

Appendix A

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

Product Name: Desk lamp

Trade Mark: N/A

Test Model: LZ-S2020

Environmental Conditions

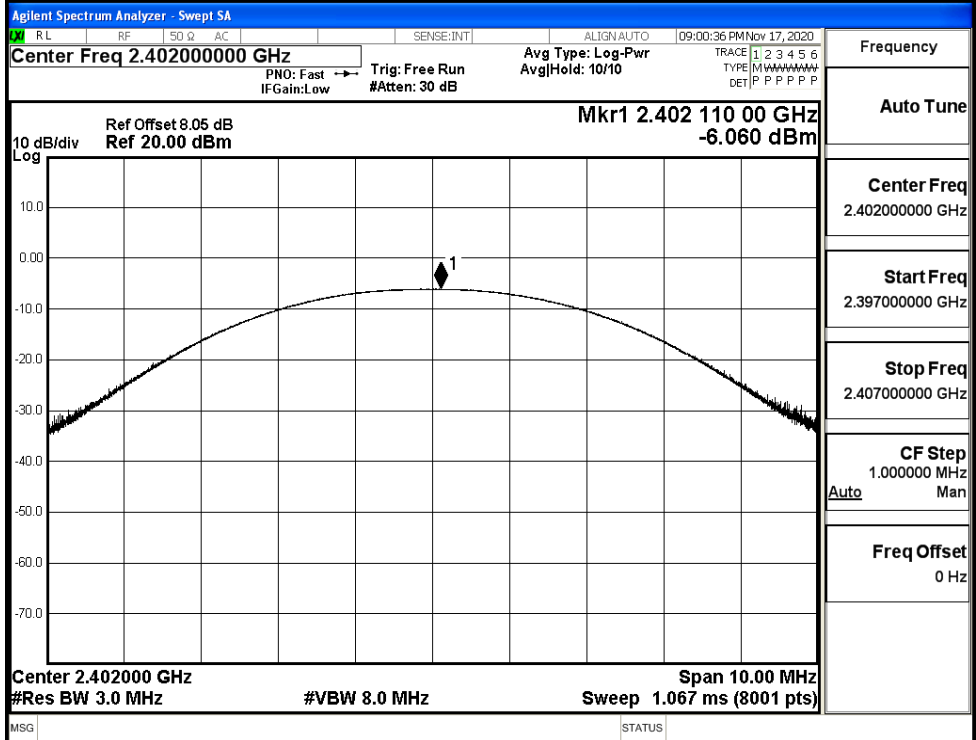
Temperature:	23.1 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

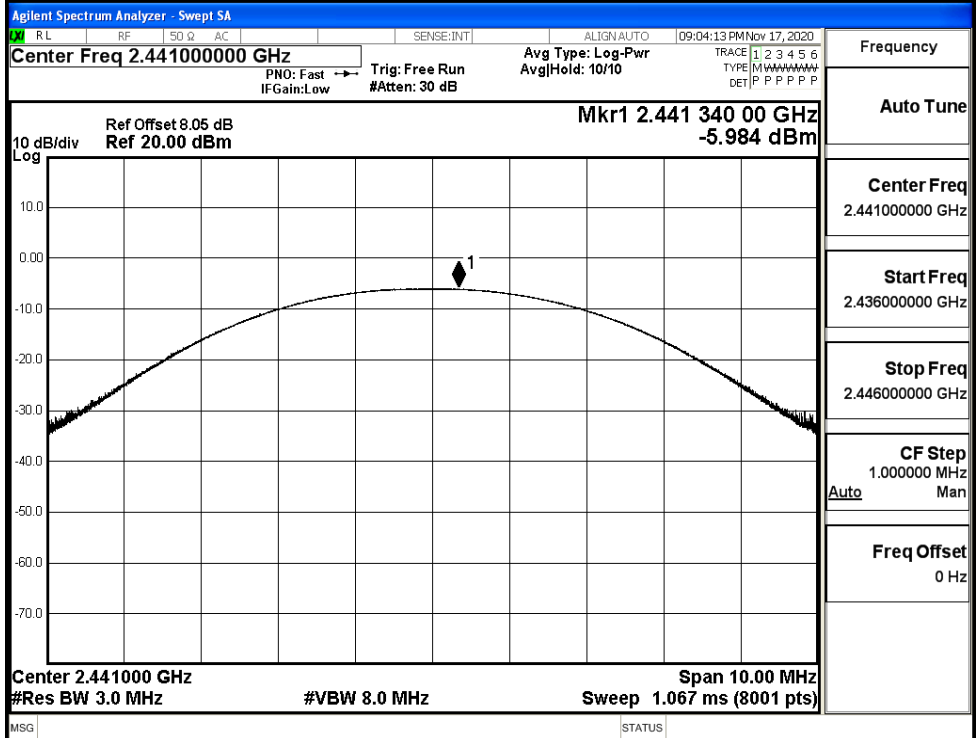
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-6.060	21	PASS
	MCH	-5.984	21	PASS
	HCH	-6.445	21	PASS
$\pi/4$ DQPSK	LCH	-6.224	21	PASS
	MCH	-6.097	21	PASS
	HCH	-6.565	21	PASS
8DPSK	LCH	-6.276	21	PASS
	MCH	-6.178	21	PASS
	HCH	-6.656	21	PASS

Test Graphs

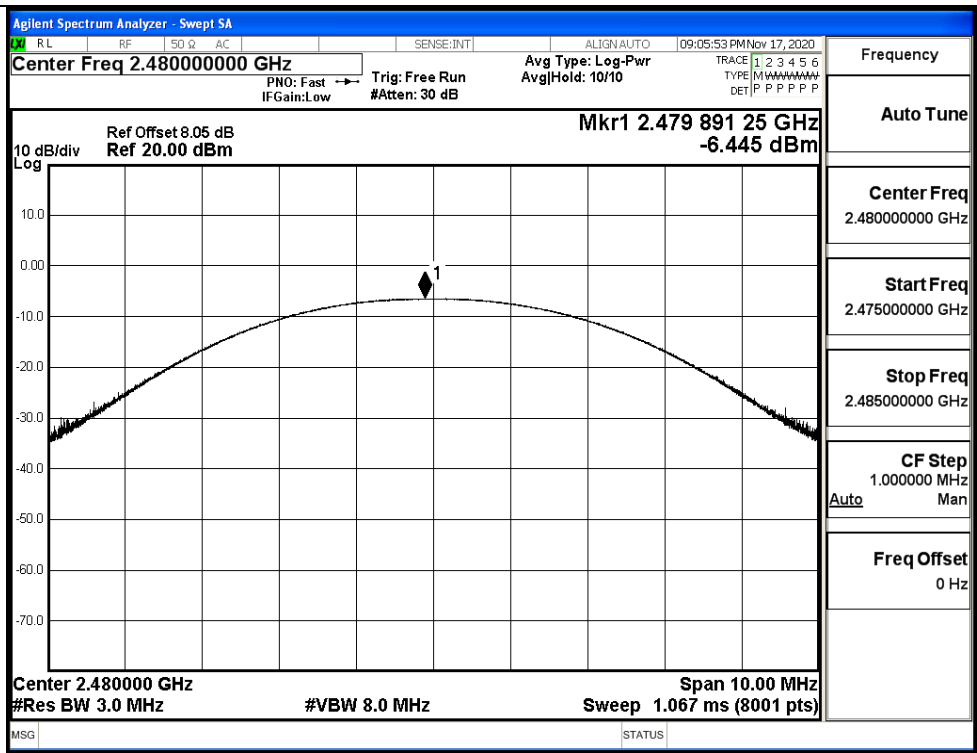
GFSK/LCH



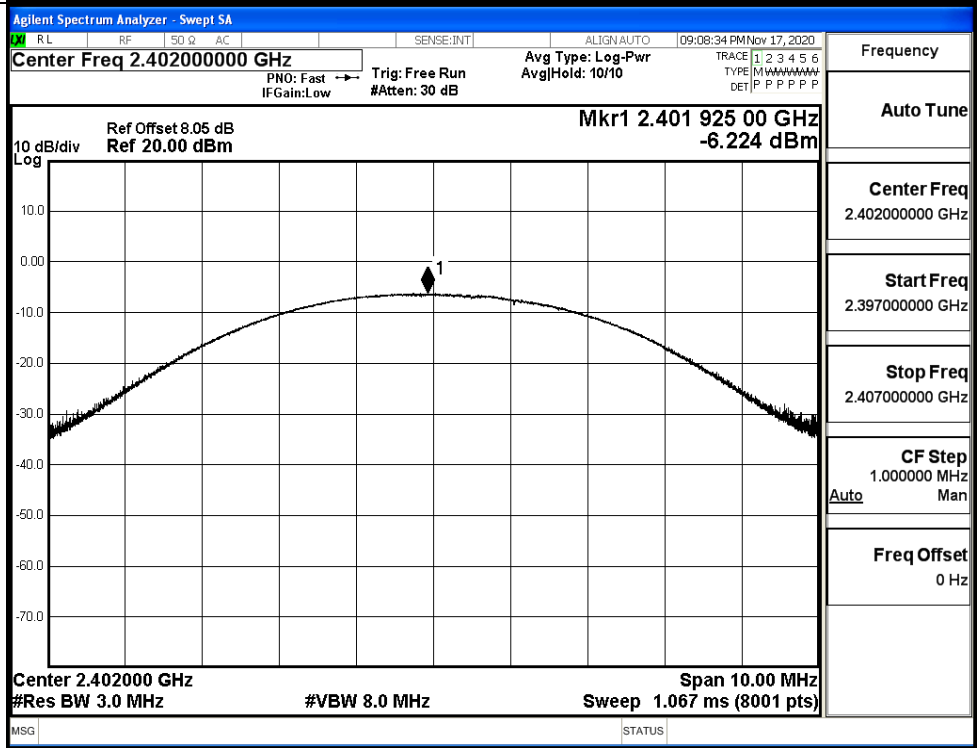
GFSK/MCH



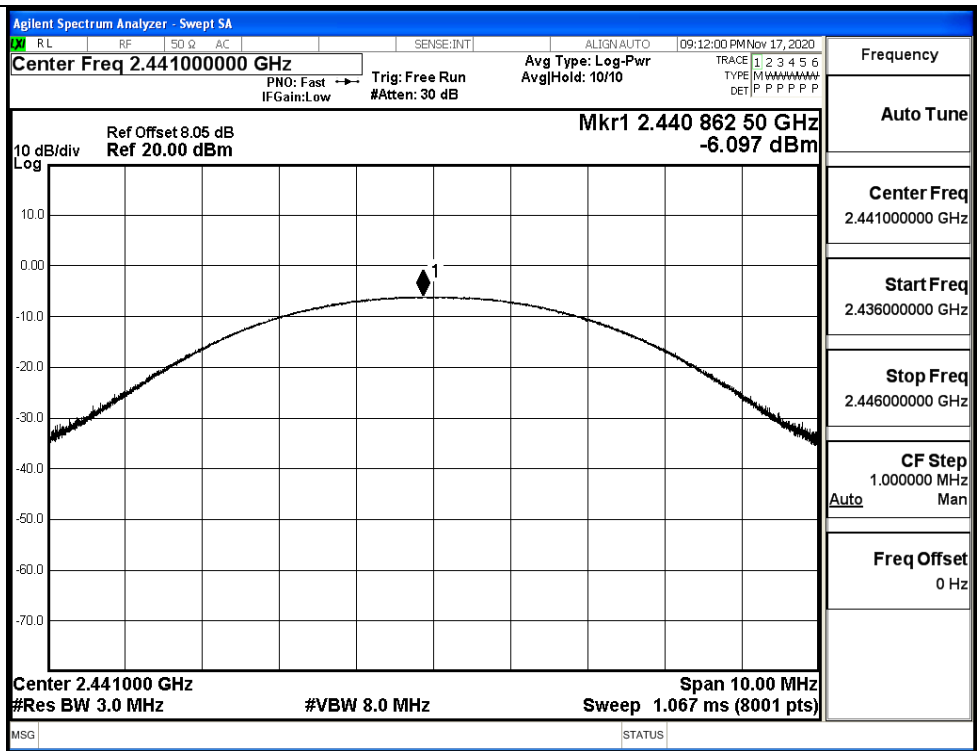
GFSK/HCH



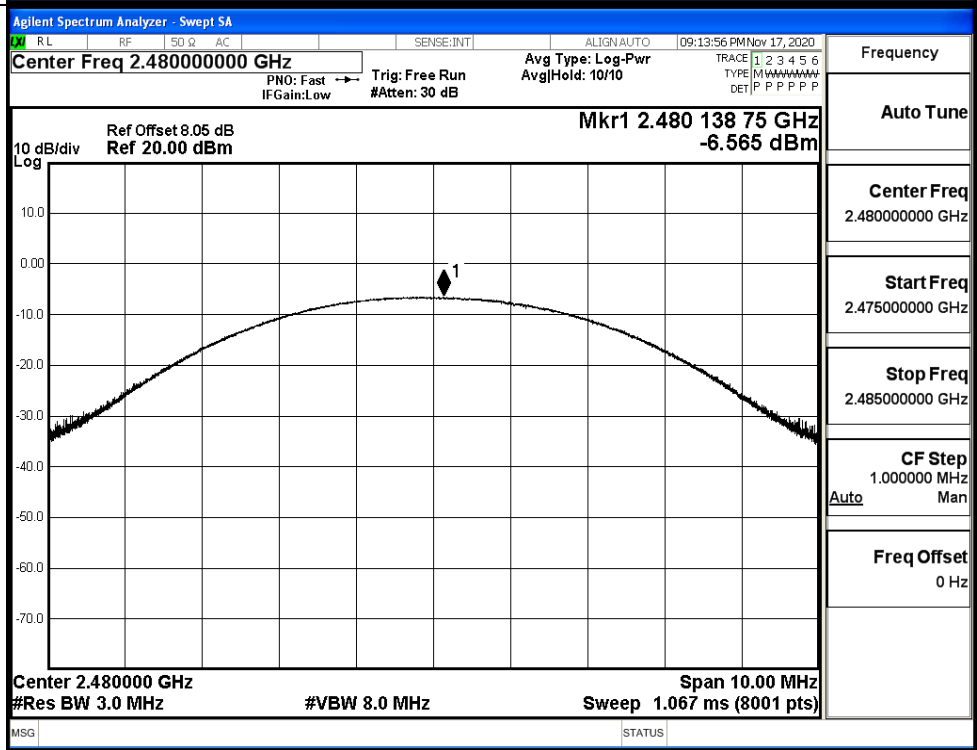
π /4DQPSK/LCH



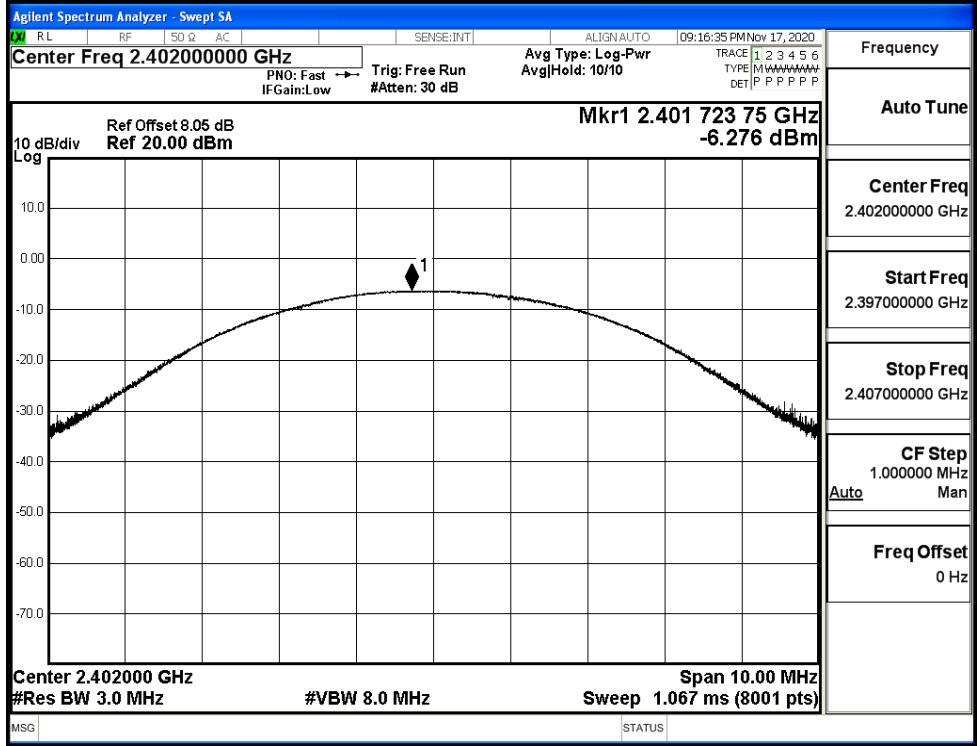
π /4DQPSK/MCH



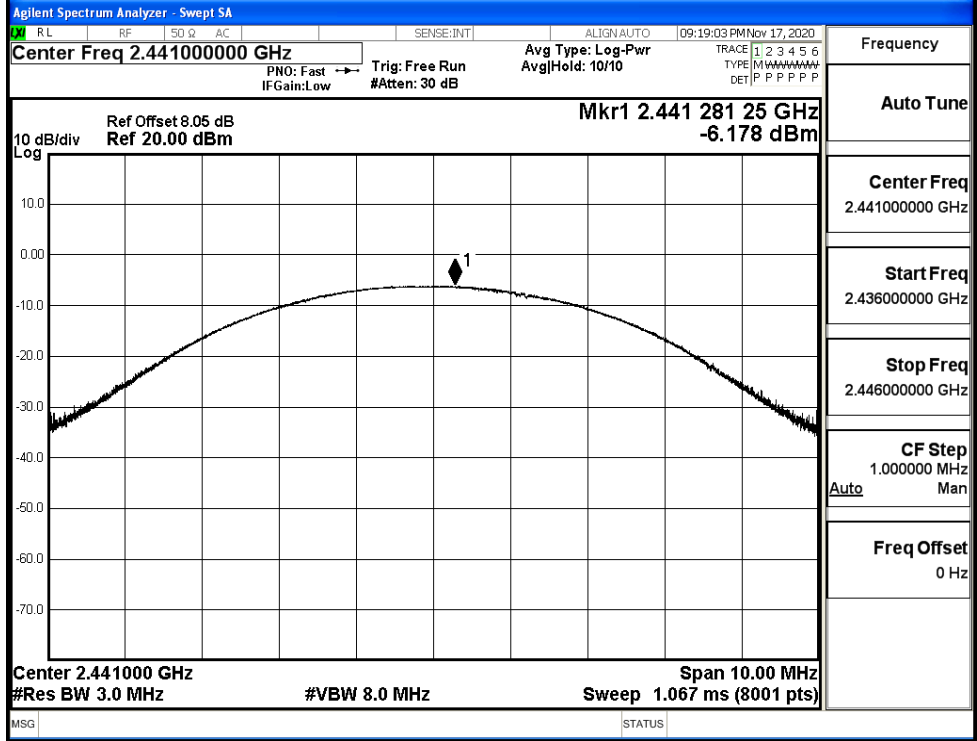
π /4DQPSK/HCH



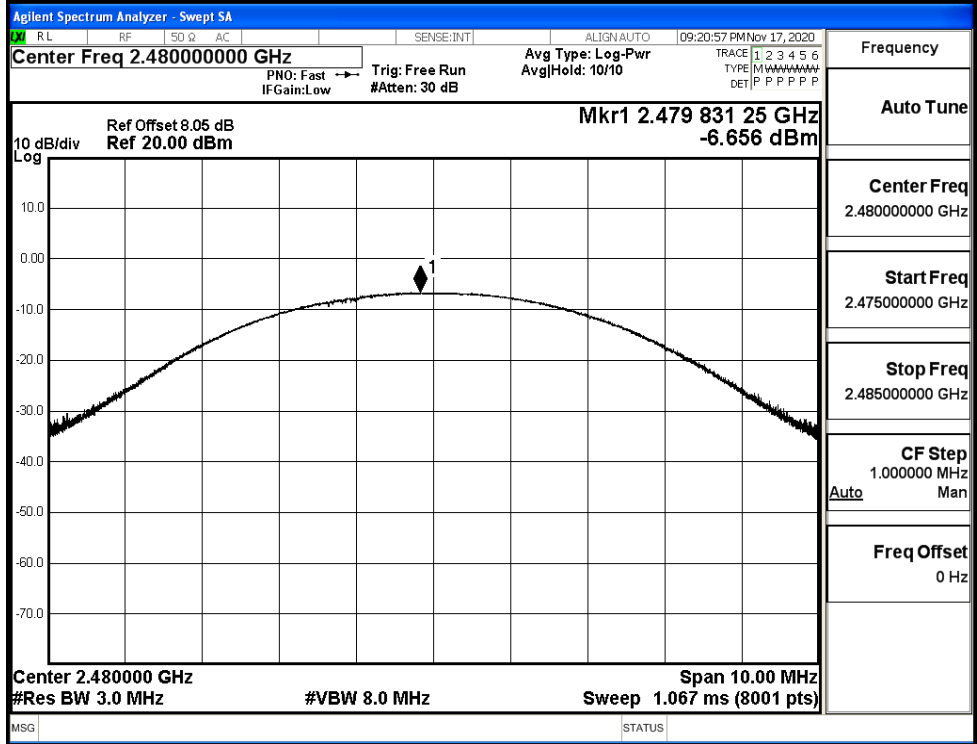
8DPSK/LCH



8DPSK/MCH

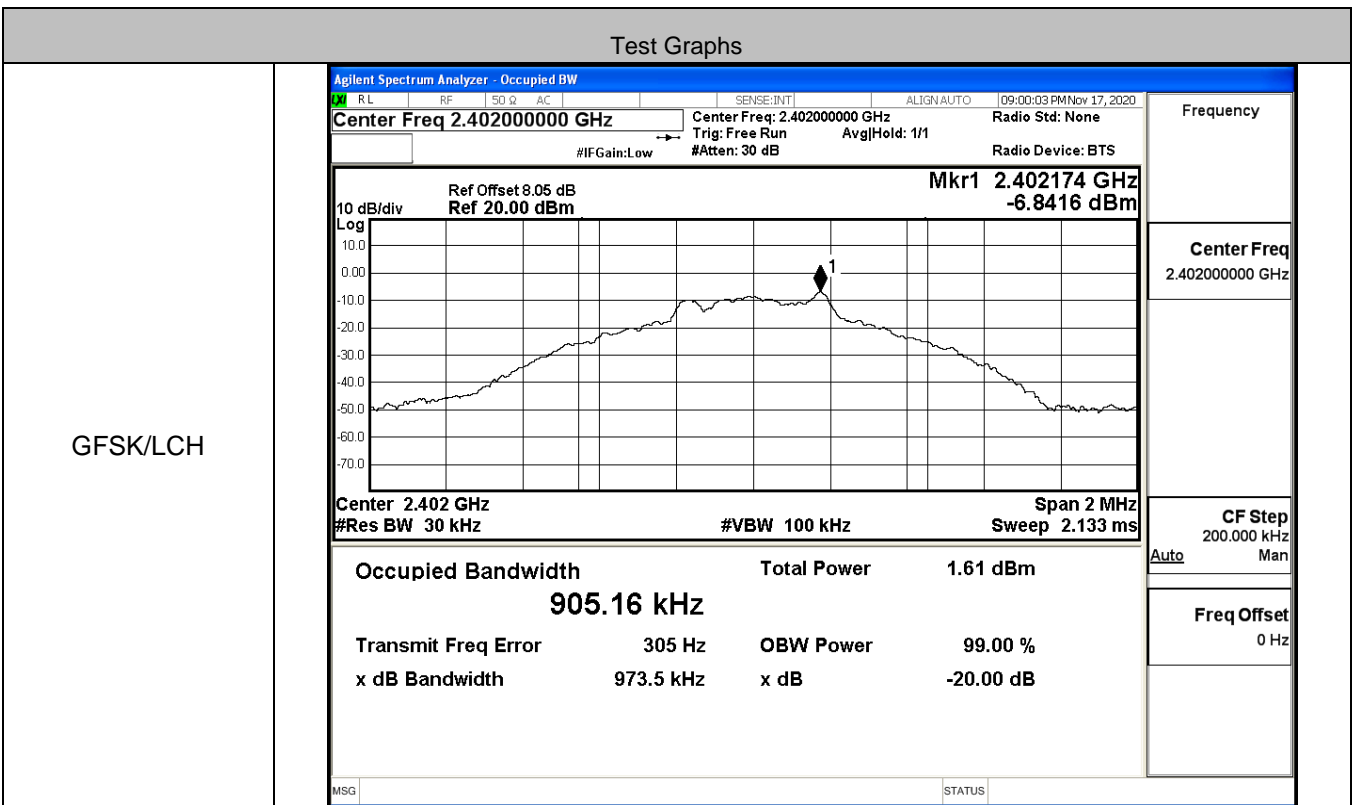


8DPSK/HCH

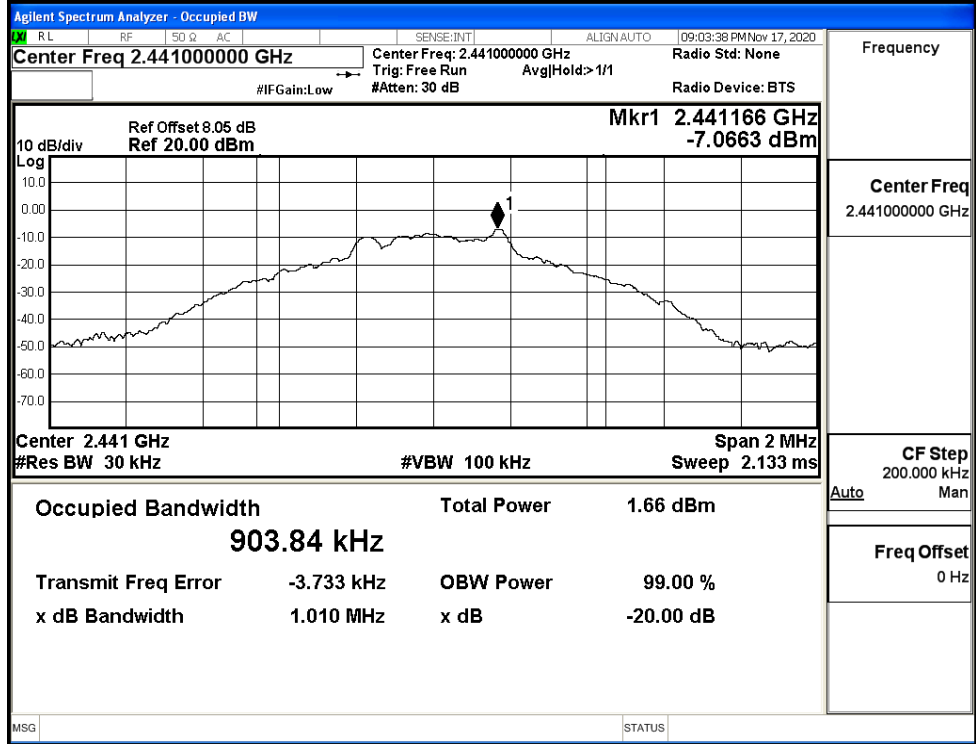


A.2 20dB Bandwidth

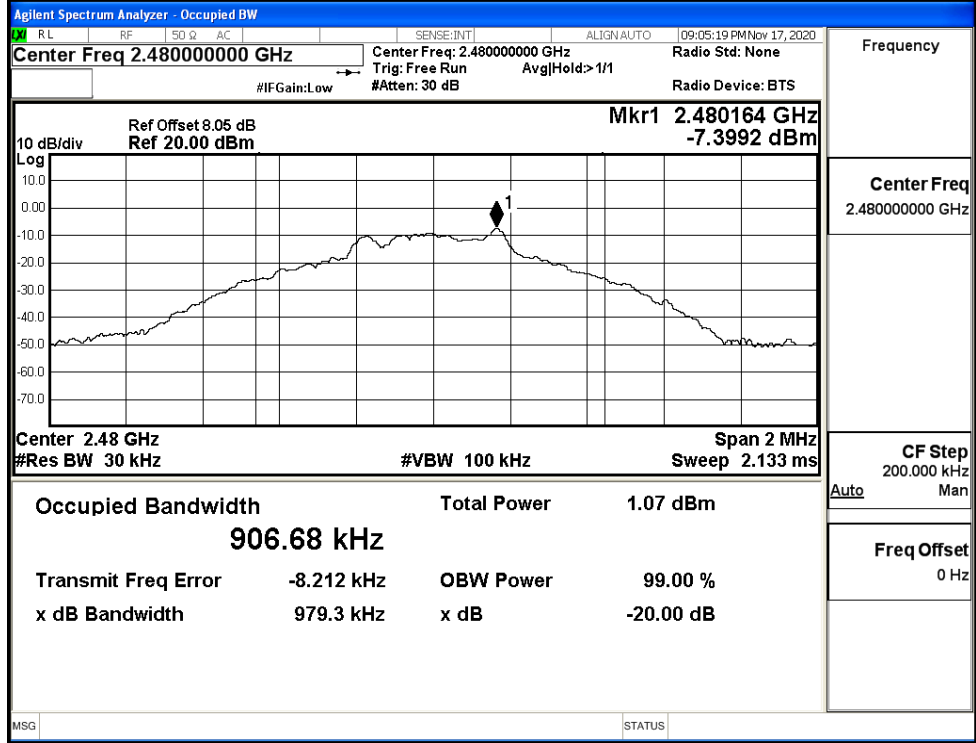
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9735	Not Specified	PASS
	MCH	1.010	Not Specified	PASS
	HCH	0.9793	Not Specified	PASS
π/4DQPSK	LCH	1.316	Not Specified	PASS
	MCH	1.312	Not Specified	PASS
	HCH	1.315	Not Specified	PASS
8DPSK	LCH	1.300	Not Specified	PASS
	MCH	1.301	Not Specified	PASS
	HCH	1.301	Not Specified	PASS



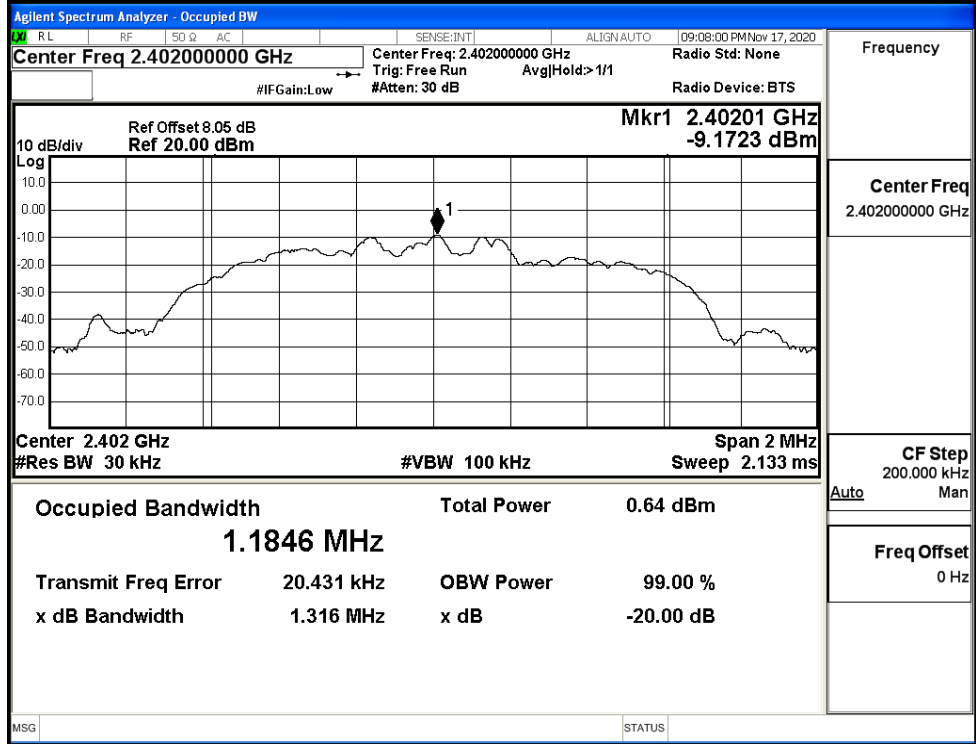
GFSK/MCH



GFSK/HCH

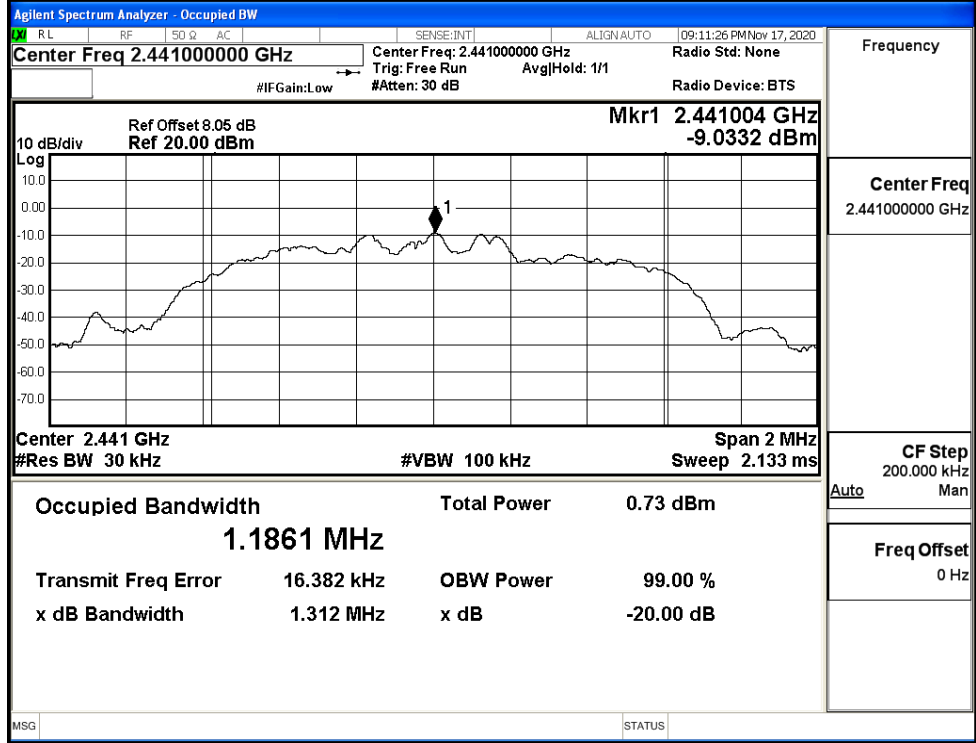


$\pi/4$ DQPSK/LCH



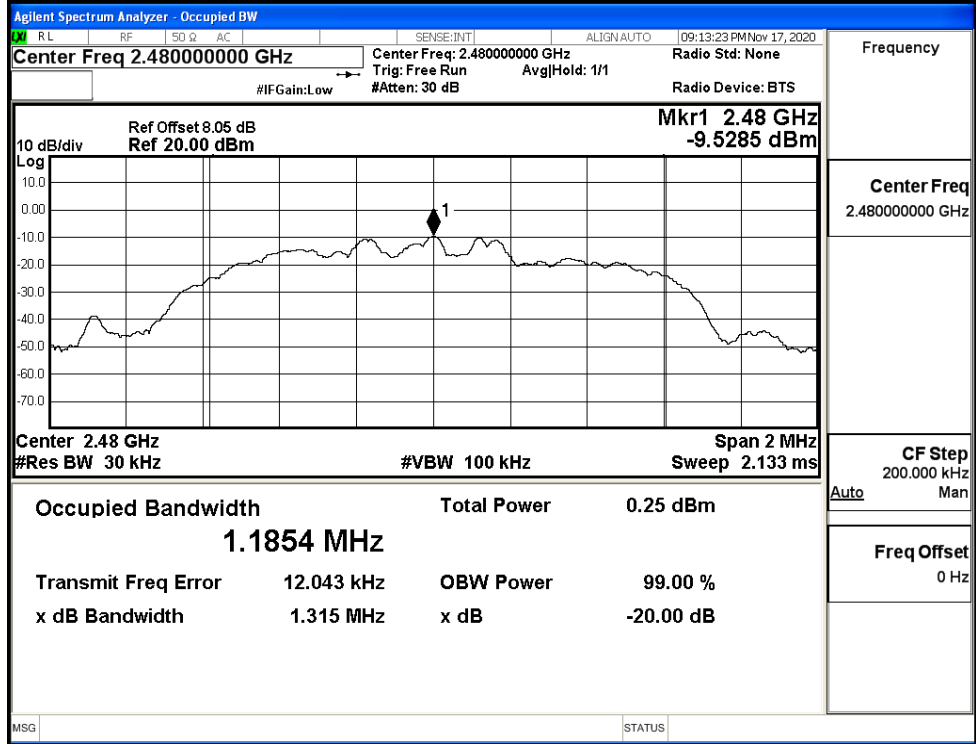
Frequency	2.40200000 GHz
Center Freq	2.40200000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/MCH

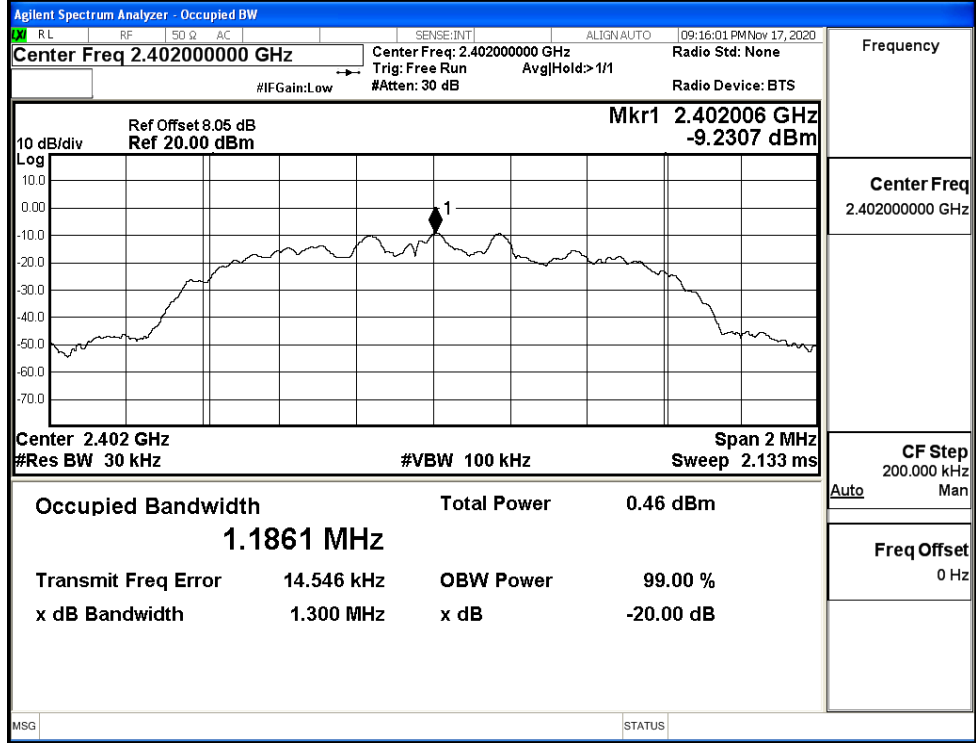


Frequency	2.44100000 GHz
Center Freq	2.44100000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

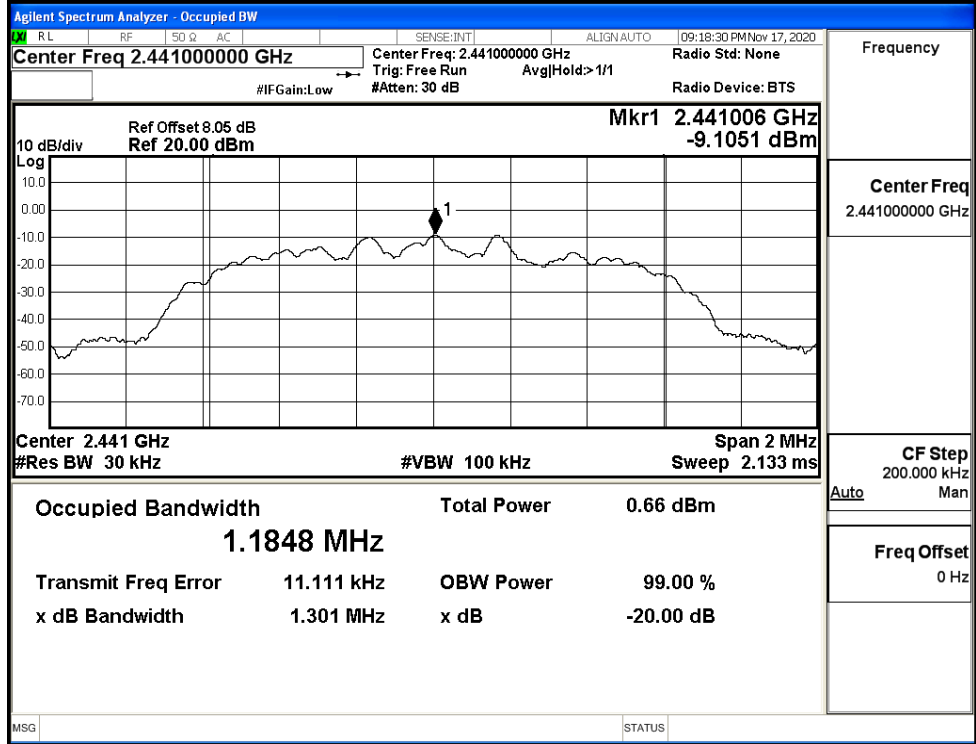
π /4DQPSK/HCH



8DPSK/LCH

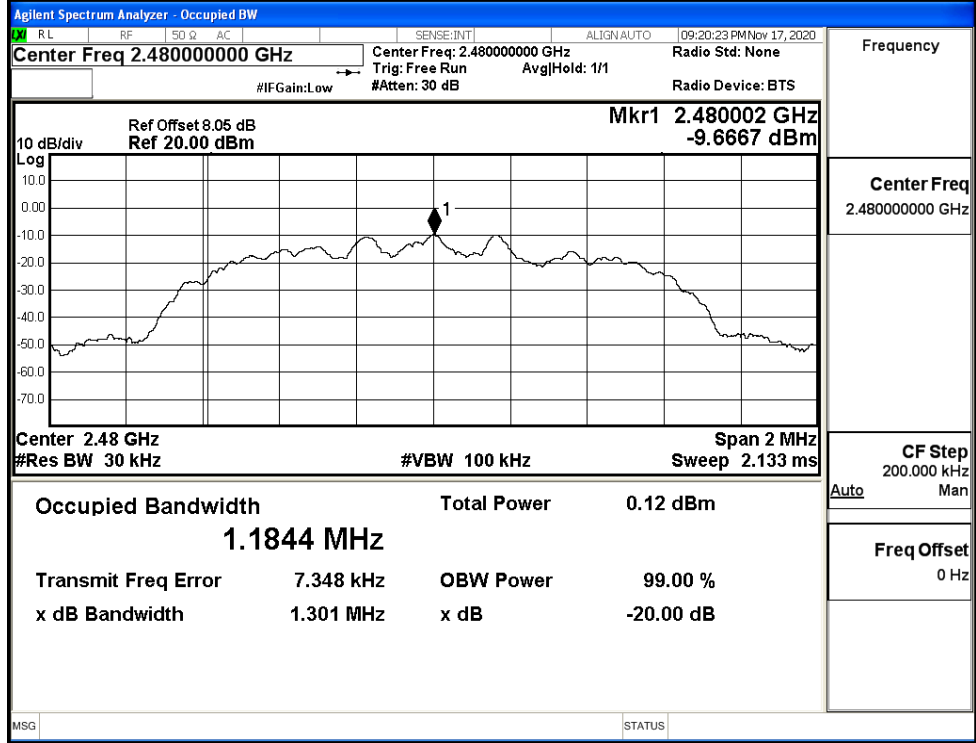


8DPSK/MCH



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

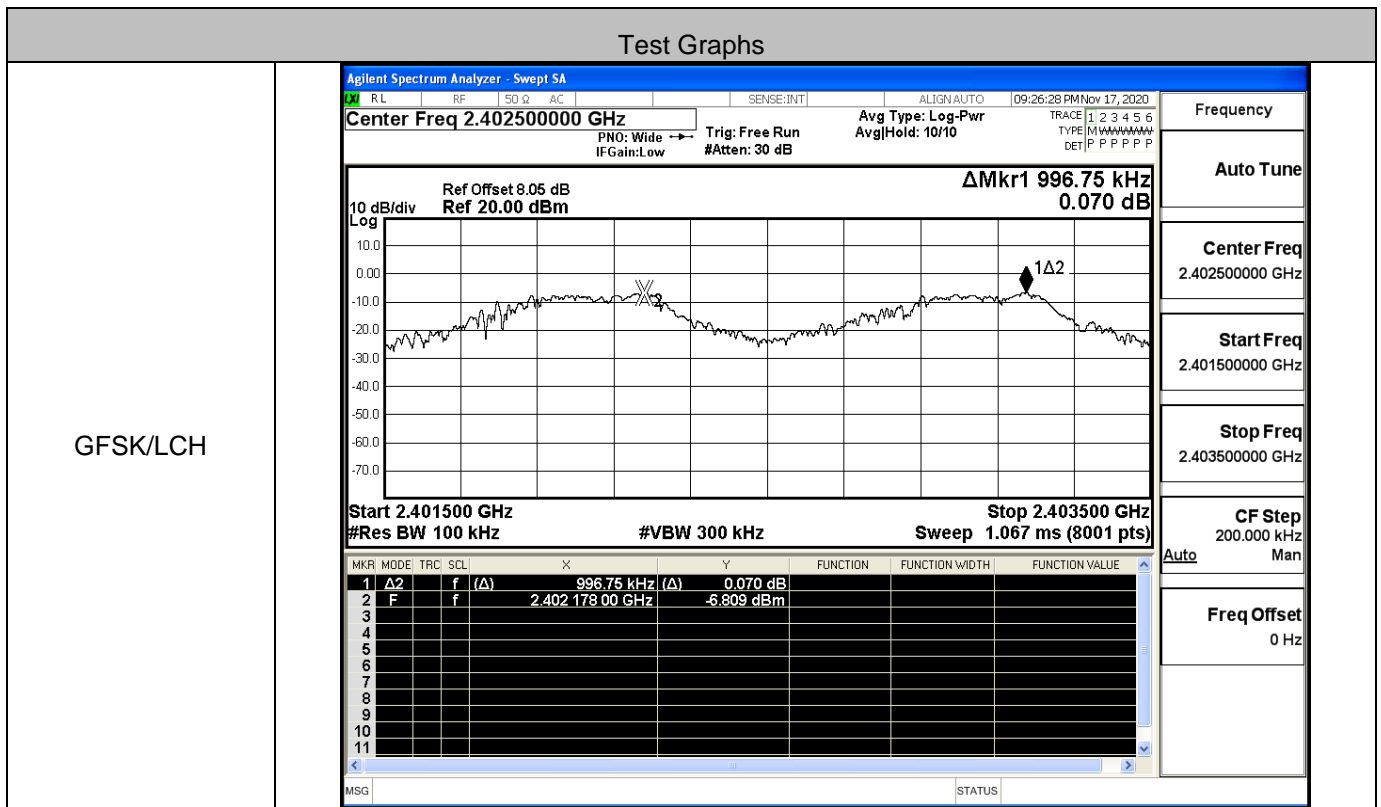
8DPSK/HCH



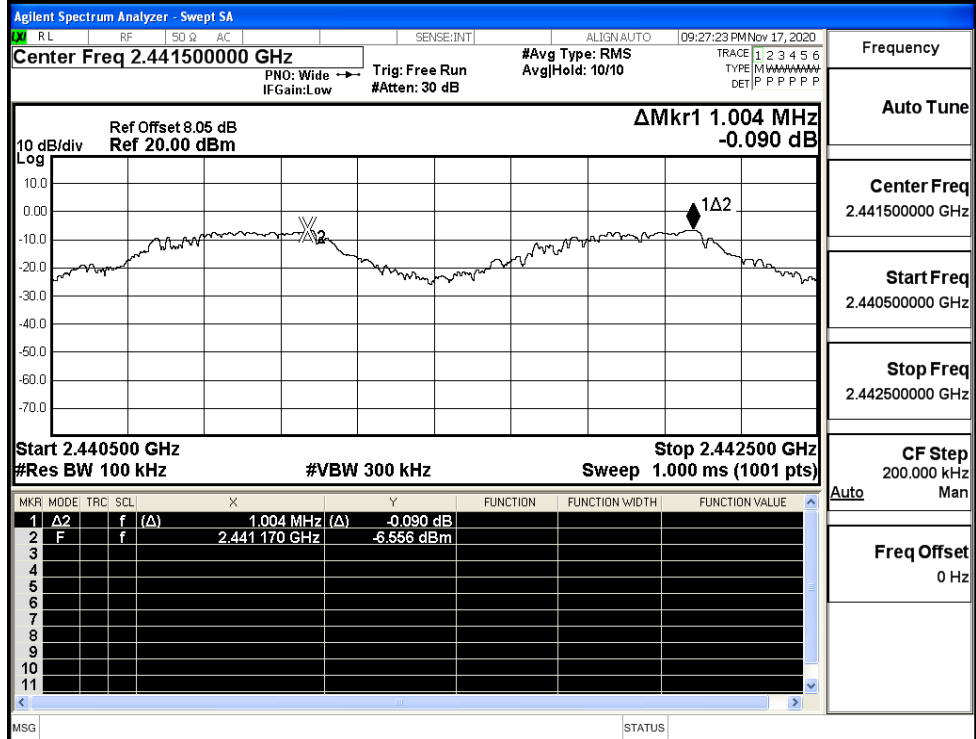
Frequency	
Center Freq	2.480000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.997	0.673	PASS
	MCH	1.004	0.673	PASS
	HCH	1.004	0.673	PASS
π/4DQPSK	LCH	1.288	0.877	PASS
	MCH	1.312	0.877	PASS
	HCH	1.000	0.877	PASS
8DPSK	LCH	1.152	0.867	PASS
	MCH	1.154	0.867	PASS
	HCH	1.168	0.867	PASS



GFSK/MCH



Frequency

Auto Tune

Center Freq

2.441500000 GHz

Start Freq

2.440500000 GHz

Stop Freq

2.442500000 GHz

CF Step

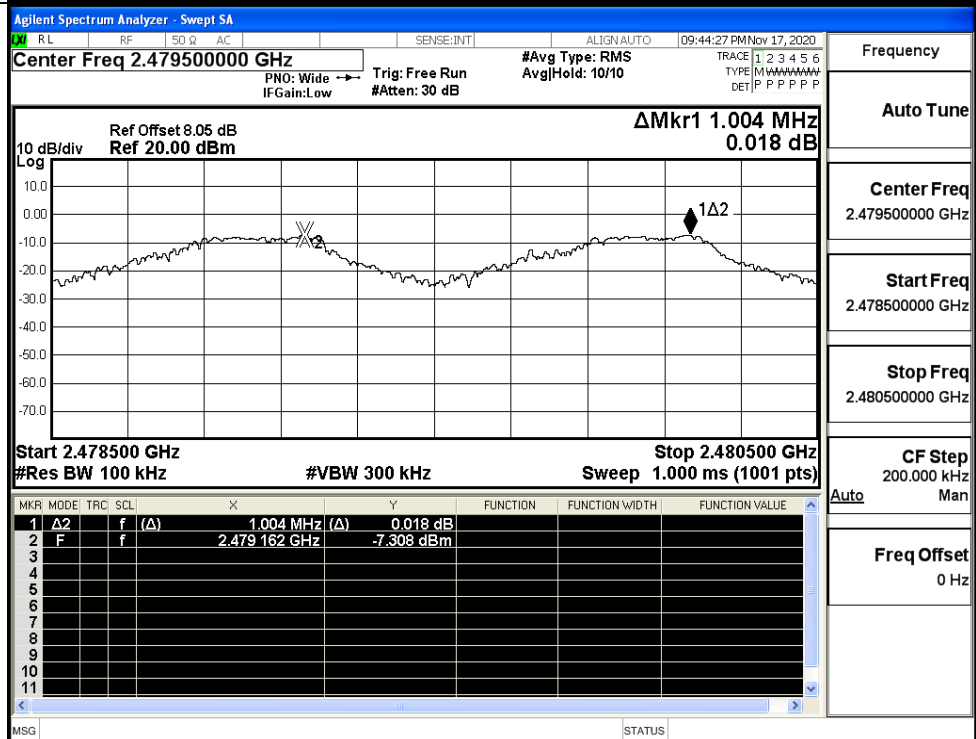
200.000 kHz

Auto

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

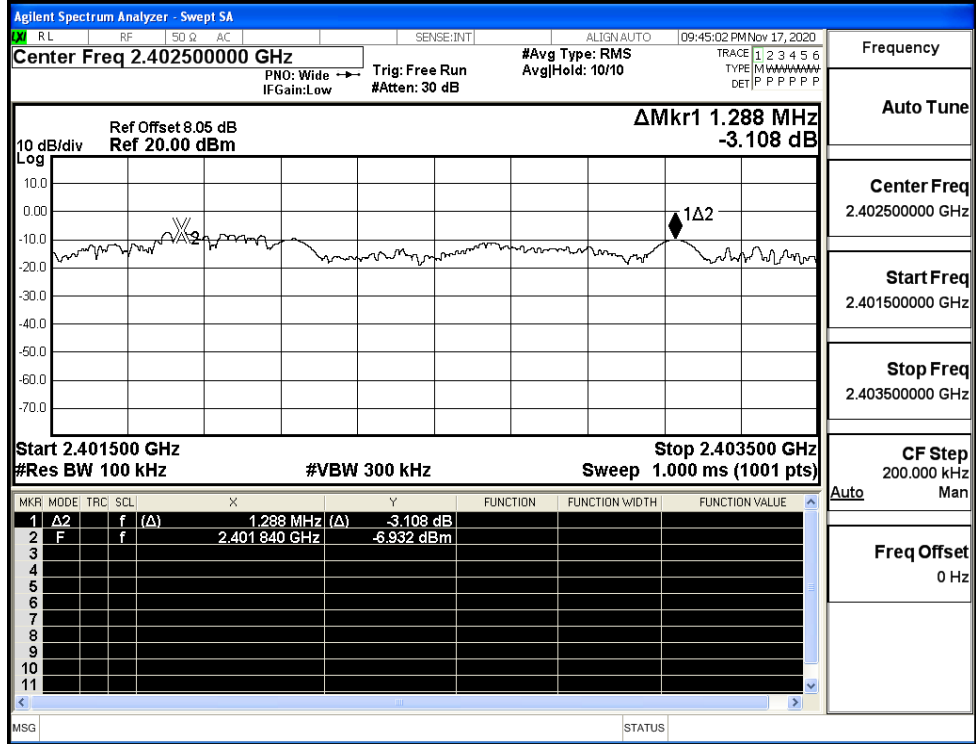
200.000 kHz

Auto

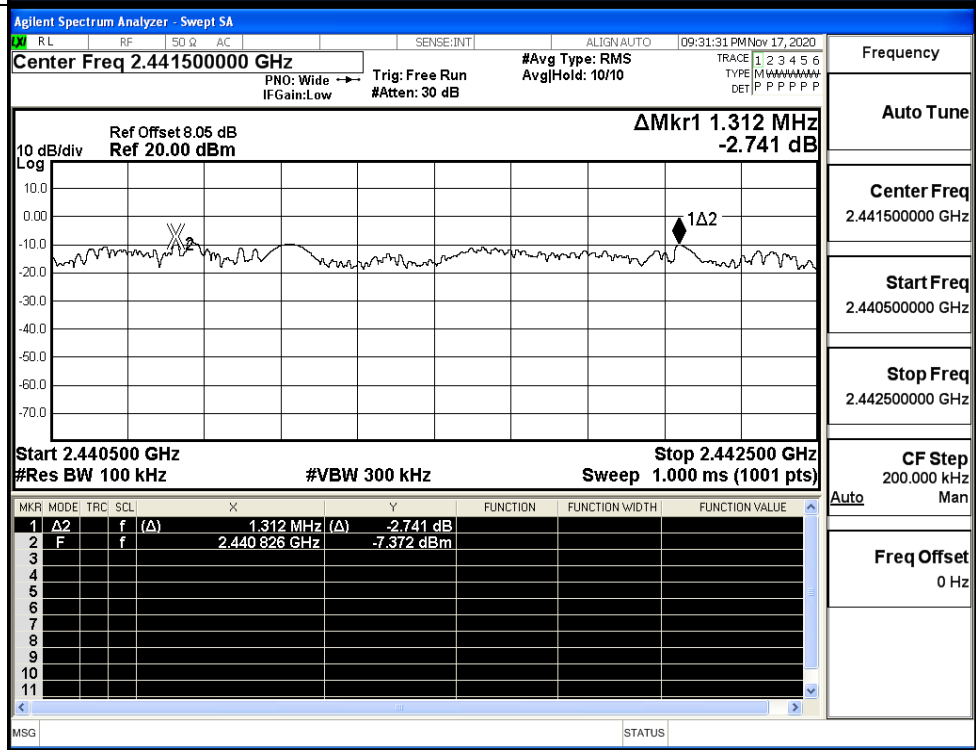
Freq Offset

0 Hz

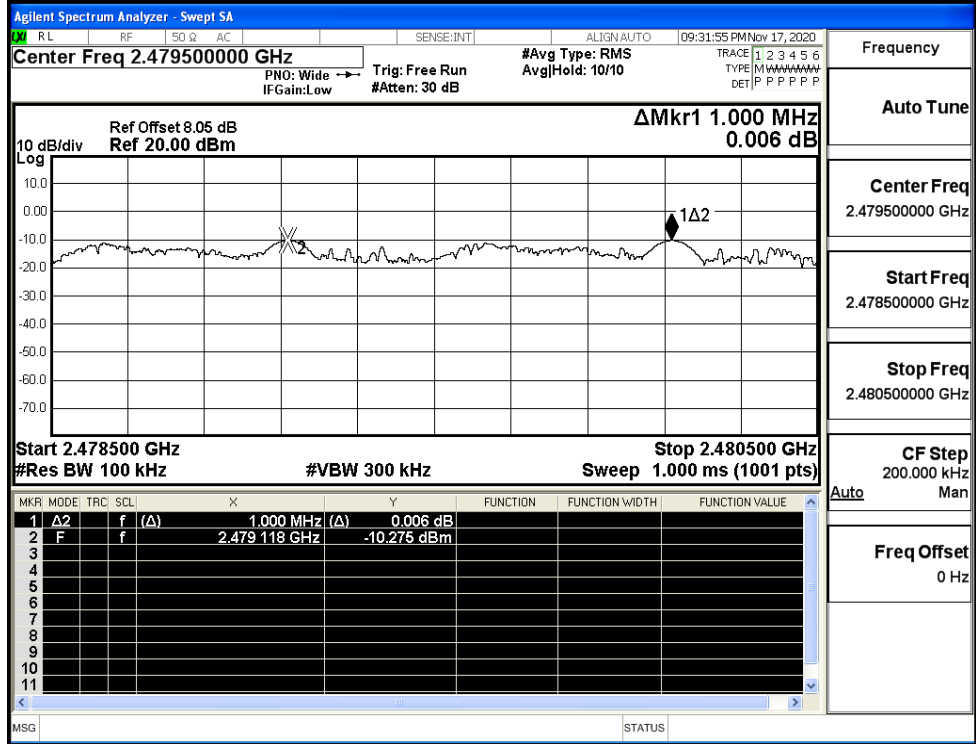
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



π/4DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

Start Freq
2.478500000 GHz

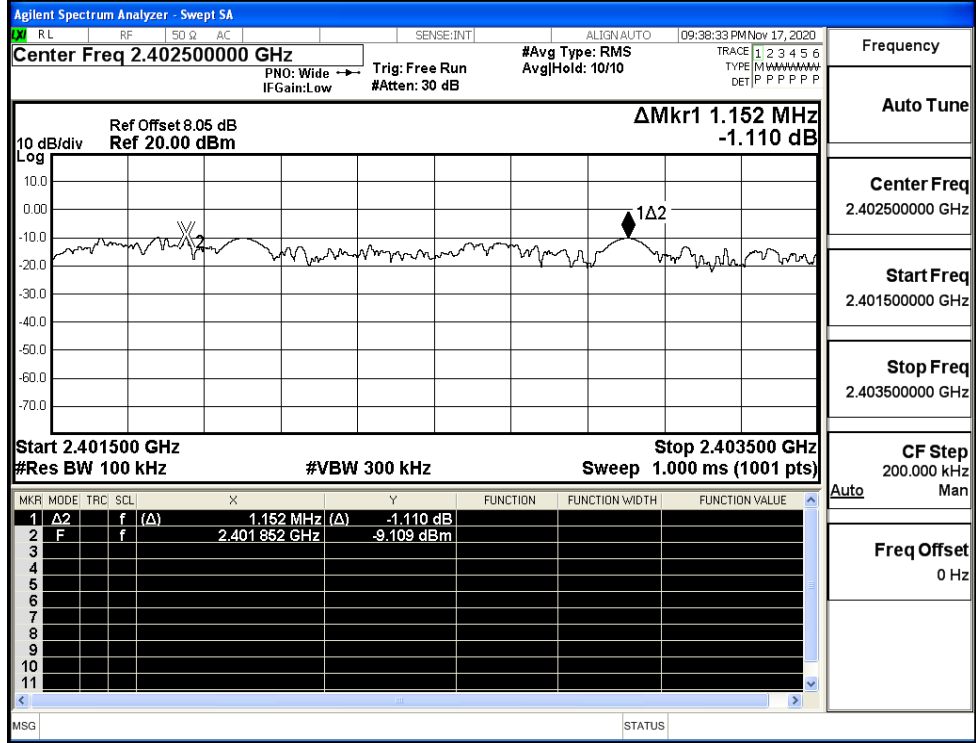
Stop Freq
2.480500000 GHz

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

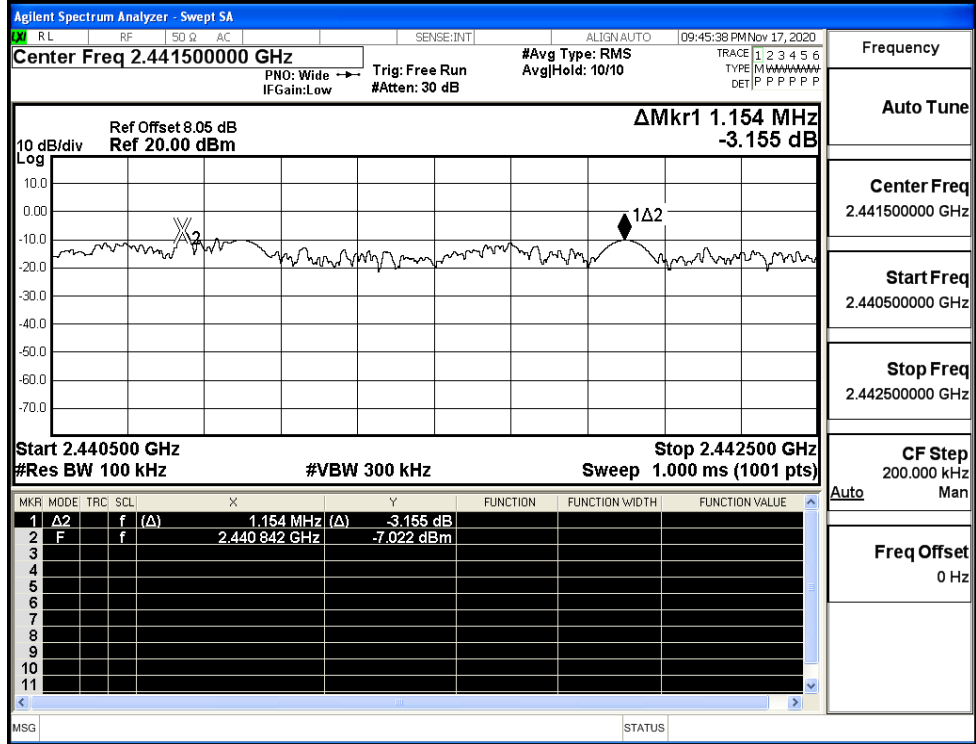
Stop Freq
2.403500000 GHz

CF Step
200.000 kHz

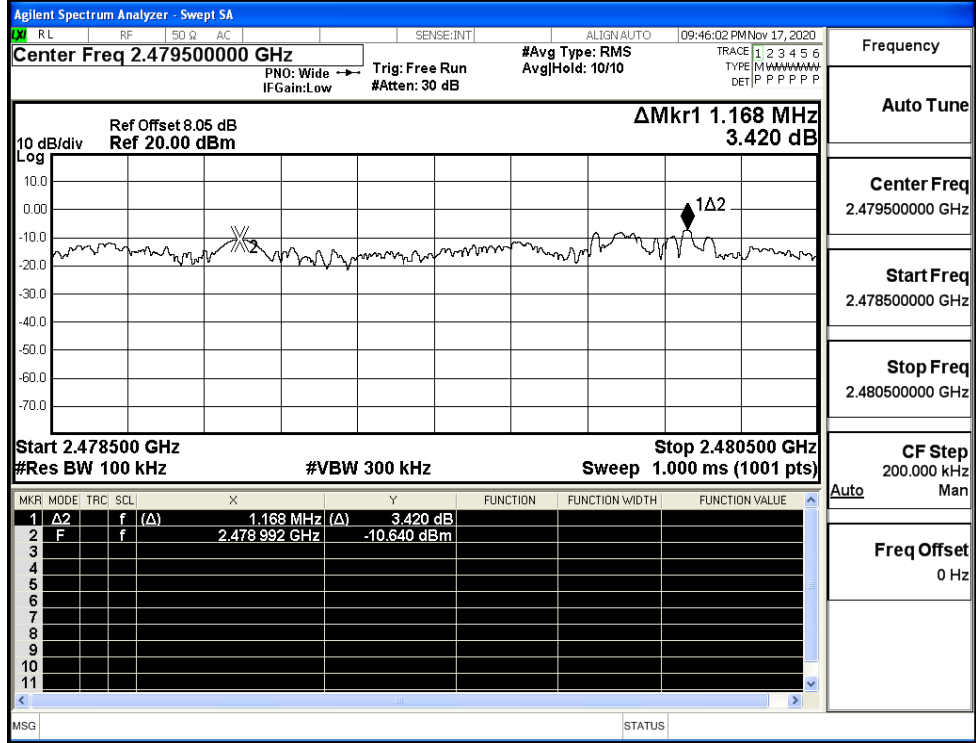
Auto

Freq Offset
0 Hz

8DPSK/MCH



8DPSK/HCH



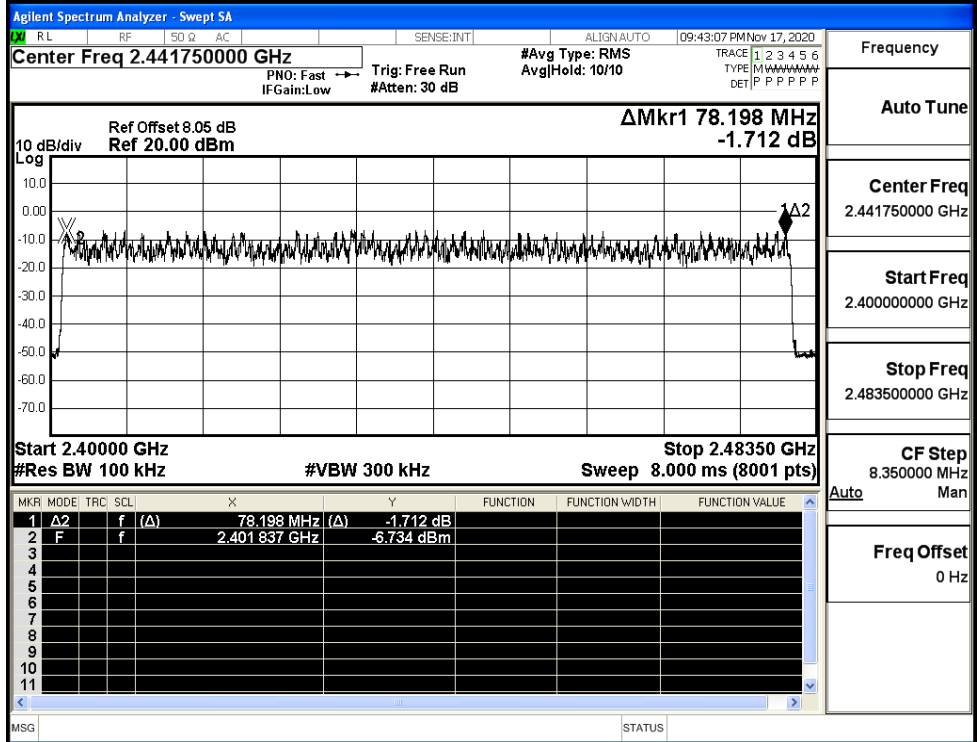
A.4 Hopping Channel Number

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

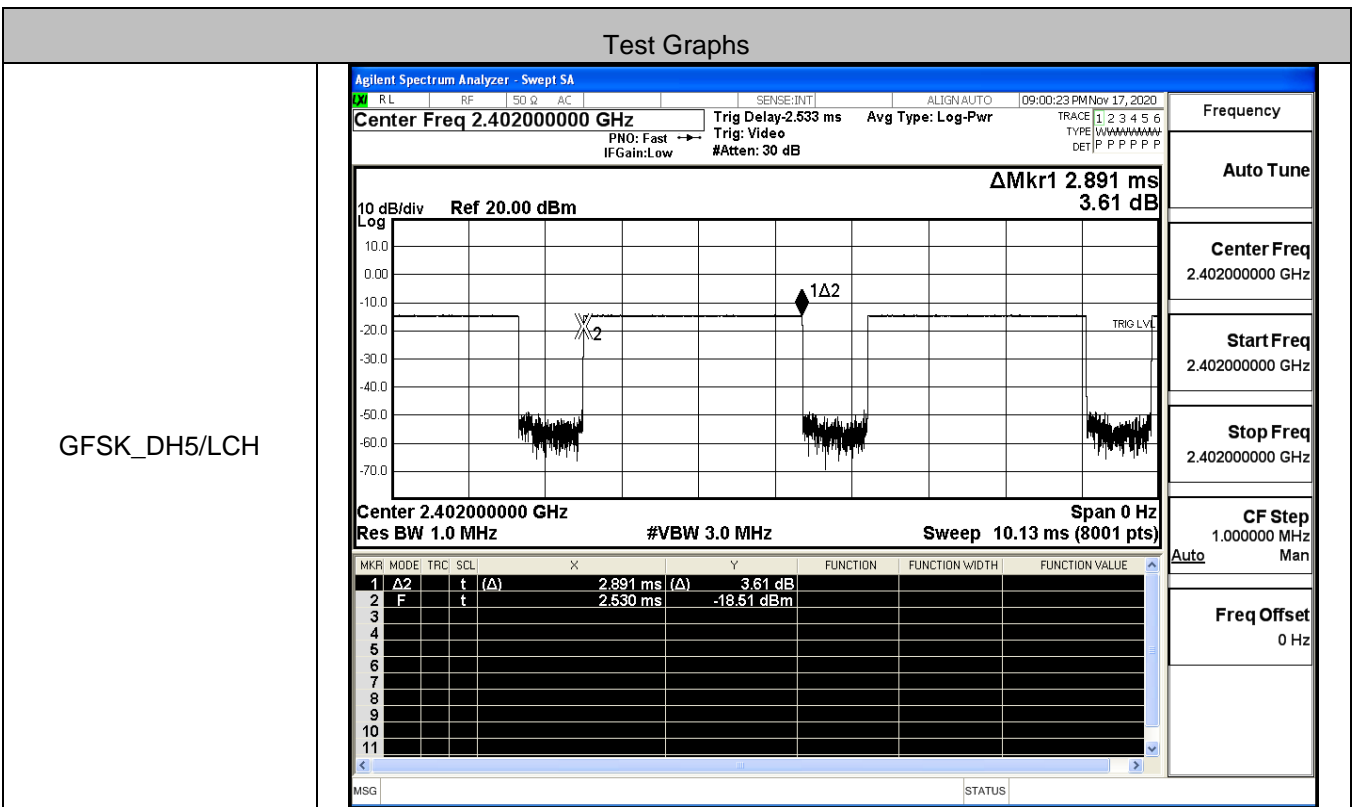
GFSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.441750000 GHz Ref Offset 8.05 dB Ref 20.00 dBm ΔMkr1 77.999 MHz -0.485 dB Start 2.40000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.48350 GHz Sweep 8.000 ms (8001 pts)</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <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>-0.485 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402171 GHz</td> <td>-6.633 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ2	f	(Δ)	77.999 MHz (Δ)	-0.485 dB				2	F	f		2.402171 GHz	-6.633 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ2	f	(Δ)	77.999 MHz (Δ)	-0.485 dB																							
2	F	f		2.402171 GHz	-6.633 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 78.093 MHz -0.459 dB Start 2.40000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.48350 GHz Sweep 8.000 ms (8001 pts)</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <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>78.093 MHz (Δ)</td> <td>-0.459 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402046 GHz</td> <td>-8.224 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ2	f	(Δ)	78.093 MHz (Δ)	-0.459 dB				2	F	f		2.402046 GHz	-8.224 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ2	f	(Δ)	78.093 MHz (Δ)	-0.459 dB																							
2	F	f		2.402046 GHz	-8.224 dBm																							

8DPSK/Hop

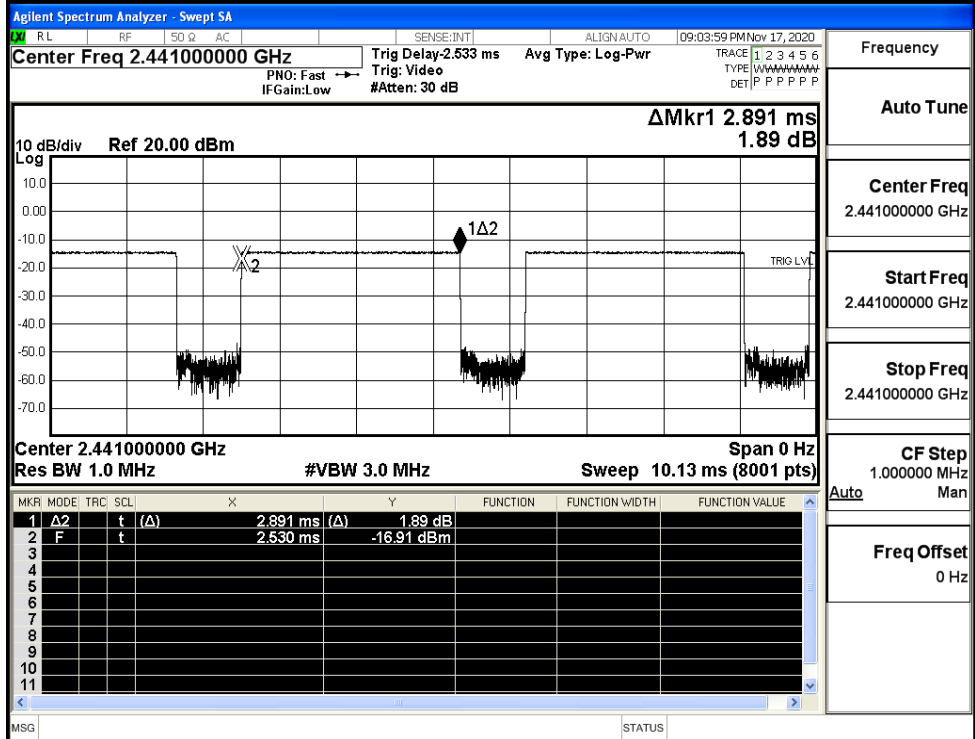


A.5 Dwell Time

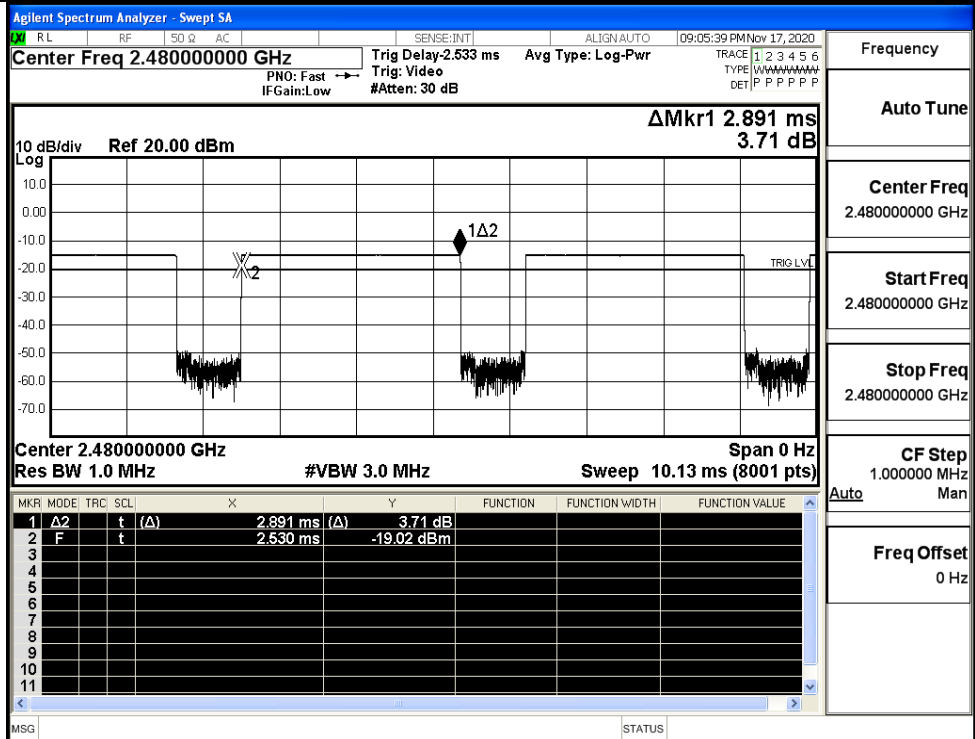
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7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



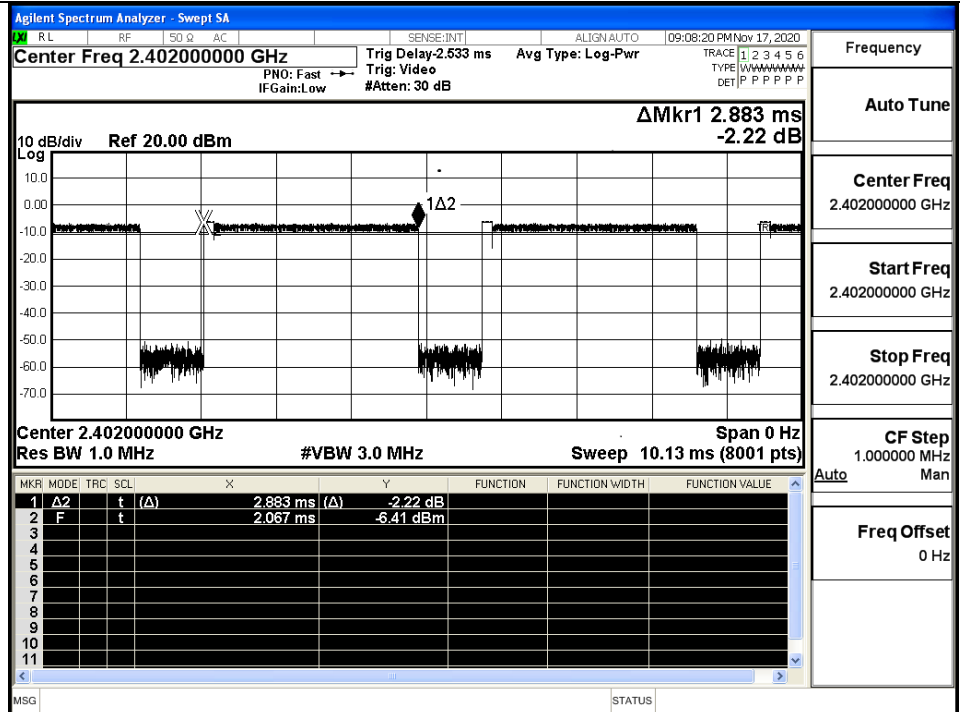
GFSK_DH5/MCH



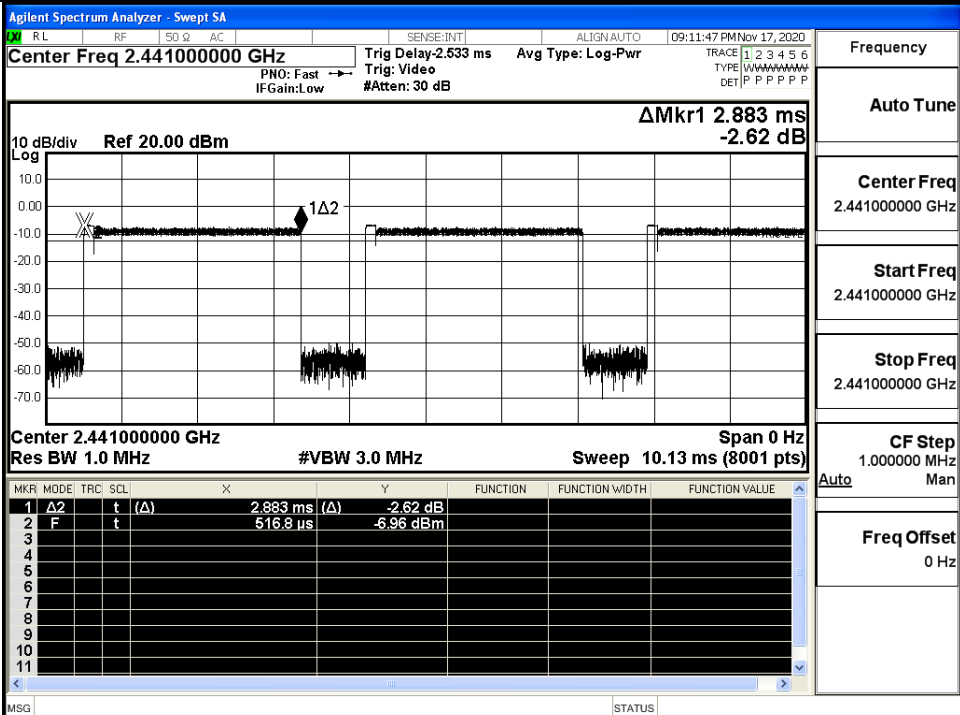
GFSK_DH5/HCH



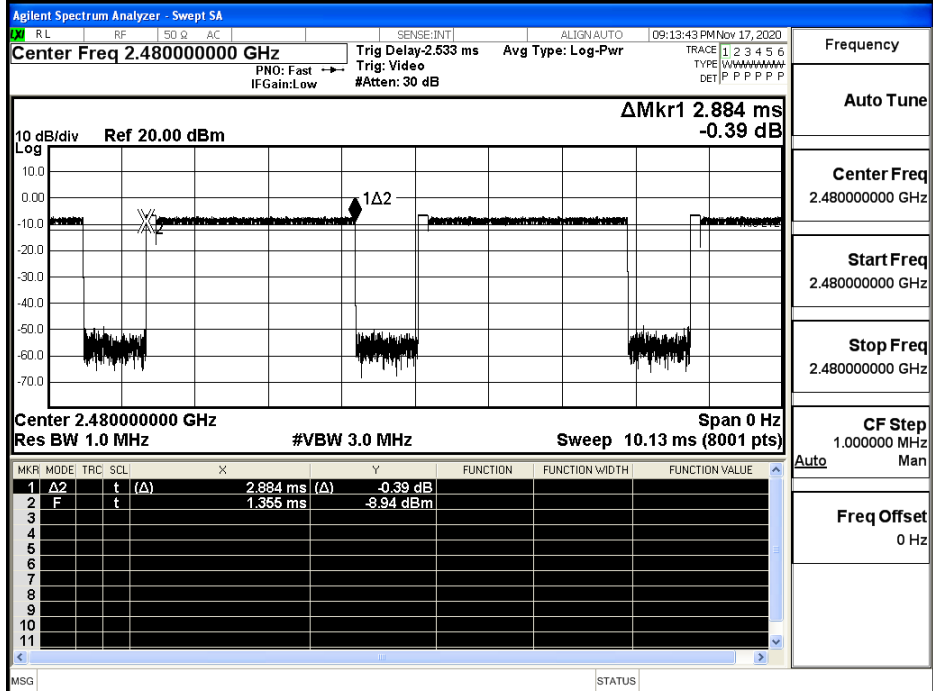
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



$\pi/4$ DQPSK
_2DH5/HCH



Frequency

Auto Tune

Center Freq
2.48000000 GHz

Start Freq
2.48000000 GHz

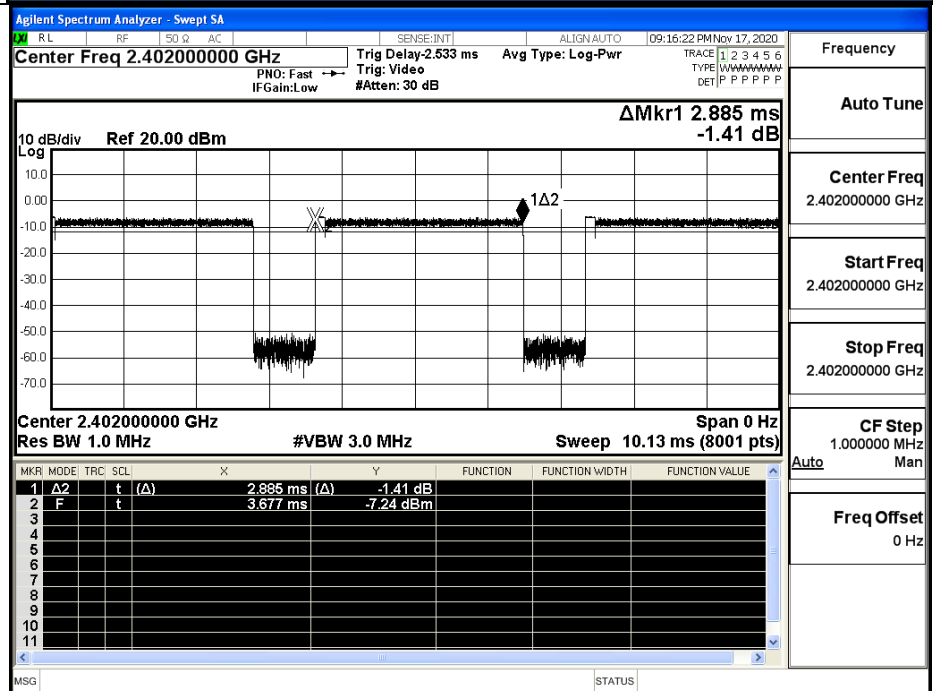
Stop Freq
2.48000000 GHz

CF Step
1.000000 MHz

Auto Man

Freq Offset
0 Hz

8DPSK_3DH5/LCH



Frequency

Auto Tune

Center Freq
2.40200000 GHz

Start Freq
2.40200000 GHz

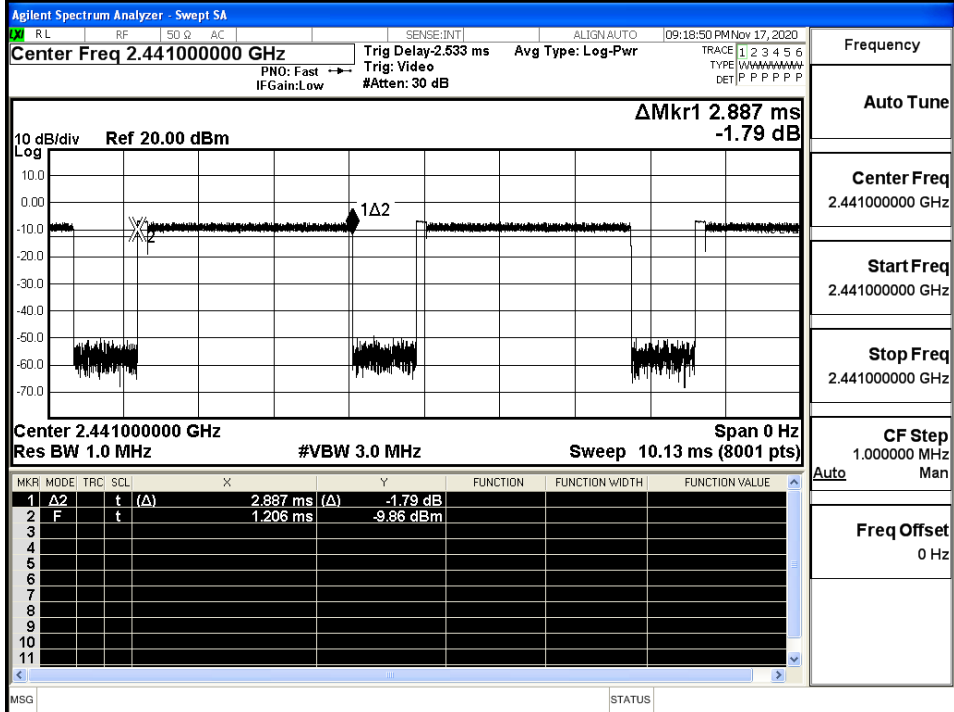
Stop Freq
2.40200000 GHz

CF Step
1.000000 MHz

Auto Man

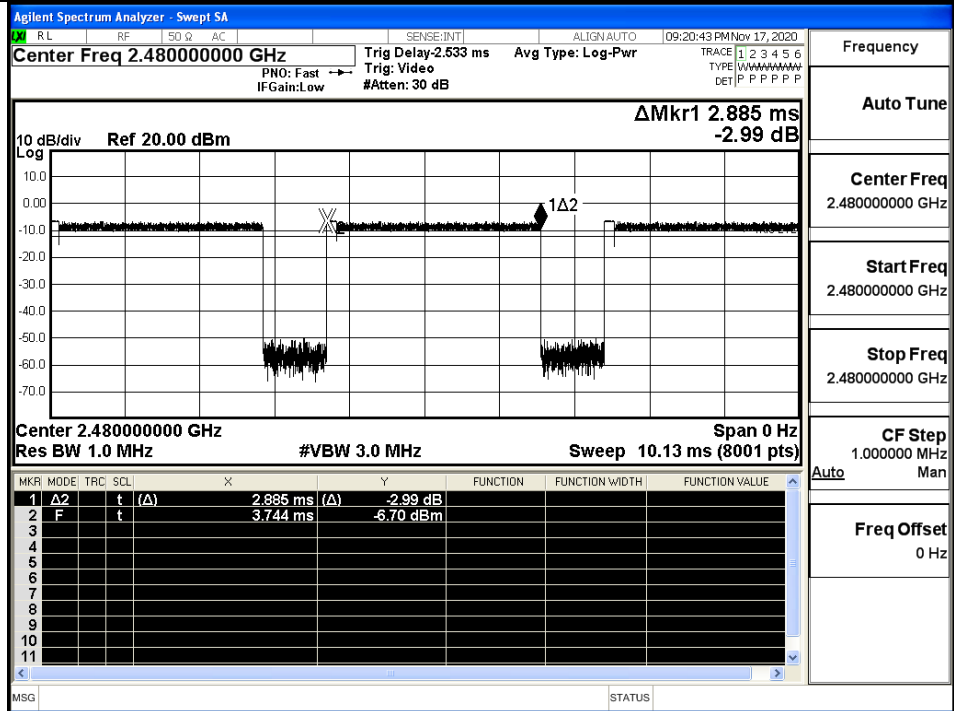
Freq Offset
0 Hz

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

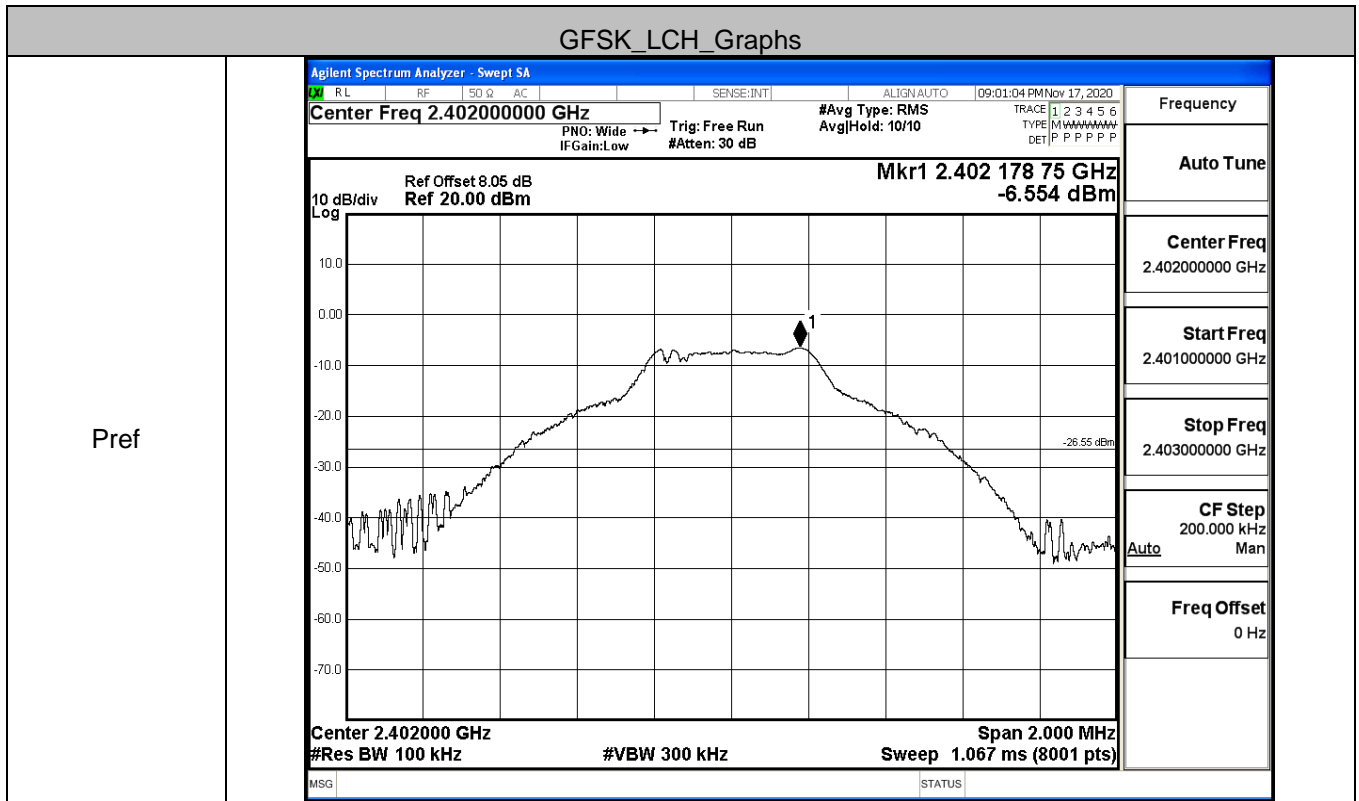


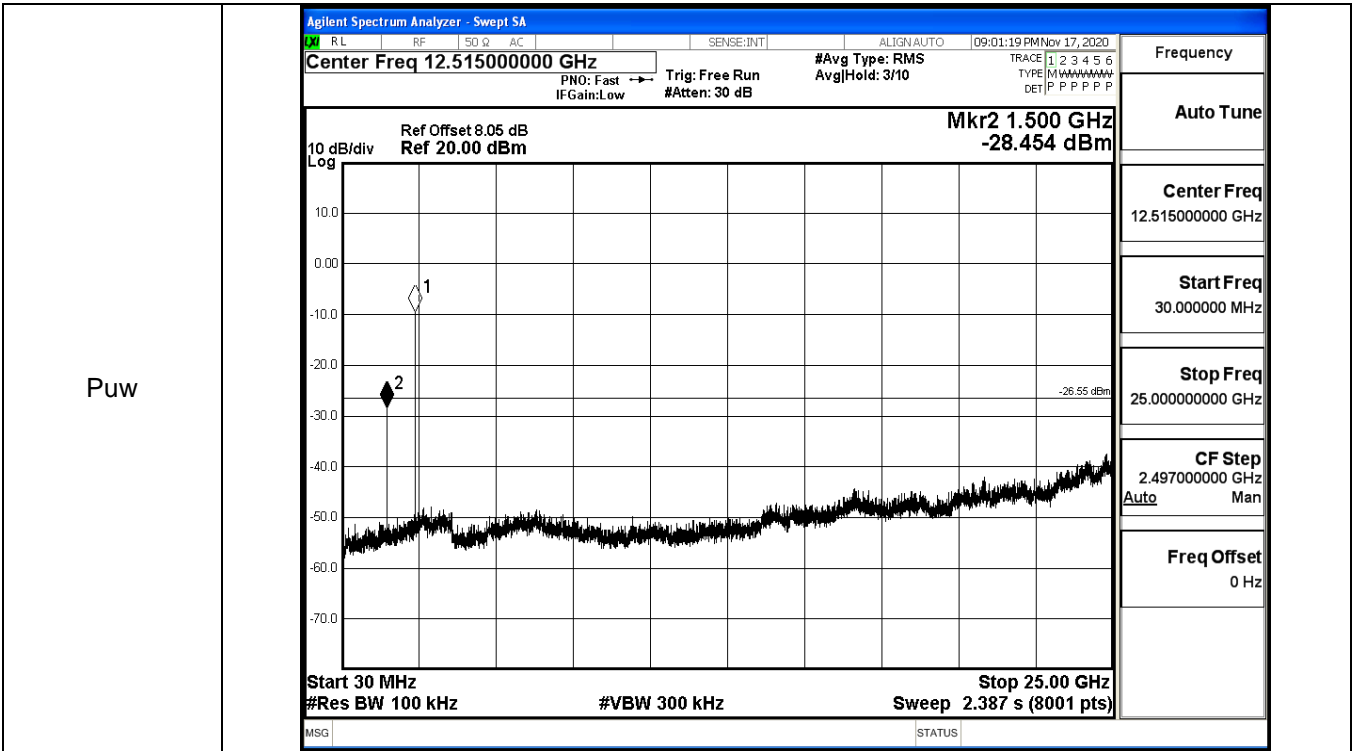
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-6.554	-28.454	-26.554	PASS
	MCH	-6.431	-37.634	-26.431	PASS
	HCH	-6.915	-38.028	-26.915	PASS
π /4DQPSK	LCH	-6.736	-38.450	-26.736	PASS
	MCH	-6.657	-38.525	-26.657	PASS
	HCH	-7.076	-37.846	-27.076	PASS
8DPSK	LCH	-6.748	-37.667	-26.748	PASS
	MCH	-6.562	-37.730	-26.562	PASS
	HCH	-7.104	-38.192	-27.104	PASS

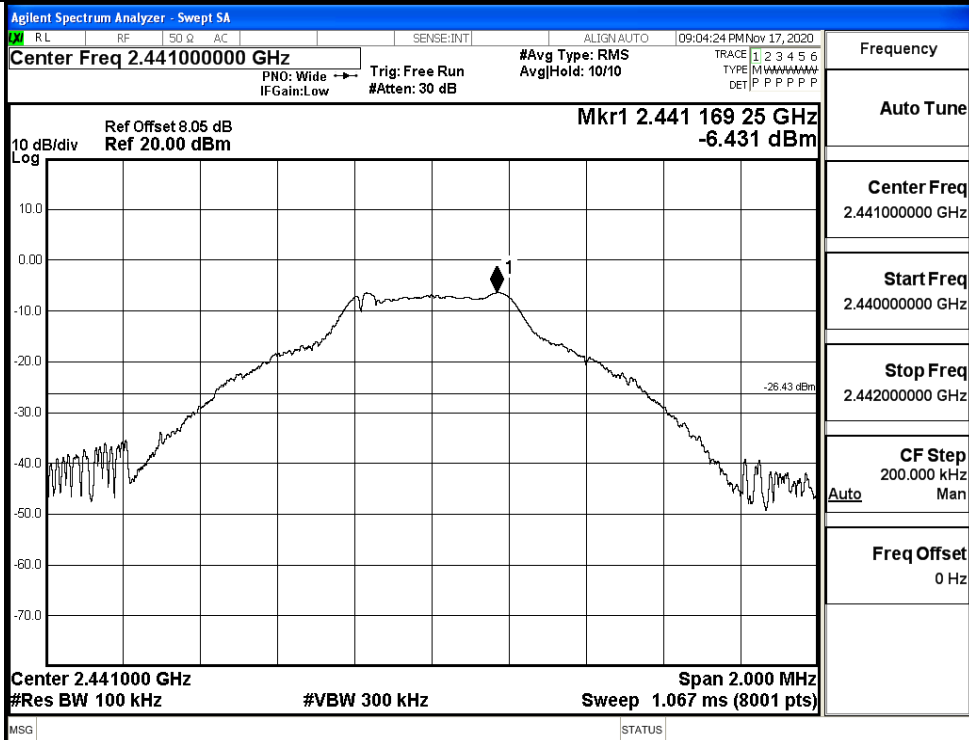
GFSK_LCH_Graphs



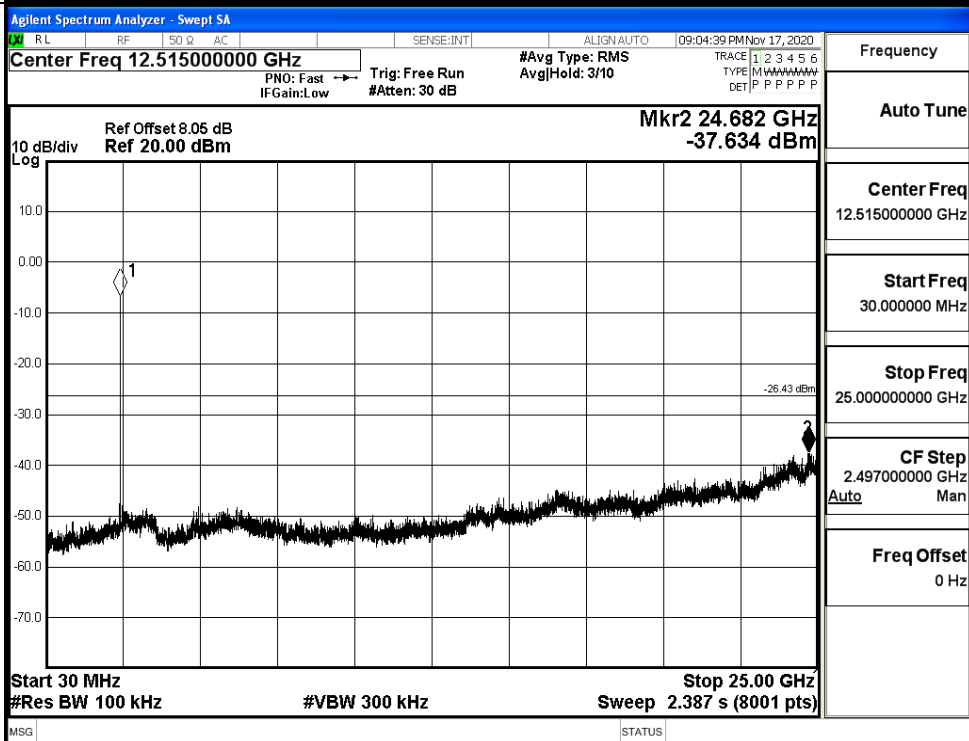


GFSK_MCH_Graphs

Pref

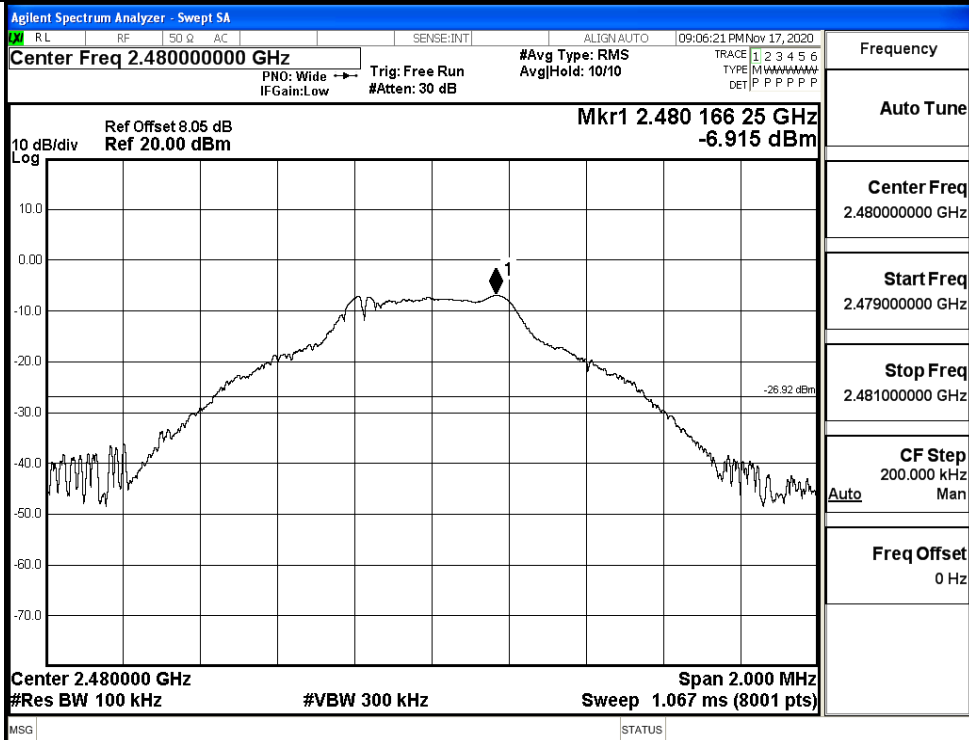


Puw

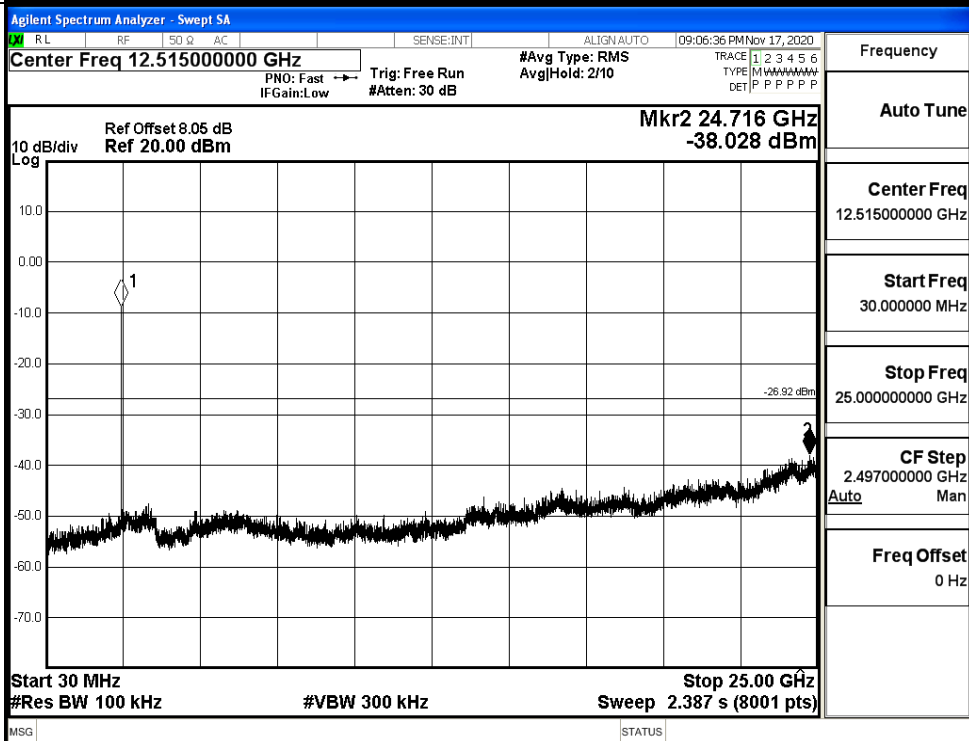


GFSK_HCH_Graphs

Pref

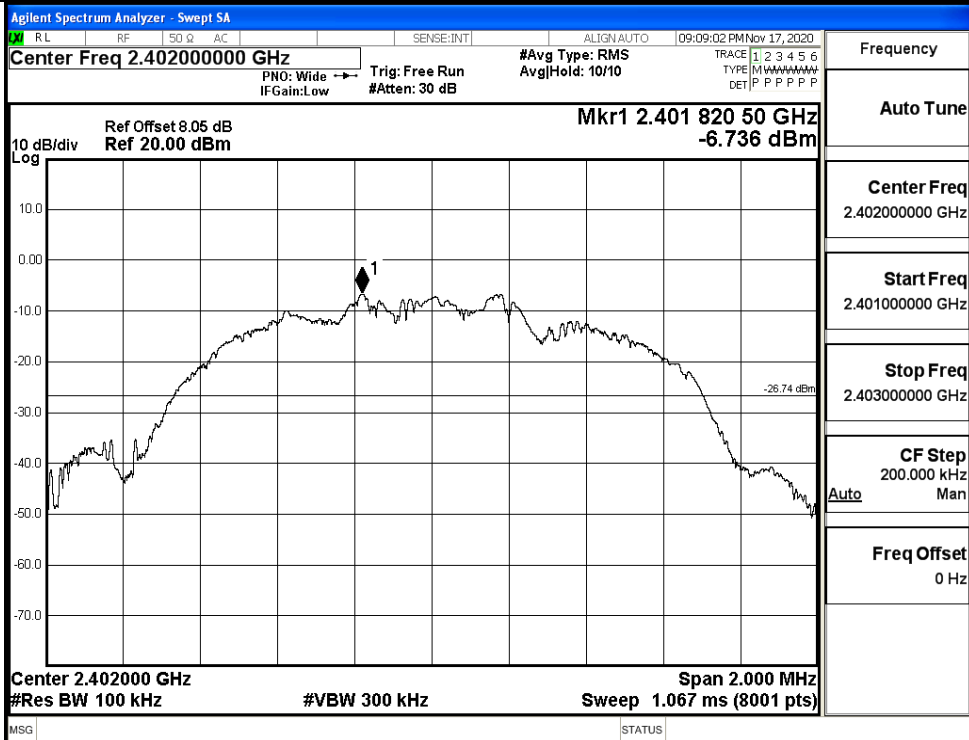


Puw

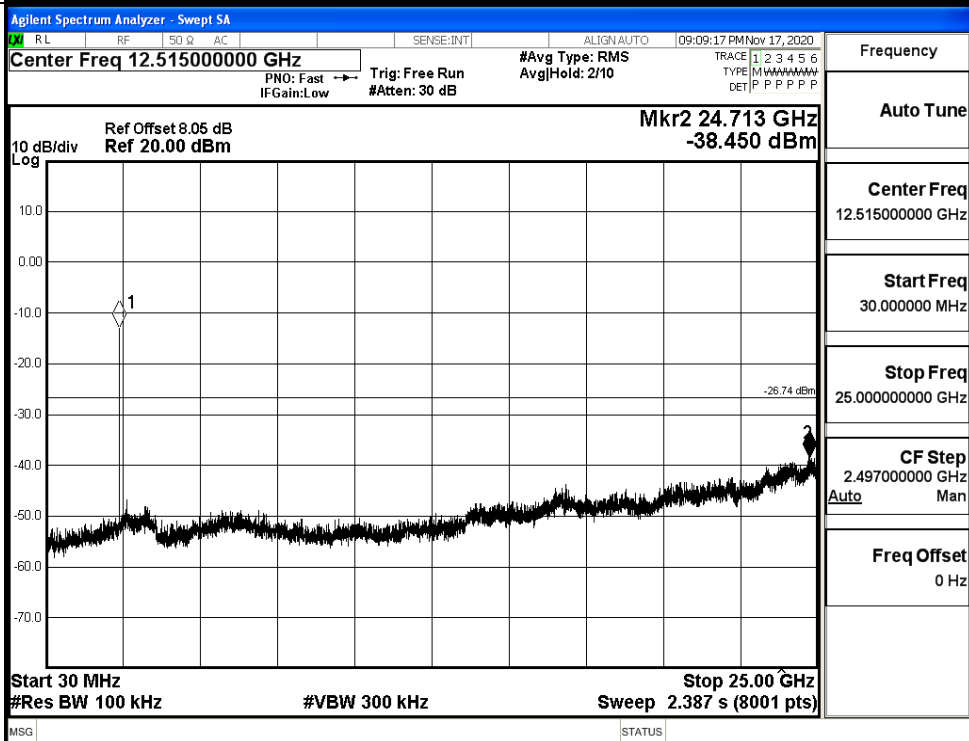


$\pi/4$ DQPSK LCH Graphs

Pref

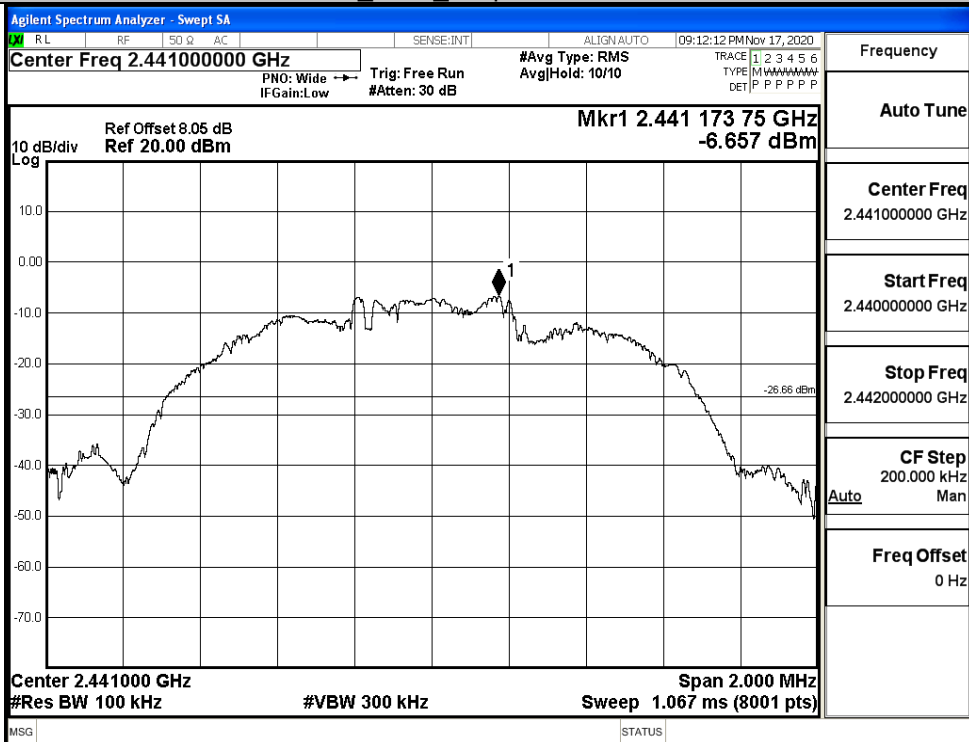


Puw



$\pi/4$ DQPSK_MCH_Graphs

Pref

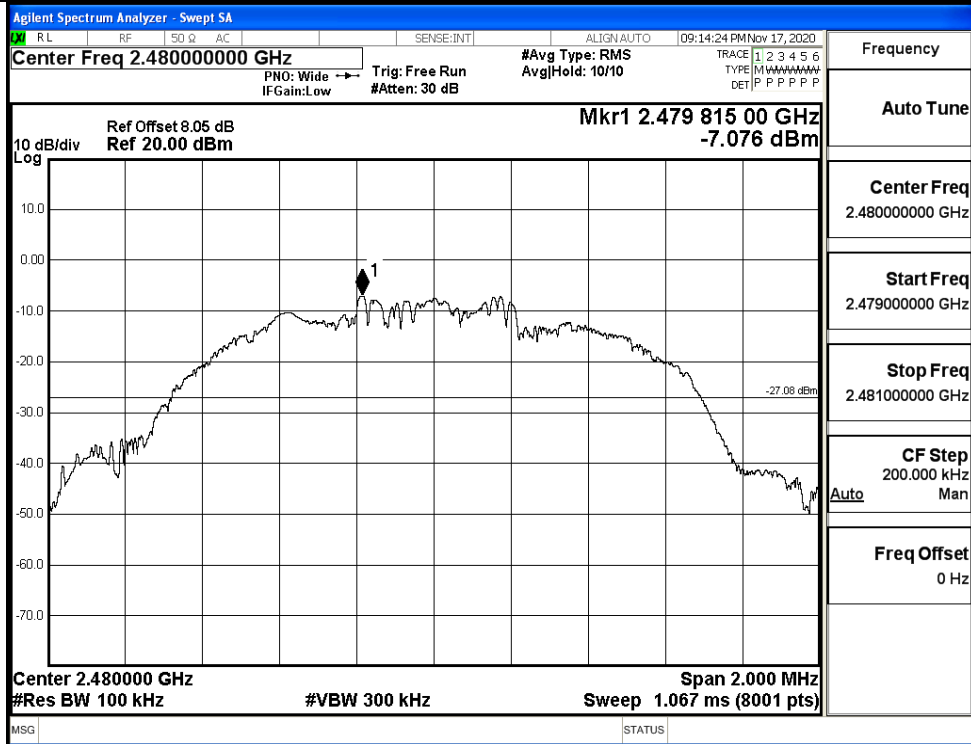


Puw

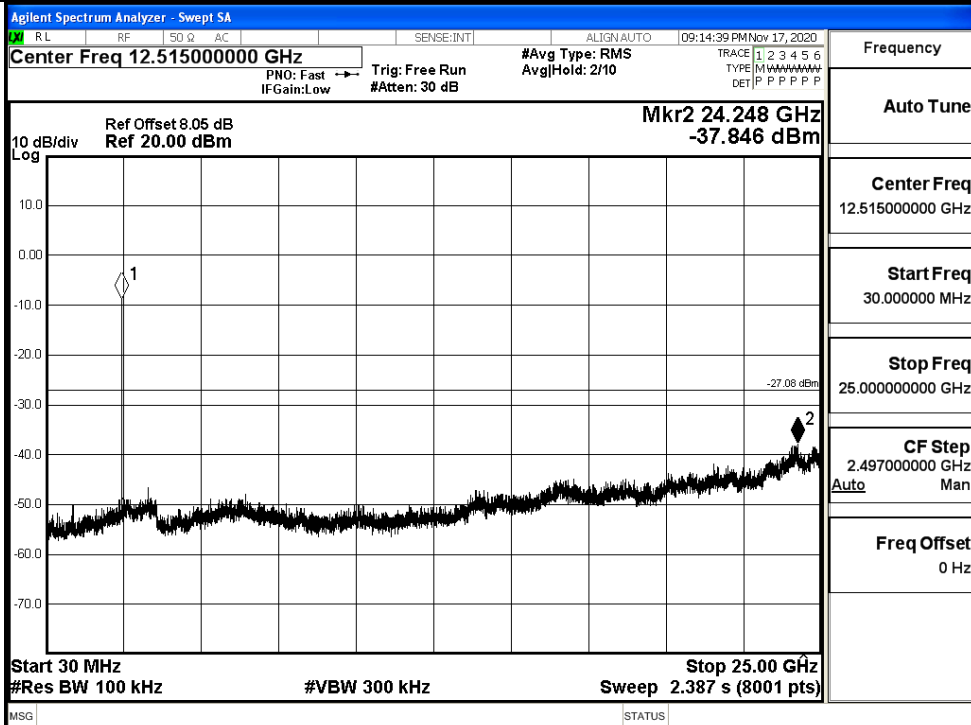


$\pi/4$ DQPSK_HCH_Graphs

Pref

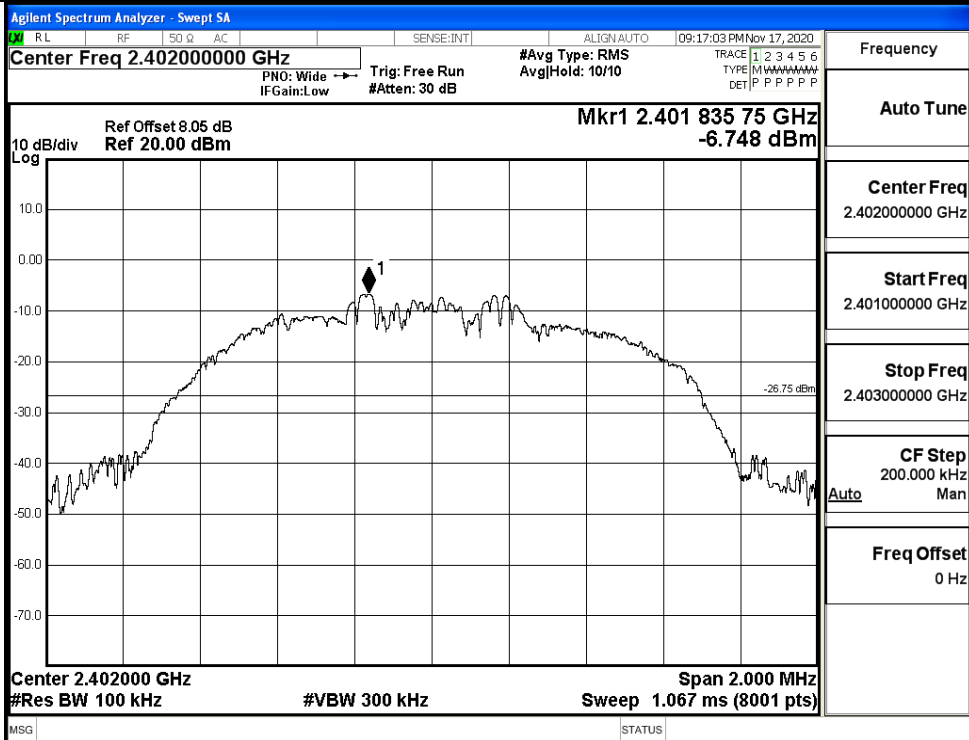


Puw

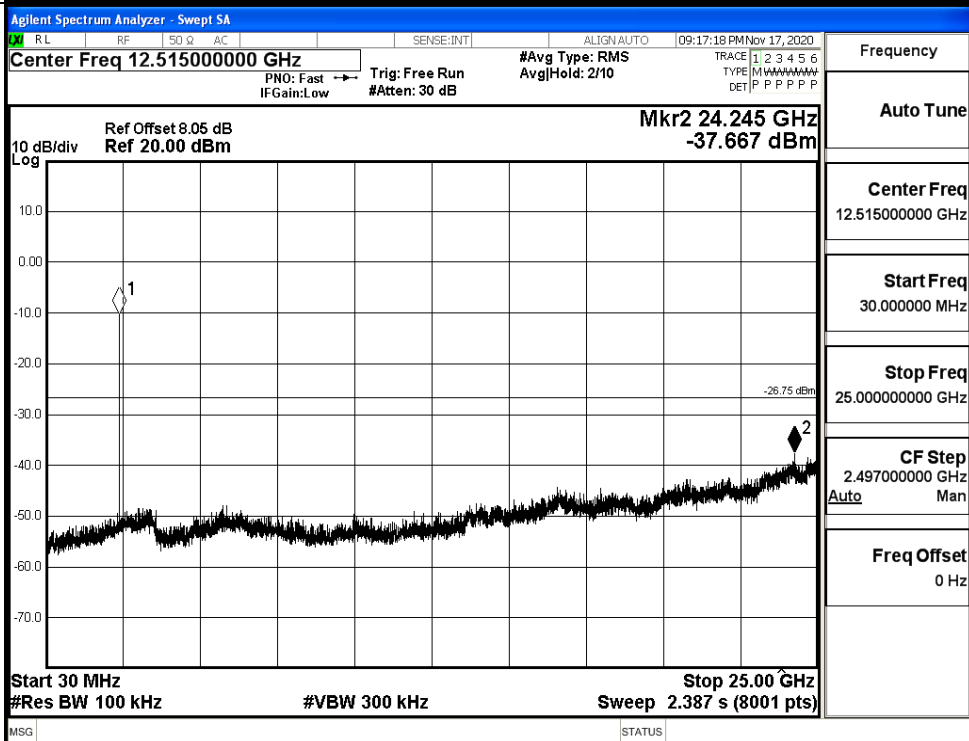


8DPSK_LCH_Graphs

Pref

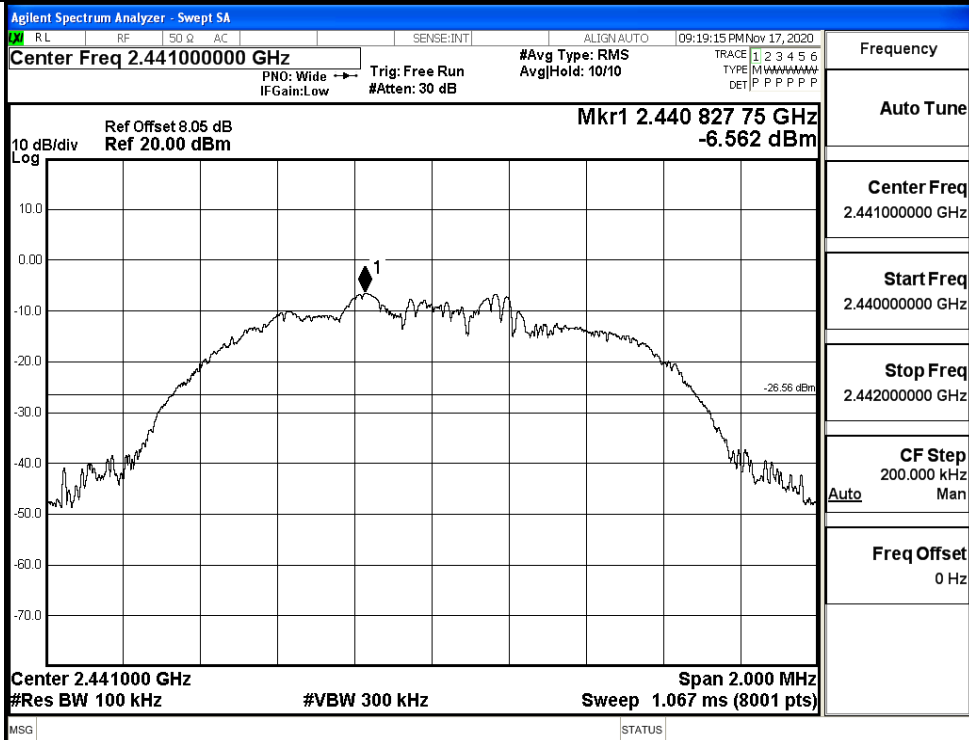


Puw

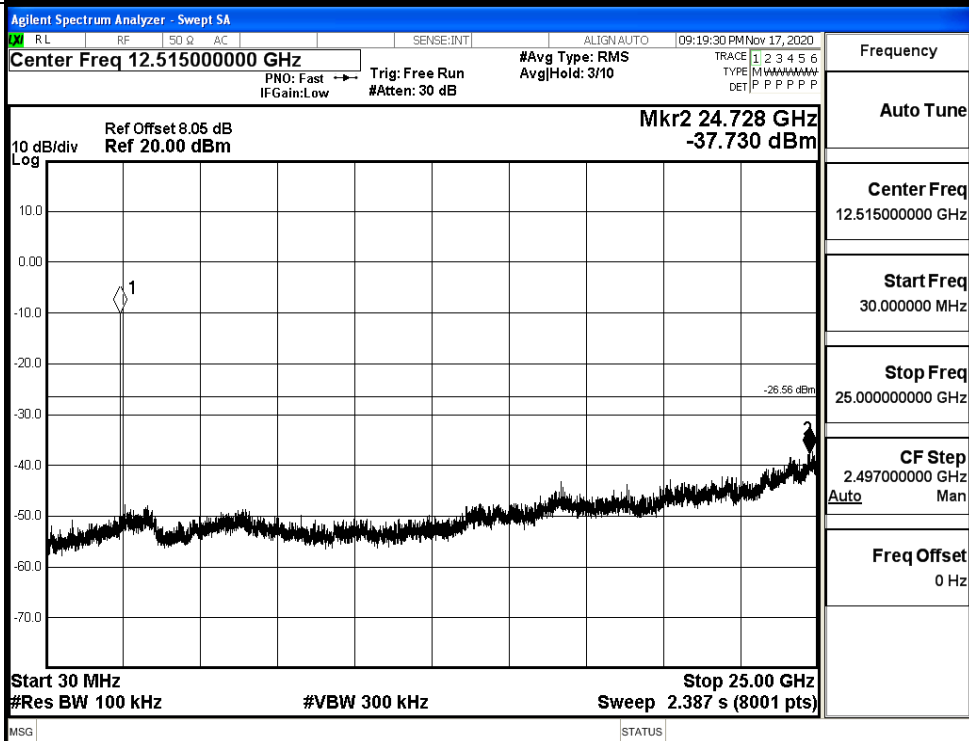


8DPSK_MCH_Graphs

Pref

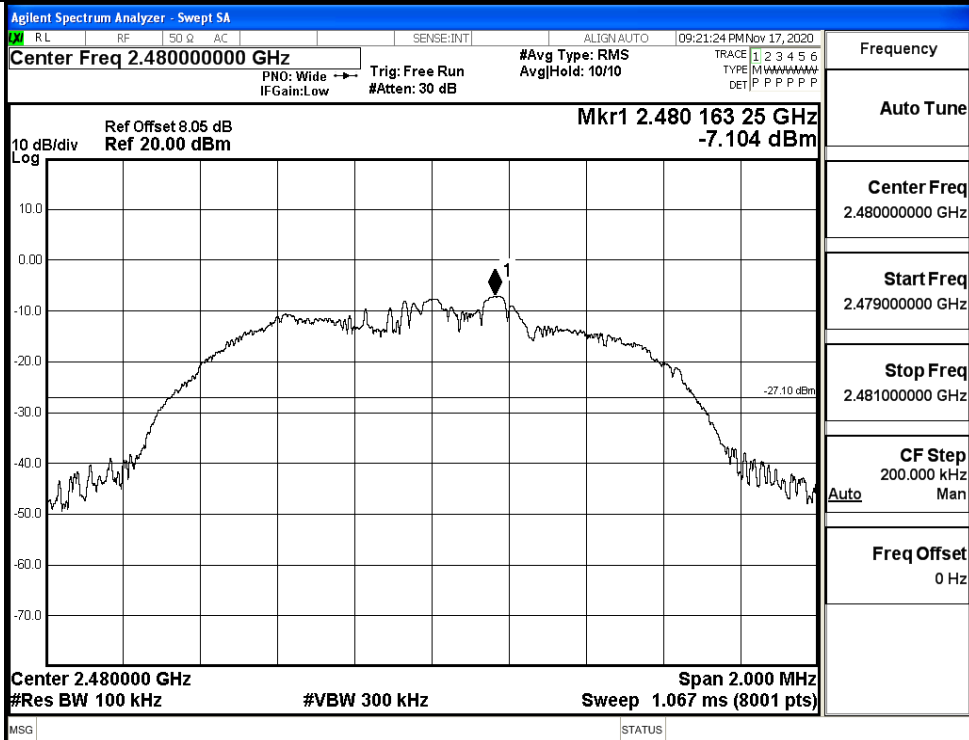


Puw

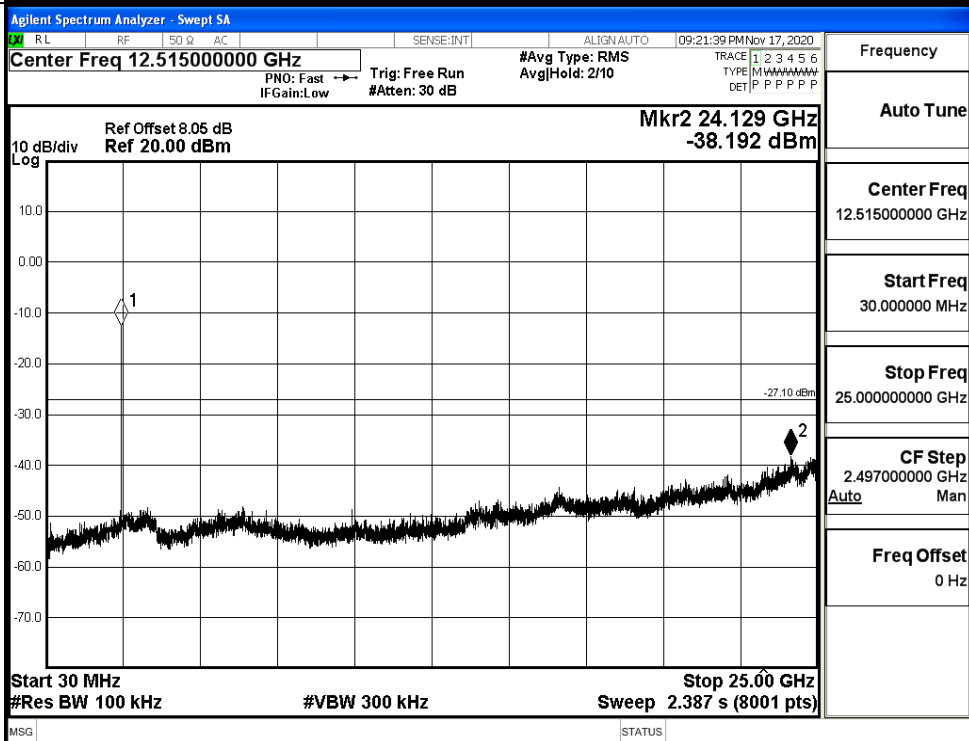


8DPSK_HCH_Graphs

Pref



Puw

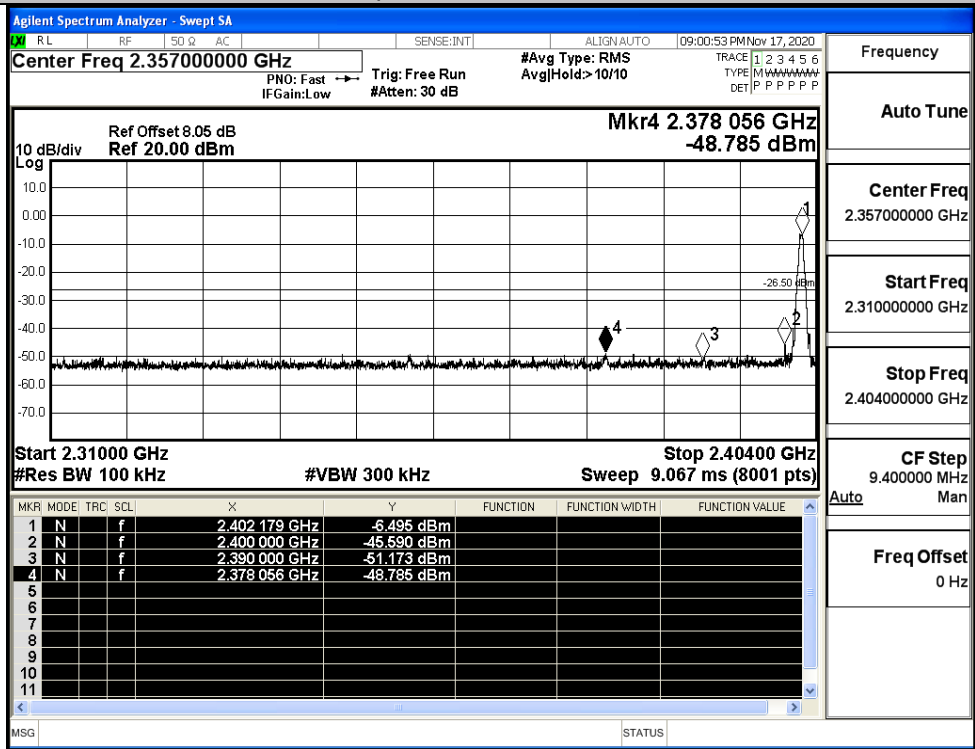


A.7 Band-edge for RF Conducted Emissions

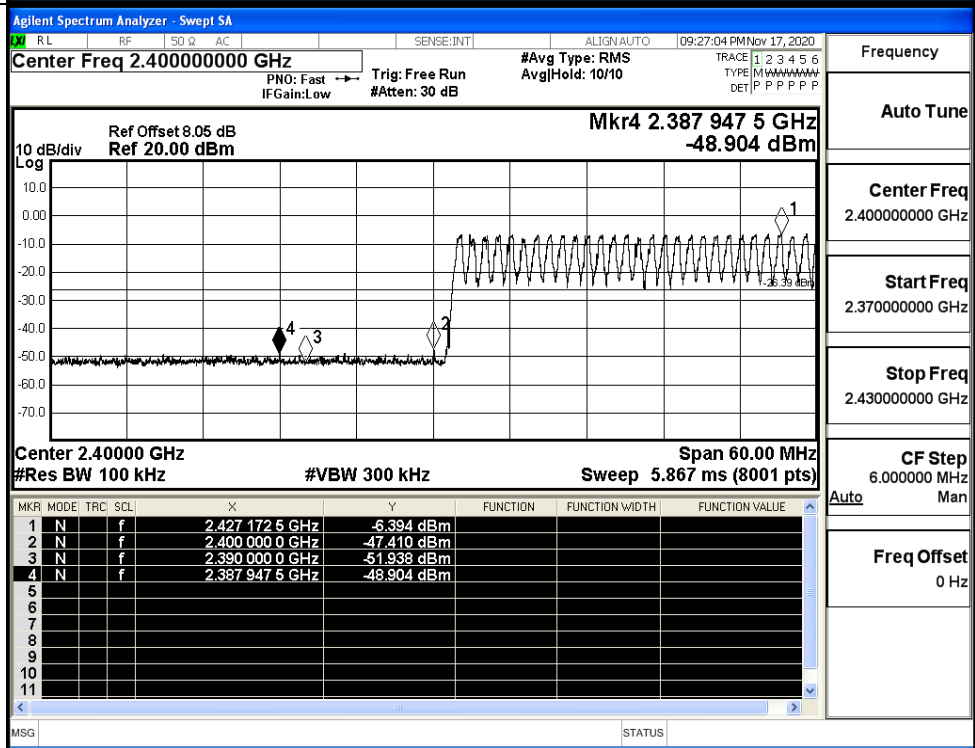
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-6.495	Off	-48.785	-26.5	PASS
			-6.394	On	-48.904	-26.39	PASS
	HCH	2480	-6.796	Off	-48.923	-26.8	PASS
			-6.821	On	-47.613	-26.82	PASS
π/4DQPSK	LCH	2402	-8.889	Off	-49.453	-28.89	PASS
			-6.630	On	-48.748	-26.63	PASS
	HCH	2480	-6.977	Off	-48.330	-26.98	PASS
			-6.957	On	-48.885	-26.96	PASS
8DPSK	LCH	2402	-7.775	Off	-49.927	-27.78	PASS
			-6.491	On	-48.878	-26.49	PASS
	HCH	2480	-7.031	Off	-49.160	-27.03	PASS
			-6.926	On	-48.190	-26.93	PASS

Test Graphs

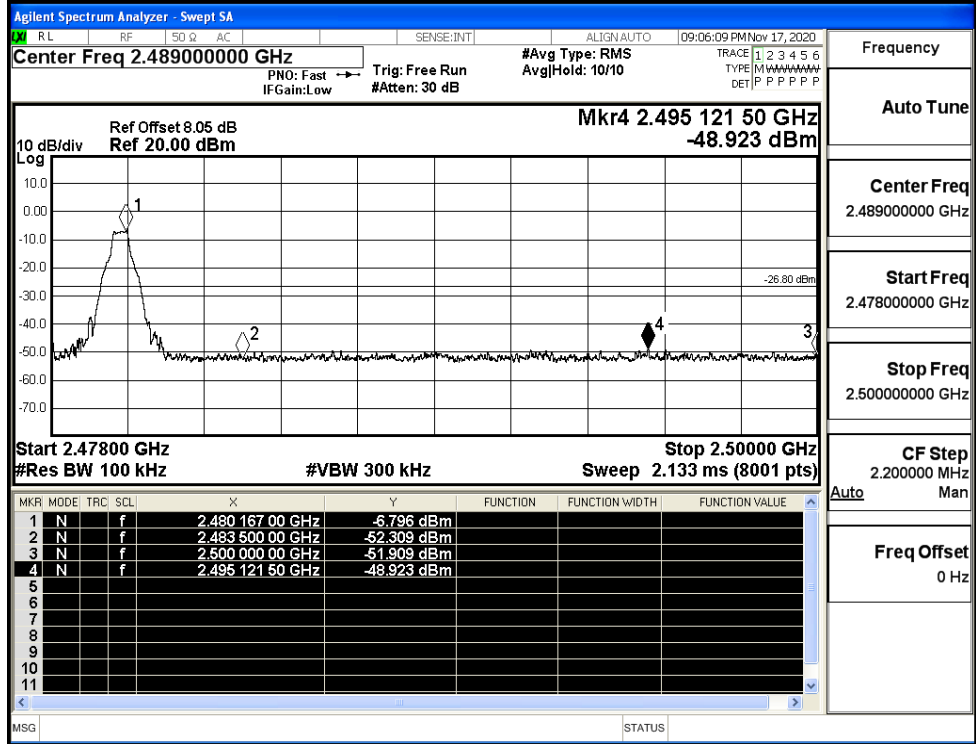
GFSK/LCH/No Hop



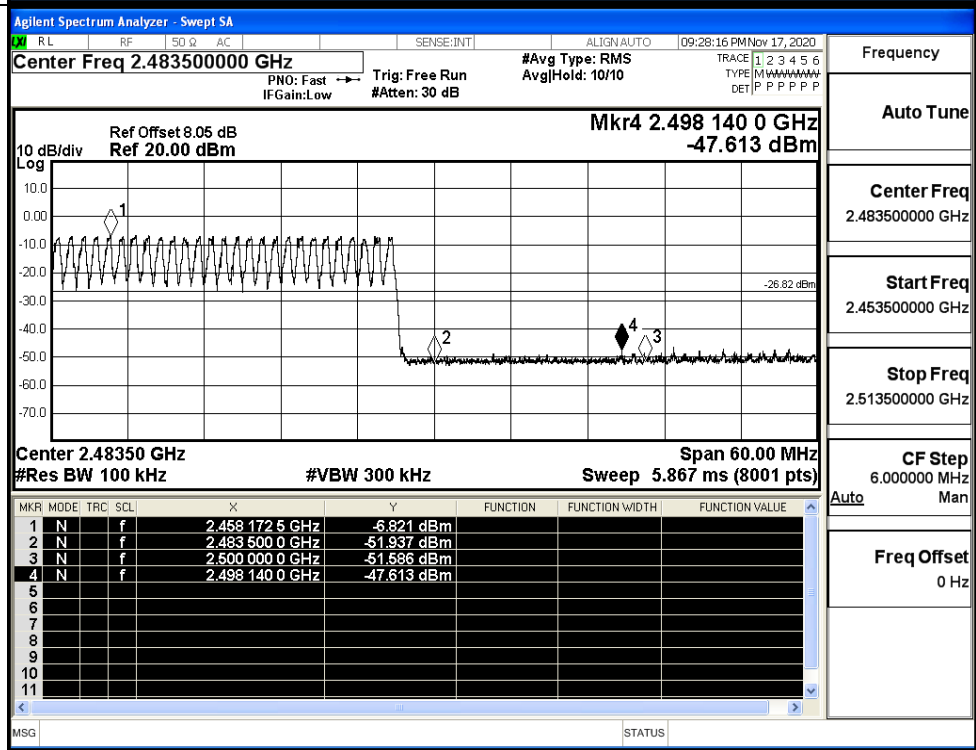
GFSK/LCH/Hop



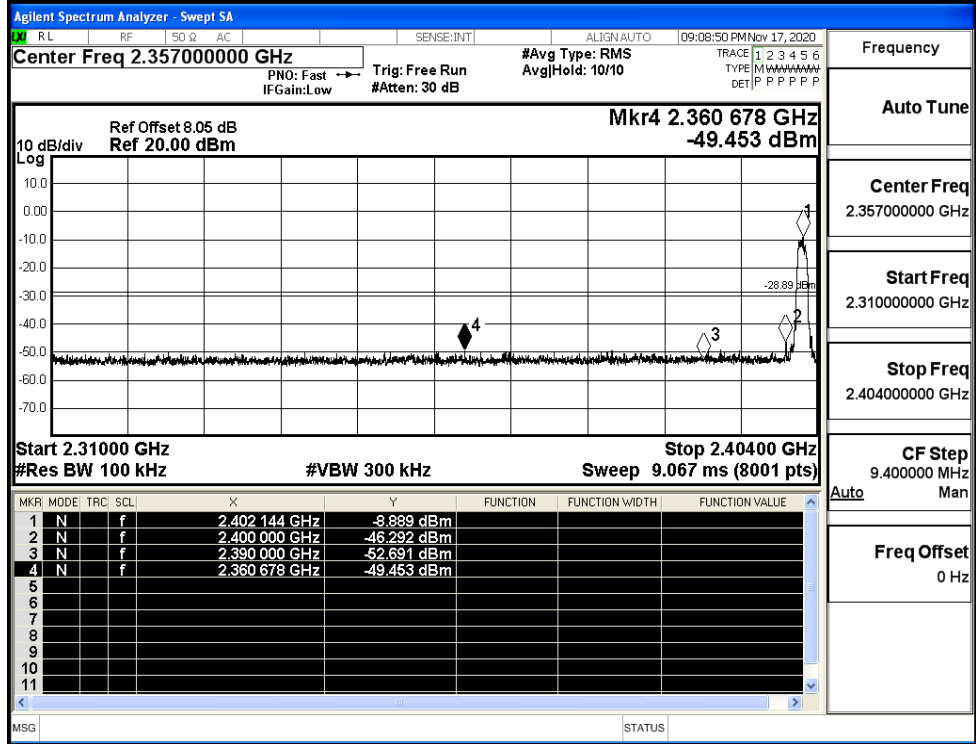
GFSK/HCH/No Hop



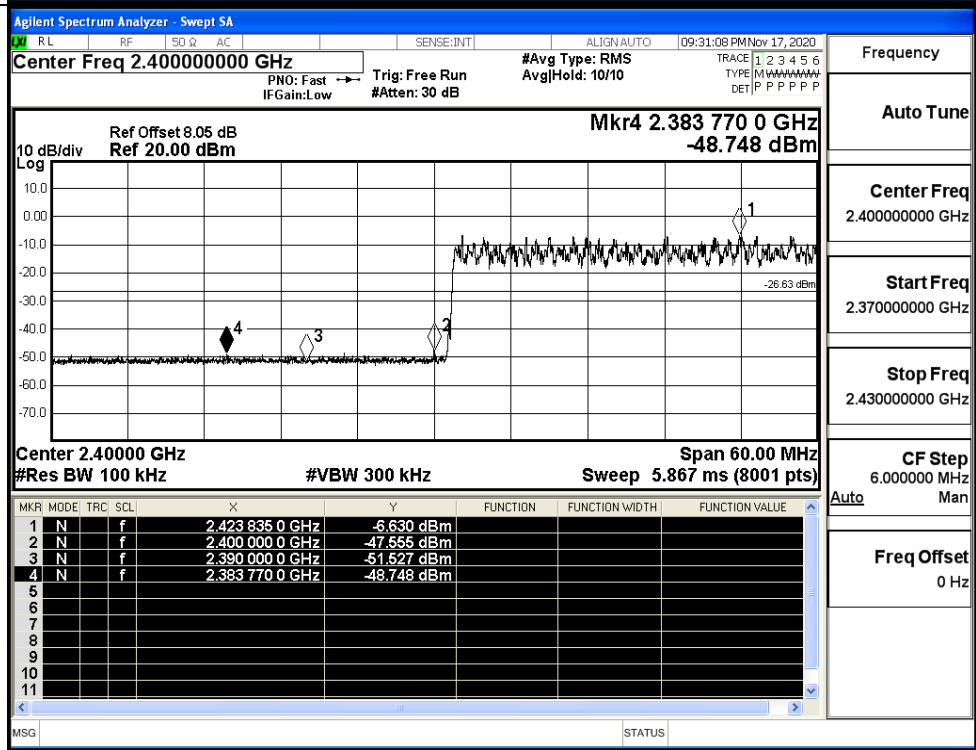
GFSK/HCH/Hop



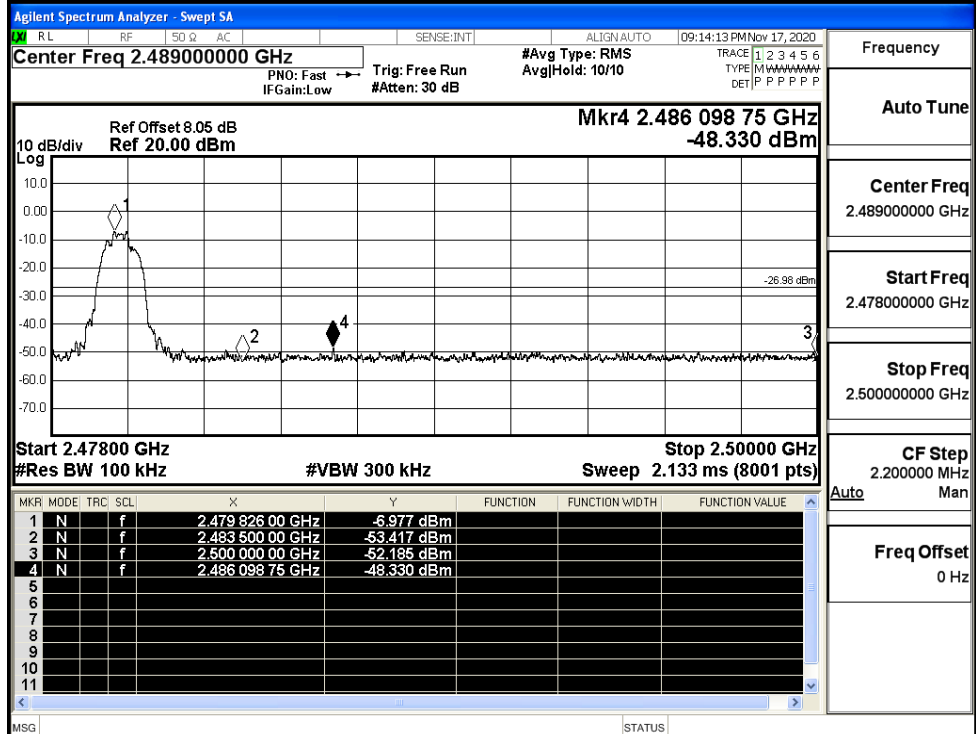
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop

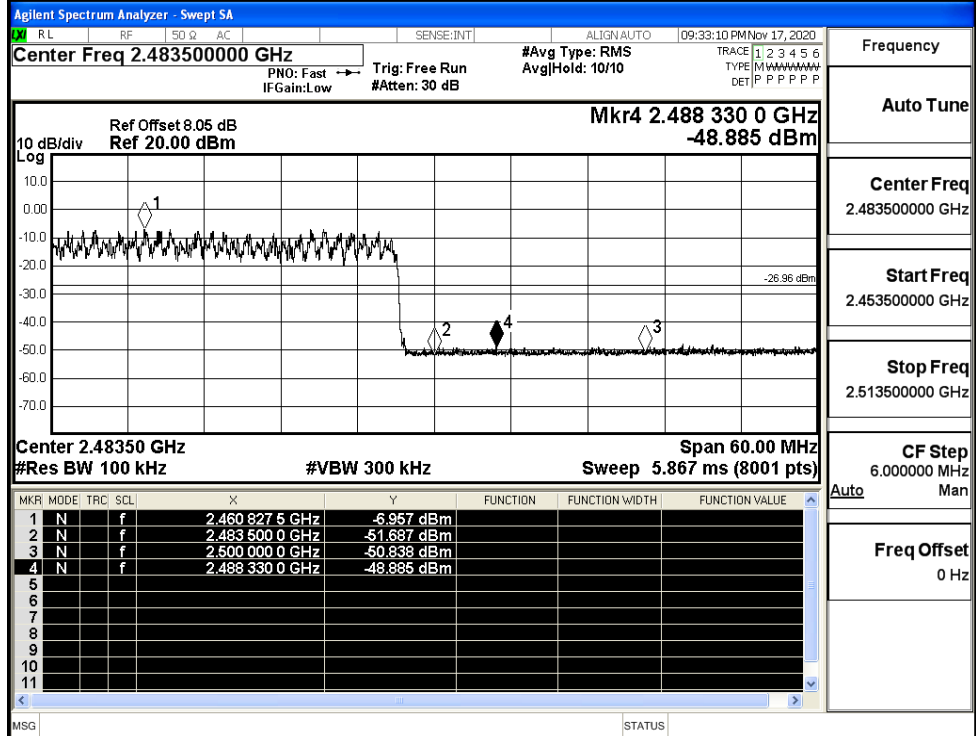


π /4DQPSK/HCH/No
Hop



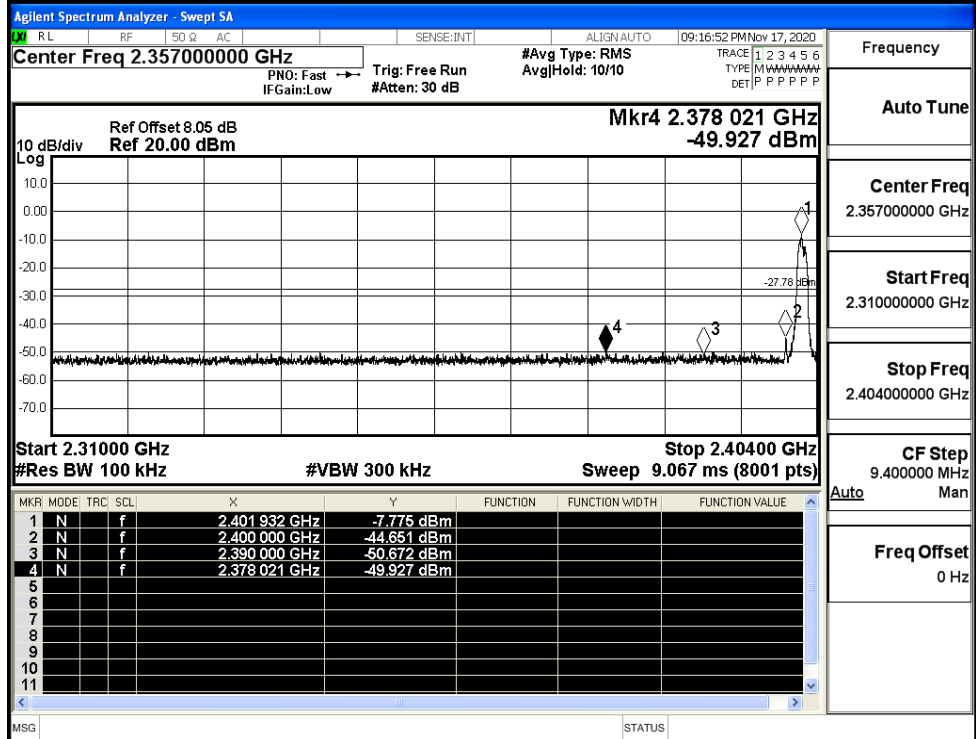
Frequency	
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Auto	Man
Freq Offset	0 Hz

π /4DQPSK/HCH/Hop



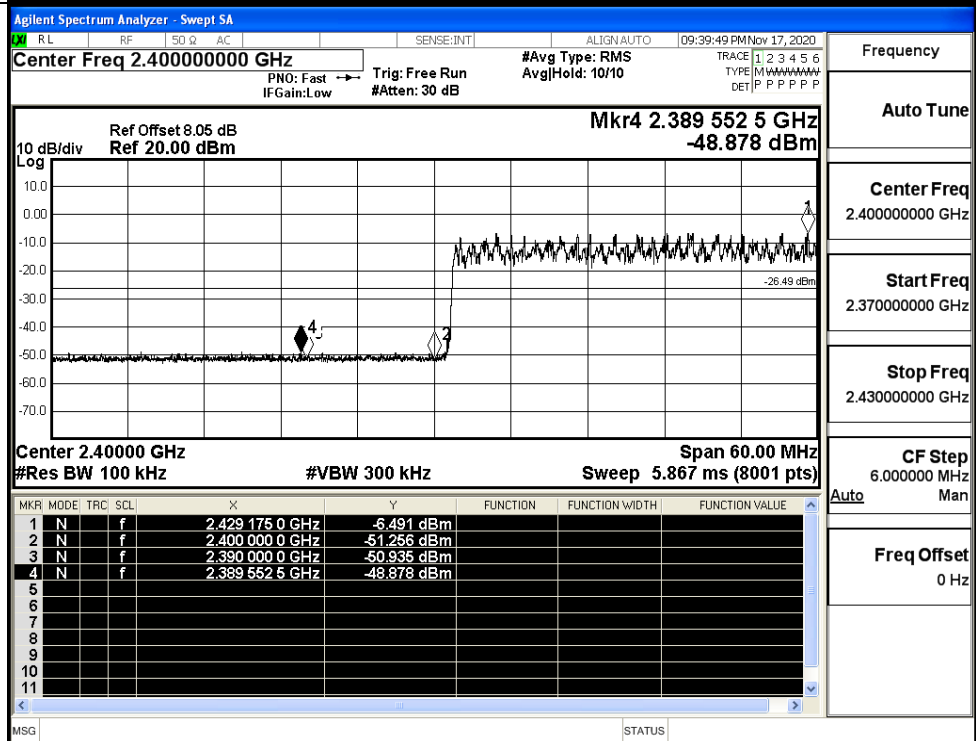
Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH/No Hop



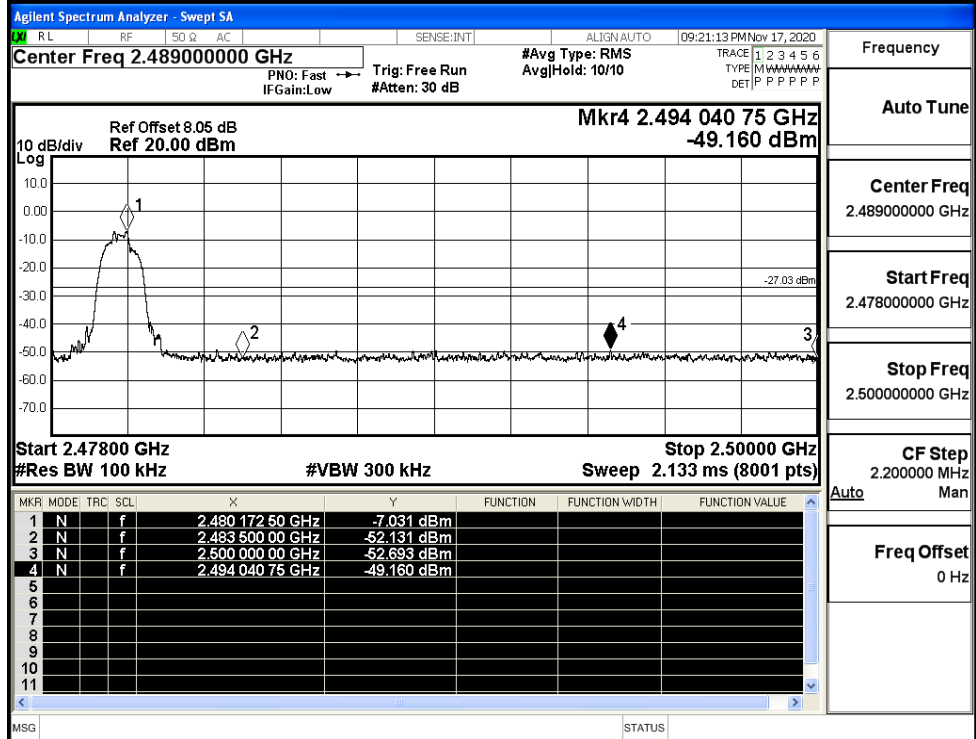
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Freq Offset	0 Hz

8DPSK/LCH/Hop



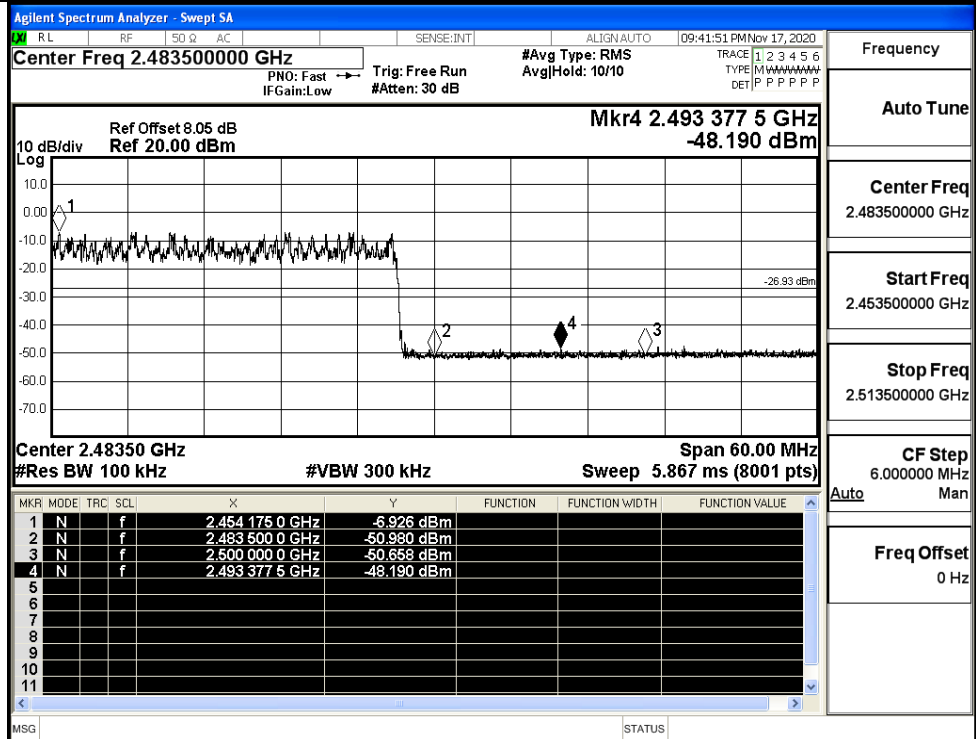
Frequency	
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

8DPSK/HCH/No Hop



Frequency	2.48900000 GHz
Auto Tune	
Center Freq	2.48900000 GHz
Start Freq	2.47800000 GHz
Stop Freq	2.50000000 GHz
CF Step	2.200000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK/HCH/Hop

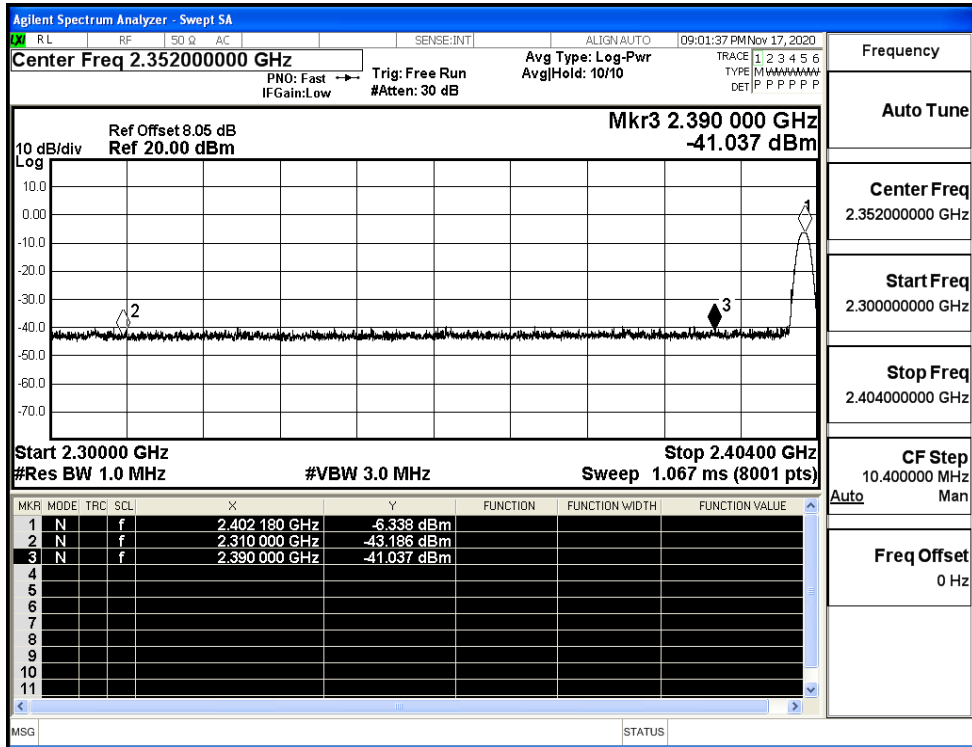


Frequency	2.48350000 GHz
Auto Tune	
Center Freq	2.48350000 GHz
Start Freq	2.45350000 GHz
Stop Freq	2.51350000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

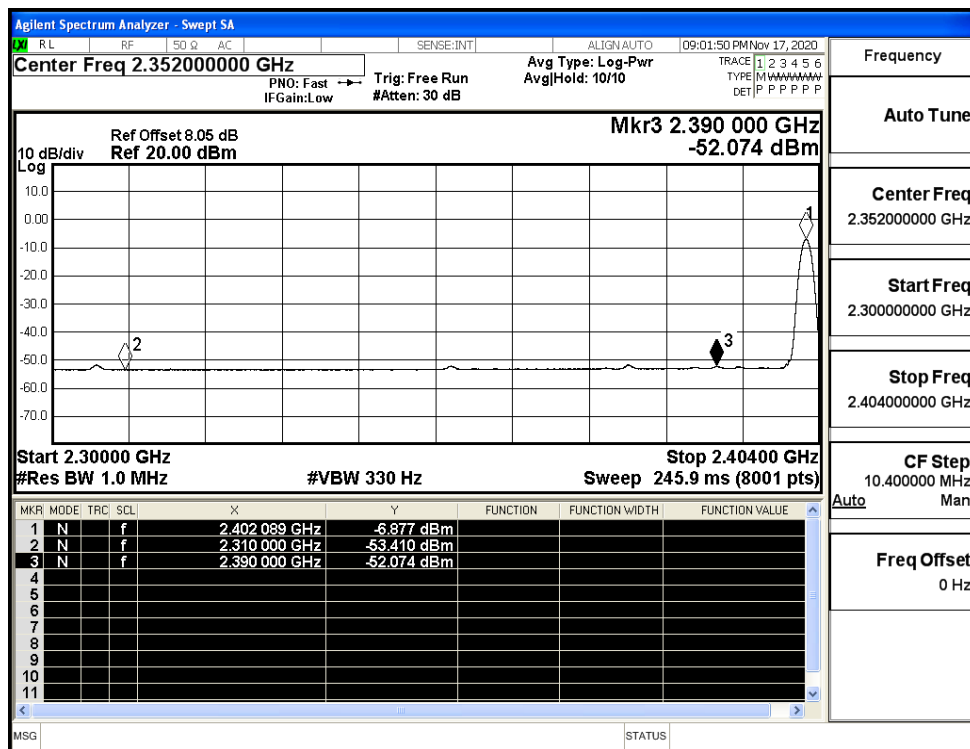
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.19	2.0	0	54.07	PEAK	74	PASS
	Off	2310.0	-53.41	2.0	0	43.85	AV	54	PASS
	Off	2390.0	-41.04	2.0	0	56.22	PEAK	74	PASS
	Off	2390.0	-52.07	2.0	0	45.18	AV	54	PASS
	Off	2483.5	-42.41	2.0	0	54.85	PEAK	74	PASS
	Off	2483.5	-52.57	2.0	0	44.69	AV	54	PASS
	Off	2500.0	-40.43	2.0	0	56.83	PEAK	74	PASS
	Off	2500.0	-52.39	2.0	0	44.87	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.22	2.0	0	54.04	PEAK	74	PASS
	Off	2310.0	-53.35	2.0	0	43.91	AV	54	PASS
	Off	2390.0	-41.68	2.0	0	55.58	PEAK	74	PASS
	Off	2390.0	-52.64	2.0	0	44.62	AV	54	PASS
	Off	2483.5	-43.12	2.0	0	54.14	PEAK	74	PASS
	Off	2483.5	-52.62	2.0	0	44.63	AV	54	PASS
	Off	2500.0	-42.74	2.0	0	54.52	PEAK	74	PASS
	Off	2500.0	-52.41	2.0	0	44.85	AV	54	PASS
8DPSK	Off	2310.0	-43.36	2.0	0	53.9	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	43.83	AV	54	PASS
	Off	2390.0	-43.45	2.0	0	53.8	PEAK	74	PASS
	Off	2390.0	-52.65	2.0	0	44.61	AV	54	PASS
	Off	2483.5	-41.57	2.0	0	55.68	PEAK	74	PASS
	Off	2483.5	-52.48	2.0	0	44.77	AV	54	PASS
	Off	2500.0	-41.53	2.0	0	55.73	PEAK	74	PASS
	Off	2500.0	-52.43	2.0	0	44.83	AV	54	PASS

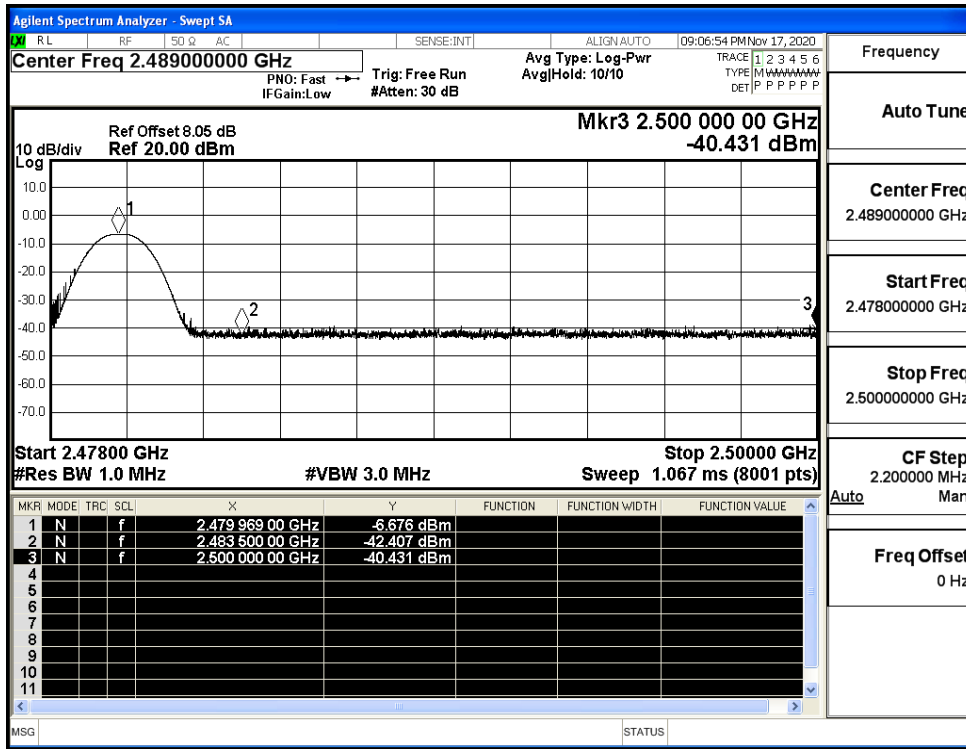
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



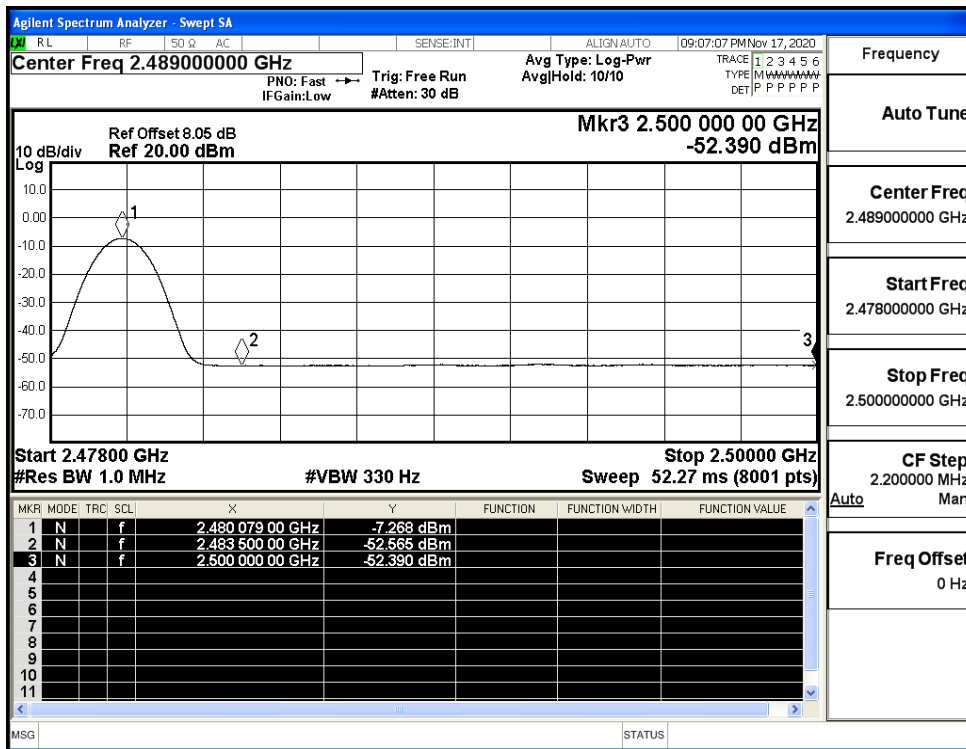
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



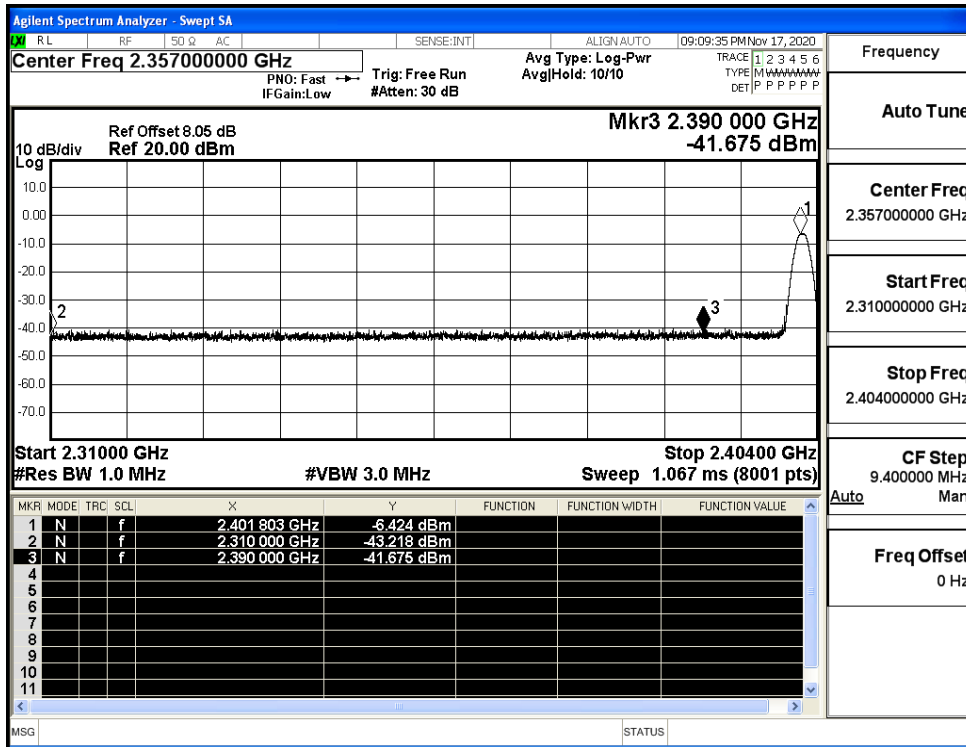
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



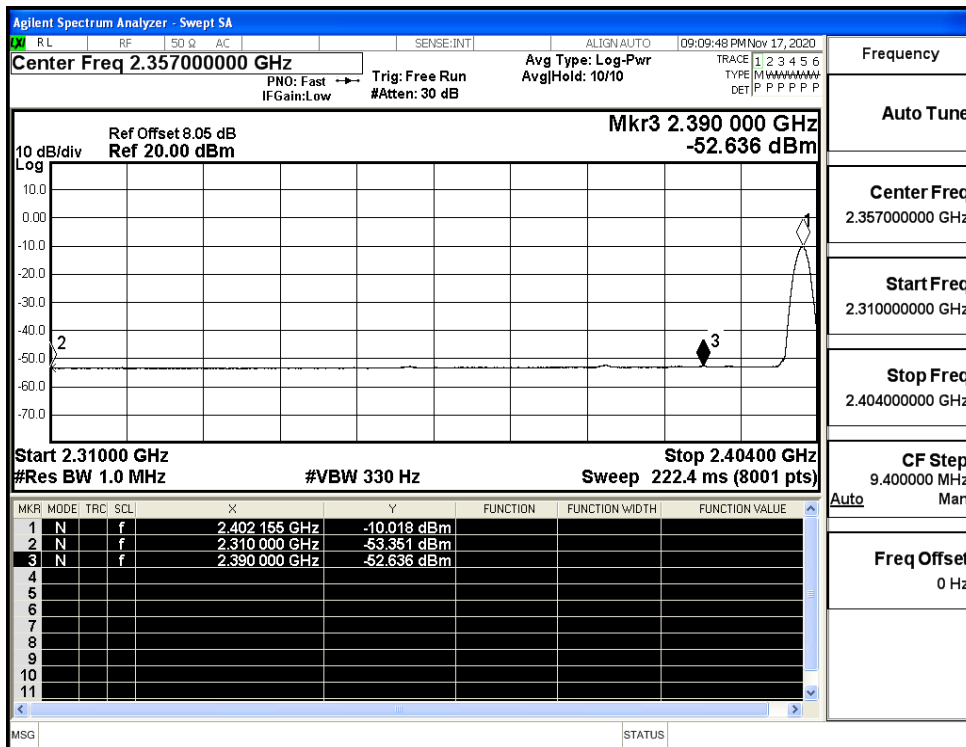
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



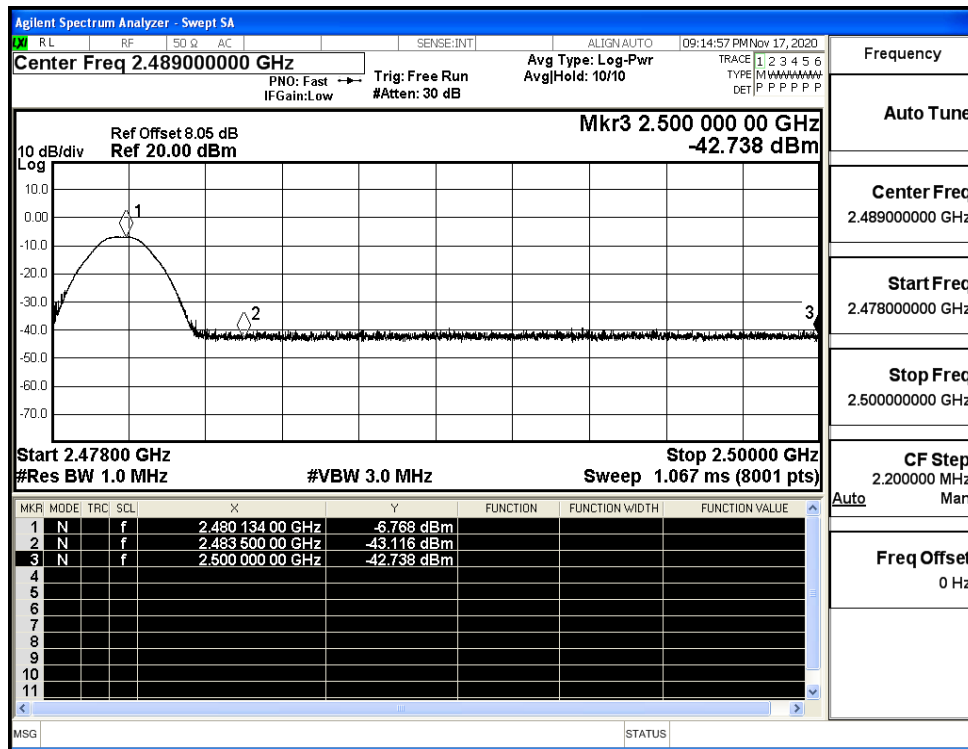
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



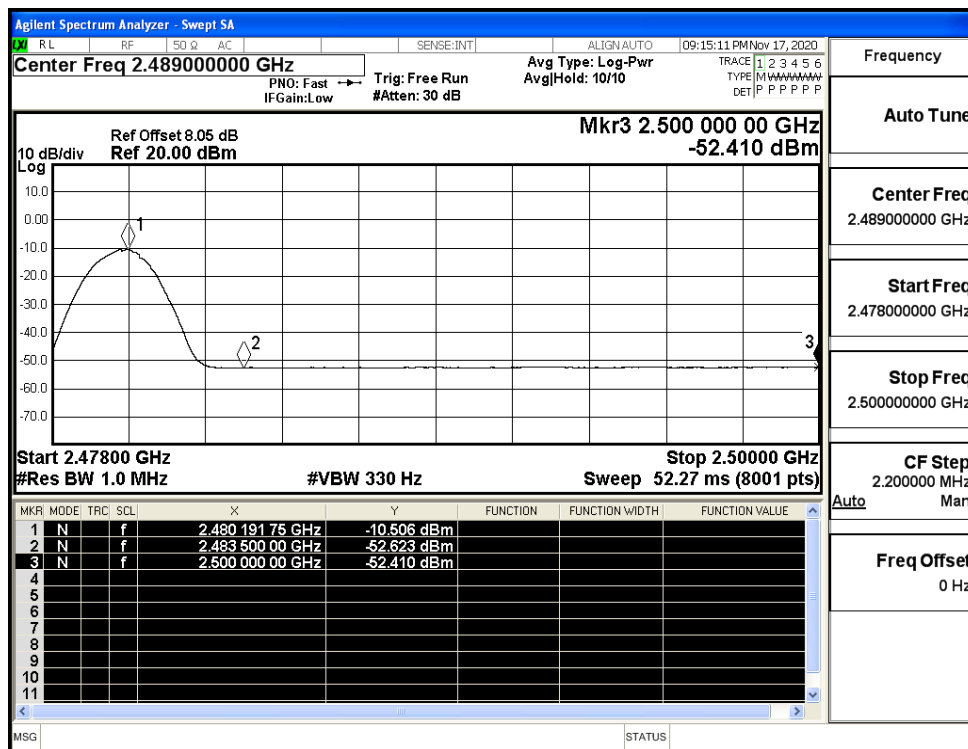
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



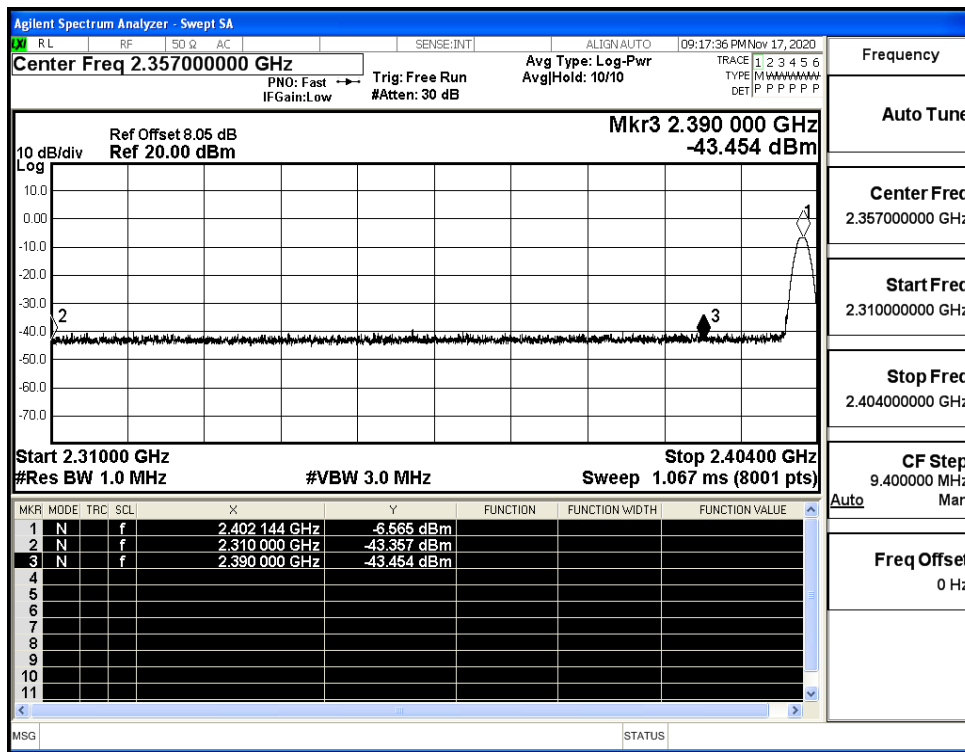
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



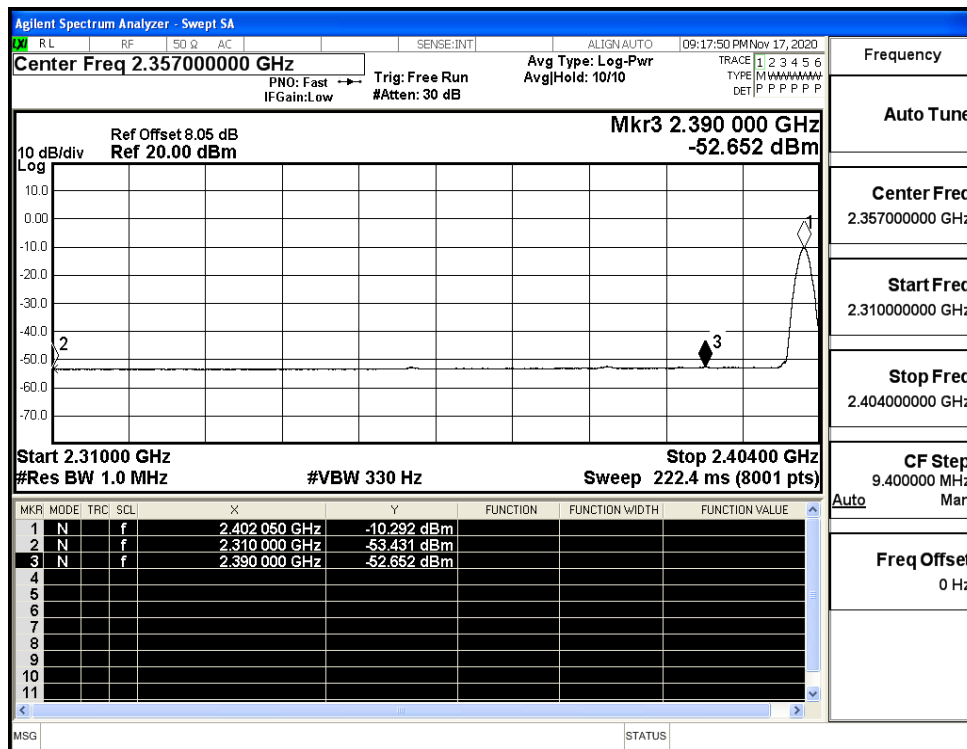
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



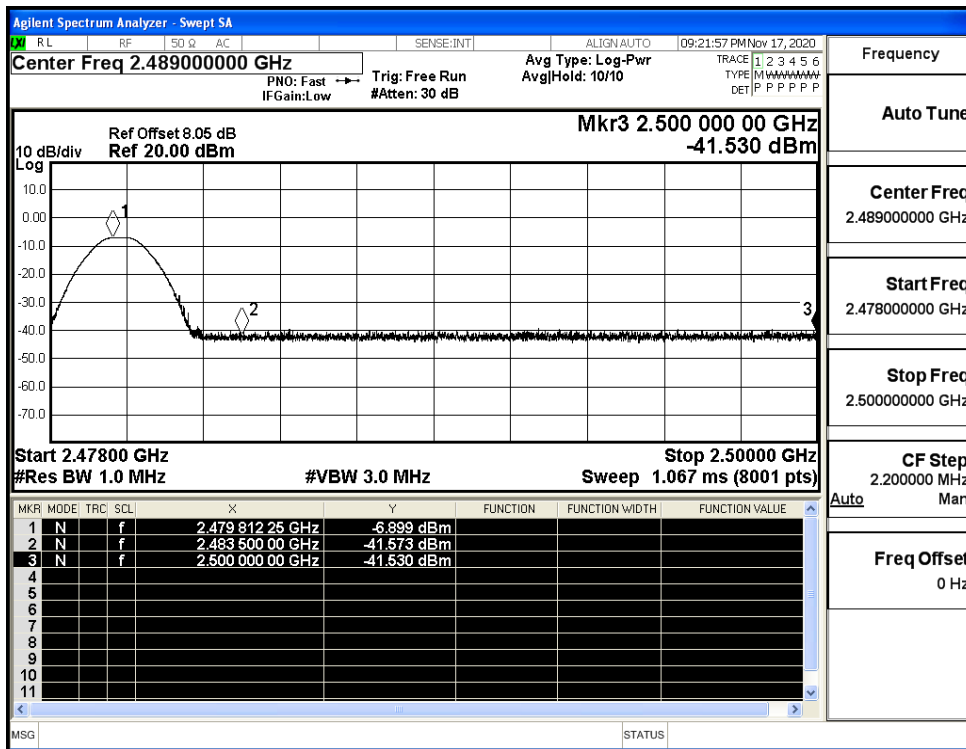
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

