

Appendix A

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

Product Name: SPEAKER

Trade Mark: ALTEC

Test Model: AL800

Environmental Conditions

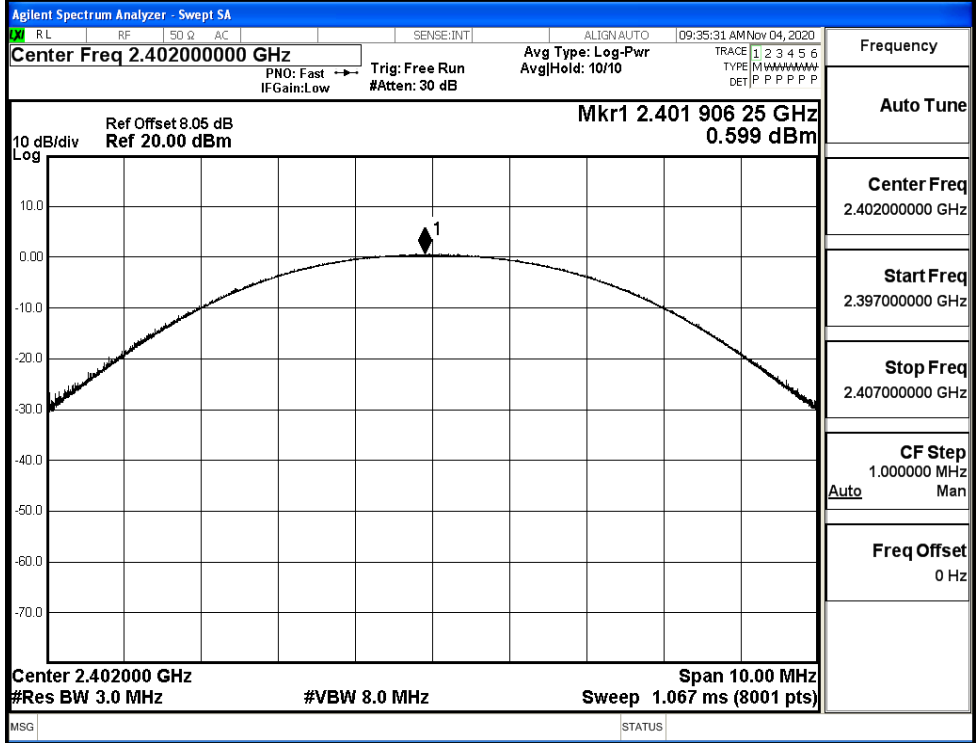
Temperature:	22.6°C
Relative Humidity:	51.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

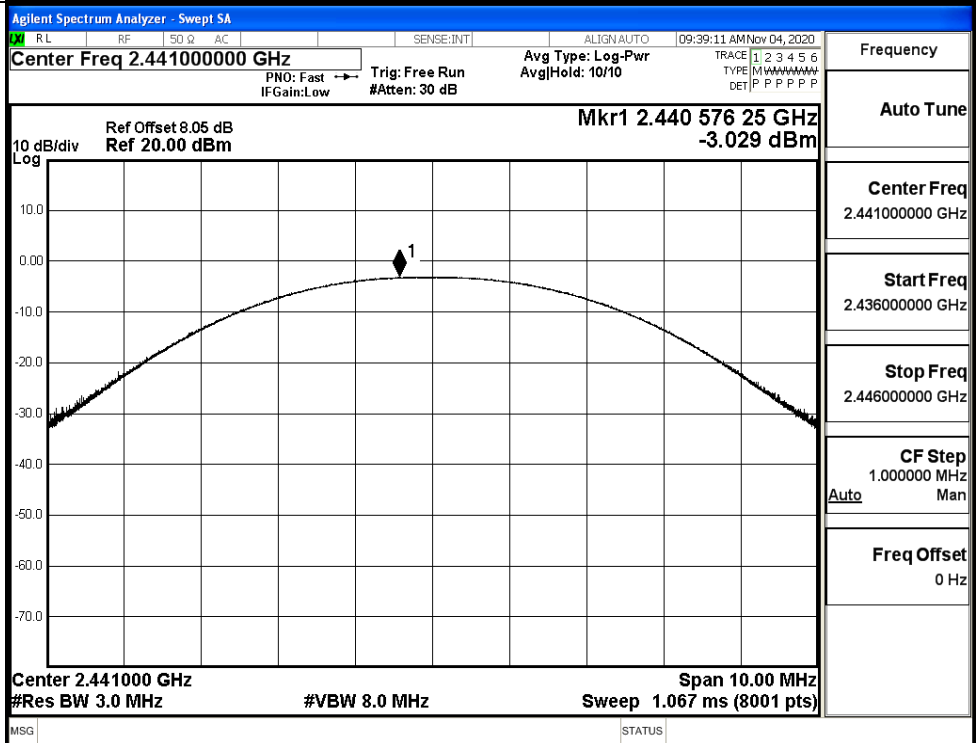
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.599	21	PASS
	MCH	-3.029	21	PASS
	HCH	-6.009	21	PASS
$\pi/4$ DQPSK	LCH	0.468	21	PASS
	MCH	-3.238	21	PASS
	HCH	-6.187	21	PASS
8DPSK	LCH	0.370	21	PASS
	MCH	-3.138	21	PASS
	HCH	-6.071	21	PASS

Test Graphs

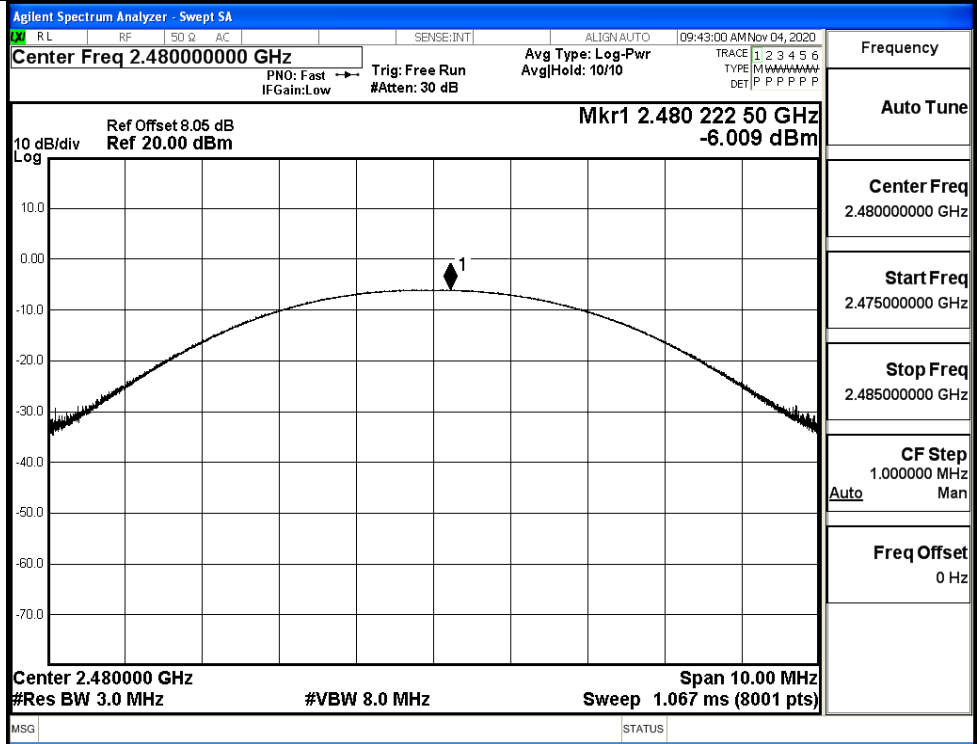
GFSK/LCH



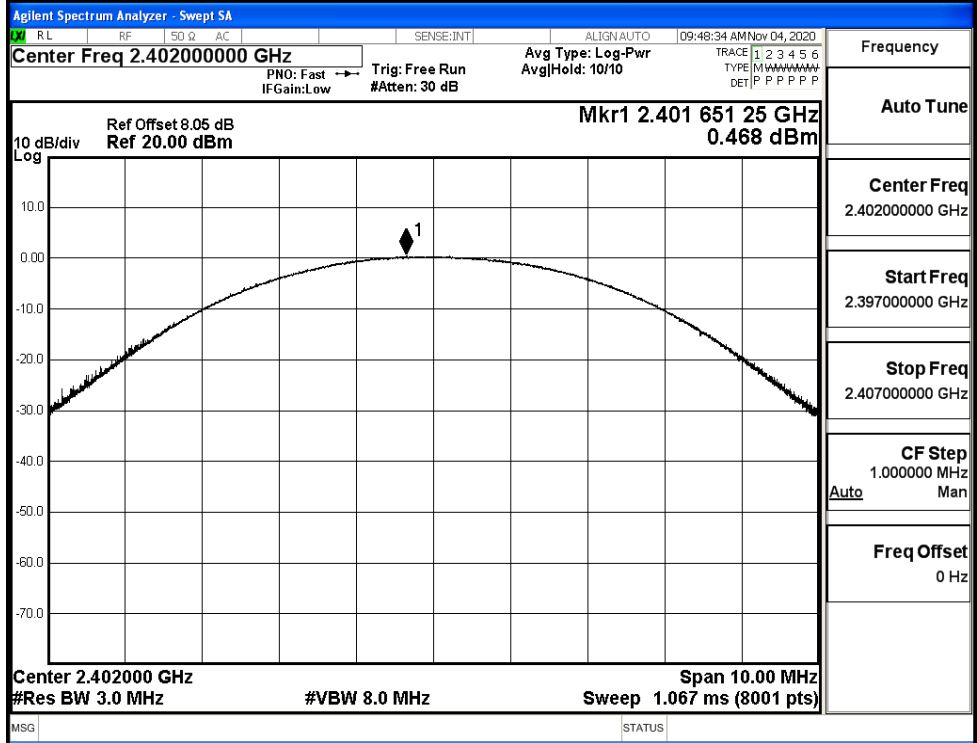
GFSK/MCH



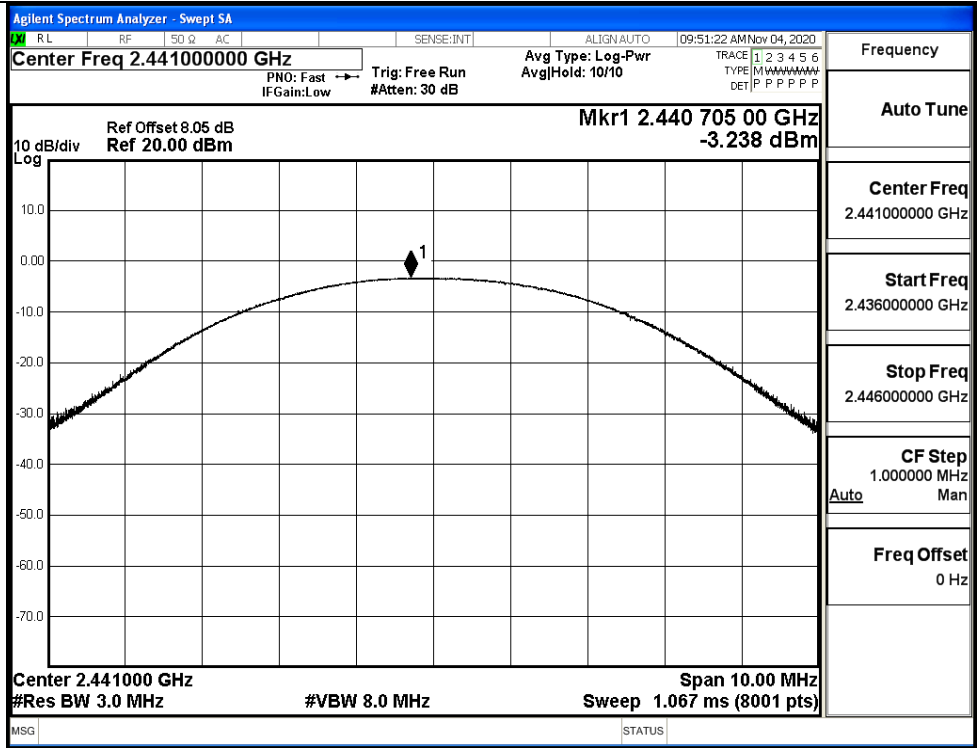
GFSK/HCH



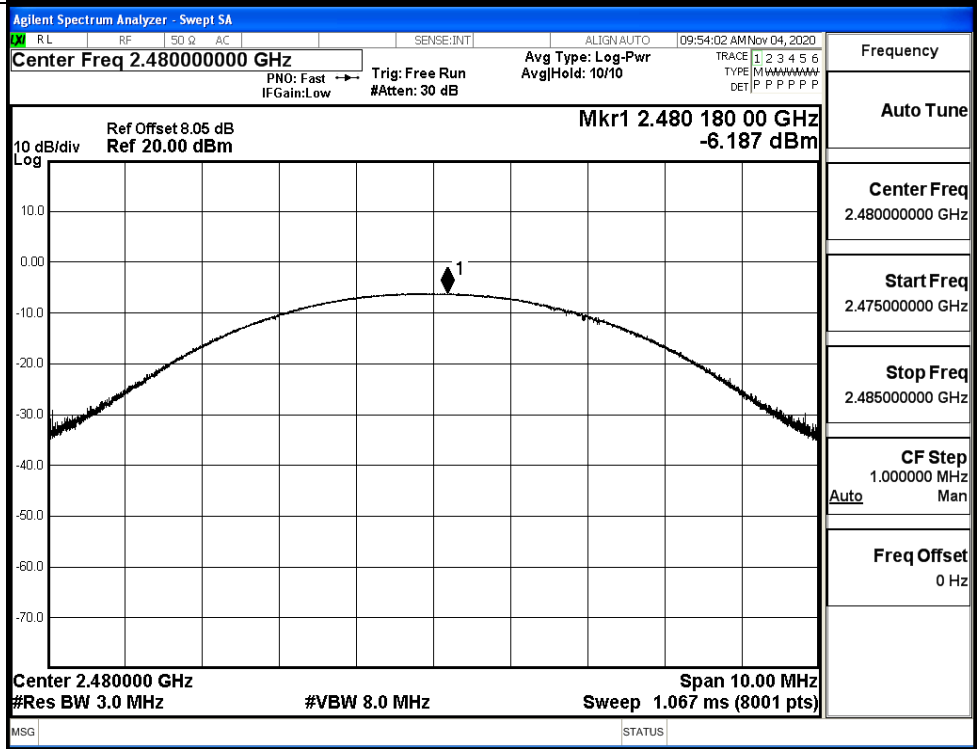
$\pi/4$ DQPSK/LCH



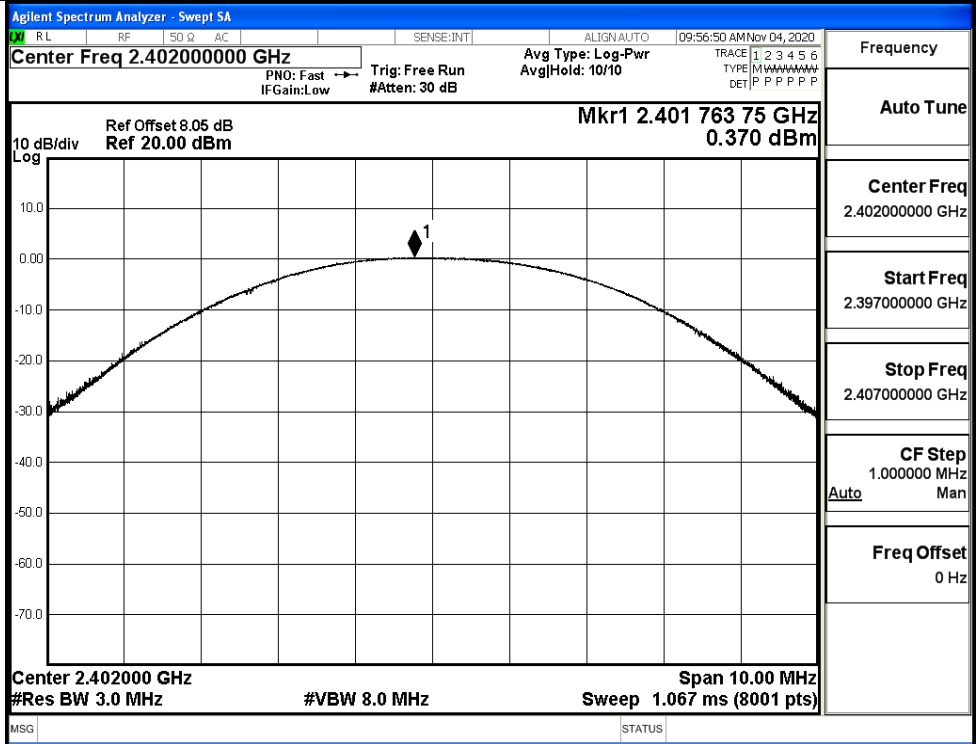
$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH

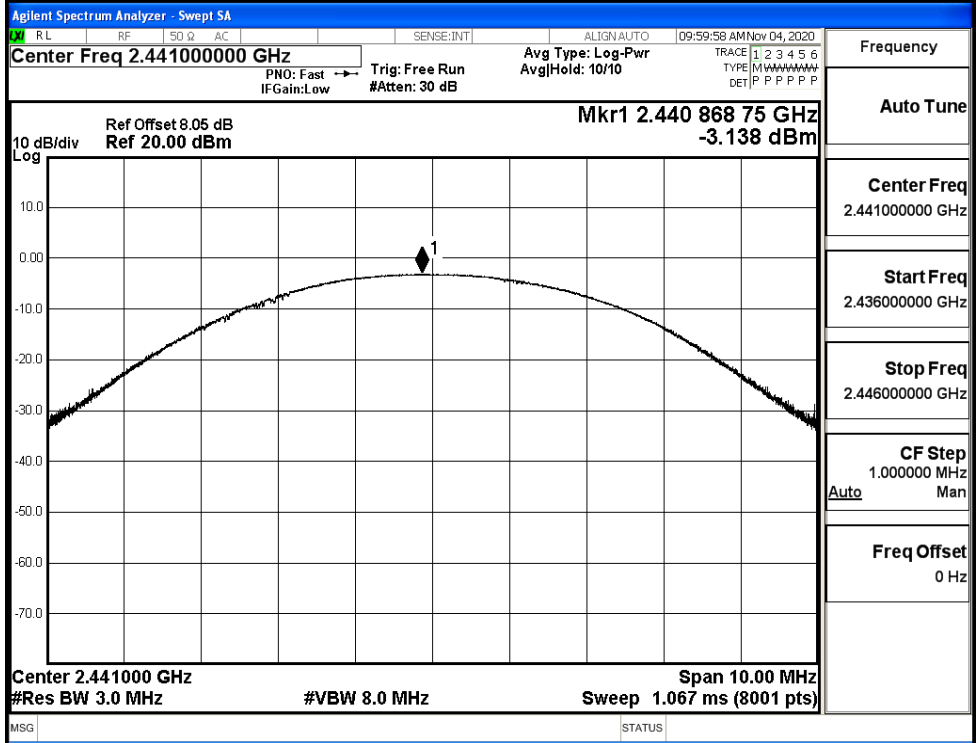


8DPSK/LCH



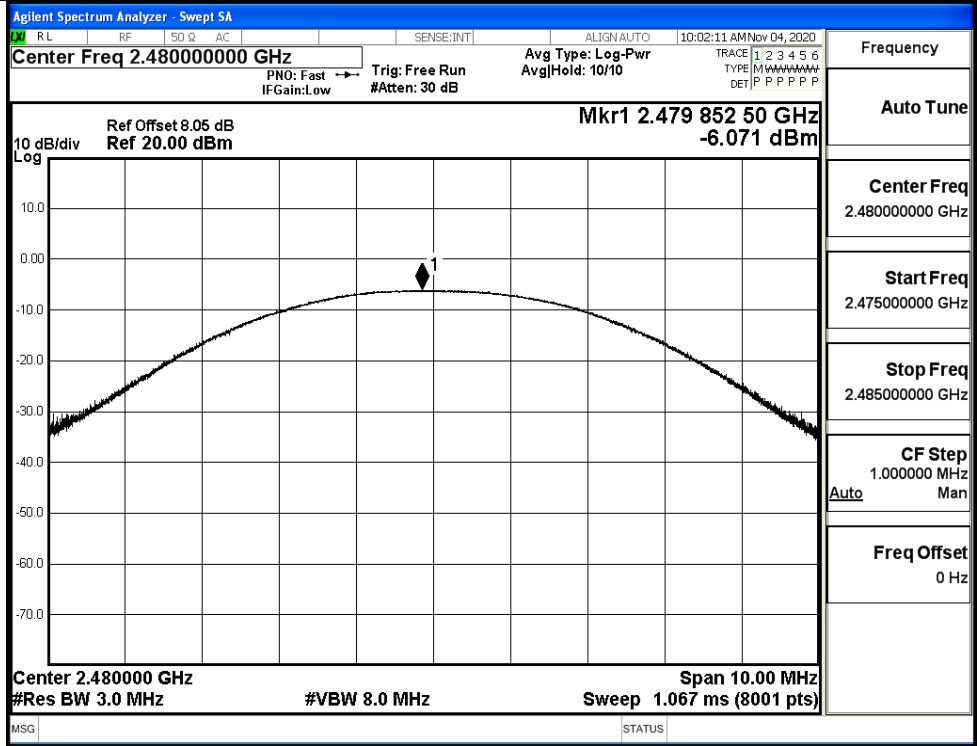
Frequency
Auto Tune
Center Freq 2.402000000 GHz
Start Freq 2.397000000 GHz
Stop Freq 2.407000000 GHz
CF Step 1.000000 MHz Auto Man
Freq Offset 0 Hz

8DPSK/MCH



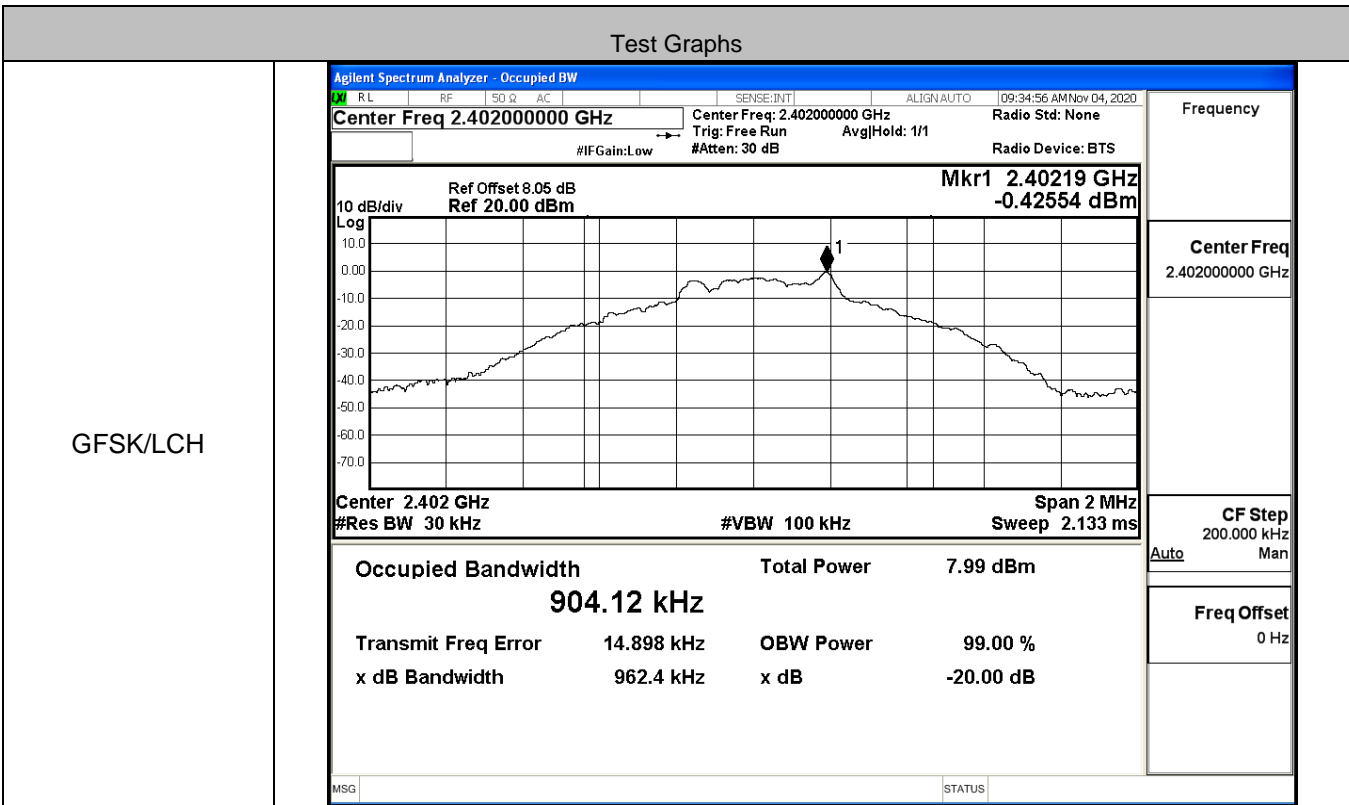
Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.436000000 GHz
Stop Freq 2.446000000 GHz
CF Step 1.000000 MHz Auto Man
Freq Offset 0 Hz

8DPSK/HCH

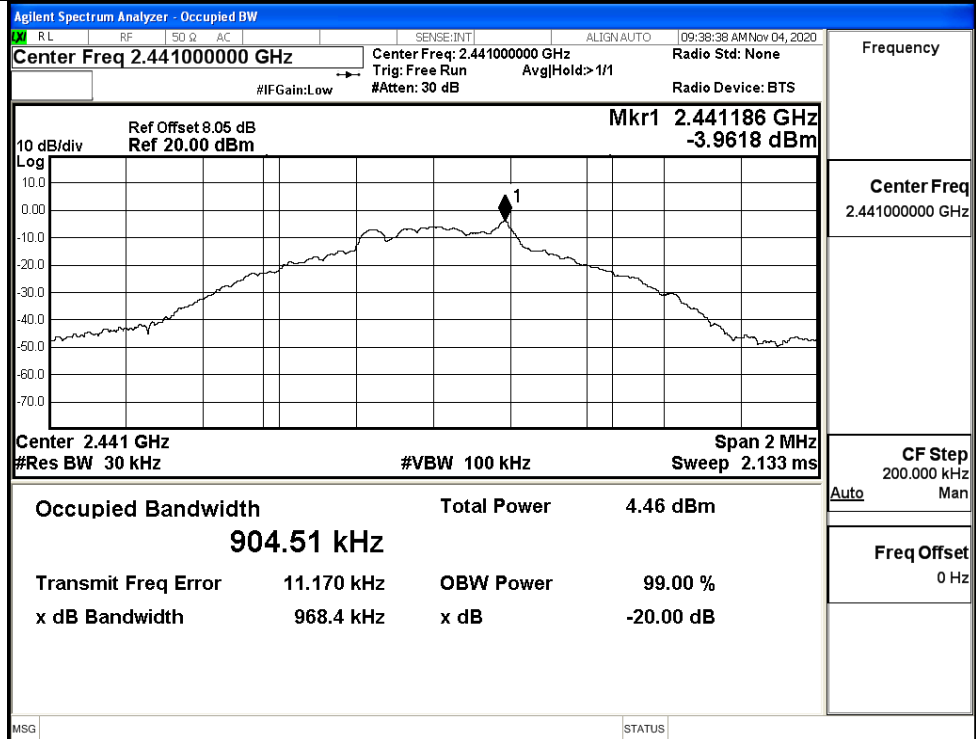


A.2 20dB Bandwidth

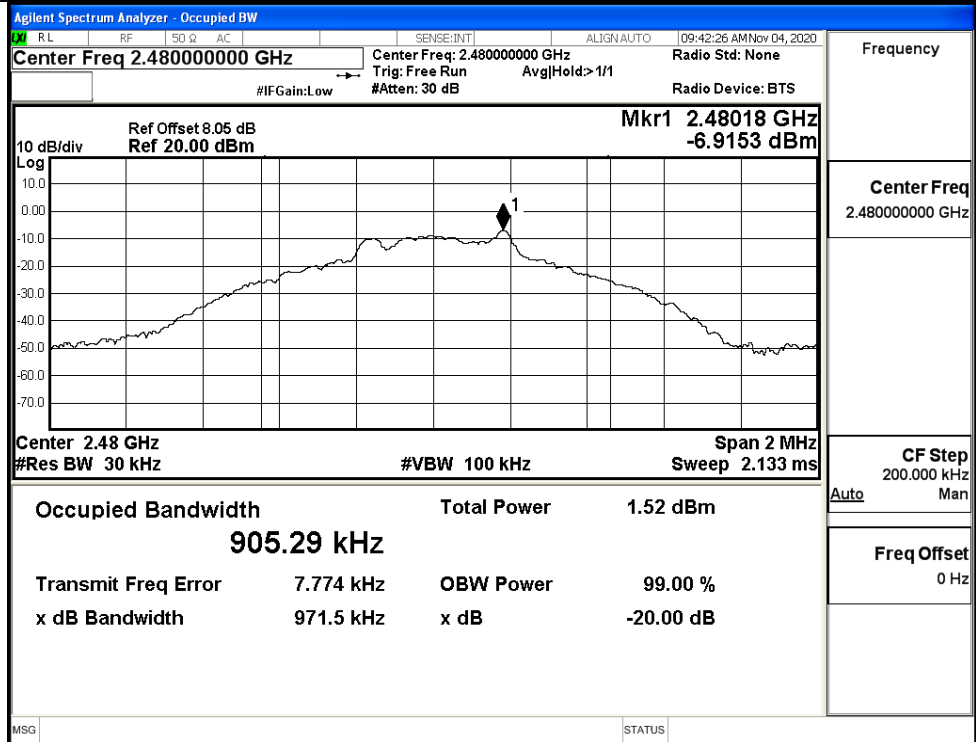
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9624	Not Specified	PASS
	MCH	0.9684	Not Specified	PASS
	HCH	0.9715	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.306	Not Specified	PASS
	MCH	1.315	Not Specified	PASS
	HCH	1.315	Not Specified	PASS
8DPSK	LCH	1.297	Not Specified	PASS
	MCH	1.300	Not Specified	PASS
	HCH	1.301	Not Specified	PASS



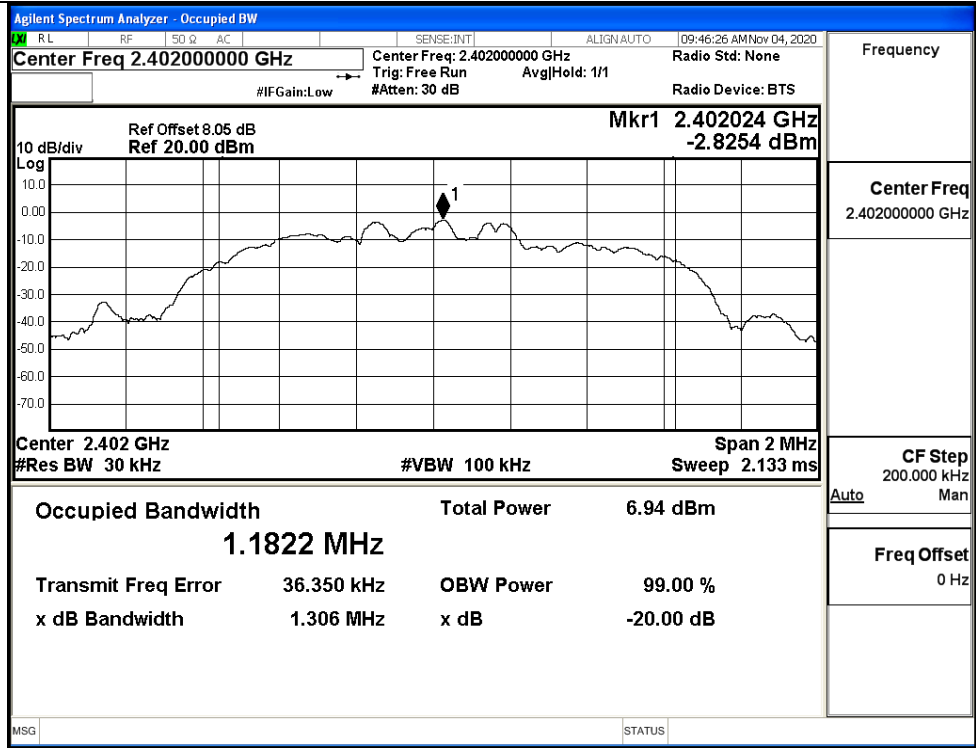
GFSK/MCH



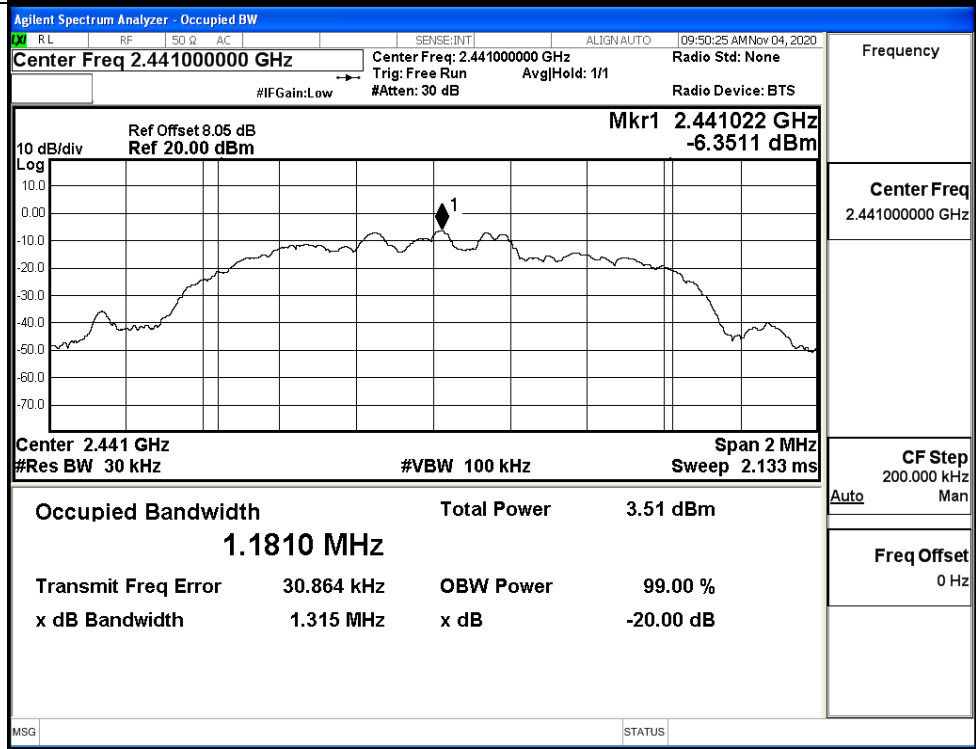
GFSK/HCH

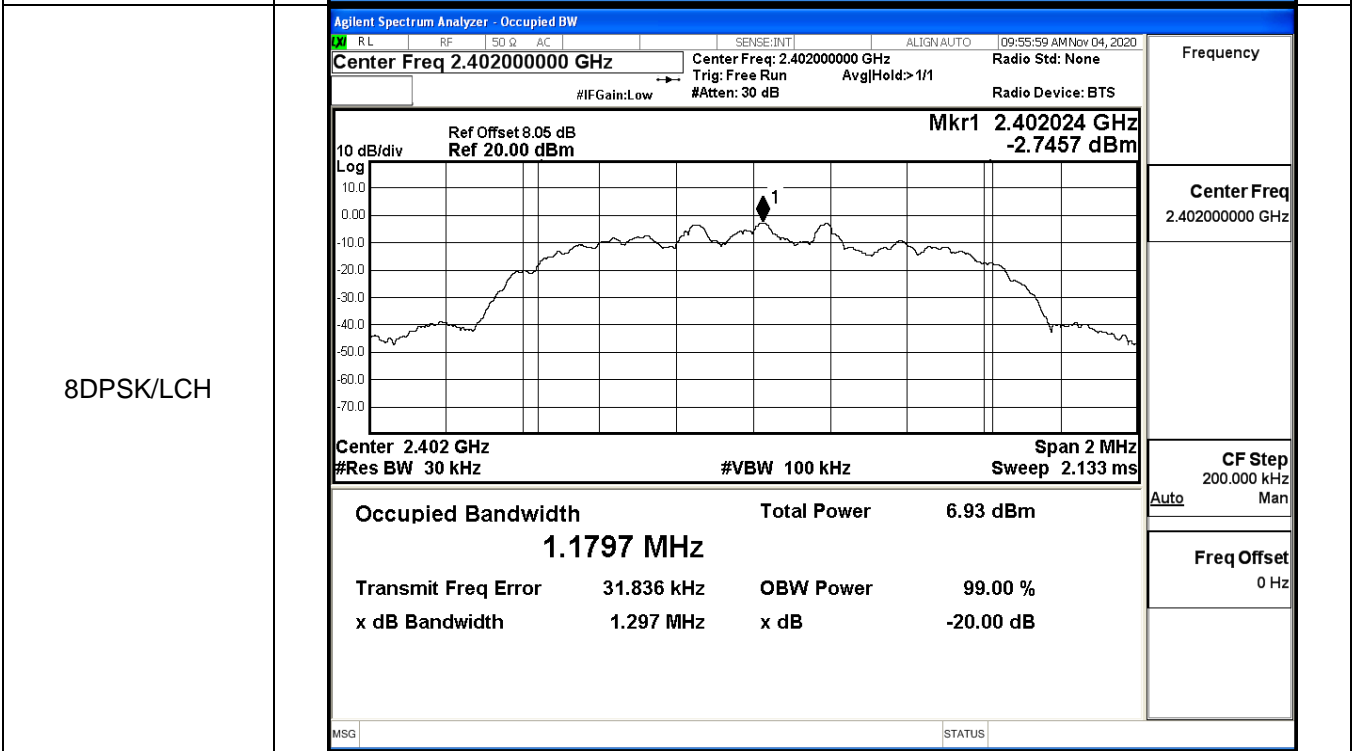
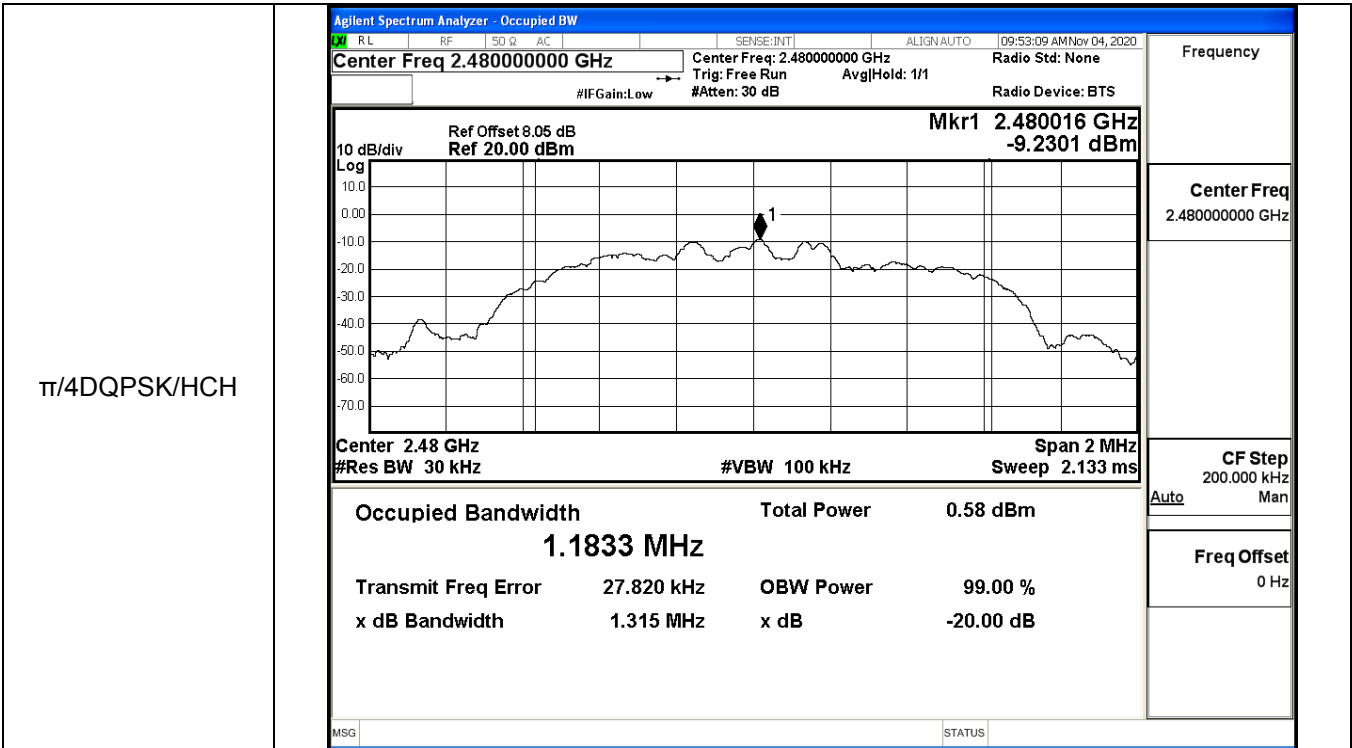


$\pi/4$ DQPSK/LCH

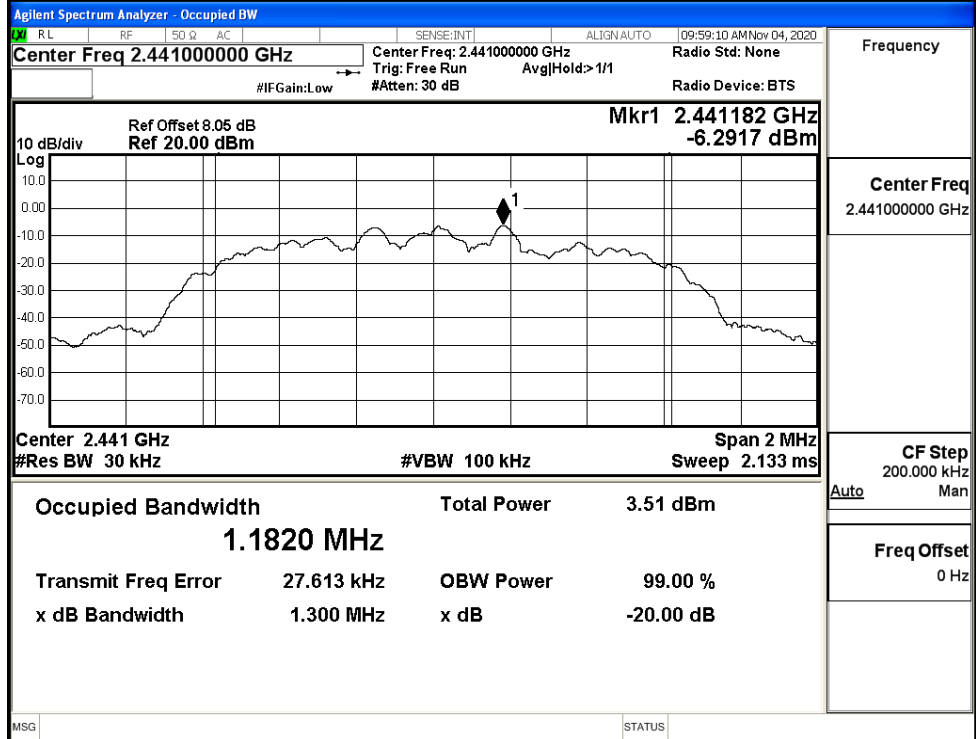


$\pi/4$ DQPSK/MCH



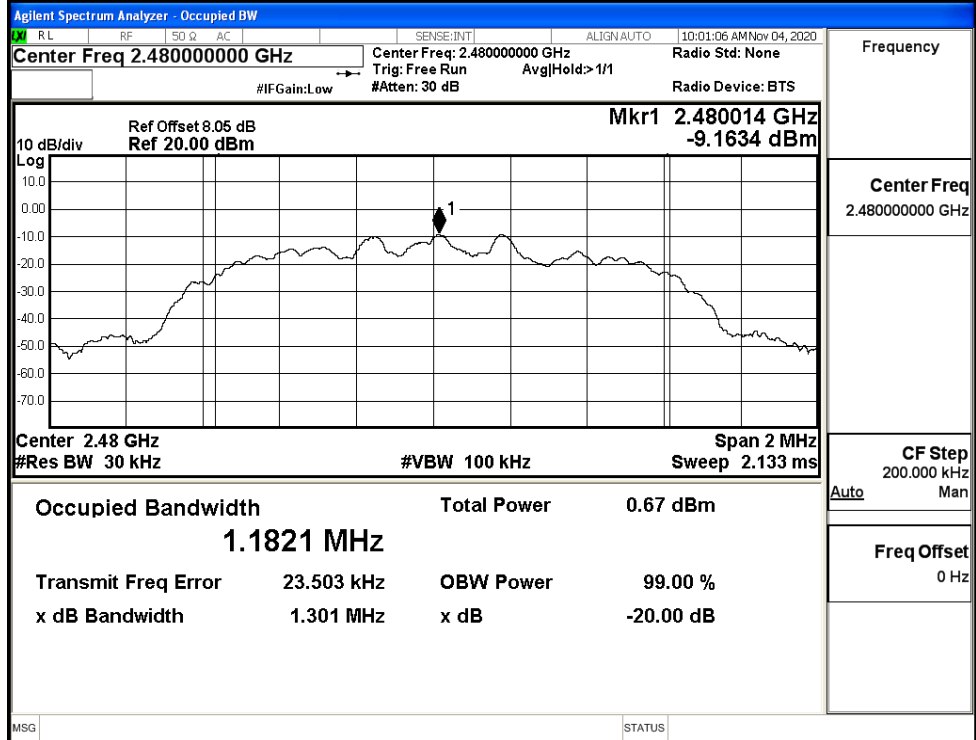


8DPSK/MCH



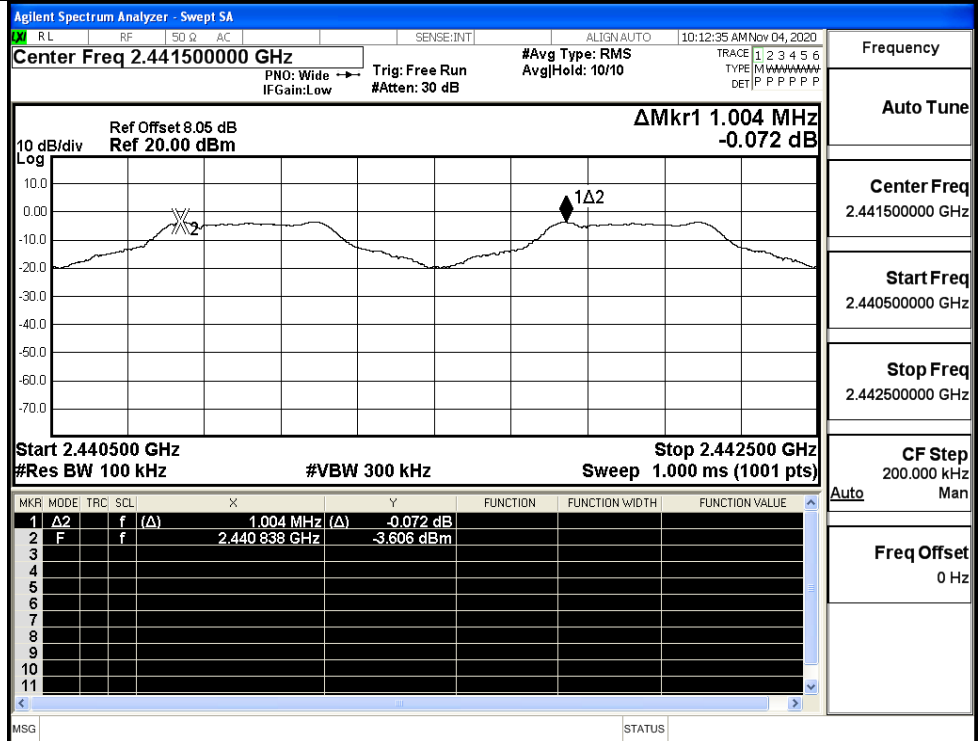
Frequency	2.441000000 GHz
Center Freq	2.441000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/HCH



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

GFSK/MCH



Frequency

Auto Tune

Center Freq
2.441500000 GHz

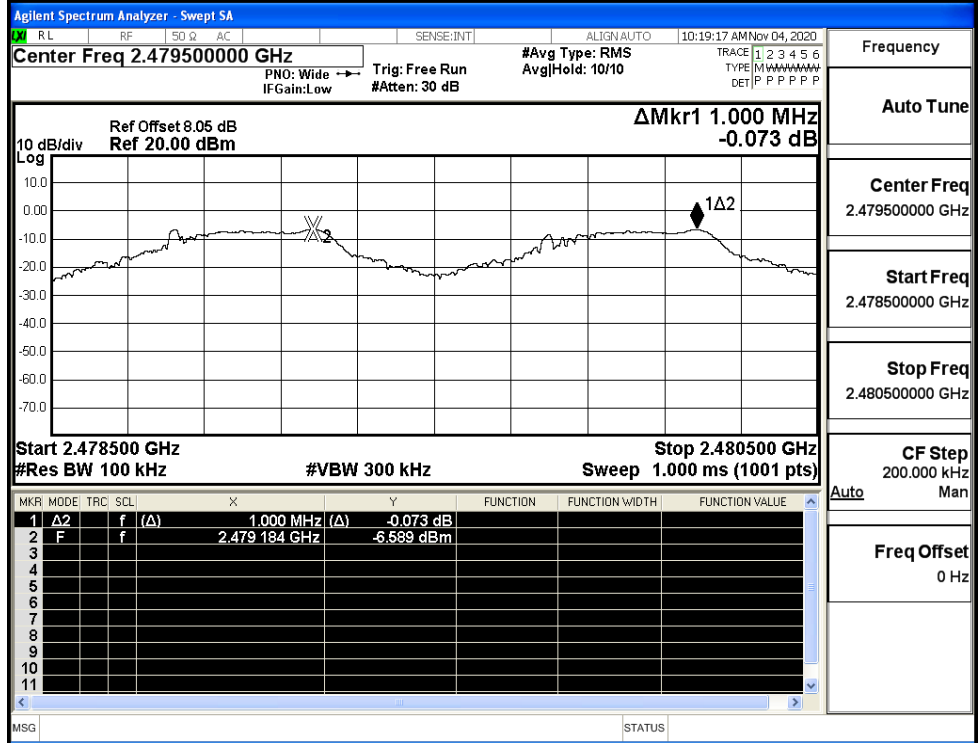
Start Freq
2.440500000 GHz

Stop Freq
2.442500000 GHz

CF Step
200.000 kHz

Freq Offset
0 Hz

GFSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

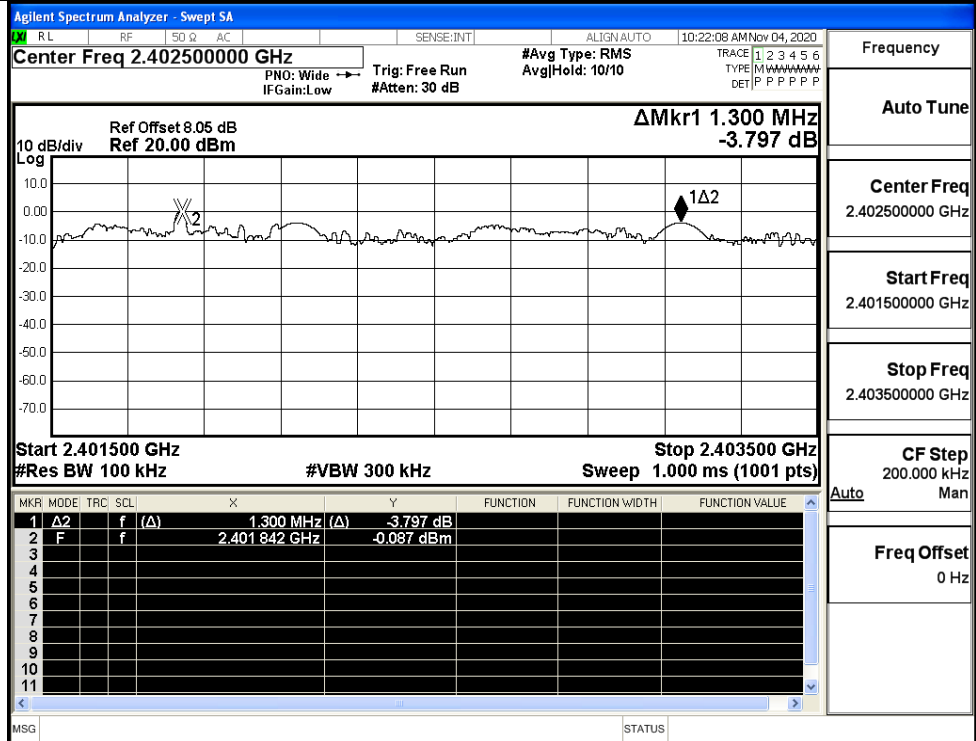
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

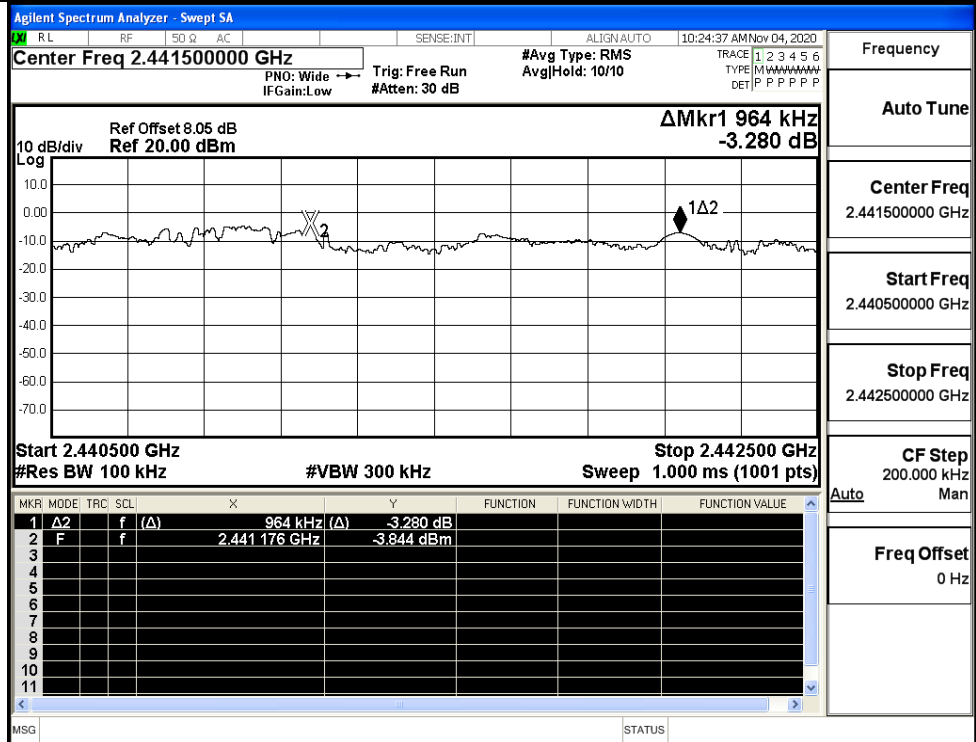
CF Step
200.000 kHz

Freq Offset
0 Hz

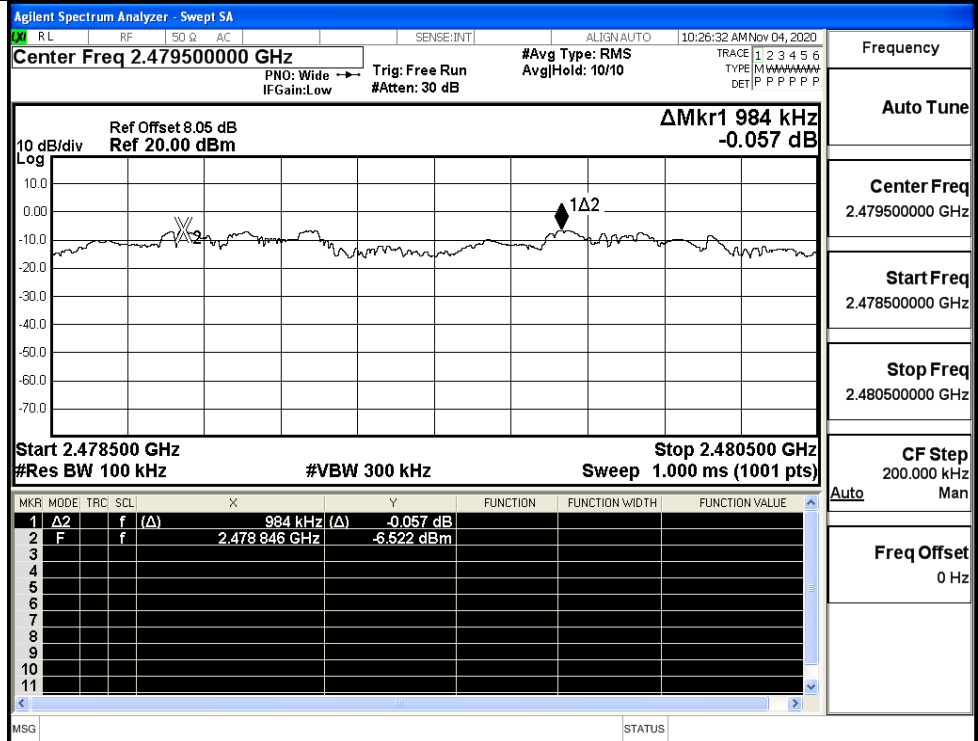
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



π/4DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

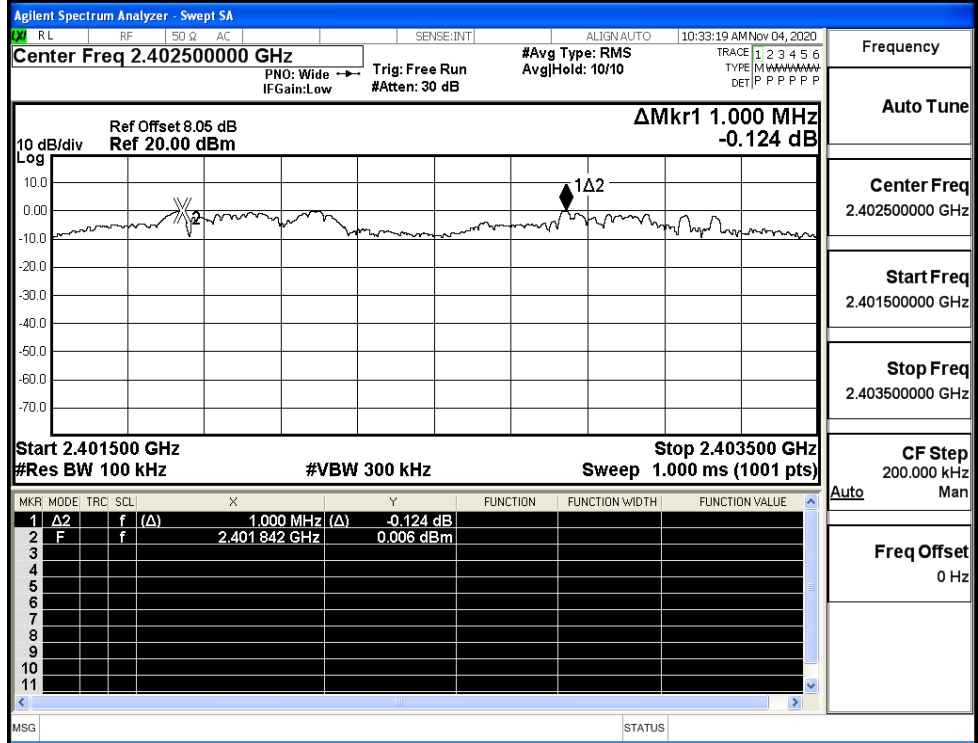
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz

Freq Offset
0 Hz

8DPSK/LCH



Frequency

Auto Tune

Center Freq
2.402500000 GHz

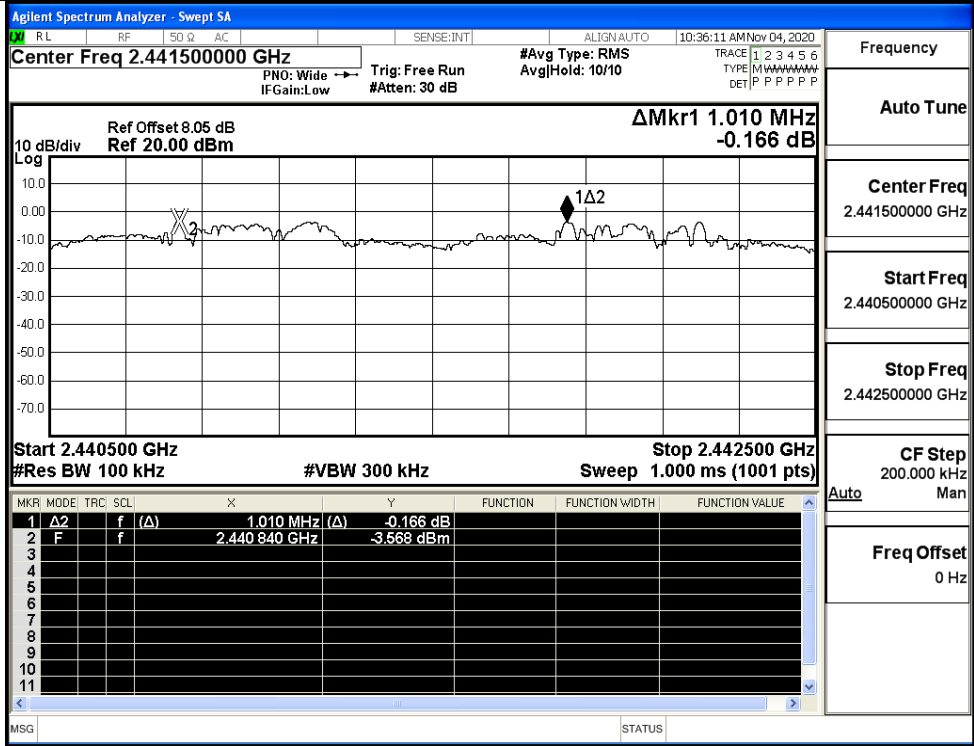
Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

CF Step
200.000 kHz

Freq Offset
0 Hz

8DPSK/MCH



Frequency

Auto Tune

Center Freq
2.441500000 GHz

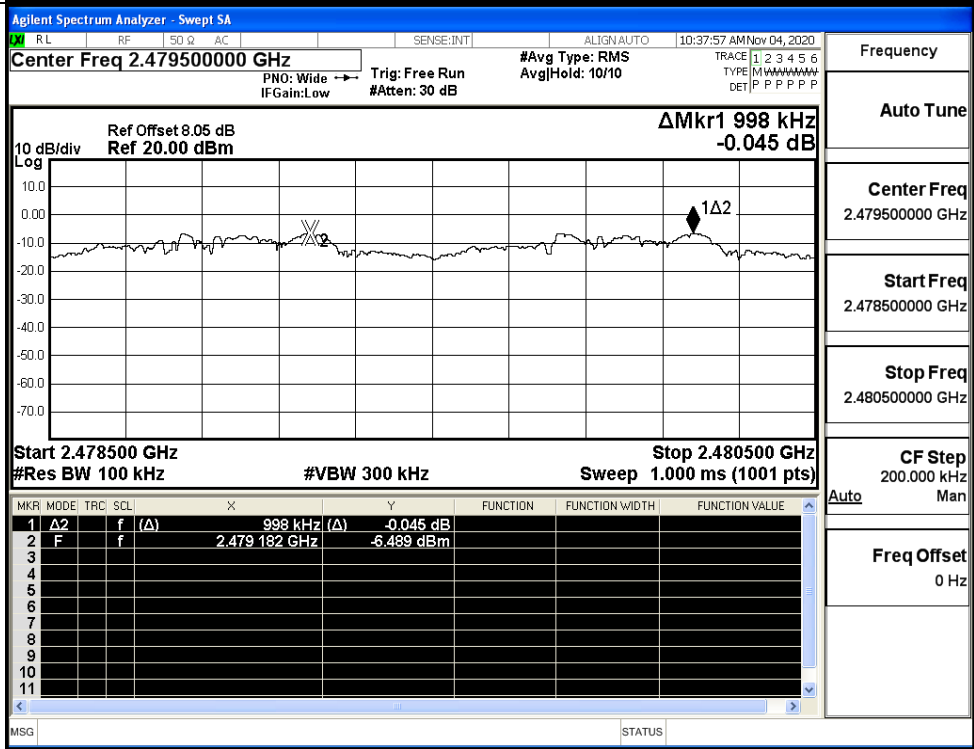
Start Freq
2.440500000 GHz

Stop Freq
2.442500000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

8DPSK/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

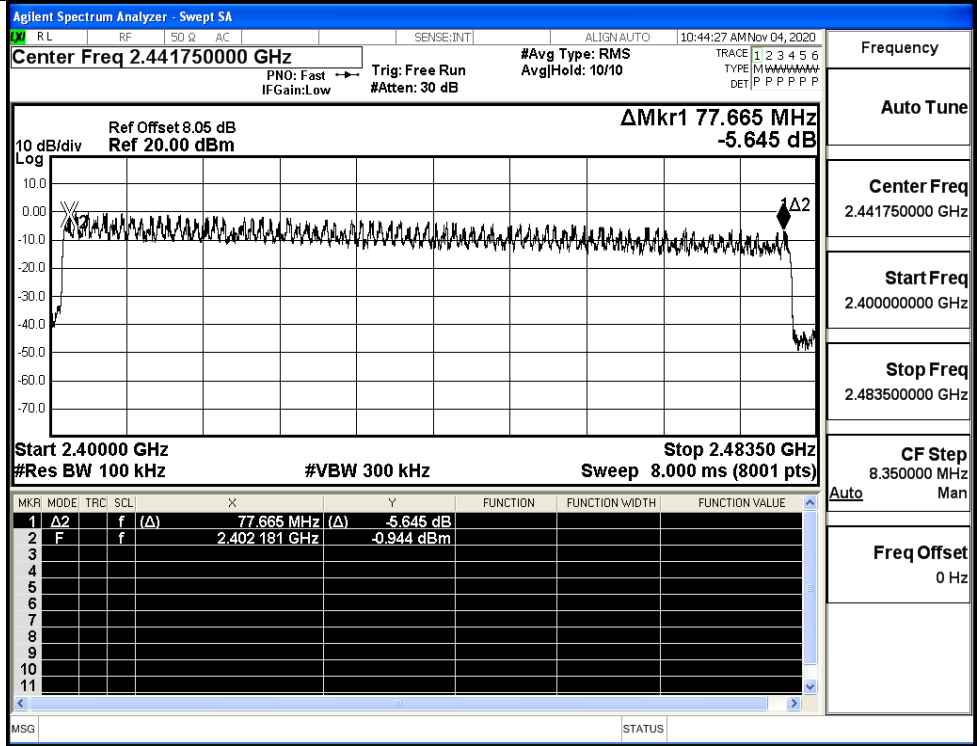
A.4 Hopping Channel Number

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

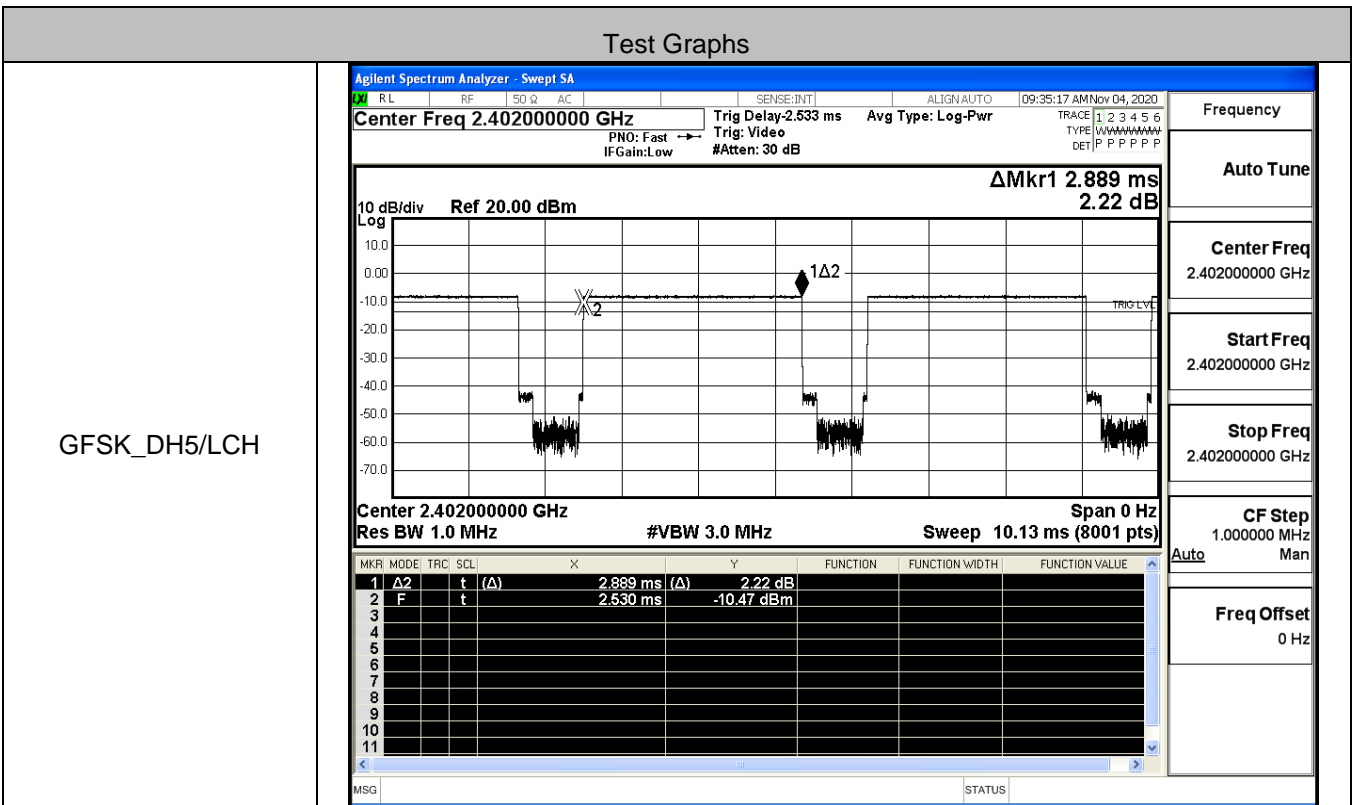
<p>GFSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 77.999 MHz -6.535 dB</p> <p>Start 2.40000 GHz Stop 2.48350 GHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <thead> <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>77.999 MHz (Δ)</td> <td>-6.535 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td>(Δ)</td> <td>2.402181 GHz</td> <td>-0.033 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)	-6.535 dB				2	F	f	(Δ)	2.402181 GHz	-0.033 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</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	Δ 2	f	(Δ)	77.999 MHz (Δ)	-6.535 dB																								
2	F	f	(Δ)	2.402181 GHz	-0.033 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 77.989 MHz -6.003 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>77.989 MHz (Δ)</td> <td>-6.003 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td>(Δ)</td> <td>2.402046 GHz</td> <td>-1.286 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)	77.989 MHz (Δ)	-6.003 dB				2	F	f	(Δ)	2.402046 GHz	-1.286 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</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	Δ 2	f	(Δ)	77.989 MHz (Δ)	-6.003 dB																								
2	F	f	(Δ)	2.402046 GHz	-1.286 dBm																								

8DPSK/Hop

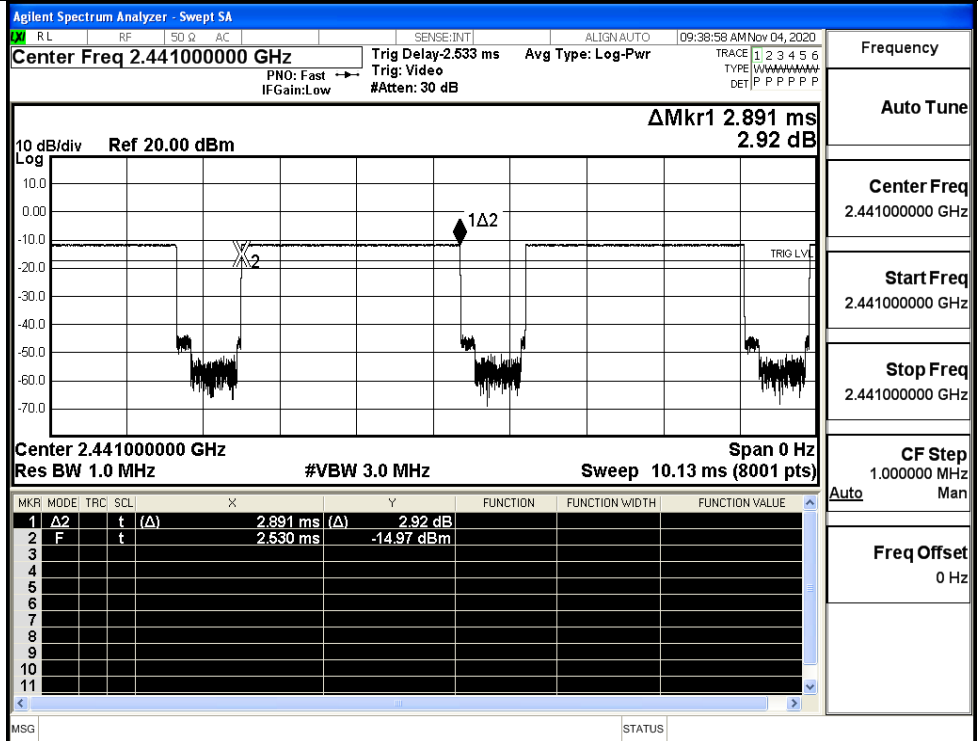


A.5 Dwell Time

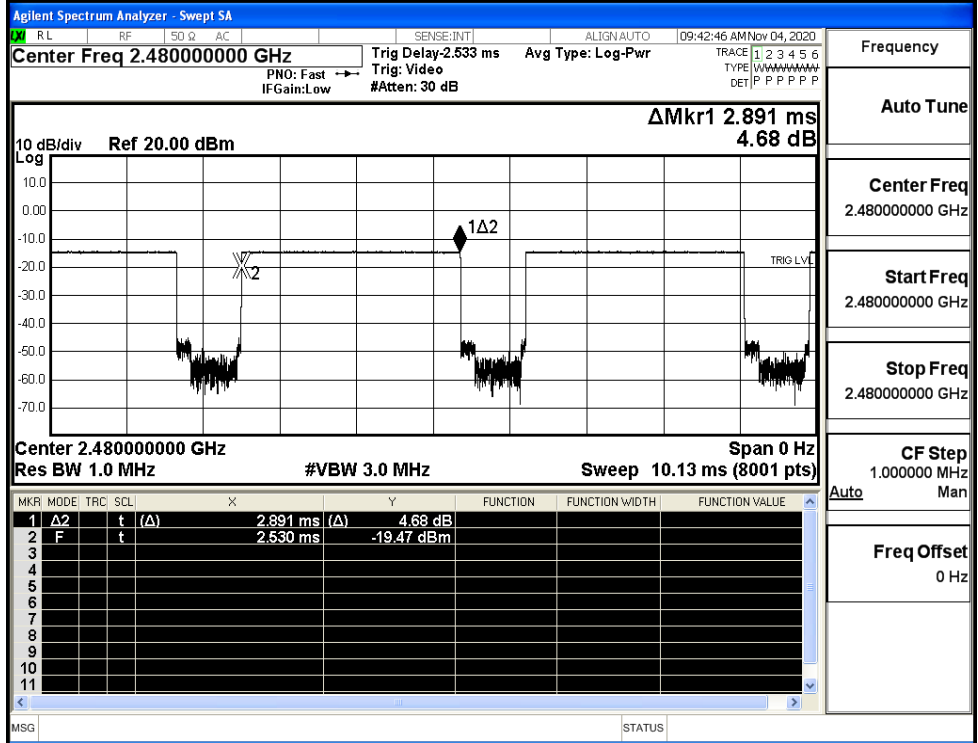
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
π/4DQPSK	2DH5	LCH	2.89	106.7	0.014	0.4	PASS
	2DH5	MCH	2.89	106.7	0.014	0.4	PASS
	2DH5	HCH	2.89	106.7	0.014	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.014	0.4	PASS
	3DH5	MCH	2.89	106.7	0.014	0.4	PASS
	3DH5	HCH	2.89	106.7	0.014	0.4	PASS



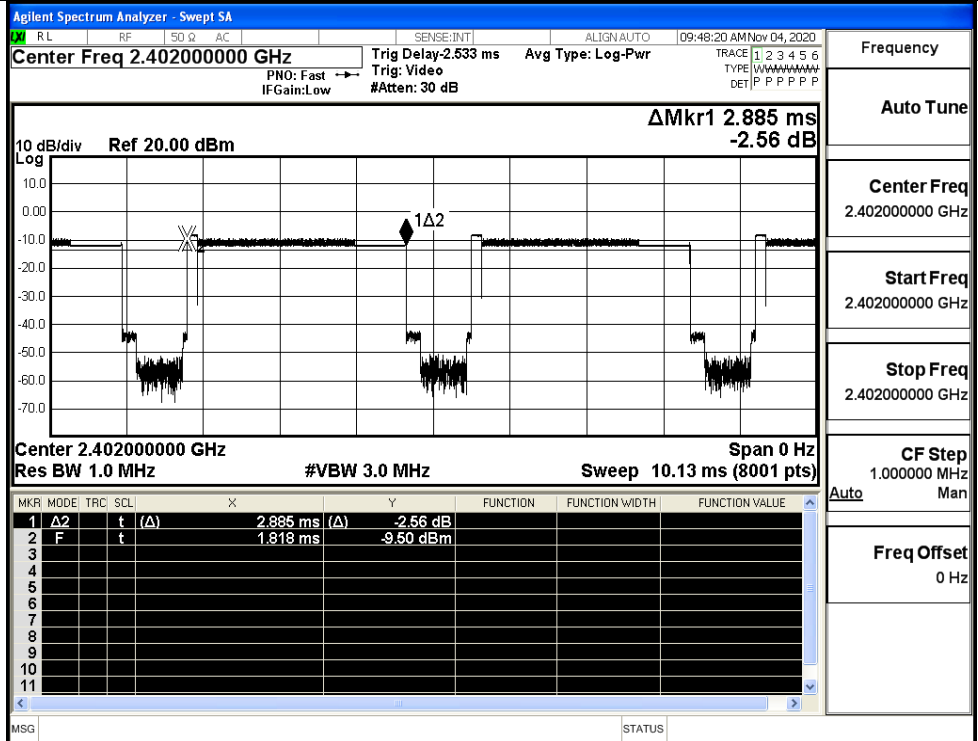
GFSK_DH5/MCH



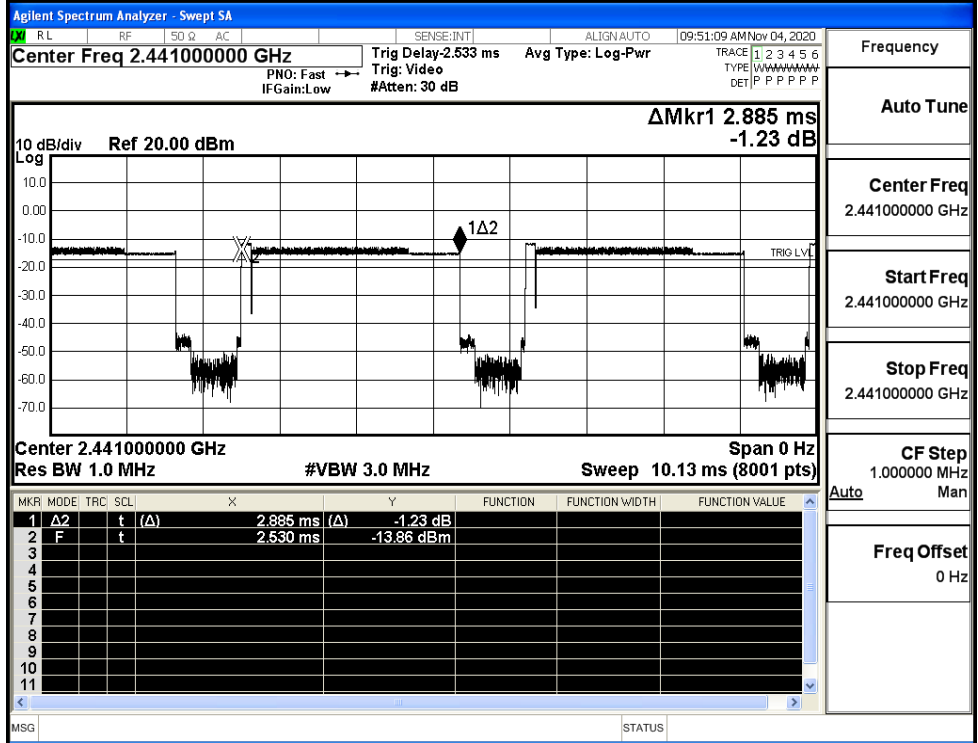
GFSK_DH5/HCH



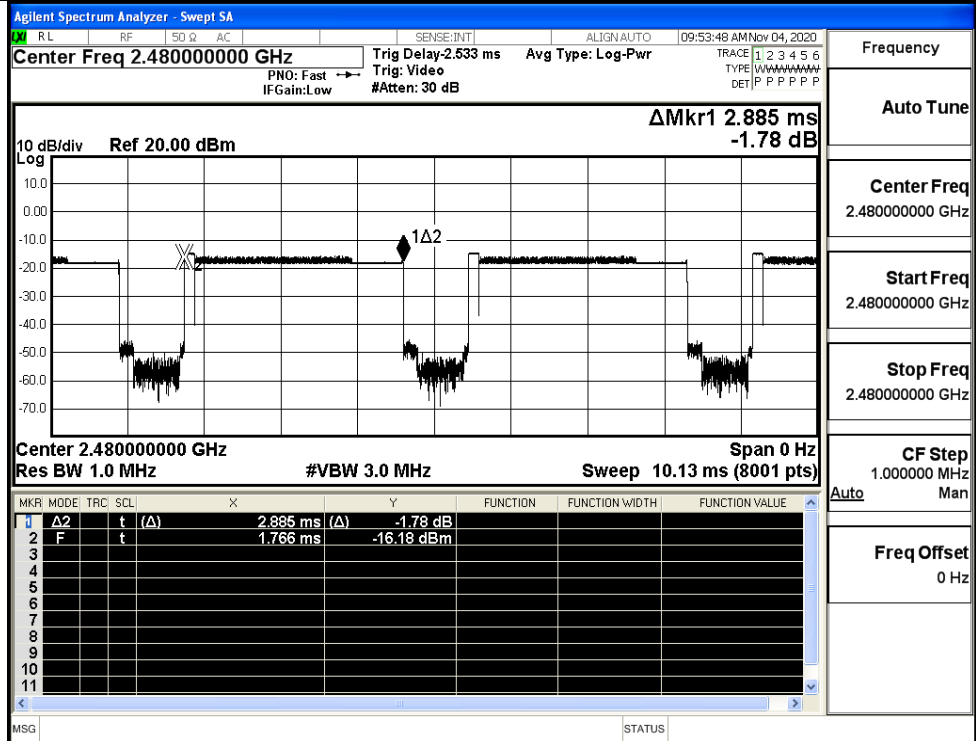
$\pi/4$ DQPSK
_2DH5/LCH



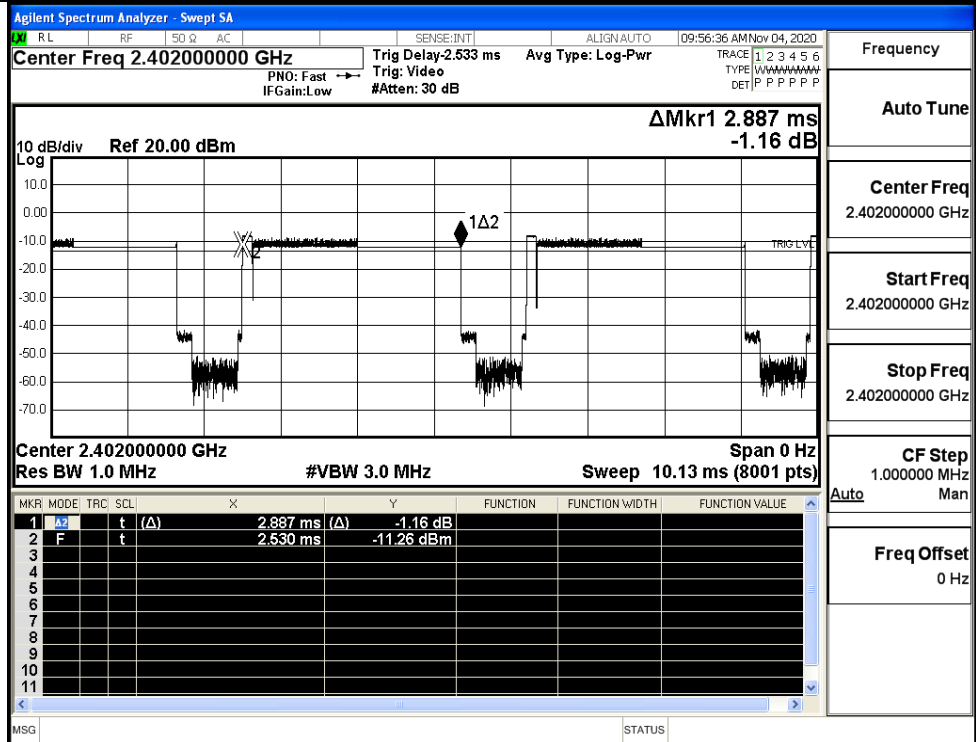
$\pi/4$ DQPSK
_2DH5/MCH



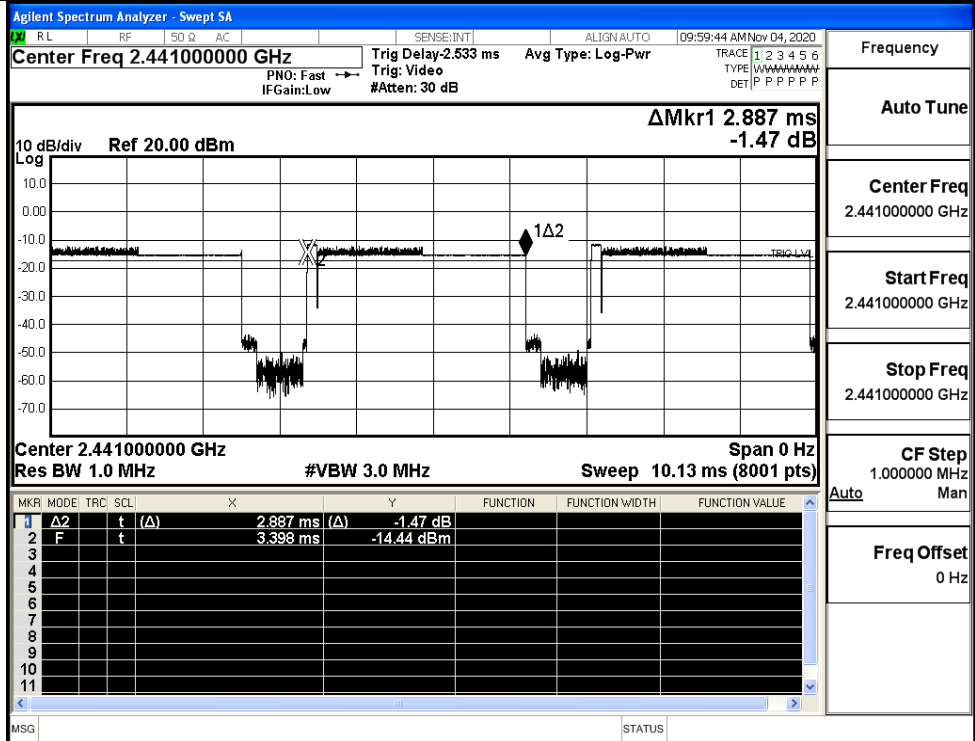
$\pi/4$ DQPSK
_2DH5/HCH



8DPSK_3DH5/LCH

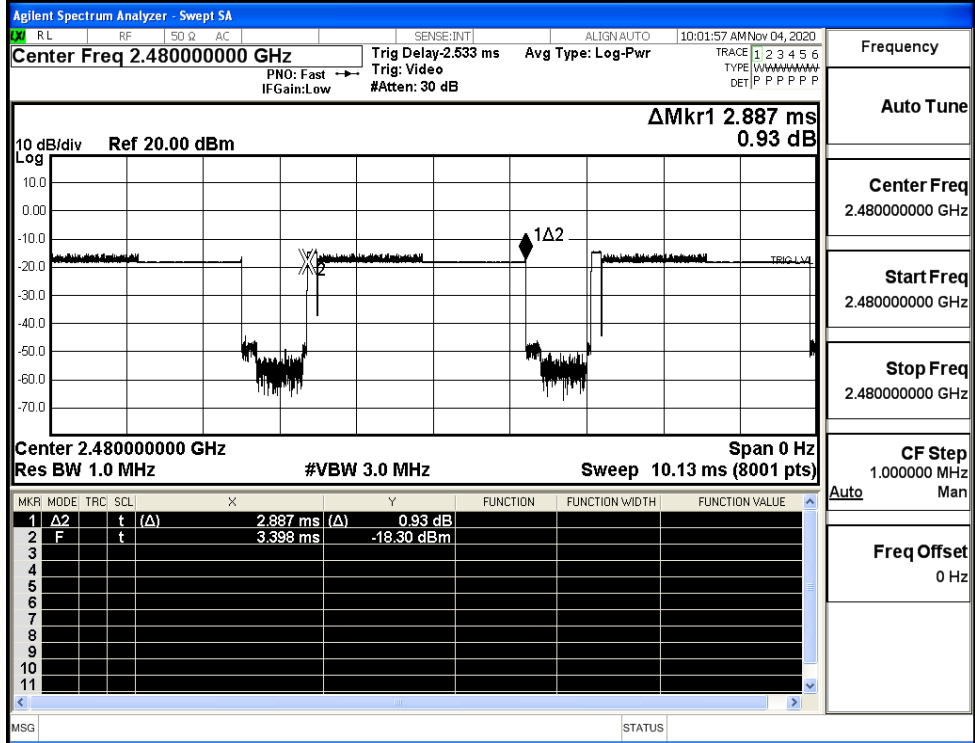


8DPSK_3DH5/MCH



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

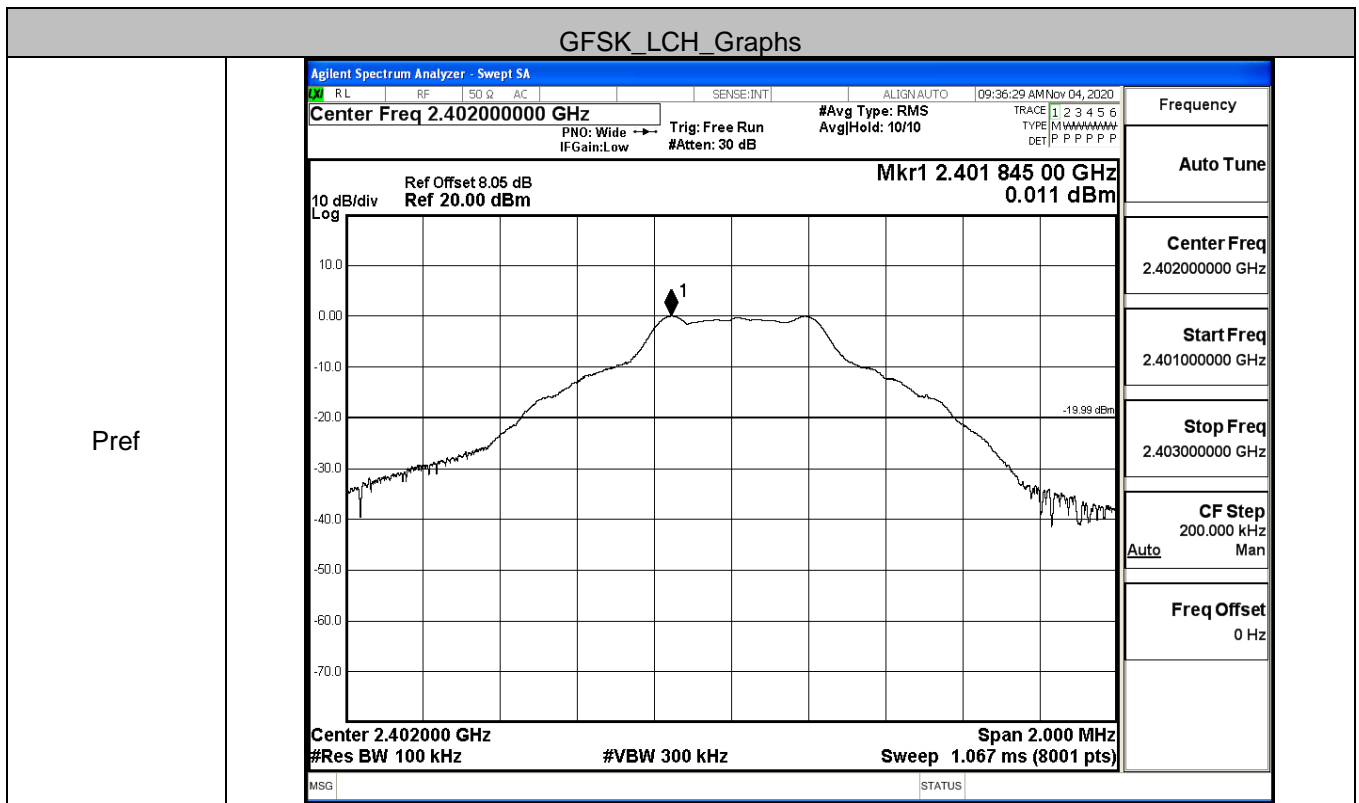
8DPSK_3DH5/HCH



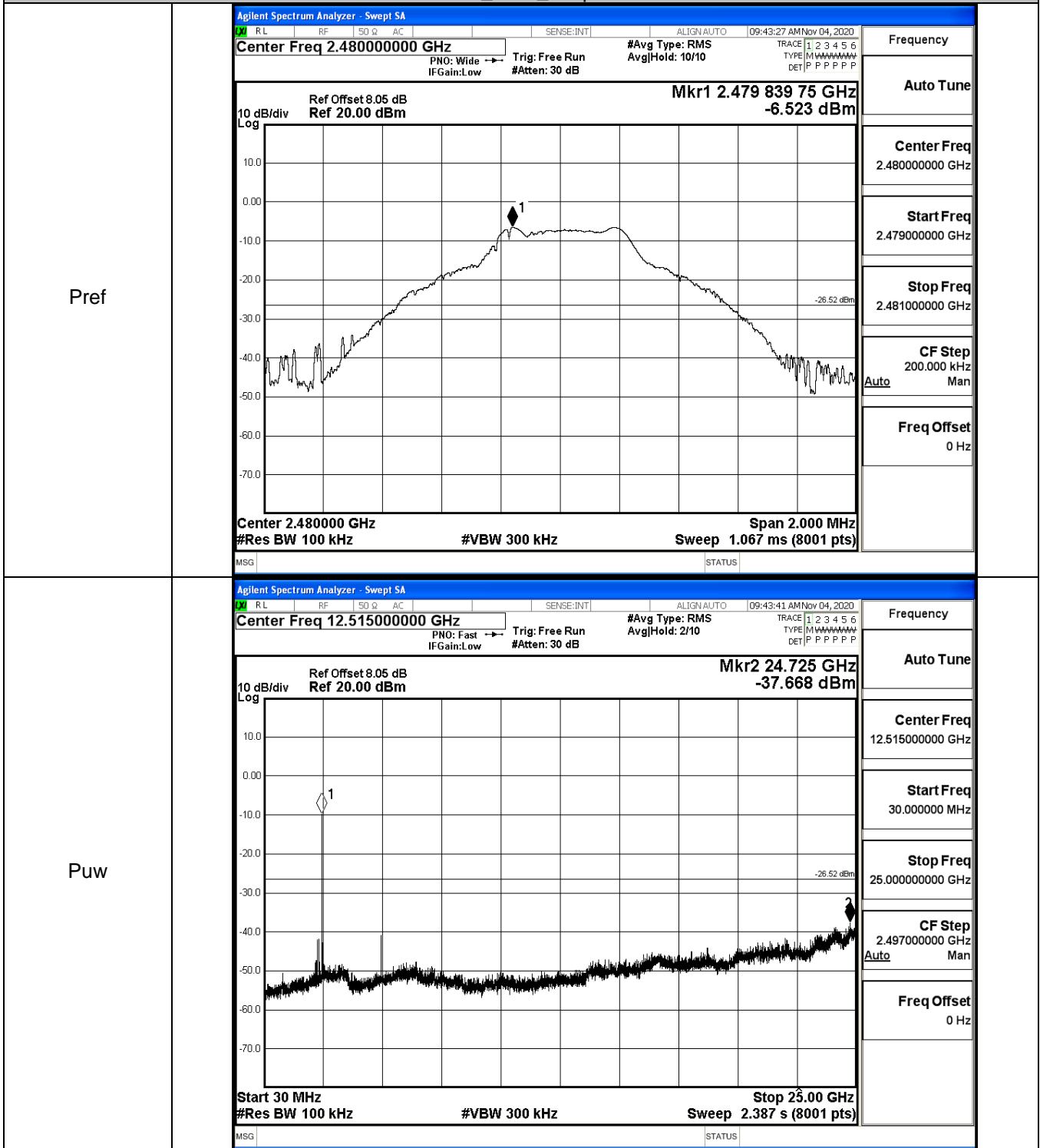
Frequency	2.480000000 GHz
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

A.6 RF Conducted Spurious Emissions

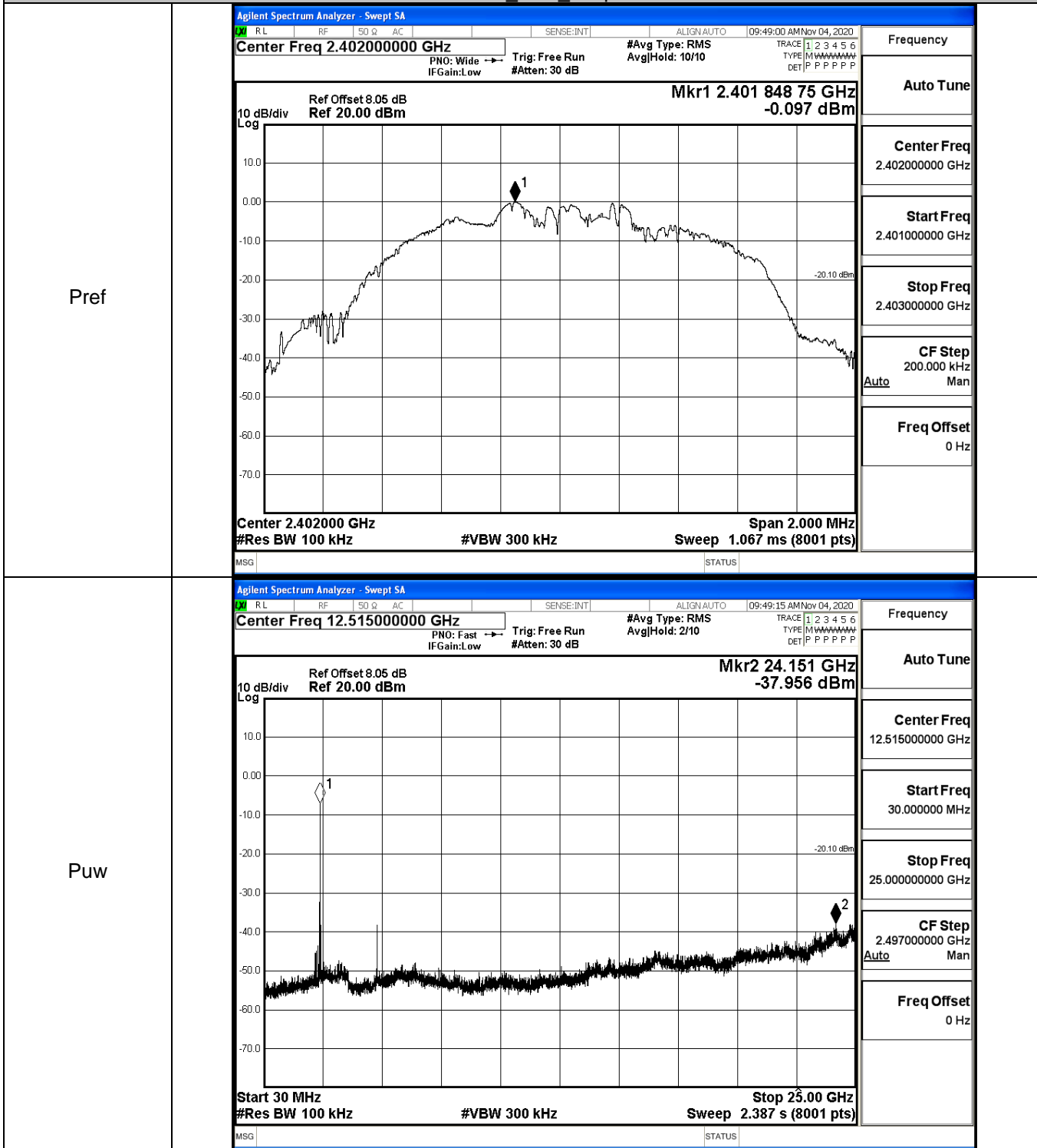
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.011	-27.875	-19.989	PASS
	MCH	-3.571	-33.644	-23.571	PASS
	HCH	-6.523	-37.668	-26.523	PASS
π /4DQPSK	LCH	-0.097	-37.956	-20.097	PASS
	MCH	-3.692	-37.469	-23.692	PASS
	HCH	-6.957	-38.646	-26.957	PASS
8DPSK	LCH	-0.159	-37.307	-20.159	PASS
	MCH	-3.56	-37.890	-23.560	PASS
	HCH	-6.523	-38.392	-26.523	PASS



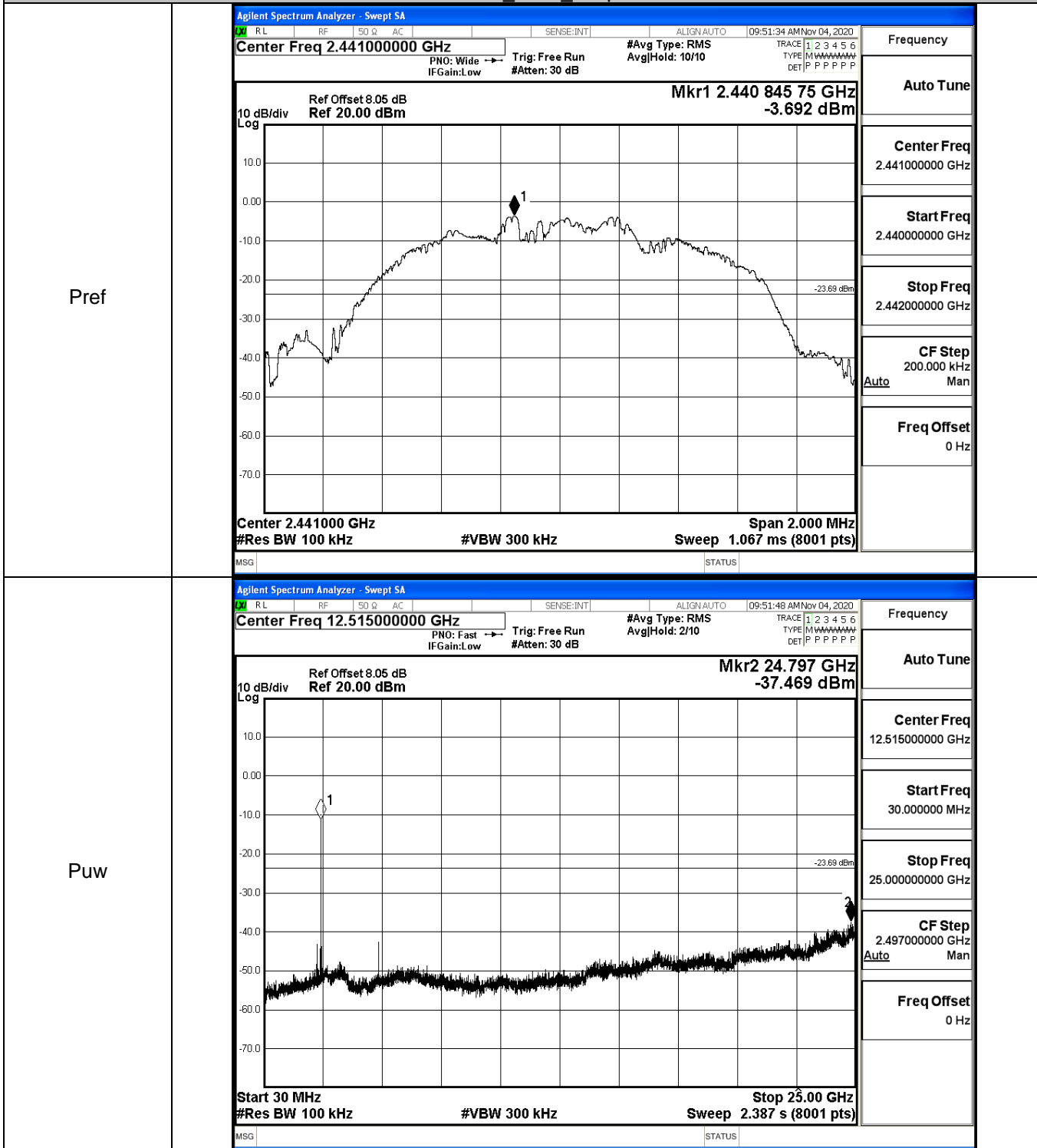
GFSK_HCH_Graphs



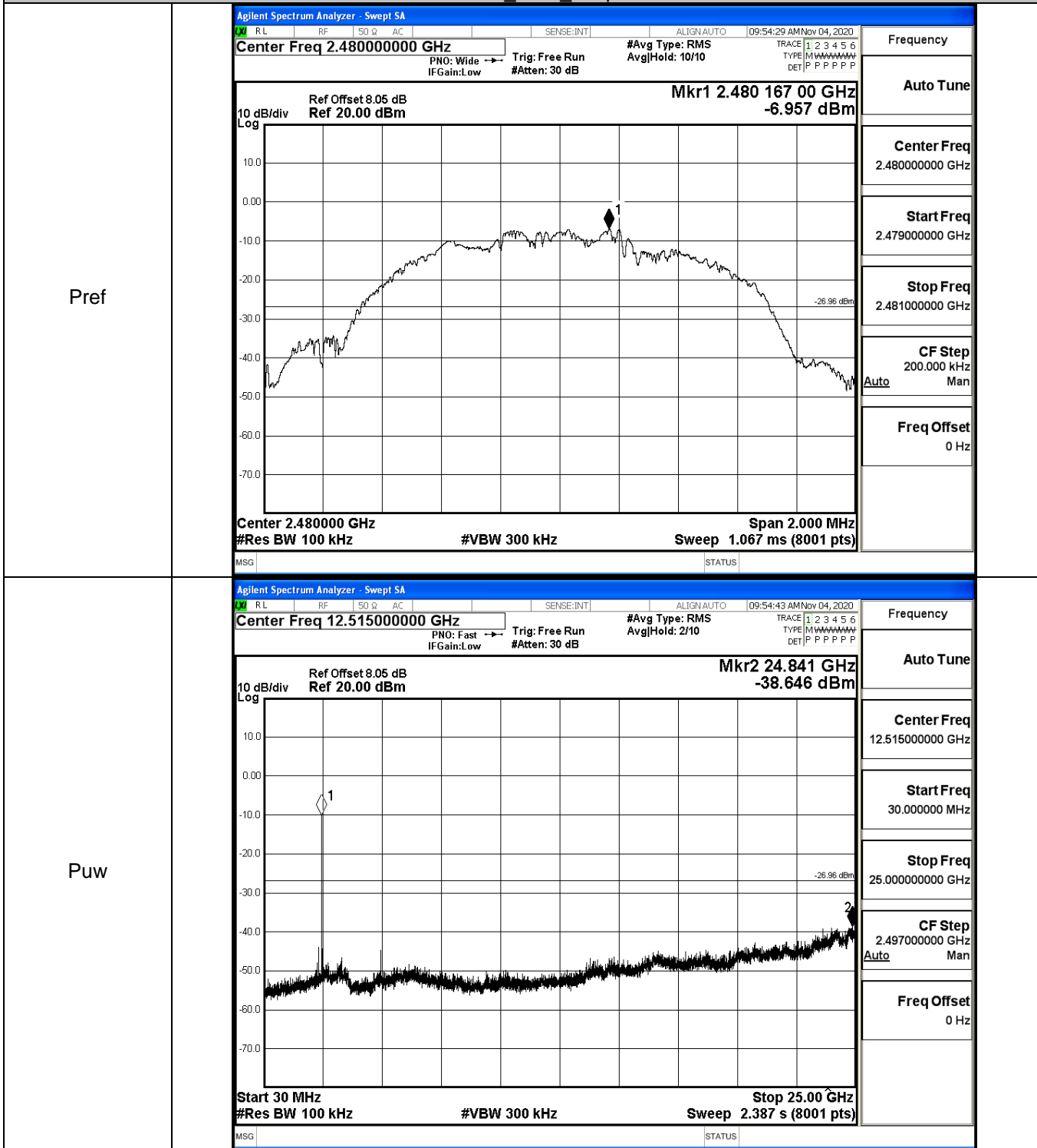
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

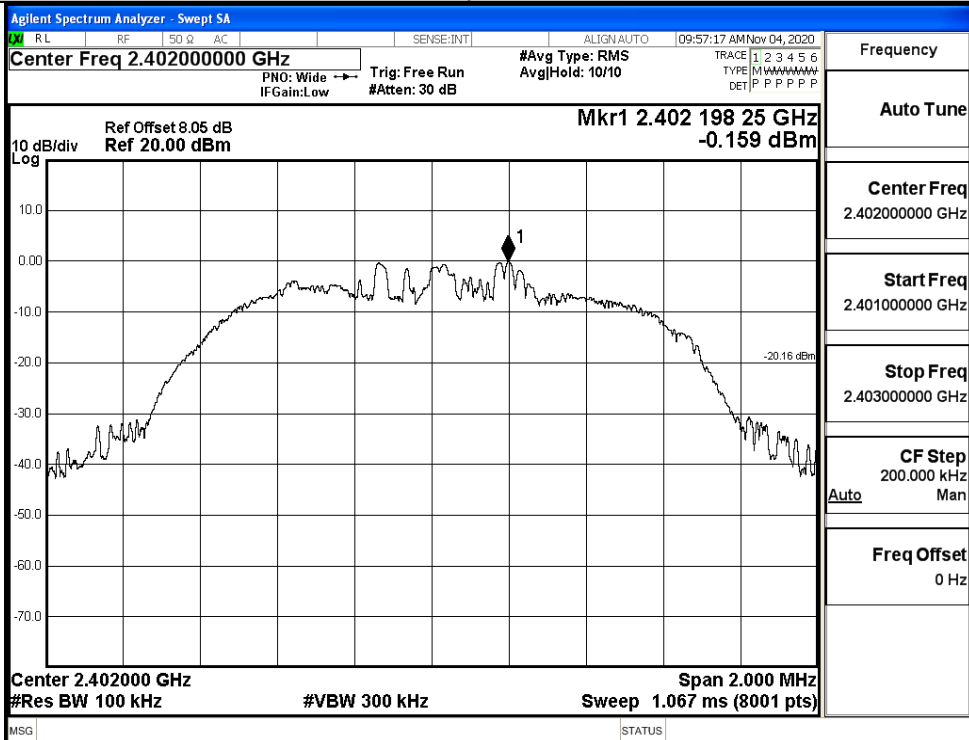


$\pi/4$ DQPSK_HCH_Graphs

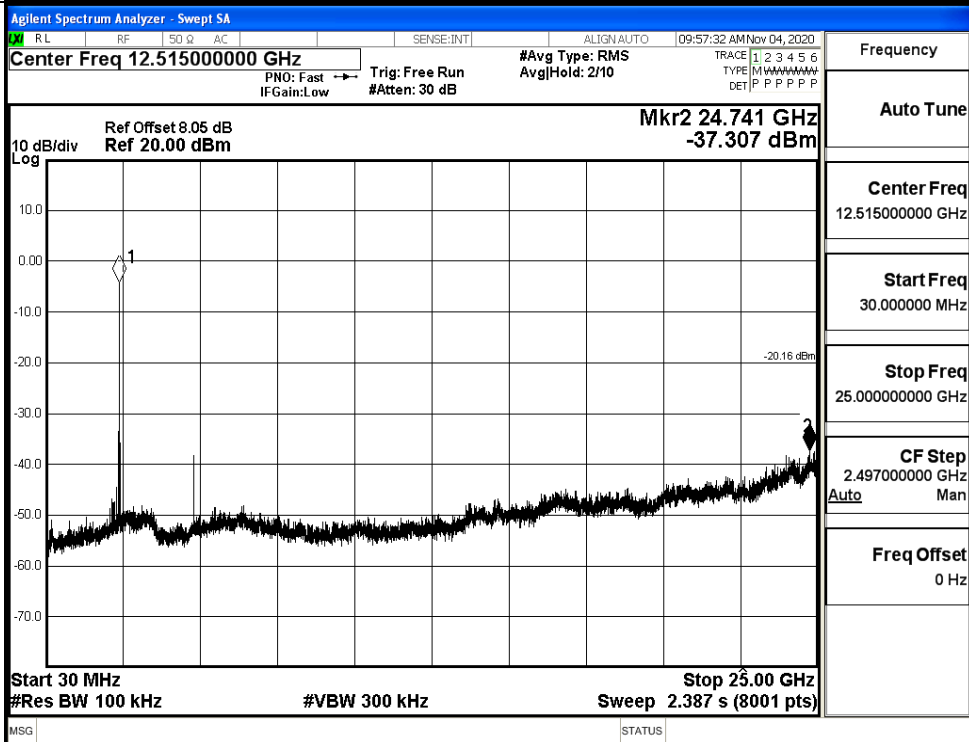


8DPSK_LCH_Graphs

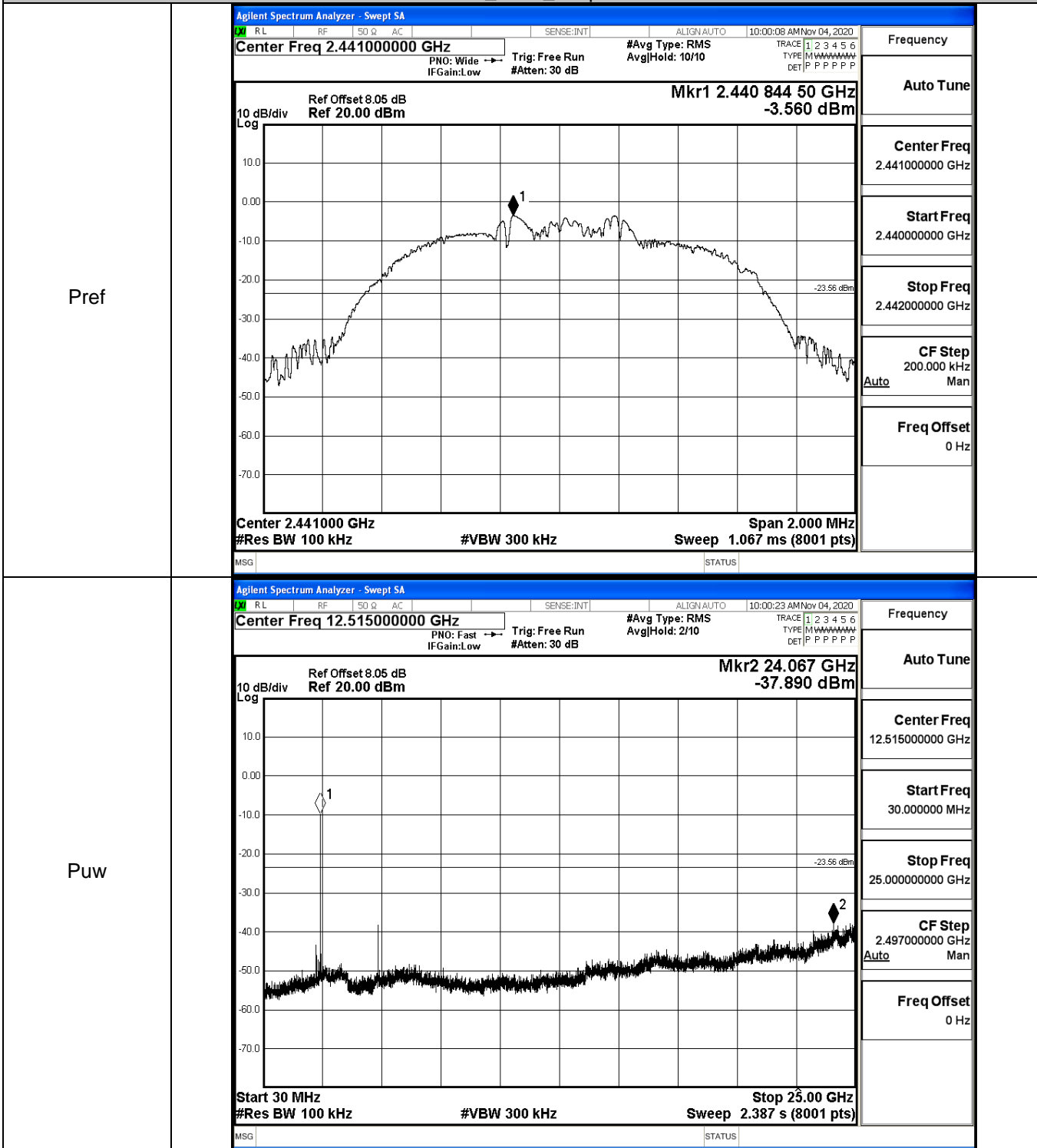
Pref



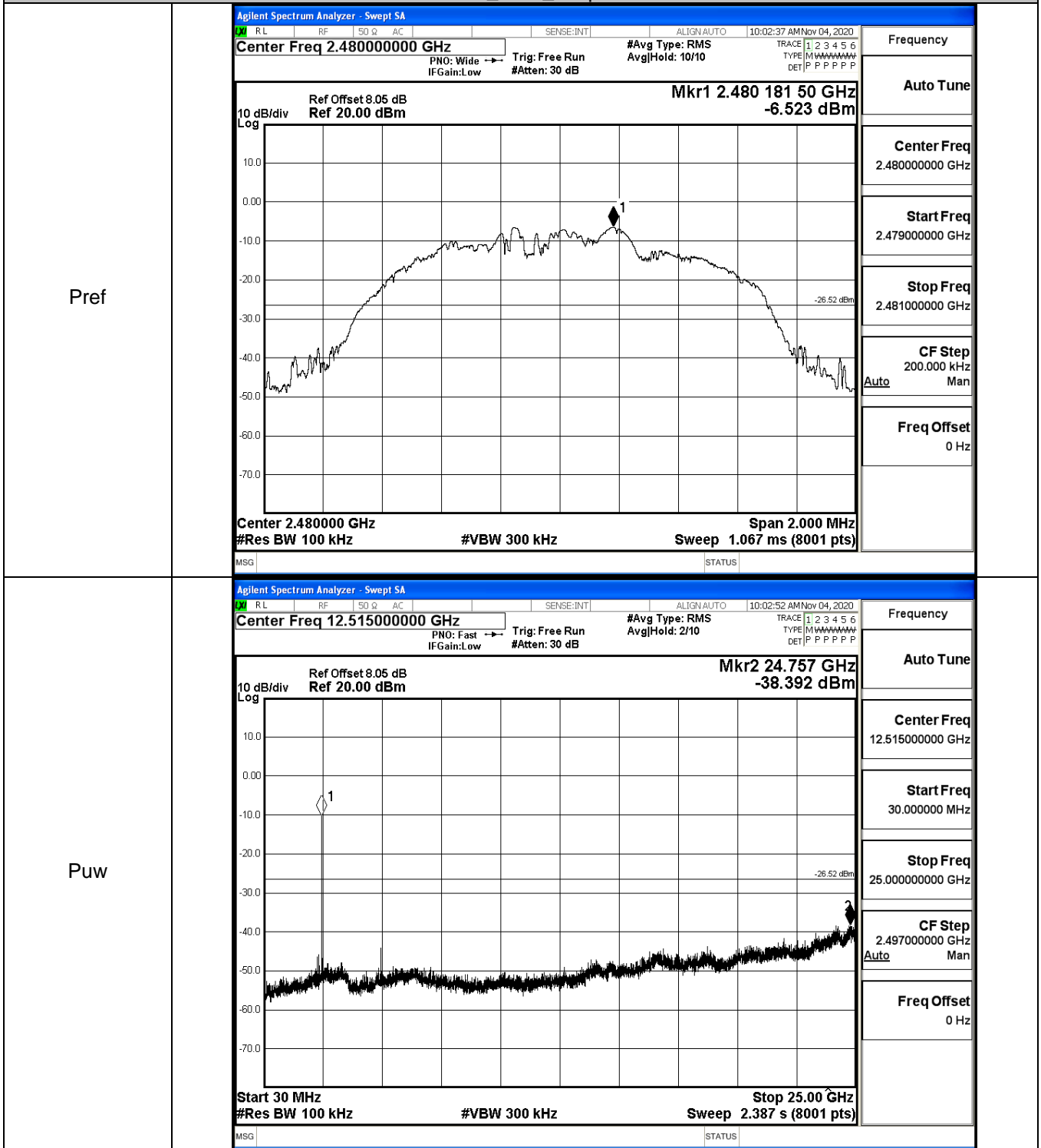
Puw



8DPSK_MCH_Graphs



8DPSK_HCH_Graphs

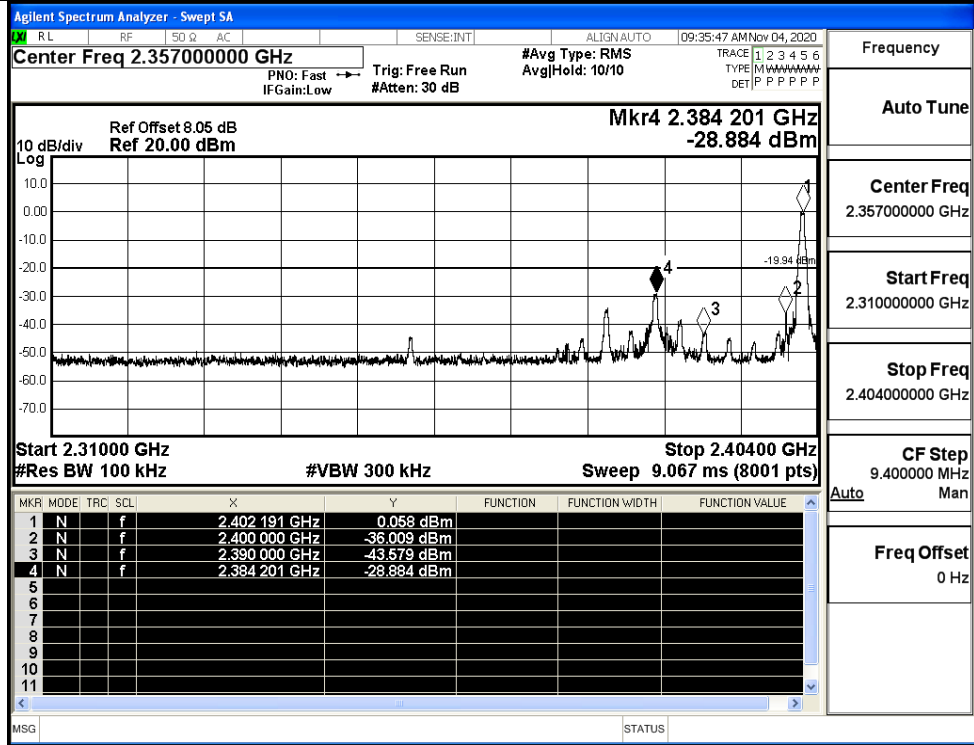


A.7 Band-edge for RF Conducted Emissions

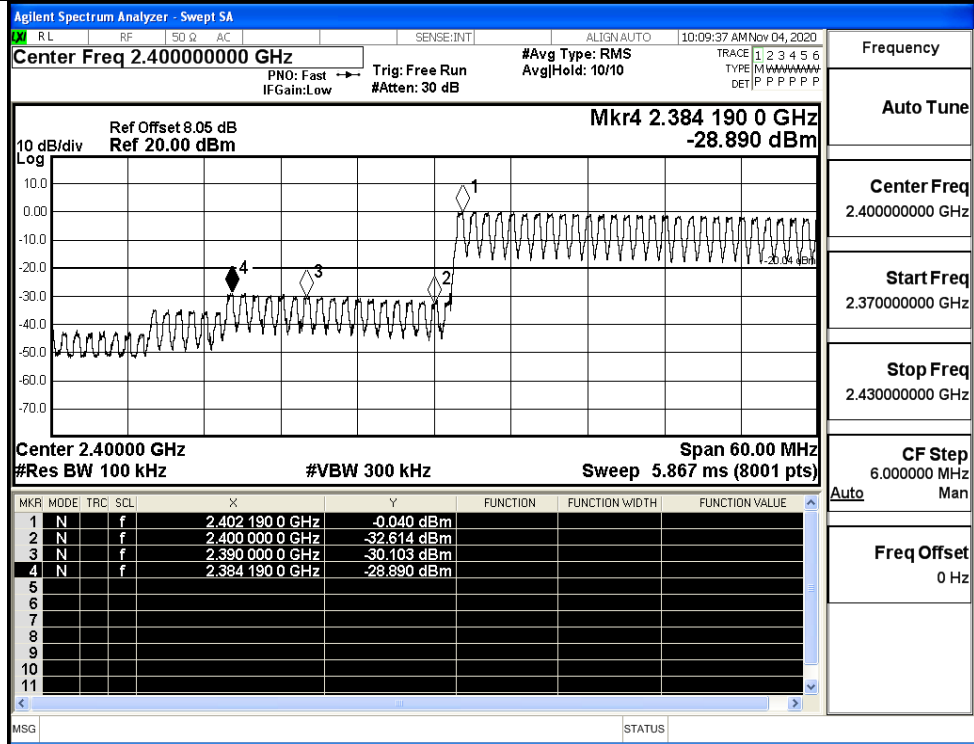
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.058	Off	-28.884	-19.94	PASS
			-0.040	On	-28.890	-20.04	PASS
	HCH	2480	-6.418	Off	-40.875	-26.42	PASS
			-4.674	On	-40.684	-24.67	PASS
$\pi/4$ DQPSK	LCH	2402	-0.551	Off	-30.254	-20.55	PASS
			-0.445	On	-29.947	-20.45	PASS
	HCH	2480	-6.572	Off	-41.312	-26.57	PASS
			-4.690	On	-39.307	-24.69	PASS
8DPSK	LCH	2402	-0.022	Off	-30.704	-20.02	PASS
			-0.227	On	-29.069	-20.23	PASS
	HCH	2480	-6.552	Off	-42.200	-26.55	PASS
			-4.659	On	-40.261	-24.66	PASS

Test Graphs

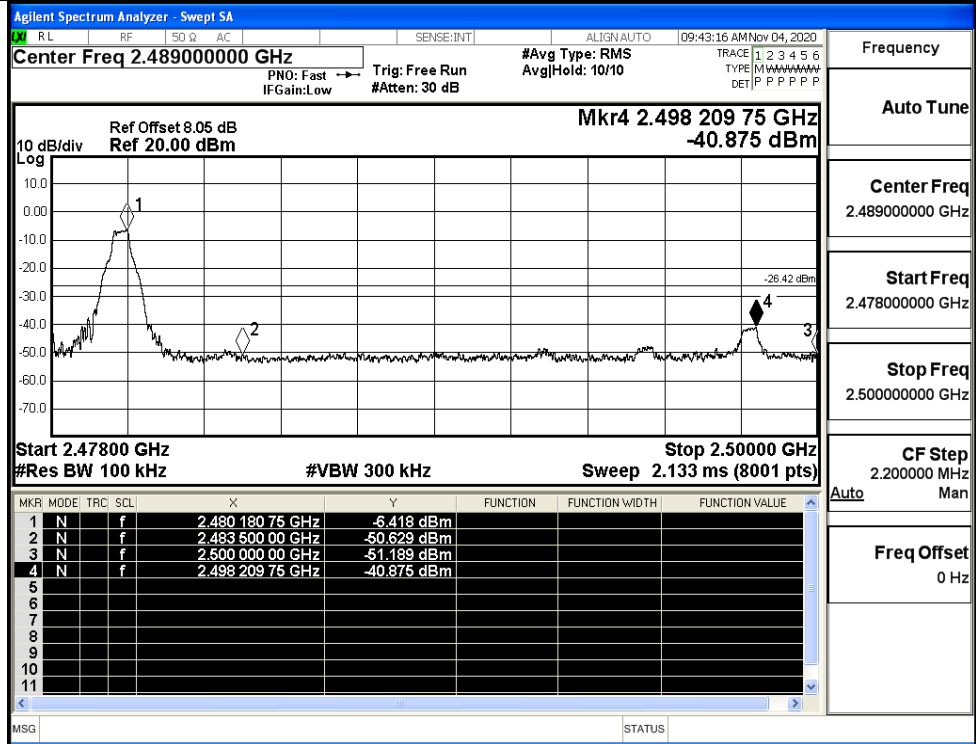
GFSK/LCH/No Hop



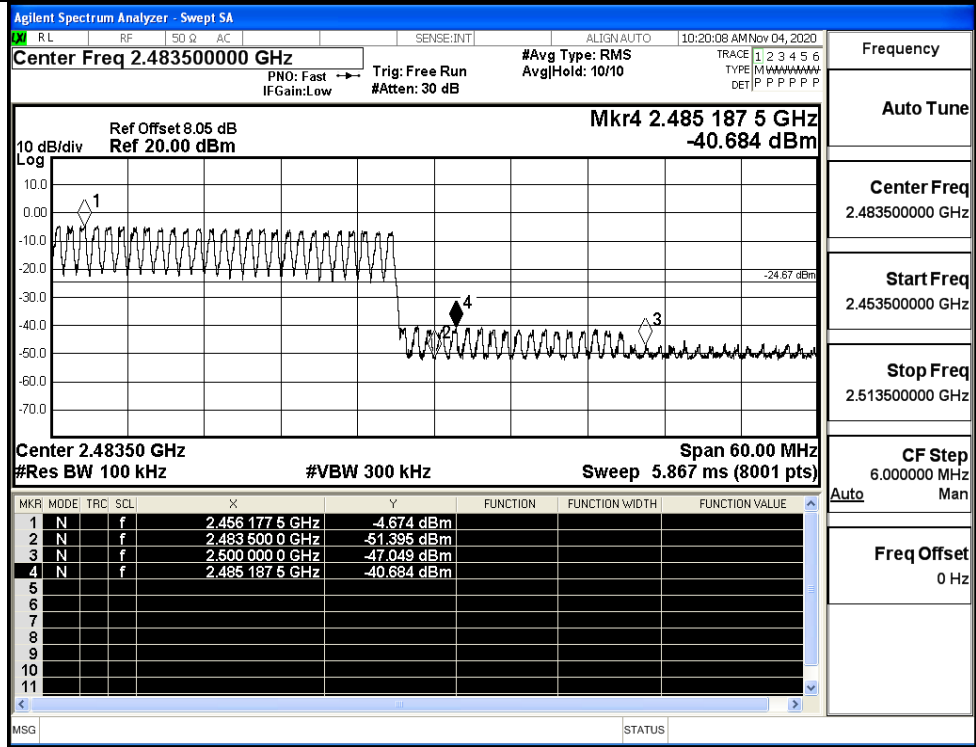
GFSK/LCH/Hop



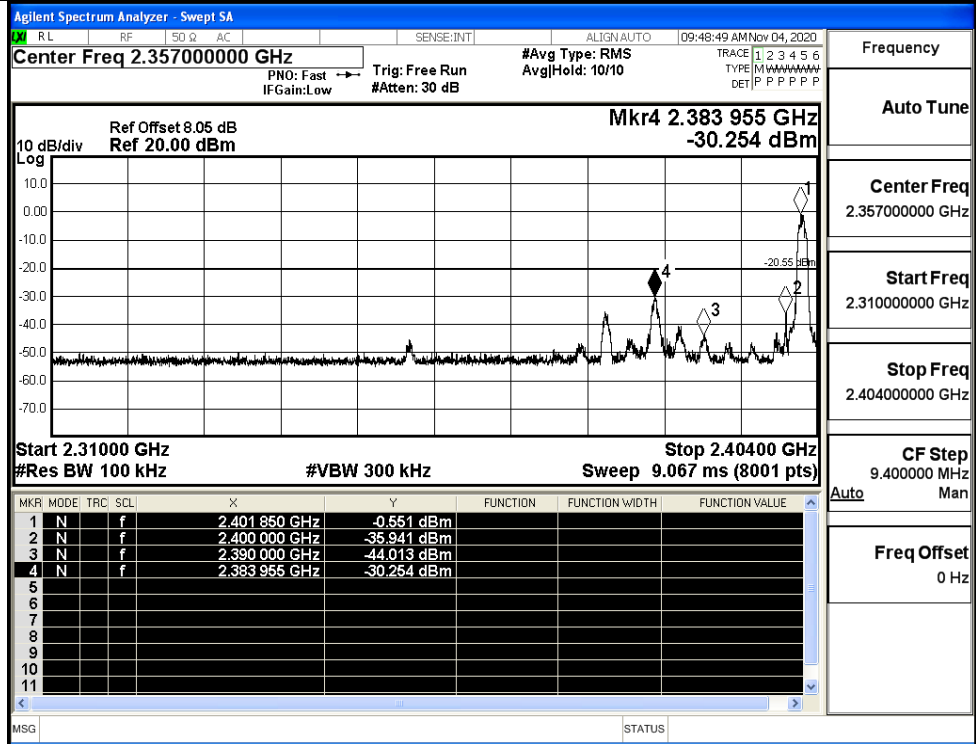
GFSK/HCH/No Hop



GFSK/HCH/Hop

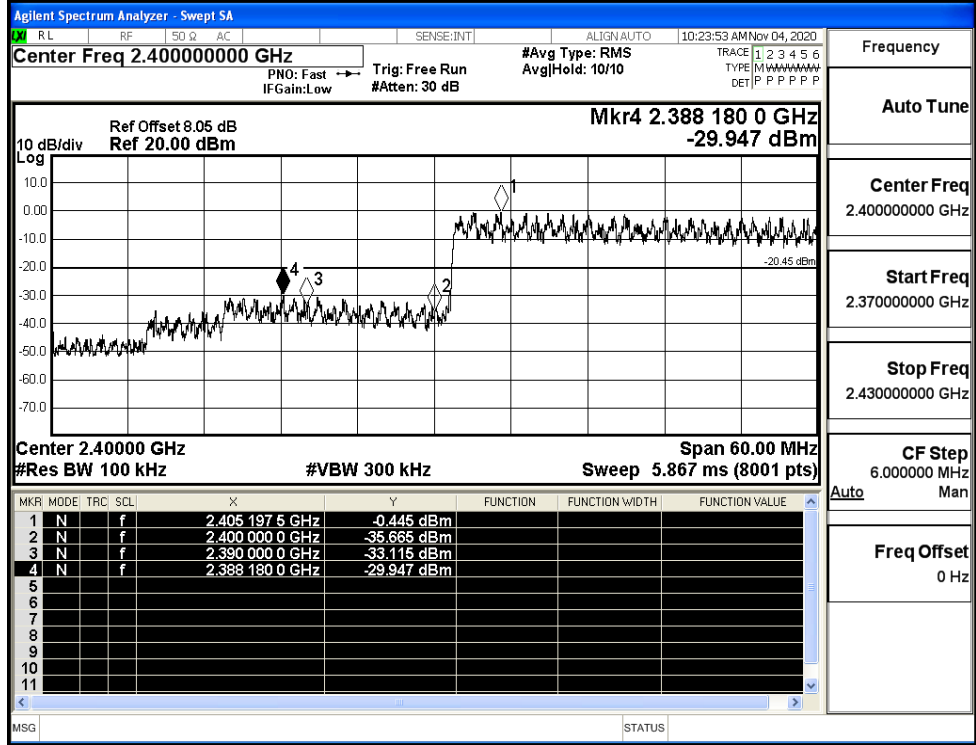


$\pi/4$ DQPSK/LCH/No
Hop



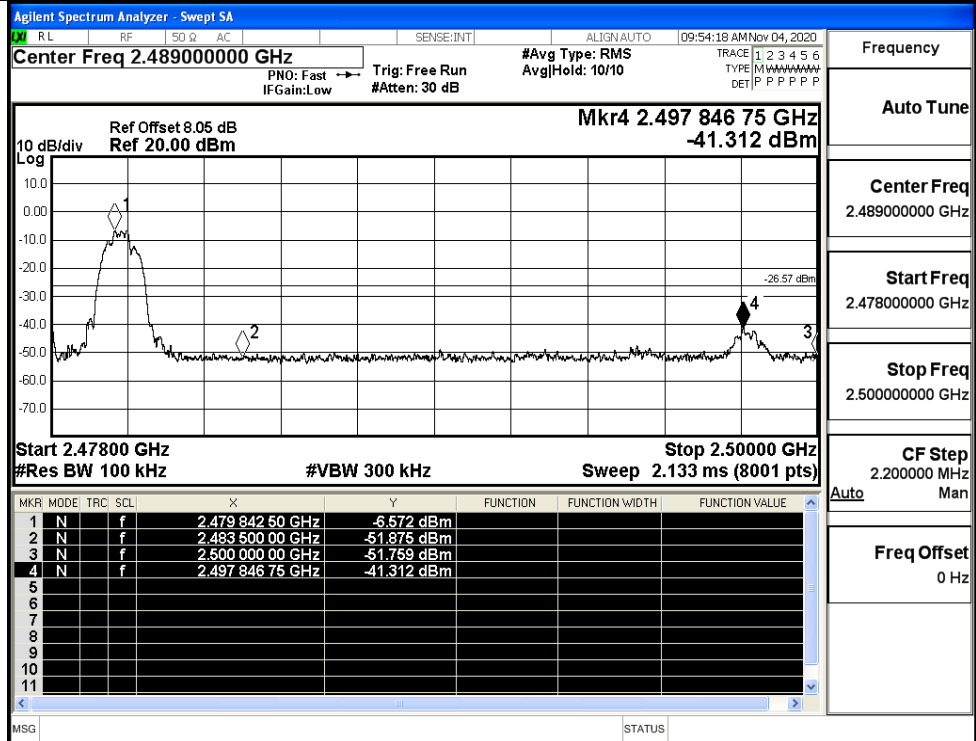
Frequency	2.357000000 GHz
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Freq Offset	0 Hz

$\pi/4$ DQPSK/LCH/Hop



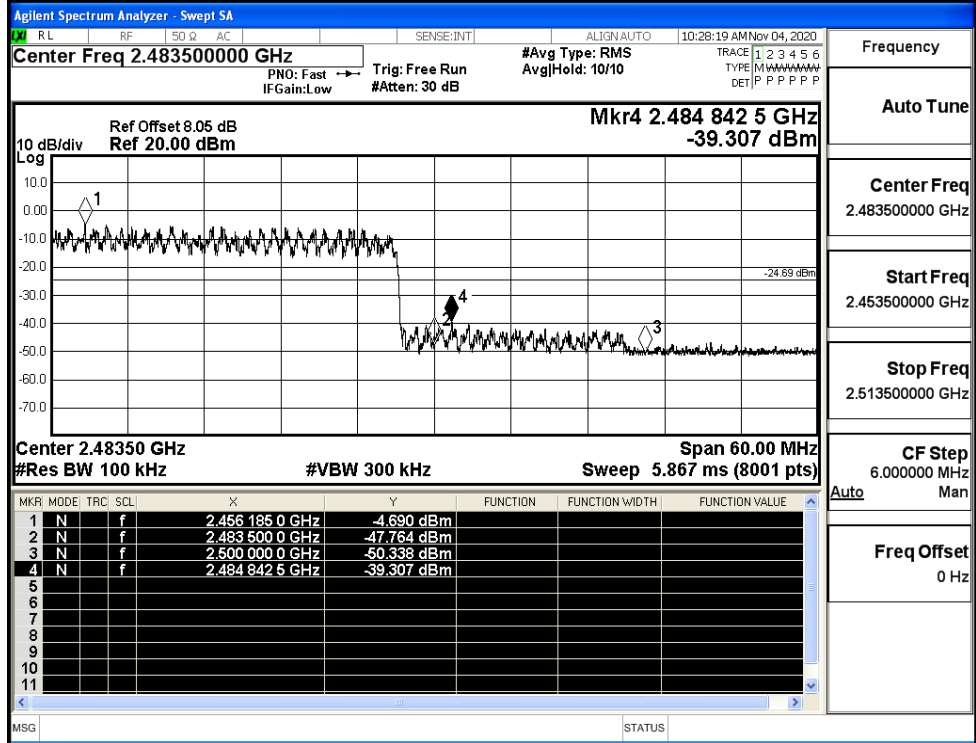
Frequency	2.400000000 GHz
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

π /4DQPSK/HCH/No
Hop



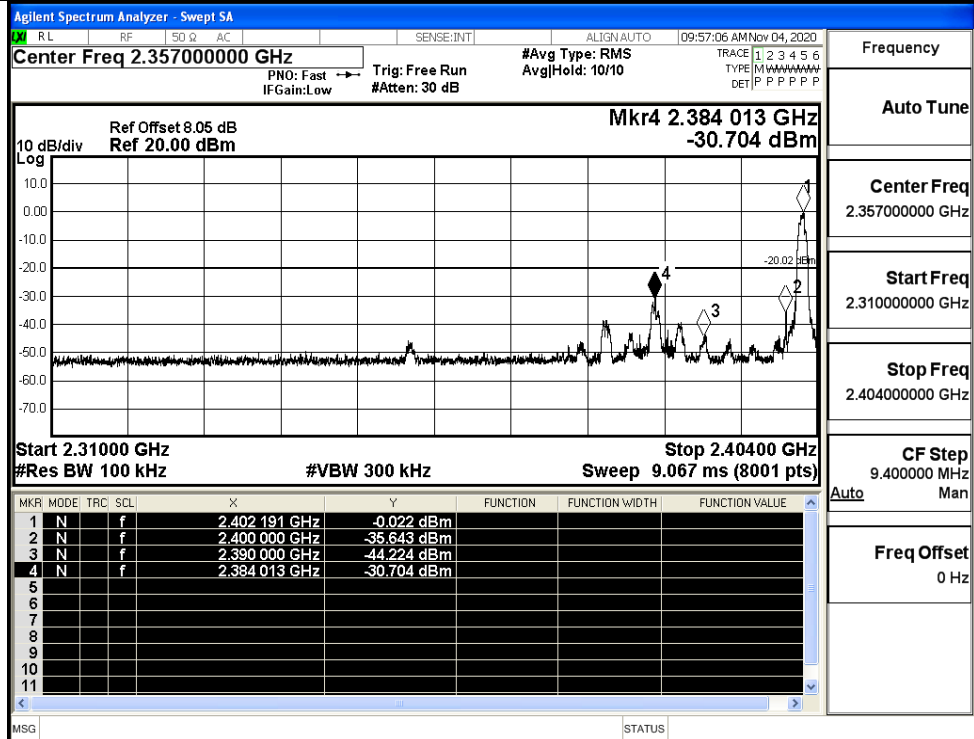
Frequency
Auto Tune
Center Freq
2.489000000 GHz
Start Freq
2.478000000 GHz
Stop Freq
2.500000000 GHz
CF Step
2.200000 MHz
Auto Man
Freq Offset
0 Hz

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

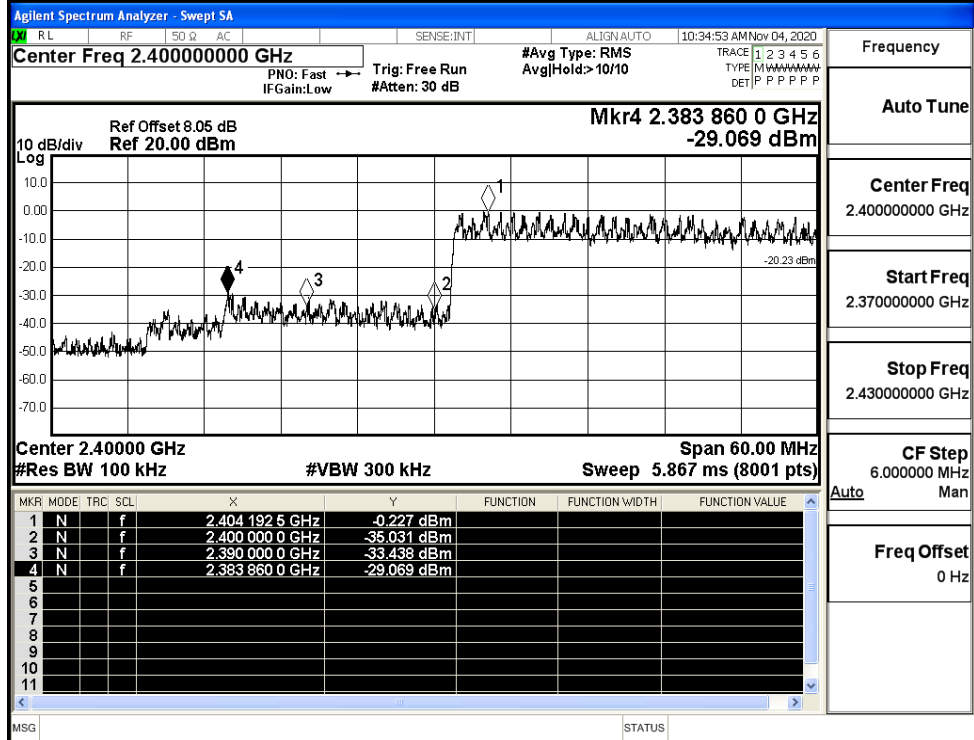
Start Freq
2.310000000 GHz

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

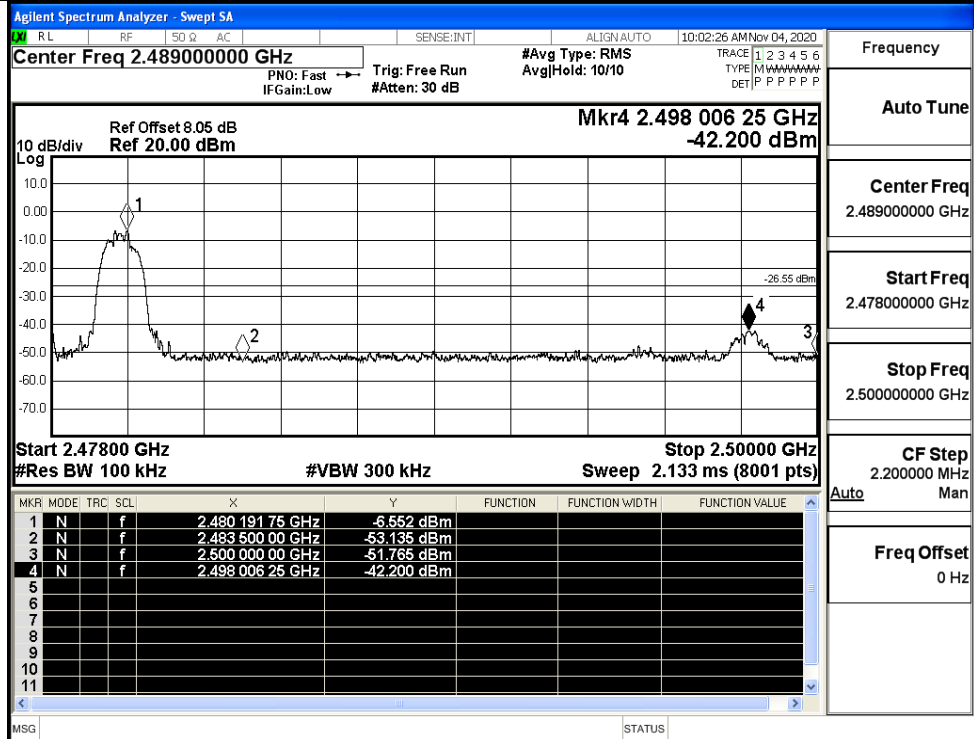
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz

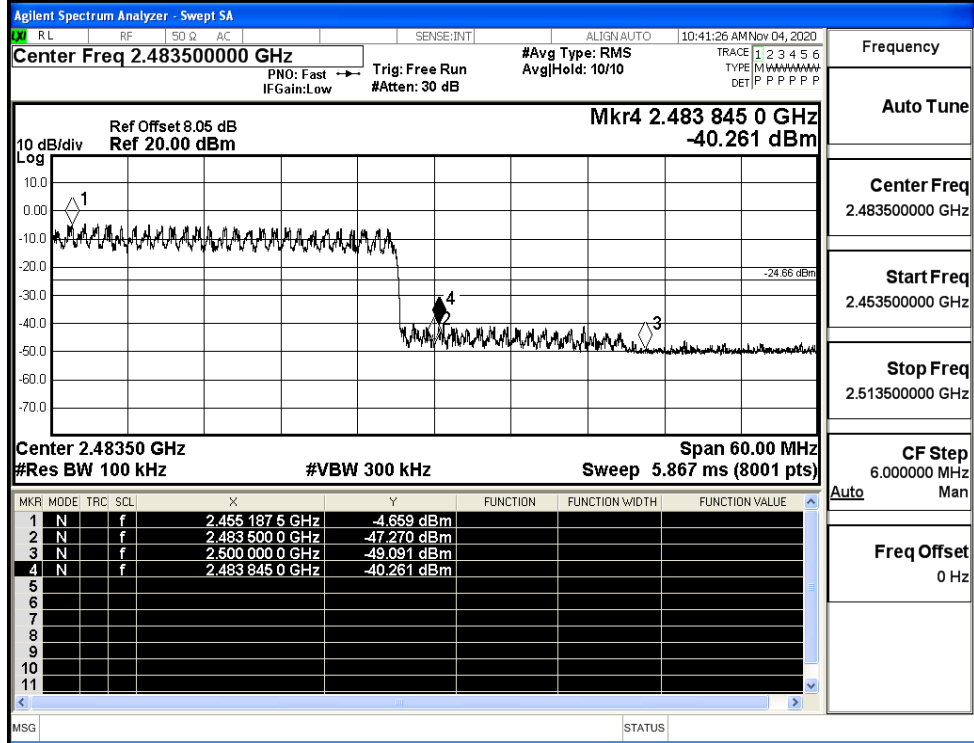
Freq Offset
0 Hz

8DPSK/HCH/No Hop



Frequency
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

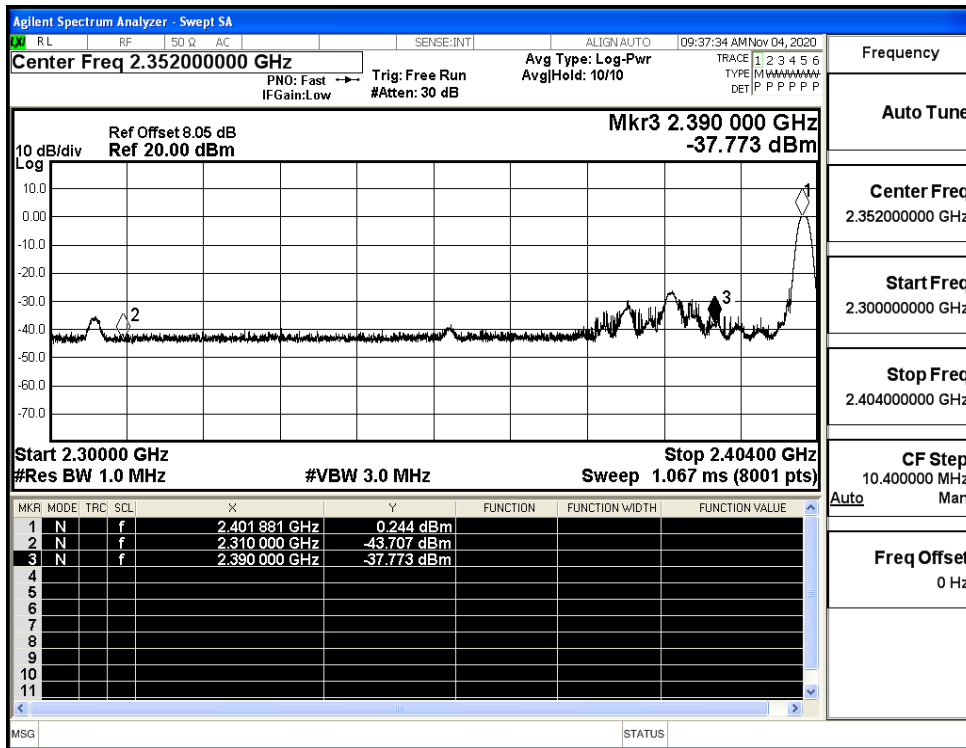


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

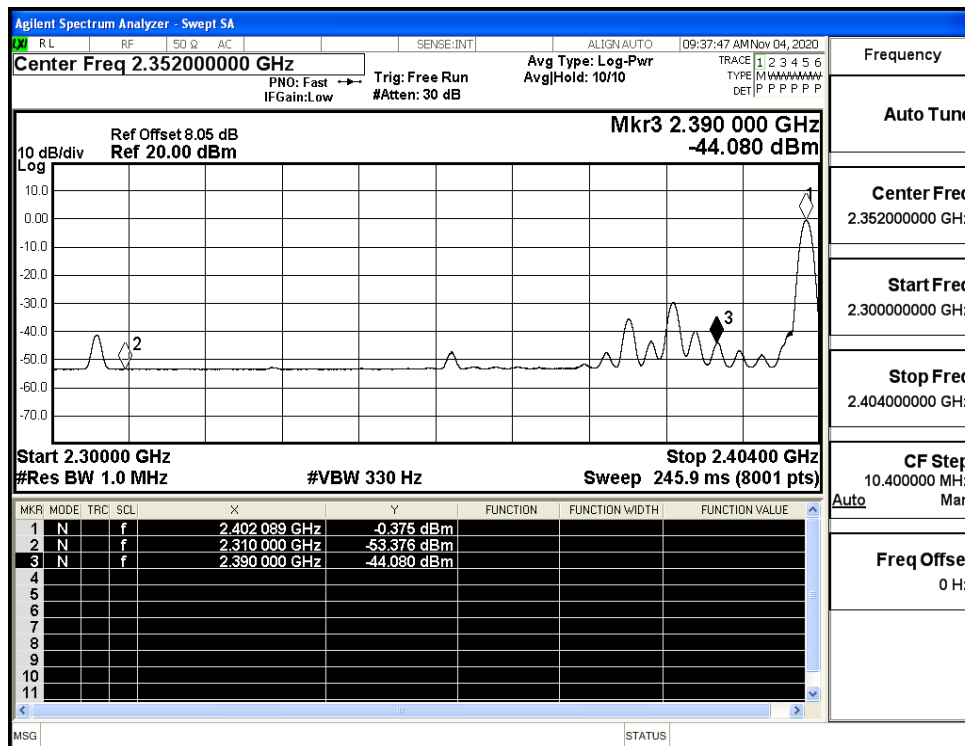
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.71	2.0	0	53.55	PEAK	74	PASS
	Off	2310.0	-53.38	2.0	0	43.88	AV	54	PASS
	Off	2390.0	-37.77	2.0	0	59.49	PEAK	74	PASS
	Off	2390.0	-44.08	2.0	0	53.18	AV	54	PASS
	Off	2483.5	-42.82	2.0	0	54.44	PEAK	74	PASS
	Off	2483.5	-52.03	2.0	0	45.23	AV	54	PASS
	Off	2500.0	-41.92	2.0	0	55.34	PEAK	74	PASS
	Off	2500.0	-52.18	2.0	0	45.08	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.71	2.0	0	54.55	PEAK	74	PASS
	Off	2310.0	-53.42	2.0	0	43.84	AV	54	PASS
	Off	2390.0	-39.59	2.0	0	57.67	PEAK	74	PASS
	Off	2390.0	-47.00	2.0	0	50.26	AV	54	PASS
	Off	2483.5	-42.83	2.0	0	54.43	PEAK	74	PASS
	Off	2483.5	-52.31	2.0	0	44.95	AV	54	PASS
	Off	2500.0	-41.44	2.0	0	55.82	PEAK	74	PASS
	Off	2500.0	-52.07	2.0	0	45.19	AV	54	PASS
8DPSK	Off	2310.0	-42.37	2.0	0	54.89	PEAK	74	PASS
	Off	2310.0	-53.48	2.0	0	43.78	AV	54	PASS
	Off	2390.0	-39.28	2.0	0	57.98	PEAK	74	PASS
	Off	2390.0	-47.25	2.0	0	50.01	AV	54	PASS
	Off	2483.5	-41.69	2.0	0	55.57	PEAK	74	PASS
	Off	2483.5	-52.33	2.0	0	44.93	AV	54	PASS
	Off	2500.0	-41.14	2.0	0	56.12	PEAK	74	PASS
	Off	2500.0	-52.22	2.0	0	45.04	AV	54	PASS

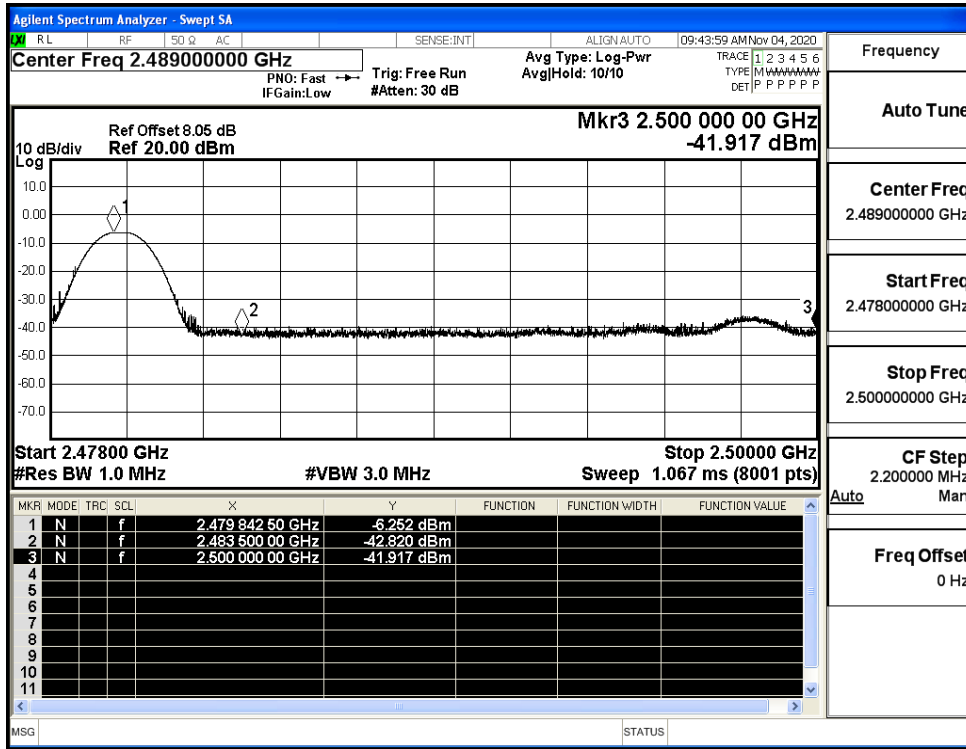
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



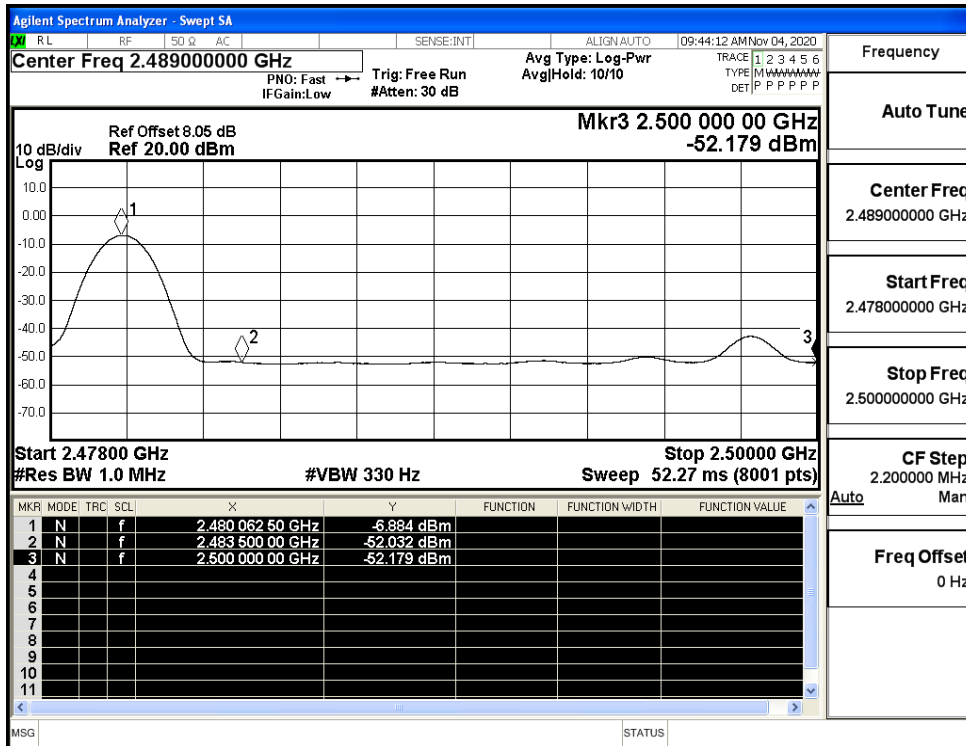
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



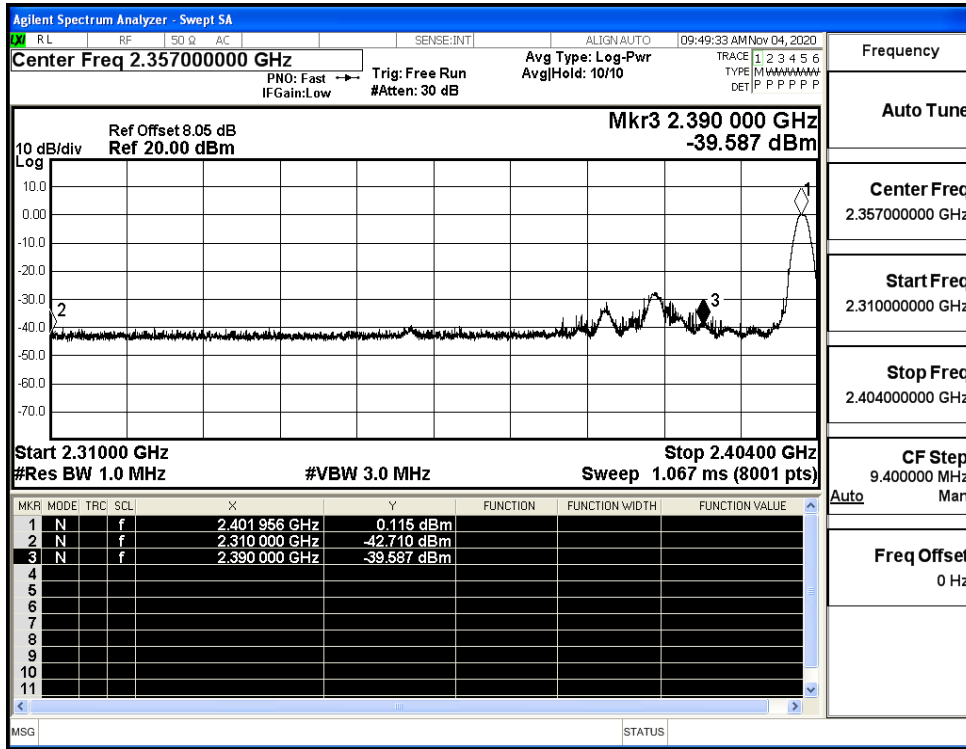
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



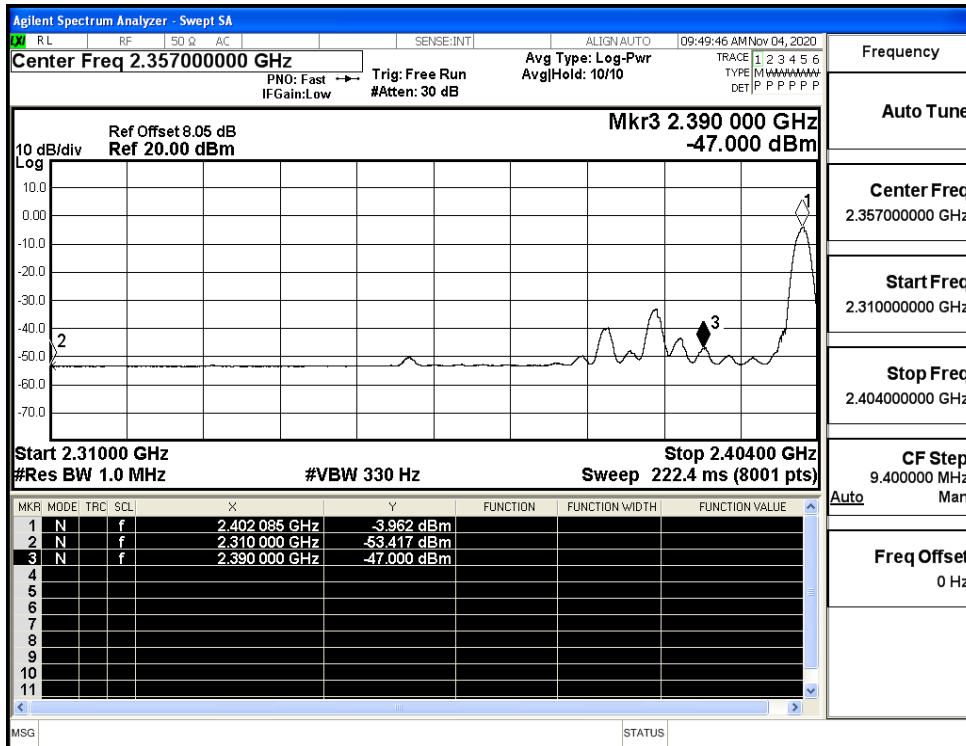
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



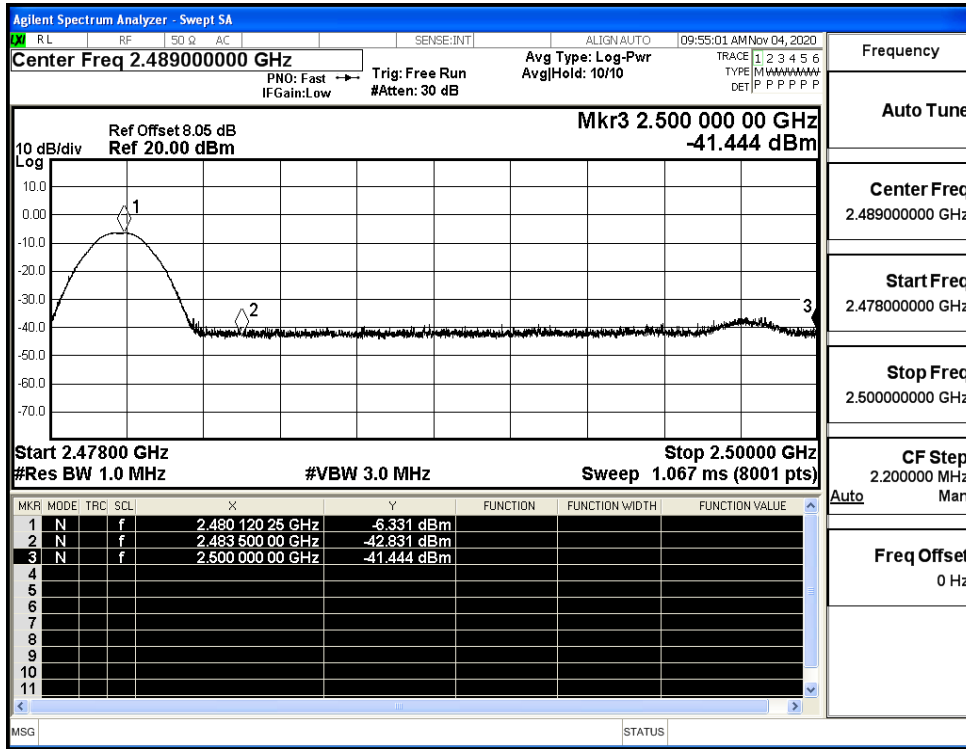
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



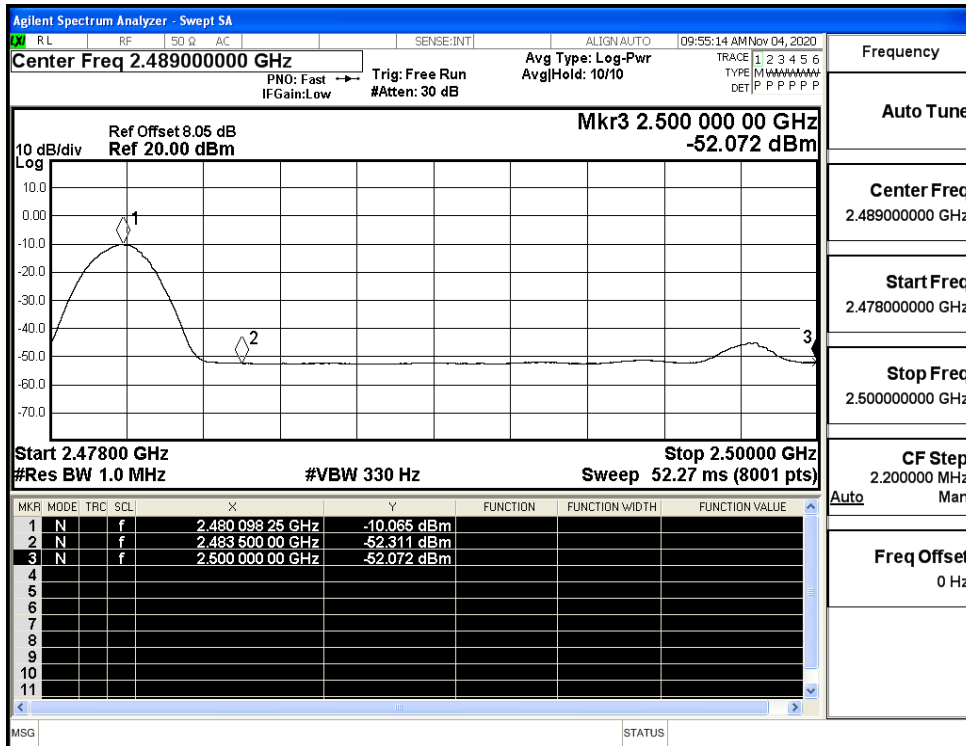
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



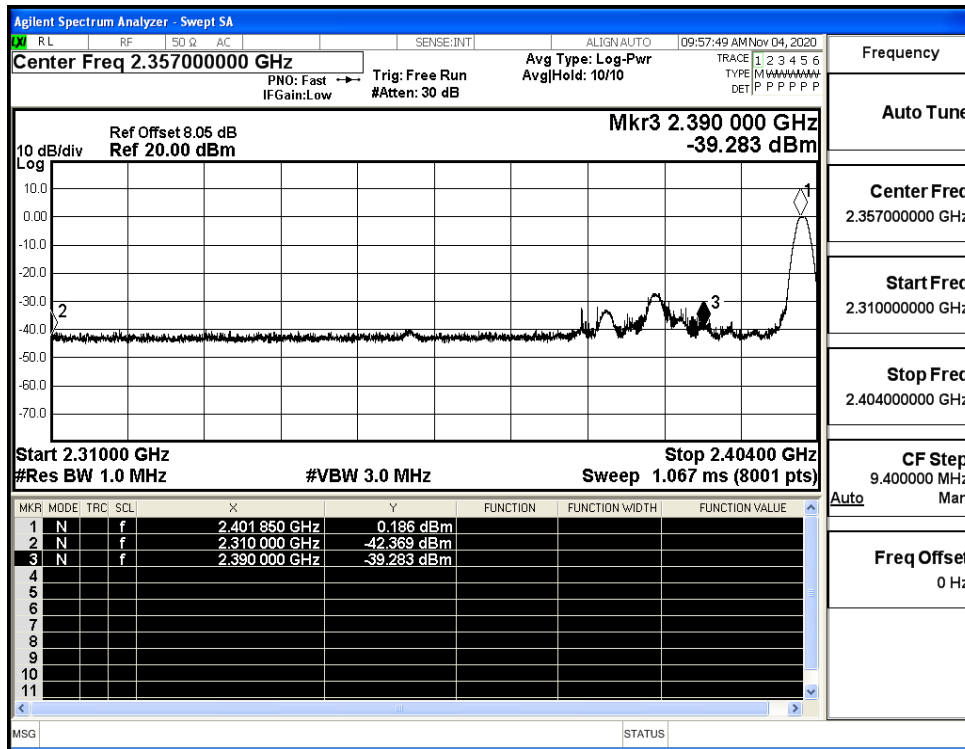
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



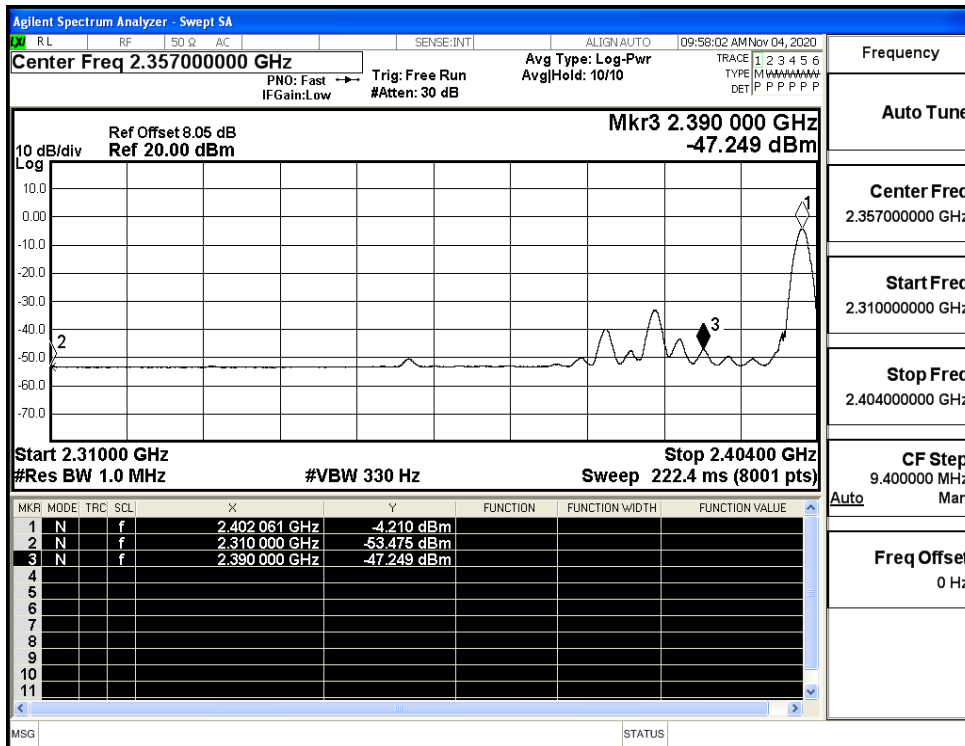
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



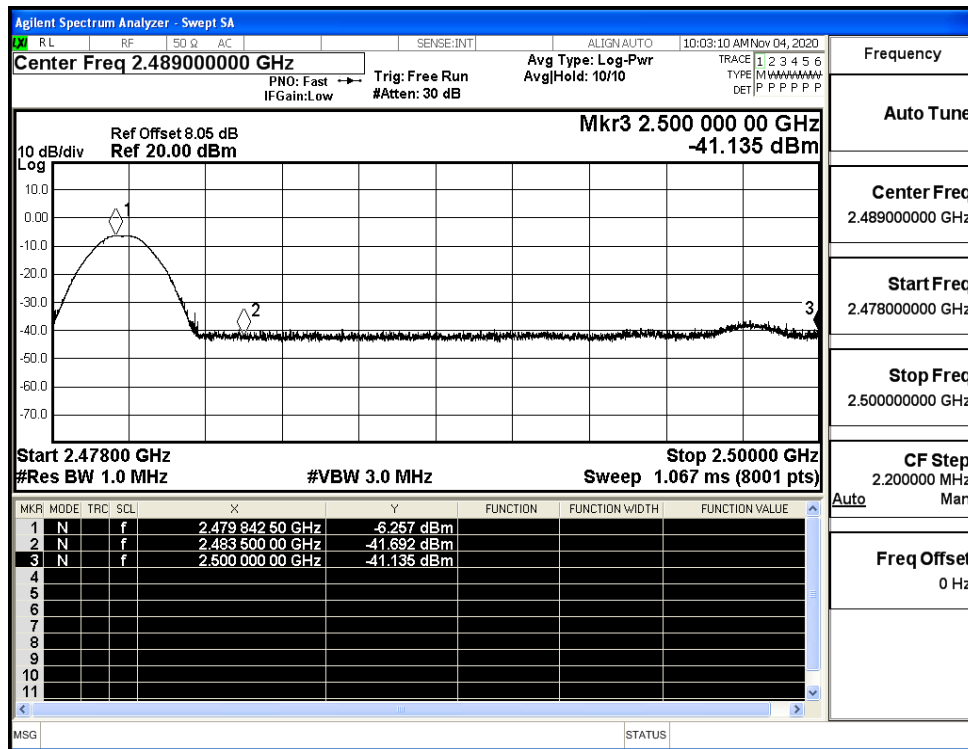
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

