



## Appendix A

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

Product Name: Wireless On-Ear Headphones

Trade Mark: Zamkol

Test Model: ZH300

#### Environmental Conditions

Temperature:	23.6°C
Relative Humidity:	50.8%
ATM Pressure:	101Kpa
Test Engineer:	Simba Huang
Supervised by:	Seal Chen

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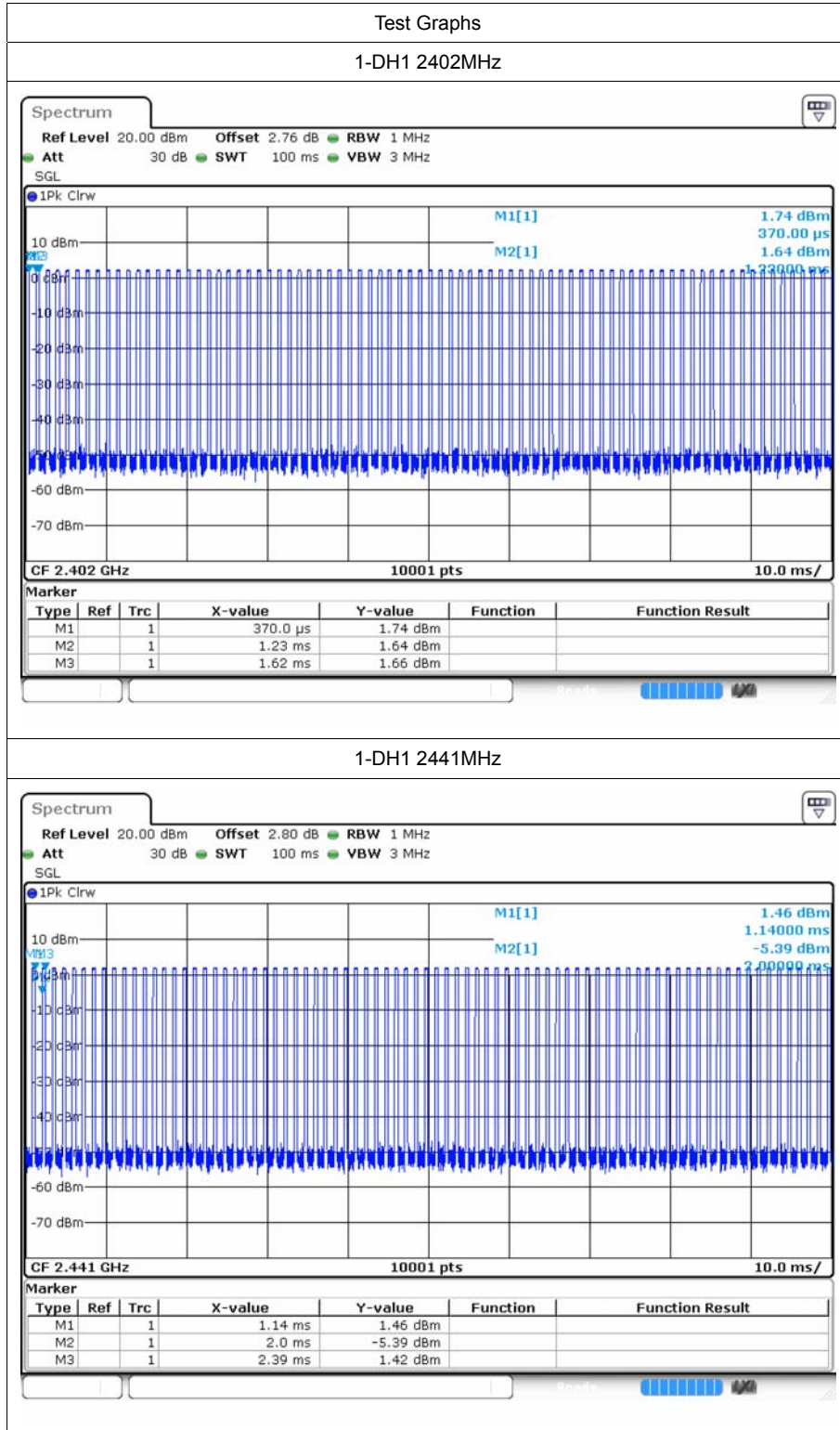
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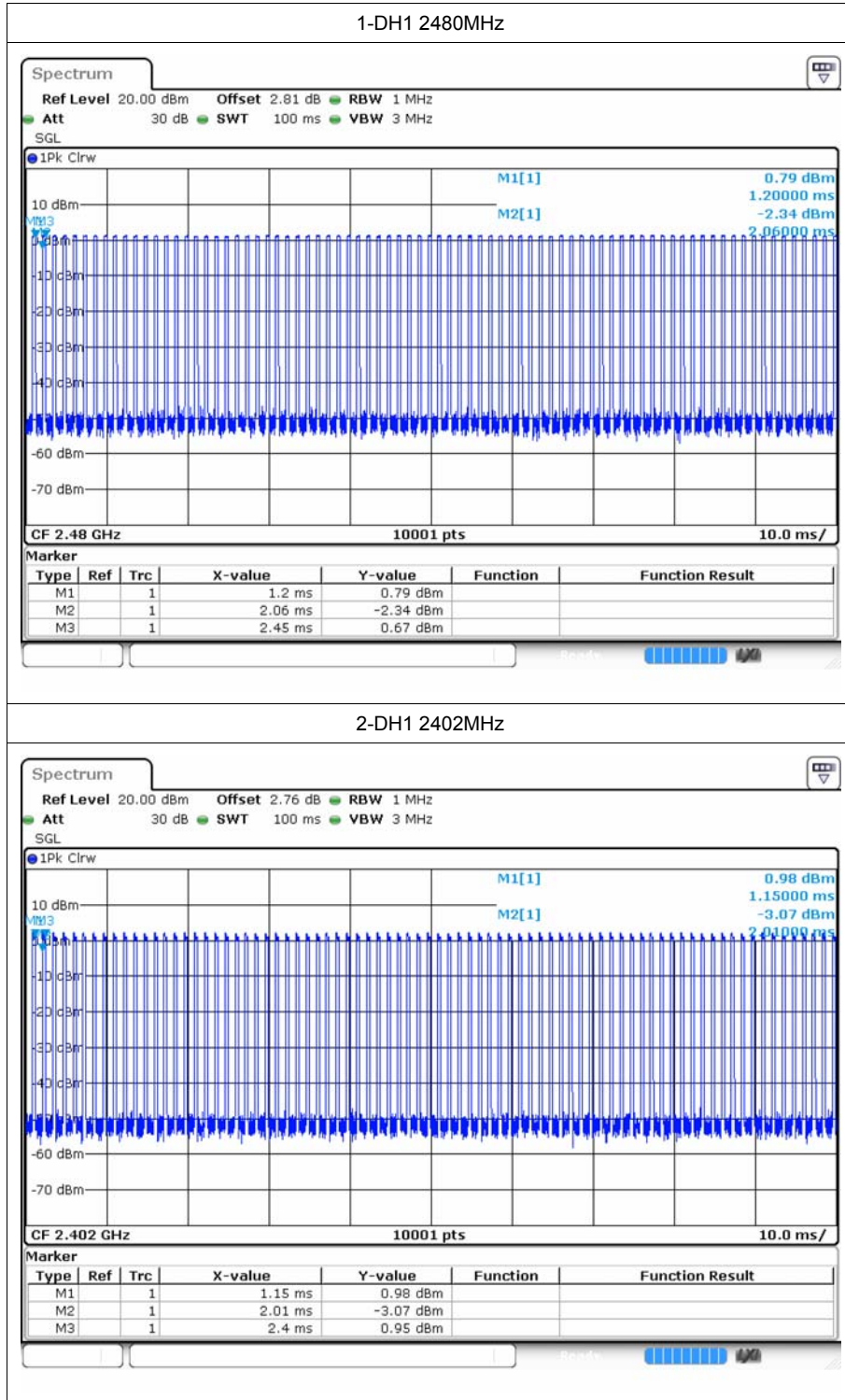
# 1 Duty Cycle

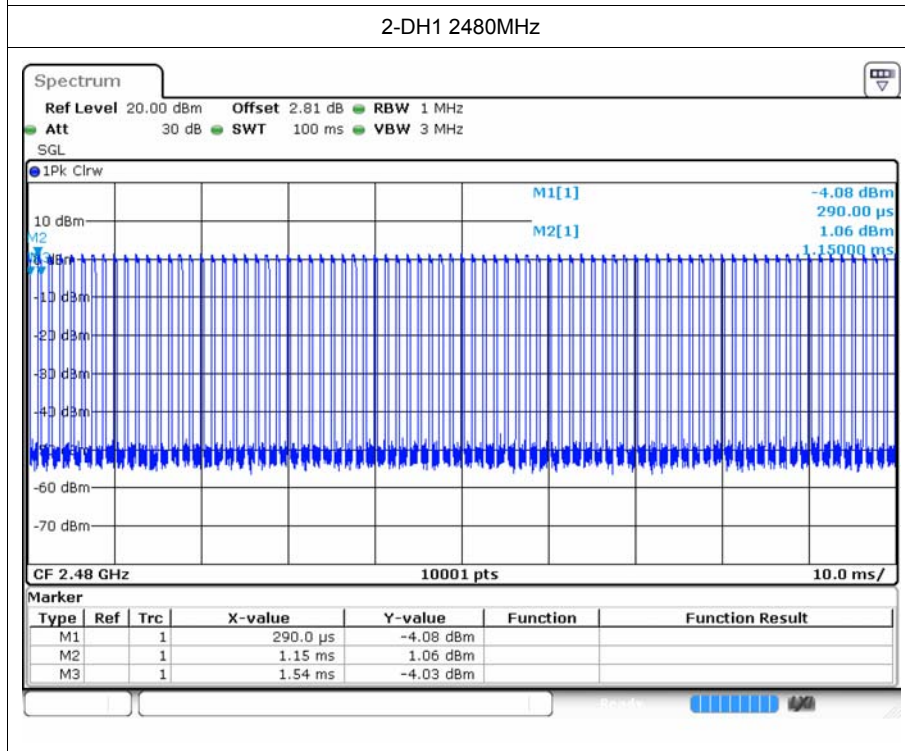
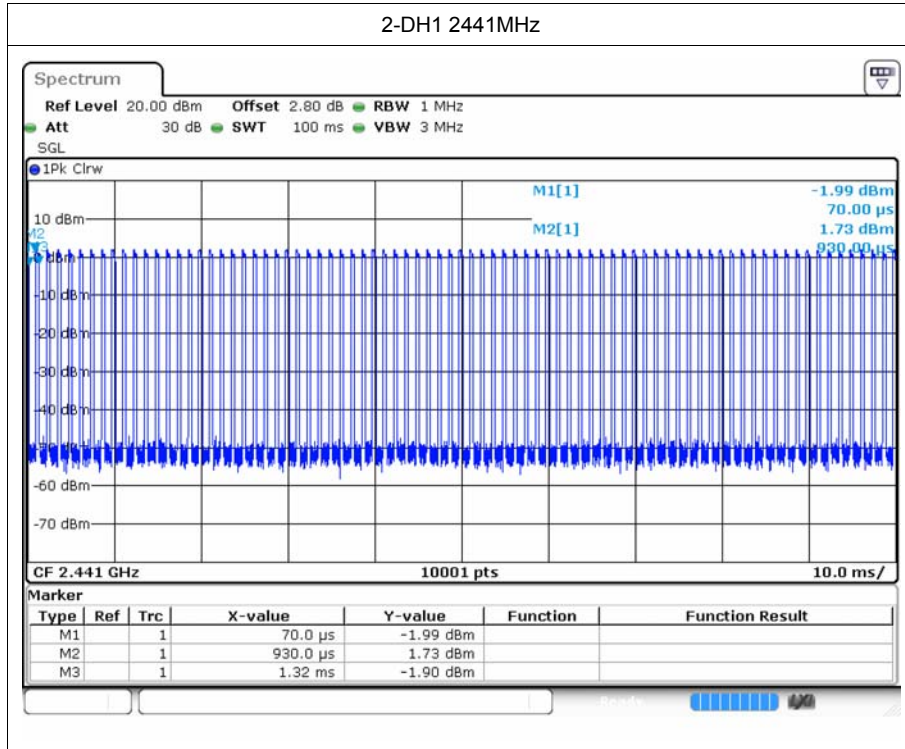
## 1.1 Test Result

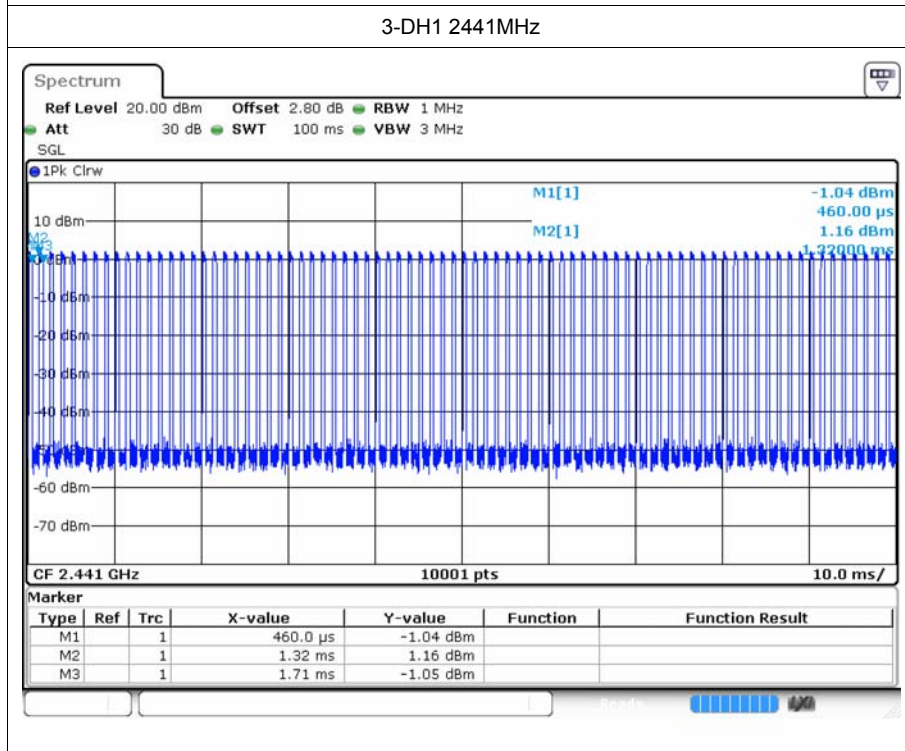
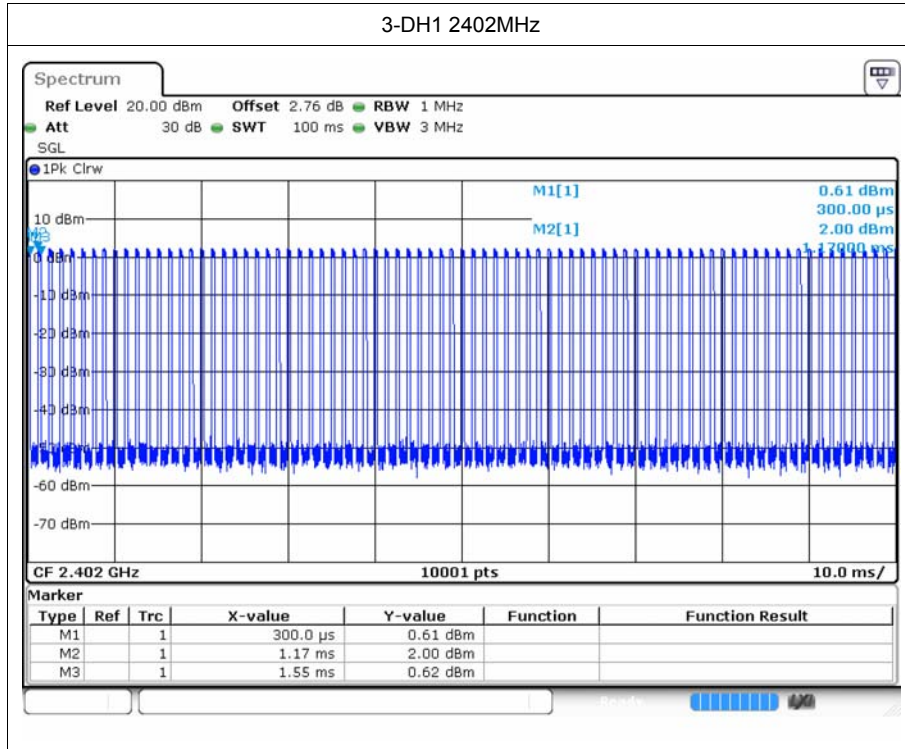
Mode	Frequency (MHz)	Duty Cycle (%)	1/T (kHz)
1-DH1	2402	32.01	2.56
1-DH1	2441	32.31	2.56
1-DH1	2480	32	2.56
2-DH1	2402	32	2.56
2-DH1	2441	32.01	2.56
2-DH1	2480	32.01	2.56
3-DH1	2402	31.74	2.63
3-DH1	2441	32	2.56
3-DH1	2480	32	2.56

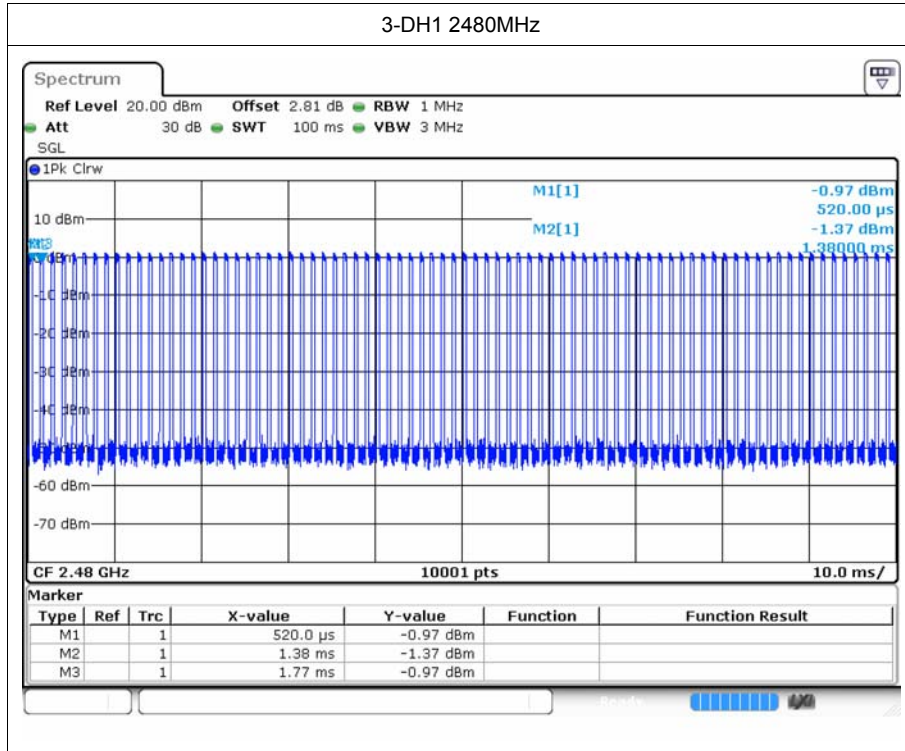
## 1.2 Test Graphs











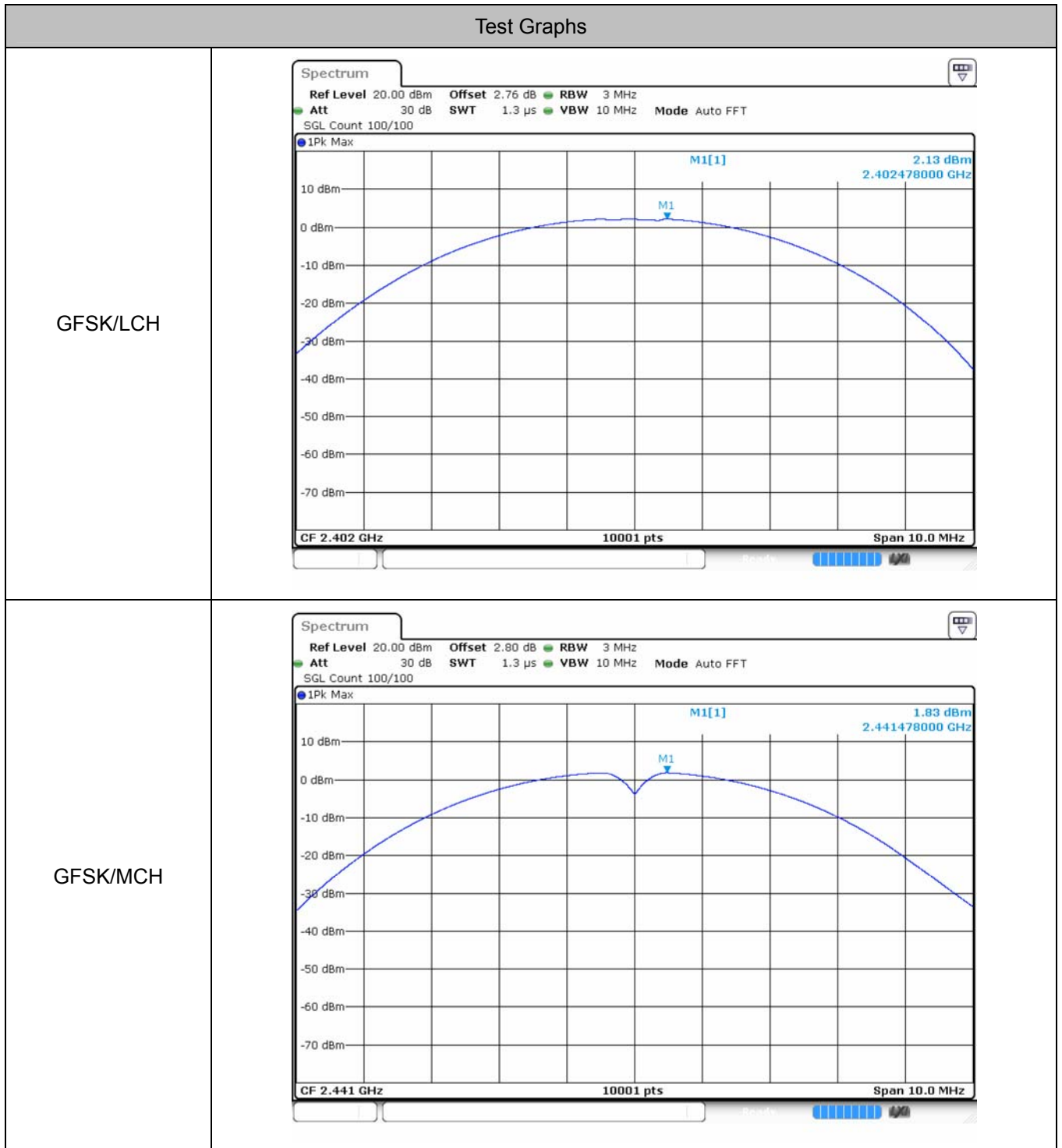


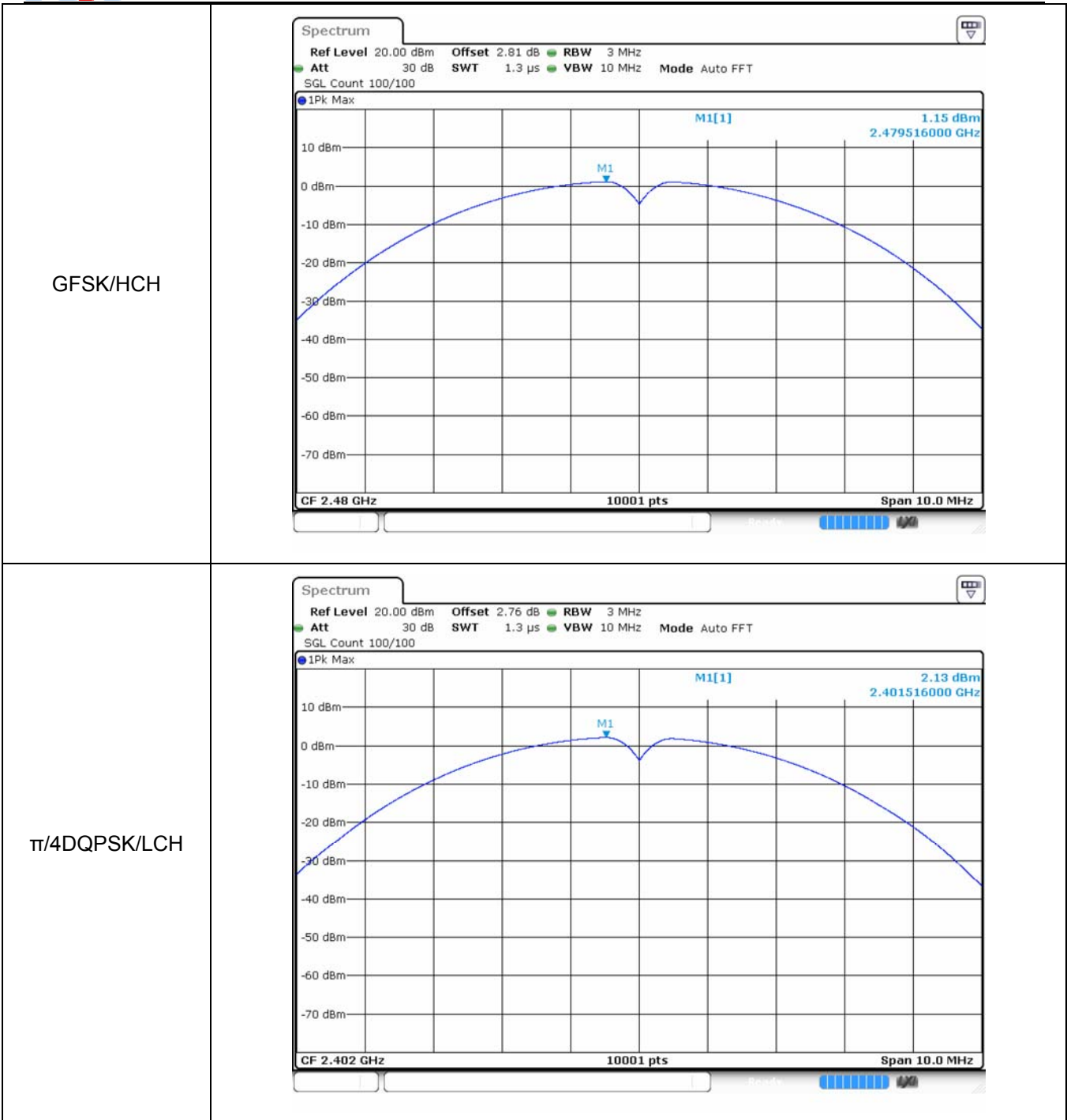
## 2 Maximum Conducted Peak Output Power

### 2.1 Test Result

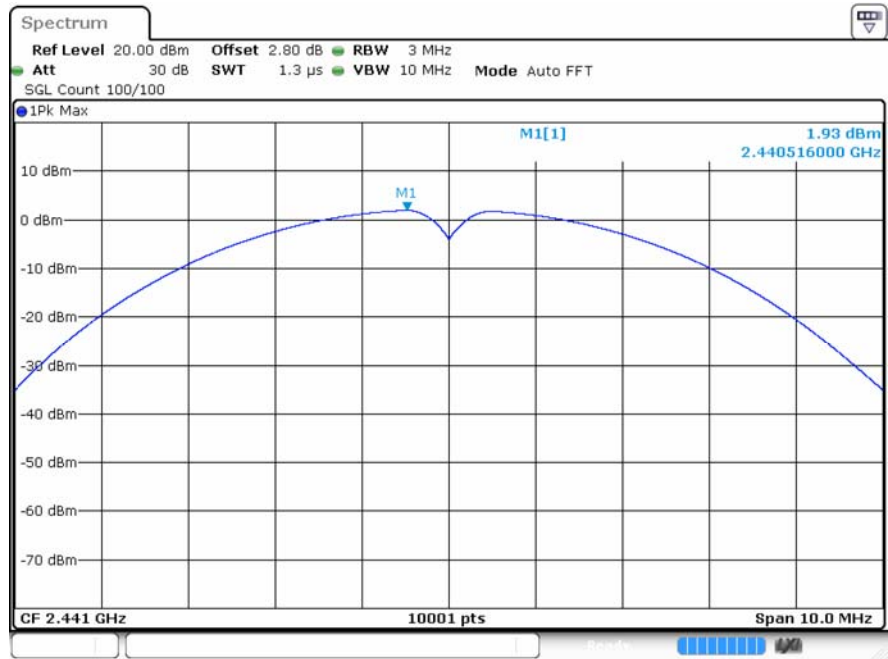
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.13	21	Pass
	MCH	1.83	21	Pass
	HCH	1.15	21	Pass
$\pi/4$ DQPSK	LCH	2.13	21	Pass
	MCH	1.93	21	Pass
	HCH	1.07	21	Pass
8DPSK	LCH	2.13	21	Pass
	MCH	1.98	21	Pass
	HCH	1.1	21	Pass

## 2.2 Test Graphs

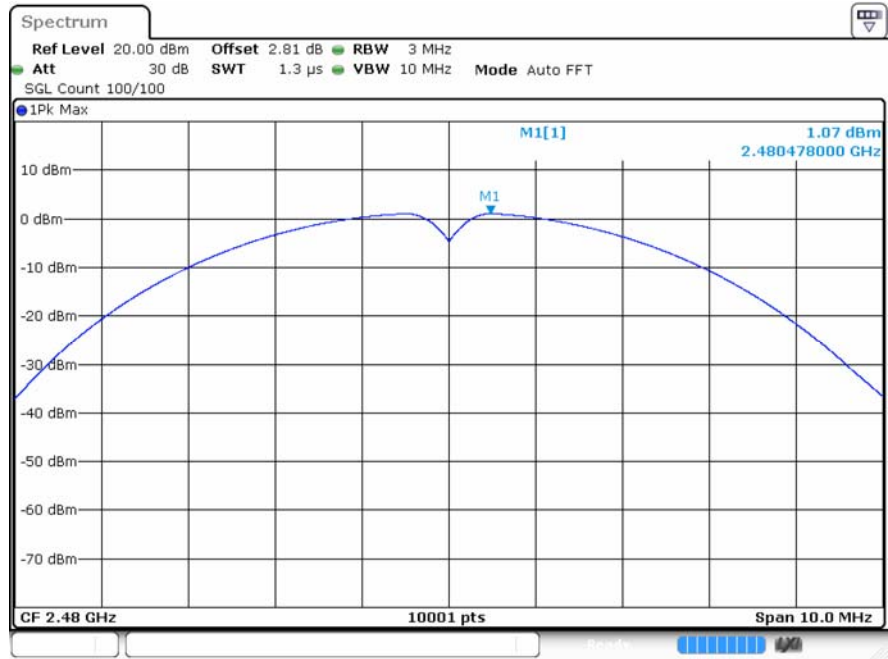




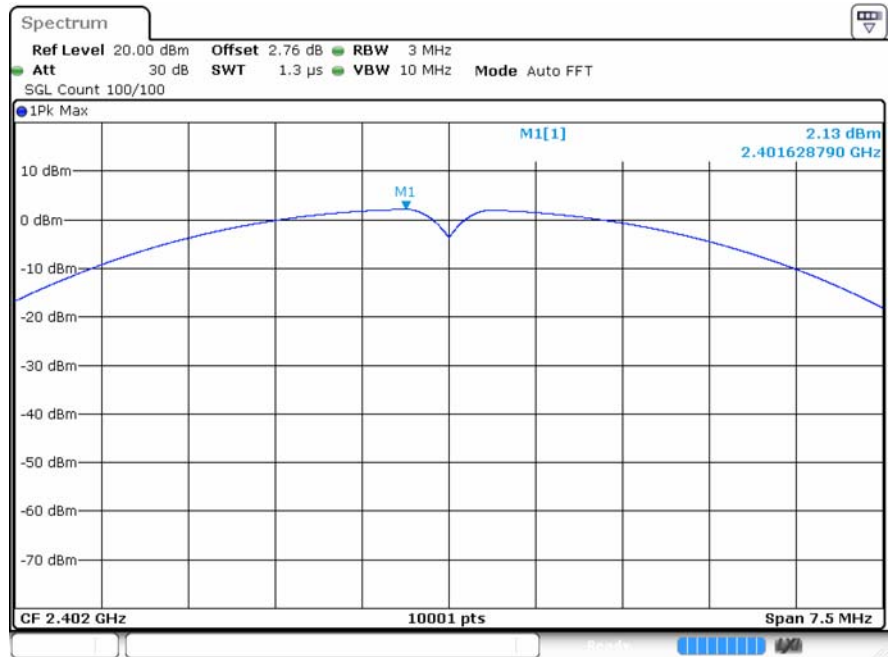
$\pi/4$ DQPSK/MCH



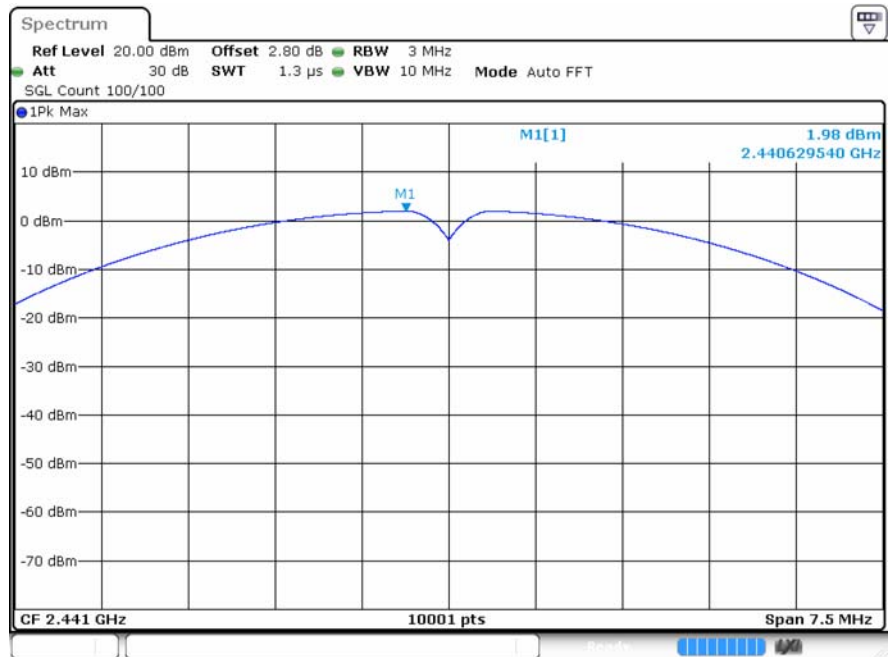
$\pi/4$ DQPSK/HCH



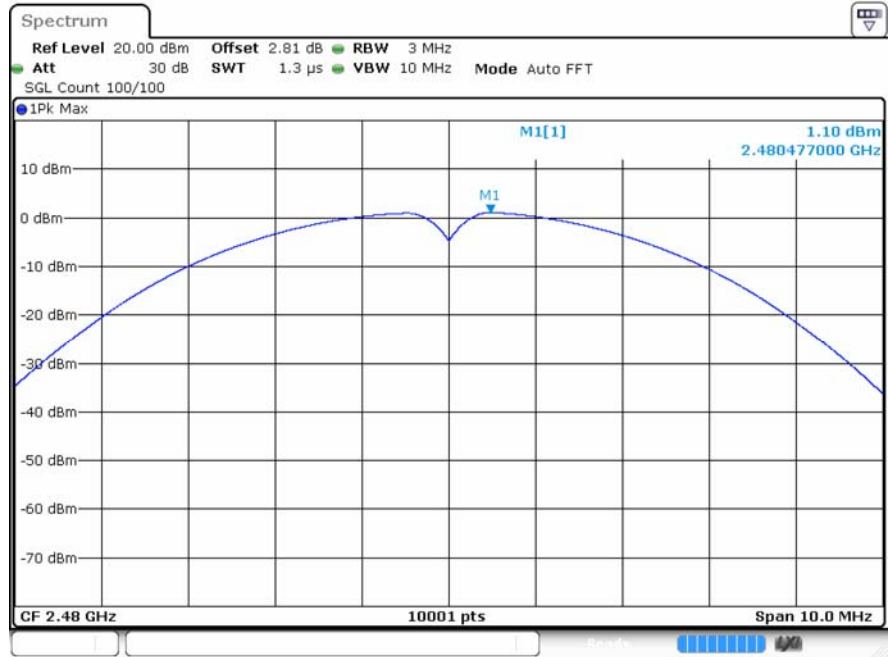
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

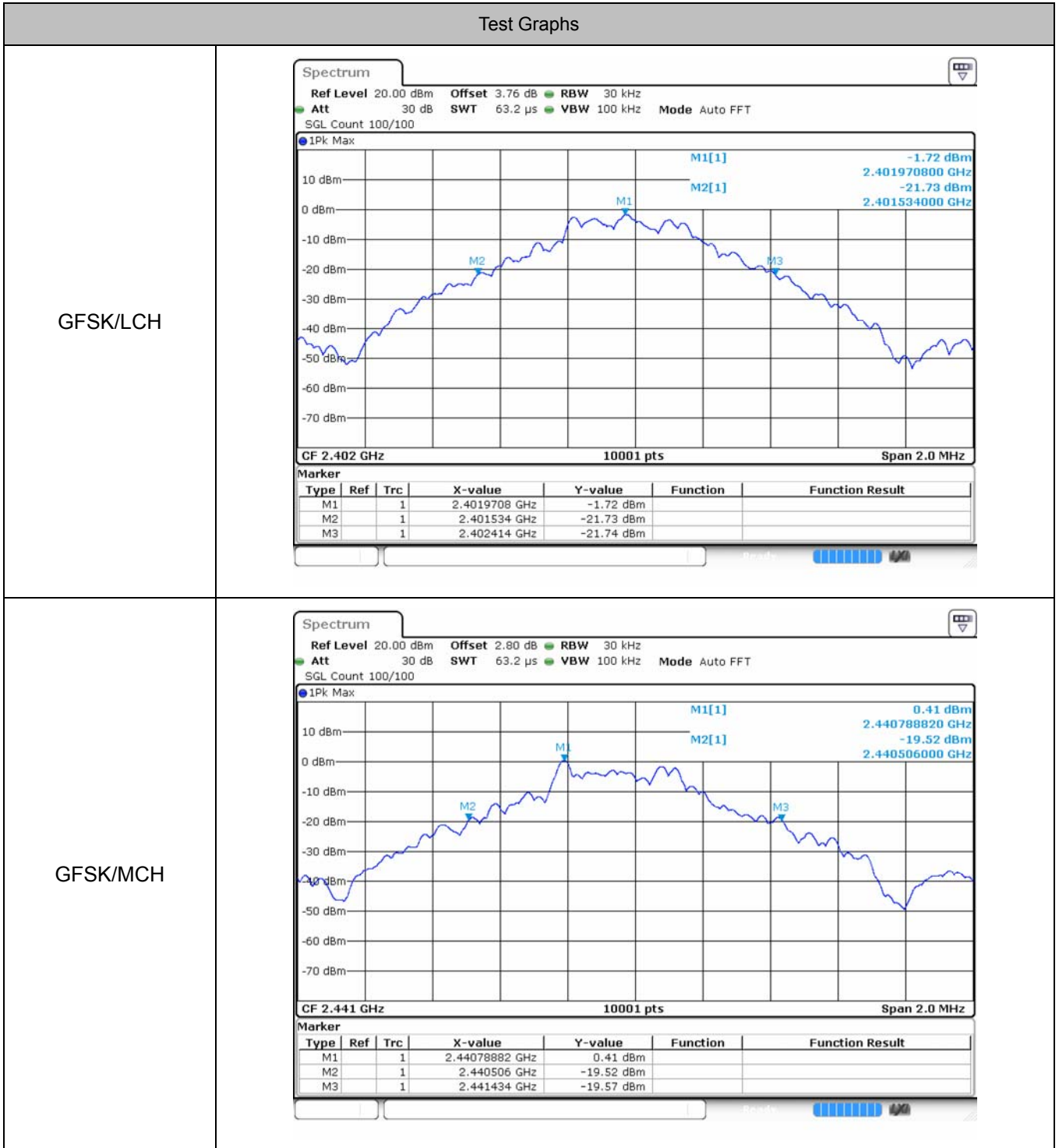


### 3 20dB Bandwidth

#### 3.1 Test Result

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.880	Not Specified	Pass
	MCH	0.928	Not Specified	Pass
	HCH	1.045	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.18	Not Specified	Pass
	MCH	1.253	Not Specified	Pass
	HCH	1.2	Not Specified	Pass
8DPSK	LCH	1.194	Not Specified	Pass
	MCH	1.221	Not Specified	Pass
	HCH	1.174	Not Specified	Pass

### 3.2 Test Graphs





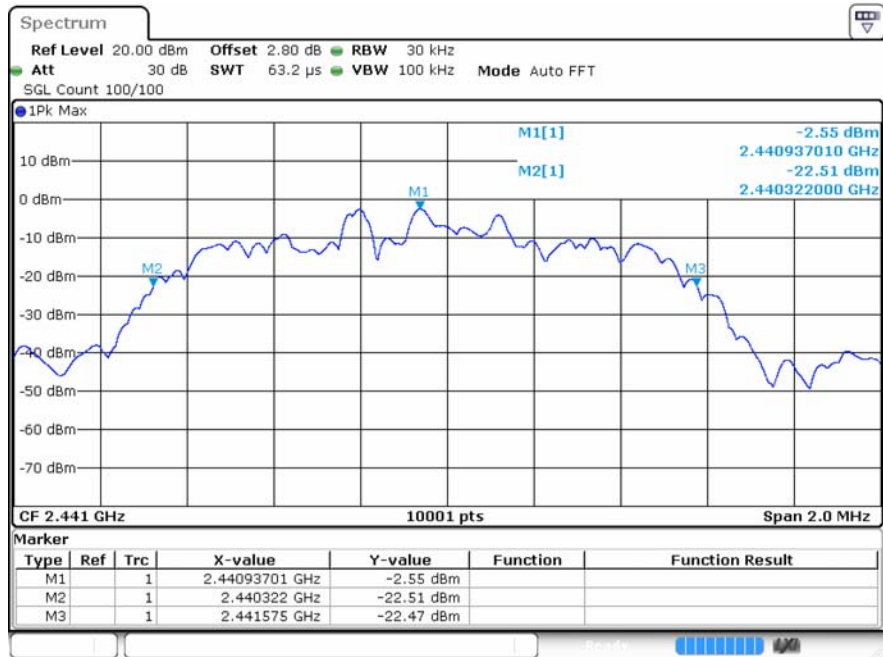
GFSK/HCH



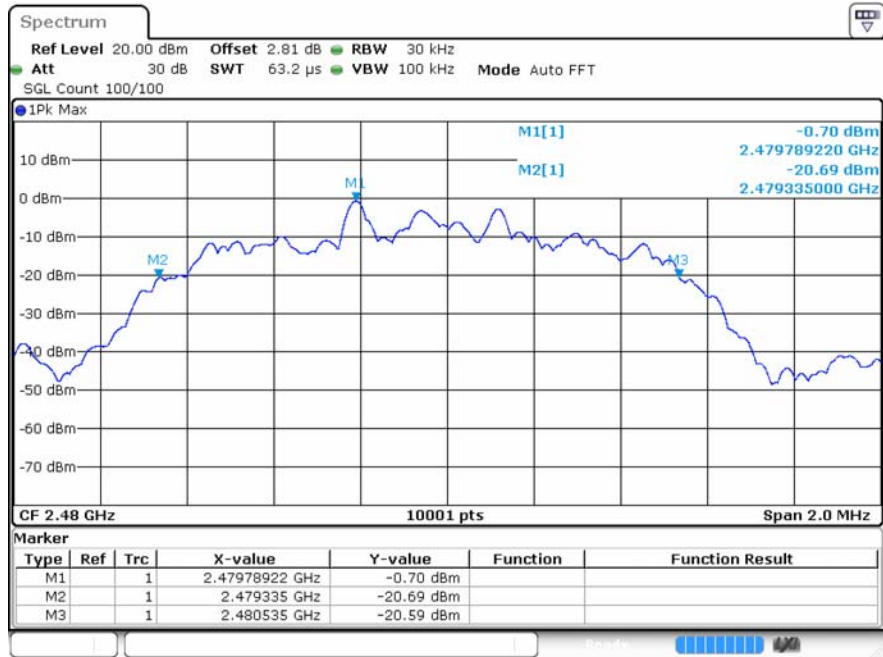
$\pi/4$ DQPSK/LCH



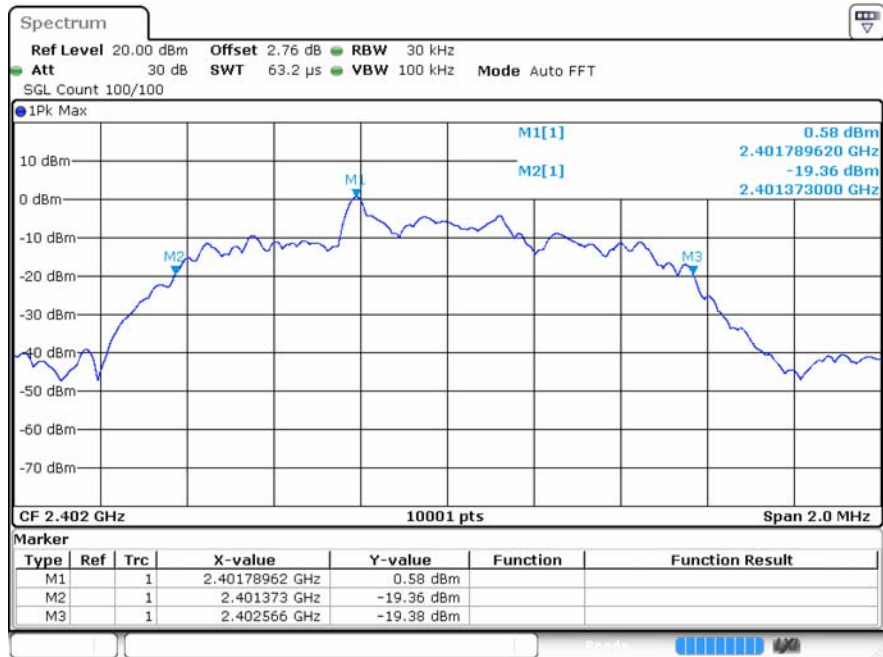
$\pi/4$ DQPSK/MCH



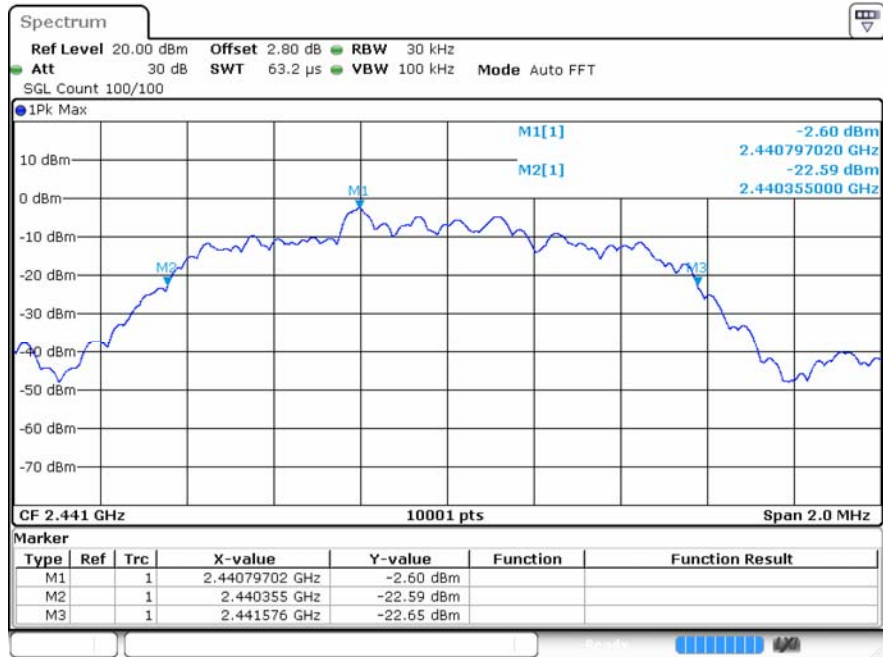
$\pi/4$ DQPSK/HCH



8DPSK/LCH



8DPSK/MCH





8DPSK/HCH

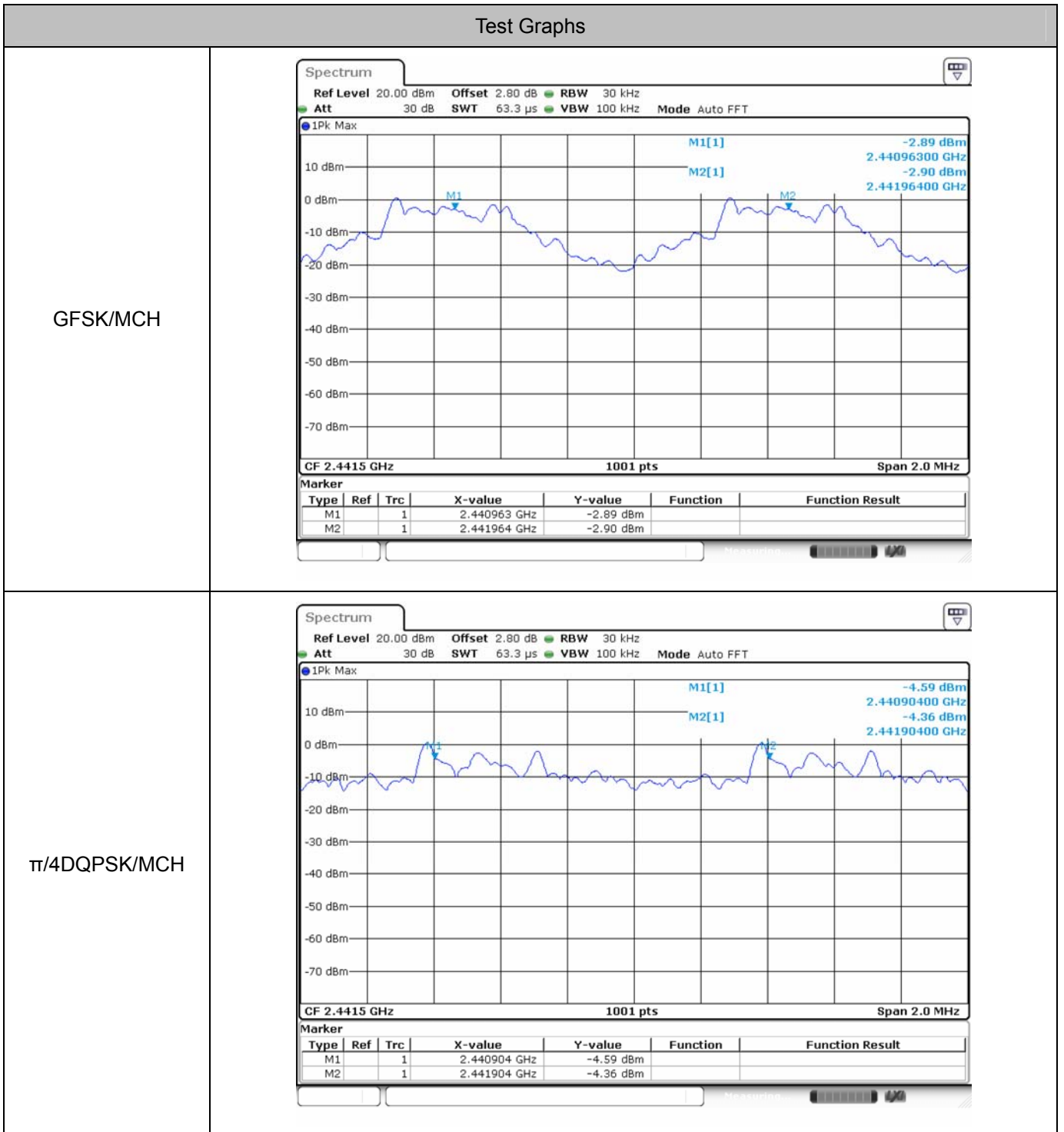


## 4 Carrier Frequency Separation

### 4.1 Test Result

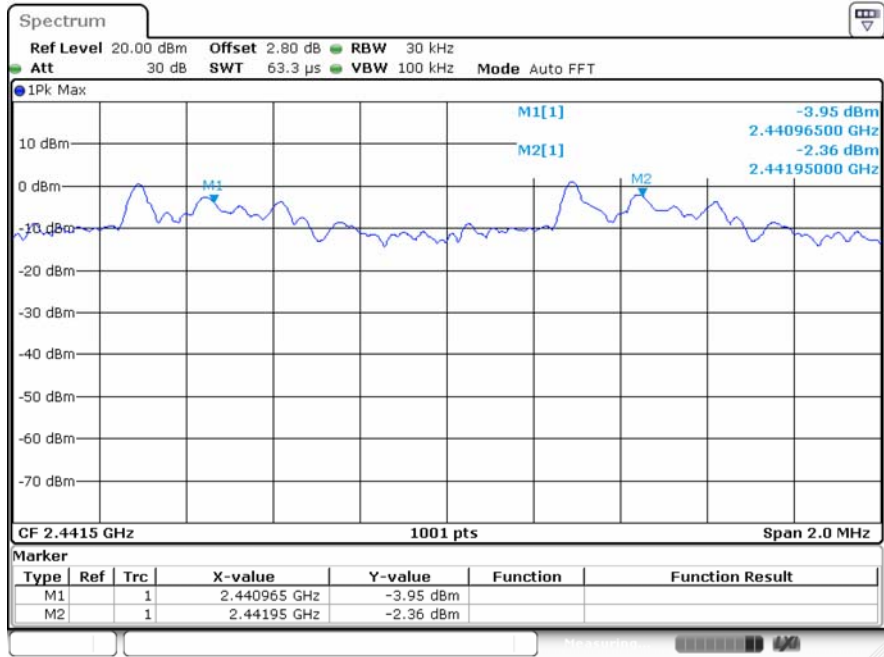
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1.001	0.619	Pass
$\pi/4$ DQPSK	MCH	1	0.835	Pass
8DPSK	MCH	0.985	0.814	Pass

## 4.2 Test Graphs





8DPSK/MCH



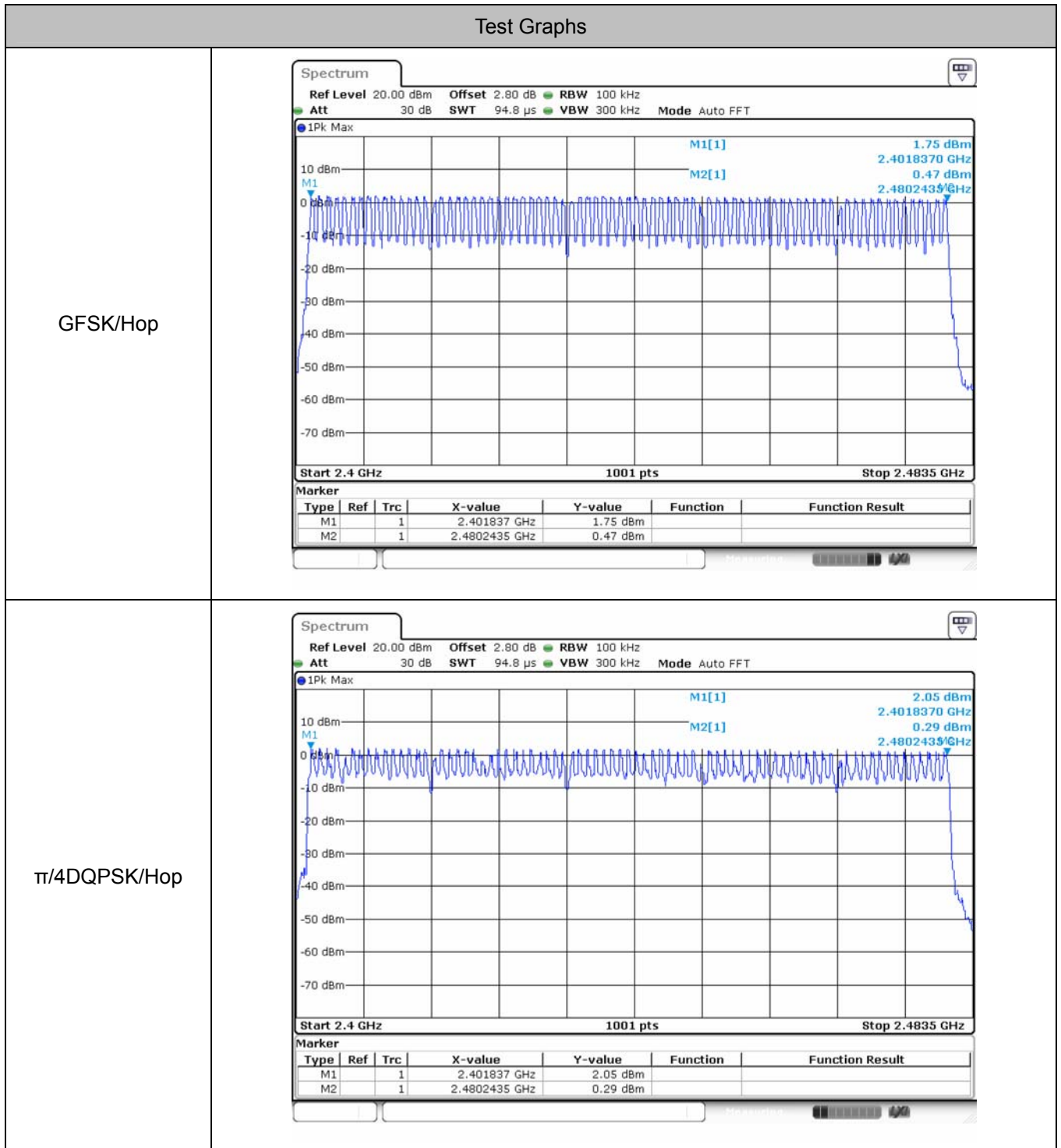
## 5 Hopping Channel Number

### 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

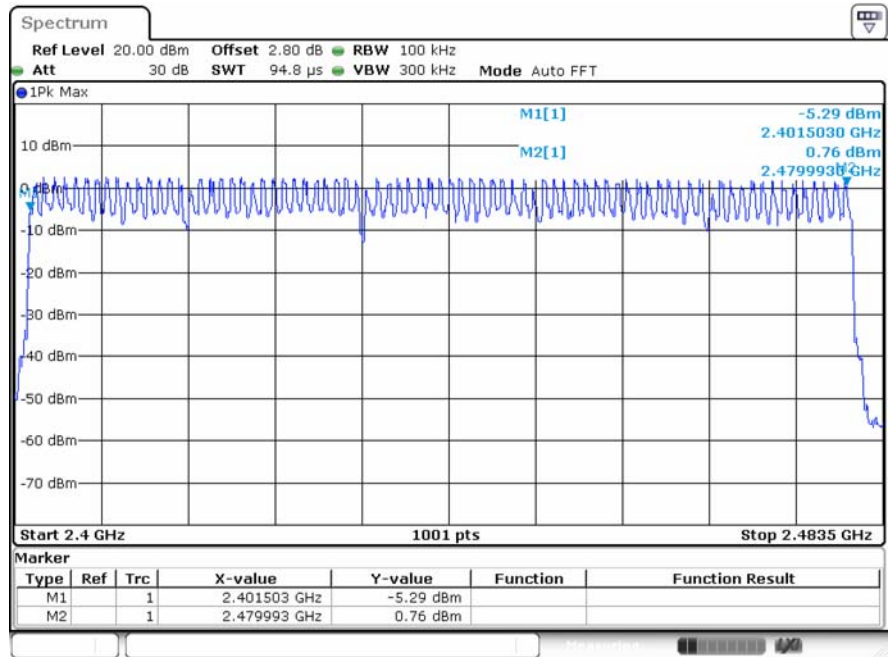


## 5.2 Test Graphs





8DPSK/Hop

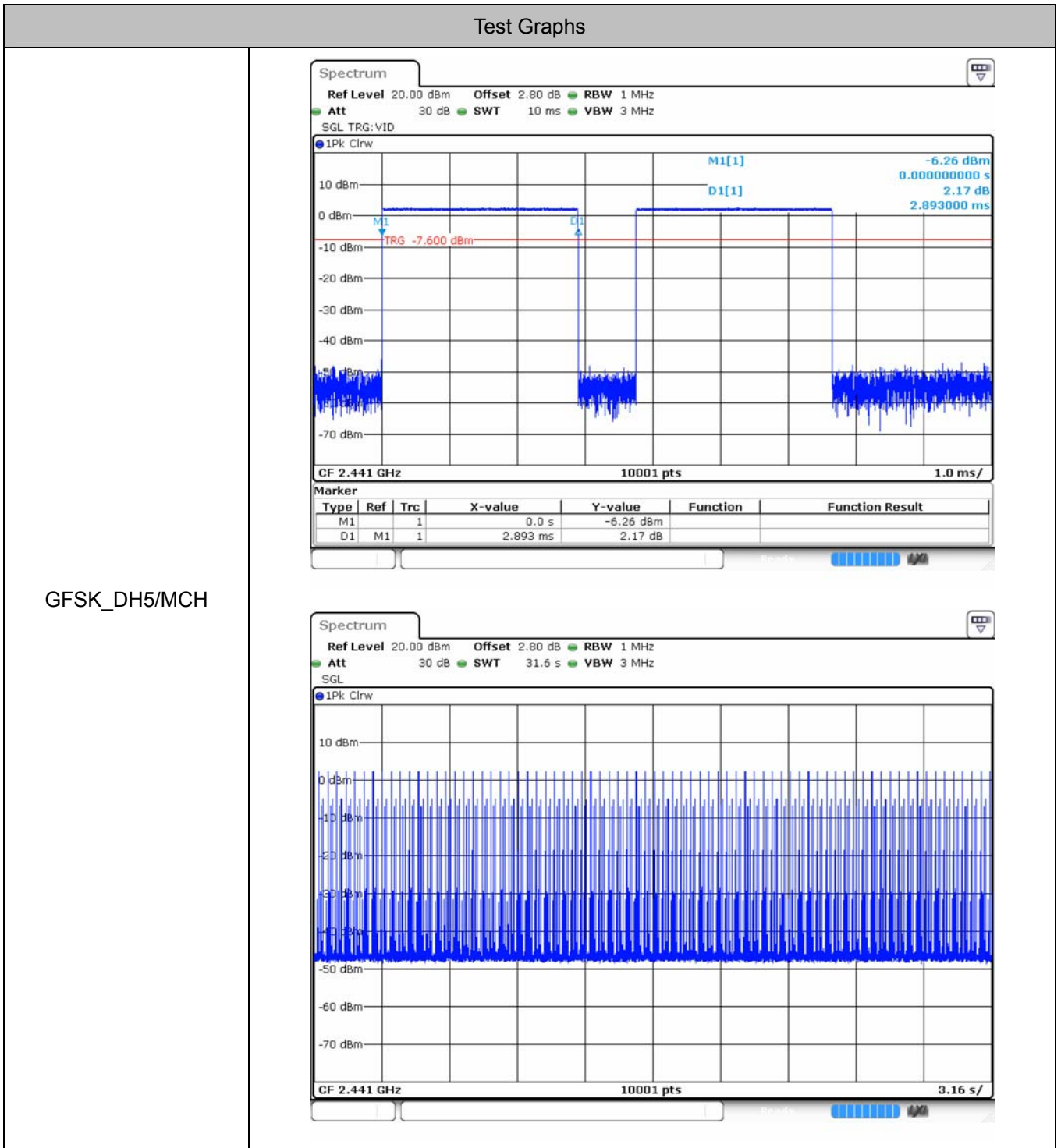


## 6 Dwell Time

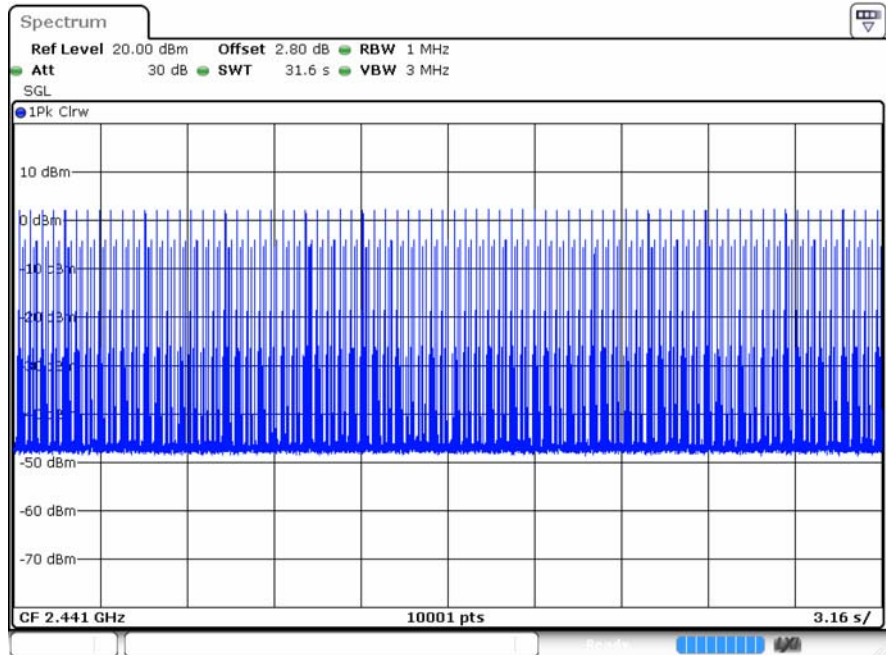
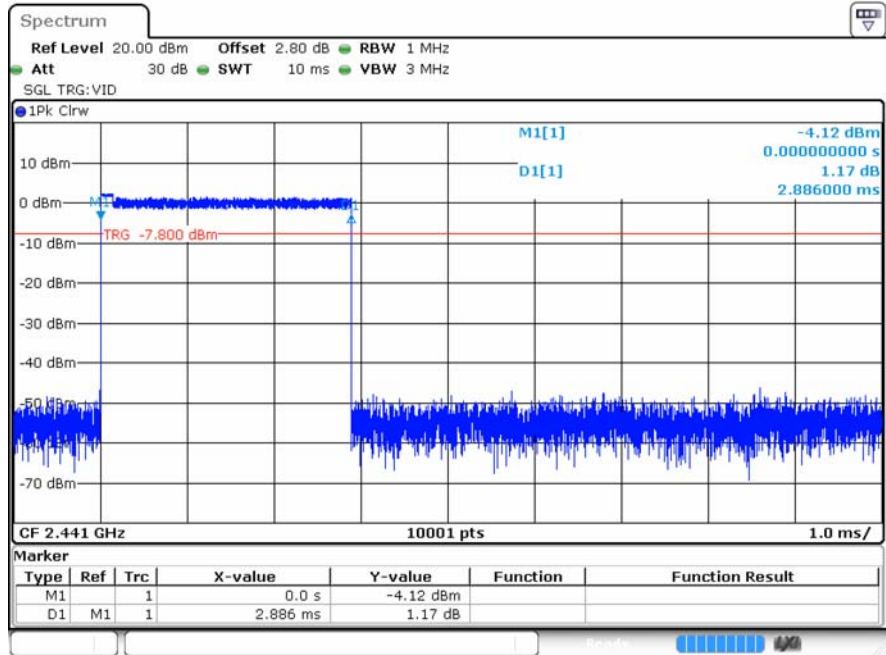
### 6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.893	75	216.975	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.886	76	219.336	0.4	Pass
8DPSK	3DH5	MCH	2.886	76	219.336	0.4	Pass

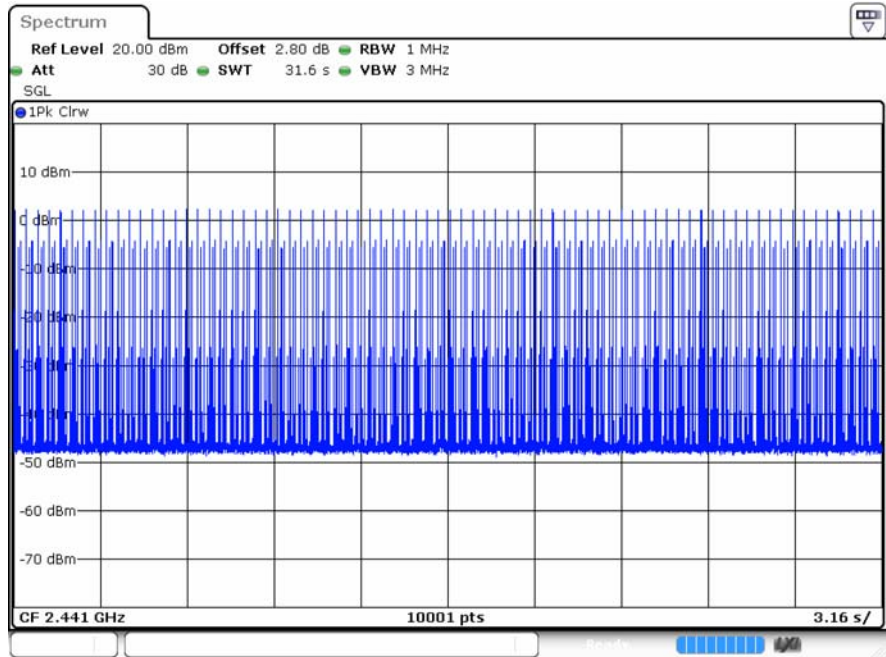
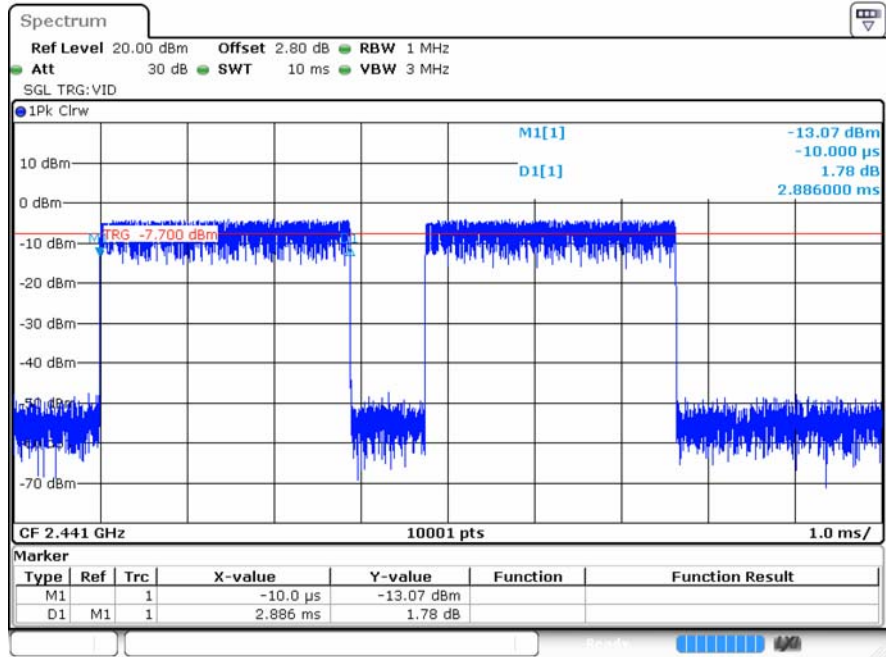
## 6.2 Test Graphs



$\pi/4$ DQPSK  
\_2DH5/MCH



8DPSK\_3DH5/MCH

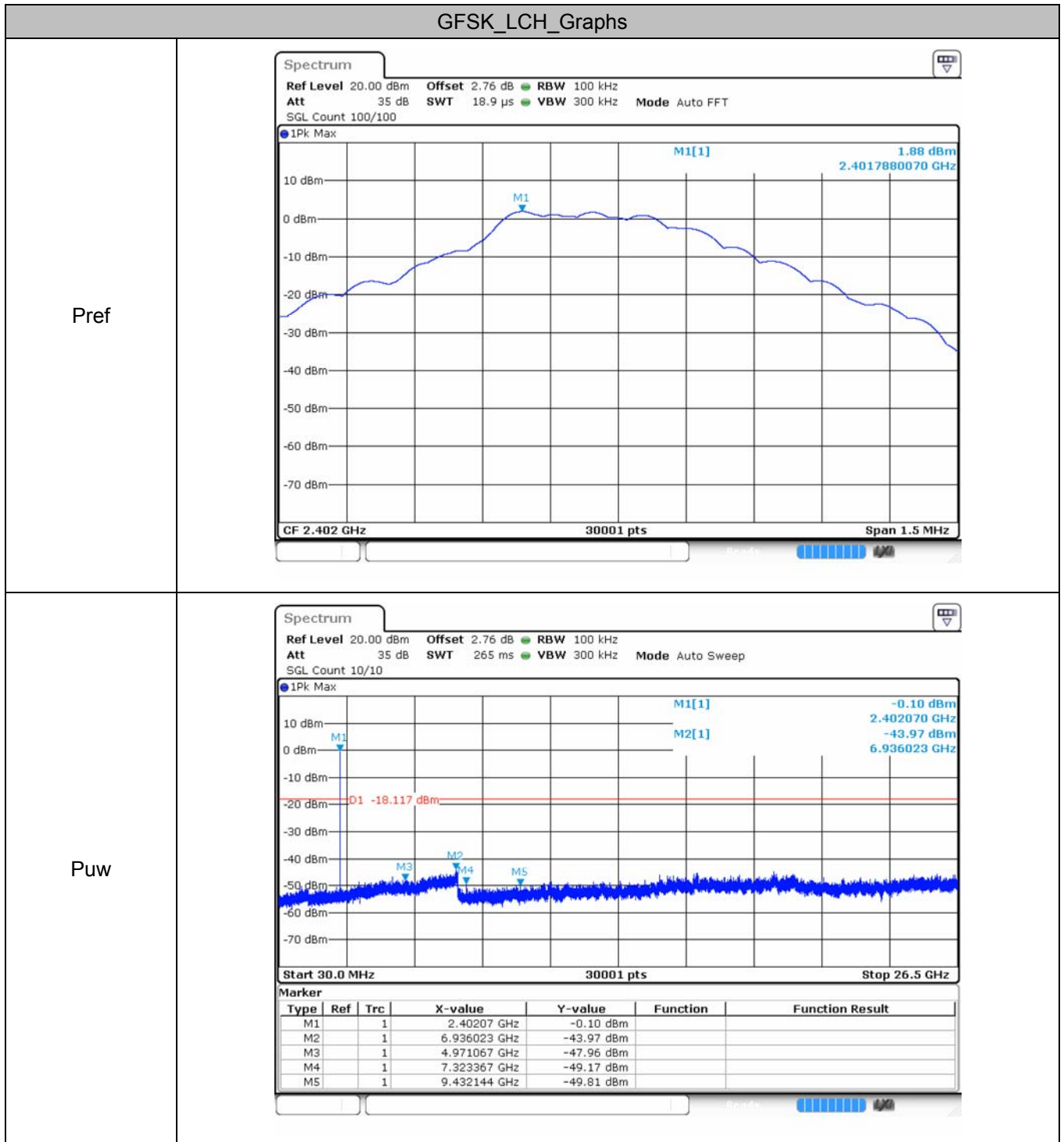


## 7 RF Conducted Spurious Emissions

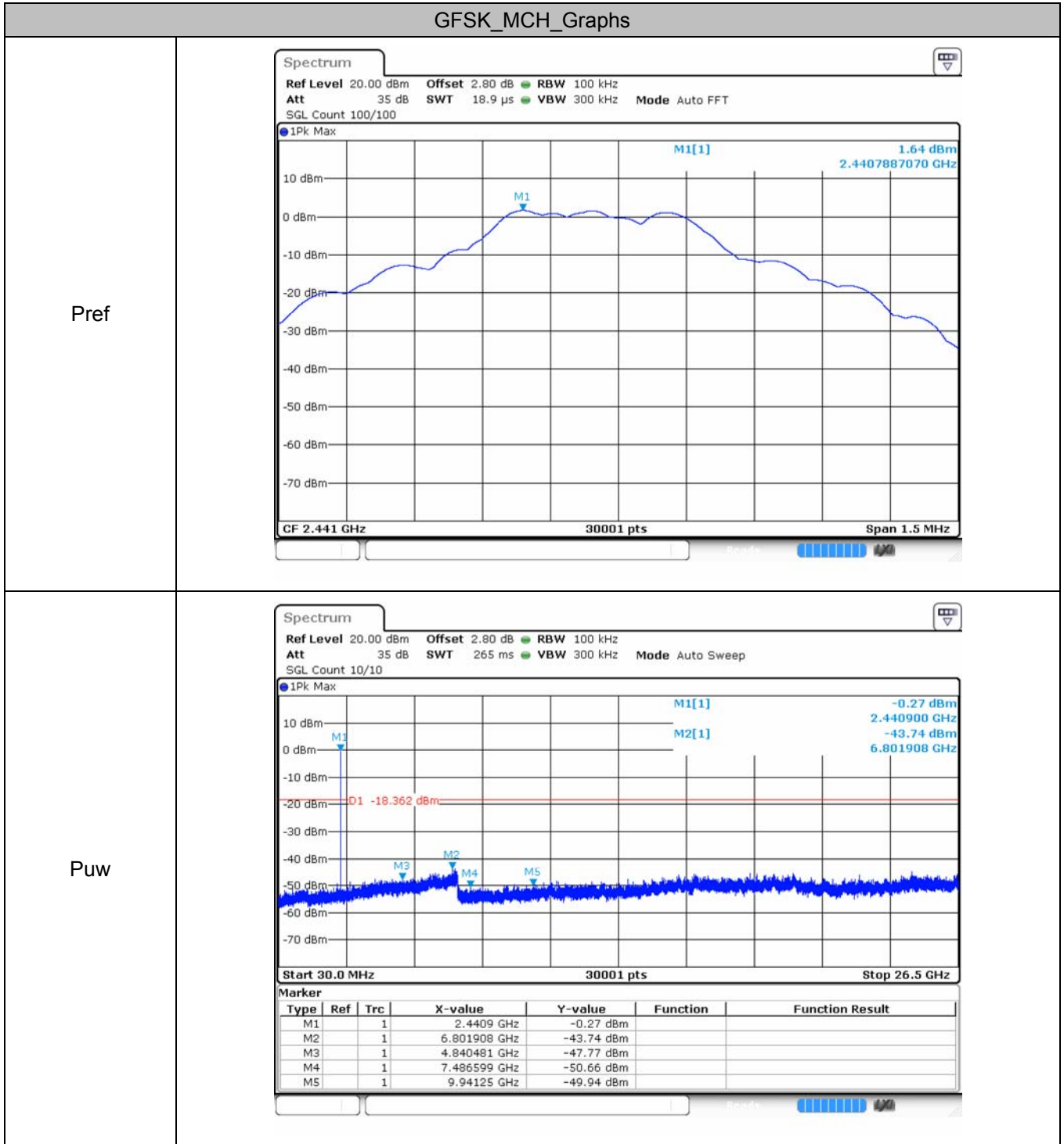
### 7.1 Test Result

Mode	Channel	Max. Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	-45.84	-20	Pass
	MCH	-45.38	-20	Pass
	HCH	-45.28	-20	Pass
$\pi/4$ DQPSK	LCH	-45.23	-20	Pass
	MCH	-45.9	-20	Pass
	HCH	-45.19	-20	Pass
8DPSK	LCH	-46.83	-20	Pass
	MCH	-46.42	-20	Pass
	HCH	-45.94	-20	Pass

## 7.2 Test Graphs

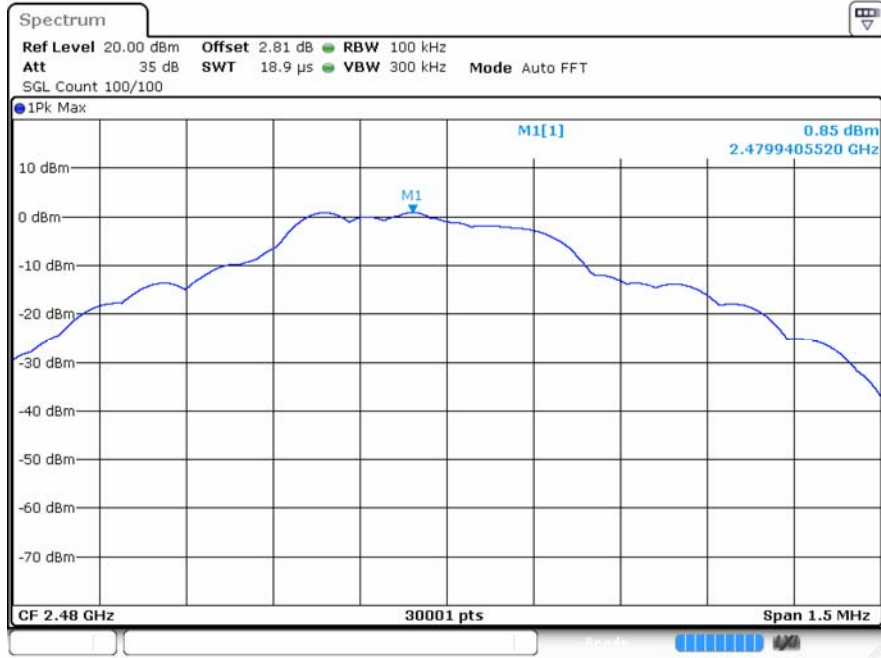




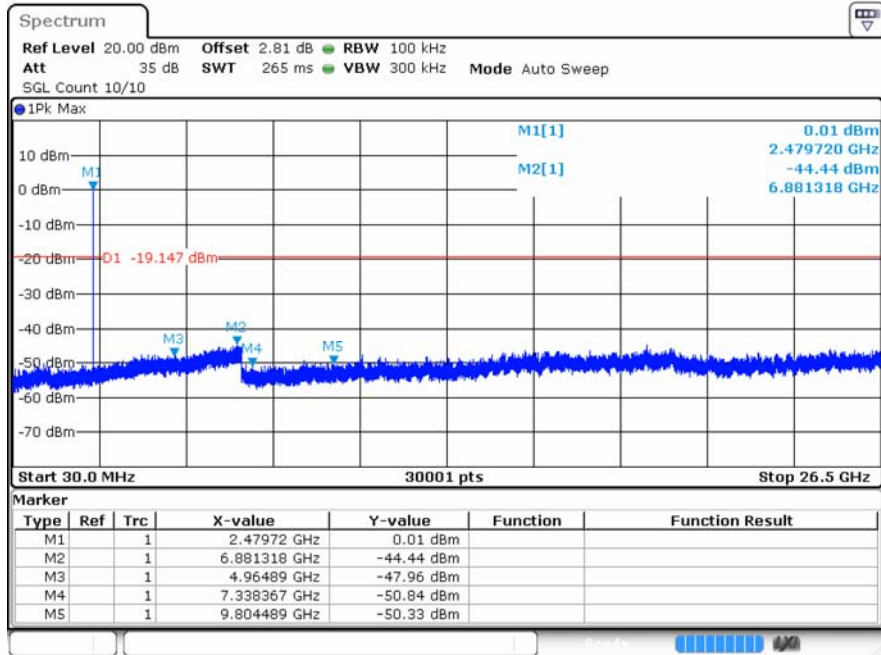


GFSK\_HCH\_Graphs

Pref

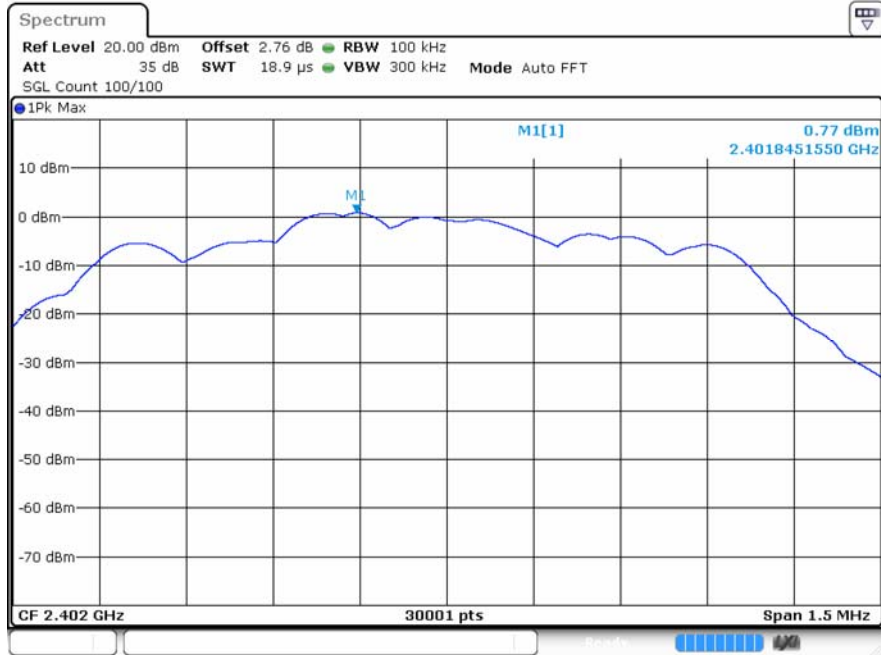


Puw

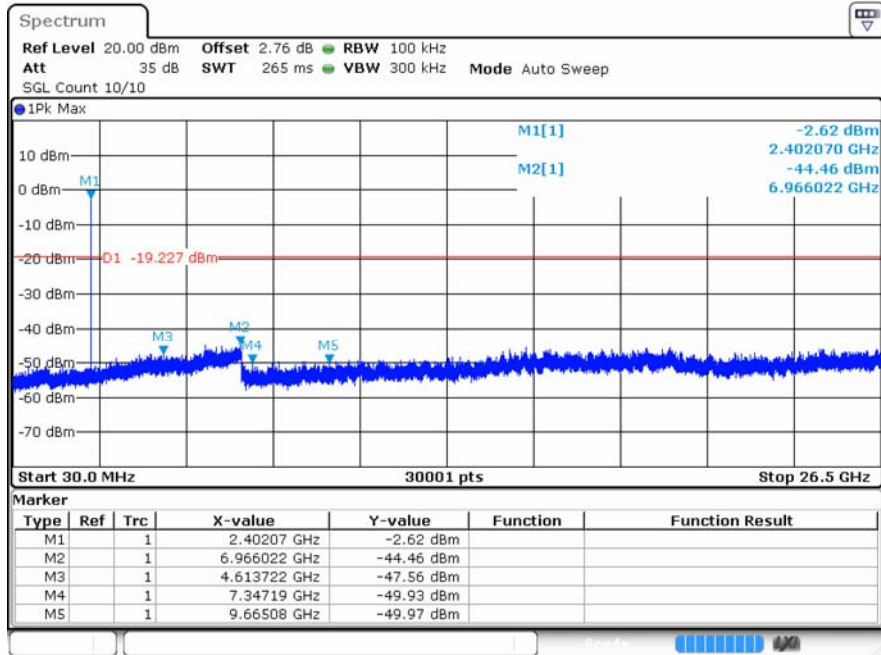


$\pi/4$ DQPSK\_LCH\_Graphs

Pref

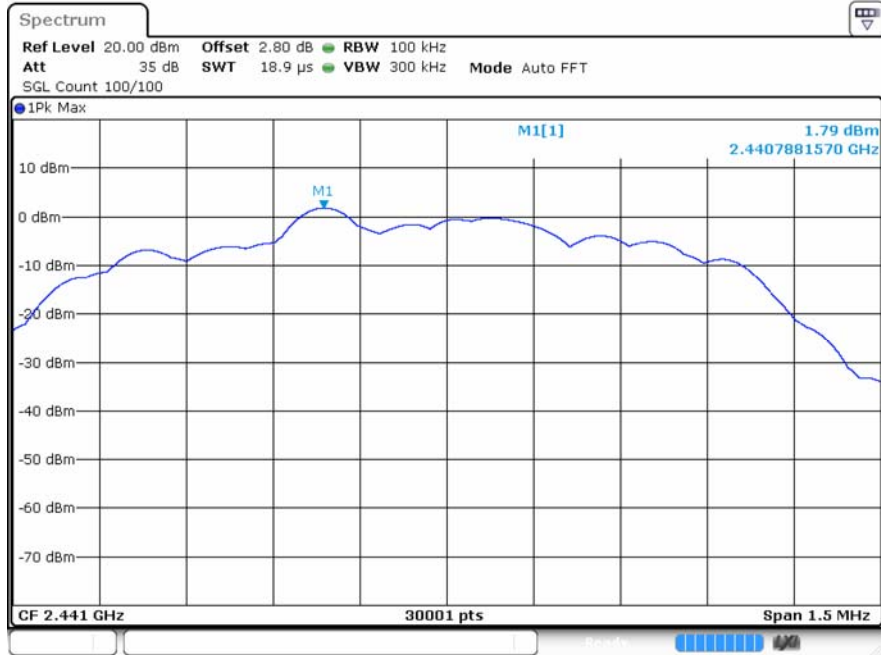


Puw

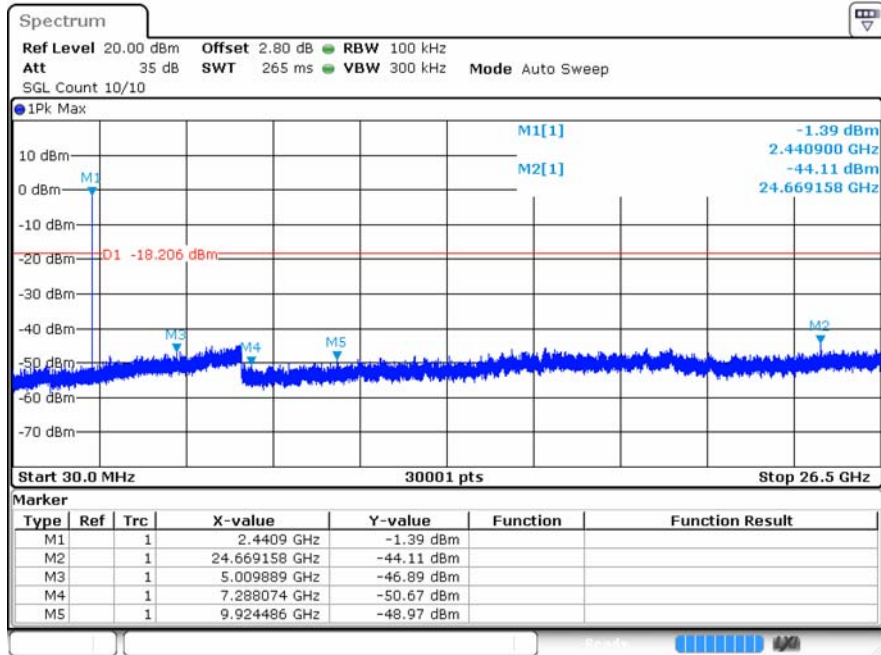


$\pi/4$ DQPSK\_MCH\_Graphs

Pref

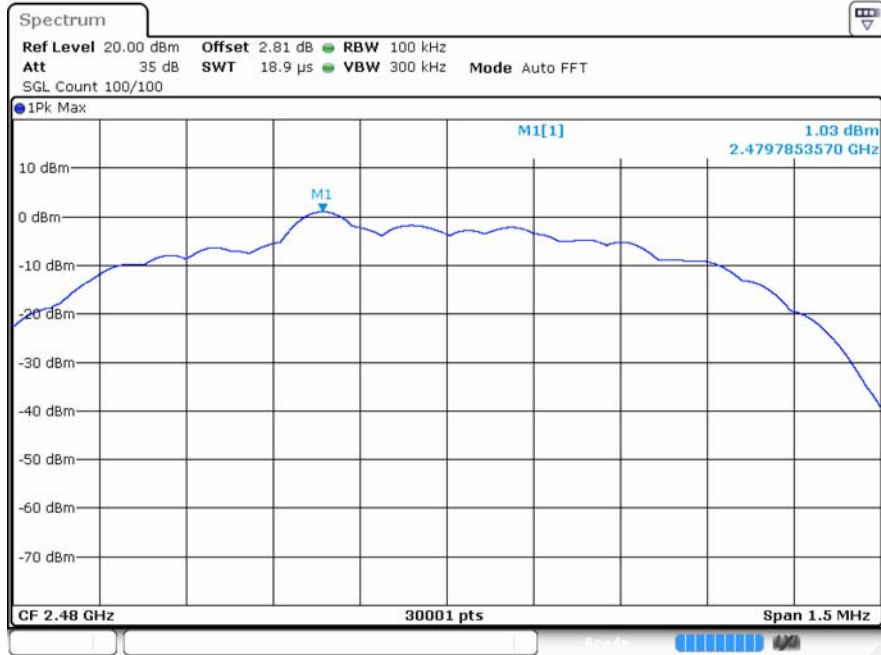


Puw

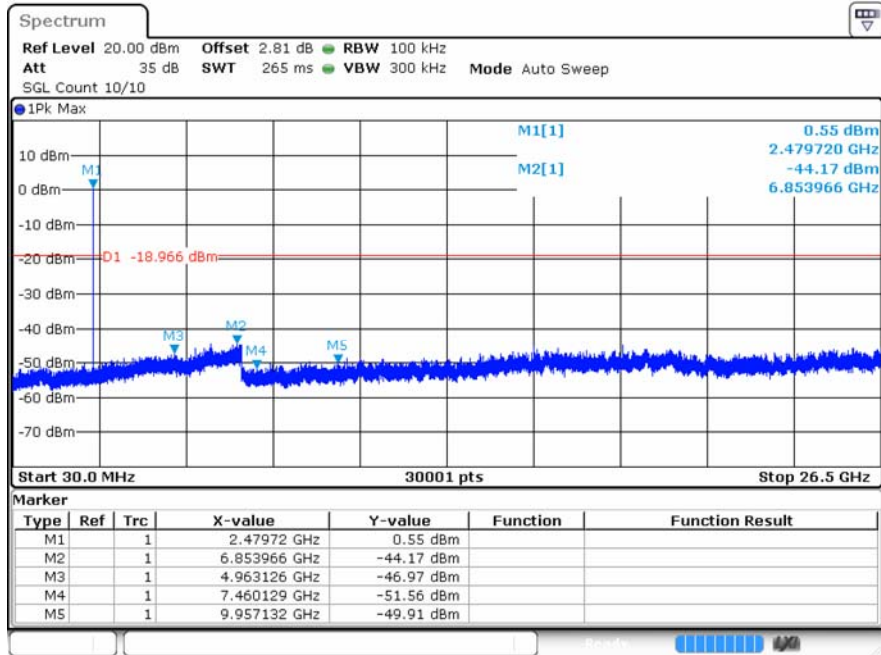


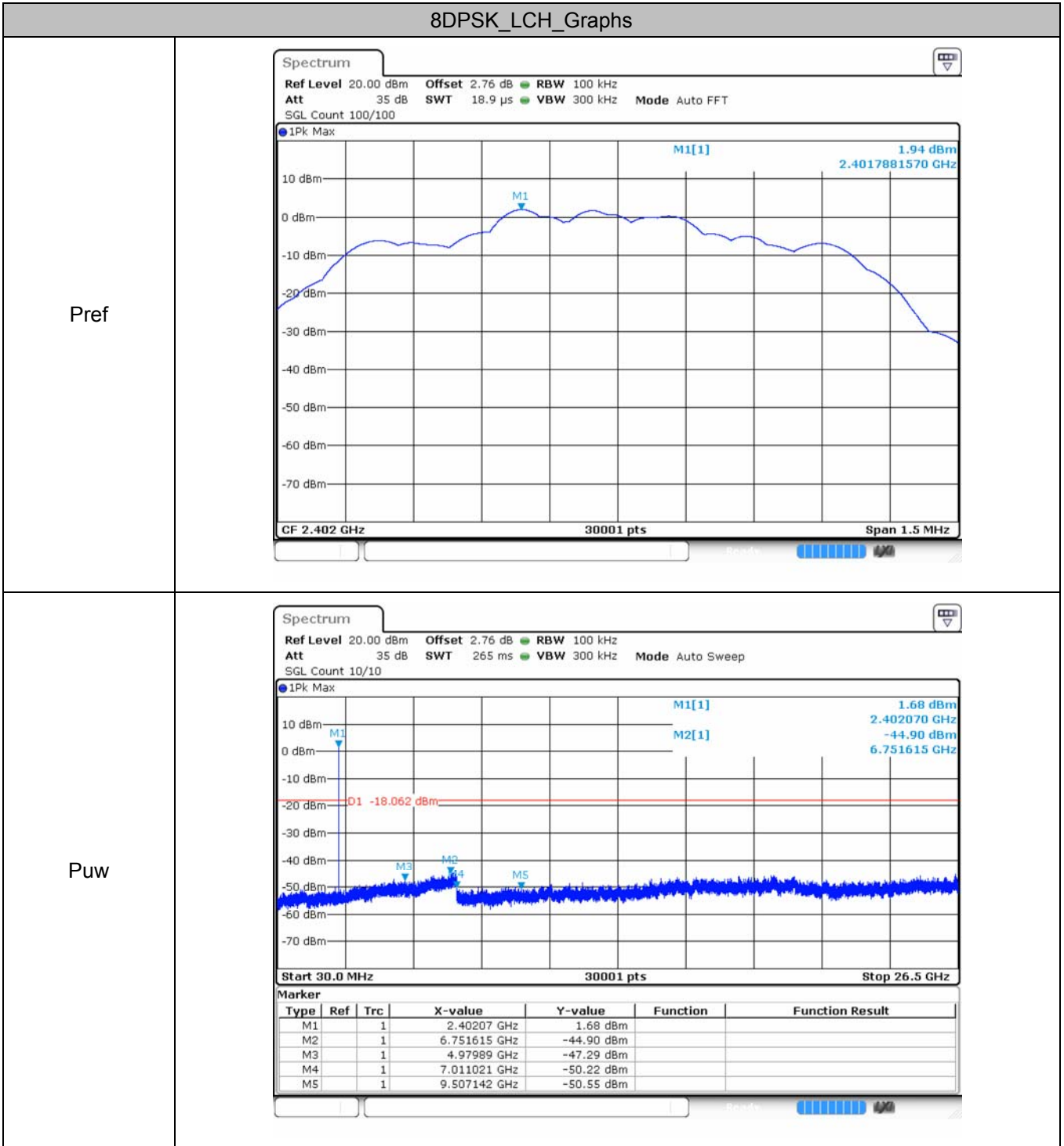
$\pi/4$ DQPSK\_HCH\_Graphs

Pref



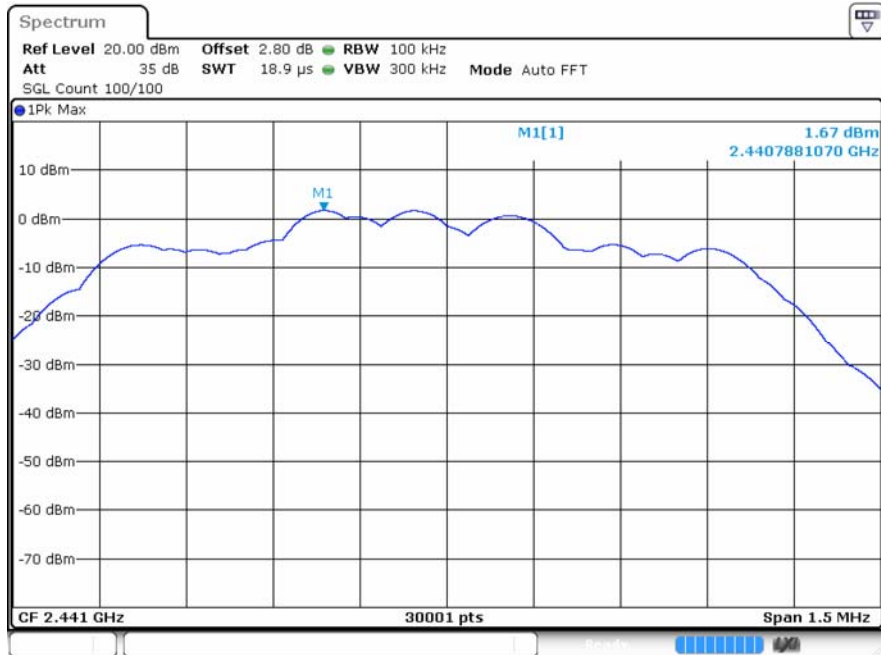
Puw



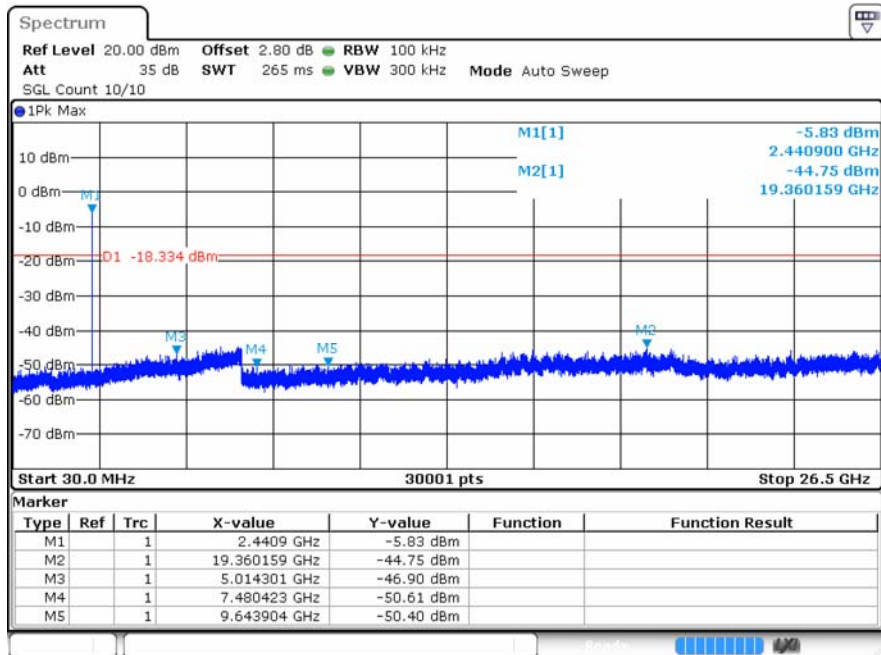


8DPSK\_MCH\_Graphs

Pref



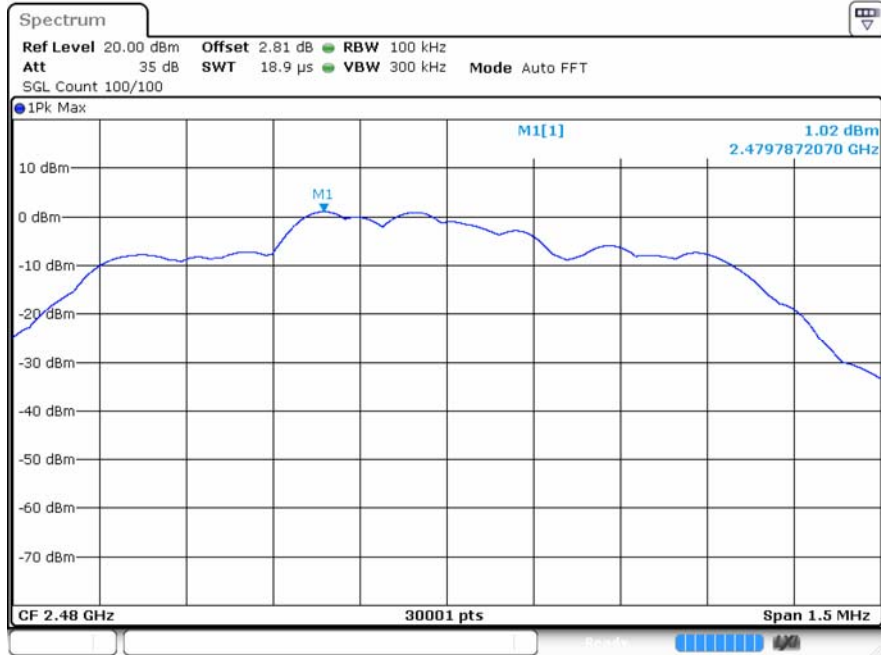
Puw



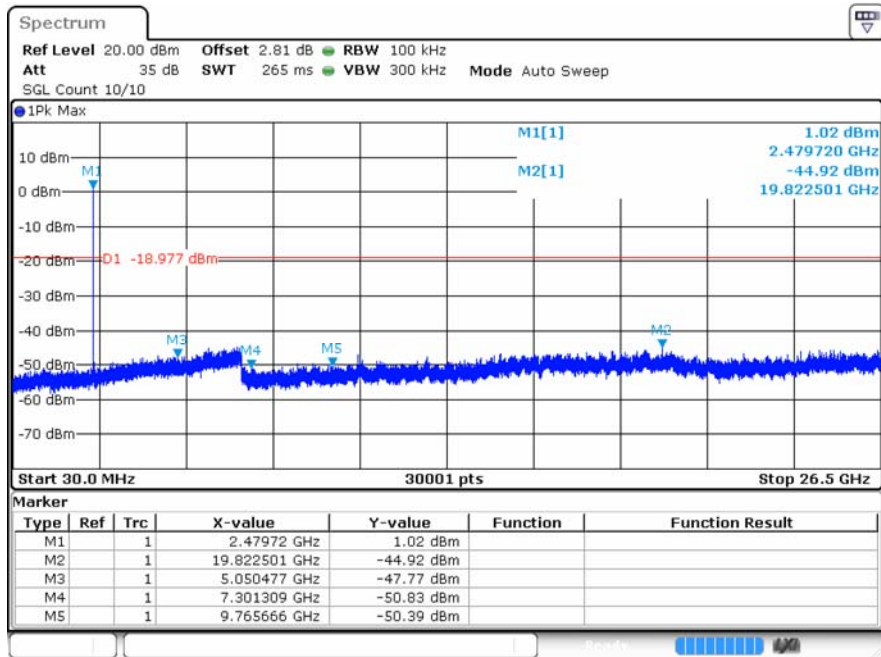


8DPSK\_HCH\_Graphs

Pref



Puw



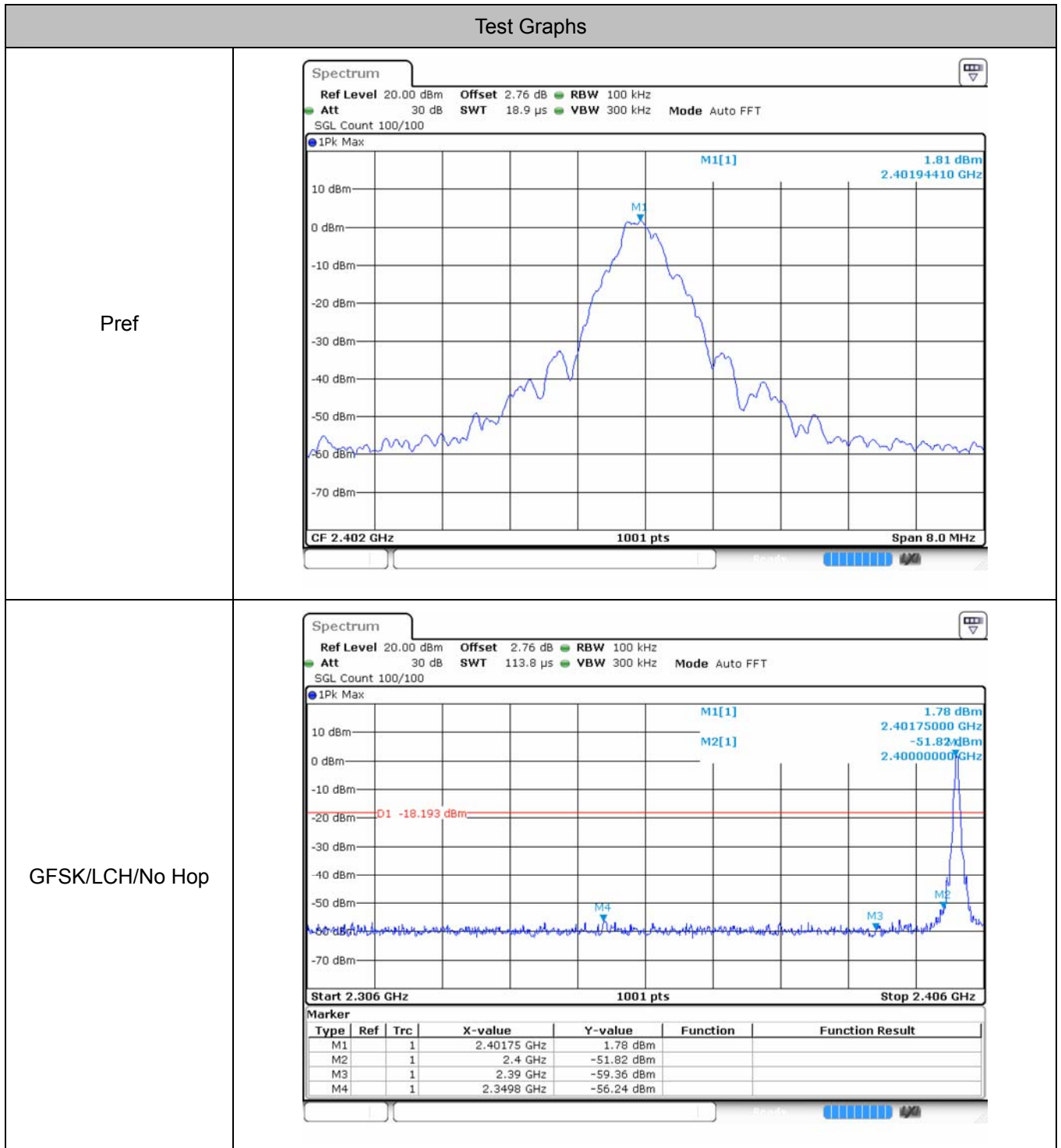


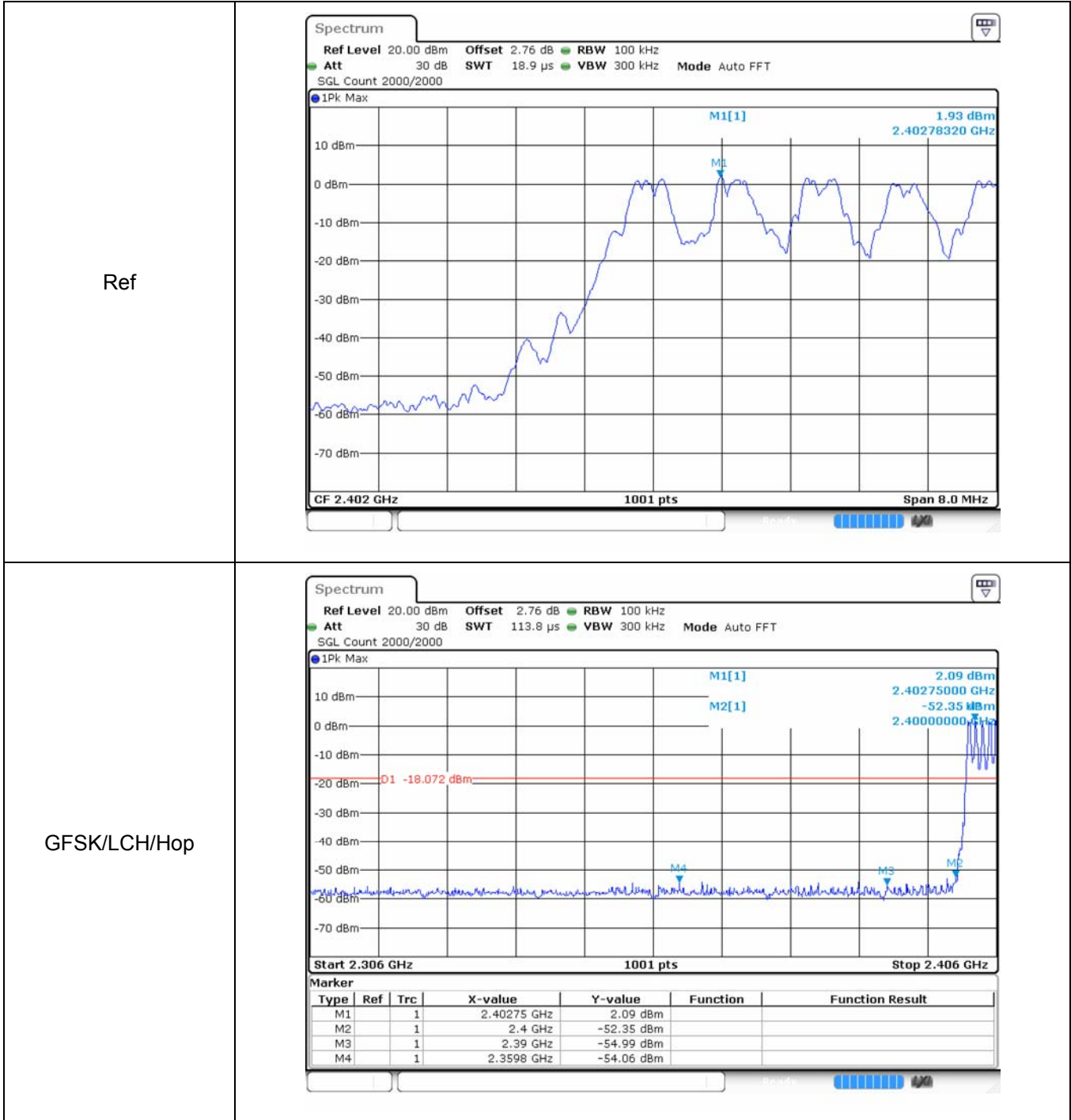
## 8 Band-edge for RF Conducted Emissions

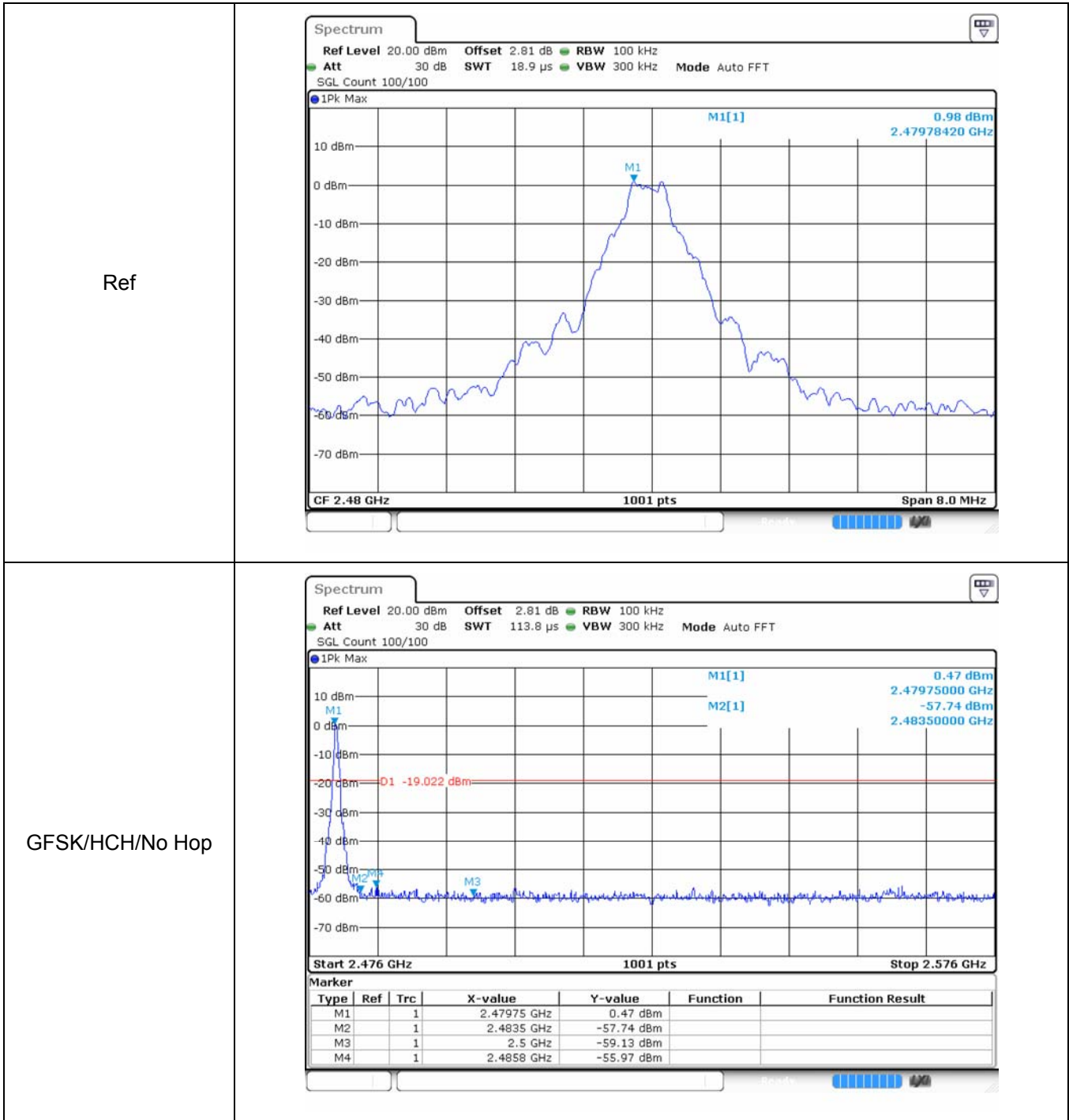
### 8.1 Test Result

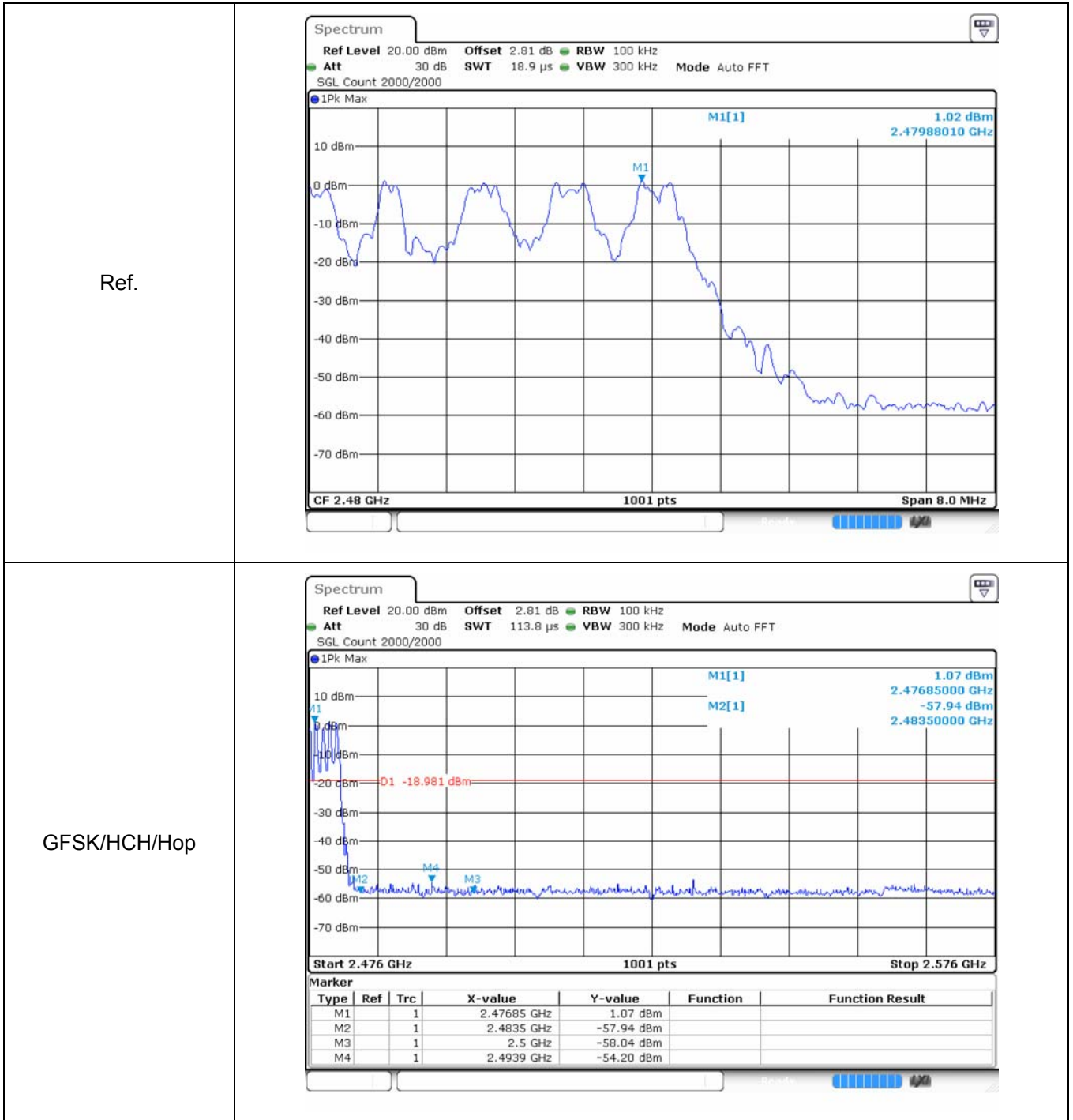
Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-58.05	-20	Pass
			On	-55.98	-20	Pass
	HCH	2480	Off	-56.94	-20	Pass
			On	-55.22	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-57.78	-20	Pass
			On	-55.51	-20	Pass
	HCH	2480	Off	-57.55	-20	Pass
			On	-54.91	-20	Pass
8DPSK	LCH	2402	Off	-55.92	-20	Pass
			On	-57.66	-20	Pass
	HCH	2480	Off	-57.08	-20	Pass
			On	-56.99	-20	Pass

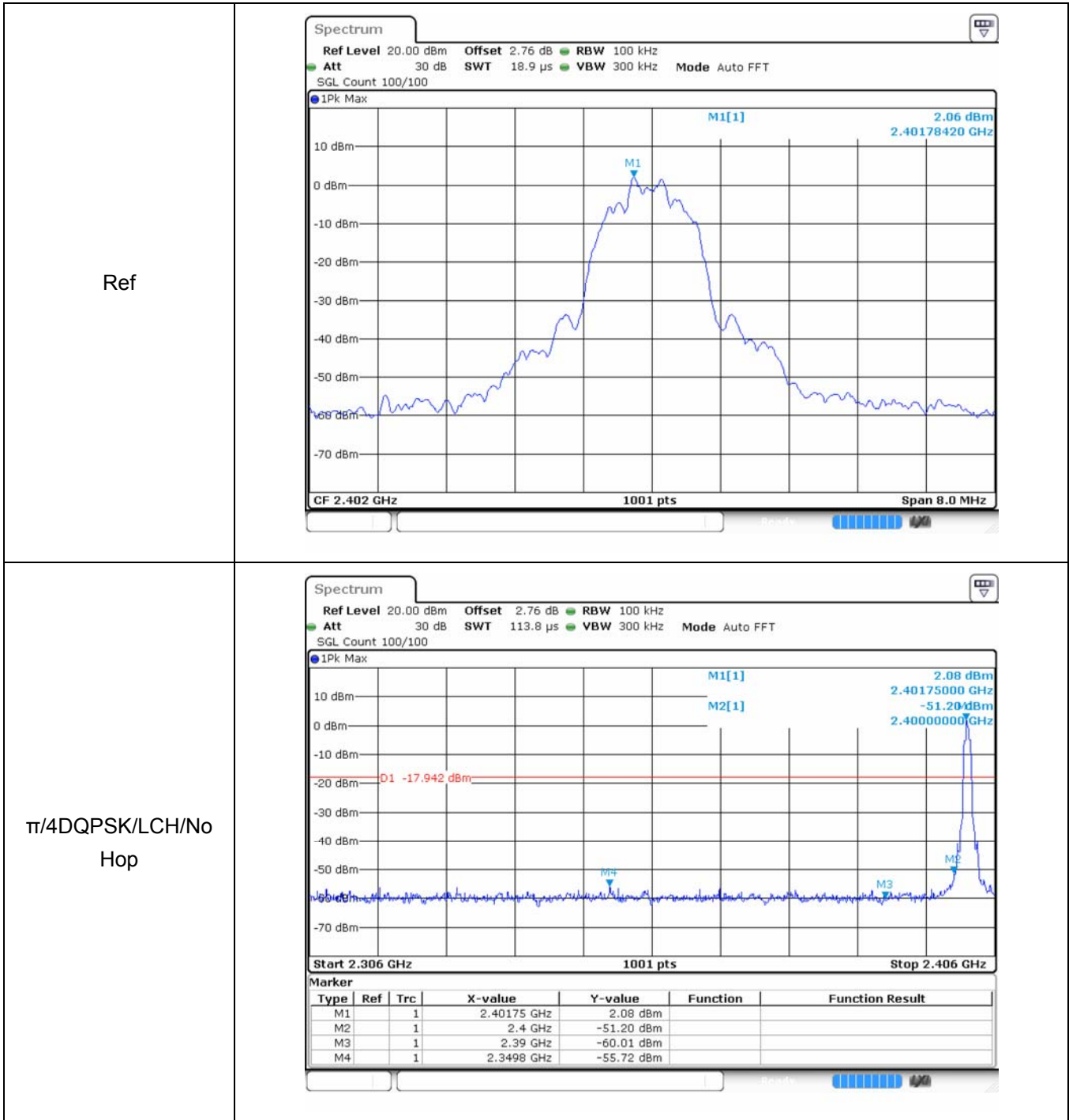
## 8.2 Test Graphs

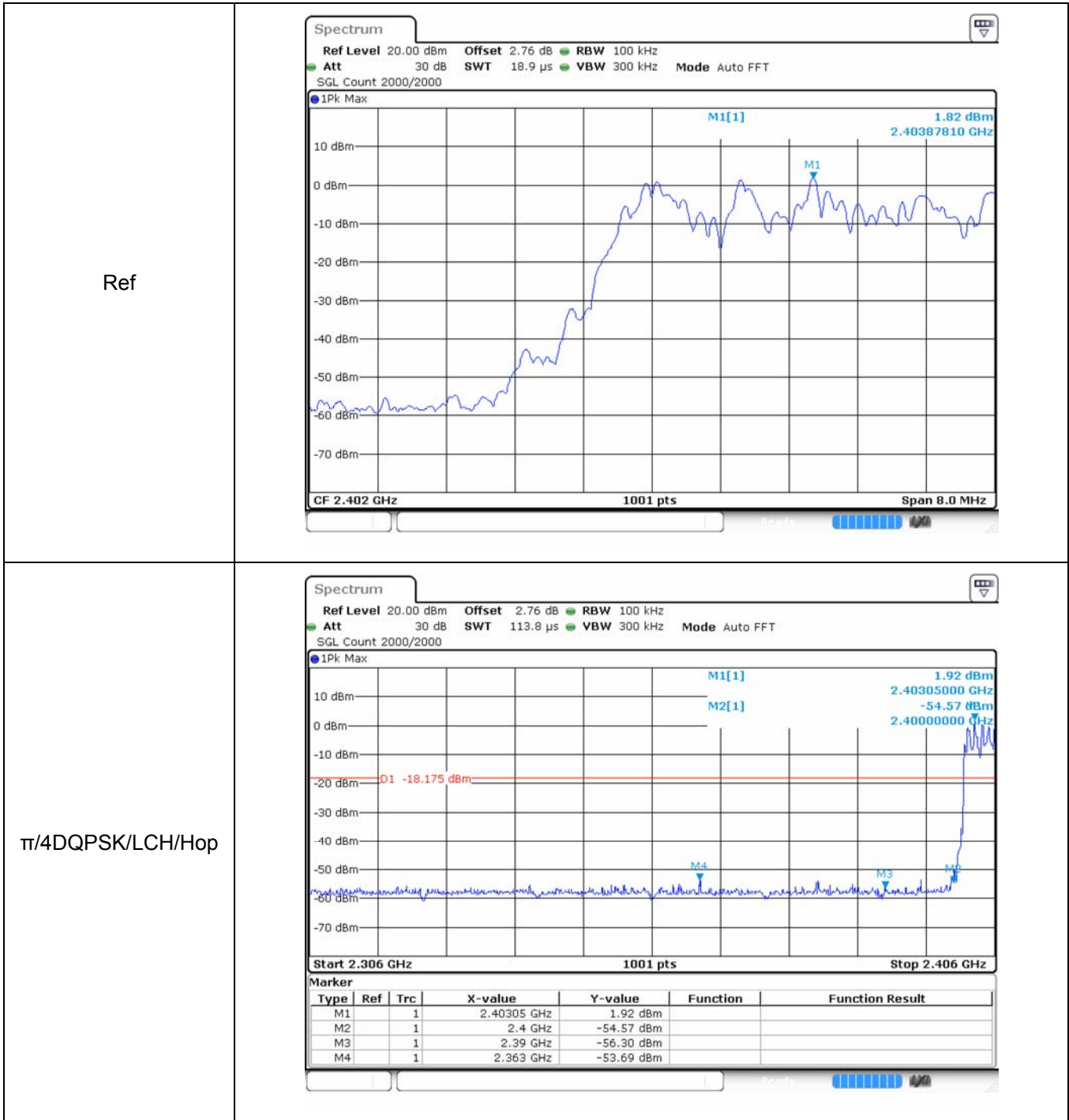


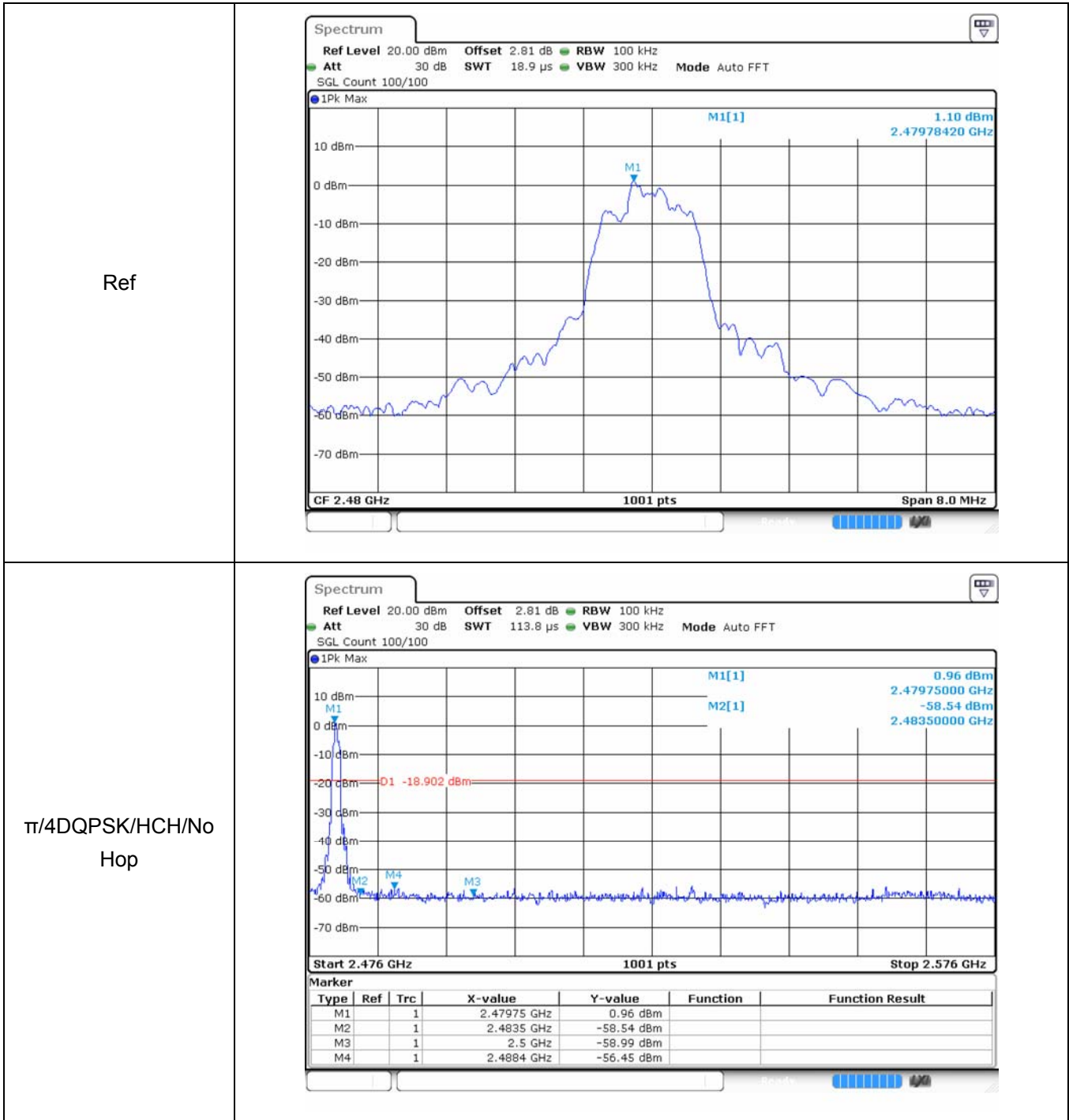




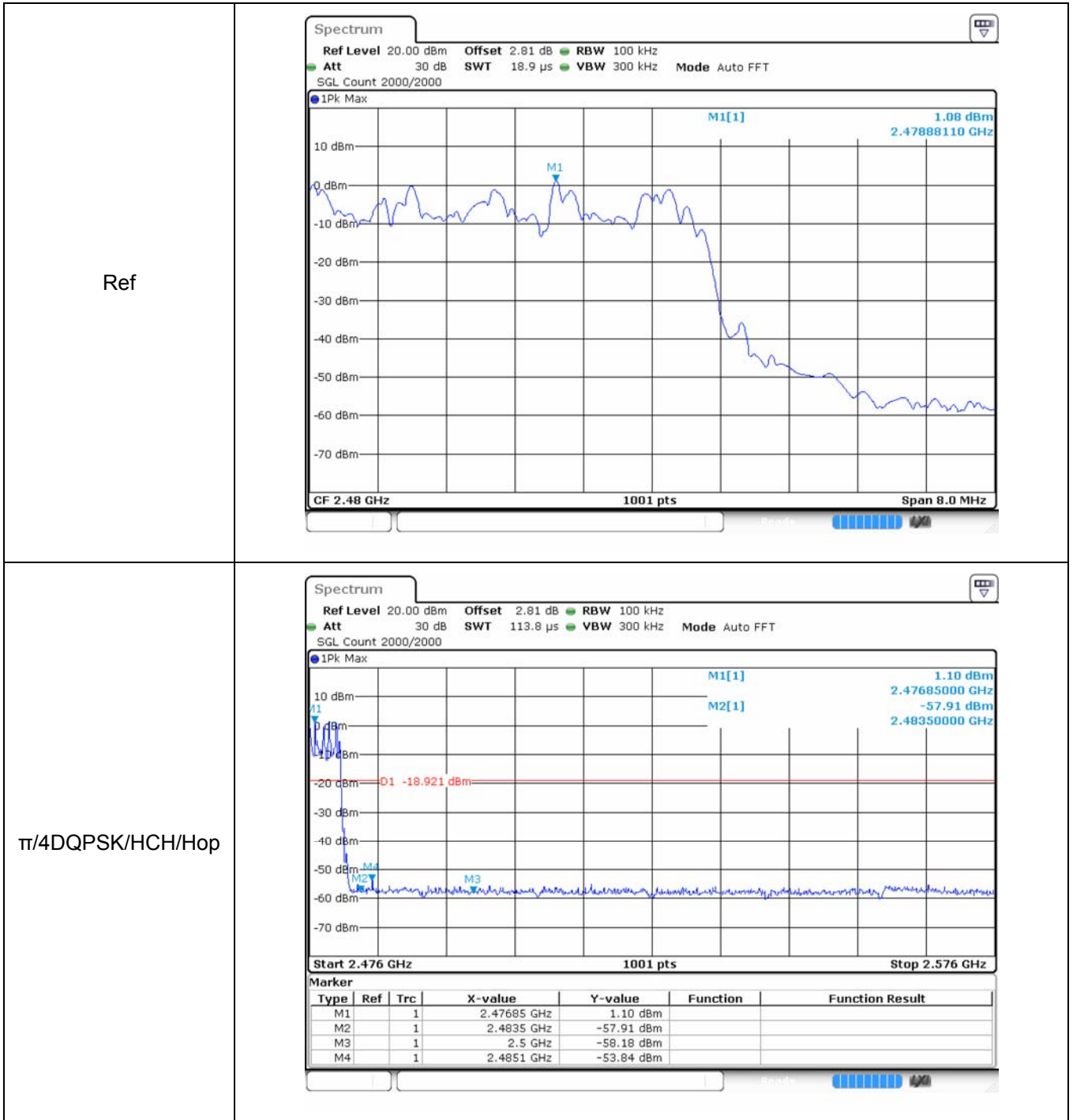


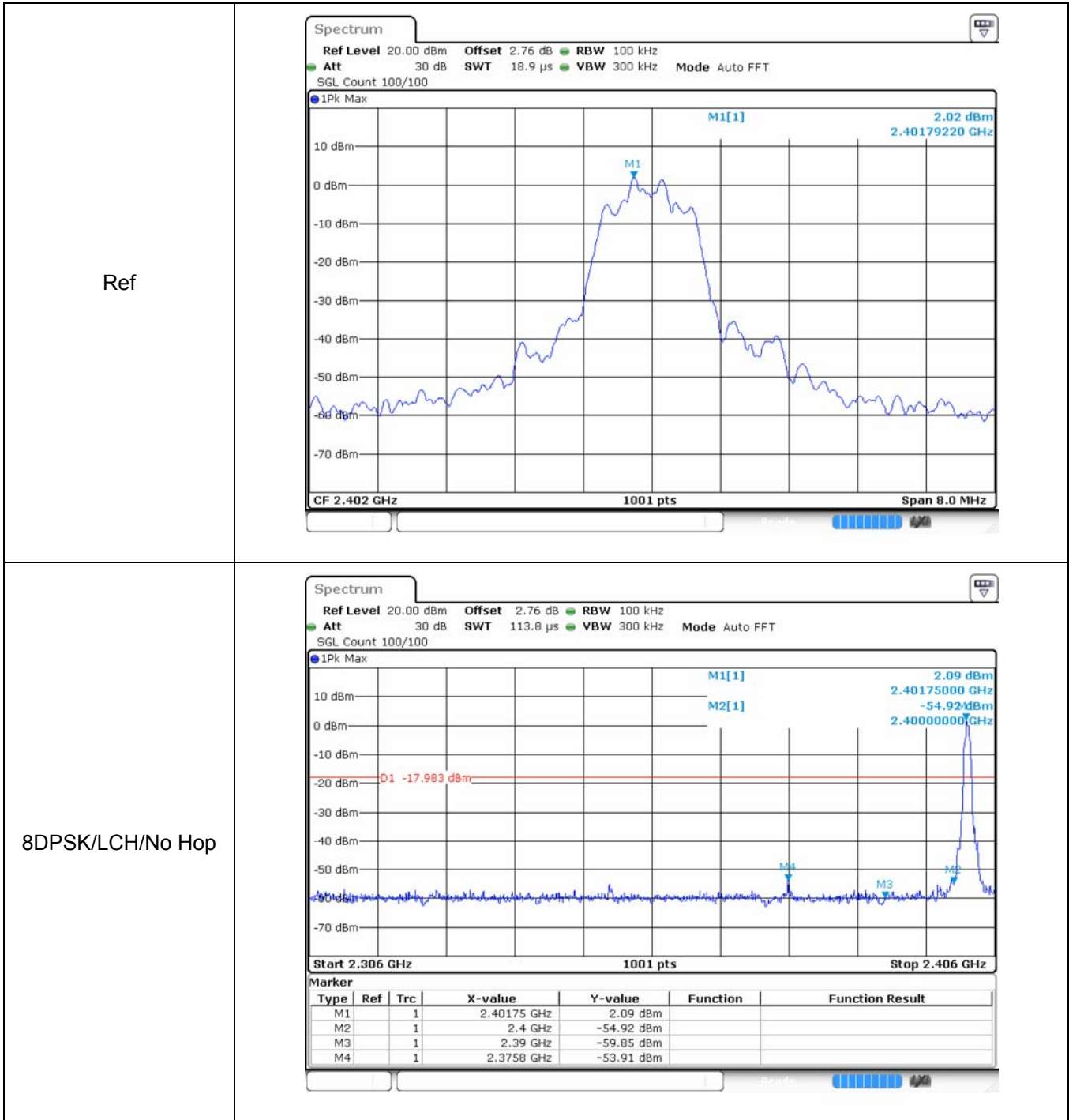


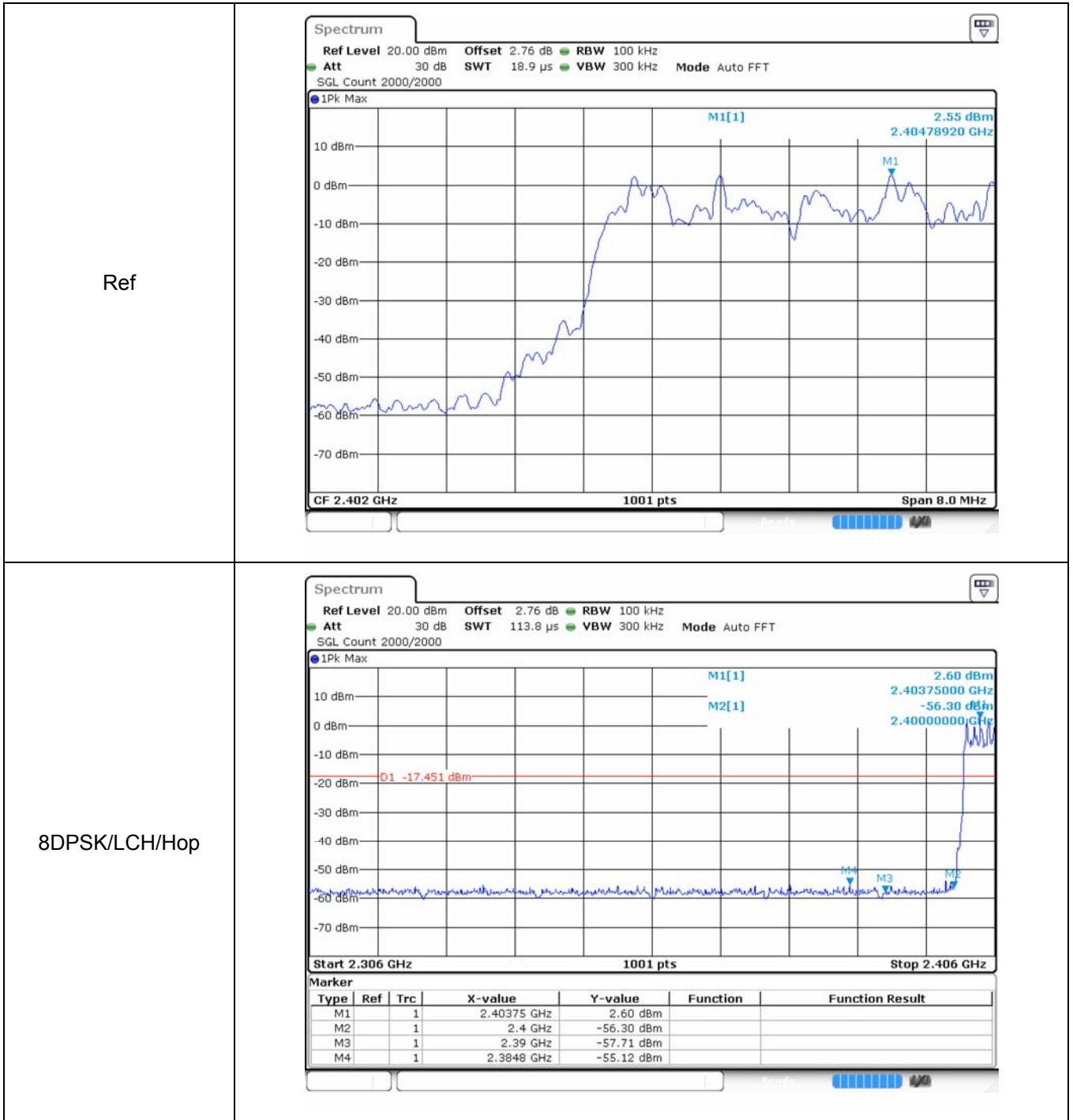


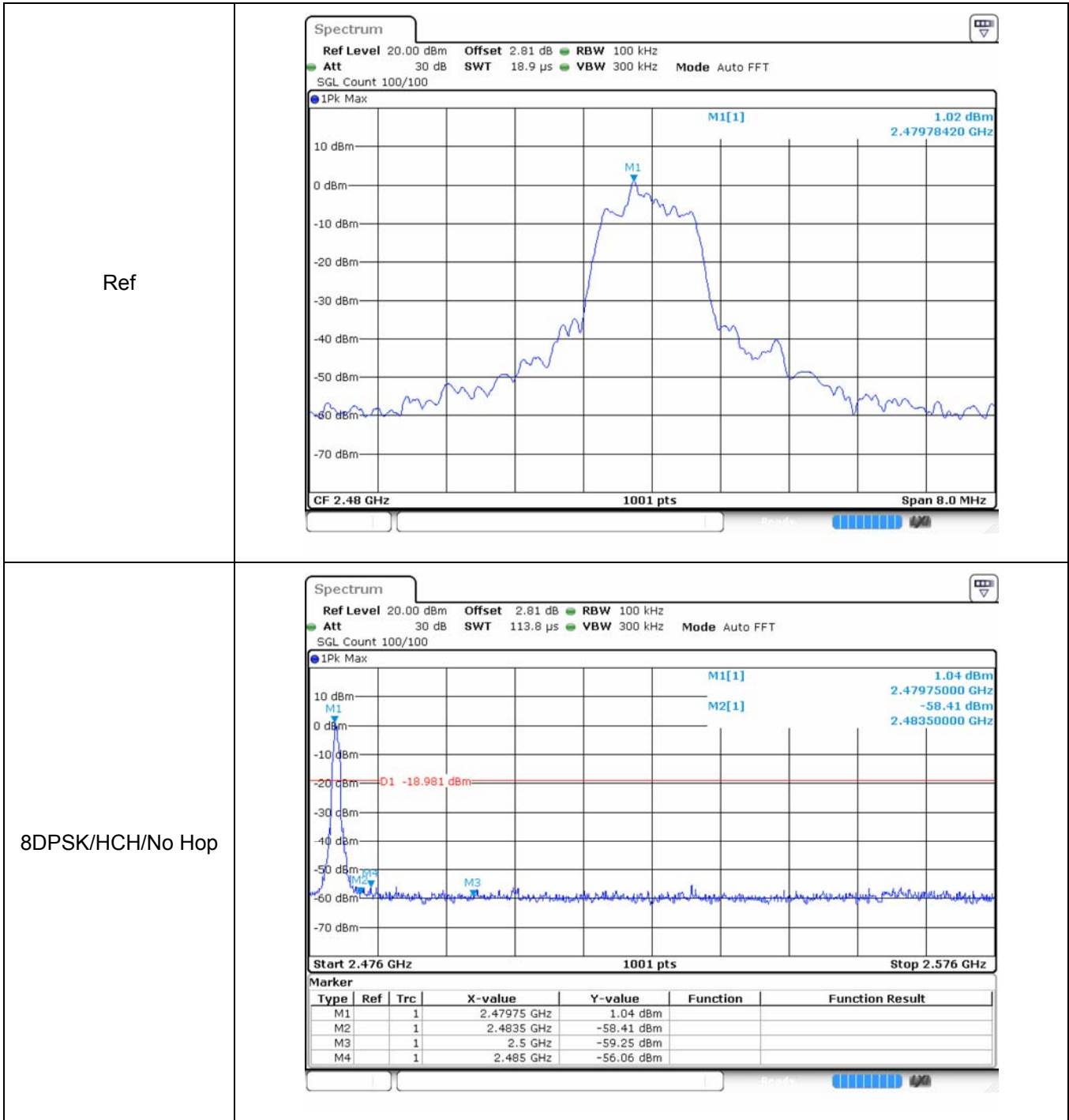


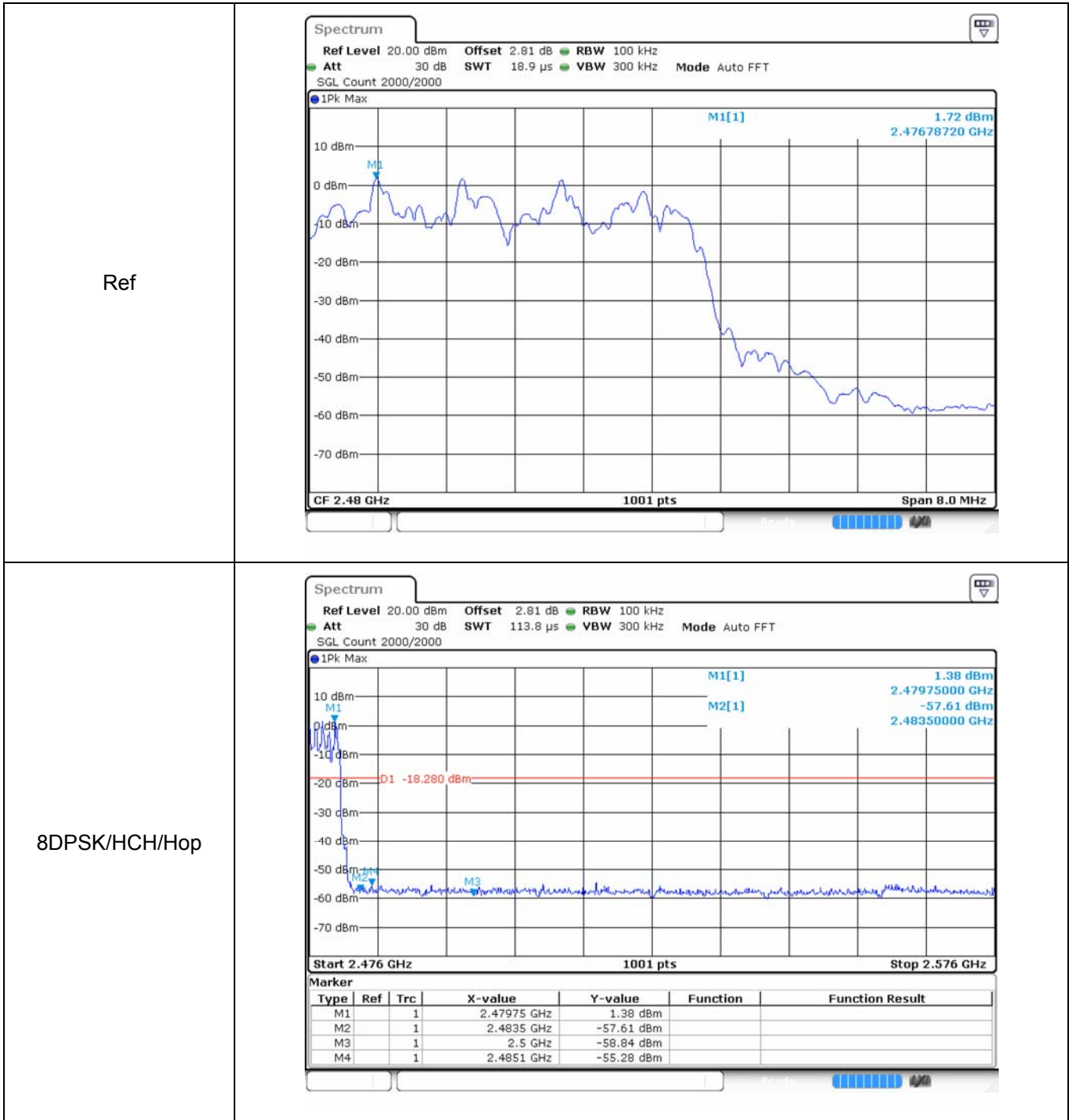












## 9 Restrict-band band-edge measurements

### 9.1 Test Result

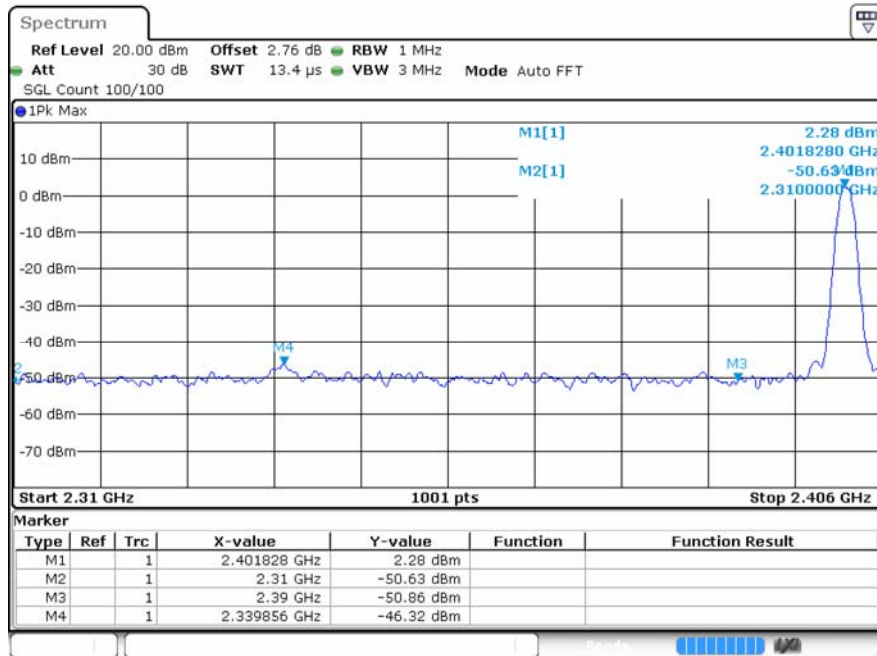
Test Mode	Hopping	Freq.	Power [dBm]	Gain	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-50.63	2	46.63	PEAK	74	Pass
	Off	2310.0	-58.85	2	38.41	AV	54	Pass
	Off	2339.856	-46.31	2	50.95	PEAK	74	Pass
	Off	2349.84	-55.19	2	42.07	AV	54	Pass
	Off	2390.0	-50.85	2	46.41	PEAK	74	Pass
	Off	2390.0	-58.27	2	38.99	AV	54	Pass
	Off	2483.5	-46.77	2	50.49	PEAK	74	Pass
	Off	2483.5	-55.85	2	41.41	AV	54	Pass
	Off	2483.8	-46	2	51.26	PEAK	74	Pass
	Off	2483.536	-55.84	2	41.42	AV	54	Pass
	Off	2500.0	-50.97	2	46.29	PEAK	74	Pass
	Off	2500.0	-58.14	2	39.12	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-50.22	2	47.04	PEAK	74	Pass
	Off	2310.0	-58.55	2	38.71	AV	54	Pass
	Off	2338.8	-46.96	2	50.3	PEAK	74	Pass
	Off	2338.992	-56.38	2	40.88	AV	54	Pass
	Off	2390.0	-51.19	2	46.07	PEAK	74	Pass
	Off	2390.0	-58.35	2	38.91	AV	54	Pass
	Off	2483.5	-45.63	2	51.63	PEAK	74	Pass
	Off	2483.5	-56.31	2	40.95	AV	54	Pass
	Off	2483.512	-45.63	2	51.63	PEAK	74	Pass
	Off	2483.512	-56.31	2	40.95	AV	54	Pass
	Off	2500.0	-49.65	2	47.61	PEAK	74	Pass
	Off	2500.0	-57.82	2	39.44	AV	54	Pass
8DPSK	Off	2310.0	-49.21	2	48.05	PEAK	74	Pass
	Off	2310.0	-58.42	2	38.84	AV	54	Pass
	Off	2343.792	-46.88	2	50.38	PEAK	74	Pass
	Off	2349.84	-56.11	2	41.15	AV	54	Pass



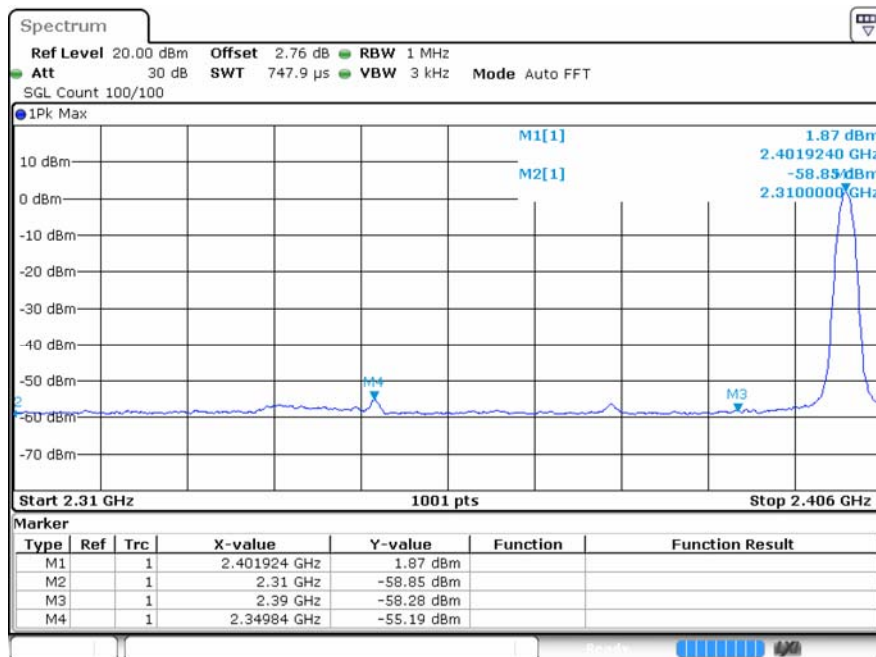
Off	2390.0	-49.41	2	47.85	PEAK	74	Pass
Off	2390.0	-58.16	2	39.1	AV	54	Pass
Off	2483.5	-49.52	2	47.74	PEAK	74	Pass
Off	2483.5	-56.26	2	41	AV	54	Pass
Off	2498.2	-48.5	2	48.76	PEAK	74	Pass
Off	2484.4	-56.17	2	41.09	AV	54	Pass
Off	2500.0	-51.5	2	45.76	PEAK	74	Pass
Off	2500.0	-58.38	2	38.88	AV	54	Pass

## 9.2 Test Graphs

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

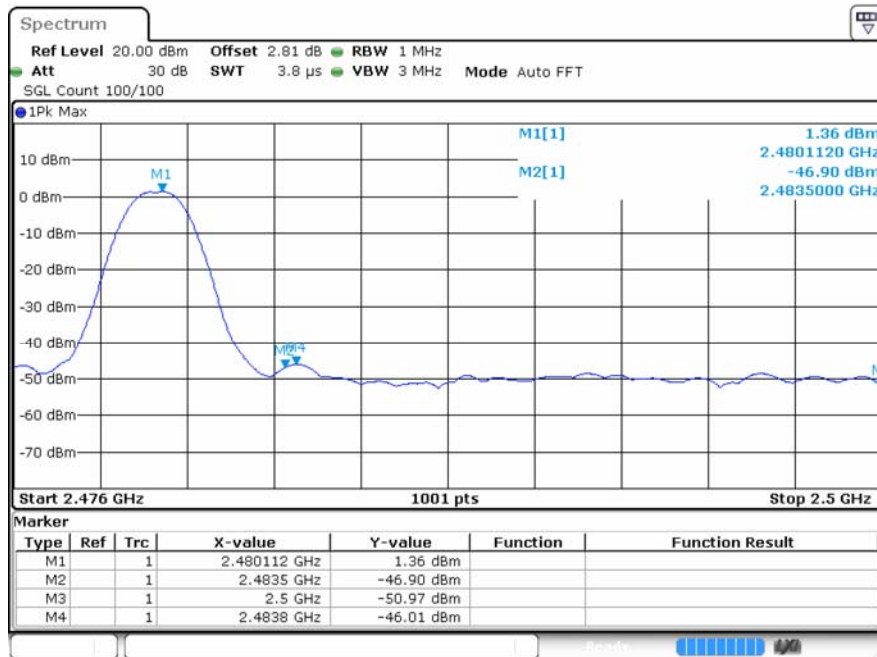


Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)





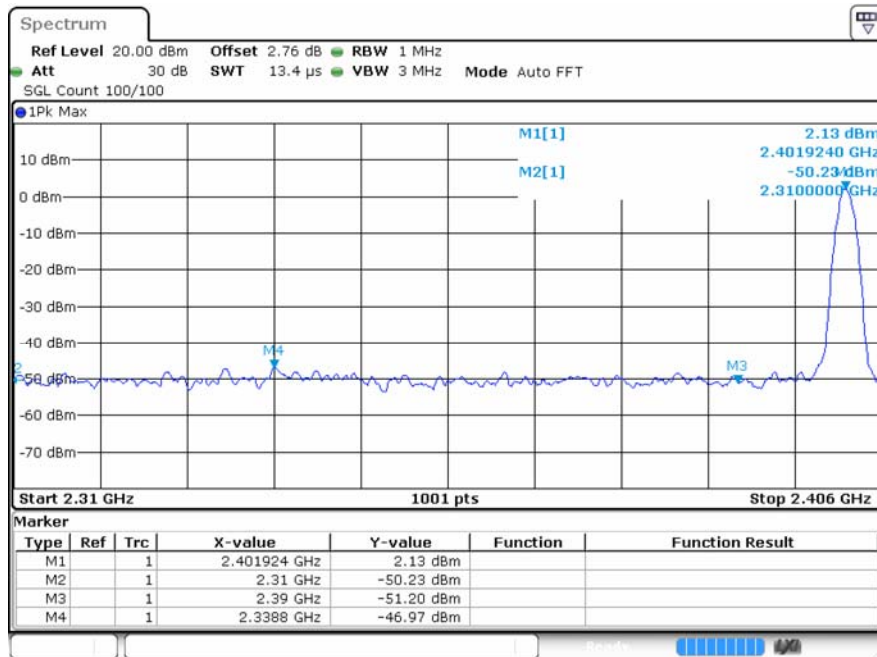
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



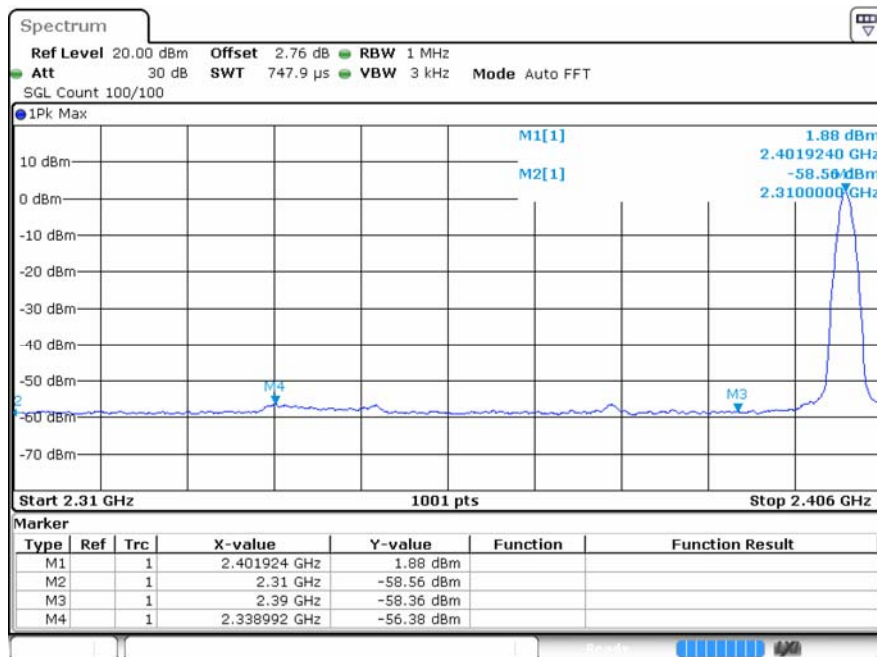
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



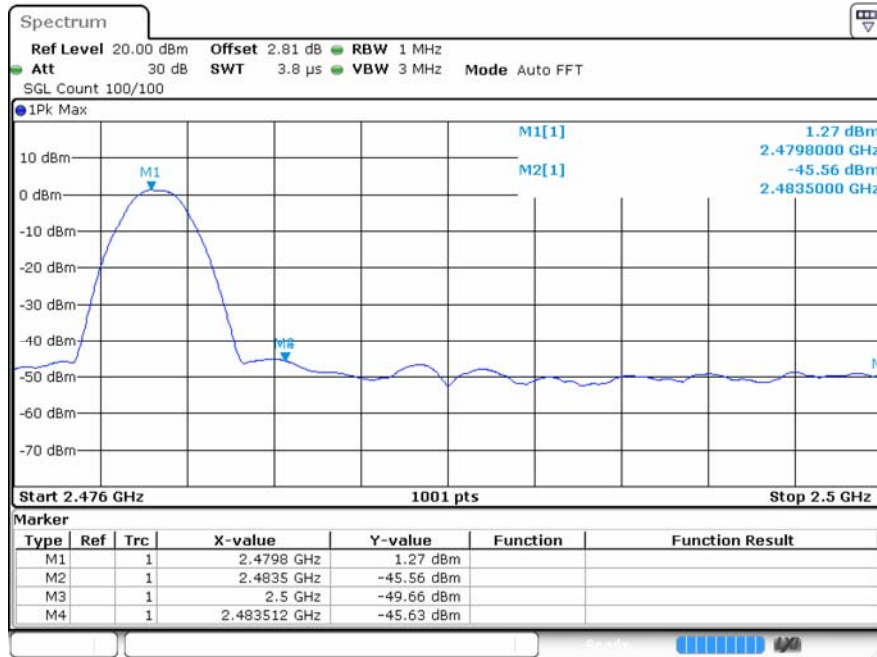
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (Low Channel)



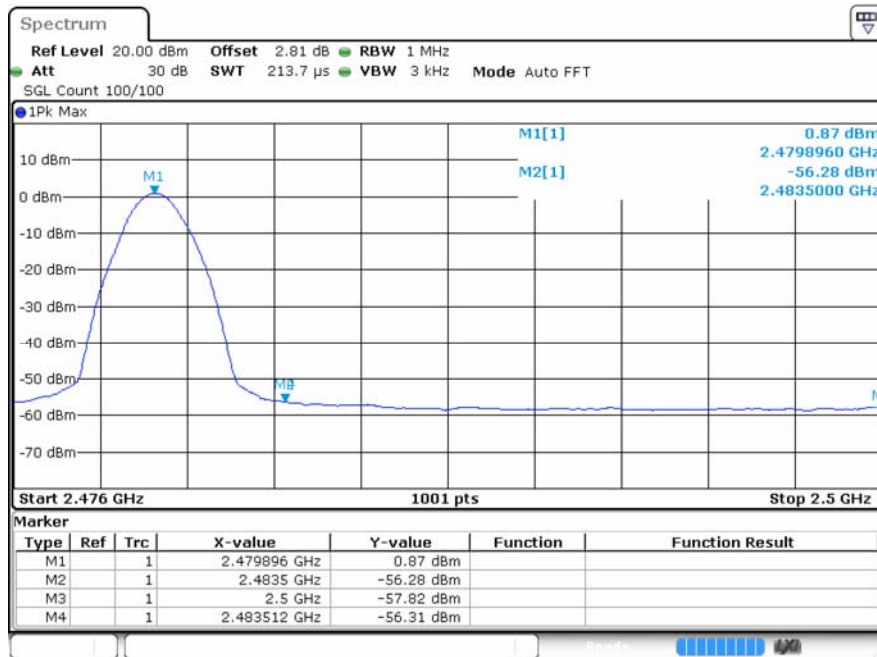
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (Low Channel)



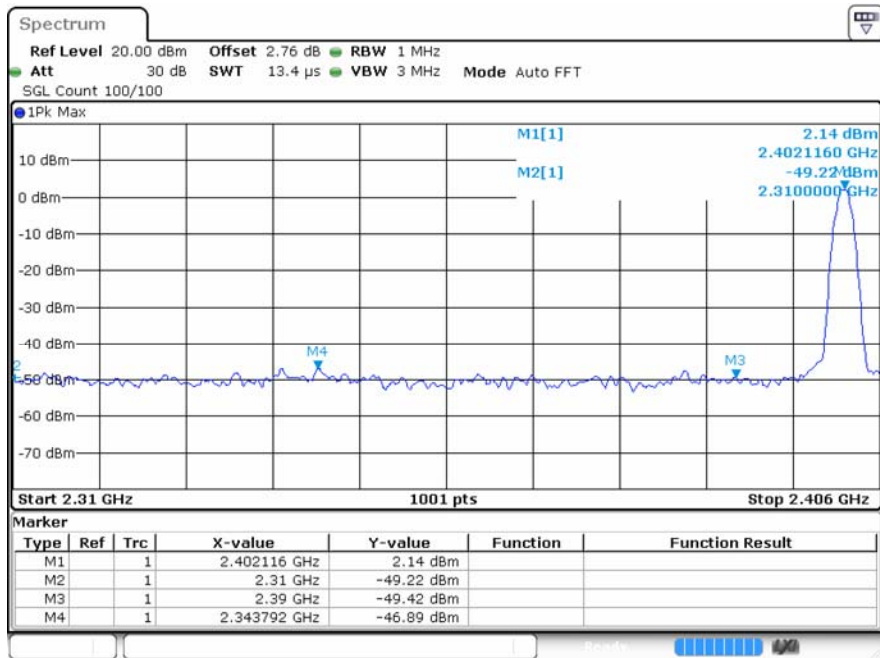
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



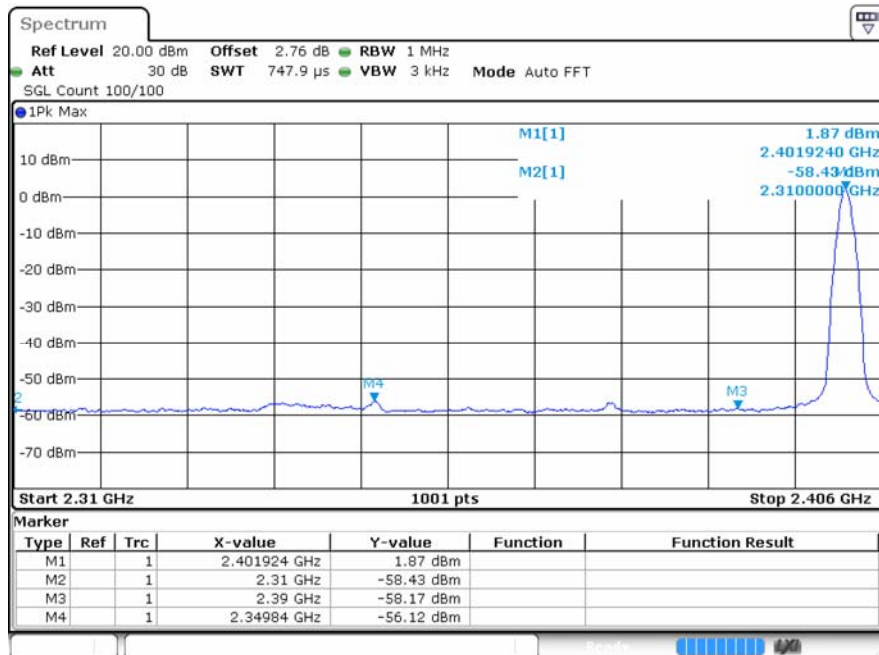
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



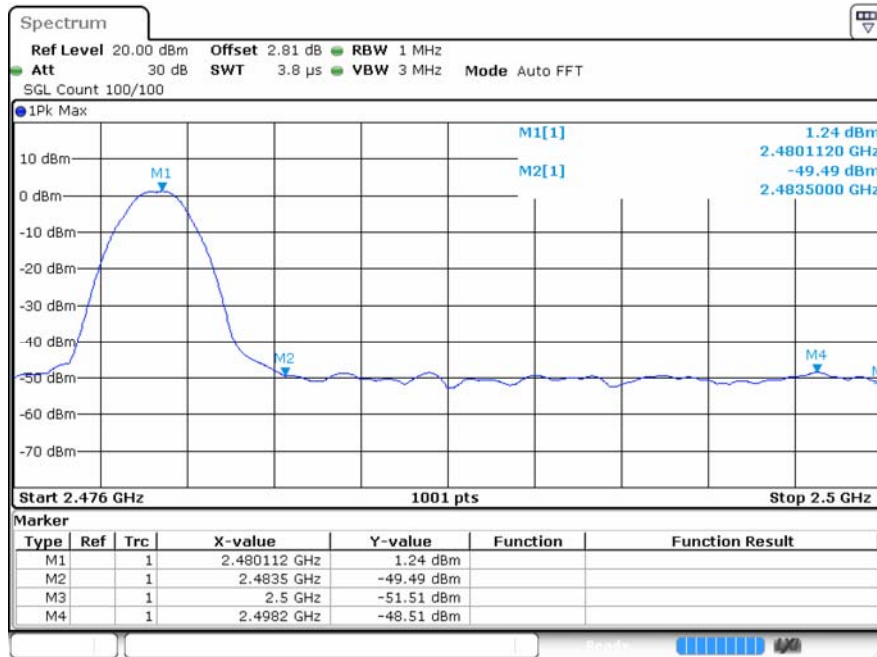
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



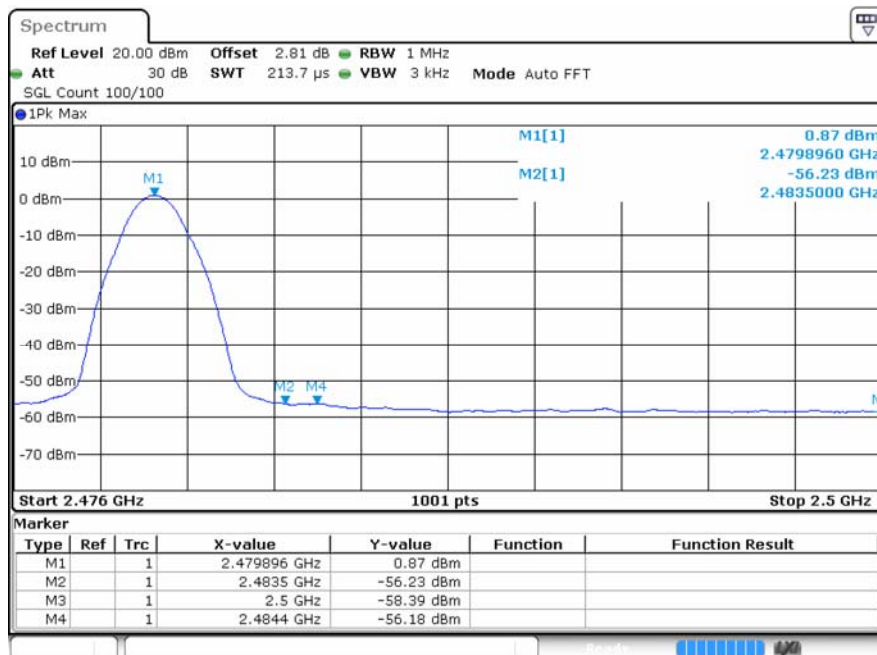
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (Low Channel)



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



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



---The End---