

## Appendix A

### RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: 3G/4G Smart Phone

Trade Mark: DOOGEE

Test Model: S59Pro

#### Environmental Conditions

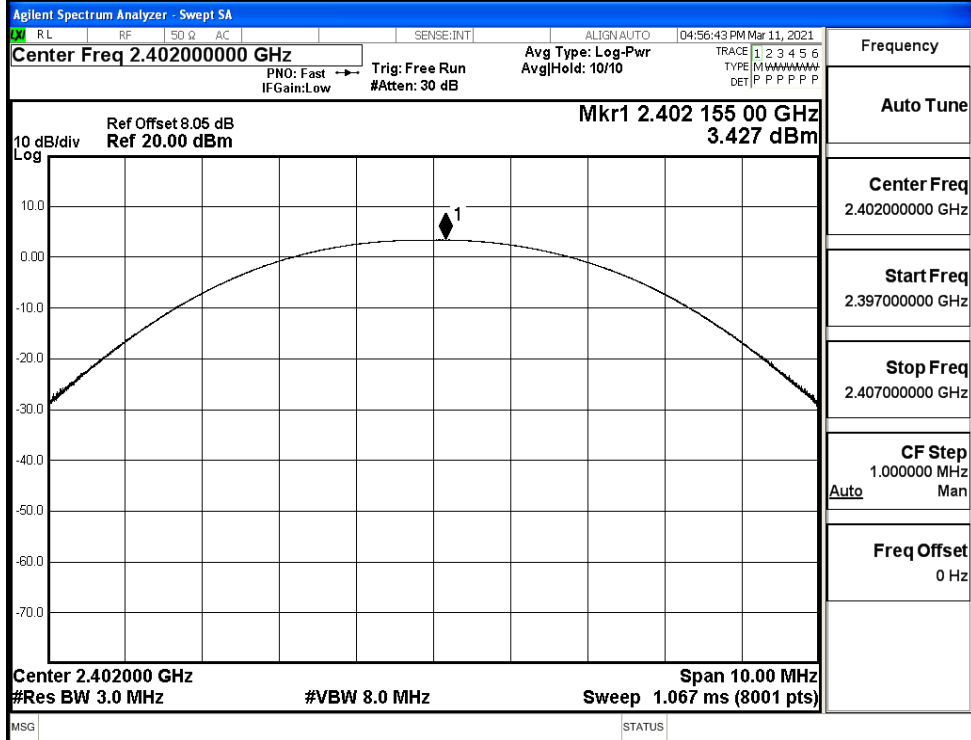
Temperature:	22.9° C
Relative Humidity:	53.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Li Huan

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

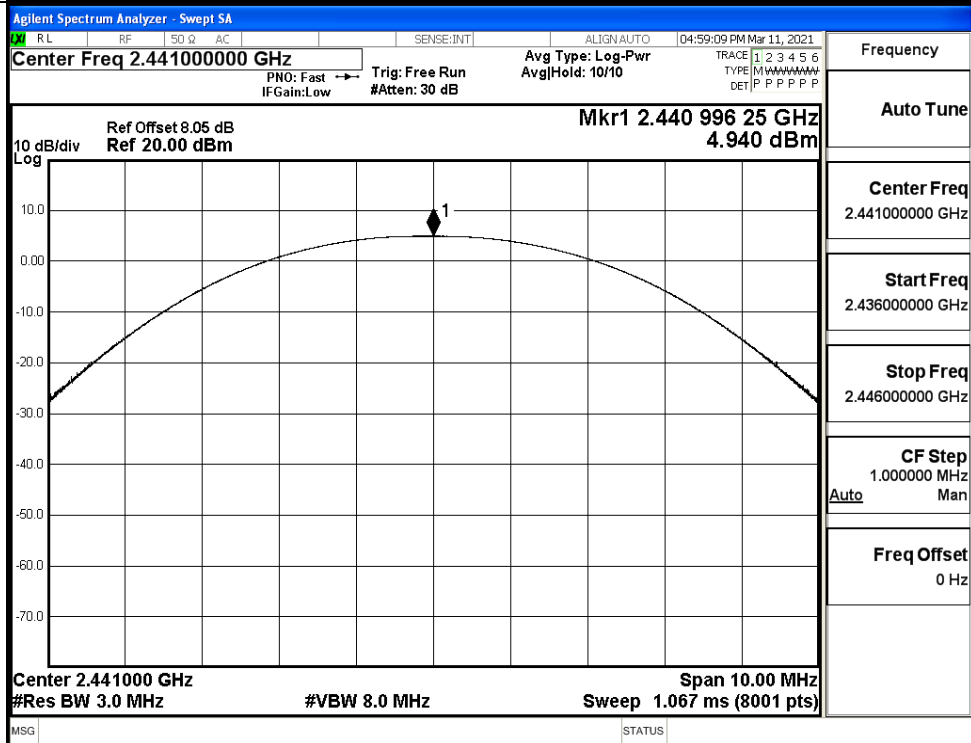
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.427	21	PASS
	MCH	4.940	21	PASS
	HCH	3.359	21	PASS
$\pi/4$ DQPSK	LCH	2.601	21	PASS
	MCH	4.127	21	PASS
	HCH	2.589	21	PASS
8DPSK	LCH	2.679	21	PASS
	MCH	4.277	21	PASS
	HCH	2.769	21	PASS

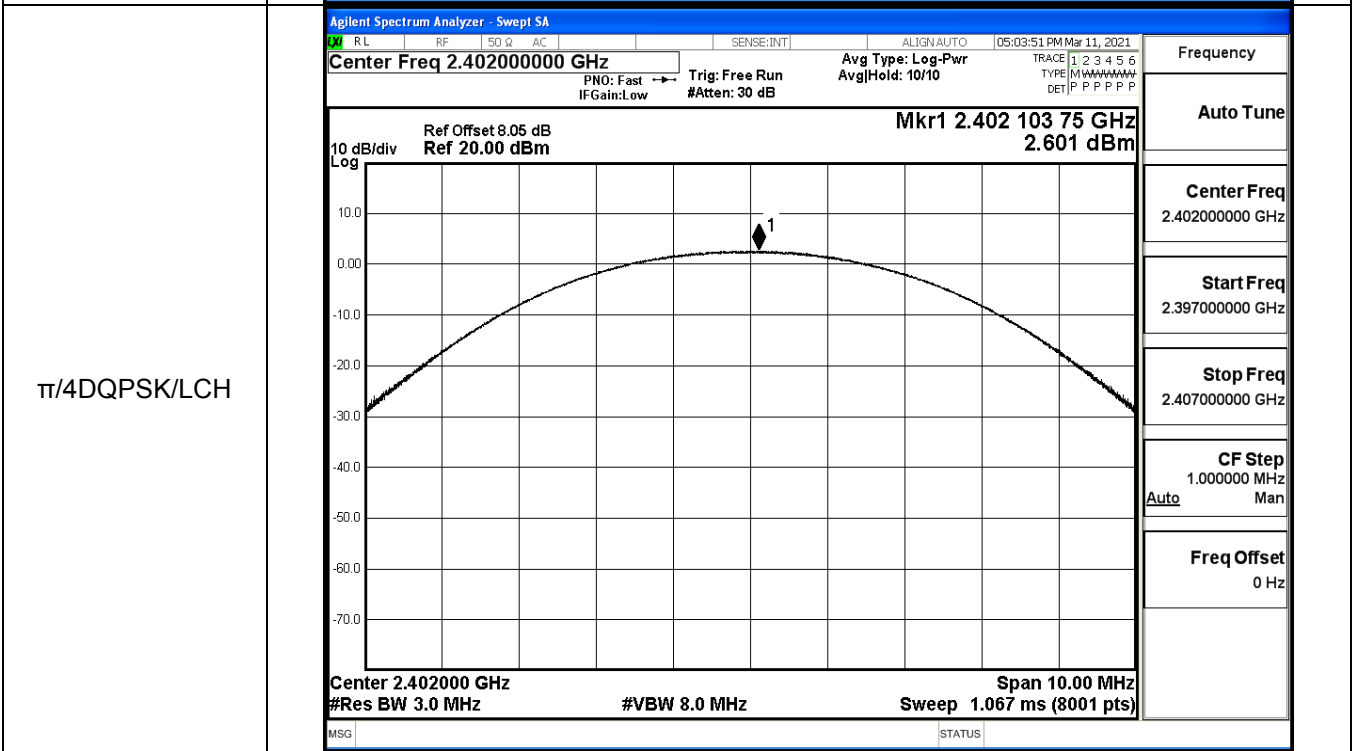
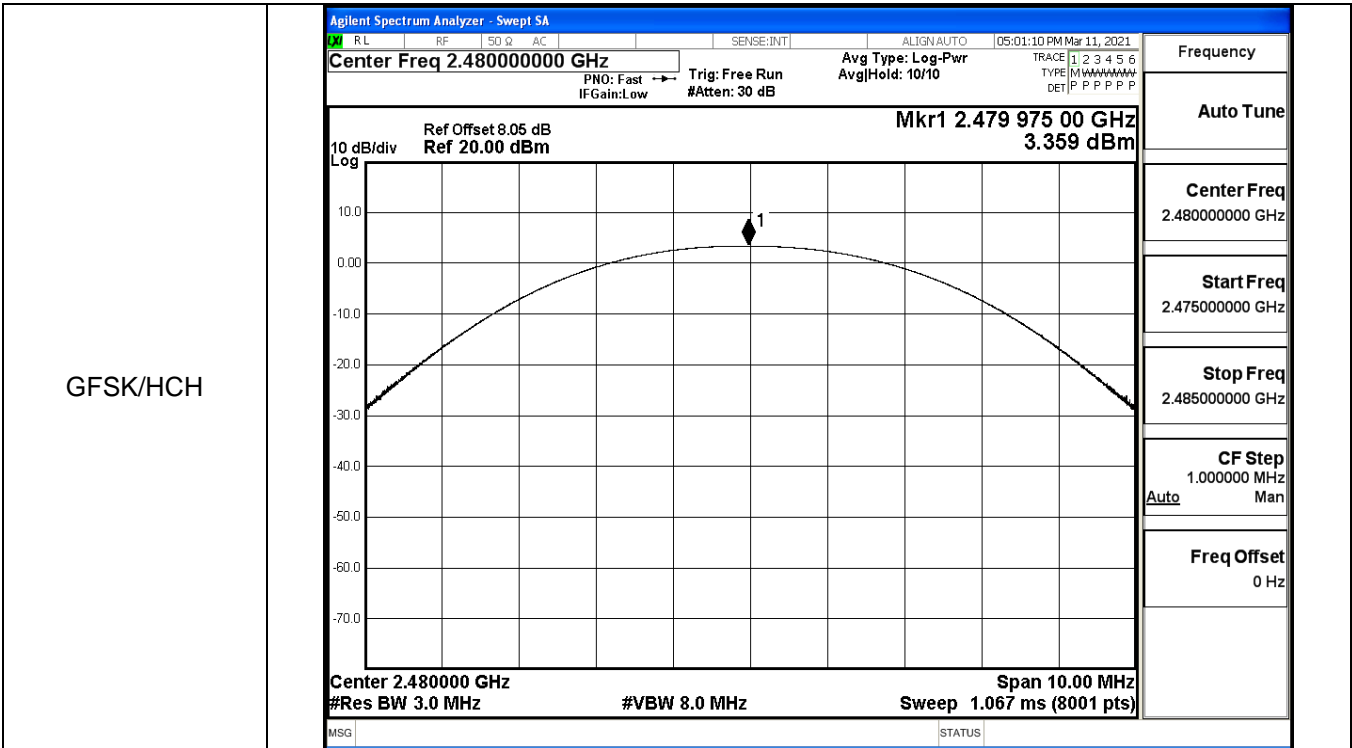
Test Graphs

GFSK/LCH

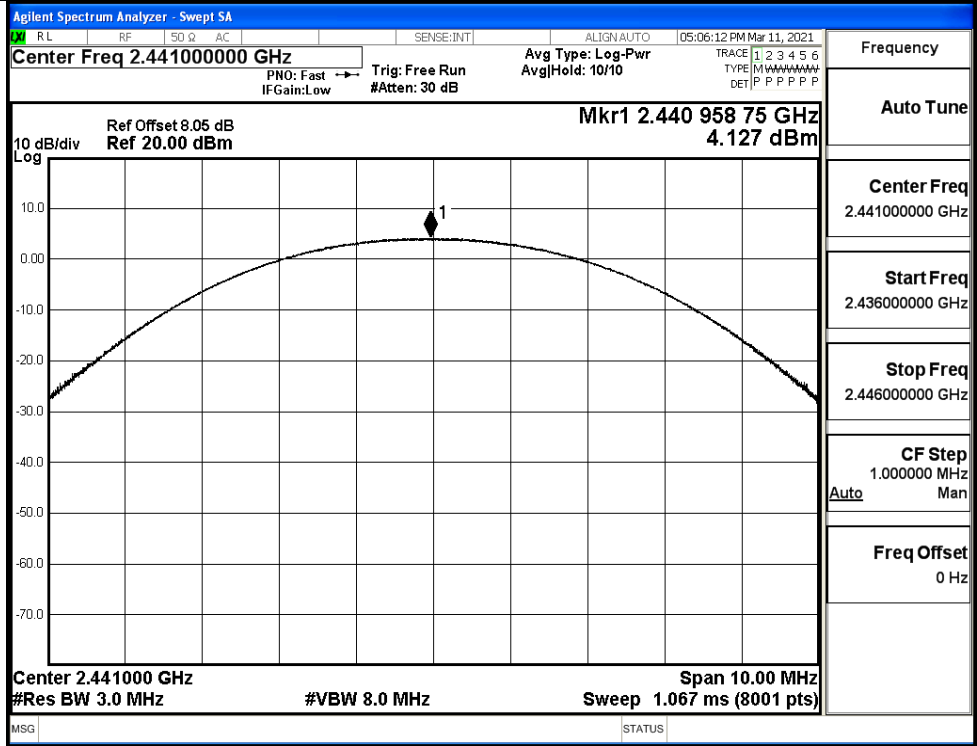


GFSK/MCH

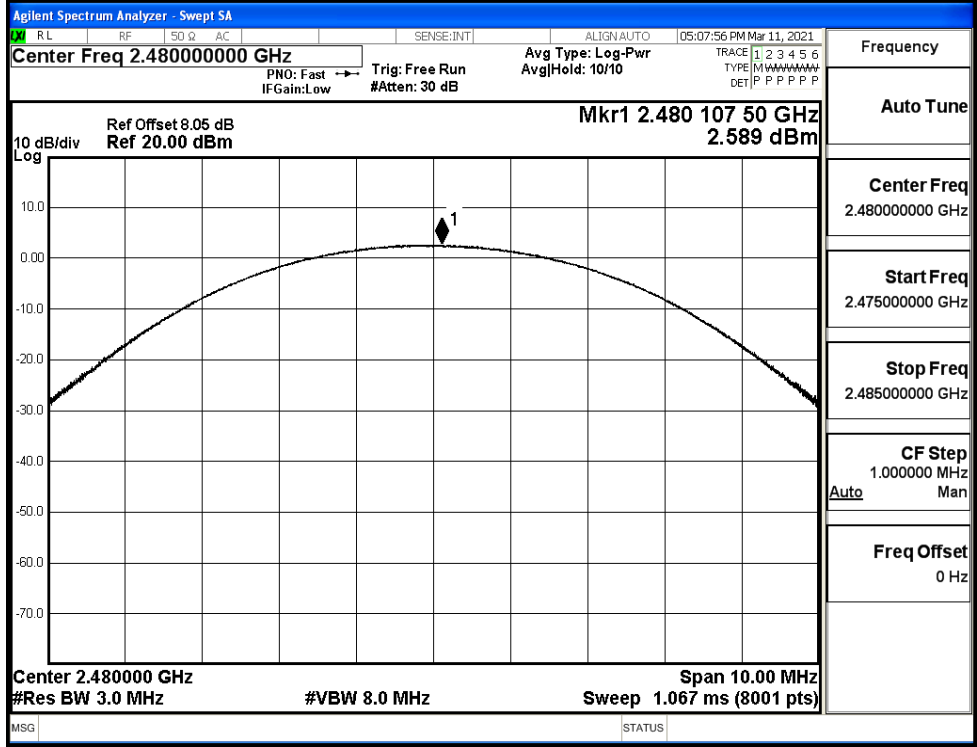


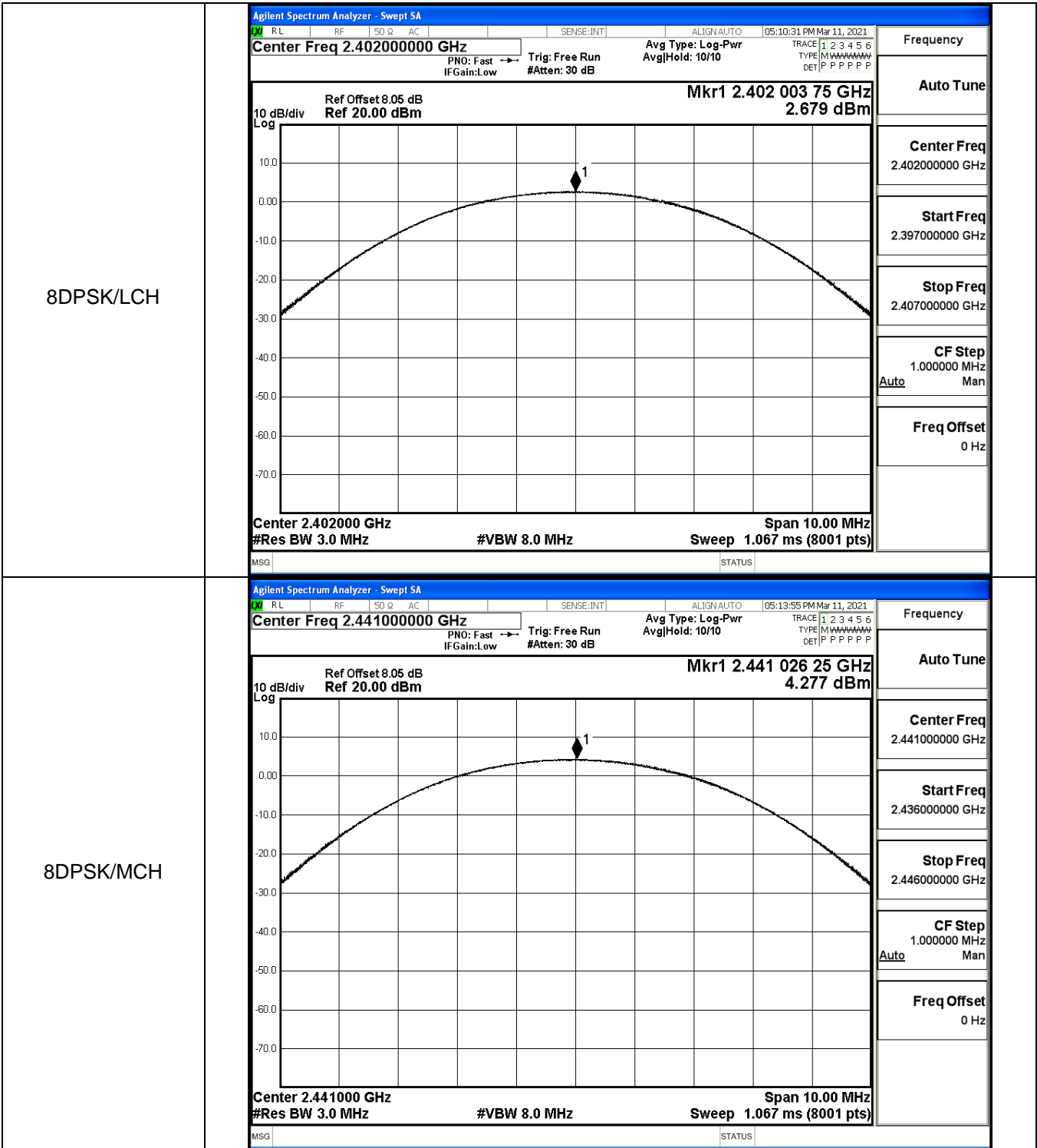


$\pi/4$ DQPSK/MCH

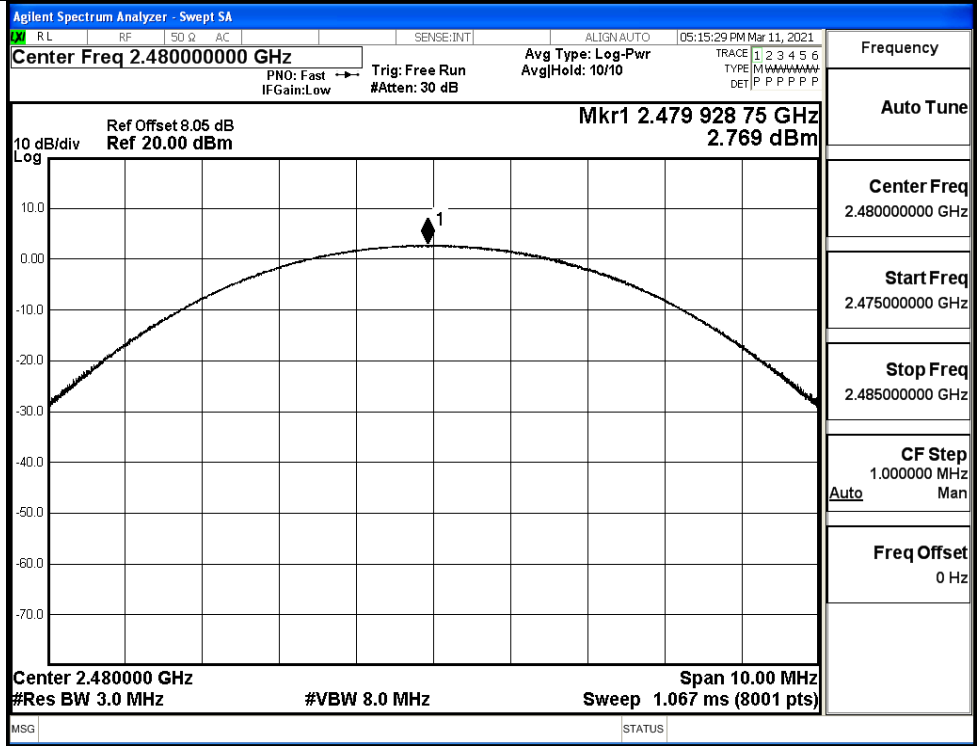


$\pi/4$ DQPSK/HCH



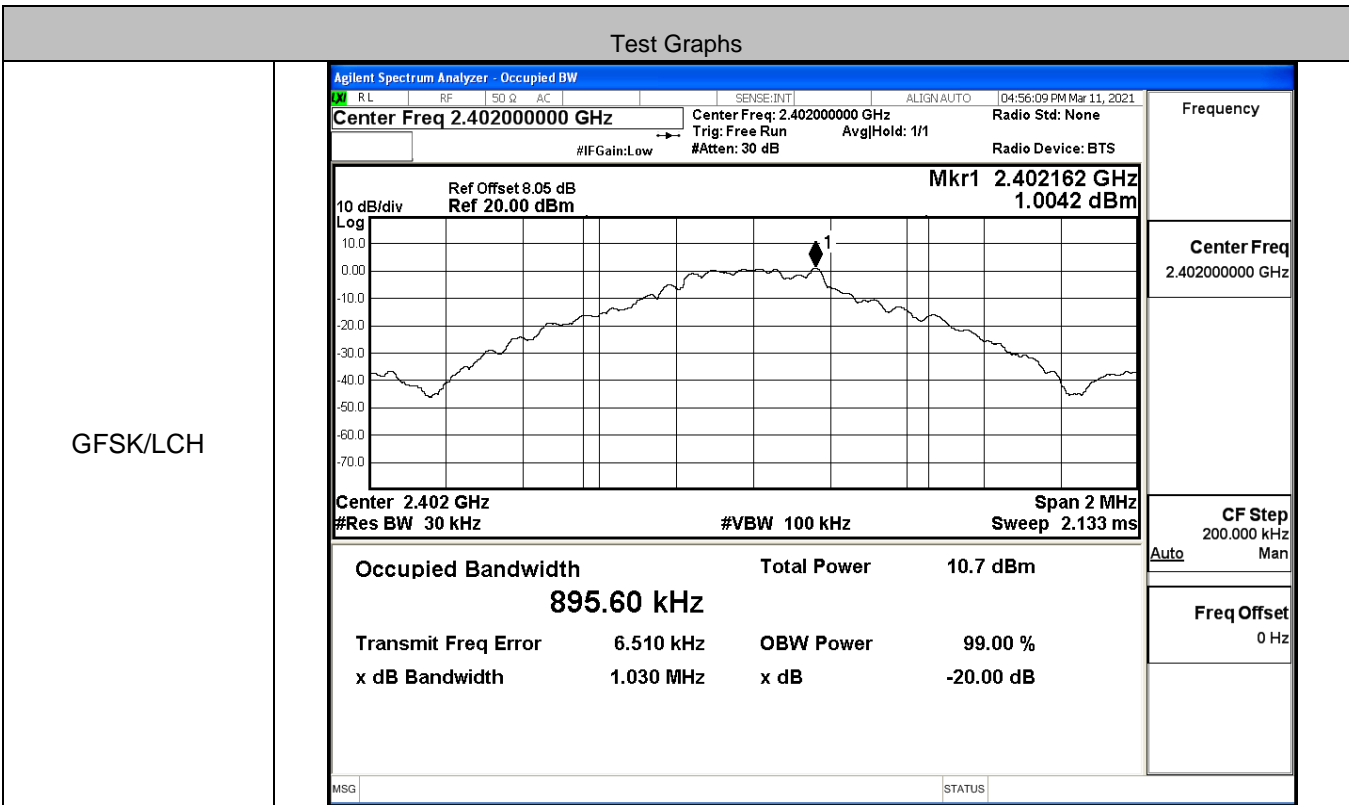


8DPSK/HCH

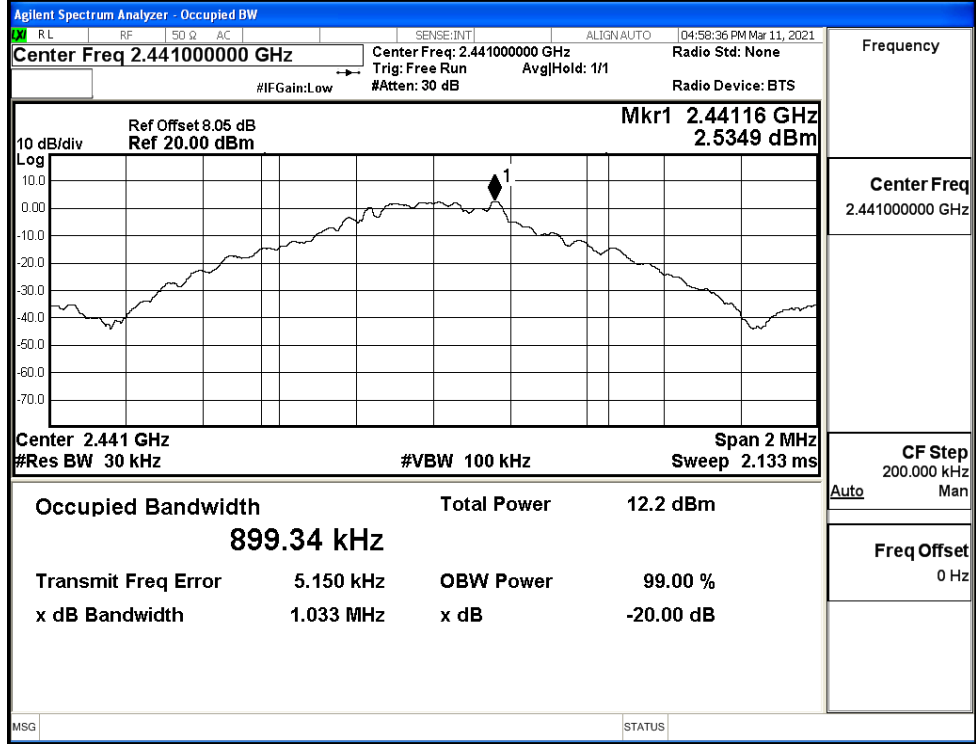


**A.2 20dB Bandwidth**

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.030	Not Specified	PASS
	MCH	1.033	Not Specified	PASS
	HCH	1.029	Not Specified	PASS
π/4DQPSK	LCH	1.288	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.290	Not Specified	PASS
8DPSK	LCH	1.292	Not Specified	PASS
	MCH	1.291	Not Specified	PASS
	HCH	1.293	Not Specified	PASS

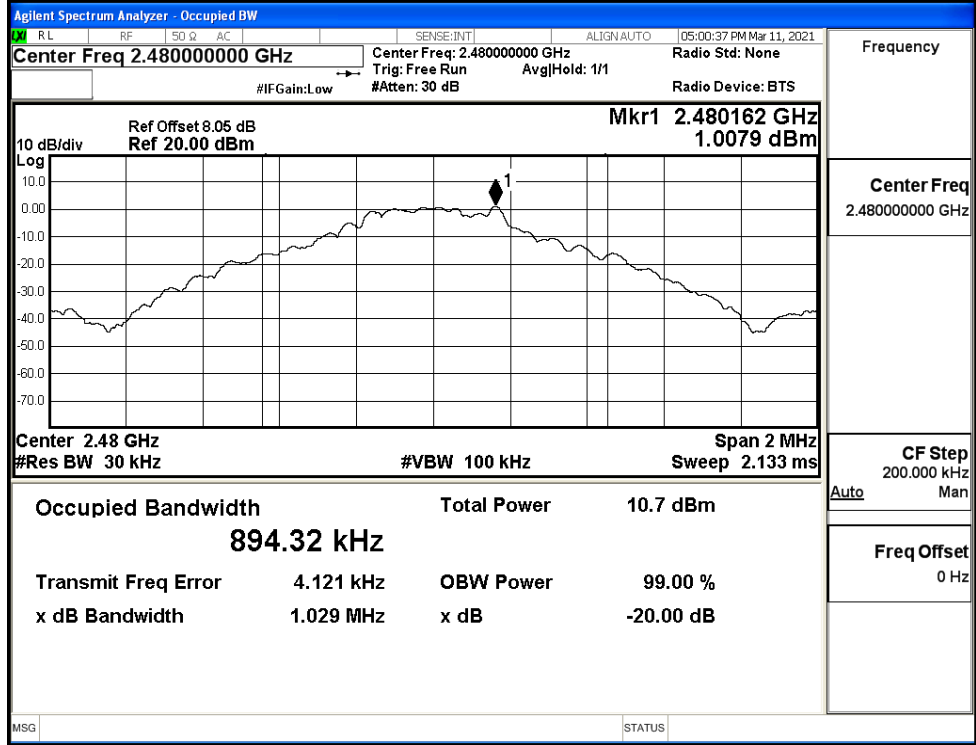


GFSK/MCH



Frequency	2.44100000 GHz
Center Freq	2.44100000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

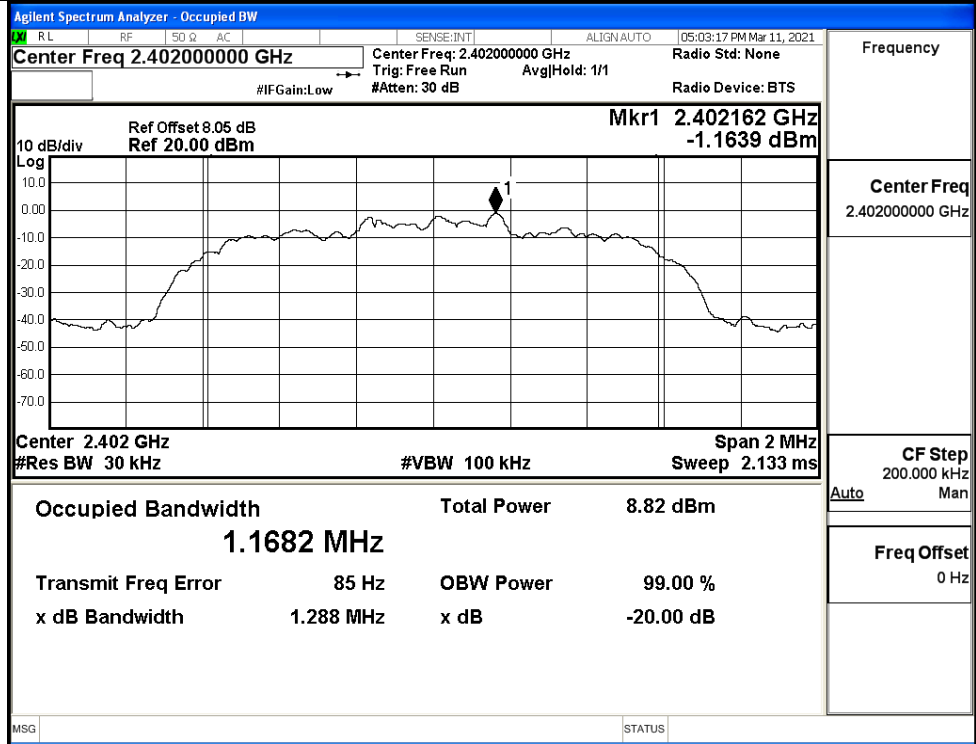
GFSK/HCH



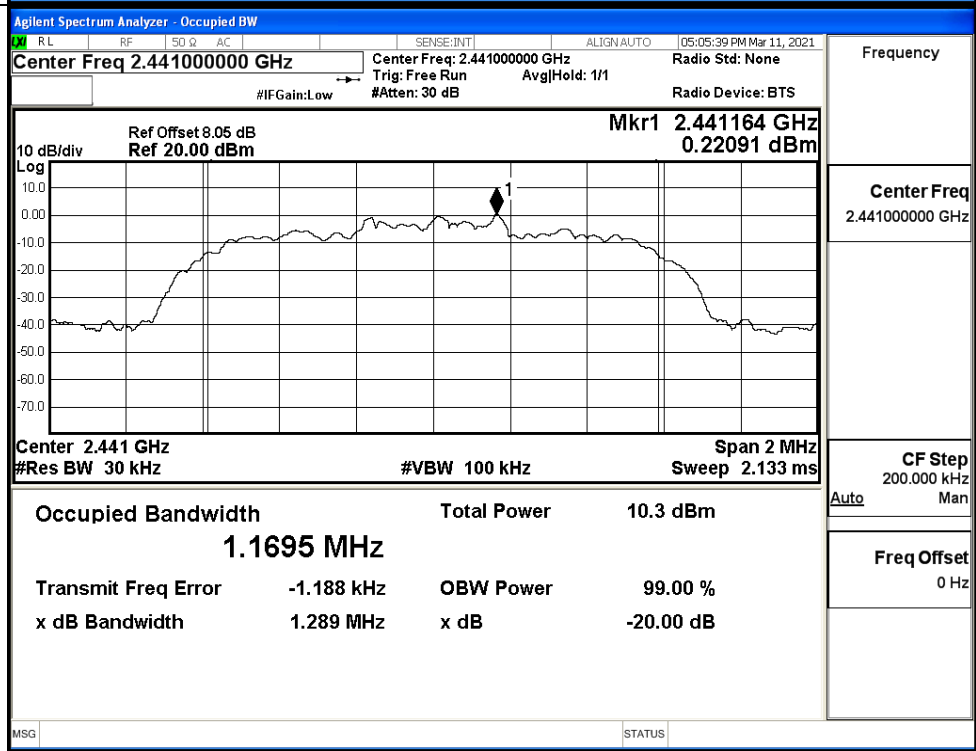
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz



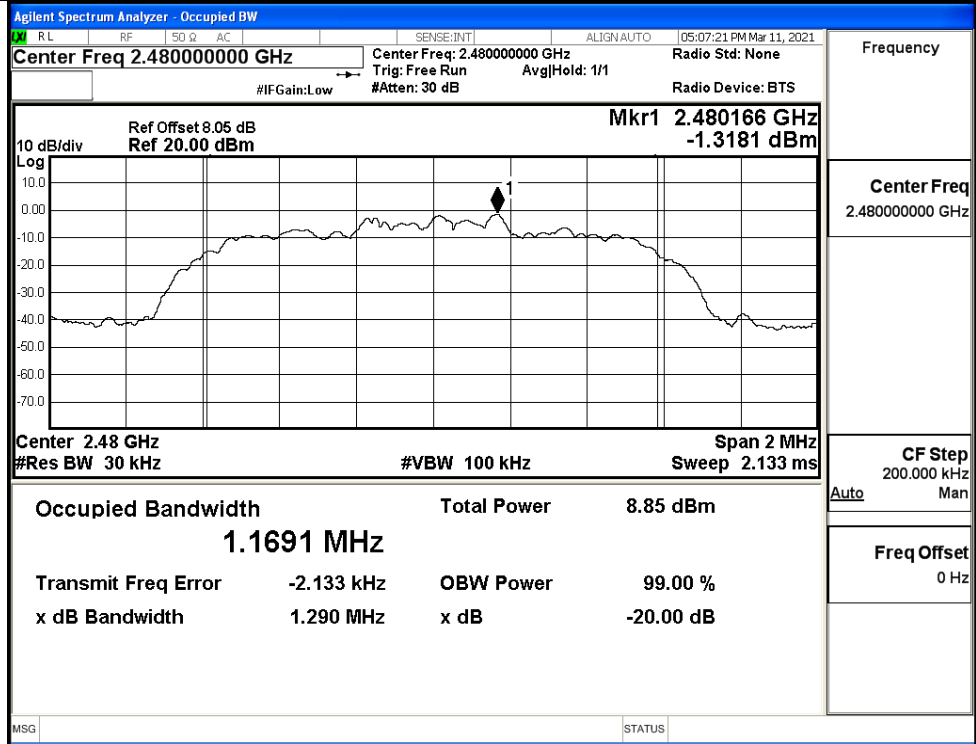
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

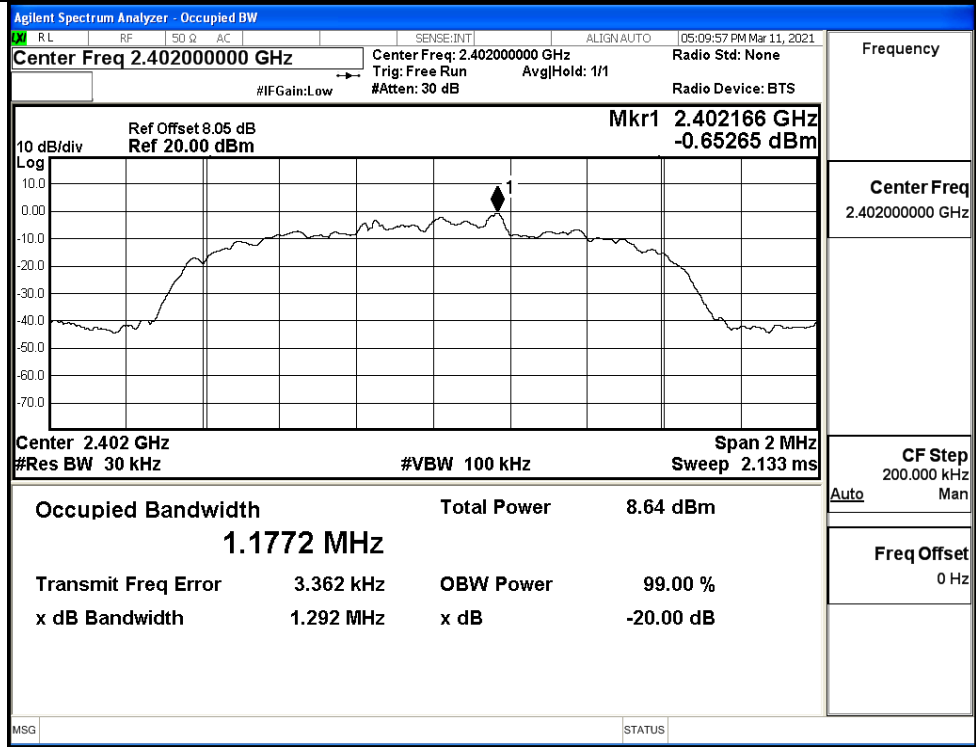


$\pi/4$ DQPSK/HCH



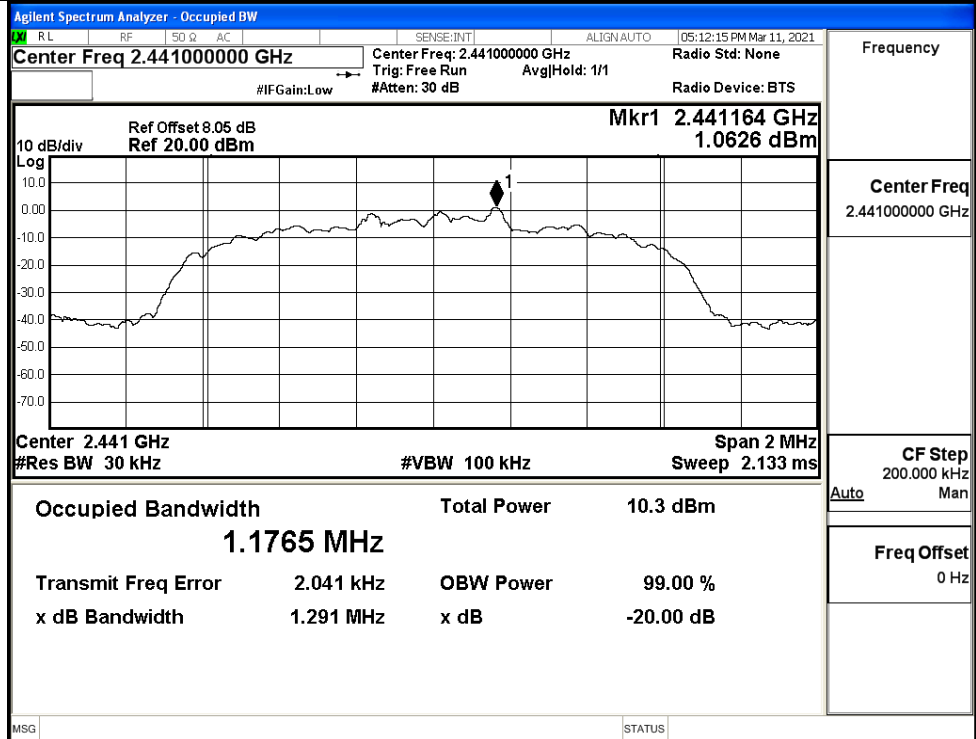
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH

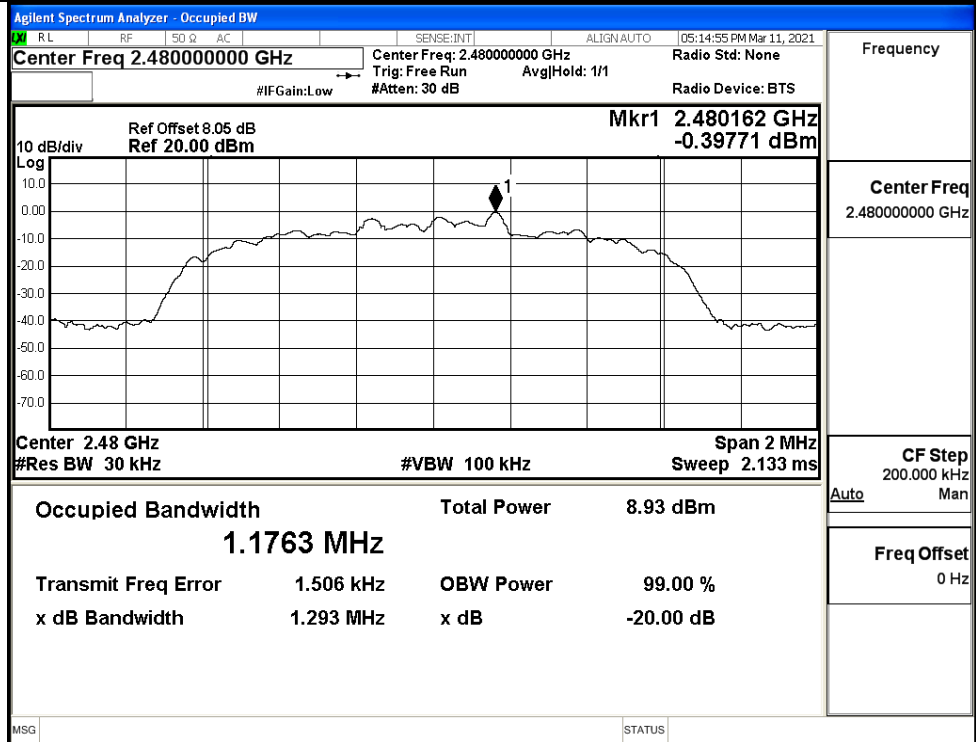


Frequency	2.40200000 GHz
Center Freq	2.40200000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/MCH

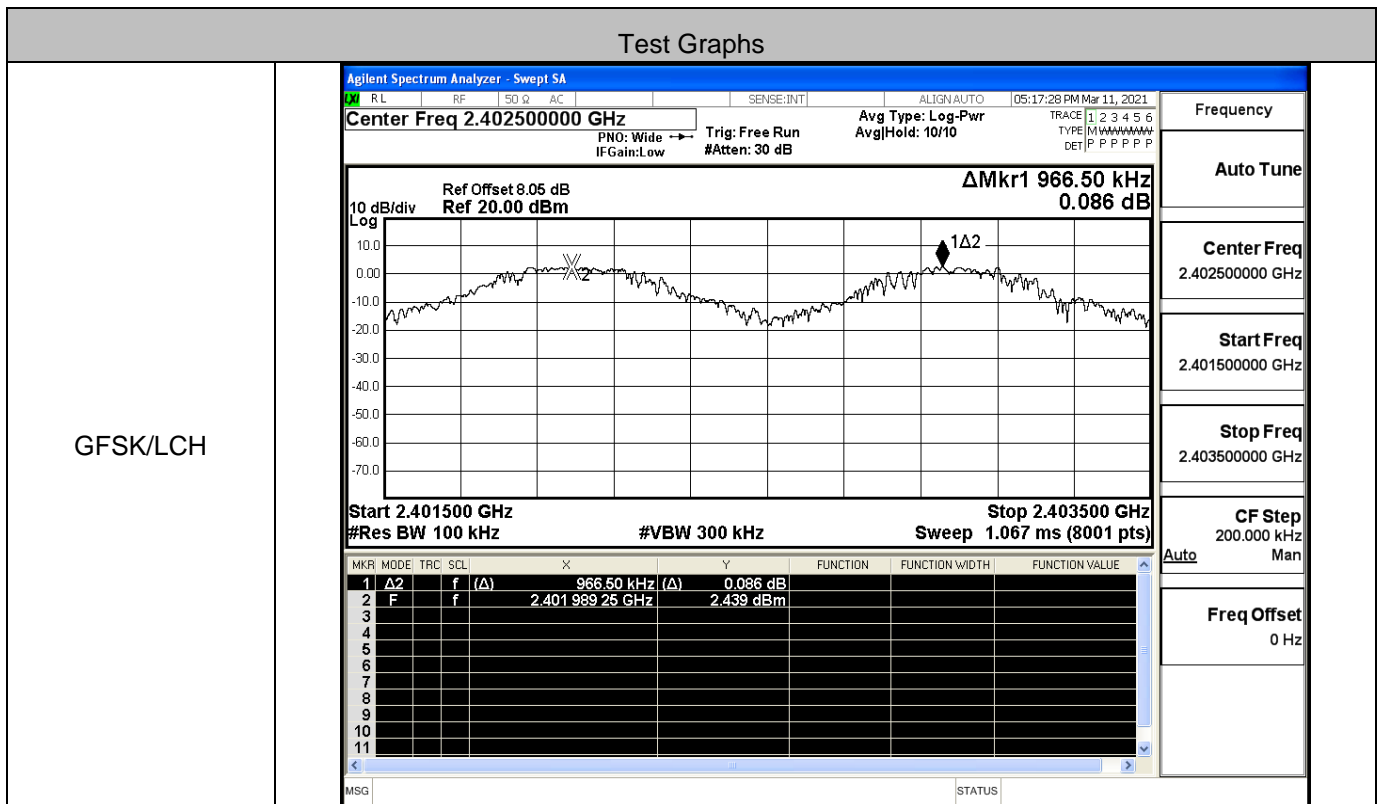


8DPSK/HCH

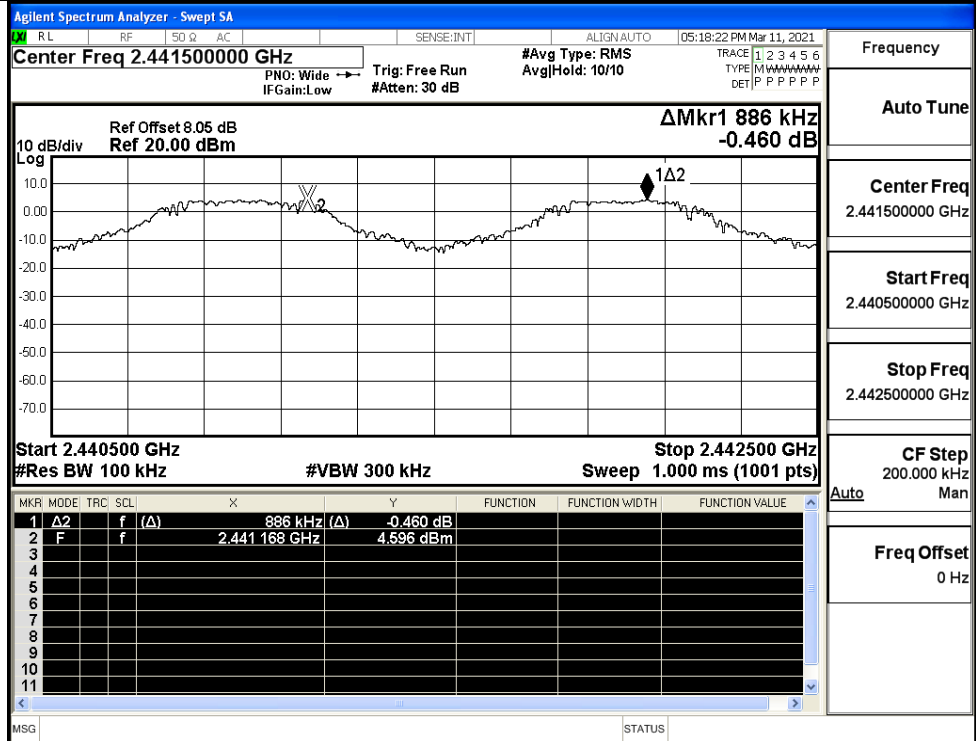


### A.3 Carrier Frequency Separation

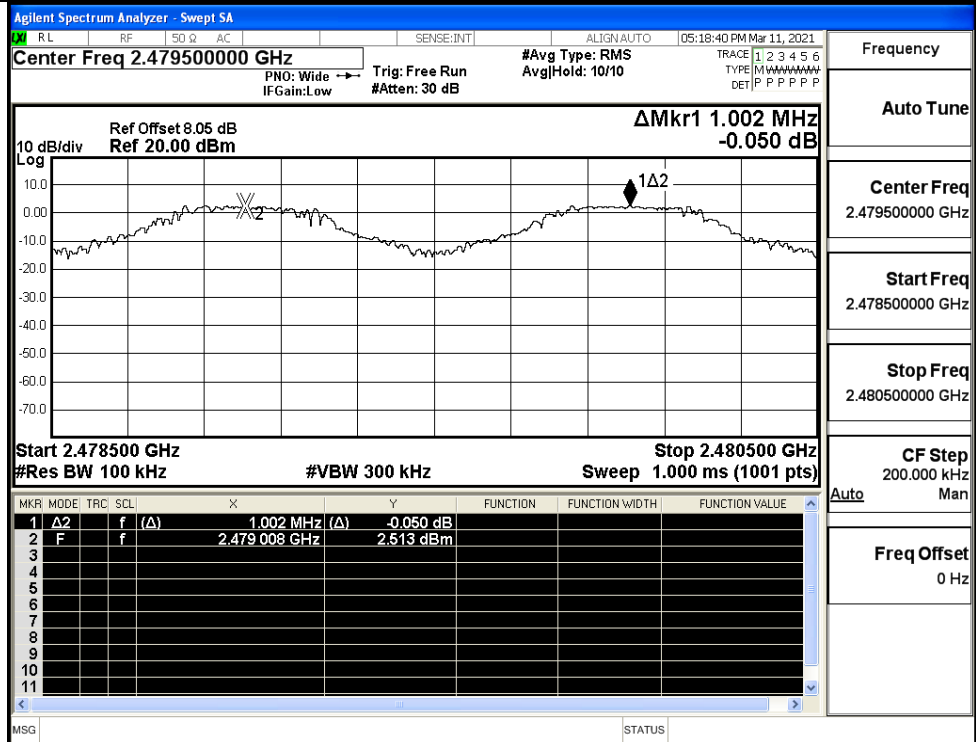
Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.966	0.689	PASS
	MCH	0.886	0.689	PASS
	HCH	1.002	0.689	PASS
π/4DQPSK	LCH	1.048	0.860	PASS
	MCH	1.174	0.860	PASS
	HCH	1.184	0.860	PASS
8DPSK	LCH	0.976	0.862	PASS
	MCH	1.210	0.862	PASS
	HCH	0.954	0.862	PASS



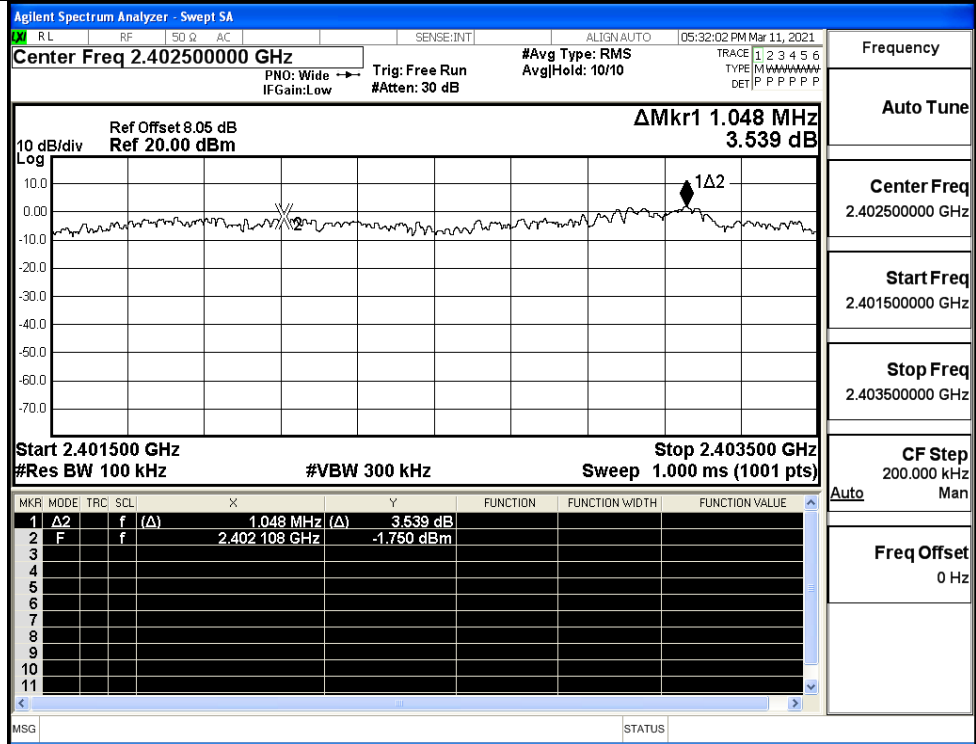
GFSK/MCH



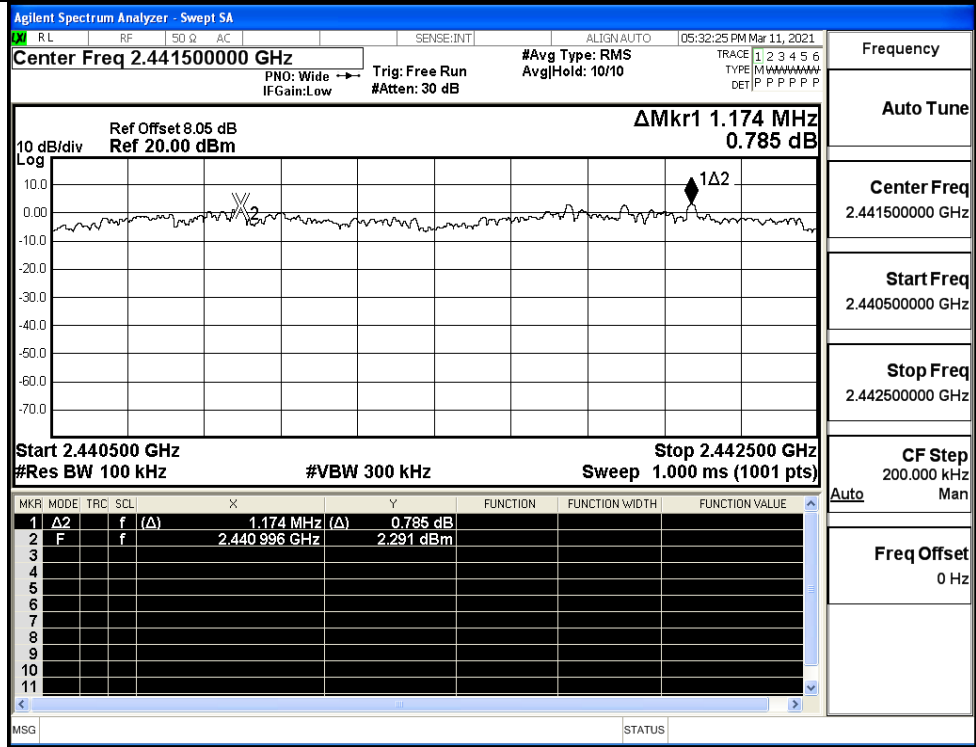
GFSK/HCH



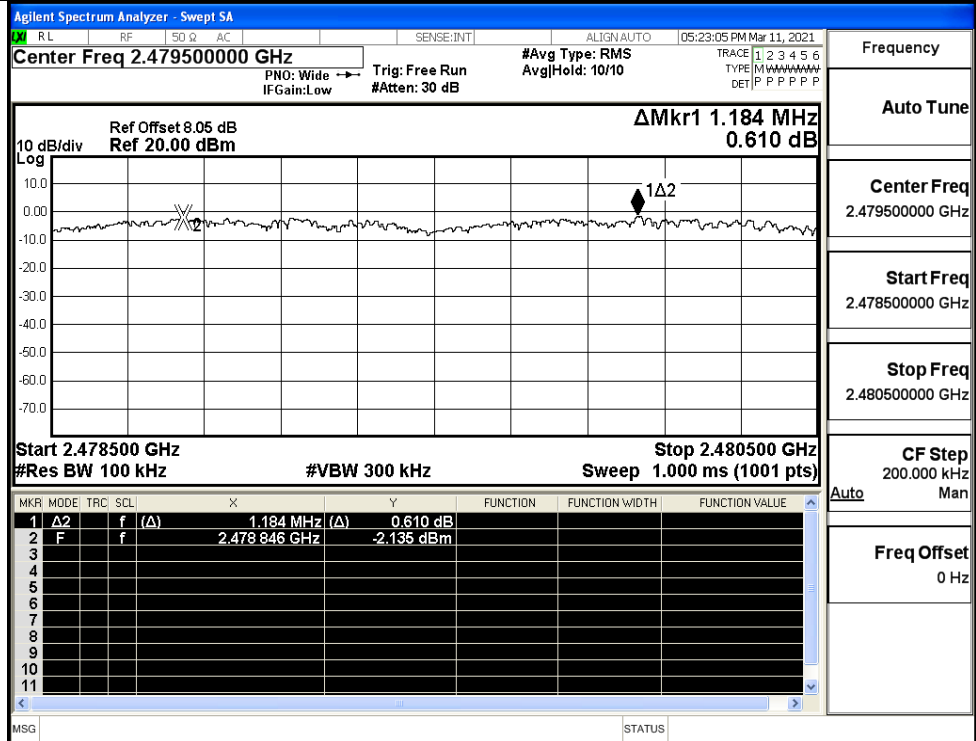
$\pi/4$ DQPSK/LCH



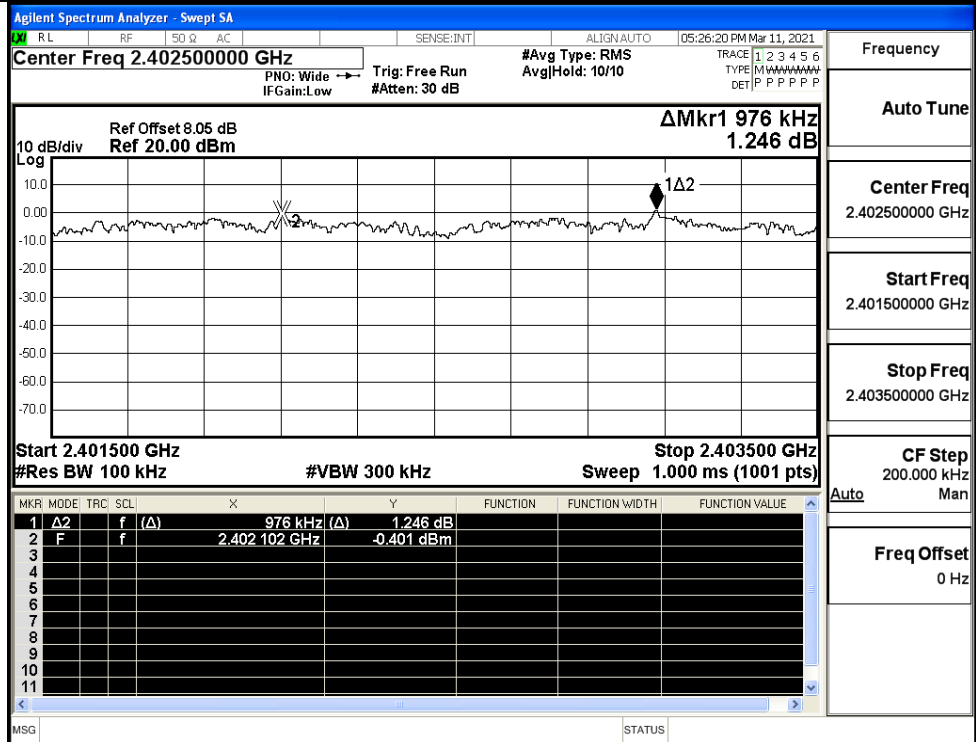
$\pi/4$ DQPSK/MCH

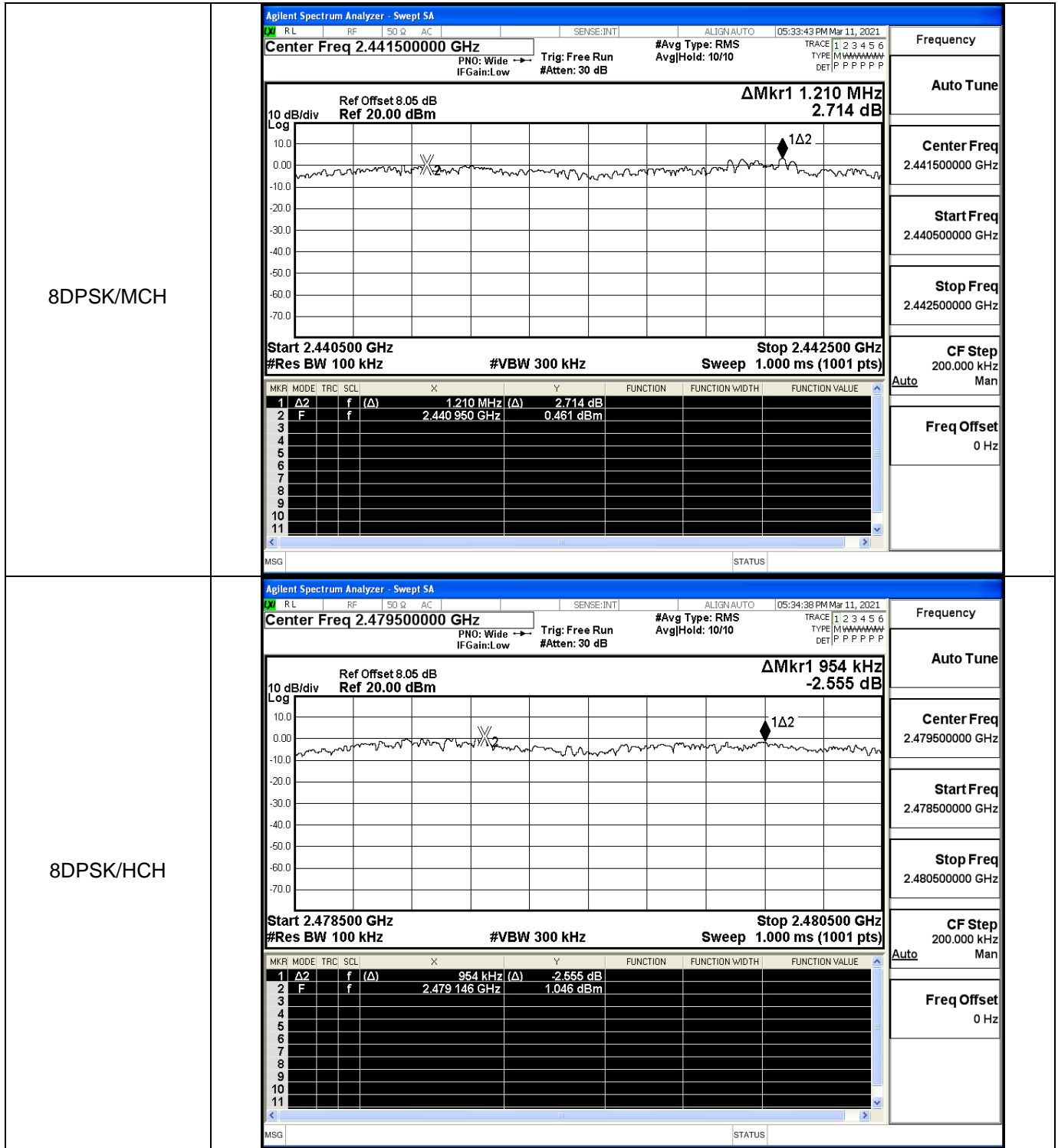


π/4DQPSK/HCH



8DPSK/LCH





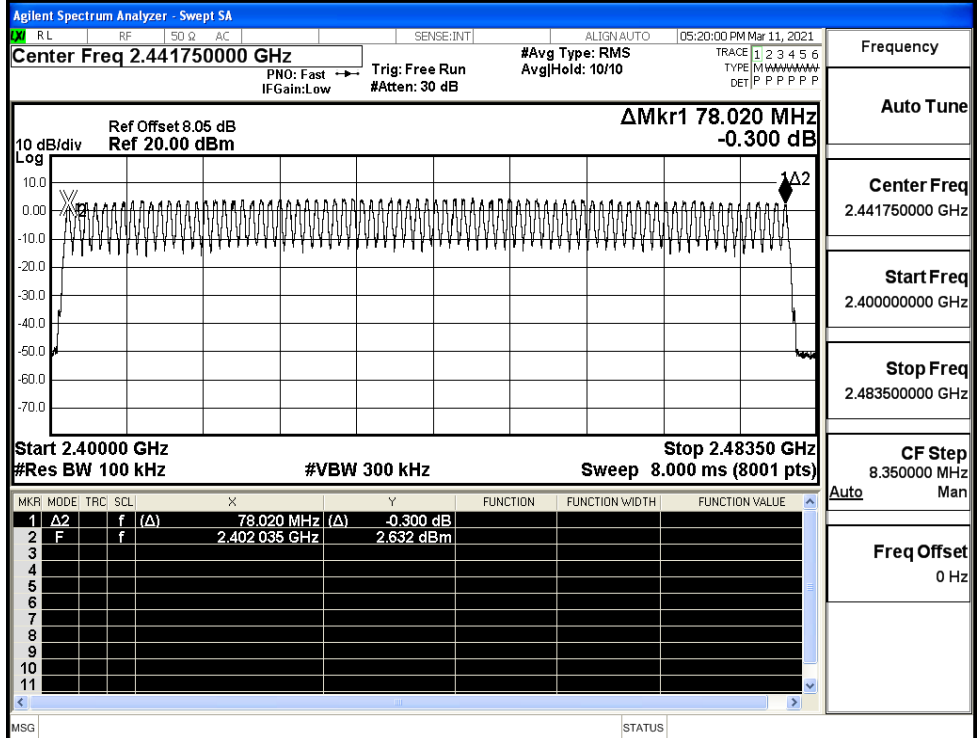
A.4 Hopping Channel Number

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



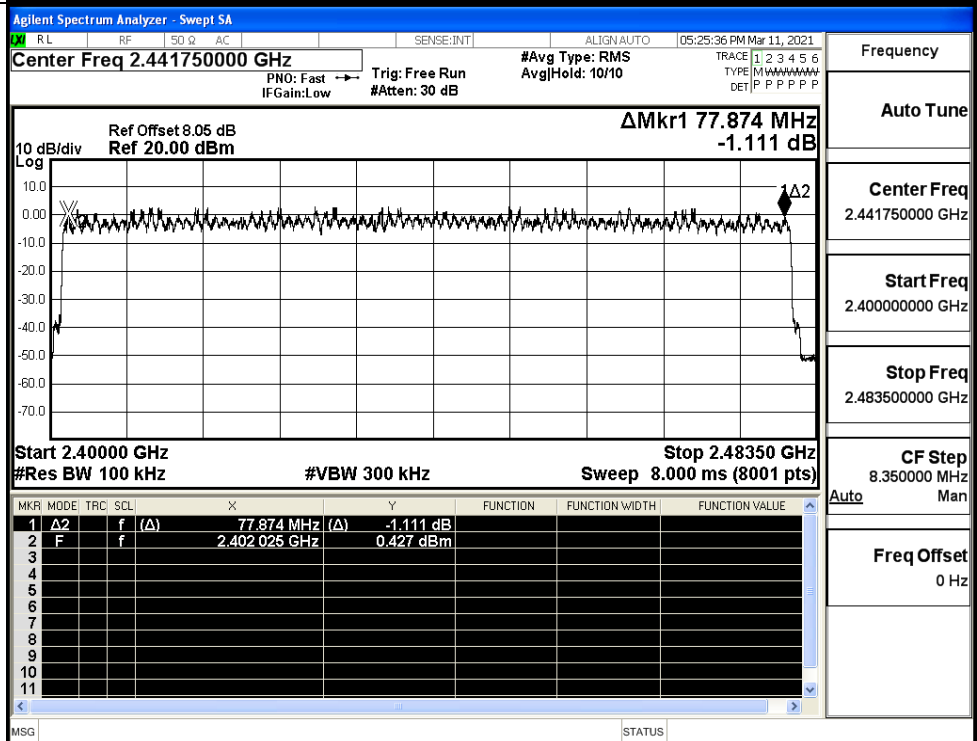
Test Graphs

GFSK/Hop



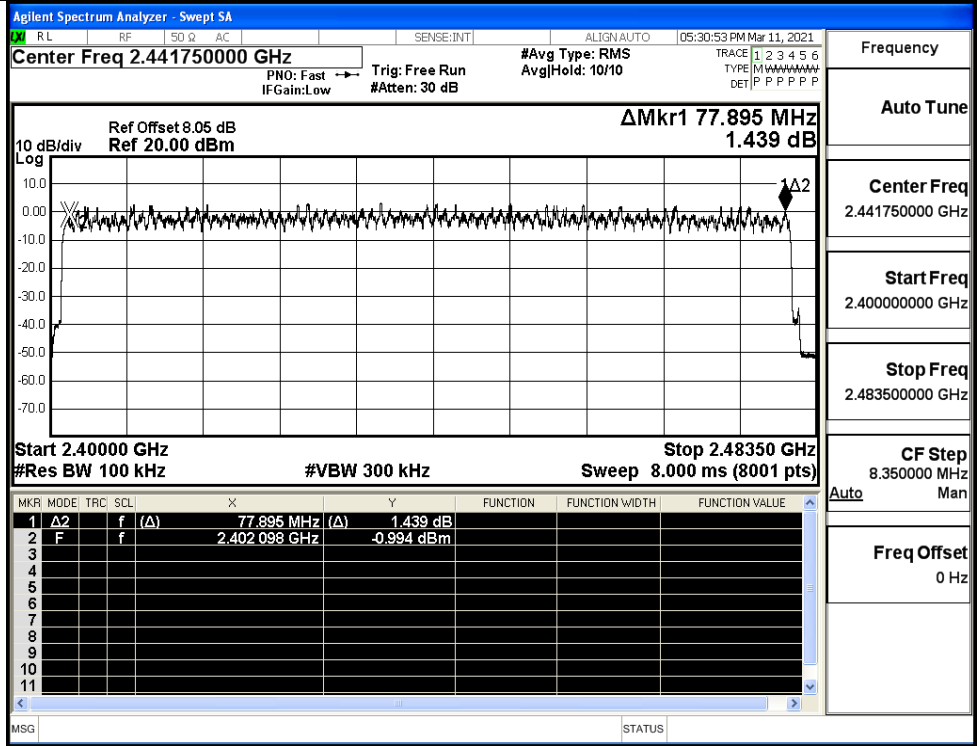
Frequency
Auto Tune
Center Freq 2.441750000 GHz
Start Freq 2.400000000 GHz
Stop Freq 2.483500000 GHz
CF Step 8.350000 MHz
Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK/Hop



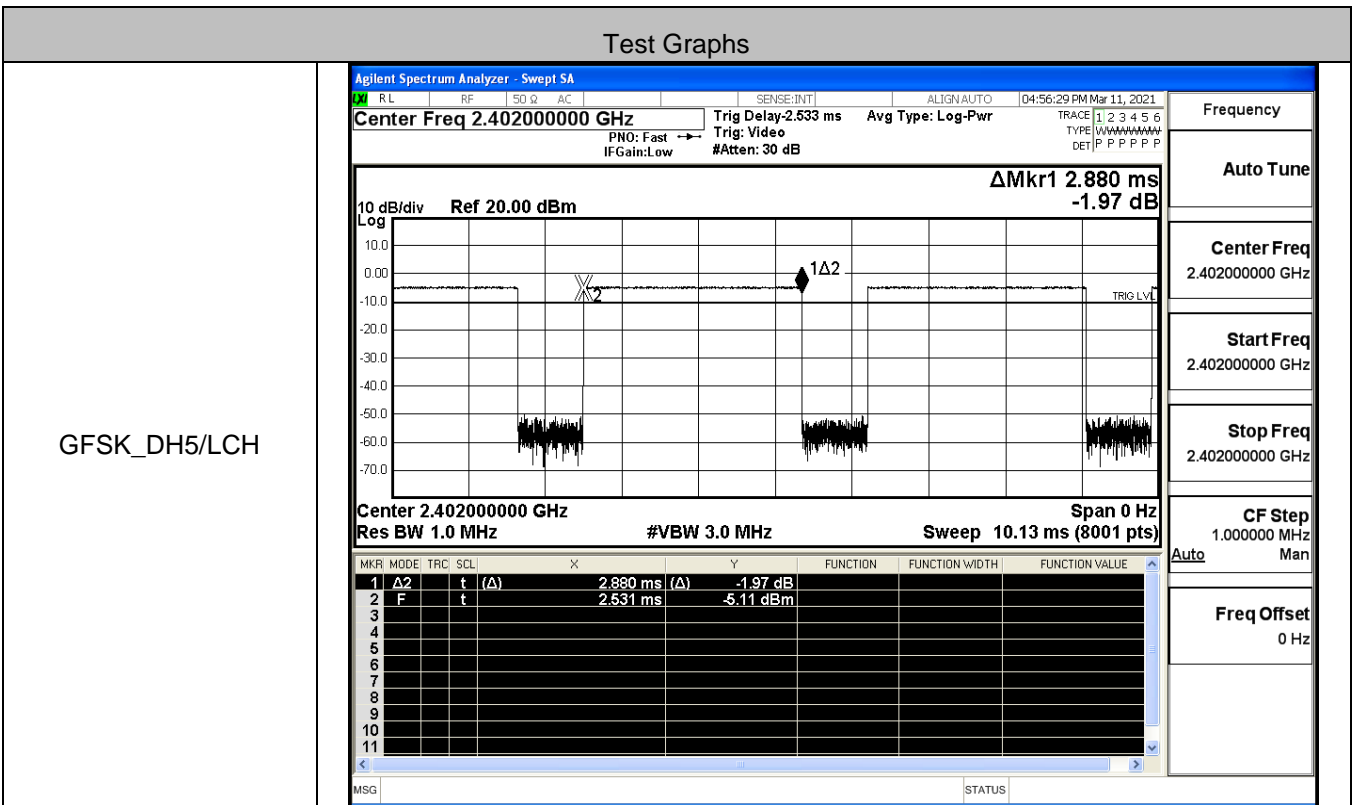
Frequency
Auto Tune
Center Freq 2.441750000 GHz
Start Freq 2.400000000 GHz
Stop Freq 2.483500000 GHz
CF Step 8.350000 MHz
Auto Man
Freq Offset 0 Hz

8DPSK/Hop

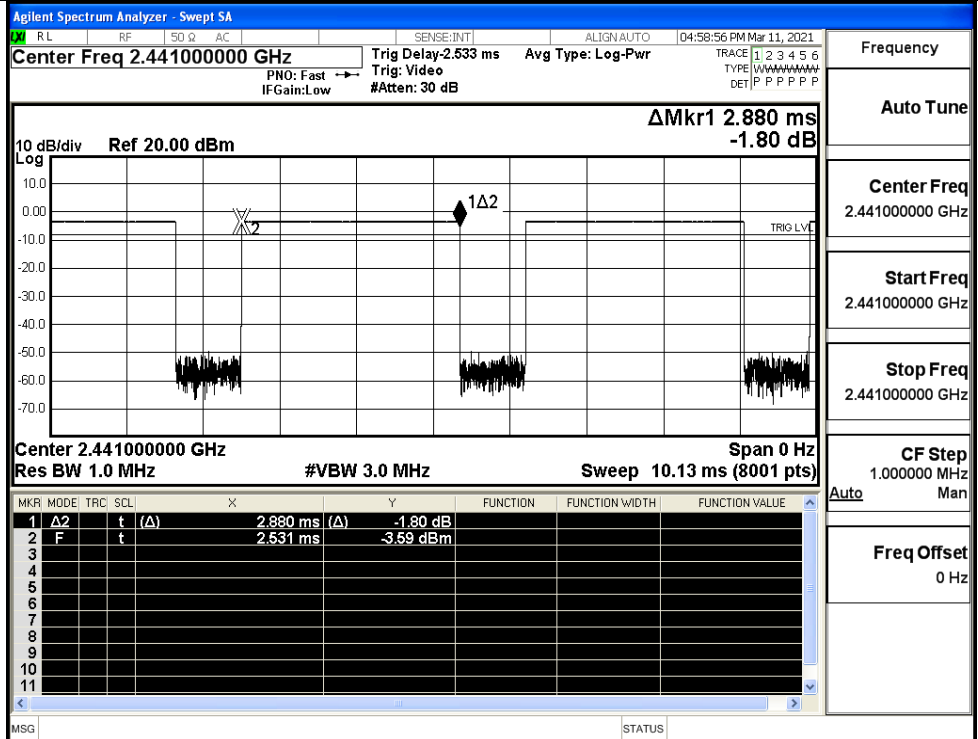


A.5 Dwell Time

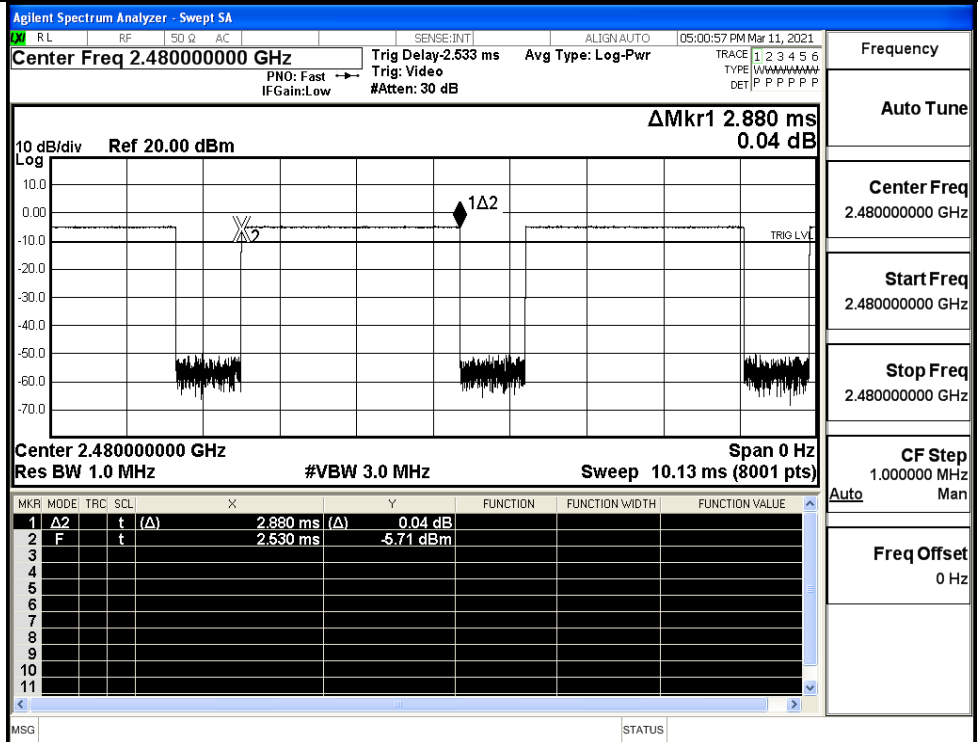
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.308	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.308	0.4	PASS



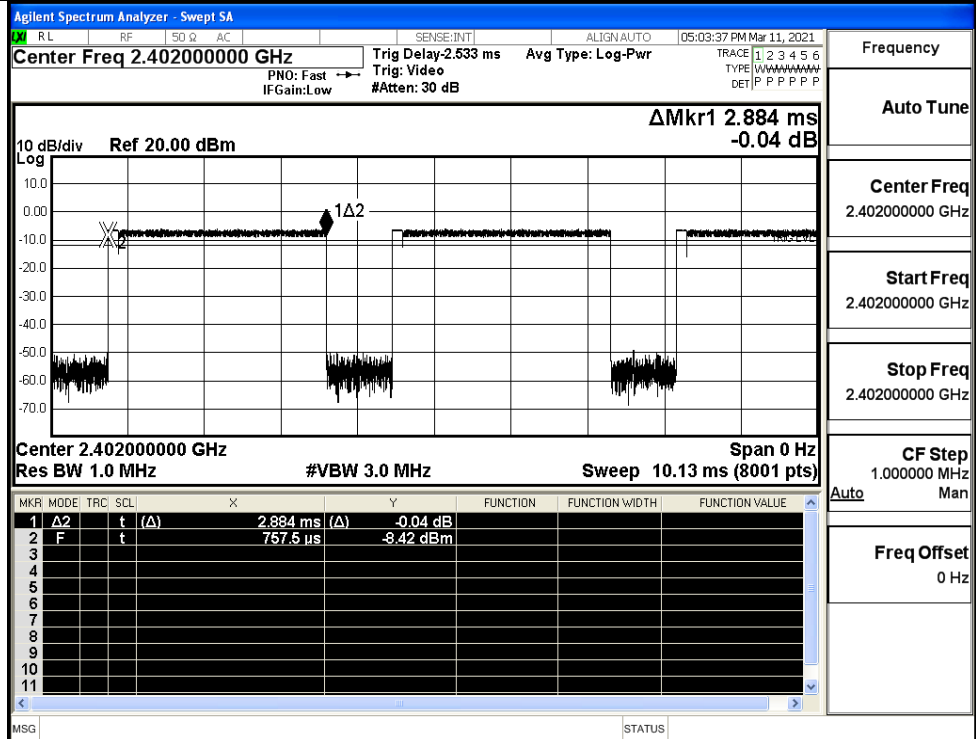
GFSK\_DH5/MCH



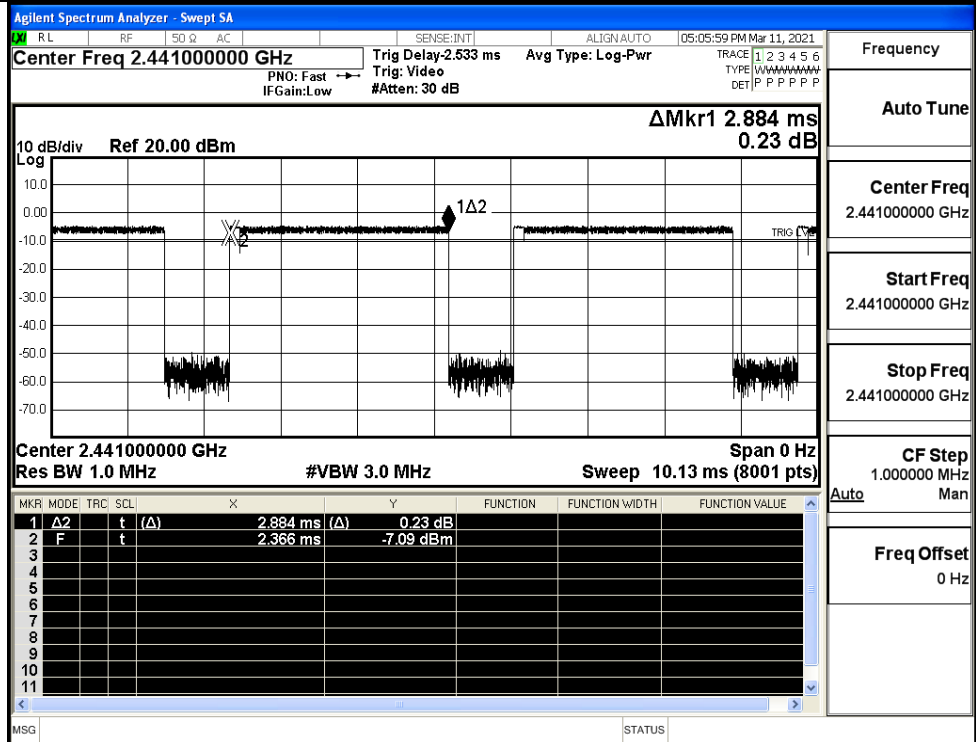
GFSK\_DH5/HCH



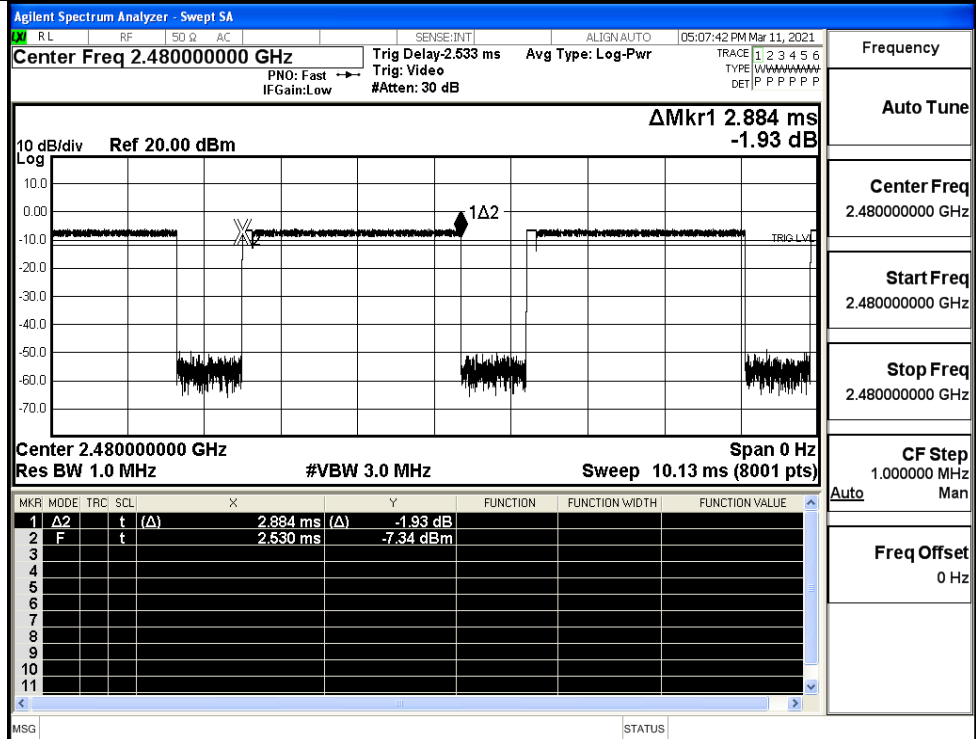
$\pi/4$ DQPSK  
\_2DH5/LCH



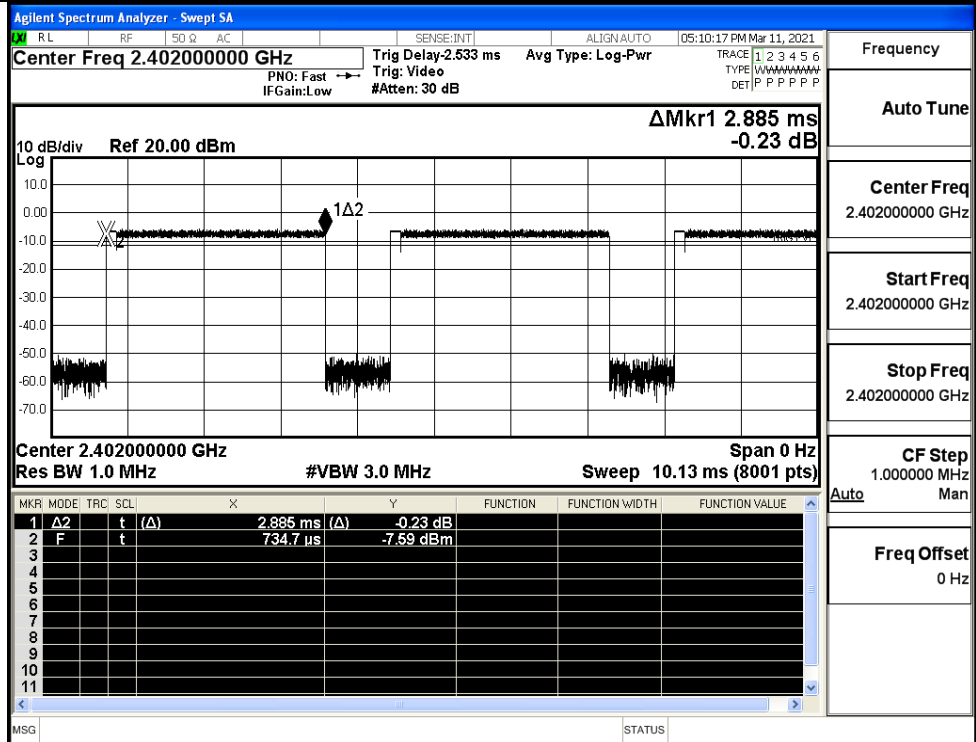
$\pi/4$ DQPSK  
\_2DH5/MCH



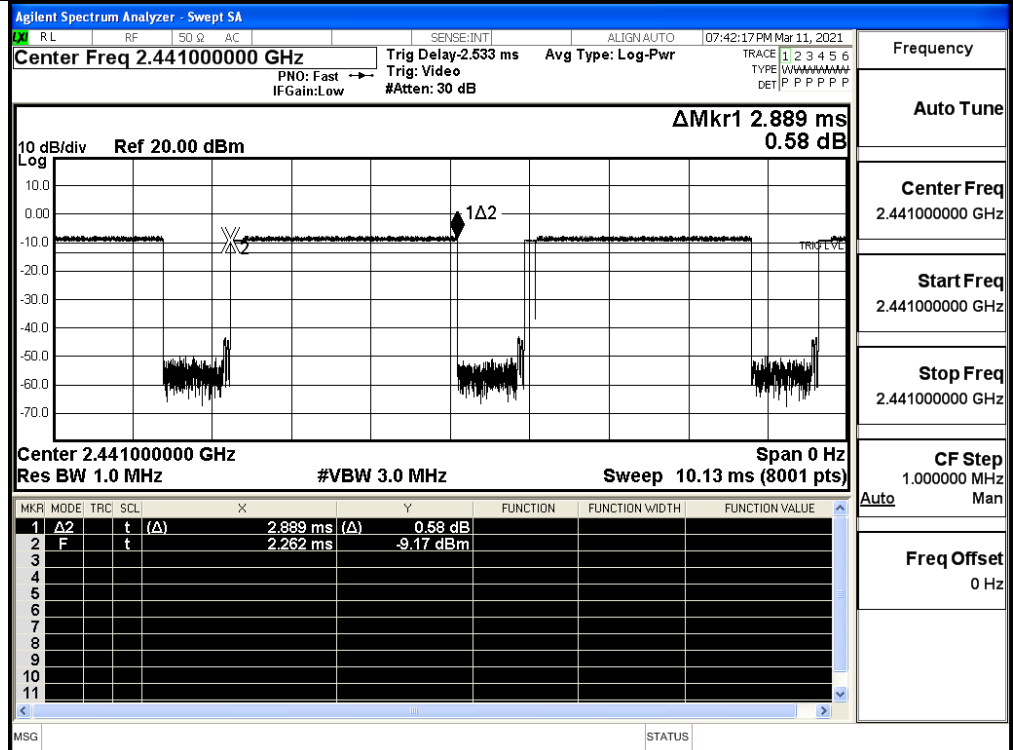
$\pi/4$ DQPSK  
\_2DH5/HCH



8DPSK\_3DH5/LCH

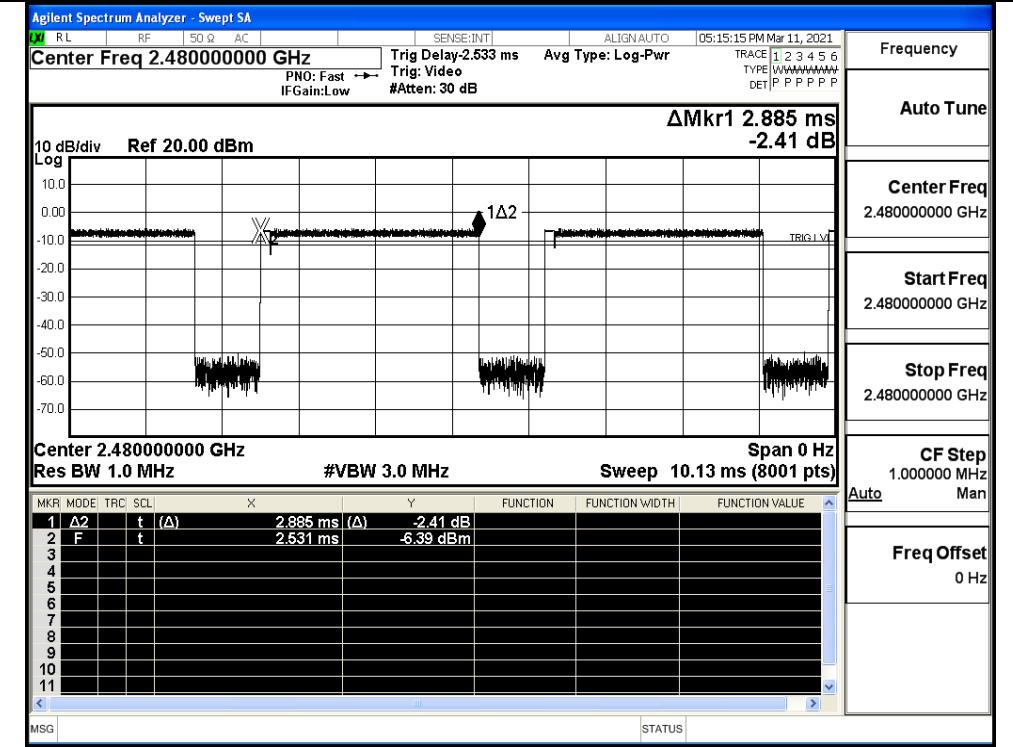


8DPSK\_3DH5/MCH



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

8DPSK\_3DH5/HCH

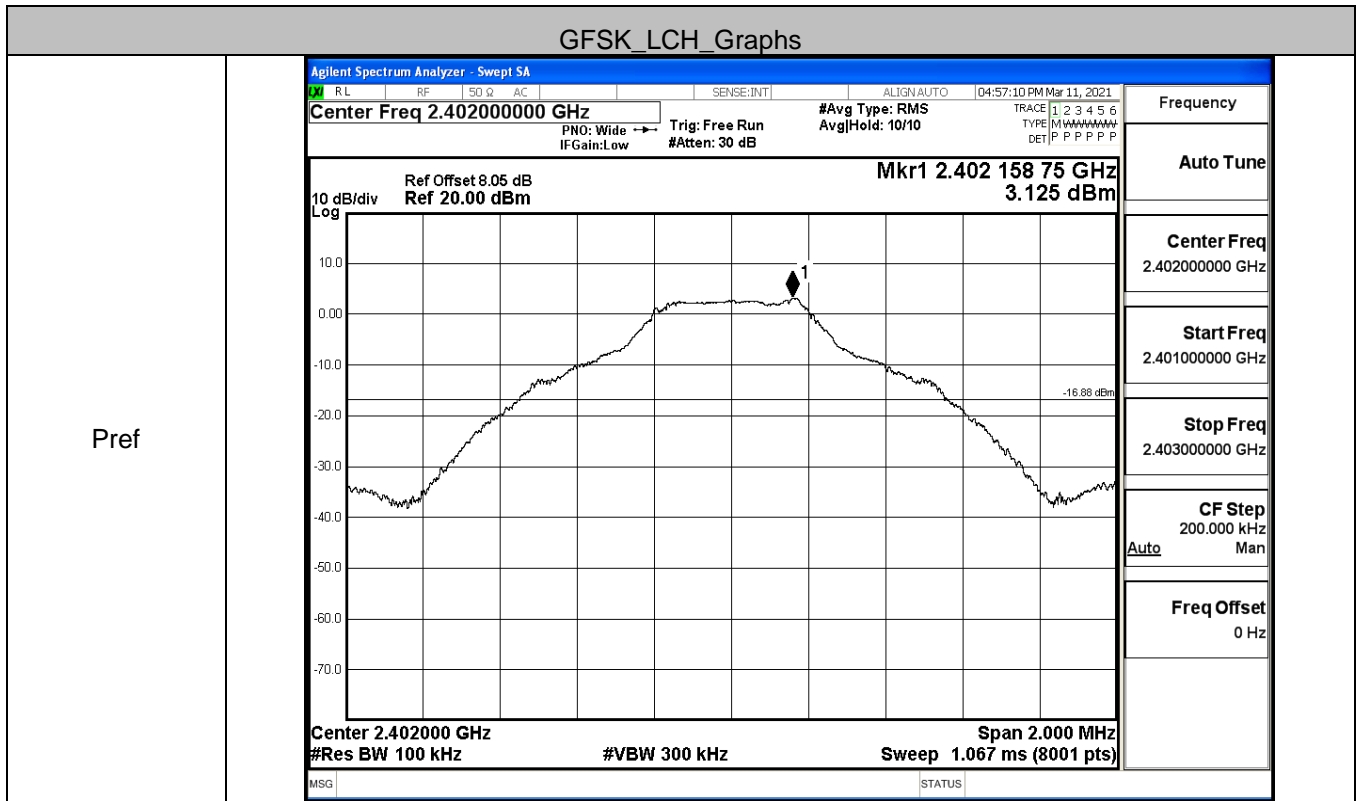


Frequency	Auto Tune
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Freq Offset	0 Hz

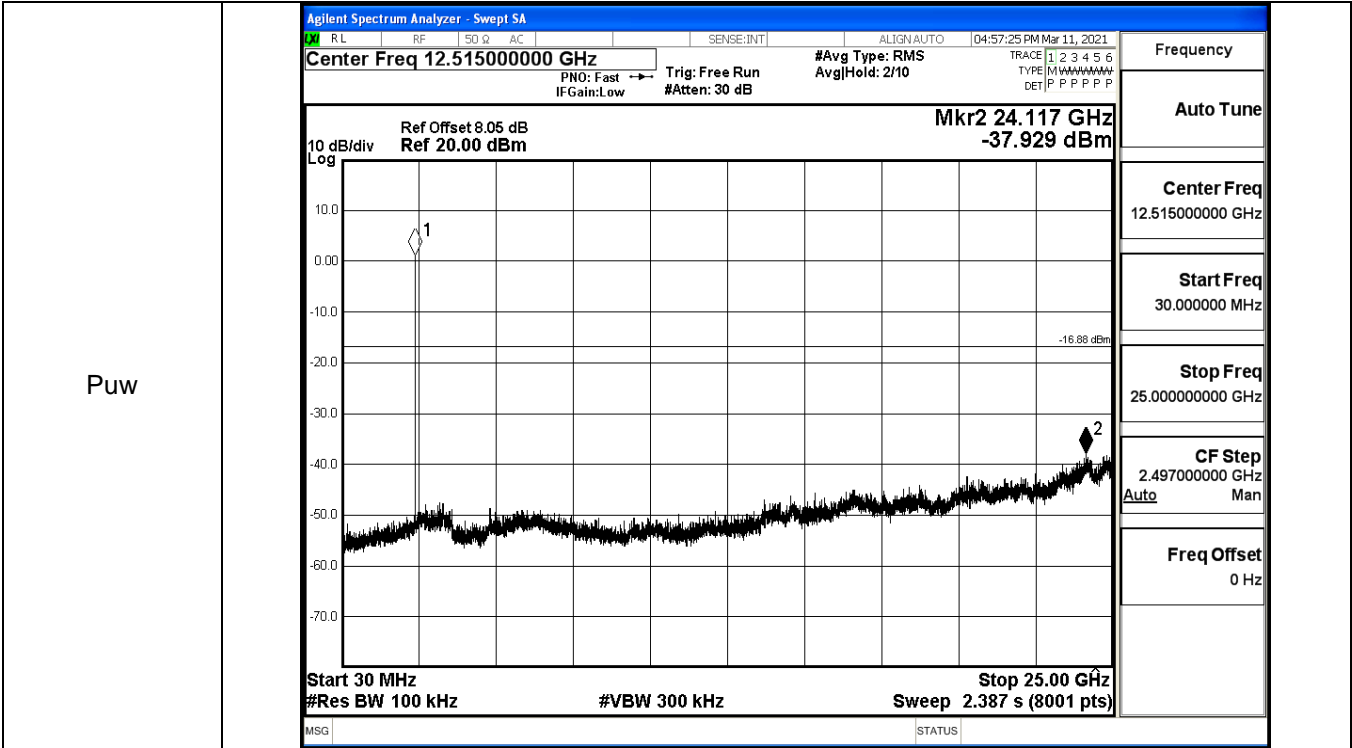
### A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.125	-37.929	-16.875	PASS
	MCH	4.601	-37.578	-15.399	PASS
	HCH	3	-37.953	-17.000	PASS
$\pi$ /4DQPSK	LCH	1.46	-37.432	-18.540	PASS
	MCH	2.445	-36.558	-17.555	PASS
	HCH	1.495	-38.067	-18.505	PASS
8DPSK	LCH	1.425	-37.723	-18.575	PASS
	MCH	2.626	-38.378	-17.374	PASS
	HCH	1.603	-37.751	-18.397	PASS

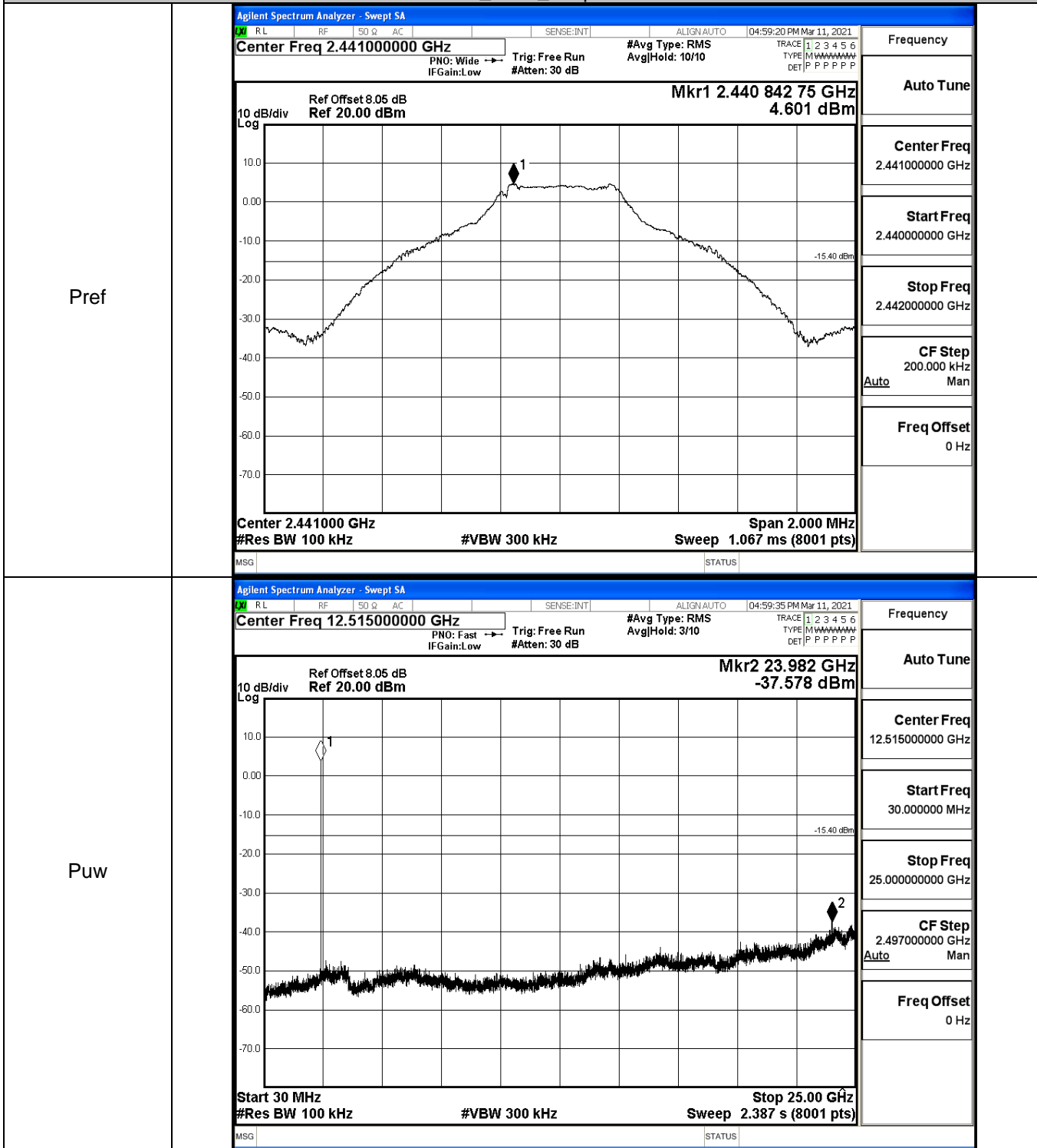
GFSK\_LCH\_Graphs



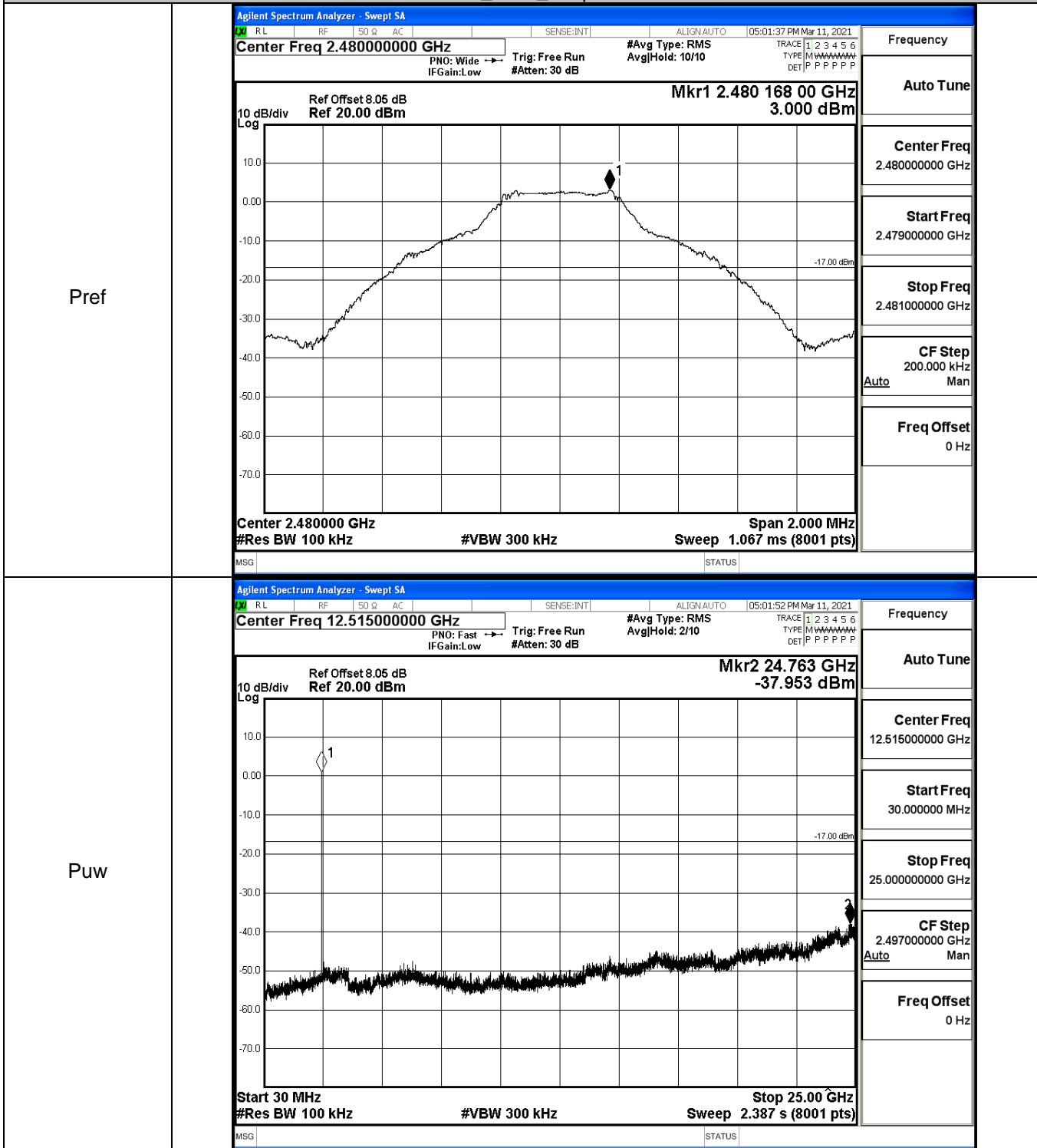




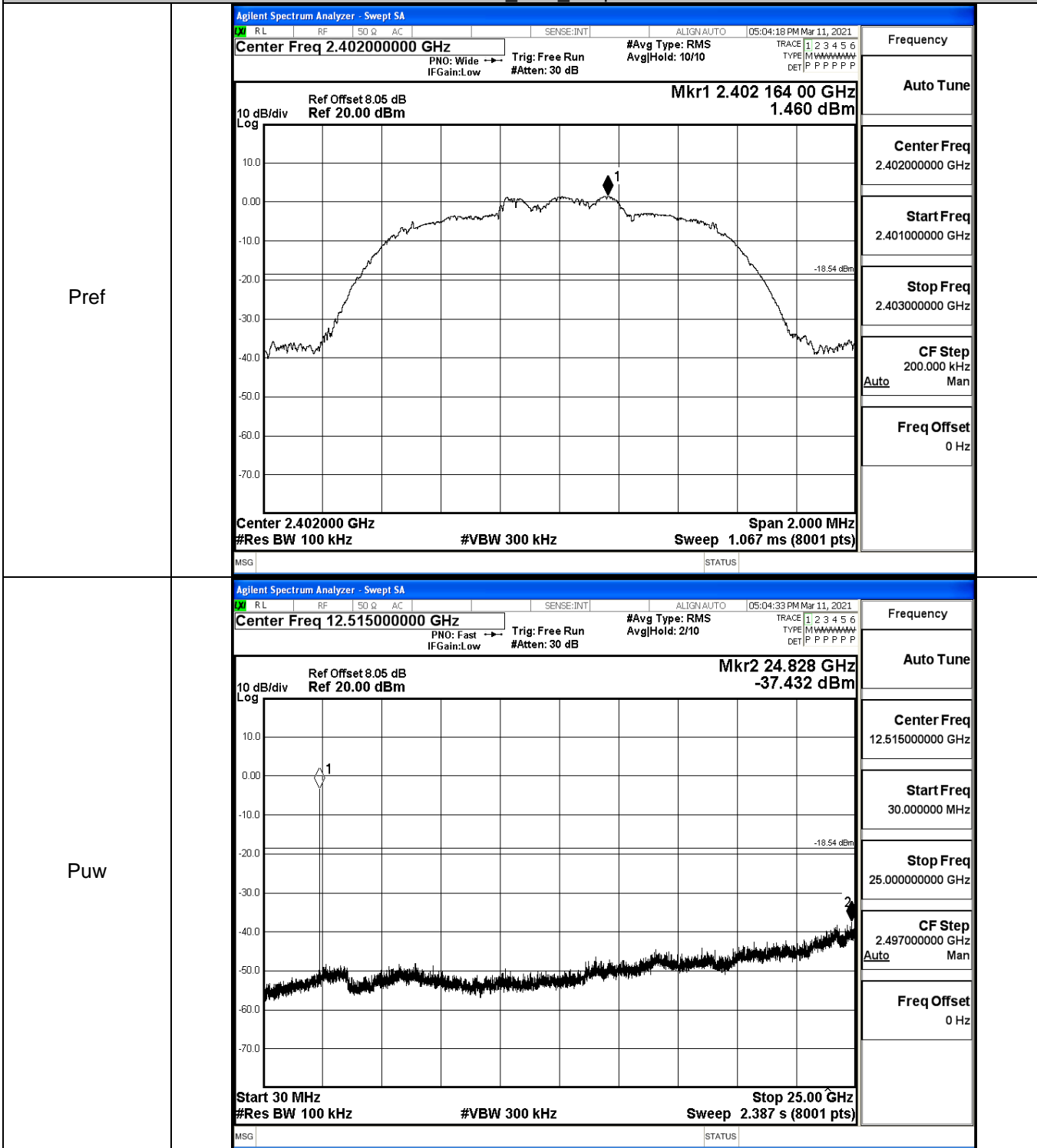
GFSK\_MCH\_Graphs



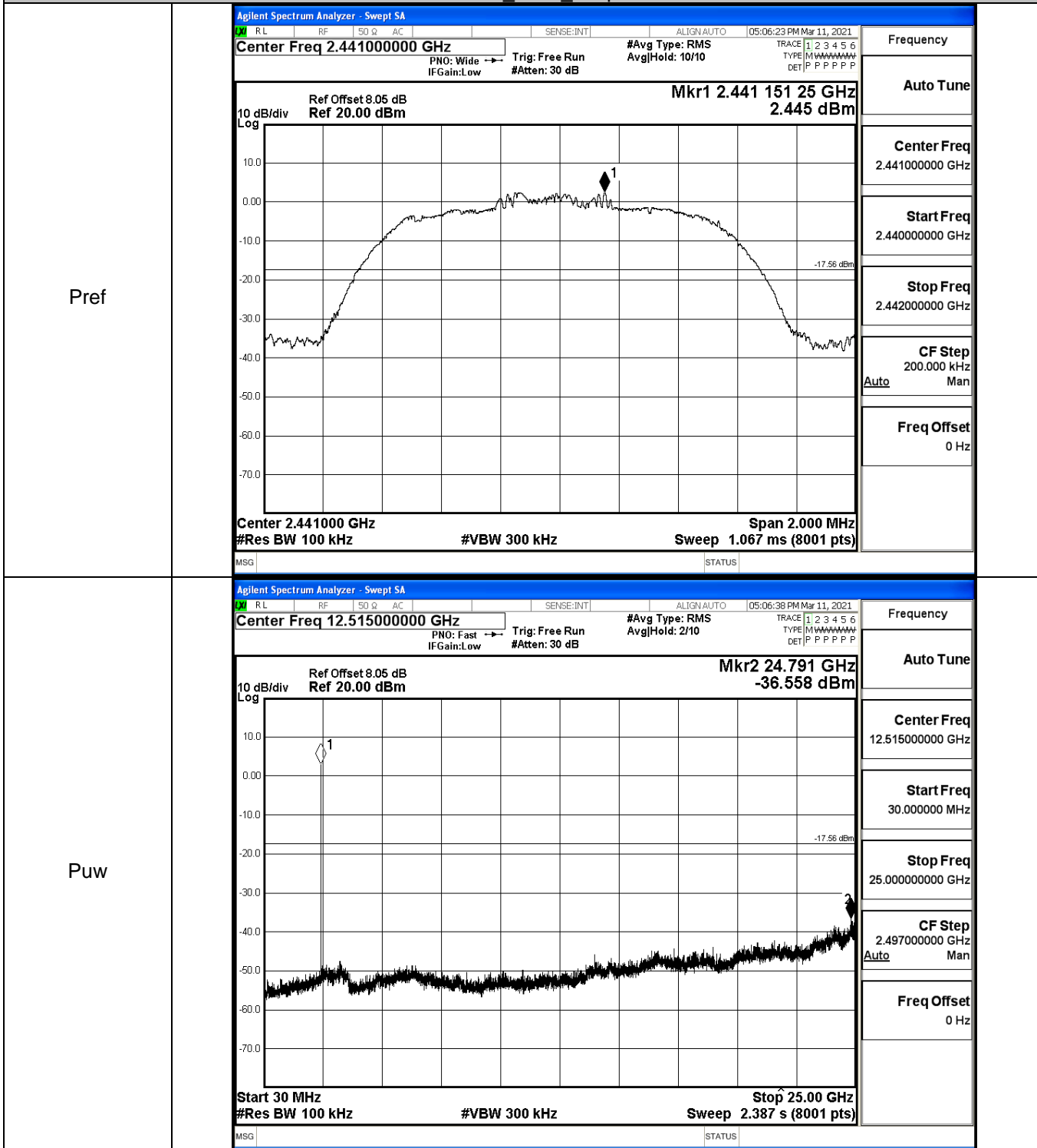
GFSK\_HCH\_Graphs



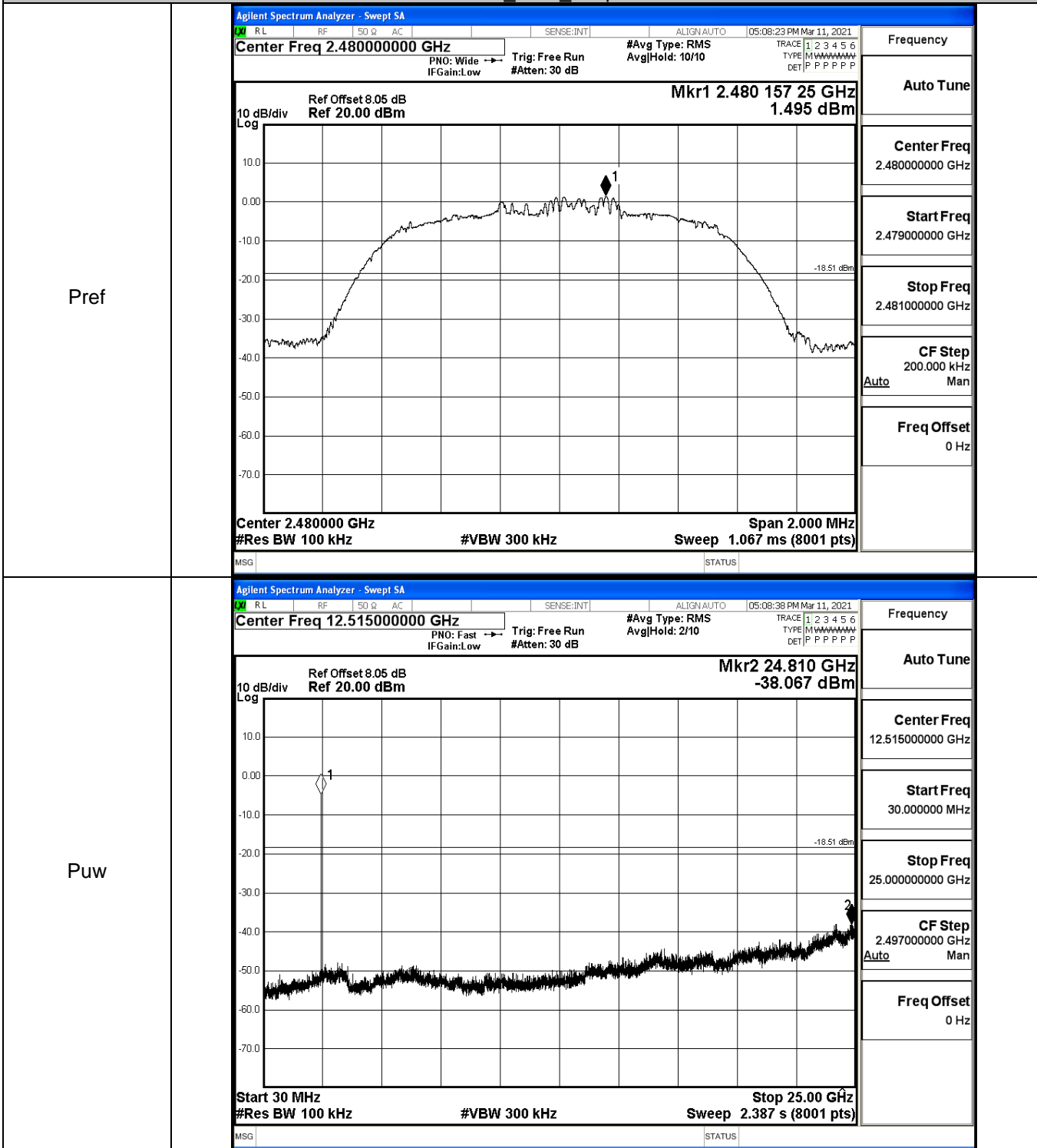
$\pi/4$ DQPSK\_LCH\_Graphs



$\pi/4$ DQPSK\_MCH\_Graphs

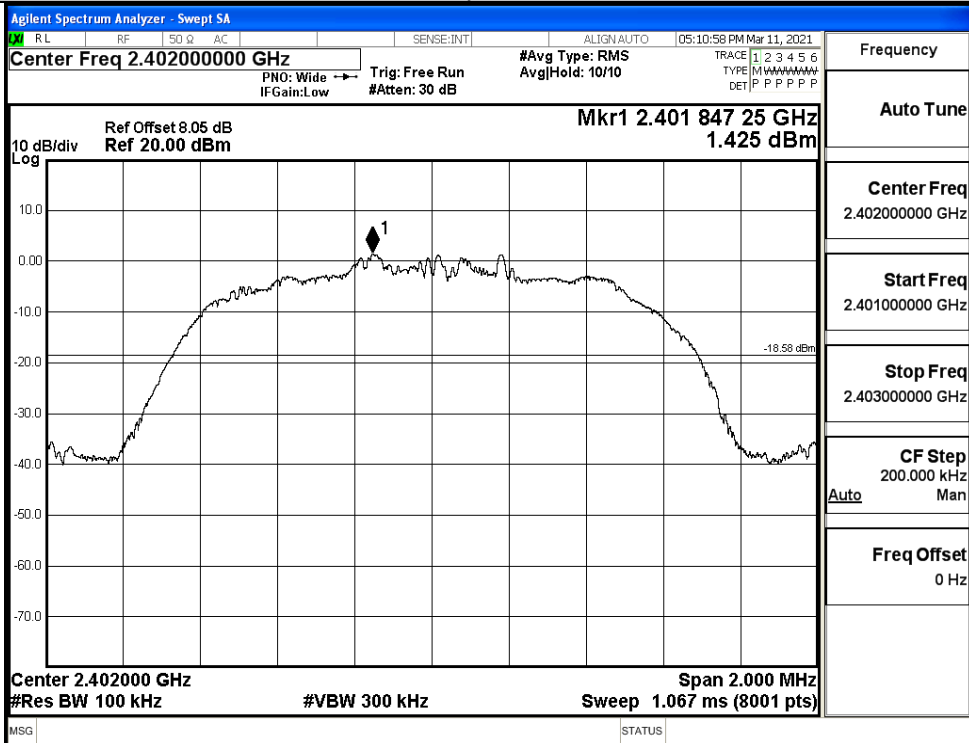


$\pi/4$ DQPSK\_HCH\_Graphs

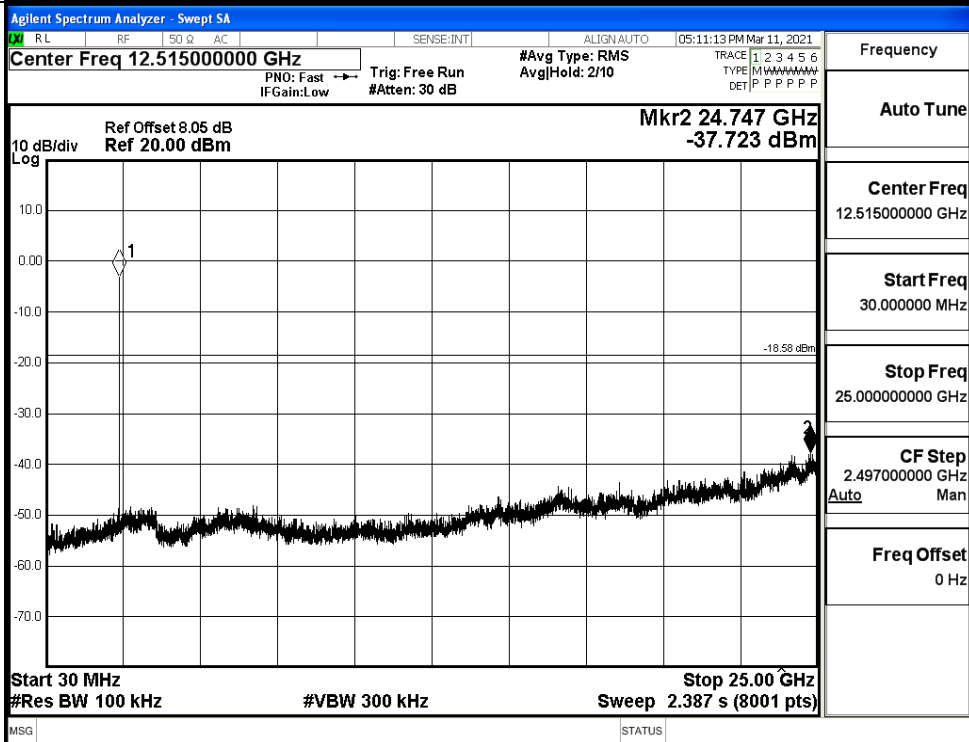


8DPSK\_LCH\_Graphs

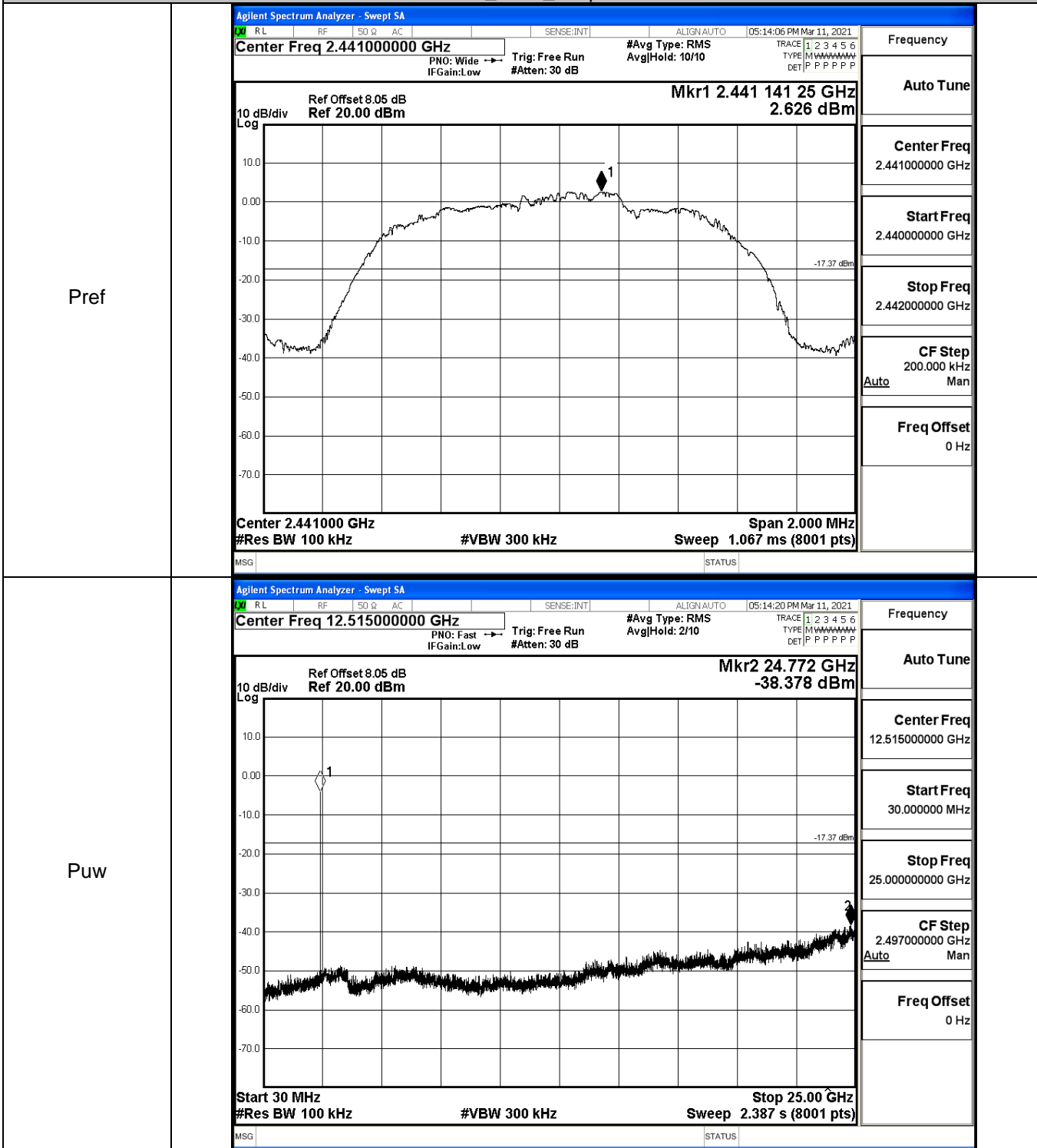
Pref



Puw

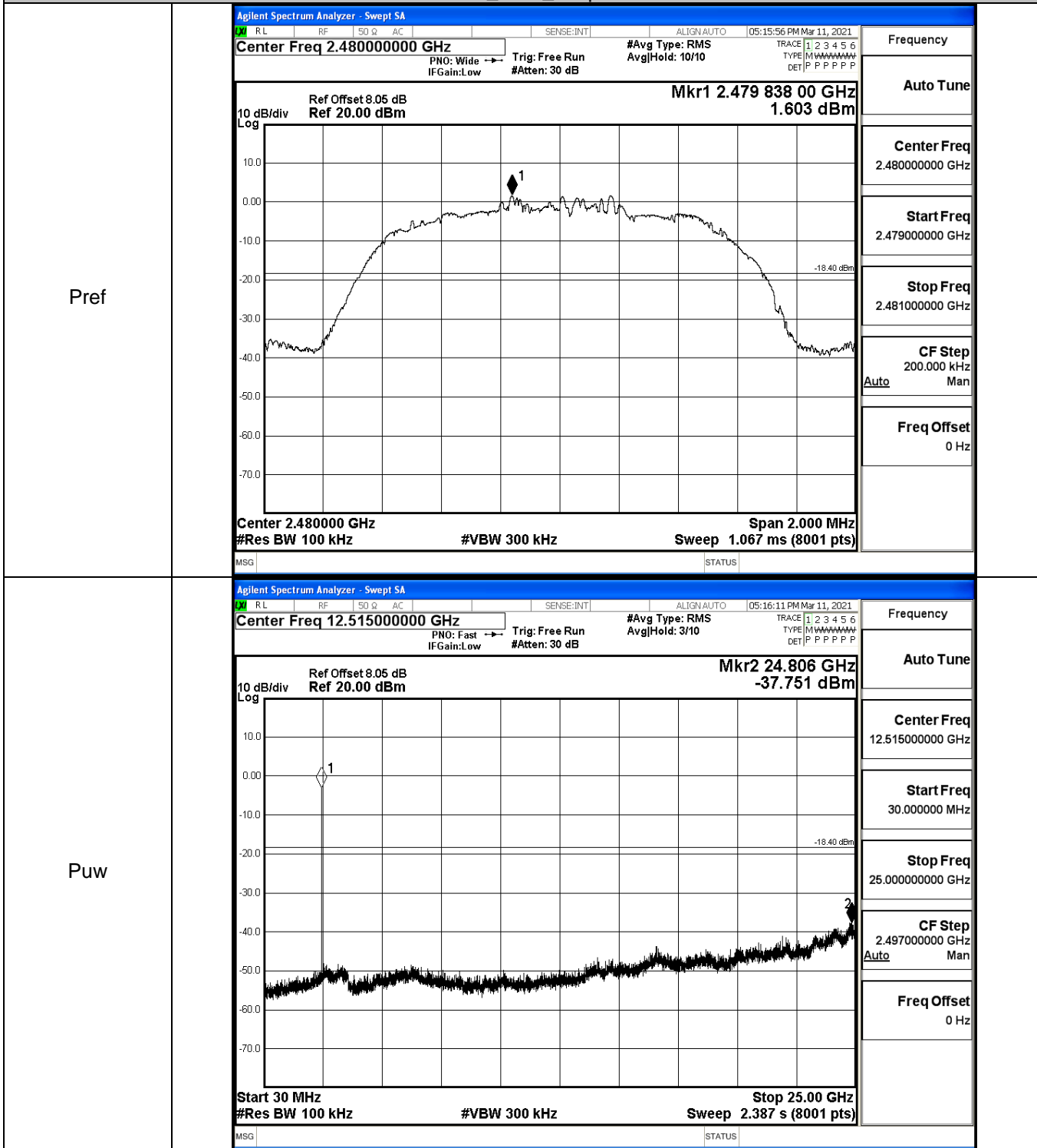


8DPSK\_MCH\_Graphs





8DPSK\_HCH\_Graphs

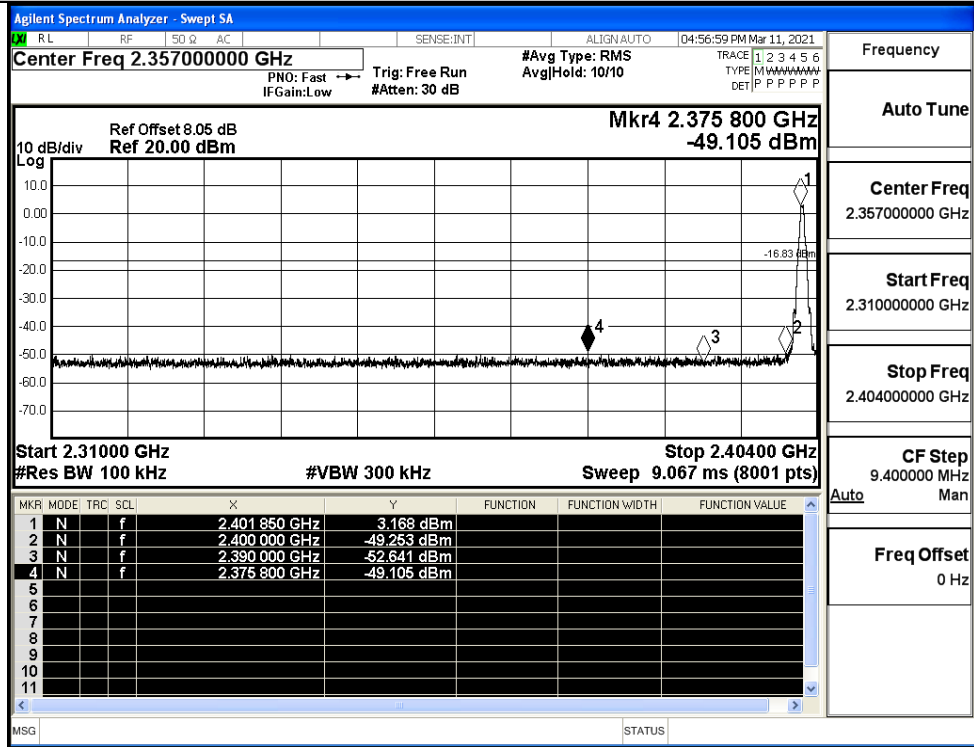


## A.7 Band-edge for RF Conducted Emissions

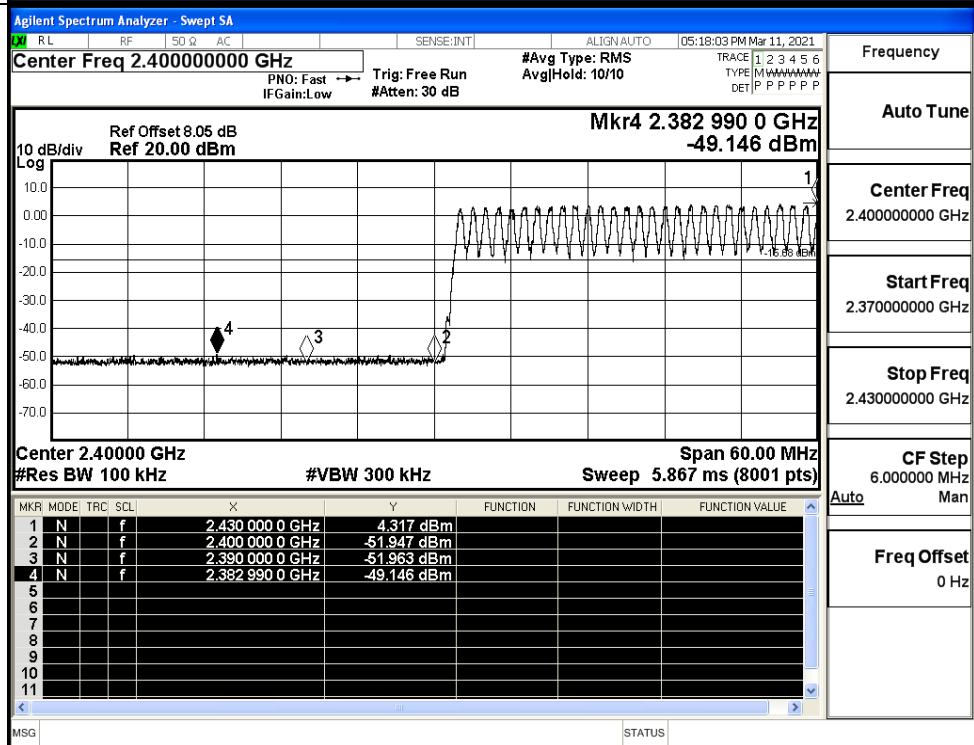
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	3.168	Off	-49.105	-16.83	PASS
			4.317	On	-49.146	-15.68	PASS
	HCH	2480	2.982	Off	-49.035	-17.02	PASS
			4.217	On	-48.597	-15.78	PASS
$\pi/4$ DQPSK	LCH	2402	1.607	Off	-49.644	-18.39	PASS
			2.938	On	-49.151	-17.06	PASS
	HCH	2480	1.771	Off	-48.791	-18.23	PASS
			2.483	On	-48.824	-17.52	PASS
8DPSK	LCH	2402	1.383	Off	-49.066	-18.62	PASS
			2.765	On	-49.312	-17.24	PASS
	HCH	2480	1.728	Off	-48.817	-18.27	PASS
			2.738	On	-48.595	-17.26	PASS

Test Graphs

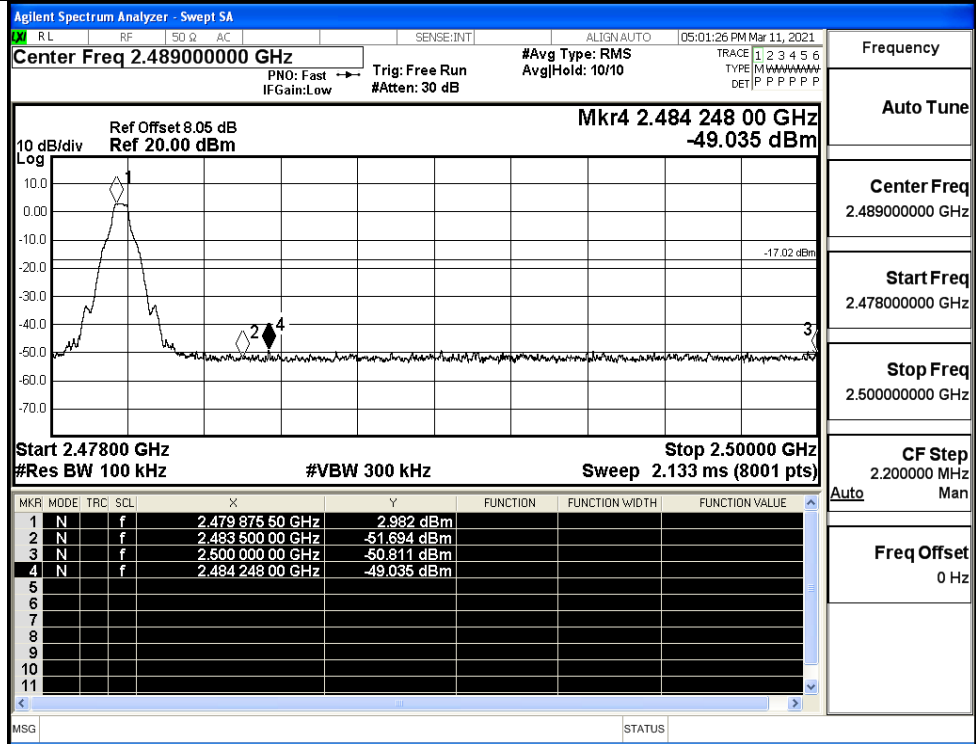
GFSK/LCH/No Hop



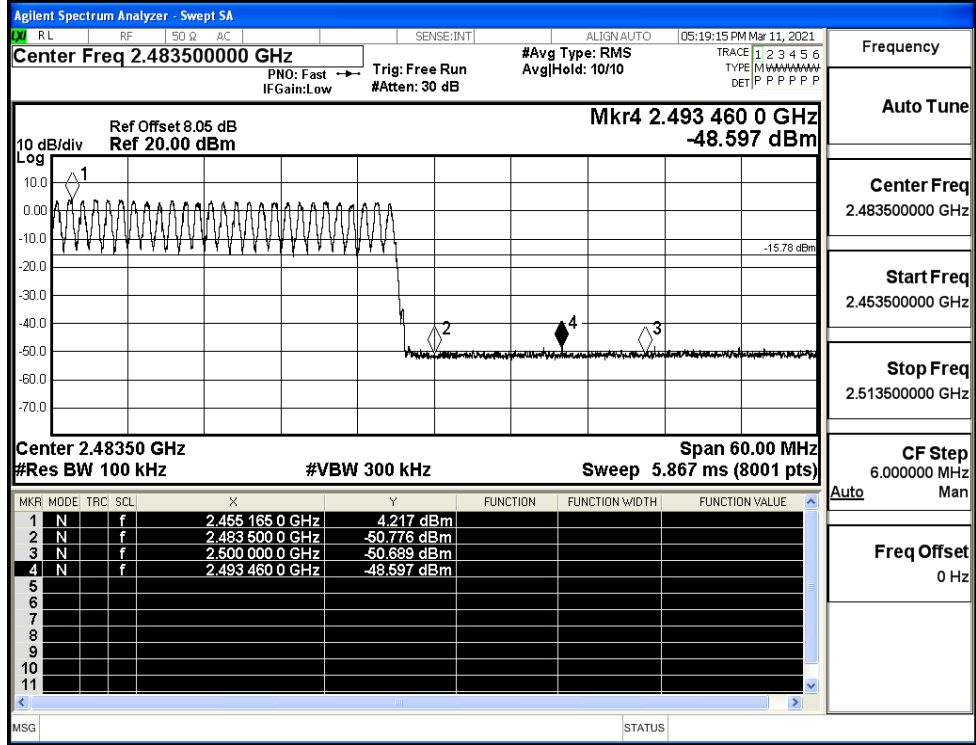
GFSK/LCH/Hop



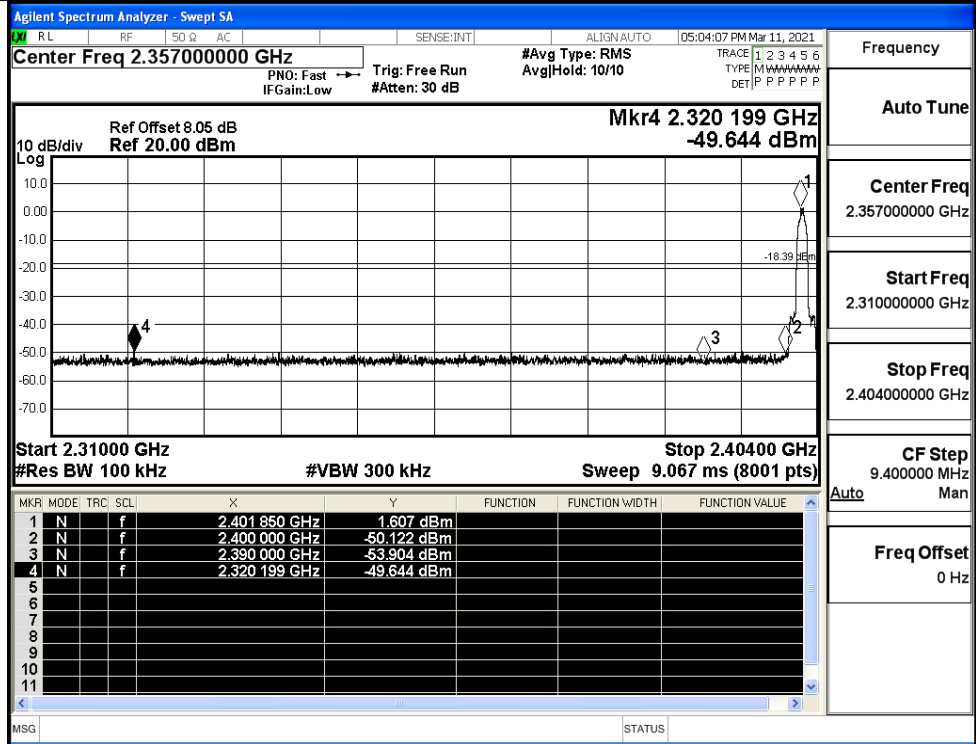
GFSK/HCH/No Hop



GFSK/HCH/Hop

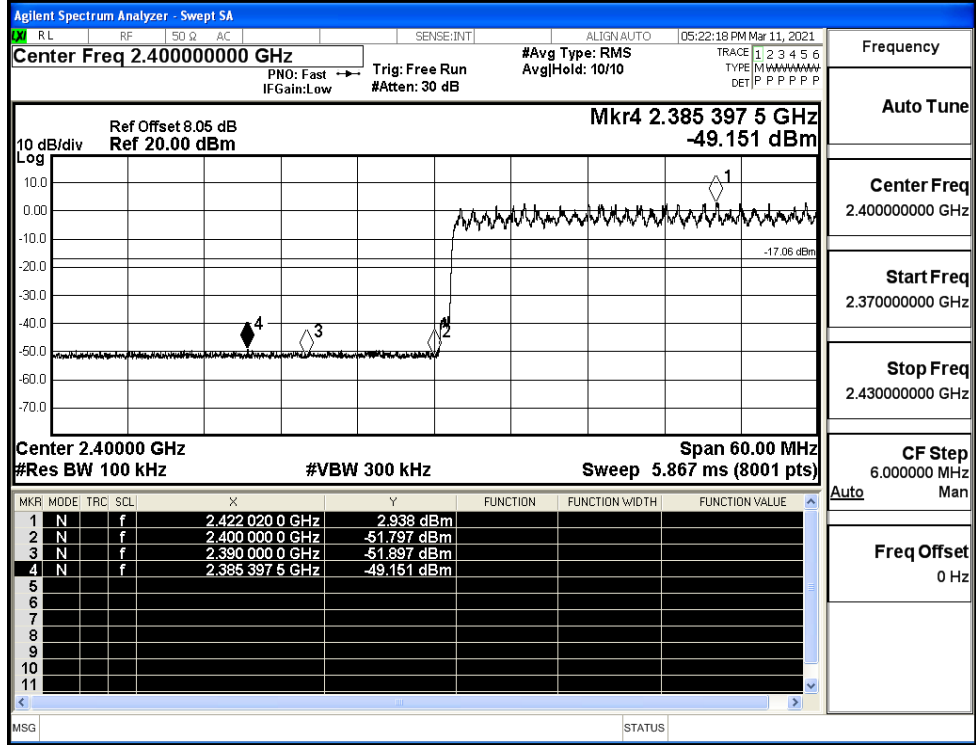


$\pi/4$ DQPSK/LCH/No  
Hop



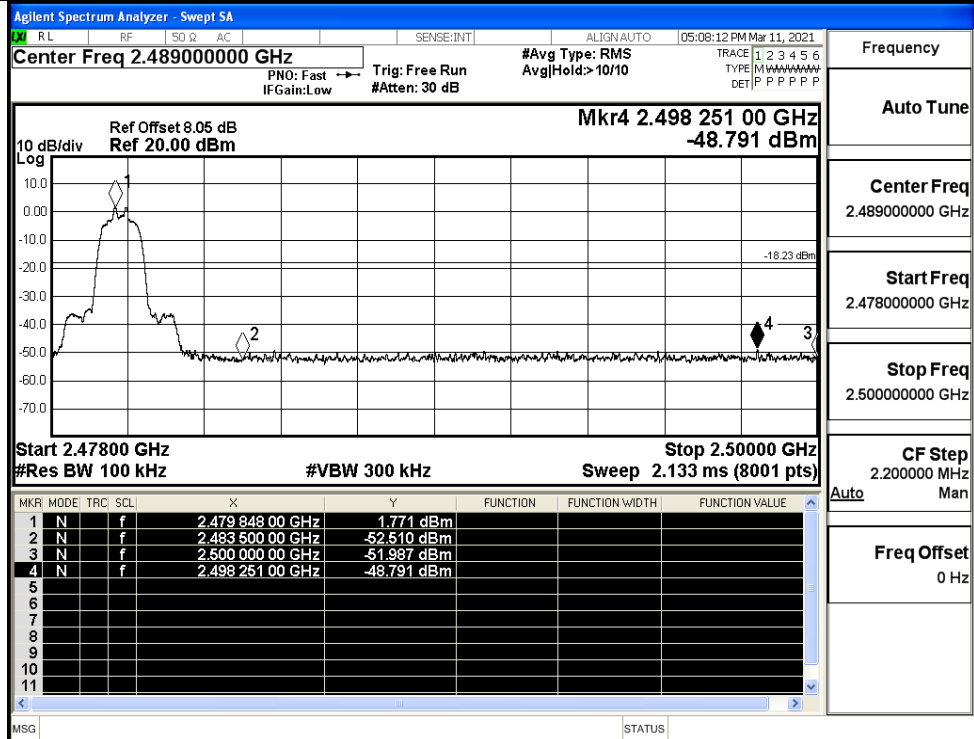
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/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
Auto	Man
Freq Offset	0 Hz

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



Frequency

Auto Tune

Center Freq  
2.489000000 GHz

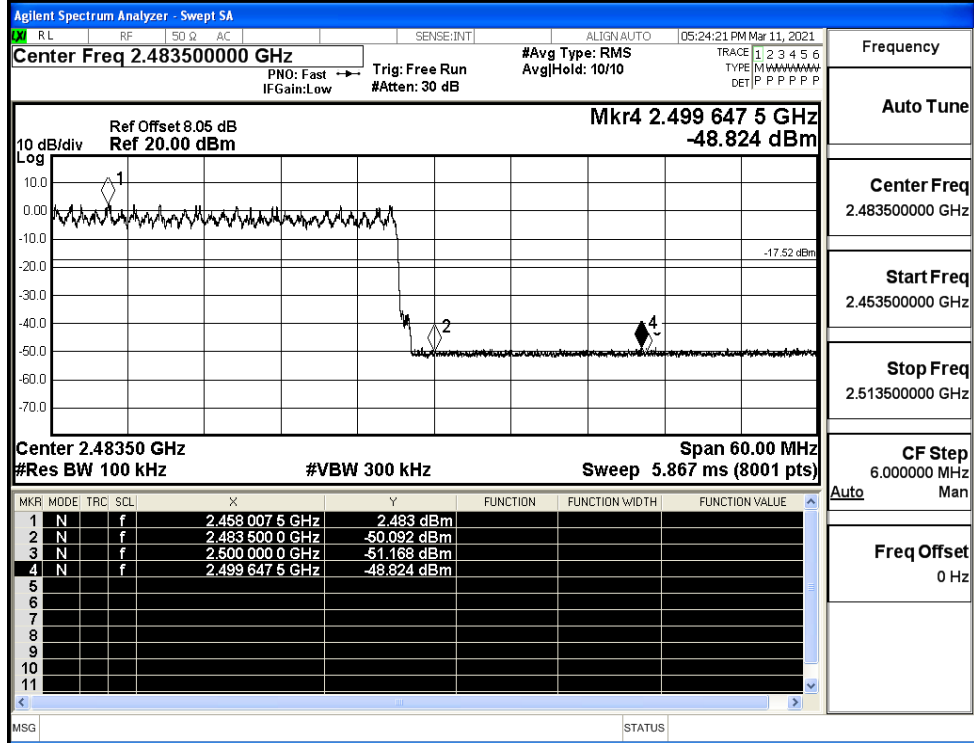
Start Freq  
2.478000000 GHz

Stop Freq  
2.500000000 GHz

CF Step  
2.200000 MHz

Freq Offset  
0 Hz

$\pi$ /4DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq  
2.483500000 GHz

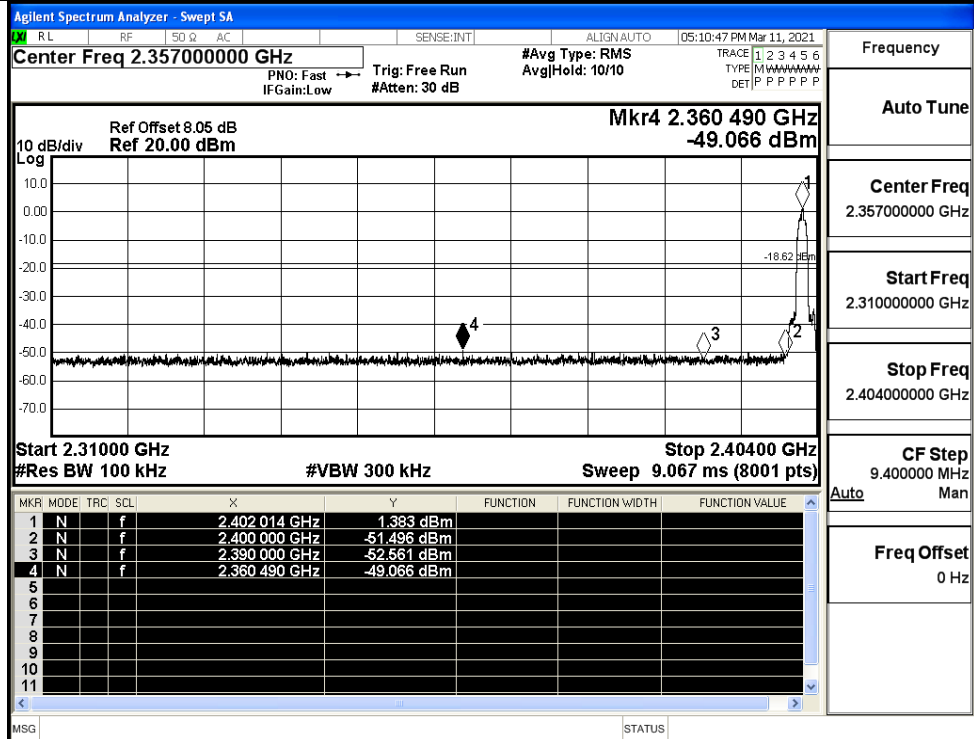
Start Freq  
2.453500000 GHz

Stop Freq  
2.513500000 GHz

CF Step  
6.000000 MHz

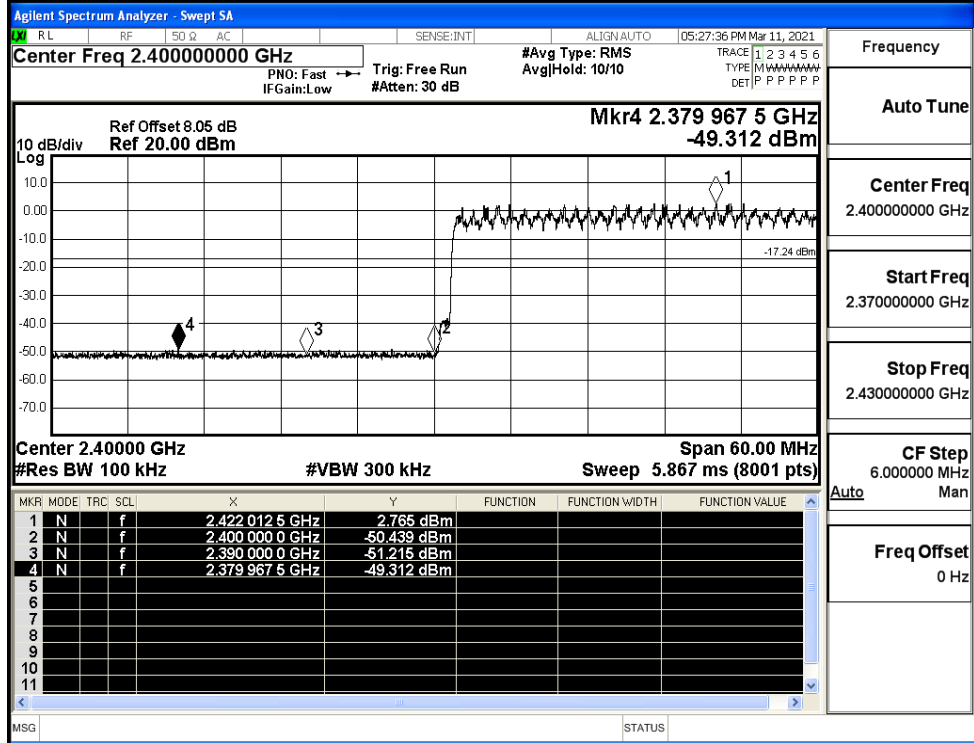
Freq Offset  
0 Hz

8DPSK/LCH/No Hop



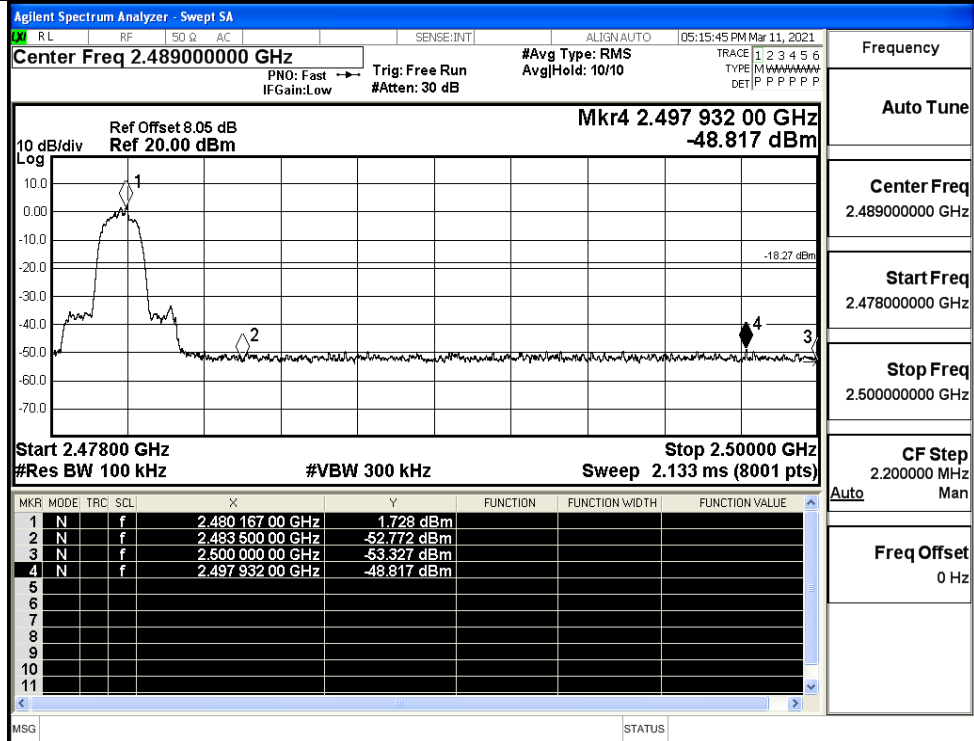
Frequency  
Auto Tune  
Center Freq  
2.357000000 GHz  
Start Freq  
2.310000000 GHz  
Stop Freq  
2.404000000 GHz  
CF Step  
9.400000 MHz  
Auto Man  
Freq Offset  
0 Hz

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  
Auto Man  
Freq Offset  
0 Hz

8DPSK/HCH/No Hop



Frequency

Auto Tune

Center Freq  
2.489000000 GHz

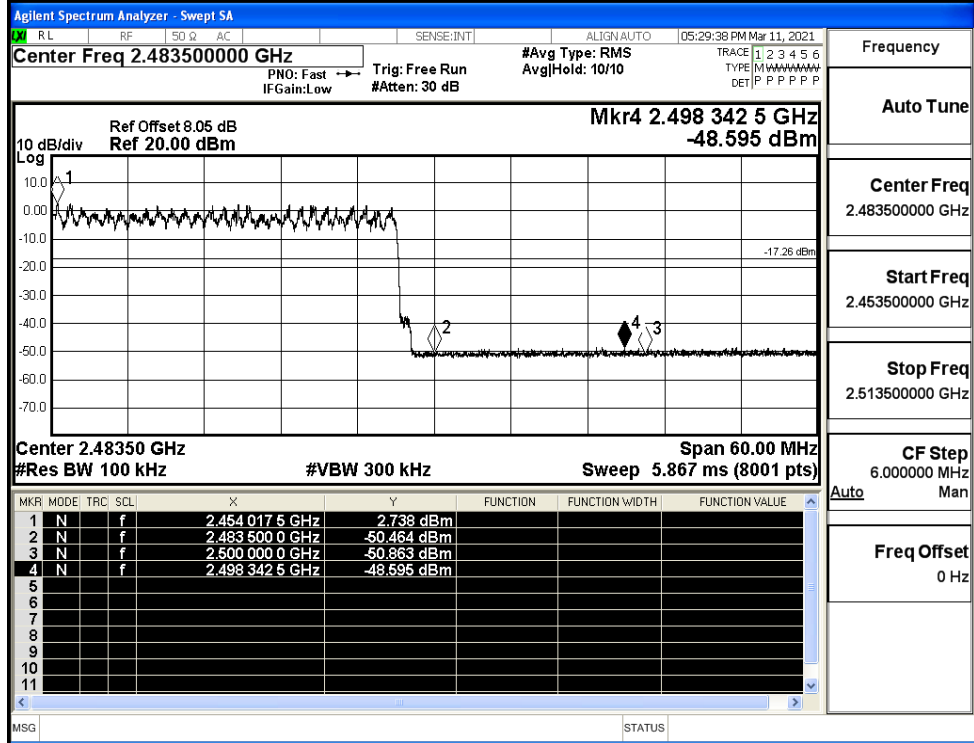
Start Freq  
2.478000000 GHz

Stop Freq  
2.500000000 GHz

CF Step  
2.200000 MHz

Freq Offset  
0 Hz

8DPSK/HCH/Hop



Frequency

Auto Tune

Center Freq  
2.483500000 GHz

Start Freq  
2.453500000 GHz

Stop Freq  
2.513500000 GHz

CF Step  
6.000000 MHz

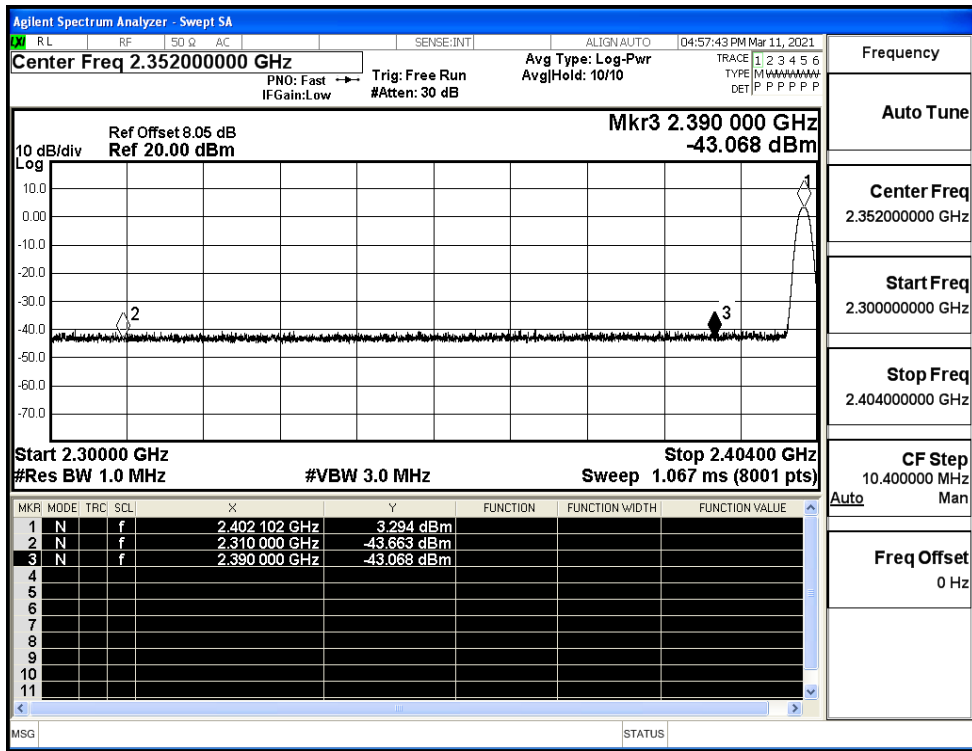
Freq Offset  
0 Hz



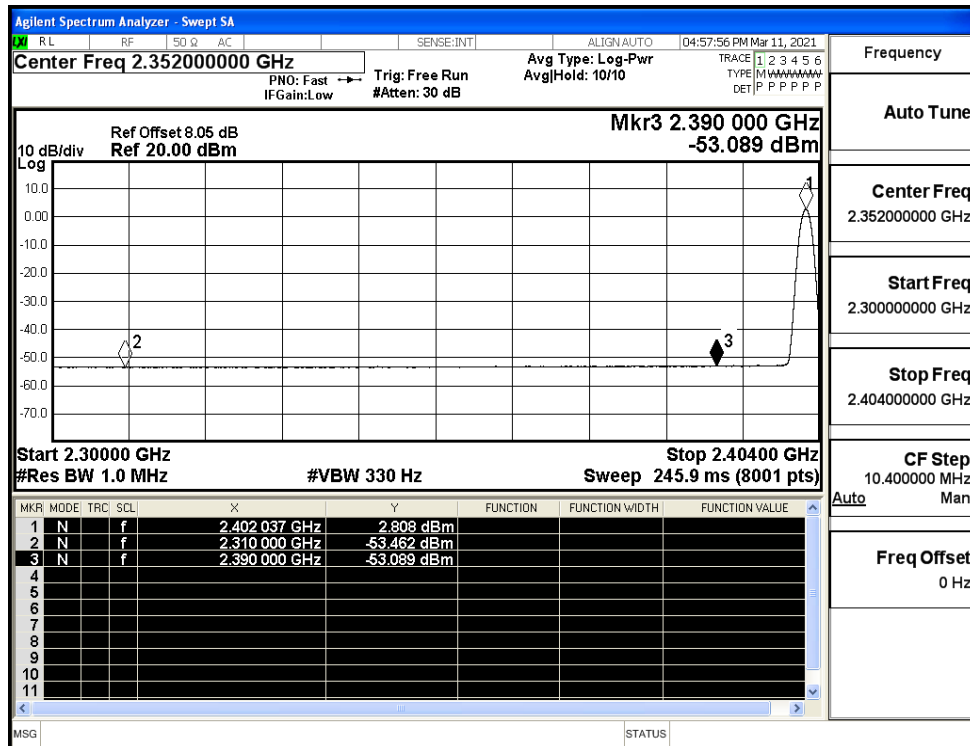
## A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.66	2.0	0	51.59	PEAK	74	PASS
	Off	2310.0	-53.46	2.0	0	41.80	AV	54	PASS
	Off	2390.0	-43.07	2.0	0	52.19	PEAK	74	PASS
	Off	2390.0	-53.09	2.0	0	42.17	AV	54	PASS
	Off	2483.5	-42.03	2.0	0	53.23	PEAK	74	PASS
	Off	2483.5	-52.47	2.0	0	42.79	AV	54	PASS
	Off	2500.0	-42.20	2.0	0	53.06	PEAK	74	PASS
	Off	2500.0	-52.40	2.0	0	42.86	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.20	2.0	0	52.06	PEAK	74	PASS
	Off	2310.0	-53.36	2.0	0	41.90	AV	54	PASS
	Off	2390.0	-41.41	2.0	0	53.85	PEAK	74	PASS
	Off	2390.0	-53.09	2.0	0	42.16	AV	54	PASS
	Off	2483.5	-42.39	2.0	0	52.87	PEAK	74	PASS
	Off	2483.5	-52.40	2.0	0	42.86	AV	54	PASS
	Off	2500.0	-41.06	2.0	0	54.20	PEAK	74	PASS
	Off	2500.0	-52.31	2.0	0	42.95	AV	54	PASS
8DPSK	Off	2310.0	-43.21	2.0	0	52.05	PEAK	74	PASS
	Off	2310.0	-53.22	2.0	0	42.04	AV	54	PASS
	Off	2390.0	-42.41	2.0	0	52.85	PEAK	74	PASS
	Off	2390.0	-53.04	2.0	0	42.21	AV	54	PASS
	Off	2483.5	-41.63	2.0	0	53.62	PEAK	74	PASS
	Off	2483.5	-52.34	2.0	0	42.92	AV	54	PASS
	Off	2500.0	-43.20	2.0	0	52.06	PEAK	74	PASS
	Off	2500.0	-52.37	2.0	0	42.89	AV	54	PASS

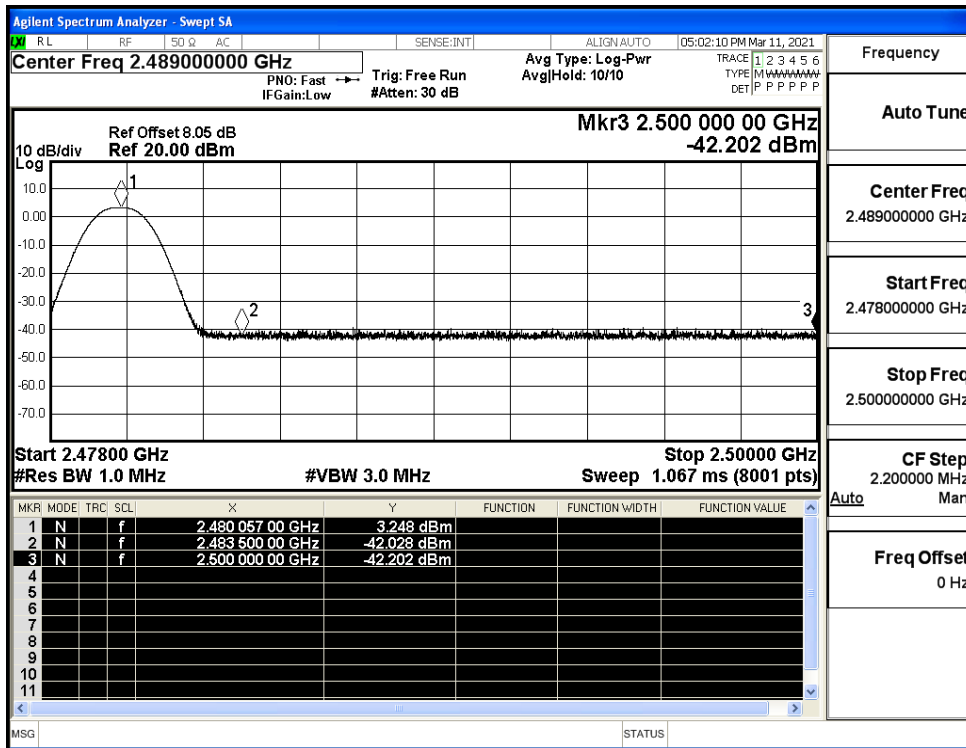
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



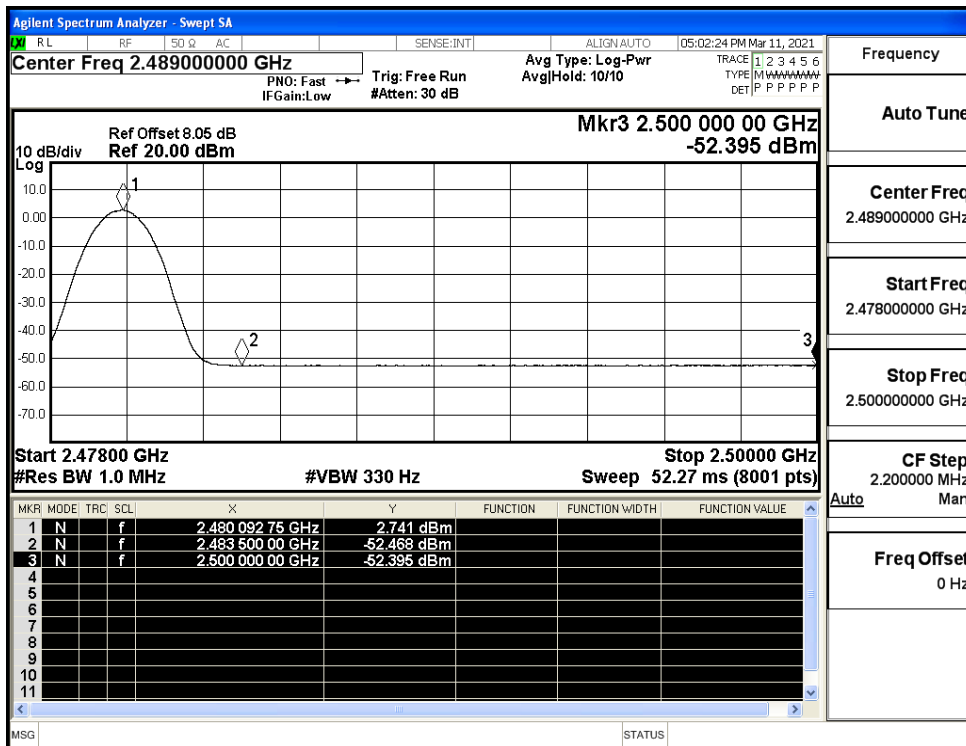
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



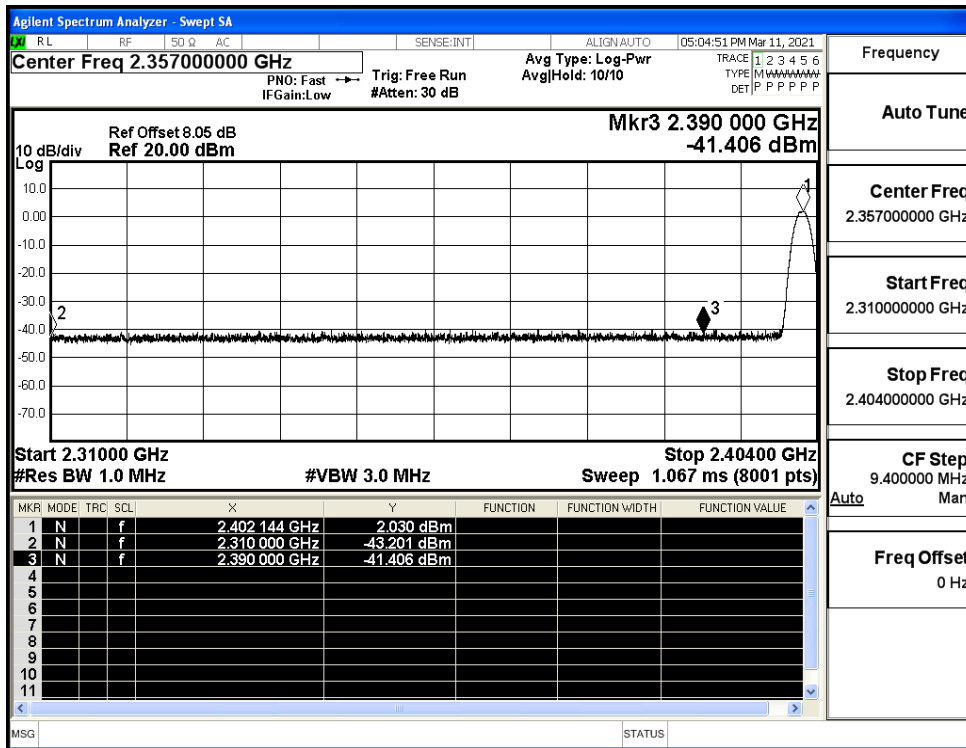
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



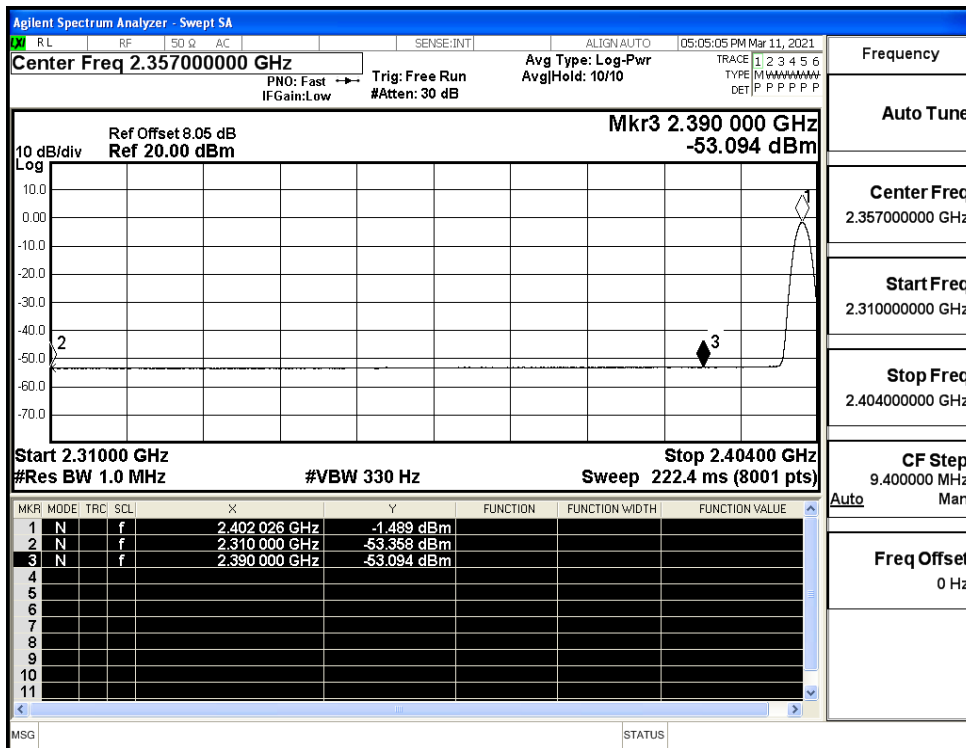
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



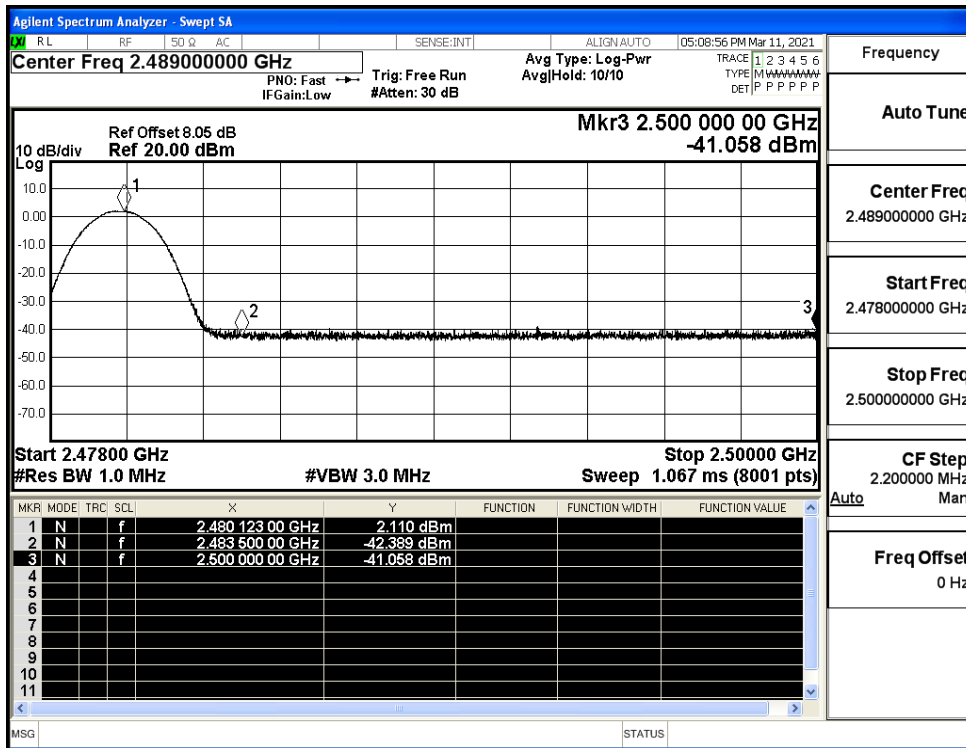
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)



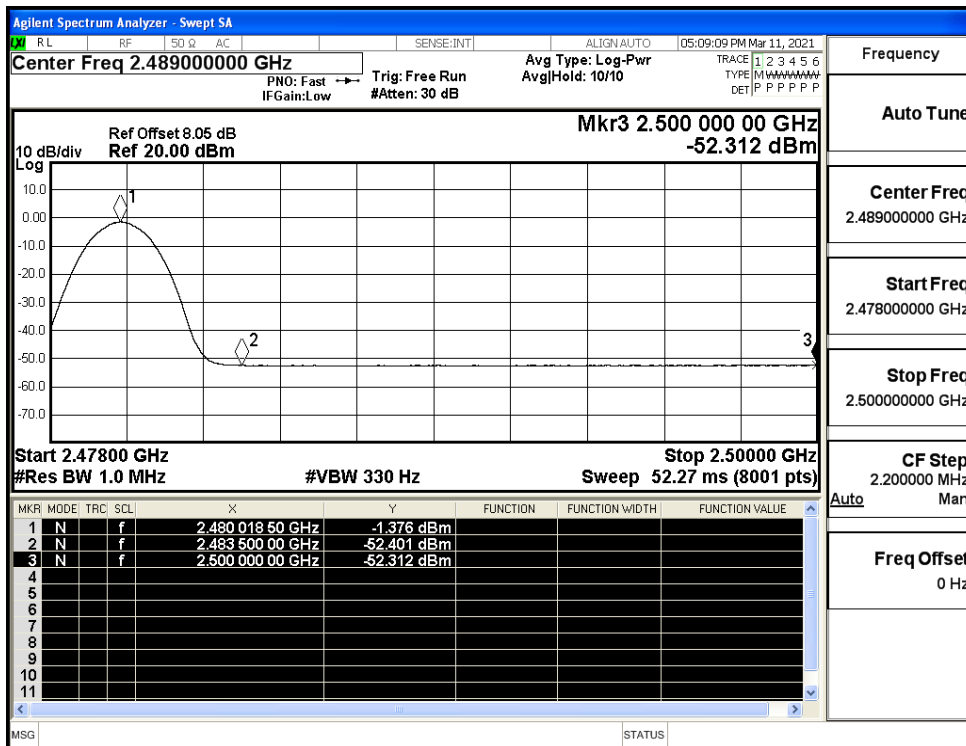
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)



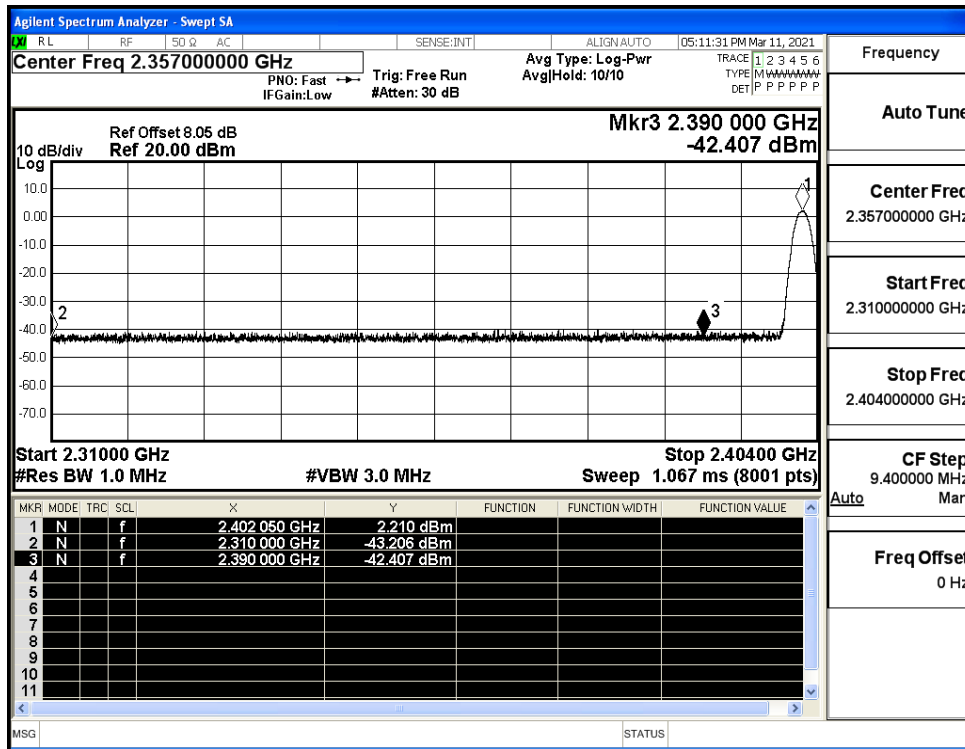
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



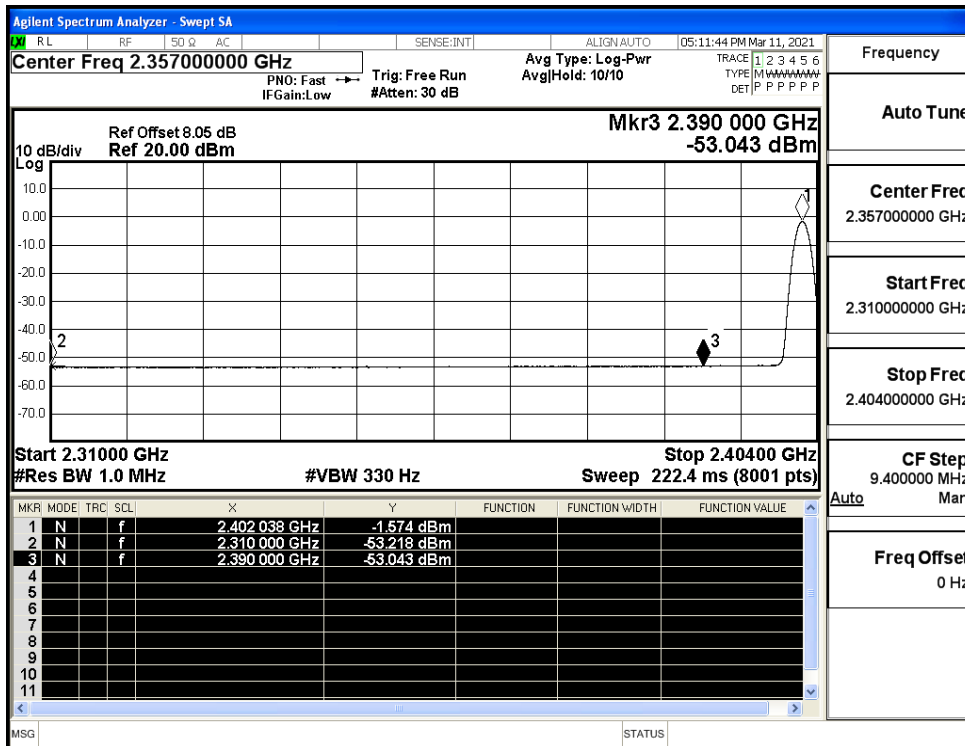
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



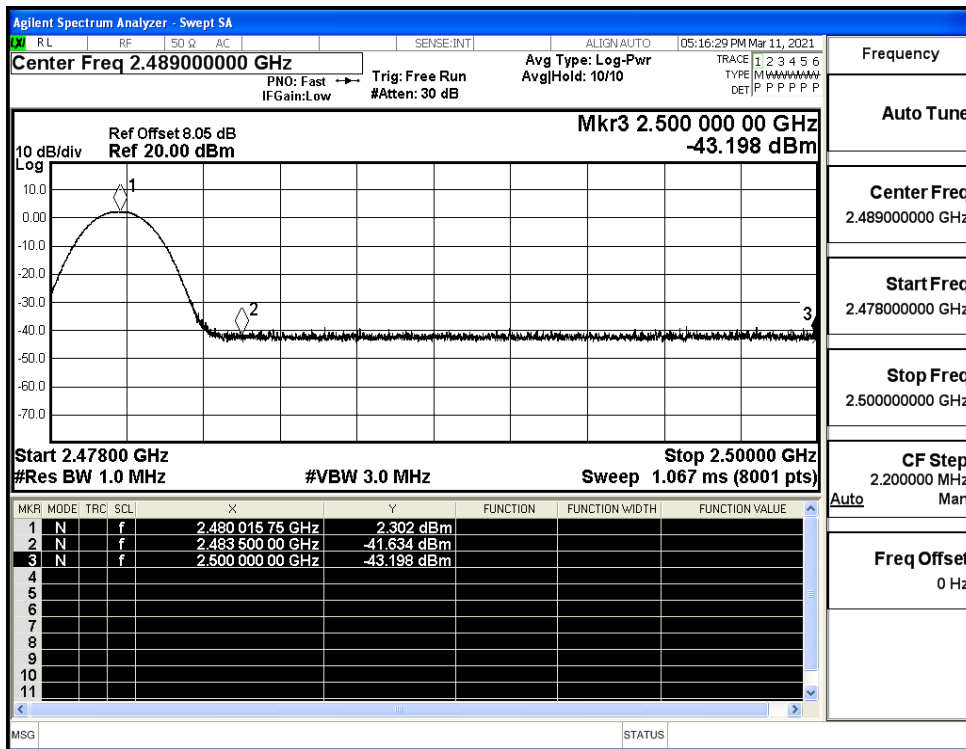
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



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)

