

Appendix A

RF Test Data for BT V4.1(BDR/EDR) (Conducted Measurement)

Product Name: ACOUSTIC AUITAR AMP

Trade Mark: AROMA

Test Model: AG-15A

Environmental Conditions

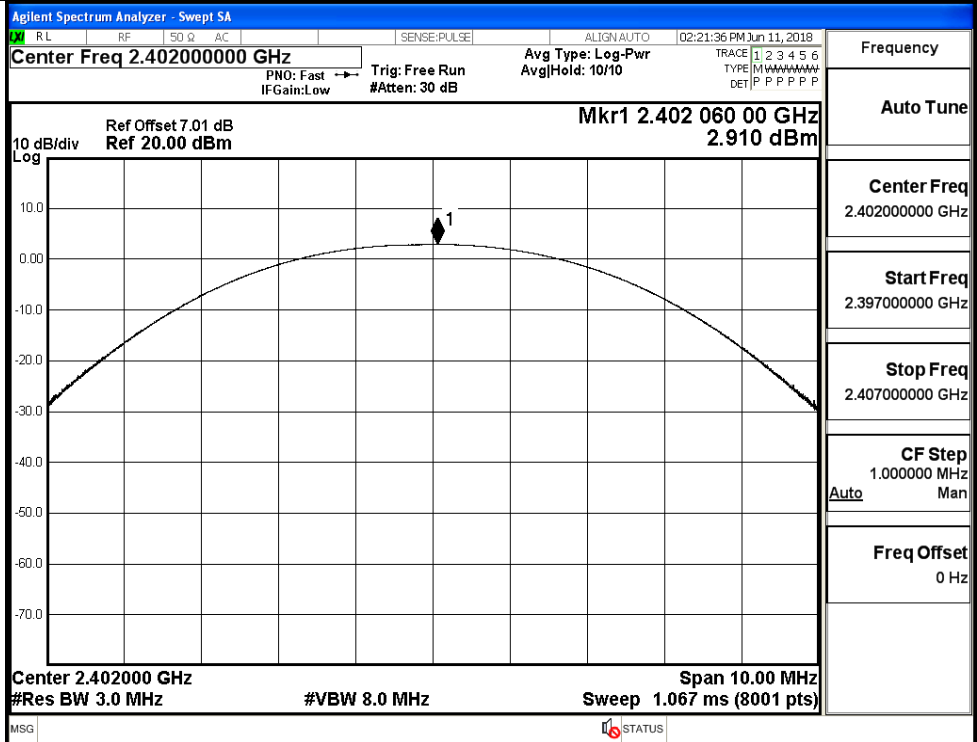
Temperature:	23.8° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Tom.Liu
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

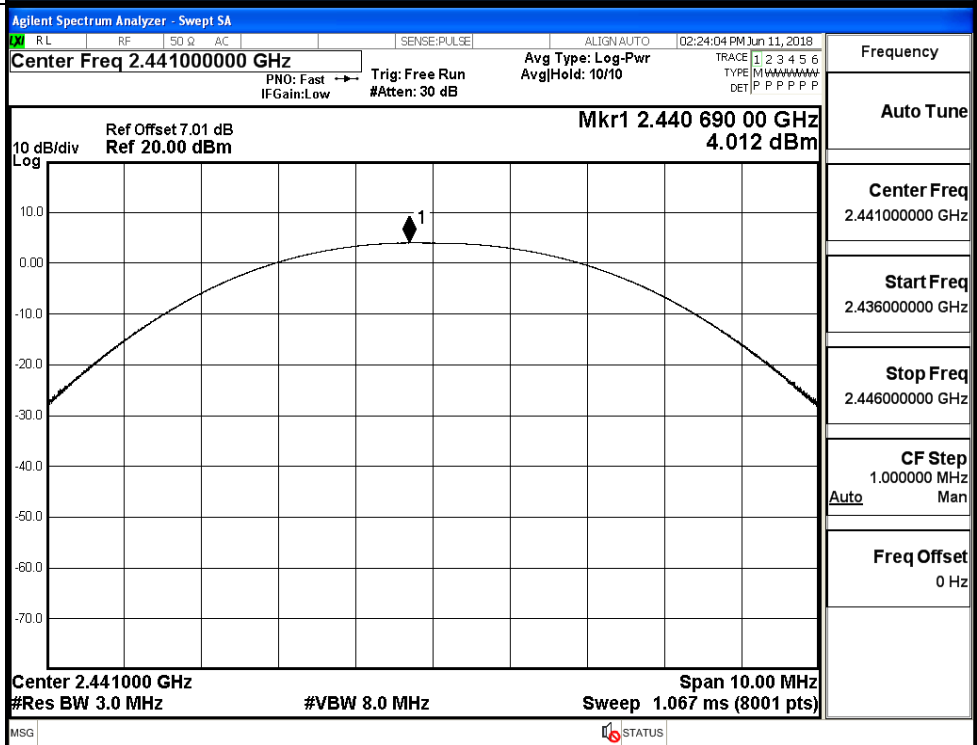
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.910	30	PASS
	MCH	4.012	30	PASS
	HCH	4.455	30	PASS
$\pi/4$ DQPSK	LCH	1.946	21	PASS
	MCH	3.478	21	PASS
	HCH	3.939	21	PASS

Test Graphs

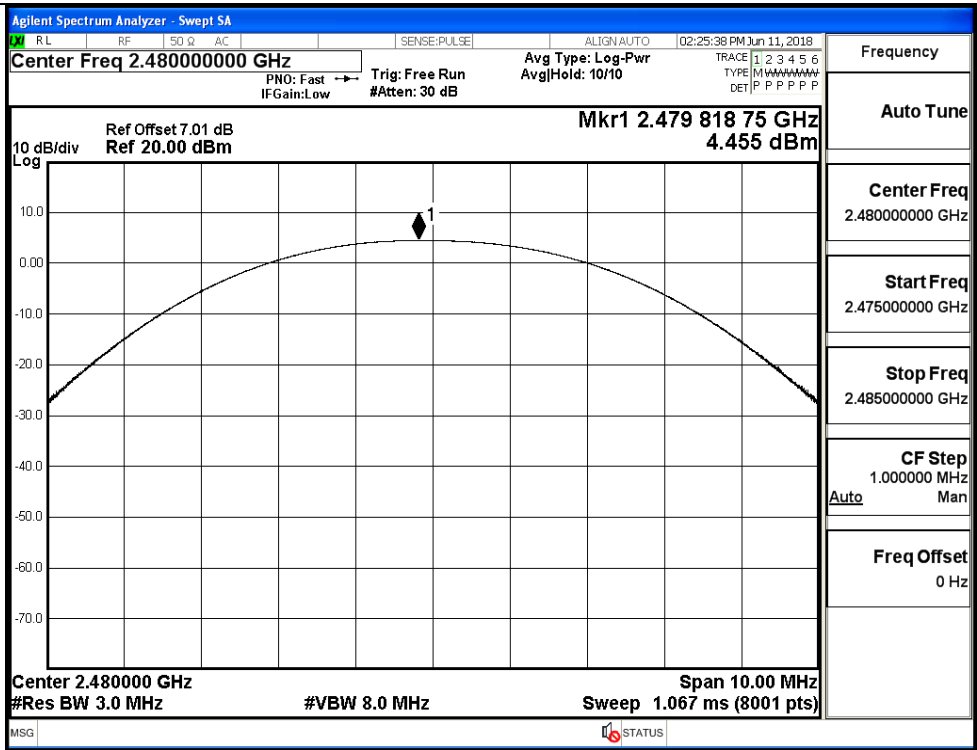
GFSK/LCH



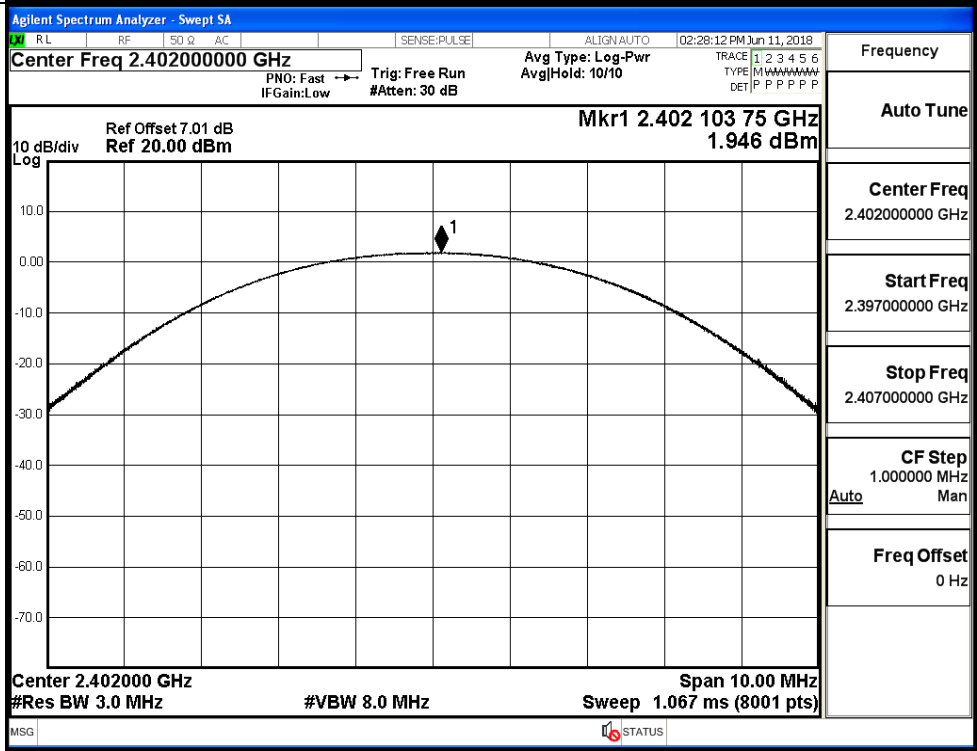
GFSK/MCH



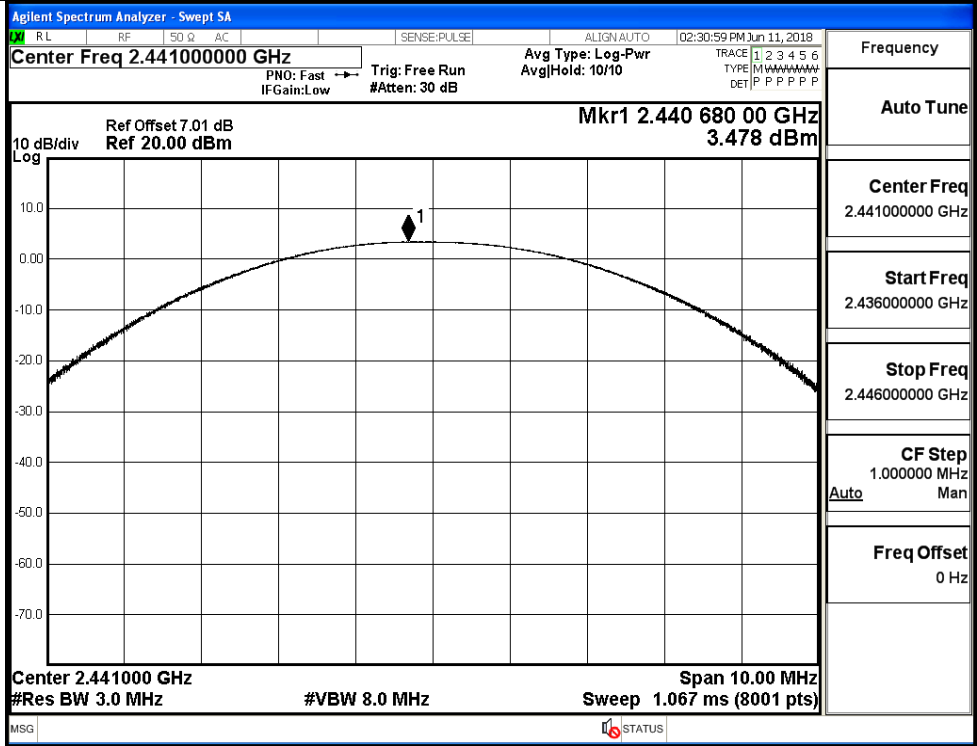
GFSK/HCH



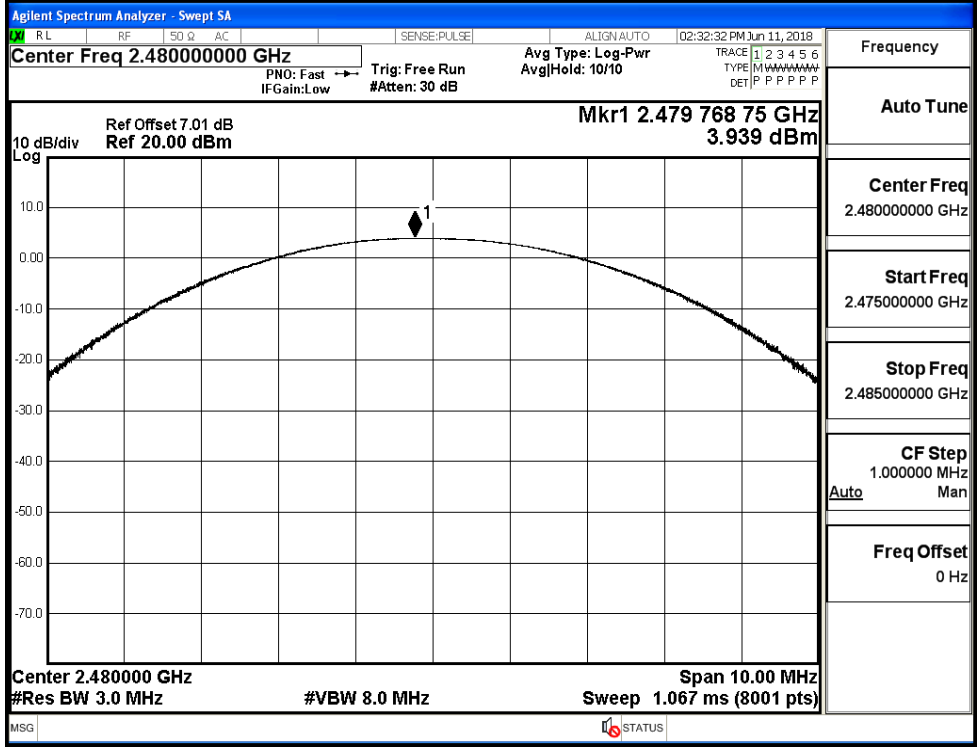
π /4DQPSK/LCH



π /4DQPSK/MCH



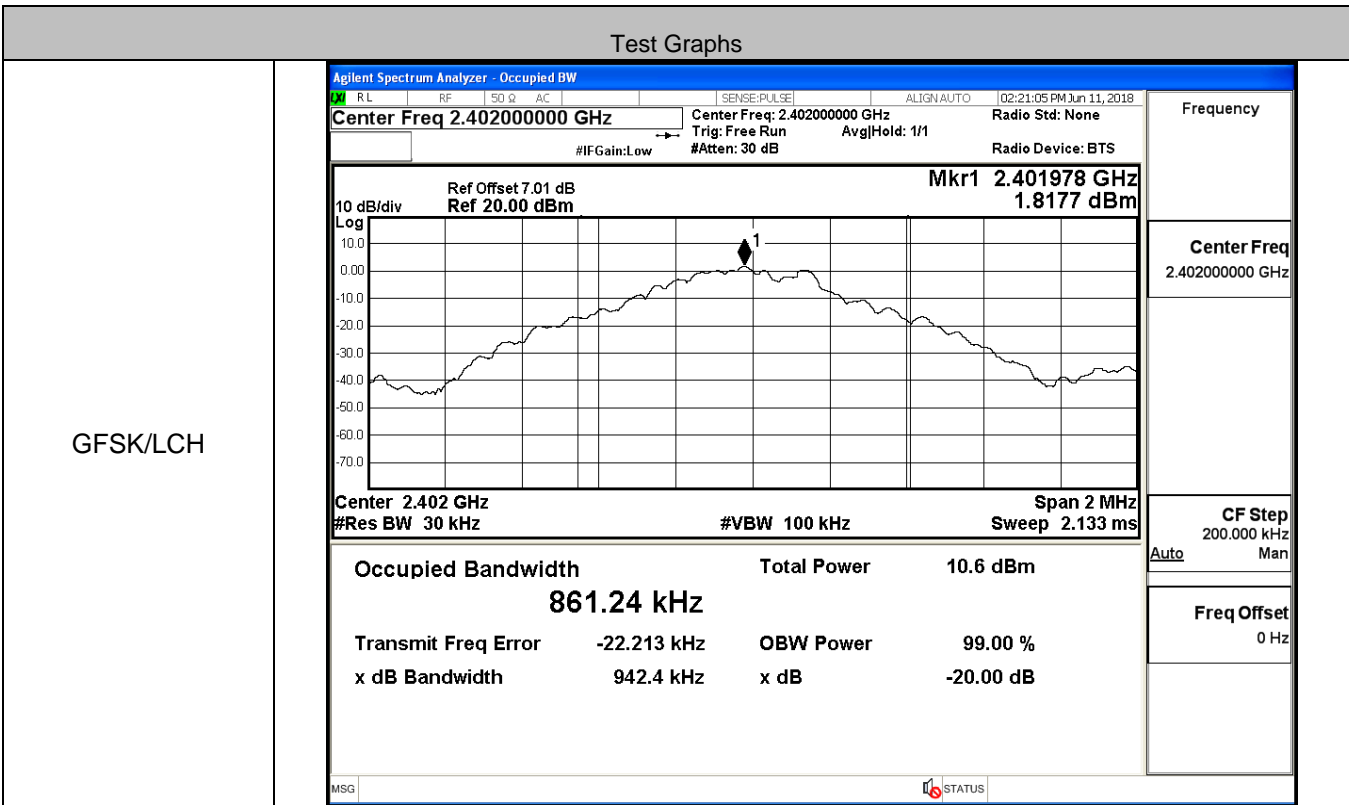
π /4DQPSK/HCH



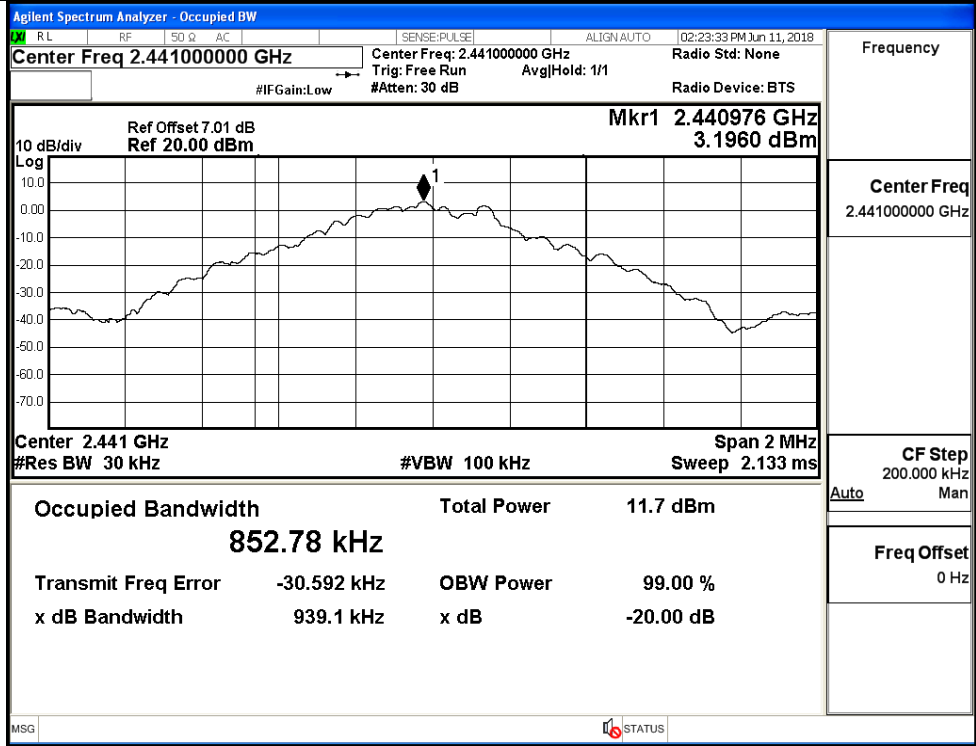
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9424	Not Specified	PASS
	MCH	0.9391	Not Specified	PASS
	HCH	0.9398	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.265	Not Specified	PASS
	MCH	1.241	Not Specified	PASS
	HCH	1.239	Not Specified	PASS

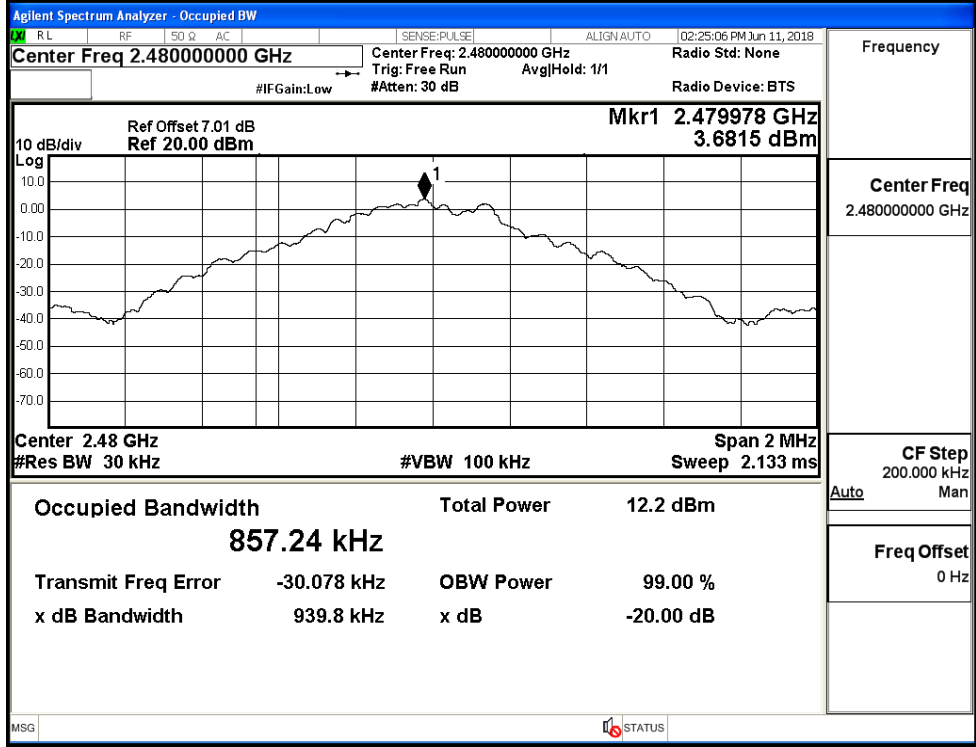
Test Graphs



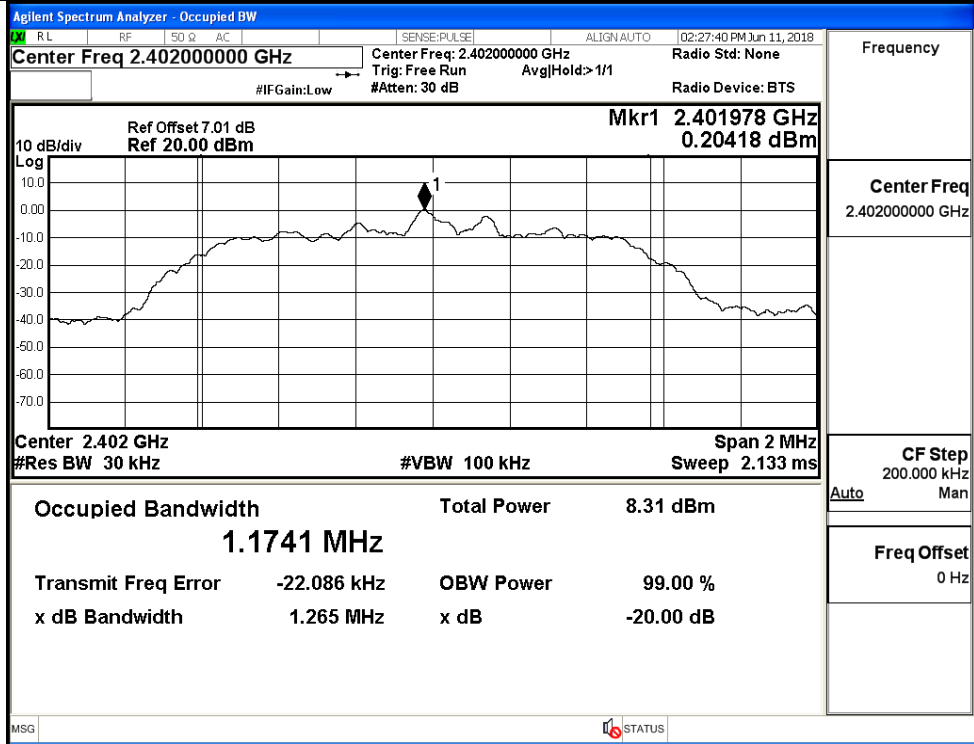
GFSK/MCH



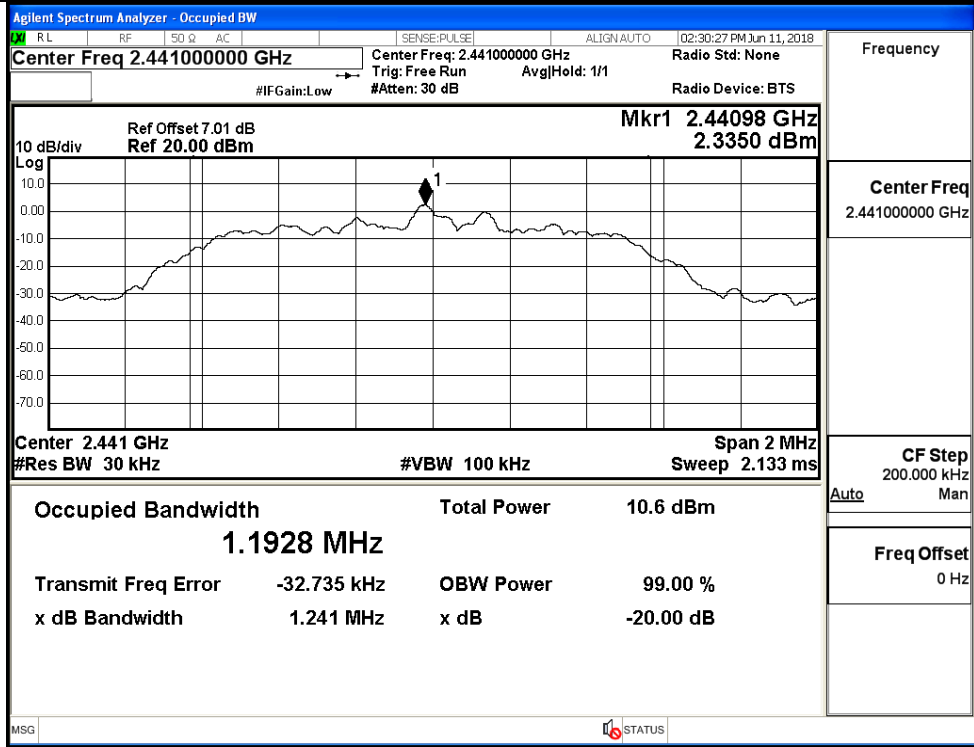
GFSK/HCH

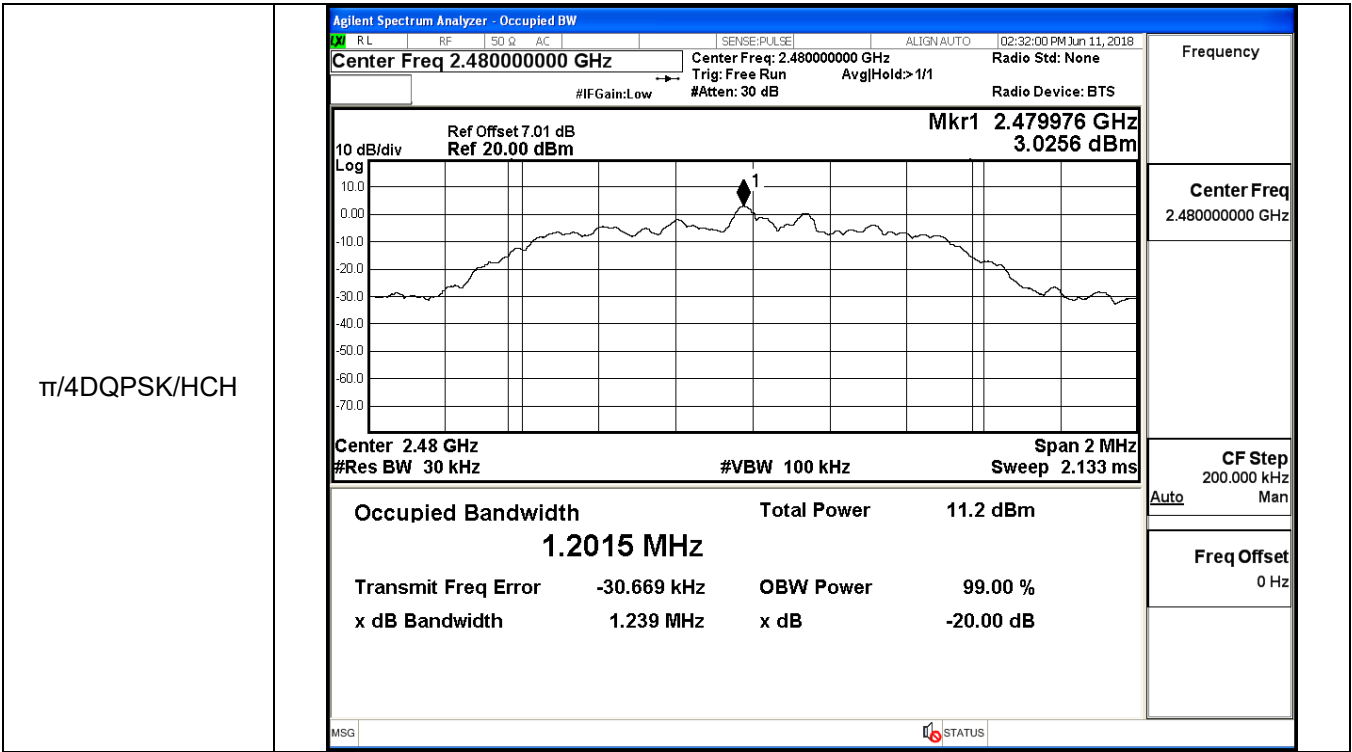


$\pi/4$ DQPSK/LCH



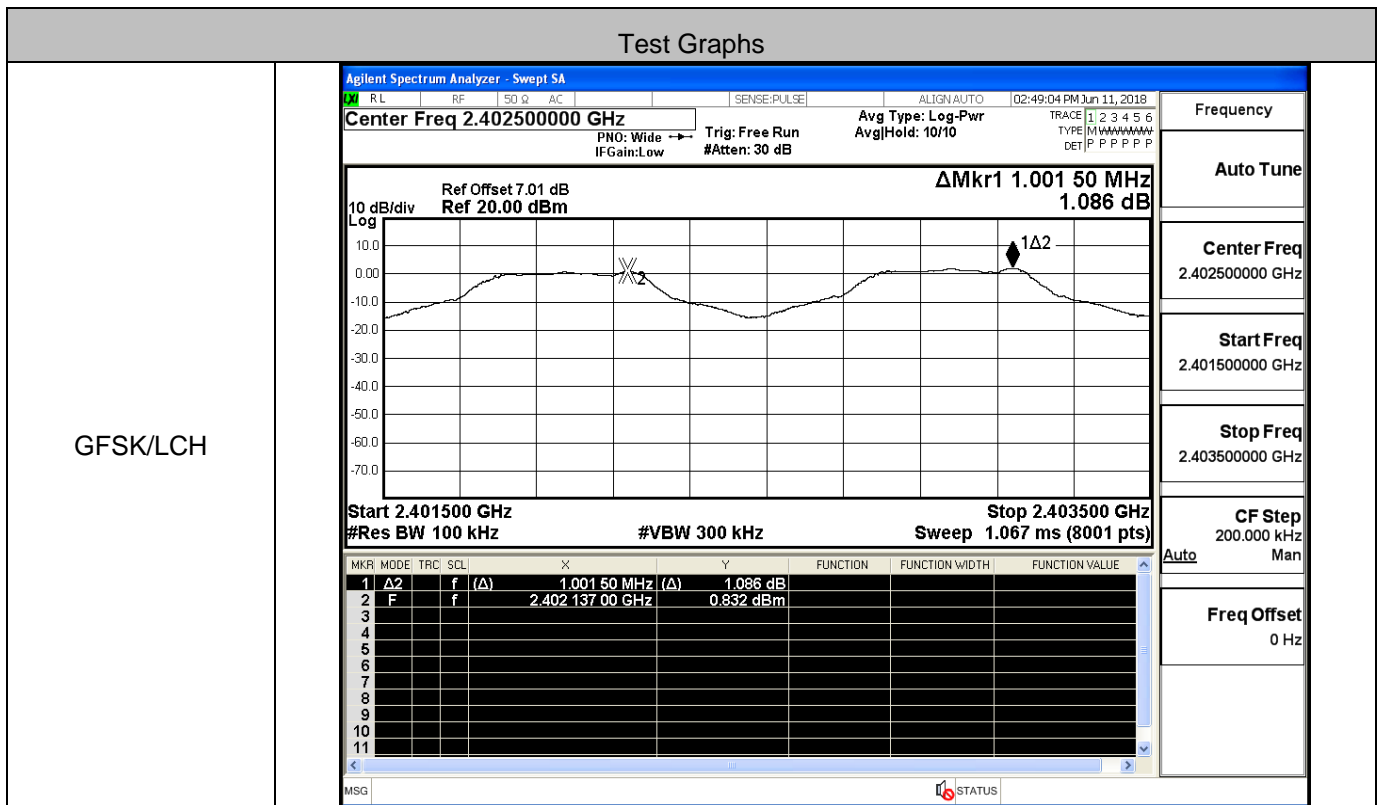
$\pi/4$ DQPSK/MCH



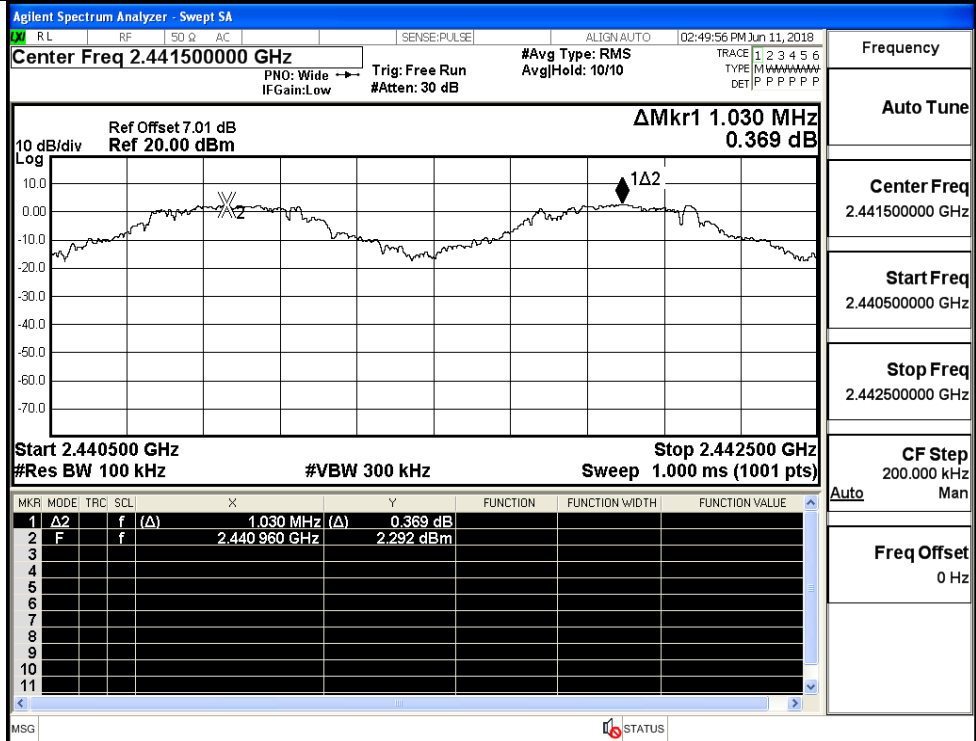


A.3 Carrier Frequency Separation

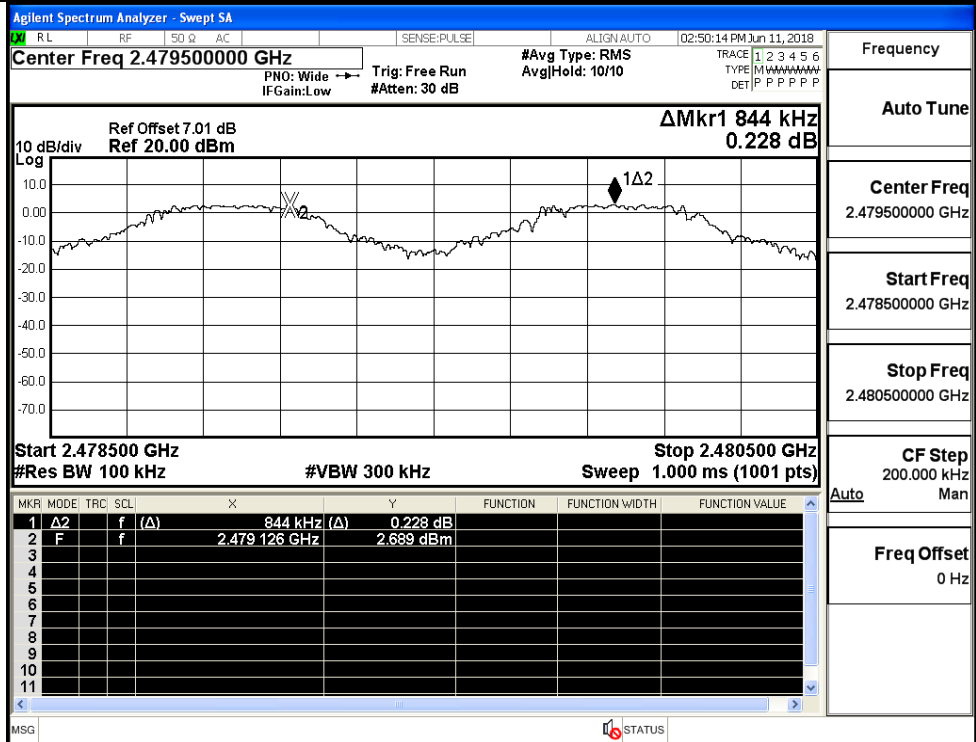
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.001	0.628	PASS
	MCH	1.030	0.628	PASS
	HCH	0.844	0.628	PASS
π/4DQPSK	LCH	1.112	0.843	PASS
	MCH	1.046	0.843	PASS
	HCH	1.132	0.843	PASS



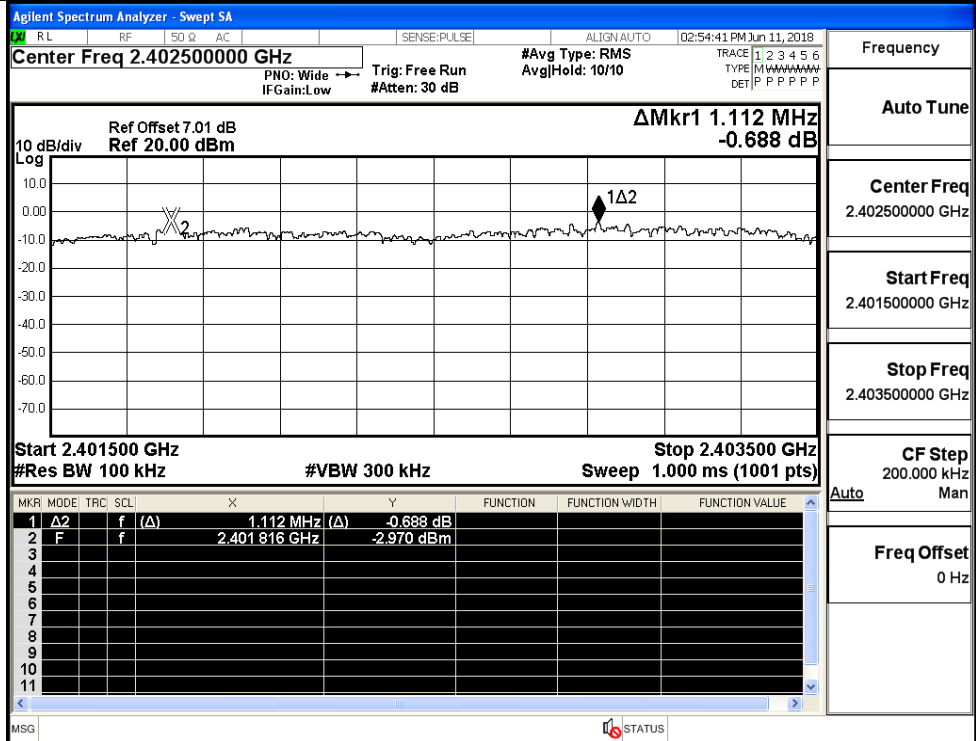
GFSK/MCH



GFSK/HCH

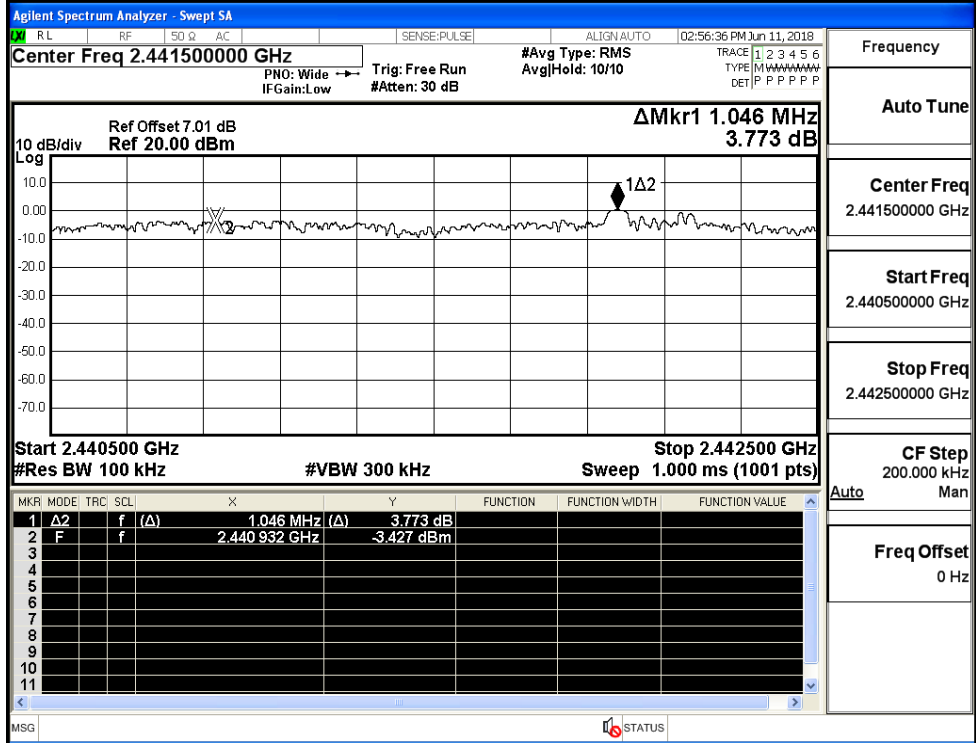


$\pi/4$ DQPSK/LCH



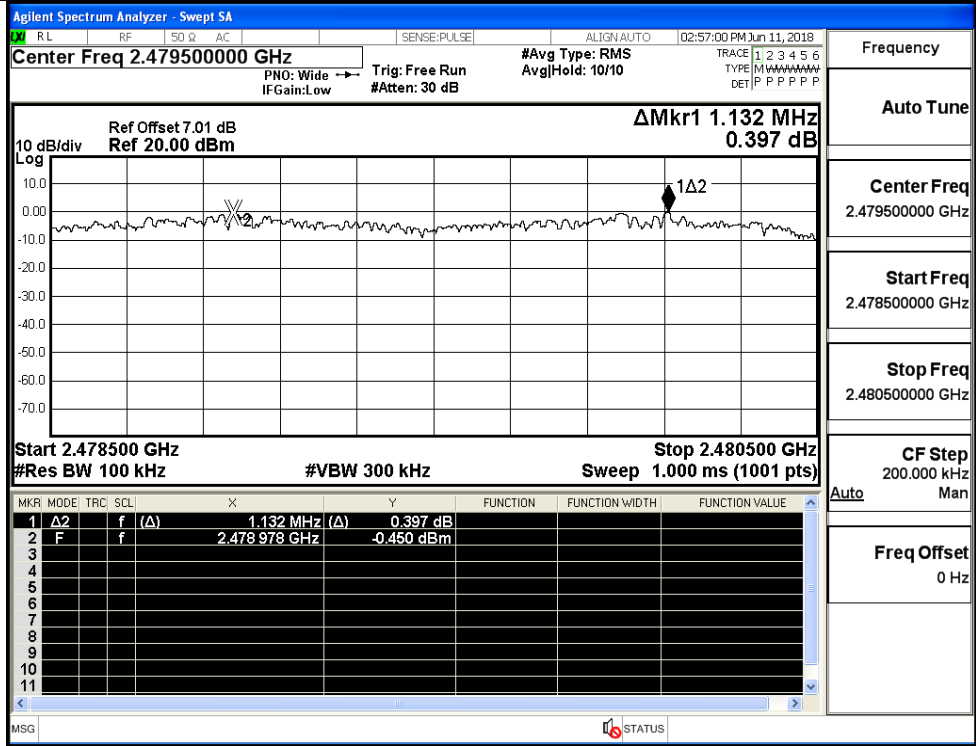
Frequency
Auto Tune
Center Freq
2.402500000 GHz
Start Freq
2.401500000 GHz
Stop Freq
2.403500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

$\pi/4$ 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
Auto
Man
Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH



A.4 Hopping Channel Number

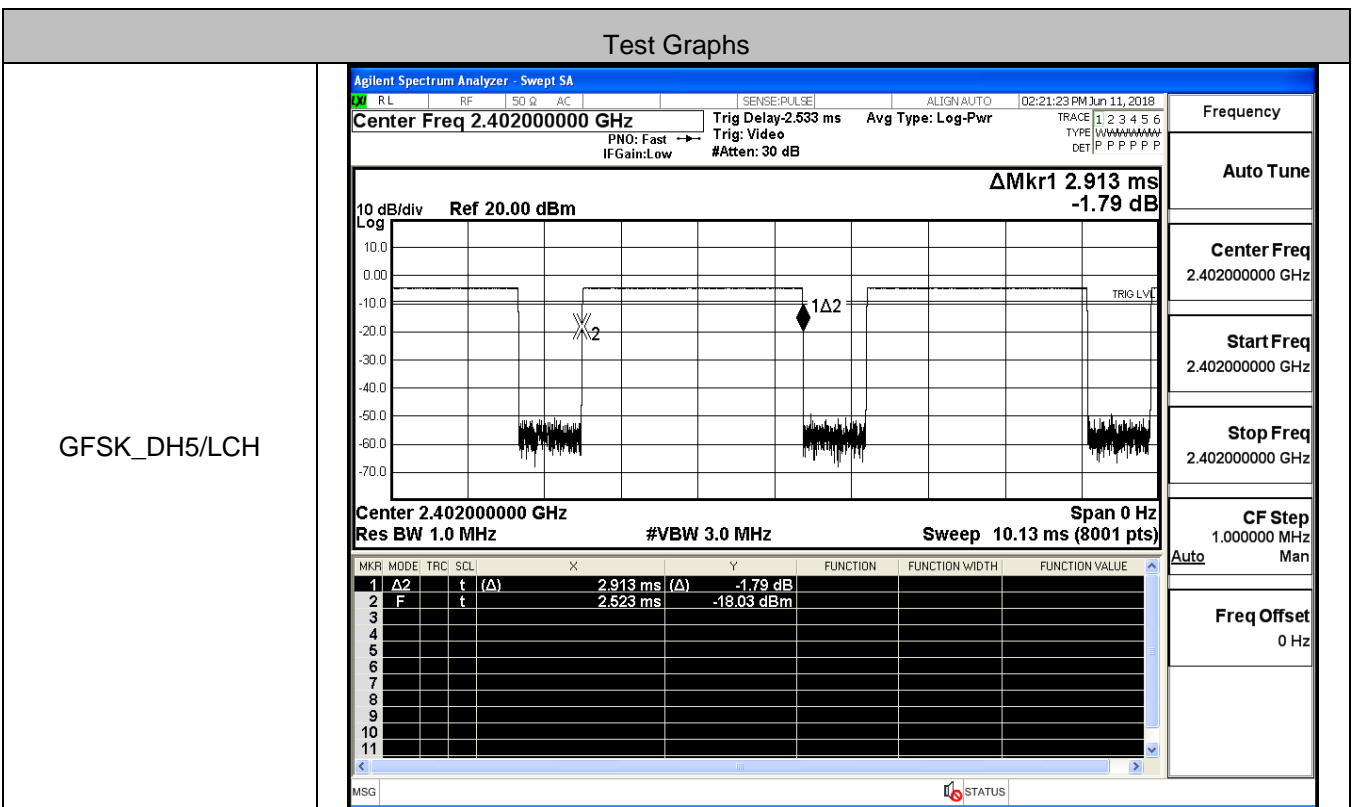
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS

Test Graphs

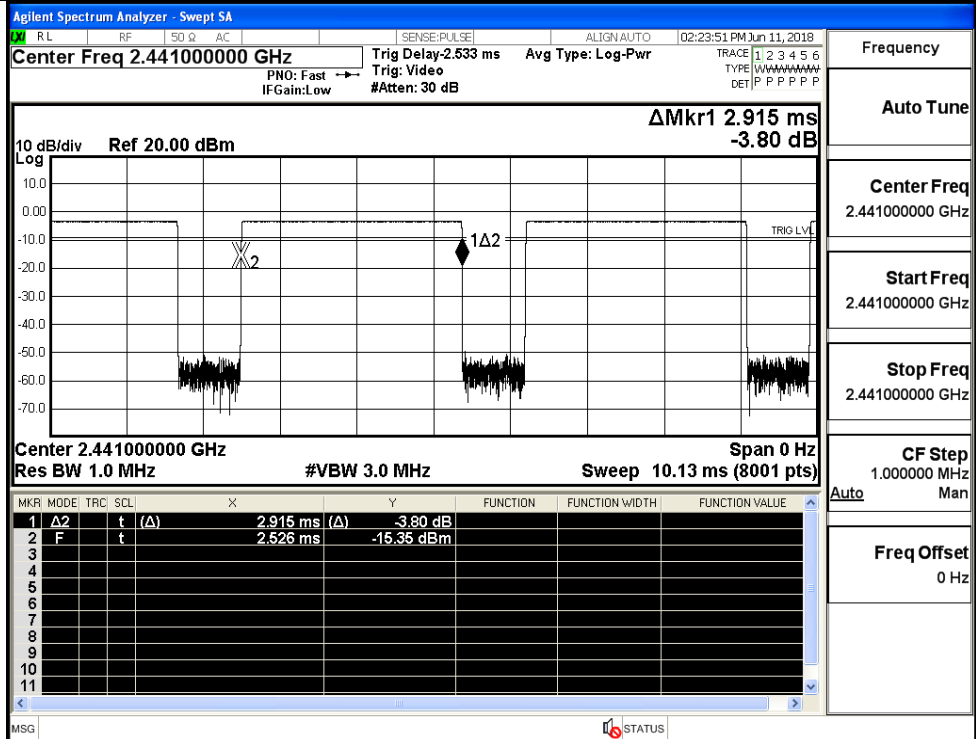
<p>GFSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 7.01 dB</p> <p>Ref 20.00 dBm</p> <p>ΔMkr1 78.177 MHz</p> <p>2.576 dB</p> <p>Start 2.40000 GHz</p> <p>Stop 2.48350 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Sweep 8.000 ms (8001 pts)</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>78.177 MHz (Δ)</td> <td>2.576 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.401847 GHz</td> <td>0.457 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)	78.177 MHz (Δ)	2.576 dB				2	F	f		2.401847 GHz	0.457 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ 2	f	(Δ)	78.177 MHz (Δ)	2.576 dB																							
2	F	f		2.401847 GHz	0.457 dBm																							
<p>$\pi/4$DQPSK/Hop</p>	<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441750000 GHz</p> <p>Ref Offset 7.01 dB</p> <p>Ref 20.00 dBm</p> <p>ΔMkr1 77.885 MHz</p> <p>3.983 dB</p> <p>Start 2.40000 GHz</p> <p>Stop 2.48350 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>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 (Δ)</td> <td>3.983 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>-4.733 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)	77.885 MHz (Δ)	3.983 dB				2	F	f		2.402108 GHz	-4.733 dBm			
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ 2	f	(Δ)	77.885 MHz (Δ)	3.983 dB																							
2	F	f		2.402108 GHz	-4.733 dBm																							

A.5 Dwell Time

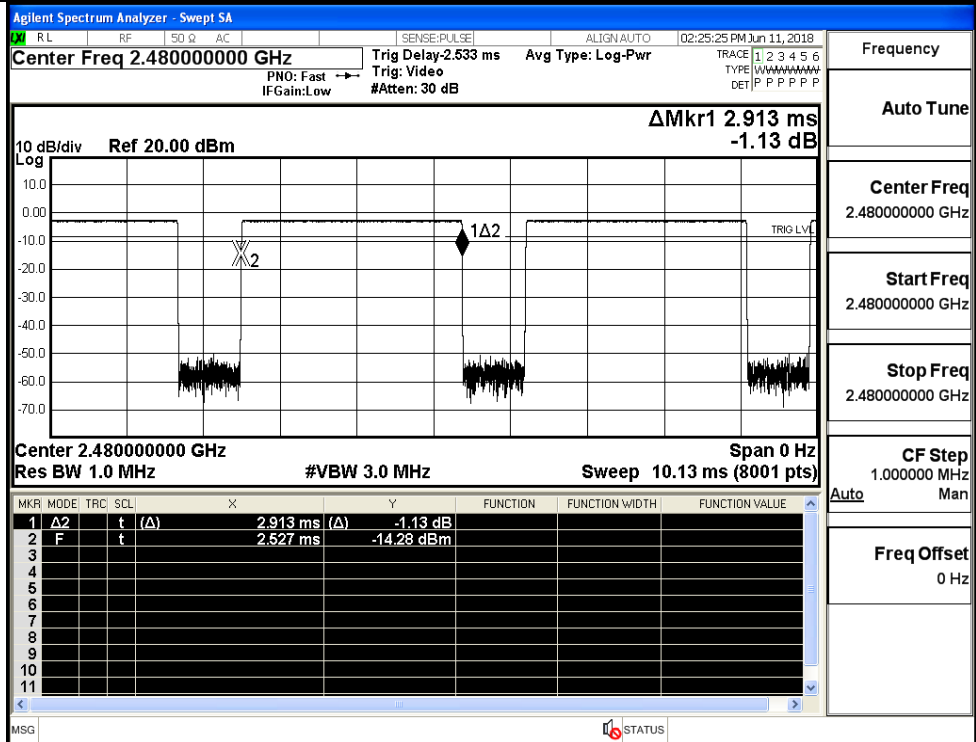
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.91	106.7	0.31	0.4	PASS
	DH5	MCH	2.91	106.7	0.31	0.4	PASS
	DH5	HCH	2.91	106.7	0.31	0.4	PASS
π/4DQPSK	2DH5	LCH	2.91	106.7	0.312	0.4	PASS
	2DH5	MCH	2.91	106.7	0.312	0.4	PASS
	2DH5	HCH	2.91	106.7	0.312	0.4	PASS



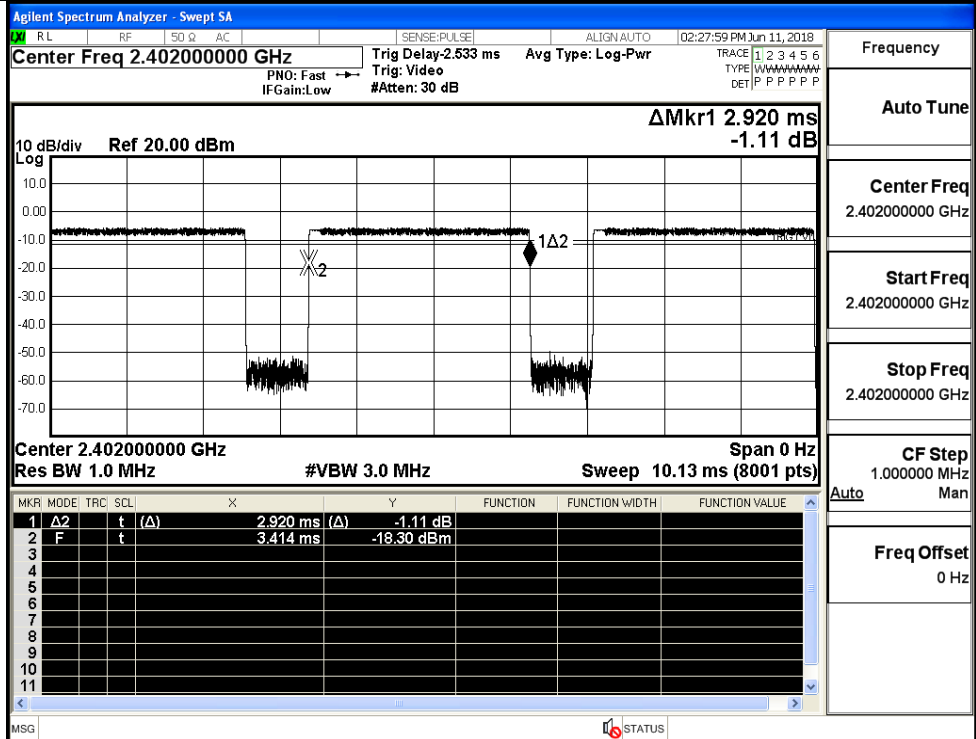
GFSK_DH5/MCH



GFSK_DH5/HCH

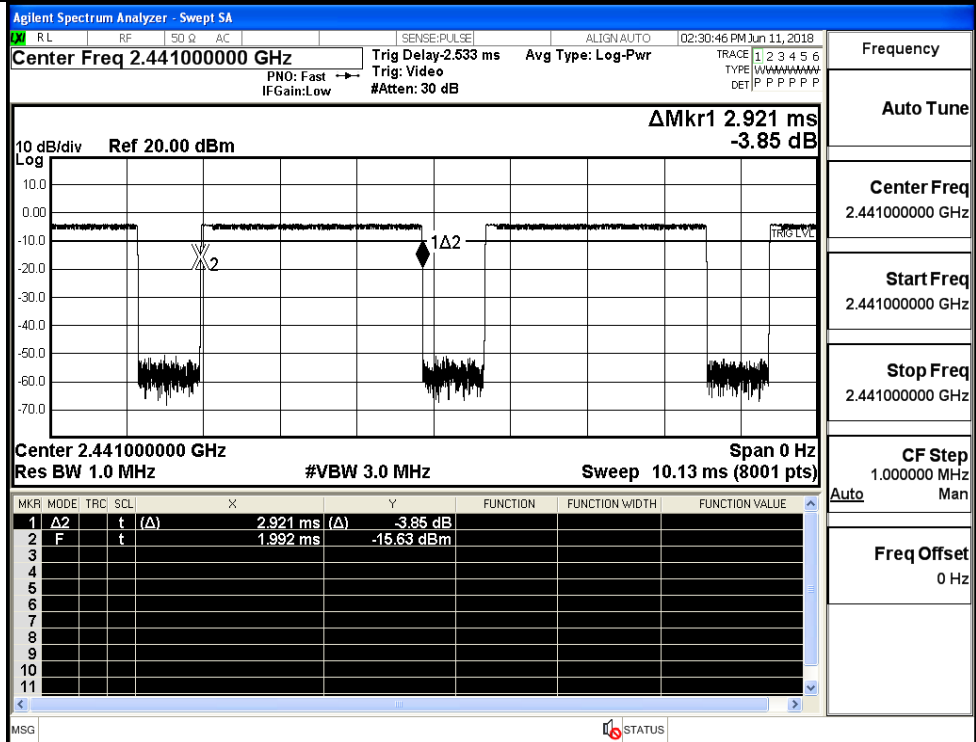


$\pi/4$ DQPSK
_2DH5/LCH



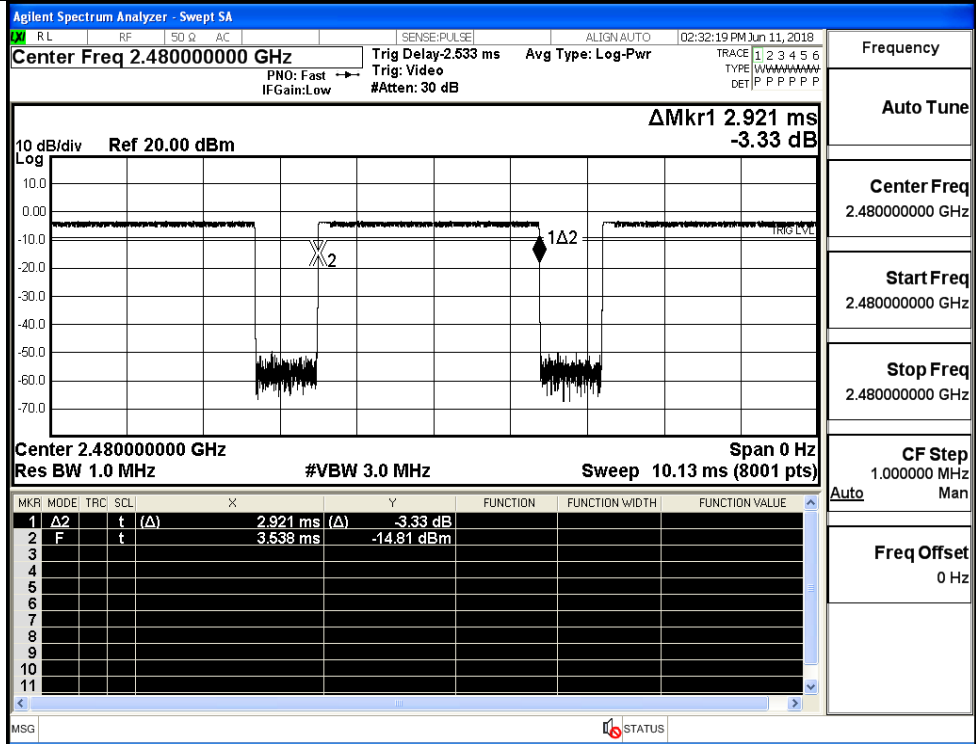
Frequency	2.40200000 GHz
Auto Tune	
Center Freq	2.40200000 GHz
Start Freq	2.40200000 GHz
Stop Freq	2.40200000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK
_2DH5/MCH



Frequency	2.44100000 GHz
Auto Tune	
Center Freq	2.44100000 GHz
Start Freq	2.44100000 GHz
Stop Freq	2.44100000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

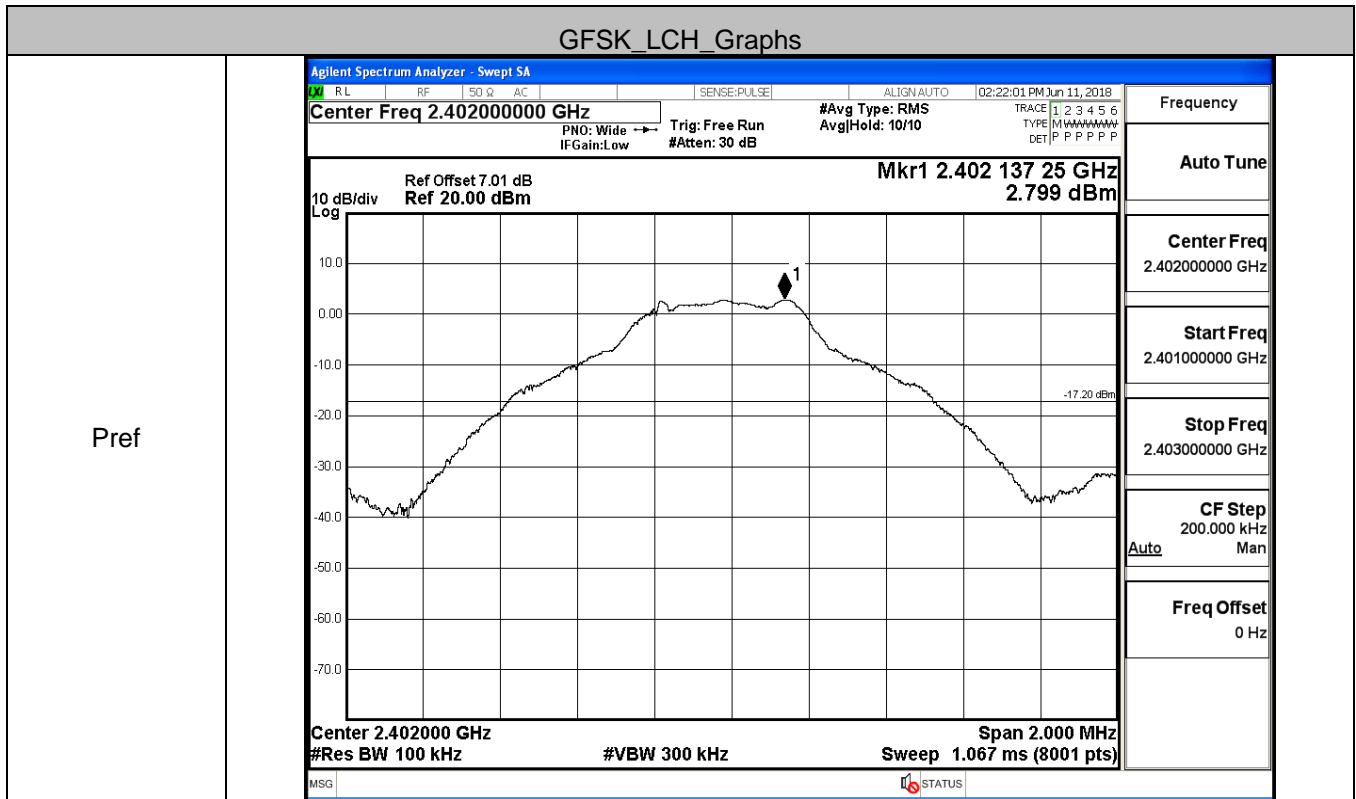
$\pi/4$ DQPSK
_2DH5/HCH



A.6 RF Conducted Spurious Emissions

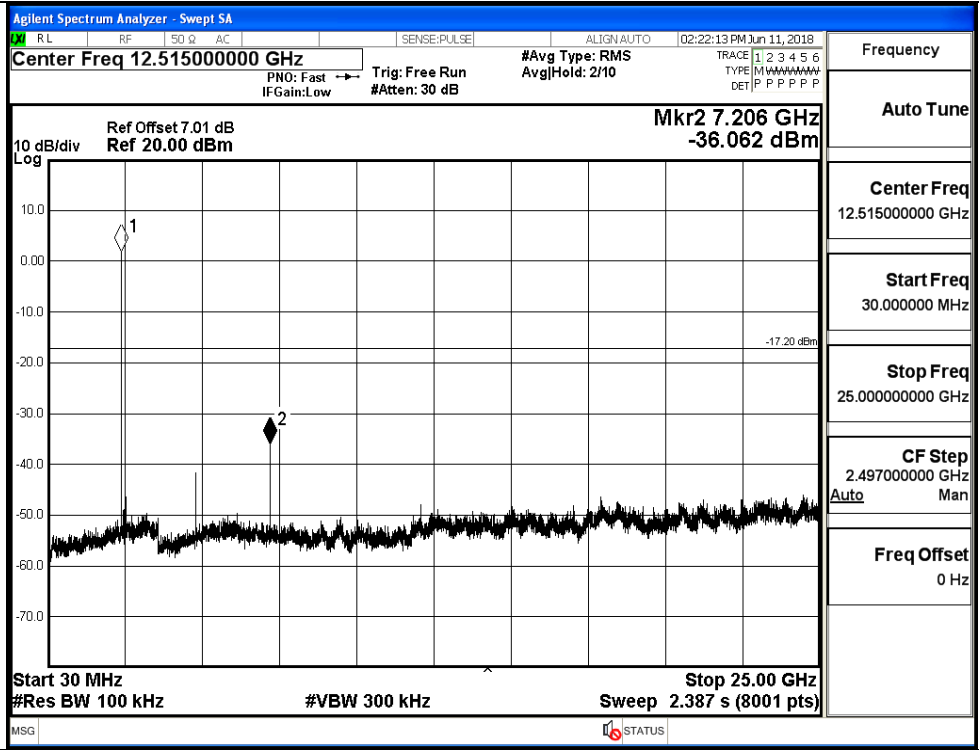
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.799	-36.062	-17.201	PASS
	MCH	3.742	-32.102	-16.258	PASS
	HCH	4.284	-26.839	-15.716	PASS
π/4DQPSK	LCH	0.682	-46.479	-19.318	PASS
	MCH	2.45	-40.557	-17.550	PASS
	HCH	3.4	-38.578	-16.600	PASS

GFSK_LCH_Graphs



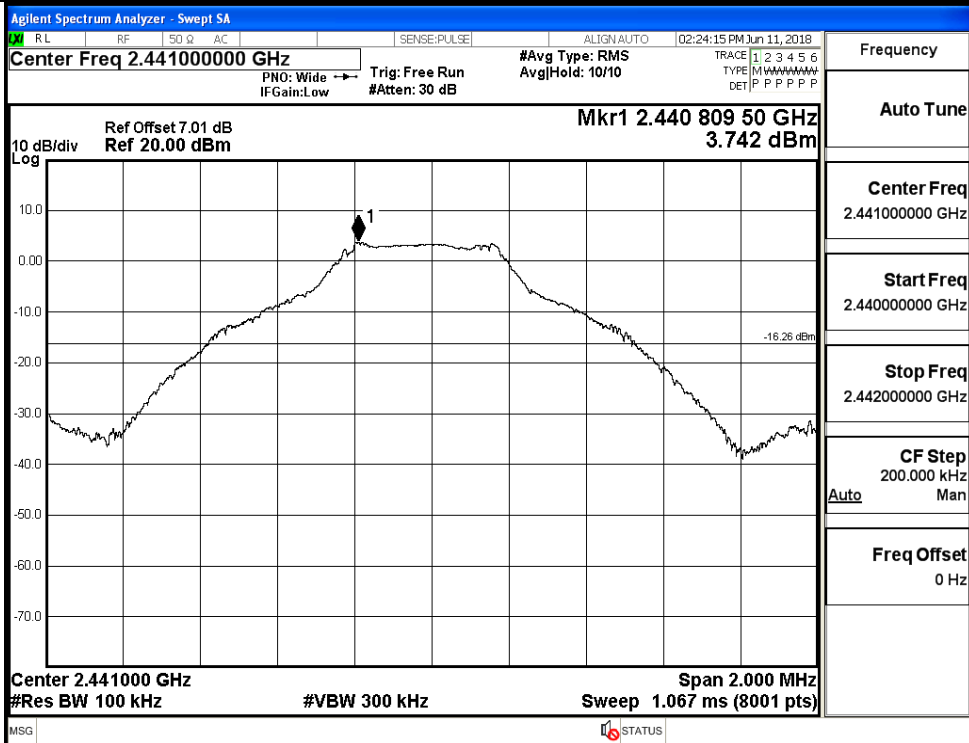
Pref

P_{uw}

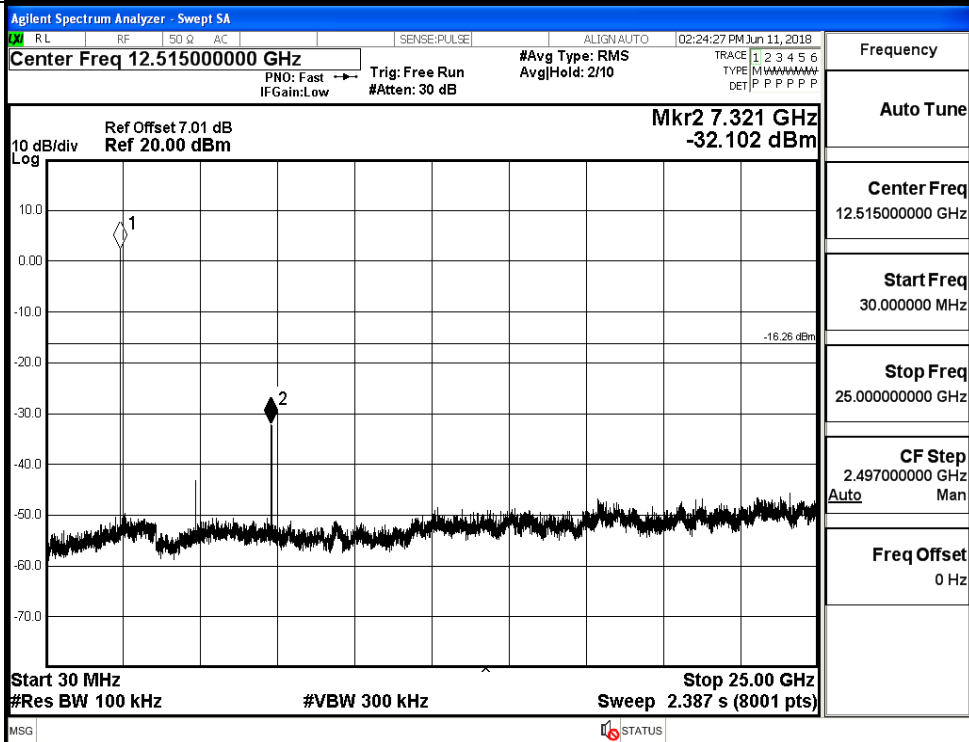


GFSK_MCH_Graphs

Pref

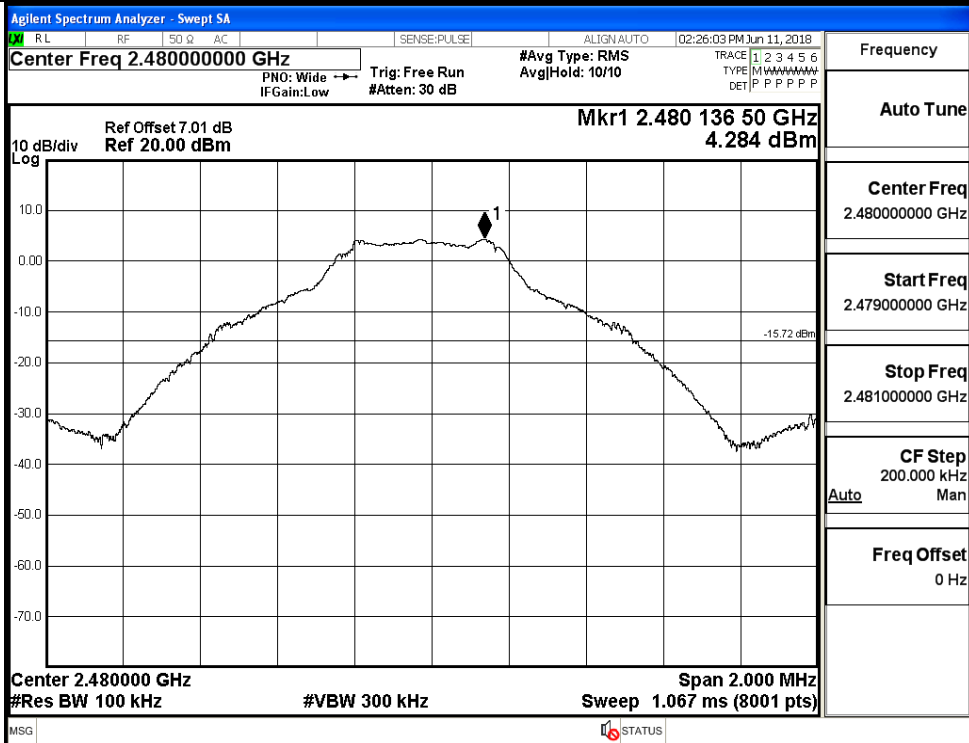


Puw

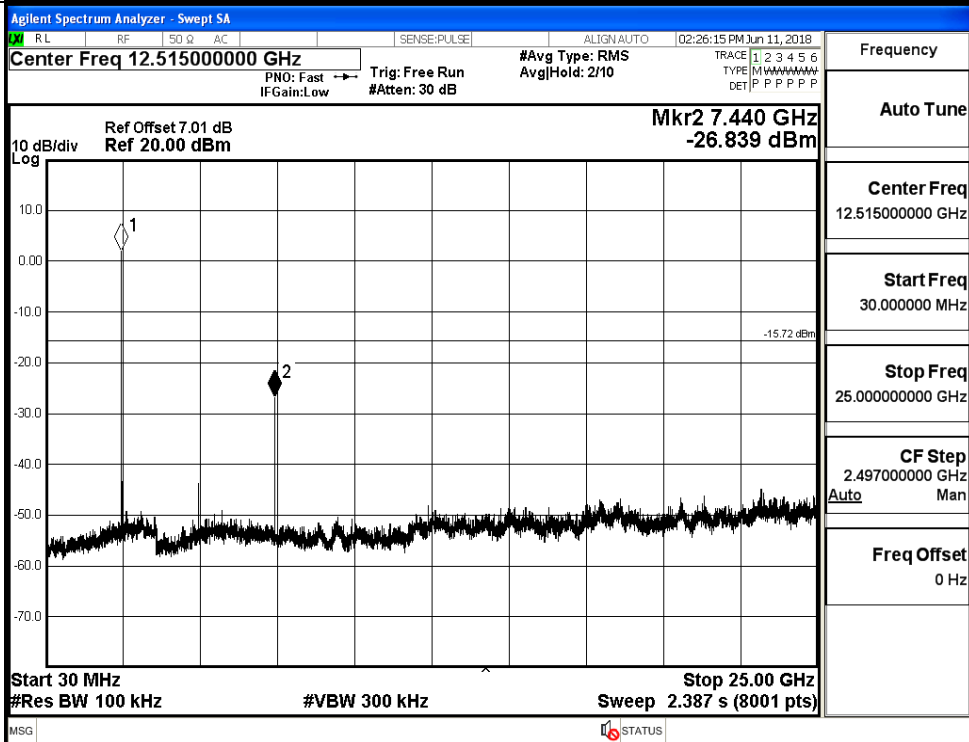


GFSK_HCH_Graphs

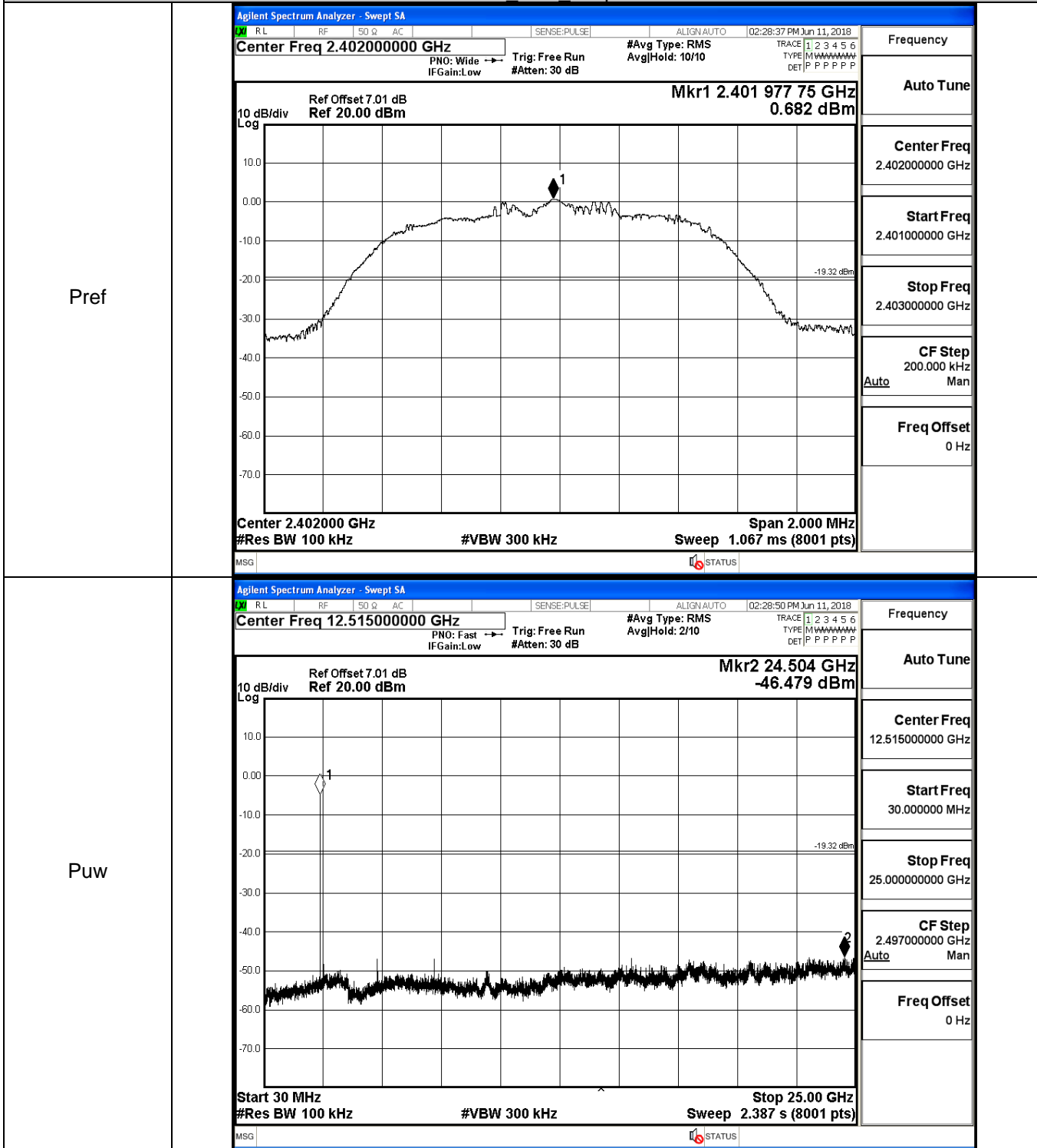
Pref



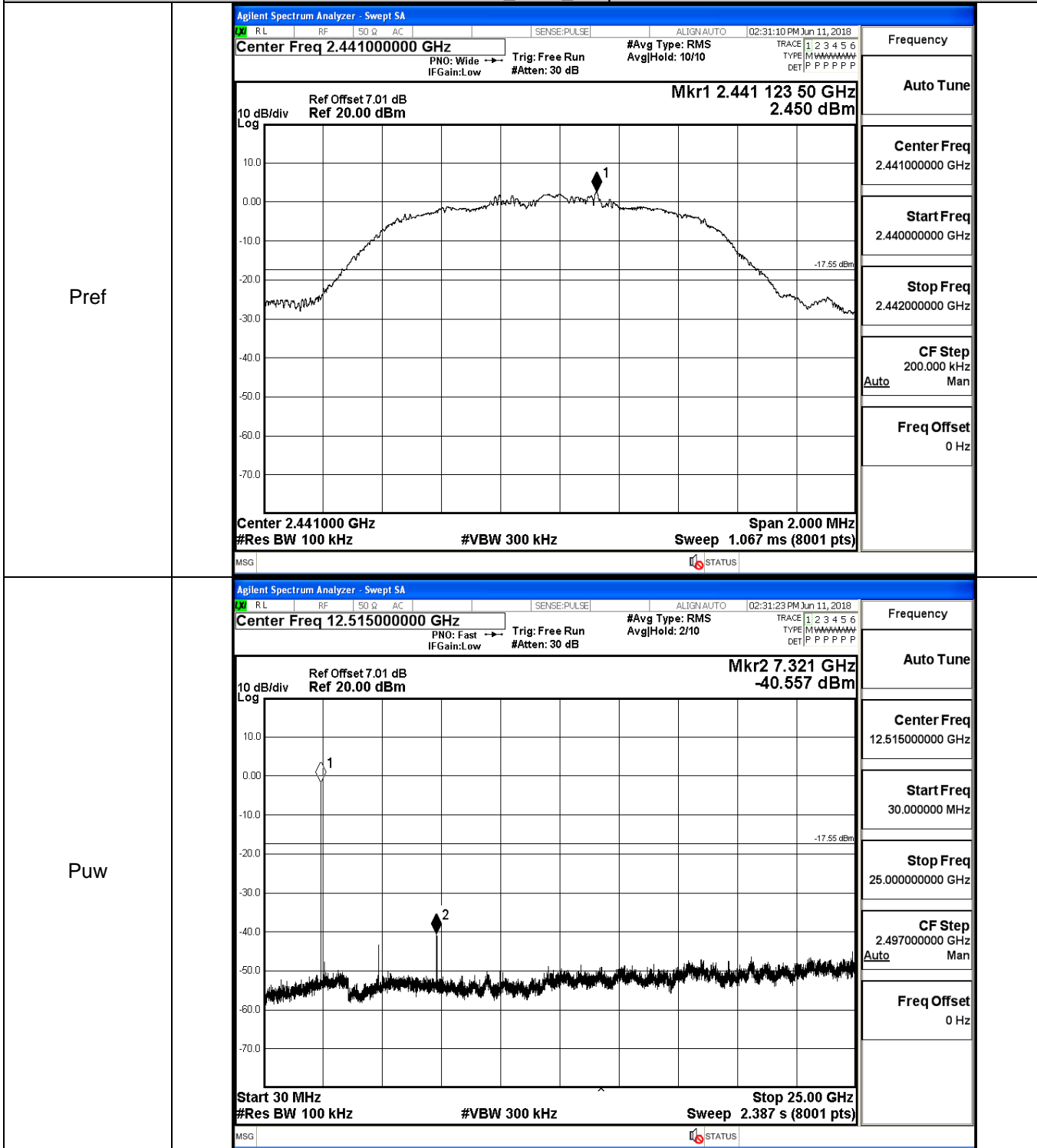
Puw



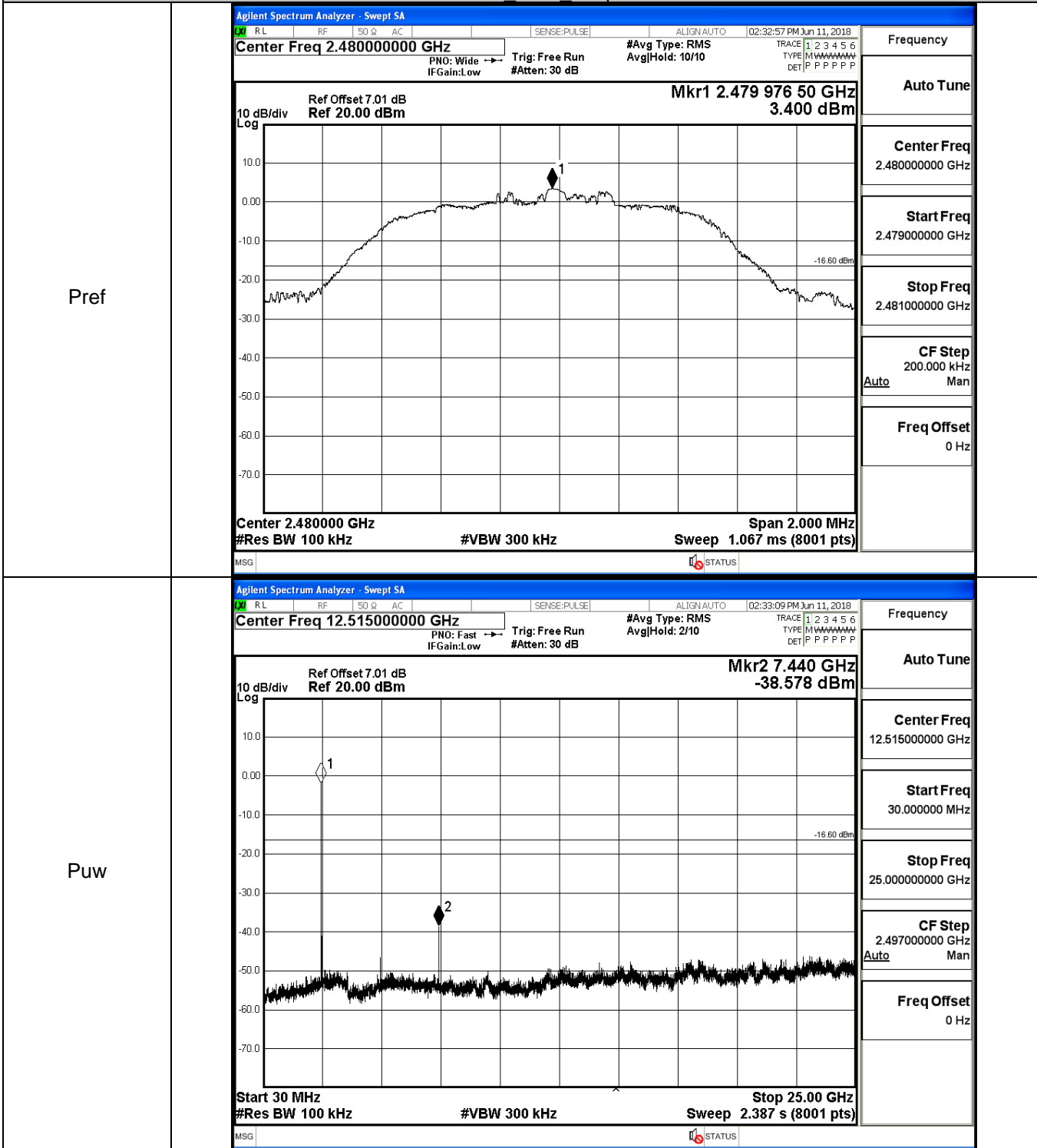
$\pi/4$ DQPSK LCH Graphs



$\pi/4$ DQPSK_MCH_Graphs



$\pi/4$ DQPSK HCH Graphs

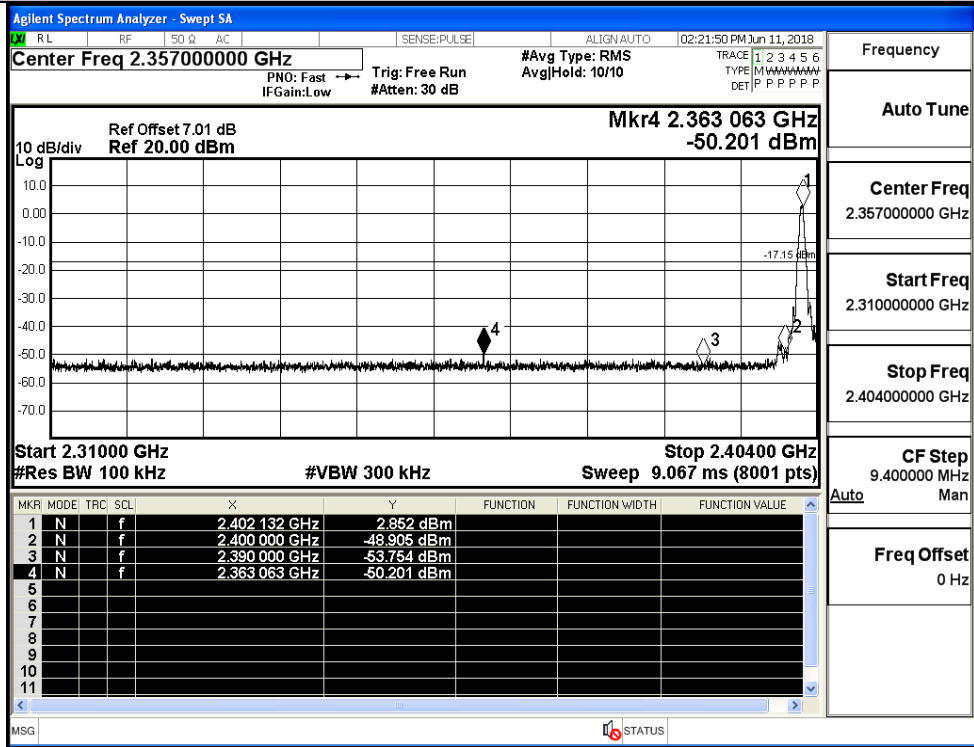


A.7 Band-edge for RF Conducted Emissions

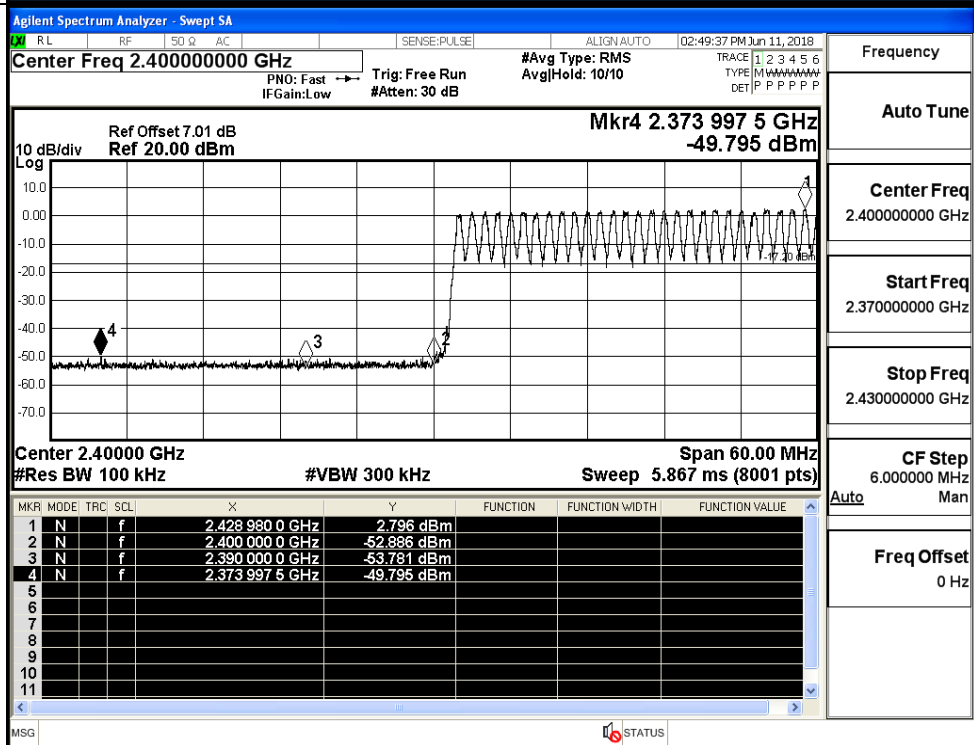
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	2.852	Off	-50.201	-17.15	PASS
			2.796	On	-49.795	-17.2	PASS
	HCH	2480	4.328	Off	-50.669	-15.67	PASS
			3.393	On	-50.384	-16.61	PASS
$\pi/4$ DQPSK	LCH	2402	0.795	Off	-50.468	-19.21	PASS
			-0.145	On	-50.621	-20.15	PASS
	HCH	2480	3.512	Off	-49.815	-16.49	PASS
			1.110	On	-50.125	-18.89	PASS

Test Graphs

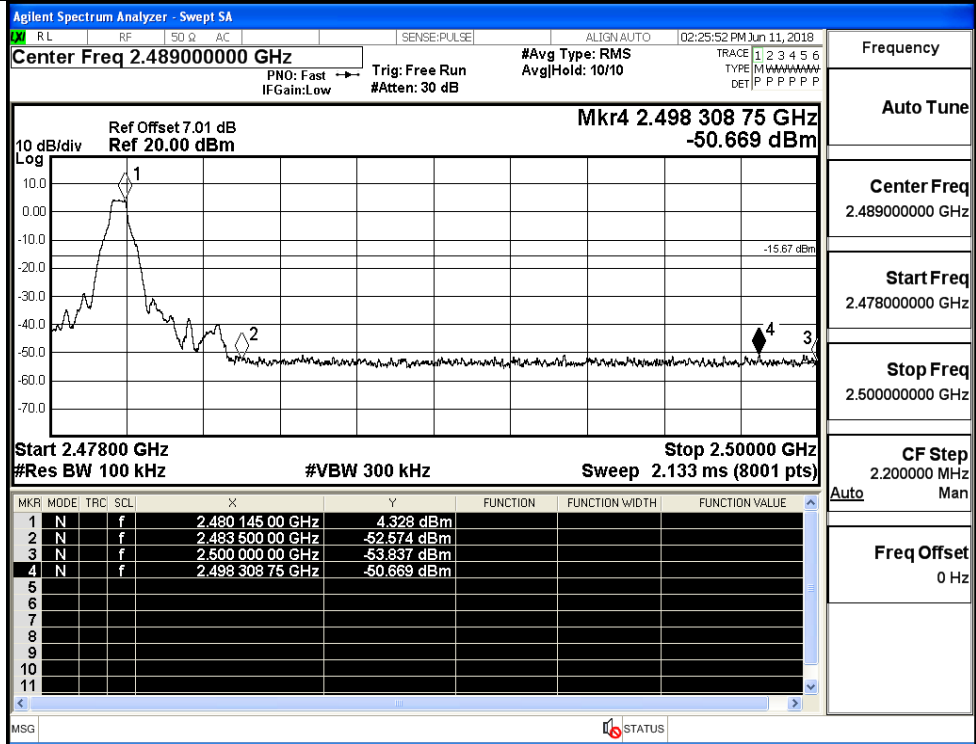
GFSK/LCH/No Hop



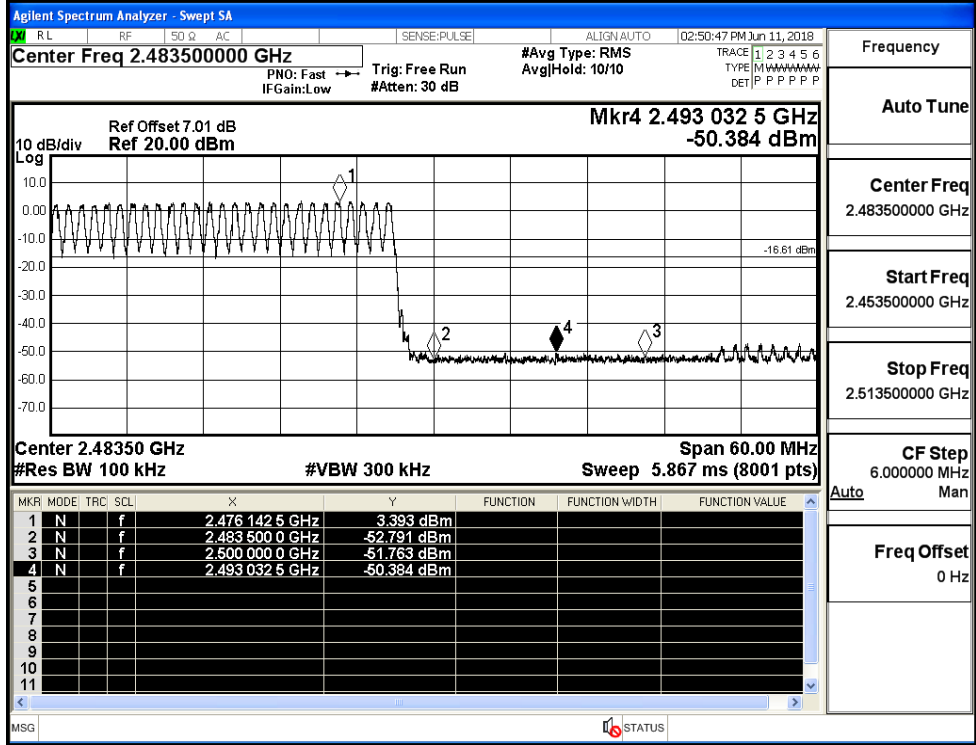
GFSK/LCH/Hop



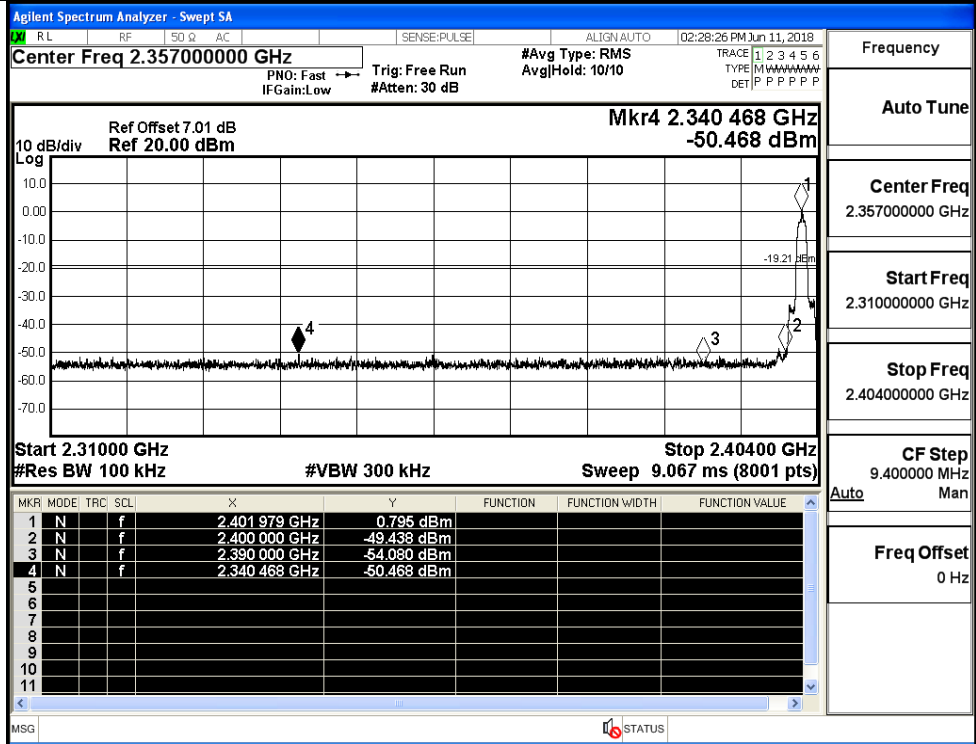
GFSK/HCH/No Hop



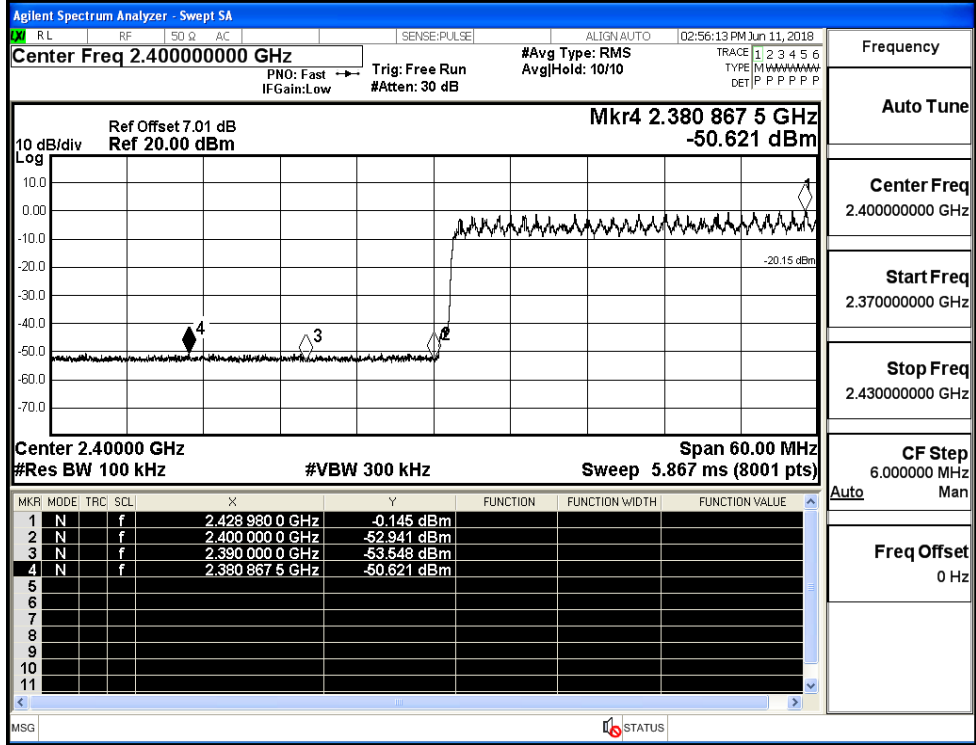
GFSK/HCH/Hop



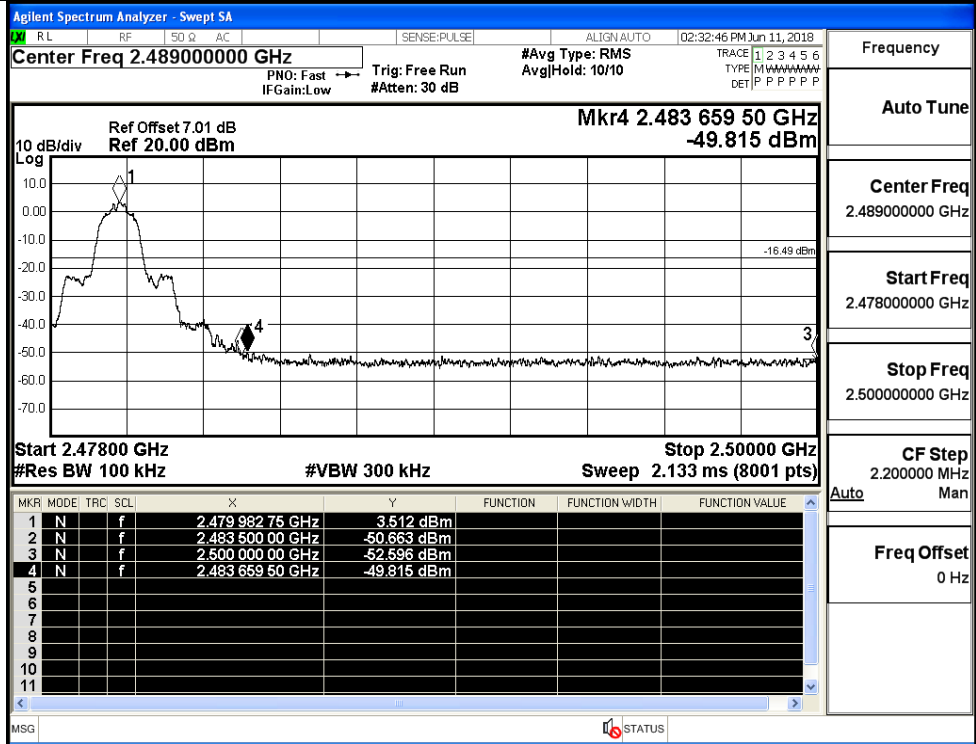
$\pi/4$ DQPSK/LCH/No
Hop



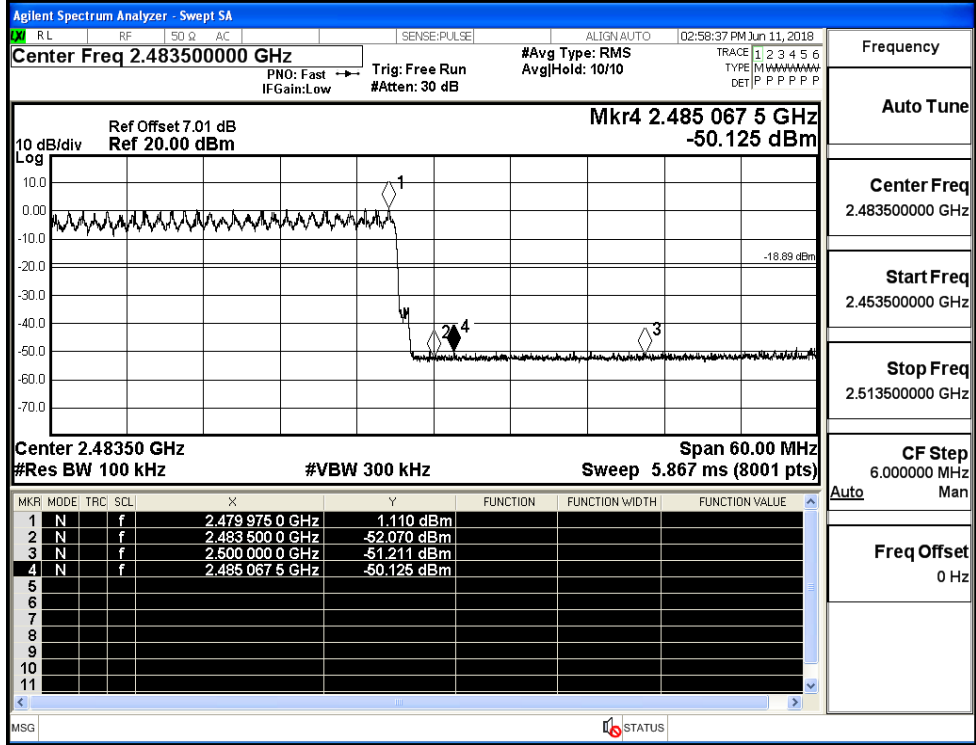
$\pi/4$ DQPSK/LCH/Hop



π /4DQPSK/HCH/No
Hop



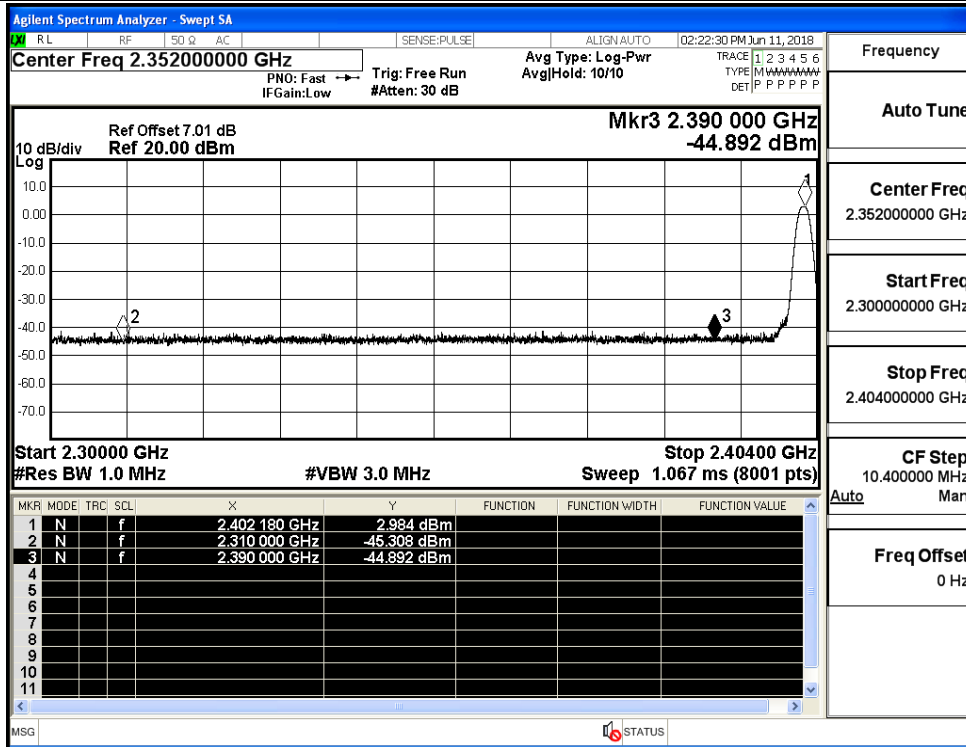
π /4DQPSK/HCH/Hop



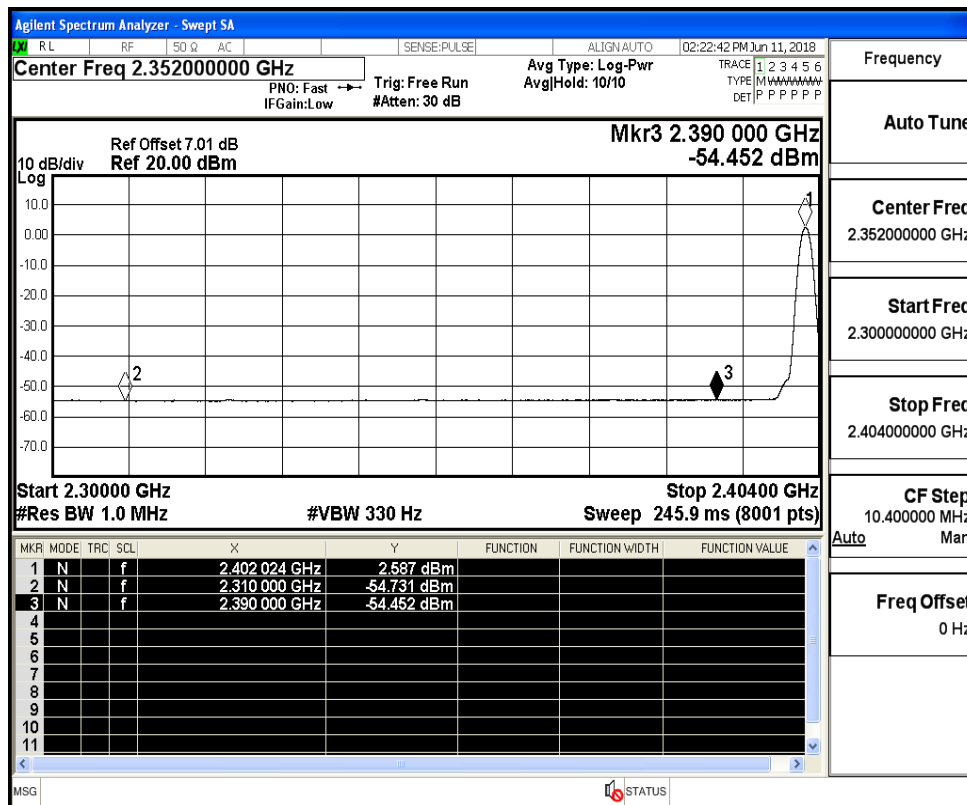
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-45.31	2.0	0	51.95	PEAK	74	PASS
	Off	2310.0	-54.73	2.0	0	42.53	AV	54	PASS
	Off	2390.0	-44.89	2.0	0	52.37	PEAK	74	PASS
	Off	2390.0	-54.45	2.0	0	42.81	AV	54	PASS
	Off	2483.5	-39.32	2.0	0	57.94	PEAK	74	PASS
	Off	2483.5	-49.87	2.0	0	47.39	AV	54	PASS
	Off	2500.0	-43.33	2.0	0	53.93	PEAK	74	PASS
	Off	2500.0	-53.90	2.0	0	43.36	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-45.10	2.0	0	52.16	PEAK	74	PASS
	Off	2310.0	-54.76	2.0	0	42.50	AV	54	PASS
	Off	2390.0	-44.14	2.0	0	53.12	PEAK	74	PASS
	Off	2390.0	-54.44	2.0	0	42.82	AV	54	PASS
	Off	2483.5	-37.50	2.0	0	59.76	PEAK	74	PASS
	Off	2483.5	-50.72	2.0	0	46.54	AV	54	PASS
	Off	2500.0	-44.26	2.0	0	52.99	PEAK	74	PASS
	Off	2500.0	-54.02	2.0	0	43.23	AV	54	PASS

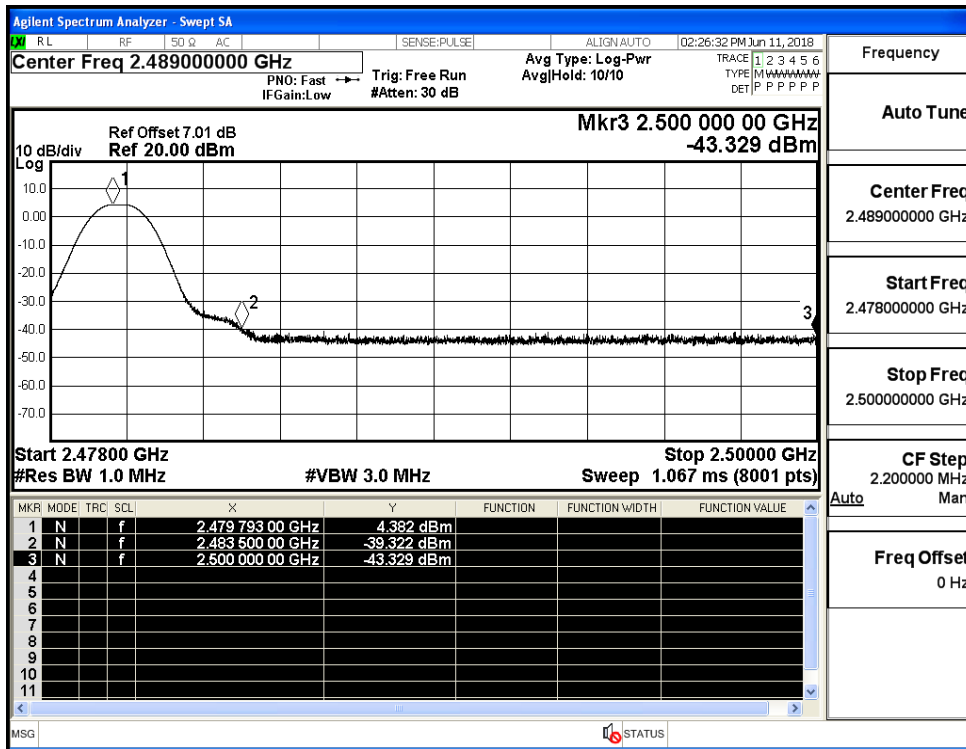
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



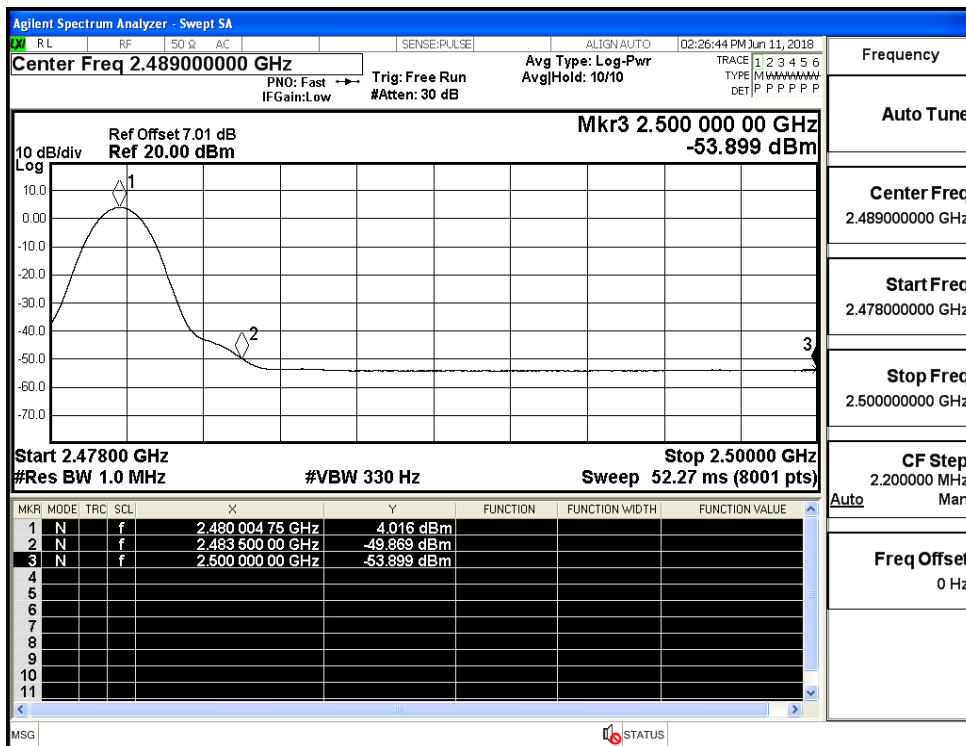
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



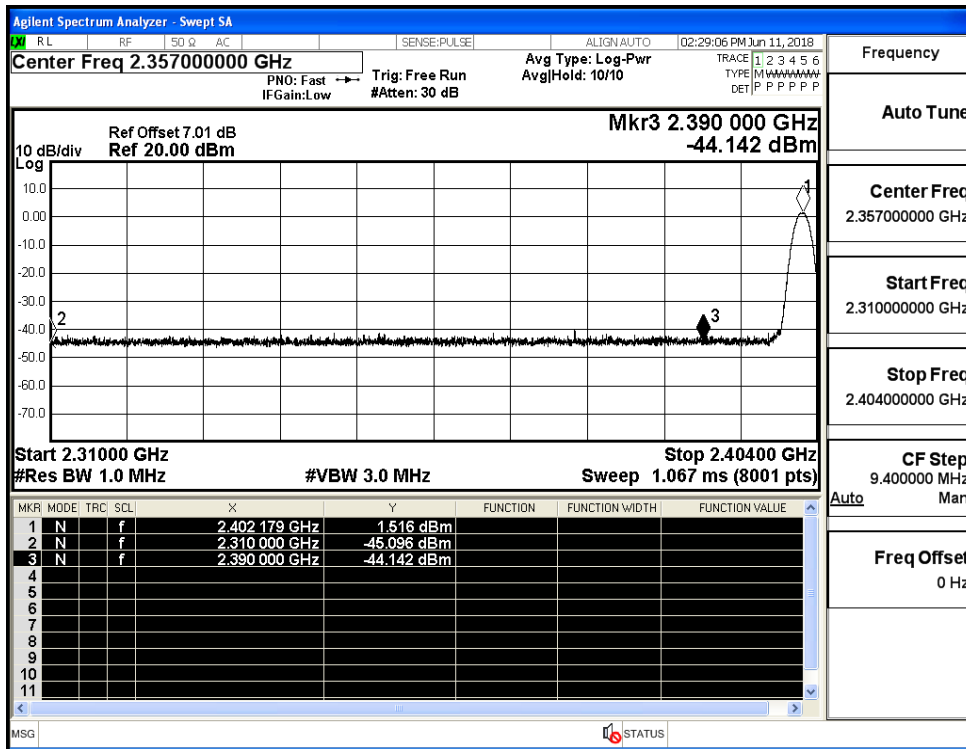
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



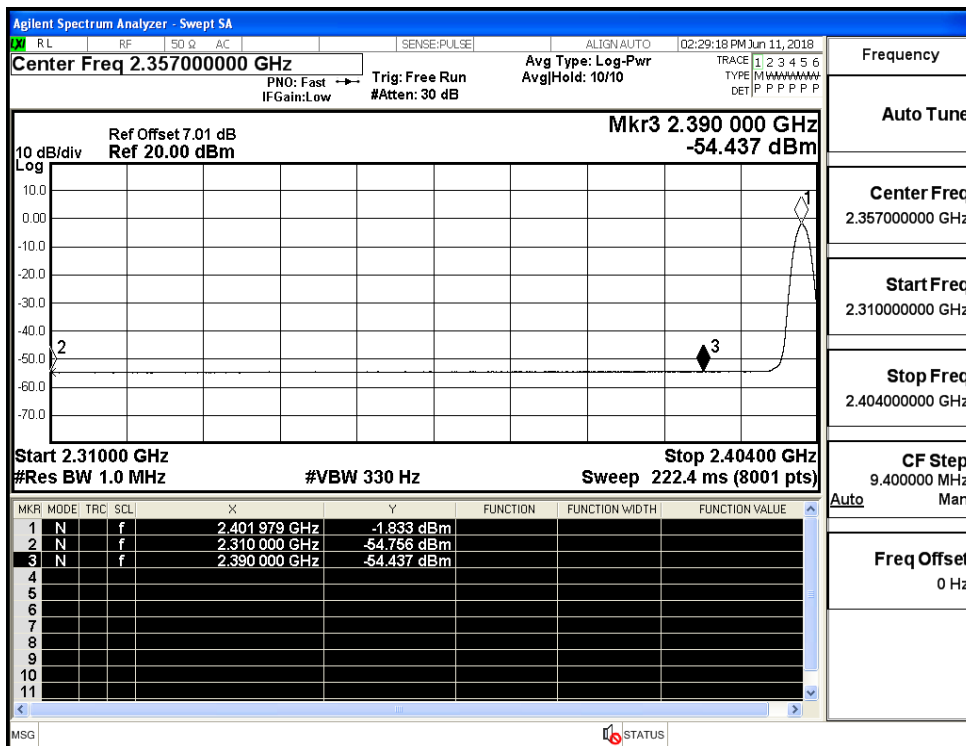
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



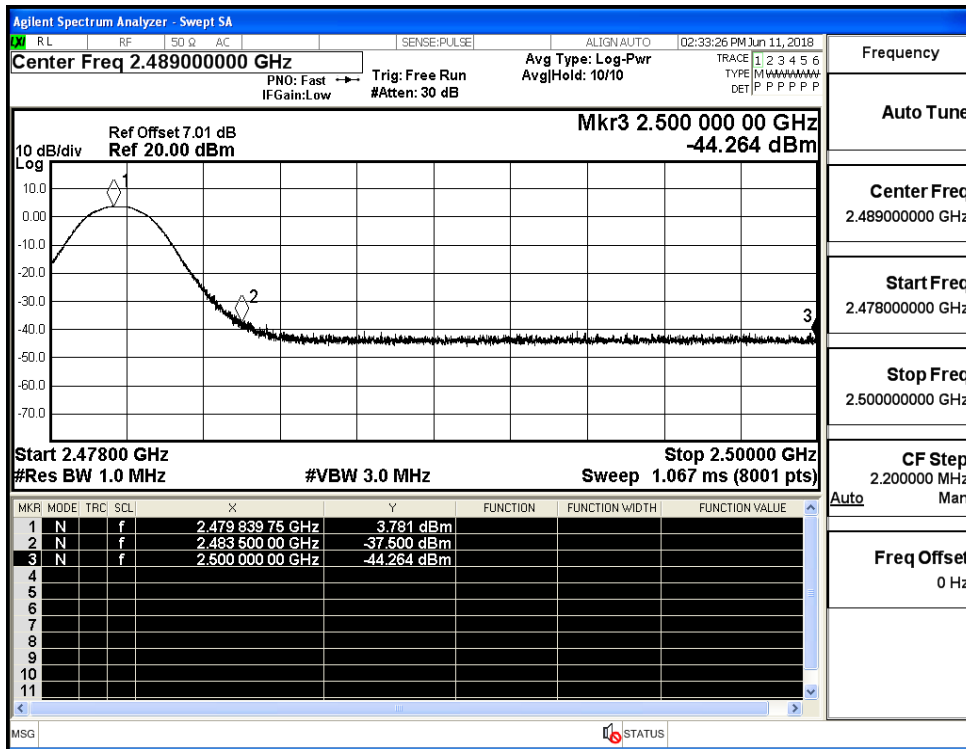
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



Restrict-band band-edge measurements_Hopping Off_π/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)

