

Appendix A

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

Product Name: Wireless Audio Receiver

Trade Mark: 1Mii

Test Model: ML300

Environmental Conditions

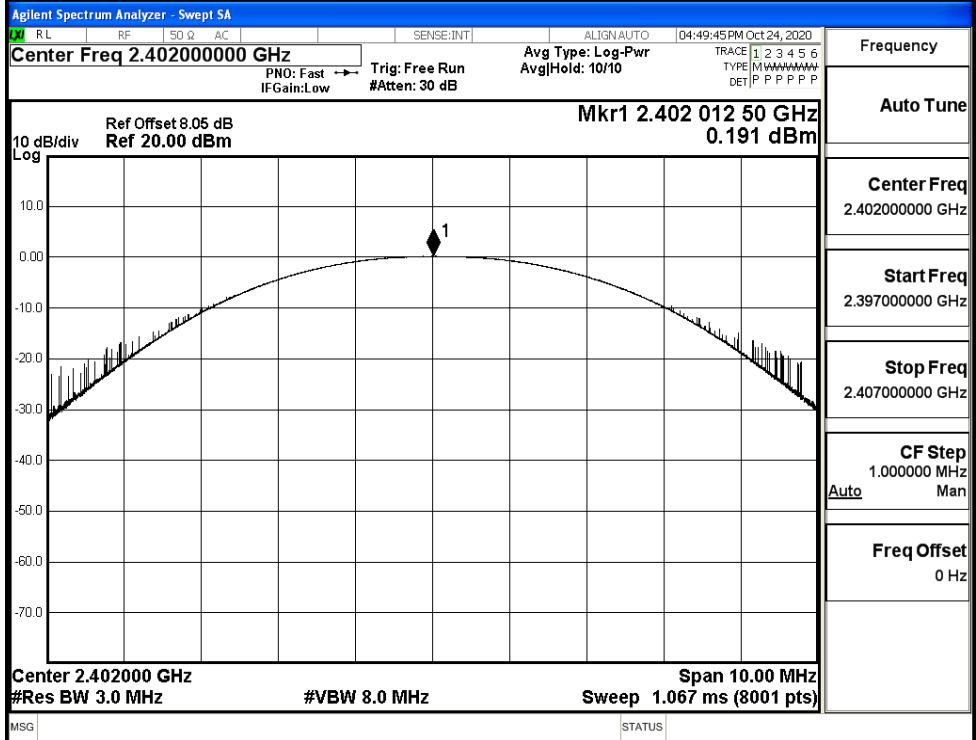
Temperature:	24.6 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

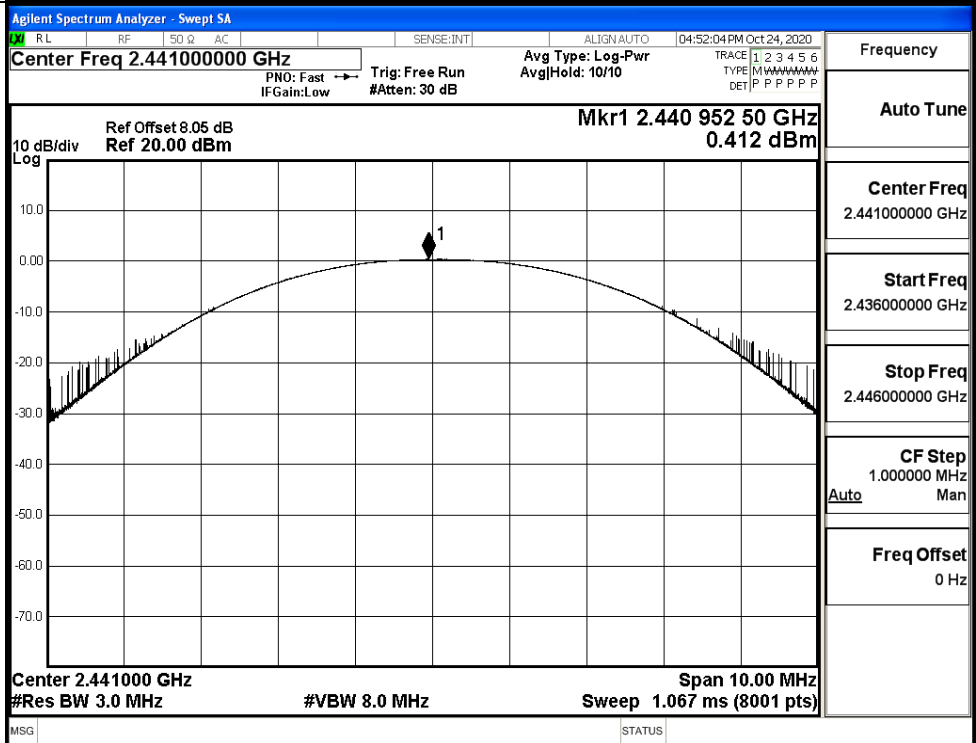
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.191	21	PASS
	MCH	0.412	21	PASS
	HCH	0.471	21	PASS
$\pi/4$ DQPSK	LCH	2.272	21	PASS
	MCH	2.457	21	PASS
	HCH	2.536	21	PASS
8DPSK	LCH	2.782	21	PASS
	MCH	2.852	21	PASS
	HCH	2.912	21	PASS

Test Graphs

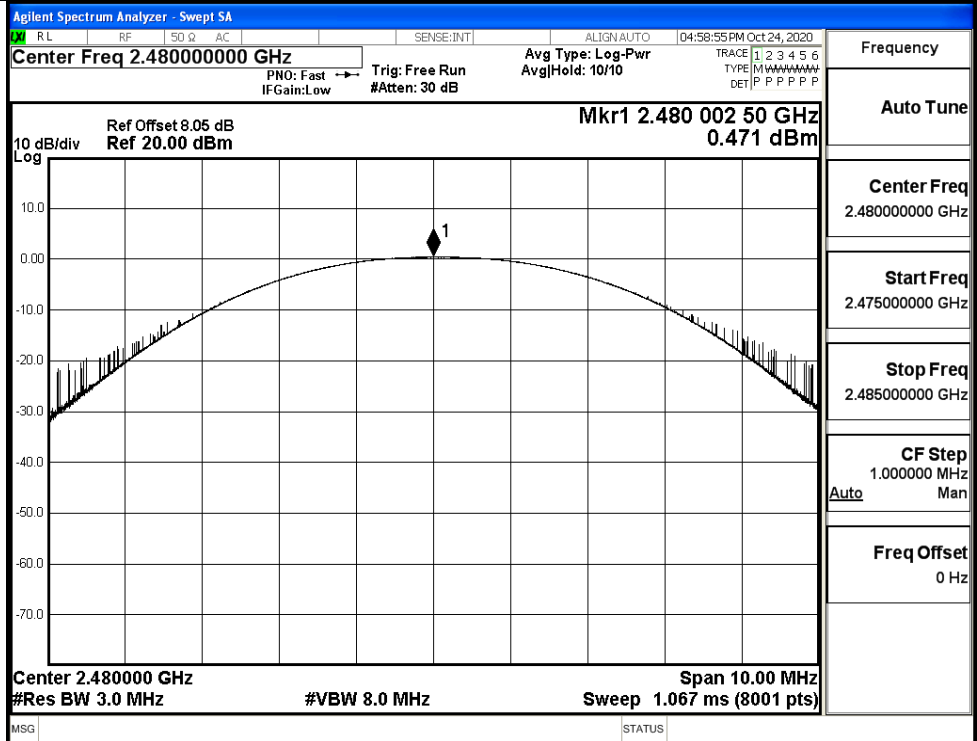
GFSK/LCH



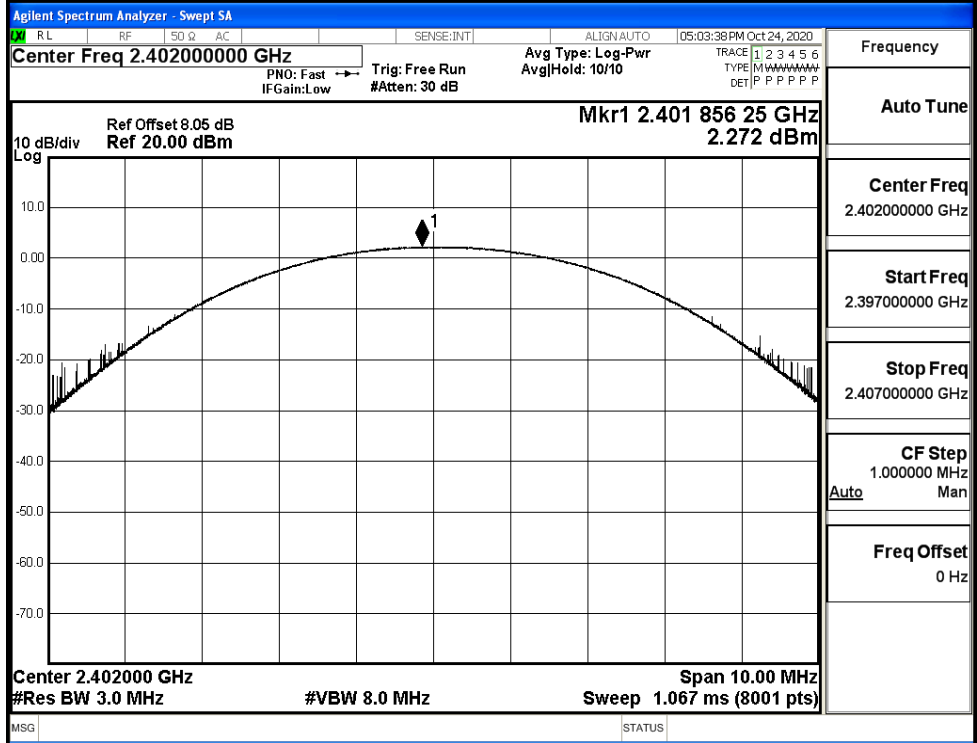
GFSK/MCH

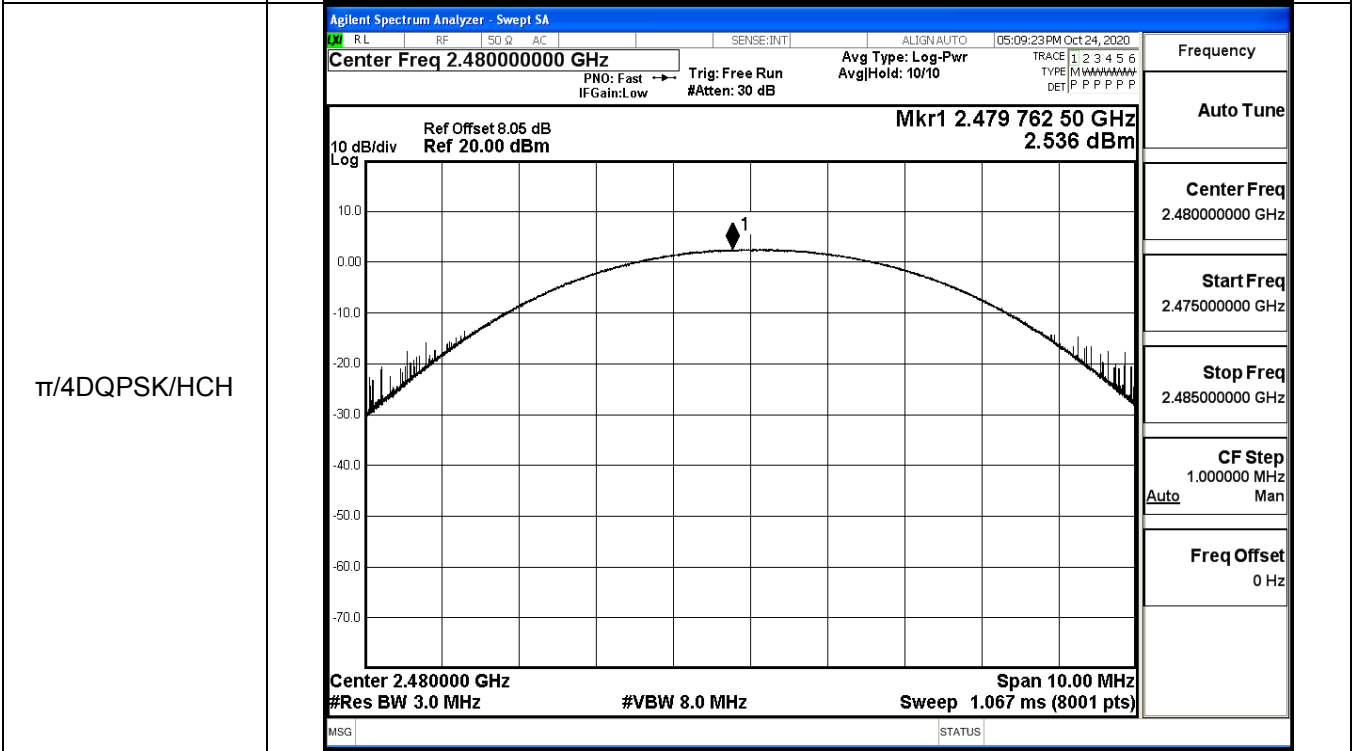
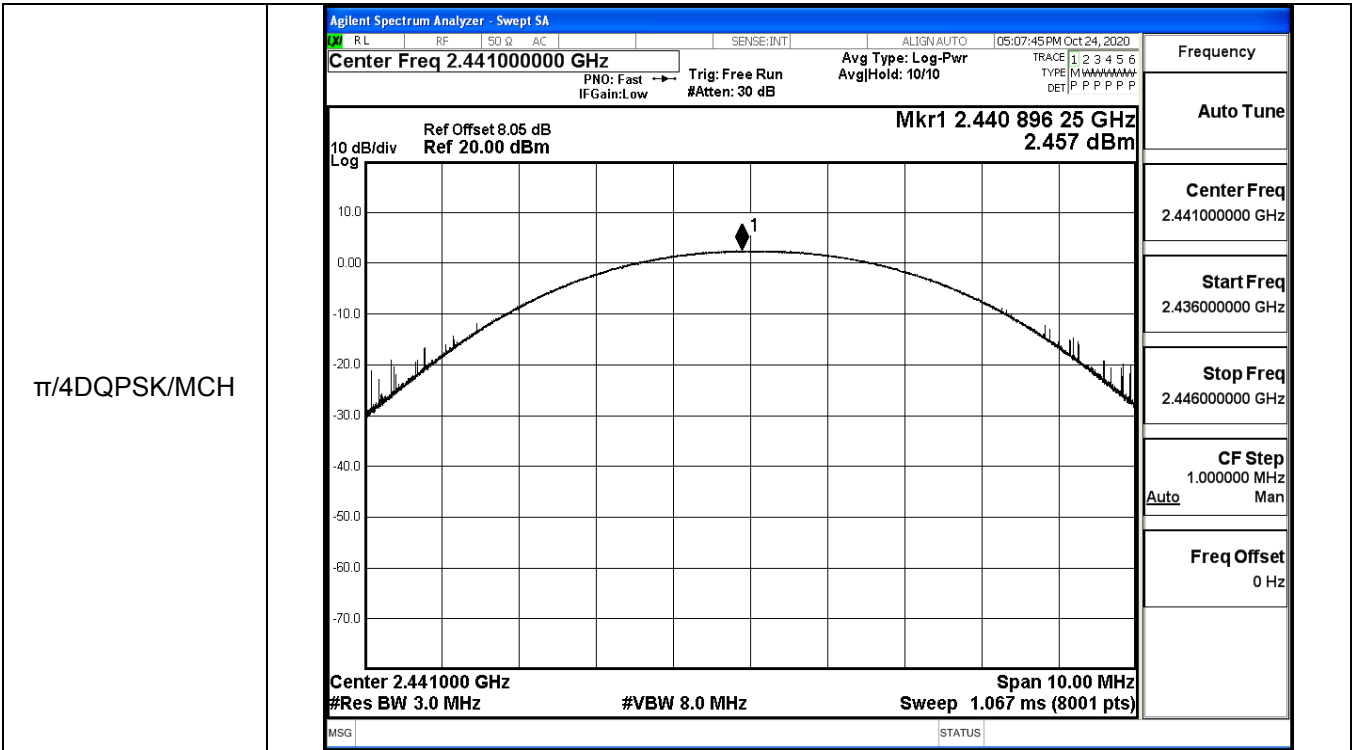


GFSK/HCH

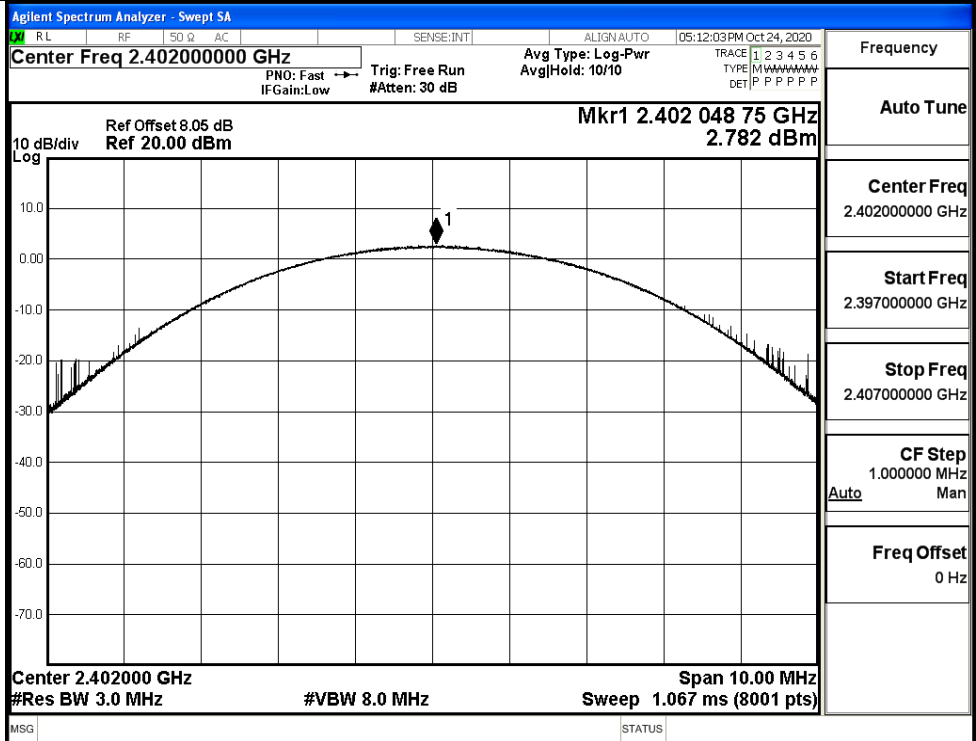


$\pi/4$ DQPSK/LCH

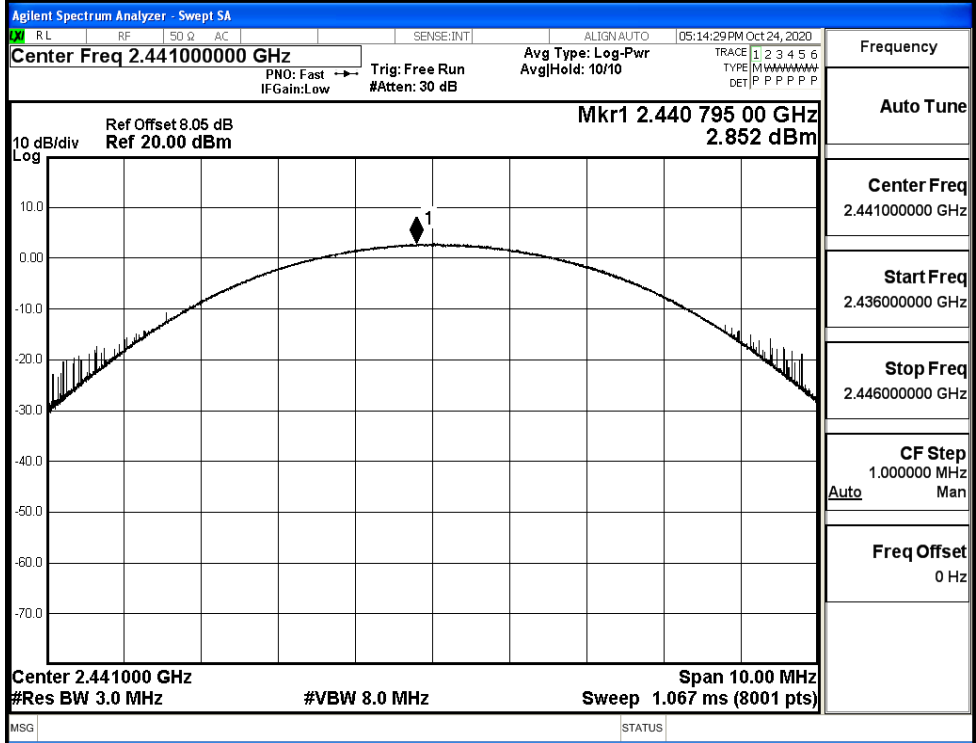




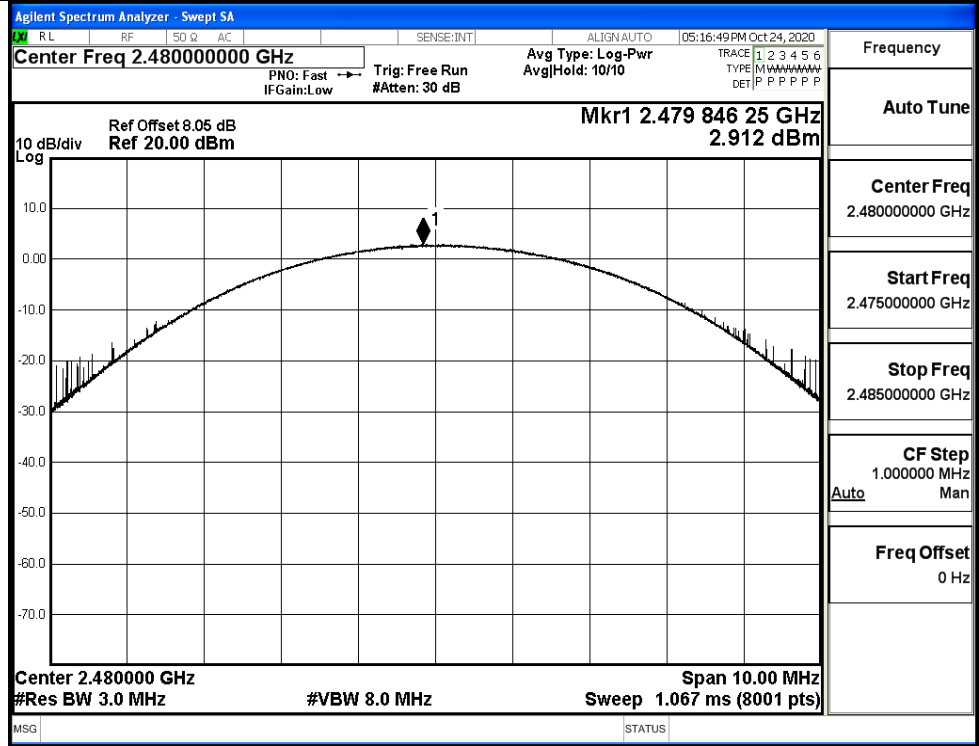
8DPSK/LCH



8DPSK/MCH

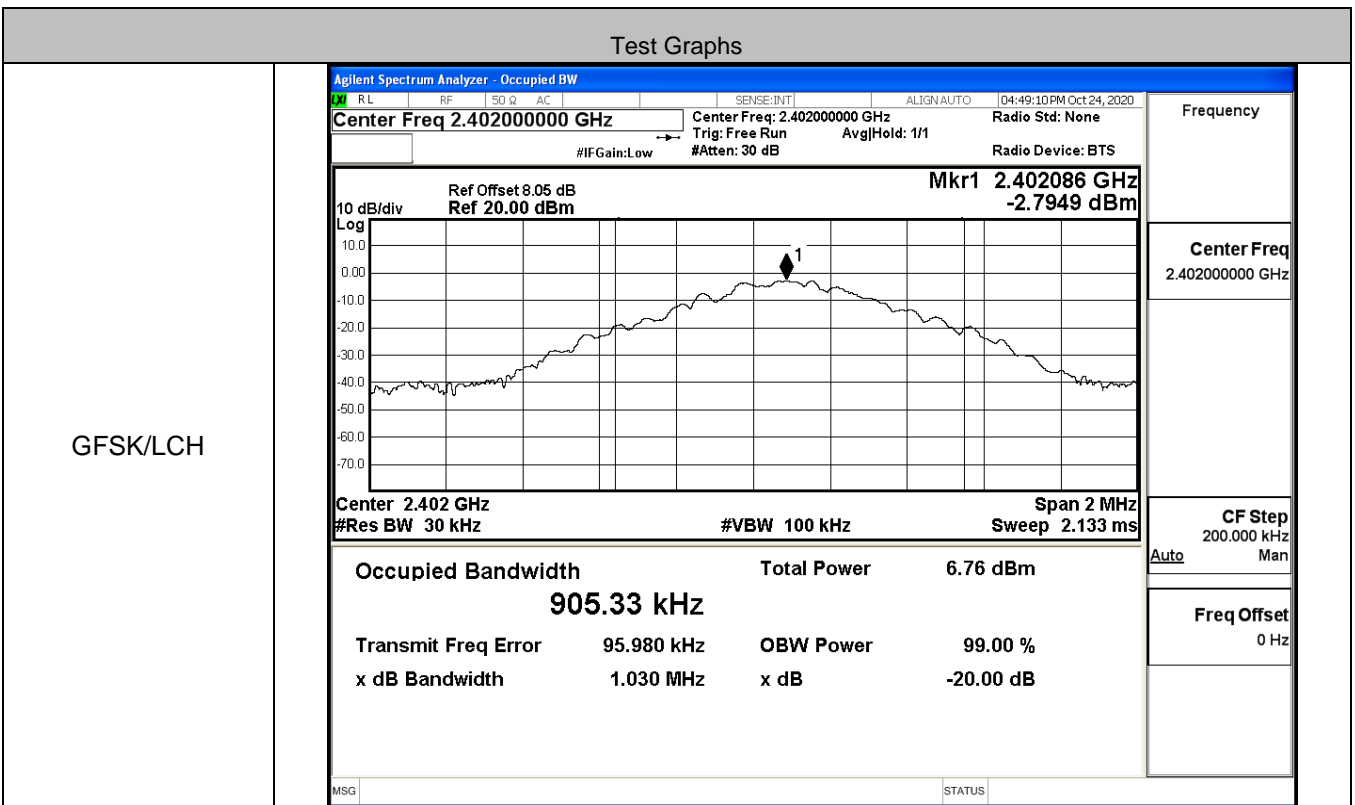


8DPSK/HCH

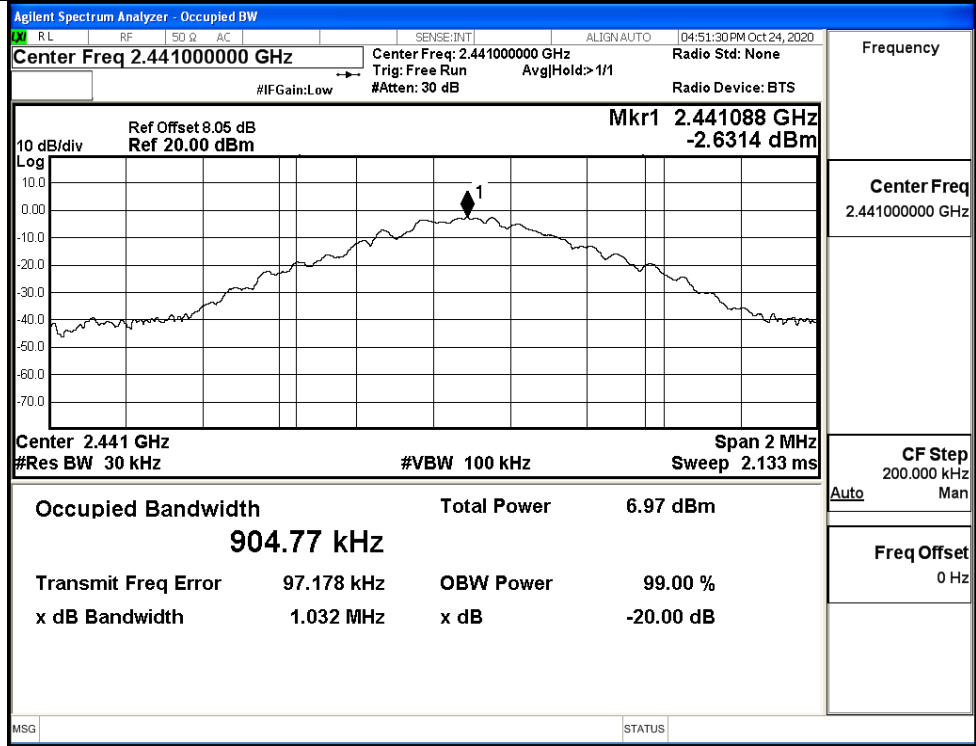


A.2 20dB Bandwidth

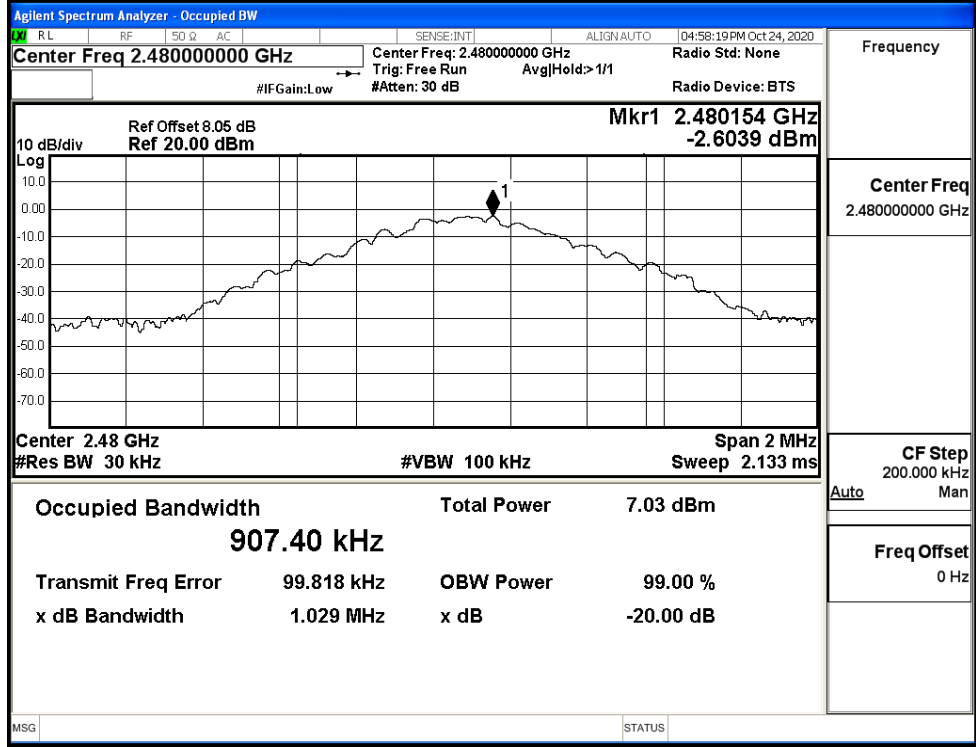
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.030	Not Specified	PASS
	MCH	1.032	Not Specified	PASS
	HCH	1.029	Not Specified	PASS
π/4DQPSK	LCH	1.367	Not Specified	PASS
	MCH	1.364	Not Specified	PASS
	HCH	1.363	Not Specified	PASS
8DPSK	LCH	1.348	Not Specified	PASS
	MCH	1.346	Not Specified	PASS
	HCH	1.349	Not Specified	PASS



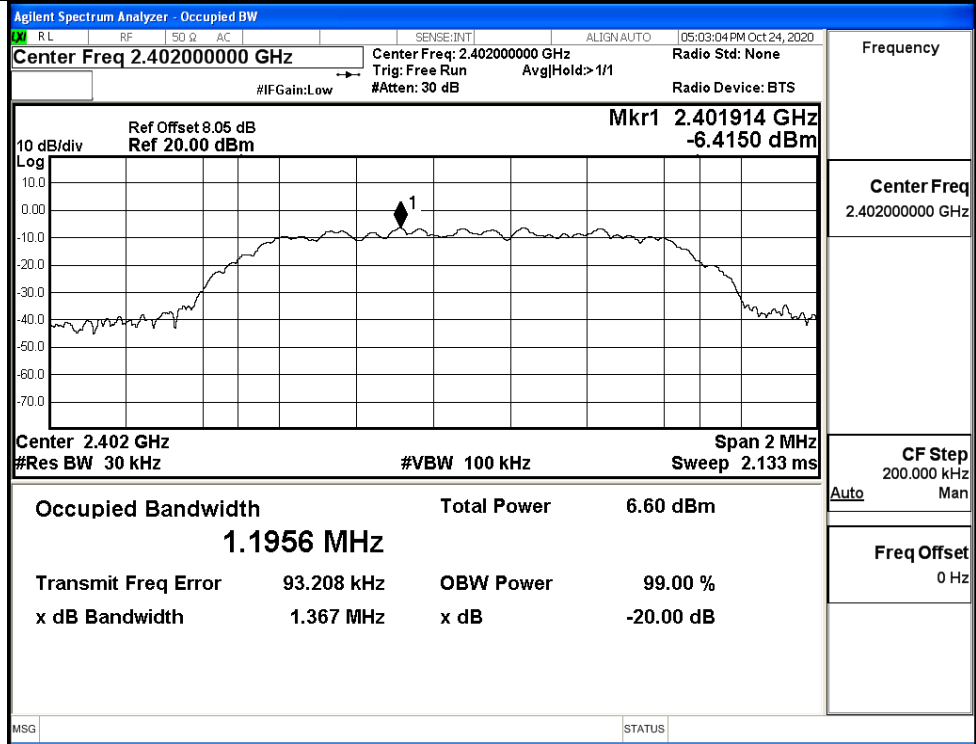
GFSK/MCH



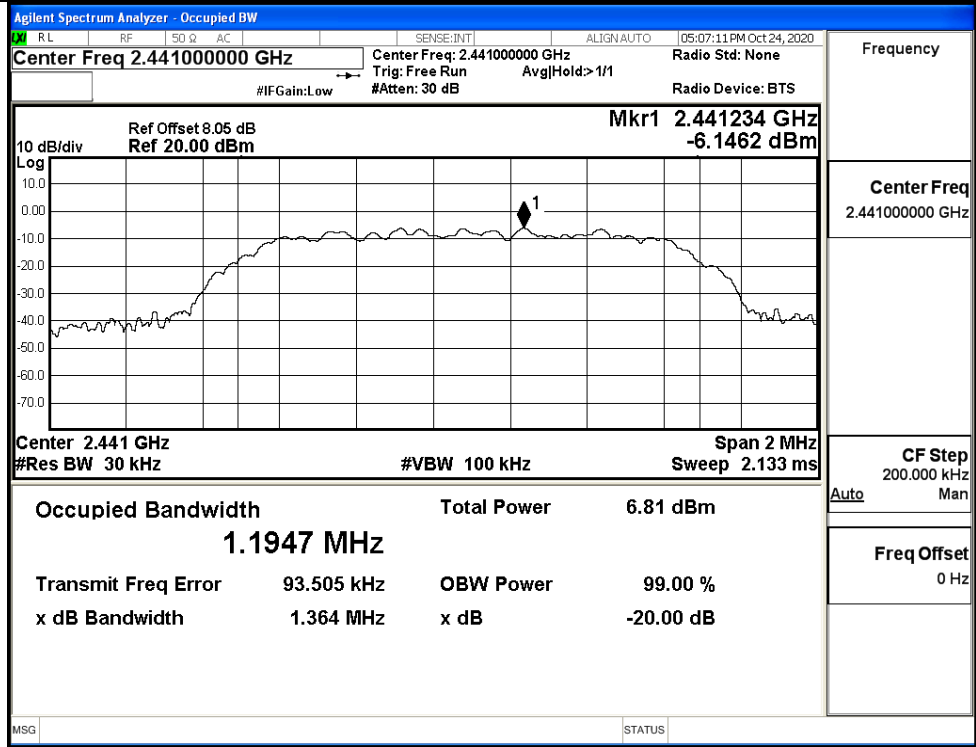
GFSK/HCH



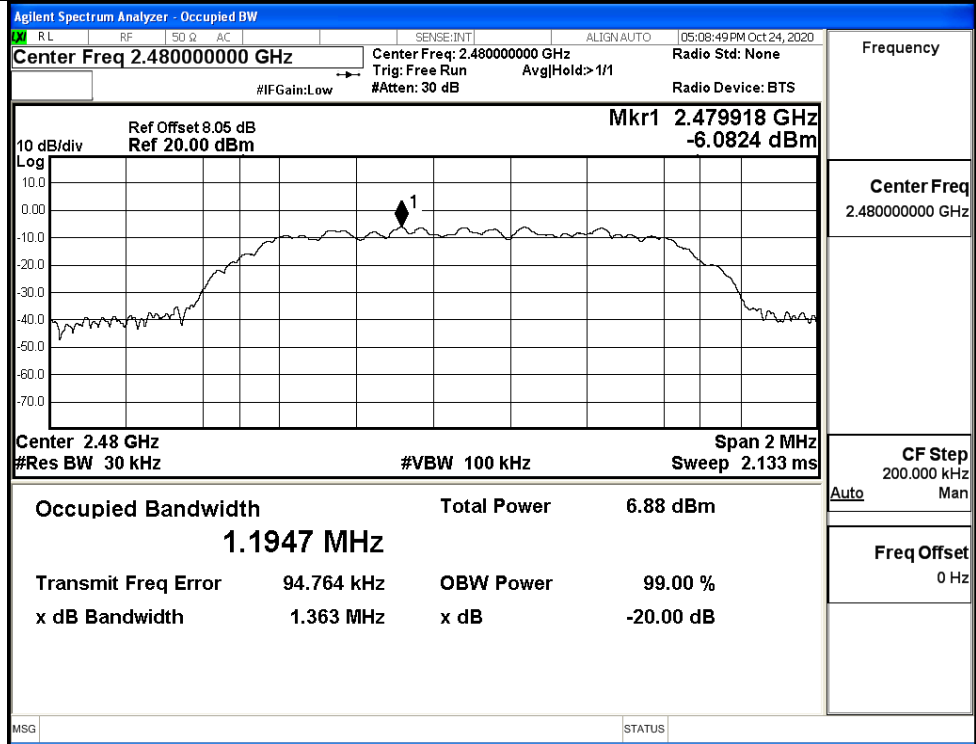
$\pi/4$ DQPSK/LCH



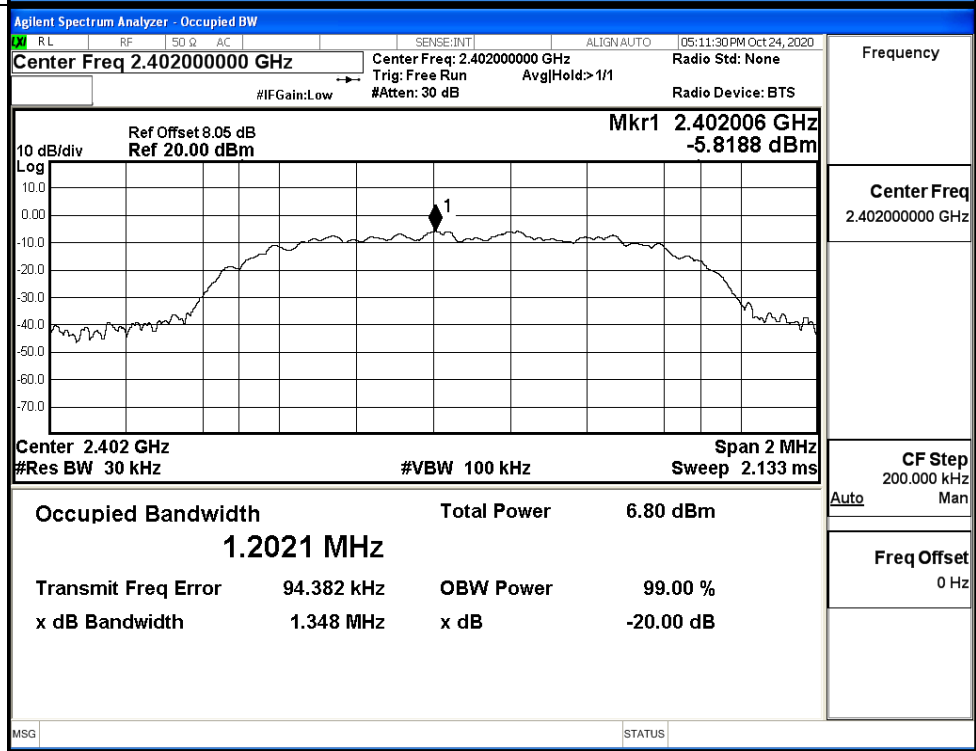
$\pi/4$ DQPSK/MCH



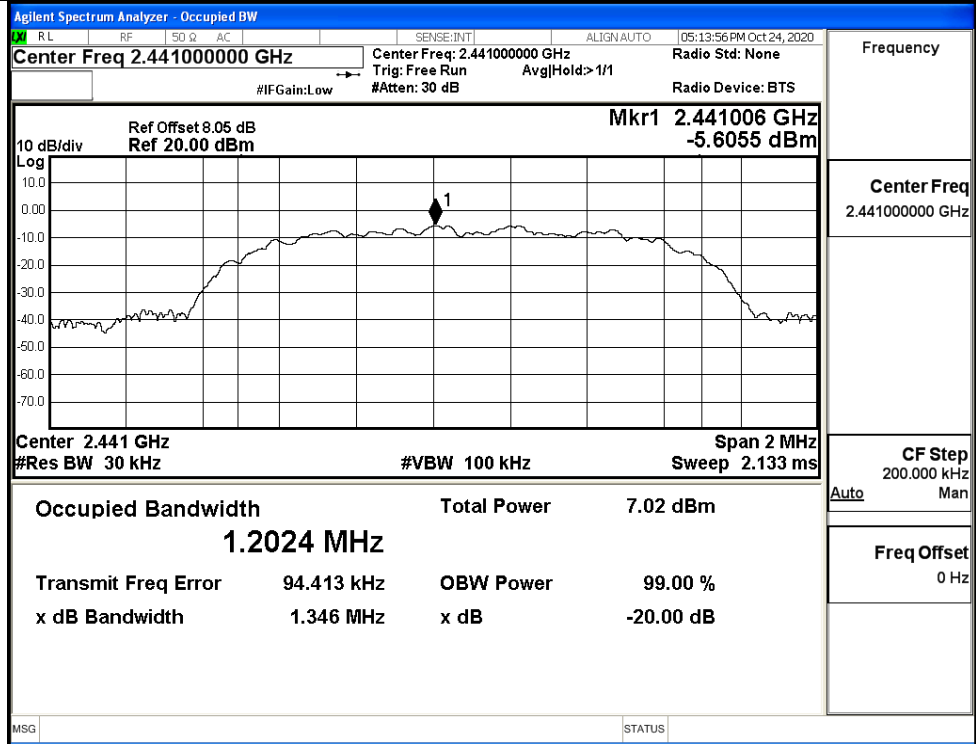
$\pi/4$ DQPSK/HCH



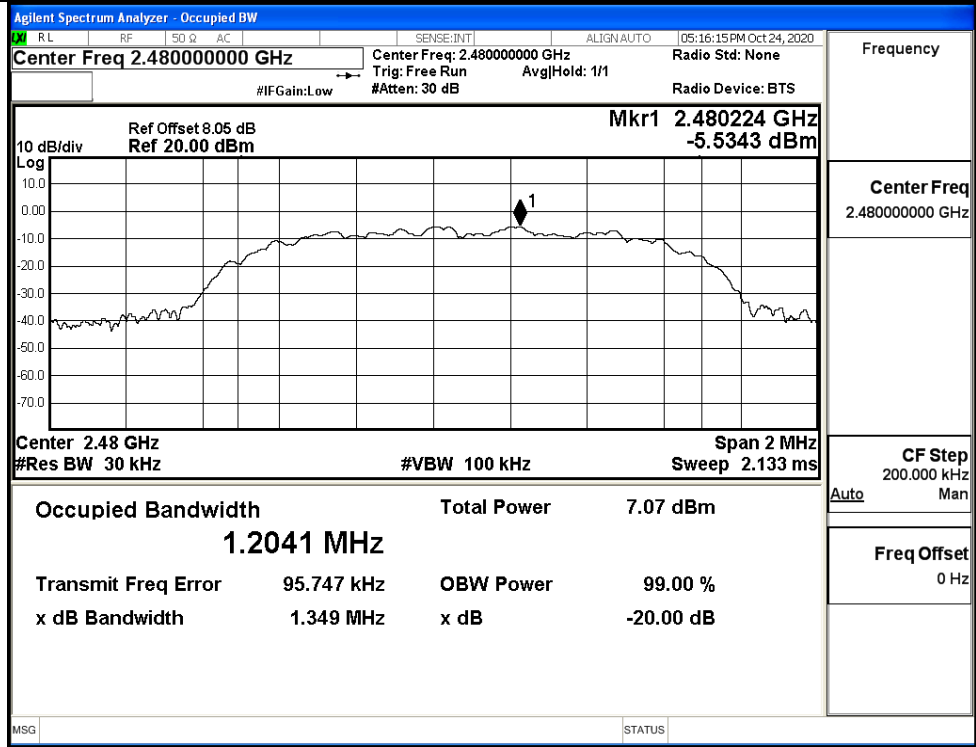
8DPSK/LCH



8DPSK/MCH

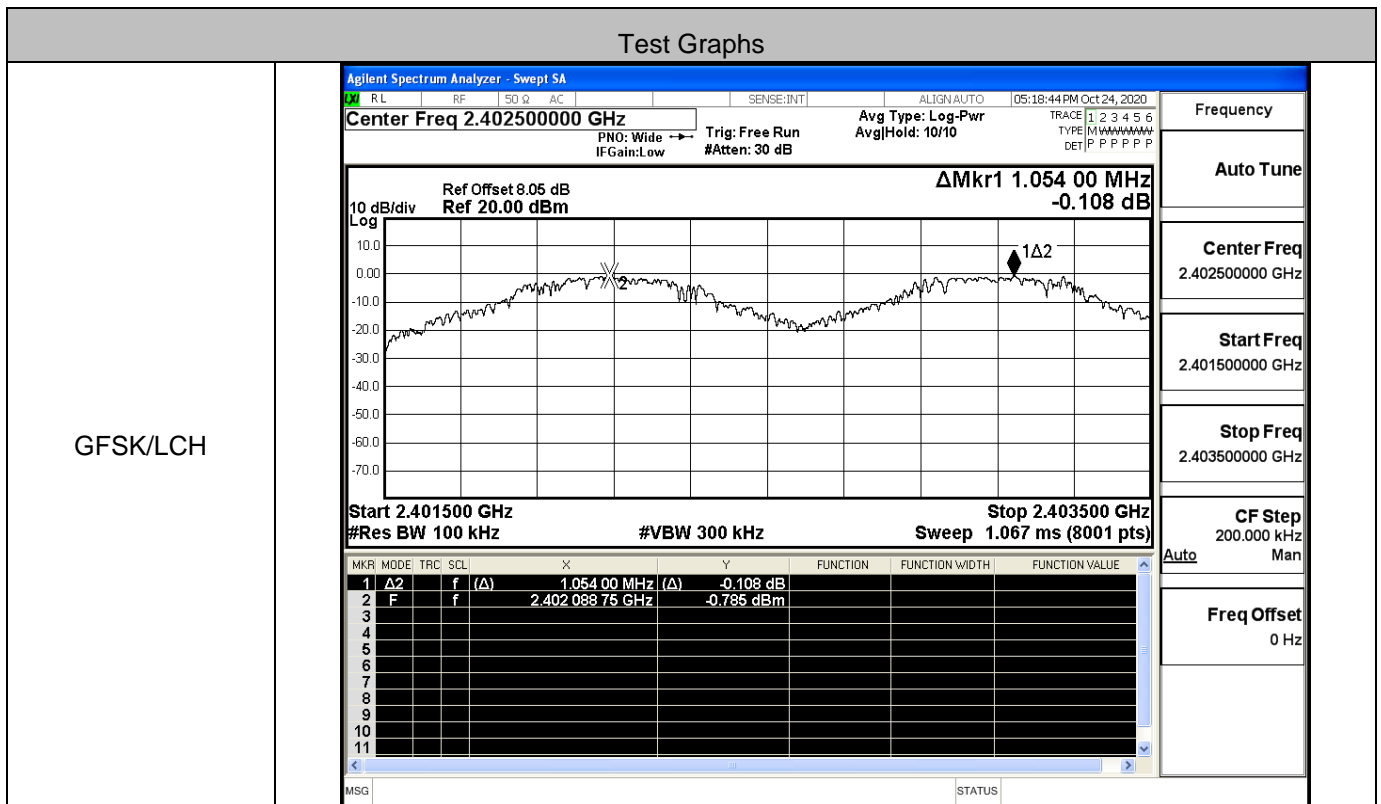


8DPSK/HCH

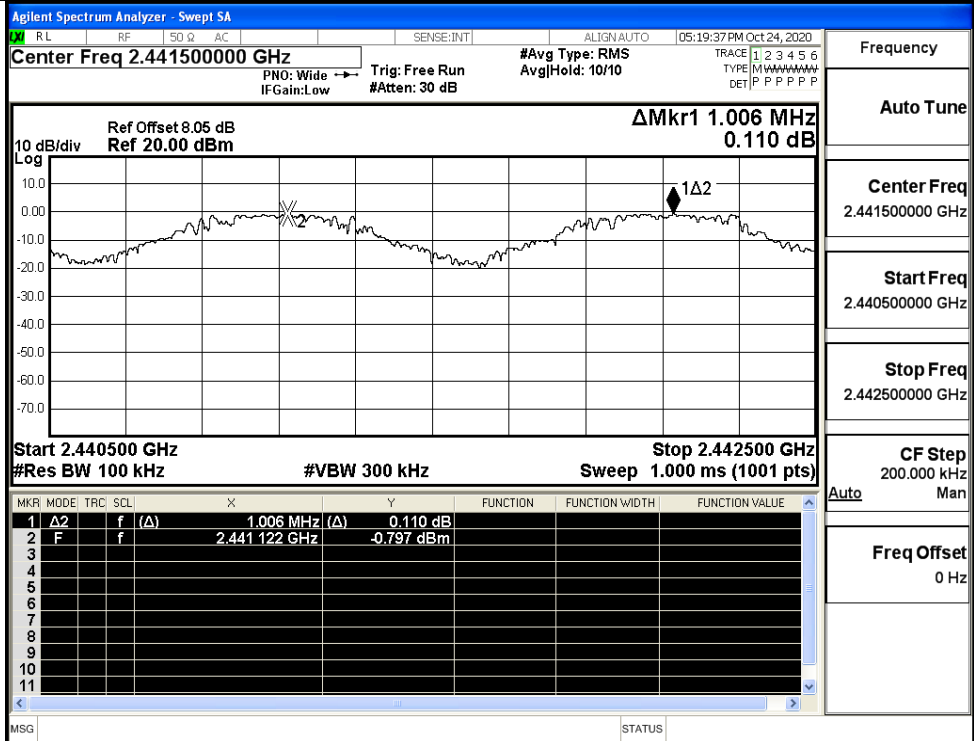


A.3 Carrier Frequency Separation

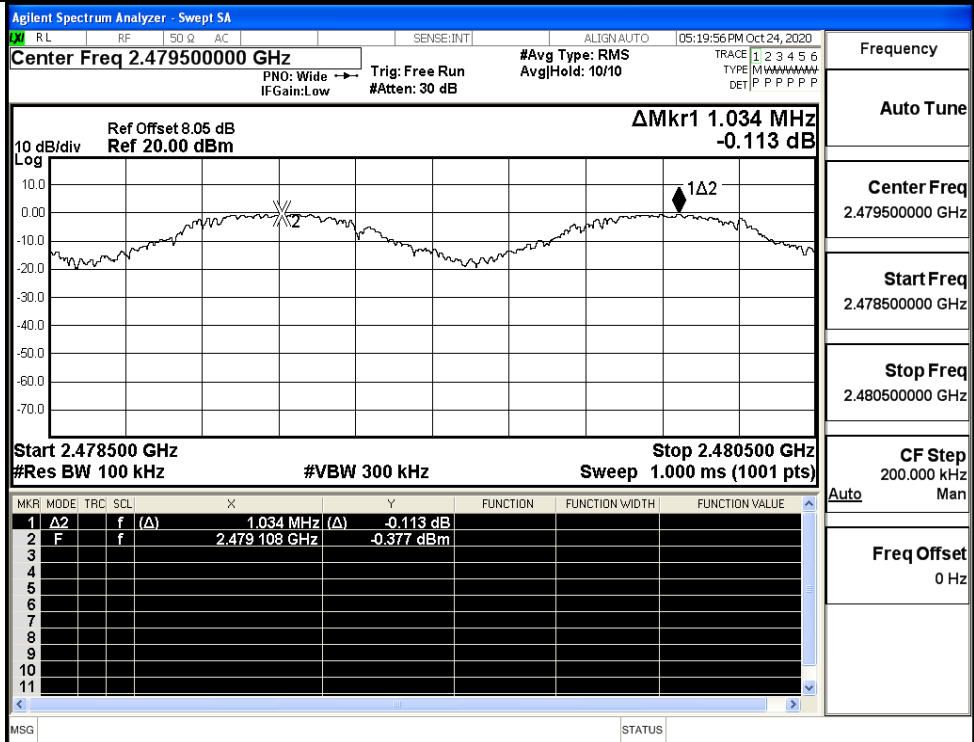
Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.054	0.688	PASS
	MCH	1.006	0.688	PASS
	HCH	1.034	0.688	PASS
π/4DQPSK	LCH	1.010	0.911	PASS
	MCH	1.028	0.911	PASS
	HCH	1.024	0.911	PASS
8DPSK	LCH	0.998	0.899	PASS
	MCH	1.142	0.899	PASS
	HCH	0.956	0.899	PASS



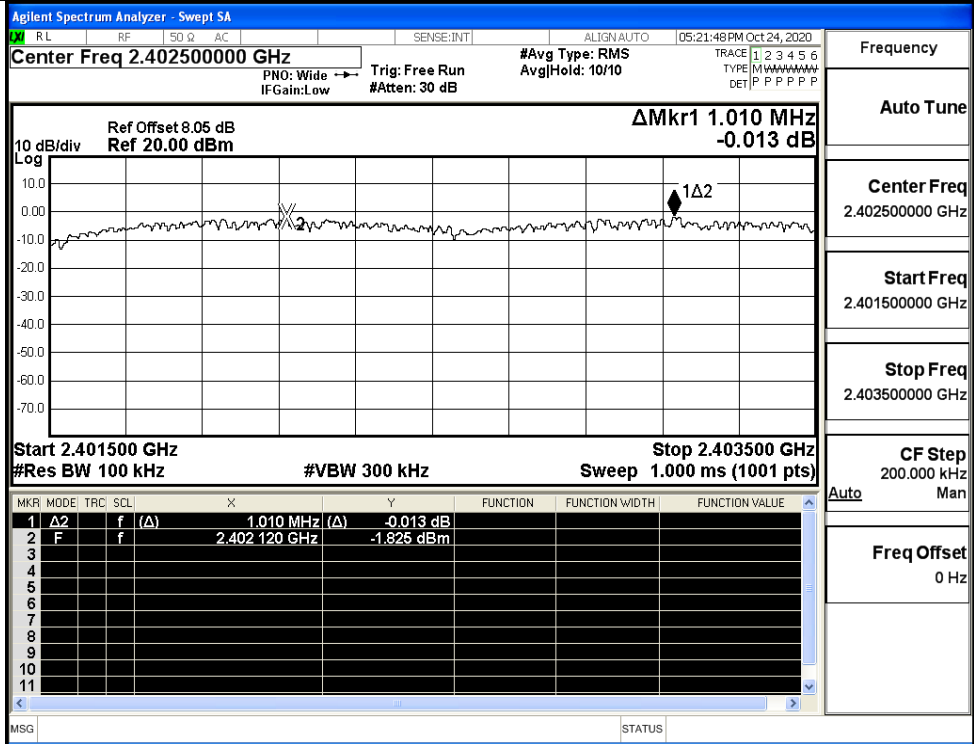
GFSK/MCH



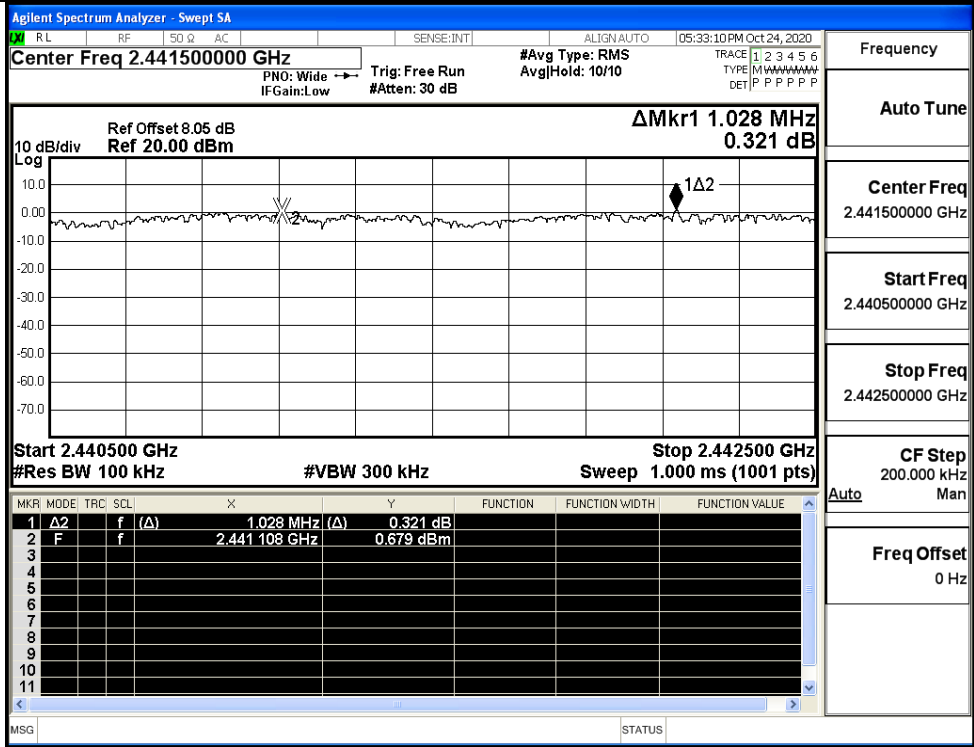
GFSK/HCH



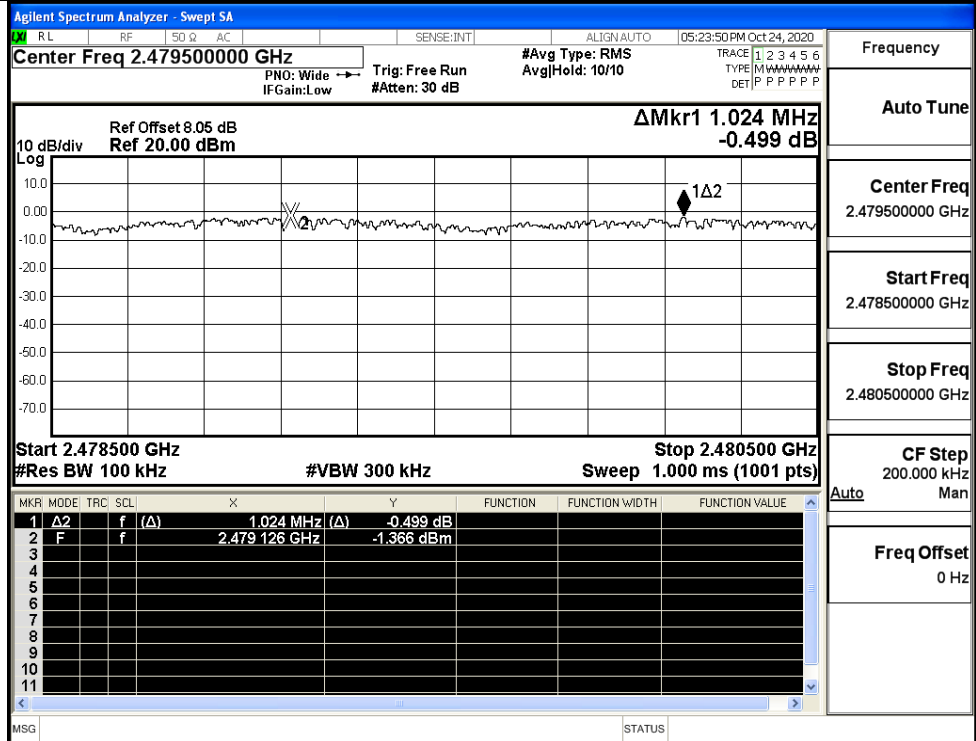
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

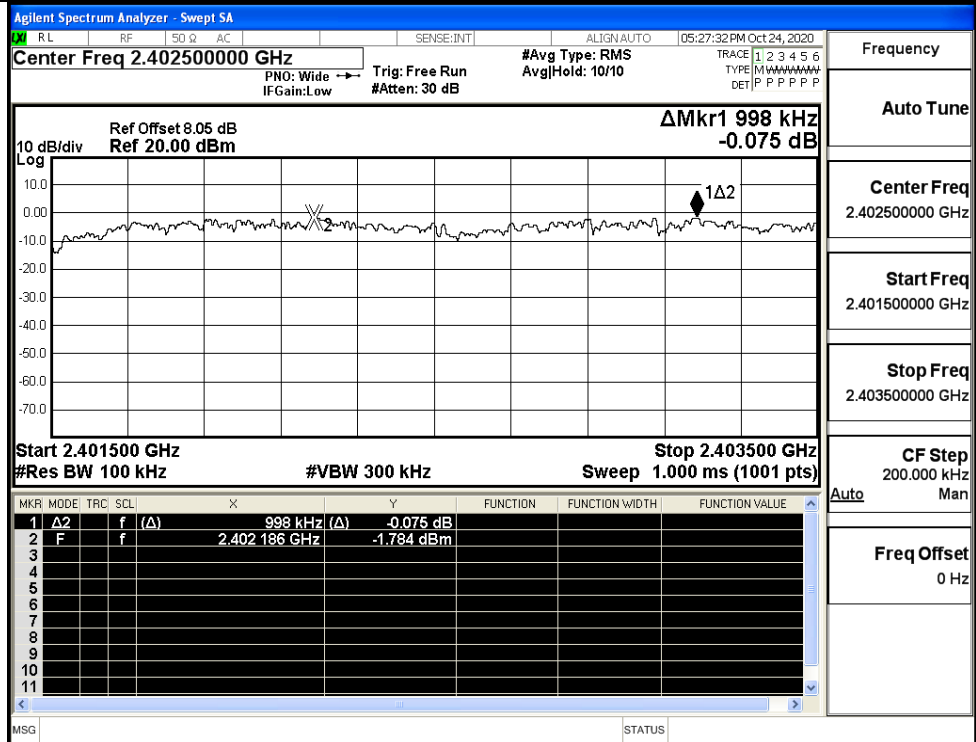


π/4DQPSK/HCH



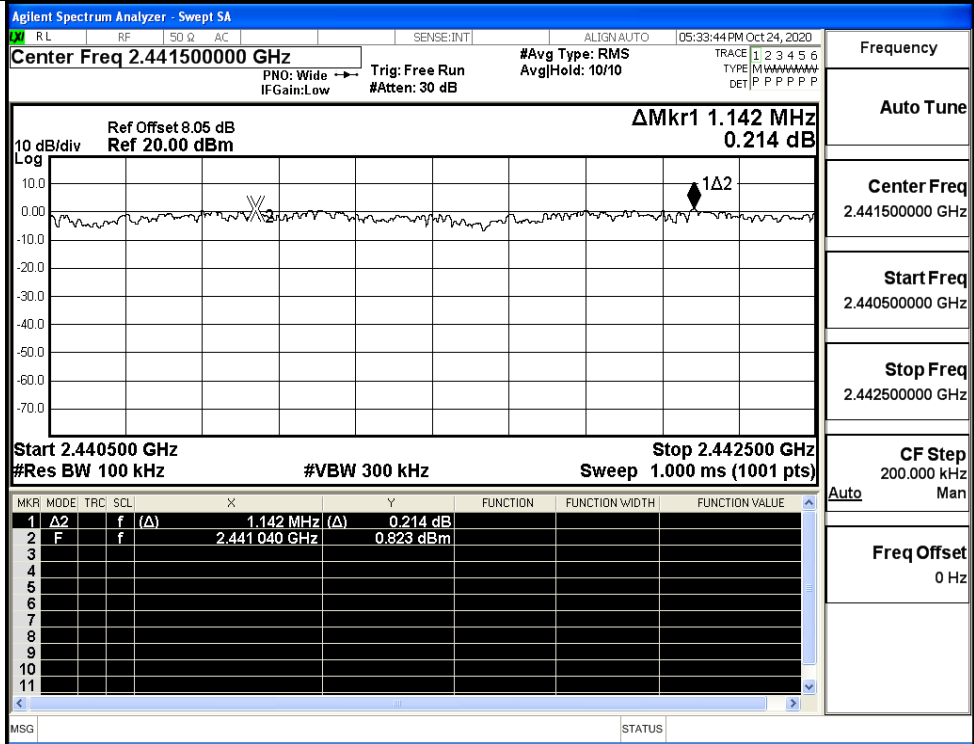
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

8DPSK/LCH

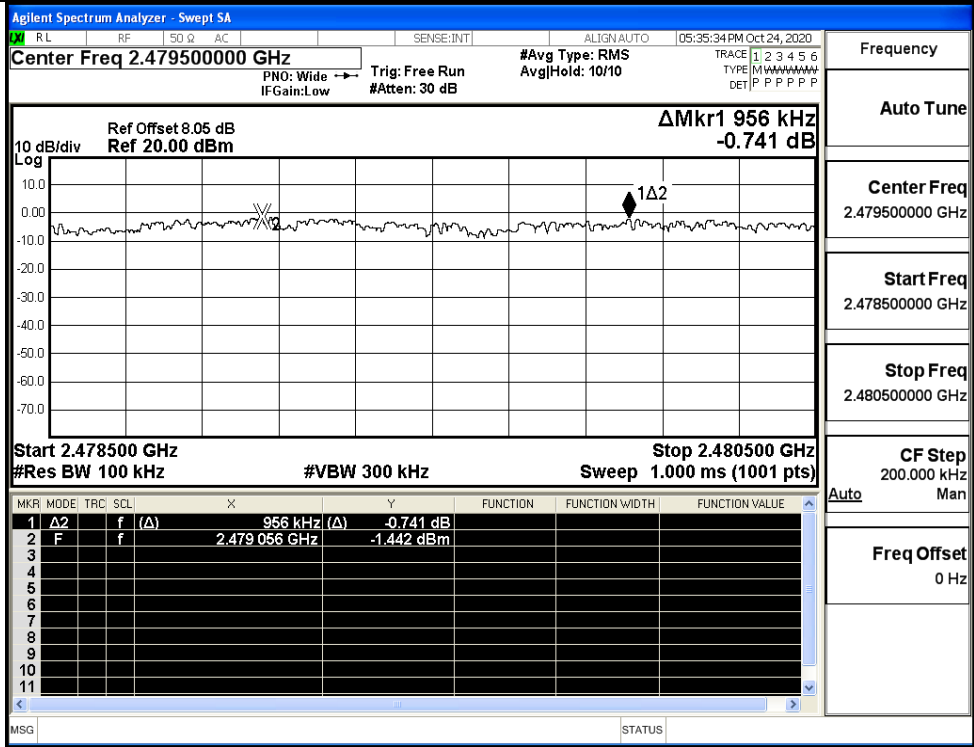


Frequency
Auto Tune
Center Freq
2.402500000 GHz
Start Freq
2.401500000 GHz
Stop Freq
2.403500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

8DPSK/MCH



8DPSK/HCH



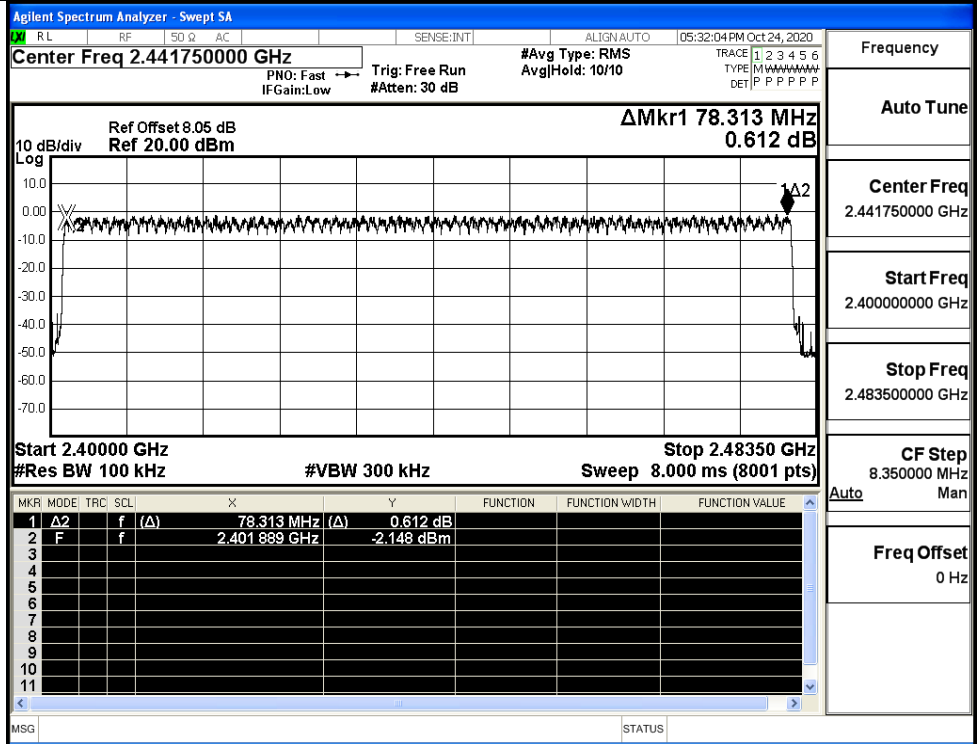
A.4 Hopping Channel Number

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

<p>GFSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 77.926 MHz 0.776 dB</p> <p>Start 2.40000 GHz Stop 2.48350 GHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <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>77.926 MHz (Δ)</td> <td>0.776 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td>(Δ)</td> <td>2.402 046 GHz</td> <td>-1.162 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)	77.926 MHz (Δ)	0.776 dB				2	F	f	(Δ)	2.402 046 GHz	-1.162 dBm				<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441750000 GHz</p> <p>Start Freq 2.400000000 GHz</p> <p>Stop Freq 2.483500000 GHz</p> <p>CF Step 8.350000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	Δ 2	f	(Δ)	77.926 MHz (Δ)	0.776 dB																								
2	F	f	(Δ)	2.402 046 GHz	-1.162 dBm																								
<p>$\pi/4$DQPSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 77.728 MHz 0.413 dB</p> <p>Start 2.40000 GHz Stop 2.48350 GHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <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>77.728 MHz (Δ)</td> <td>0.413 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td>(Δ)</td> <td>2.402 213 GHz</td> <td>-2.460 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)	77.728 MHz (Δ)	0.413 dB				2	F	f	(Δ)	2.402 213 GHz	-2.460 dBm				<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441750000 GHz</p> <p>Start Freq 2.400000000 GHz</p> <p>Stop Freq 2.483500000 GHz</p> <p>CF Step 8.350000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	Δ 2	f	(Δ)	77.728 MHz (Δ)	0.413 dB																								
2	F	f	(Δ)	2.402 213 GHz	-2.460 dBm																								

8DPSK/Hop

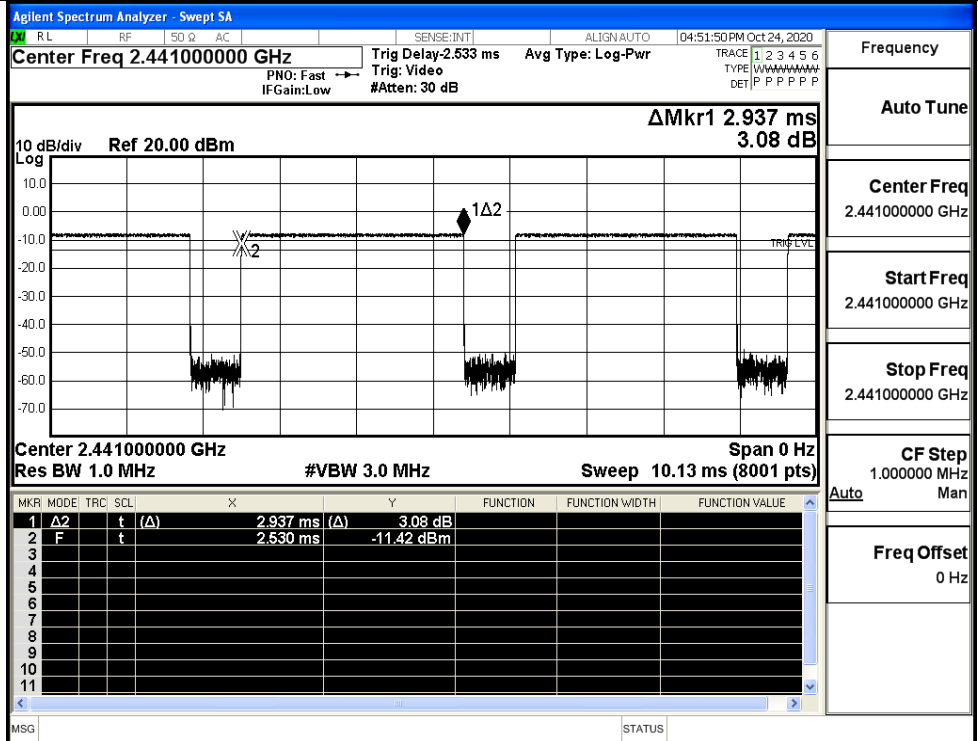


A.5 Dwell Time

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.94	106.7	0.314	0.4	PASS
	DH5	MCH	2.94	106.7	0.314	0.4	PASS
	DH5	HCH	2.92	106.7	0.312	0.4	PASS
π/4DQPSK	2DH5	LCH	2.94	106.7	0.314	0.4	PASS
	2DH5	MCH	2.94	106.7	0.313	0.4	PASS
	2DH5	HCH	2.92	106.7	0.312	0.4	PASS
8DPSK	3DH5	LCH	2.94	106.7	0.312	0.4	PASS
	3DH5	MCH	2.94	106.7	0.312	0.4	PASS
	3DH5	HCH	2.92	106.7	0.312	0.4	PASS

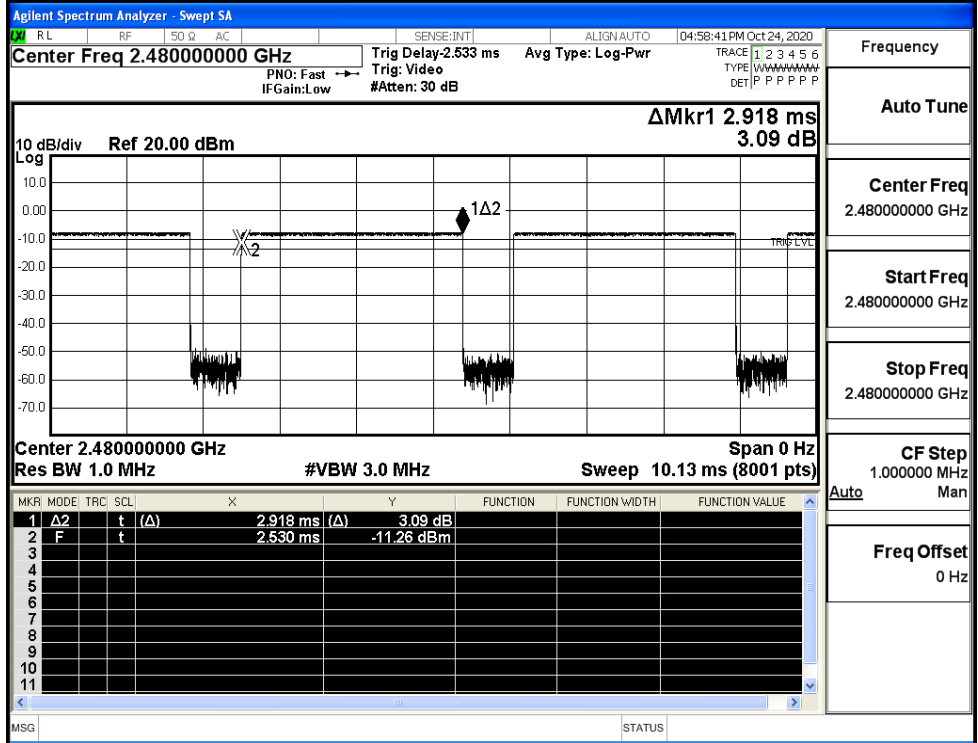


GFSK_DH5/MCH



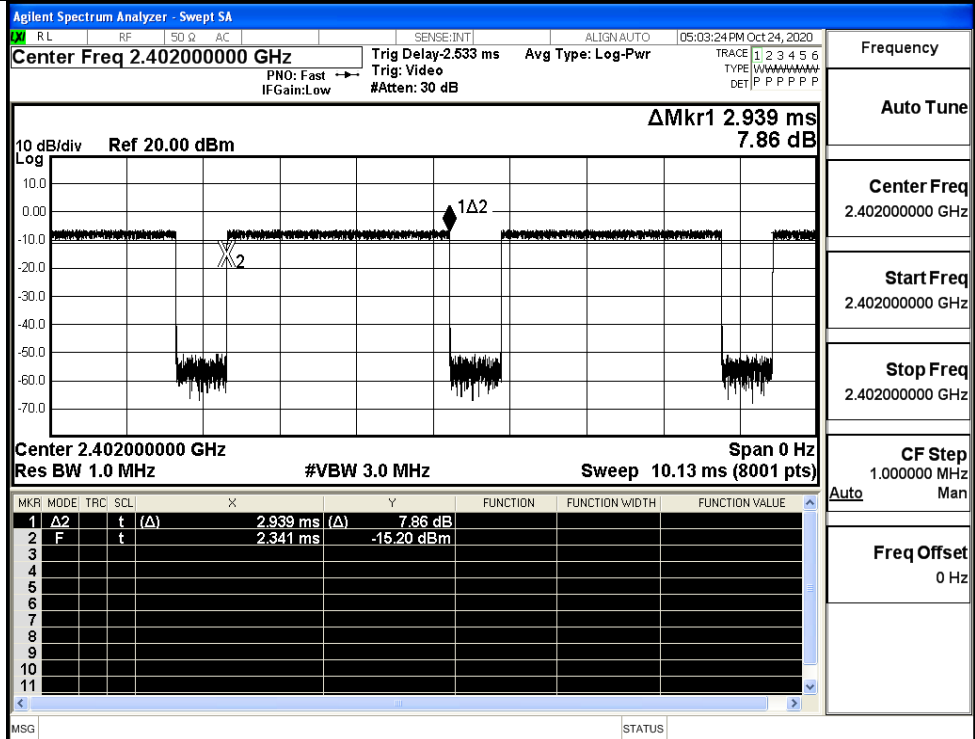
Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.441000000 GHz
Stop Freq	2.441000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK_DH5/HCH

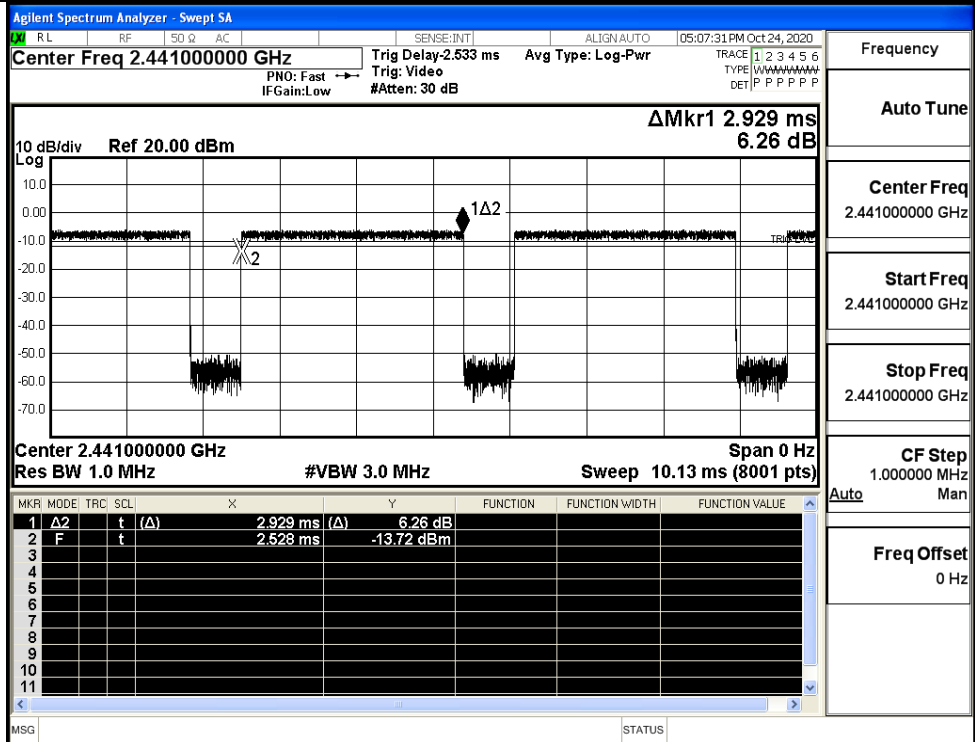


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

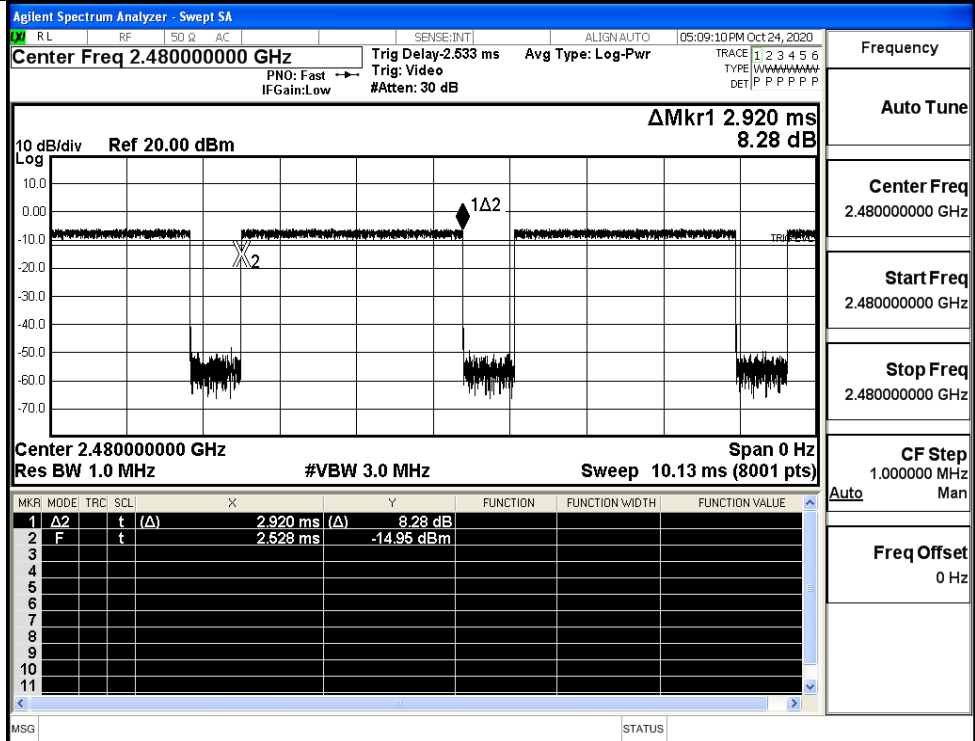
$\pi/4$ DQPSK
_2DH5/LCH



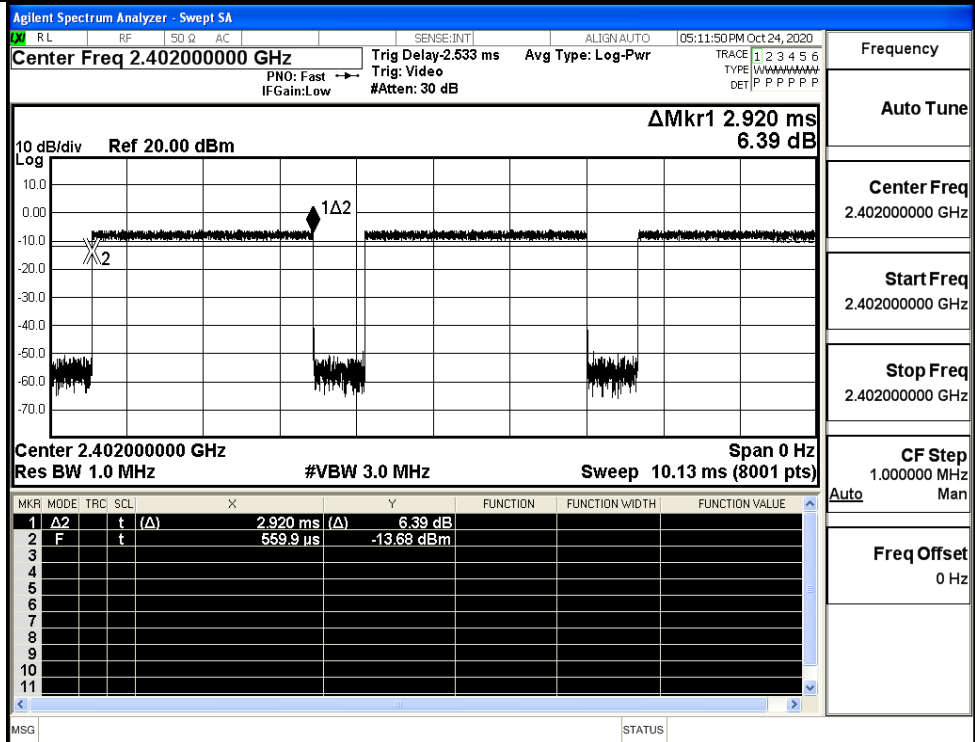
$\pi/4$ DQPSK
_2DH5/MCH



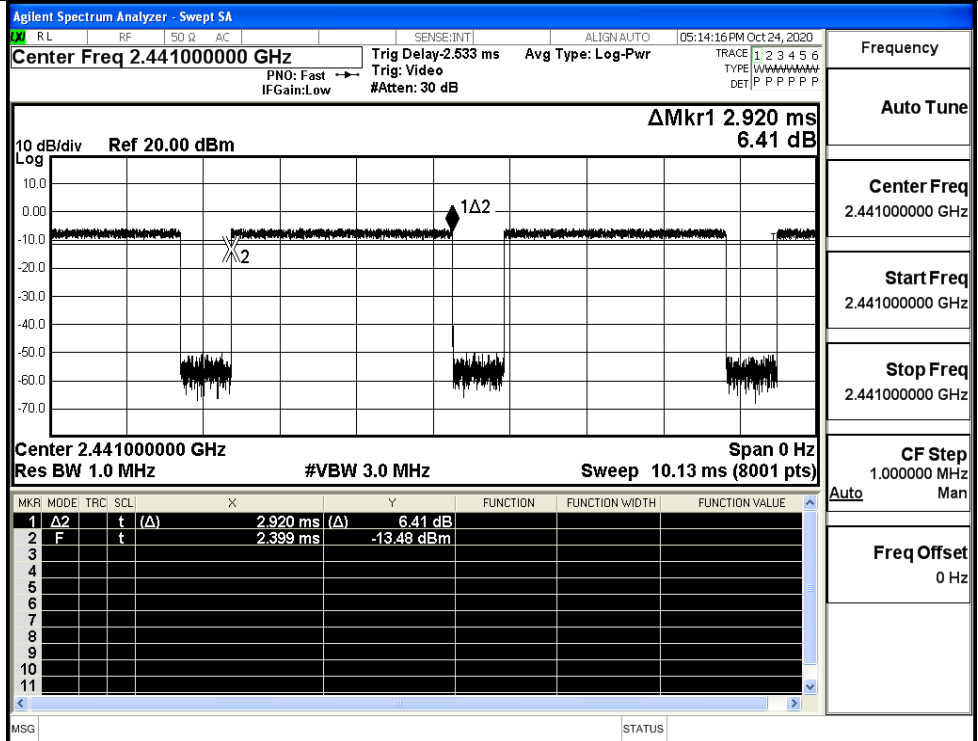
$\pi/4$ DQPSK
_2DH5/HCH



8DPSK_3DH5/LCH

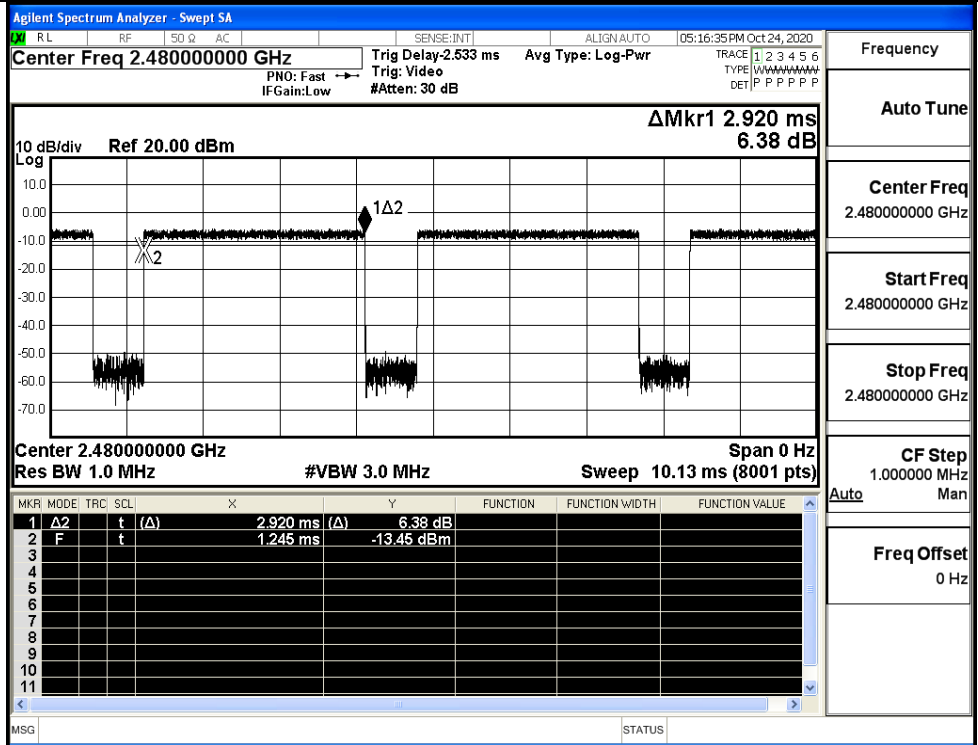


8DPSK_3DH5/MCH



Frequency	2.441000000 GHz
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

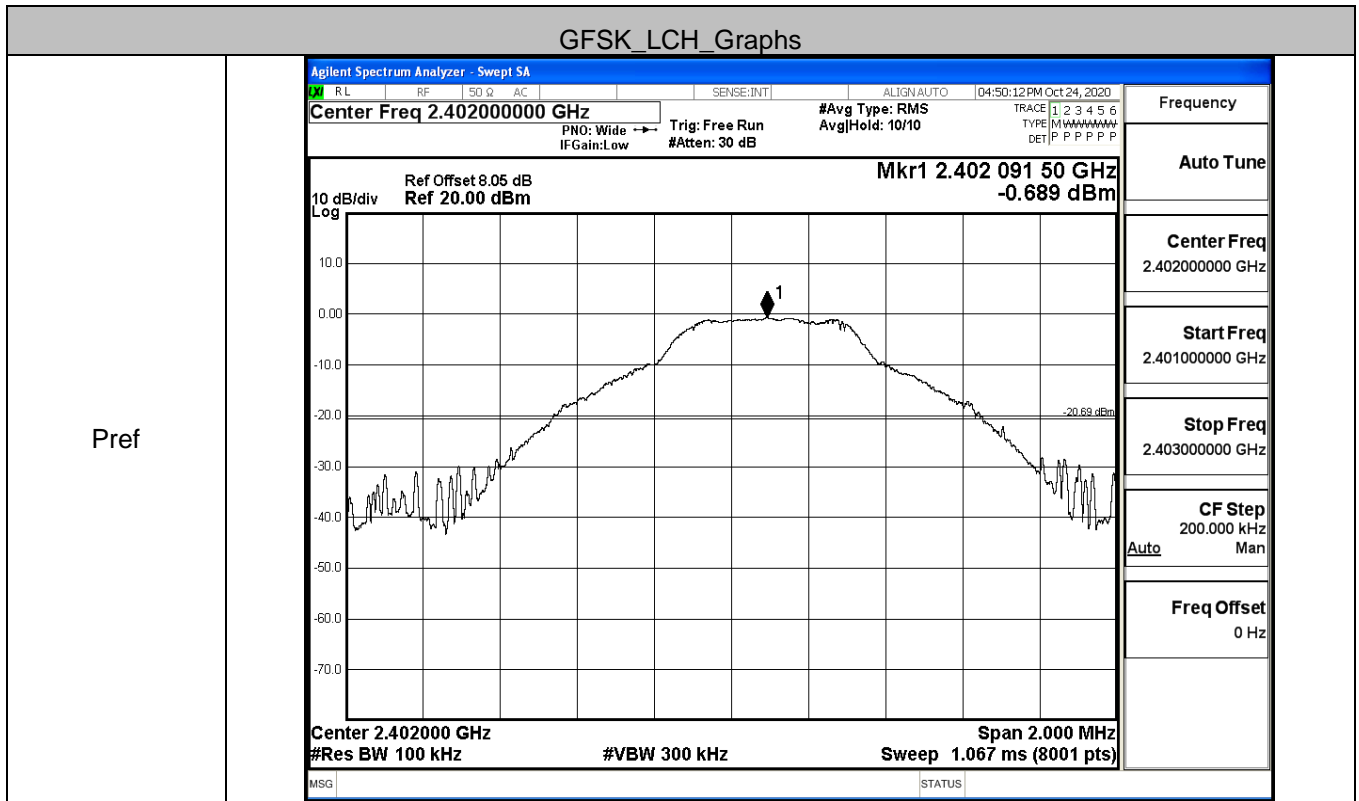


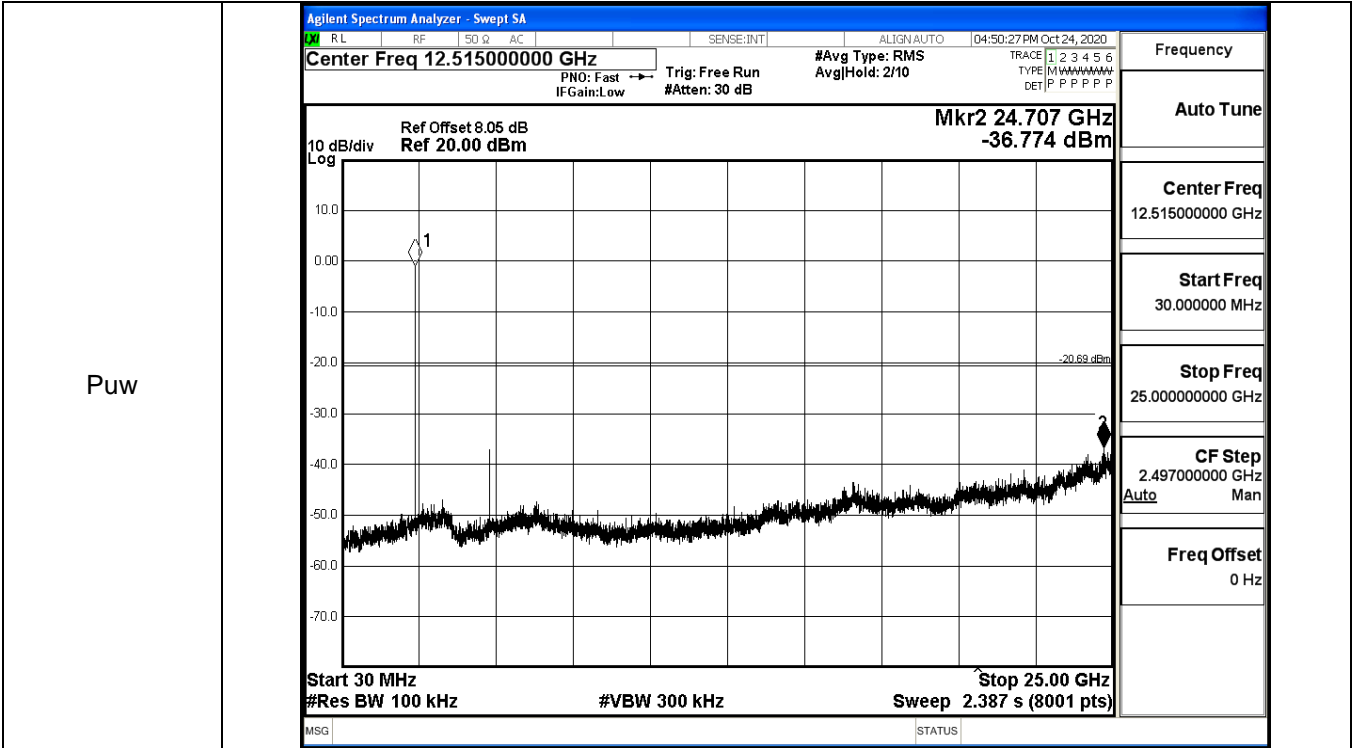
Frequency	2.480000000 GHz
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.689	-36.774	-20.689	PASS
	MCH	-0.519	-36.390	-20.519	PASS
	HCH	-0.454	-35.966	-20.454	PASS
π /4DQPSK	LCH	-1.771	-37.249	-21.771	PASS
	MCH	-1.621	-37.146	-21.621	PASS
	HCH	-1.591	-37.438	-21.591	PASS
8DPSK	LCH	-1.865	-36.825	-21.865	PASS
	MCH	-1.571	-34.099	-21.571	PASS
	HCH	-1.59	-36.577	-21.590	PASS

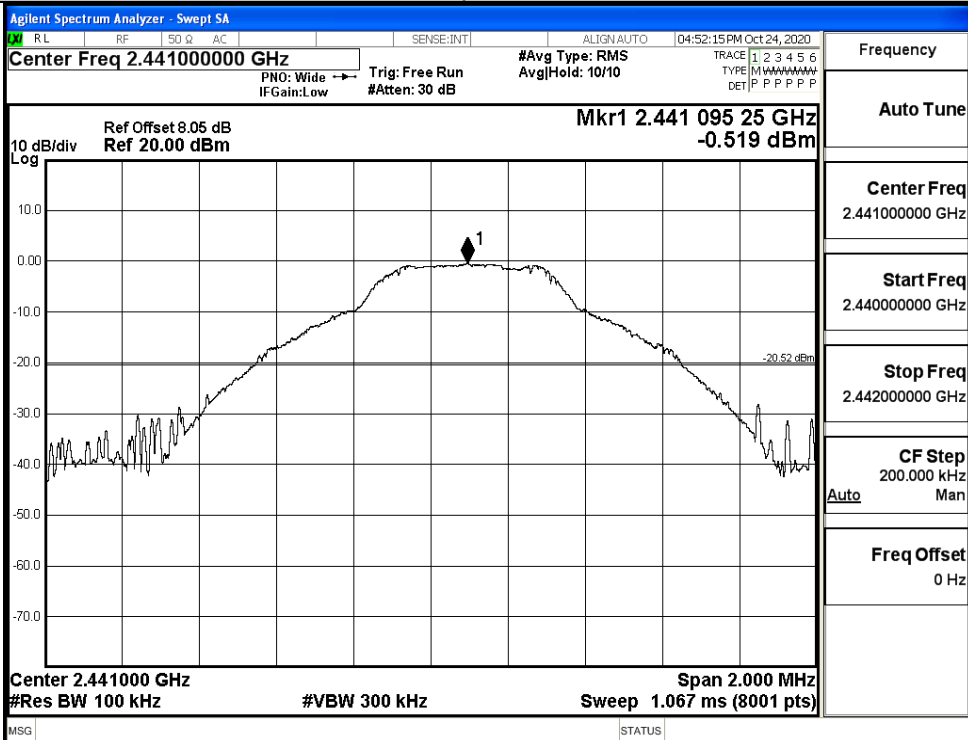
GFSK_LCH_Graphs



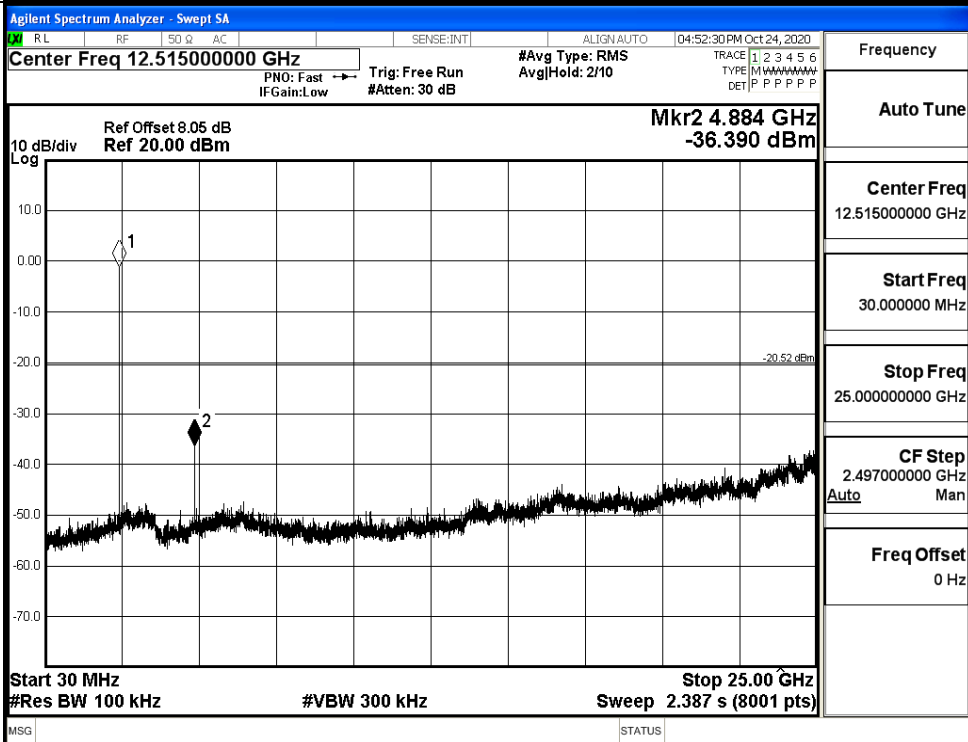


GFSK_MCH_Graphs

Pref

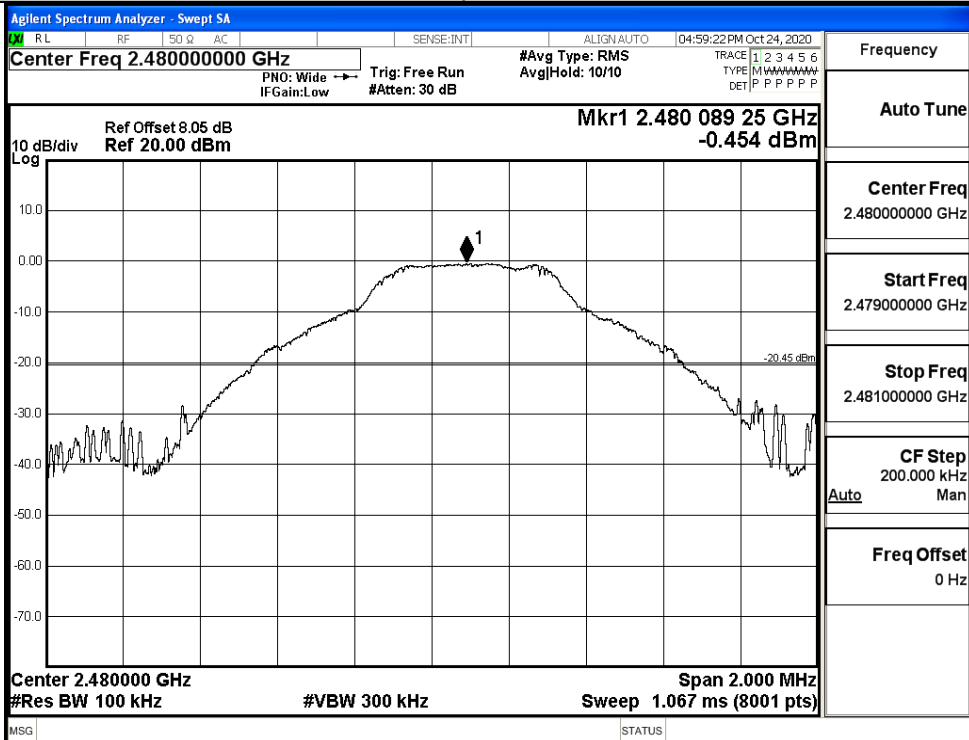


Puw

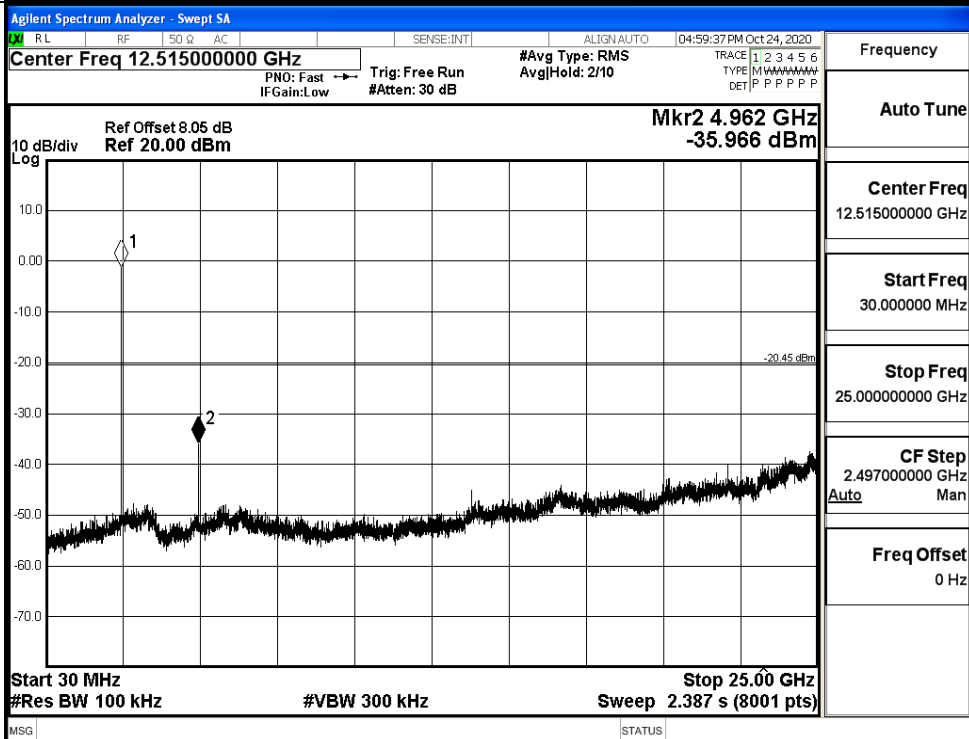


GFSK_HCH_Graphs

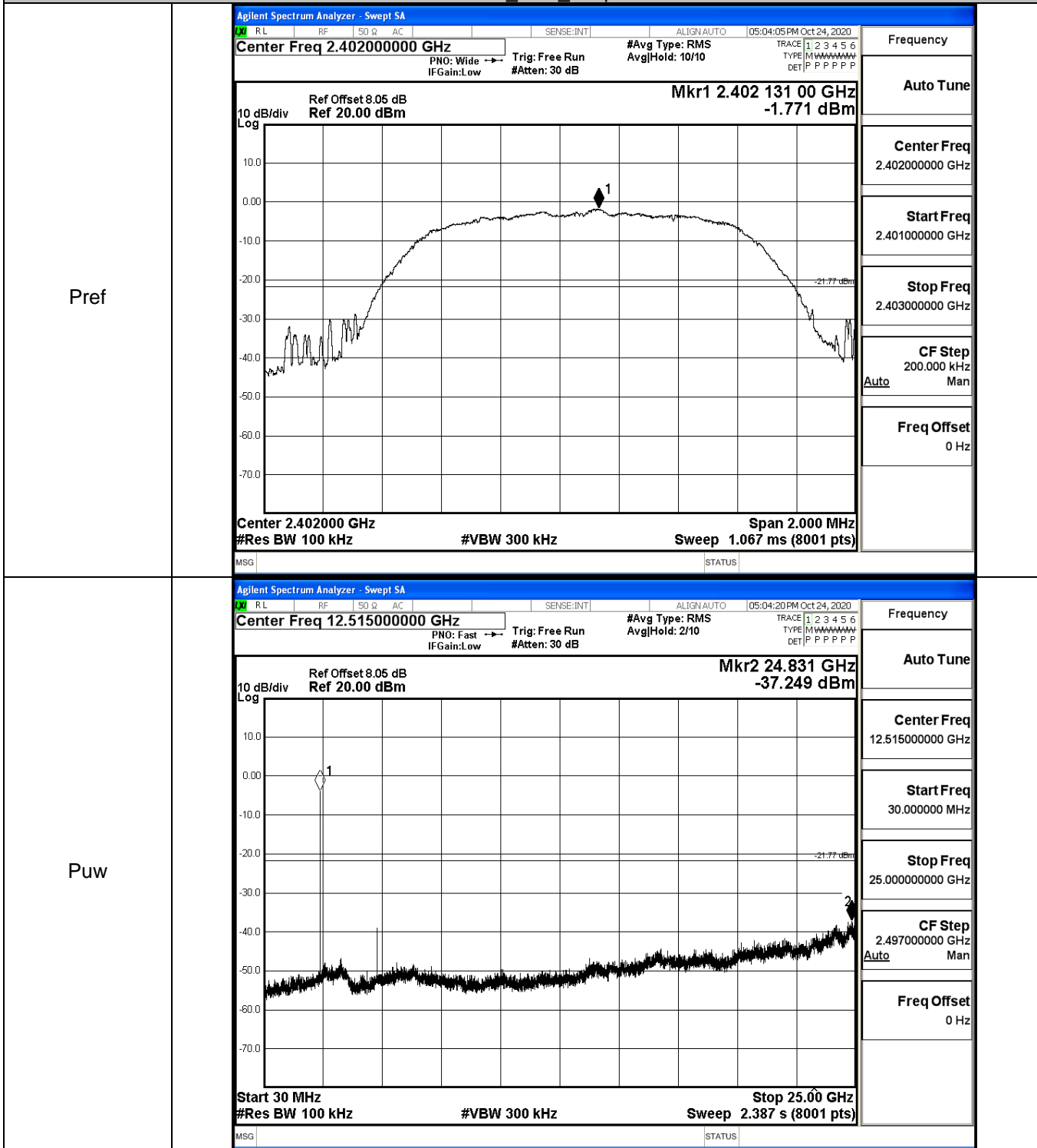
Pref



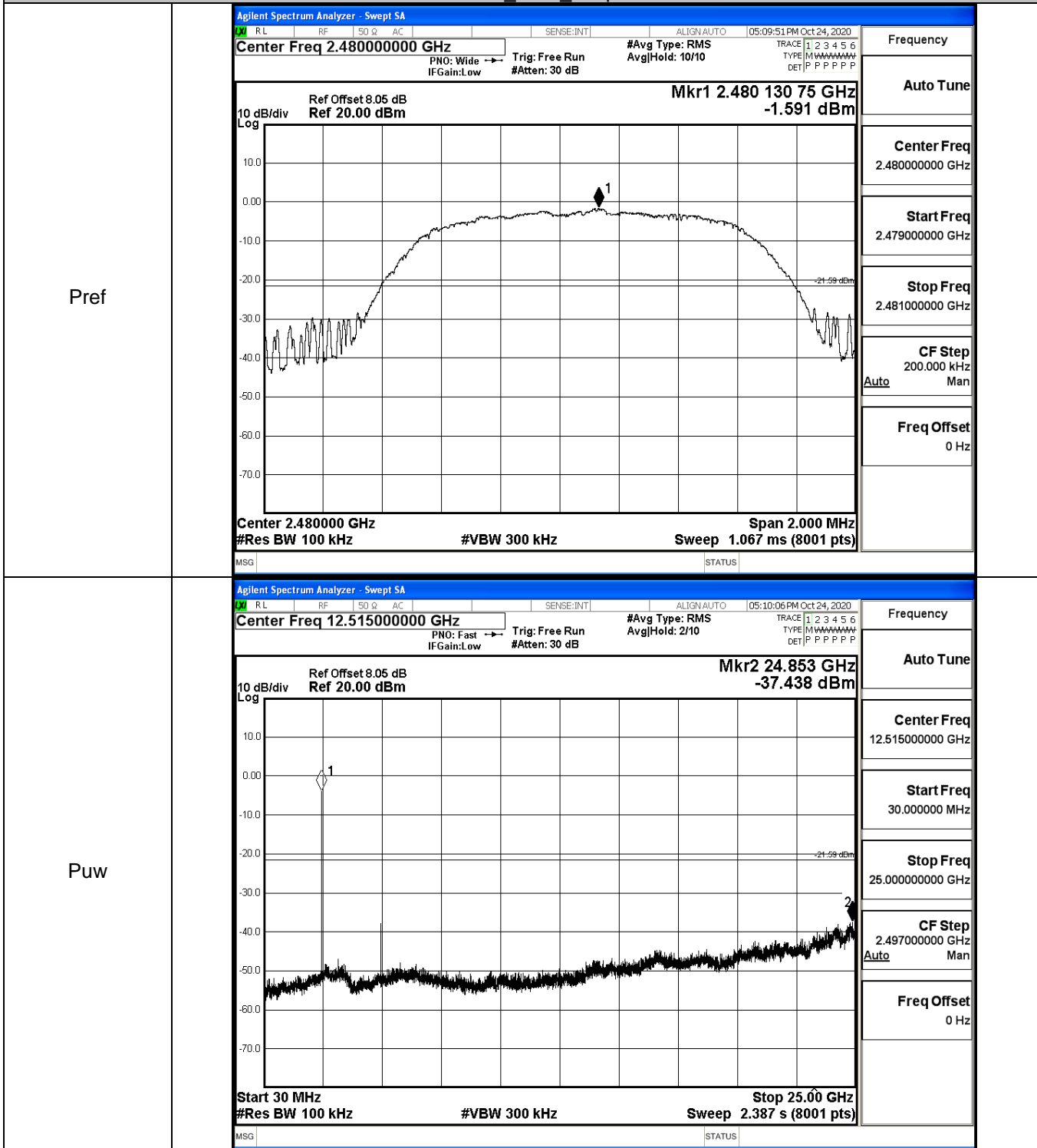
Puw



$\pi/4$ DQPSK_LCH_Graphs

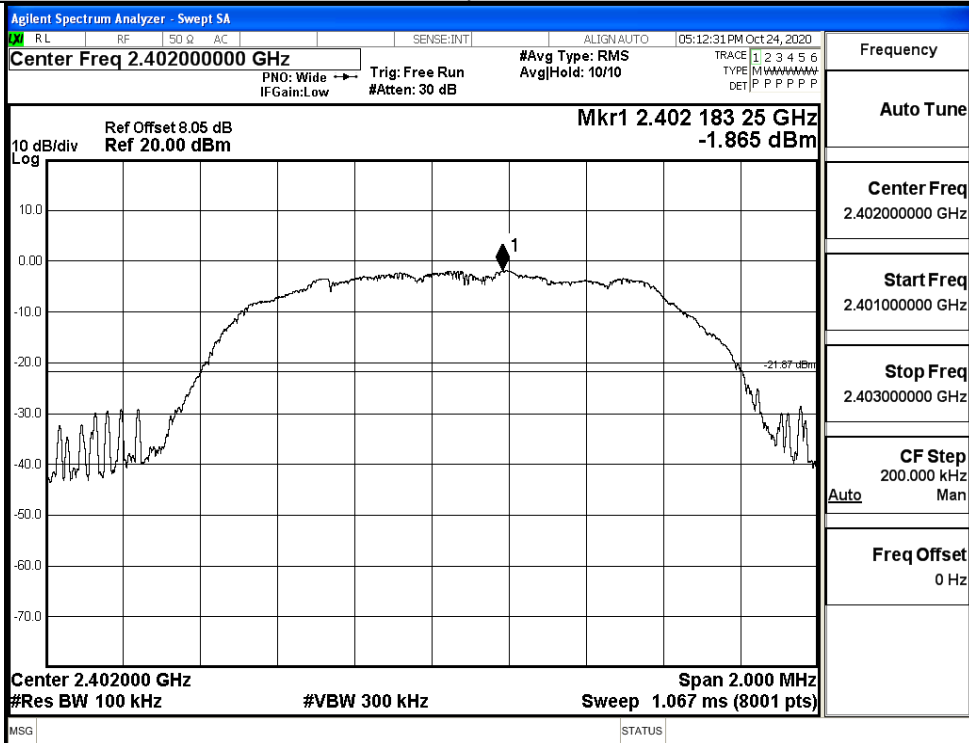


$\pi/4$ DQPSK_HCH_Graphs

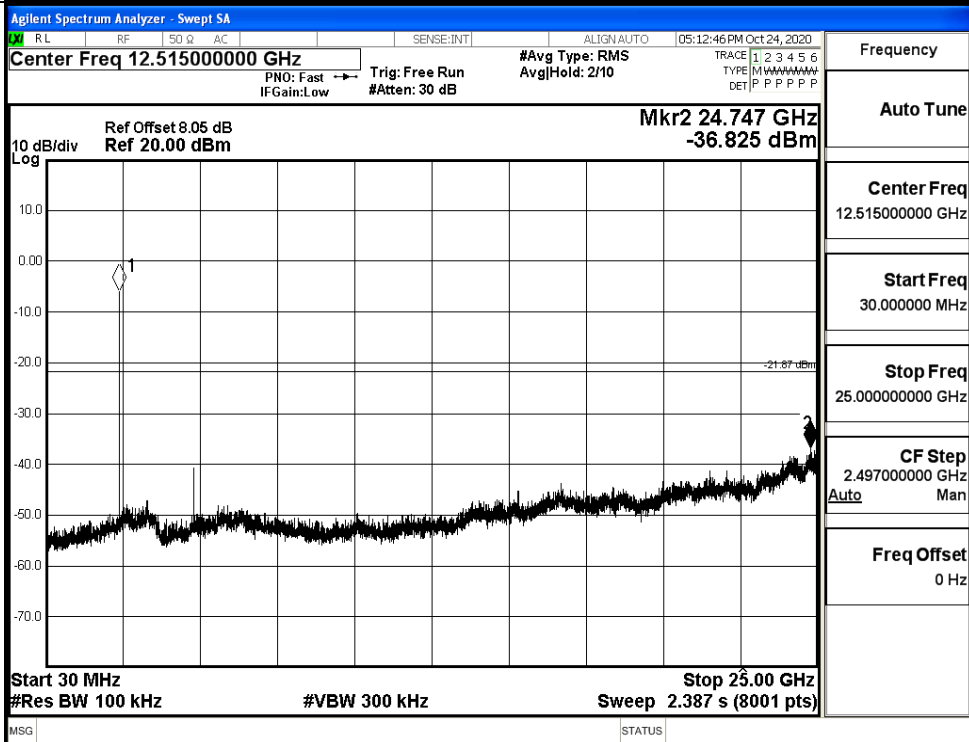


8DPSK_LCH_Graphs

Pref

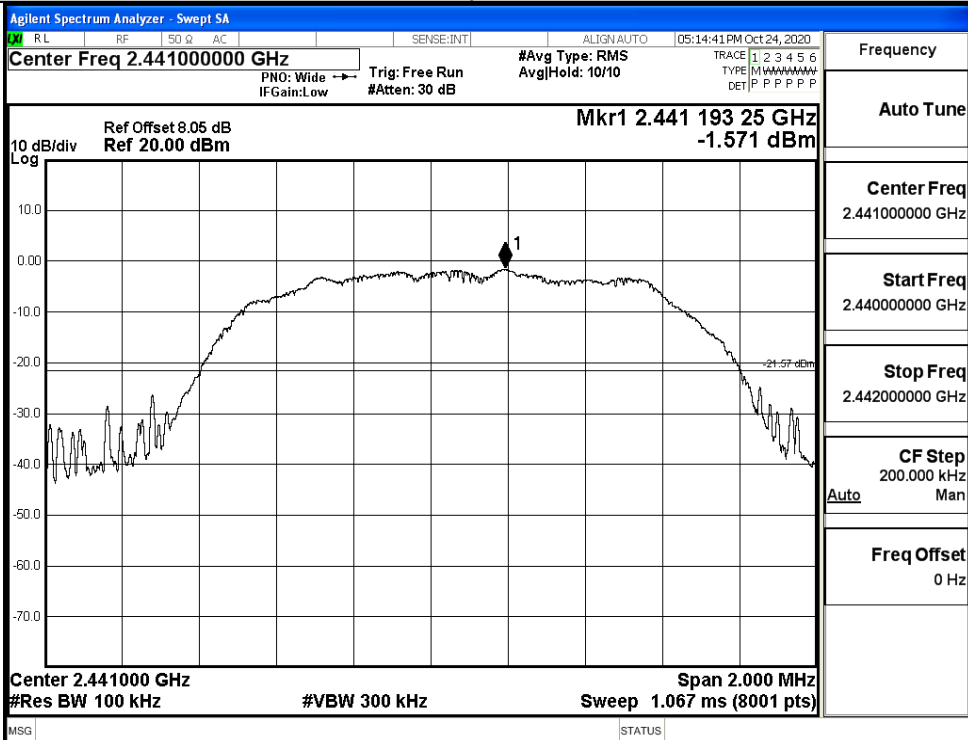


Puw

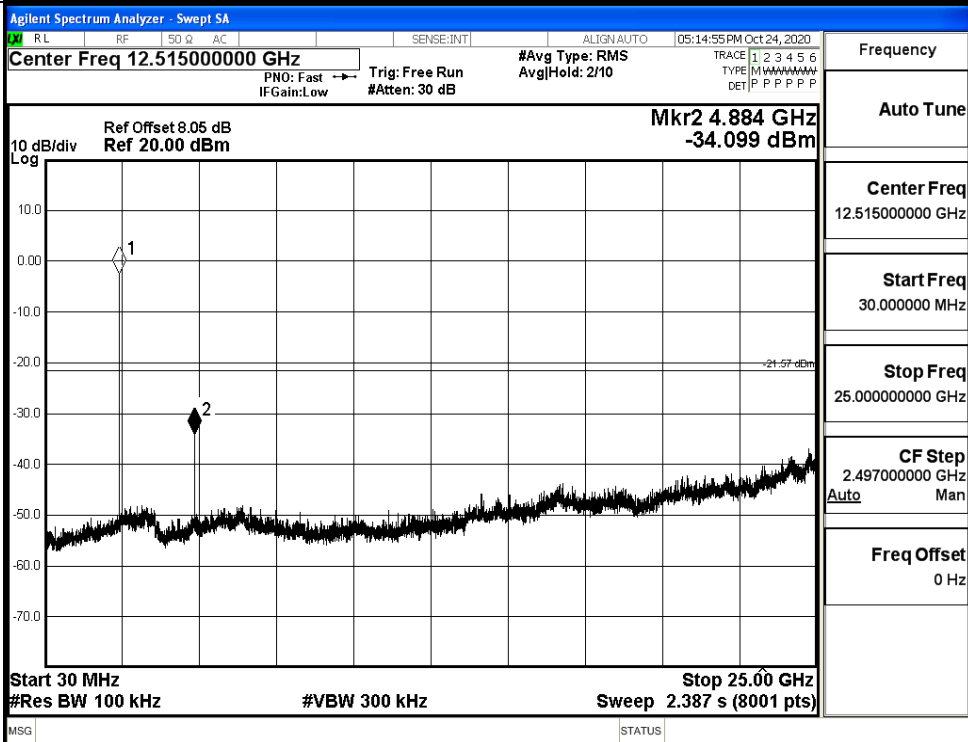


8DPSK_MCH_Graphs

Pref

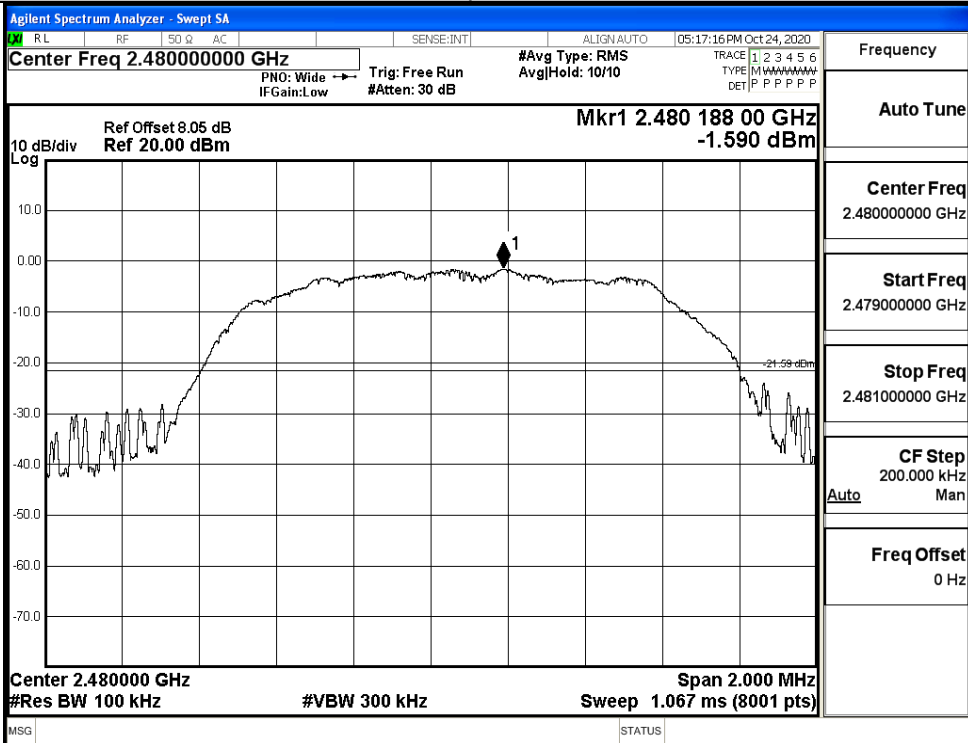


Puw

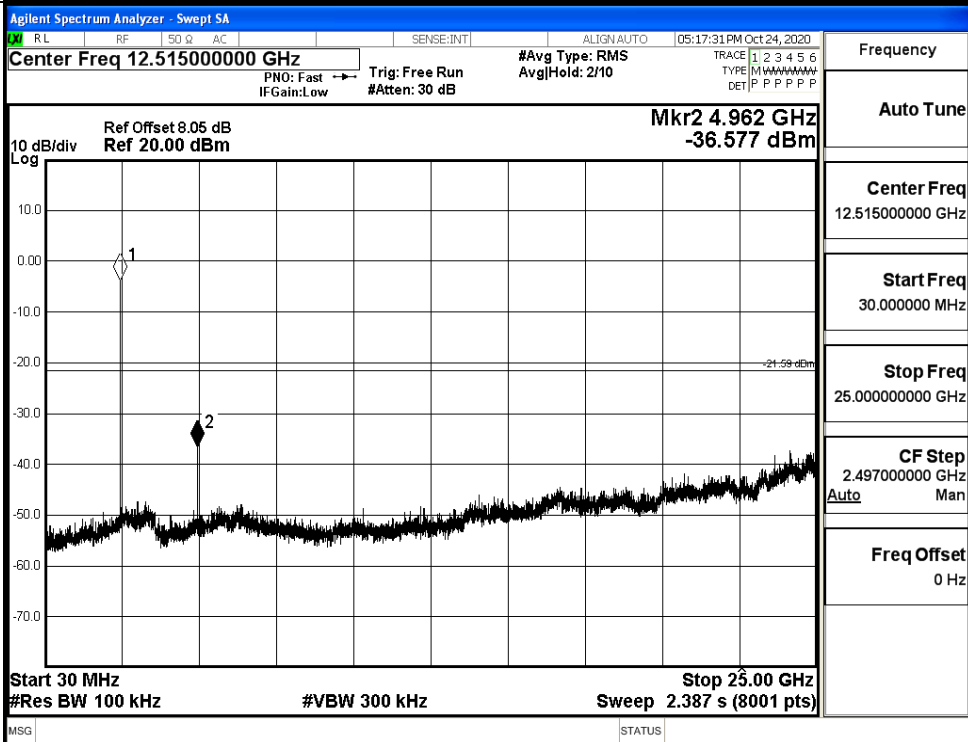


8DPSK_HCH_Graphs

Pref



Puw

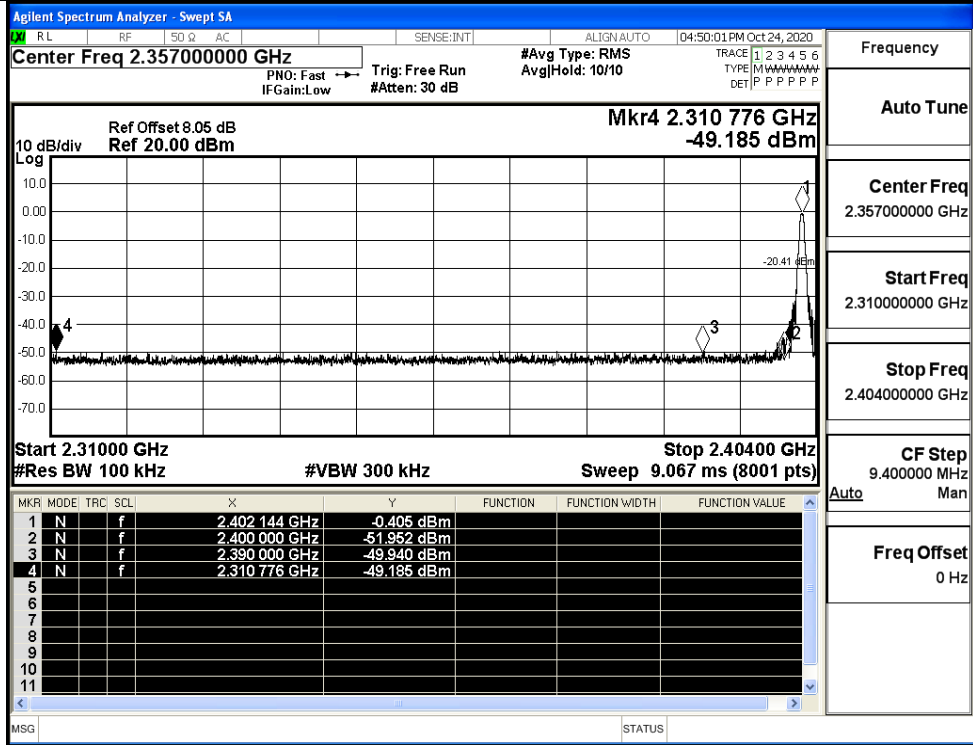


A.7 Band-edge for RF Conducted Emissions

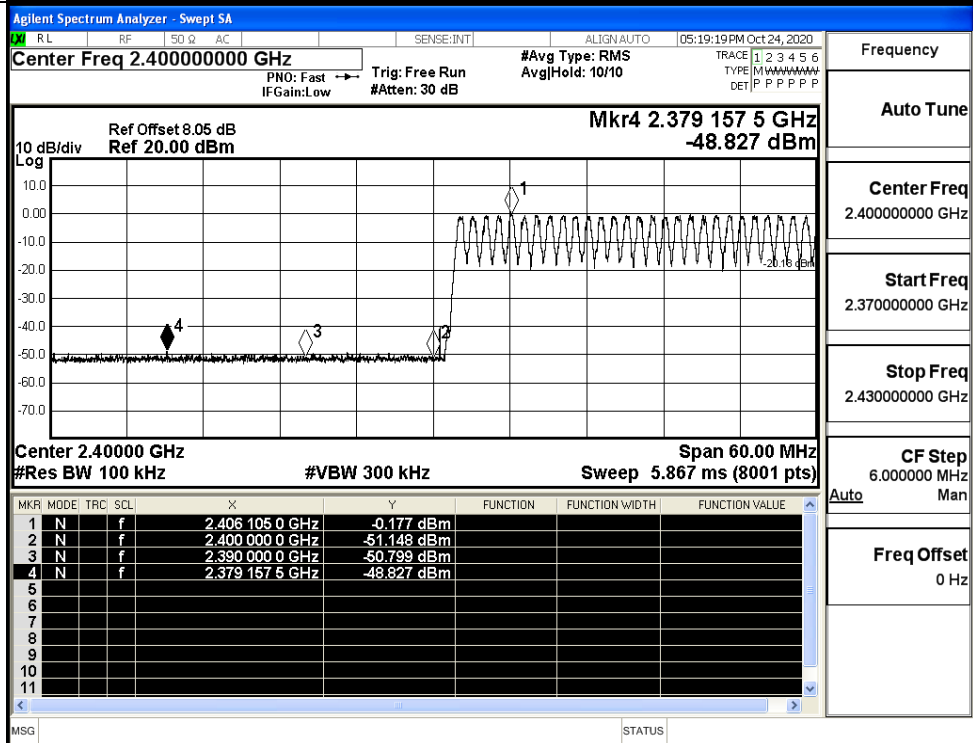
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.405	Off	-49.185	-20.41	PASS
			-0.177	On	-48.827	-20.18	PASS
	HCH	2480	0.029	Off	-48.646	-19.97	PASS
			0.033	On	-48.261	-19.97	PASS
$\pi/4$ DQPSK	LCH	2402	-1.508	Off	-49.304	-21.51	PASS
			-1.423	On	-49.268	-21.42	PASS
	HCH	2480	-1.267	Off	-47.820	-21.27	PASS
			-1.169	On	-48.484	-21.17	PASS
8DPSK	LCH	2402	-1.312	Off	-48.542	-21.31	PASS
			-1.208	On	-48.811	-21.21	PASS
	HCH	2480	-1.073	Off	-46.799	-21.07	PASS
			-0.985	On	-48.505	-20.99	PASS

Test Graphs

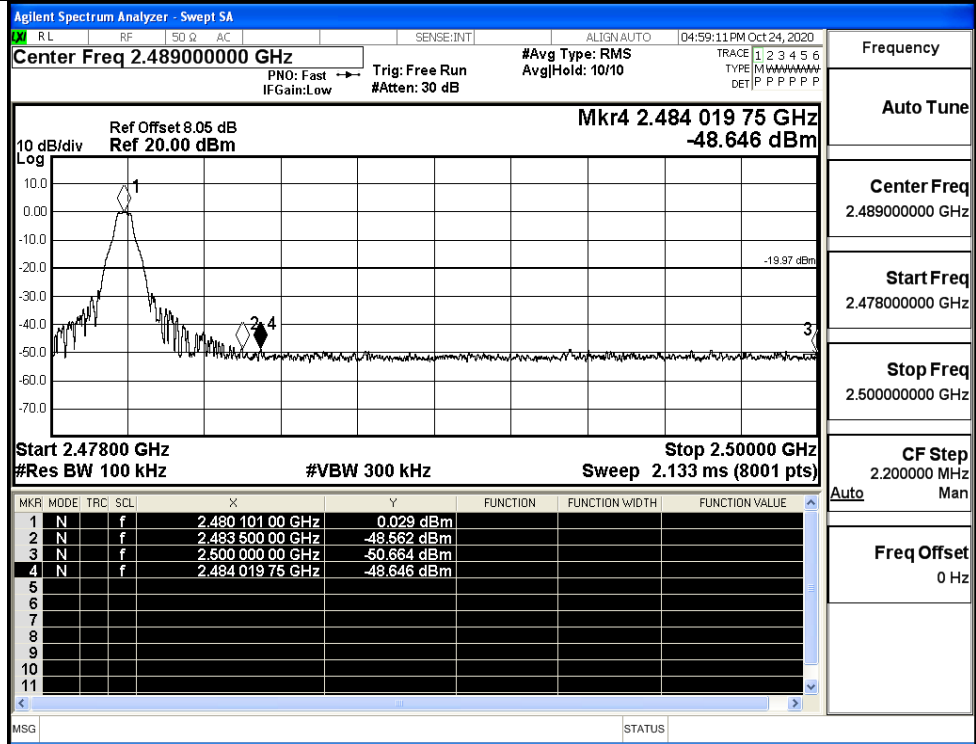
GFSK/LCH/No Hop



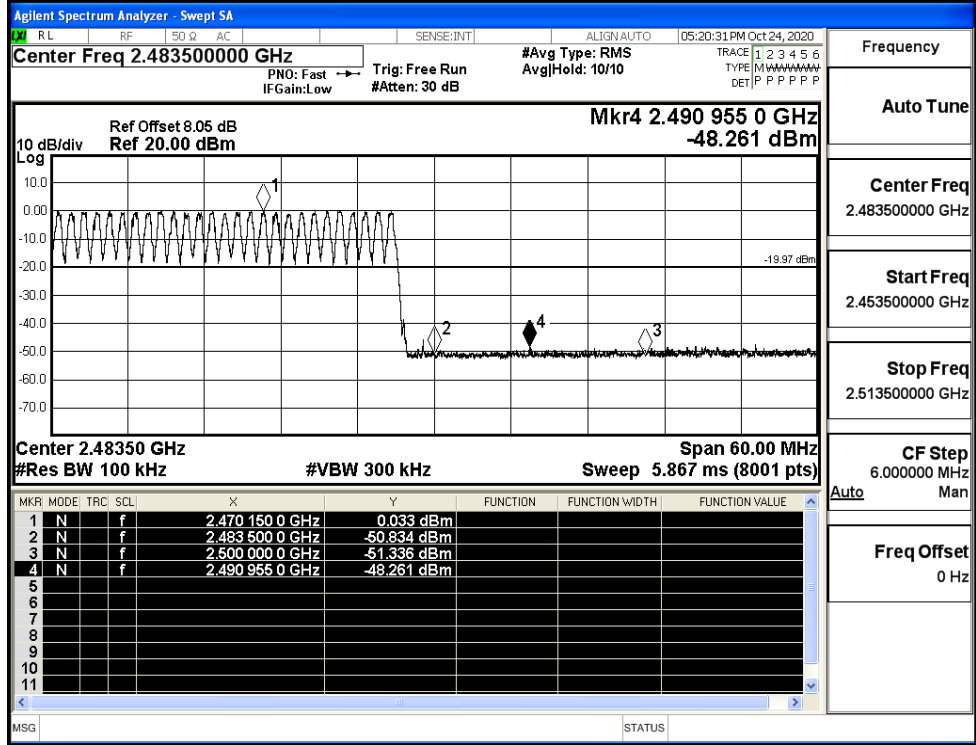
GFSK/LCH/Hop



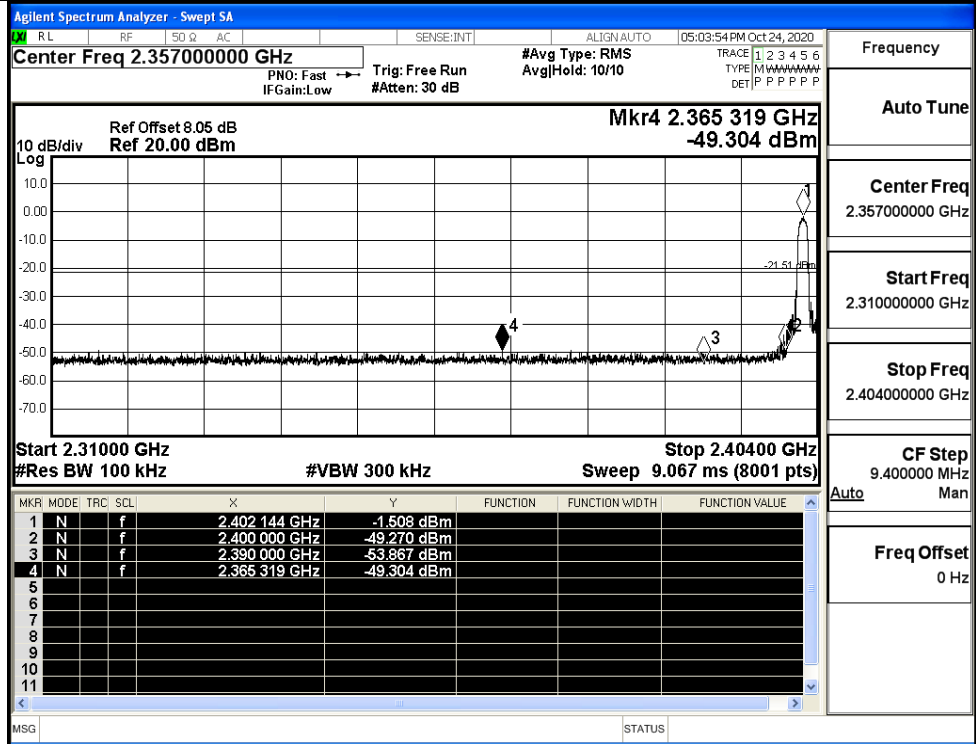
GFSK/HCH/No Hop



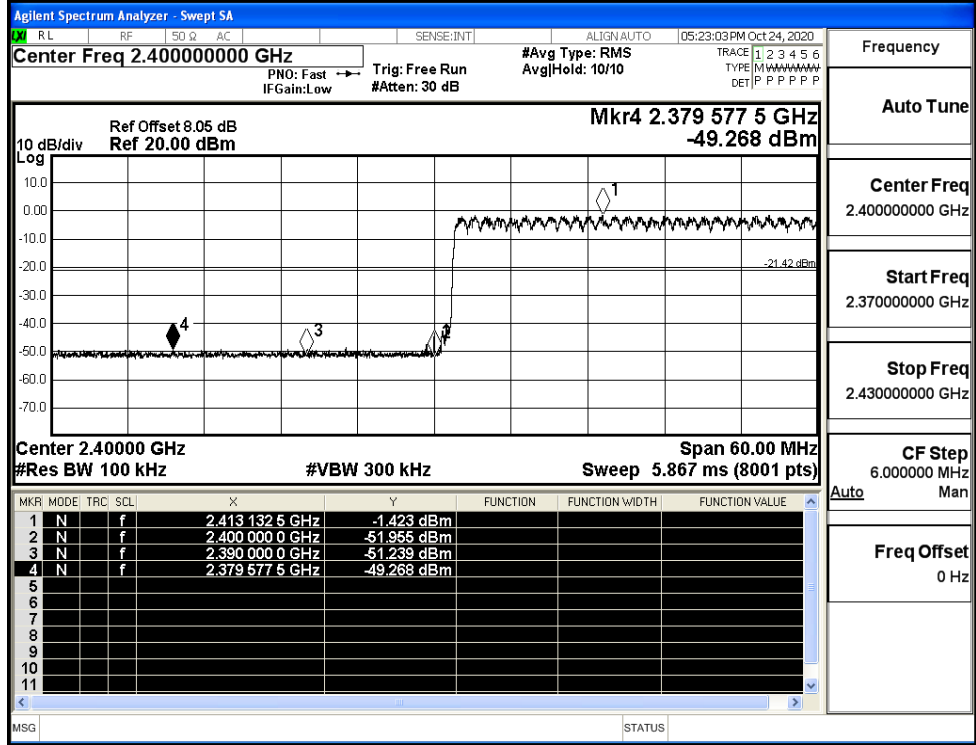
GFSK/HCH/Hop



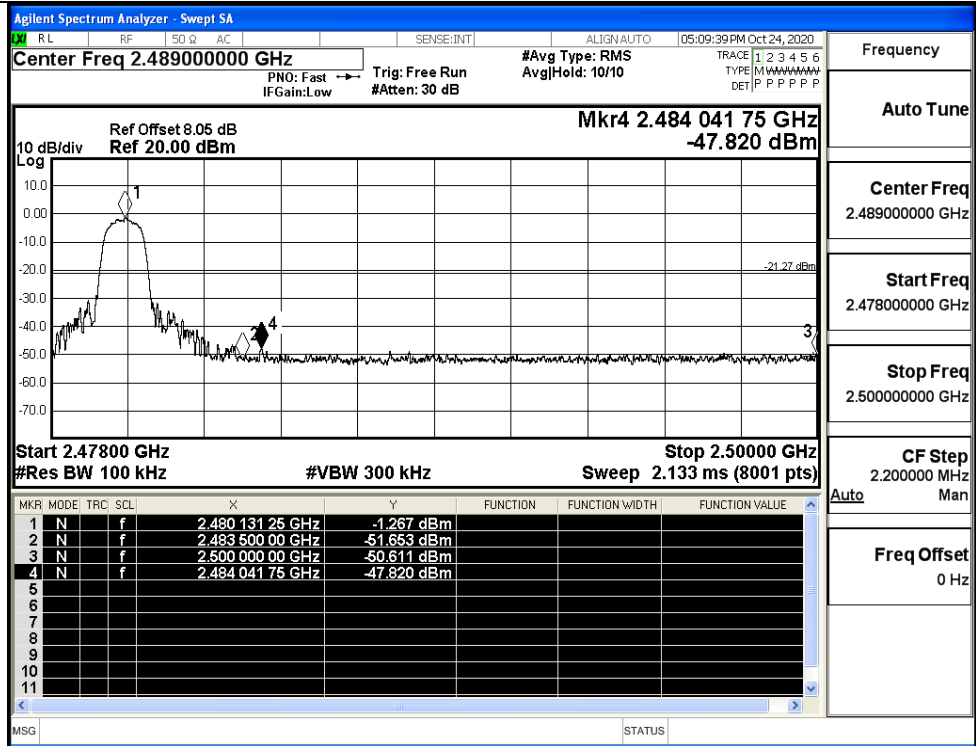
$\pi/4$ DQPSK/LCH/No Hop



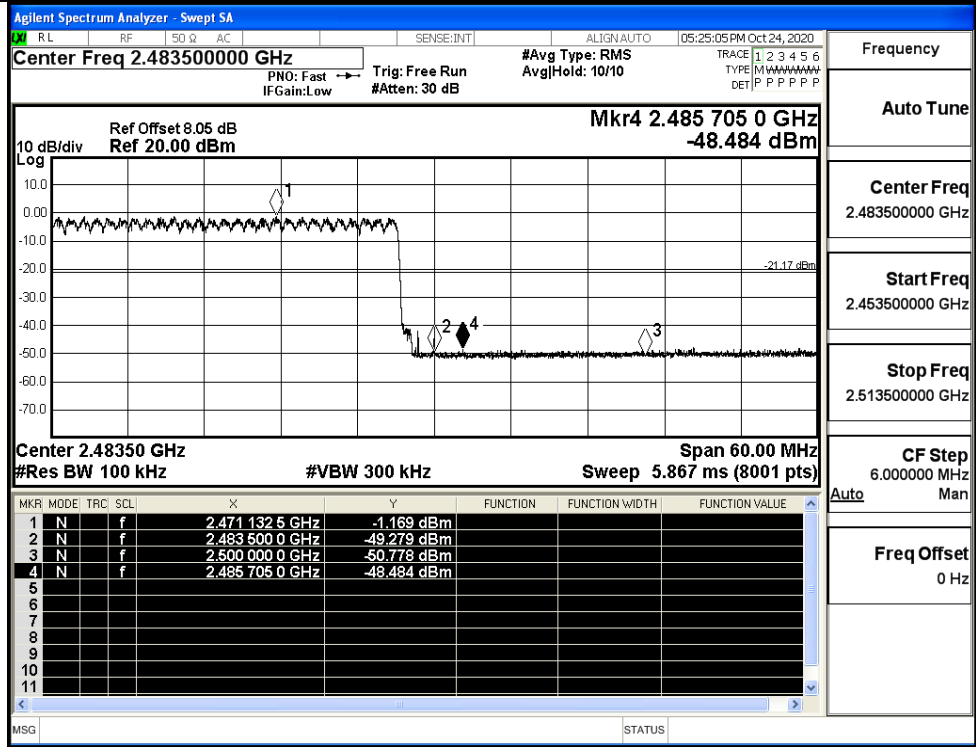
$\pi/4$ DQPSK/LCH/Hop



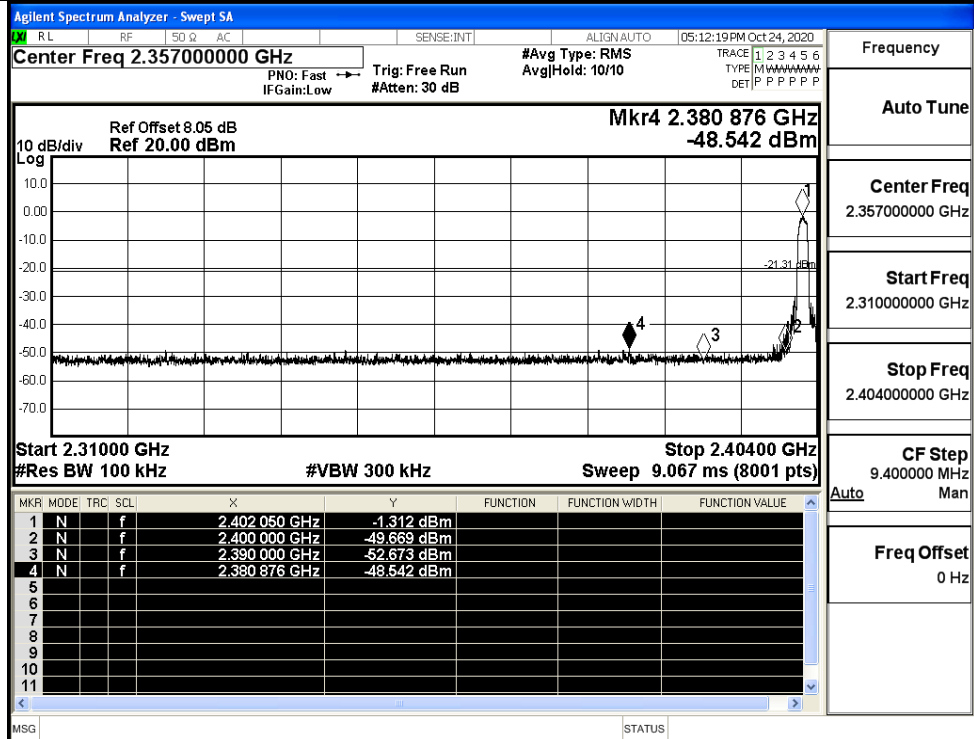
π /4DQPSK/HCH/No Hop



π /4DQPSK/HCH/Hop

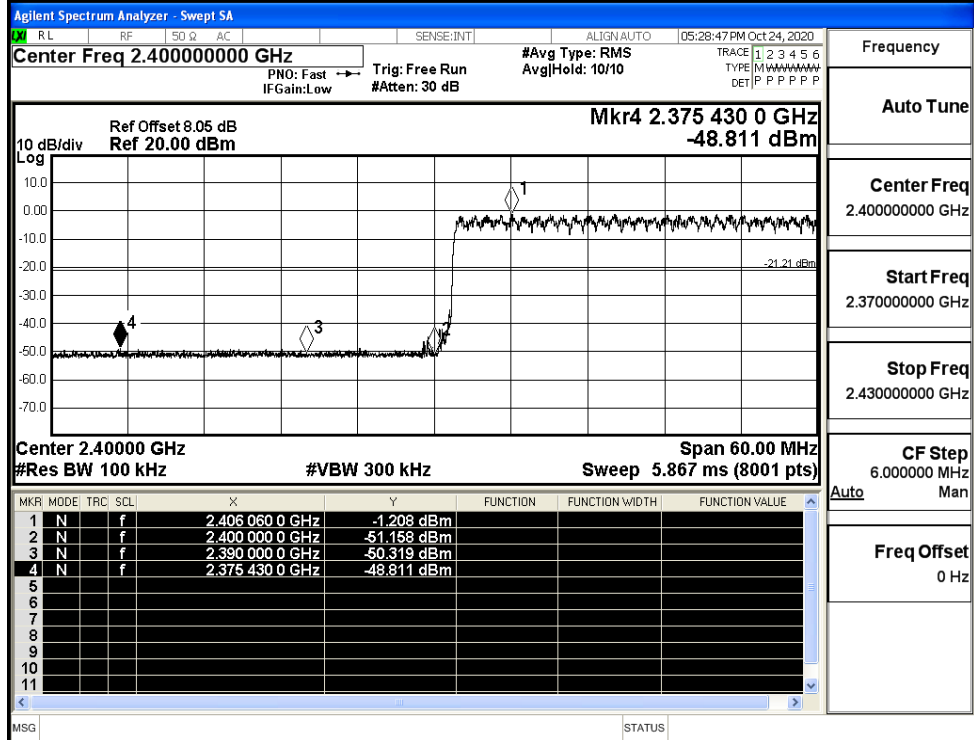


8DPSK/LCH/No Hop



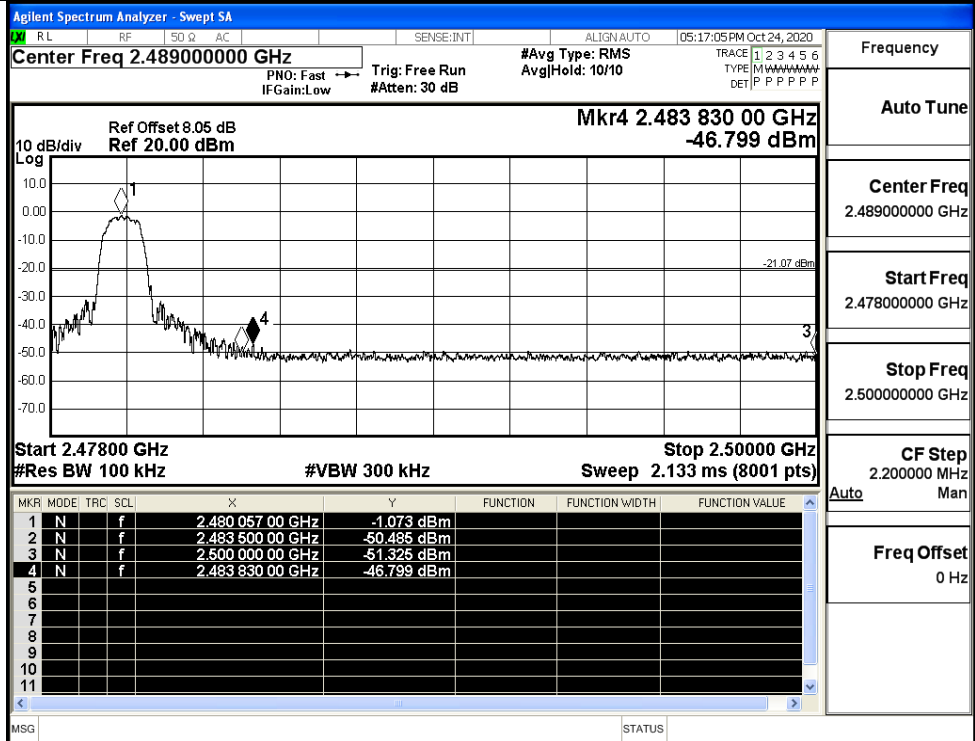
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



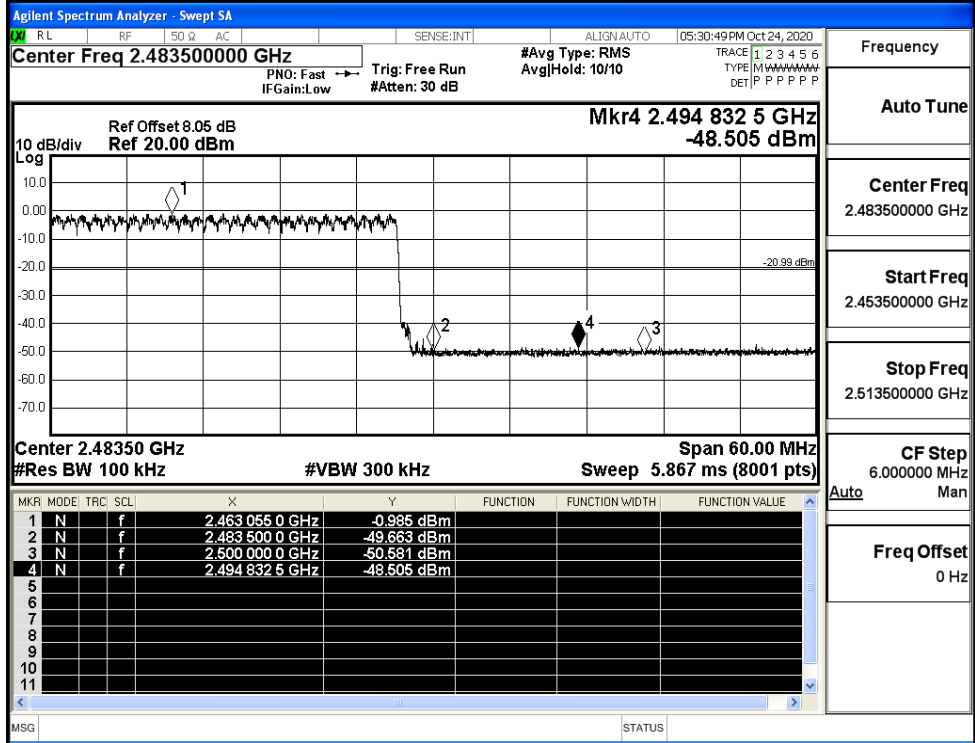
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/HCH/No Hop



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

8DPSK/HCH/Hop

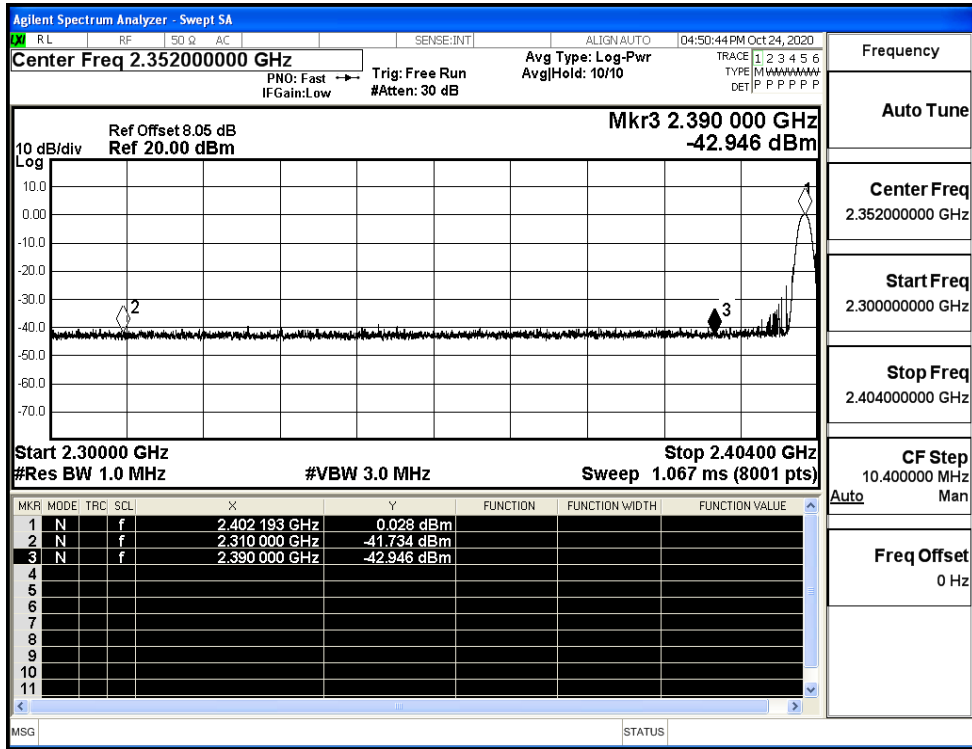


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

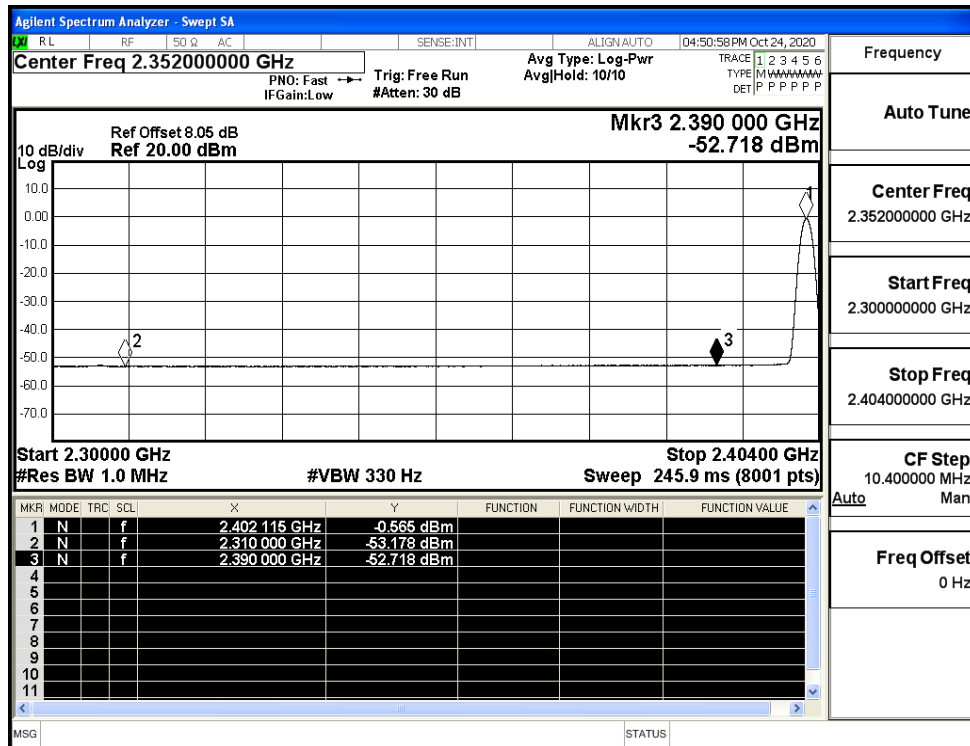
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-41.73	2.0	0	53.52	PEAK	74	PASS
	Off	2310.0	-53.18	2.0	0	42.08	AV	54	PASS
	Off	2390.0	-42.95	2.0	0	52.31	PEAK	74	PASS
	Off	2390.0	-52.72	2.0	0	42.54	AV	54	PASS
	Off	2483.5	-42.51	2.0	0	52.74	PEAK	74	PASS
	Off	2483.5	-51.92	2.0	0	43.34	AV	54	PASS
	Off	2500.0	-42.65	2.0	0	52.61	PEAK	74	PASS
	Off	2500.0	-52.08	2.0	0	43.17	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.10	2.0	0	53.16	PEAK	74	PASS
	Off	2310.0	-53.13	2.0	0	42.13	AV	54	PASS
	Off	2390.0	-41.86	2.0	0	53.40	PEAK	74	PASS
	Off	2390.0	-52.76	2.0	0	42.50	AV	54	PASS
	Off	2483.5	-40.50	2.0	0	54.76	PEAK	74	PASS
	Off	2483.5	-51.84	2.0	0	43.41	AV	54	PASS
	Off	2500.0	-42.71	2.0	0	52.54	PEAK	74	PASS
	Off	2500.0	-52.13	2.0	0	43.13	AV	54	PASS
8DPSK	Off	2310.0	-41.88	2.0	0	53.37	PEAK	74	PASS
	Off	2310.0	-53.20	2.0	0	42.06	AV	54	PASS
	Off	2390.0	-42.13	2.0	0	53.13	PEAK	74	PASS
	Off	2390.0	-52.71	2.0	0	42.55	AV	54	PASS
	Off	2483.5	-41.71	2.0	0	53.54	PEAK	74	PASS
	Off	2483.5	-51.80	2.0	0	43.46	AV	54	PASS
	Off	2500.0	-41.10	2.0	0	54.16	PEAK	74	PASS
	Off	2500.0	-52.12	2.0	0	43.14	AV	54	PASS

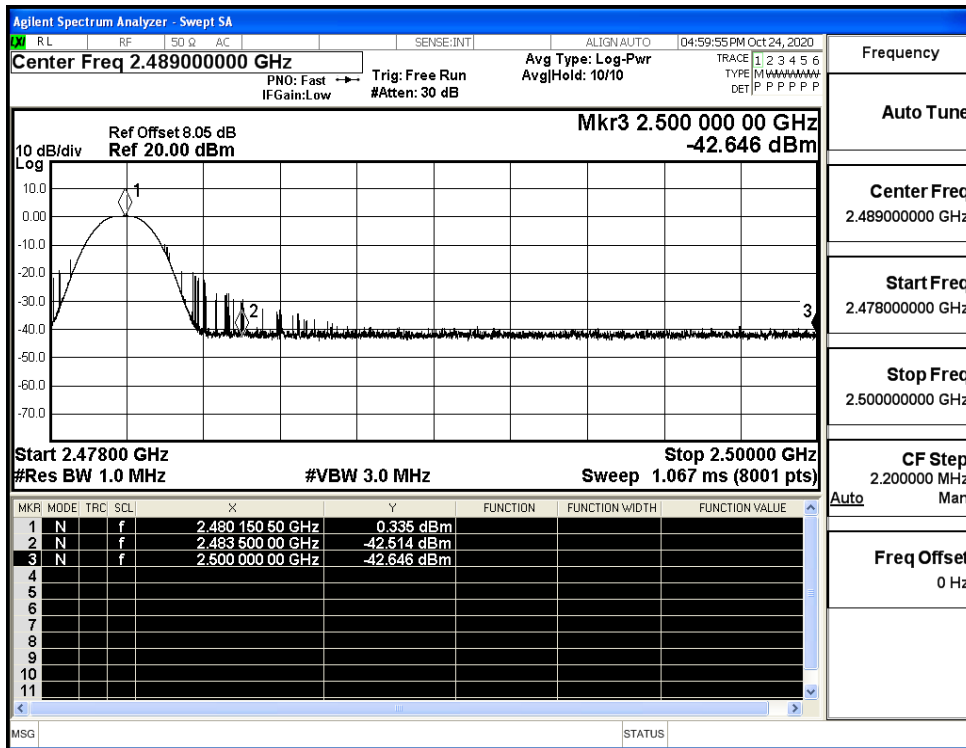
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



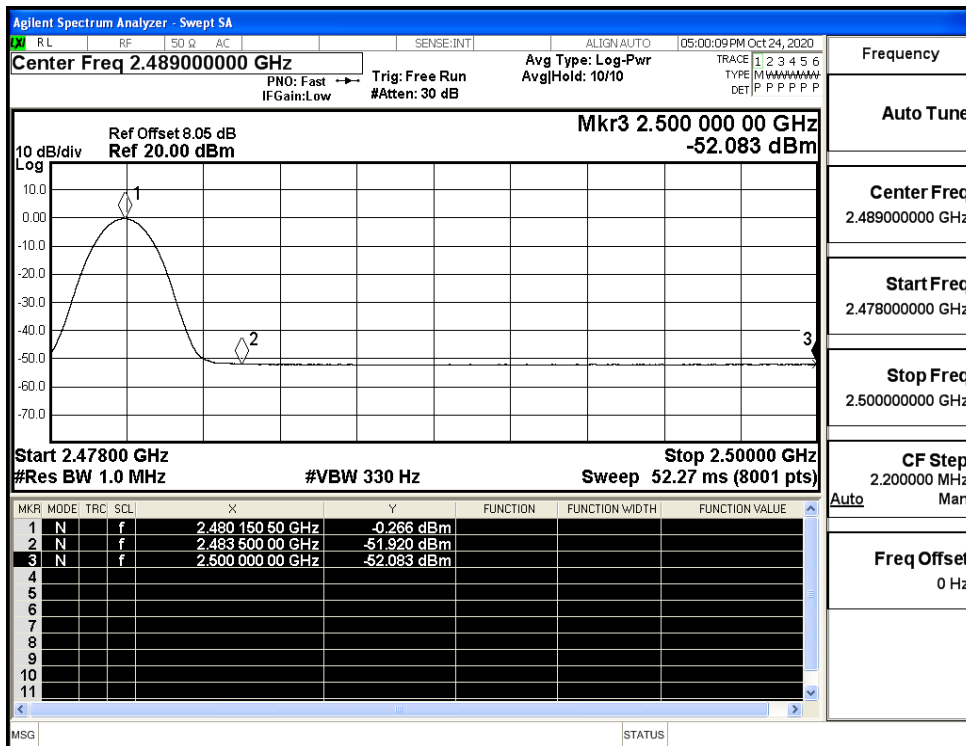
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



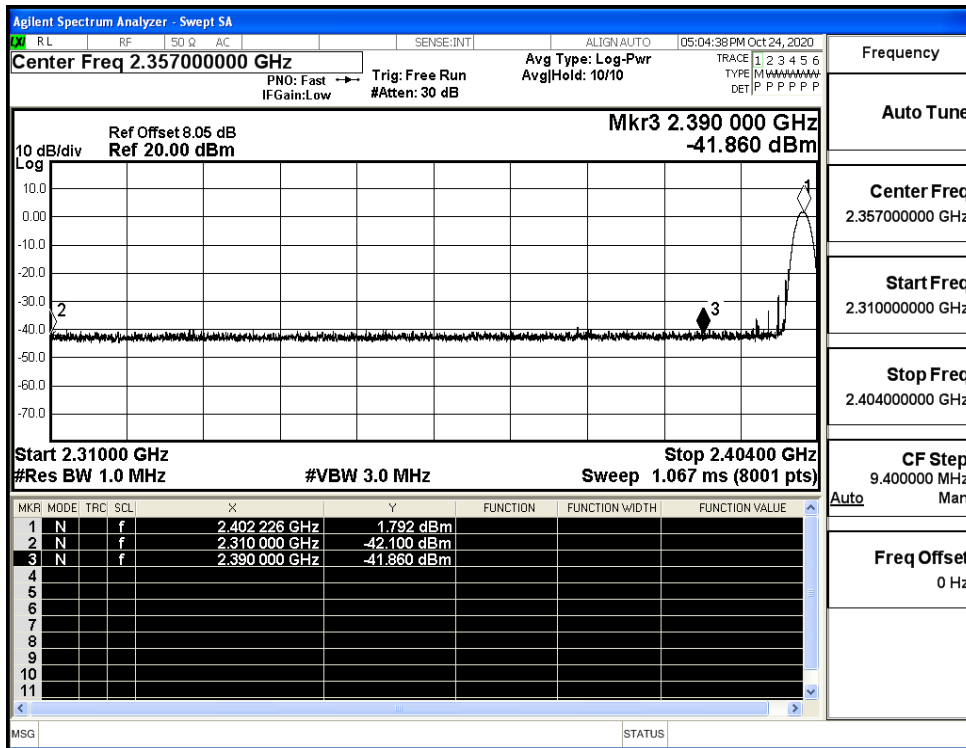
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



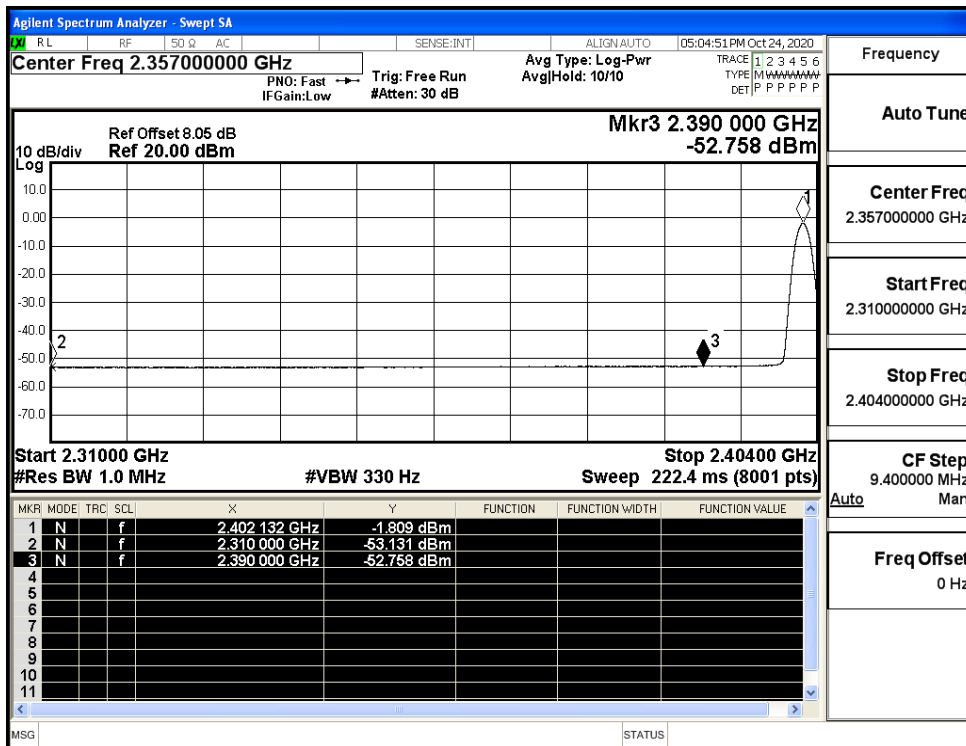
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



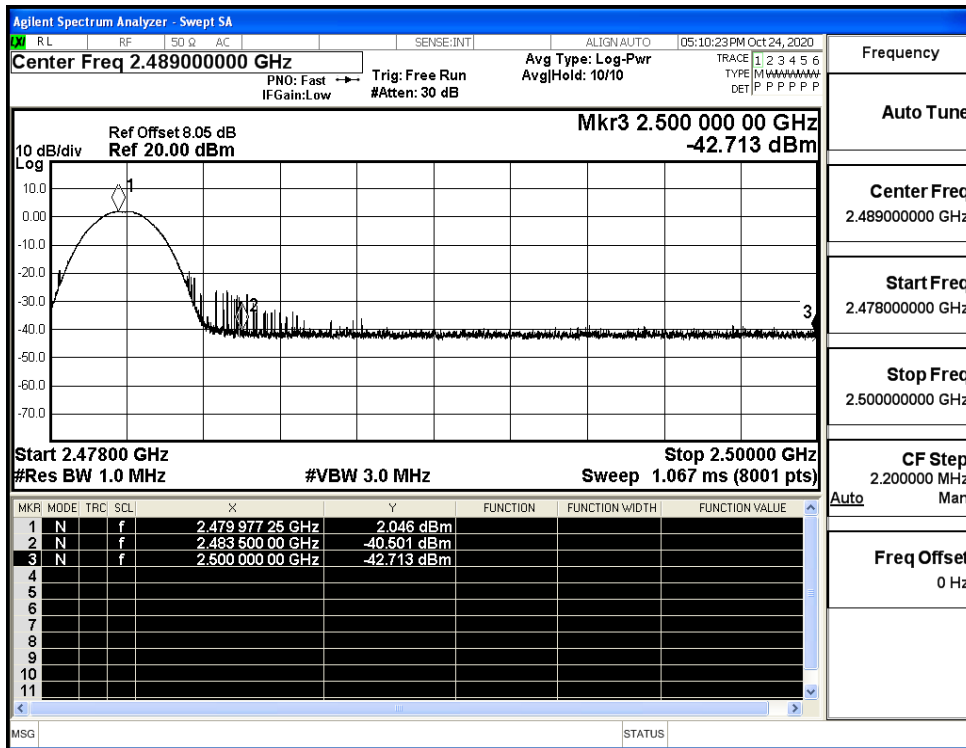
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



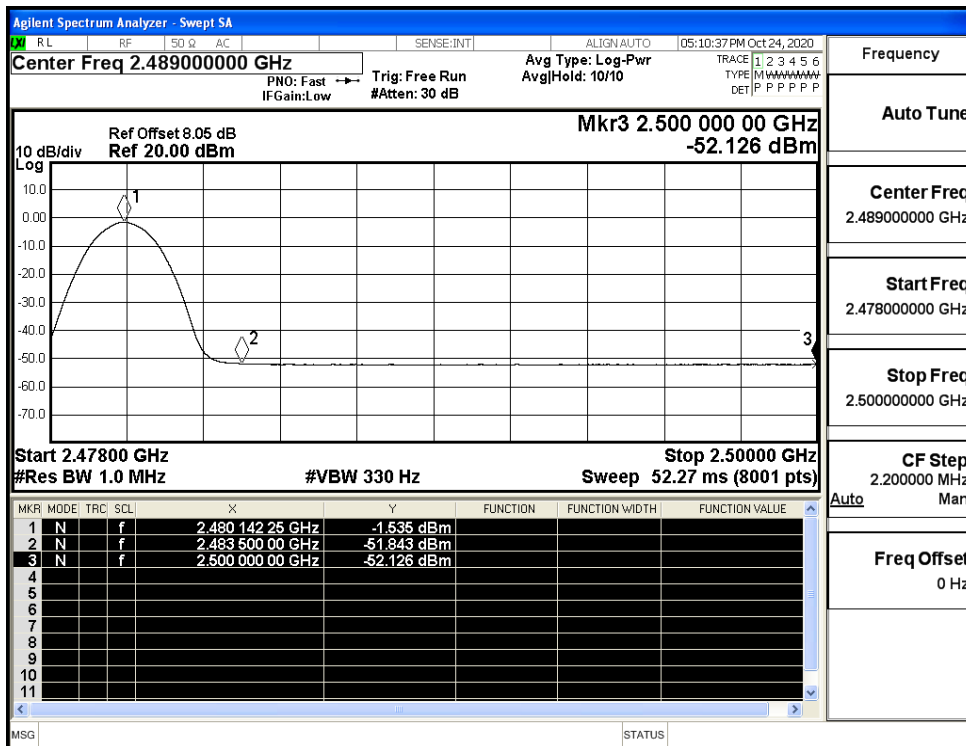
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



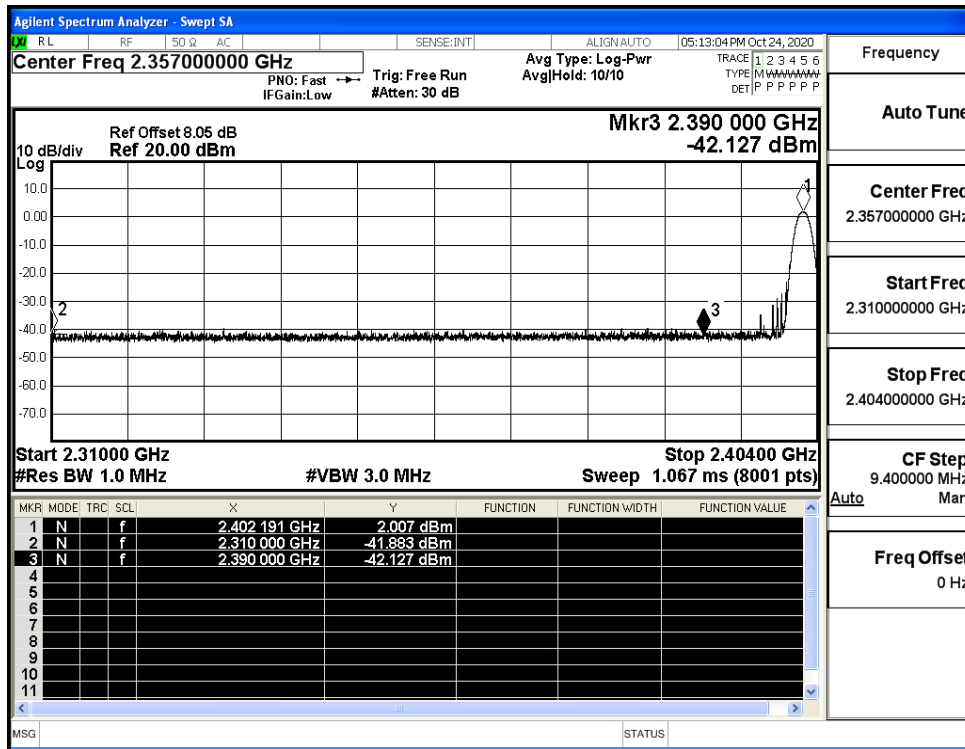
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



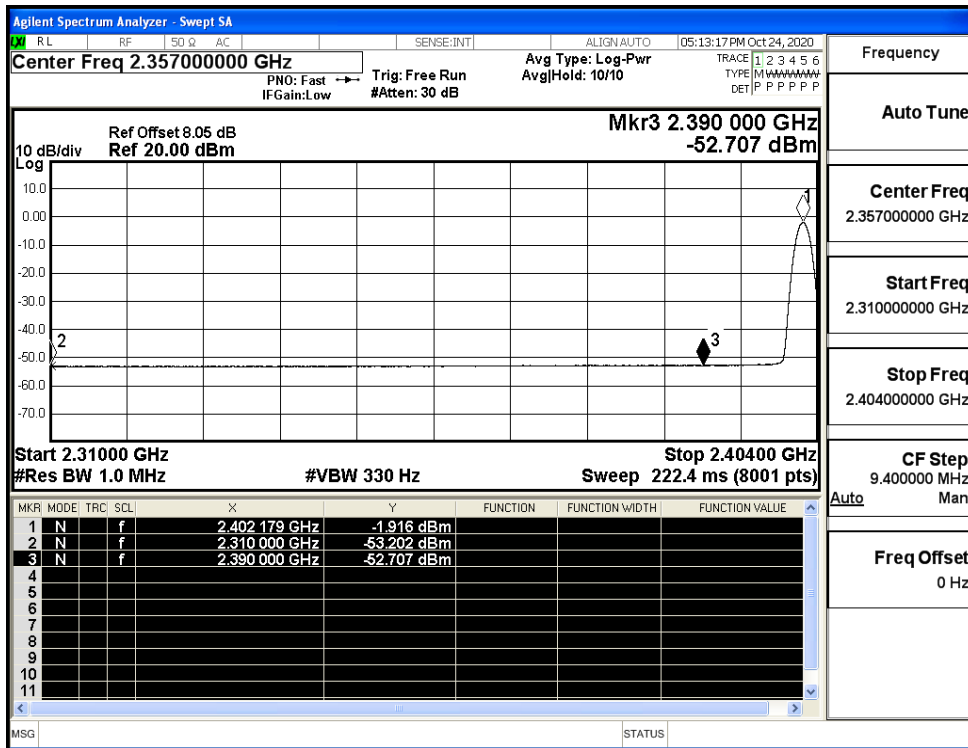
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



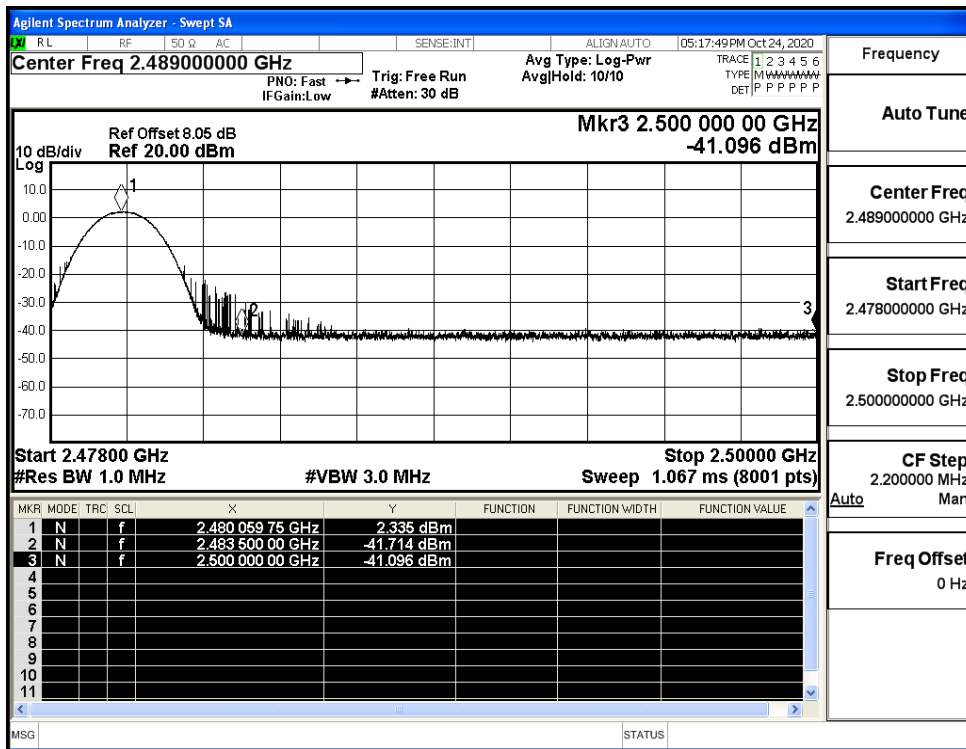
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

