

## Appendix A

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

Product Name: **Wireless Flight Adapter**

Trade Mark: **RHA**

Test Model: **Flight Adapter**

#### Environmental Conditions

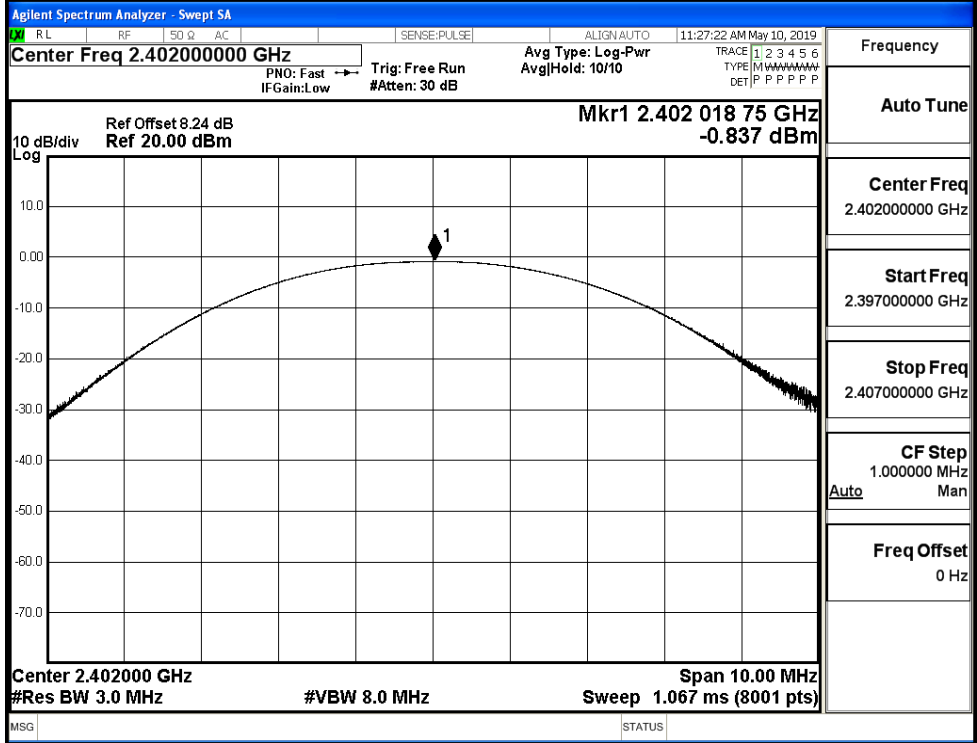
Temperature:	23.9 °C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond.lu
Supervised by:	Tom.Liu

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

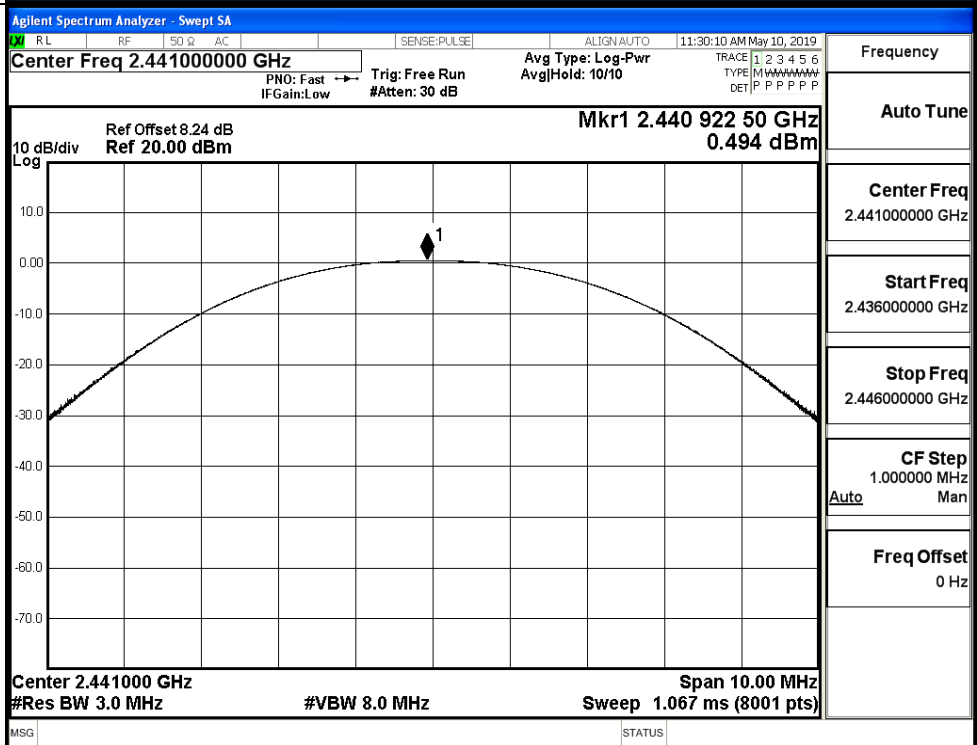
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.837	21	PASS
	MCH	0.494	21	PASS
	HCH	-0.558	21	PASS
$\pi/4$ DQPSK	LCH	-1.506	21	PASS
	MCH	-0.101	21	PASS
	HCH	-1.253	21	PASS
8DPSK	LCH	-1.314	21	PASS
	MCH	0.060	21	PASS
	HCH	-1.257	21	PASS

Test Graphs

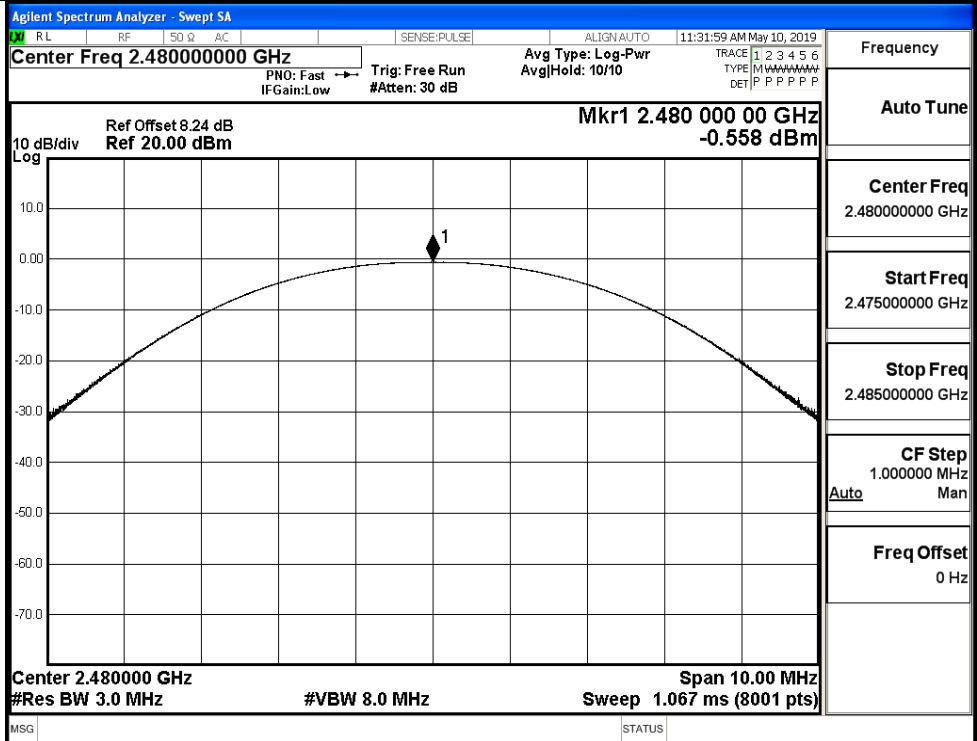
GFSK/LCH



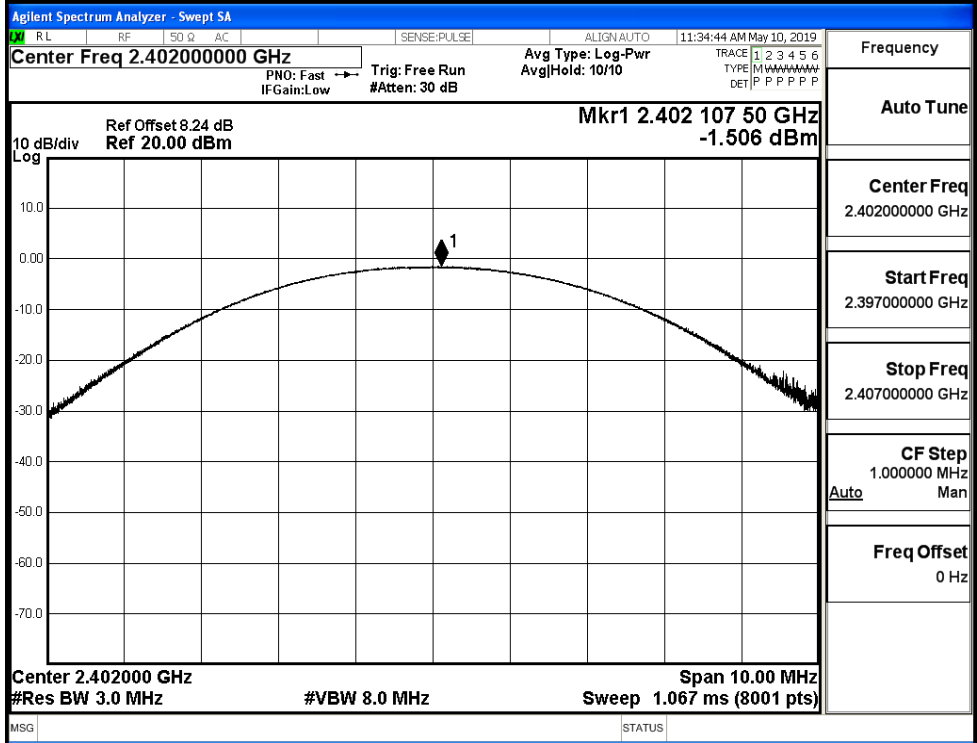
GFSK/MCH



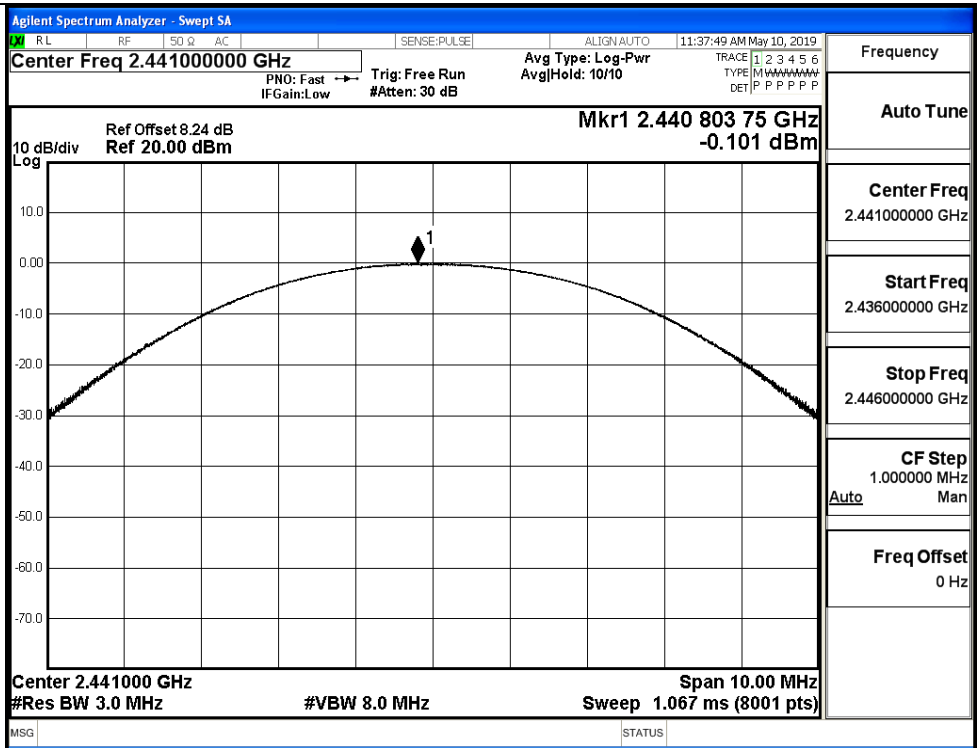
GFSK/HCH



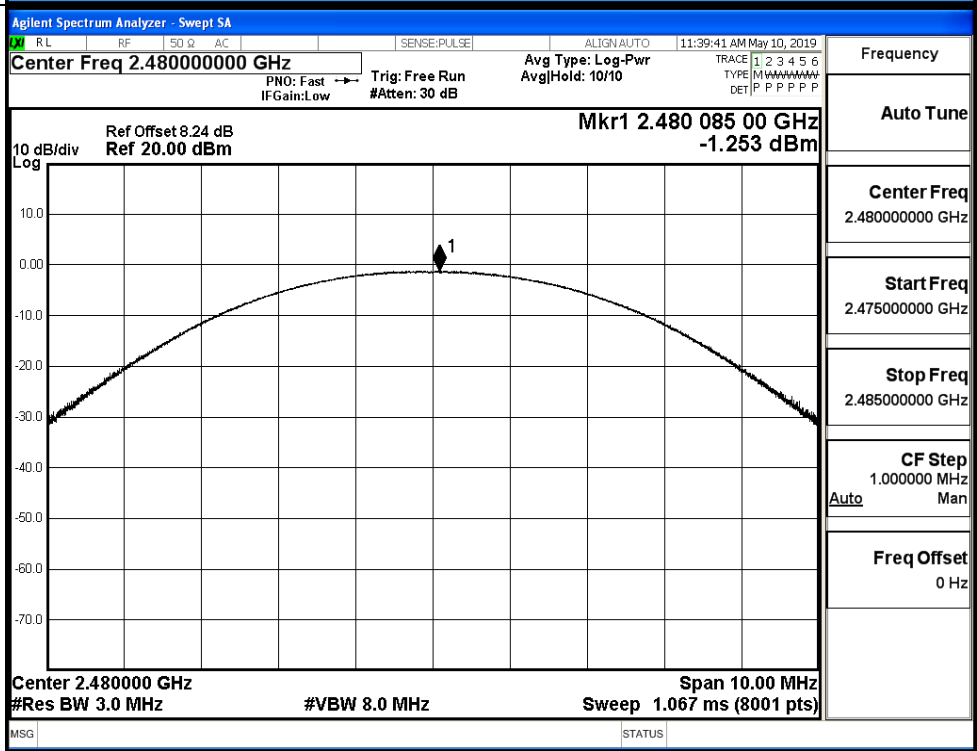
$\pi$ /4DQPSK/LCH



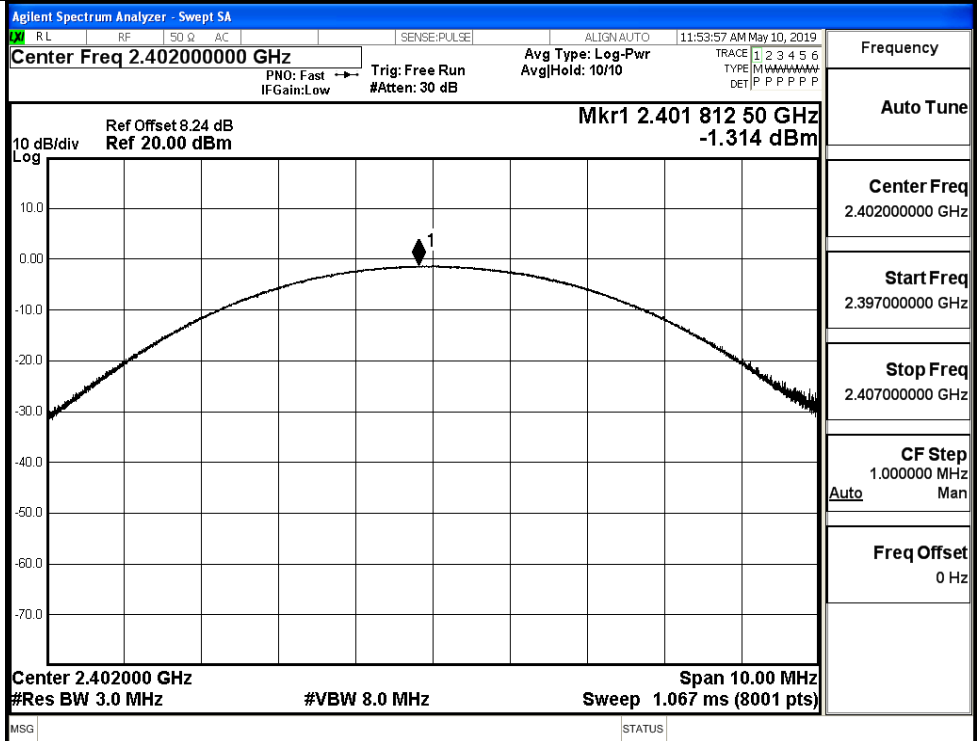
$\pi$ /4DQPSK/MCH



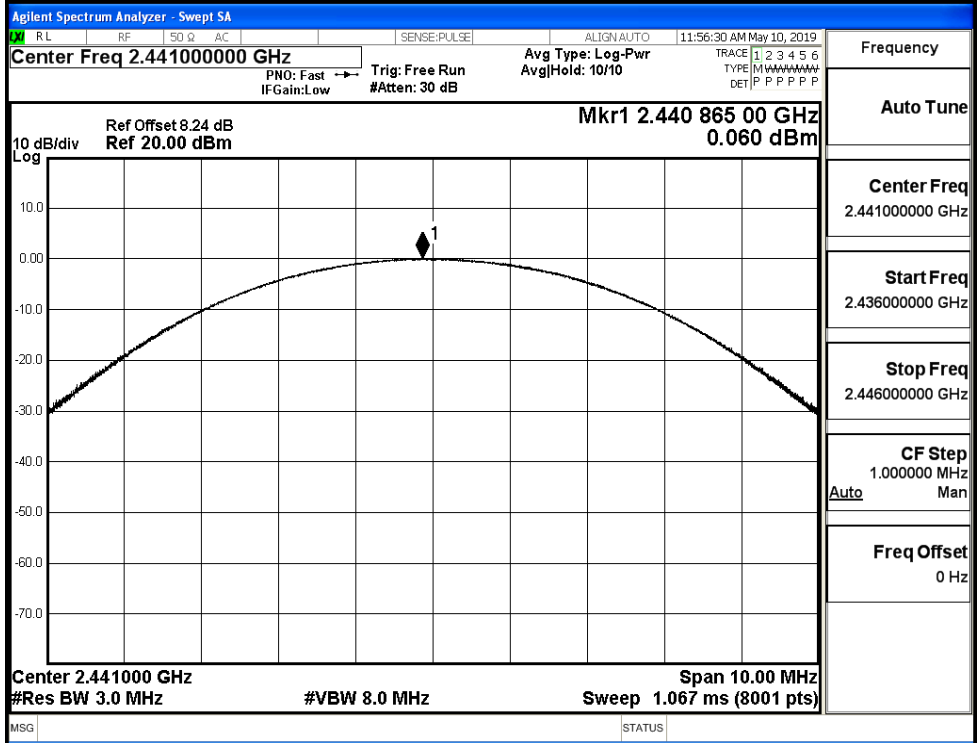
$\pi$ /4DQPSK/HCH



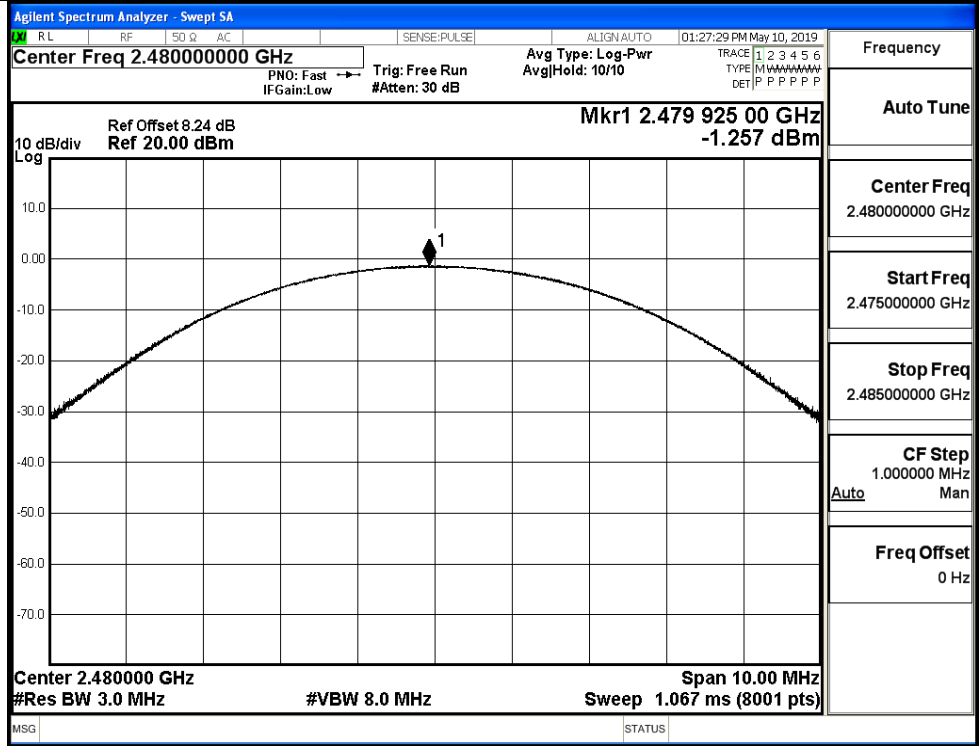
8DPSK/LCH



8DPSK/MCH

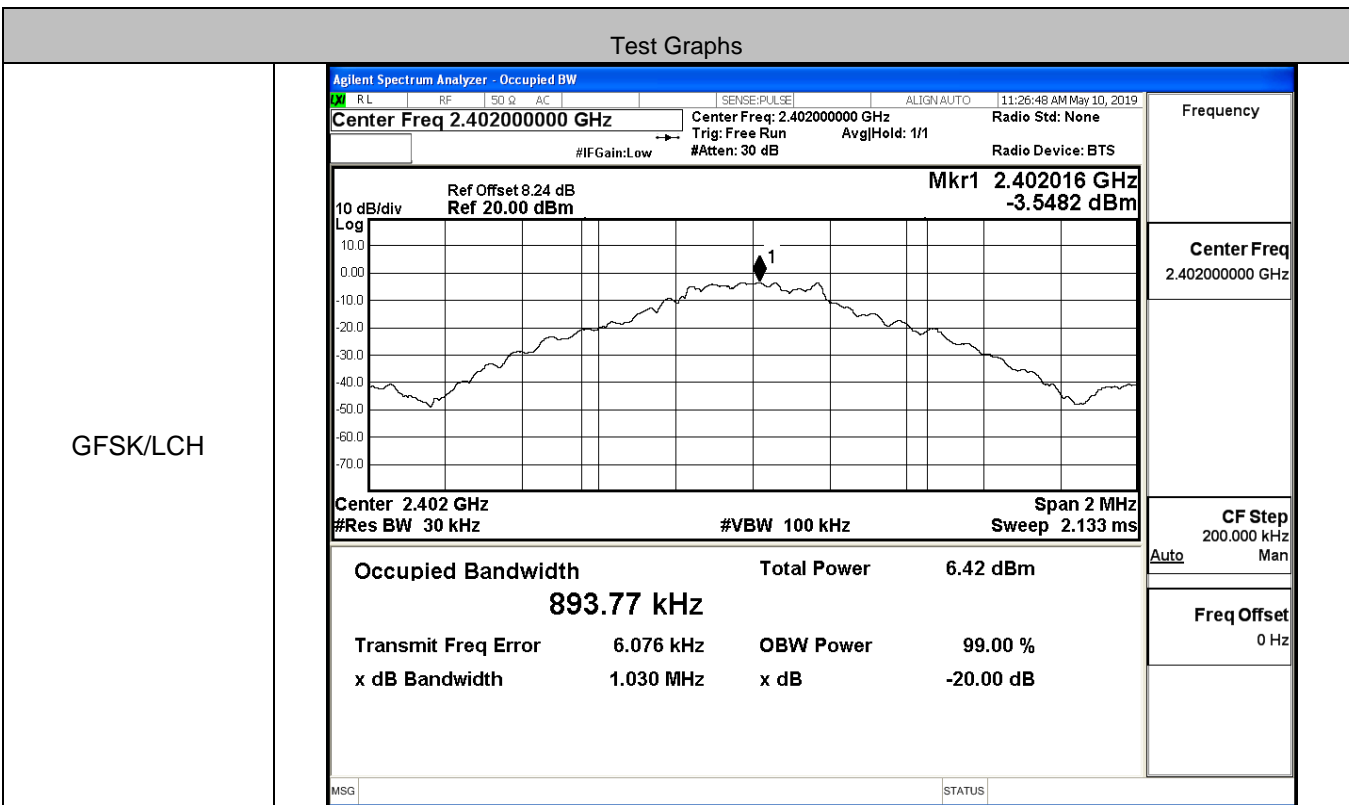


8DPSK/HCH

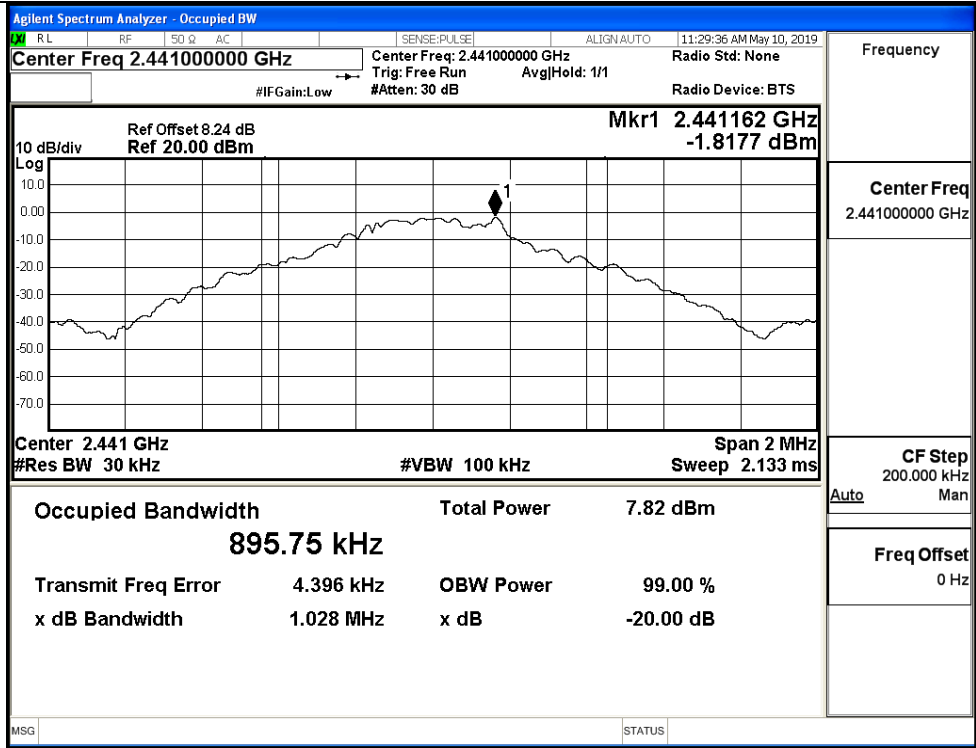


**A.2 20dB Bandwidth**

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.030	Not Specified	PASS
	MCH	1.028	Not Specified	PASS
	HCH	1.032	Not Specified	PASS
π/4DQPSK	LCH	1.292	Not Specified	PASS
	MCH	1.291	Not Specified	PASS
	HCH	1.310	Not Specified	PASS
8DPSK	LCH	1.299	Not Specified	PASS
	MCH	1.295	Not Specified	PASS
	HCH	1.306	Not Specified	PASS

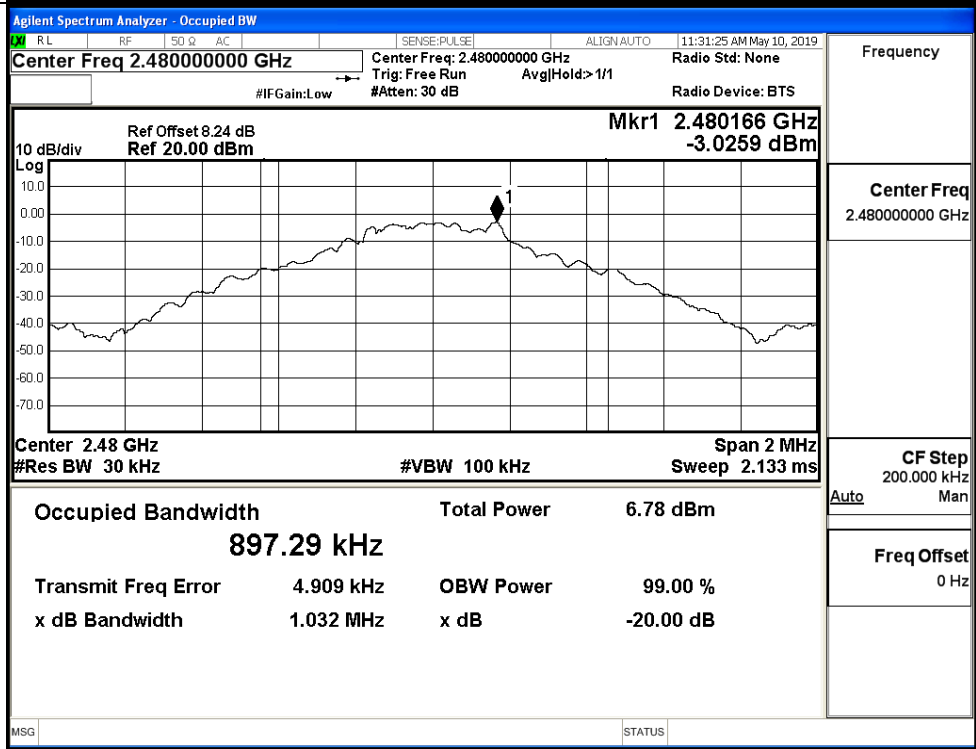


GFSK/MCH



Frequency	2.441000000 GHz
Center Freq	2.441000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

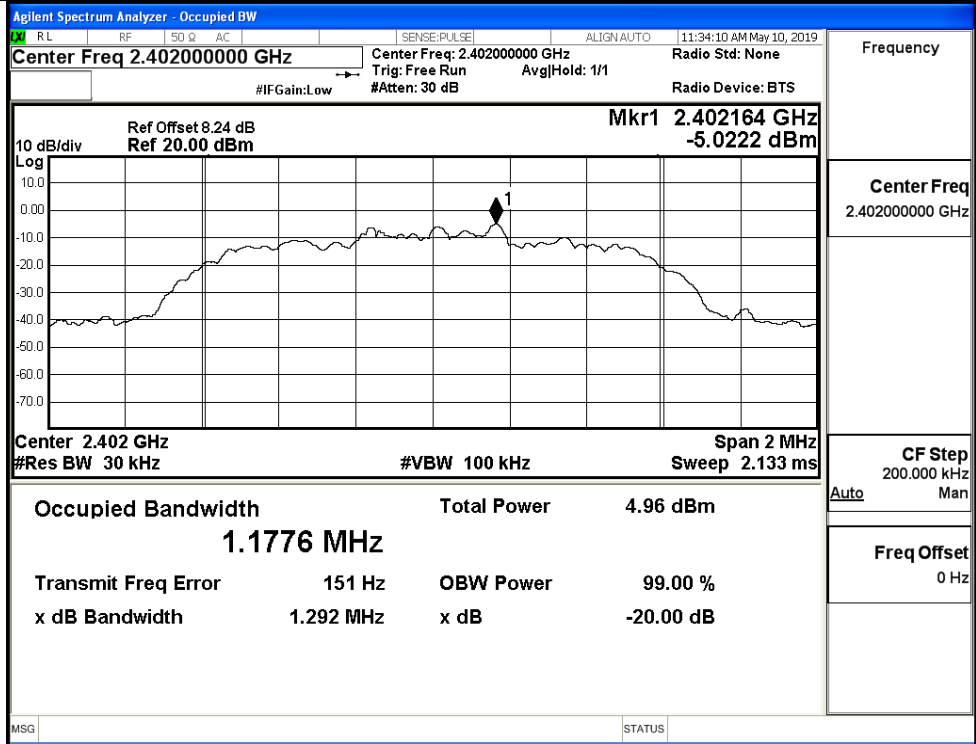
GFSK/HCH



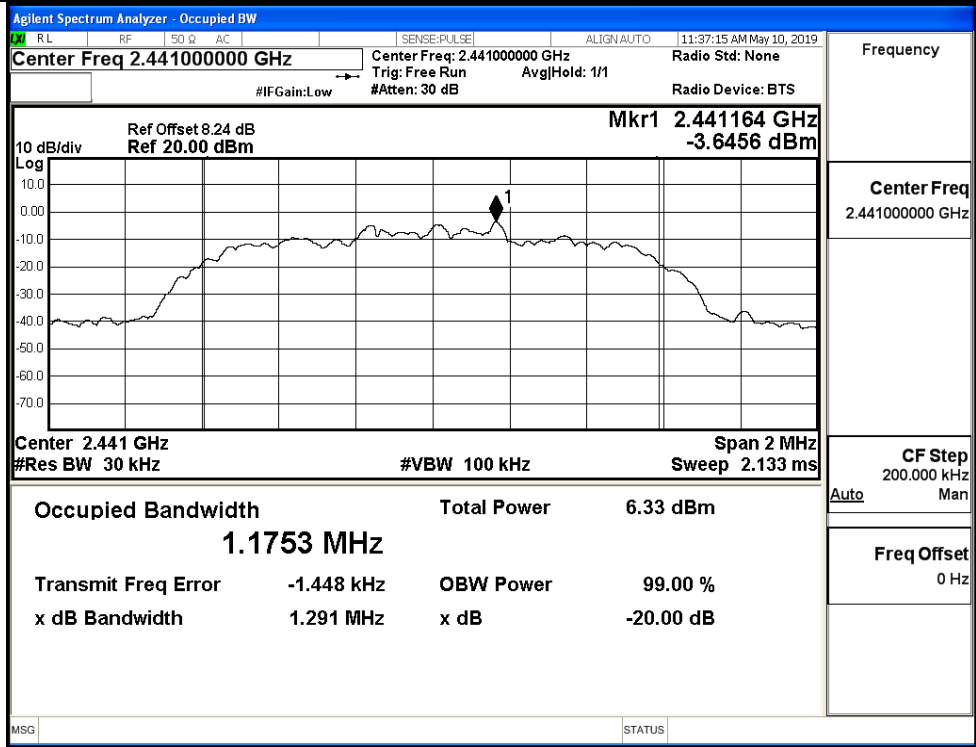
Frequency	2.480000000 GHz
Center Freq	2.480000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz



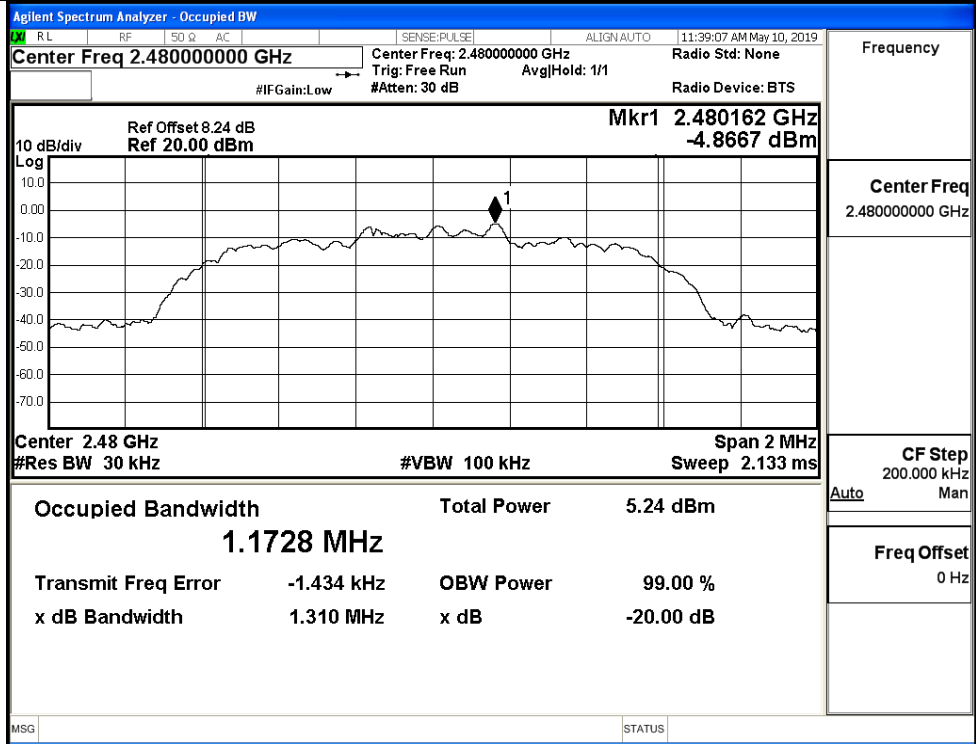
$\pi/4$ DQPSK/LCH



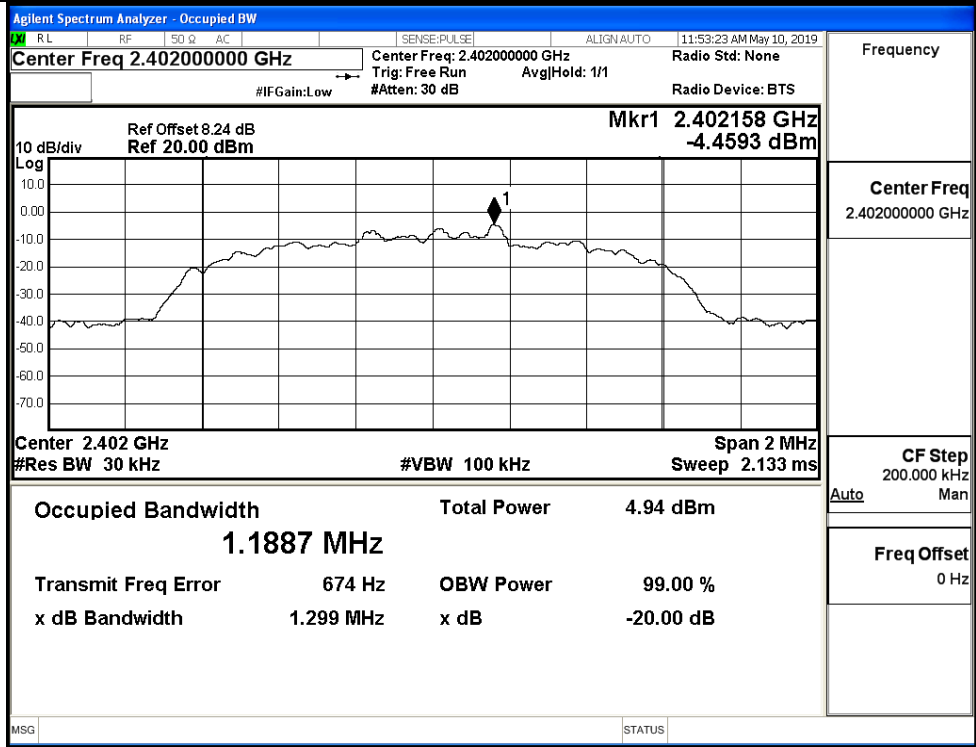
$\pi/4$ DQPSK/MCH



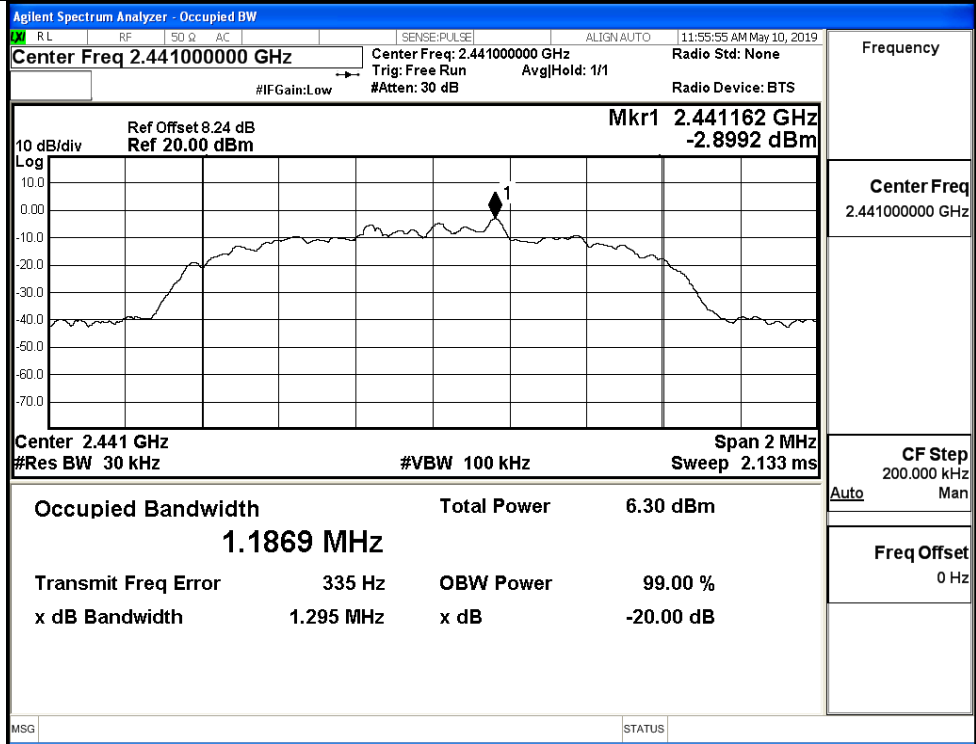
$\pi/4$ DQPSK/HCH



8DPSK/LCH

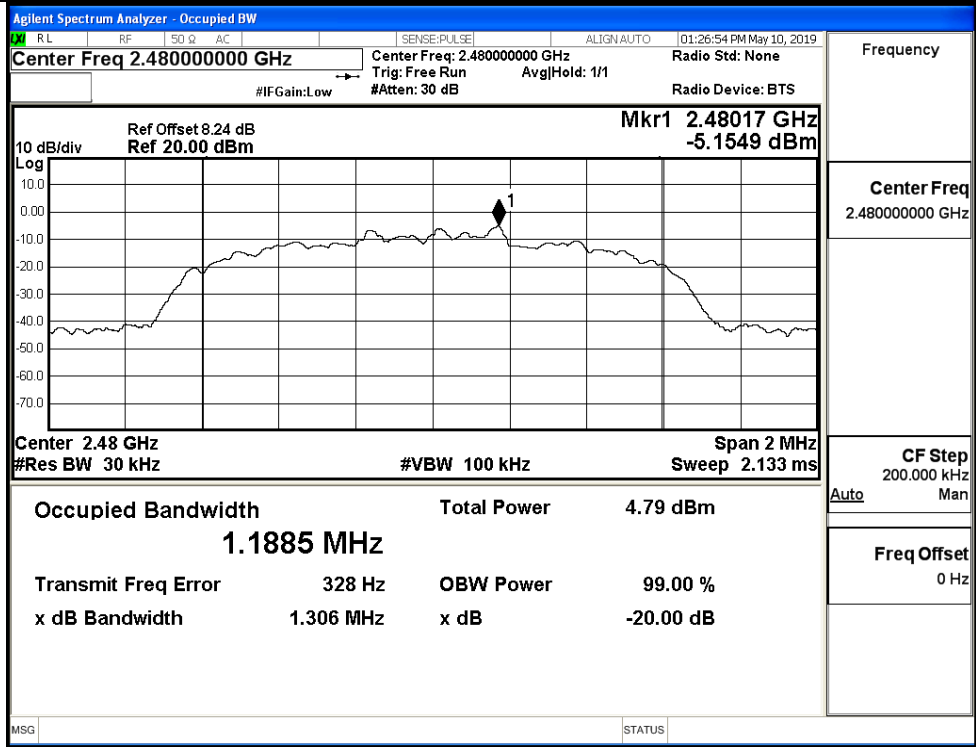


8DPSK/MCH



Frequency	2.441000000 GHz
Center Freq	2.441000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/HCH



Frequency	2.480000000 GHz
Center Freq	2.480000000 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	0.852	0.688	PASS
	MCH	0.926	0.688	PASS
	HCH	0.904	0.688	PASS
π/4DQPSK	LCH	1.036	0.873	PASS
	MCH	1.102	0.873	PASS
	HCH	1.010	0.873	PASS
8DPSK	LCH	0.968	0.871	PASS
	MCH	1.312	0.871	PASS
	HCH	0.914	0.871	PASS

Test Graphs

GFSK/LCH

**Agilent Spectrum Analyzer - Swept SA**

Center Freq 2.402500000 GHz

Ref Offset 8.24 dB, Ref 20.00 dBm

ΔMkr1 851.75 kHz, -0.351 dB

Start 2.401500 GHz, Stop 2.403500 GHz

#Res BW 100 kHz, #VBW 300 kHz, Sweep 1.067 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	f	(Δ)	851.75 kHz (Δ)	-0.351 dB			
2	F	f		2.40215300 GHz	-1.674 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq  
2.402500000 GHz

Start Freq  
2.401500000 GHz

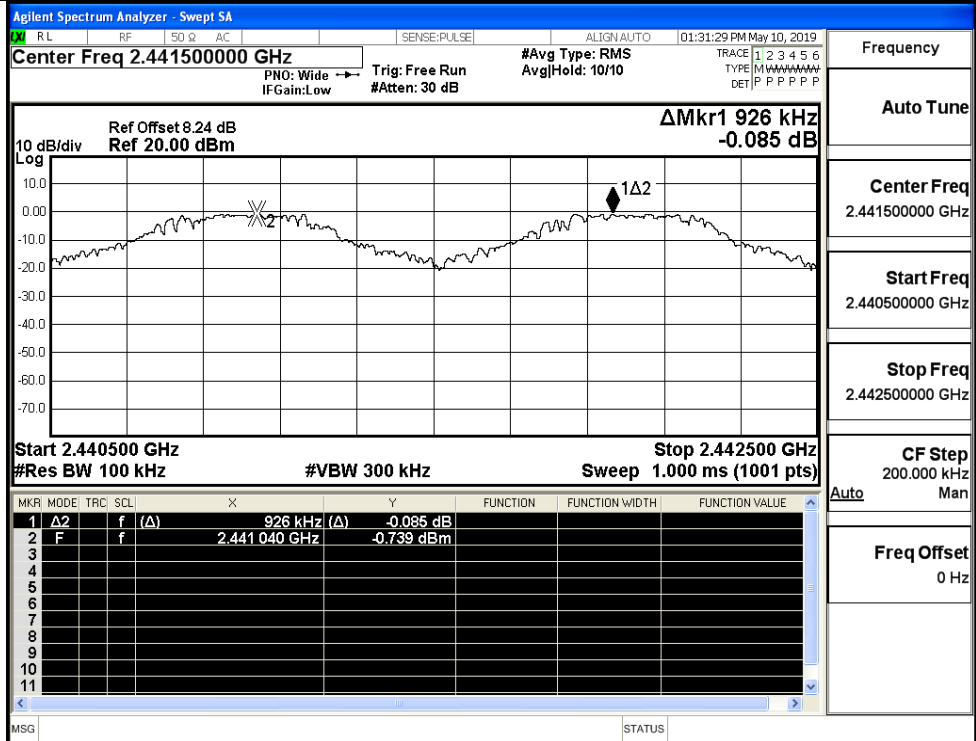
Stop Freq  
2.403500000 GHz

CF Step  
200.000 kHz

Auto Man

Freq Offset  
0 Hz

GFSK/MCH



Frequency

Auto Tune

Center Freq

2.441500000 GHz

Start Freq

2.440500000 GHz

Stop Freq

2.442500000 GHz

CF Step

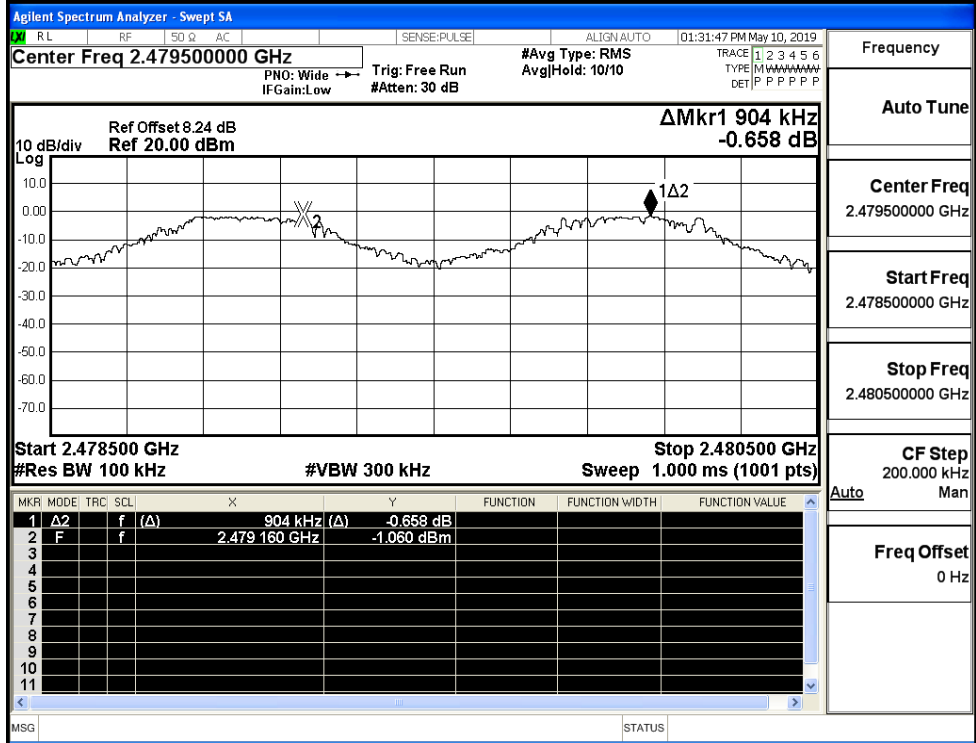
200.000 kHz

Auto

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

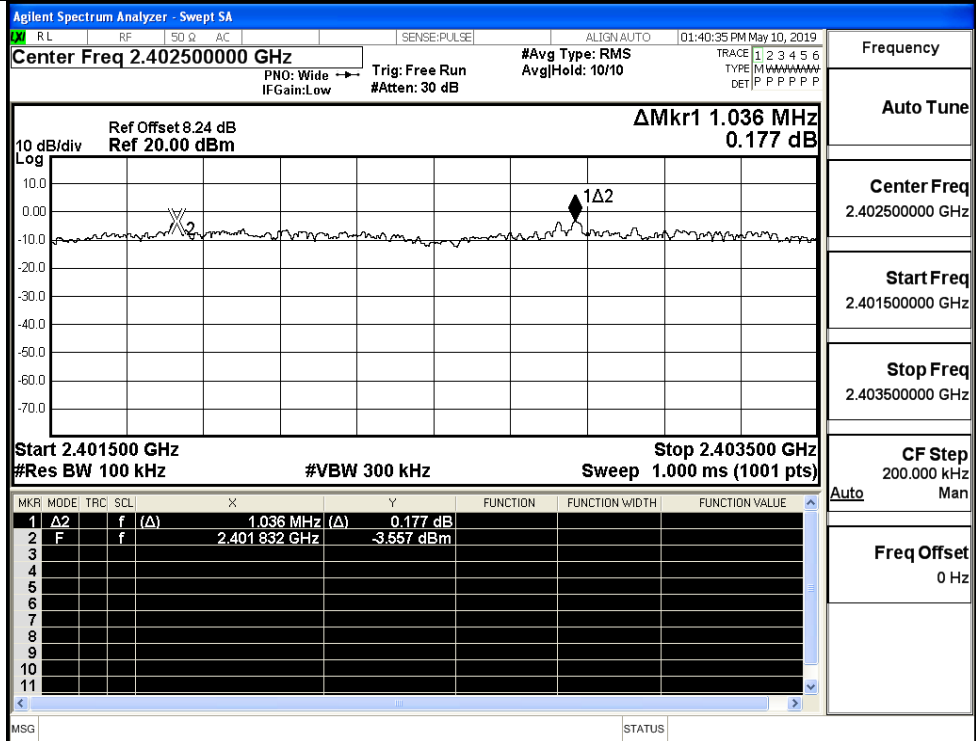
200.000 kHz

Auto

Freq Offset

0 Hz

$\pi$ /4DQPSK/LCH



Frequency

Auto Tune

Center Freq  
2.402500000 GHz

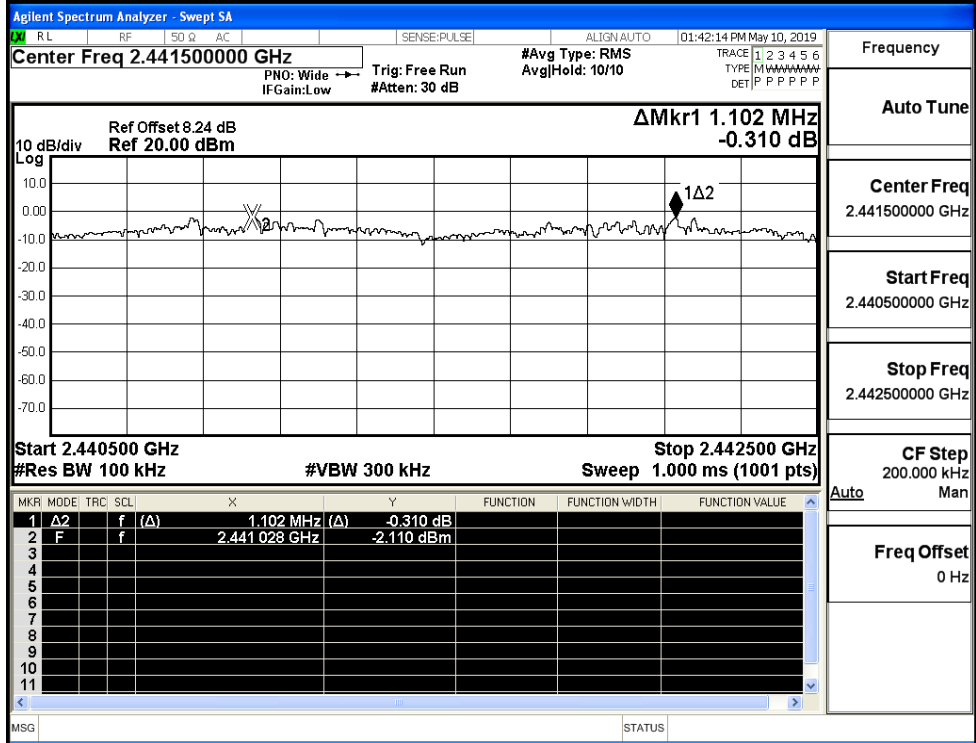
Start Freq  
2.401500000 GHz

Stop Freq  
2.403500000 GHz

CF Step  
200.000 kHz  
Auto Man

Freq Offset  
0 Hz

$\pi$ /4DQPSK/MCH



Frequency

Auto Tune

Center Freq  
2.441500000 GHz

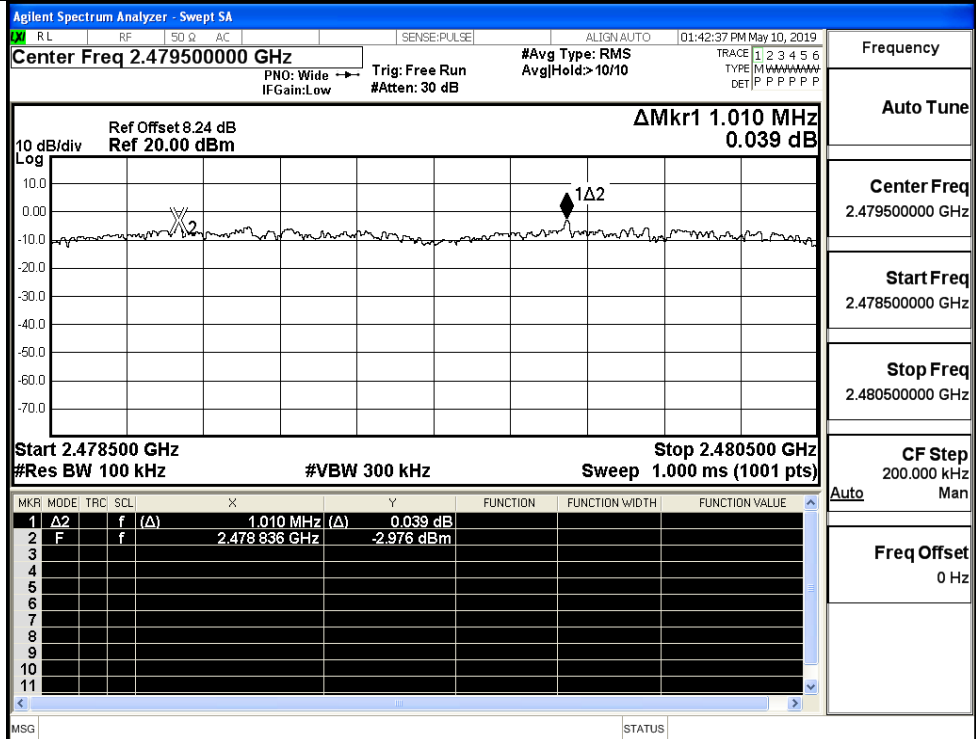
Start Freq  
2.440500000 GHz

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

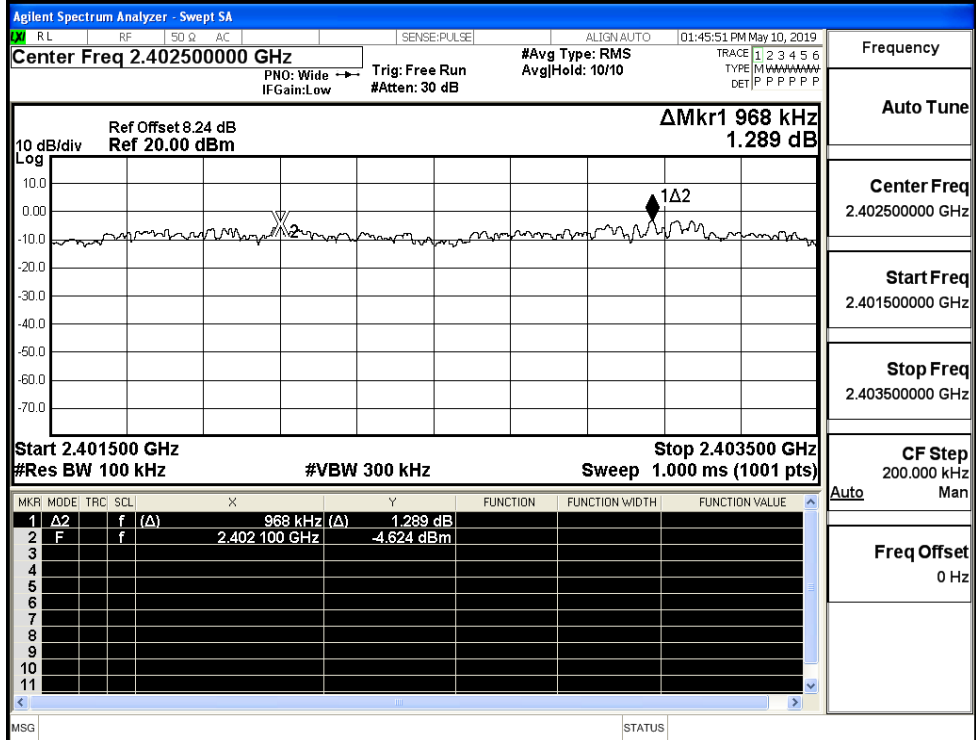
Start Freq  
2.478500000 GHz

Stop Freq  
2.480500000 GHz

CF Step  
200.000 kHz  
Auto Man

Freq Offset  
0 Hz

8DPSK/LCH



Frequency

Auto Tune

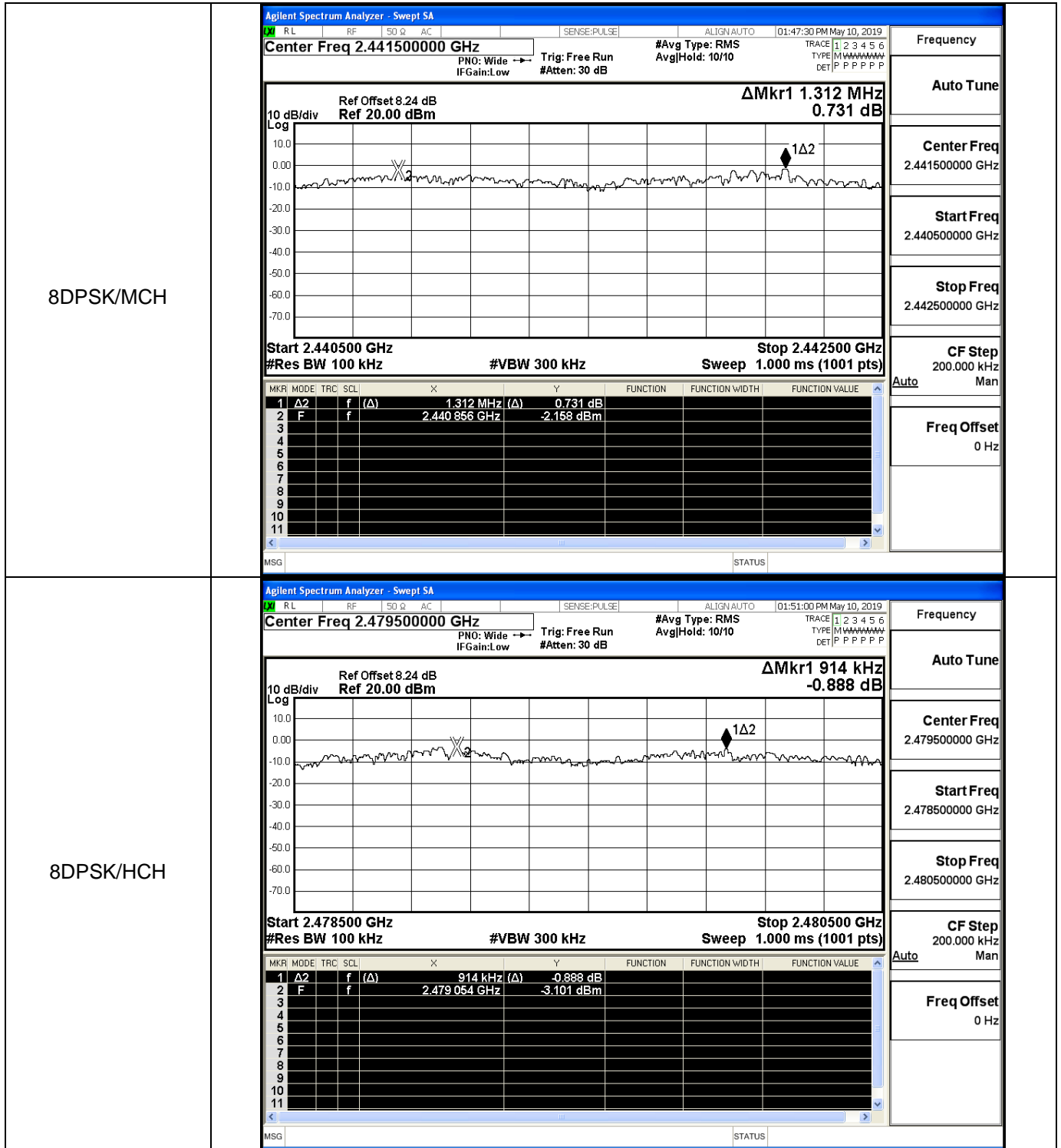
Center Freq  
2.402500000 GHz

Start Freq  
2.401500000 GHz

Stop Freq  
2.403500000 GHz

CF Step  
200.000 kHz  
Auto Man

Freq Offset  
0 Hz



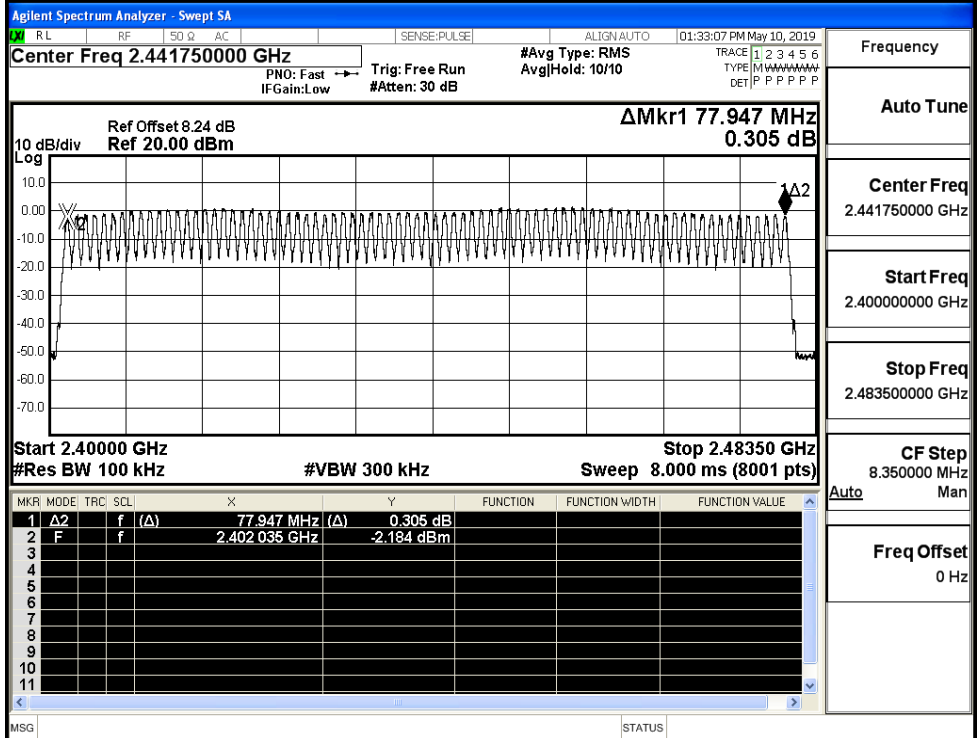
A.4 Hopping Channel Number

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



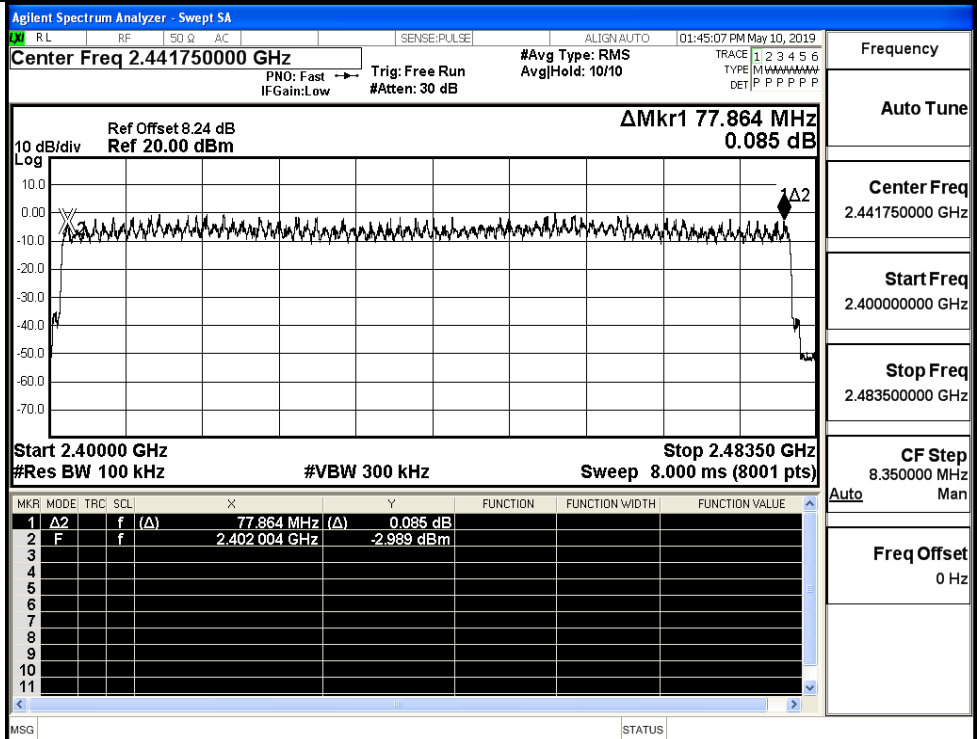
Test Graphs

GFSK/Hop



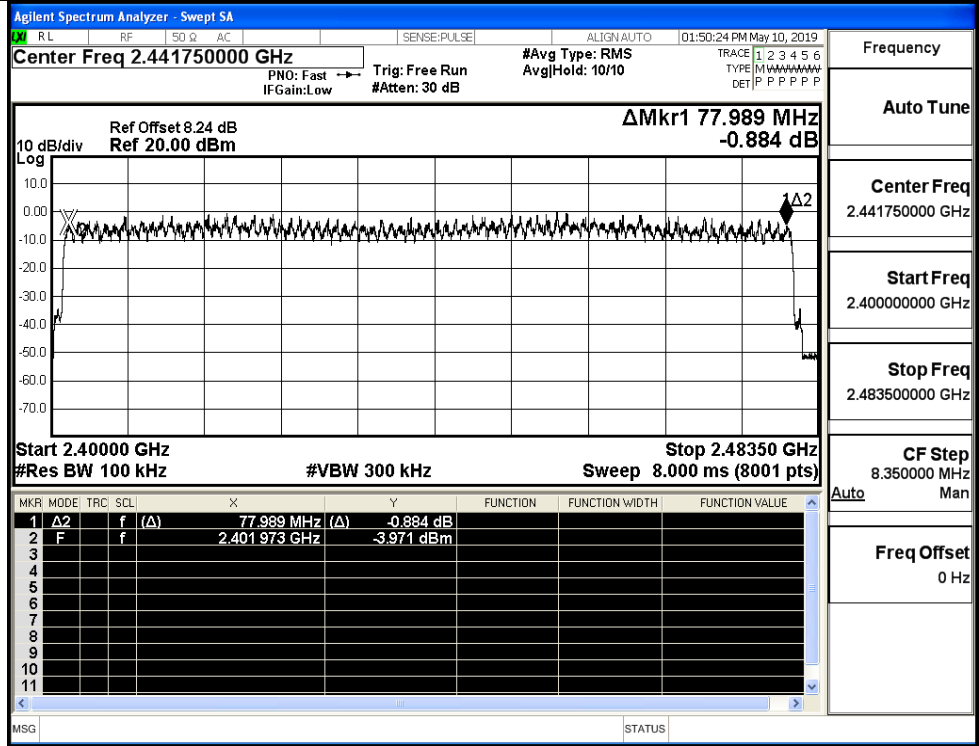
Frequency
Auto Tune
Center Freq 2.441750000 GHz
Start Freq 2.400000000 GHz
Stop Freq 2.483500000 GHz
CF Step 8.350000 MHz
Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK/Hop



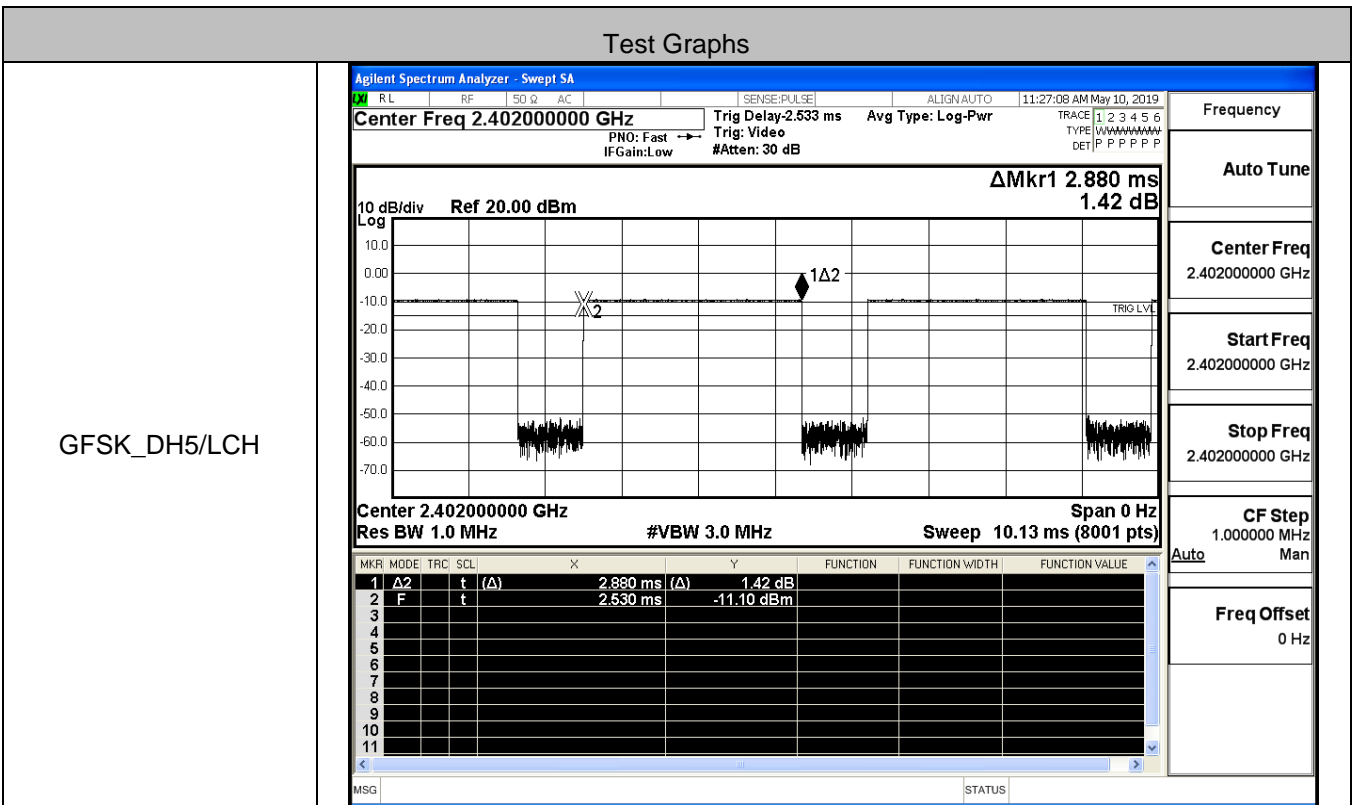
Frequency
Auto Tune
Center Freq 2.441750000 GHz
Start Freq 2.400000000 GHz
Stop Freq 2.483500000 GHz
CF Step 8.350000 MHz
Auto Man
Freq Offset 0 Hz

8DPSK/Hop

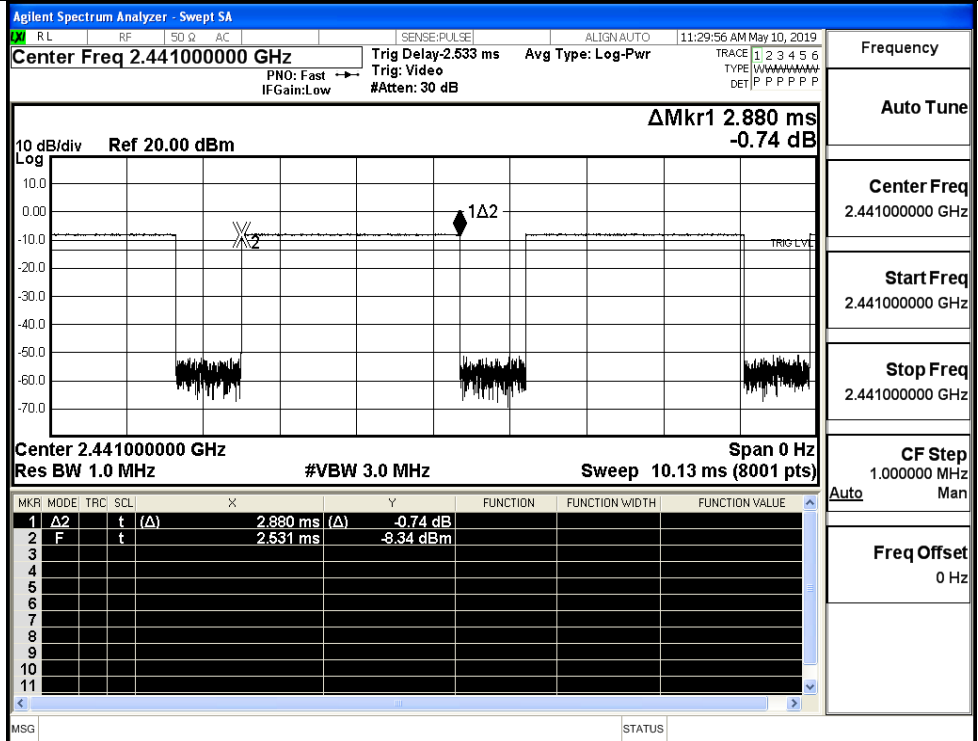


A.5 Dwell Time

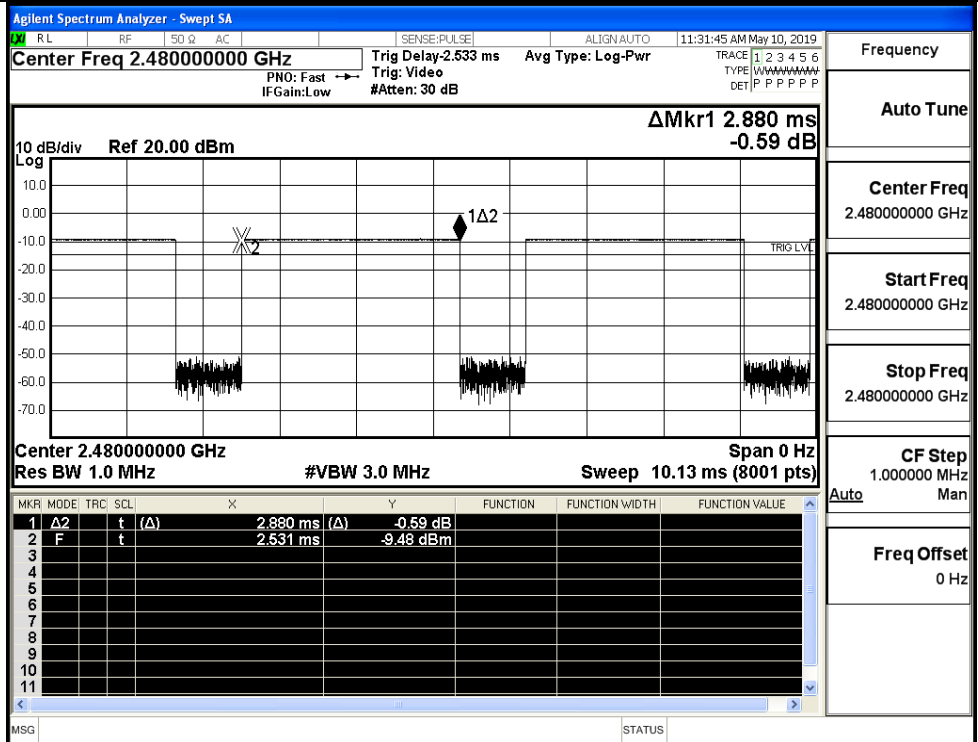
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7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



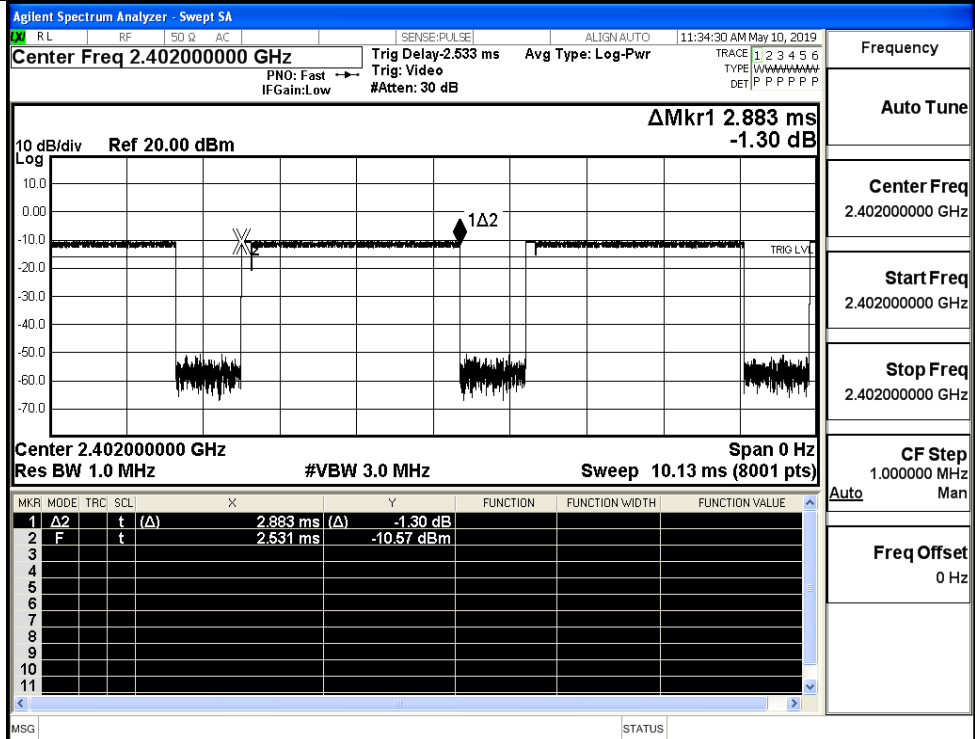
GFSK\_DH5/MCH



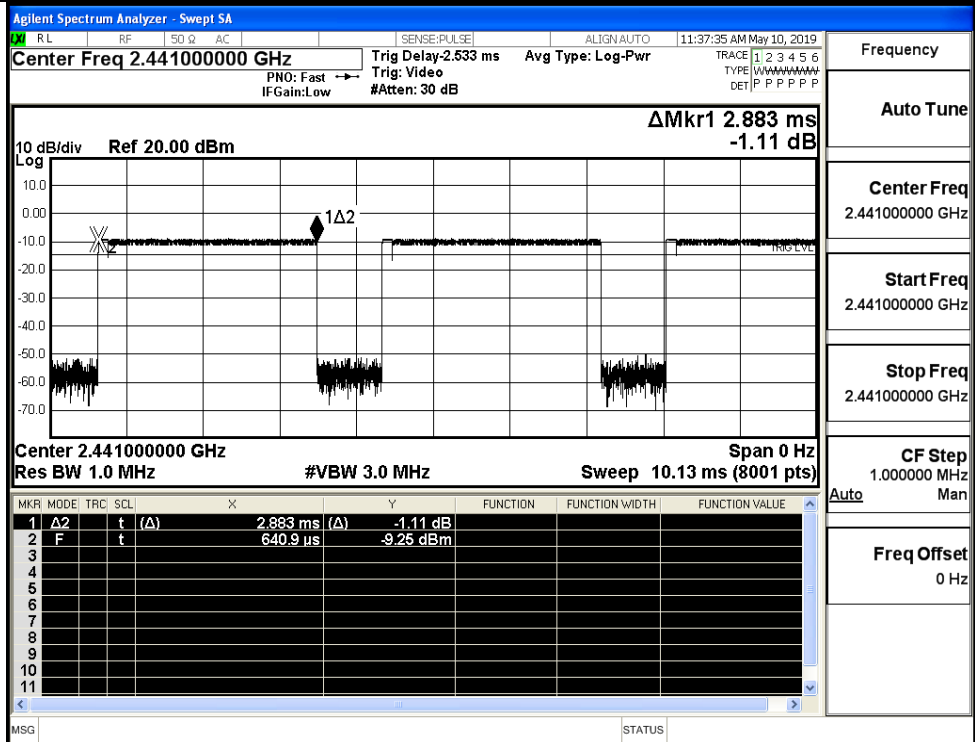
GFSK\_DH5/HCH



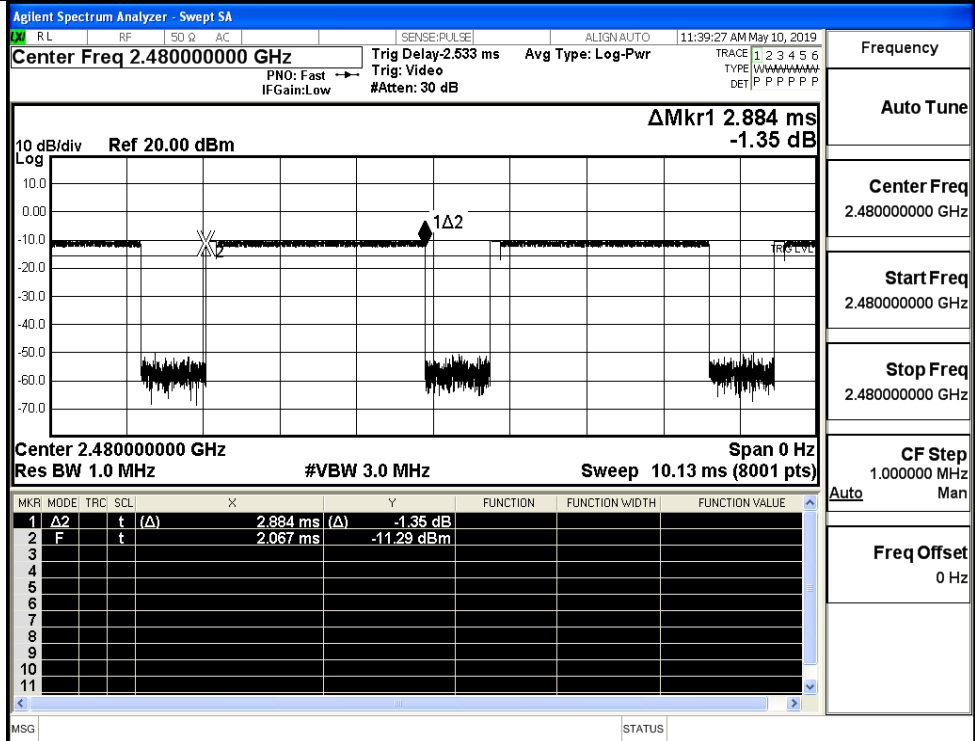
$\pi/4$ DQPSK  
\_2DH5/LCH



$\pi/4$ DQPSK  
\_2DH5/MCH

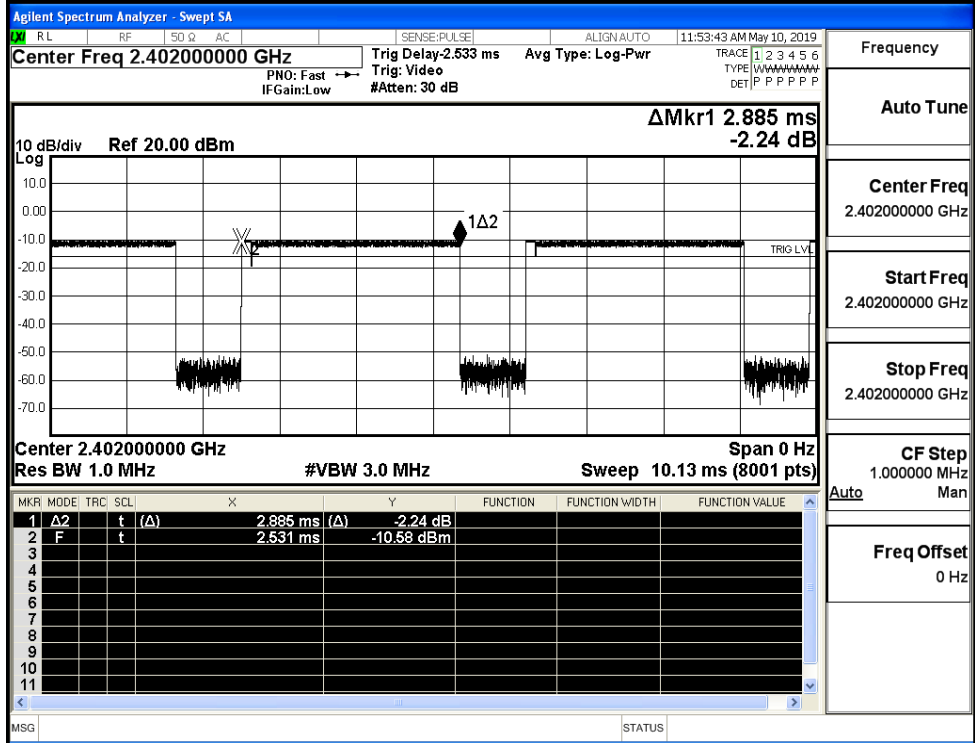


$\pi/4$ DQPSK  
\_2DH5/HCH



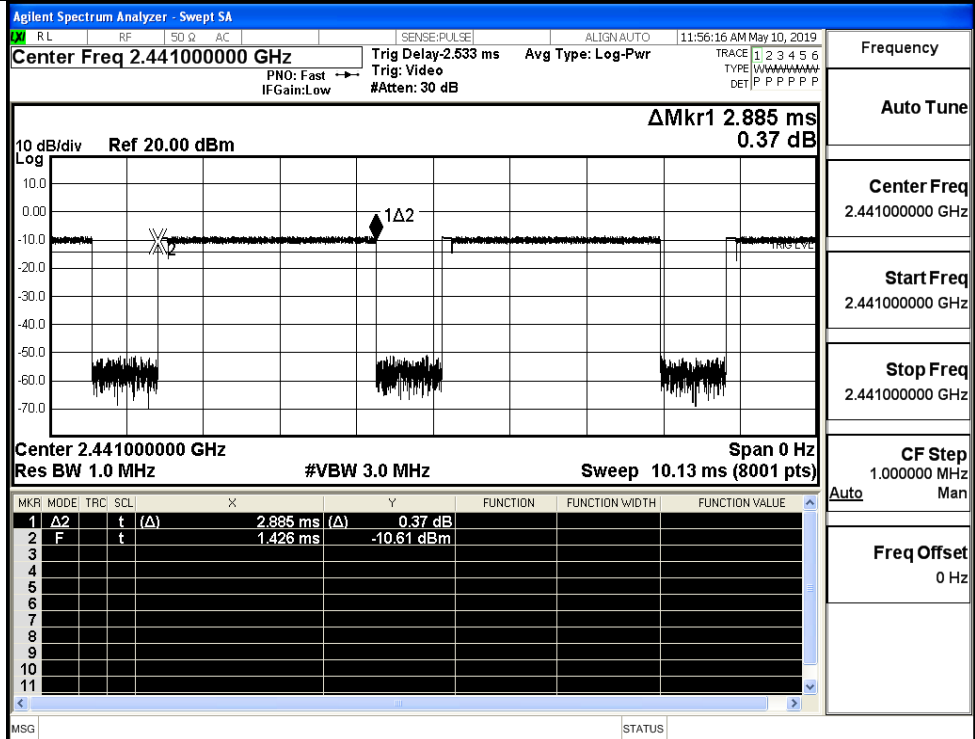
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

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



Frequency

Auto Tune

Center Freq 2.441000000 GHz

Start Freq 2.441000000 GHz

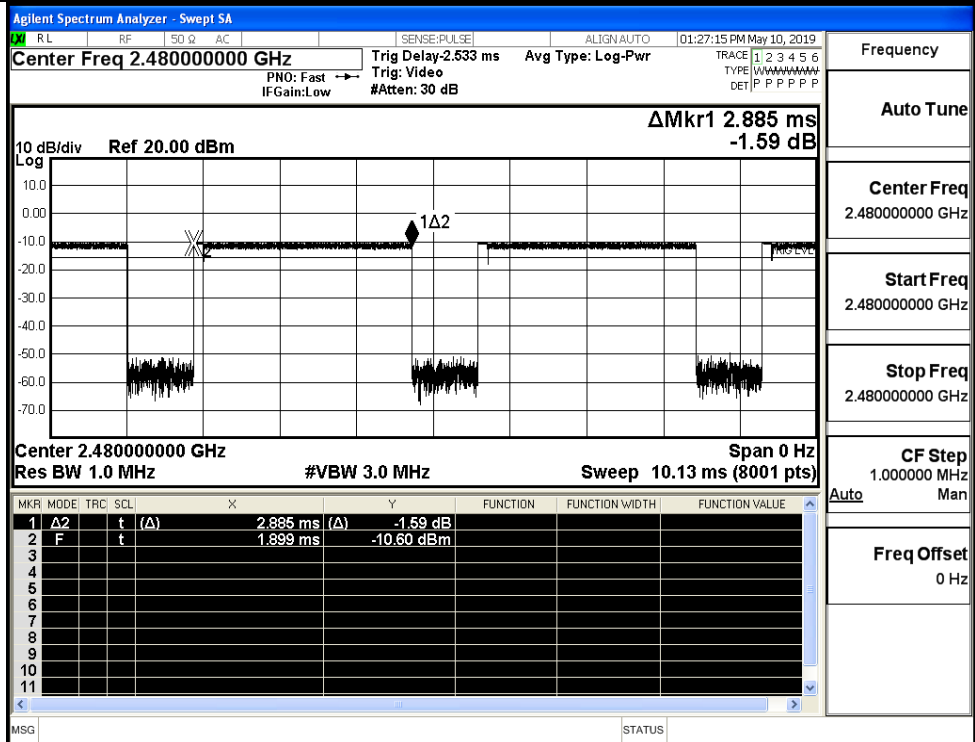
Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz

Auto Man

Freq Offset 0 Hz

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

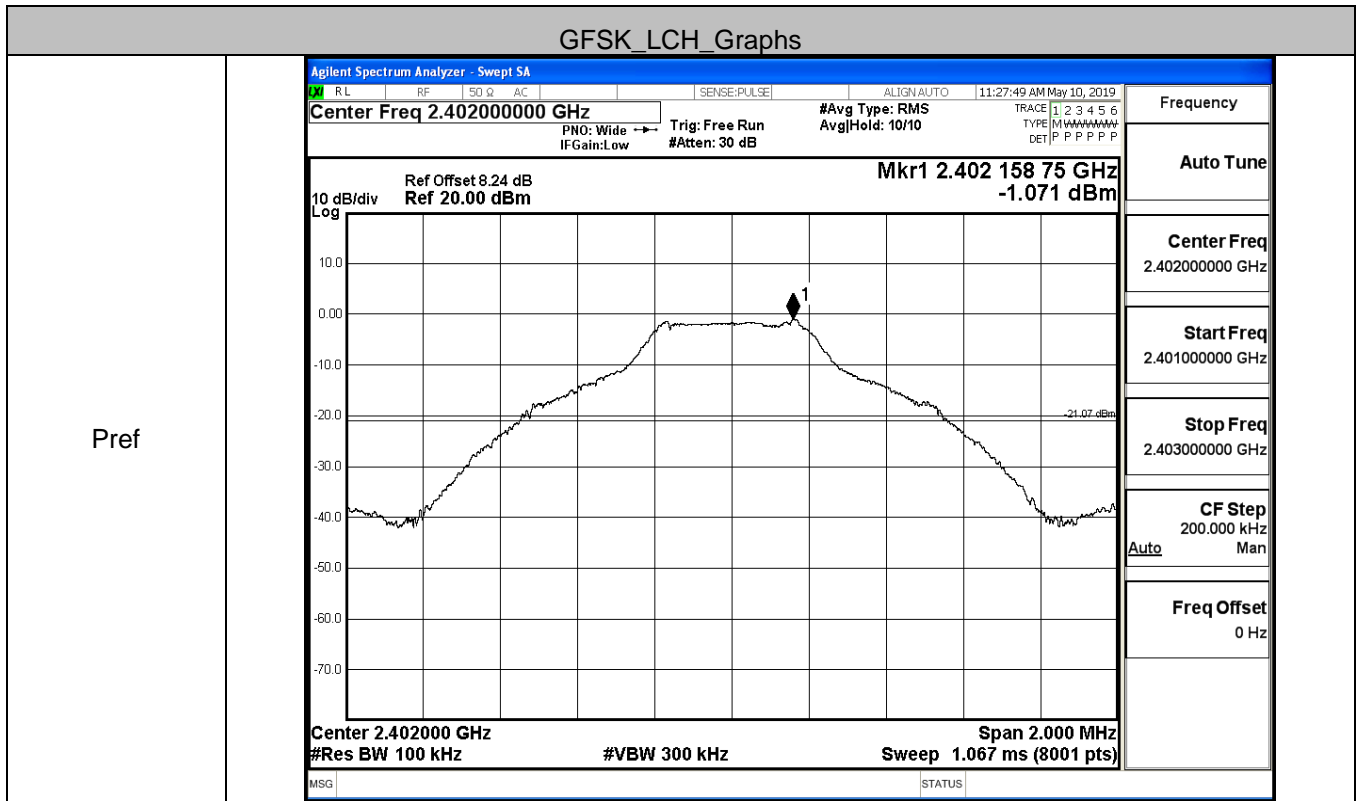
Auto Man

Freq Offset 0 Hz

**A.6 RF Conducted Spurious Emissions**

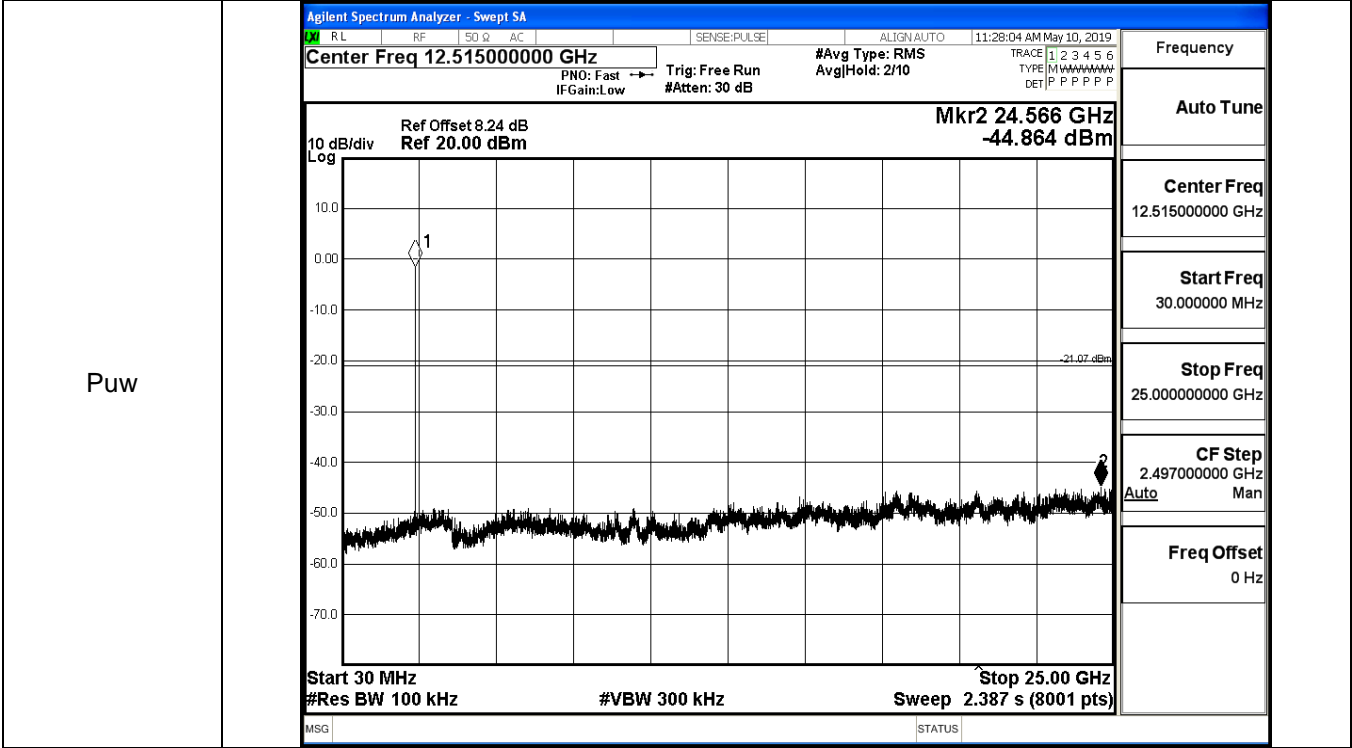
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.071	-44.864	-21.071	PASS
	MCH	0.211	-43.957	-19.789	PASS
	HCH	-0.791	-44.853	-20.791	PASS
$\pi/4$ DQPSK	LCH	-2.303	-44.202	-22.303	PASS
	MCH	-1.004	-44.252	-21.004	PASS
	HCH	-2.13	-43.666	-22.130	PASS
8DPSK	LCH	-2.212	-44.852	-22.212	PASS
	MCH	-0.997	-43.843	-20.997	PASS
	HCH	-2.553	-43.901	-22.553	PASS

GFSK\_LCH\_Graphs

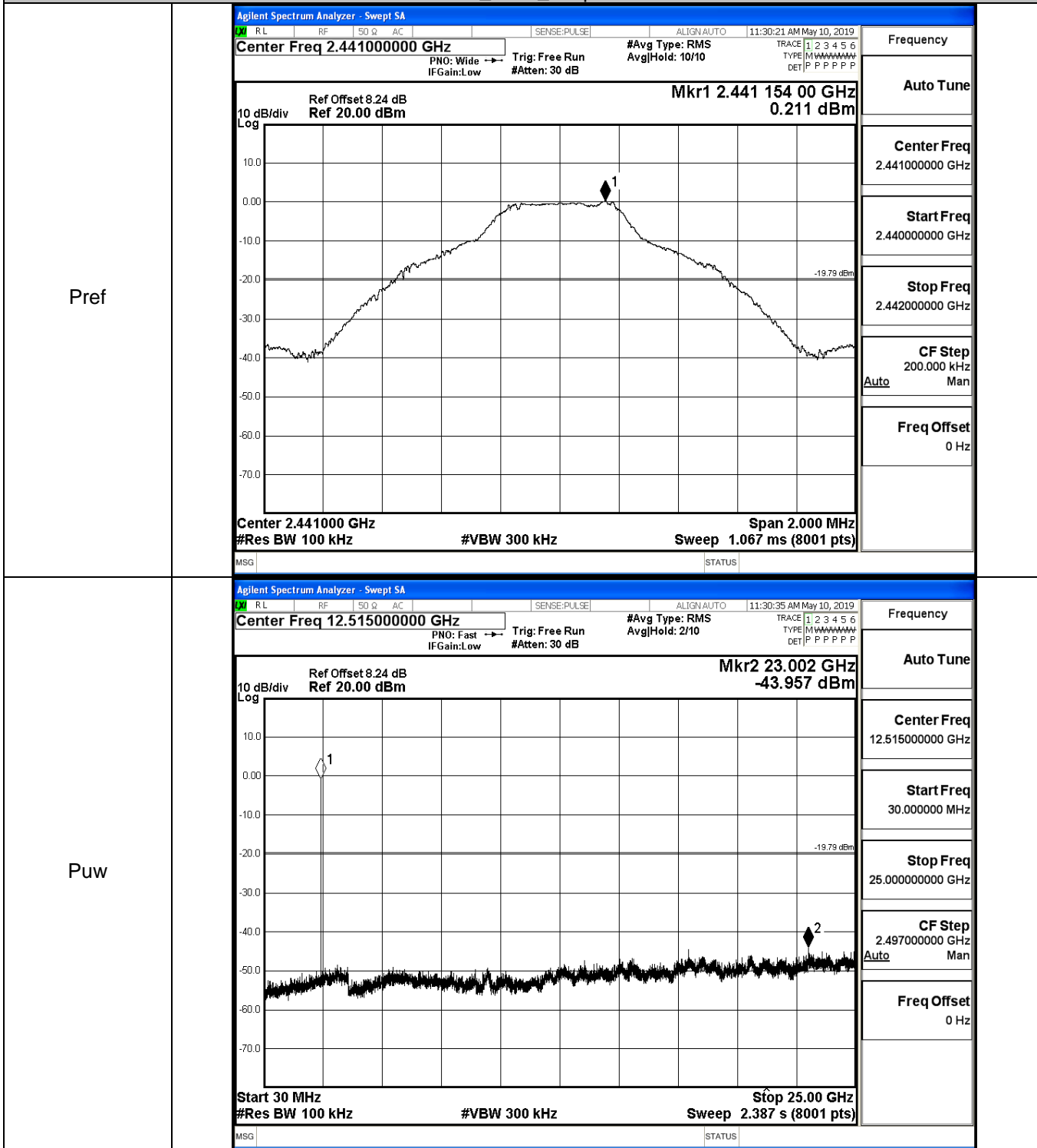


Pref

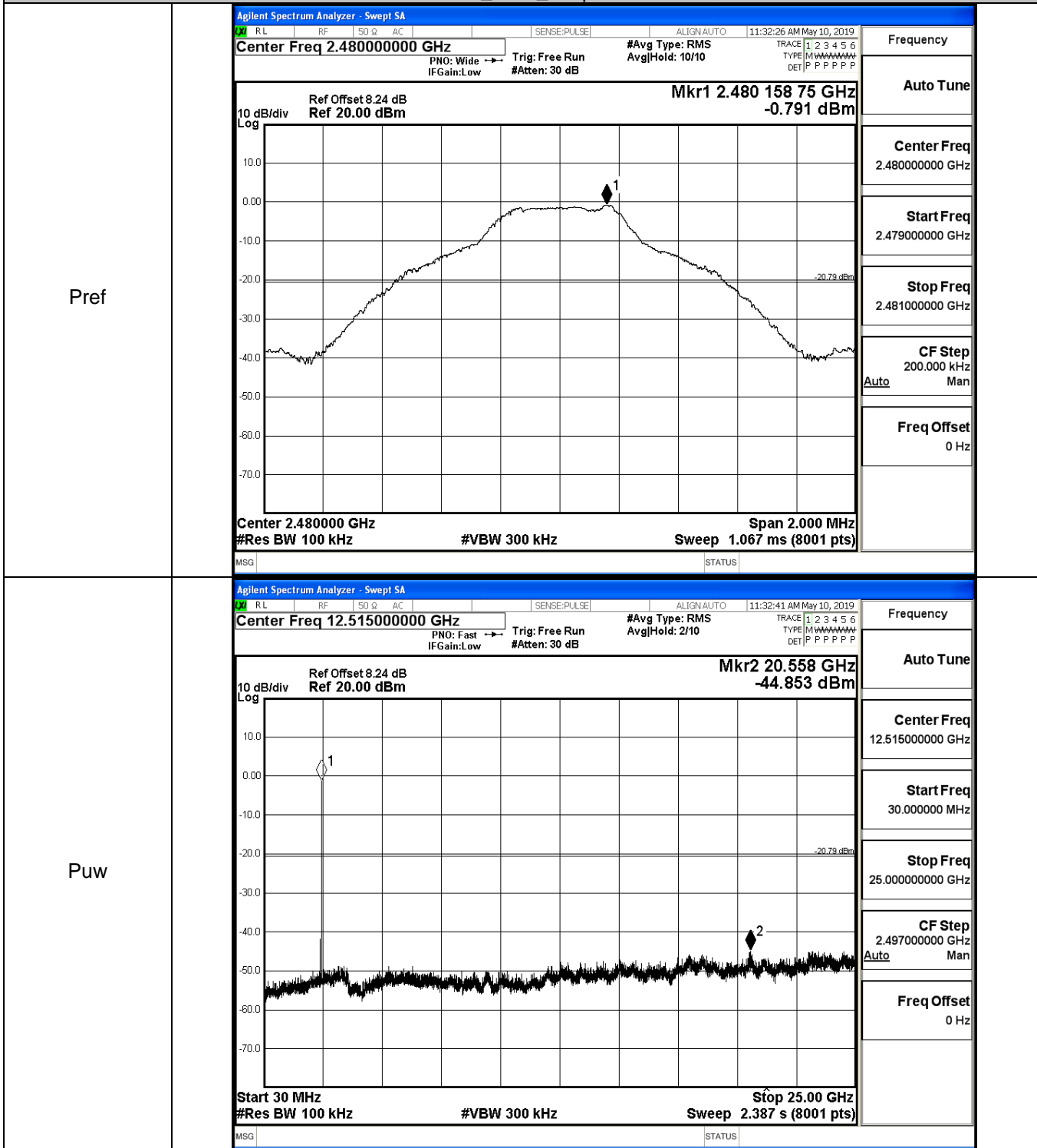




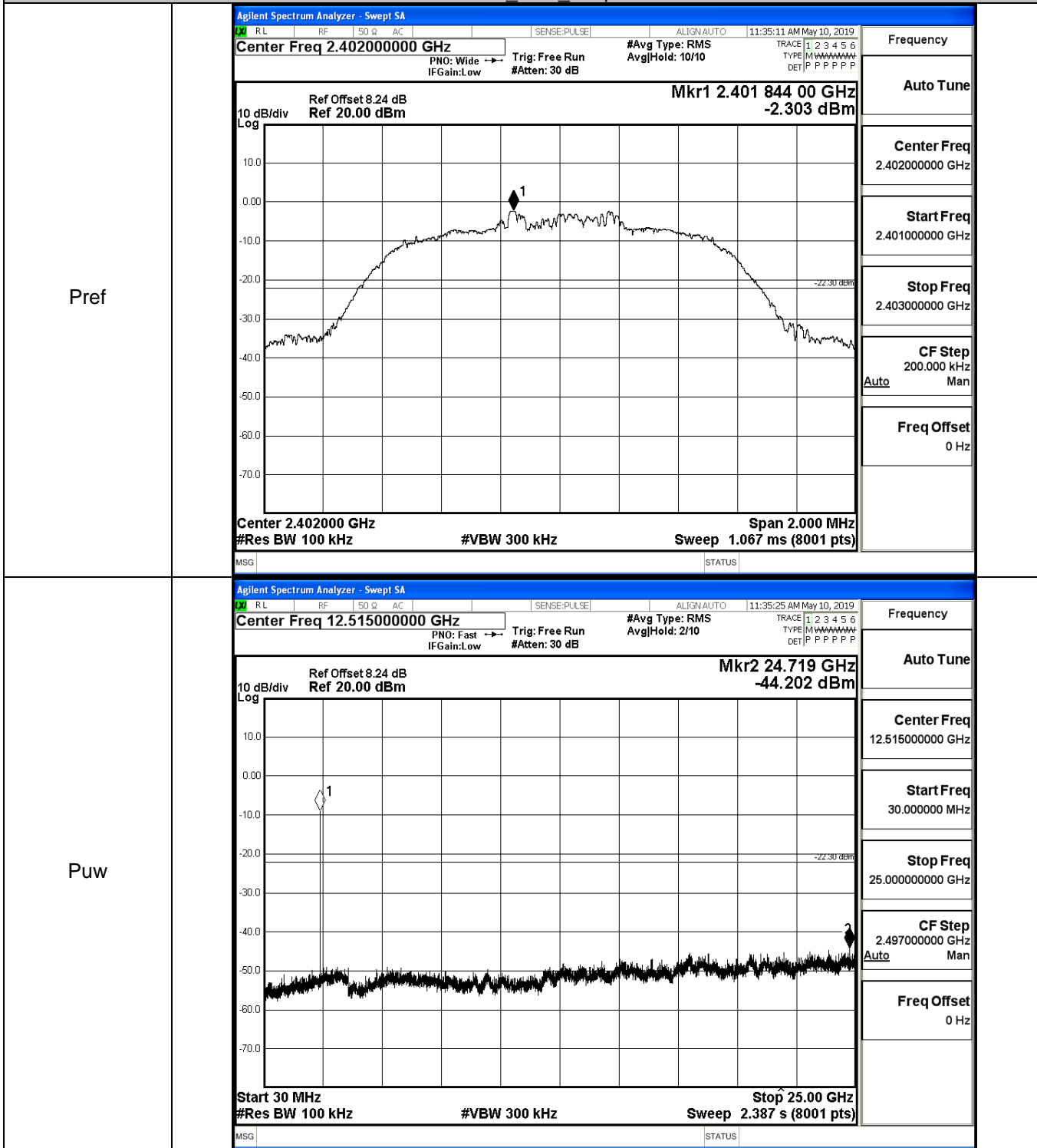
GFSK\_MCH\_Graphs



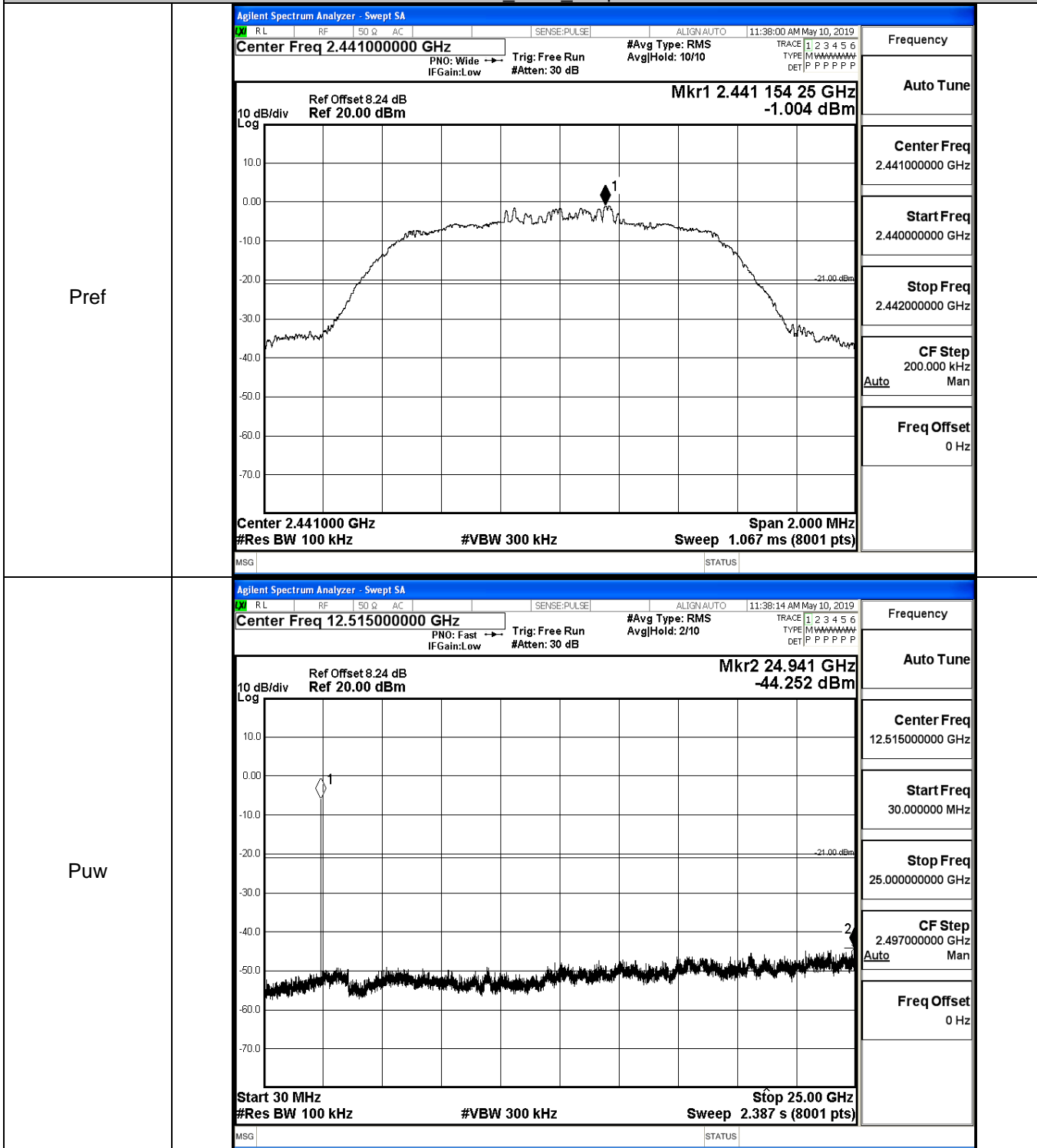
GFSK\_HCH\_Graphs



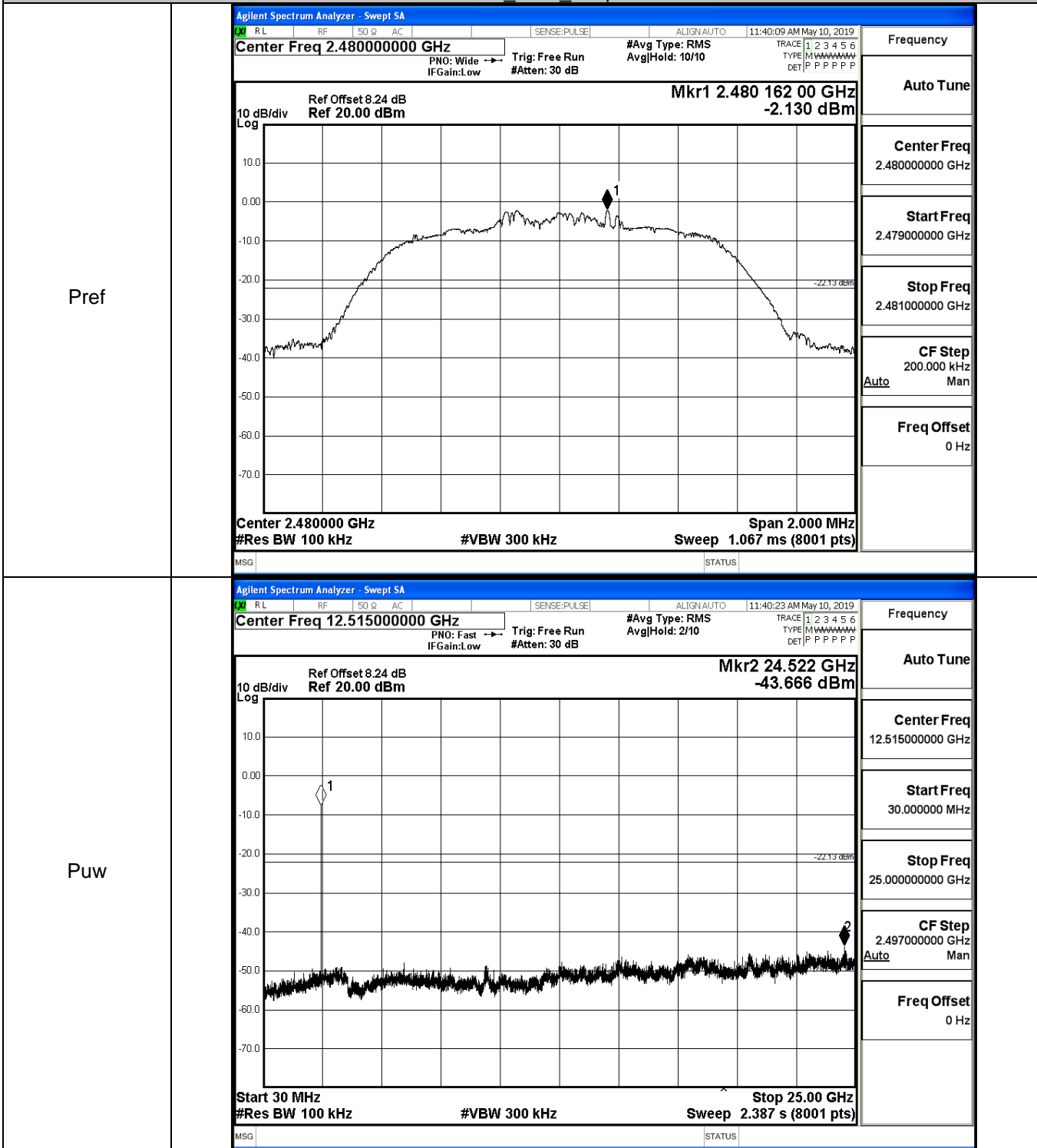
$\pi/4$ DQPSK LCH\_Graphs



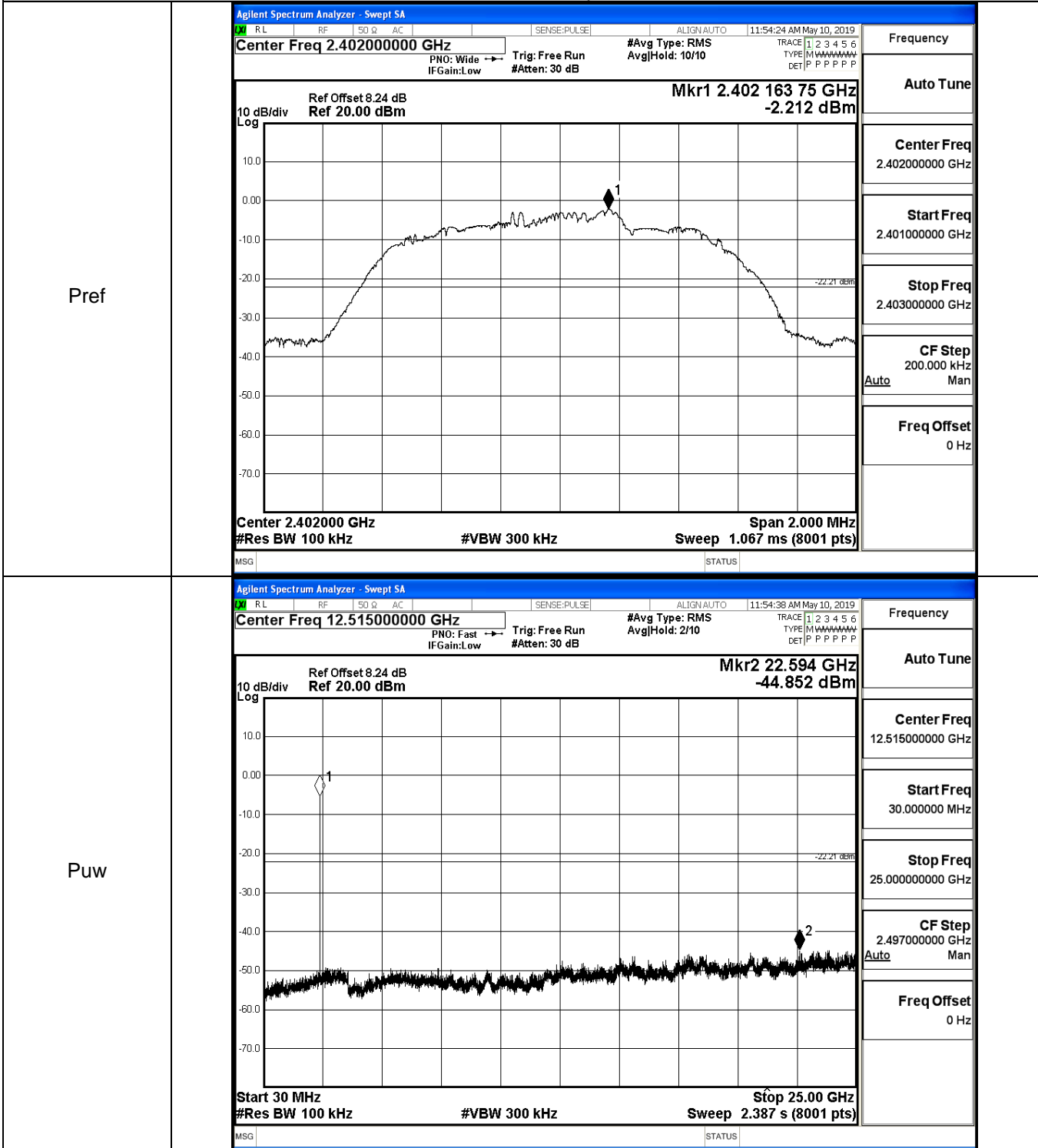
$\pi/4$ DQPSK\_MCH\_Graphs



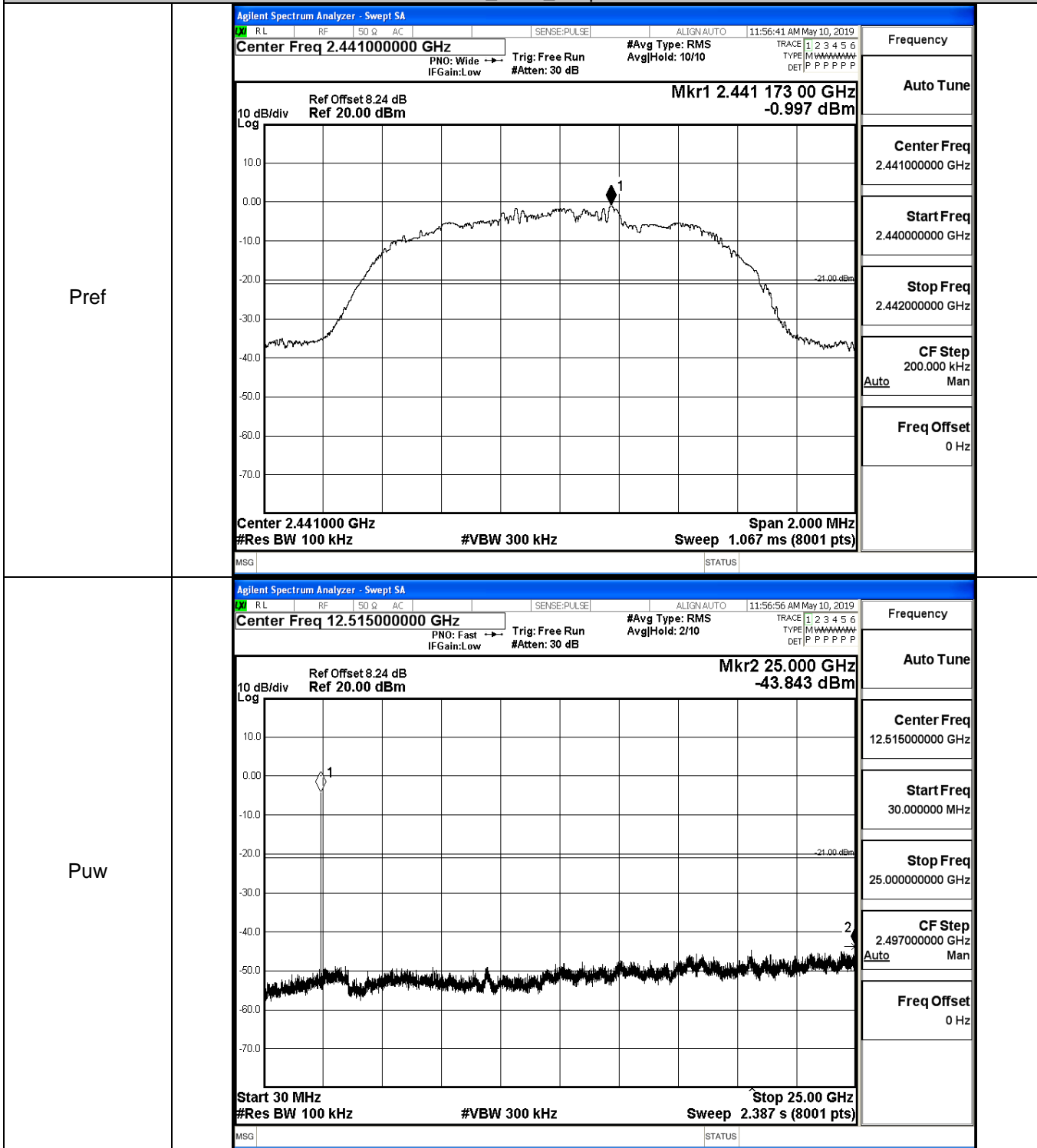
$\pi/4$ DQPSK\_HCH\_Graphs



8DPSK\_LCH\_Graphs

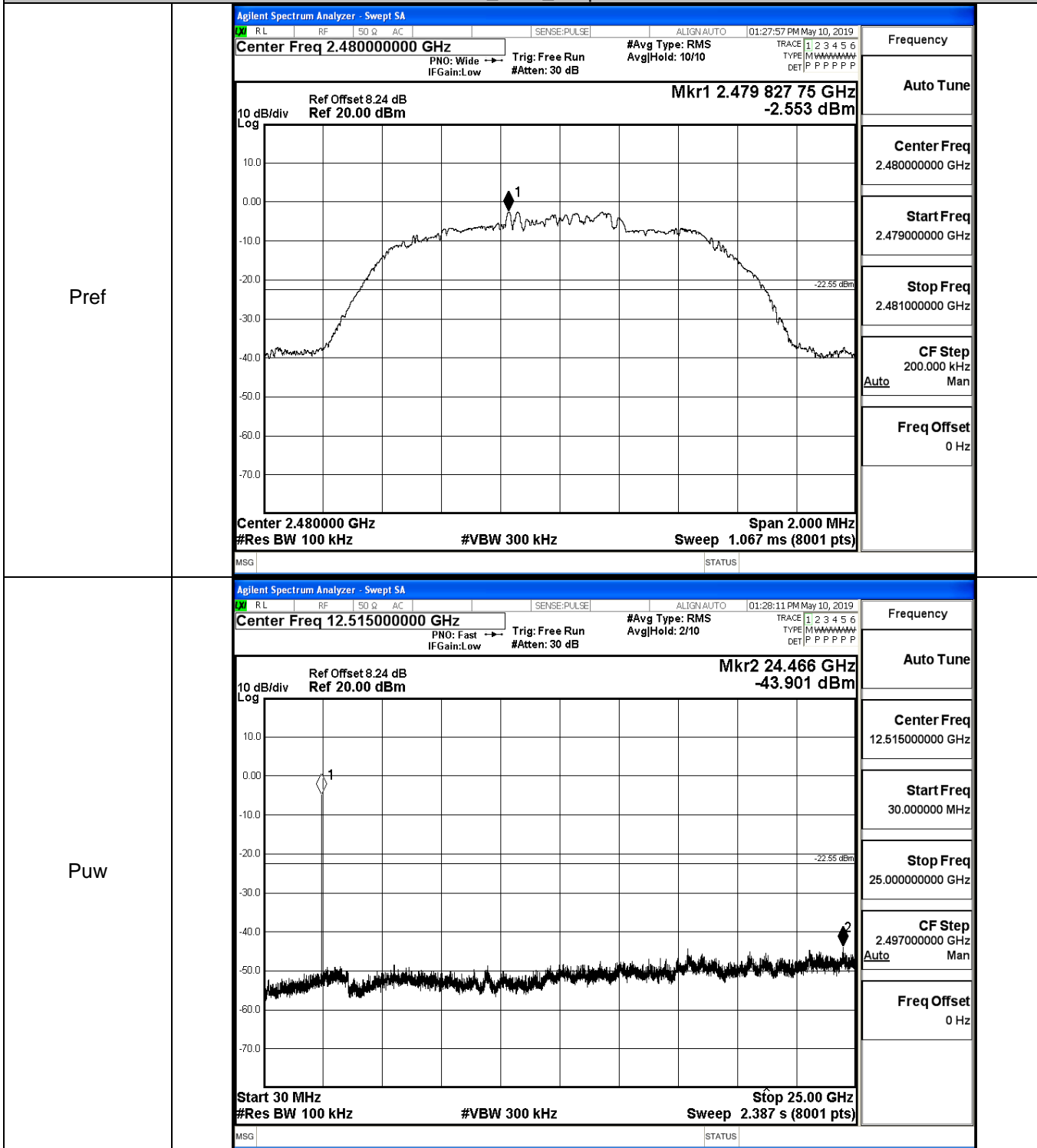


8DPSK\_MCH\_Graphs





8DPSK\_HCH\_Graphs

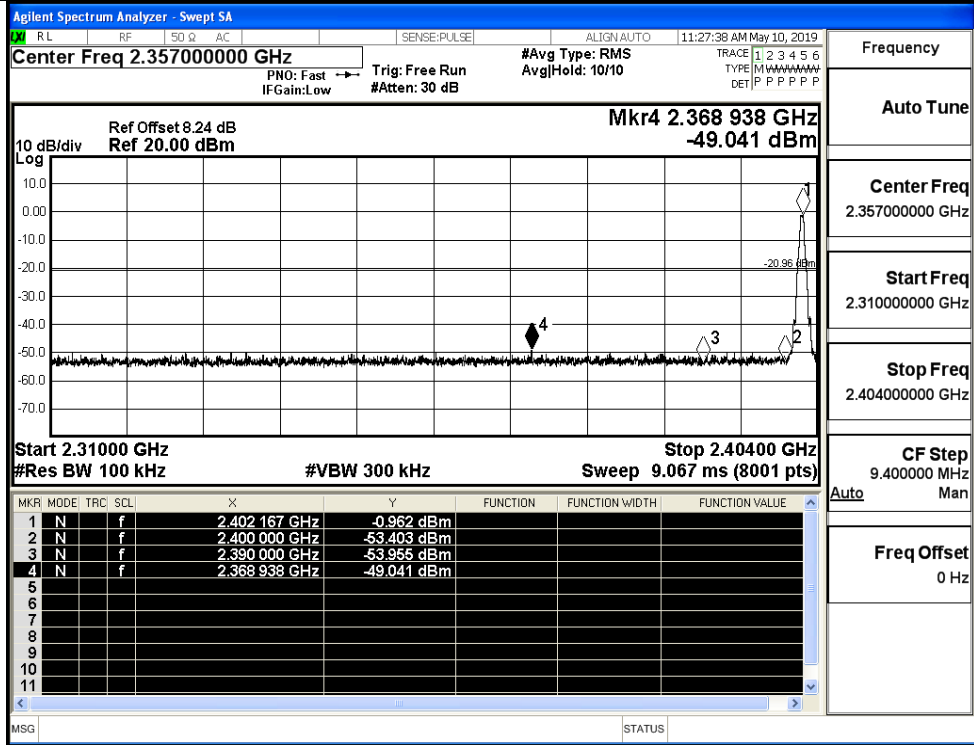


## A.7 Band-edge for RF Conducted Emissions

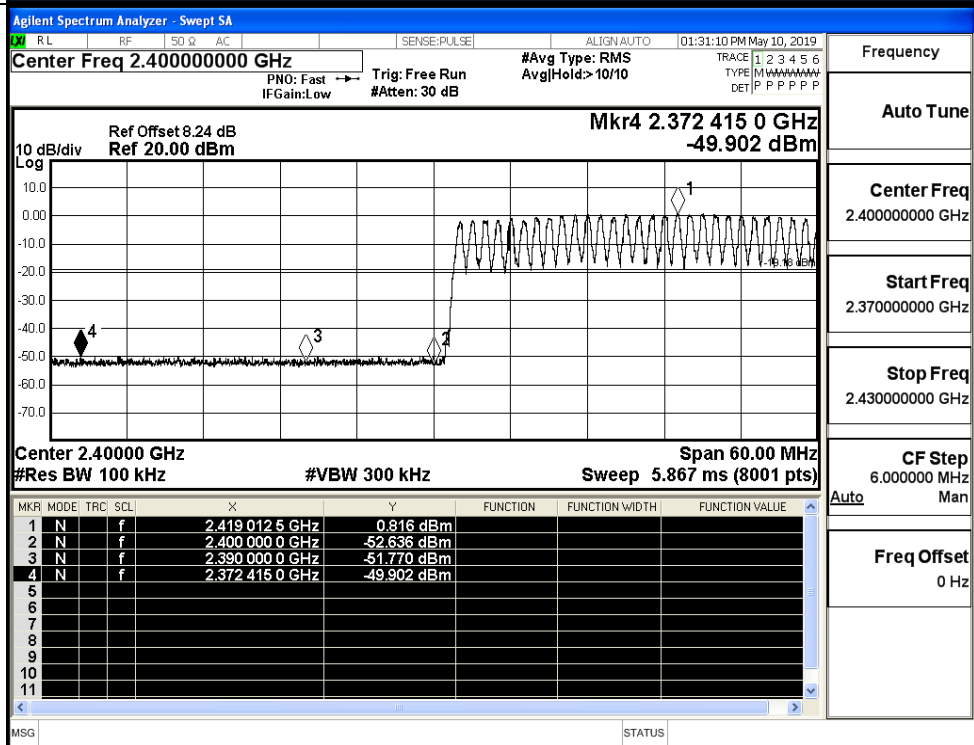
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.962	Off	-49.041	-20.96	PASS
			0.816	On	-49.902	-19.18	PASS
	HCH	2480	-0.915	Off	-48.773	-20.92	PASS
			1.206	On	-49.231	-18.79	PASS
$\pi/4$ DQPSK	LCH	2402	-3.944	Off	-49.754	-23.94	PASS
			-0.530	On	-49.305	-20.53	PASS
	HCH	2480	-2.014	Off	-50.060	-22.01	PASS
			-0.435	On	-48.824	-20.44	PASS
8DPSK	LCH	2402	-2.140	Off	-49.775	-22.14	PASS
			-0.632	On	-49.567	-20.63	PASS
	HCH	2480	-2.189	Off	-48.478	-22.19	PASS
			-0.179	On	-48.968	-20.18	PASS

Test Graphs

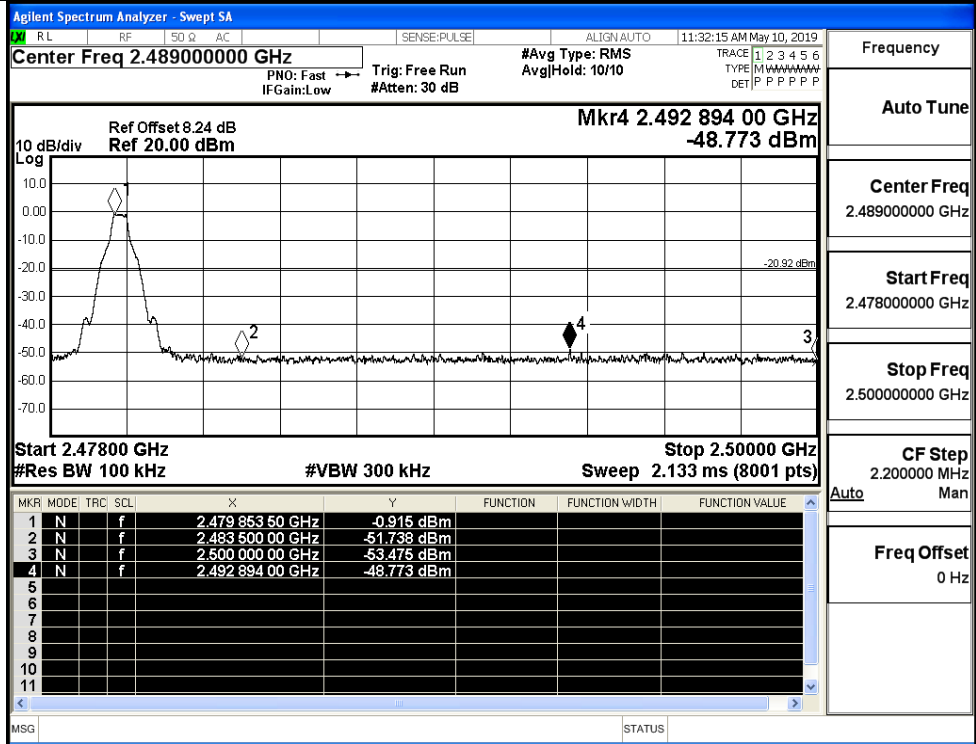
GFSK/LCH/No Hop



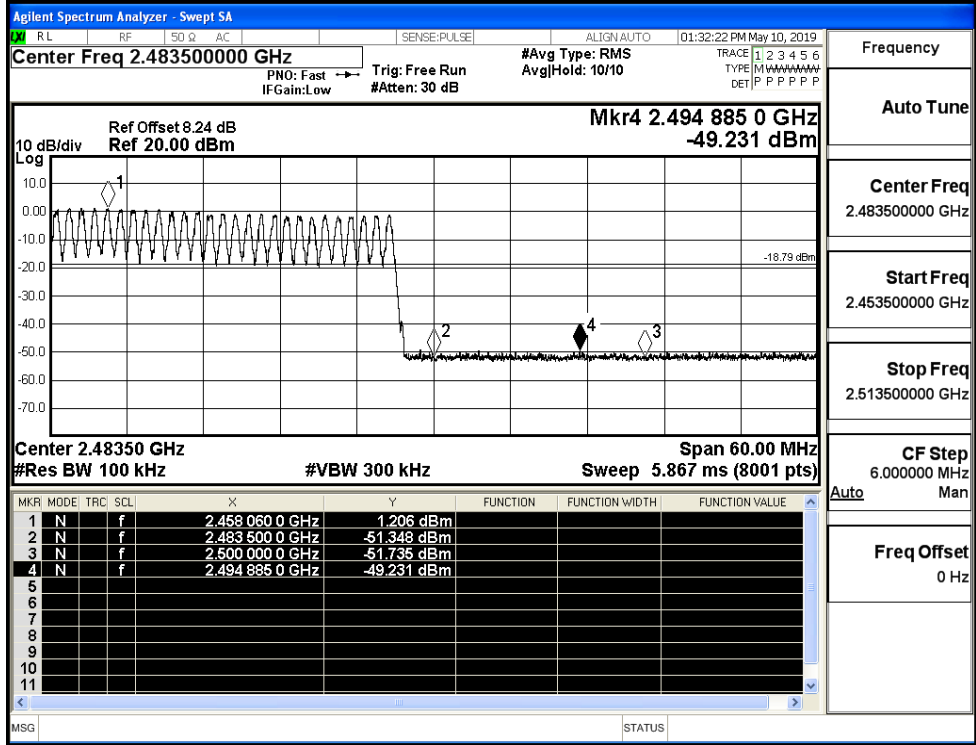
GFSK/LCH/Hop



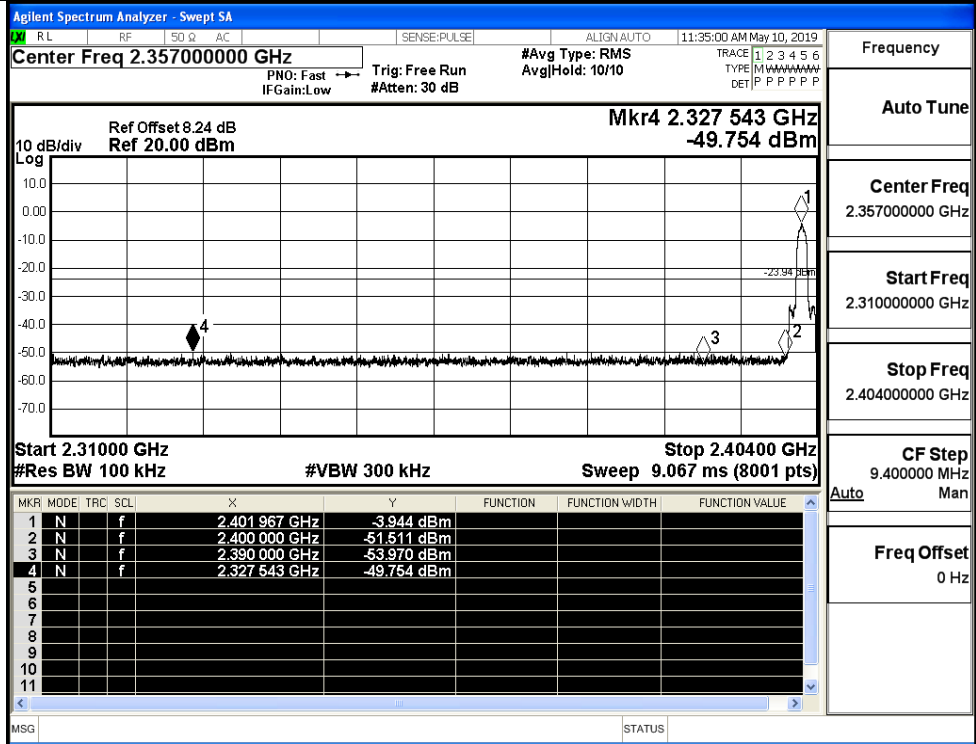
GFSK/HCH/No Hop



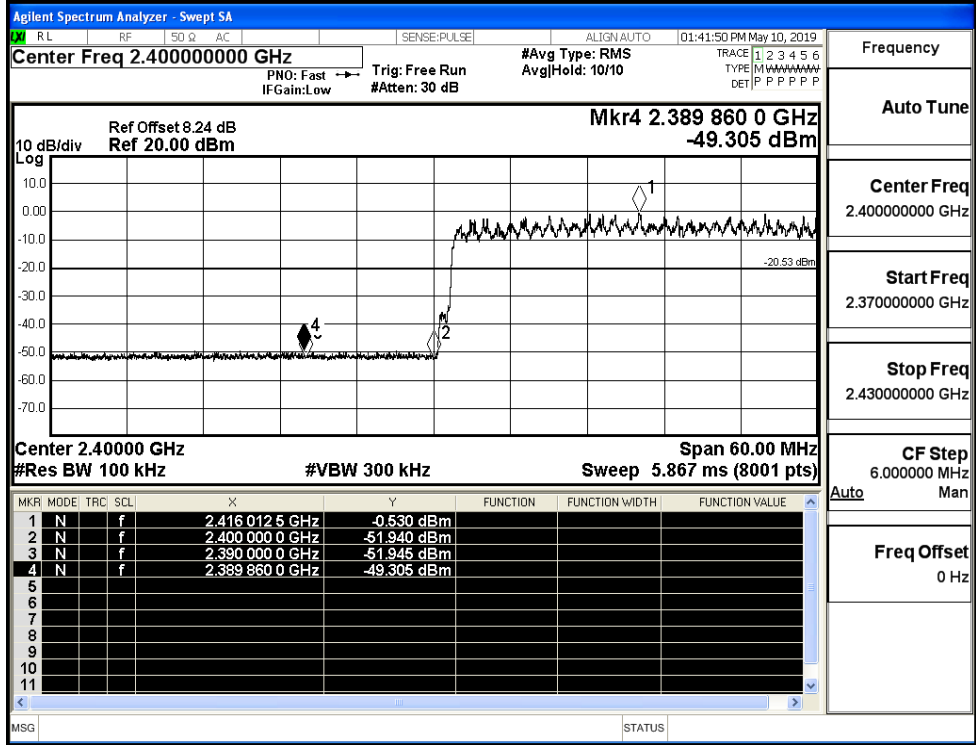
GFSK/HCH/Hop



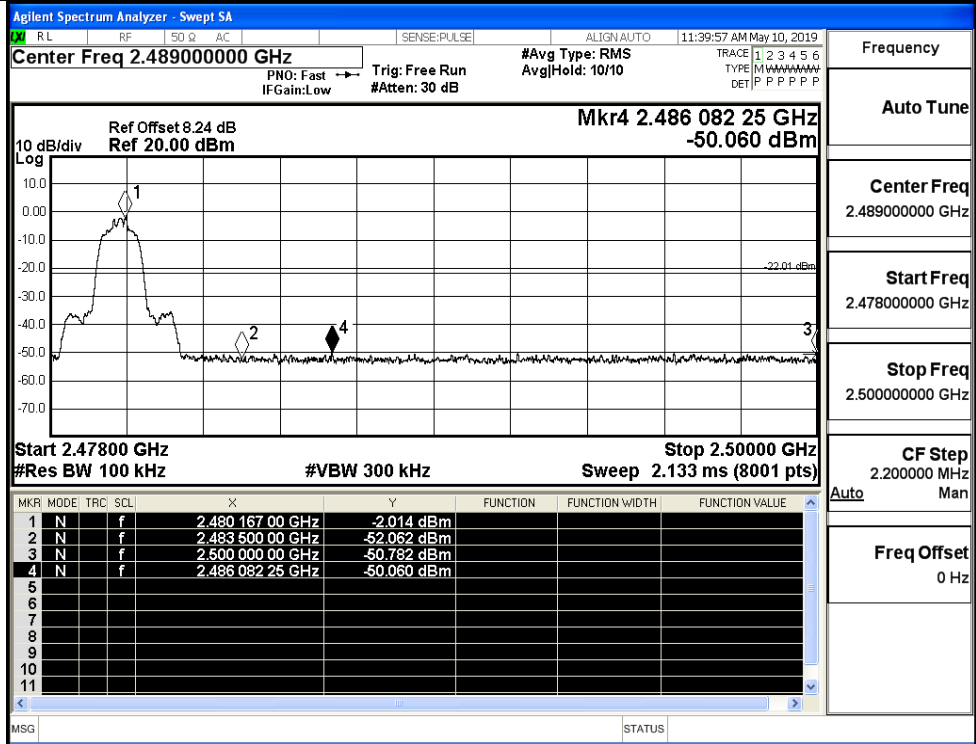
$\pi/4$ DQPSK/LCH/No  
Hop



$\pi/4$ DQPSK/LCH/Hop

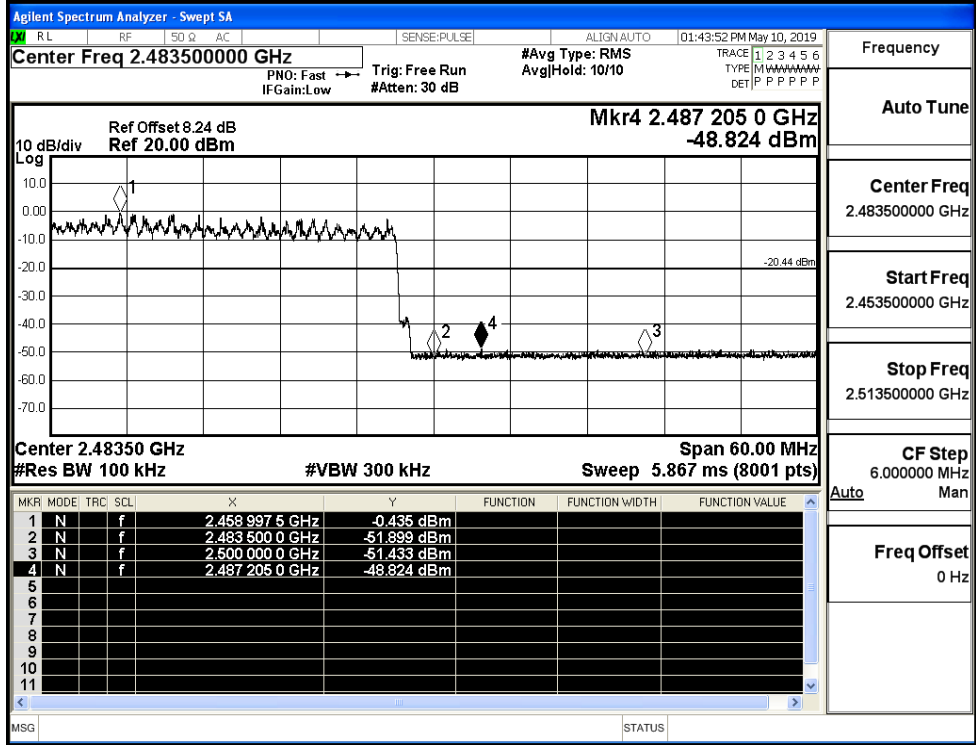


$\pi/4$ DQPSK/HCH/No  
Hop



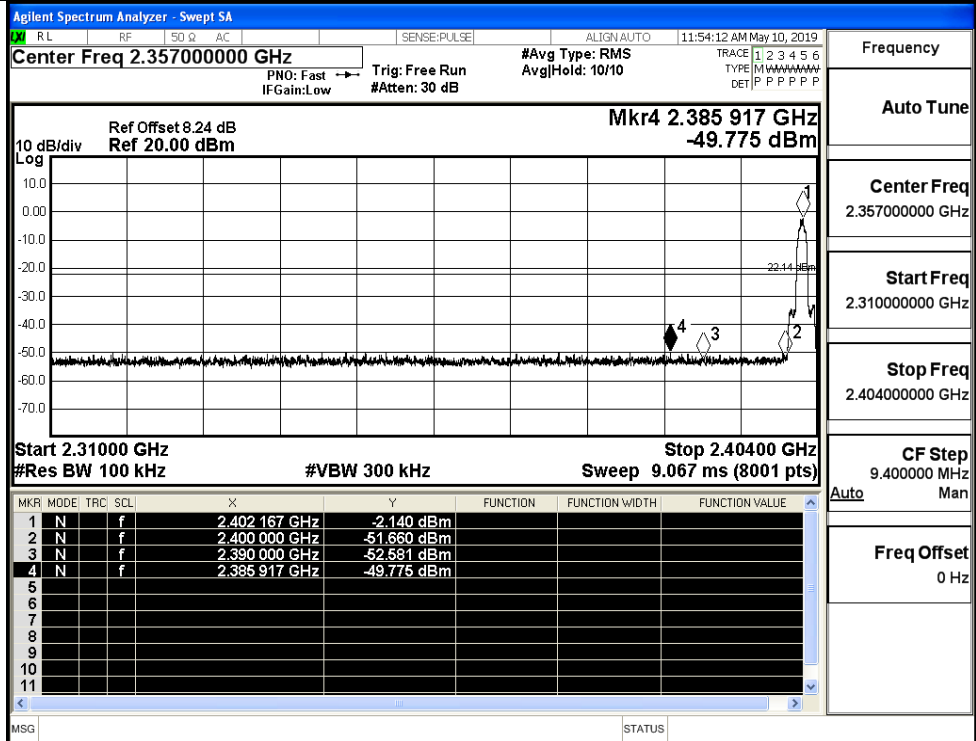
Frequency
Auto Tune
Center Freq 2.489000000 GHz
Start Freq 2.478000000 GHz
Stop Freq 2.500000000 GHz
CF Step 2.200000 MHz
Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK/HCH/Hop



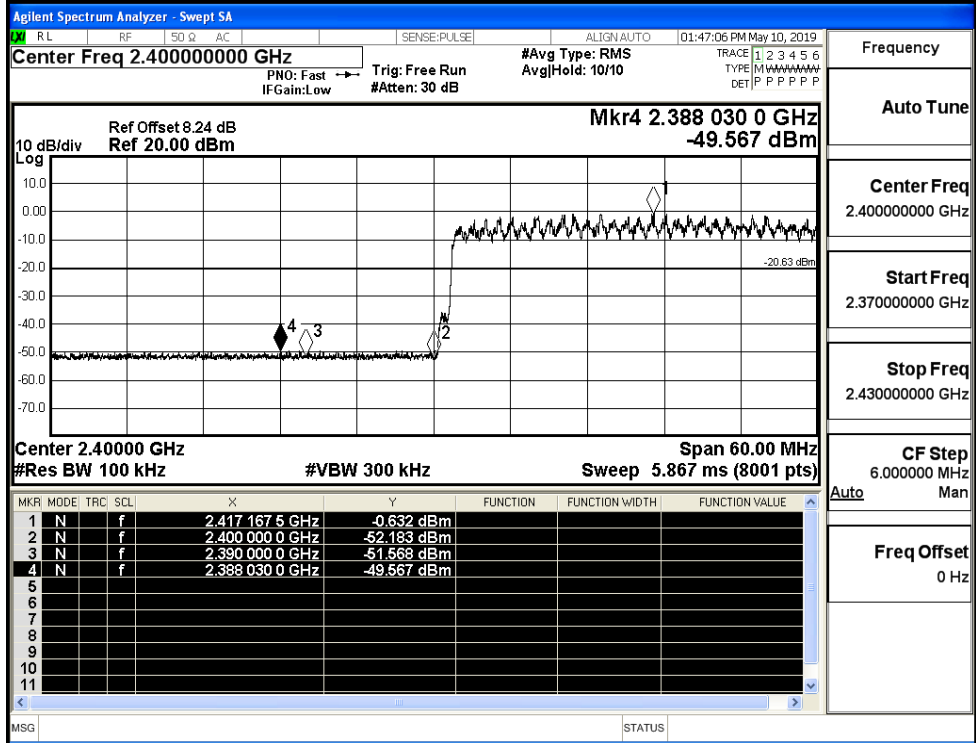
Frequency
Auto Tune
Center Freq 2.483500000 GHz
Start Freq 2.453500000 GHz
Stop Freq 2.513500000 GHz
CF Step 6.000000 MHz
Auto Man
Freq Offset 0 Hz

8DPSK/LCH/No Hop



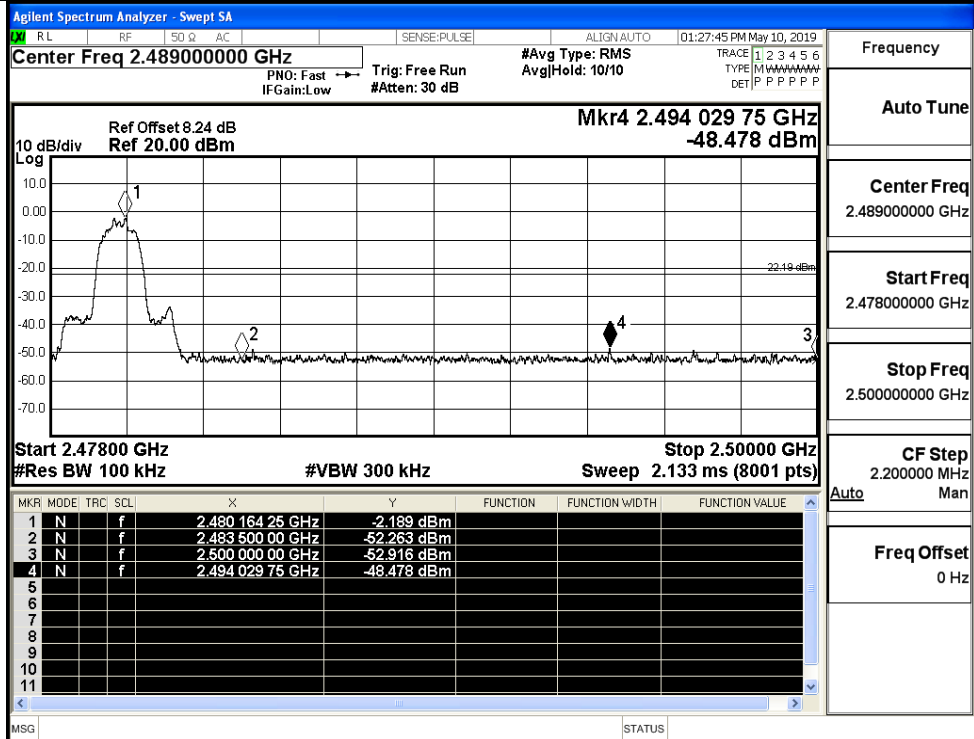
Frequency  
Auto Tune  
Center Freq  
2.357000000 GHz  
Start Freq  
2.310000000 GHz  
Stop Freq  
2.404000000 GHz  
CF Step  
9.400000 MHz  
Auto Man  
Freq Offset  
0 Hz

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

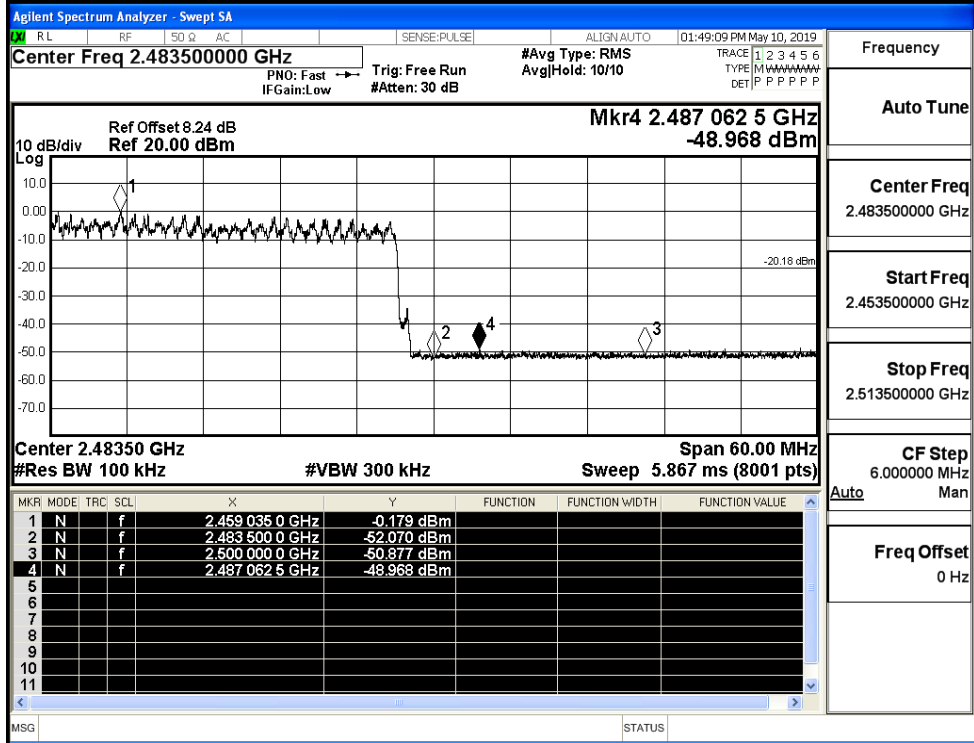
Start Freq  
2.478000000 GHz

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

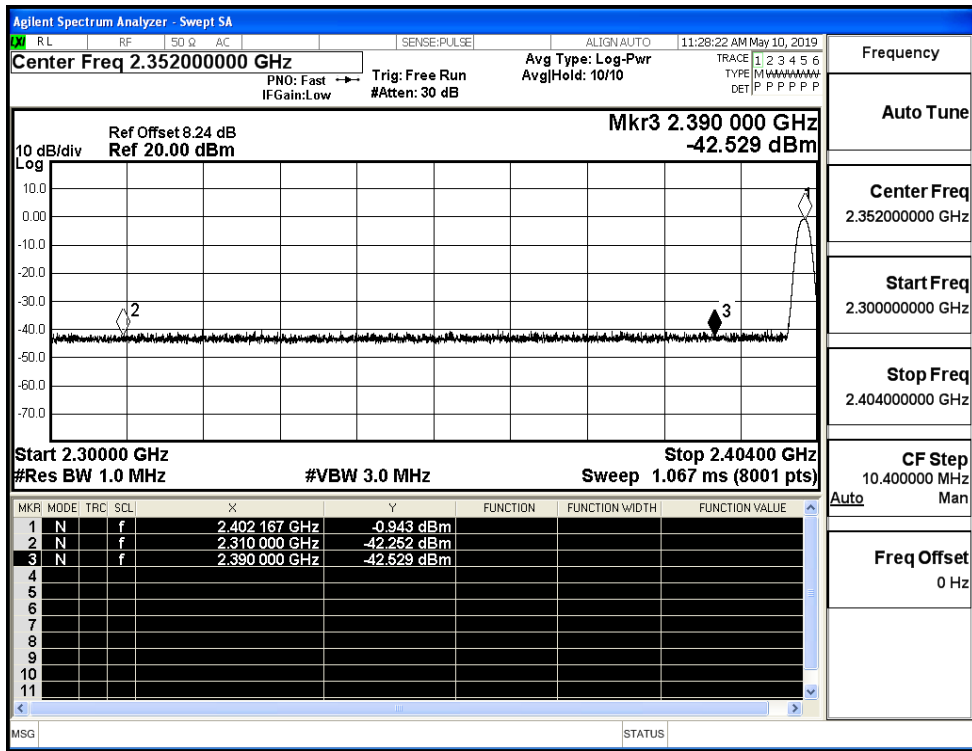
Freq Offset  
0 Hz



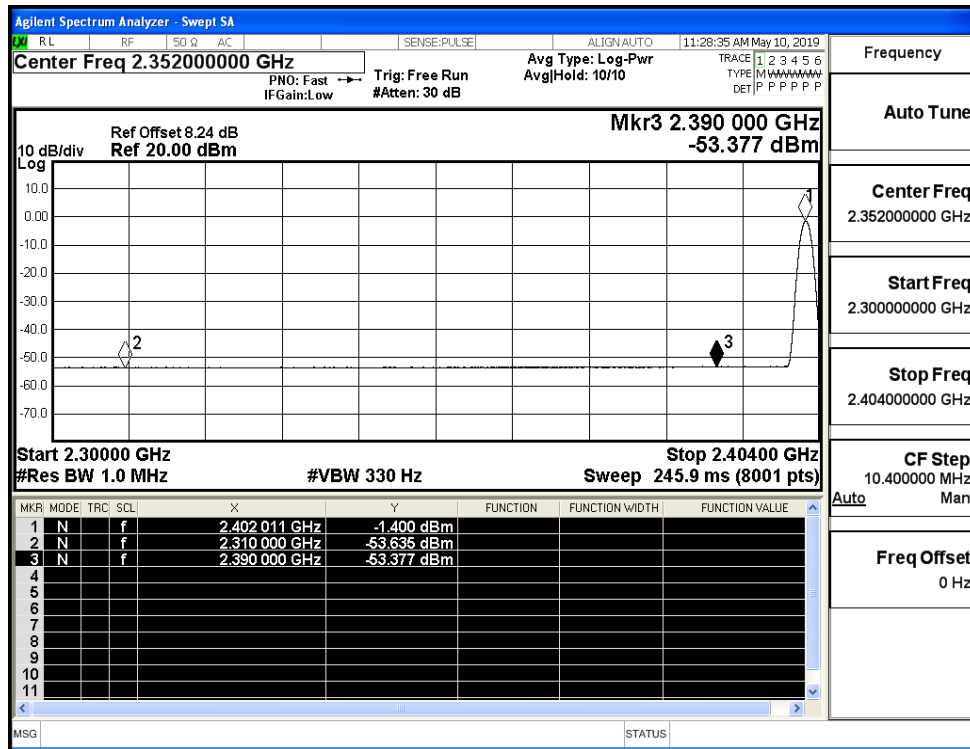
## A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.25	3.0	0	56.01	PEAK	74	PASS
	Off	2310.0	-53.64	3.0	0	44.62	AV	54	PASS
	Off	2390.0	-42.53	3.0	0	55.73	PEAK	74	PASS
	Off	2390.0	-53.38	3.0	0	44.88	AV	54	PASS
	Off	2483.5	-43.16	3.0	0	55.1	PEAK	74	PASS
	Off	2483.5	-53.07	3.0	0	45.19	AV	54	PASS
	Off	2500.0	-43.50	3.0	0	54.76	PEAK	74	PASS
	Off	2500.0	-52.97	3.0	0	45.29	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.37	3.0	0	54.89	PEAK	74	PASS
	Off	2310.0	-53.48	3.0	0	44.78	AV	54	PASS
	Off	2390.0	-42.39	3.0	0	55.87	PEAK	74	PASS
	Off	2390.0	-53.31	3.0	0	44.95	AV	54	PASS
	Off	2483.5	-43.44	3.0	0	54.82	PEAK	74	PASS
	Off	2483.5	-53.01	3.0	0	45.25	AV	54	PASS
	Off	2500.0	-43.62	3.0	0	54.64	PEAK	74	PASS
	Off	2500.0	-52.97	3.0	0	45.29	AV	54	PASS
8DPSK	Off	2310.0	-41.35	3.0	0	56.91	PEAK	74	PASS
	Off	2310.0	-53.60	3.0	0	44.66	AV	54	PASS
	Off	2390.0	-43.46	3.0	0	54.8	PEAK	74	PASS
	Off	2390.0	-53.31	3.0	0	44.95	AV	54	PASS
	Off	2483.5	-43.61	3.0	0	54.65	PEAK	74	PASS
	Off	2483.5	-52.93	3.0	0	45.33	AV	54	PASS
	Off	2500.0	-43.46	3.0	0	54.8	PEAK	74	PASS
	Off	2500.0	-52.89	3.0	0	45.37	AV	54	PASS

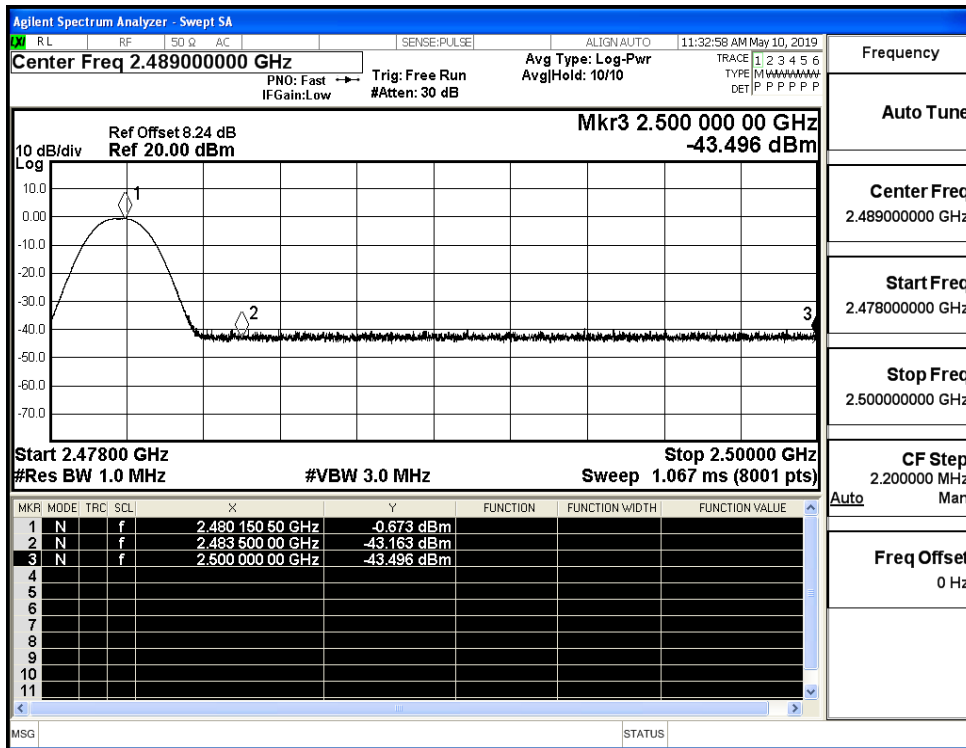
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



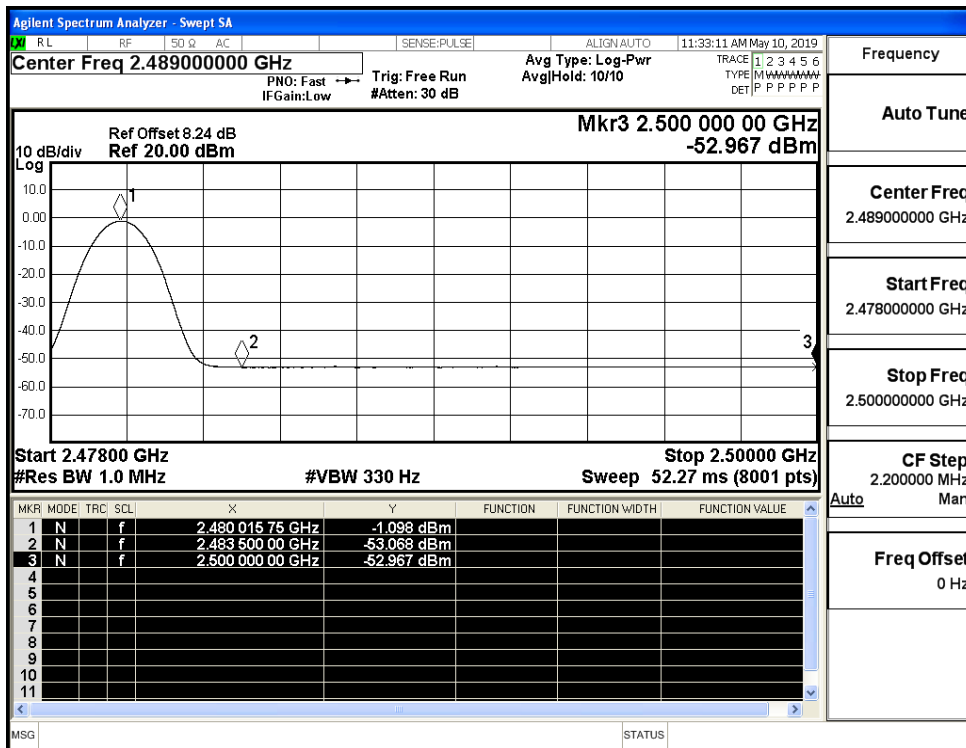
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)



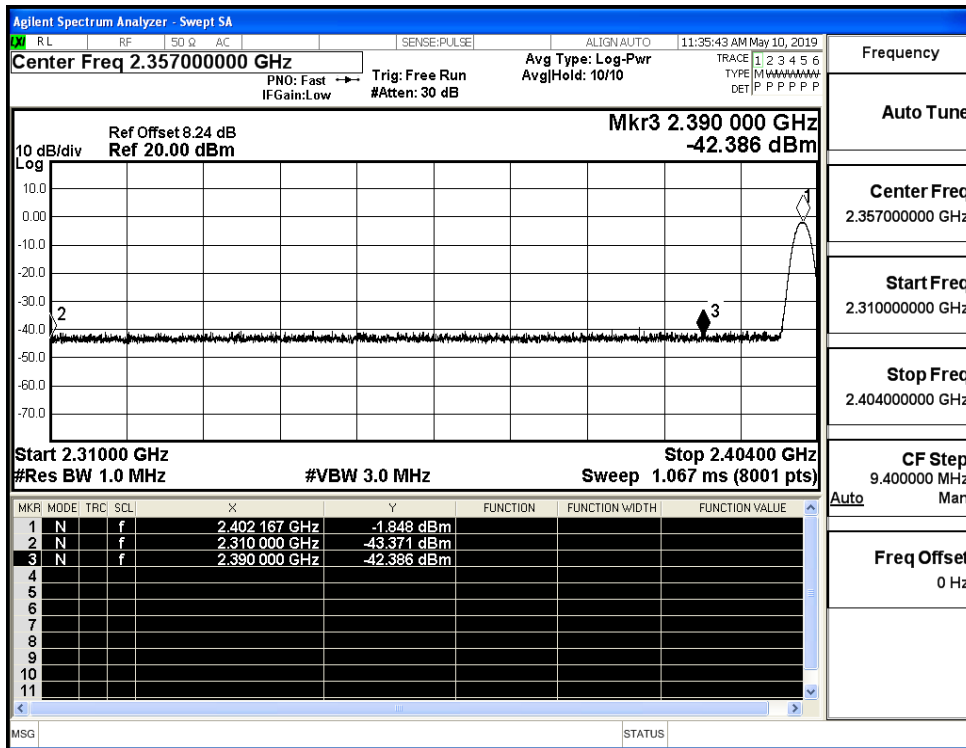
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



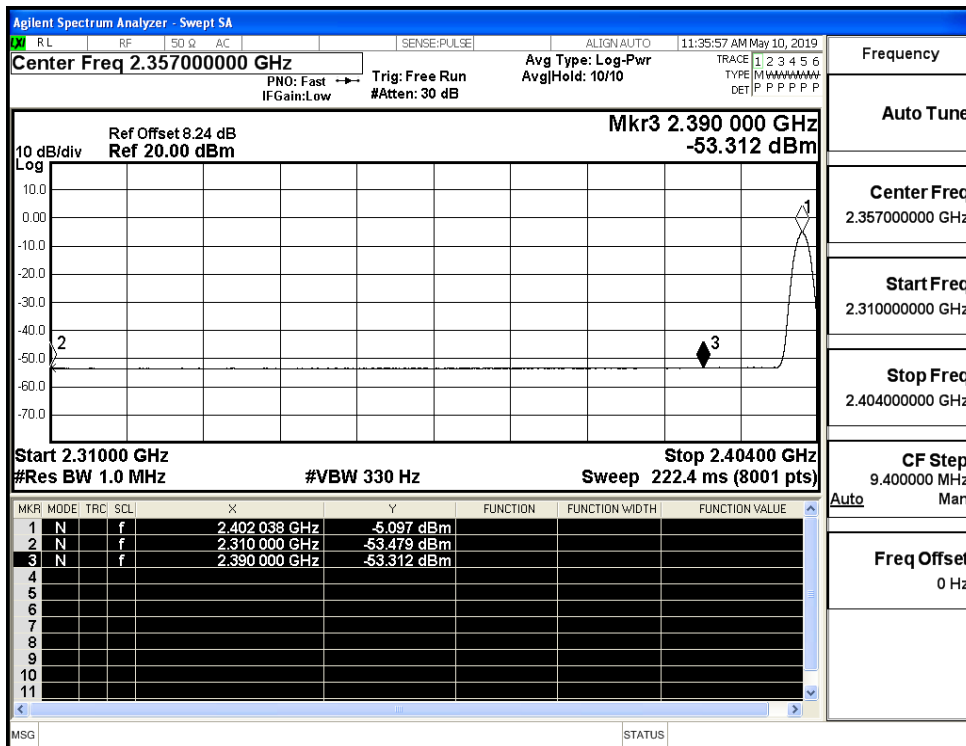
Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



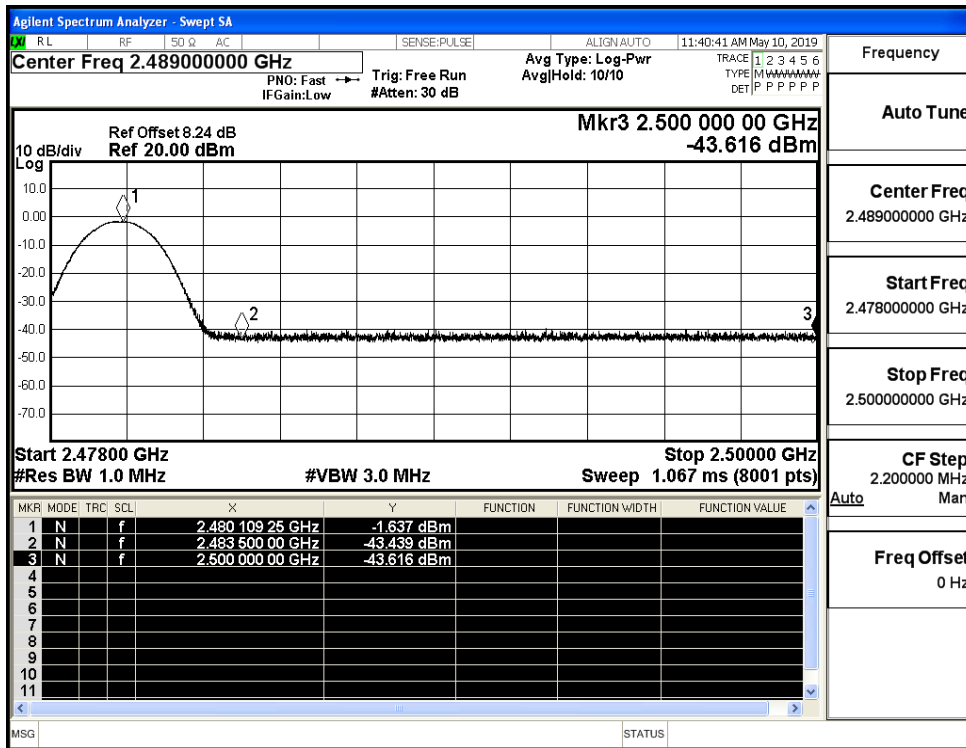
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)



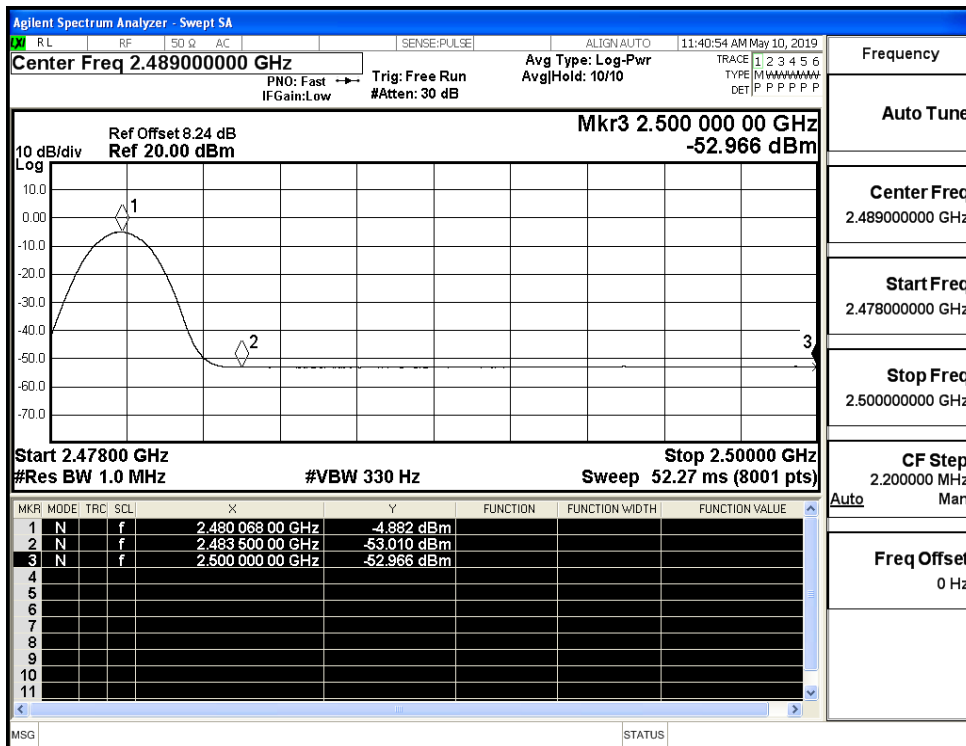
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)



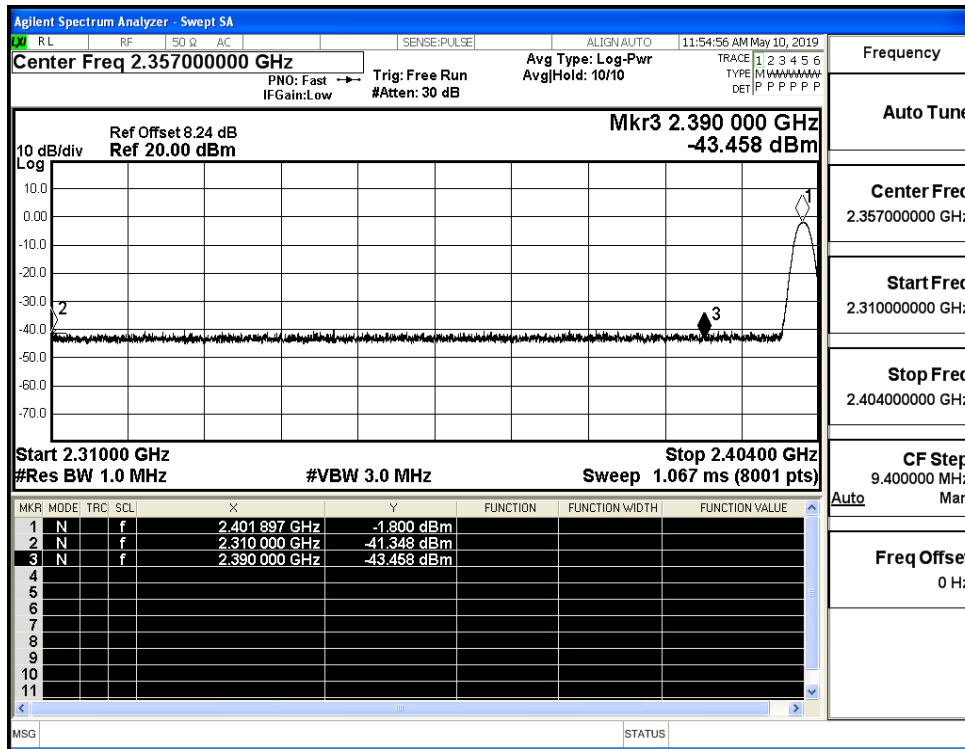
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_PEAK (High Channel)



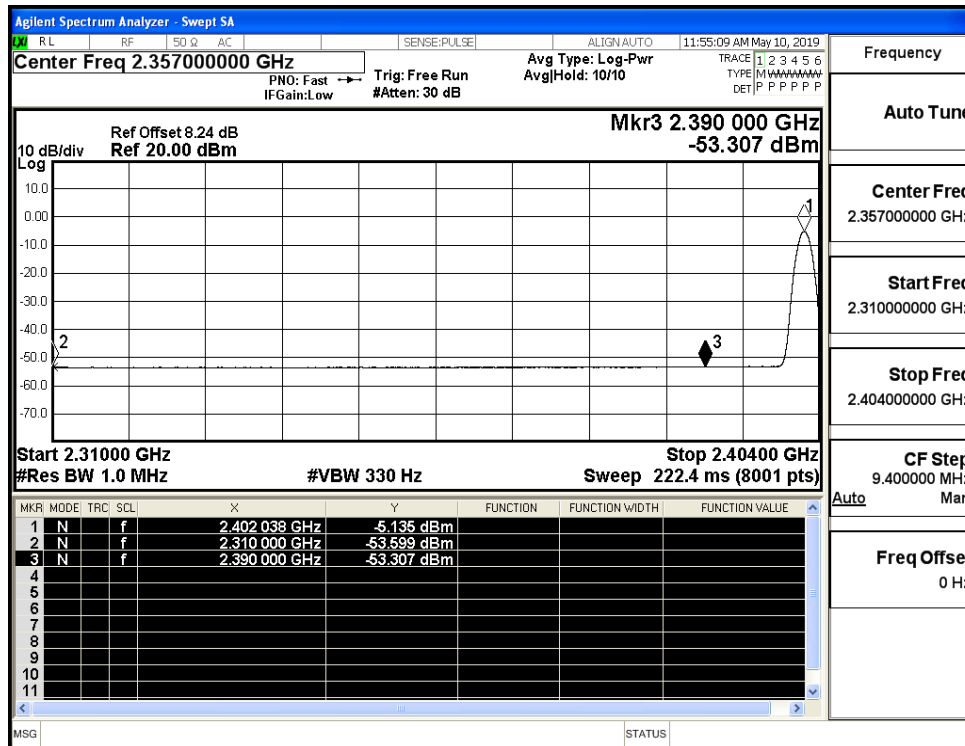
Restrict-band band-edge measurements\_Hopping Off\_π/4-DQPSK\_Average (High Channel)



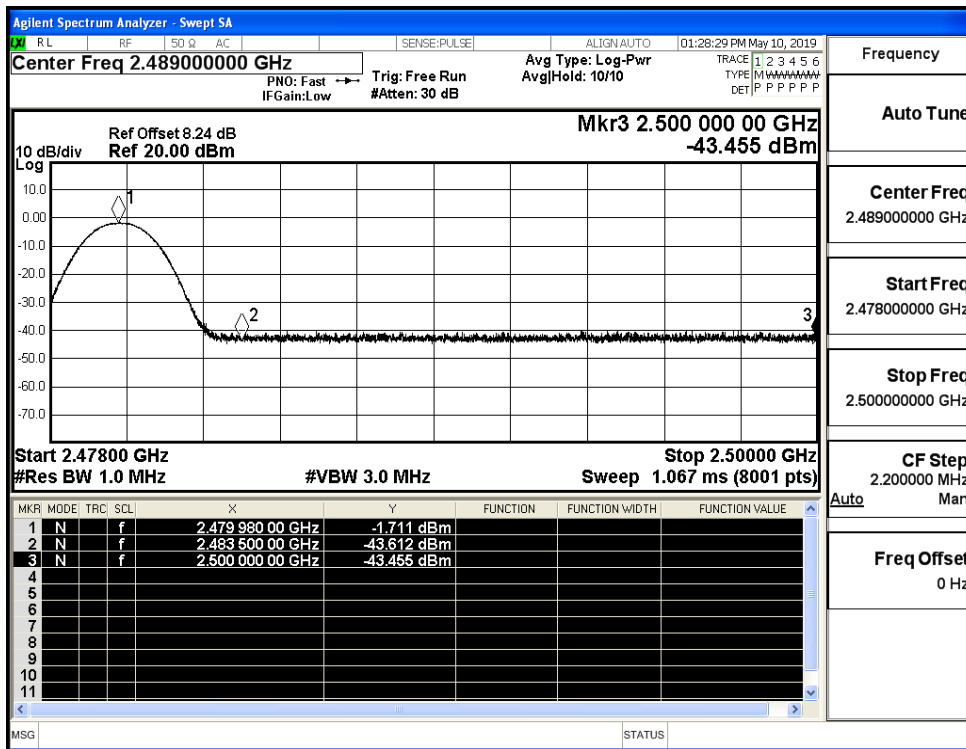
Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



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)

