

Appendix A

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

Product Name: 8 INCH WIRELESS TROLLEY SPEAKER

Trade Mark: 23844

Test Model: N/A

Environmental Conditions

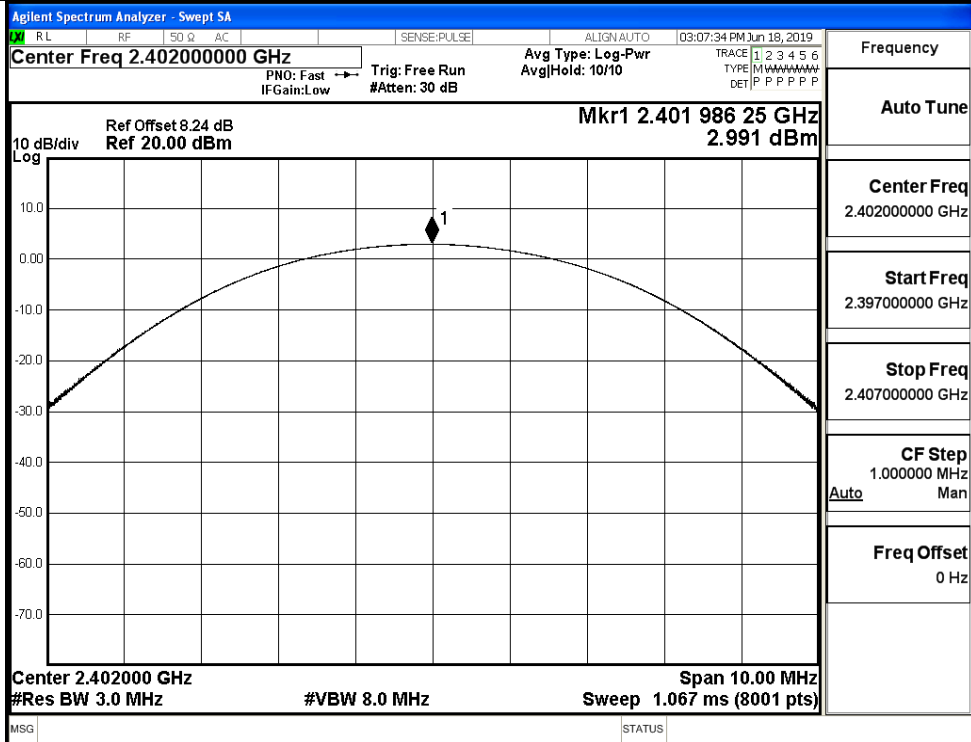
Temperature:	24.6 ° C
Relative Humidity:	53.7%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.ZENG
Supervised by:	Tom.Liu

A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.991	21	PASS
	MCH	4.505	21	PASS
	HCH	4.244	21	PASS
$\pi/4$ DQPSK	LCH	1.910	21	PASS
	MCH	3.740	21	PASS
	HCH	3.741	21	PASS
8DPSK	LCH	1.967	21	PASS
	MCH	3.707	21	PASS
	HCH	3.708	21	PASS

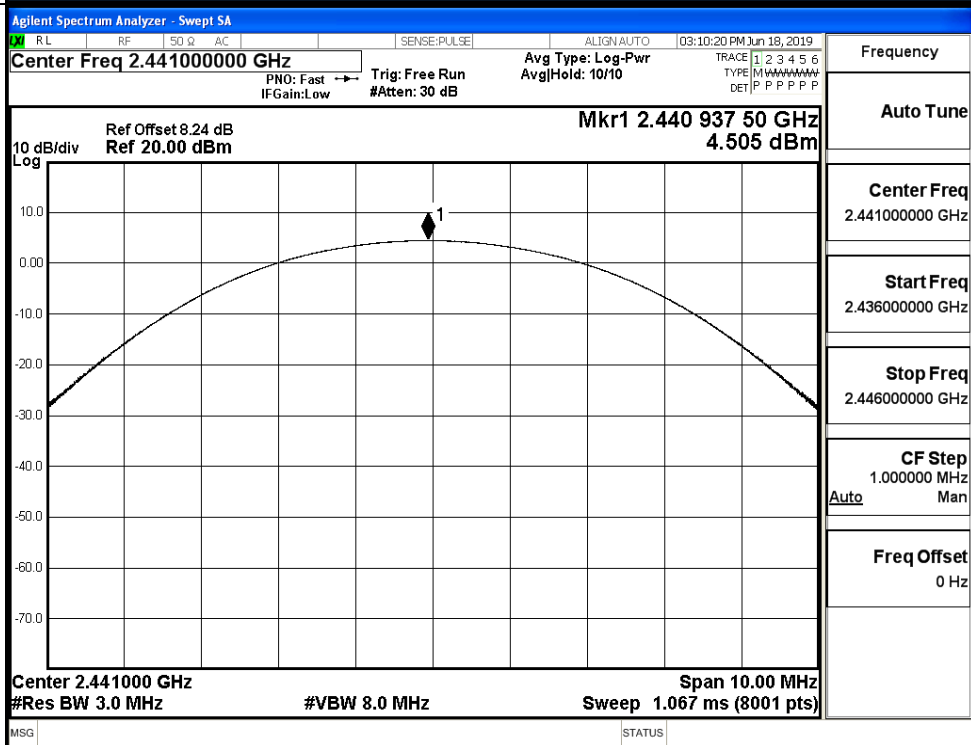
Test Graphs

GFSK/LCH



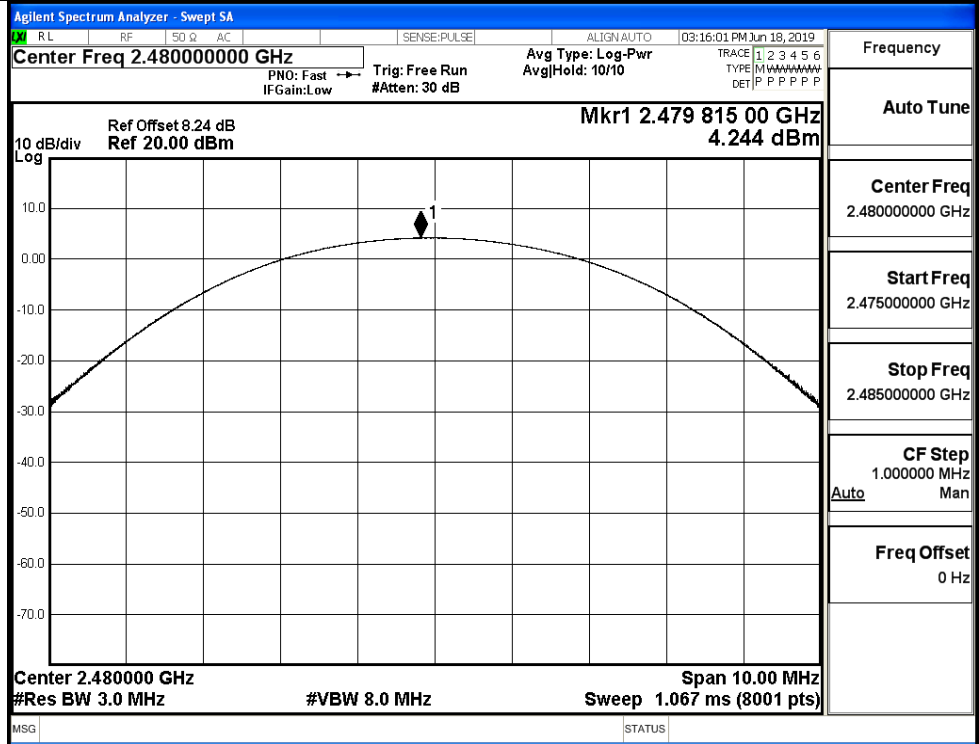
Frequency	2.402000000 GHz
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.397000000 GHz
Stop Freq	2.407000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK/MCH

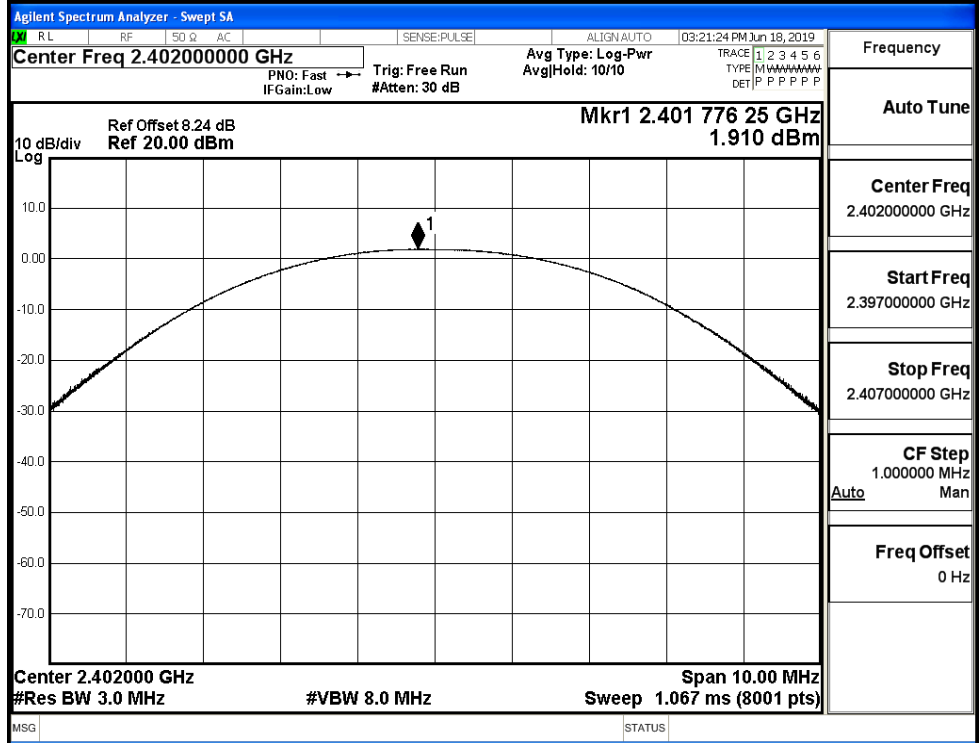


Frequency	2.441000000 GHz
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.436000000 GHz
Stop Freq	2.446000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

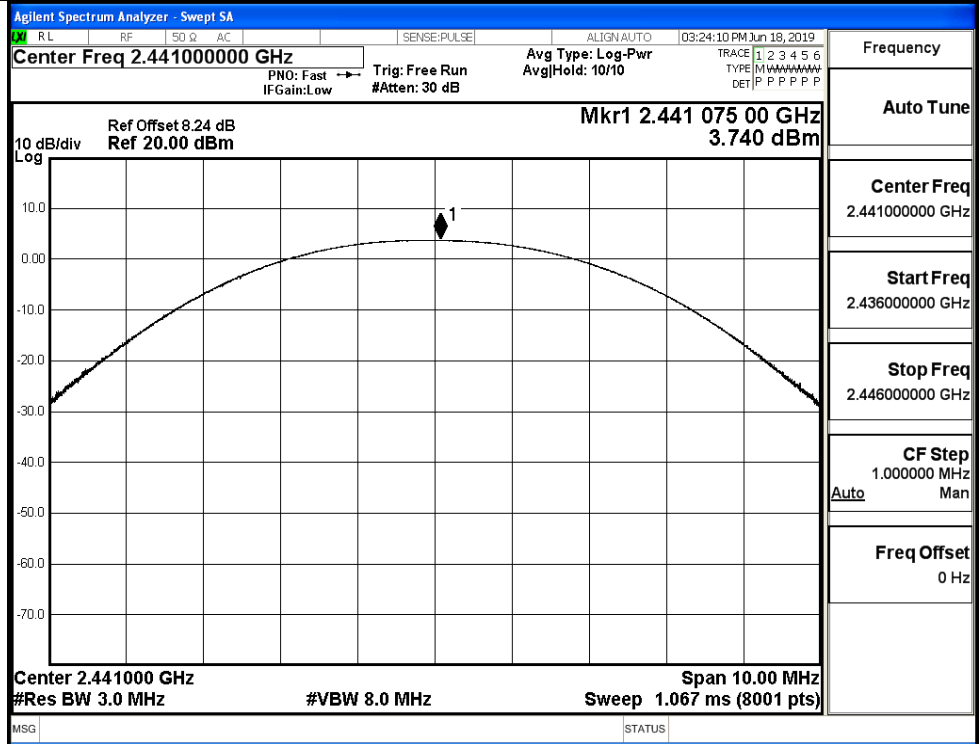
GFSK/HCH



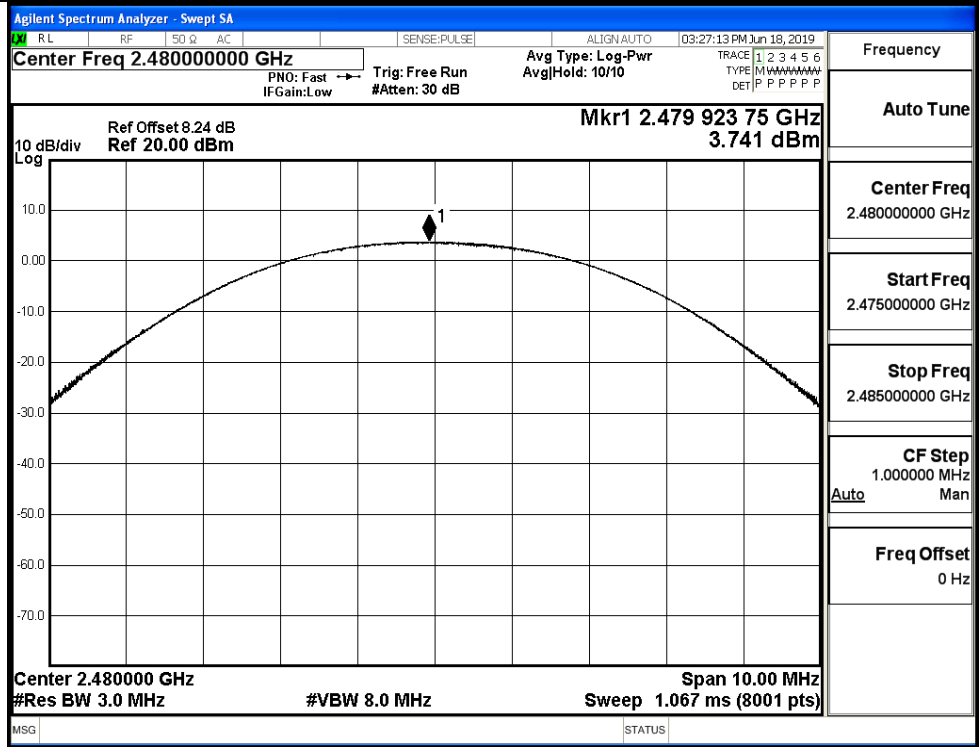
π /4DQPSK/LCH



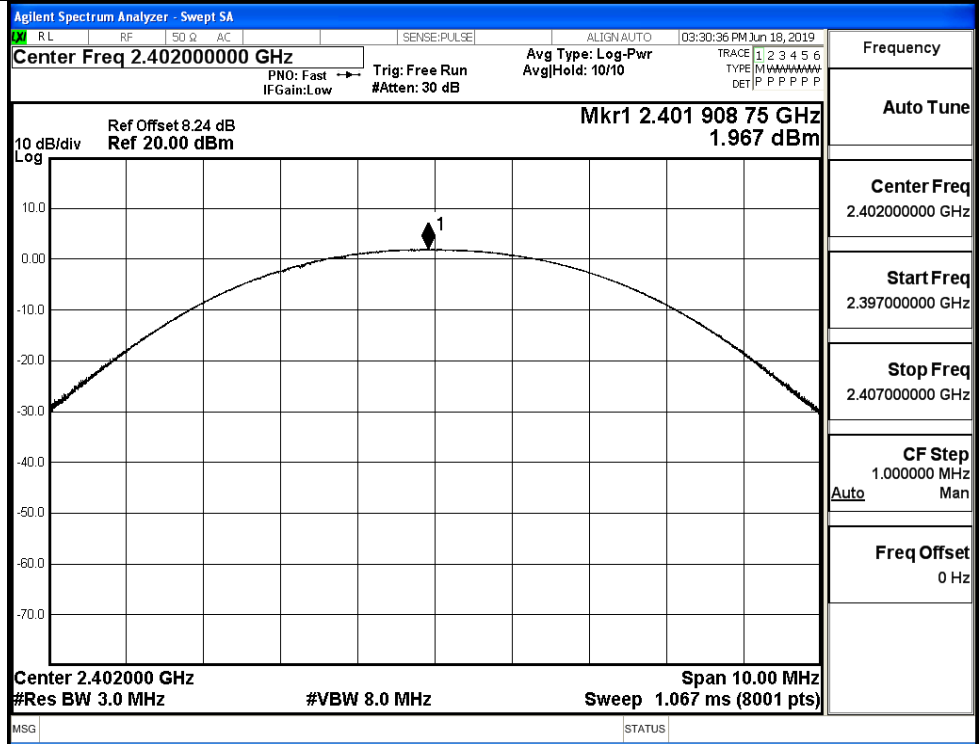
π /4DQPSK/MCH



π /4DQPSK/HCH

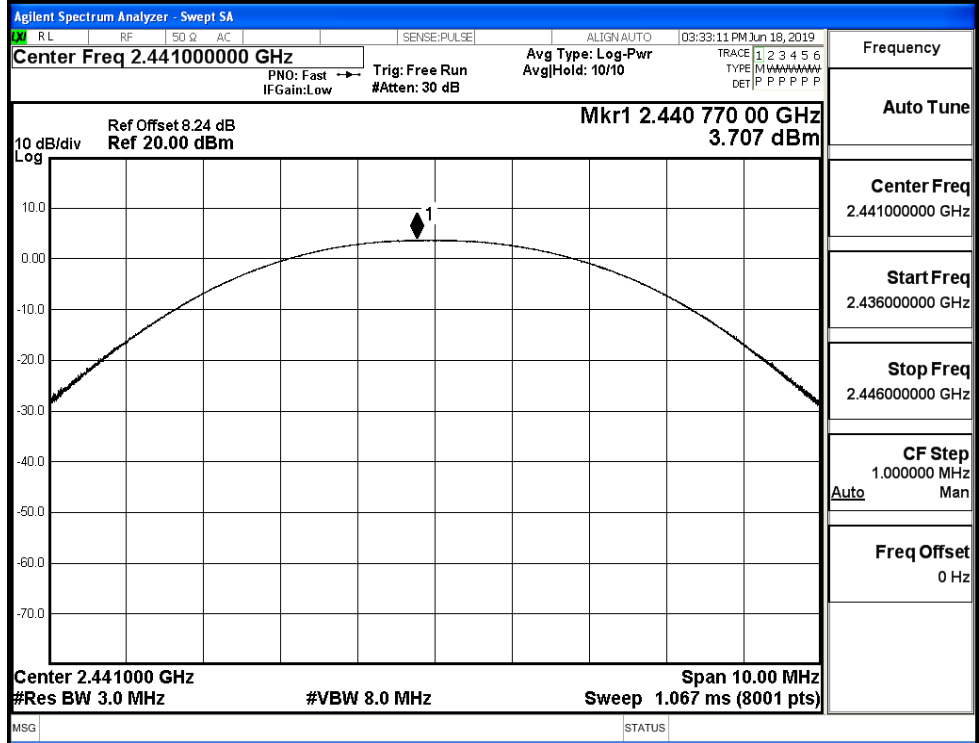


8DPSK/LCH



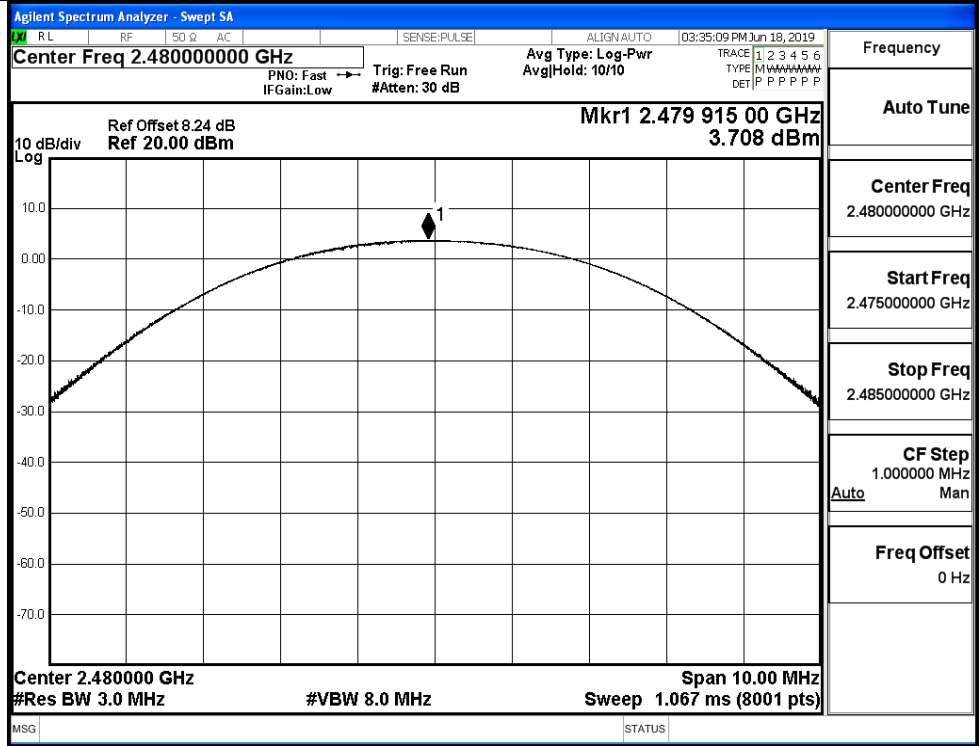
Frequency
Auto Tune
Center Freq 2.402000000 GHz
Start Freq 2.397000000 GHz
Stop Freq 2.407000000 GHz
CF Step 1.000000 MHz Auto Man
Freq Offset 0 Hz

8DPSK/MCH



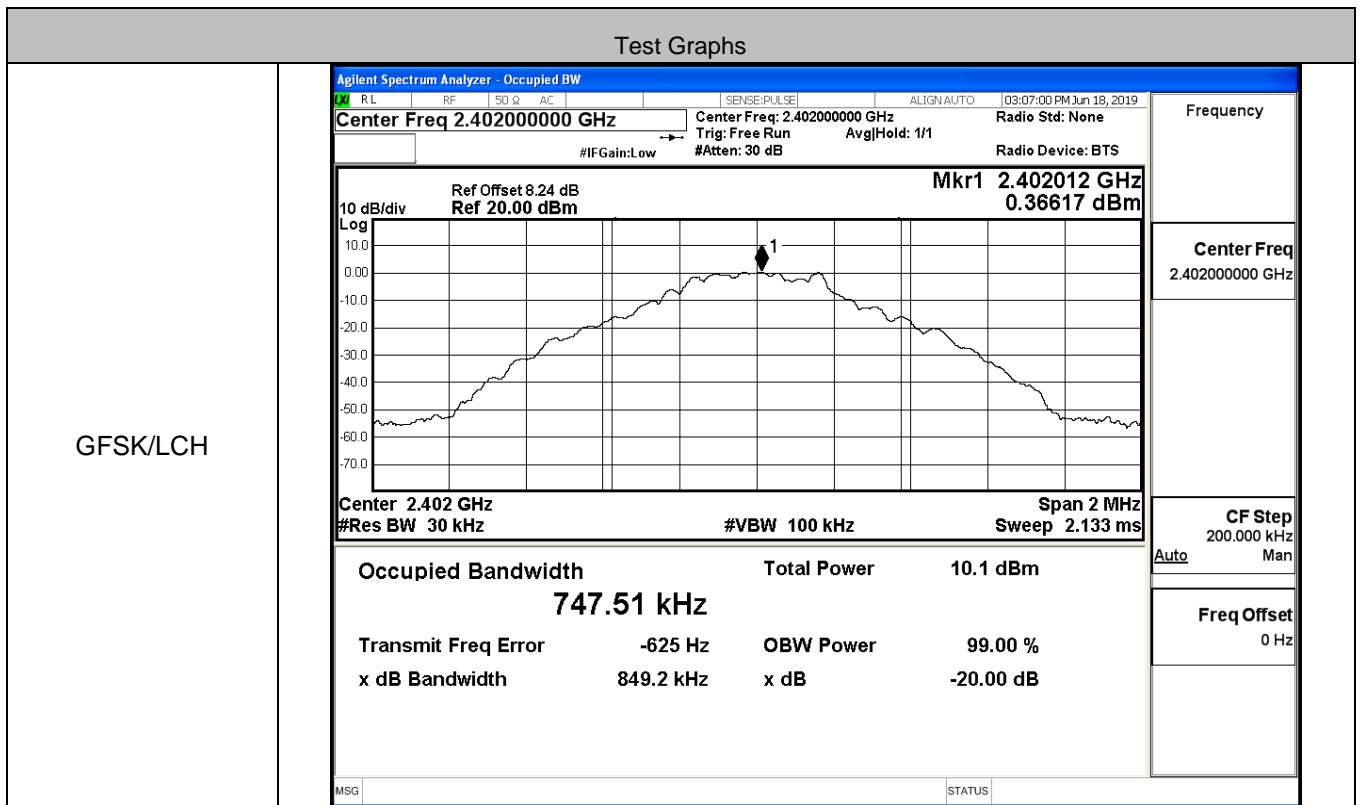
Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.436000000 GHz
Stop Freq 2.446000000 GHz
CF Step 1.000000 MHz Auto Man
Freq Offset 0 Hz

8DPSK/HCH

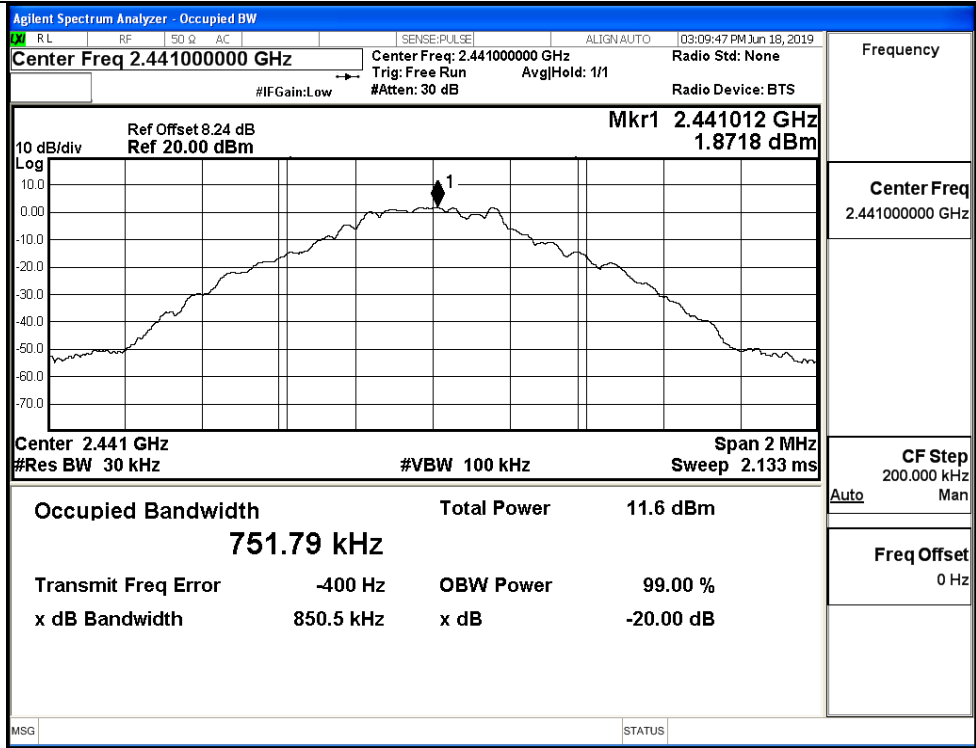


A.2 20dB Bandwidth

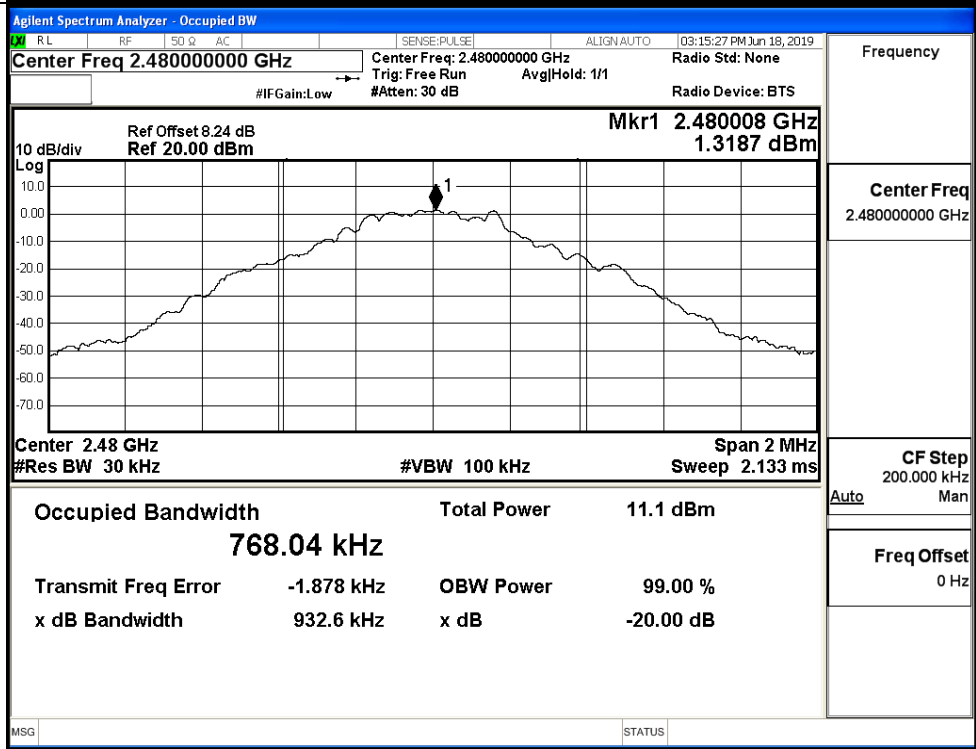
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.8492	Not Specified	PASS
	MCH	0.8505	Not Specified	PASS
	HCH	0.9326	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.267	Not Specified	PASS
	MCH	1.273	Not Specified	PASS
	HCH	1.275	Not Specified	PASS
8DPSK	LCH	1.269	Not Specified	PASS
	MCH	1.270	Not Specified	PASS
	HCH	1.279	Not Specified	PASS



GFSK/MCH

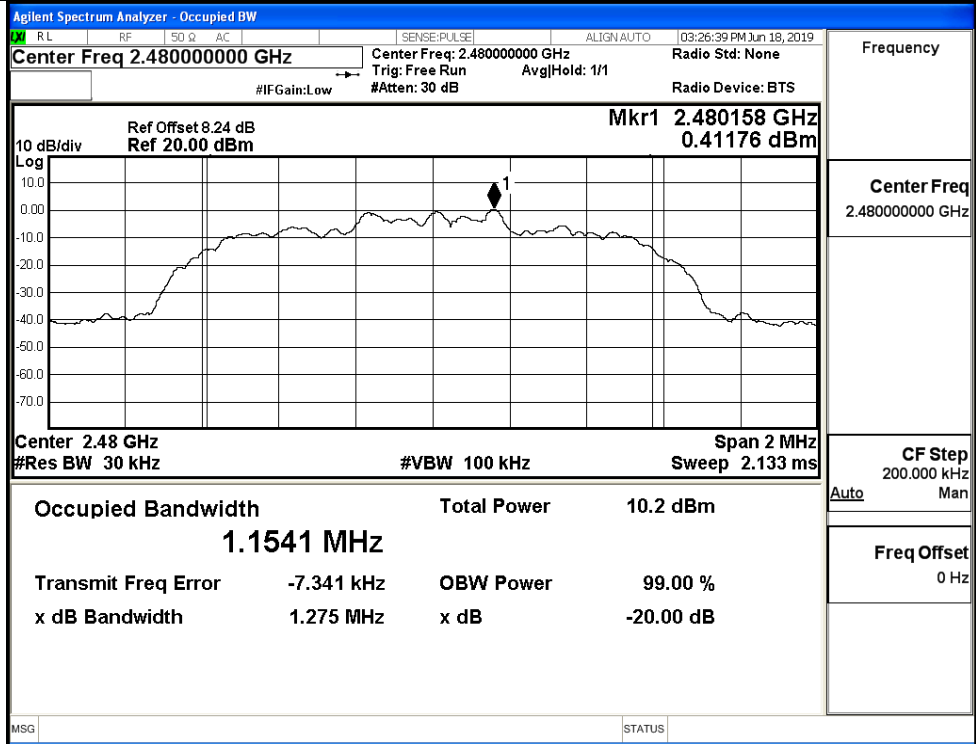


GFSK/HCH

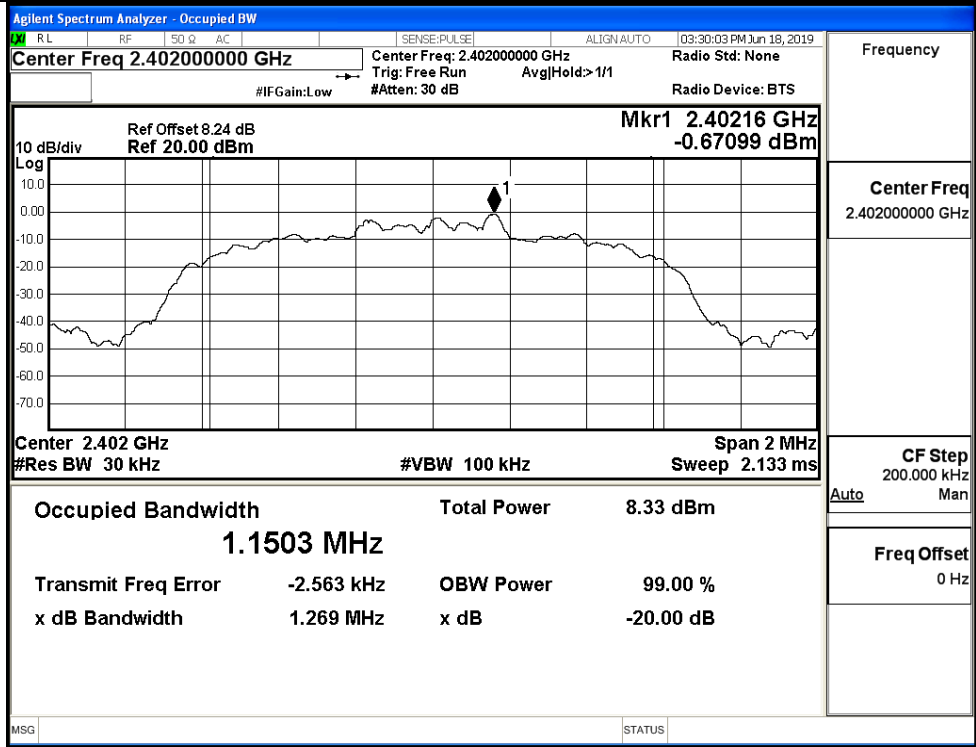


<p style="text-align: center;">π/4DQPSK/LCH</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.40200000 GHz Center Freq: 2.40200000 GHz Radio Std: None Trig: Free Run Avg Hold: >1/1</p> <p>Ref Offset 8.24 dB Mkr1 2.402158 GHz Ref 20.00 dBm -1.2279 dBm</p> <p>Center 2.402 GHz Span 2 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 2.133 ms</p> <p>Occupied Bandwidth Total Power 8.42 dBm 1.1457 MHz</p> <p>Transmit Freq Error -6.658 kHz OBW Power 99.00 % x dB Bandwidth 1.267 MHz x dB -20.00 dB</p> </div>	<p>Frequency 2.40200000 GHz</p> <p>CF Step 200.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p style="text-align: center;">π/4DQPSK/MCH</p>	<div style="border: 1px solid black; padding: 5px;"> <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.44100000 GHz Center Freq: 2.44100000 GHz Radio Std: None Trig: Free Run Avg Hold: 1/1</p> <p>Ref Offset 8.24 dB Mkr1 2.44116 GHz Ref 20.00 dBm 0.42108 dBm</p> <p>Center 2.441 GHz Span 2 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 2.133 ms</p> <p>Occupied Bandwidth Total Power 10.3 dBm 1.1466 MHz</p> <p>Transmit Freq Error -5.941 kHz OBW Power 99.00 % x dB Bandwidth 1.273 MHz x dB -20.00 dB</p> </div>	<p>Frequency 2.44100000 GHz</p> <p>CF Step 200.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p>

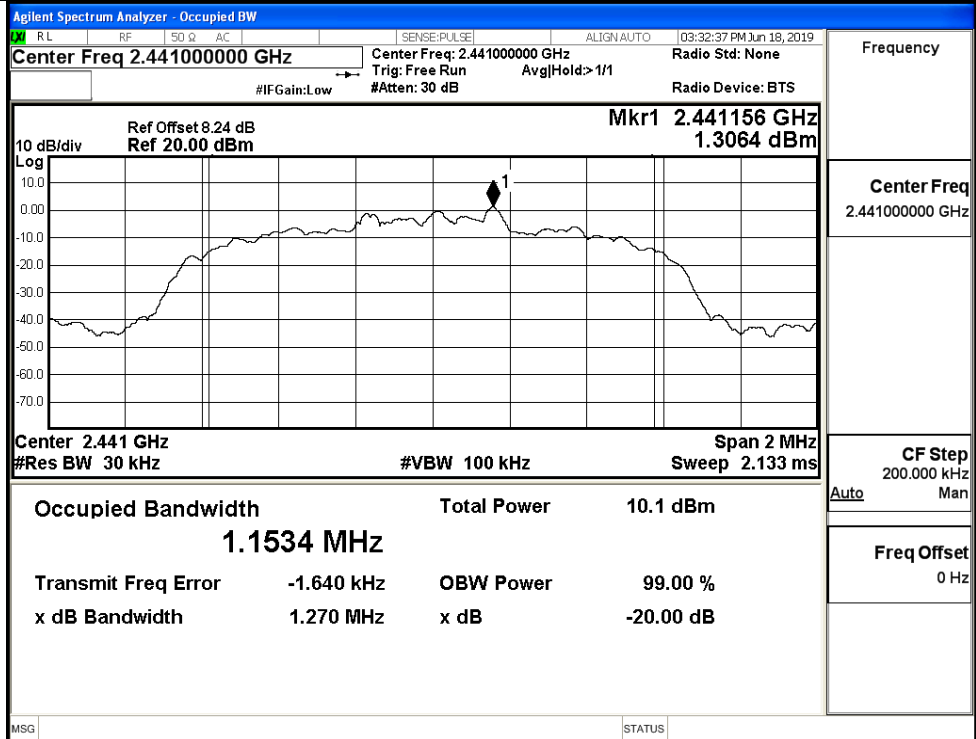
$\pi/4$ DQPSK/HCH



8DPSK/LCH

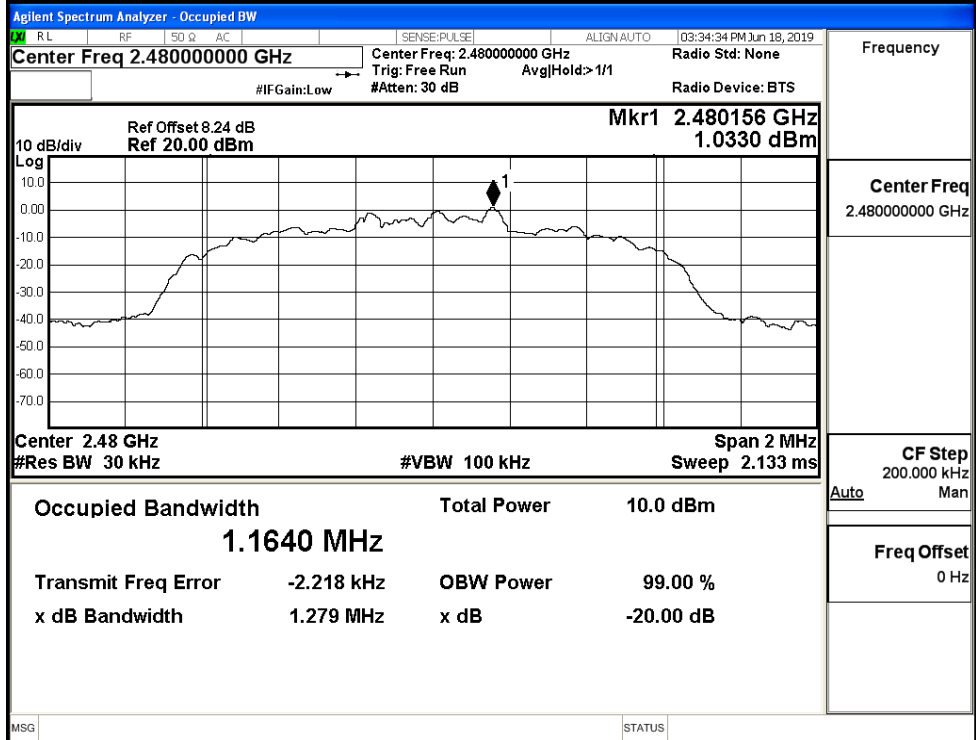


8DPSK/MCH



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

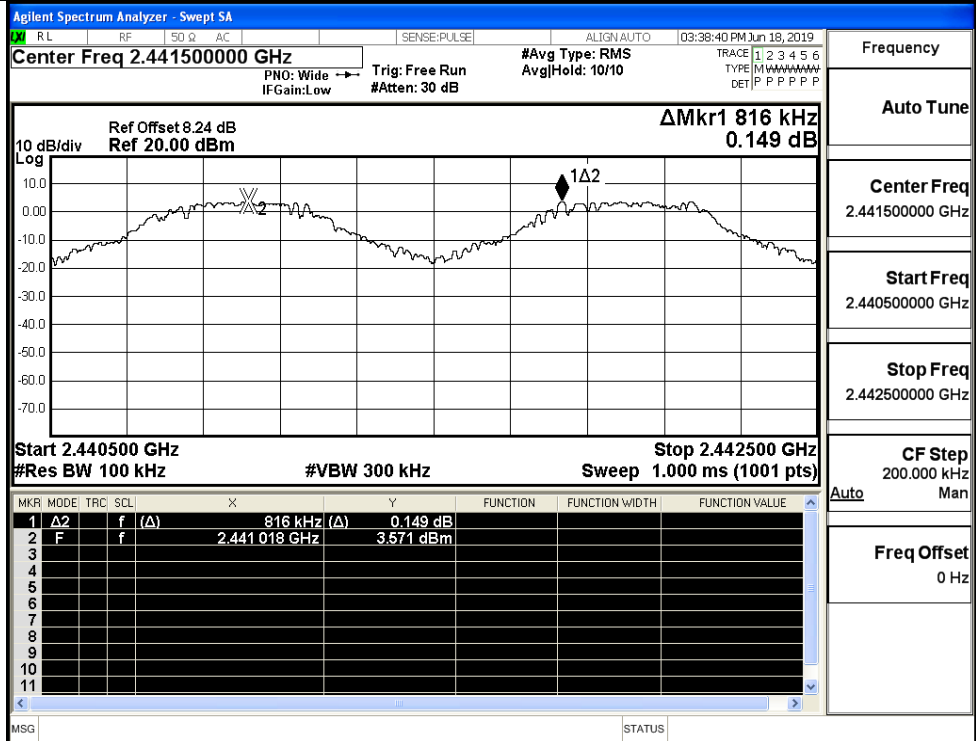
A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.956	0.622	PASS
	MCH	0.816	0.622	PASS
	HCH	1.024	0.622	PASS
π/4DQPSK	LCH	1.316	0.850	PASS
	MCH	1.286	0.850	PASS
	HCH	0.924	0.850	PASS
8DPSK	LCH	1.102	0.853	PASS
	MCH	1.234	0.853	PASS
	HCH	1.010	0.853	PASS

Test Graphs

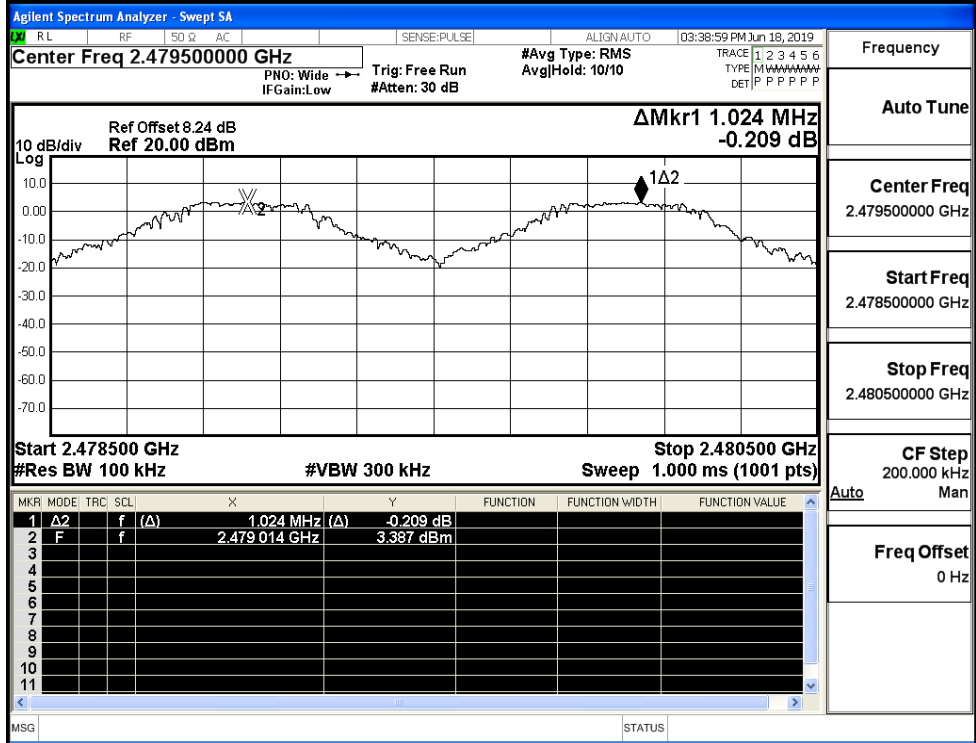
GFSK/LCH		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Frequency</td></tr> <tr><td>Auto Tune</td></tr> <tr><td>Center Freq 2.402500000 GHz</td></tr> <tr><td>Start Freq 2.401500000 GHz</td></tr> <tr><td>Stop Freq 2.403500000 GHz</td></tr> <tr><td>CF Step 200.000 kHz</td></tr> <tr><td>Auto Man</td></tr> <tr><td>Freq Offset 0 Hz</td></tr> </table>	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
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



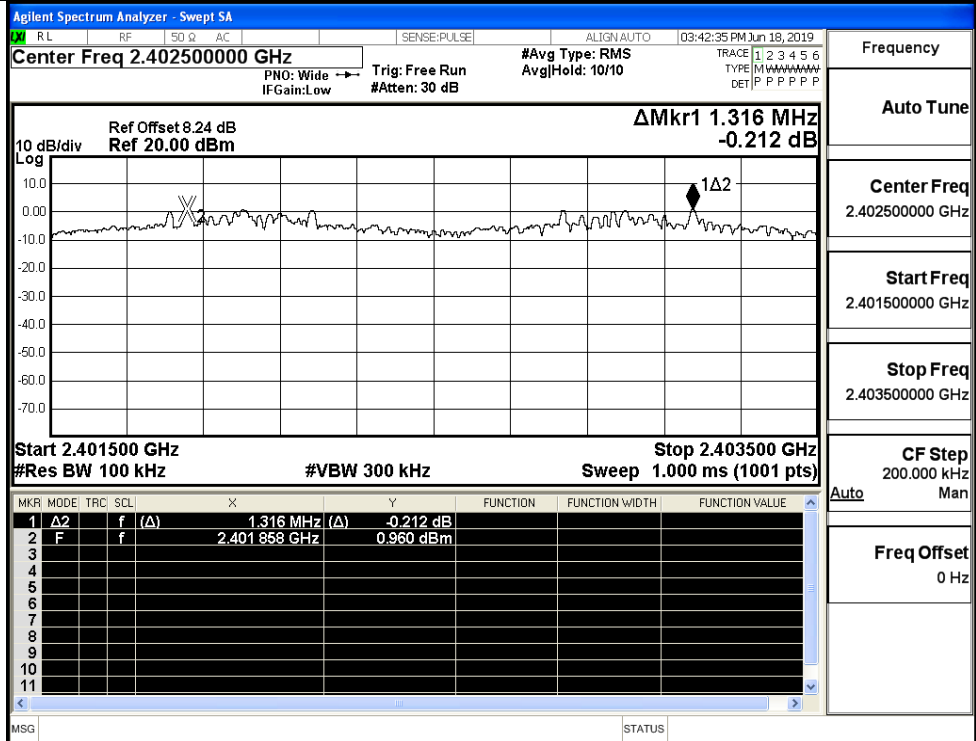
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440500000 GHz
Stop Freq
2.442500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

GFSK/HCH



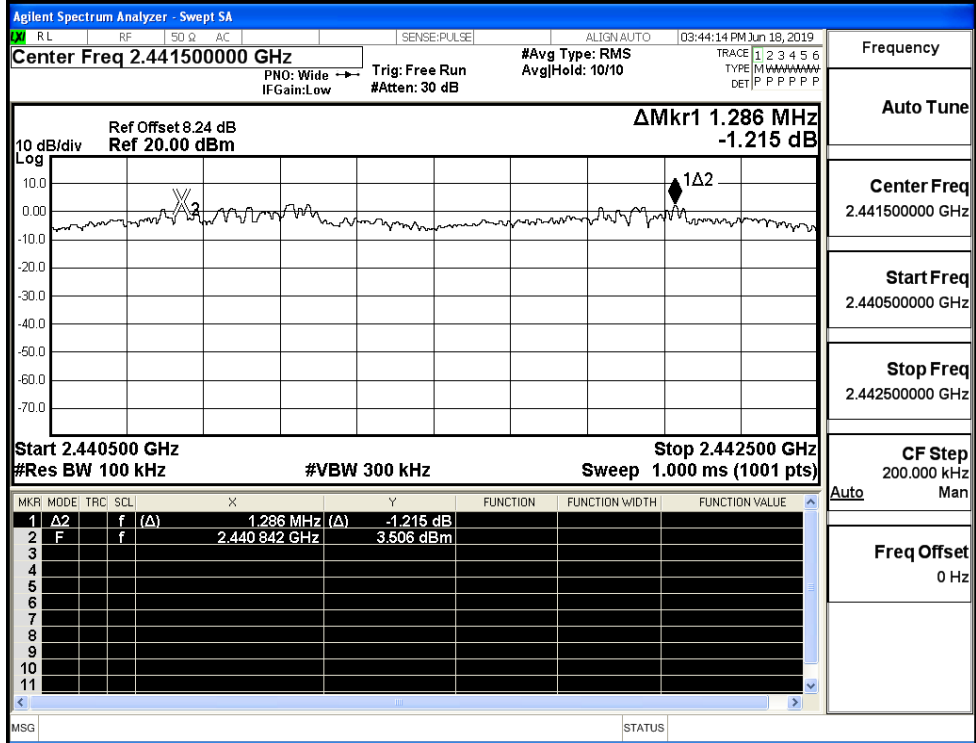
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH



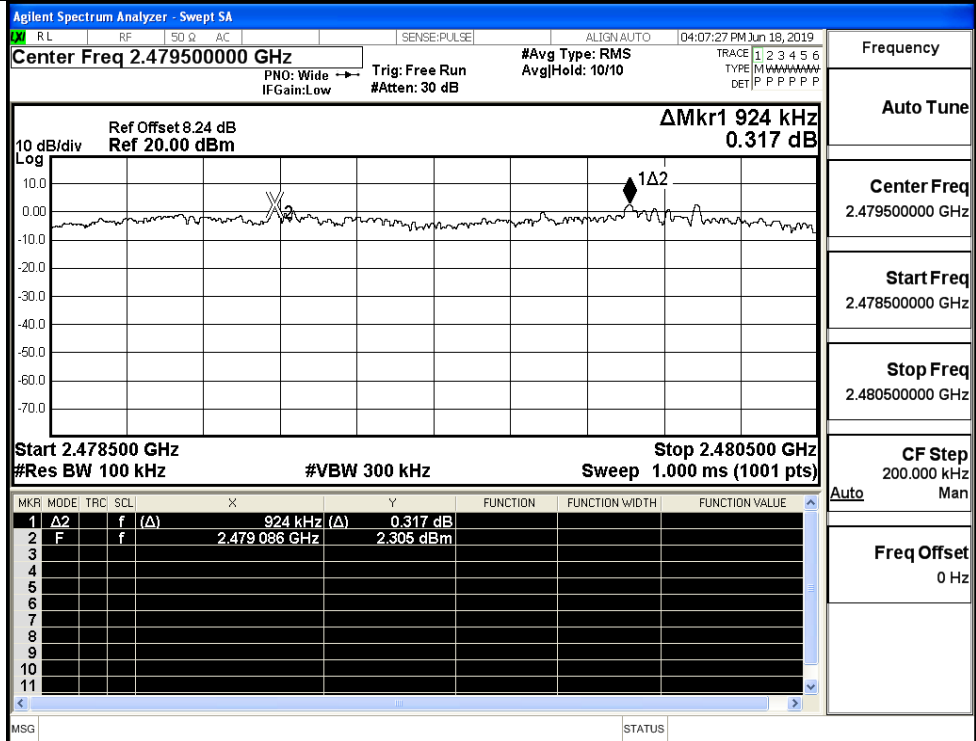
Frequency
Auto Tune
Center Freq
2.402500000 GHz
Start Freq
2.401500000 GHz
Stop Freq
2.403500000 GHz
CF Step
200.000 kHz
Man
Freq Offset
0 Hz

$\pi/4$ DQPSK/MCH



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

π/4DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

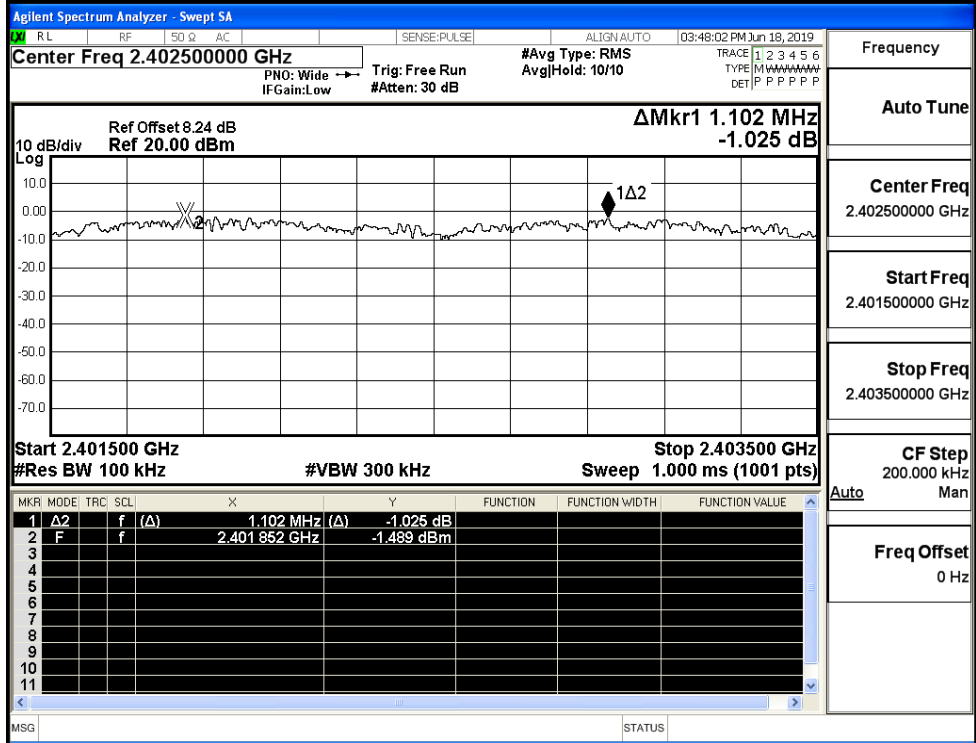
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

8DPSK/LCH



Frequency

Auto Tune

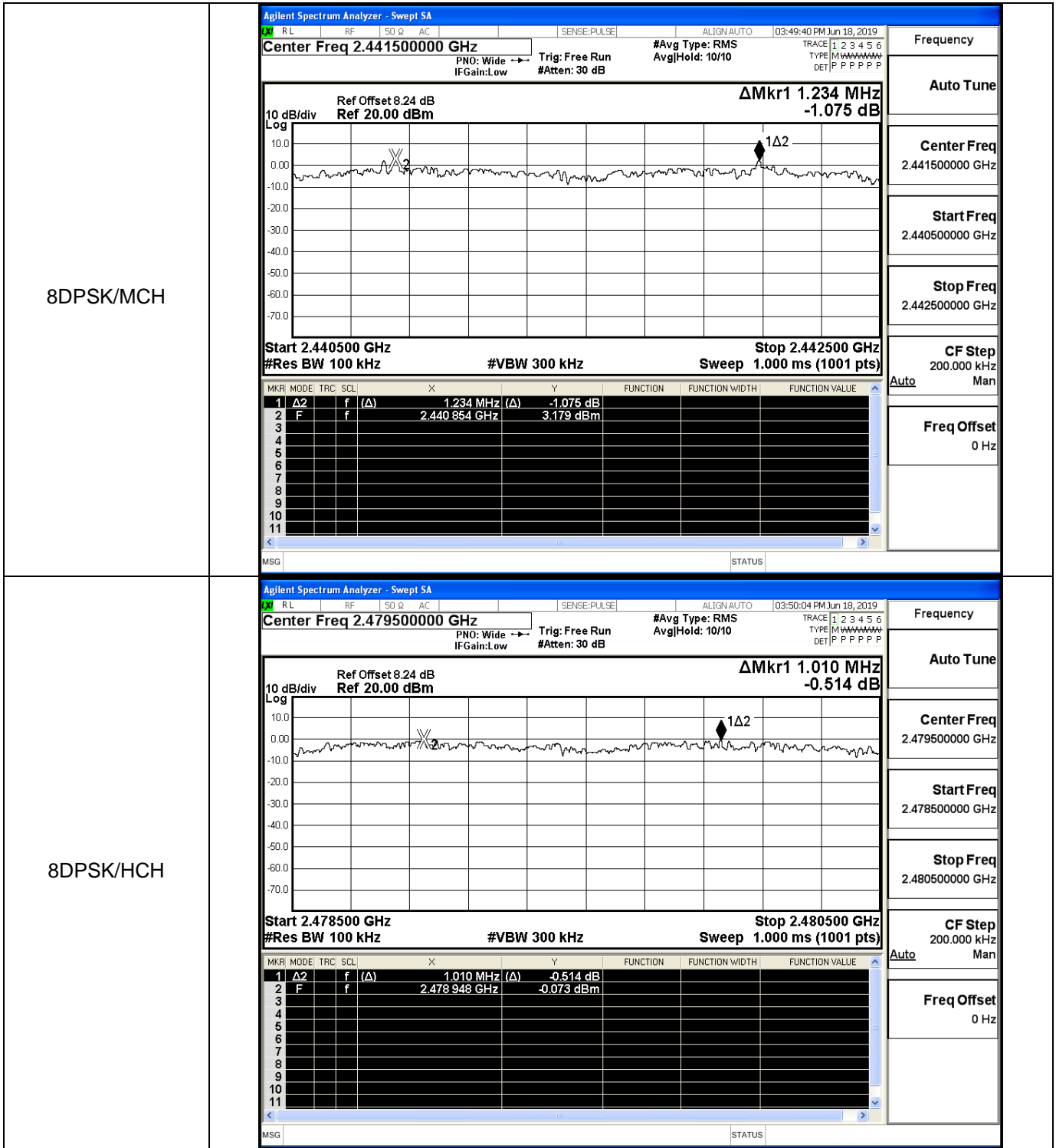
Center Freq
2.402500000 GHz

Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

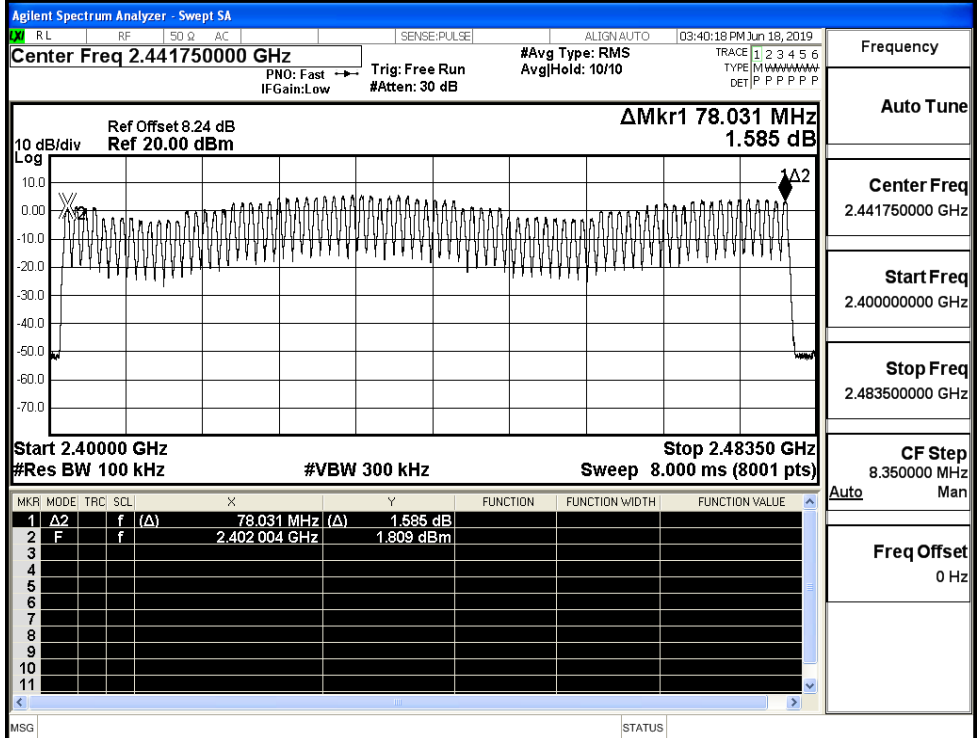


A.4 Hopping Channel Number

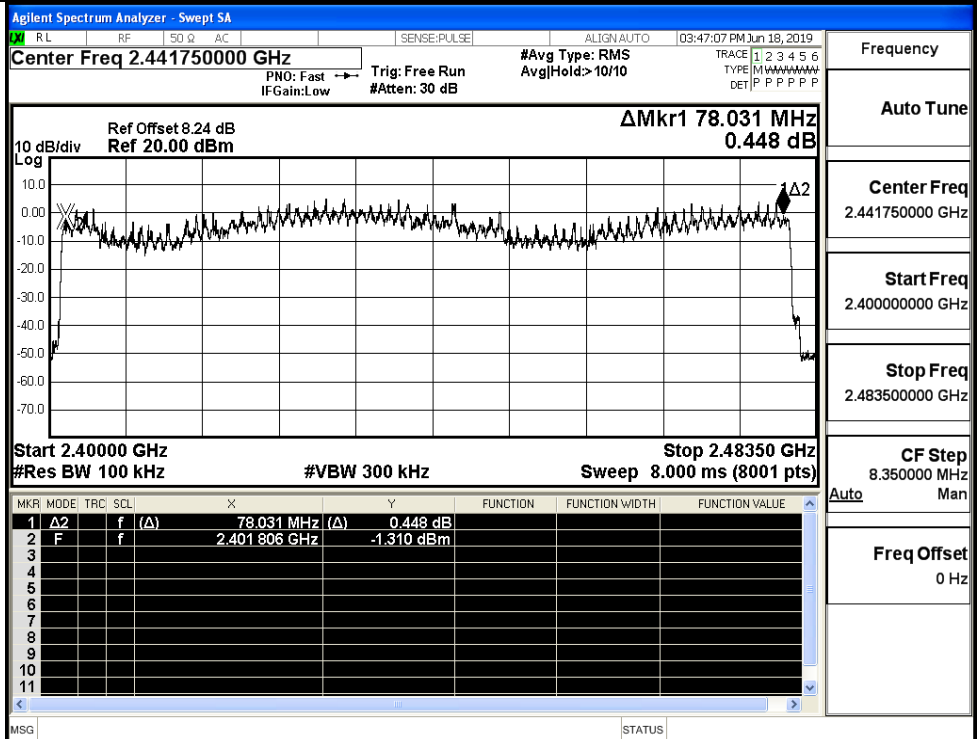
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

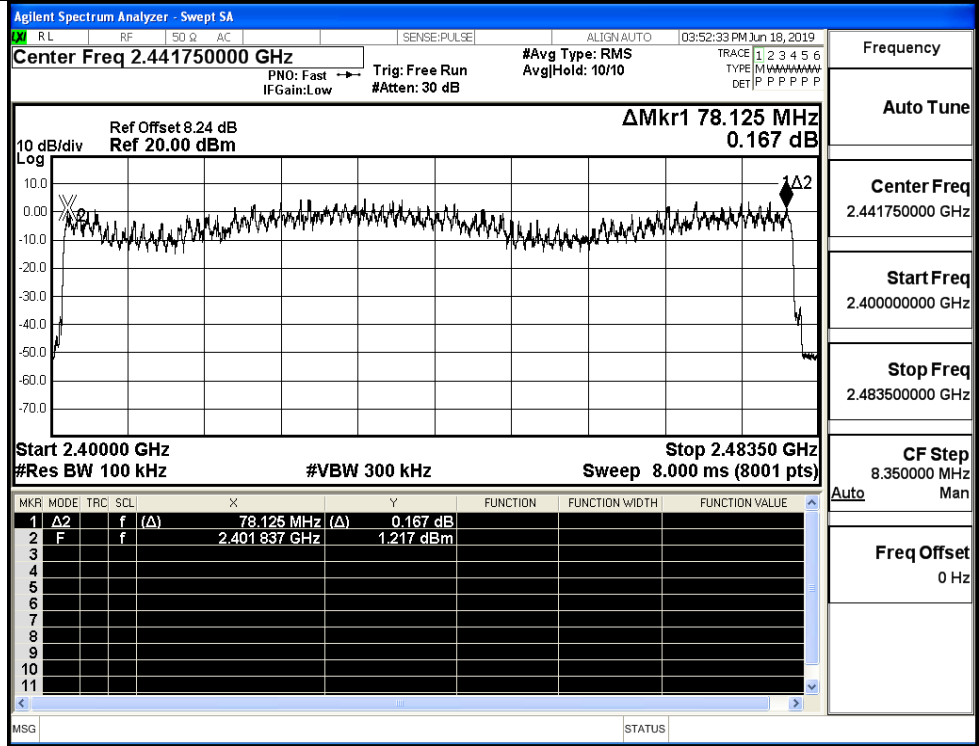
GFSK/Hop



π/4DQPSK/Hop

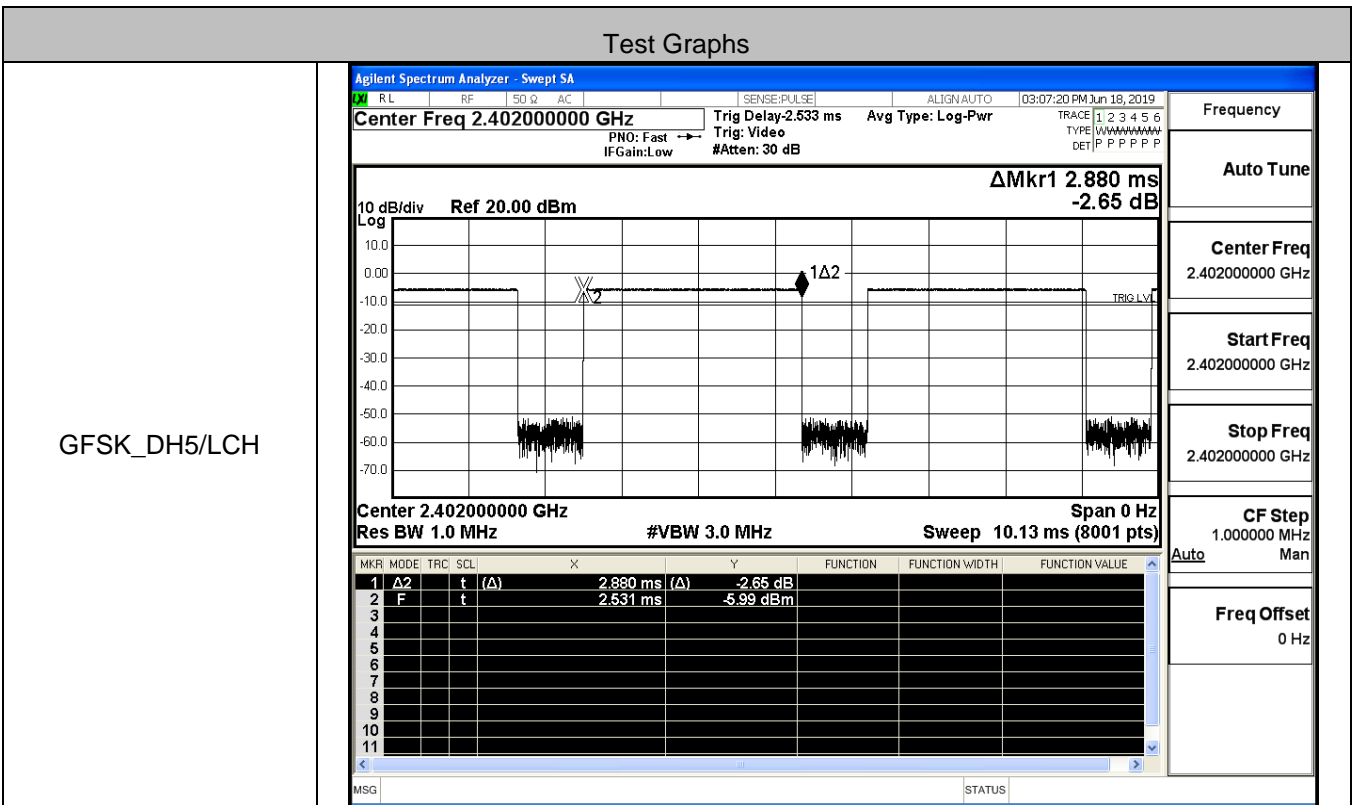


8DPSK/Hop

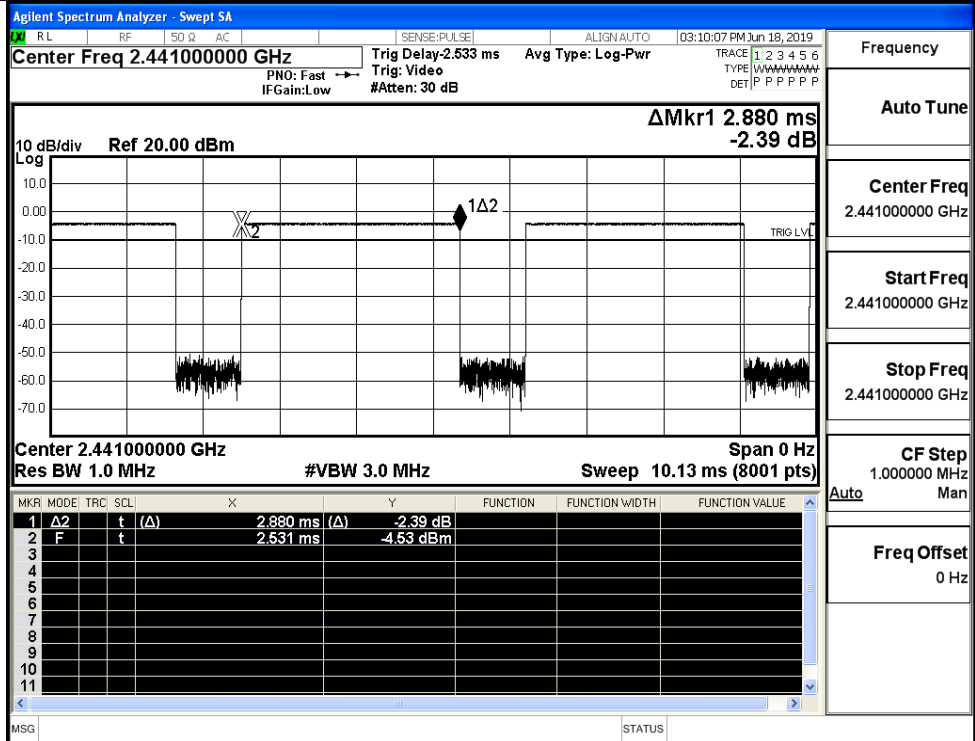


A.5 Dwell Time

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	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.308	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.308	0.4	PASS

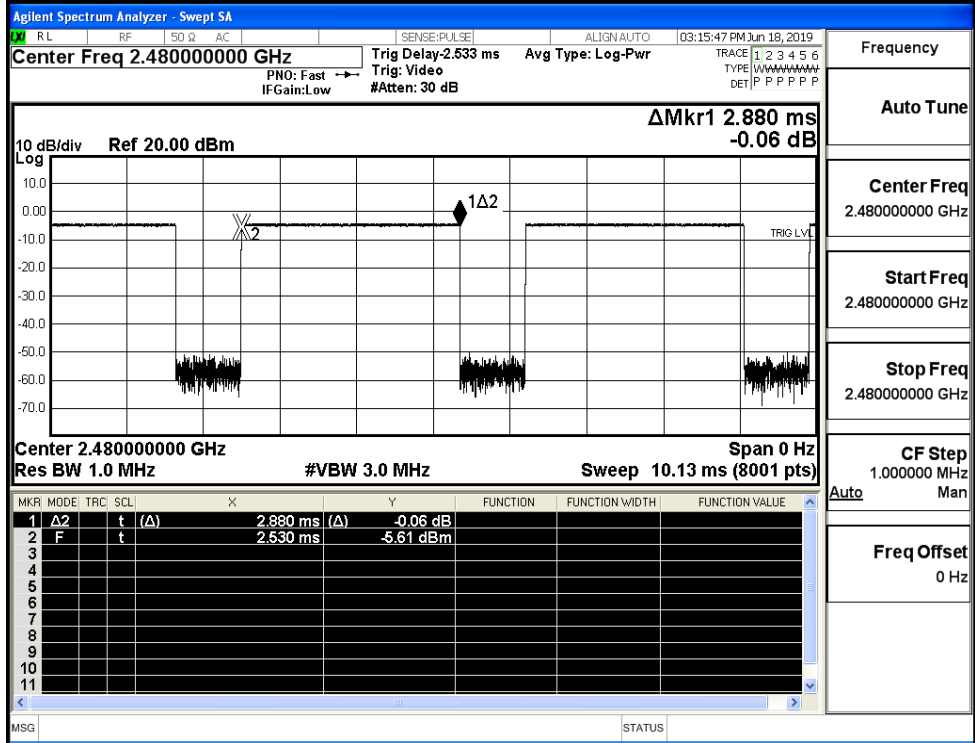


GFSK_DH5/MCH



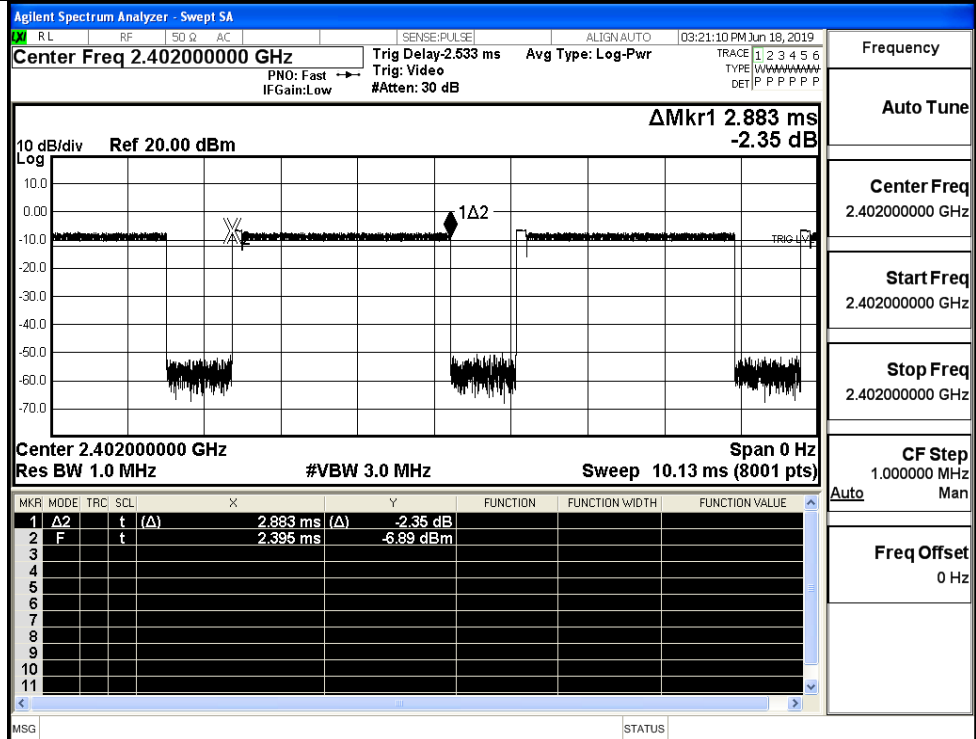
Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.441000000 GHz
Stop Freq	2.441000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK_DH5/HCH

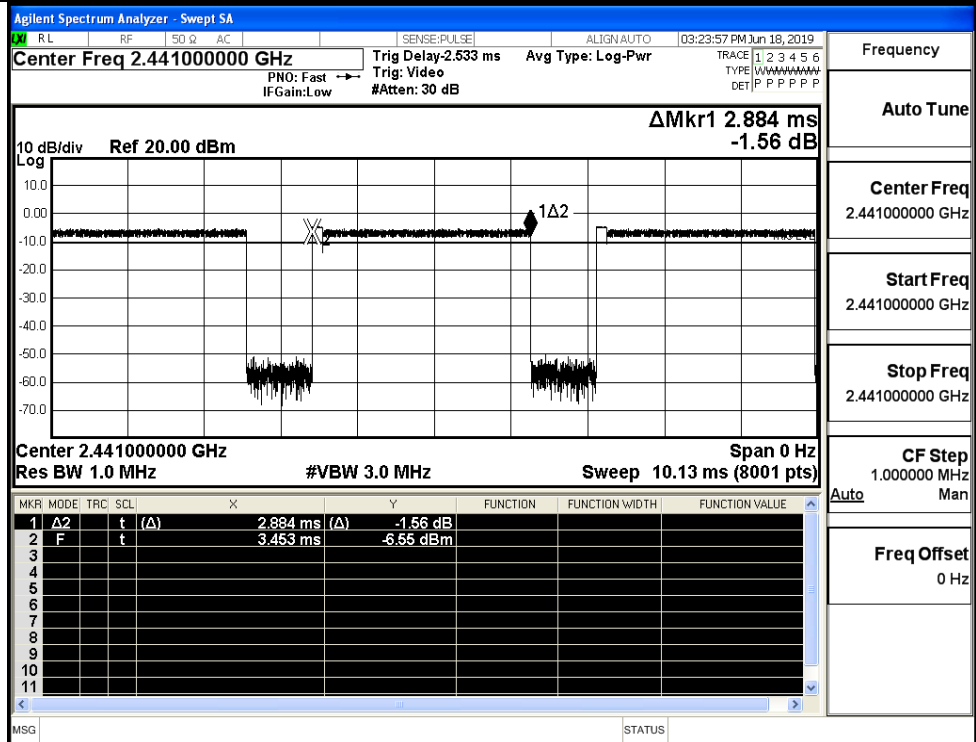


Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

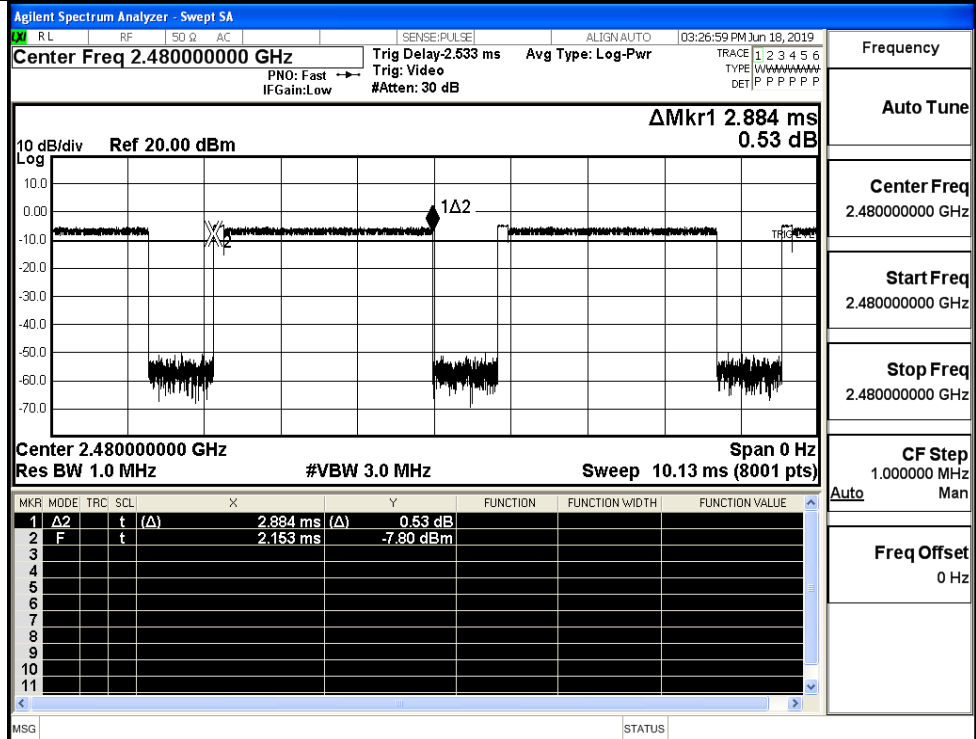
$\pi/4$ DQPSK
_2DH5/LCH



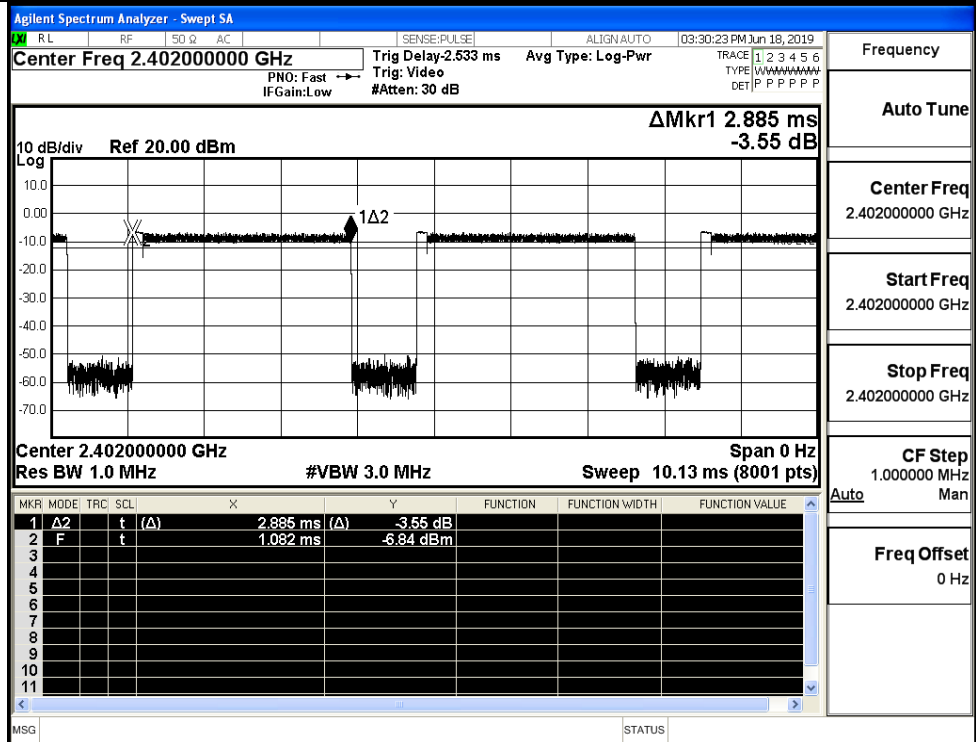
$\pi/4$ DQPSK
_2DH5/MCH



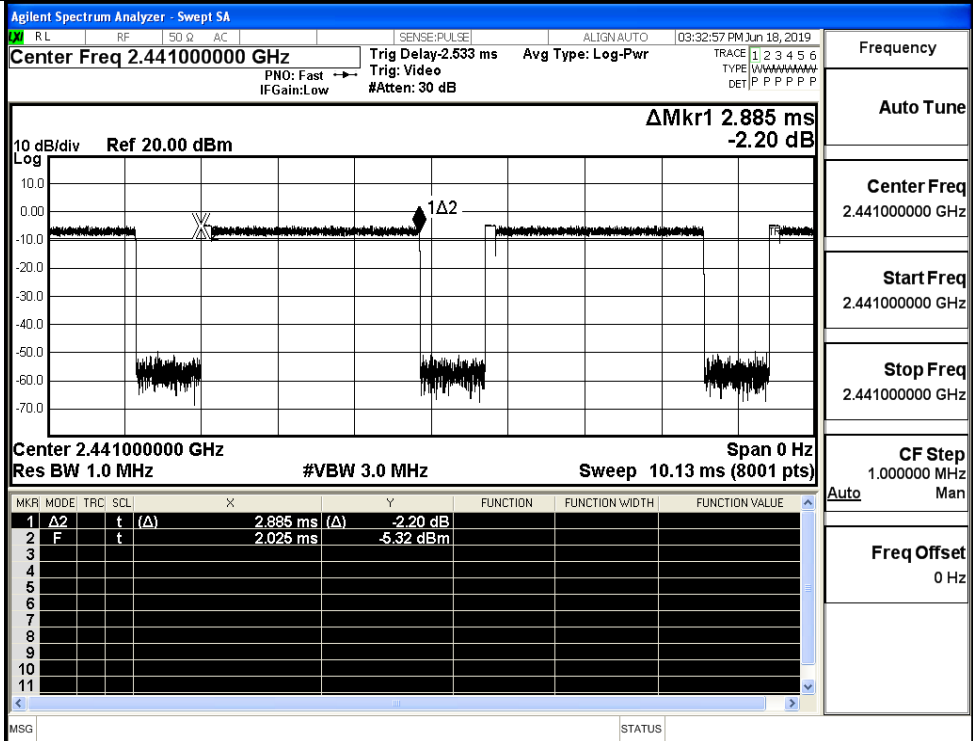
$\pi/4$ DQPSK
_2DH5/HCH



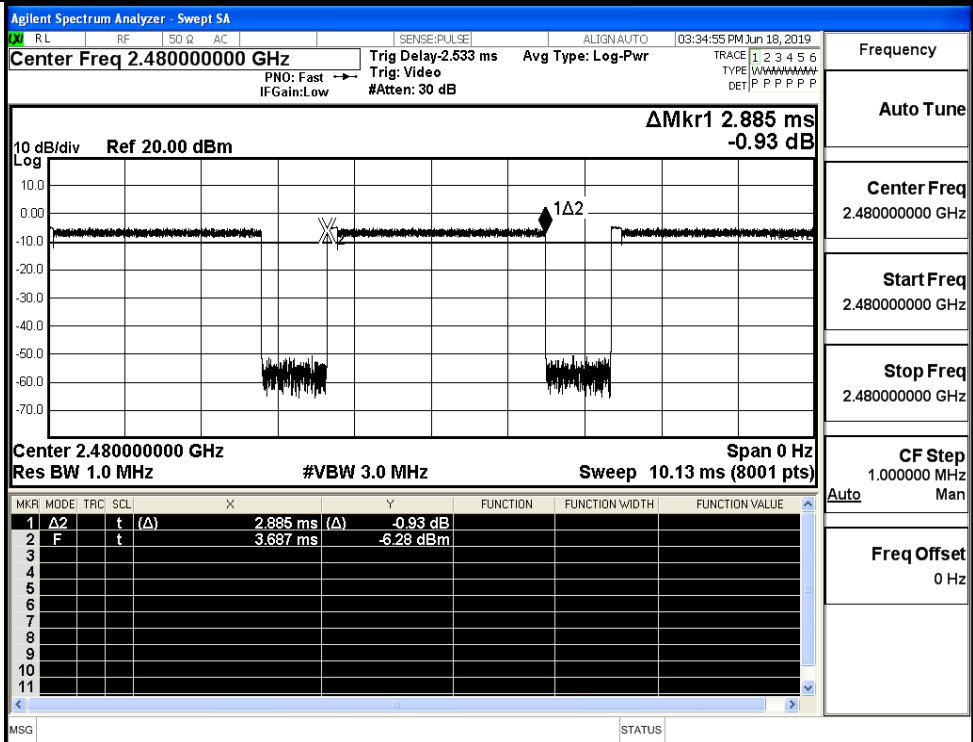
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



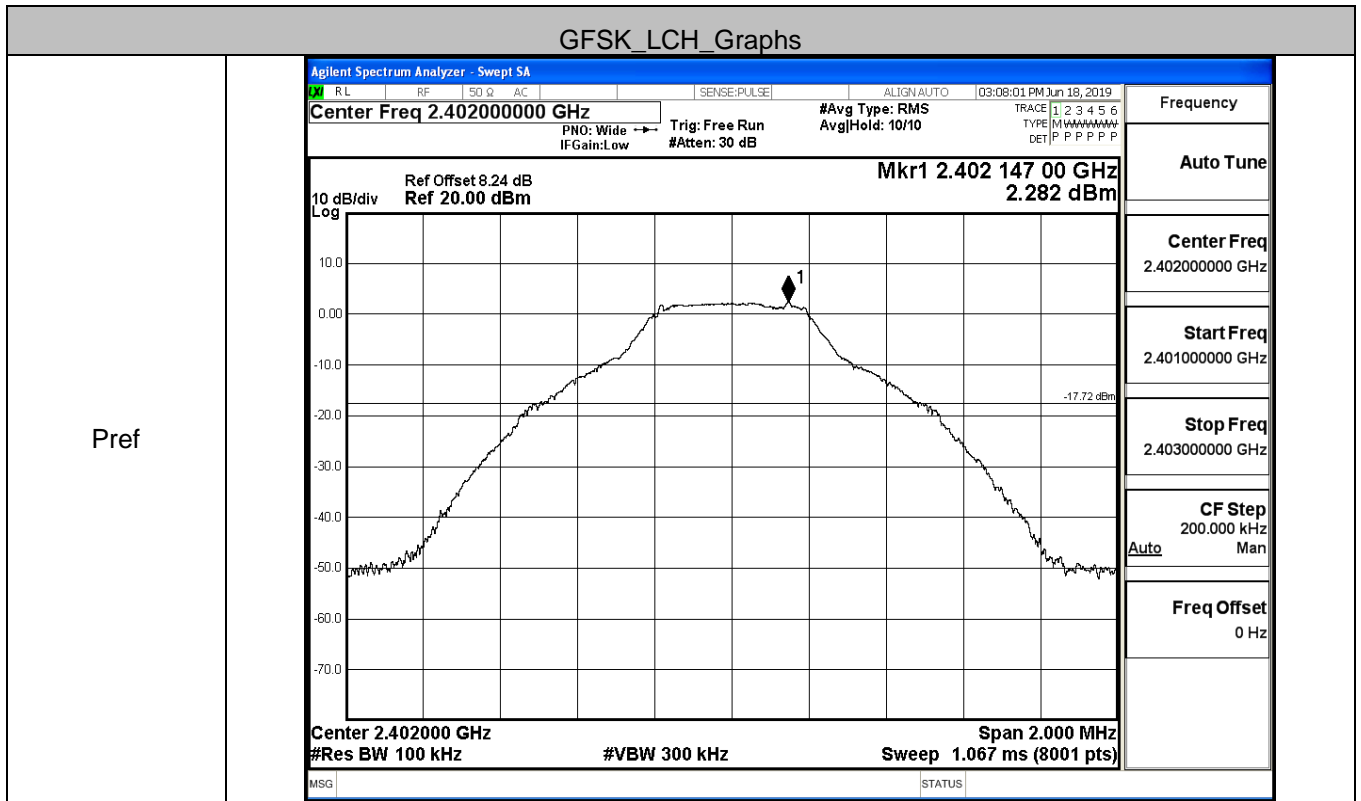
8DPSK_3DH5/HCH

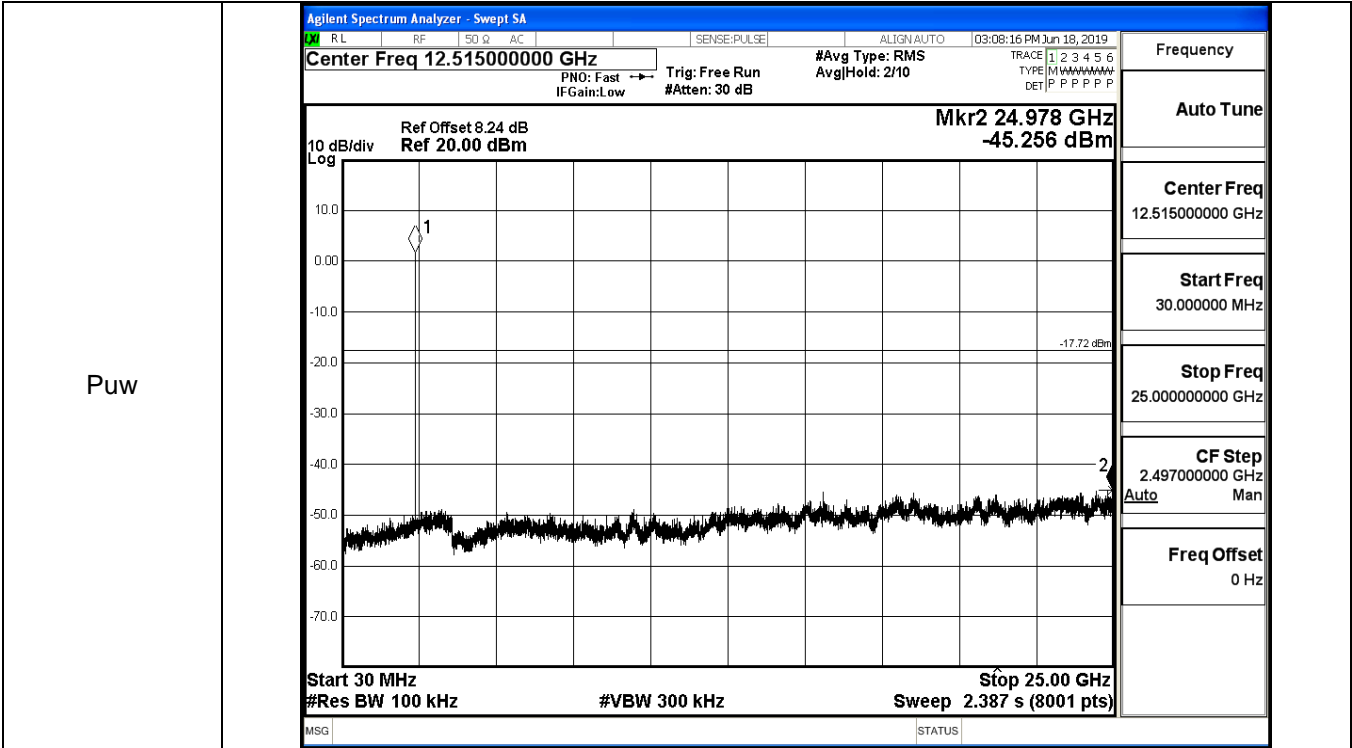


A.6 RF Conducted Spurious Emissions

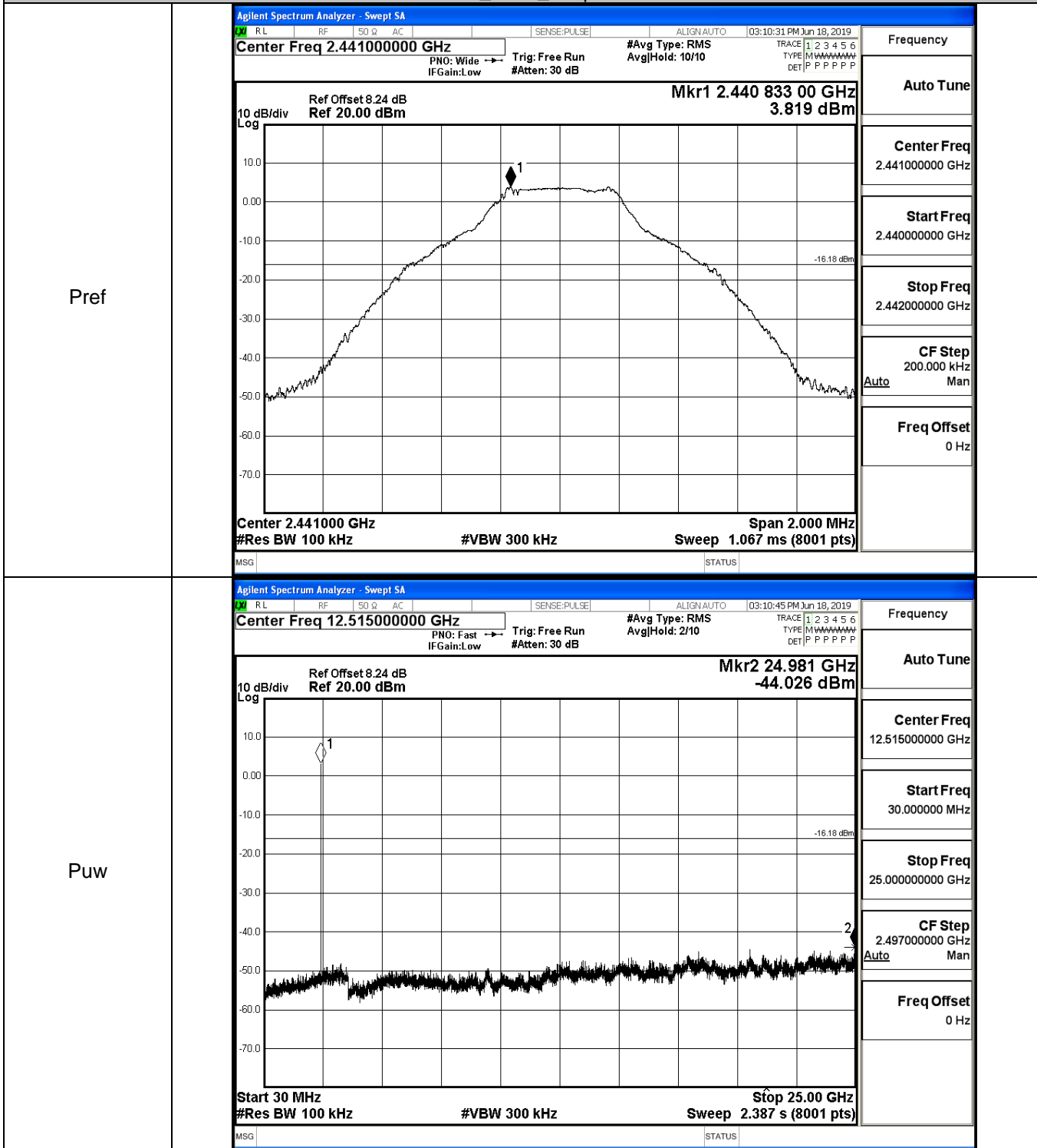
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.282	-45.256	-17.718	PASS
	MCH	3.819	-44.026	-16.181	PASS
	HCH	3.419	-43.597	-16.581	PASS
π /4DQPSK	LCH	1.492	-44.521	-18.508	PASS
	MCH	2.795	-43.764	-17.205	PASS
	HCH	3.236	-44.866	-16.764	PASS
8DPSK	LCH	0.902	-45.053	-19.098	PASS
	MCH	3.383	-44.083	-16.617	PASS
	HCH	3.096	-44.298	-16.904	PASS

GFSK_LCH_Graphs



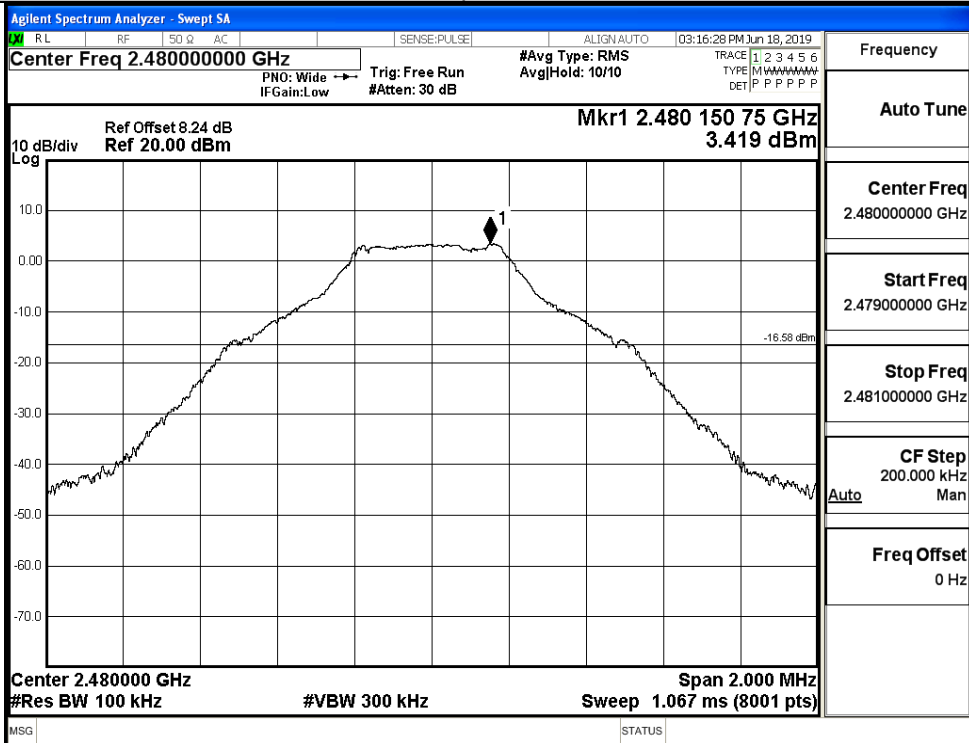


GFSK_MCH_Graphs

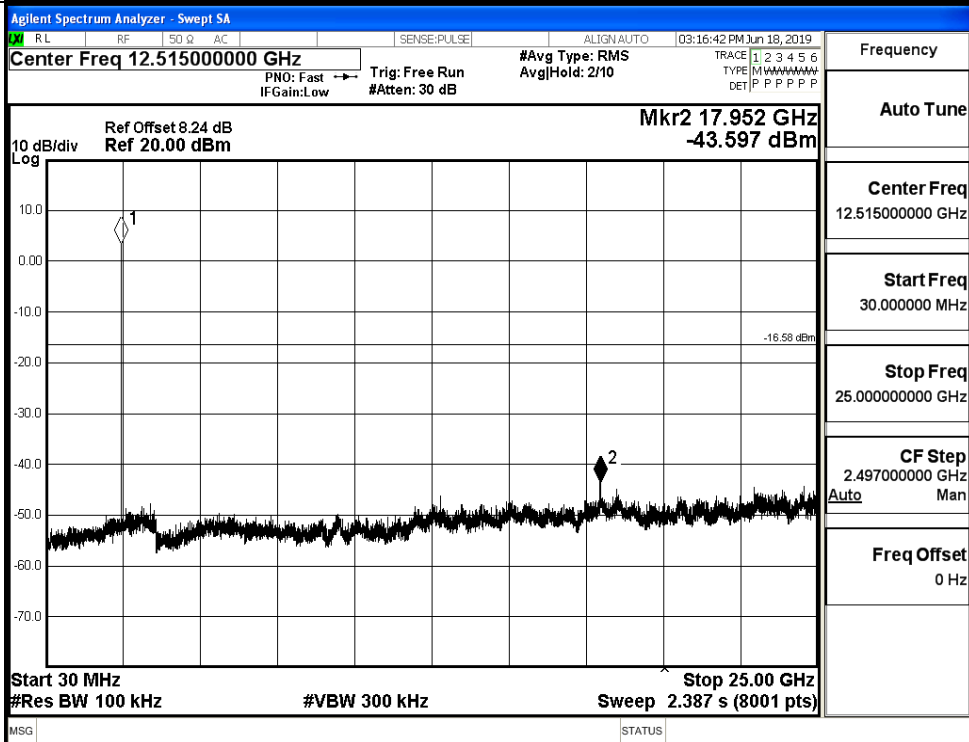


GFSK_HCH_Graphs

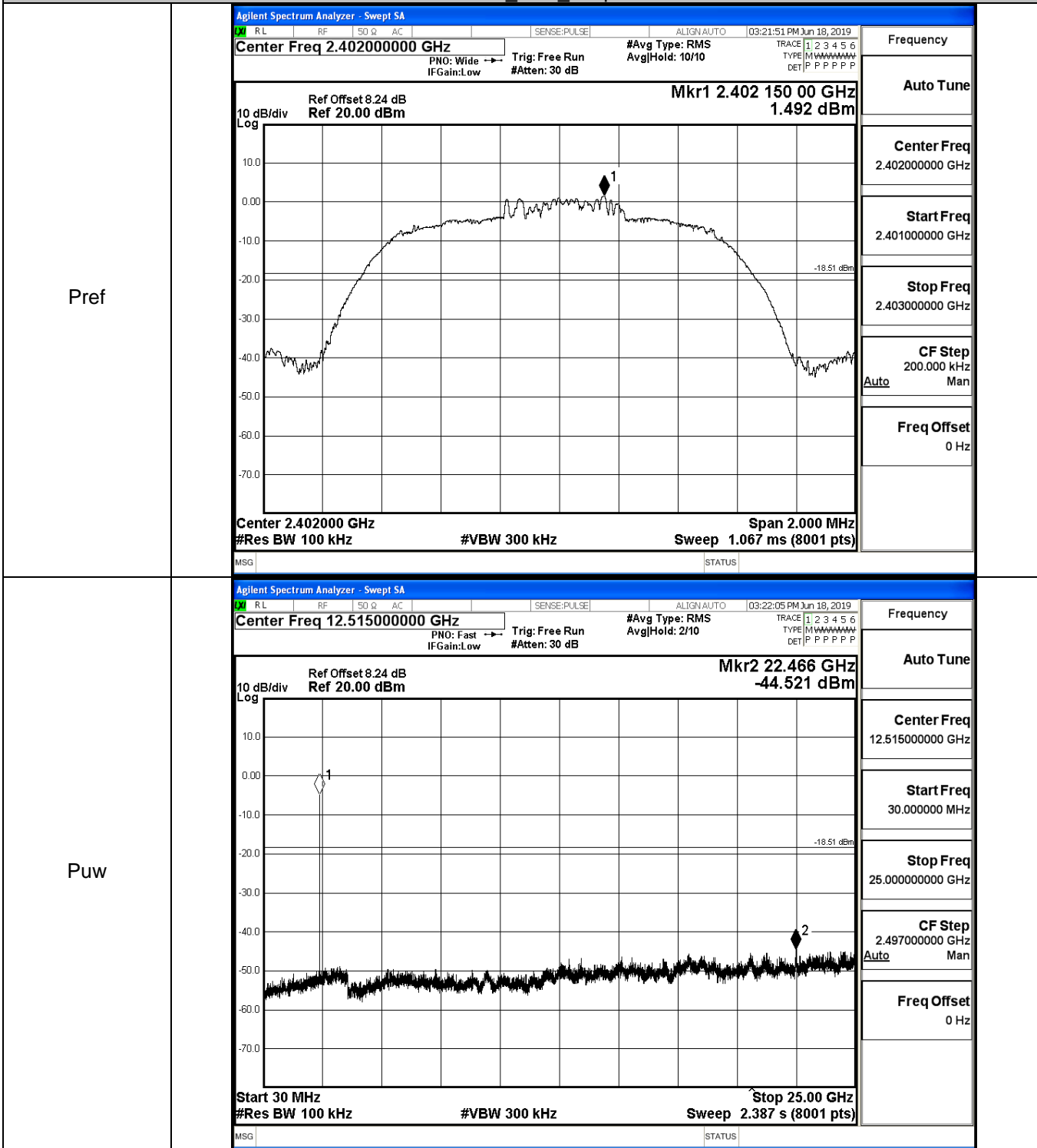
Pref



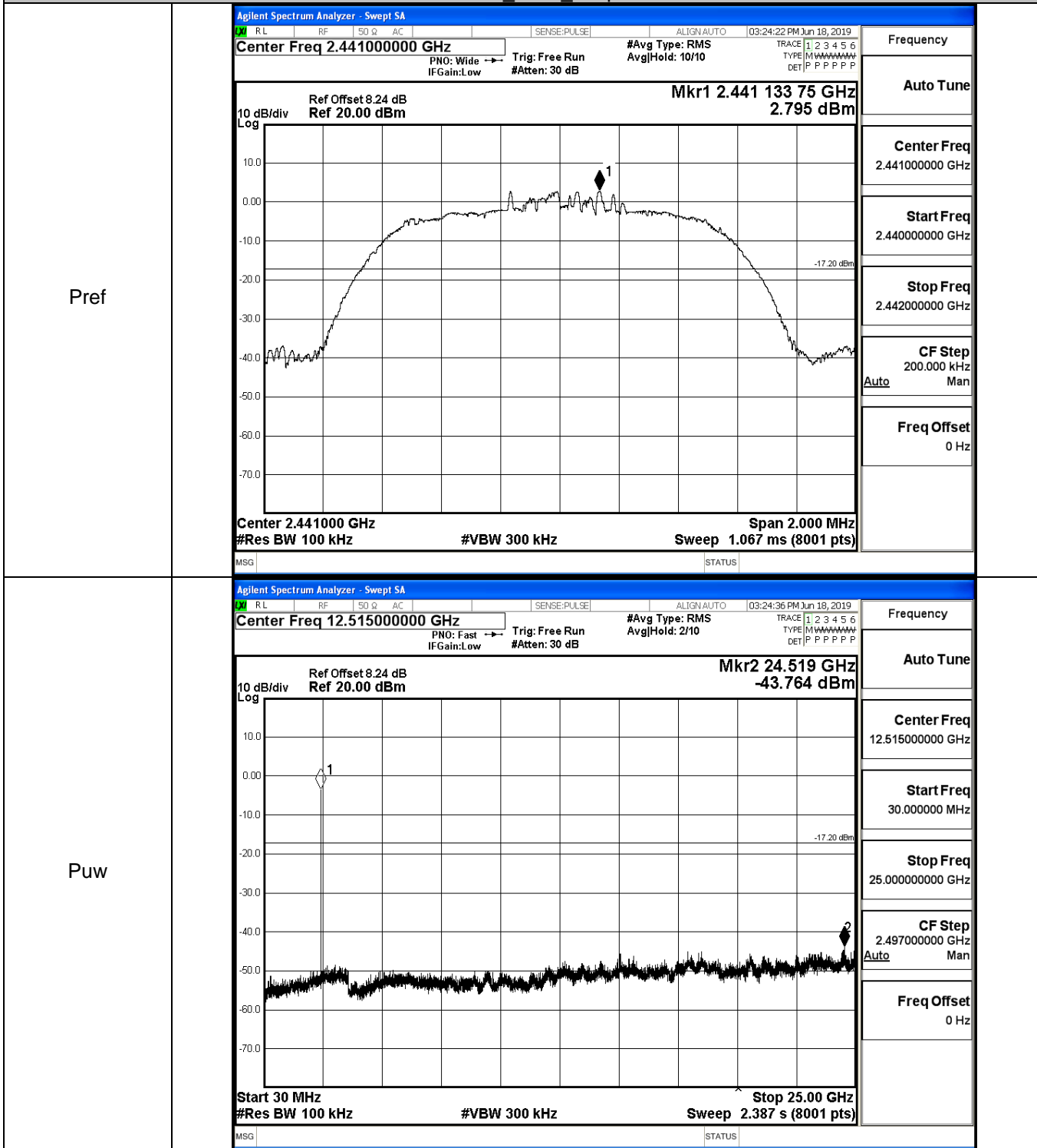
Puw



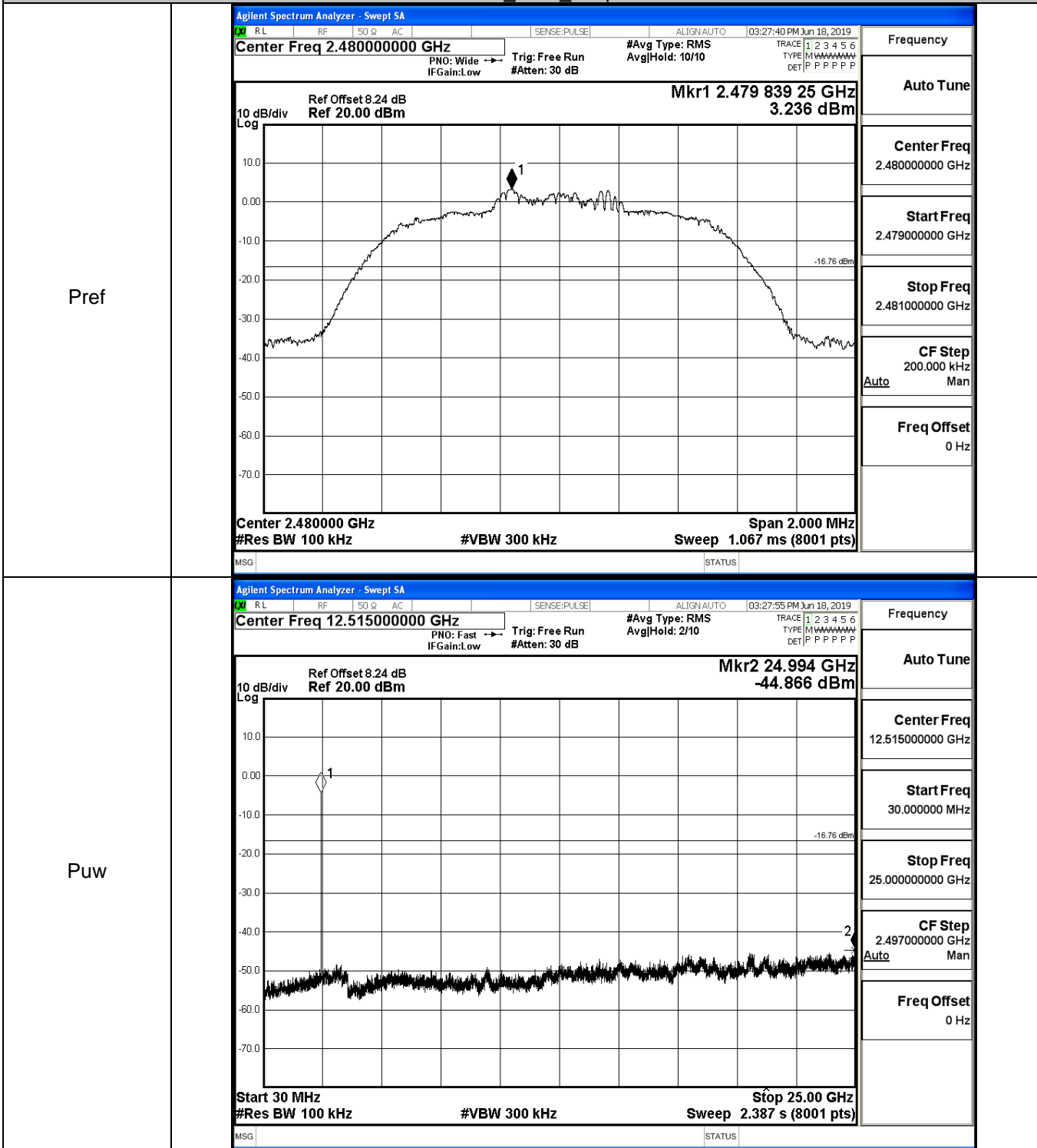
$\pi/4$ DQPSK_LCH_Graphs



π /4DQPSK_MCH_Graphs

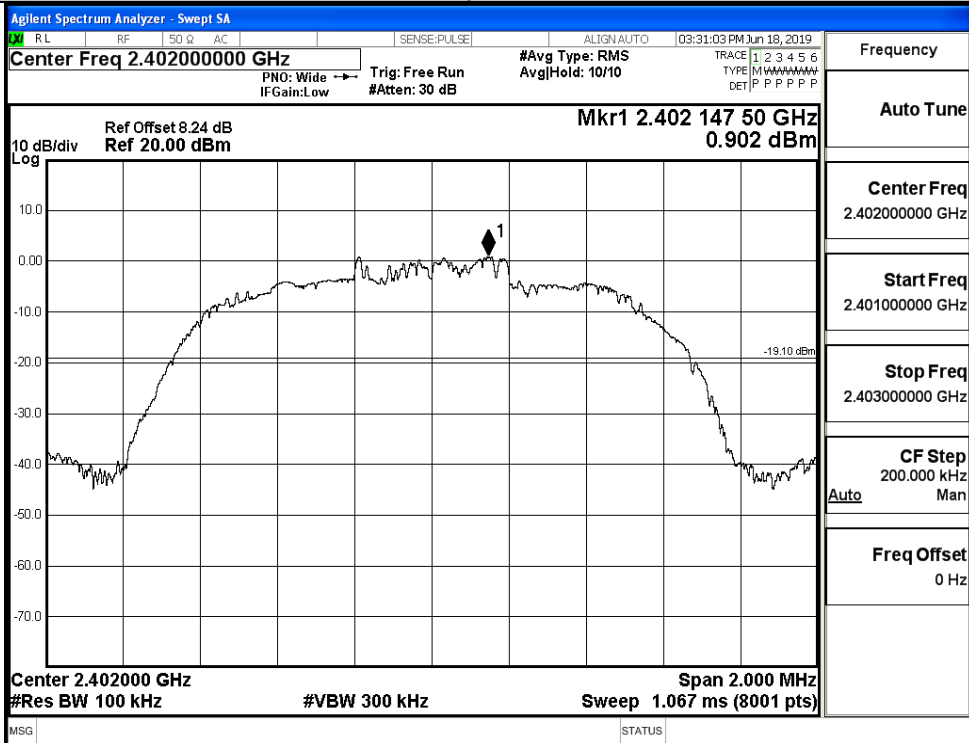


$\pi/4$ DQPSK_HCH_Graphs

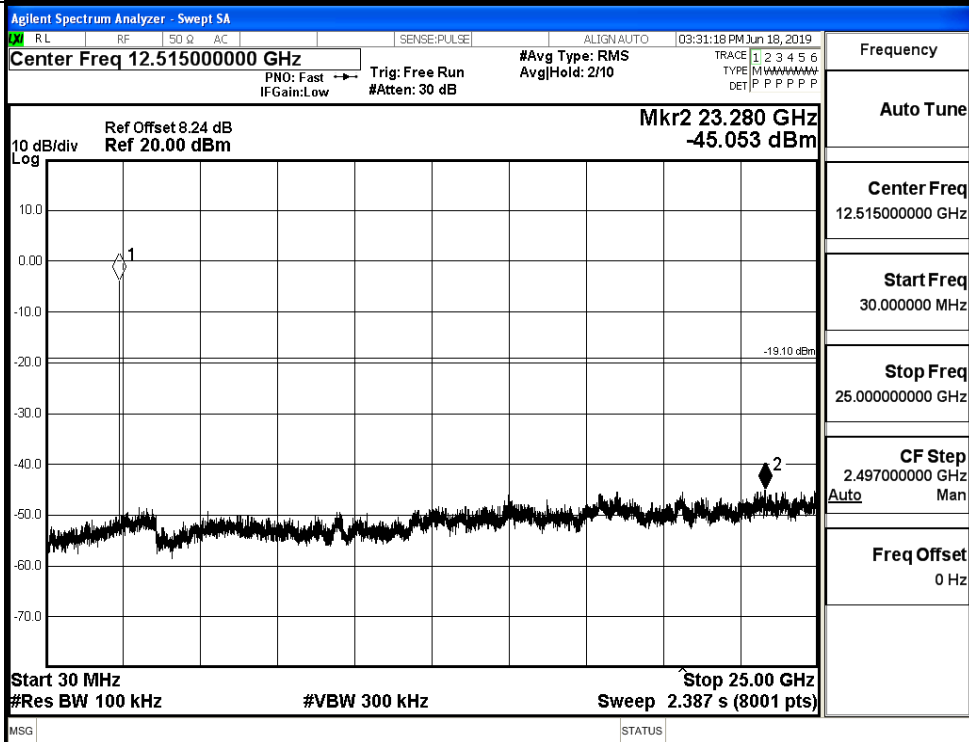


8DPSK_LCH_Graphs

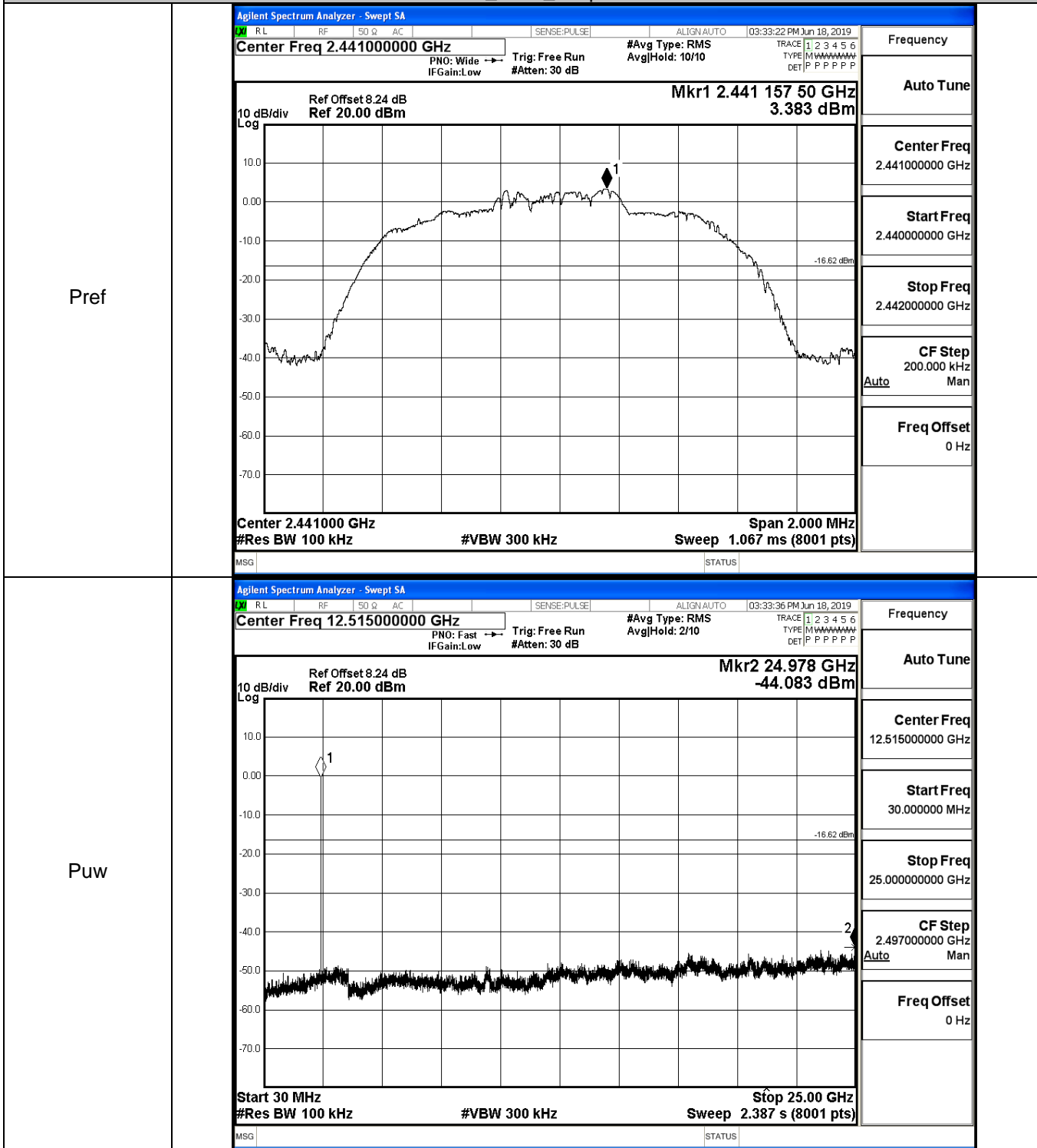
Pref



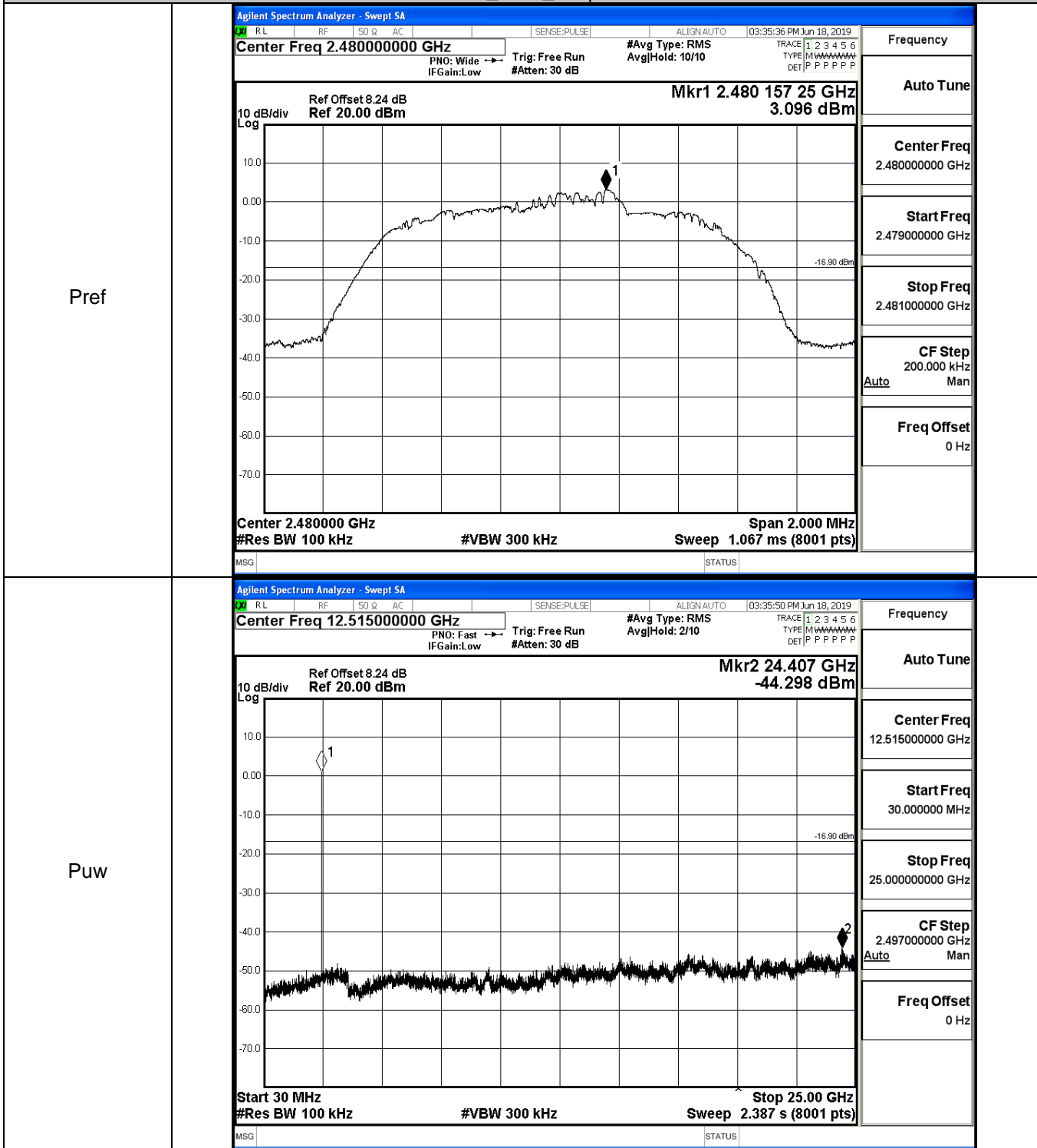
Puw



8DPSK_MCH_Graphs



8DPSK_HCH_Graphs

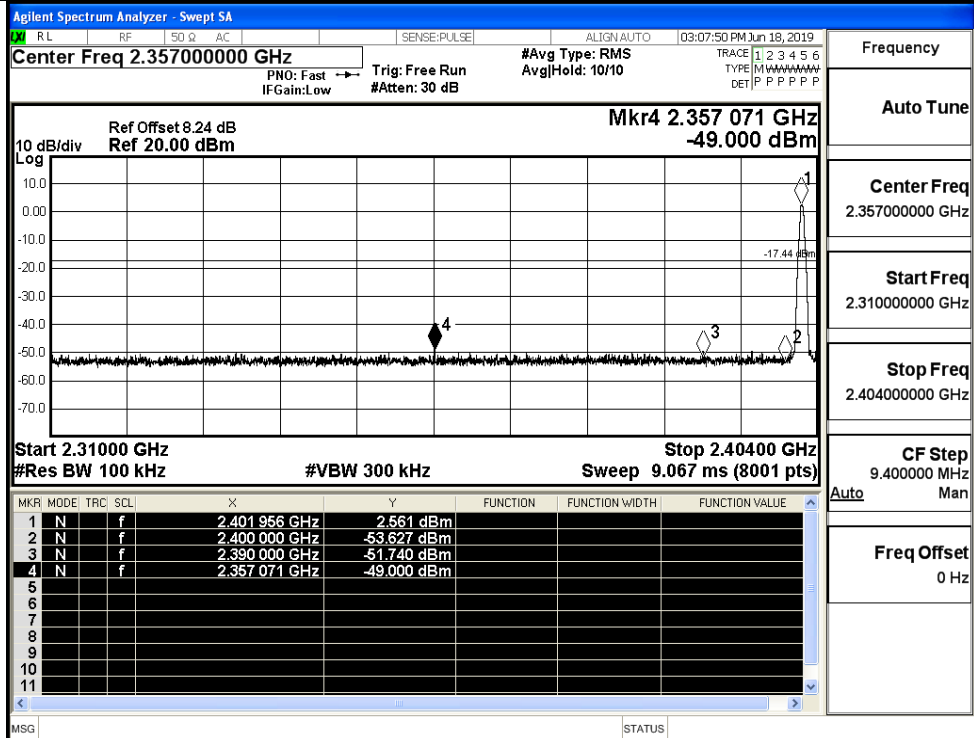


A.7 Band-edge for RF Conducted Emissions

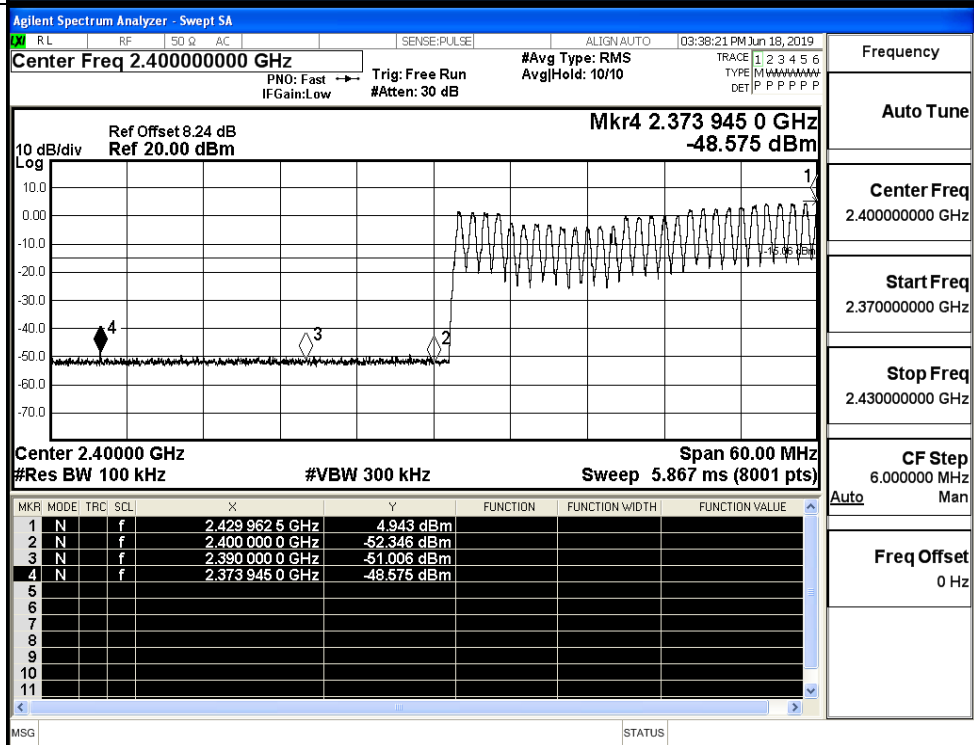
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	2.561	Off	-49.000	-17.44	PASS
			4.943	On	-48.575	-15.06	PASS
	HCH	2480	3.625	Off	-48.928	-16.38	PASS
			4.534	On	-49.471	-15.47	PASS
$\pi/4$ DQPSK	LCH	2402	1.209	Off	-49.701	-18.79	PASS
			4.140	On	-48.950	-15.86	PASS
	HCH	2480	3.279	Off	-49.057	-16.72	PASS
			3.937	On	-48.588	-16.06	PASS
8DPSK	LCH	2402	1.621	Off	-49.820	-18.38	PASS
			4.575	On	-48.705	-15.43	PASS
	HCH	2480	3.117	Off	-49.174	-16.88	PASS
			3.573	On	-48.723	-16.43	PASS

Test Graphs

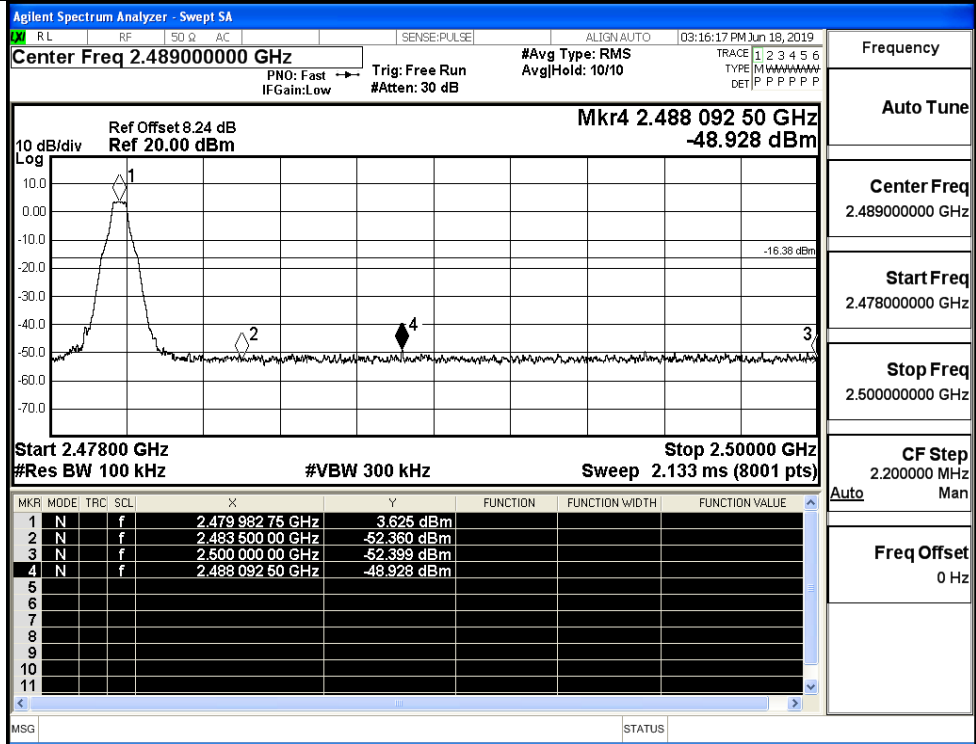
GFSK/LCH/No Hop



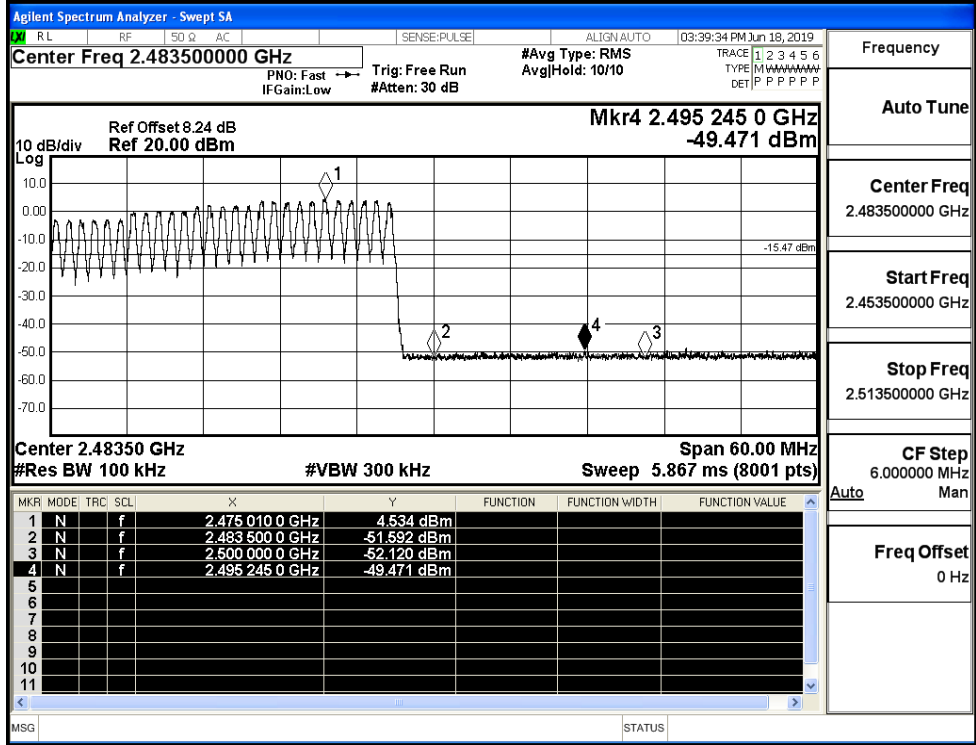
GFSK/LCH/Hop



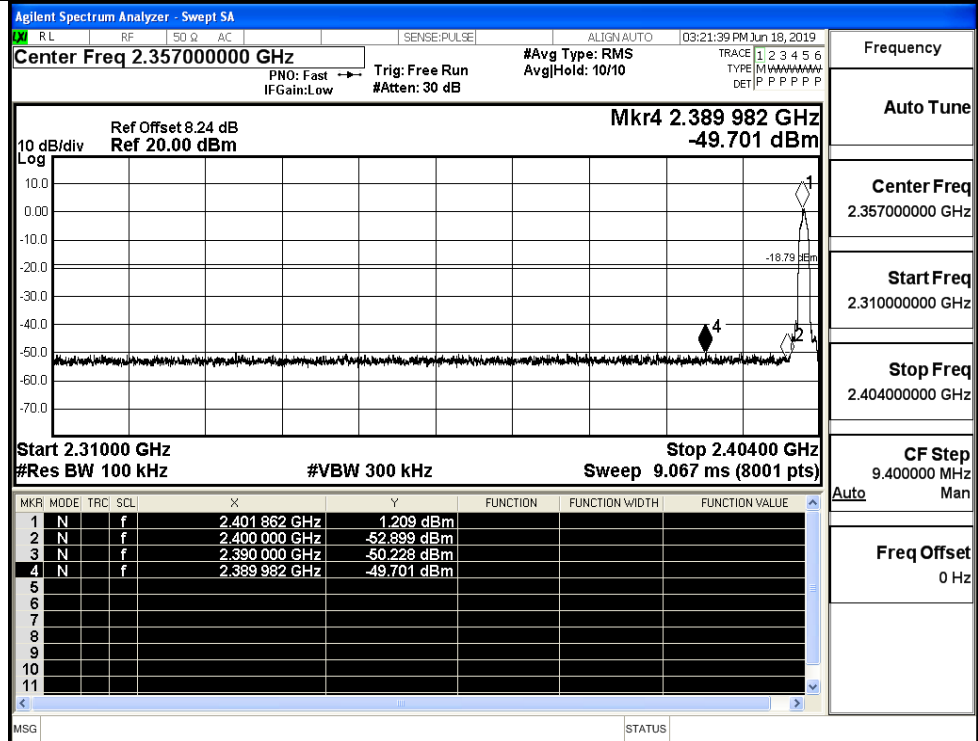
GFSK/HCH/No Hop



GFSK/HCH/Hop

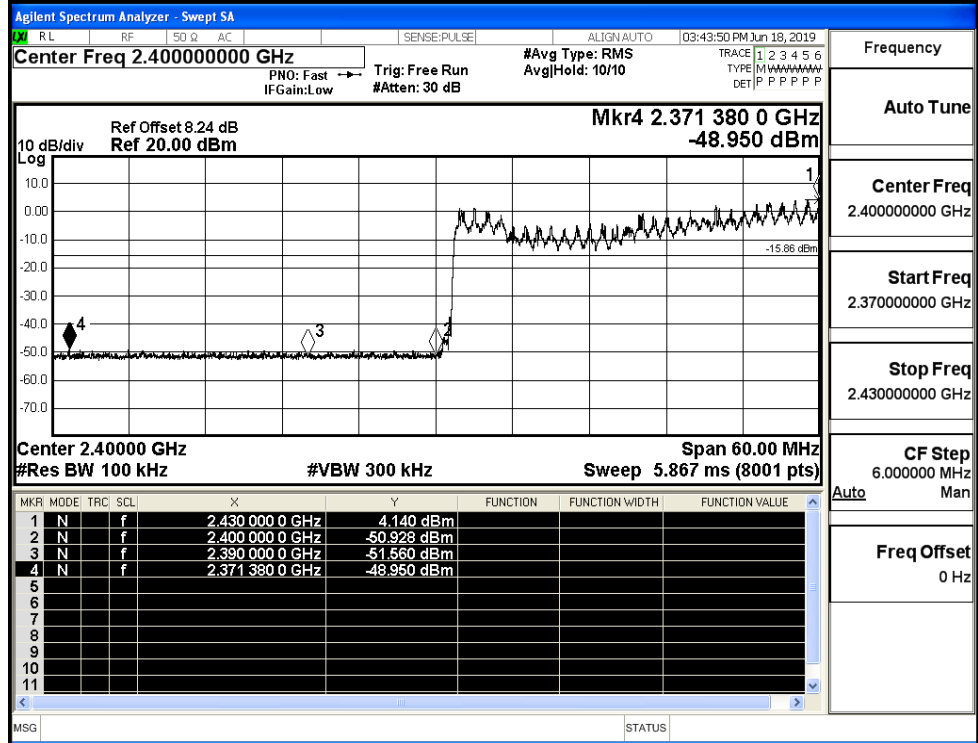


$\pi/4$ DQPSK/LCH/No Hop



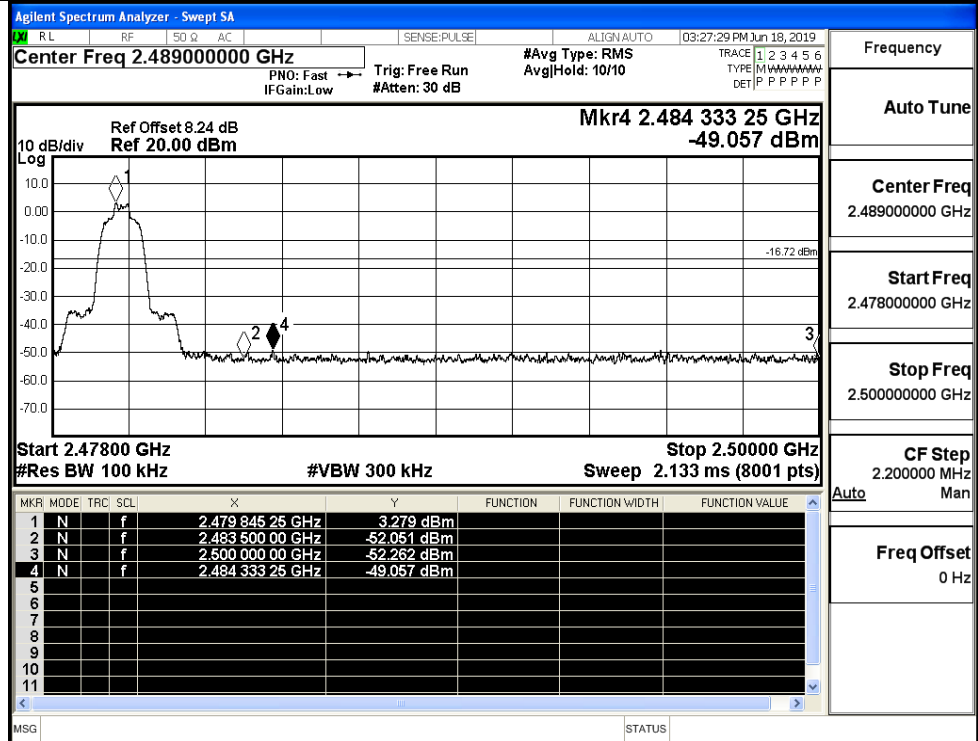
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



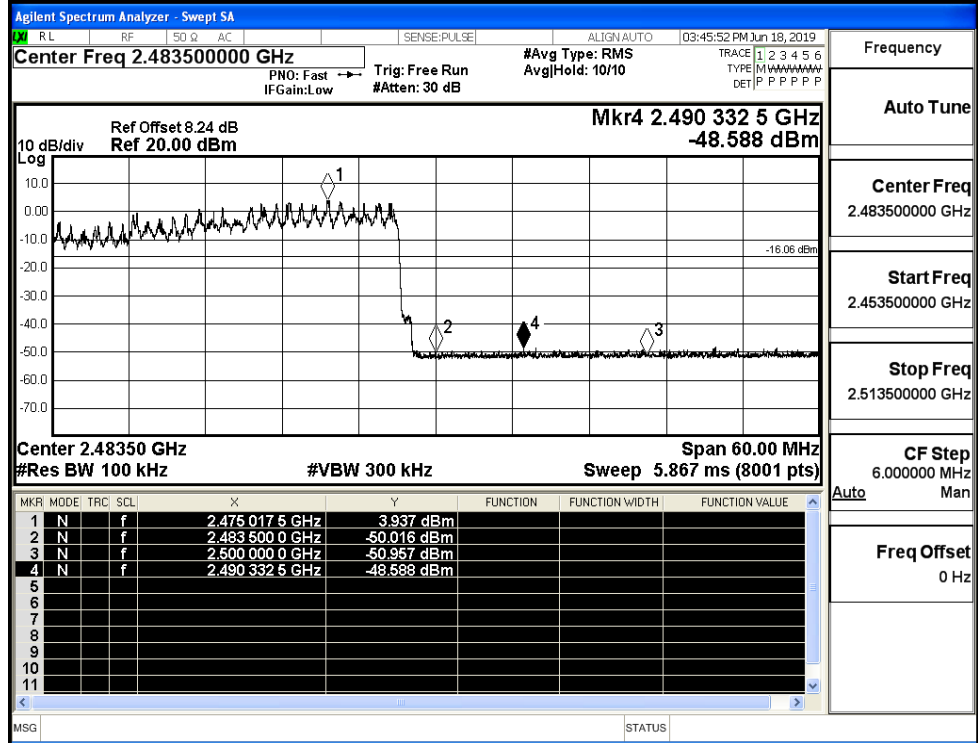
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

π /4DQPSK/HCH/No
Hop



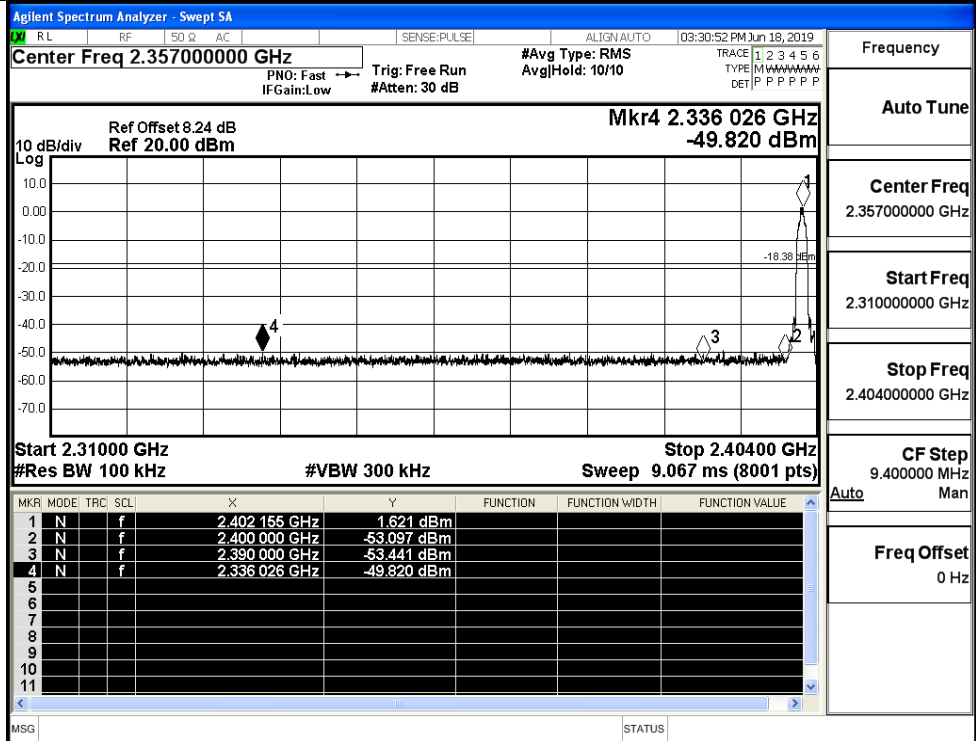
Frequency	
Auto Tune	
Center Freq	2.489000000 GHz
Start Freq	2.478000000 GHz
Stop Freq	2.500000000 GHz
CF Step	2.200000 MHz
Auto	Man
Freq Offset	0 Hz

π /4DQPSK/HCH/Hop

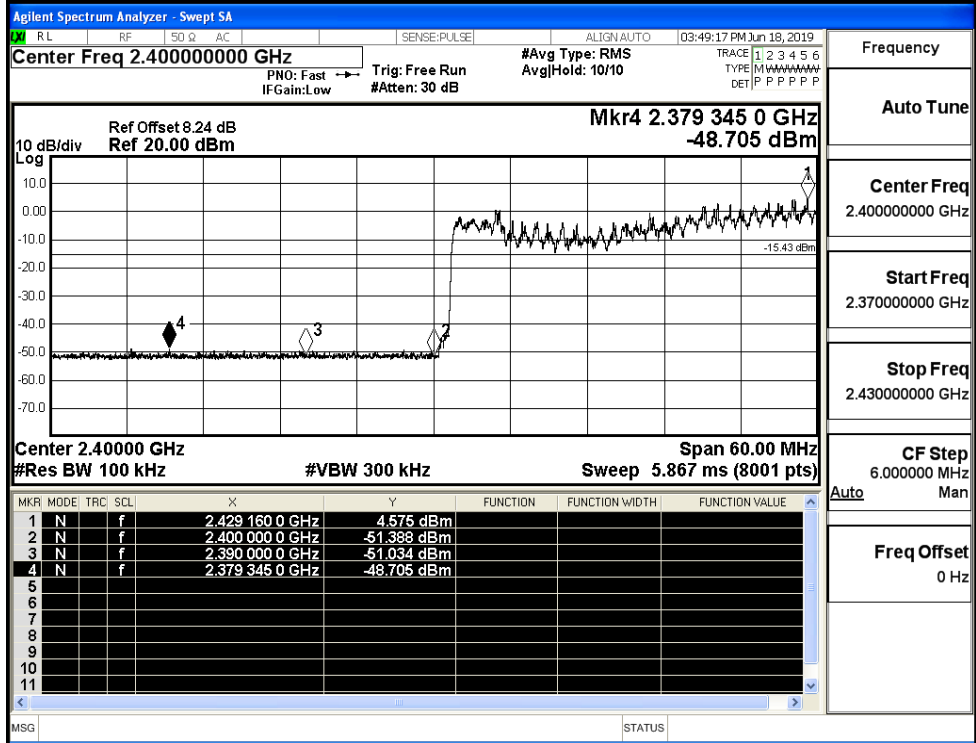


Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

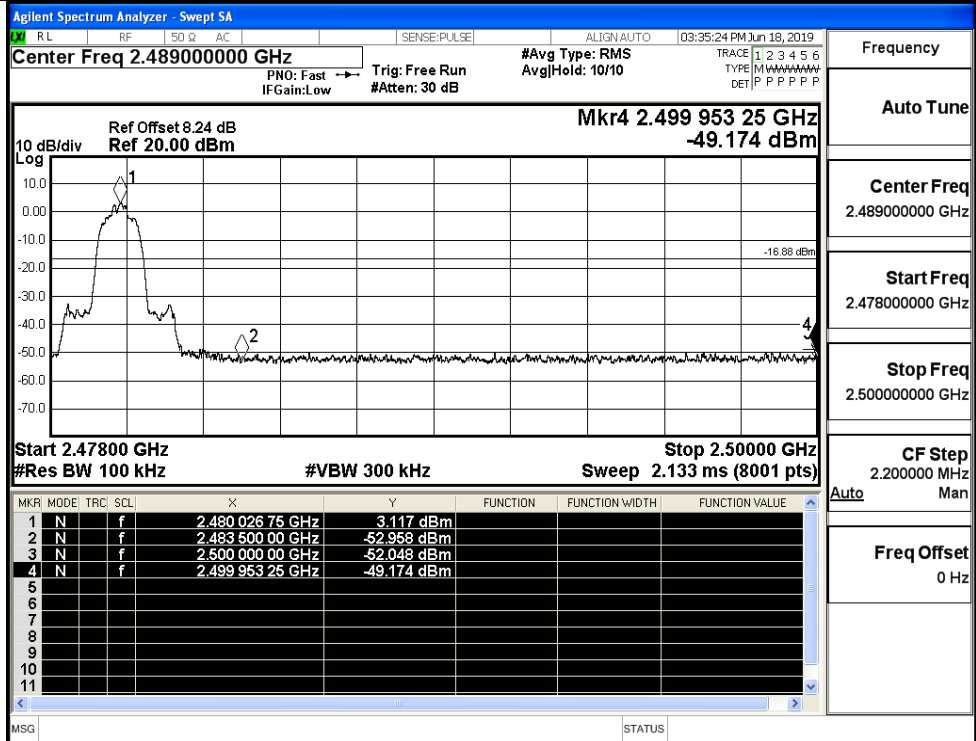
8DPSK/LCH/No Hop



8DPSK/LCH/Hop



8DPSK/HCH/No Hop



Frequency

Auto Tune

Center Freq
2.489000000 GHz

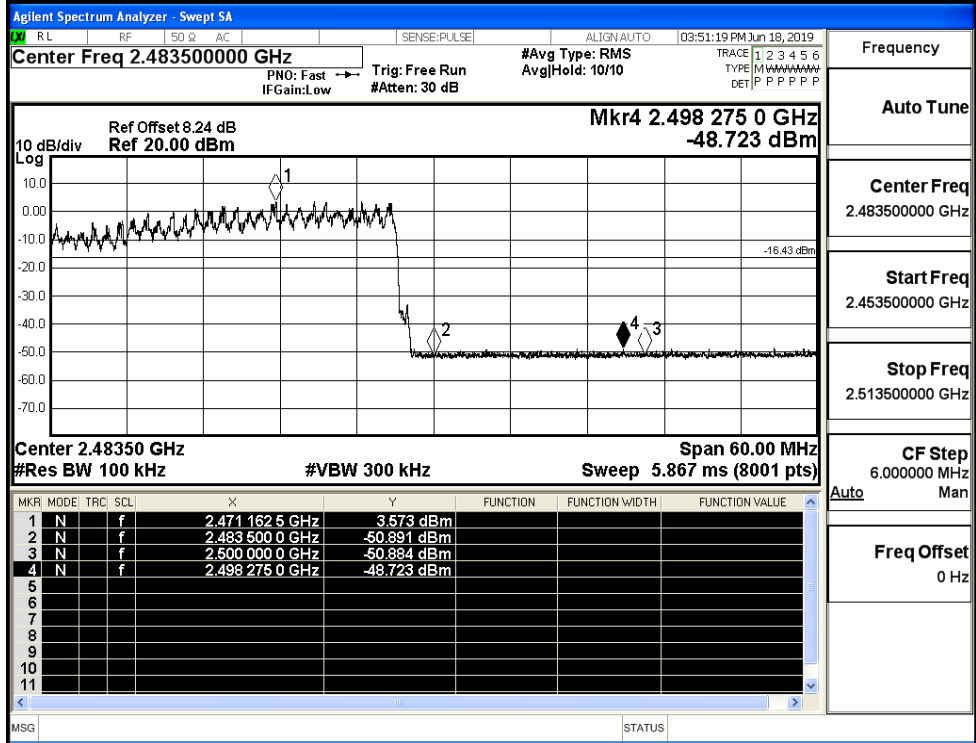
Start Freq
2.478000000 GHz

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
2.453500000 GHz

Stop Freq
2.513500000 GHz

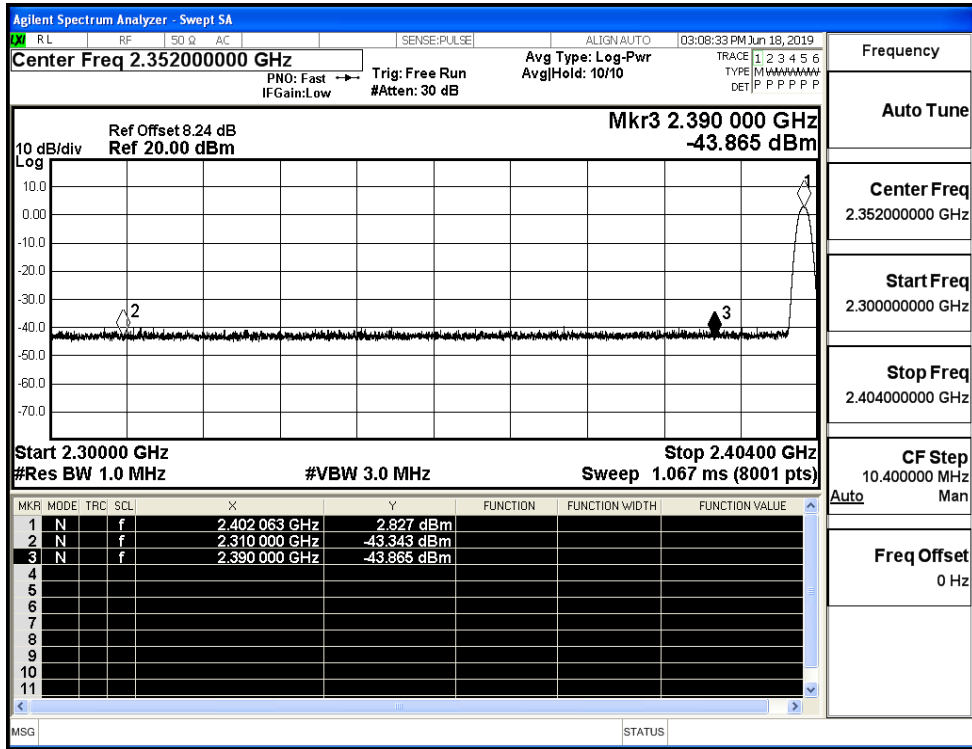
CF Step
6.000000 MHz

Freq Offset
0 Hz

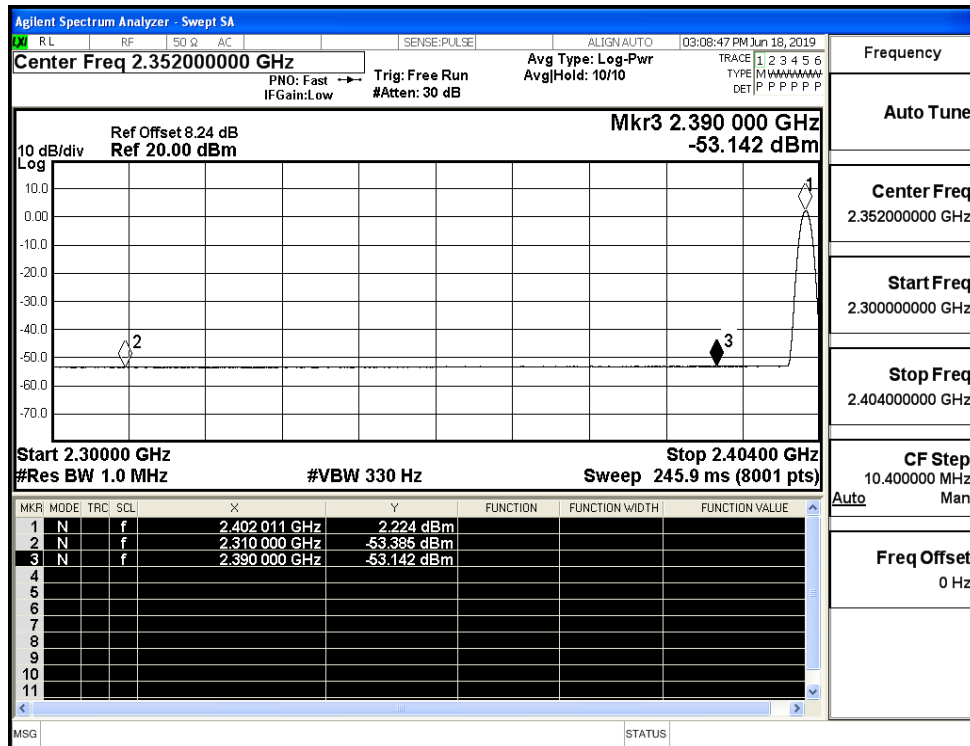
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.34	2.0	0	53.91	PEAK	74	PASS
	Off	2310.0	-53.39	2.0	0	43.87	AV	54	PASS
	Off	2390.0	-43.87	2.0	0	53.39	PEAK	74	PASS
	Off	2390.0	-53.14	2.0	0	44.12	AV	54	PASS
	Off	2483.5	-42.45	2.0	0	54.81	PEAK	74	PASS
	Off	2483.5	-52.84	2.0	0	44.42	AV	54	PASS
	Off	2500.0	-44.11	2.0	0	53.15	PEAK	74	PASS
	Off	2500.0	-52.70	2.0	0	44.56	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.99	2.0	0	54.27	PEAK	74	PASS
	Off	2310.0	-53.31	2.0	0	43.95	AV	54	PASS
	Off	2390.0	-43.53	2.0	0	53.73	PEAK	74	PASS
	Off	2390.0	-53.11	2.0	0	44.15	AV	54	PASS
	Off	2483.5	-42.43	2.0	0	54.83	PEAK	74	PASS
	Off	2483.5	-52.71	2.0	0	44.55	AV	54	PASS
	Off	2500.0	-41.94	2.0	0	55.32	PEAK	74	PASS
	Off	2500.0	-52.73	2.0	0	44.53	AV	54	PASS
8DPSK	Off	2310.0	-43.48	2.0	0	53.78	PEAK	74	PASS
	Off	2310.0	-53.29	2.0	0	43.97	AV	54	PASS
	Off	2390.0	-43.52	2.0	0	53.74	PEAK	74	PASS
	Off	2390.0	-53.17	2.0	0	44.09	AV	54	PASS
	Off	2483.5	-42.60	2.0	0	54.66	PEAK	74	PASS
	Off	2483.5	-52.70	2.0	0	44.56	AV	54	PASS
	Off	2500.0	-42.34	2.0	0	54.91	PEAK	74	PASS
	Off	2500.0	-52.65	2.0	0	44.61	AV	54	PASS

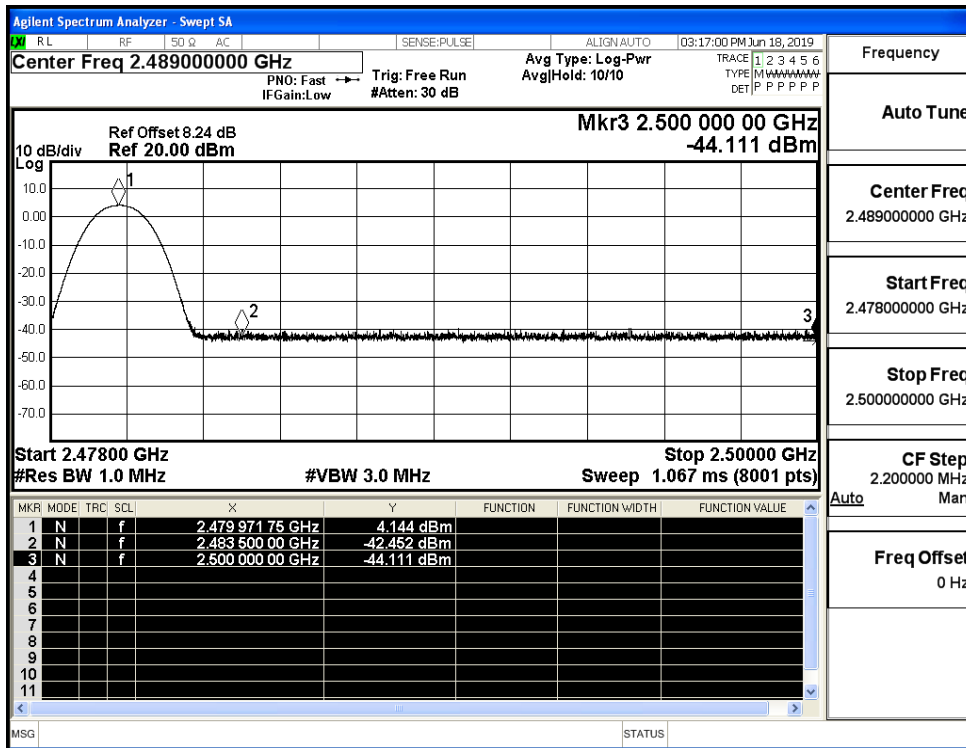
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



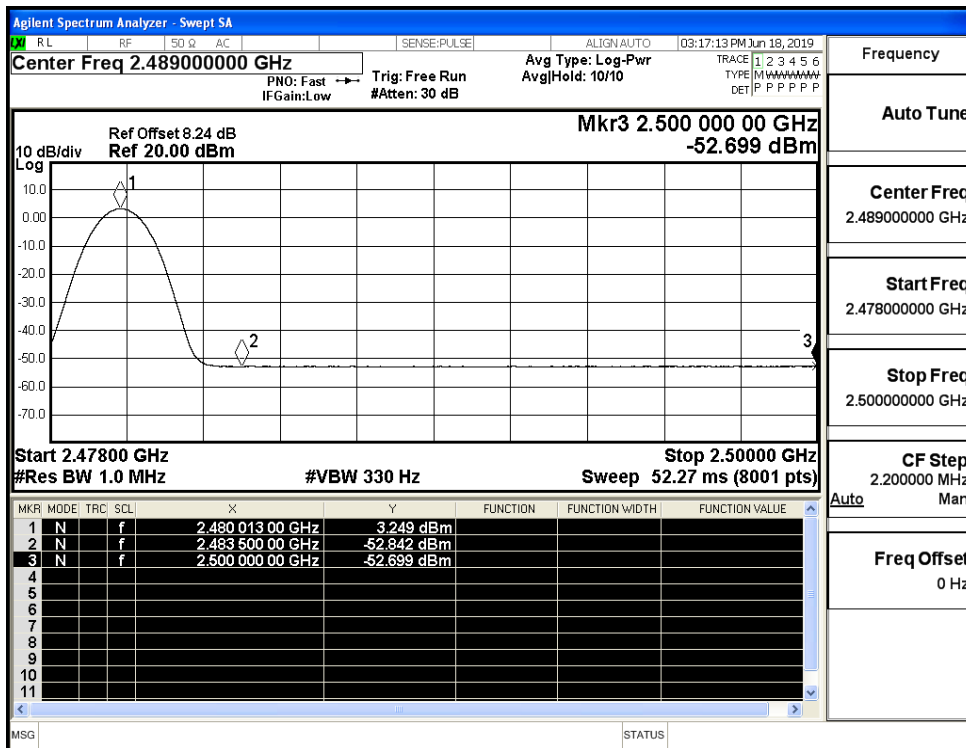
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



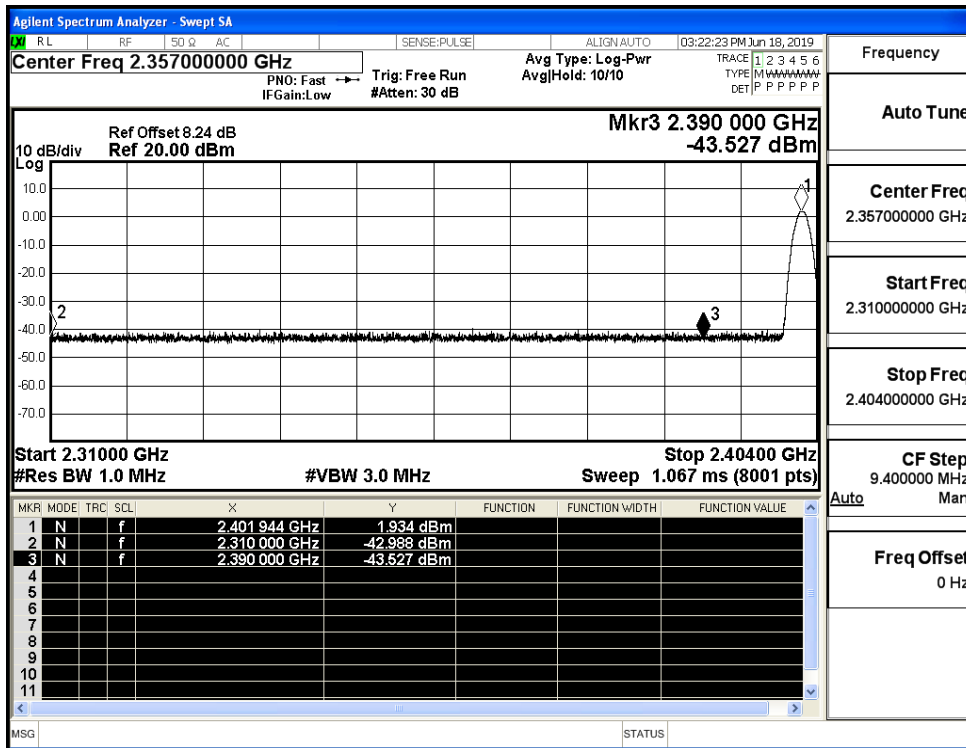
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



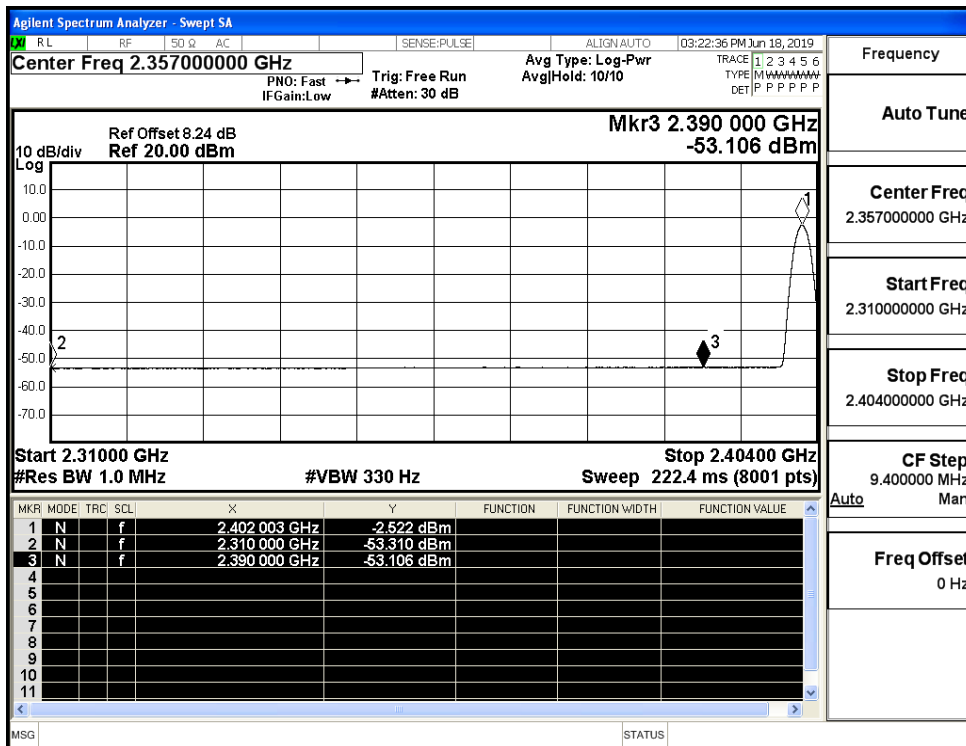
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



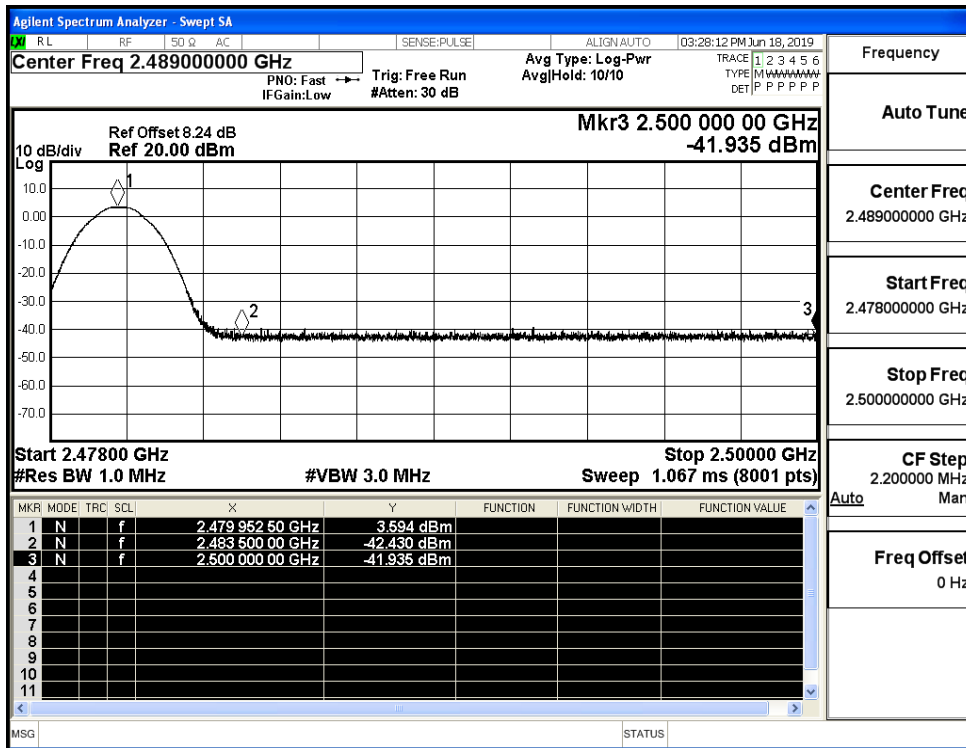
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



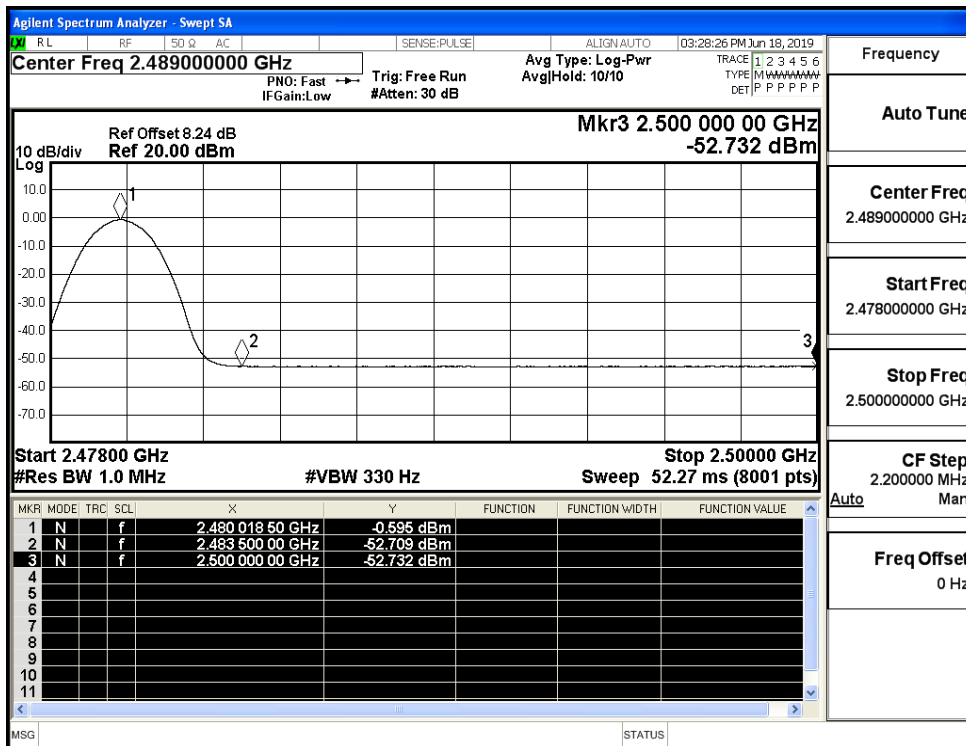
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



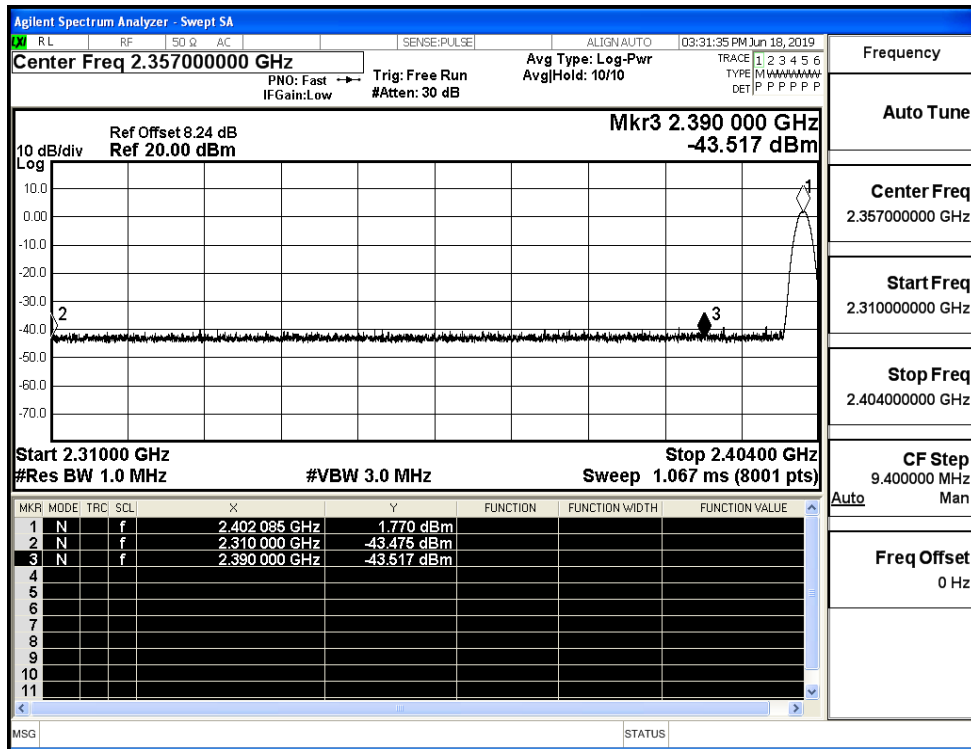
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



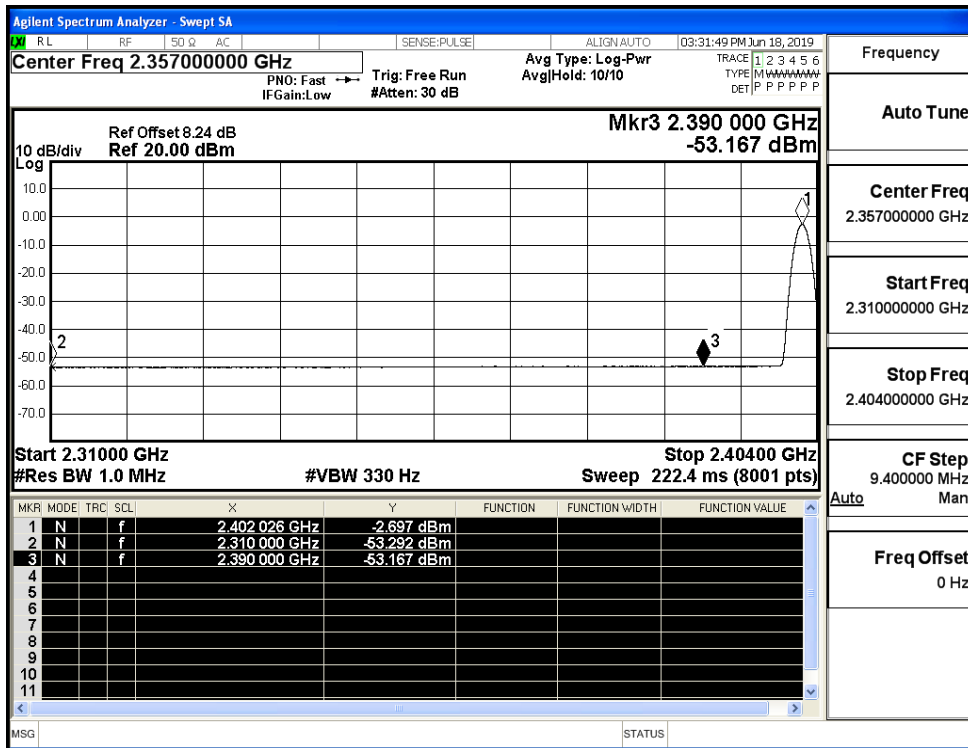
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



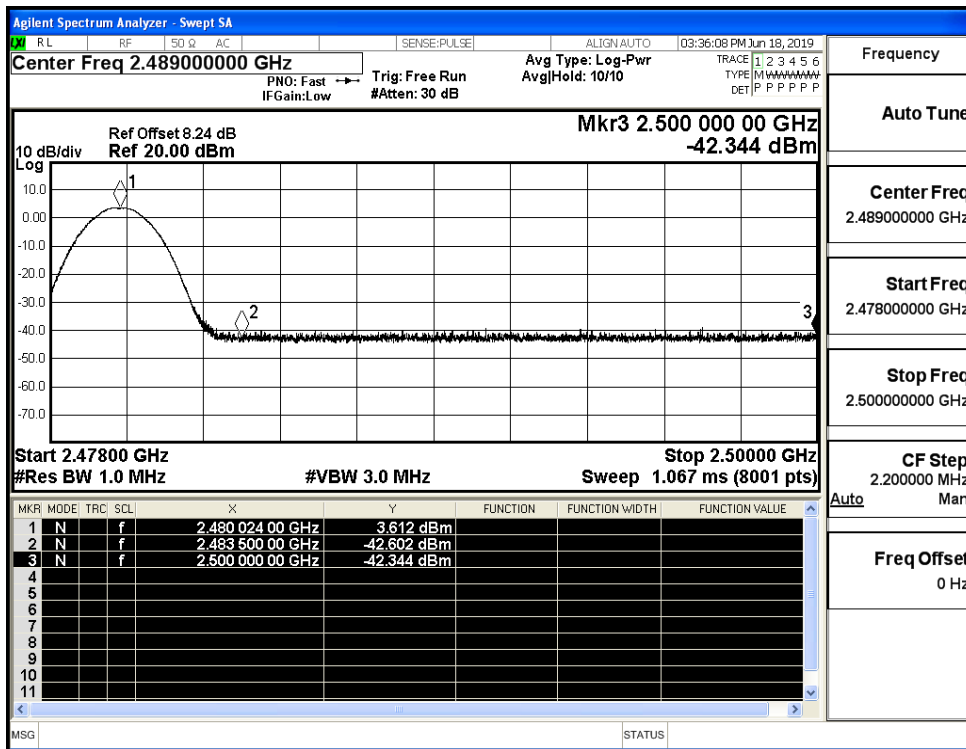
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

