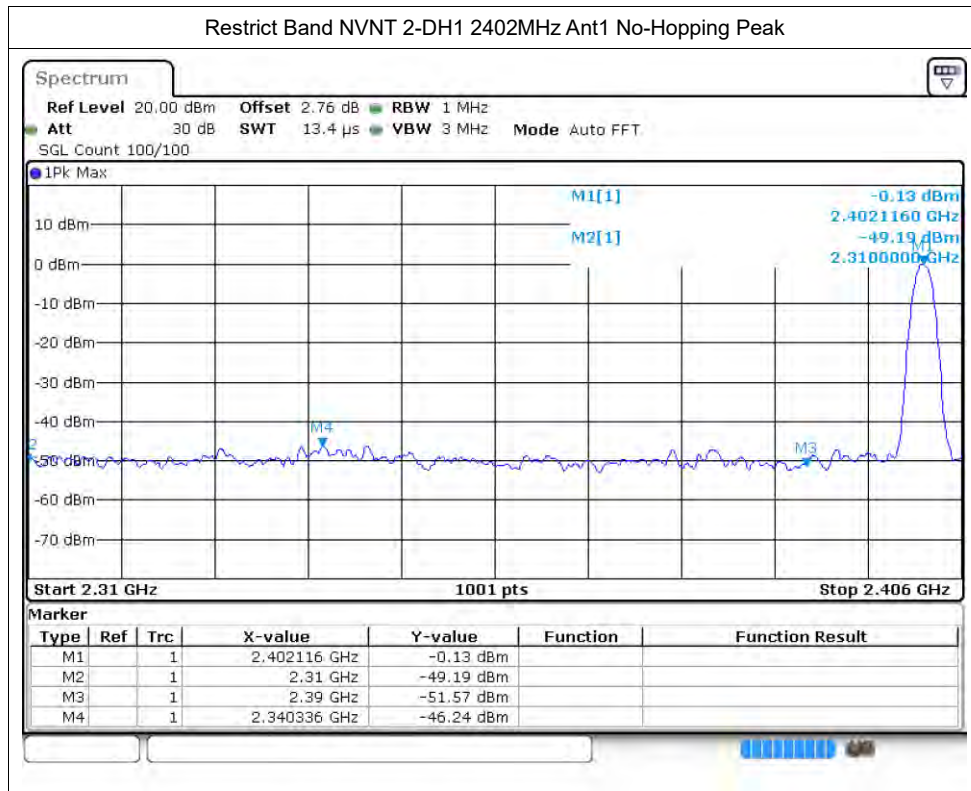
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-D H1	2402	Ant1	No-Hopping	2310	-50.88	2	-	46.38	Peak	74	Pass
NVNT	1-D H1	2402	Ant1	No-Hopping	2310	-56.35	2	4.84	40.91	Average	54	Pass
NVNT	1-D H1	2402	Ant1	No-Hopping	2338.608	-46.69	2	-	50.57	Peak	74	Pass
NVNT	1-D H1	2402	Ant1	No-Hopping	2338.032	-54.17	2	4.84	43.09	Average	54	Pass
NVNT	1-D H1	2402	Ant1	No-Hopping	2390	-48.82	2	-	48.44	Peak	74	Pass
NVNT	1-D H1	2402	Ant1	No-Hopping	2390	-57.3	2	4.84	39.96	Average	54	Pass
NVNT	1-D H1	2480	Ant1	No-Hopping	2483.5	-48.26	2	-	49	Peak	74	Pass
NVNT	1-D H1	2480	Ant1	No-Hopping	2483.5	-56.68	2	4.84	40.58	Average	54	Pass
NVNT	1-D H1	2480	Ant1	No-Hopping	2494.816	-47.43	2	-	49.83	Peak	74	Pass
NVNT	1-D H1	2480	Ant1	No-Hopping	2487.352	-55.13	2	4.84	42.13	Average	54	Pass
NVNT	1-D H1	2480	Ant1	No-Hopping	2500	-48.8	2	-	48.46	Peak	74	Pass
NVNT	1-D H1	2480	Ant1	No-Hopping	2500	-55.82	2	4.84	41.44	Average	54	Pass
NVNT	2-D H1	2402	Ant1	No-Hopping	2310	-49.19	2	-	48.07	Peak	74	Pass
NVNT	2-D H1	2402	Ant1	No-Hopping	2310	-56.55	2	4.95	40.71	Average	54	Pass
NVNT	2-D H1	2402	Ant1	No-Hopping	2340.336	-46.23	2	-	51.03	Peak	74	Pass
NVNT	2-D H1	2402	Ant1	No-Hopping	2339.088	-54.14	2	4.95	43.12	Average	54	Pass
NVNT	2-D H1	2402	Ant1	No-Hopping	2390	-51.57	2	-	45.69	Peak	74	Pass

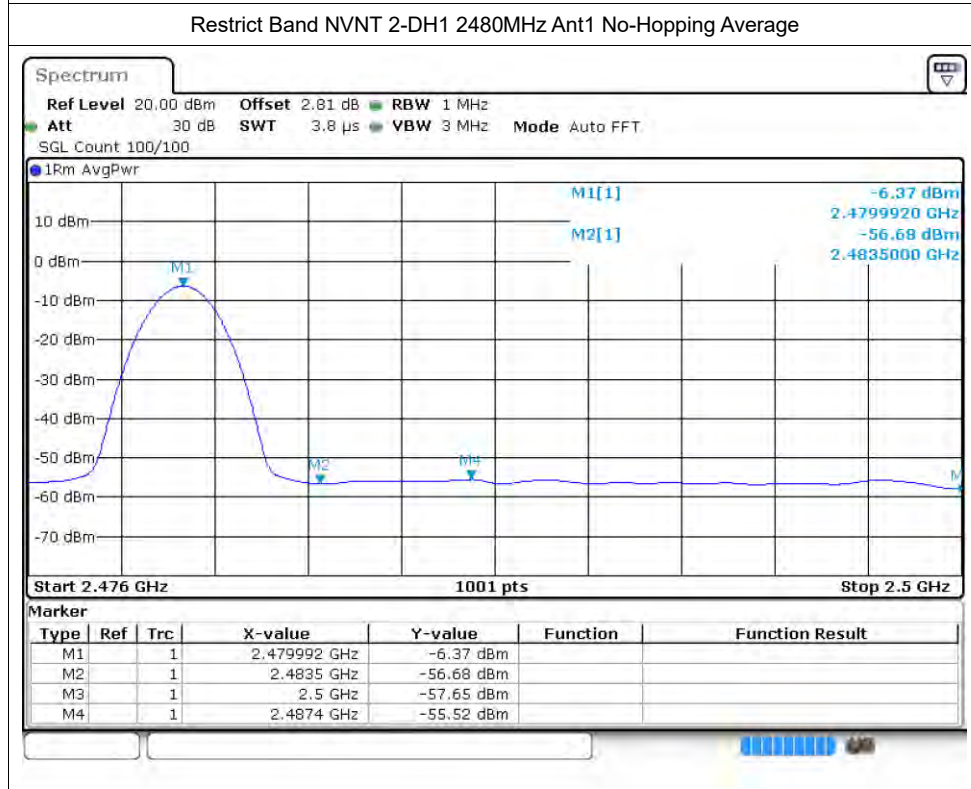
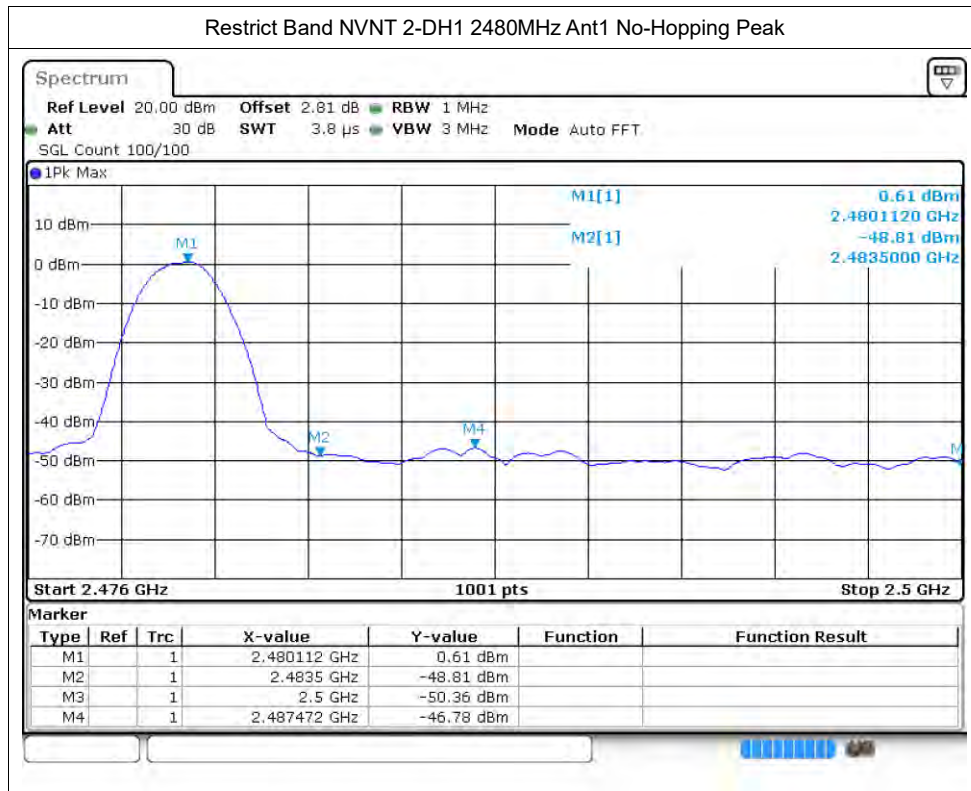
NVNT	2-D H1	2402	Ant1	No-Hop ping	2390	-56. 04	2	4.95	41.22	Avera ge	54	Pass
NVNT	2-D H1	2480	Ant1	No-Hop ping	2483. 5	-48. 81	2	-	48.45	Peak	74	Pass
NVNT	2-D H1	2480	Ant1	No-Hop ping	2483. 5	-56. 68	2	4.95	40.58	Avera ge	54	Pass
NVNT	2-D H1	2480	Ant1	No-Hop ping	2487. 472	-46. 77	2	-	50.49	Peak	74	Pass
NVNT	2-D H1	2480	Ant1	No-Hop ping	2487. 4	-55. 51	2	4.95	41.75	Avera ge	54	Pass
NVNT	2-D H1	2480	Ant1	No-Hop ping	2500	-50. 36	2	-	46.9	Peak	74	Pass
NVNT	2-D H1	2480	Ant1	No-Hop ping	2500	-57. 65	2	4.95	39.61	Avera ge	54	Pass
NVNT	3-D H1	2402	Ant1	No-Hop ping	2310	-50. 51	2	-	46.75	Peak	74	Pass
NVNT	3-D H1	2402	Ant1	No-Hop ping	2310	-57. 24	2	5.06	40.02	Avera ge	54	Pass
NVNT	3-D H1	2402	Ant1	No-Hop ping	2338. 416	-44. 99	2	-	52.27	Peak	74	Pass
NVNT	3-D H1	2402	Ant1	No-Hop ping	2344. 752	-54. 94	2	5.06	42.32	Avera ge	54	Pass
NVNT	3-D H1	2402	Ant1	No-Hop ping	2390	-49. 24	2	-	48.02	Peak	74	Pass
NVNT	3-D H1	2402	Ant1	No-Hop ping	2390	-56. 02	2	5.06	41.24	Avera ge	54	Pass
NVNT	3-D H1	2480	Ant1	No-Hop ping	2483. 5	-49. 48	2	-	47.78	Peak	74	Pass
NVNT	3-D H1	2480	Ant1	No-Hop ping	2483. 5	-56. 16	2	5.06	41.1	Avera ge	54	Pass
NVNT	3-D H1	2480	Ant1	No-Hop ping	2486. 656	-47. 3	2	-	49.96	Peak	74	Pass
NVNT	3-D H1	2480	Ant1	No-Hop ping	2490. 448	-55. 49	2	5.06	41.77	Avera ge	54	Pass
NVNT	3-D H1	2480	Ant1	No-Hop ping	2500	-49. 48	2	-	47.78	Peak	74	Pass
NVNT	3-D H1	2480	Ant1	No-Hop ping	2500	-56. 11	2	5.06	41.15	Avera ge	54	Pass

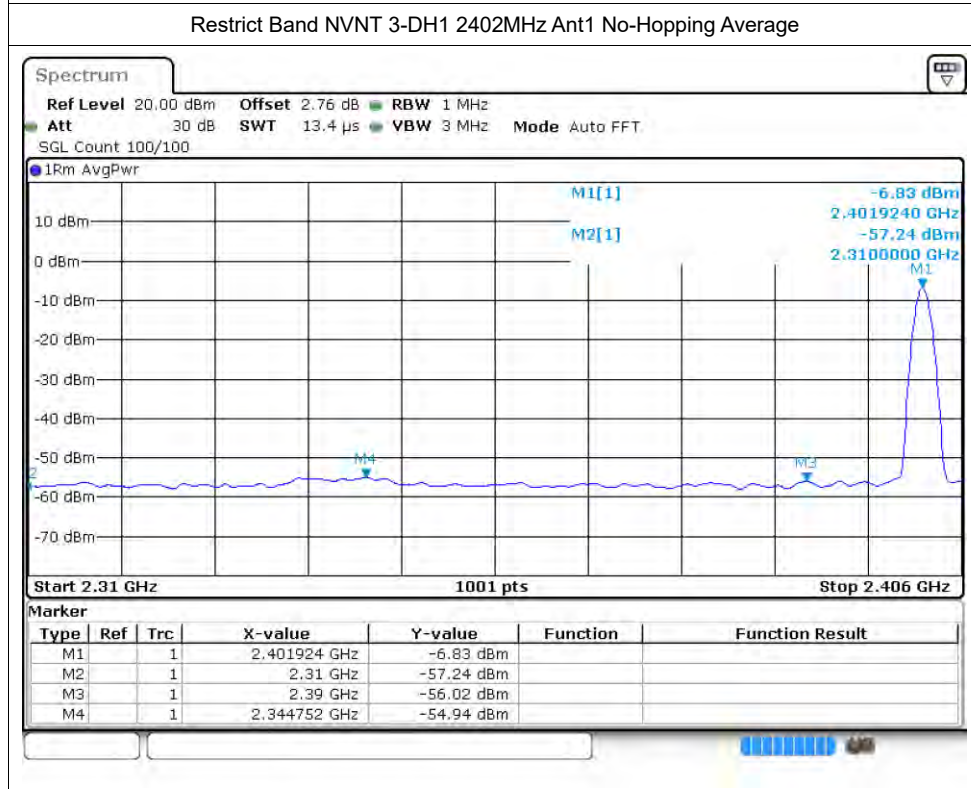
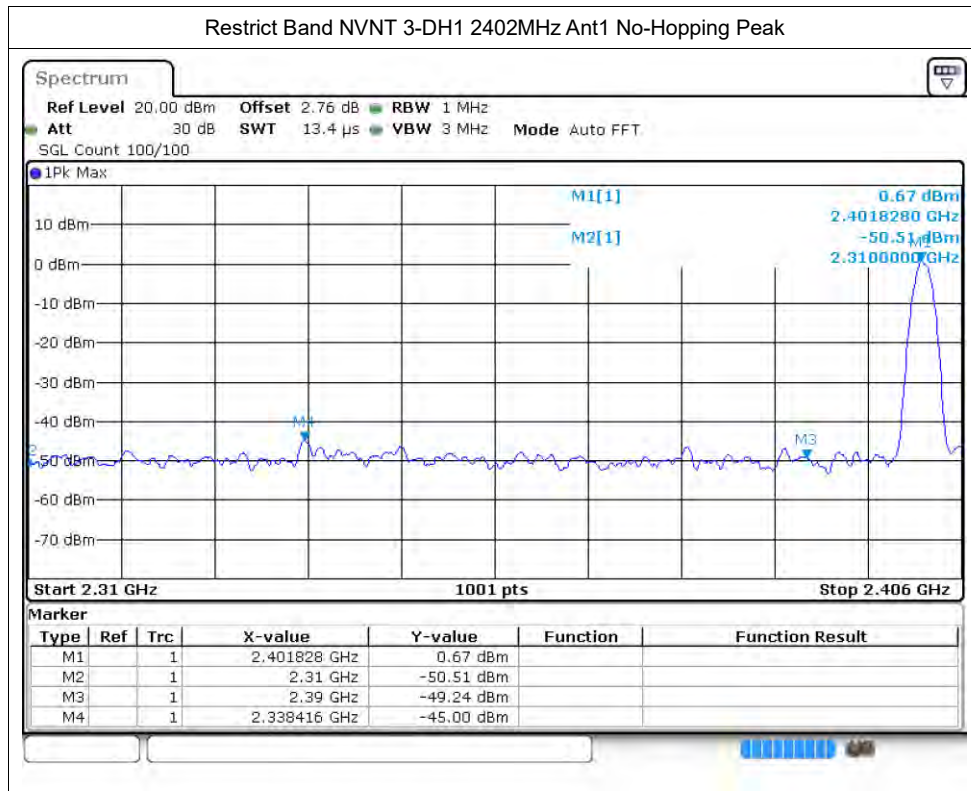
9.2 Test Graphs

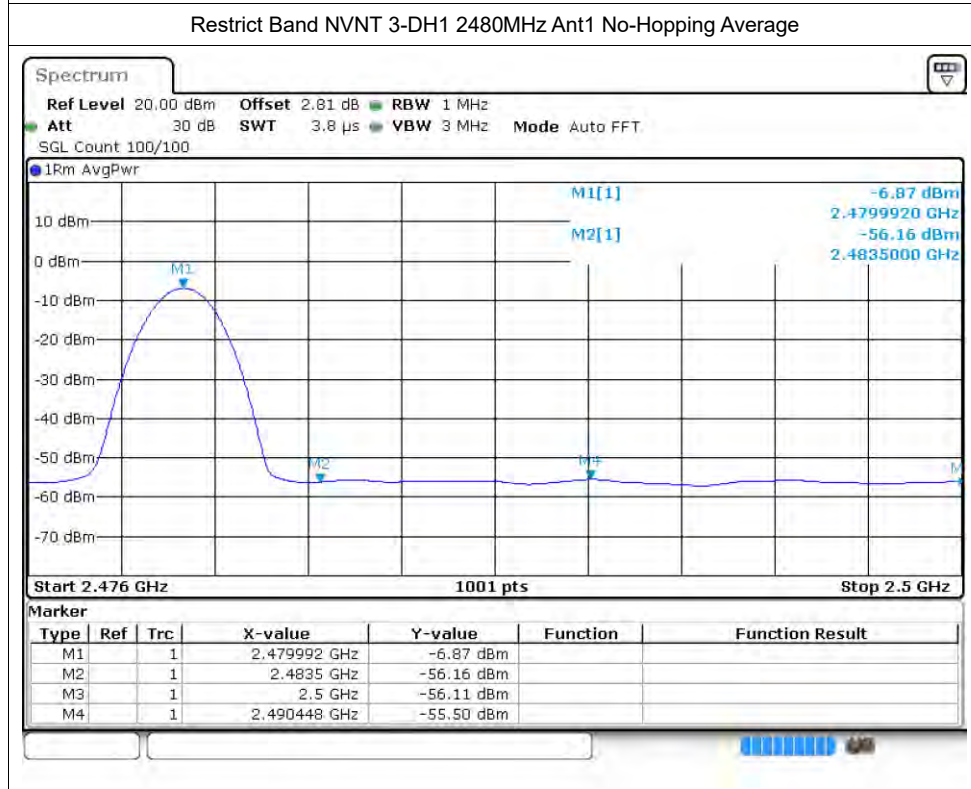
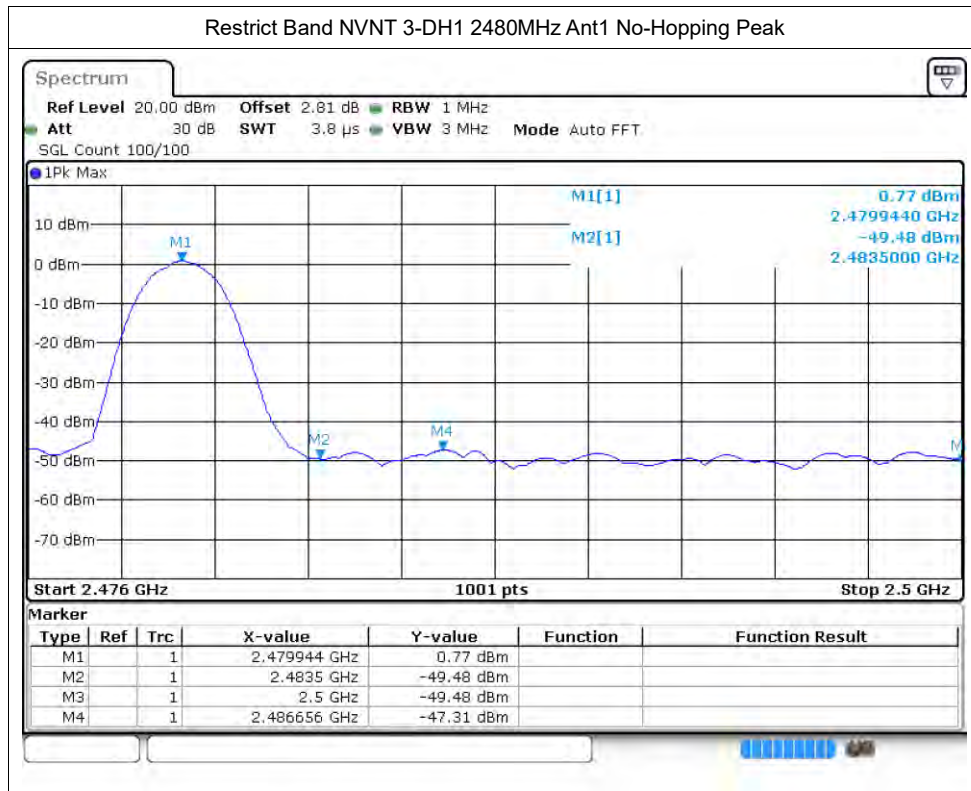












---The End---