

Appendix A

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

Product Name: BABI Angel Alarm

Trade Mark: BABI

Test Model: BAA1001

Environmental Conditions

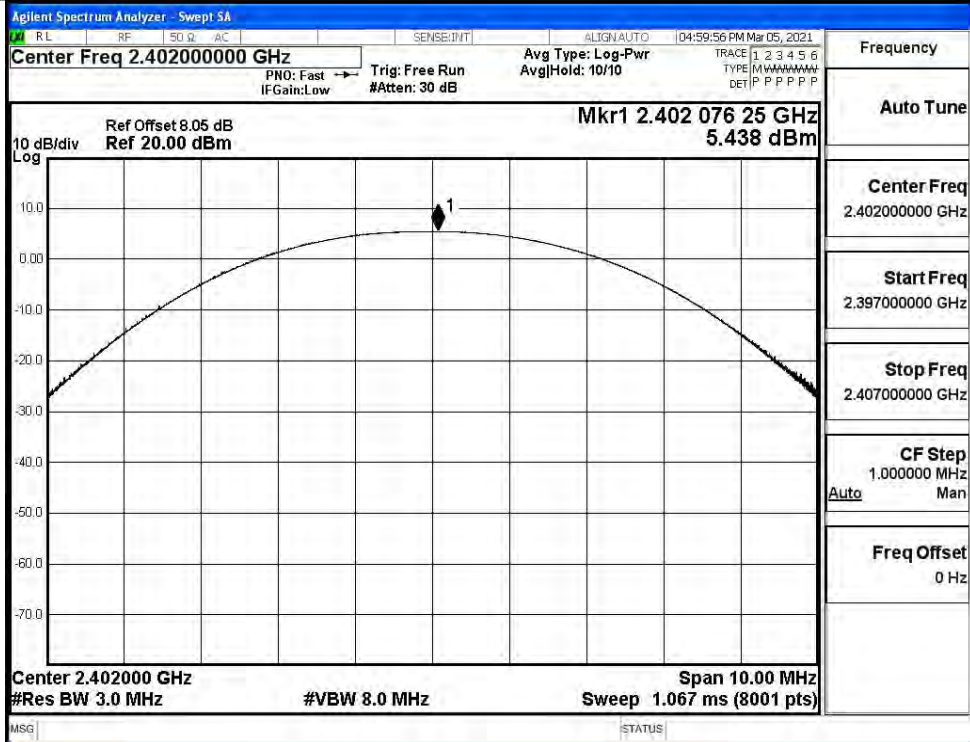
Temperature:	24.4 ° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

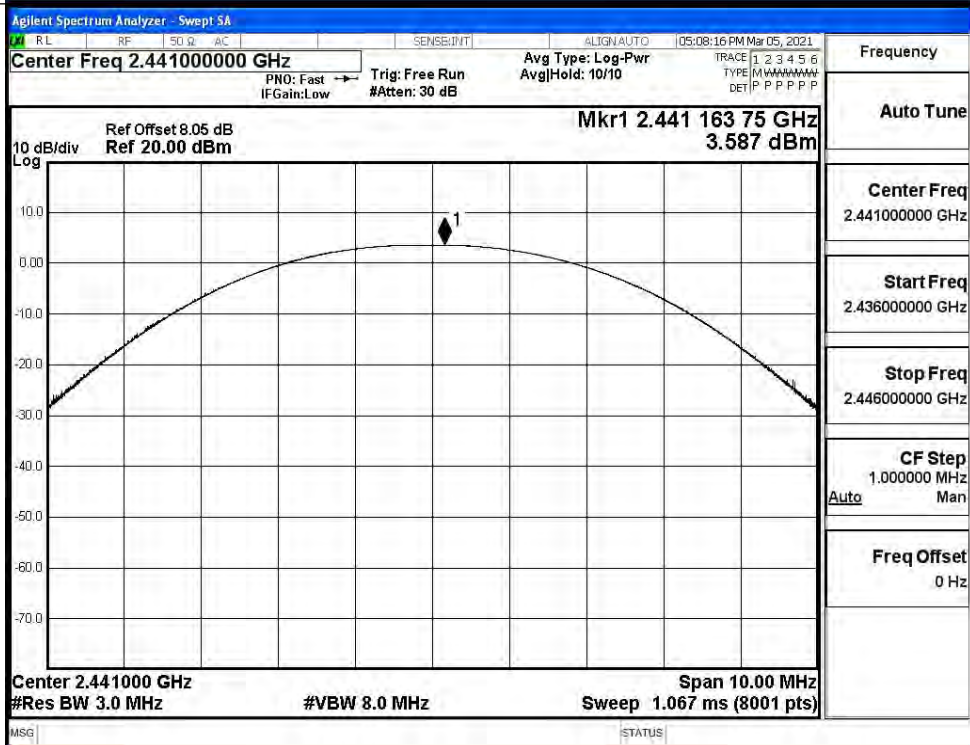
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	5.438	21	PASS
	MCH	3.587	21	PASS
	HCH	-2.765	21	PASS
$\pi/4$ DQPSK	LCH	0.413	21	PASS
	MCH	1.183	21	PASS
	HCH	-1.060	21	PASS
8DPSK	LCH	0.828	21	PASS
	MCH	1.495	21	PASS
	HCH	-0.578	21	PASS

Test Graphs

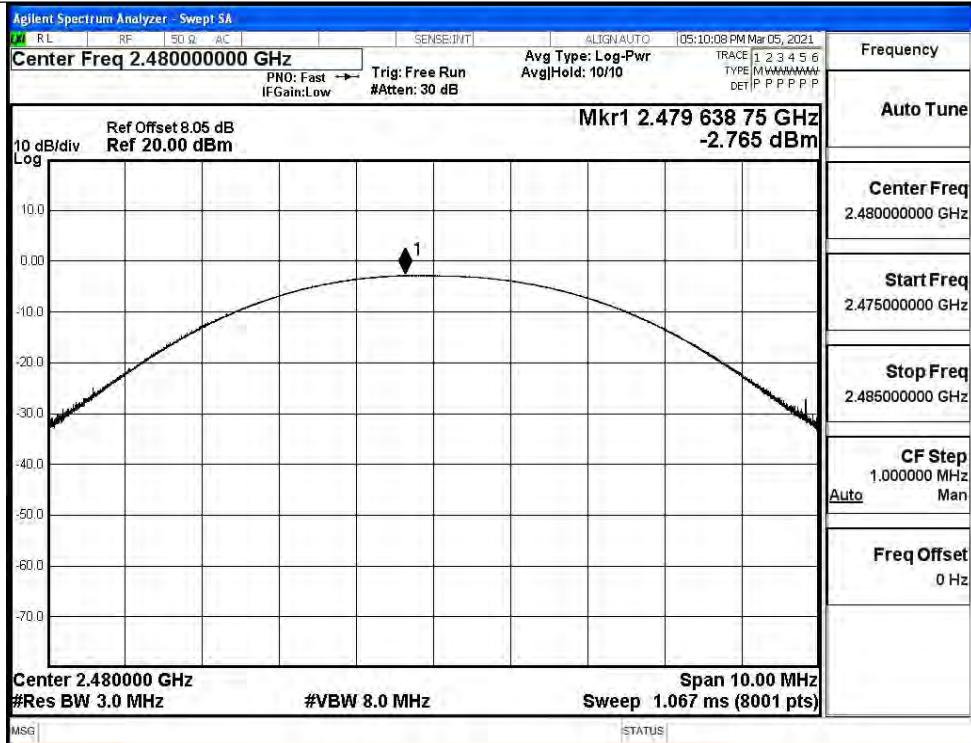
GFSK/LCH



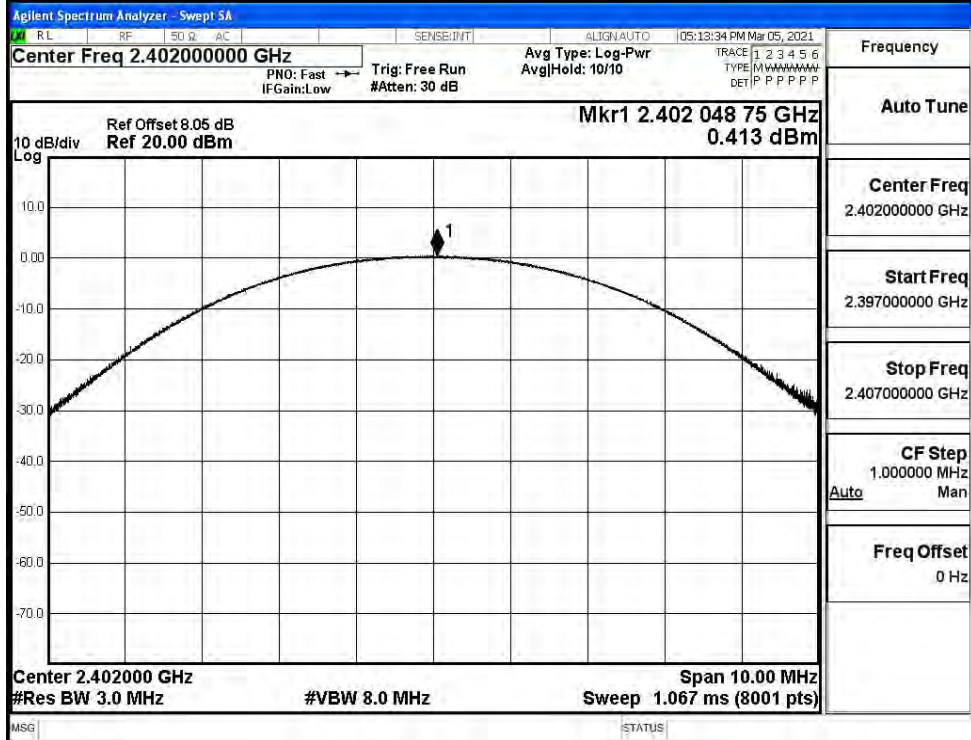
GFSK/MCH



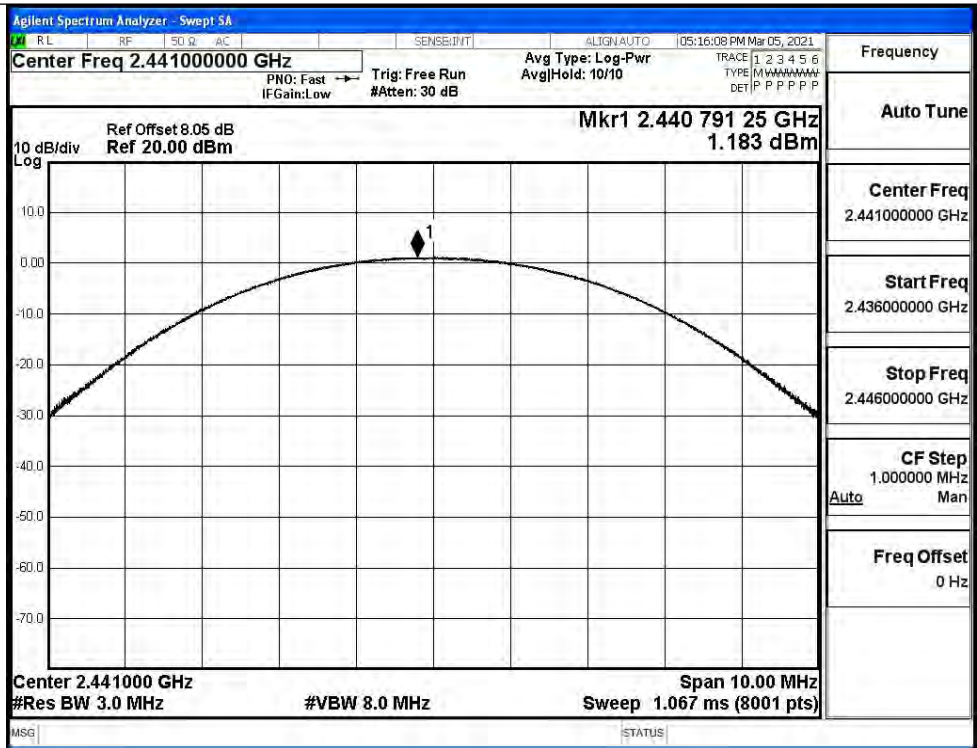
GFSK/HCH



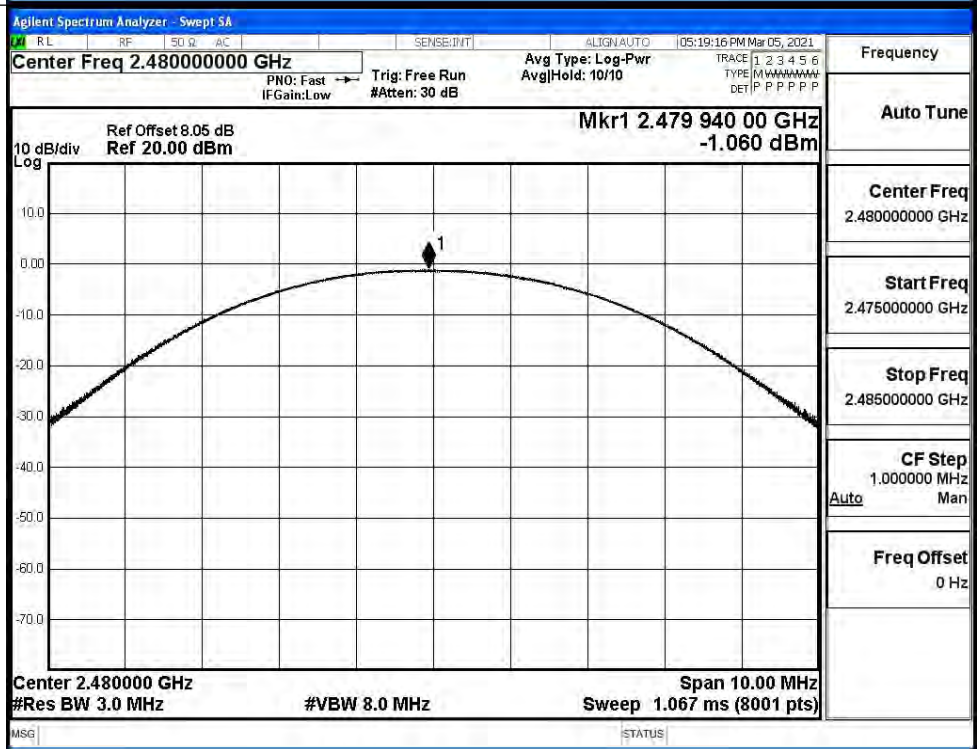
$\pi/4$ DQPSK/LCH



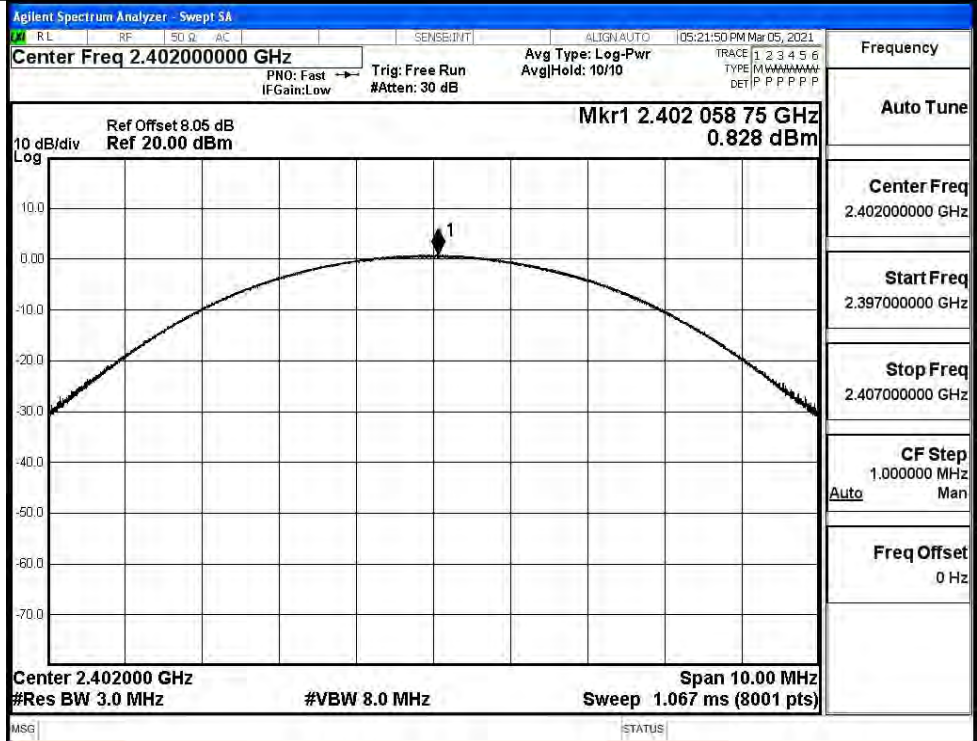
π /4DQPSK/MCH



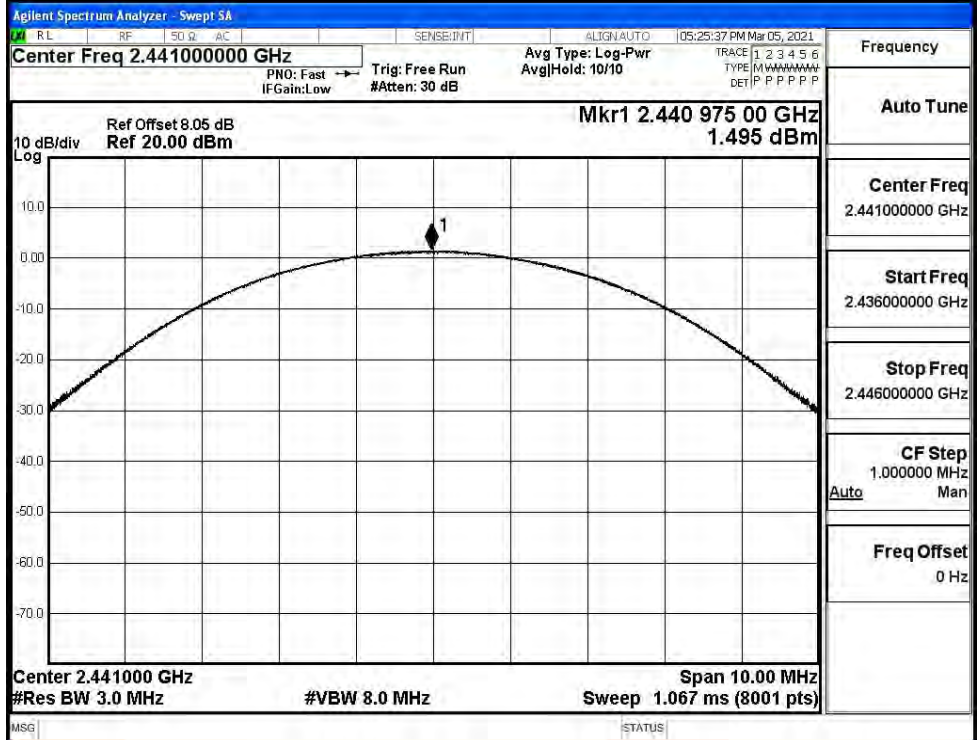
π /4DQPSK/HCH



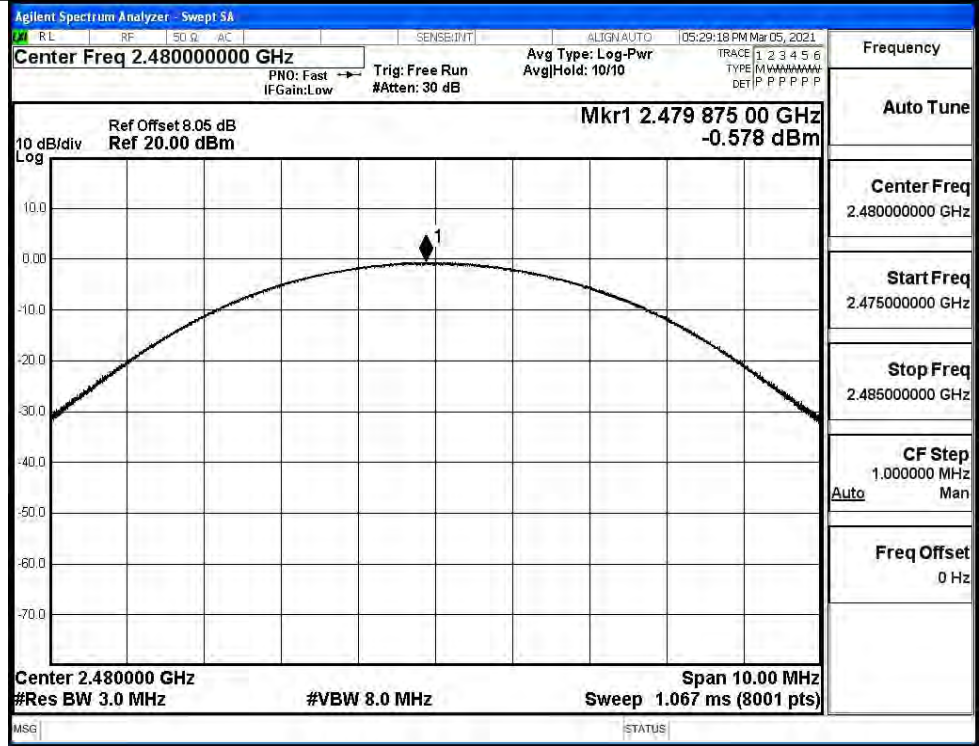
8DPSK/LCH



8DPSK/MCH

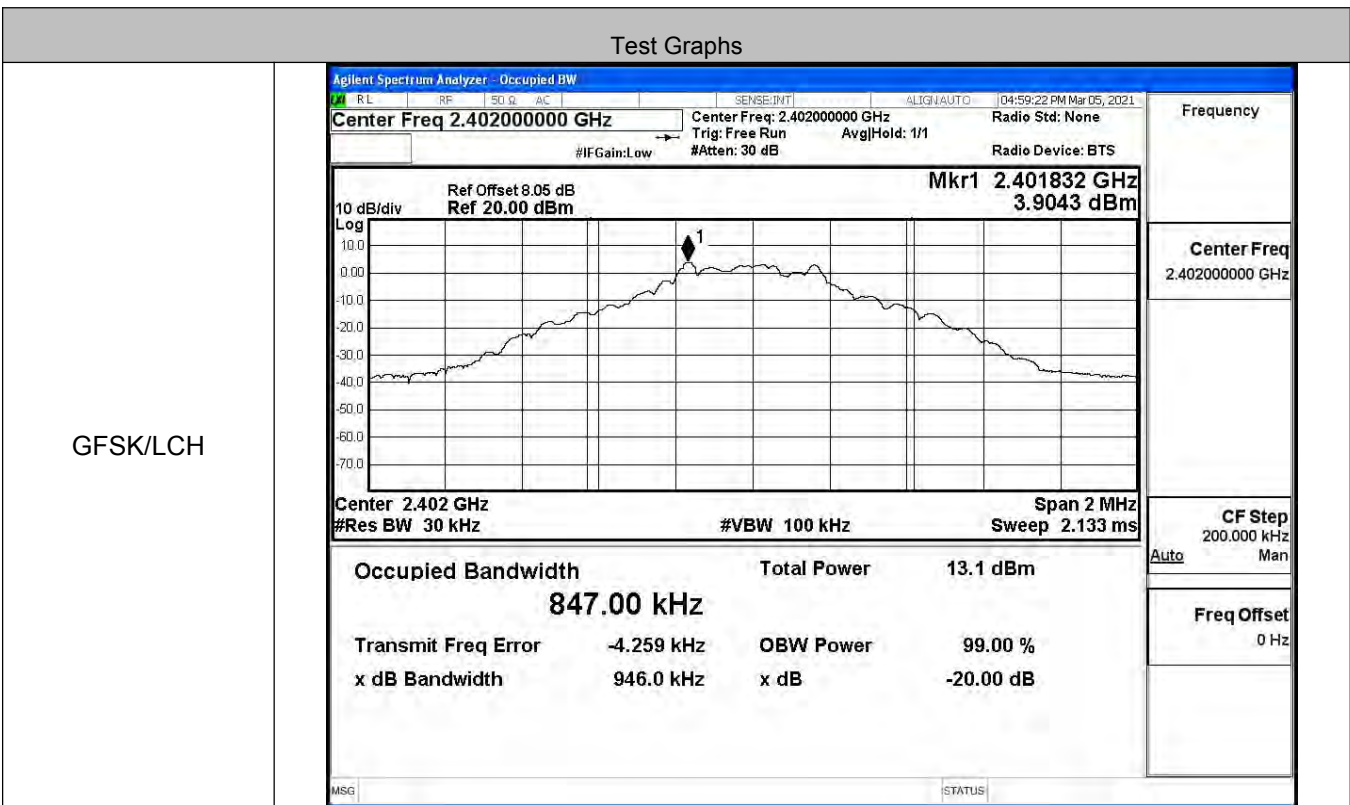


8DPSK/HCH

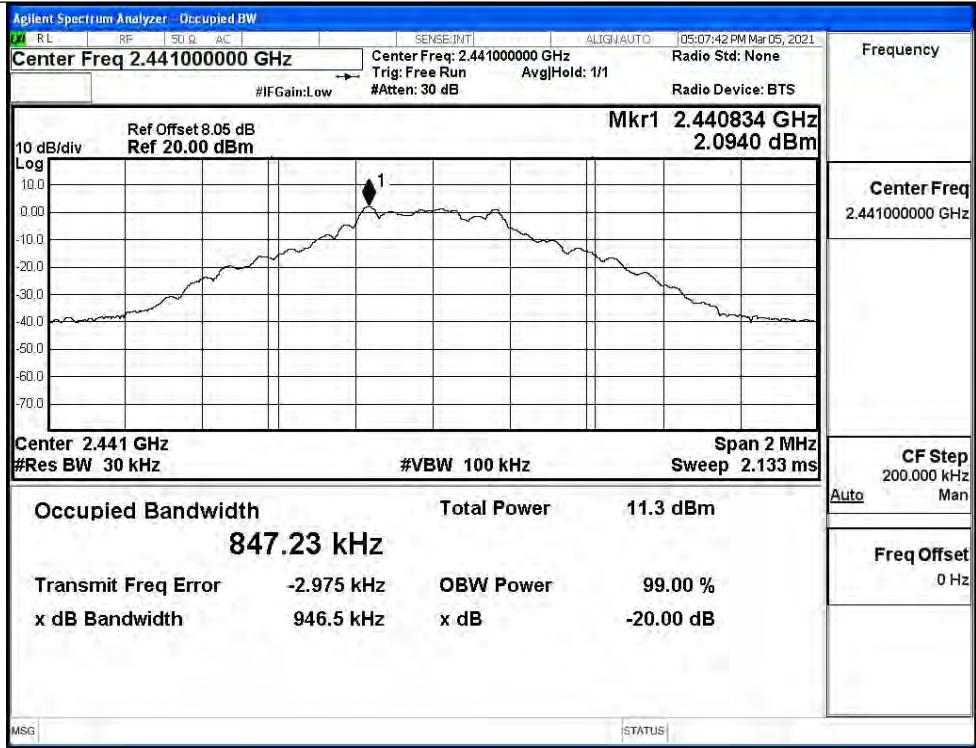


A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9460	Not Specified	PASS
	MCH	0.9465	Not Specified	PASS
	HCH	0.9441	Not Specified	PASS
π/4DQPSK	LCH	1.289	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.289	Not Specified	PASS
8DPSK	LCH	1.301	Not Specified	PASS
	MCH	1.300	Not Specified	PASS
	HCH	1.300	Not Specified	PASS



GFSK/MCH



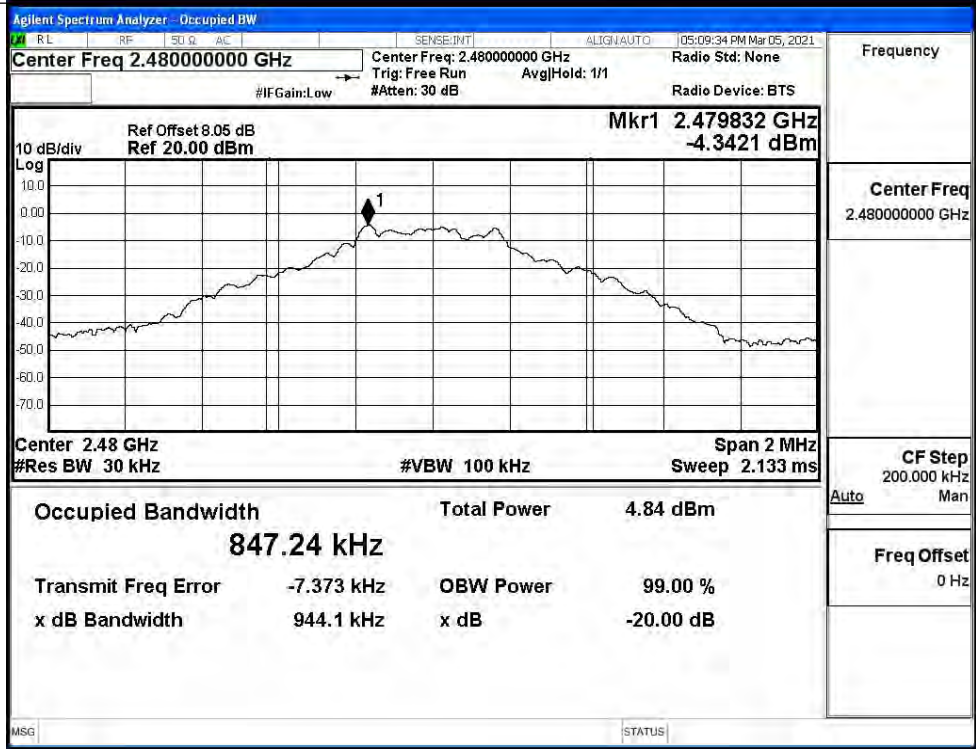
Frequency
2.441000000 GHz

Center Freq
2.441000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

GFSK/HCH



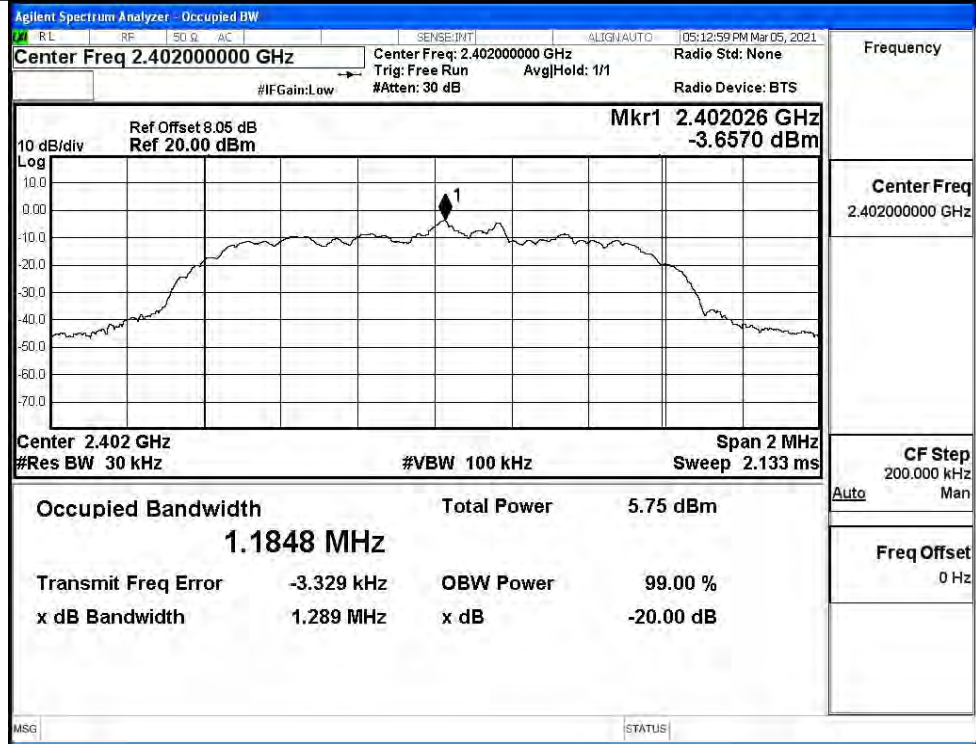
Frequency
2.480000000 GHz

Center Freq
2.480000000 GHz

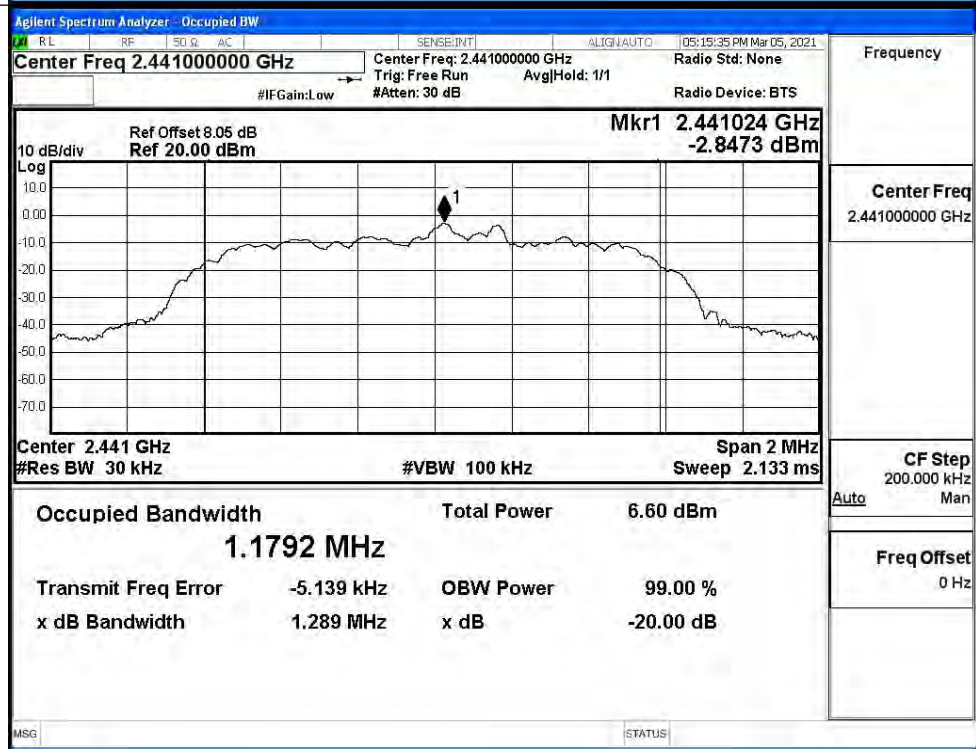
CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

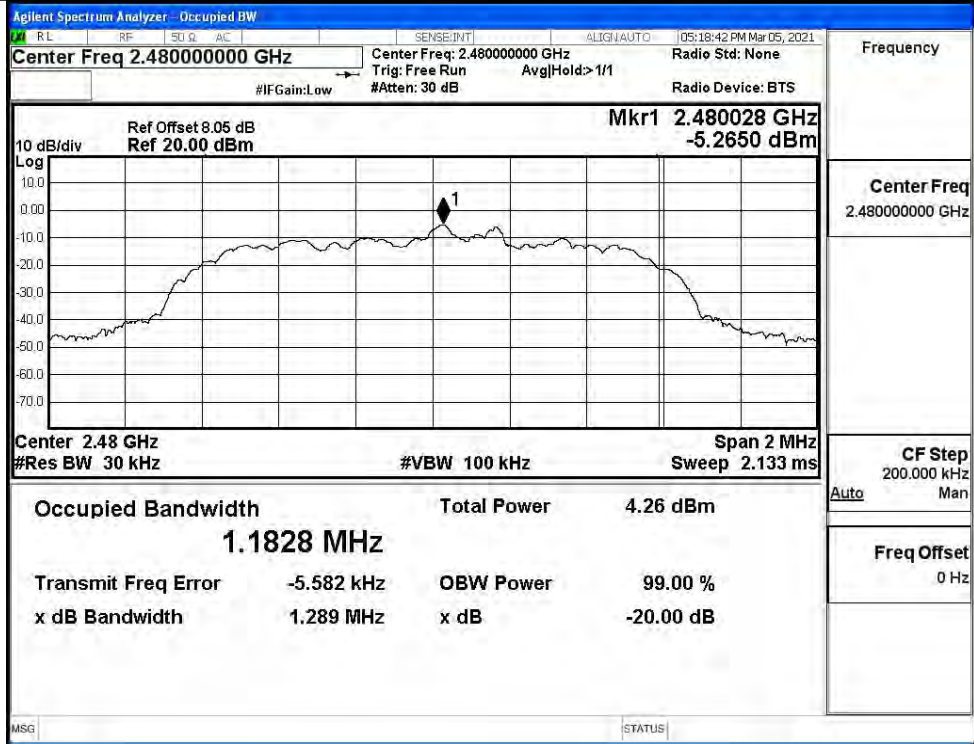
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

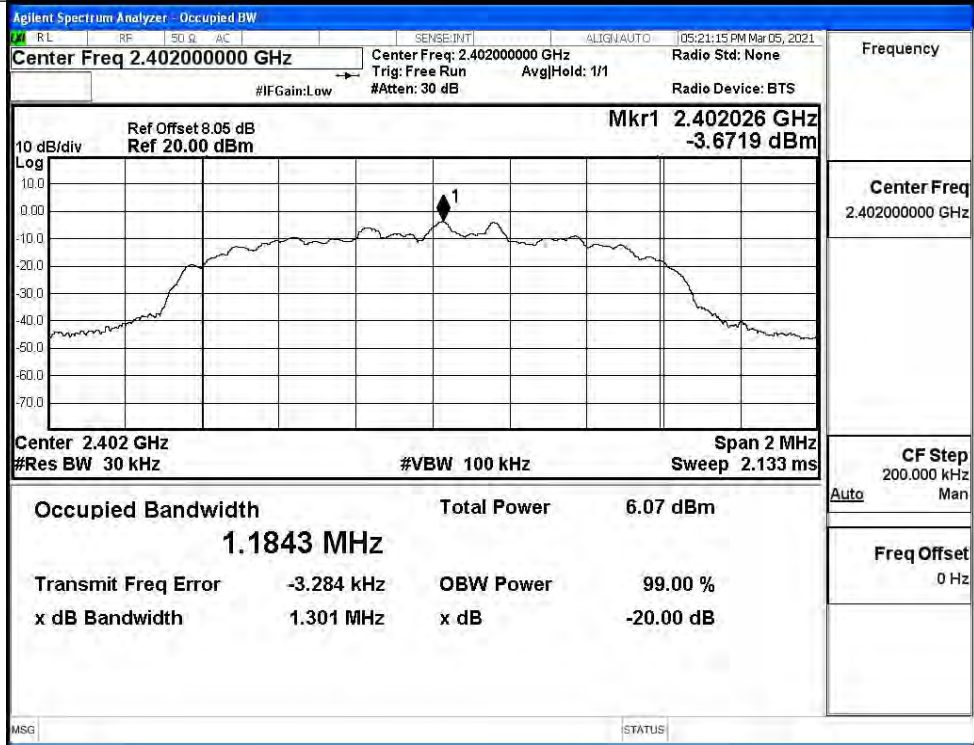


$\pi/4$ DQPSK/HCH



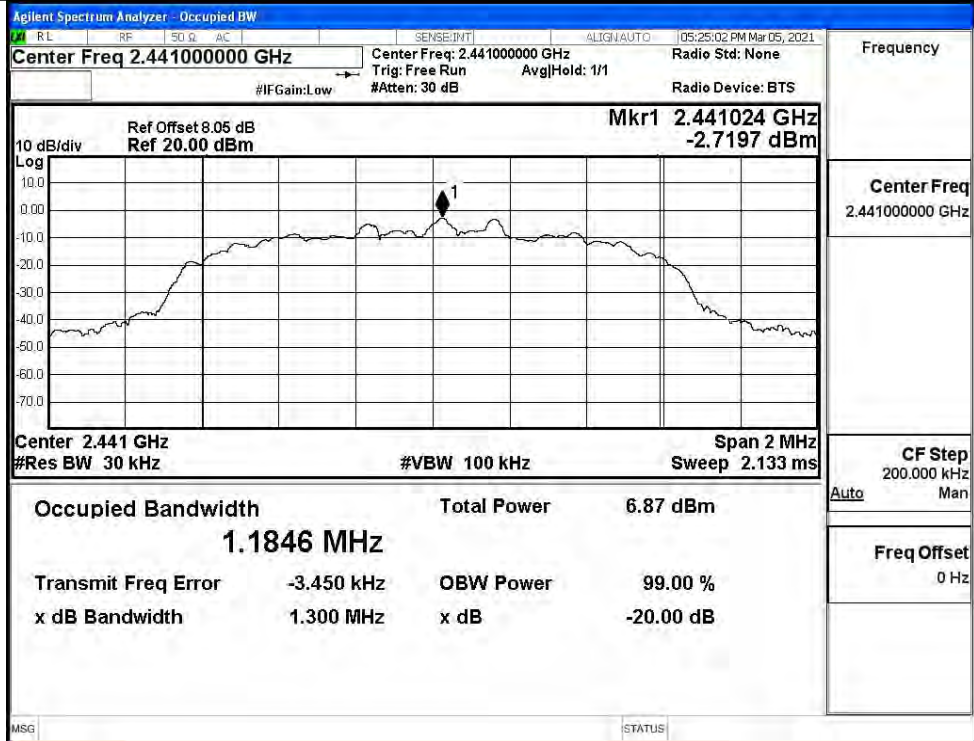
Frequency	2.48000000 GHz
Center Freq	2.480000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH



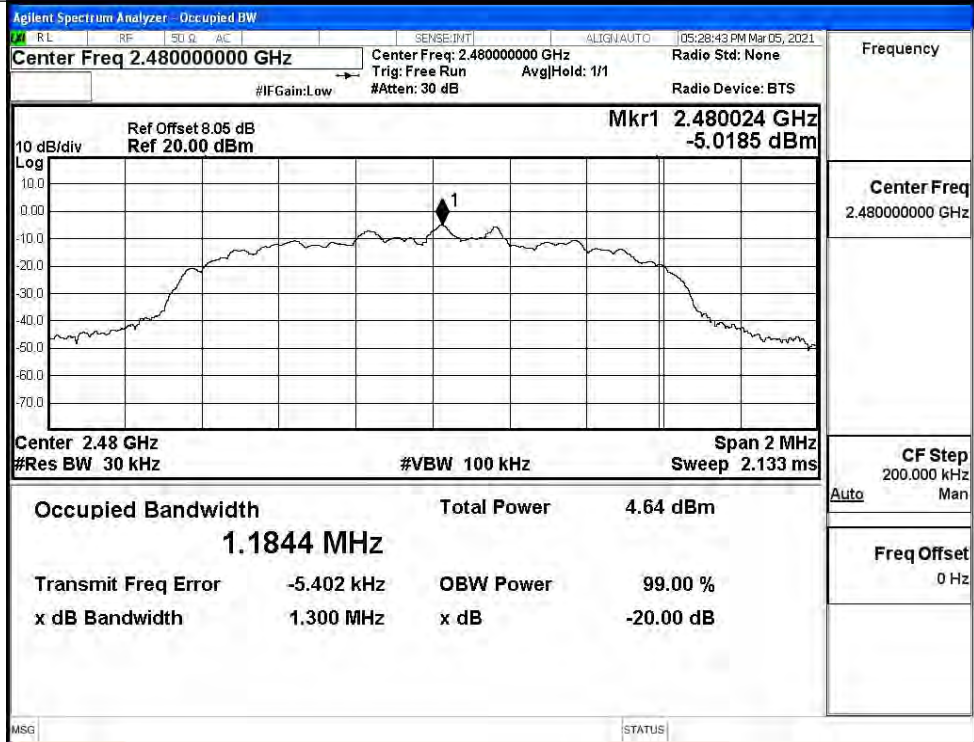
Frequency	2.40200000 GHz
Center Freq	2.402000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

8DPSK/MCH



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

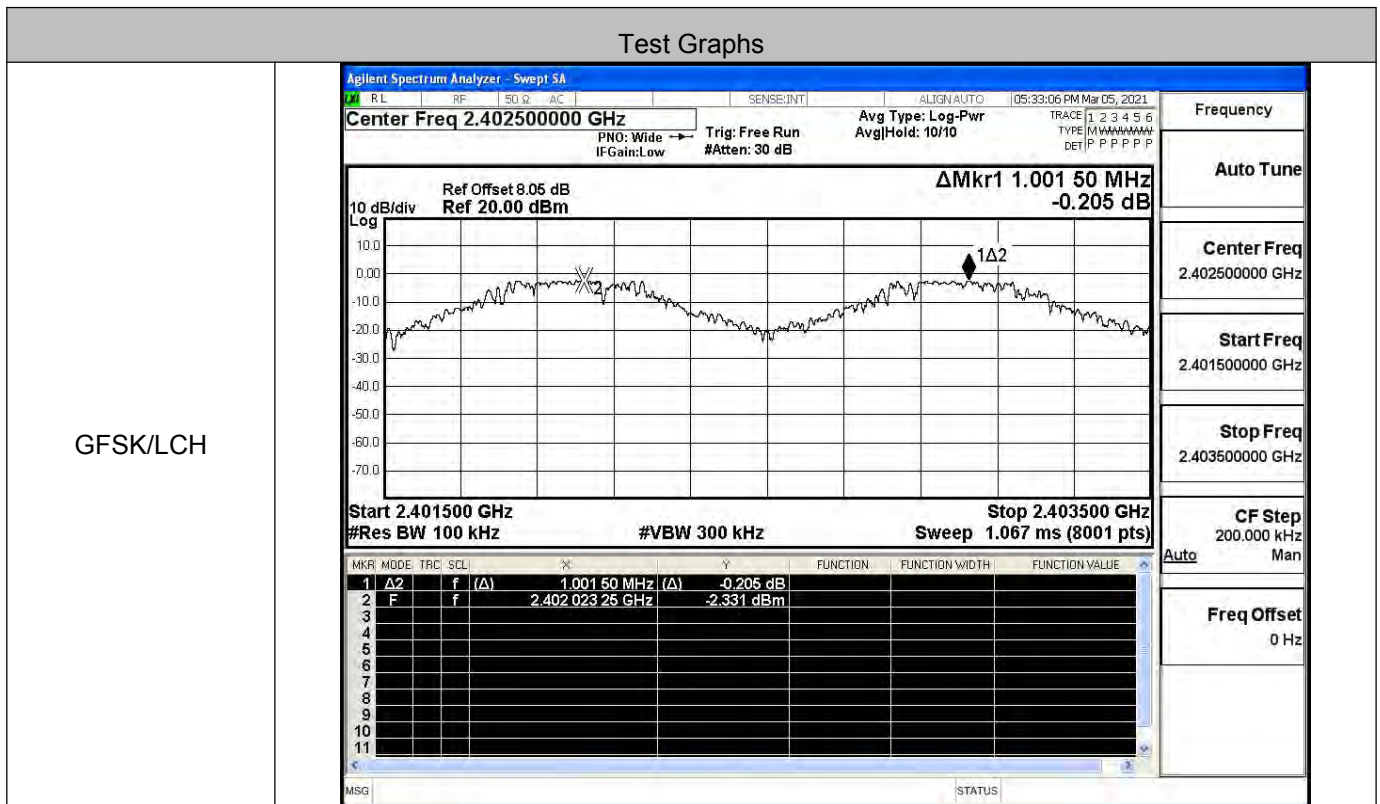
8DPSK/HCH



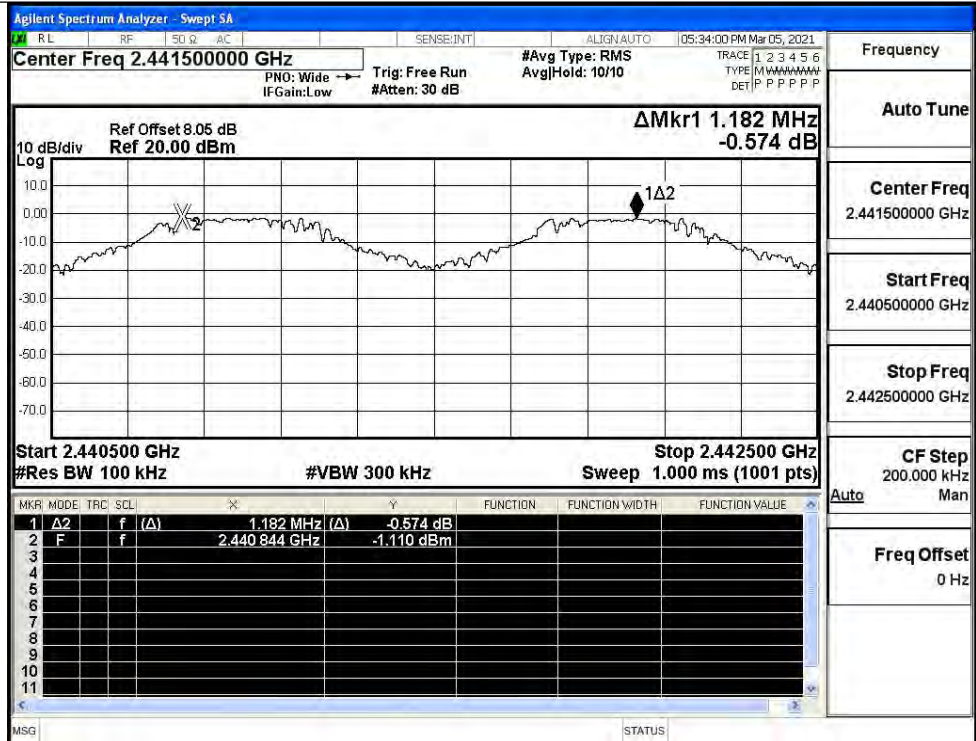
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.001	0.631	PASS
	MCH	1.182	0.631	PASS
	HCH	1.134	0.629	PASS
π/4DQPSK	LCH	1.042	0.859	PASS
	MCH	1.324	0.859	PASS
	HCH	0.962	0.859	PASS
8DPSK	LCH	1.070	0.867	PASS
	MCH	0.996	0.867	PASS
	HCH	1.120	0.867	PASS

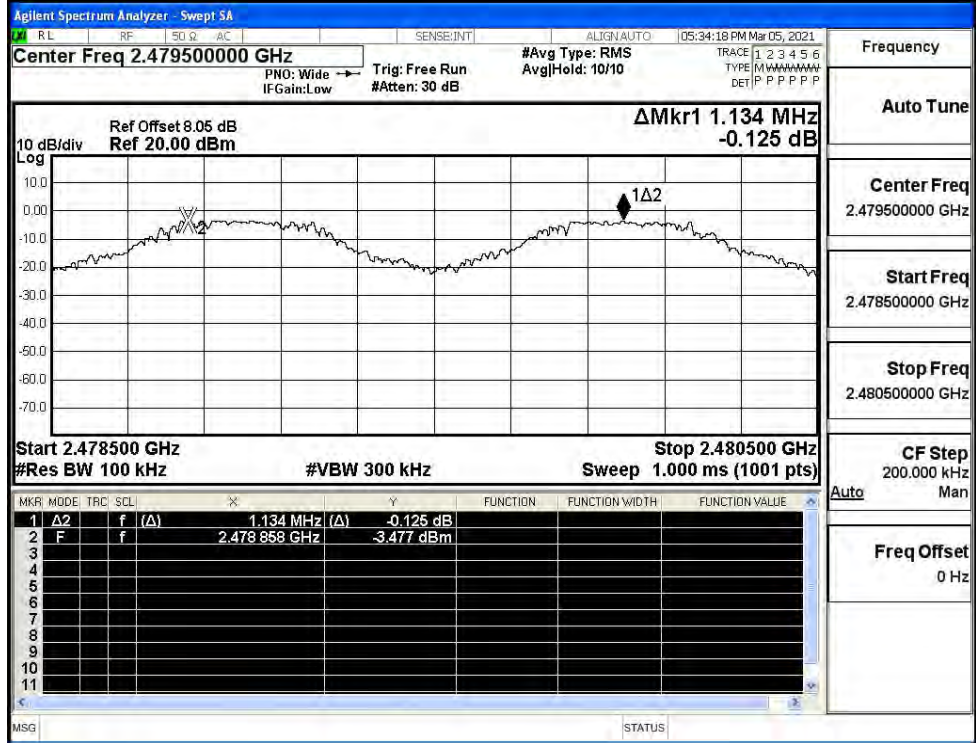


GFSK/MCH



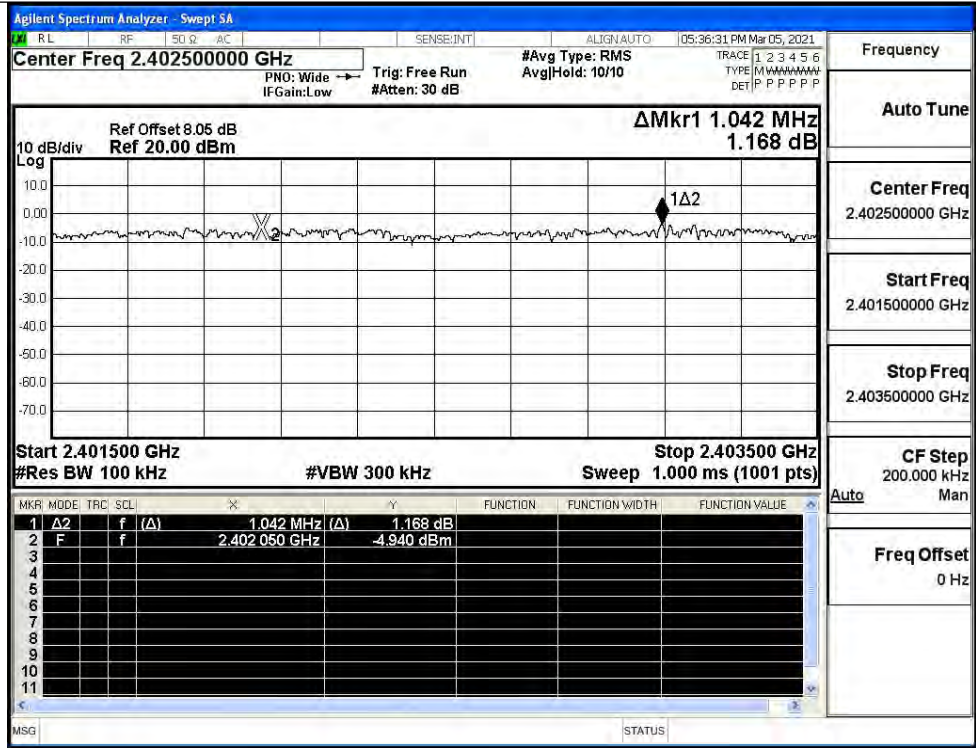
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440500000 GHz
Stop Freq
2.442500000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz

GFSK/HCH

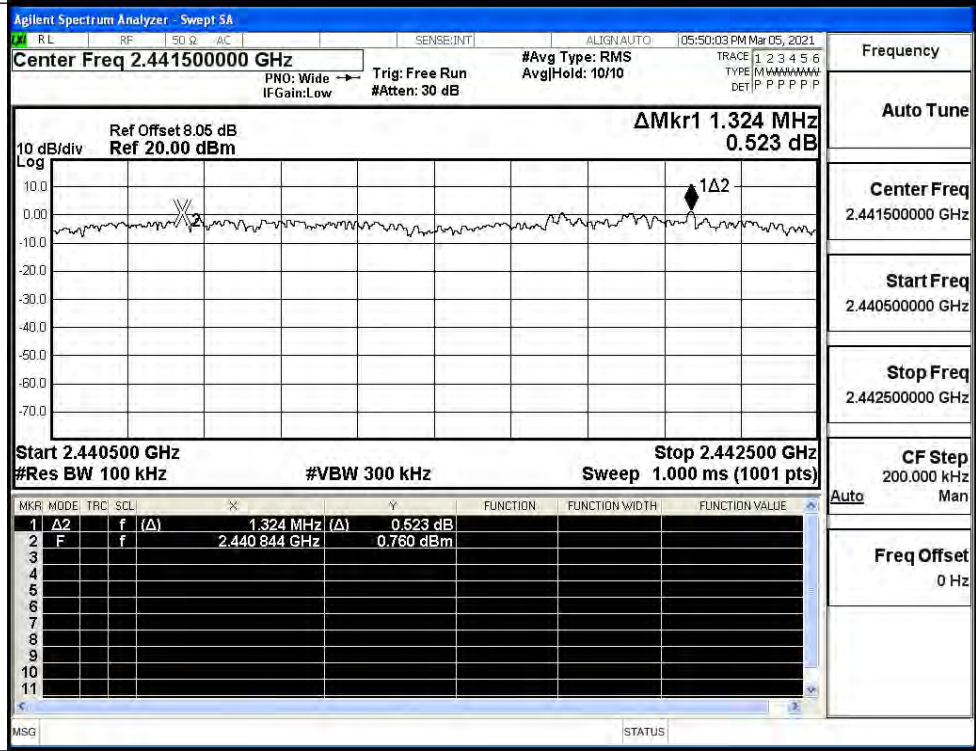


Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz

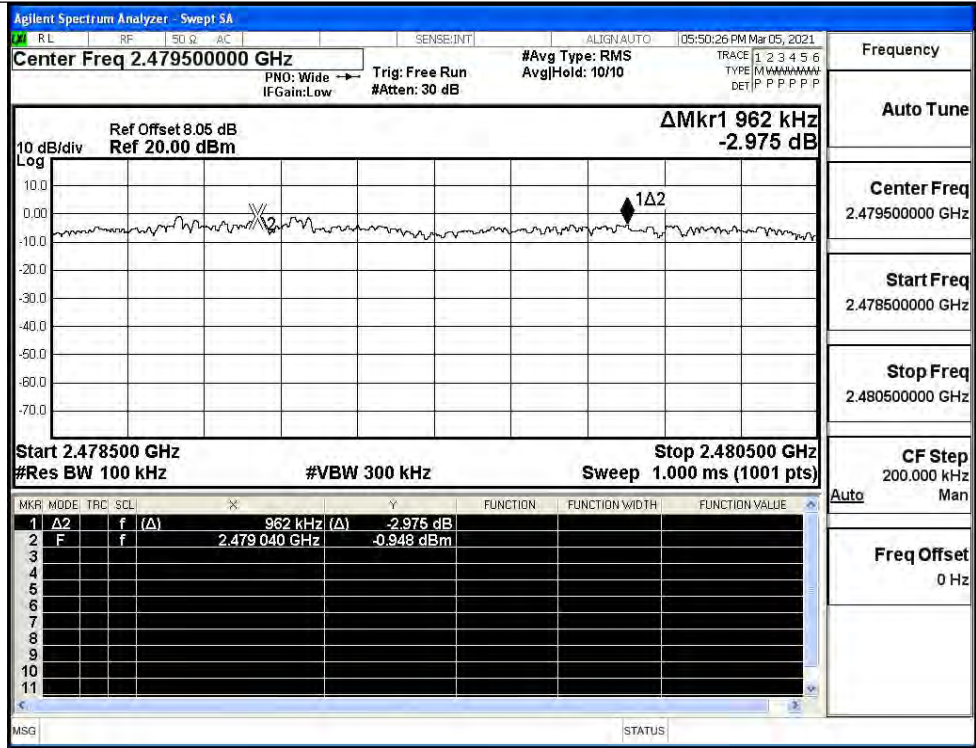
$\pi/4$ DQPSK/LCH



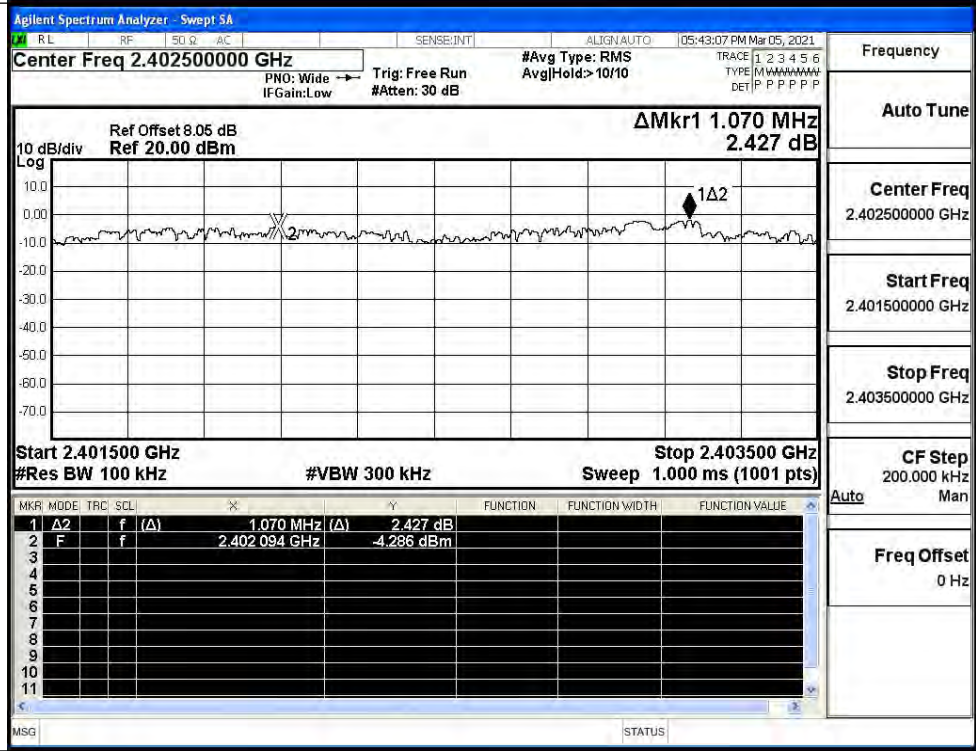
$\pi/4$ DQPSK/MCH



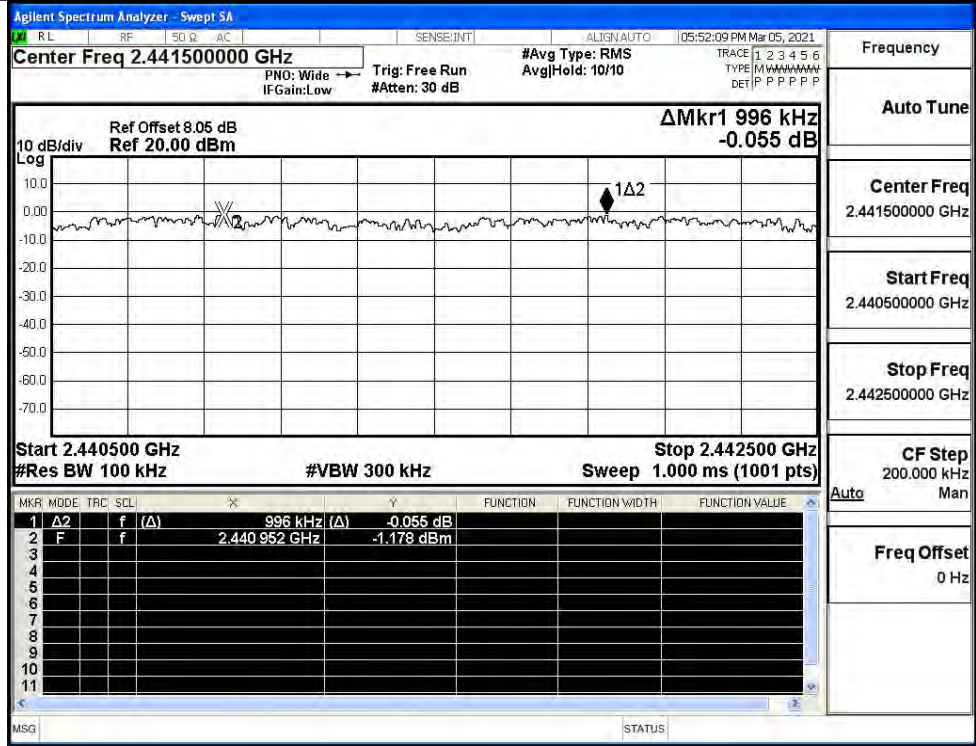
π/4DQPSK/HCH



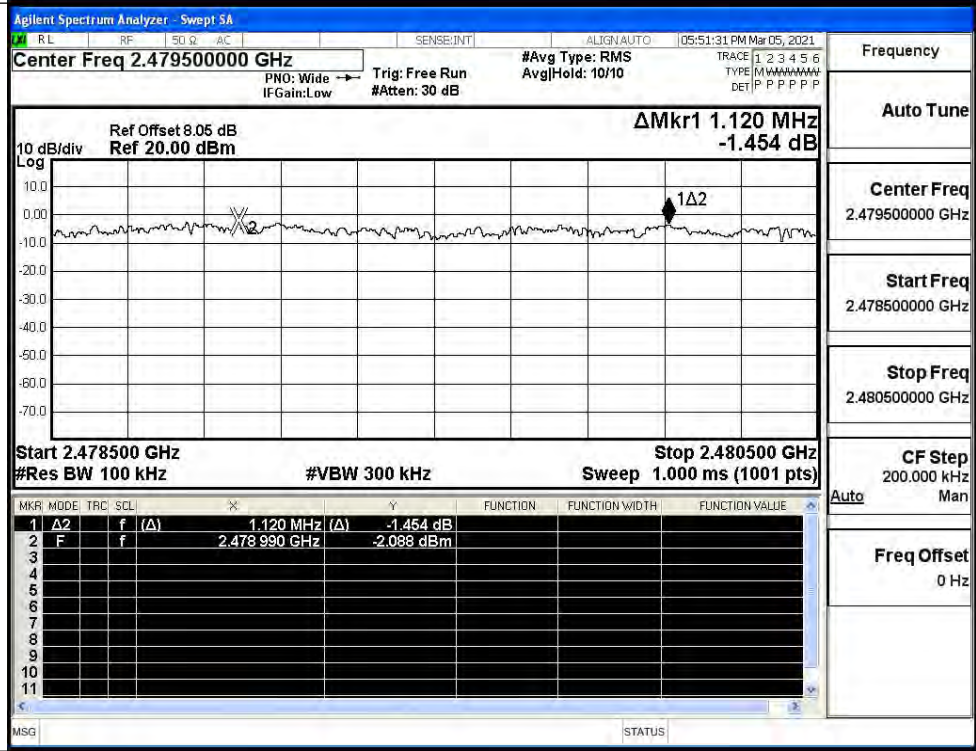
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



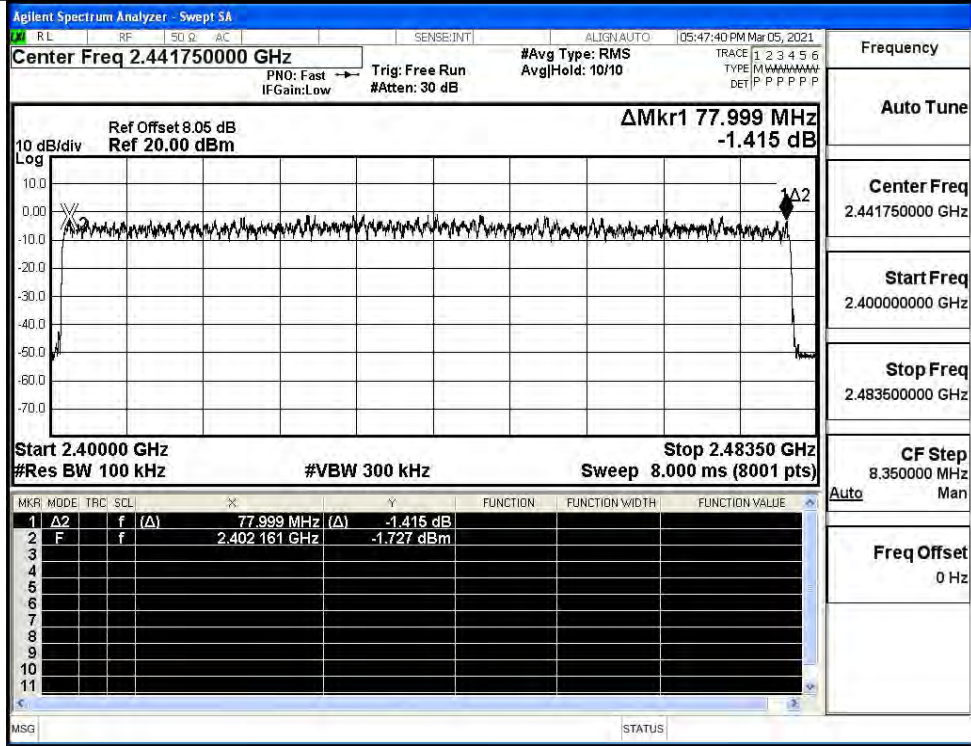
A.4 Hopping Channel Number

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

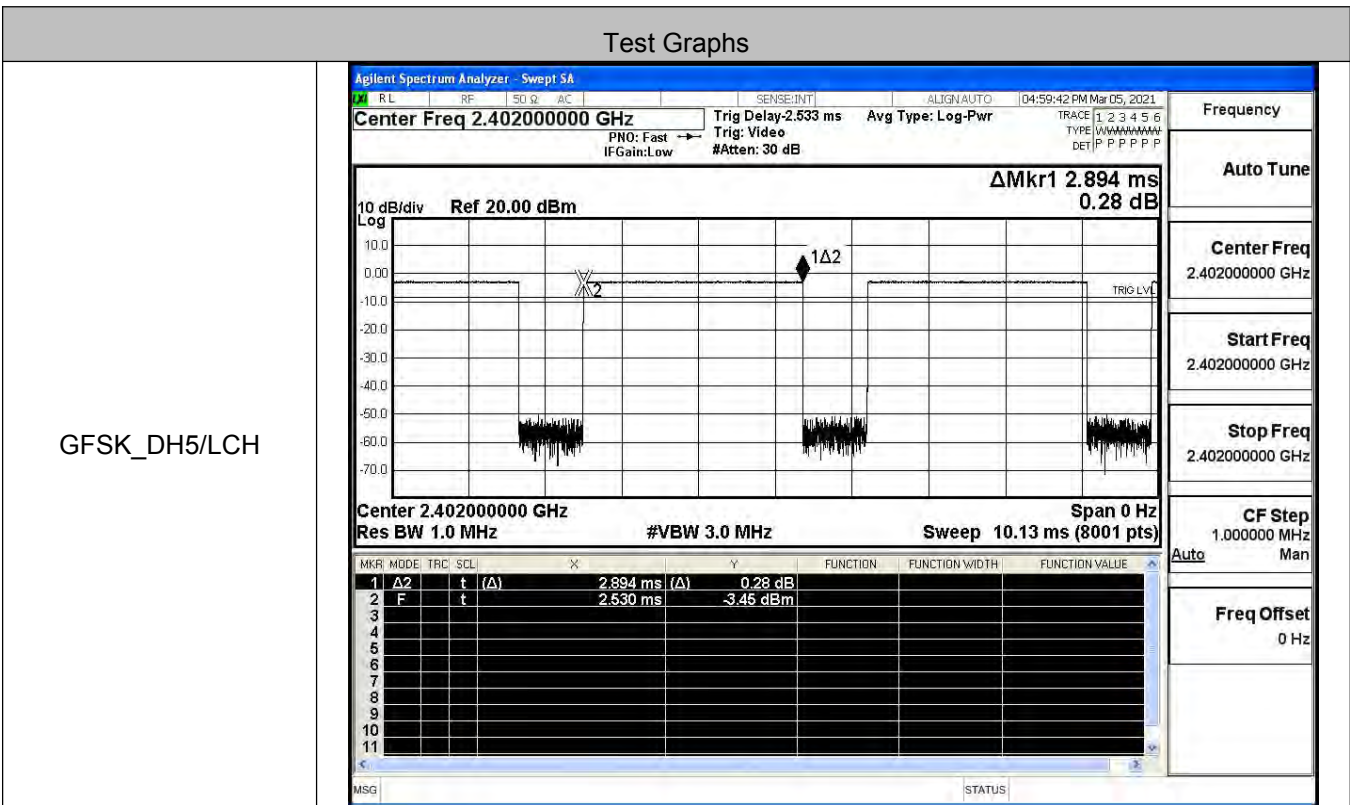
<p>GFSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>ΔMkr1 77.885 MHz -1.582 dB</p> <p>Start 2.40000 GHz #Res BW 100 kHz</p> <p>Stop 2.48350 GHz #VBW 300 kHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <thead> <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>77.885 MHz</td> <td>(Δ)</td> <td>-1.582 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td>(Δ)</td> <td>2.402171 GHz</td> <td></td> <td>-1.835 dBm</td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ 2	f	(Δ)	77.885 MHz	(Δ)	-1.582 dB			2	F	f	(Δ)	2.402171 GHz		-1.835 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)	77.885 MHz	(Δ)	-1.582 dB																							
2	F	f	(Δ)	2.402171 GHz		-1.835 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 78.313 MHz -1.898 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>78.313 MHz</td> <td>(Δ)</td> <td>-1.898 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td>(Δ)</td> <td>2.401827 GHz</td> <td></td> <td>-4.602 dBm</td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	Δ 2	f	(Δ)	78.313 MHz	(Δ)	-1.898 dB			2	F	f	(Δ)	2.401827 GHz		-4.602 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)	78.313 MHz	(Δ)	-1.898 dB																							
2	F	f	(Δ)	2.401827 GHz		-4.602 dBm																							

8DPSK/Hop

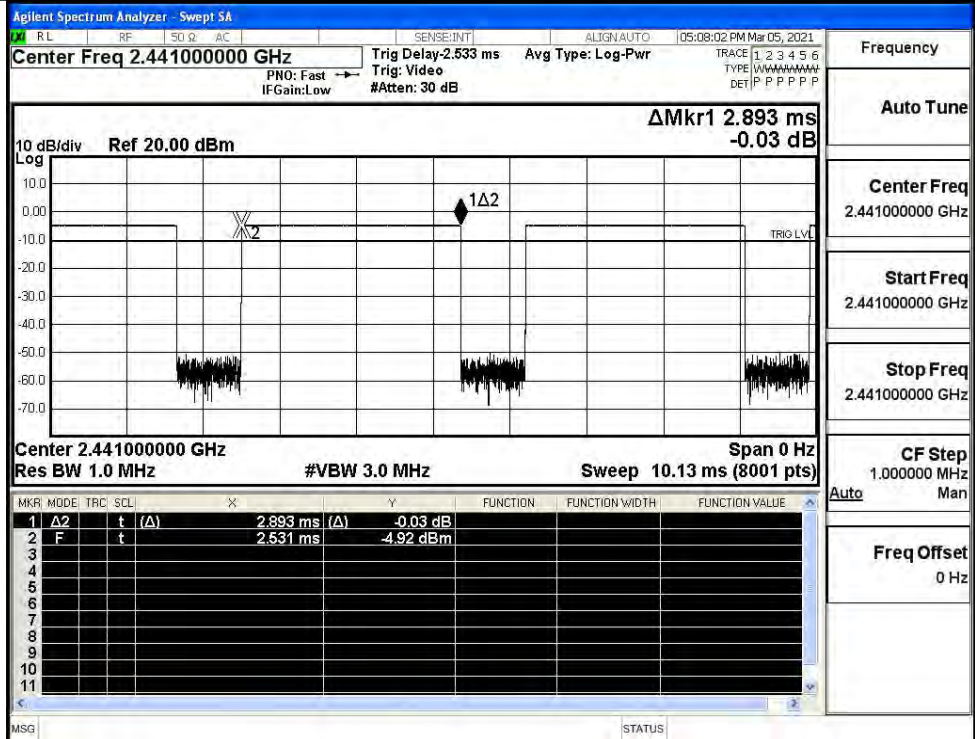


A.5 Dwell Time

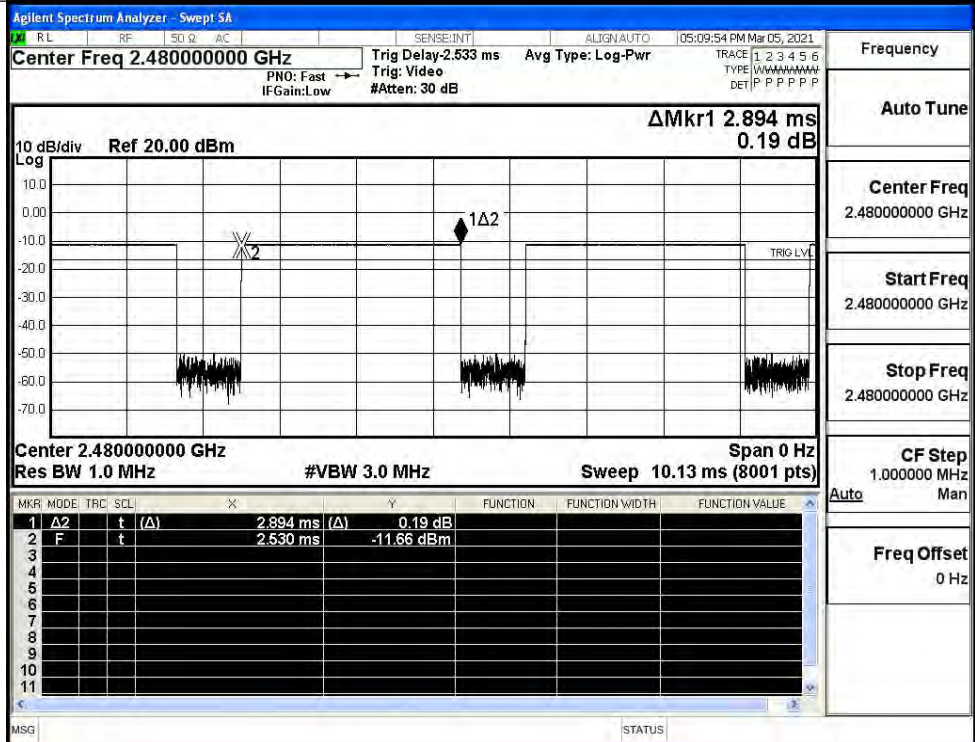
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.307	0.4	PASS
	3DH5	MCH	2.88	106.7	0.307	0.4	PASS
	3DH5	HCH	2.88	106.7	0.307	0.4	PASS



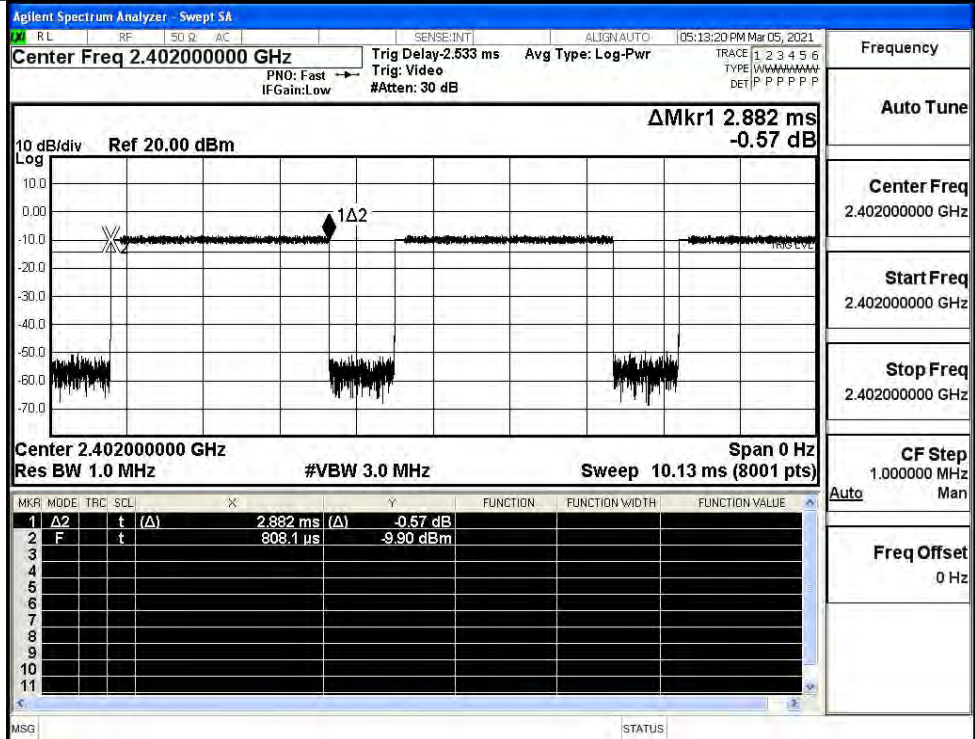
GFSK_DH5/MCH



GFSK_DH5/HCH

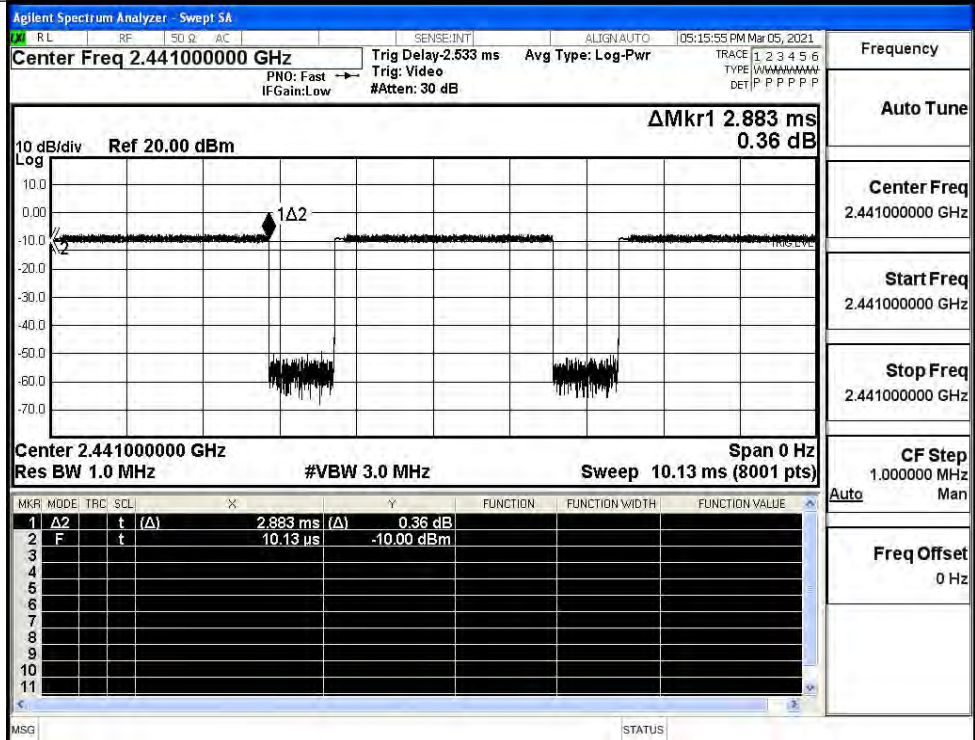


$\pi/4$ DQPSK
_2DH5/LCH



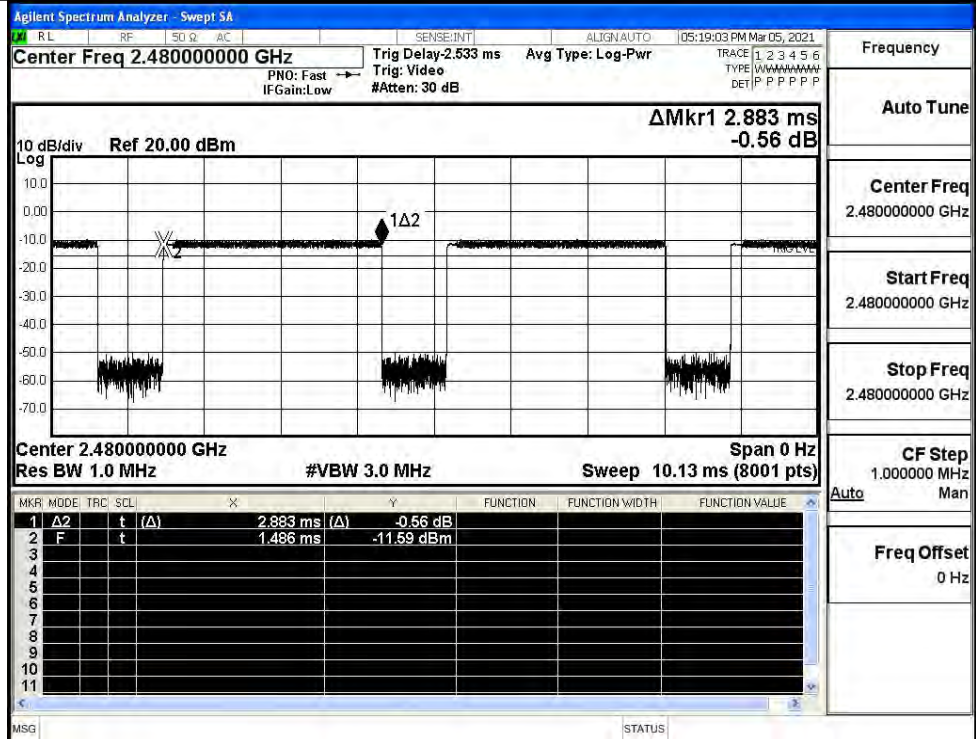
Frequency	2.402000000 GHz
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.402000000 GHz
Stop Freq	2.402000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK
_2DH5/MCH

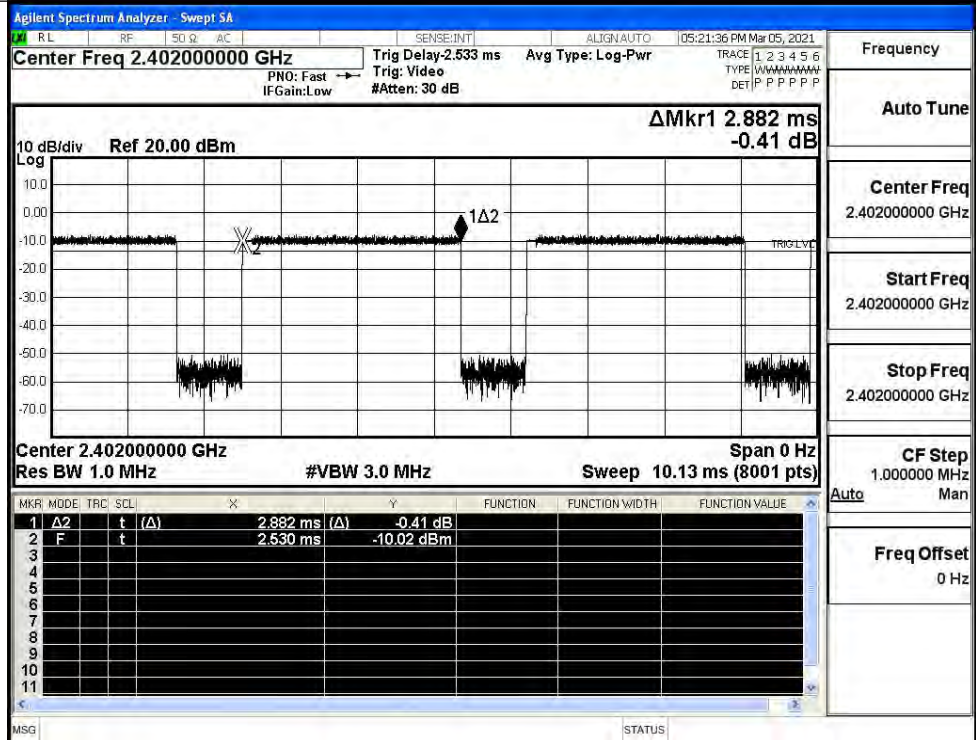


Frequency	2.441000000 GHz
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.441000000 GHz
Stop Freq	2.441000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

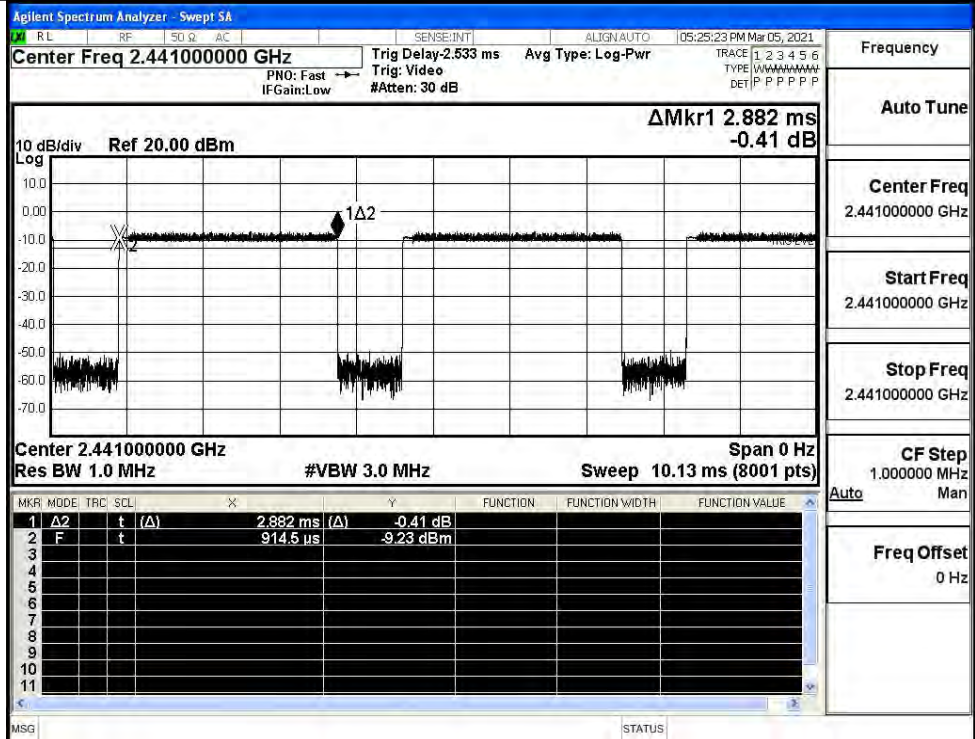
$\pi/4$ DQPSK
_2DH5/HCH



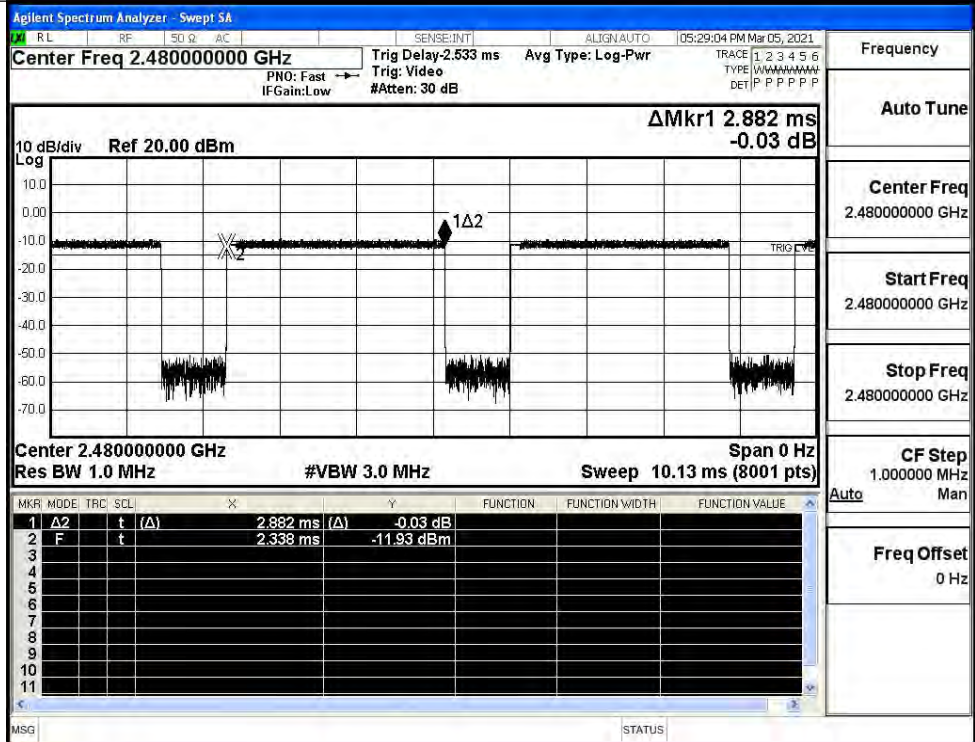
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



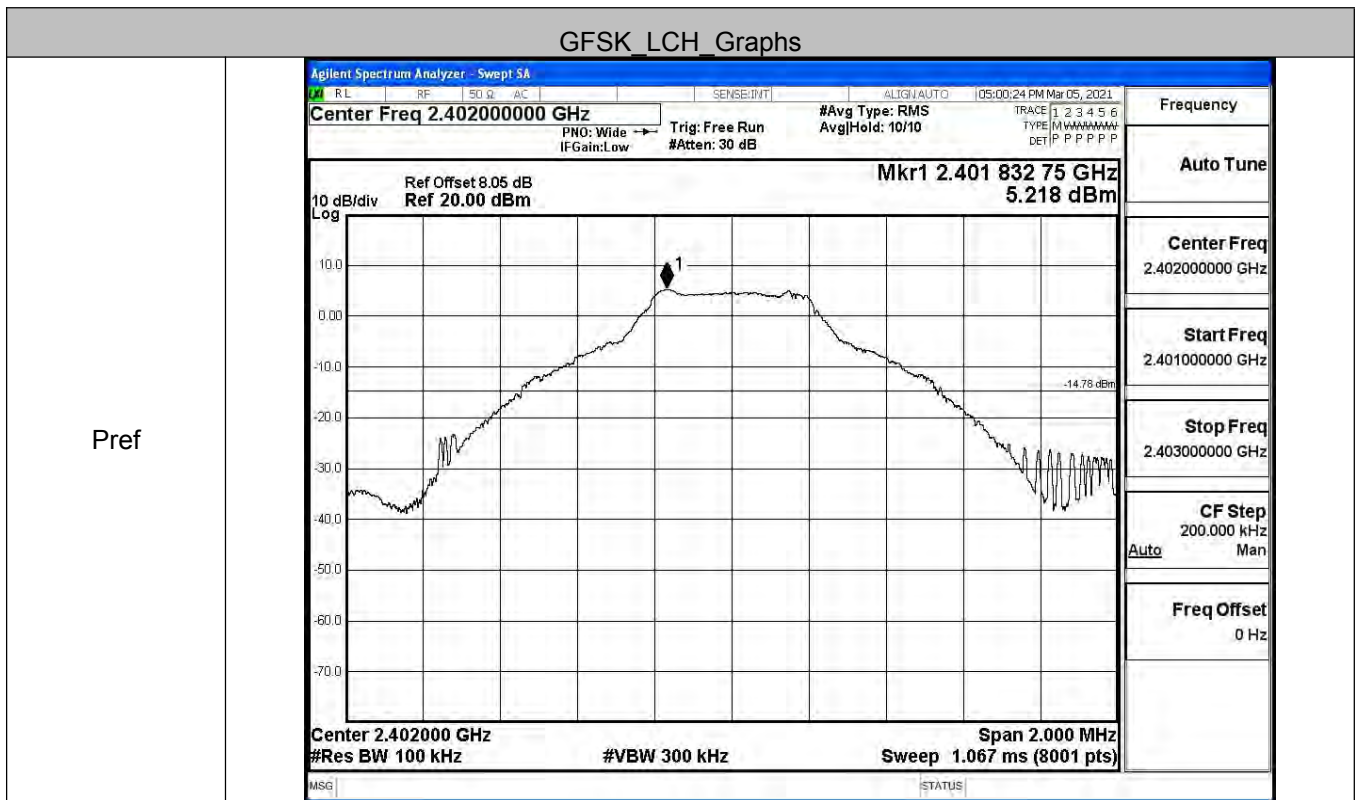
8DPSK_3DH5/HCH



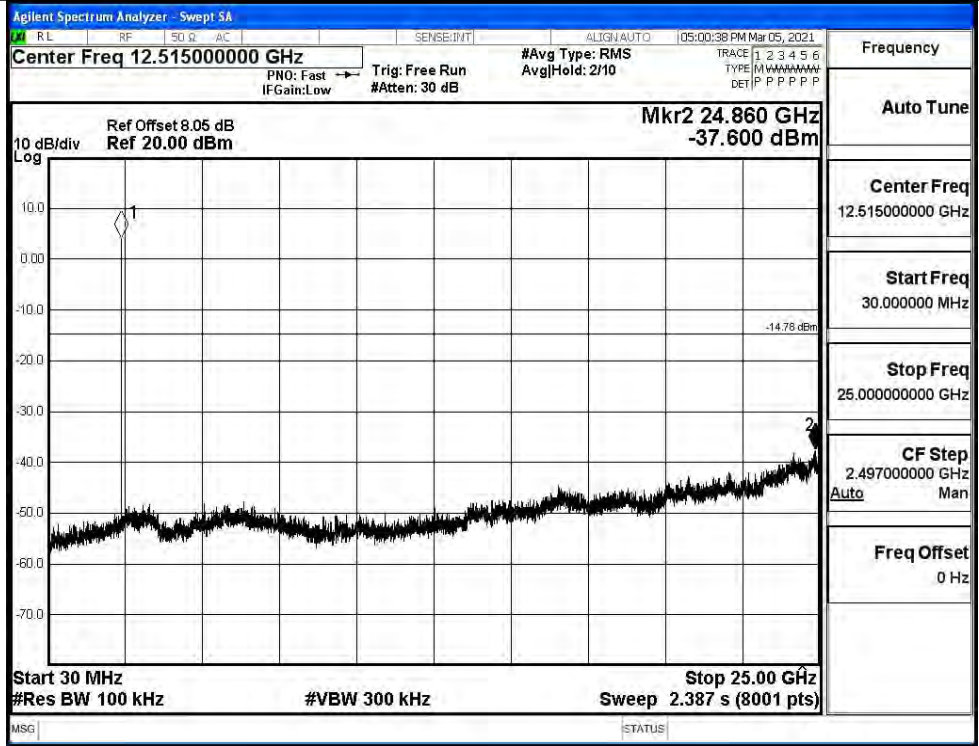
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	5.218	-37.600	-14.782	PASS
	MCH	3.329	-19.727	-16.671	PASS
	HCH	-3.075	-38.414	-23.075	PASS
π/4DQPSK	LCH	-2.025	-37.691	-22.025	PASS
	MCH	-1.103	-34.646	-21.103	PASS
	HCH	-3.784	-37.504	-23.784	PASS
8DPSK	LCH	-1.743	-38.097	-21.743	PASS
	MCH	-1.167	-38.393	-21.167	PASS
	HCH	-3.196	-38.103	-23.196	PASS

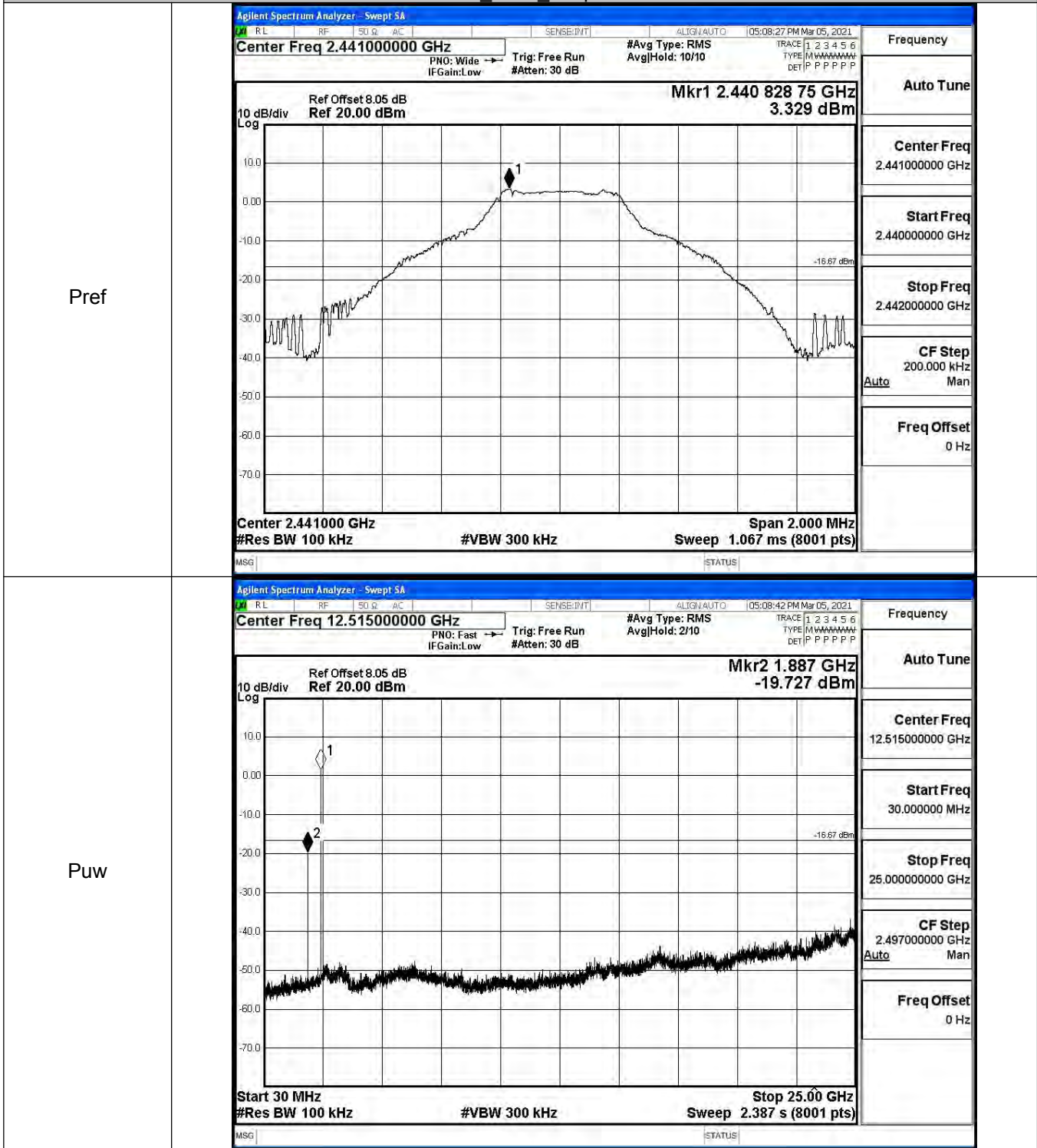
GFSK LCH Graphs



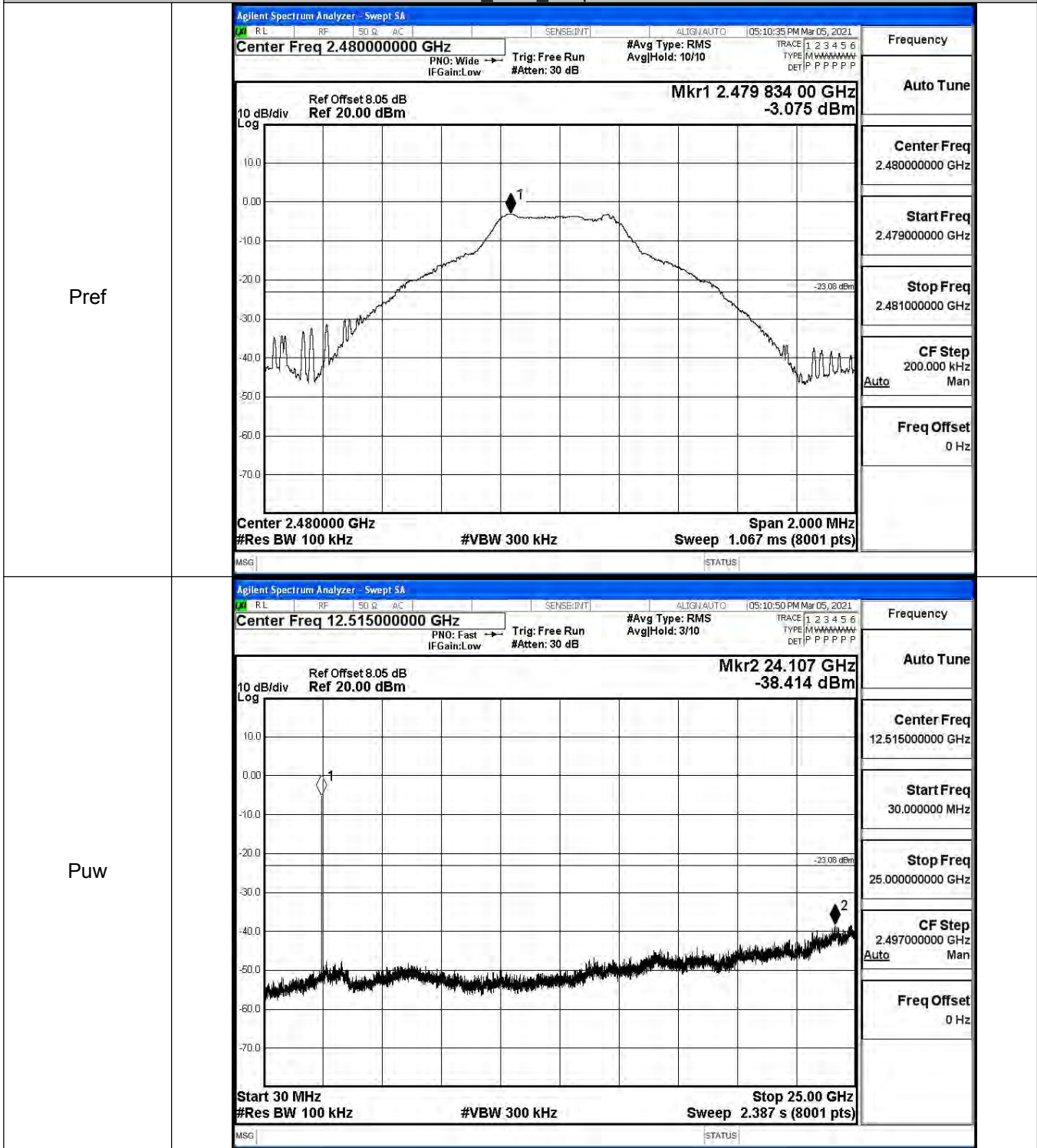
P_{uw}



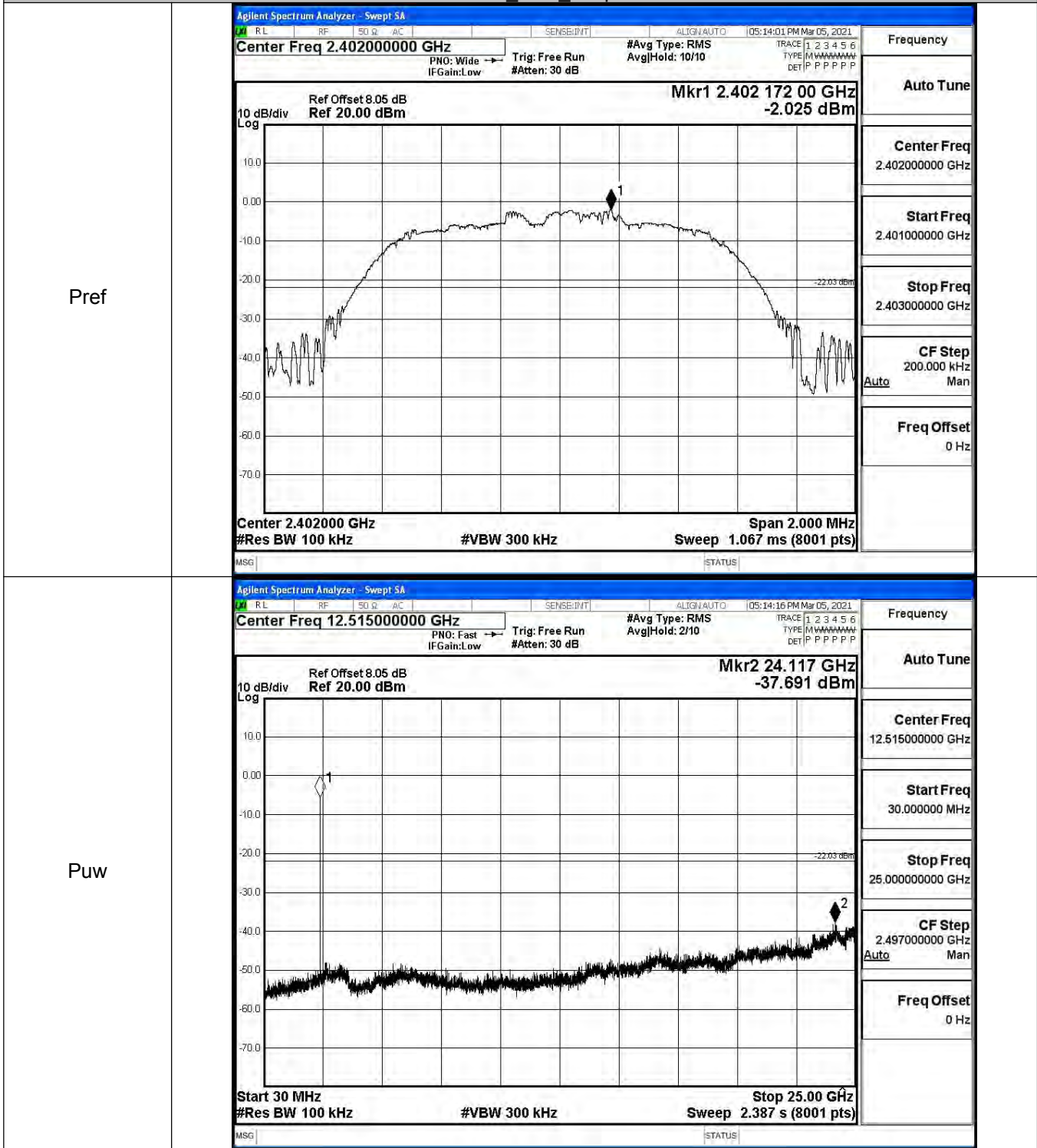
GFSK_MCH_Graphs



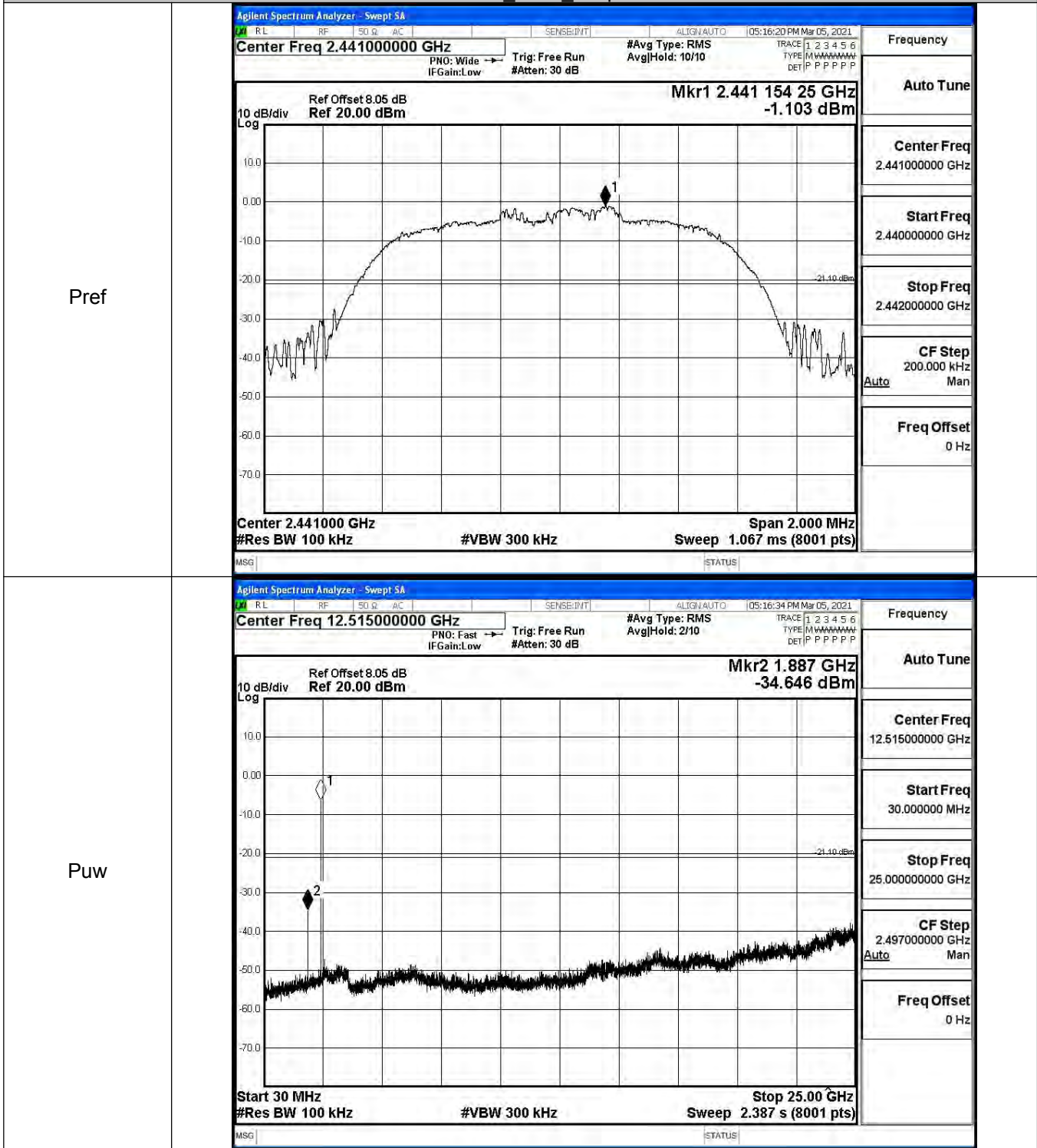
GFSK_HCH_Graphs



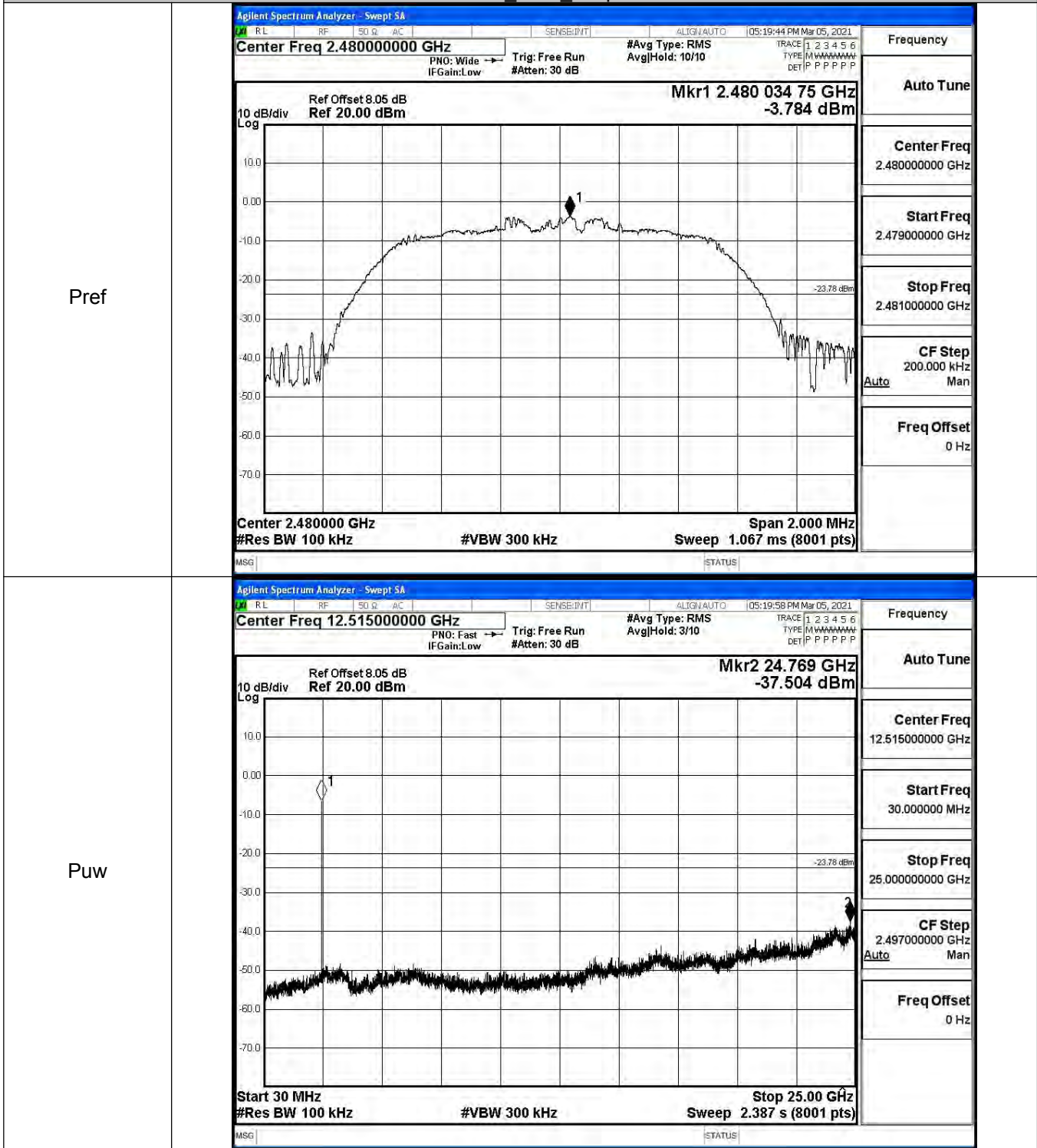
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

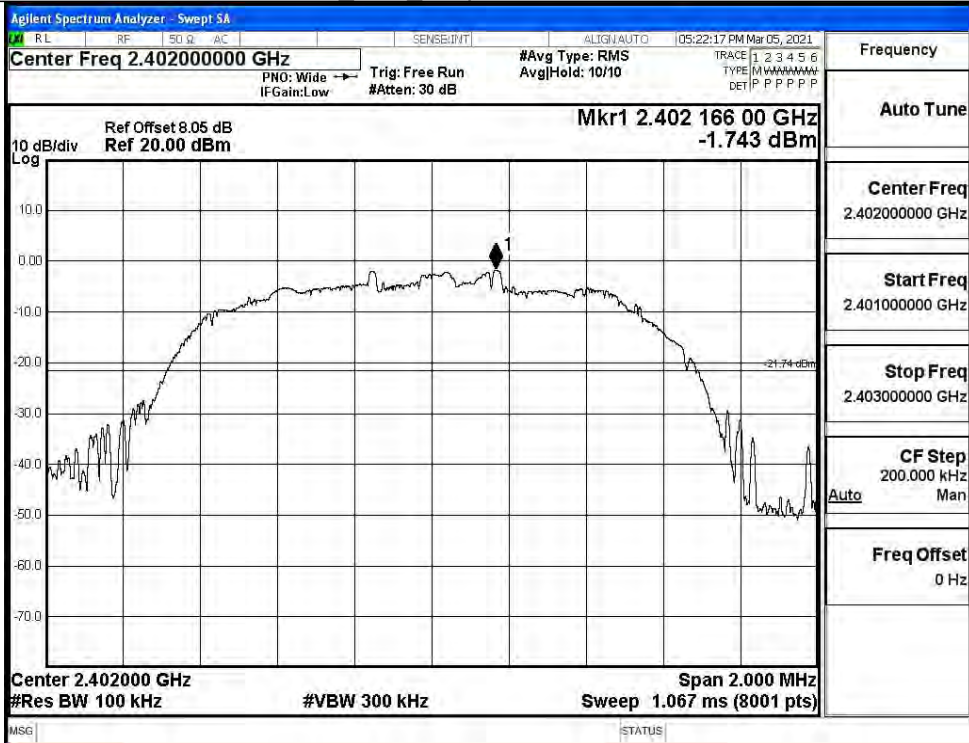


$\pi/4$ DQPSK_HCH_Graphs

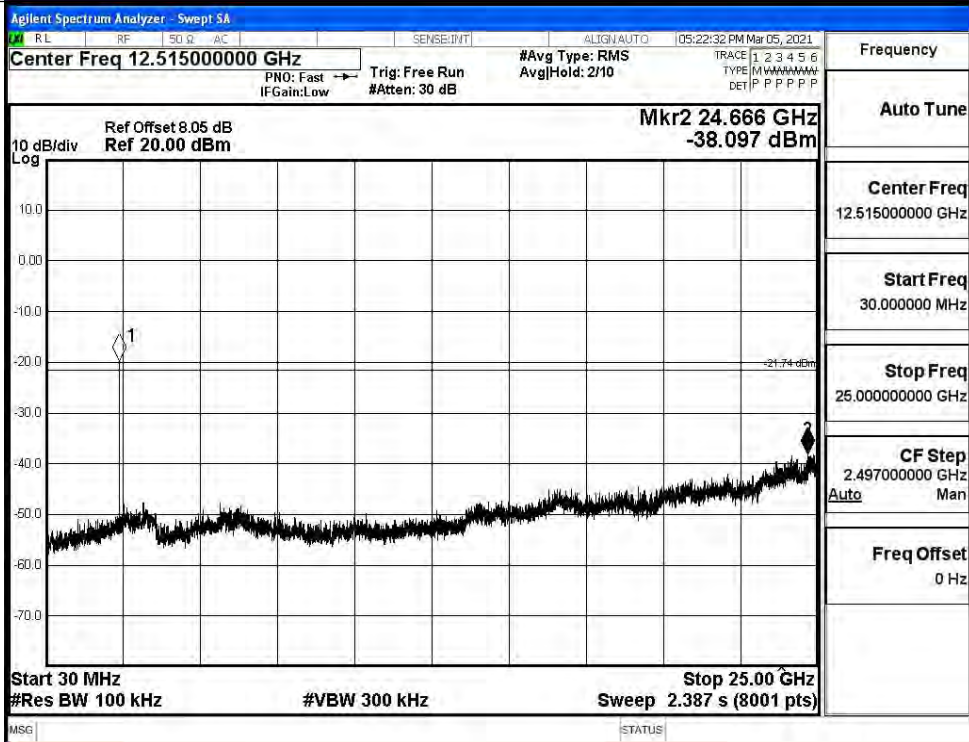


8DPSK_LCH_Graphs

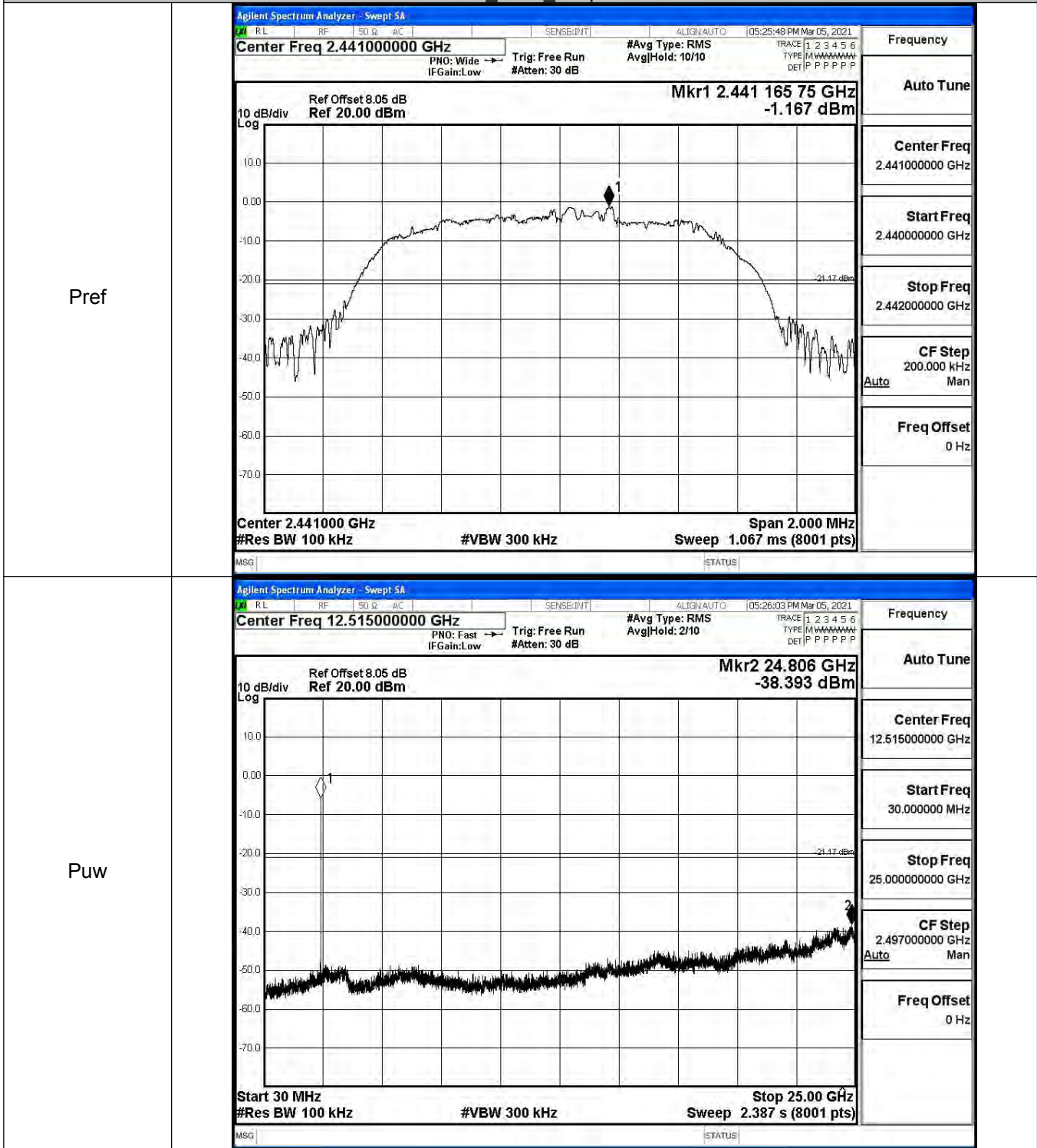
Pref



Puw

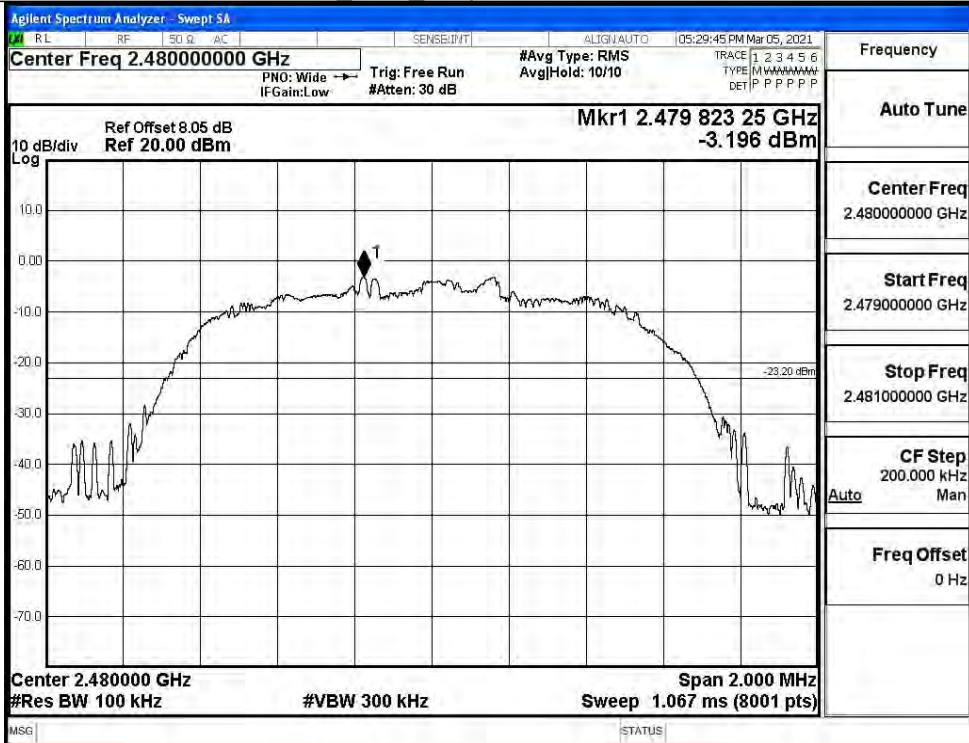


8DPSK_MCH_Graphs

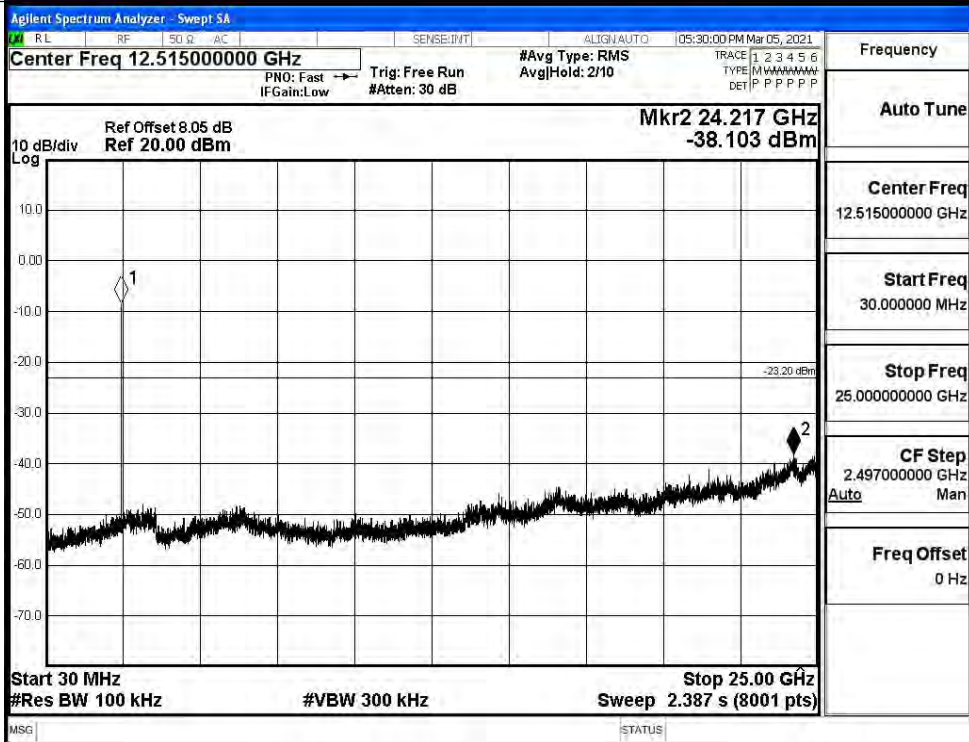


8DPSK_HCH_Graphs

Pref



Puw

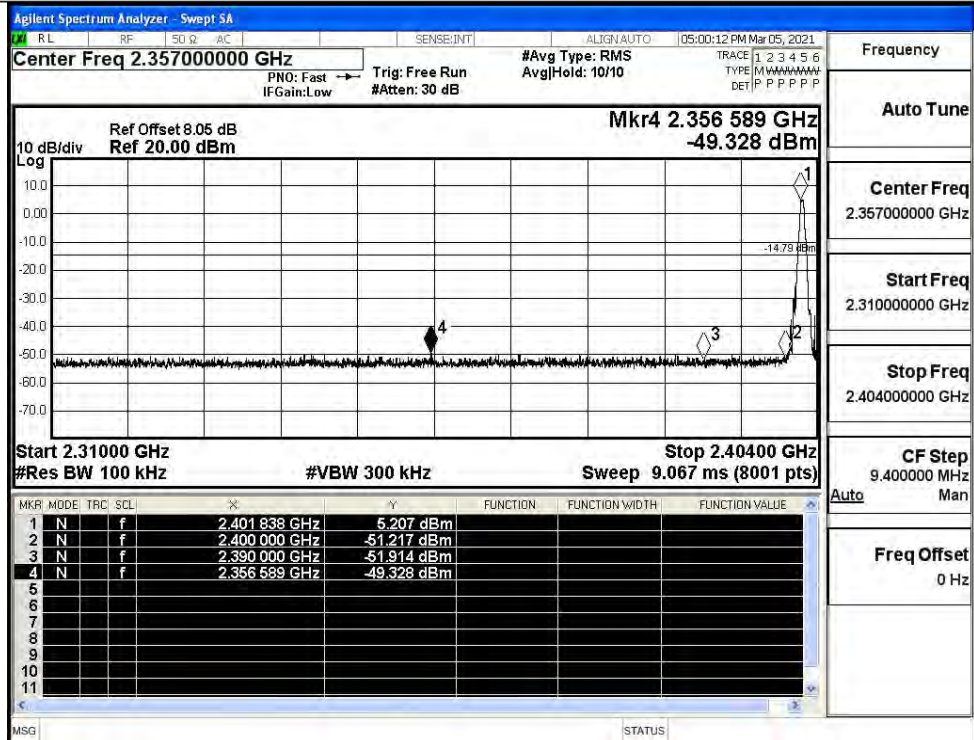


A.7 Band-edge for RF Conducted Emissions

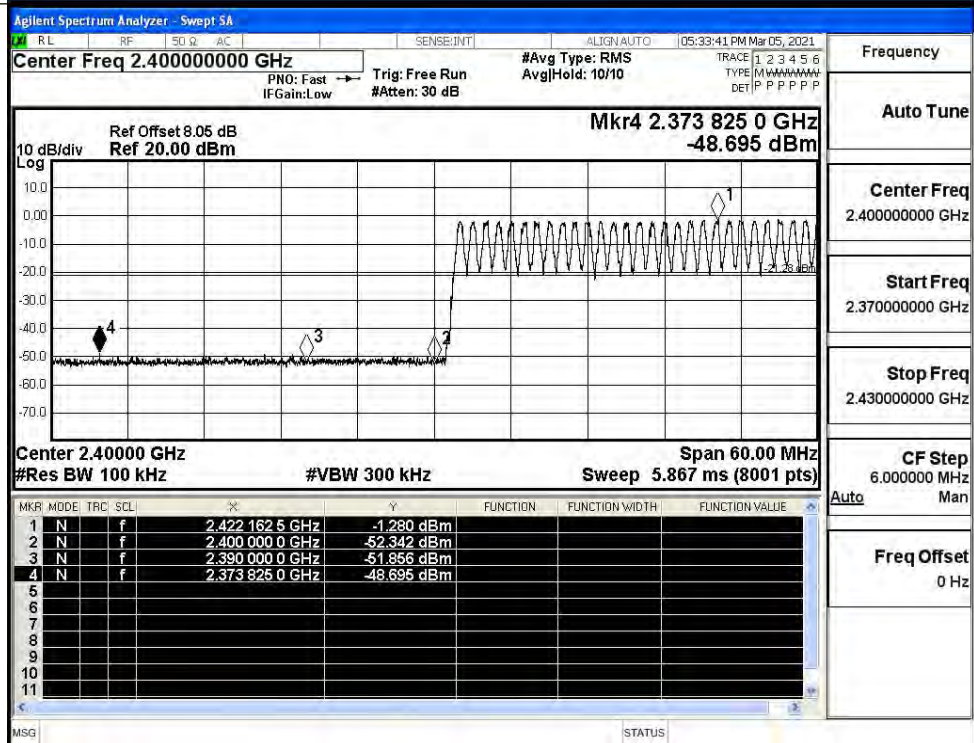
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	5.207	Off	-49.328	-14.79	PASS
			-1.280	On	-48.695	-21.28	PASS
	HCH	2480	-3.071	Off	-48.682	-23.07	PASS
			-1.645	On	-49.101	-21.65	PASS
$\pi/4$ DQPSK	LCH	2402	-4.314	Off	-49.648	-24.31	PASS
			-1.681	On	-48.700	-21.68	PASS
	HCH	2480	-3.539	Off	-49.292	-23.54	PASS
			-1.755	On	-48.131	-21.76	PASS
8DPSK	LCH	2402	-1.717	Off	-49.451	-21.72	PASS
			-1.151	On	-48.840	-21.15	PASS
	HCH	2480	-3.210	Off	-49.228	-23.21	PASS
			-1.982	On	-48.380	-21.98	PASS

Test Graphs

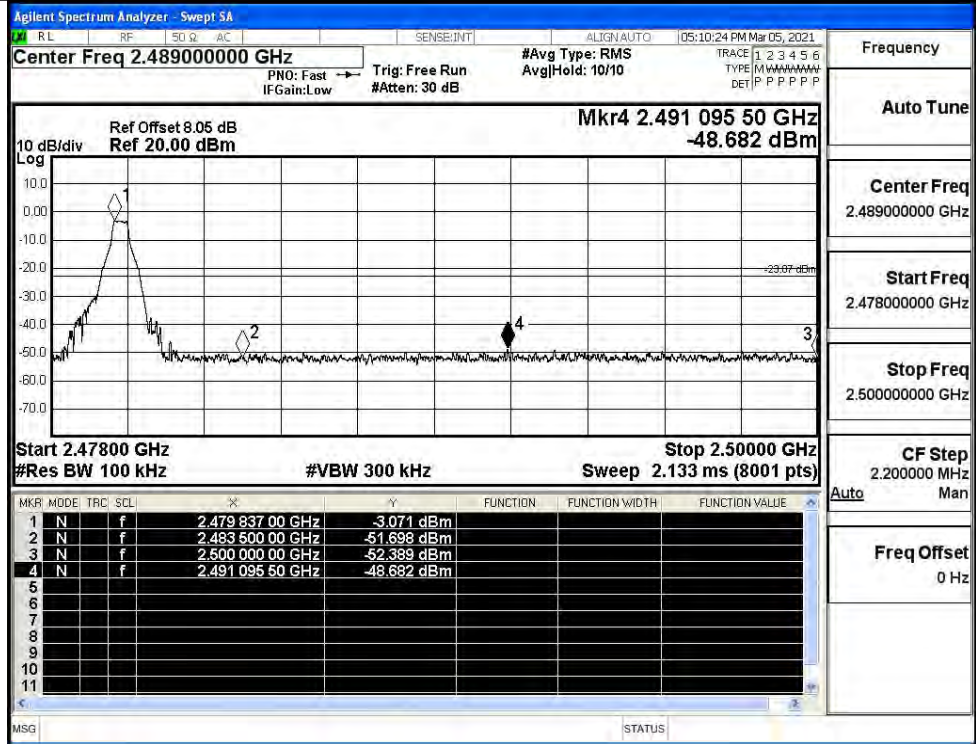
GFSK/LCH/No Hop



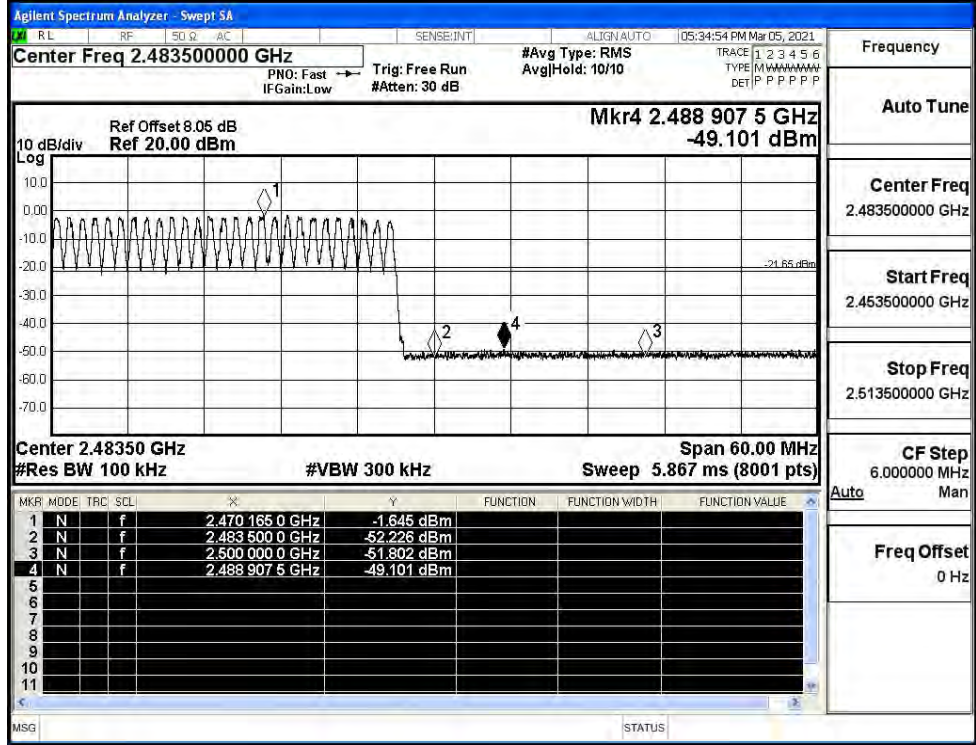
GFSK/LCH/Hop



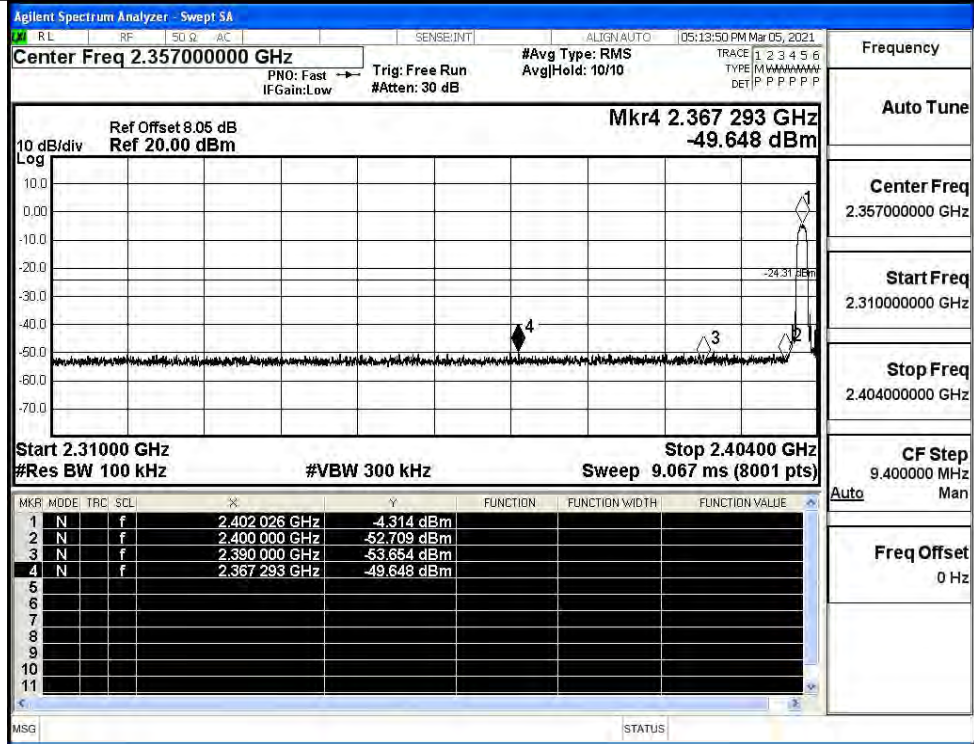
GFSK/HCH/No Hop



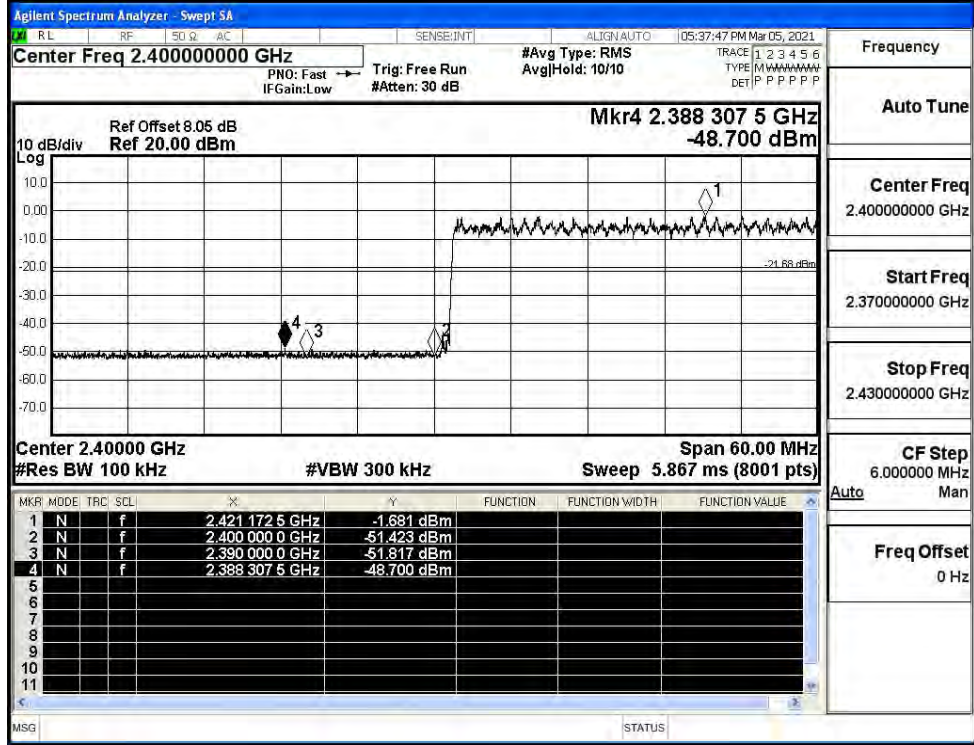
GFSK/HCH/Hop



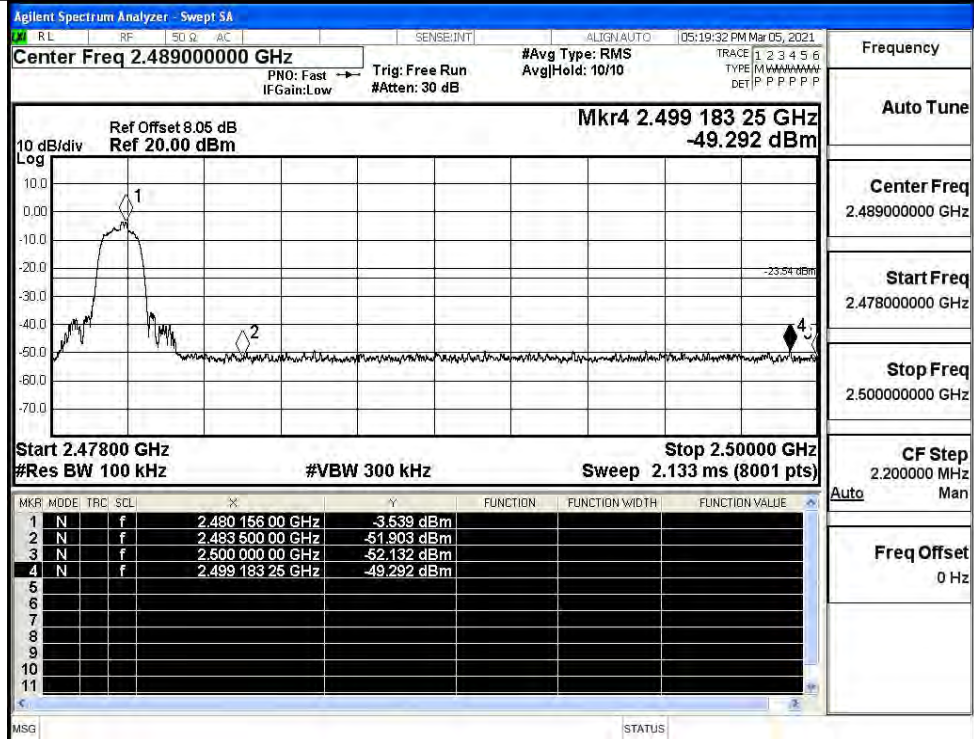
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop

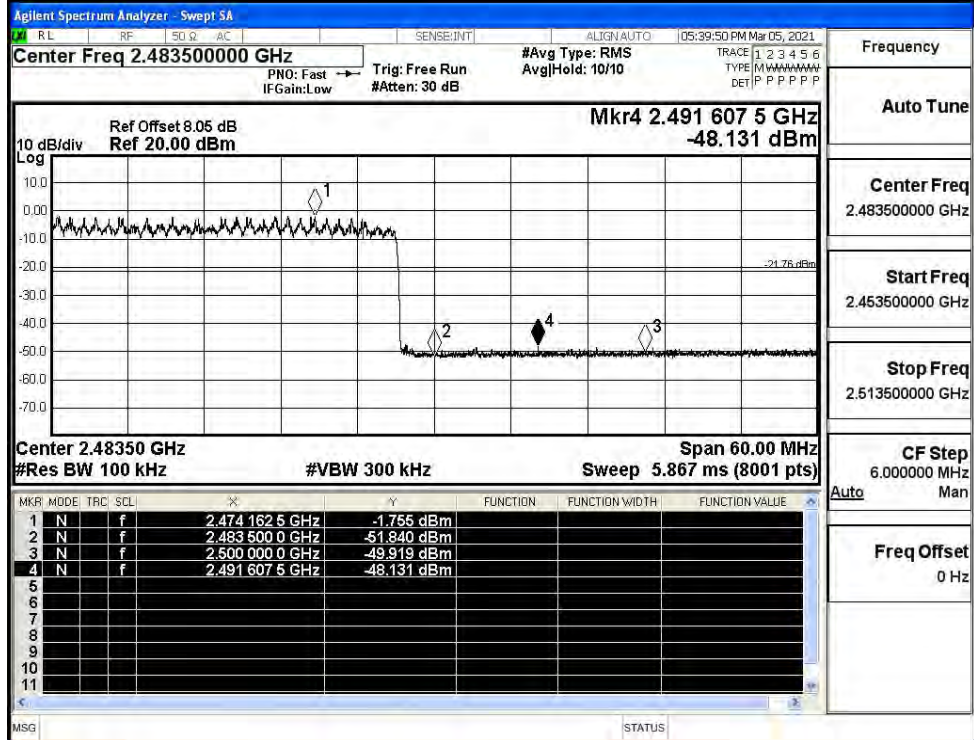


π /4DQPSK/HCH/No
Hop



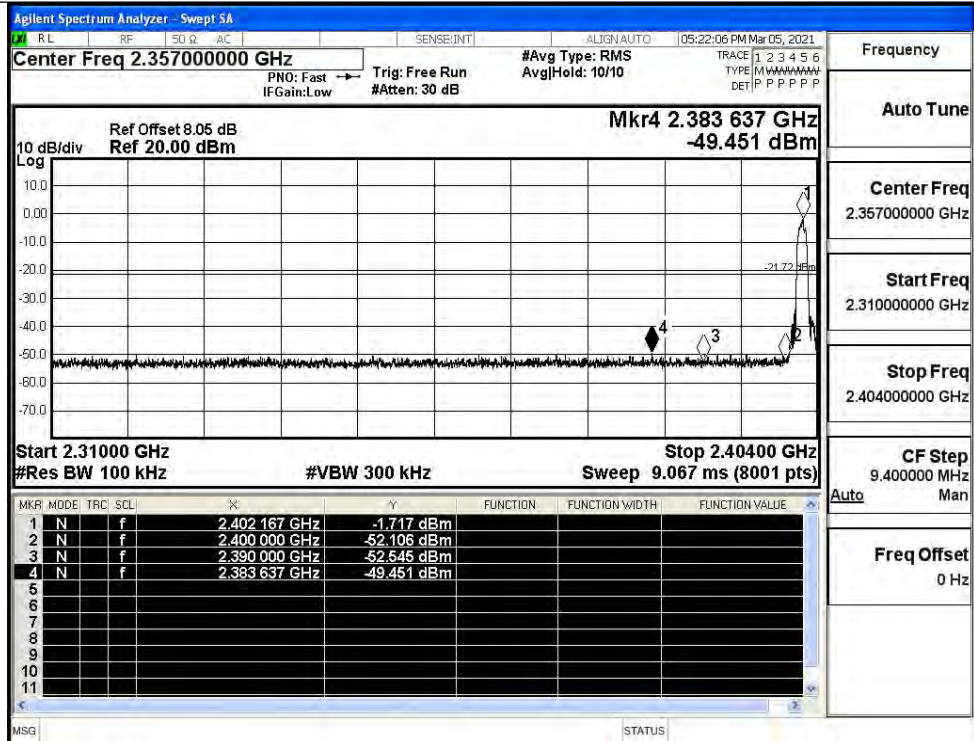
Frequency	
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Auto	Man
Freq Offset	0 Hz

π /4DQPSK/HCH/Hop



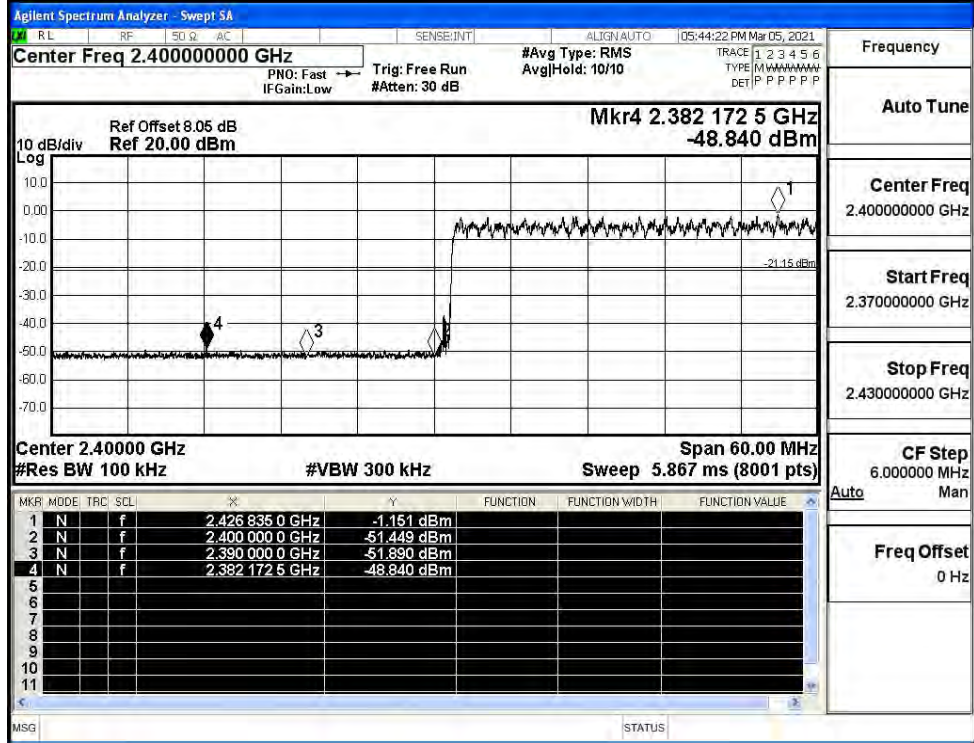
Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH/No Hop



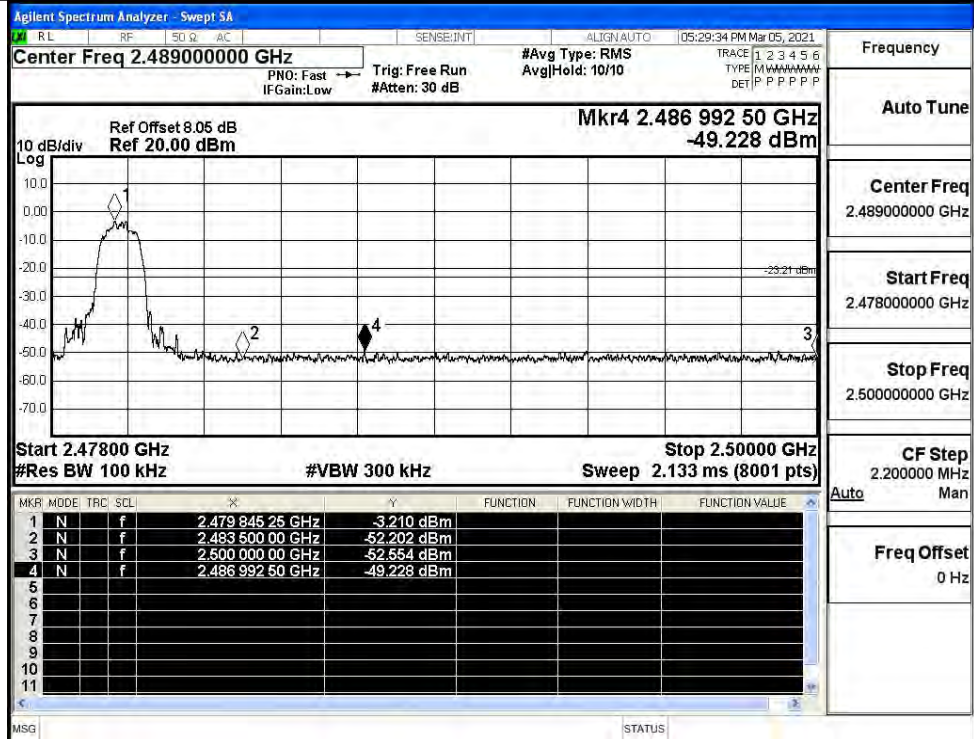
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK/LCH/Hop



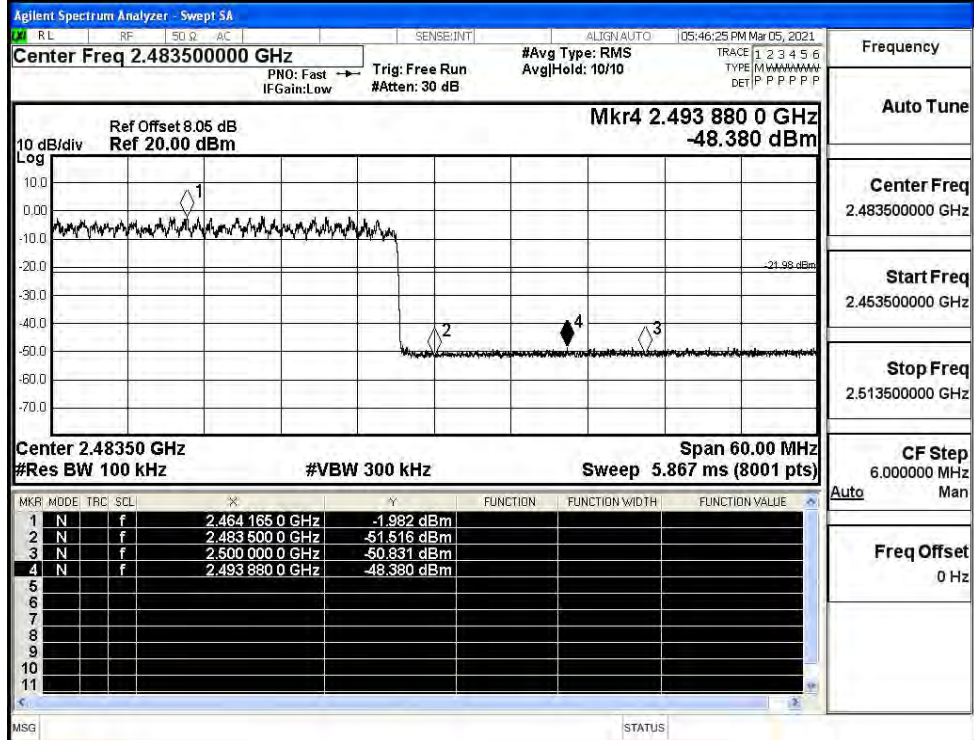
Frequency	
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

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
Freq Offset	0 Hz

8DPSK/HCH/Hop

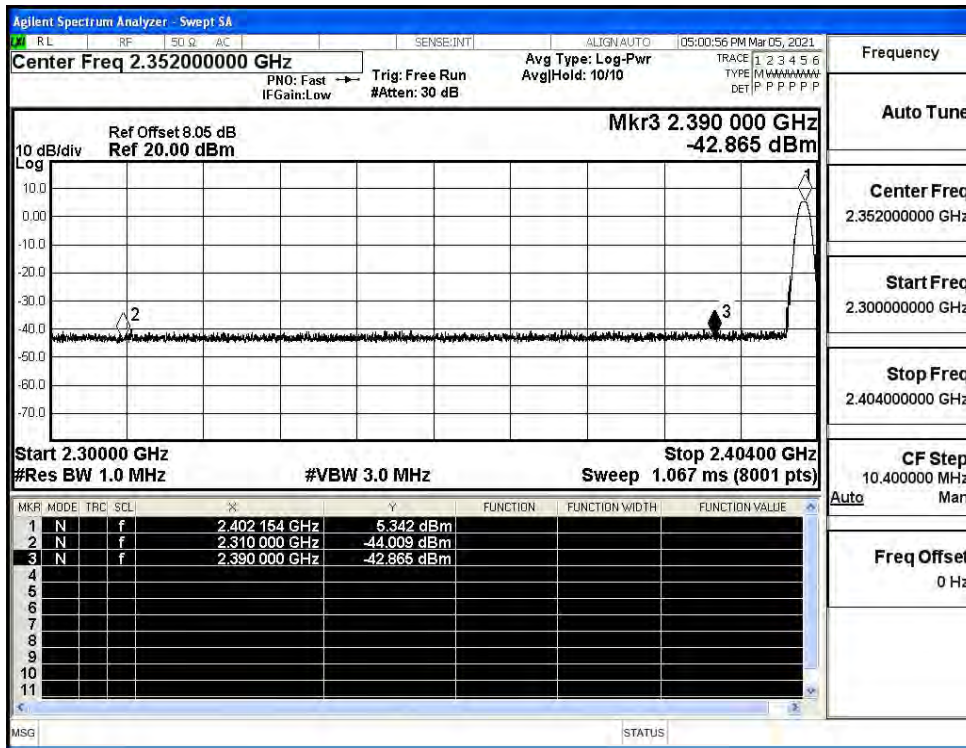


Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.464165000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

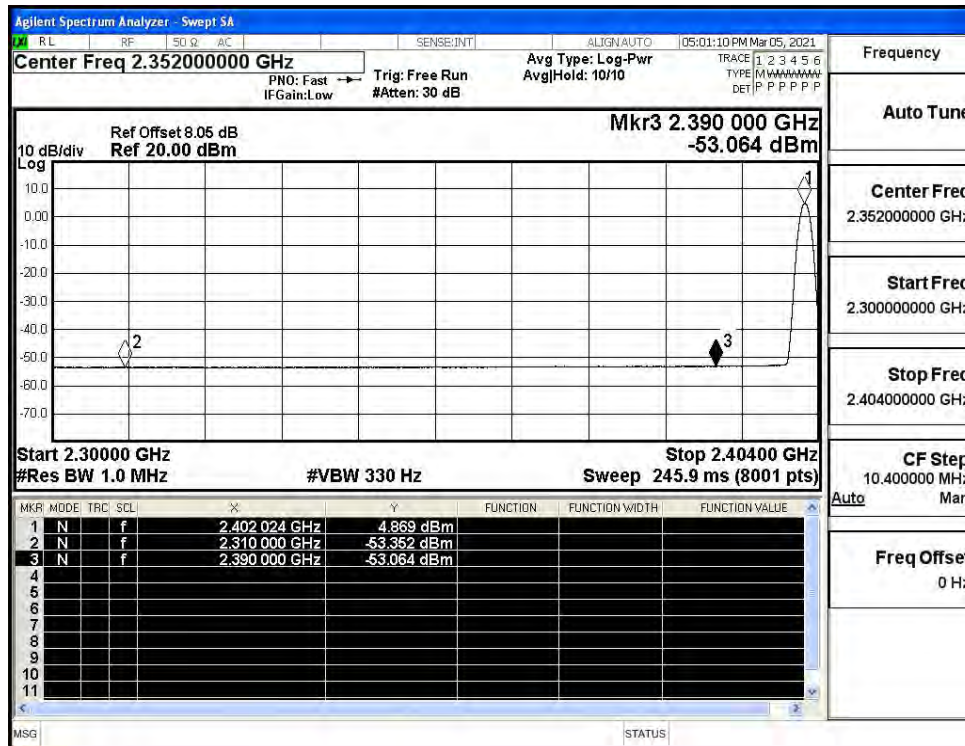
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.01	2.0	0	53.22	PEAK	74	PASS
	Off	2310.0	-53.35	2.0	0	43.88	AV	54	PASS
	Off	2390.0	-42.87	2.0	0	54.36	PEAK	74	PASS
	Off	2390.0	-53.06	2.0	0	44.17	AV	54	PASS
	Off	2483.5	-43.03	2.0	0	54.20	PEAK	74	PASS
	Off	2483.5	-52.58	2.0	0	44.65	AV	54	PASS
	Off	2500.0	-41.73	2.0	0	55.50	PEAK	74	PASS
	Off	2500.0	-52.45	2.0	0	44.78	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.56	2.0	0	54.67	PEAK	74	PASS
	Off	2310.0	-53.49	2.0	0	43.74	AV	54	PASS
	Off	2390.0	-42.66	2.0	0	54.57	PEAK	74	PASS
	Off	2390.0	-53.02	2.0	0	44.21	AV	54	PASS
	Off	2483.5	-43.65	2.0	0	53.58	PEAK	74	PASS
	Off	2483.5	-52.62	2.0	0	44.61	AV	54	PASS
	Off	2500.0	-42.36	2.0	0	54.87	PEAK	74	PASS
	Off	2500.0	-52.32	2.0	0	44.91	AV	54	PASS
8DPSK	Off	2310.0	-43.83	2.0	0	53.40	PEAK	74	PASS
	Off	2310.0	-53.55	2.0	0	43.68	AV	54	PASS
	Off	2390.0	-43.28	2.0	0	53.95	PEAK	74	PASS
	Off	2390.0	-53.15	2.0	0	44.08	AV	54	PASS
	Off	2483.5	-41.31	2.0	0	55.92	PEAK	74	PASS
	Off	2483.5	-52.63	2.0	0	44.60	AV	54	PASS
	Off	2500.0	-41.54	2.0	0	55.69	PEAK	74	PASS
	Off	2500.0	-52.50	2.0	0	44.73	AV	54	PASS

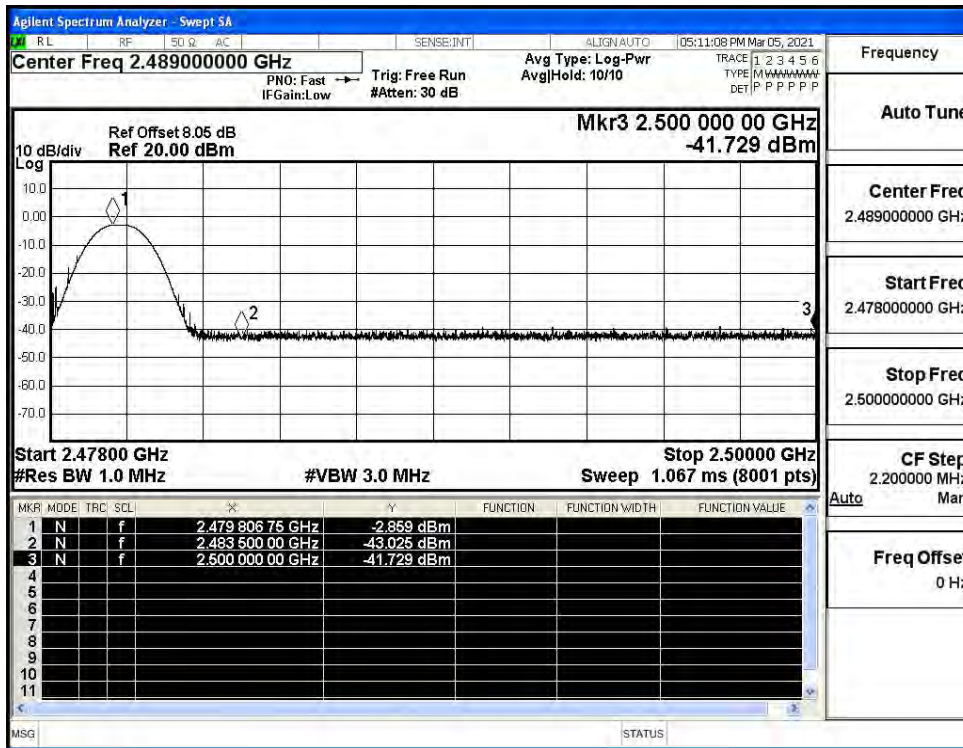
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



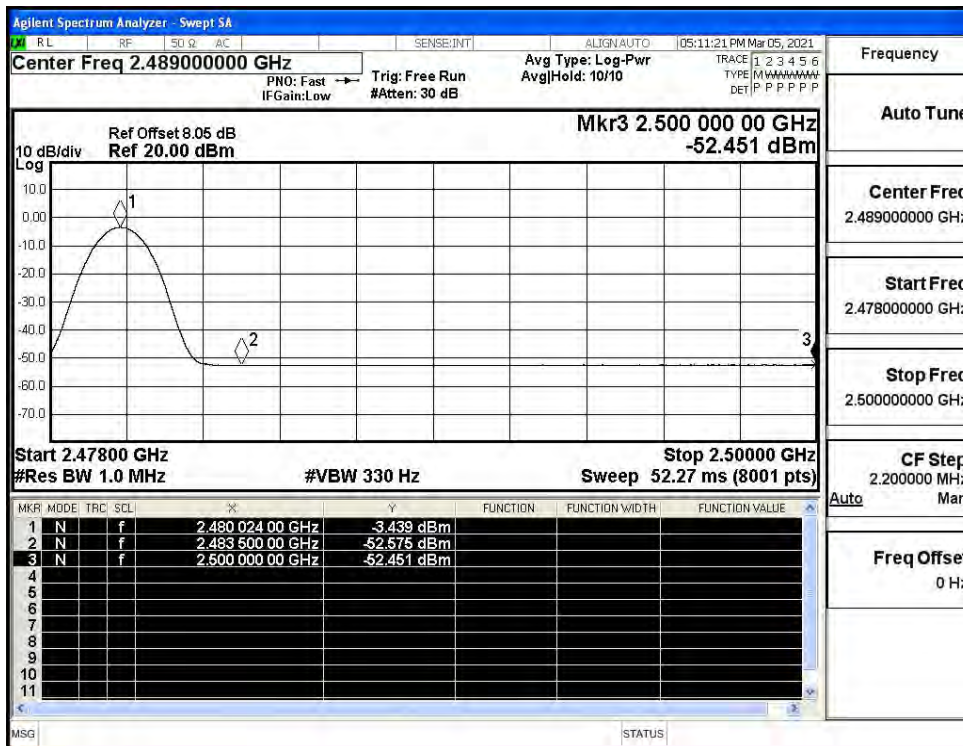
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



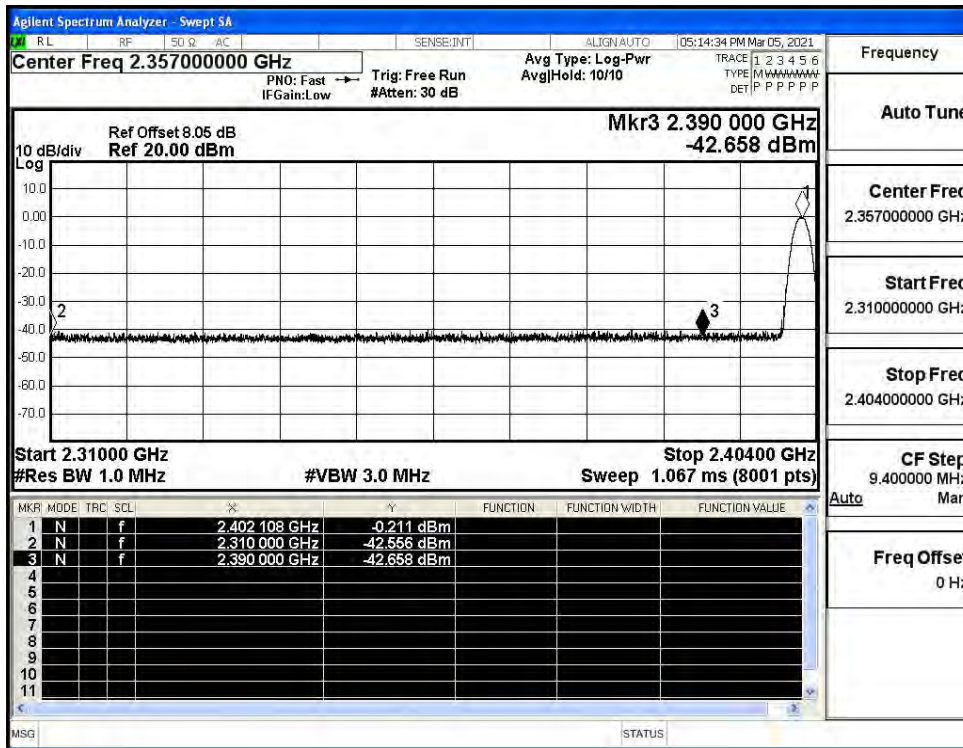
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



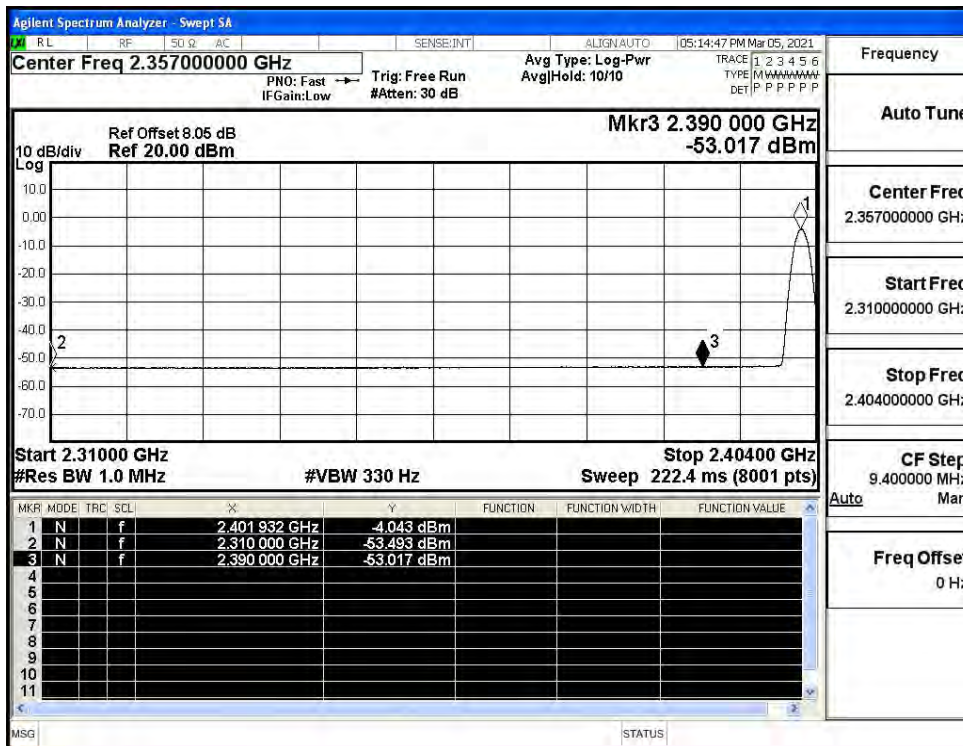
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



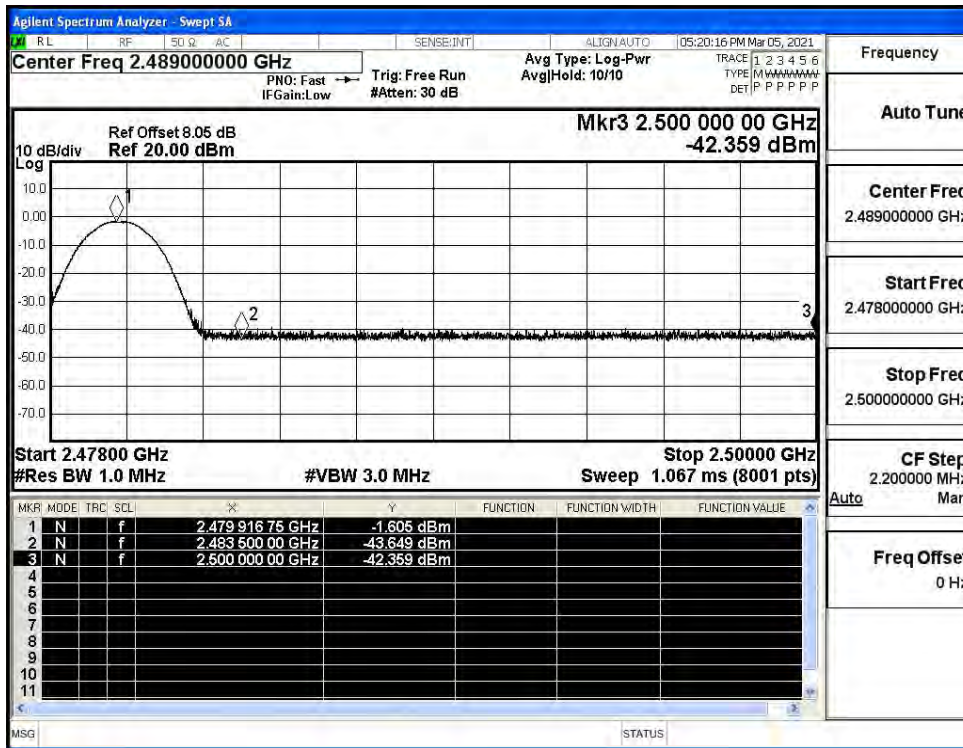
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



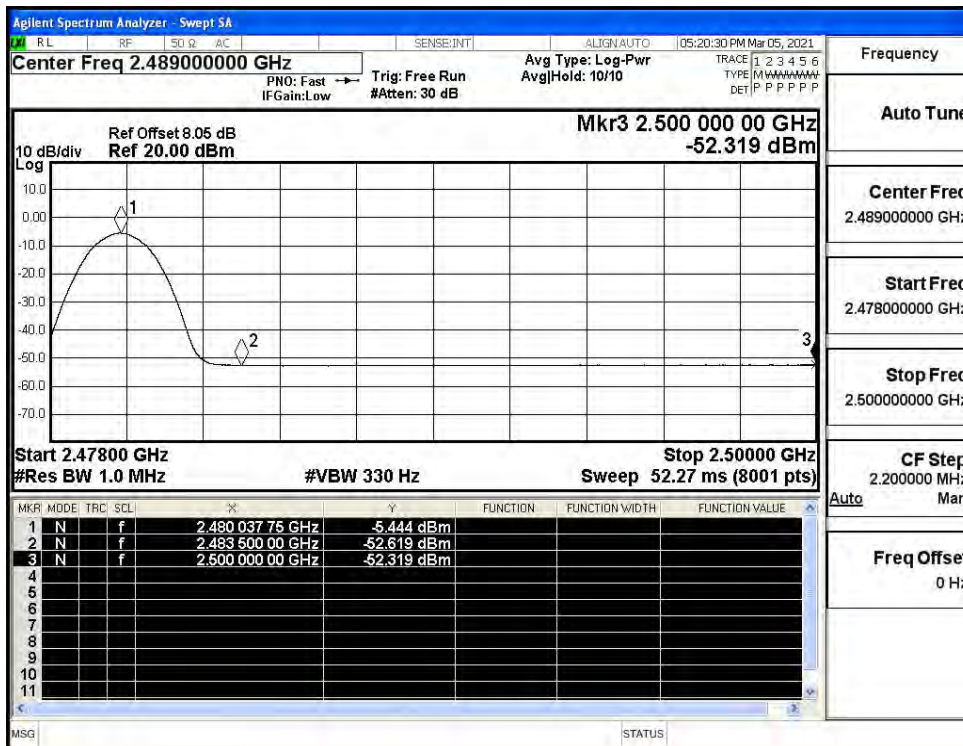
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



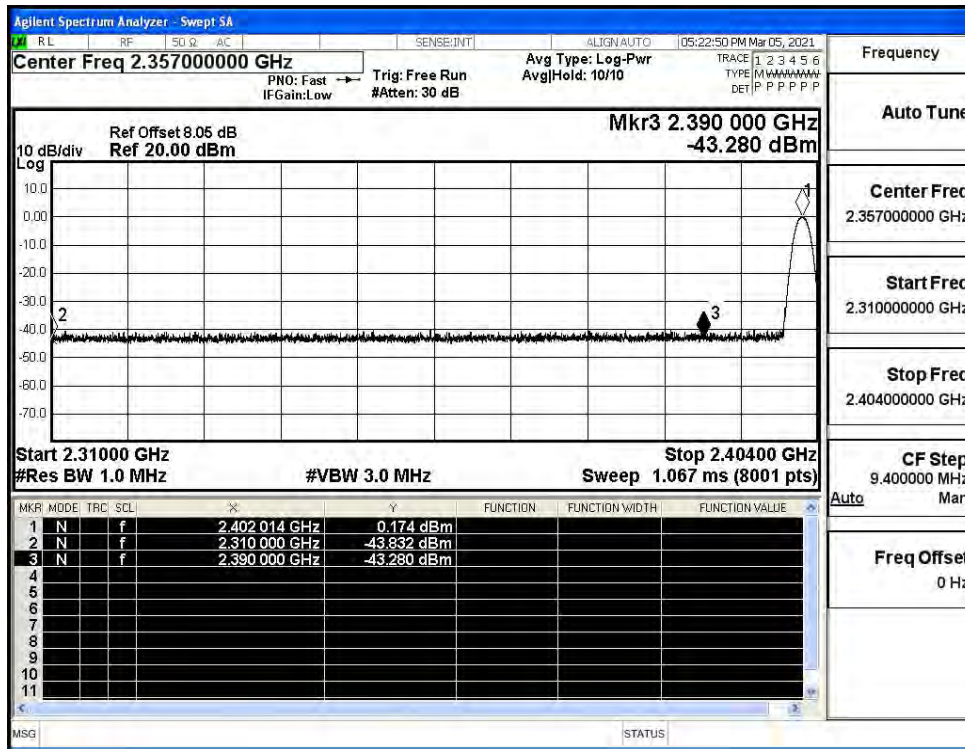
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (High Channel)



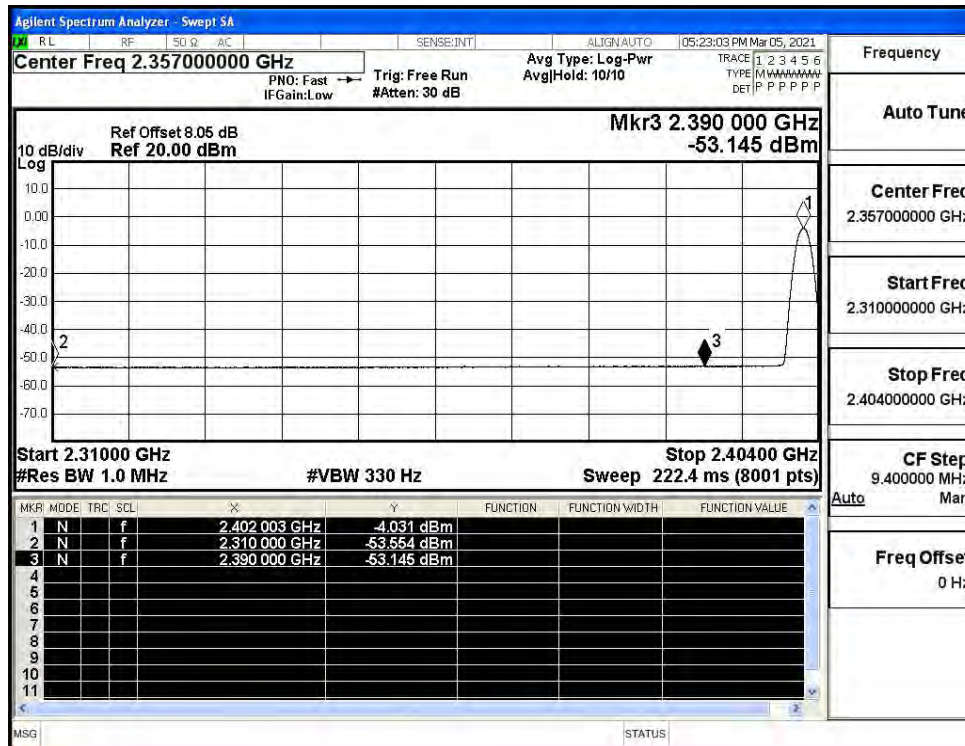
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (High Channel)



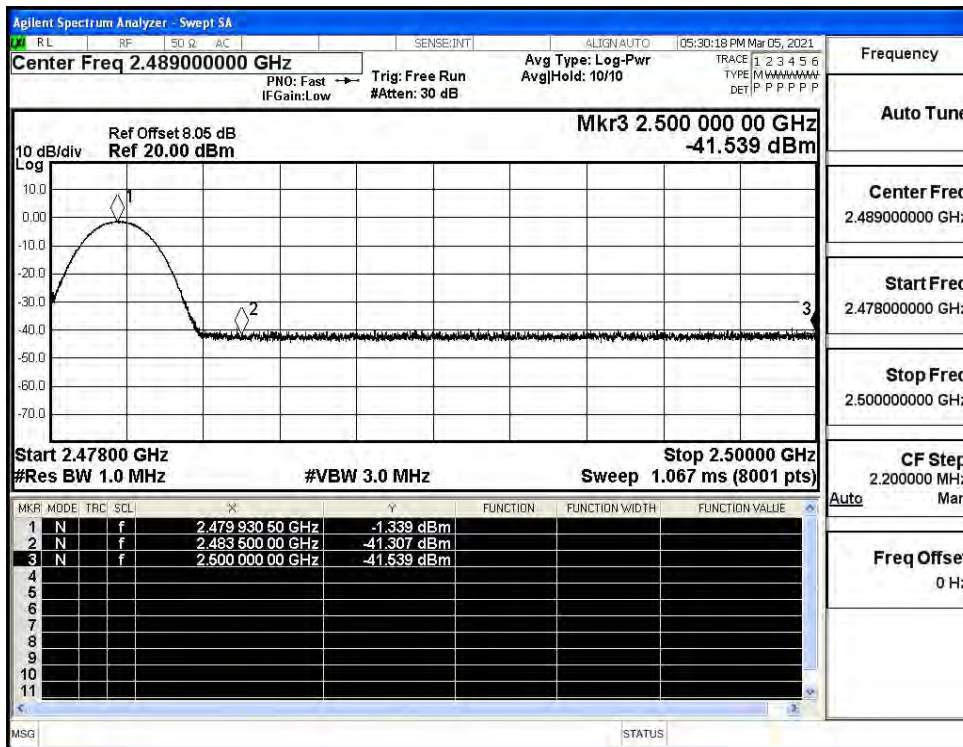
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

