

Appendix A

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

Product Name: Smart Phone

Trade Mark: HYUNDAI

Test Model: Eternity P7

Environmental Conditions

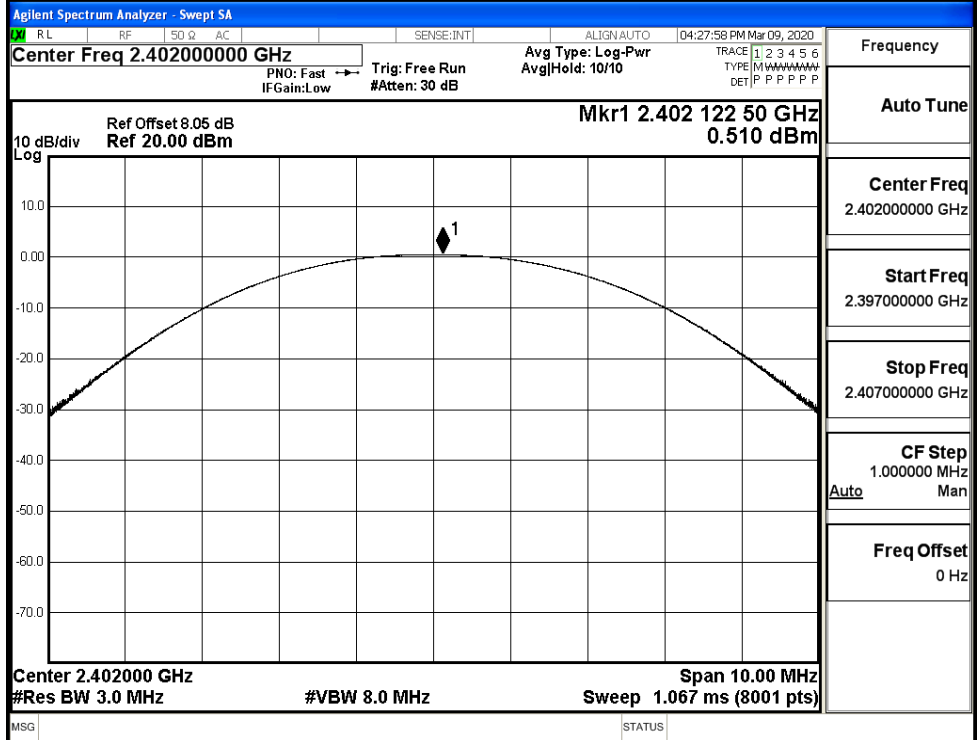
Temperature:	25°C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond.Lu
Supervised by:	Tom.Liu

A.1 Maximum Conducted Peak Output Power

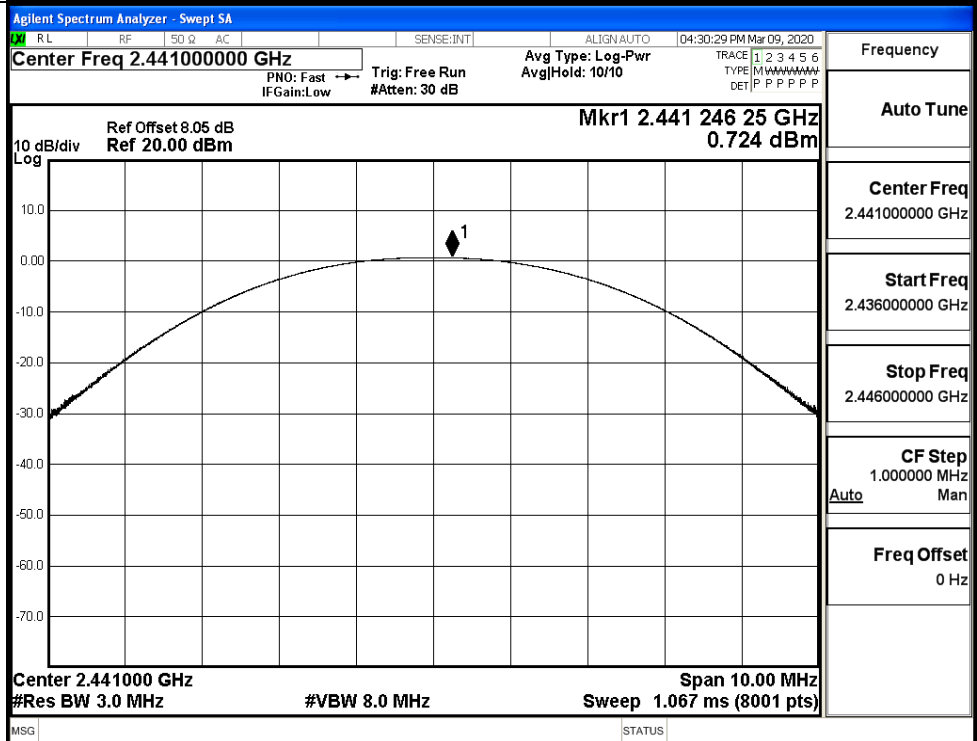
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.510	21	PASS
	MCH	0.724	21	PASS
	HCH	0.163	21	PASS
$\pi/4$ DQPSK	LCH	-0.313	21	PASS
	MCH	-0.072	21	PASS
	HCH	-0.461	21	PASS
8DPSK	LCH	-0.132	21	PASS
	MCH	0.082	21	PASS
	HCH	-0.364	21	PASS

Test Graphs

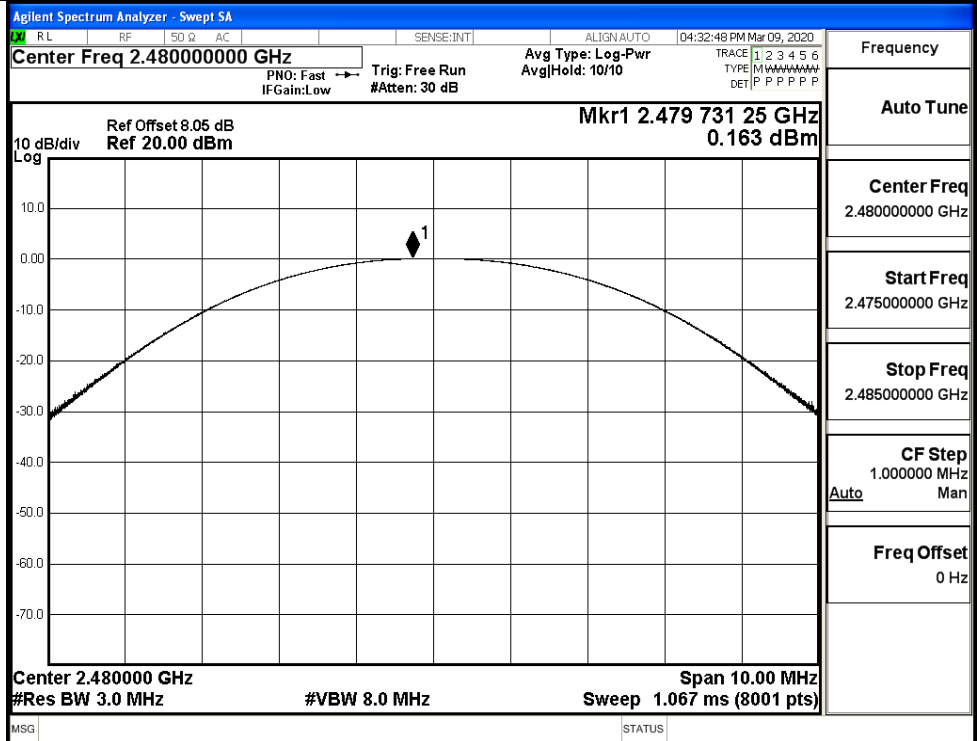
GFSK/LCH



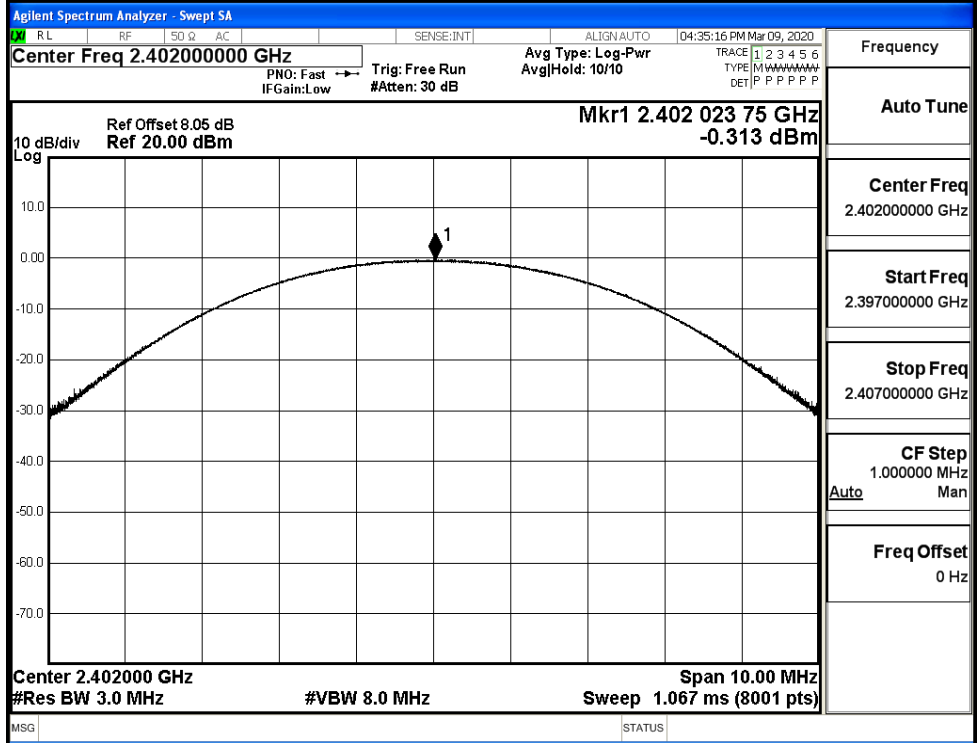
GFSK/MCH

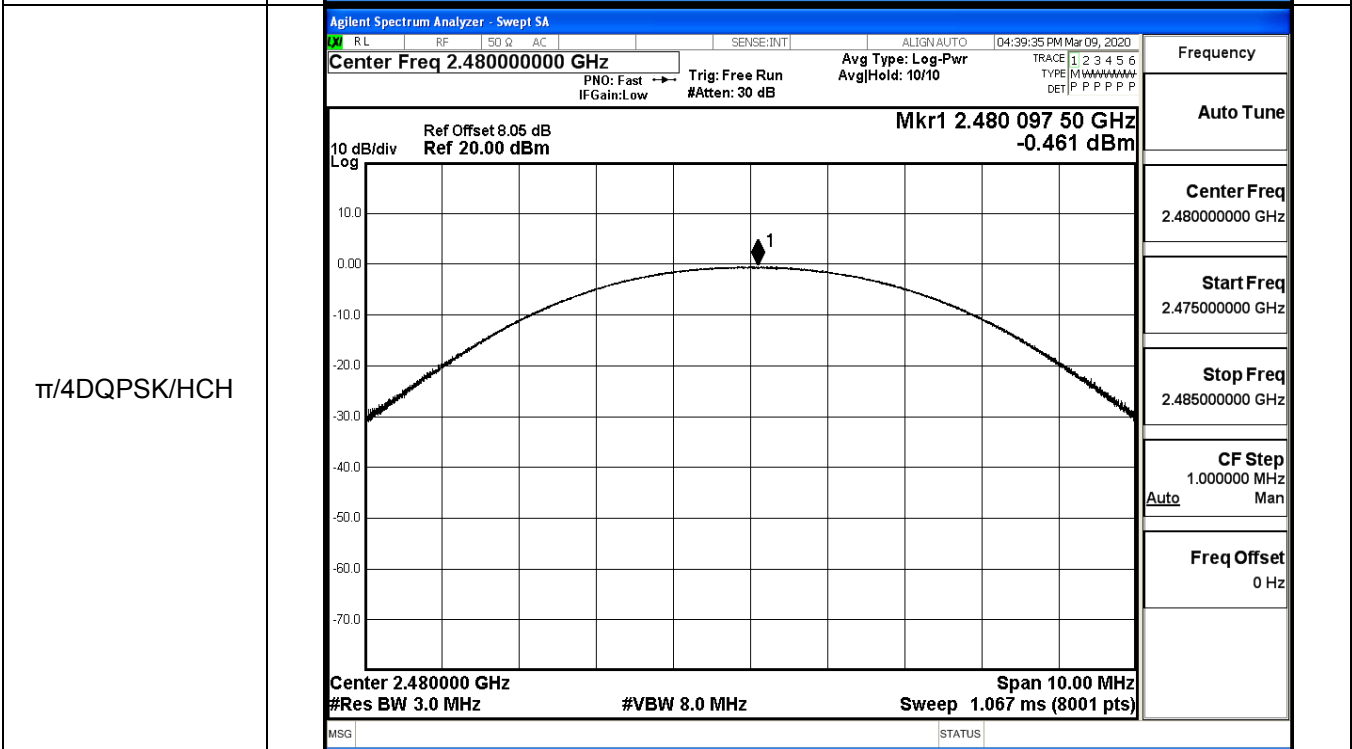
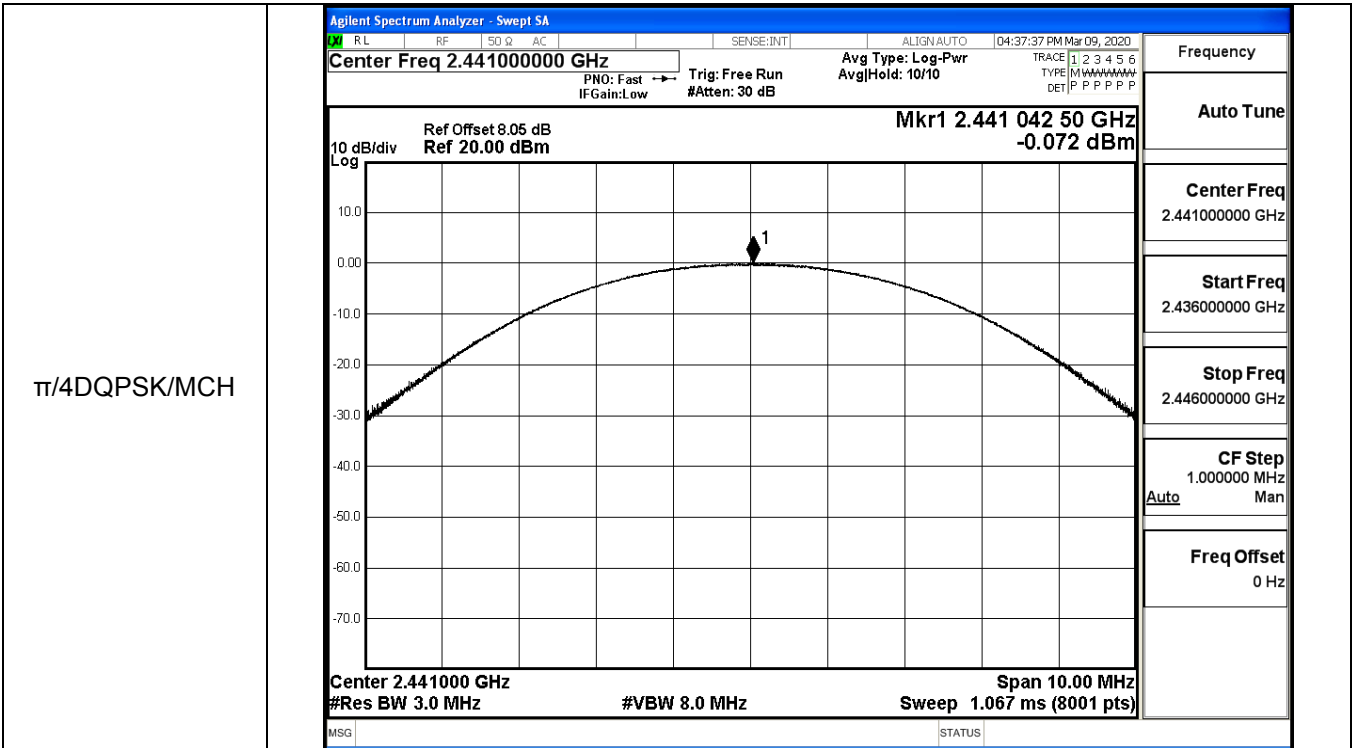


GFSK/HCH

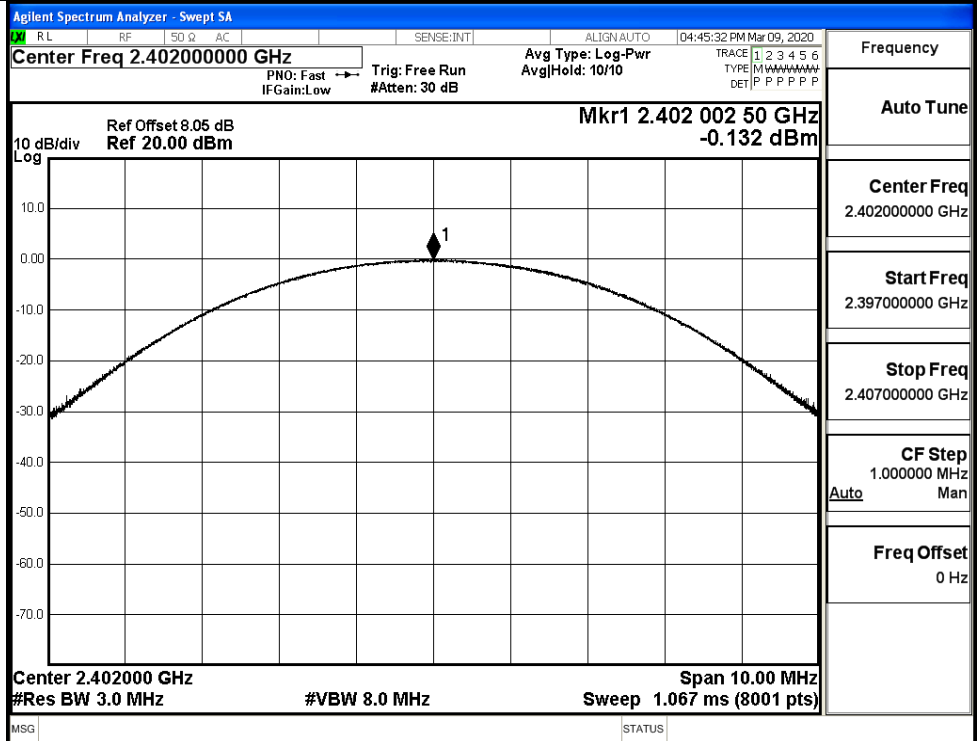


$\pi/4$ DQPSK/LCH

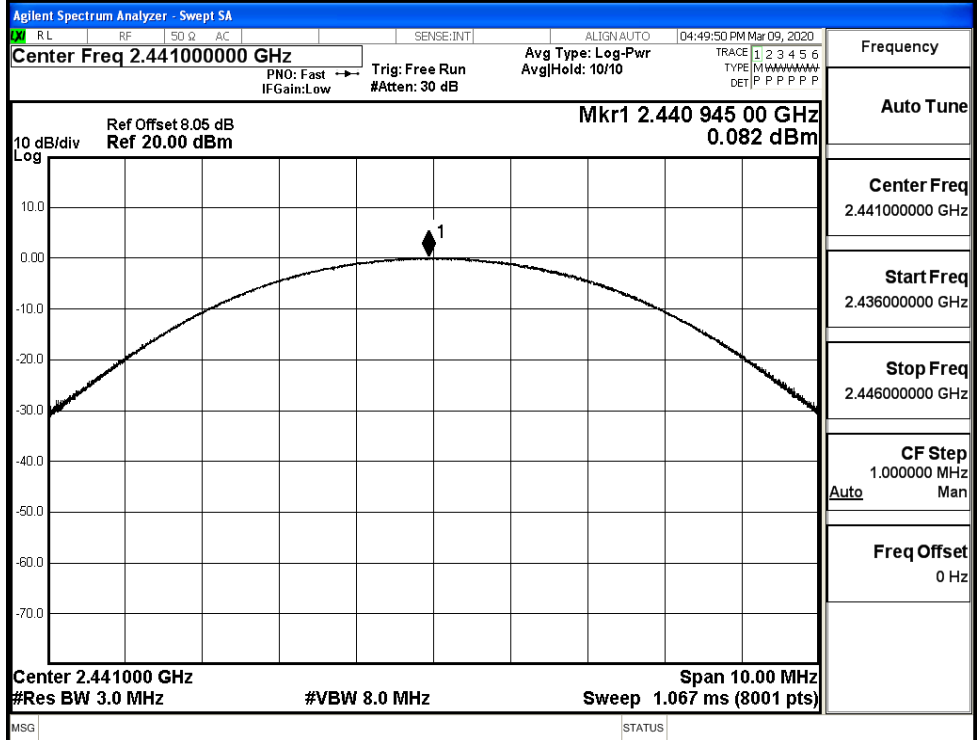




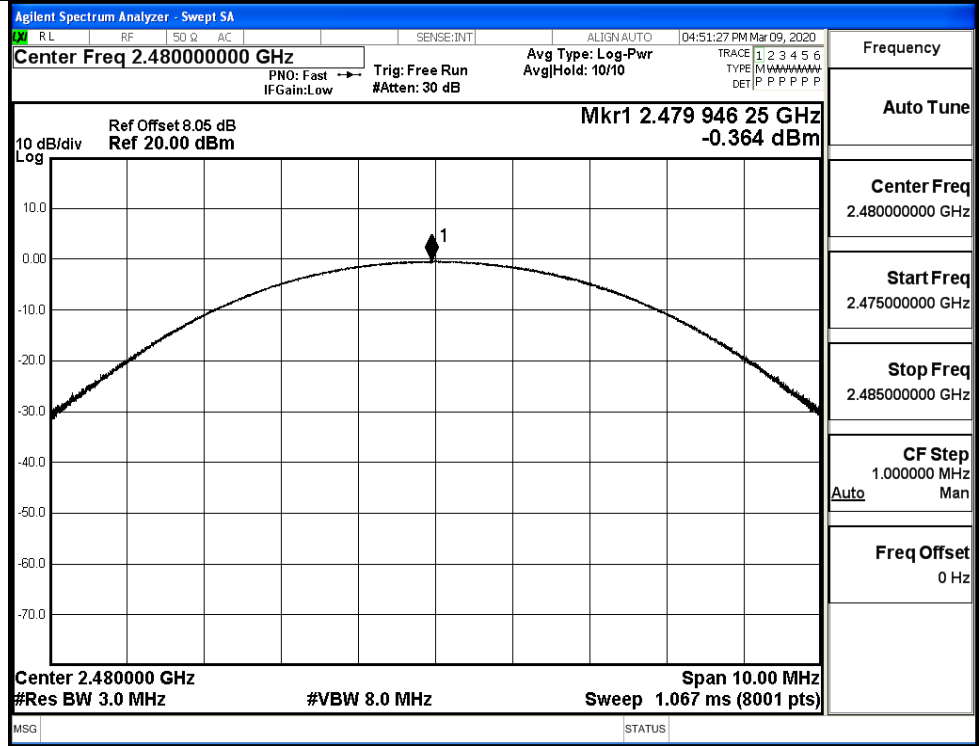
8DPSK/LCH



8DPSK/MCH

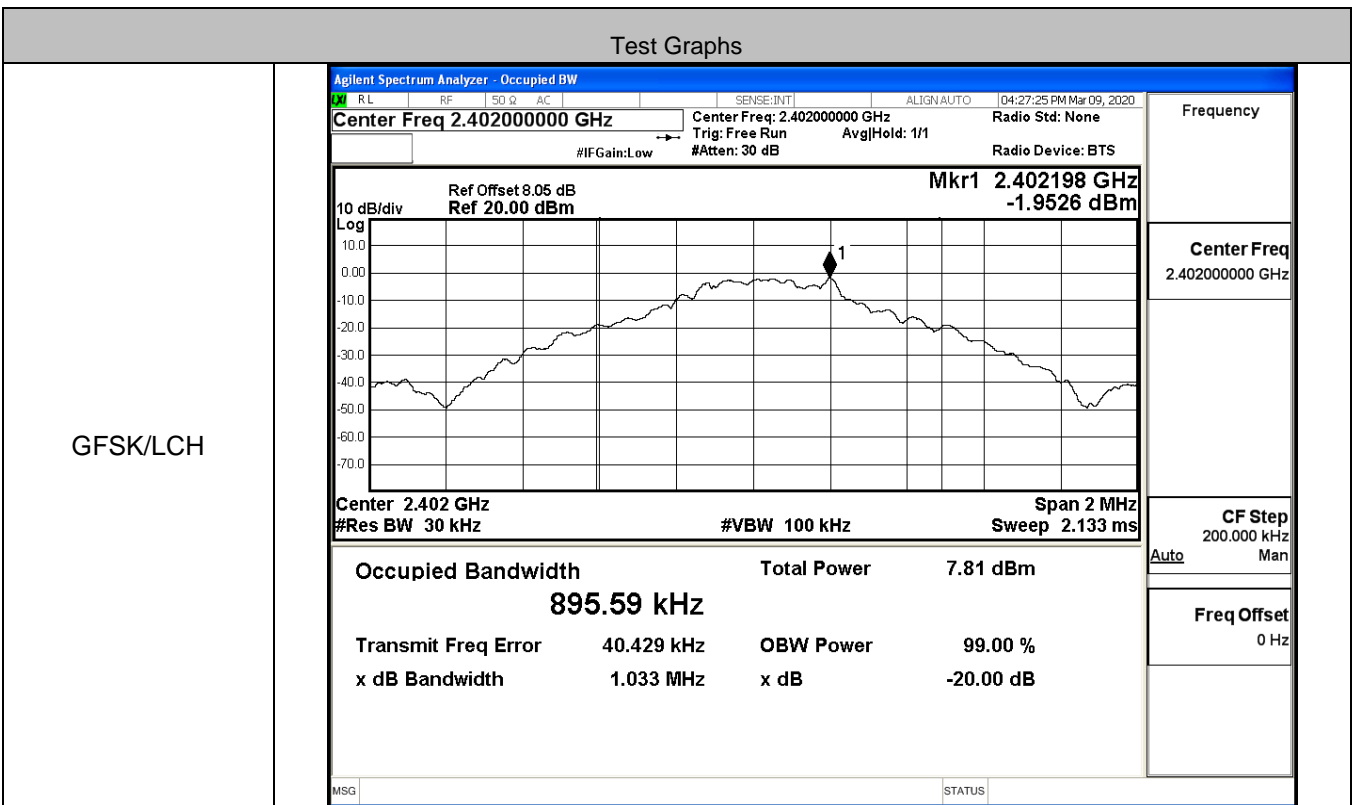


8DPSK/HCH

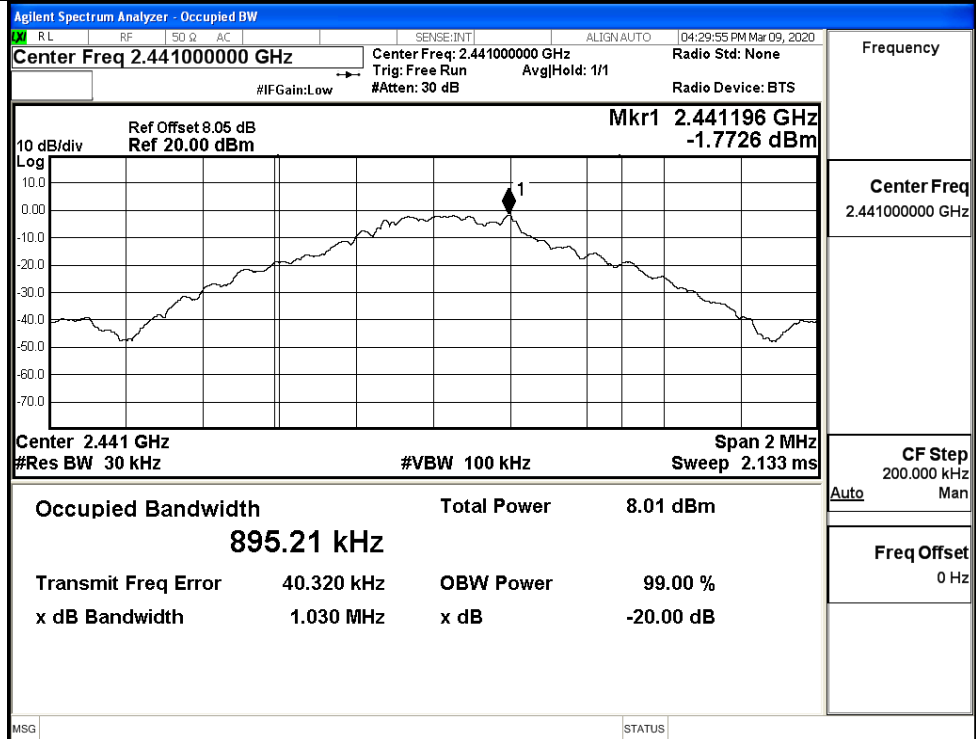


A.2 20dB Bandwidth

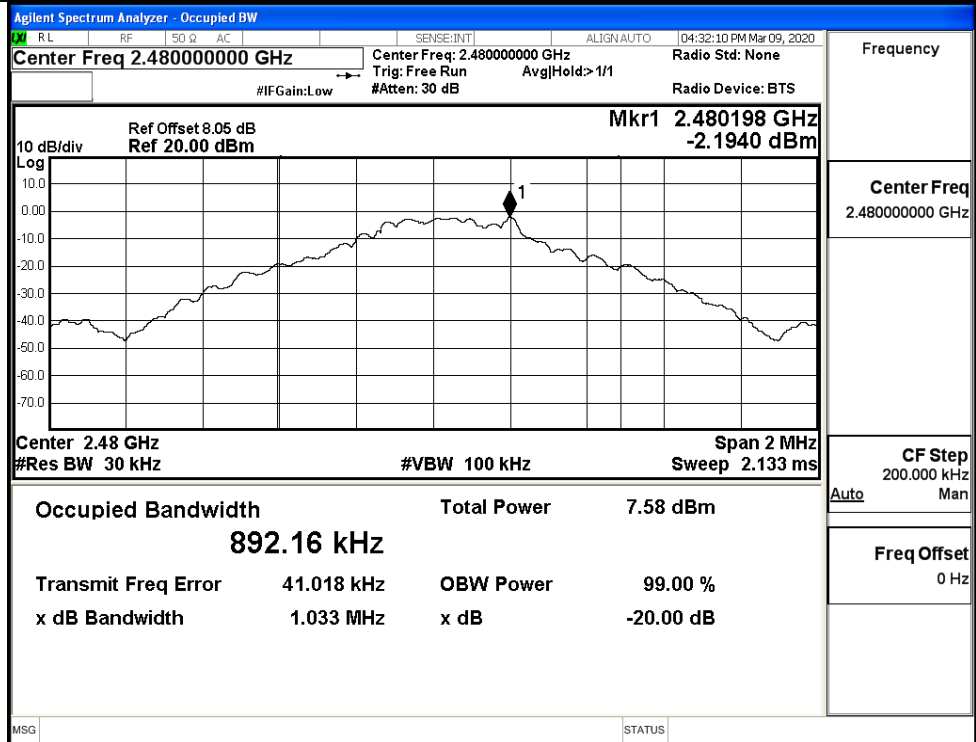
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.033	Not Specified	PASS
	MCH	1.030	Not Specified	PASS
	HCH	1.033	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.287	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.306	Not Specified	PASS
8DPSK	LCH	1.290	Not Specified	PASS
	MCH	1.293	Not Specified	PASS
	HCH	1.301	Not Specified	PASS



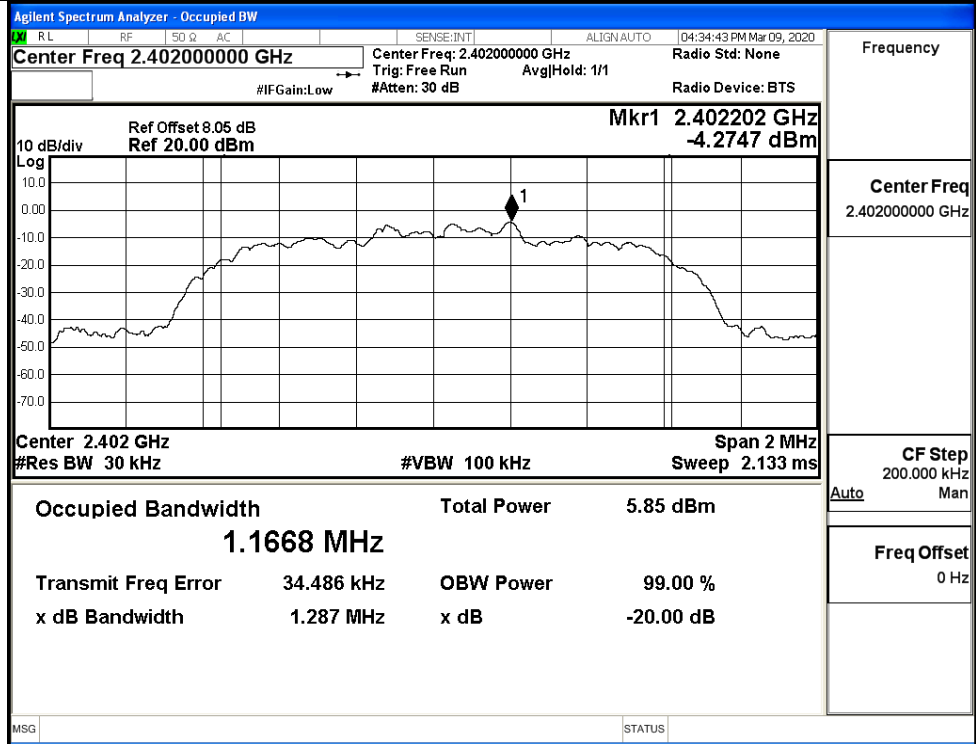
GFSK/MCH



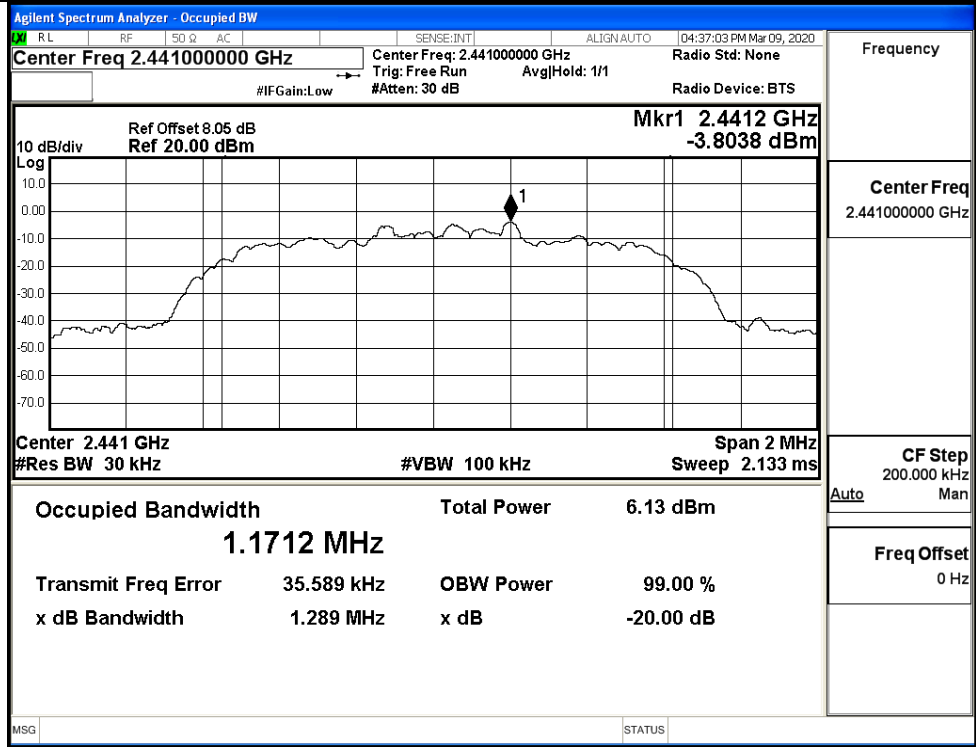
GFSK/HCH



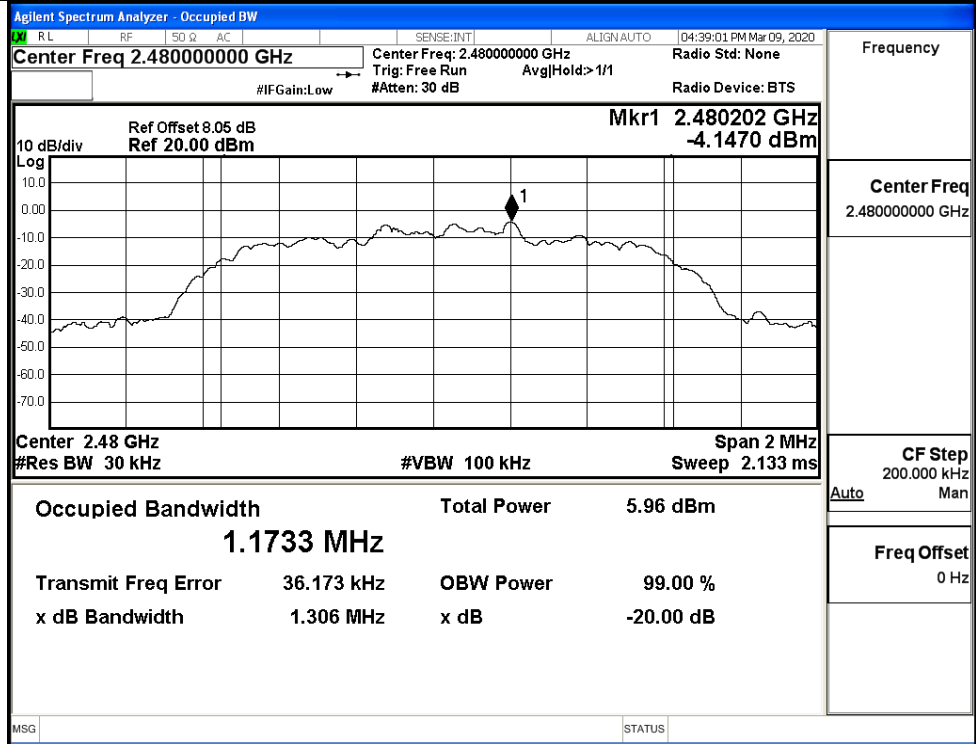
$\pi/4$ DQPSK/LCH



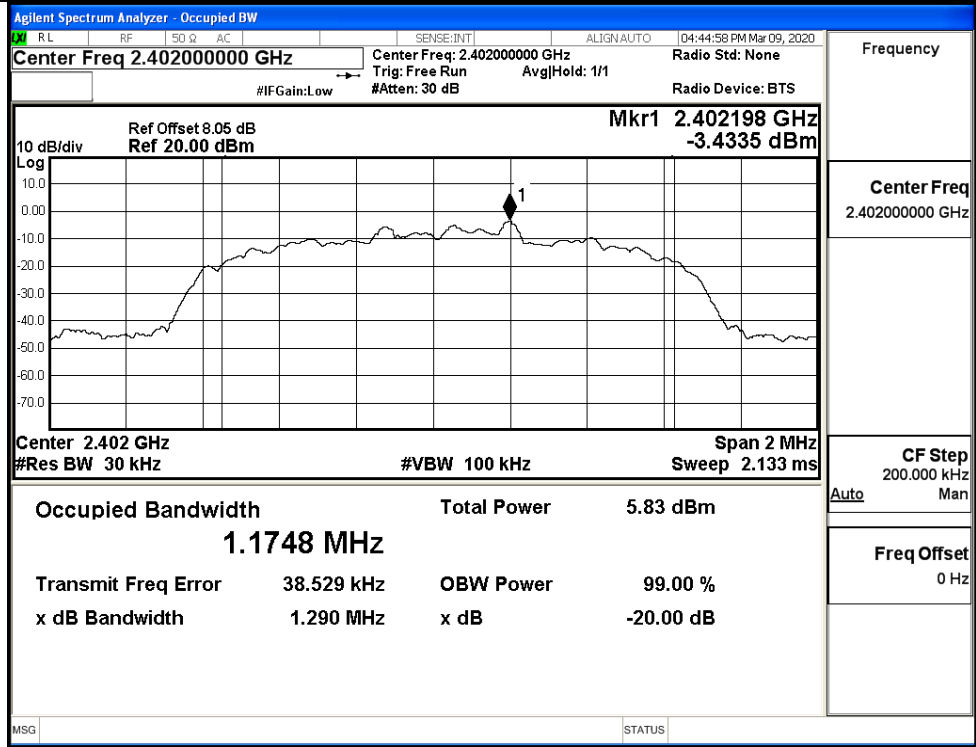
$\pi/4$ DQPSK/MCH



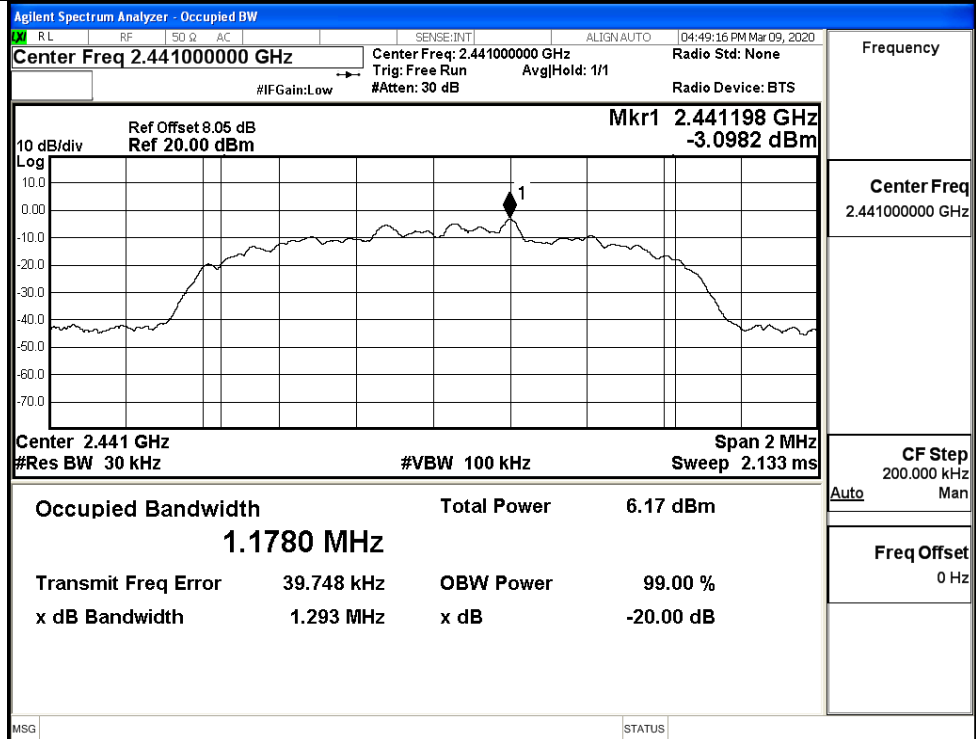
$\pi/4$ DQPSK/HCH



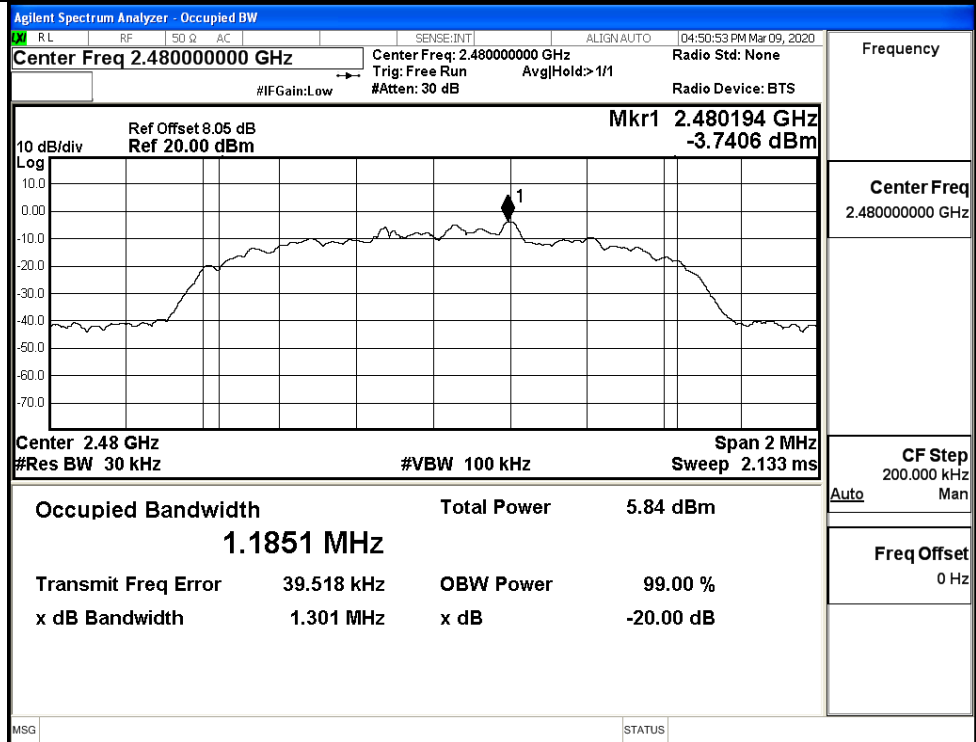
8DPSK/LCH



8DPSK/MCH

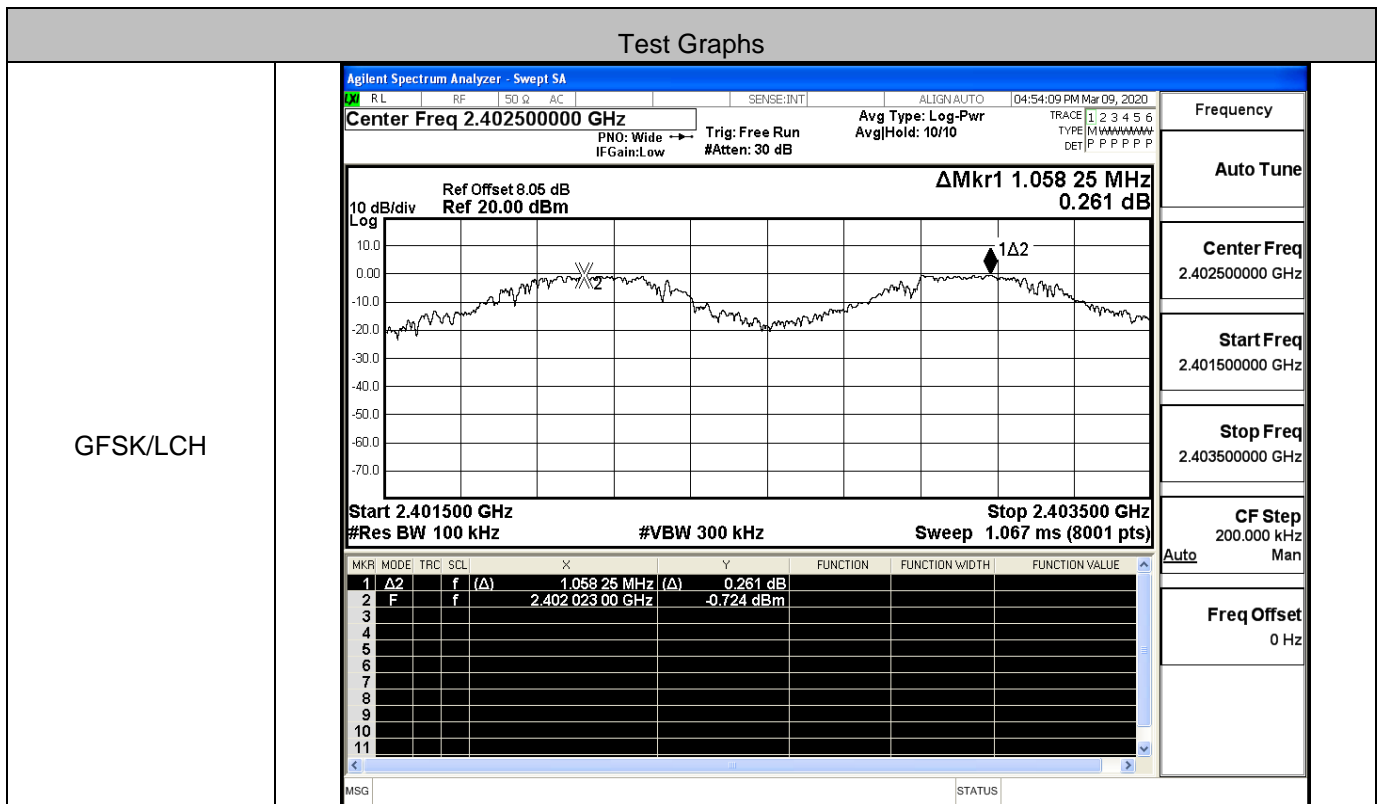


8DPSK/HCH

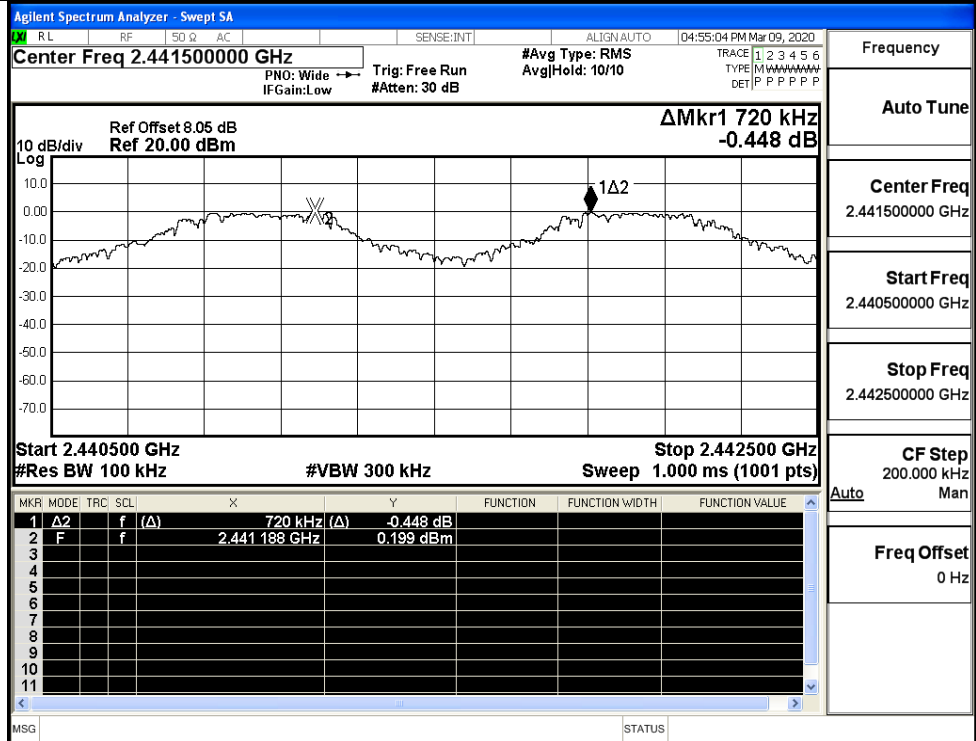


A.3 Carrier Frequency Separation

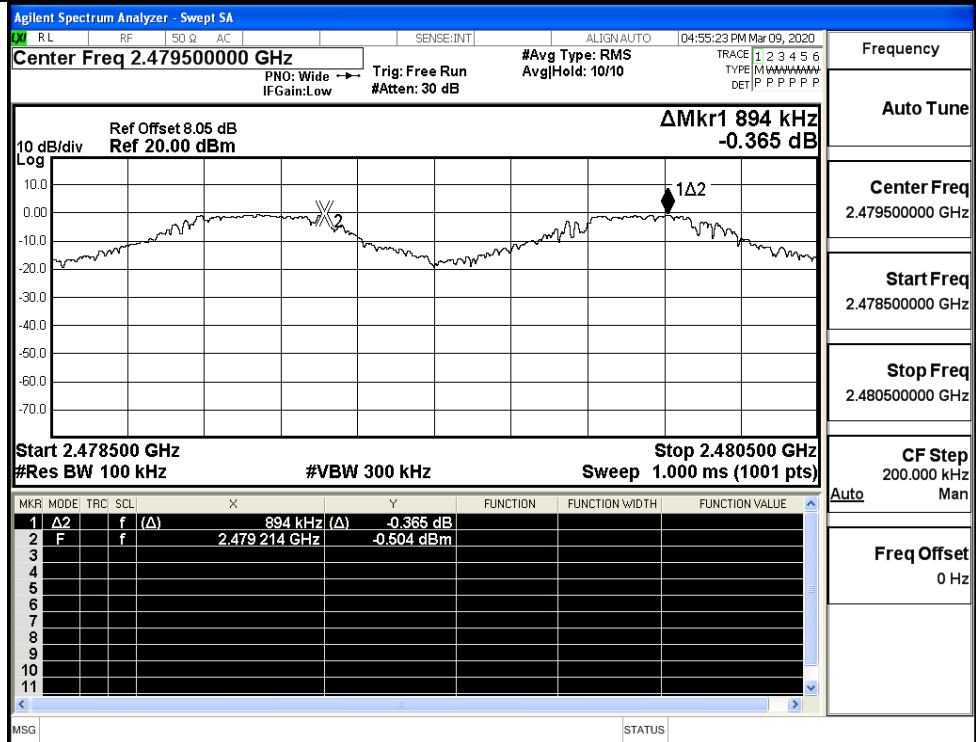
Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.058	0.689	PASS
	MCH	0.720	0.689	PASS
	HCH	0.894	0.689	PASS
π/4DQPSK	LCH	1.032	0.871	PASS
	MCH	1.108	0.871	PASS
	HCH	1.002	0.871	PASS
8DPSK	LCH	0.878	0.867	PASS
	MCH	1.184	0.867	PASS
	HCH	1.170	0.867	PASS



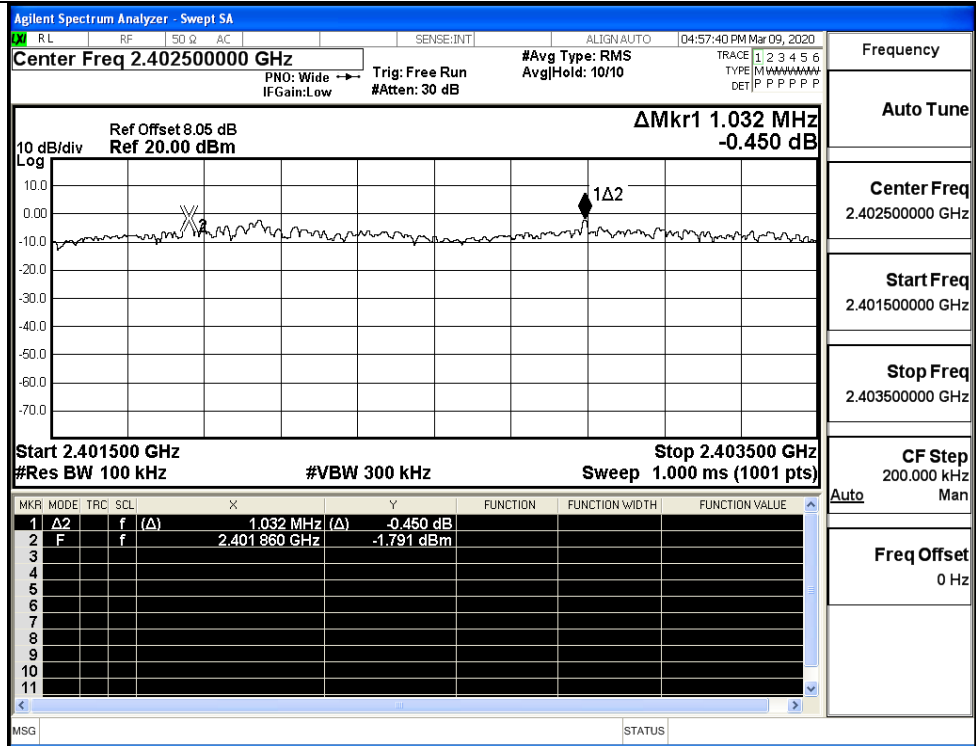
GFSK/MCH



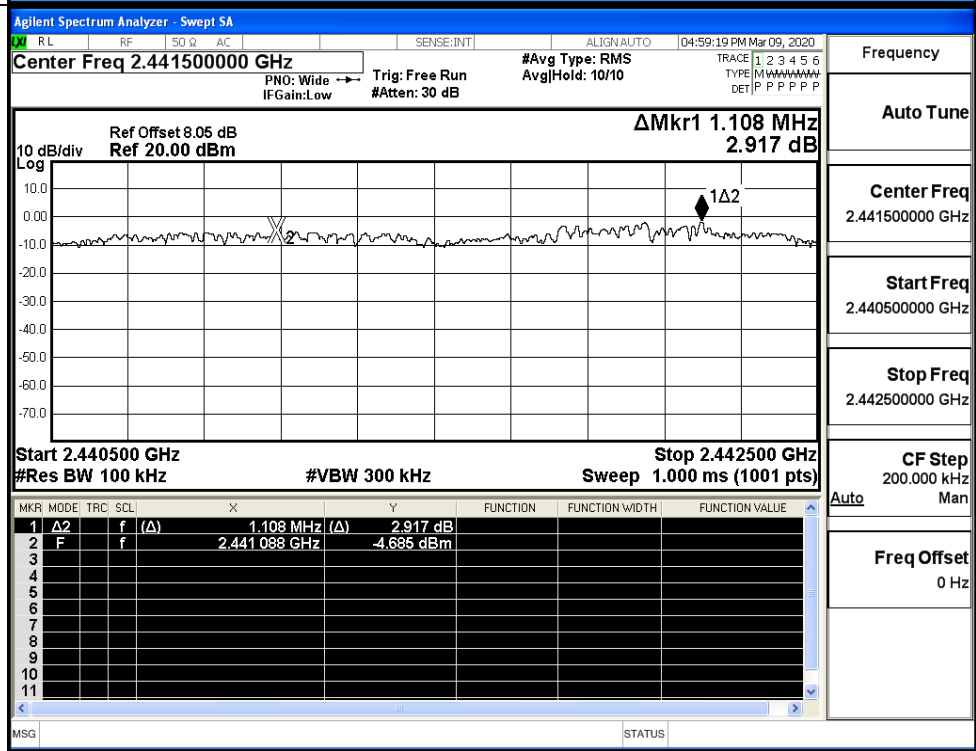
GFSK/HCH



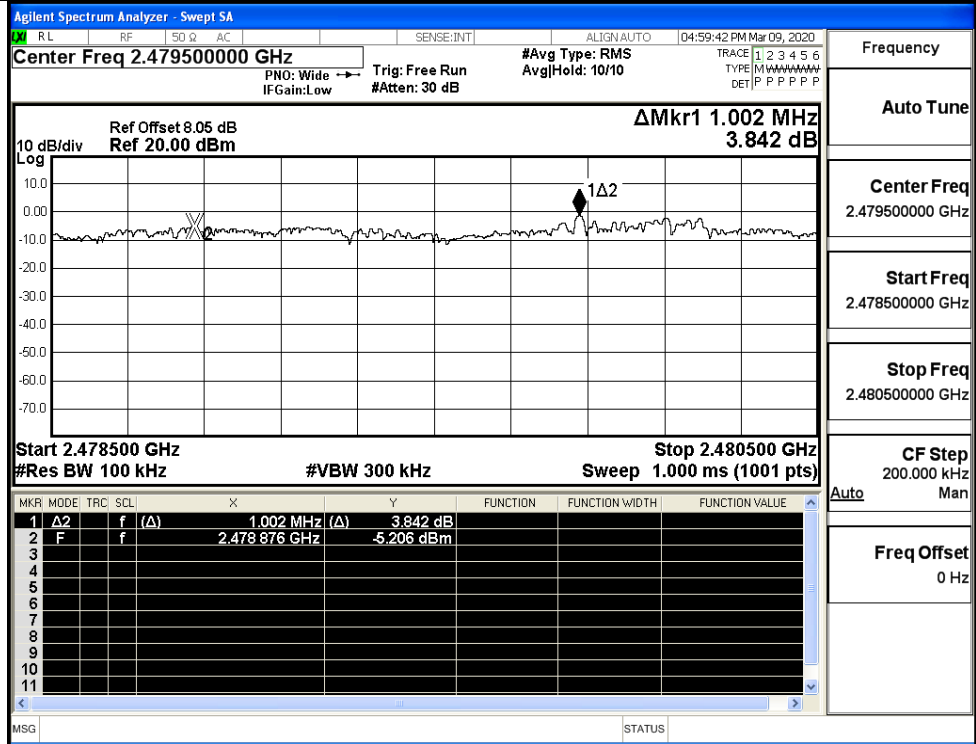
$\pi/4$ DQPSK/LCH



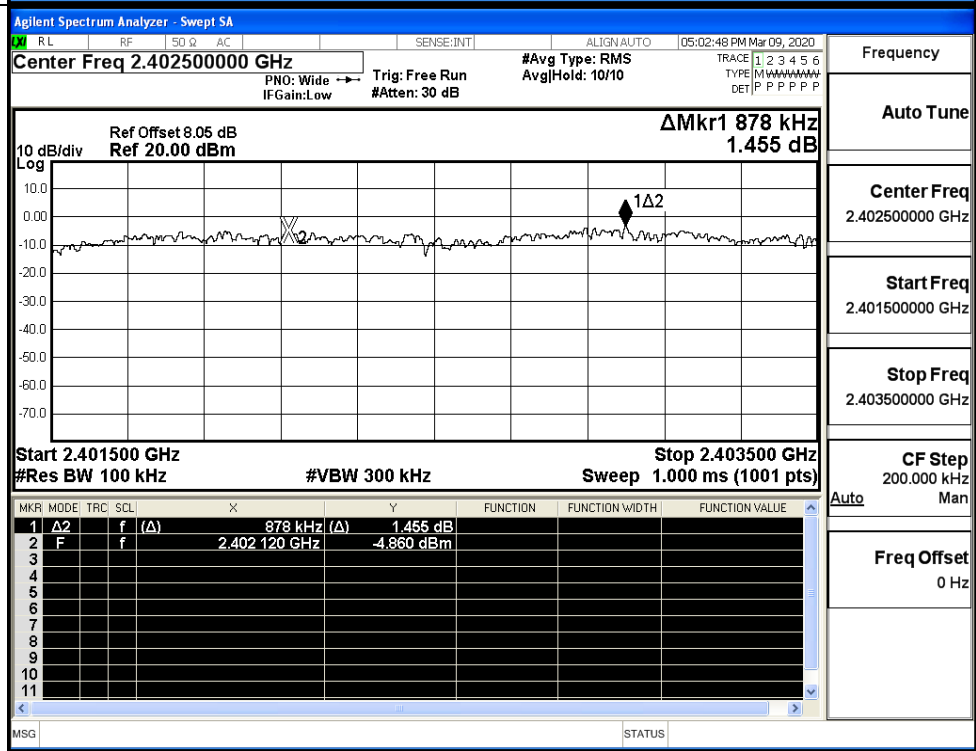
$\pi/4$ DQPSK/MCH



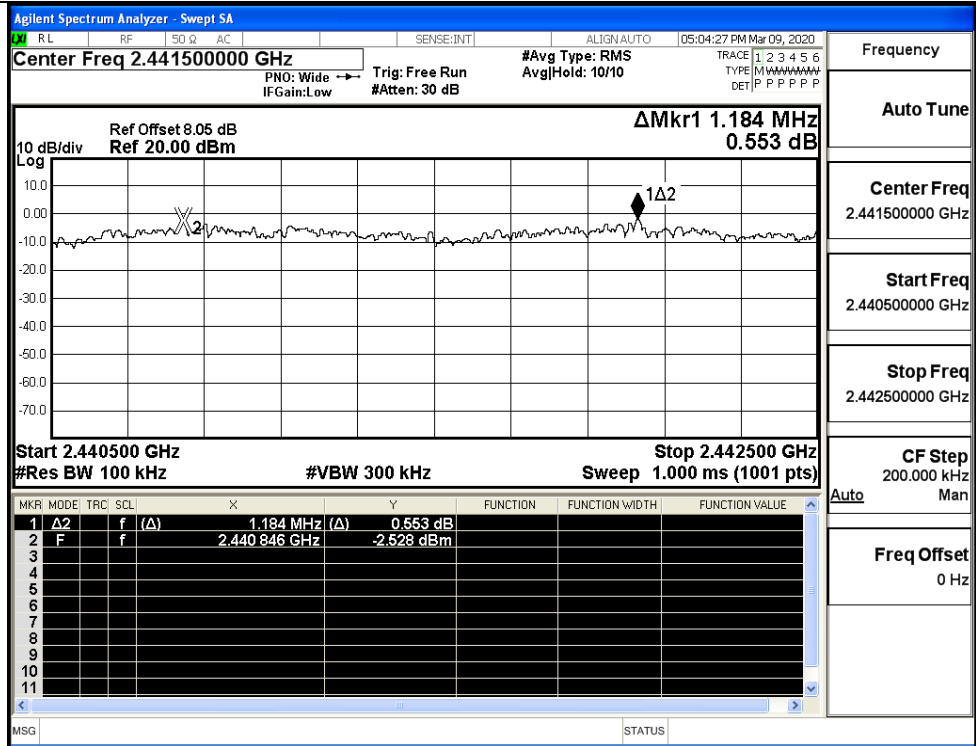
π/4DQPSK/HCH



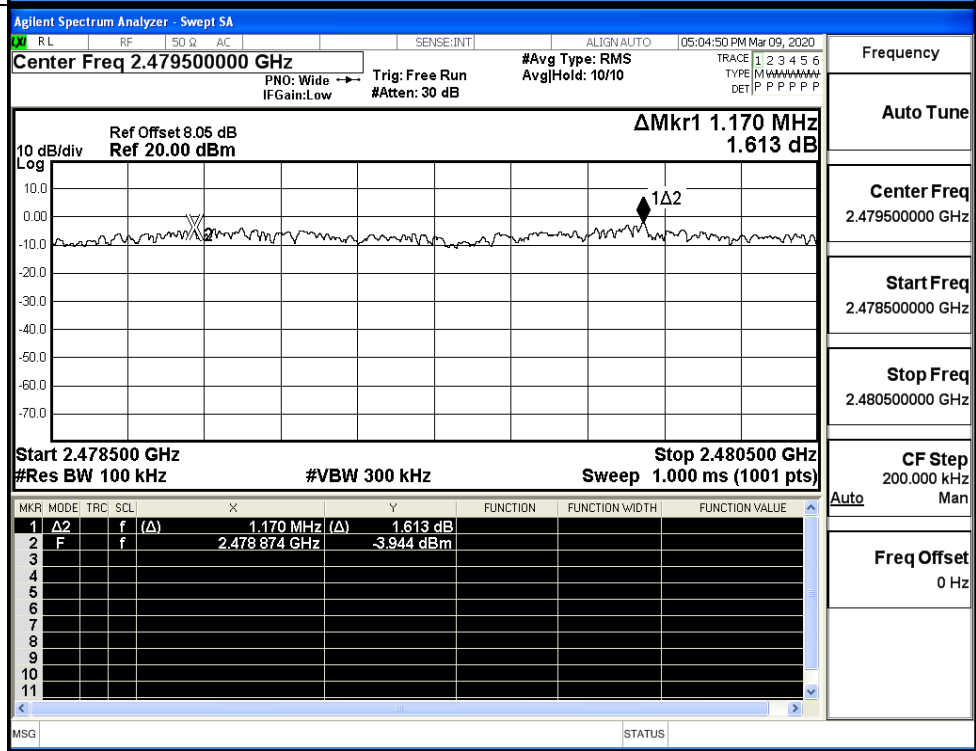
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



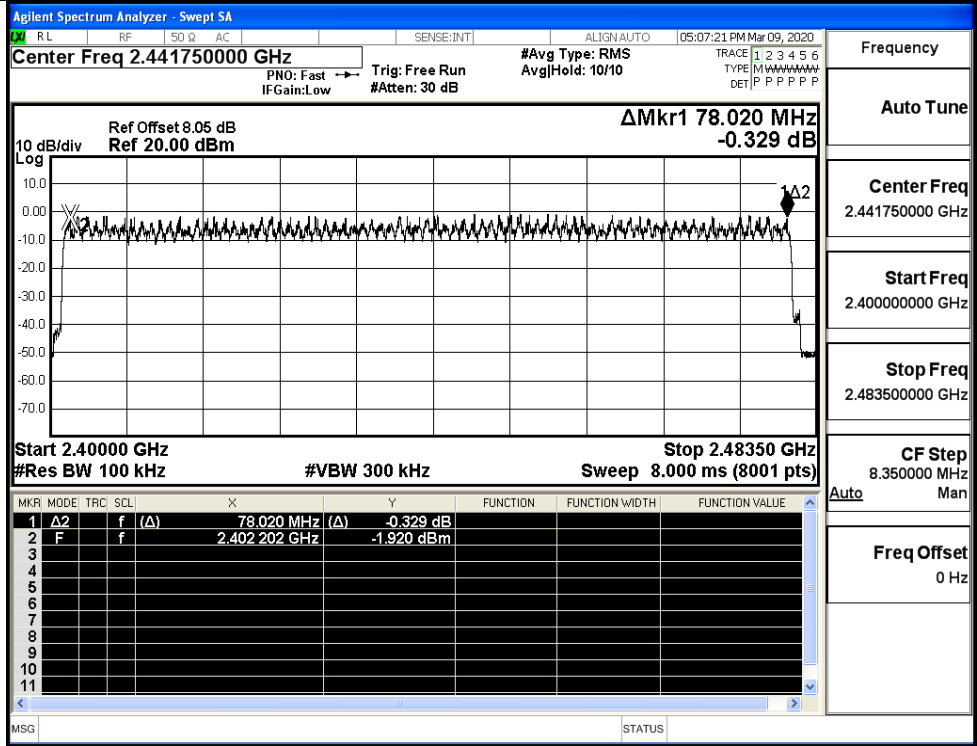
A.4 Hopping Channel Number

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

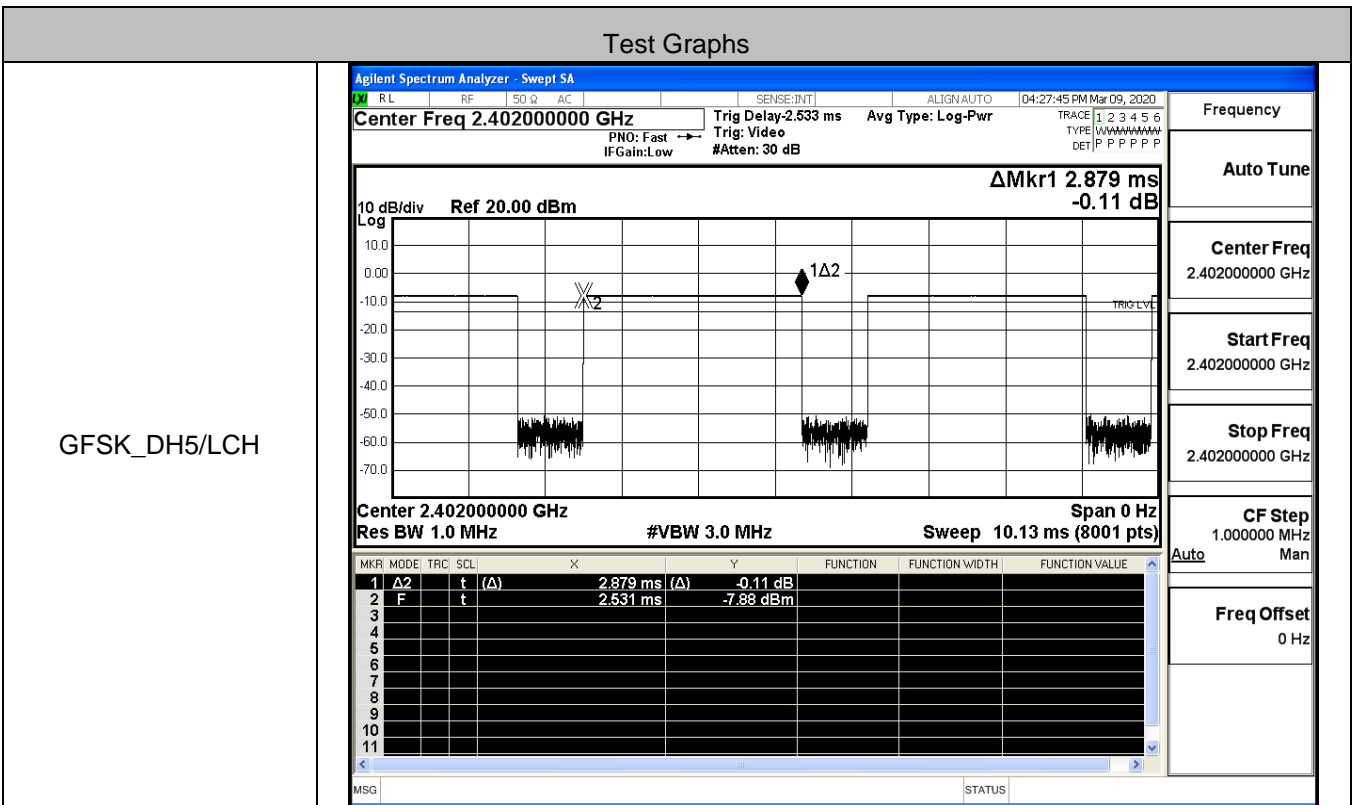
GFSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.441750000 GHz Ref Offset 8.05 dB, Ref 20.00 dBm ΔMkr1 78.052 MHz, -0.298 dB Start 2.40000 GHz, Stop 2.48350 GHz #Res BW 100 kHz, #VBW 300 kHz, Sweep 8.000 ms (8001 pts)</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 0.8em;"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Δ2</td> <td>f</td> <td>(Δ)</td> <td>78.052 MHz (Δ)</td> <td>-0.298 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402161 GHz</td> <td>-0.761 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ 2	f	(Δ)	78.052 MHz (Δ)	-0.298 dB				2	F	f		2.402161 GHz	-0.761 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ 2	f	(Δ)	78.052 MHz (Δ)	-0.298 dB																							
2	F	f		2.402161 GHz	-0.761 dBm																							
$\pi/4$ DQPSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.441750000 GHz Ref Offset 8.05 dB, Ref 20.00 dBm ΔMkr1 77.999 MHz, 0.860 dB Start 2.40000 GHz, Stop 2.48350 GHz #Res BW 100 kHz, #VBW 300 kHz, Sweep 8.000 ms (8001 pts)</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 0.8em;"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Δ2</td> <td>f</td> <td>(Δ)</td> <td>77.999 MHz (Δ)</td> <td>0.860 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402056 GHz</td> <td>-2.202 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ 2	f	(Δ)	77.999 MHz (Δ)	0.860 dB				2	F	f		2.402056 GHz	-2.202 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ 2	f	(Δ)	77.999 MHz (Δ)	0.860 dB																							
2	F	f		2.402056 GHz	-2.202 dBm																							

8DPSK/Hop

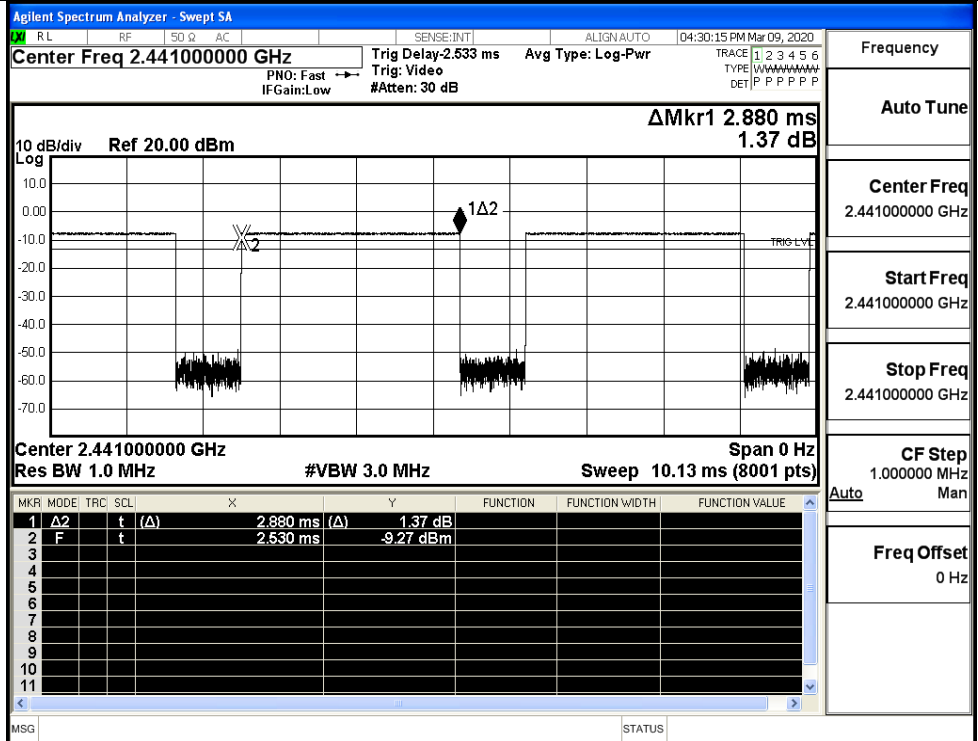


A.5 Dwell Time

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

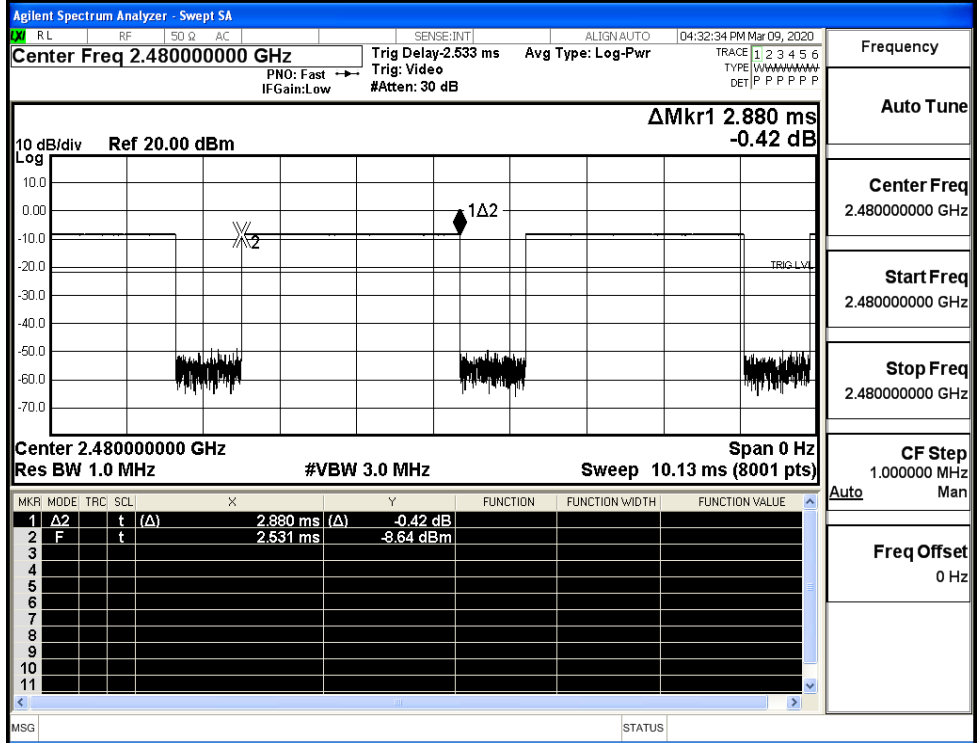


GFSK_DH5/MCH



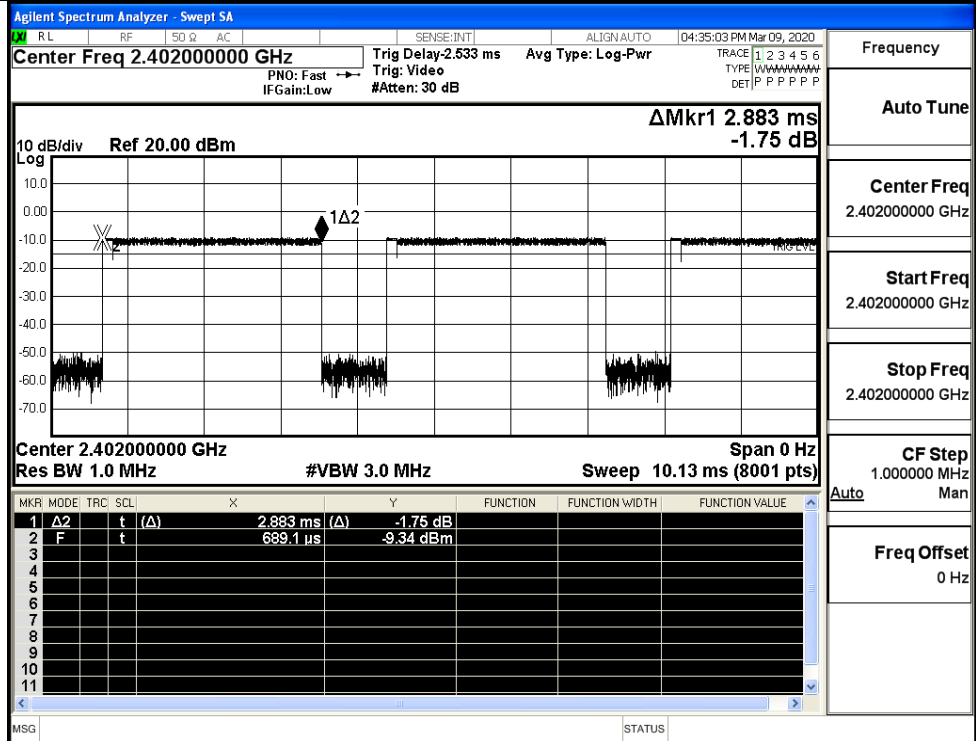
Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.441000000 GHz
Stop Freq	2.441000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK_DH5/HCH

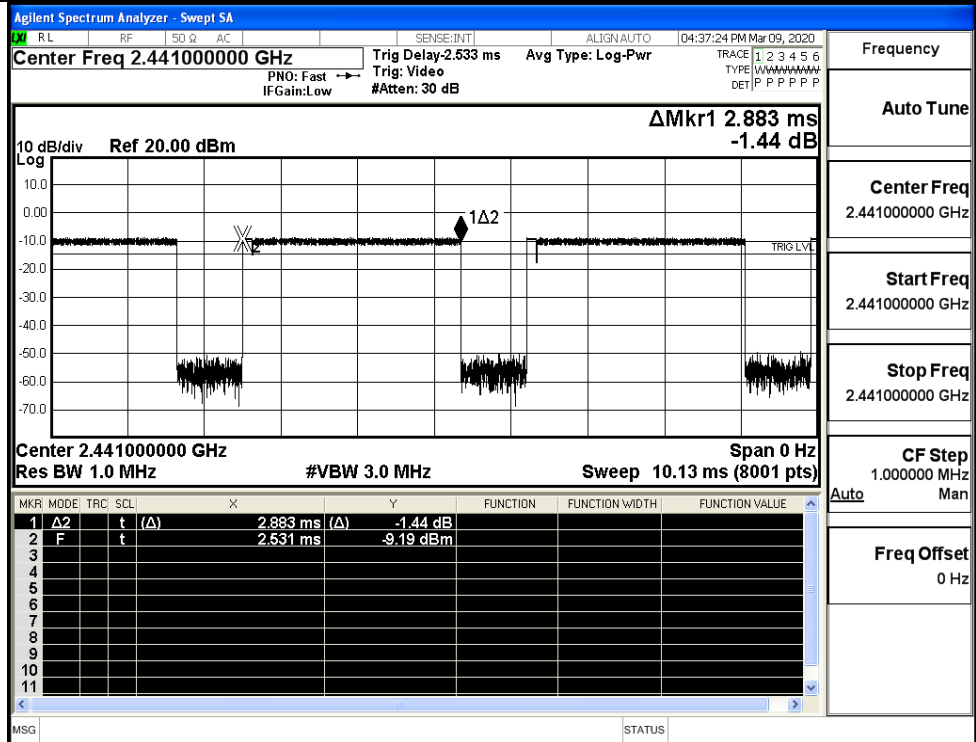


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

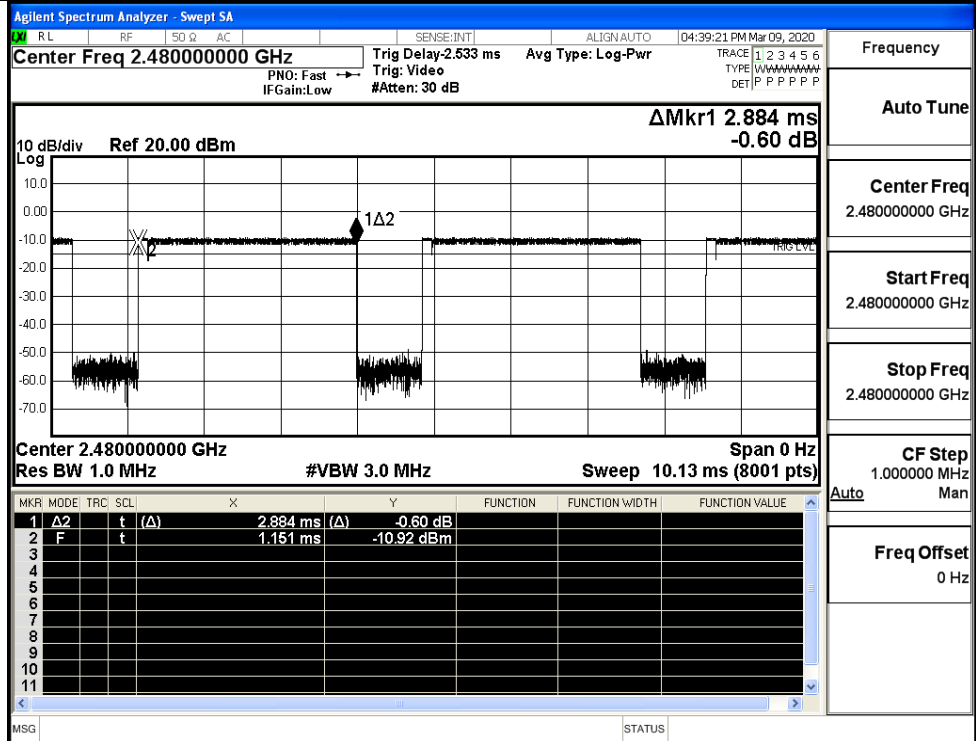
$\pi/4$ DQPSK
_2DH5/LCH



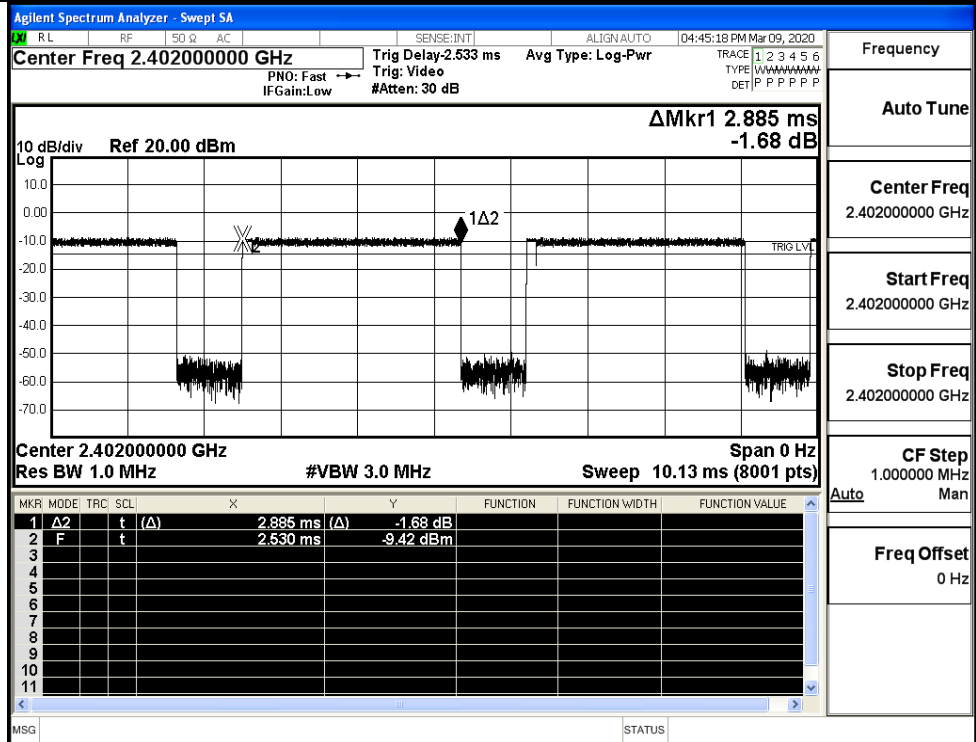
$\pi/4$ DQPSK
_2DH5/MCH



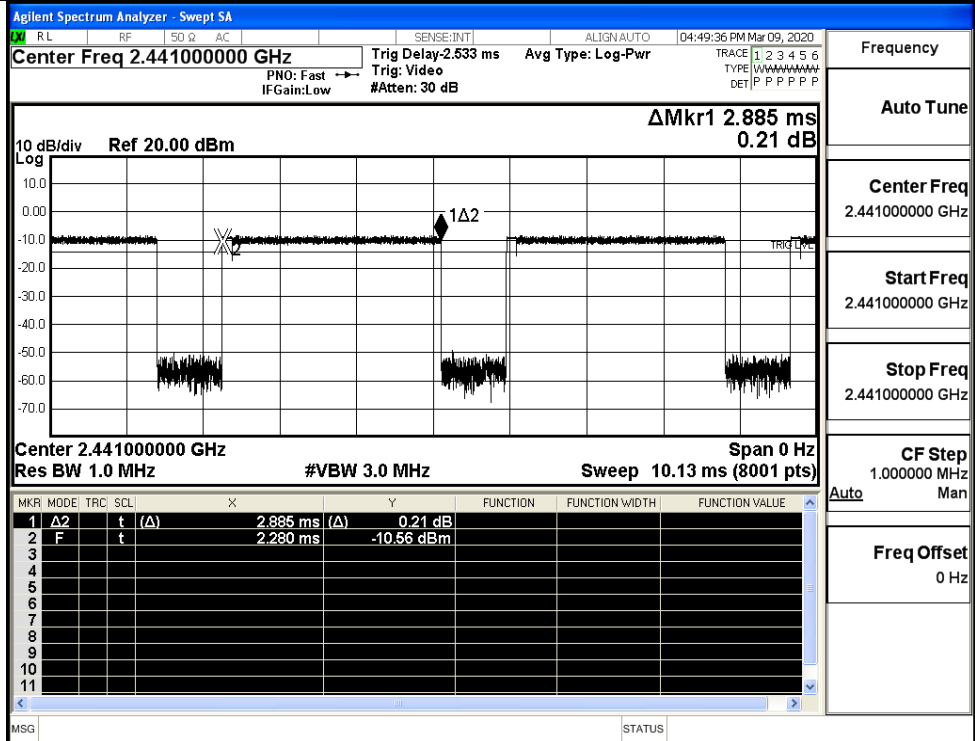
$\pi/4$ DQPSK
_2DH5/HCH



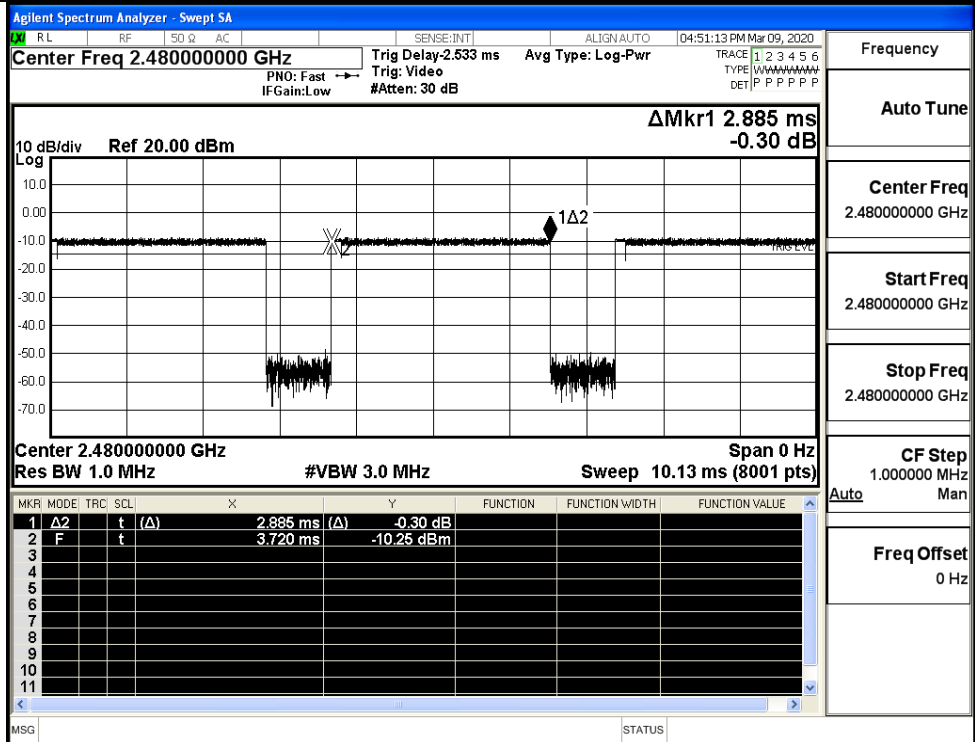
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



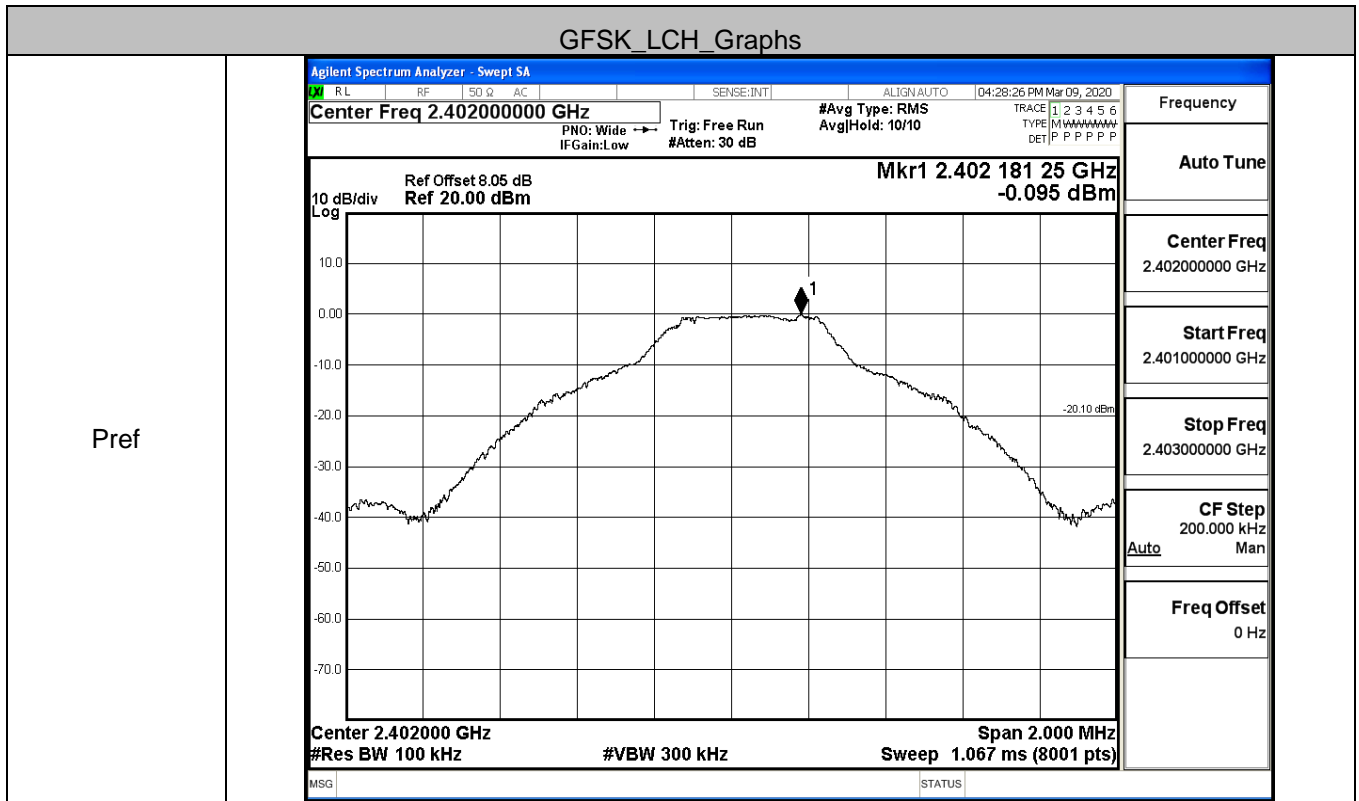
8DPSK_3DH5/HCH

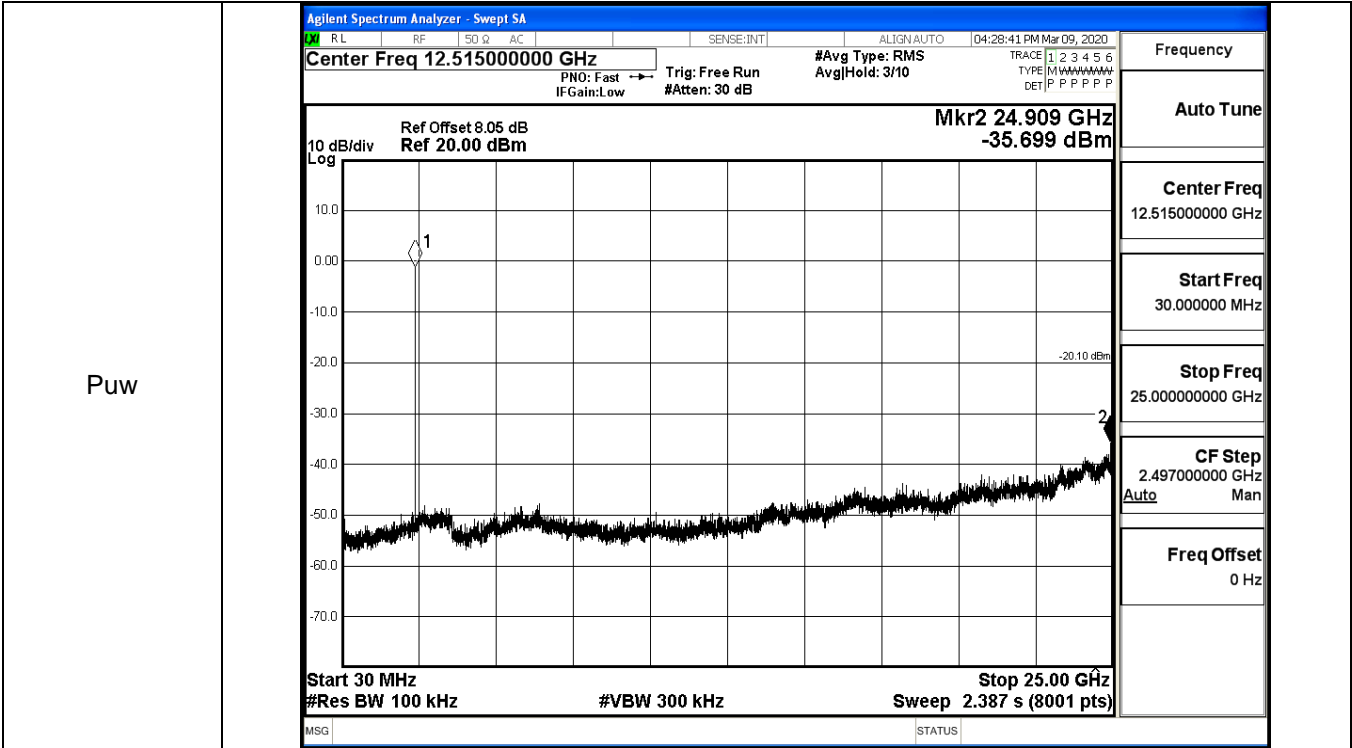


A.6 RF Conducted Spurious Emissions

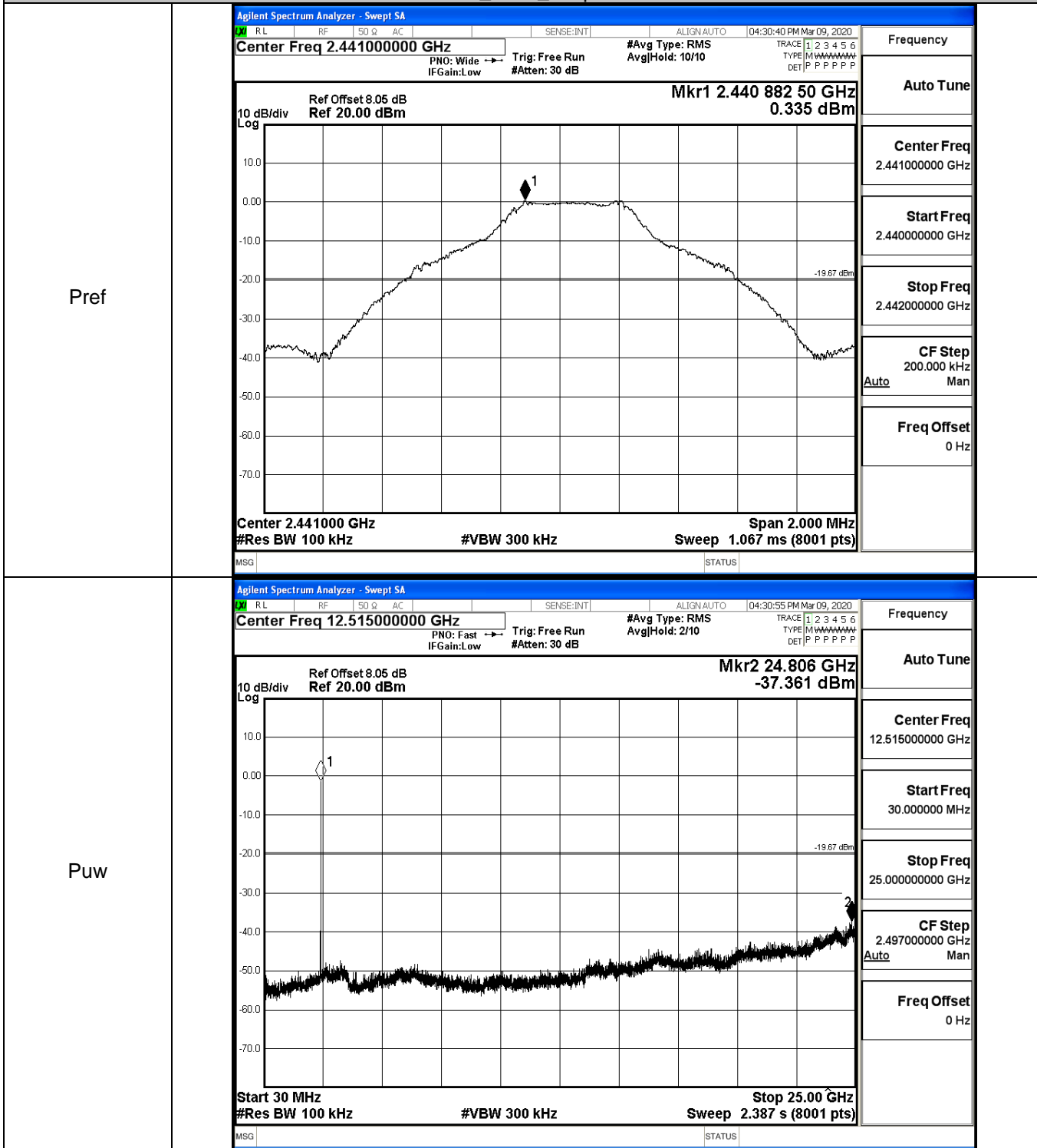
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.095	-35.699	-20.095	PASS
	MCH	0.335	-37.361	-19.665	PASS
	HCH	-0.658	-37.772	-20.658	PASS
π /4DQPSK	LCH	-1.488	-37.673	-21.488	PASS
	MCH	-1.318	-36.124	-21.318	PASS
	HCH	-1.397	-37.182	-21.397	PASS
8DPSK	LCH	-1.316	-37.887	-21.316	PASS
	MCH	-1.044	-37.150	-21.044	PASS
	HCH	-1.879	-37.058	-21.879	PASS

GFSK_LCH_Graphs

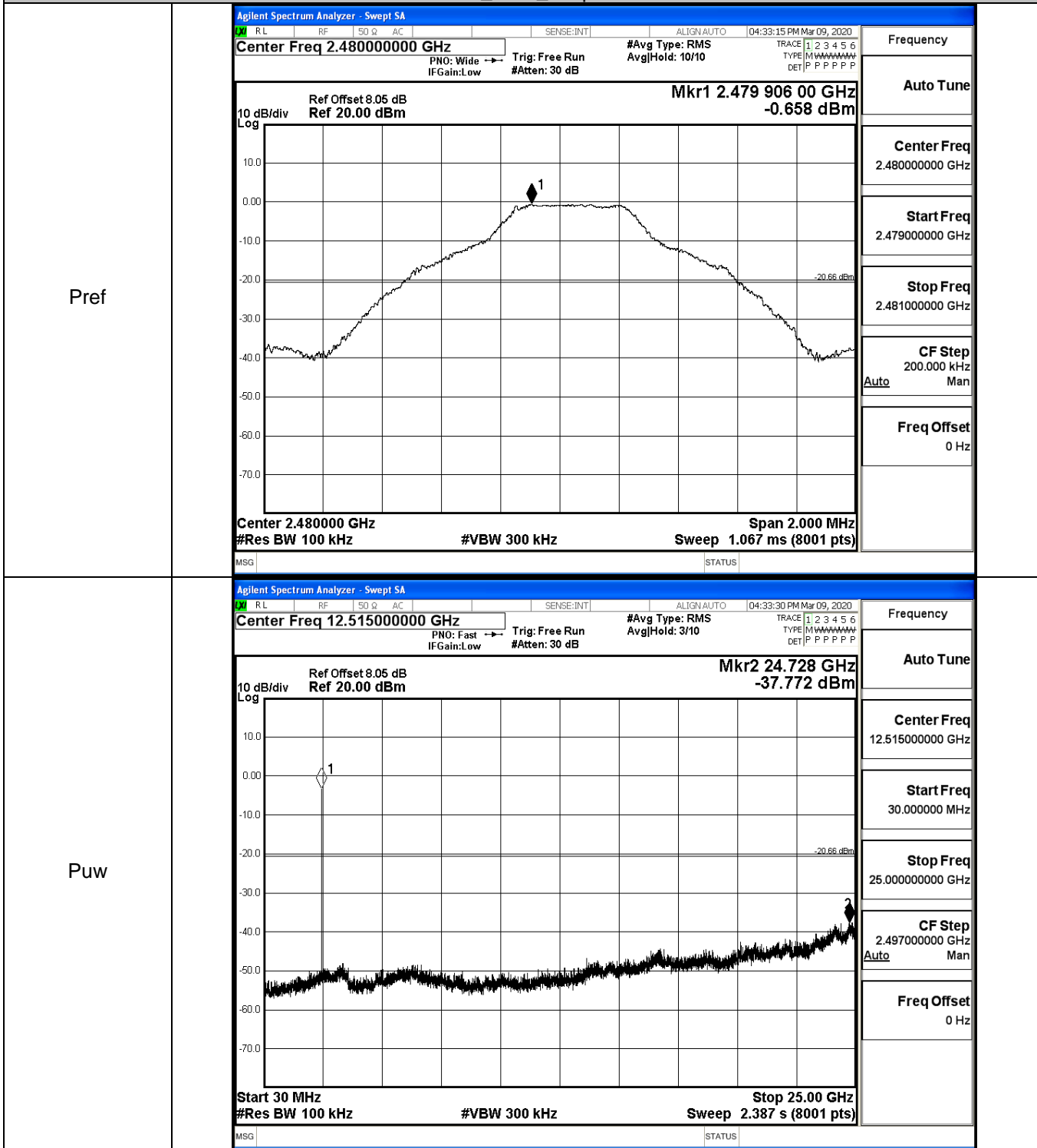




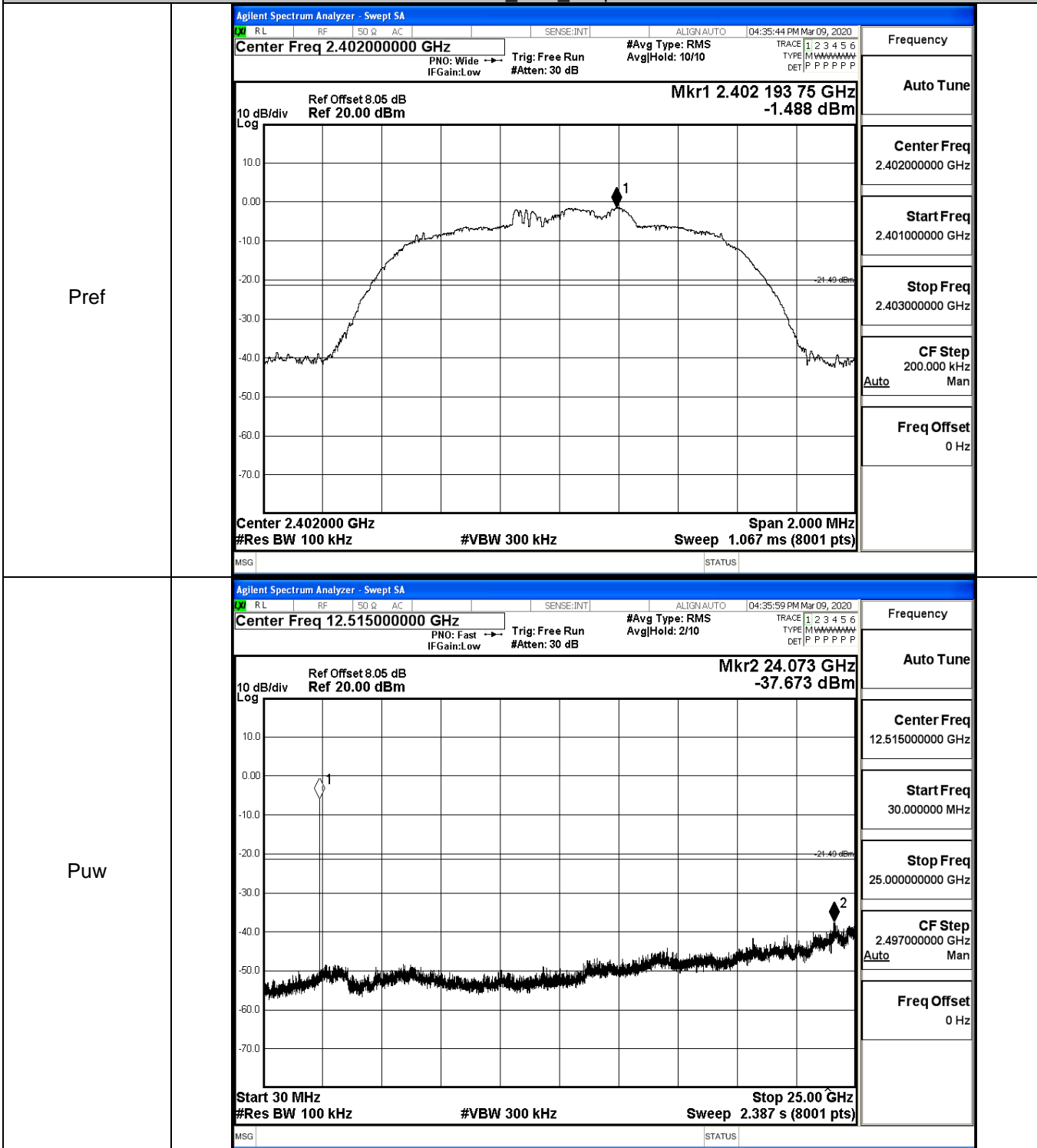
GFSK_MCH_Graphs



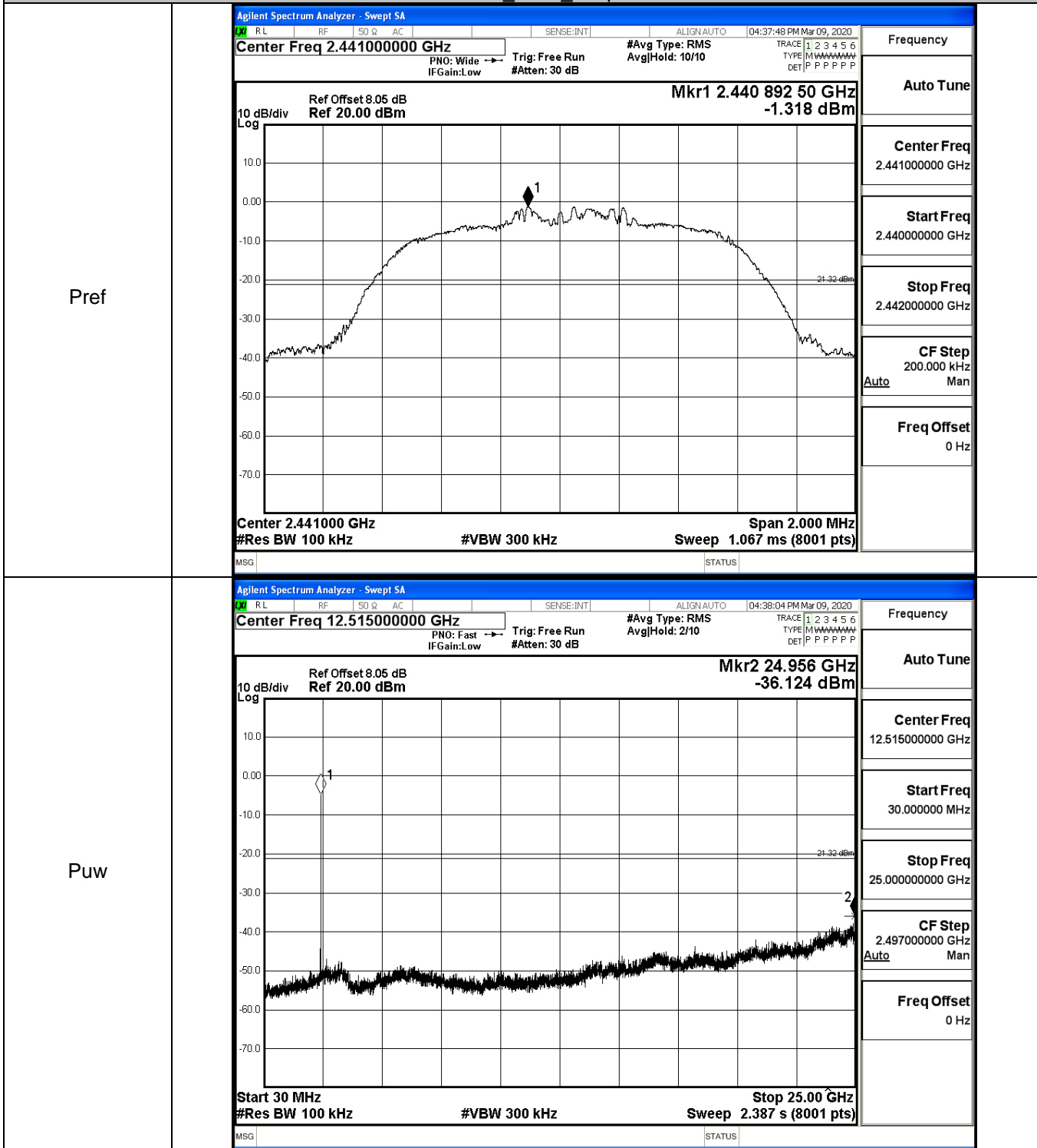
GFSK_HCH_Graphs



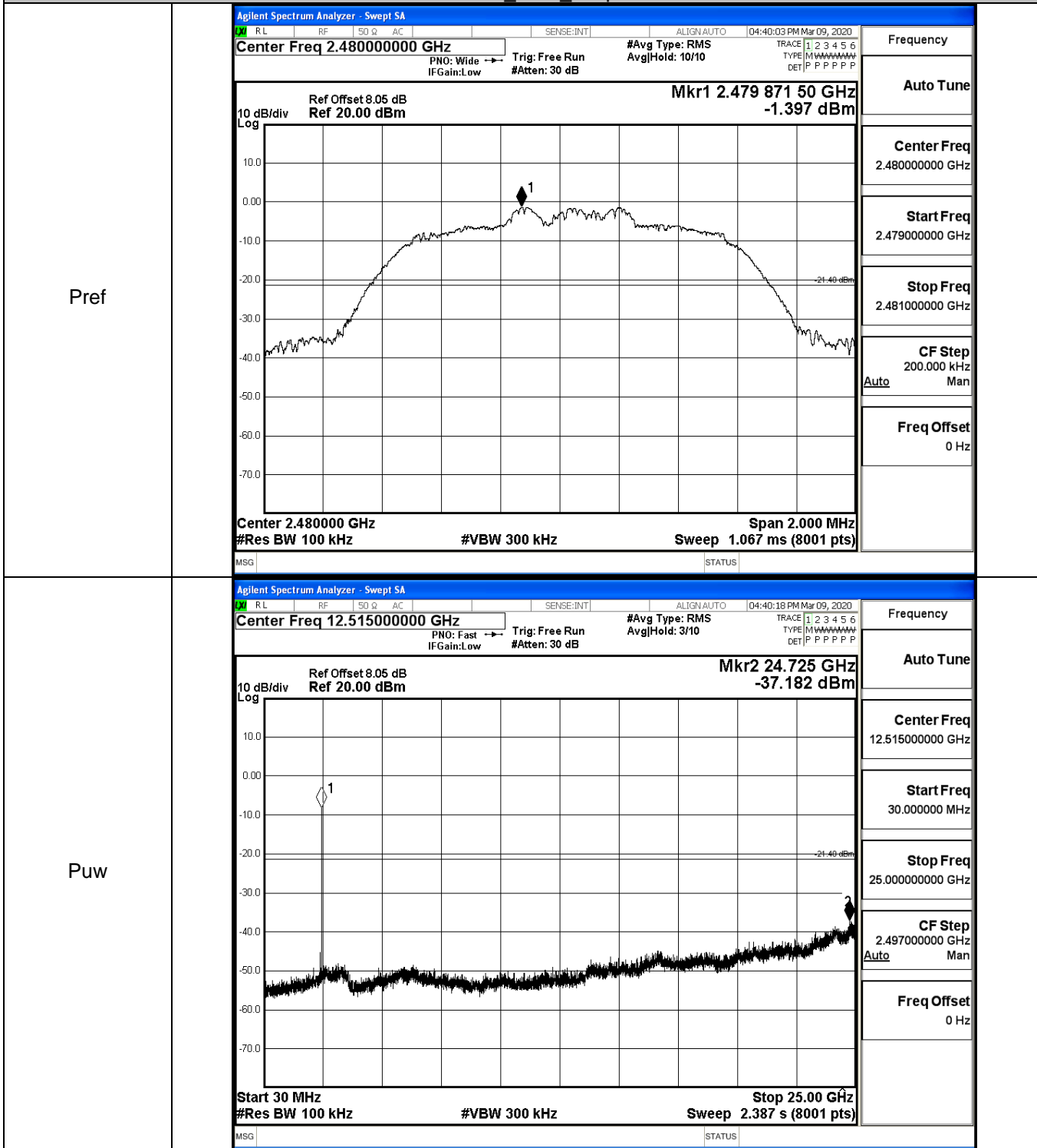
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

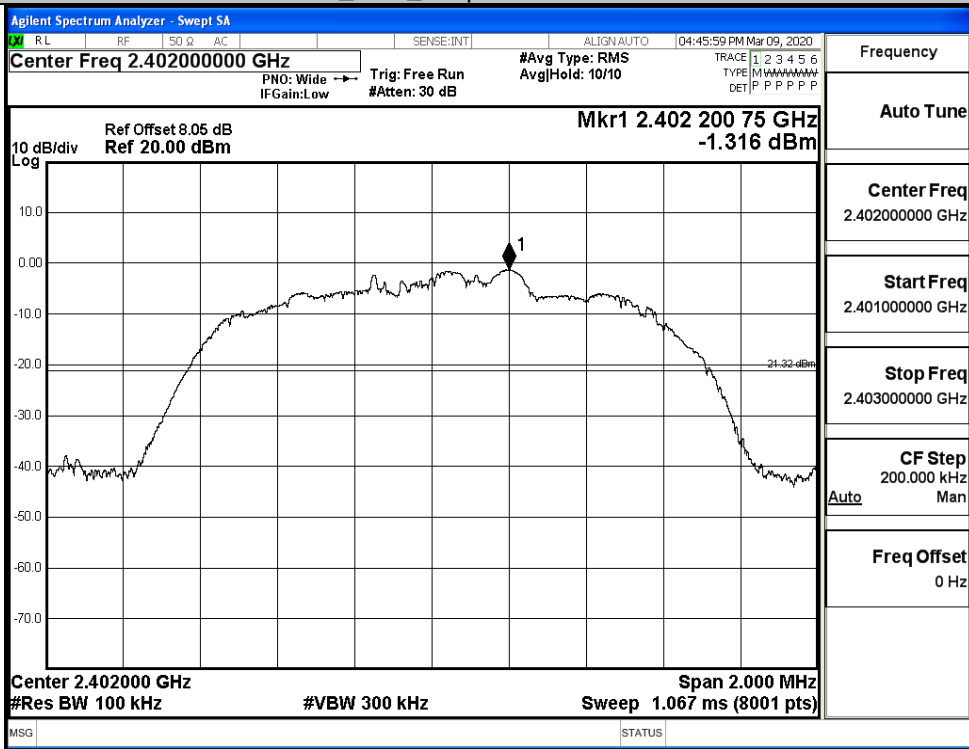


$\pi/4$ DQPSK_HCH_Graphs

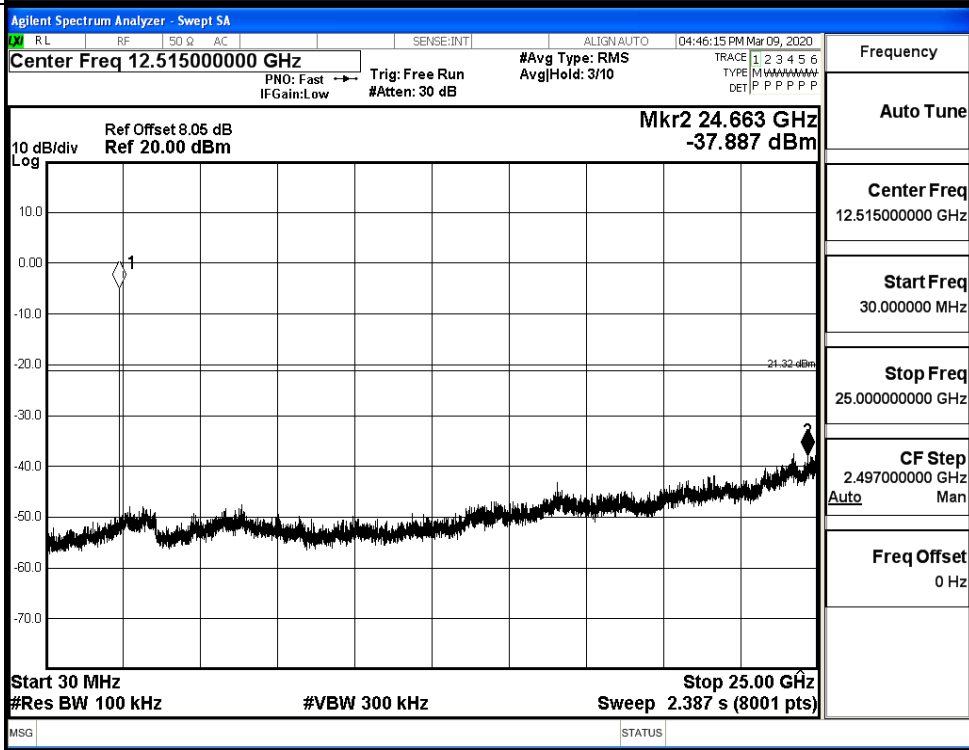


8DPSK_LCH_Graphs

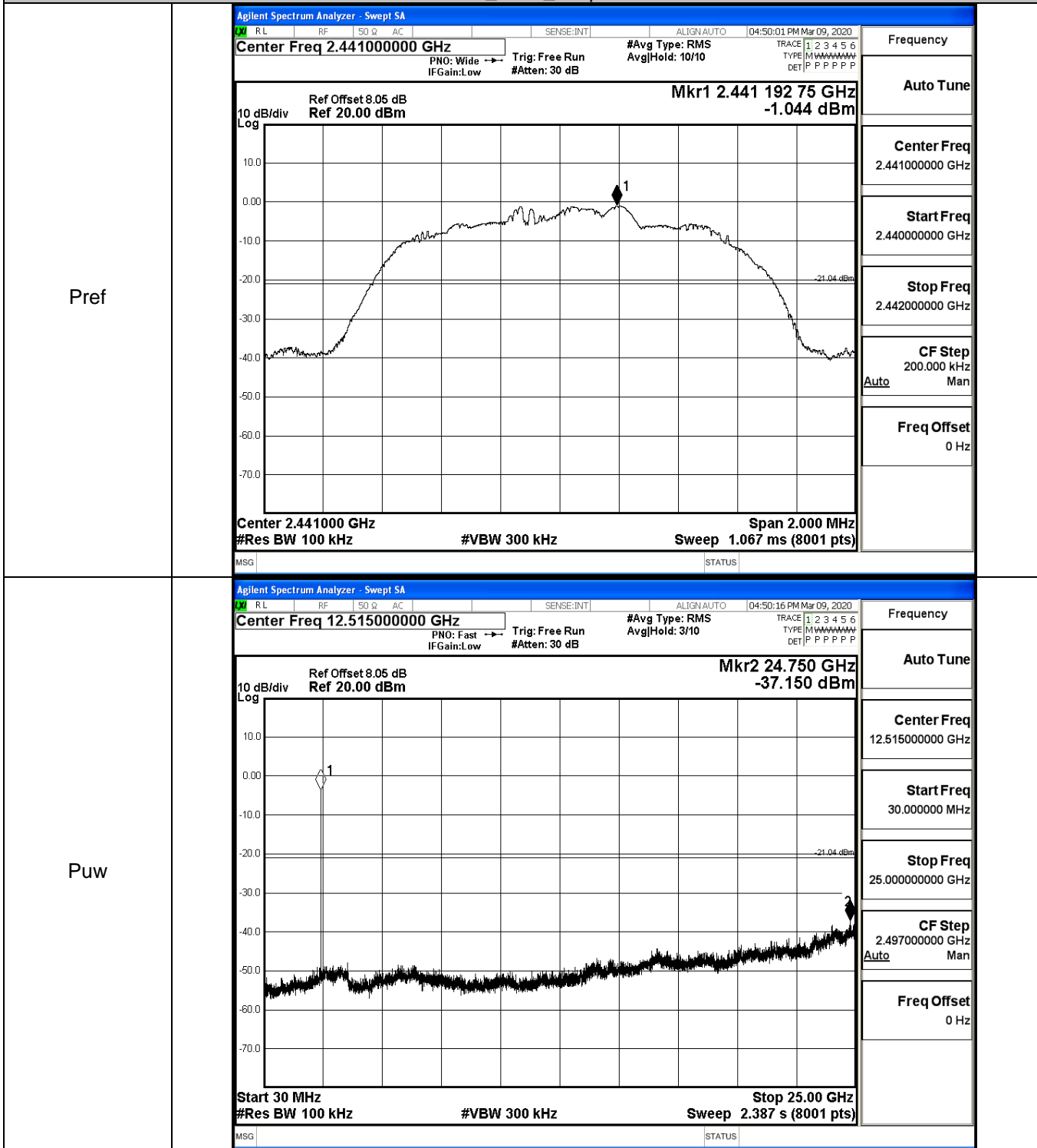
Pref



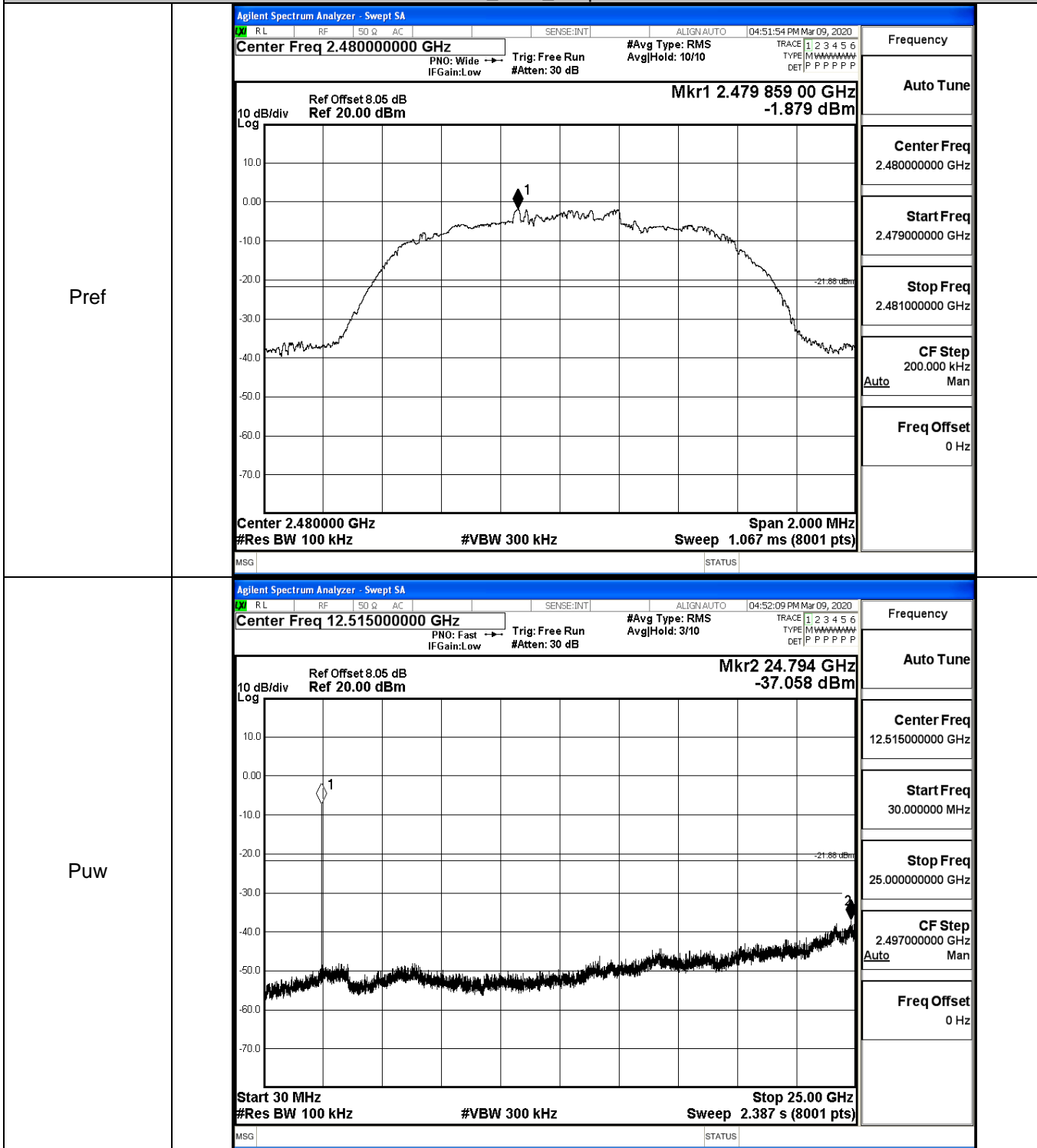
Puw



8DPSK_MCH_Graphs



8DPSK_HCH_Graphs

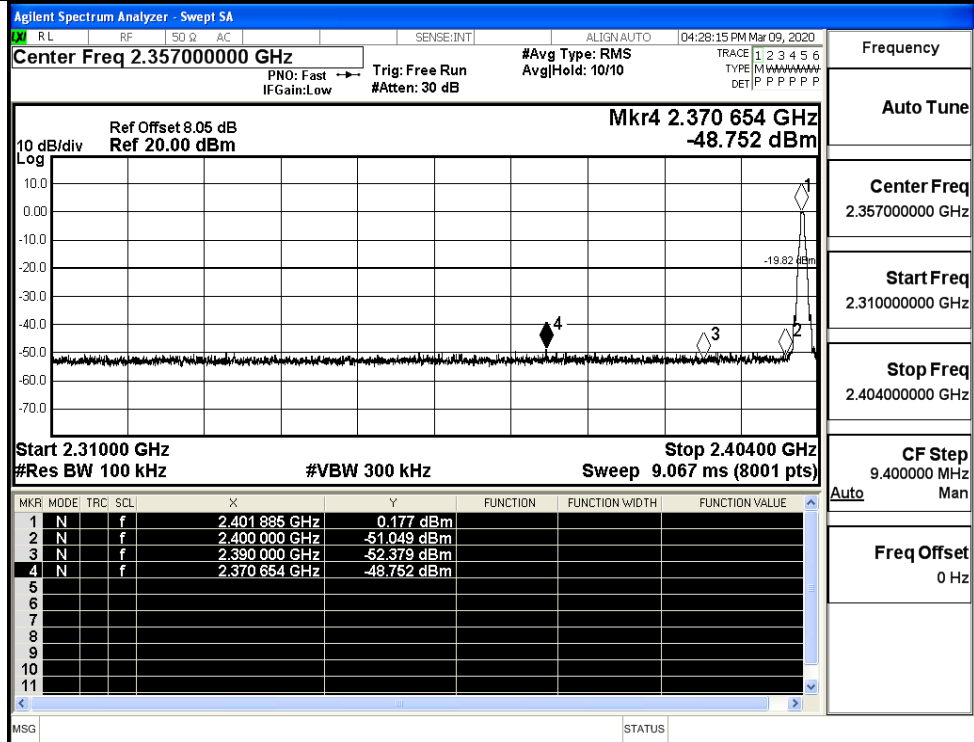


A.7 Band-edge for RF Conducted Emissions

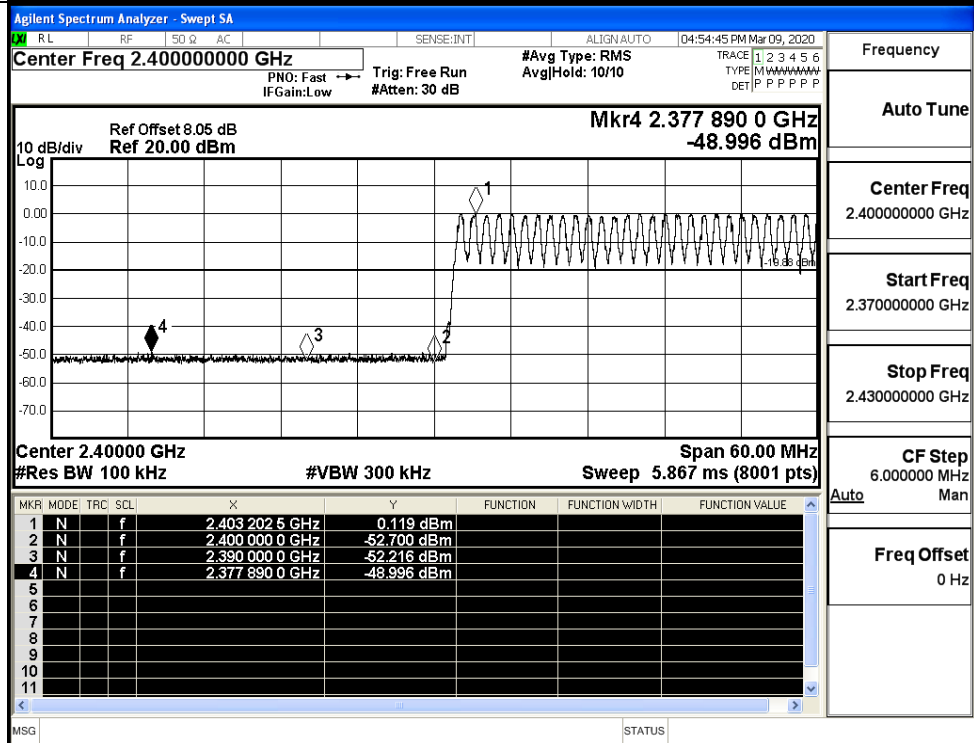
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.177	Off	-48.752	-19.82	PASS
			0.119	On	-48.996	-19.88	PASS
	HCH	2480	-0.012	Off	-48.314	-20.01	PASS
			0.102	On	-48.651	-19.9	PASS
$\pi/4$ DQPSK	LCH	2402	-1.326	Off	-49.427	-21.33	PASS
			-1.504	On	-48.779	-21.5	PASS
	HCH	2480	-1.225	Off	-49.485	-21.23	PASS
			-1.012	On	-48.574	-21.01	PASS
8DPSK	LCH	2402	-2.217	Off	-49.356	-22.22	PASS
			-1.354	On	-48.722	-21.35	PASS
	HCH	2480	-1.345	Off	-49.279	-21.35	PASS
			-1.002	On	-48.459	-21	PASS

Test Graphs

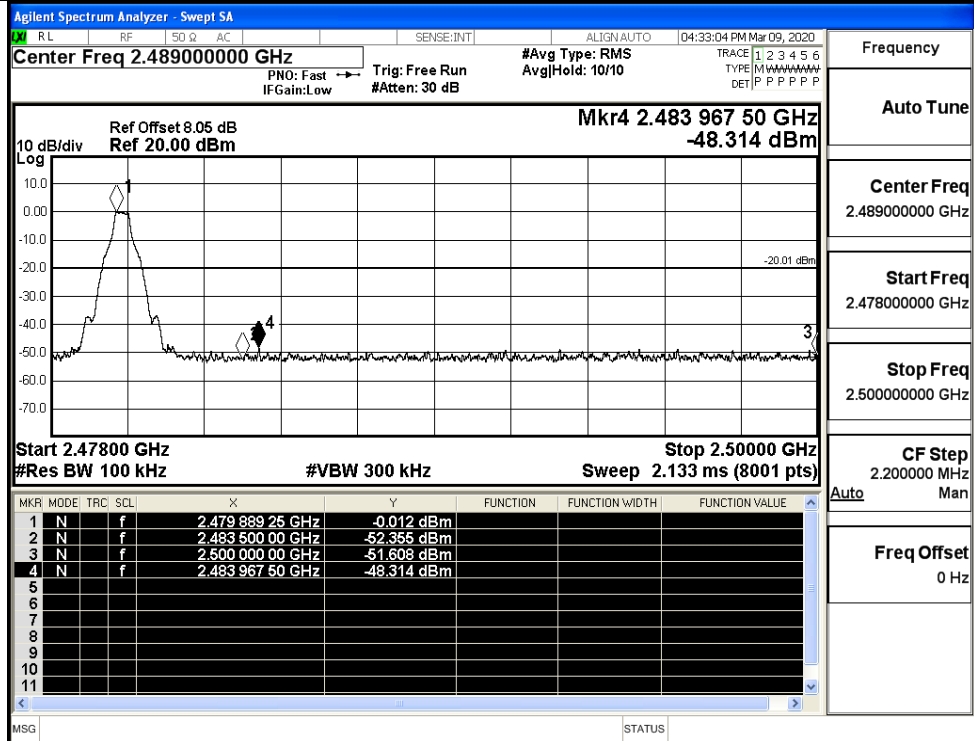
GFSK/LCH/No Hop



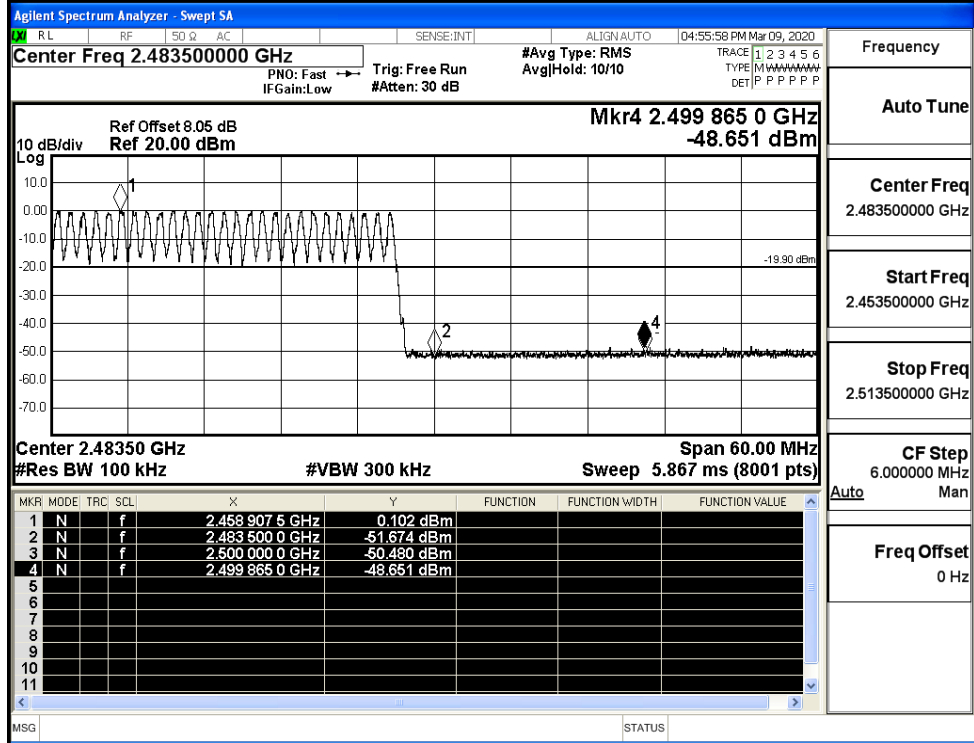
GFSK/LCH/Hop



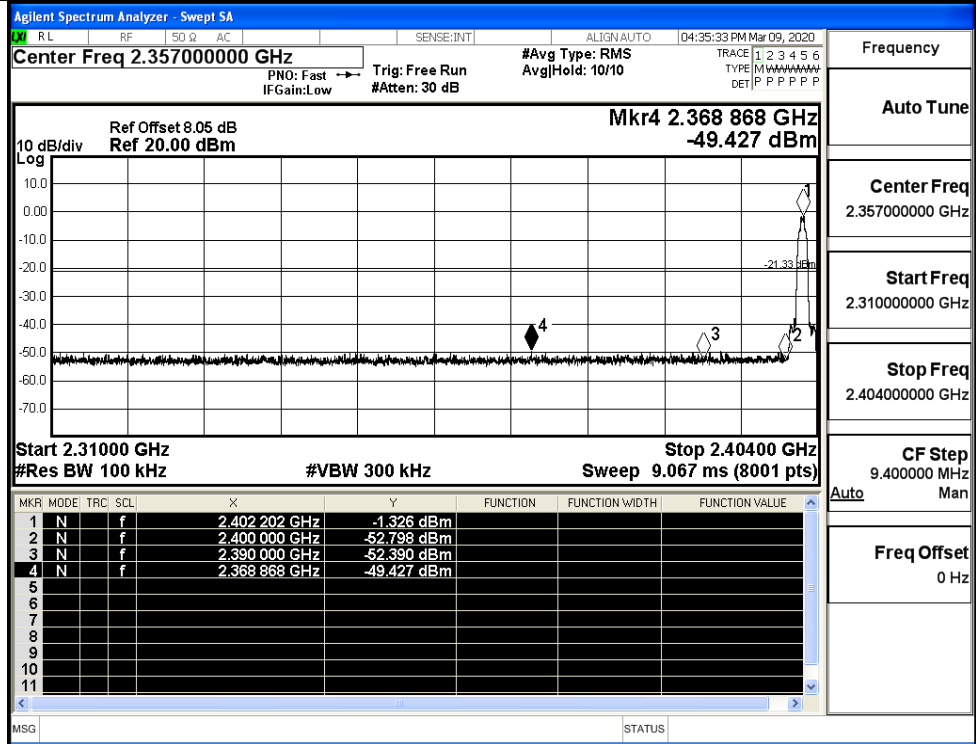
GFSK/HCH/No Hop



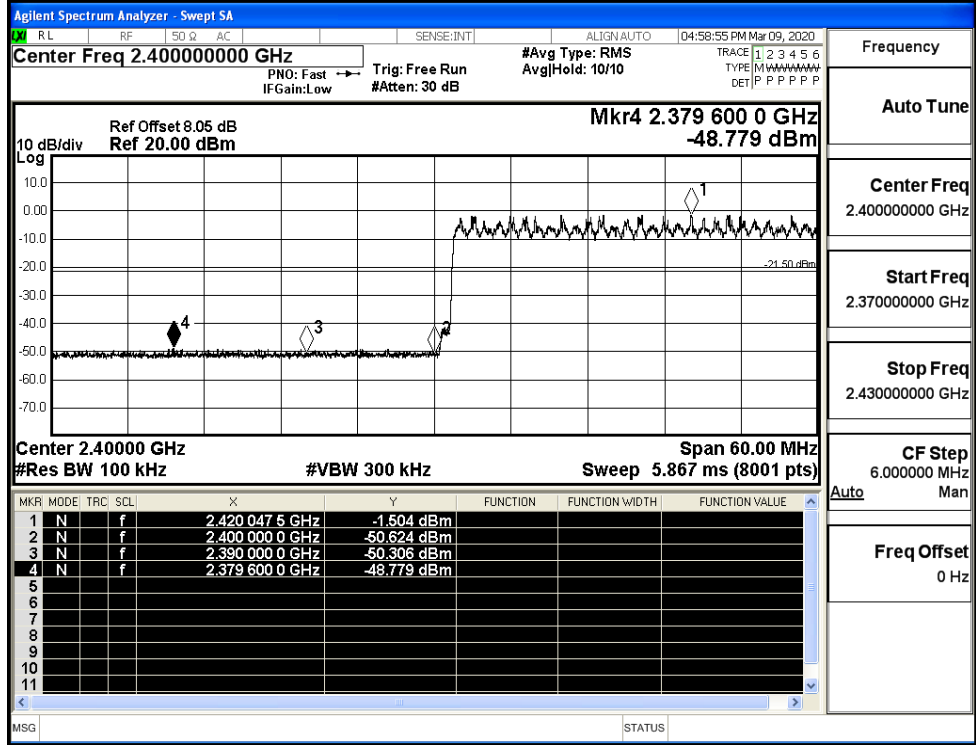
GFSK/HCH/Hop



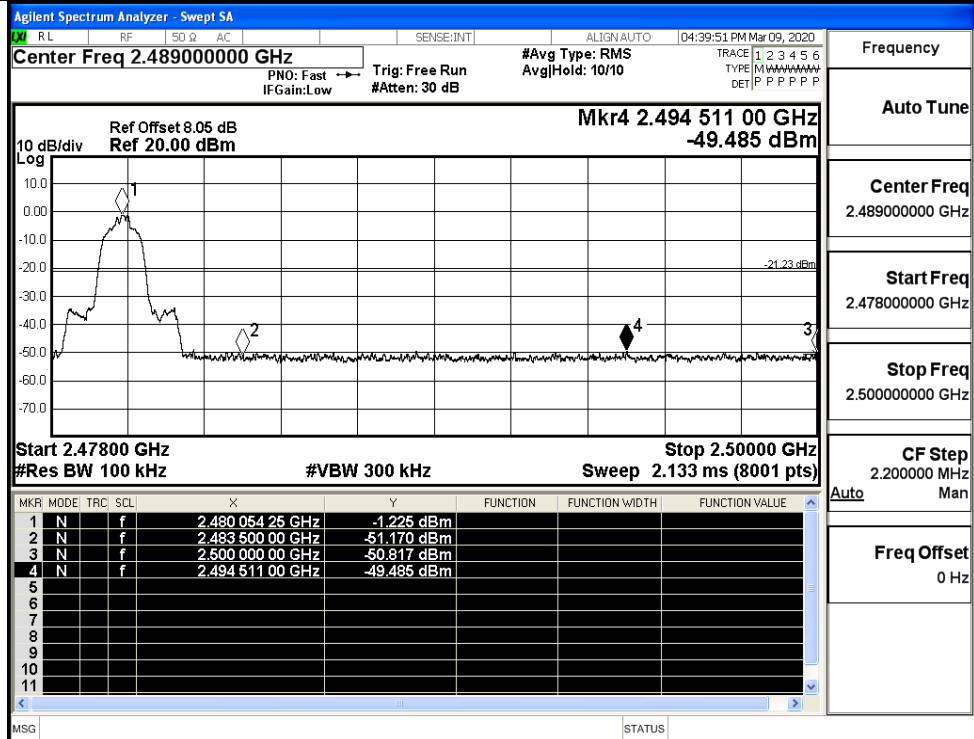
$\pi/4$ DQPSK/LCH/No Hop



$\pi/4$ DQPSK/LCH/Hop

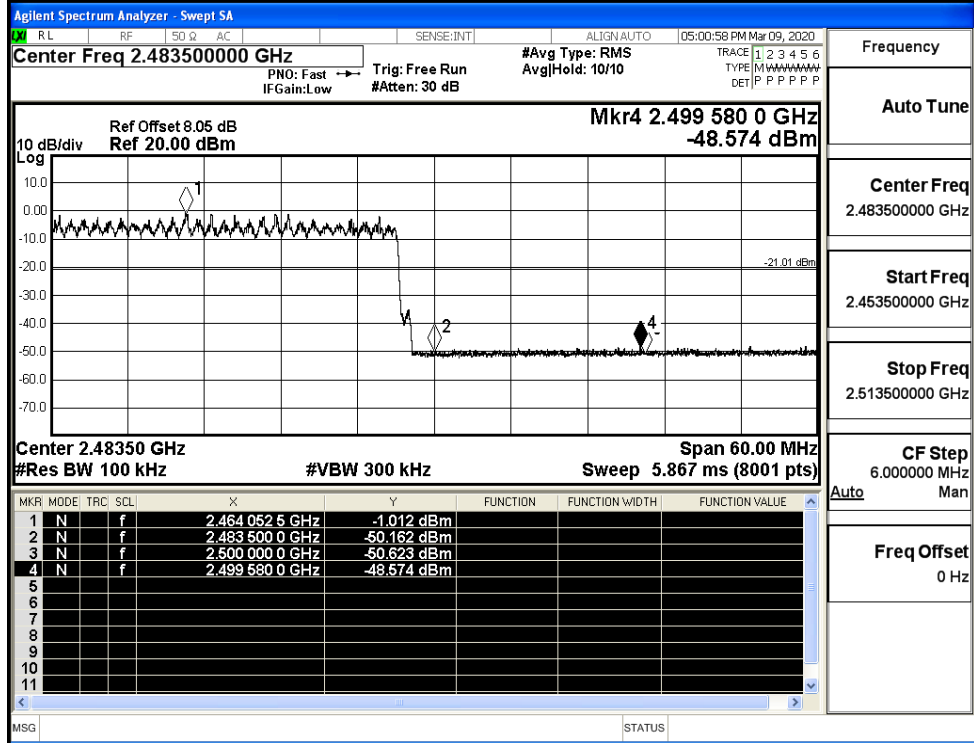


π /4DQPSK/HCH/No
Hop



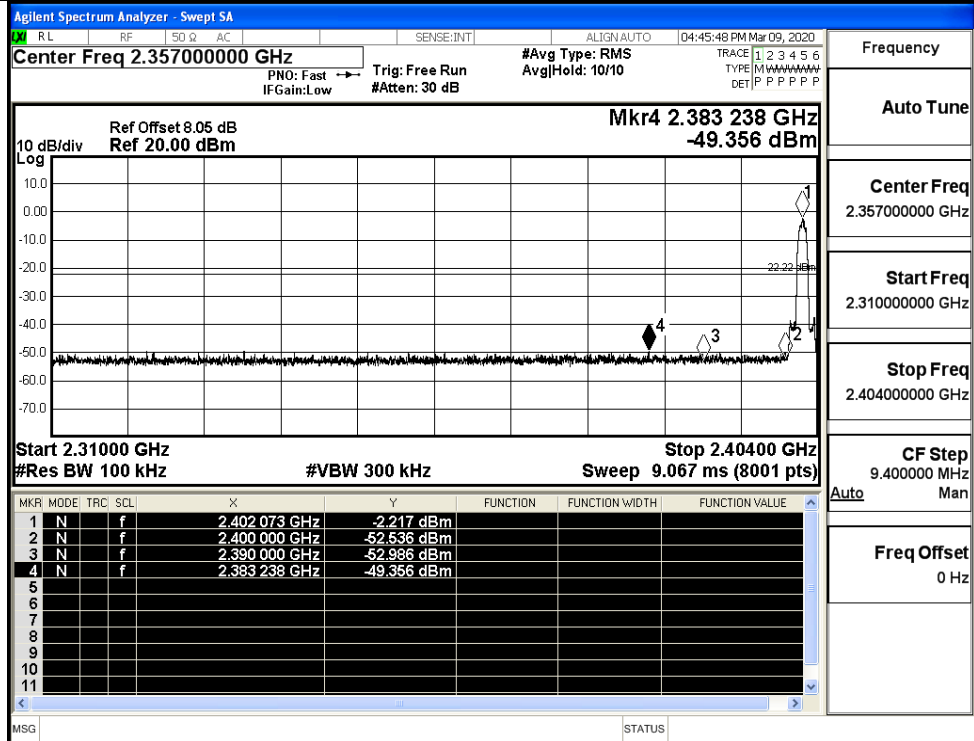
Frequency	2.489000000 GHz
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Freq Offset	0 Hz

π /4DQPSK/HCH/Hop



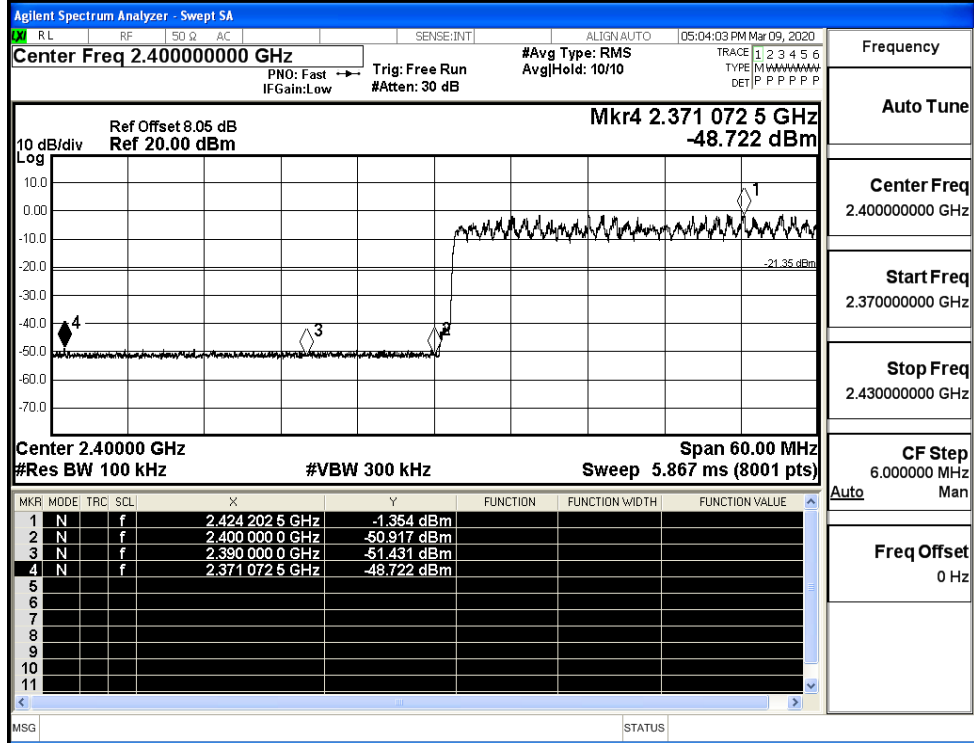
Frequency	2.483500000 GHz
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

8DPSK/LCH/No Hop



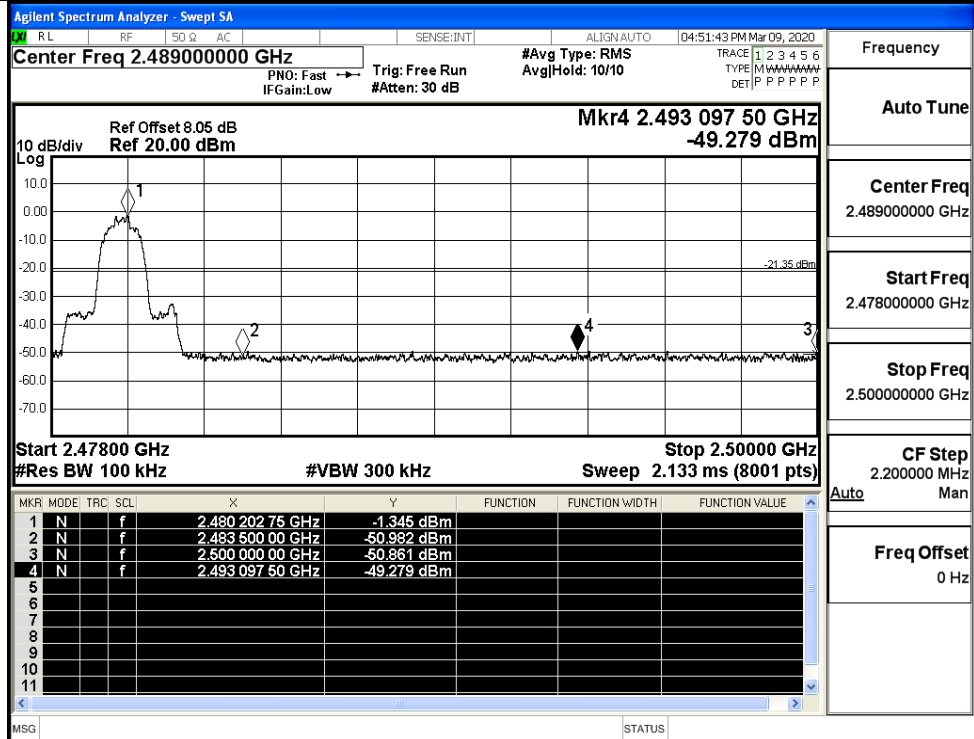
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



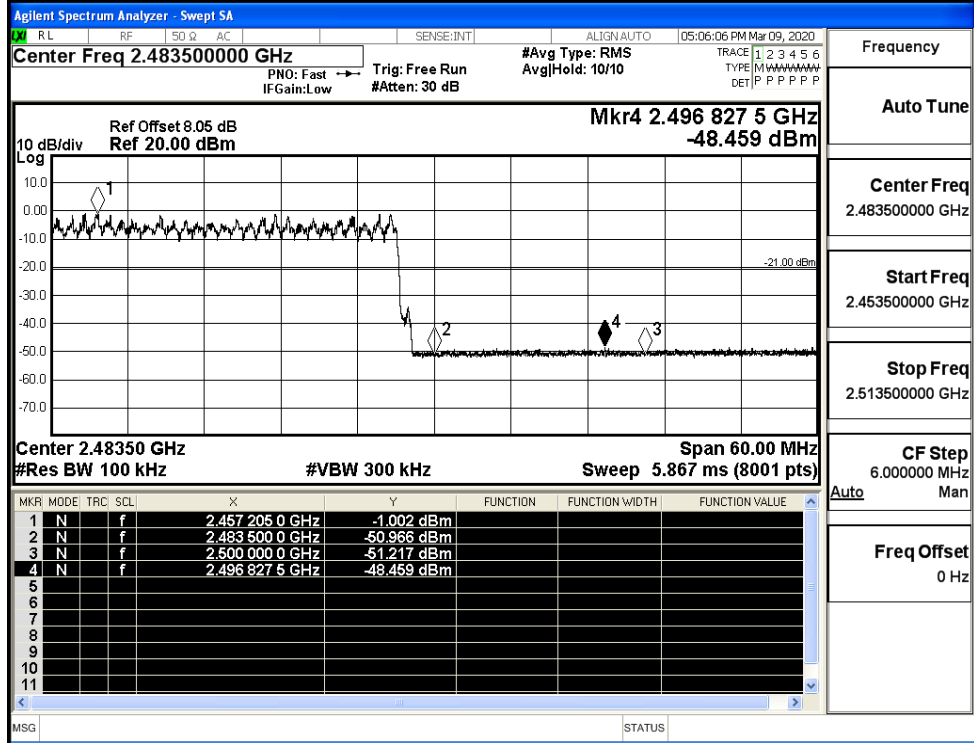
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/HCH/No Hop



Frequency	2.489000000 GHz
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

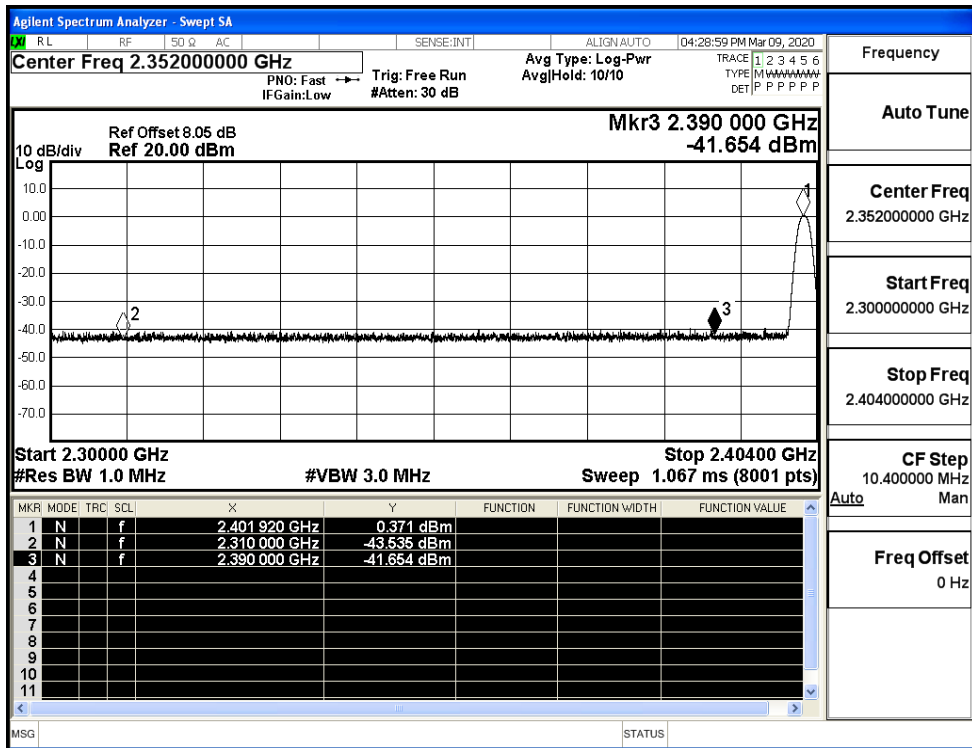


Frequency	2.483500000 GHz
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

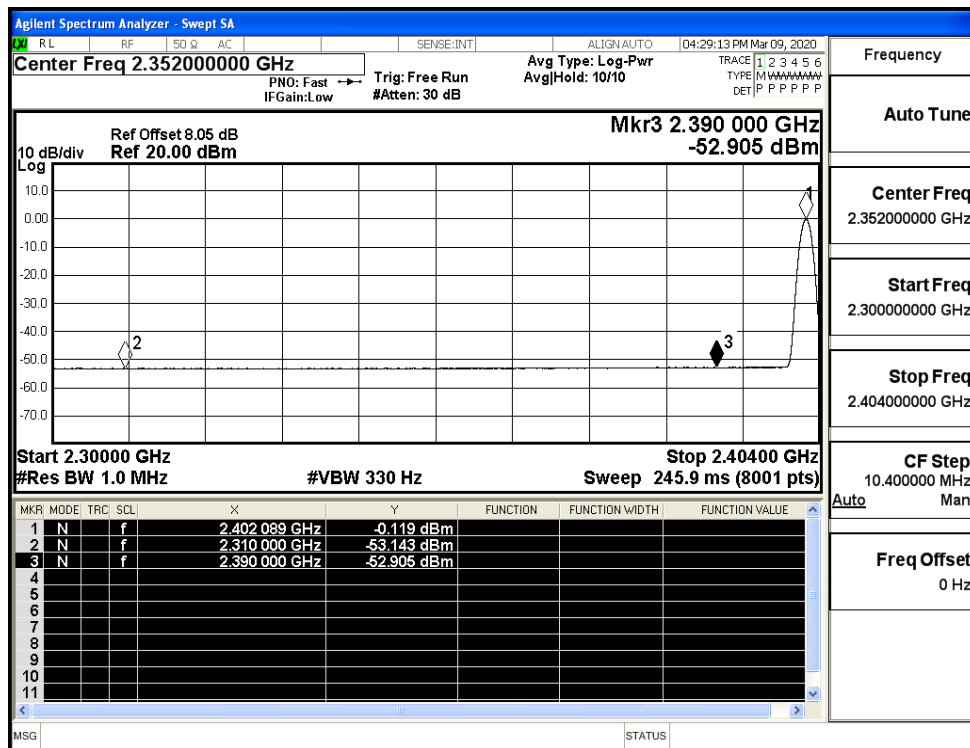
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.54	2.0	0	53.69	PEAK	74	PASS
	Off	2310.0	-53.14	2.0	0	44.09	AV	54	PASS
	Off	2390.0	-41.65	2.0	0	55.58	PEAK	74	PASS
	Off	2390.0	-52.91	2.0	0	44.32	AV	54	PASS
	Off	2483.5	-42.07	2.0	0	55.16	PEAK	74	PASS
	Off	2483.5	-52.40	2.0	0	44.83	AV	54	PASS
	Off	2500.0	-43.03	2.0	0	54.20	PEAK	74	PASS
	Off	2500.0	-52.13	2.0	0	45.10	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.70	2.0	0	53.53	PEAK	74	PASS
	Off	2310.0	-53.22	2.0	0	44.01	AV	54	PASS
	Off	2390.0	-42.69	2.0	0	54.54	PEAK	74	PASS
	Off	2390.0	-52.89	2.0	0	44.34	AV	54	PASS
	Off	2483.5	-40.97	2.0	0	56.26	PEAK	74	PASS
	Off	2483.5	-52.29	2.0	0	44.94	AV	54	PASS
	Off	2500.0	-42.32	2.0	0	54.91	PEAK	74	PASS
	Off	2500.0	-52.16	2.0	0	45.07	AV	54	PASS
8DPSK	Off	2310.0	-43.68	2.0	0	53.55	PEAK	74	PASS
	Off	2310.0	-53.15	2.0	0	44.08	AV	54	PASS
	Off	2390.0	-42.89	2.0	0	54.34	PEAK	74	PASS
	Off	2390.0	-52.89	2.0	0	44.34	AV	54	PASS
	Off	2483.5	-41.97	2.0	0	55.26	PEAK	74	PASS
	Off	2483.5	-52.36	2.0	0	44.87	AV	54	PASS
	Off	2500.0	-41.61	2.0	0	55.62	PEAK	74	PASS
	Off	2500.0	-52.29	2.0	0	44.94	AV	54	PASS

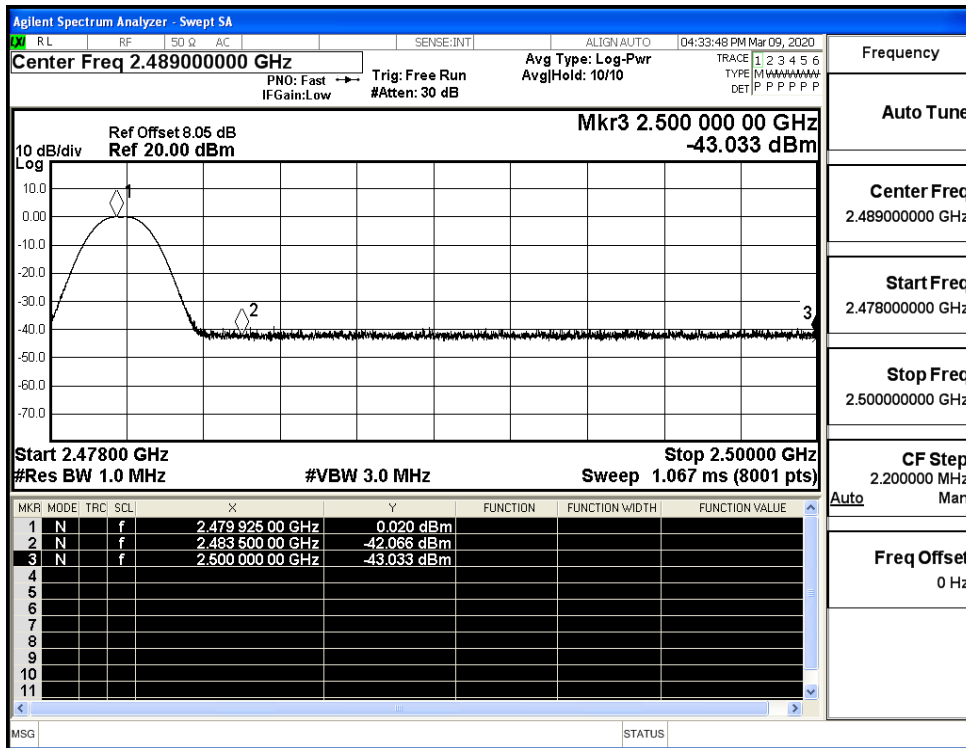
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



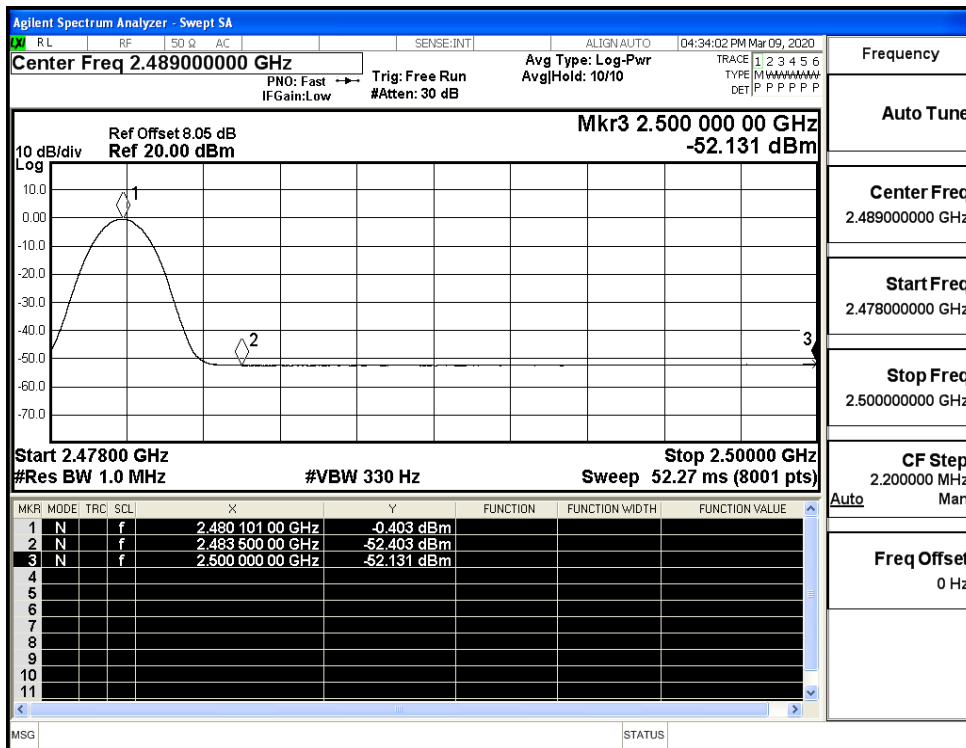
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



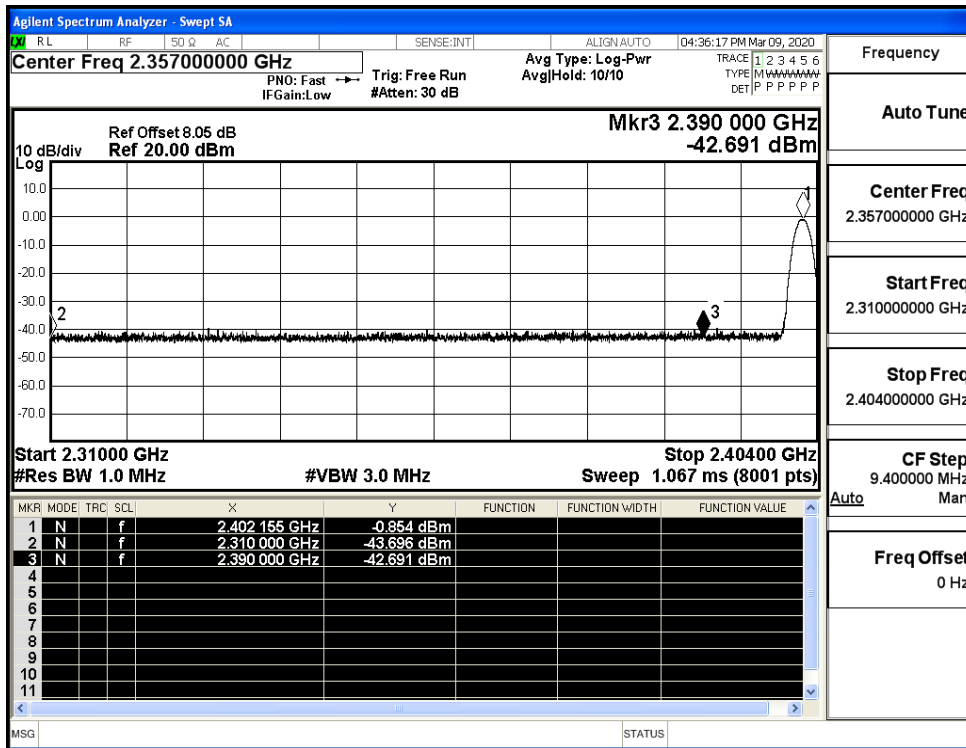
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



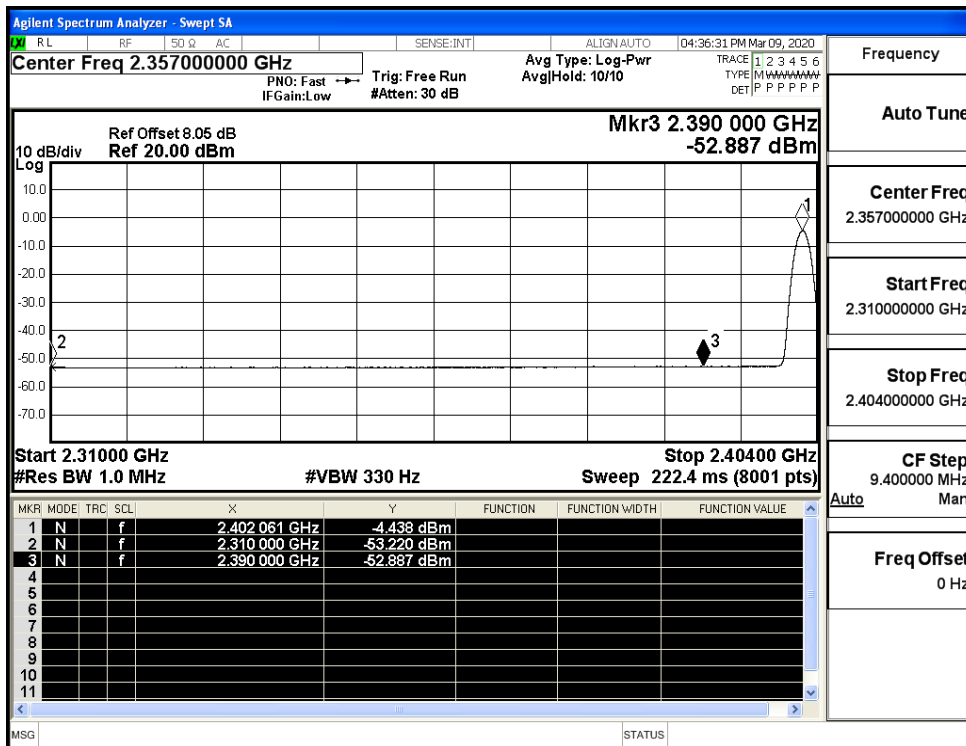
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



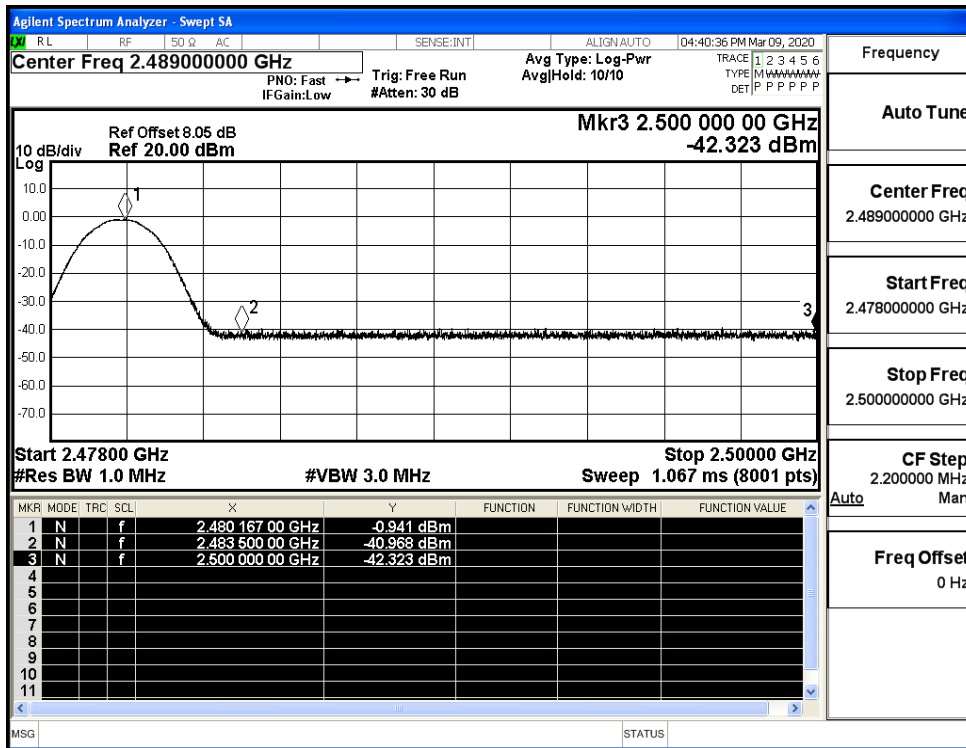
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



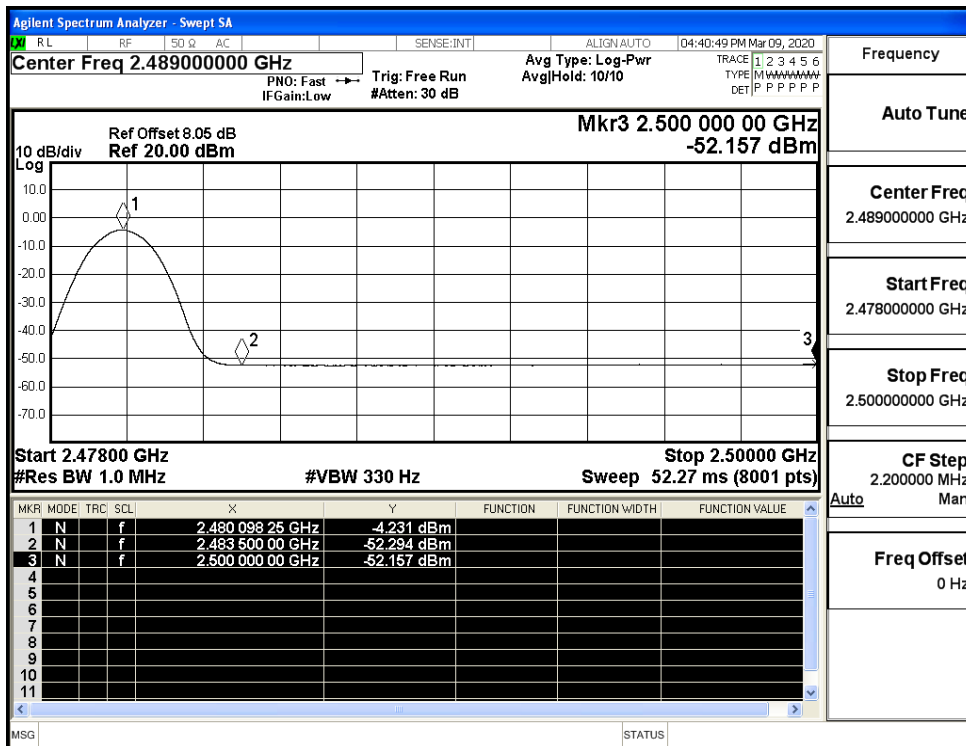
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



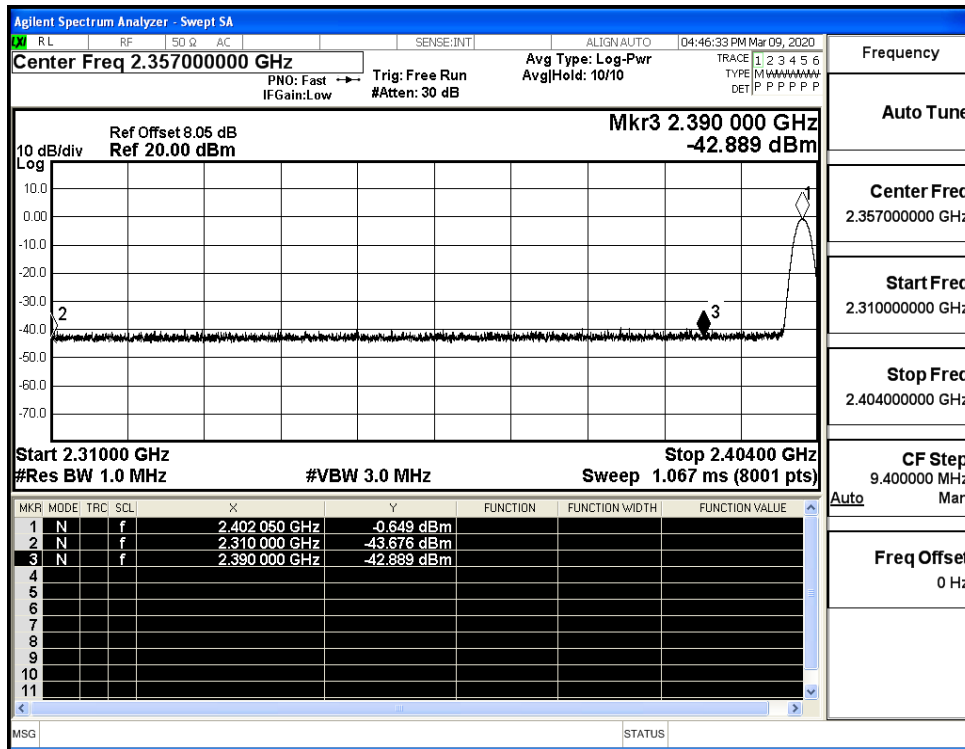
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



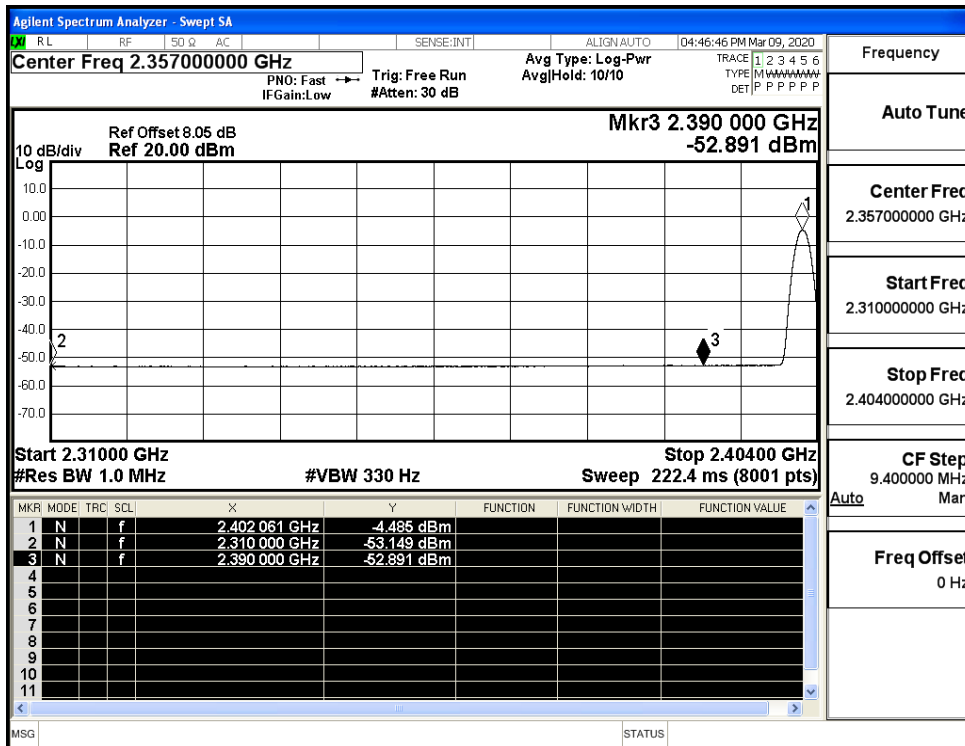
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



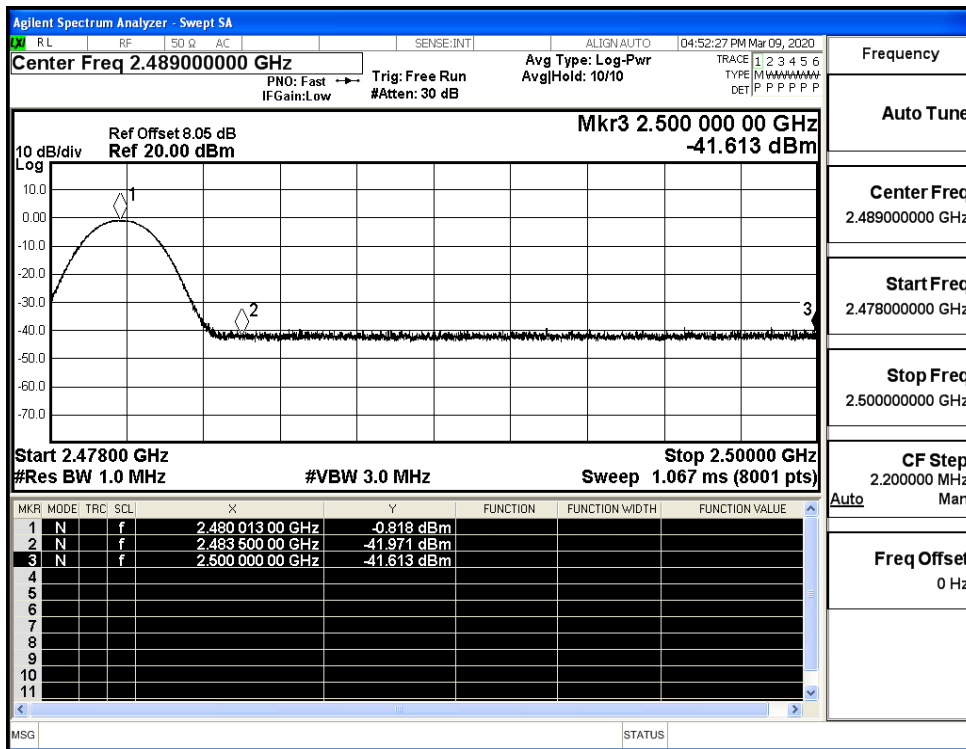
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

