

Appendix A

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

Product Name: Urbanista Milan

Trade Mark: Urbanista

Test Model: Urbanista Milan

Environmental Conditions

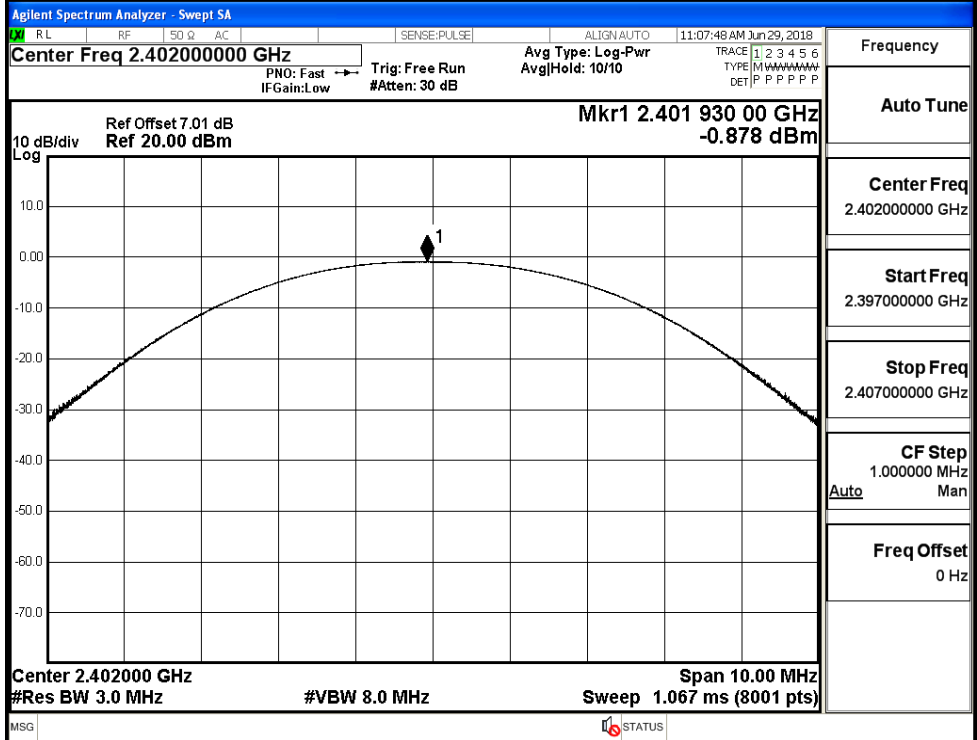
Temperature:	23.6 ° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

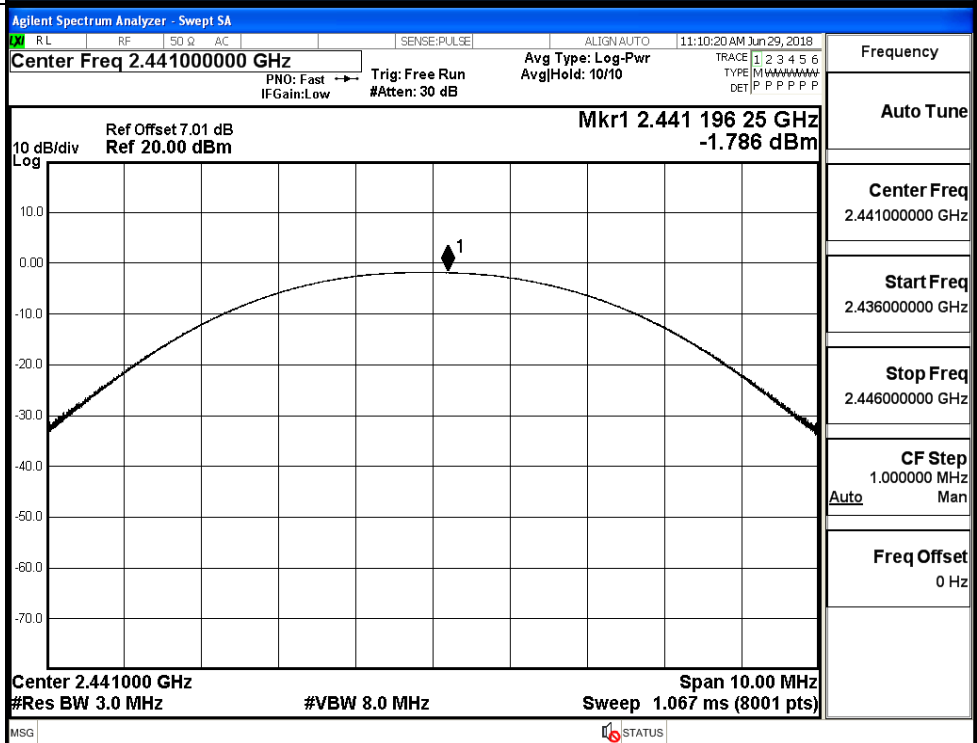
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.878	21	PASS
	MCH	-1.786	21	PASS
	HCH	-3.223	21	PASS
$\pi/4$ DQPSK	LCH	-0.873	21	PASS
	MCH	-1.826	21	PASS
	HCH	-3.206	21	PASS
8DPSK	LCH	-0.902	21	PASS
	MCH	-1.780	21	PASS
	HCH	-3.261	21	PASS

Test Graphs

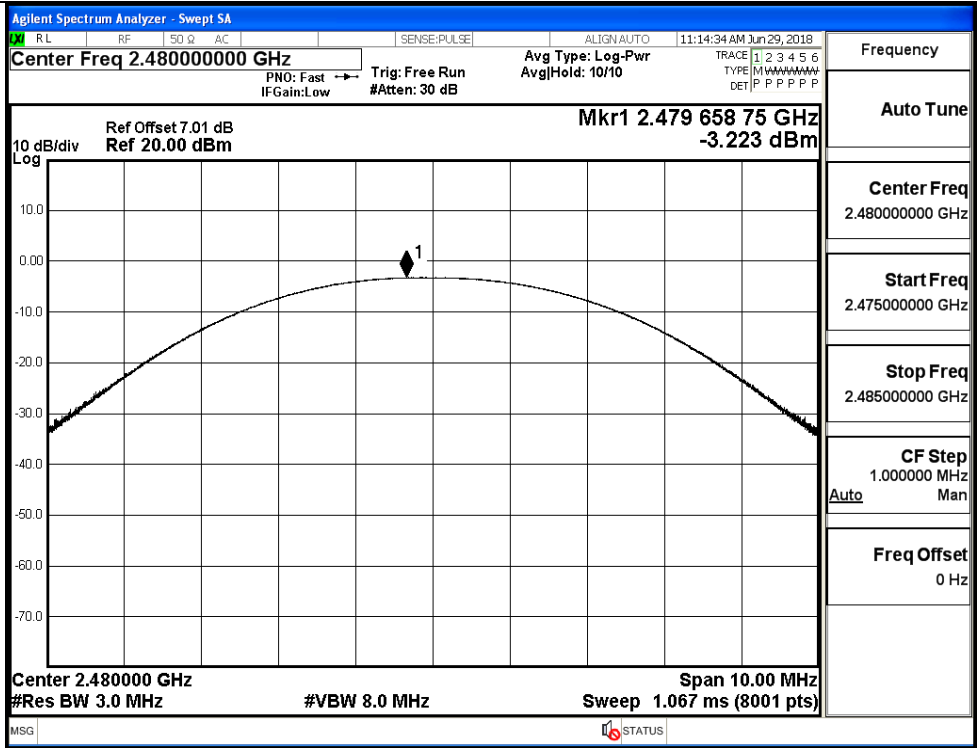
GFSK/LCH



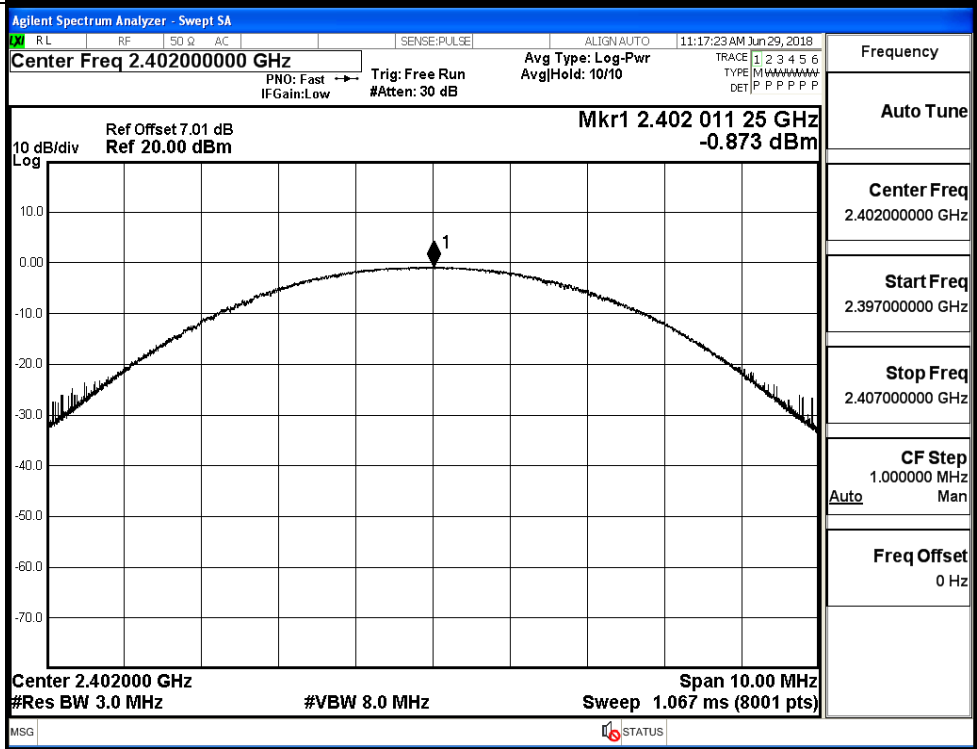
GFSK/MCH



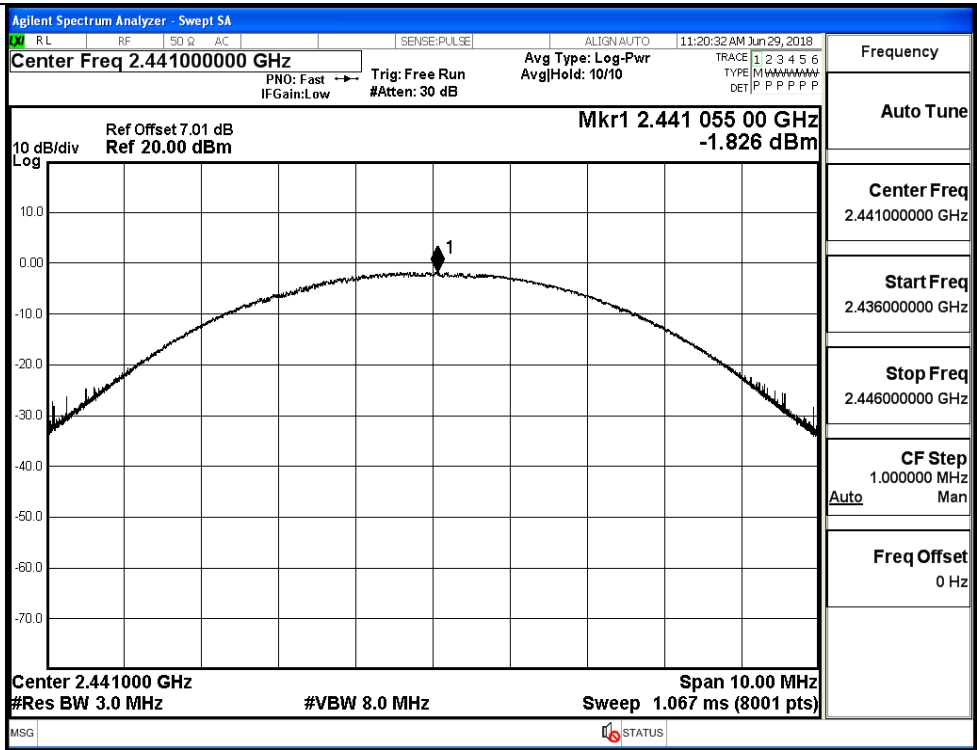
GFSK/HCH



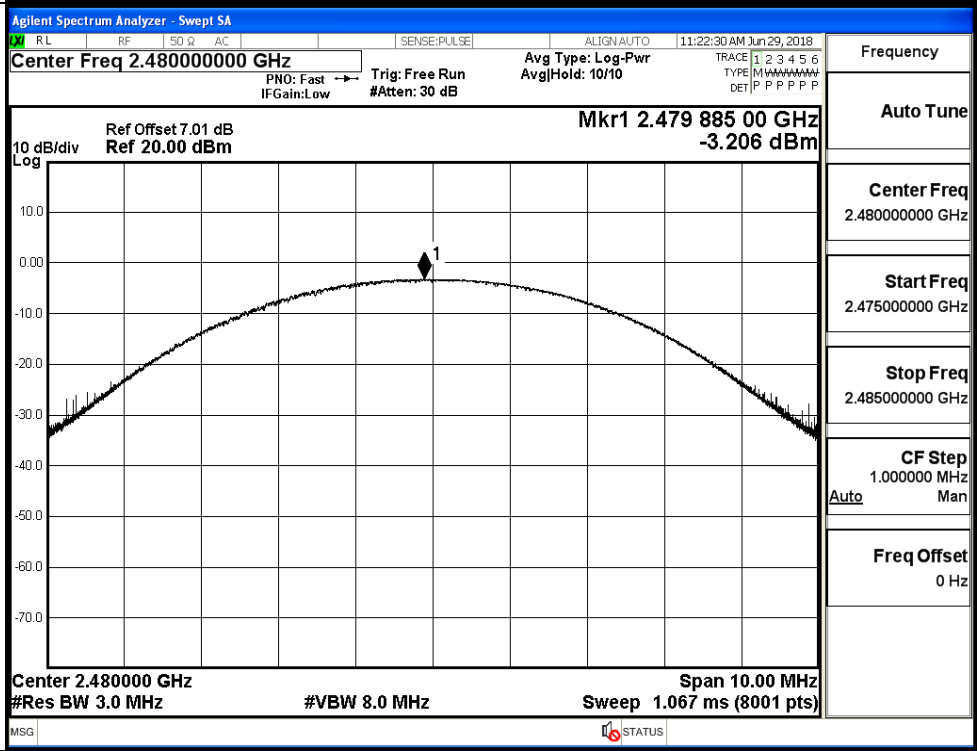
π /4DQPSK/LCH



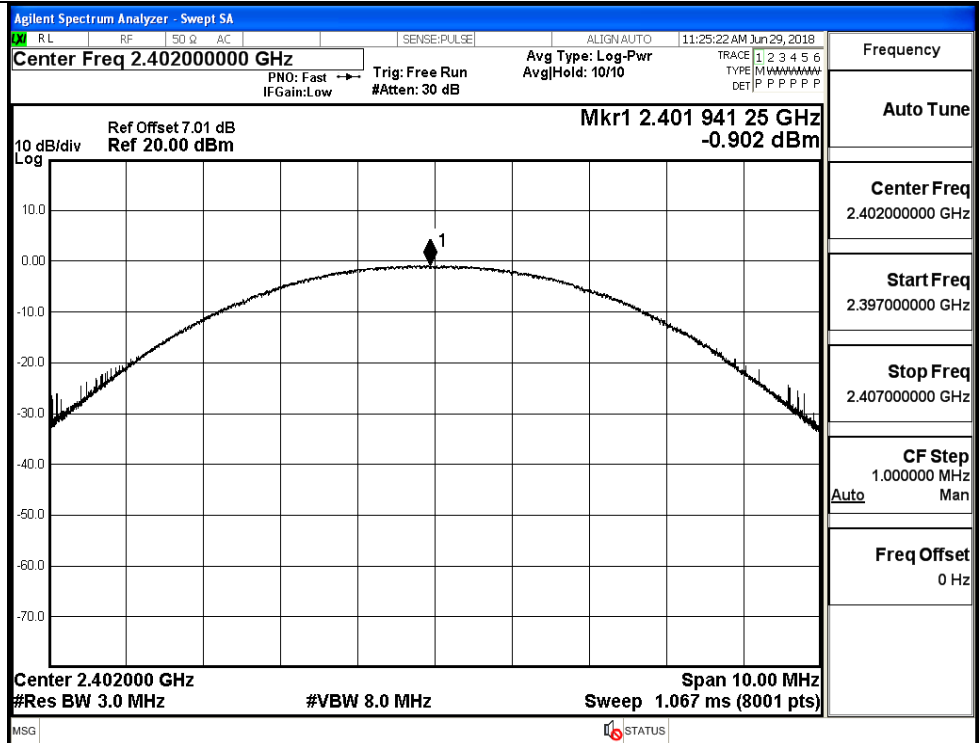
$\pi/4$ DQPSK/MCH



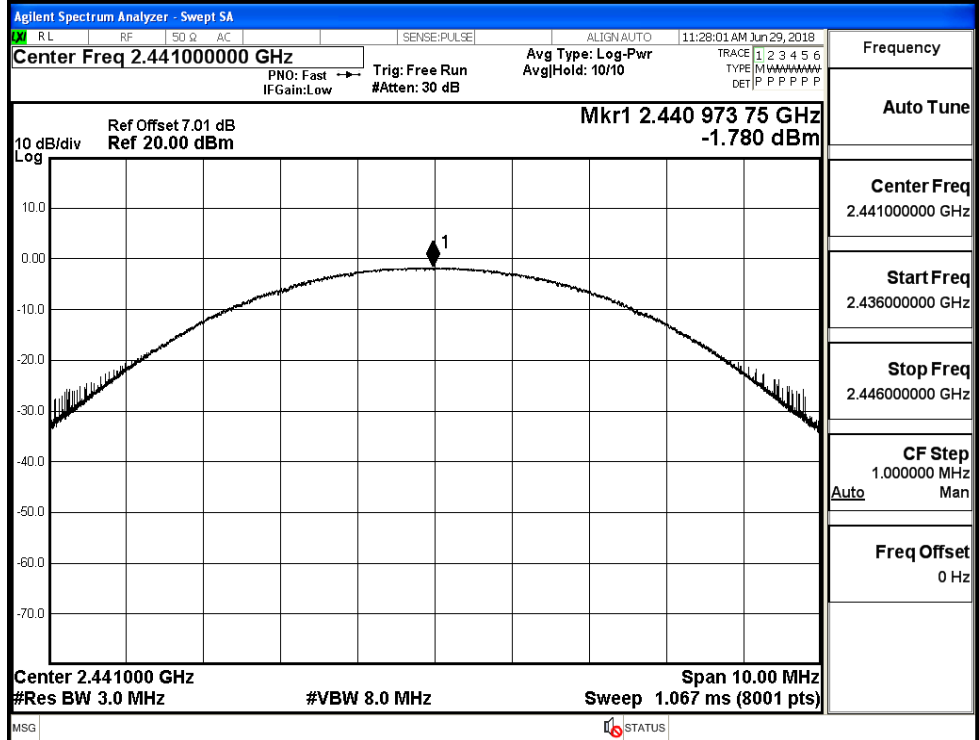
$\pi/4$ DQPSK/HCH



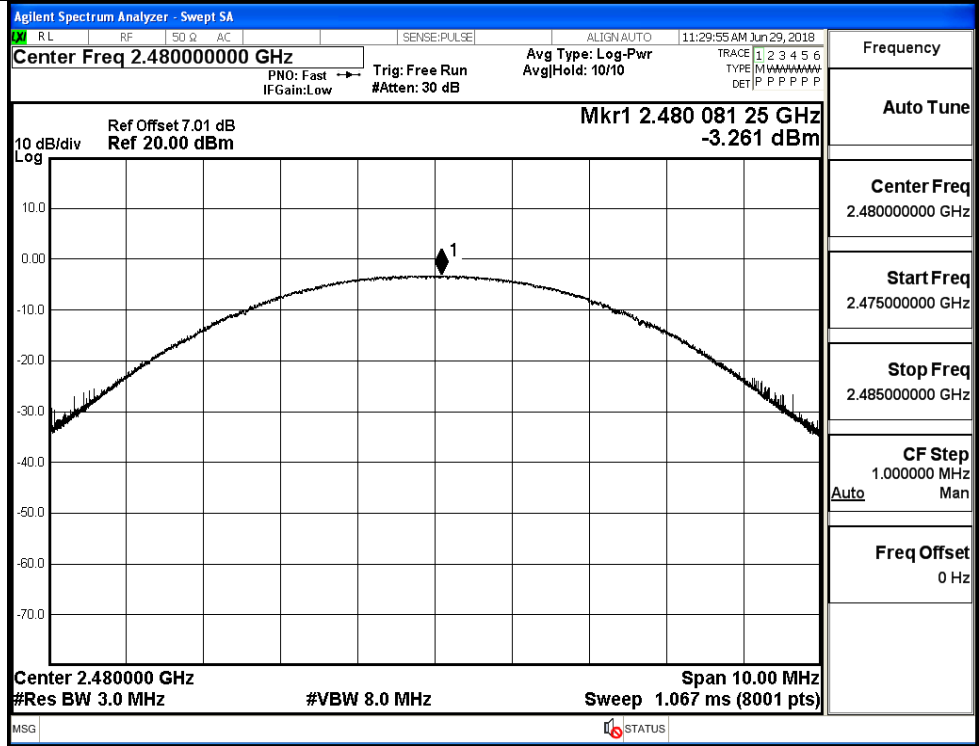
8DPSK/LCH



8DPSK/MCH

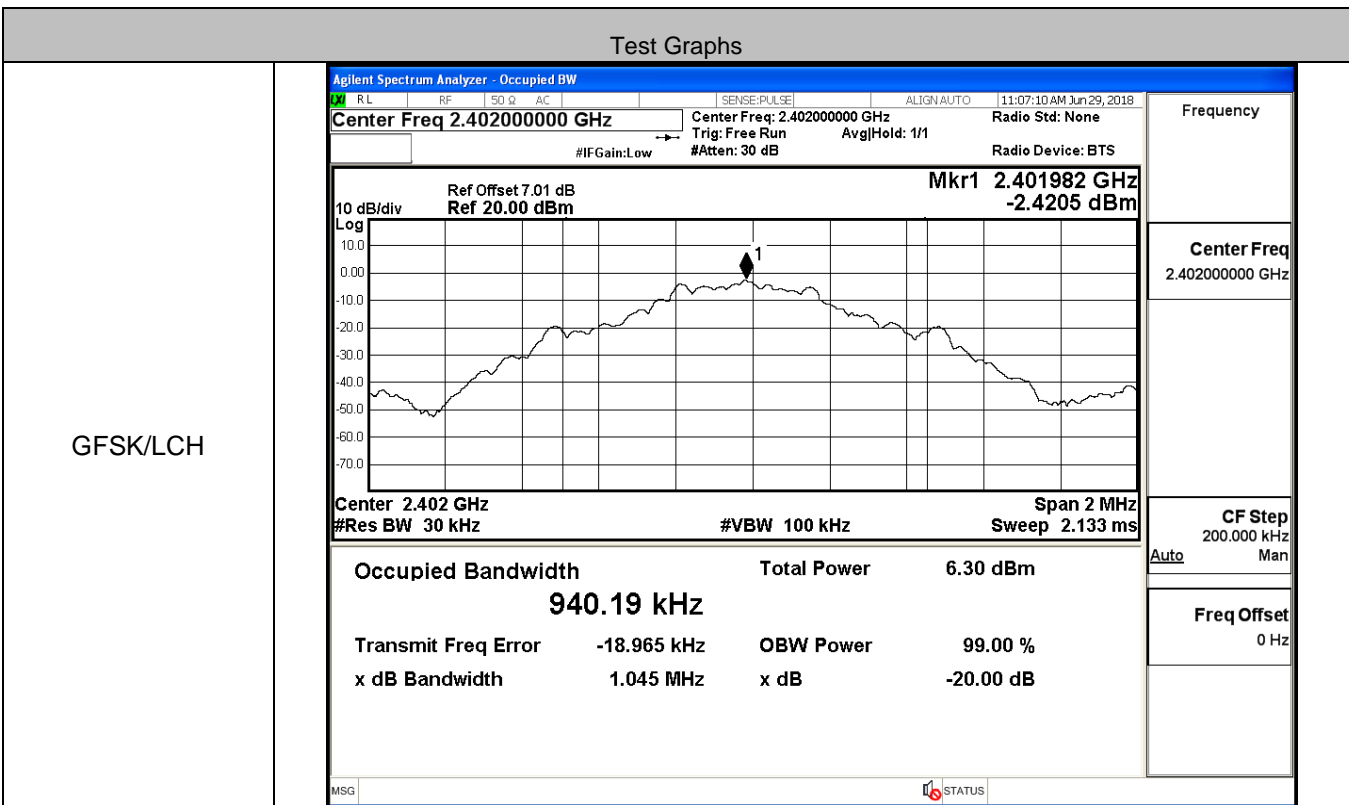


8DPSK/HCH

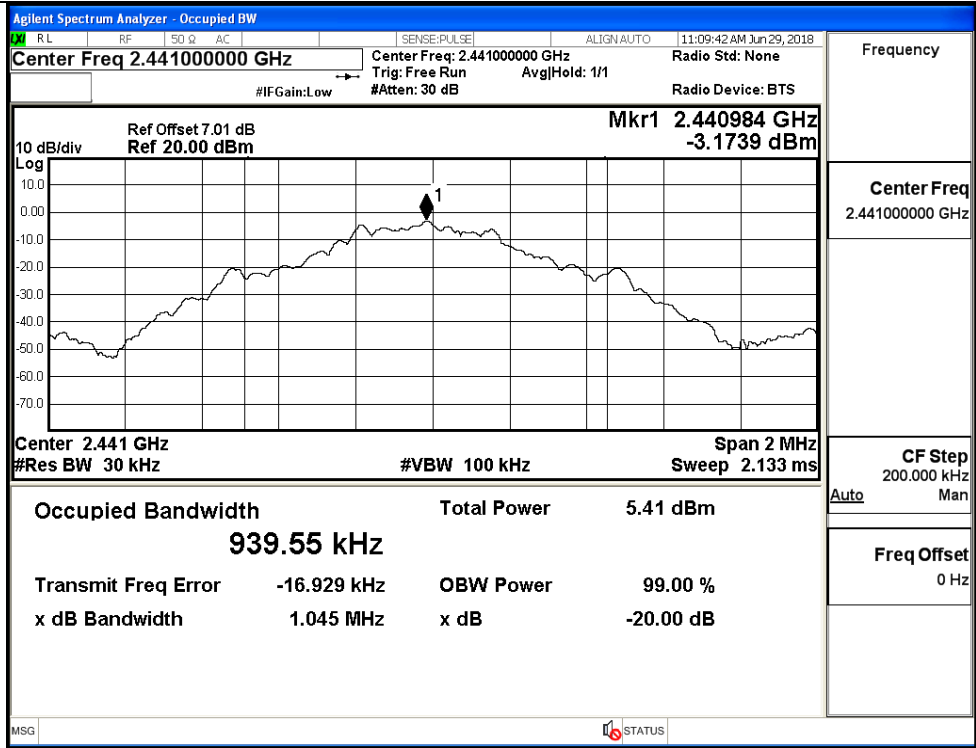


A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.045	Not Specified	PASS
	MCH	1.045	Not Specified	PASS
	HCH	1.044	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.189	Not Specified	PASS
	MCH	1.188	Not Specified	PASS
	HCH	1.189	Not Specified	PASS
8DPSK	LCH	1.234	Not Specified	PASS
	MCH	1.241	Not Specified	PASS
	HCH	1.198	Not Specified	PASS

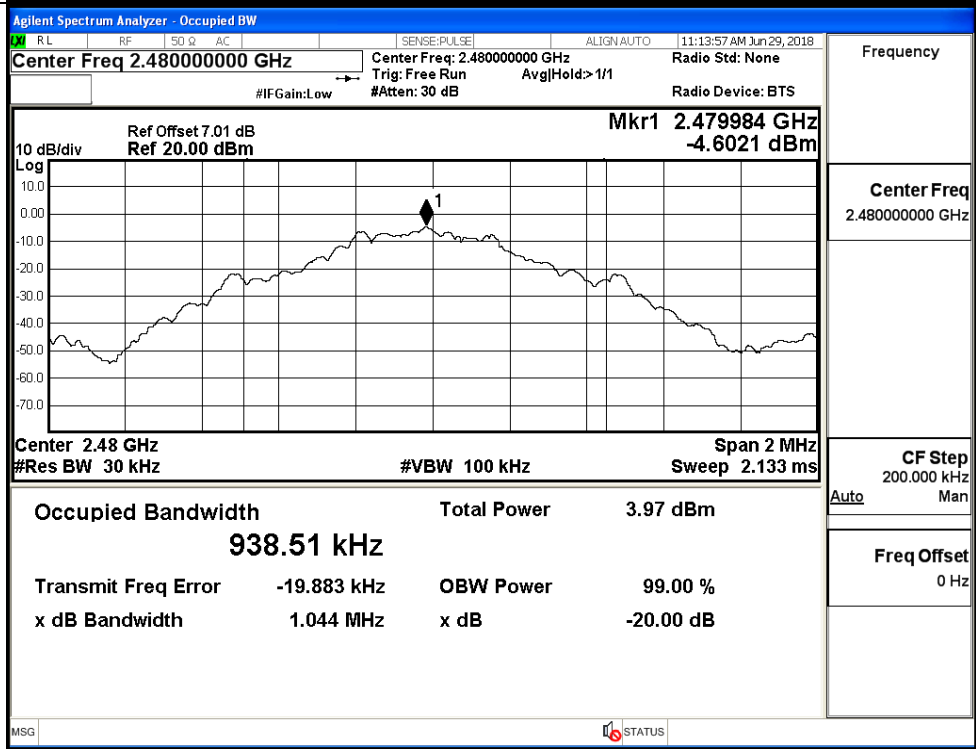


GFSK/MCH



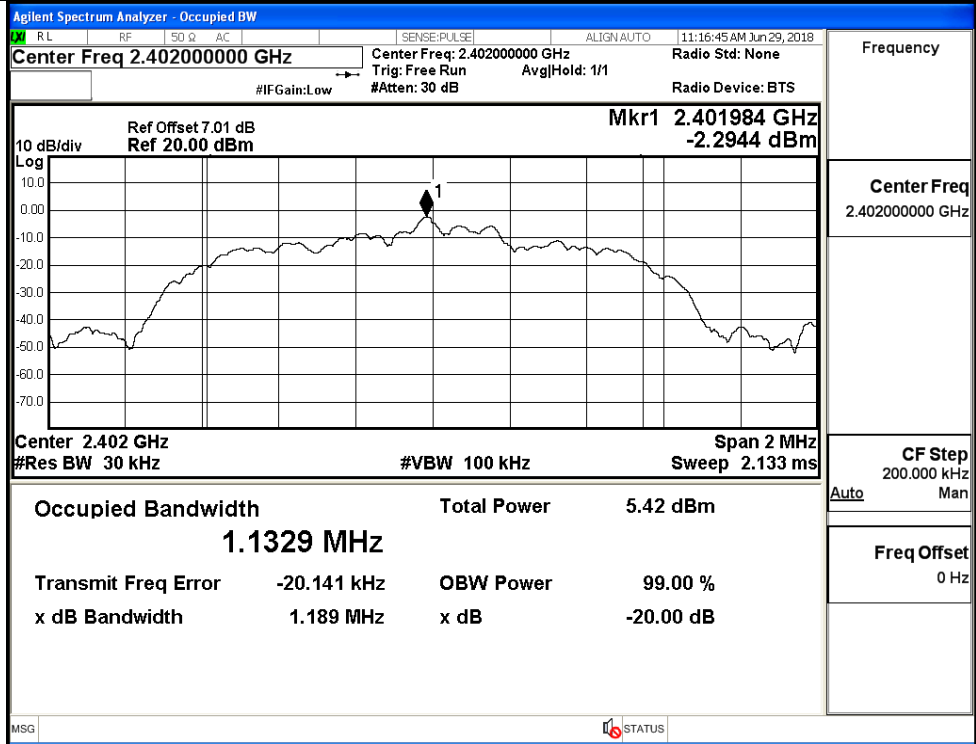
Frequency	2.441000000 GHz
Center Freq	2.441000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

GFSK/HCH

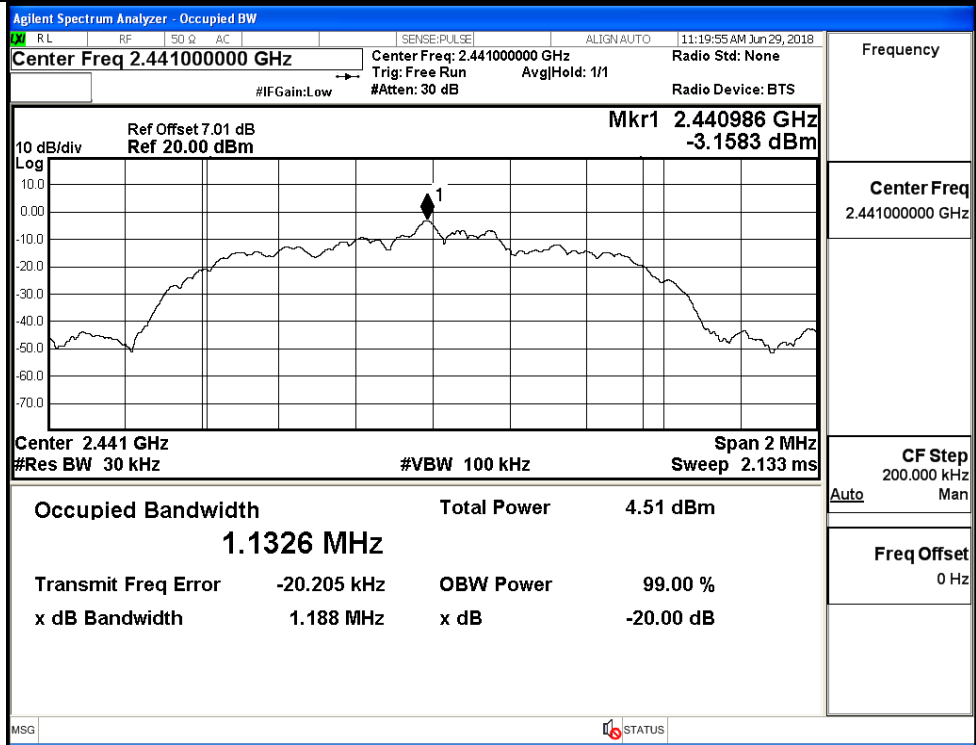


Frequency	2.480000000 GHz
Center Freq	2.480000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

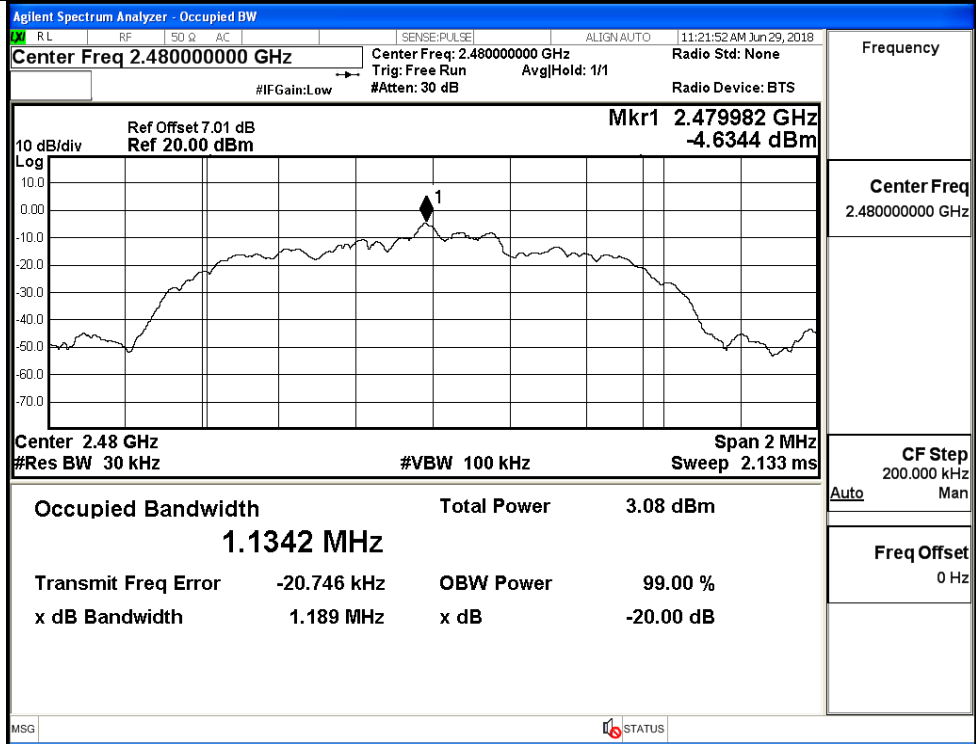
$\pi/4$ DQPSK/LCH



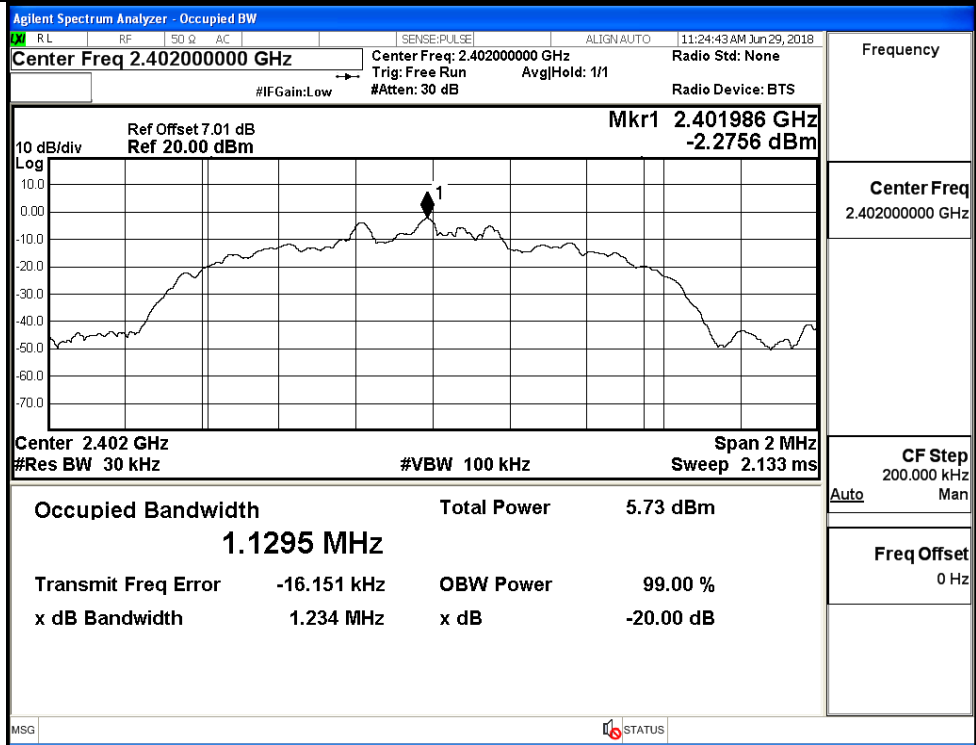
$\pi/4$ DQPSK/MCH



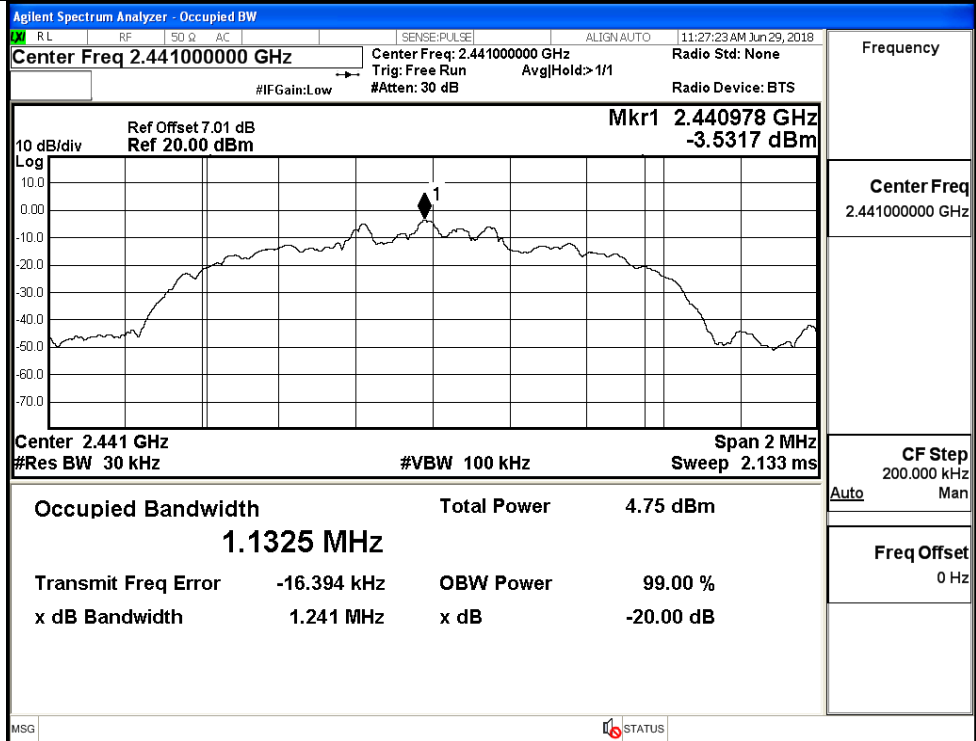
$\pi/4$ DQPSK/HCH



8DPSK/LCH

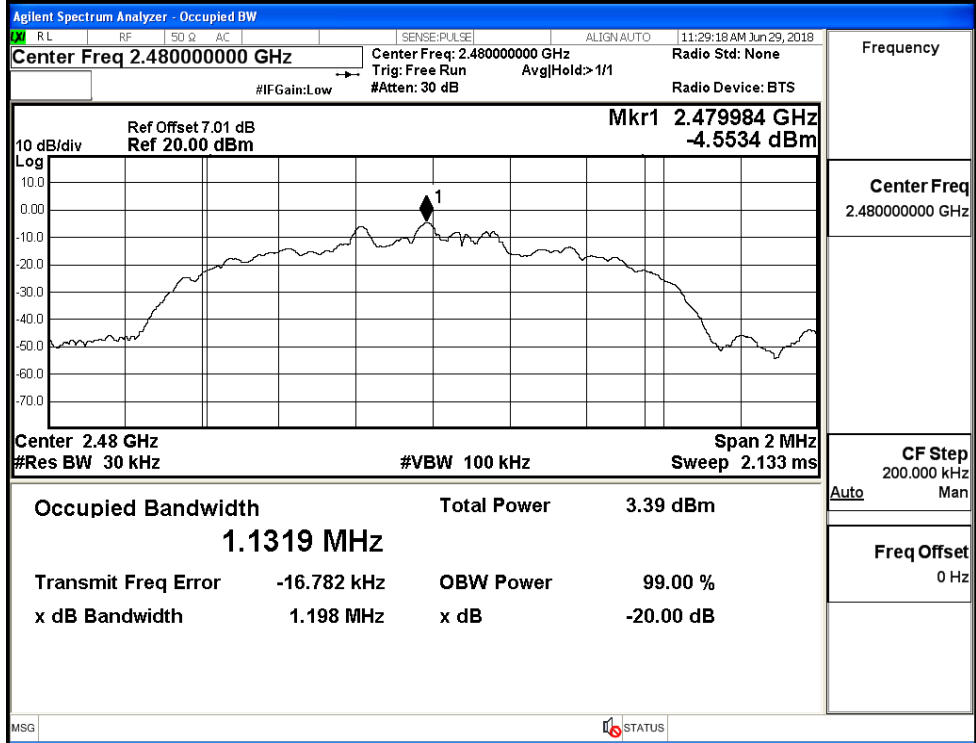


8DPSK/MCH



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

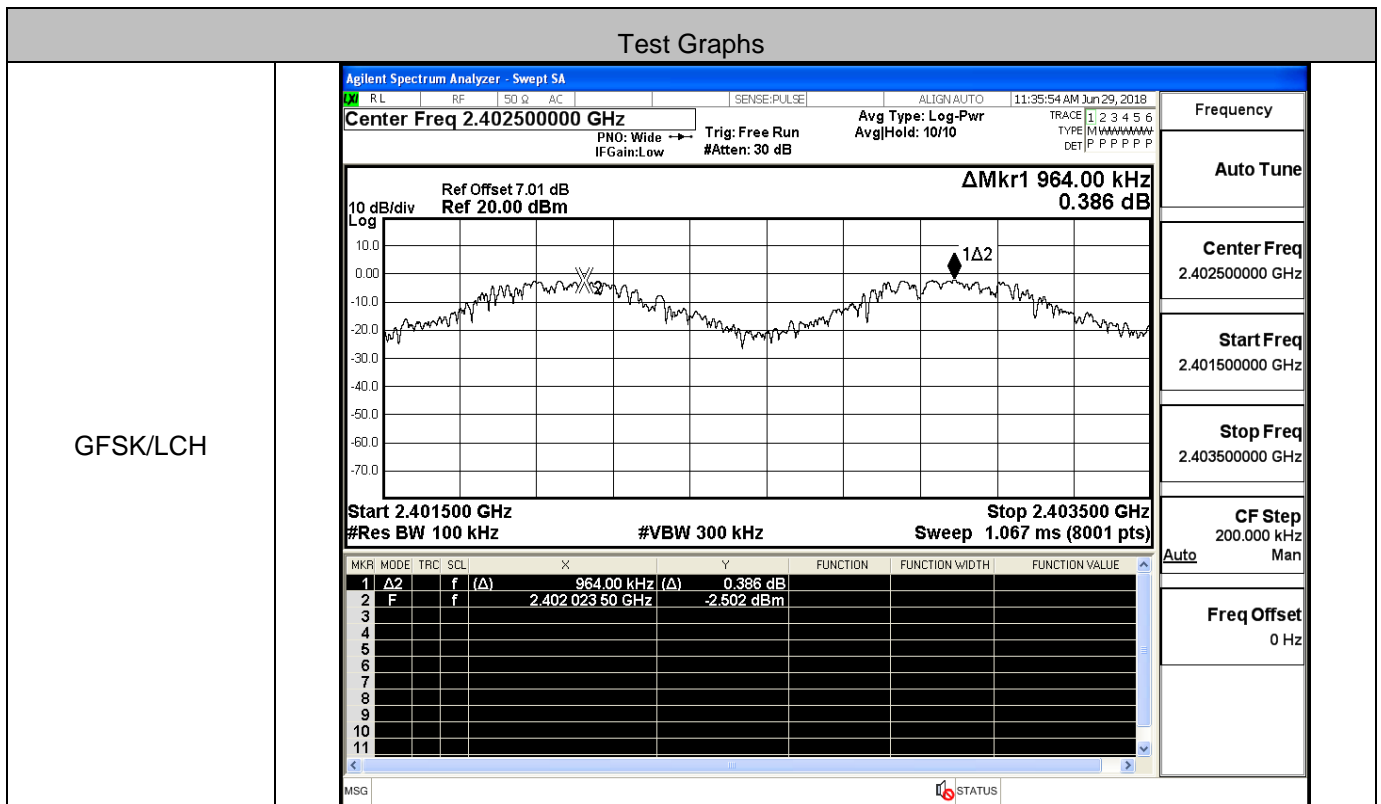
8DPSK/HCH



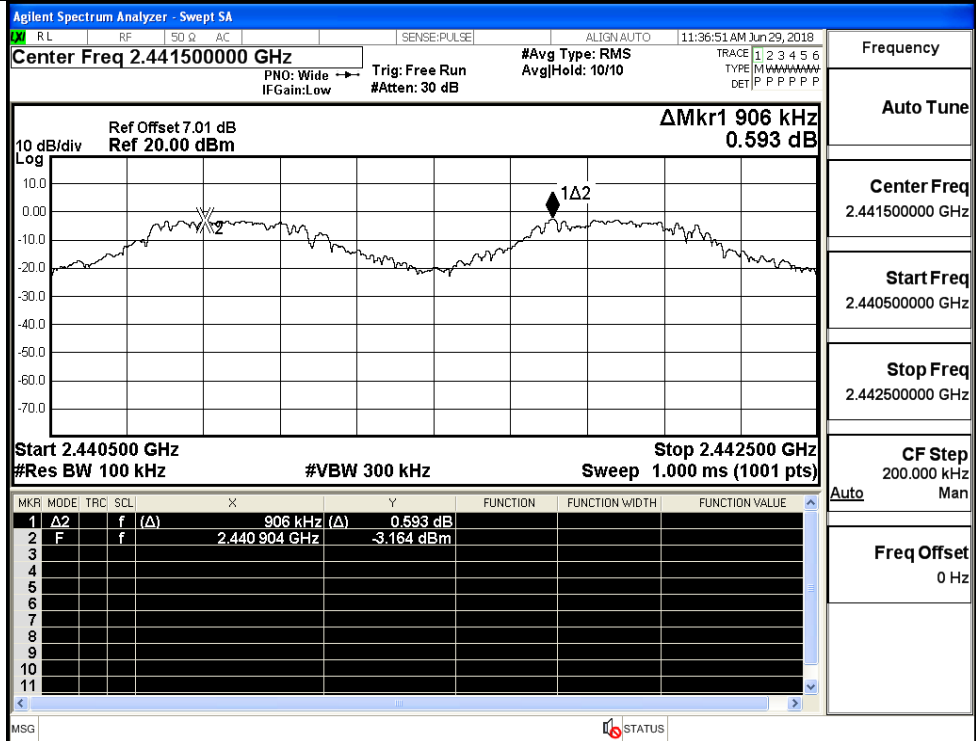
Frequency	2.480000000 GHz
Center Freq	2.480000000 GHz
CF Step	200.000 kHz
Auto	Man
Freq Offset	0 Hz

A.3 Carrier Frequency Separation

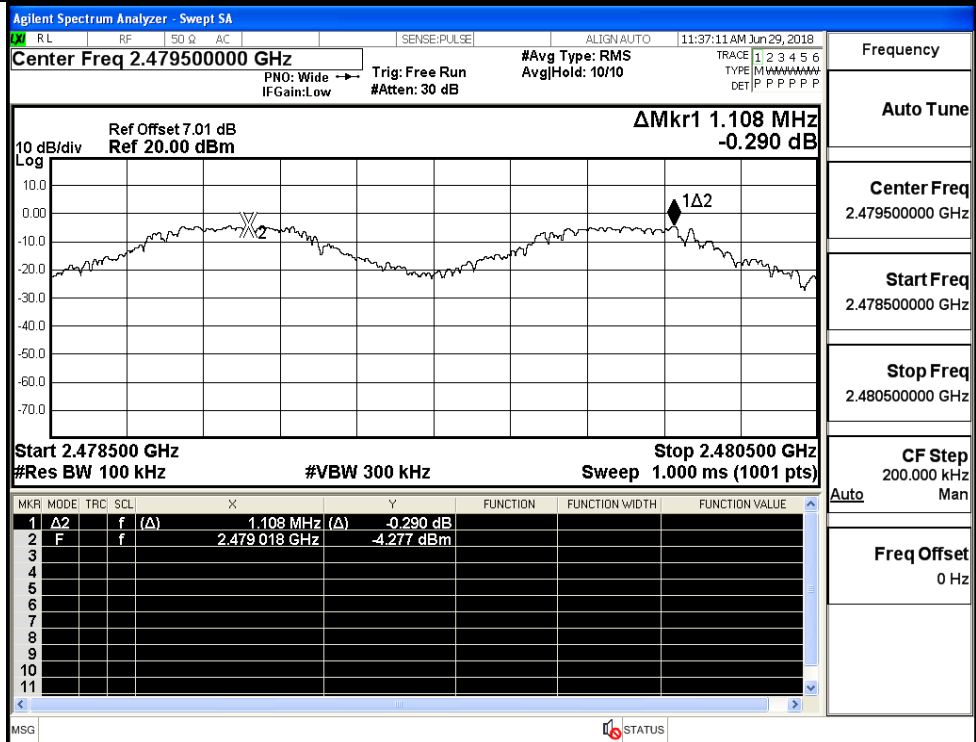
Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.964	0.697	PASS
	MCH	0.906	0.697	PASS
	HCH	1.108	0.697	PASS
π/4DQPSK	LCH	0.838	0.793	PASS
	MCH	1.078	0.793	PASS
	HCH	0.834	0.793	PASS
8DPSK	LCH	1.034	0.827	PASS
	MCH	1.182	0.827	PASS
	HCH	0.834	0.827	PASS



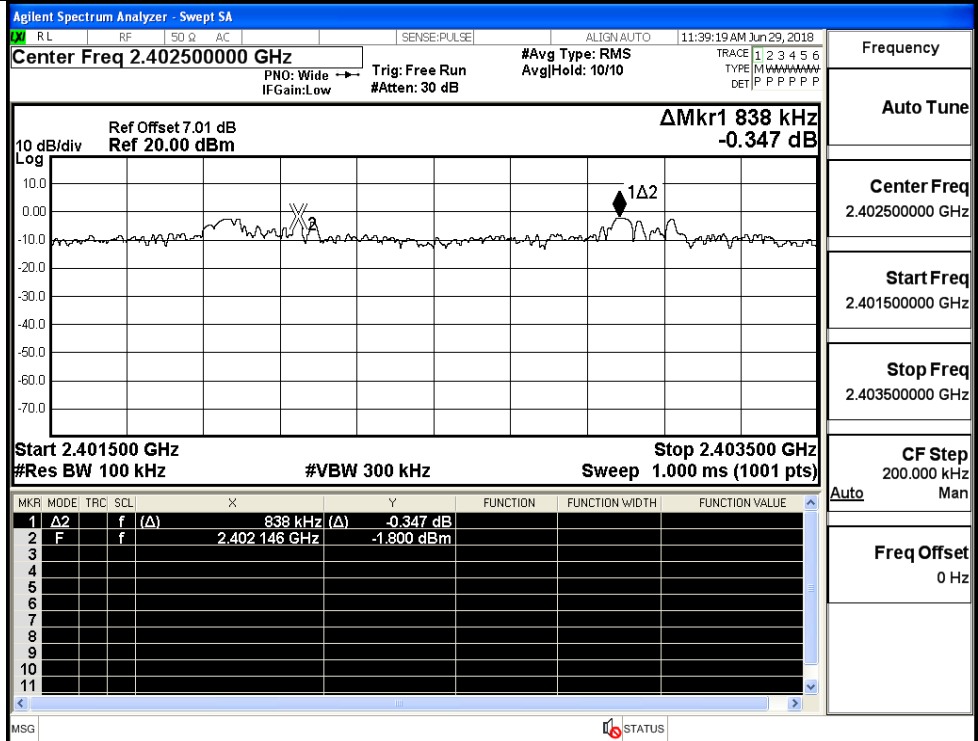
GFSK/MCH



GFSK/HCH



$\pi/4$ DQPSK/LCH



Frequency

Auto Tune

Center Freq
2.402500000 GHz

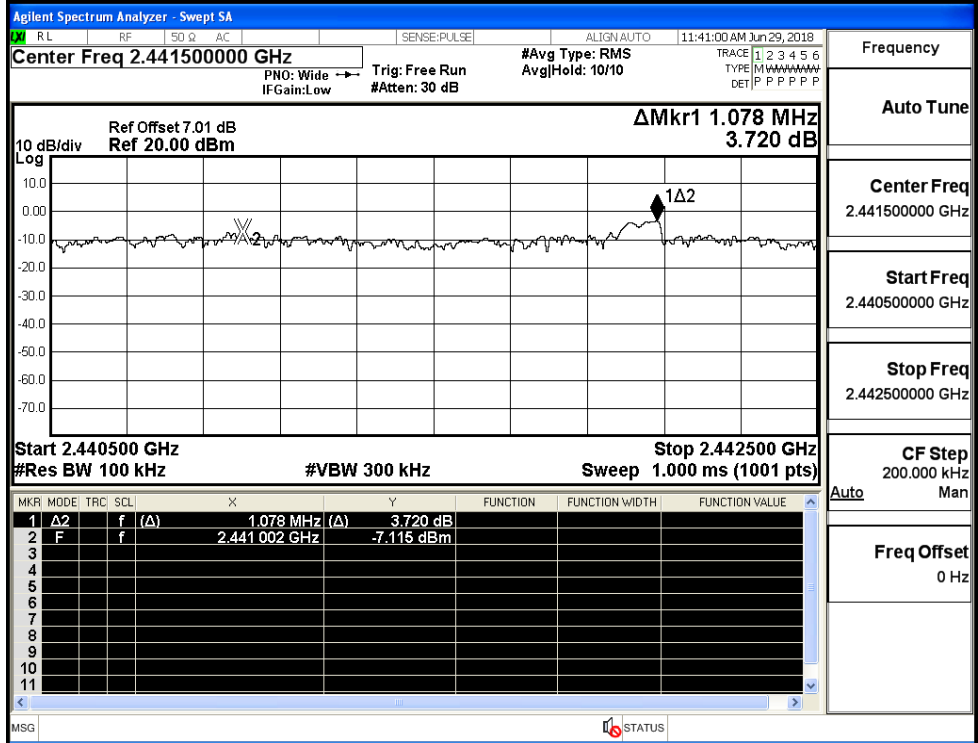
Start Freq
2.401500000 GHz

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

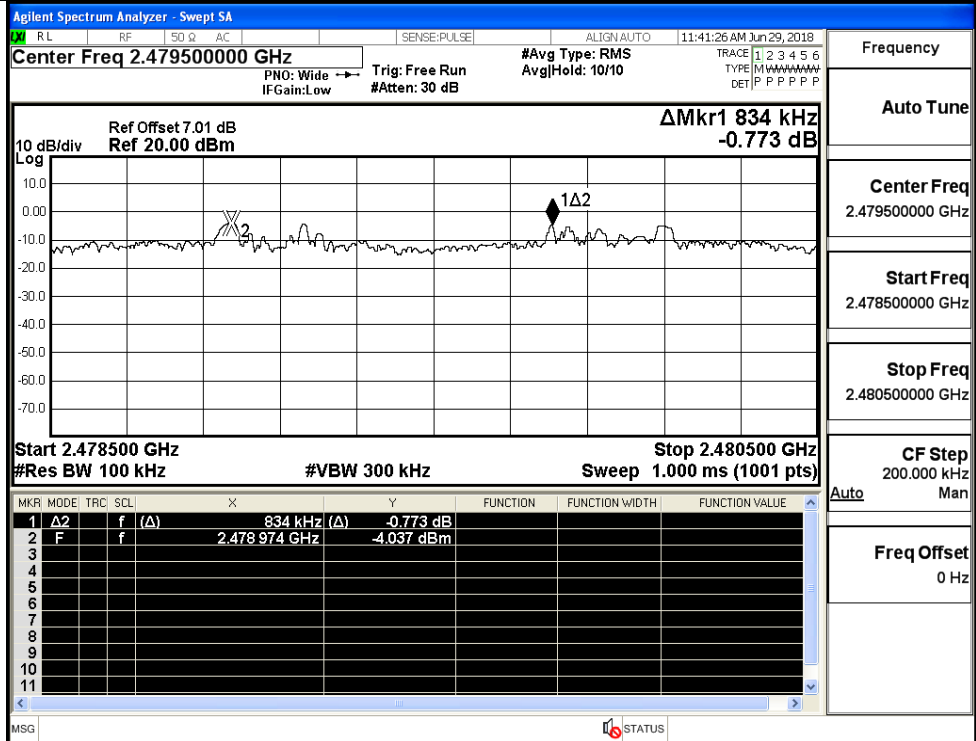
Start Freq
2.440500000 GHz

Stop Freq
2.442500000 GHz

CF Step
200.000 kHz
Auto Man

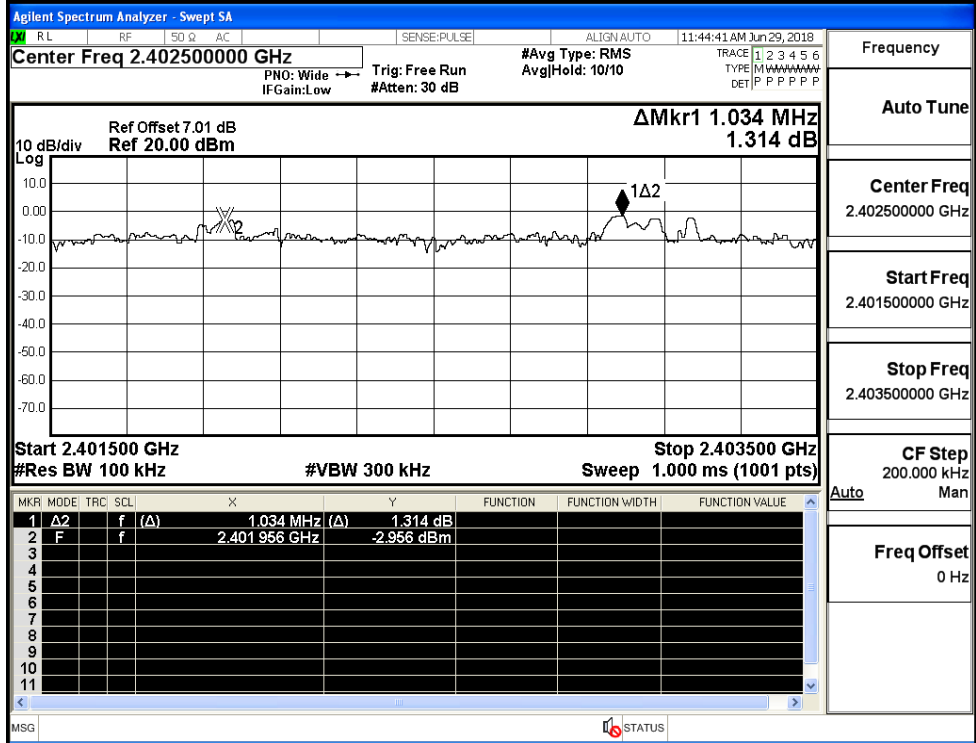
Freq Offset
0 Hz

π/4DQPSK/HCH



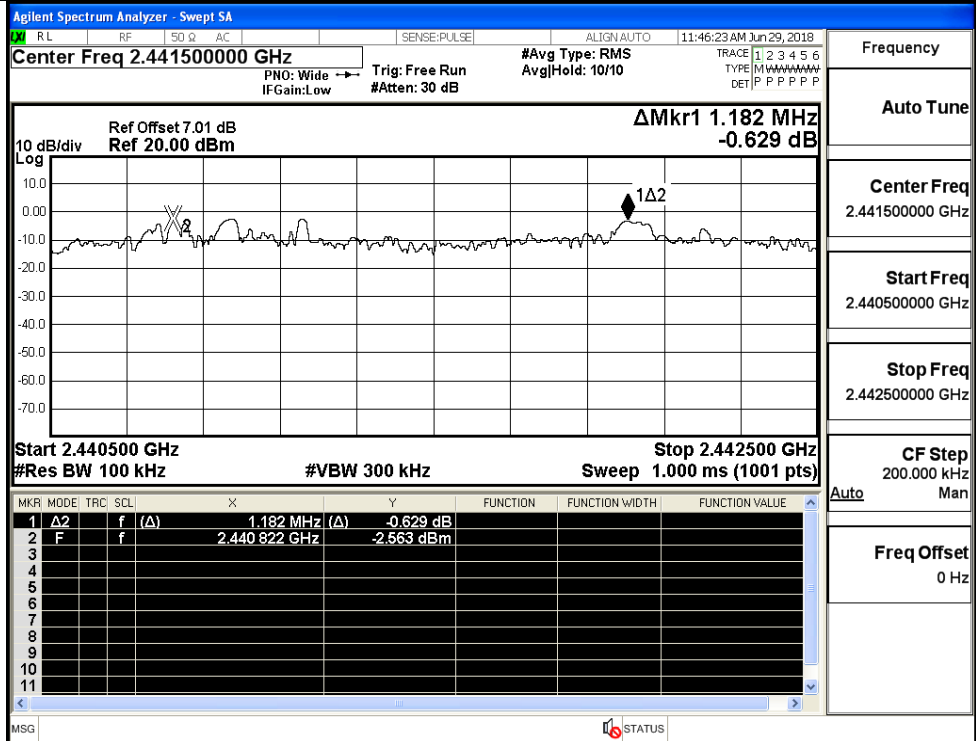
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

8DPSK/LCH



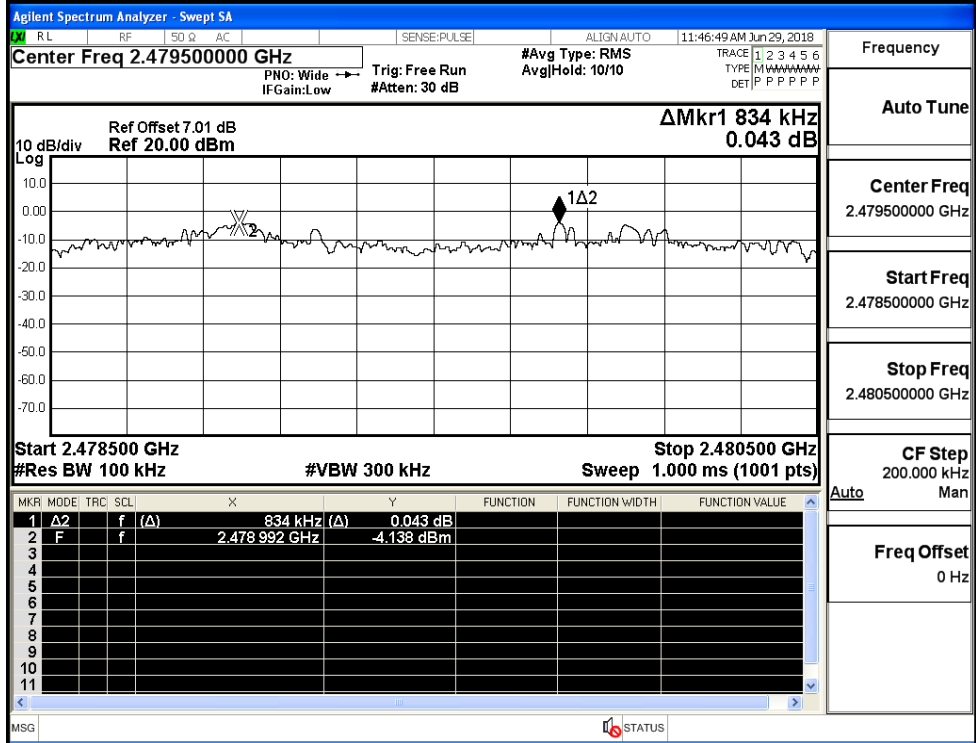
Frequency
Auto Tune
Center Freq
2.402500000 GHz
Start Freq
2.401500000 GHz
Stop Freq
2.403500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

8DPSK/MCH



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

8DPSK/HCH



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

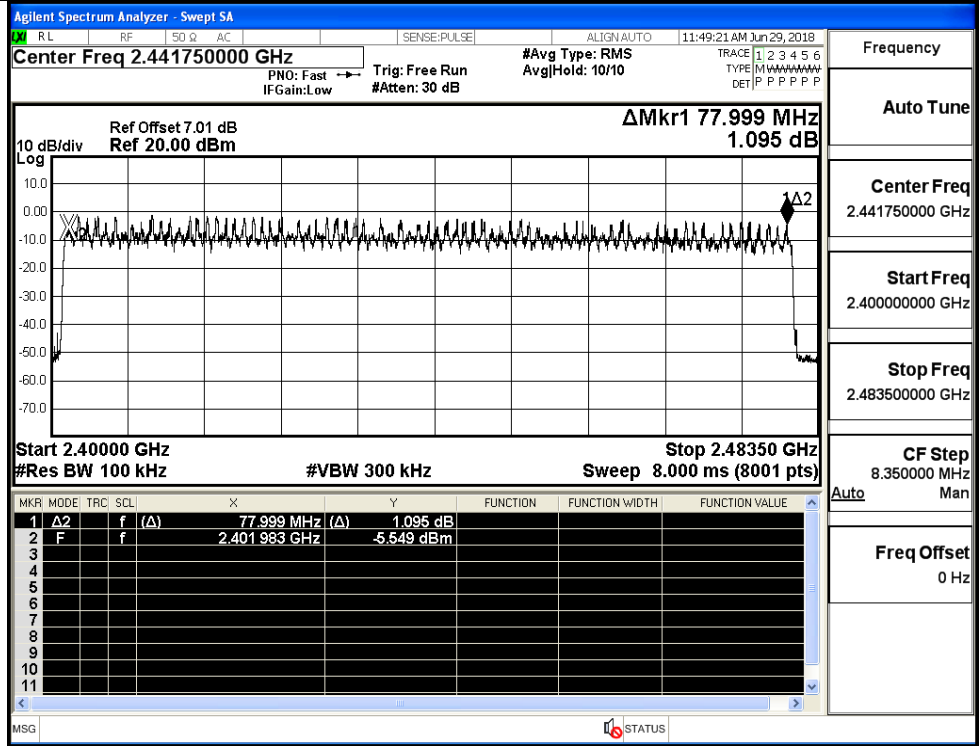
A.4 Hopping Channel Number

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

Test Graphs

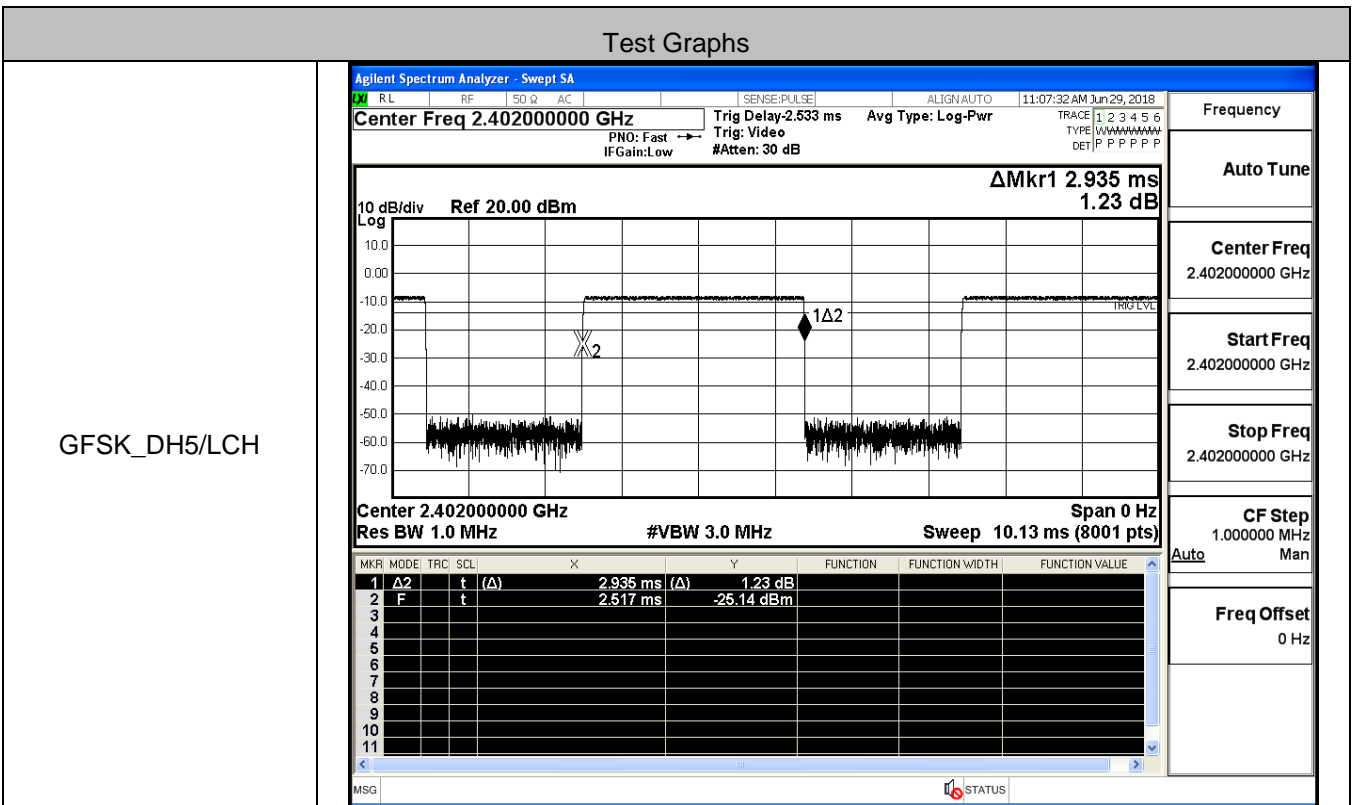
GFSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.441750000 GHz Ref Offset 7.01 dB Ref 20.00 dBm ΔMkr1 77.958 MHz -2.738 dB Start 2.40000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.48350 GHz Sweep 8.000 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <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>77.958 MHz</td> <td>(Δ)</td> <td>-2.738 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402014 GHz</td> <td></td> <td>-2.030 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)	77.958 MHz	(Δ)	-2.738 dB			2	F	f		2.402014 GHz		-2.030 dBm			Frequency Auto Tune Center Freq 2.441750000 GHz Start Freq 2.400000000 GHz Stop Freq 2.483500000 GHz CF Step 8.350000 MHz Man Freq Offset 0 Hz
	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ 2	f	(Δ)	77.958 MHz	(Δ)	-2.738 dB																							
2	F	f		2.402014 GHz		-2.030 dBm																							
$\pi/4$ DQPSK/Hop	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.441750000 GHz Ref Offset 7.01 dB Ref 20.00 dBm ΔMkr1 77.958 MHz -2.218 dB Start 2.40000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.48350 GHz 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>77.958 MHz</td> <td>(Δ)</td> <td>-2.218 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.402025 GHz</td> <td></td> <td>-2.229 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)	77.958 MHz	(Δ)	-2.218 dB			2	F	f		2.402025 GHz		-2.229 dBm			Frequency Auto Tune Center Freq 2.441750000 GHz Start Freq 2.400000000 GHz Stop Freq 2.483500000 GHz CF Step 8.350000 MHz Man Freq Offset 0 Hz
	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	Δ 2	f	(Δ)	77.958 MHz	(Δ)	-2.218 dB																							
2	F	f		2.402025 GHz		-2.229 dBm																							

8DPSK/Hop

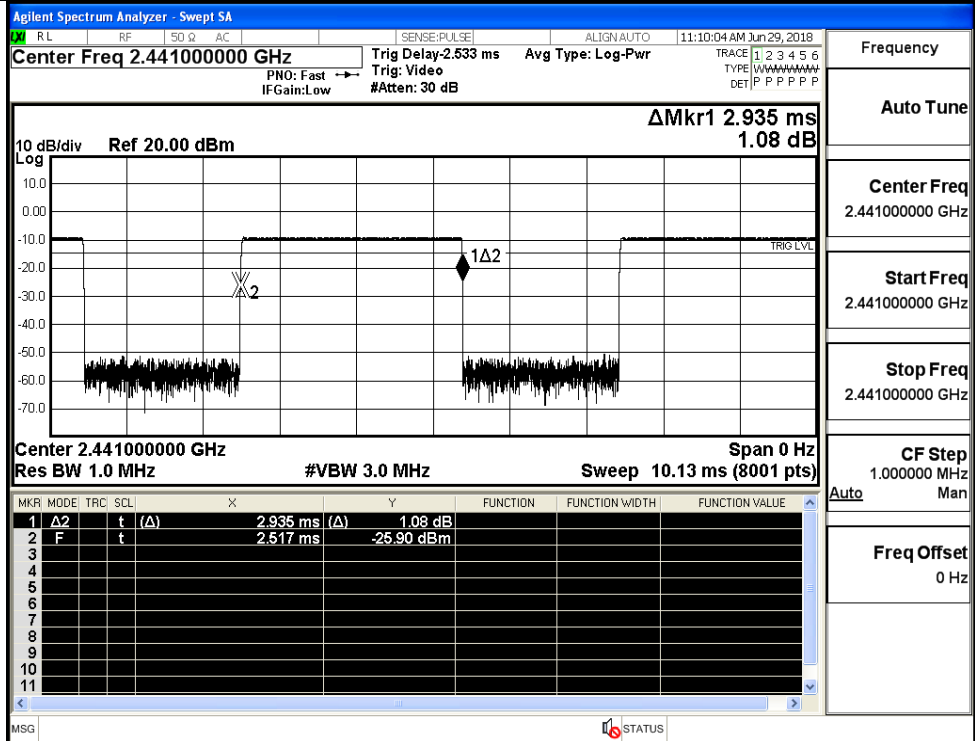


A.5 Dwell Time

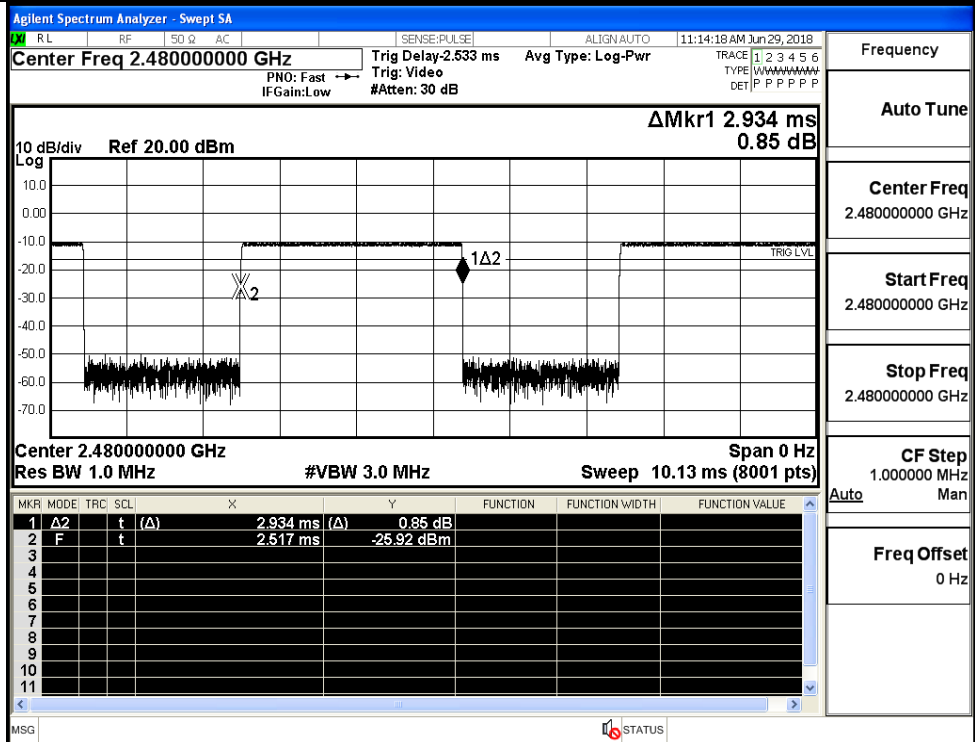
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.93	106.7	0.313	0.4	PASS
	DH5	MCH	2.93	106.7	0.313	0.4	PASS
	DH5	HCH	2.93	106.7	0.313	0.4	PASS
π/4DQPSK	2DH5	LCH	2.93	106.7	0.314	0.4	PASS
	2DH5	MCH	2.93	106.7	0.314	0.4	PASS
	2DH5	HCH	2.93	106.7	0.314	0.4	PASS
8DPSK	3DH5	LCH	2.93	106.7	0.314	0.4	PASS
	3DH5	MCH	2.93	106.7	0.314	0.4	PASS
	3DH5	HCH	2.93	106.7	0.314	0.4	PASS



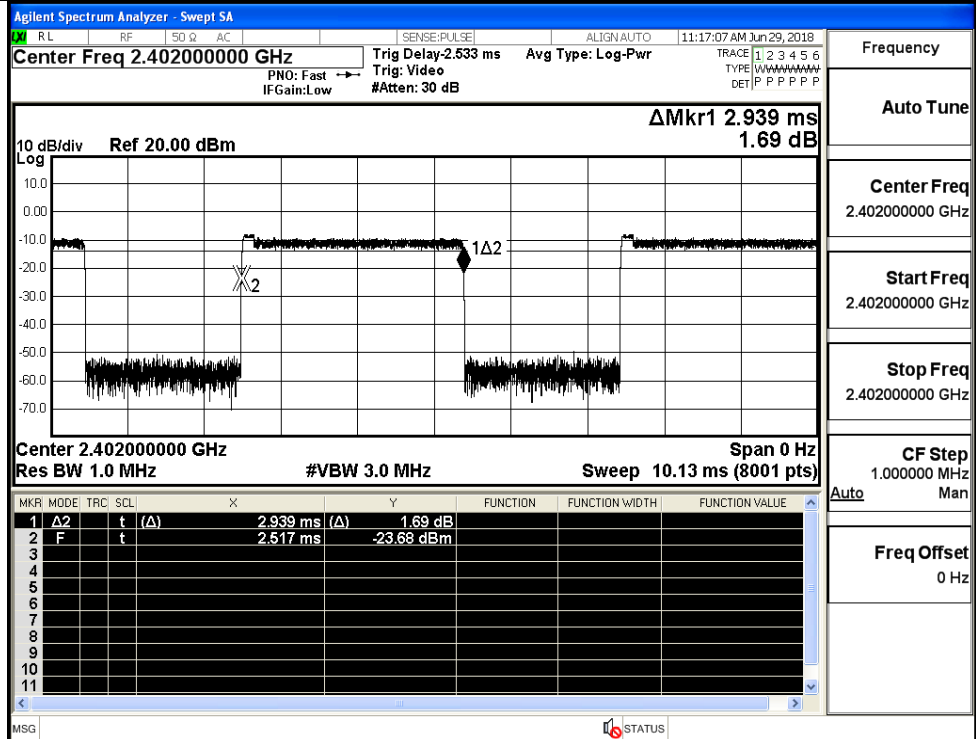
GFSK_DH5/MCH



GFSK_DH5/HCH



$\pi/4$ DQPSK
_2DH5/LCH



Frequency

Auto Tune

Center Freq
2.402000000 GHz

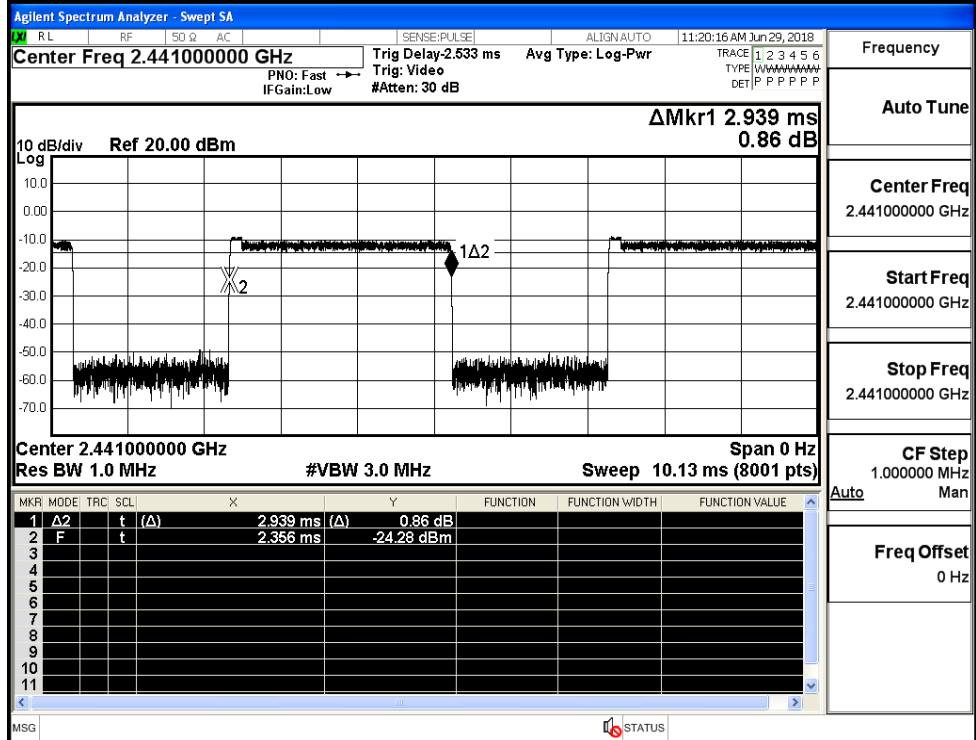
Start Freq
2.402000000 GHz

Stop Freq
2.402000000 GHz

CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK
_2DH5/MCH



Frequency

Auto Tune

Center Freq
2.441000000 GHz

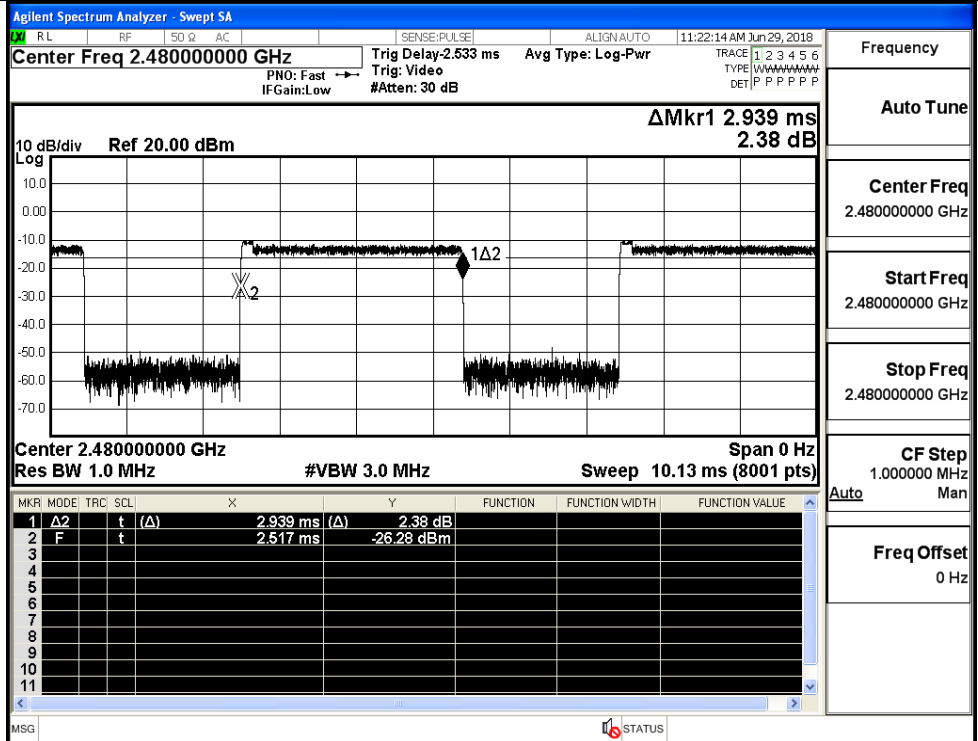
Start Freq
2.441000000 GHz

Stop Freq
2.441000000 GHz

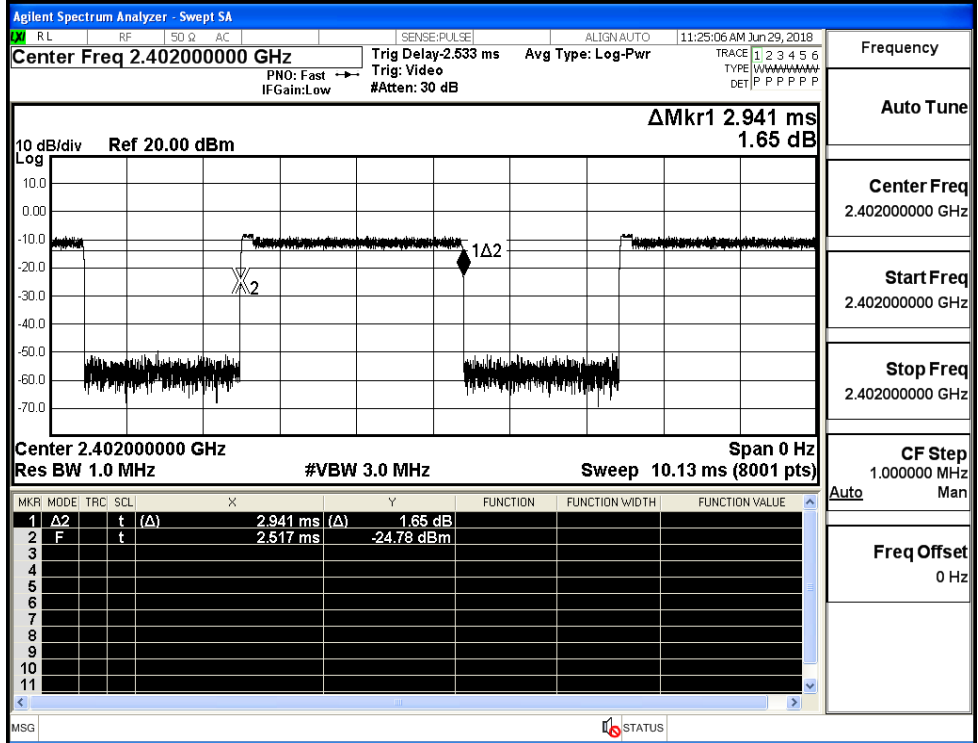
CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz

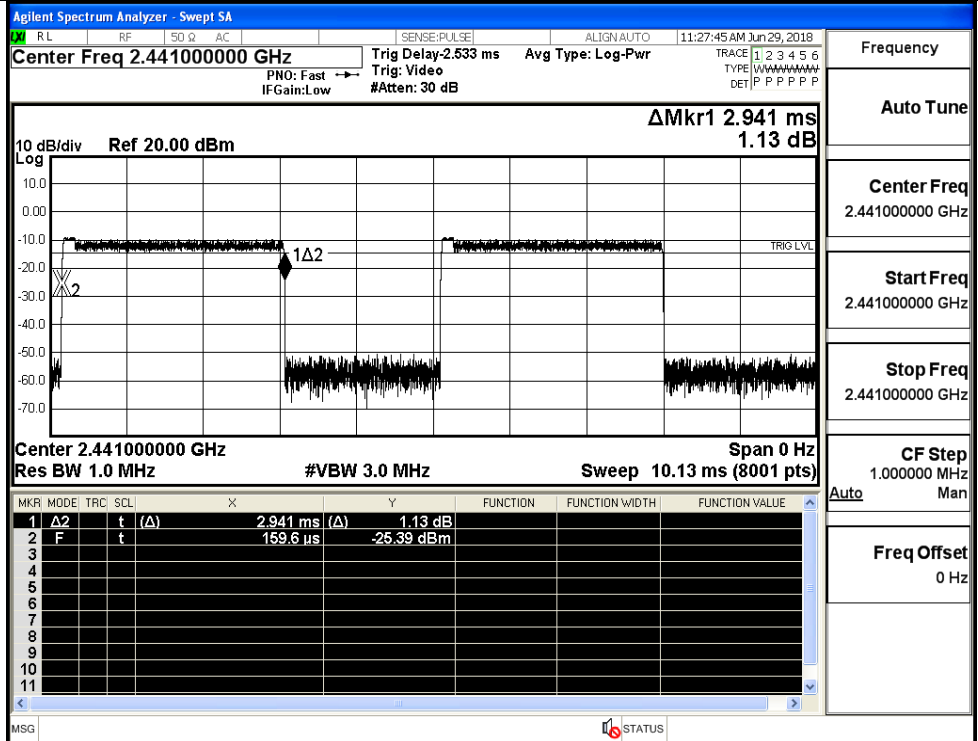
$\pi/4$ DQPSK
_2DH5/HCH



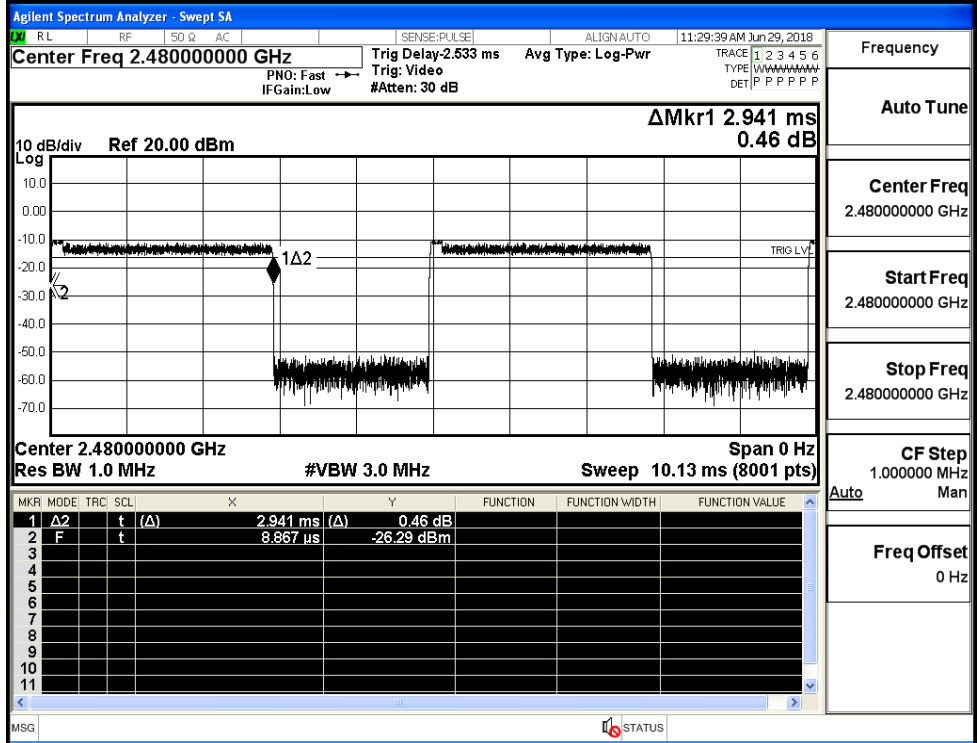
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

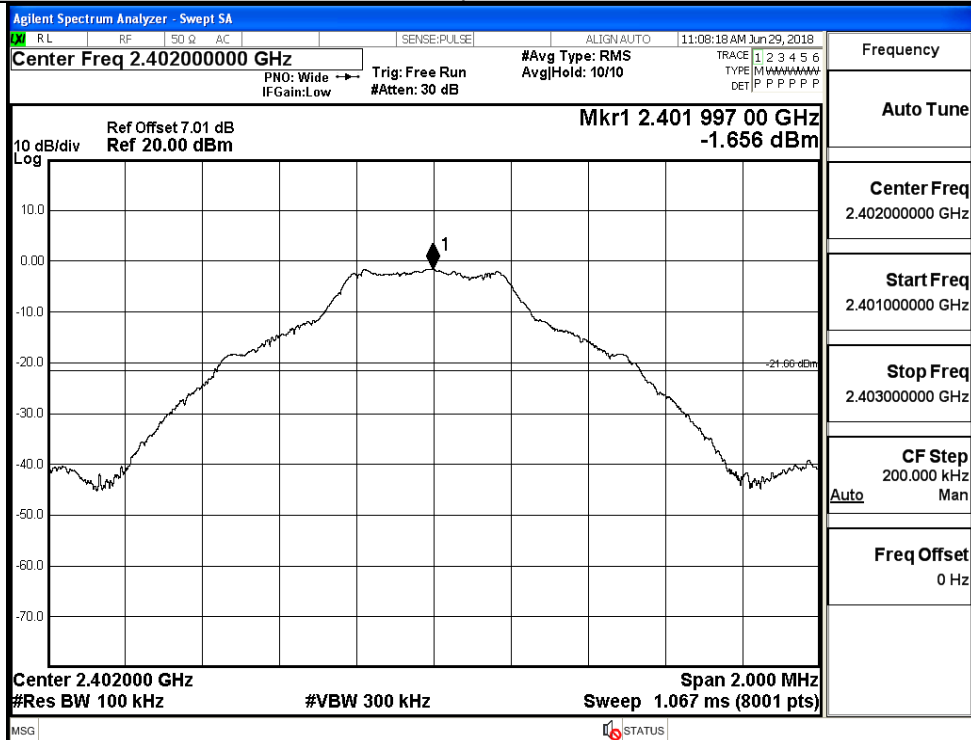


A.6 RF Conducted Spurious Emissions

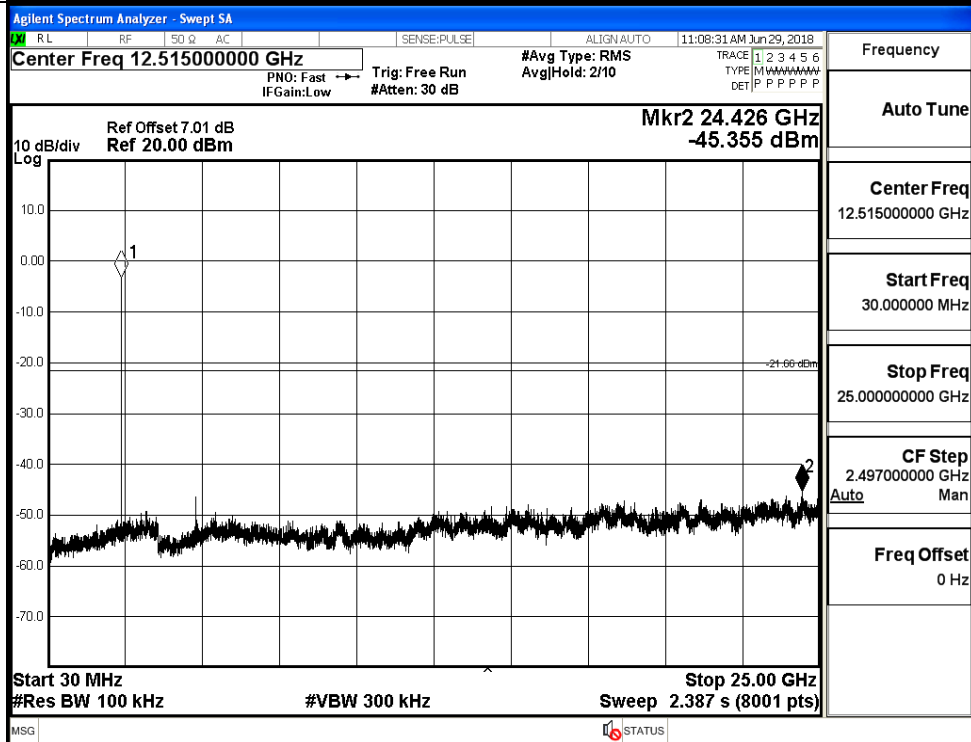
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.656	-45.355	-21.656	PASS
	MCH	-2.496	-43.598	-22.496	PASS
	HCH	-3.956	-44.680	-23.956	PASS
$\pi/4$ DQPSK	LCH	-1.678	-45.782	-21.678	PASS
	MCH	-2.586	-40.857	-22.586	PASS
	HCH	-4.496	-45.972	-24.496	PASS
8DPSK	LCH	-2.139	-42.687	-22.139	PASS
	MCH	-3.071	-45.506	-23.071	PASS
	HCH	-3.949	-44.634	-23.949	PASS

GFSK_LCH_Graphs

Pref

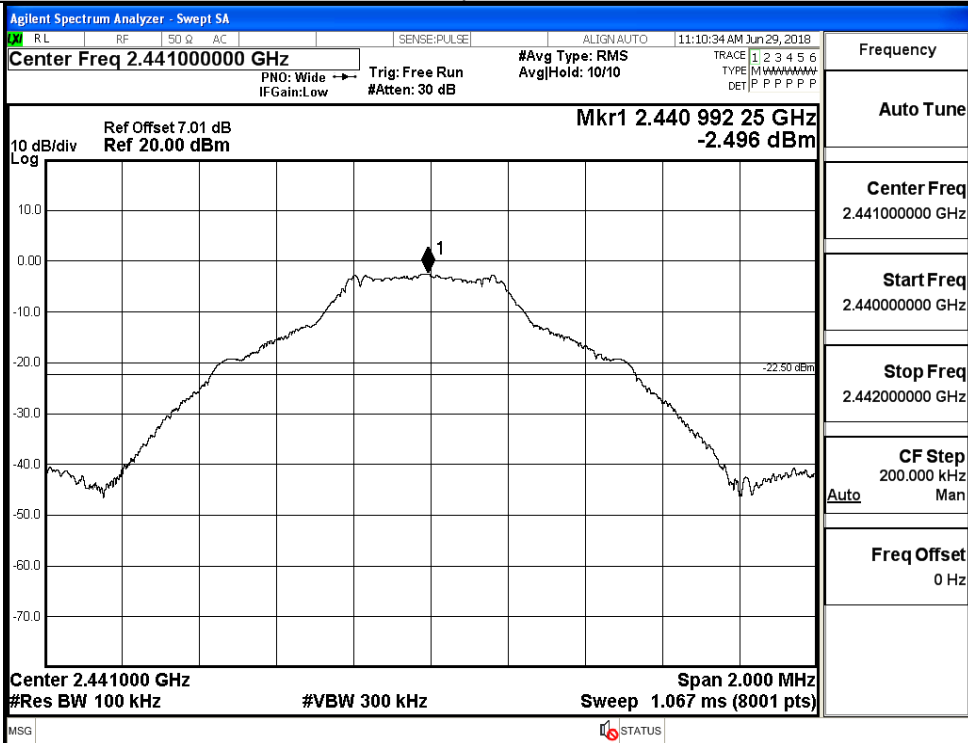


Puw

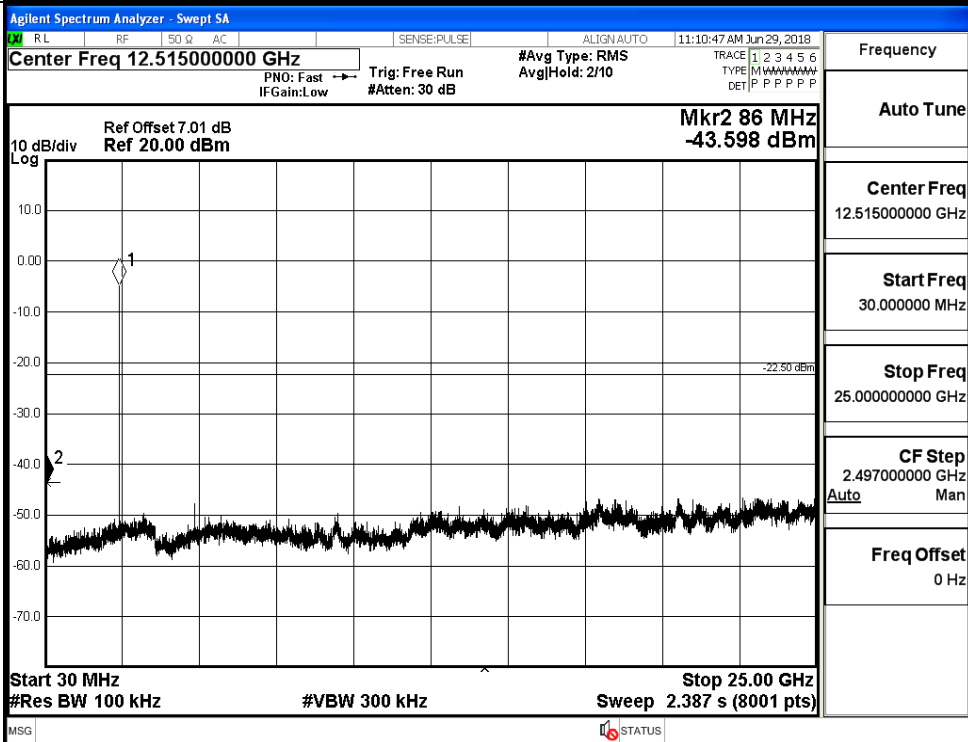


GFSK_MCH_Graphs

Pref

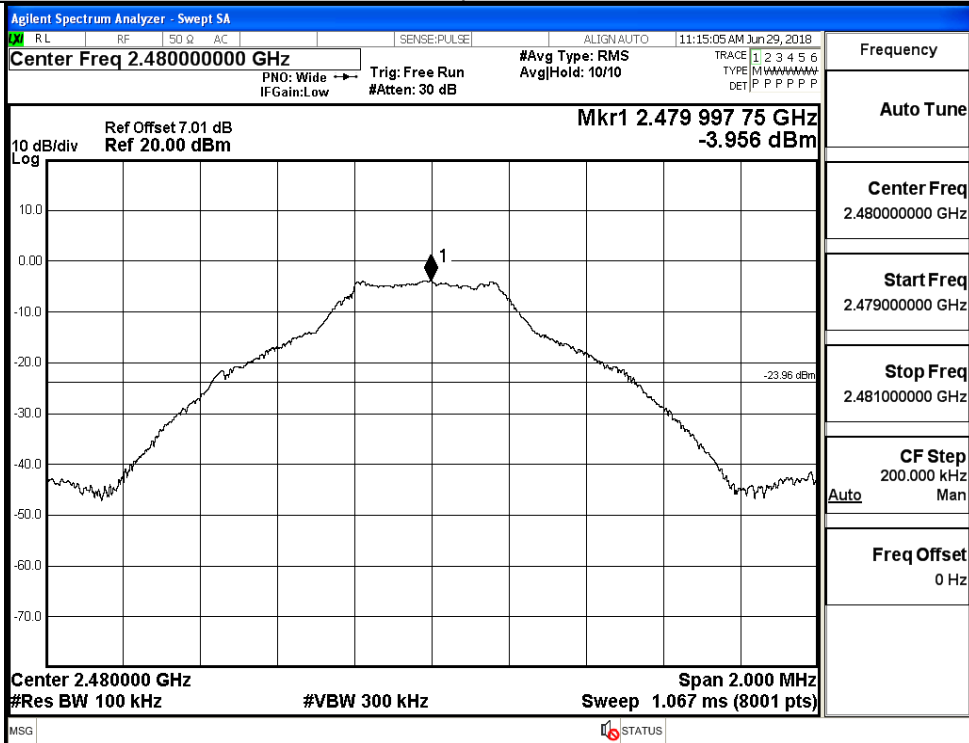


Puw

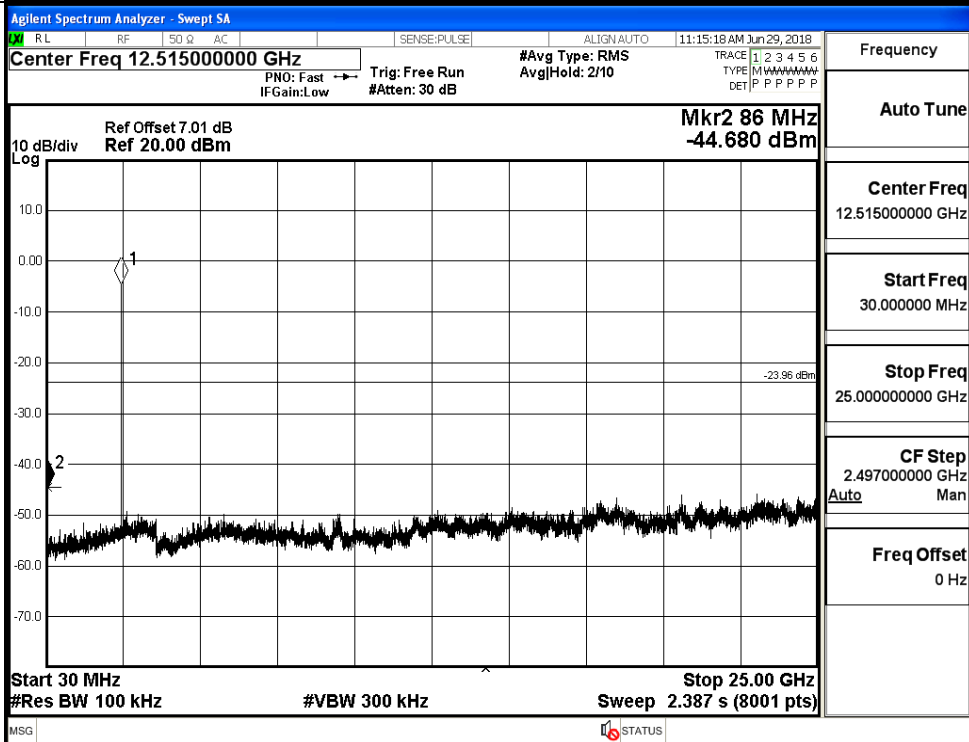


GFSK_HCH_Graphs

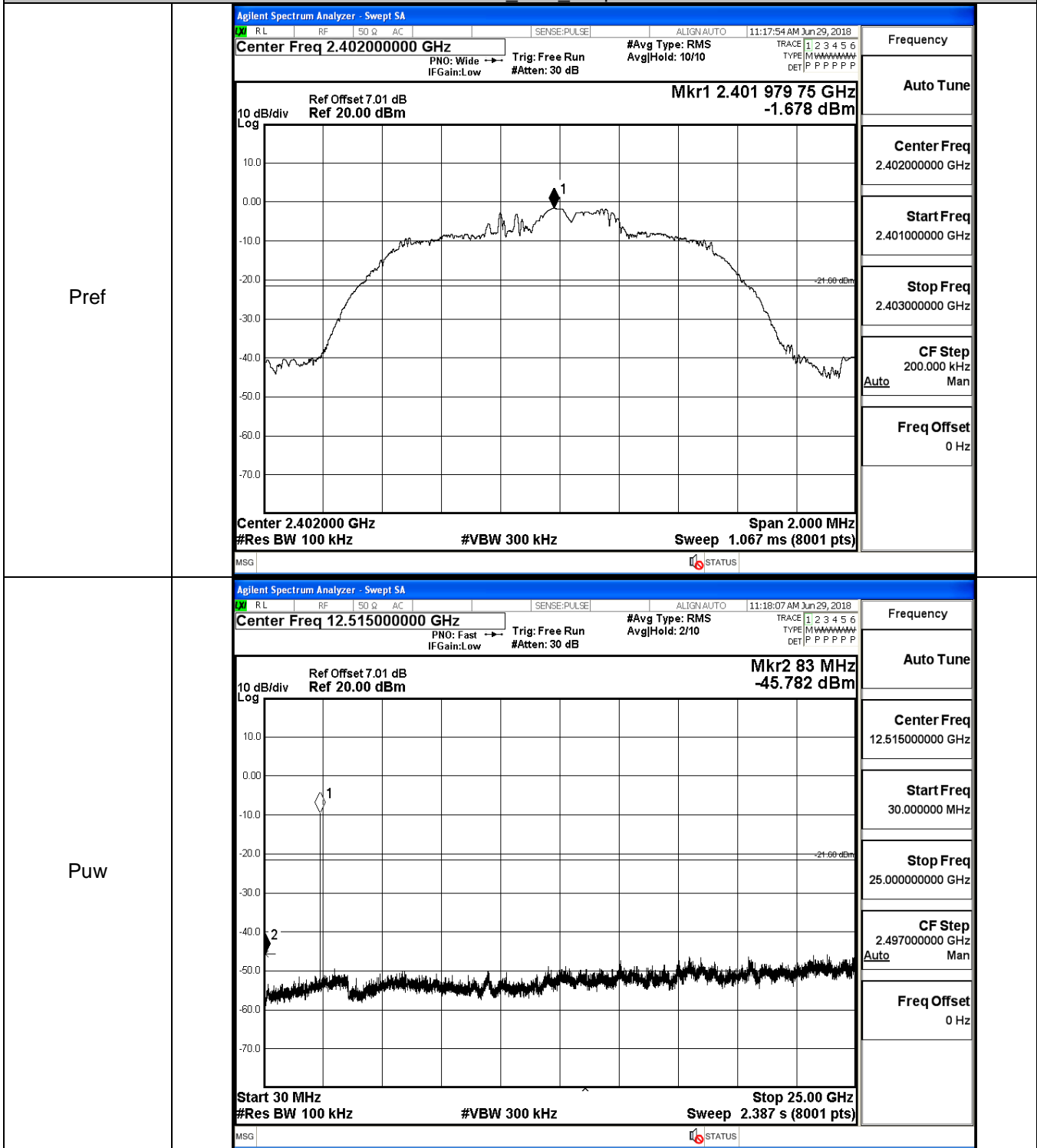
Pref



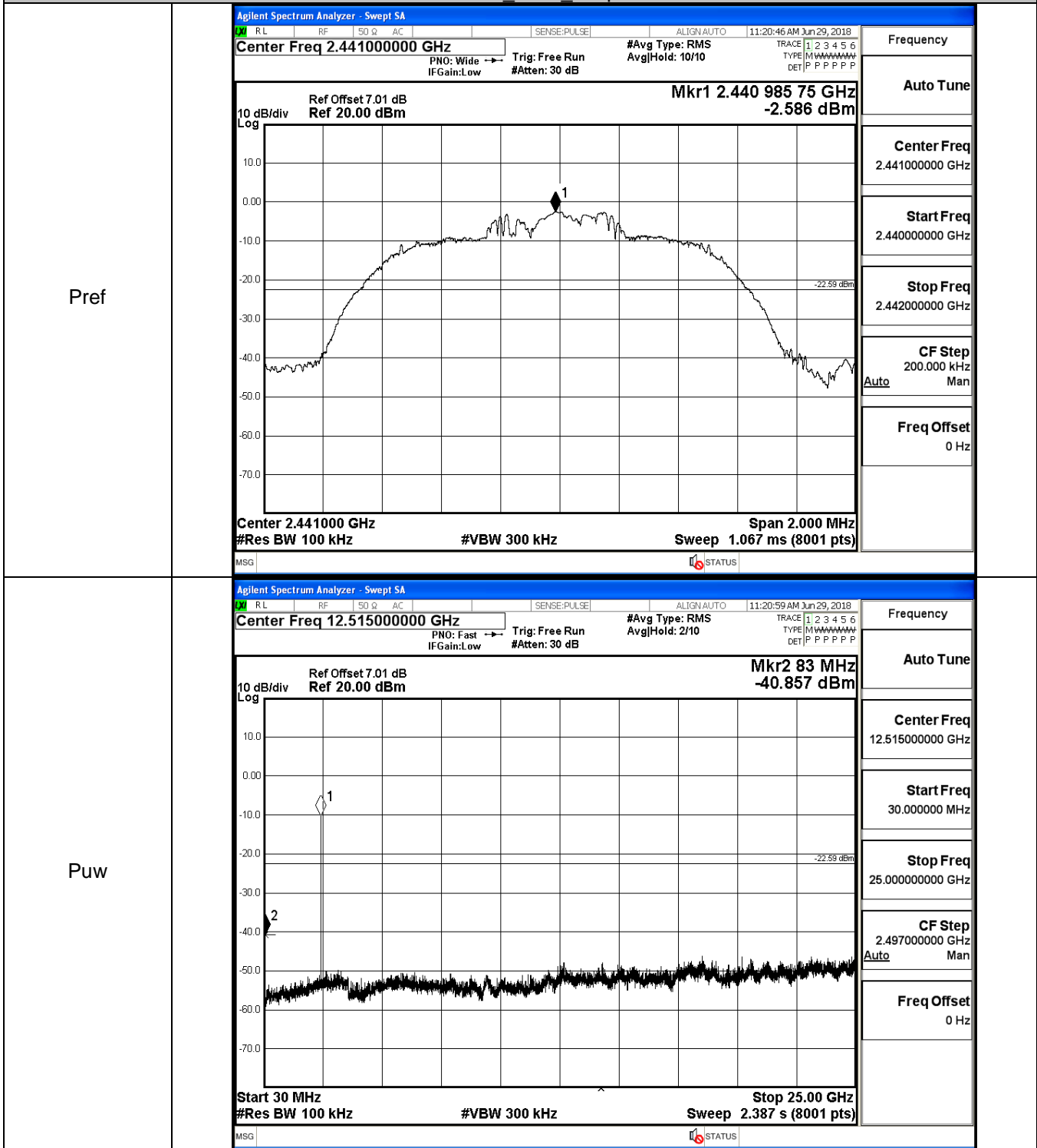
Puw



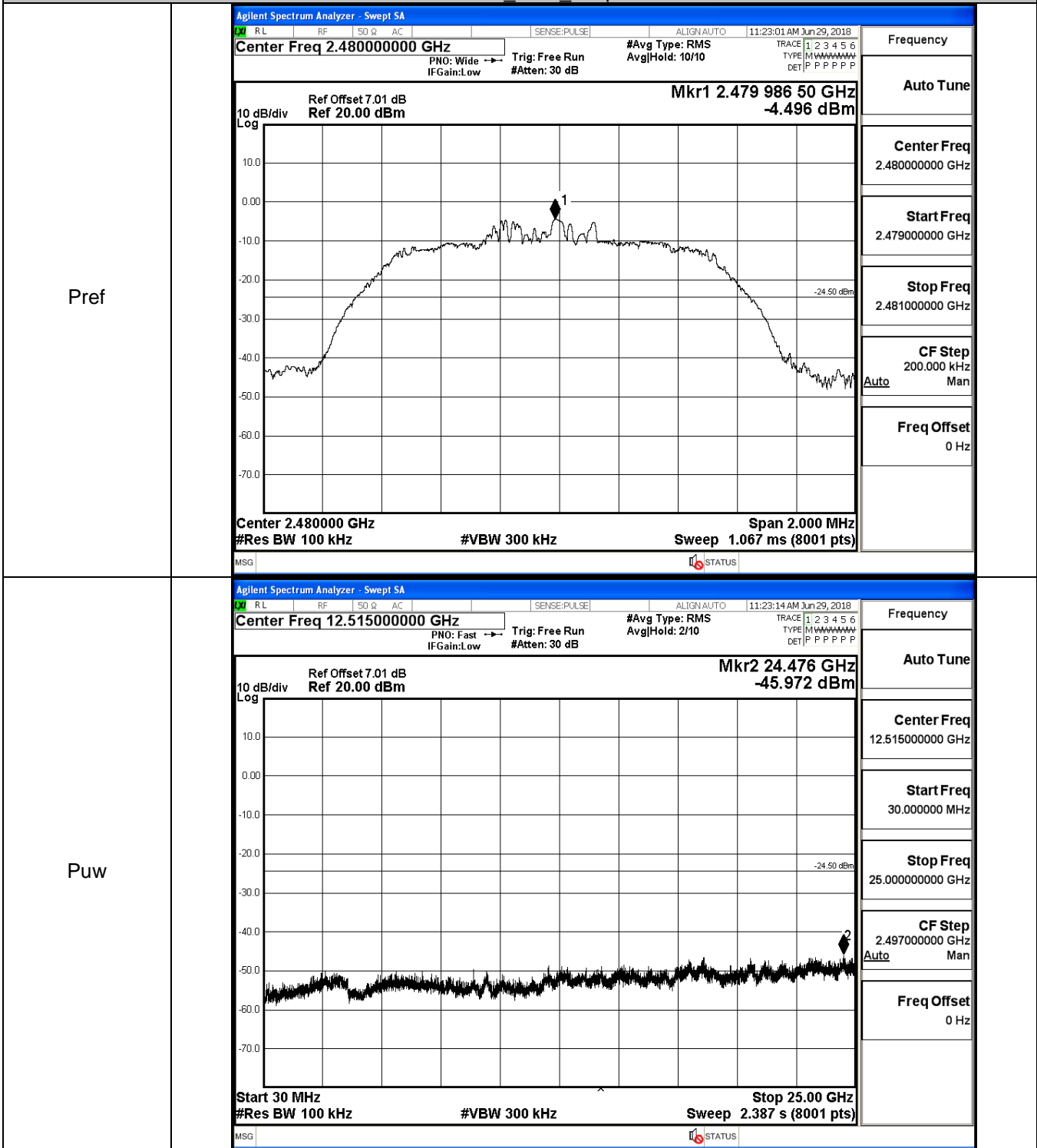
$\pi/4$ DQPSK LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

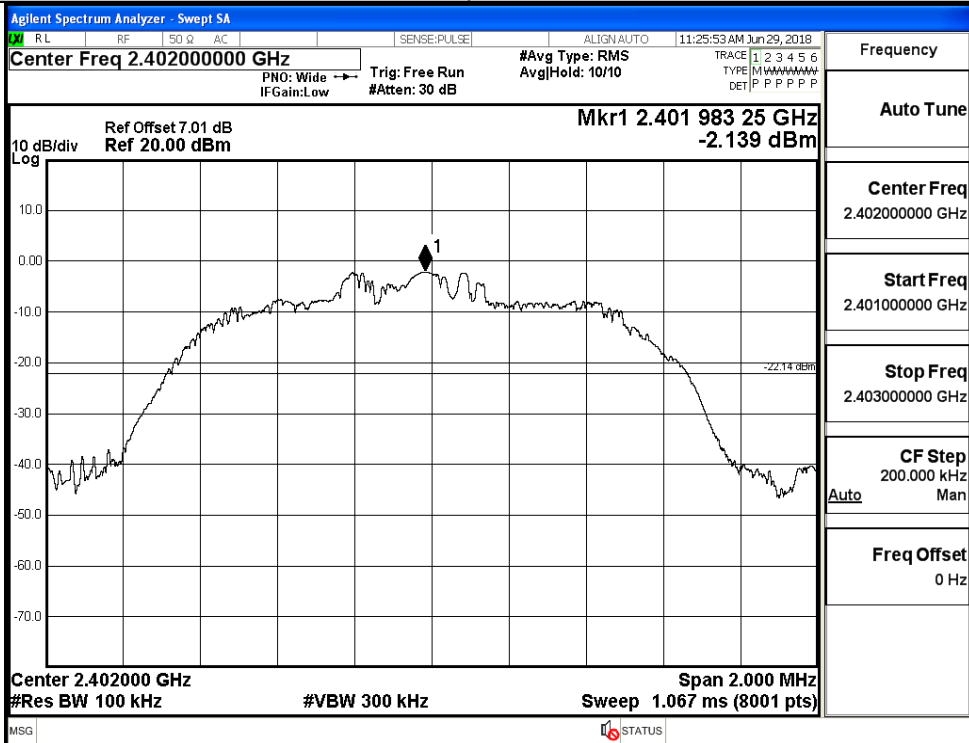


$\pi/4$ DQPSK_HCH_Graphs

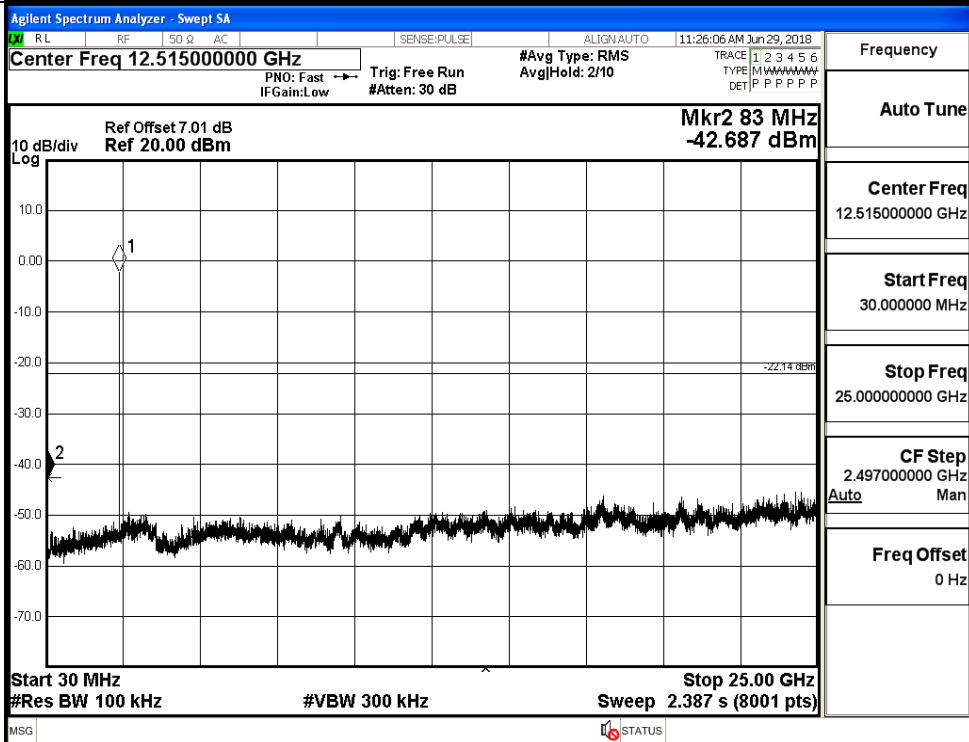


8DPSK_LCH_Graphs

Pref

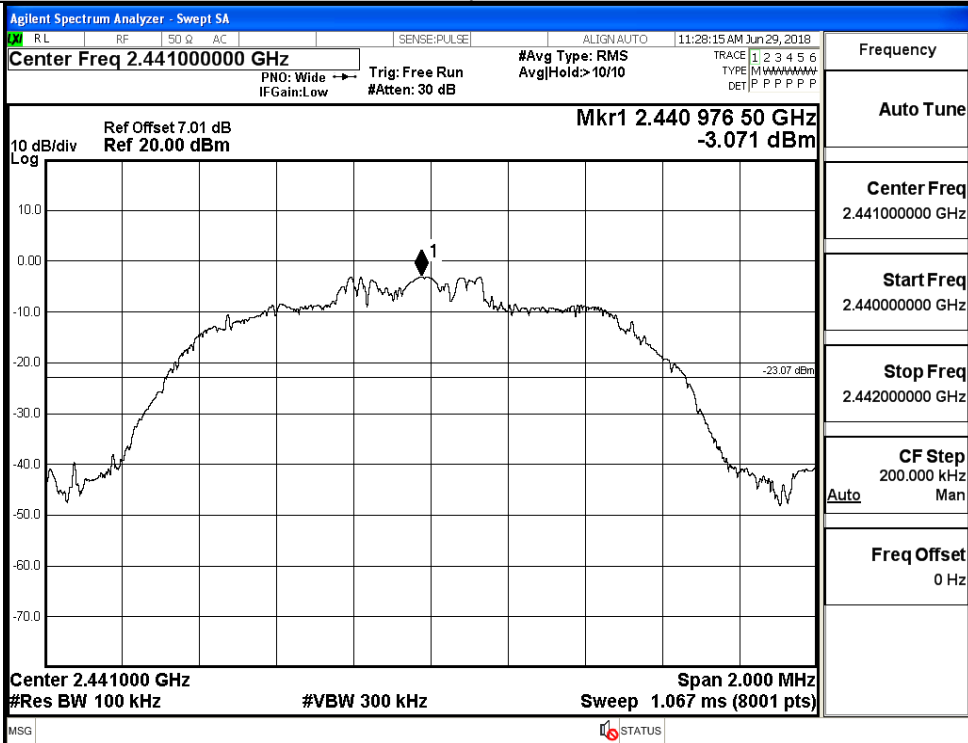


Puw

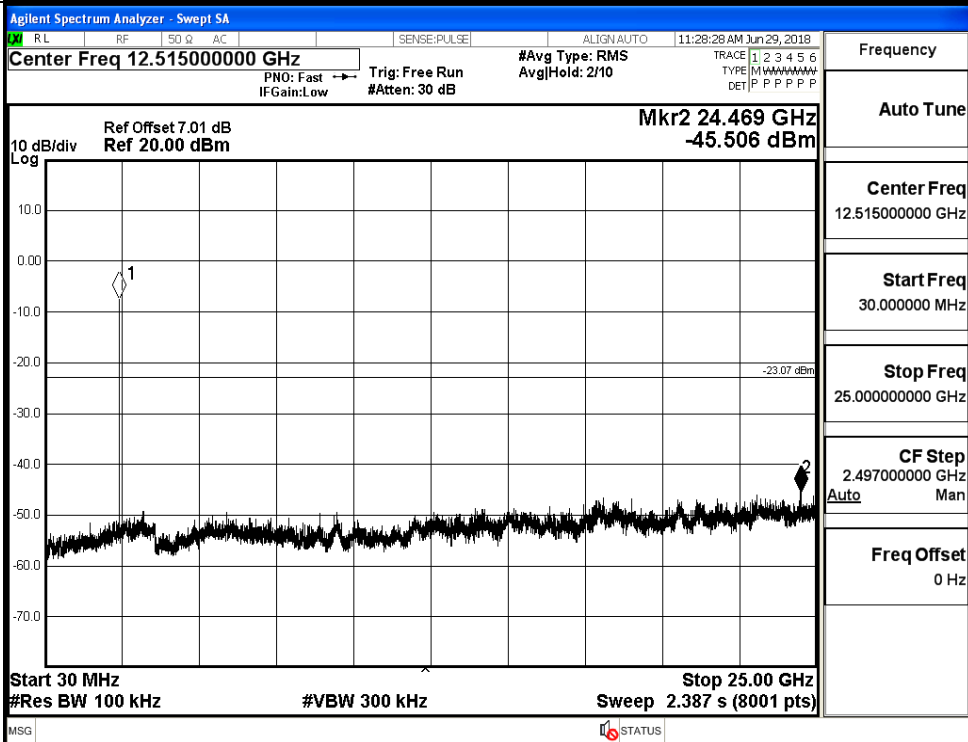


8DPSK_MCH_Graphs

Pref

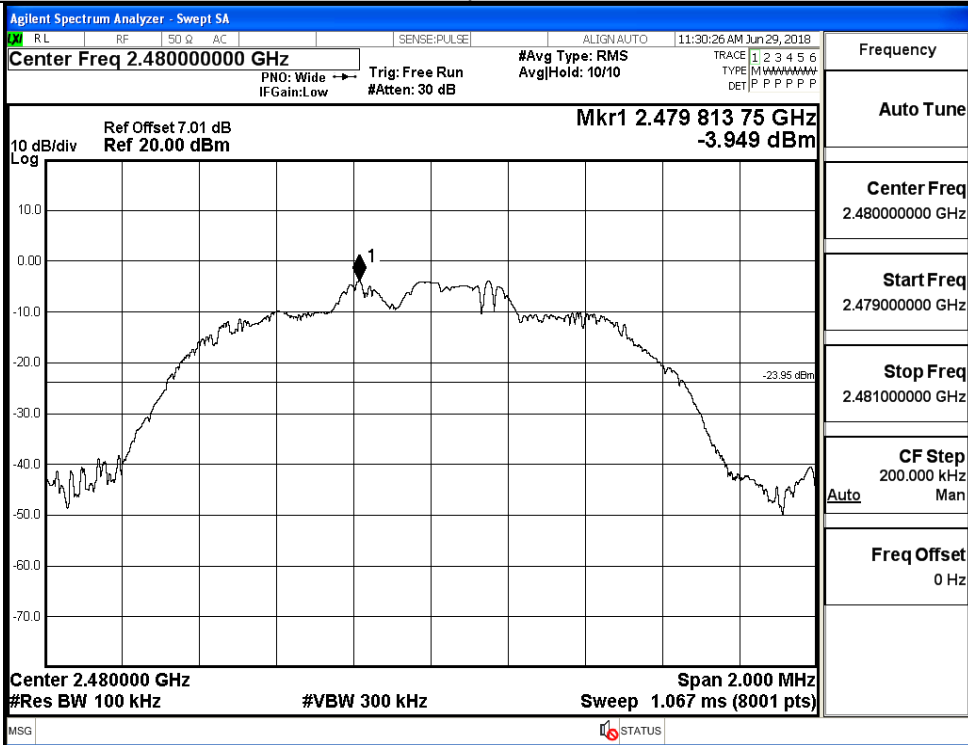


Puw

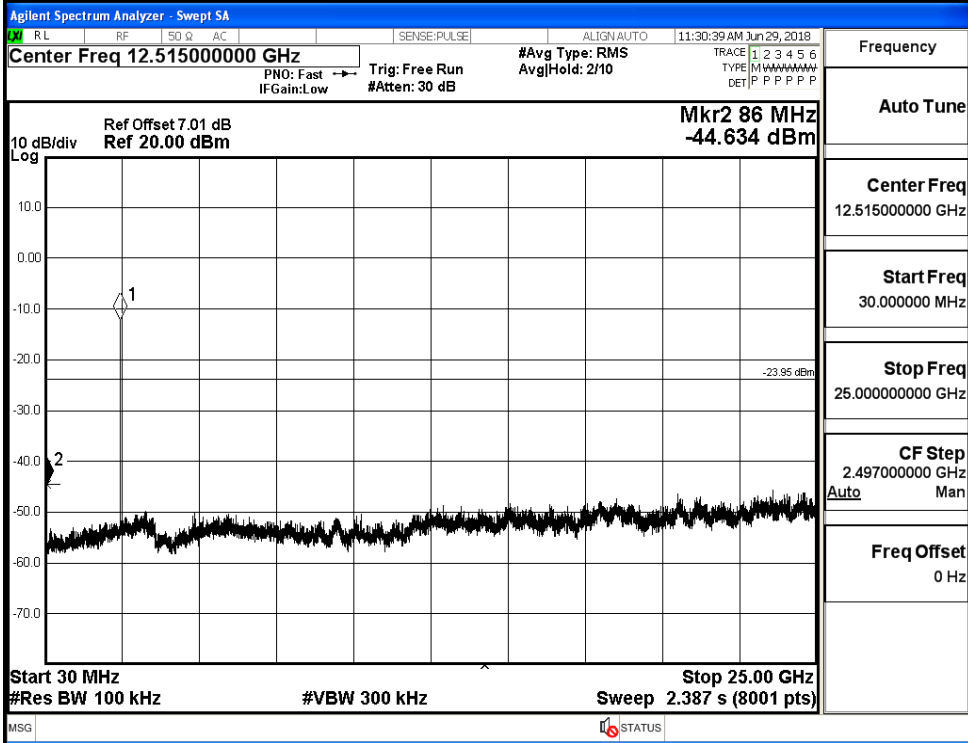


8DPSK_HCH_Graphs

Pref



Puw

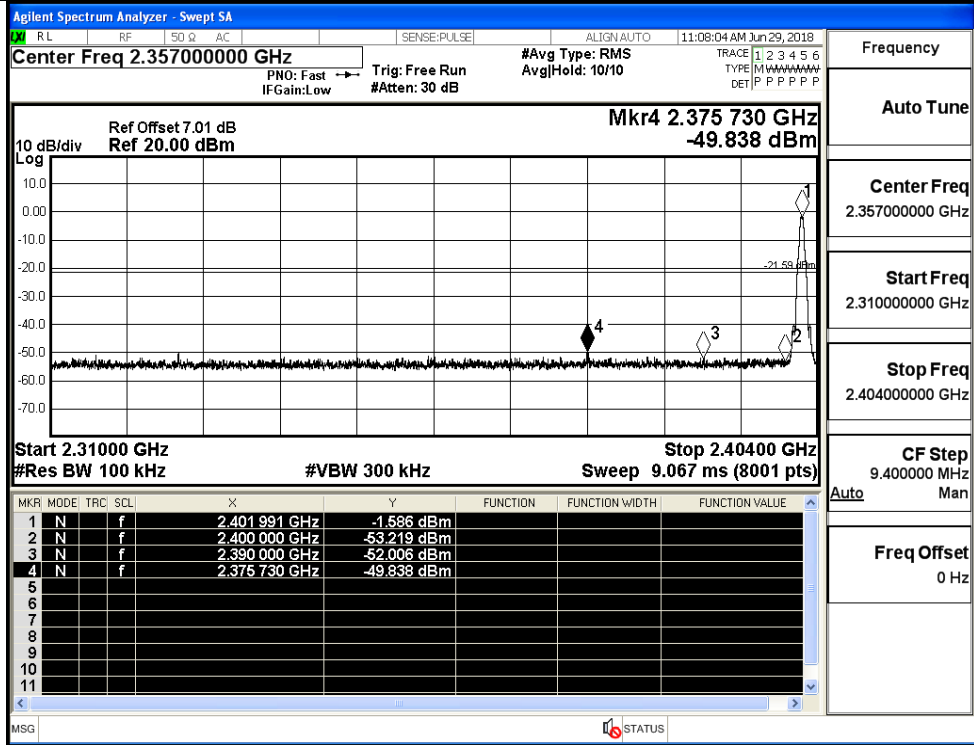


A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.586	Off	-49.838	-21.59	PASS
			-1.573	On	-50.334	-21.57	PASS
	HCH	2480	-3.806	Off	-51.090	-23.81	PASS
			-2.730	On	-50.268	-22.73	PASS
$\pi/4$ DQPSK	LCH	2402	-1.669	Off	-50.449	-21.67	PASS
			-1.534	On	-49.283	-21.53	PASS
	HCH	2480	-3.938	Off	-51.007	-23.94	PASS
			-2.523	On	-50.055	-22.52	PASS
8DPSK	LCH	2402	-1.359	Off	-50.016	-21.36	PASS
			-1.699	On	-49.798	-21.7	PASS
	HCH	2480	-3.929	Off	-50.907	-23.93	PASS
			-2.719	On	-50.072	-22.72	PASS

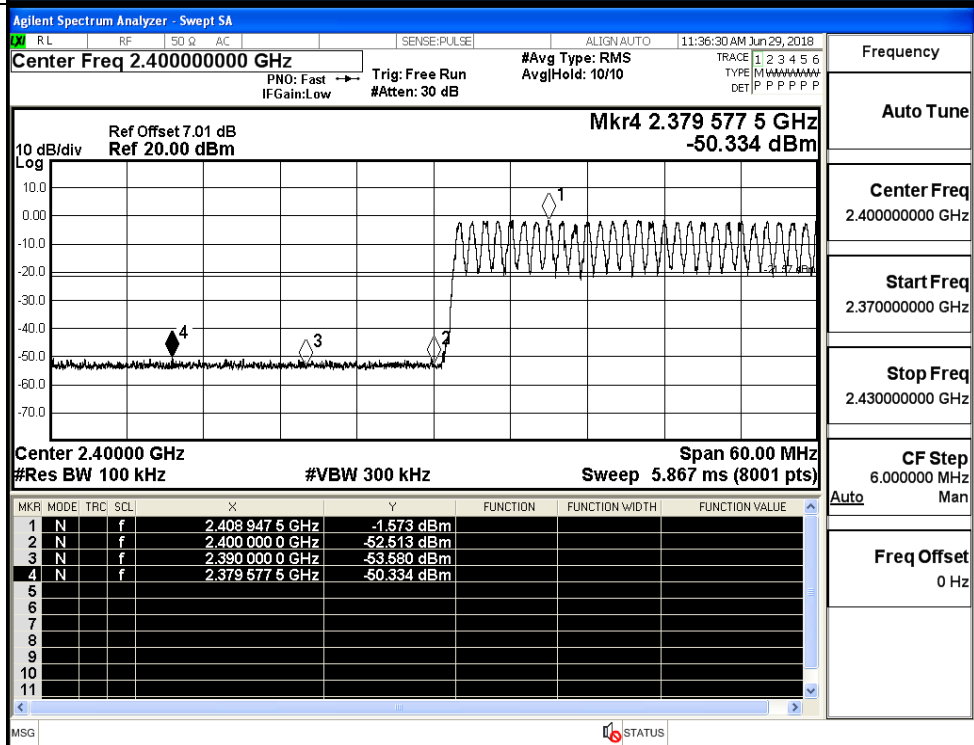
Test Graphs

GFSK/LCH/No Hop



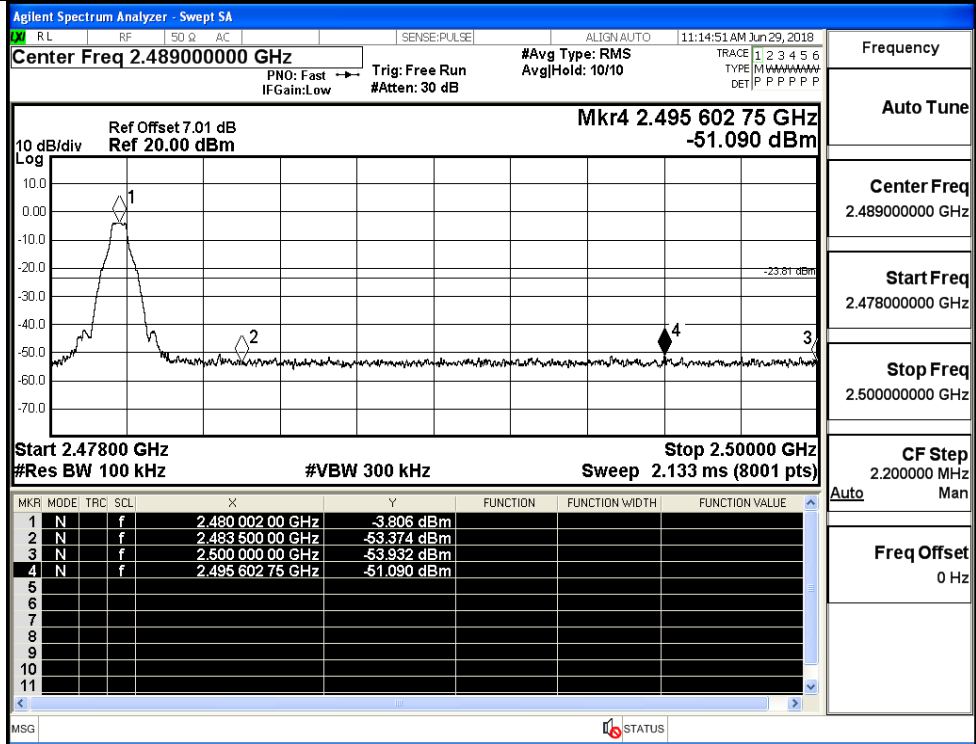
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Auto	Man
Freq Offset	0 Hz

GFSK/LCH/Hop

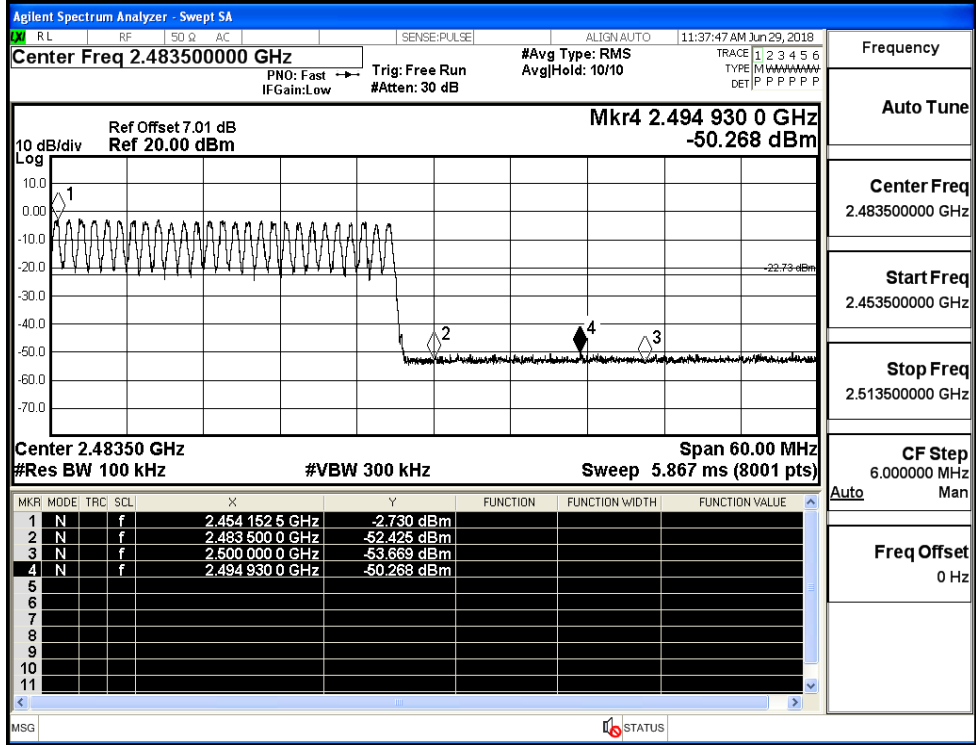


Frequency	
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

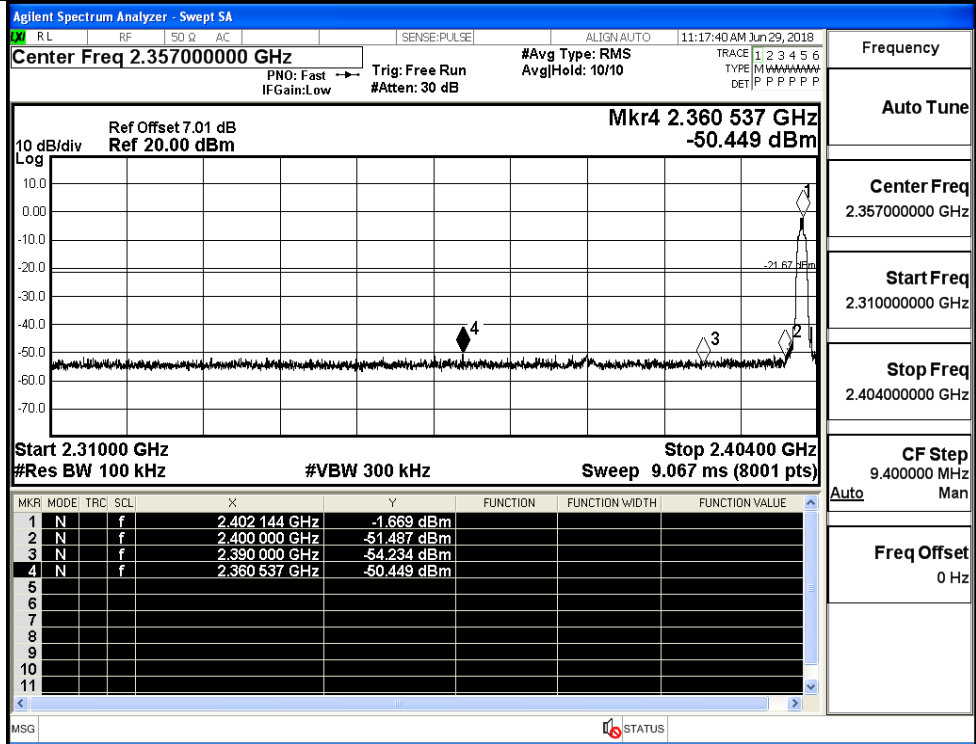
GFSK/HCH/No Hop



GFSK/HCH/Hop

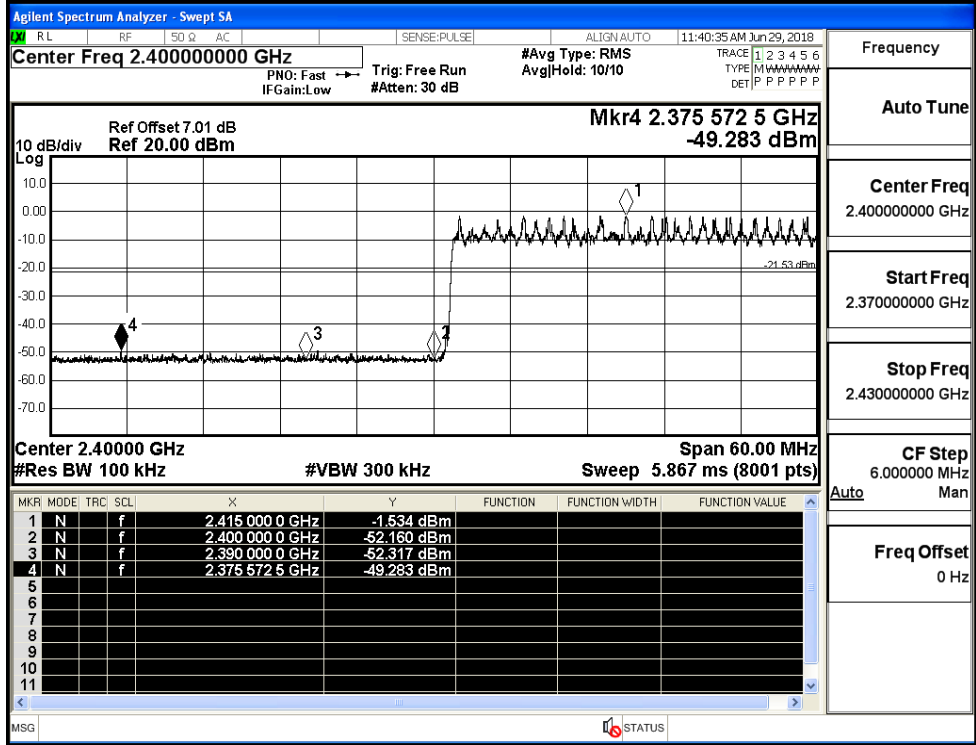


$\pi/4$ DQPSK/LCH/No
Hop



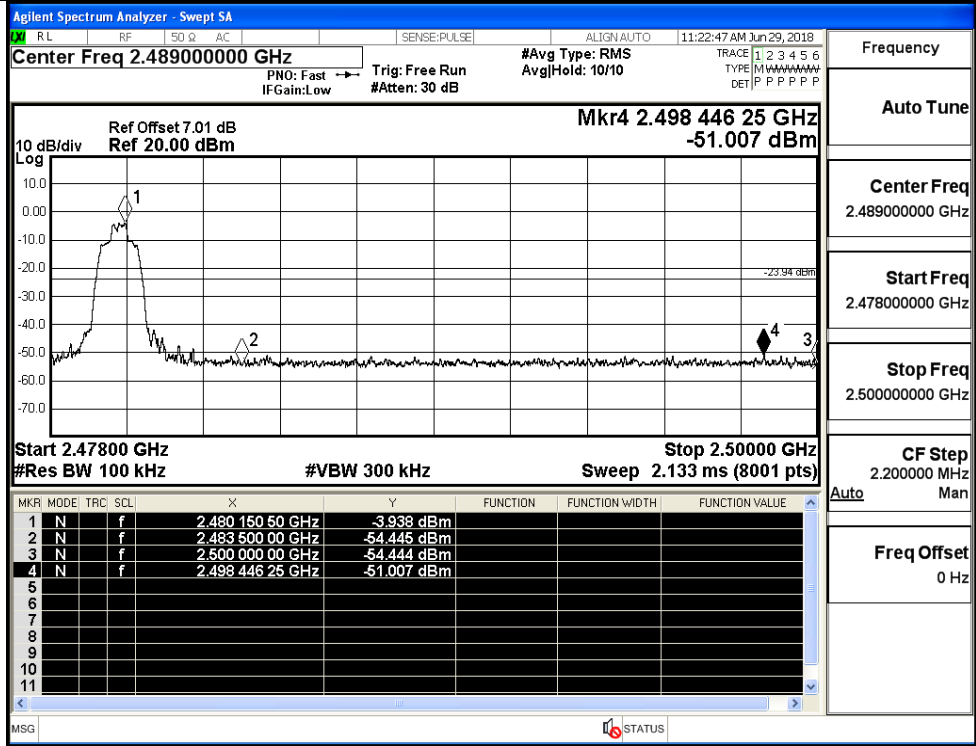
Frequency	Auto Tune
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/LCH/Hop

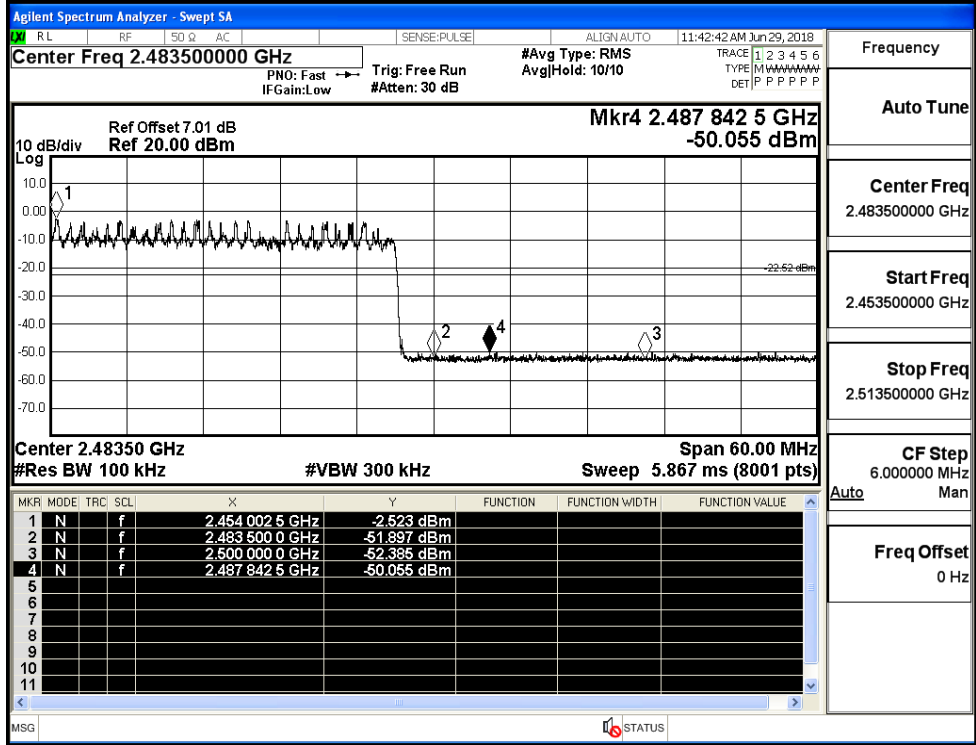


Frequency	Auto Tune
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

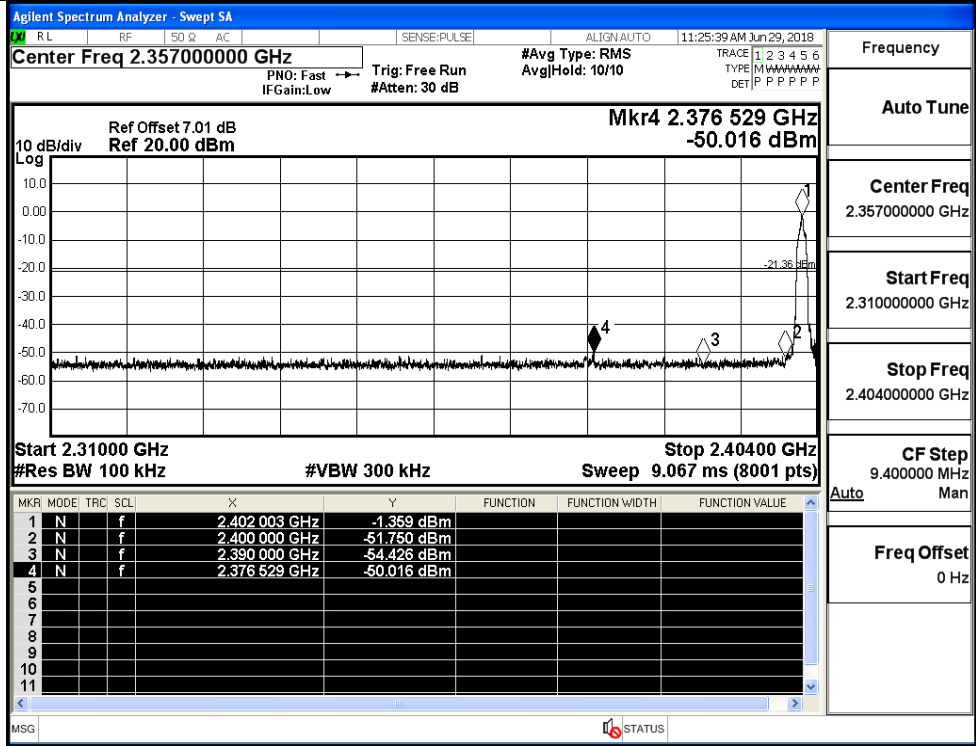
$\pi/4$ DQPSK/HCH/No
Hop



$\pi/4$ DQPSK/HCH/Hop

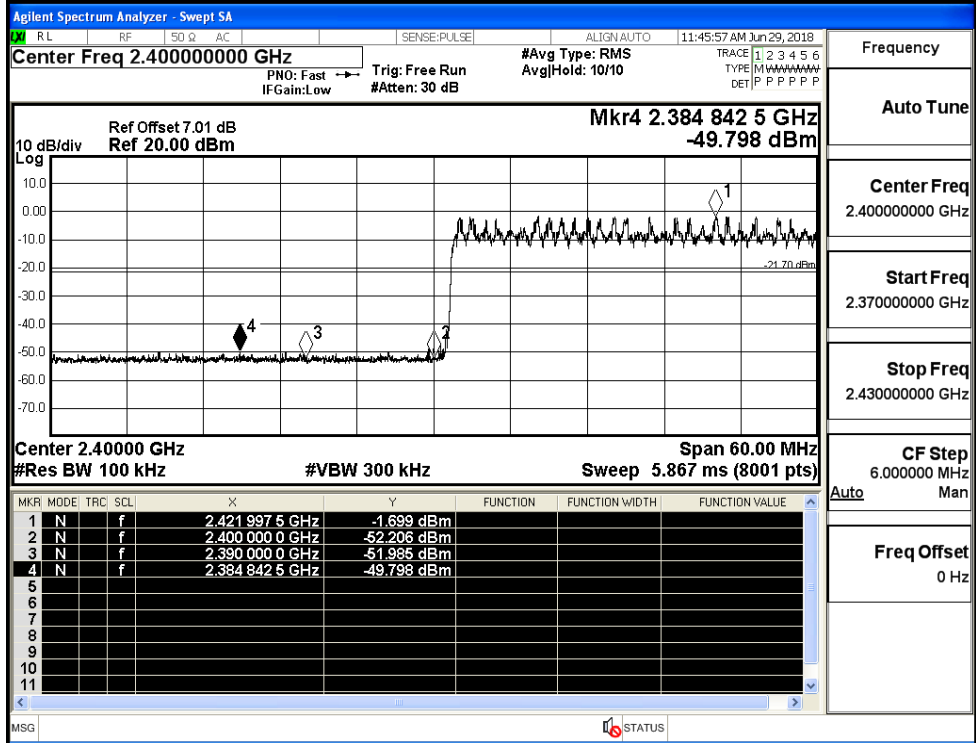


8DPSK/LCH/No Hop



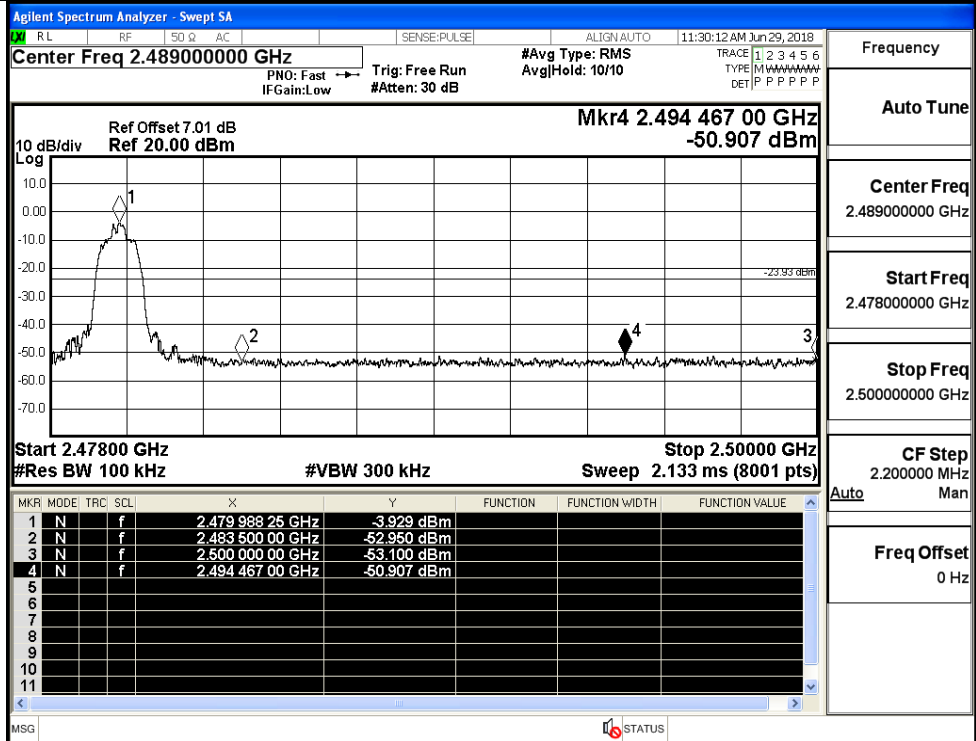
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



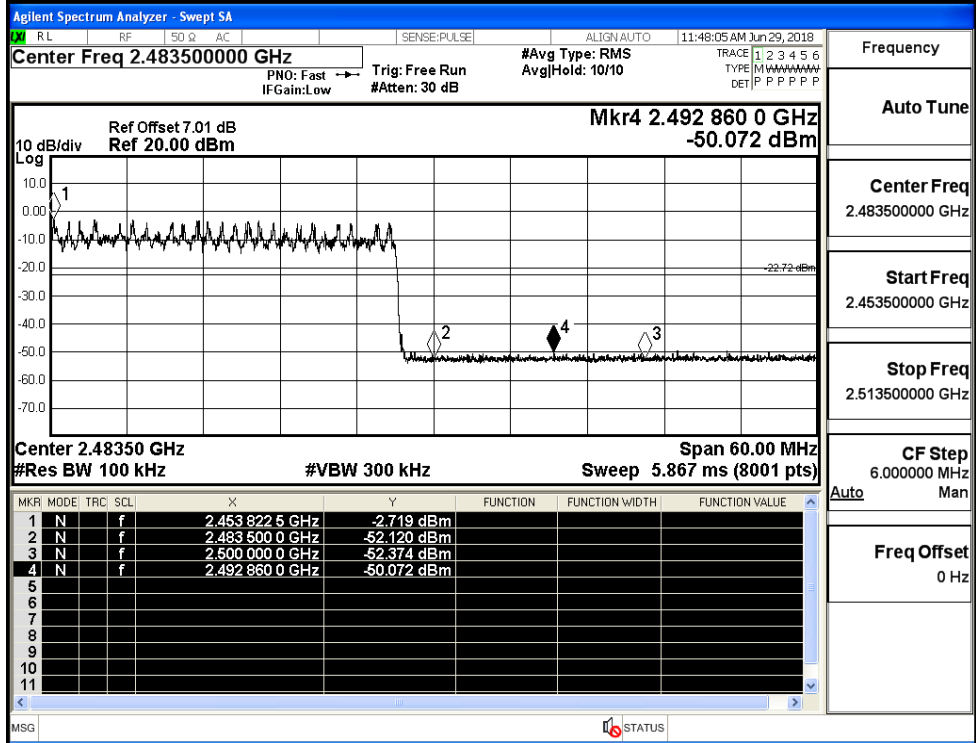
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

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

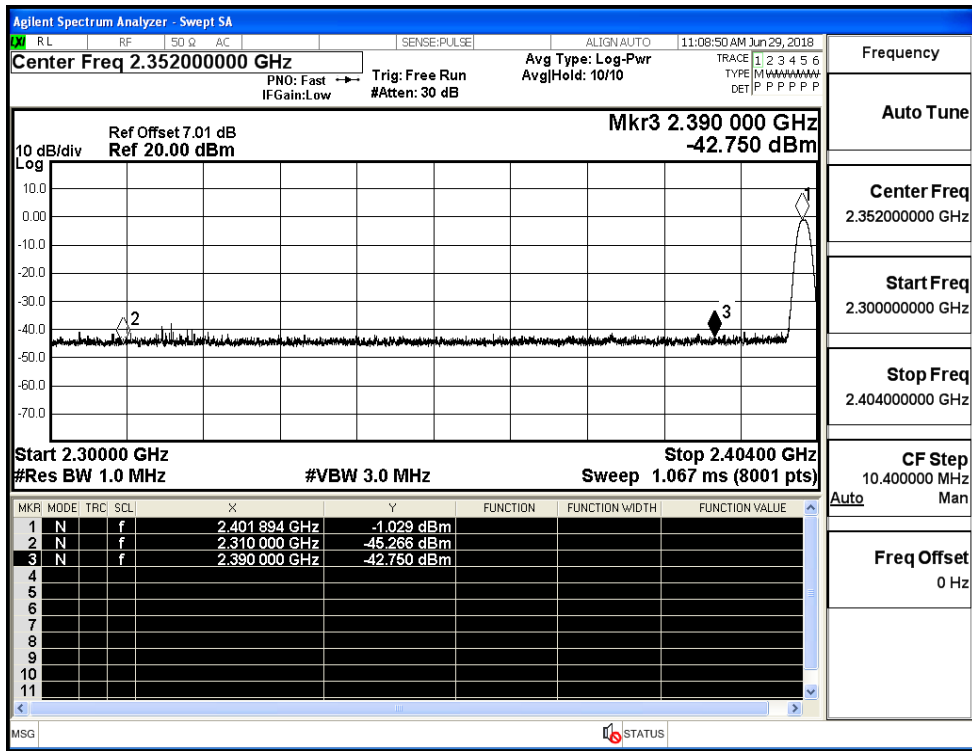


Frequency	
Auto Tune	
Center Freq	2.483500000 GHz
Start Freq	2.453500000 GHz
Stop Freq	2.513500000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

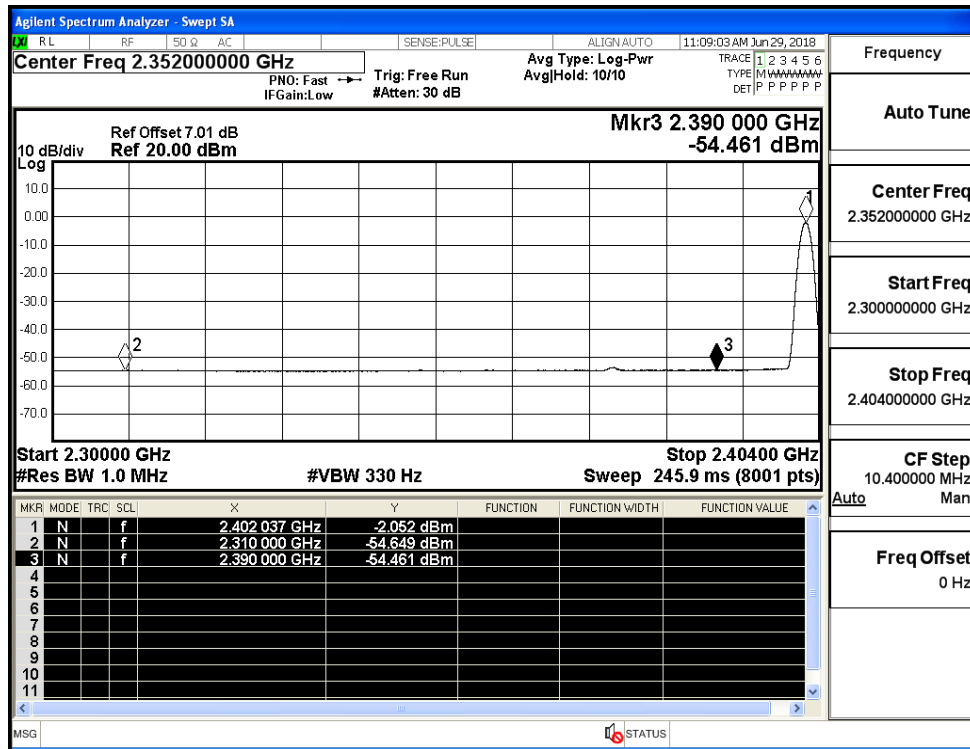
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-45.27	2.0	0	51.99	PEAK	74	PASS
	Off	2310.0	-54.65	2.0	0	42.61	AV	54	PASS
	Off	2390.0	-42.75	2.0	0	54.51	PEAK	74	PASS
	Off	2390.0	-54.46	2.0	0	42.80	AV	54	PASS
	Off	2483.5	-41.72	2.0	0	55.54	PEAK	74	PASS
	Off	2483.5	-53.95	2.0	0	43.31	AV	54	PASS
	Off	2500.0	-44.28	2.0	0	52.98	PEAK	74	PASS
	Off	2500.0	-54.09	2.0	0	43.17	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.24	2.0	0	53.02	PEAK	74	PASS
	Off	2310.0	-54.69	2.0	0	42.57	AV	54	PASS
	Off	2390.0	-43.41	2.0	0	53.85	PEAK	74	PASS
	Off	2390.0	-54.46	2.0	0	42.79	AV	54	PASS
	Off	2483.5	-43.32	2.0	0	53.94	PEAK	74	PASS
	Off	2483.5	-53.96	2.0	0	43.30	AV	54	PASS
	Off	2500.0	-44.04	2.0	0	53.21	PEAK	74	PASS
	Off	2500.0	-54.14	2.0	0	43.12	AV	54	PASS
8DPSK	Off	2310.0	-44.01	2.0	0	53.25	PEAK	74	PASS
	Off	2310.0	-54.75	2.0	0	42.51	AV	54	PASS
	Off	2390.0	-43.31	2.0	0	53.95	PEAK	74	PASS
	Off	2390.0	-54.57	2.0	0	42.69	AV	54	PASS
	Off	2483.5	-44.94	2.0	0	52.32	PEAK	74	PASS
	Off	2483.5	-53.95	2.0	0	43.31	AV	54	PASS
	Off	2500.0	-43.73	2.0	0	53.53	PEAK	74	PASS
	Off	2500.0	-54.15	2.0	0	43.10	AV	54	PASS

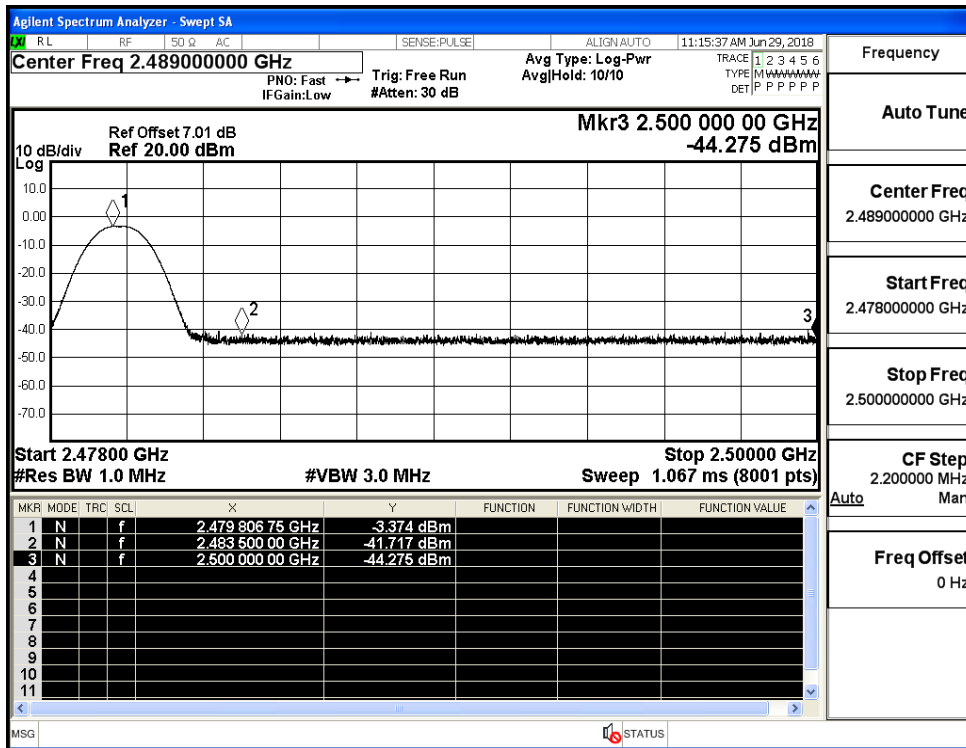
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



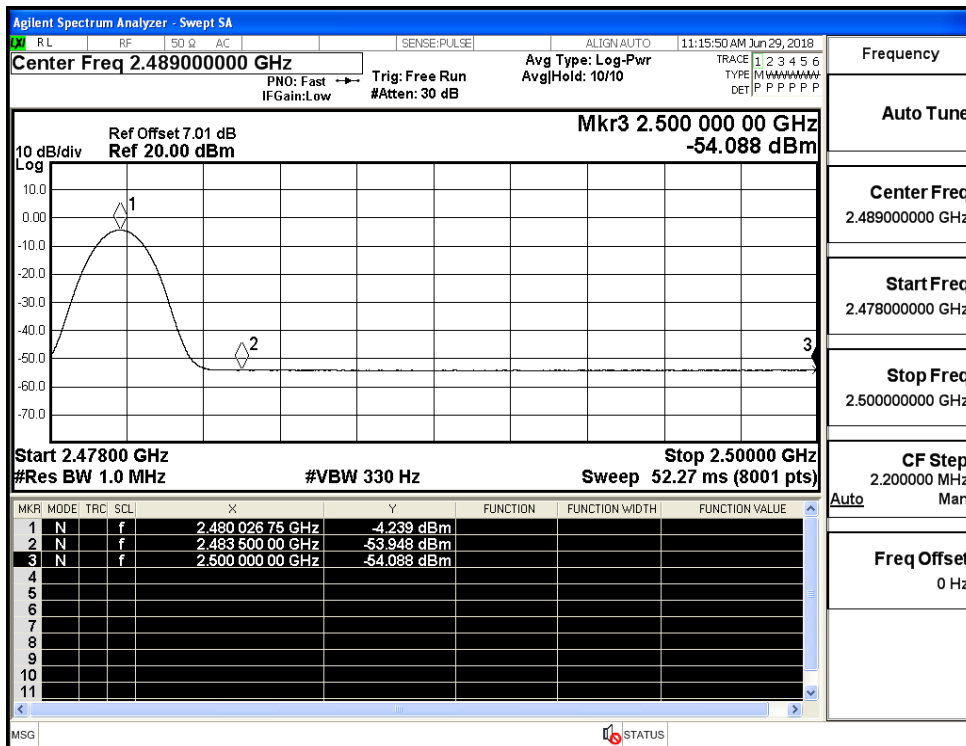
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



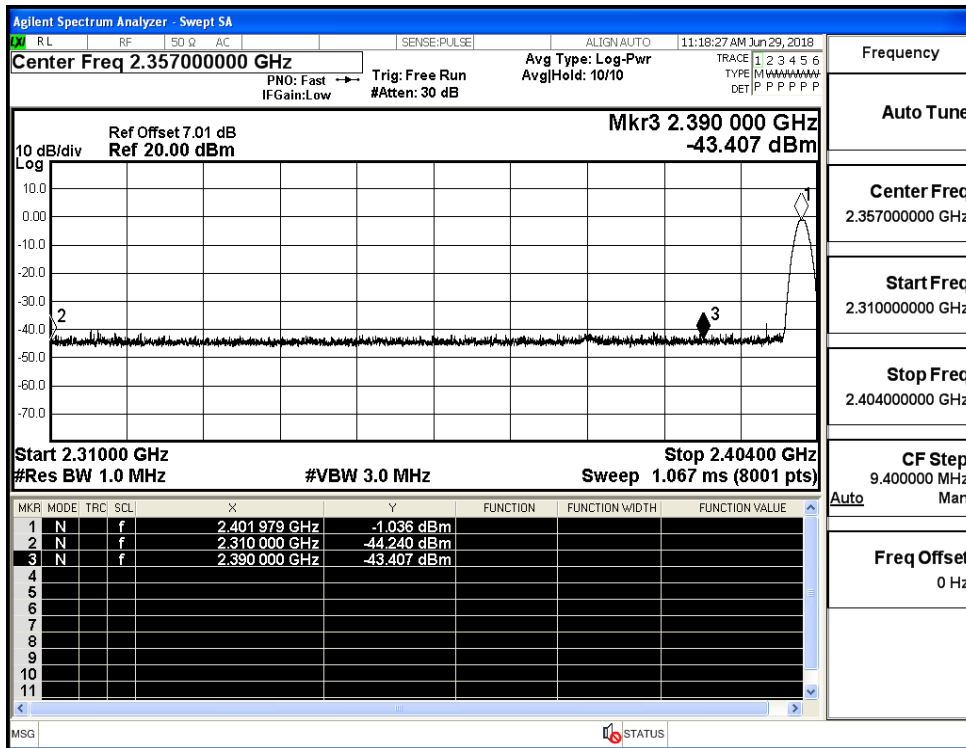
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



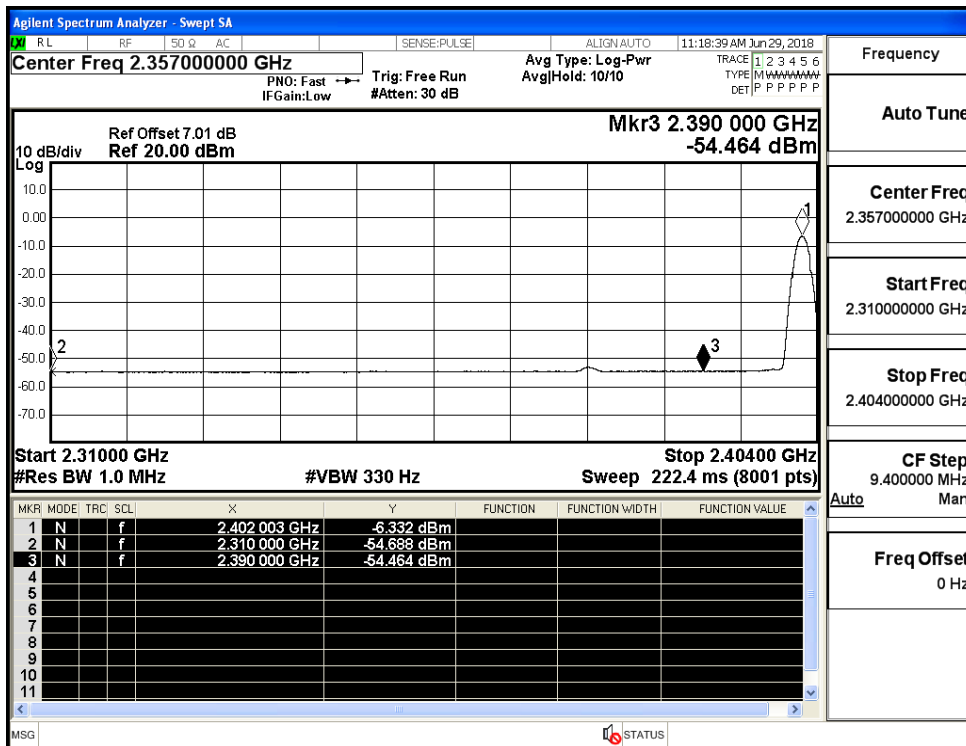
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



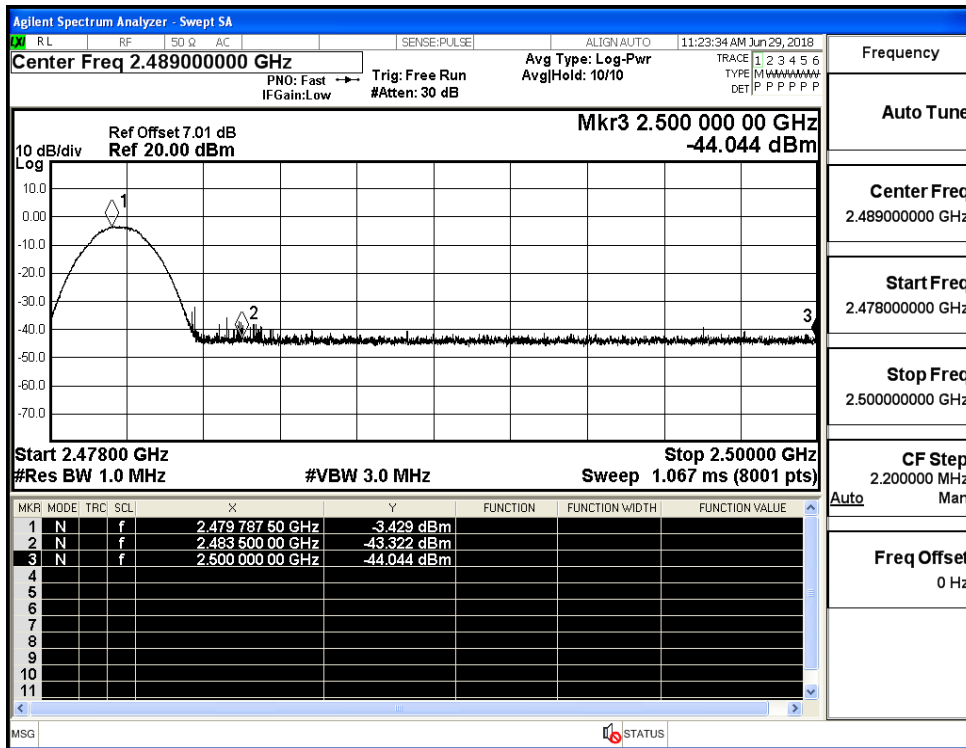
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



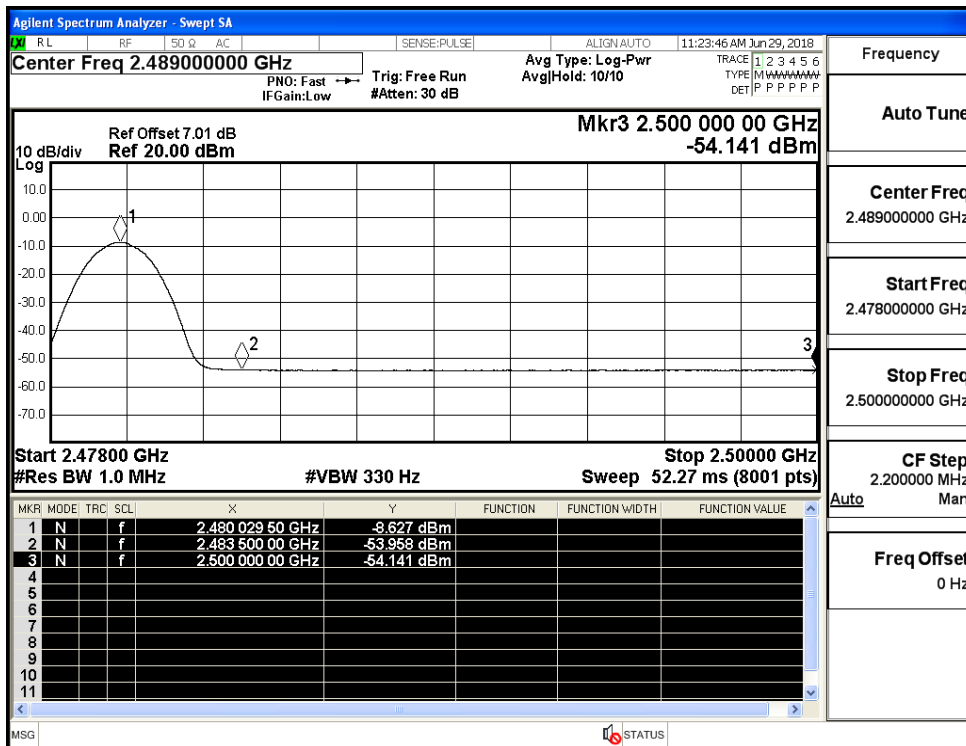
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



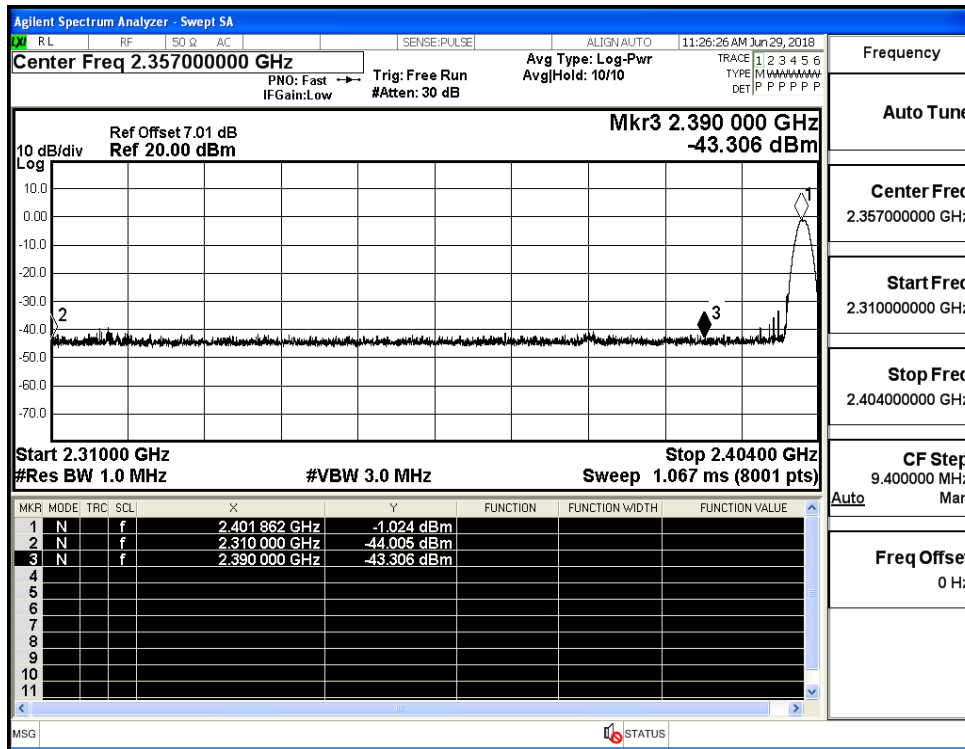
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (High Channel)



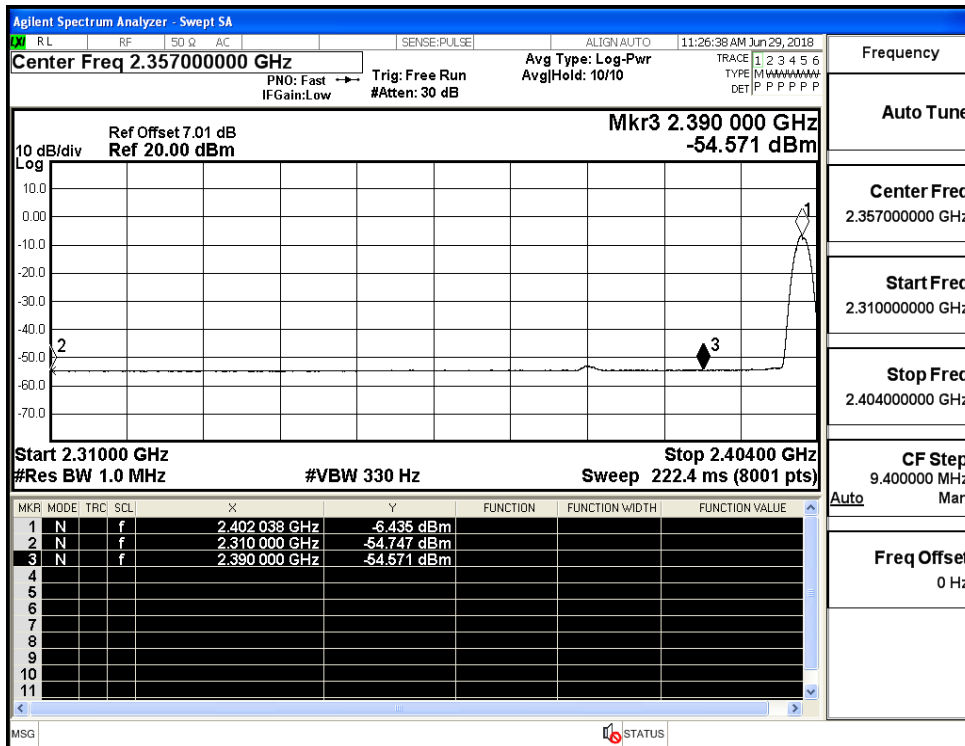
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (High Channel)



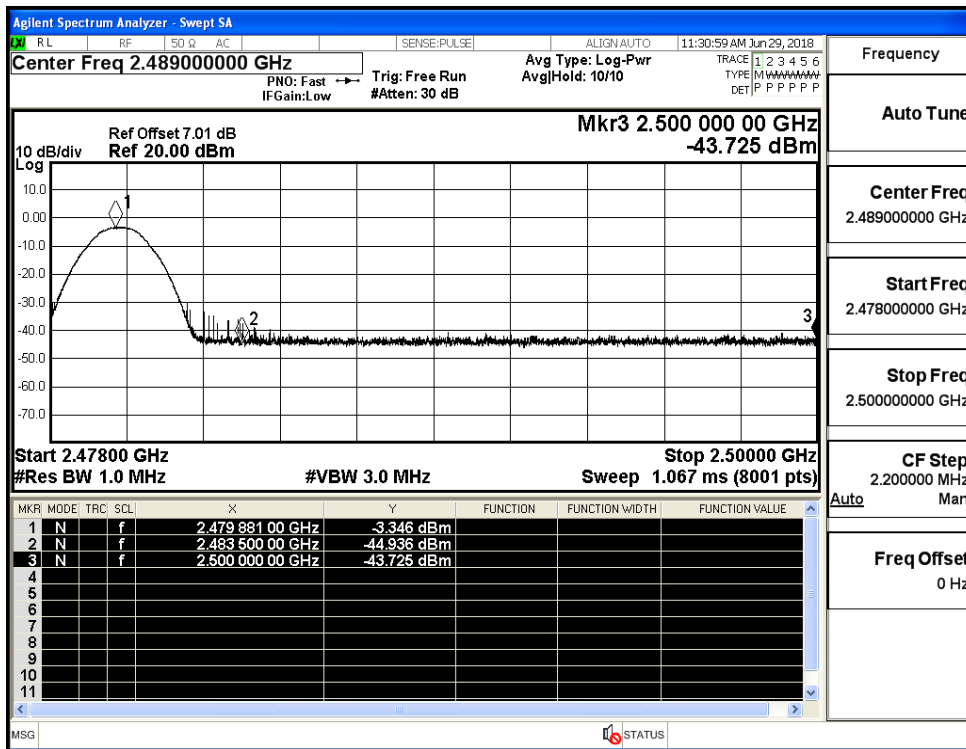
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

