

## Appendix A

### RF Test Data for BT V4.0(BDR/EDR) (Conducted Measurement)

Product Name: Multi-function projector

Trade Mark: PHILIPS

Test Model: NeoPix Prime 2

#### Environmental Conditions

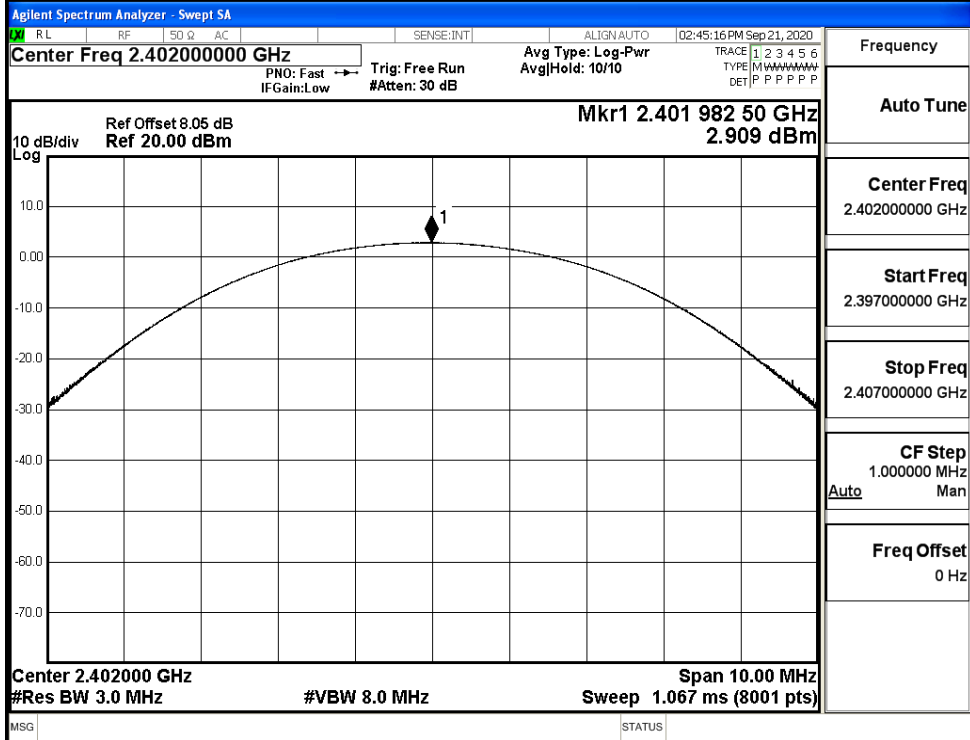
Temperature:	23.5 °C
Relative Humidity:	54.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

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

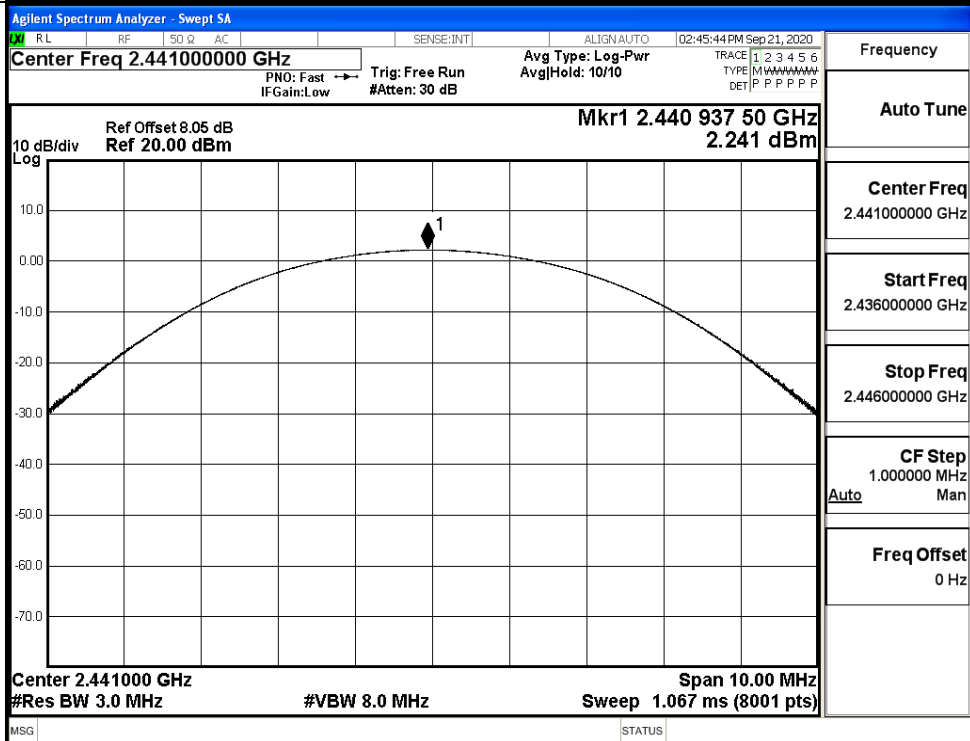
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.909	21	PASS
	MCH	2.241	21	PASS
	HCH	2.605	21	PASS
π/4DQPSK	LCH	2.083	21	PASS
	MCH	1.377	21	PASS
	HCH	1.799	21	PASS
8DPSK	LCH	2.015	21	PASS
	MCH	1.397	21	PASS
	HCH	1.803	21	PASS

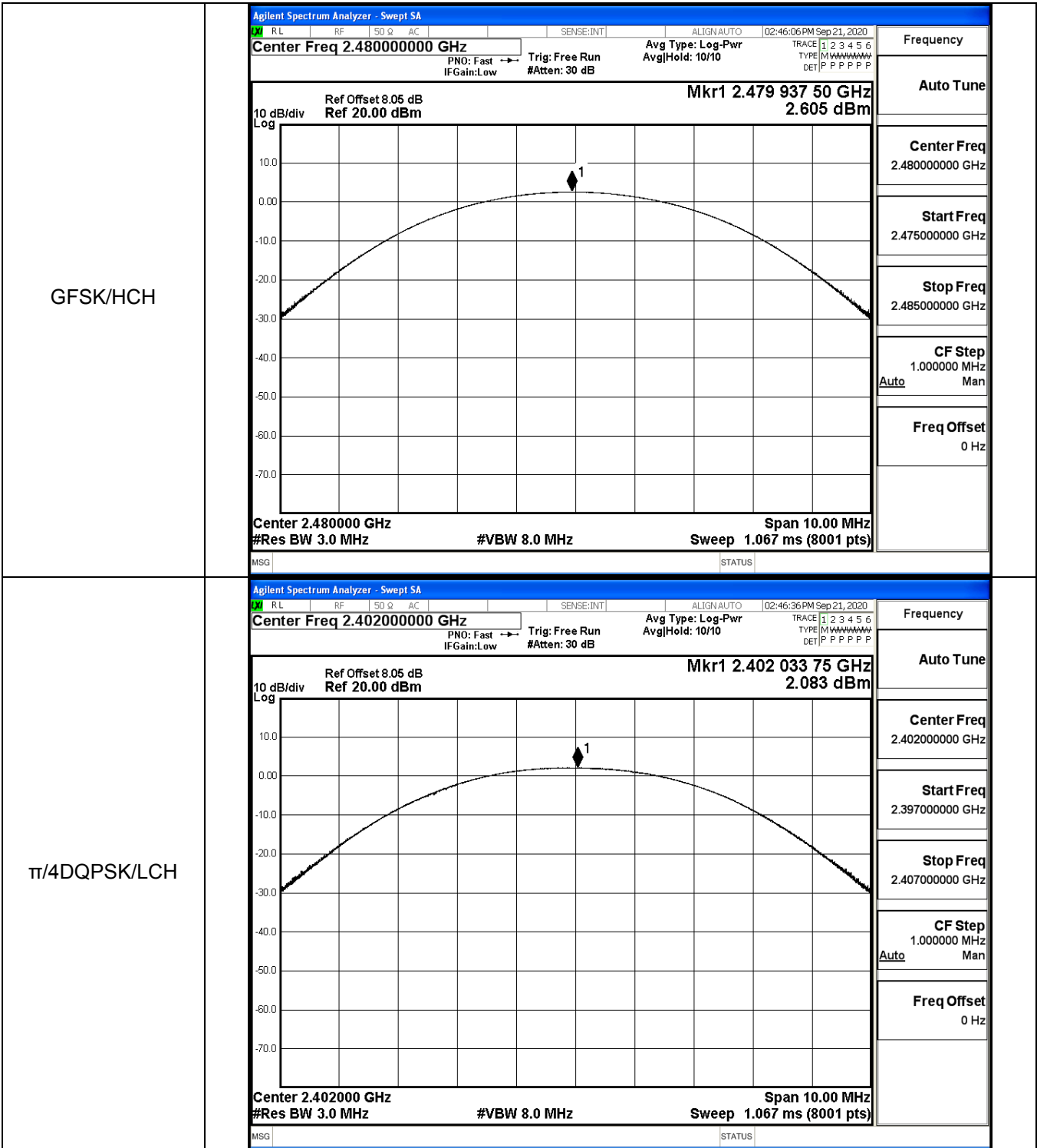
Test Graphs

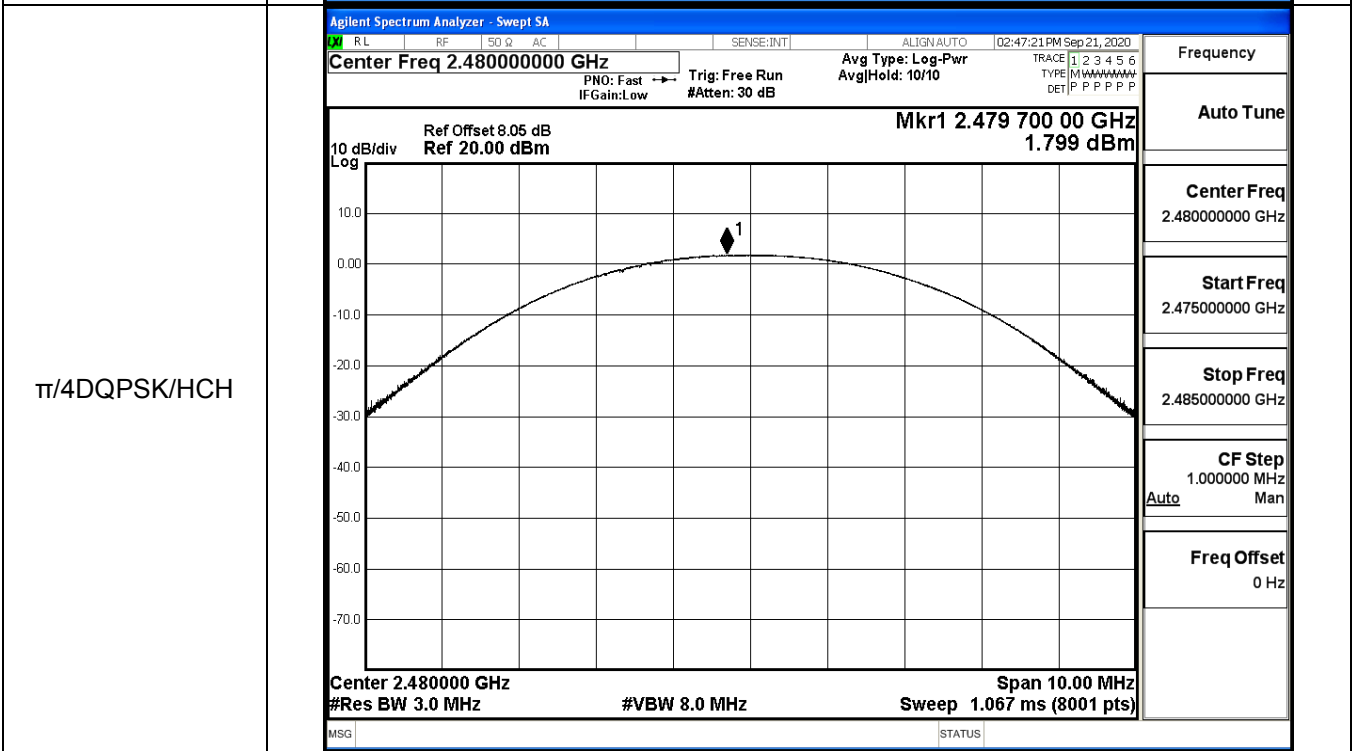
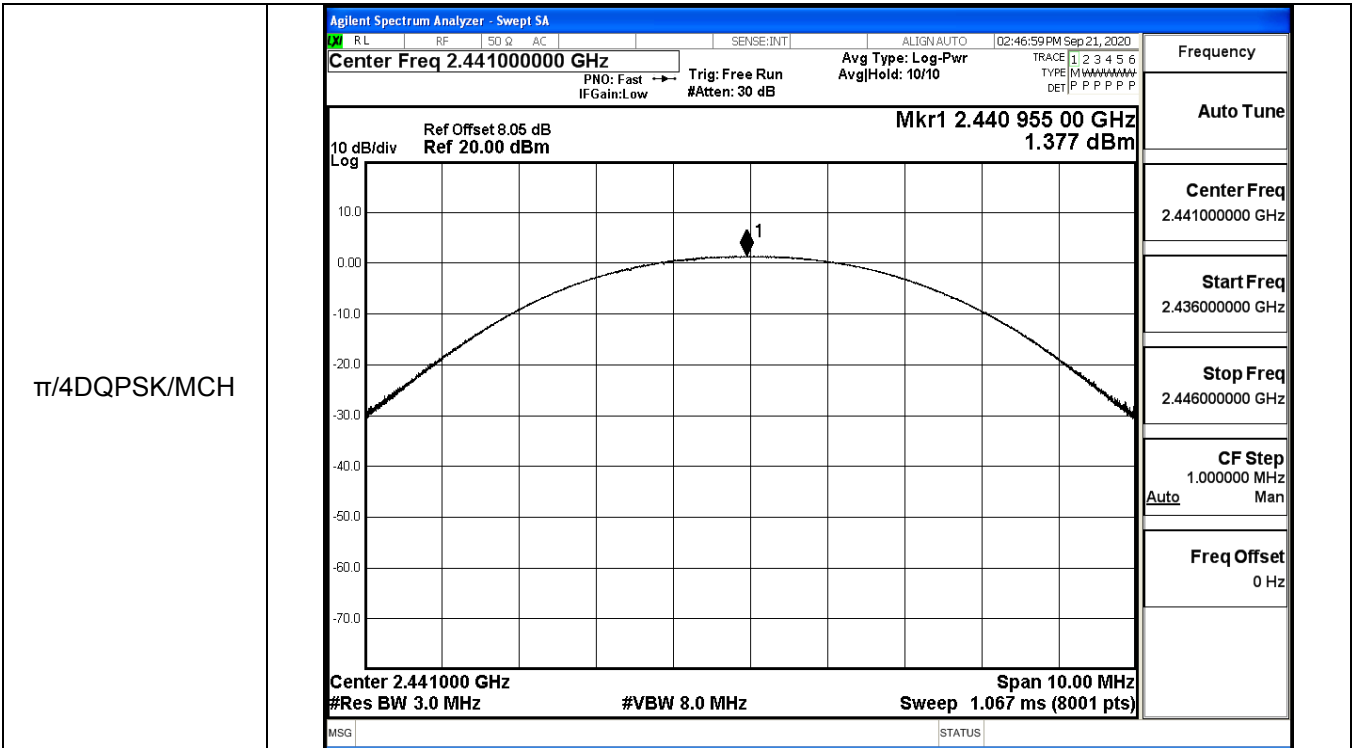
GFSK/LCH



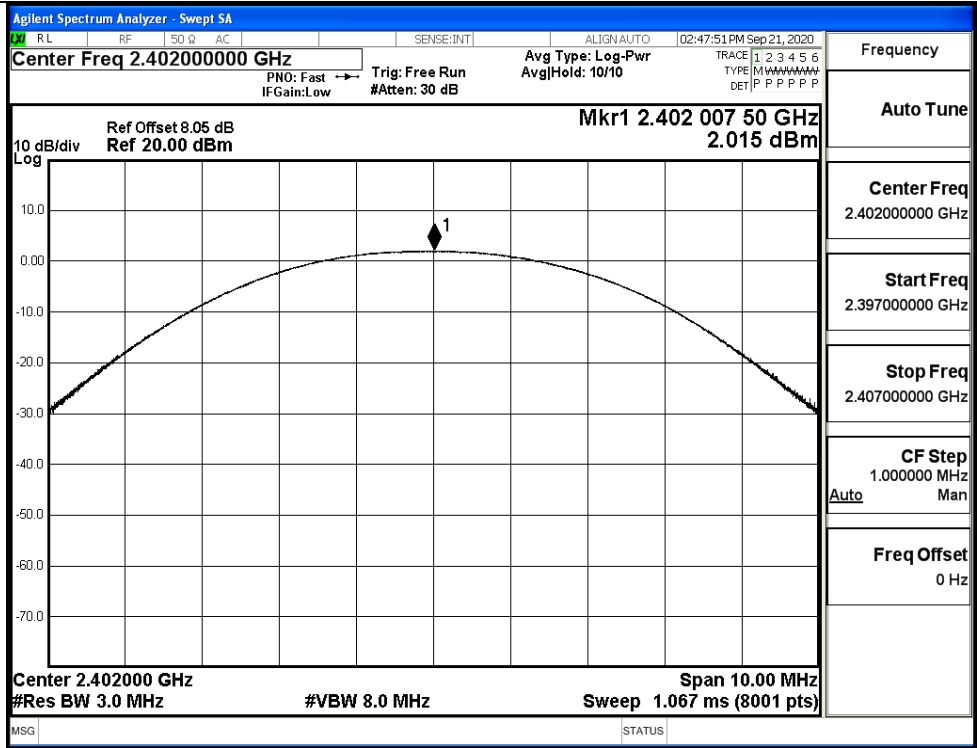
GFSK/MCH



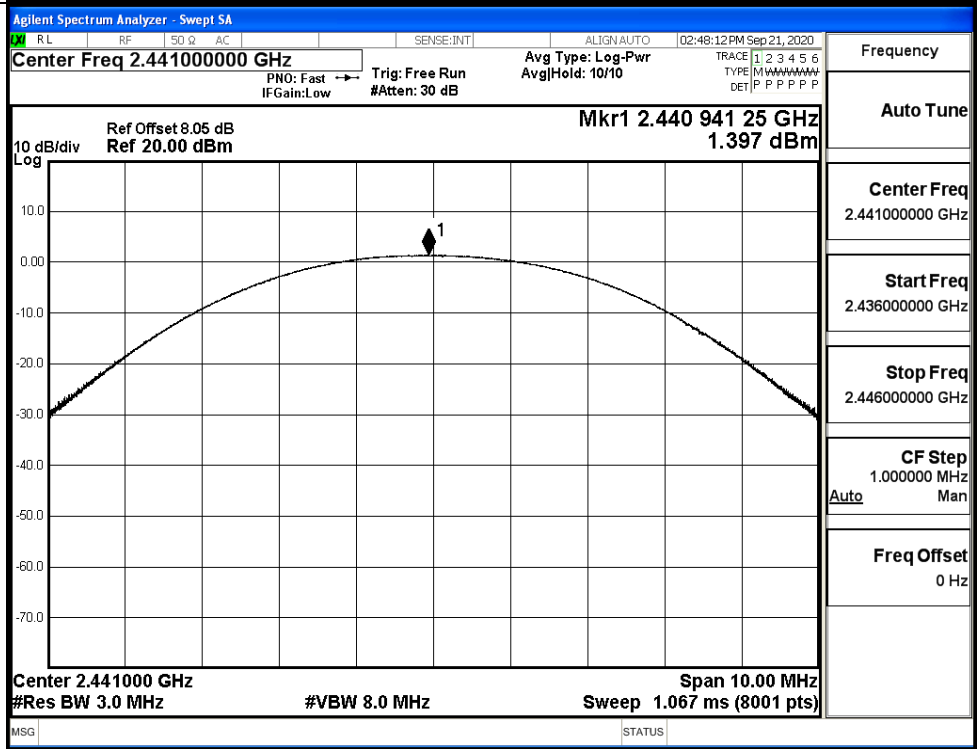




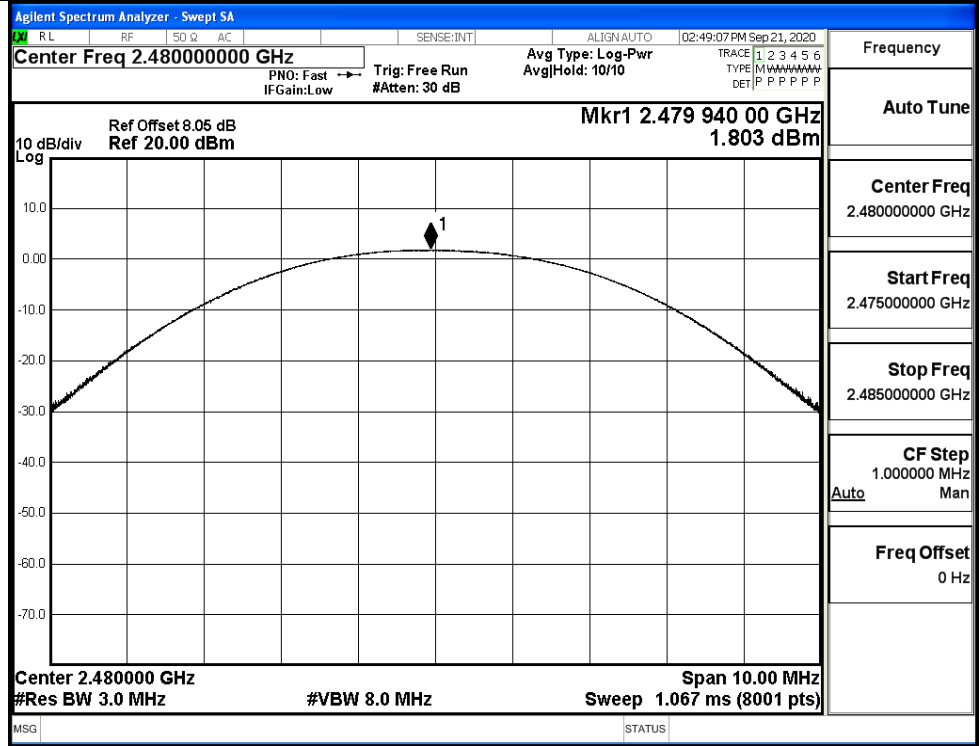
8DPSK/LCH



8DPSK/MCH

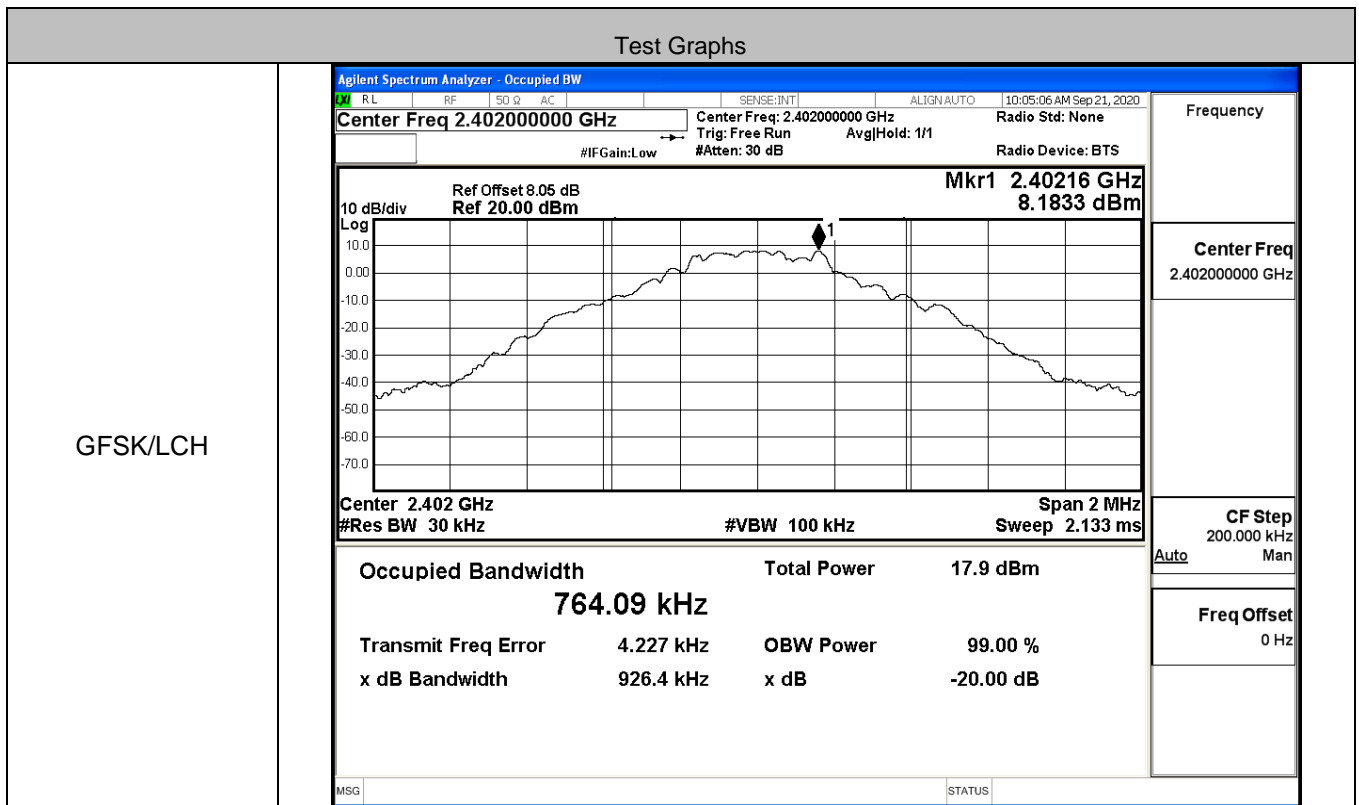


8DPSK/HCH

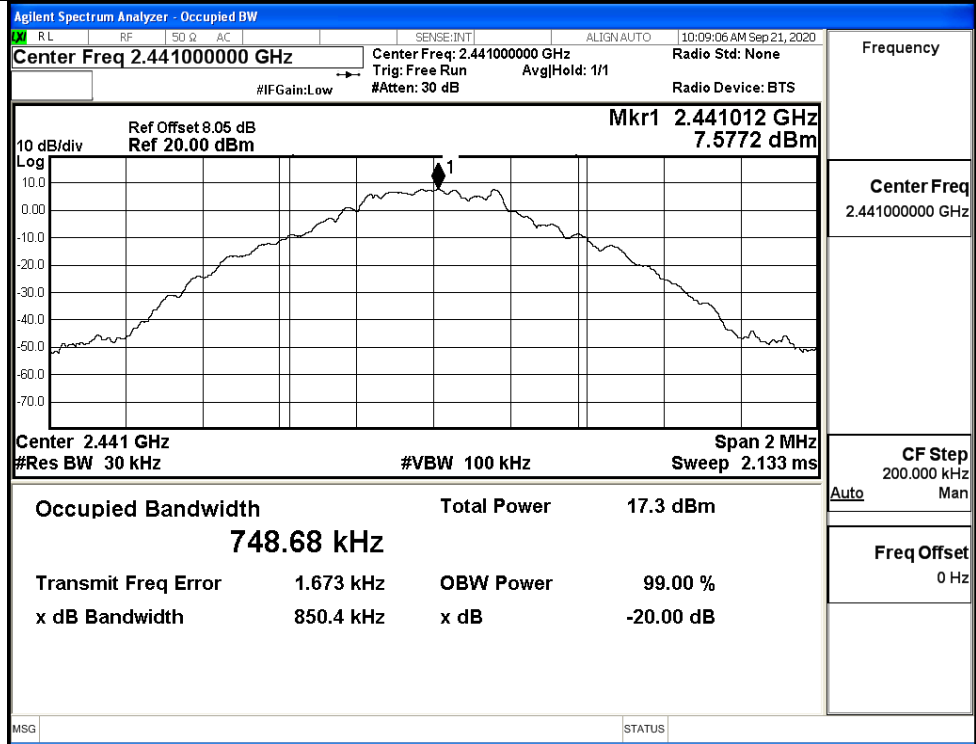


**A.2 20dB Bandwidth**

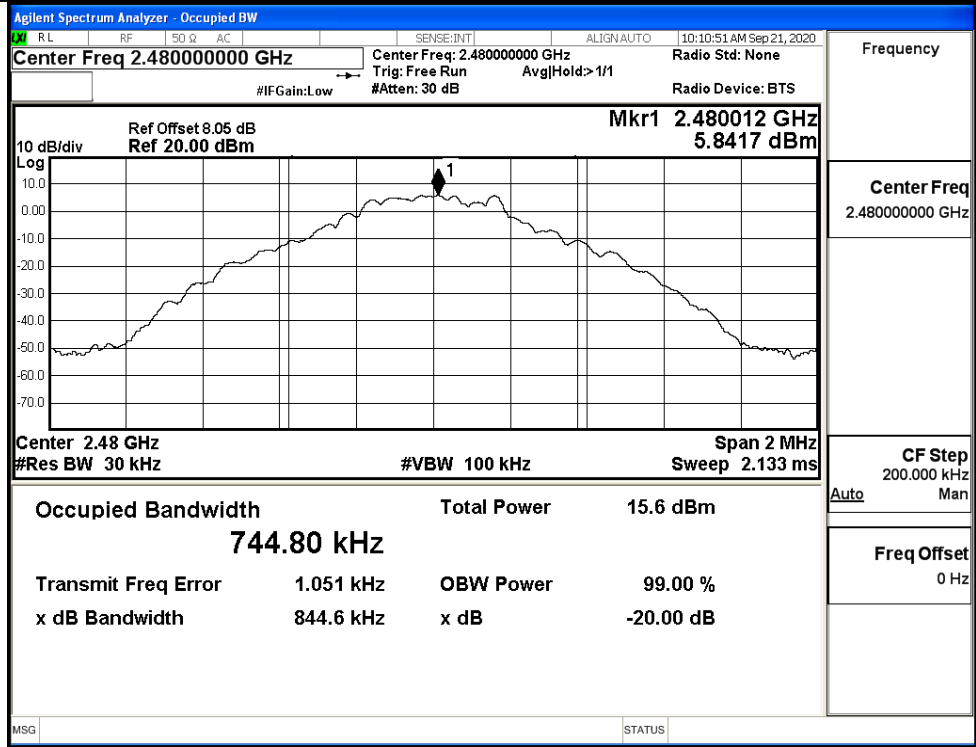
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9264	Not Specified	PASS
	MCH	0.8504	Not Specified	PASS
	HCH	0.8446	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.286	Not Specified	PASS
	MCH	1.268	Not Specified	PASS
	HCH	1.271	Not Specified	PASS
8DPSK	LCH	1.285	Not Specified	PASS
	MCH	1.268	Not Specified	PASS
	HCH	1.264	Not Specified	PASS



GFSK/MCH

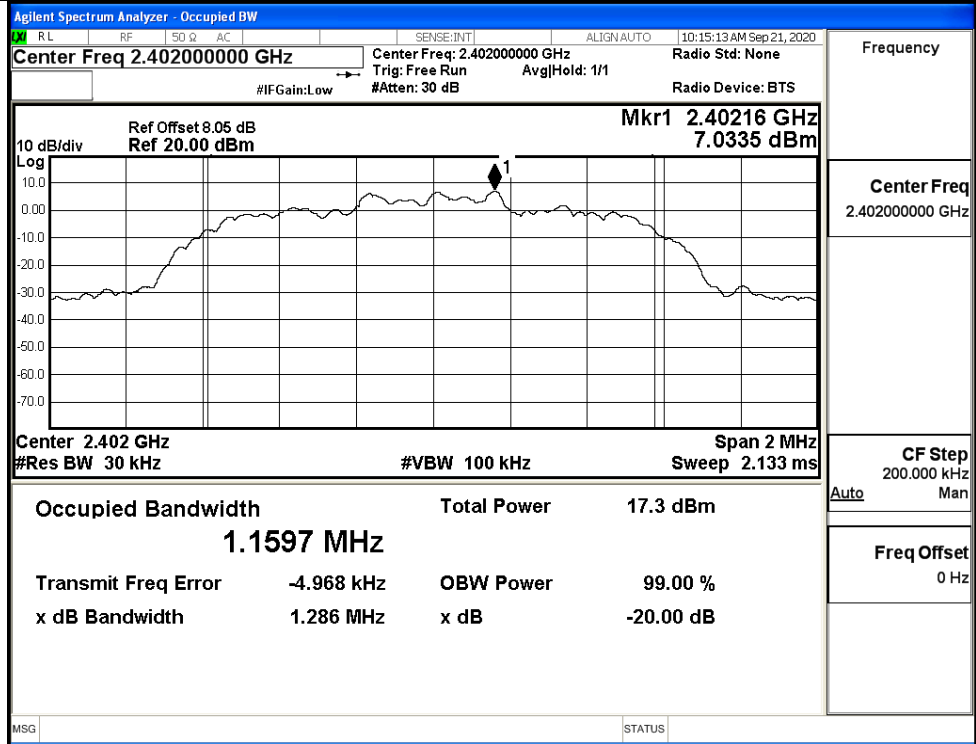


GFSK/HCH

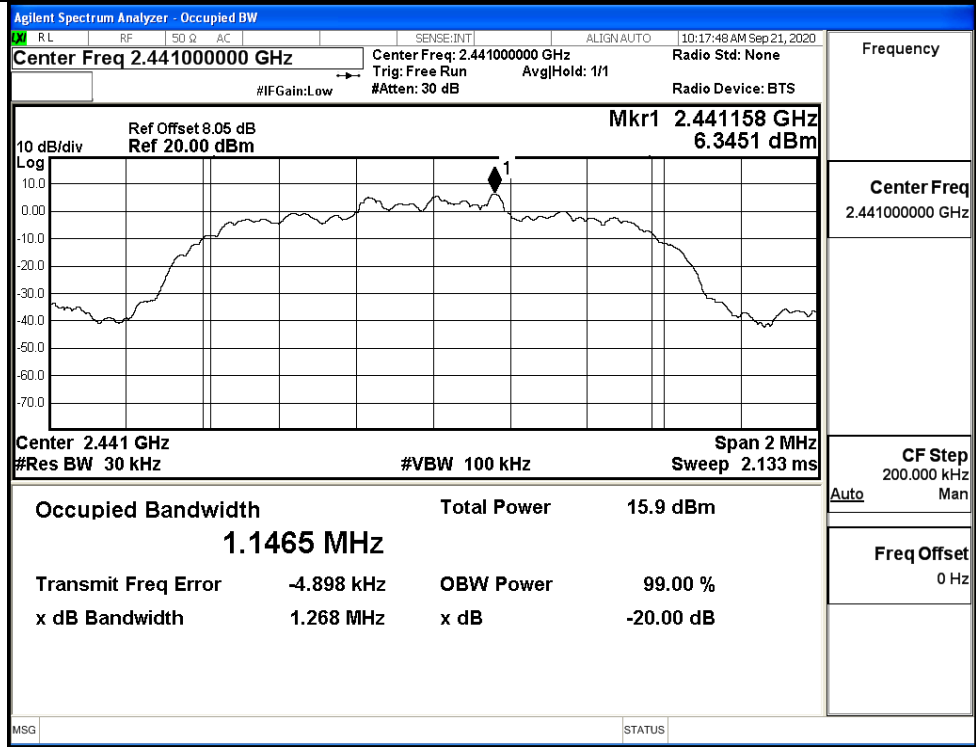




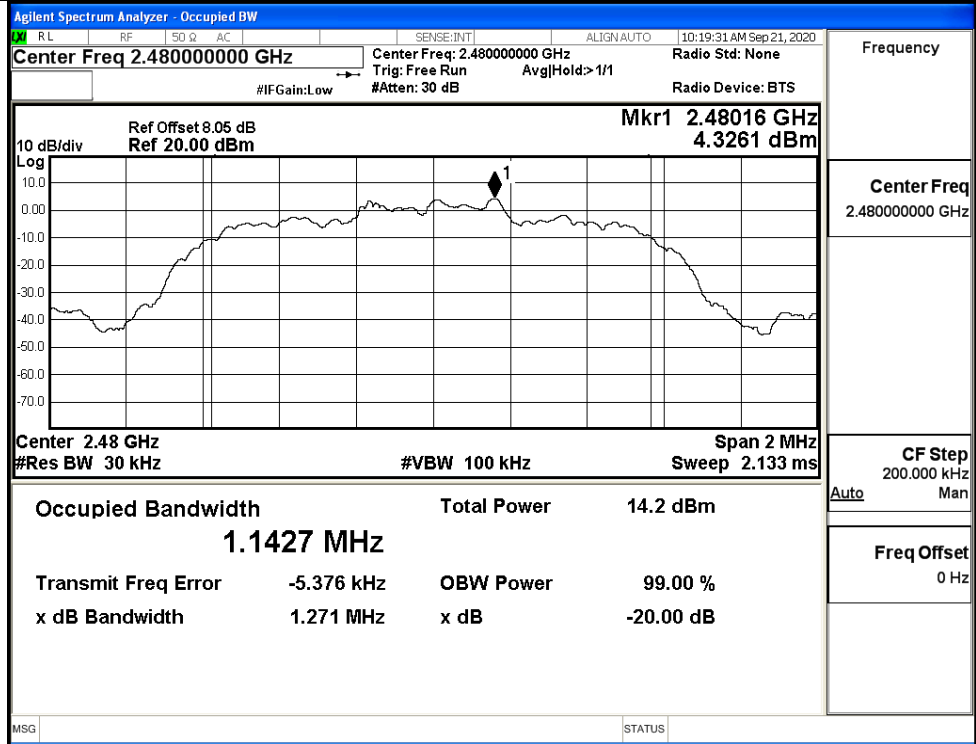
$\pi/4$ DQPSK/LCH



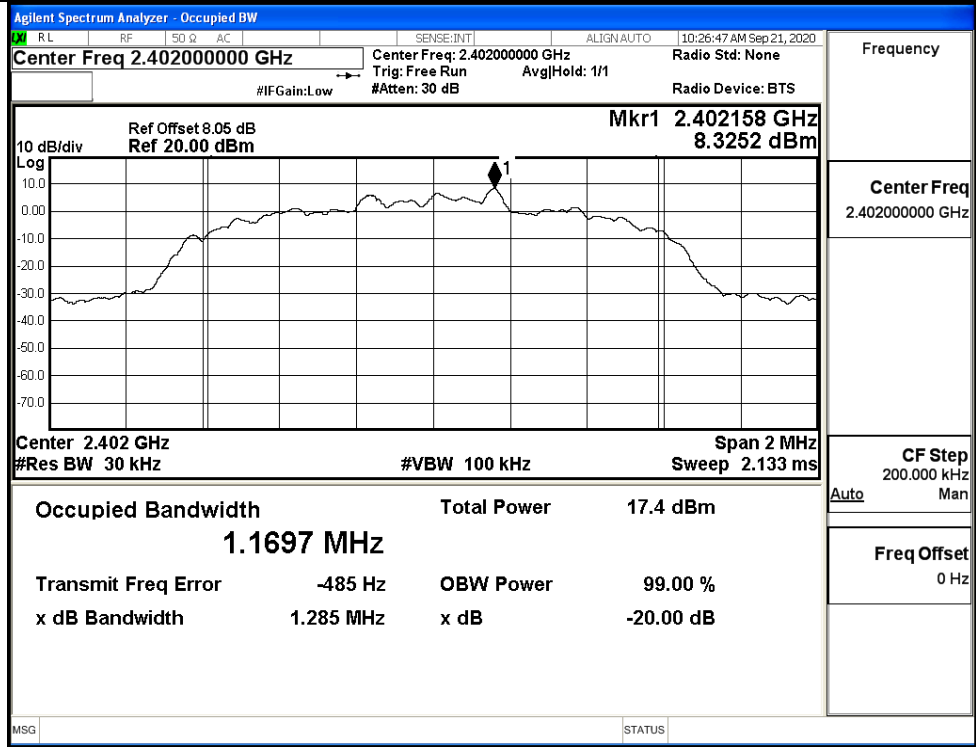
$\pi/4$ DQPSK/MCH



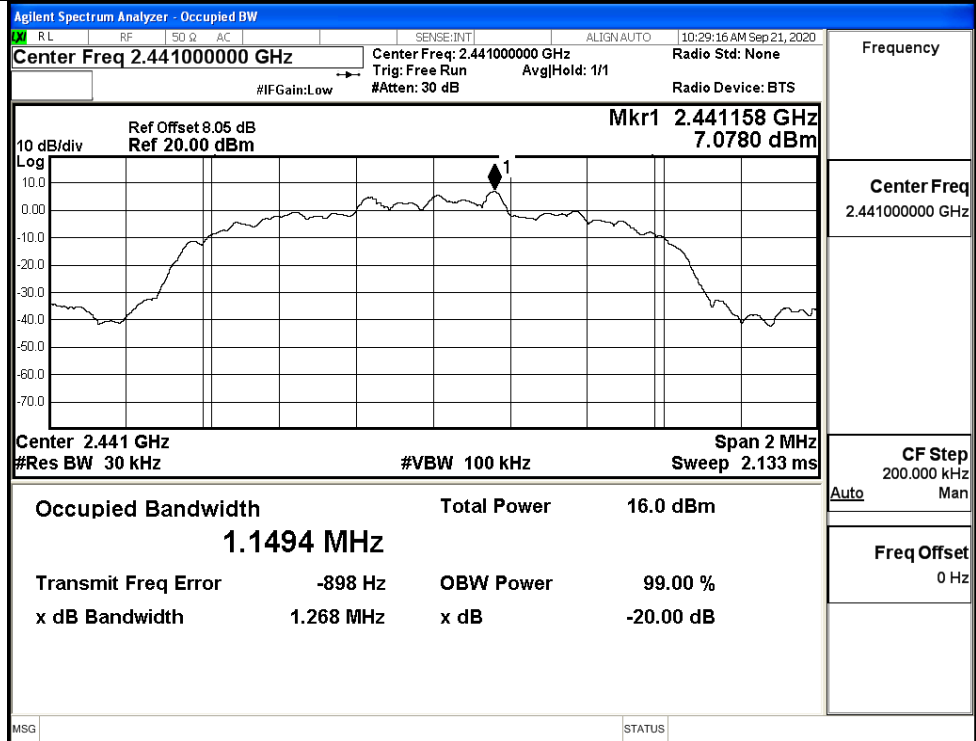
$\pi/4$ DQPSK/HCH



8DPSK/LCH

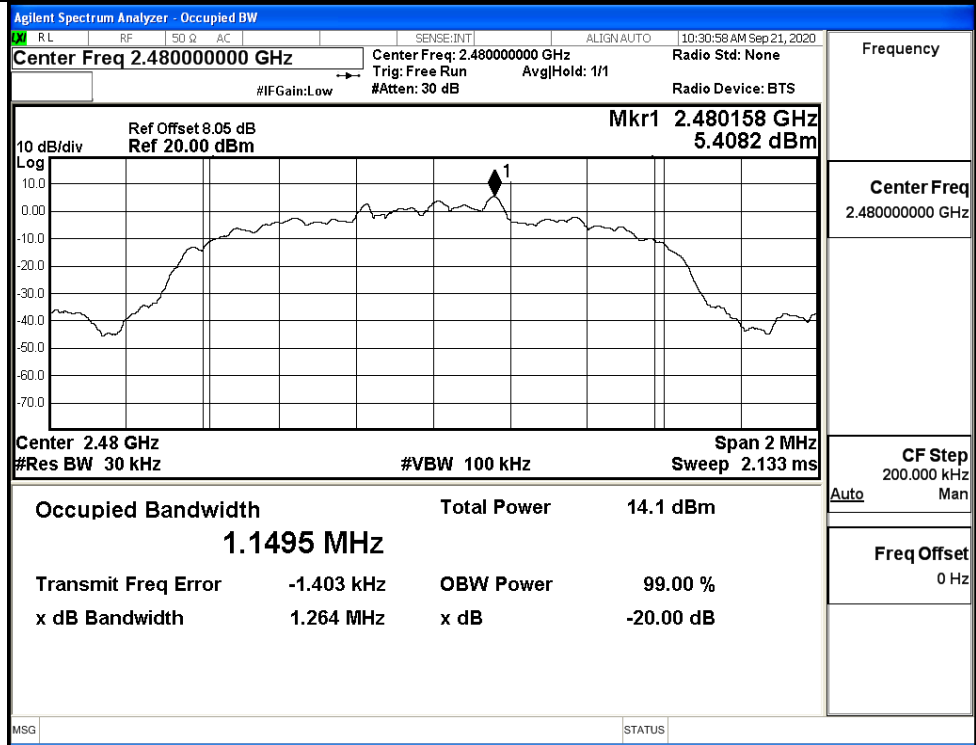


8DPSK/MCH



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

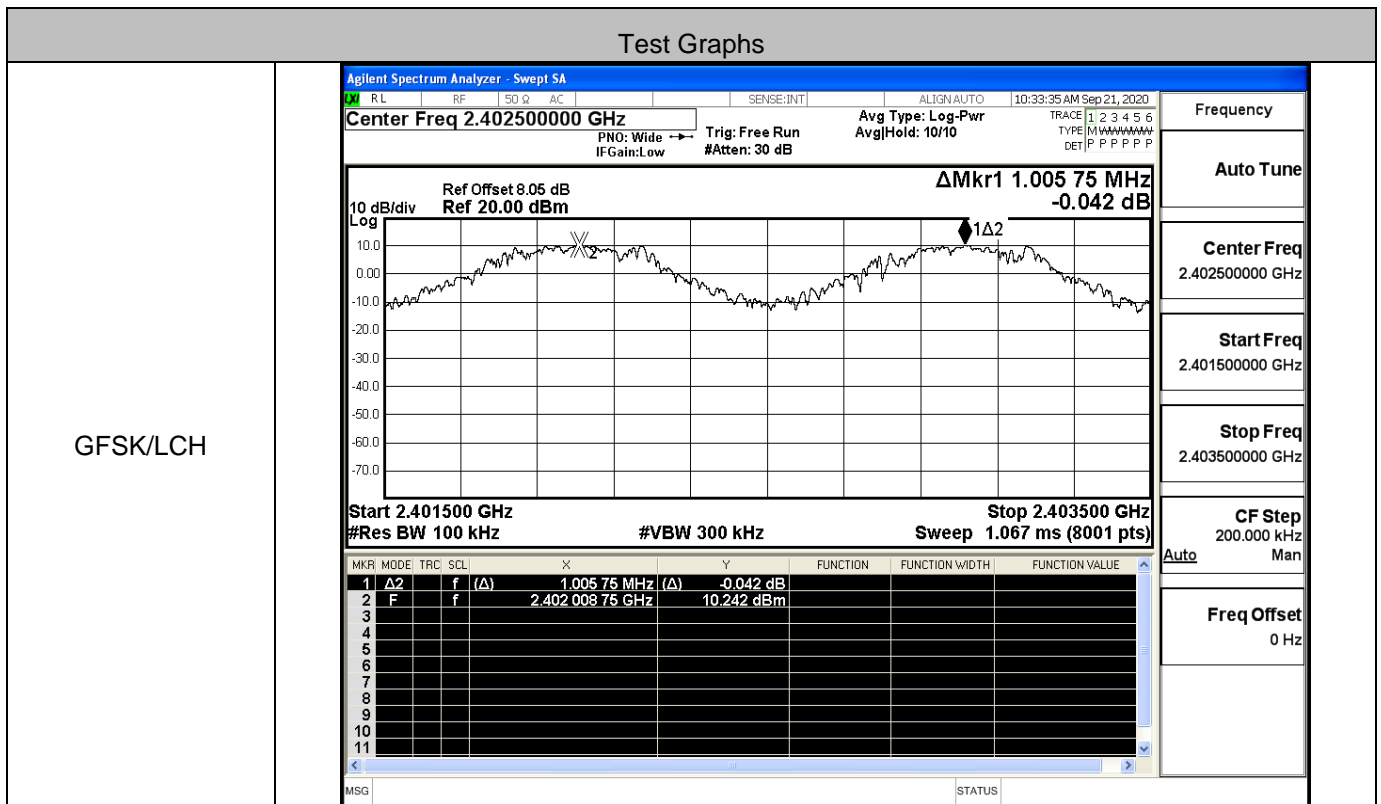
8DPSK/HCH



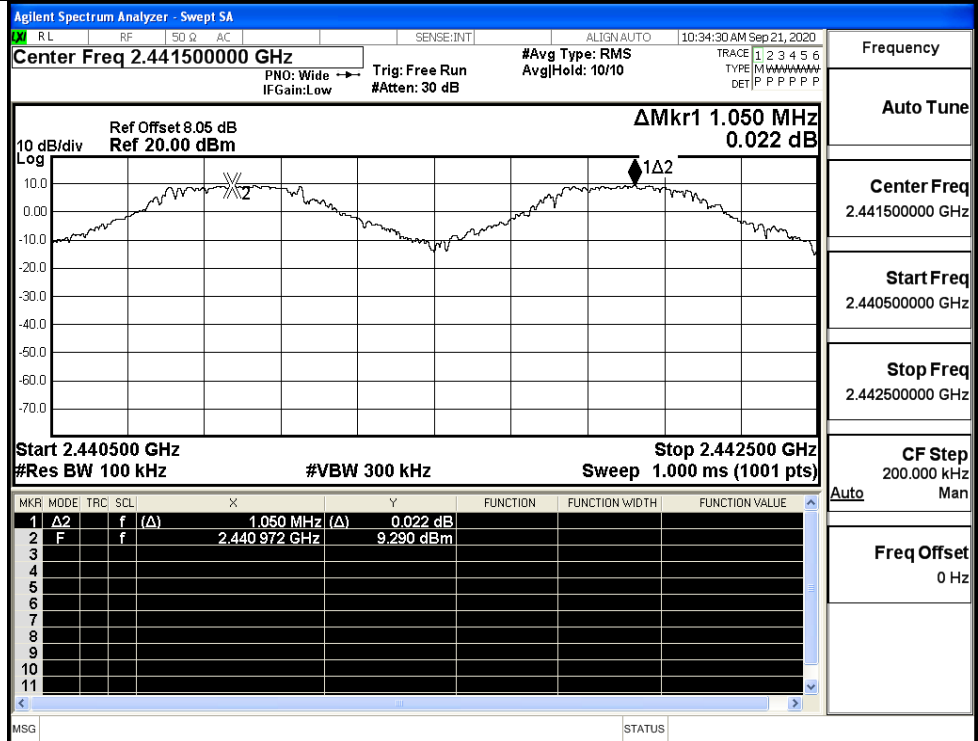
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

### A.3 Carrier Frequency Separation

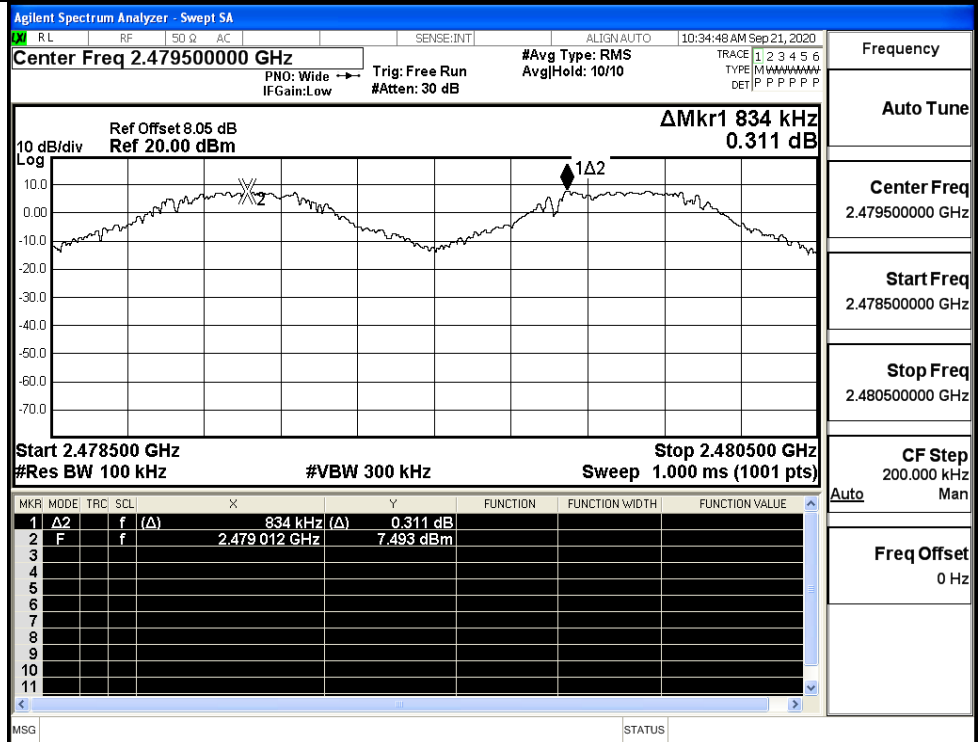
Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.006	0.618	PASS
	MCH	1.050	0.618	PASS
	HCH	0.834	0.618	PASS
π/4DQPSK	LCH	0.980	0.857	PASS
	MCH	0.858	0.857	PASS
	HCH	1.304	0.857	PASS
8DPSK	LCH	1.036	0.857	PASS
	MCH	0.998	0.857	PASS
	HCH	0.868	0.857	PASS



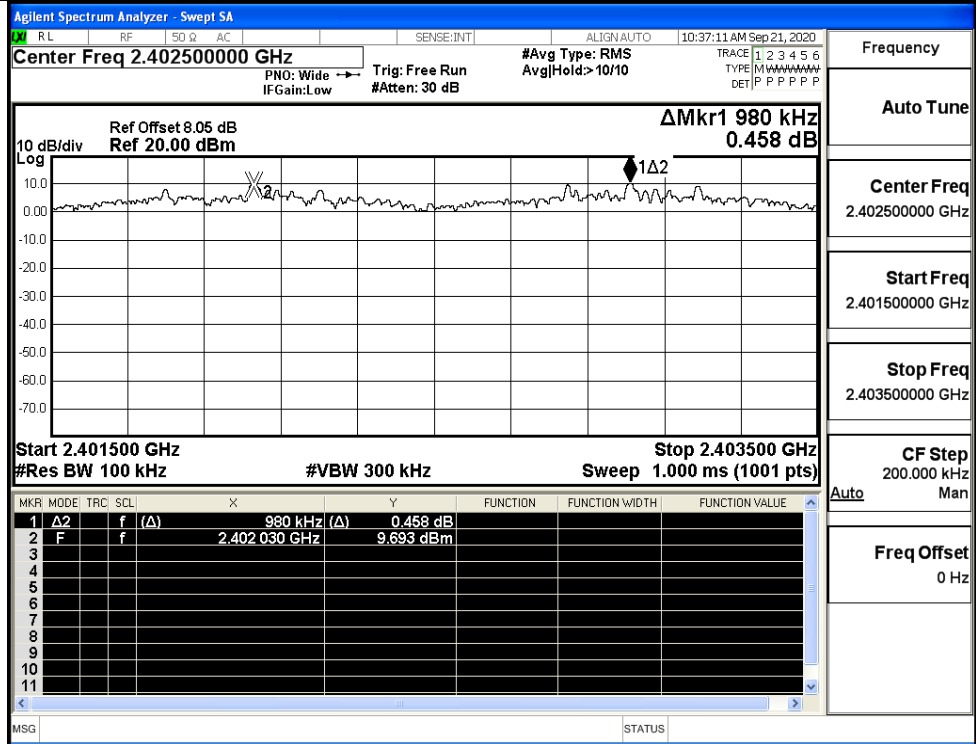
GFSK/MCH



GFSK/HCH

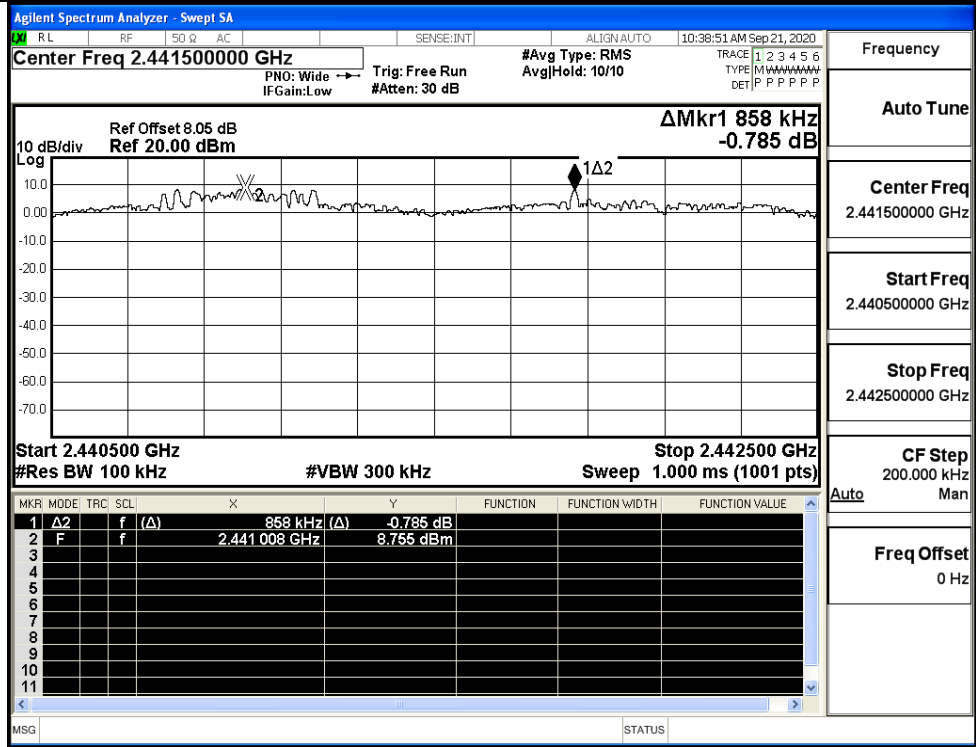


$\pi/4$ DQPSK/LCH



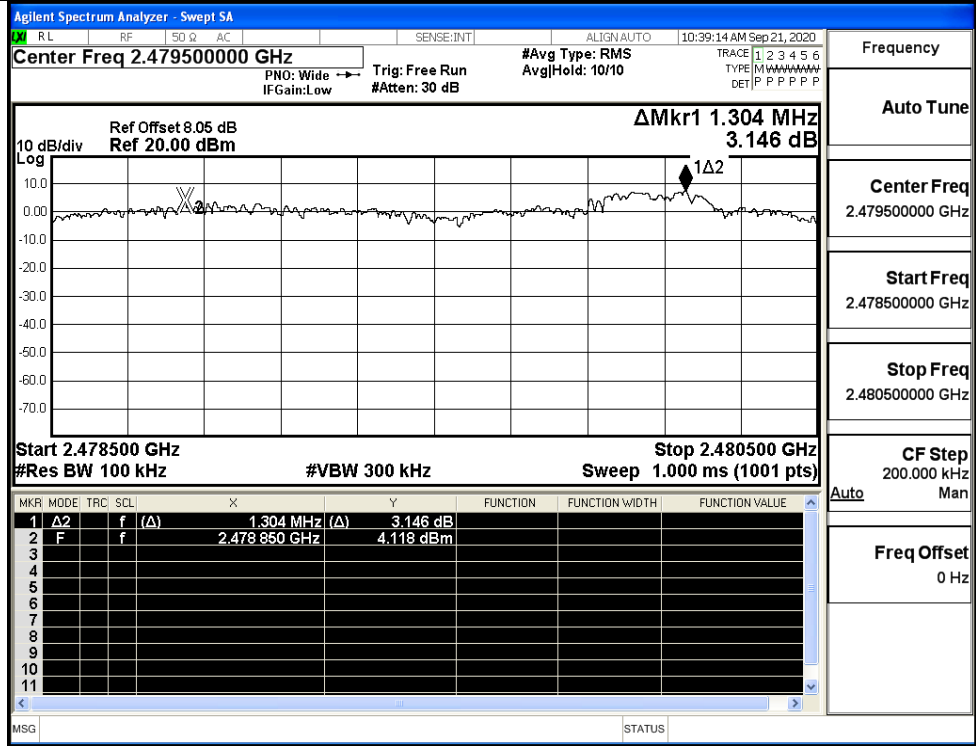
Frequency	2.402500000 GHz
Auto Tune	
Center Freq	2.402500000 GHz
Start Freq	2.401500000 GHz
Stop Freq	2.403500000 GHz
CF Step	200.000 kHz
Freq Offset	0 Hz

$\pi/4$ DQPSK/MCH



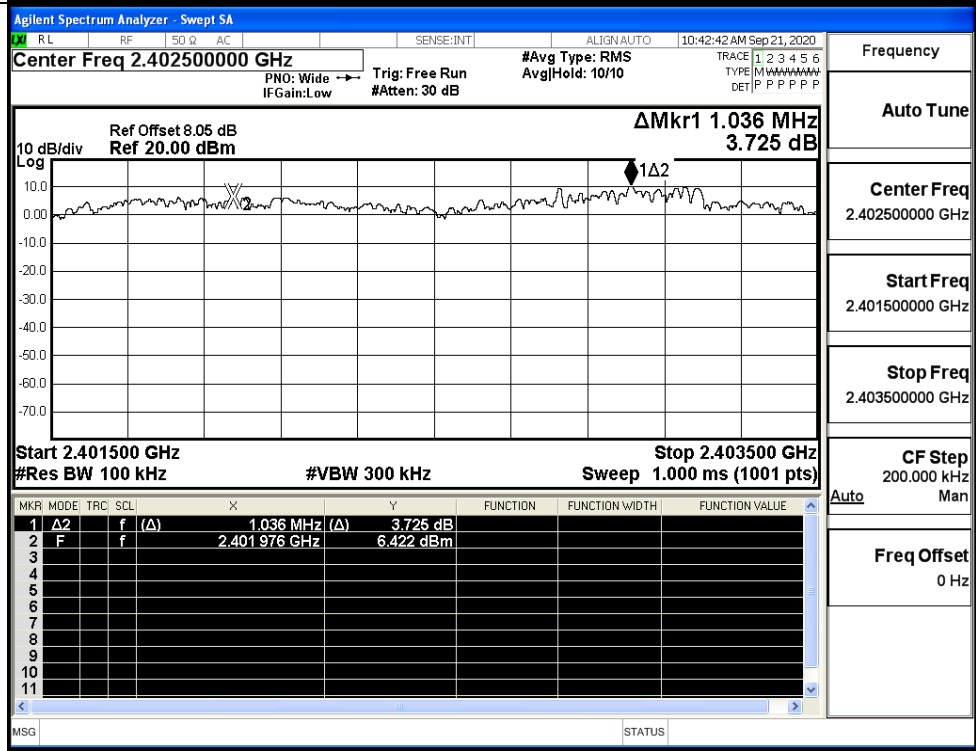
Frequency	2.441500000 GHz
Auto Tune	
Center Freq	2.441500000 GHz
Start Freq	2.440500000 GHz
Stop Freq	2.442500000 GHz
CF Step	200.000 kHz
Freq Offset	0 Hz

π/4DQPSK/HCH

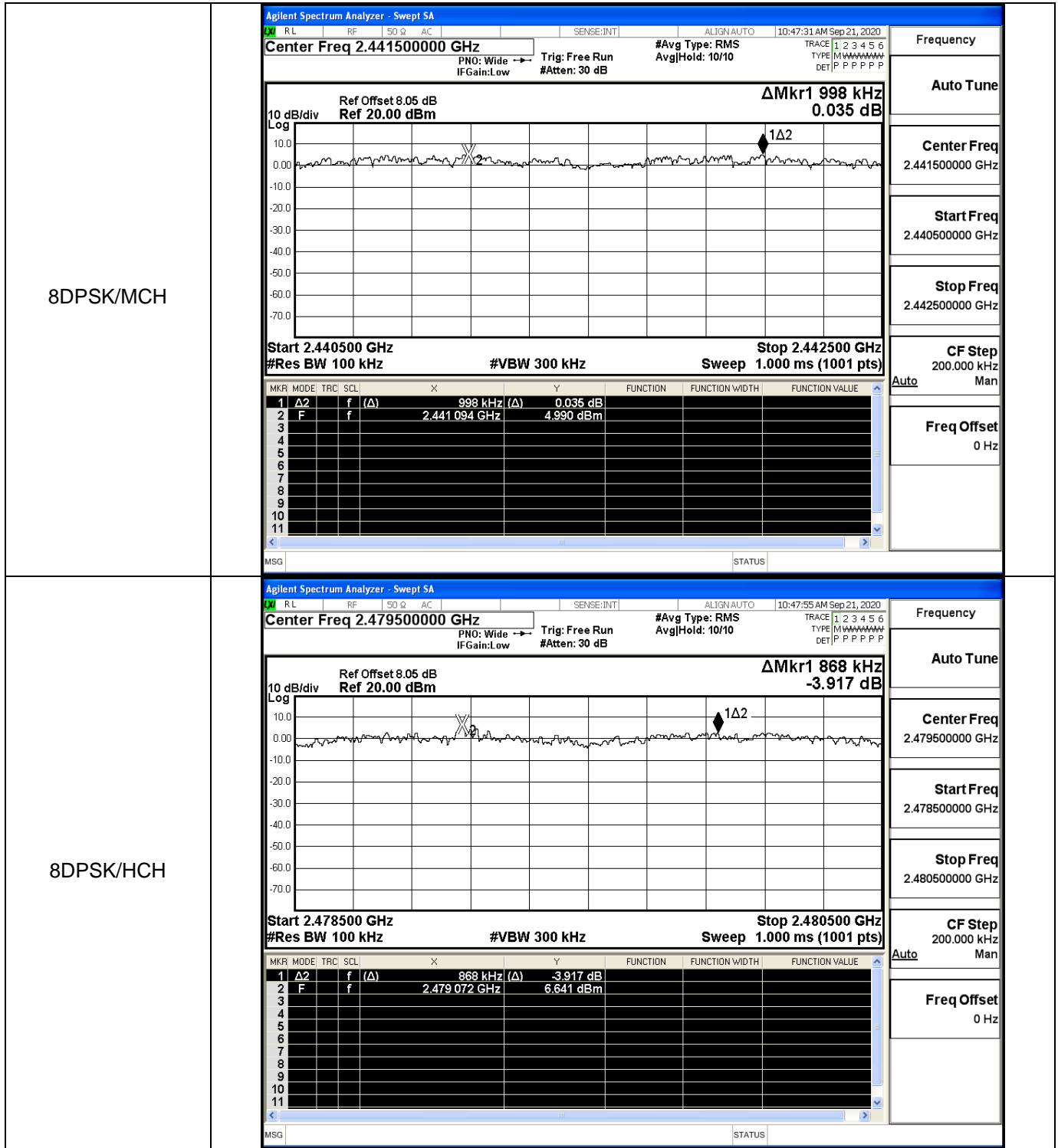


Frequency	2.479500000 GHz
Auto Tune	
Center Freq	2.479500000 GHz
Start Freq	2.478500000 GHz
Stop Freq	2.480500000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH



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



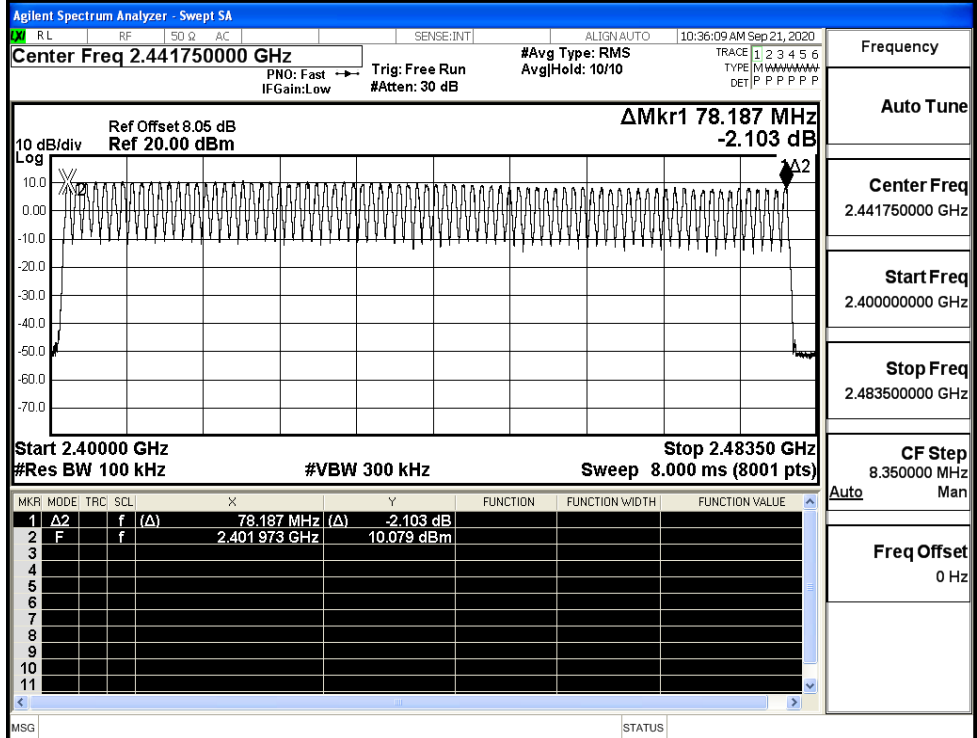
A.4 Hopping Channel Number

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



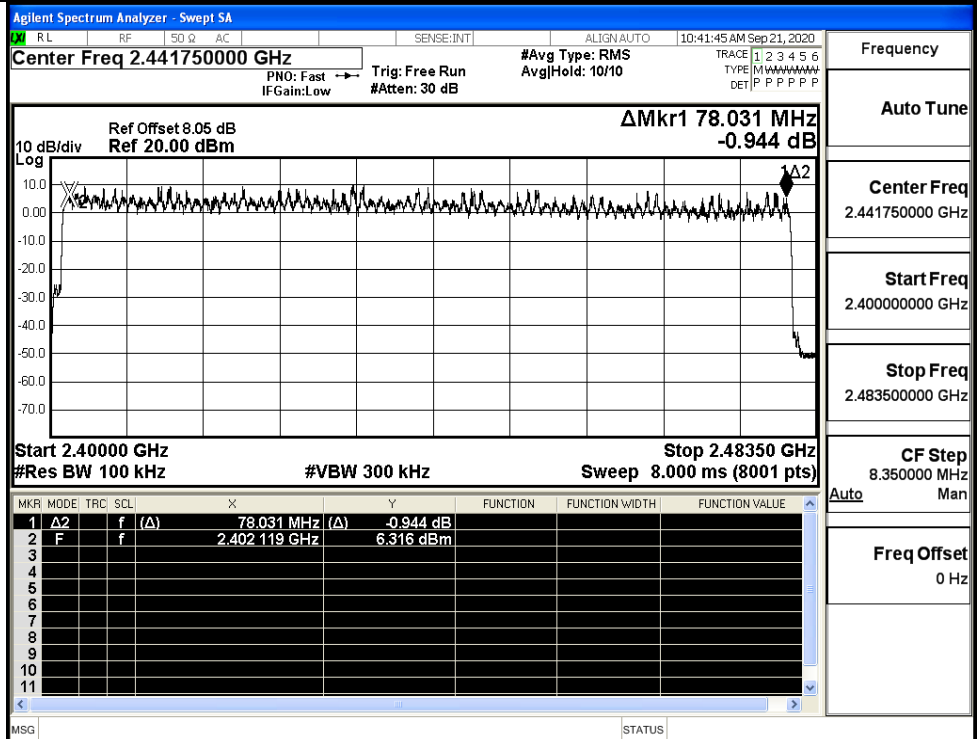
Test Graphs

GFSK/Hop



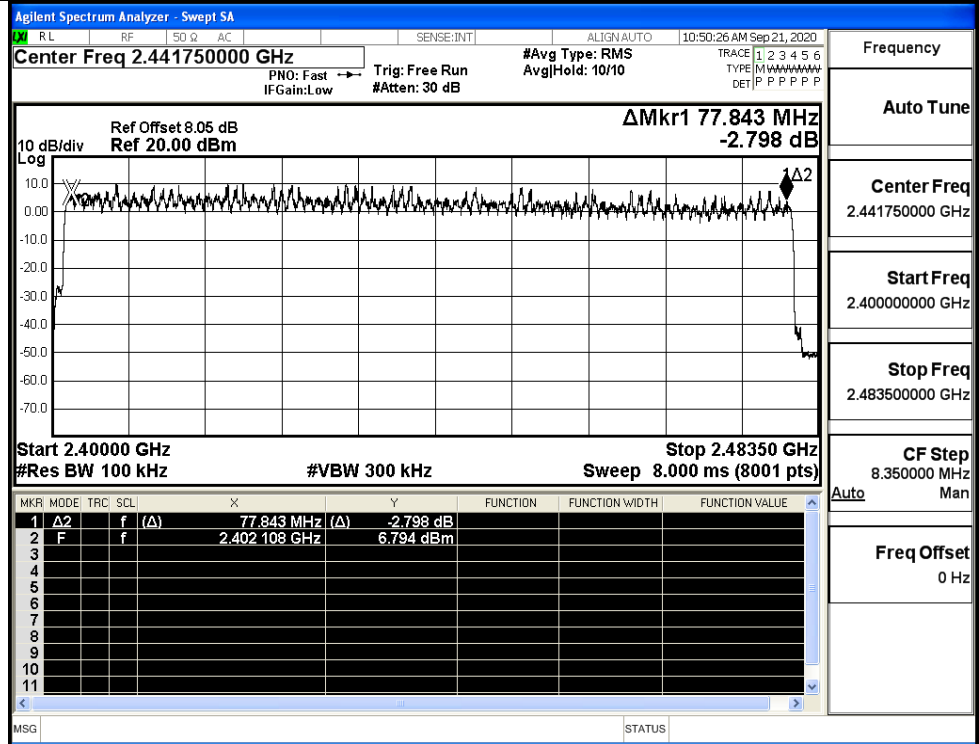
Frequency
Auto Tune
Center Freq 2.441750000 GHz
Start Freq 2.400000000 GHz
Stop Freq 2.483500000 GHz
CF Step 8.350000 MHz
Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK/Hop



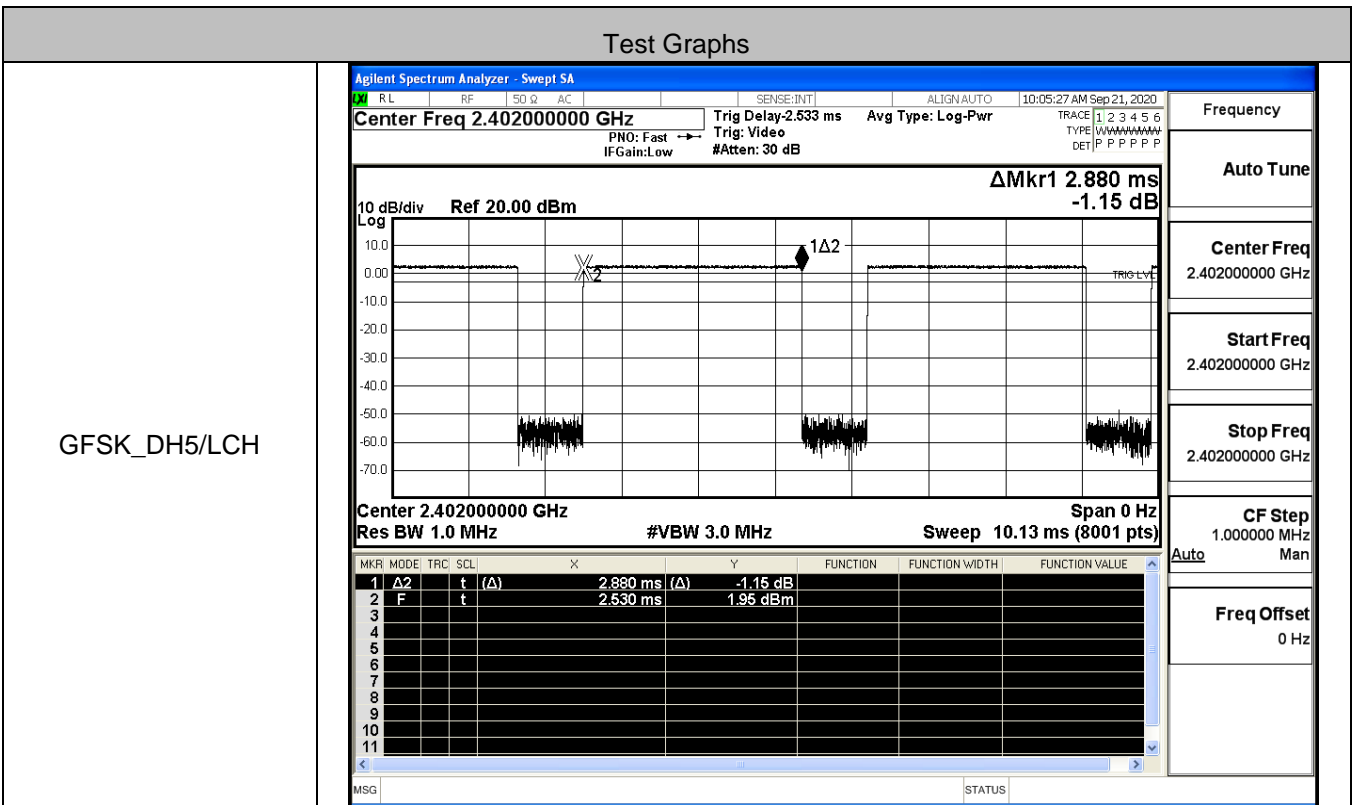
Frequency
Auto Tune
Center Freq 2.441750000 GHz
Start Freq 2.400000000 GHz
Stop Freq 2.483500000 GHz
CF Step 8.350000 MHz
Auto Man
Freq Offset 0 Hz

8DPSK/Hop

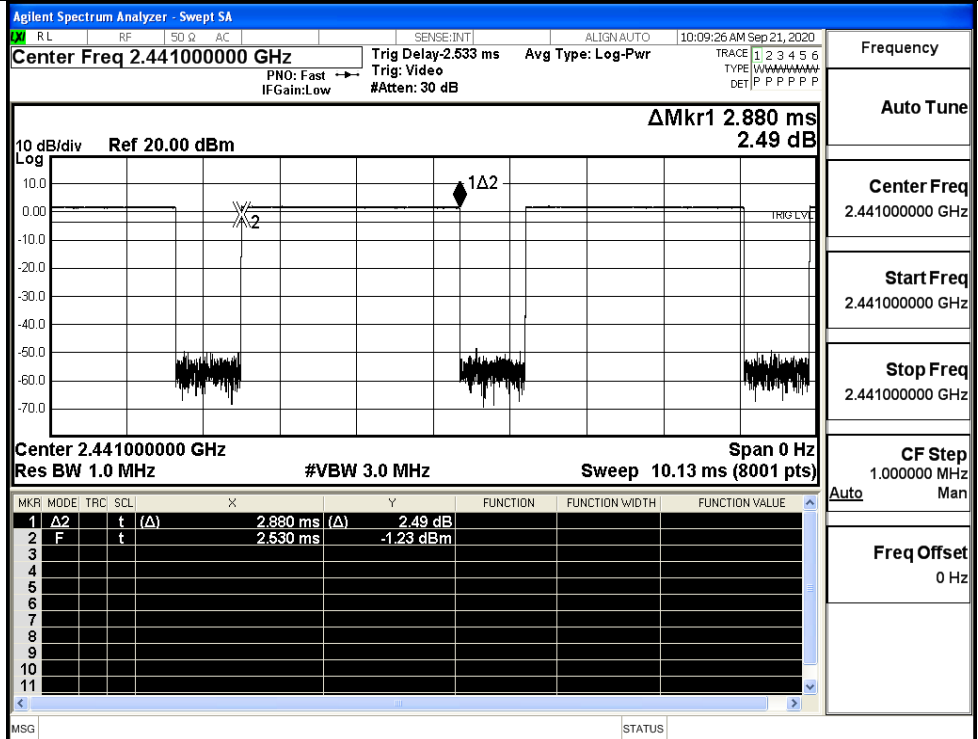


**A.5 Dwell Time**

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	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



Frequency

Auto Tune

Center Freq  
2.441000000 GHz

Start Freq  
2.441000000 GHz

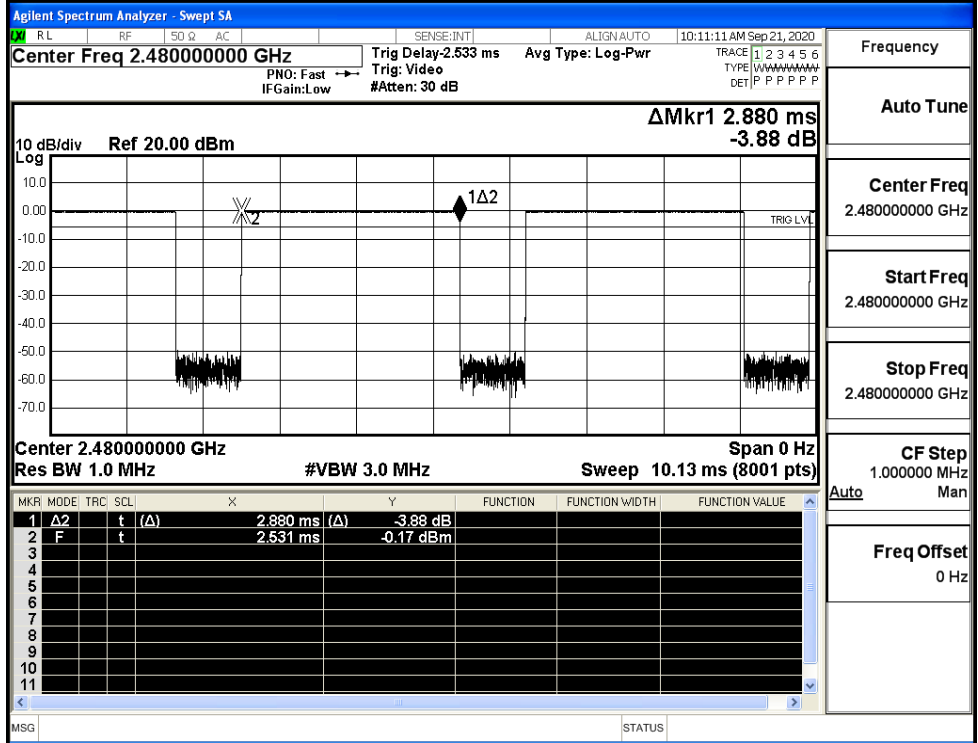
Stop Freq  
2.441000000 GHz

CF Step  
1.000000 MHz

Auto Man

Freq Offset  
0 Hz

GFSK\_DH5/HCH



Frequency

Auto Tune

Center Freq  
2.480000000 GHz

Start Freq  
2.480000000 GHz

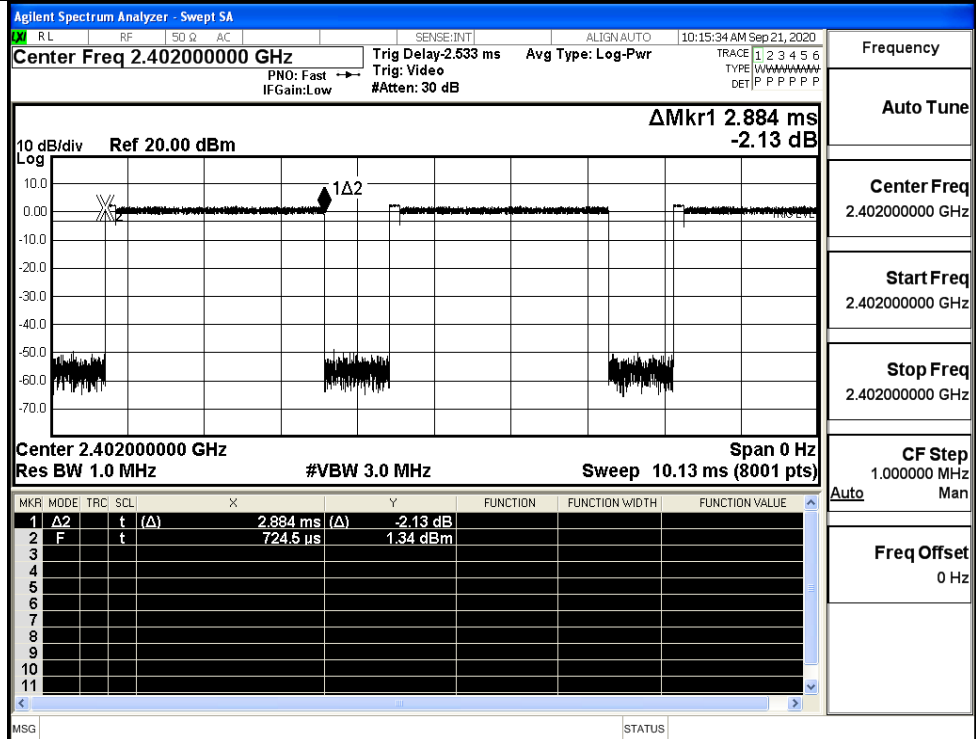
Stop Freq  
2.480000000 GHz

CF Step  
1.000000 MHz

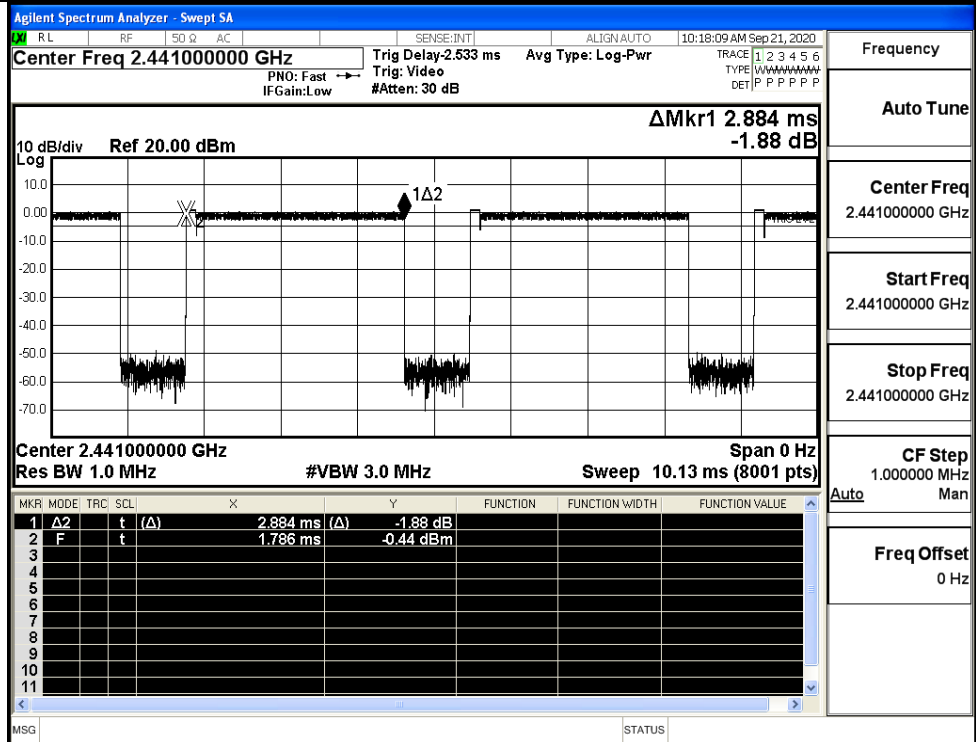
Auto Man

Freq Offset  
0 Hz

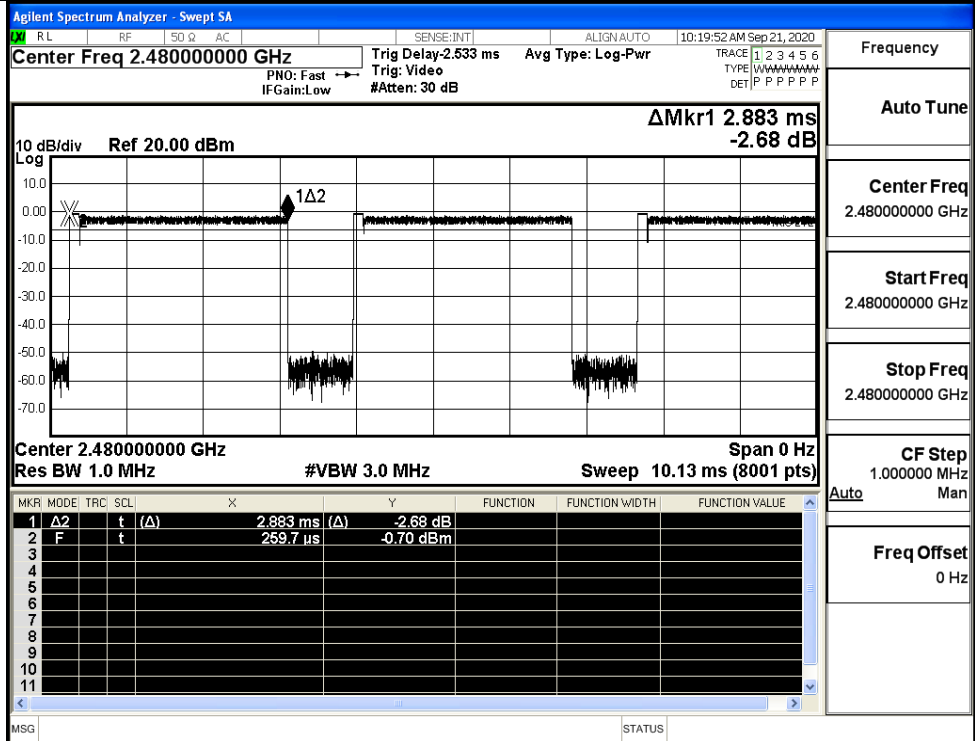
$\pi$ /4DQPSK  
\_2DH5/LCH



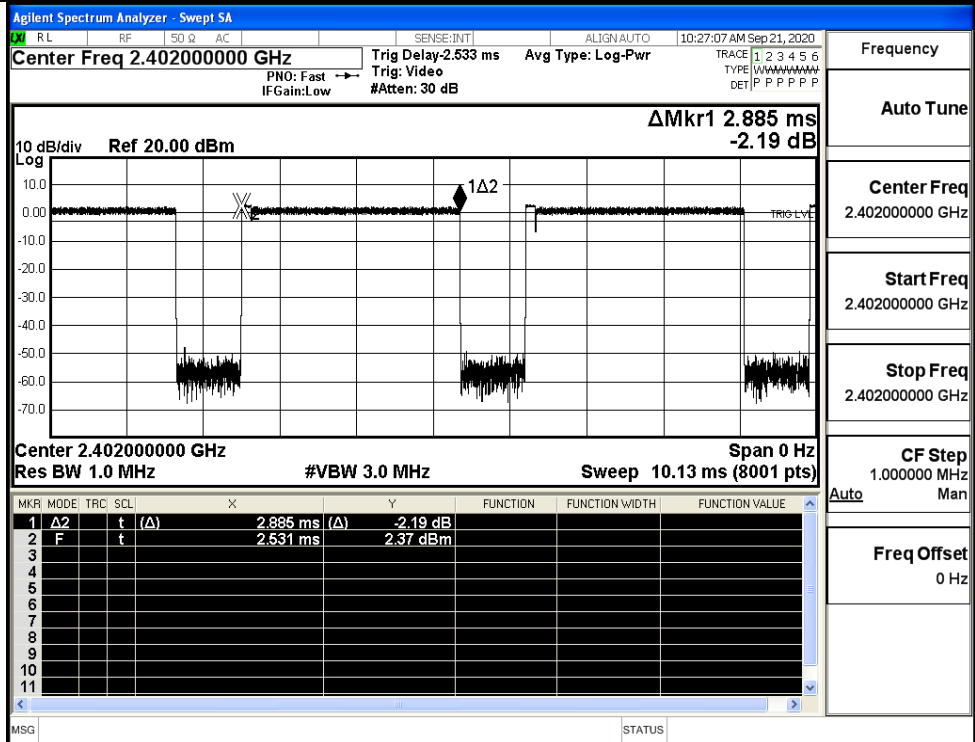
$\pi$ /4DQPSK  
\_2DH5/MCH



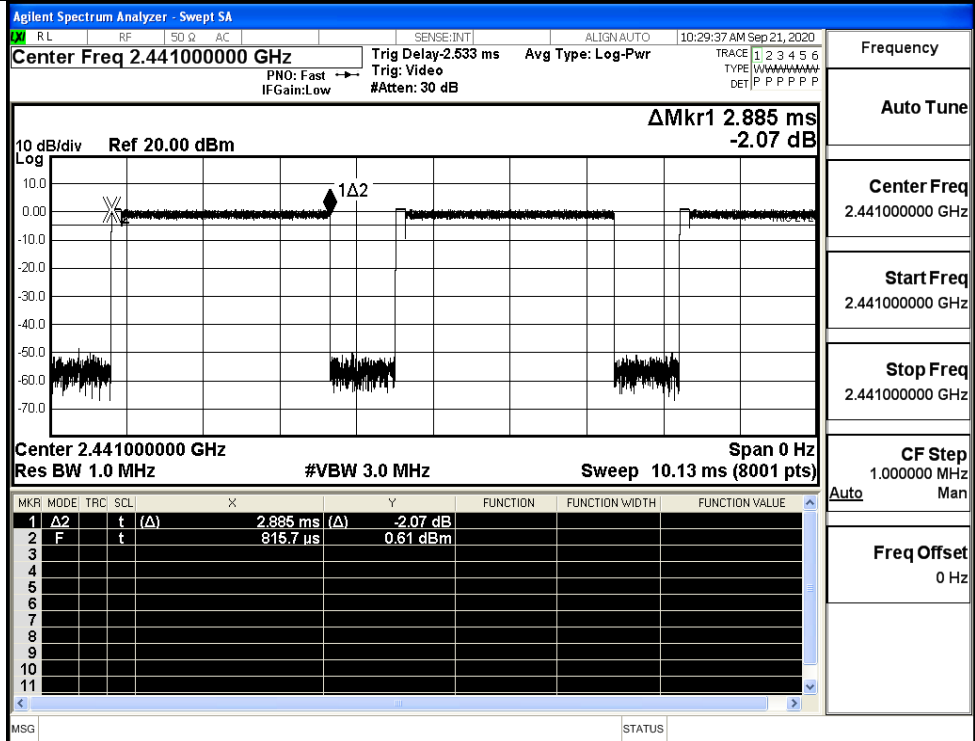
$\pi/4$ DQPSK  
\_2DH5/HCH



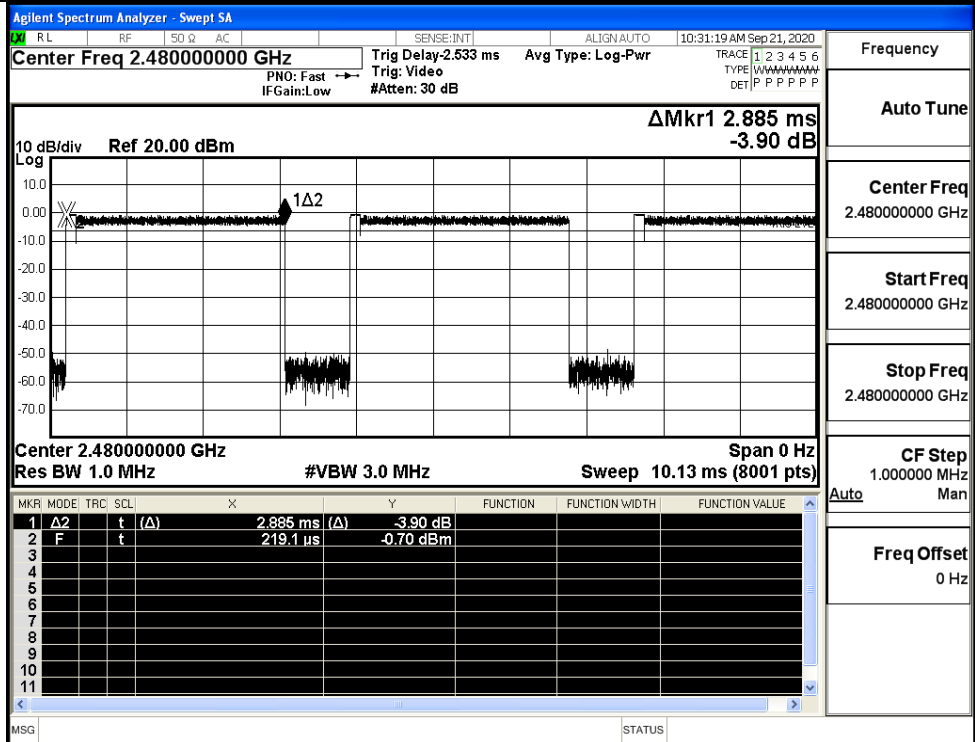
8DPSK\_3DH5/LCH



8DPSK\_3DH5/MCH



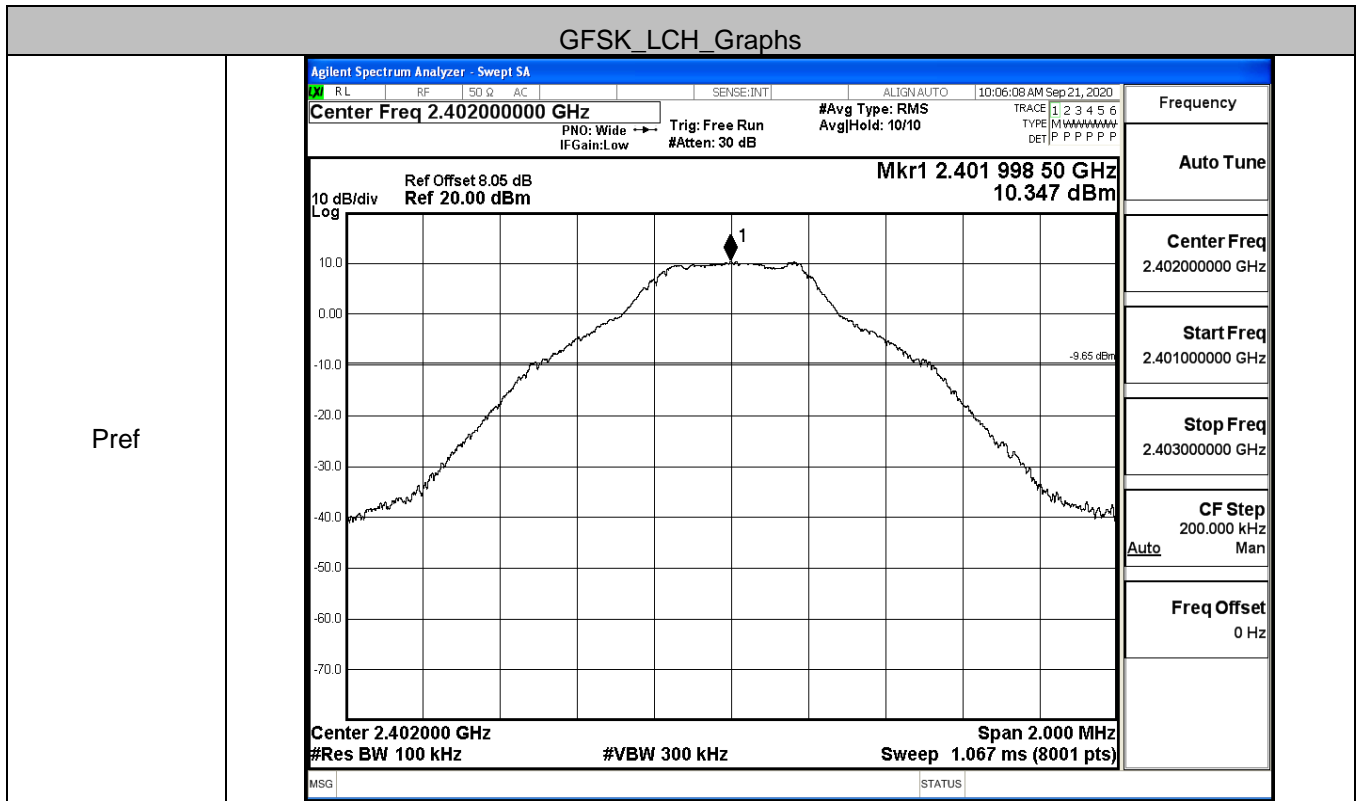
8DPSK\_3DH5/HCH



### A.6 RF Conducted Spurious Emissions

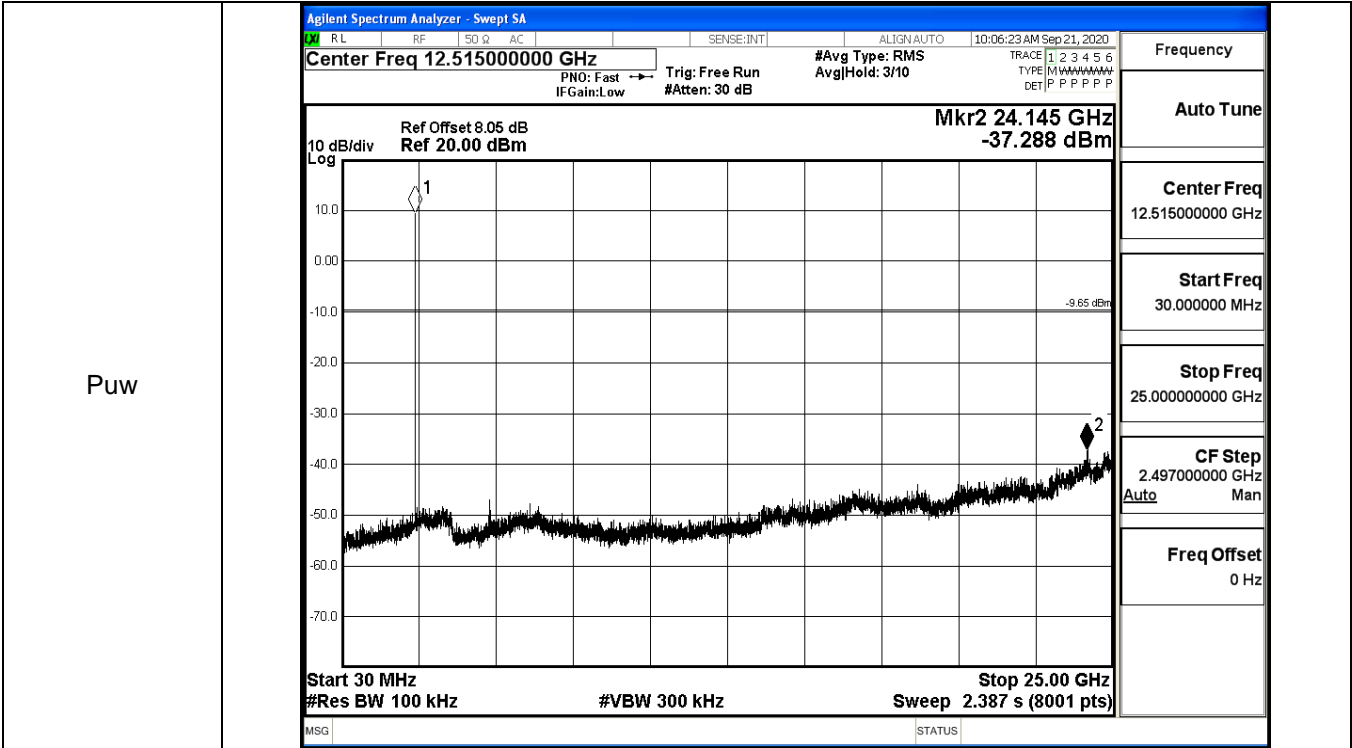
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	10.347	-37.288	-9.653	PASS
	MCH	9.658	-37.141	-10.342	PASS
	HCH	7.864	-37.561	-12.136	PASS
$\pi$ /4DQPSK	LCH	10.113	-37.974	-9.887	PASS
	MCH	8.999	-37.888	-11.001	PASS
	HCH	7.314	-37.249	-12.686	PASS
8DPSK	LCH	9.914	-37.265	-10.086	PASS
	MCH	8.972	-37.798	-11.028	PASS
	HCH	7.317	-37.582	-12.683	PASS

GFSK\_LCH\_Graphs



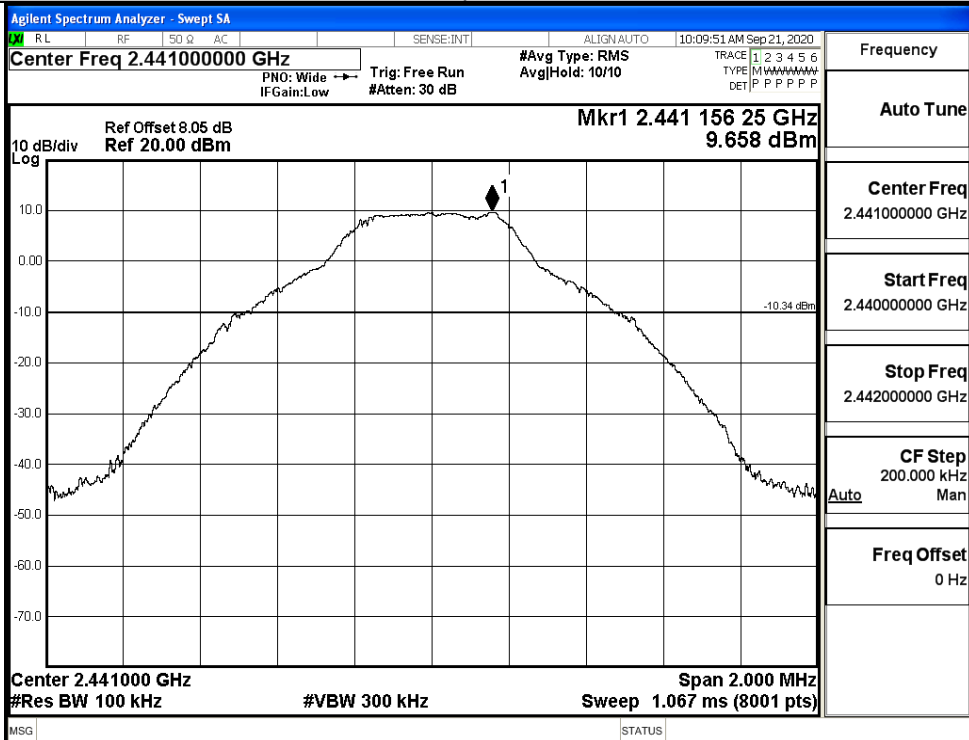
Pref



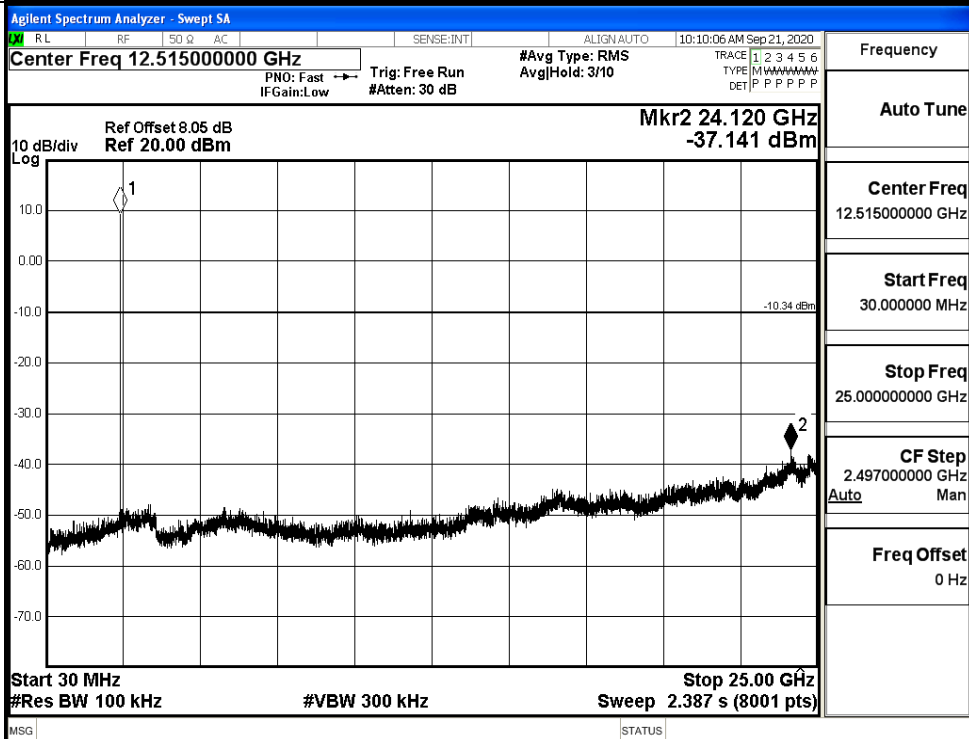


GFSK\_MCH\_Graphs

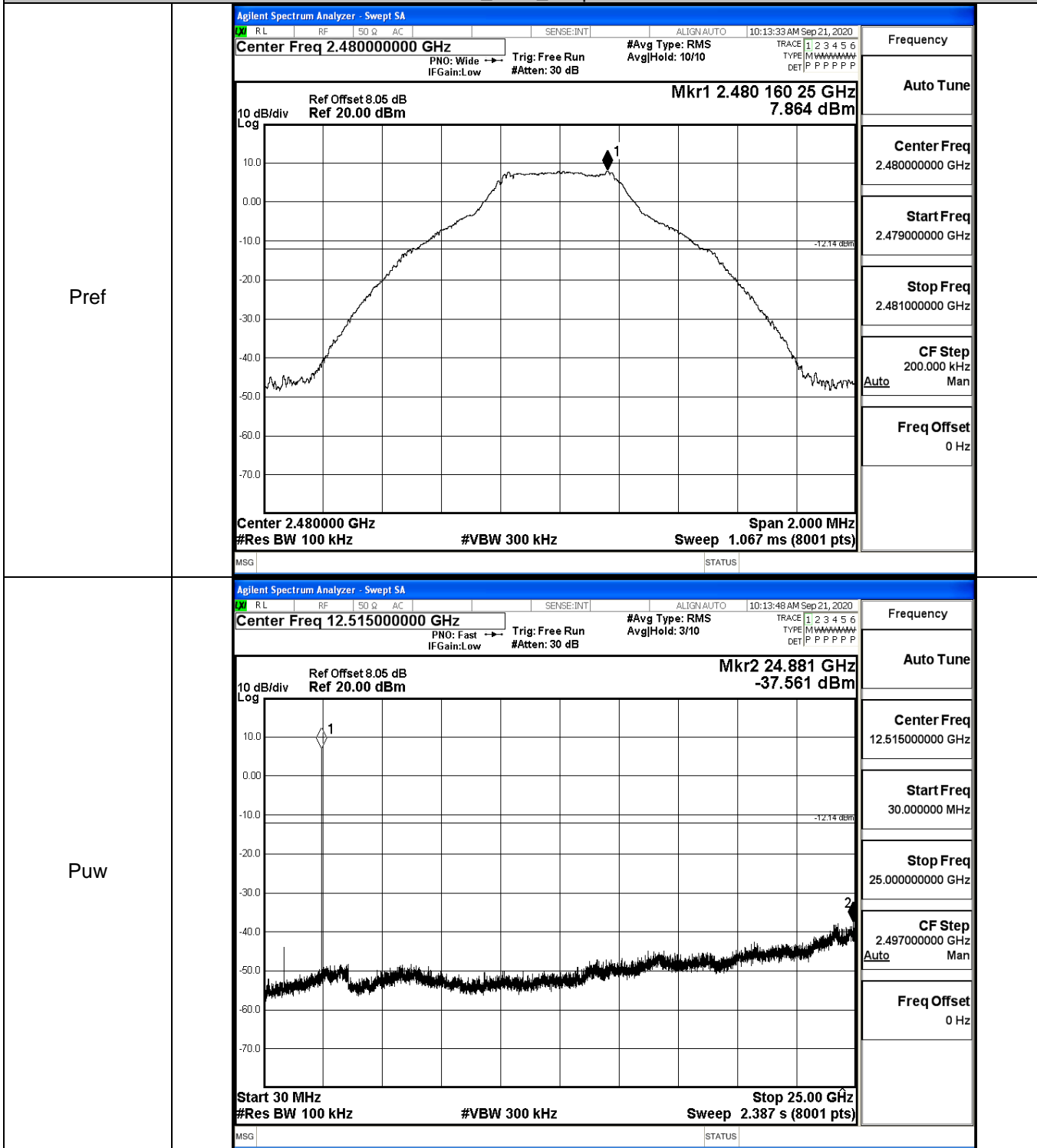
Pref



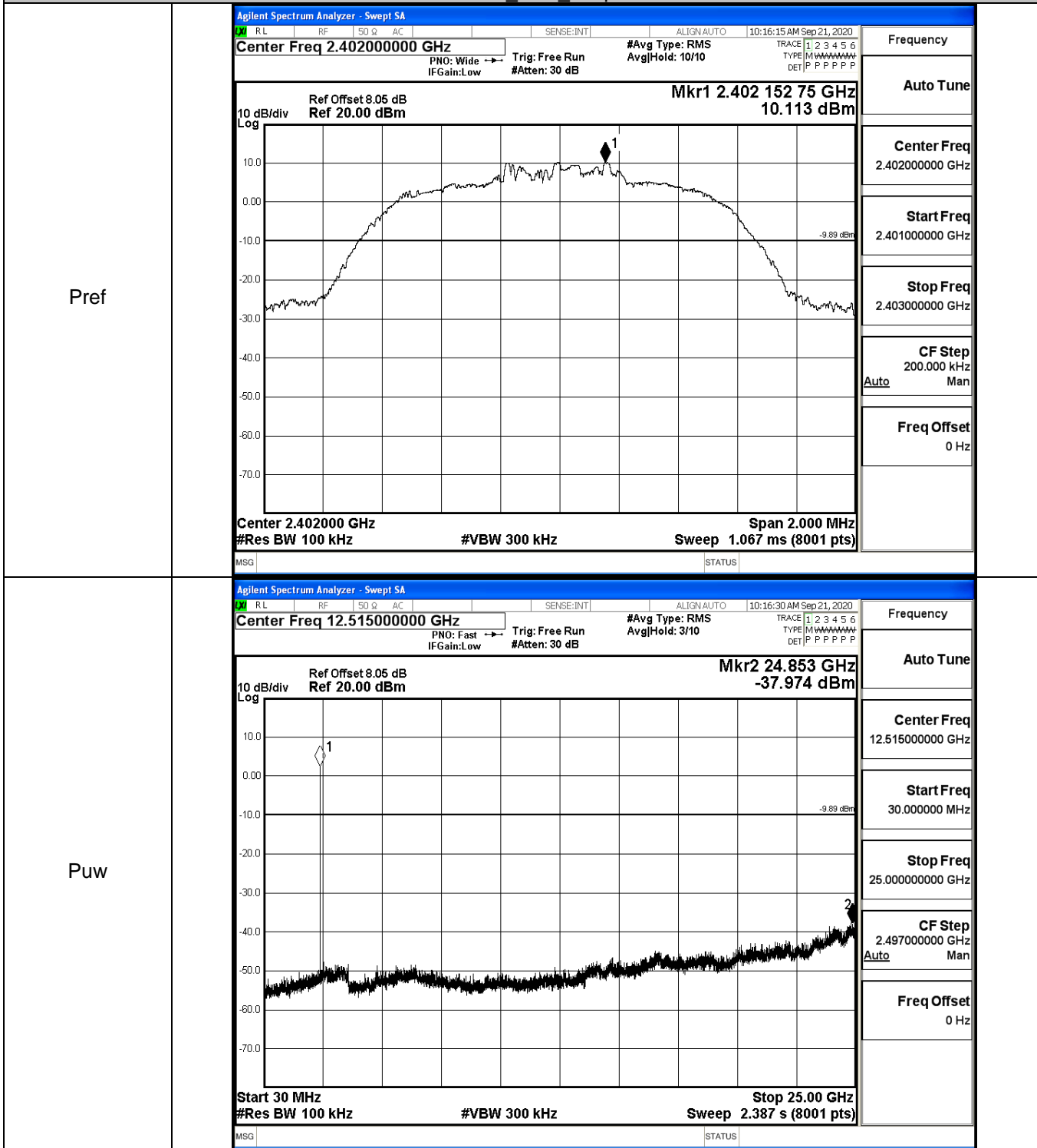
Puw



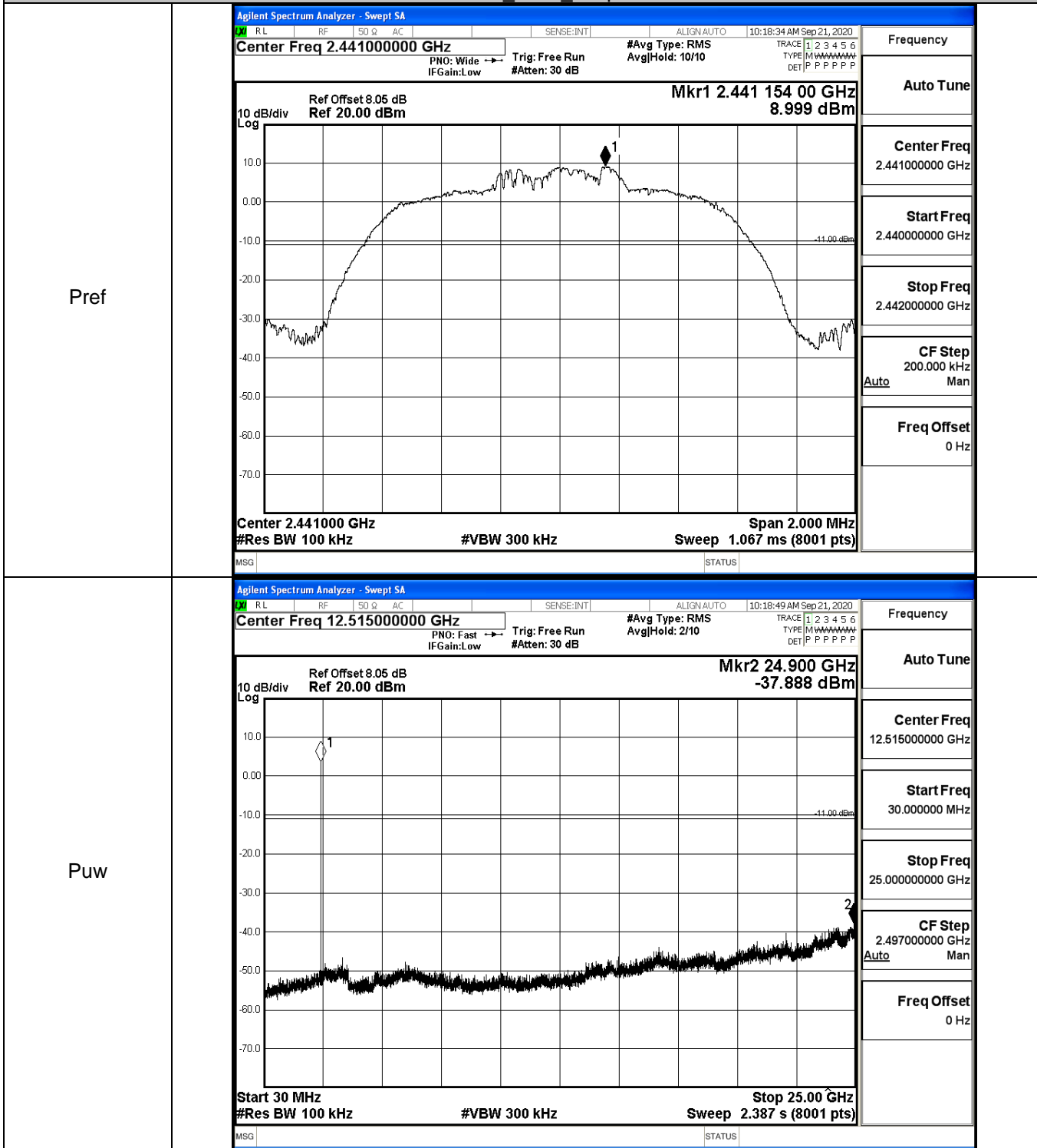
GFSK\_HCH\_Graphs



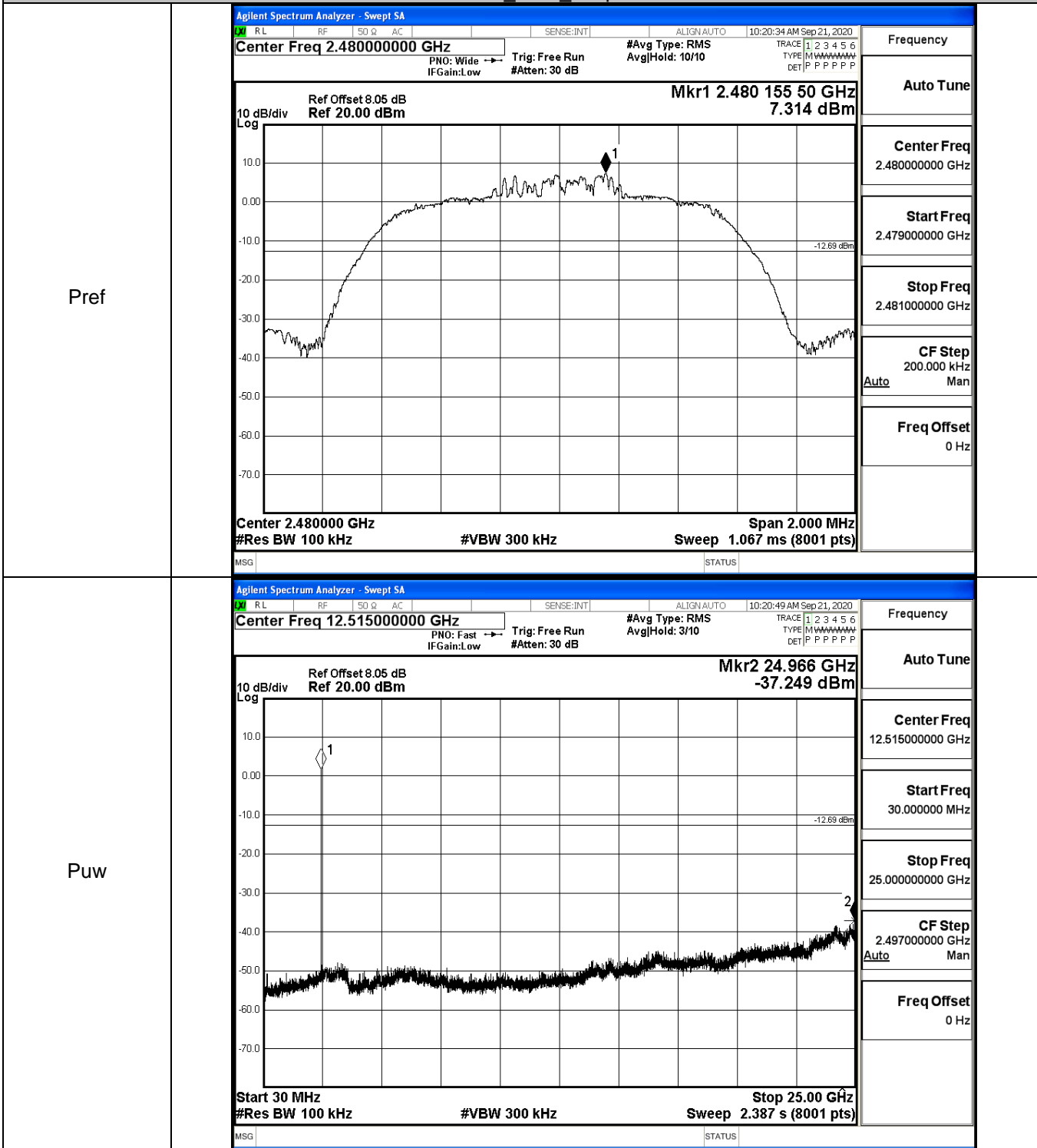
$\pi/4$ DQPSK\_LCH\_Graphs



$\pi/4$ DQPSK\_MCH\_Graphs

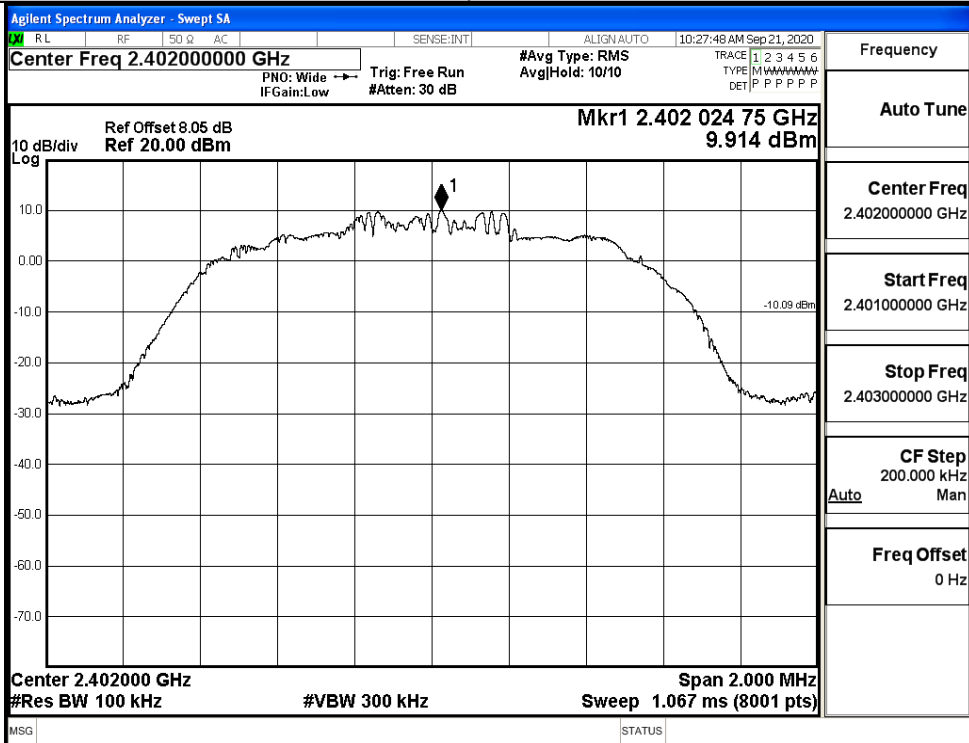


$\pi/4$ DQPSK\_HCH\_Graphs

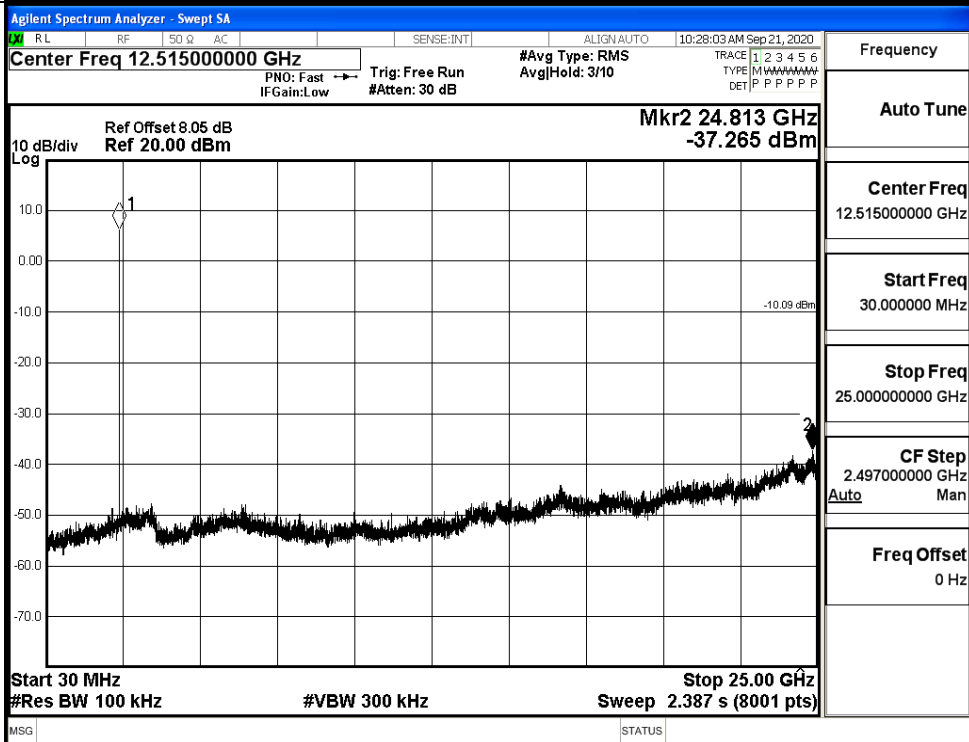


8DPSK\_LCH\_Graphs

Pref

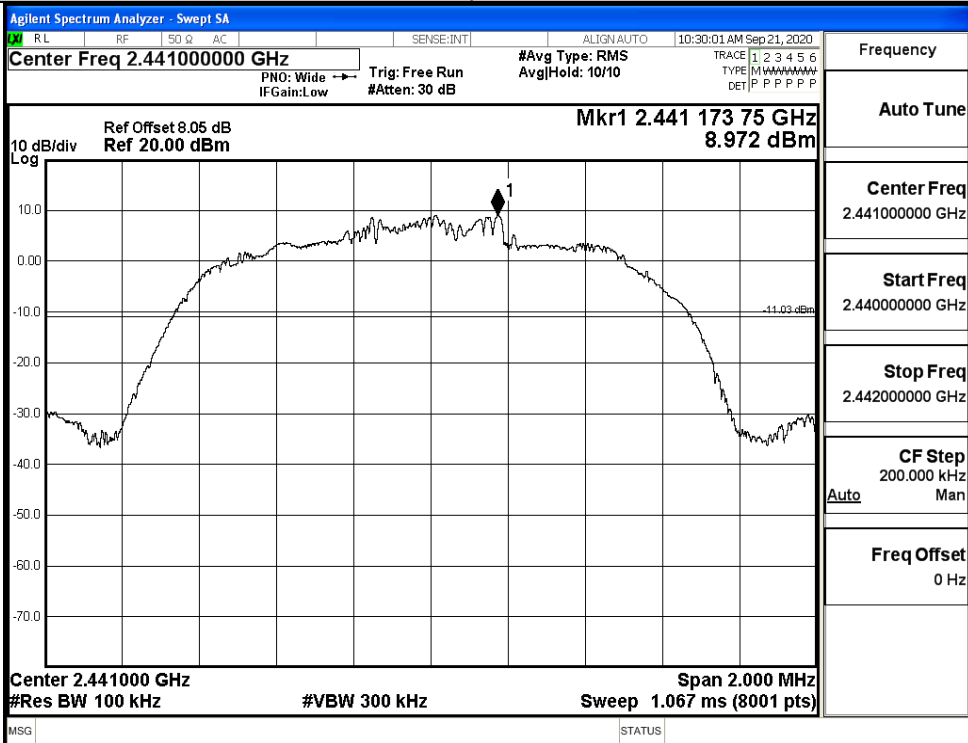


Puw

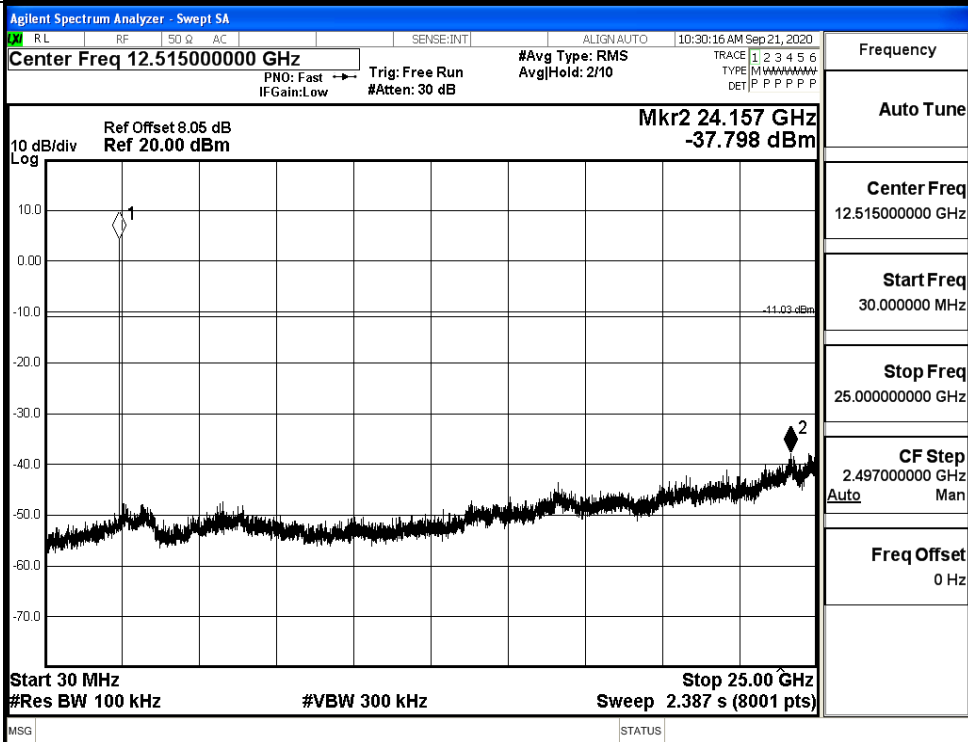


8DPSK\_MCH\_Graphs

Pref

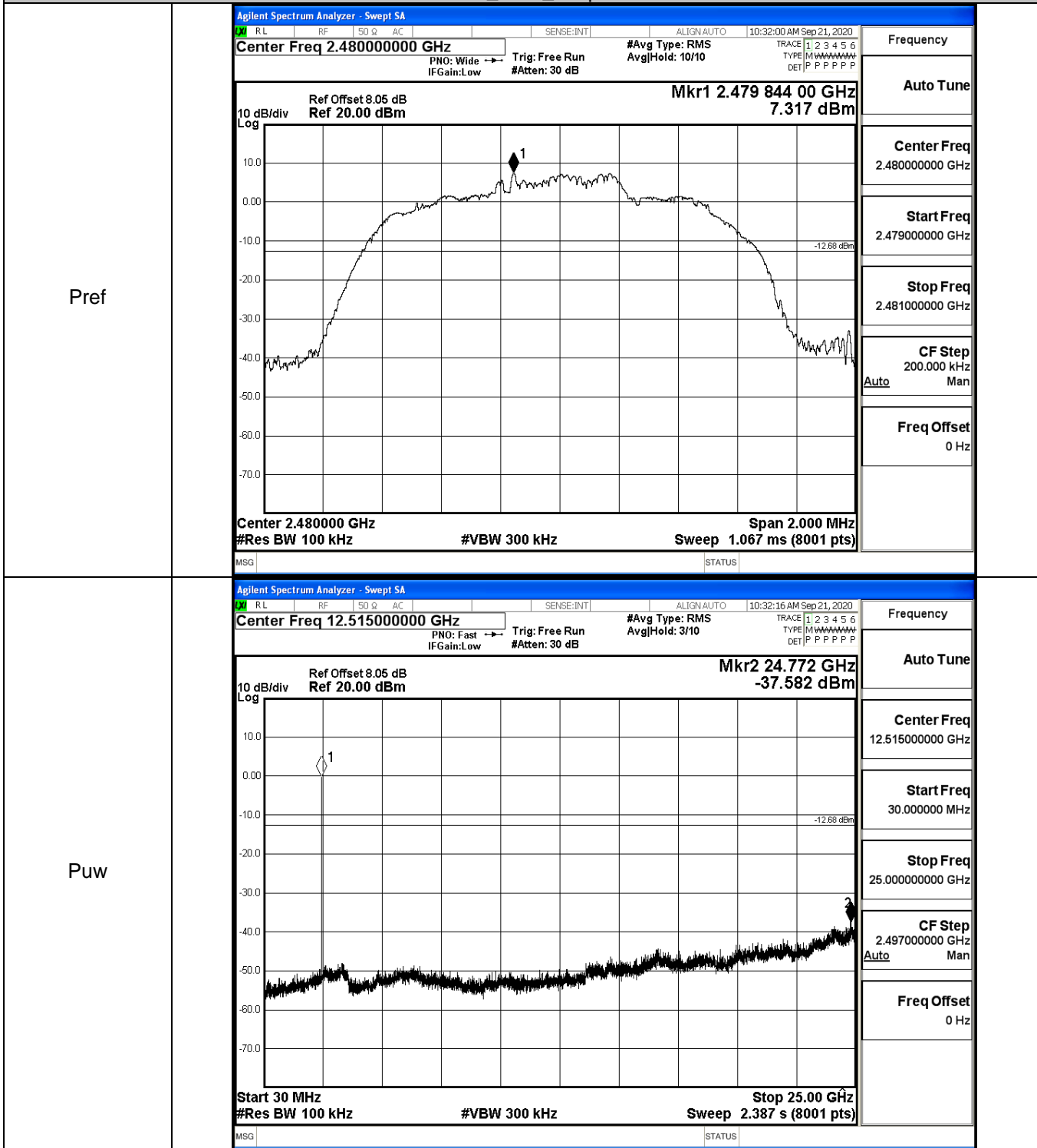


Puw





8DPSK\_HCH\_Graphs

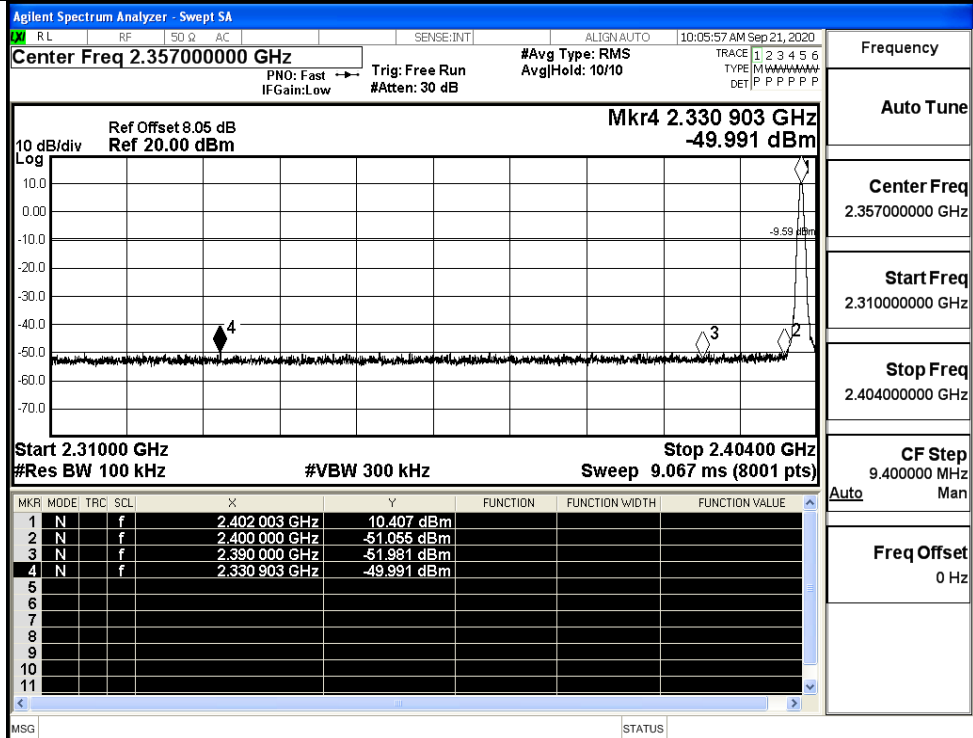


### A.7 Band-edge for RF Conducted Emissions

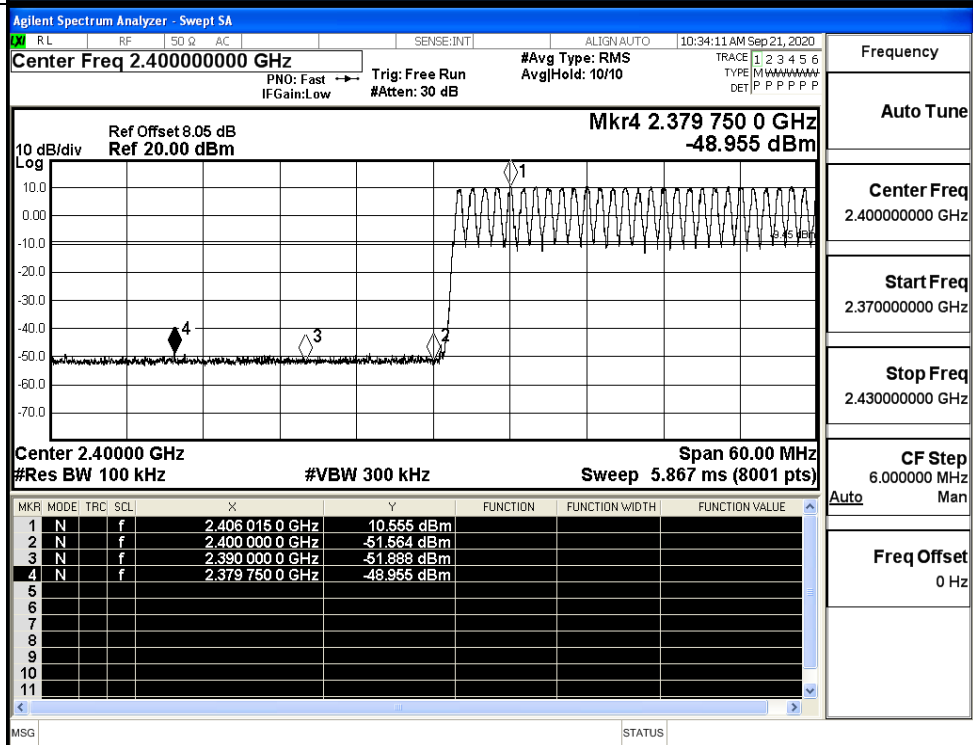
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	10.407	Off	-49.991	-9.59	PASS
			10.555	On	-48.955	-9.45	PASS
	HCH	2480	8.198	Off	-48.670	-11.8	PASS
			8.283	On	-48.206	-11.72	PASS
π/4DQPSK	LCH	2402	10.256	Off	-48.729	-9.74	PASS
			10.437	On	-48.355	-9.56	PASS
	HCH	2480	6.931	Off	-48.989	-13.07	PASS
			7.960	On	-48.404	-12.04	PASS
8DPSK	LCH	2402	10.487	Off	-47.723	-9.51	PASS
			10.415	On	-48.985	-9.59	PASS
	HCH	2480	7.298	Off	-49.325	-12.7	PASS
			8.277	On	-48.585	-11.72	PASS

Test Graphs

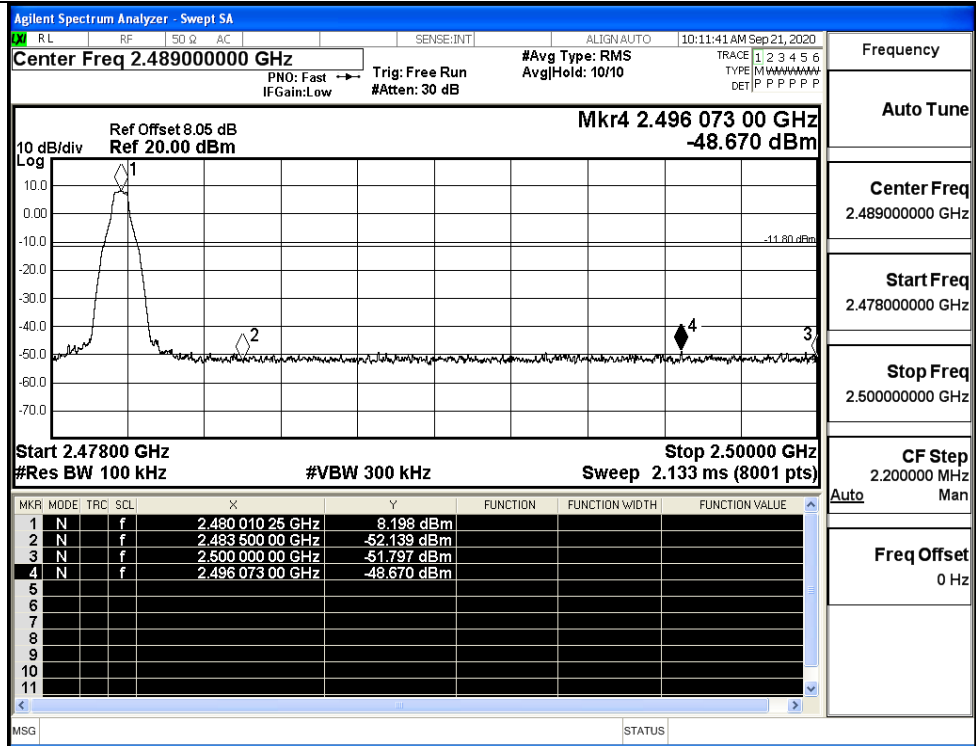
GFSK/LCH/No Hop



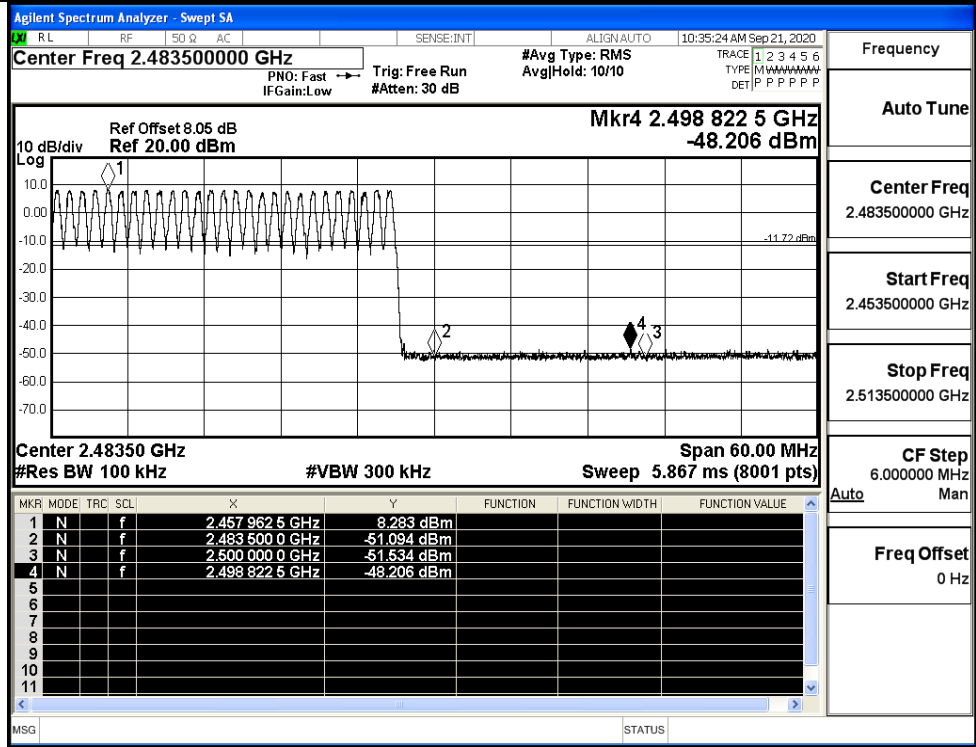
GFSK/LCH/Hop



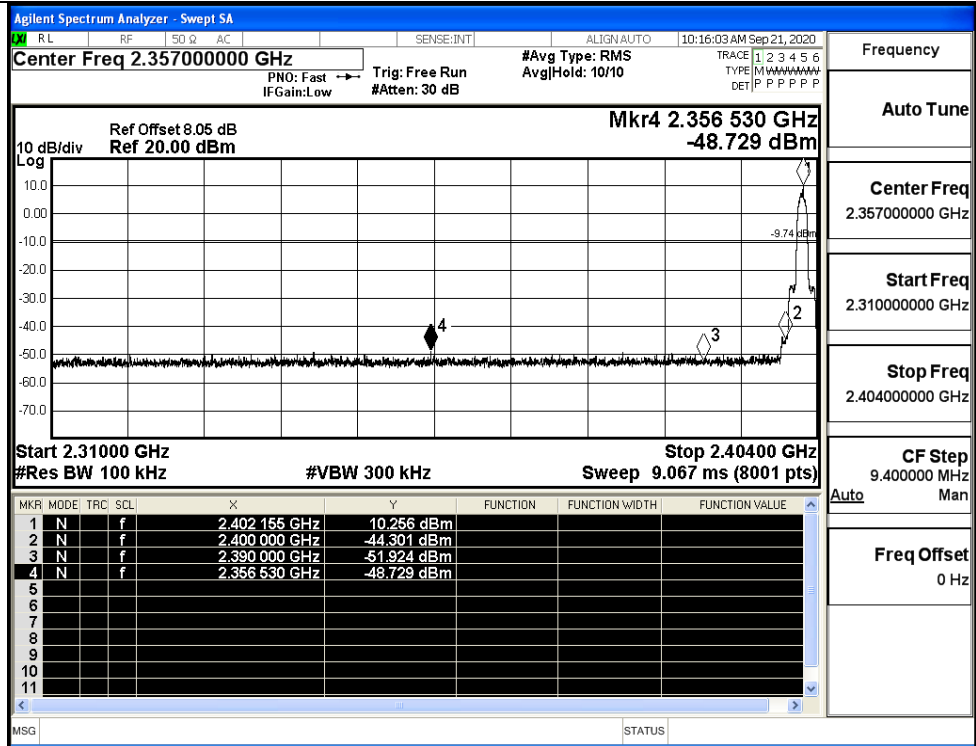
GFSK/HCH/No Hop



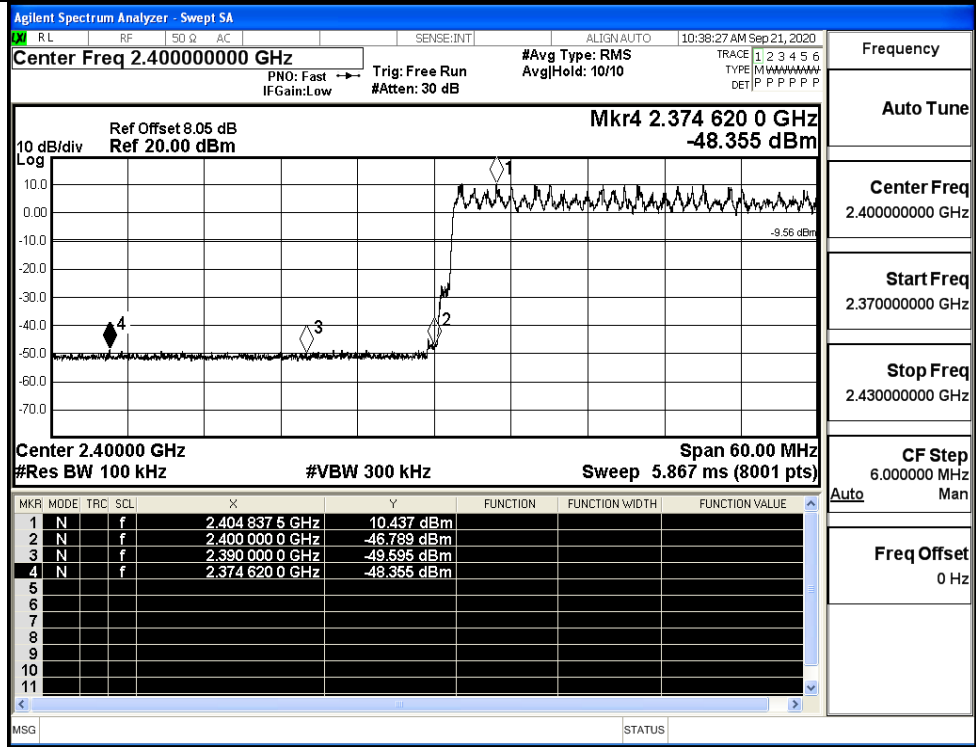
GFSK/HCH/Hop



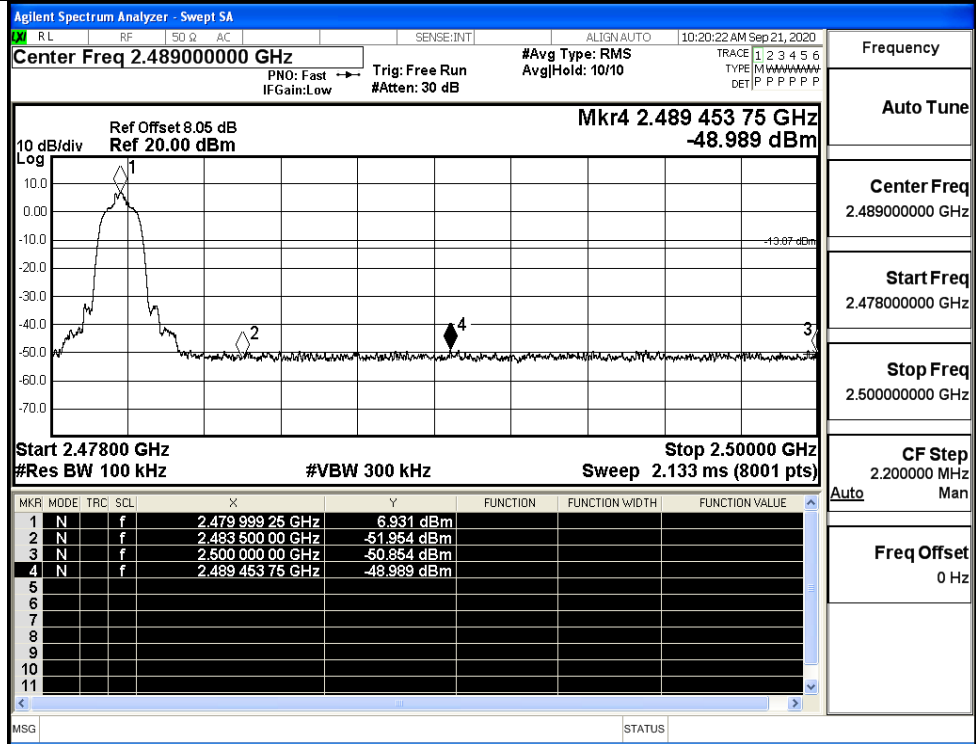
$\pi/4$ DQPSK/LCH/No  
Hop



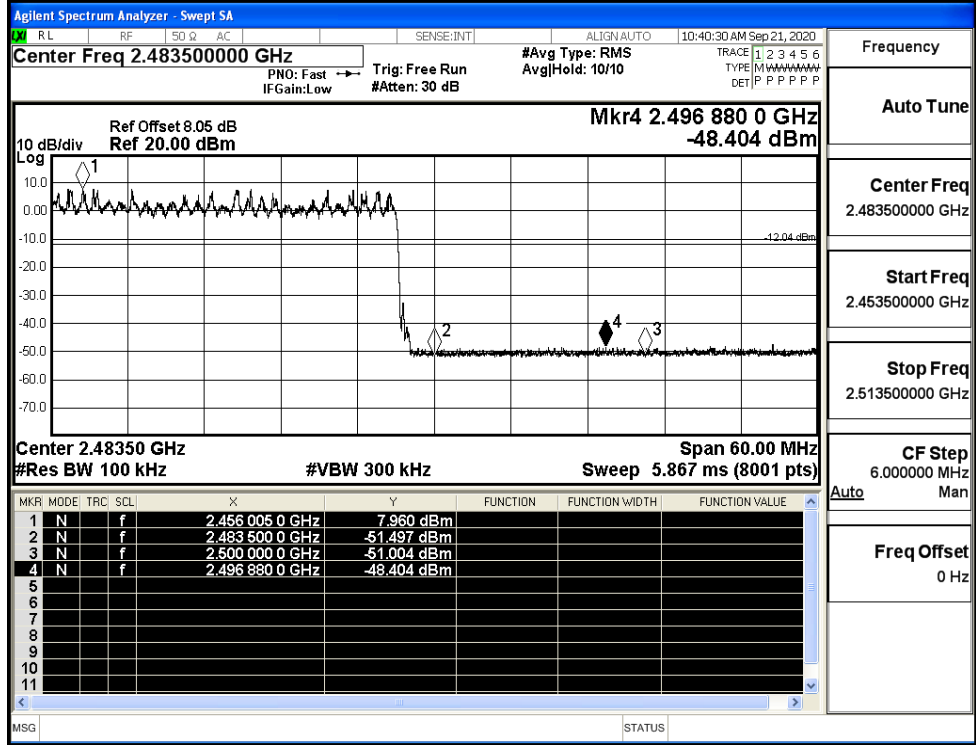
$\pi/4$ DQPSK/LCH/Hop



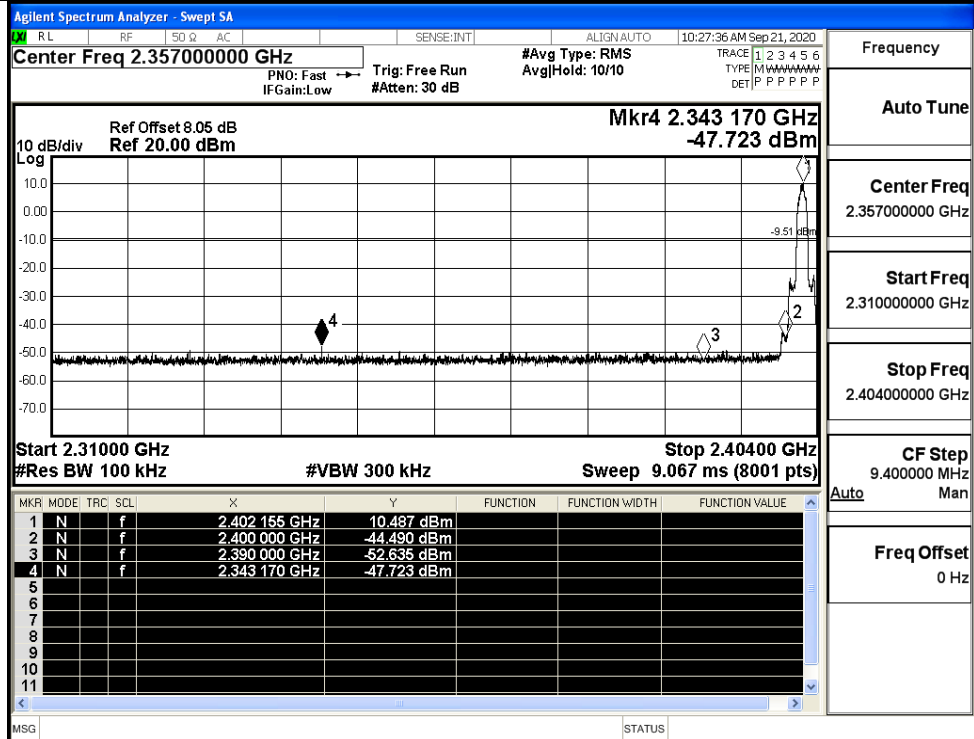
$\pi$ /4DQPSK/HCH/No  
Hop



$\pi$ /4DQPSK/HCH/Hop

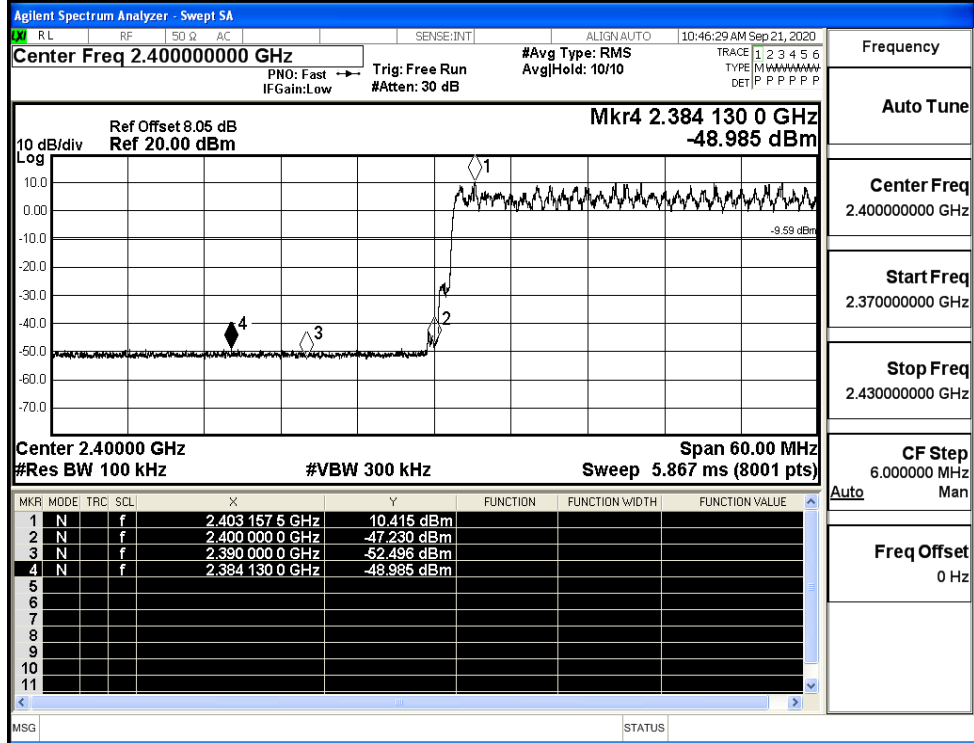


8DPSK/LCH/No Hop



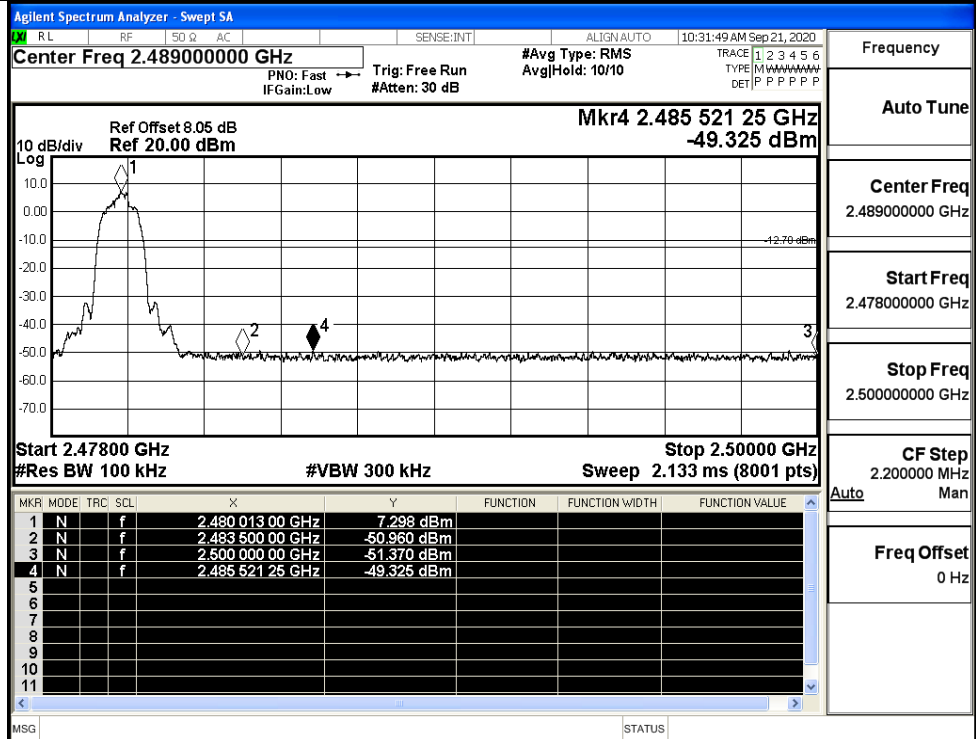
Frequency  
Auto Tune  
Center Freq  
2.357000000 GHz  
Start Freq  
2.310000000 GHz  
Stop Freq  
2.404000000 GHz  
CF Step  
9.400000 MHz  
Auto Man  
Freq Offset  
0 Hz

8DPSK/LCH/Hop



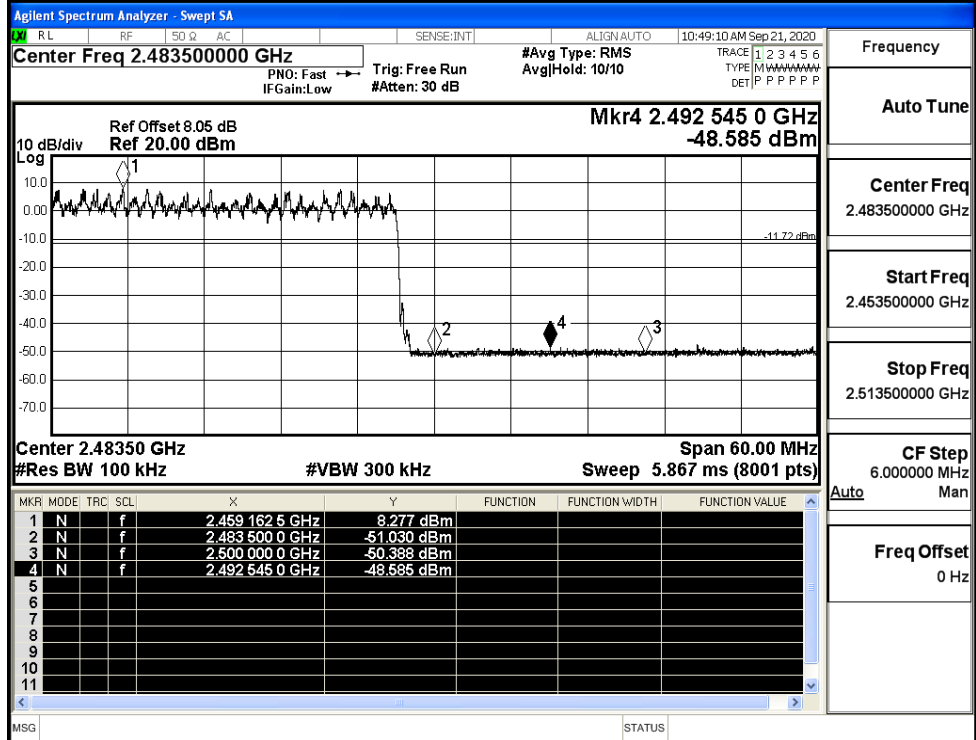
Frequency  
Auto Tune  
Center Freq  
2.400000000 GHz  
Start Freq  
2.370000000 GHz  
Stop Freq  
2.430000000 GHz  
CF Step  
6.000000 MHz  
Auto Man  
Freq Offset  
0 Hz

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  
Auto Man  
Freq Offset  
0 Hz

8DPSK/HCH/Hop



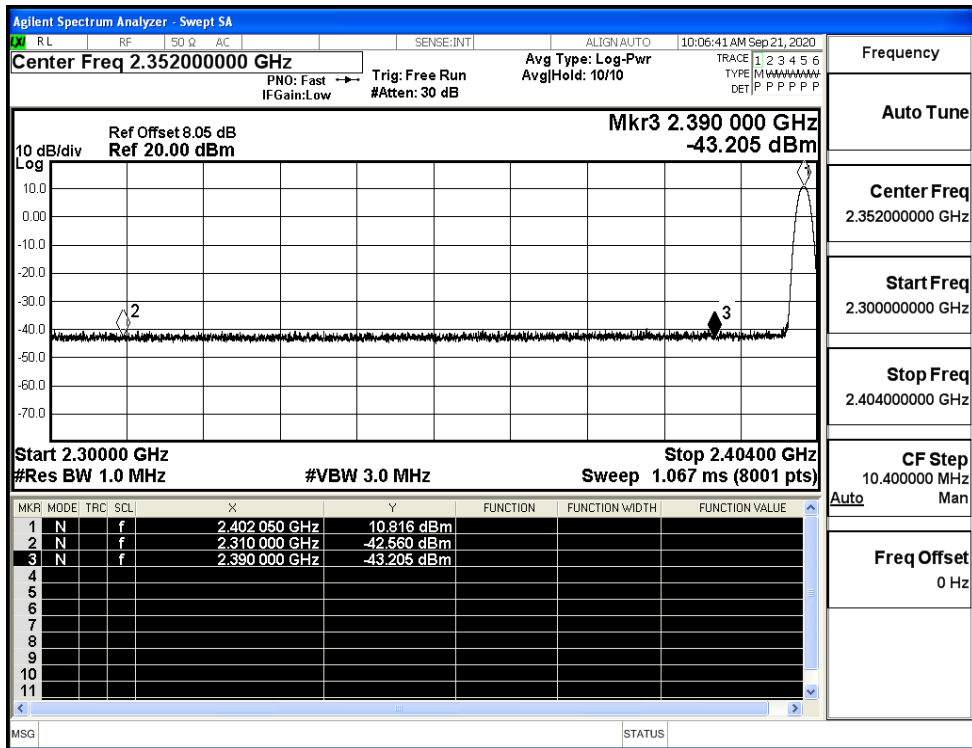
Frequency  
Auto Tune  
Center Freq  
2.483500000 GHz  
Start Freq  
2.459162500 GHz  
Stop Freq  
2.513500000 GHz  
CF Step  
6.000000 MHz  
Auto Man  
Freq Offset  
0 Hz



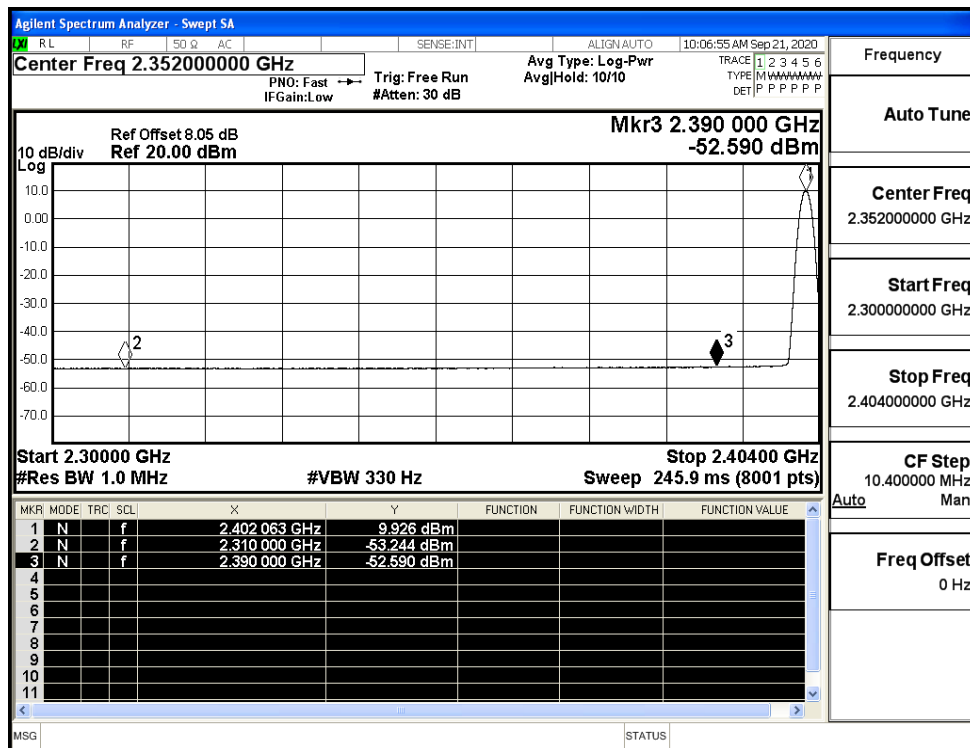
## A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.56	2.0	0	54.67	PEAK	74	PASS
	Off	2310.0	-53.24	2.0	0	43.99	AV	54	PASS
	Off	2390.0	-43.21	2.0	0	54.02	PEAK	74	PASS
	Off	2390.0	-52.59	2.0	0	44.64	AV	54	PASS
	Off	2483.5	-41.07	2.0	0	56.16	PEAK	74	PASS
	Off	2483.5	-52.06	2.0	0	45.17	AV	54	PASS
	Off	2500.0	-42.57	2.0	0	54.66	PEAK	74	PASS
	Off	2500.0	-52.22	2.0	0	45.01	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.36	2.0	0	54.87	PEAK	74	PASS
	Off	2310.0	-53.28	2.0	0	43.95	AV	54	PASS
	Off	2390.0	-43.81	2.0	0	53.42	PEAK	74	PASS
	Off	2390.0	-52.71	2.0	0	44.52	AV	54	PASS
	Off	2483.5	-41.36	2.0	0	55.87	PEAK	74	PASS
	Off	2483.5	-52.01	2.0	0	45.22	AV	54	PASS
	Off	2500.0	-42.70	2.0	0	54.53	PEAK	74	PASS
	Off	2500.0	-52.21	2.0	0	45.02	AV	54	PASS
8DPSK	Off	2310.0	-42.75	2.0	0	54.48	PEAK	74	PASS
	Off	2310.0	-53.16	2.0	0	44.07	AV	54	PASS
	Off	2390.0	-42.23	2.0	0	55.00	PEAK	74	PASS
	Off	2390.0	-52.70	2.0	0	44.53	AV	54	PASS
	Off	2483.5	-40.99	2.0	0	56.24	PEAK	74	PASS
	Off	2483.5	-52.17	2.0	0	45.06	AV	54	PASS
	Off	2500.0	-42.33	2.0	0	54.90	PEAK	74	PASS
	Off	2500.0	-52.17	2.0	0	45.06	AV	54	PASS

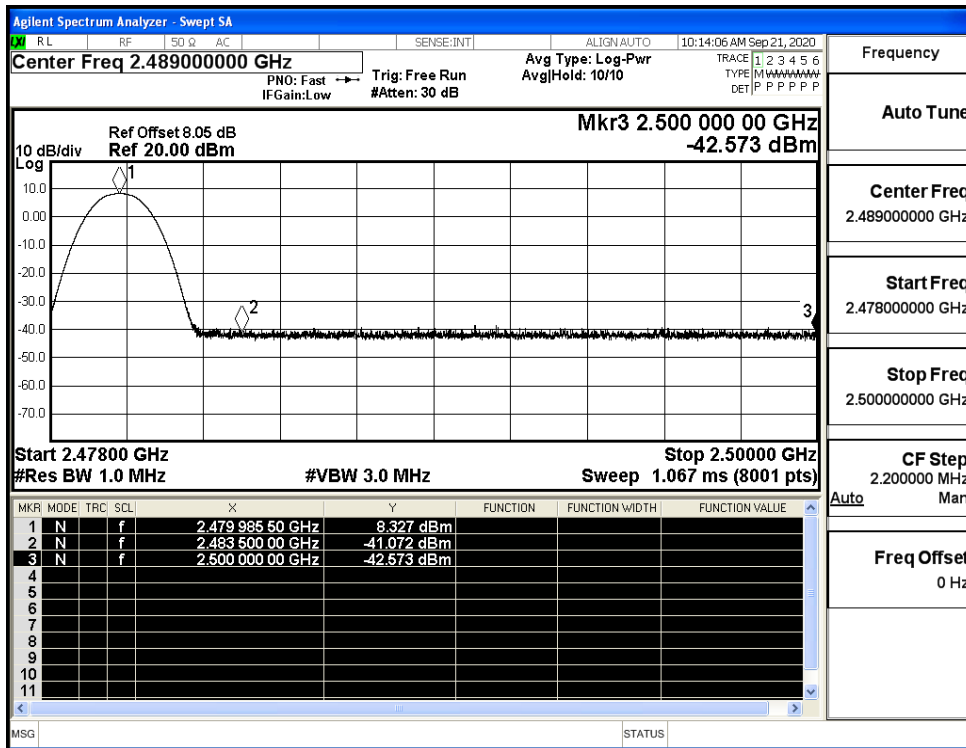
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



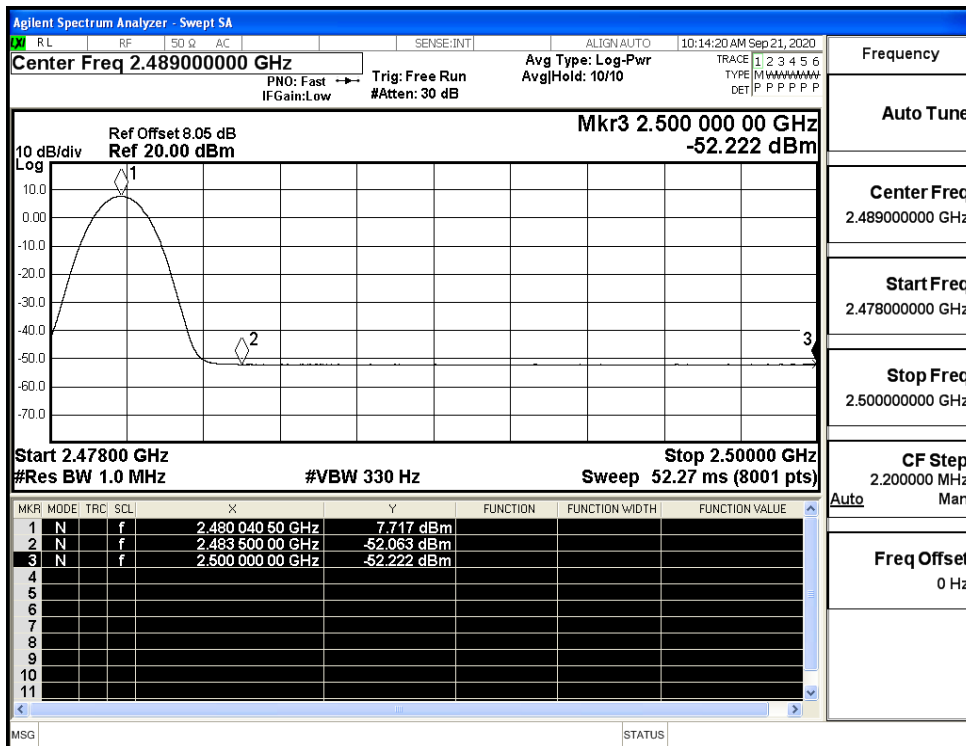
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



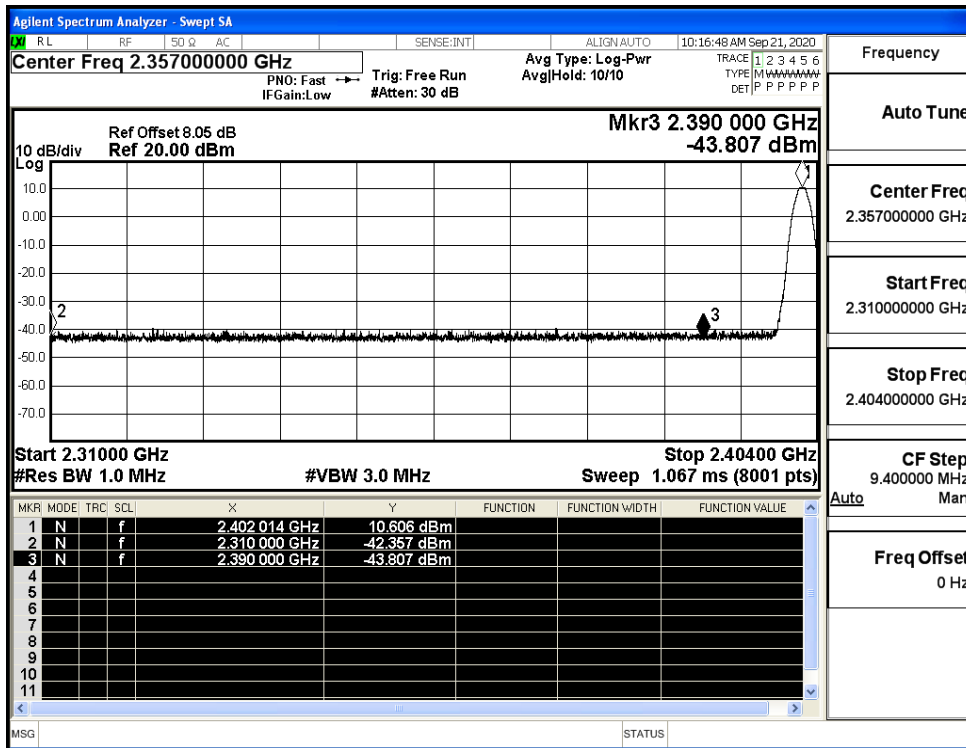
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



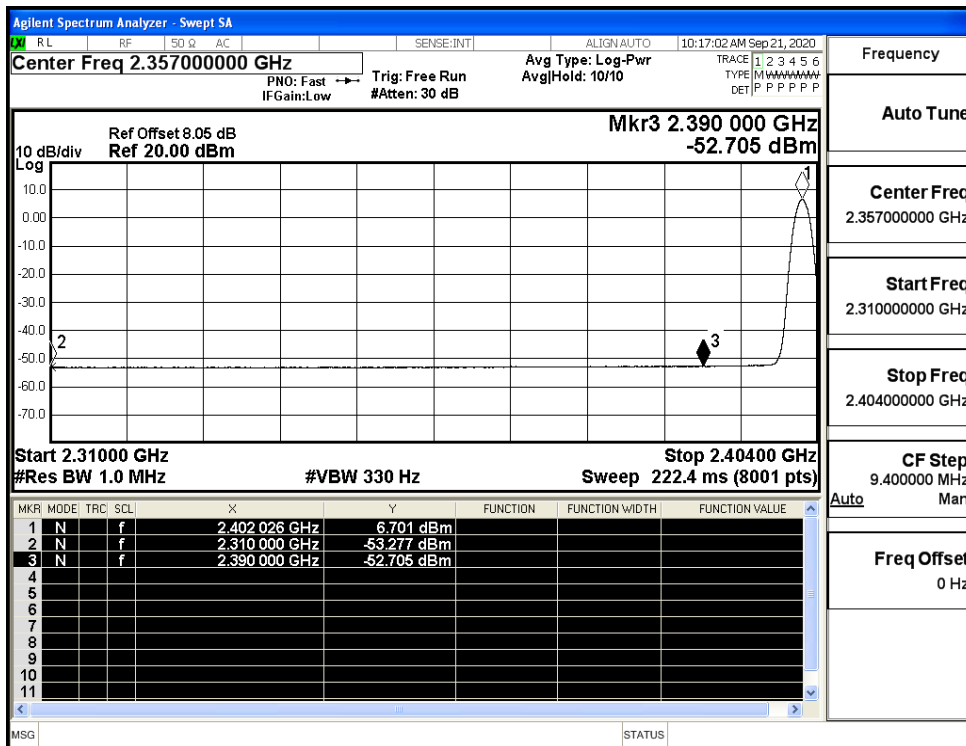
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



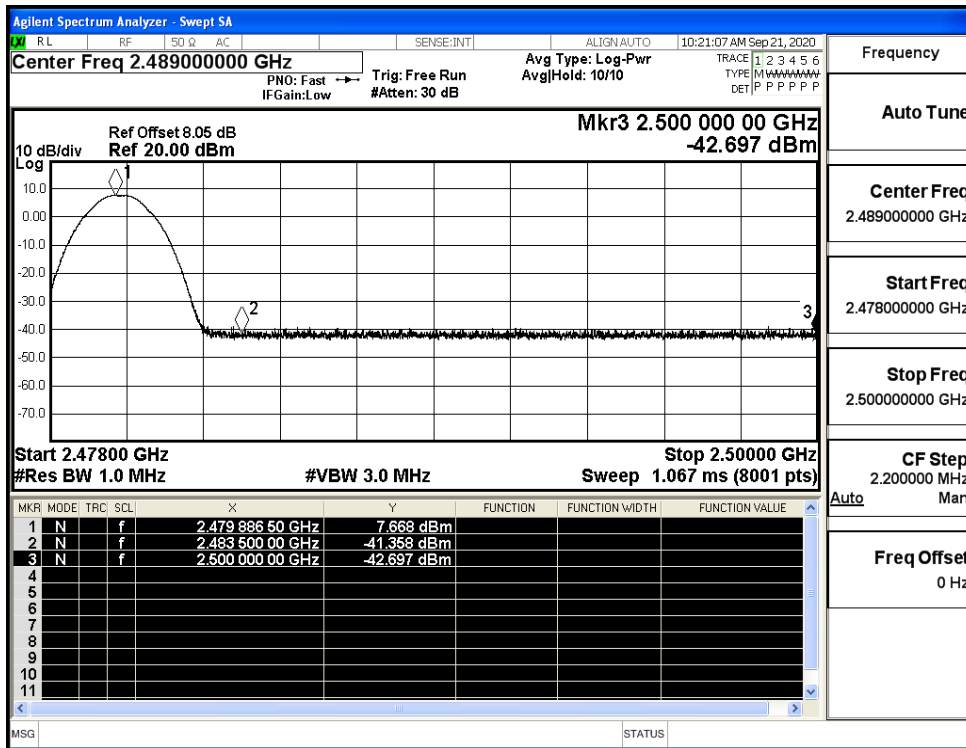
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)



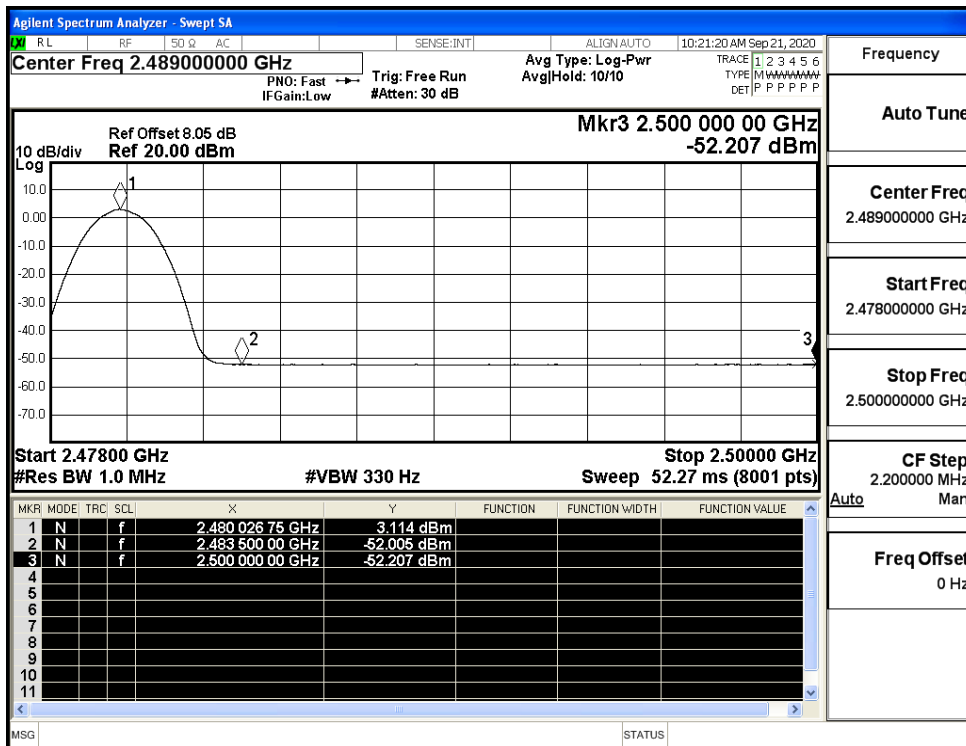
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)



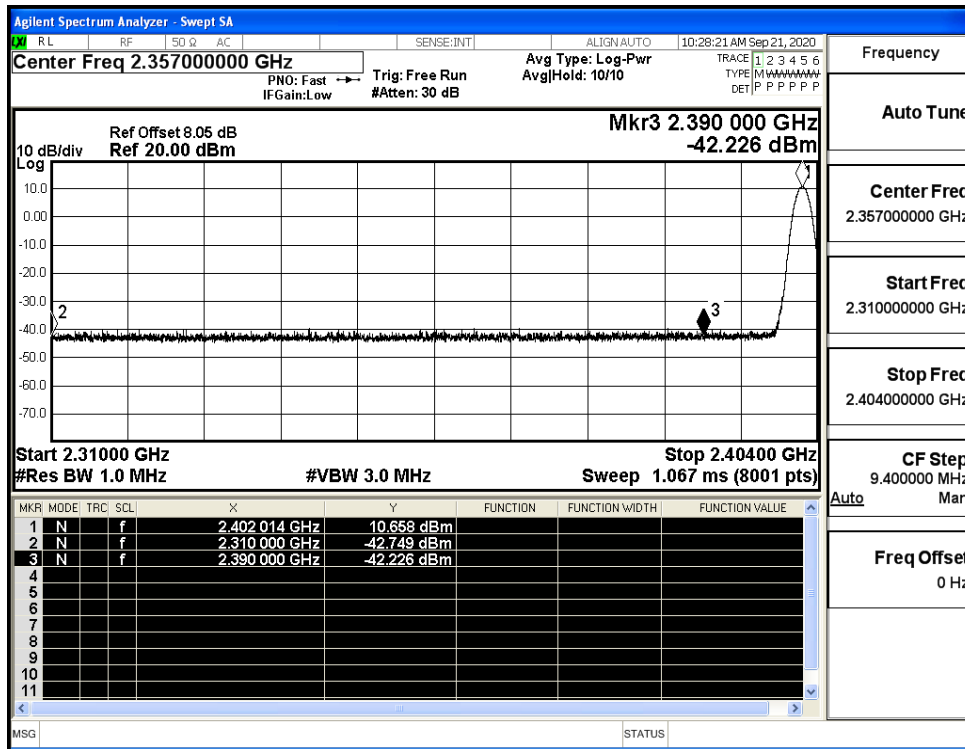
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



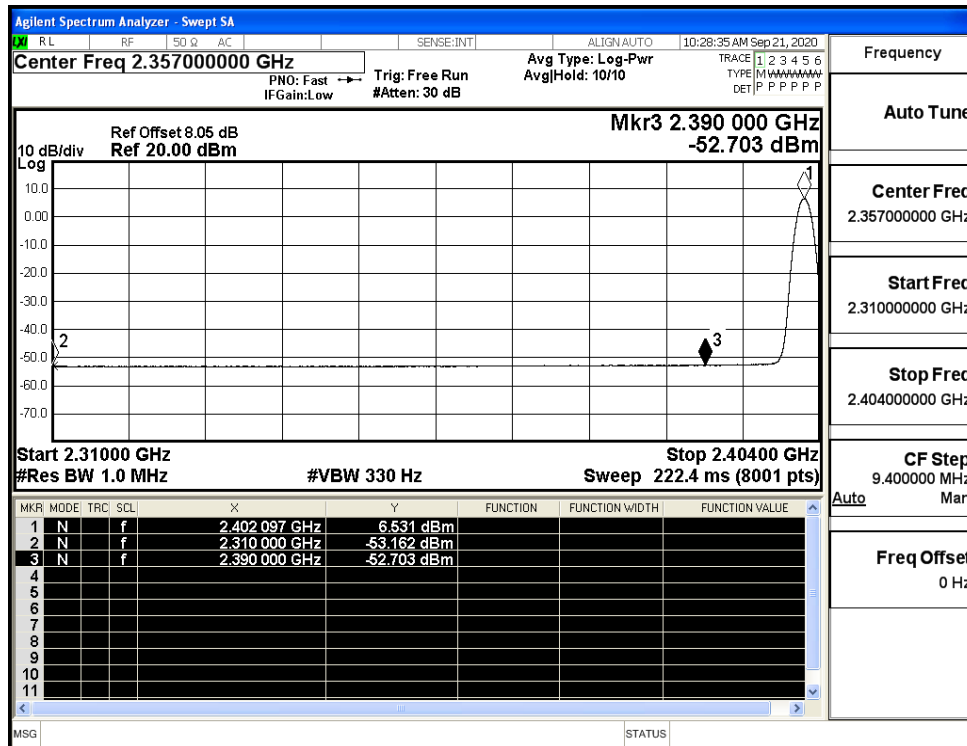
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



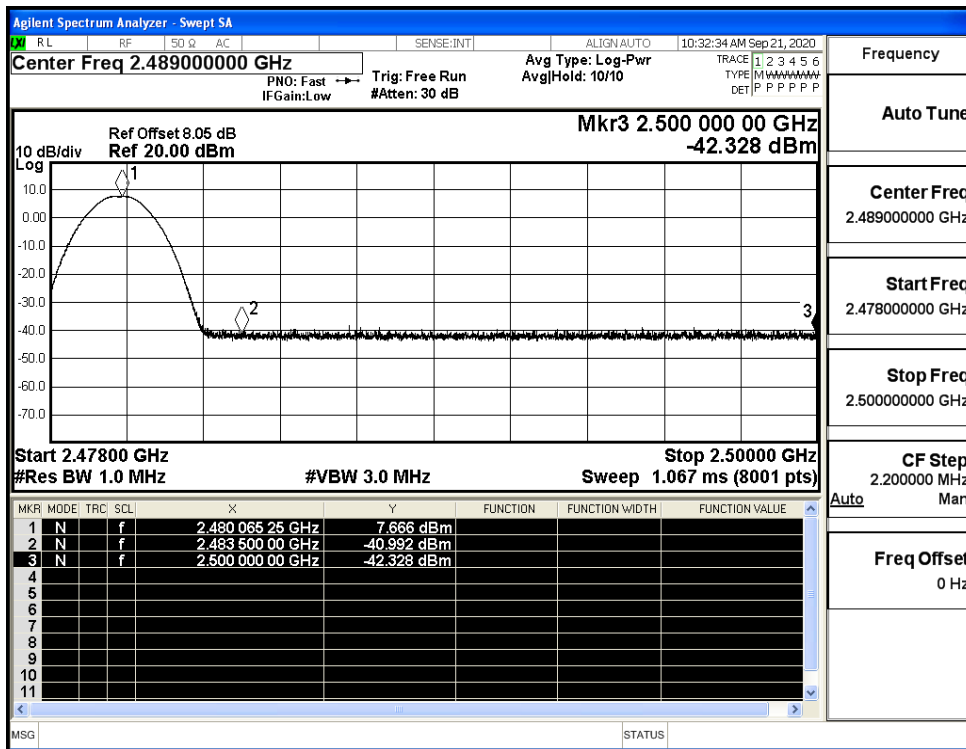
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



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)

