

## Appendix A

### RF Test Data for BT V4.2(BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Audio Adapter

Trade Mark: UGREEN

Test Model: 40762

#### Environmental Conditions

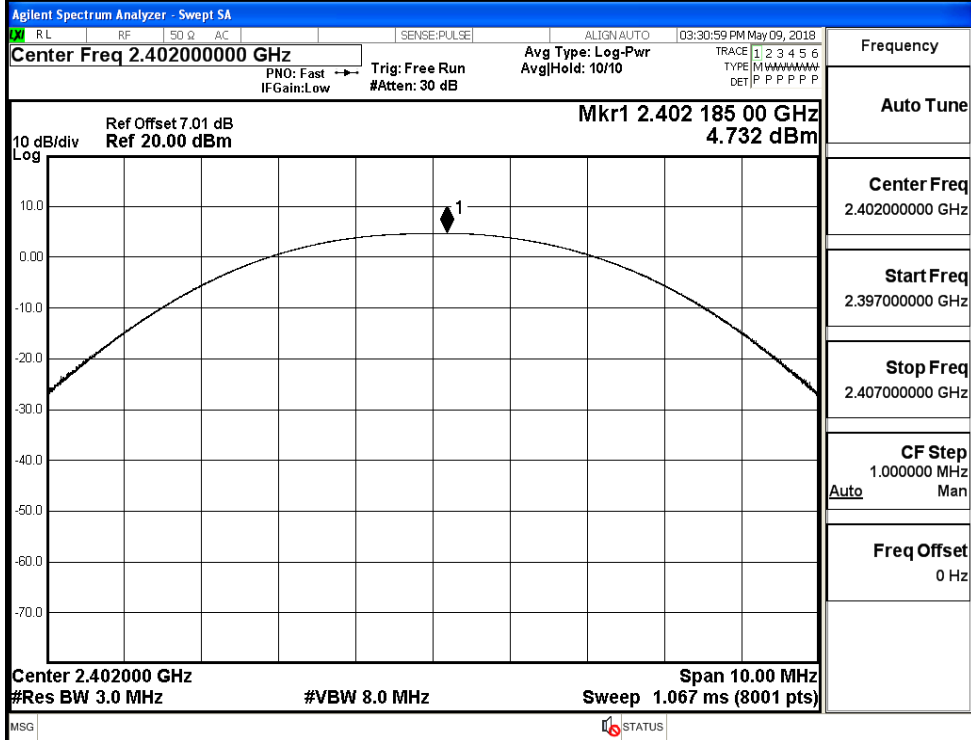
Temperature:	23.5 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	WANGCHUANG
Supervised by:	Jayden.Zhuo

#### A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.732	21	PASS
	MCH	4.647	21	PASS
	HCH	4.460	21	PASS
$\pi/4$ DQPSK	LCH	3.367	21	PASS
	MCH	3.345	21	PASS
	HCH	3.168	21	PASS
8DPSK	LCH	3.648	21	PASS
	MCH	3.662	21	PASS
	HCH	3.452	21	PASS

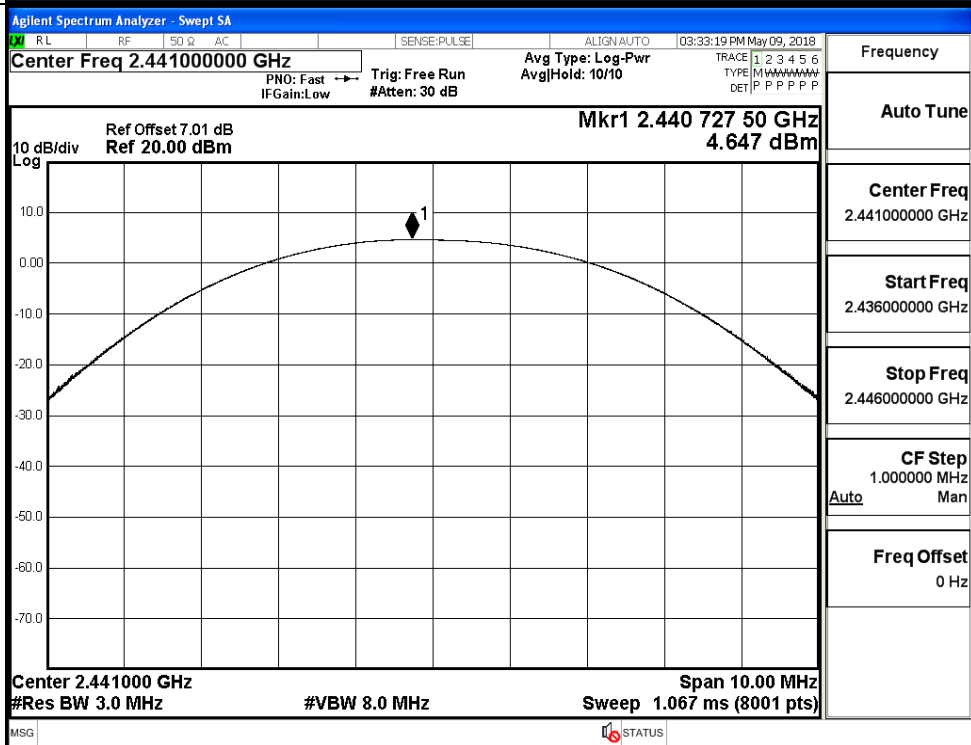
Test Graphs

GFSK/LCH



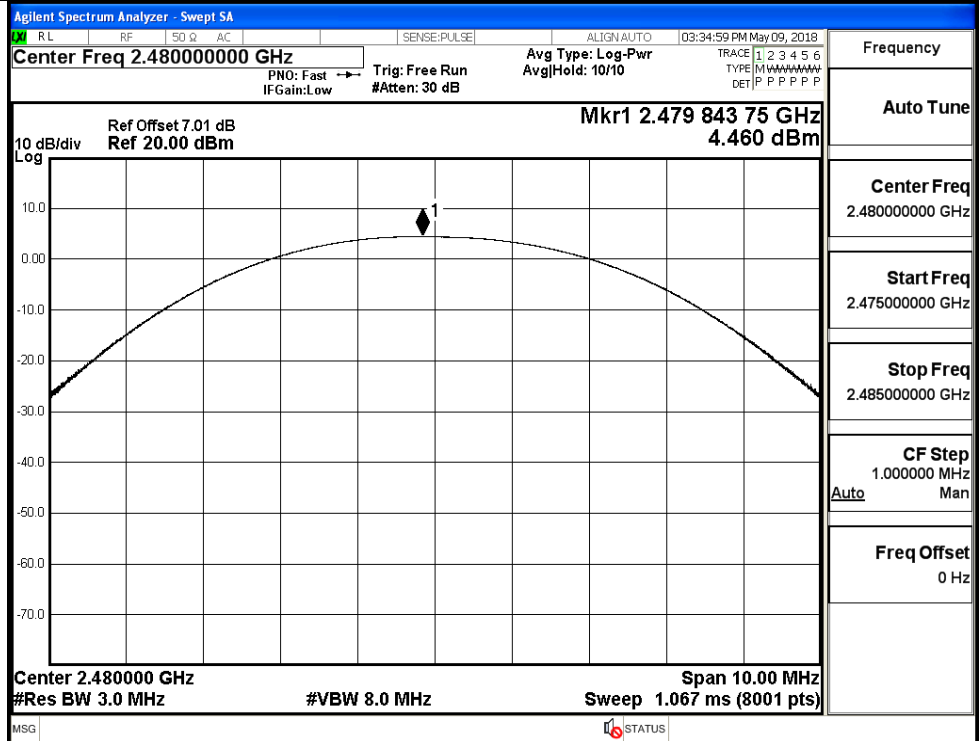
Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.397000000 GHz
Stop Freq	2.407000000 GHz
CF Step	1.000000 MHz
	Auto Man
Freq Offset	0 Hz

GFSK/MCH

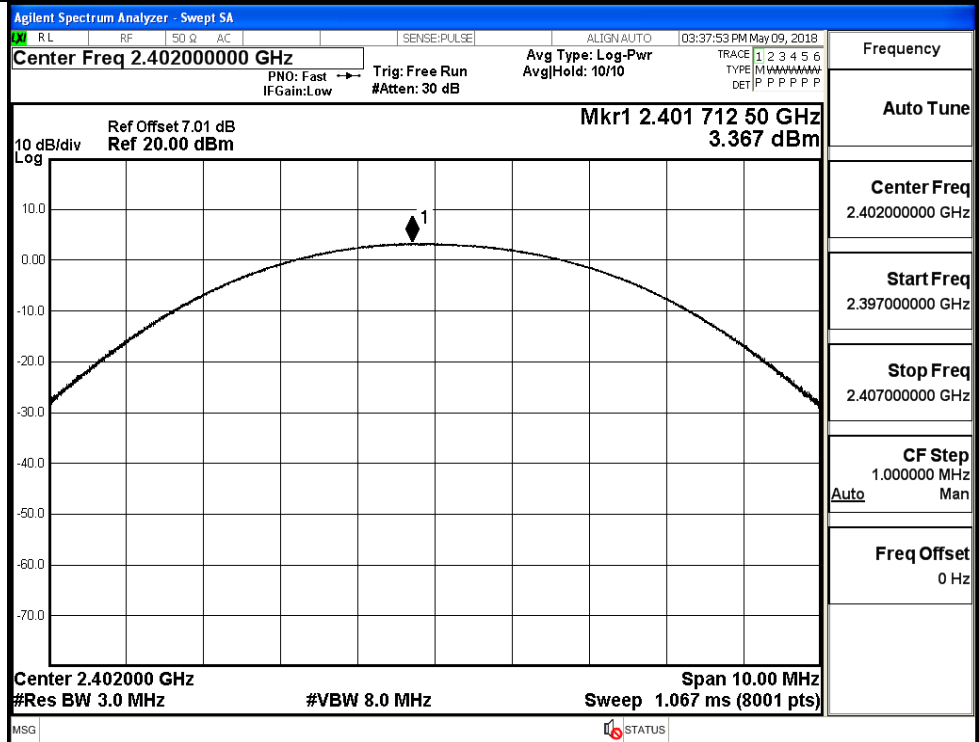


Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.436000000 GHz
Stop Freq	2.446000000 GHz
CF Step	1.000000 MHz
	Auto Man
Freq Offset	0 Hz

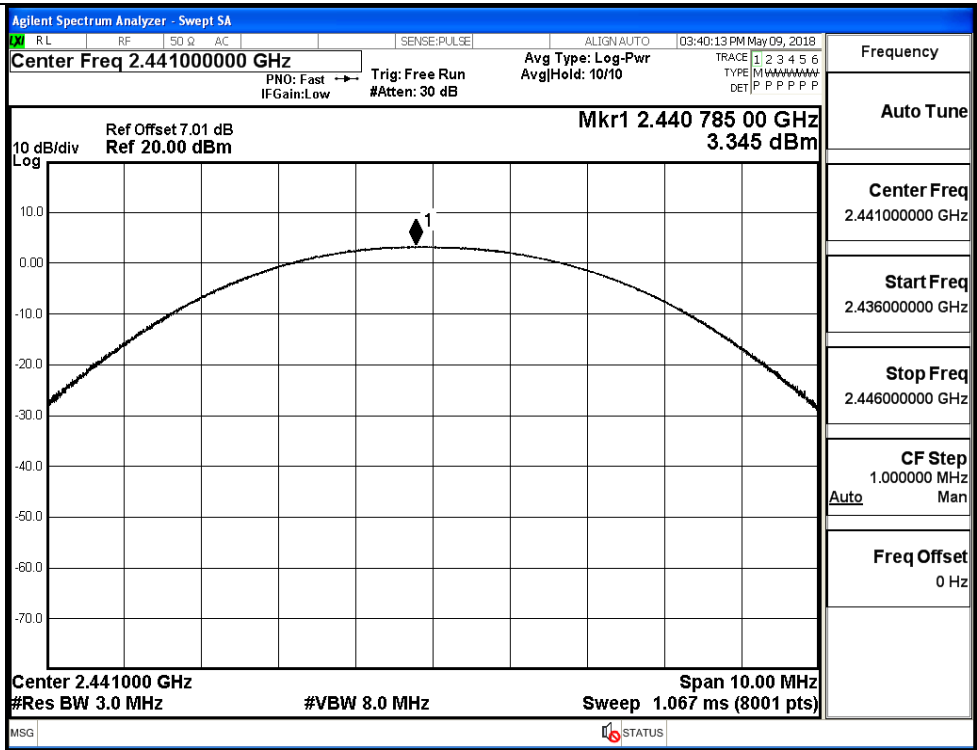
GFSK/HCH



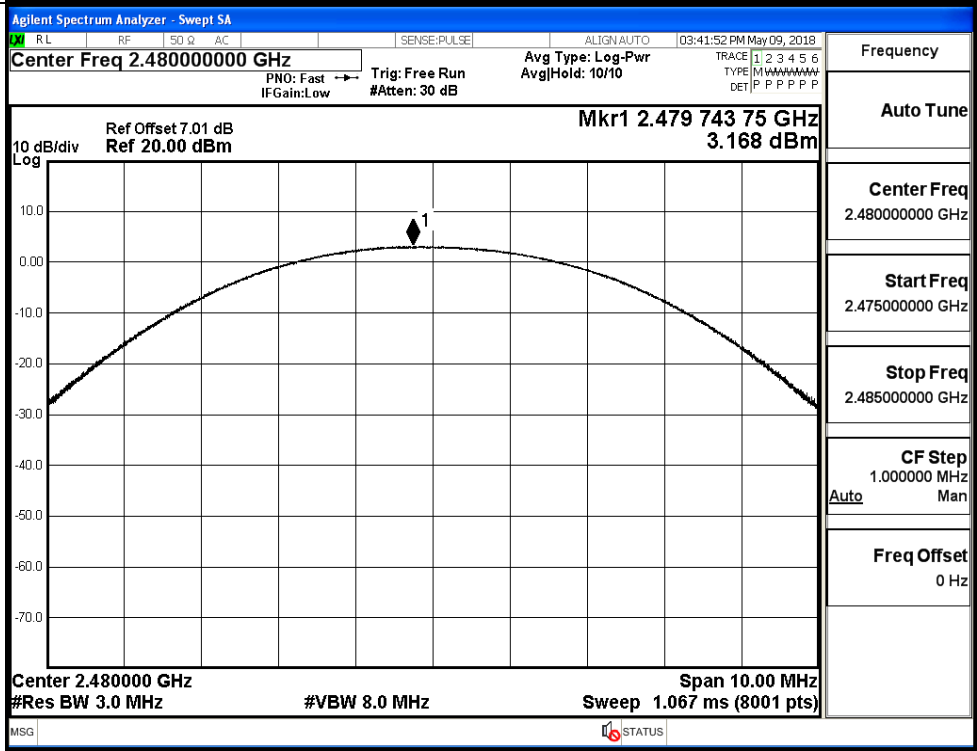
$\pi$ /4DQPSK/LCH



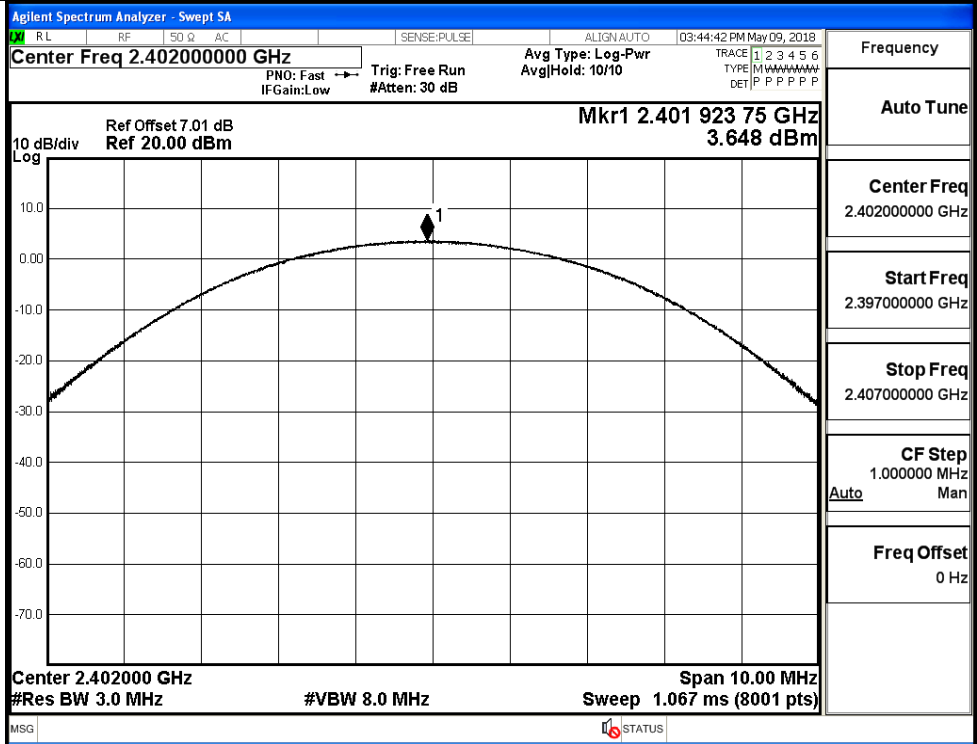
$\pi$ /4DQPSK/MCH



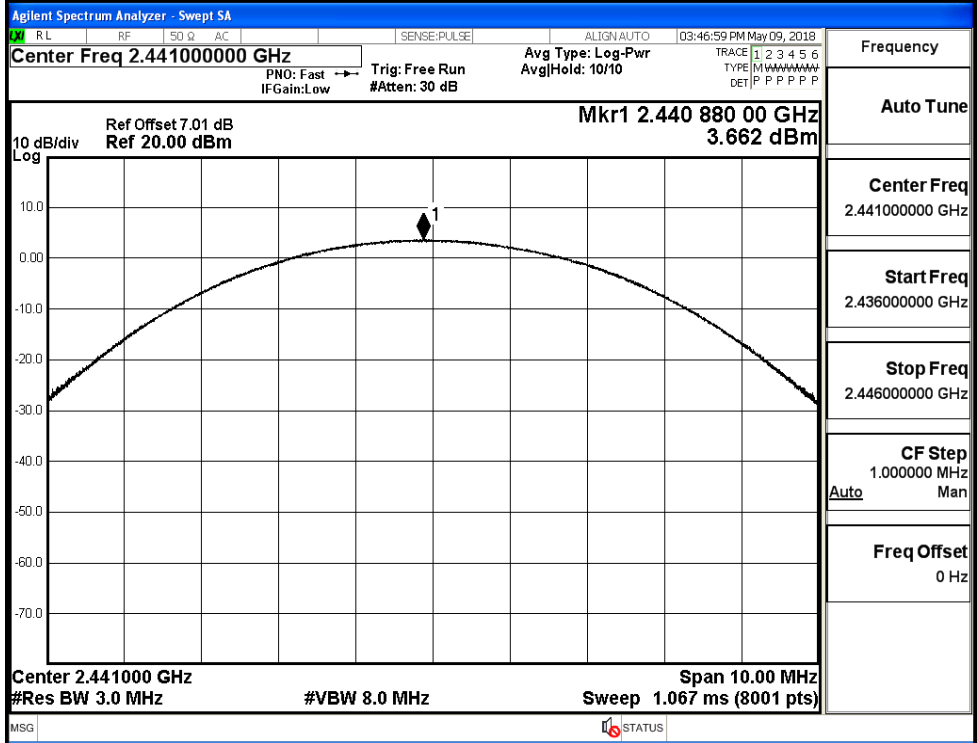
$\pi$ /4DQPSK/HCH



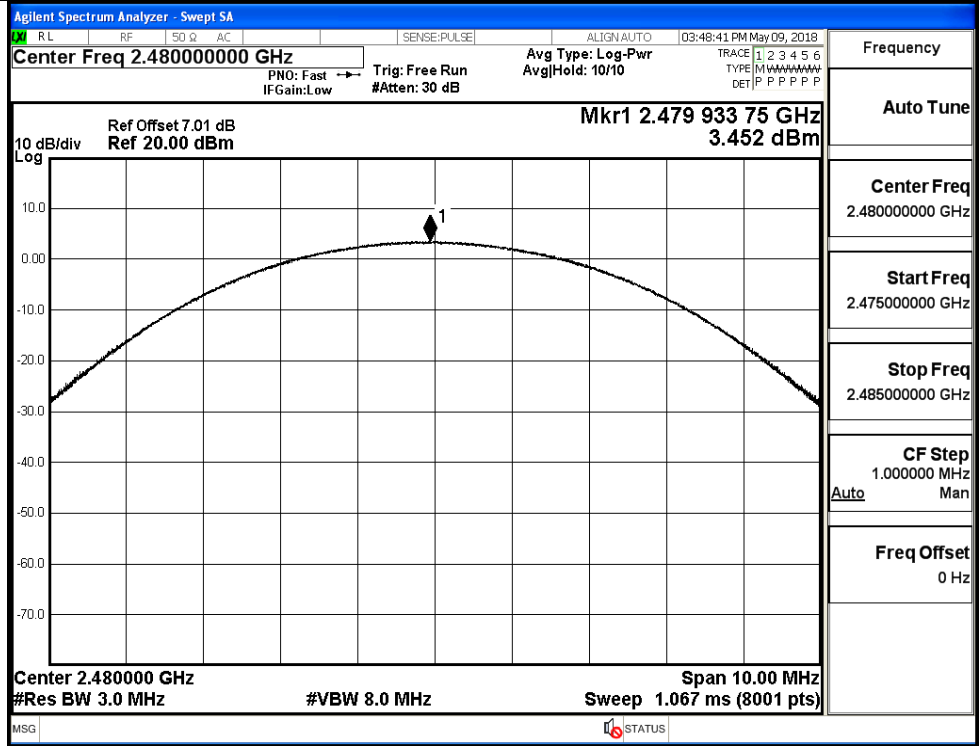
8DPSK/LCH



8DPSK/MCH

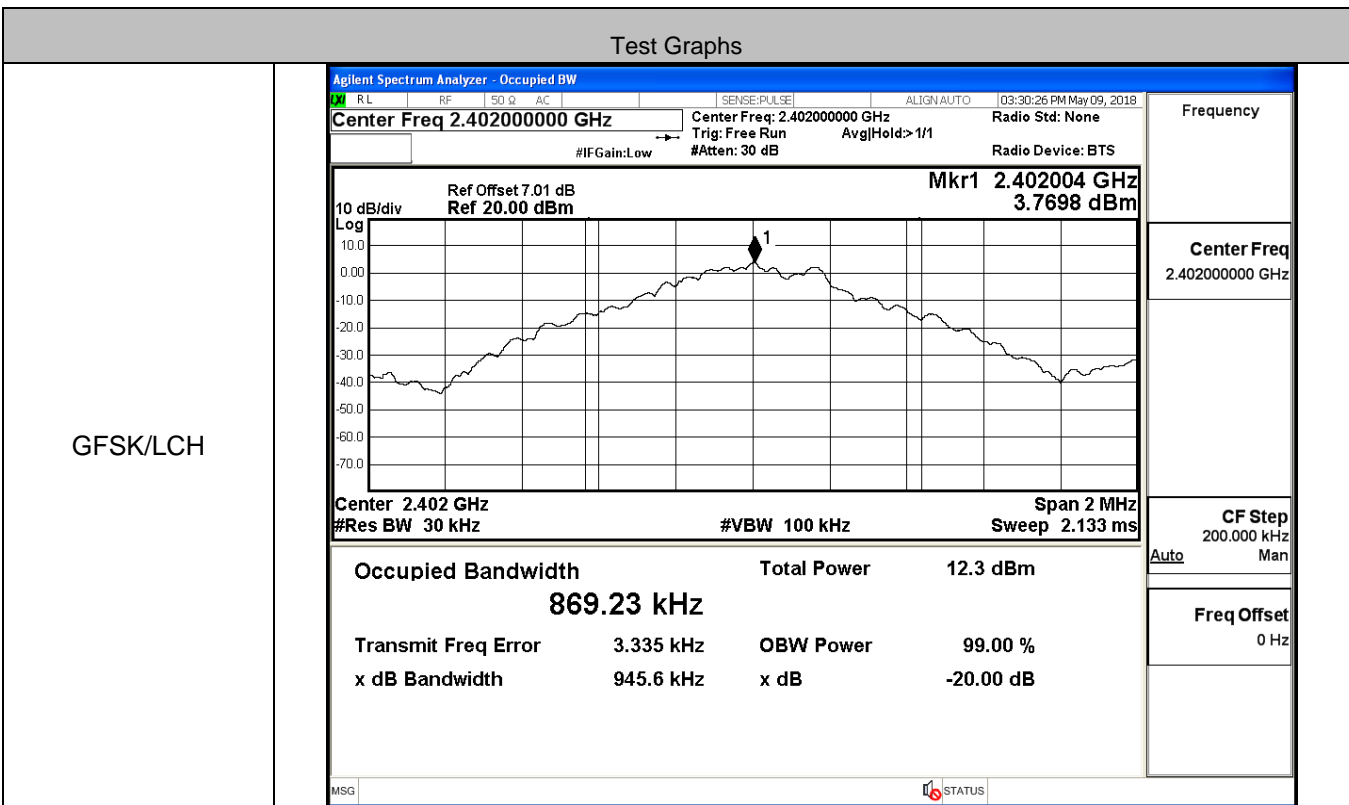


8DPSK/HCH

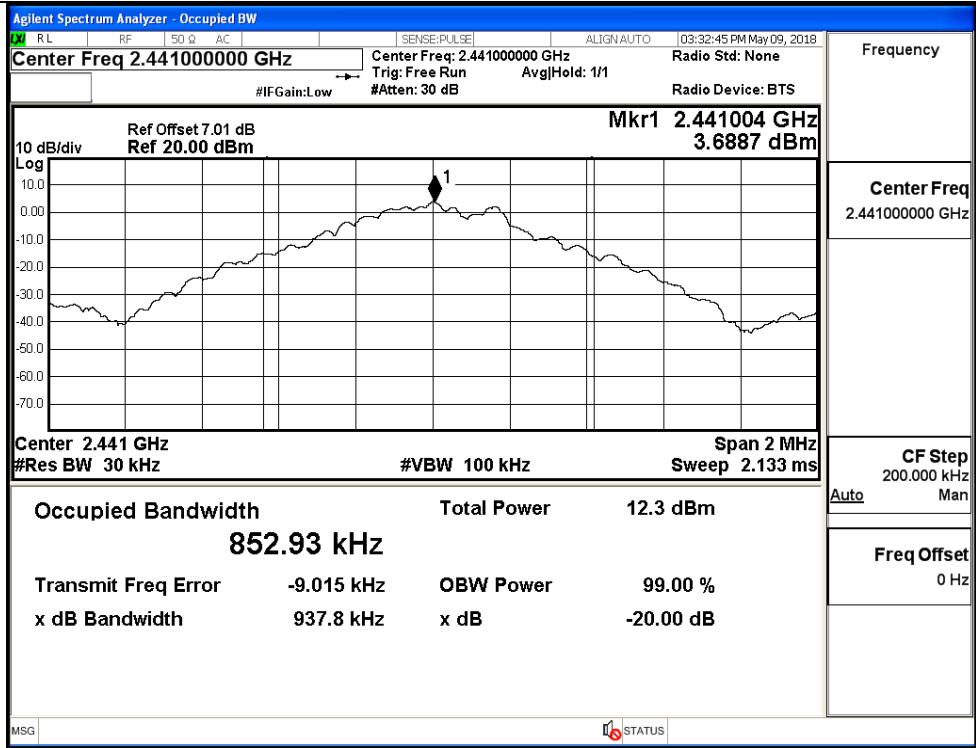


**A.2 20dB Bandwidth**

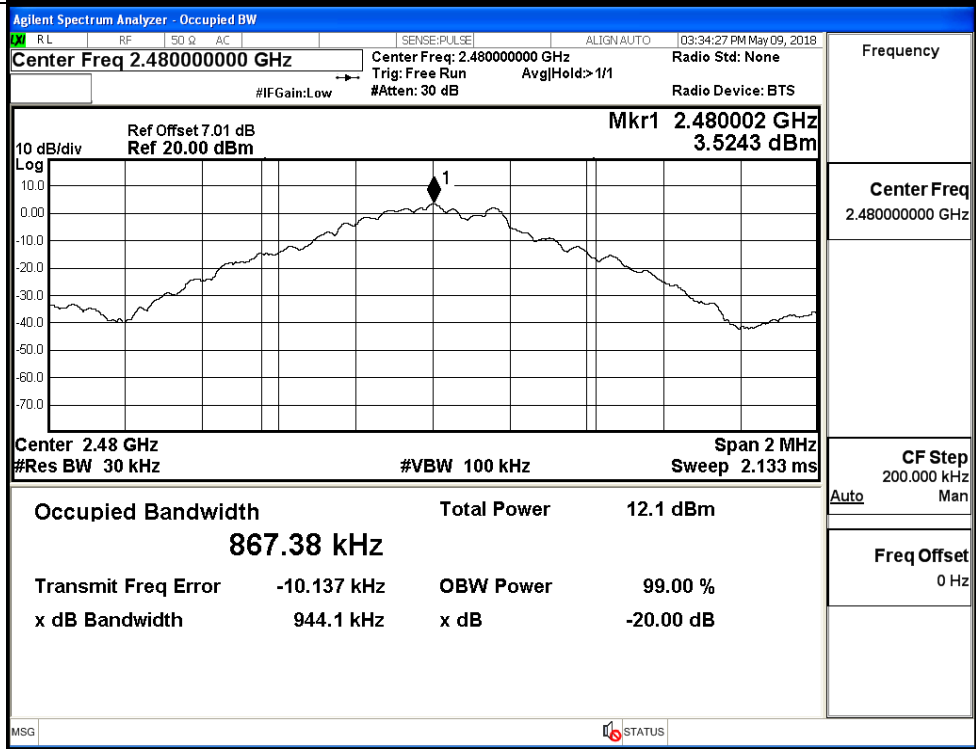
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9456	Not Specified	PASS
	MCH	0.9378	Not Specified	PASS
	HCH	0.9441	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.232	Not Specified	PASS
	MCH	1.231	Not Specified	PASS
	HCH	1.253	Not Specified	PASS
8DPSK	LCH	1.264	Not Specified	PASS
	MCH	1.262	Not Specified	PASS
	HCH	1.265	Not Specified	PASS



GFSK/MCH

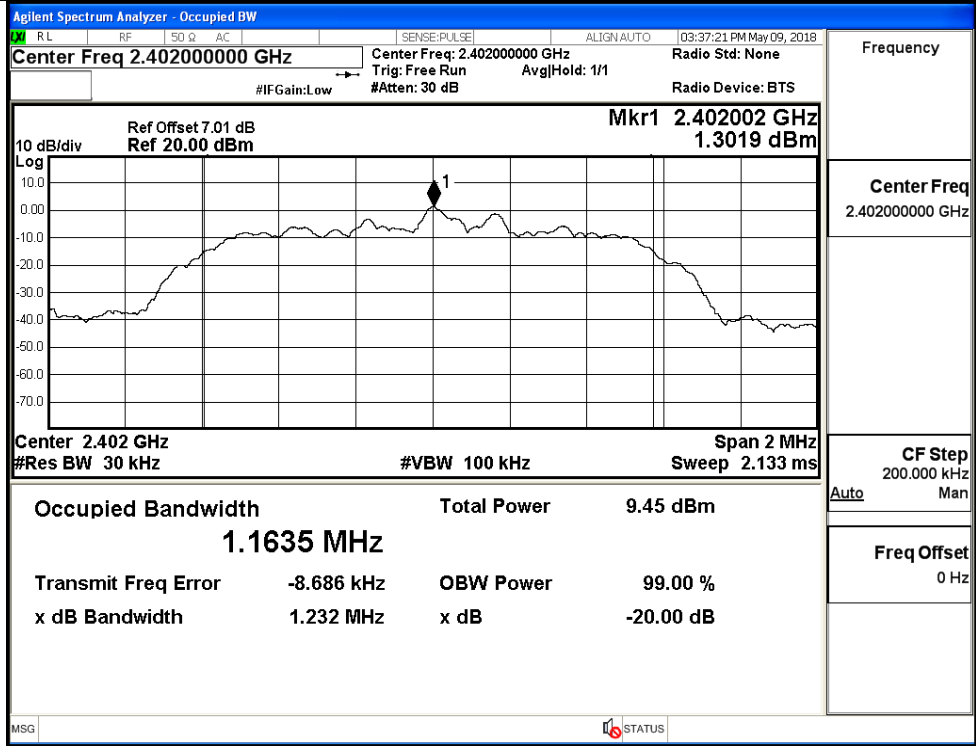


GFSK/HCH

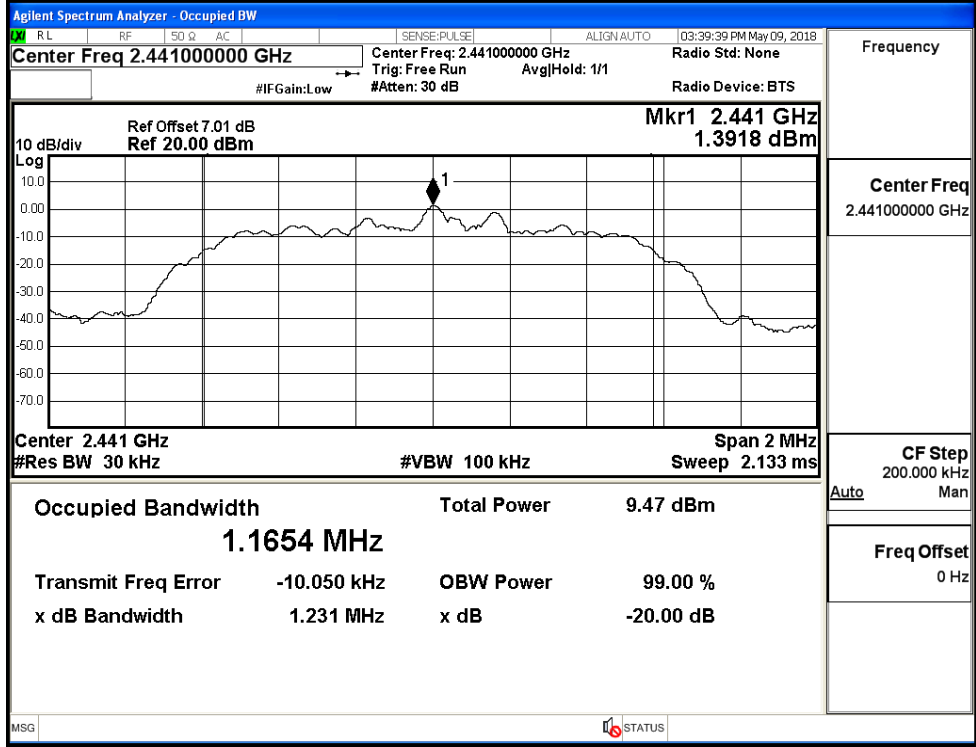




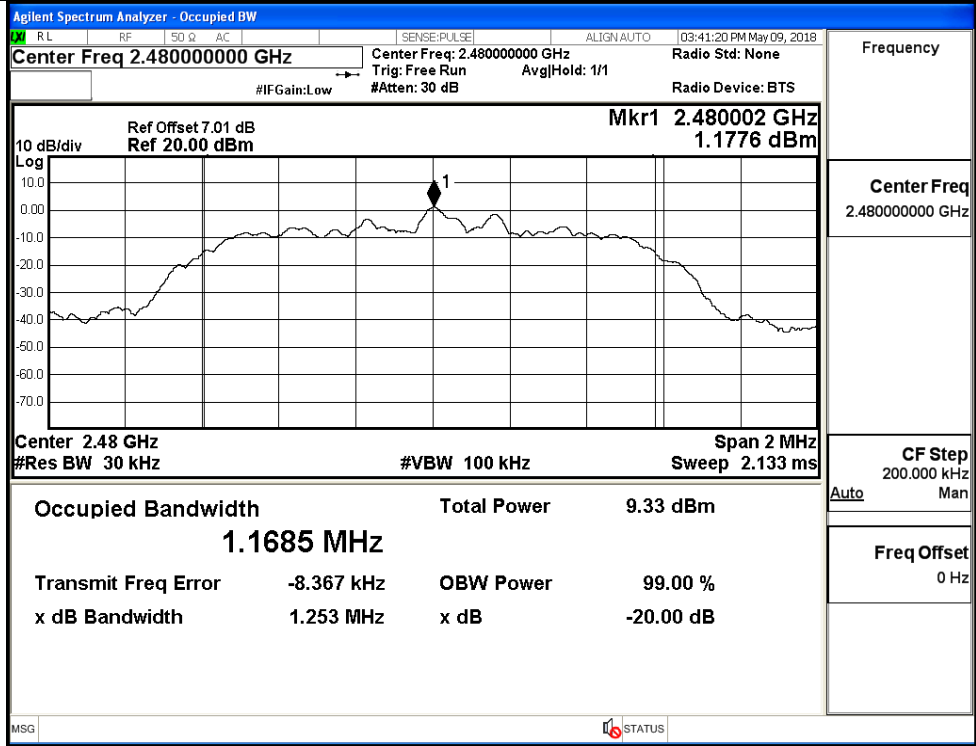
$\pi/4$ DQPSK/LCH



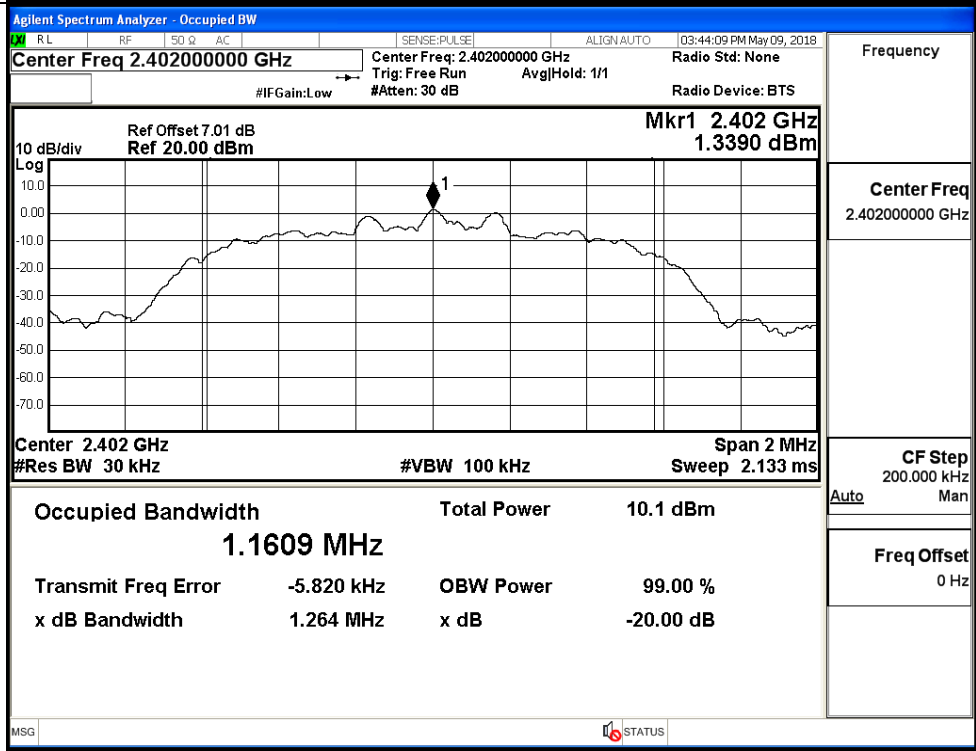
$\pi/4$ DQPSK/MCH



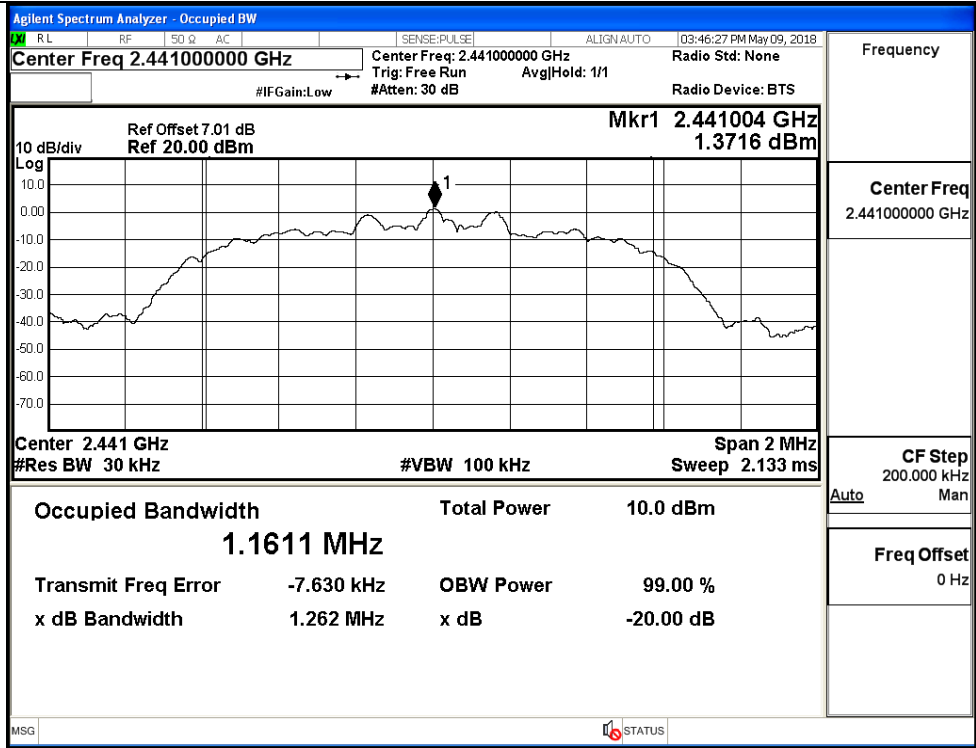
$\pi/4$ DQPSK/HCH



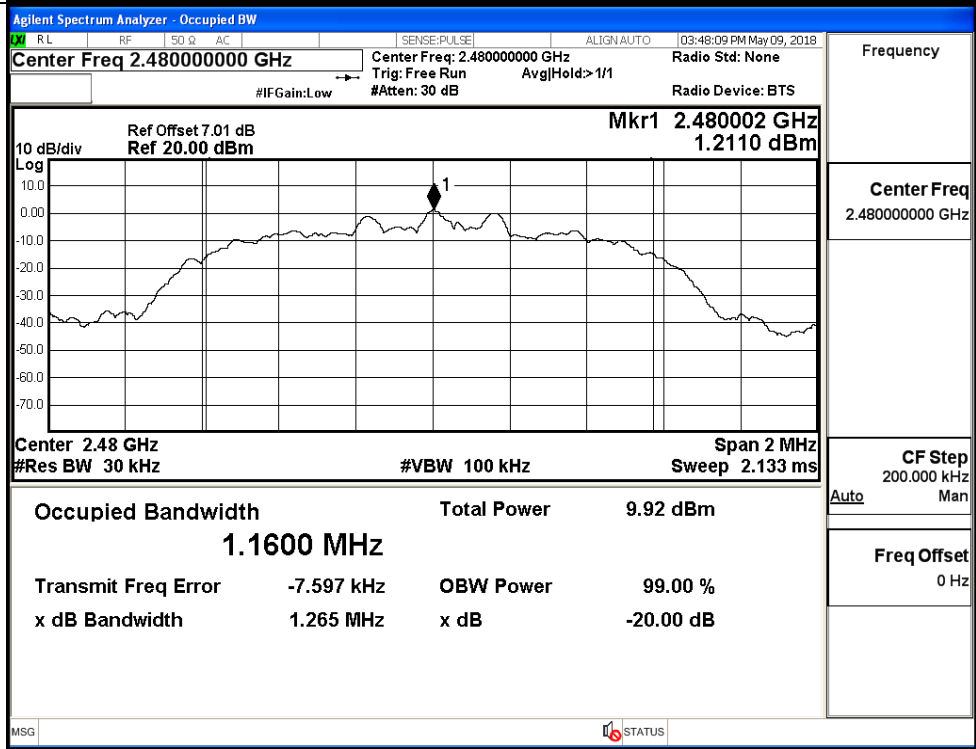
8DPSK/LCH



8DPSK/MCH

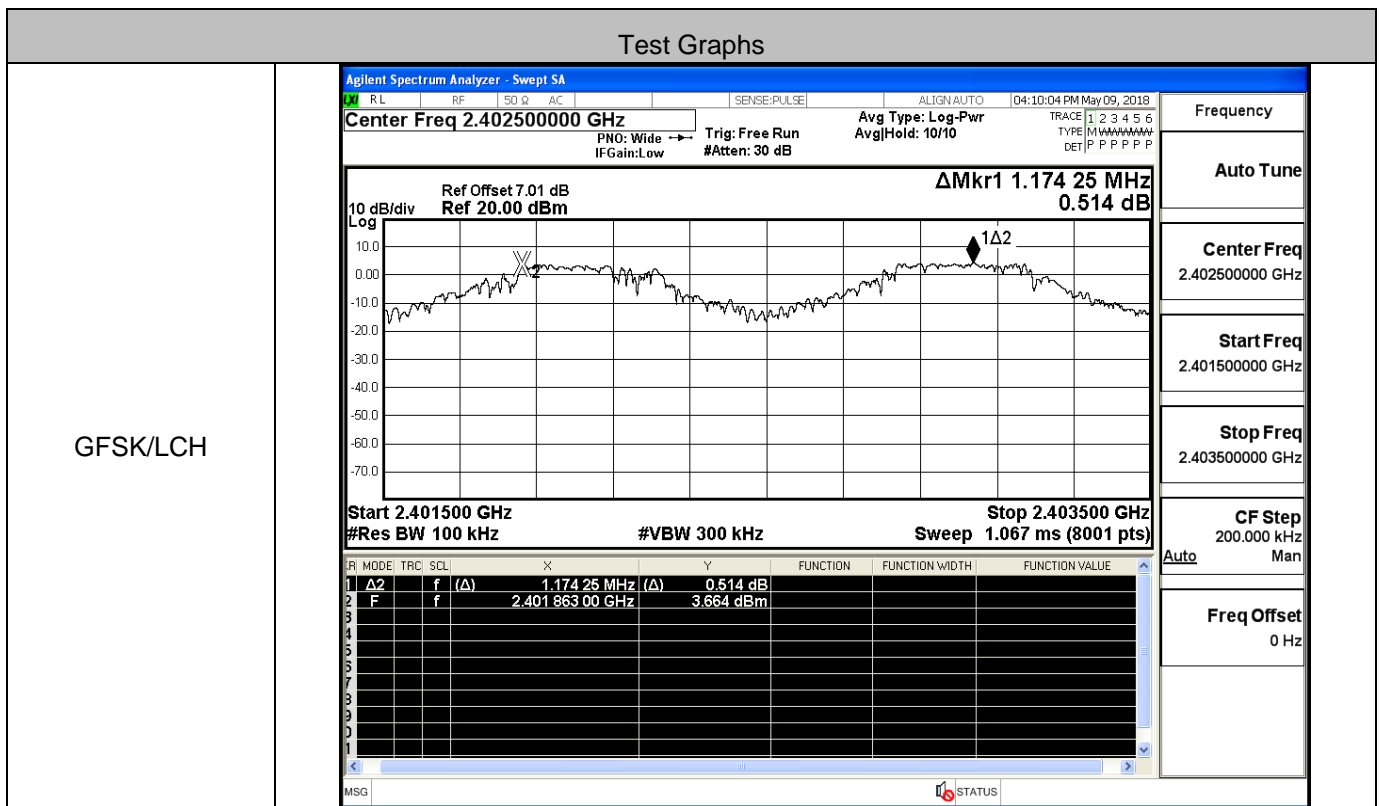


8DPSK/HCH

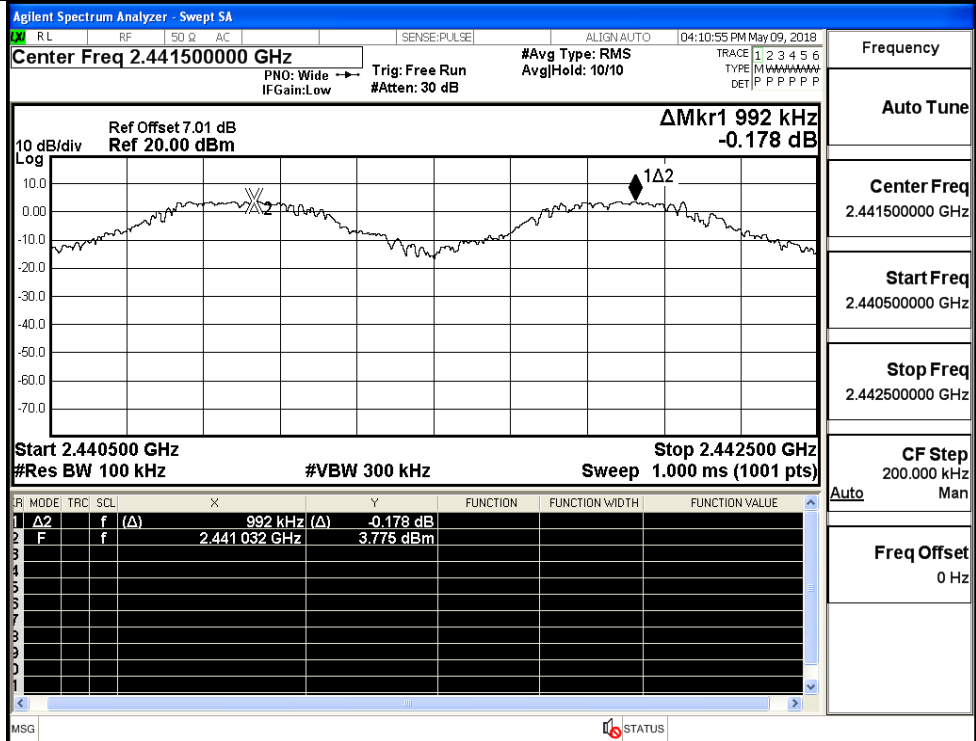


### A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz] 2/3*20dB Bandwidth	Verdict
GFSK	LCH	1.174	0.630	PASS
	MCH	0.992	0.630	PASS
	HCH	0.942	0.630	PASS
π/4DQPSK	LCH	0.992	0.835	PASS
	MCH	1.158	0.835	PASS
	HCH	1.132	0.835	PASS
8DPSK	LCH	0.926	0.843	PASS
	MCH	0.990	0.843	PASS
	HCH	1.180	0.843	PASS

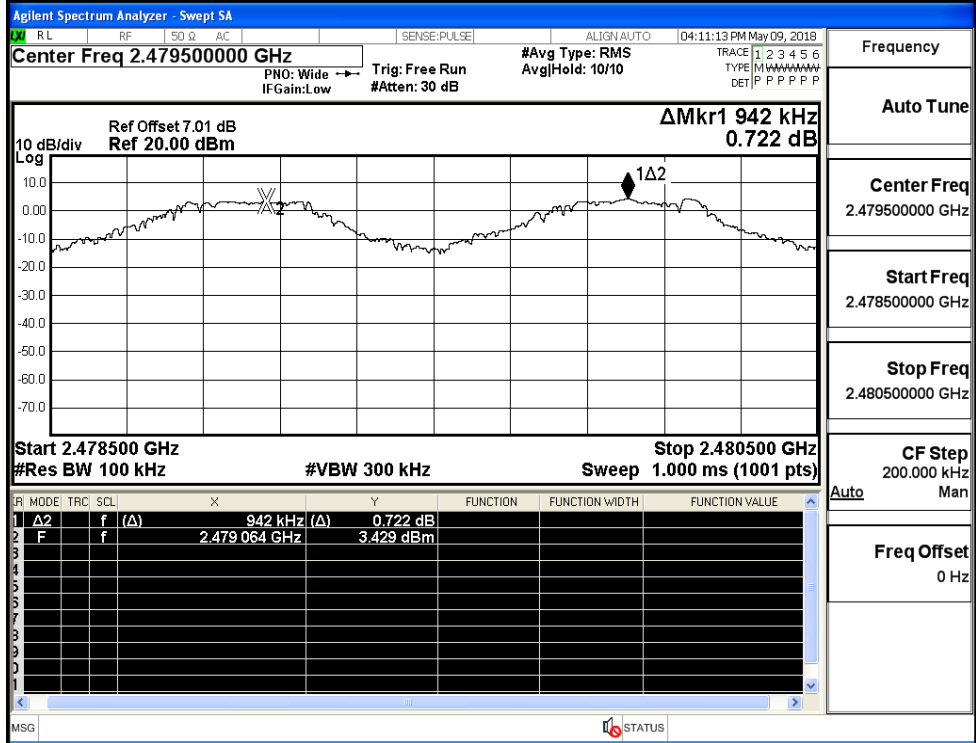


GFSK/MCH



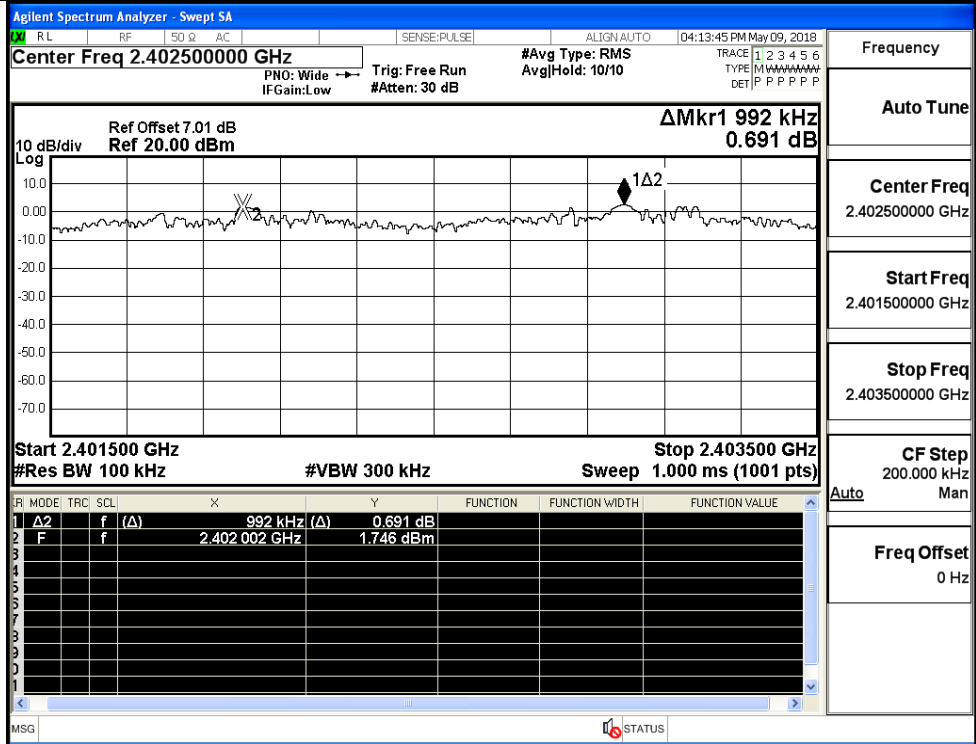
Frequency	2.441500000 GHz
Auto Tune	
Center Freq	2.441500000 GHz
Start Freq	2.440500000 GHz
Stop Freq	2.442500000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH

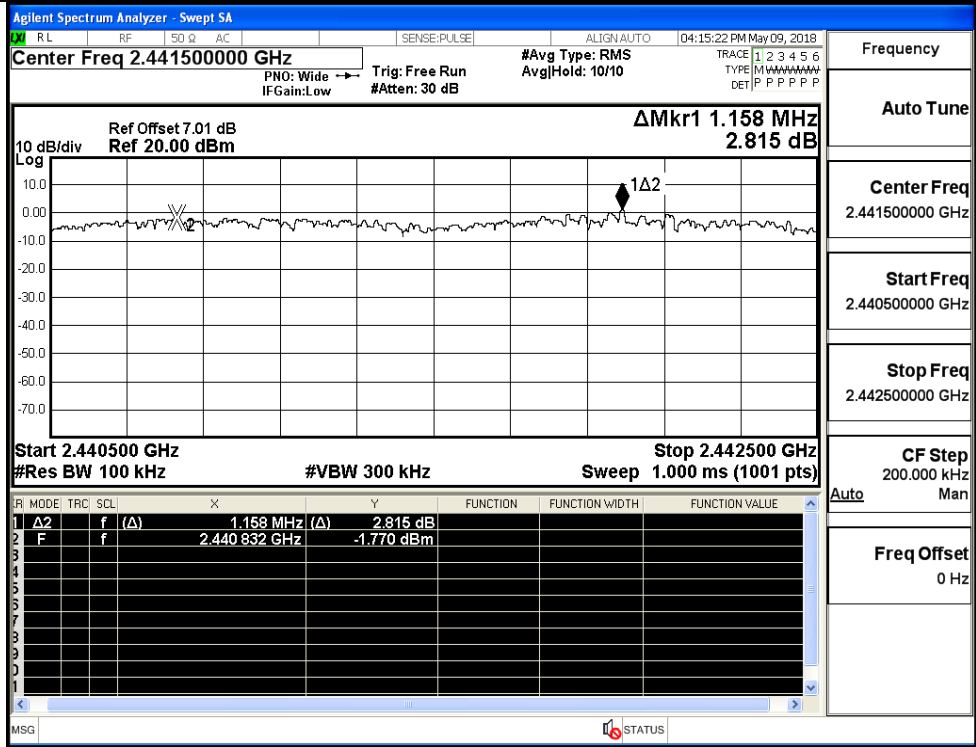


Frequency	2.479500000 GHz
Auto Tune	
Center Freq	2.479500000 GHz
Start Freq	2.478500000 GHz
Stop Freq	2.480500000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

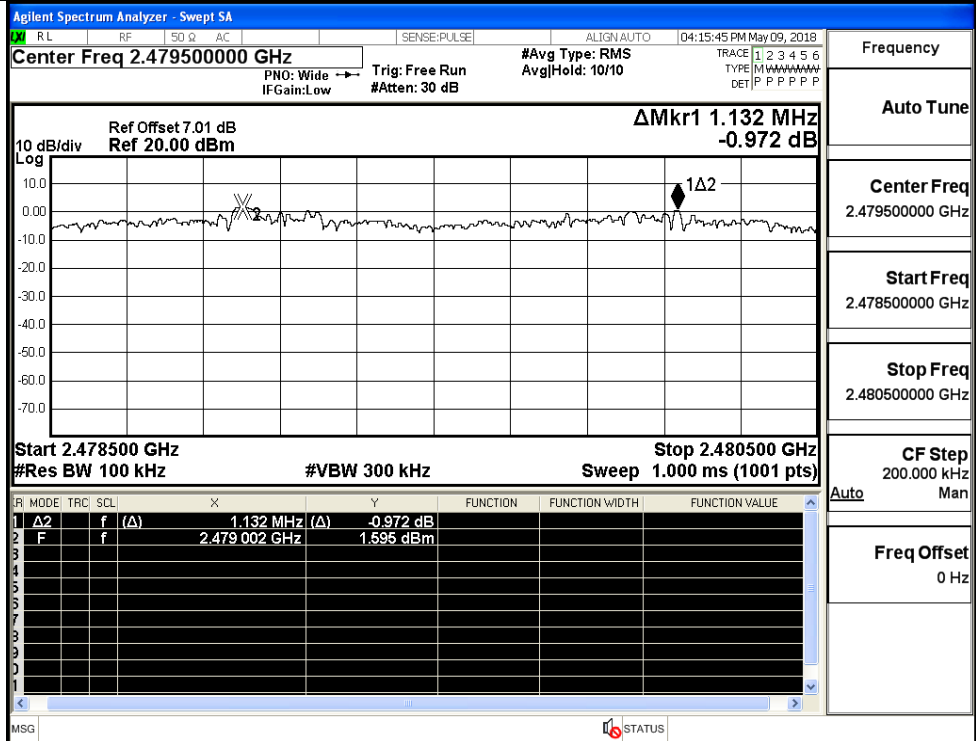
π/4DQPSK/LCH



π/4DQPSK/MCH

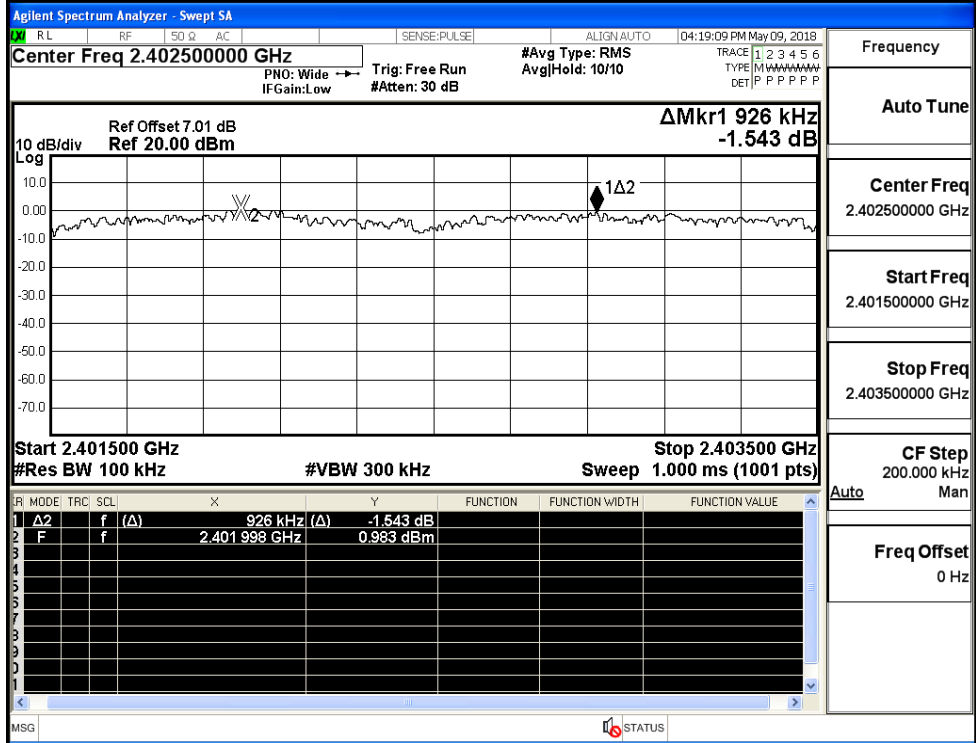


π/4DQPSK/HCH

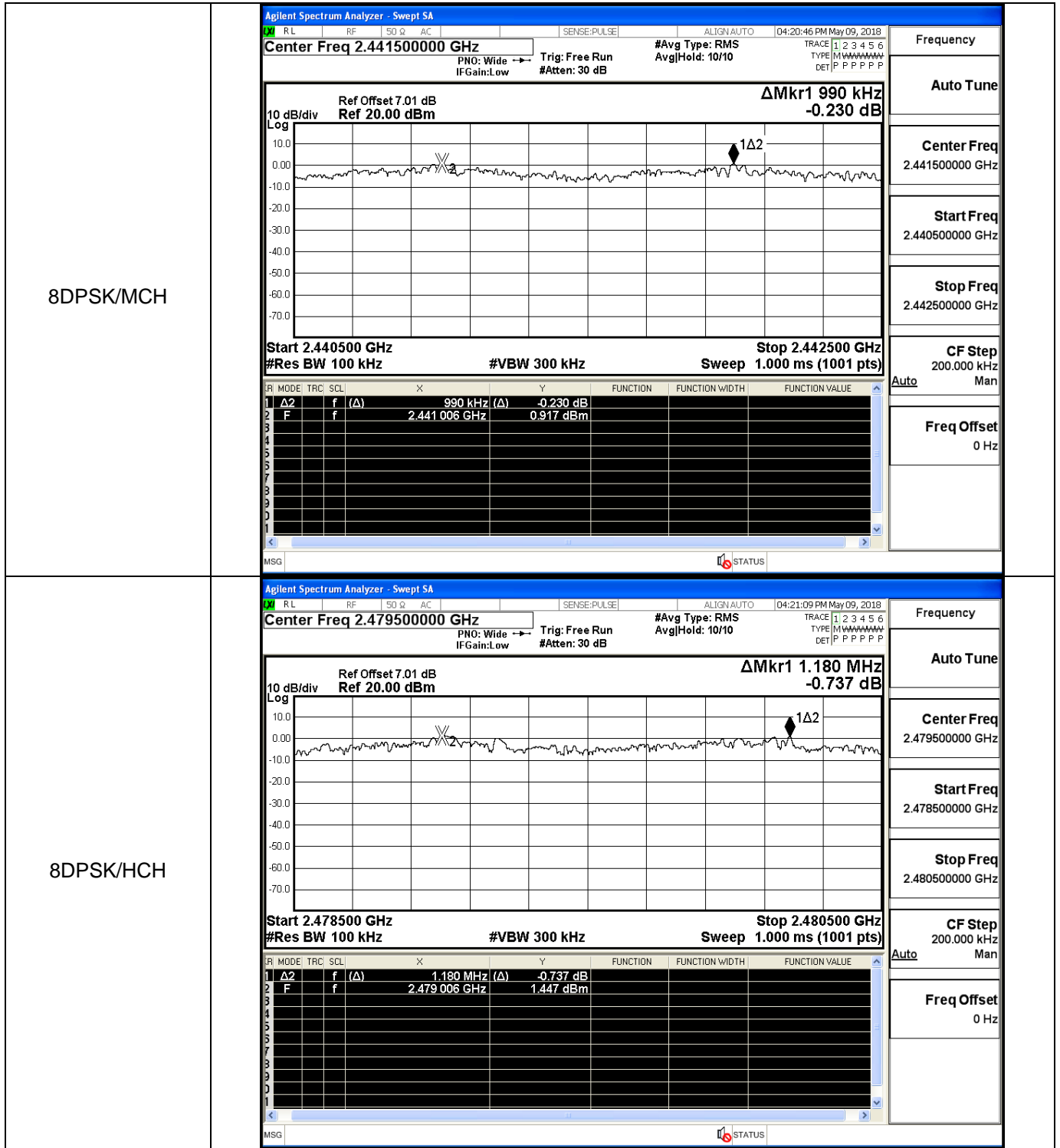


Frequency  
Auto Tune  
Center Freq  
2.479500000 GHz  
Start Freq  
2.478500000 GHz  
Stop Freq  
2.480500000 GHz  
CF Step  
200.000 kHz  
Man  
Freq Offset  
0 Hz

8DPSK/LCH



Frequency  
Auto Tune  
Center Freq  
2.402500000 GHz  
Start Freq  
2.401500000 GHz  
Stop Freq  
2.403500000 GHz  
CF Step  
200.000 kHz  
Man  
Freq Offset  
0 Hz



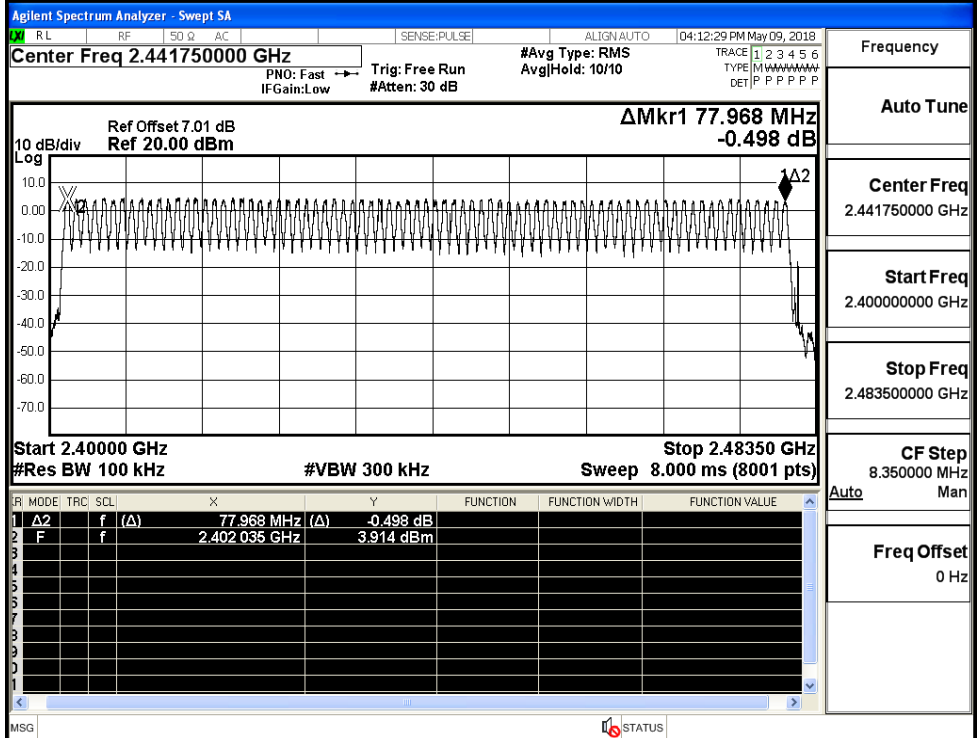
A.4 Hopping Channel Number

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS



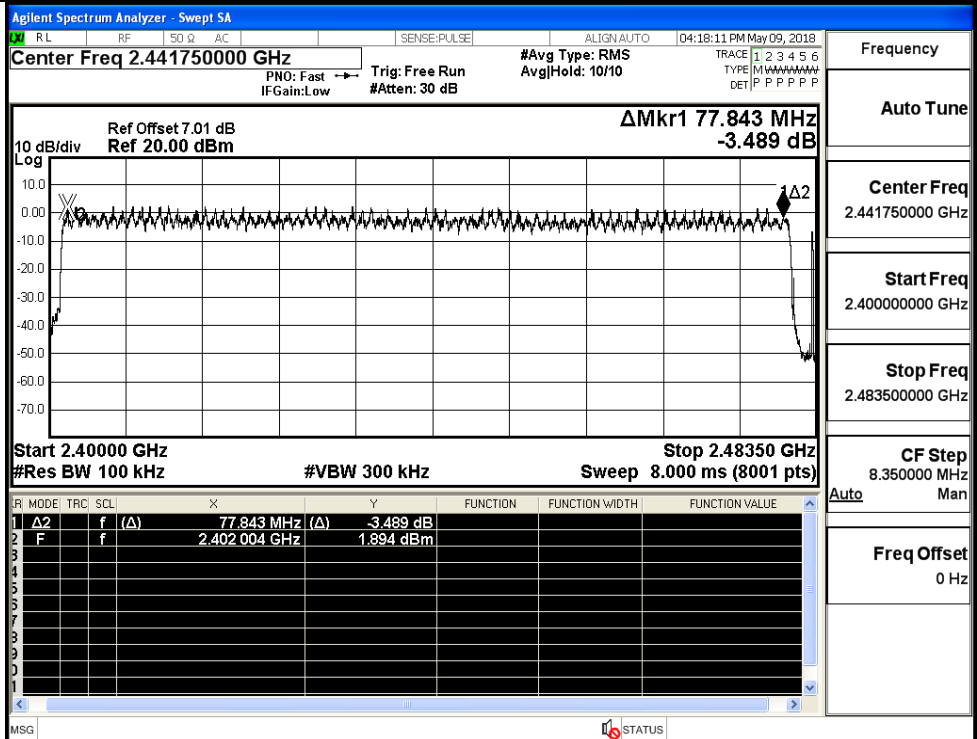
Test Graphs

GFSK/Hop



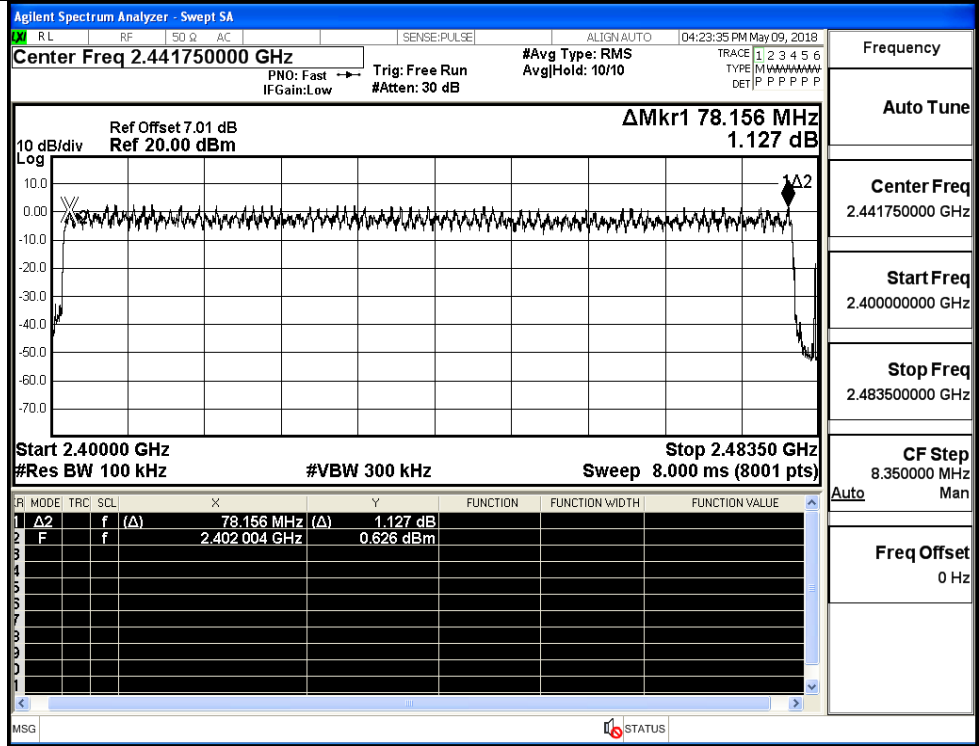
Frequency	
Auto Tune	
Center Freq	2.441750000 GHz
Start Freq	2.400000000 GHz
Stop Freq	2.483500000 GHz
CF Step	8.350000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/Hop



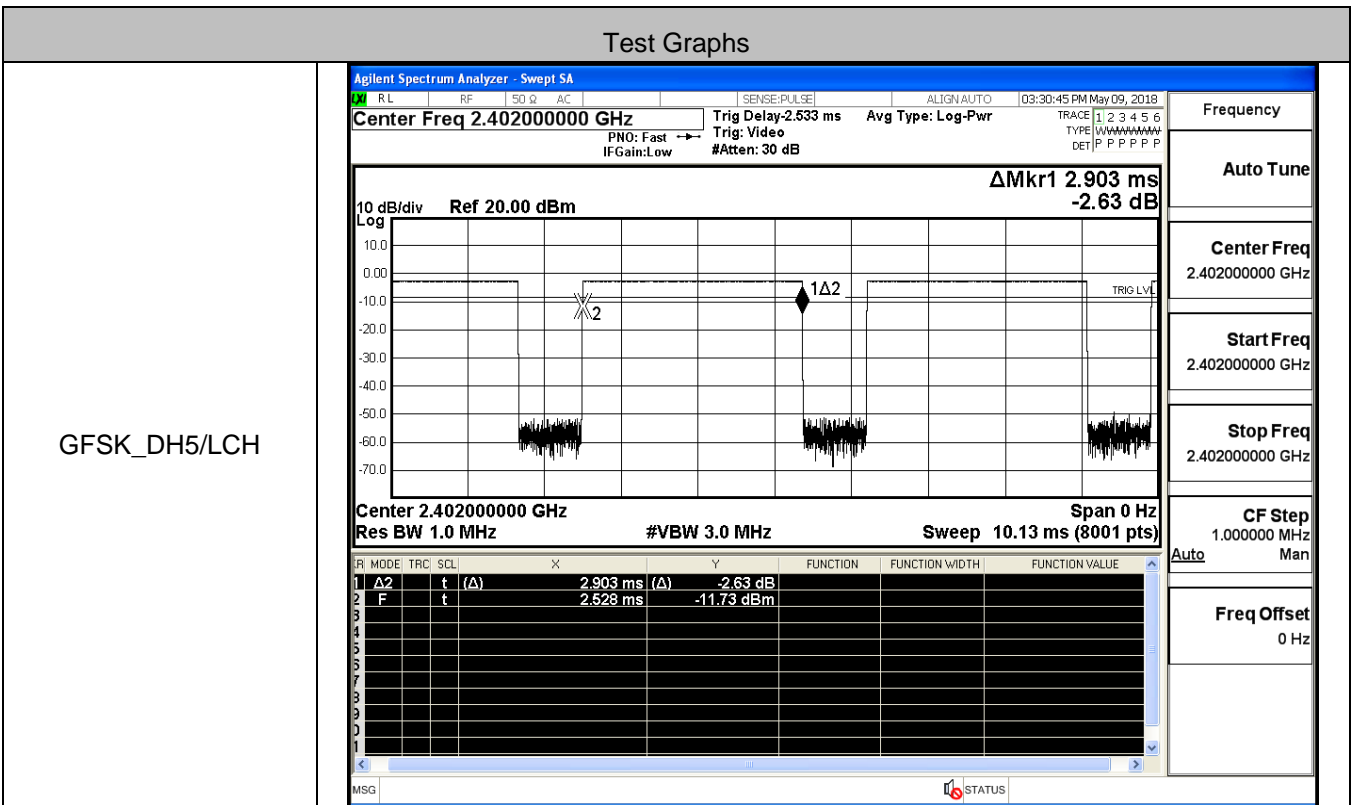
Frequency	
Auto Tune	
Center Freq	2.441750000 GHz
Start Freq	2.400000000 GHz
Stop Freq	2.483500000 GHz
CF Step	8.350000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK/Hop

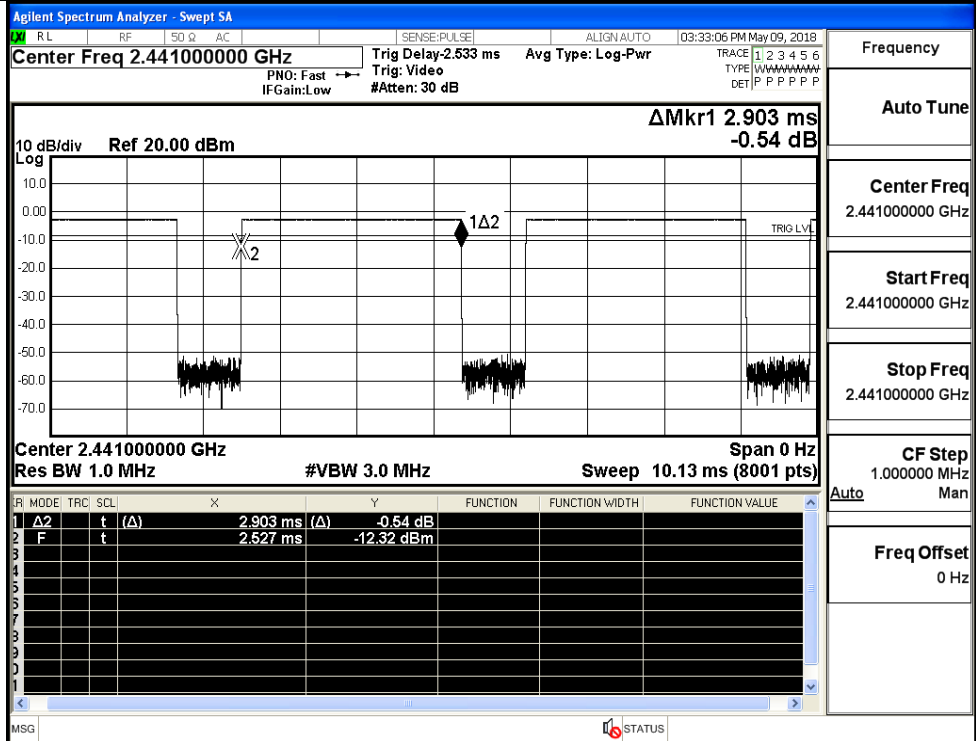


**A.5 Dwell Time**

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
π/4DQPSK	2DH5	LCH	2.9	106.7	0.31	0.4	PASS
	2DH5	MCH	2.9	106.7	0.31	0.4	PASS
	2DH5	HCH	2.9	106.7	0.31	0.4	PASS
8DPSK	3DH5	LCH	2.9	106.7	0.31	0.4	PASS
	3DH5	MCH	2.9	106.7	0.31	0.4	PASS
	3DH5	HCH	2.9	106.7	0.31	0.4	PASS



GFSK\_DH5/MCH



Frequency

Auto Tune

Center Freq 2.441000000 GHz

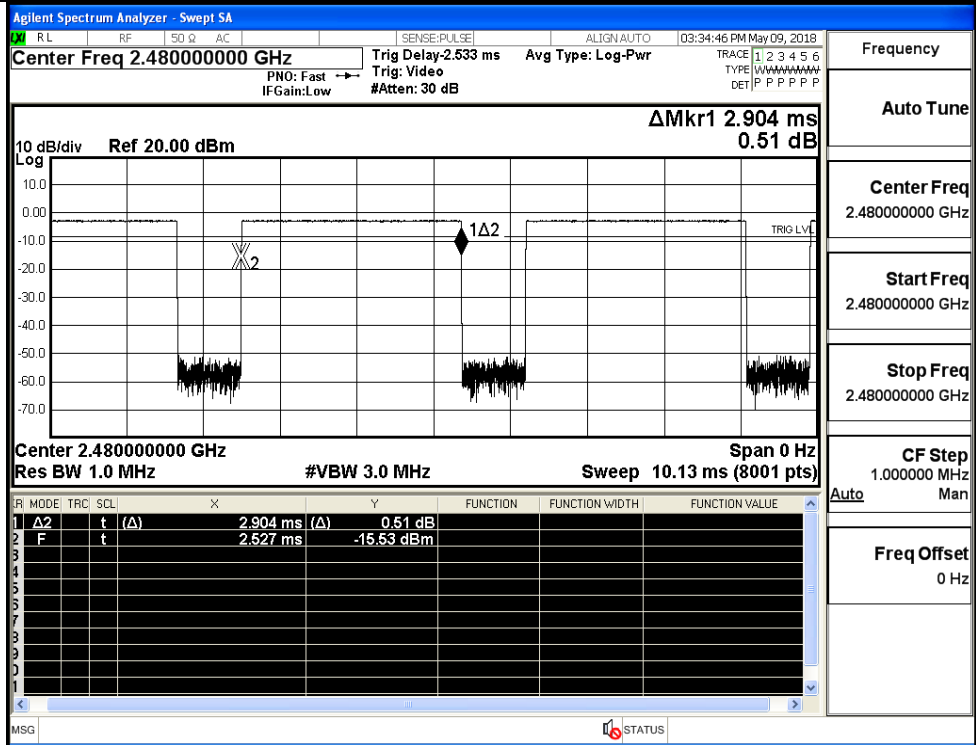
Start Freq 2.441000000 GHz

Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz

Freq Offset 0 Hz

GFSK\_DH5/HCH



Frequency

Auto Tune

Center Freq 2.480000000 GHz

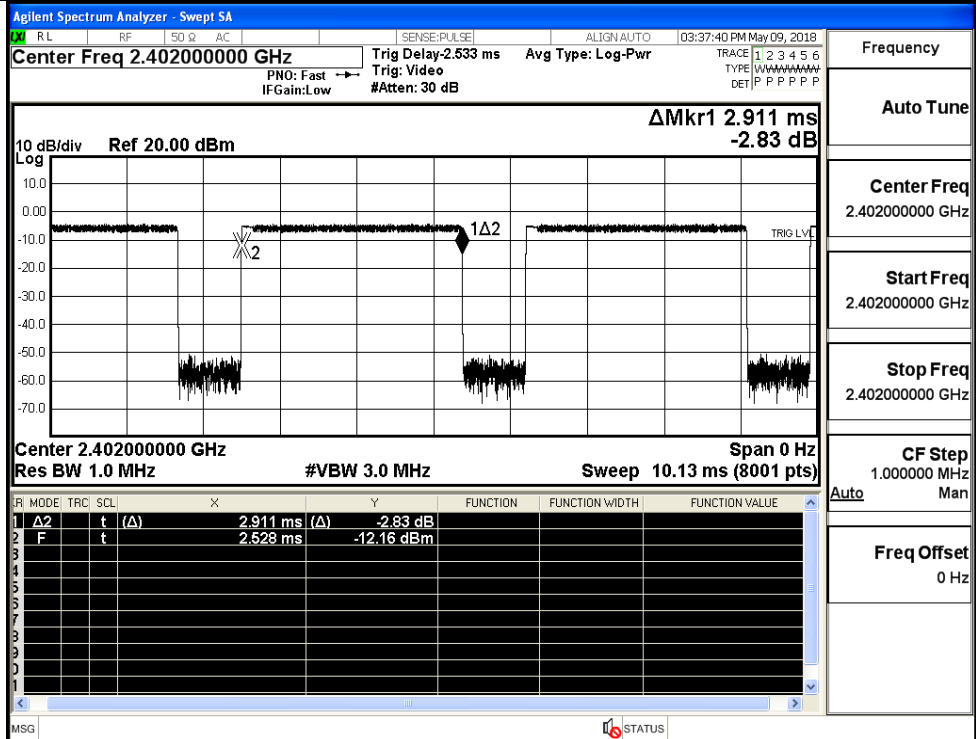
Start Freq 2.480000000 GHz

Stop Freq 2.480000000 GHz

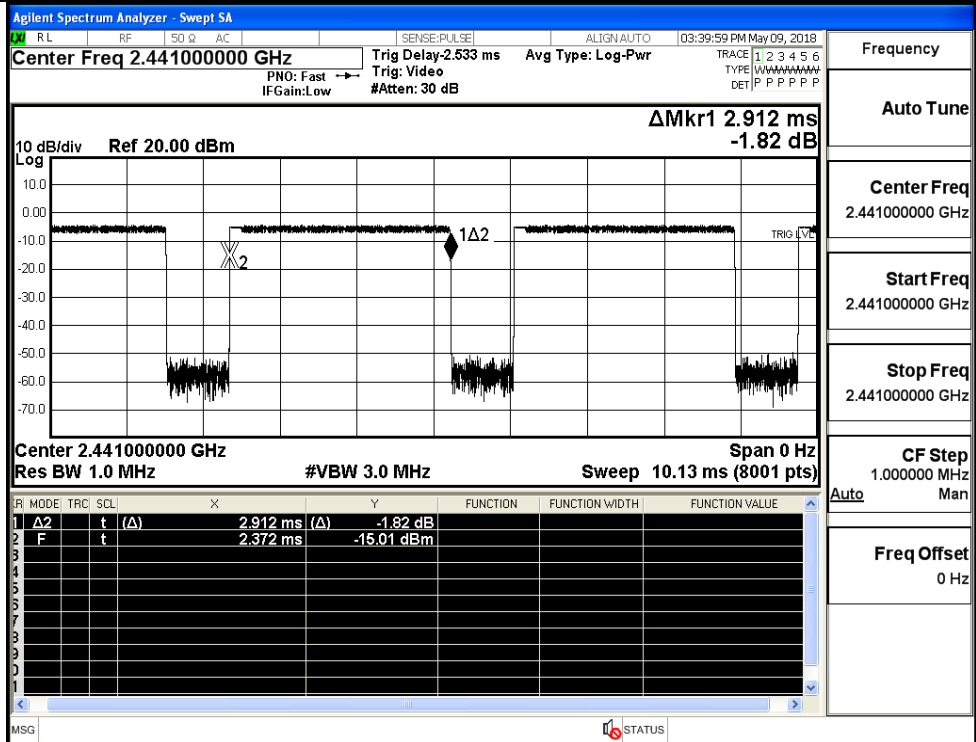
CF Step 1.000000 MHz

Freq Offset 0 Hz

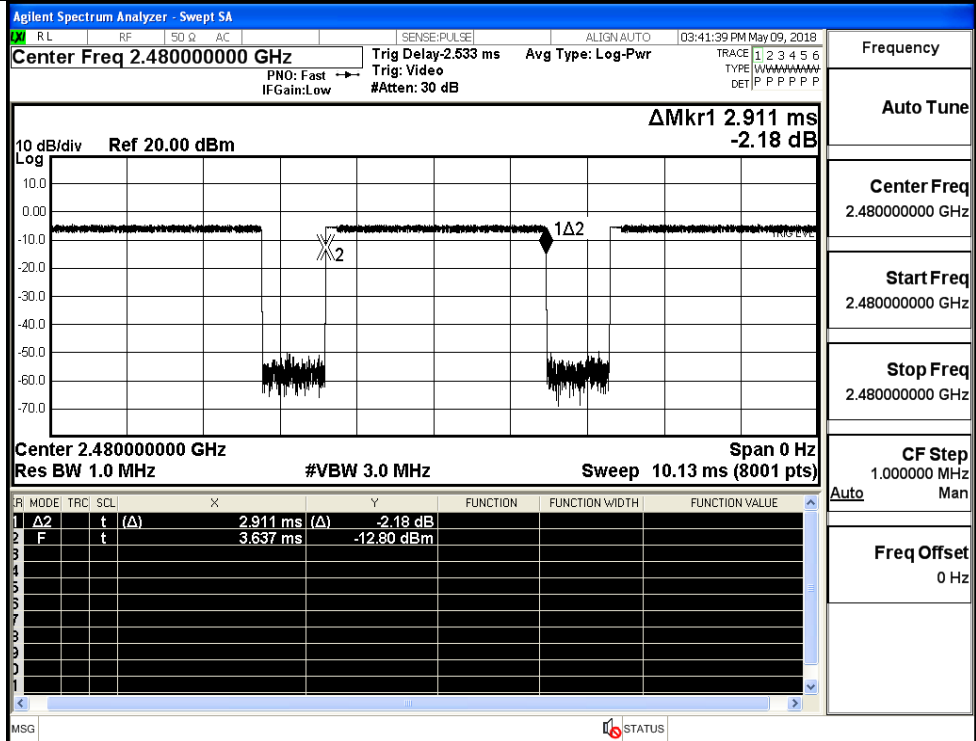
$\pi/4$ DQPSK  
\_2DH5/LCH



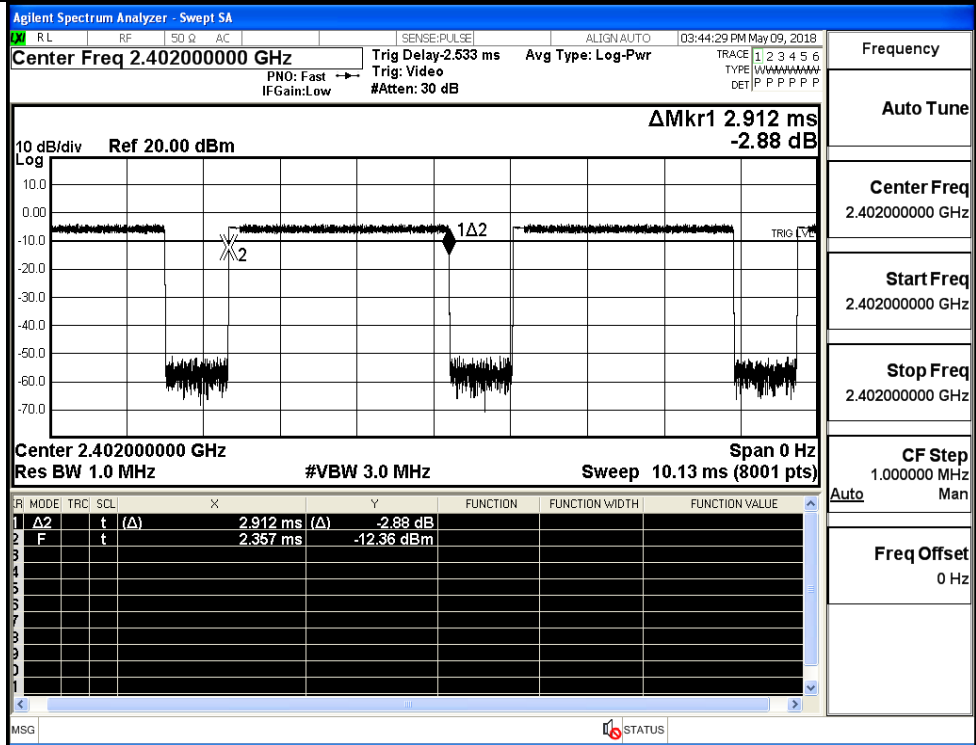
$\pi/4$ DQPSK  
\_2DH5/MCH



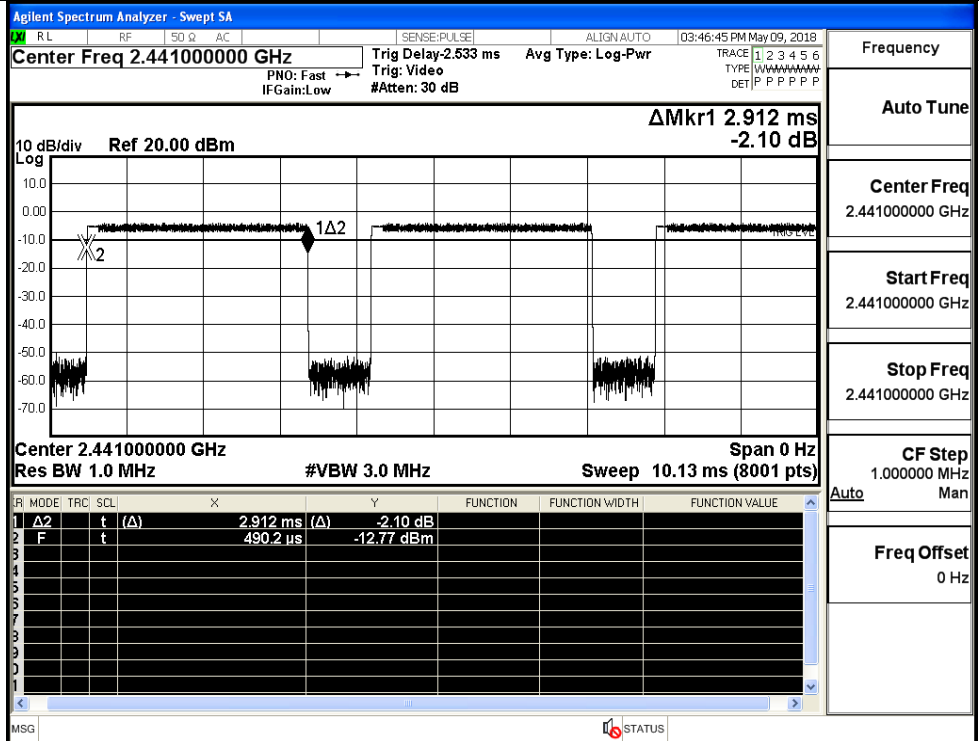
$\pi/4$ DQPSK  
\_2DH5/HCH



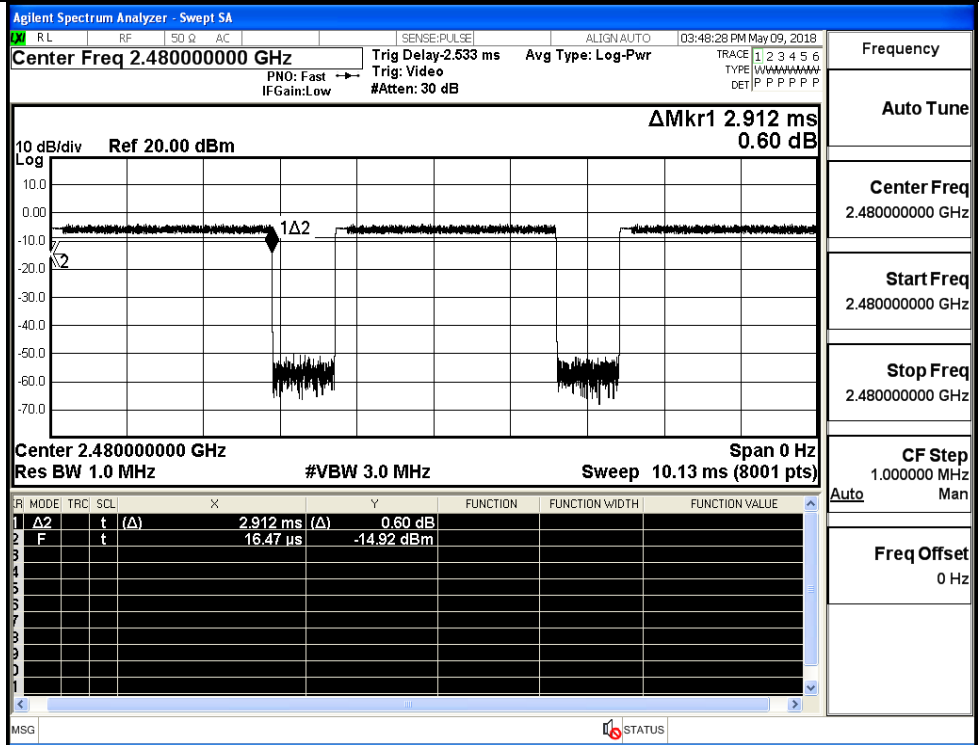
8DPSK\_3DH5/LCH



8DPSK\_3DH5/MCH



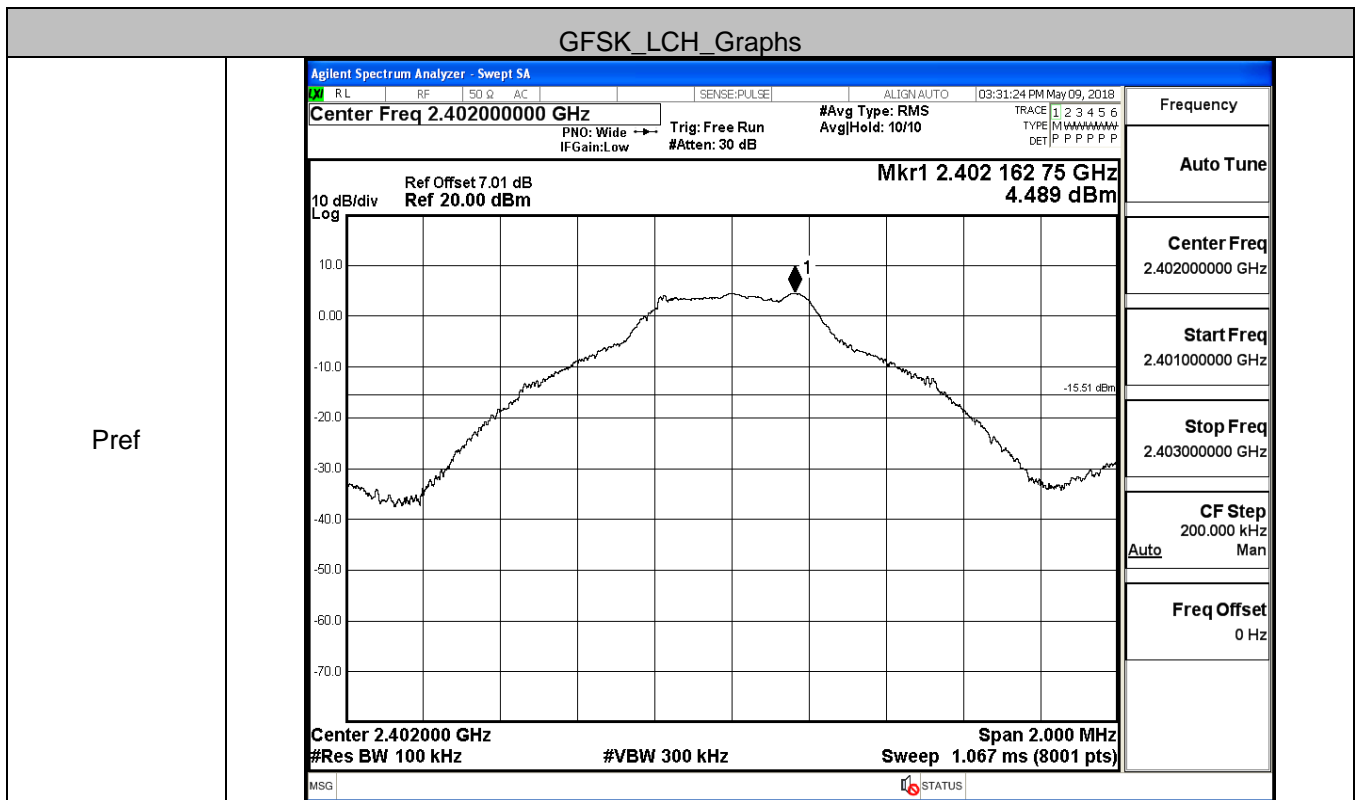
8DPSK\_3DH5/HCH



**A.6 RF Conducted Spurious Emissions**

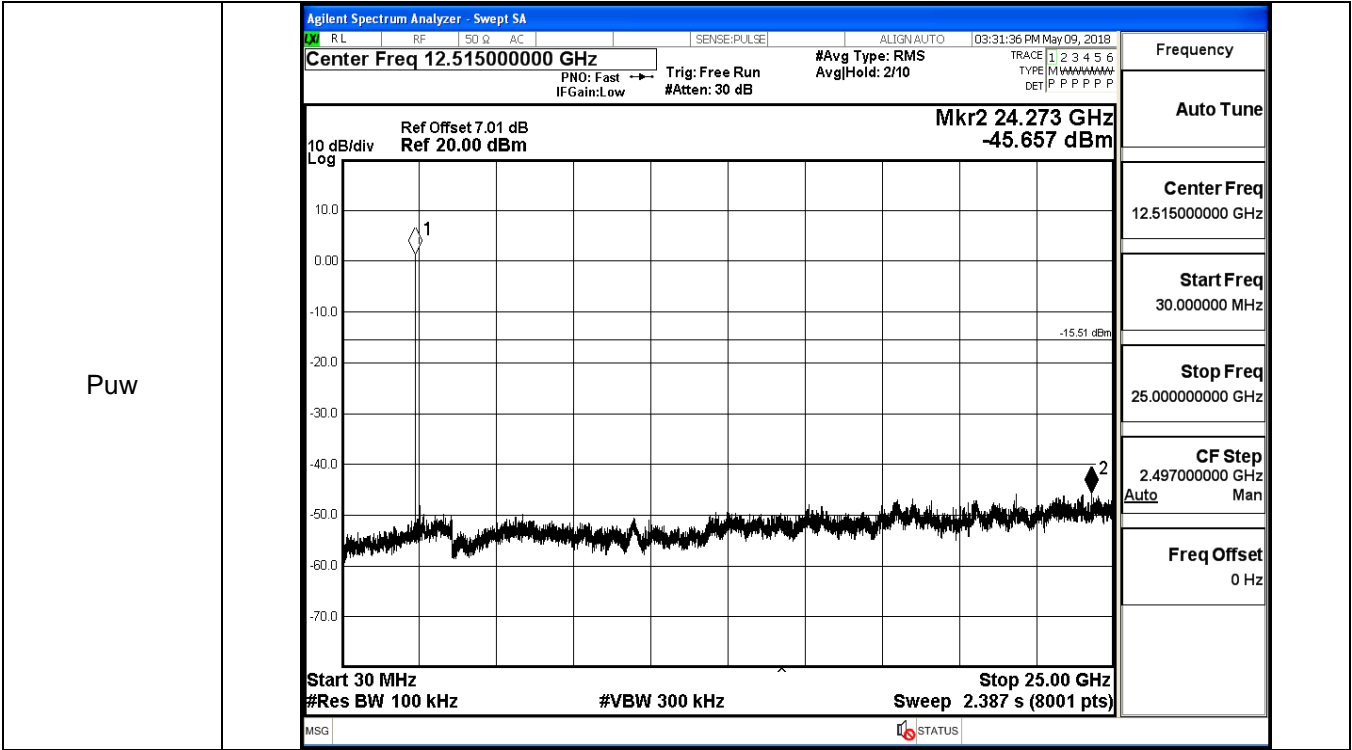
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.489	-45.657	-15.511	PASS
	MCH	4.399	-45.539	-15.601	PASS
	HCH	4.199	-45.475	-15.801	PASS
$\pi$ /4DQPSK	LCH	1.793	-45.475	-18.207	PASS
	MCH	1.922	-45.494	-18.078	PASS
	HCH	1.633	-44.994	-18.367	PASS
8DPSK	LCH	1.82	-44.921	-18.180	PASS
	MCH	1.992	-45.465	-18.008	PASS
	HCH	1.72	-45.530	-18.280	PASS

GFSK\_LCH\_Graphs



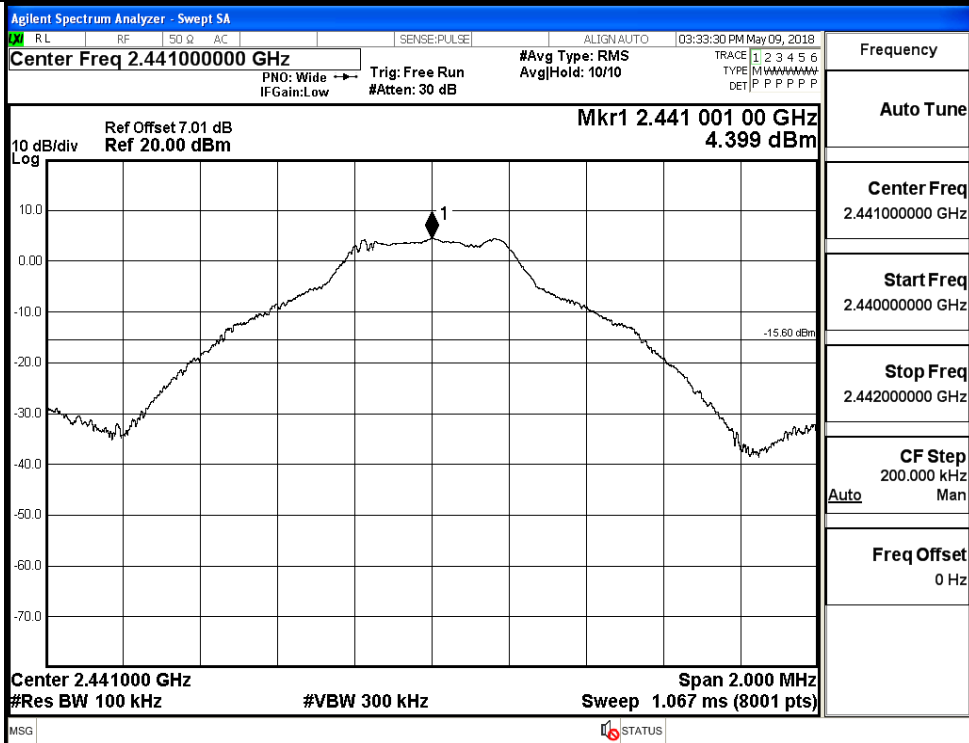
Pref



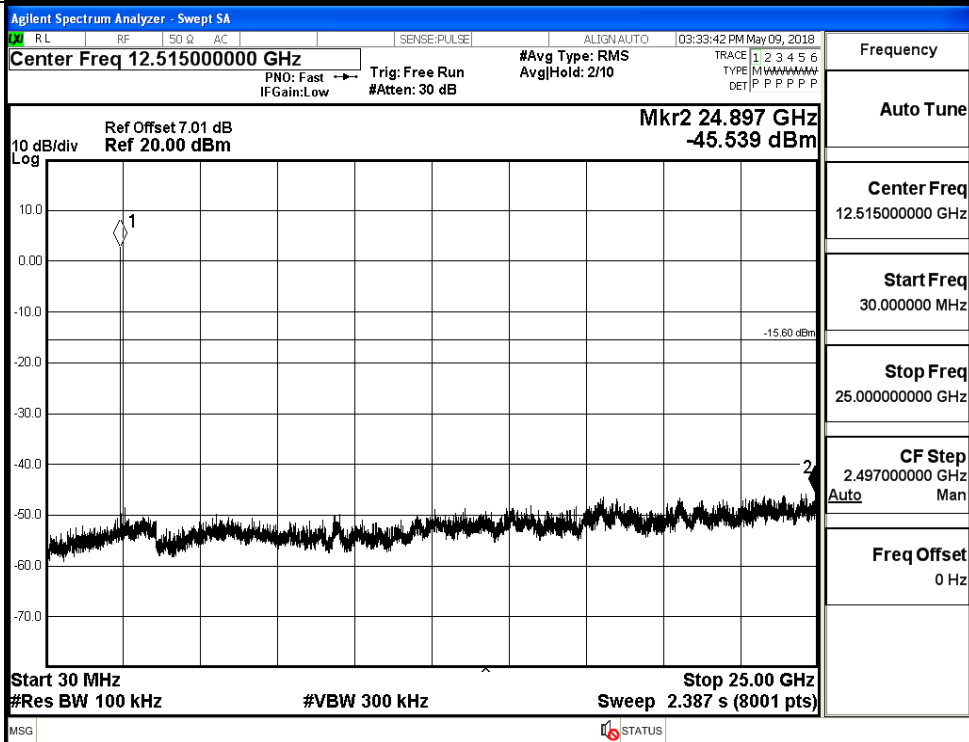


GFSK\_MCH\_Graphs

Pref

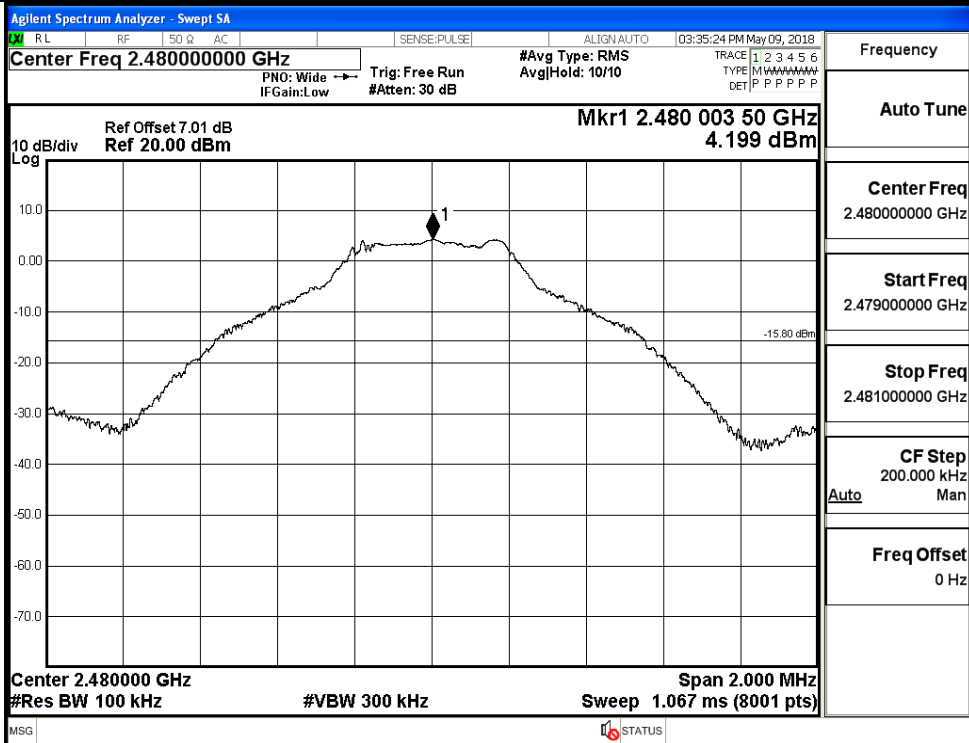


Puw

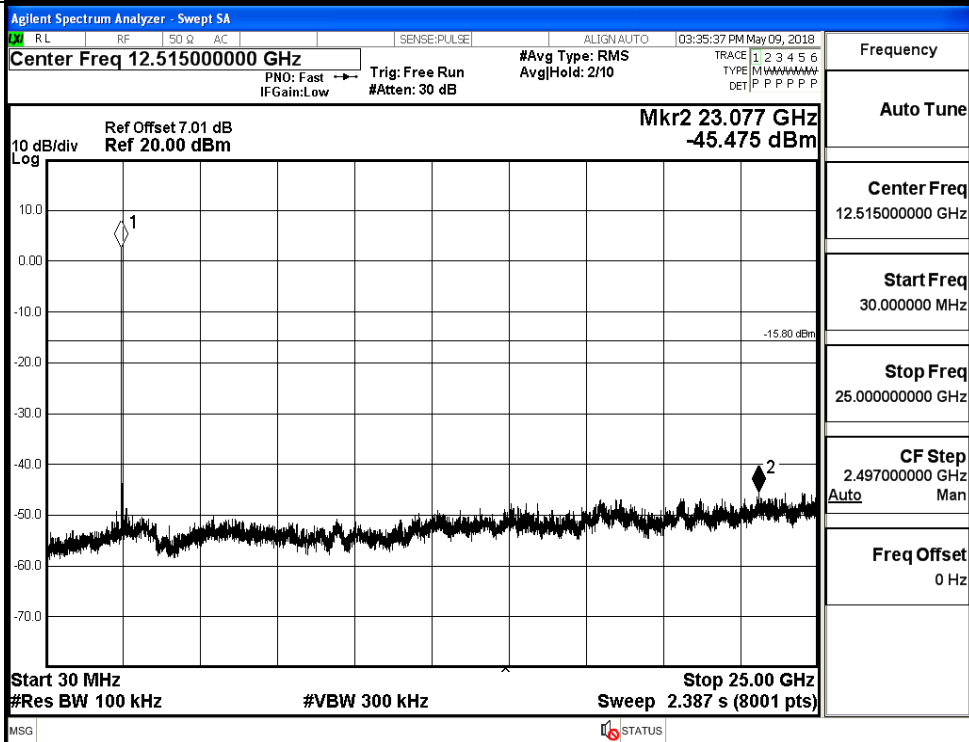


GFSK\_HCH\_Graphs

Pref

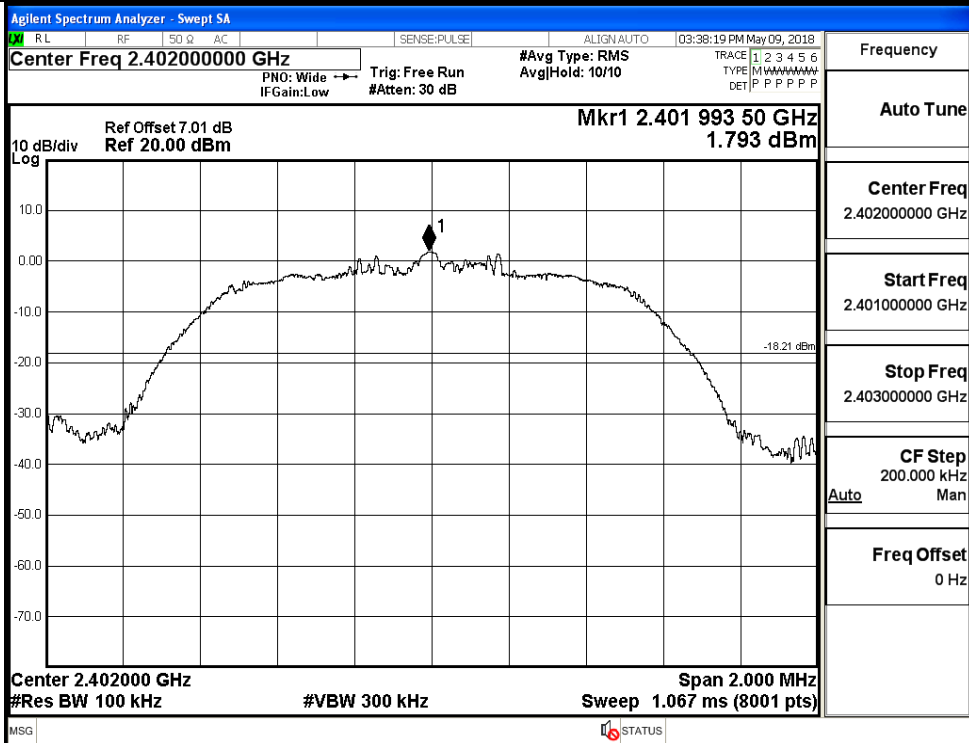


Puw

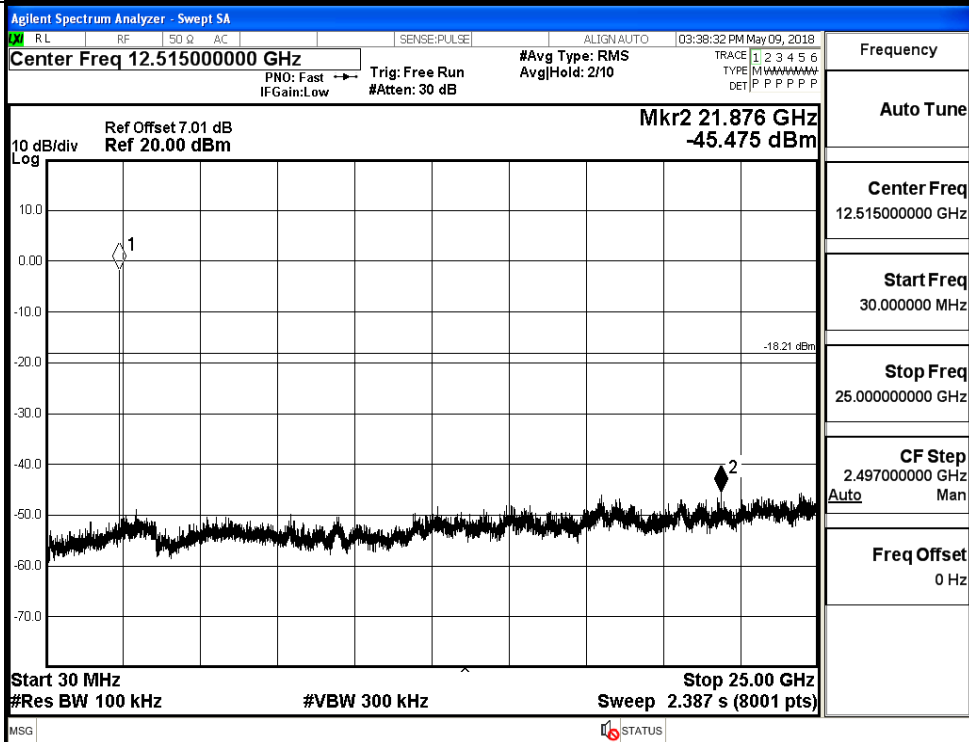


$\pi/4$ DQPSK LCH Graphs

Pref

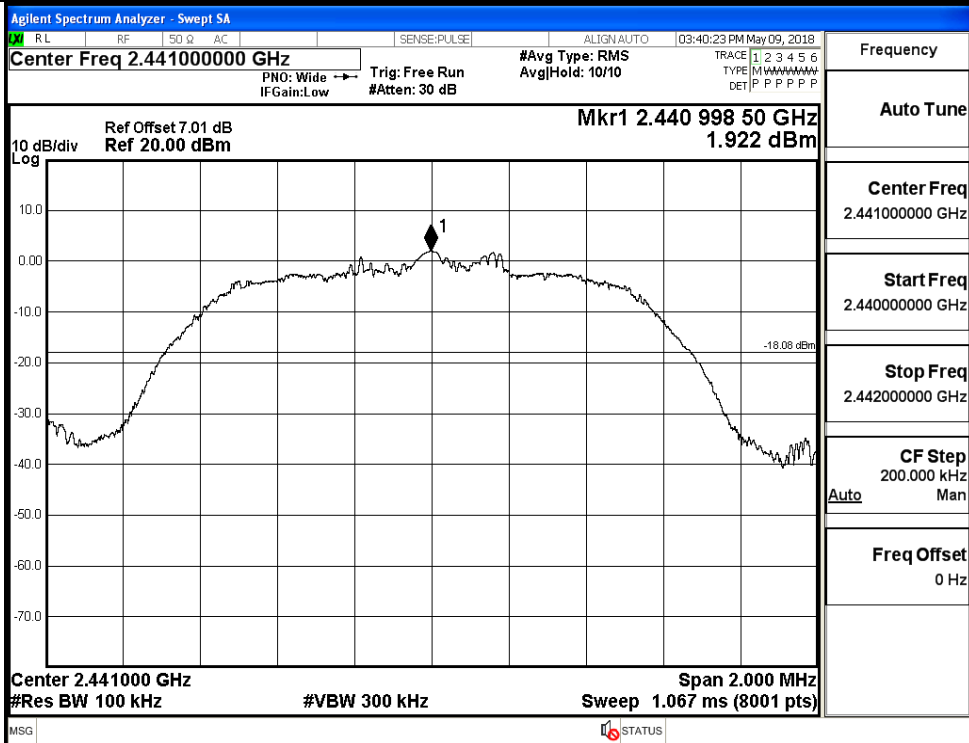


Puw

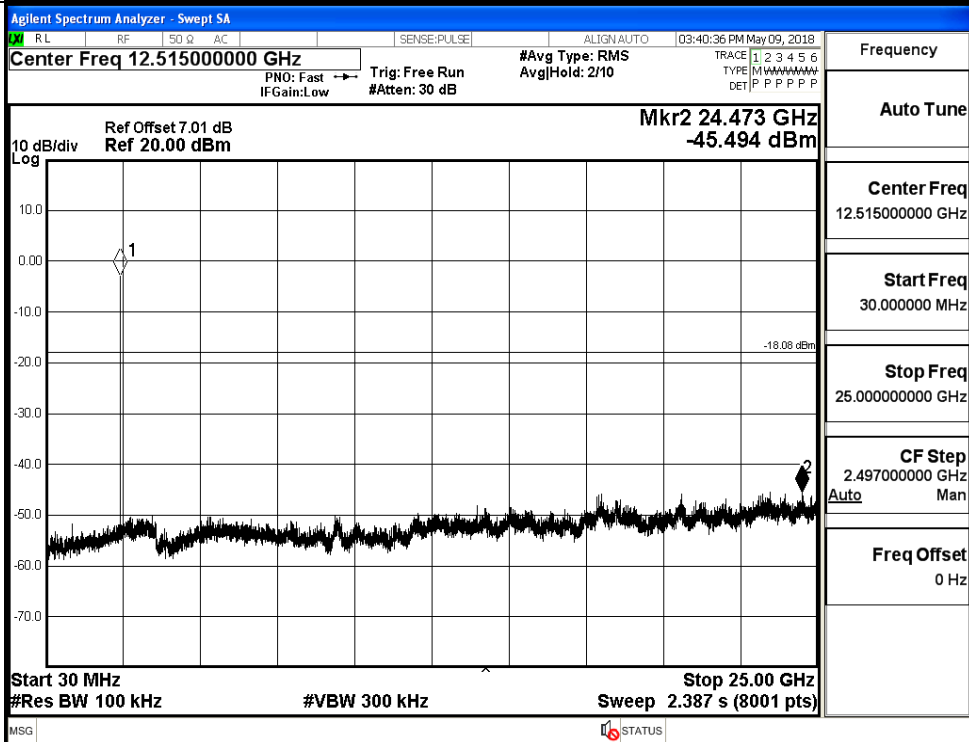


$\pi/4$ DQPSK MCH Graphs

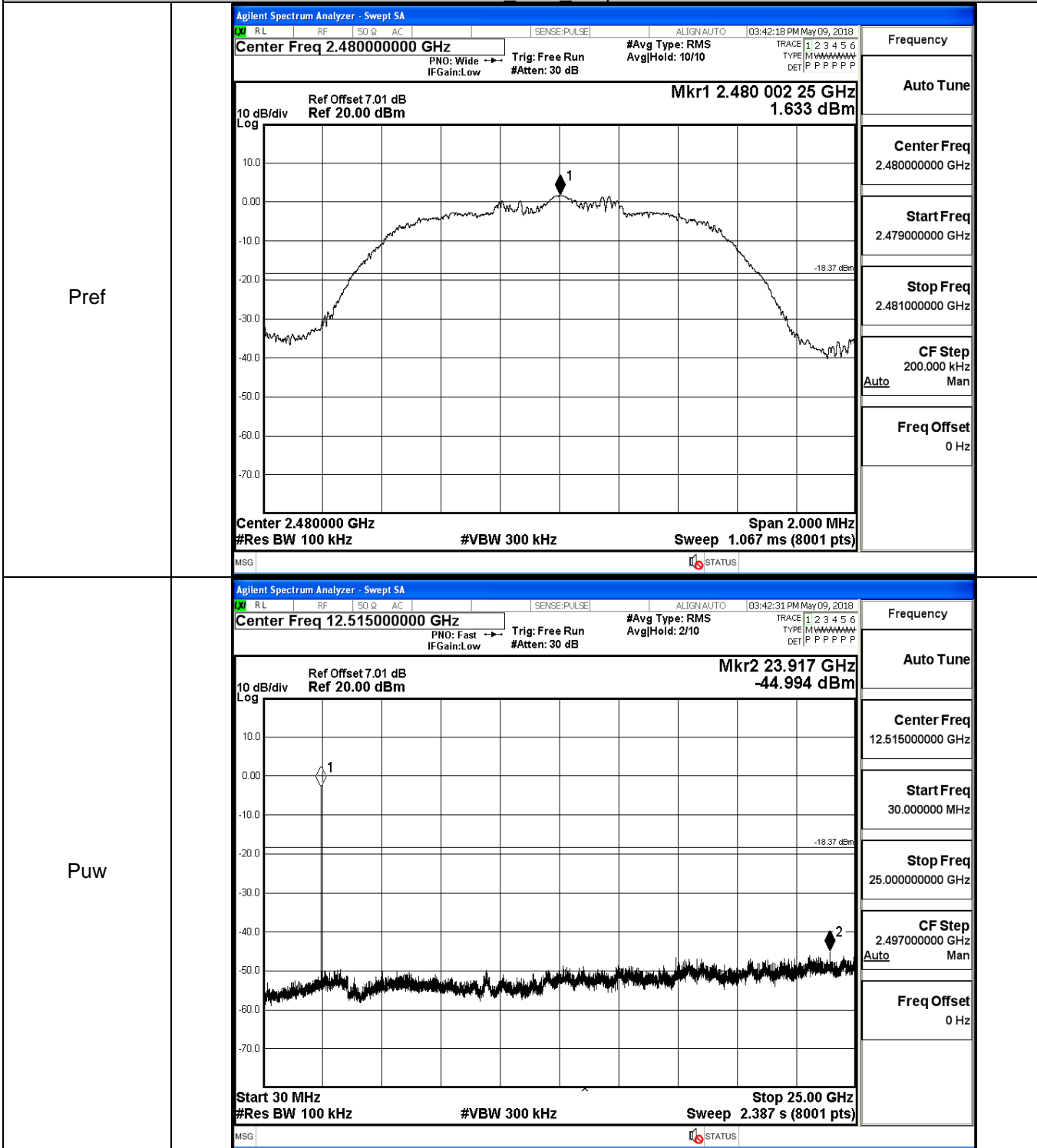
Pref



Puw

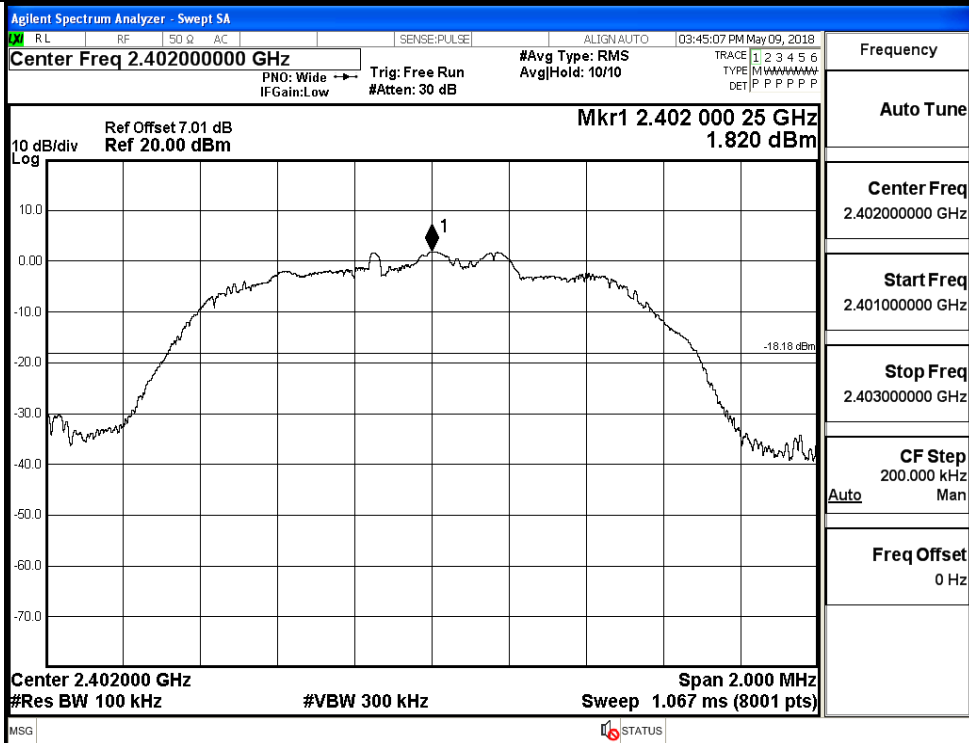


$\pi/4$ DQPSK HCH Graphs

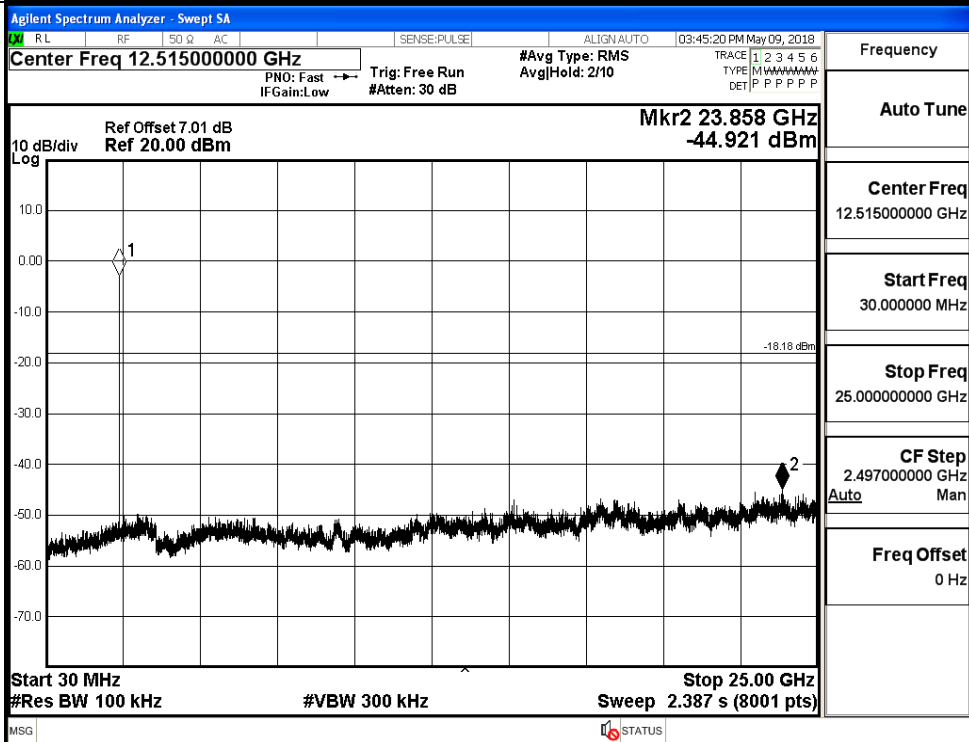


8DPSK\_LCH\_Graphs

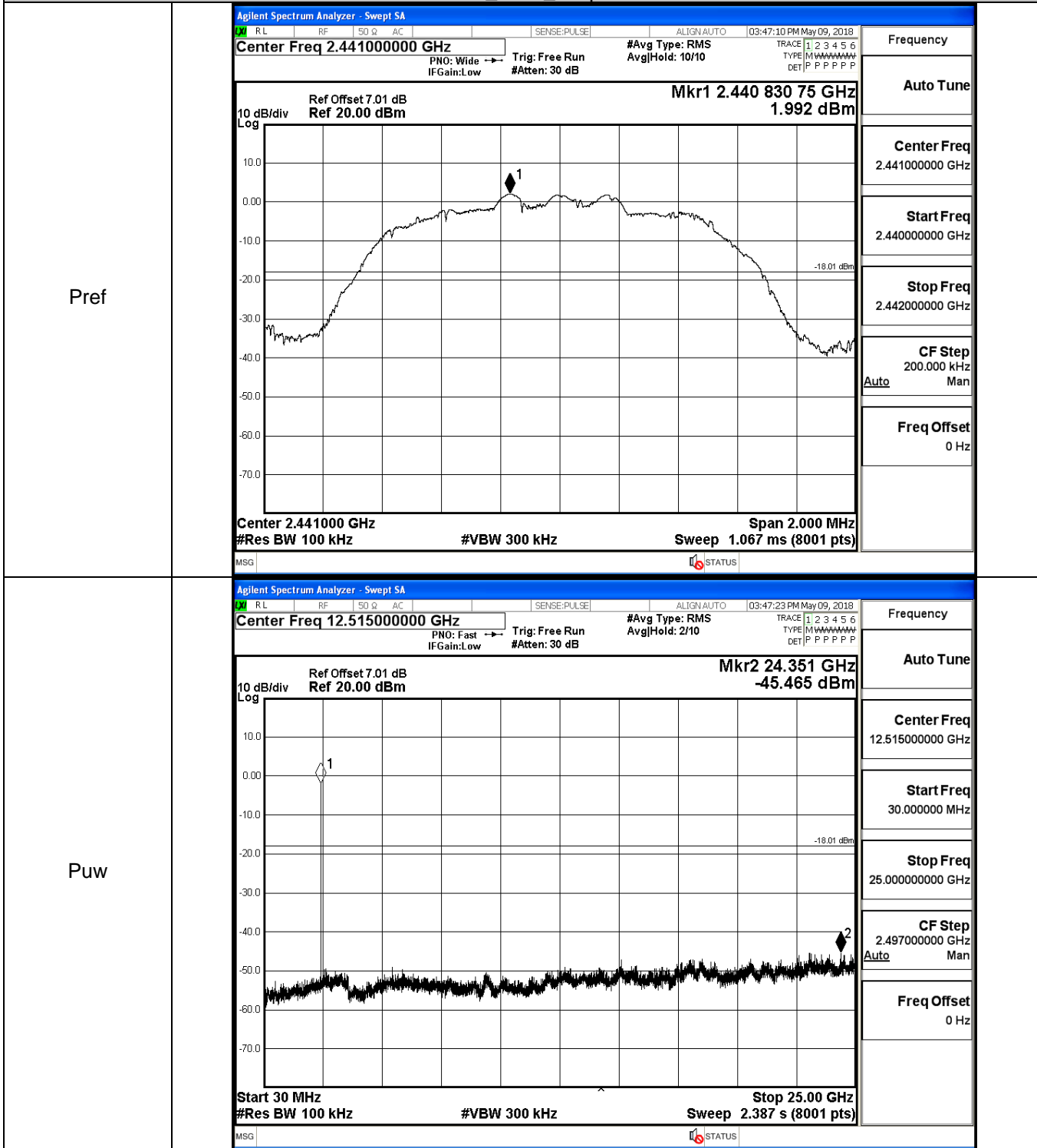
Pref



Puw

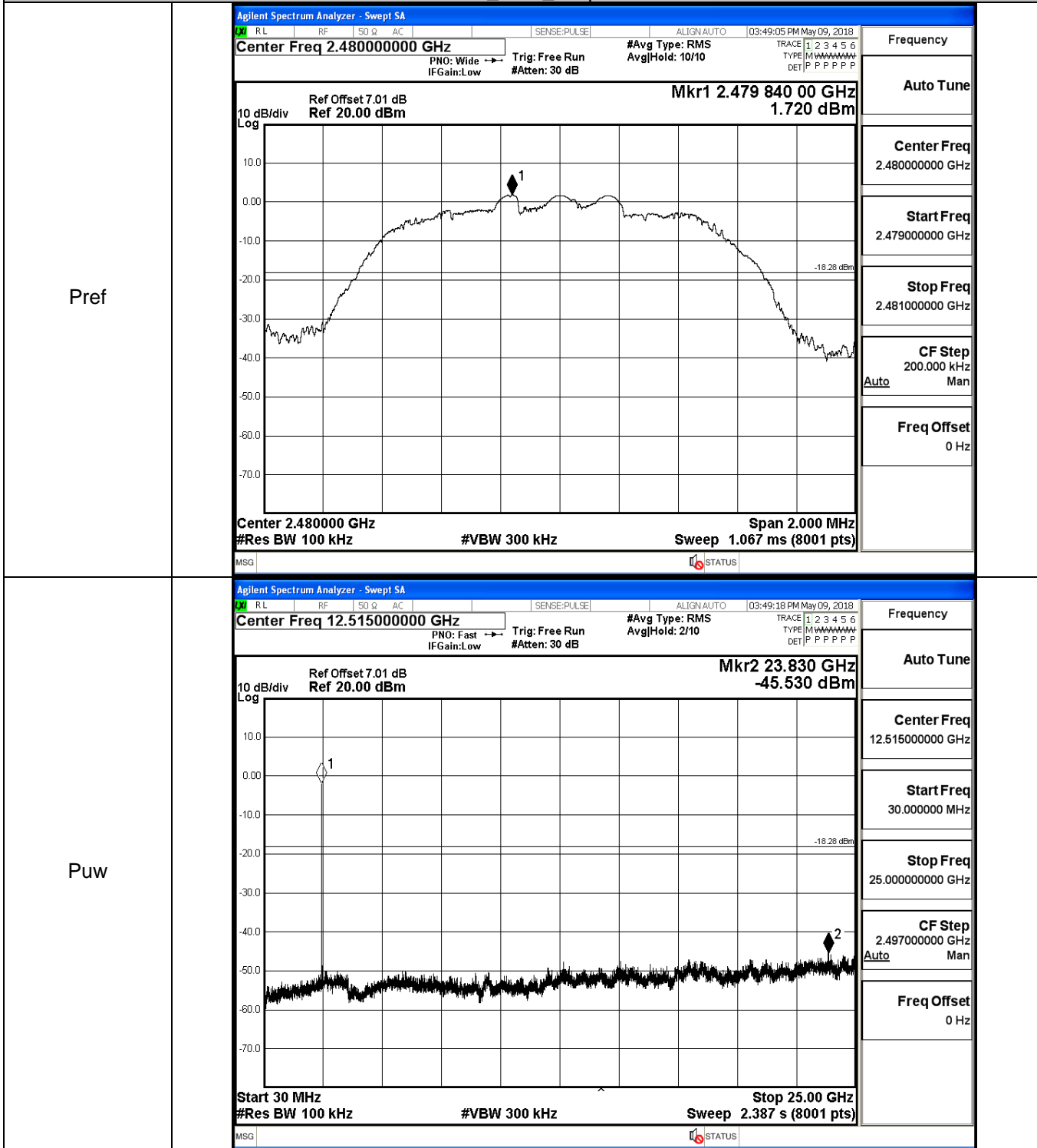


8DPSK\_MCH\_Graphs





8DPSK\_HCH\_Graphs

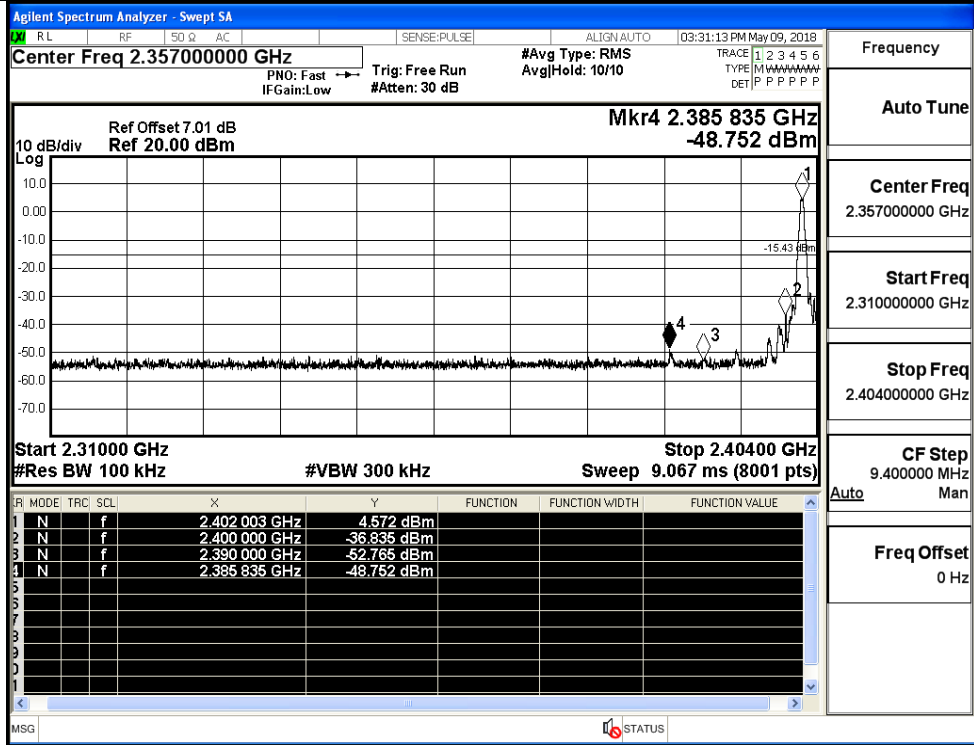


## A.7 Band-edge for RF Conducted Emissions

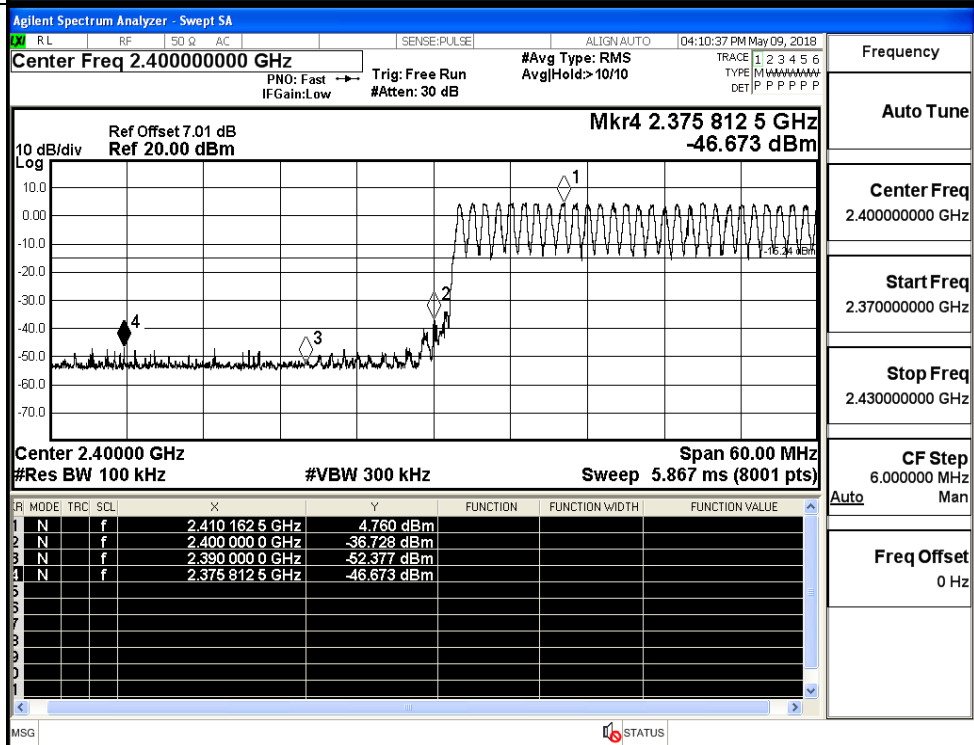
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	4.572	Off	-48.752	-15.43	PASS
			4.760	On	-46.673	-15.24	PASS
	HCH	2480	4.293	Off	-44.481	-15.71	PASS
			1.530	On	-49.554	-18.47	PASS
$\pi/4$ DQPSK	LCH	2402	-0.799	Off	-50.385	-20.8	PASS
			2.486	On	-46.989	-17.51	PASS
	HCH	2480	1.662	Off	-47.300	-18.34	PASS
			0.761	On	-48.344	-18.48	PASS
8DPSK	LCH	2402	1.975	Off	-50.254	-18.03	PASS
			2.555	On	-45.794	-17.45	PASS
	HCH	2480	1.758	Off	-47.296	-18.24	PASS
			0.847	On	-48.050	-18.45	PASS

Test Graphs

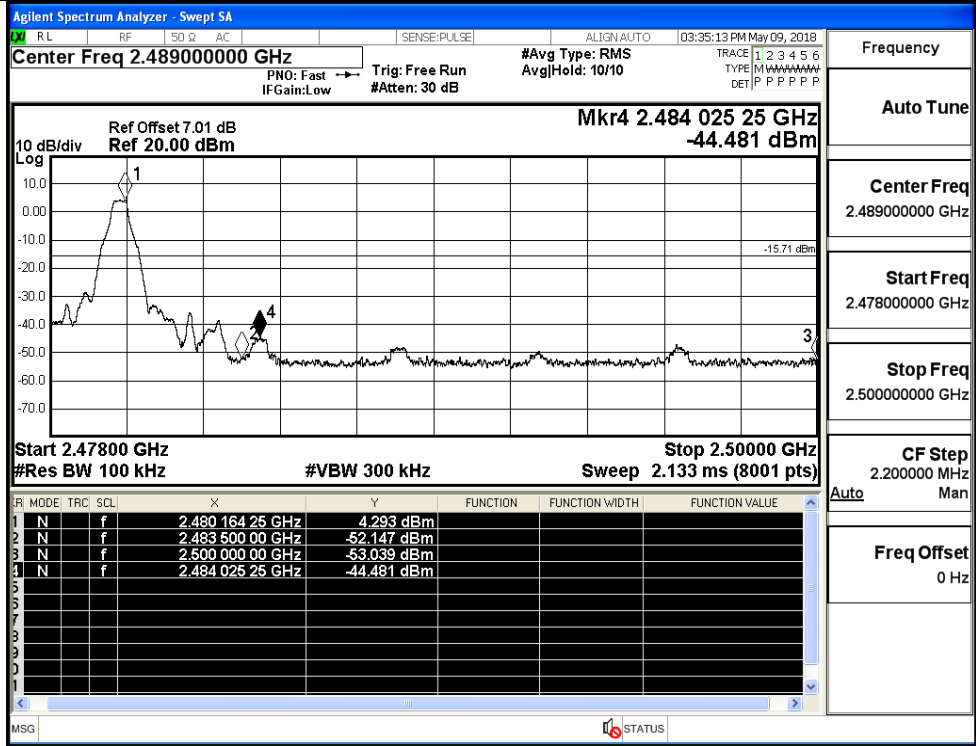
GFSK/LCH/No Hop



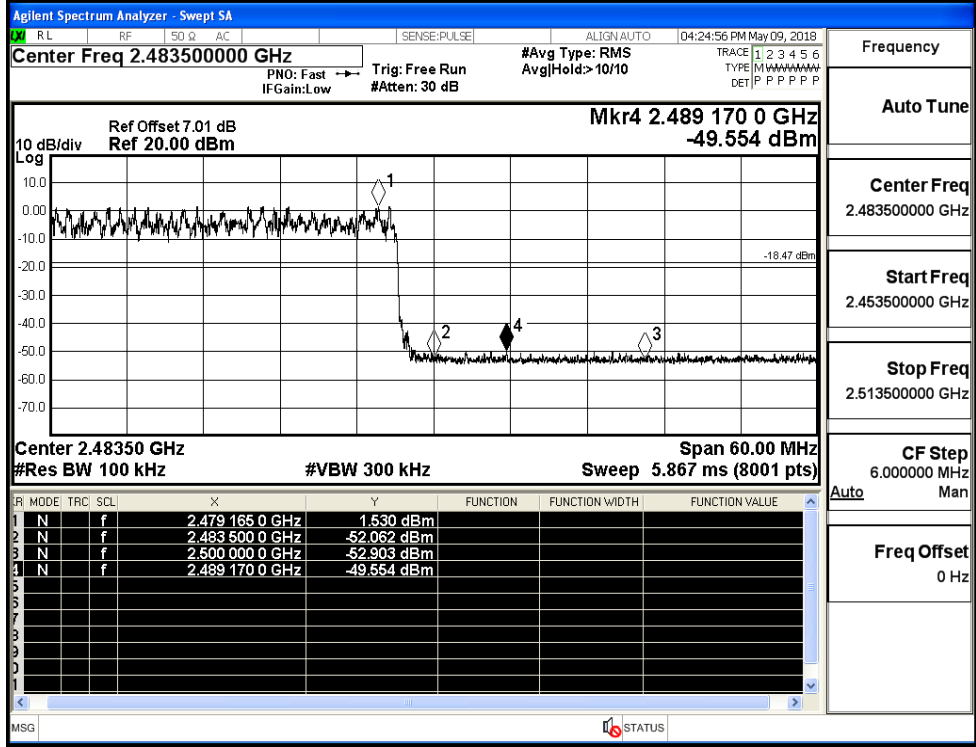
GFSK/LCH/Hop



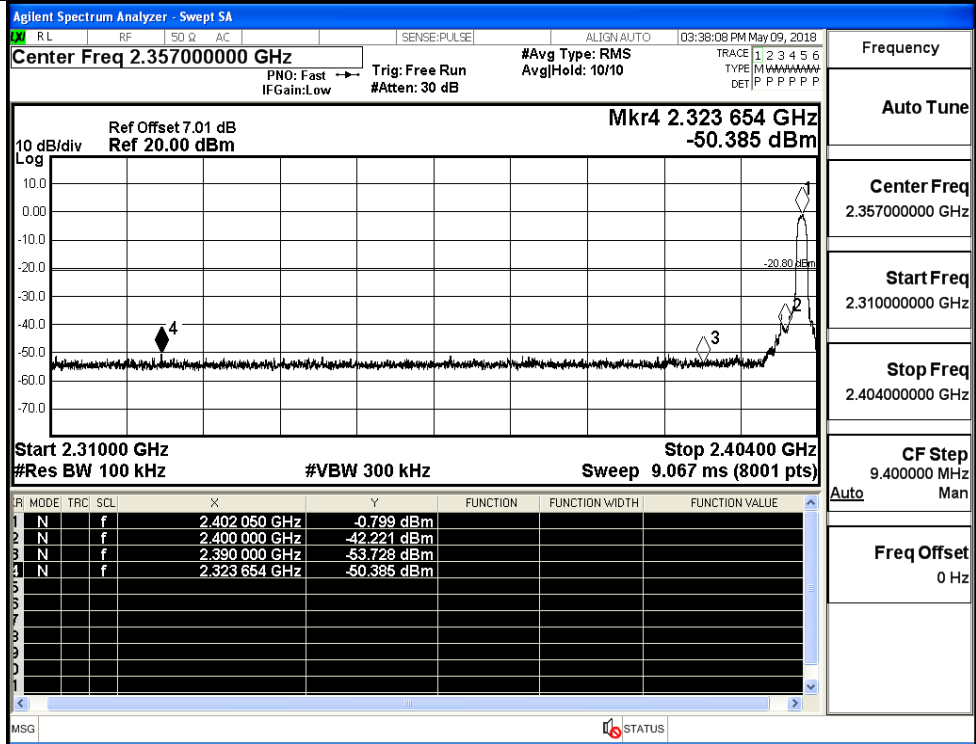
GFSK/HCH/No Hop



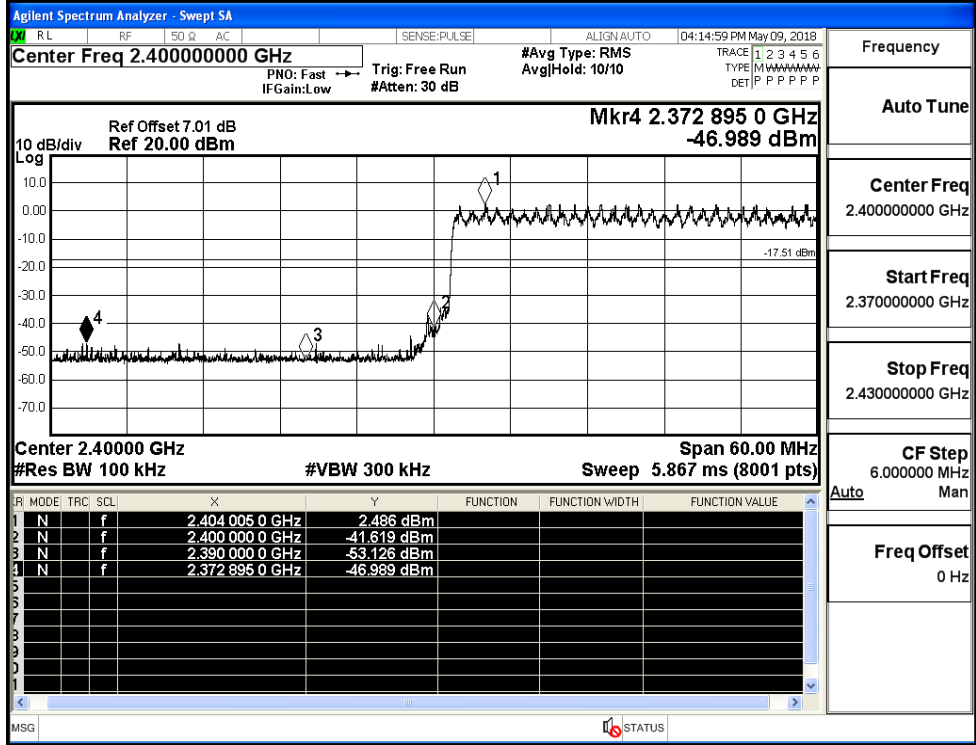
GFSK/HCH/Hop



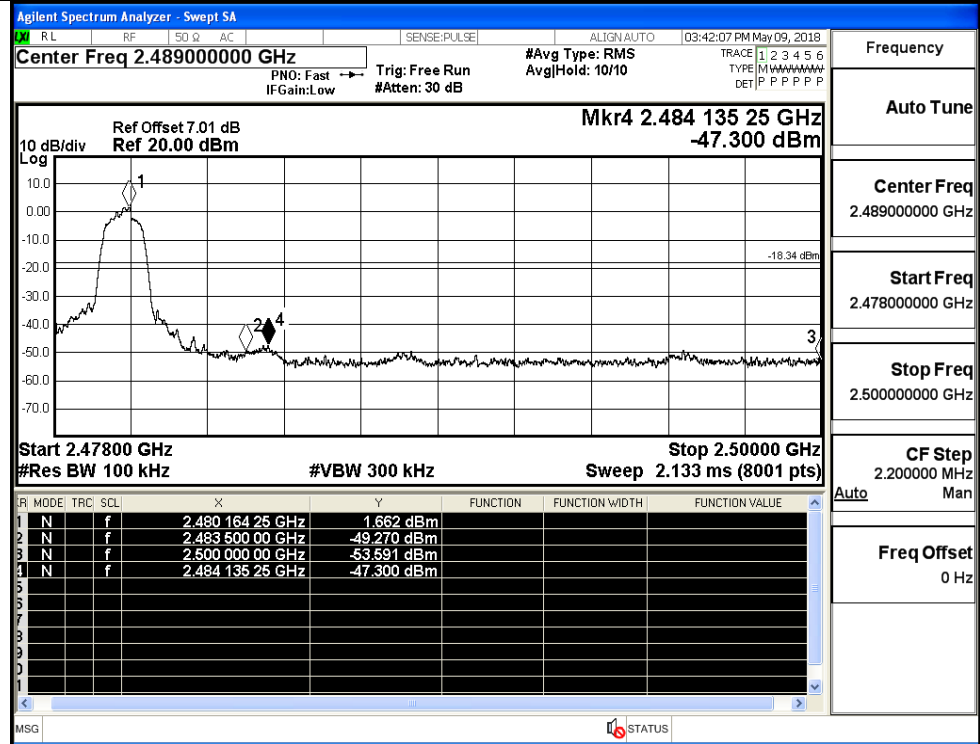
$\pi/4$ DQPSK/LCH/No Hop



$\pi/4$ DQPSK/LCH/Hop

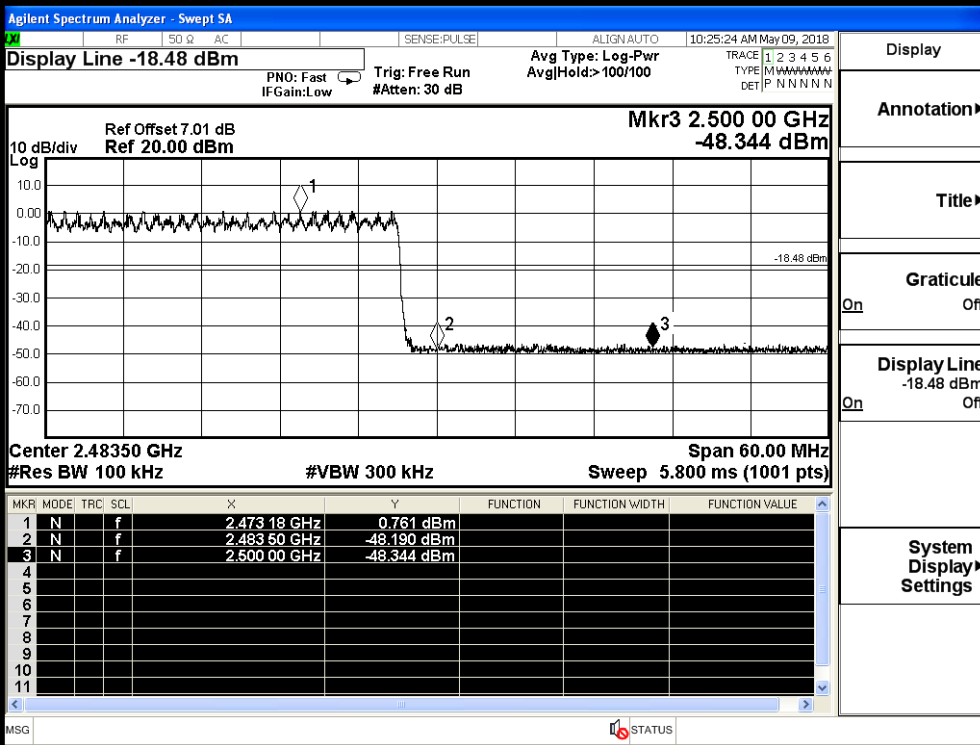


$\pi/4$ DQPSK/HCH/No Hop



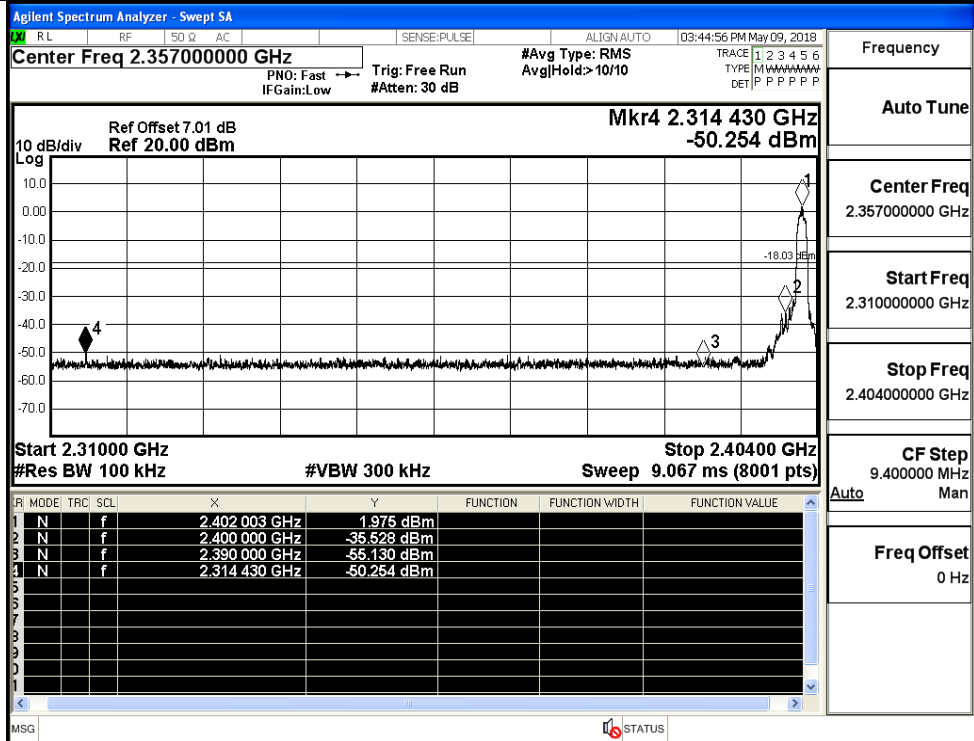
Frequency	
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/HCH/Hop



Display	
Annotation	
Title	
Graticule	On Off
Display Line	On Off
System Display	Settings

8DPSK/LCH/No Hop



Frequency

Auto Tune

Center Freq  
2.357000000 GHz

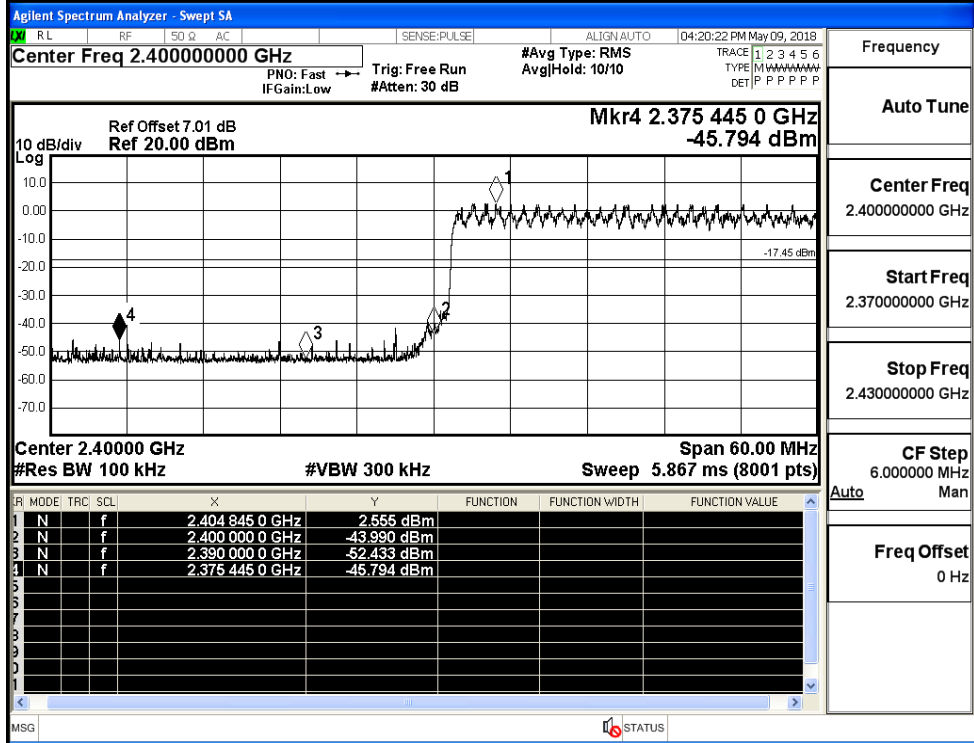
Start Freq  
2.310000000 GHz

Stop Freq  
2.404000000 GHz

CF Step  
9.400000 MHz

Freq Offset  
0 Hz

8DPSK/LCH/Hop



Frequency

Auto Tune

Center Freq  
2.400000000 GHz

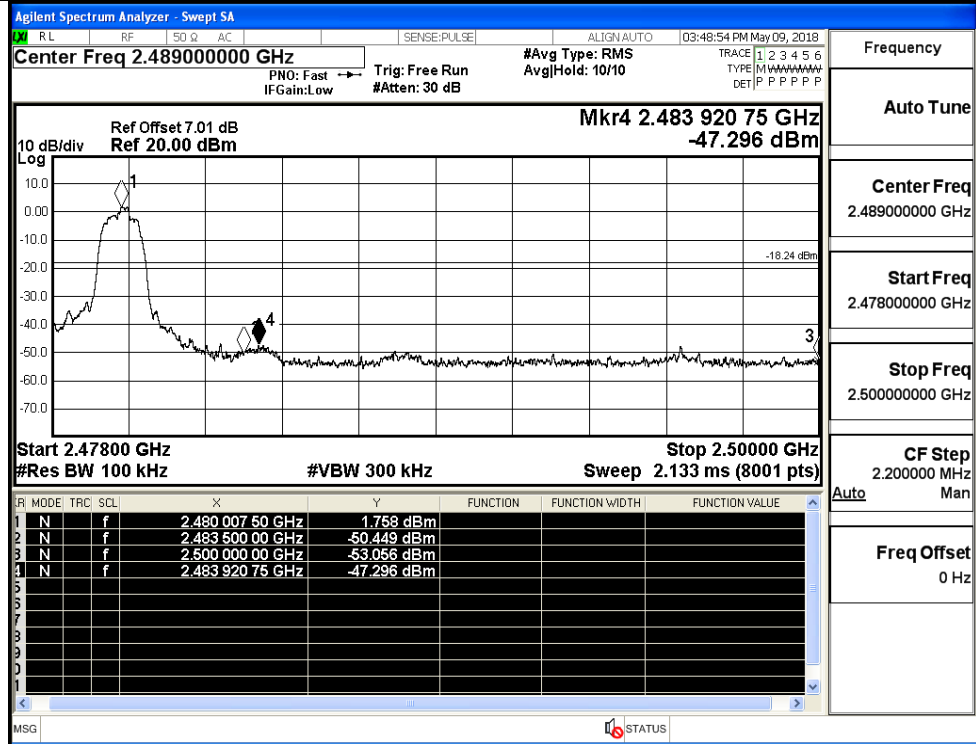
Start Freq  
2.370000000 GHz

Stop Freq  
2.430000000 GHz

CF Step  
6.000000 MHz

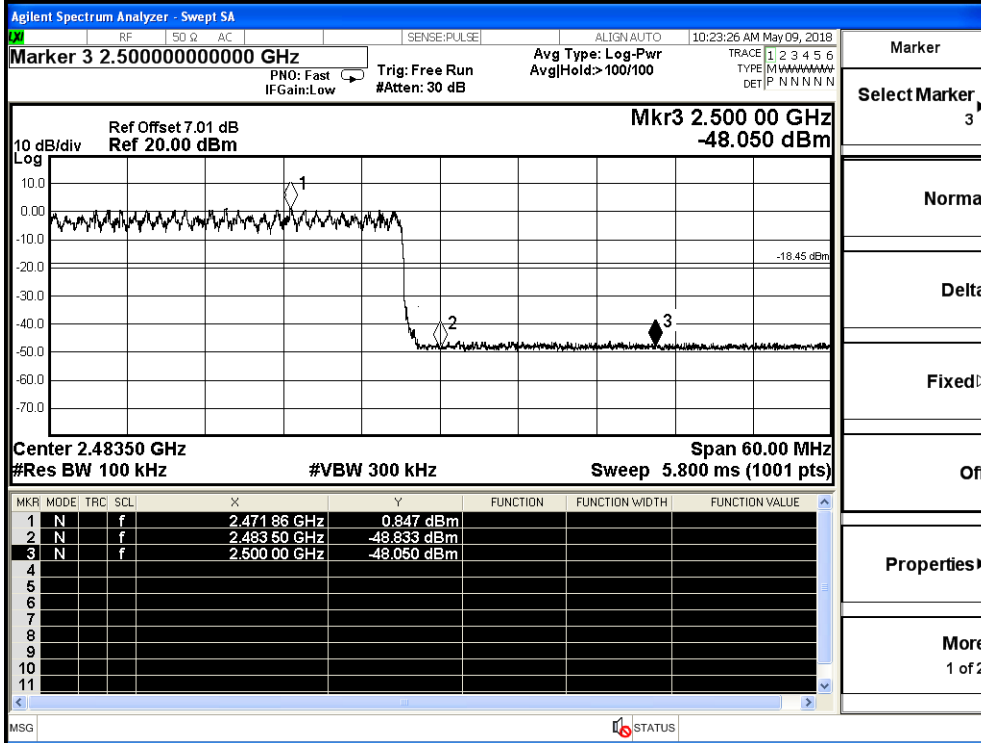
Freq Offset  
0 Hz

8DPSK/HCH/No Hop



Frequency	
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Freq Offset	0 Hz

8DPSK/HCH/Hop



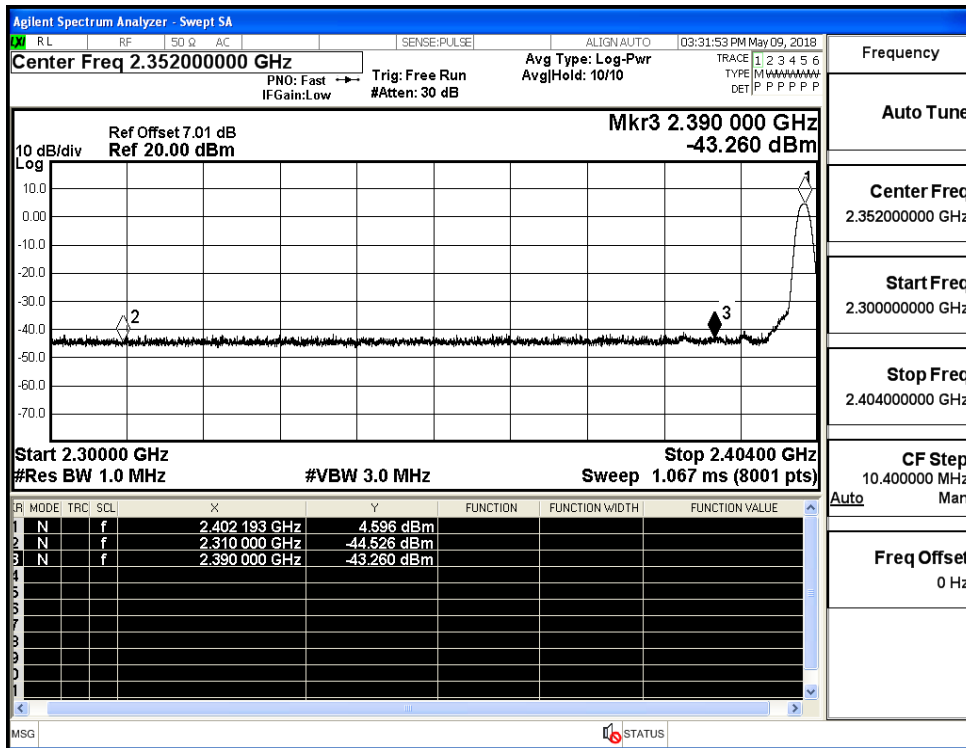
Marker	3
Select Marker	
Normal	
Delta	
Fixed	
Off	
Properties	
More	1 of 2



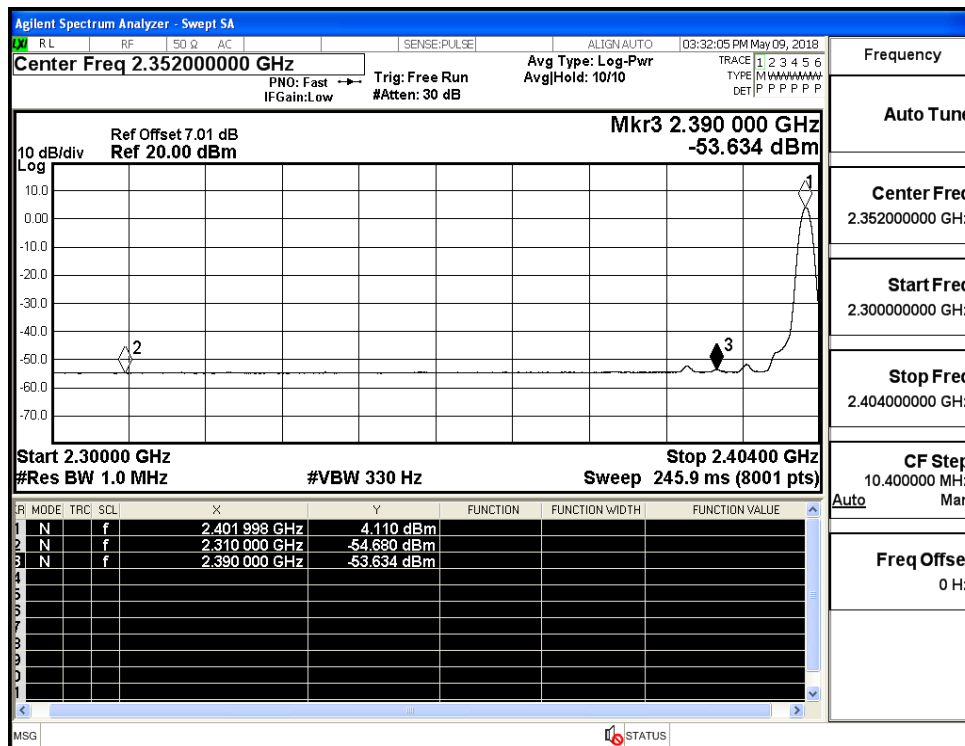
## A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.53	2.0	0	50.73	PEAK	74	PASS
	Off	2310.0	-54.68	2.0	0	40.58	AV	54	PASS
	Off	2390.0	-43.26	2.0	0	52.00	PEAK	74	PASS
	Off	2390.0	-53.63	2.0	0	41.62	AV	54	PASS
	Off	2483.5	-38.04	2.0	0	57.22	PEAK	74	PASS
	Off	2483.5	-46.57	2.0	0	48.69	AV	54	PASS
	Off	2500.0	-44.76	2.0	0	50.50	PEAK	74	PASS
	Off	2500.0	-53.91	2.0	0	41.35	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.92	2.0	0	52.34	PEAK	74	PASS
	Off	2310.0	-54.61	2.0	0	40.64	AV	54	PASS
	Off	2390.0	-44.72	2.0	0	50.54	PEAK	74	PASS
	Off	2390.0	-54.35	2.0	0	40.91	AV	54	PASS
	Off	2483.5	-40.67	2.0	0	54.59	PEAK	74	PASS
	Off	2483.5	-50.23	2.0	0	45.03	AV	54	PASS
	Off	2500.0	-44.61	2.0	0	50.65	PEAK	74	PASS
	Off	2500.0	-54.03	2.0	0	41.23	AV	54	PASS
8DPSK	Off	2310.0	-43.35	2.0	0	51.91	PEAK	74	PASS
	Off	2310.0	-54.79	2.0	0	40.47	AV	54	PASS
	Off	2390.0	-44.05	2.0	0	51.21	PEAK	74	PASS
	Off	2390.0	-54.32	2.0	0	40.94	AV	54	PASS
	Off	2483.5	-39.78	2.0	0	55.48	PEAK	74	PASS
	Off	2483.5	-50.22	2.0	0	45.04	AV	54	PASS
	Off	2500.0	-43.97	2.0	0	51.29	PEAK	74	PASS
	Off	2500.0	-54.02	2.0	0	41.24	AV	54	PASS

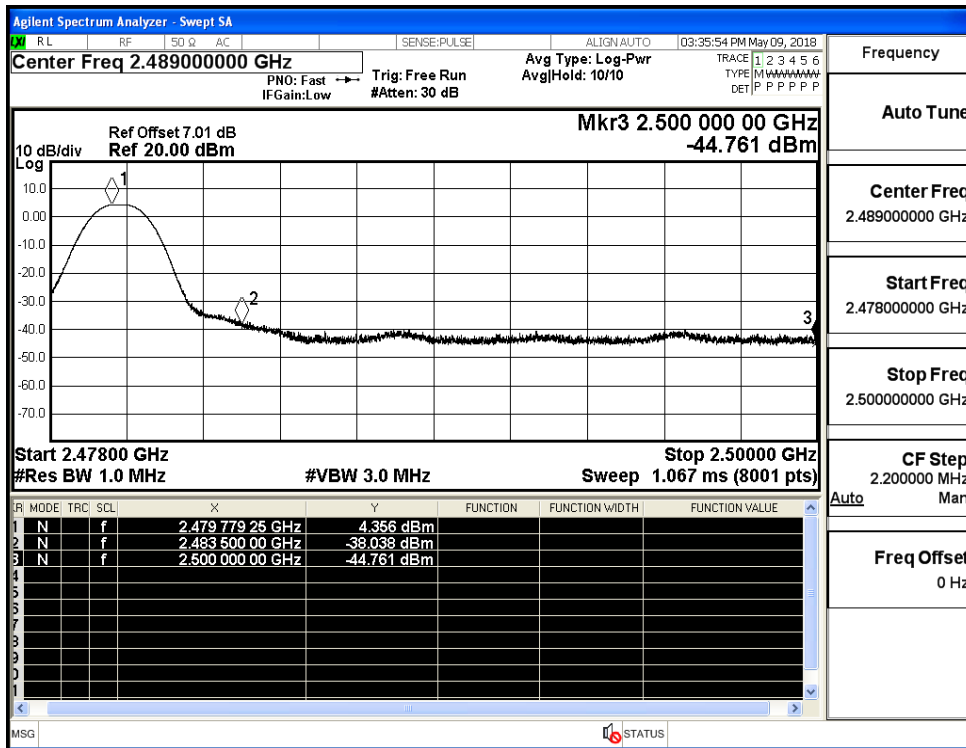
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



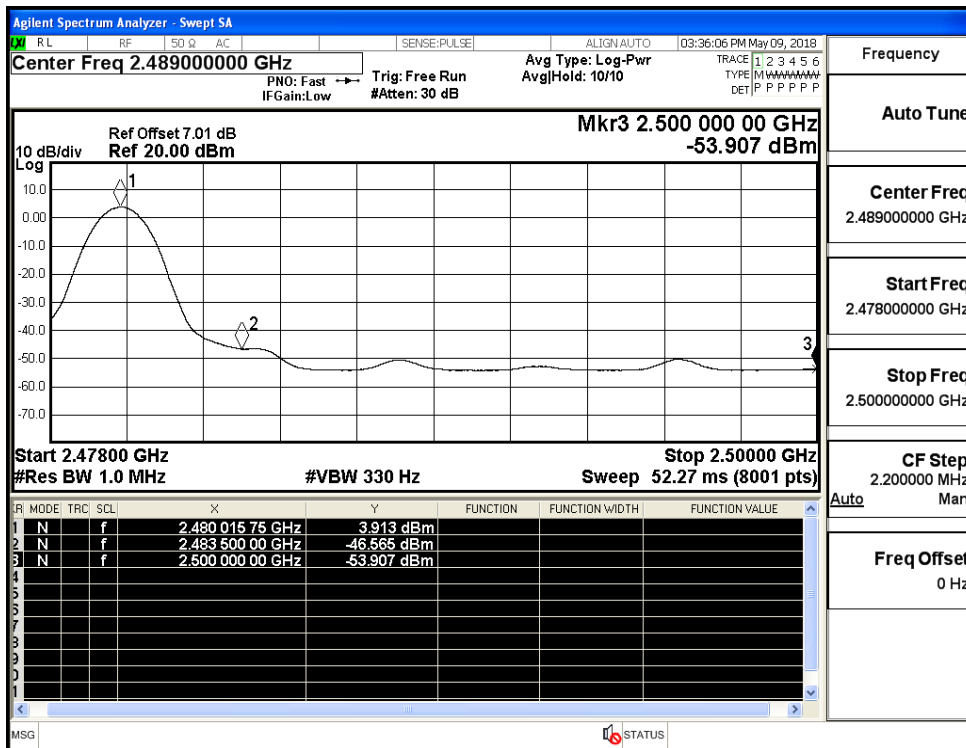
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



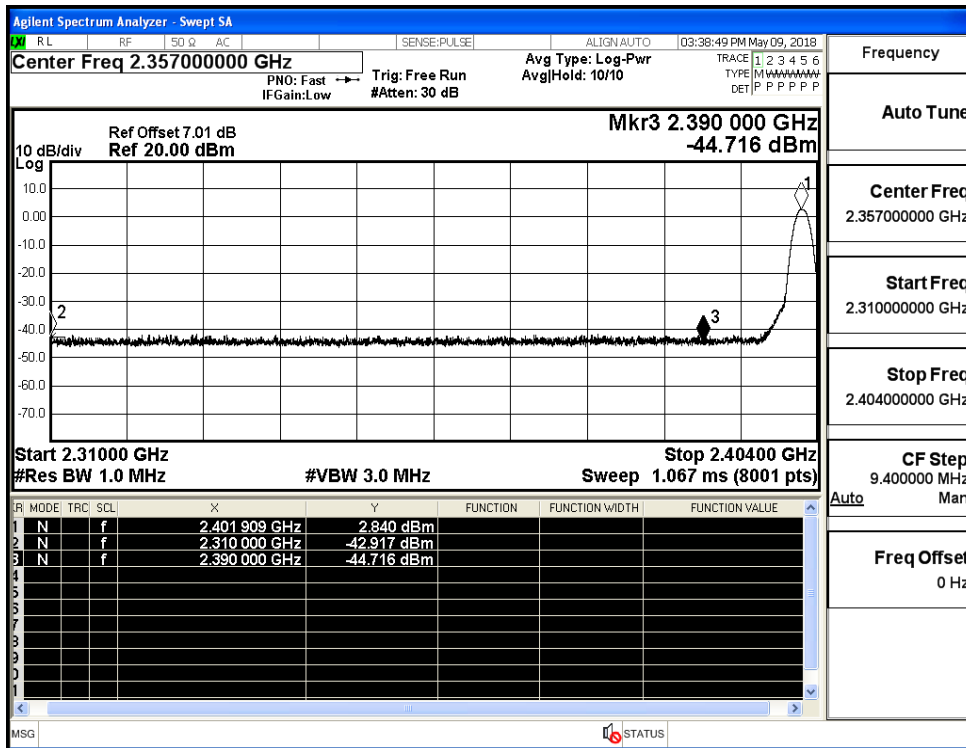
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



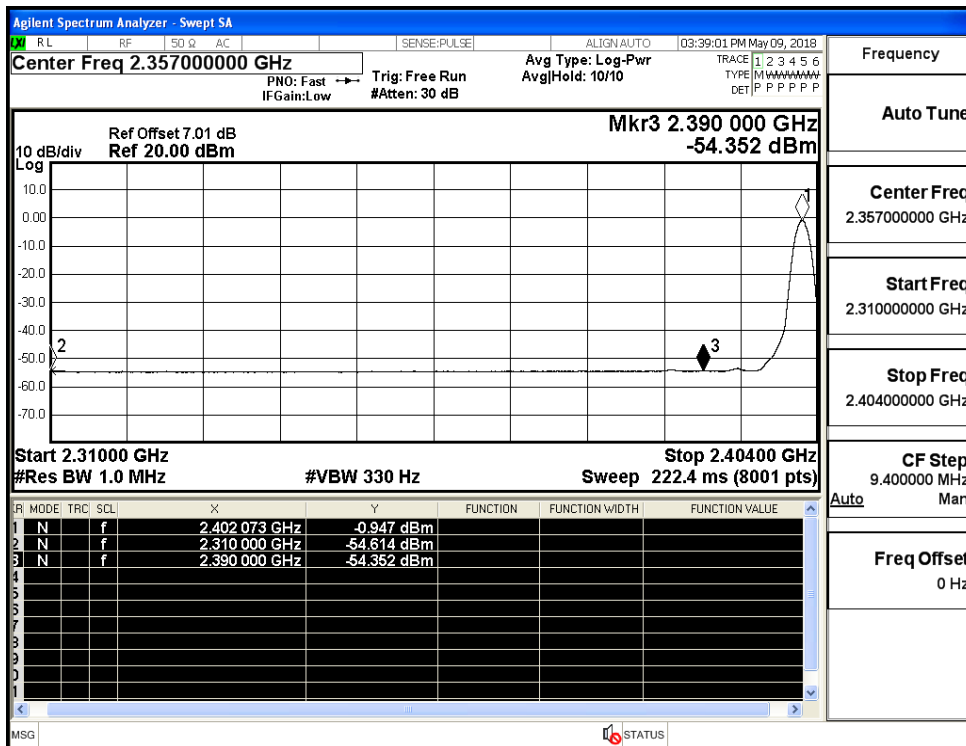
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



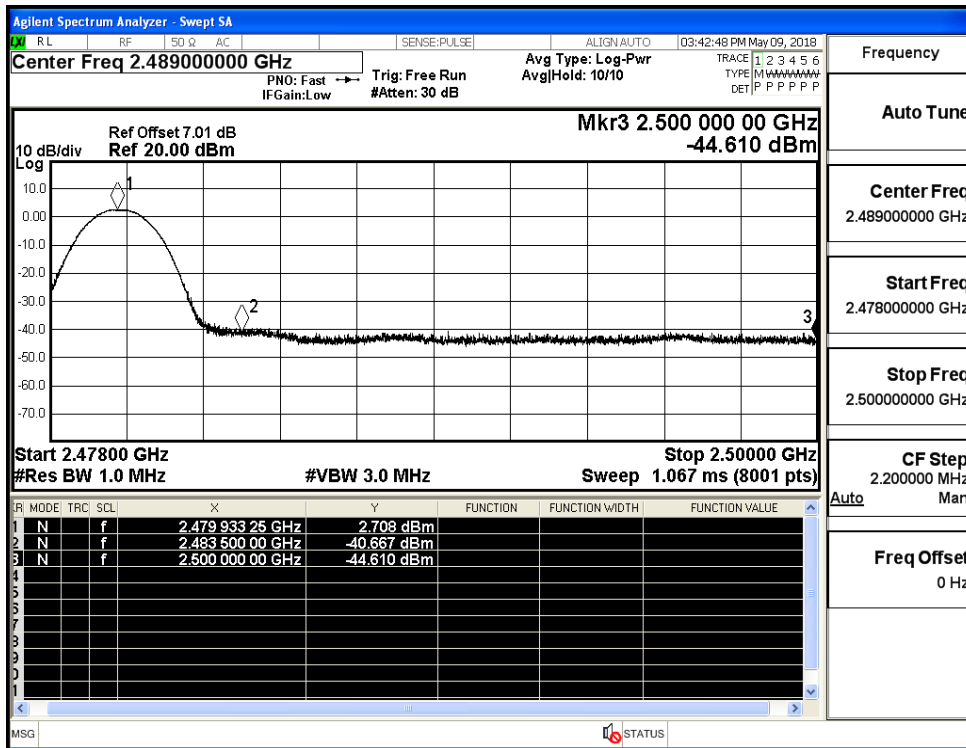
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)



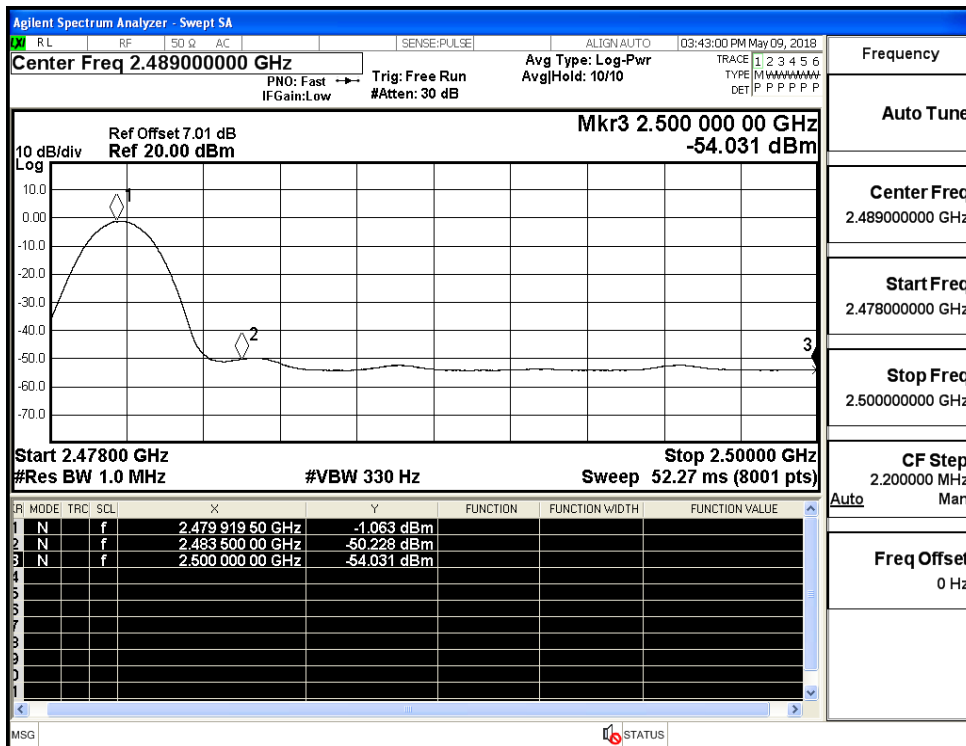
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)



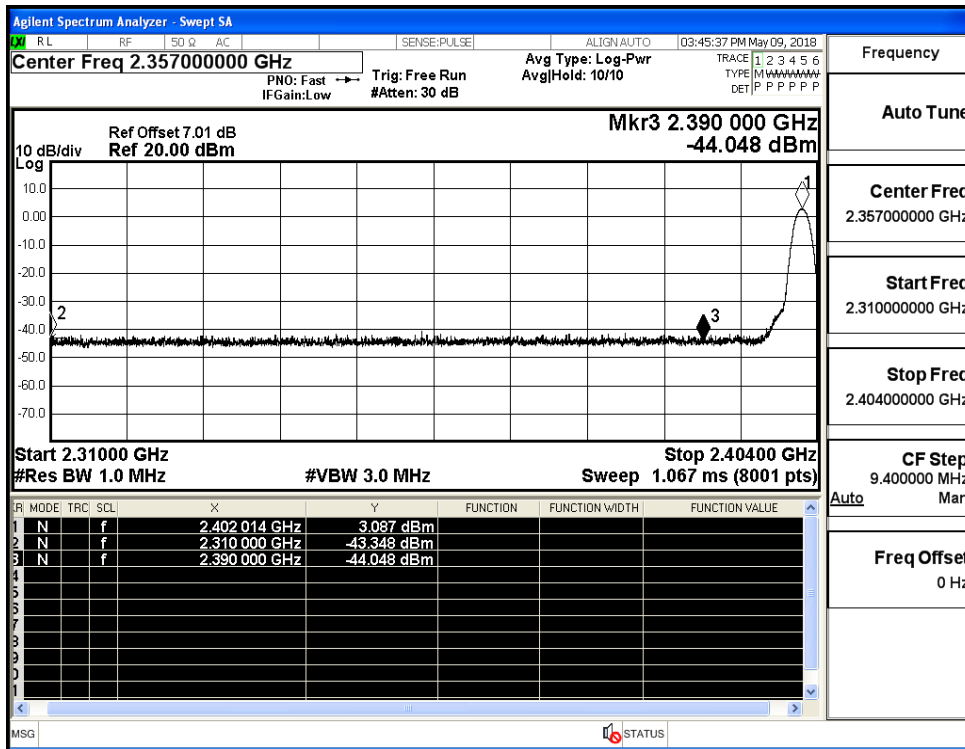
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



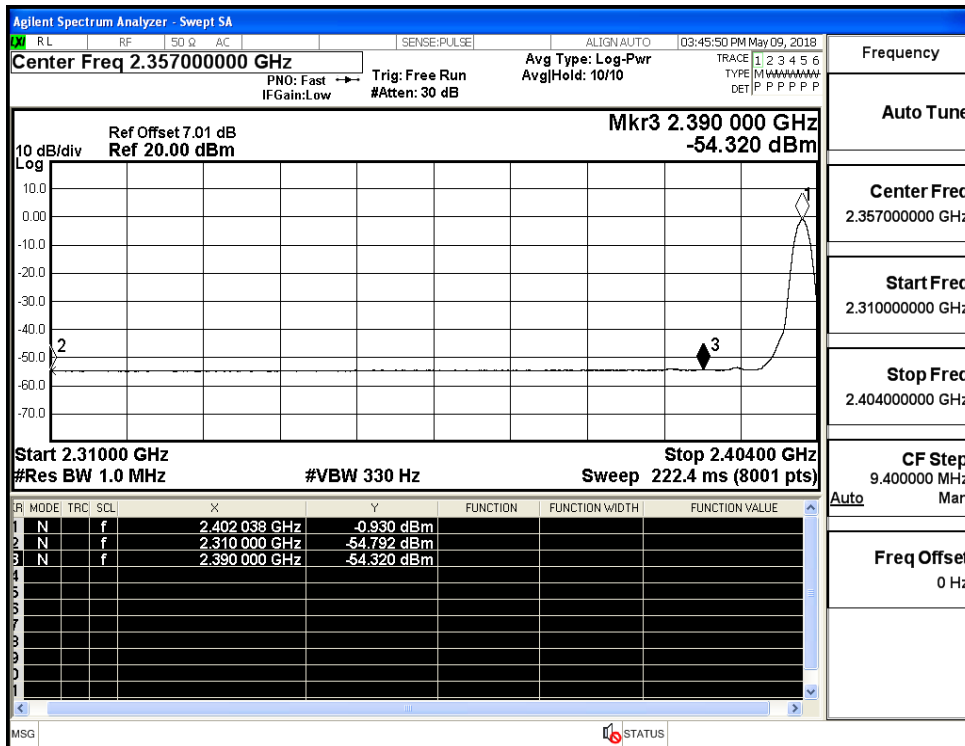
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



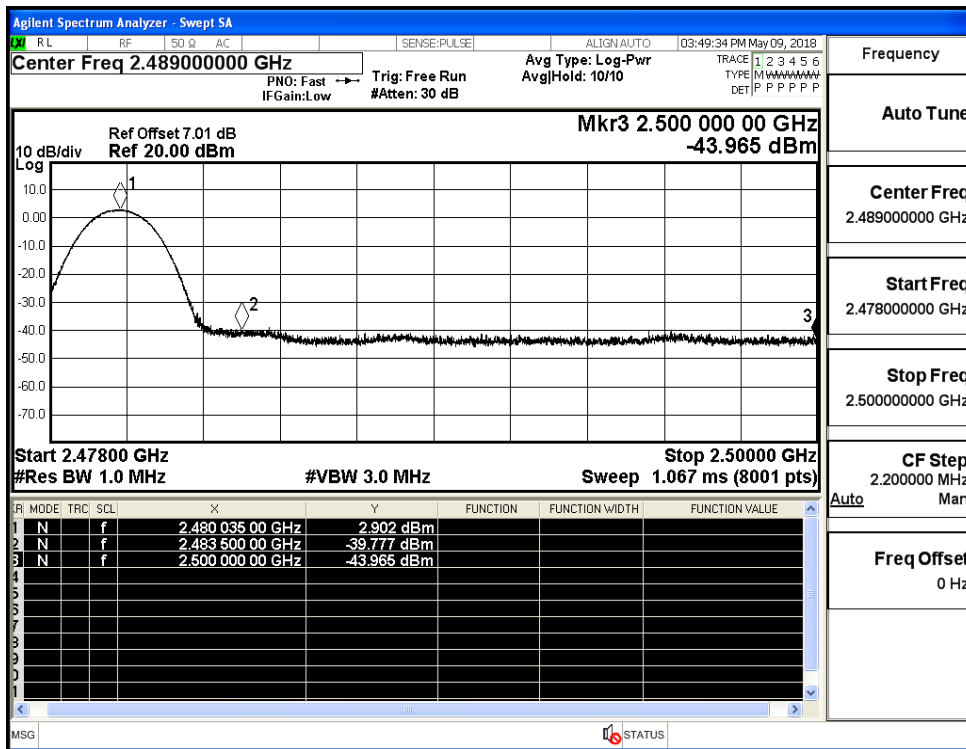
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



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)

