



## Appendix A RF Test Data

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

Product Name: RF Wireless module

Trade Mark: INNOCN

Test Model: AW.S905D3.03

#### Environmental Conditions

Temperature:	25.4℃
Relative Humidity:	51.6%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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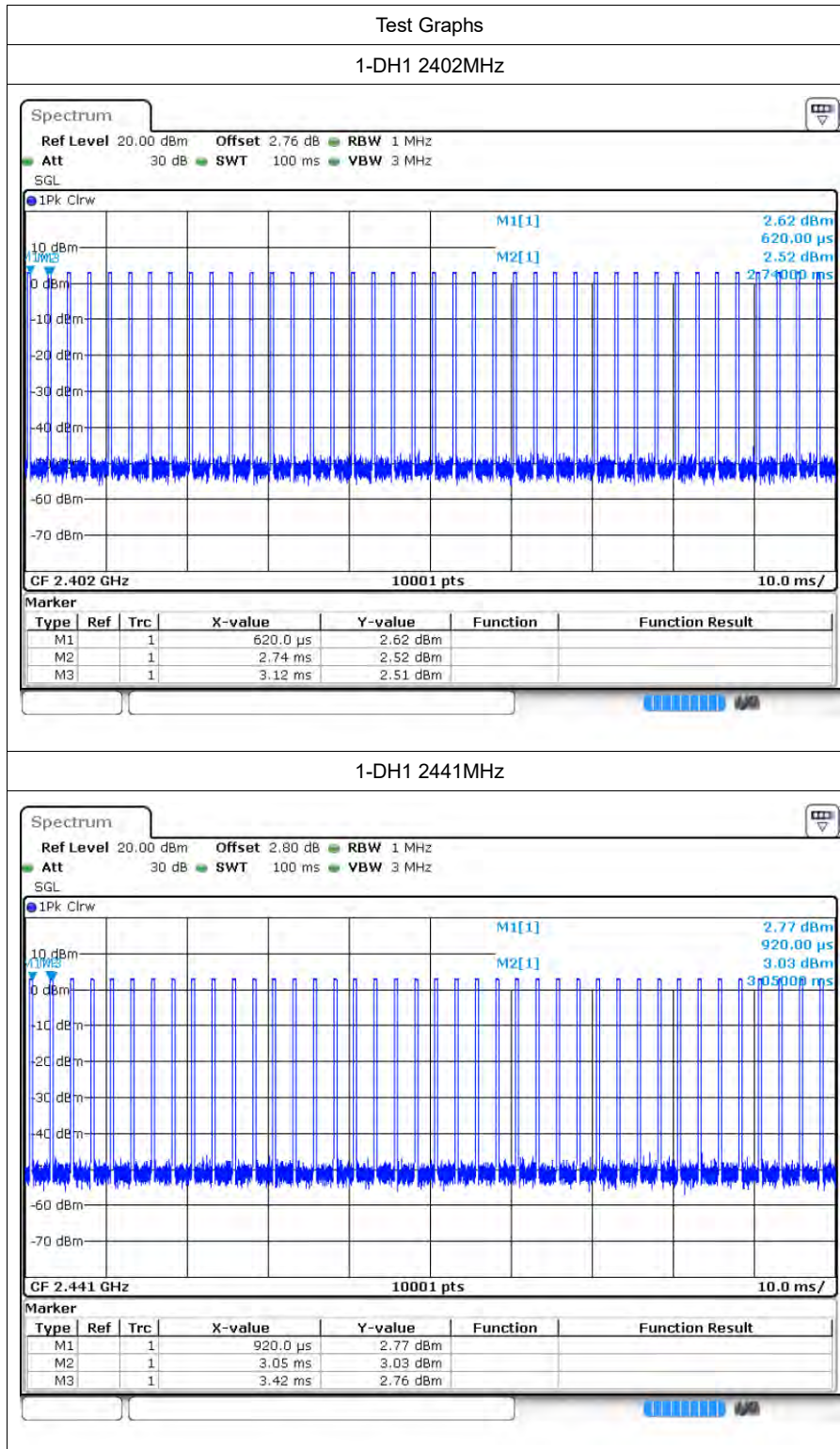
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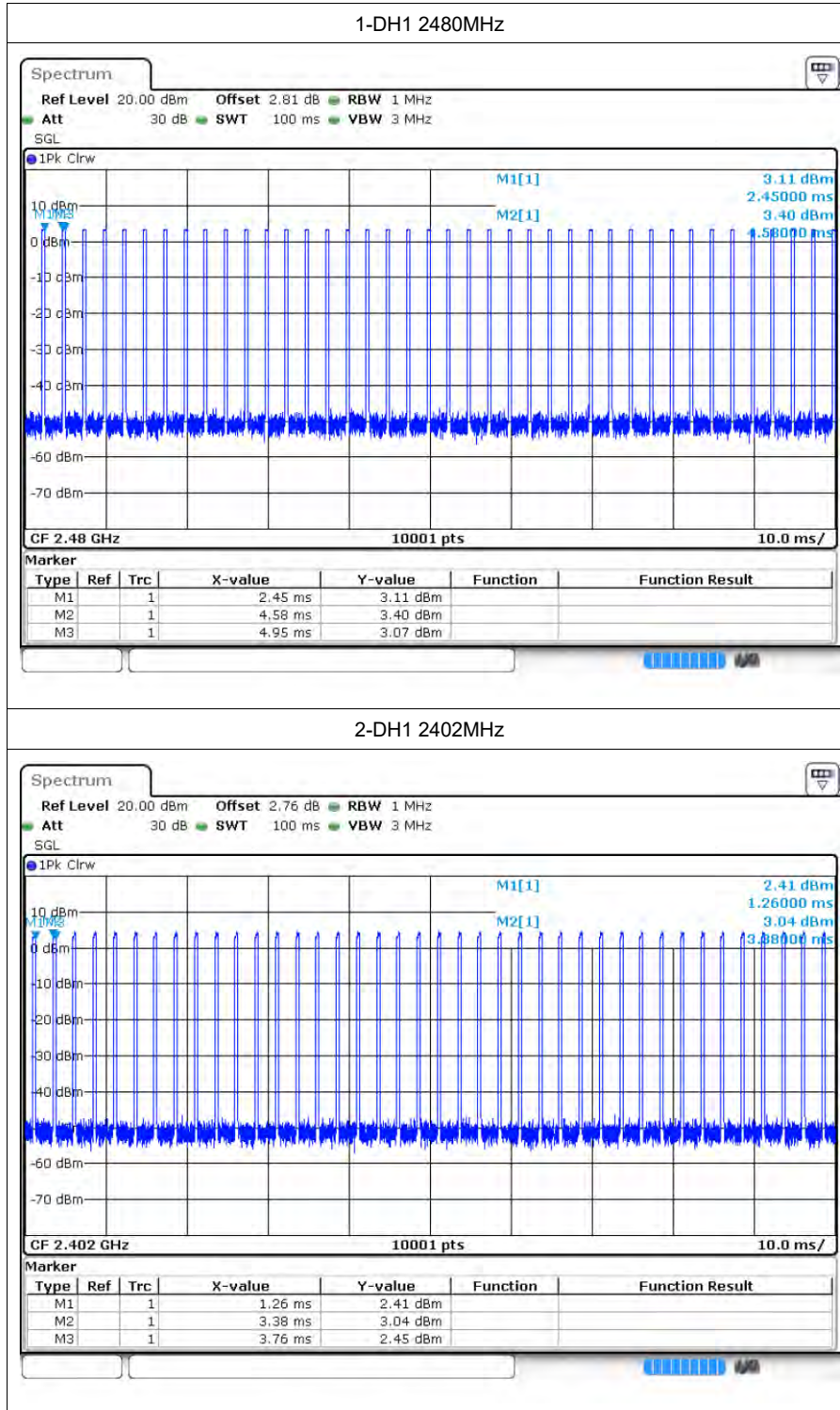
# 1 Duty Cycle

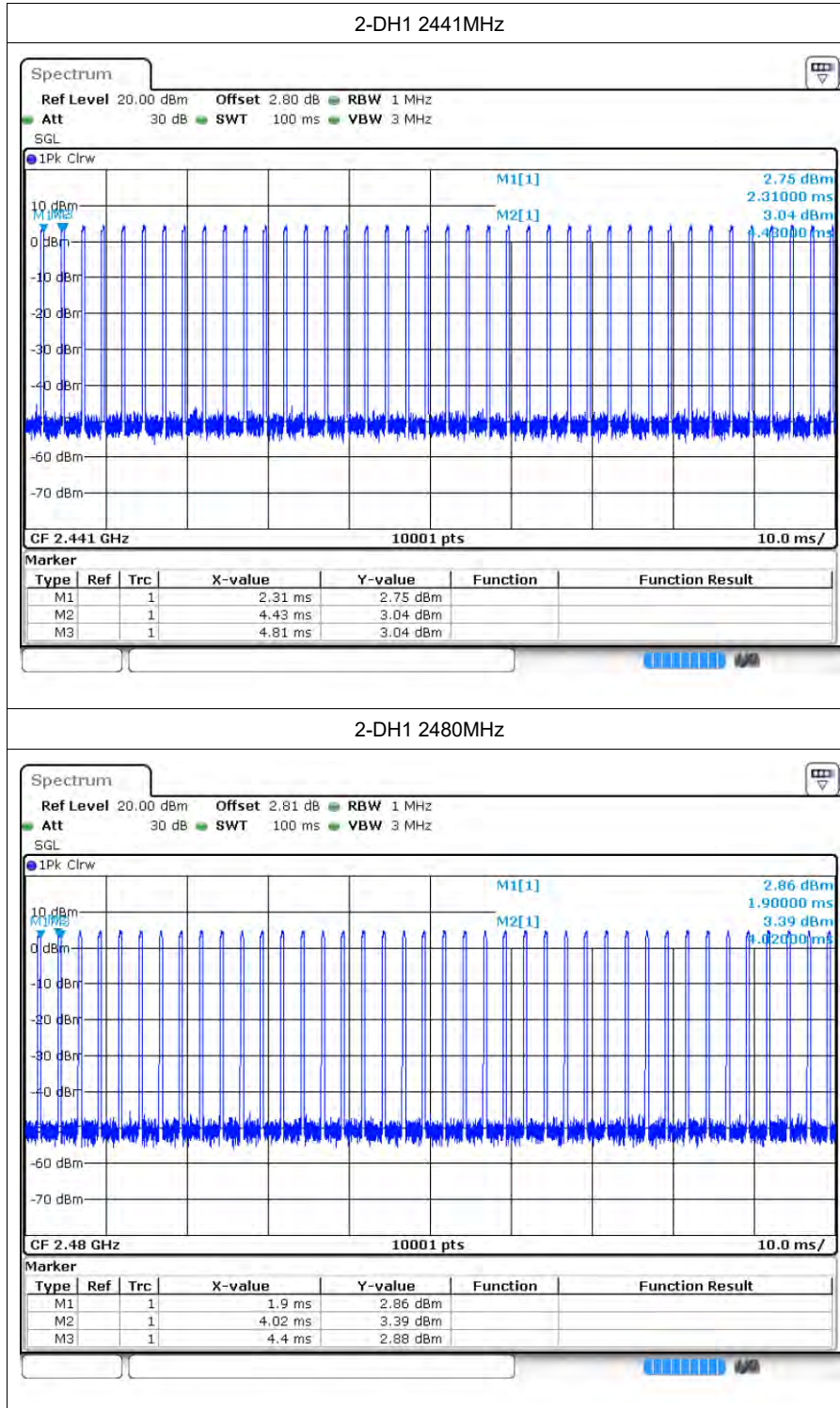
## 1.1 Test Result

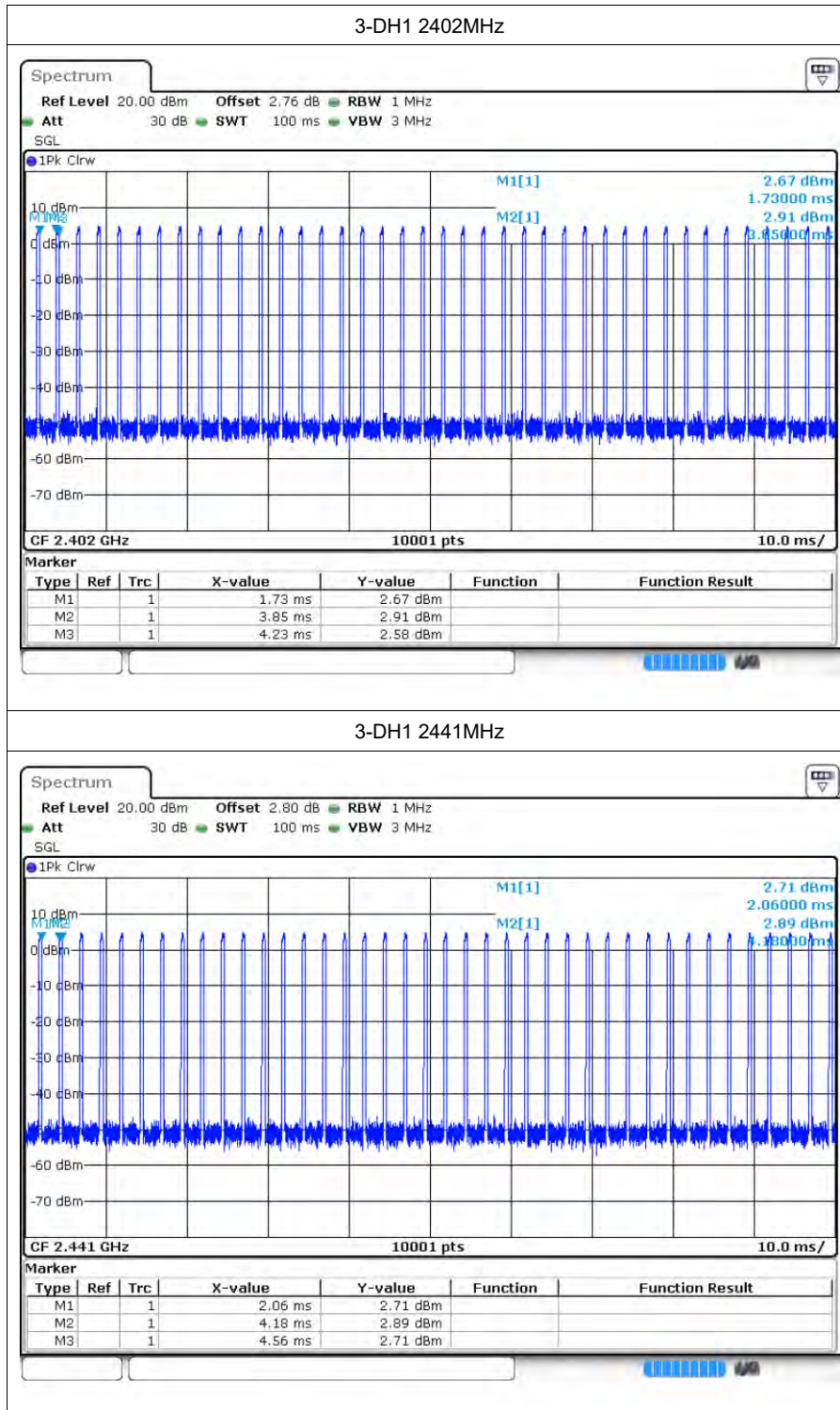
Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	15.6	2.63
1-DH1	2441	15.2	2.7
1-DH1	2480	15.2	2.7
2-DH1	2402	15.63	2.63
2-DH1	2441	15.6	2.63
2-DH1	2480	15.6	2.63
3-DH1	2402	15.6	2.63
3-DH1	2441	15.6	2.63
3-DH1	2480	16.01	2.56

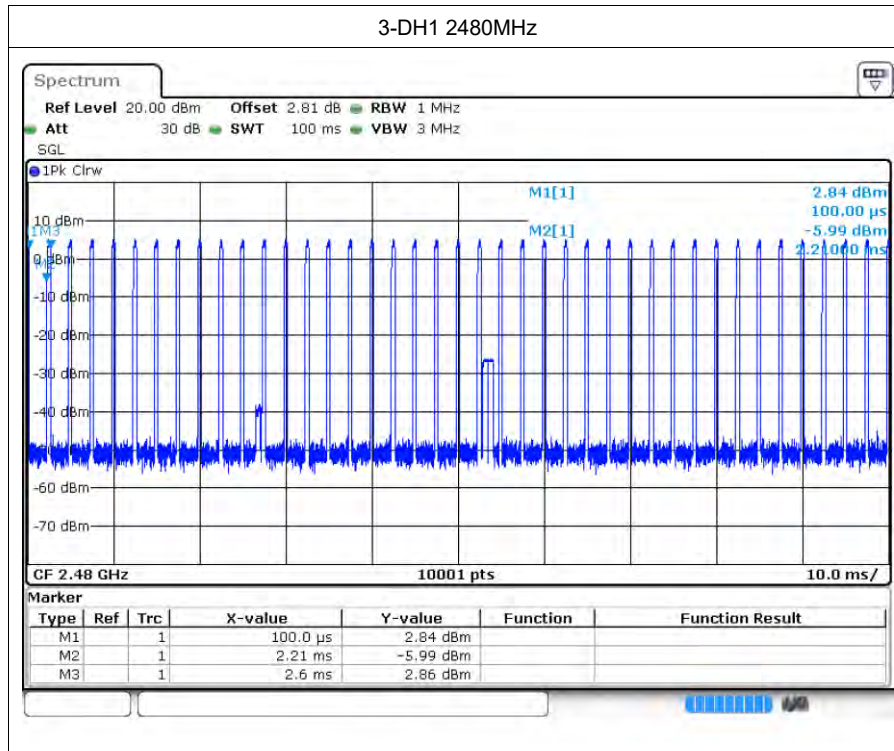
## 1.2 Test Graphs











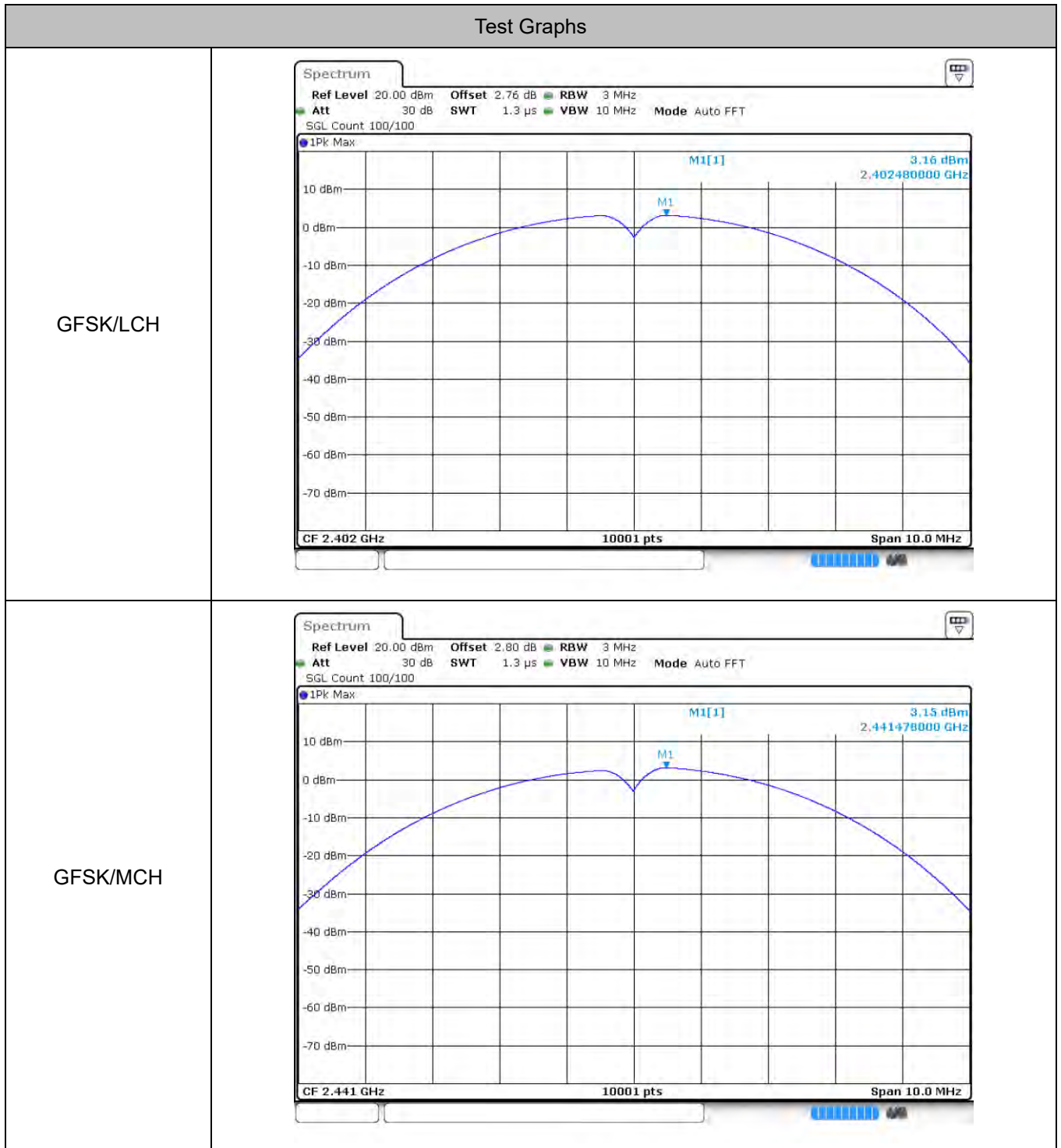


## 2 Maximum Conducted Peak Output Power

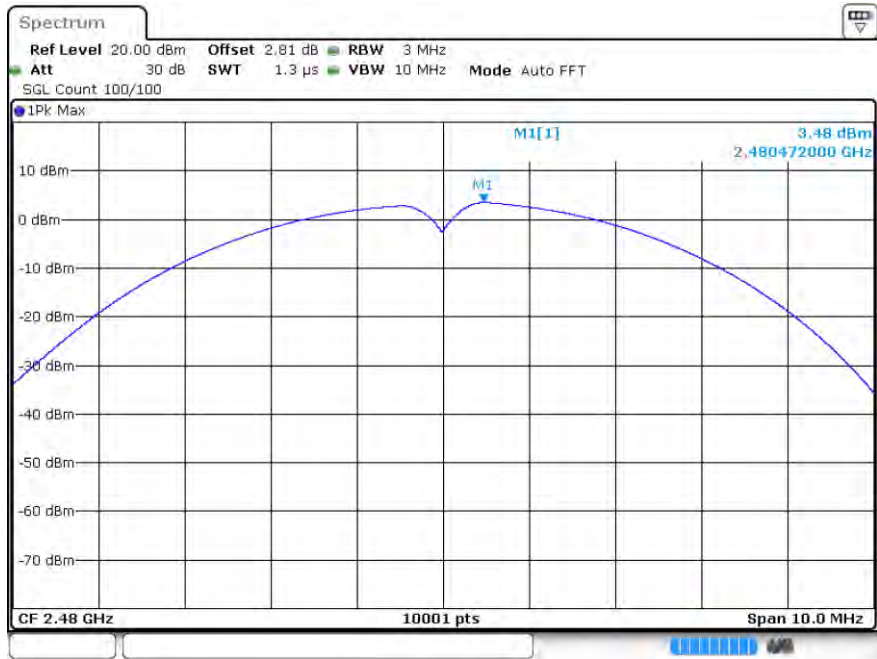
### 2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.16	21	Pass
	MCH	3.15	21	Pass
	HCH	3.48	21	Pass
$\pi/4$ DQPSK	LCH	4.51	21	Pass
	MCH	4.89	21	Pass
	HCH	3.94	21	Pass
8DPSK	LCH	4.44	21	Pass
	MCH	4.06	21	Pass
	HCH	4.6	21	Pass

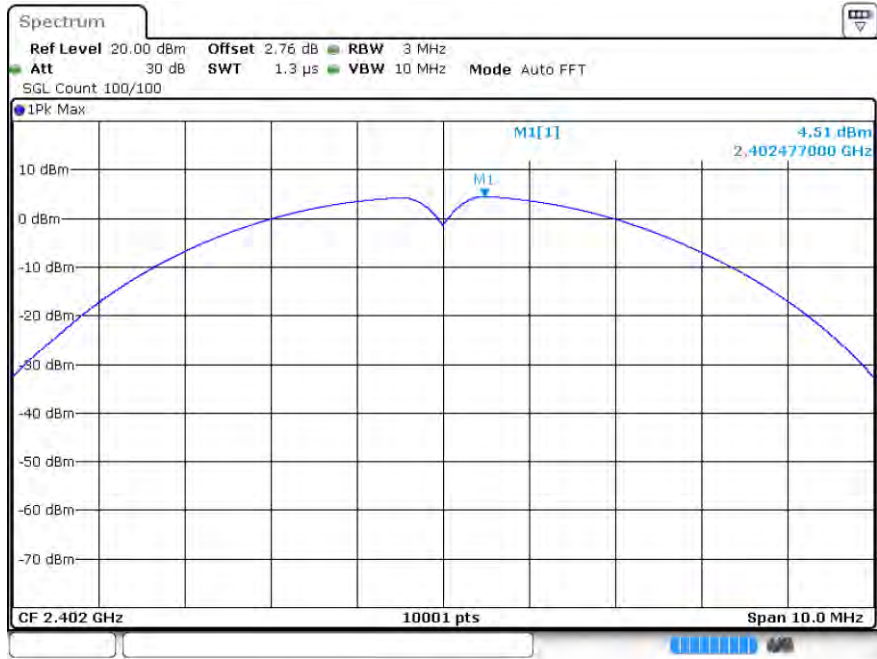
## 2.2 Test Graphs



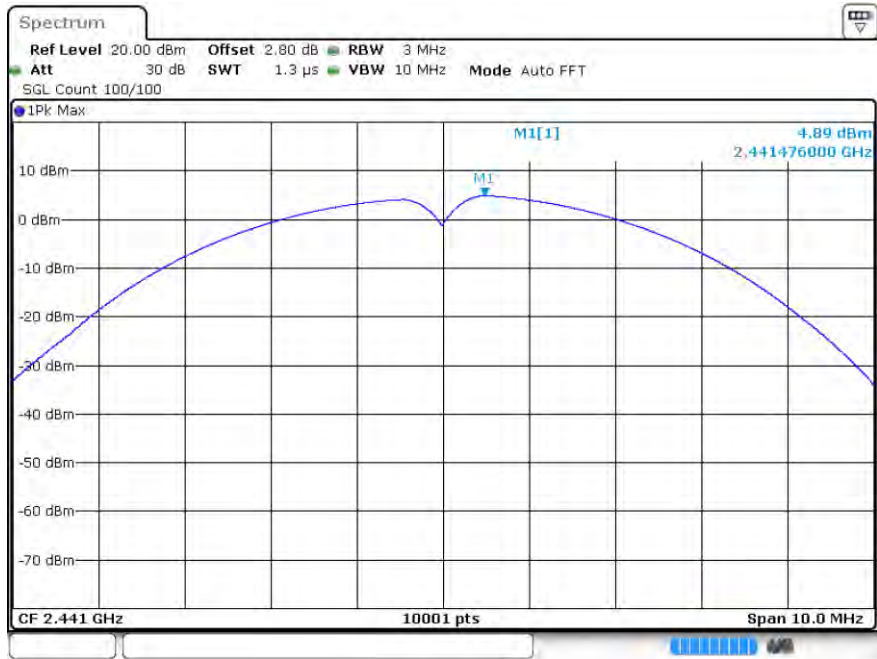
GFSK/HCH



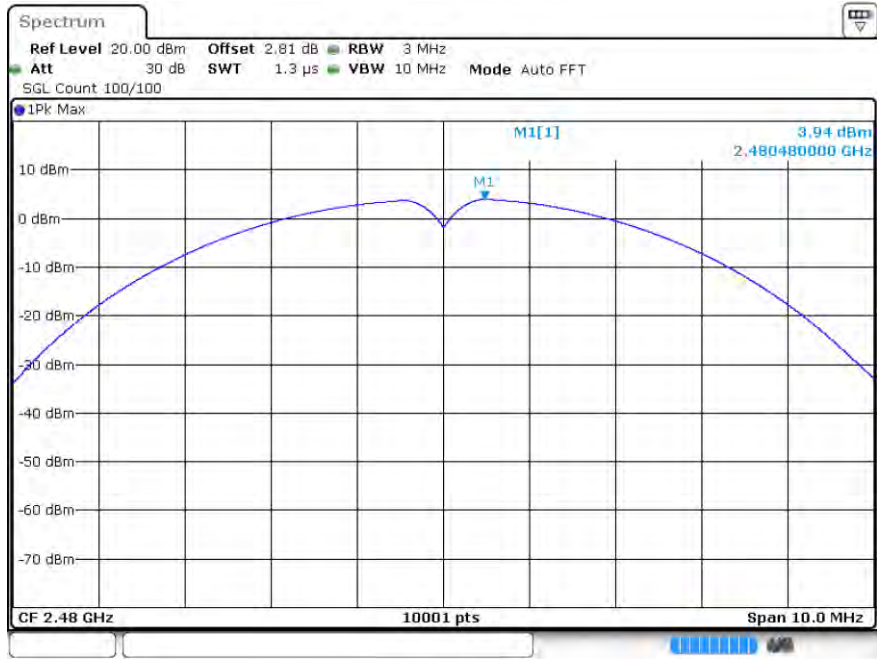
$\pi/4$ DQPSK/LCH



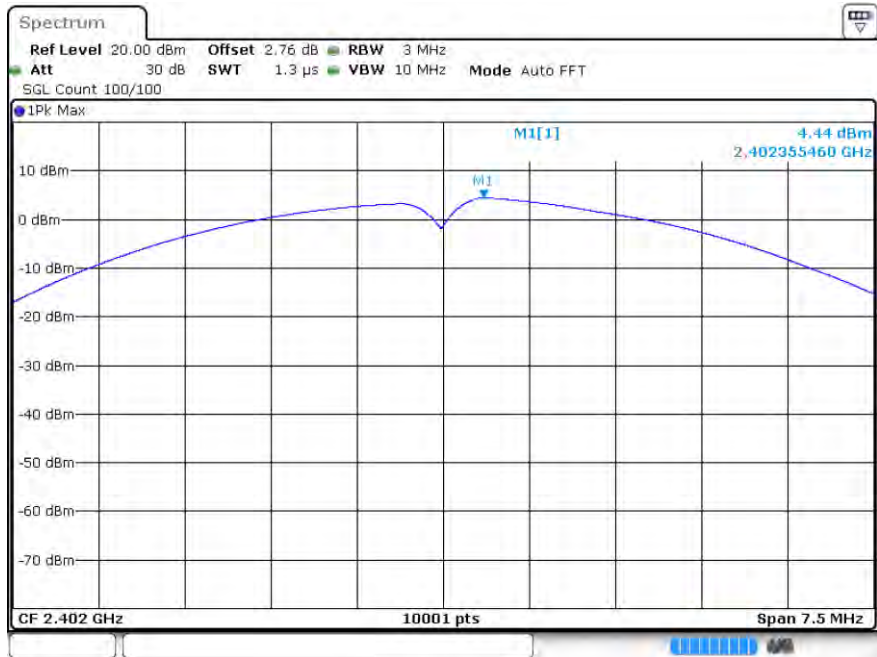
$\pi/4$ DQPSK/MCH



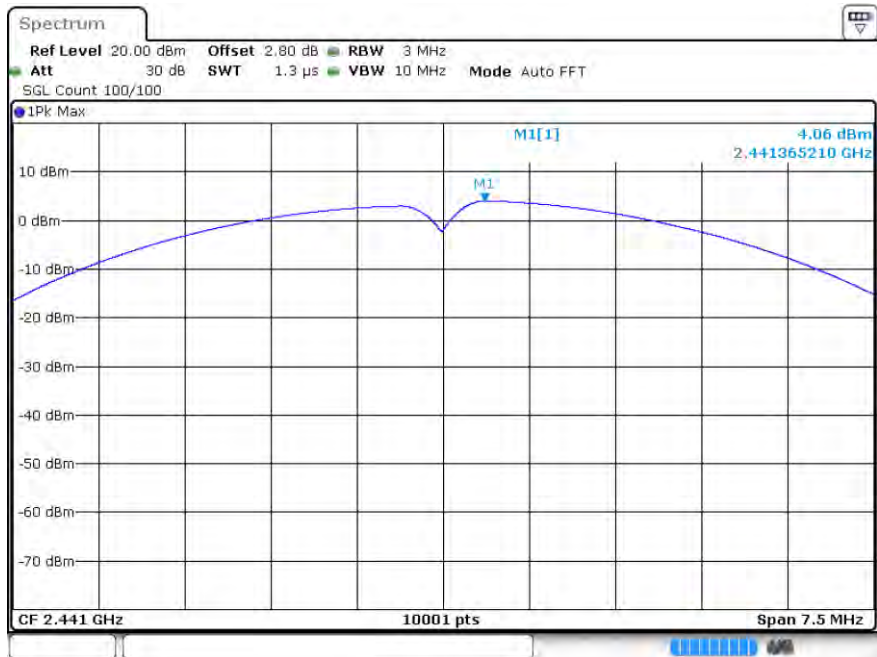
$\pi/4$ DQPSK/HCH



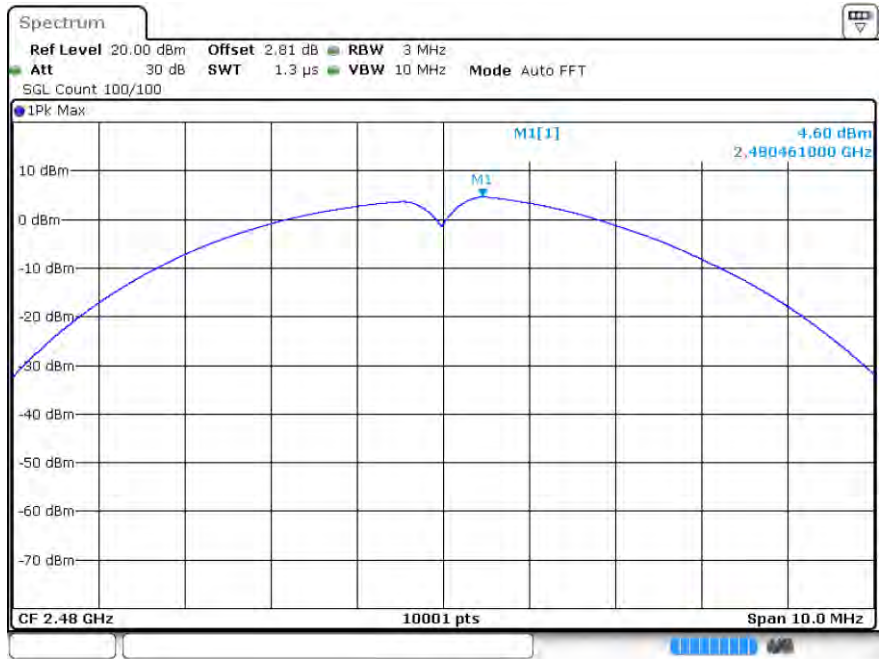
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

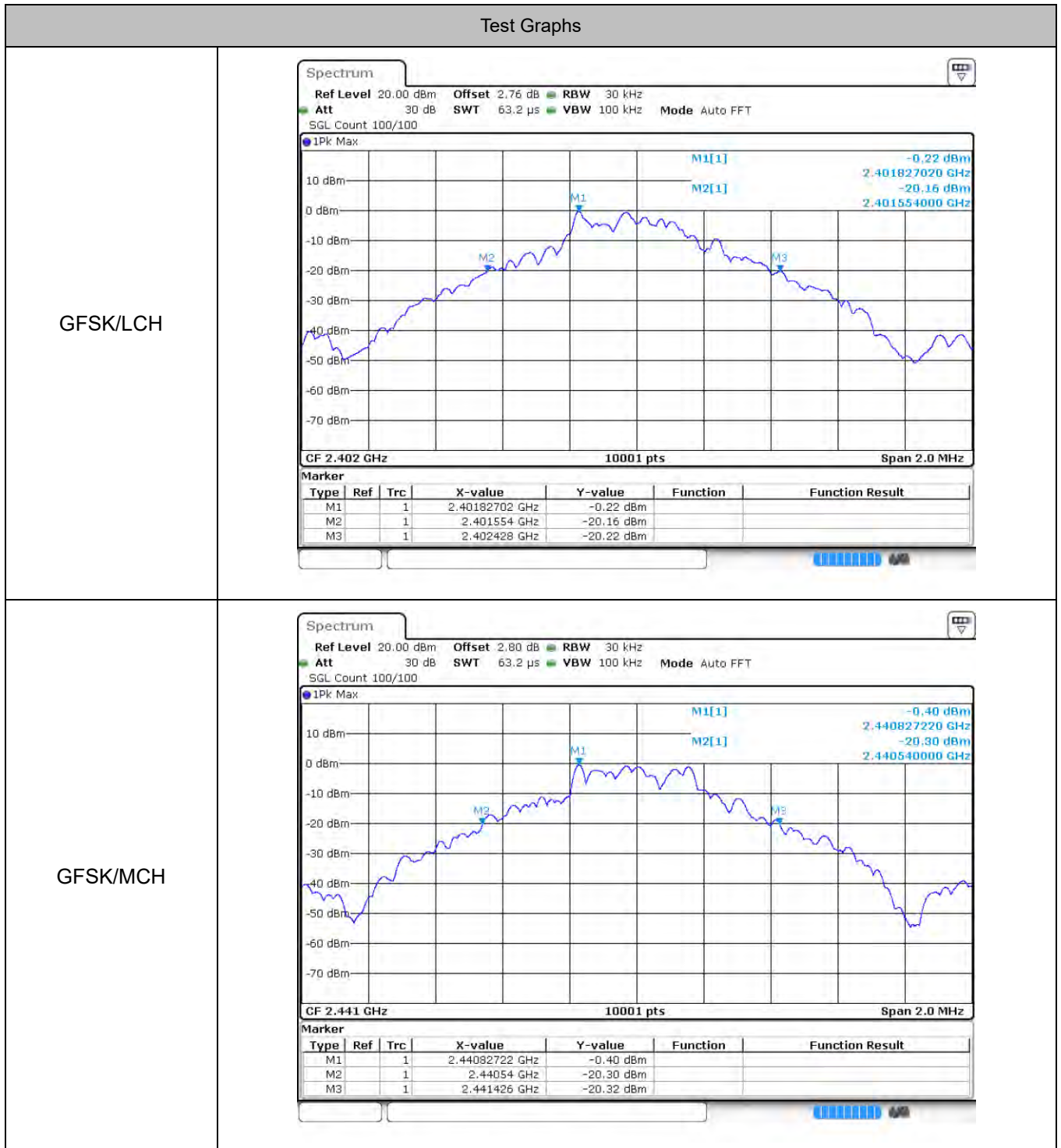


### 3 20dB Bandwidth

#### 3.1 Test Result

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.874	Not Specified	Pass
	MCH	0.886	Not Specified	Pass
	HCH	0.934	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.263	Not Specified	Pass
	MCH	1.298	Not Specified	Pass
	HCH	1.269	Not Specified	Pass
8DPSK	LCH	1.266	Not Specified	Pass
	MCH	1.228	Not Specified	Pass
	HCH	1.286	Not Specified	Pass

### 3.2 Test Graphs

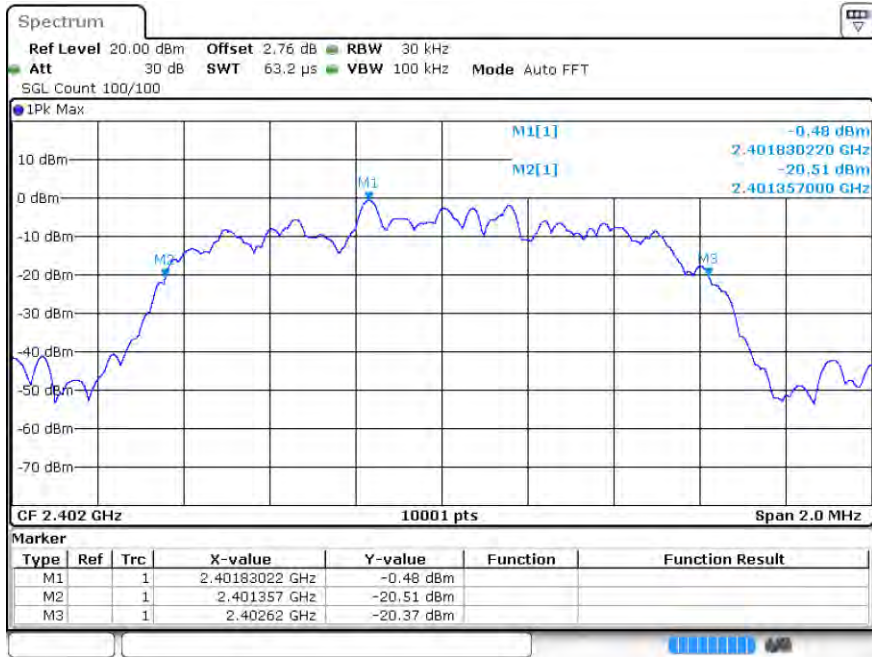




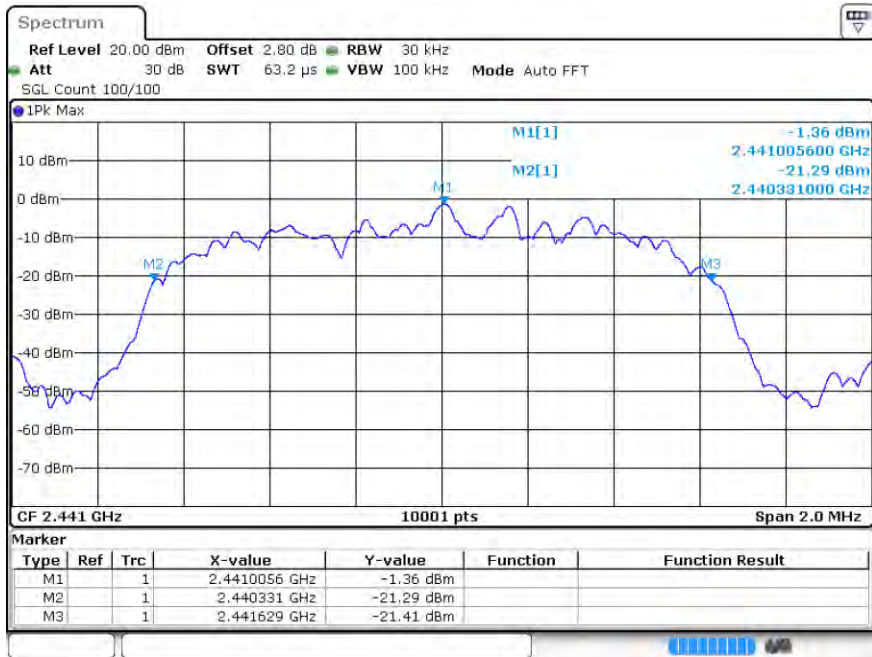
GFSK/HCH



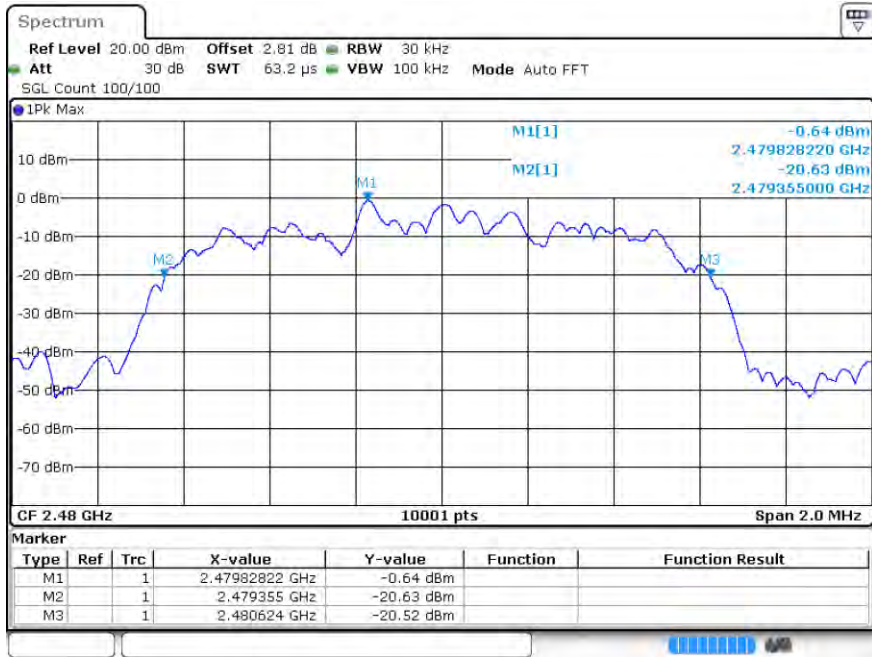
$\pi/4$ DQPSK/LCH



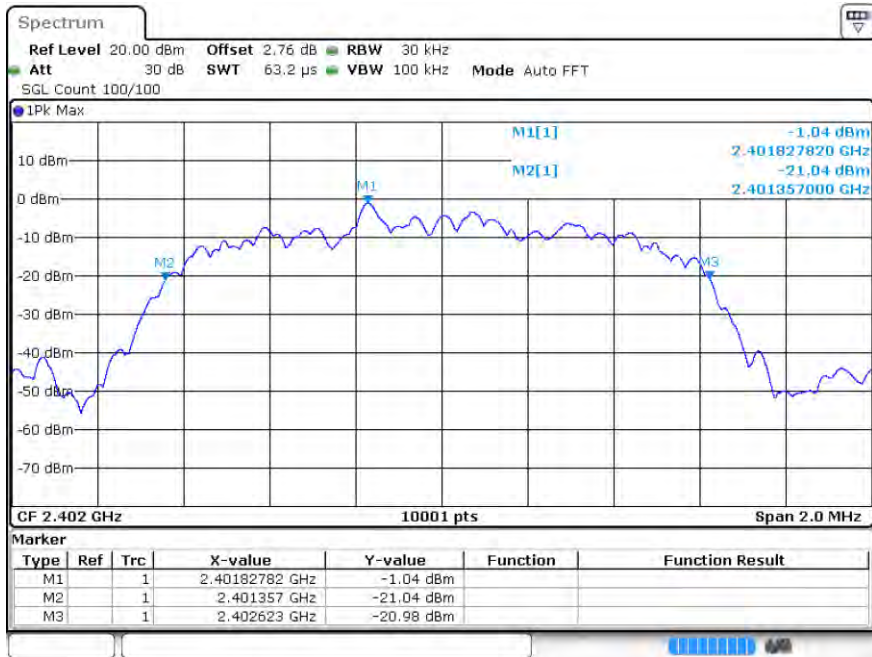
$\pi/4$ DQPSK/MCH



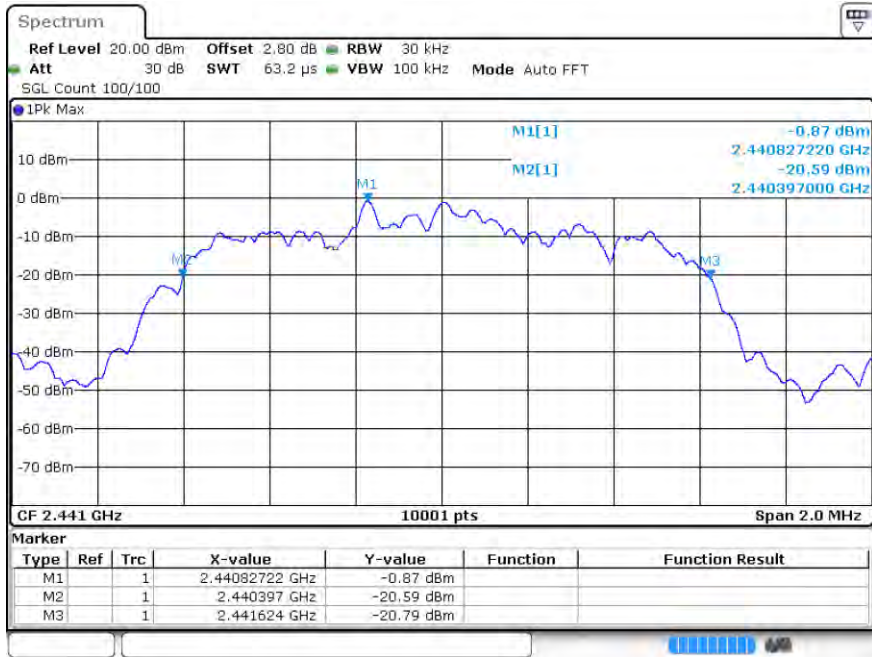
$\pi/4$ DQPSK/HCH



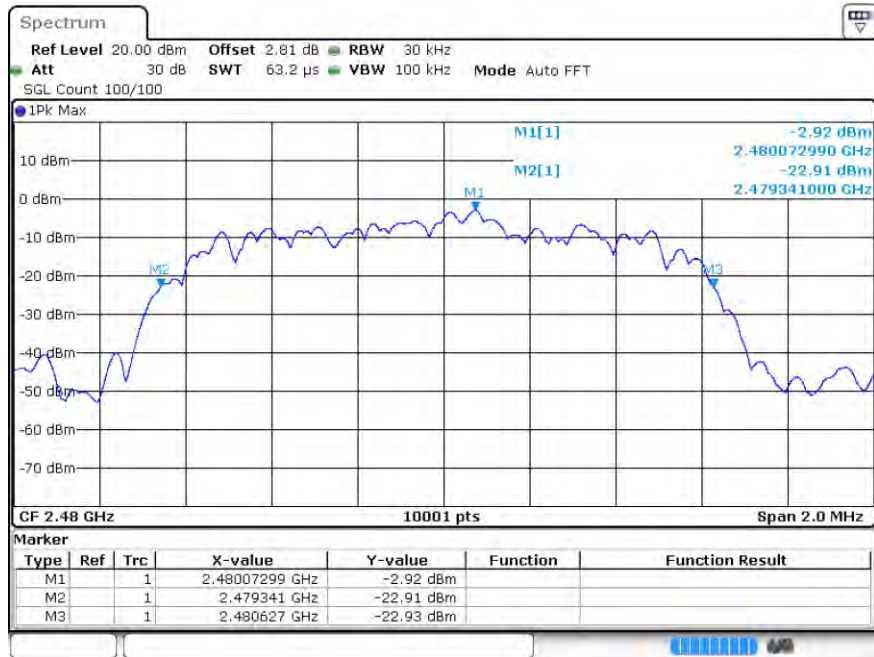
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

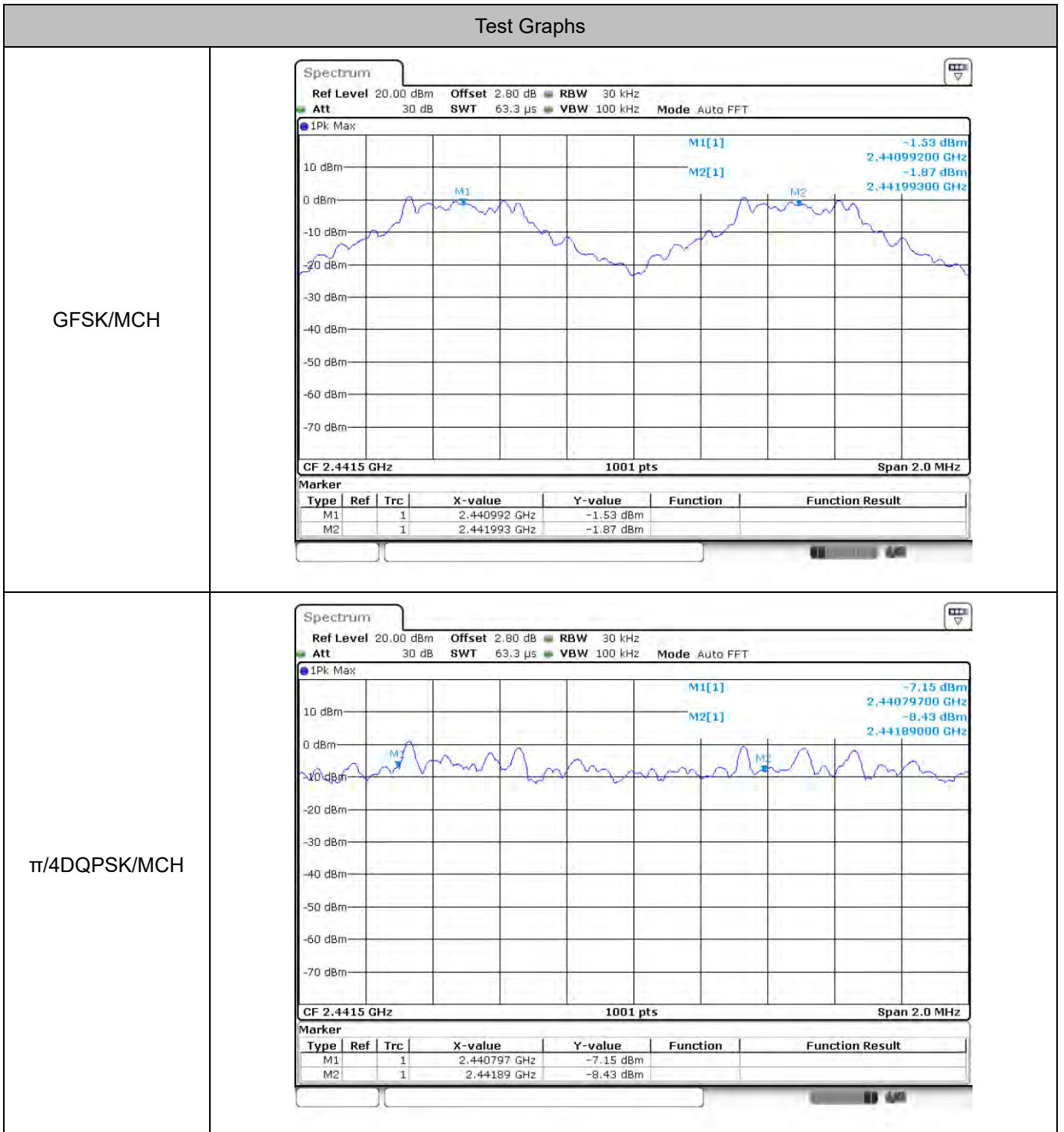


## 4 Carrier Frequency Separation

### 4.1 Test Result

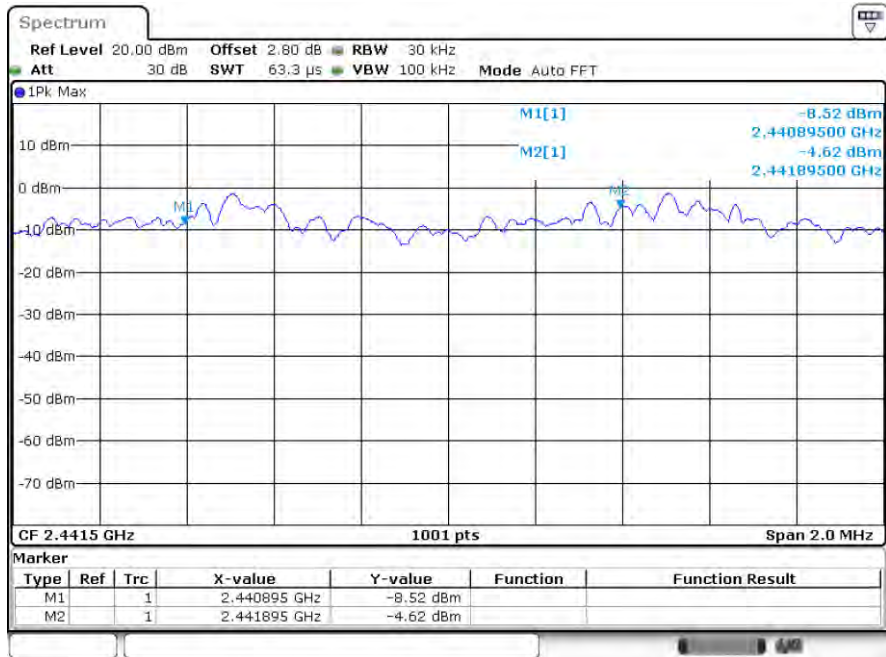
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.001	0.591	Pass
$\pi/4$ DQPSK	MCH	1.093	0.865	Pass
8DPSK	MCH	1	0.819	Pass

## 4.2 Test Graphs





8DPSK/MCH



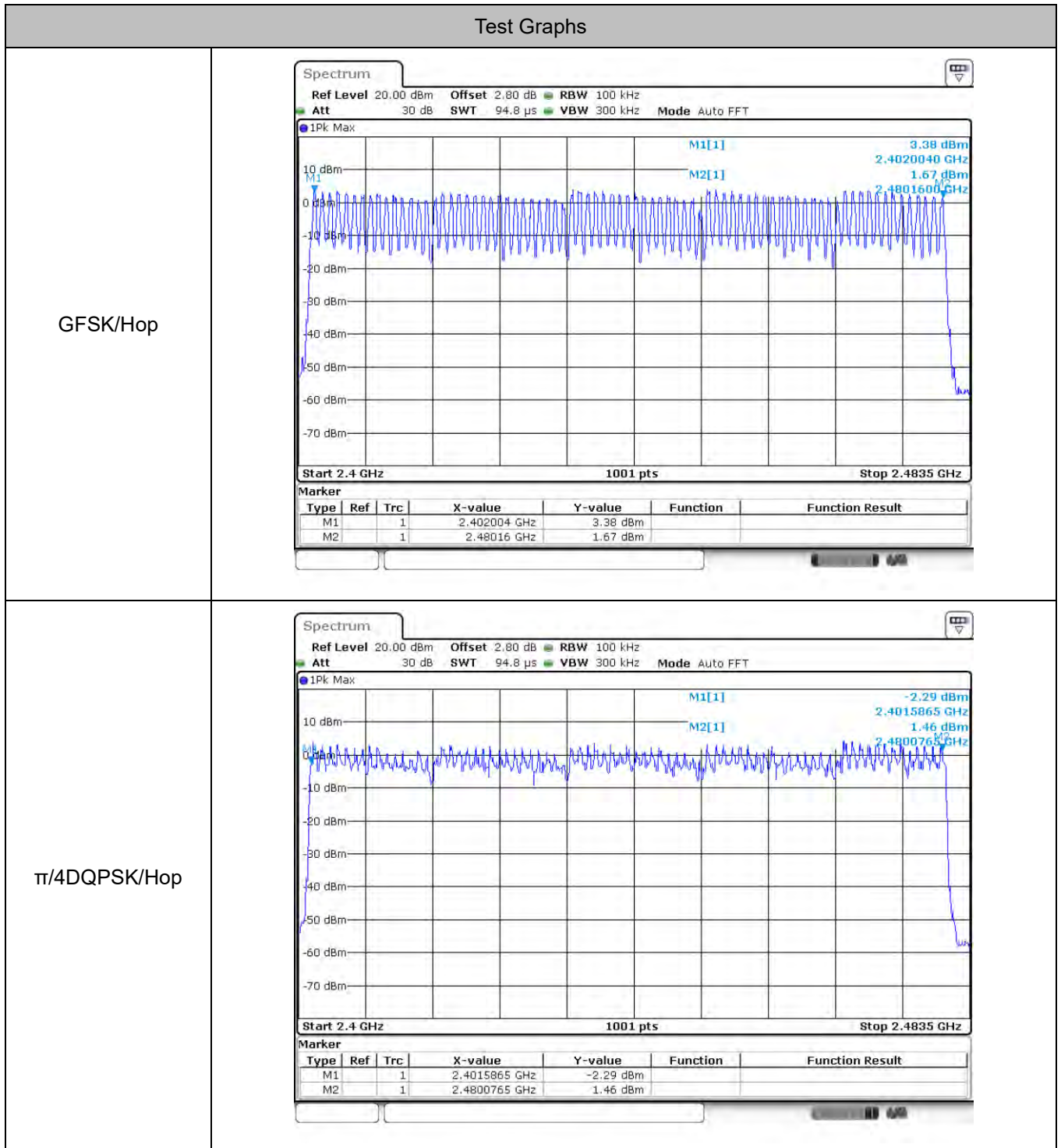
## 5 Hopping Channel Number

### 5.1 Test Result

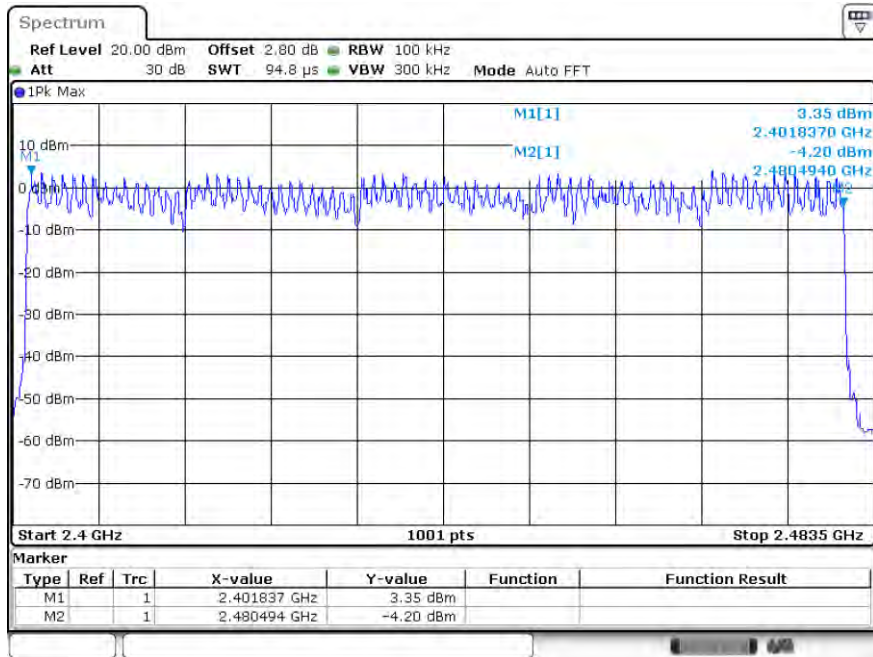
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	$\geq 15$	PASS
$\pi/4$ DQPSK	Hop	79	$\geq 15$	PASS
8DPSK	Hop	79	$\geq 15$	PASS



## 5.2 Test Graphs



8DPSK/Hop

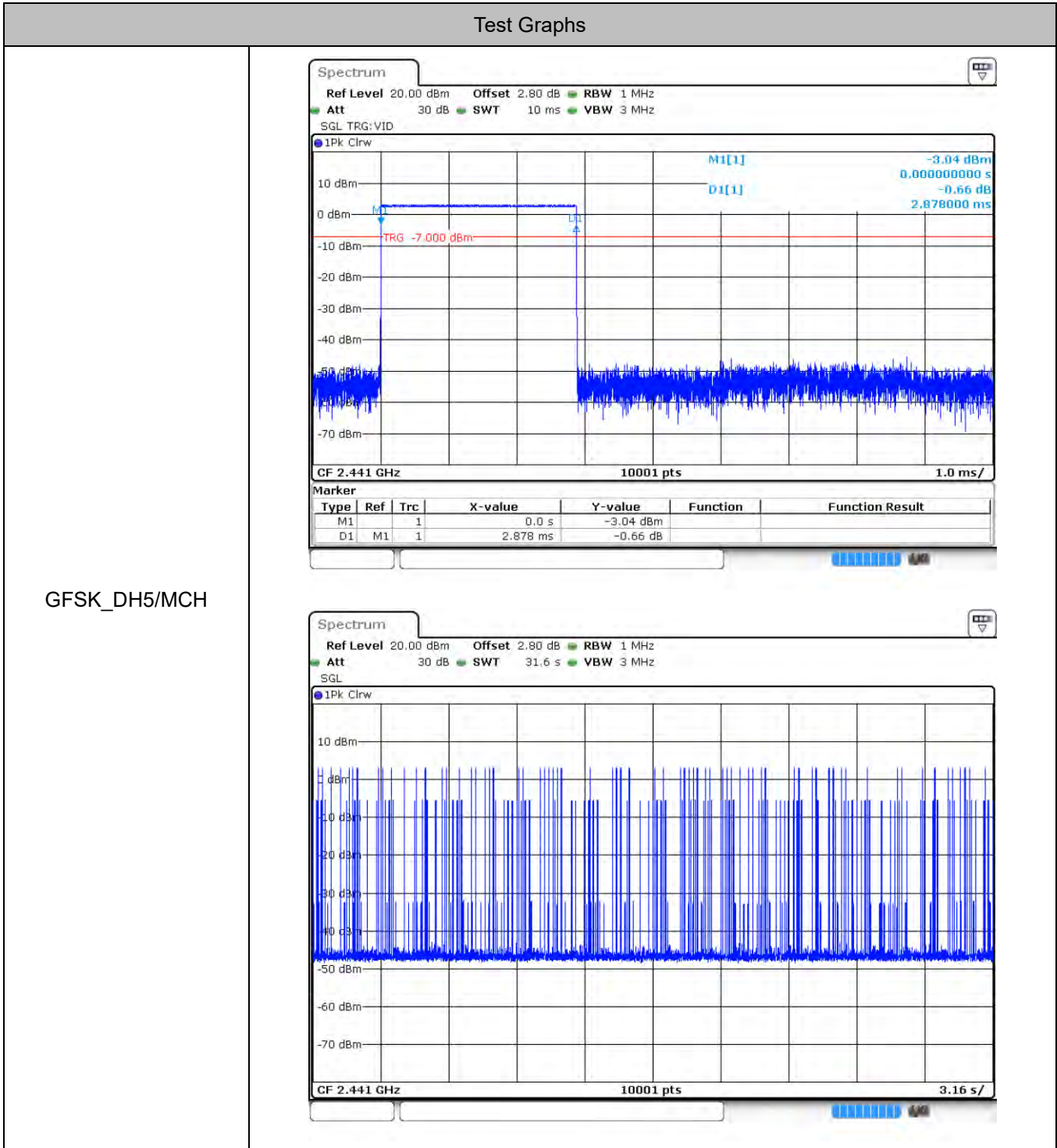


## 6 Dwell Time

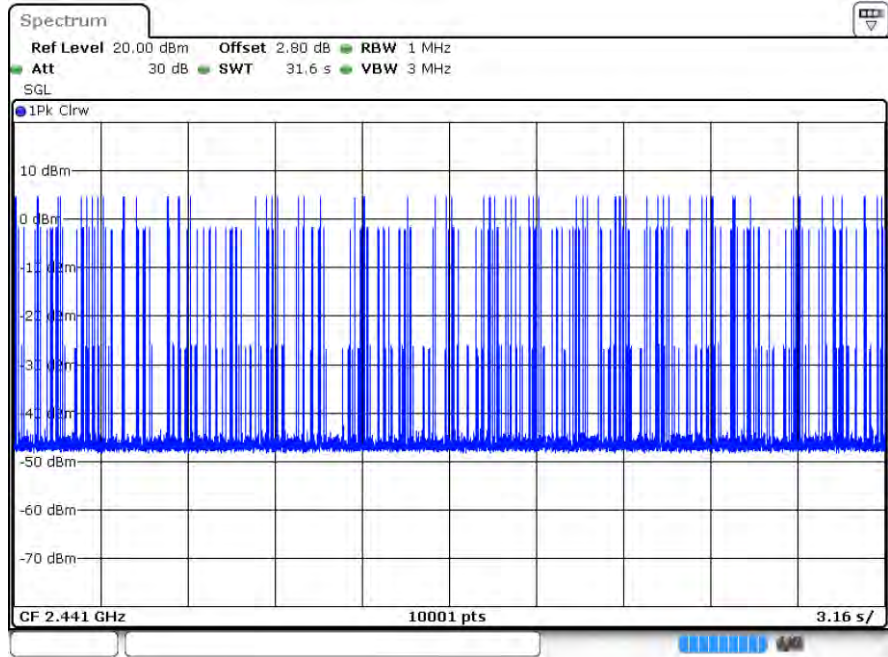
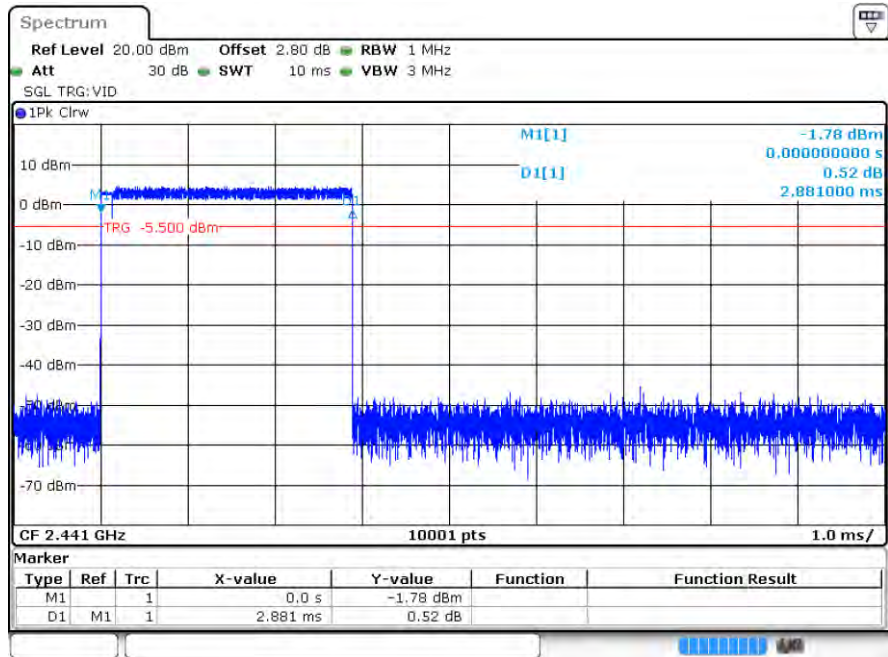
### 6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.878	80	230.24	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.881	73	210.313	0.4	Pass
8DPSK	3DH5	MCH	2.882	84	242.088	0.4	Pass

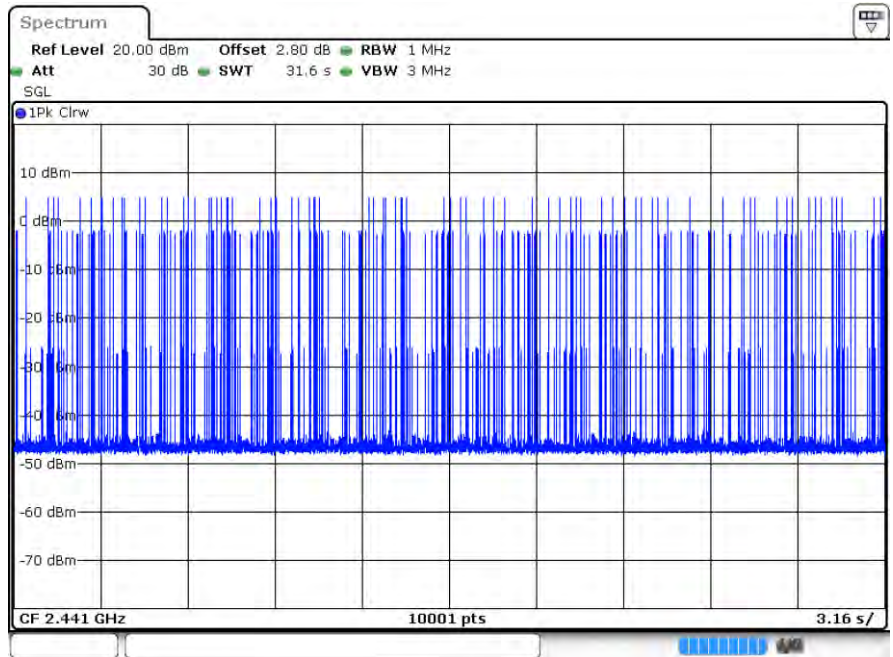
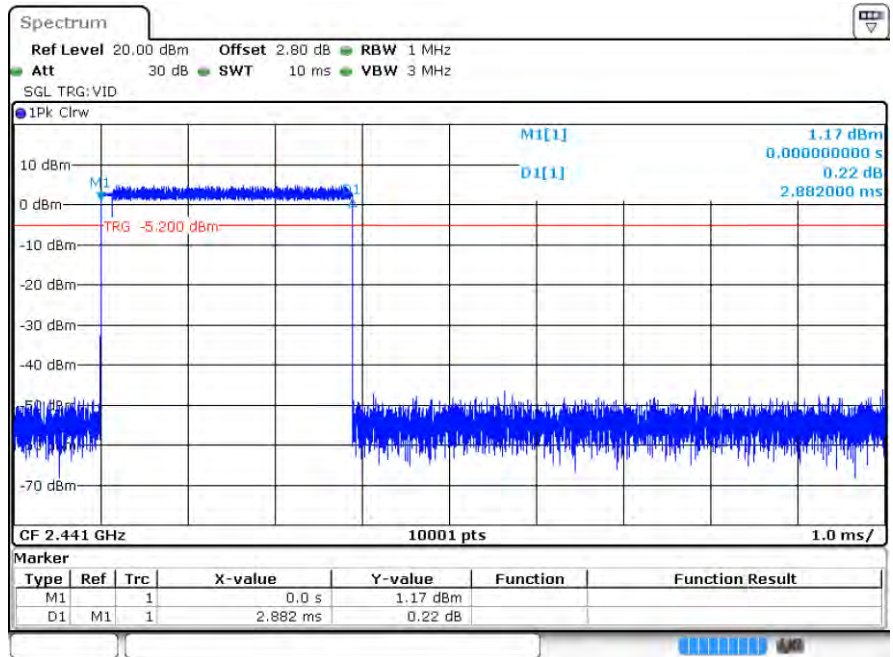
## 6.2 Test Graphs



$\pi/4$ DQPSK  
\_2DH5/MCH



8DPSK\_3DH5/MCH

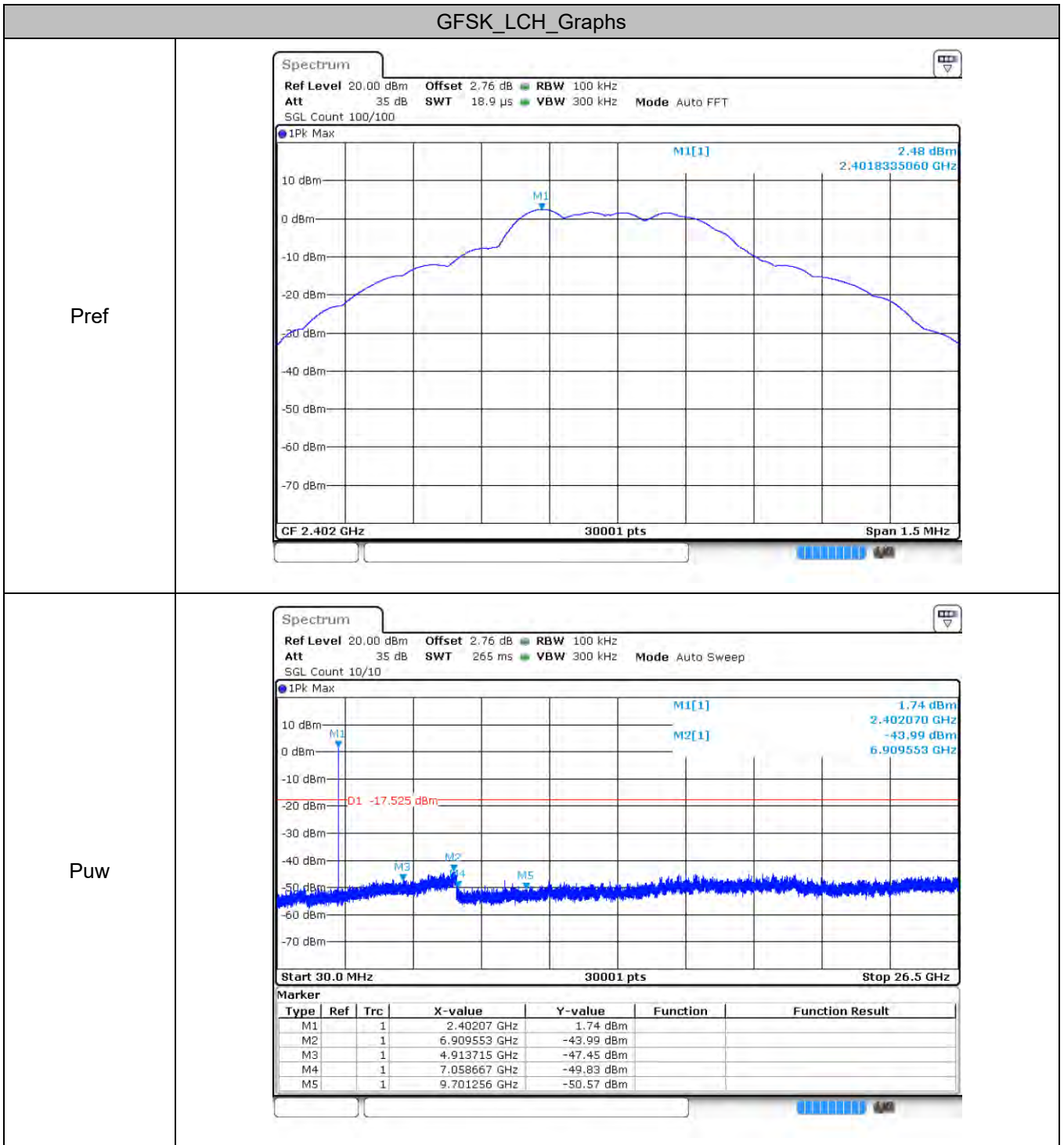


## 7 RF Conducted Spurious Emissions

### 7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-46.46	-20	Pass
	MCH	-45.63	-20	Pass
	HCH	-46.52	-20	Pass
$\pi/4$ DQPSK	LCH	-45.81	-20	Pass
	MCH	-45.02	-20	Pass
	HCH	-46.23	-20	Pass
8DPSK	LCH	-45.12	-20	Pass
	MCH	-44.75	-20	Pass
	HCH	-47.15	-20	Pass

## 7.2 Test Graphs



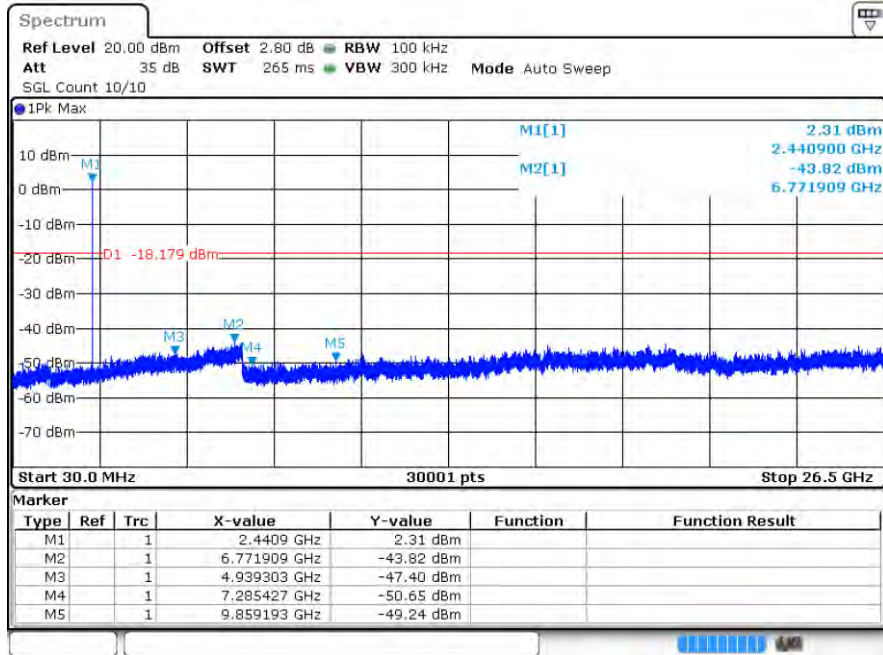


GFSK\_MCH\_Graphs

Pref



Puw

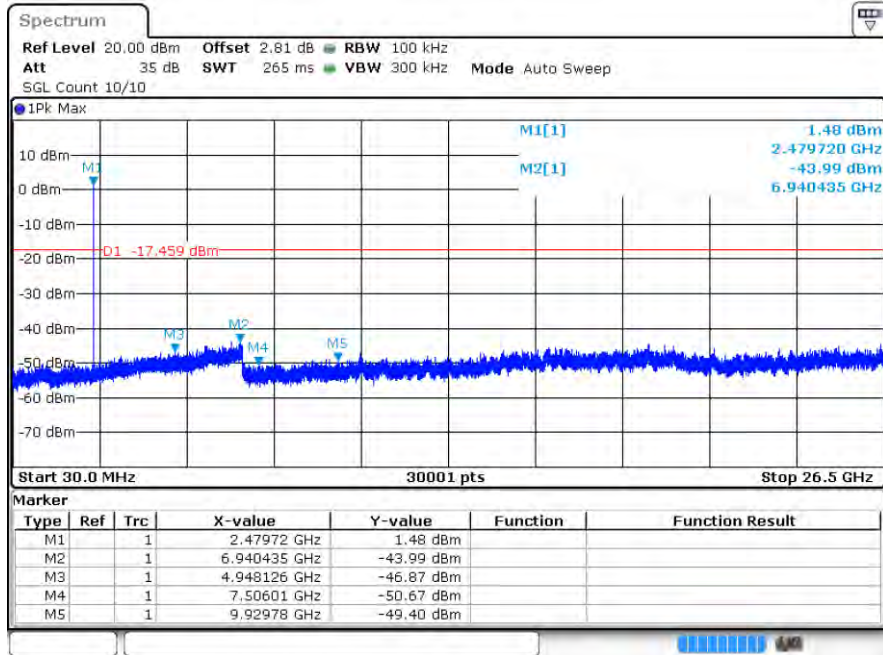


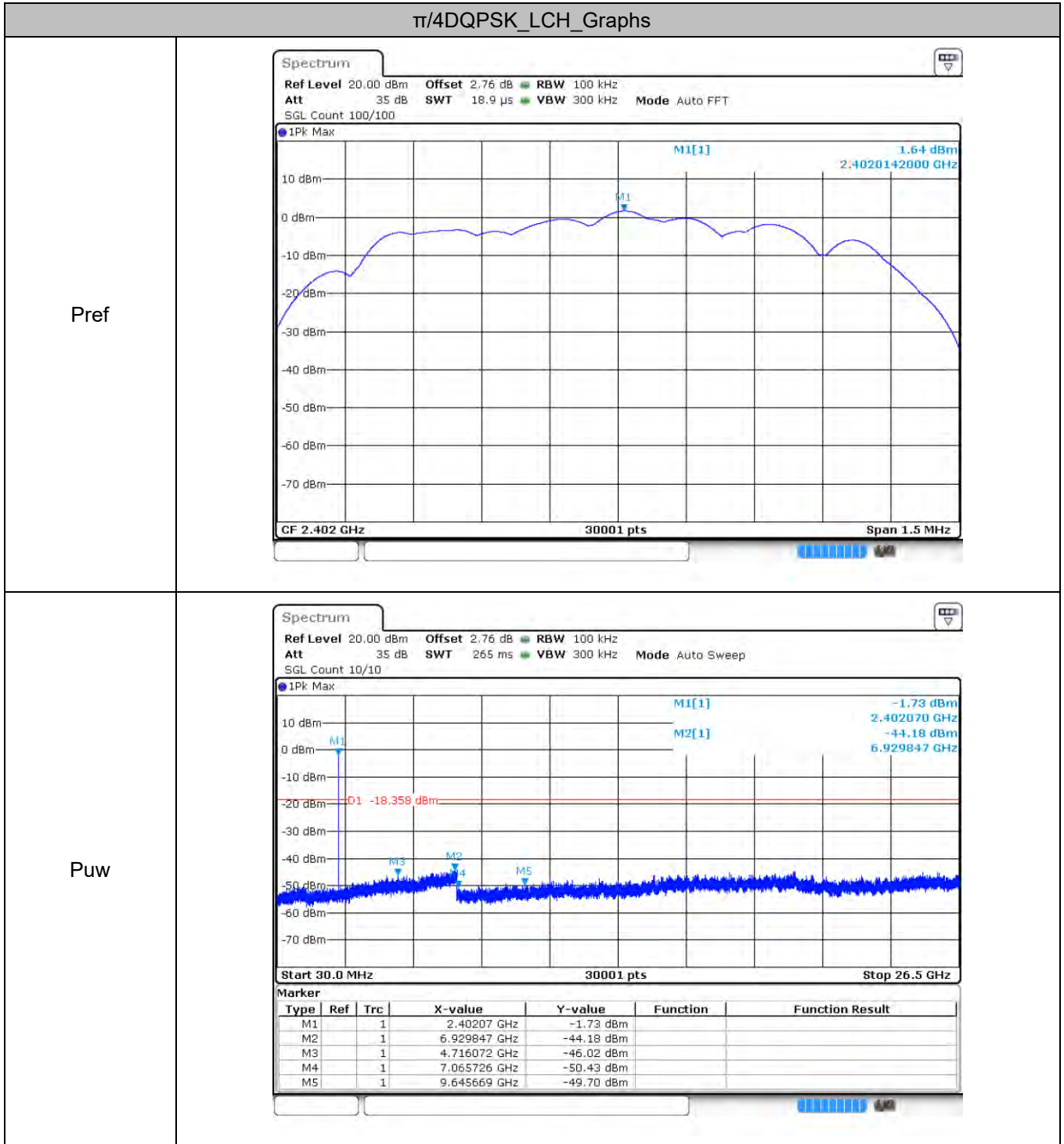
GFSK\_HCH\_Graphs

Pref



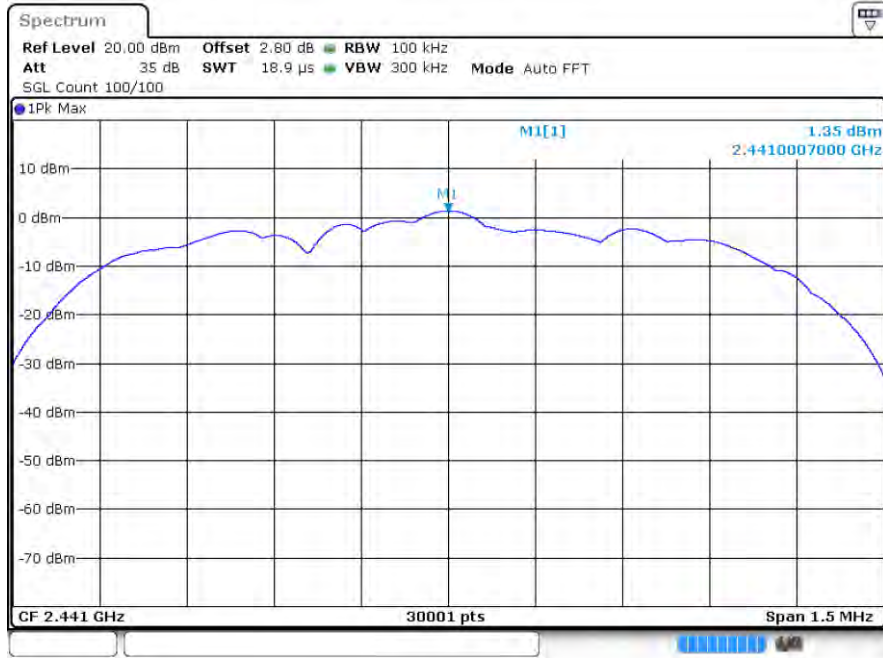
Puw



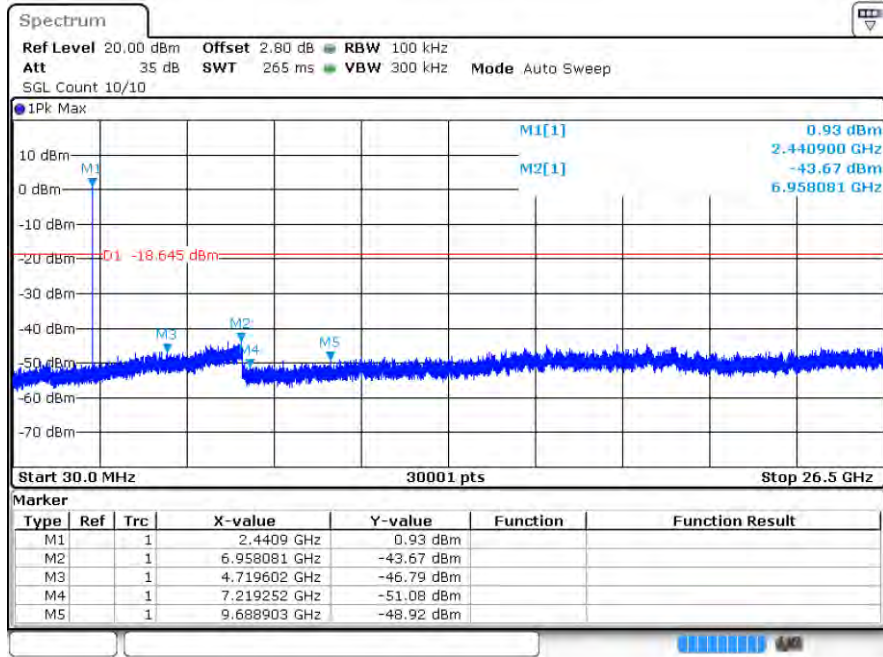


$\pi$ /4DQPSK\_MCH\_Graphs

Pref

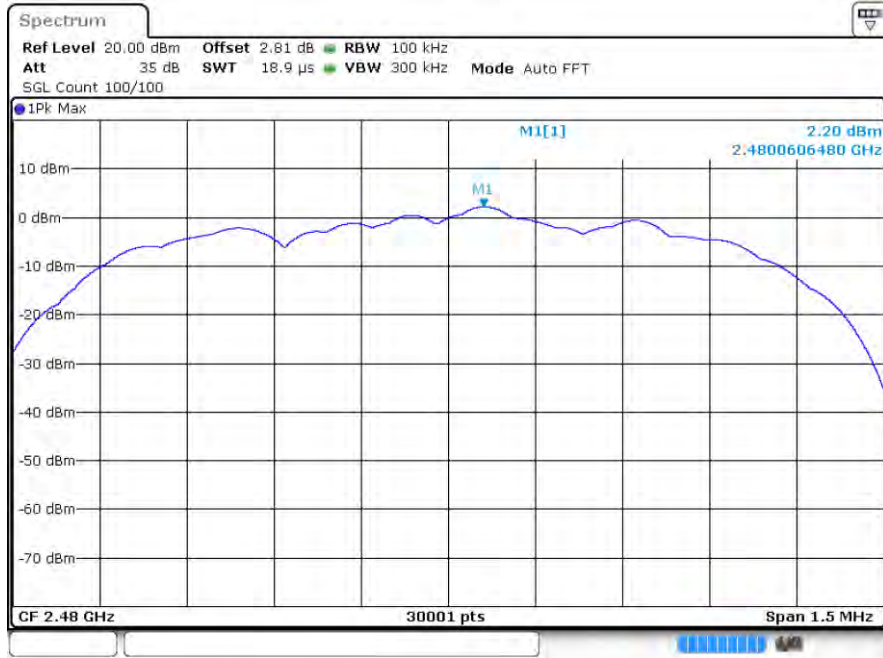


Puw

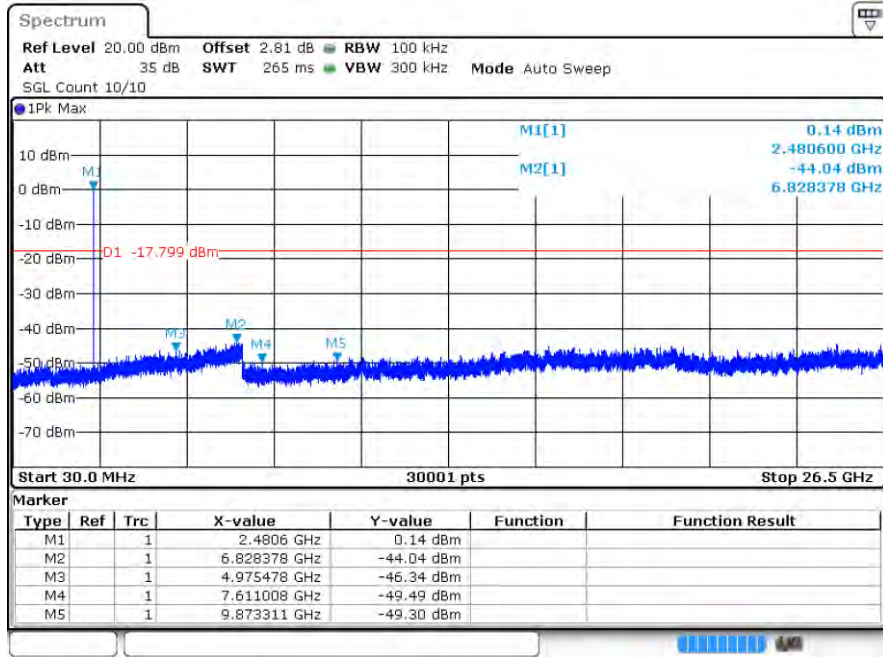


$\pi/4$ DQPSK\_HCH\_Graphs

Pref

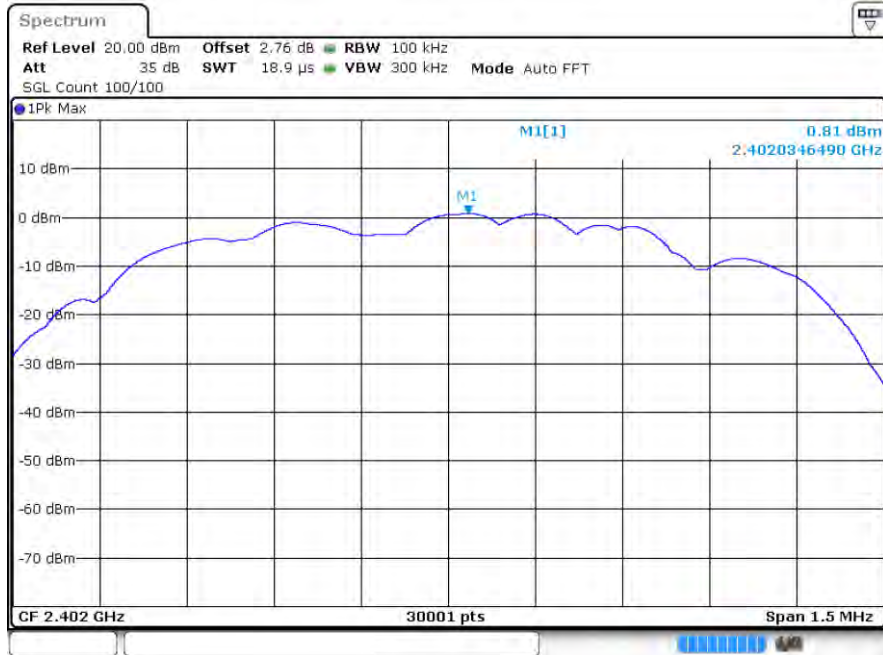


Puw

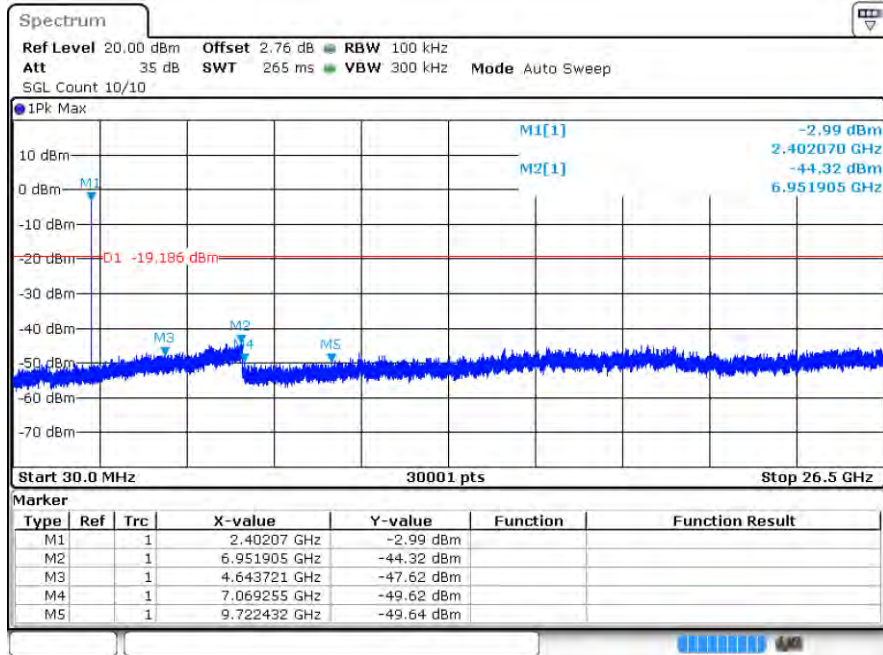


8DPSK\_LCH\_Graphs

Pref

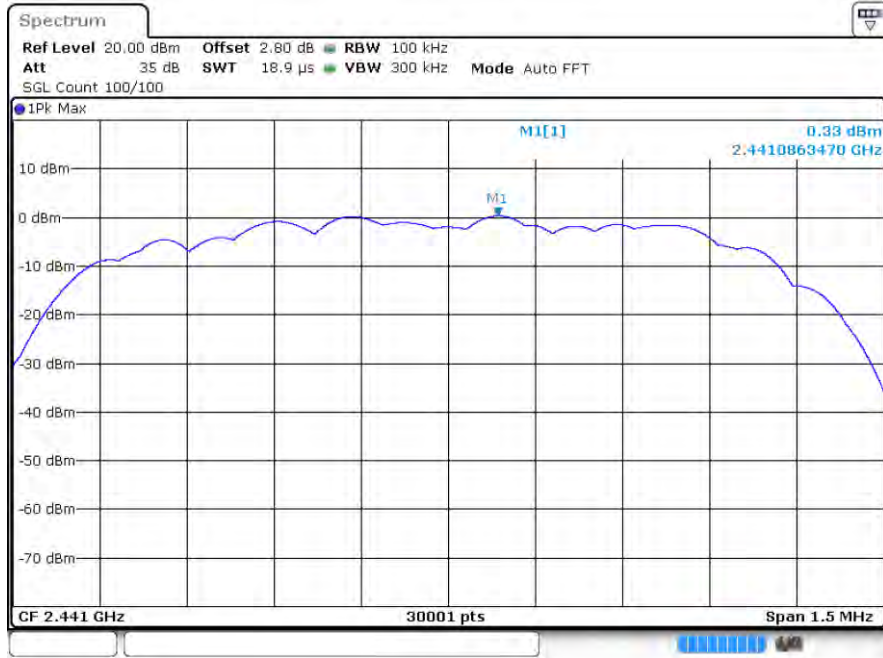


Puw

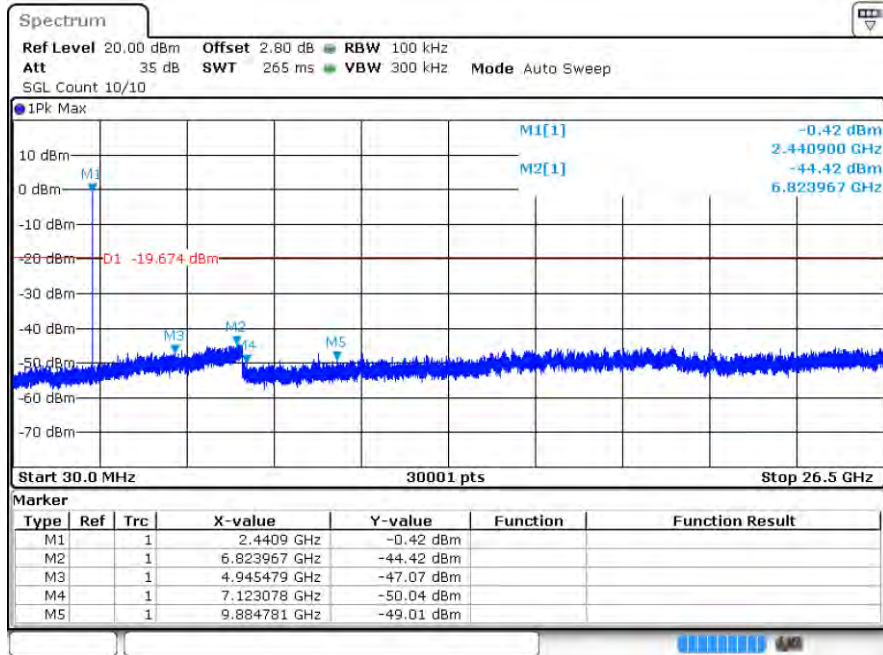


8DPSK\_MCH\_Graphs

Pref



Puw

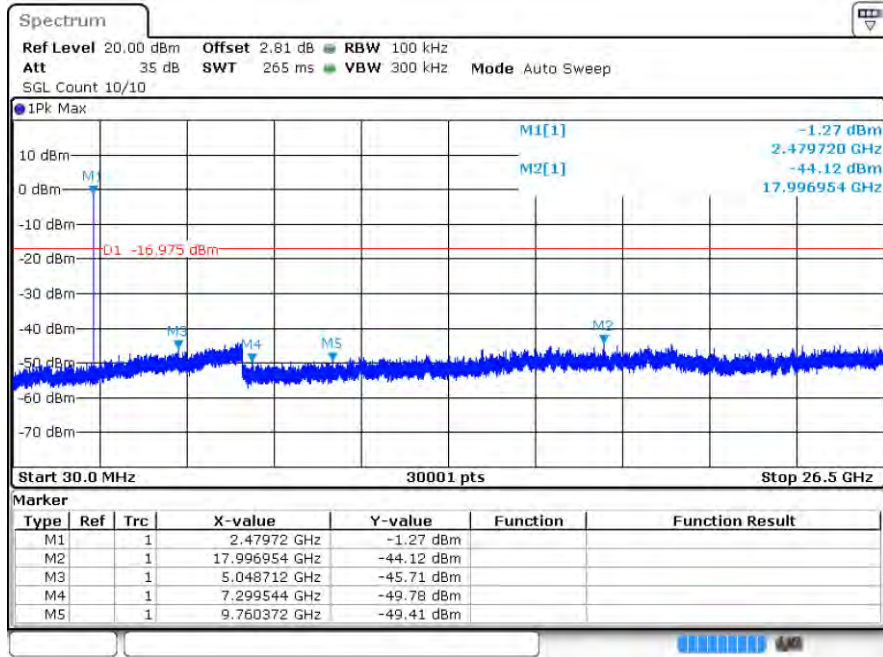


8DPSK\_HCH\_Graphs

Pref



Puw



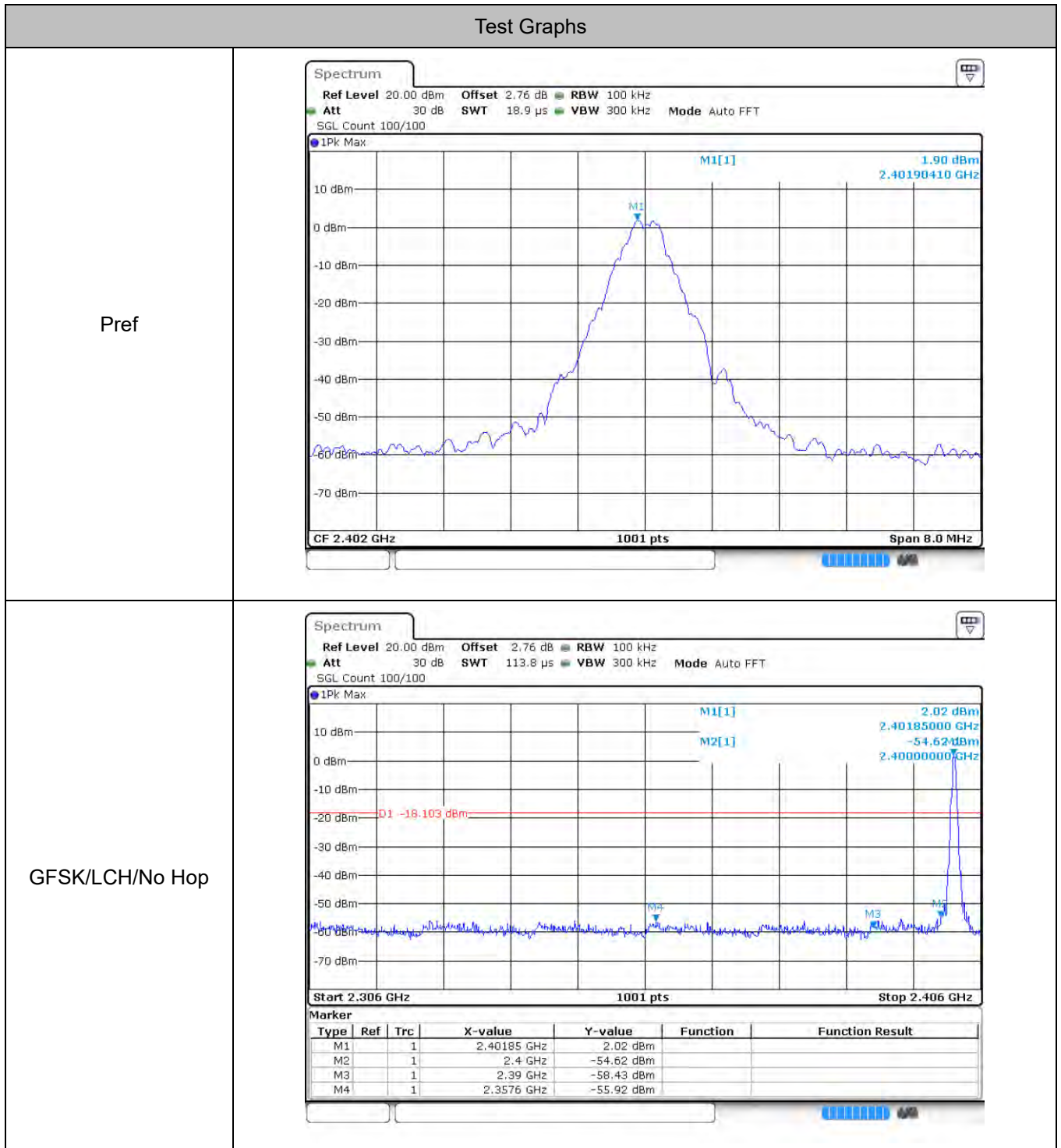


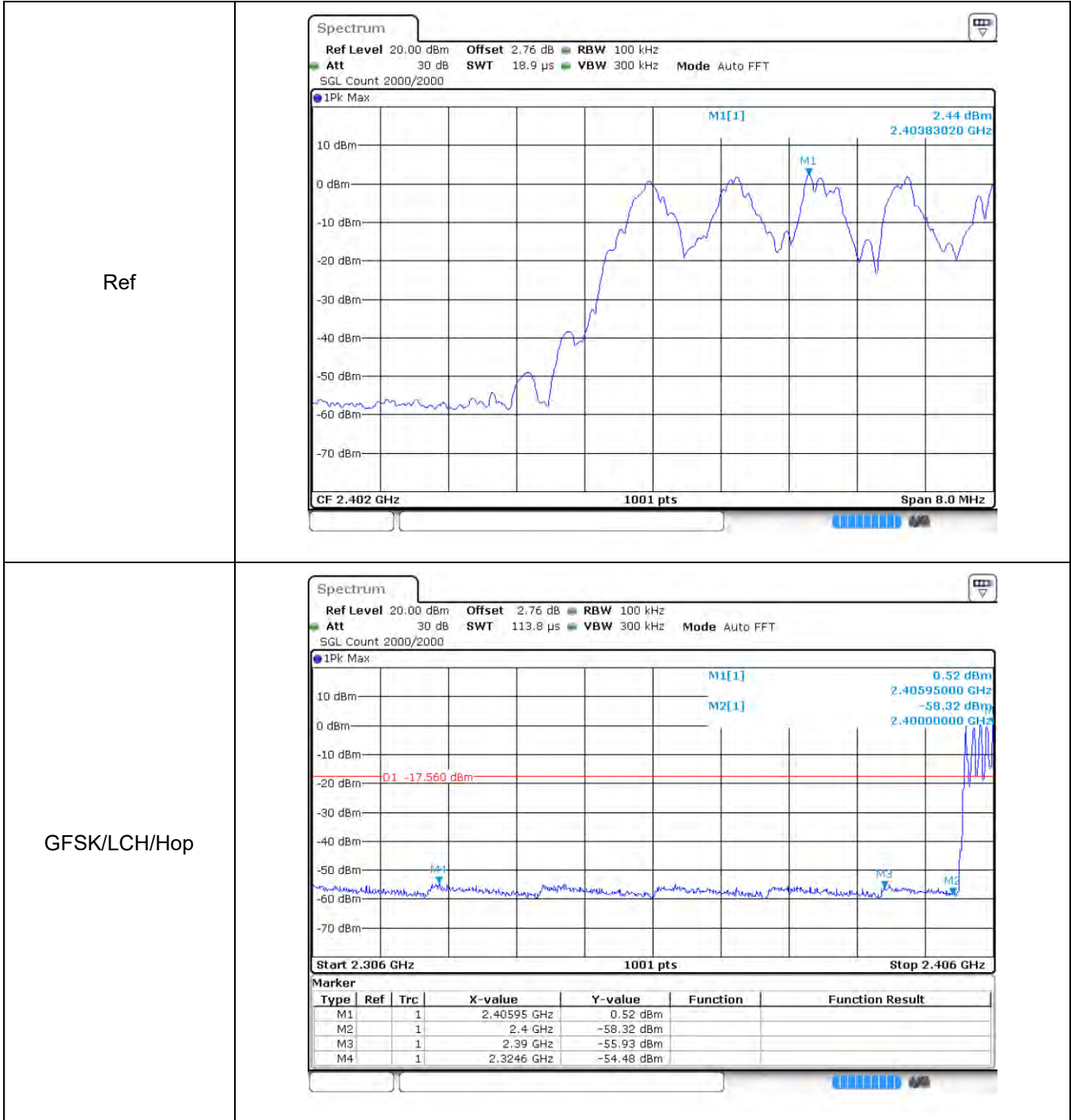
## 8 Band-edge for RF Conducted Emissions

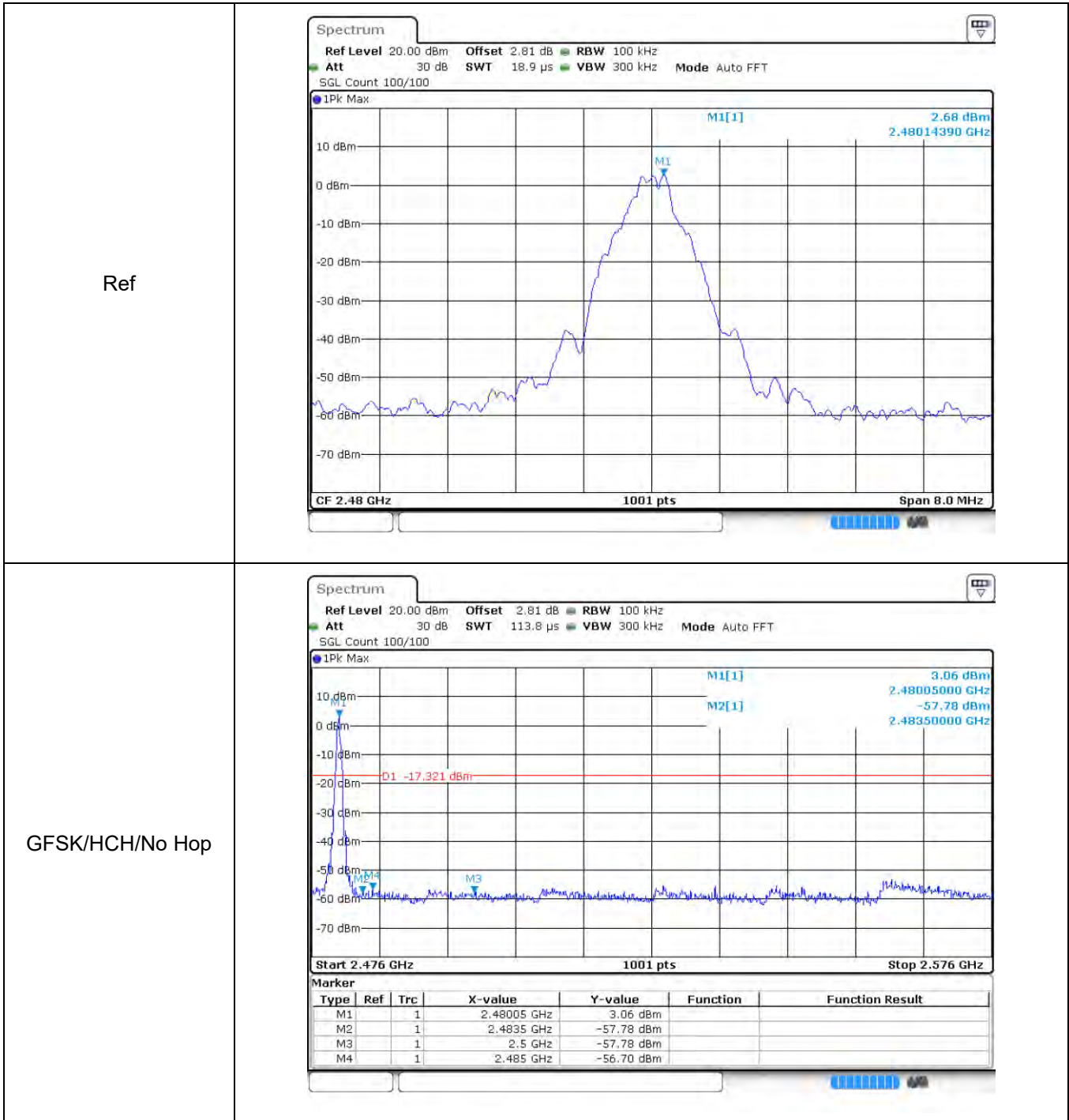
### 8.1 Test Result

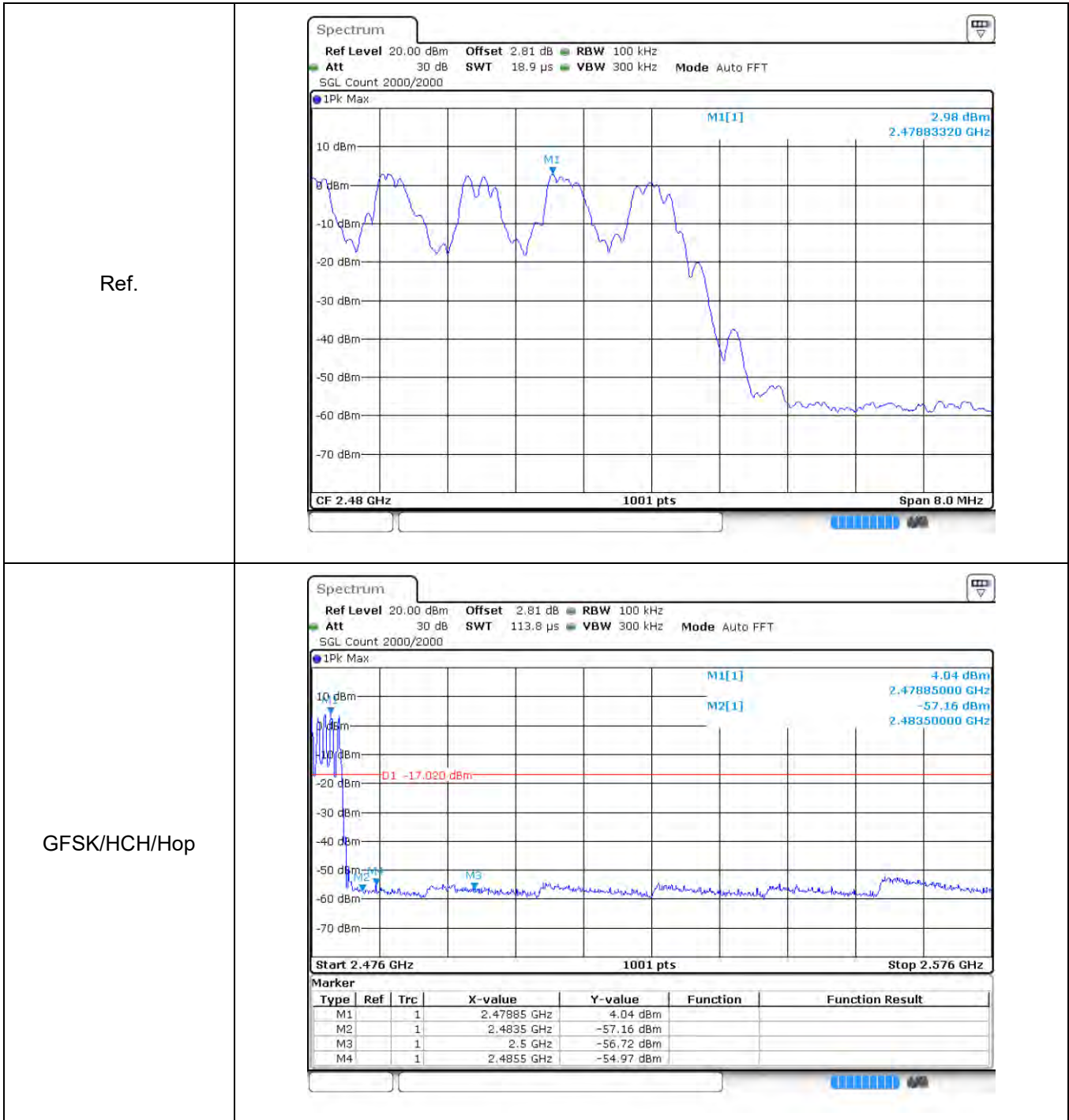
Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-57.81	-20	Pass
			On	-56.92	-20	Pass
	HCH	2480	Off	-59.38	-20	Pass
			On	-57.95	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-56.96	-20	Pass
			On	-57.07	-20	Pass
	HCH	2480	Off	-56.92	-20	Pass
			On	-55.7	-20	Pass
8DPSK	LCH	2402	Off	-56.95	-20	Pass
			On	-56.81	-20	Pass
	HCH	2480	Off	-57.11	-20	Pass
			On	-57.81	-20	Pass

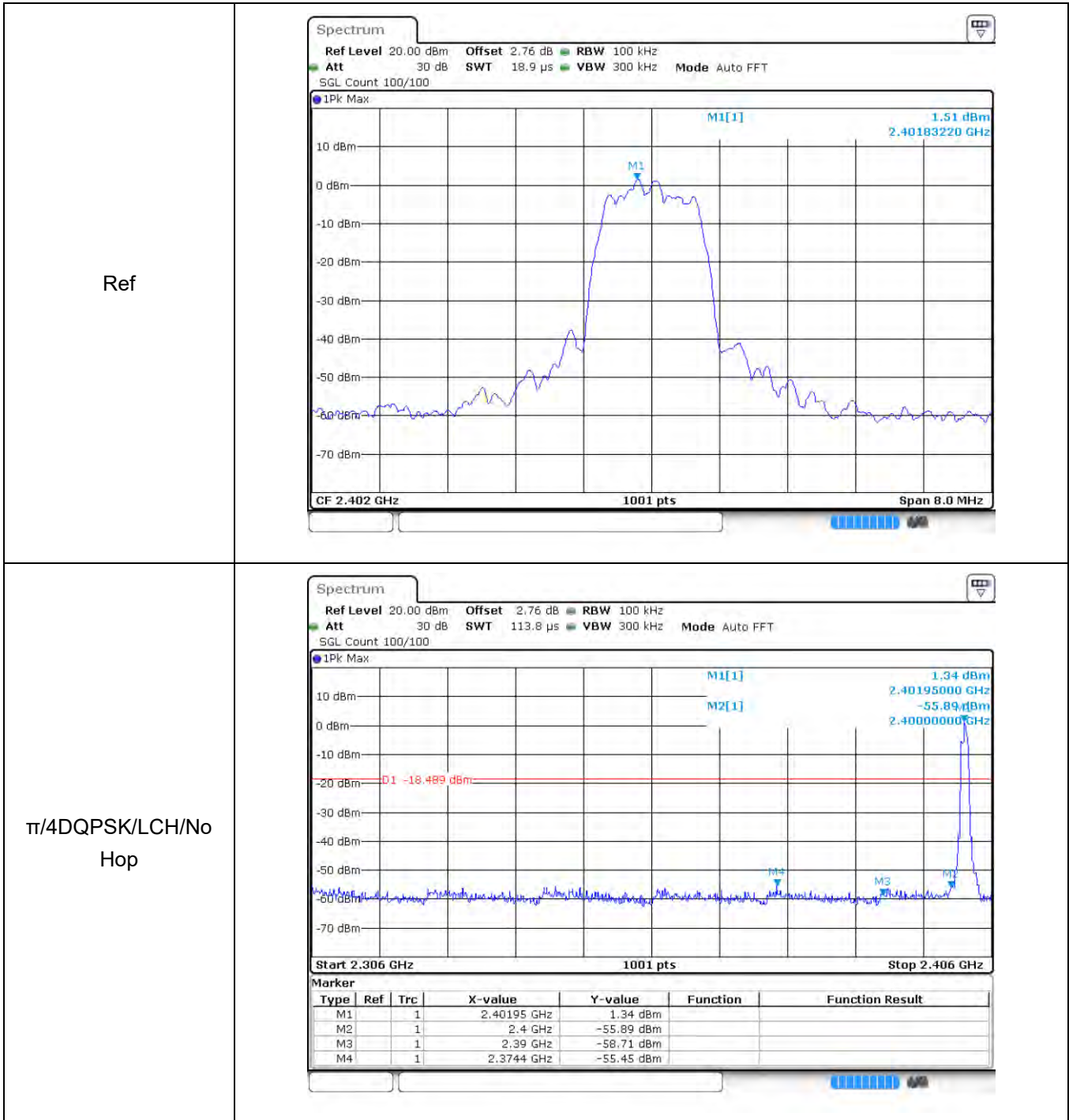
## 8.2 Test Graphs

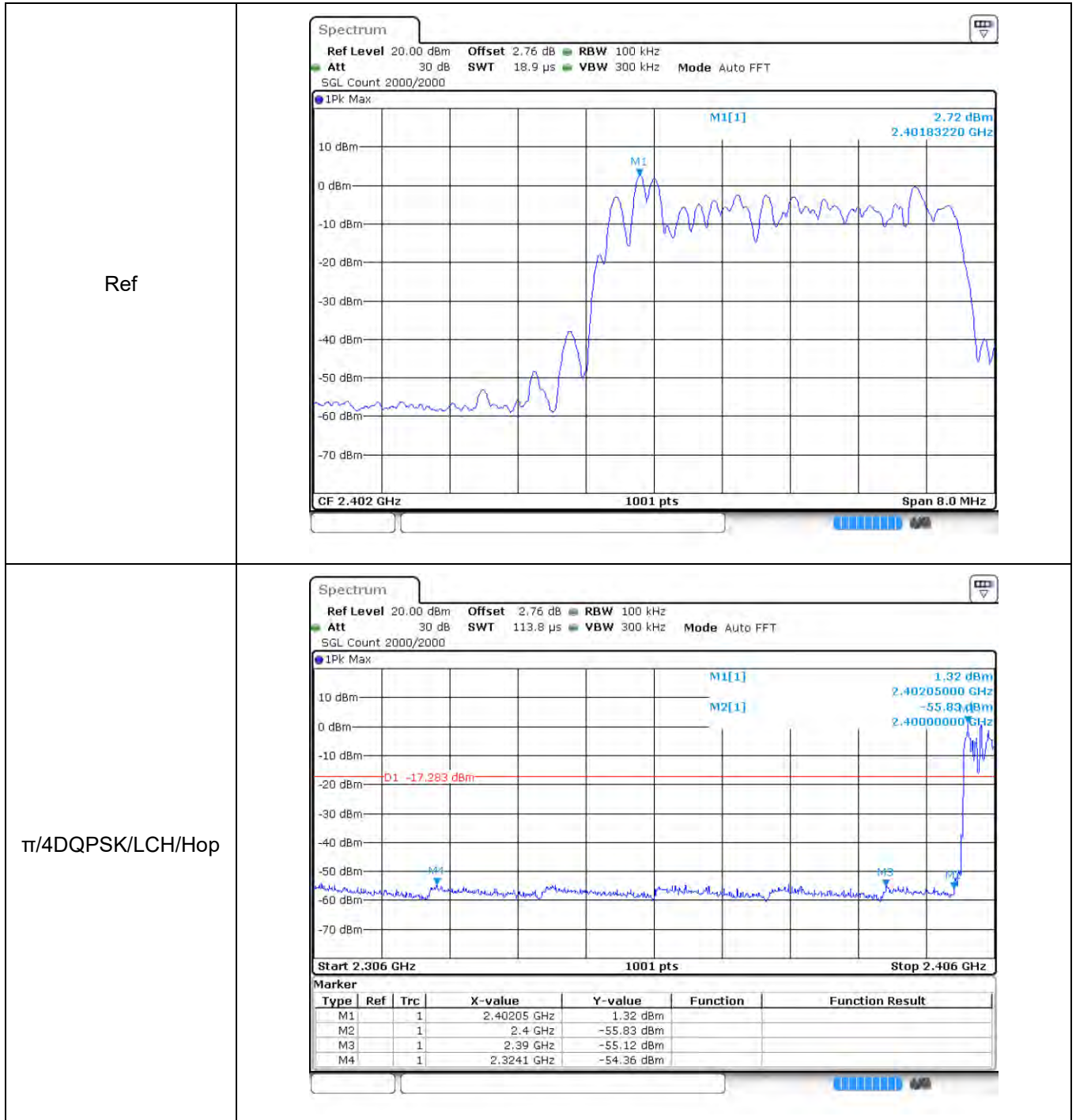


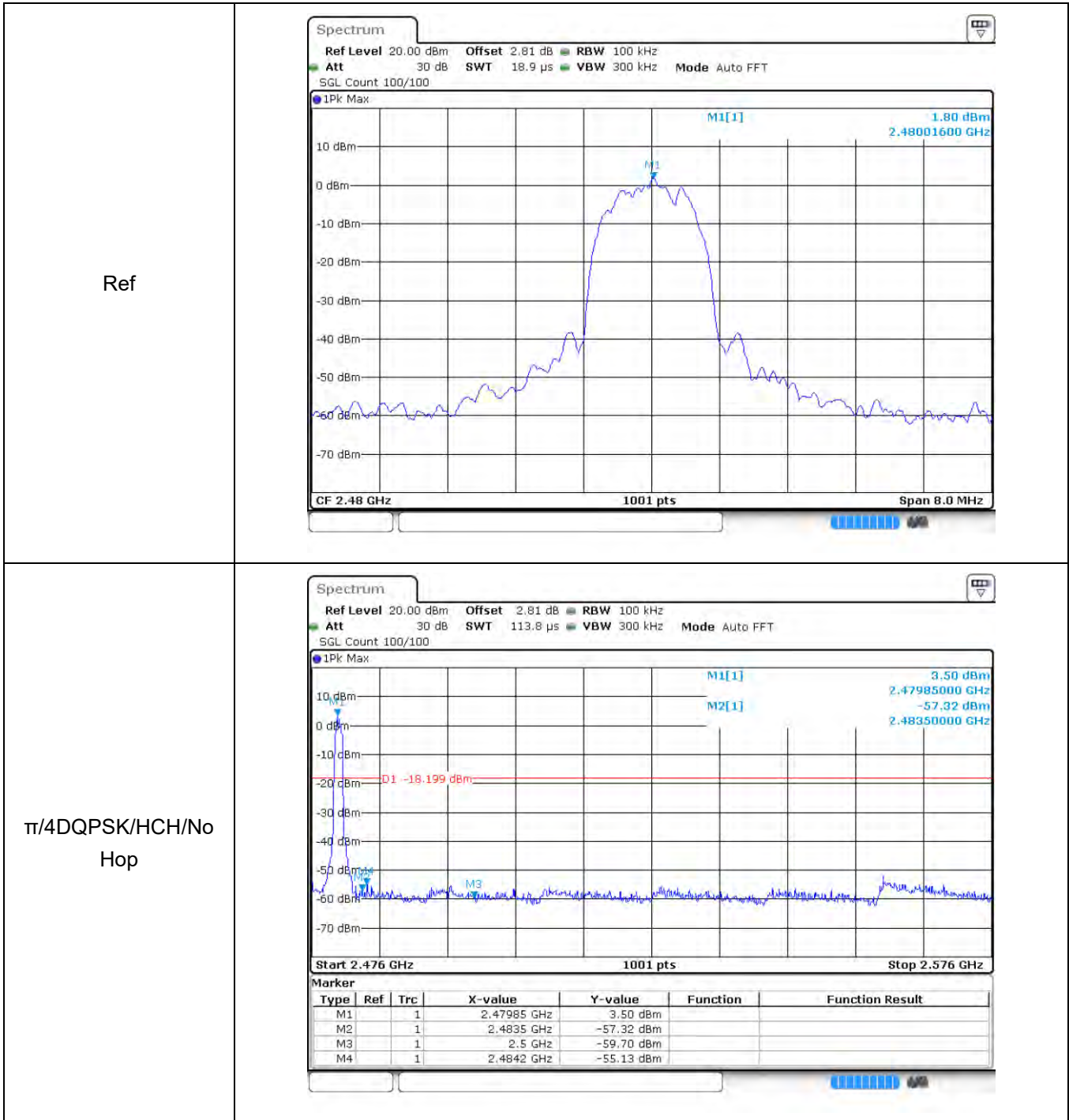




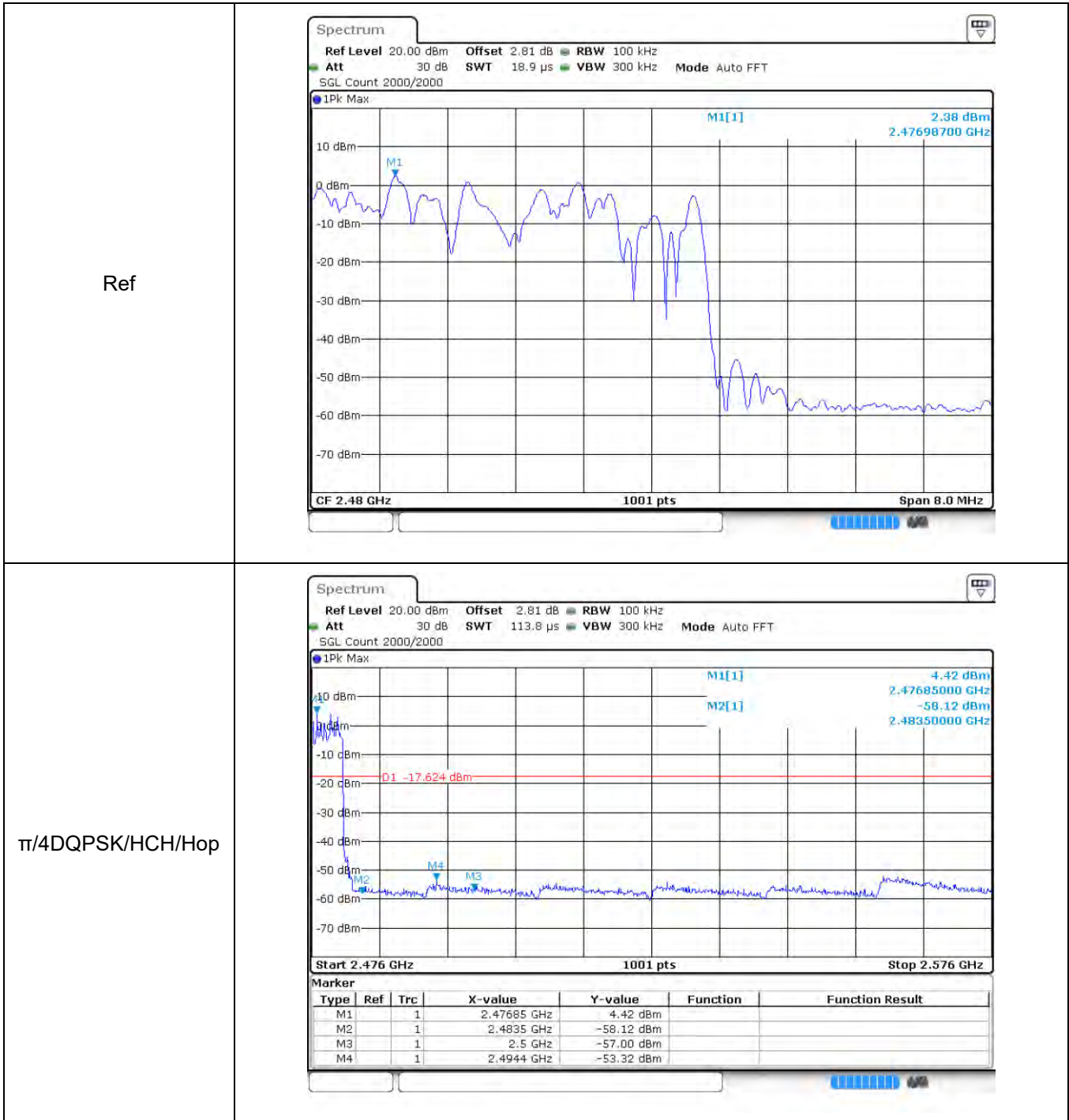


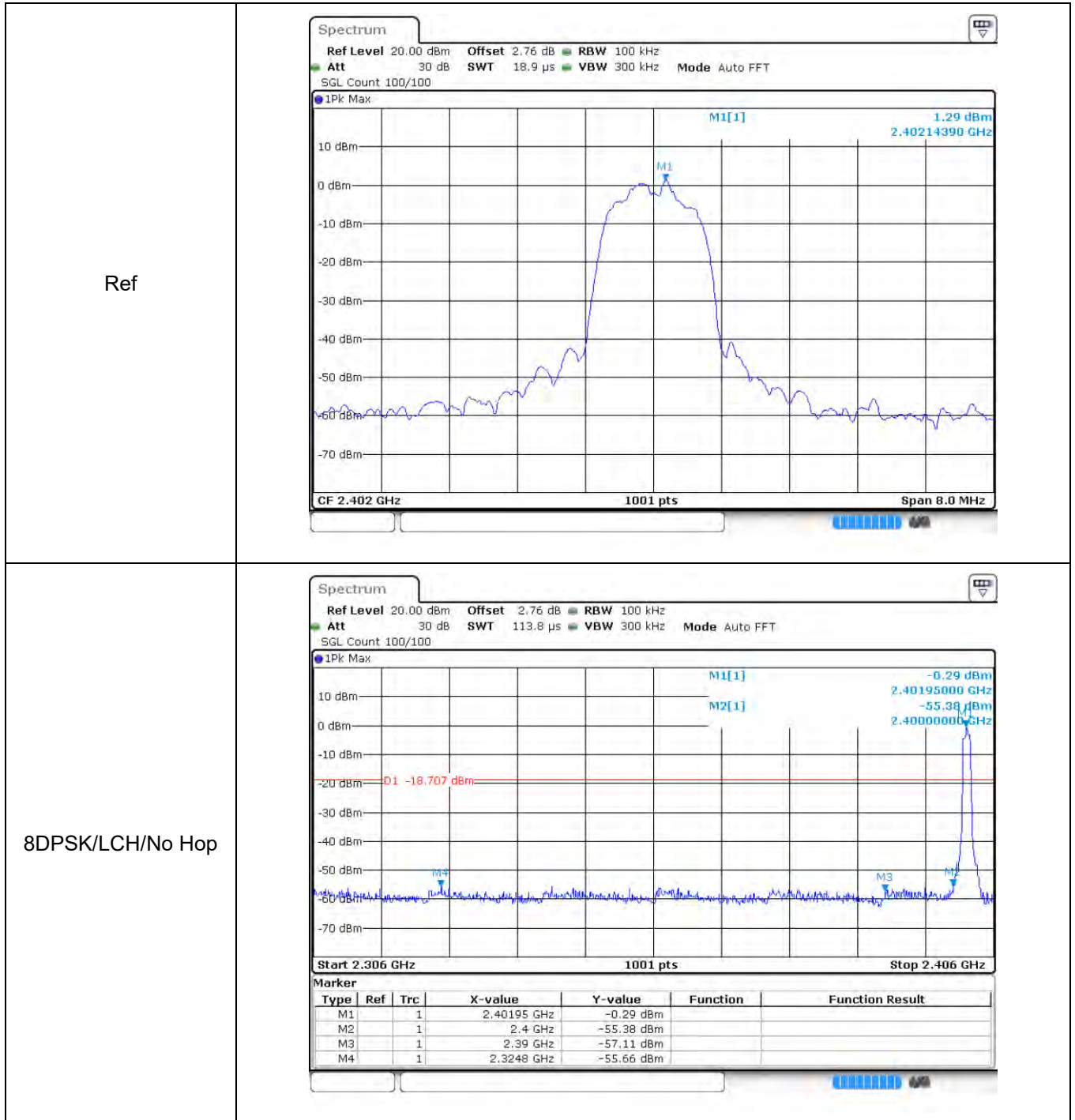


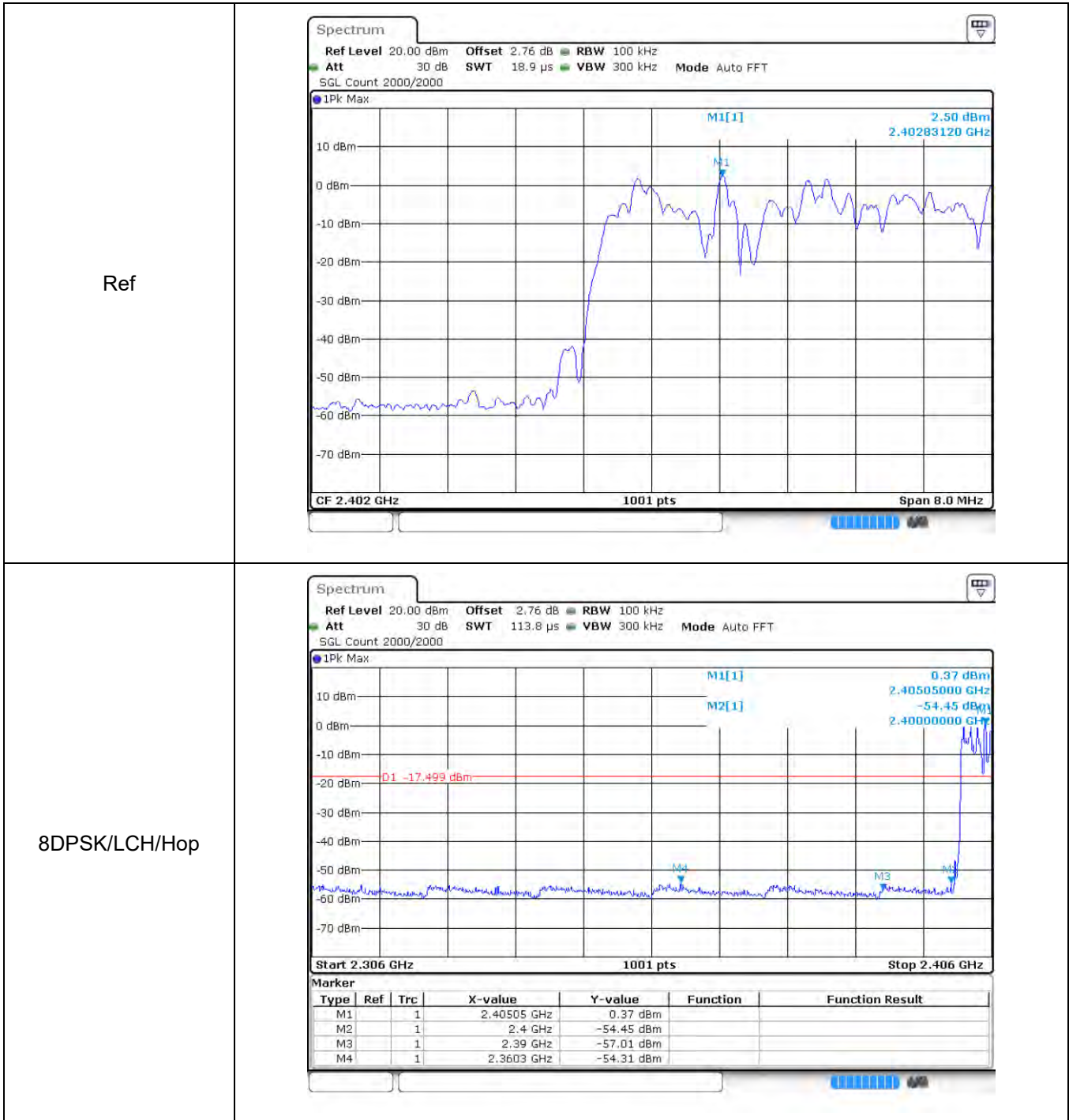


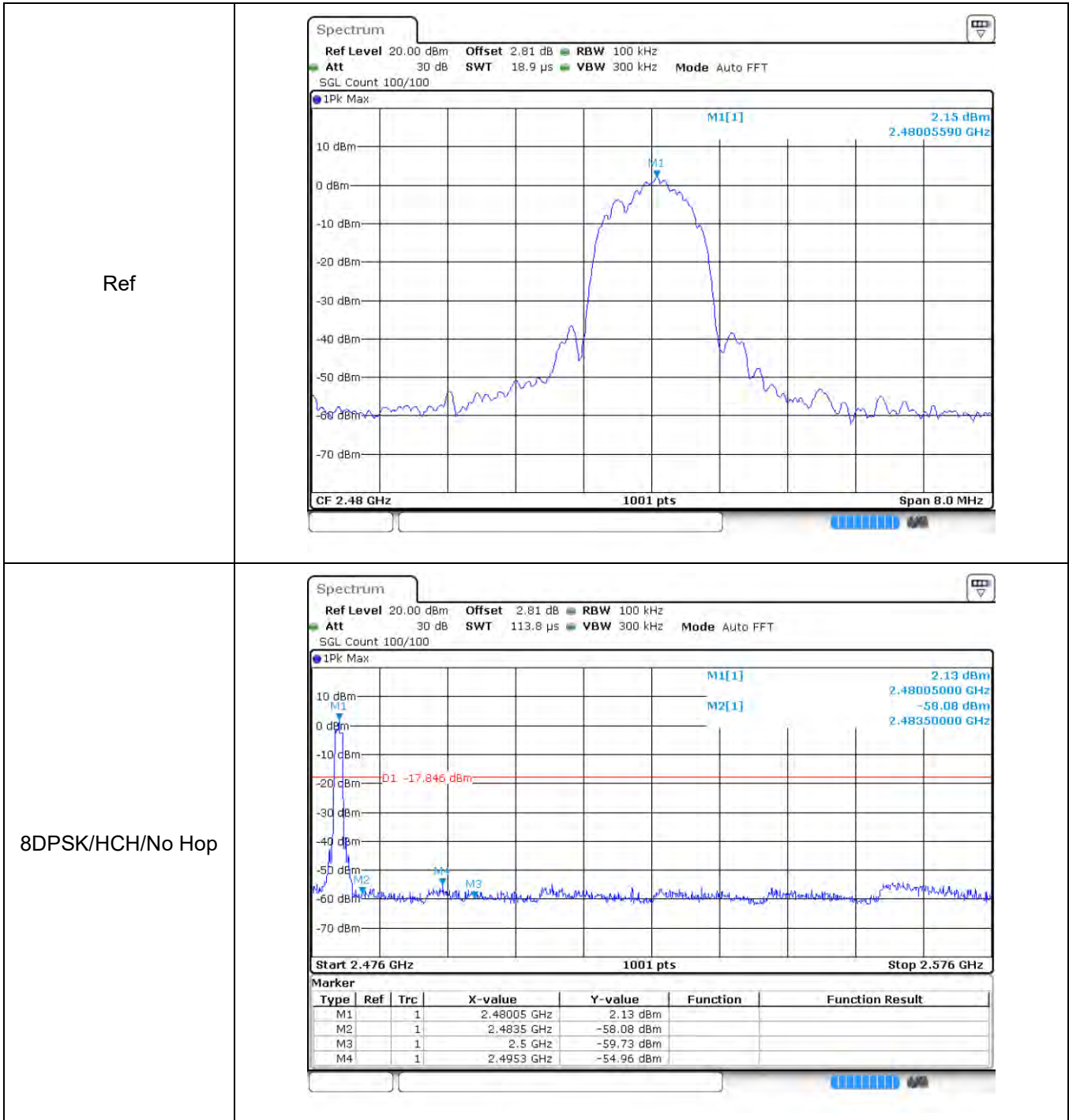


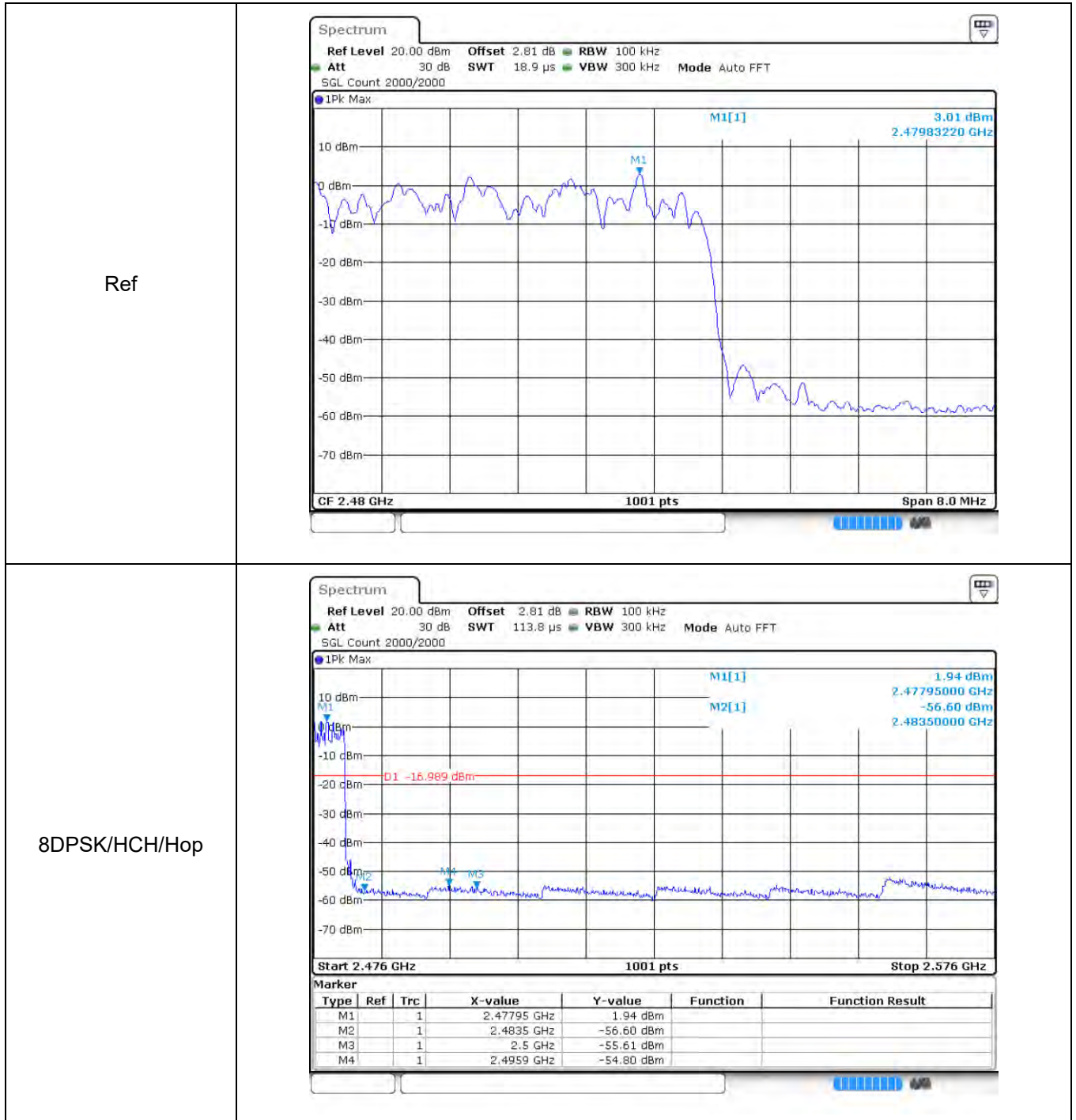












## 9 Restrict-band band-edge measurements

### 9.1 Test Result

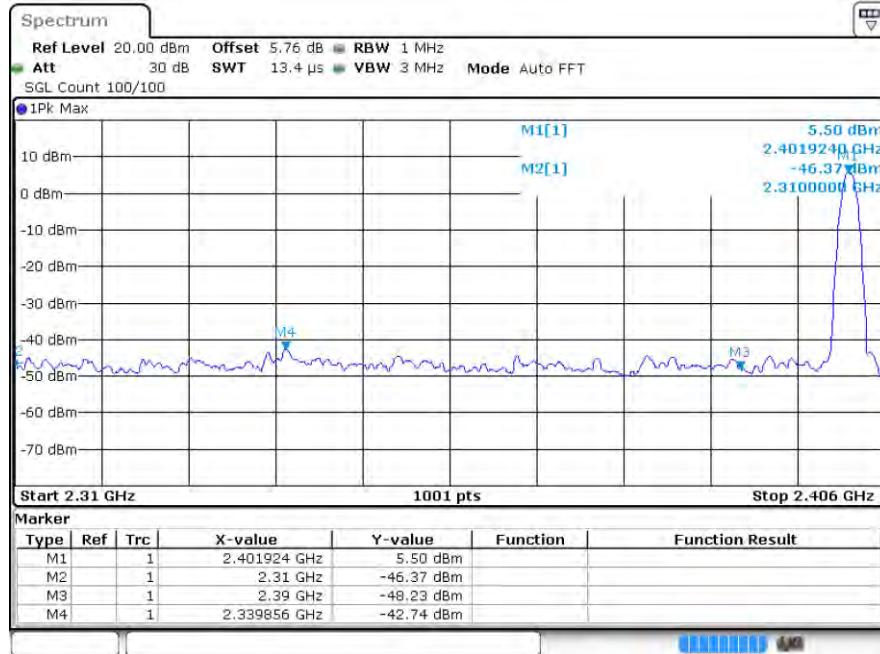
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-46.36	3	51.9	PEAK	74	Pass
	Off	2310.0	-54.02	3	44.24	AV	54	Pass
	Off	2339.856	-42.73	3	55.53	PEAK	74	Pass
	Off	2338.128	-52.11	3	46.15	AV	54	Pass
	Off	2390.0	-48.22	3	50.04	PEAK	74	Pass
	Off	2390.0	-55.39	3	42.87	AV	54	Pass
	Off	2483.5	-46.82	3	51.44	PEAK	74	Pass
	Off	2483.5	-54.01	3	44.25	AV	54	Pass
	Off	2491.504	-42.94	3	55.32	PEAK	74	Pass
	Off	2488.96	-52.49	3	45.77	AV	54	Pass
	Off	2500.0	-46.01	3	52.25	PEAK	74	Pass
	Off	2500.0	-55.75	3	42.51	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-46.27	3	51.99	PEAK	74	Pass
	Off	2310.0	-54.14	3	44.12	AV	54	Pass
	Off	2340.336	-42.72	3	55.54	PEAK	74	Pass
	Off	2338.512	-52.34	3	45.92	AV	54	Pass
	Off	2390.0	-48.89	3	49.37	PEAK	74	Pass
	Off	2390.0	-56.06	3	42.2	AV	54	Pass
	Off	2483.5	-47.39	3	50.87	PEAK	74	Pass
	Off	2483.5	-54.03	3	44.23	AV	54	Pass
	Off	2488.552	-44.25	3	54.01	PEAK	74	Pass
	Off	2489.032	-53.12	3	45.14	AV	54	Pass
	Off	2500.0	-47.37	3	50.89	PEAK	74	Pass
	Off	2500.0	-55.2	3	43.06	AV	54	Pass
8DPSK	Off	2310.0	-46.23	3	52.03	PEAK	74	Pass
	Off	2310.0	-53.96	3	44.3	AV	54	Pass
	Off	2340.048	-43.82	3	54.44	PEAK	74	Pass
	Off	2338.128	-52.43	3	45.83	AV	54	Pass



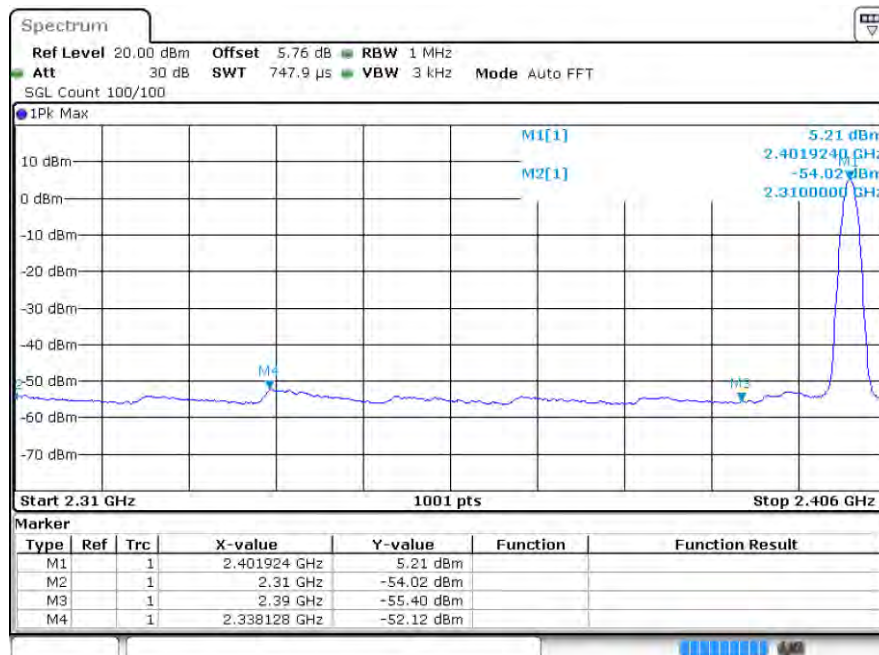
Off	2390.0	-47.95	3	50.31	PEAK	74	Pass
Off	2390.0	-55.59	3	42.67	AV	54	Pass
Off	2483.5	-47.22	3	51.04	PEAK	74	Pass
Off	2483.5	-53.59	3	44.67	AV	54	Pass
Off	2488.648	-43.26	3	55	PEAK	74	Pass
Off	2488.576	-53.3	3	44.96	AV	54	Pass
Off	2500.0	-45.72	3	52.54	PEAK	74	Pass
Off	2500.0	-55.76	3	42.5	AV	54	Pass

## 9.2 Test Graphs

Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)

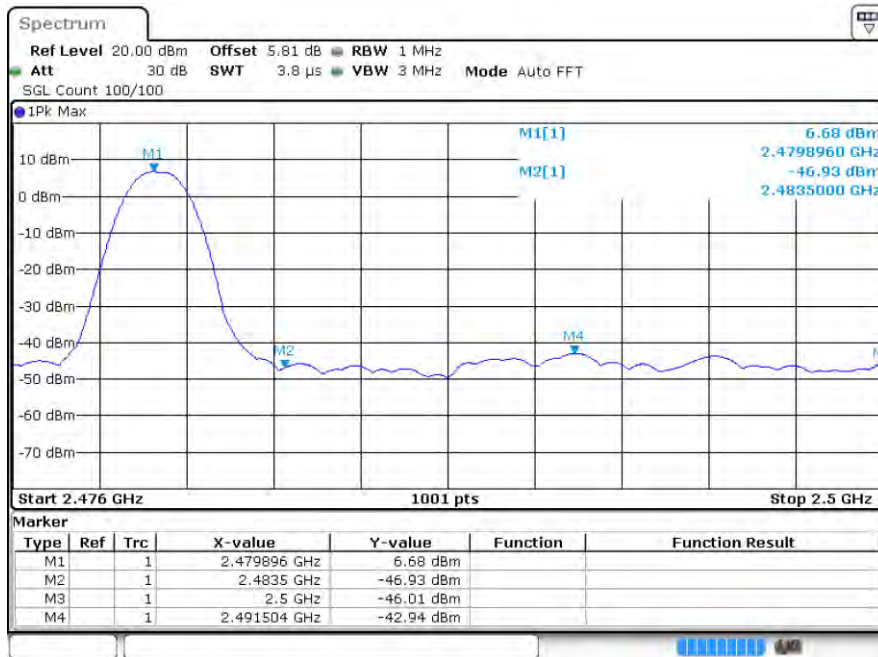


Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)

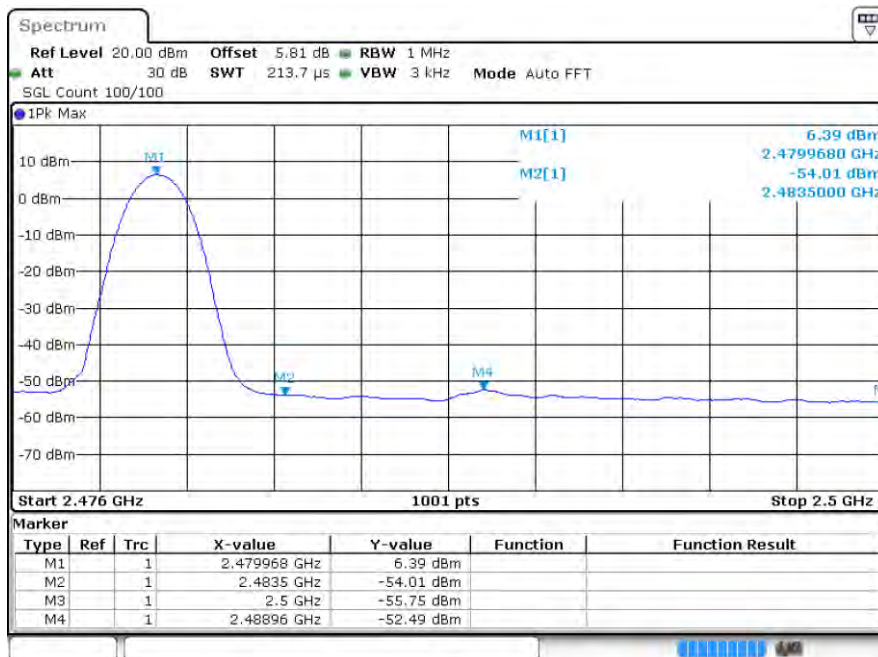




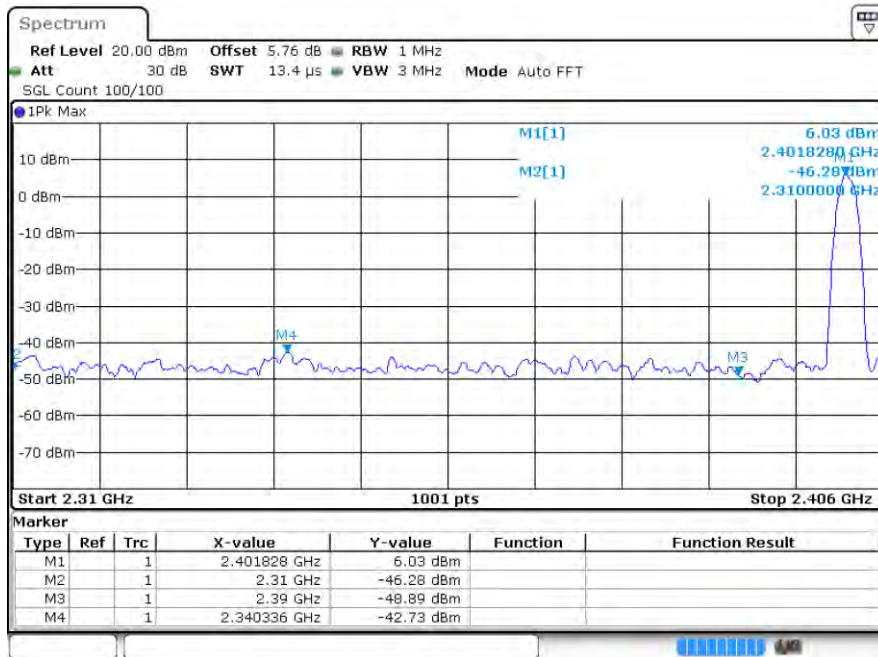
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



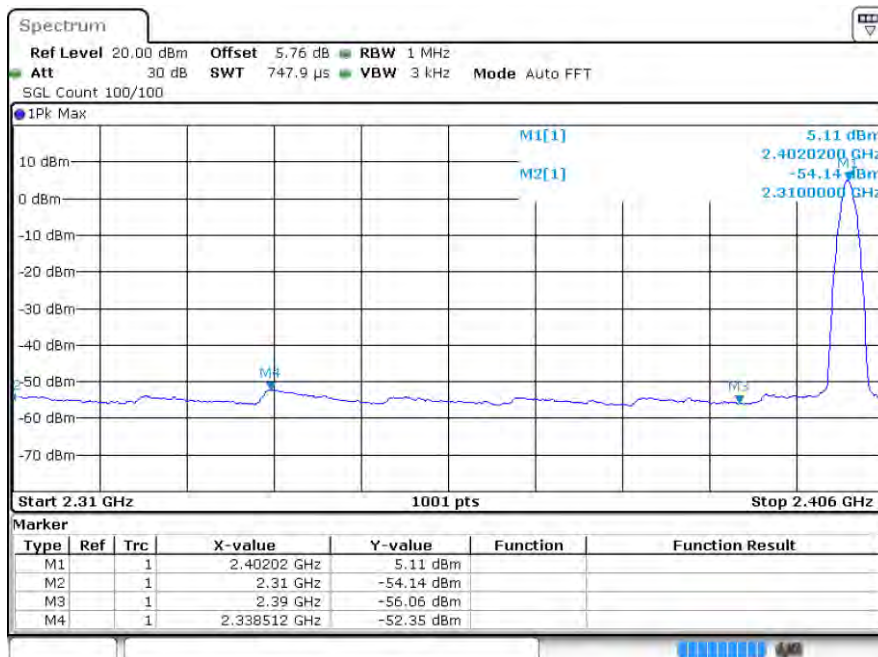
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



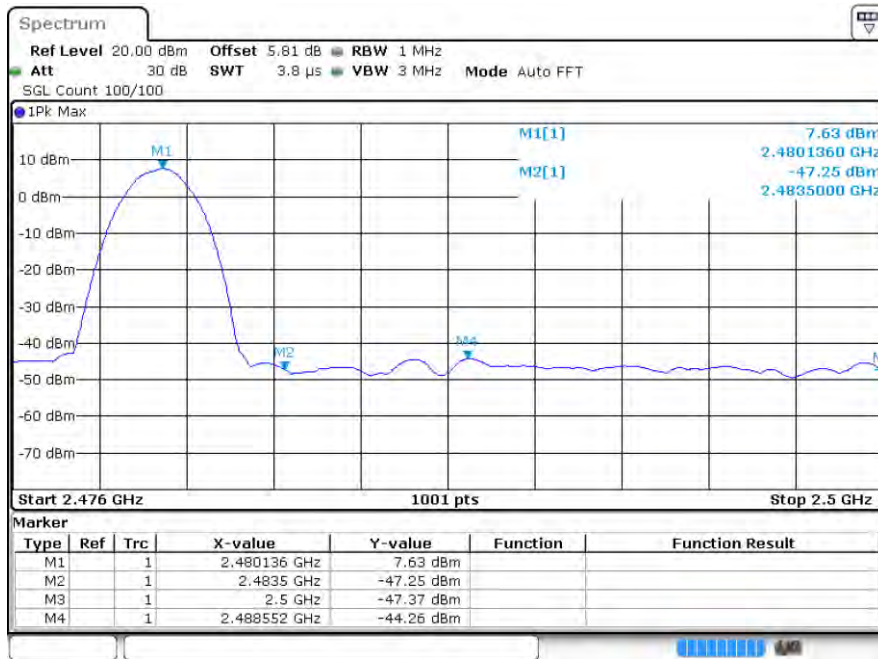
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (Low Channel)



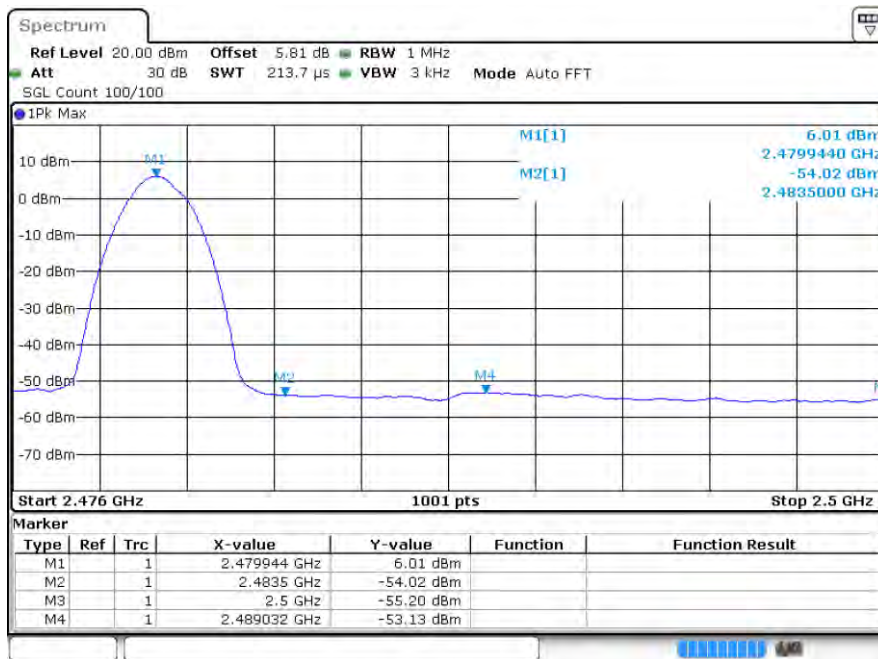
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (Low Channel)



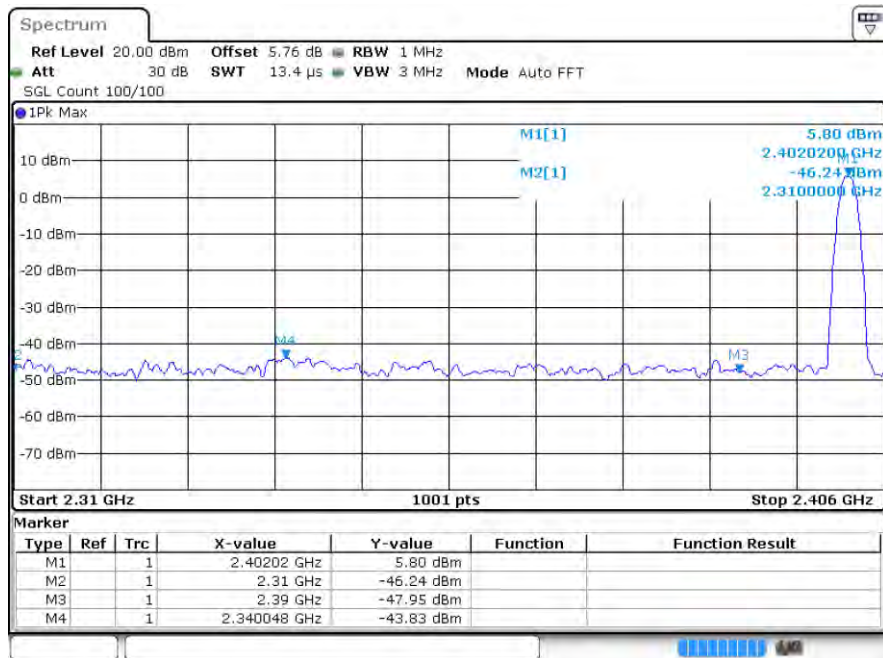
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



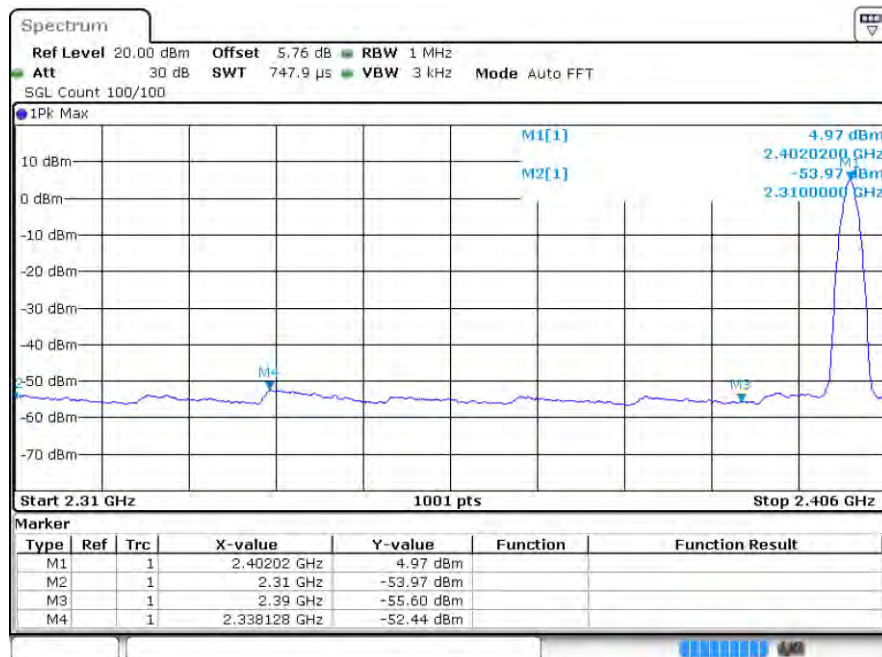
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



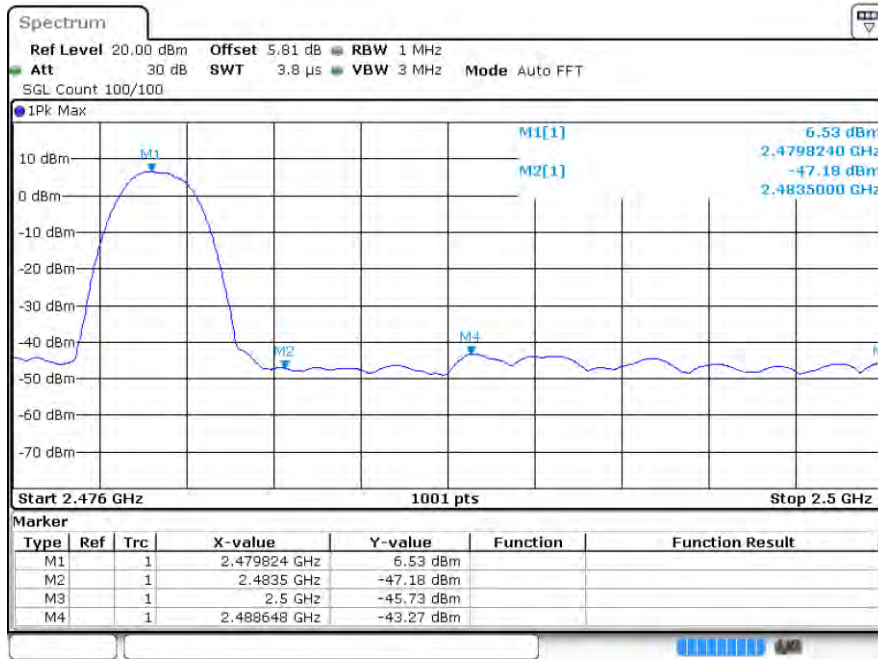
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



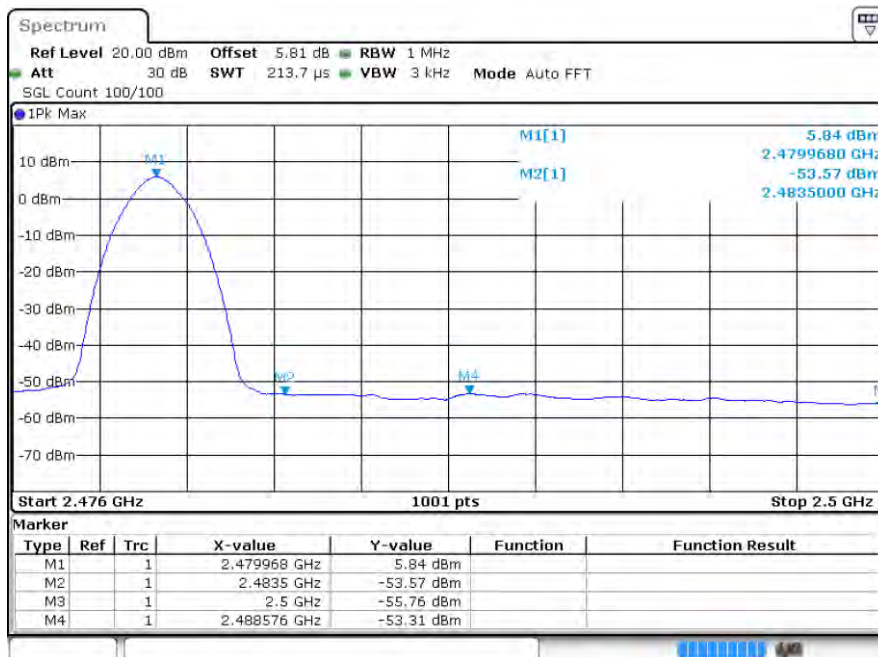
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (Low Channel)



Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (High Channel)



Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (High Channel)



---The End---