



## Appendix A

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

Product Name: True Wireless Earbuds with Hybrid ANC

Trade Mark: AUKEY

Test Model: EP-B2

#### Environmental Conditions

Temperature:	25.3°C
Relative Humidity:	52.1%
ATM Pressure:	101Kpa
Test Engineer:	Emiya lin
Supervised by:	Simba Haung



# Contents

Page

**COVER PAGE**

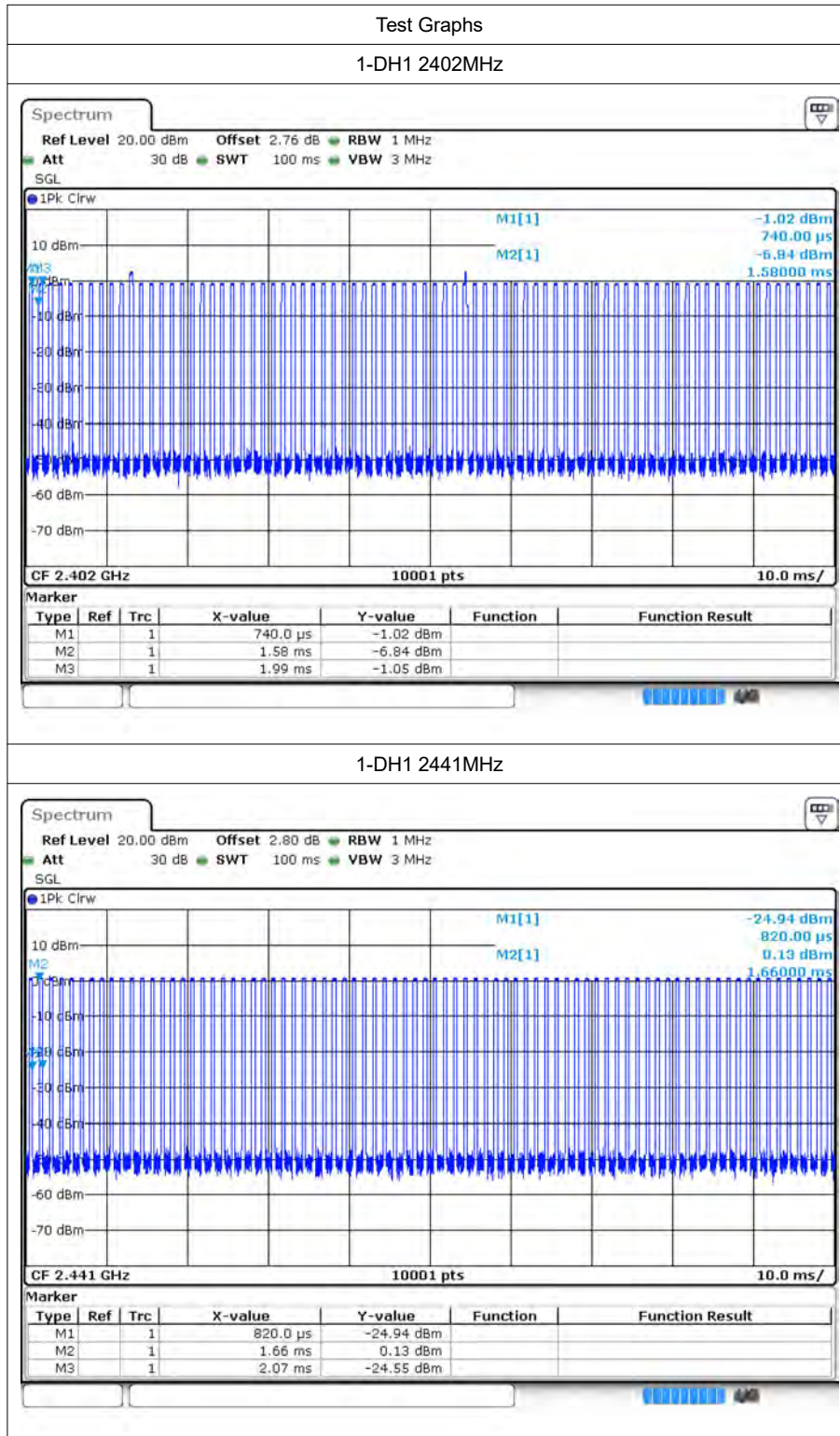
1	Duty Cycle .....	3
1.1	Test Result .....	3
1.2	Test Graphs .....	4
2	Maximum Conducted Peak Output Power .....	9
2.1	Test Result .....	9
2.2	Test Graphs .....	10
3	20dB Bandwidth .....	15
3.1	Test Result .....	15
3.2	Test Graphs .....	16
4	Carrier Frequency Separation .....	21
4.1	Test Result .....	21
4.2	Test Graphs .....	22
5	Hopping Channel Number .....	24
5.1	Test Result .....	24
5.2	Test Graphs .....	25
6	Dwell Time .....	27
6.1	Test Result .....	27
6.2	Test Graphs .....	28
7	RF Conducted Spurious Emissions .....	31
7.1	Test Result .....	31
7.2	Test Graphs .....	32
8	Band-edge for RF Conducted Emissions .....	41
8.1	Test Result .....	41
8.2	Test Graphs .....	42
9	Restrict-band band-edge measurements .....	54
9.1	Test Result .....	54
9.2	Test Graphs .....	56

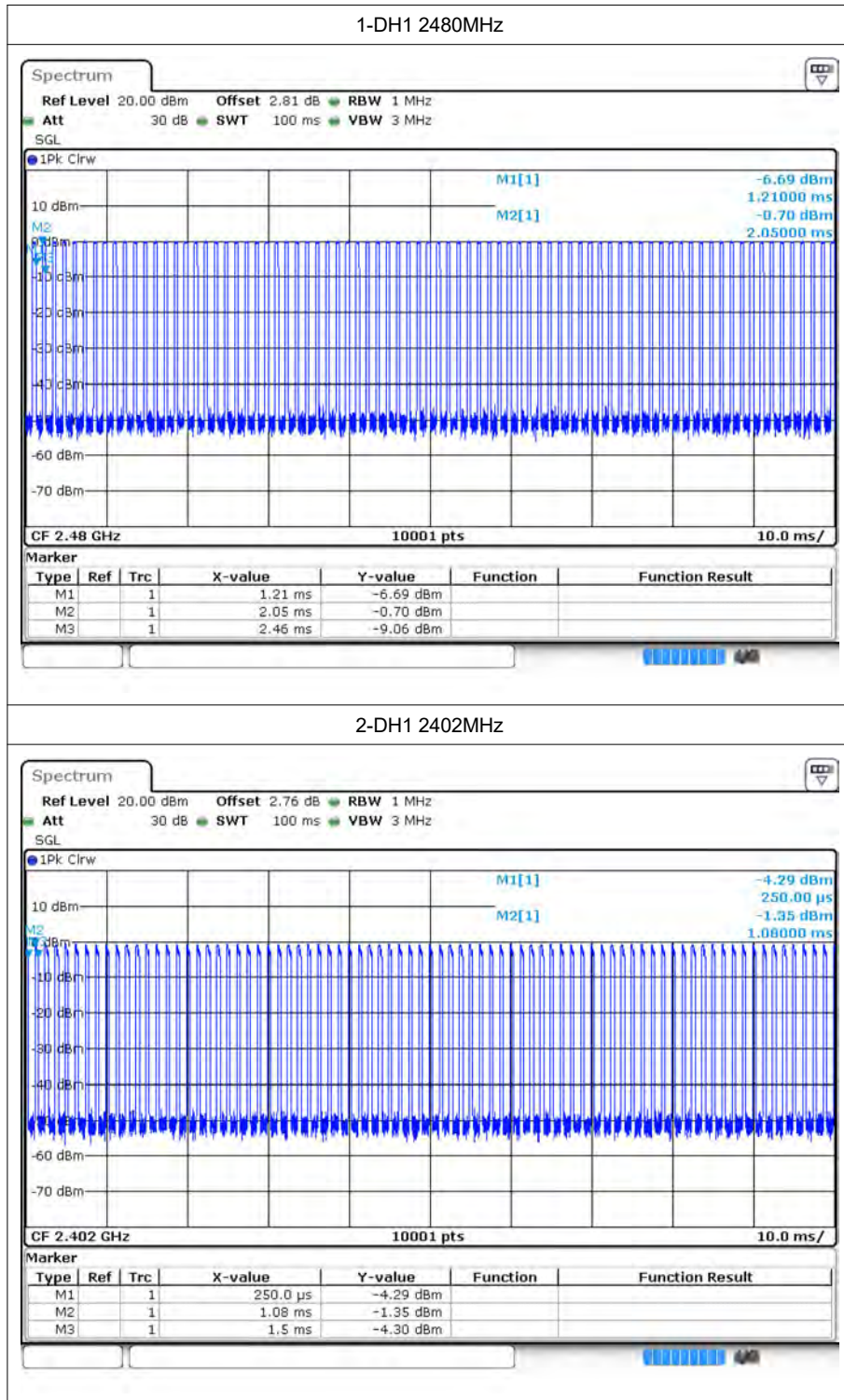
# 1 Duty Cycle

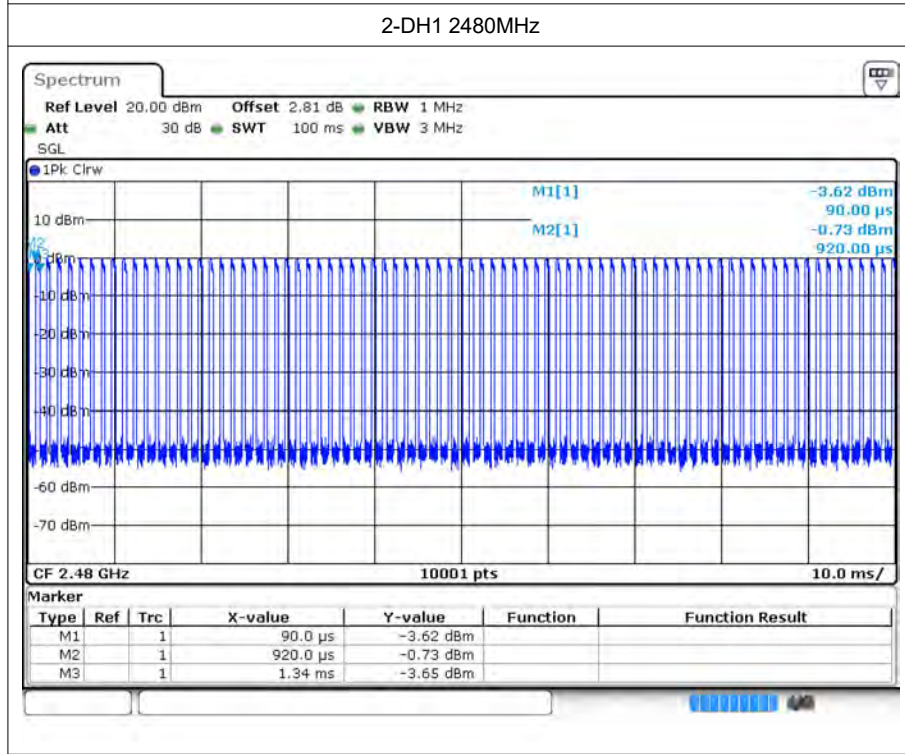
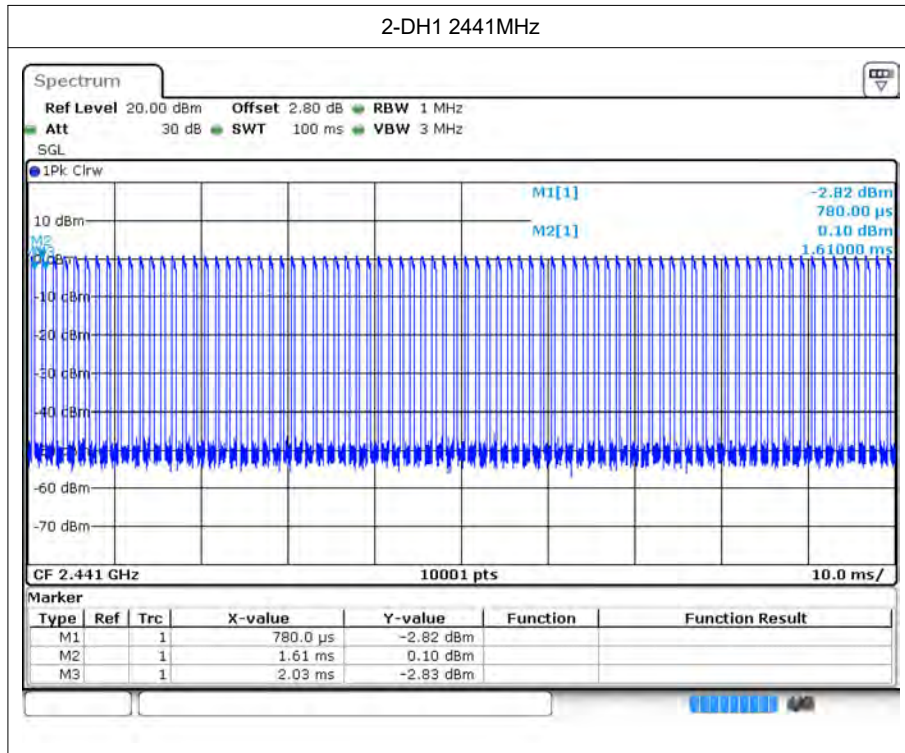
## 1.1 Test Result

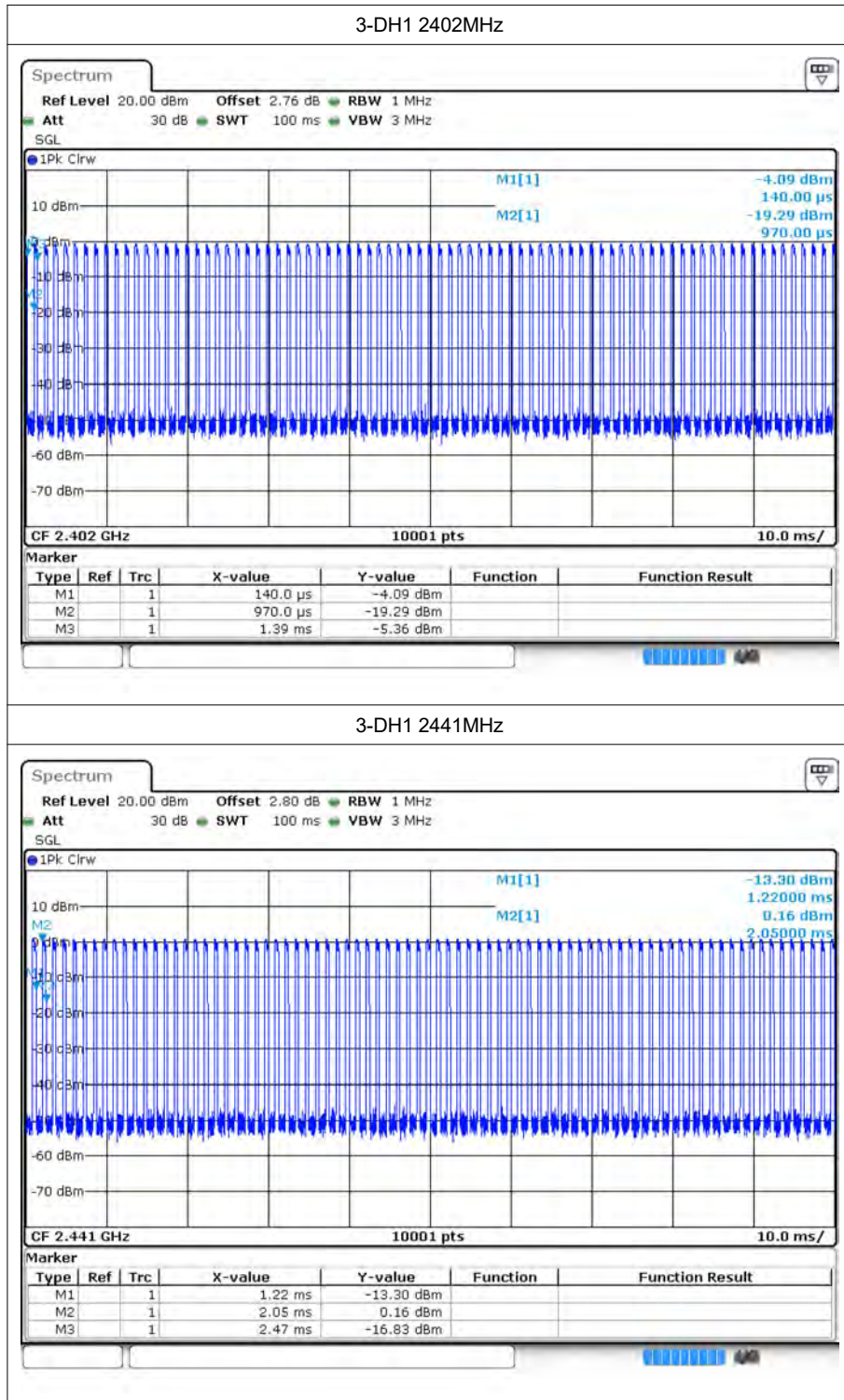
Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor	1/T (kHz)
1-DH1	2402	33.86	4.7	2.44
1-DH1	2441	33.85	4.7	2.44
1-DH1	2480	33.6	4.74	2.44
2-DH1	2402	34.41	4.63	2.38
2-DH1	2441	34.4	4.63	2.38
2-DH1	2480	34.41	4.63	2.38
3-DH1	2402	34.46	4.63	2.38
3-DH1	2441	34.4	4.63	2.38
3-DH1	2480	34.4	4.63	2.38

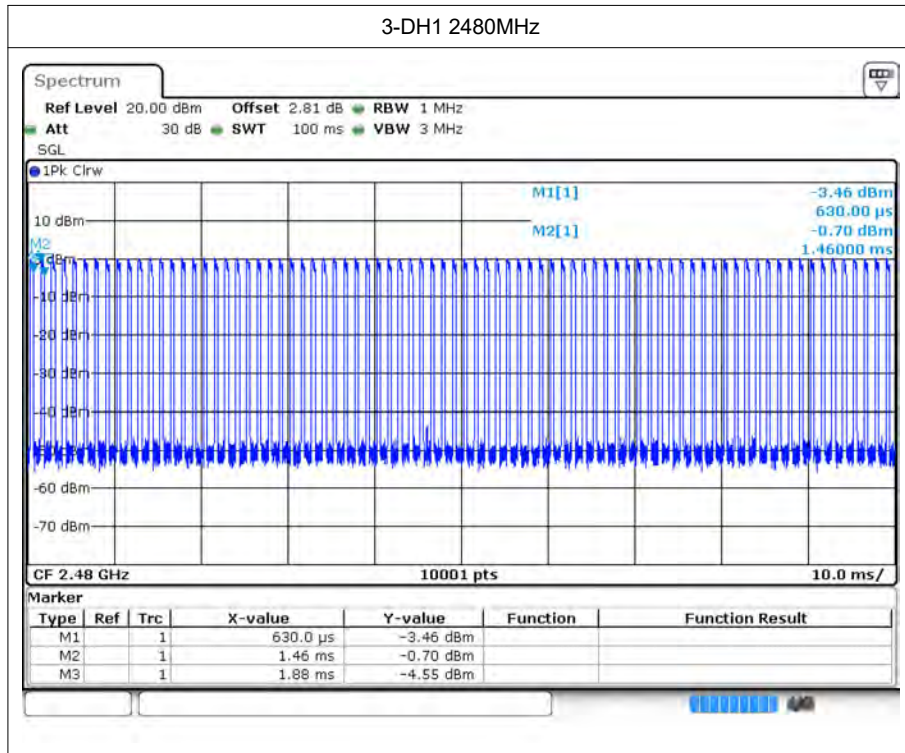
## 1.2 Test Graphs











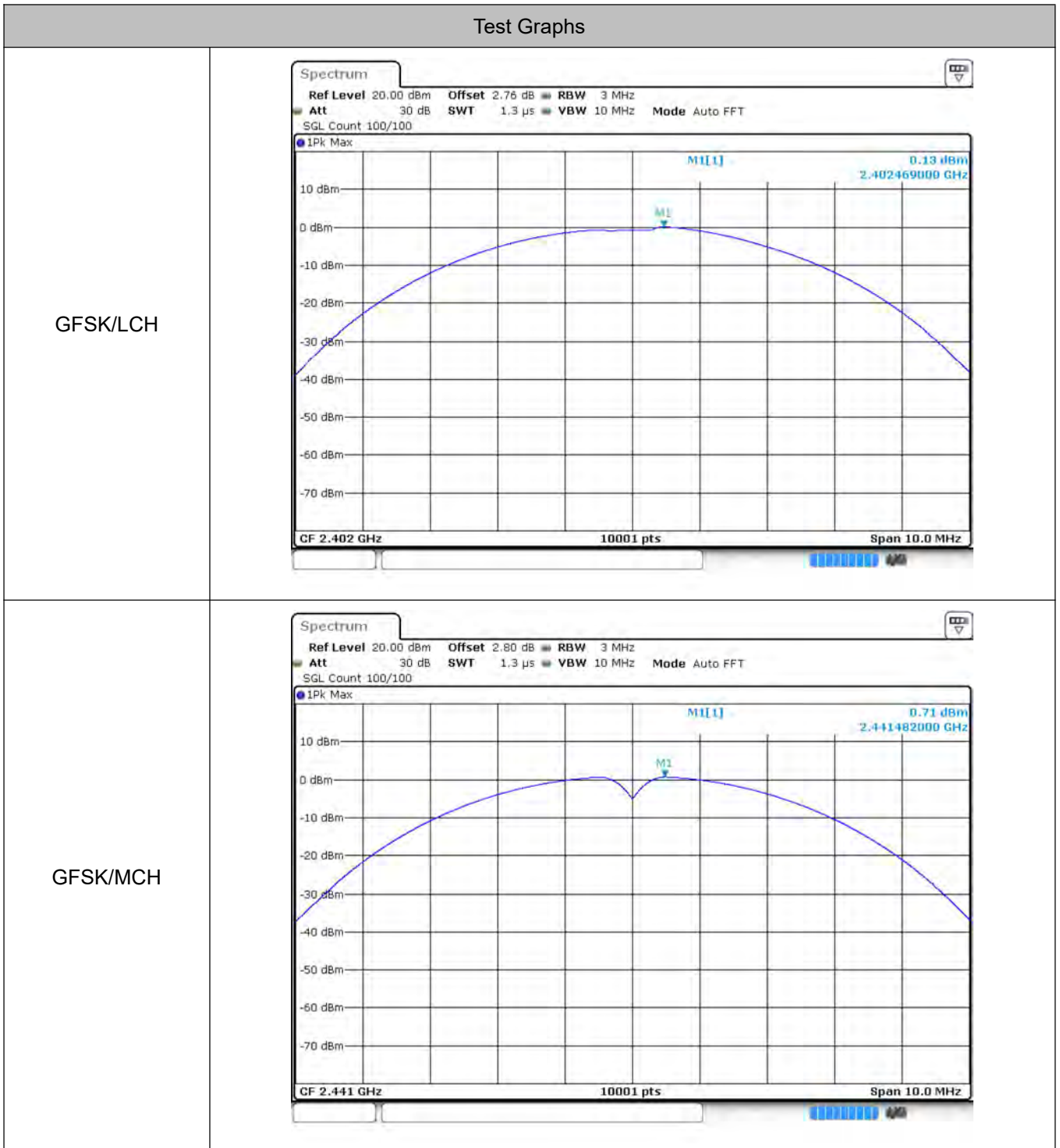


## 2 Maximum Conducted Peak Output Power

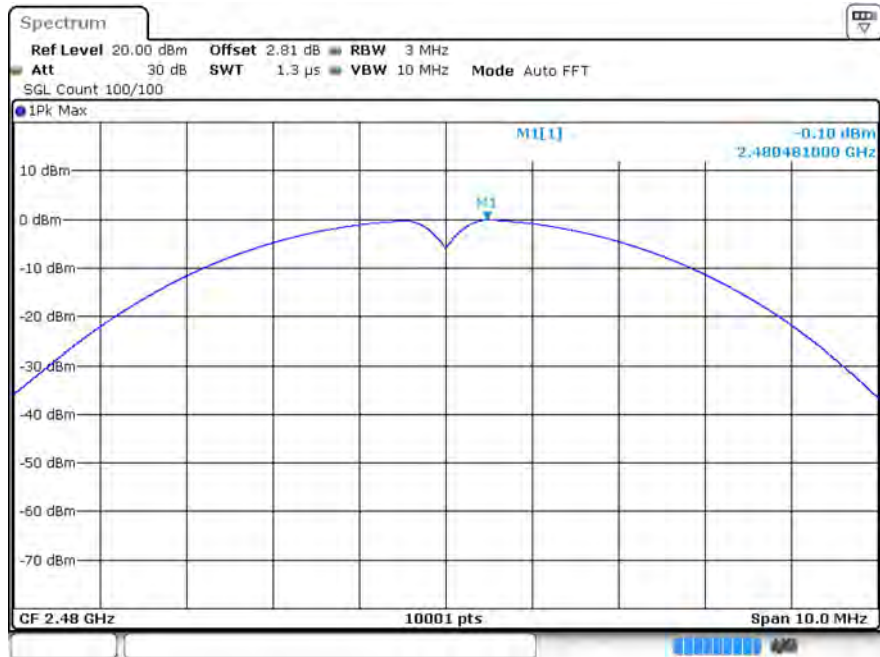
### 2.1 Test Result

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.13	21	Pass
	MCH	0.71	21	Pass
	HCH	-0.1	21	Pass
$\pi/4$ DQPSK	LCH	-0.98	21	Pass
	MCH	0.6	21	Pass
	HCH	-0.25	21	Pass
8DPSK	LCH	-0.84	21	Pass
	MCH	0.74	21	Pass
	HCH	-0.6	21	Pass

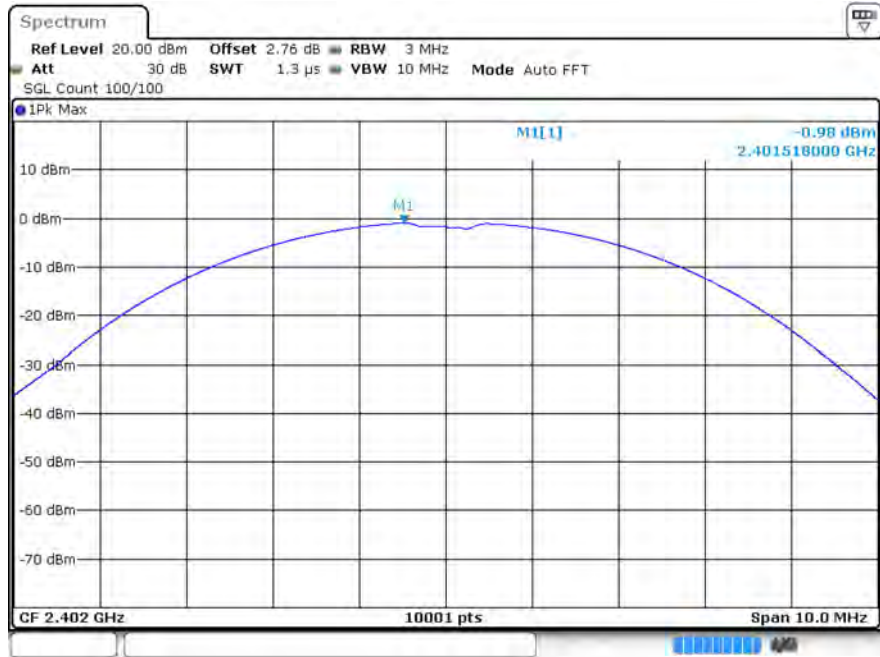
## 2.2 Test Graphs


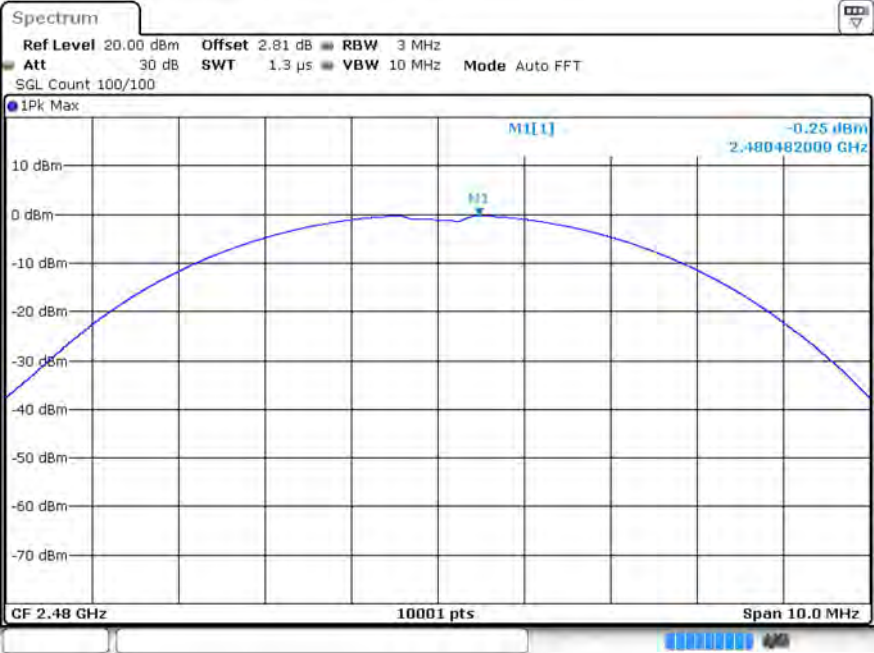


GFSK/HCH

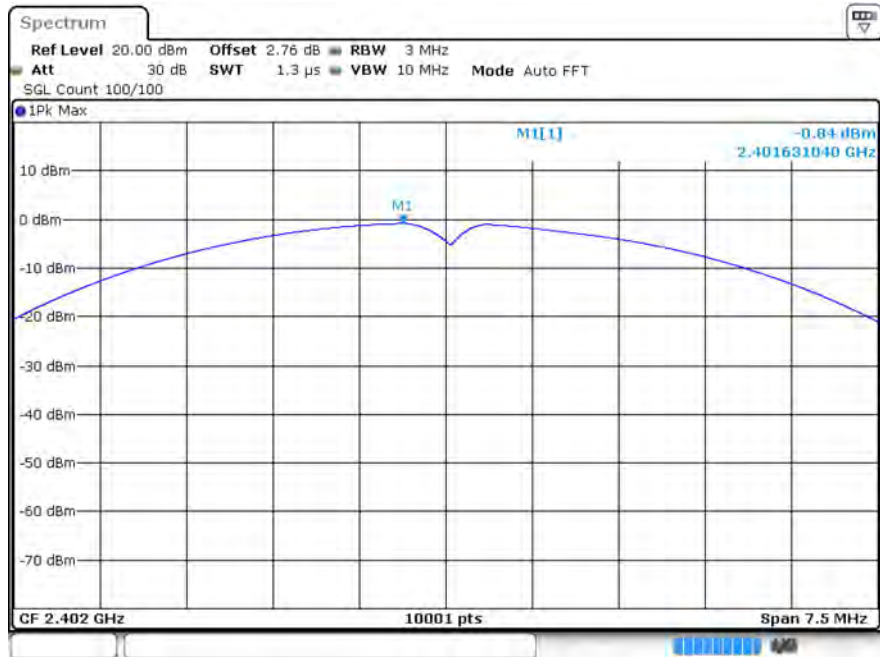


$\pi/4$ DQPSK/LCH



<p><math>\pi/4</math>DQPSK/MCH</p>	
<p><math>\pi/4</math>DQPSK/HCH</p>	

8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

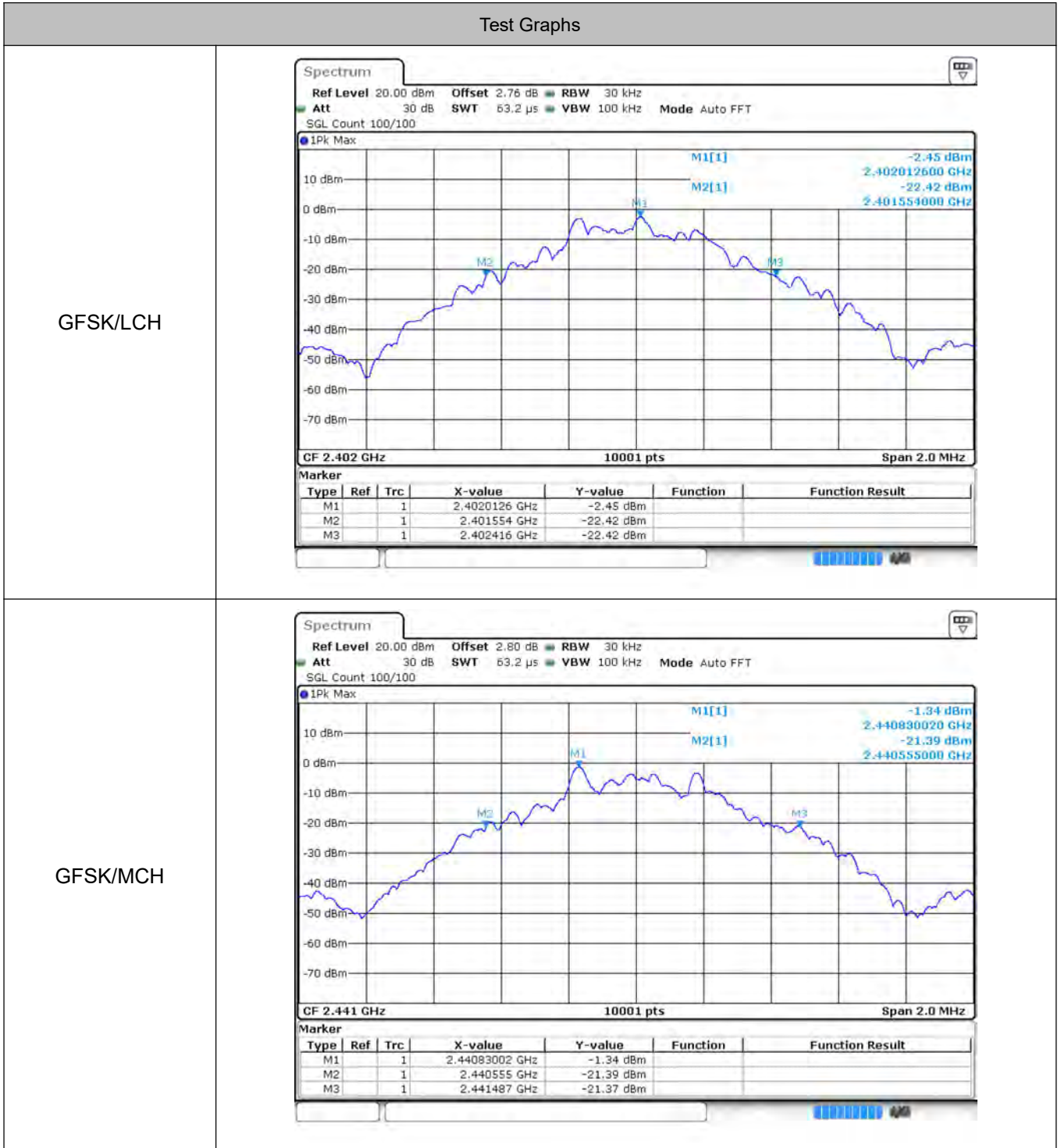


### 3 20dB Bandwidth

#### 3.1 Test Result

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.862	Not Specified	Pass
	MCH	0.931	Not Specified	Pass
	HCH	0.895	Not Specified	Pass
$\pi/4$ DQPSK	LCH	1.168	Not Specified	Pass
	MCH	1.171	Not Specified	Pass
	HCH	1.183	Not Specified	Pass
8DPSK	LCH	1.2	Not Specified	Pass
	MCH	1.165	Not Specified	Pass
	HCH	1.205	Not Specified	Pass

### 3.2 Test Graphs





GFSK/HCH



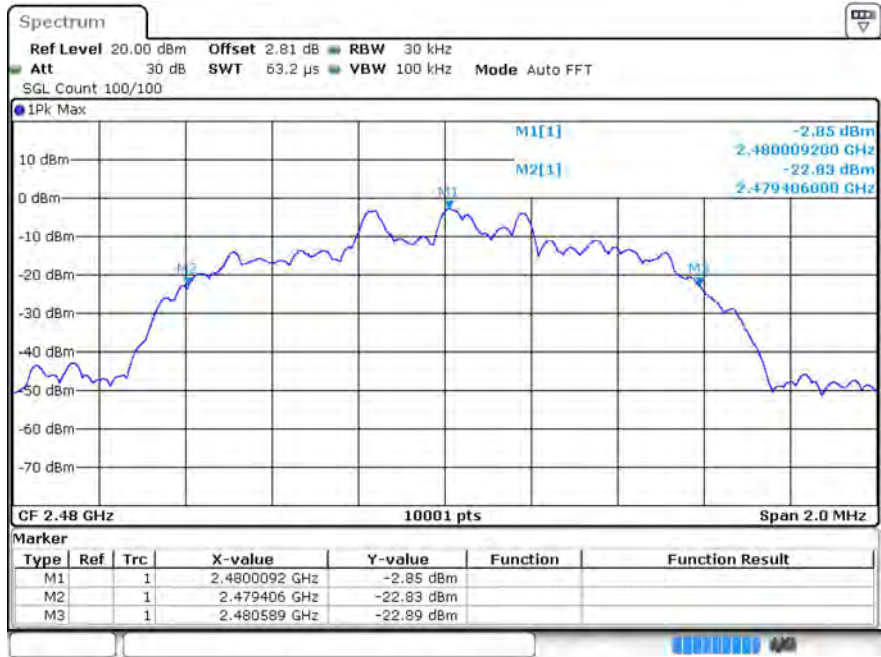
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH



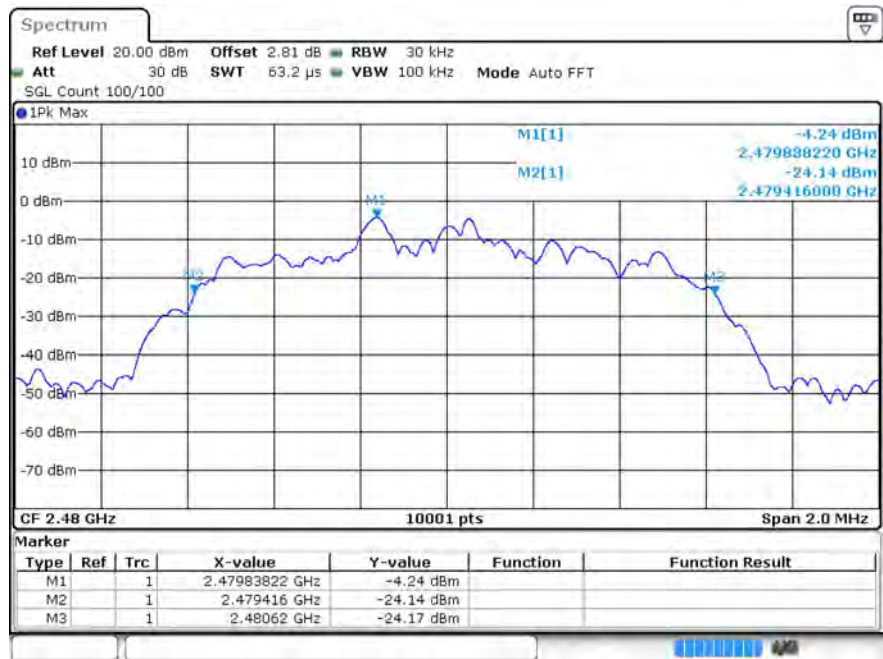
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



## 4 Carrier Frequency Separation

### 4.1 Test Result

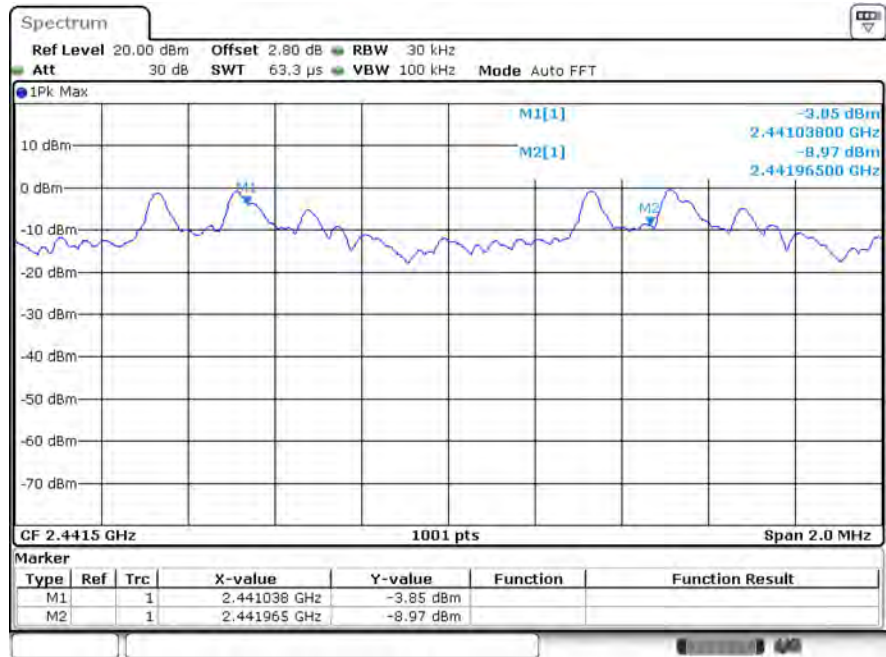
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	MCH	1	0.621	Pass
$\pi/4$ DQPSK	MCH	1.021	0.781	Pass
8DPSK	MCH	0.927	0.777	Pass

## 4.2 Test Graphs





8DPSK/MCH



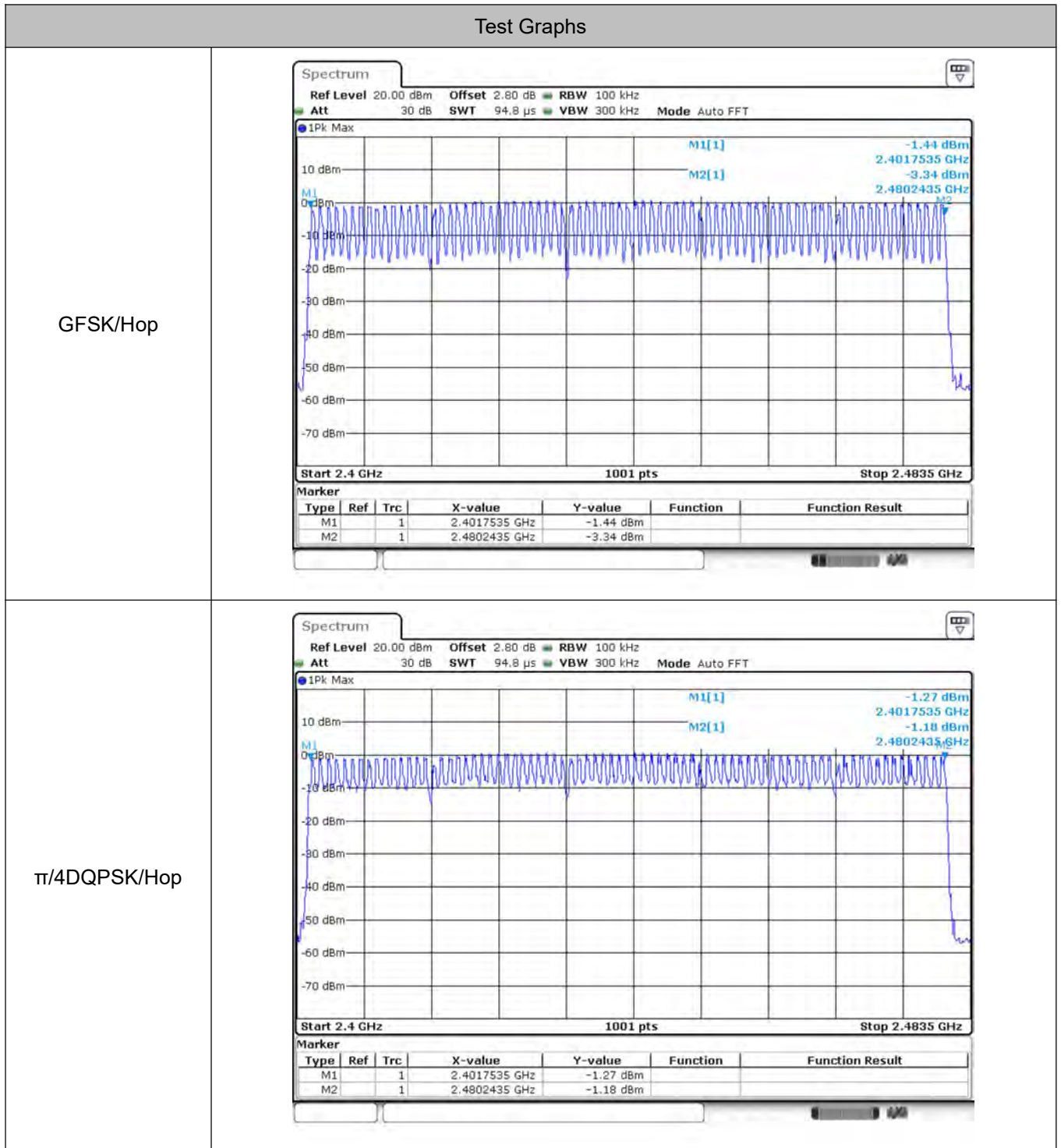
## 5 Hopping Channel Number

### 5.1 Test Result

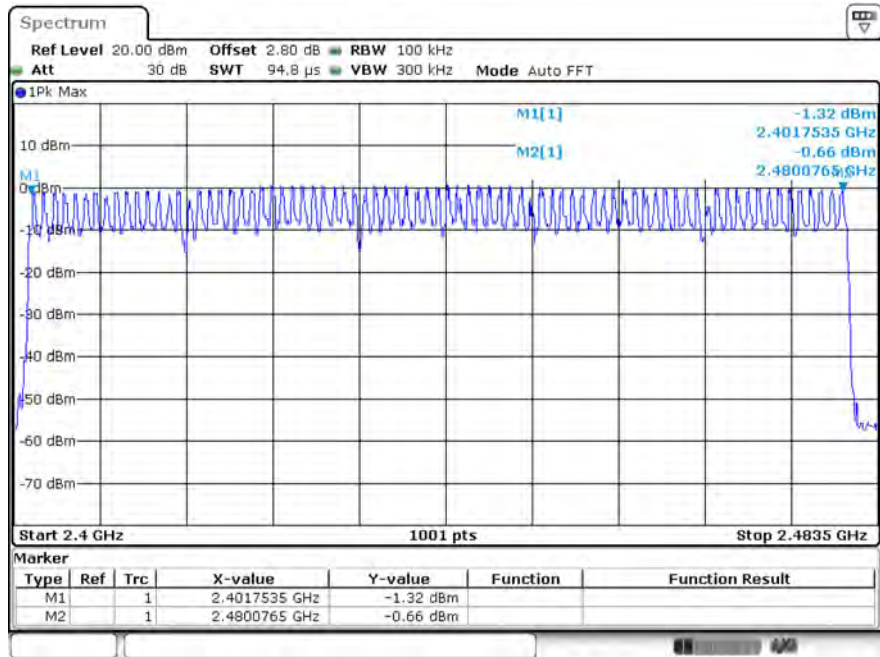
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	$\geq 15$	PASS
$\pi/4$ DQPSK	Hop	79	$\geq 15$	PASS
8DPSK	Hop	79	$\geq 15$	PASS



## 5.2 Test Graphs



8DPSK/Hop

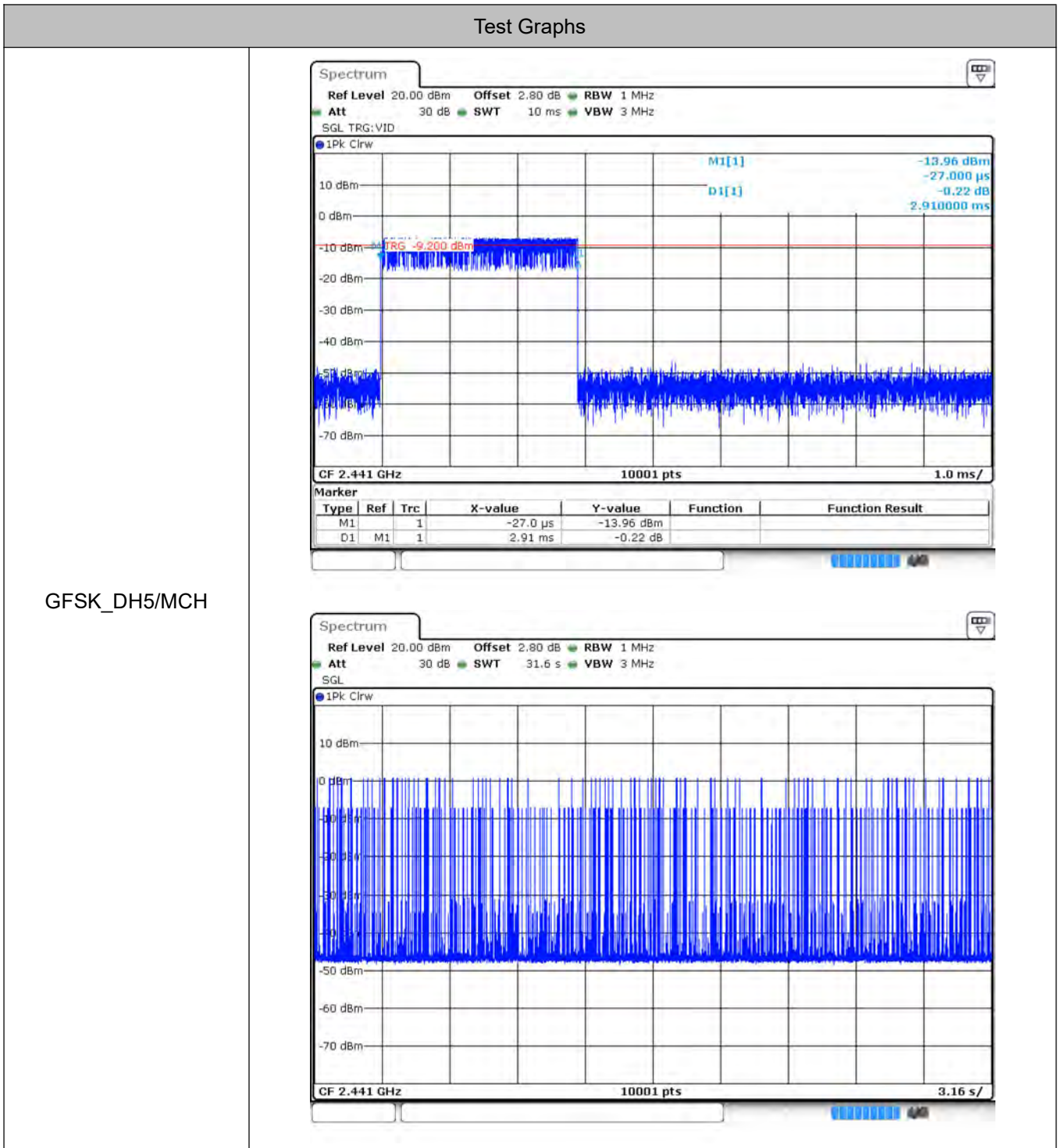


## 6 Dwell Time

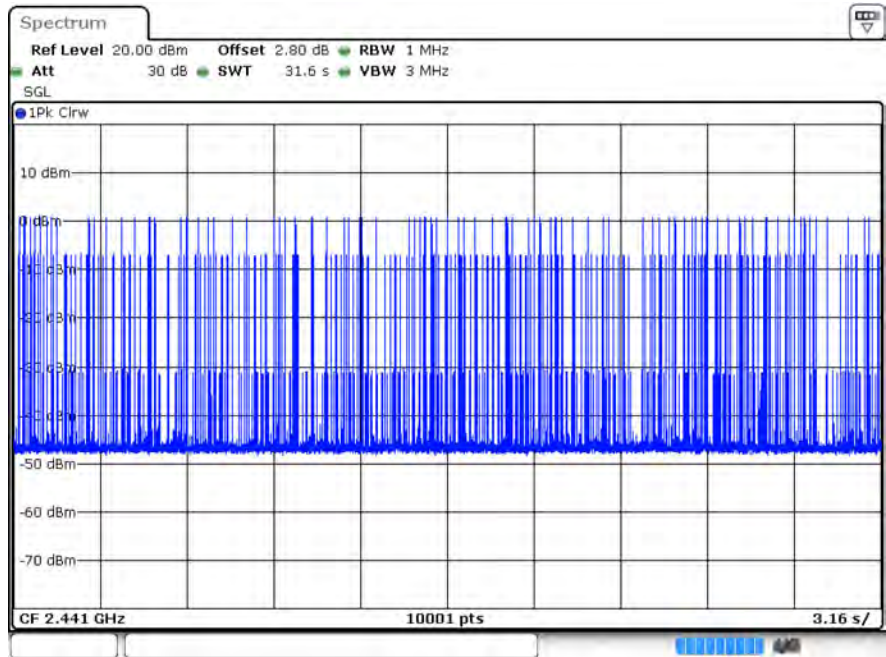
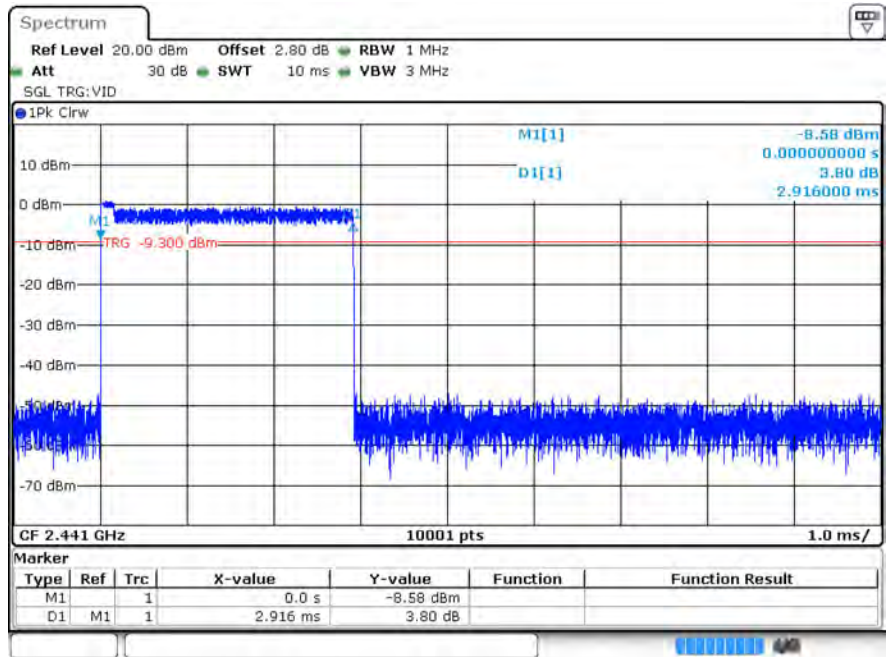
### 6.1 Test Result

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[ms]	Limit [s]	Verdict
GFSK	DH5	MCH	2.91	108	314.28	0.4	Pass
$\pi/4$ DQPSK	2DH5	MCH	2.916	96	279.936	0.4	Pass
8DPSK	3DH5	MCH	2.915	115	335.225	0.4	Pass

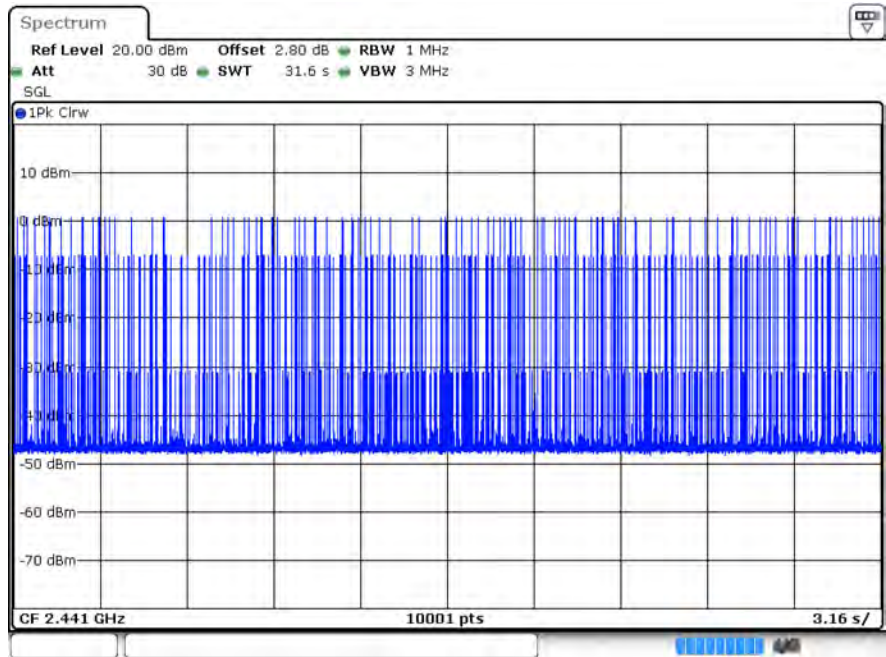
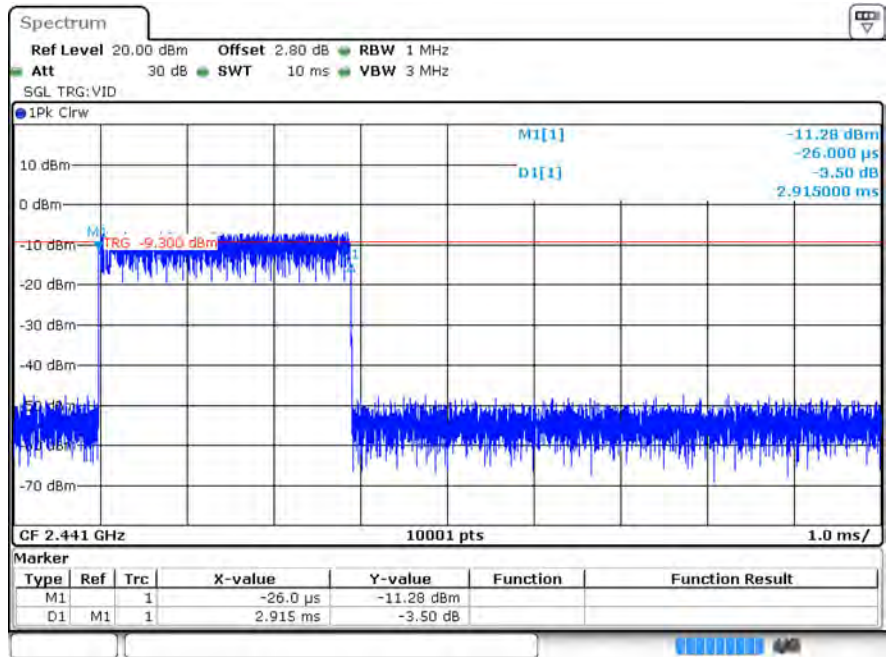
## 6.2 Test Graphs



$\pi/4$ 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	-30.08	-20	Pass
	MCH	-32.21	-20	Pass
	HCH	-32.55	-20	Pass
$\pi/4$ DQPSK	LCH	-40.63	-20	Pass
	MCH	-29.44	-20	Pass
	HCH	-29.67	-20	Pass
8DPSK	LCH	-39.22	-20	Pass
	MCH	-41.31	-20	Pass
	HCH	-39.15	-20	Pass

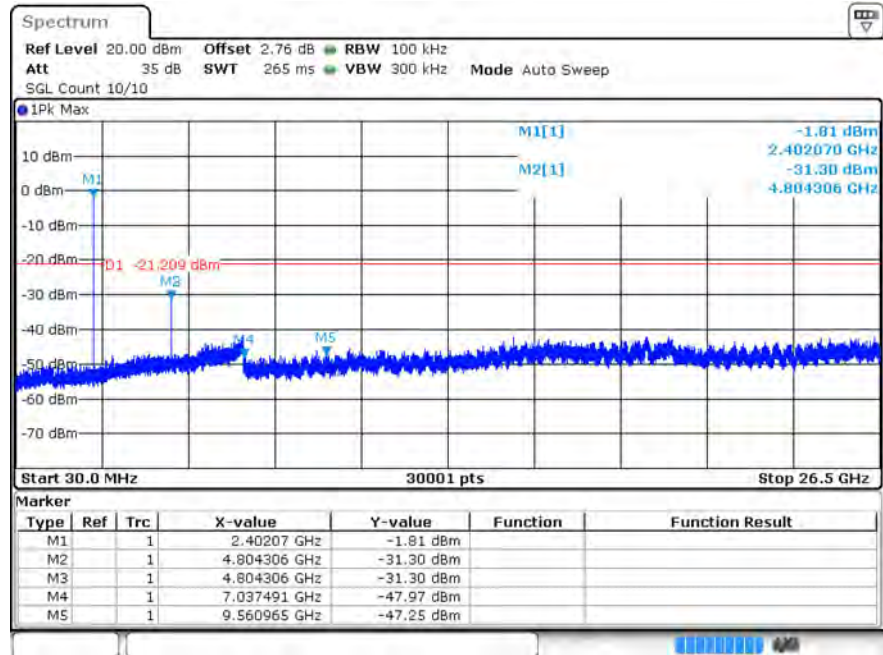
## 7.2 Test Graphs

GFSK\_LCH\_Graphs

Pref



Puw



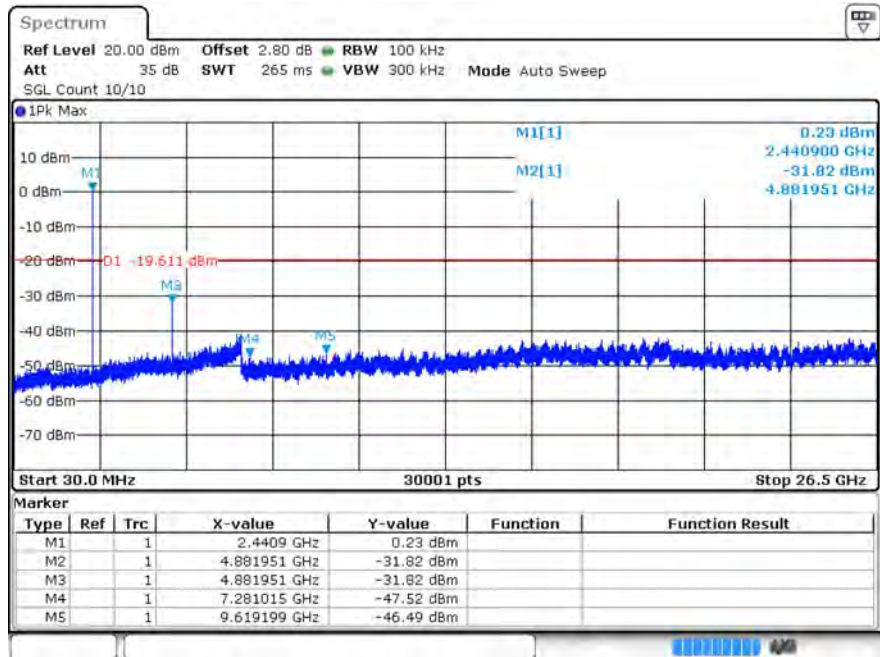


GFSK\_MCH\_Graphs

Pref



Puw

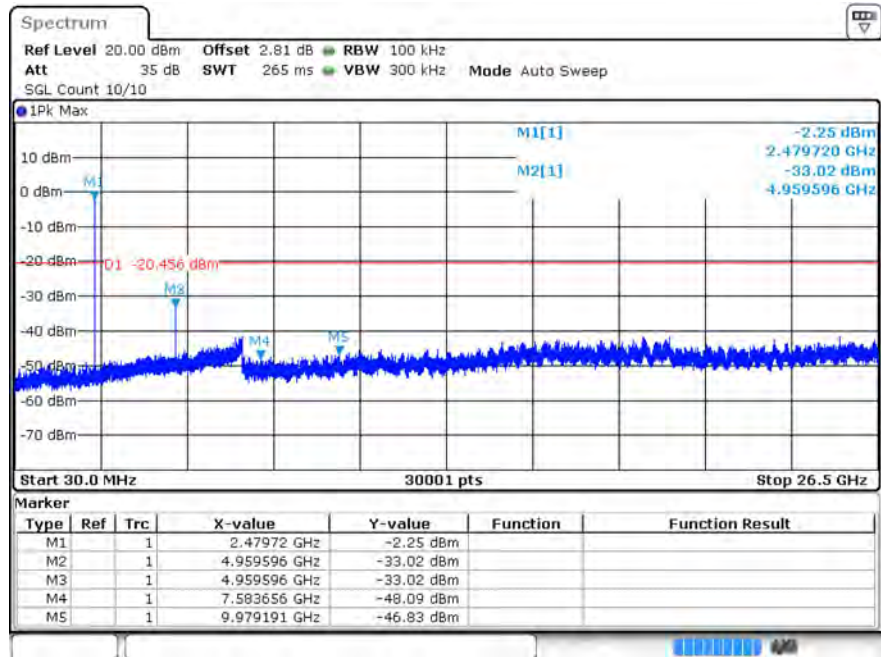


GFSK\_HCH\_Graphs

Pref



Puw

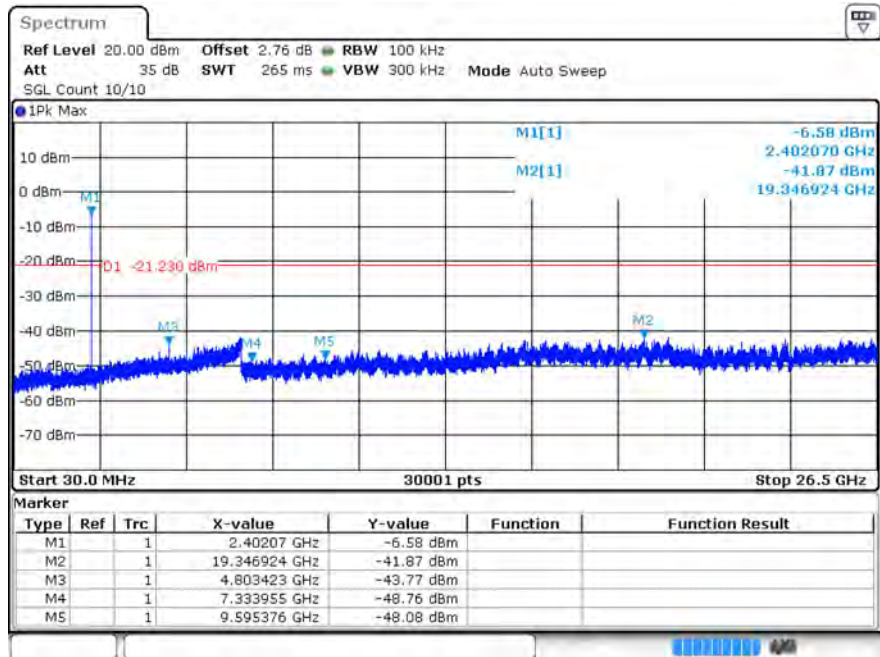


$\pi/4$ DQPSK\_LCH\_Graphs

Pref



Puw

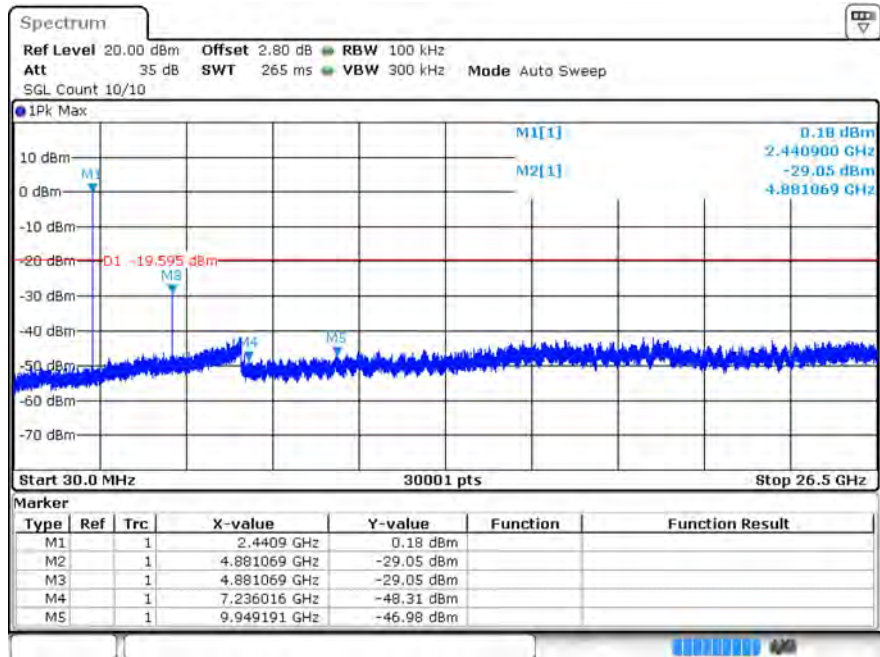


$\pi$ /4DQPSK\_MCH\_Graphs

Pref



Puw

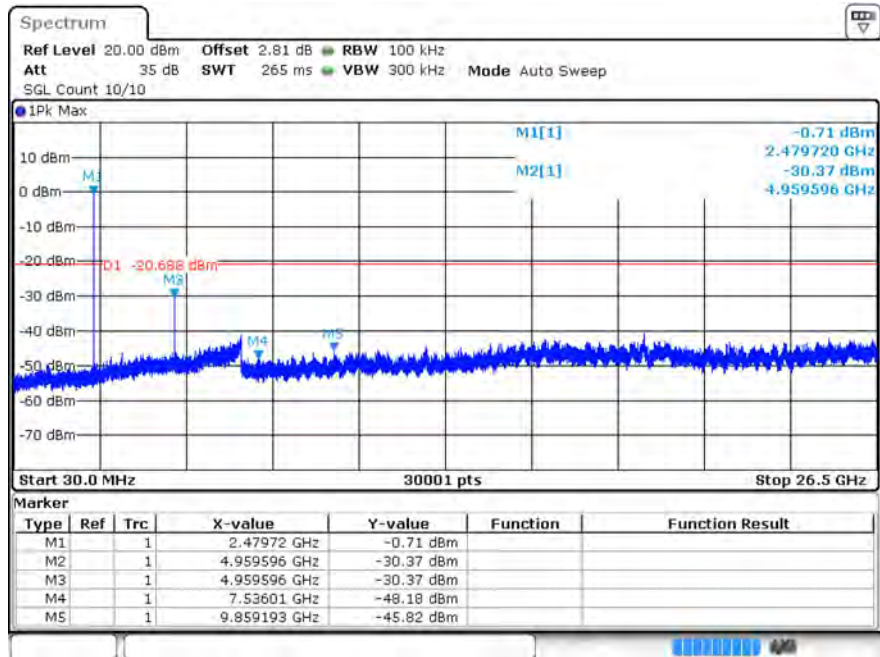


$\pi/4$ DQPSK\_HCH\_Graphs

Pref

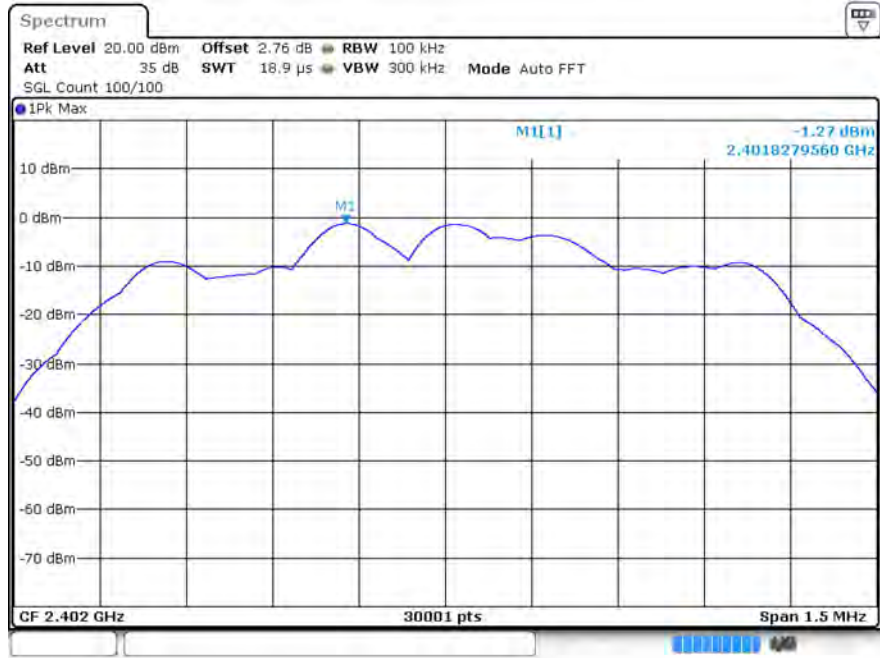


Puw

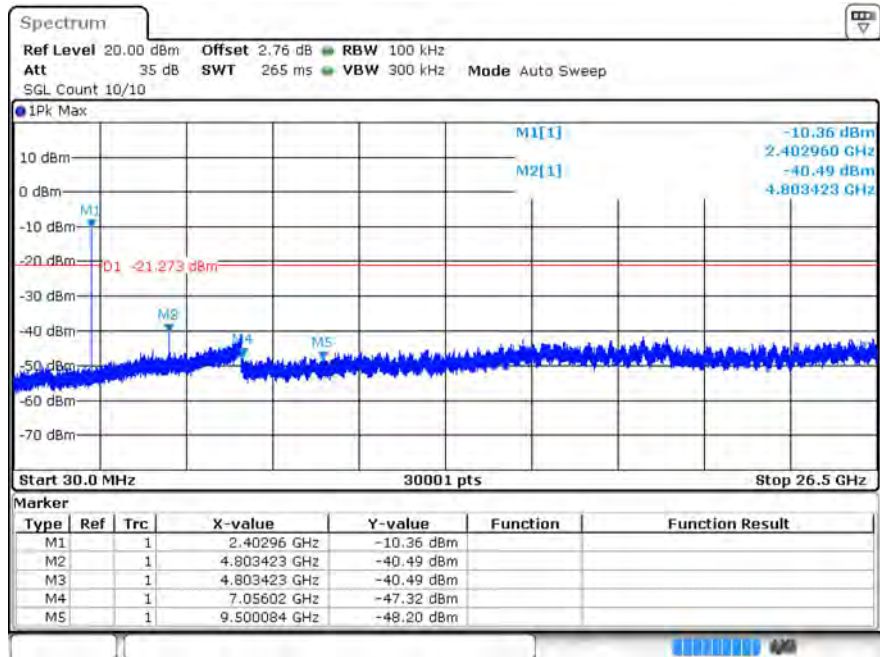


8DPSK\_LCH\_Graphs

Pref



Puw

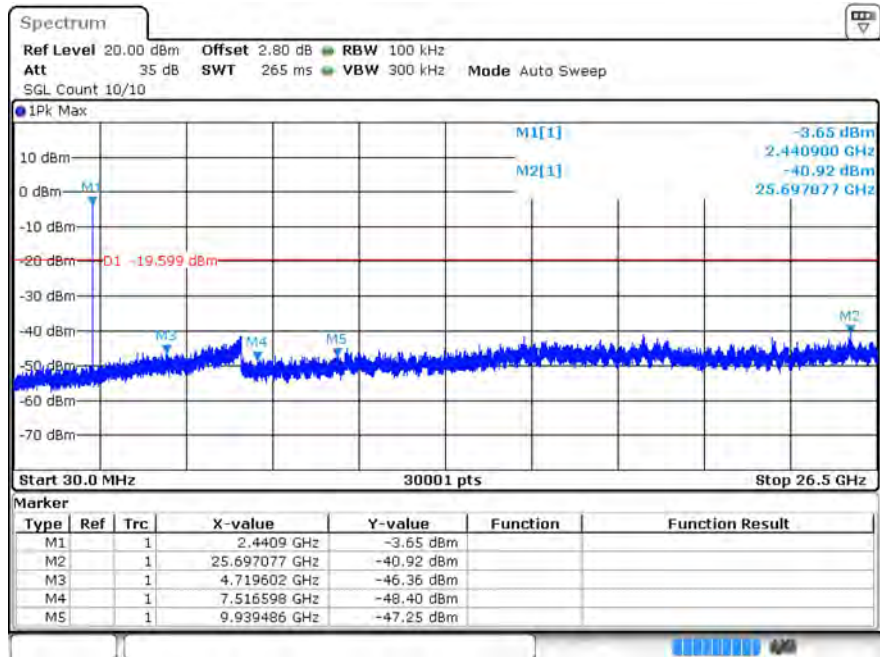


8DPSK\_MCH\_Graphs

Pref



Puw

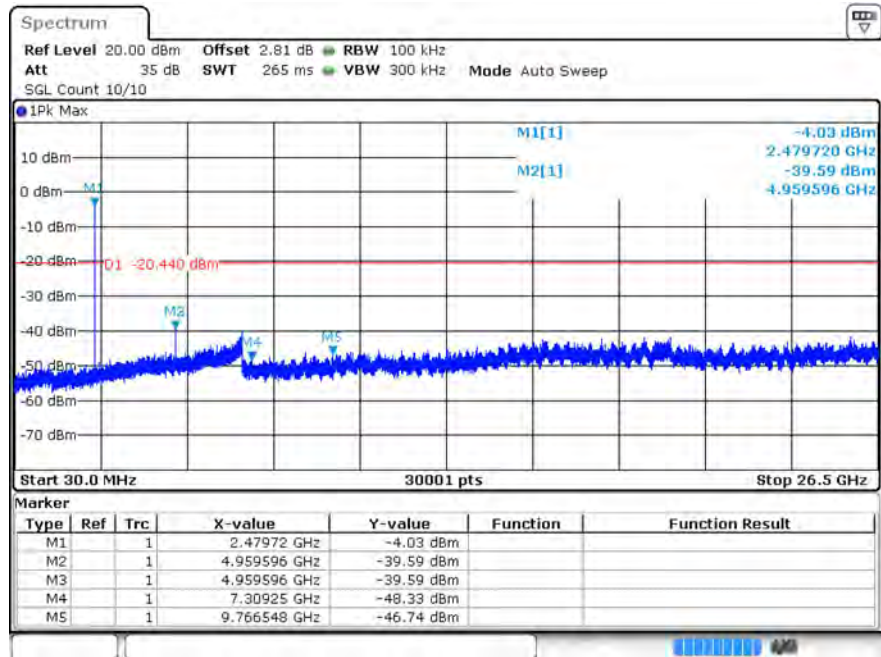


8DPSK\_HCH\_Graphs

Pref



Puw



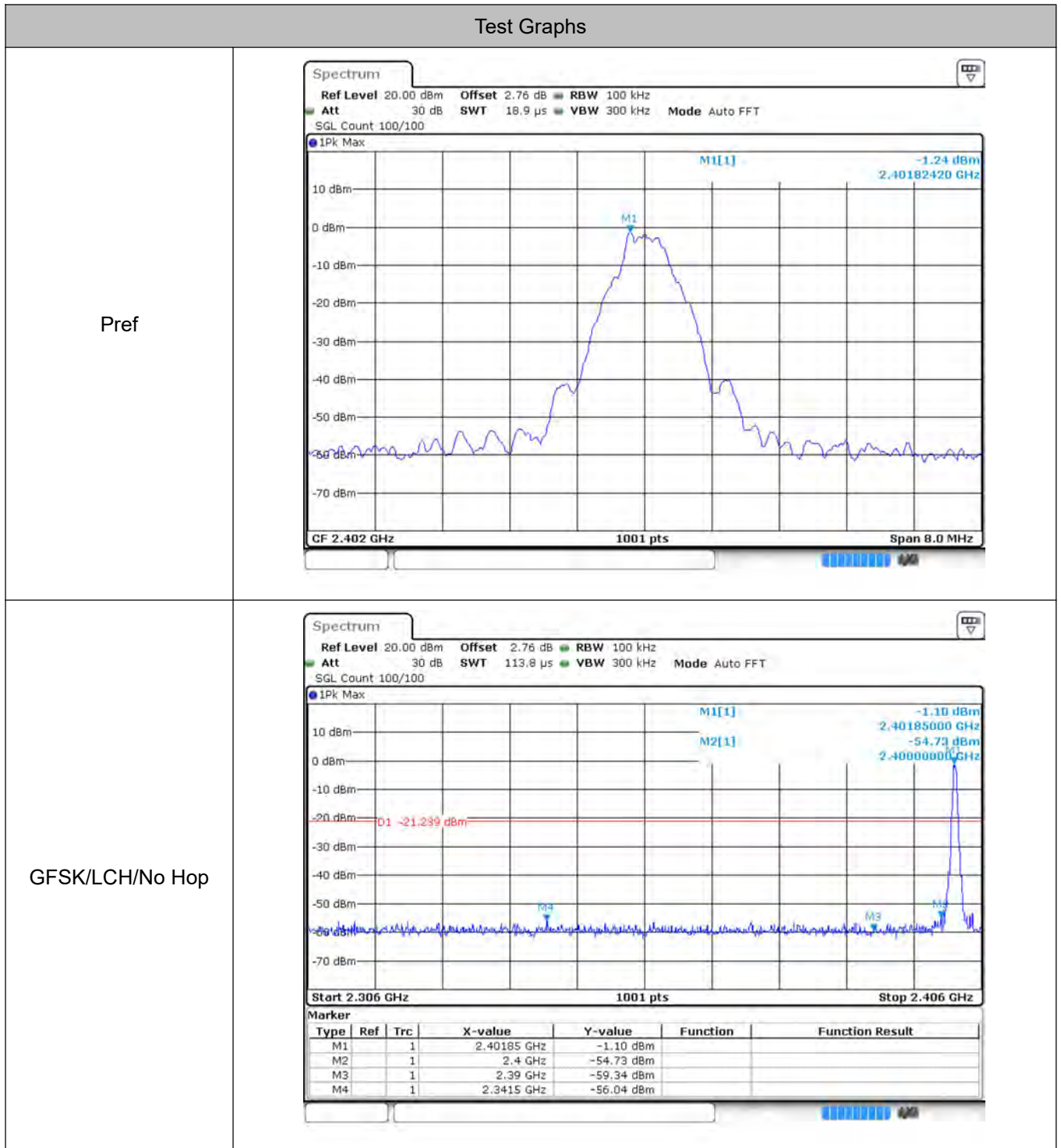


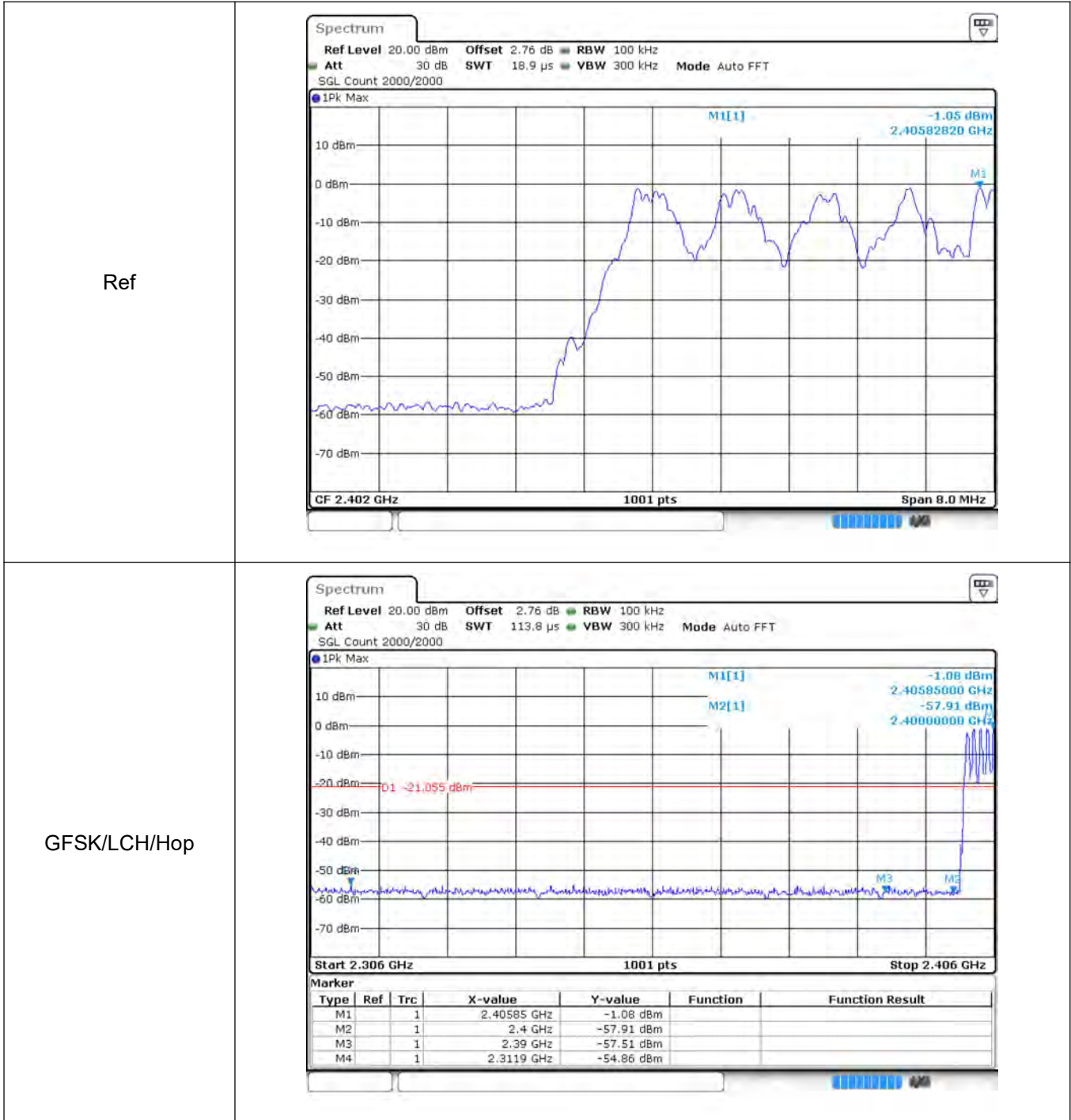
## 8 Band-edge for RF Conducted Emissions

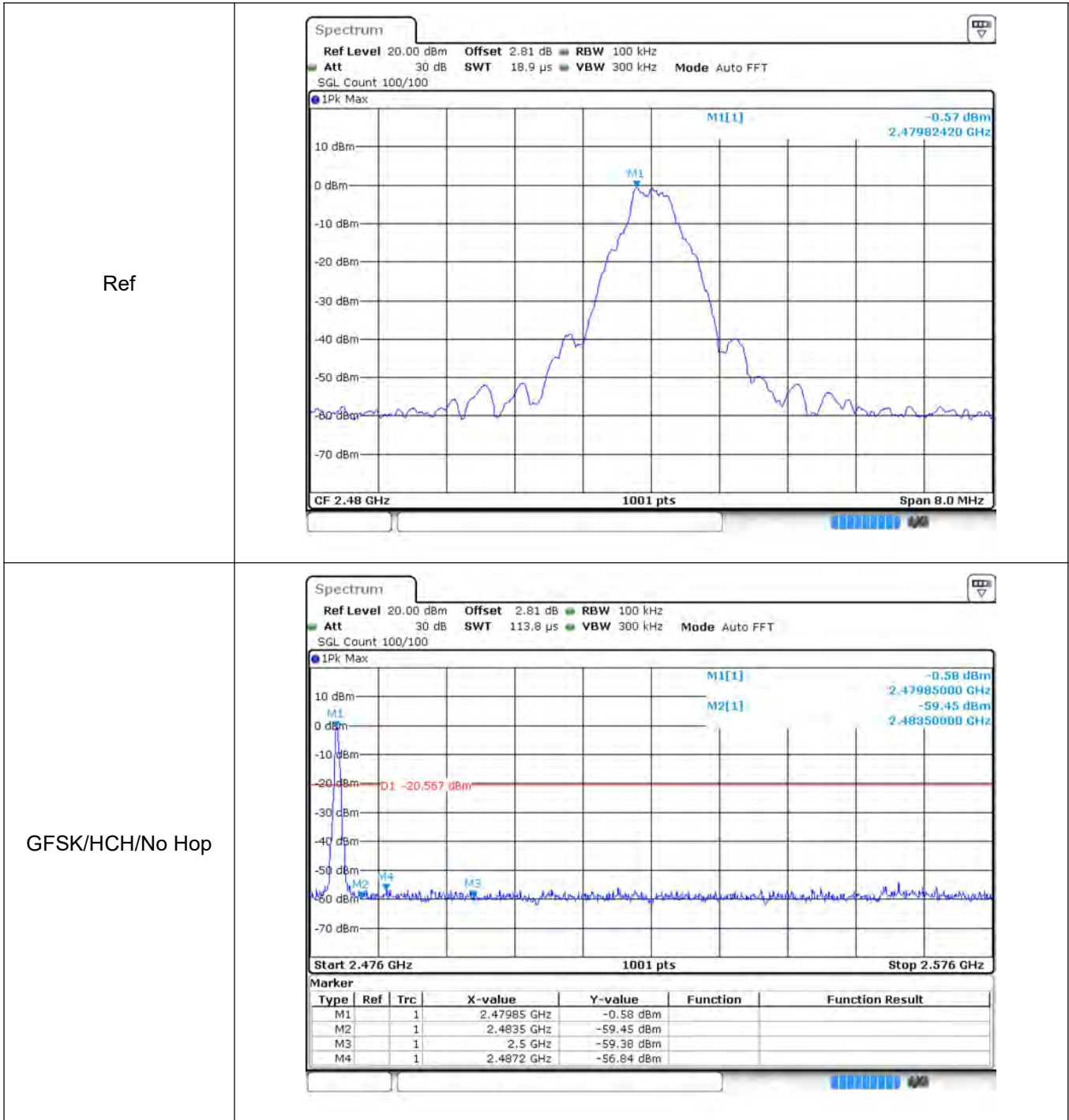
### 8.1 Test Result

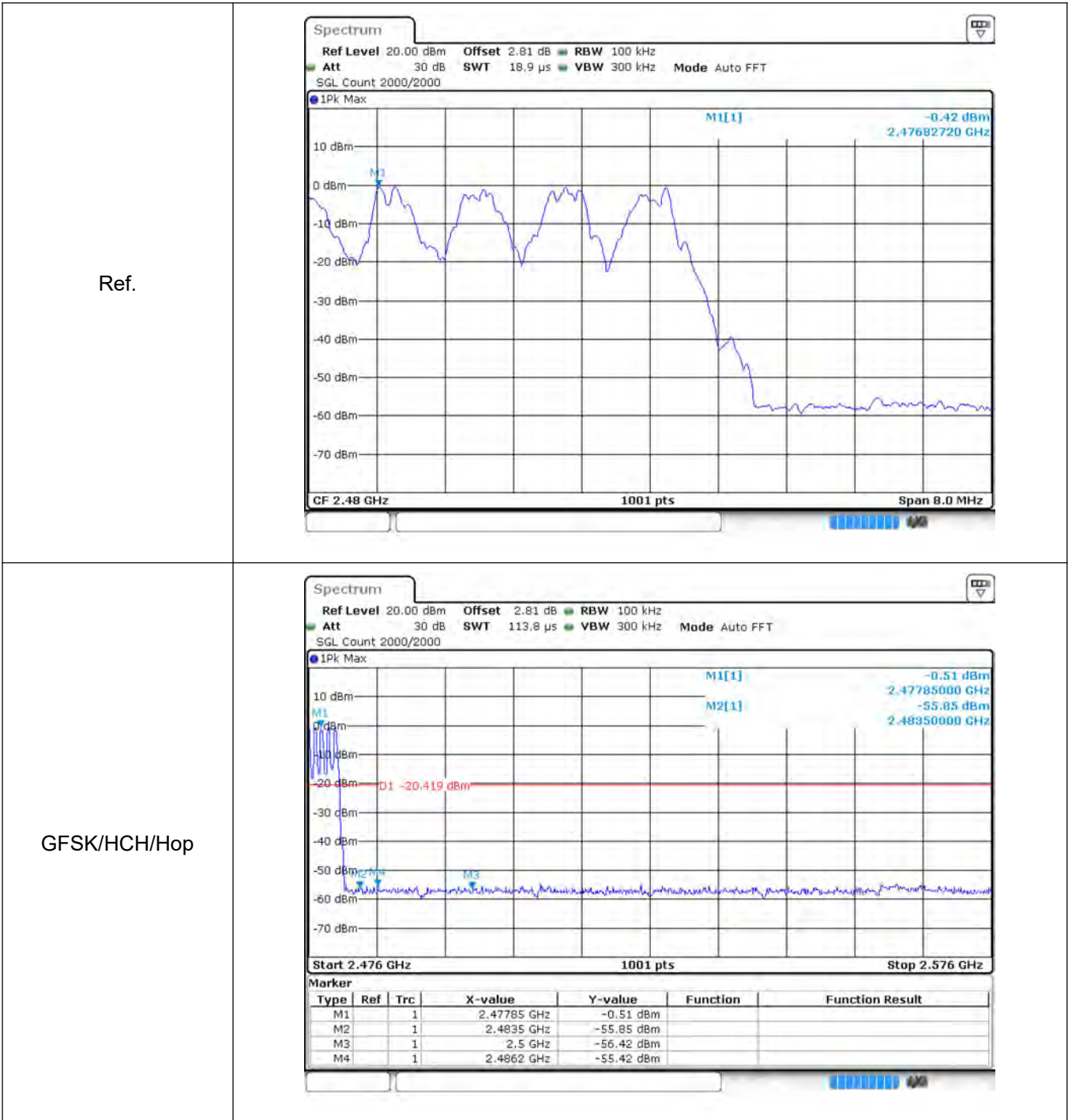
Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Max Spurious Level [dBc]	Limit [dBc]	Verdict
GFSK	LCH	2402	Off	-54.8	-20	Pass
			On	-53.8	-20	Pass
	HCH	2480	Off	-56.26	-20	Pass
			On	-55	-20	Pass
$\pi/4$ DQPSK	LCH	2402	Off	-55.24	-20	Pass
			On	-53.55	-20	Pass
	HCH	2480	Off	-55.95	-20	Pass
			On	-54.85	-20	Pass
8DPSK	LCH	2402	Off	-54.84	-20	Pass
			On	-54.15	-20	Pass
	HCH	2480	Off	-55.7	-20	Pass
			On	-54.58	-20	Pass

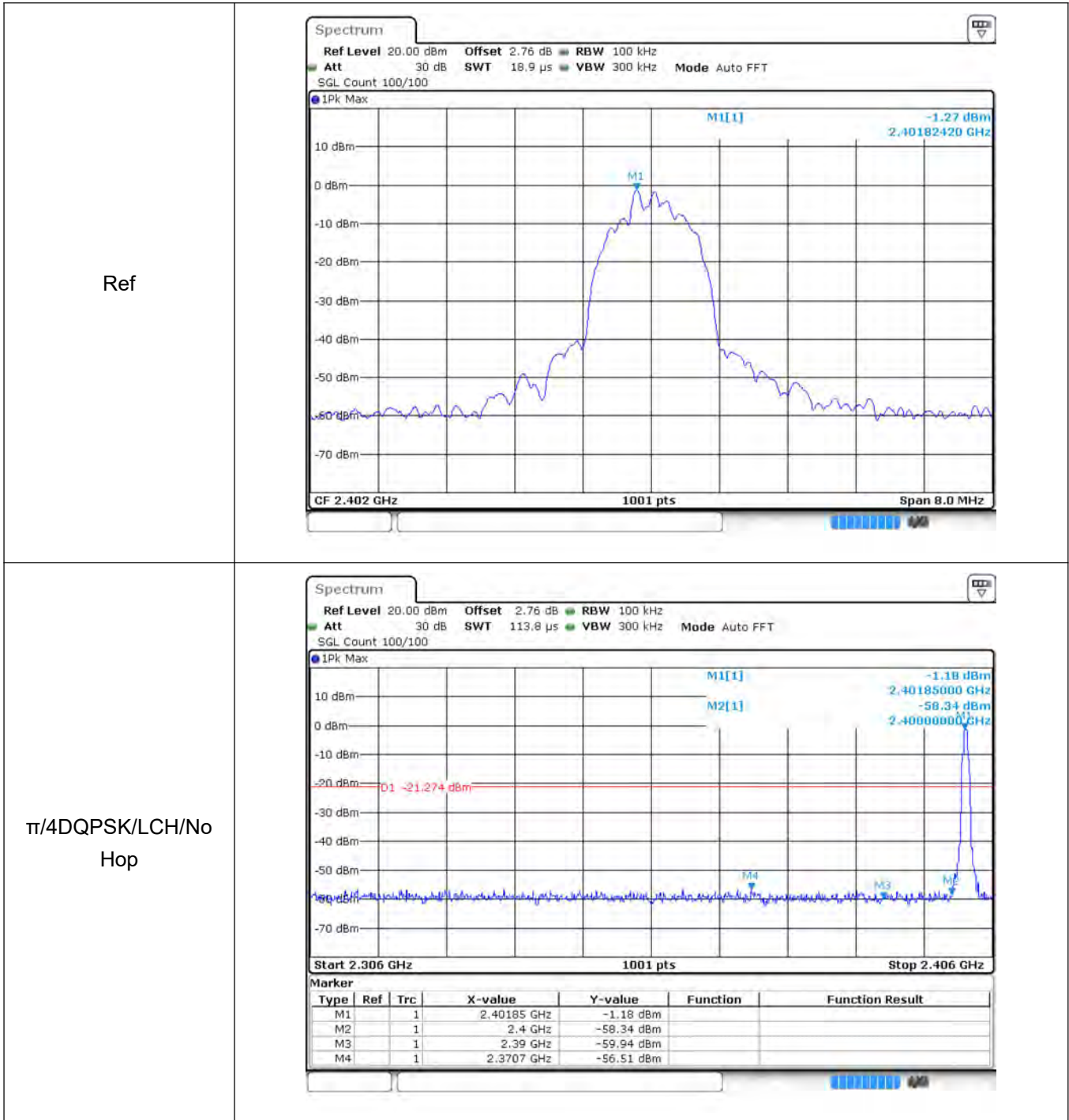
## 8.2 Test Graphs

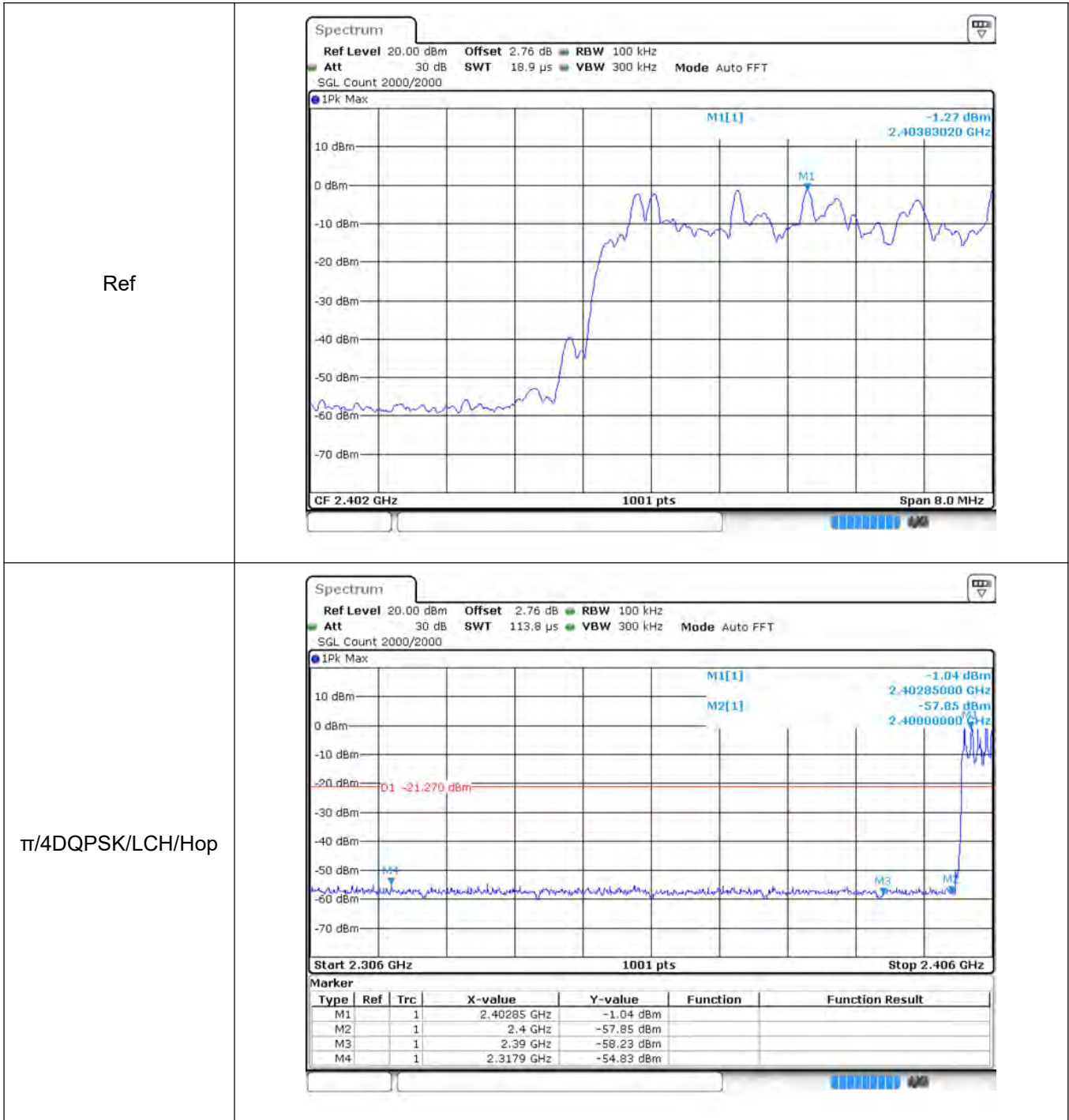


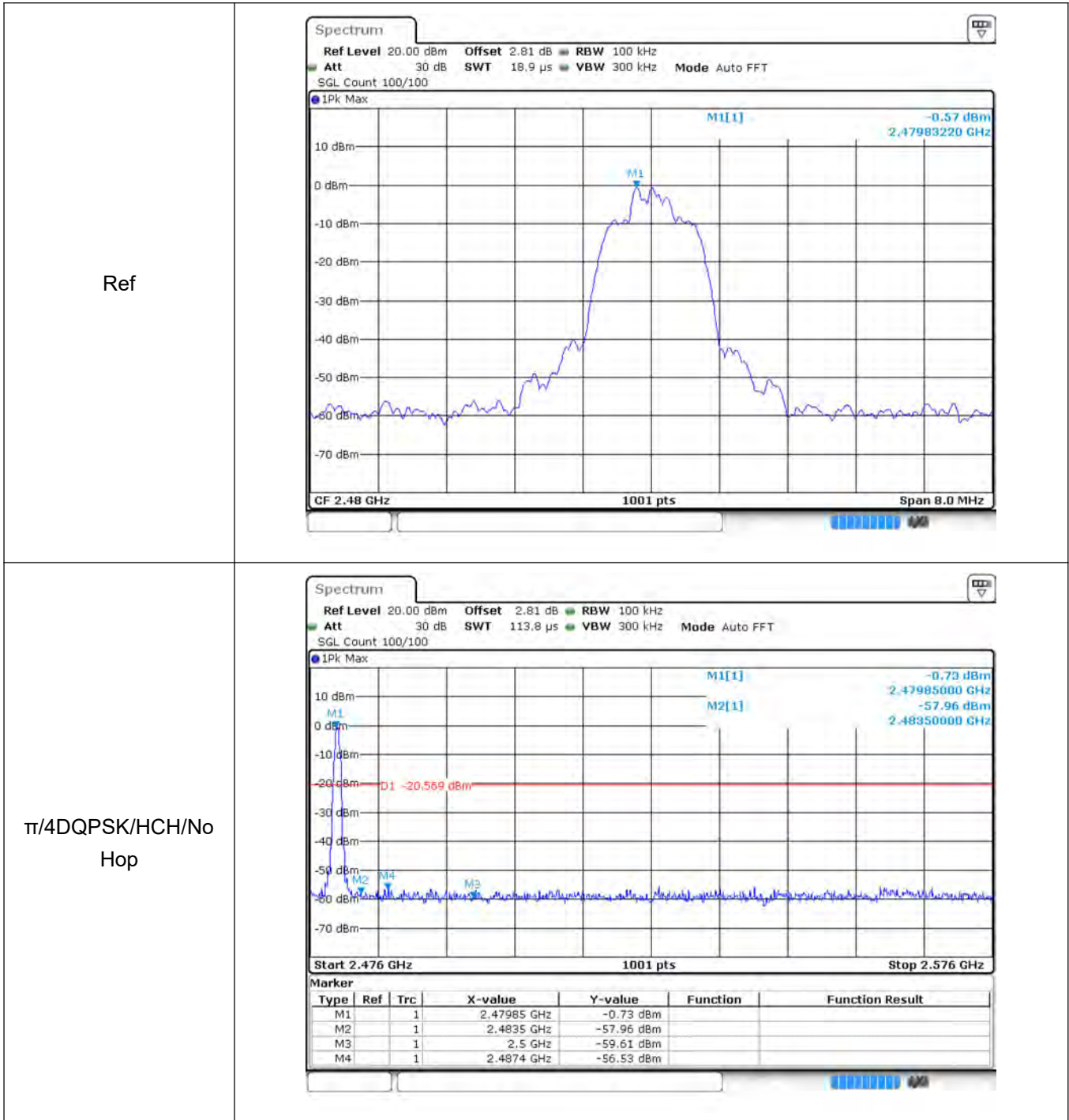




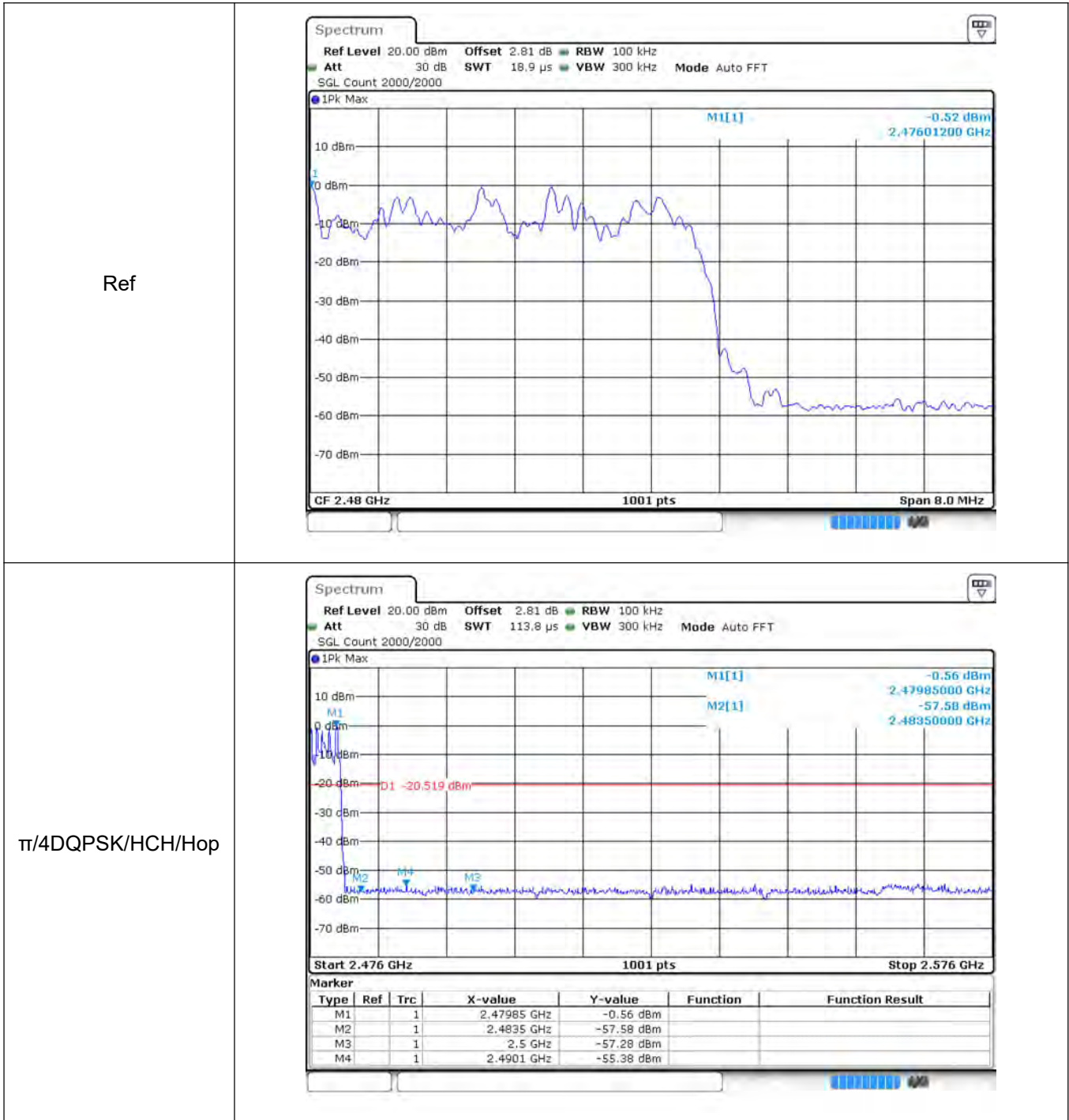


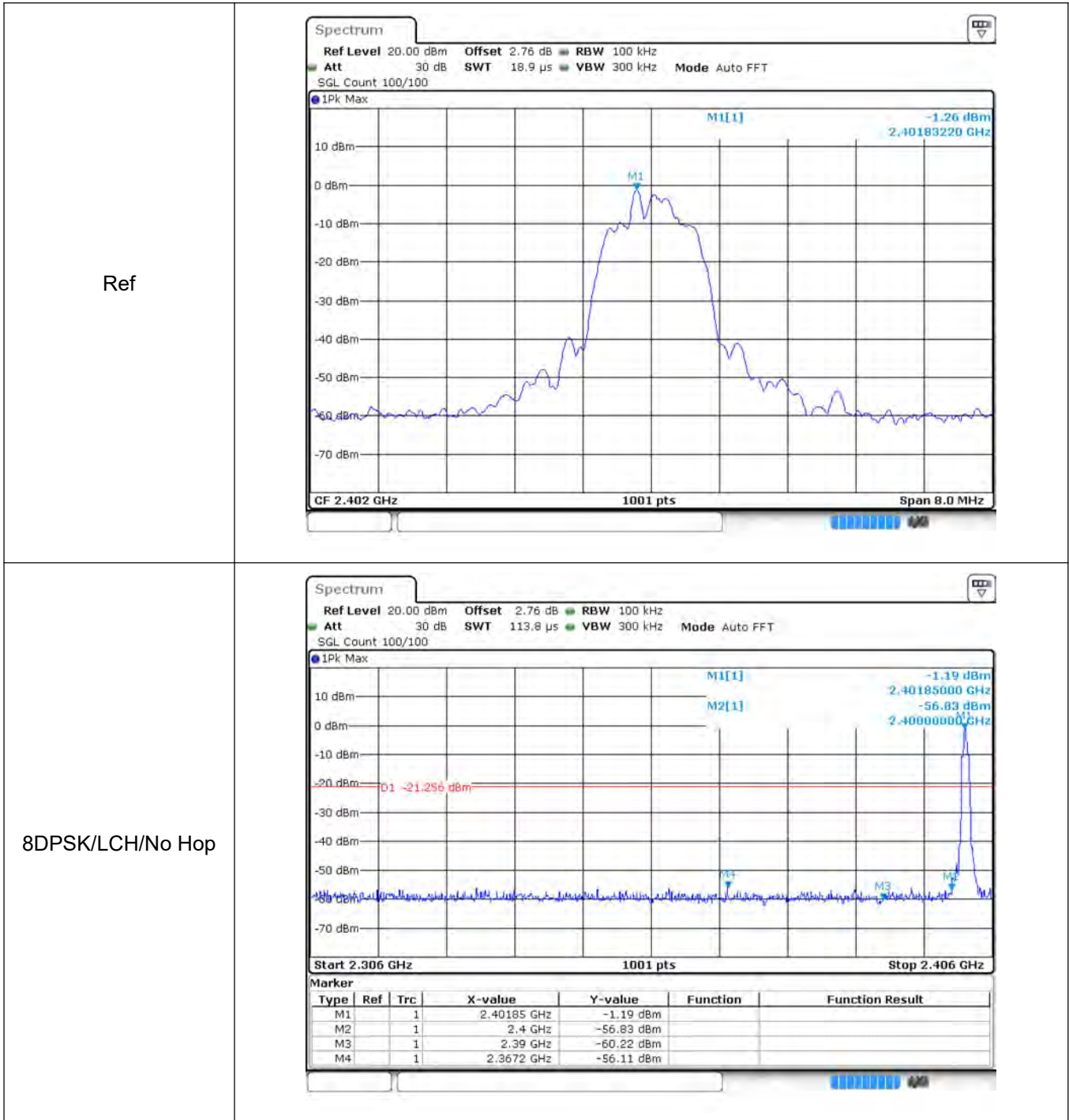


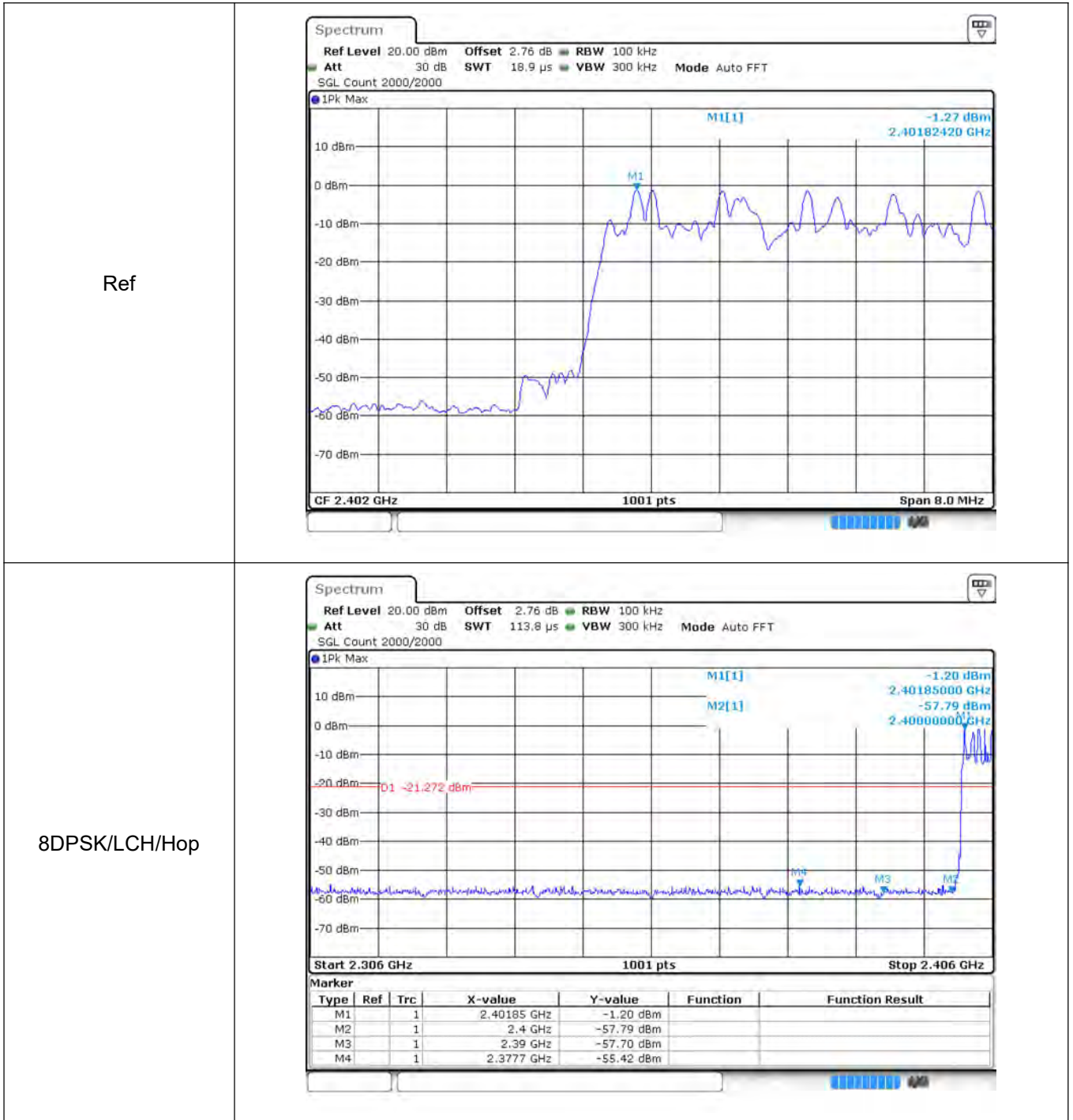


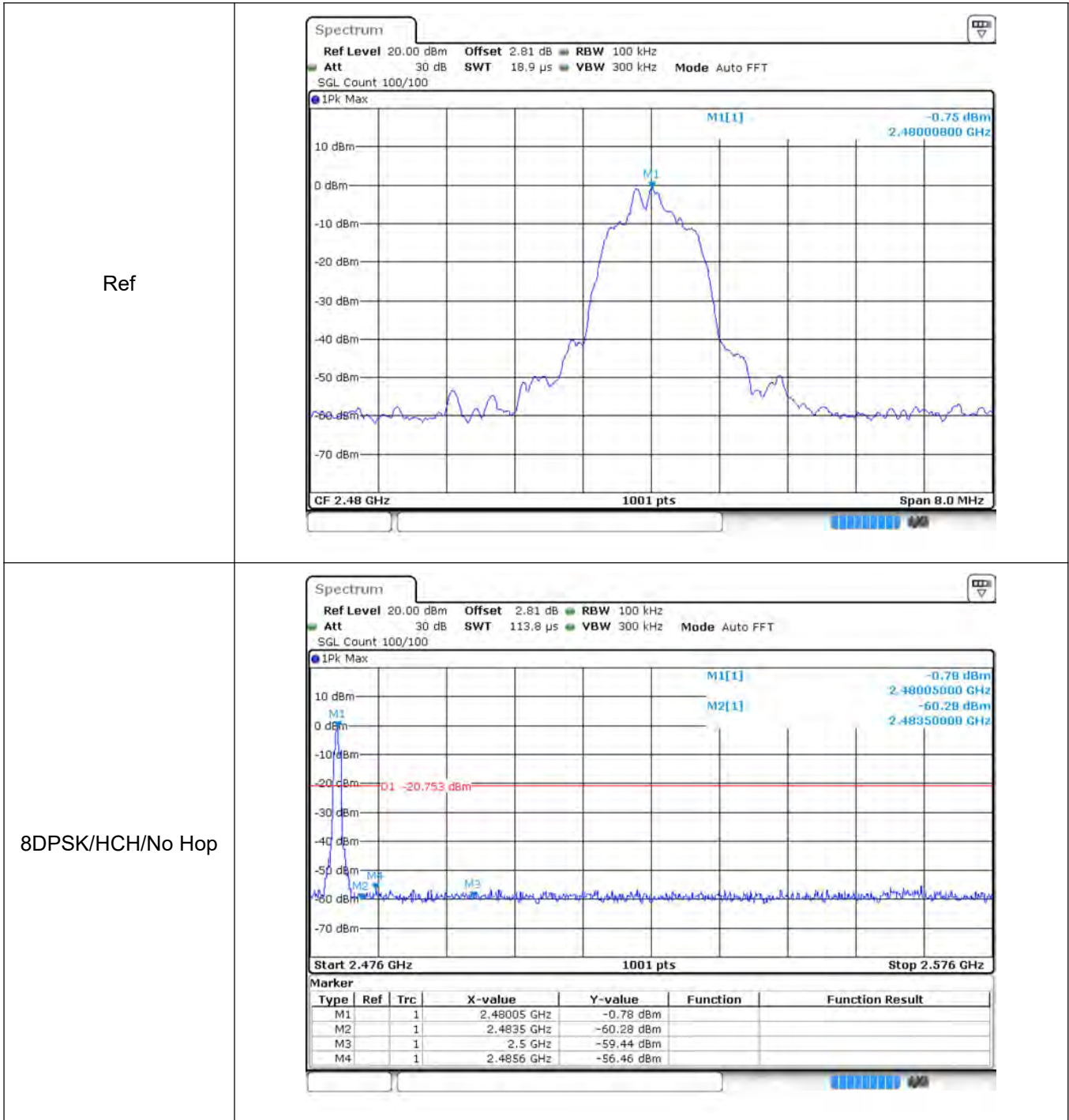


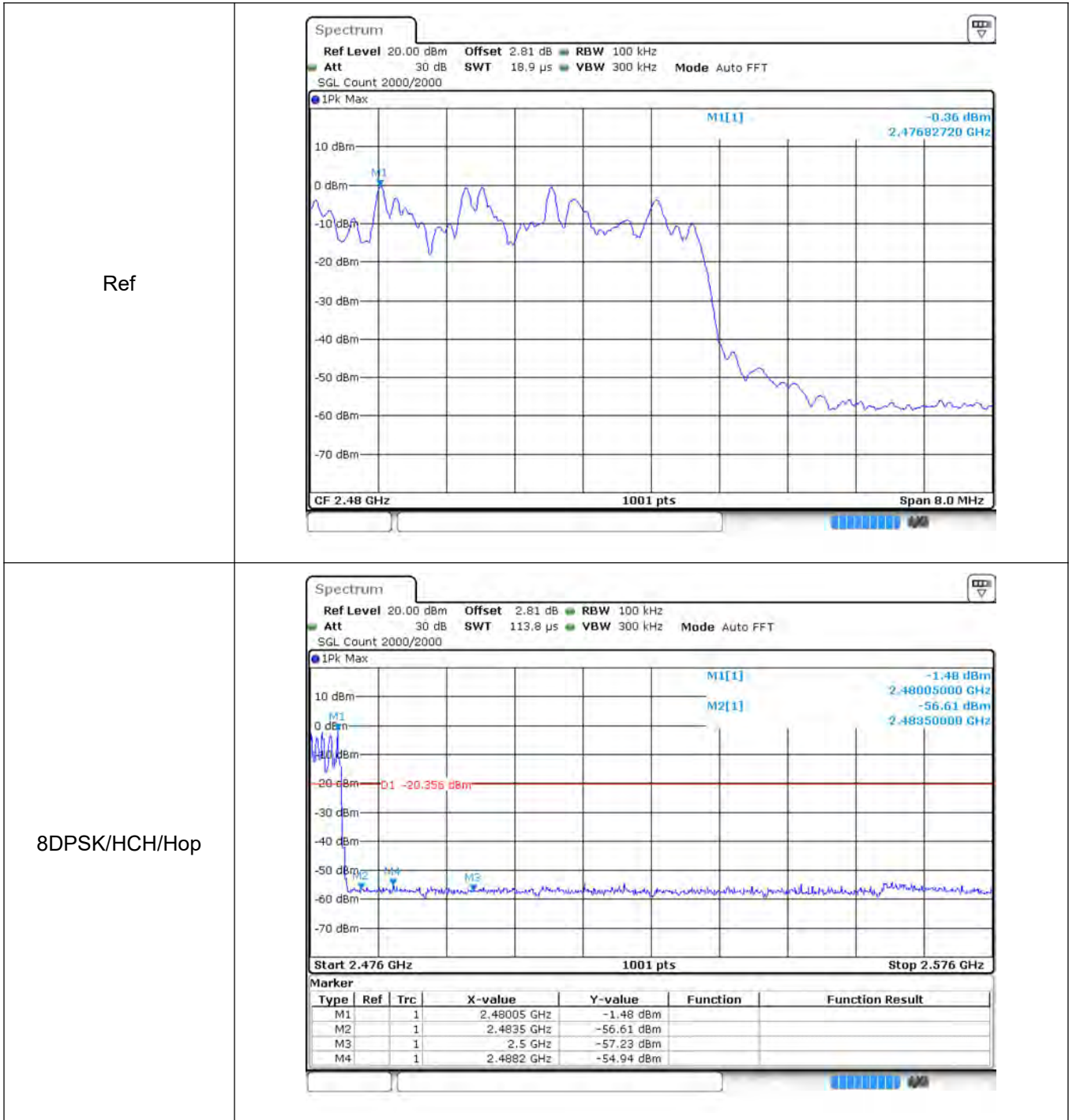












## 9 Restrict-band band-edge measurements

### 9.1 Test Result

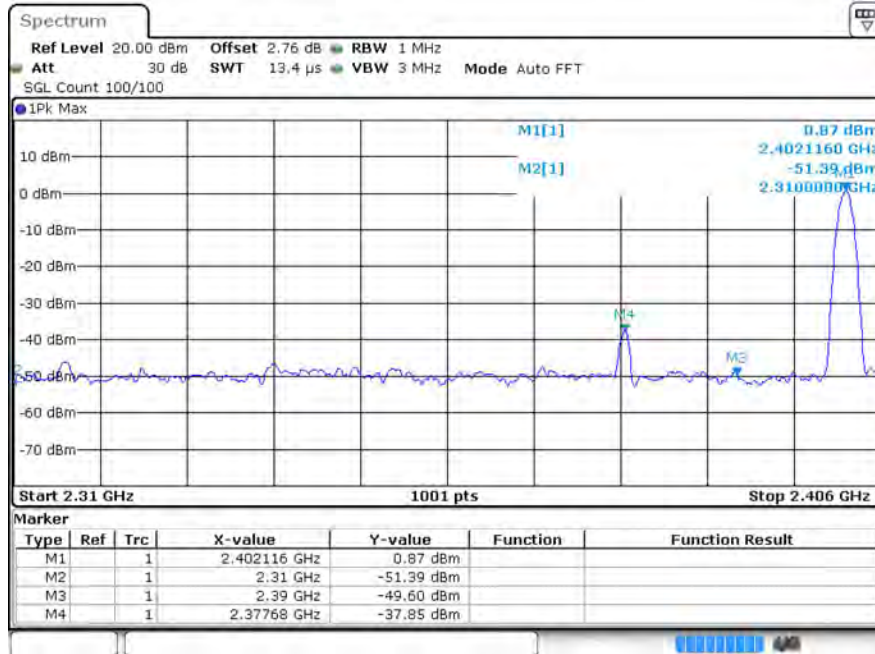
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Duty Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-51.39	2.05	-	45.89	PEAK	74	Pass
	Off	2310.0	-56.72	2.05	4.7	45.26	AV	54	Pass
	Off	2377.68	-37.84	2.05	-	59.44	PEAK	74	Pass
	Off	2339.952	-54.24	2.05	4.7	47.74	AV	54	Pass
	Off	2390.0	-49.6	2.05	-	47.68	PEAK	74	Pass
	Off	2390.0	-56.2	2.05	4.7	45.78	AV	54	Pass
	Off	2483.5	-49.39	2.05	-	47.89	PEAK	74	Pass
	Off	2483.5	-55.73	2.05	4.74	46.29	AV	54	Pass
	Off	2485.408	-46.91	2.05	-	50.37	PEAK	74	Pass
	Off	2483.512	-55.73	2.05	4.74	46.29	AV	54	Pass
	Off	2500.0	-49.5	2.05	-	47.78	PEAK	74	Pass
	Off	2500.0	-56.85	2.05	4.74	45.17	AV	54	Pass
$\pi/4$ DQPSK	Off	2310.0	-48.67	2.05	-	48.61	PEAK	74	Pass
	Off	2310.0	-56.69	2.05	4.63	45.22	AV	54	Pass
	Off	2338.992	-46.42	2.05	-	50.86	PEAK	74	Pass
	Off	2343.12	-54.2	2.05	4.63	47.71	AV	54	Pass
	Off	2390.0	-49.97	2.05	-	47.31	PEAK	74	Pass
	Off	2390.0	-56.86	2.05	4.63	45.05	AV	54	Pass
	Off	2483.5	-48.92	2.05	-	48.36	PEAK	74	Pass
	Off	2483.5	-56.71	2.05	4.63	45.2	AV	54	Pass
	Off	2485.936	-47.61	2.05	-	49.67	PEAK	74	Pass
	Off	2487.208	-55.98	2.05	4.63	45.93	AV	54	Pass
	Off	2500.0	-48.5	2.05	-	48.78	PEAK	74	Pass
	Off	2500.0	-57.09	2.05	4.63	44.82	AV	54	Pass
8DPSK	Off	2310.0	-49.98	2.05	-	47.3	PEAK	74	Pass
	Off	2310.0	-57.06	2.05	4.63	44.85	AV	54	Pass
	Off	2338.32	-45.99	2.05	-	51.29	PEAK	74	Pass
	Off	2338.512	-54.99	2.05	4.63	46.92	AV	54	Pass



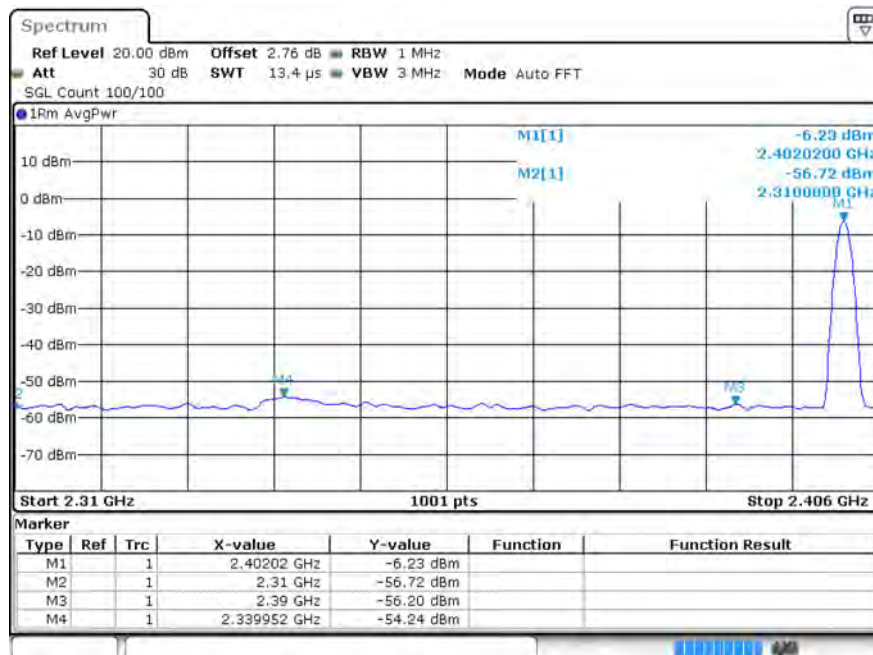
Off	2390.0	-50.67	2.05	-	46.61	PEAK	74	Pass
Off	2390.0	-56.54	2.05	4.63	45.37	AV	54	Pass
Off	2483.5	-48.06	2.05	-	49.22	PEAK	74	Pass
Off	2483.5	-56.1	2.05	4.63	45.81	AV	54	Pass
Off	2484.784	-47.64	2.05	-	49.64	PEAK	74	Pass
Off	2490.592	-55.9	2.05	4.63	46.01	AV	54	Pass
Off	2500.0	-50.56	2.05	-	46.72	PEAK	74	Pass
Off	2500.0	-56.59	2.05	4.63	45.32	AV	54	Pass

## 9.2 Test Graphs

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

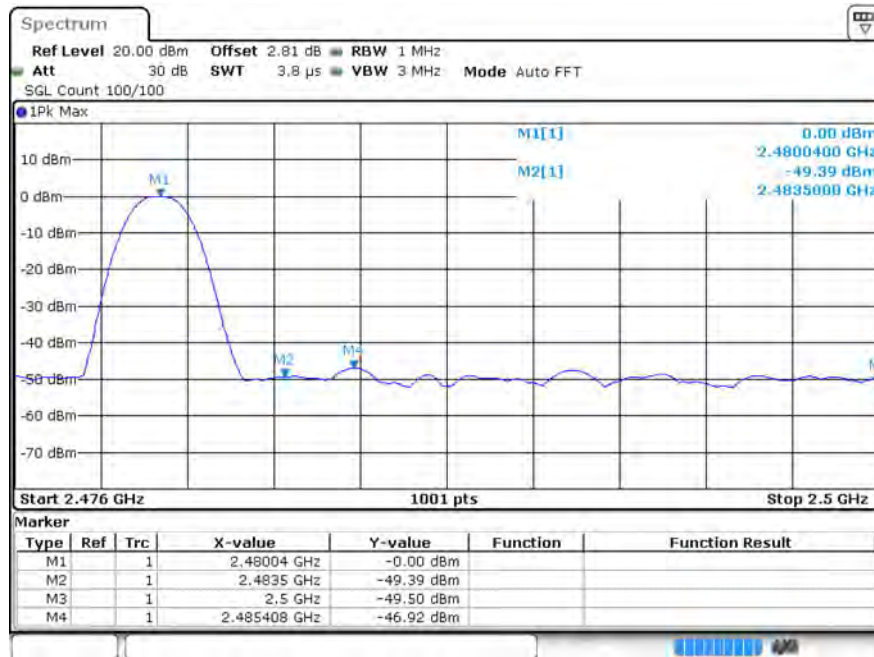


Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_Average (Low Channel)

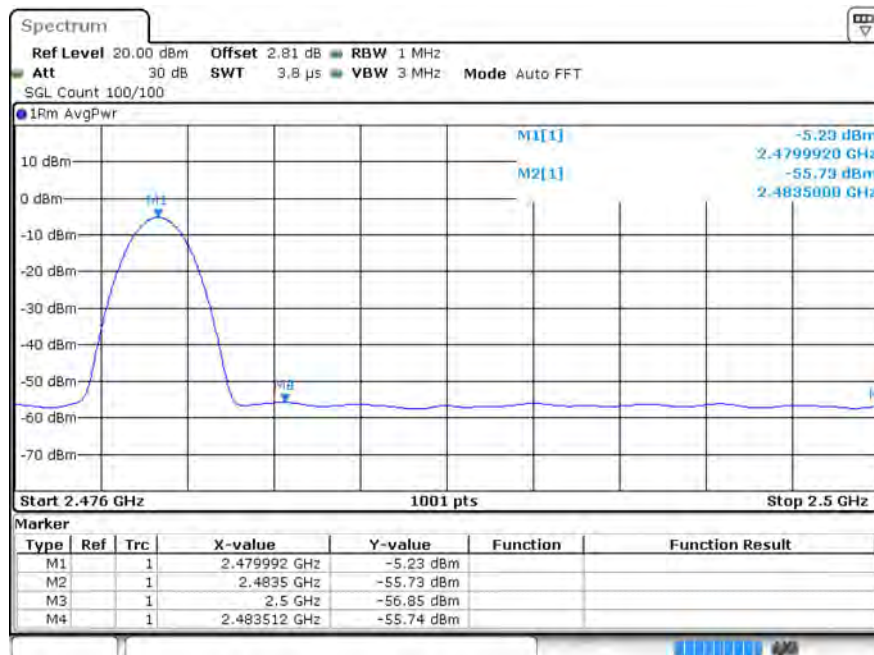




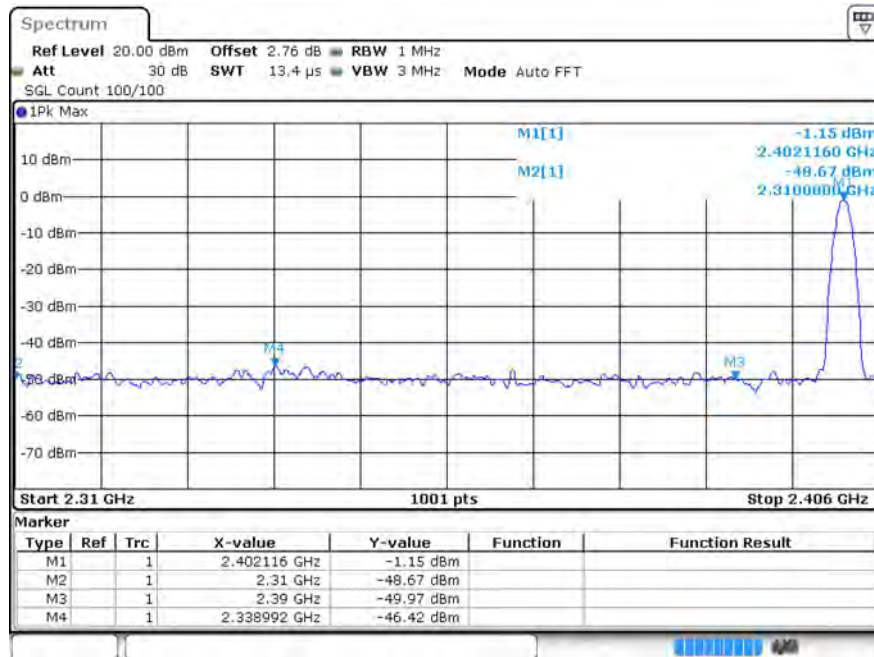
Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_PEAK (High Channel)



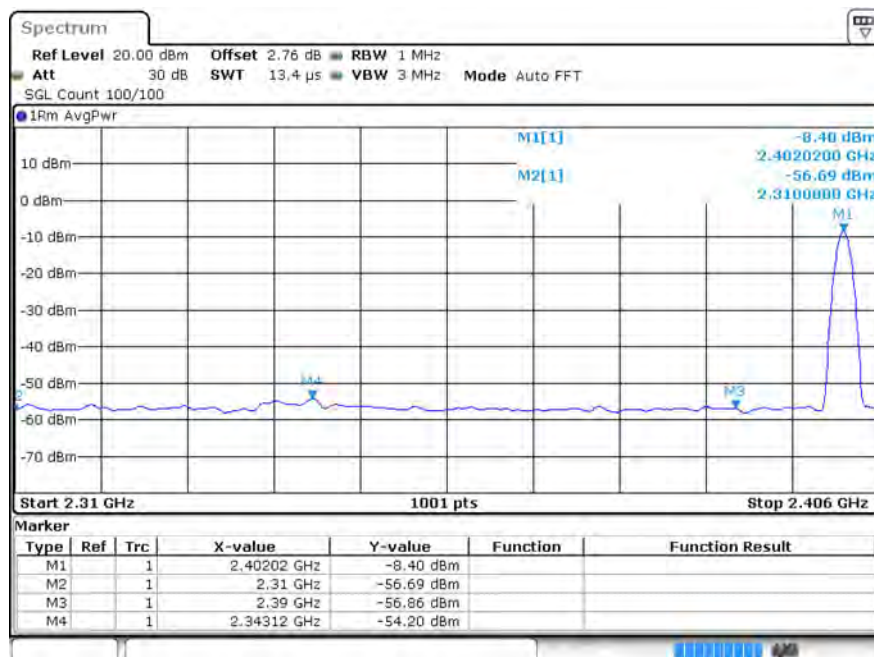
Restrict-band band-edge measurements\_Hopping Off\_ GFSK\_Average (High Channel)



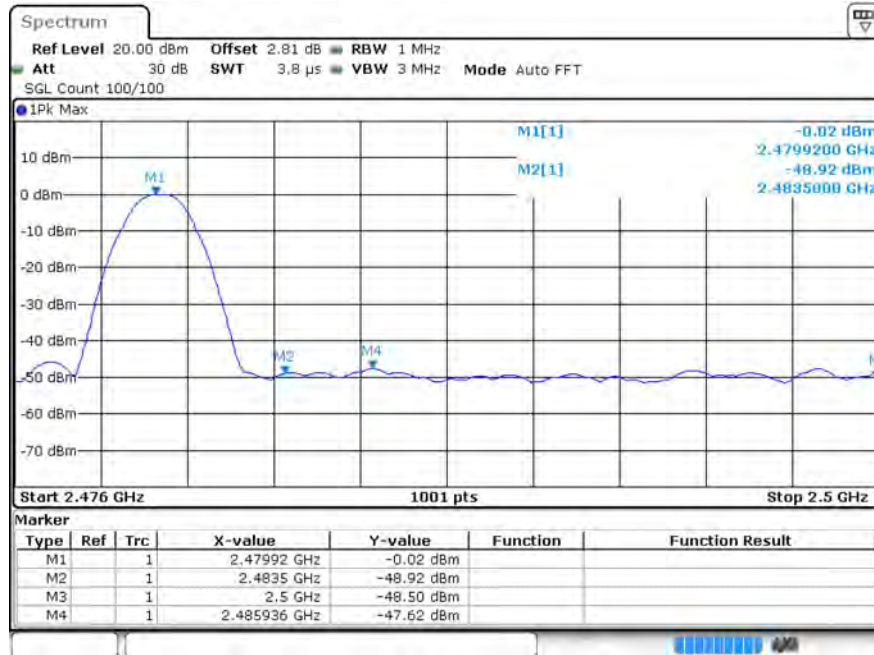
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (Low Channel)



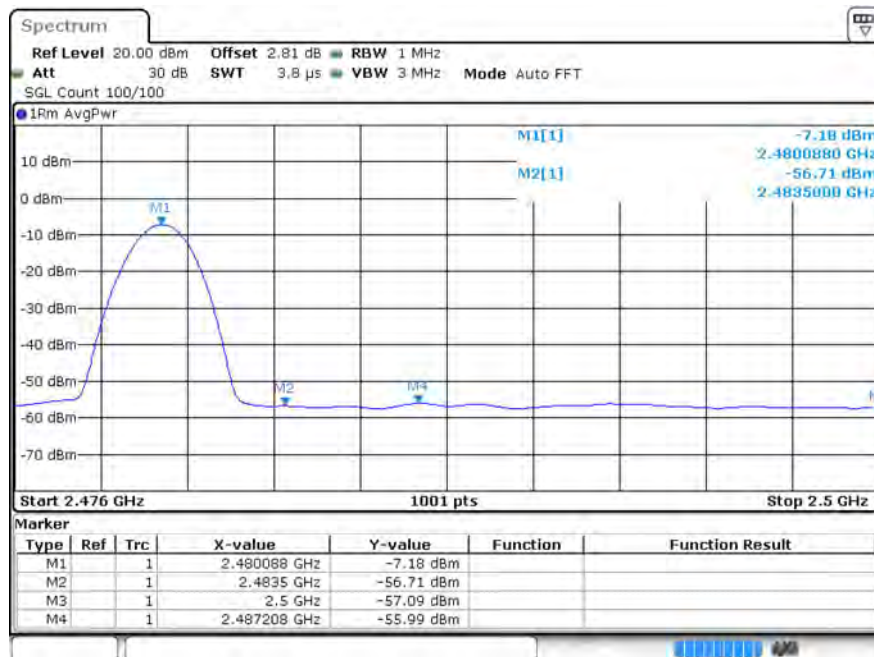
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (Low Channel)



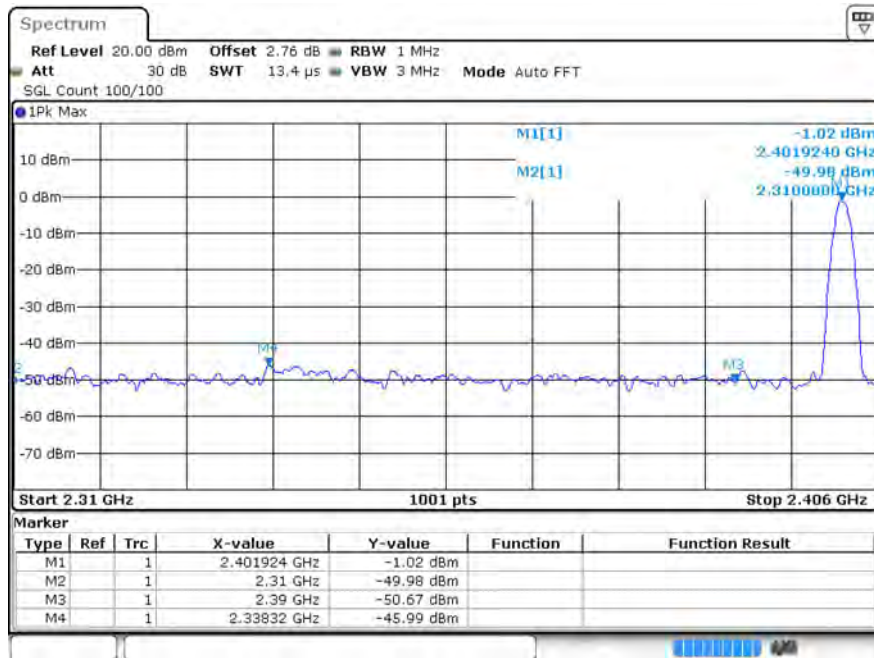
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



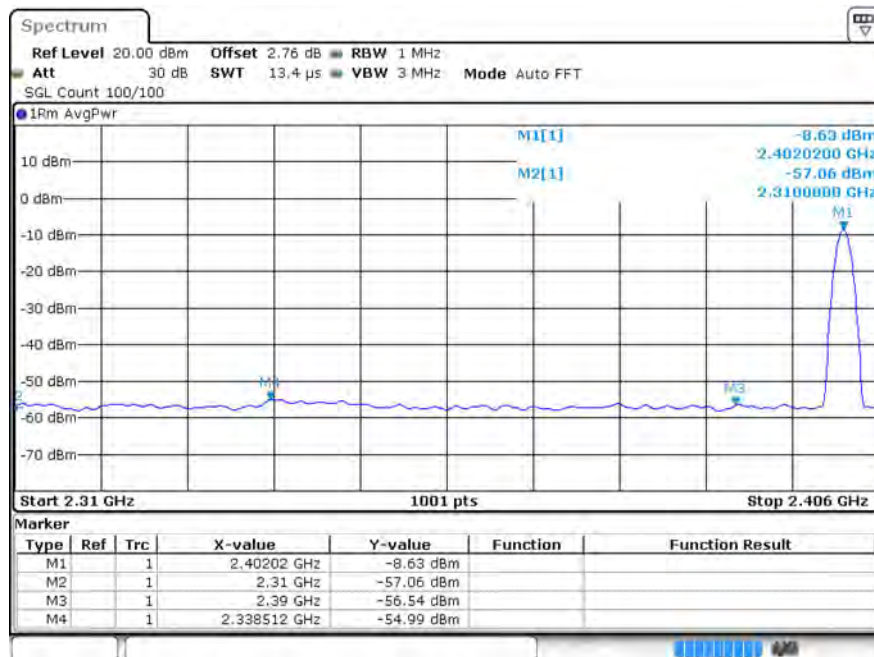
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



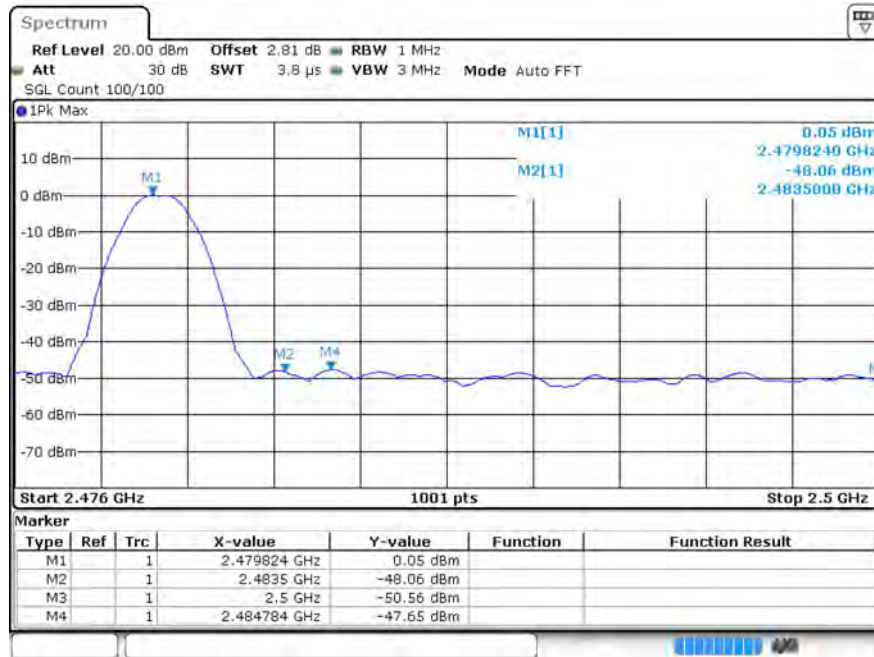
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



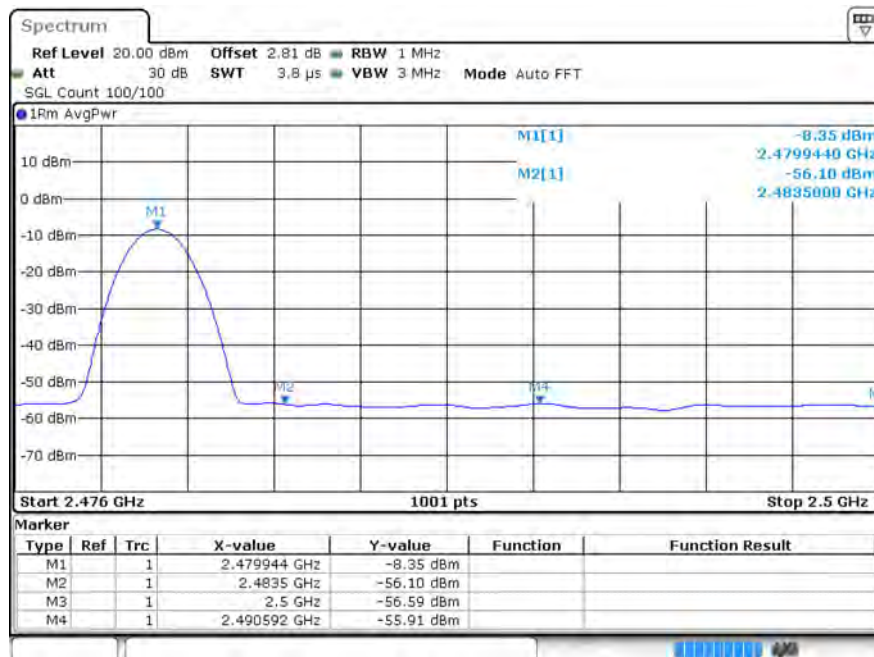
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (Low Channel)



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



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



---The End---