

Appendix A

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

Product Name: S1 Sport Earphones

Trade Mark: VICSEED

Test Model: S1

Environmental Conditions

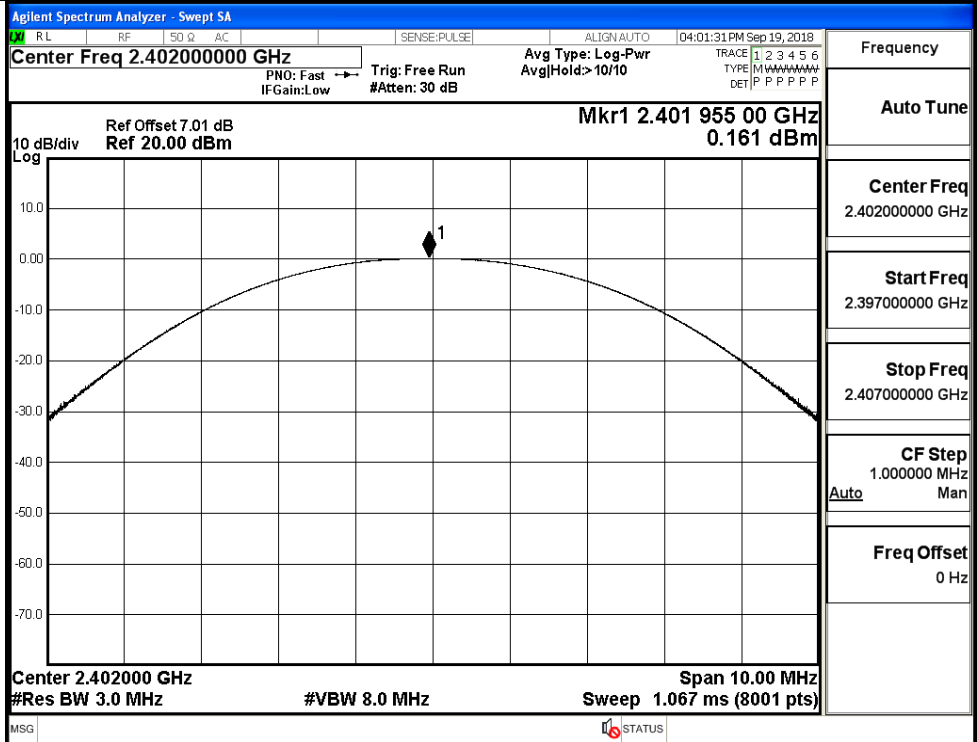
Temperature:	24.3 ° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina Xu
Supervised by:	Jayden Zhuo

A.1 Maxmum Conducted Peak Output Power

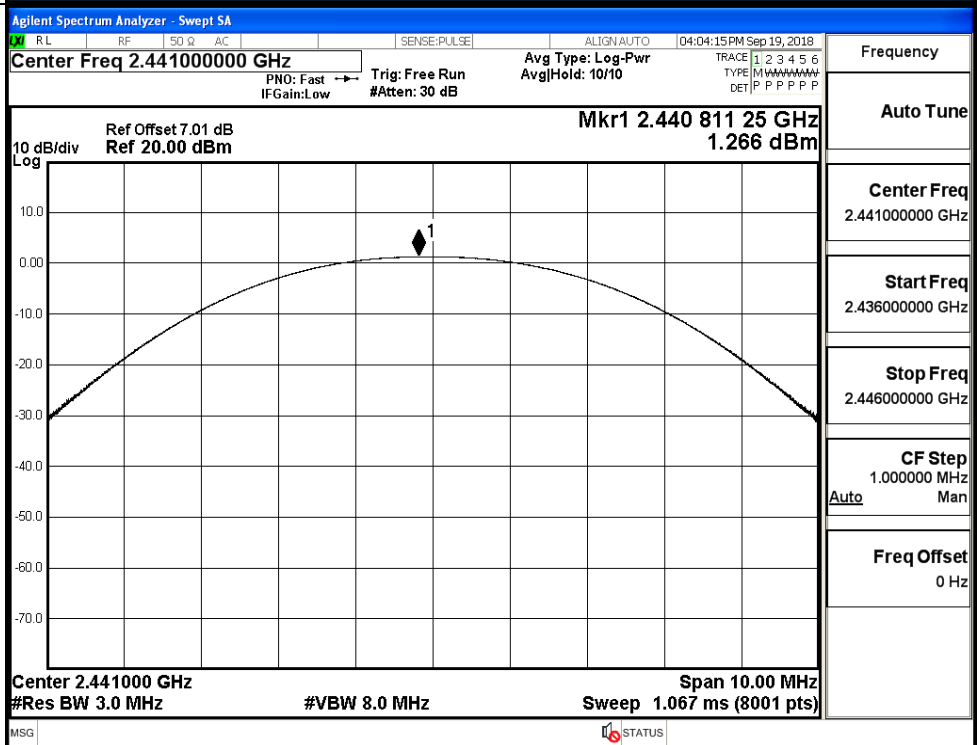
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.161	21	PASS
	MCH	1.266	21	PASS
	HCH	1.461	21	PASS
$\pi/4$ DQPSK	LCH	-0.094	21	PASS
	MCH	1.087	21	PASS
	HCH	1.274	21	PASS
8DPSK	LCH	0.021	21	PASS
	MCH	1.161	21	PASS
	HCH	1.390	21	PASS

Test Graphs

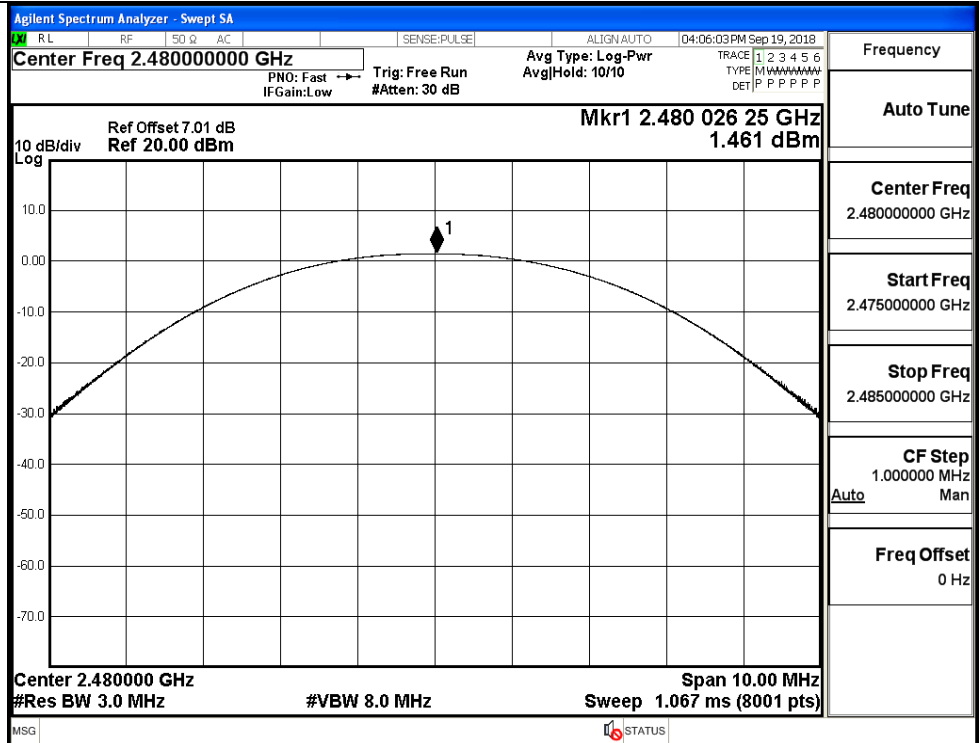
GFSK/LCH



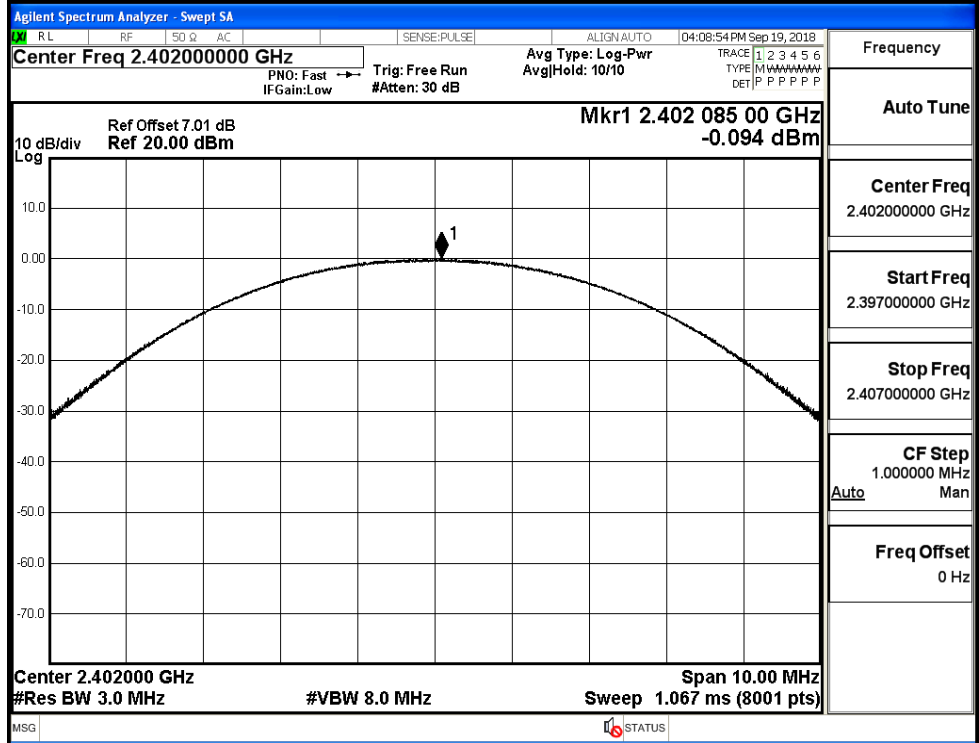
GFSK/MCH



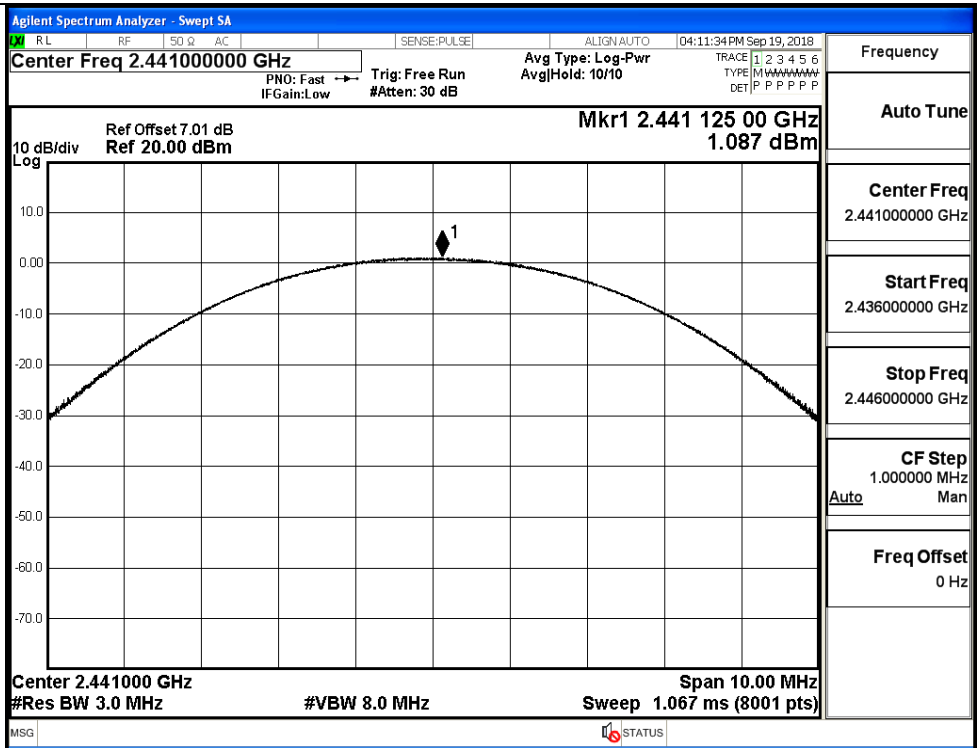
GFSK/HCH



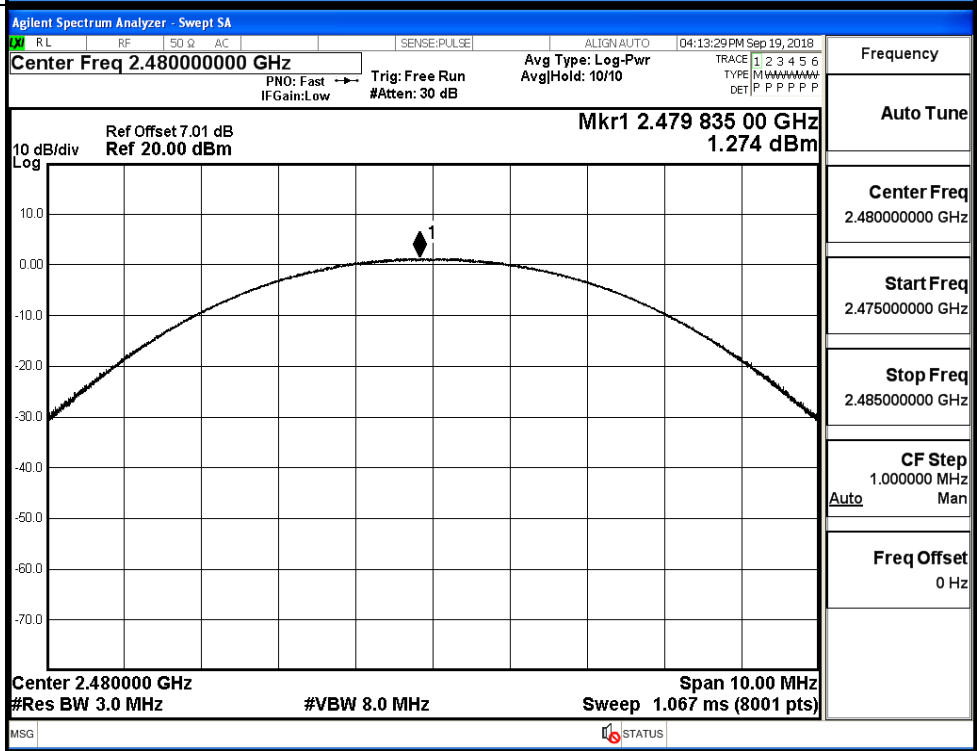
$\pi/4$ DQPSK/LCH



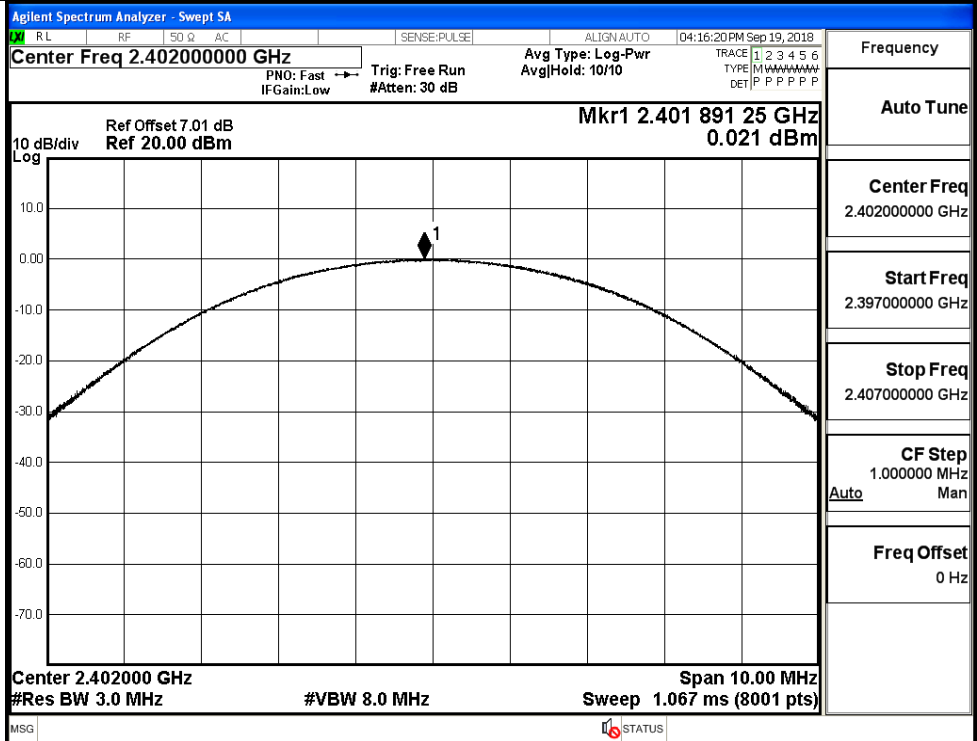
π /4DQPSK/MCH



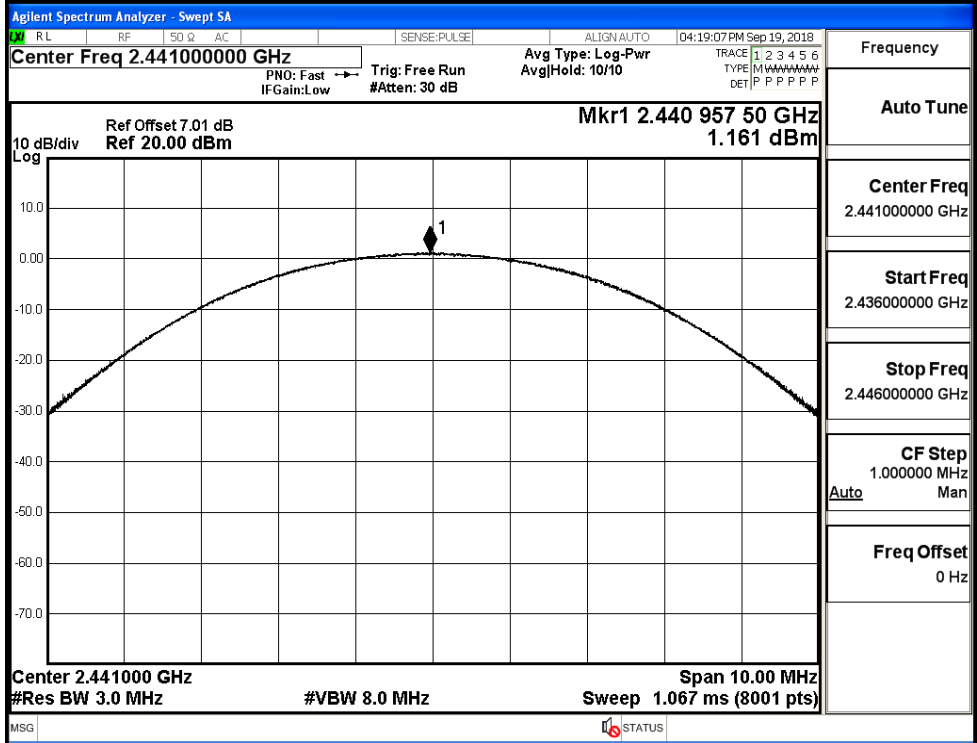
π /4DQPSK/HCH



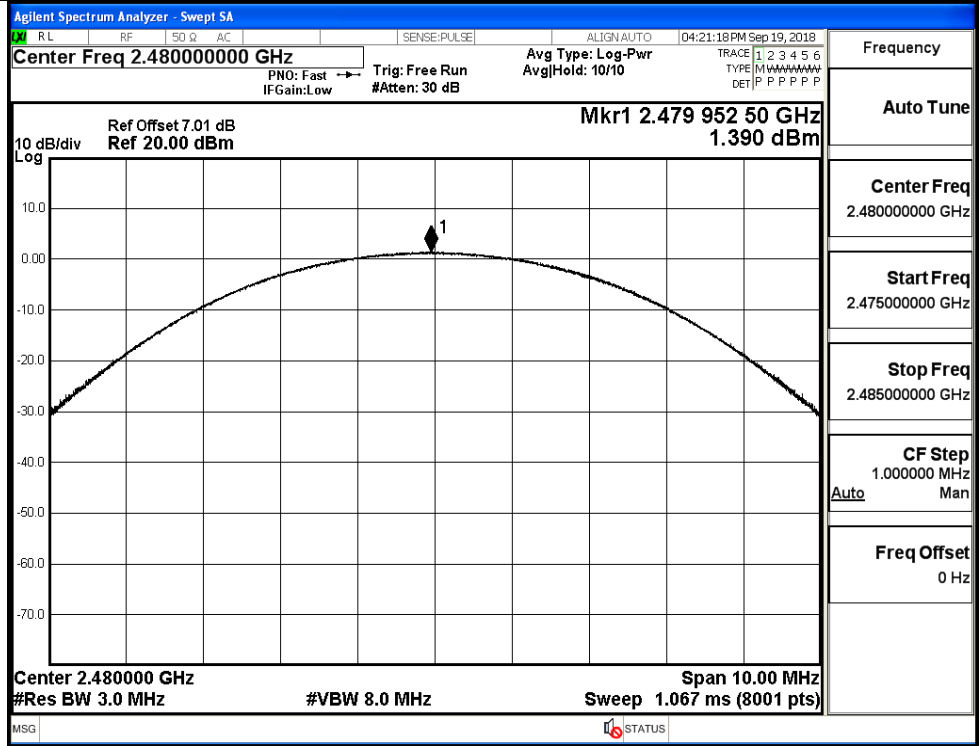
8DPSK/LCH



8DPSK/MCH

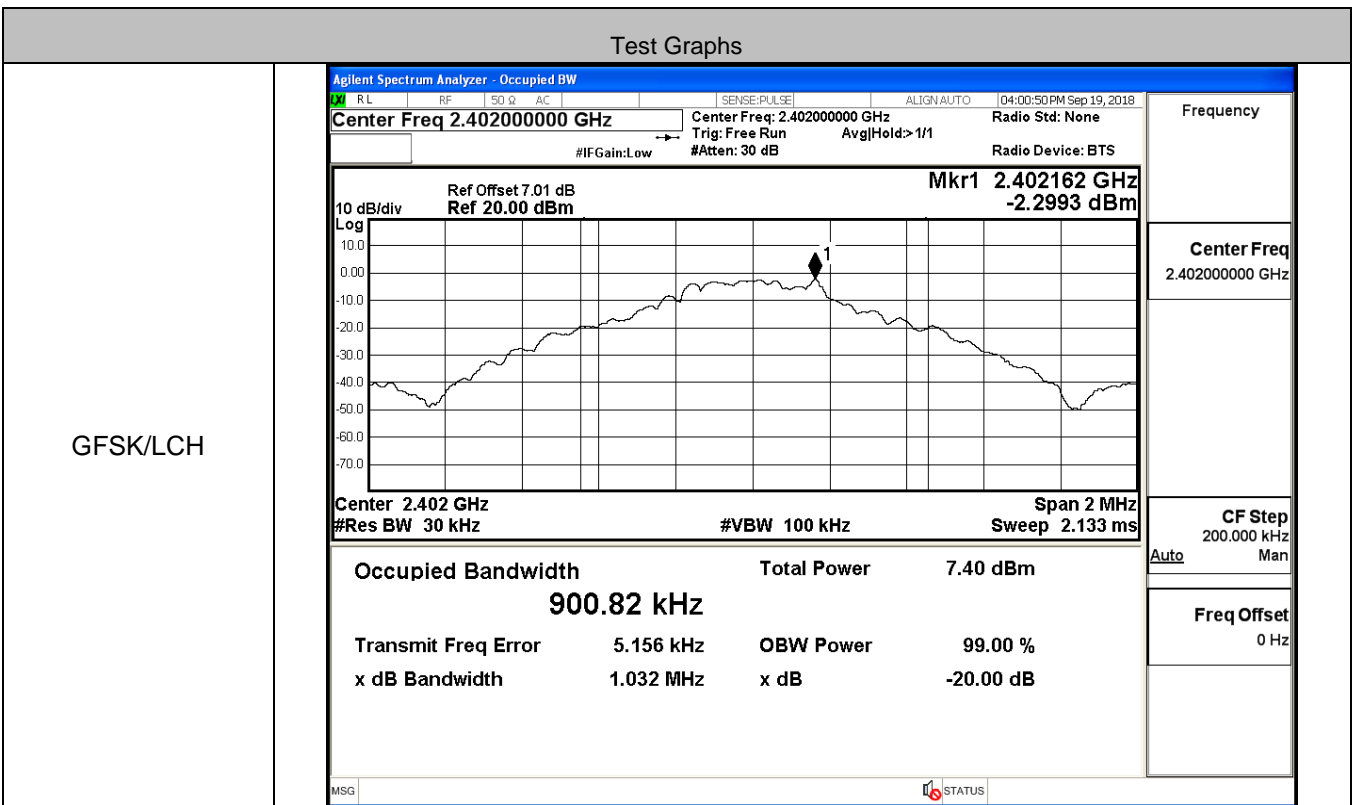


8DPSK/HCH

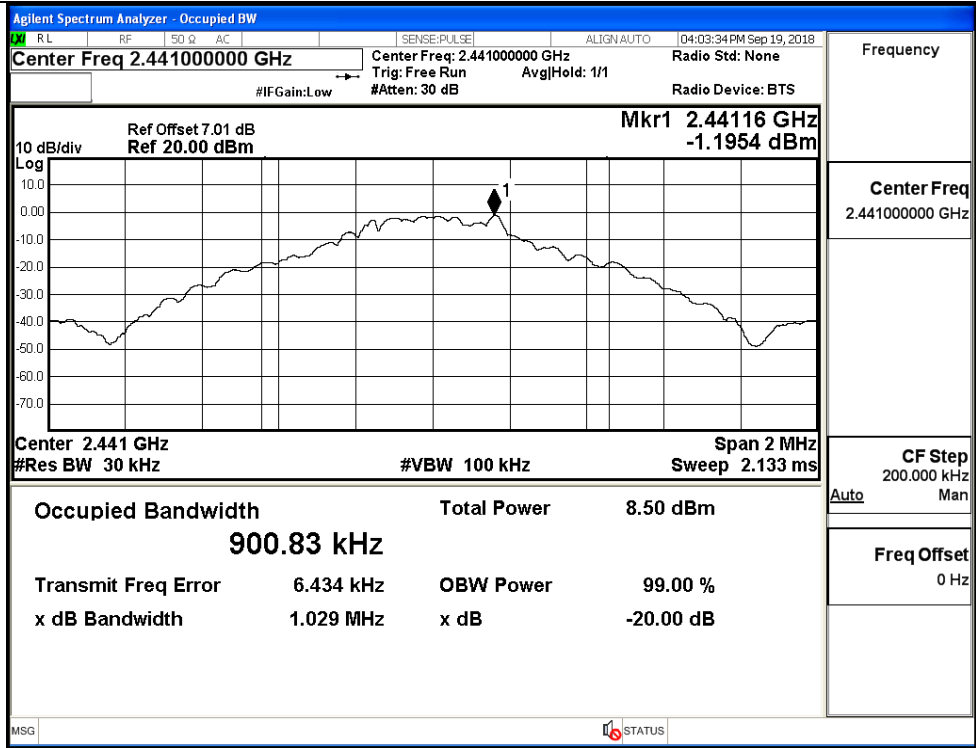


A.2 20dB Bandwidth

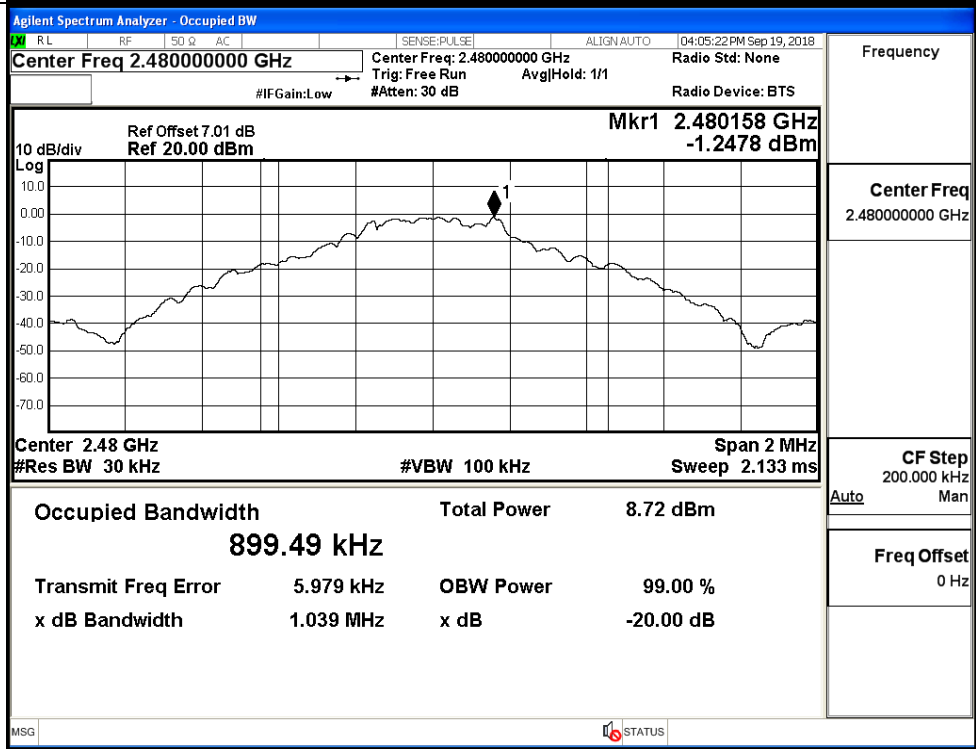
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.032	Not Specified	PASS
	MCH	1.029	Not Specified	PASS
	HCH	1.039	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.287	Not Specified	PASS
	MCH	1.288	Not Specified	PASS
	HCH	1.287	Not Specified	PASS
8DPSK	LCH	1.284	Not Specified	PASS
	MCH	1.288	Not Specified	PASS
	HCH	1.291	Not Specified	PASS



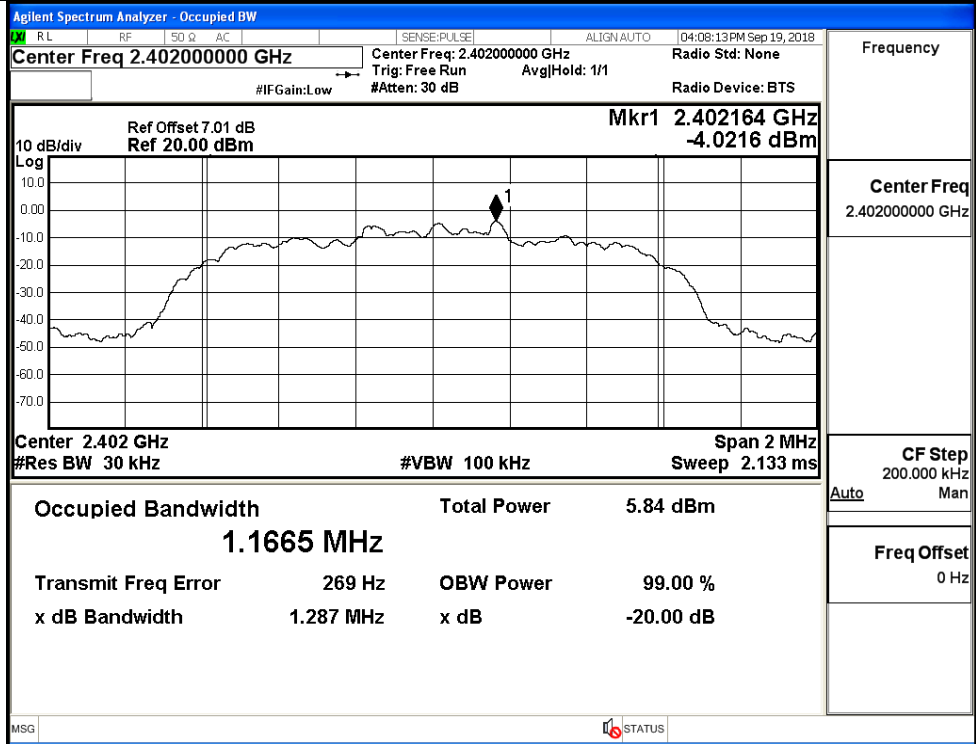
GFSK/MCH



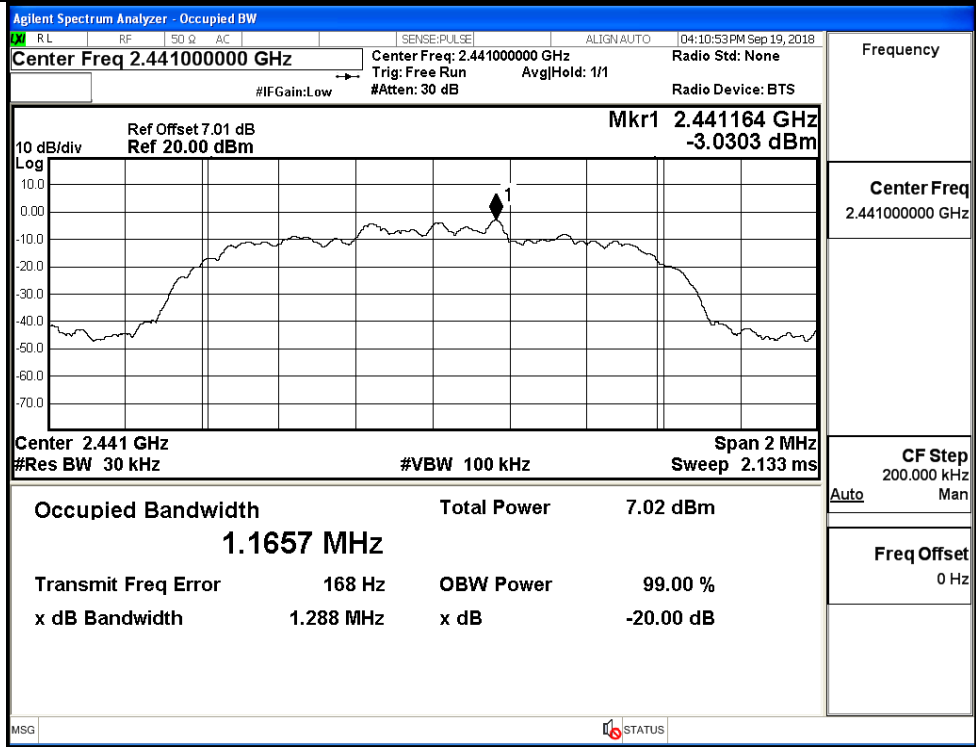
GFSK/HCH



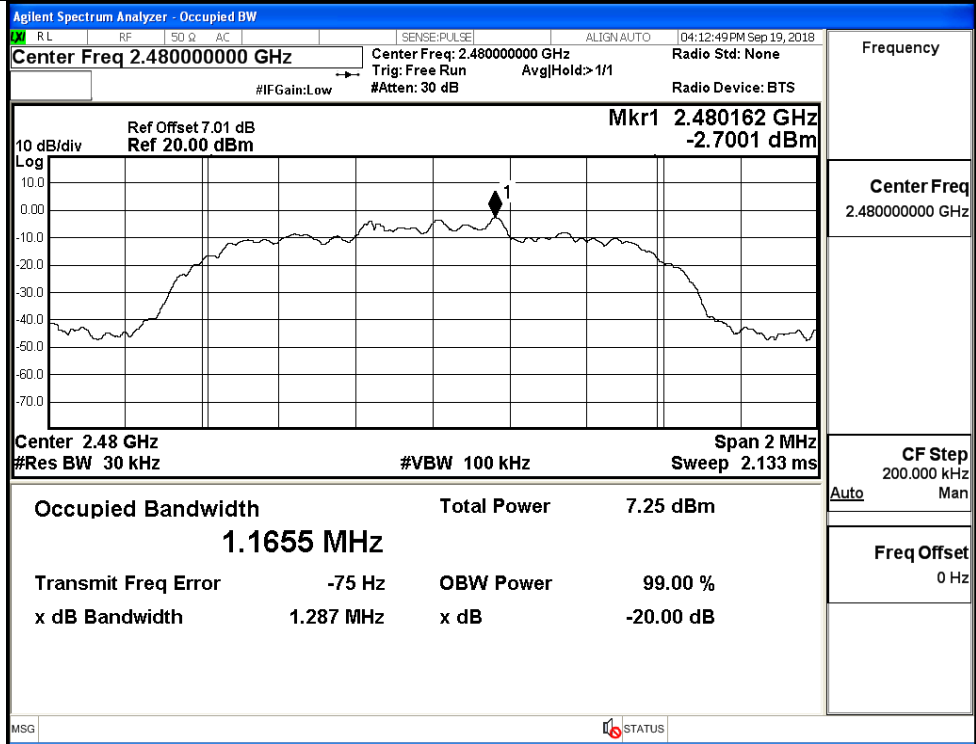
$\pi/4$ DQPSK/LCH



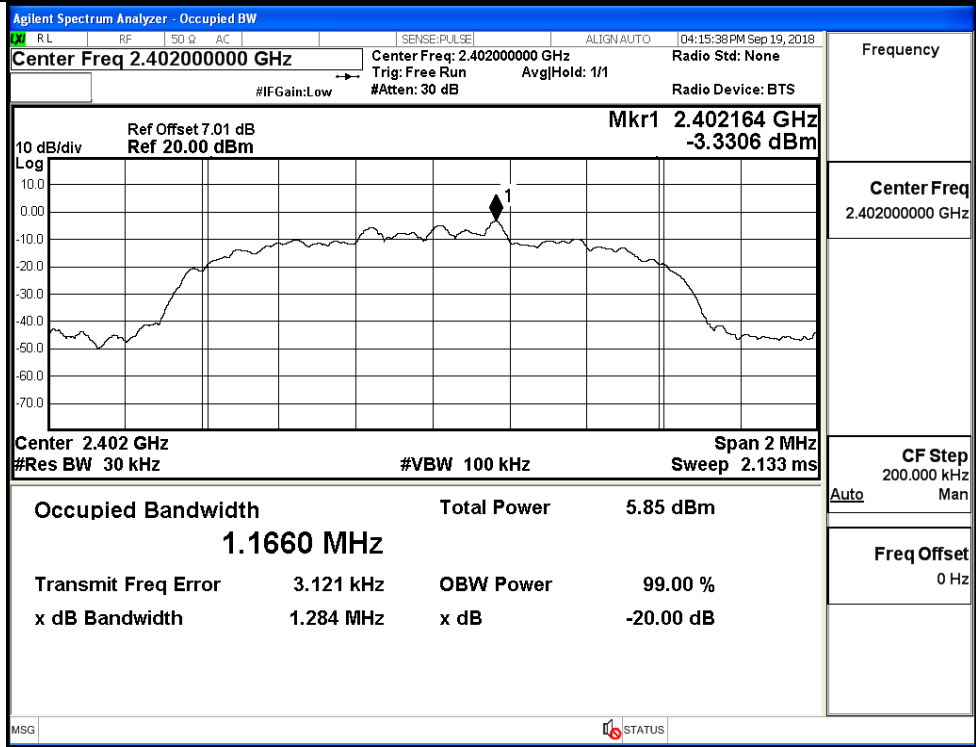
$\pi/4$ DQPSK/MCH



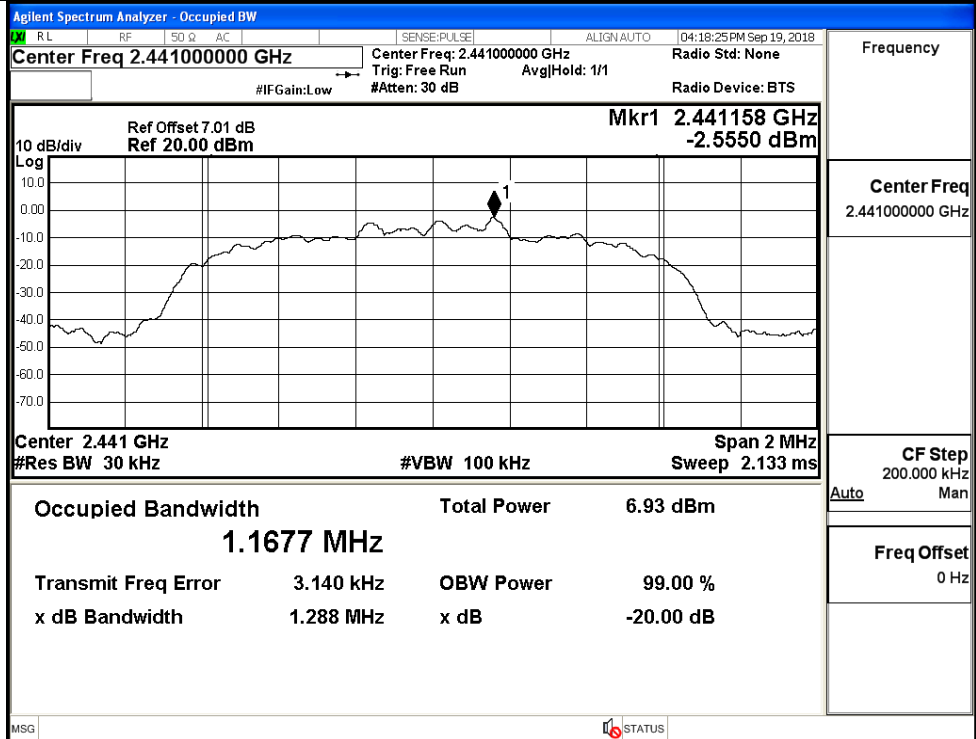
$\pi/4$ DQPSK/HCH



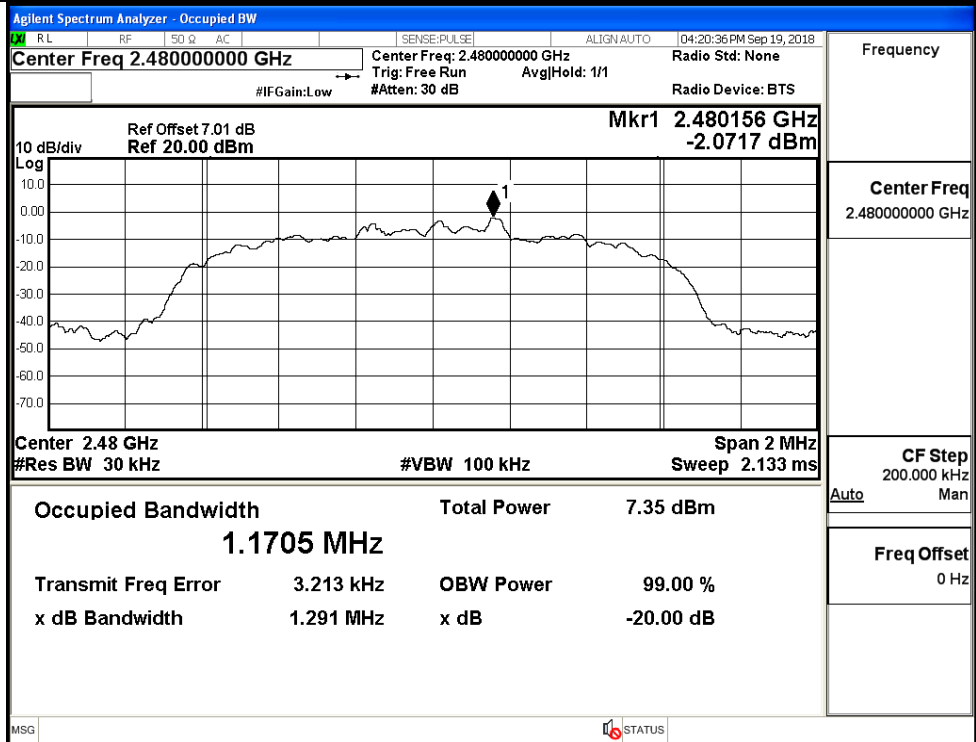
8DPSK/LCH



8DPSK/MCH

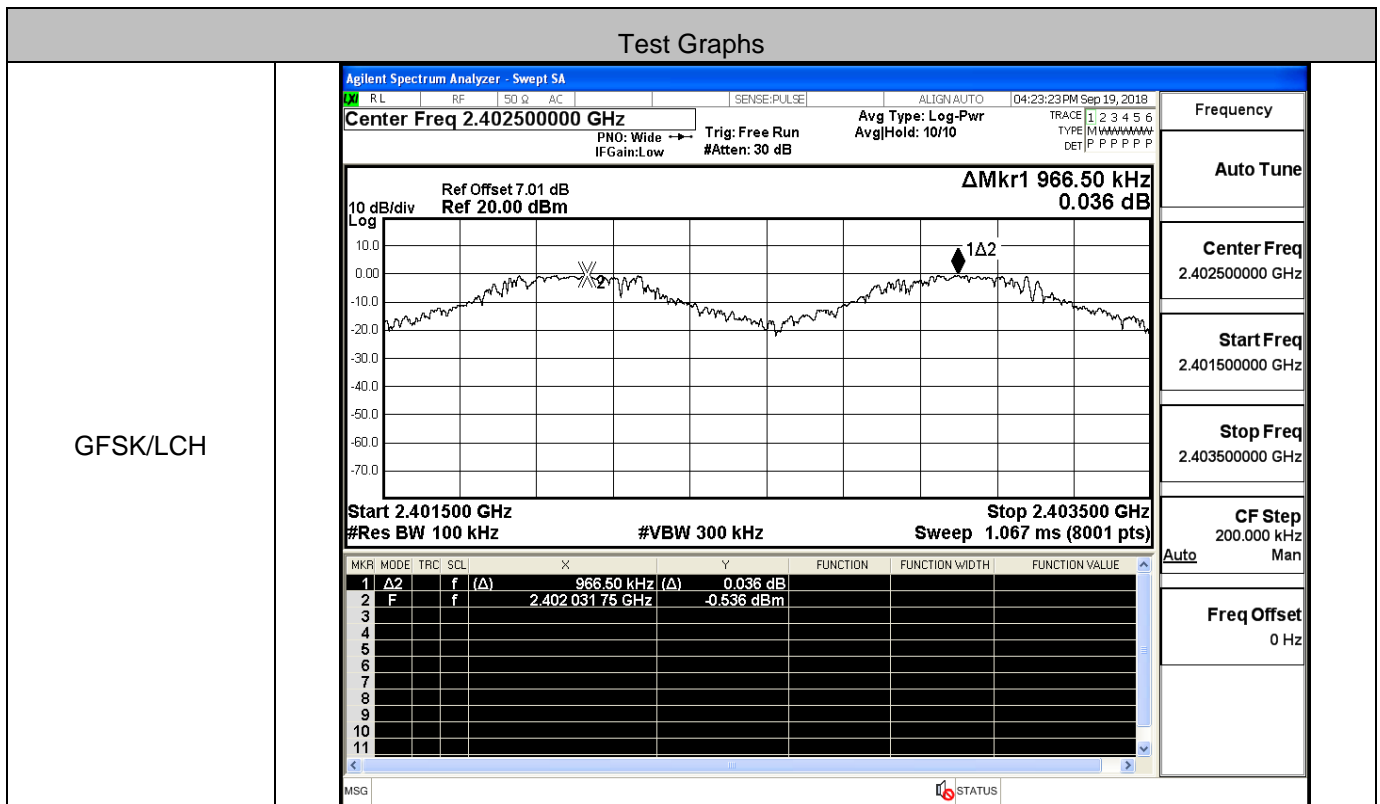


8DPSK/HCH

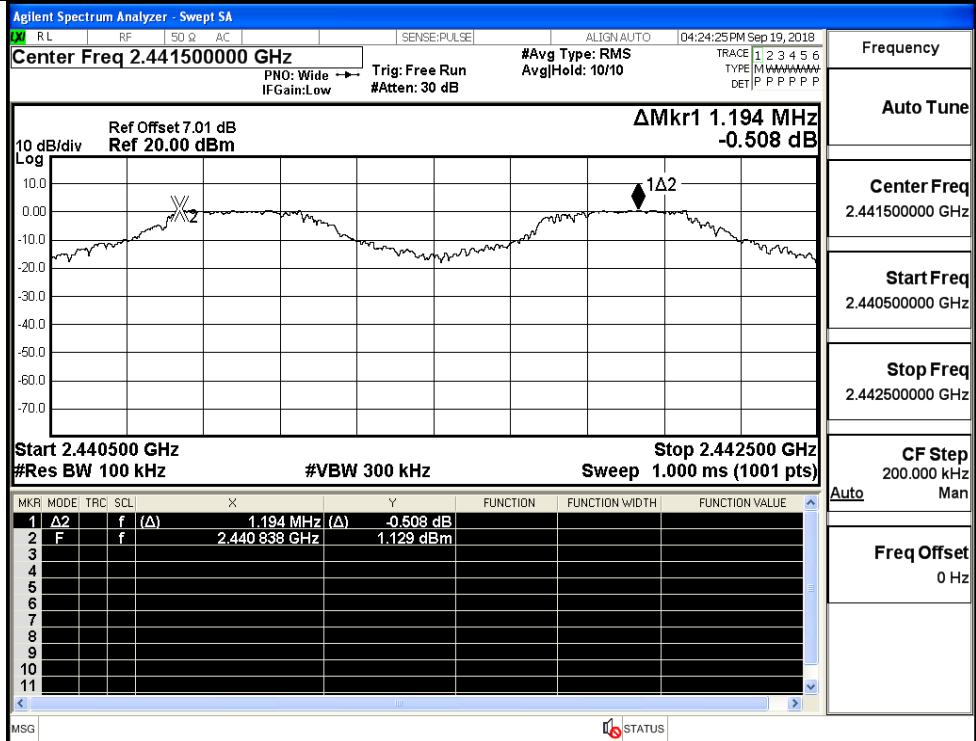


A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.966	0.693	PASS
	MCH	1.194	0.693	PASS
	HCH	1.148	0.693	PASS
π/4DQPSK	LCH	0.988	0.859	PASS
	MCH	0.992	0.859	PASS
	HCH	1.186	0.859	PASS
8DPSK	LCH	1.116	0.861	PASS
	MCH	1.262	0.861	PASS
	HCH	1.326	0.861	PASS

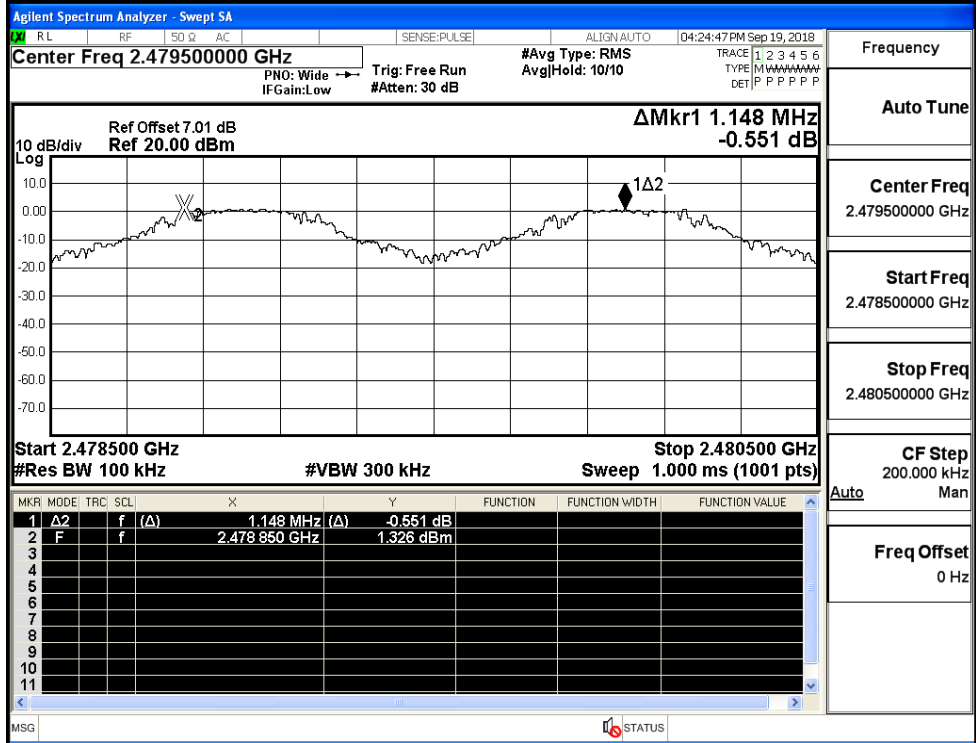


GFSK/MCH



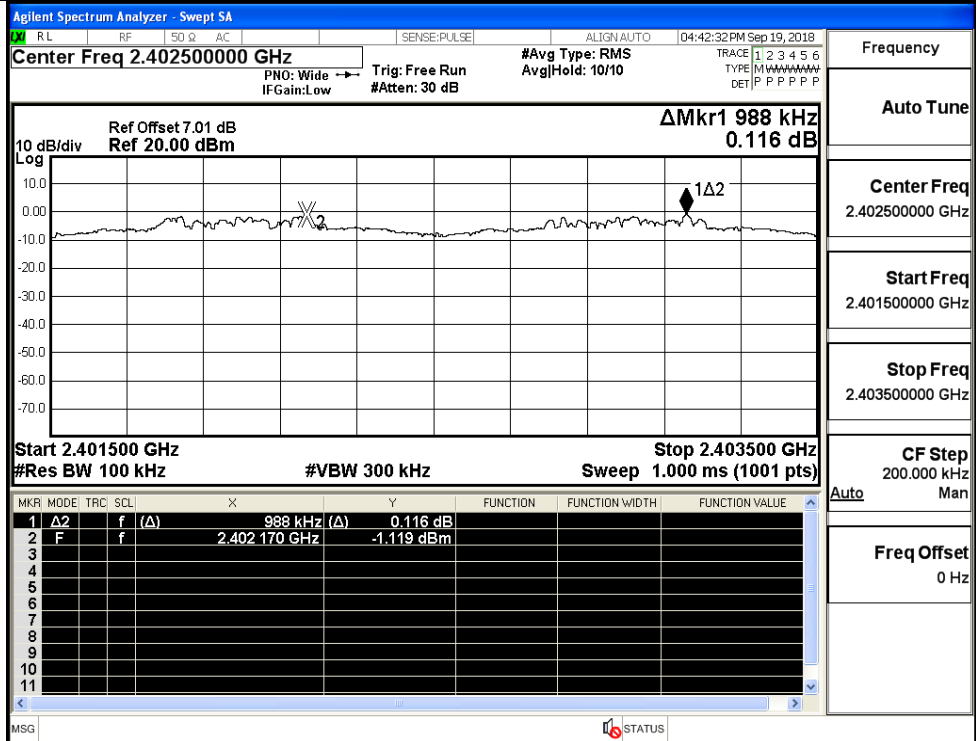
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440500000 GHz
Stop Freq
2.442500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

GFSK/HCH

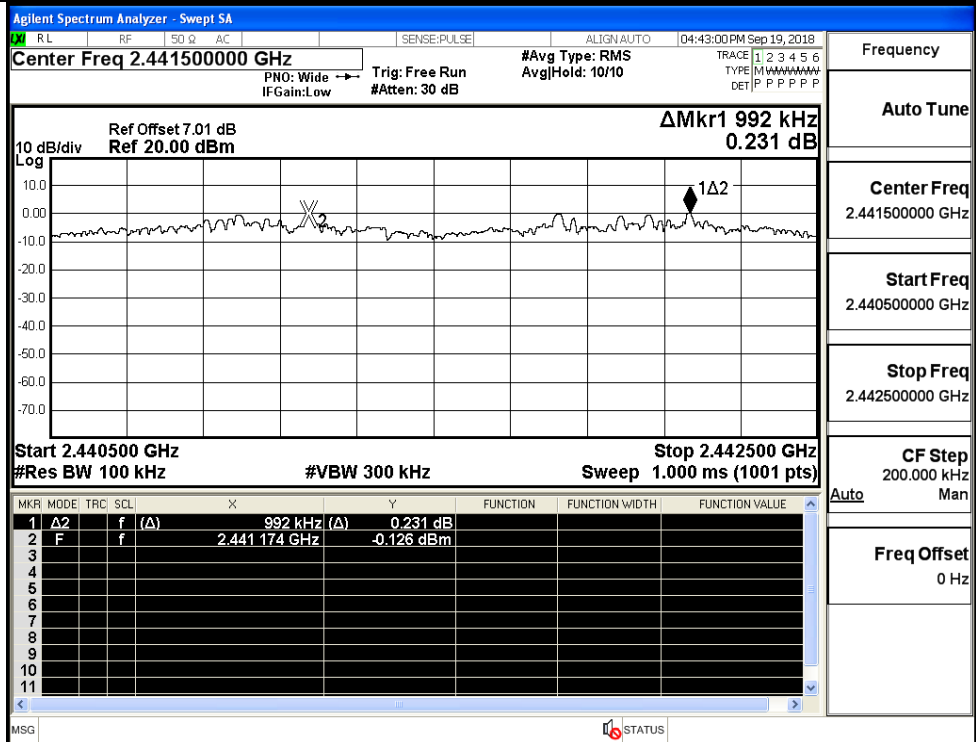


Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

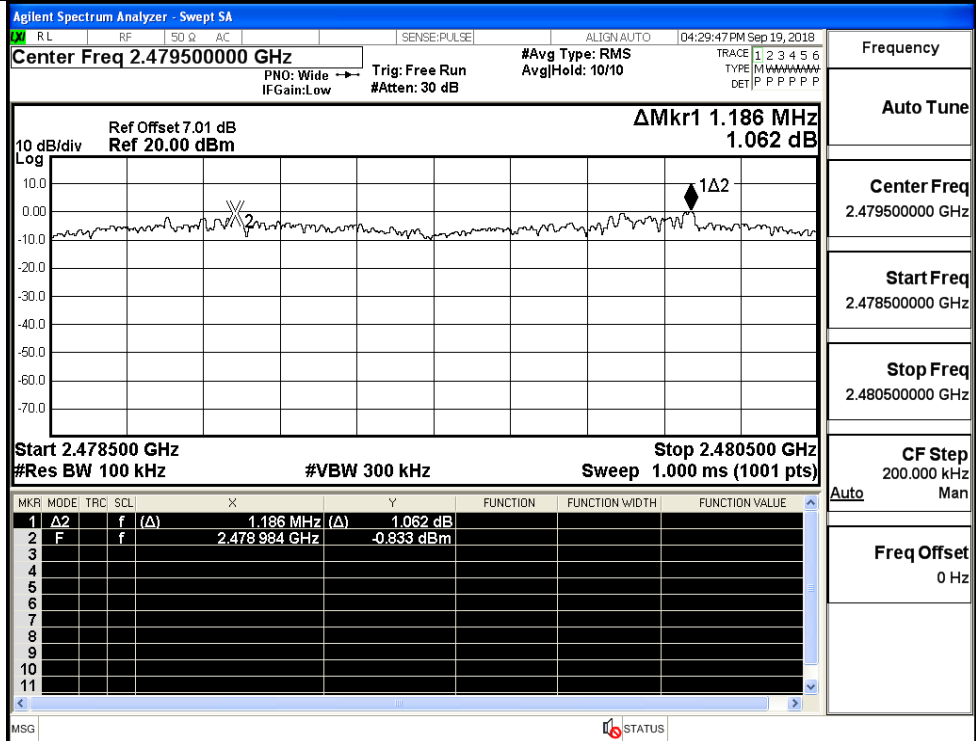
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH

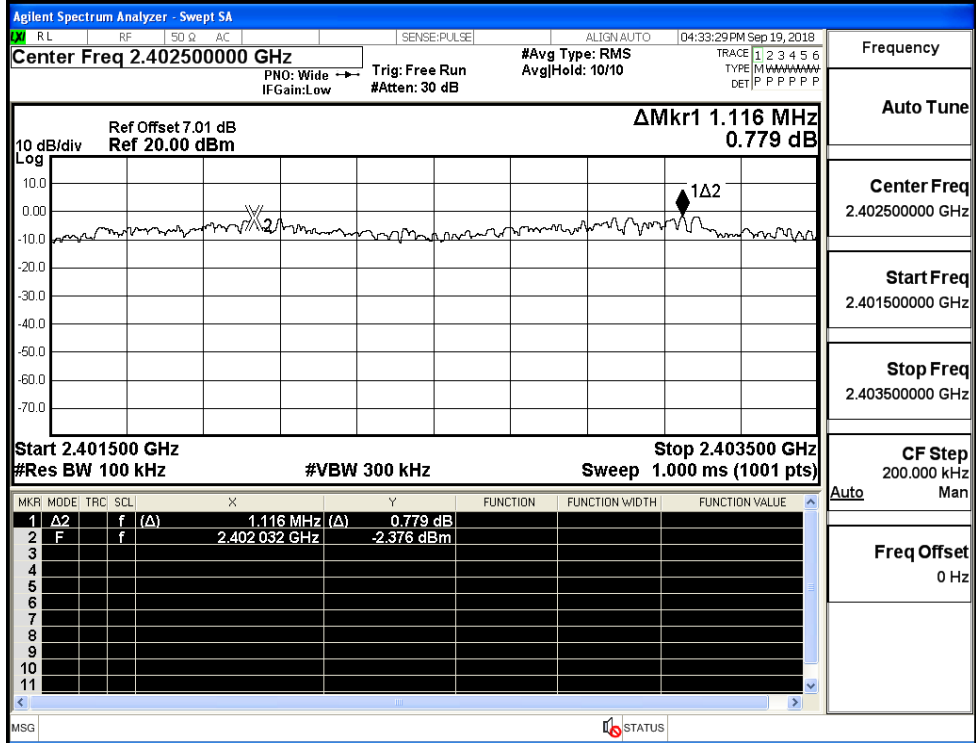


π/4DQPSK/HCH



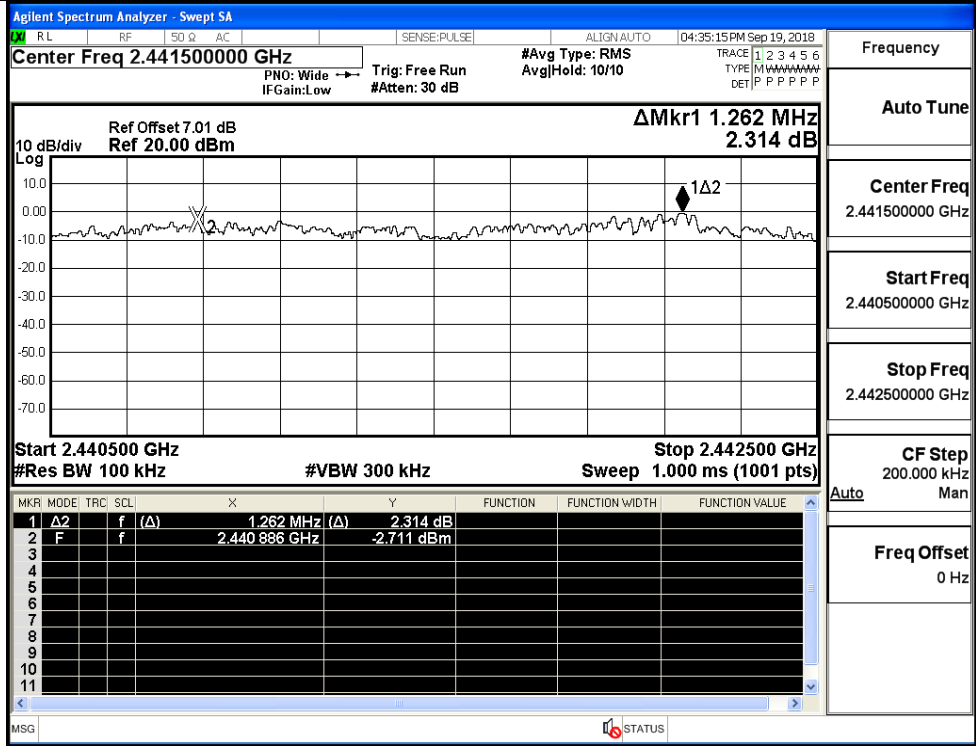
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.480500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

8DPSK/LCH

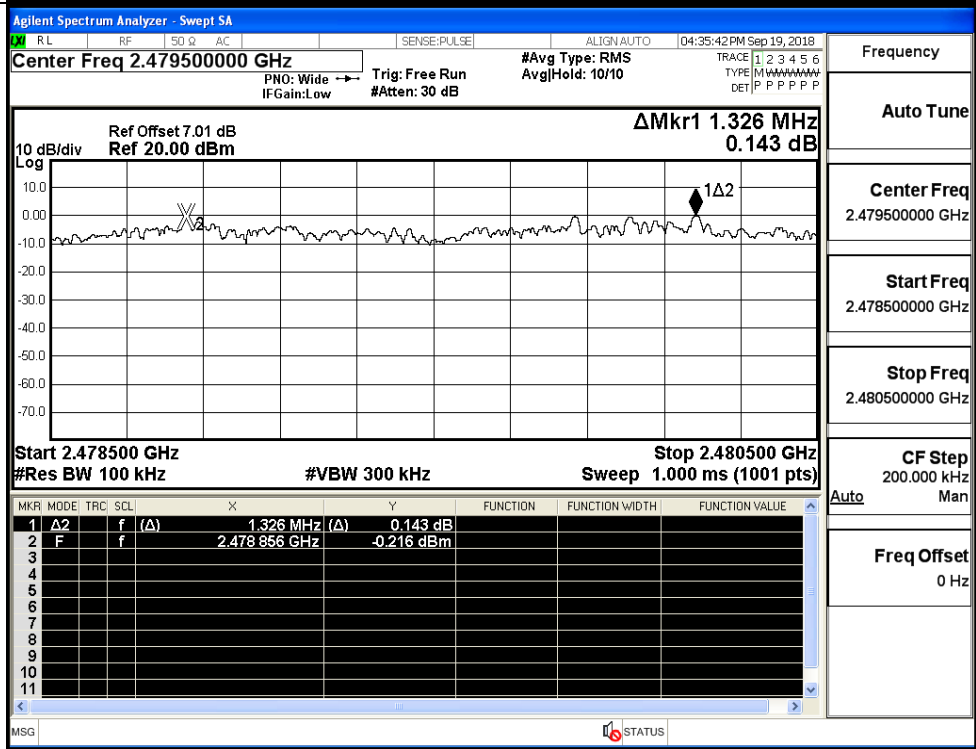


Frequency
Auto Tune
Center Freq
2.402500000 GHz
Start Freq
2.401500000 GHz
Stop Freq
2.403500000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz

8DPSK/MCH



8DPSK/HCH



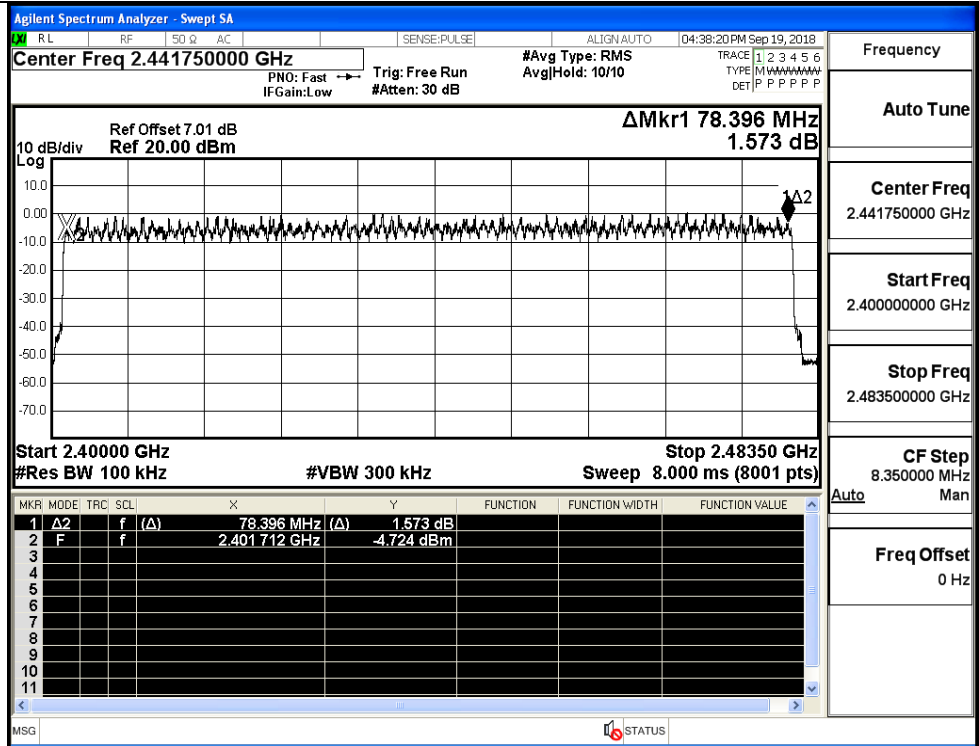
A.4 Hopping Channel Number

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

Test Graphs

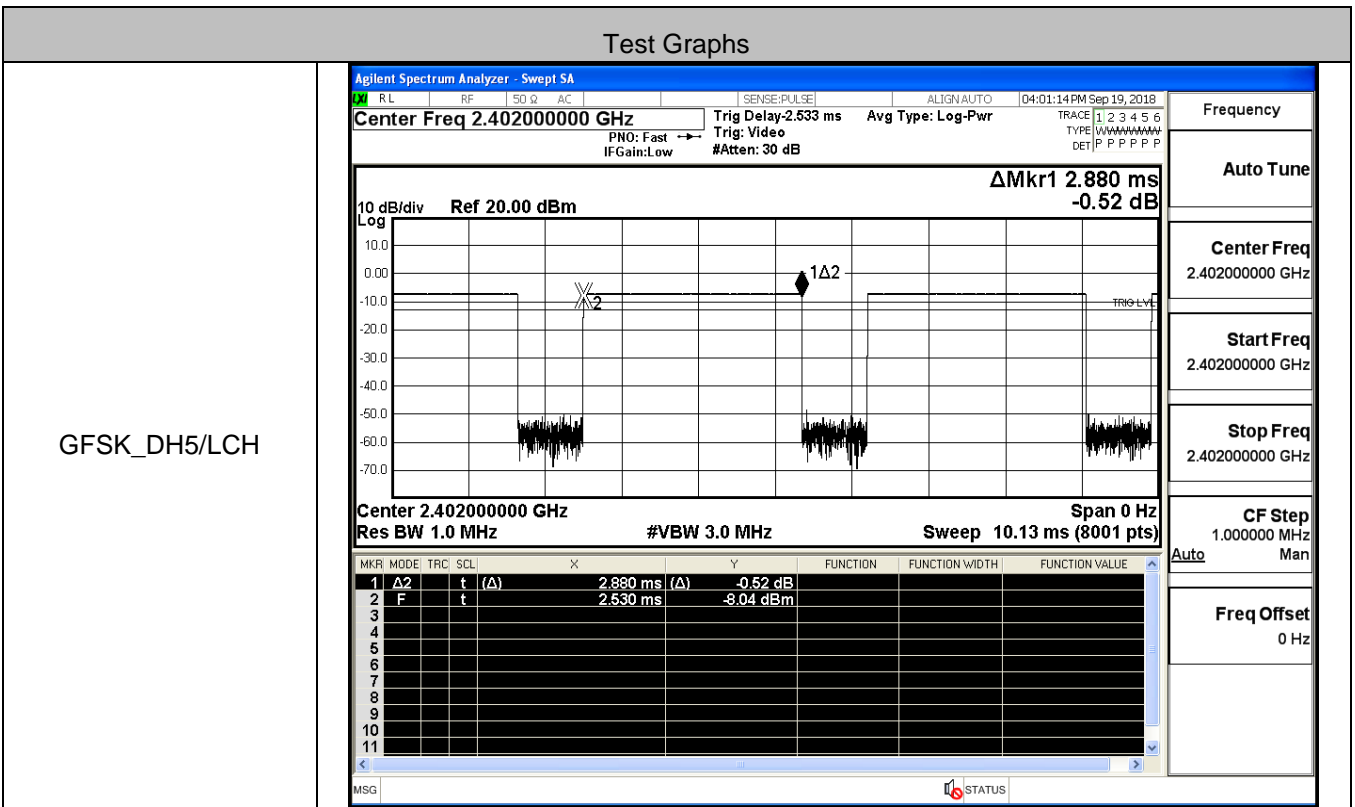
GFSK/Hop	<table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Δ2</td> <td>f</td> <td>(Δ)</td> <td>77.989 MHz (Δ)</td> <td>1.470 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.401 973 GHz</td> <td>-0.318 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)	77.989 MHz (Δ)	1.470 dB				2	F	f		2.401 973 GHz	-0.318 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																					
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2	F	f		2.401 973 GHz	-0.318 dBm																								
$\pi/4$ DQPSK/Hop	<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>78.010 MHz (Δ)</td> <td>2.120 dB</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.401 837 GHz</td> <td>-1.983 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)	78.010 MHz (Δ)	2.120 dB				2	F	f		2.401 837 GHz	-1.983 dBm				<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441750000 GHz</p> <p>Start Freq 2.400000000 GHz</p> <p>Stop Freq 2.483500000 GHz</p> <p>CF Step 8.350000 MHz Man</p> <p>Freq Offset 0 Hz</p>
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1	Δ 2	f	(Δ)	78.010 MHz (Δ)	2.120 dB																								
2	F	f		2.401 837 GHz	-1.983 dBm																								

8DPSK/Hop

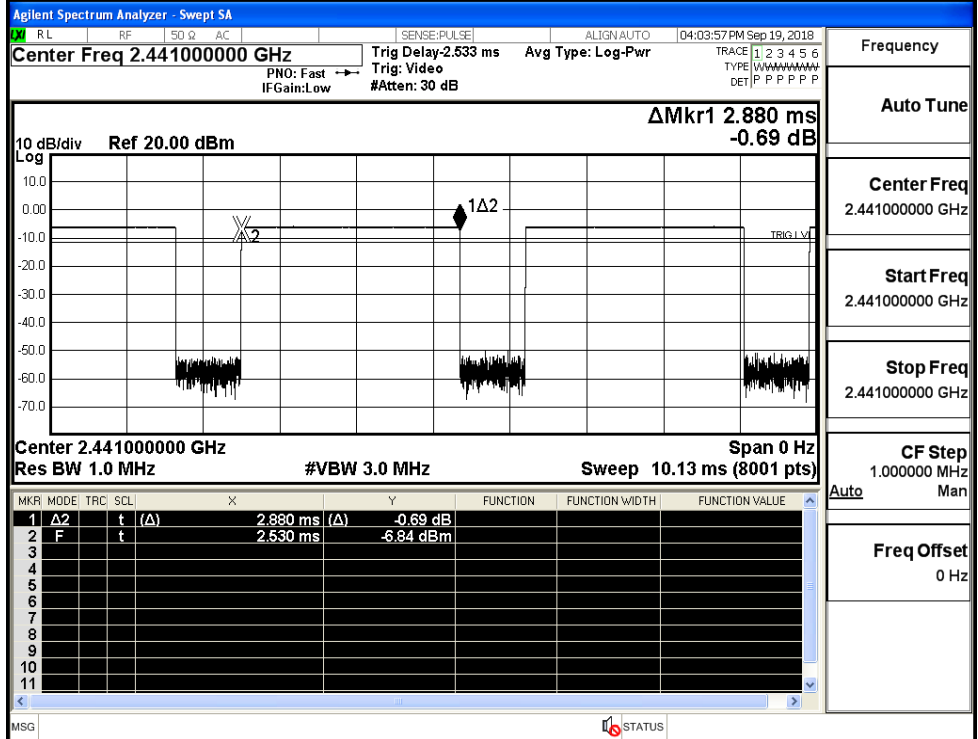


A.5 Dwell Time

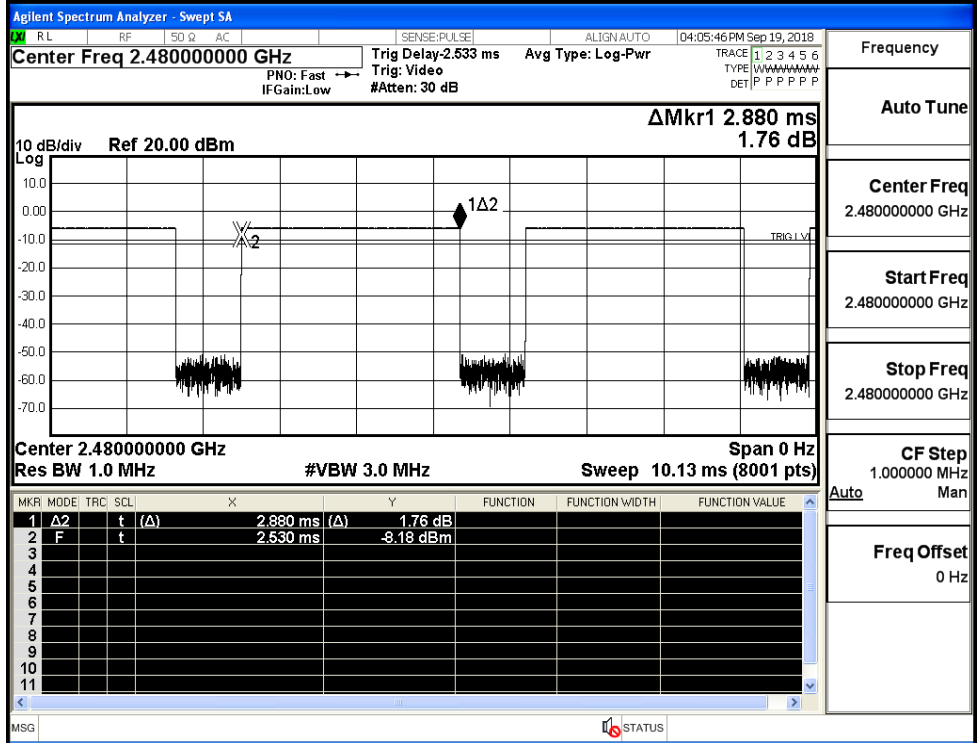
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7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



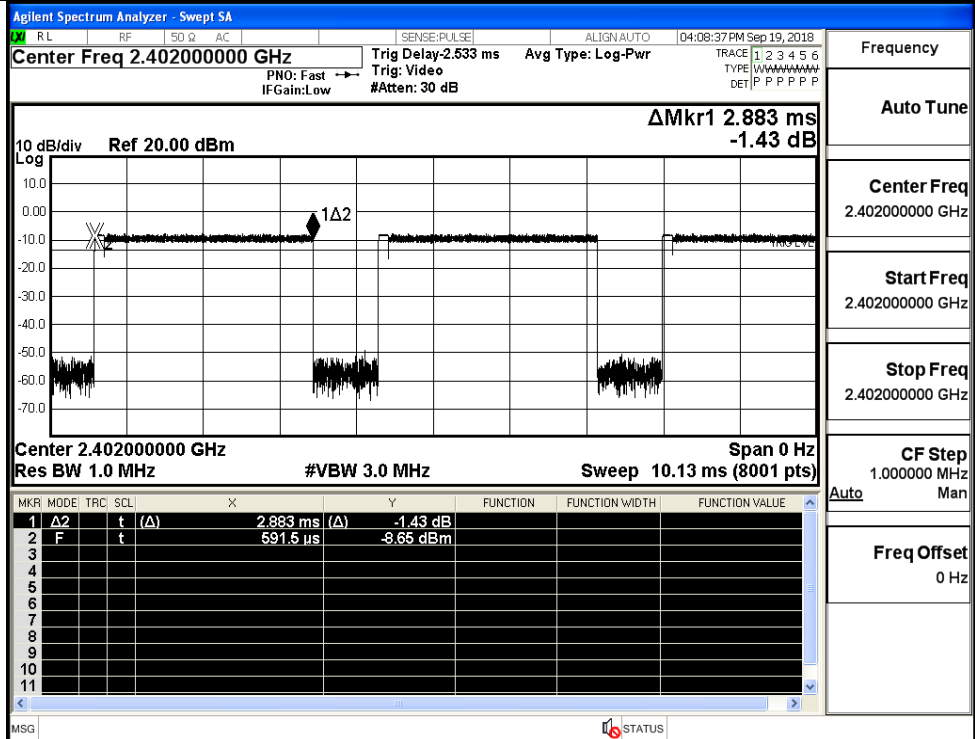
GFSK_DH5/MCH



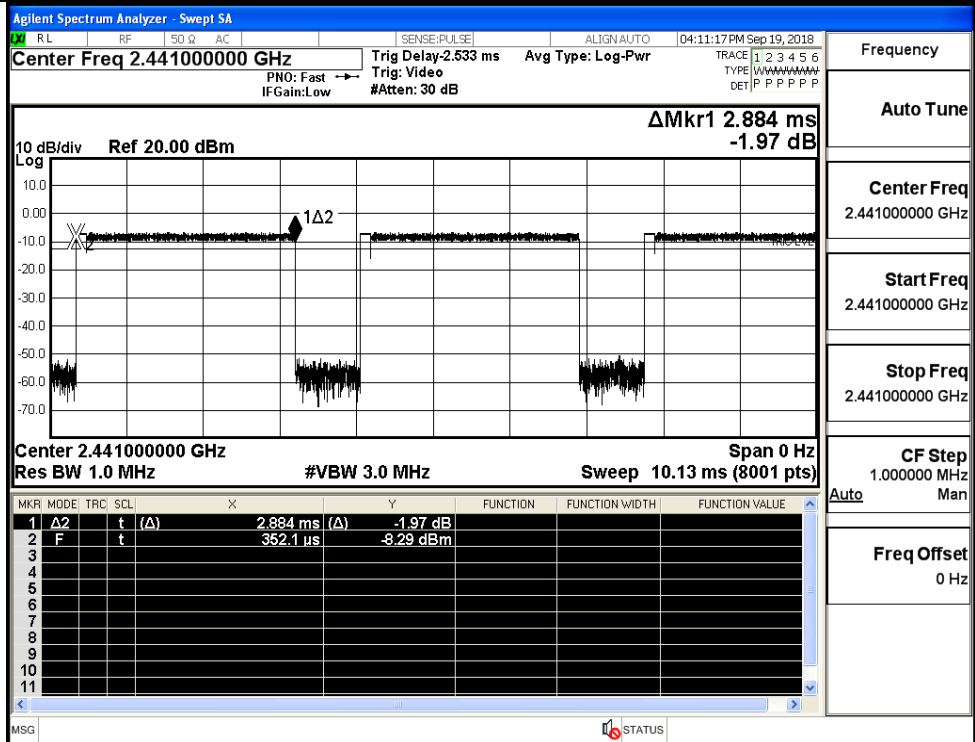
GFSK_DH5/HCH



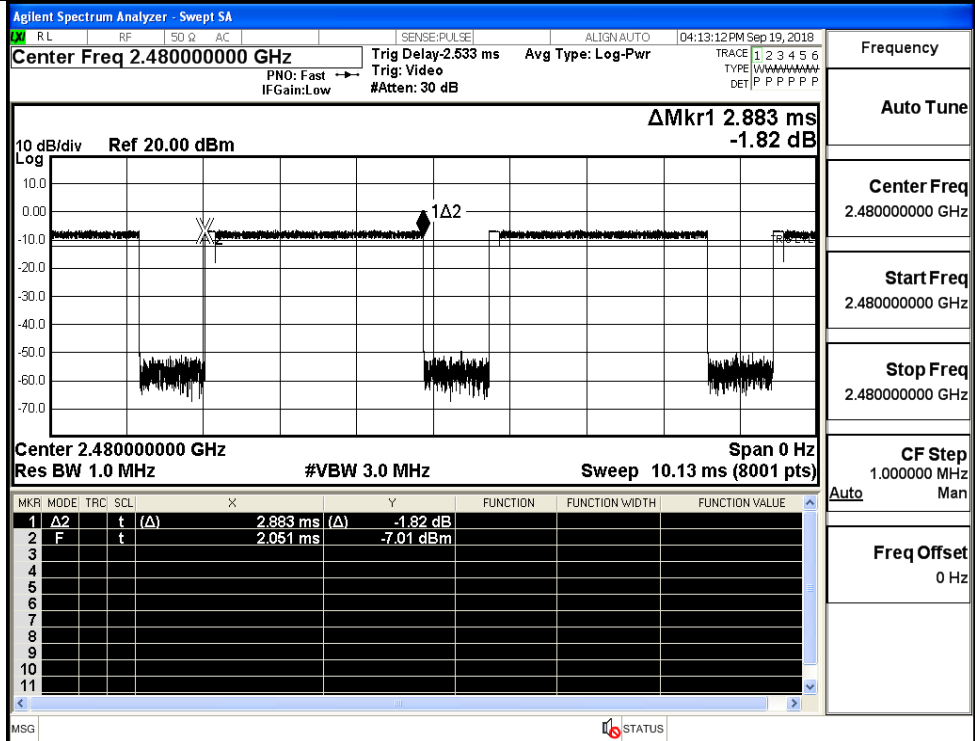
$\pi/4$ DQPSK
_2DH5/LCH



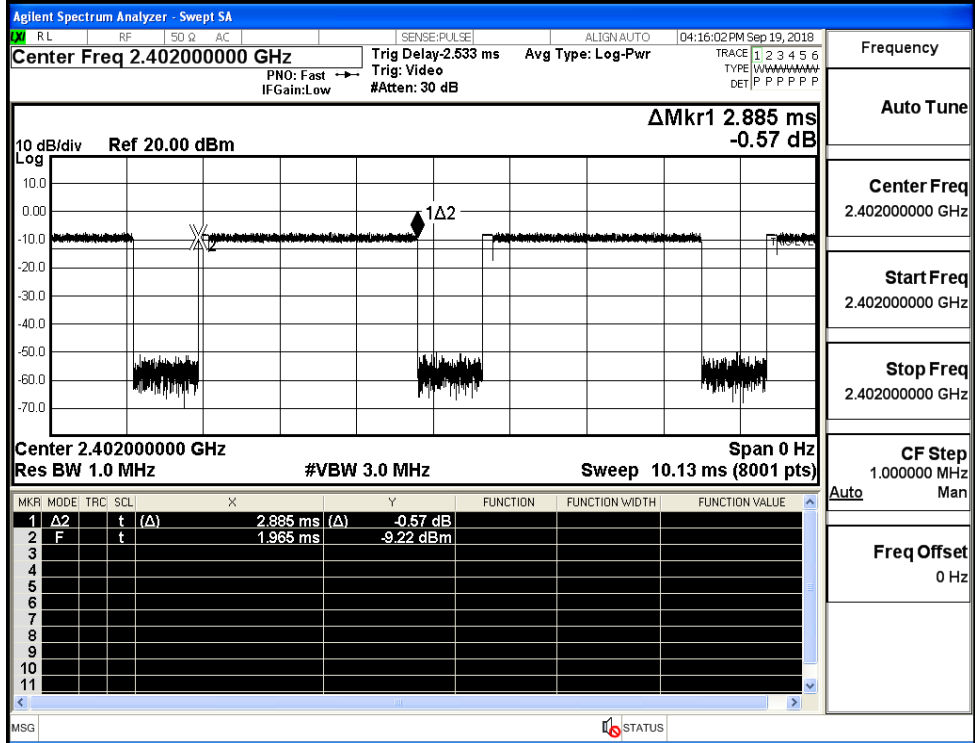
$\pi/4$ DQPSK
_2DH5/MCH



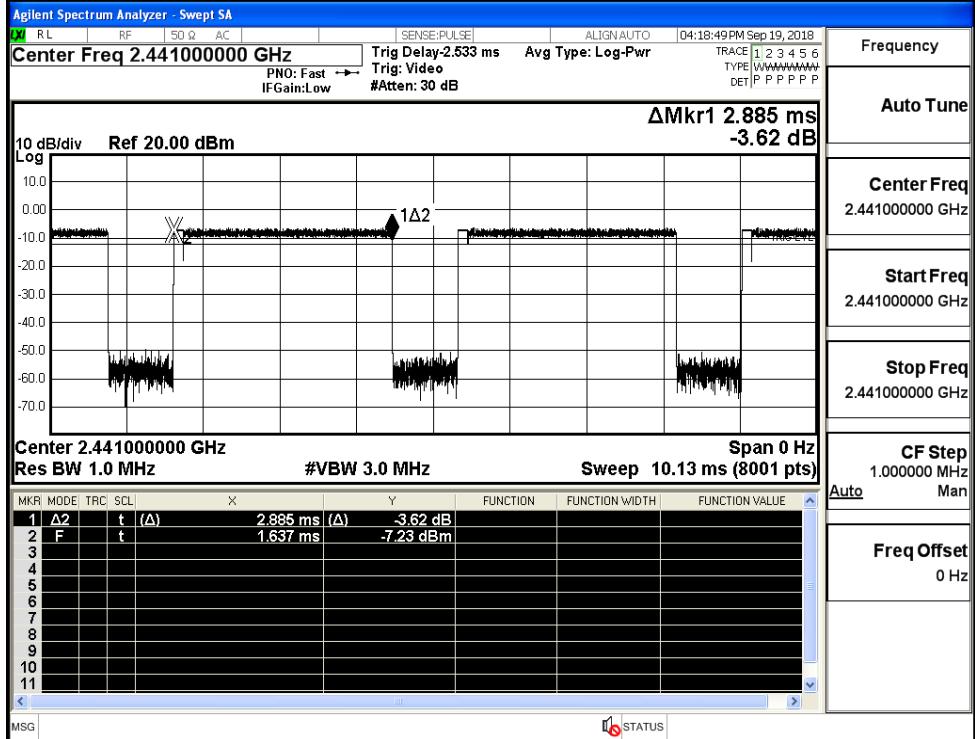
$\pi/4$ DQPSK
_2DH5/HCH



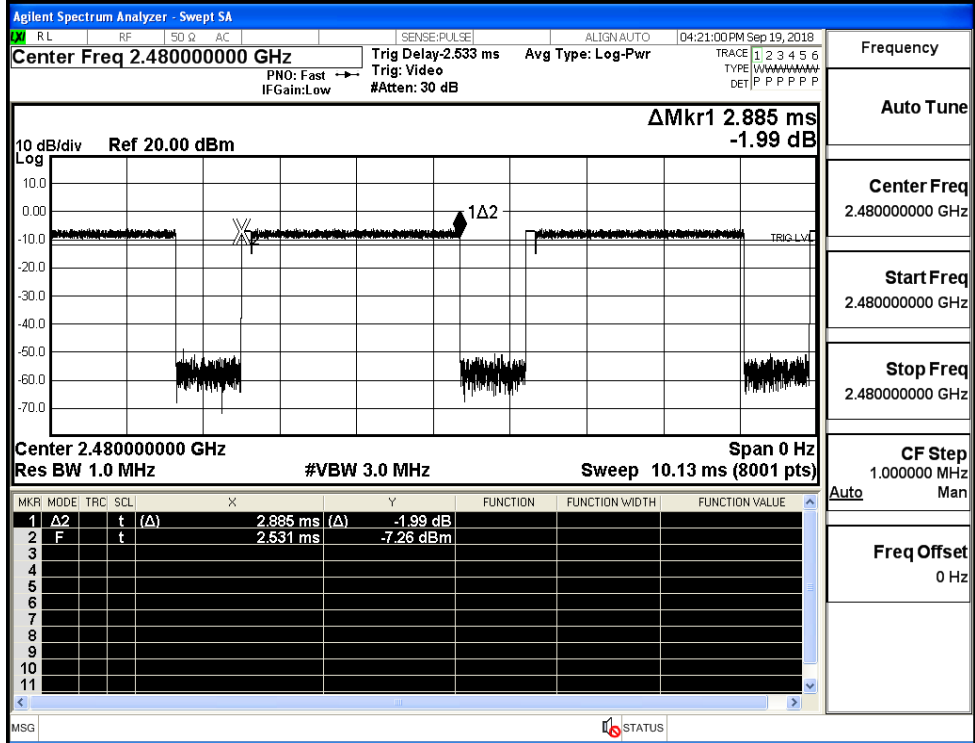
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



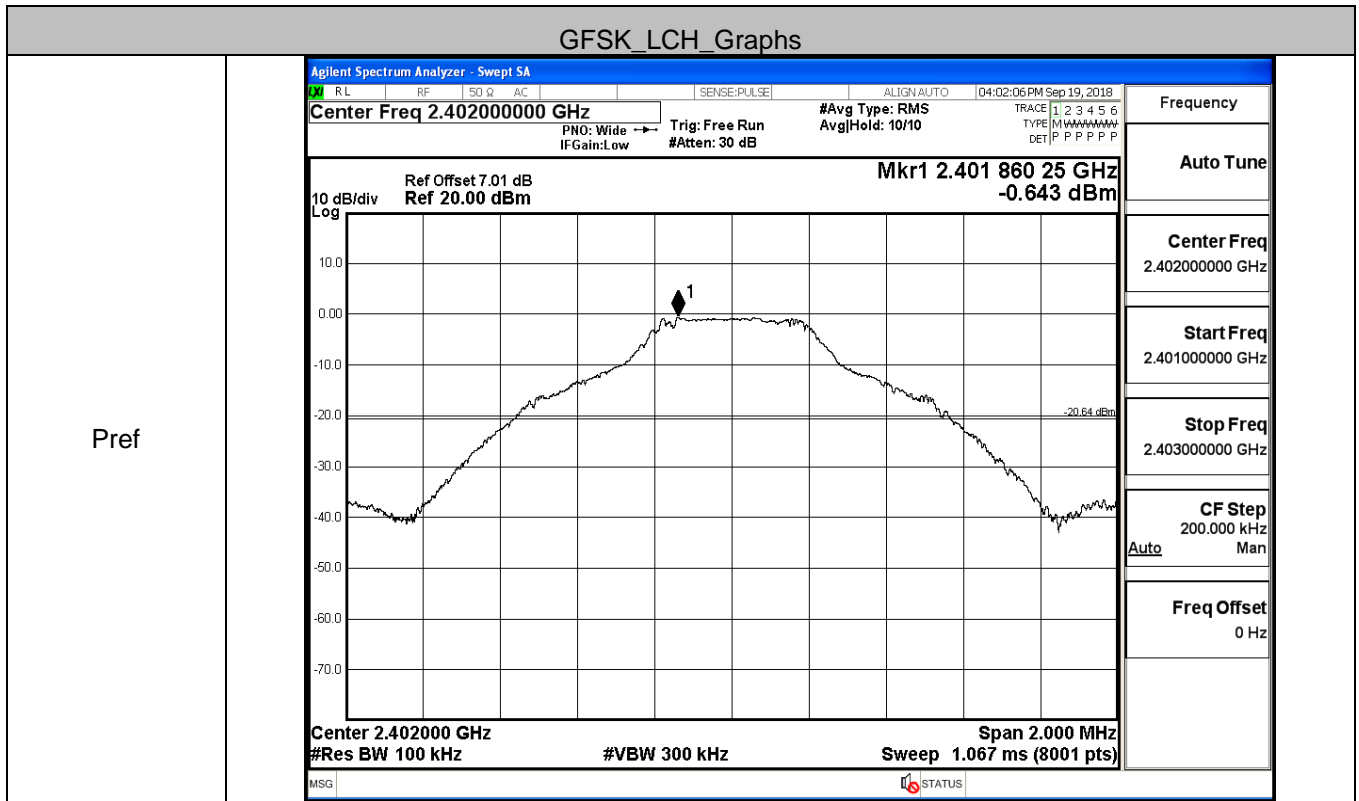
8DPSK_3DH5/HCH

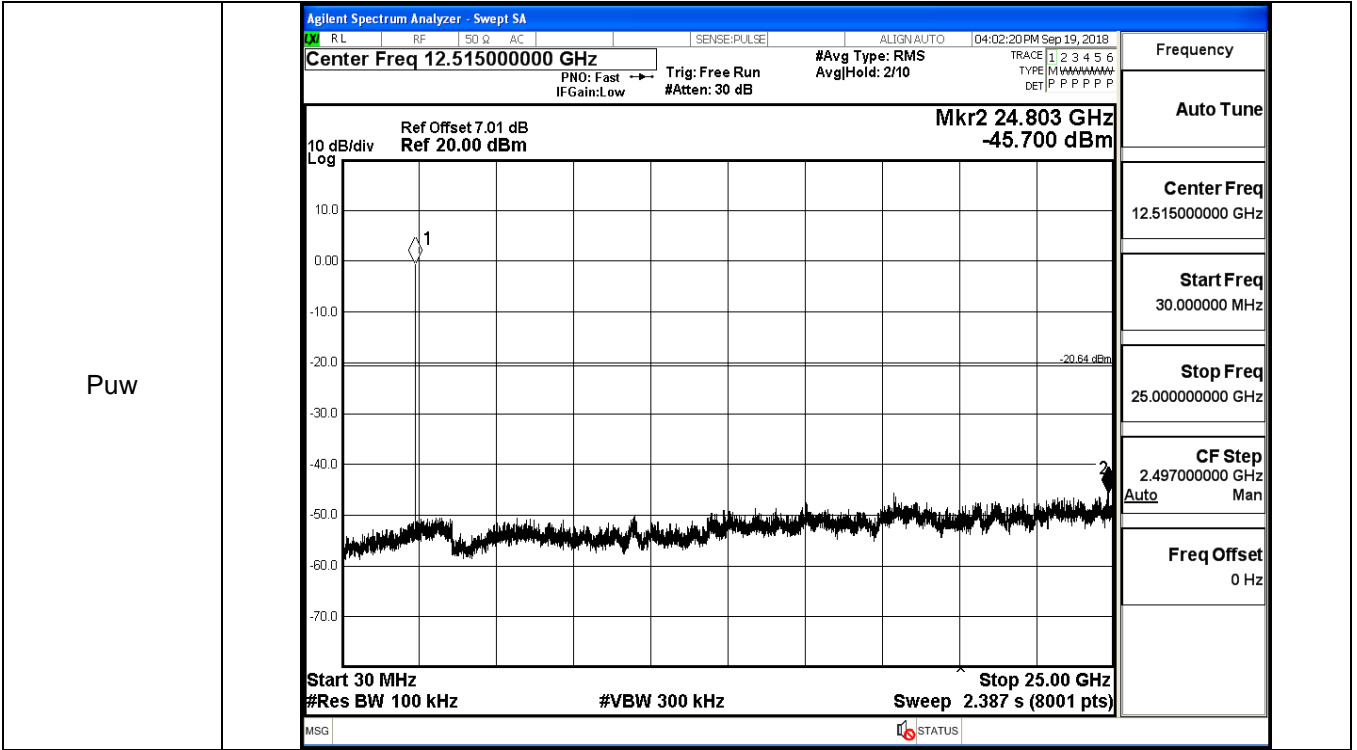


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.643	-45.700	-20.643	PASS
	MCH	0.918	-45.859	-19.082	PASS
	HCH	1.126	-46.278	-18.874	PASS
π /4DQPSK	LCH	-1.272	-44.780	-21.272	PASS
	MCH	-0.254	-45.789	-20.254	PASS
	HCH	-0.484	-46.009	-20.484	PASS
8DPSK	LCH	-1.393	-45.598	-21.393	PASS
	MCH	-0.383	-45.089	-20.383	PASS
	HCH	0.028	-45.817	-19.972	PASS

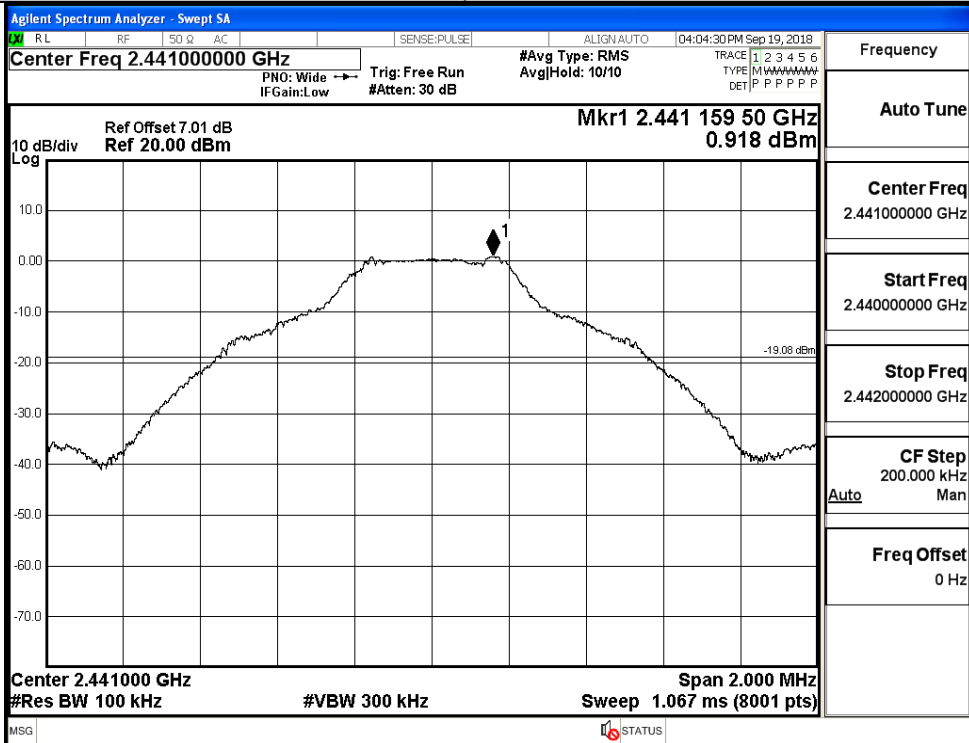
GFSK_LCH_Graphs



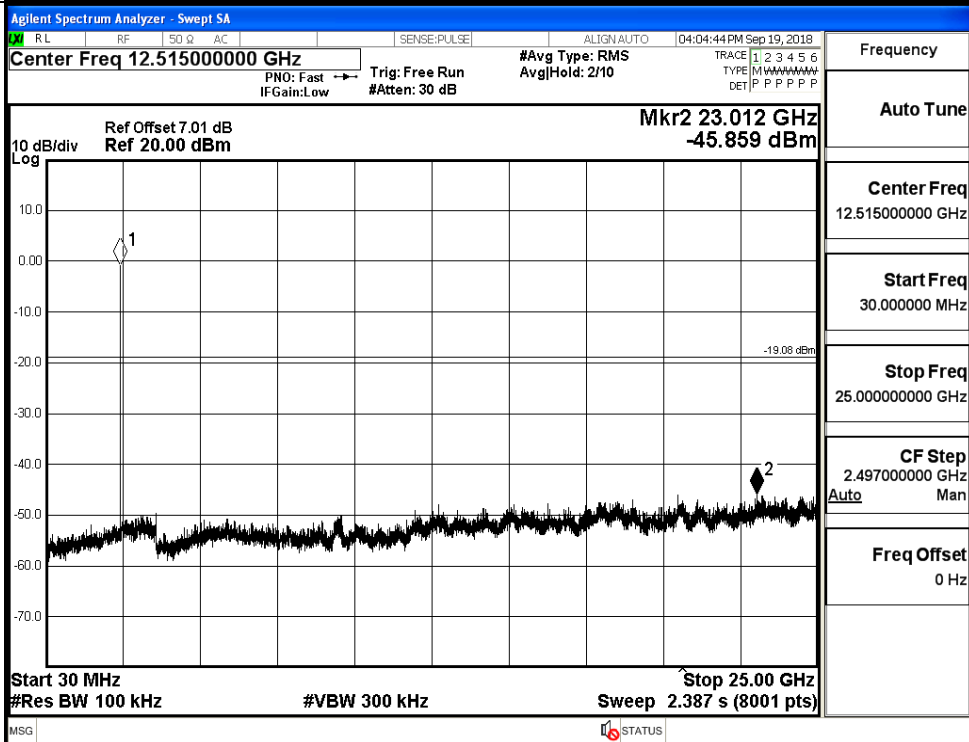


GFSK_MCH_Graphs

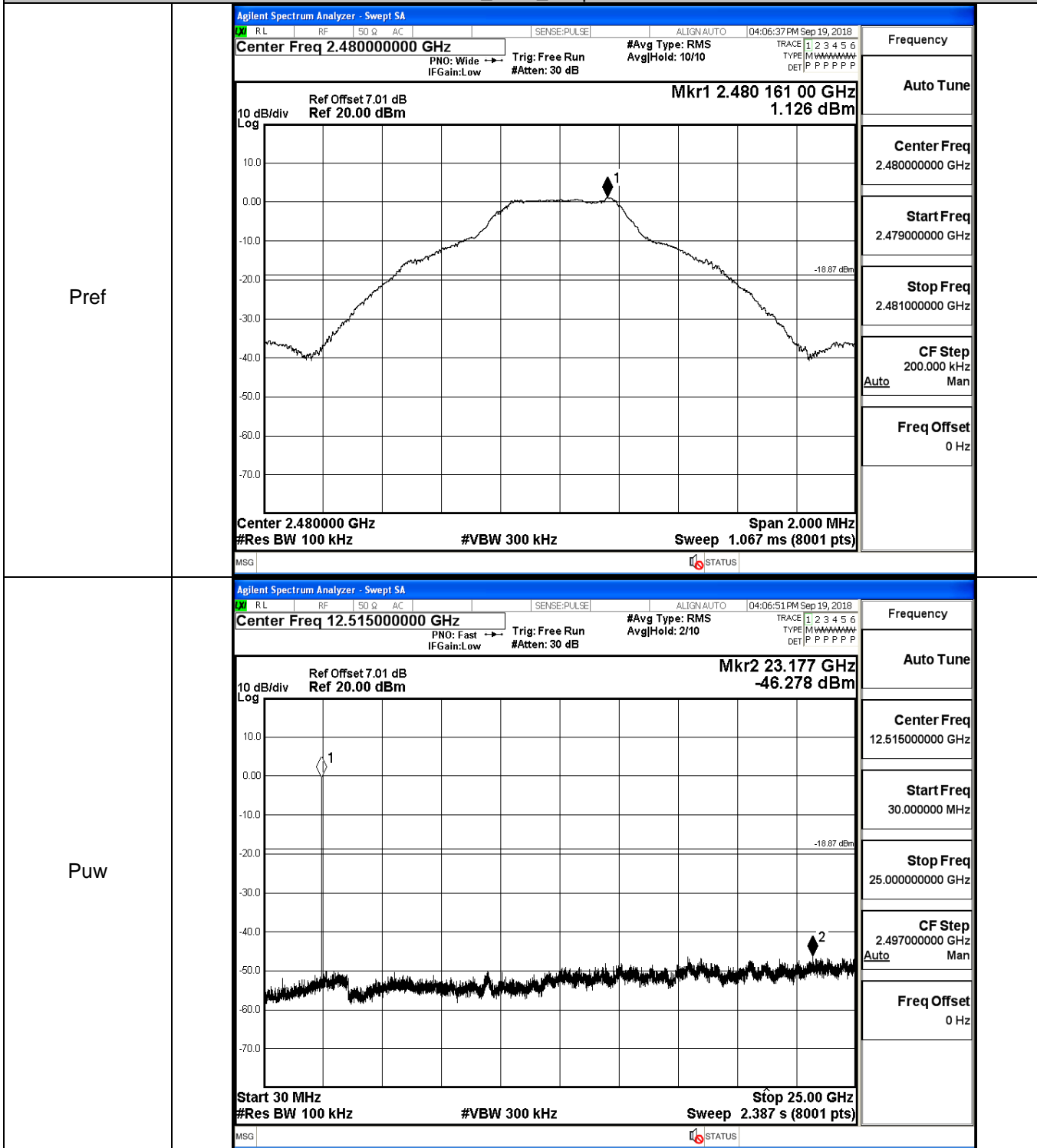
Pref



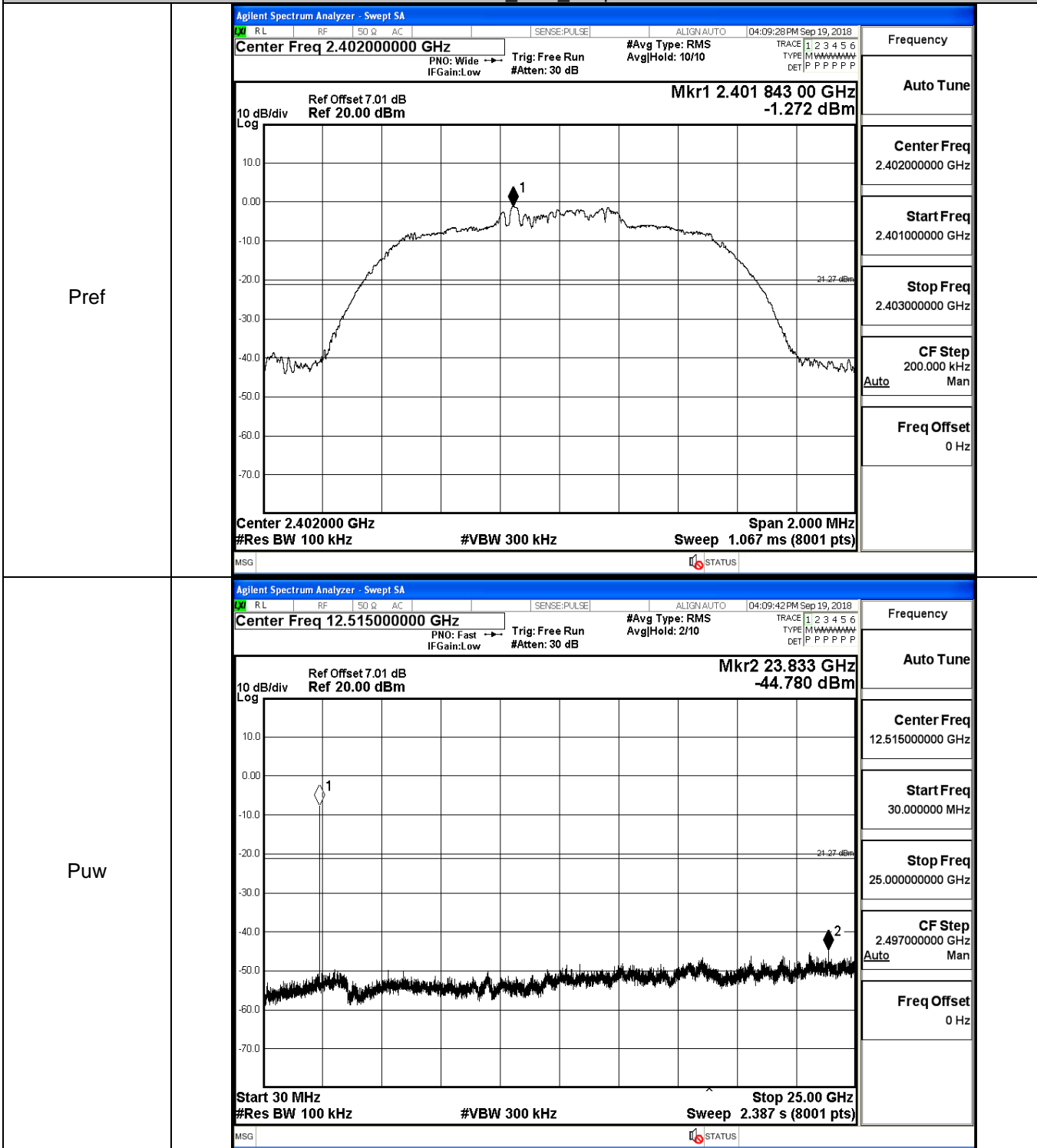
Puw



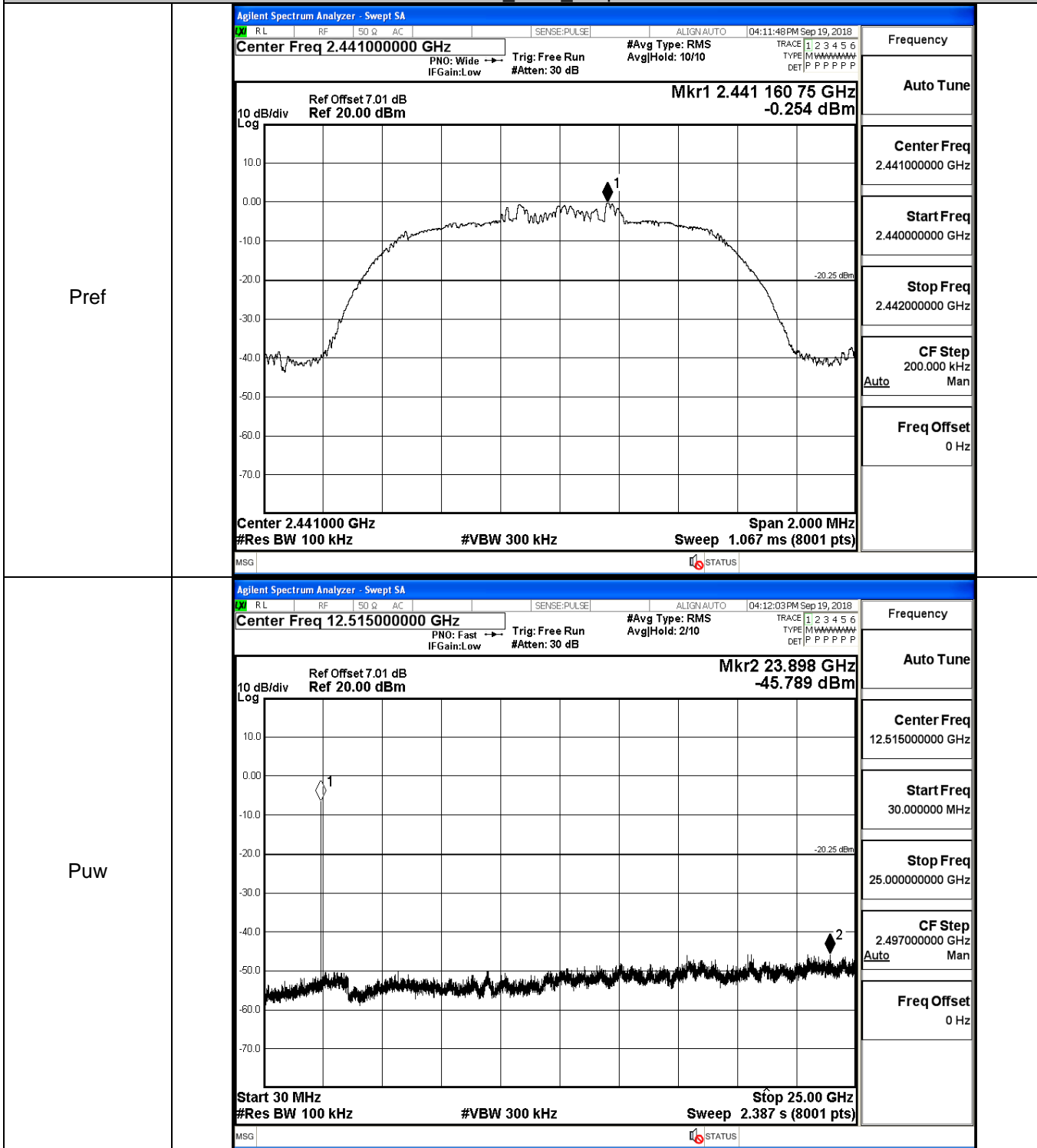
GFSK_HCH_Graphs



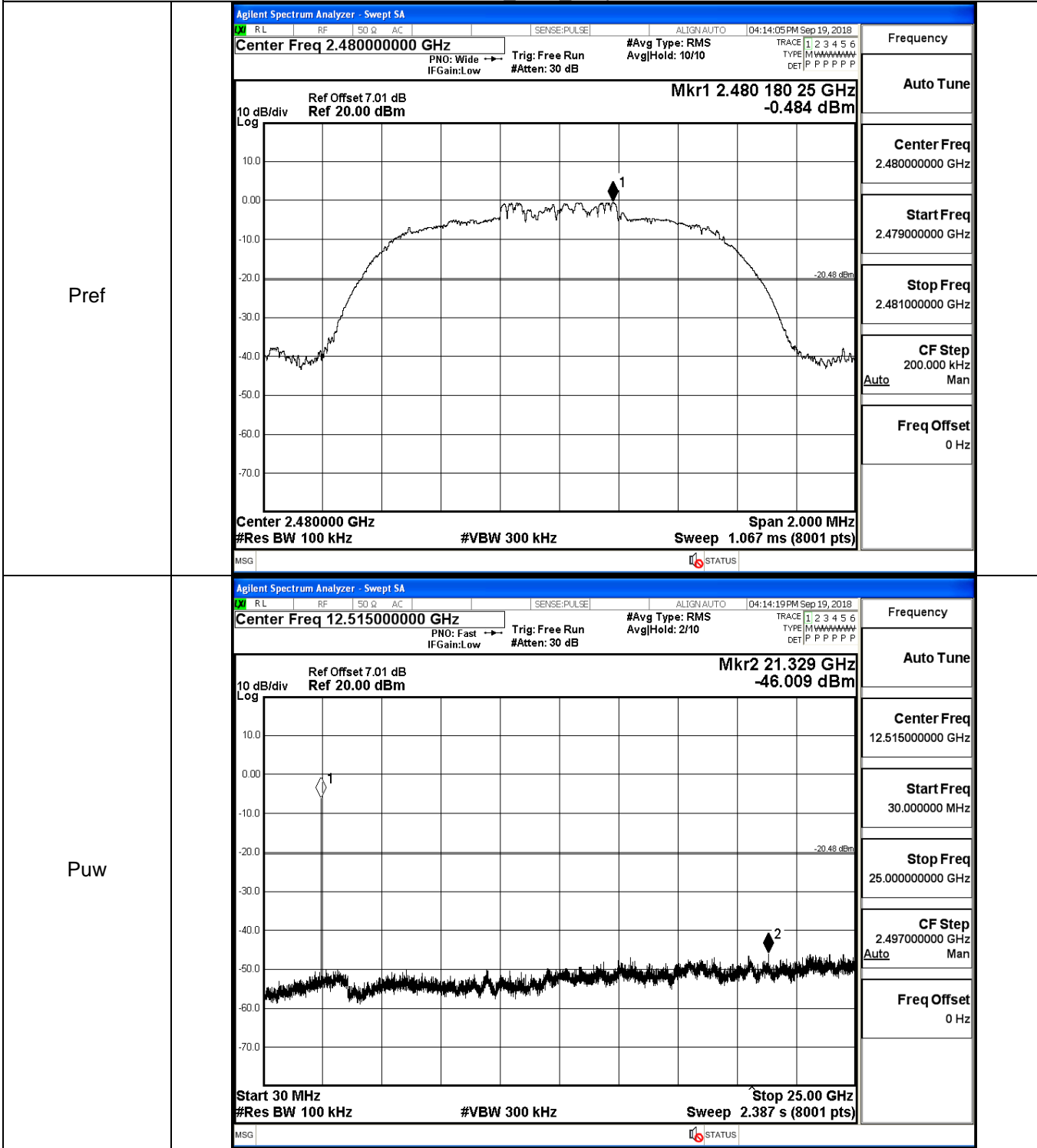
$\pi/4$ DQPSK_LCH_Graphs



π /4DQPSK_MCH_Graphs

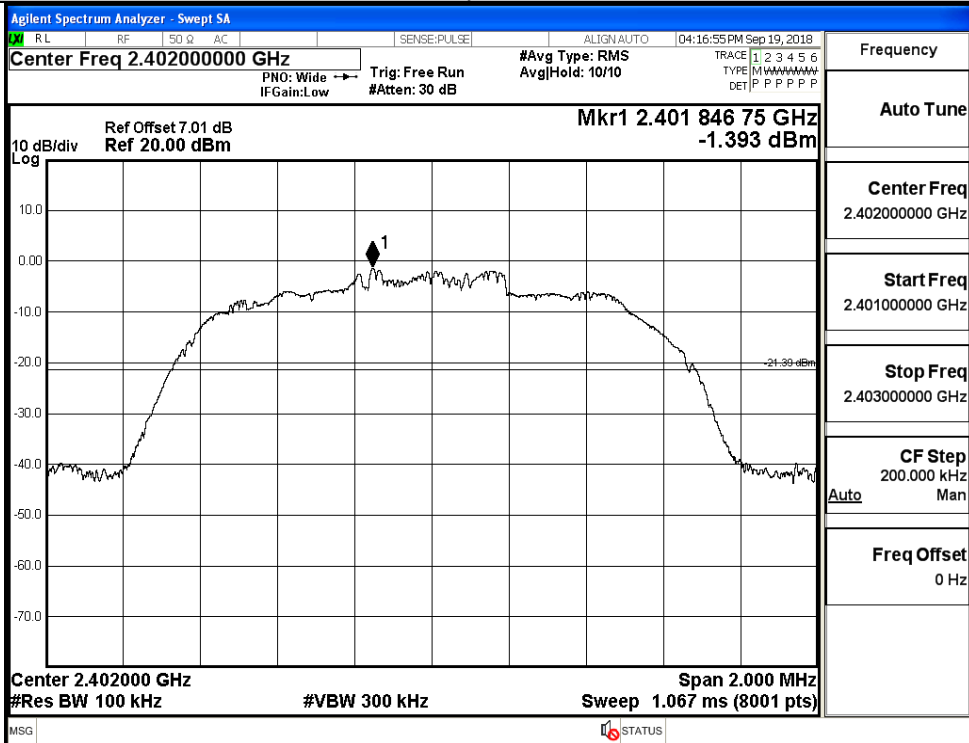


$\pi/4$ DQPSK_HCH_Graphs

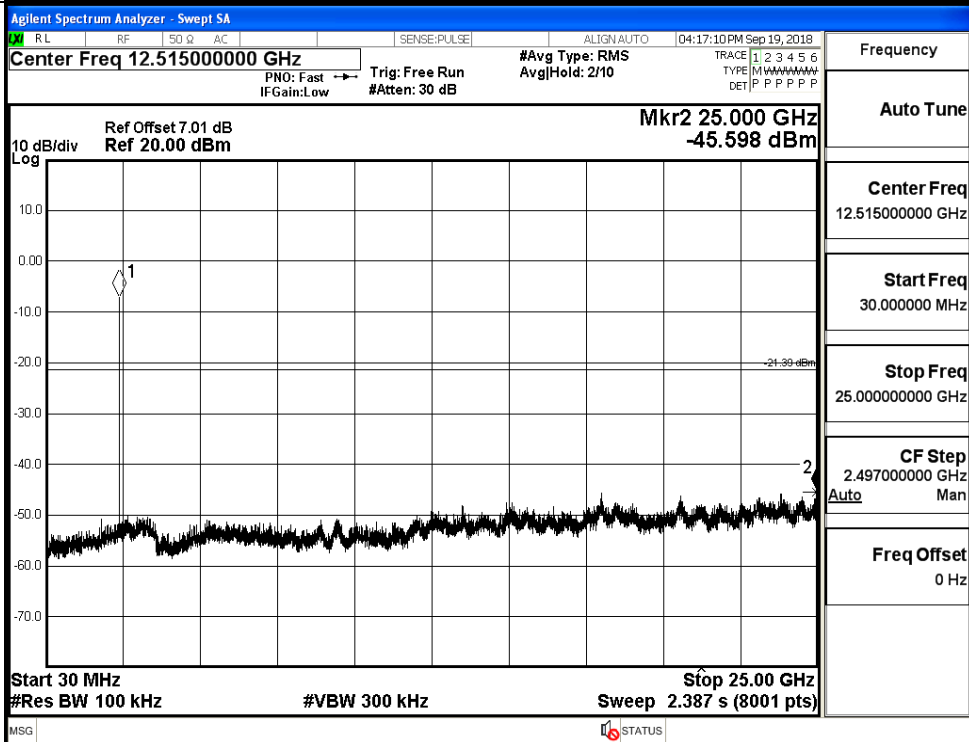


8DPSK_LCH_Graphs

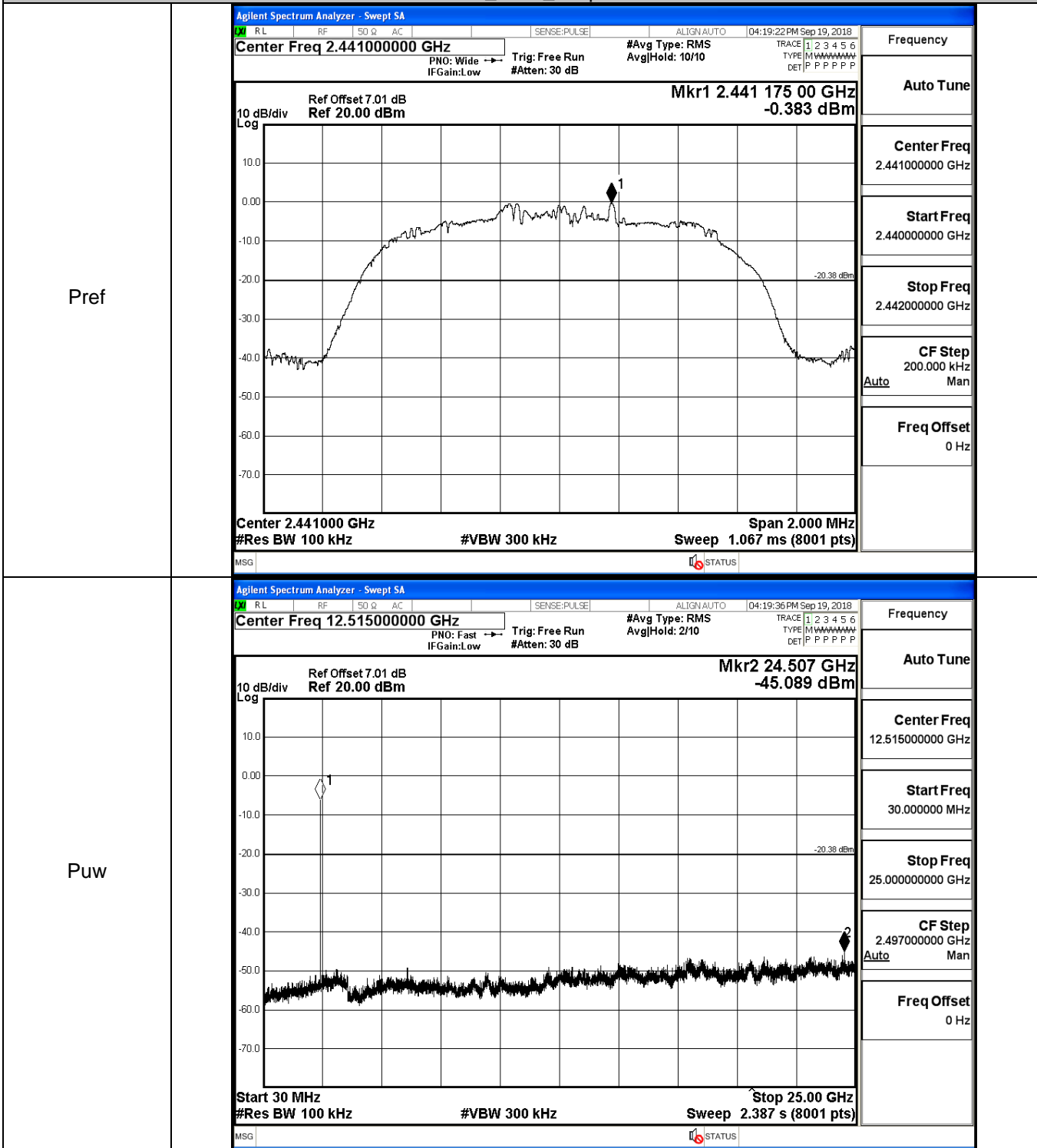
Pref



Puw

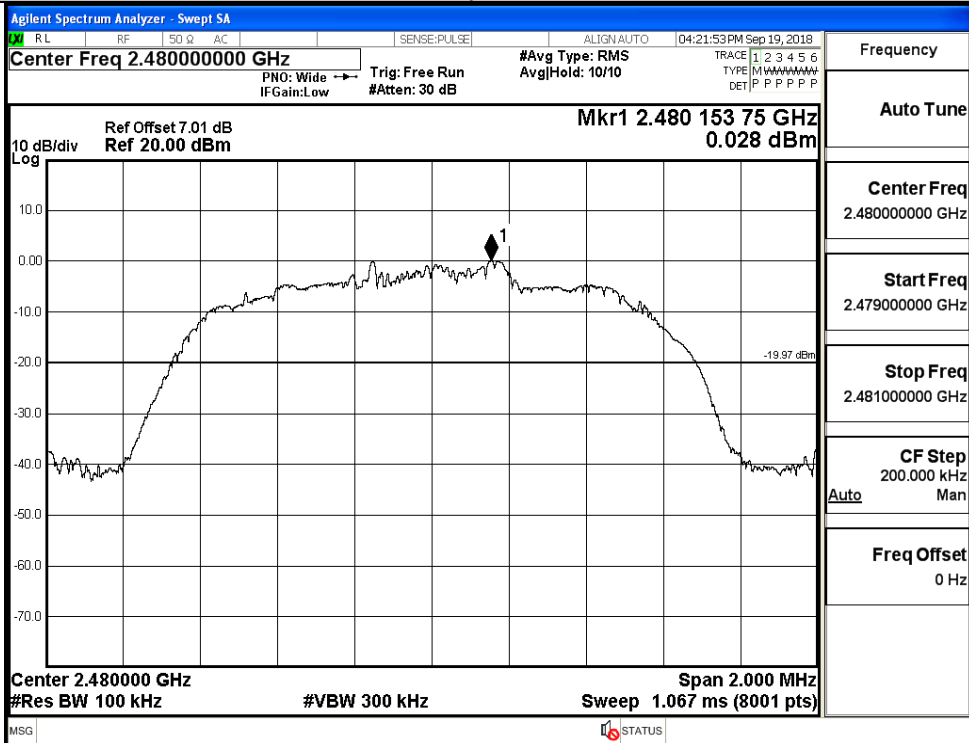


8DPSK_MCH_Graphs

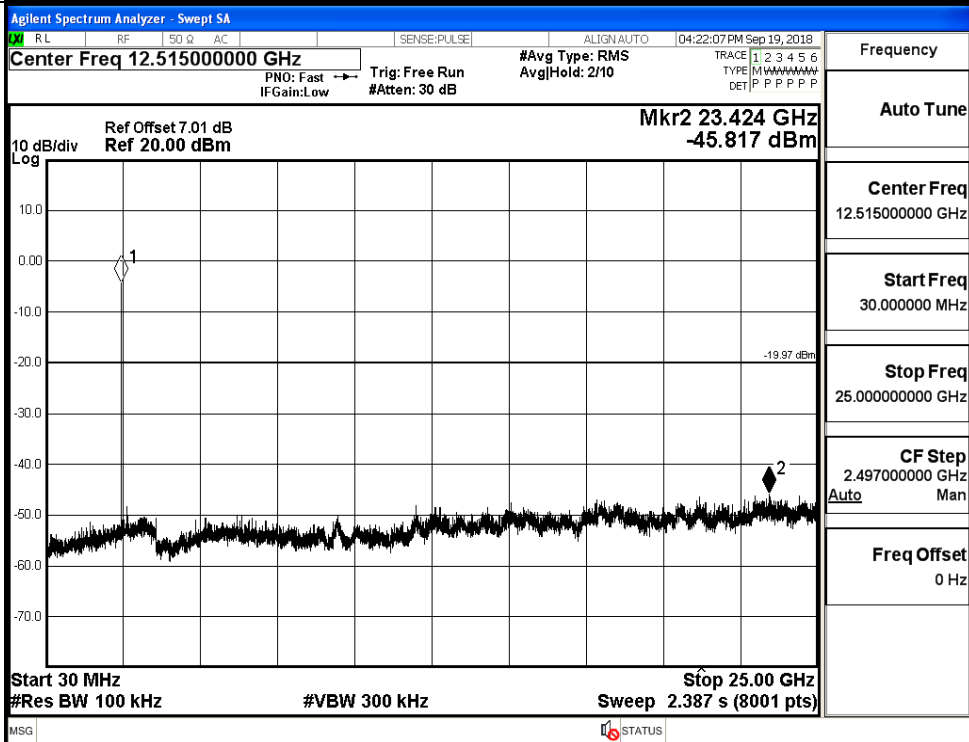


8DPSK_HCH_Graphs

Pref



Puw

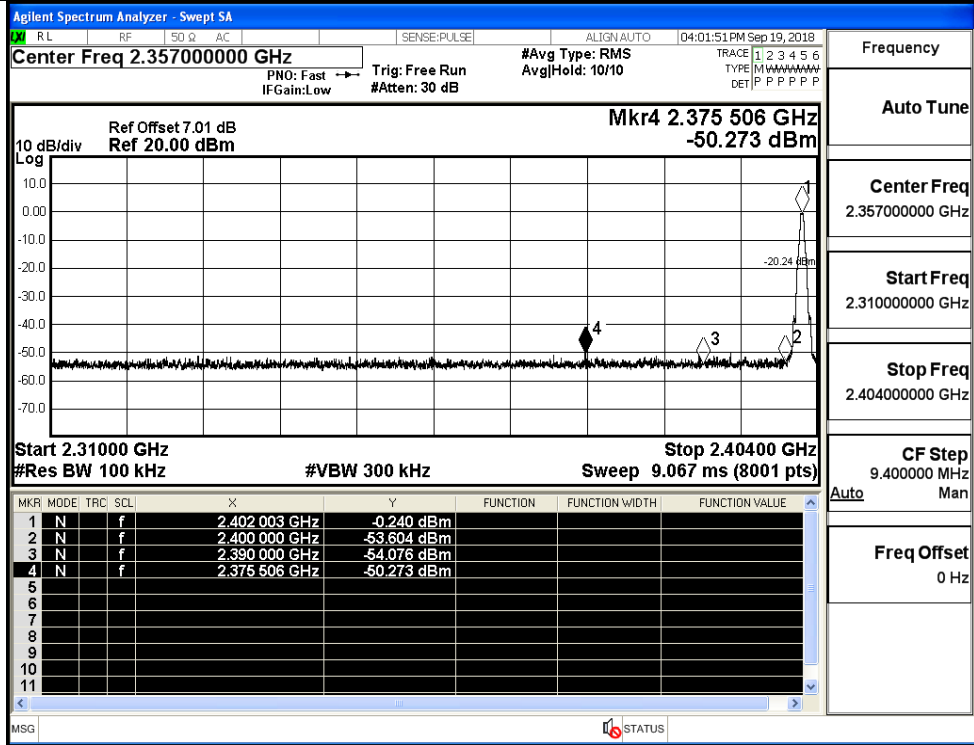


A.7 Band-edge for RF Conducted Emissions

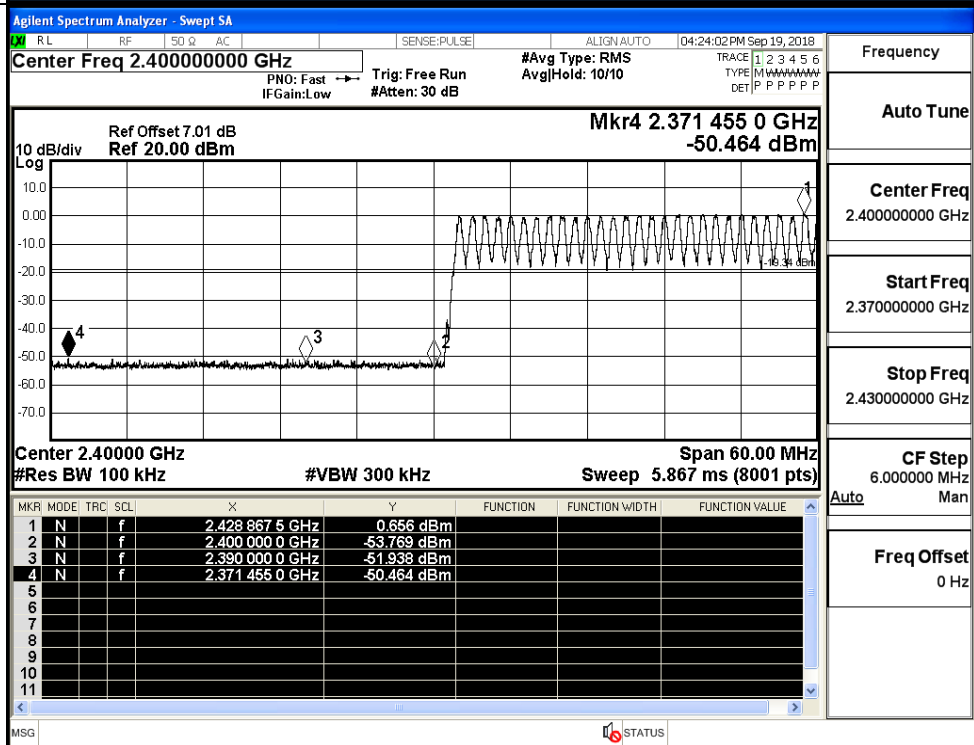
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.240	Off	-50.273	-20.24	PASS
			0.656	On	-50.464	-19.34	PASS
	HCH	2480	0.986	Off	-50.621	-19.01	PASS
			1.415	On	-50.626	-18.59	PASS
$\pi/4$ DQPSK	LCH	2402	-1.612	Off	-51.114	-21.61	PASS
			-0.248	On	-50.398	-20.25	PASS
	HCH	2480	0.025	Off	-50.149	-19.98	PASS
			0.444	On	-50.294	-19.56	PASS
8DPSK	LCH	2402	-1.150	Off	-50.377	-21.15	PASS
			-0.161	On	-50.482	-20.16	PASS
	HCH	2480	0.157	Off	-49.978	-19.84	PASS
			0.214	On	-49.750	-19.79	PASS

Test Graphs

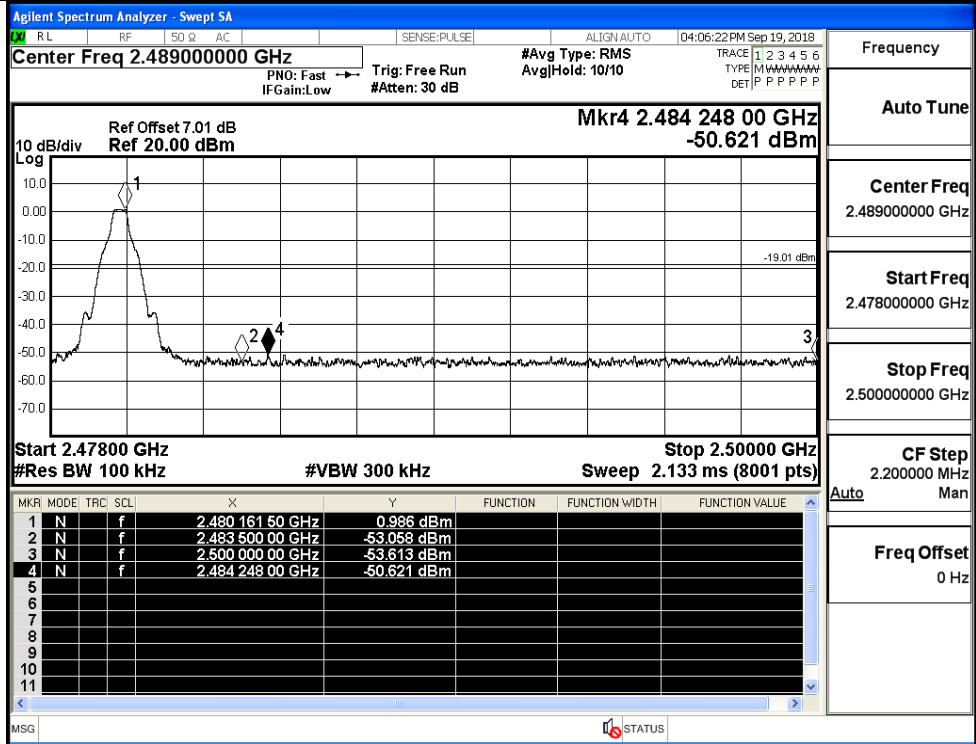
GFSK/LCH/No Hop



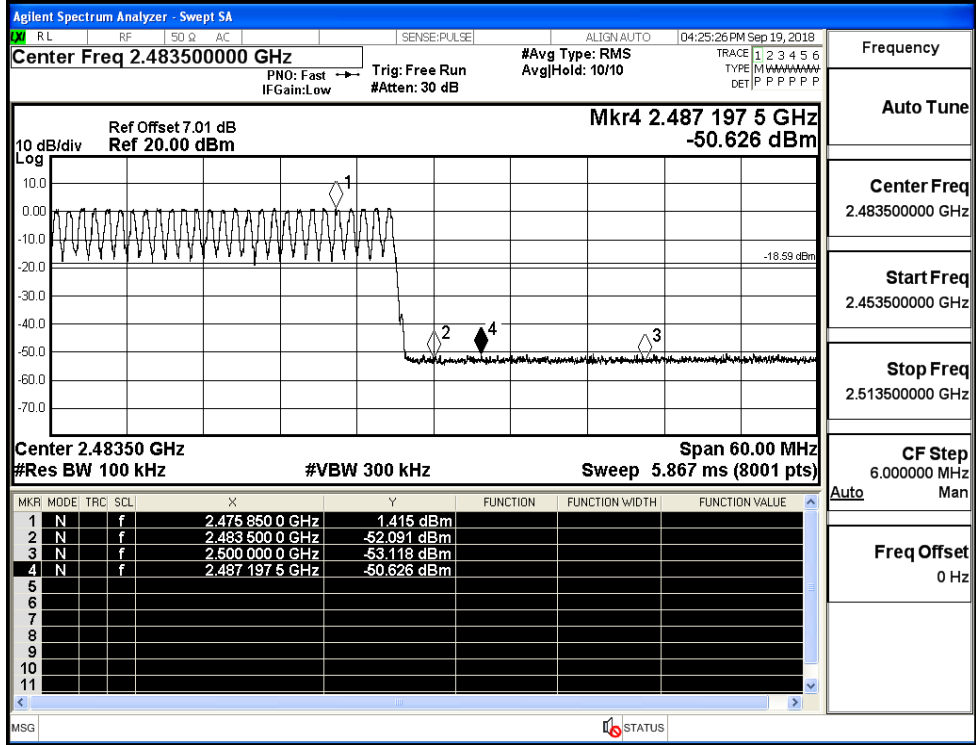
GFSK/LCH/Hop



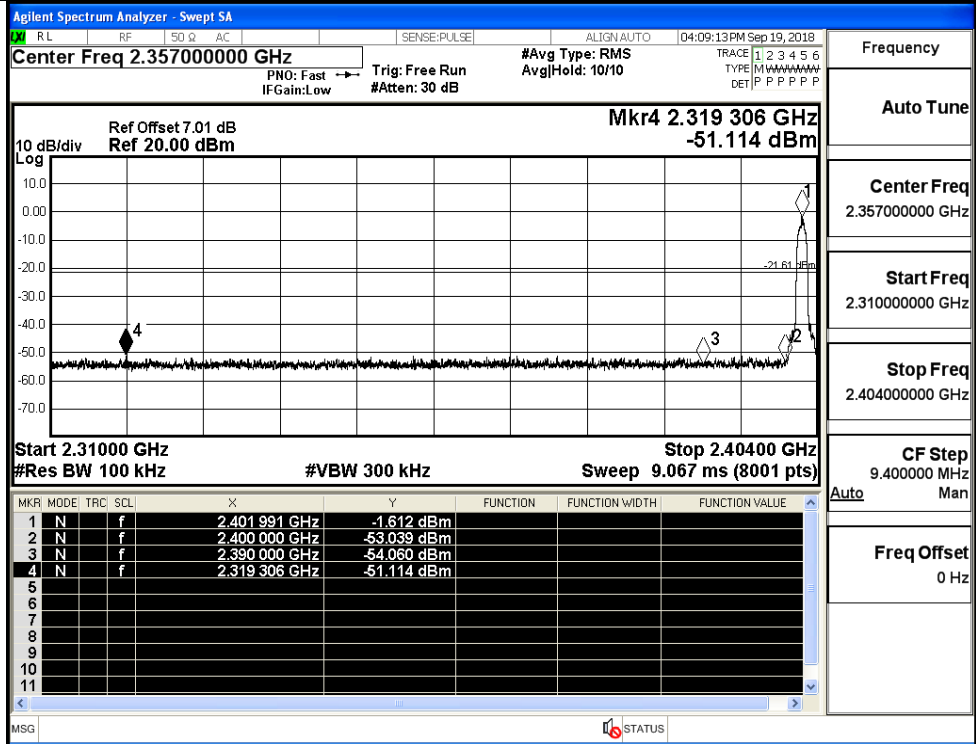
GFSK/HCH/No Hop



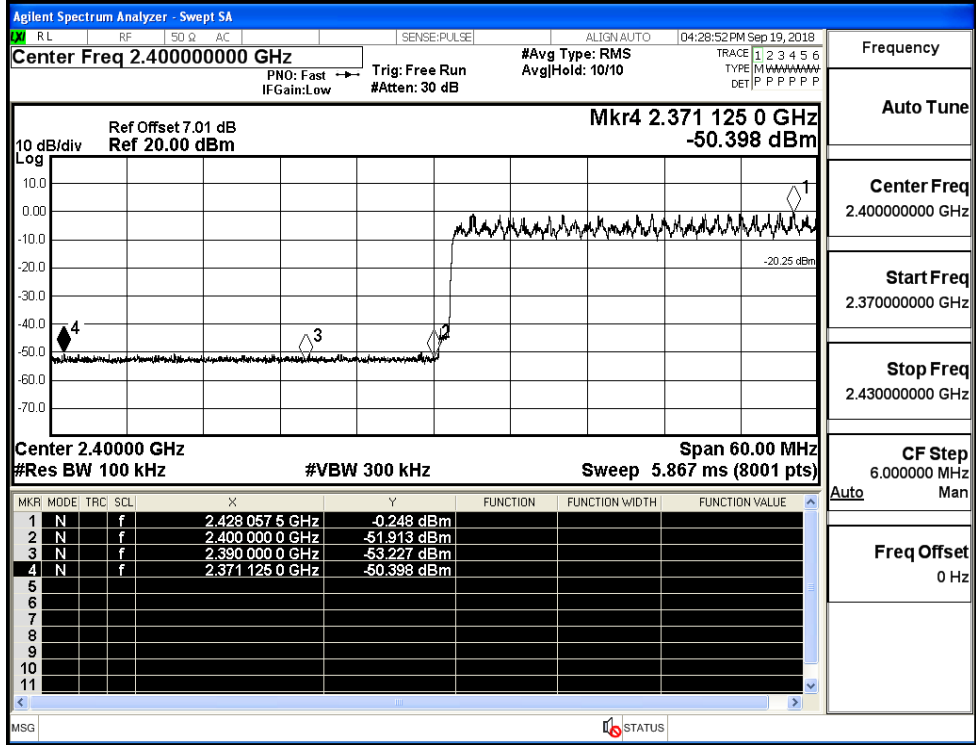
GFSK/HCH/Hop



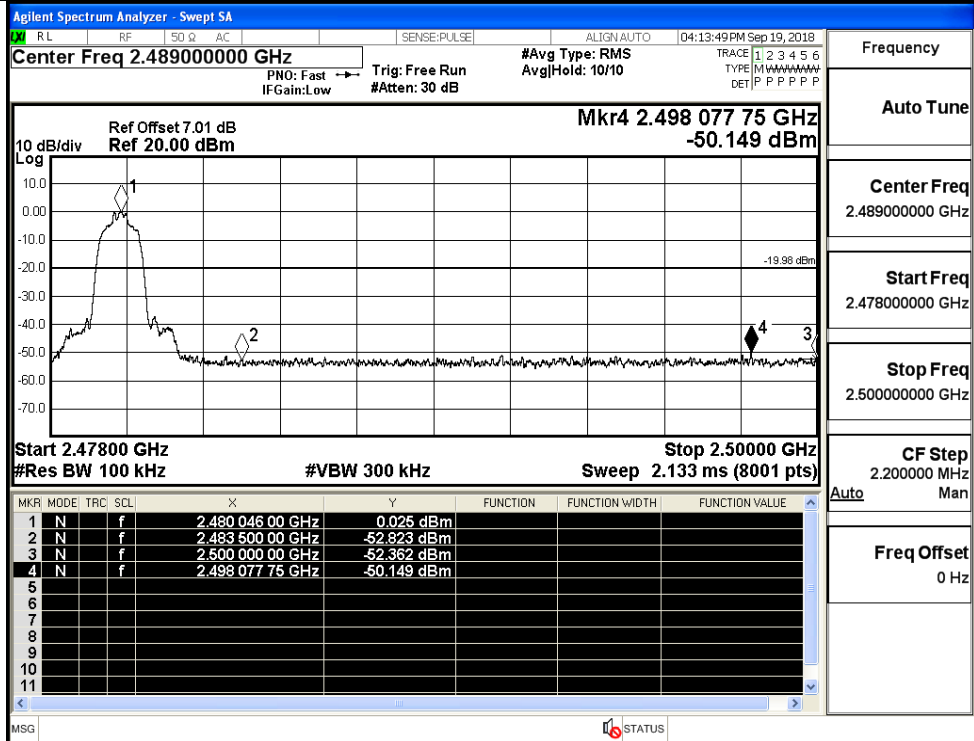
$\pi/4$ DQPSK/LCH/No Hop



$\pi/4$ DQPSK/LCH/Hop



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



Frequency

Auto Tune

Center Freq
2.489000000 GHz

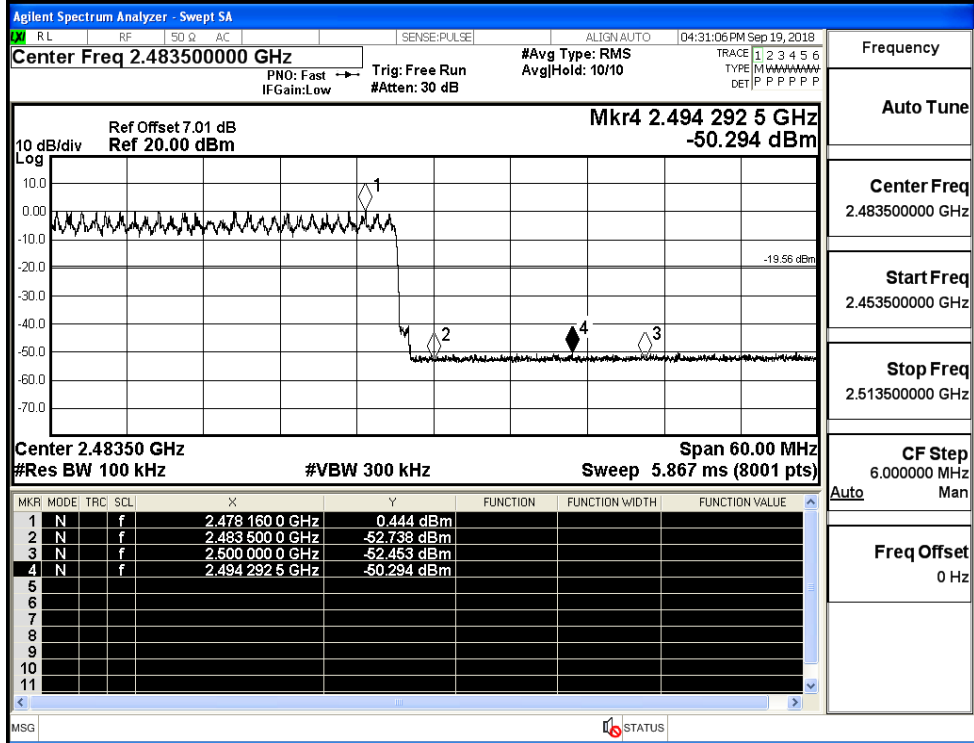
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

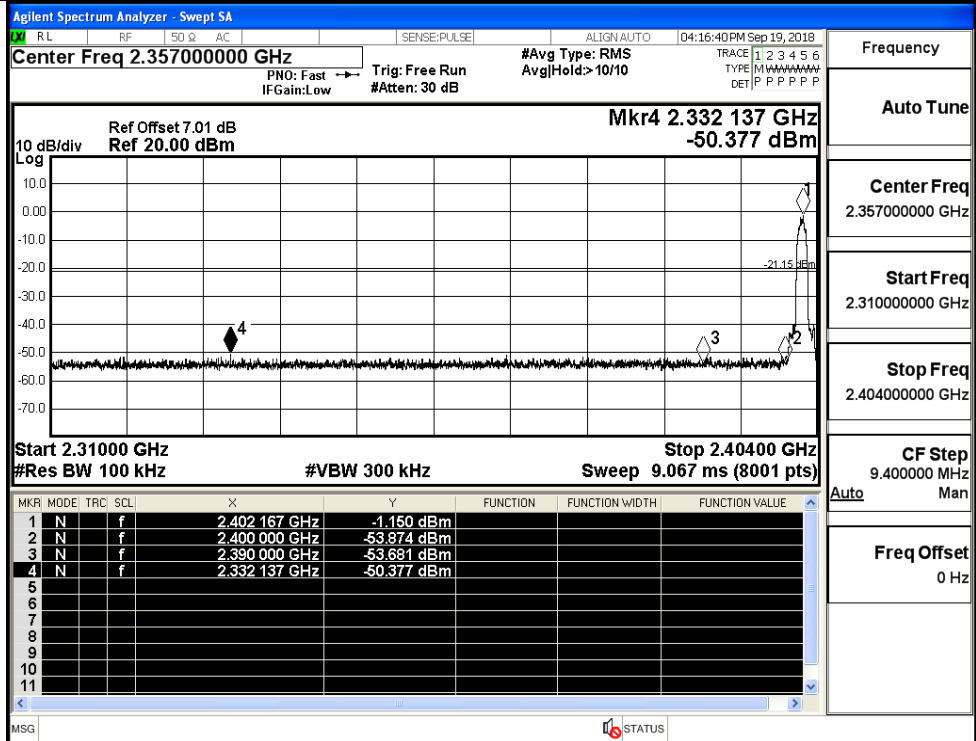
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

CF Step
6.000000 MHz

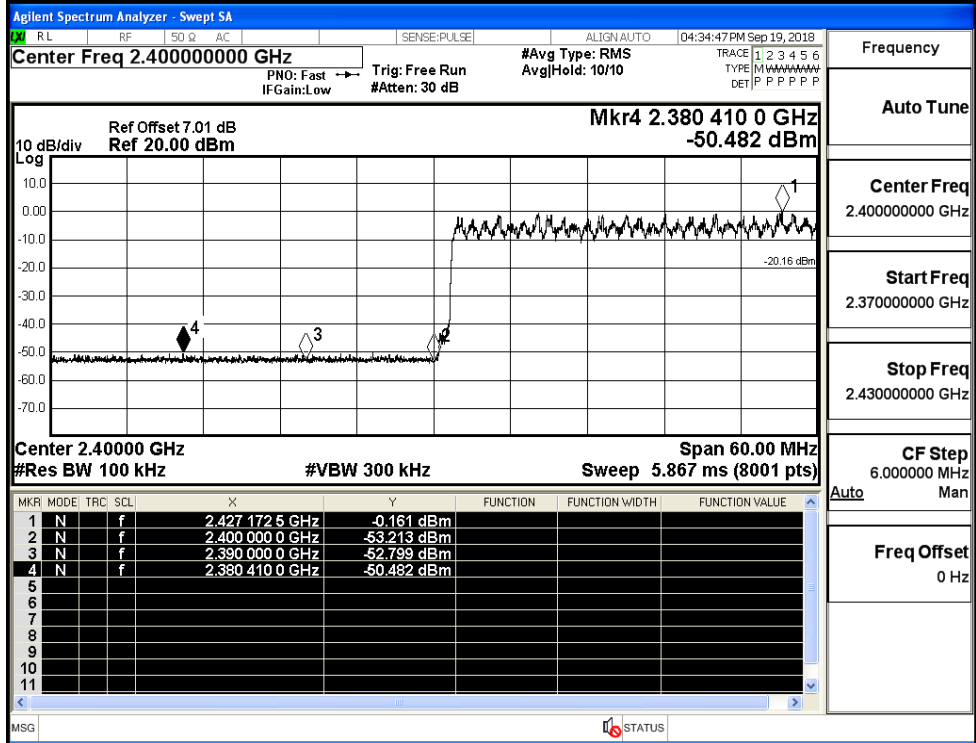
Freq Offset
0 Hz

8DPSK/LCH/No Hop



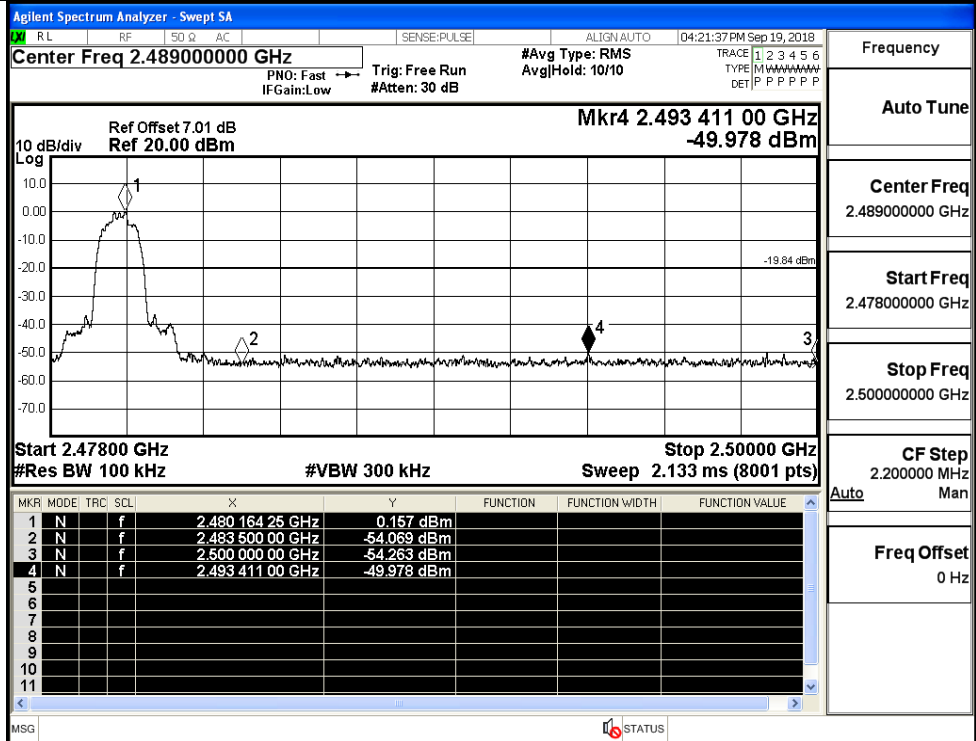
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

8DPSK/LCH/Hop



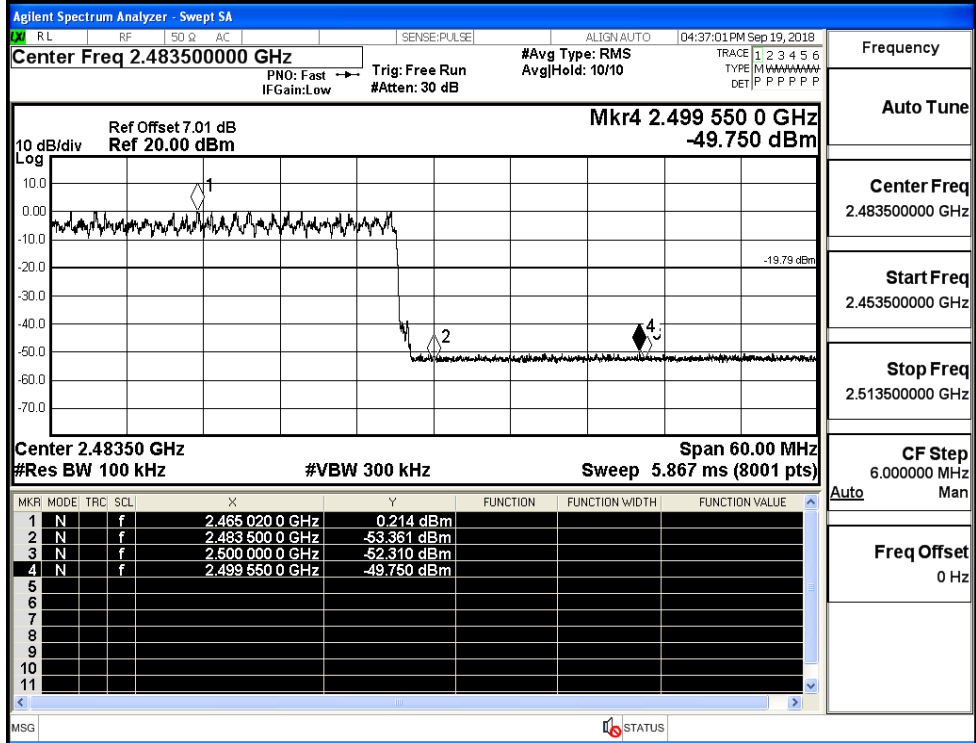
Frequency
Auto Tune
Center Freq
2.400000000 GHz
Start Freq
2.370000000 GHz
Stop Freq
2.430000000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

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
Auto Man
Freq Offset
0 Hz

8DPSK/HCH/Hop

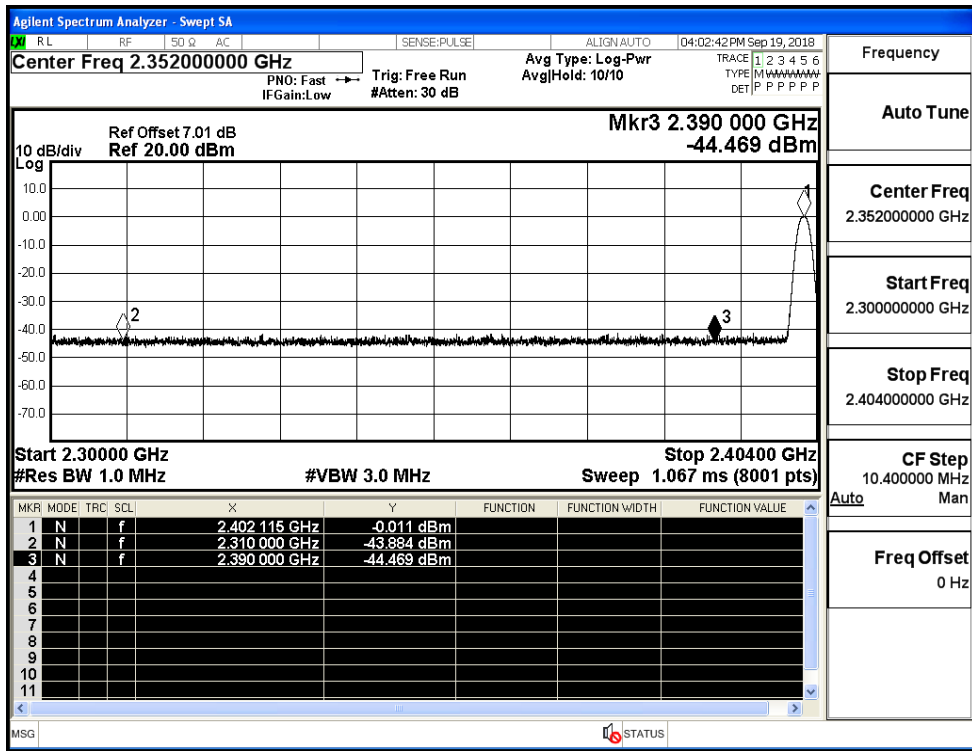


Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Auto Man
Freq Offset
0 Hz

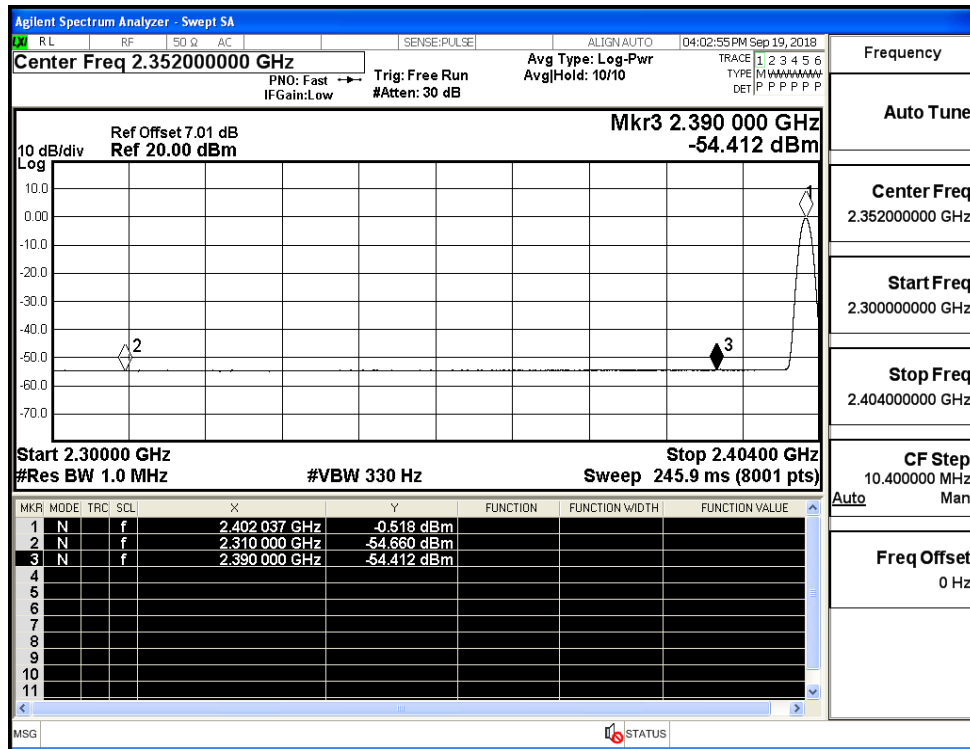
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.88	2.0	0	53.37	PEAK	74	PASS
	Off	2310.0	-54.66	2.0	0	42.60	AV	54	PASS
	Off	2390.0	-44.47	2.0	0	52.79	PEAK	74	PASS
	Off	2390.0	-54.41	2.0	0	42.85	AV	54	PASS
	Off	2483.5	-43.23	2.0	0	54.03	PEAK	74	PASS
	Off	2483.5	-54.27	2.0	0	42.98	AV	54	PASS
	Off	2500.0	-43.80	2.0	0	53.46	PEAK	74	PASS
	Off	2500.0	-54.16	2.0	0	43.10	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-45.11	2.0	0	52.14	PEAK	74	PASS
	Off	2310.0	-54.70	2.0	0	42.55	AV	54	PASS
	Off	2390.0	-43.95	2.0	0	53.31	PEAK	74	PASS
	Off	2390.0	-54.35	2.0	0	42.91	AV	54	PASS
	Off	2483.5	-44.43	2.0	0	52.83	PEAK	74	PASS
	Off	2483.5	-54.07	2.0	0	43.19	AV	54	PASS
	Off	2500.0	-43.18	2.0	0	54.08	PEAK	74	PASS
	Off	2500.0	-53.88	2.0	0	43.38	AV	54	PASS
8DPSK	Off	2310.0	-44.55	2.0	0	52.71	PEAK	74	PASS
	Off	2310.0	-54.70	2.0	0	42.56	AV	54	PASS
	Off	2390.0	-44.58	2.0	0	52.68	PEAK	74	PASS
	Off	2390.0	-54.38	2.0	0	42.87	AV	54	PASS
	Off	2483.5	-44.42	2.0	0	52.84	PEAK	74	PASS
	Off	2483.5	-54.07	2.0	0	43.19	AV	54	PASS
	Off	2500.0	-44.51	2.0	0	52.75	PEAK	74	PASS
	Off	2500.0	-54.06	2.0	0	43.19	AV	54	PASS

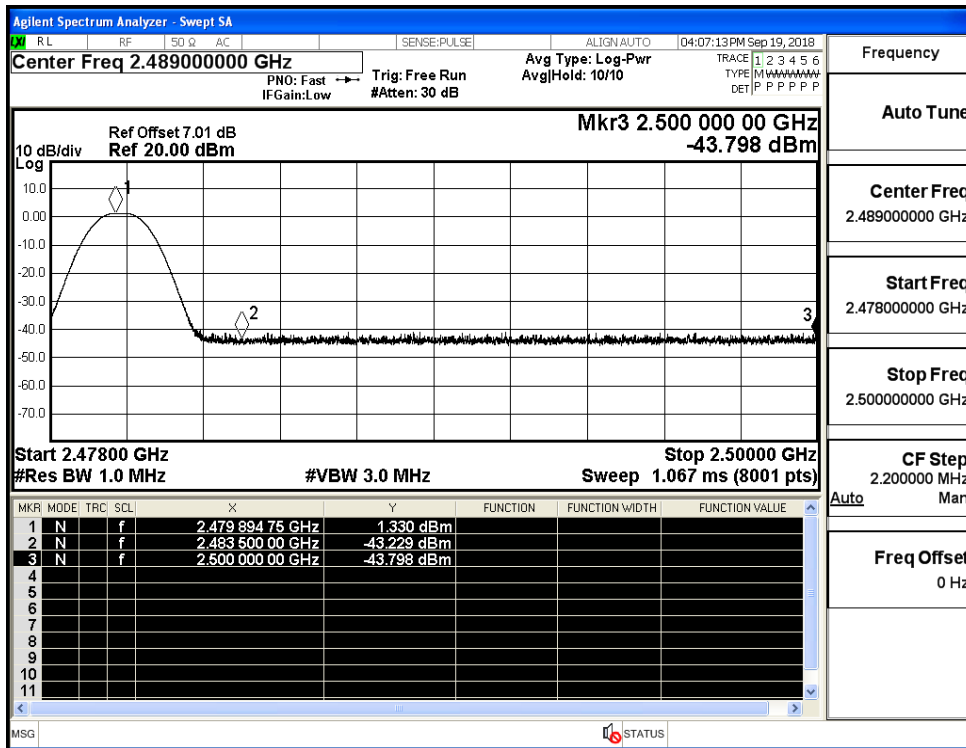
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



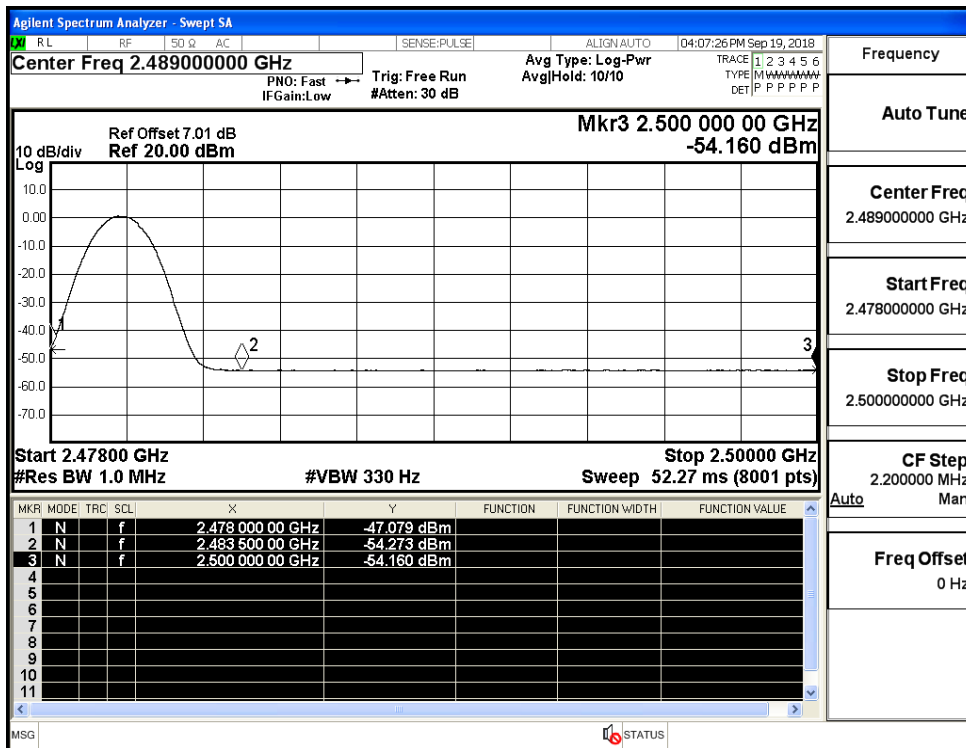
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



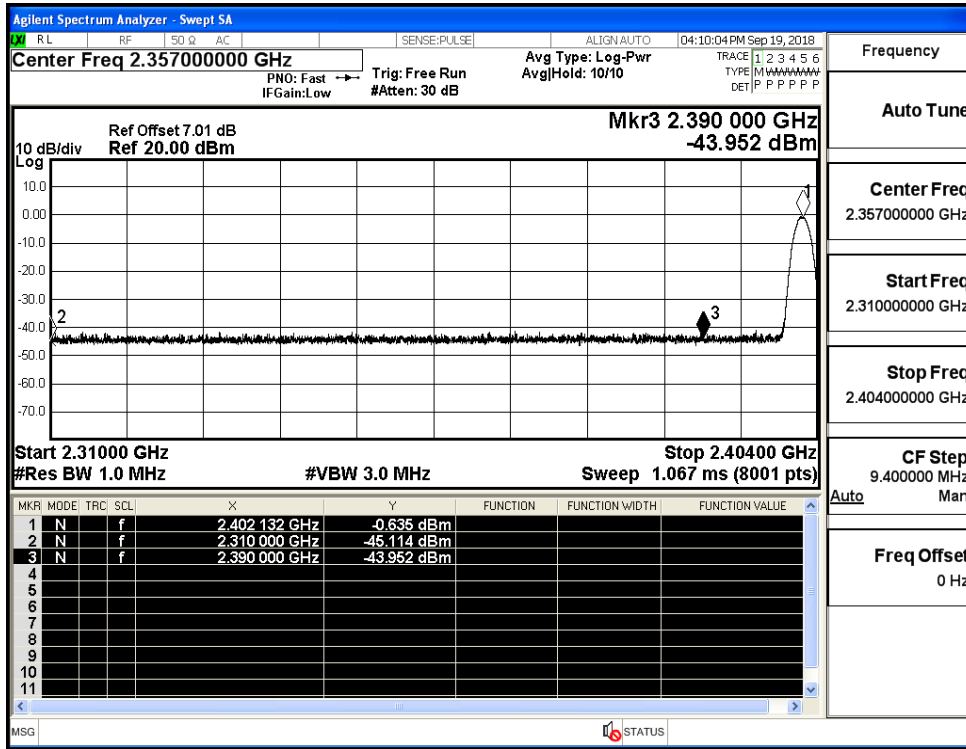
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



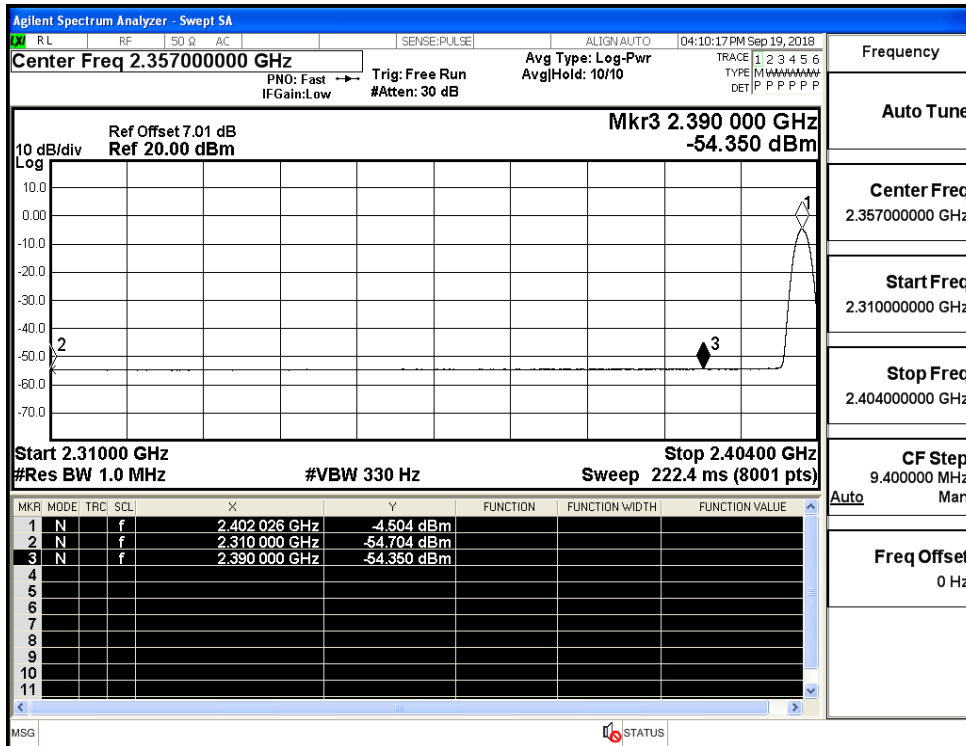
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



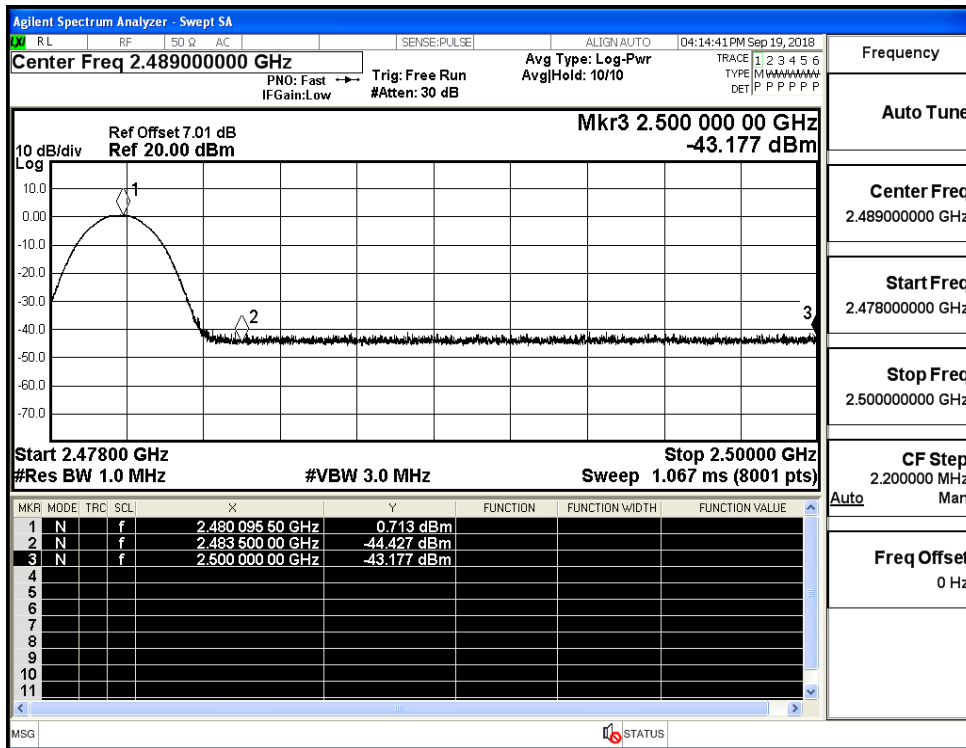
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



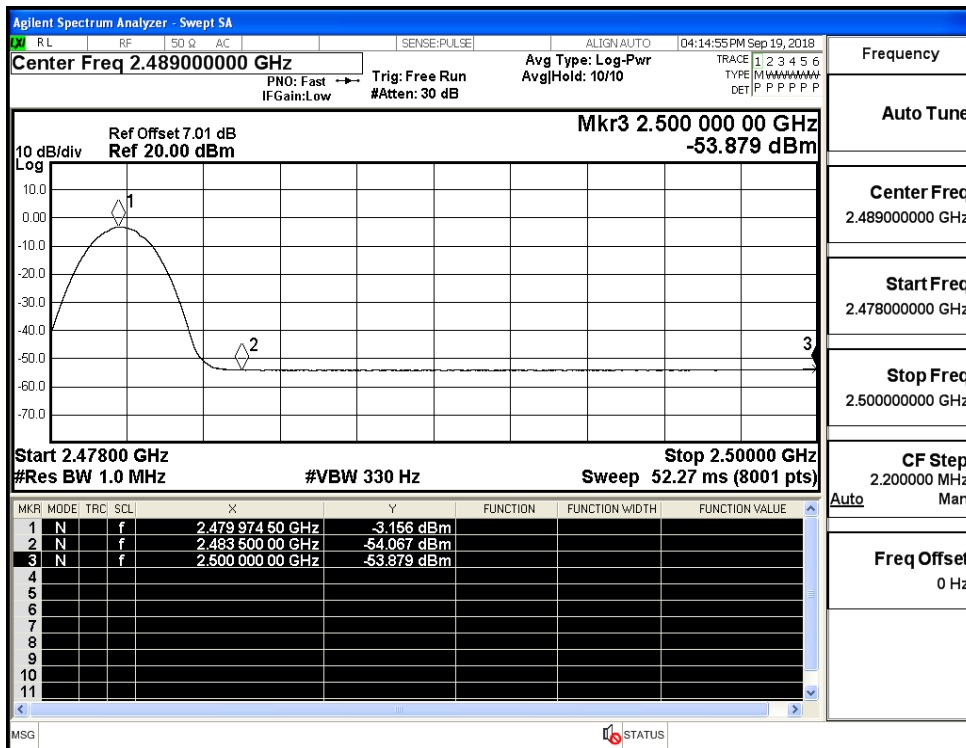
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



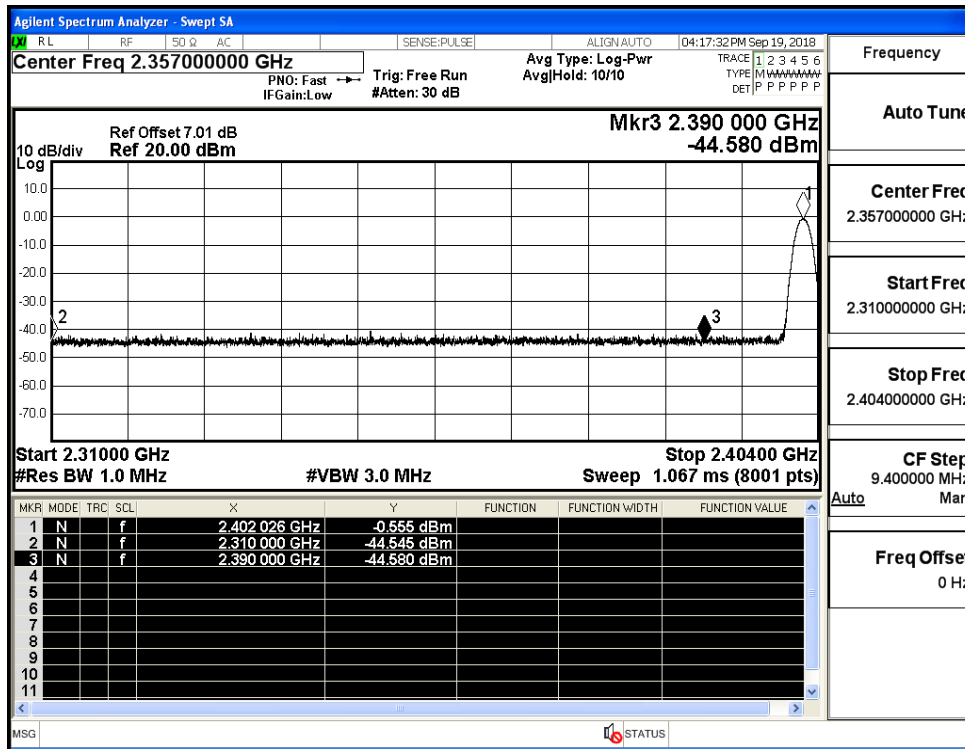
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



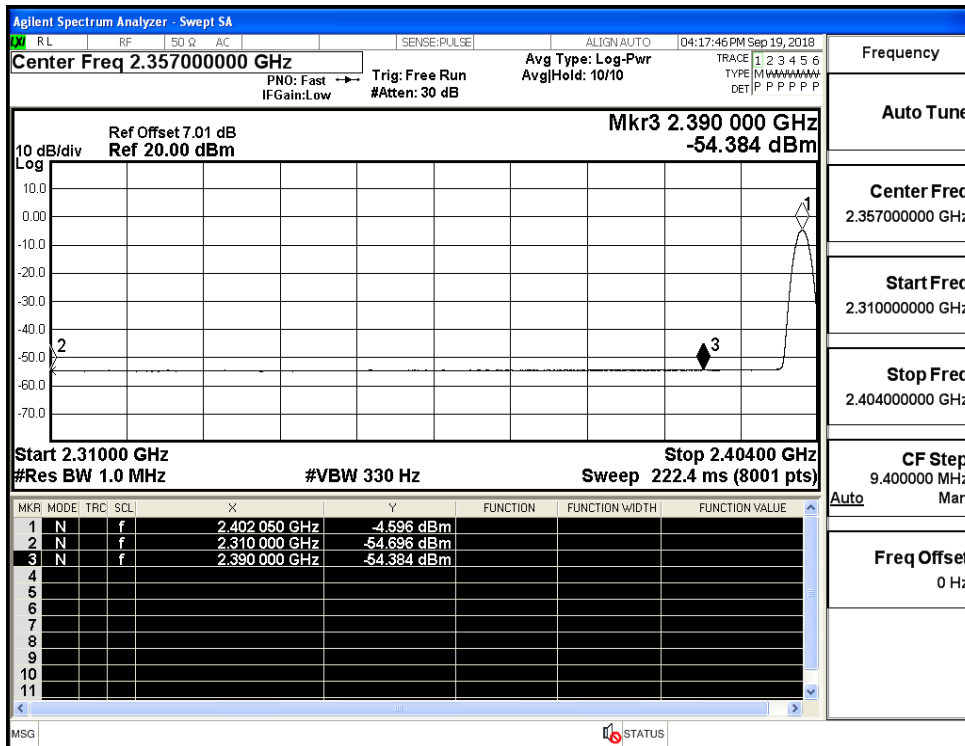
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



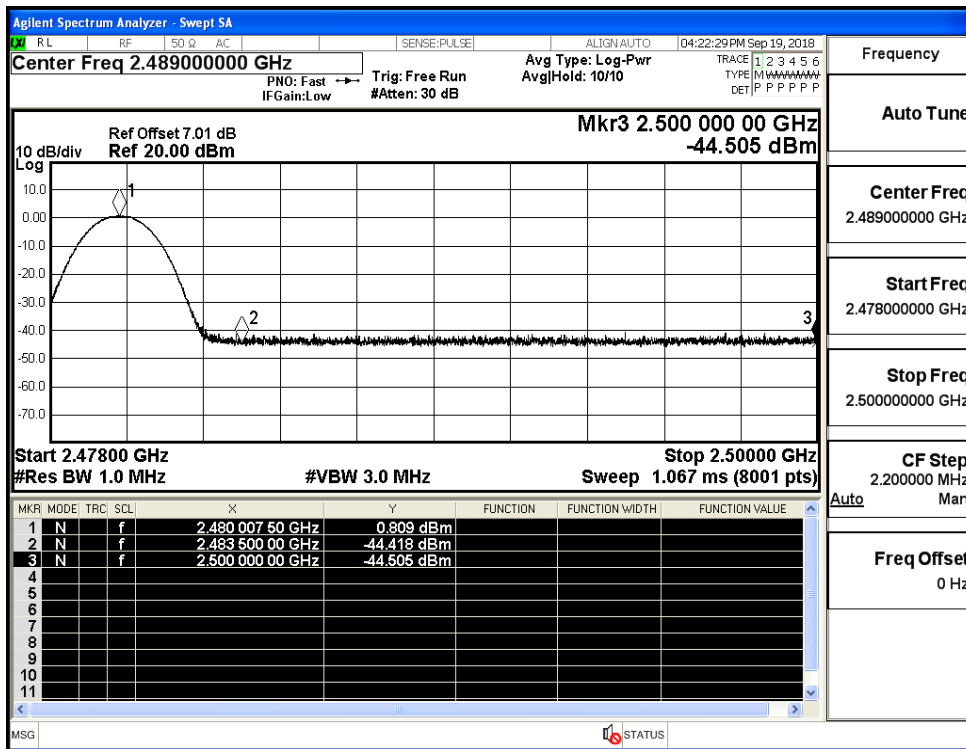
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

