

## Appendix A

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

Product Name: Kids Bluetooth & ANC headphone

Trade Mark: Purosound

Test Model: PuroQuiet

#### Environmental Conditions

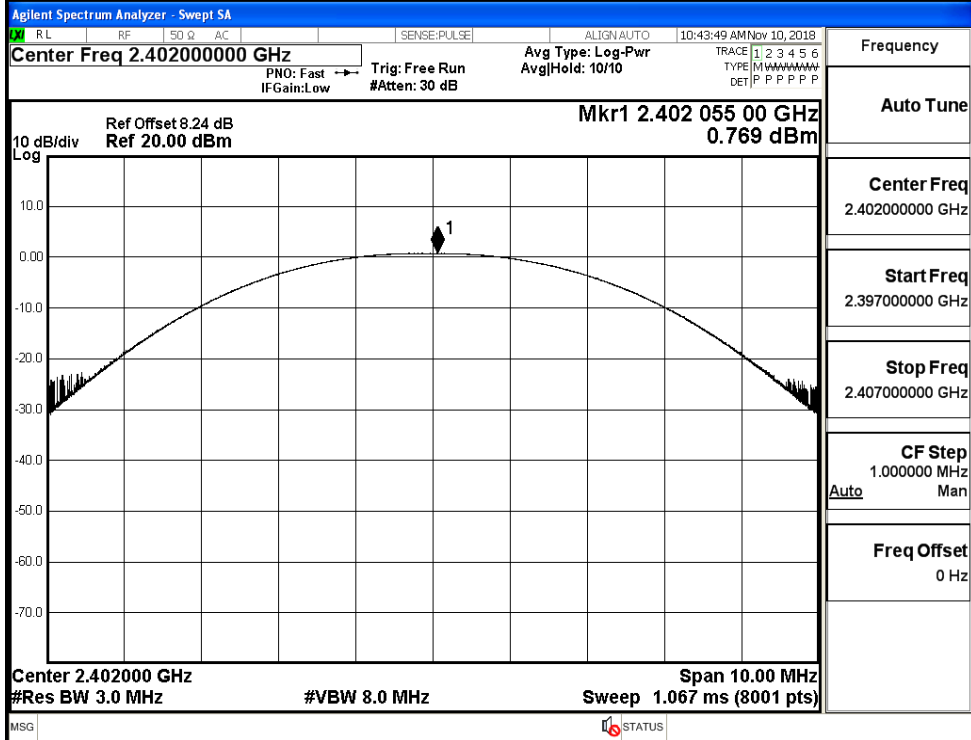
Temperature:	23.9 °C
Relative Humidity:	54.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond.Lu
Supervised by:	Jayden.Zhuo

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

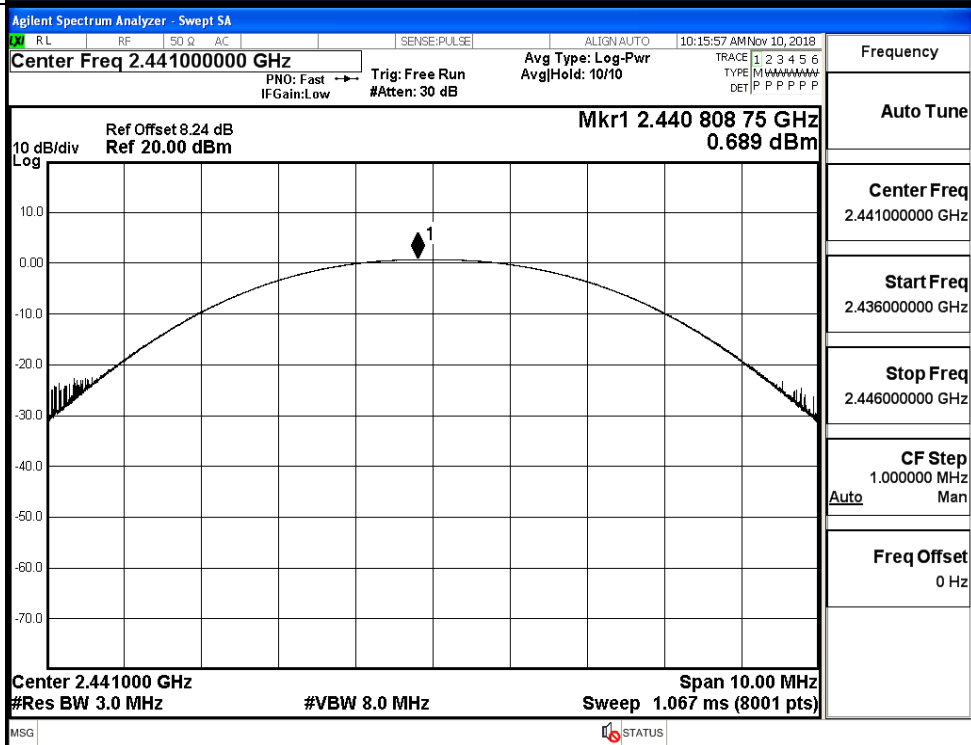
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.769	21	PASS
	MCH	0.689	21	PASS
	HCH	0.644	21	PASS
$\pi/4$ DQPSK	LCH	0.134	21	PASS
	MCH	-0.105	21	PASS
	HCH	-0.214	21	PASS
8DPSK	LCH	0.267	21	PASS
	MCH	0.123	21	PASS
	HCH	0.034	21	PASS

Test Graphs

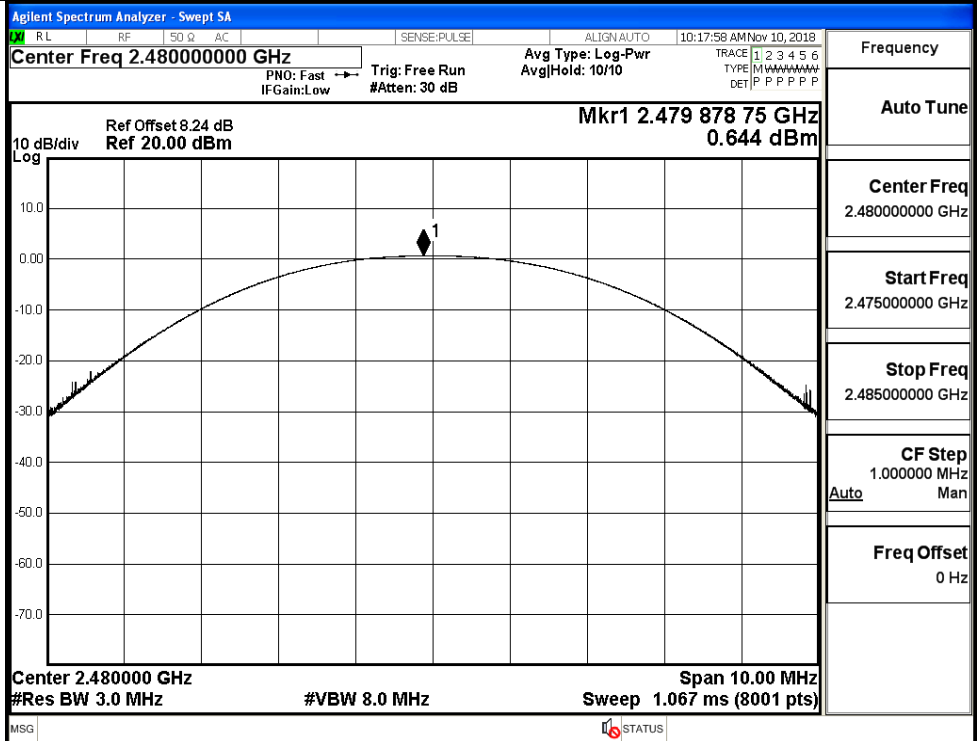
GFSK/LCH



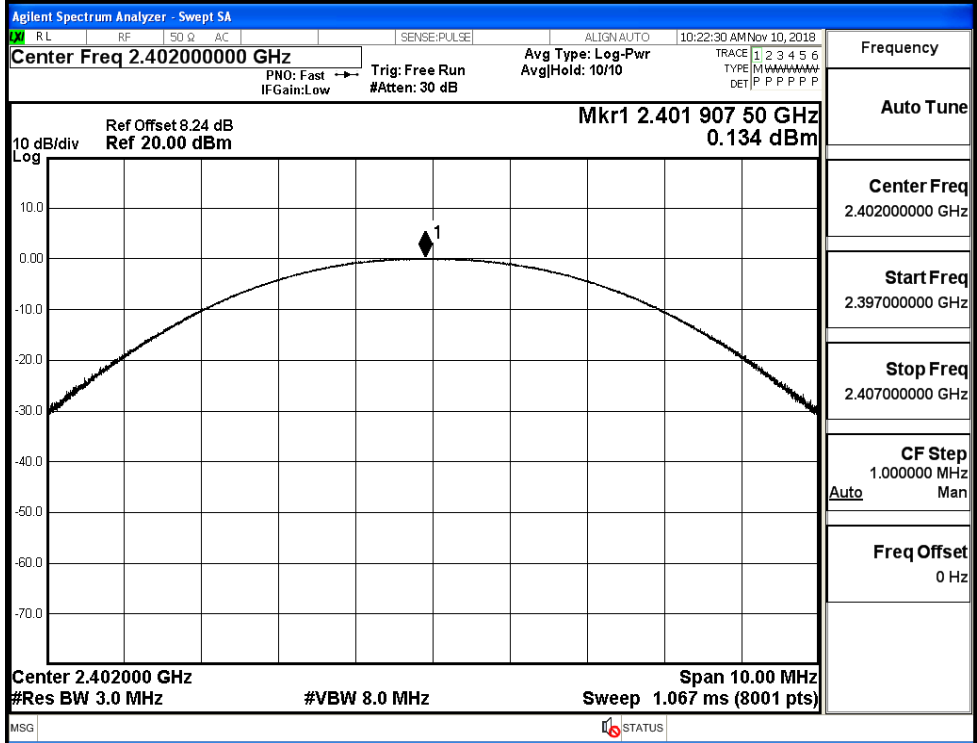
GFSK/MCH



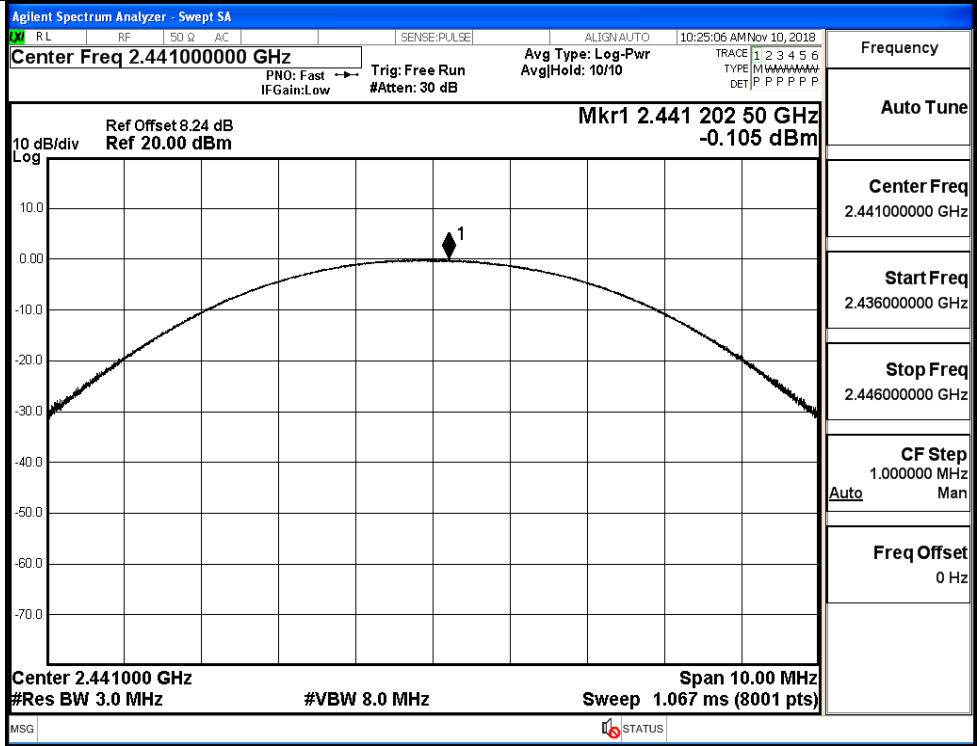
GFSK/HCH



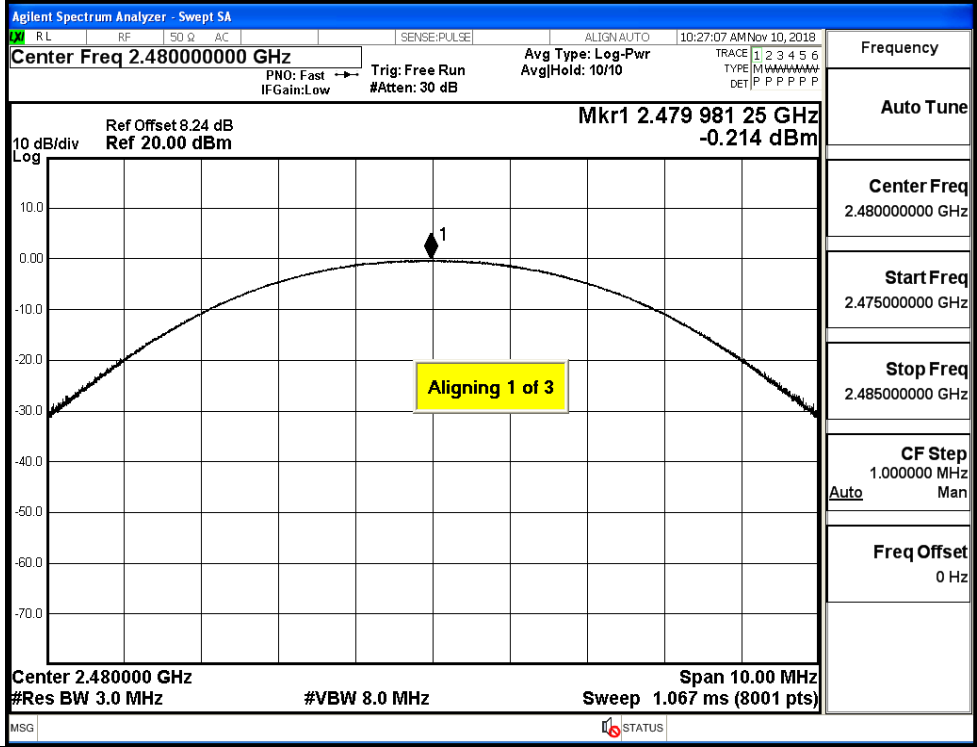
$\pi$ /4DQPSK/LCH



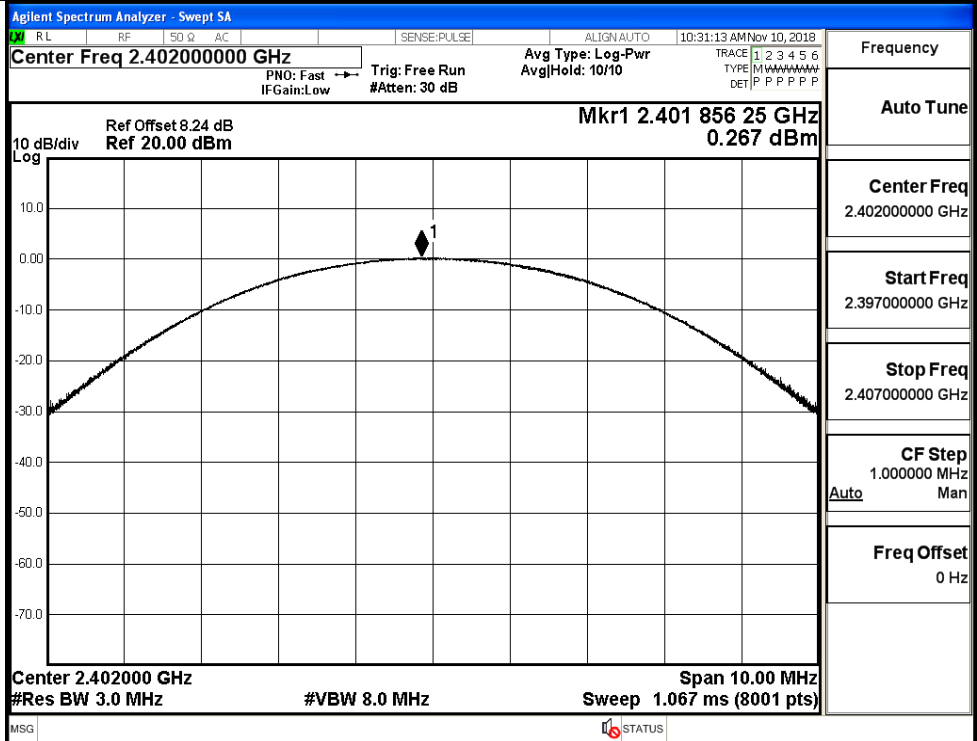
$\pi$ /4DQPSK/MCH



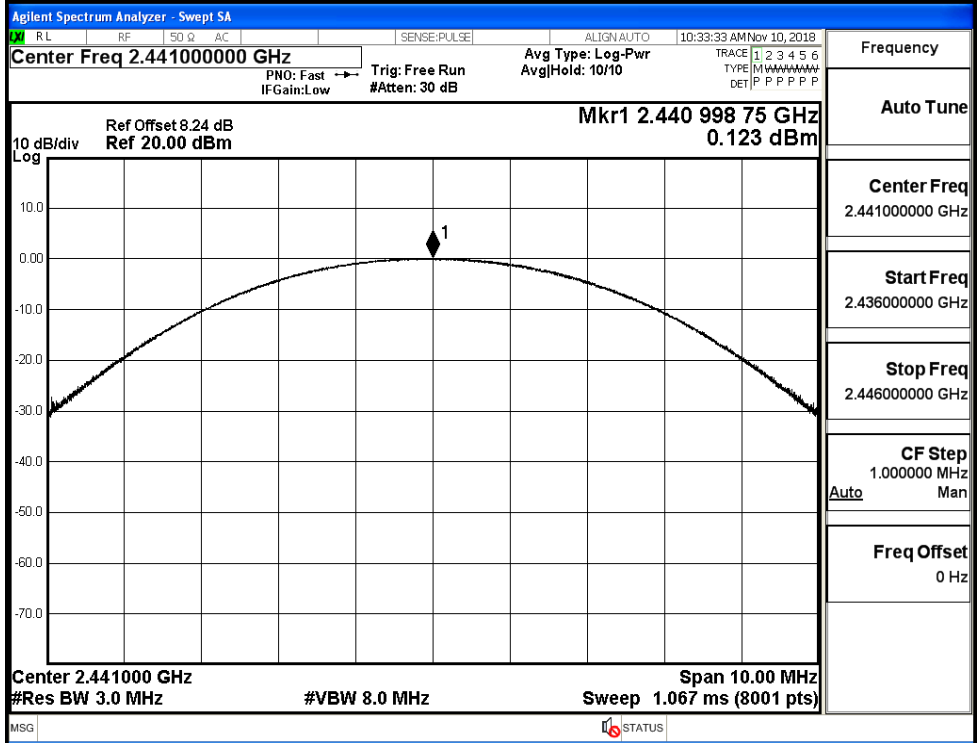
$\pi$ /4DQPSK/HCH



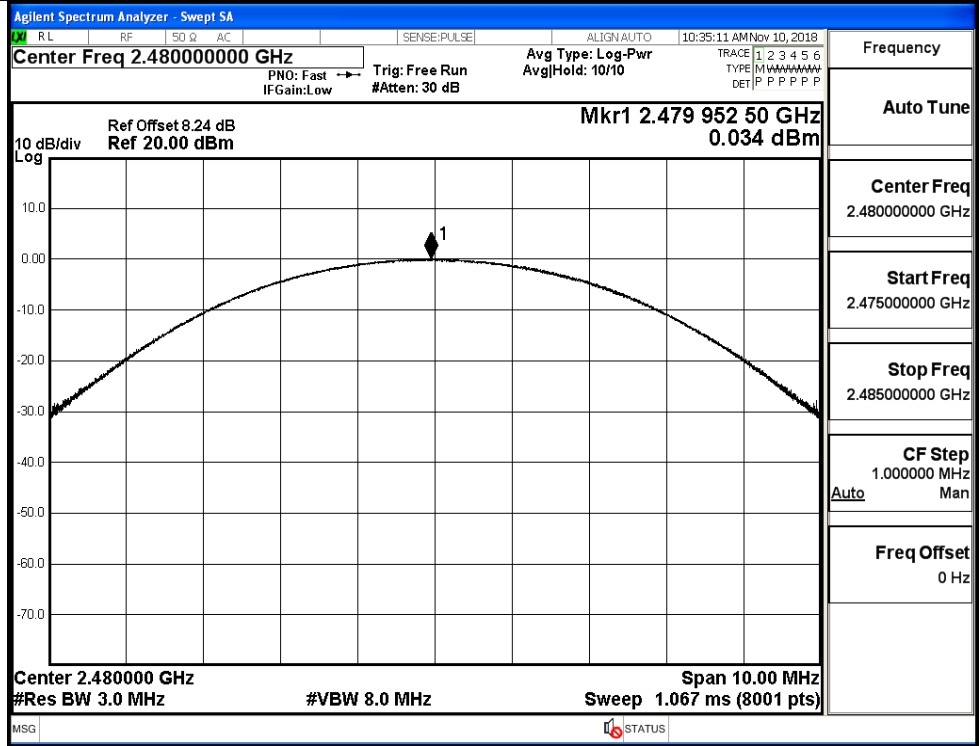
8DPSK/LCH



8DPSK/MCH

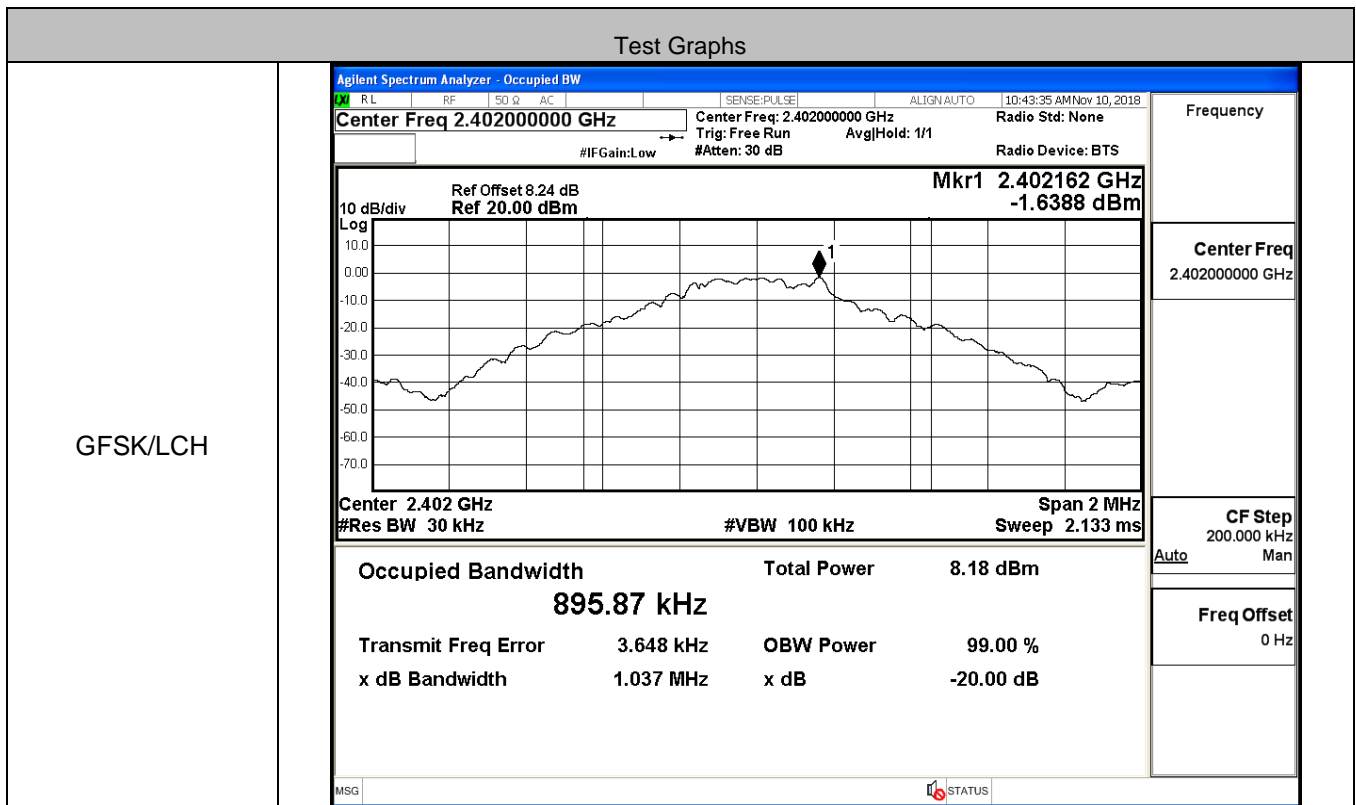


8DPSK/HCH

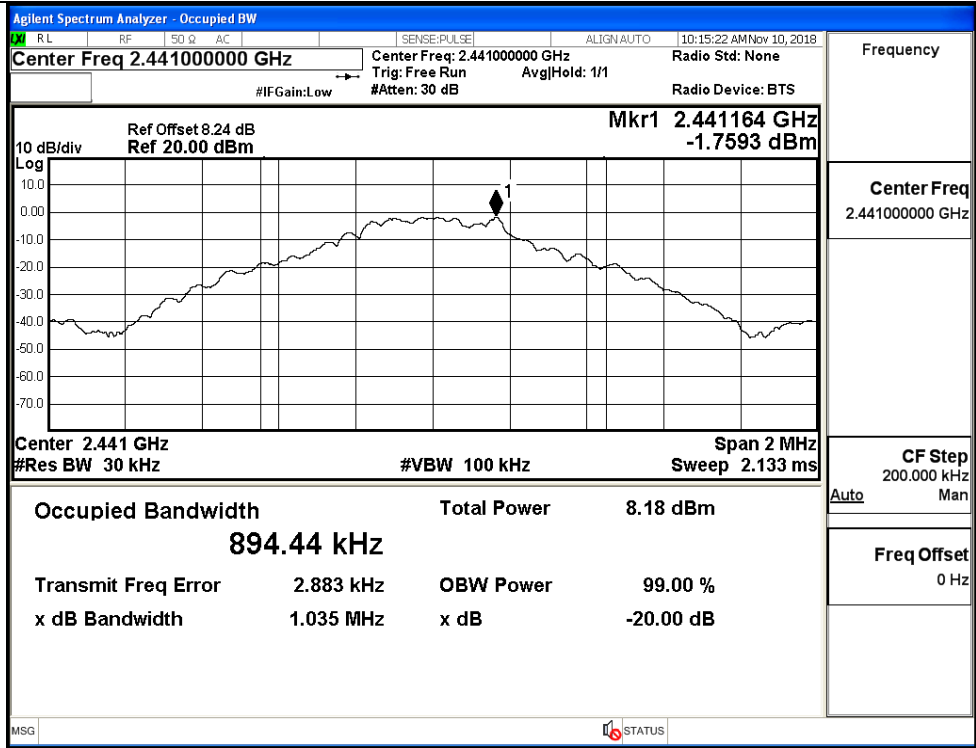


**A.2 99% and 20dB Bandwidth**

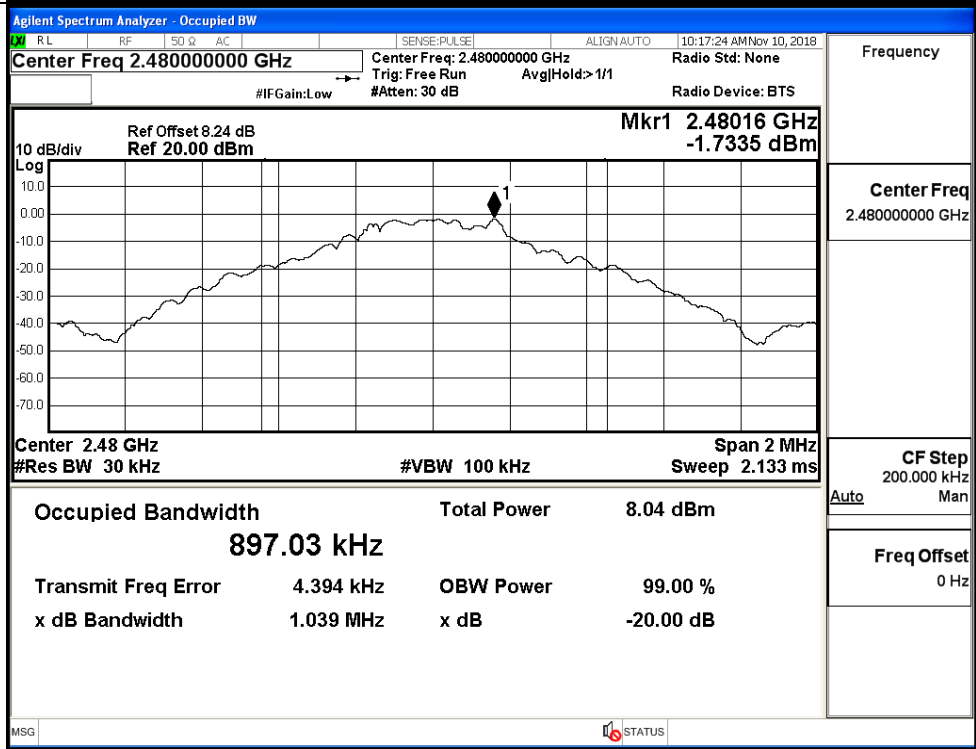
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89587	1.037	Not Specified	PASS
	MCH	0.89444	1.035	Not Specified	PASS
	HCH	0.89703	1.039	Not Specified	PASS
π/4DQPSK	LCH	1.1740	1.291	Not Specified	PASS
	MCH	1.1746	1.307	Not Specified	PASS
	HCH	1.1707	1.289	Not Specified	PASS
8DPSK	LCH	1.1839	1.297	Not Specified	PASS
	MCH	1.1824	1.295	Not Specified	PASS
	HCH	1.1791	1.292	Not Specified	PASS



GFSK/MCH

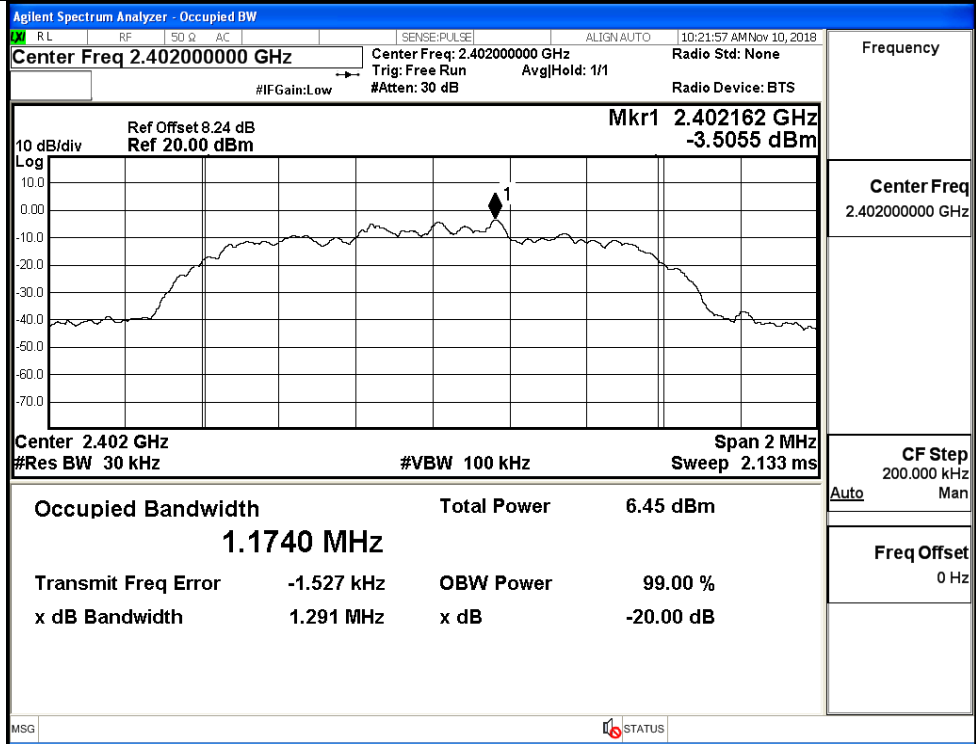


GFSK/HCH

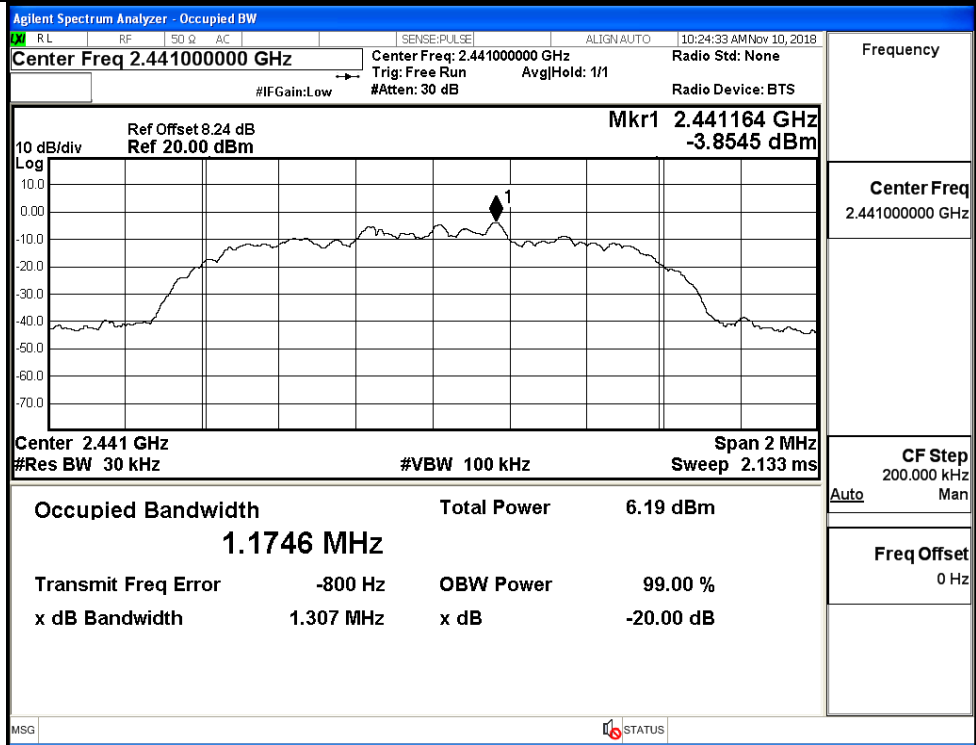




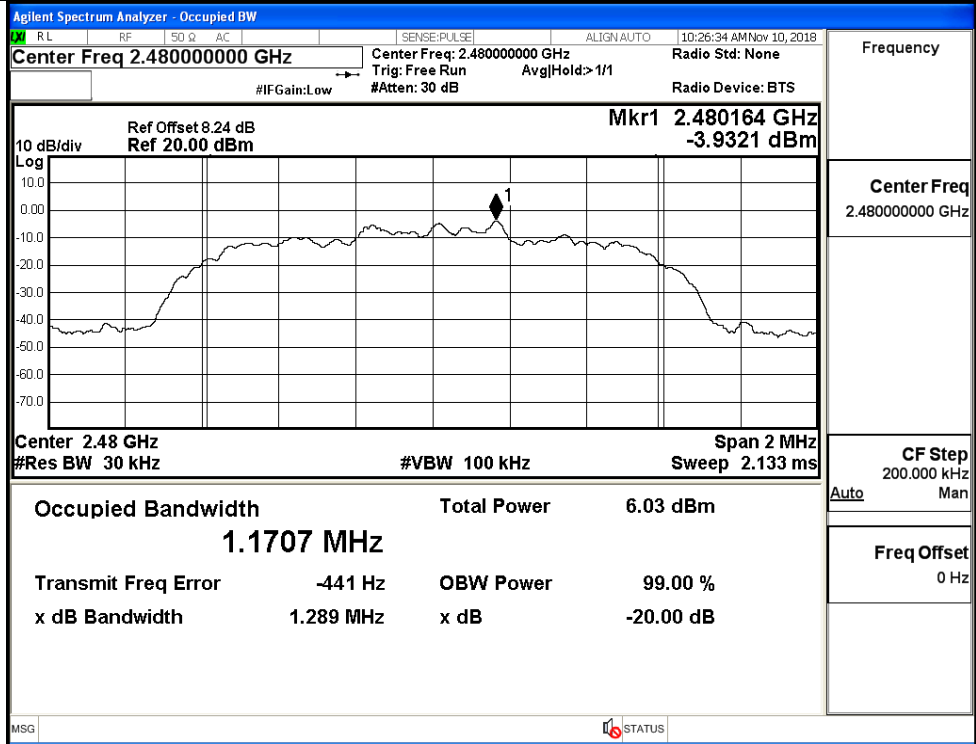
$\pi/4$ DQPSK/LCH



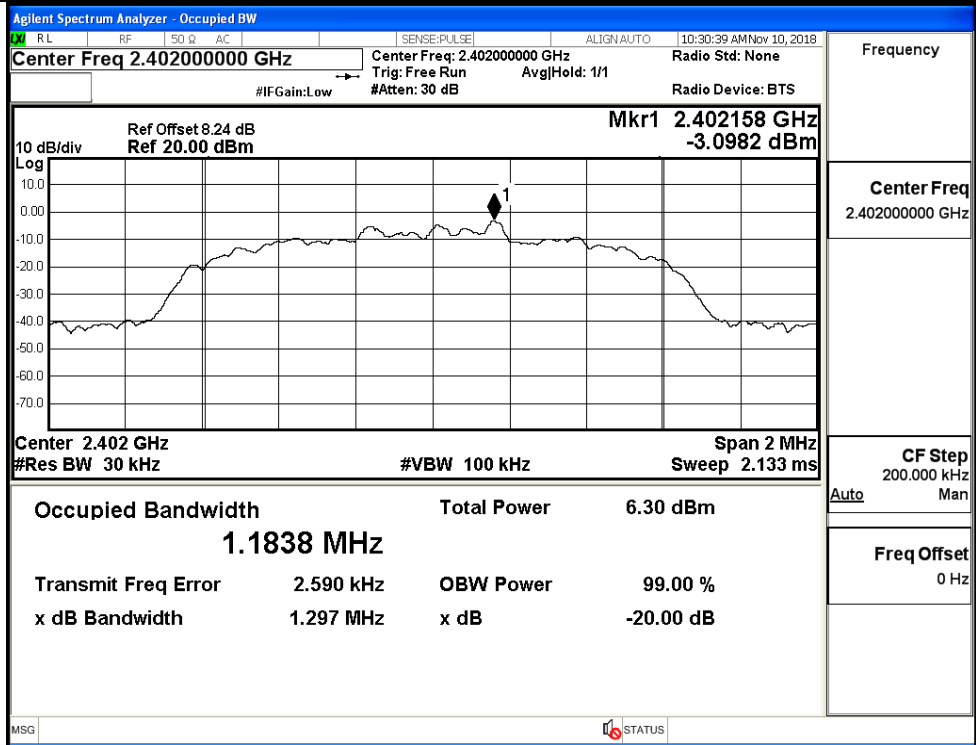
$\pi/4$ DQPSK/MCH



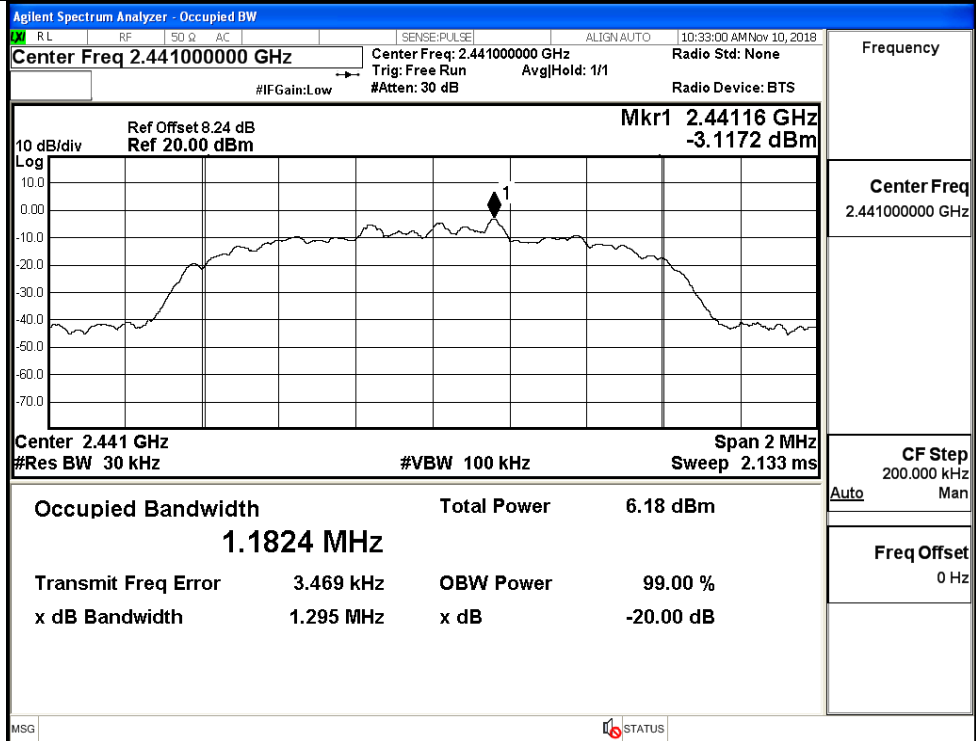
$\pi/4$ DQPSK/HCH



8DPSK/LCH

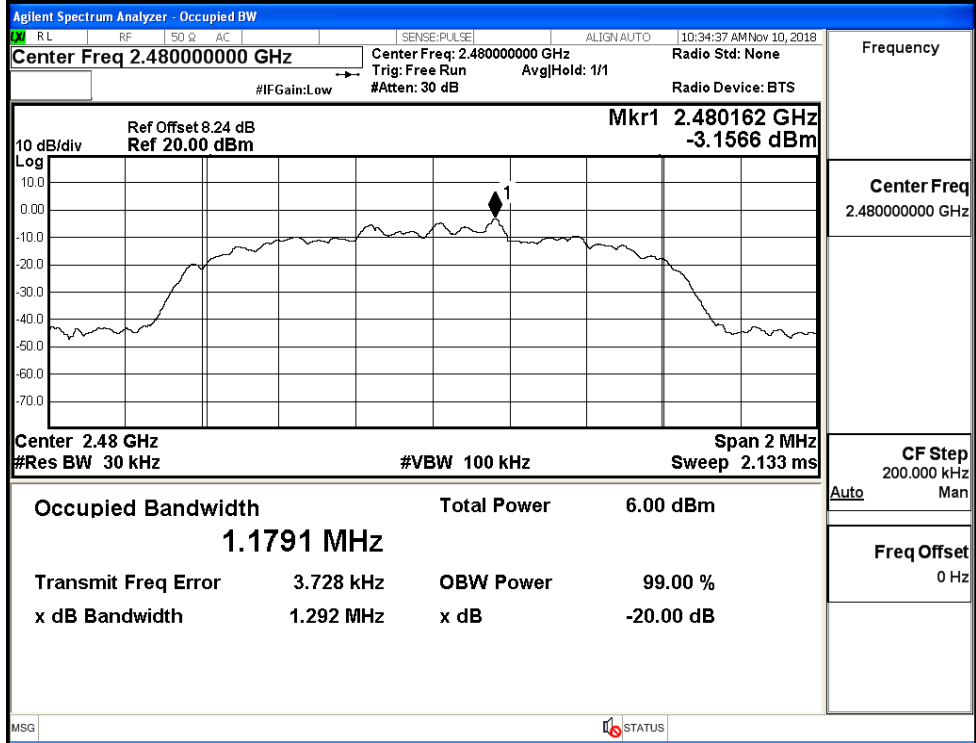


8DPSK/MCH



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

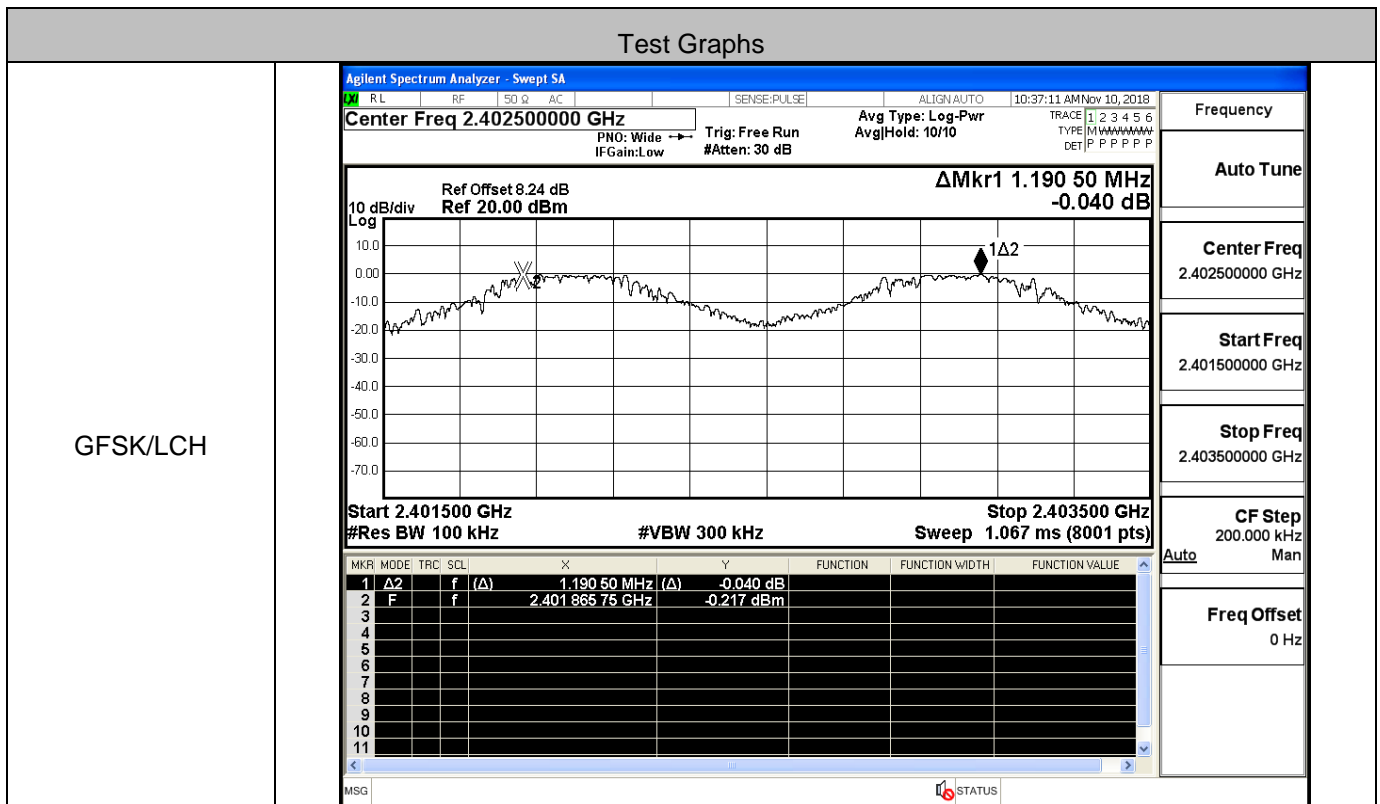
8DPSK/HCH



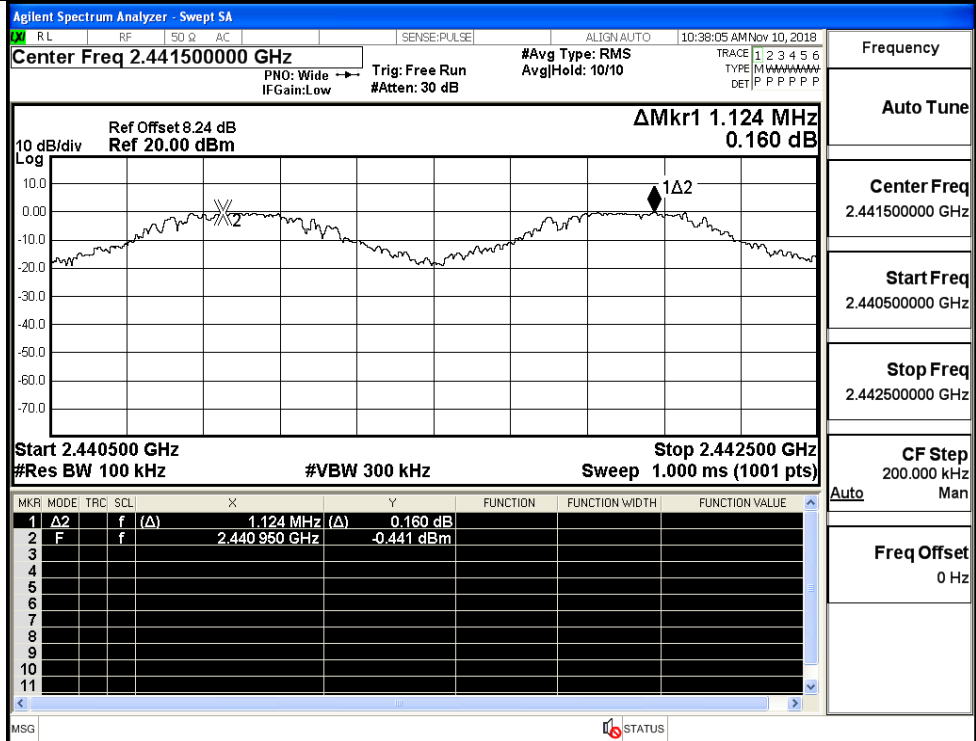
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

### A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.191	0.693	PASS
	MCH	1.124	0.693	PASS
	HCH	0.812	0.693	PASS
π/4DQPSK	LCH	0.898	0.871	PASS
	MCH	1.312	0.871	PASS
	HCH	0.930	0.871	PASS
8DPSK	LCH	1.160	0.865	PASS
	MCH	1.032	0.865	PASS
	HCH	0.996	0.865	PASS



GFSK/MCH



Frequency

Auto Tune

Center Freq  
2.441500000 GHz

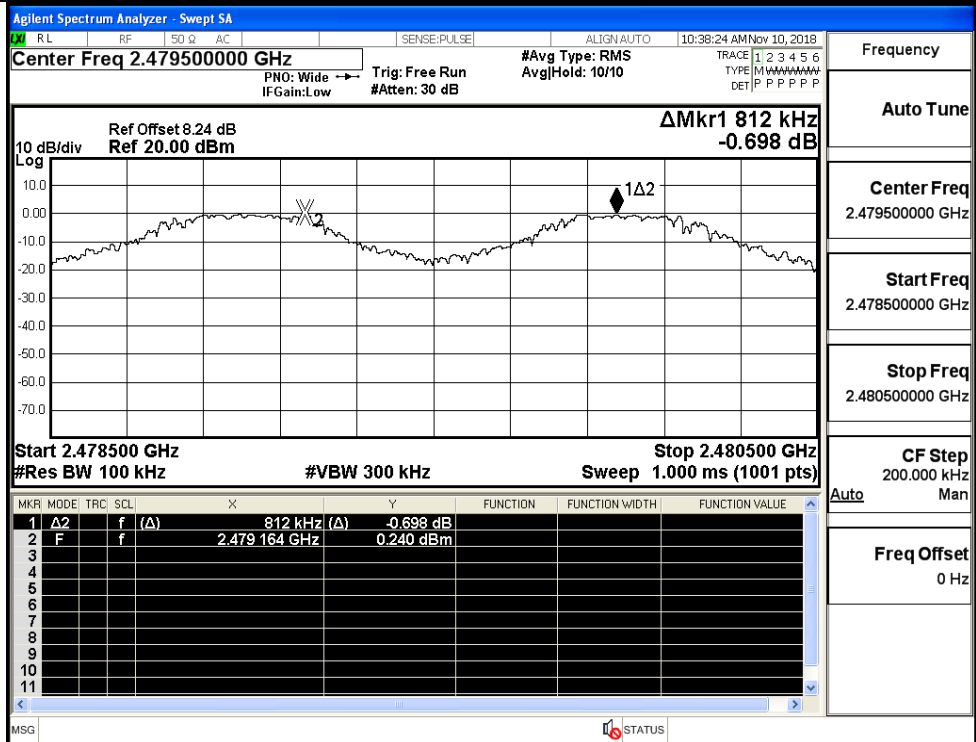
Start Freq  
2.440500000 GHz

Stop Freq  
2.442500000 GHz

CF Step  
200.000 kHz  
Auto Man

Freq Offset  
0 Hz

GFSK/HCH



Frequency

Auto Tune

Center Freq  
2.479500000 GHz

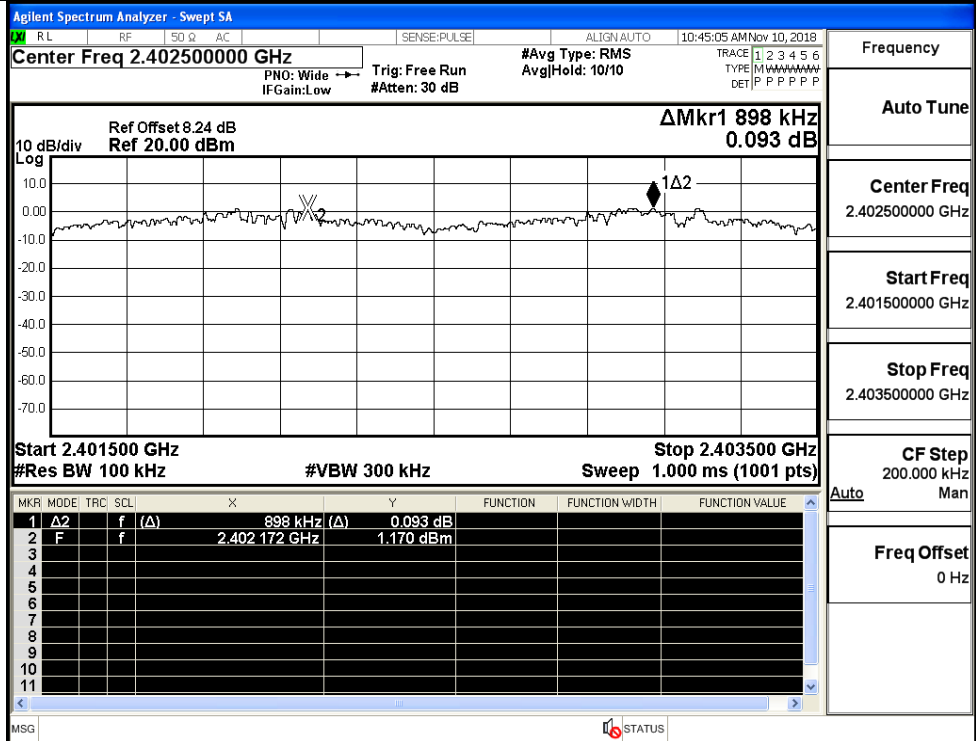
Start Freq  
2.478500000 GHz

Stop Freq  
2.480500000 GHz

CF Step  
200.000 kHz  
Auto Man

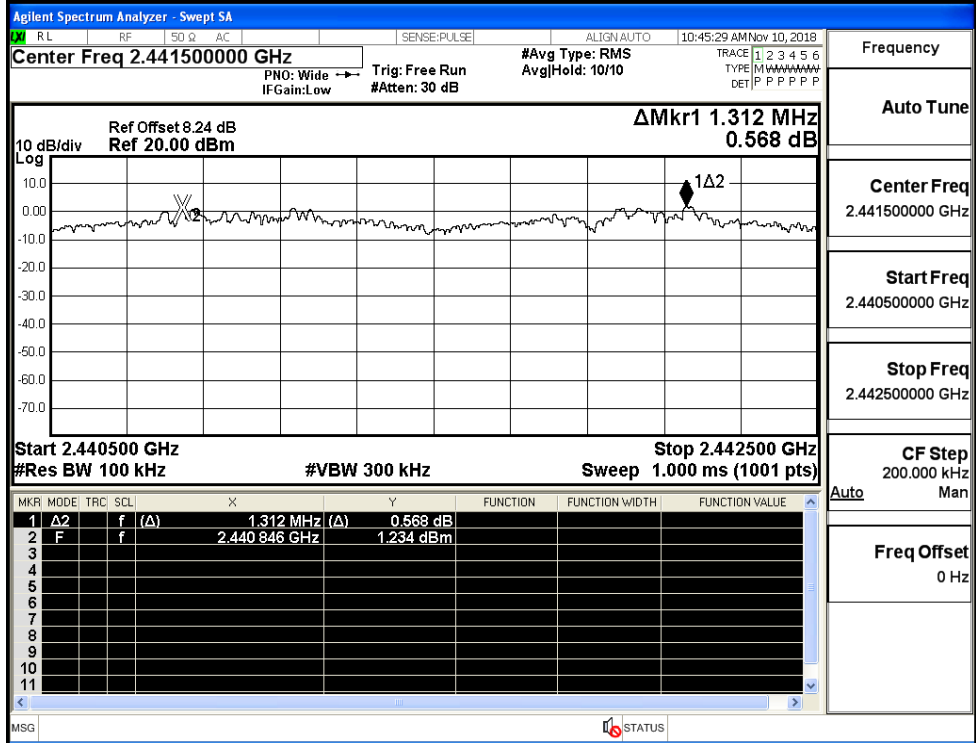
Freq Offset  
0 Hz

$\pi/4$ DQPSK/LCH



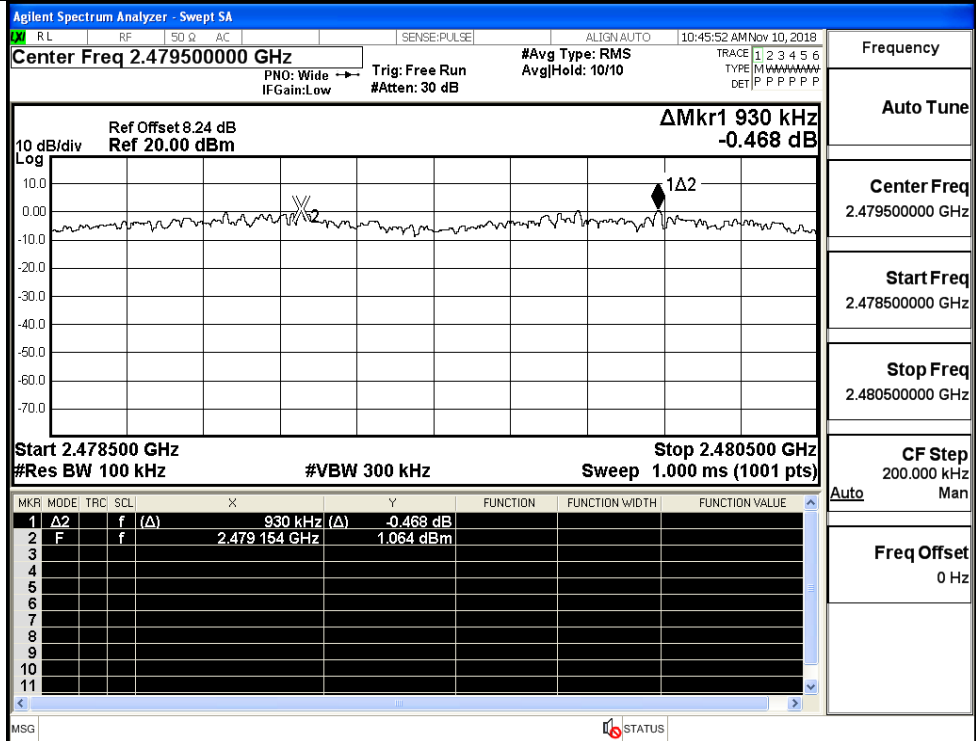
Frequency  
Auto Tune  
Center Freq  
2.402500000 GHz  
Start Freq  
2.401500000 GHz  
Stop Freq  
2.403500000 GHz  
CF Step  
200.000 kHz  
Auto  
Man  
Freq Offset  
0 Hz

$\pi/4$ DQPSK/MCH



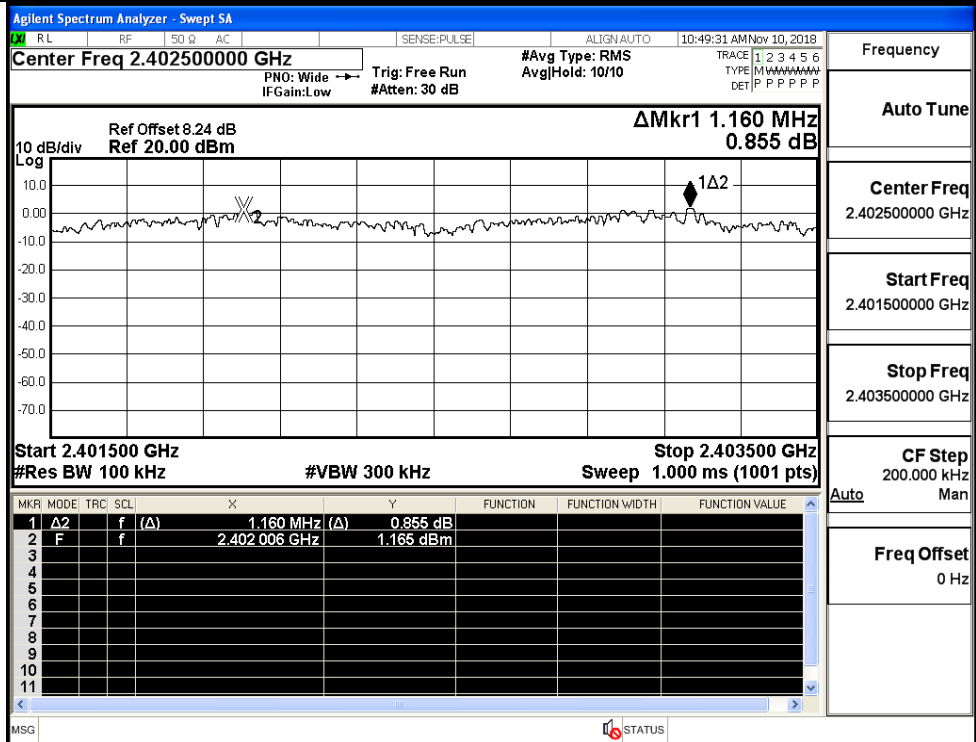
Frequency  
Auto Tune  
Center Freq  
2.441500000 GHz  
Start Freq  
2.440500000 GHz  
Stop Freq  
2.442500000 GHz  
CF Step  
200.000 kHz  
Auto  
Man  
Freq Offset  
0 Hz

π/4DQPSK/HCH



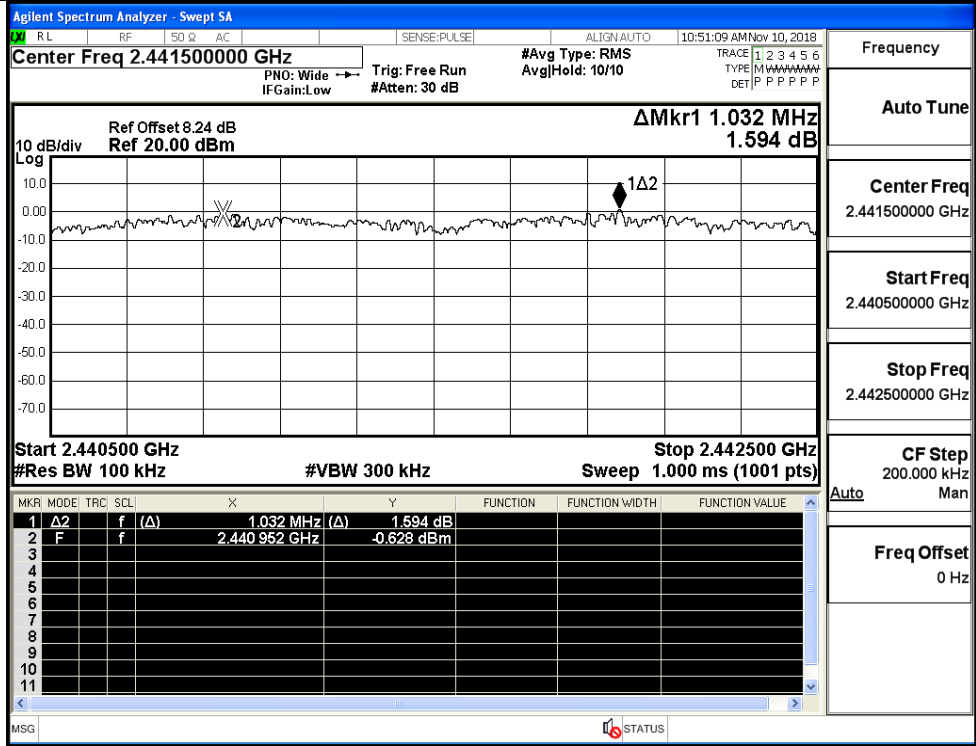
Frequency
Auto Tune
Center Freq 2.479500000 GHz
Start Freq 2.478500000 GHz
Stop Freq 2.480500000 GHz
CF Step 200.000 kHz Auto
Freq Offset 0 Hz

8DPSK/LCH

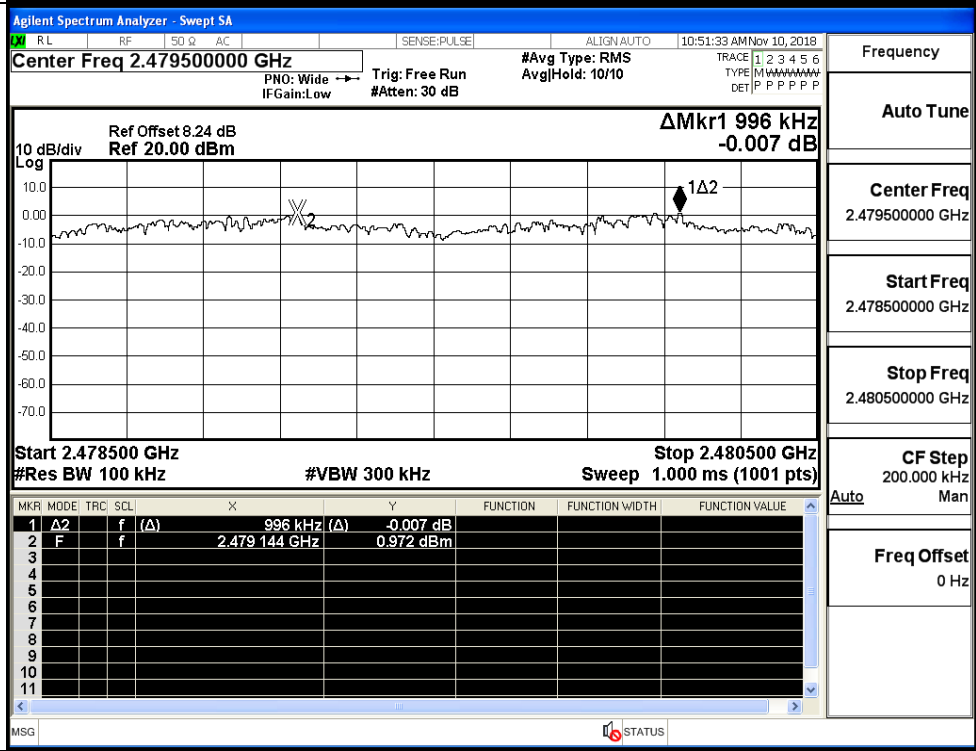


Frequency
Auto Tune
Center Freq 2.402500000 GHz
Start Freq 2.401500000 GHz
Stop Freq 2.403500000 GHz
CF Step 200.000 kHz Auto
Freq Offset 0 Hz

8DPSK/MCH



8DPSK/HCH



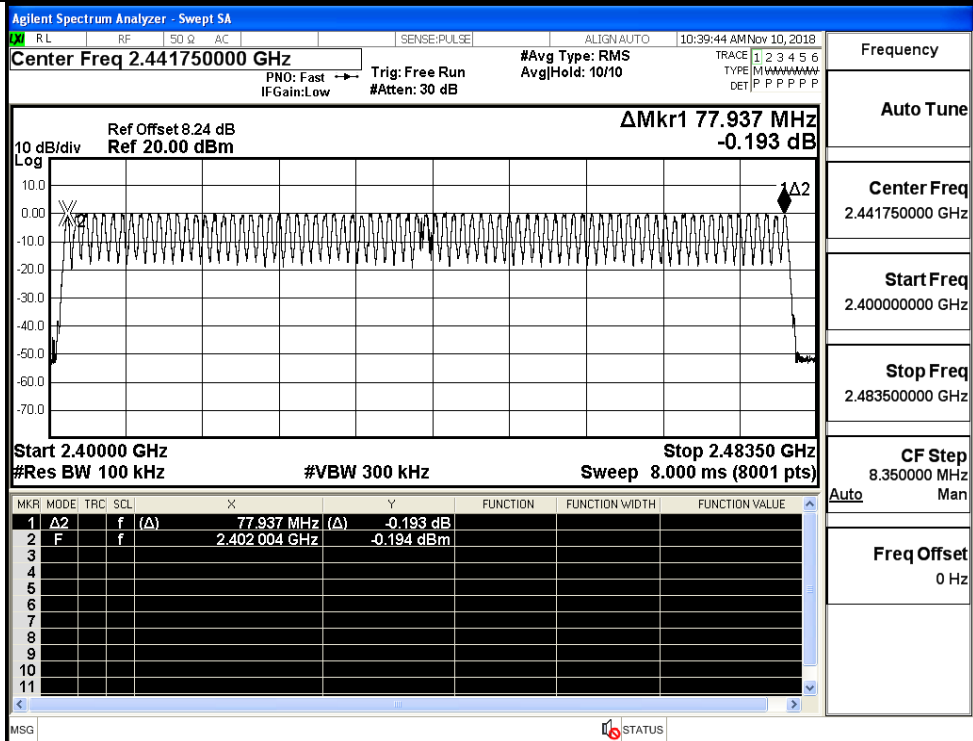


### A.4 Hopping Channel Number

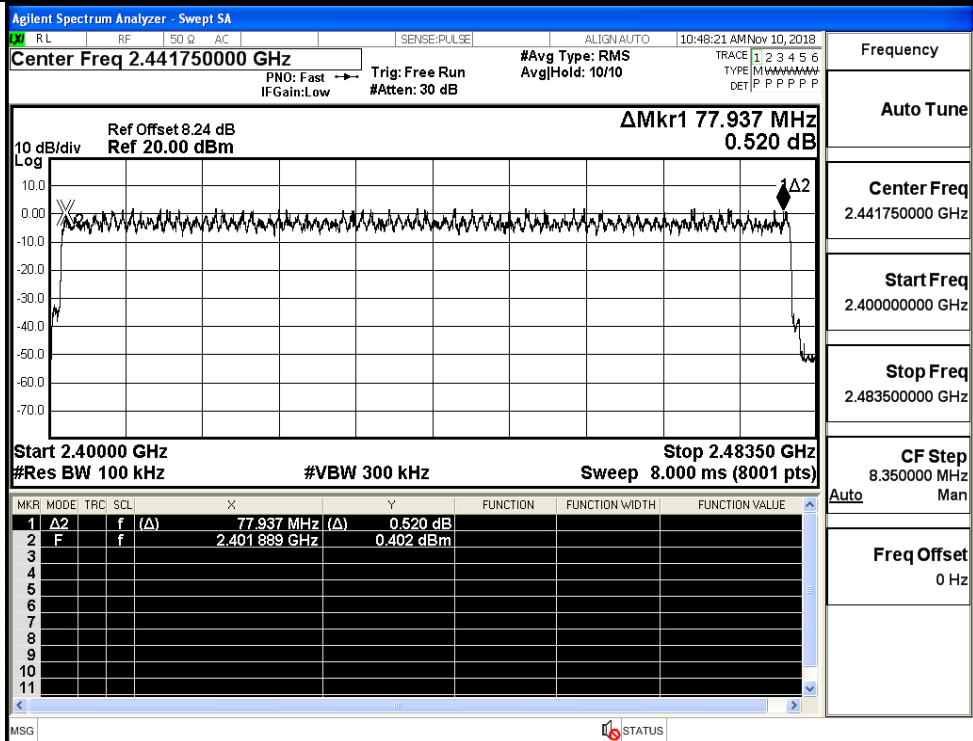
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

#### Test Graphs

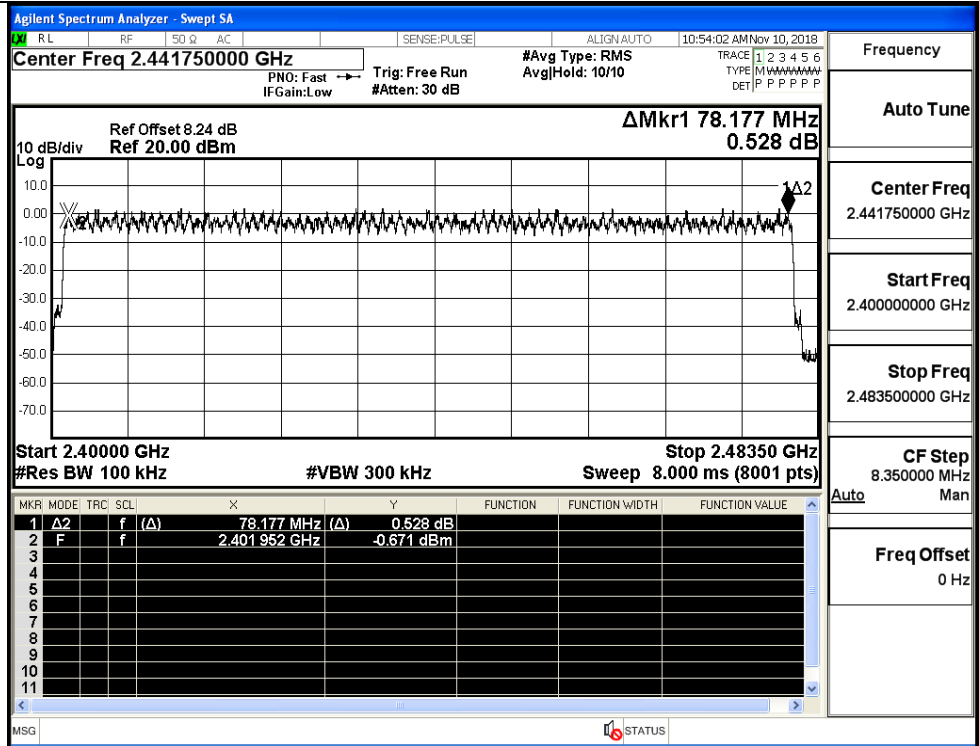
GFSK/Hop



$\pi/4$ DQPSK/Hop

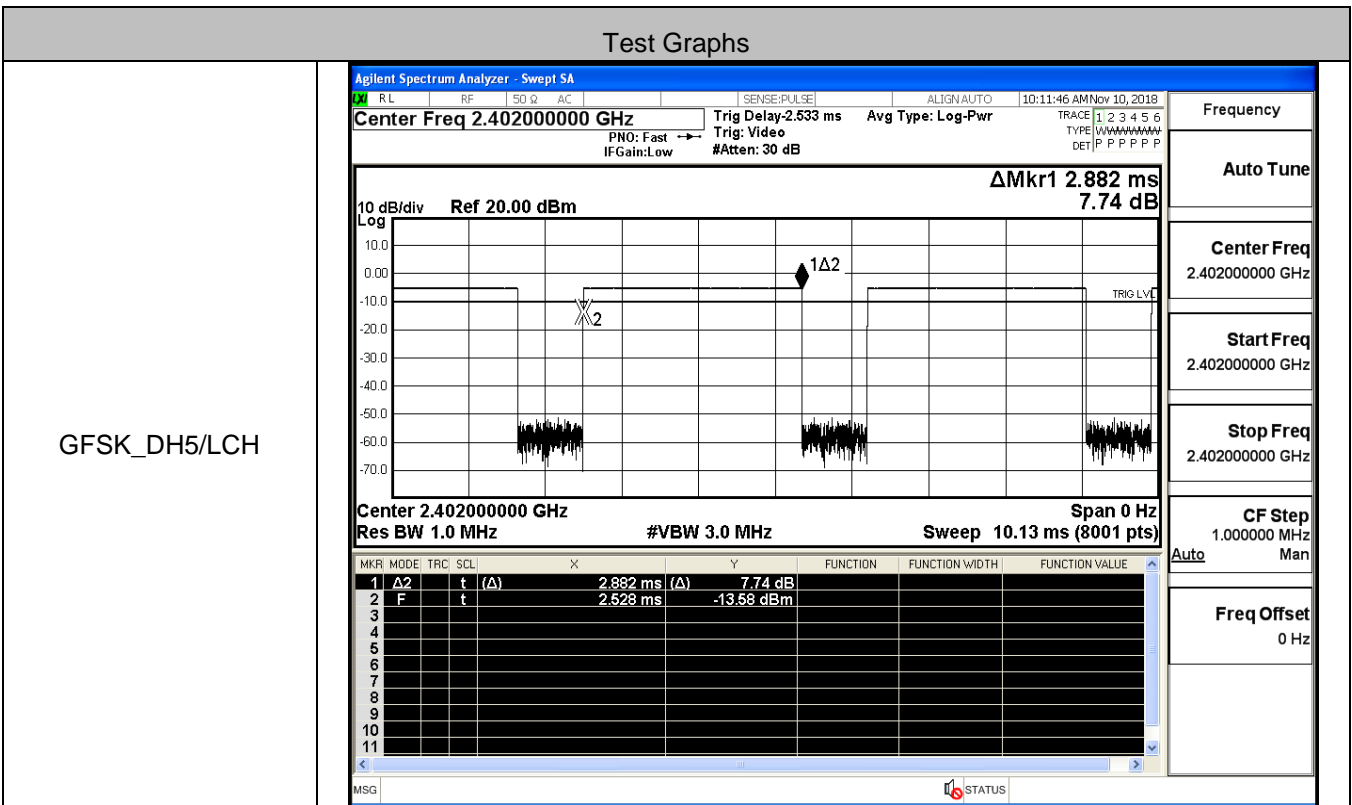


8DPSK/Hop

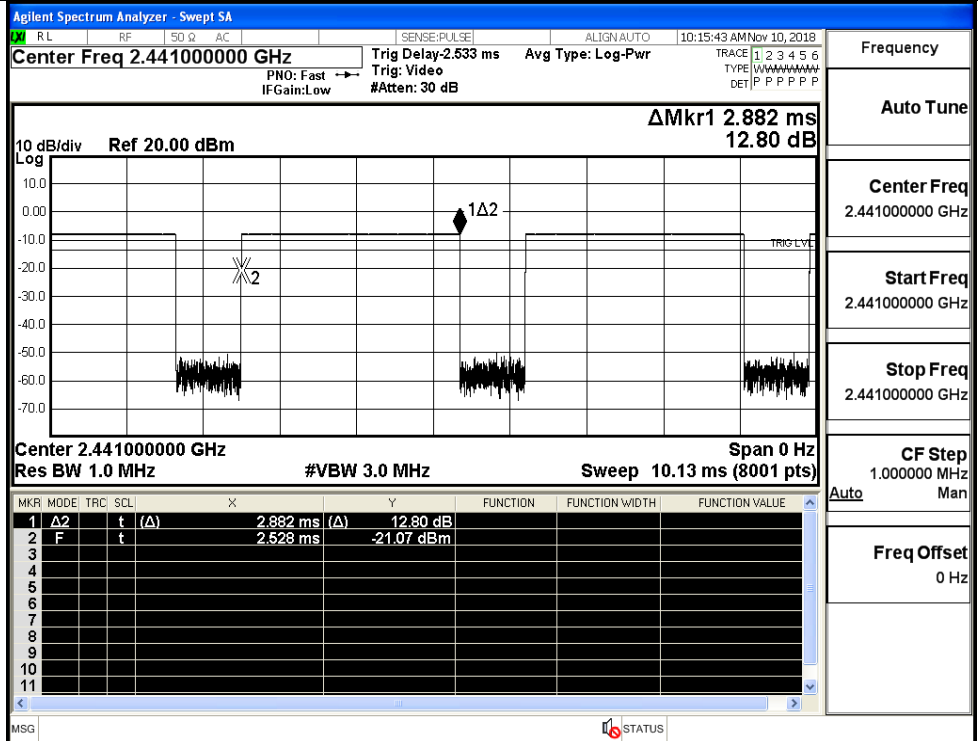


**A.5 Dwell Time**

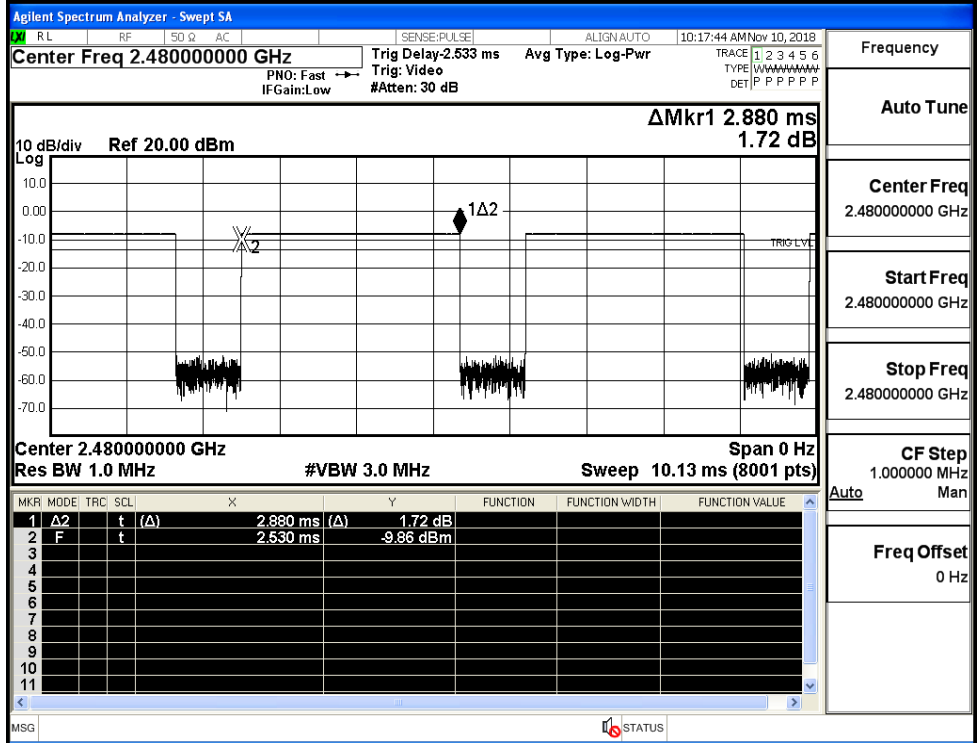
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.89	106.7	0.308	0.4	PASS
	3DH5	HCH	2.89	106.7	0.308	0.4	PASS



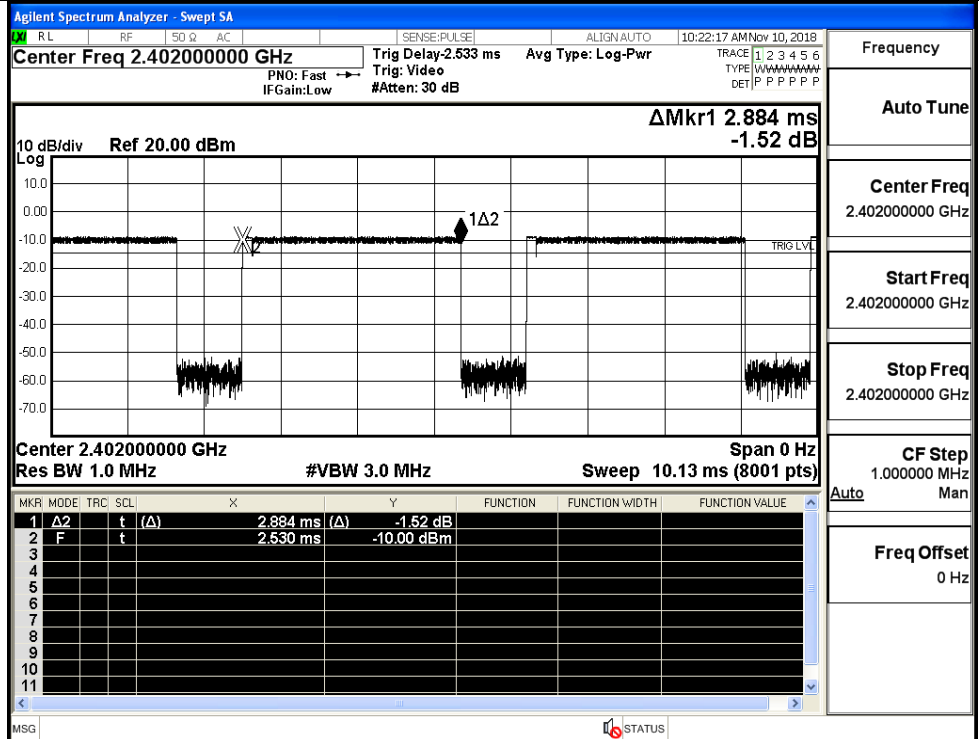
GFSK\_DH5/MCH



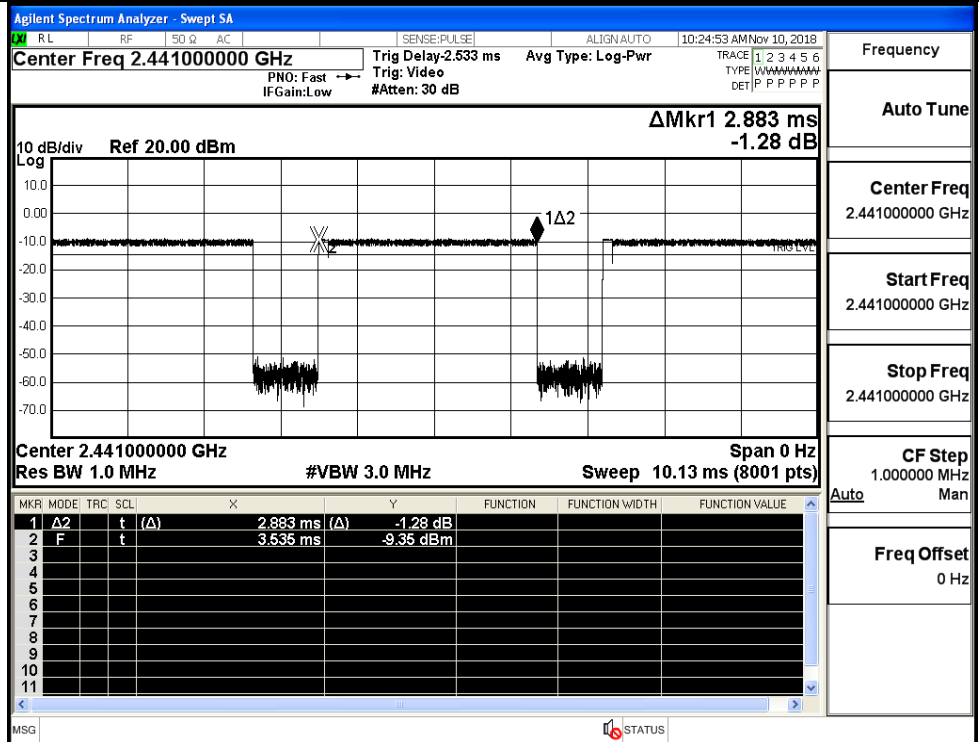
GFSK\_DH5/HCH



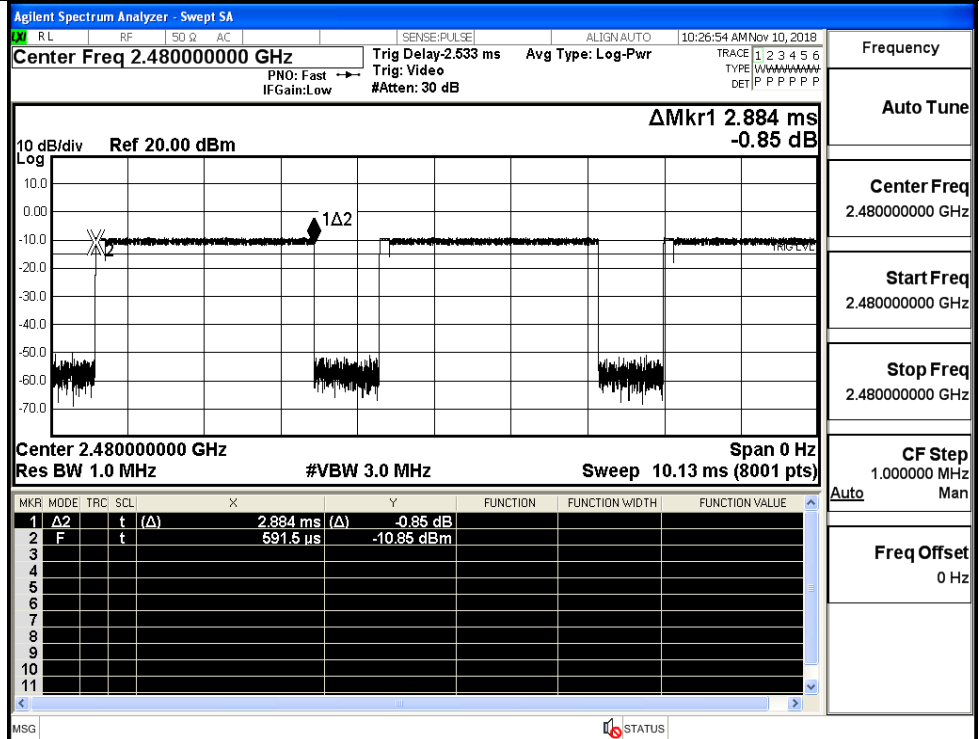
$\pi/4$ DQPSK  
\_2DH5/LCH



$\pi/4$ DQPSK  
\_2DH5/MCH

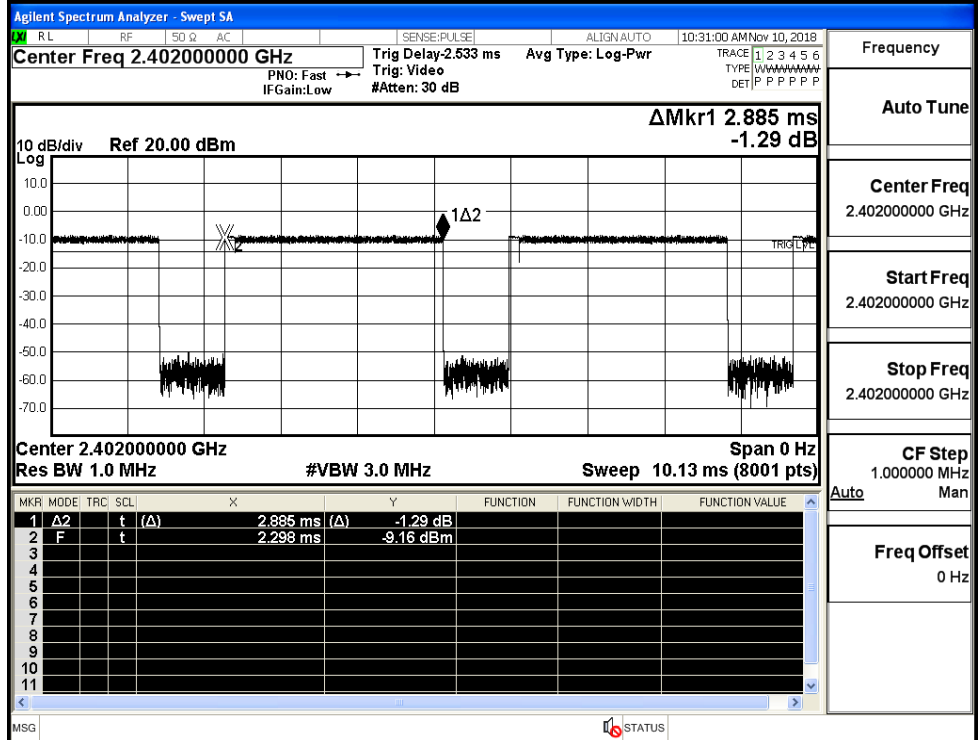


$\pi/4$ DQPSK  
\_2DH5/HCH



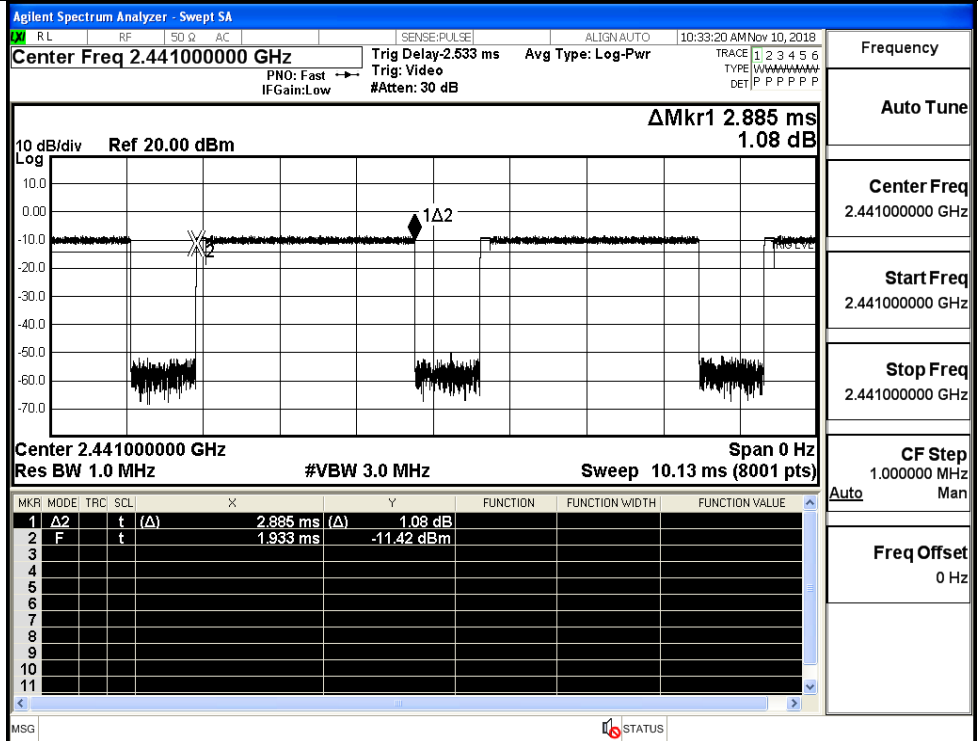
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK\_3DH5/LCH

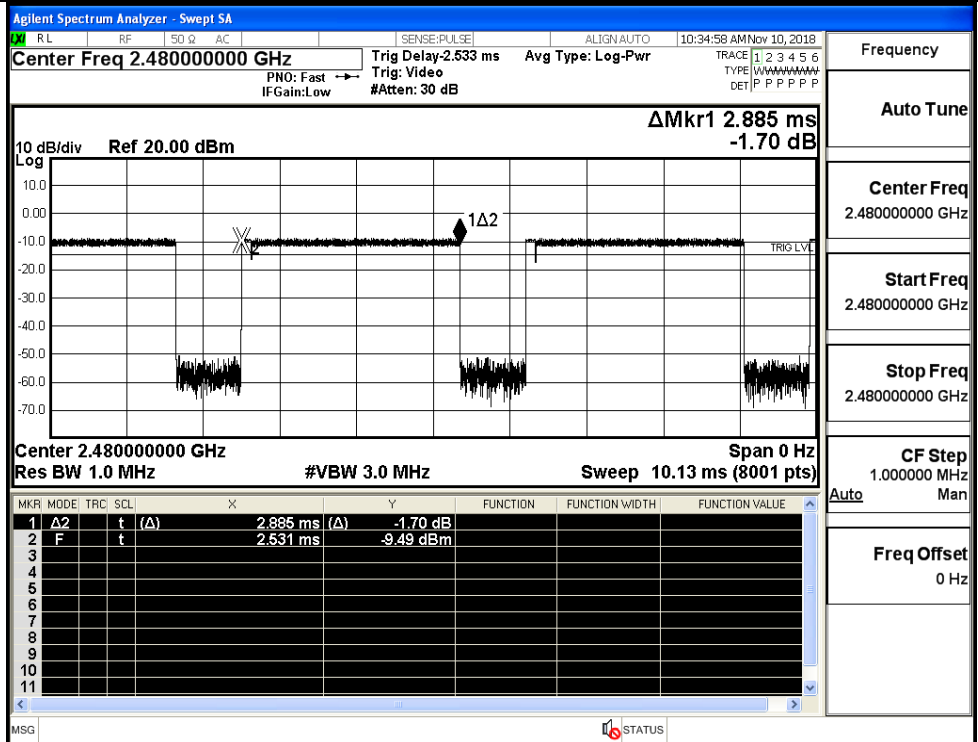


Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.402000000 GHz
Stop Freq	2.402000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK\_3DH5/MCH



8DPSK\_3DH5/HCH



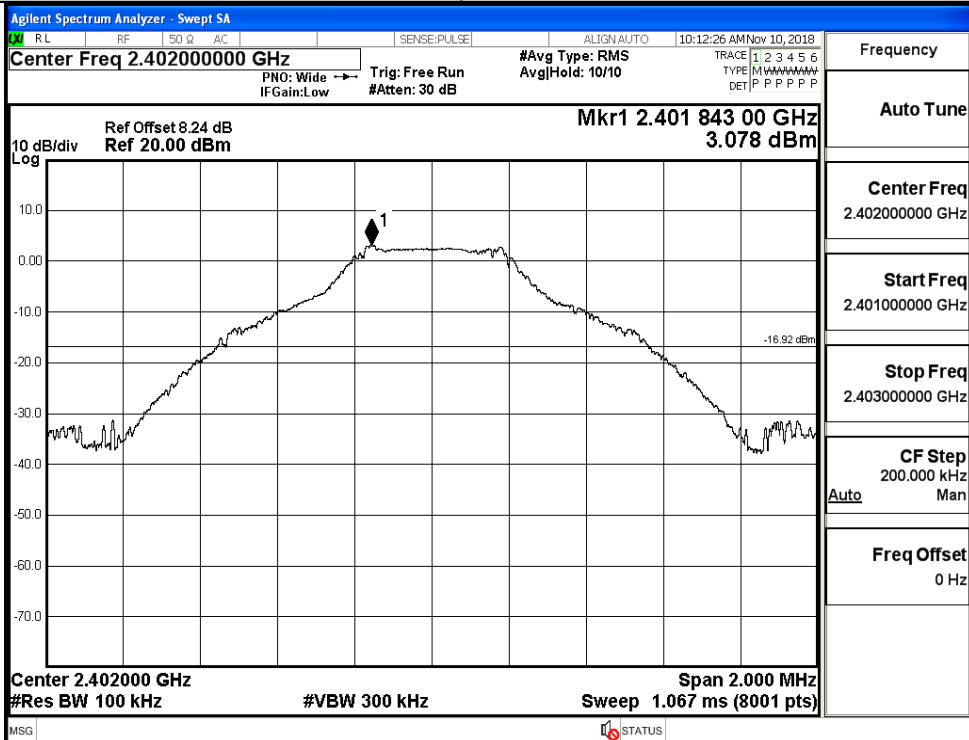
## A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.078	-44.777	-16.922	PASS
	MCH	0.383	-44.316	-19.617	PASS
	HCH	0.374	-44.404	-19.626	PASS
$\pi/4$ DQPSK	LCH	-0.769	-44.595	-20.769	PASS
	MCH	-0.971	-44.314	-20.971	PASS
	HCH	-1.26	-43.829	-21.260	PASS
8DPSK	LCH	-0.827	-44.643	-20.827	PASS
	MCH	-0.914	-44.696	-20.914	PASS
	HCH	-1.091	-45.294	-21.091	PASS

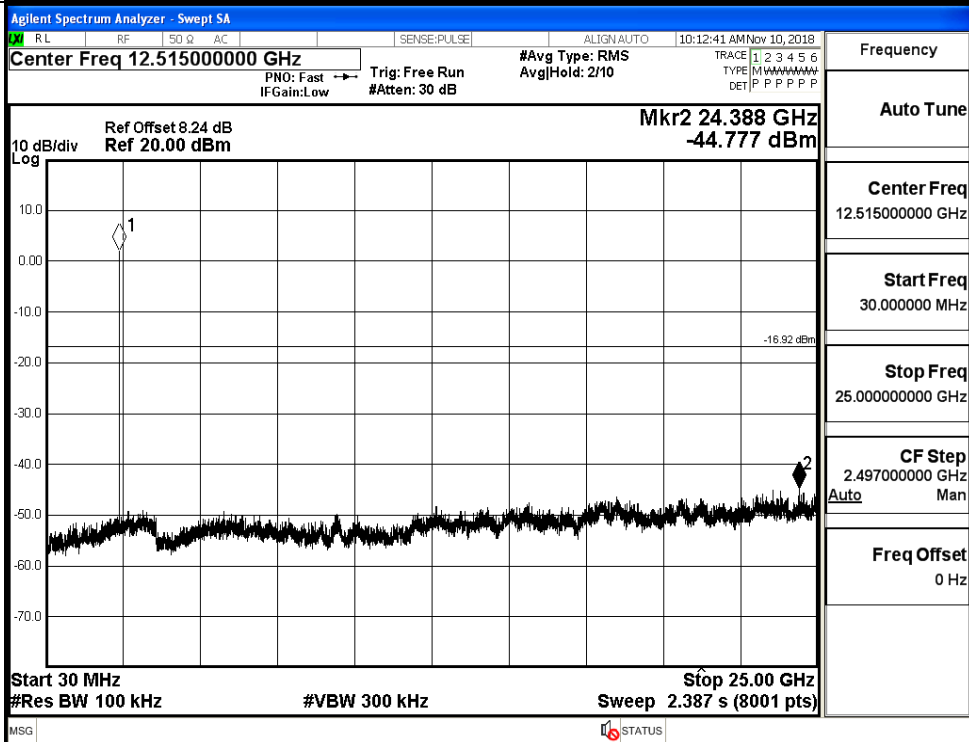


GFSK\_LCH\_Graphs

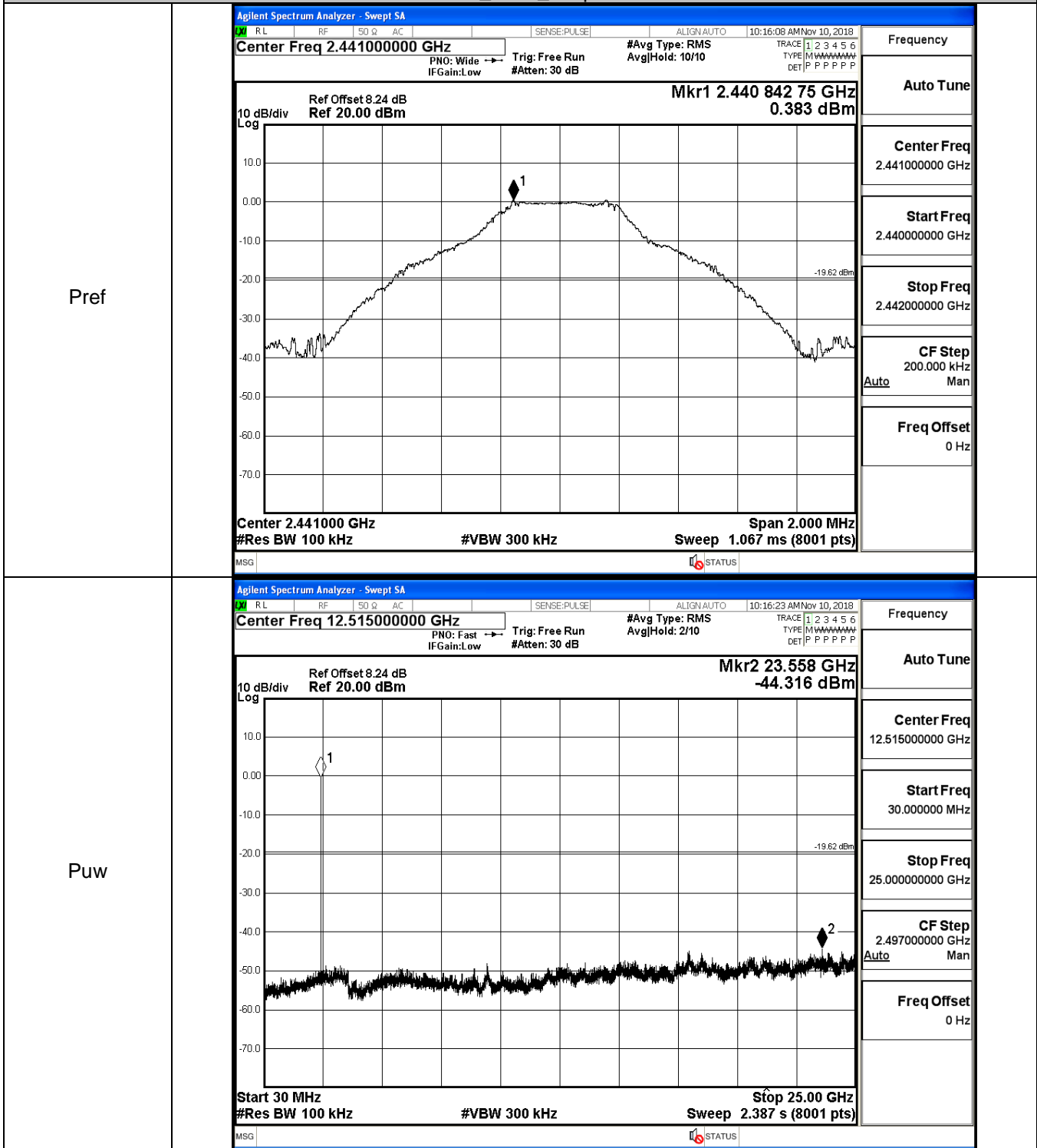
Pref



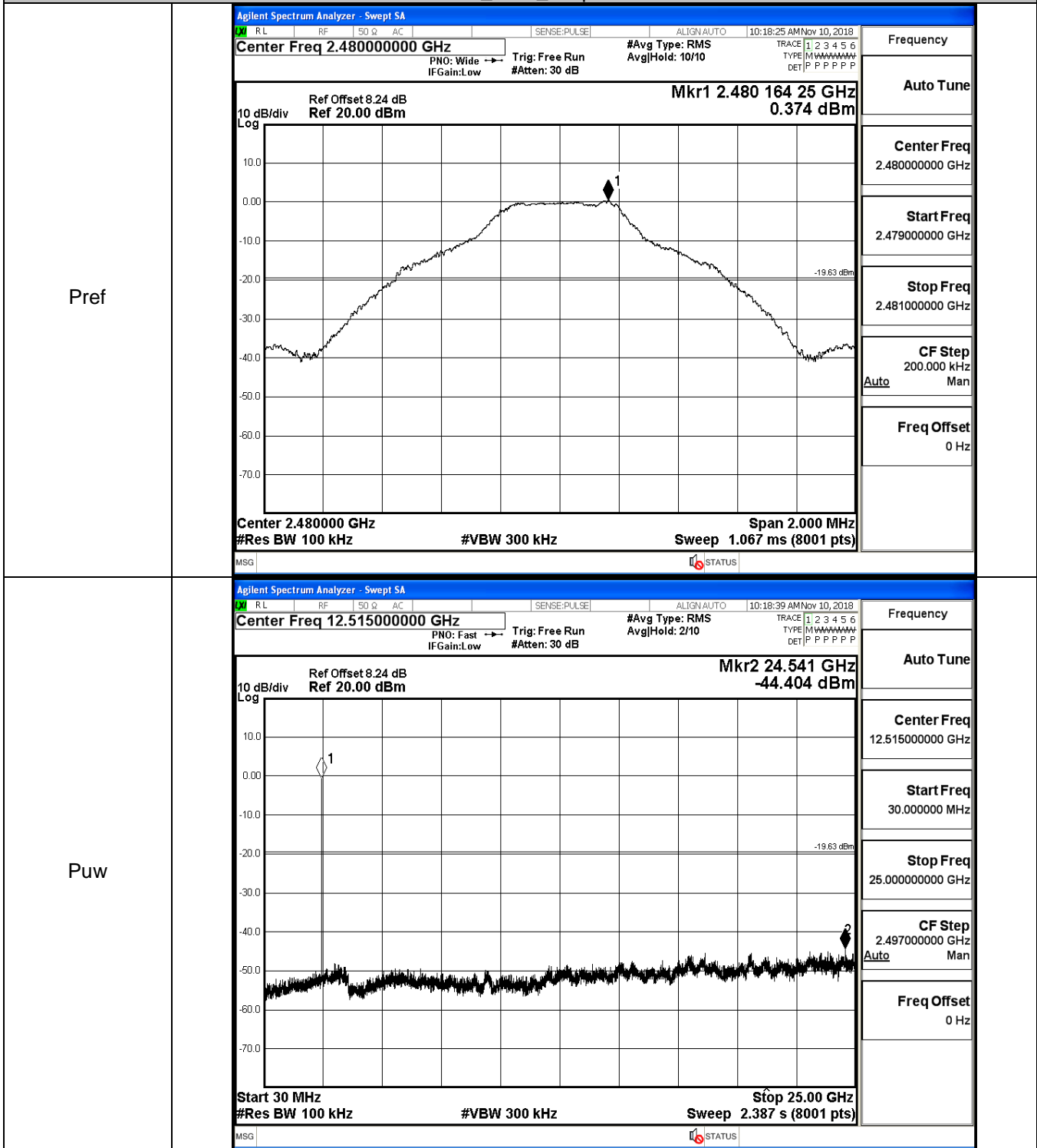
Puw



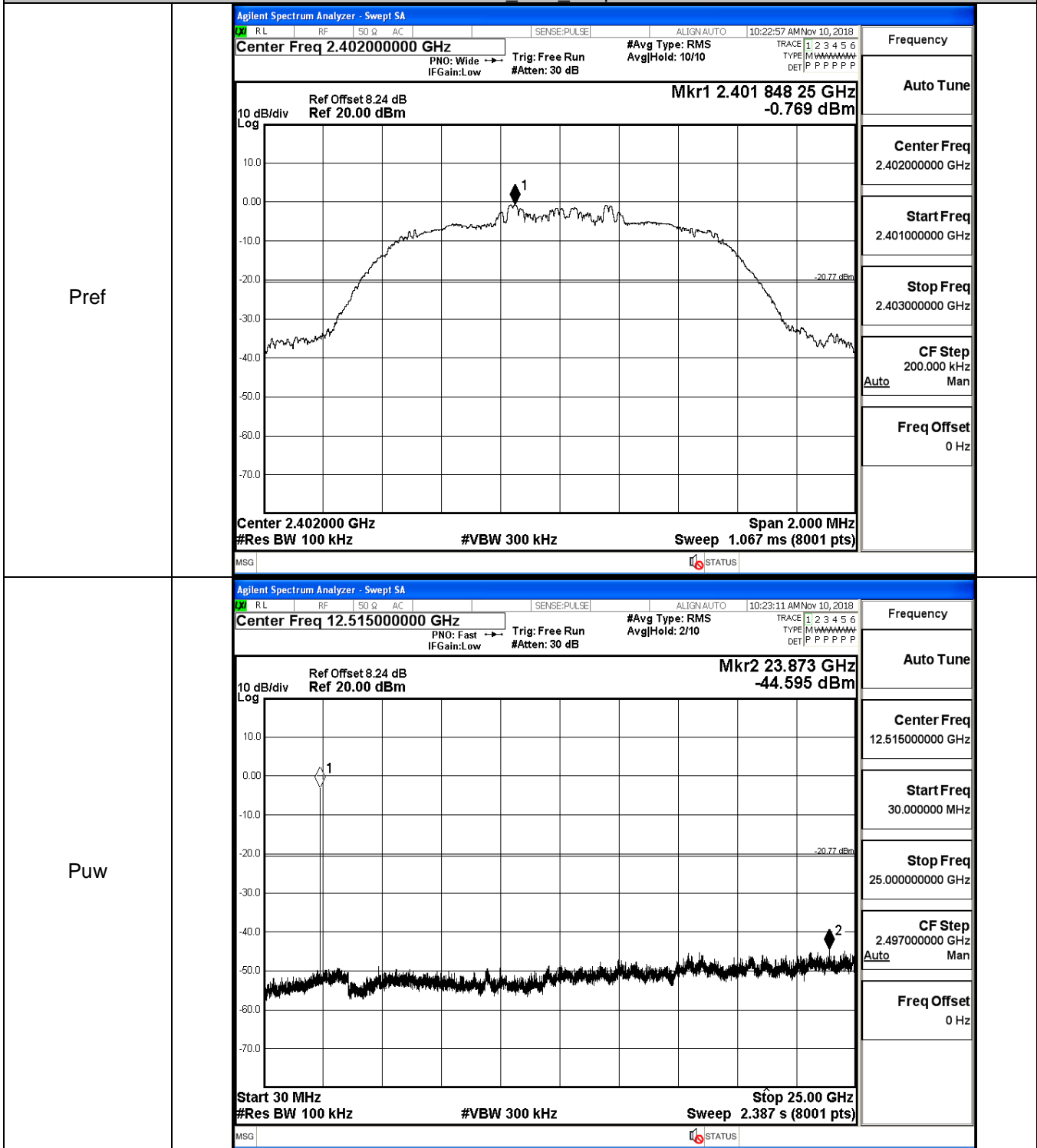
GFSK\_MCH\_Graphs



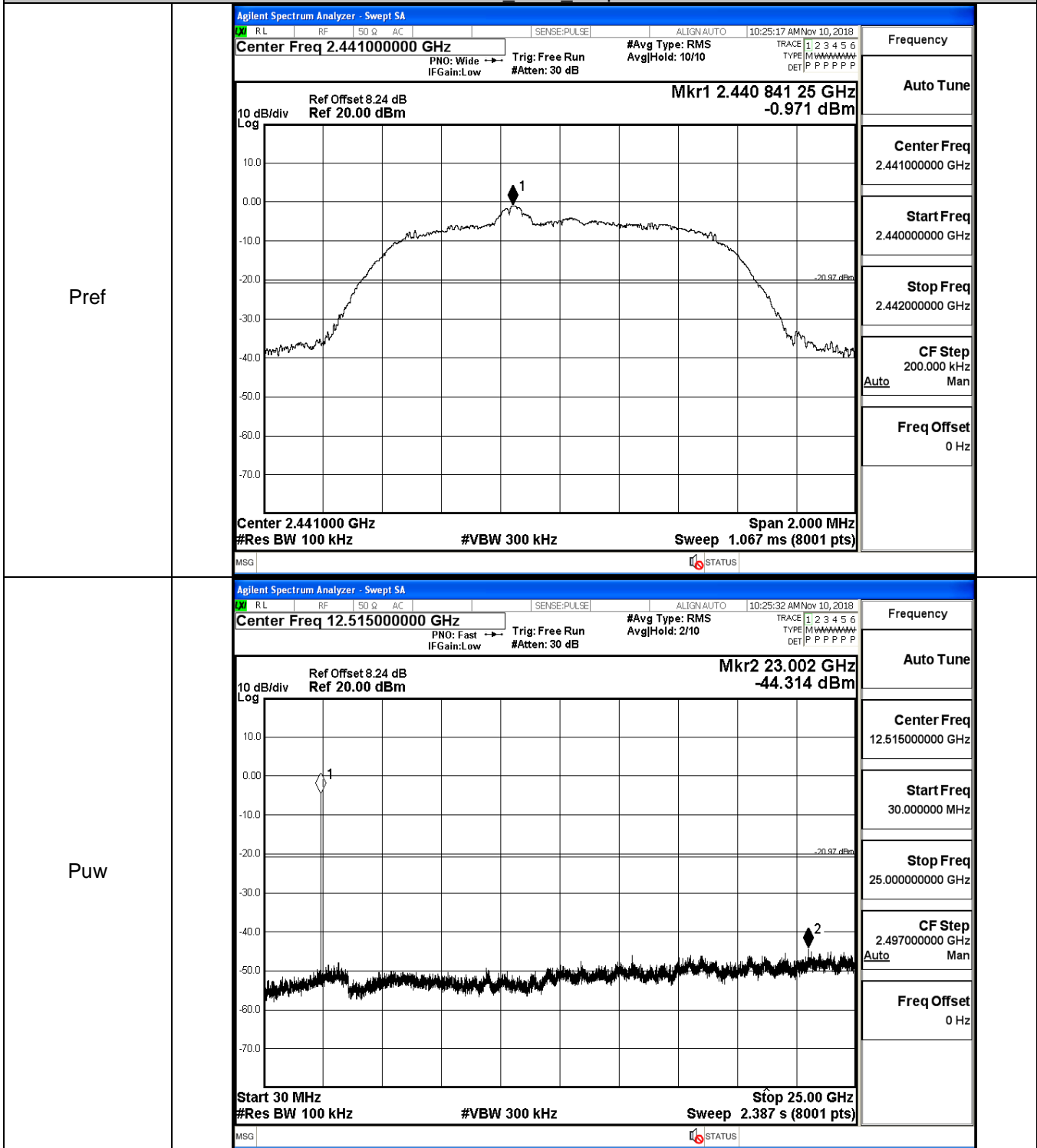
GFSK\_HCH\_Graphs



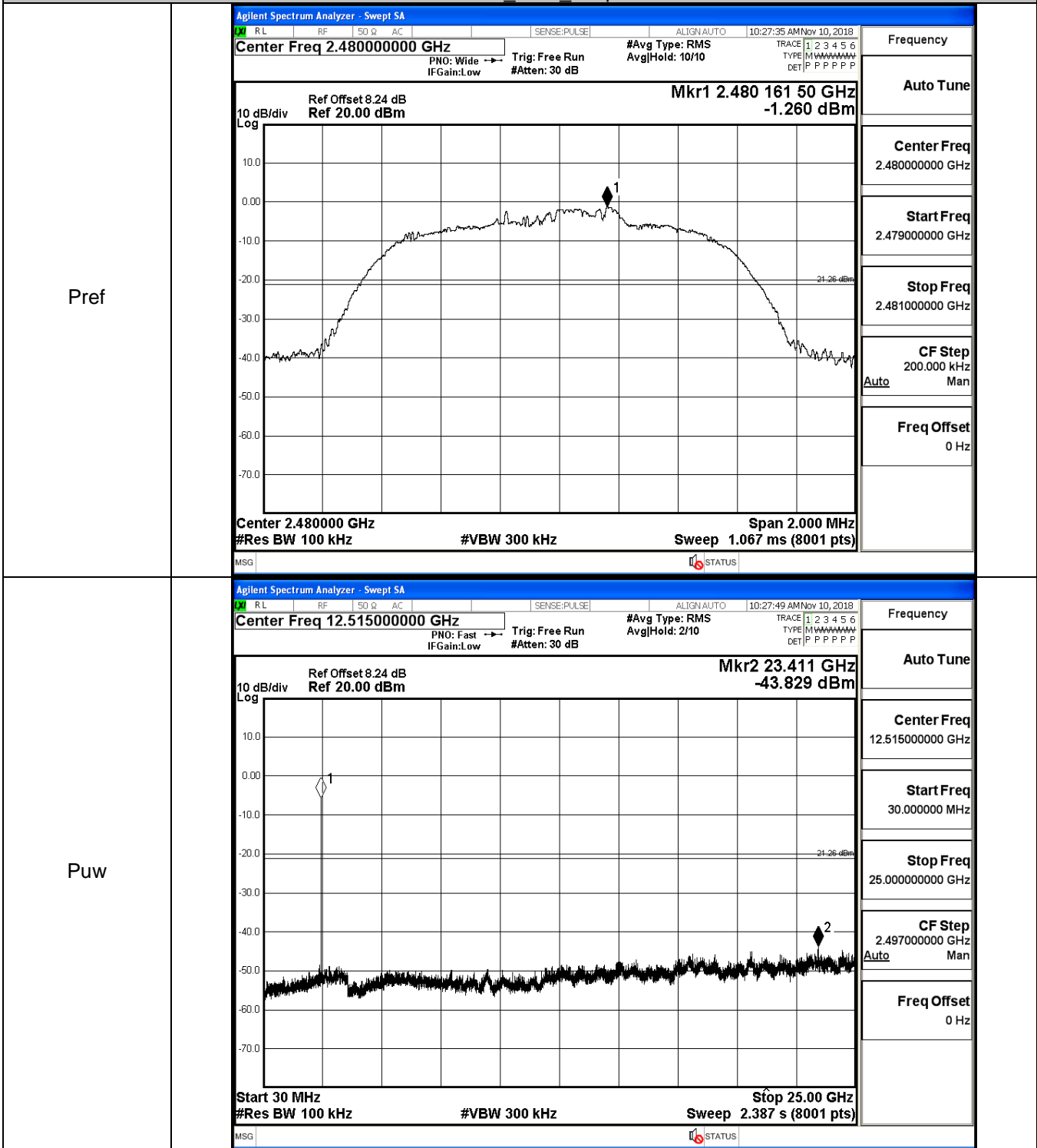
$\pi/4$ DQPSK LCH\_Graphs



$\pi$ /4DQPSK\_MCH\_Graphs

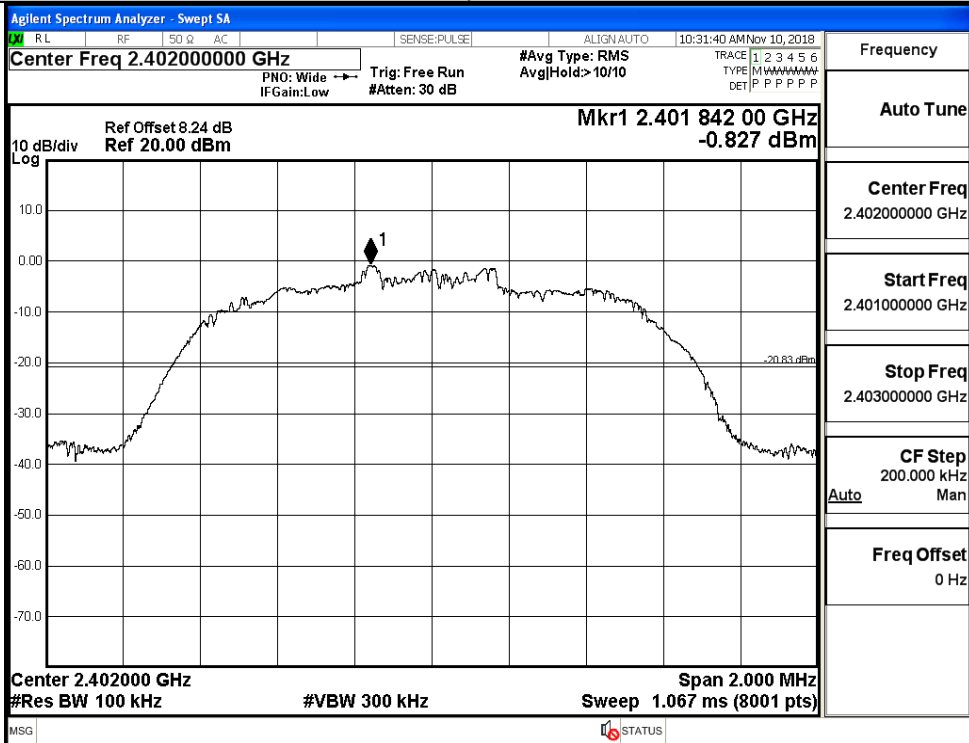


$\pi/4$ DQPSK\_HCH\_Graphs

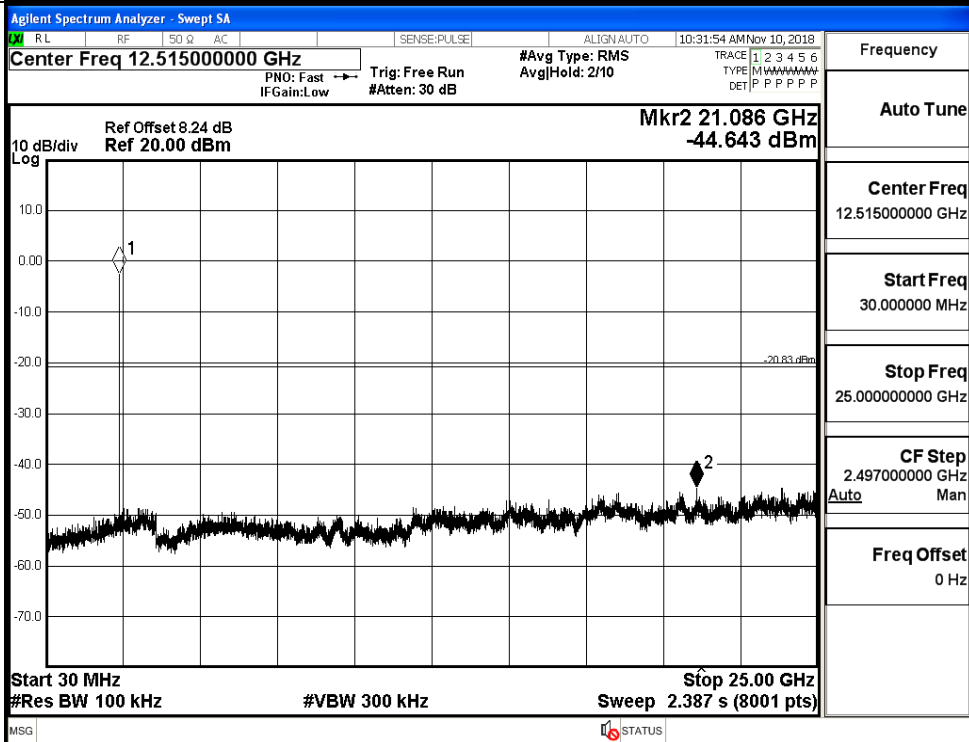


8DPSK\_LCH\_Graphs

Pref

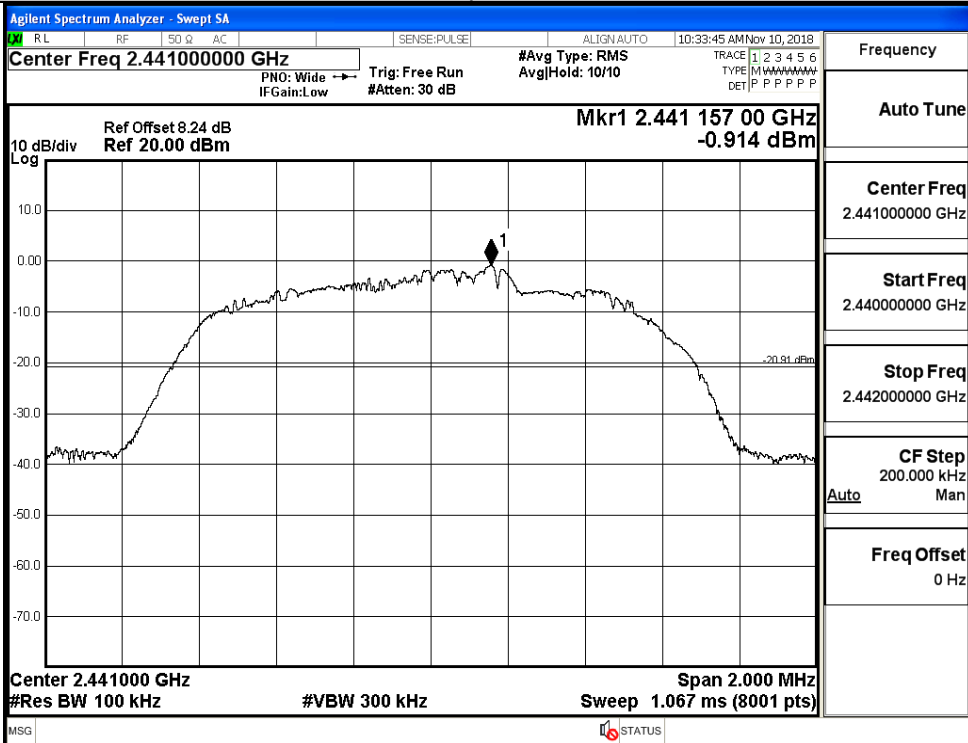


Puw

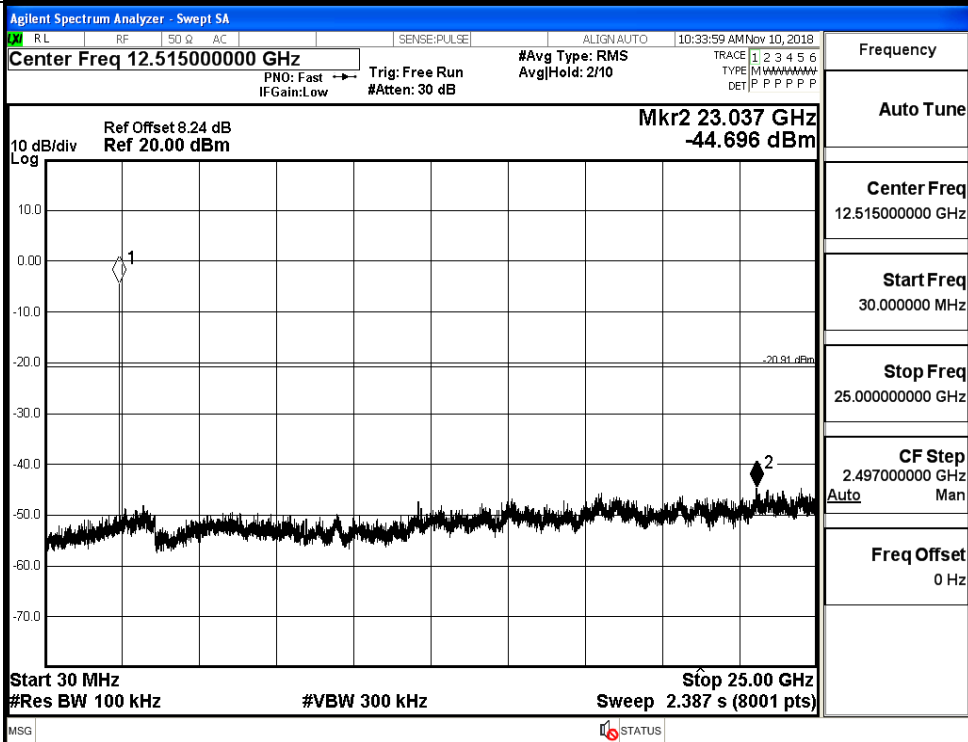


8DPSK\_MCH\_Graphs

Pref



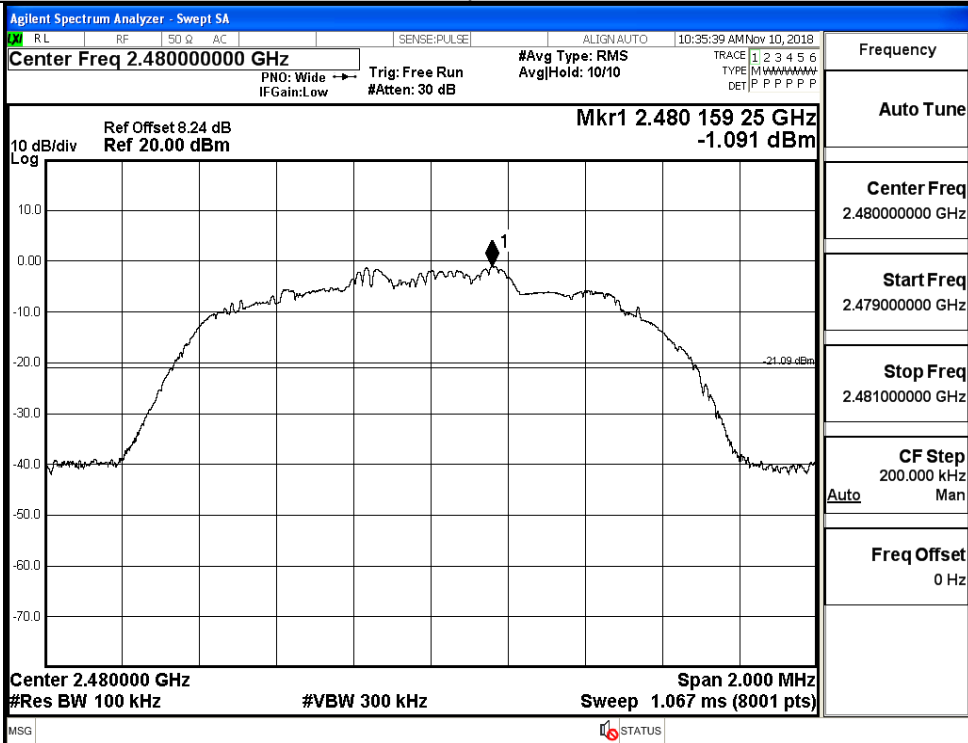
Puw



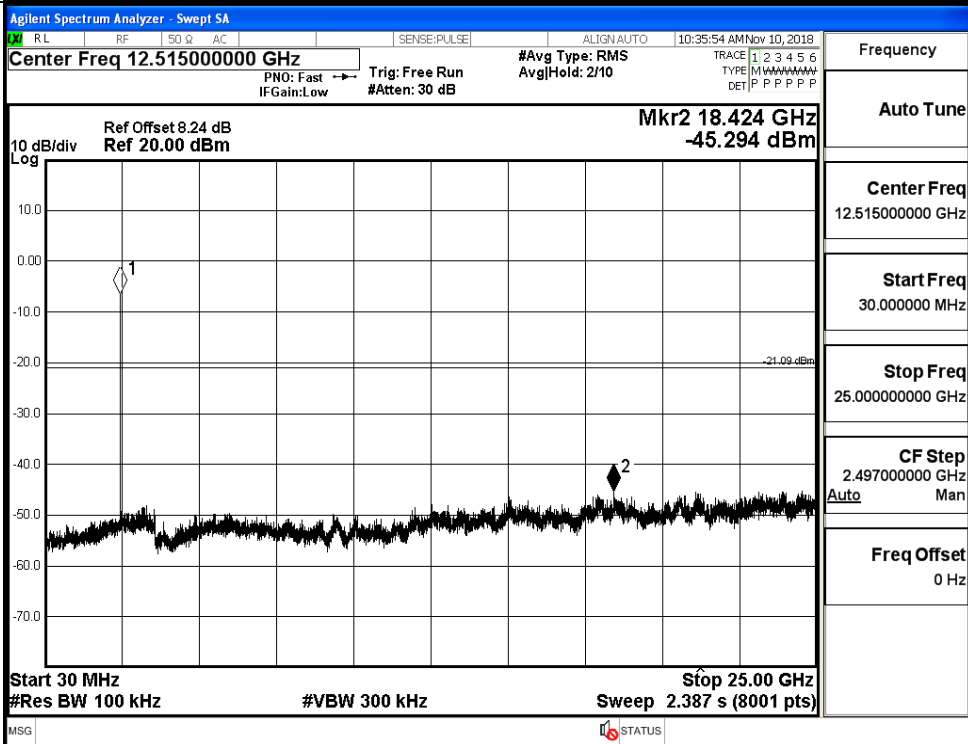


8DPSK\_HCH\_Graphs

Pref



Puw

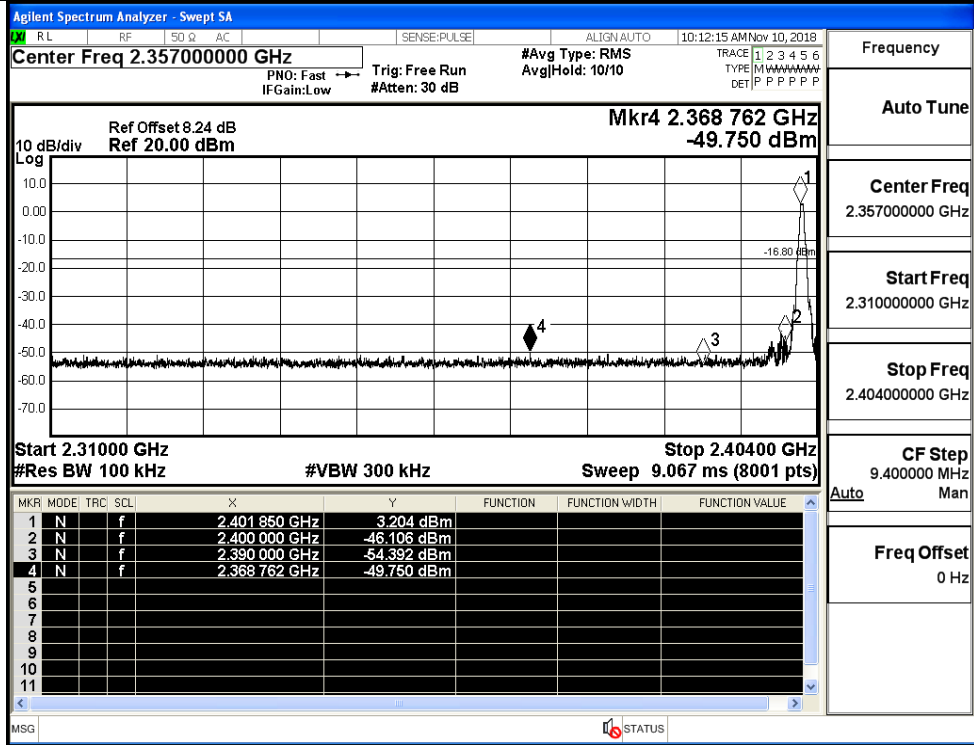


## A.7 Band-edge for RF Conducted Emissions

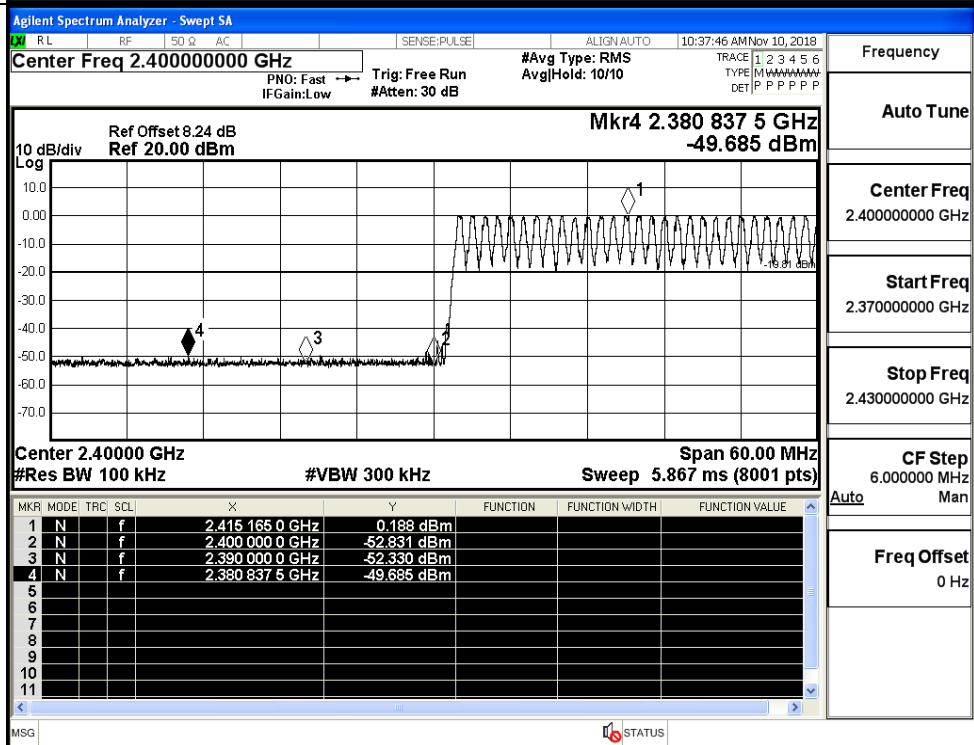
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	3.204	Off	-49.750	-16.8	PASS
			0.188	On	-49.685	-19.81	PASS
	HCH	2480	0.420	Off	-49.919	-19.58	PASS
			0.230	On	-49.605	-19.77	PASS
$\pi/4$ DQPSK	LCH	2402	-1.246	Off	-49.892	-21.25	PASS
			-0.878	On	-49.449	-20.88	PASS
	HCH	2480	-1.527	Off	-49.783	-21.53	PASS
			1.841	On	-49.356	-18.16	PASS
8DPSK	LCH	2402	-0.709	Off	-50.695	-20.71	PASS
			1.936	On	-49.615	-18.06	PASS
	HCH	2480	-1.128	Off	-49.778	-21.13	PASS
			4.630	On	-49.602	-15.37	PASS

Test Graphs

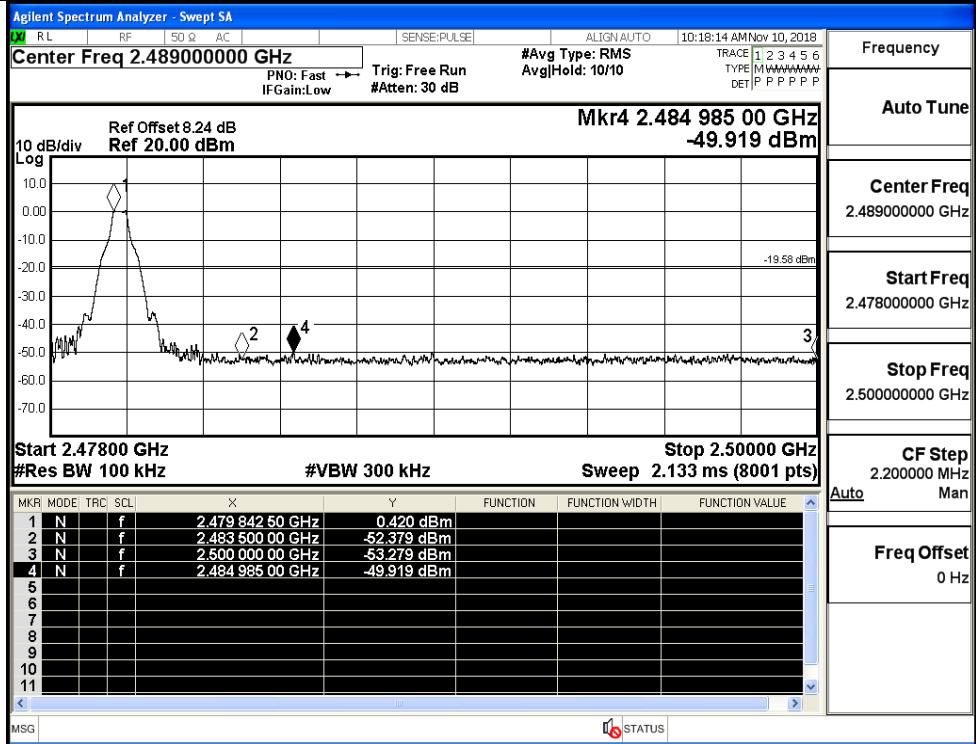
GFSK/LCH/No Hop



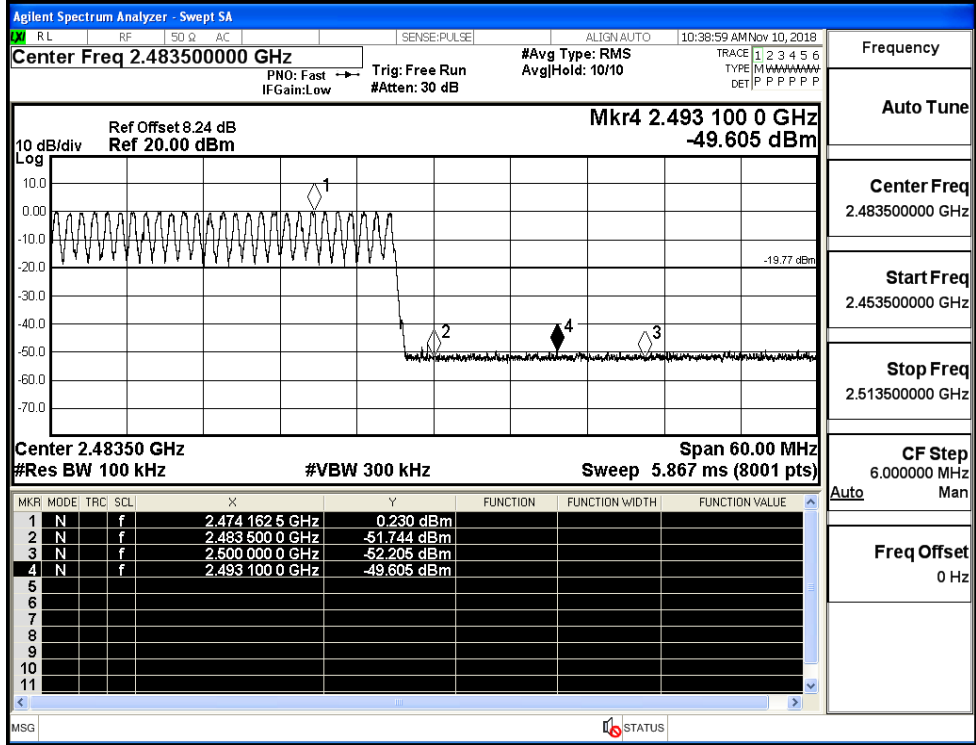
GFSK/LCH/Hop



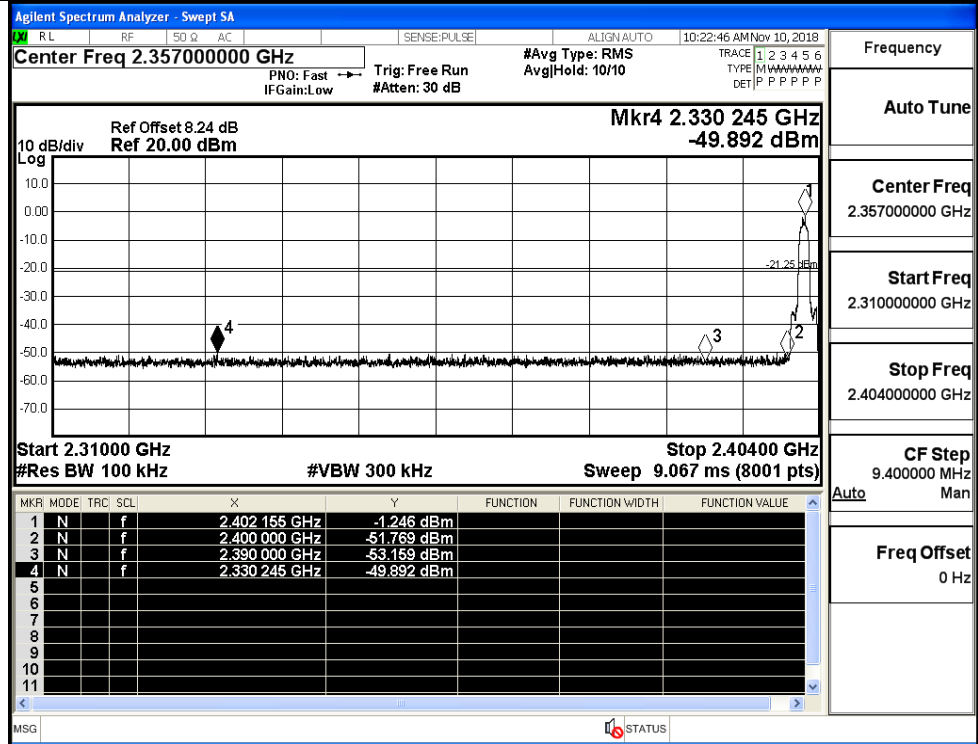
GFSK/HCH/No Hop



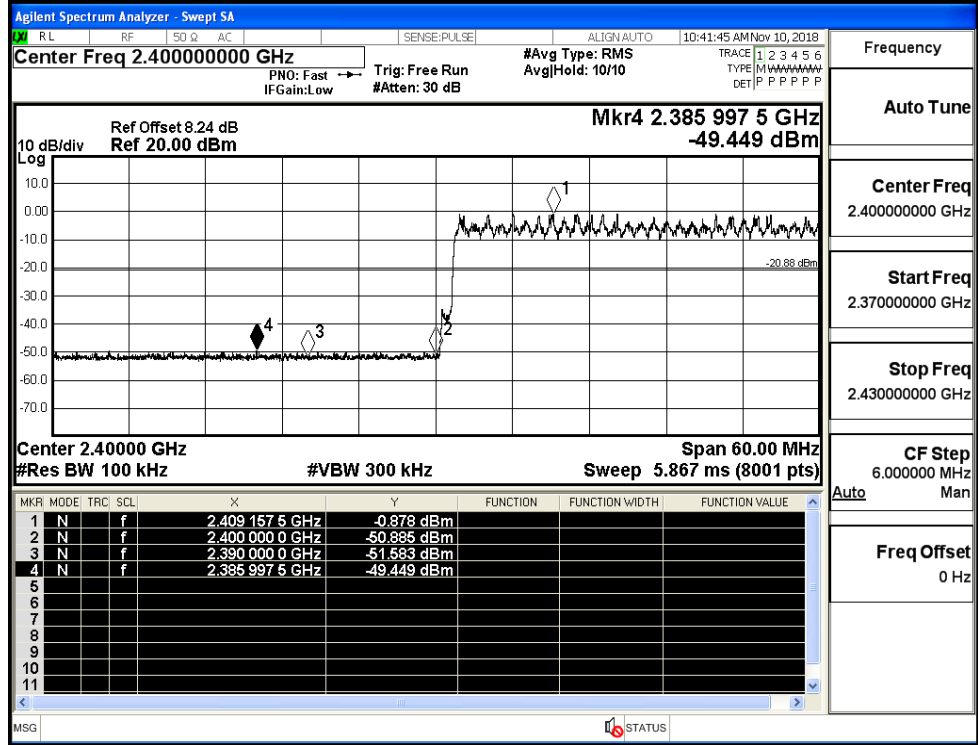
GFSK/HCH/Hop



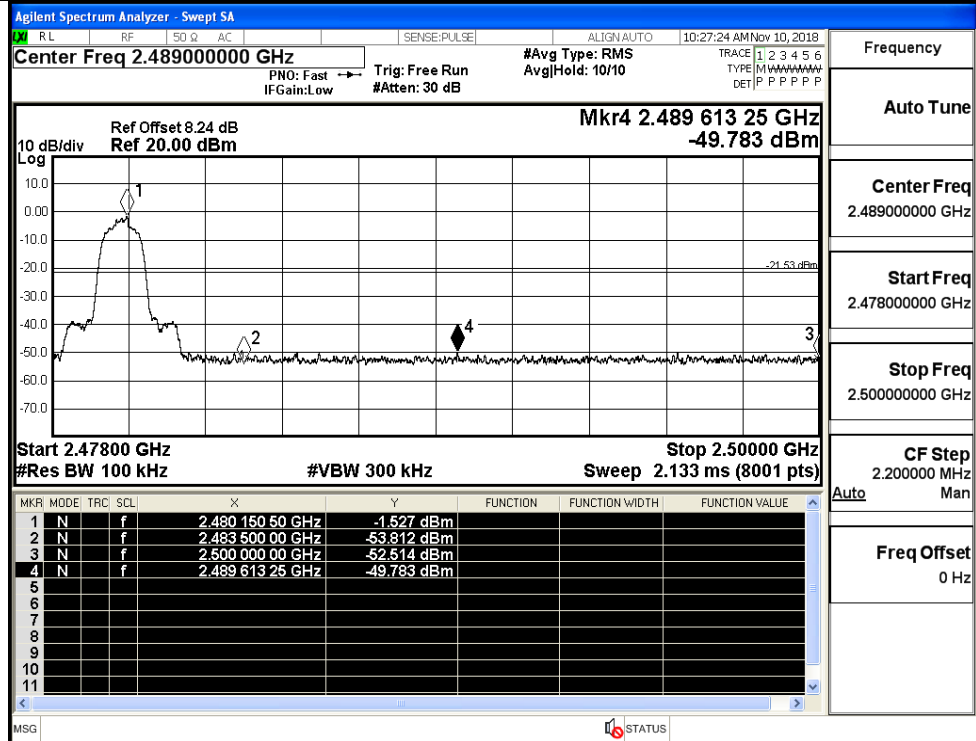
$\pi/4$ DQPSK/LCH/No Hop



$\pi/4$ DQPSK/LCH/Hop

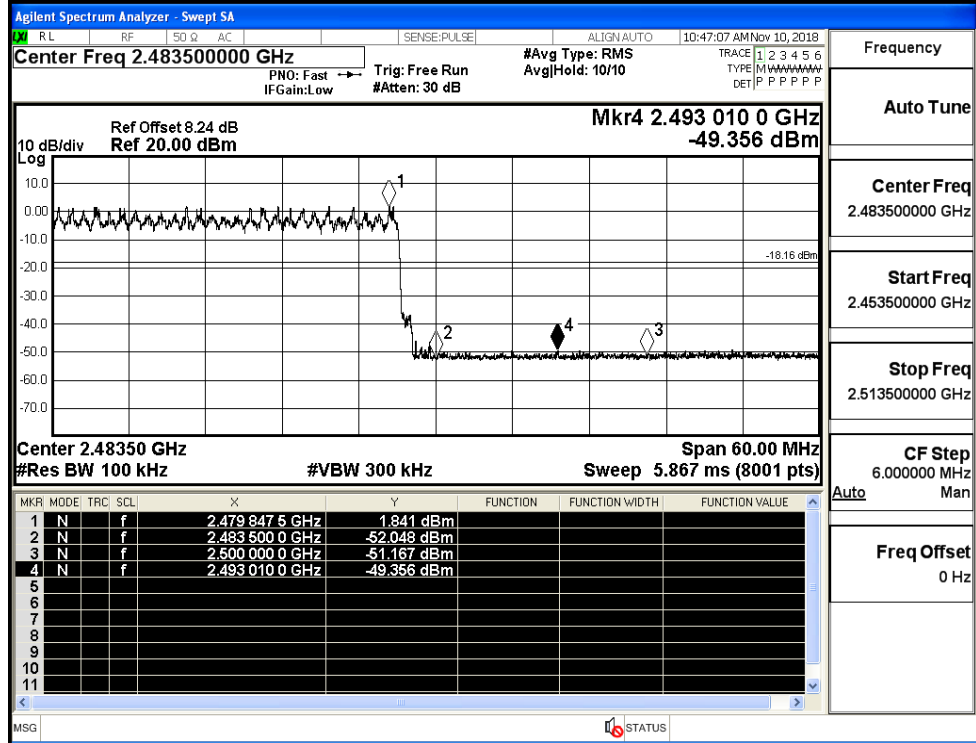


$\pi$ /4DQPSK/HCH/No  
Hop



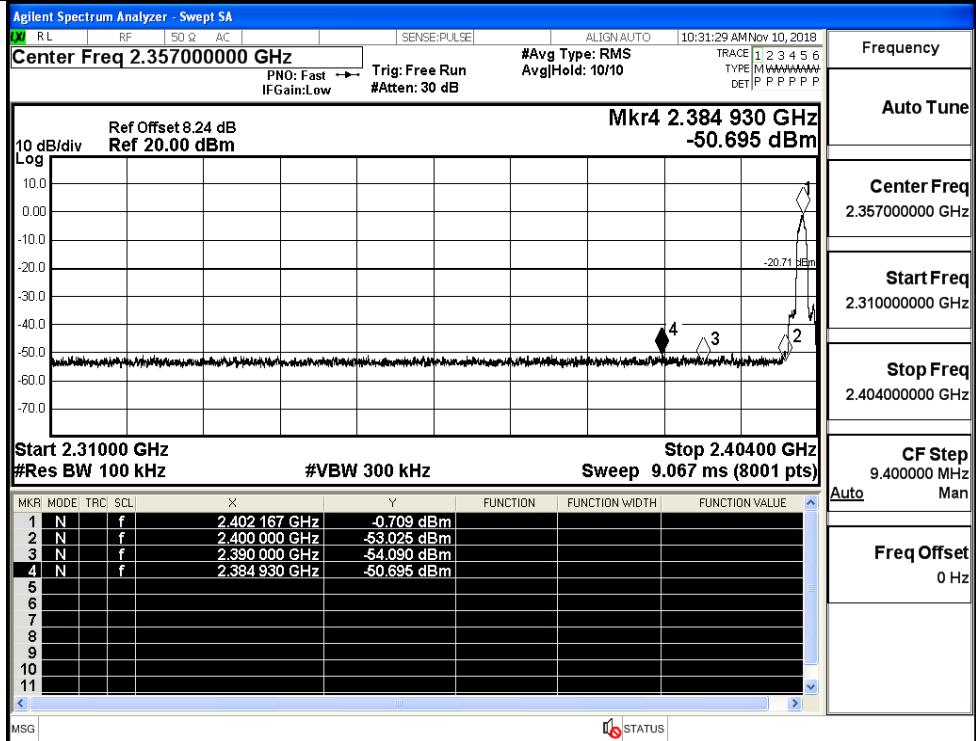
Frequency
Auto Tune
Center Freq 2.489000000 GHz
Start Freq 2.478000000 GHz
Stop Freq 2.500000000 GHz
CF Step 2.200000 MHz
Auto Man
Freq Offset 0 Hz

$\pi$ /4DQPSK/HCH/Hop



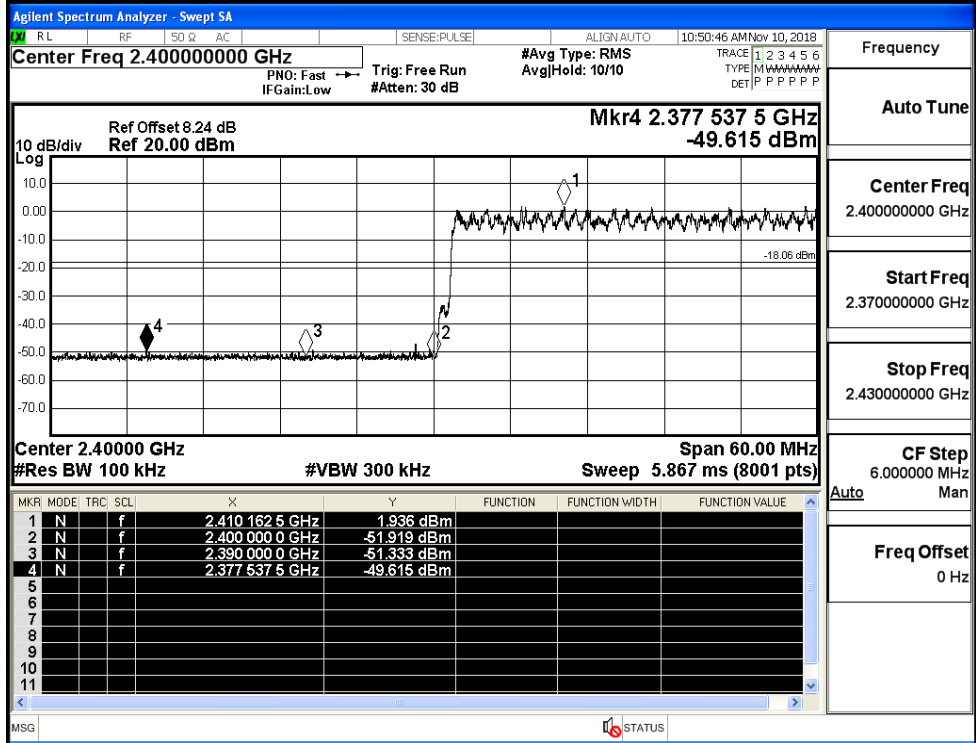
Frequency
Auto Tune
Center Freq 2.483500000 GHz
Start Freq 2.453500000 GHz
Stop Freq 2.513500000 GHz
CF Step 6.000000 MHz
Auto Man
Freq Offset 0 Hz

8DPSK/LCH/No Hop



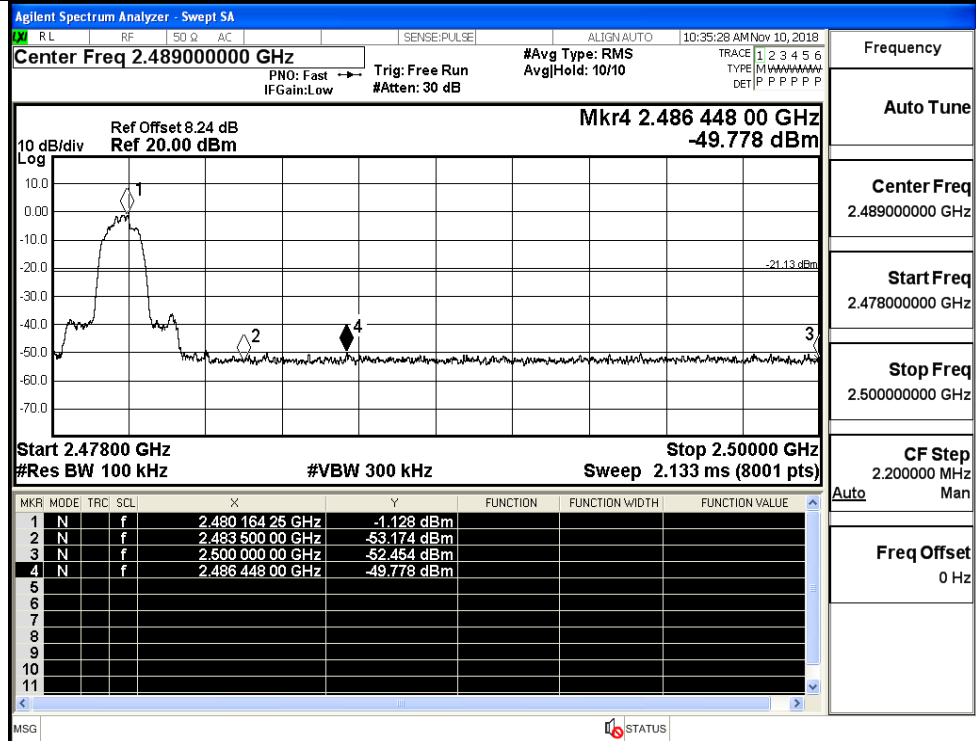
Frequency  
Auto Tune  
Center Freq  
2.357000000 GHz  
Start Freq  
2.310000000 GHz  
Stop Freq  
2.404000000 GHz  
CF Step  
9.400000 MHz  
Auto Man  
Freq Offset  
0 Hz

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

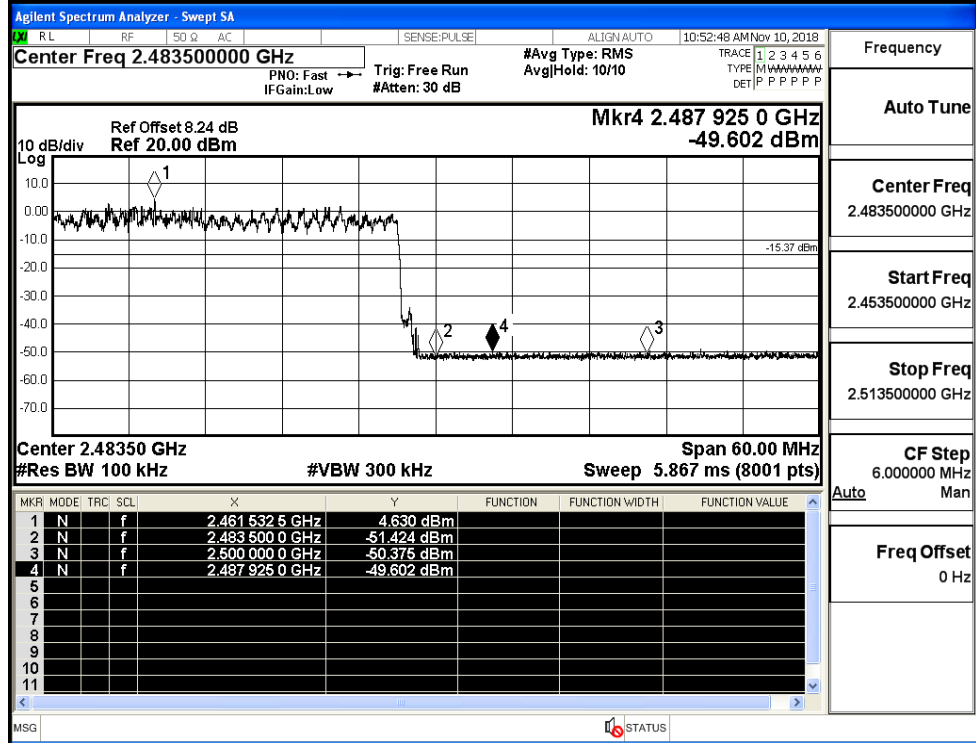
Start Freq  
2.478000000 GHz

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

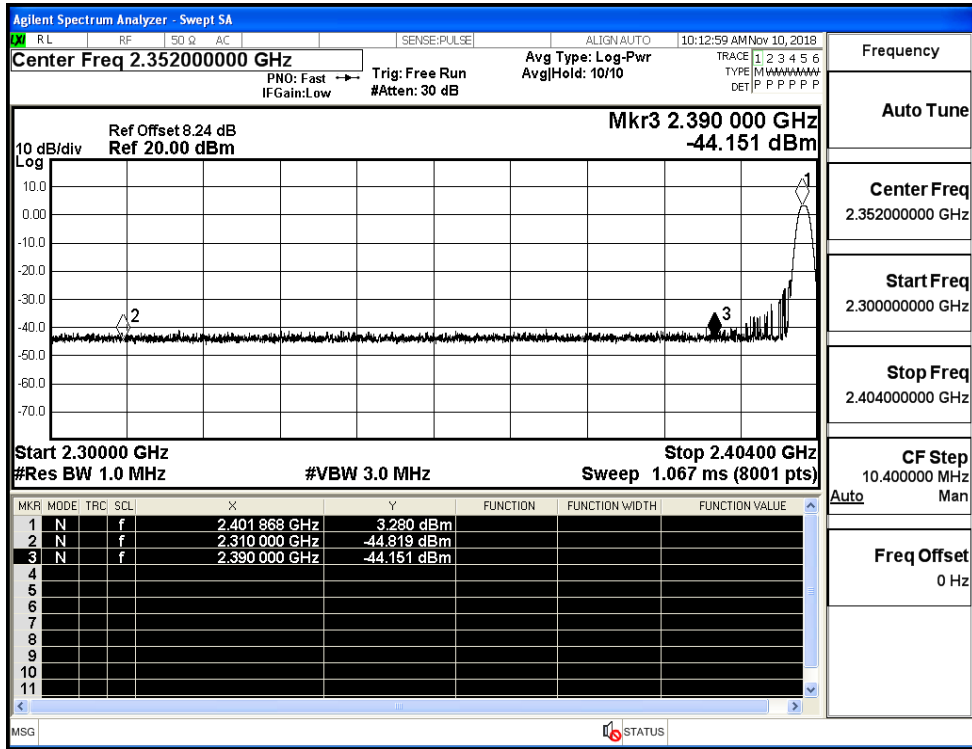
Freq Offset  
0 Hz



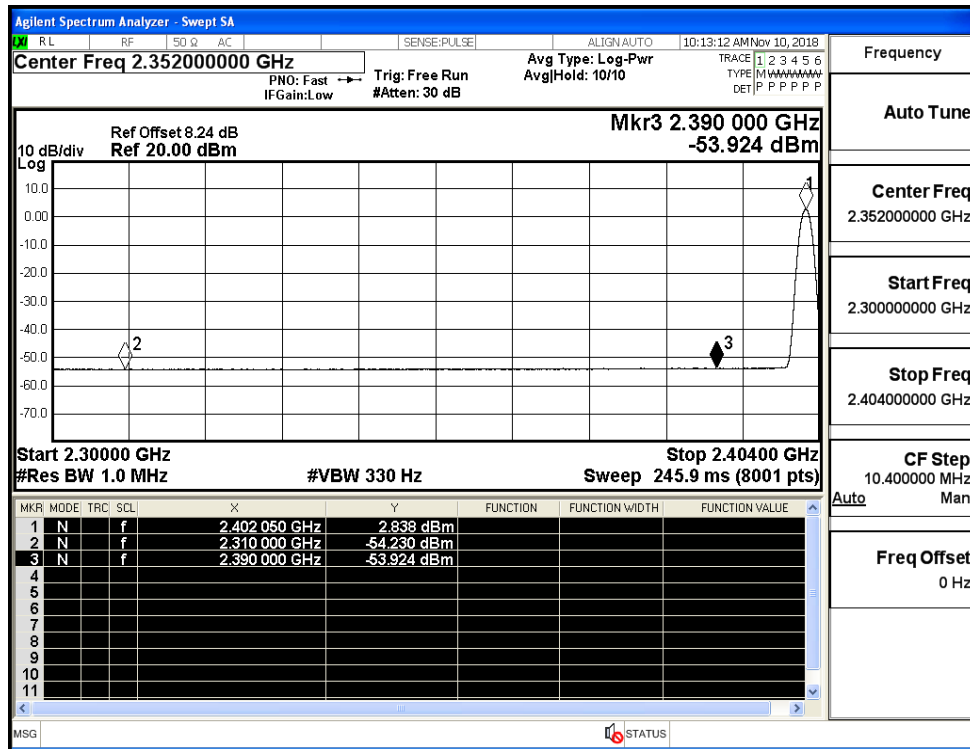
## A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.82	2.0	0	50.44	PEAK	74	PASS
	Off	2310.0	-54.23	2.0	0	41.03	AV	54	PASS
	Off	2390.0	-44.15	2.0	0	51.11	PEAK	74	PASS
	Off	2390.0	-53.92	2.0	0	41.33	AV	54	PASS
	Off	2483.5	-43.30	2.0	0	51.96	PEAK	74	PASS
	Off	2483.5	-53.44	2.0	0	41.82	AV	54	PASS
	Off	2500.0	-41.09	2.0	0	54.17	PEAK	74	PASS
	Off	2500.0	-53.27	2.0	0	41.99	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.97	2.0	0	51.29	PEAK	74	PASS
	Off	2310.0	-53.96	2.0	0	41.29	AV	54	PASS
	Off	2390.0	-43.13	2.0	0	52.13	PEAK	74	PASS
	Off	2390.0	-53.50	2.0	0	41.75	AV	54	PASS
	Off	2483.5	-43.37	2.0	0	51.89	PEAK	74	PASS
	Off	2483.5	-53.11	2.0	0	42.15	AV	54	PASS
	Off	2500.0	-43.08	2.0	0	52.18	PEAK	74	PASS
	Off	2500.0	-53.25	2.0	0	42.01	AV	54	PASS
8DPSK	Off	2310.0	-42.85	2.0	0	52.41	PEAK	74	PASS
	Off	2310.0	-53.81	2.0	0	41.45	AV	54	PASS
	Off	2390.0	-42.98	2.0	0	52.28	PEAK	74	PASS
	Off	2390.0	-53.61	2.0	0	41.65	AV	54	PASS
	Off	2483.5	-43.92	2.0	0	51.33	PEAK	74	PASS
	Off	2483.5	-53.16	2.0	0	42.10	AV	54	PASS
	Off	2500.0	-42.51	2.0	0	52.75	PEAK	74	PASS
	Off	2500.0	-53.11	2.0	0	42.15	AV	54	PASS

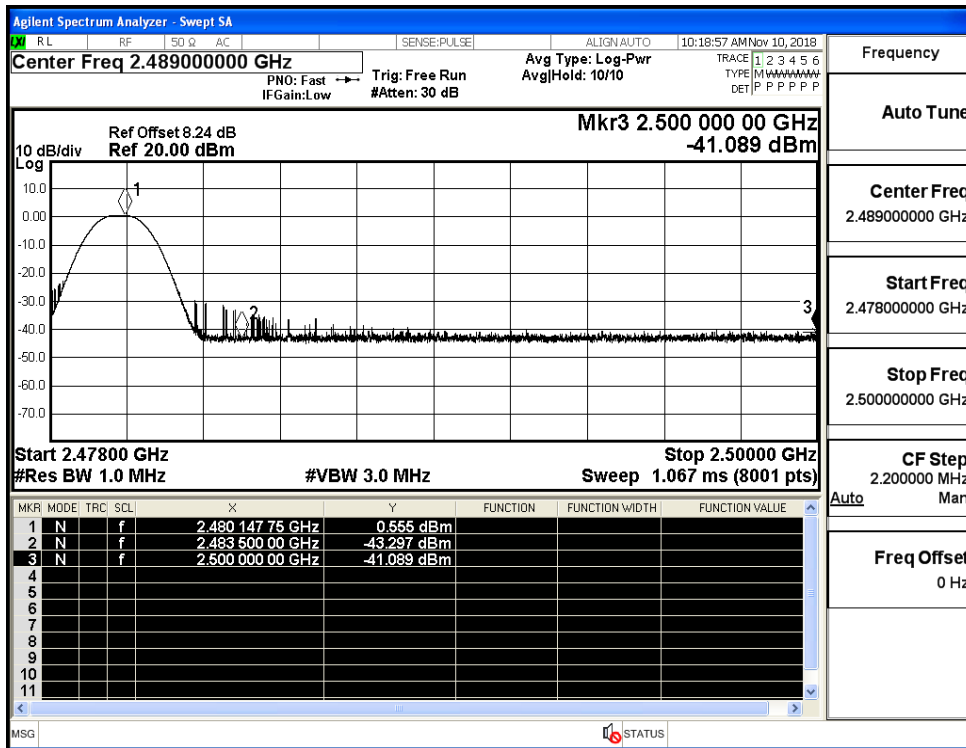
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



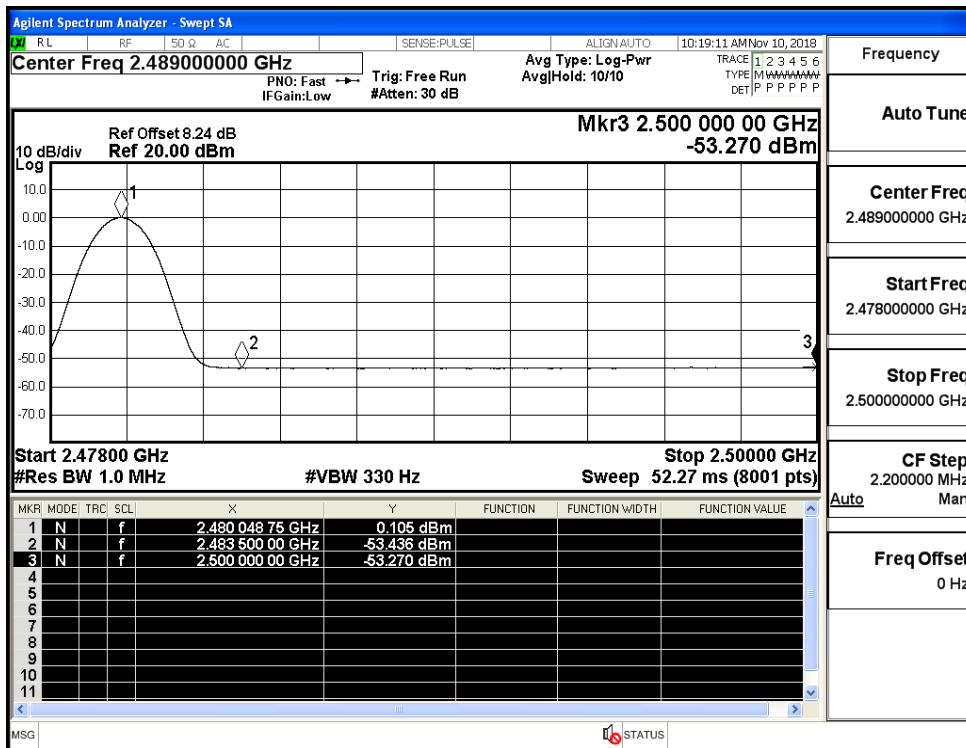
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



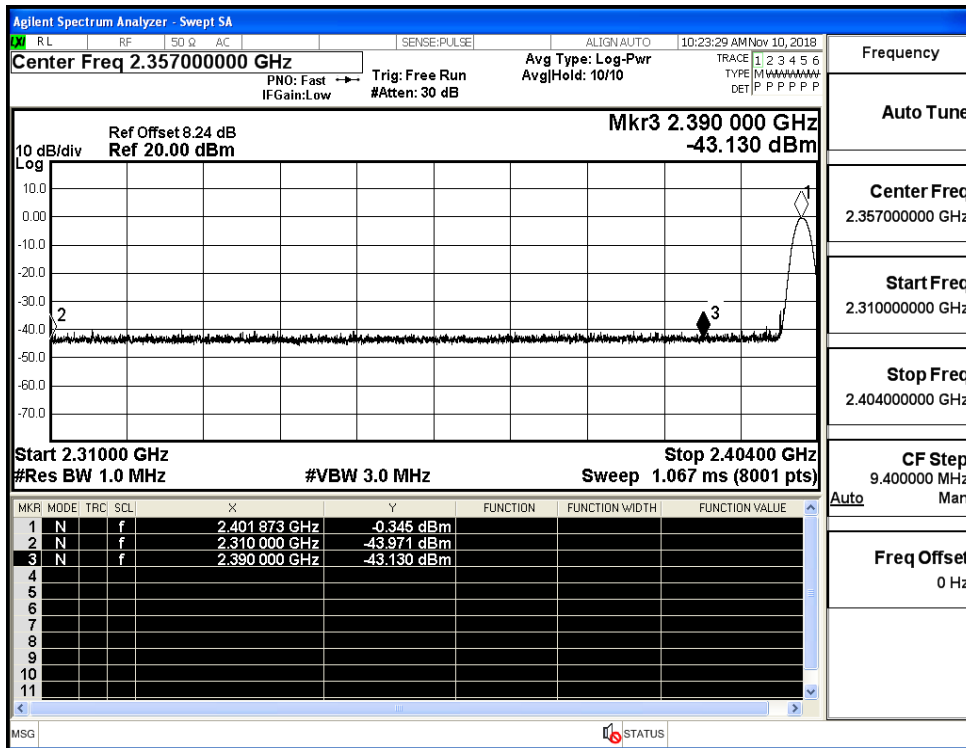
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



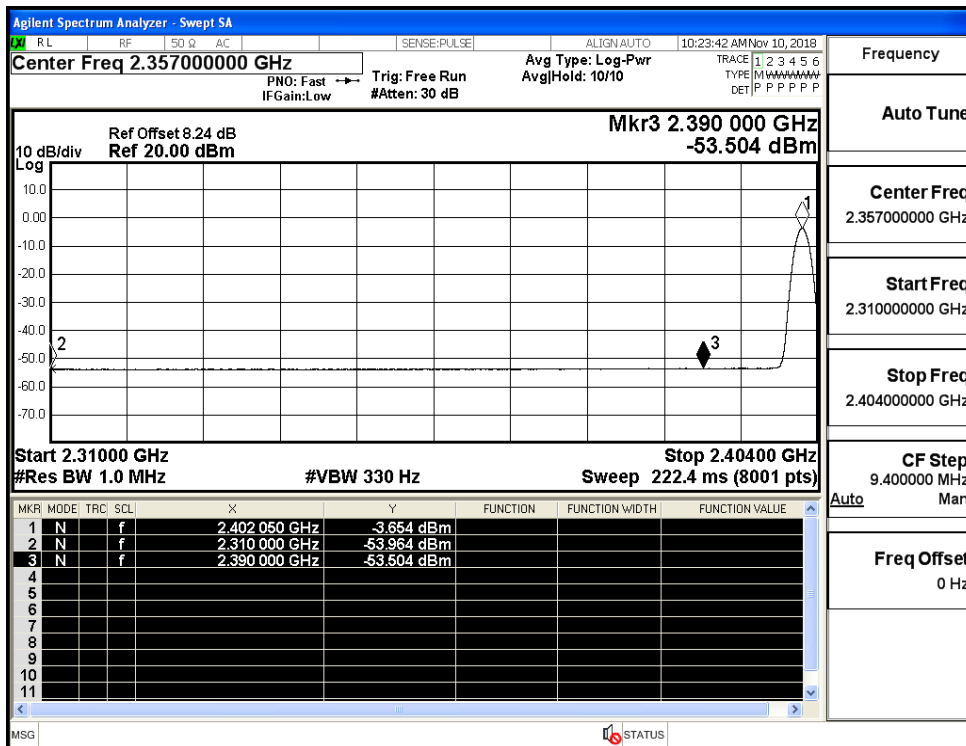
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



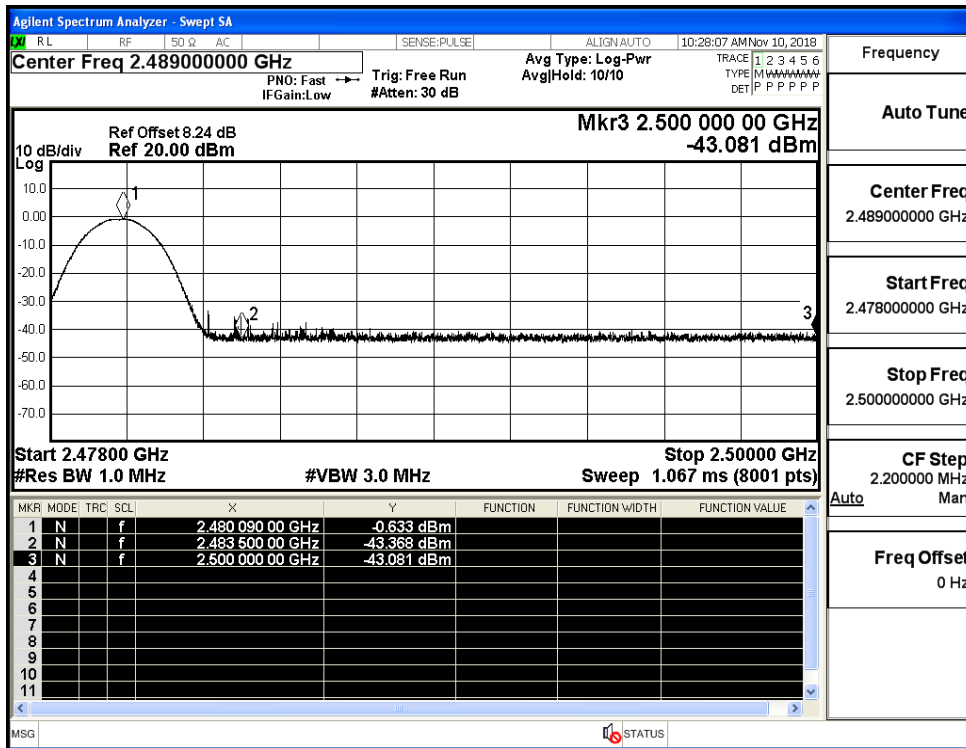
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)



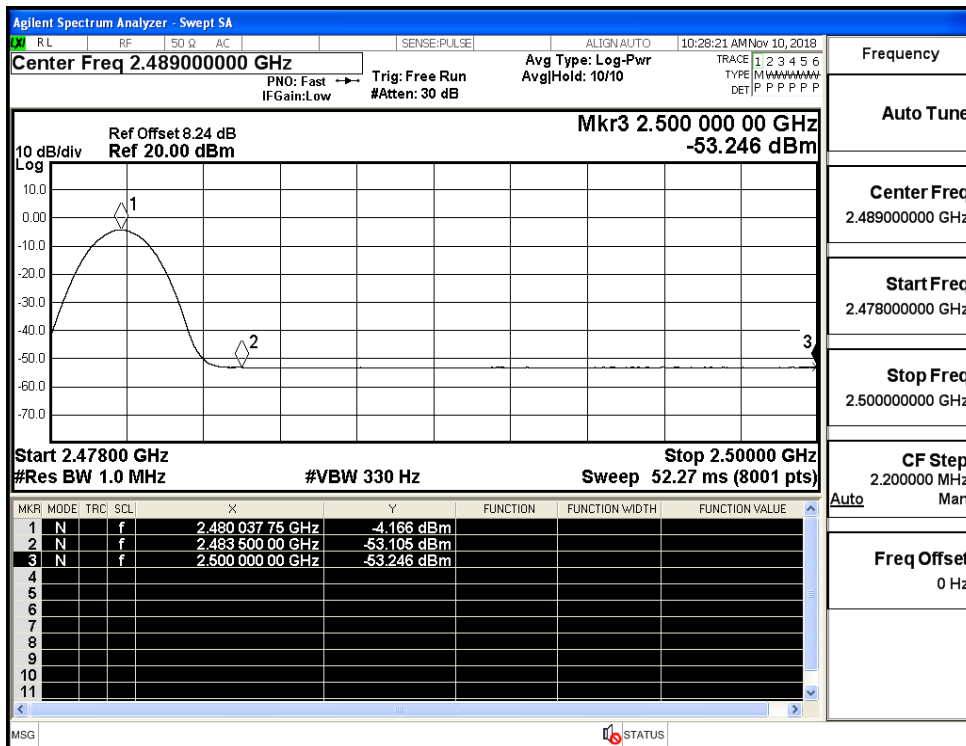
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)



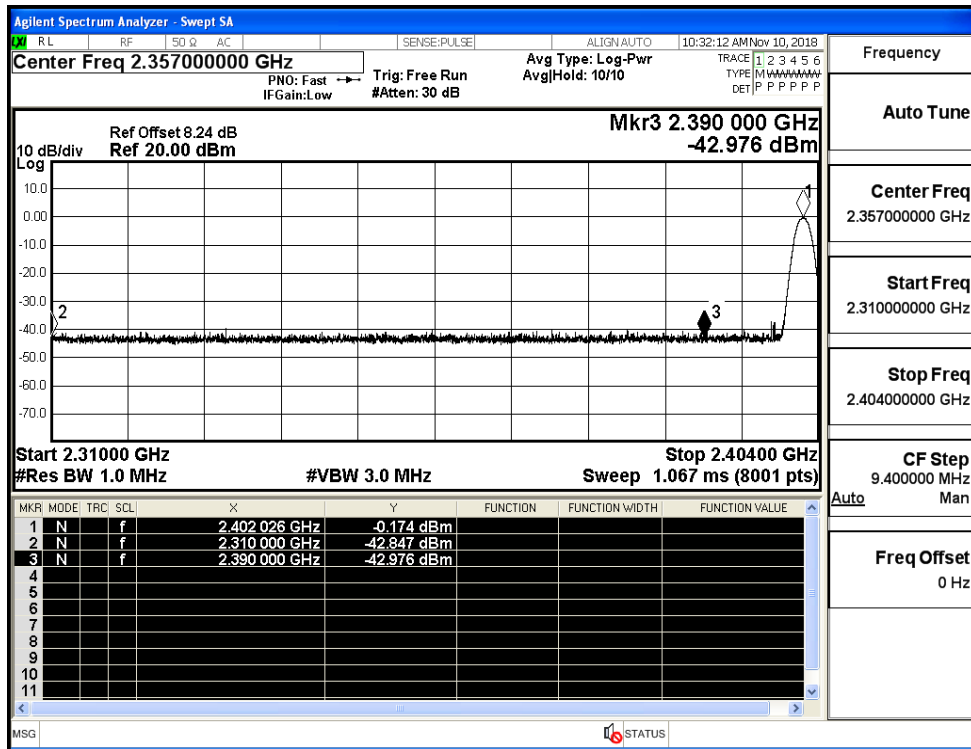
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (High Channel)



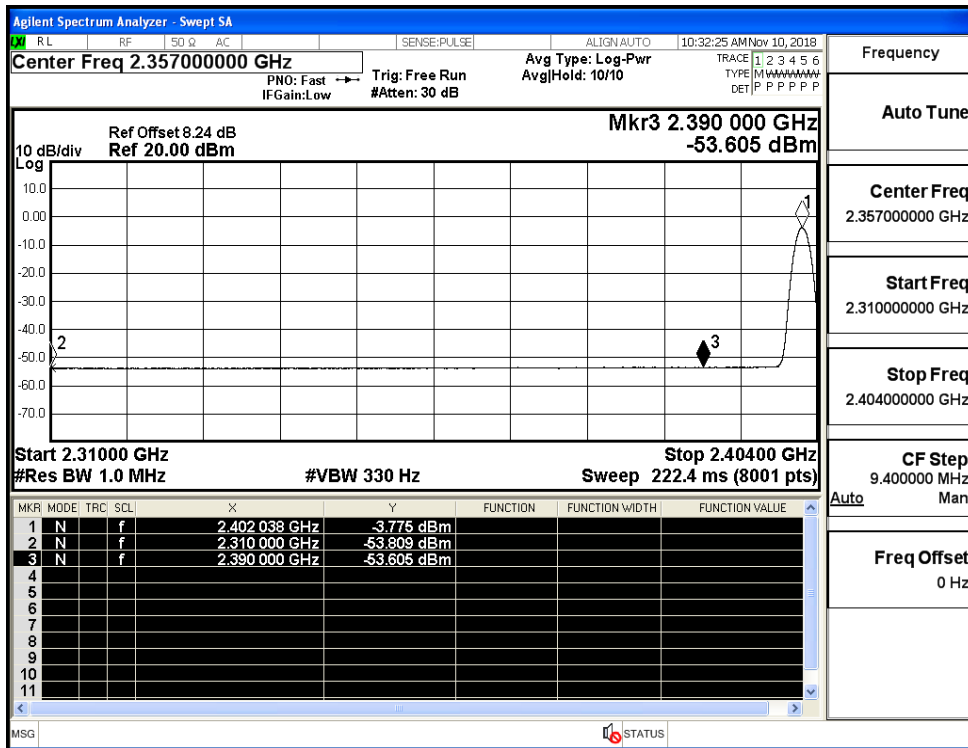
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (High Channel)



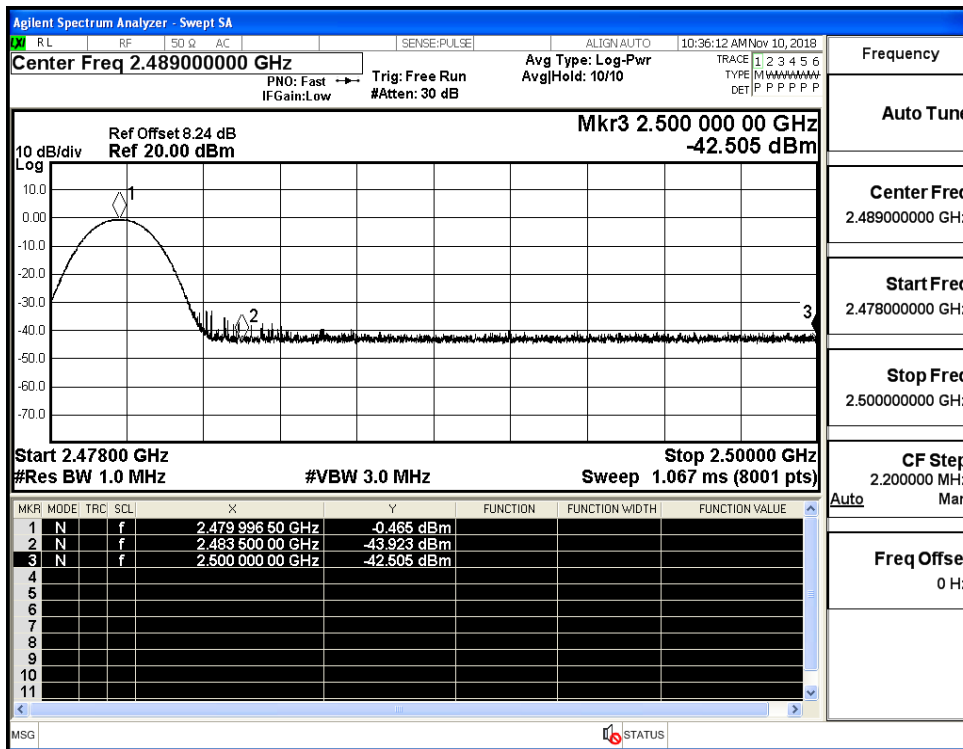
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



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)

