

Appendix A

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

Product Name: Turntable

Trade Mark: /

Test Model: HP-H004

Environmental Conditions

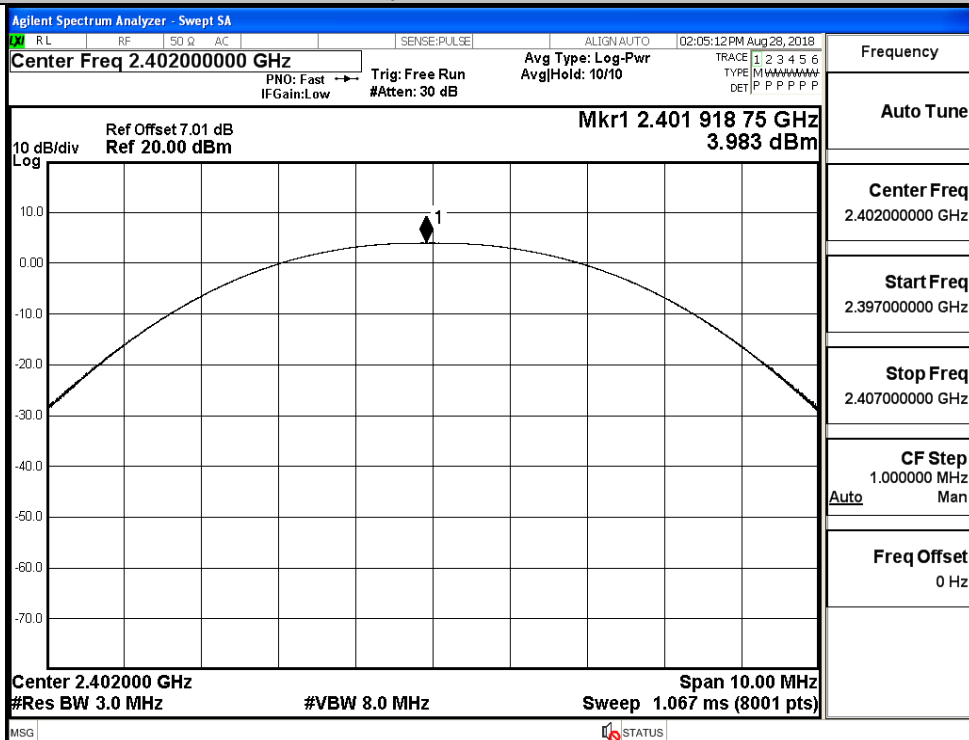
Temperature:	24.4 ° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Wilson.Hong
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

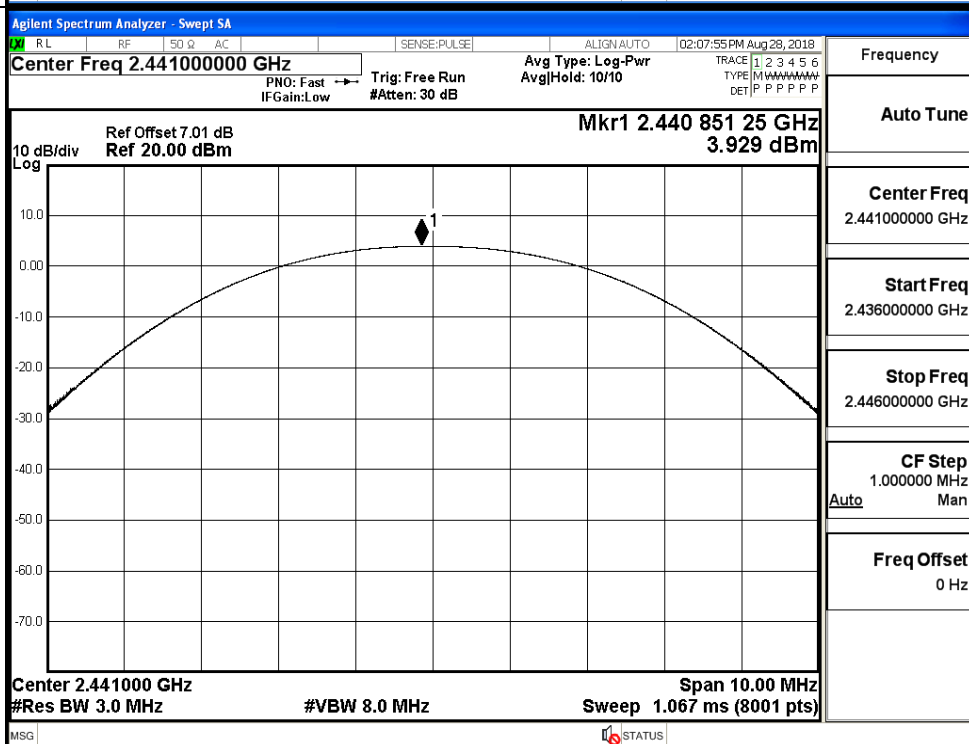
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.983	21	PASS
	MCH	3.929	21	PASS
	HCH	3.706	21	PASS
$\pi/4$ DQPSK	LCH	3.535	21	PASS
	MCH	3.452	21	PASS
	HCH	3.242	21	PASS
8DPSK	LCH	3.709	21	PASS
	MCH	3.635	21	PASS
	HCH	3.431	21	PASS

Test Graphs

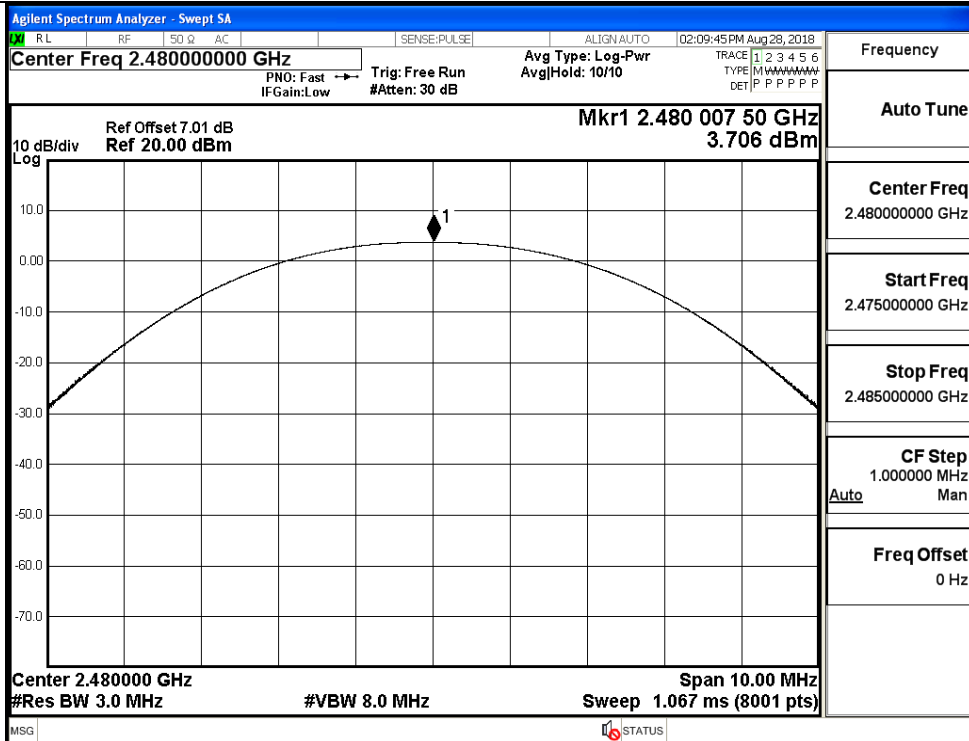
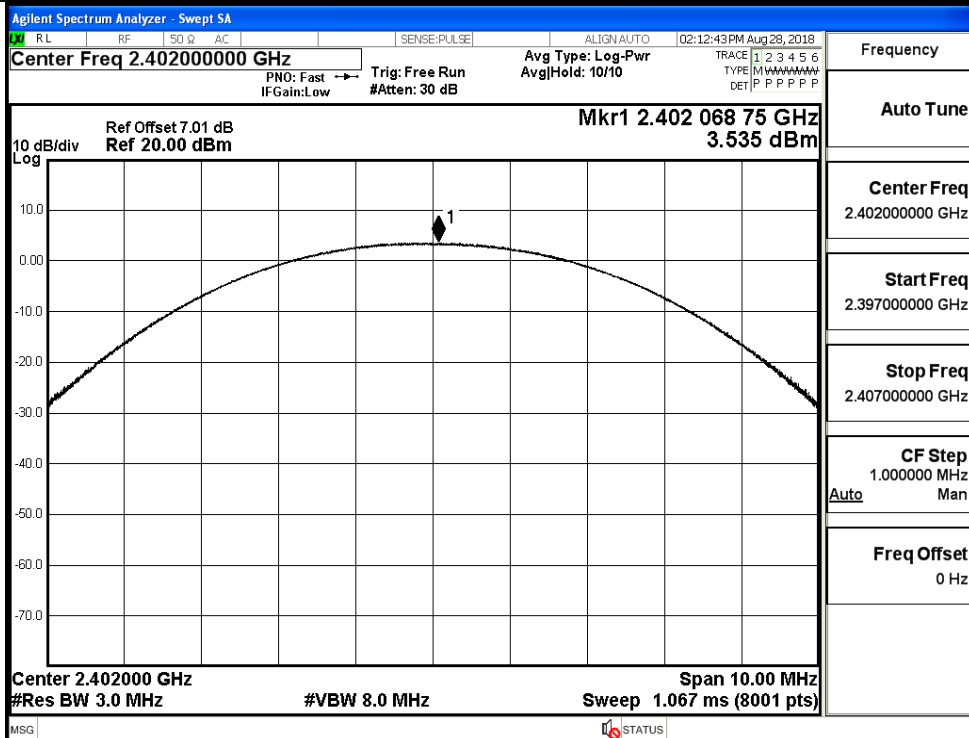
GFSK/LCH

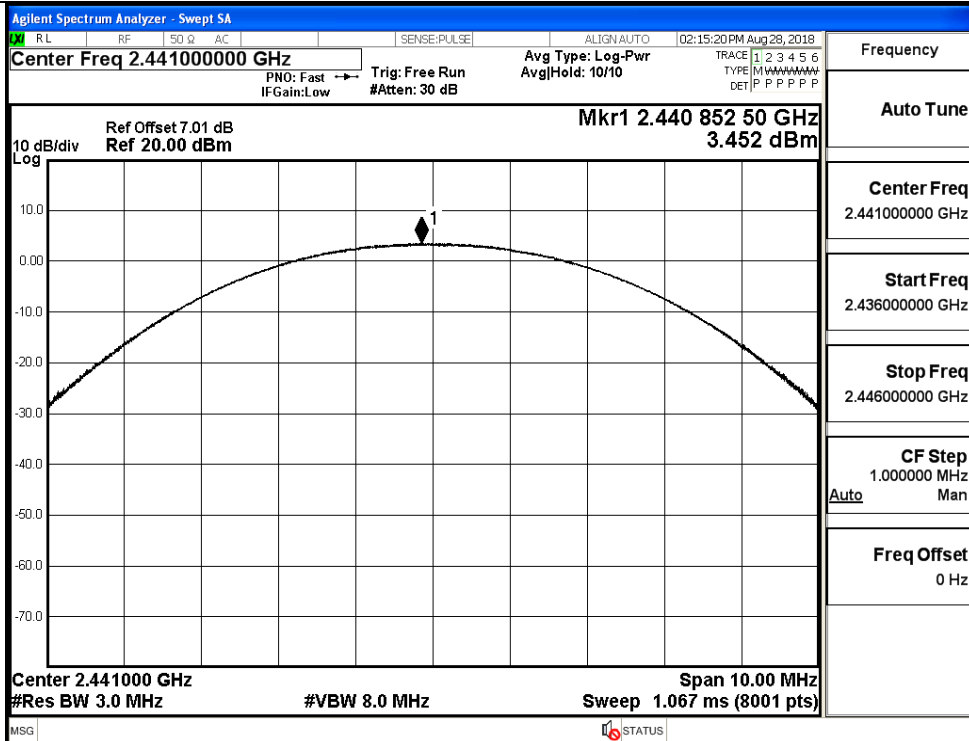
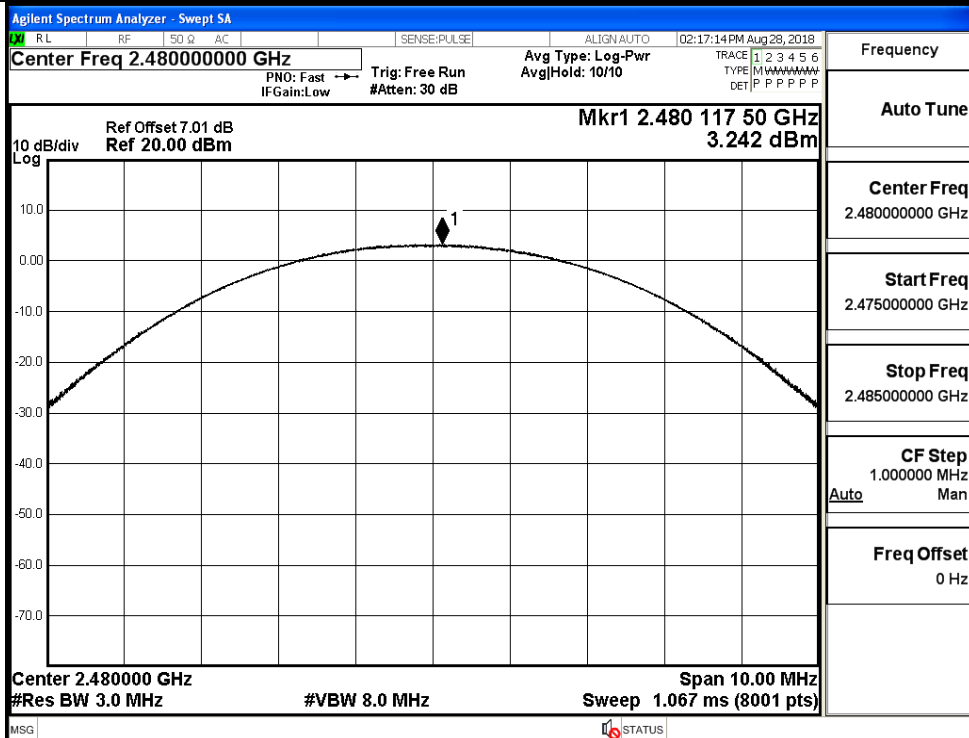


GFSK/MCH

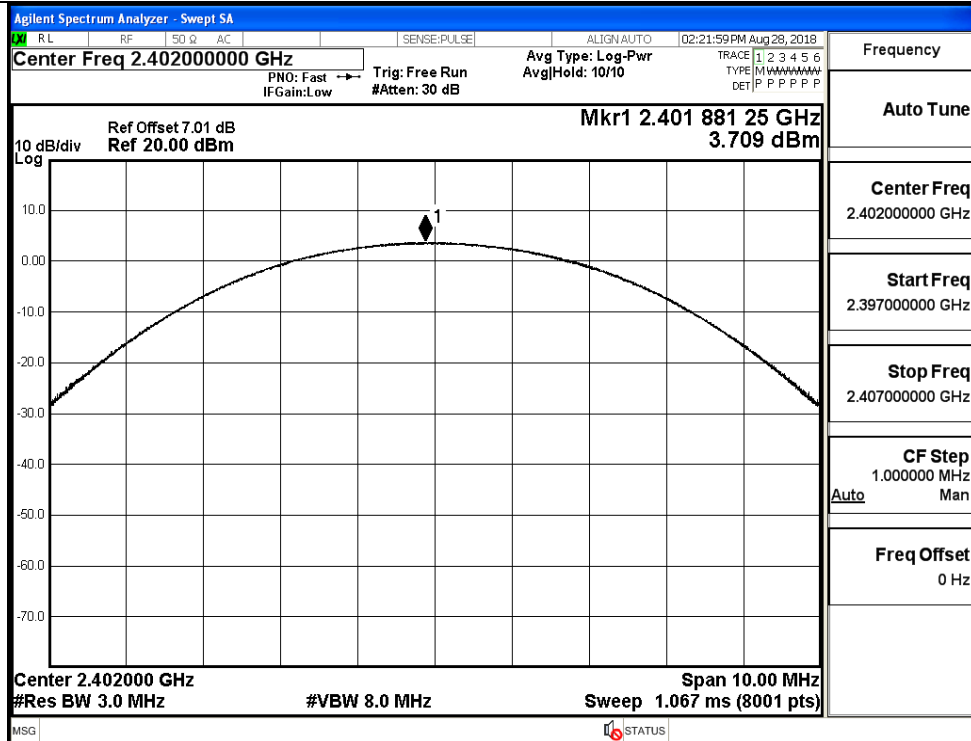


GFSK/HCH

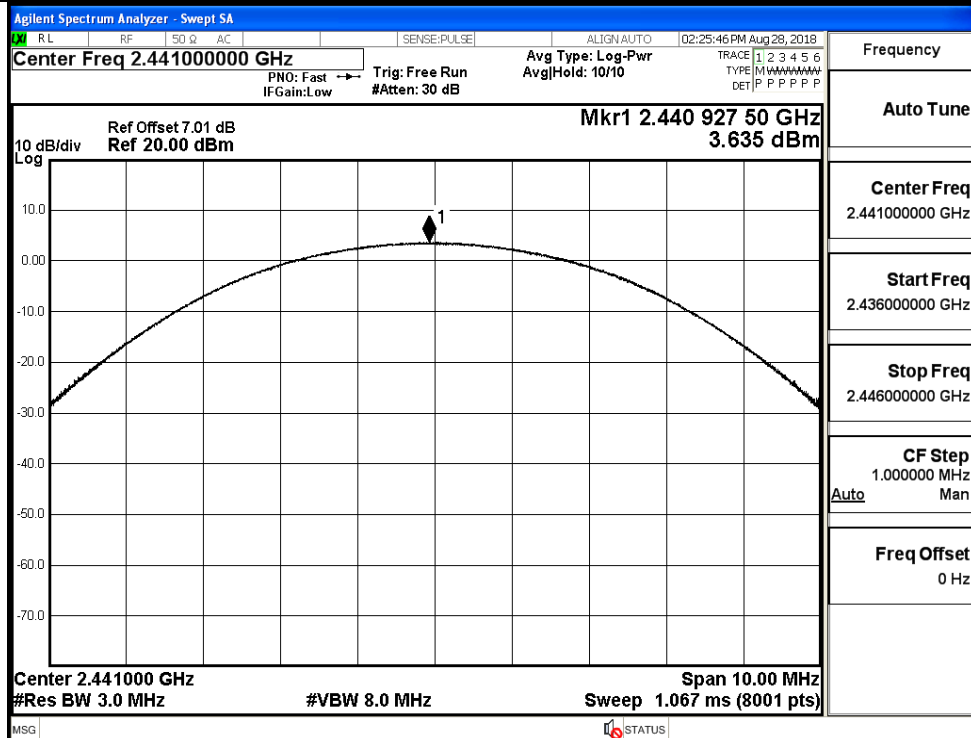
 π /4DQPSK/LCH

$\pi/4$ DQPSK/MCH $\pi/4$ DQPSK/HCH

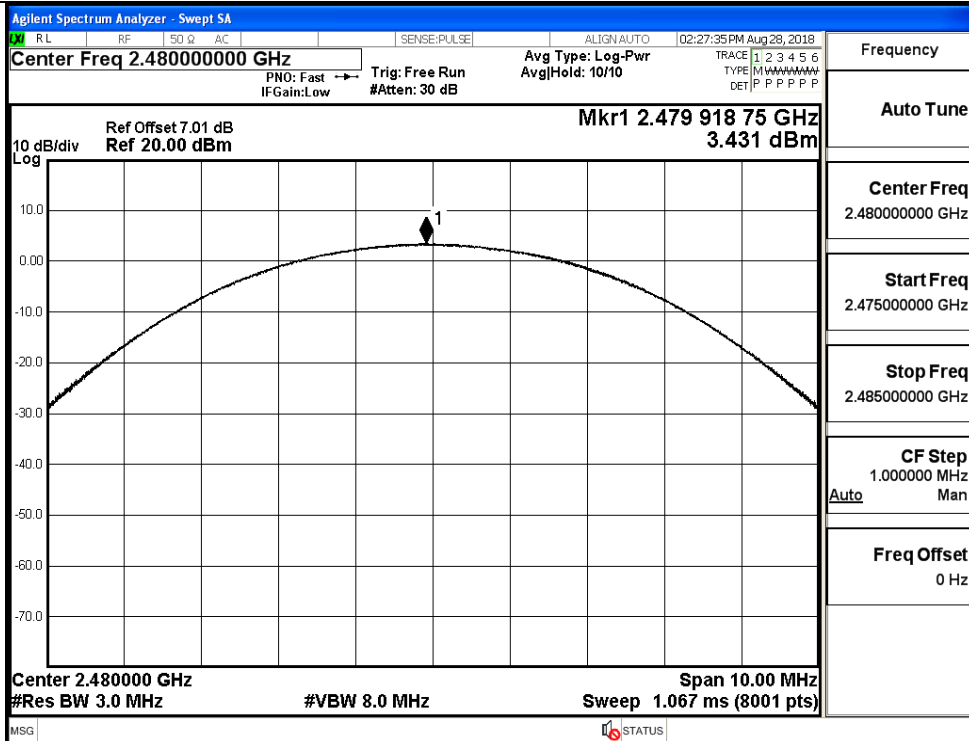
8DPSK/LCH



8DPSK/MCH



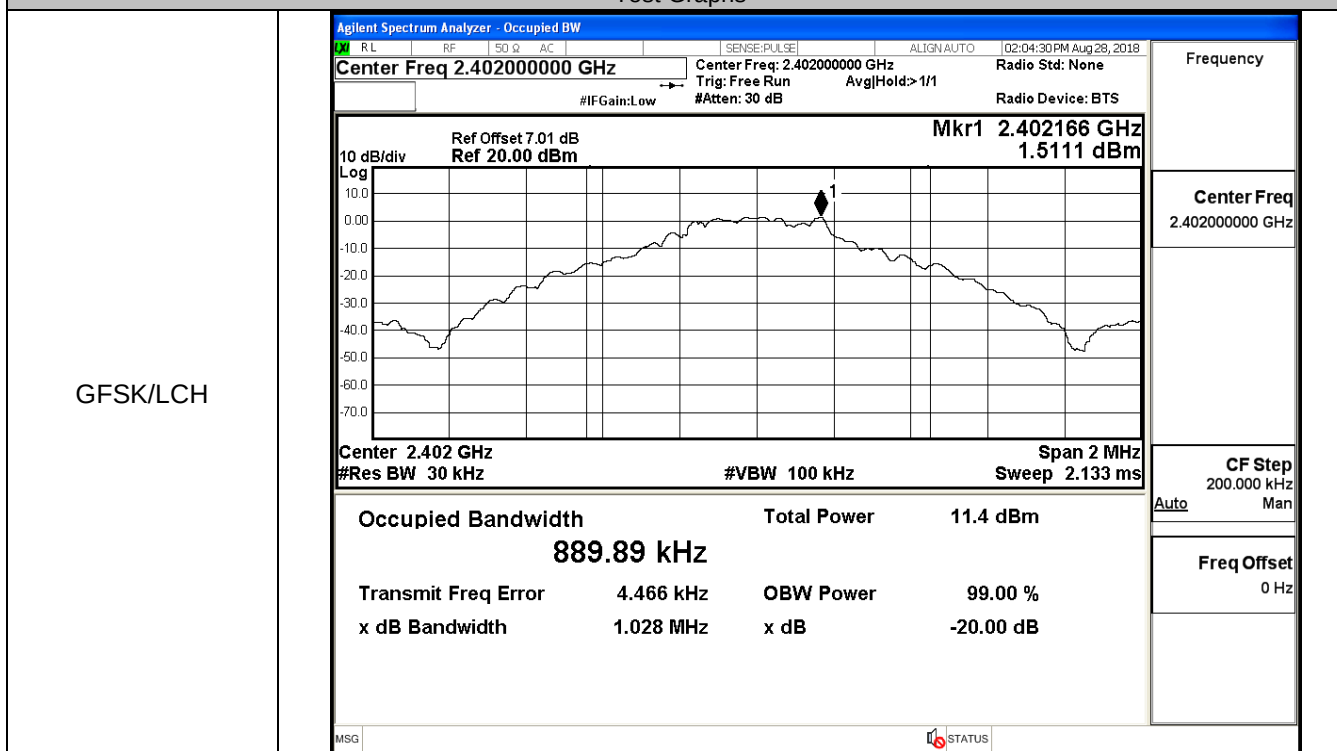
8DPSK/HCH



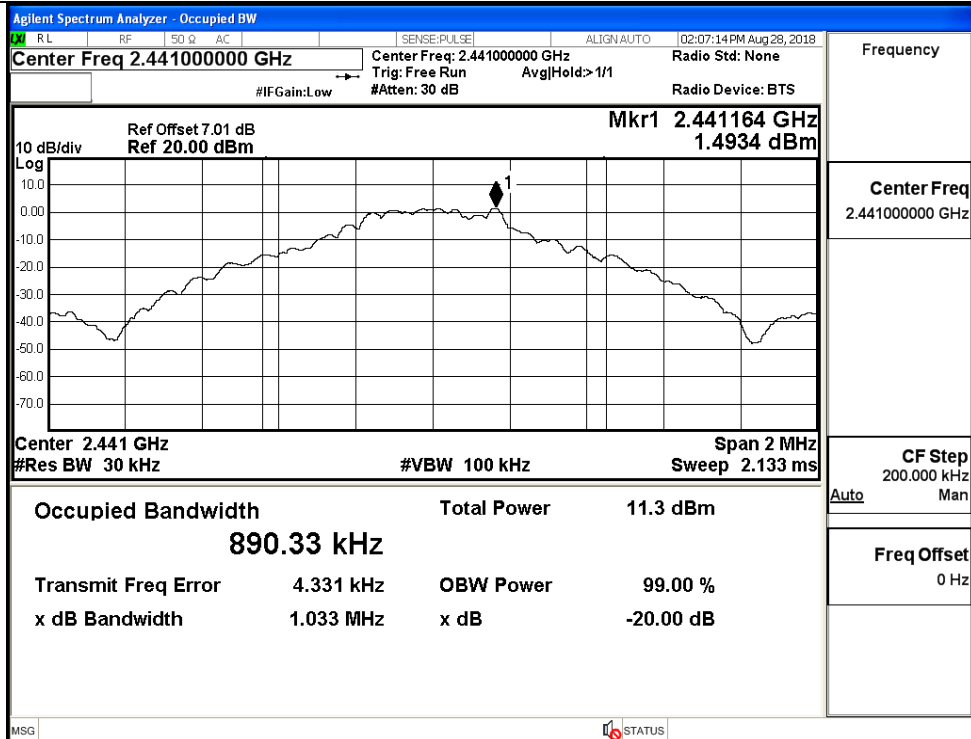
A.2 99% and 20dB Bandwidth

Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.88989	1.028	Not Specified	PASS
	MCH	0.89033	1.033	Not Specified	PASS
	HCH	0.89036	1.029	Not Specified	PASS
π /4DQPSK	LCH	1.1693	1.287	Not Specified	PASS
	MCH	1.1717	1.313	Not Specified	PASS
	HCH	1.1707	1.291	Not Specified	PASS
8DPSK	LCH	1.1737	1.290	Not Specified	PASS
	MCH	1.1716	1.286	Not Specified	PASS
	HCH	1.1727	1.287	Not Specified	PASS

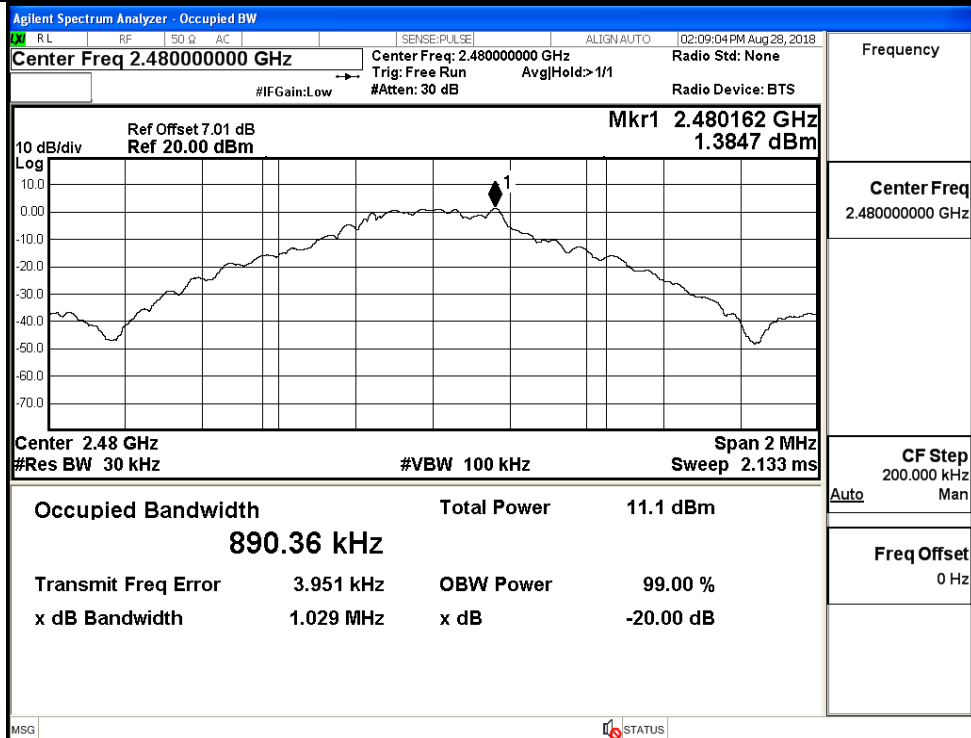
Test Graphs

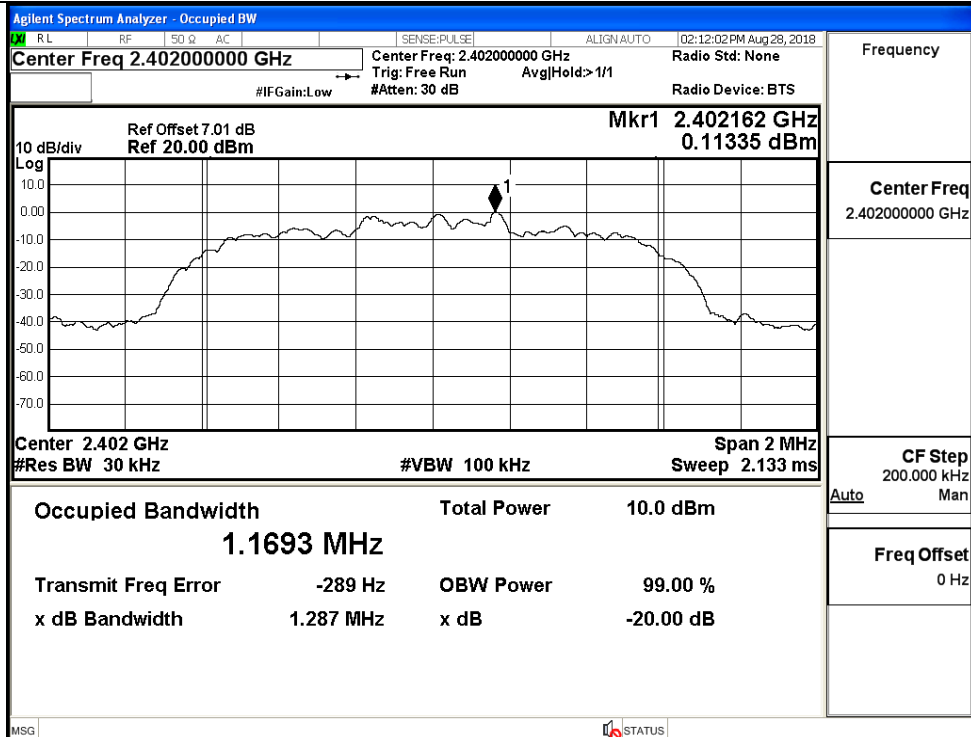
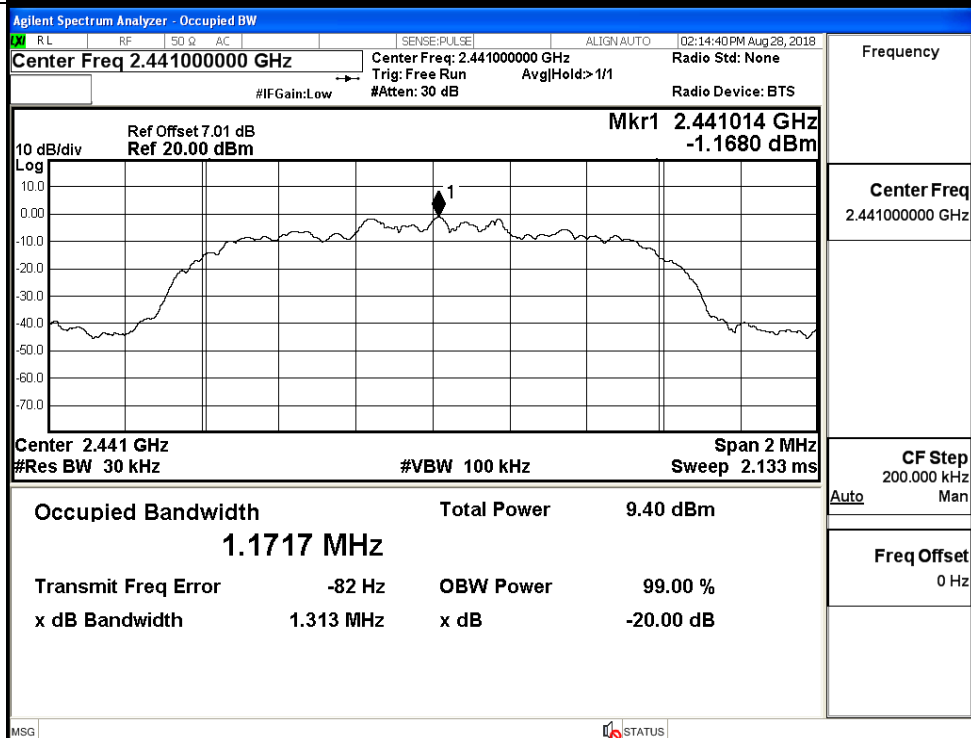


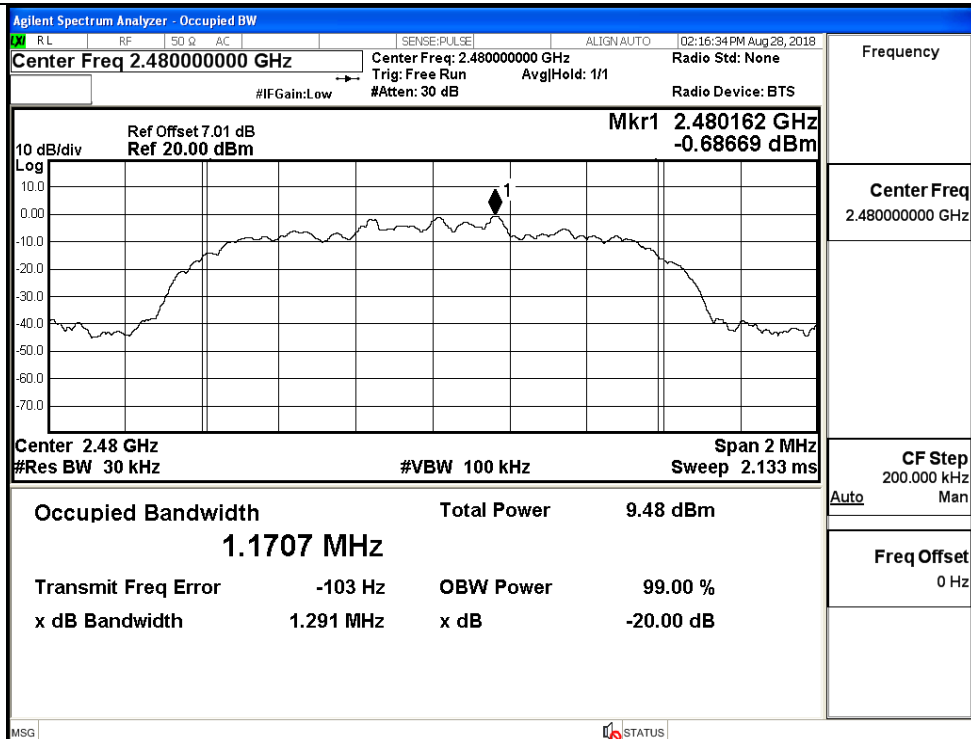
GFSK/MCH



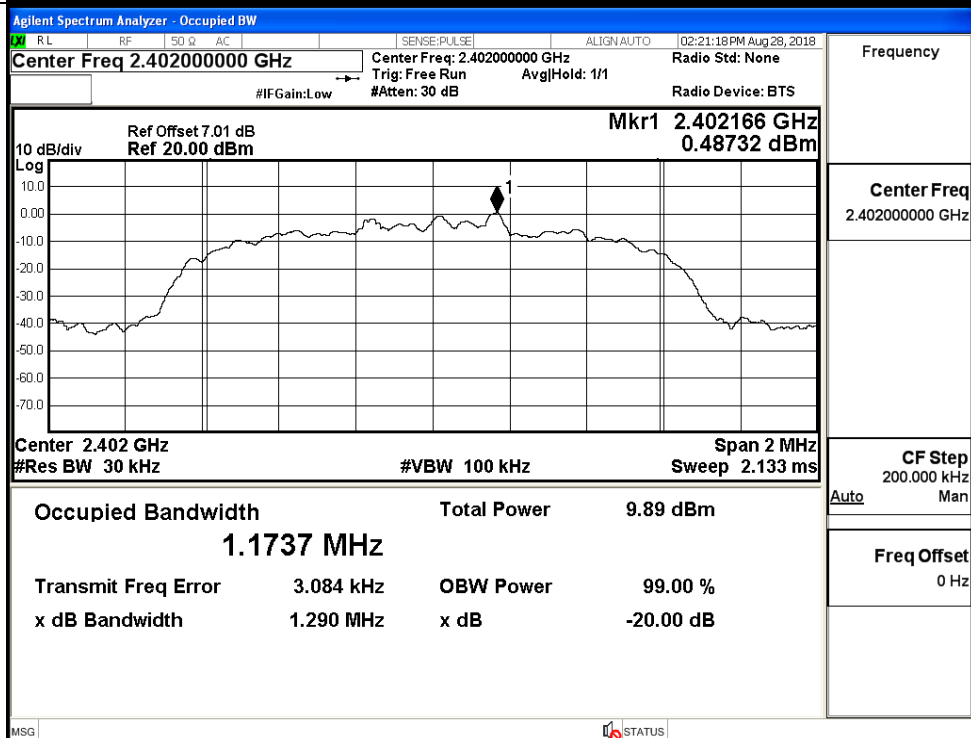
GFSK/HCH



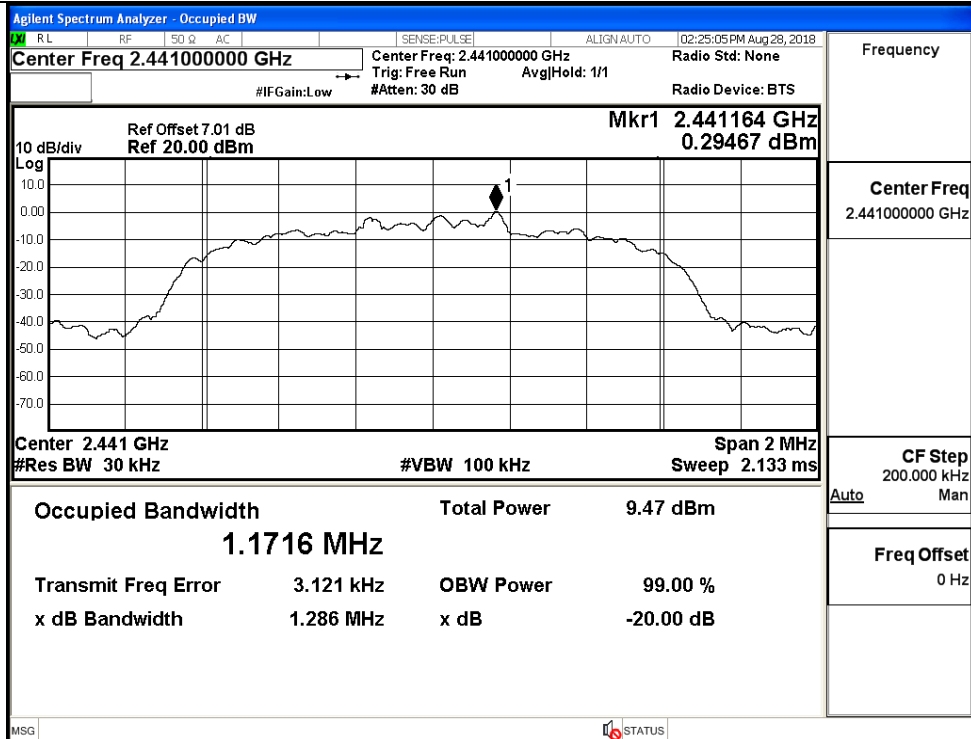
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

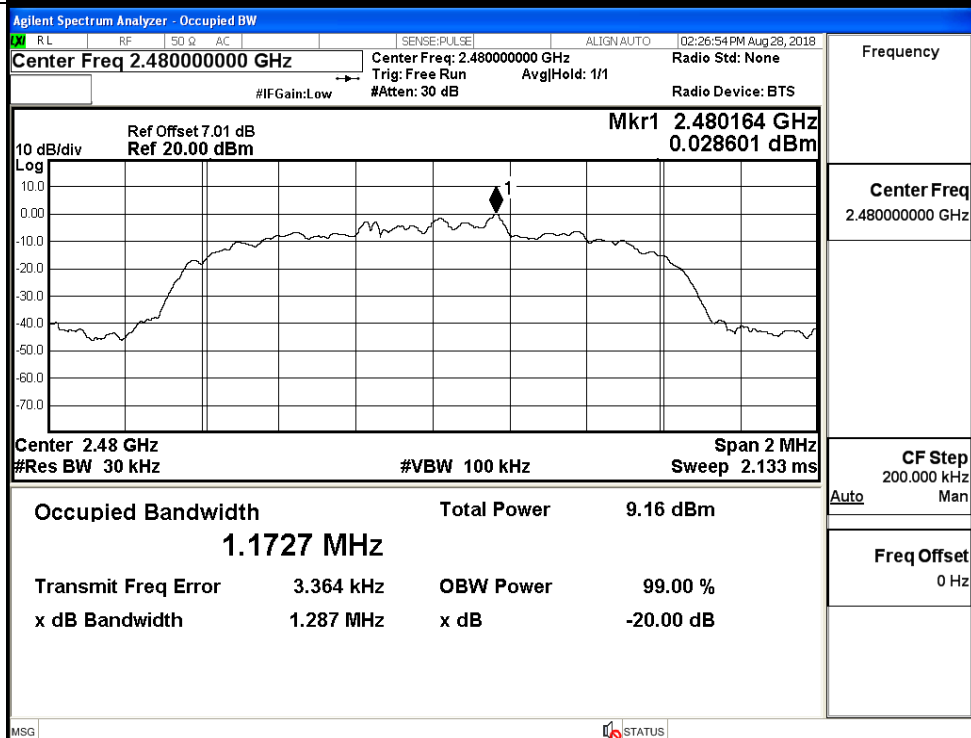
8DPSK/LCH



8DPSK/MCH



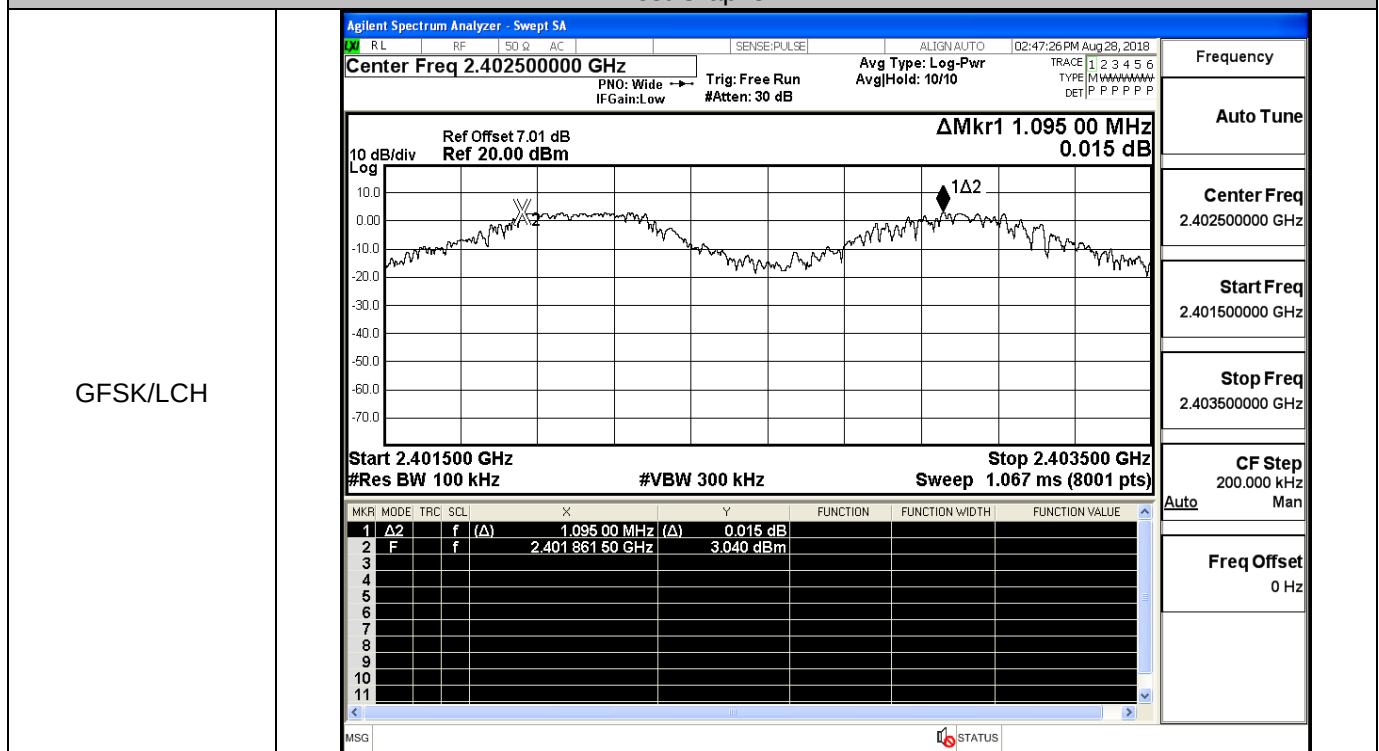
8DPSK/HCH



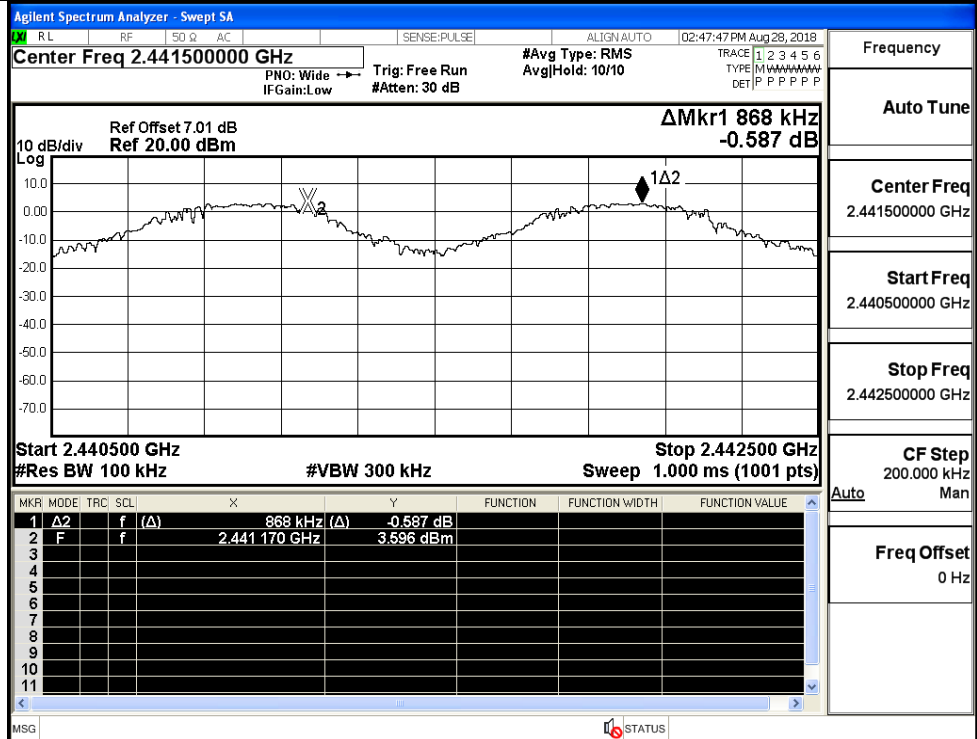
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.095	0.689	PASS
	MCH	0.868	0.689	PASS
	HCH	0.976	0.689	PASS
π /4DQPSK	LCH	1.198	0.875	PASS
	MCH	1.038	0.875	PASS
	HCH	1.202	0.875	PASS
8DPSK	LCH	1.094	0.860	PASS
	MCH	1.212	0.860	PASS
	HCH	1.022	0.860	PASS

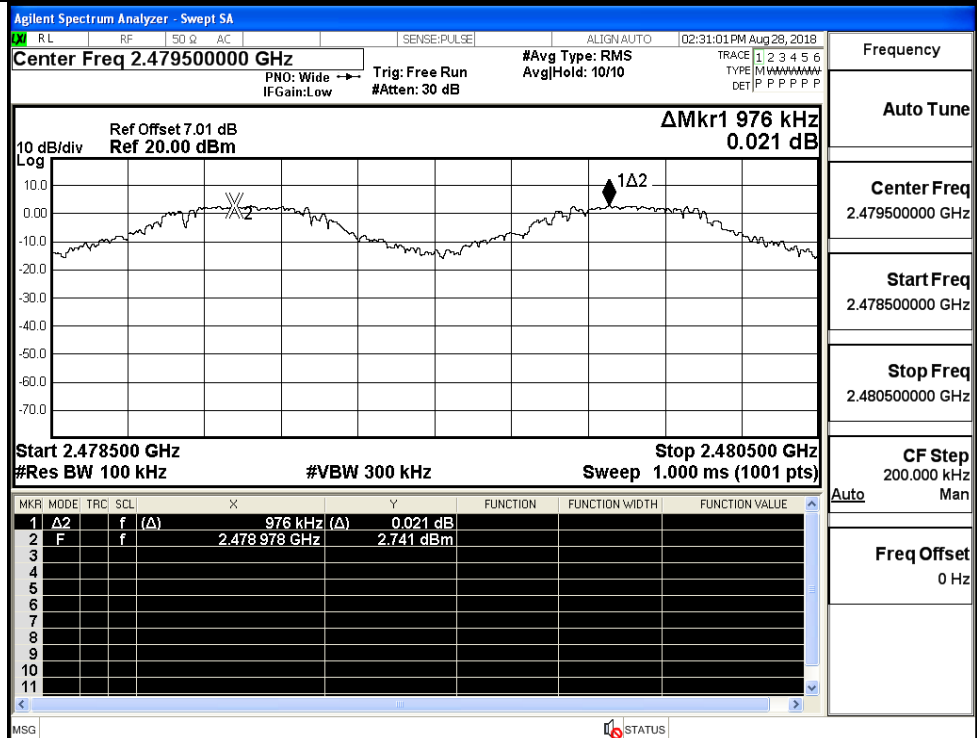
Test Graphs

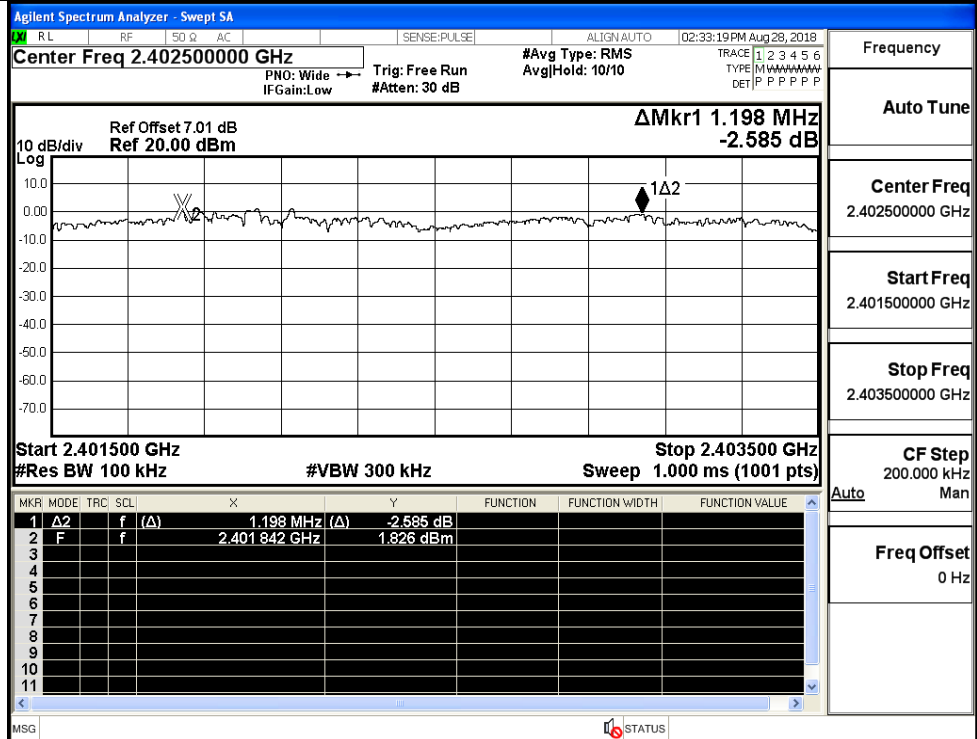
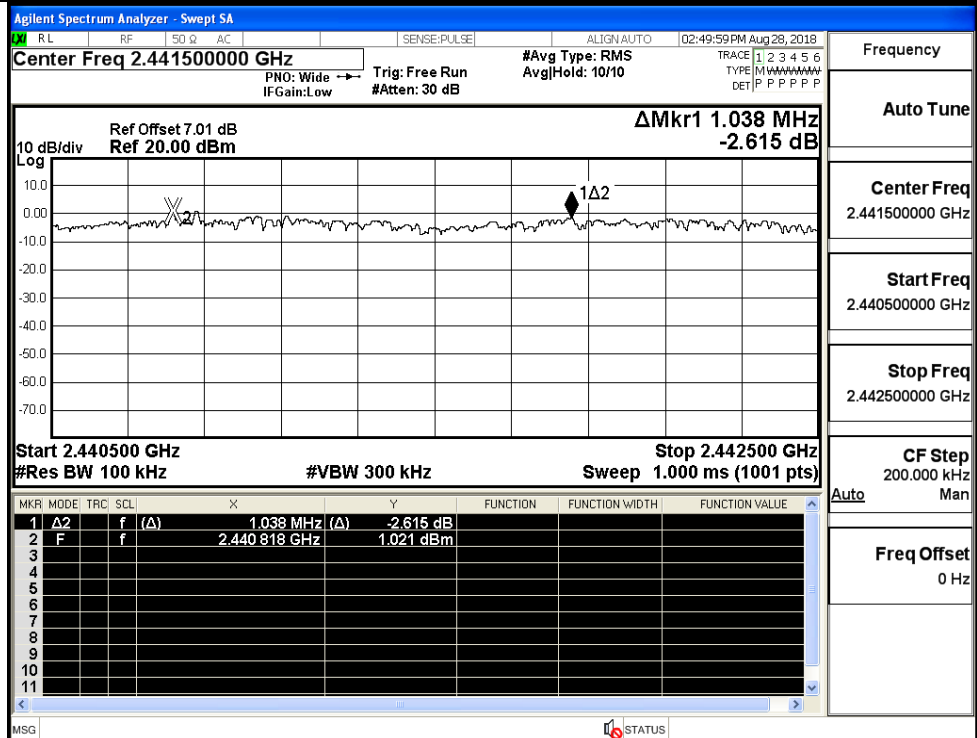


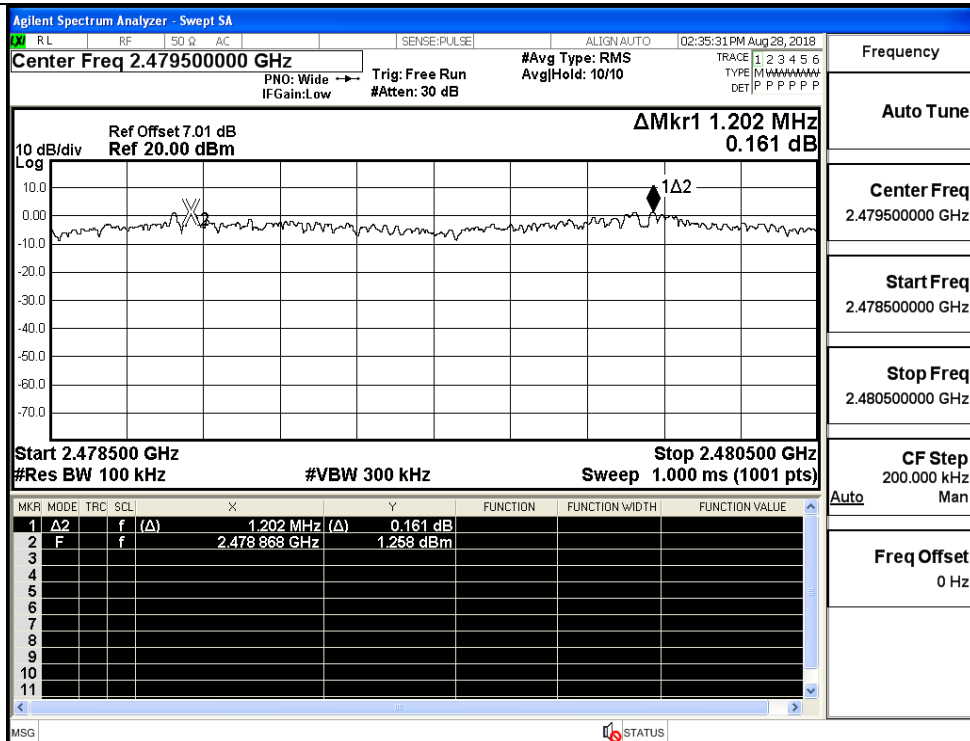
GFSK/MCH



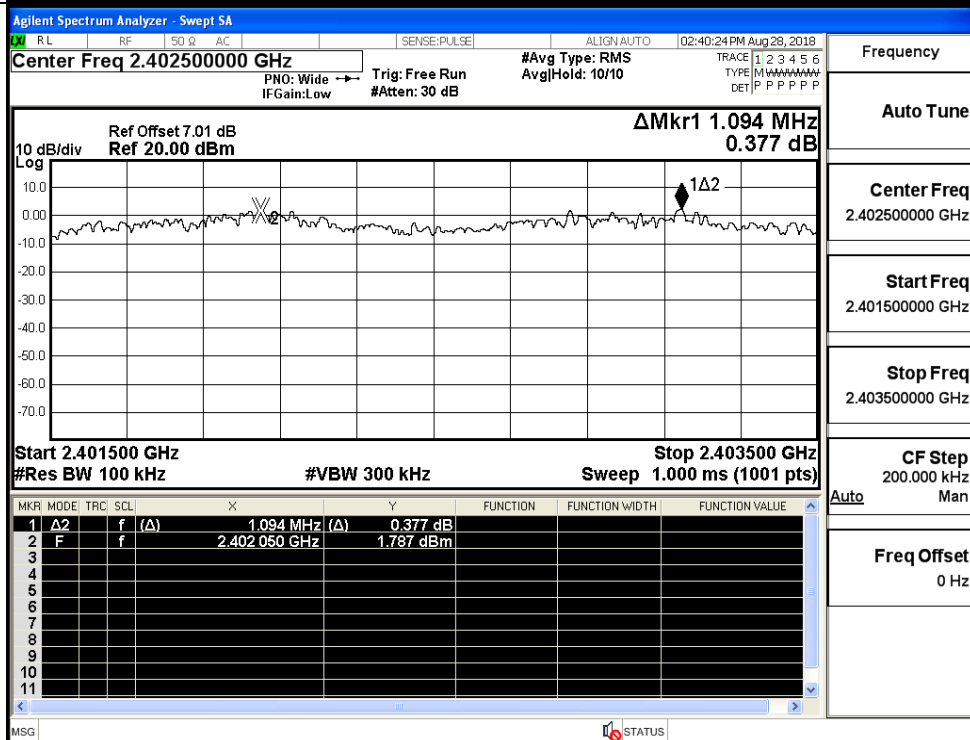
GFSK/HCH



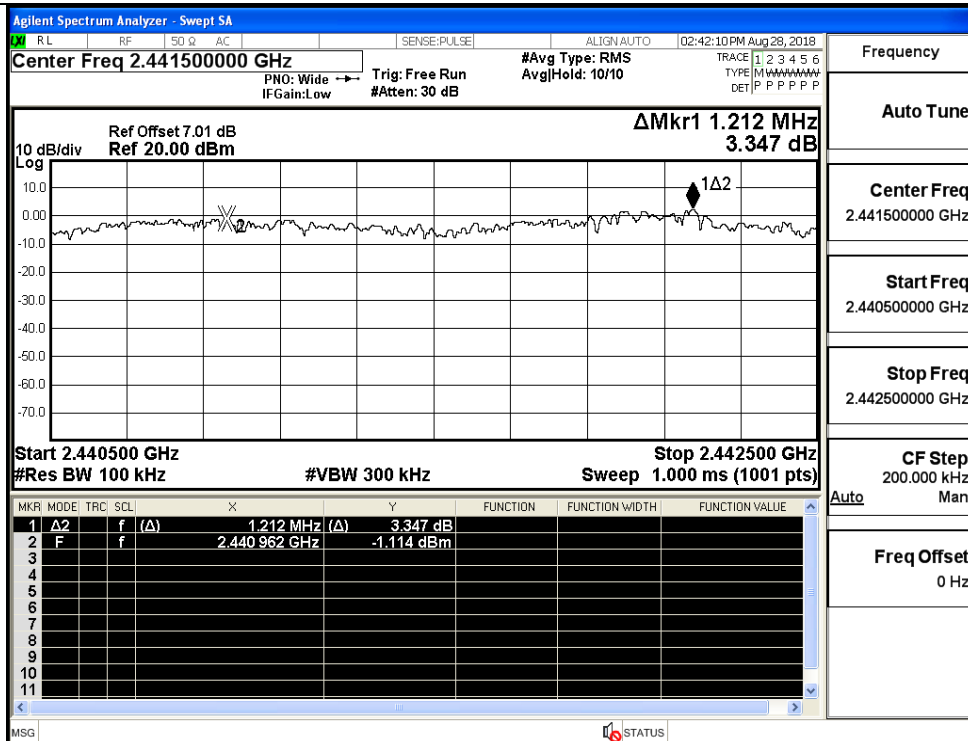
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

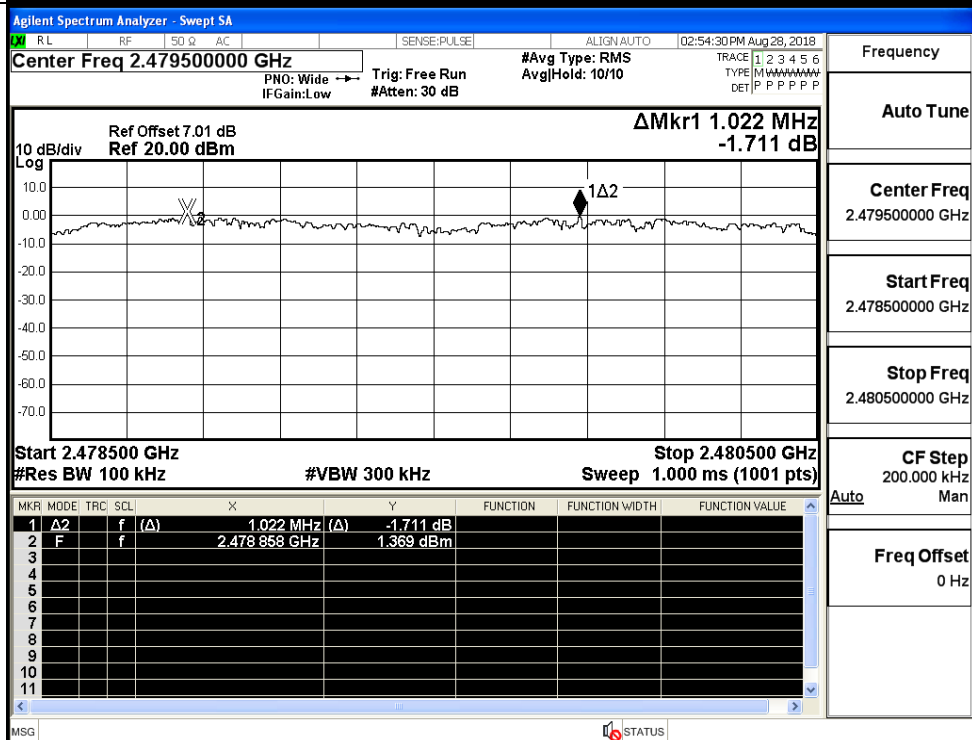
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

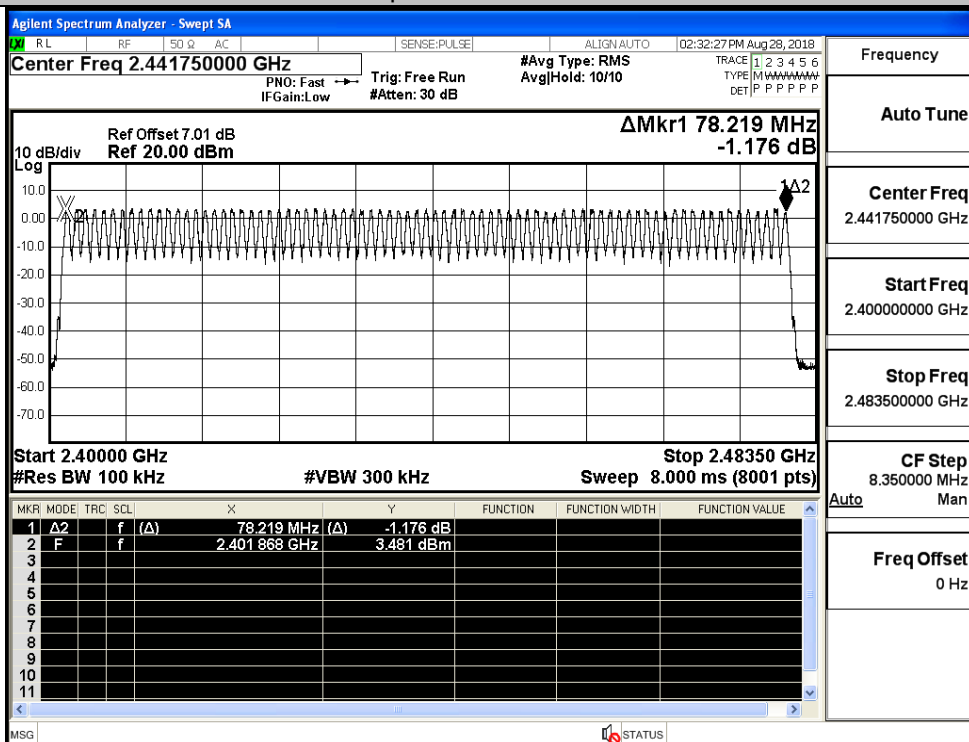
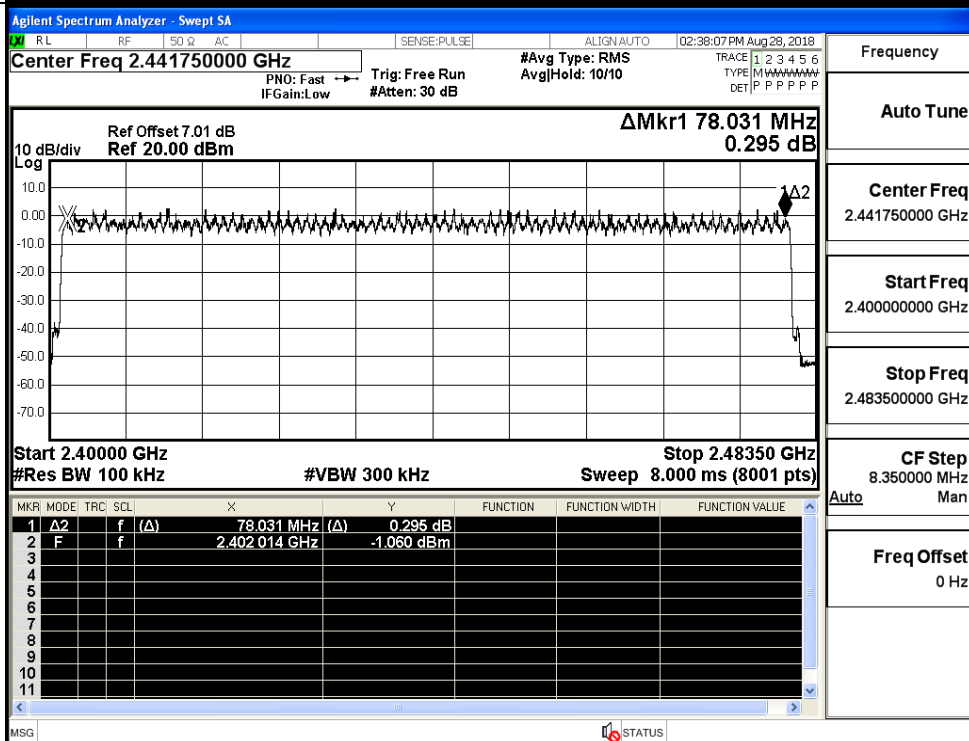


A.4 Hopping Channel Number

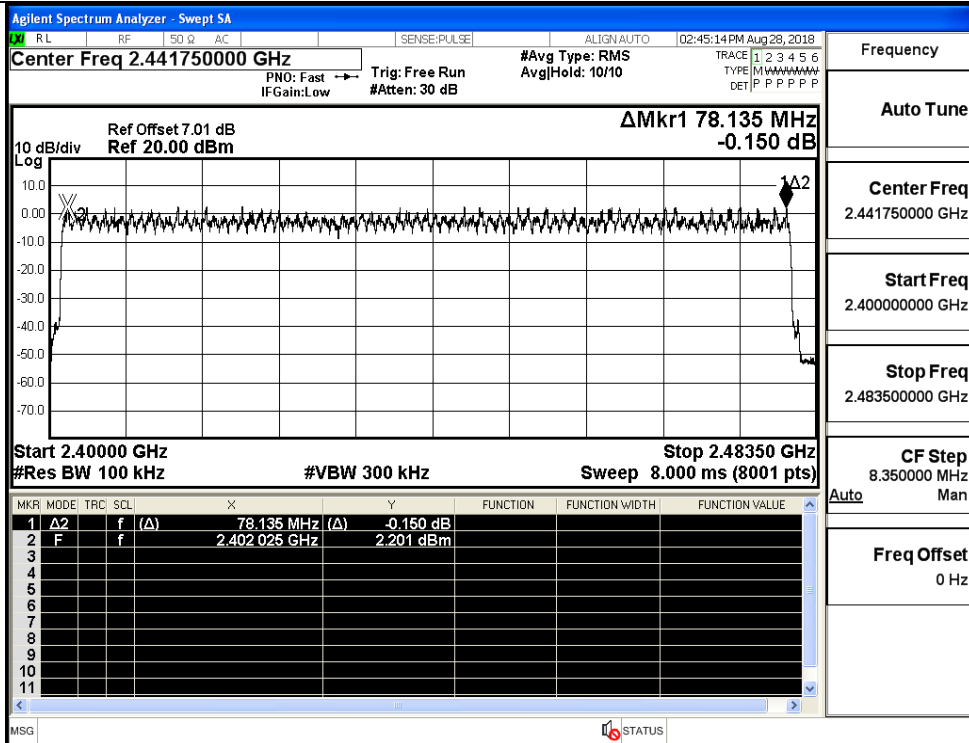
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

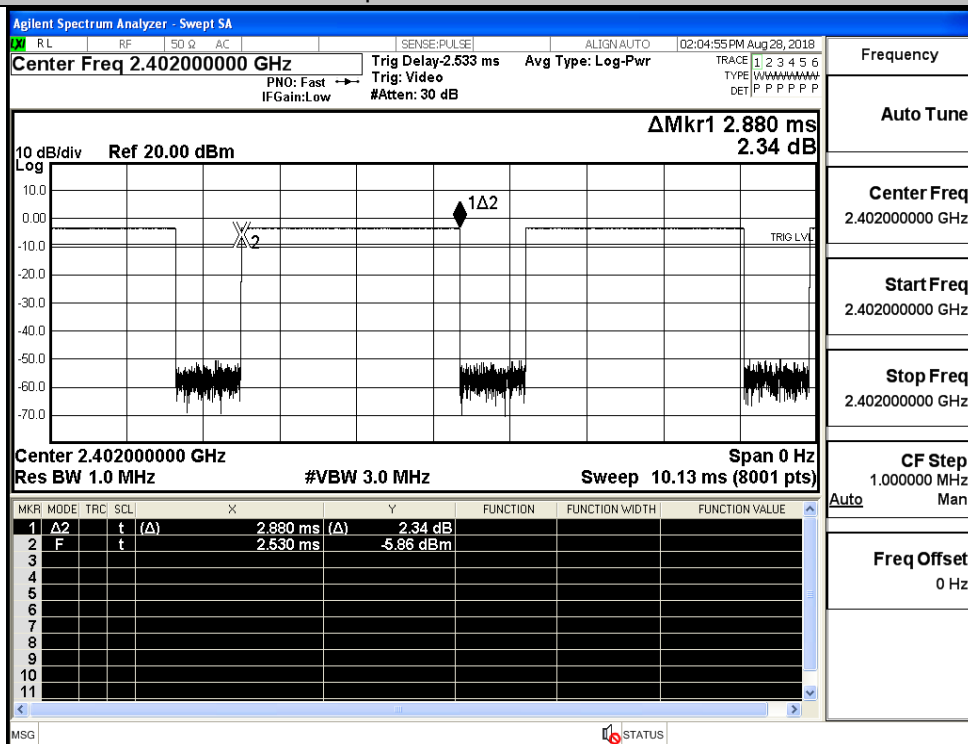


A.5 Dwell Time

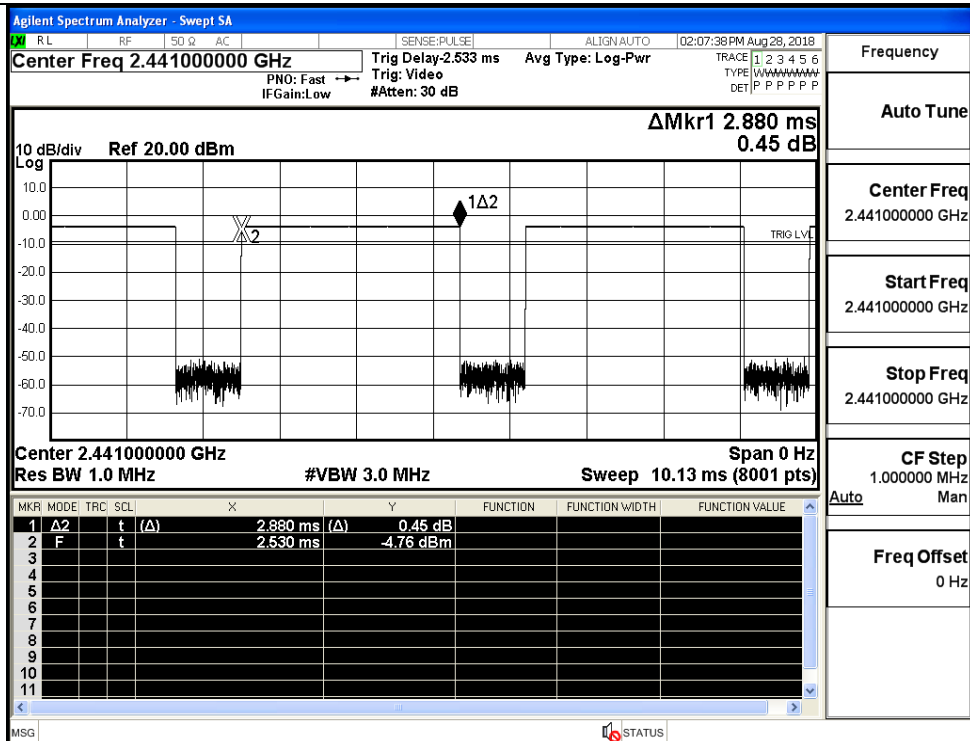
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	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

Test Graphs

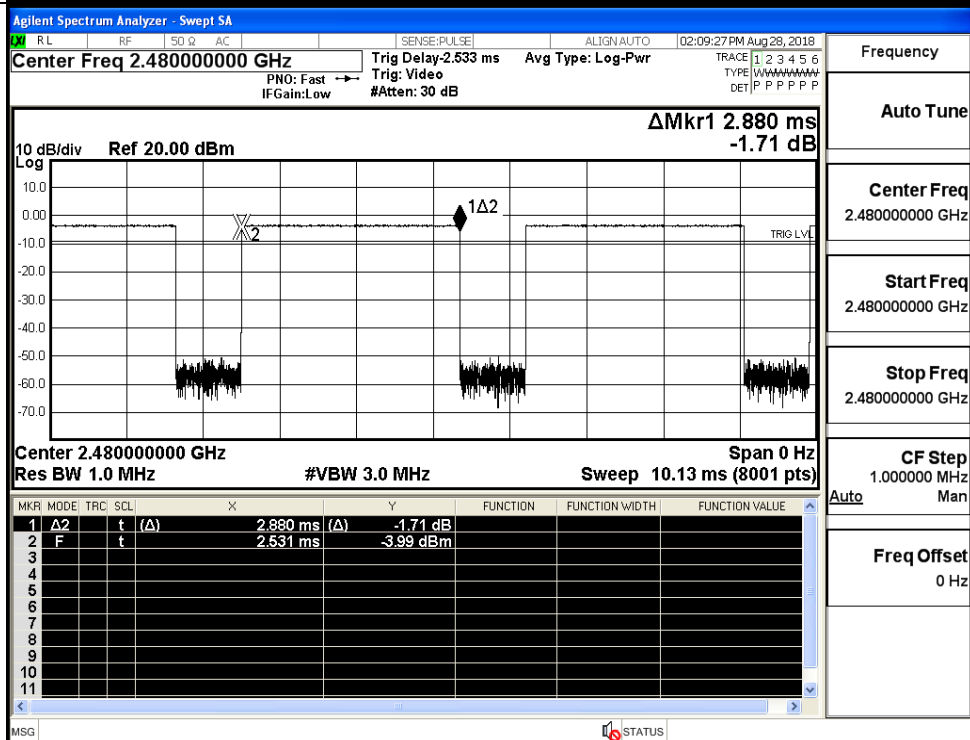
GFSK_DH5/LCH



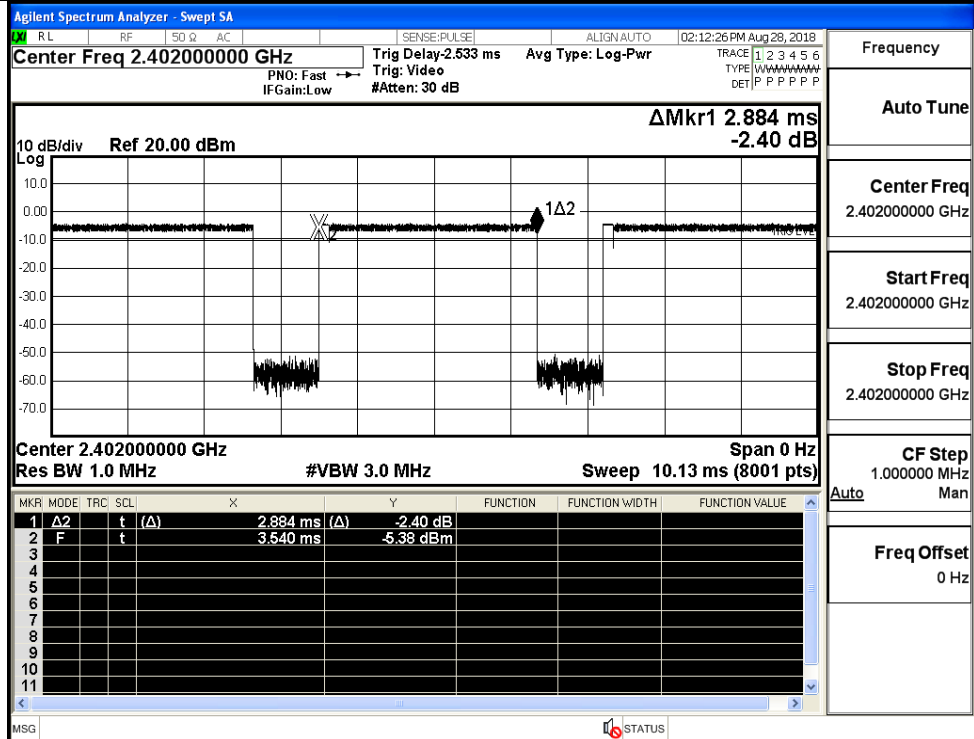
GFSK_DH5/MCH



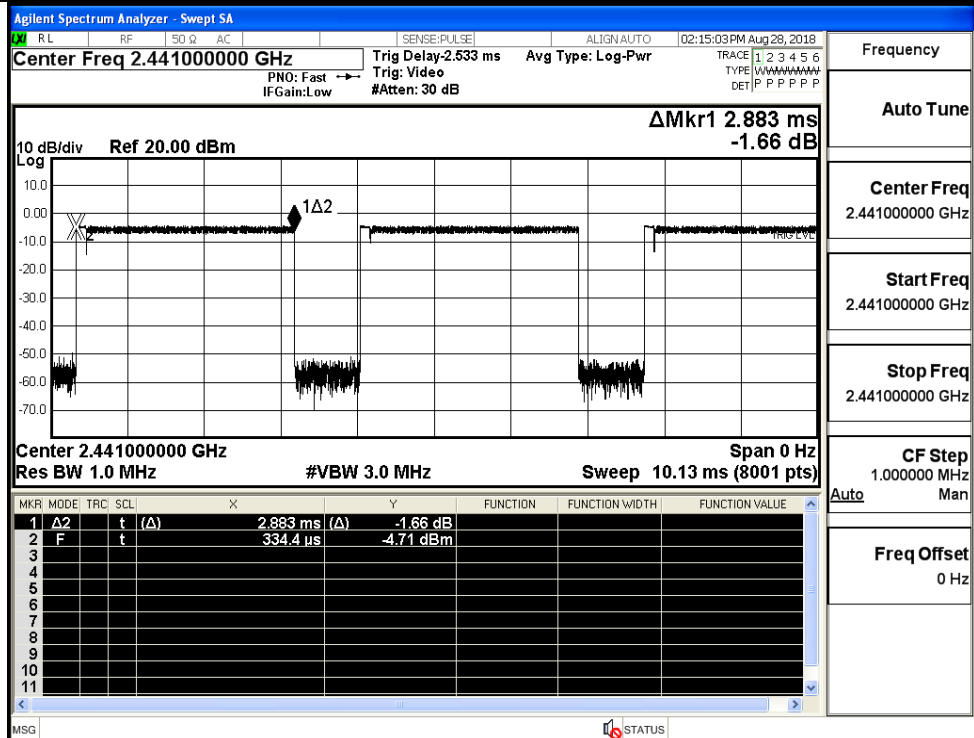
GFSK_DH5/HCH



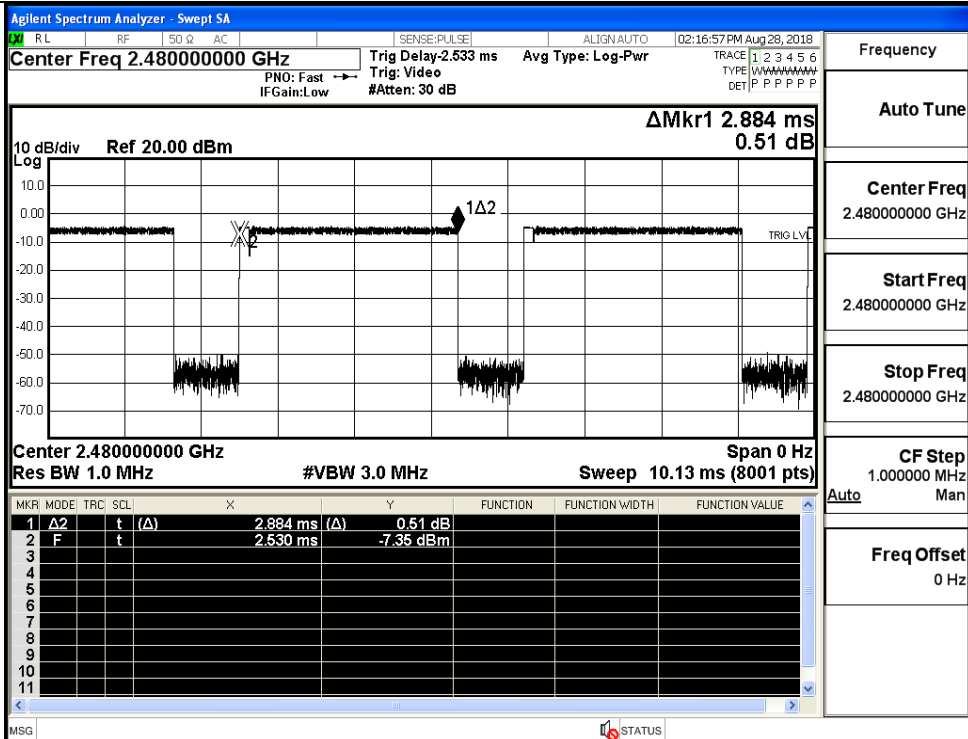
$\pi/4$ DQPSK
_2DH5/LCH



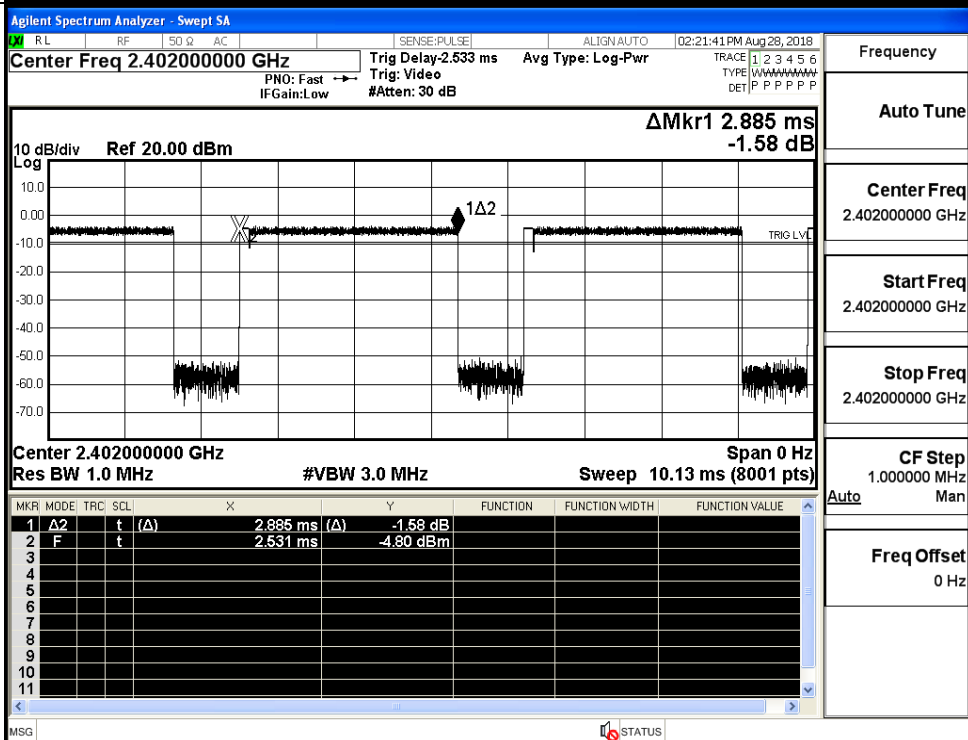
$\pi/4$ DQPSK
_2DH5/MCH



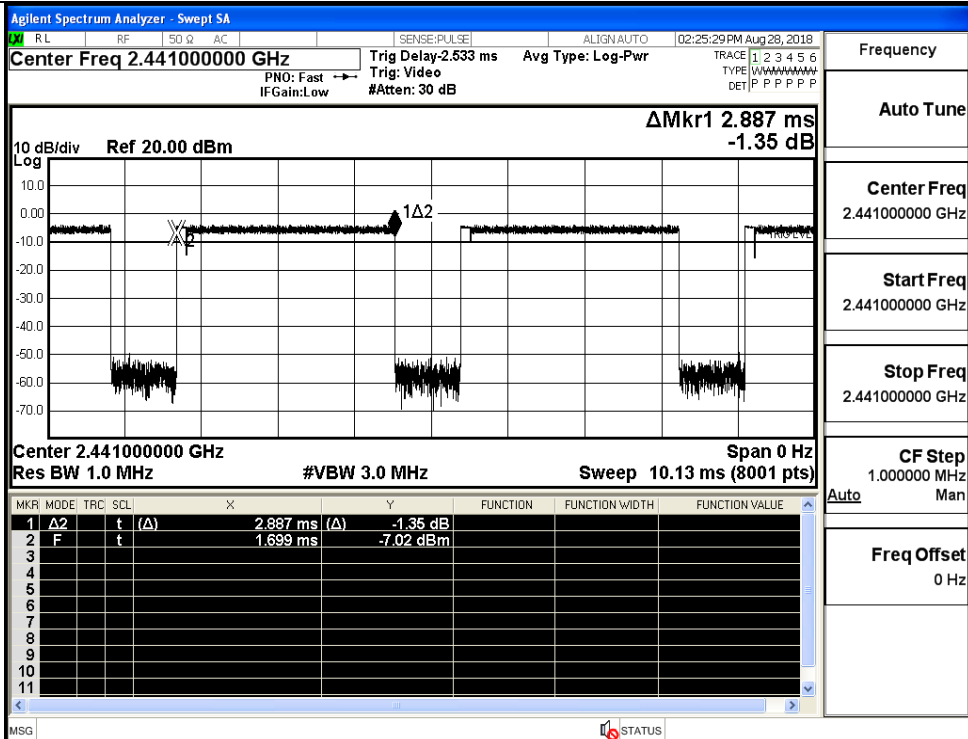
$\pi/4$ DQPSK
_2DH5/HCH



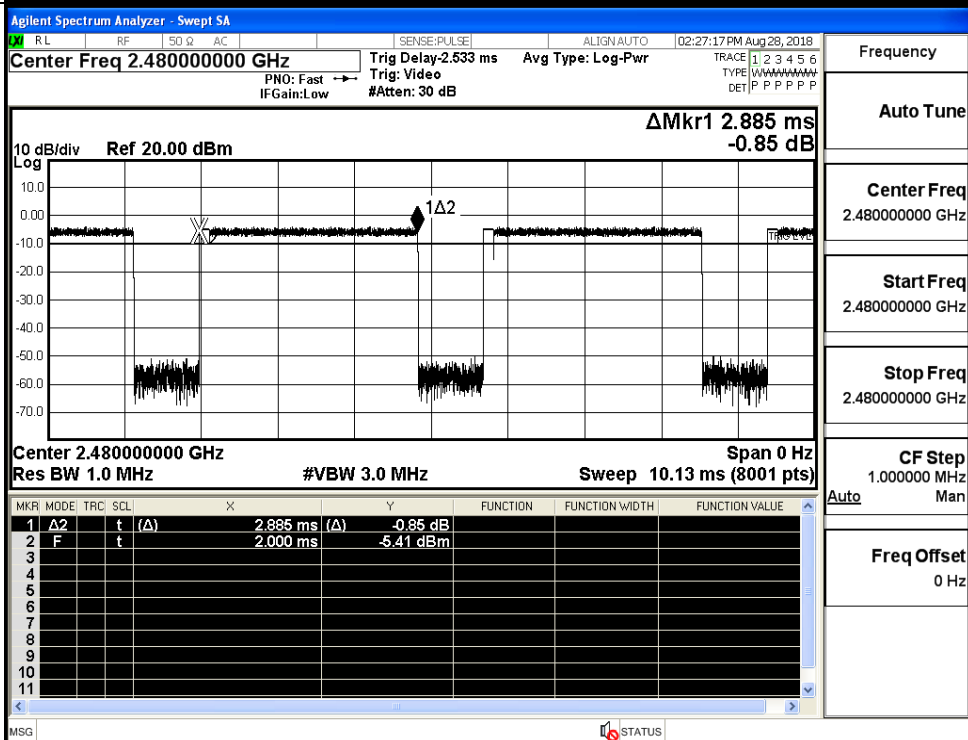
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH



A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.731	-45.093	-16.269	PASS
	MCH	3.146	-45.800	-16.854	PASS
	HCH	3.014	-45.744	-16.986	PASS
$\pi/4$ DQPSK	LCH	2.516	-45.724	-17.484	PASS
	MCH	2.407	-45.738	-17.593	PASS
	HCH	2.024	-45.214	-17.976	PASS
8DPSK	LCH	2.506	-45.478	-17.494	PASS
	MCH	2.04	-45.897	-17.960	PASS
	HCH	2.19	-45.897	-17.810	PASS

GFSK_LCH_Graphs

Pref

Puw

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.402000000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.067 ms (8001 pts)

Ref Offset 7.01 dB
Ref 20.00 dBm

Mkr1 2.402 164 50 GHz
3.731 dBm

Frequency: 2.402000000 GHz
Auto Tune
Start Freq: 2.401000000 GHz
Stop Freq: 2.403000000 GHz
CF Step: 200.000 kHz
Freq Offset: 0 Hz

Agilent Spectrum Analyzer - Swept SA

Center Freq 12.515000000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.387 s (8001 pts)

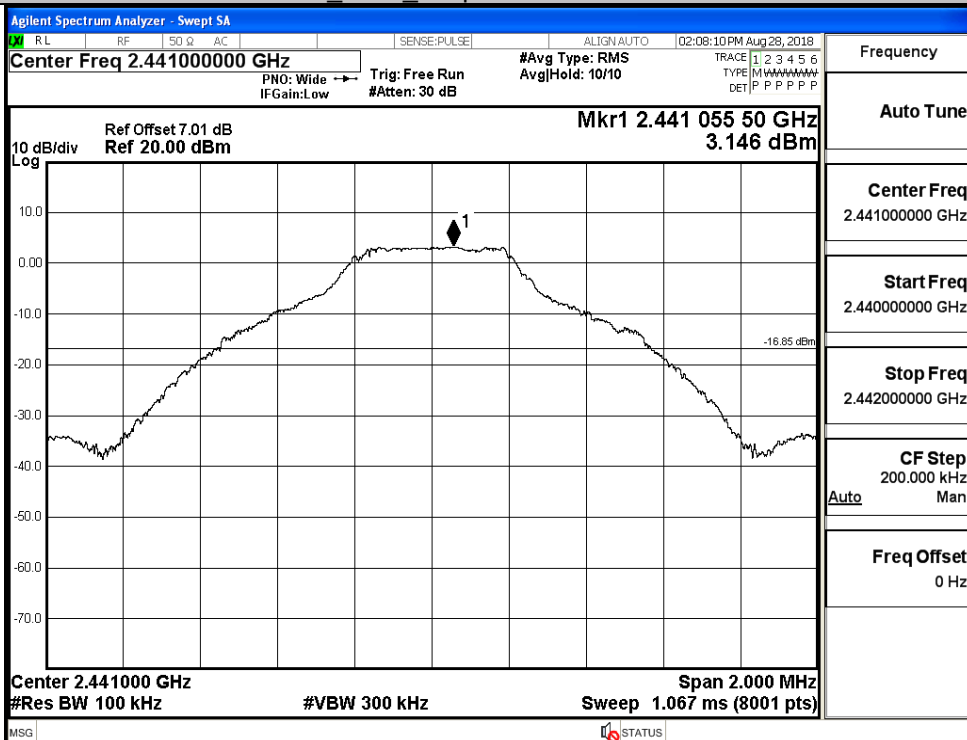
Ref Offset 7.01 dB
Ref 20.00 dBm

Mkr2 17.946 GHz
-45.093 dBm

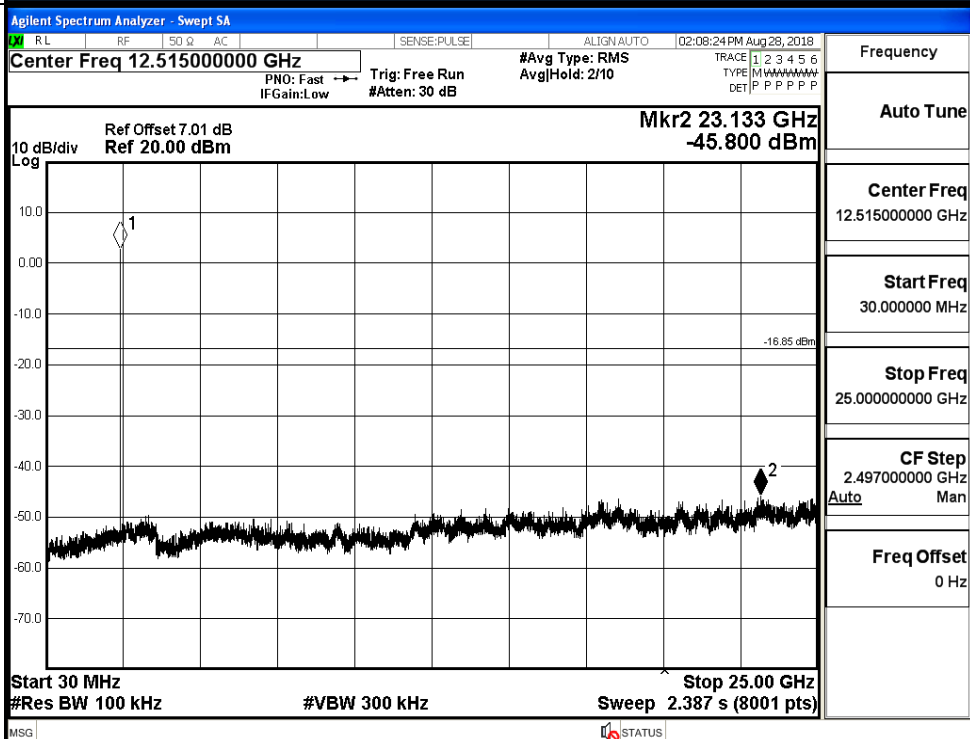
Frequency: 12.515000000 GHz
Auto Tune
Start Freq: 30.00000000 MHz
Stop Freq: 25.000000000 GHz
CF Step: 2.497000000 GHz
Freq Offset: 0 Hz

GFSK_MCH_Graphs

Pref

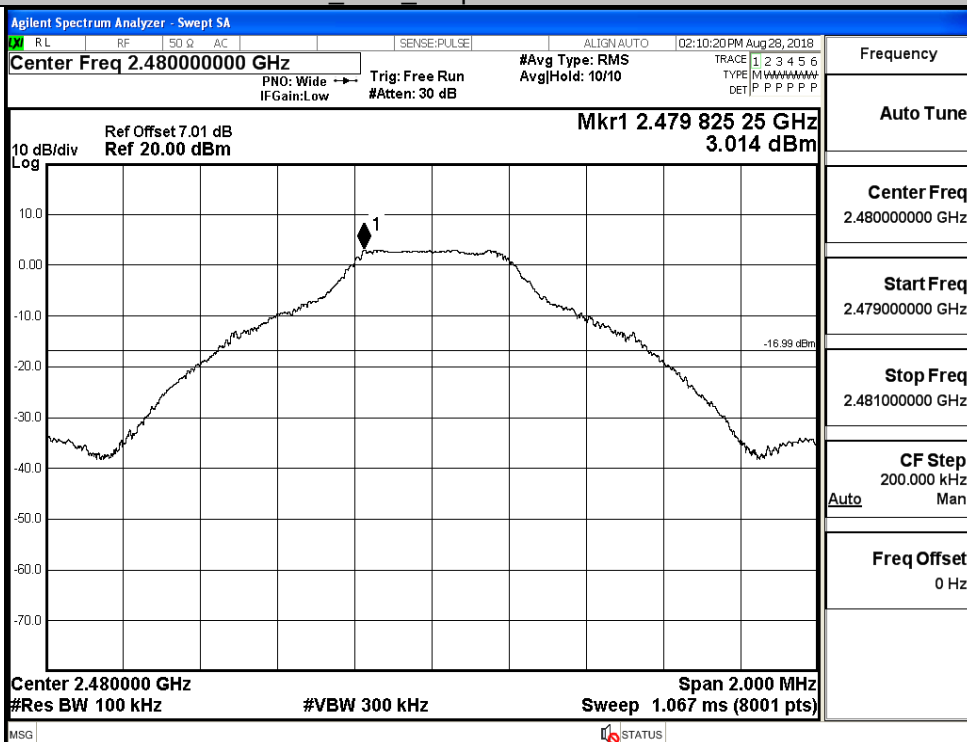


Puw

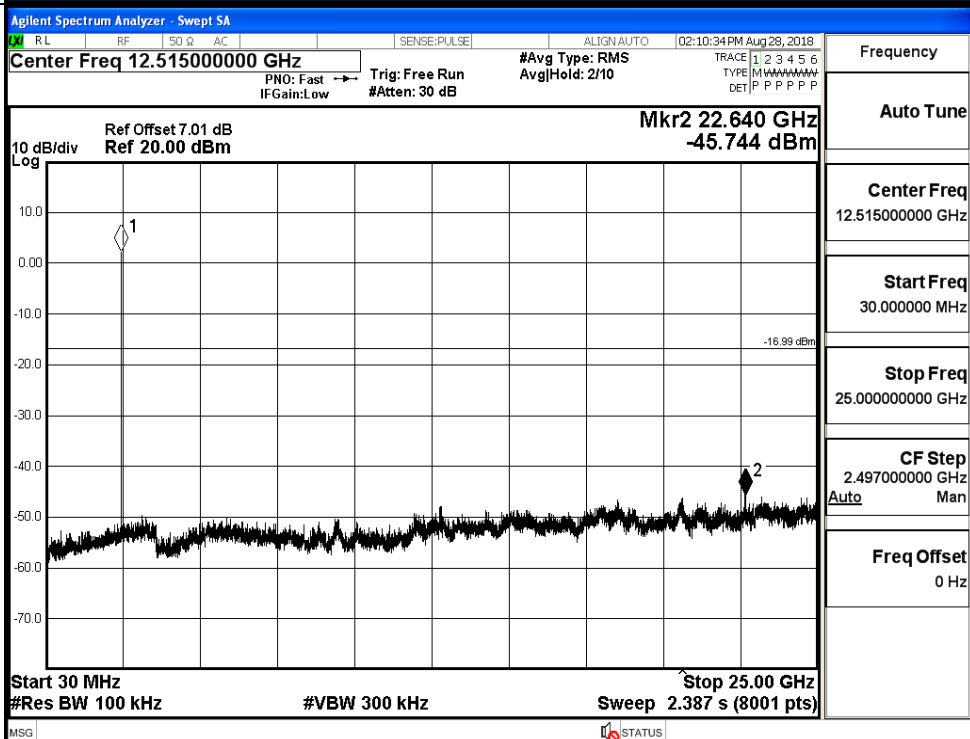


GFSK HCH_Graphs

Pref

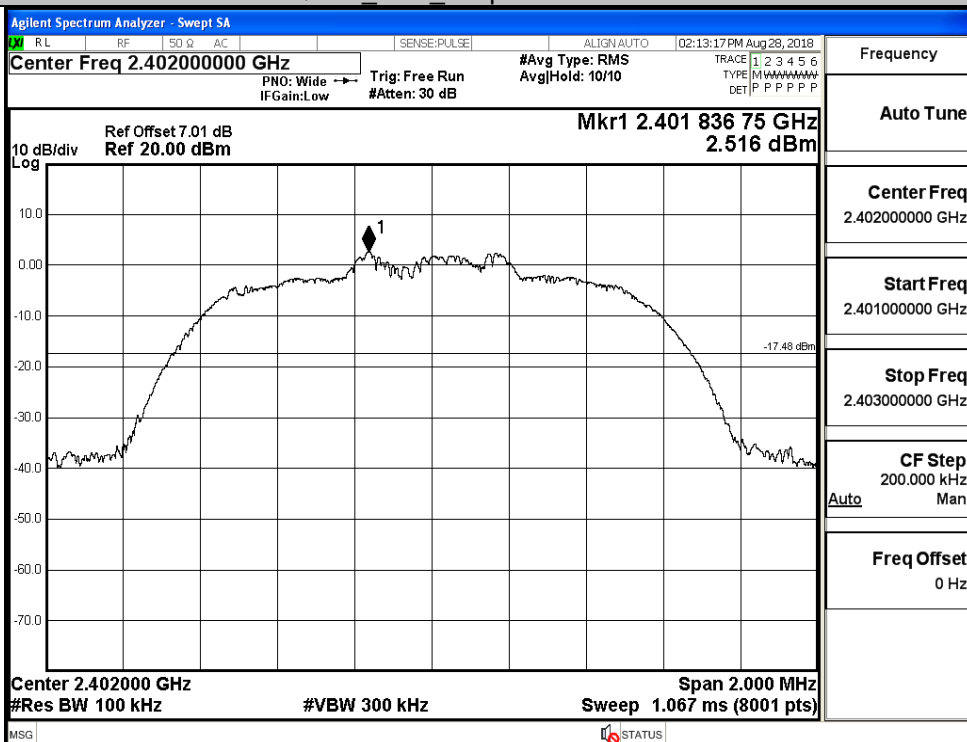


Puw

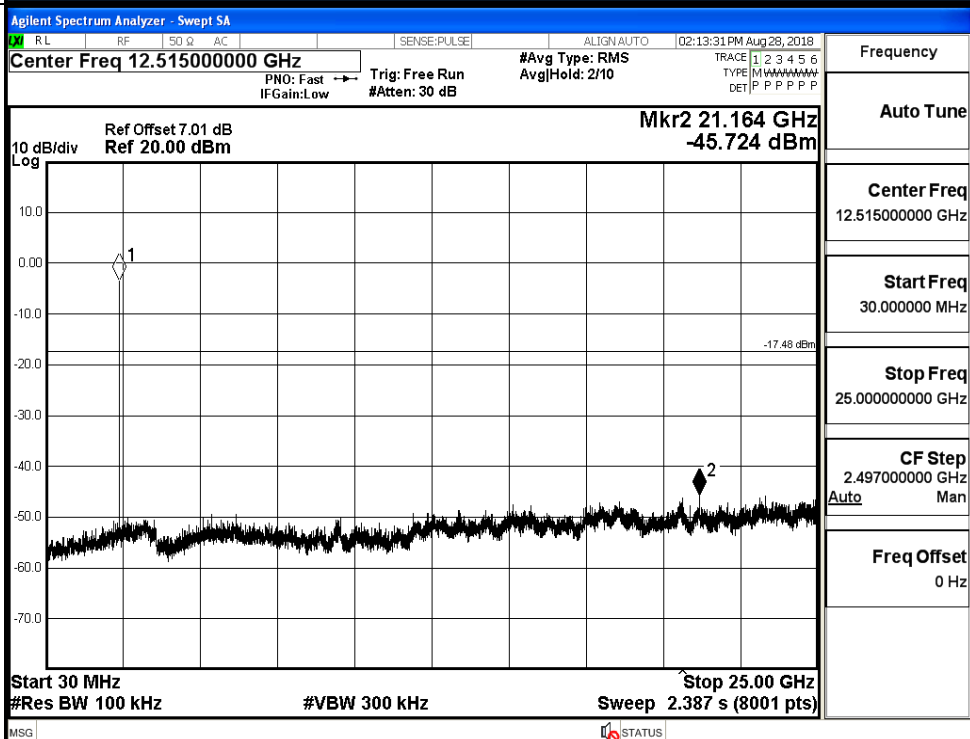


π /4DQPSK LCH_Graphs

Pref

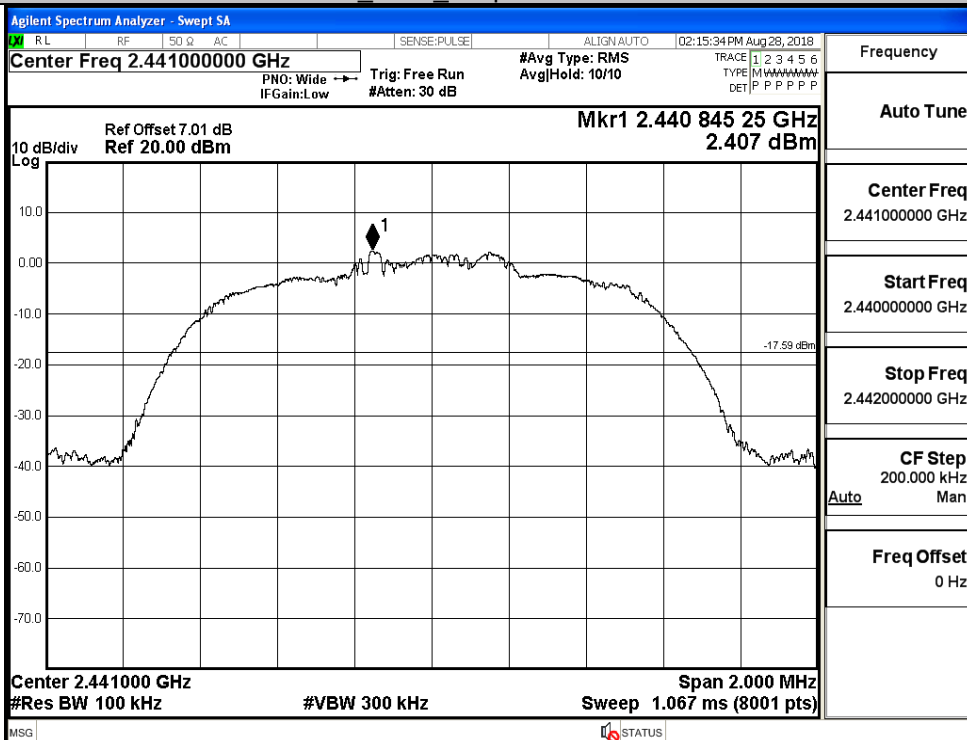


Puw

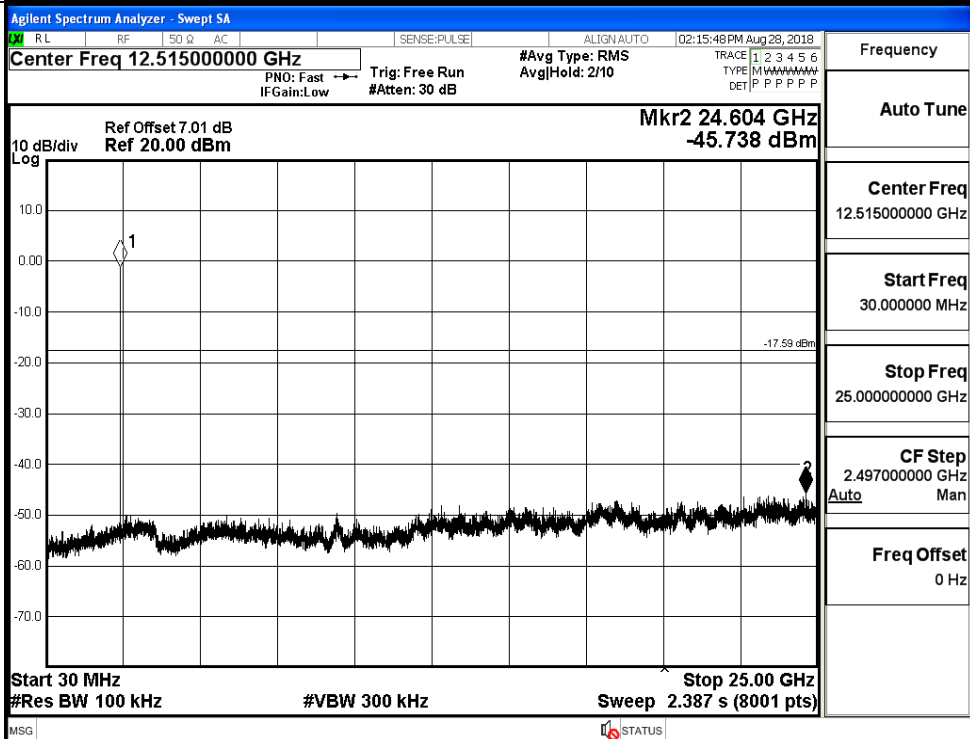


π /4DQPSK_MCH_Graphs

Pref

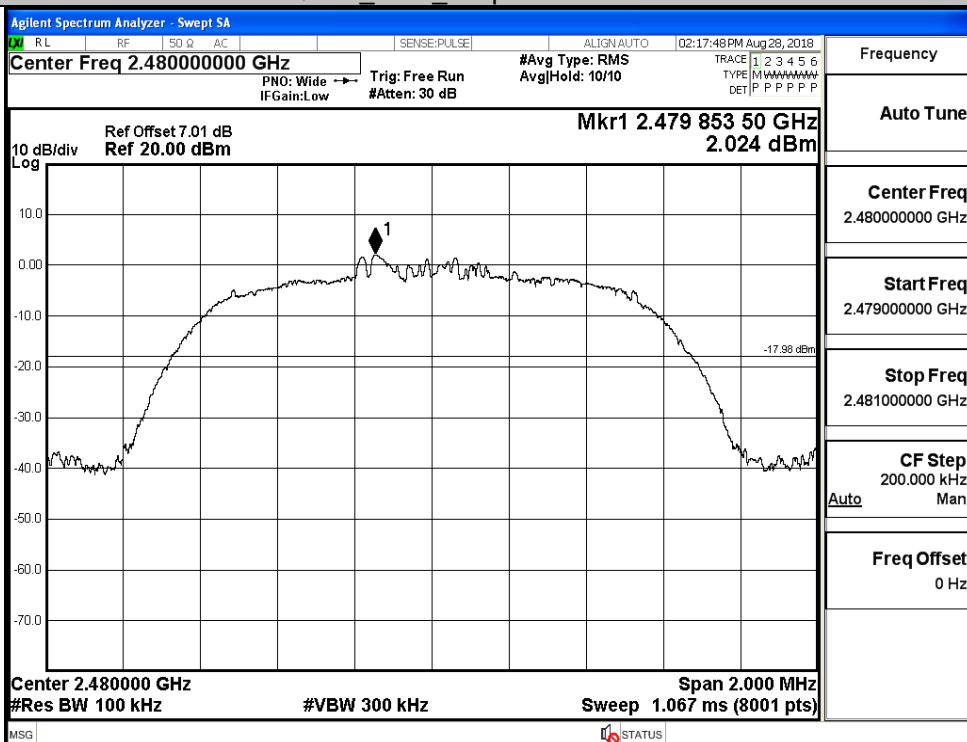


Puw

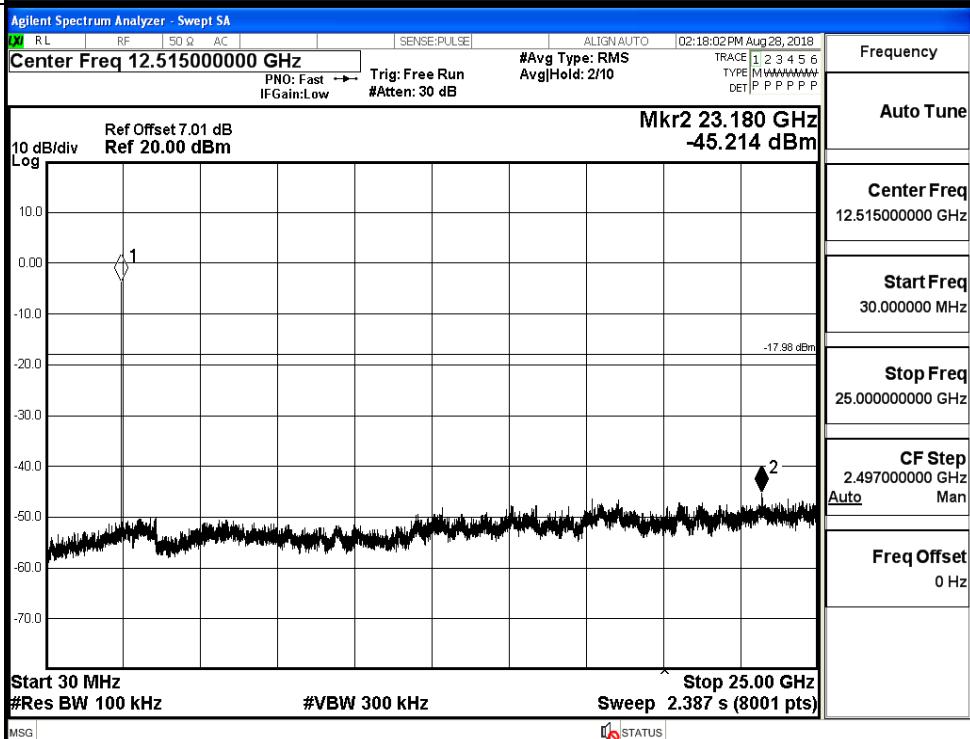


$\pi/4$ DQPSK_HCH_Graphs

Pref

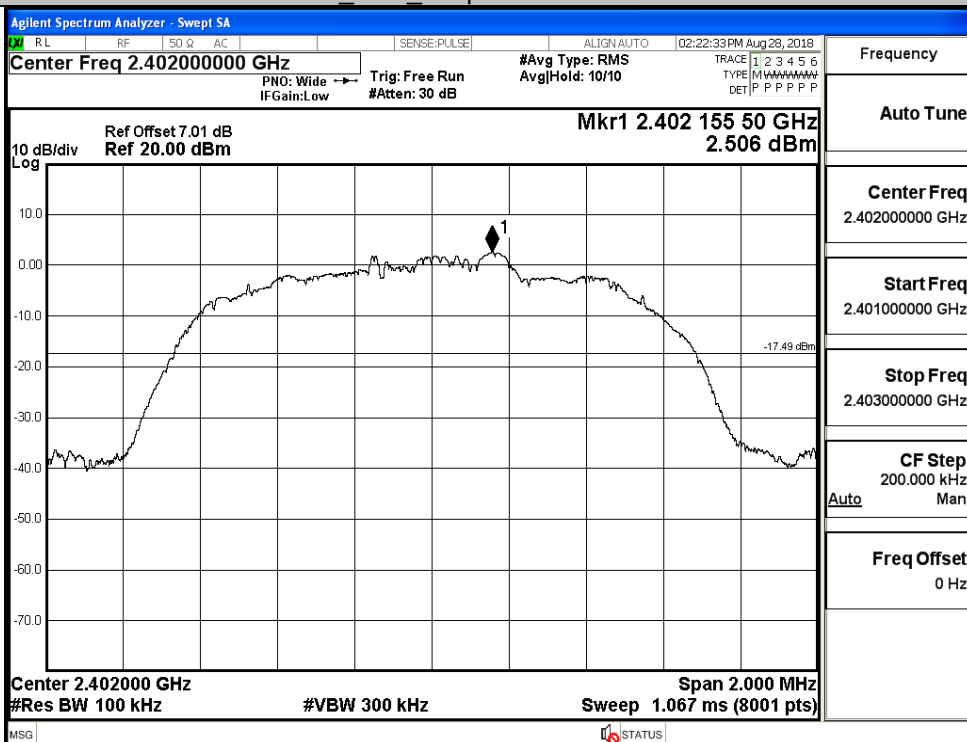


Puw

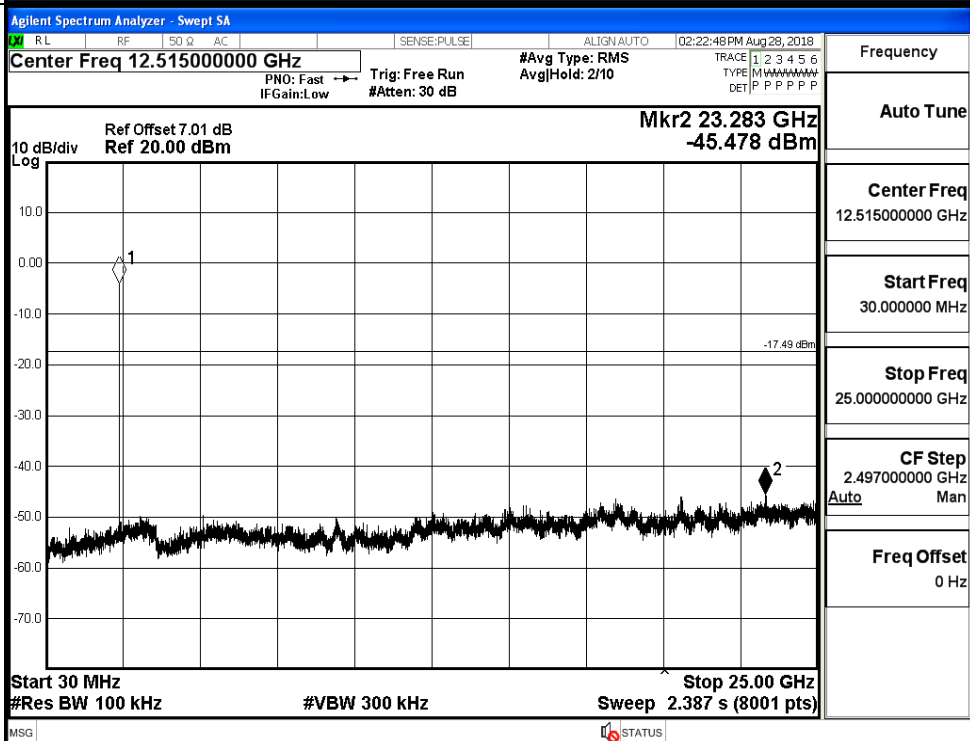


8DPSK_LCH_Graphs

Pref

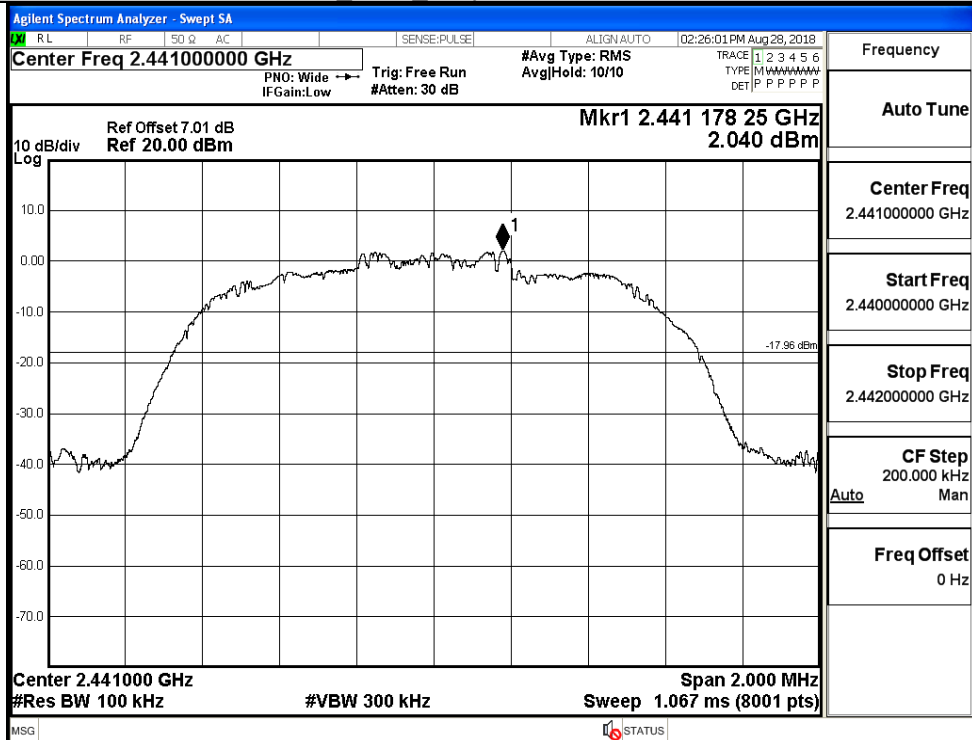


Puw

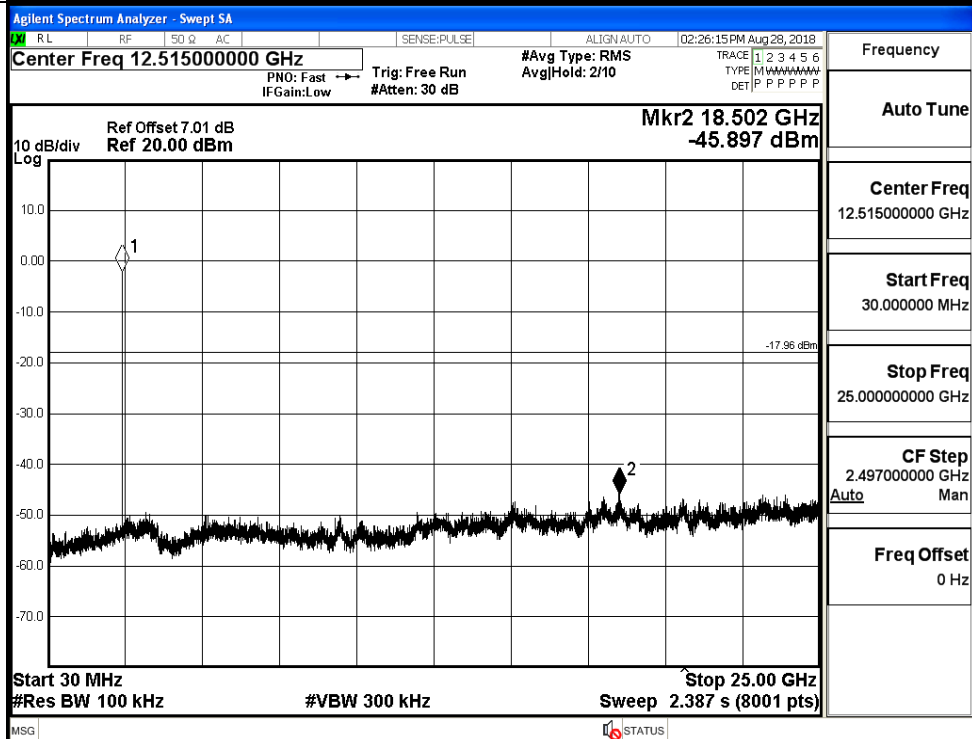


8DPSK_MCH_Graphs

Pref

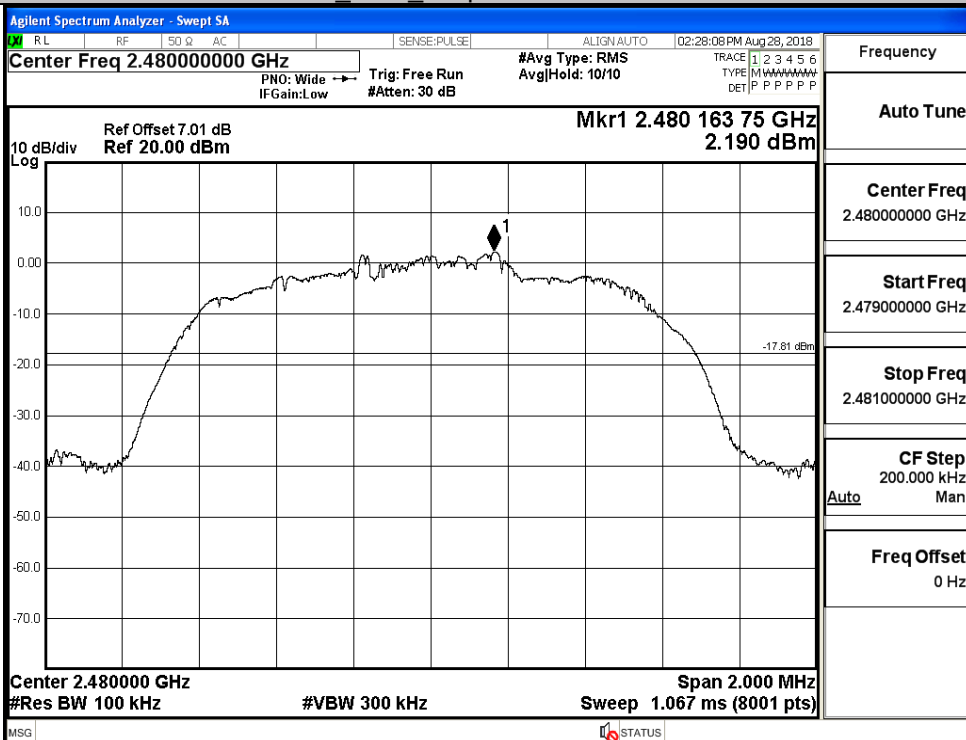


Puw

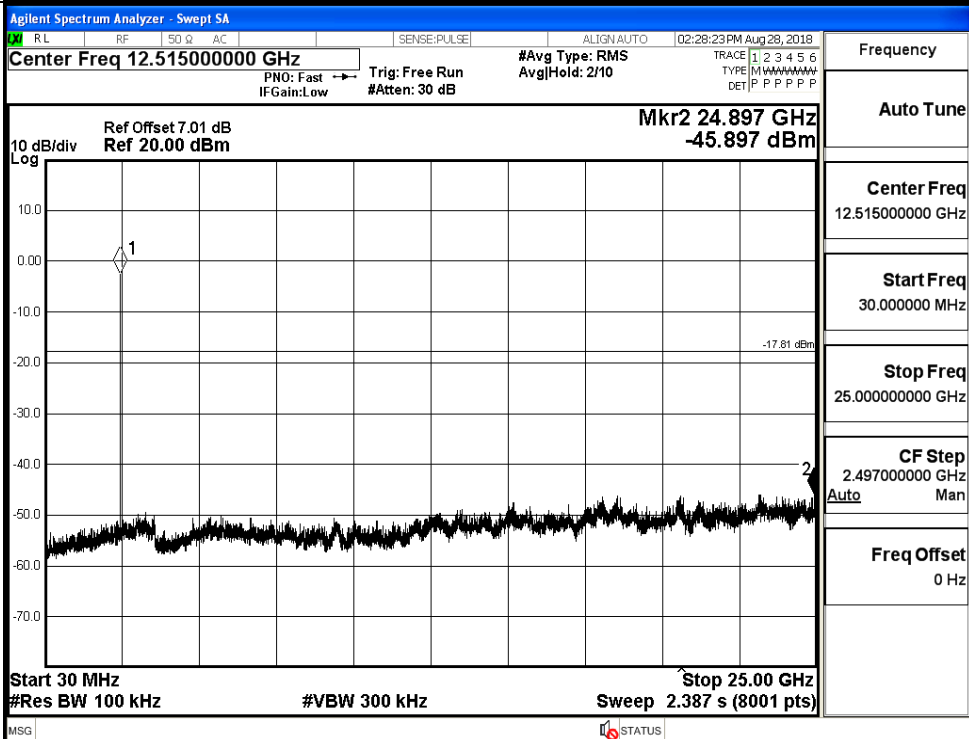


8DPSK_HCH_Graphs

Pref



Puw

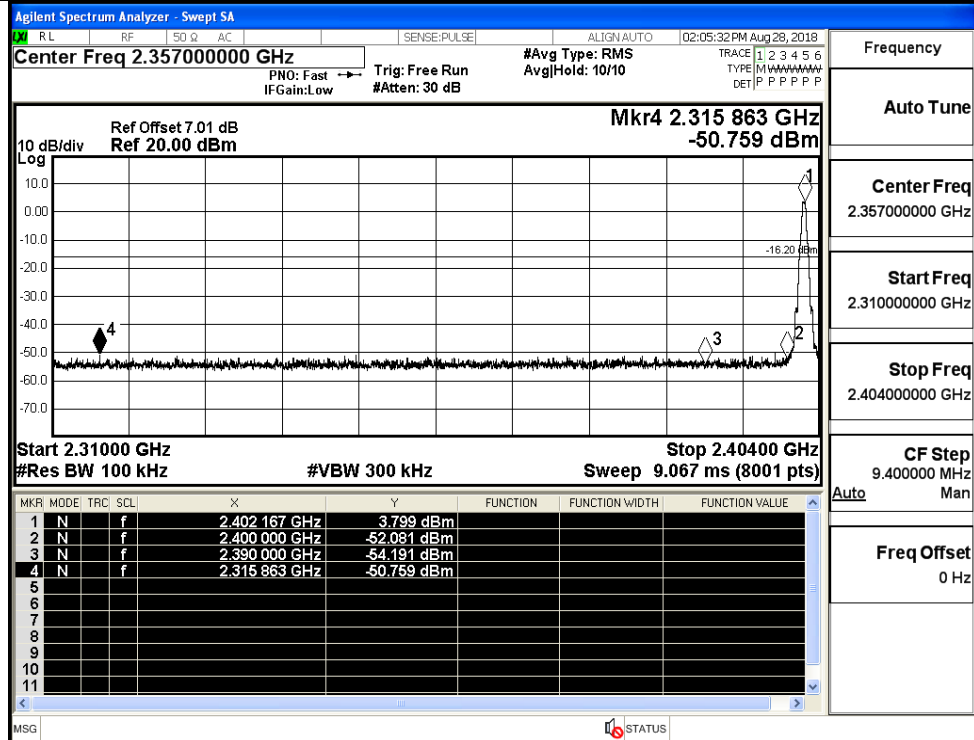


A.7 Band-edge for RF Conducted Emissions

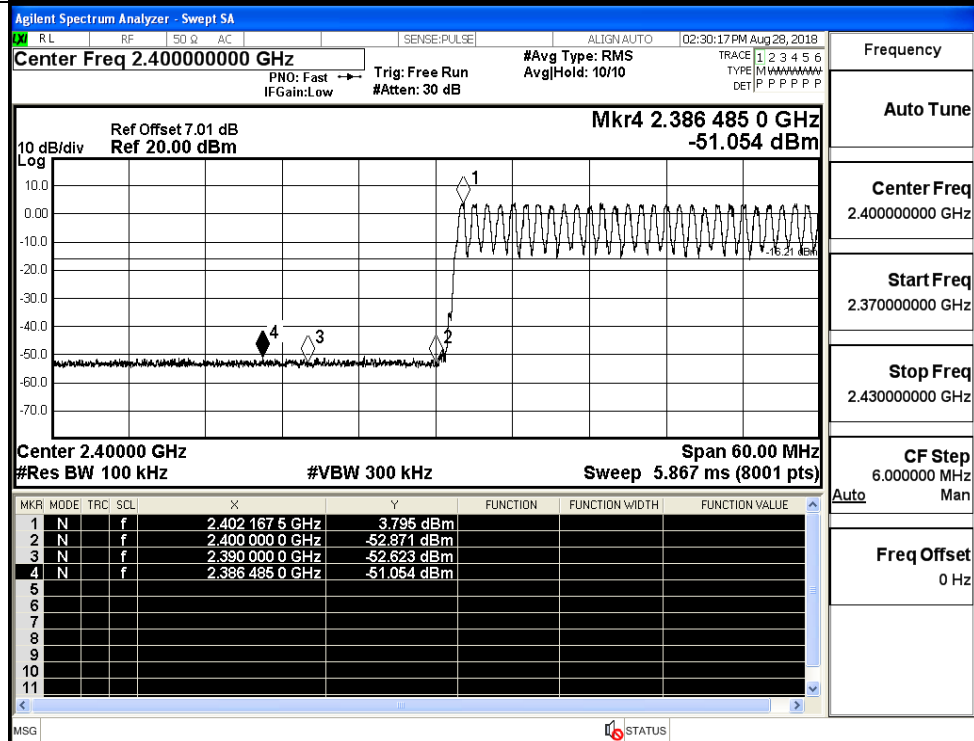
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	3.799	Off	-50.759	-16.2	PASS
			3.795	On	-51.054	-16.21	PASS
	HCH	2480	3.549	Off	-50.737	-16.45	PASS
			3.204	On	-50.317	-16.8	PASS
$\pi/4$ DQPSK	LCH	2402	2.954	Off	-50.194	-17.05	PASS
			2.339	On	-50.023	-17.66	PASS
	HCH	2480	2.149	Off	-50.925	-17.85	PASS
			2.250	On	-50.559	-17.75	PASS
8DPSK	LCH	2402	2.500	Off	-51.276	-17.5	PASS
			2.547	On	-50.876	-17.45	PASS
	HCH	2480	2.086	Off	-50.533	-17.91	PASS
			2.312	On	-50.476	-17.69	PASS

Test Graphs

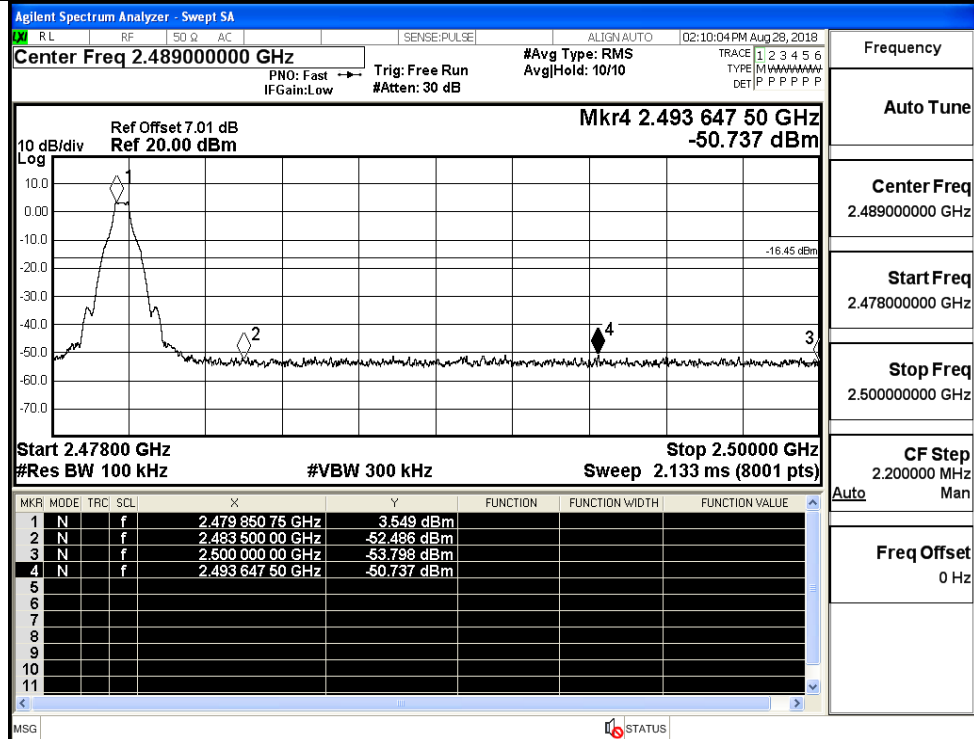
GFSK/LCH/No Hop



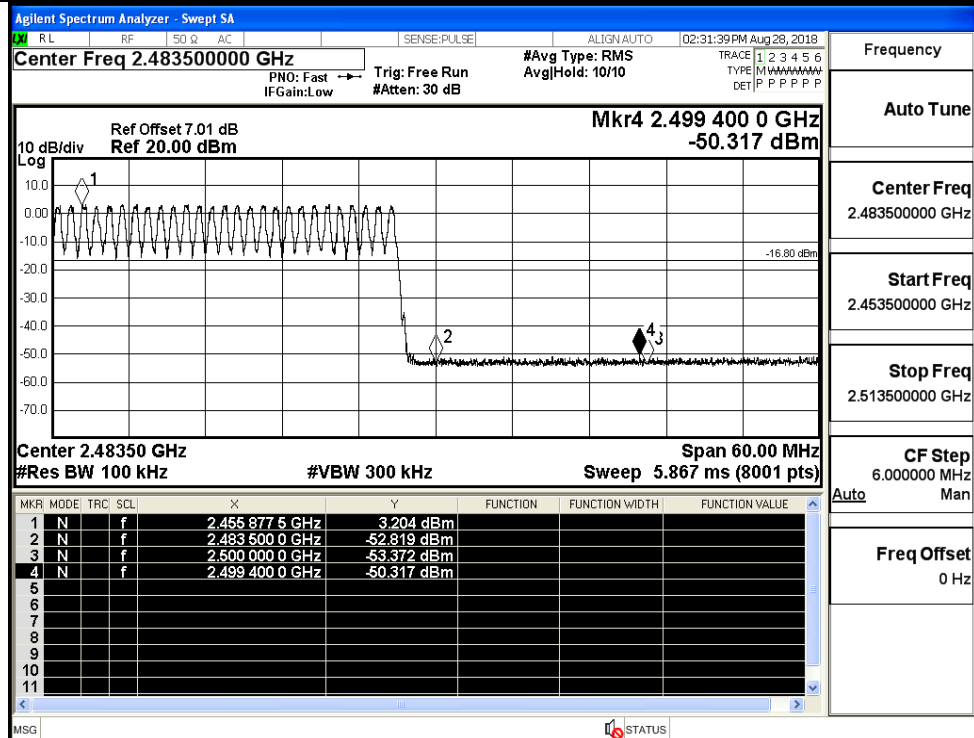
GFSK/LCH/Hop



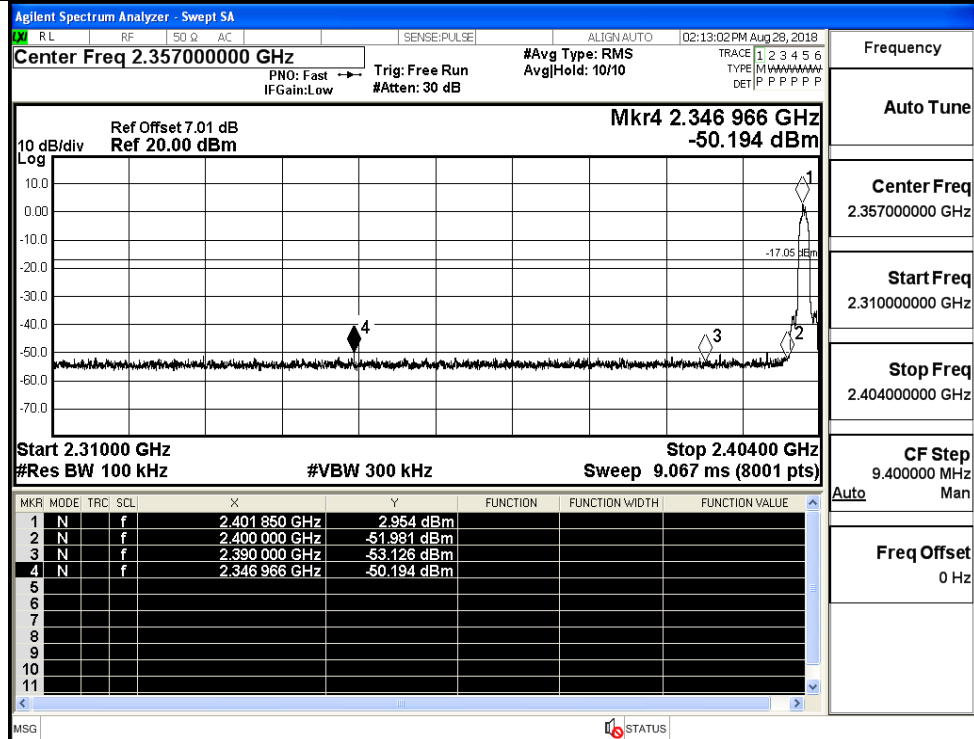
GFSK/HCH/No Hop



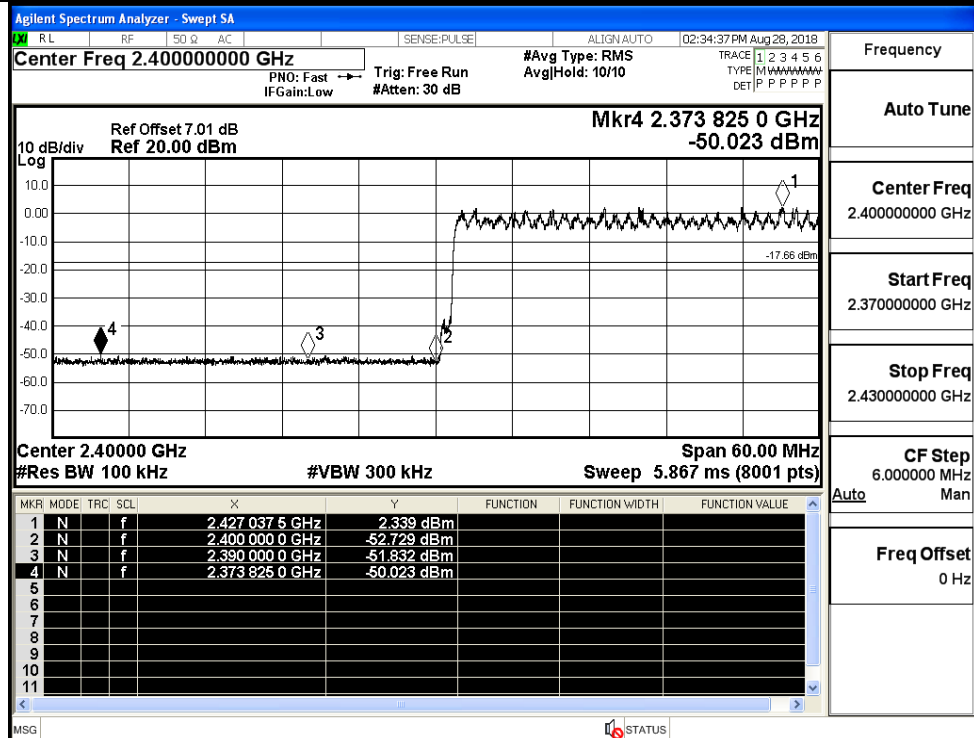
GFSK/HCH/Hop



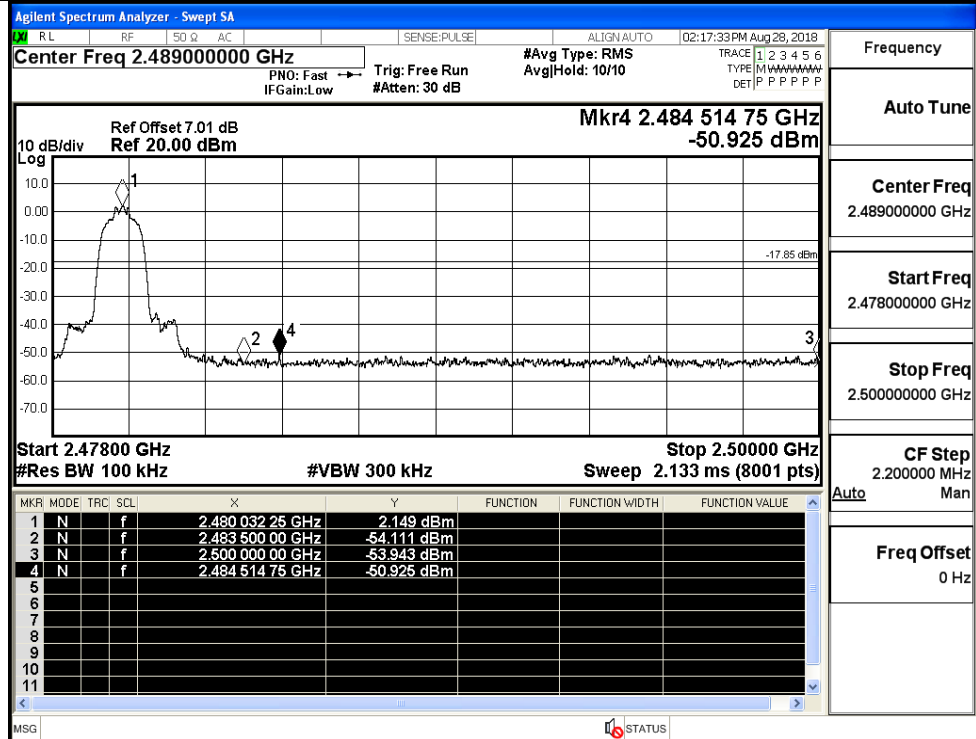
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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

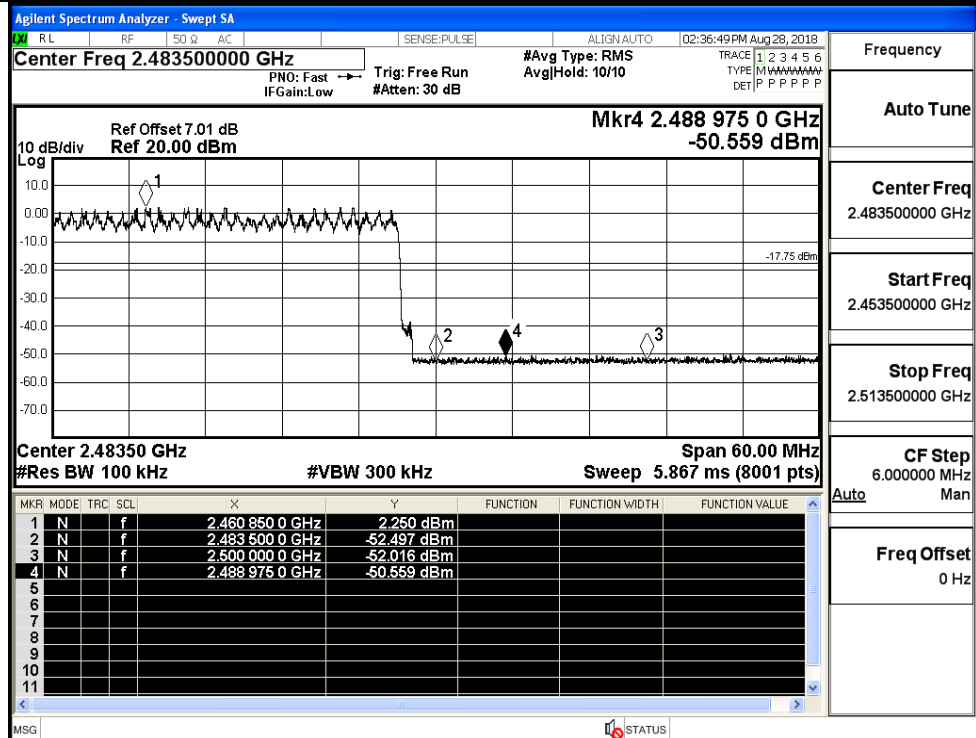


Frequency

Auto Tune

Center Freq
2.489000000 GHzStart Freq
2.478000000 GHzStop Freq
2.500000000 GHzCF Step
2.200000 MHz
Auto ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop

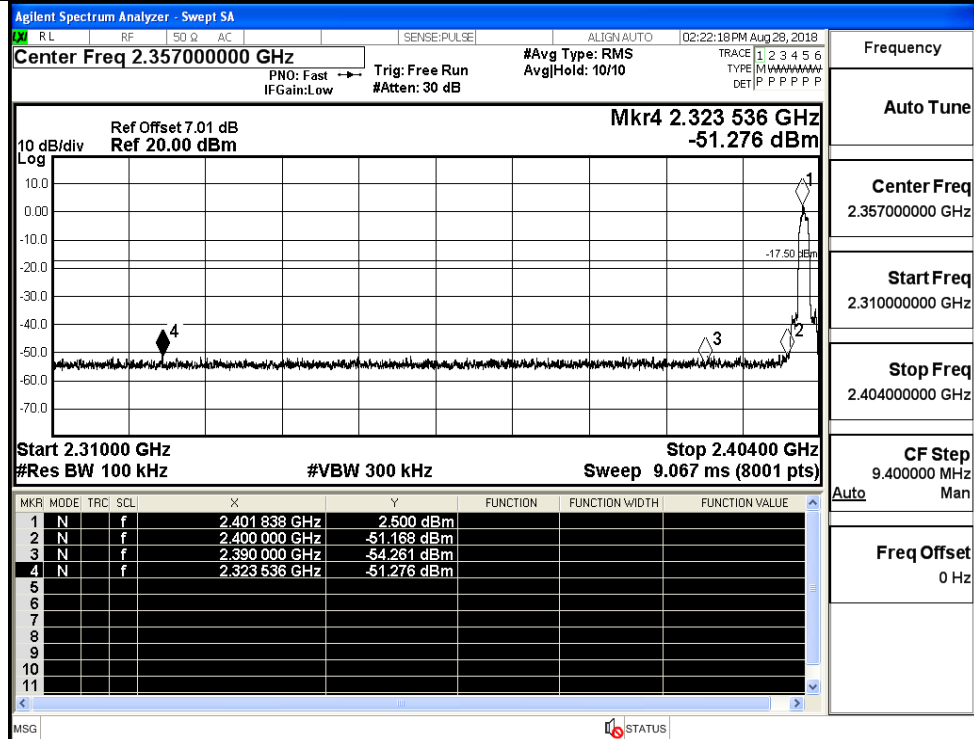


Frequency

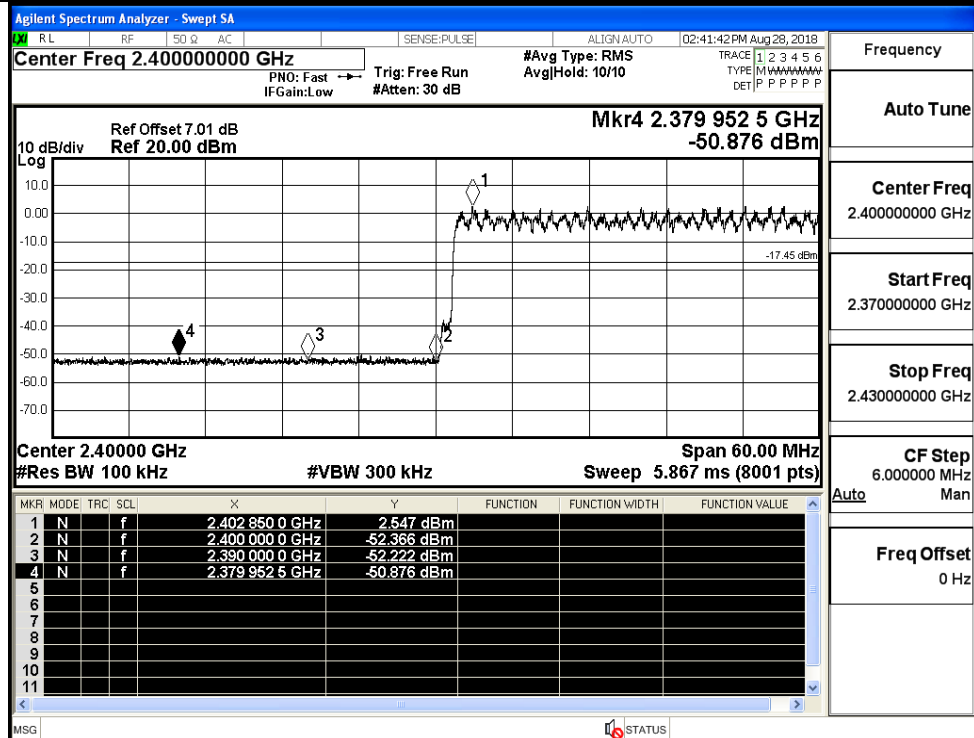
Auto Tune

Center Freq
2.483500000 GHzStart Freq
2.453500000 GHzStop Freq
2.513500000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

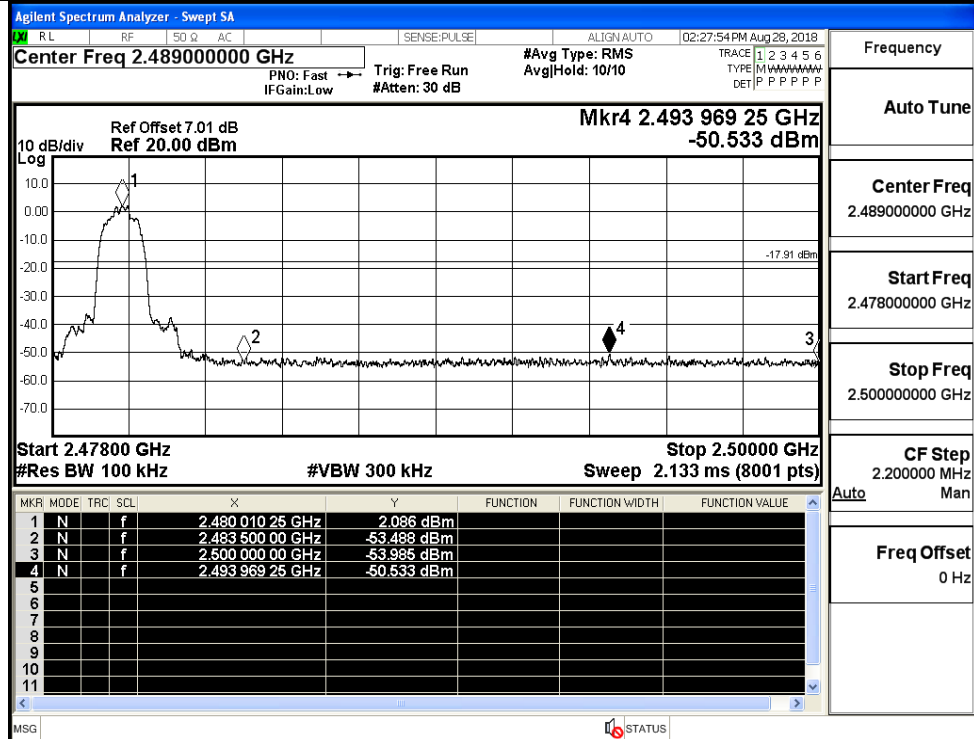
8DPSK/LCH/No Hop



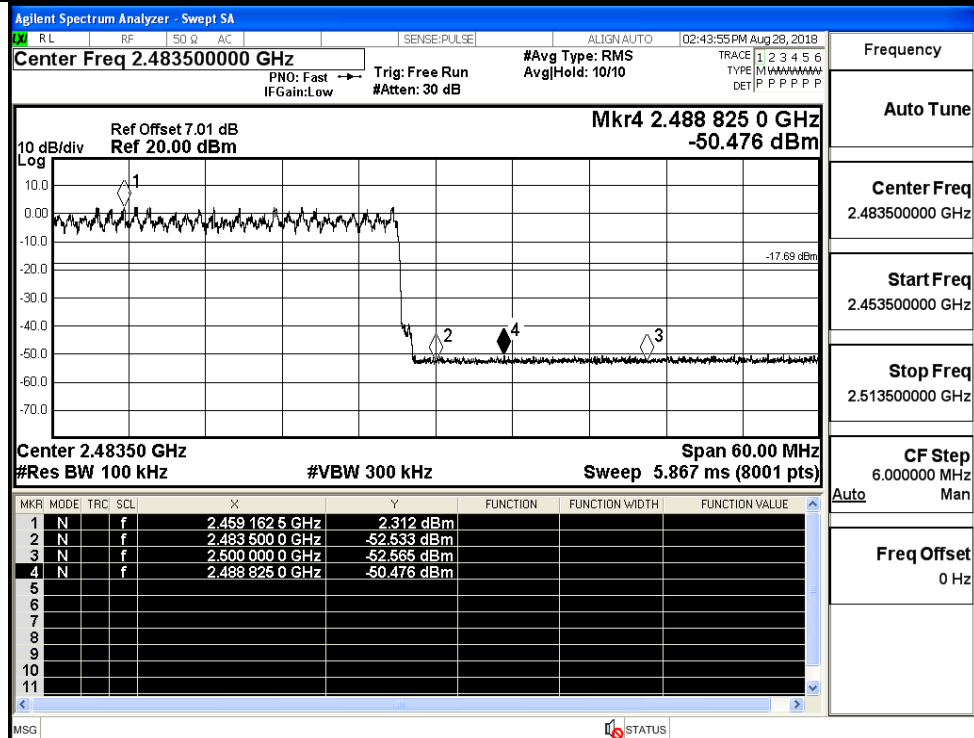
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



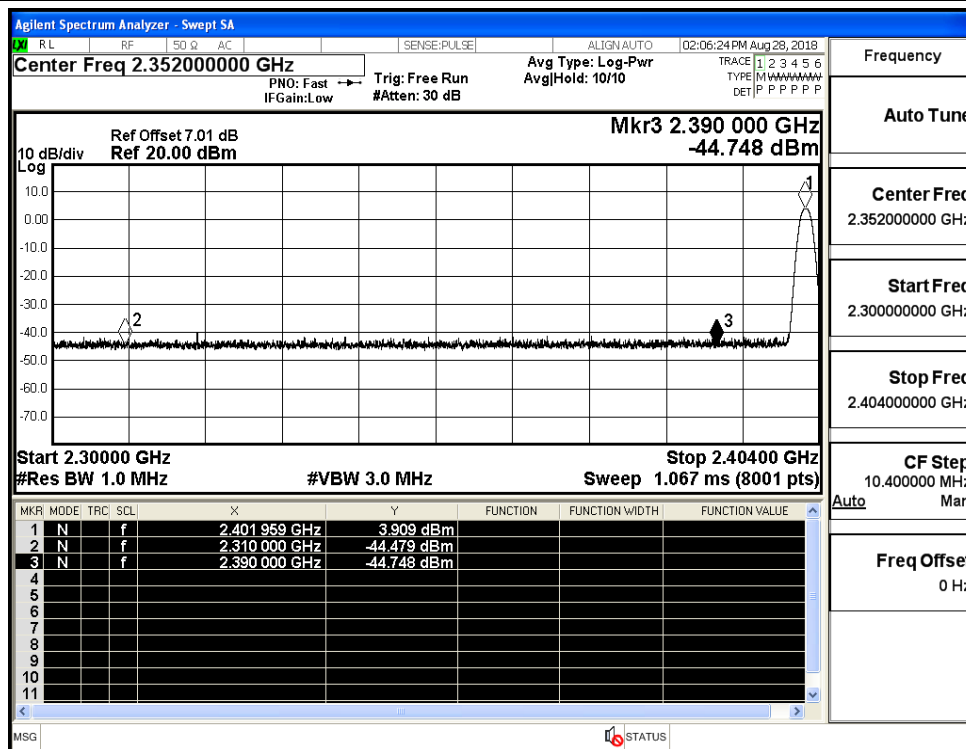
8DPSK/HCH/Hop



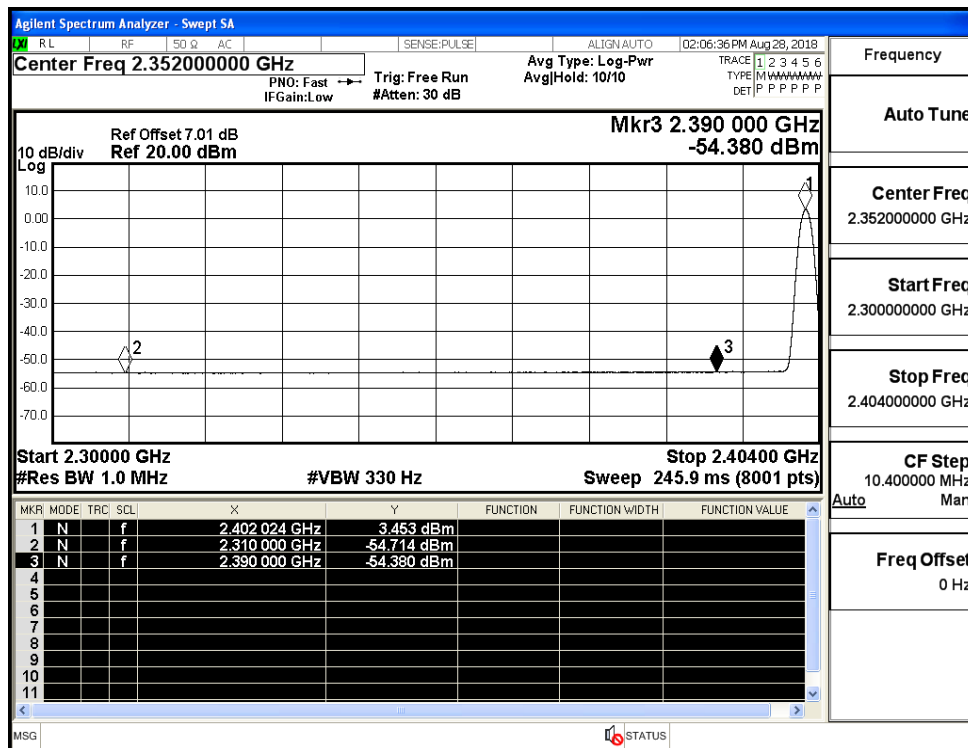
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.48	2.0	0	52.78	PEAK	74	PASS
	Off	2310.0	-54.71	2.0	0	42.54	AV	54	PASS
	Off	2390.0	-44.75	2.0	0	52.51	PEAK	74	PASS
	Off	2390.0	-54.38	2.0	0	42.88	AV	54	PASS
	Off	2483.5	-44.25	2.0	0	53.01	PEAK	74	PASS
	Off	2483.5	-54.01	2.0	0	43.25	AV	54	PASS
	Off	2500.0	-41.57	2.0	0	55.69	PEAK	74	PASS
	Off	2500.0	-54.04	2.0	0	43.22	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.43	2.0	0	53.83	PEAK	74	PASS
	Off	2310.0	-54.77	2.0	0	42.49	AV	54	PASS
	Off	2390.0	-44.12	2.0	0	53.13	PEAK	74	PASS
	Off	2390.0	-54.42	2.0	0	42.84	AV	54	PASS
	Off	2483.5	-43.55	2.0	0	53.71	PEAK	74	PASS
	Off	2483.5	-54.03	2.0	0	43.23	AV	54	PASS
	Off	2500.0	-43.69	2.0	0	53.56	PEAK	74	PASS
	Off	2500.0	-54.08	2.0	0	43.18	AV	54	PASS
8DPSK	Off	2310.0	-44.89	2.0	0	52.37	PEAK	74	PASS
	Off	2310.0	-54.69	2.0	0	42.57	AV	54	PASS
	Off	2390.0	-44.98	2.0	0	52.27	PEAK	74	PASS
	Off	2390.0	-54.44	2.0	0	42.81	AV	54	PASS
	Off	2483.5	-44.07	2.0	0	53.19	PEAK	74	PASS
	Off	2483.5	-53.91	2.0	0	43.35	AV	54	PASS
	Off	2500.0	-44.86	2.0	0	52.40	PEAK	74	PASS
	Off	2500.0	-53.98	2.0	0	43.28	AV	54	PASS

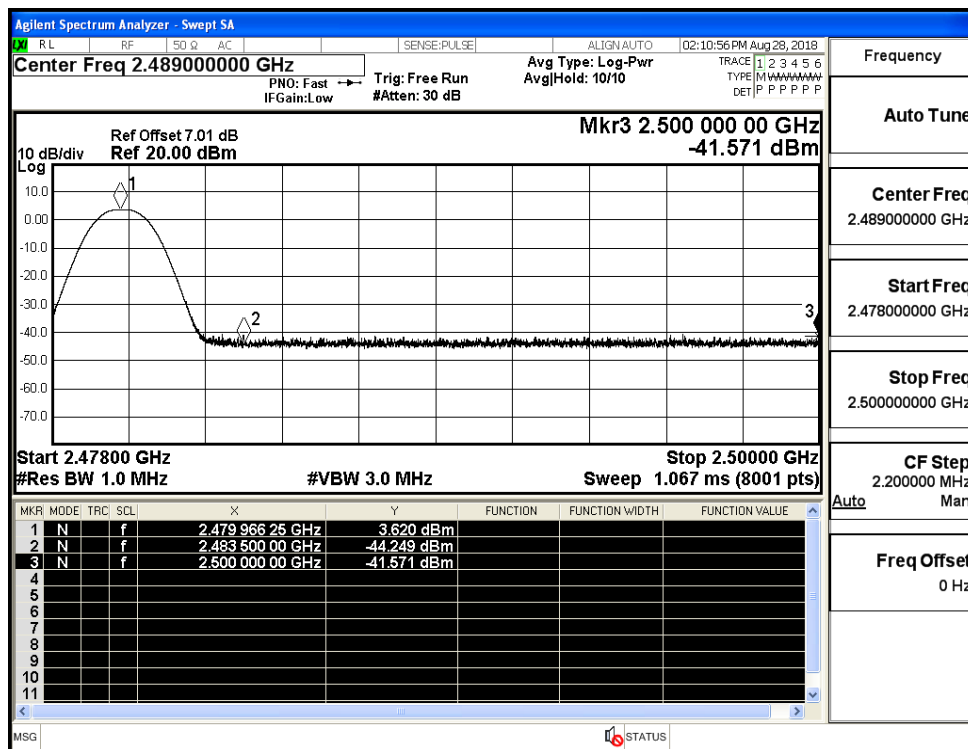
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



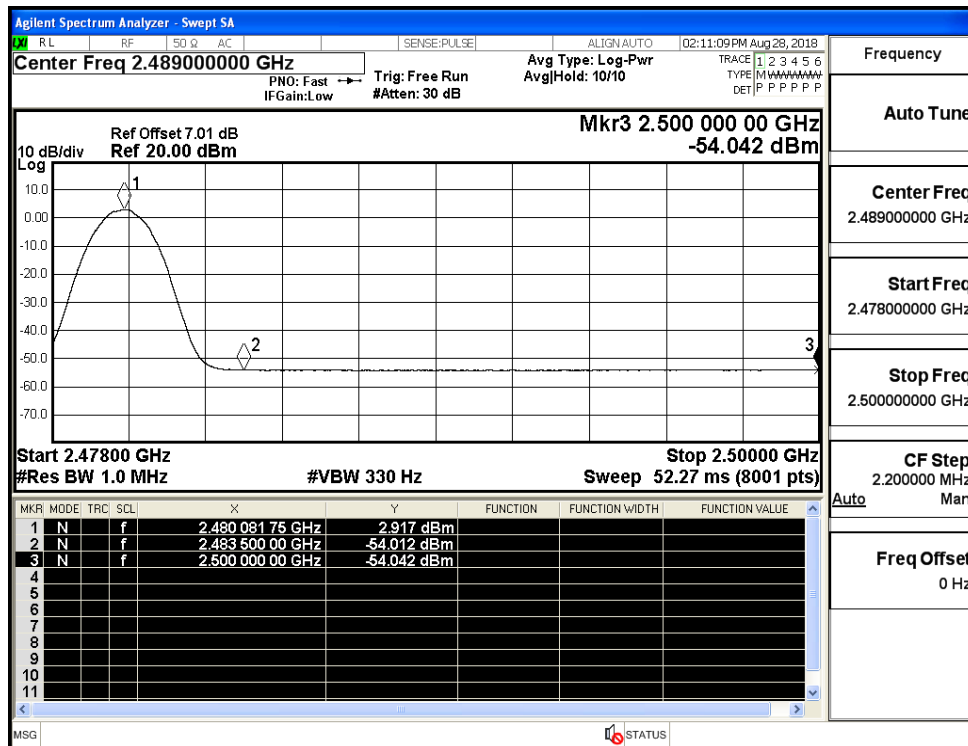
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

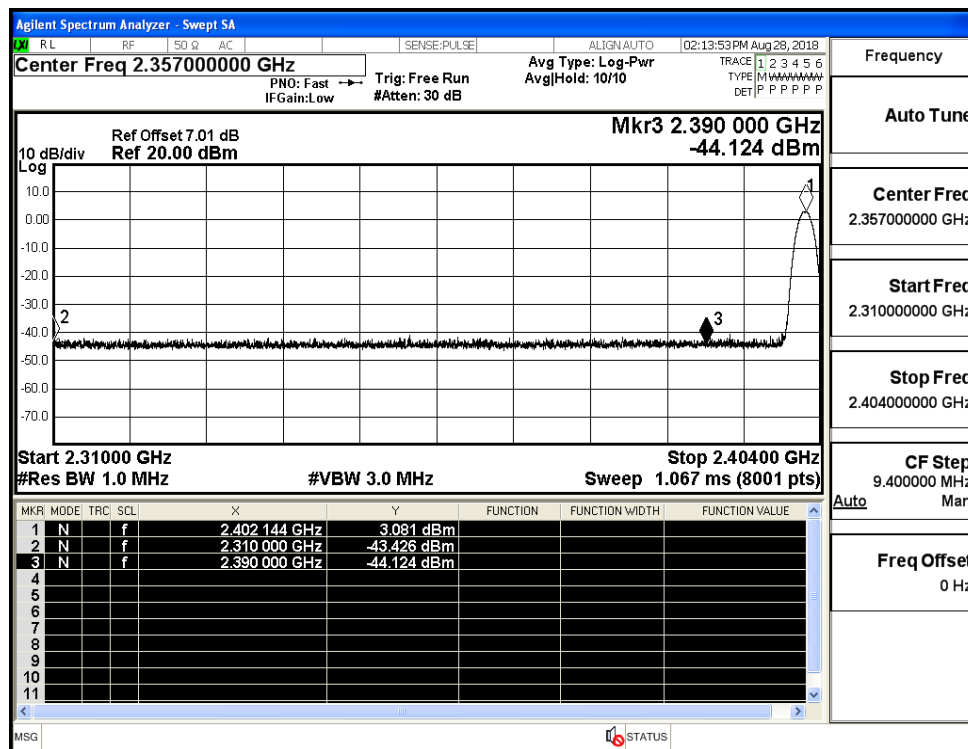
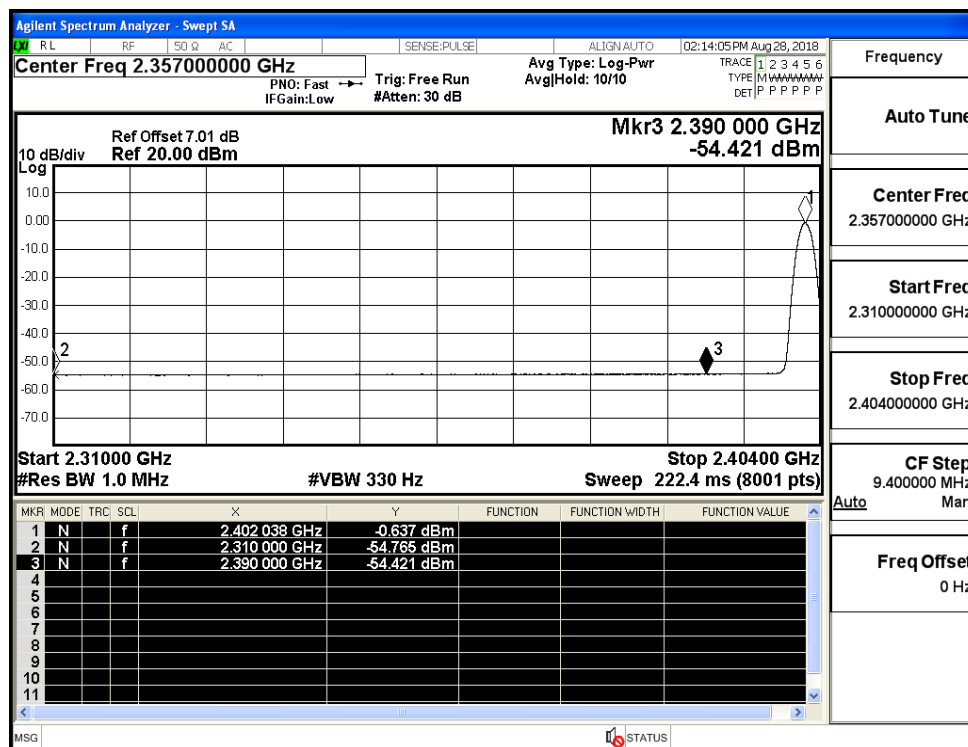


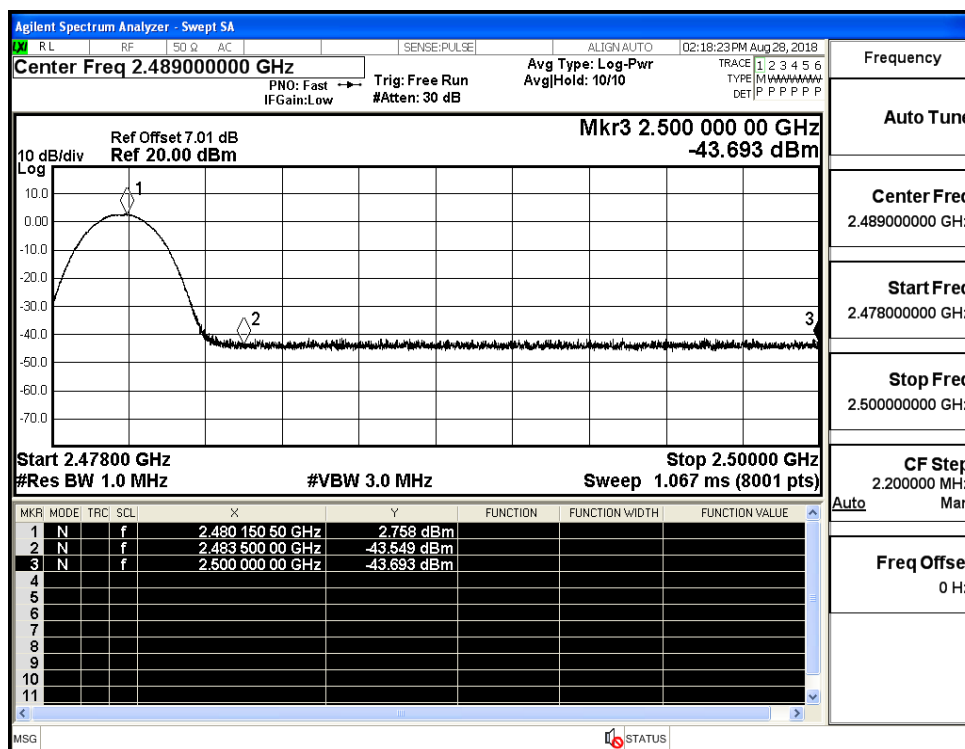
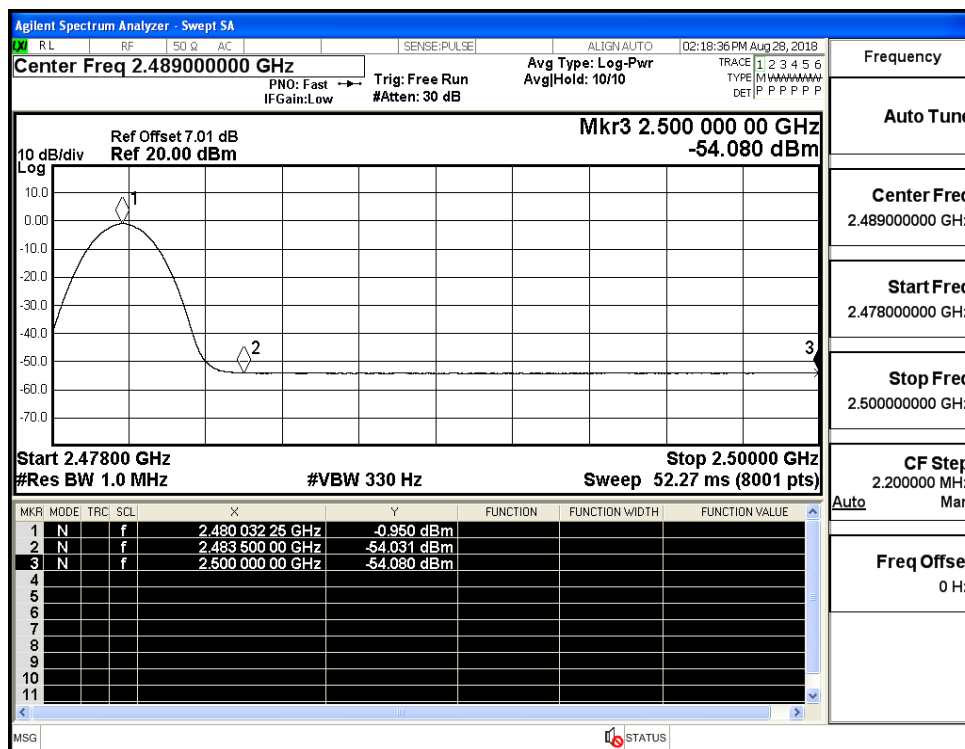
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



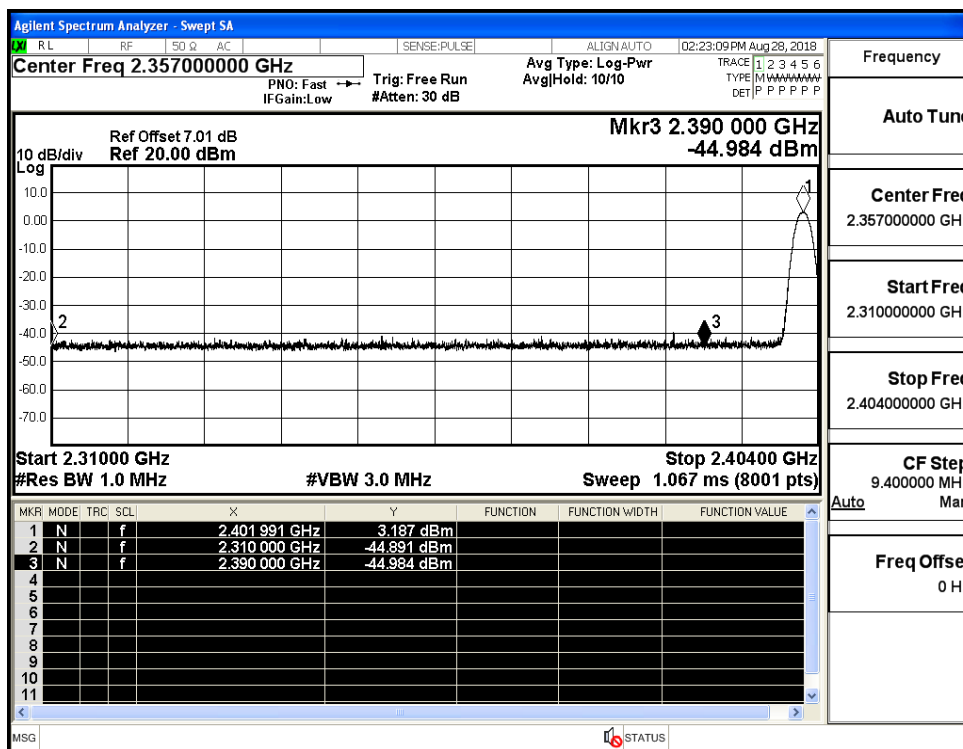
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



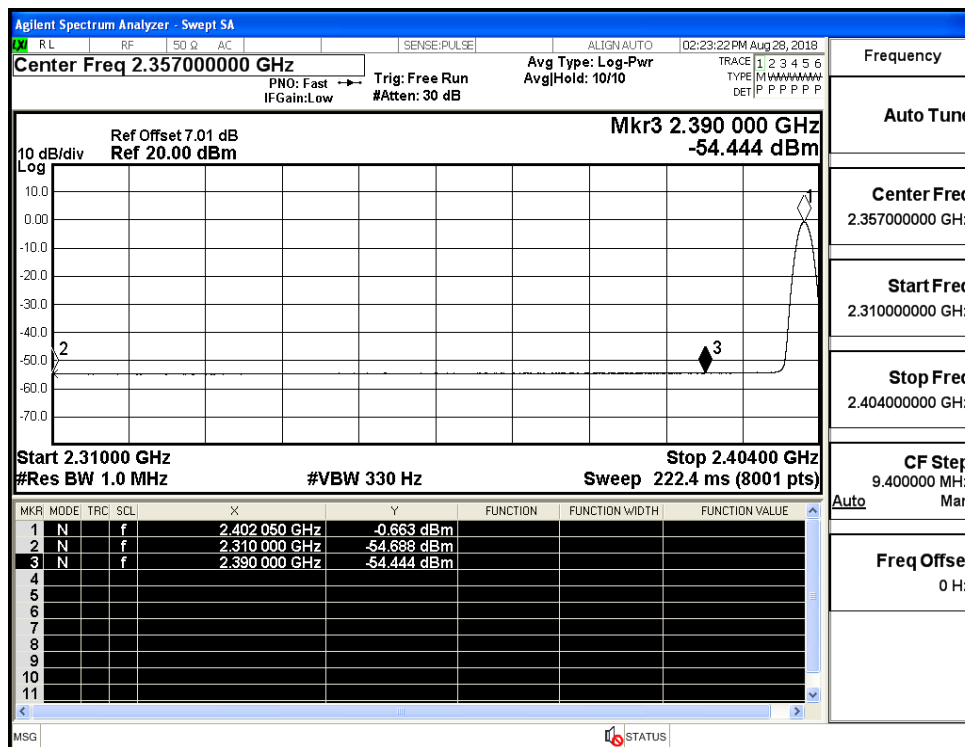
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

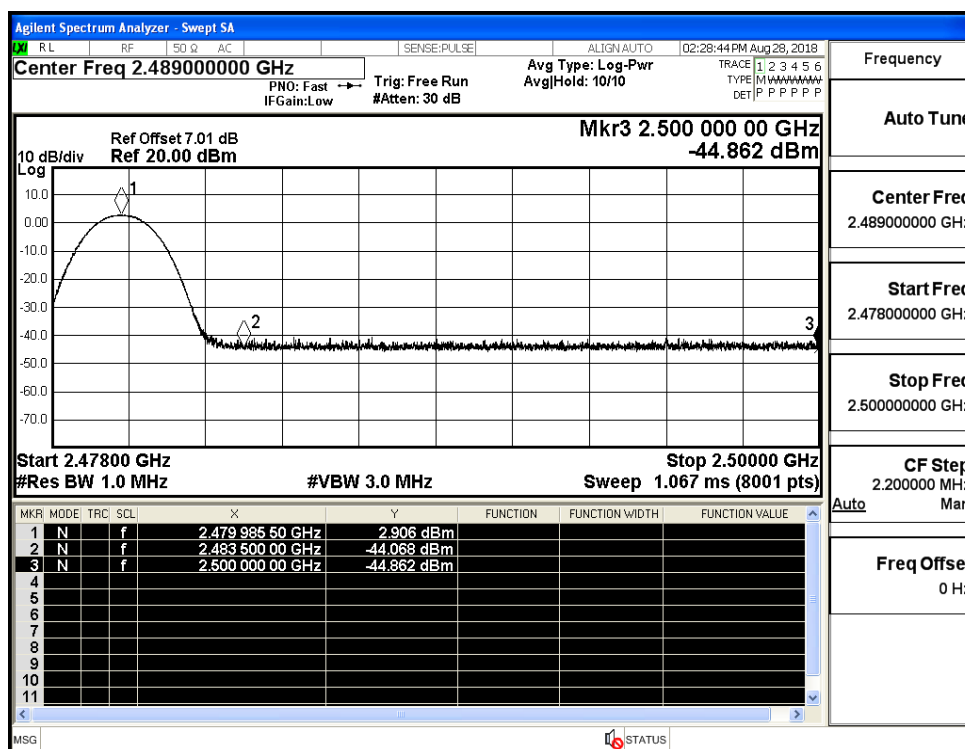
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

