

Appendix A

RF Test Data for BT V4.0(BDR/EDR) (Conducted Measurement)

Product Name: Projector

Trade Mark: N/A

Test Model: F-206

Environmental Conditions

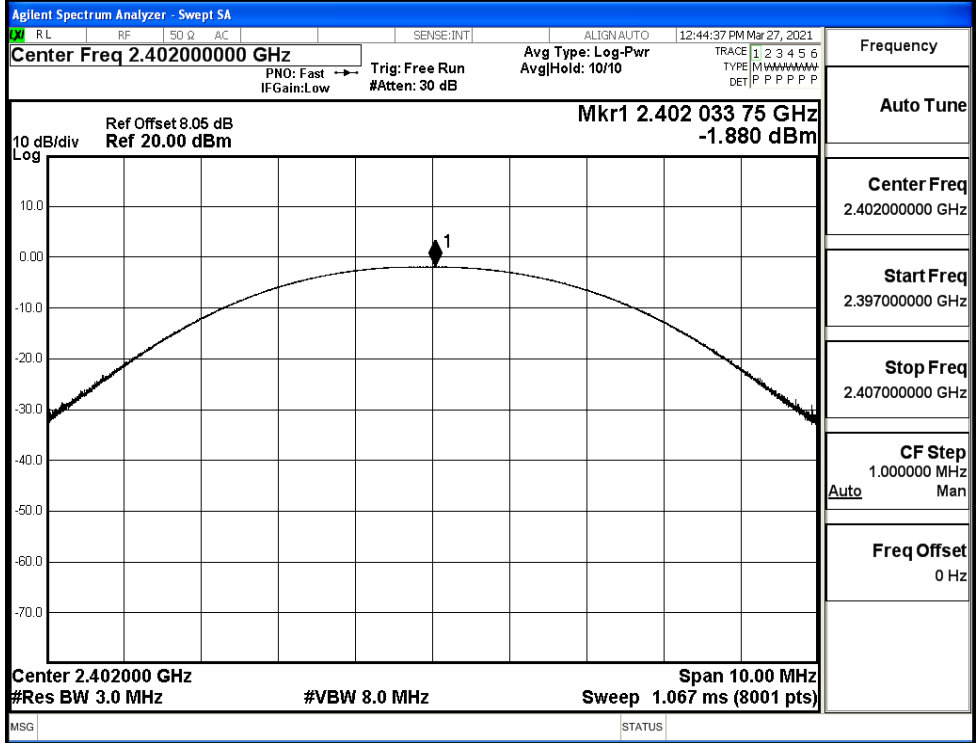
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

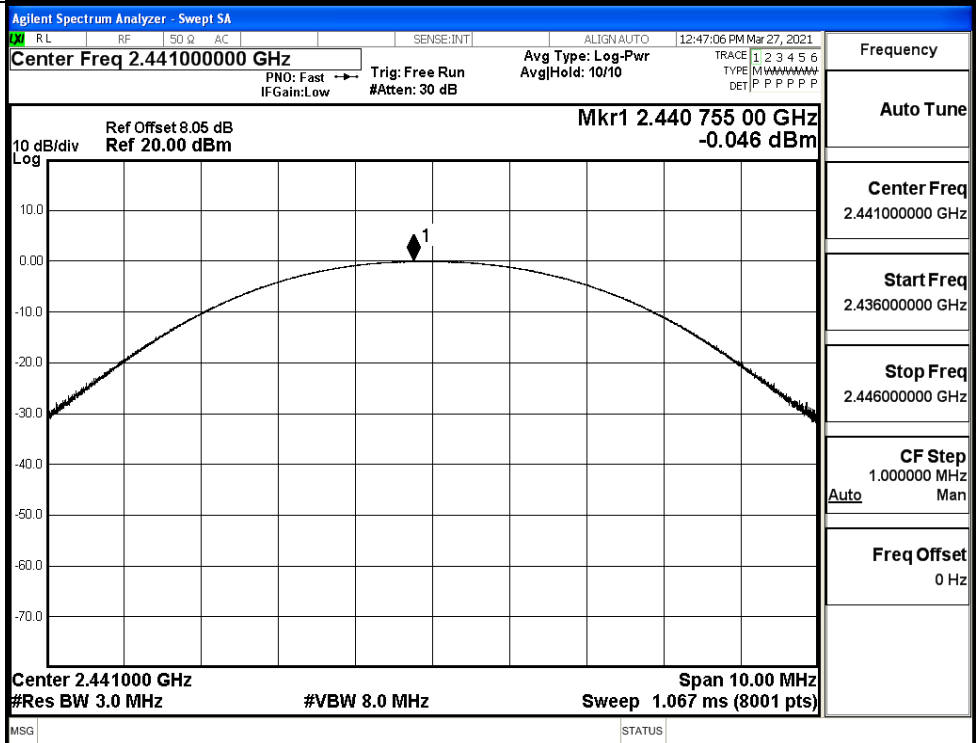
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.880	21	PASS
	MCH	-0.046	21	PASS
	HCH	-0.242	21	PASS
$\pi/4$ DQPSK	LCH	0.366	21	PASS
	MCH	2.142	21	PASS
	HCH	1.956	21	PASS
8DPSK	LCH	0.888	21	PASS
	MCH	-0.323	21	PASS
	HCH	-0.249	21	PASS

Test Graphs

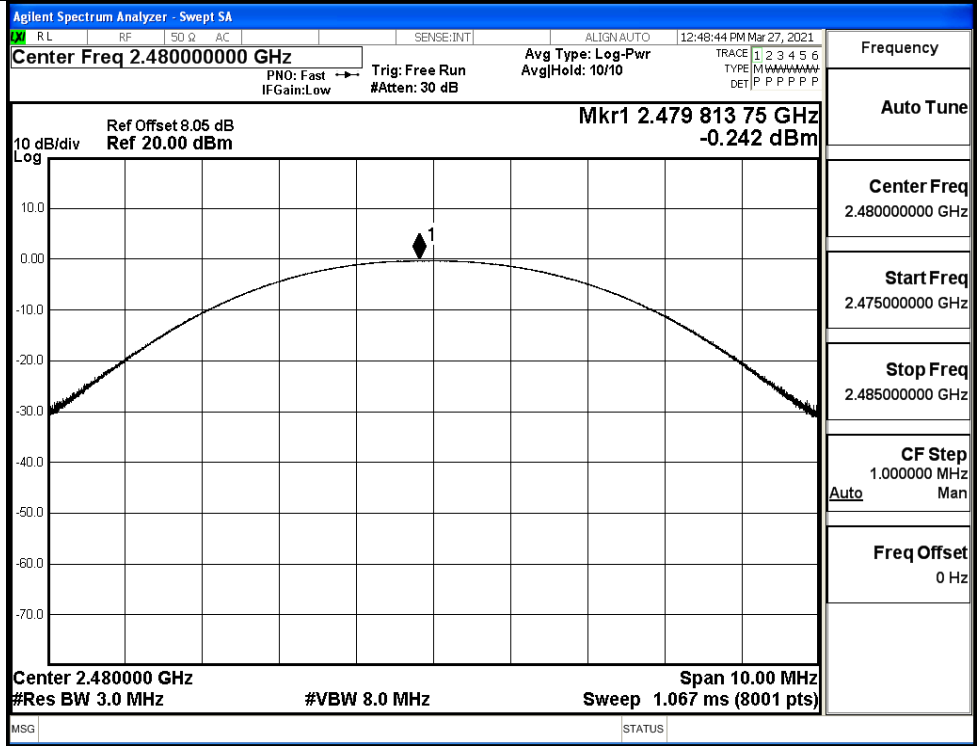
GFSK/LCH



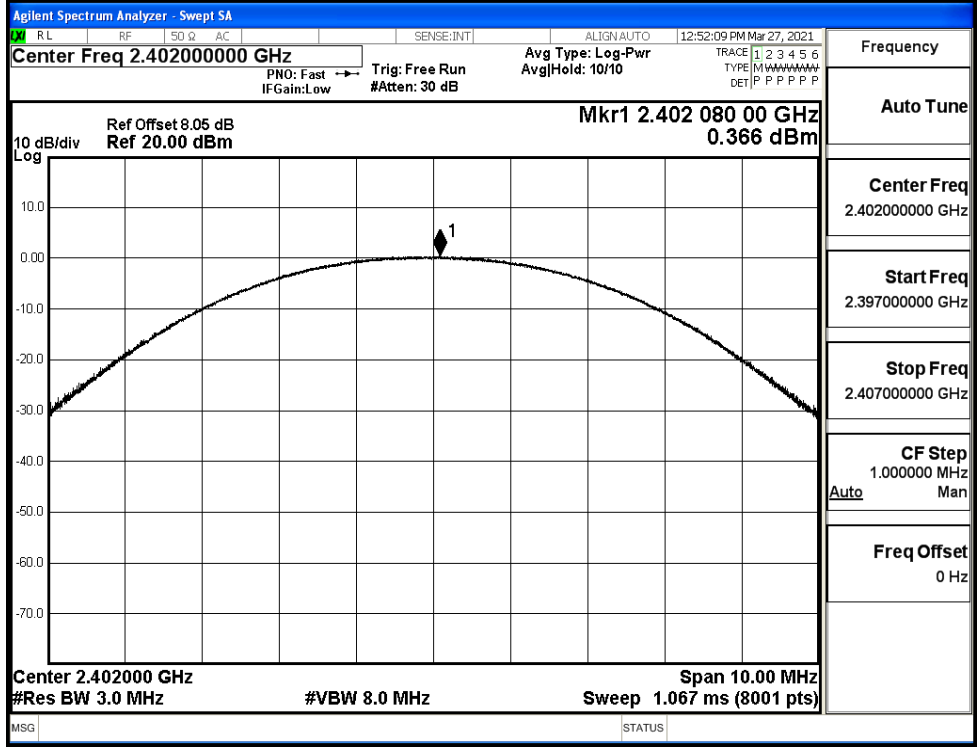
GFSK/MCH



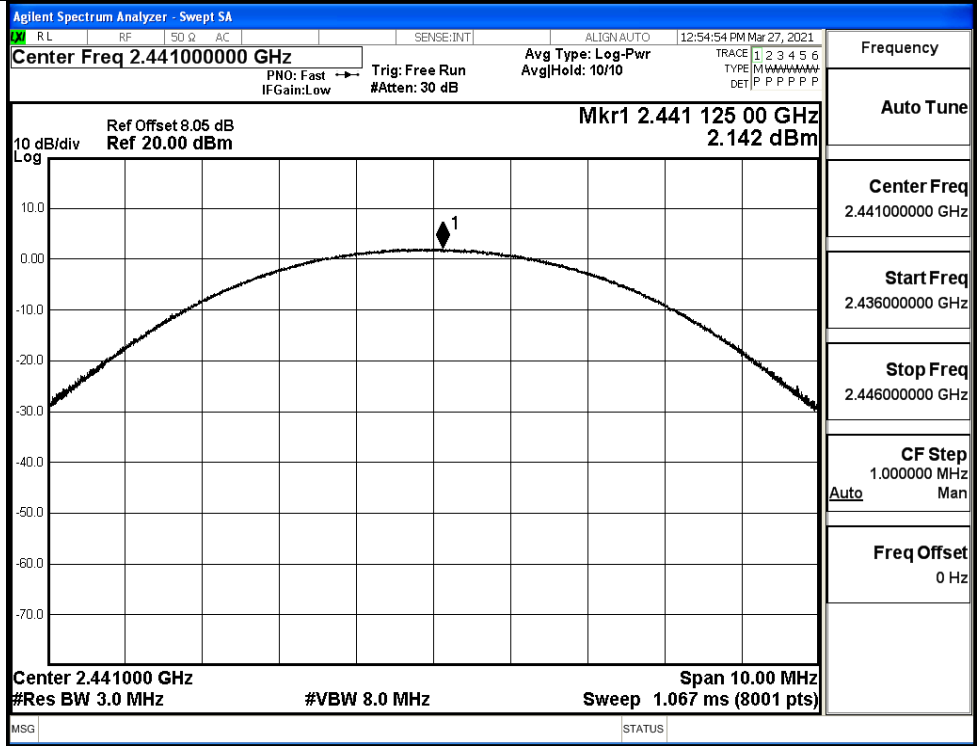
GFSK/HCH



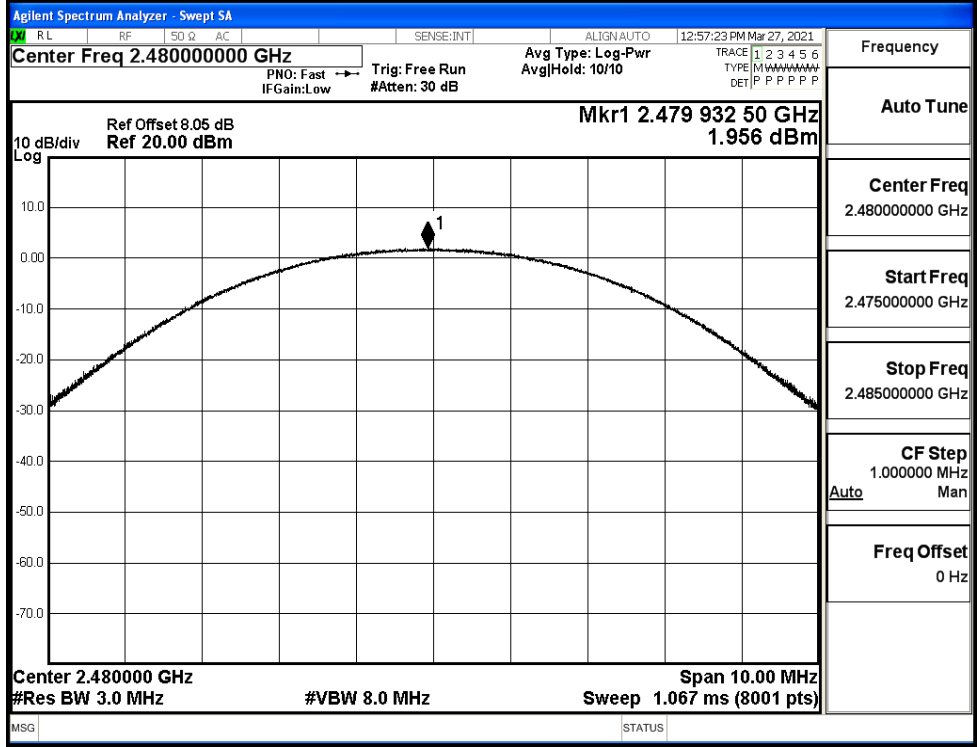
π /4DQPSK/LCH



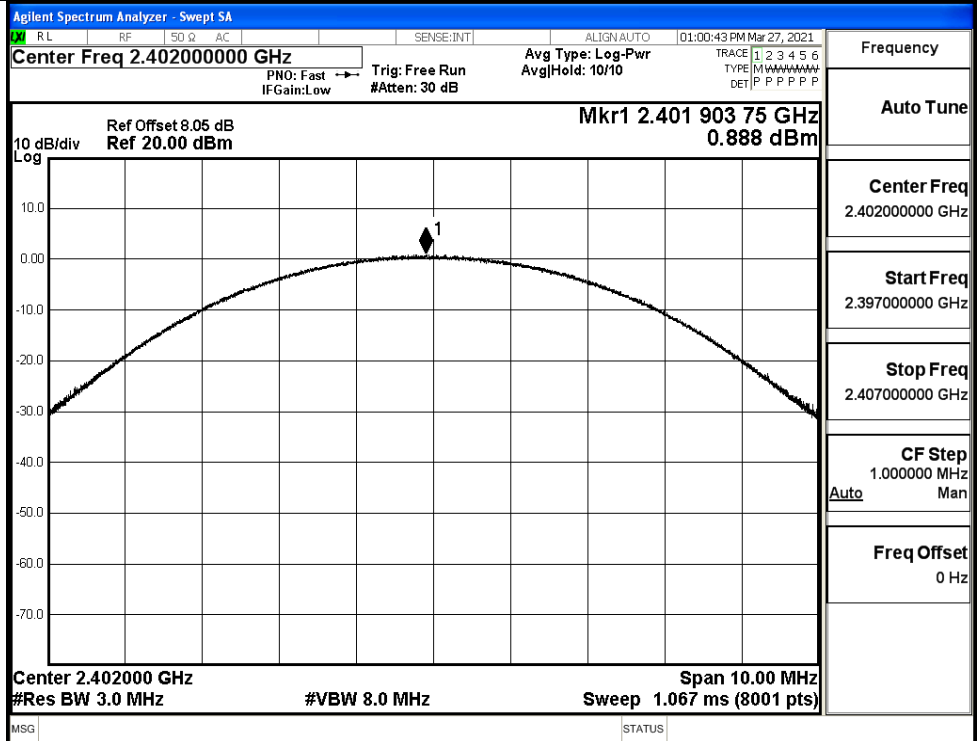
$\pi/4$ DQPSK/MCH



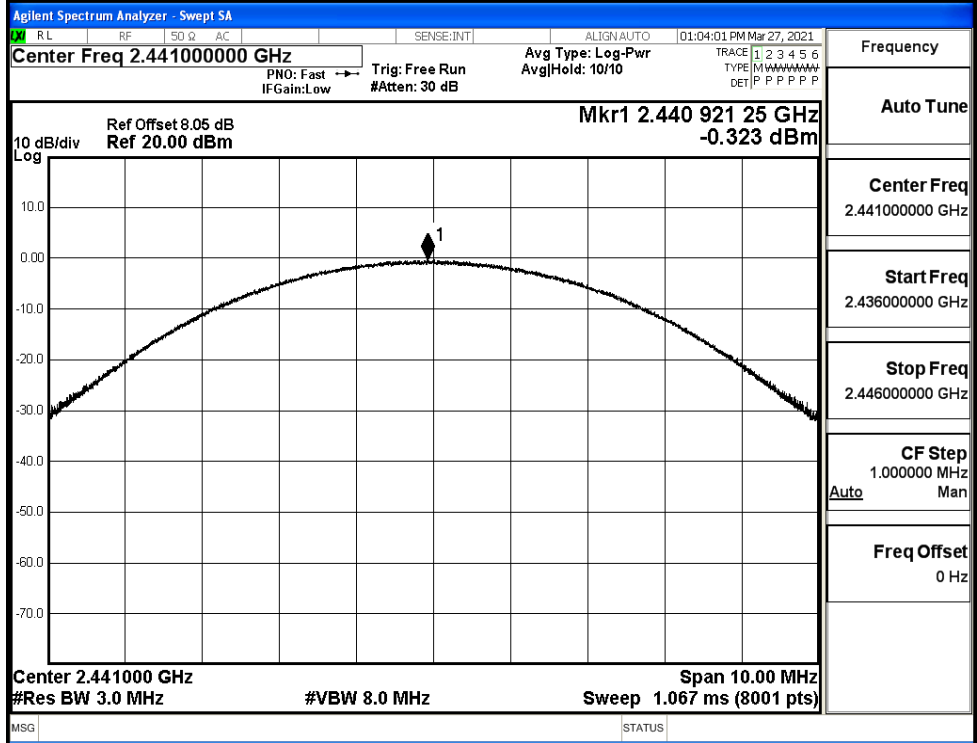
$\pi/4$ DQPSK/HCH



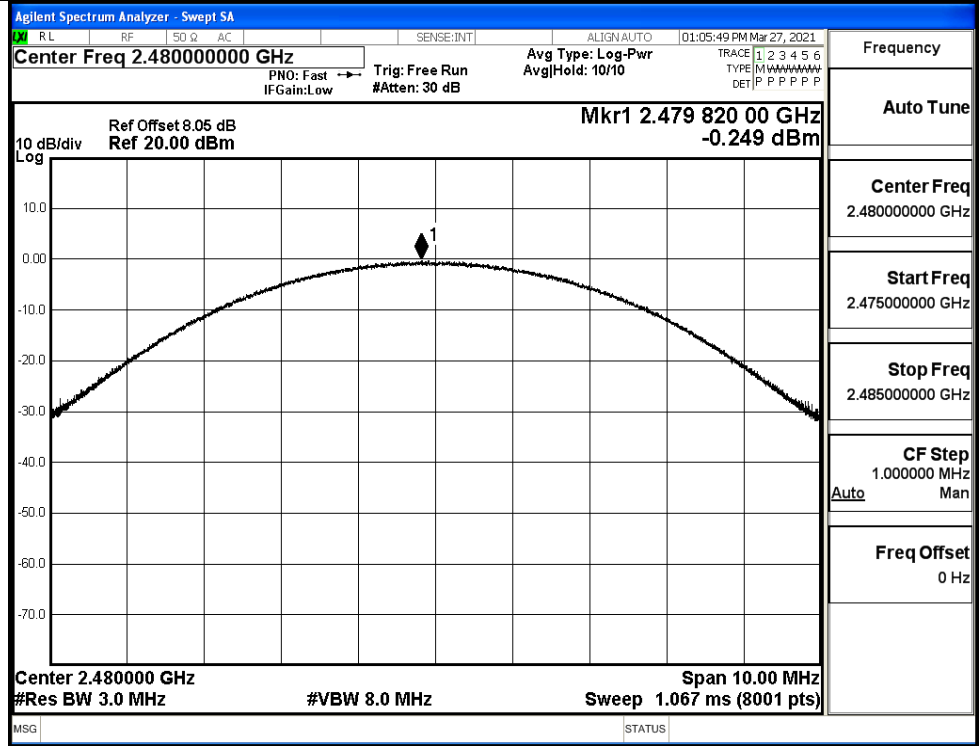
8DPSK/LCH



8DPSK/MCH

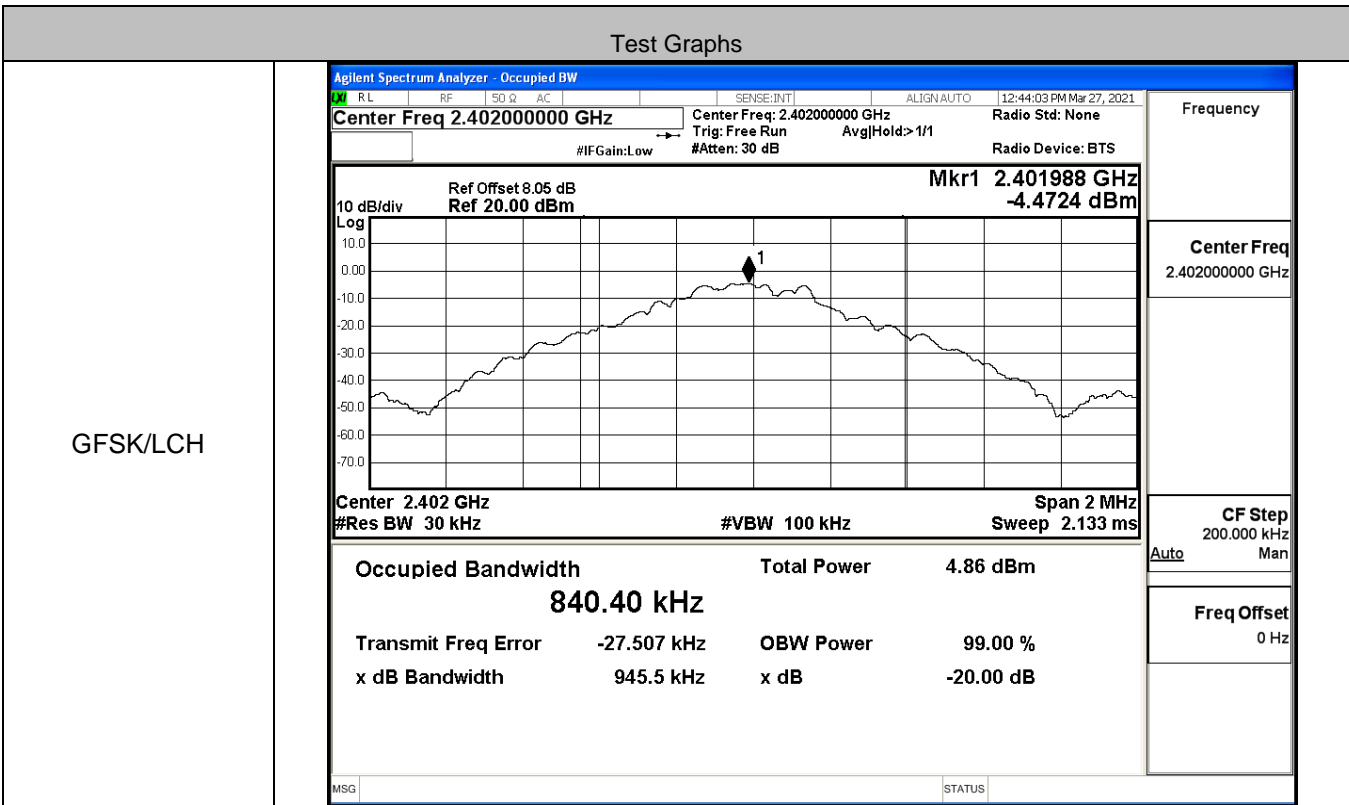


8DPSK/HCH

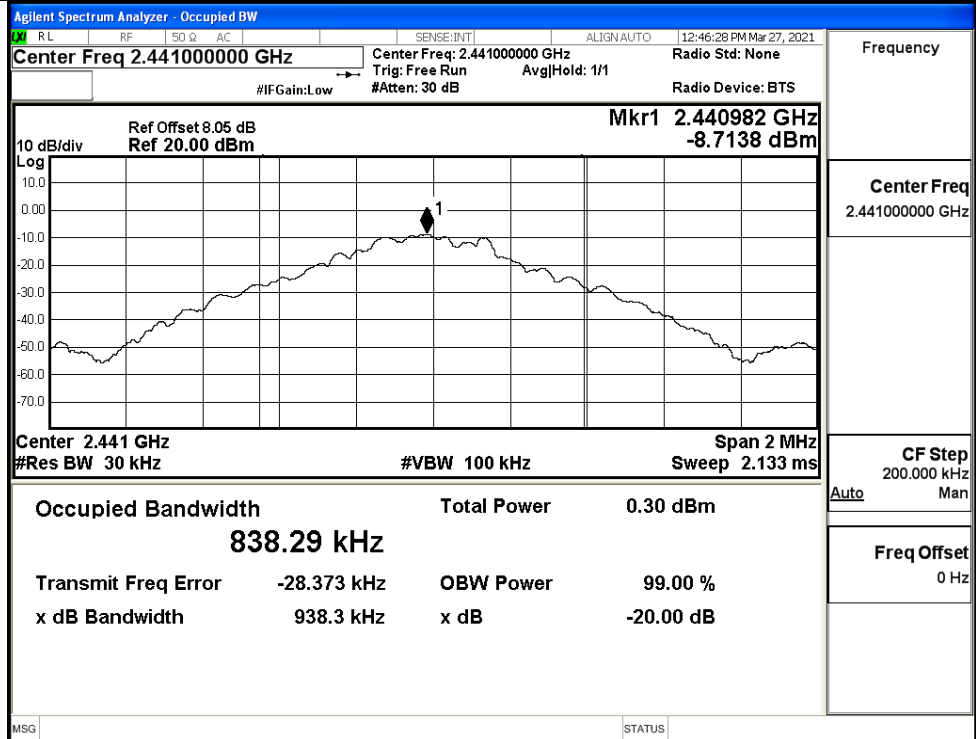


A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9455	Not Specified	PASS
	MCH	0.9383	Not Specified	PASS
	HCH	0.9357	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.318	Not Specified	PASS
	MCH	1.313	Not Specified	PASS
	HCH	1.321	Not Specified	PASS
8DPSK	LCH	1.313	Not Specified	PASS
	MCH	1.308	Not Specified	PASS
	HCH	1.309	Not Specified	PASS

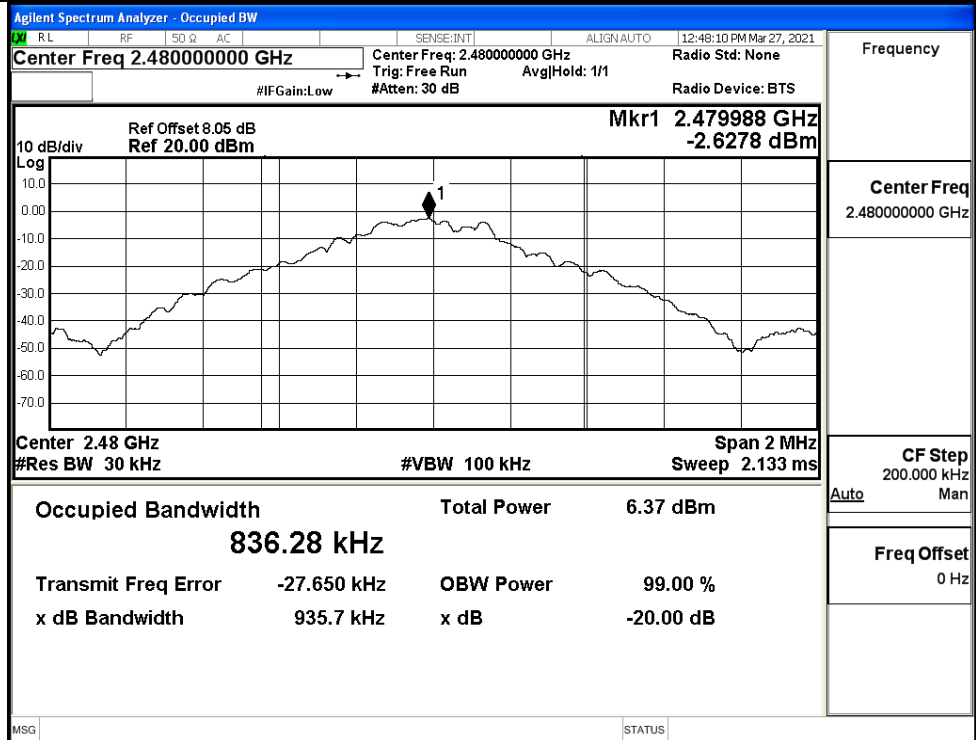


GFSK/MCH



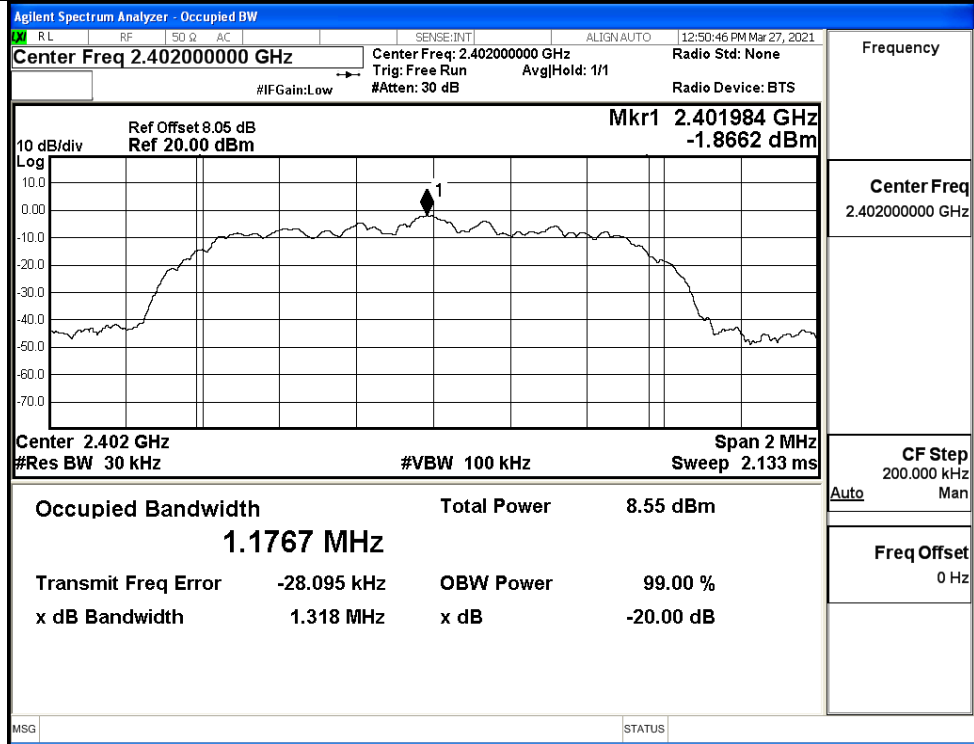
Frequency	2.441000000 GHz
Center Freq	2.441000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH

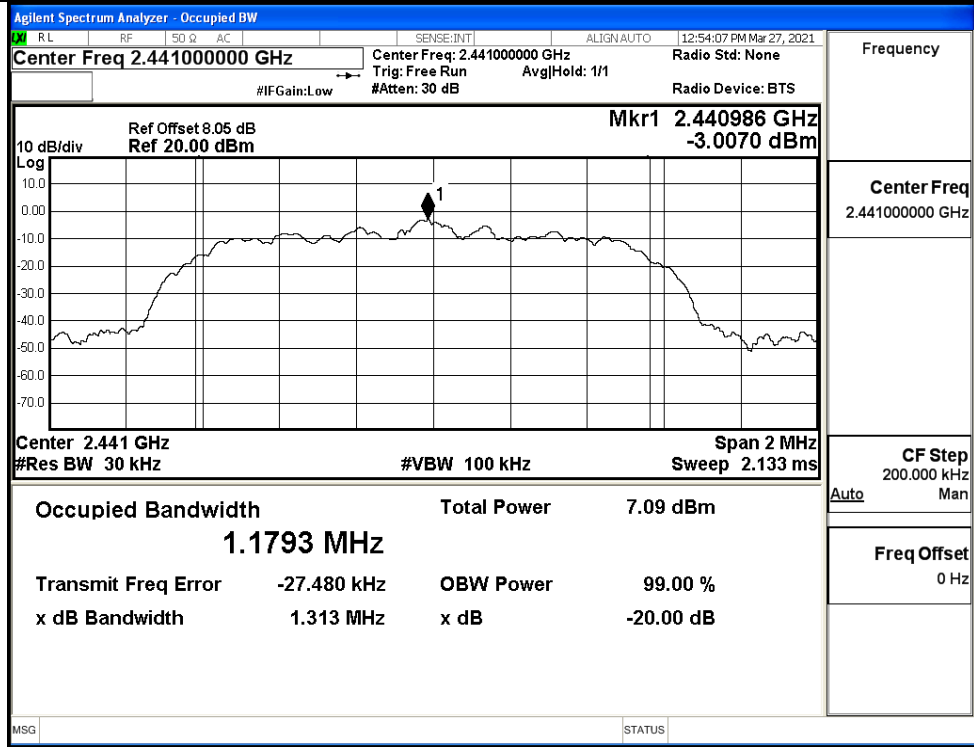


Frequency	2.480000000 GHz
Center Freq	2.480000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

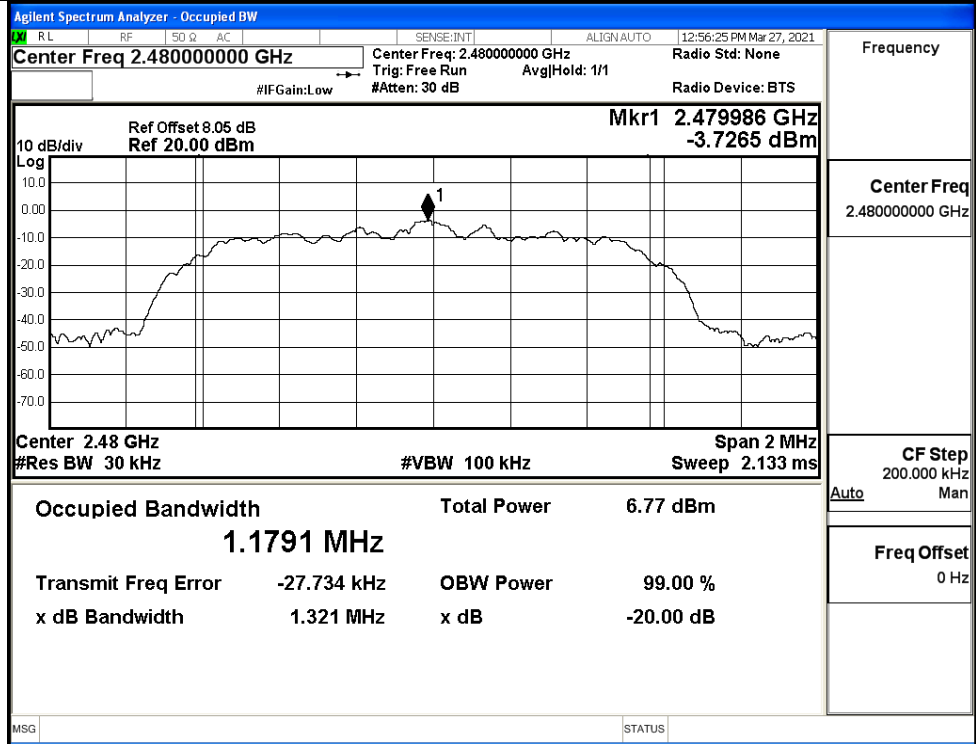
$\pi/4$ DQPSK/LCH



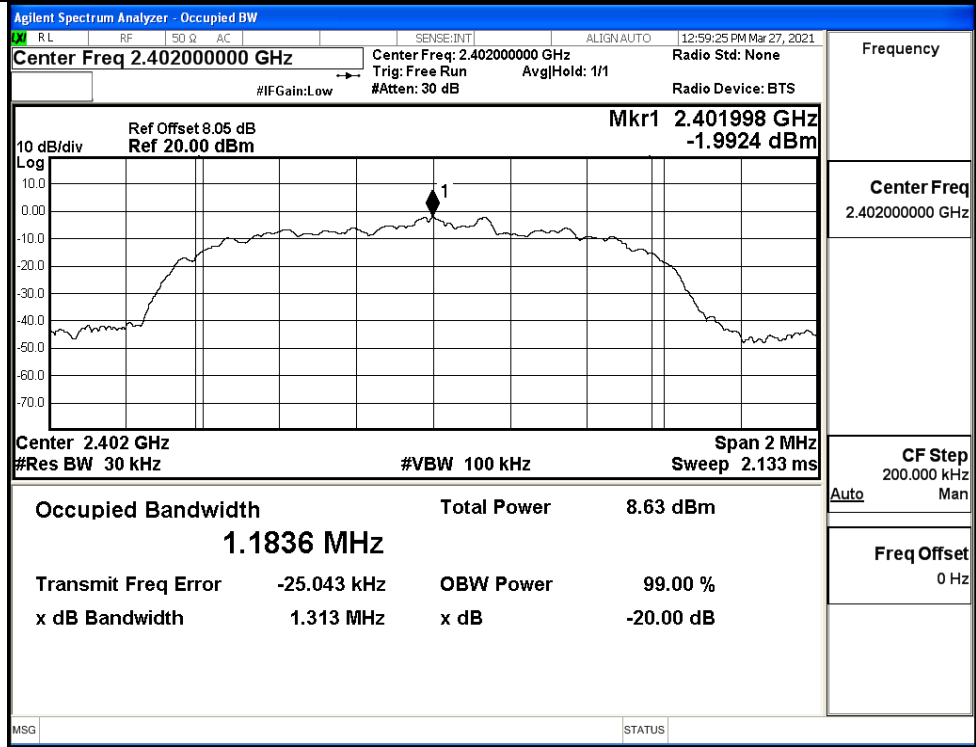
$\pi/4$ DQPSK/MCH



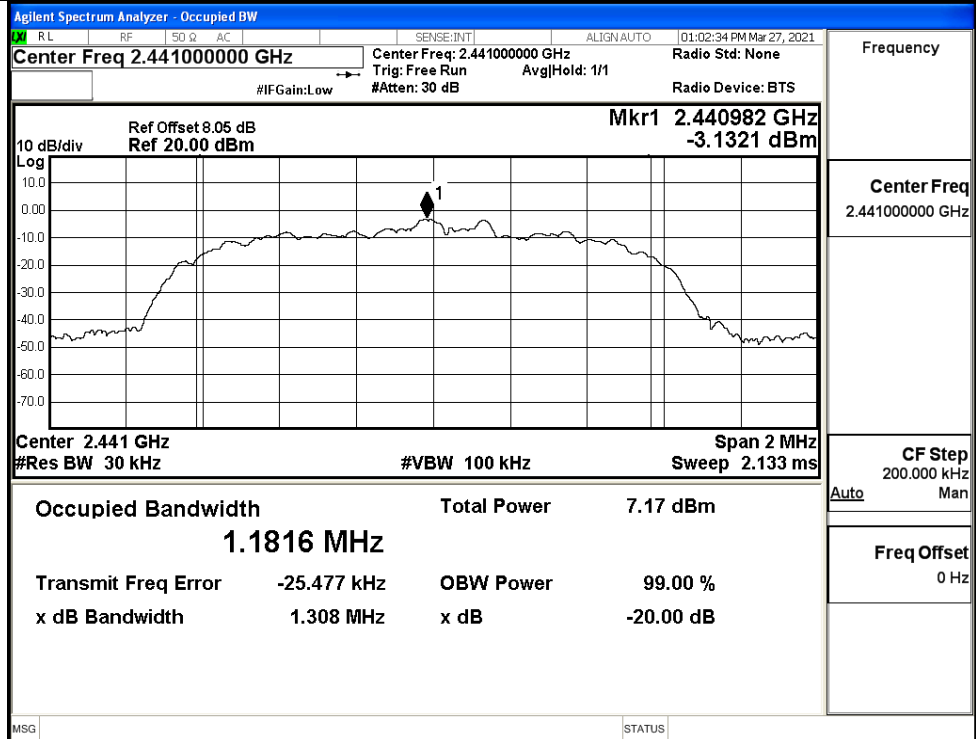
$\pi/4$ DQPSK/HCH



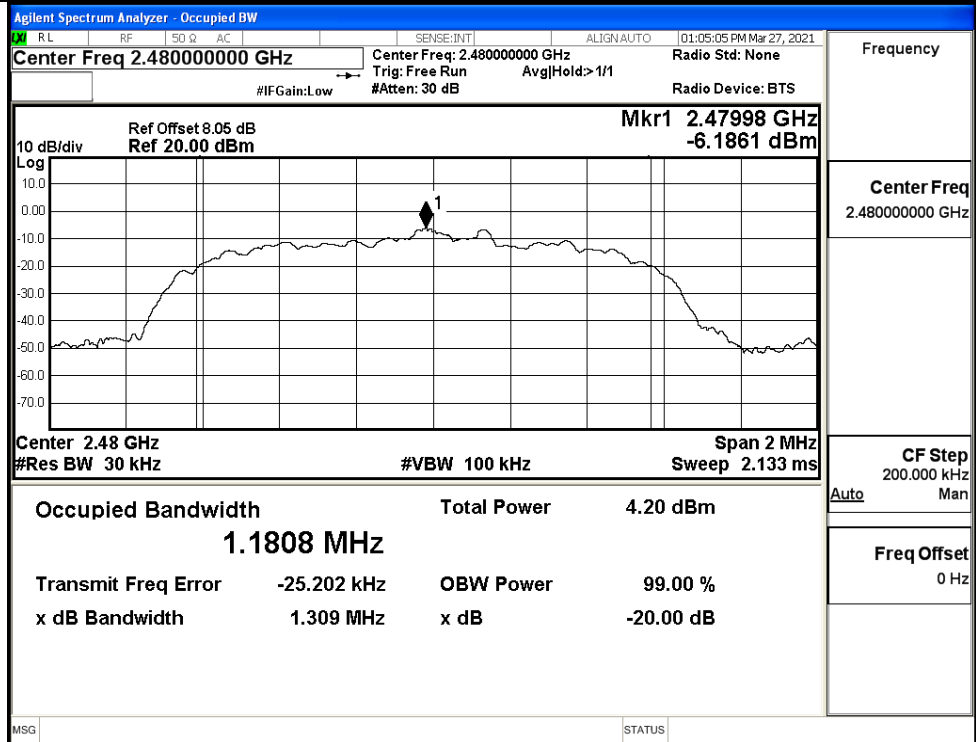
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.005	0.630	PASS
	MCH	1.008	0.630	PASS
	HCH	0.884	0.630	PASS
π/4DQPSK	LCH	1.180	0.881	PASS
	MCH	0.976	0.881	PASS
	HCH	1.050	0.881	PASS
8DPSK	LCH	1.210	0.875	PASS
	MCH	1.146	0.875	PASS
	HCH	0.950	0.875	PASS

Test Graphs

GFSK/LCH

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.402500000 GHz

ΔMkr1 1.005 00 MHz
0.183 dB

Start 2.401500 GHz Stop 2.403500 GHz

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

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	f	(Δ)	1.005 00 MHz (Δ)	0.183 dB			
2	F	f		2.401 972 00 GHz	0.463 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq
2.402500000 GHz

Start Freq
2.401500000 GHz

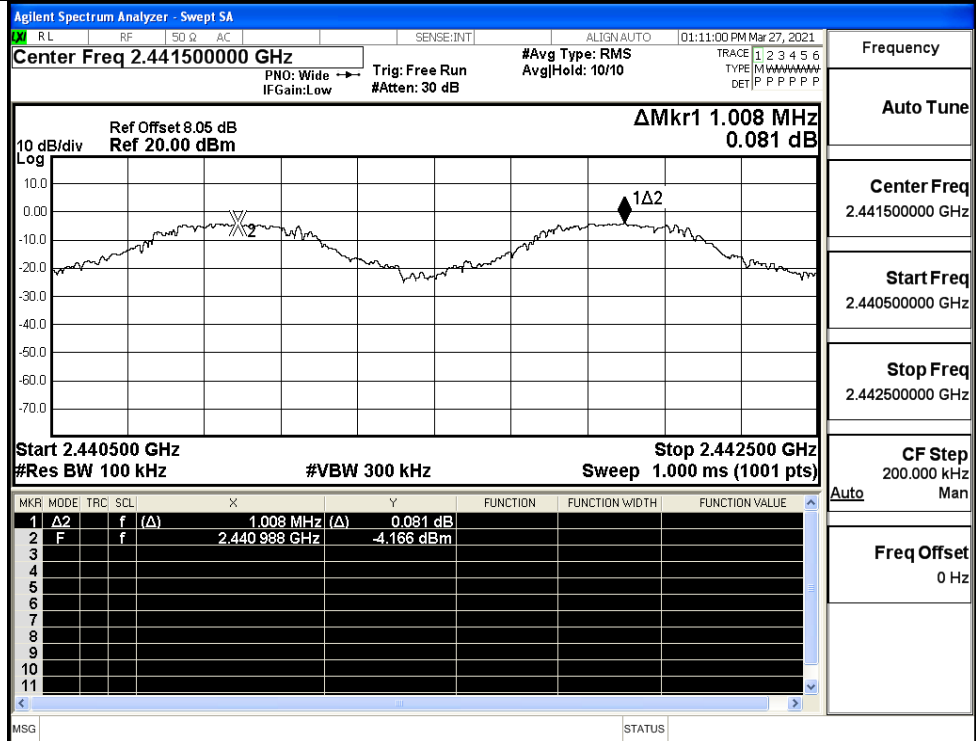
Stop Freq
2.403500000 GHz

CF Step
200.000 kHz

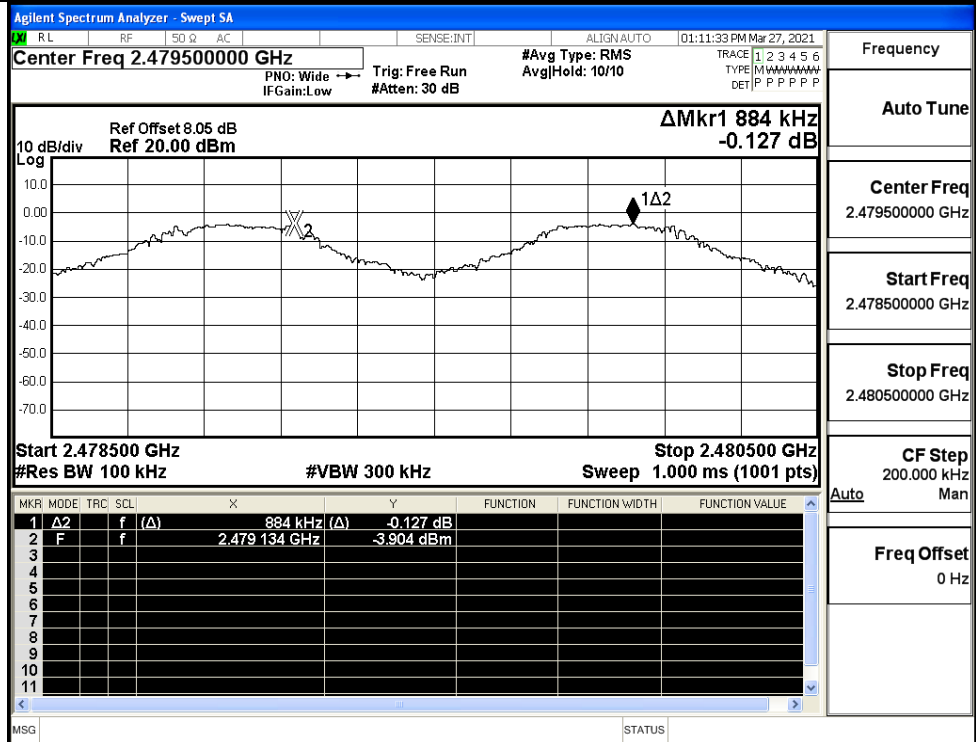
Auto Man

Freq Offset
0 Hz

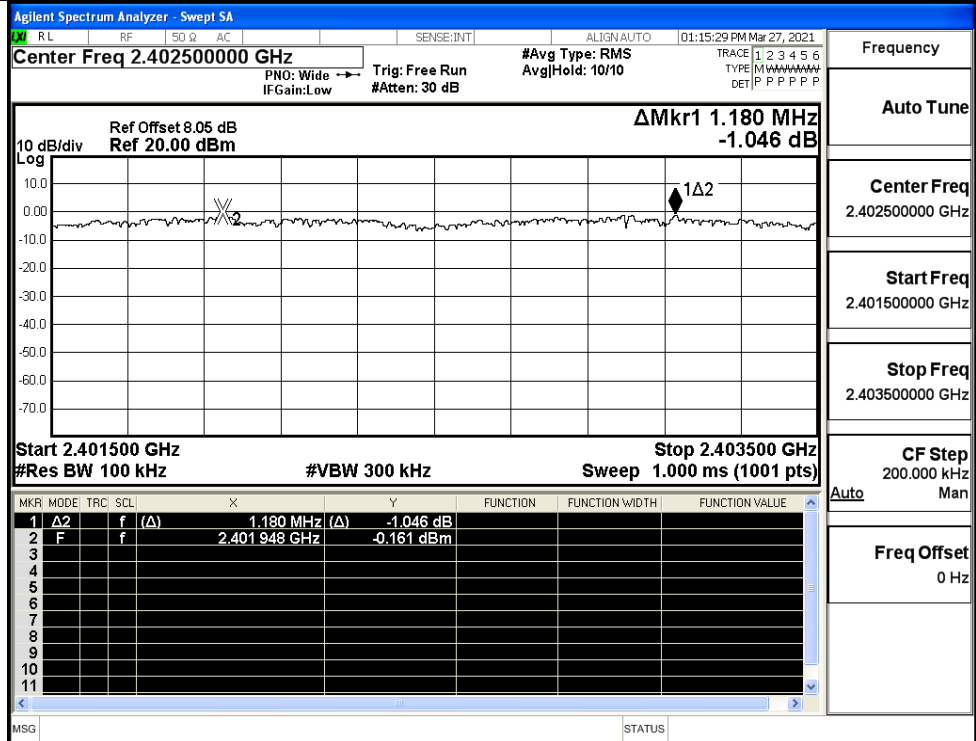
GFSK/MCH



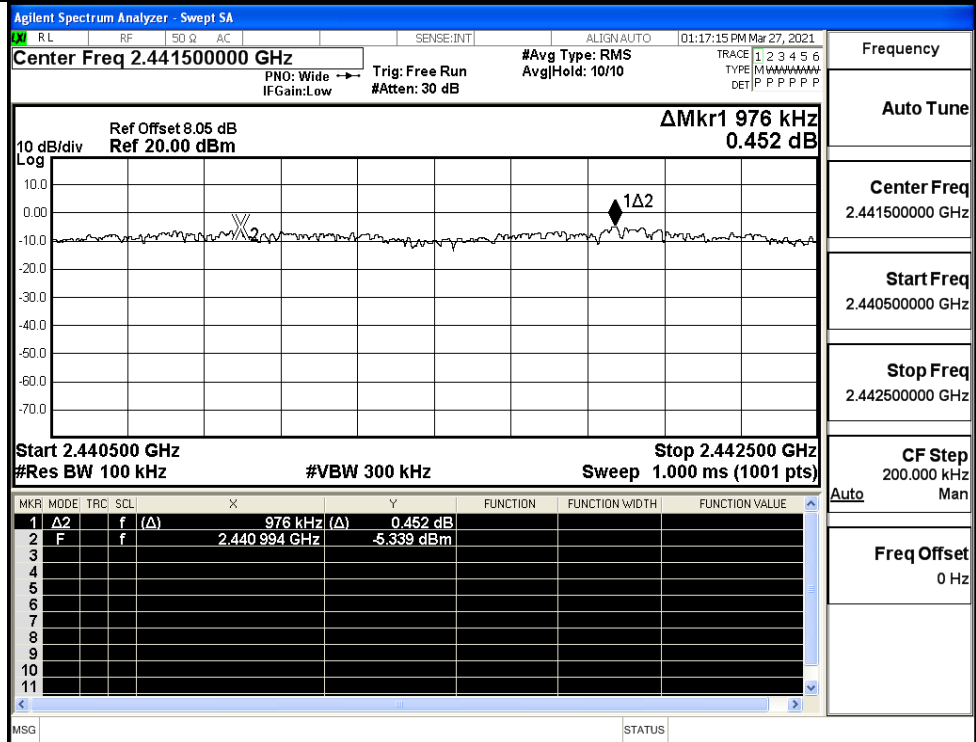
GFSK/HCH



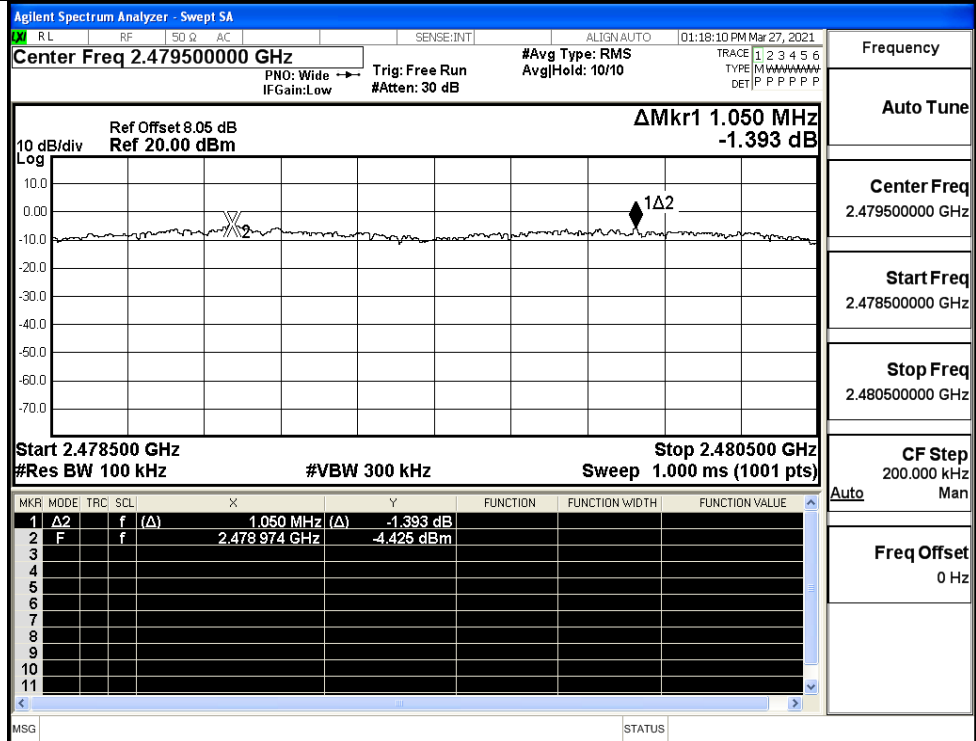
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

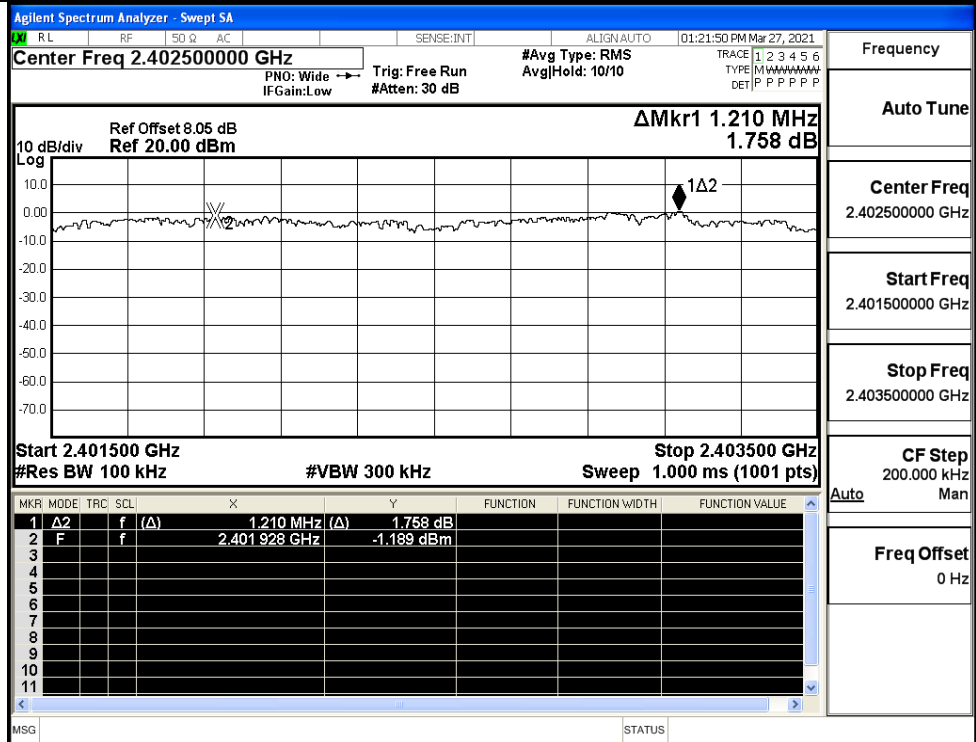


π/4DQPSK/HCH



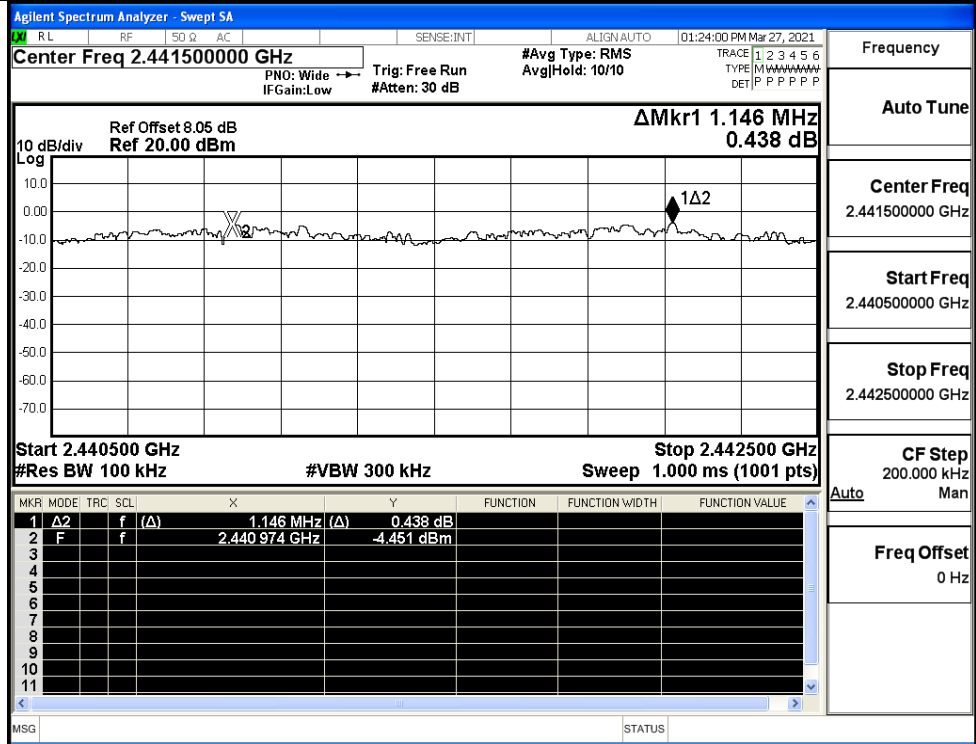
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

8DPSK/LCH

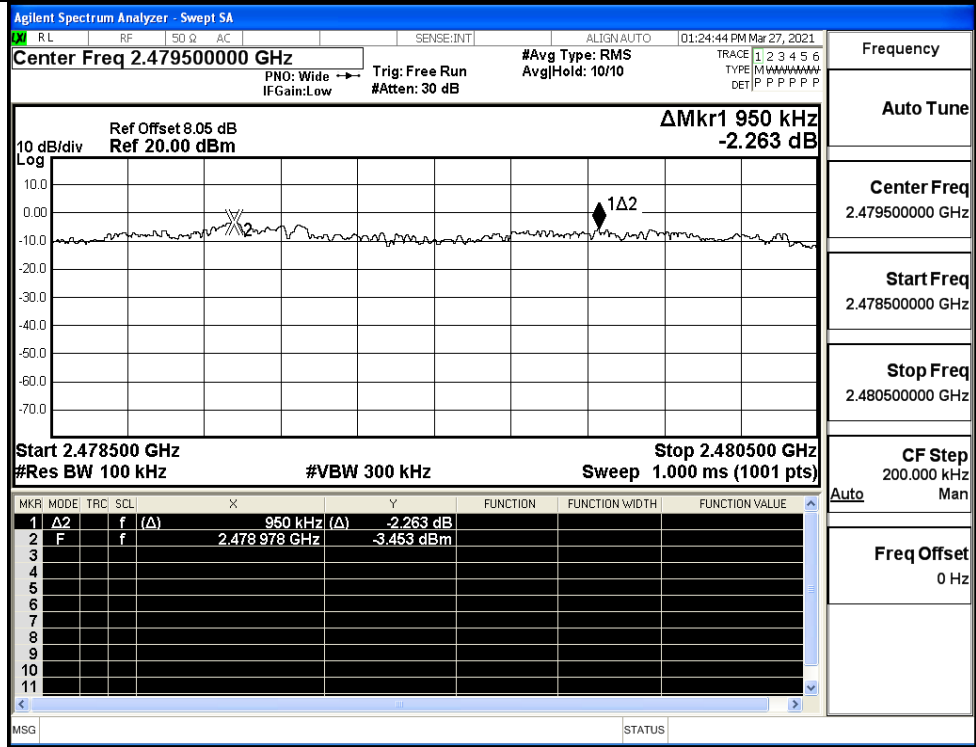


Frequency
Auto Tune
Center Freq
2.402500000 GHz
Start Freq
2.401500000 GHz
Stop Freq
2.403500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

8DPSK/MCH



8DPSK/HCH



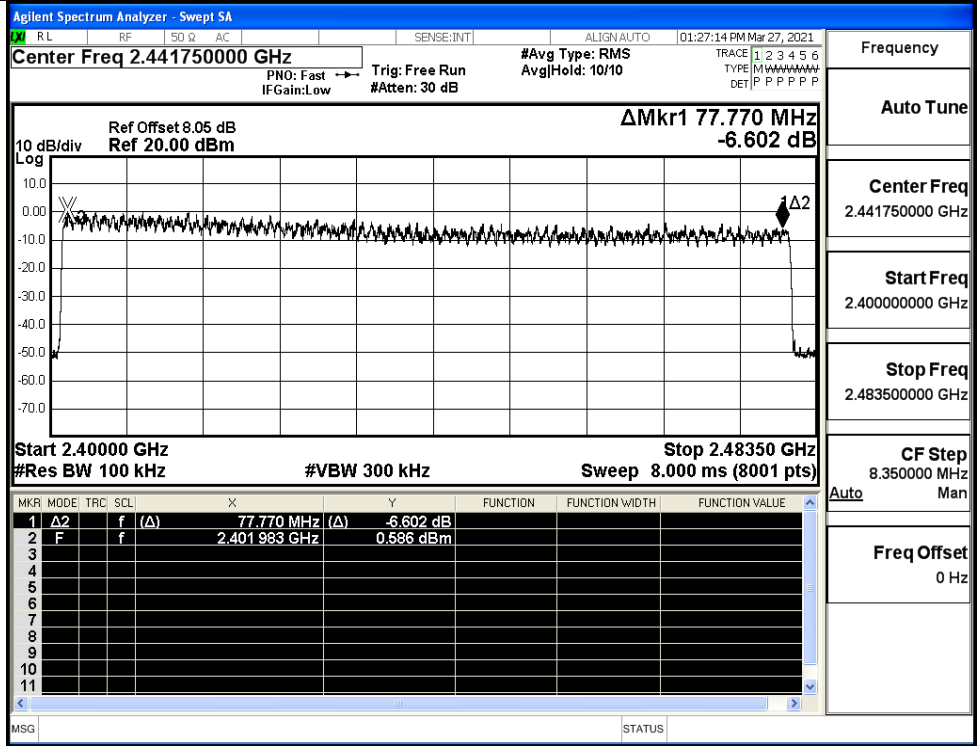
A.4 Hopping Channel Number

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

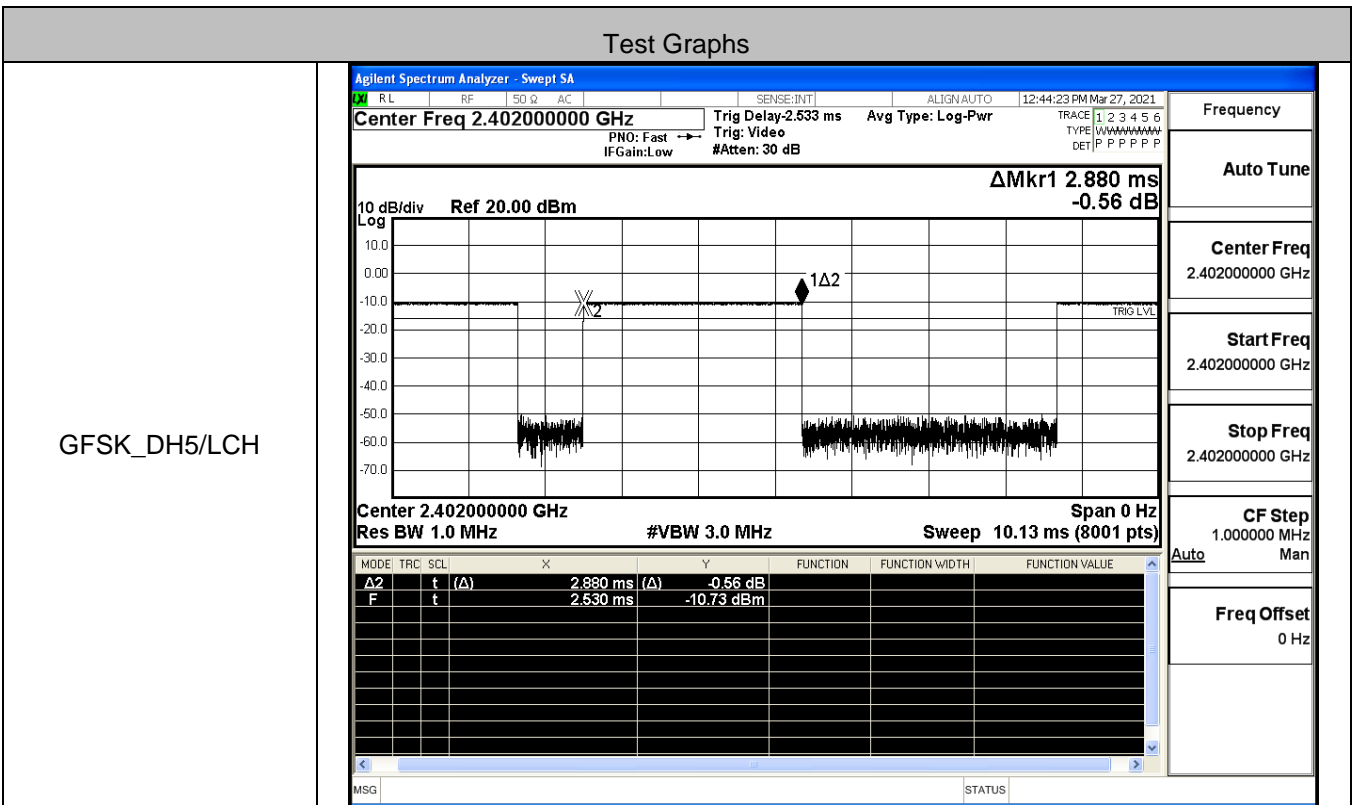
<p>GFSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 78.104 MHz -4.456 dB</p> <p>Start 2.40000 GHz #Res BW 100 kHz</p> <p>Stop 2.48350 GHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <thead> <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>78.104 MHz (Δ)</td> <td>-4.456 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.401952 GHz</td> <td>0.368 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)	78.104 MHz (Δ)	-4.456 dB				2	F	f		2.401952 GHz	0.368 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 Man</p> <p>Freq Offset 0 Hz</p>
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	Δ 2	f	(Δ)	78.104 MHz (Δ)	-4.456 dB																								
2	F	f		2.401952 GHz	0.368 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 77.676 MHz -4.235 dB</p> <p>Start 2.40000 GHz #Res BW 100 kHz</p> <p>Stop 2.48350 GHz #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>77.676 MHz (Δ)</td> <td>-4.235 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402108 GHz</td> <td>-1.755 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)	77.676 MHz (Δ)	-4.235 dB				2	F	f		2.402108 GHz	-1.755 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 Man</p> <p>Freq Offset 0 Hz</p>
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1	Δ 2	f	(Δ)	77.676 MHz (Δ)	-4.235 dB																								
2	F	f		2.402108 GHz	-1.755 dBm																								

8DPSK/Hop

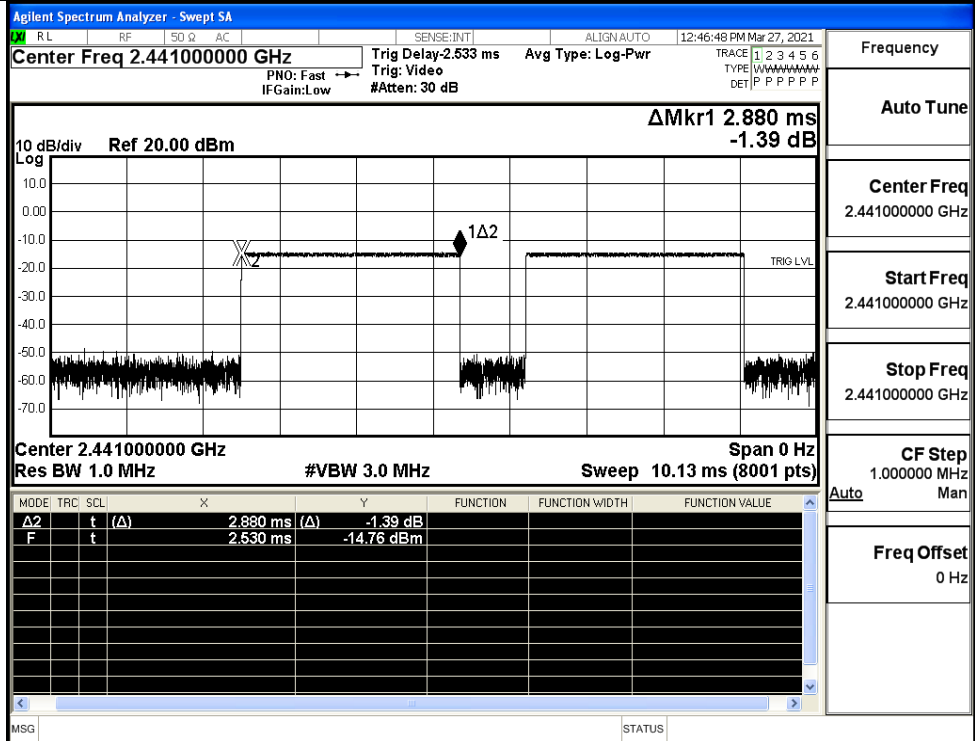


A.5 Dwell Time

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	0.015	0.4	PASS
	2DH5	MCH	2.88	106.7	0.015	0.4	PASS
	2DH5	HCH	2.88	106.7	0.015	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.015	0.4	PASS
	3DH5	MCH	2.88	106.7	0.015	0.4	PASS
	3DH5	HCH	2.88	106.7	0.015	0.4	PASS



GFSK_DH5/MCH



Frequency

Auto Tune

Center Freq
2.441000000 GHz

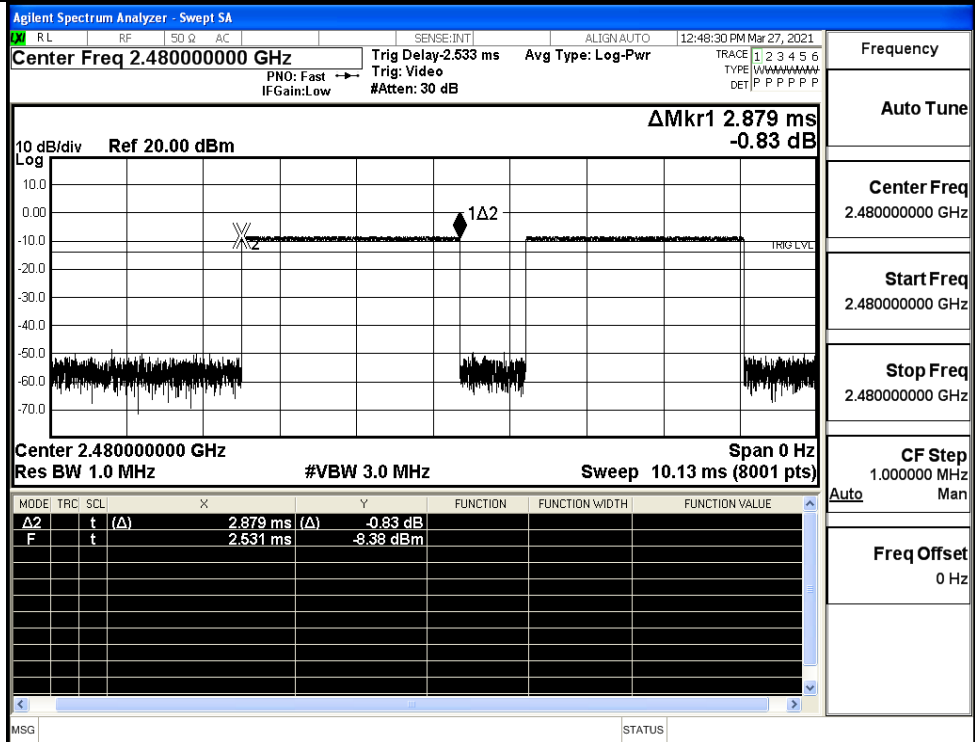
Start Freq
2.441000000 GHz

Stop Freq
2.441000000 GHz

CF Step
1.000000 MHz

Freq Offset
0 Hz

GFSK_DH5/HCH



Frequency

Auto Tune

Center Freq
2.480000000 GHz

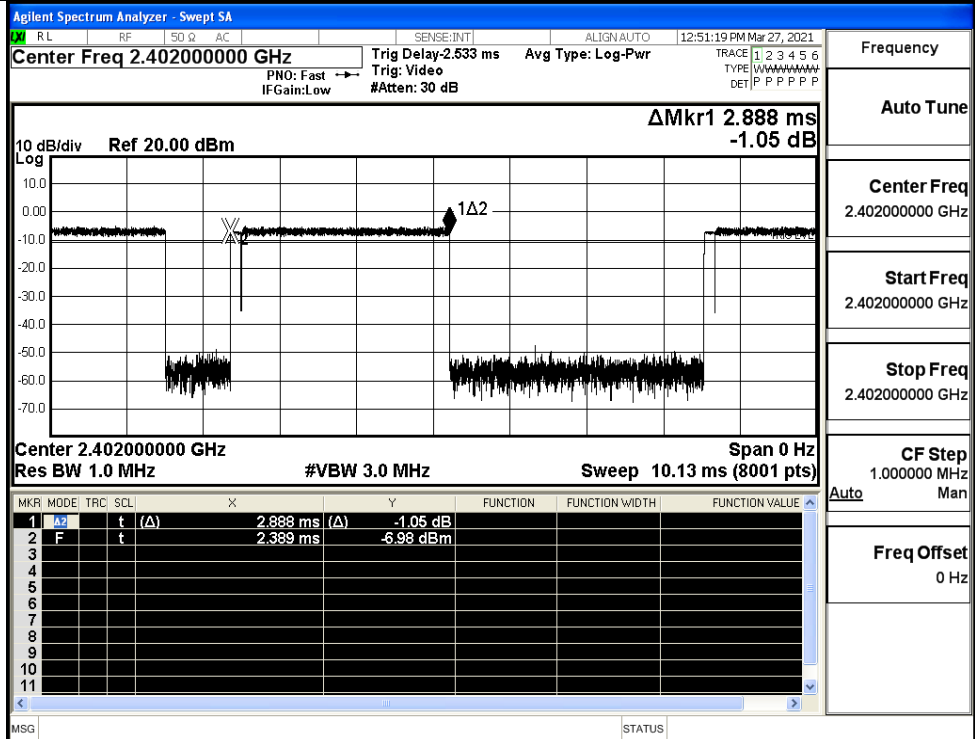
Start Freq
2.480000000 GHz

Stop Freq
2.480000000 GHz

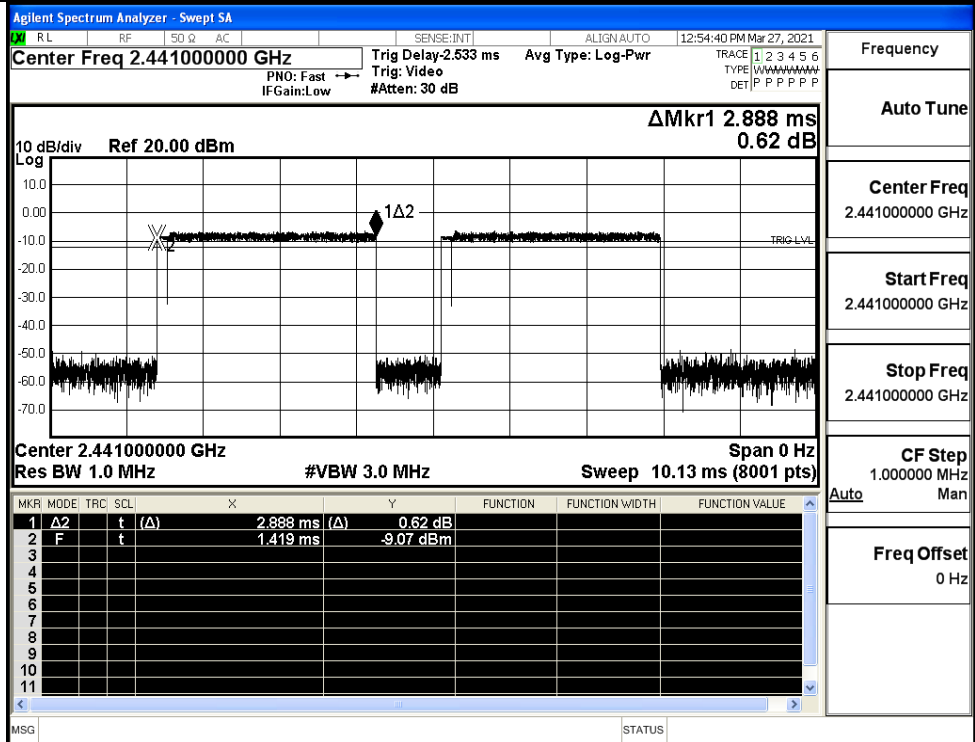
CF Step
1.000000 MHz

Freq Offset
0 Hz

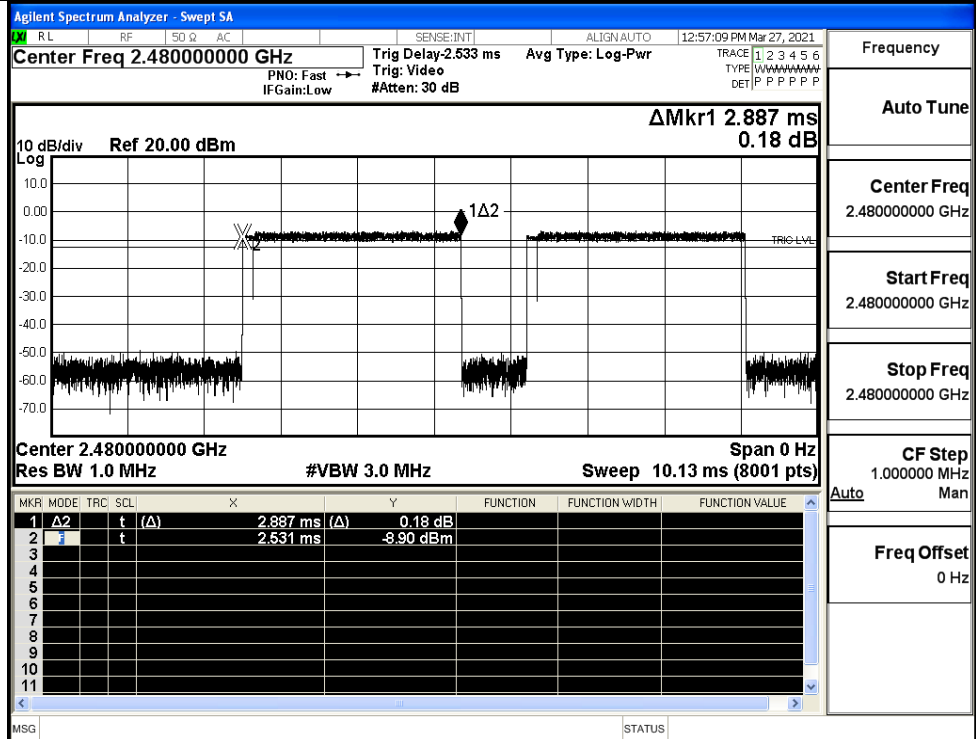
$\pi/4$ DQPSK
_2DH5/LCH



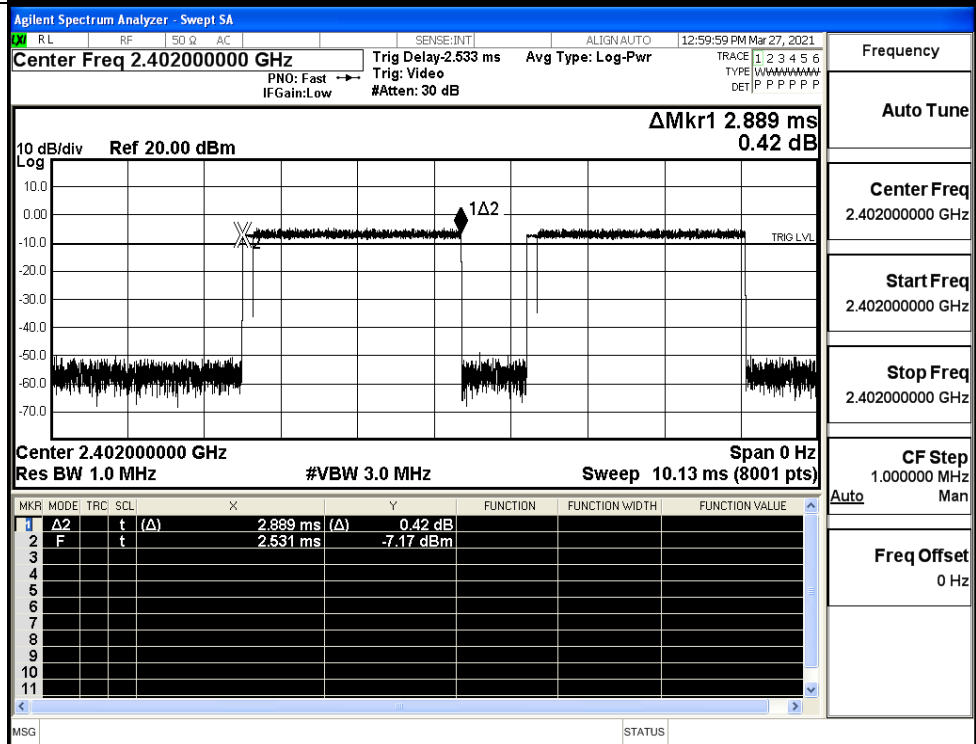
$\pi/4$ DQPSK
_2DH5/MCH



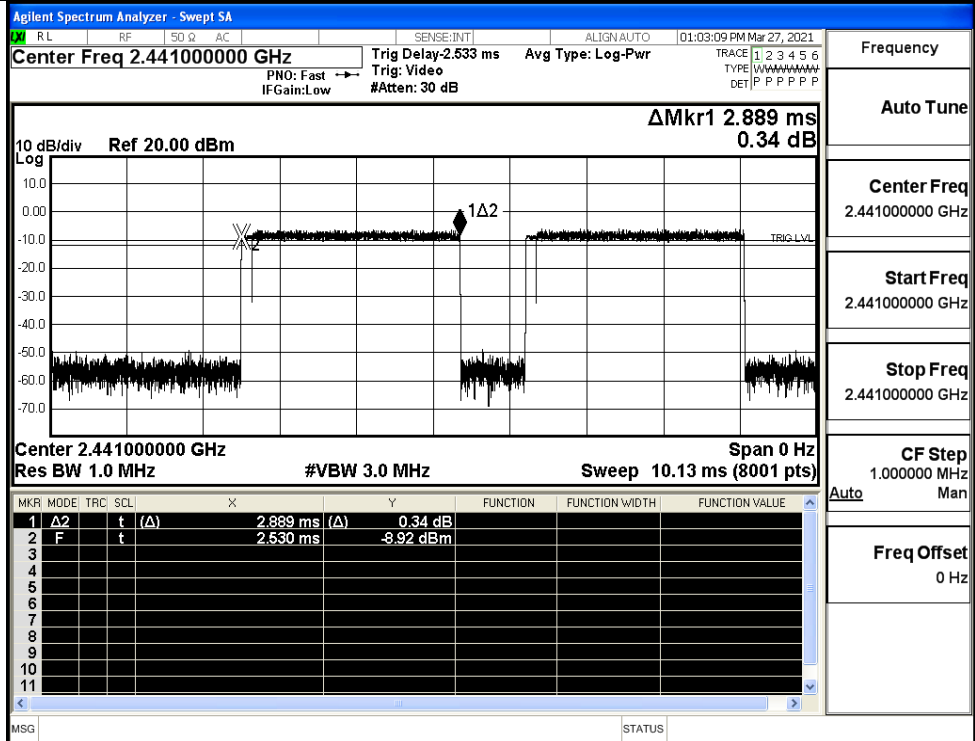
$\pi/4$ DQPSK
_2DH5/HCH



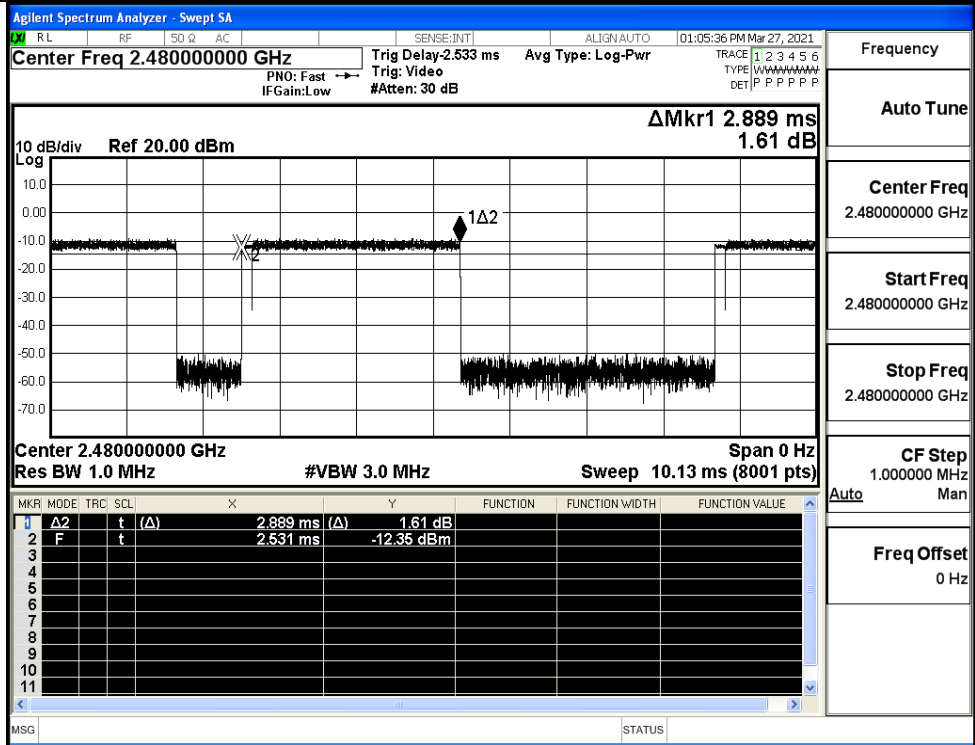
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



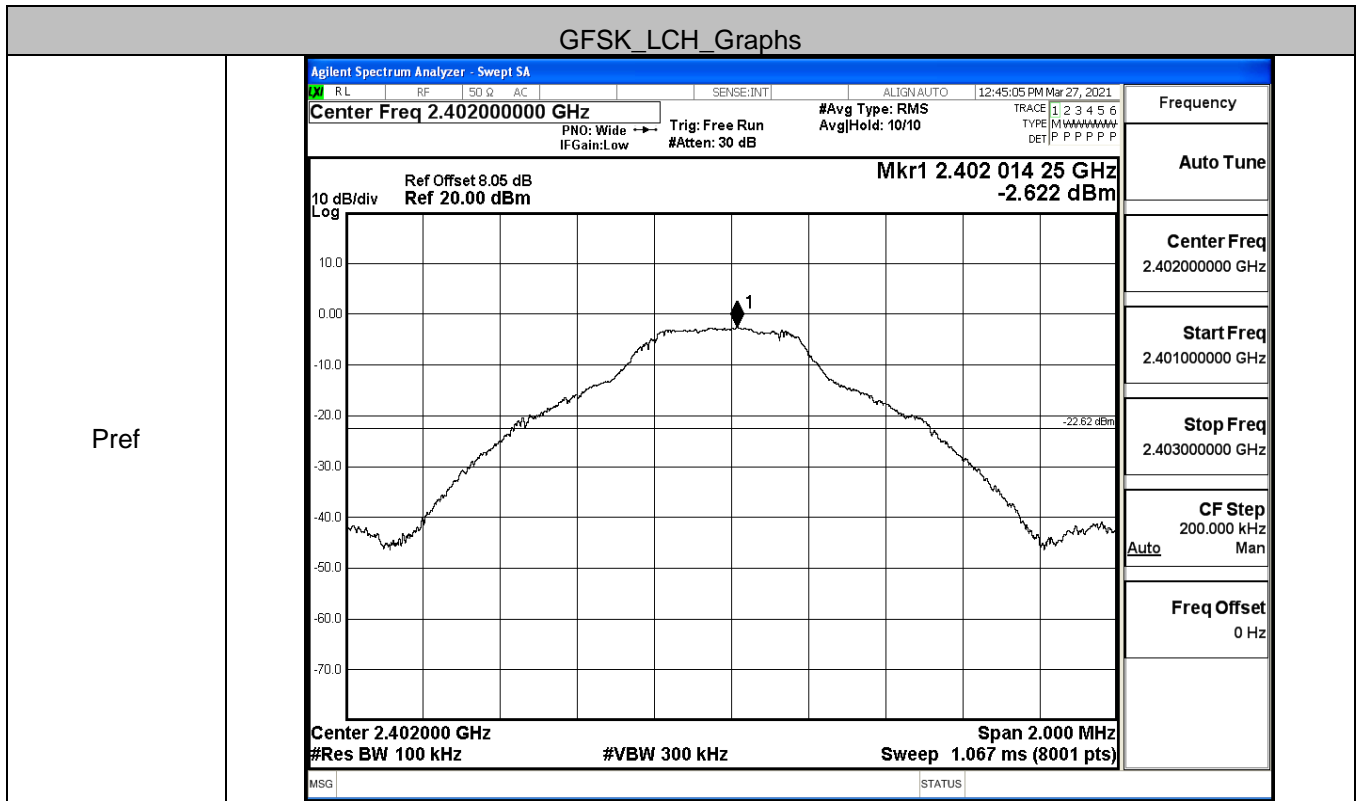
8DPSK_3DH5/HCH



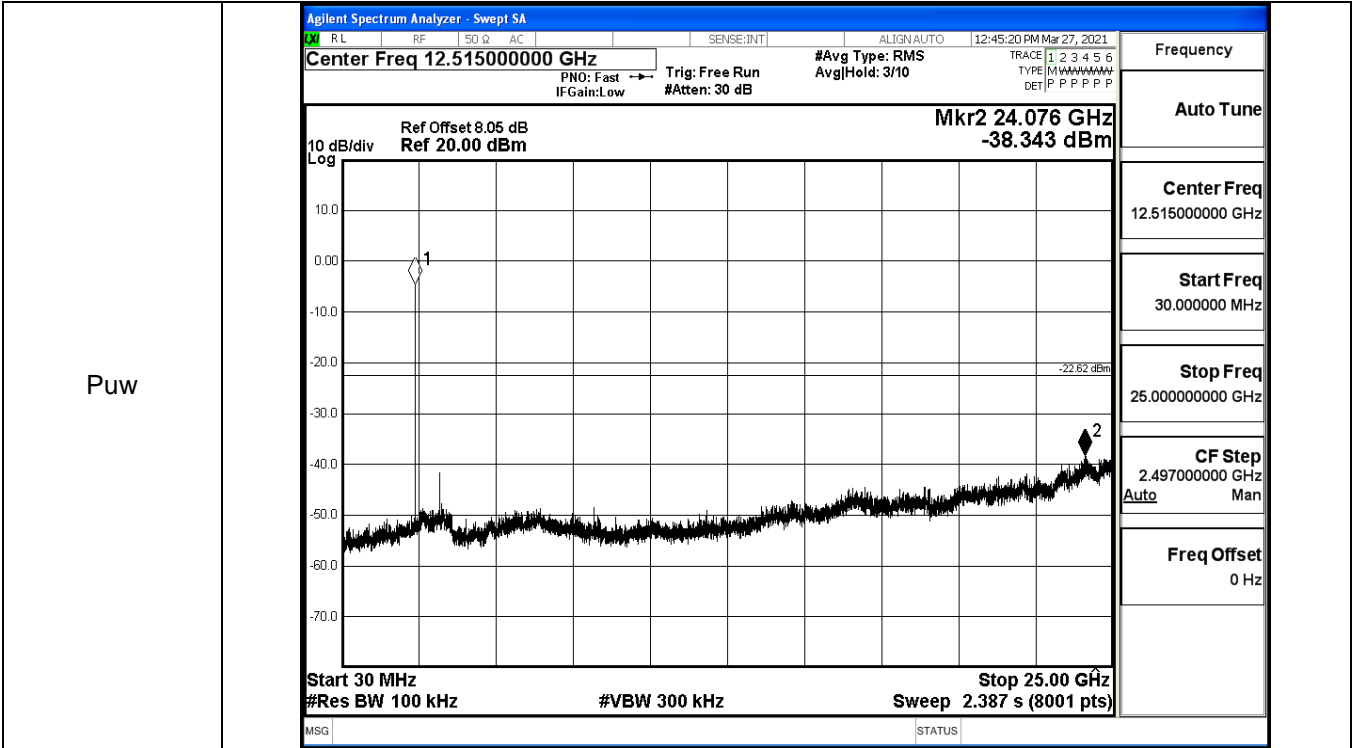
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.622	-38.343	-22.622	PASS
	MCH	-0.937	-37.407	-20.937	PASS
	HCH	-1.197	-38.079	-21.197	PASS
π /4DQPSK	LCH	-2.346	-38.180	-22.346	PASS
	MCH	-0.42	-37.408	-20.420	PASS
	HCH	-1.533	-38.282	-21.533	PASS
8DPSK	LCH	-3.278	-37.272	-23.278	PASS
	MCH	-3.878	-36.506	-23.878	PASS
	HCH	-4.364	-36.736	-24.364	PASS

GFSK_LCH_Graphs

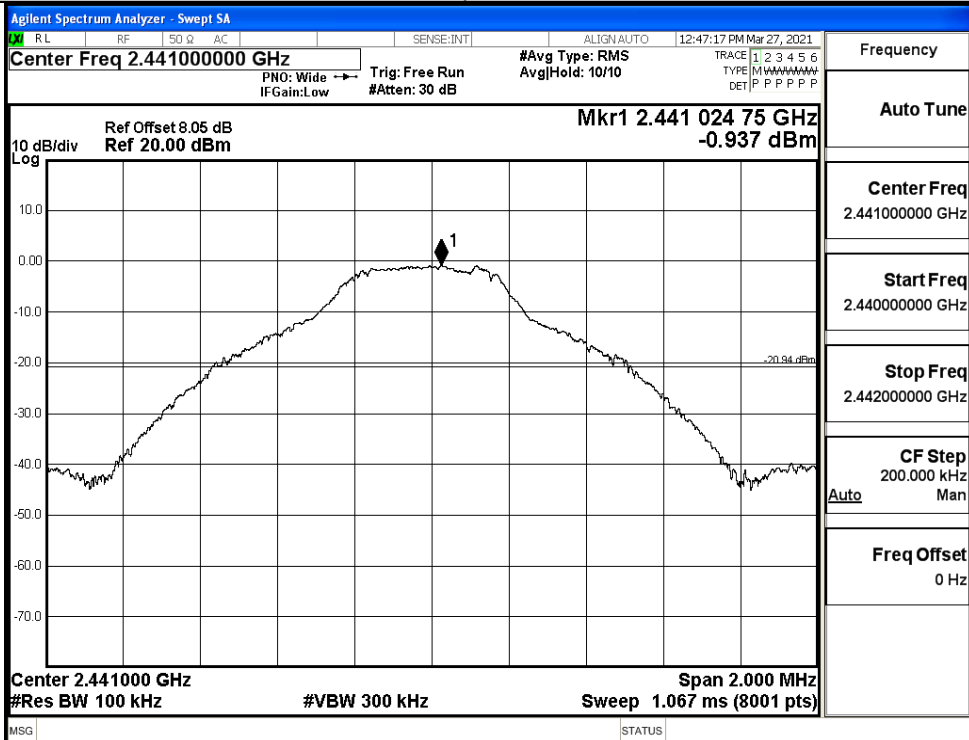


Pref

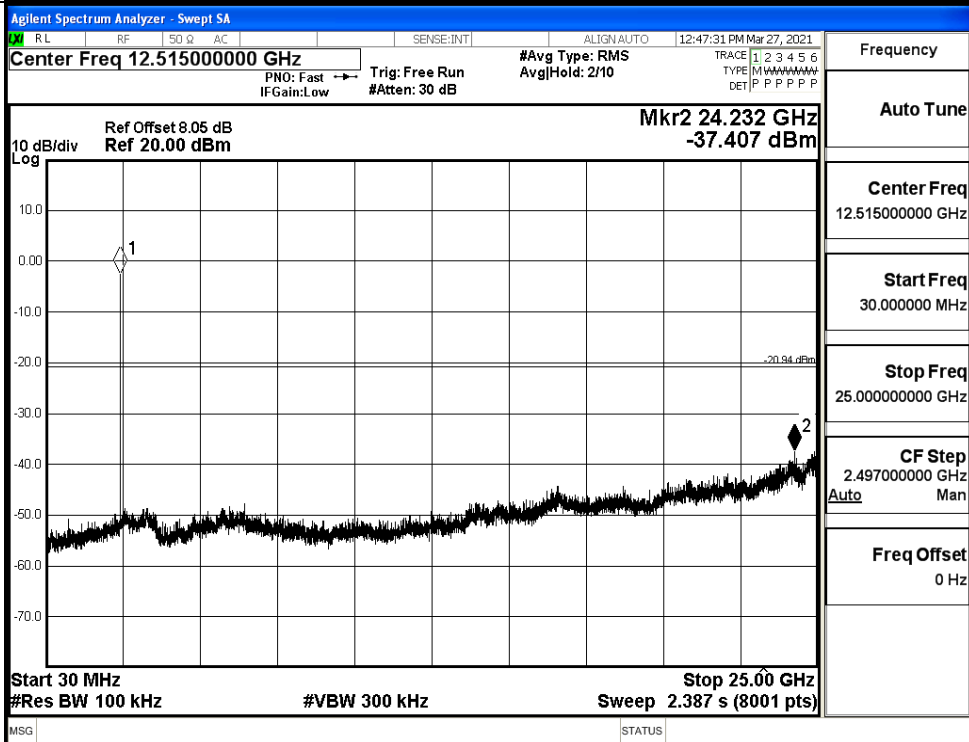


GFSK_MCH_Graphs

Pref

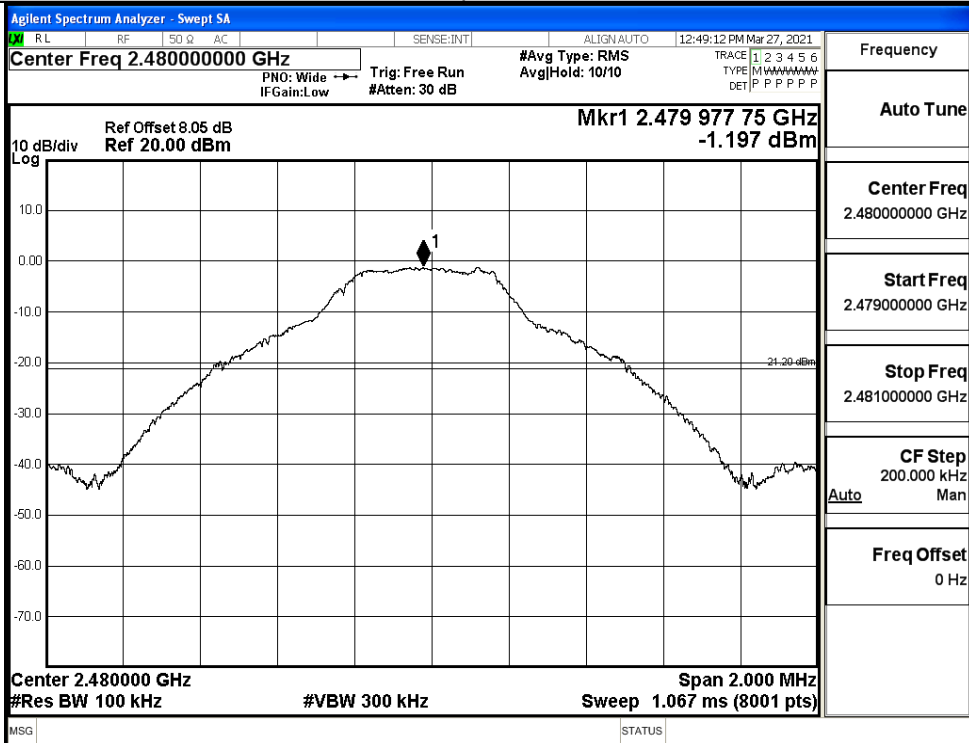


Puw

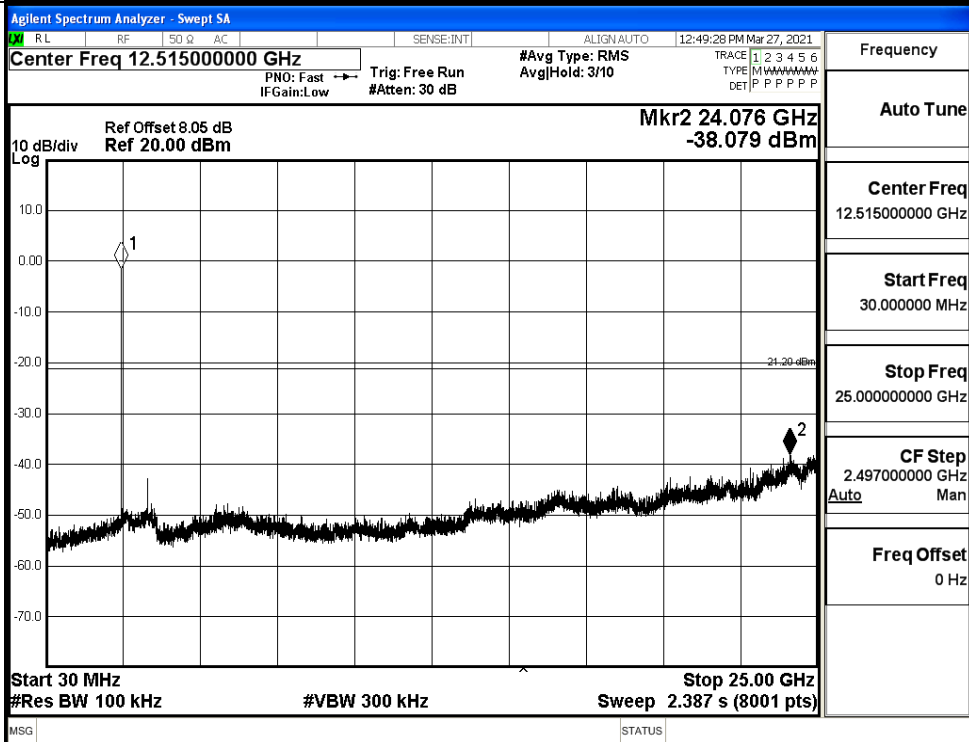


GFSK_HCH_Graphs

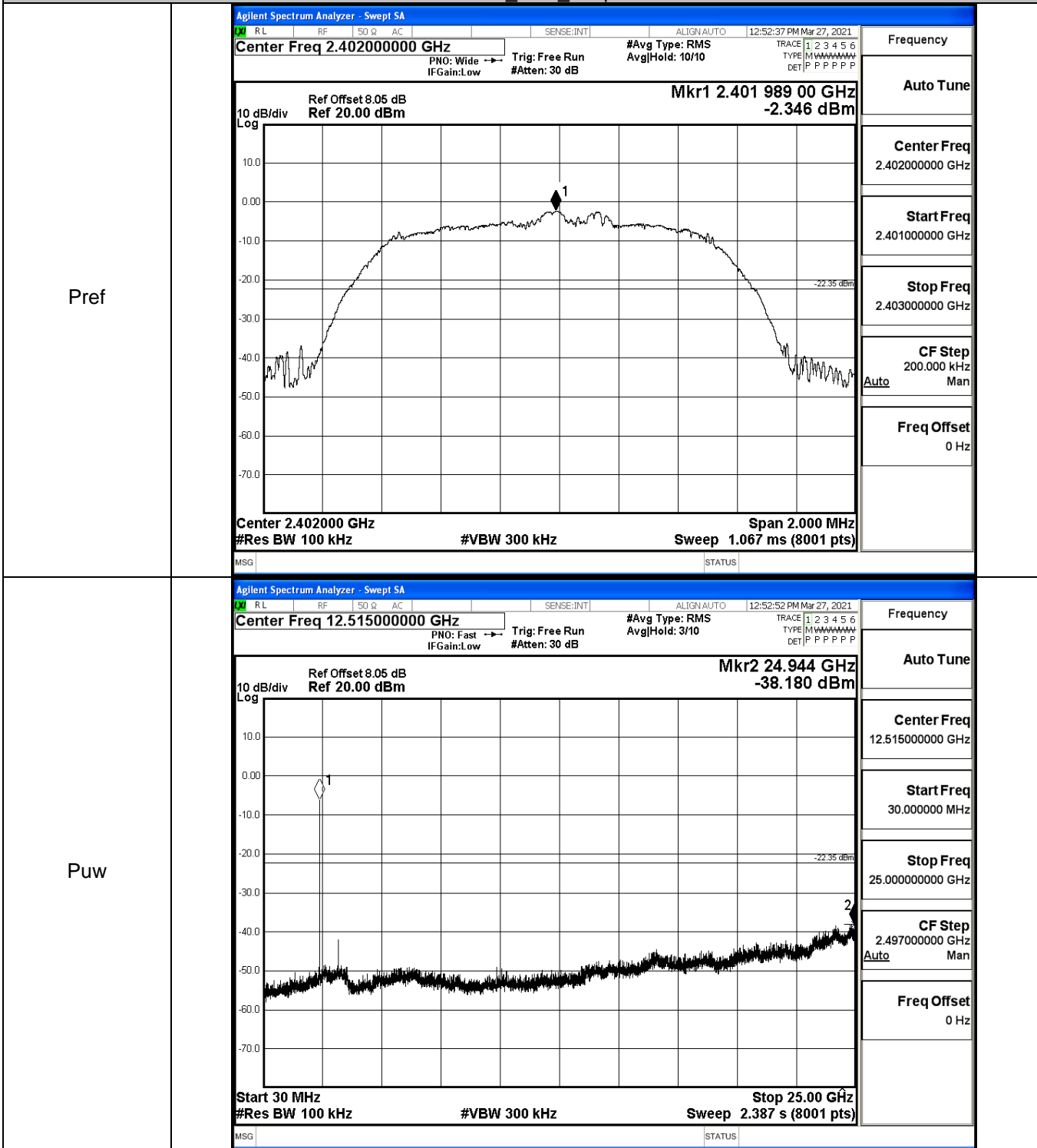
Pref



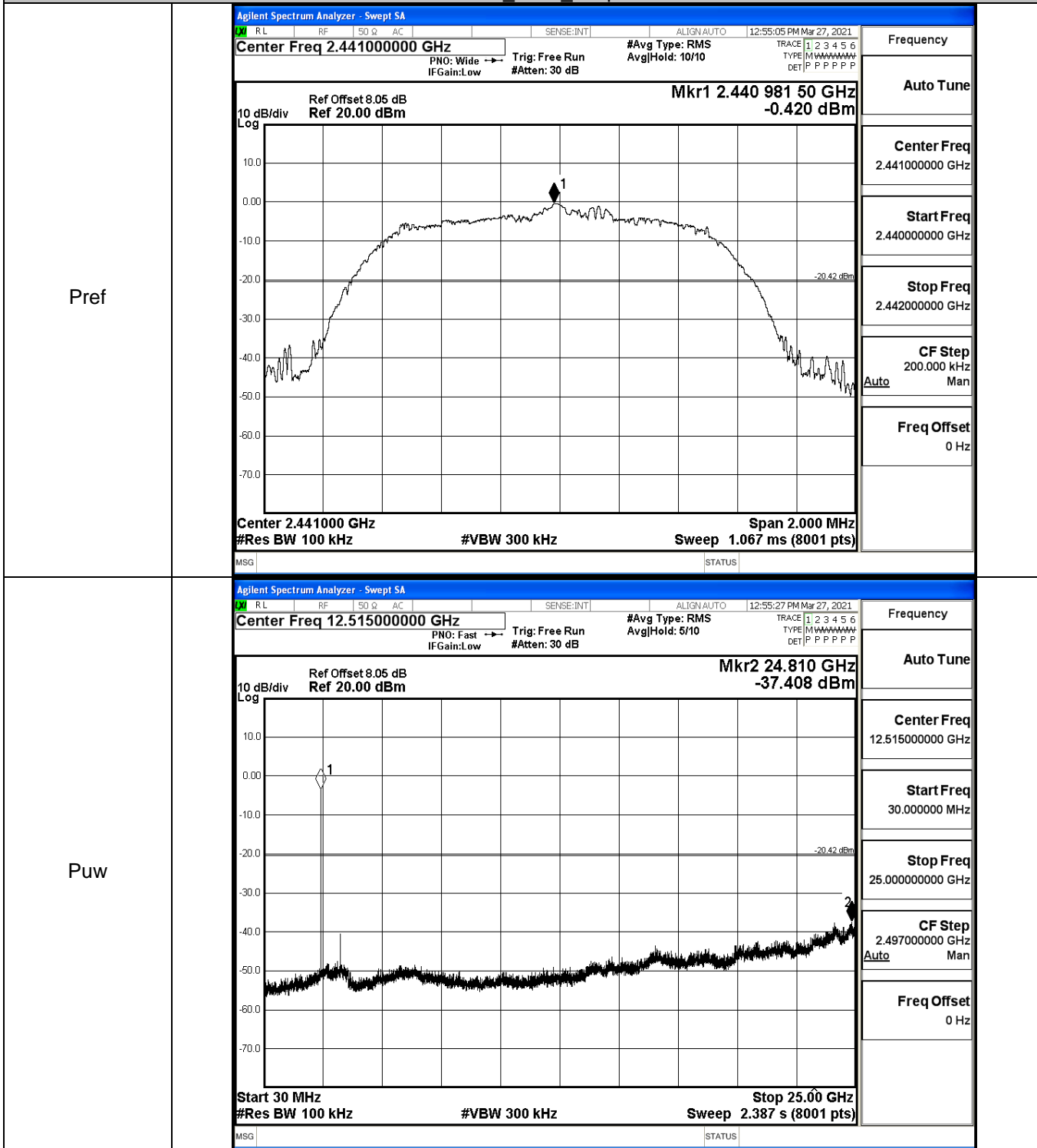
Puw



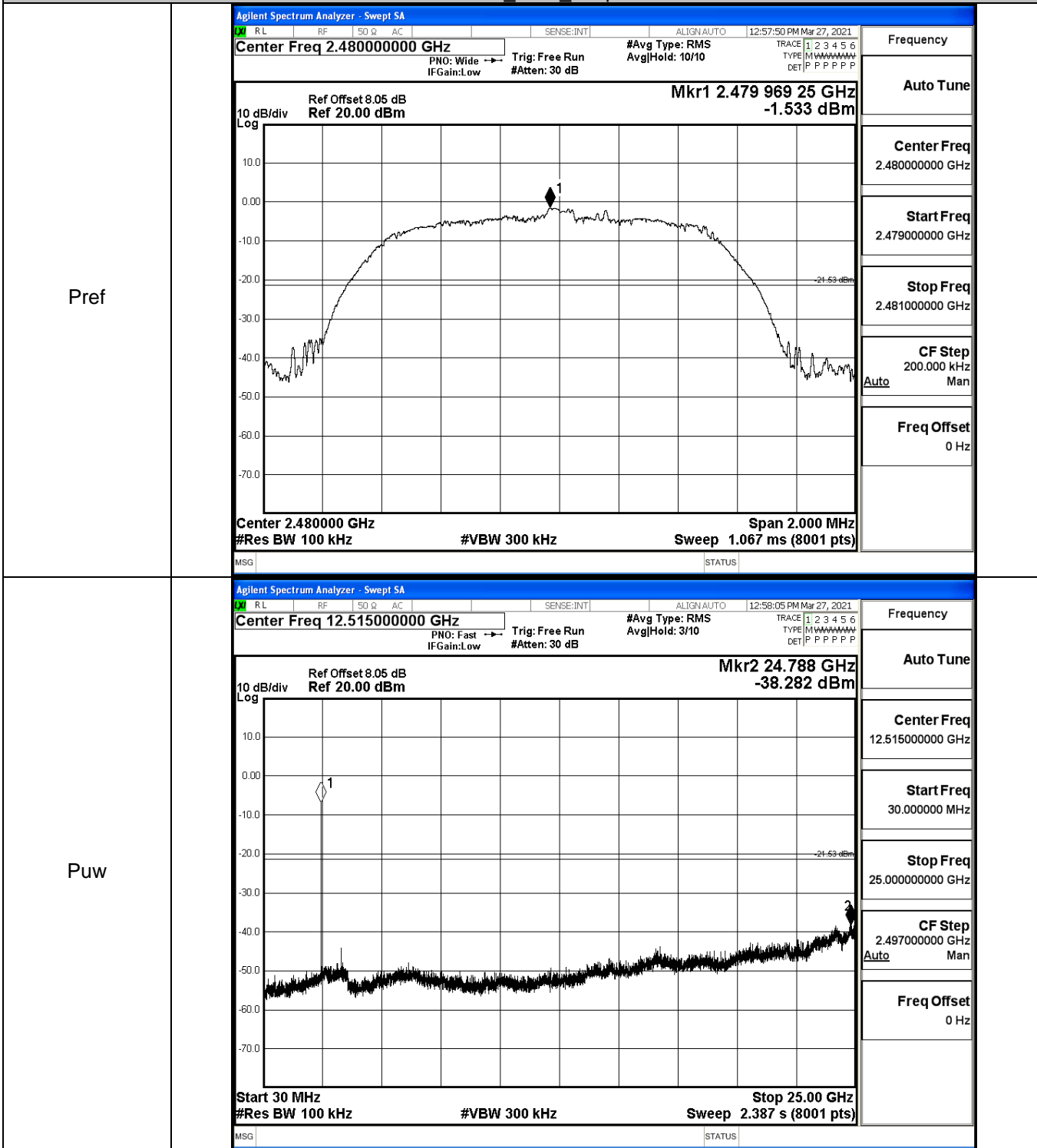
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

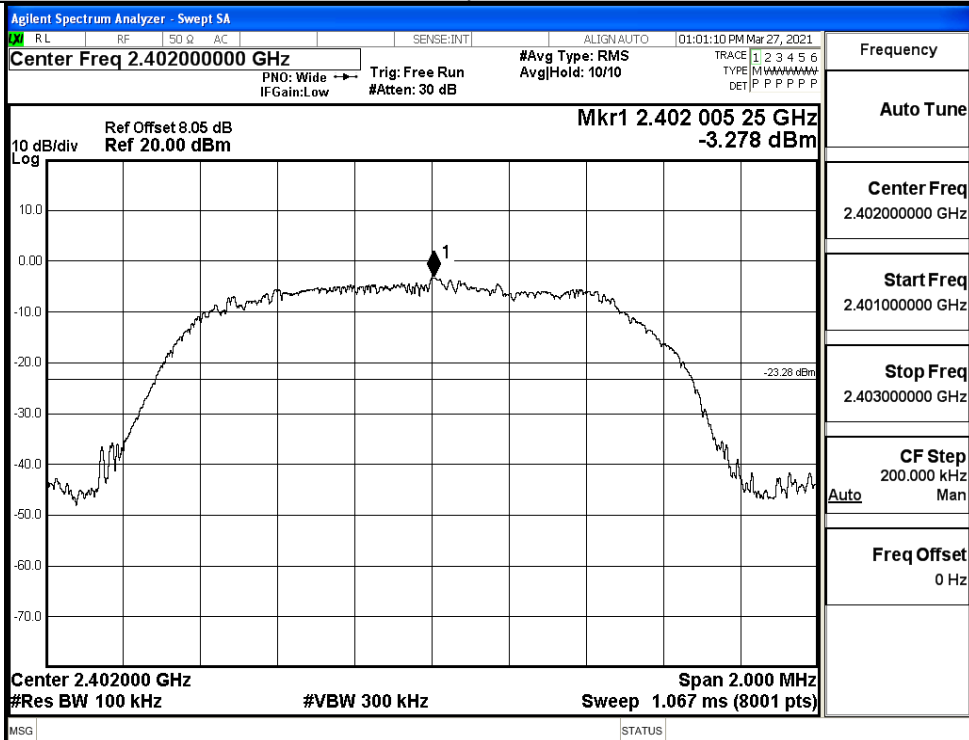


$\pi/4$ DQPSK_HCH_Graphs

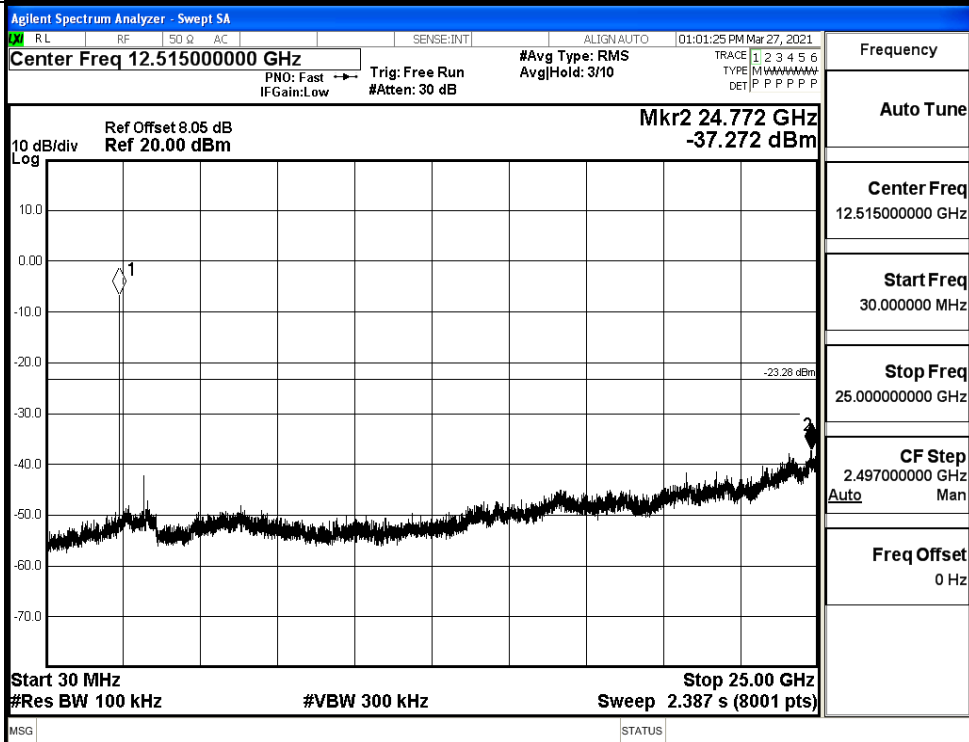


8DPSK_LCH_Graphs

Pref

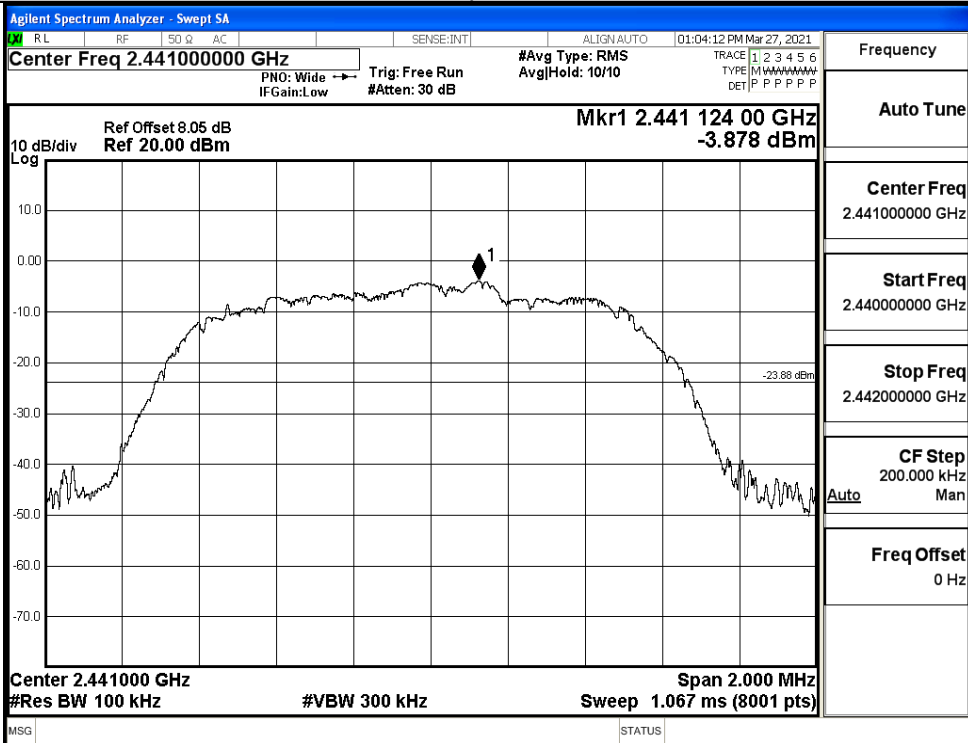


Puw

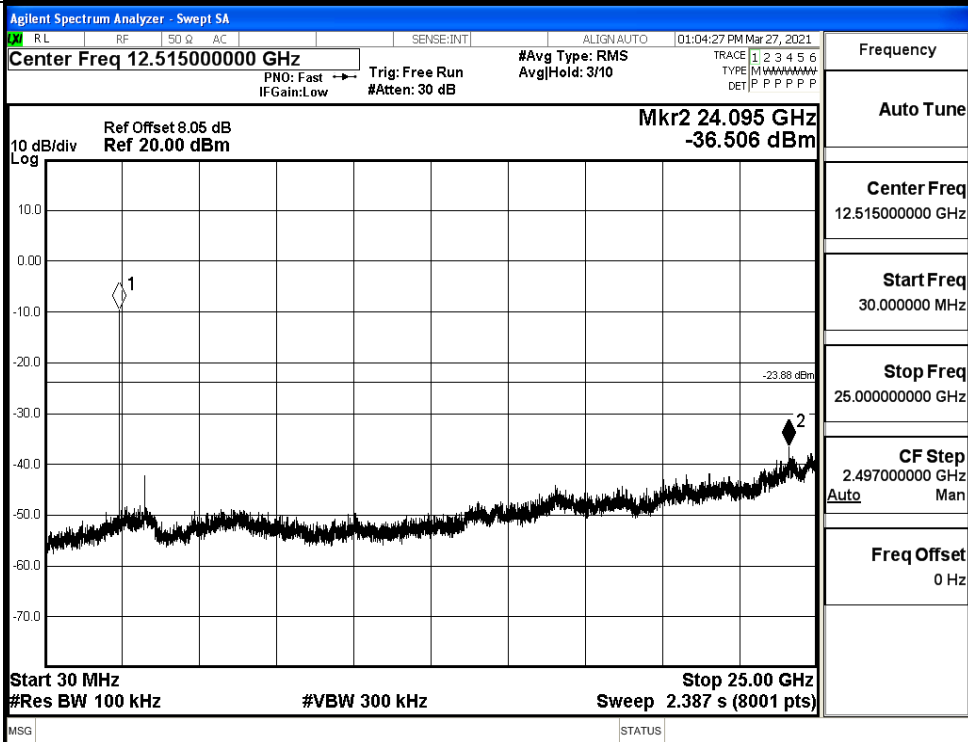


8DPSK_MCH_Graphs

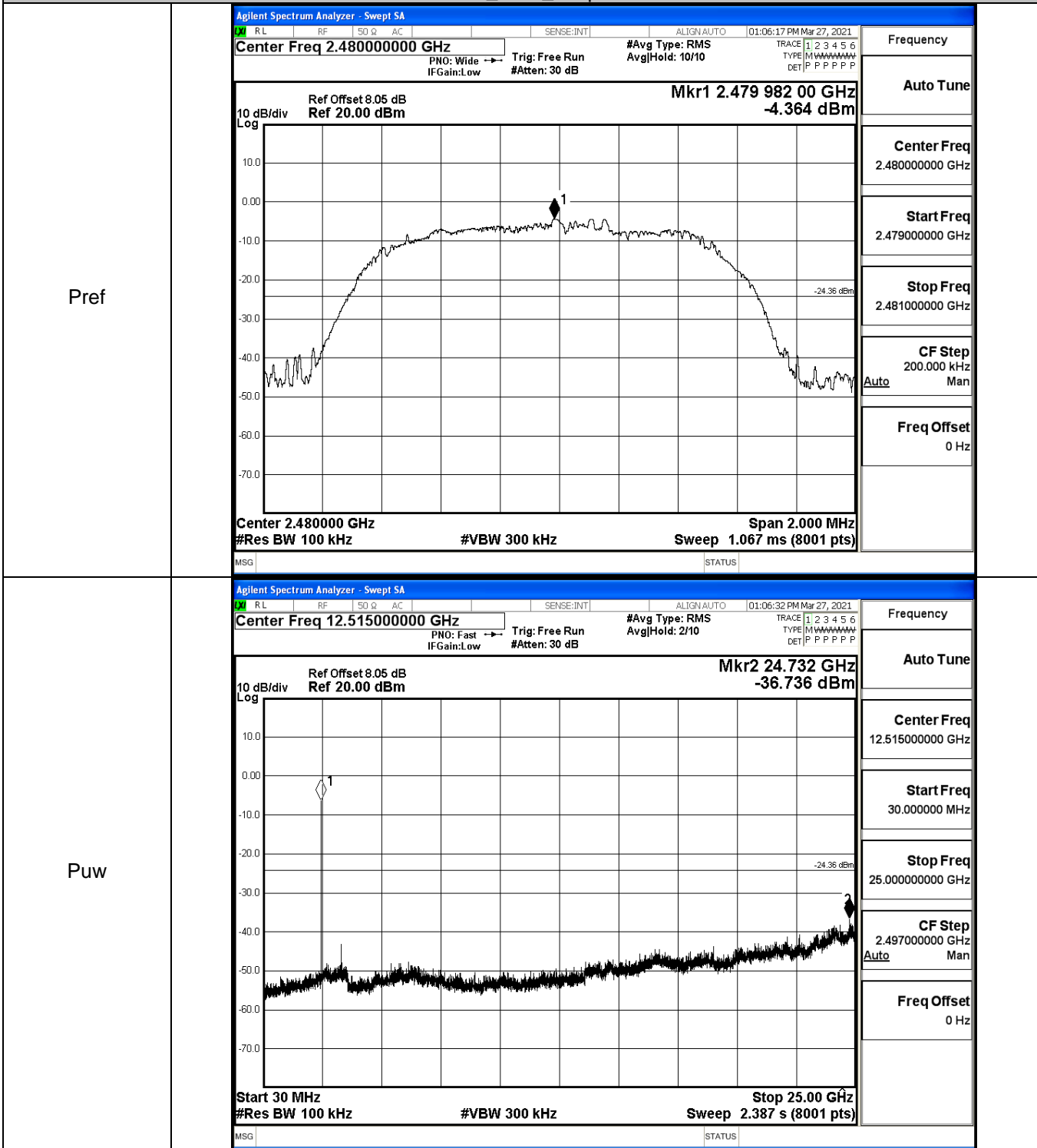
Pref



Puw



8DPSK_HCH_Graphs

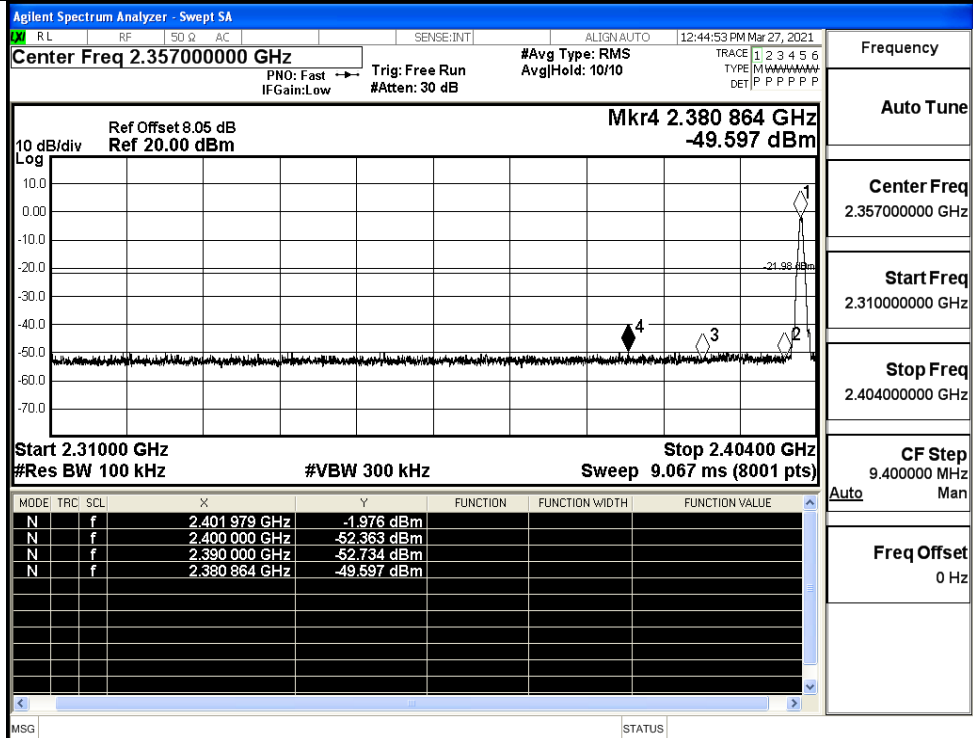


A.7 Band-edge for RF Conducted Emissions

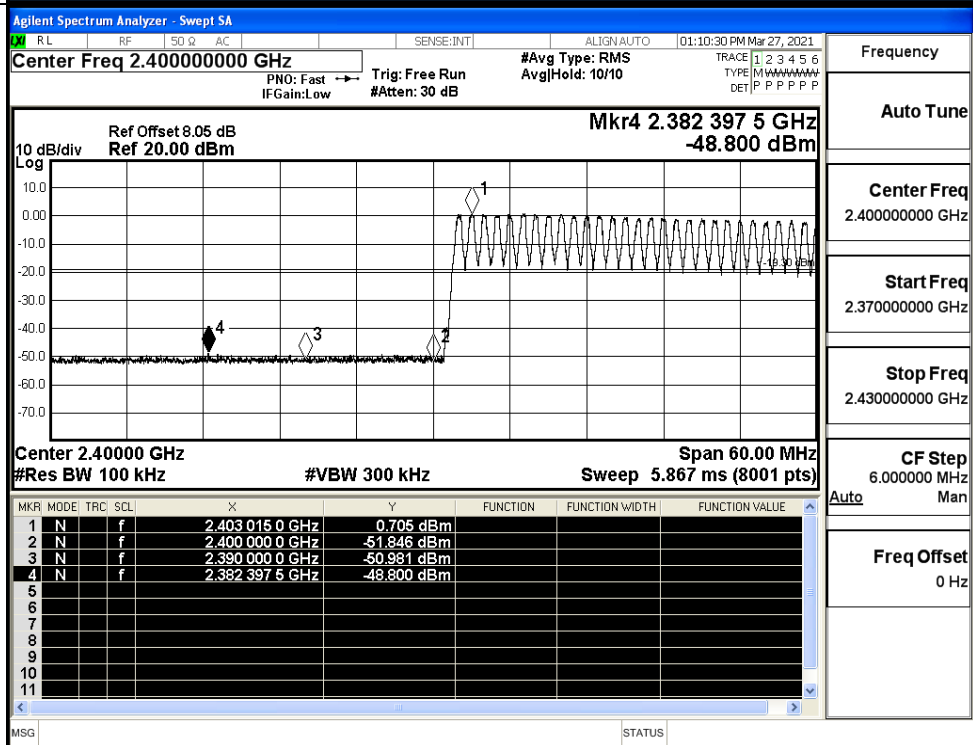
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.976	Off	-49.597	-21.98	PASS
			0.705	On	-48.800	-19.3	PASS
	HCH	2480	-0.667	Off	-46.612	-20.67	PASS
			-3.343	On	-48.398	-23.34	PASS
$\pi/4$ DQPSK	LCH	2402	-2.563	Off	-49.234	-22.56	PASS
			0.568	On	-48.917	-19.43	PASS
	HCH	2480	-0.874	Off	-46.954	-20.87	PASS
			-3.744	On	-47.449	-23.74	PASS
8DPSK	LCH	2402	-2.536	Off	-49.540	-22.54	PASS
			0.740	On	-48.133	-19.26	PASS
	HCH	2480	-3.800	Off	-47.894	-23.8	PASS
			-3.617	On	-48.981	-23.62	PASS

Test Graphs

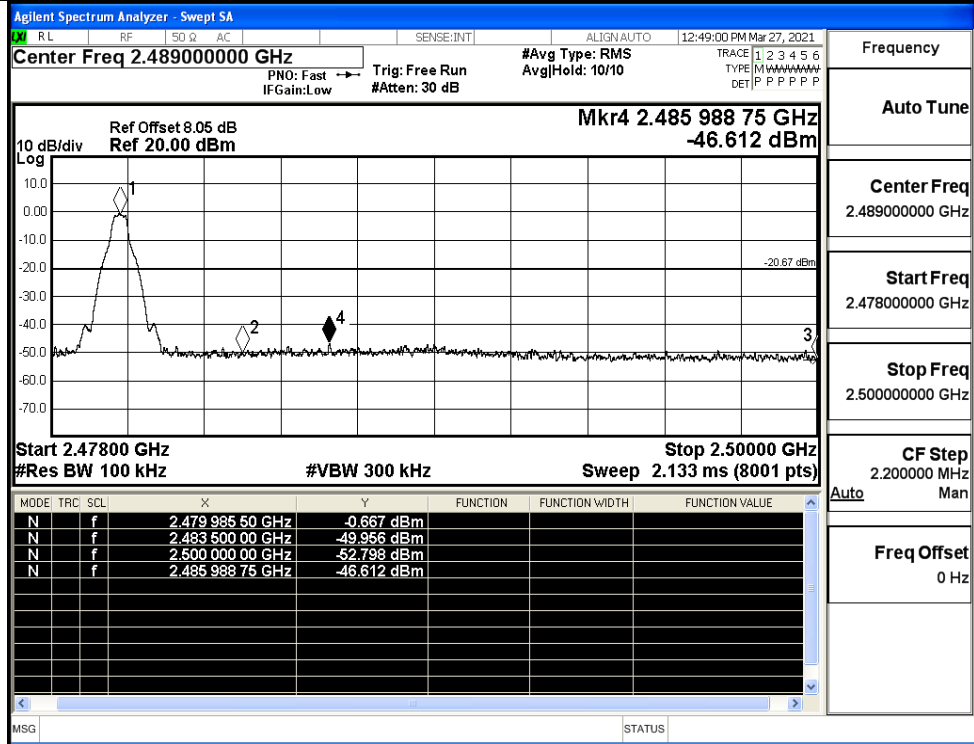
GFSK/LCH/No Hop



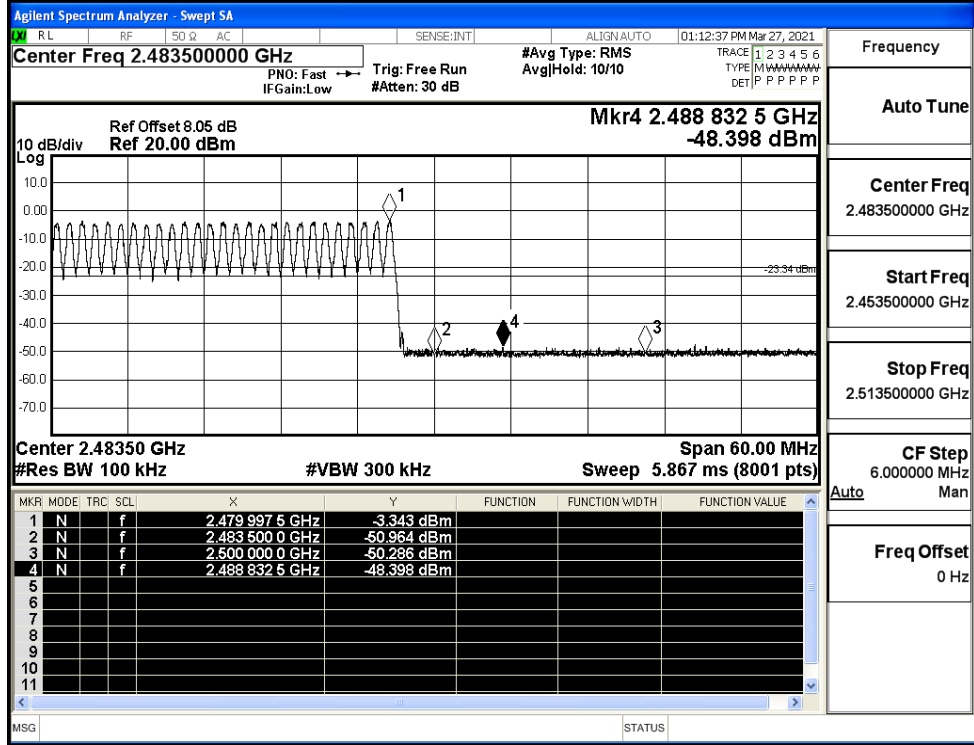
GFSK/LCH/Hop



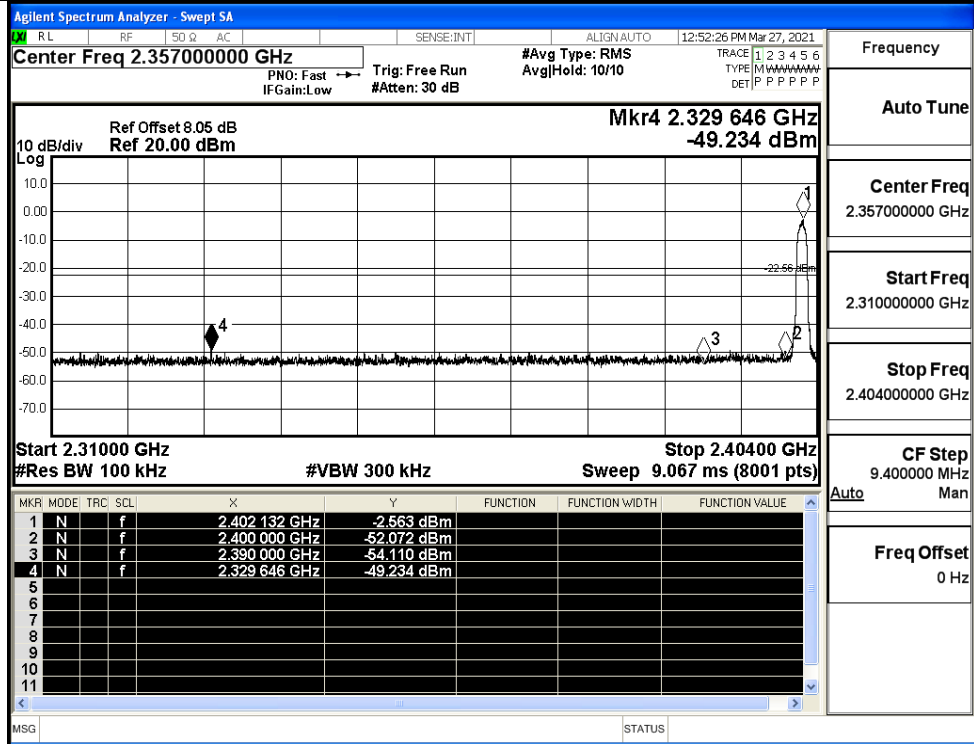
GFSK/HCH/No Hop



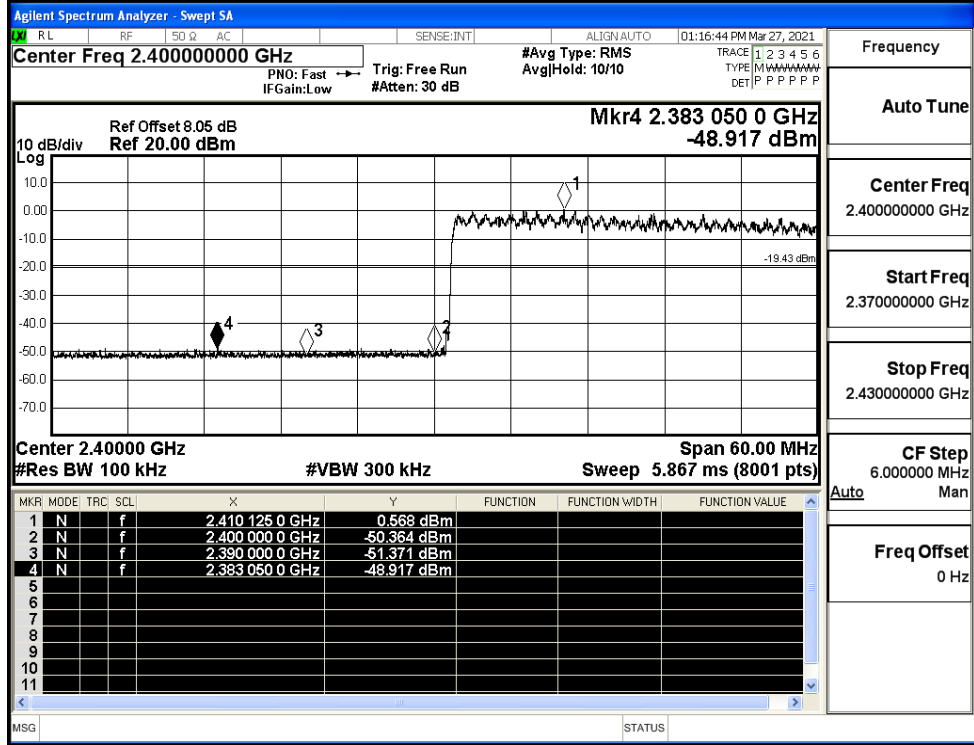
GFSK/HCH/Hop



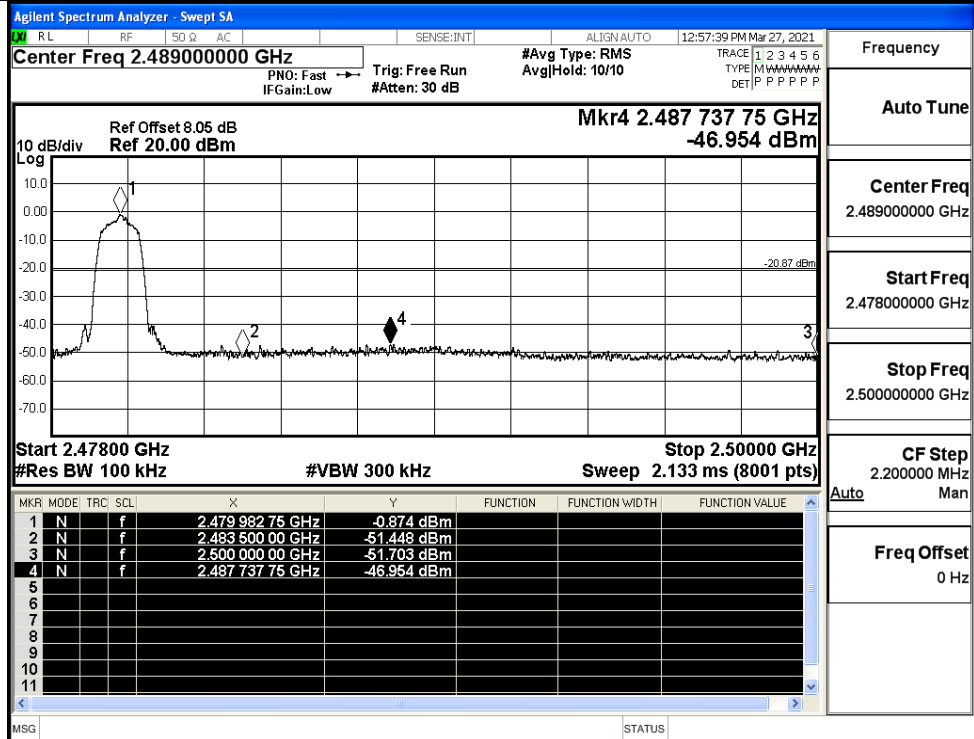
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop

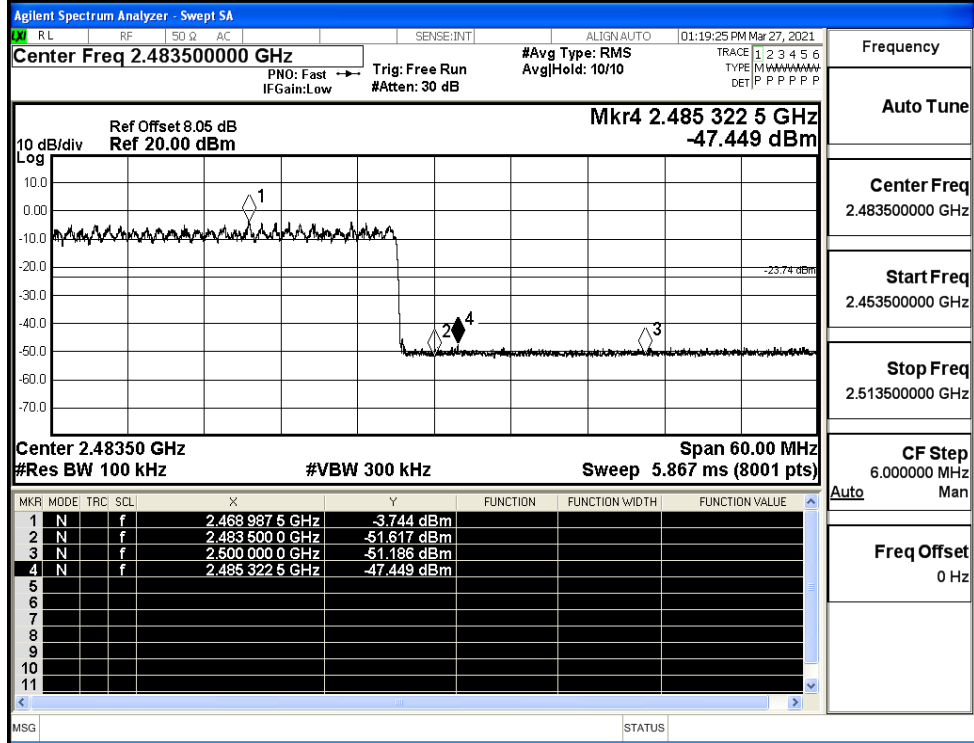


π /4DQPSK/HCH/No
Hop



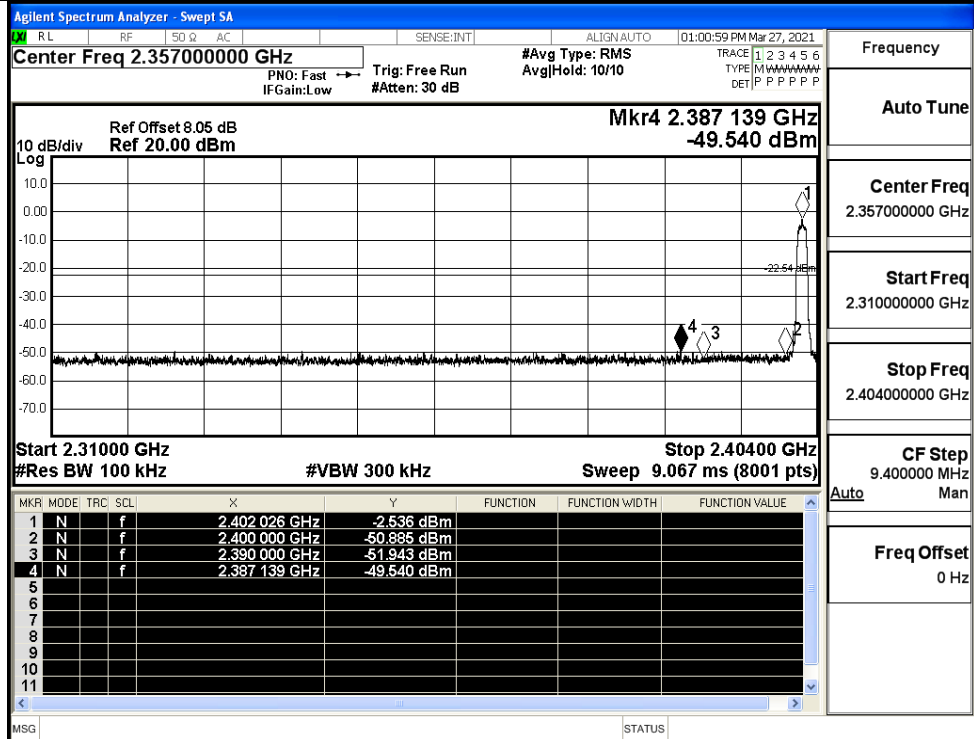
Frequency
Auto Tune
Center Freq
2.489000000 GHz
Start Freq
2.478000000 GHz
Stop Freq
2.500000000 GHz
CF Step
2.200000 MHz
Freq Offset
0 Hz

π /4DQPSK/HCH/Hop



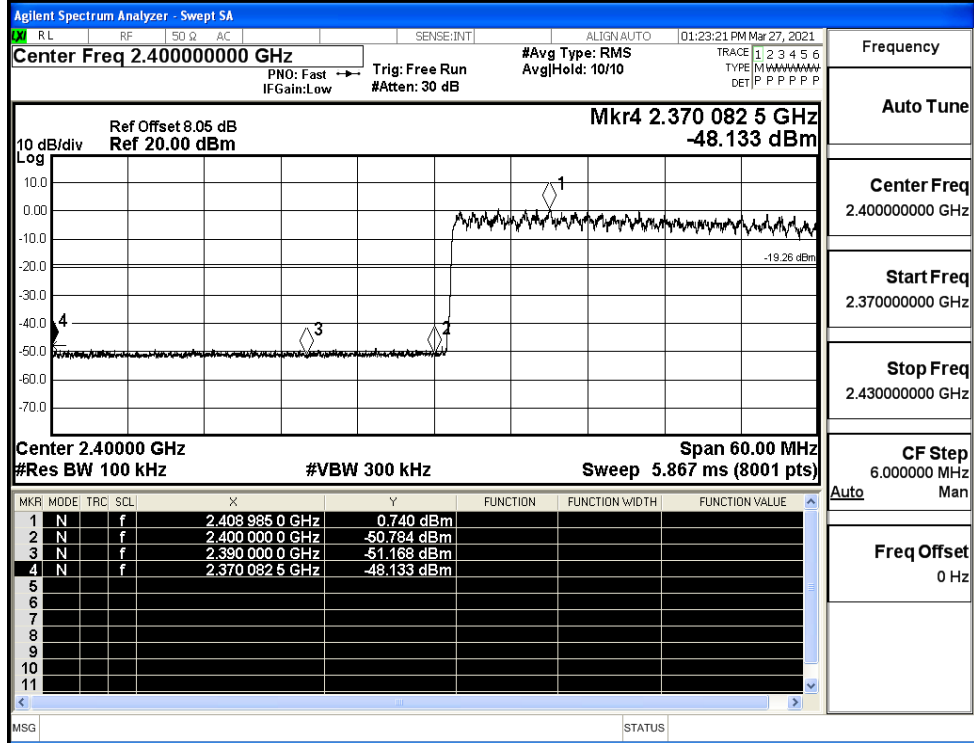
Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Freq Offset
0 Hz

8DPSK/LCH/No Hop



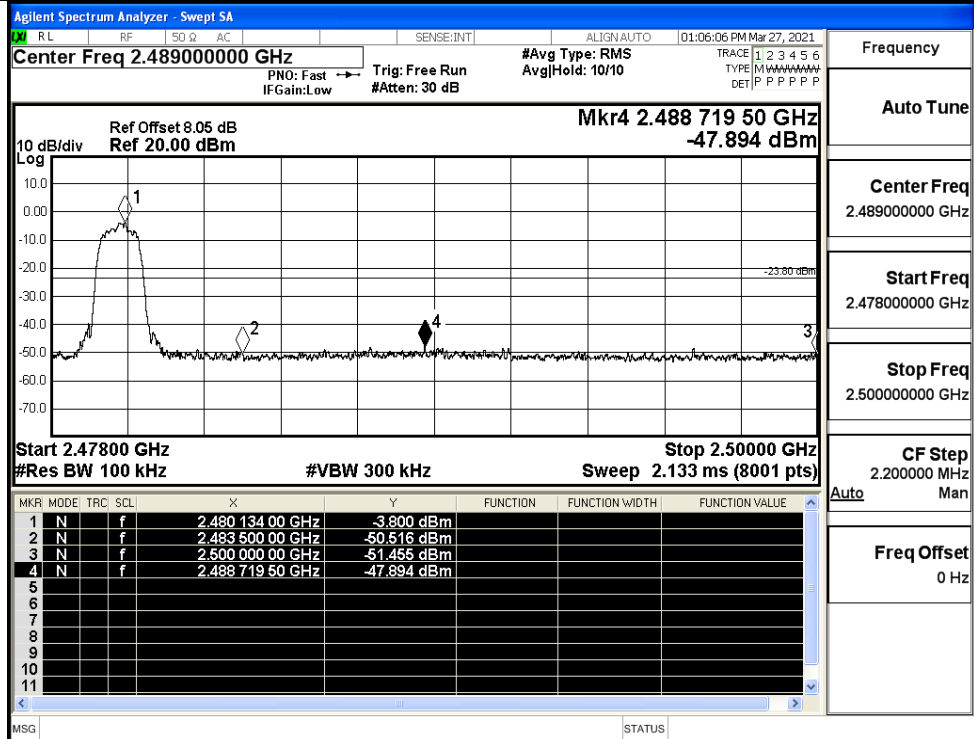
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



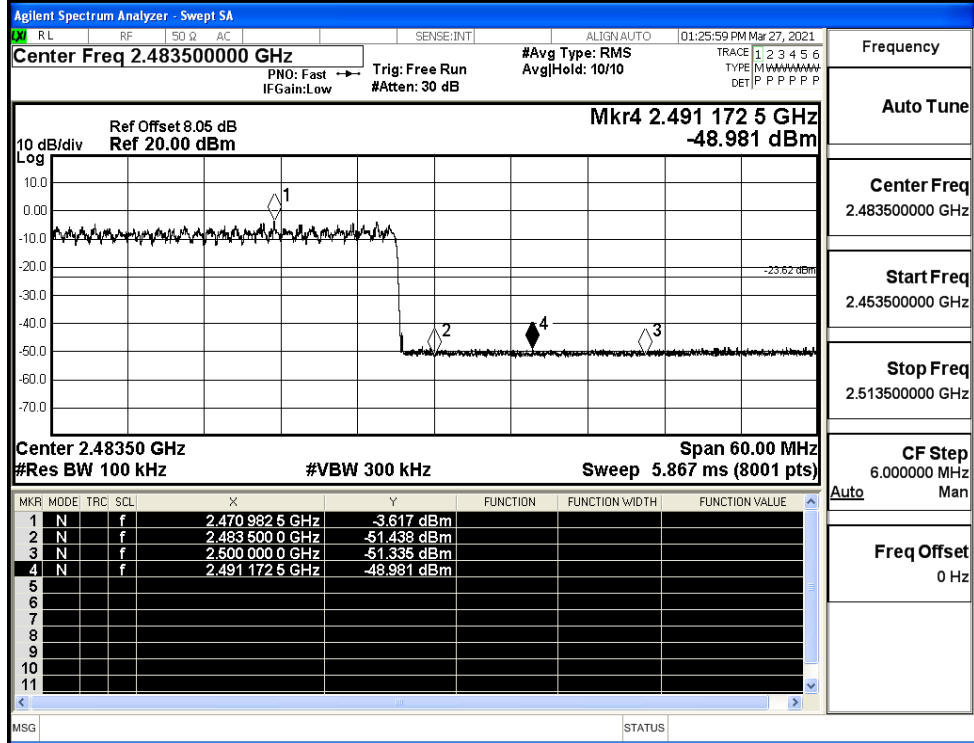
Frequency
Auto Tune
Center Freq
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Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

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

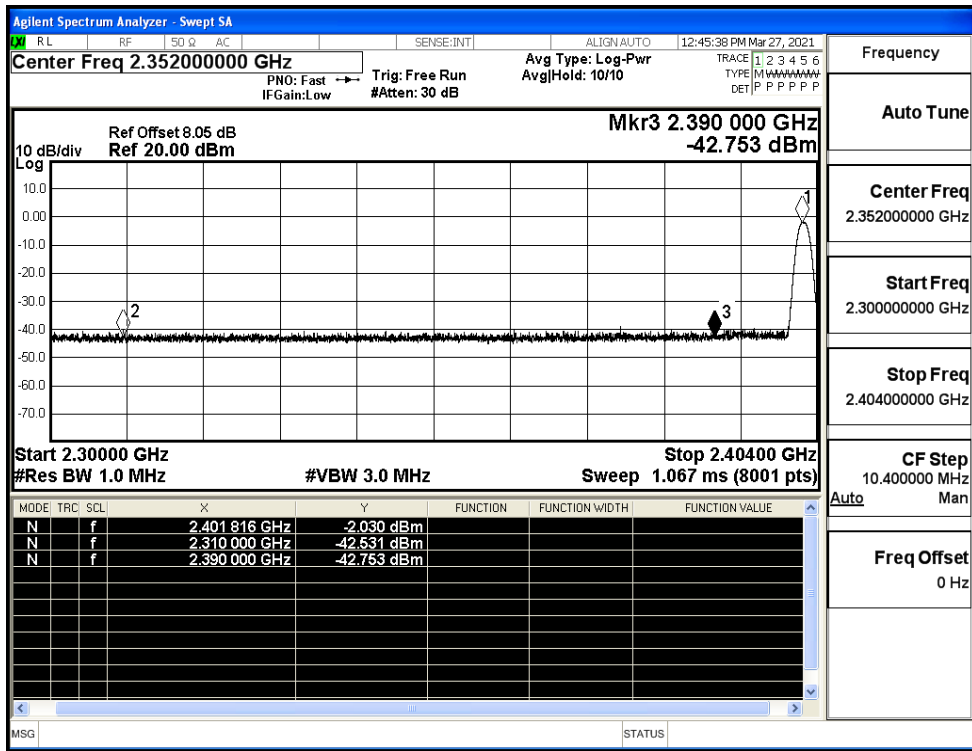


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.463500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

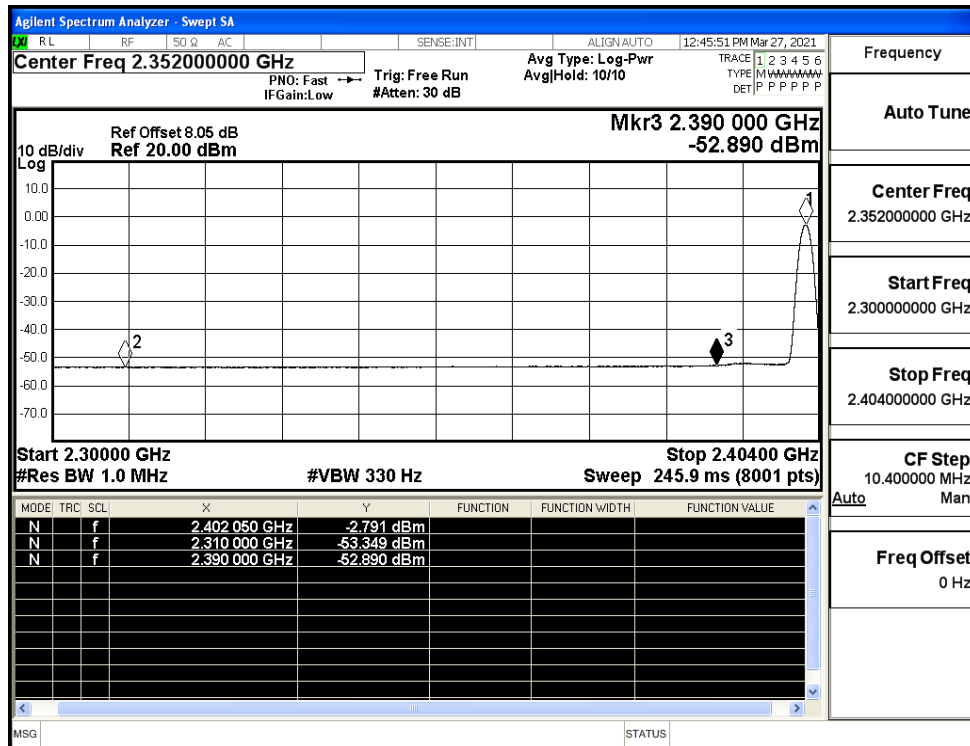
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.53	2.0	0	54.73	PEAK	74	PASS
	Off	2310.0	-53.35	2.0	0	43.91	AV	54	PASS
	Off	2390.0	-42.75	2.0	0	54.51	PEAK	74	PASS
	Off	2390.0	-52.89	2.0	0	44.37	AV	54	PASS
	Off	2483.5	-41.19	2.0	0	56.07	PEAK	74	PASS
	Off	2483.5	-50.82	2.0	0	46.44	AV	54	PASS
	Off	2500.0	-42.49	2.0	0	54.77	PEAK	74	PASS
	Off	2500.0	-52.22	2.0	0	45.04	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.15	2.0	0	54.11	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	43.83	AV	54	PASS
	Off	2390.0	-41.87	2.0	0	55.39	PEAK	74	PASS
	Off	2390.0	-52.78	2.0	0	44.48	AV	54	PASS
	Off	2483.5	-41.21	2.0	0	56.05	PEAK	74	PASS
	Off	2483.5	-50.77	2.0	0	46.49	AV	54	PASS
	Off	2500.0	-40.77	2.0	0	56.49	PEAK	74	PASS
	Off	2500.0	-52.00	2.0	0	45.26	AV	54	PASS
8DPSK	Off	2310.0	-42.20	2.0	0	55.06	PEAK	74	PASS
	Off	2310.0	-53.17	2.0	0	44.09	AV	54	PASS
	Off	2390.0	-41.63	2.0	0	55.63	PEAK	74	PASS
	Off	2390.0	-52.81	2.0	0	44.45	AV	54	PASS
	Off	2483.5	-42.03	2.0	0	55.23	PEAK	74	PASS
	Off	2483.5	-51.57	2.0	0	45.69	AV	54	PASS
	Off	2500.0	-42.00	2.0	0	55.26	PEAK	74	PASS
	Off	2500.0	-52.31	2.0	0	44.95	AV	54	PASS

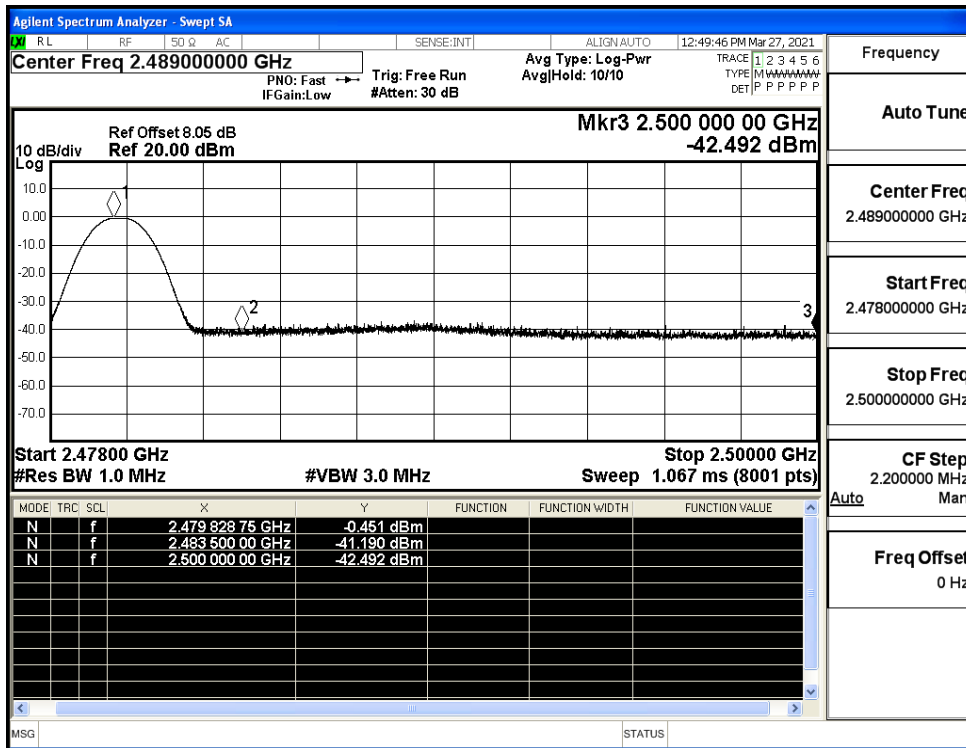
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



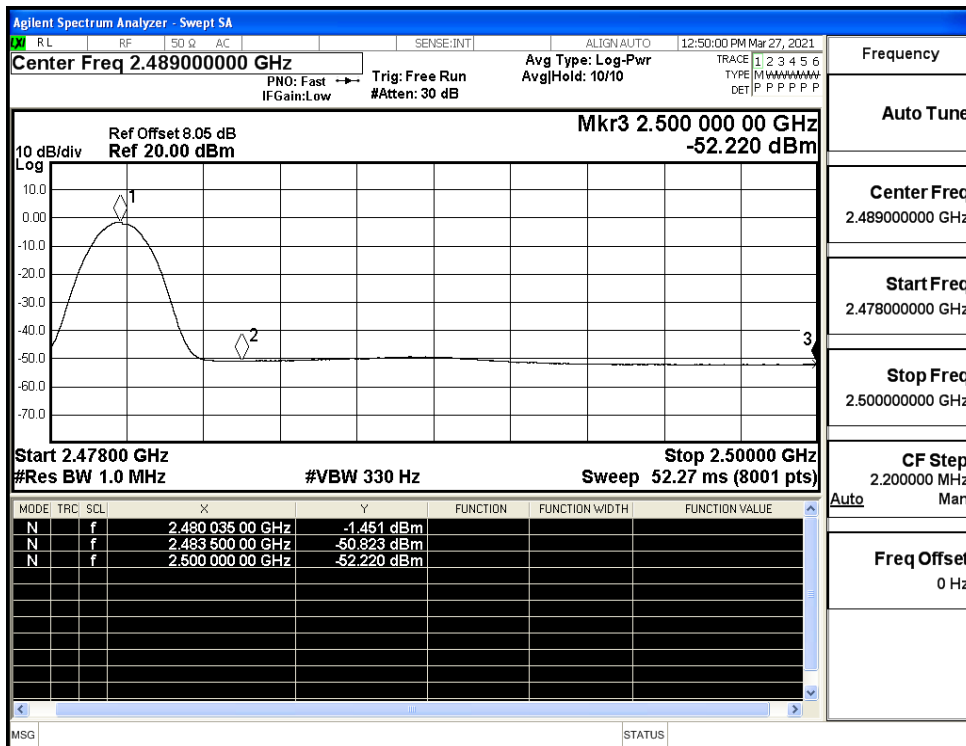
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



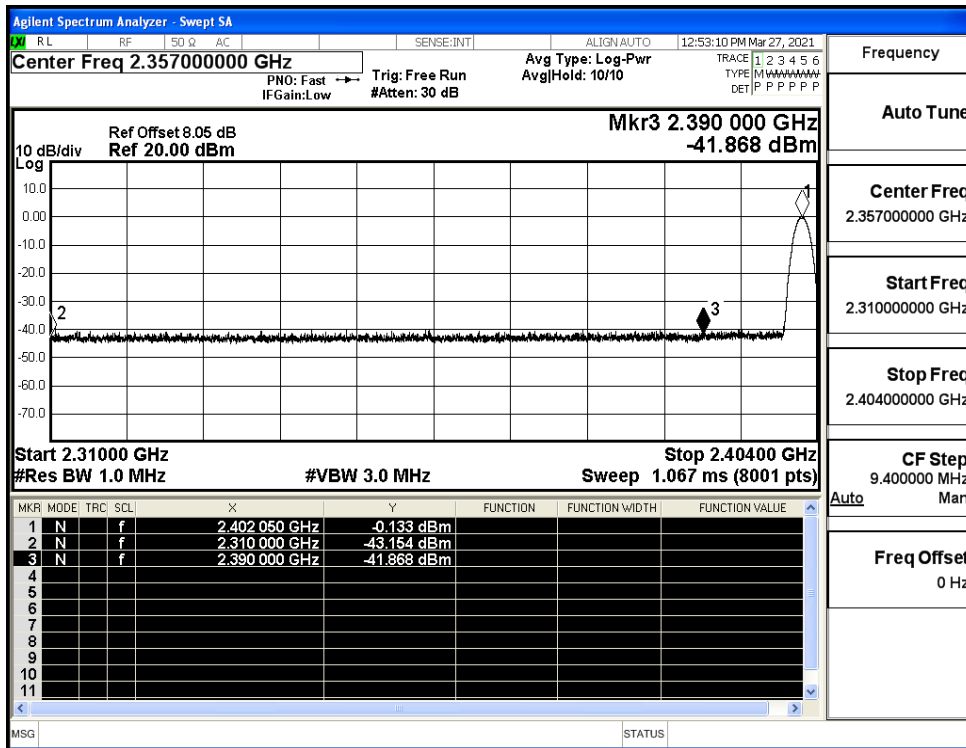
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



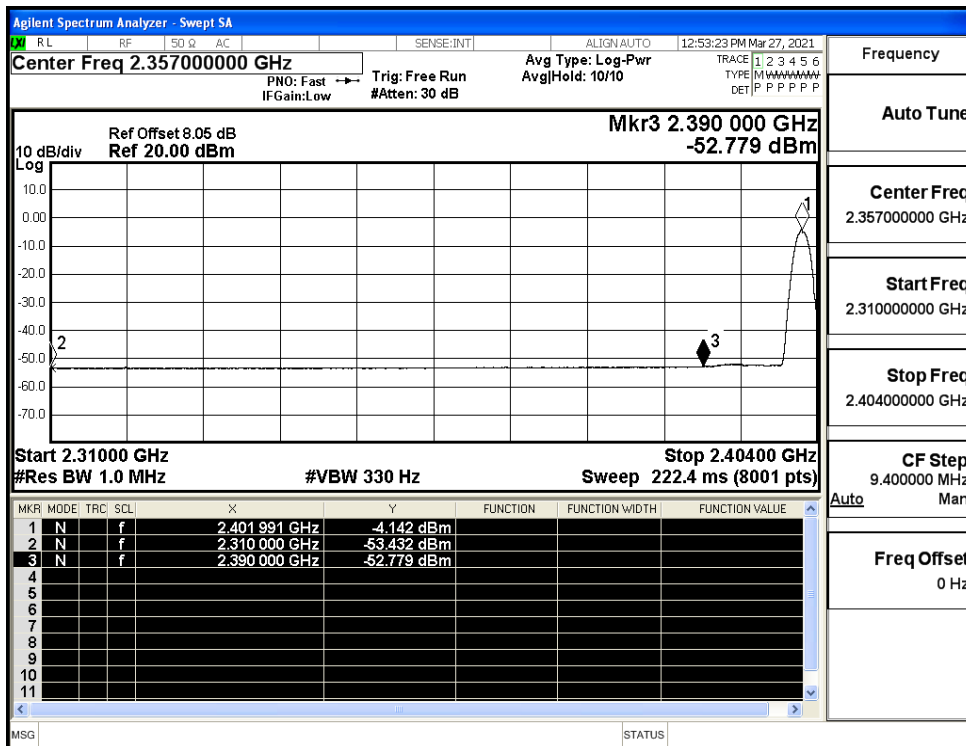
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



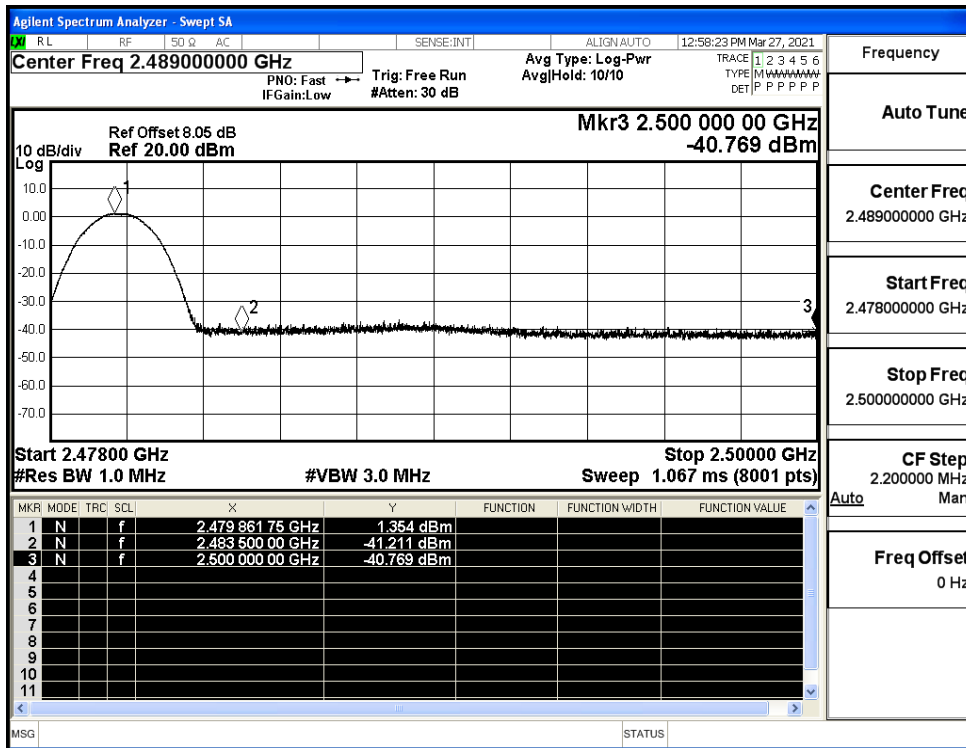
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



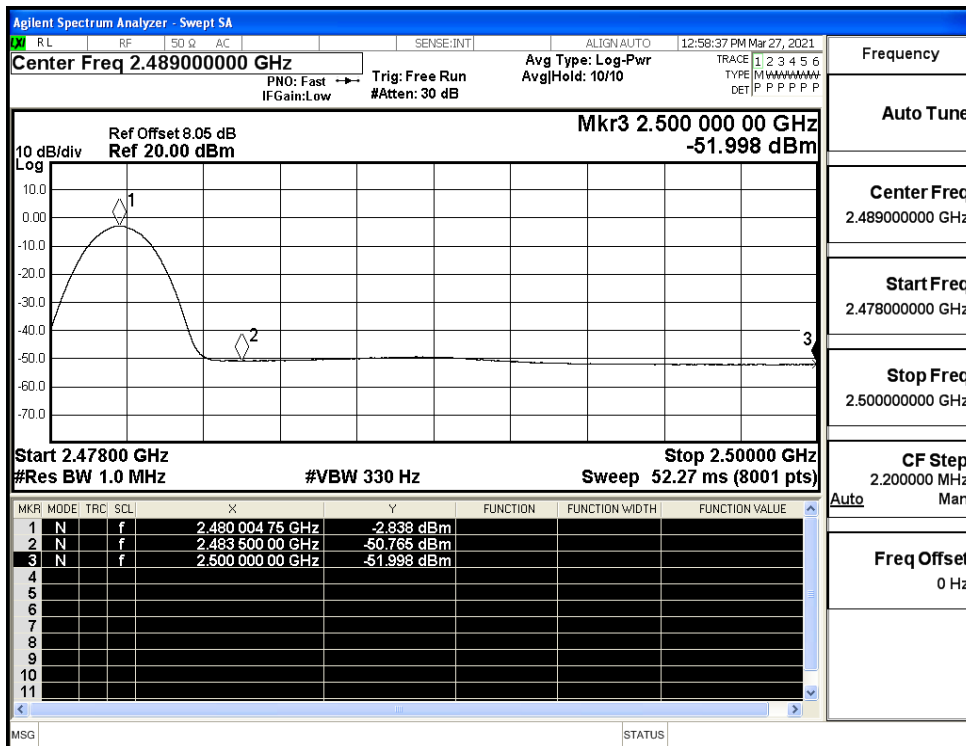
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



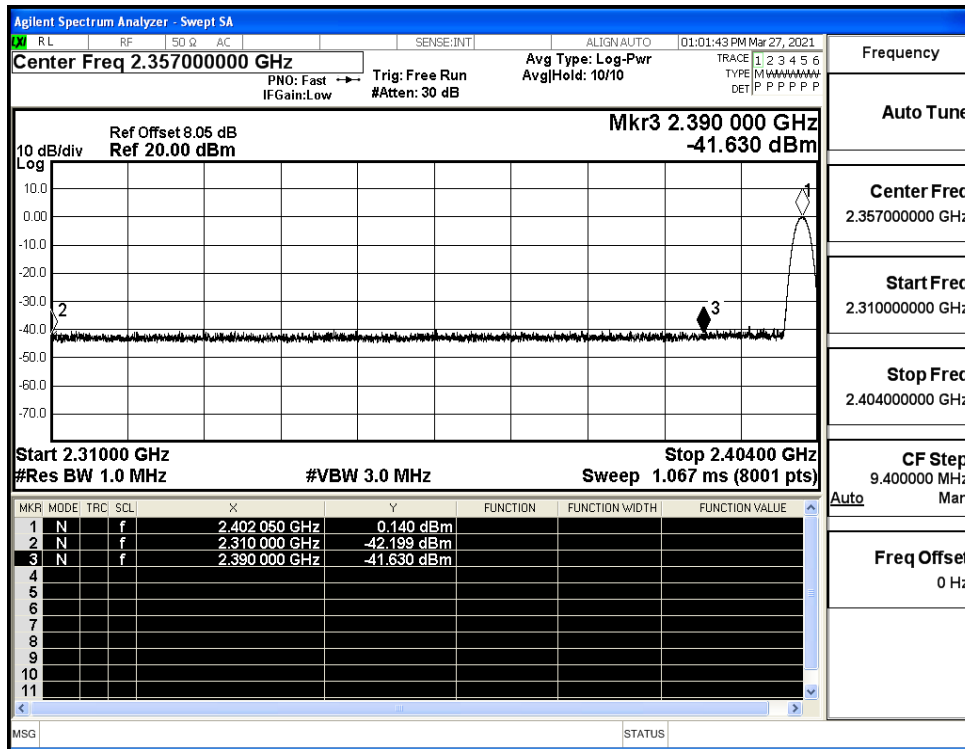
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



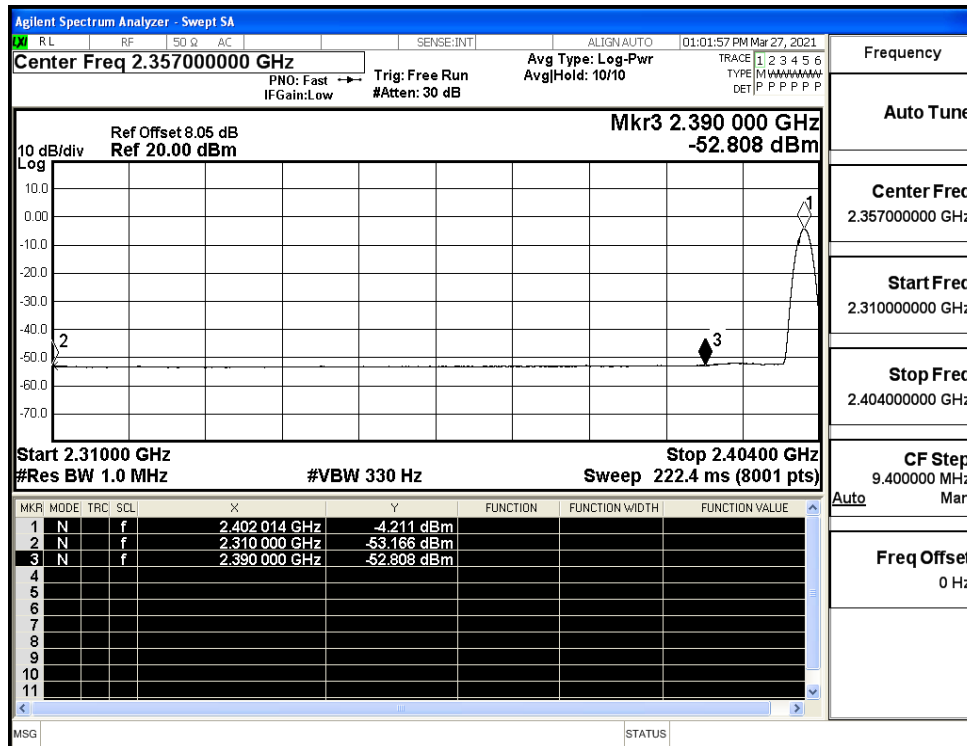
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



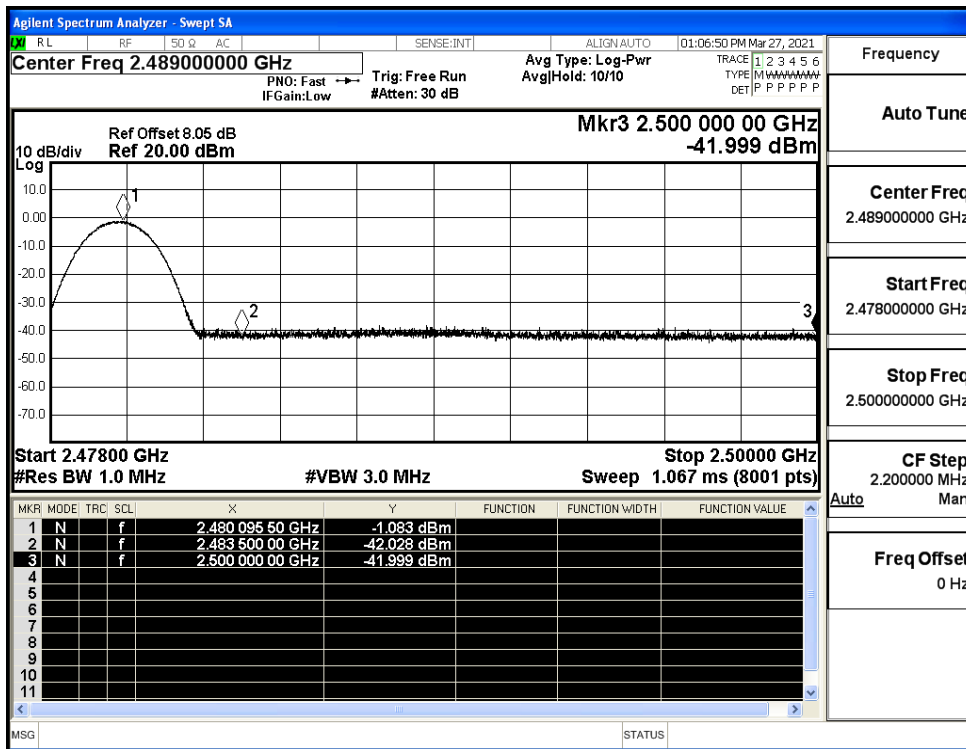
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

