

Appendix A

RF Test Data for BT V4.0 (BDR/EDR) (Conducted Measurement)

Product Name: Dockin D Fine Bluetooth Speaker

Trade Mark: Dockin

Test Model: 15231

Environmental Conditions

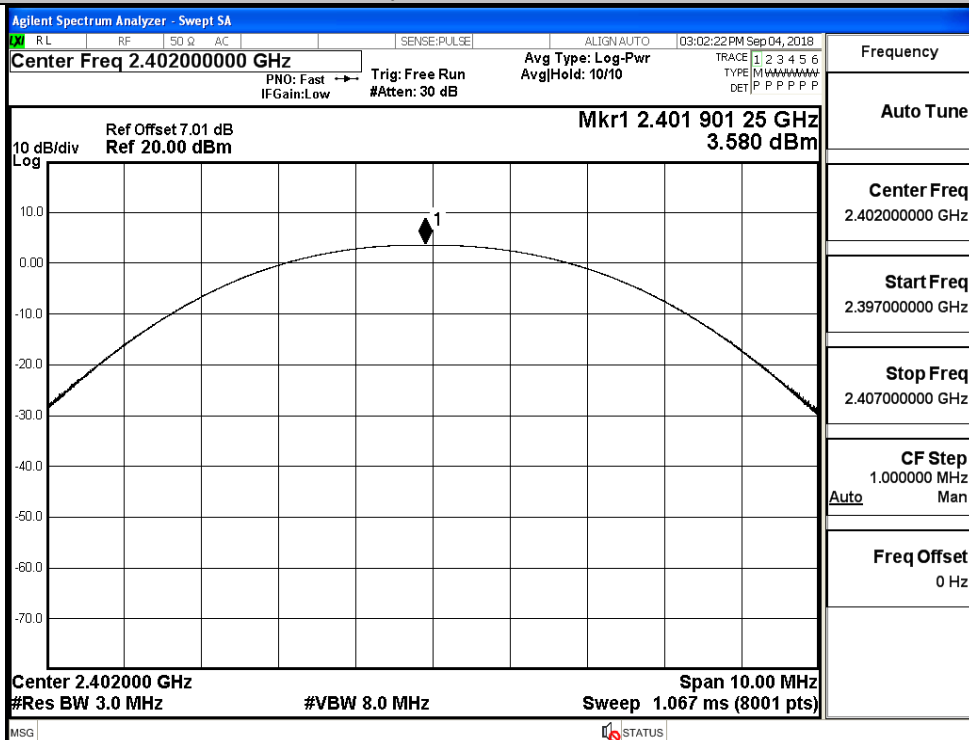
Temperature:	24.5 ° C
Relative Humidity:	54.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina Xu
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

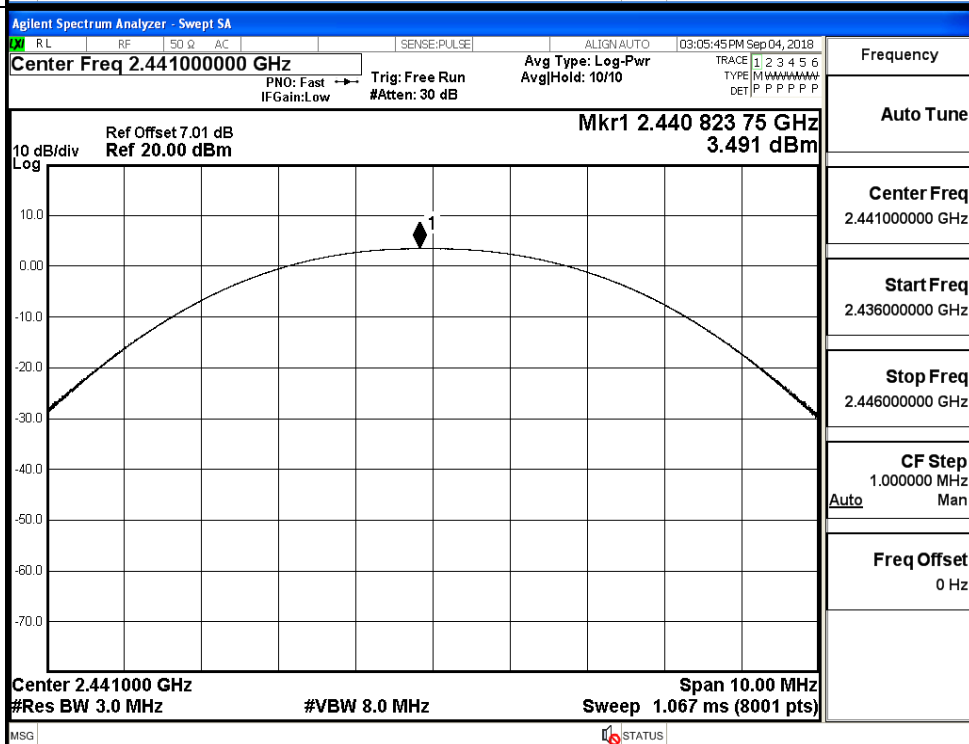
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.580	21	PASS
	MCH	3.491	21	PASS
	HCH	3.332	21	PASS
$\pi/4$ DQPSK	LCH	2.724	21	PASS
	MCH	2.571	21	PASS
	HCH	2.565	21	PASS
8DPSK	LCH	2.547	21	PASS
	MCH	2.438	21	PASS
	HCH	2.401	21	PASS

Test Graphs

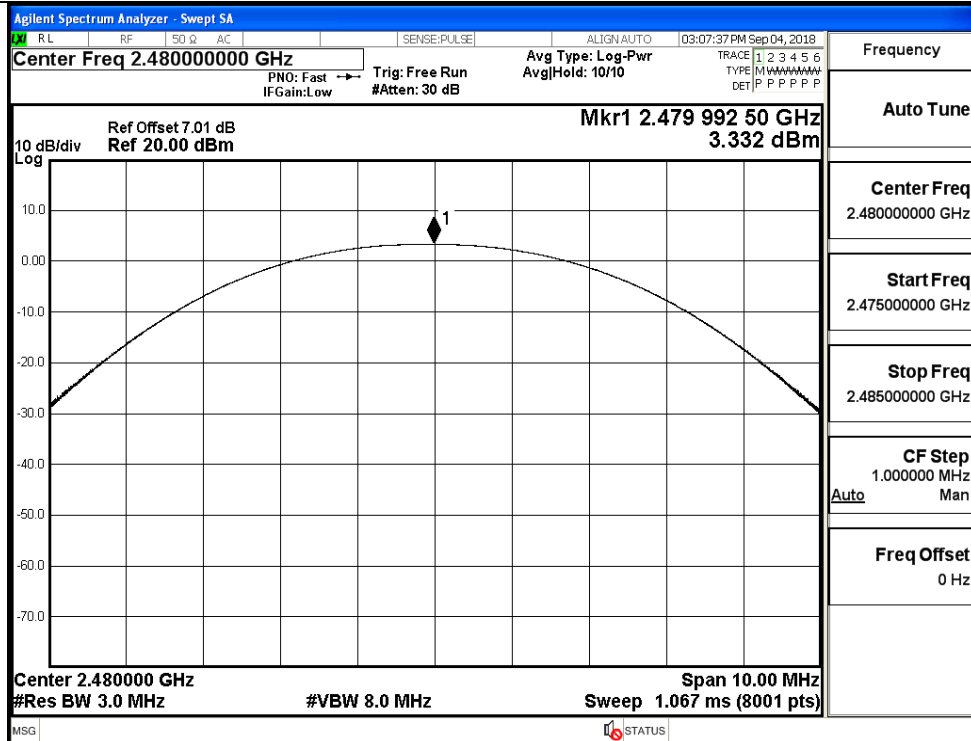
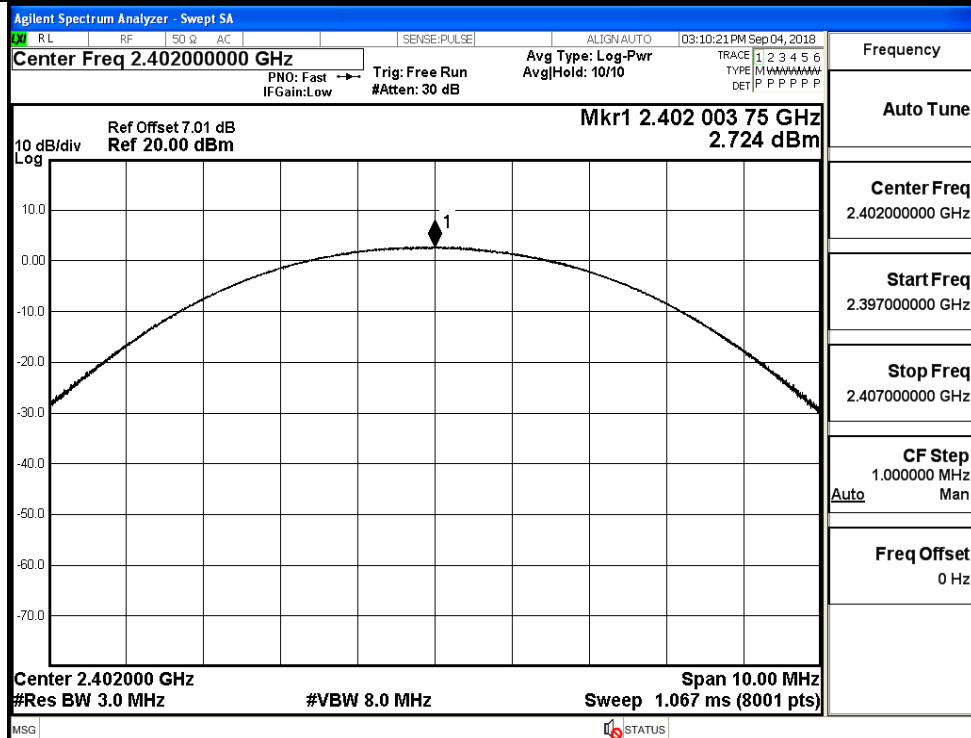
GFSK/LCH

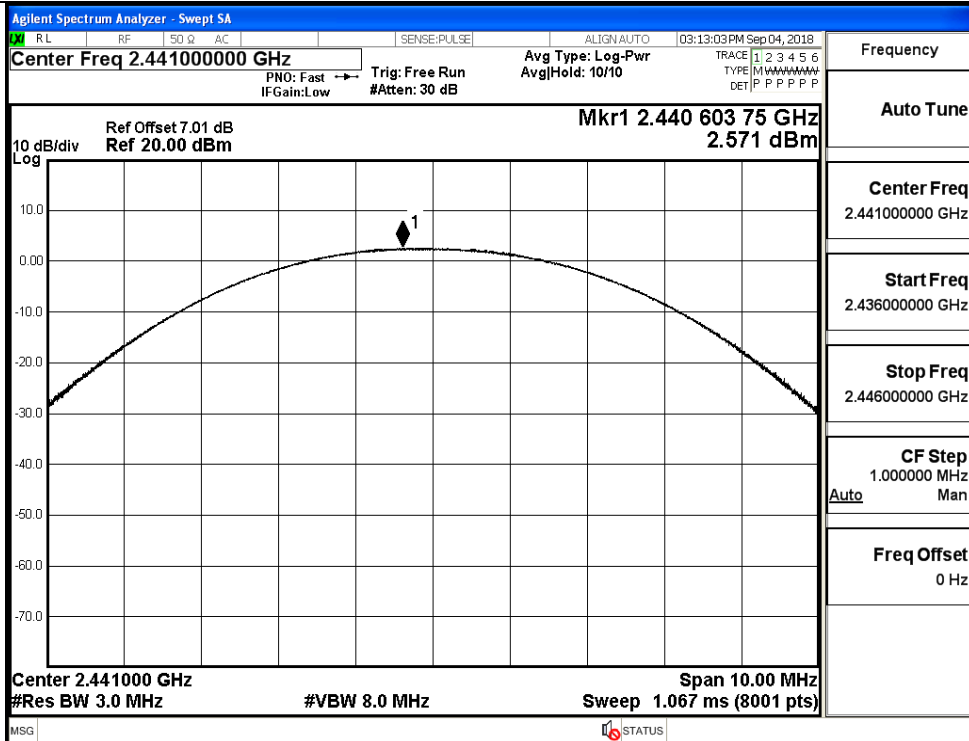
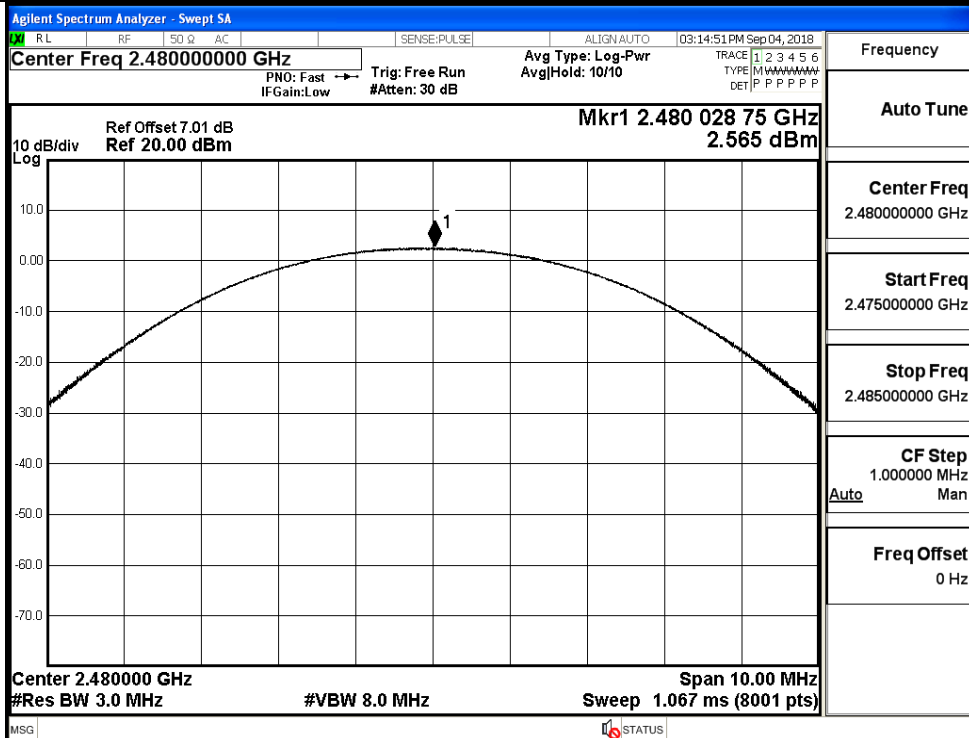


GFSK/MCH

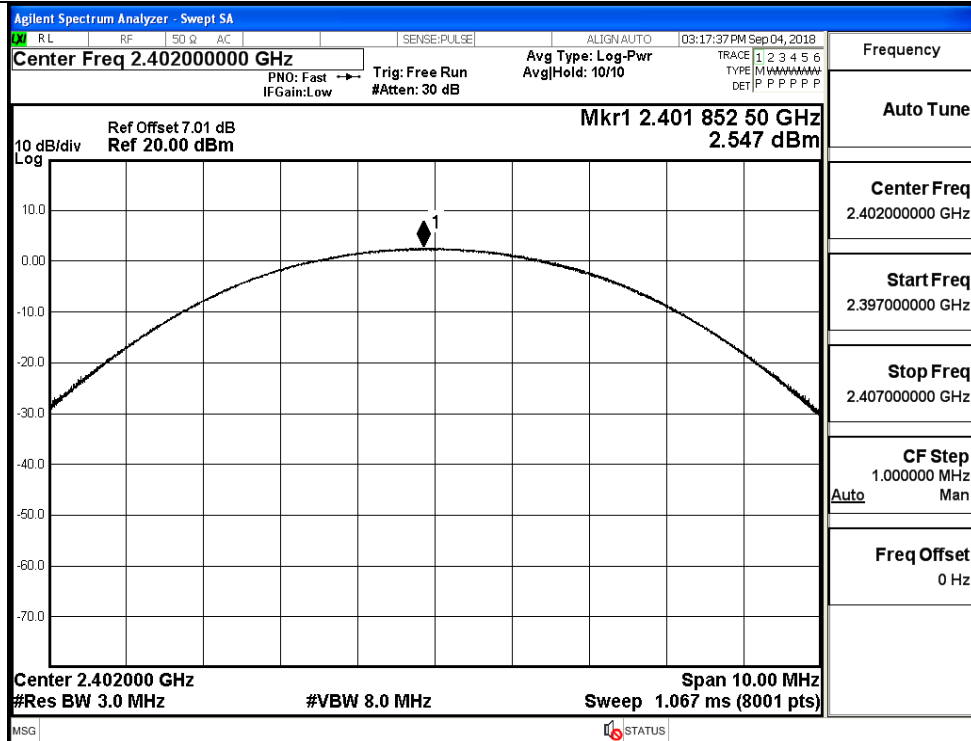


GFSK/HCH

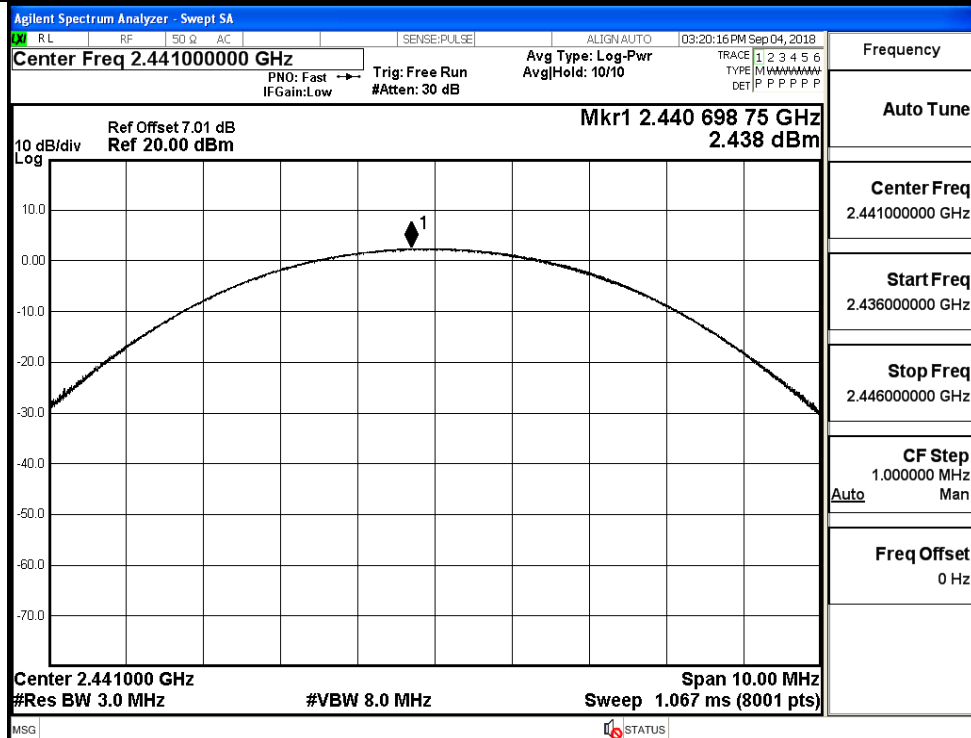
 π /4DQPSK/LCH

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

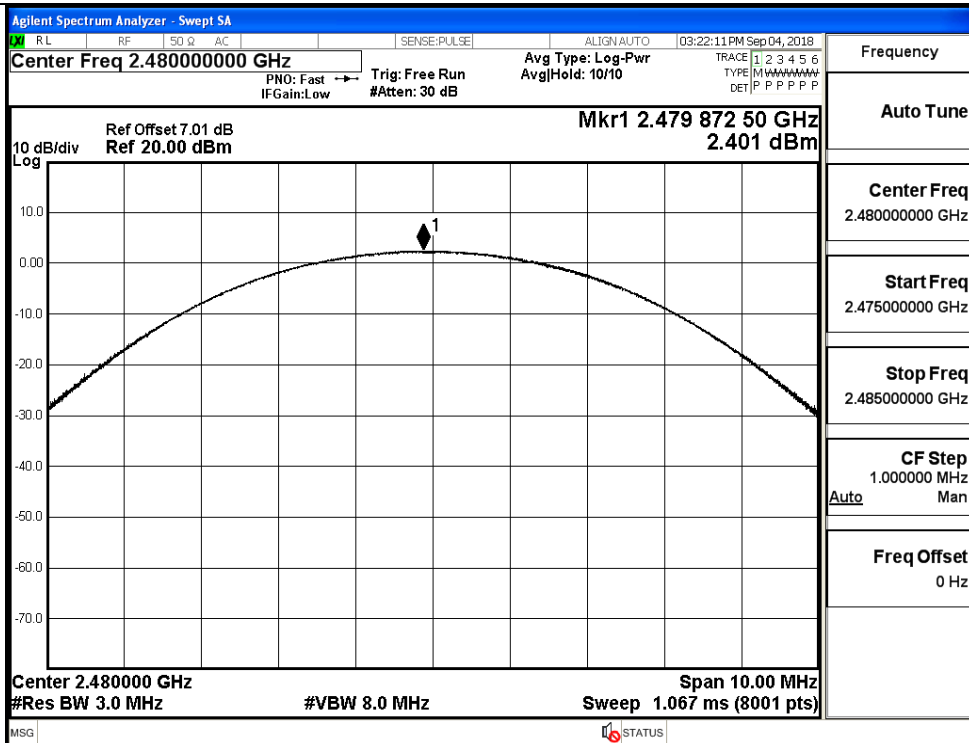
8DPSK/LCH



8DPSK/MCH



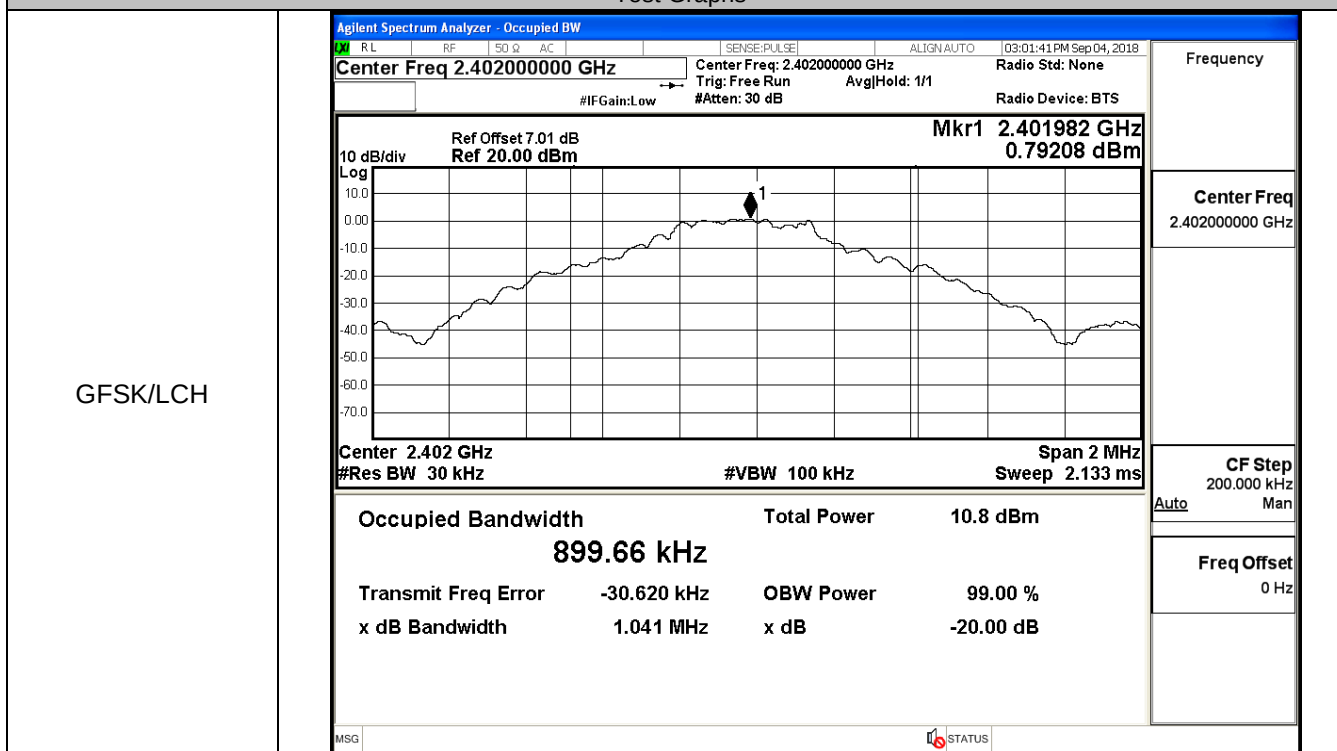
8DPSK/HCH



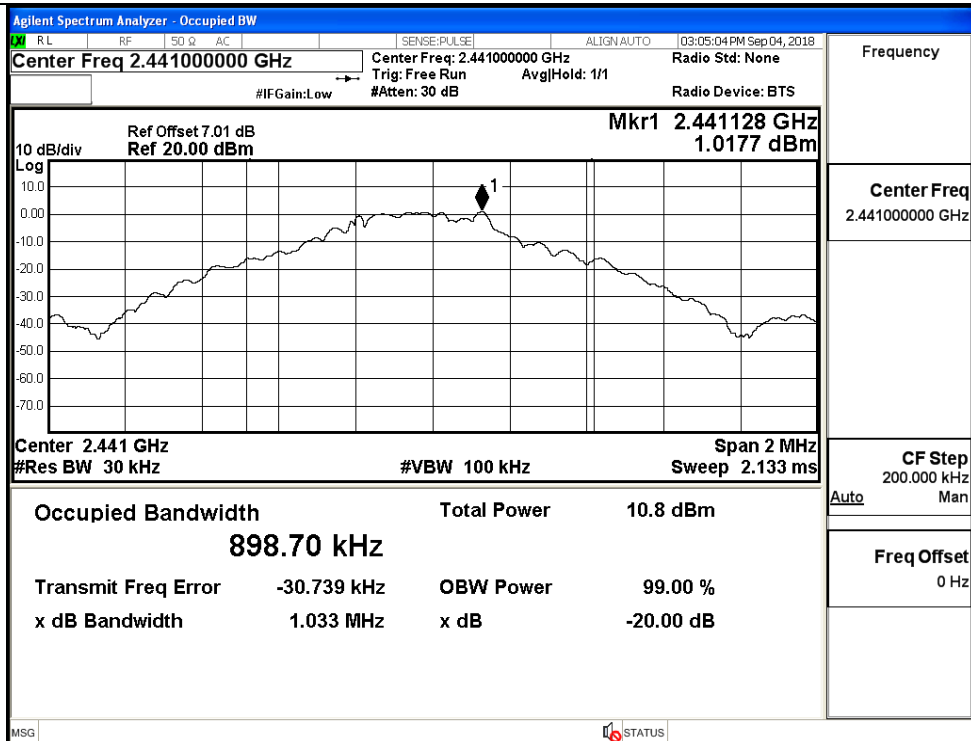
A.2 99% and 20dB Bandwidth

Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89966	1.041	Not Specified	PASS
	MCH	0.89870	1.033	Not Specified	PASS
	HCH	0.89593	1.029	Not Specified	PASS
π /4DQPSK	LCH	1.1683	1.289	Not Specified	PASS
	MCH	1.1685	1.288	Not Specified	PASS
	HCH	1.1703	1.291	Not Specified	PASS
8DPSK	LCH	1.1803	1.308	Not Specified	PASS
	MCH	1.1783	1.292	Not Specified	PASS
	HCH	1.1811	1.296	Not Specified	PASS

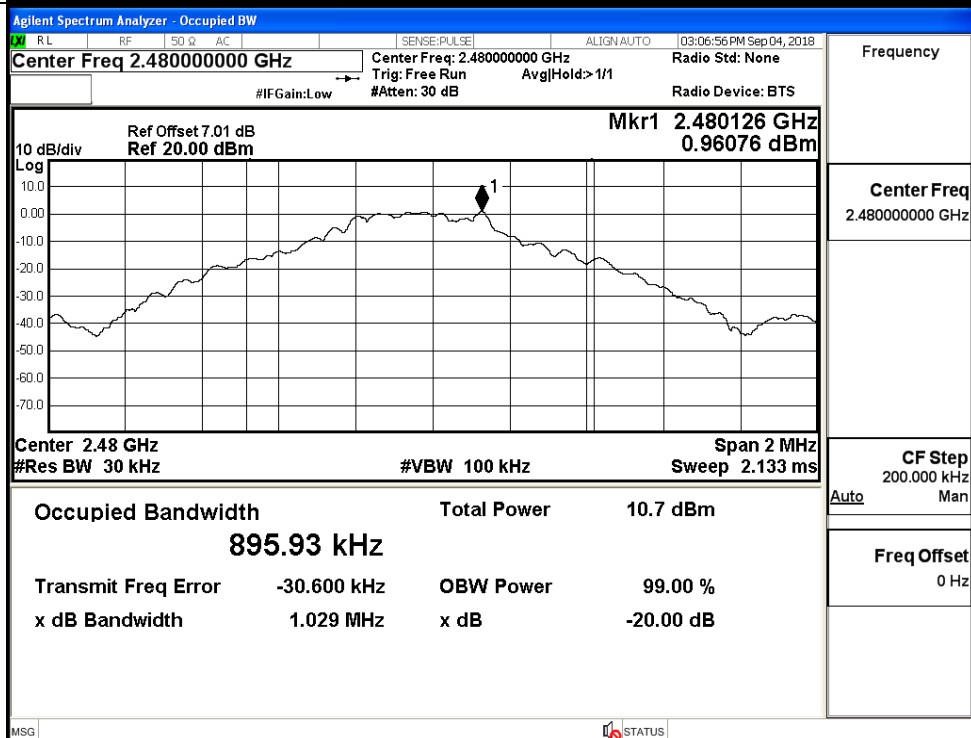
Test Graphs

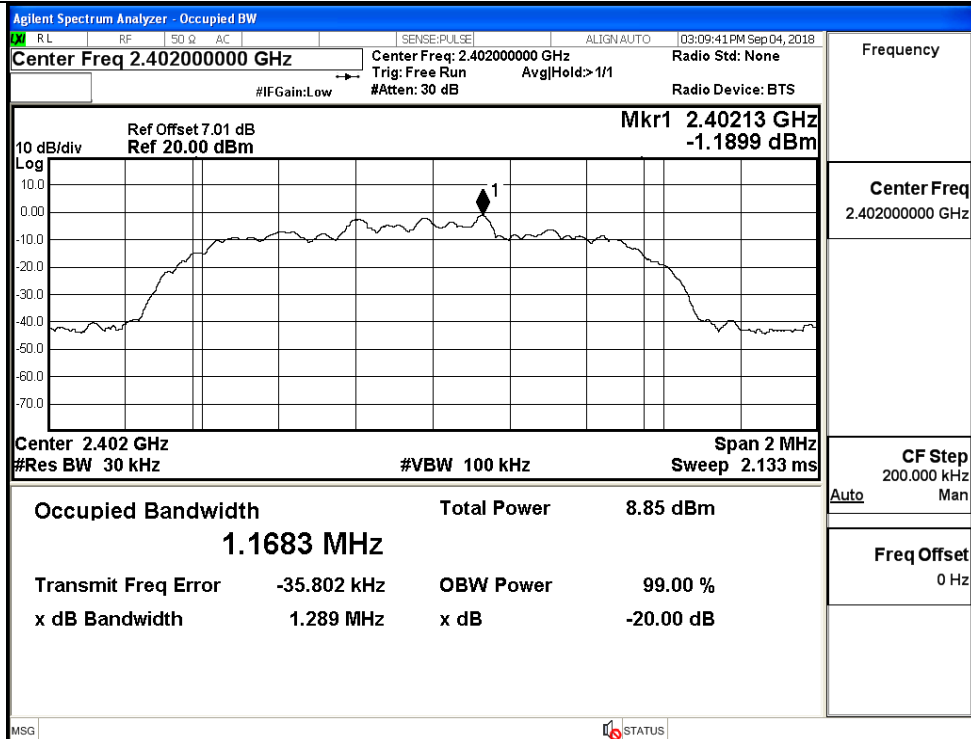
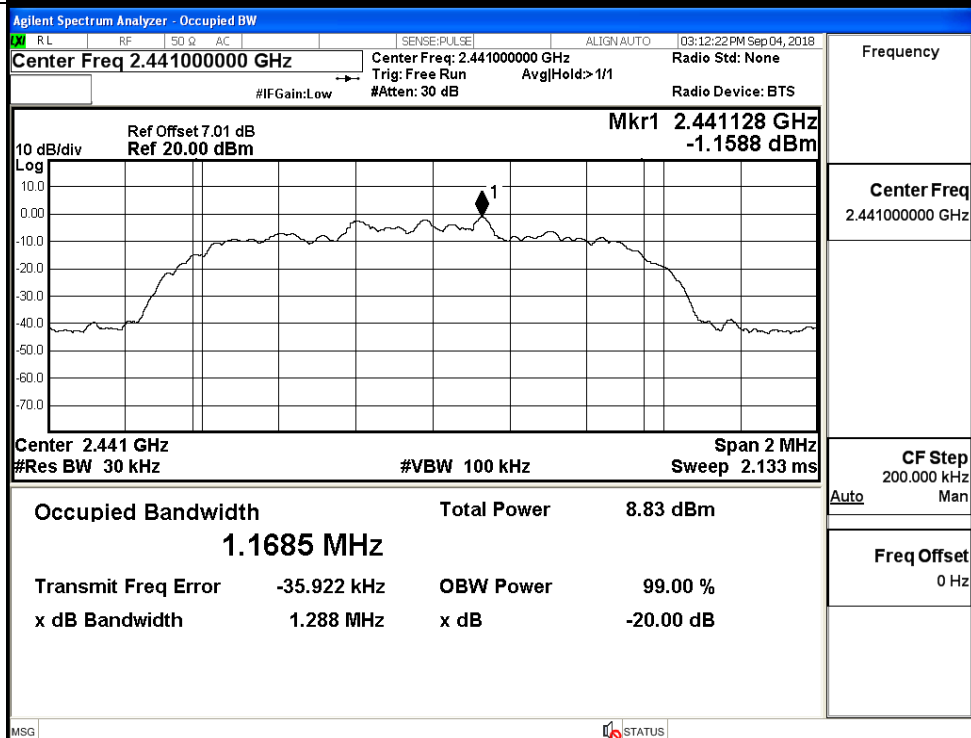


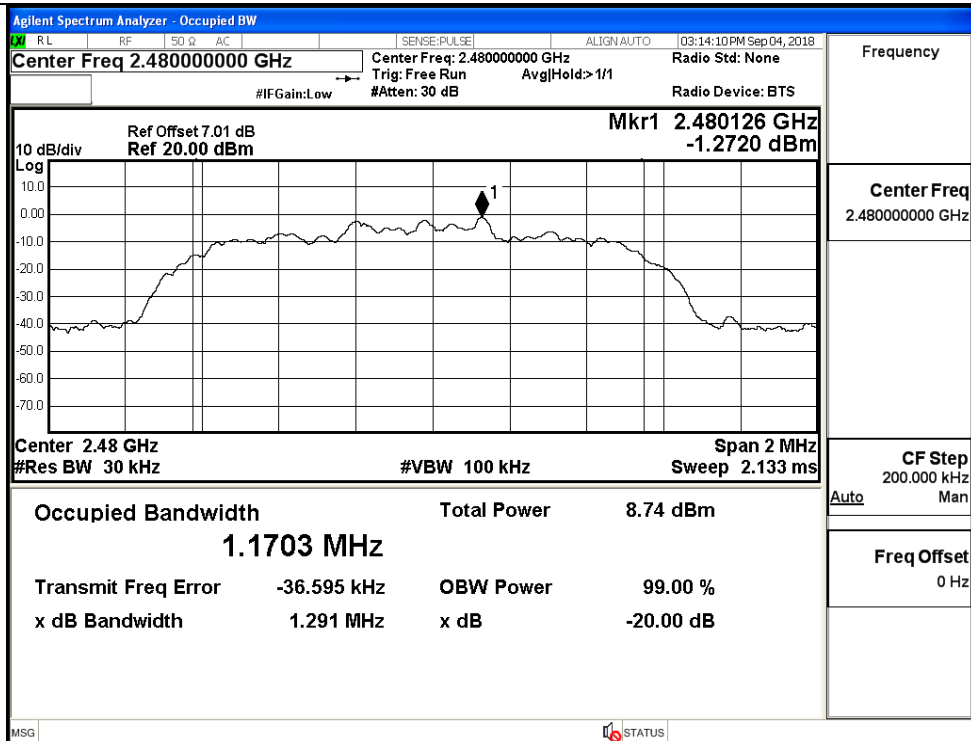
GFSK/MCH



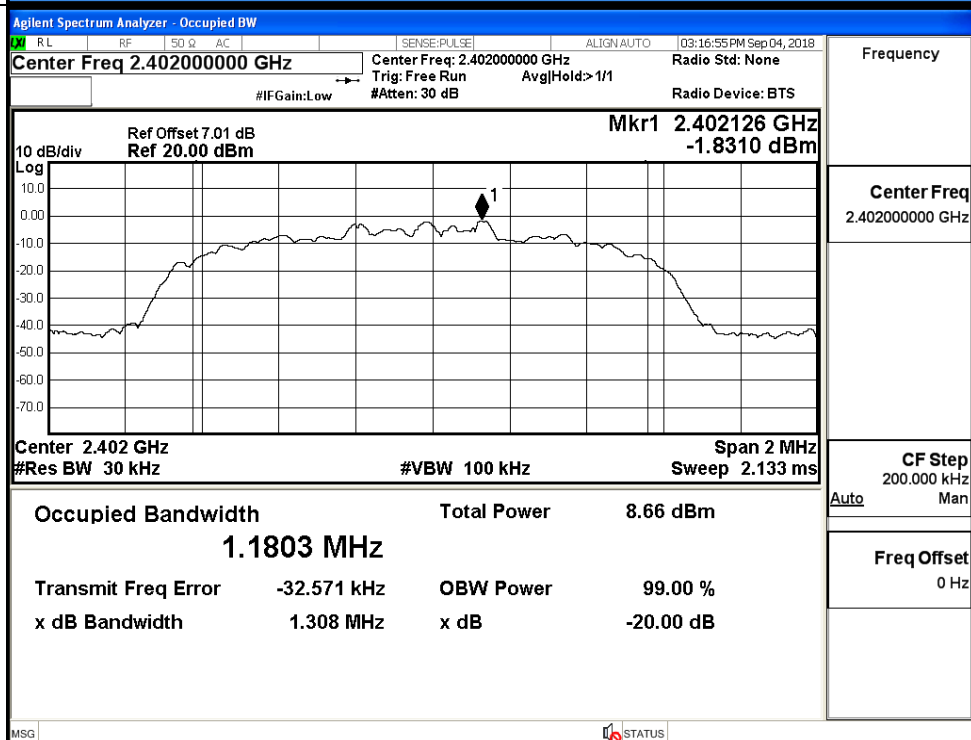
GFSK/HCH



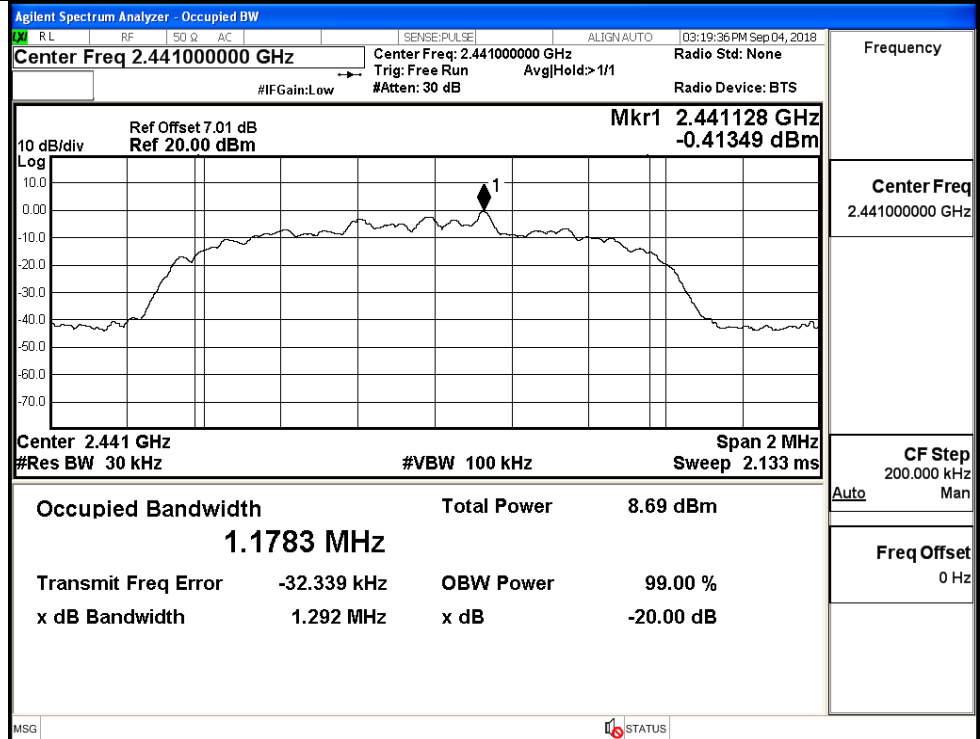
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

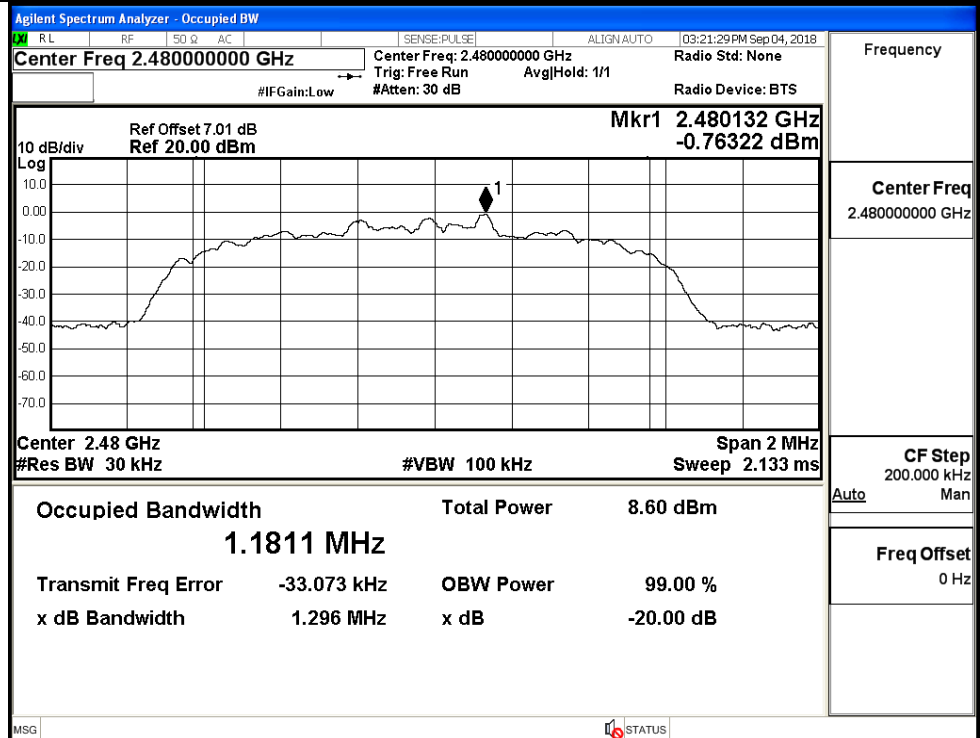
8DPSK/LCH



8DPSK/MCH



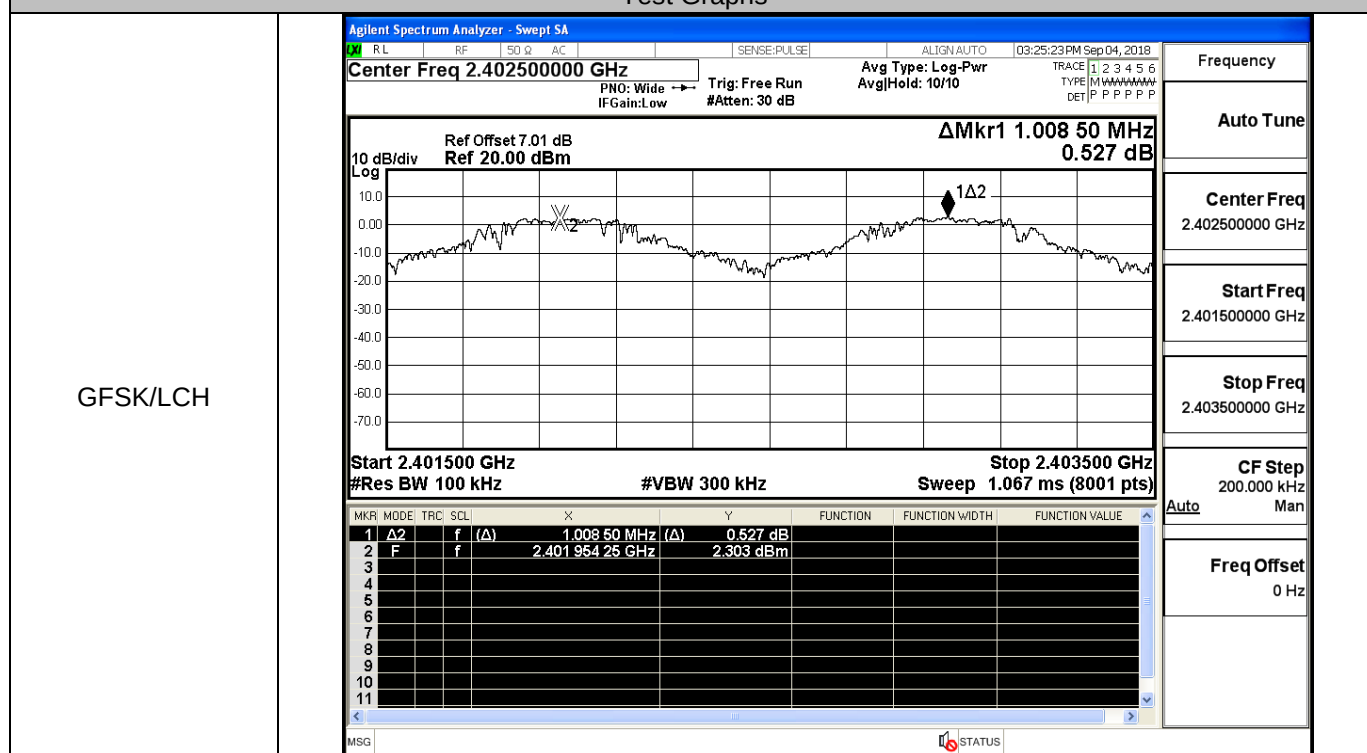
8DPSK/HCH



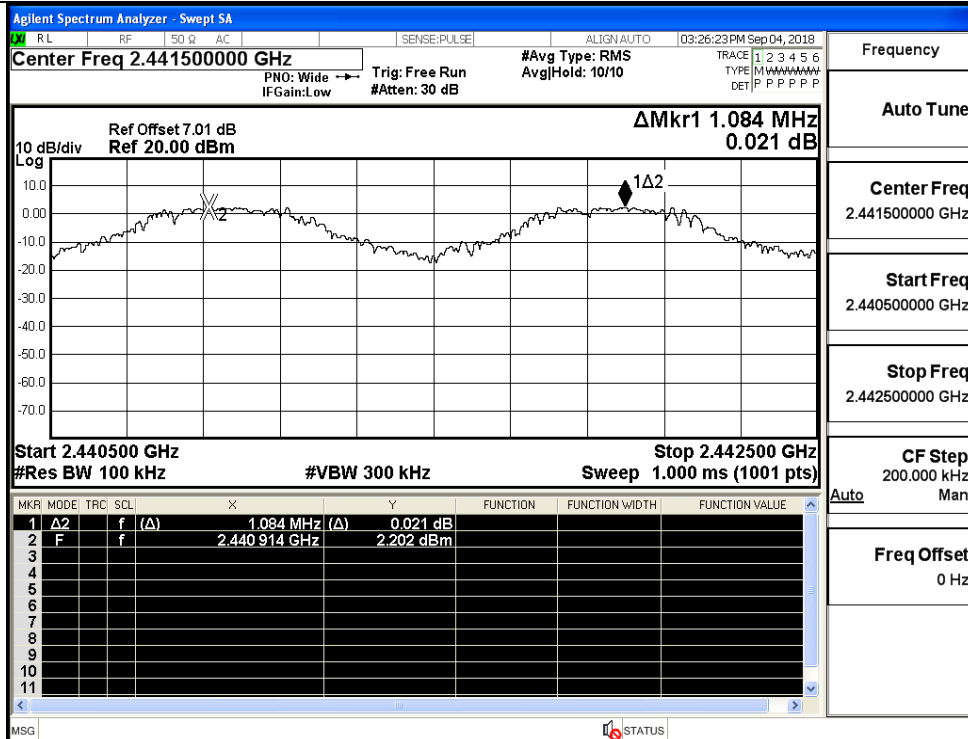
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.009	0.694	PASS
	MCH	1.084	0.694	PASS
	HCH	1.156	0.694	PASS
$\pi/4$ DQPSK	LCH	1.226	0.861	PASS
	MCH	1.114	0.861	PASS
	HCH	1.172	0.861	PASS
8DPSK	LCH	1.176	0.872	PASS
	MCH	1.198	0.872	PASS
	HCH	1.336	0.872	PASS

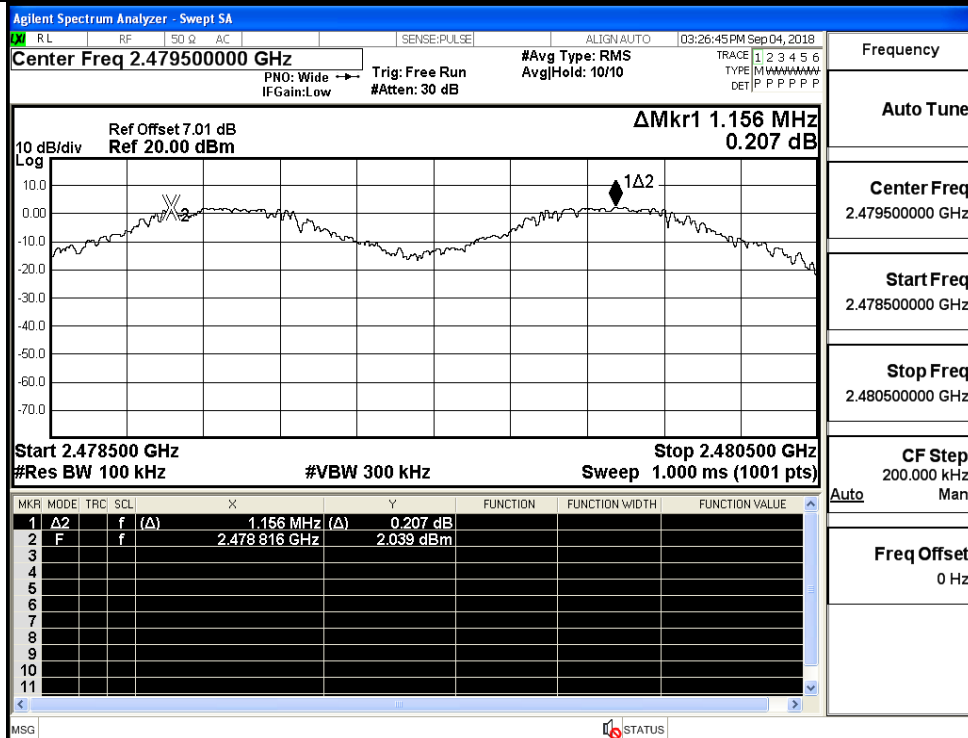
Test Graphs

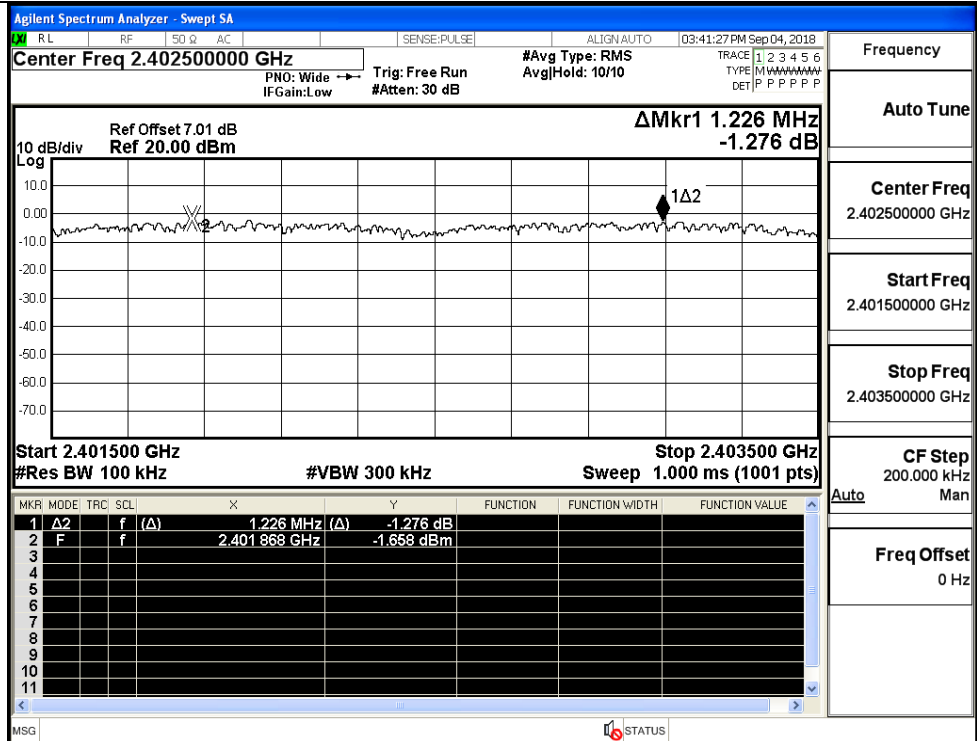
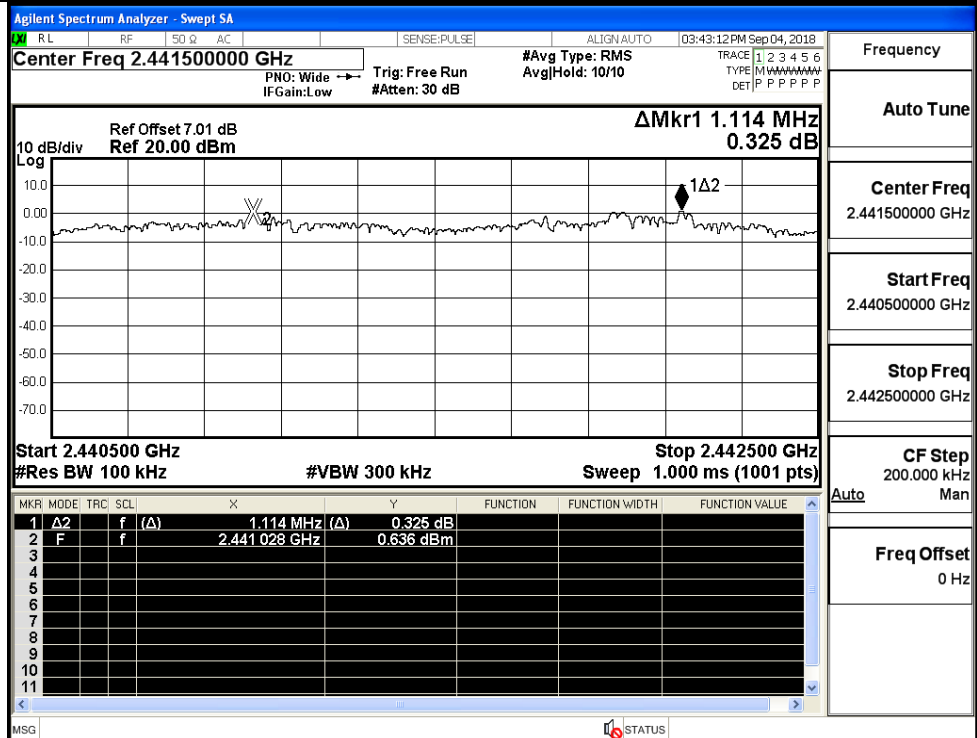


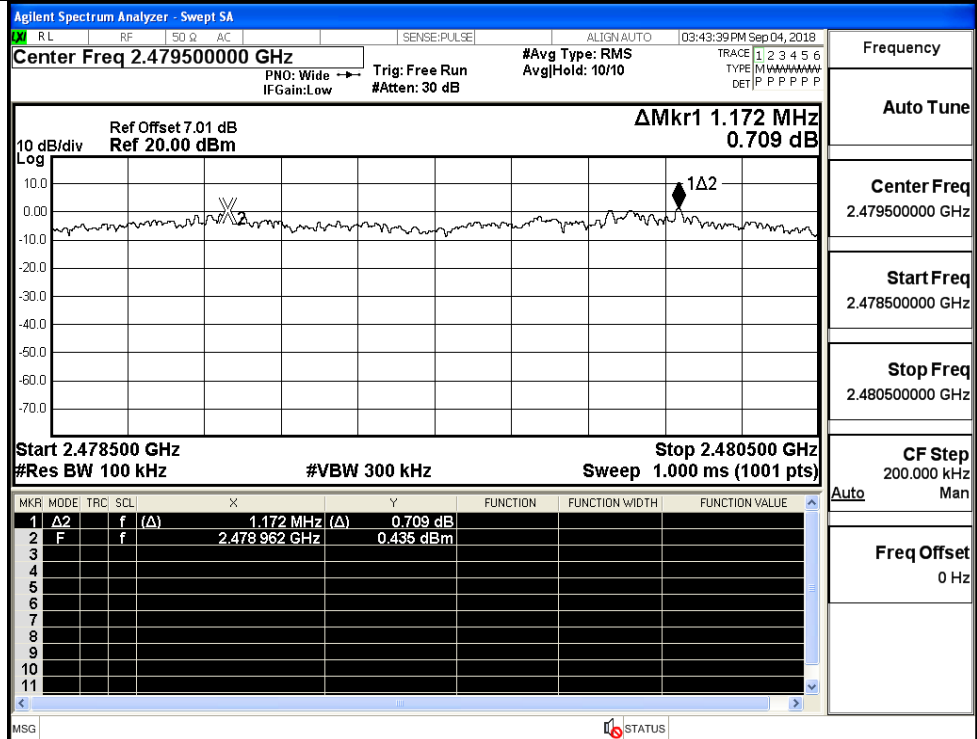
GFSK/MCH



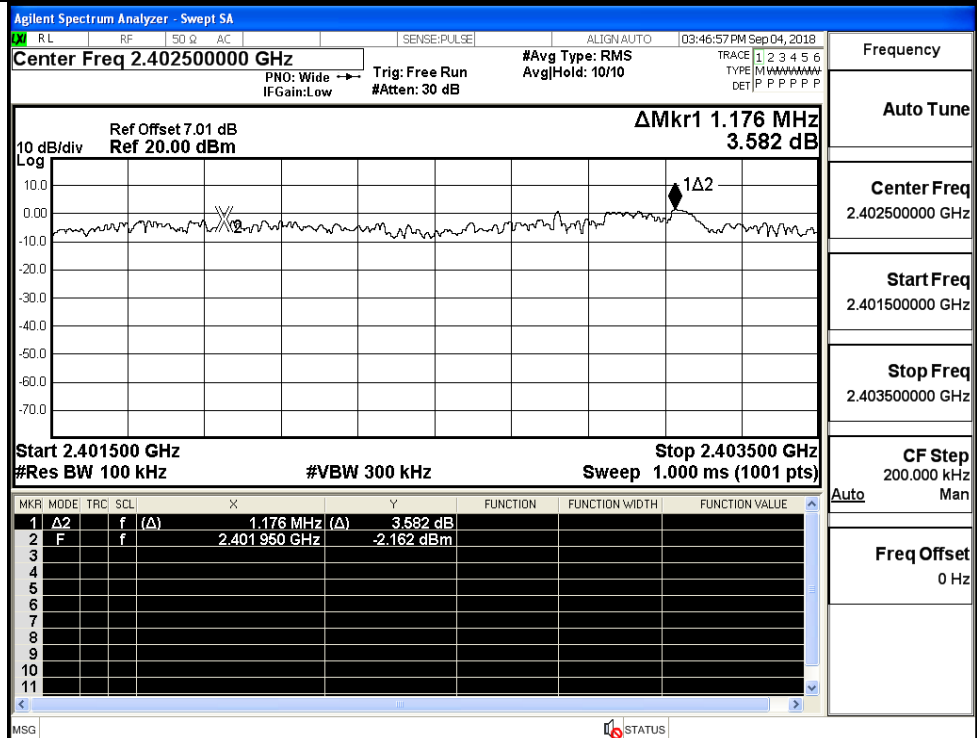
GFSK/HCH



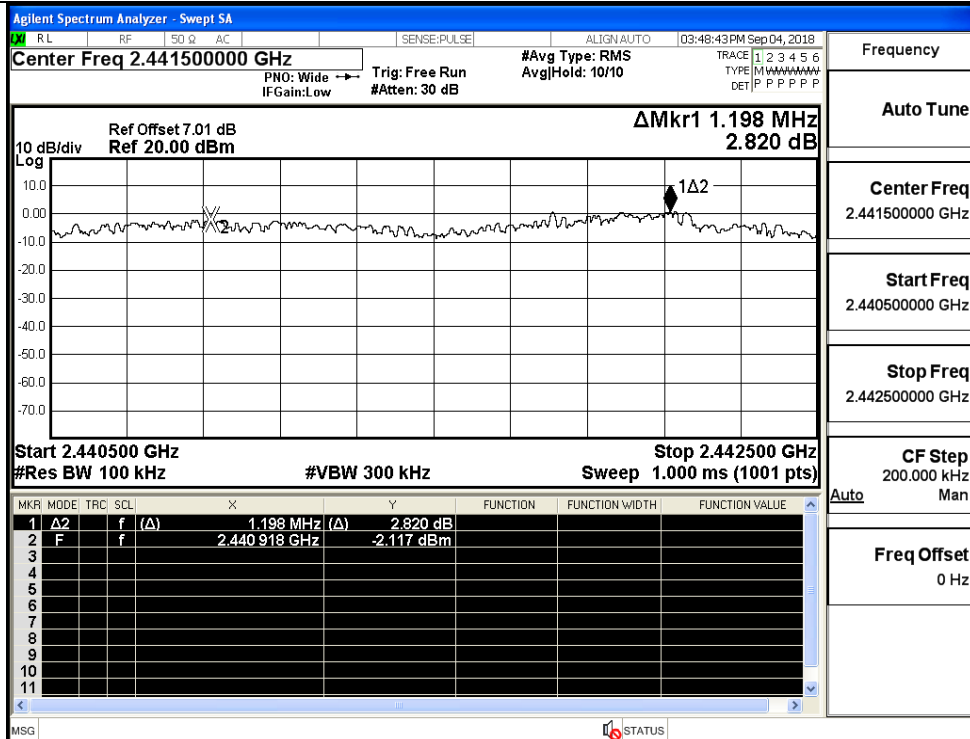
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

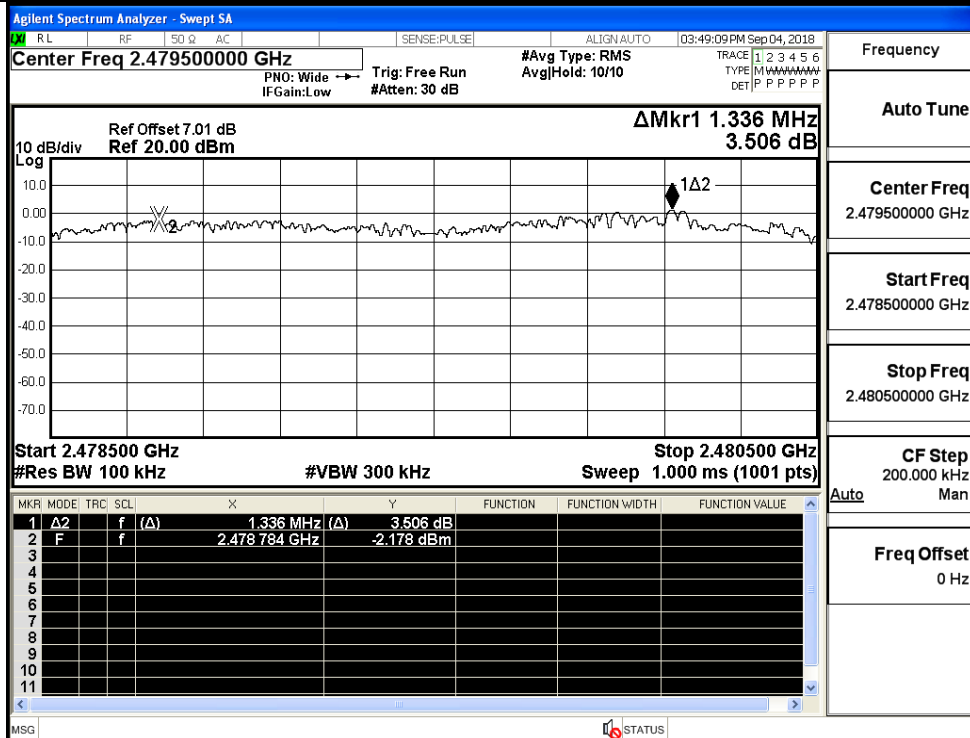
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

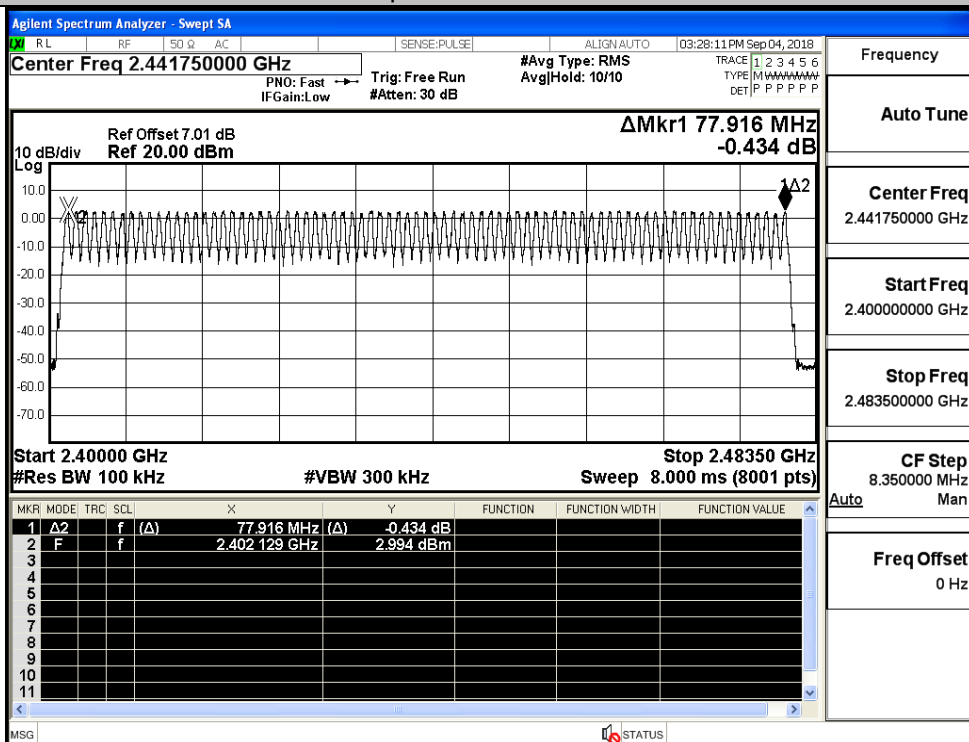
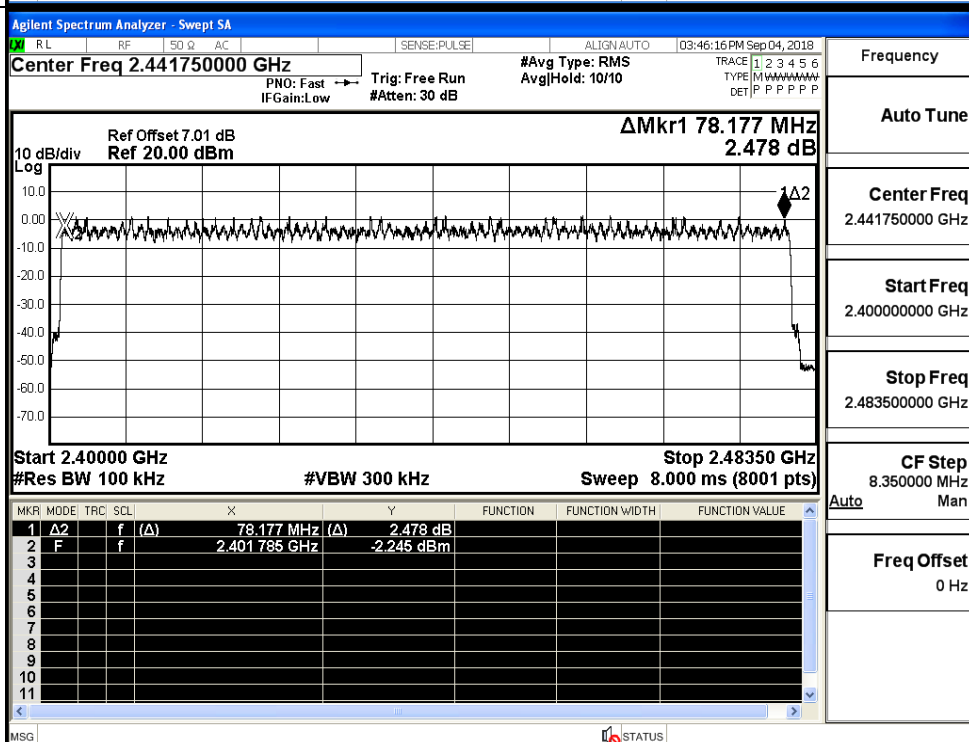


A.4 Hopping Channel Number

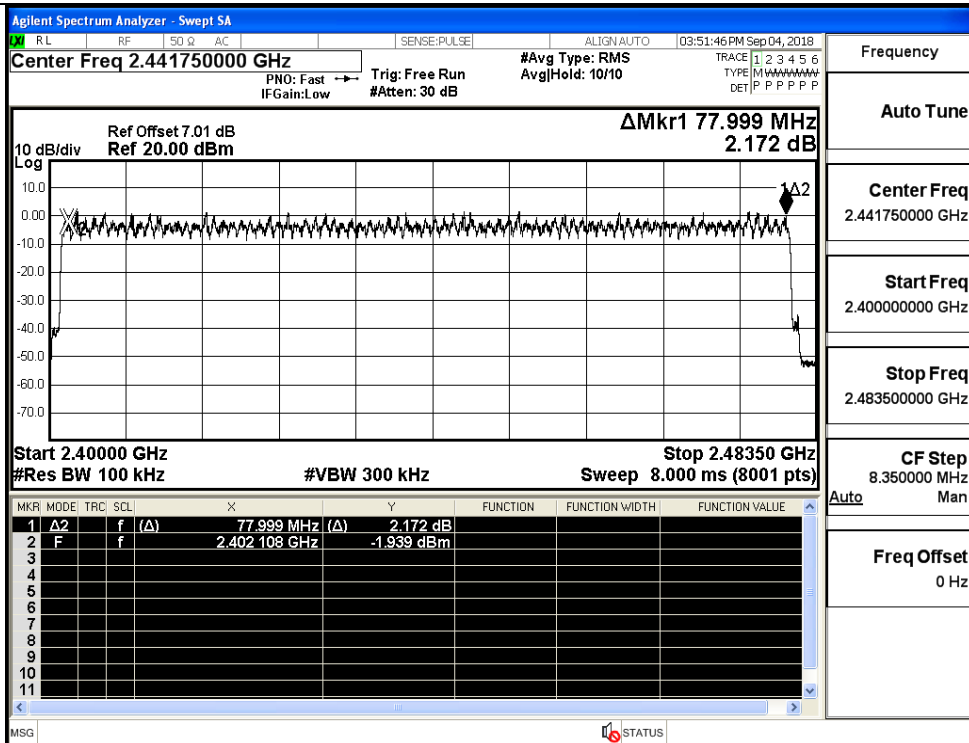
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

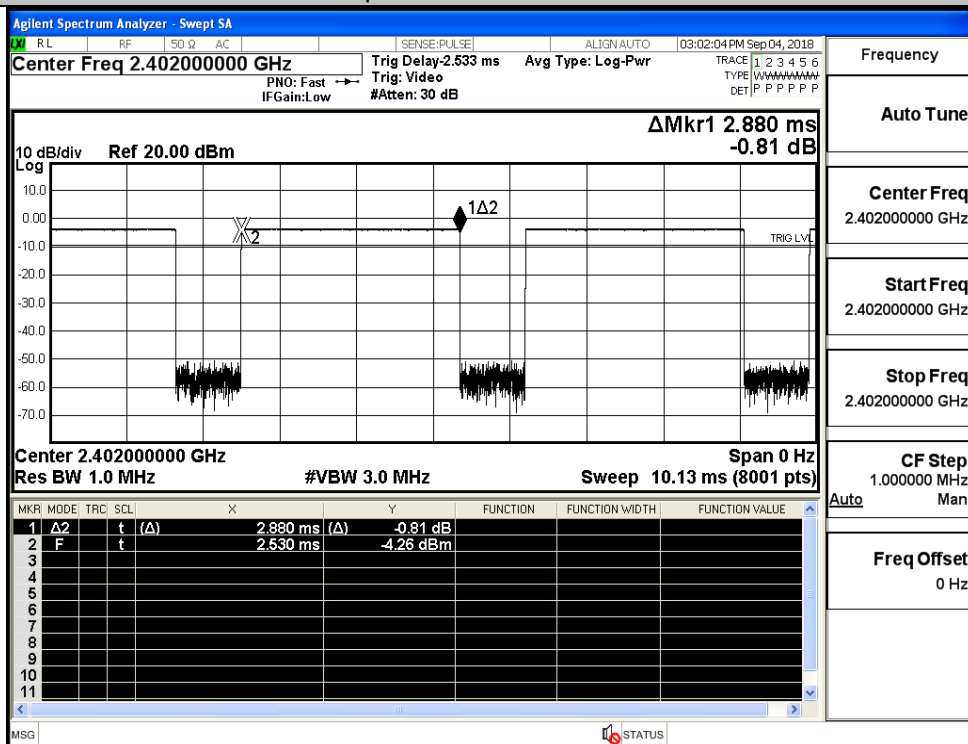


A.5 Dwell Time

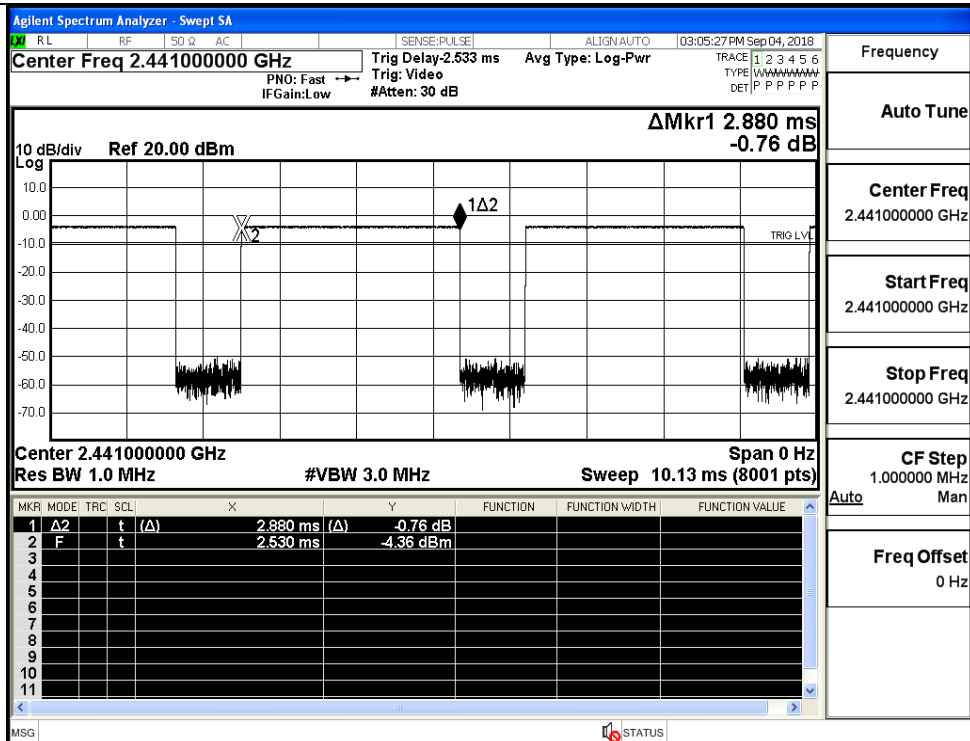
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

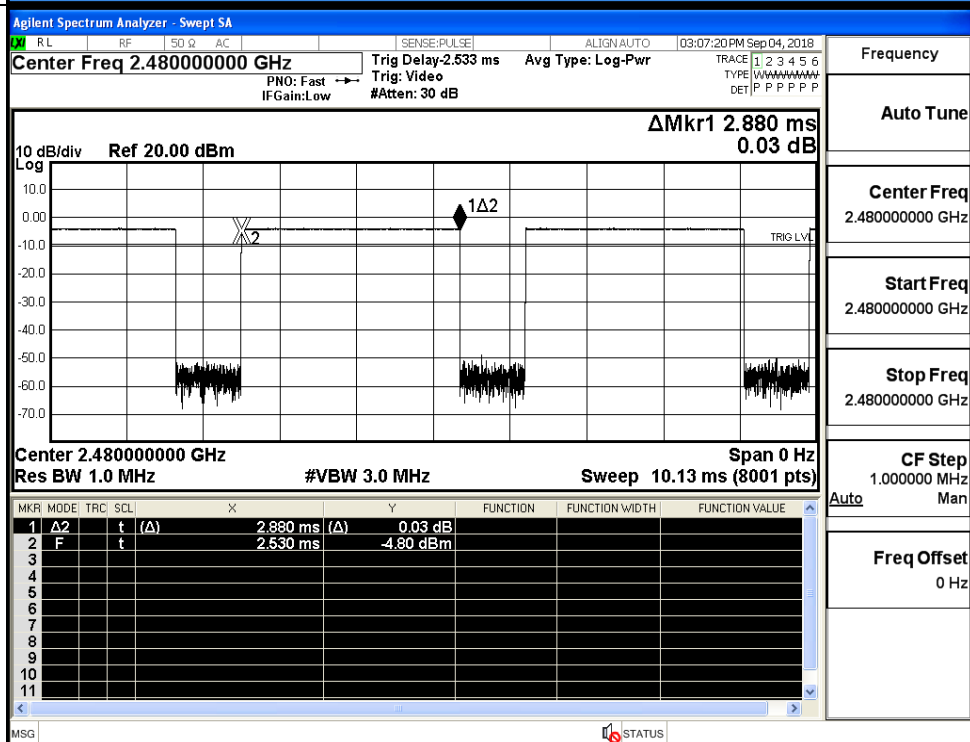
GFSK_DH5/LCH



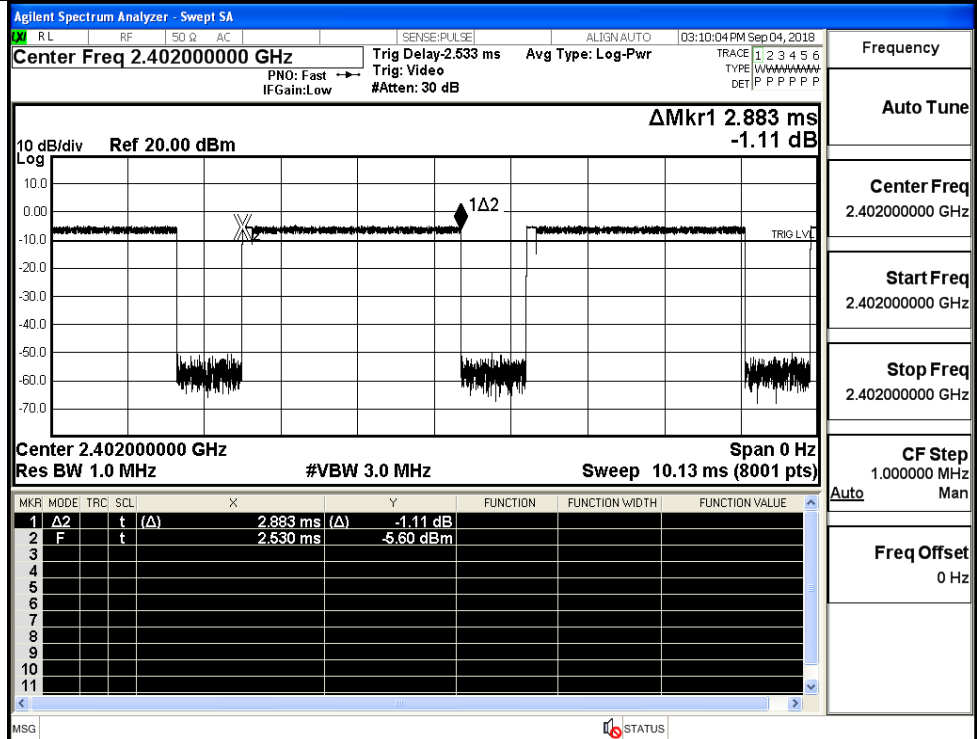
GFSK_DH5/MCH



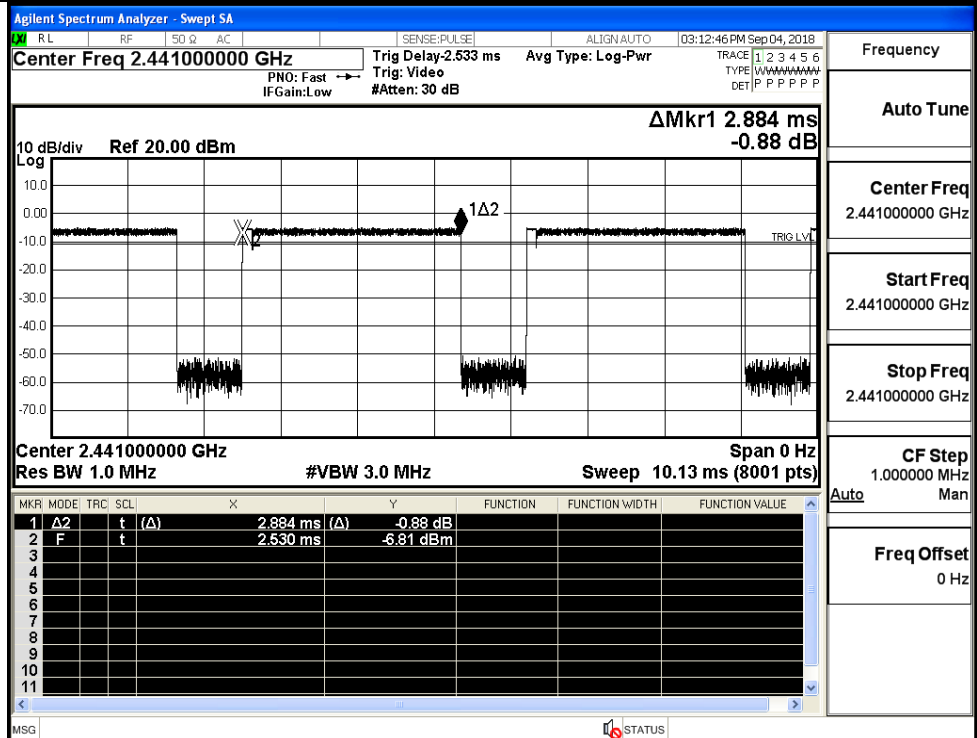
GFSK_DH5/HCH



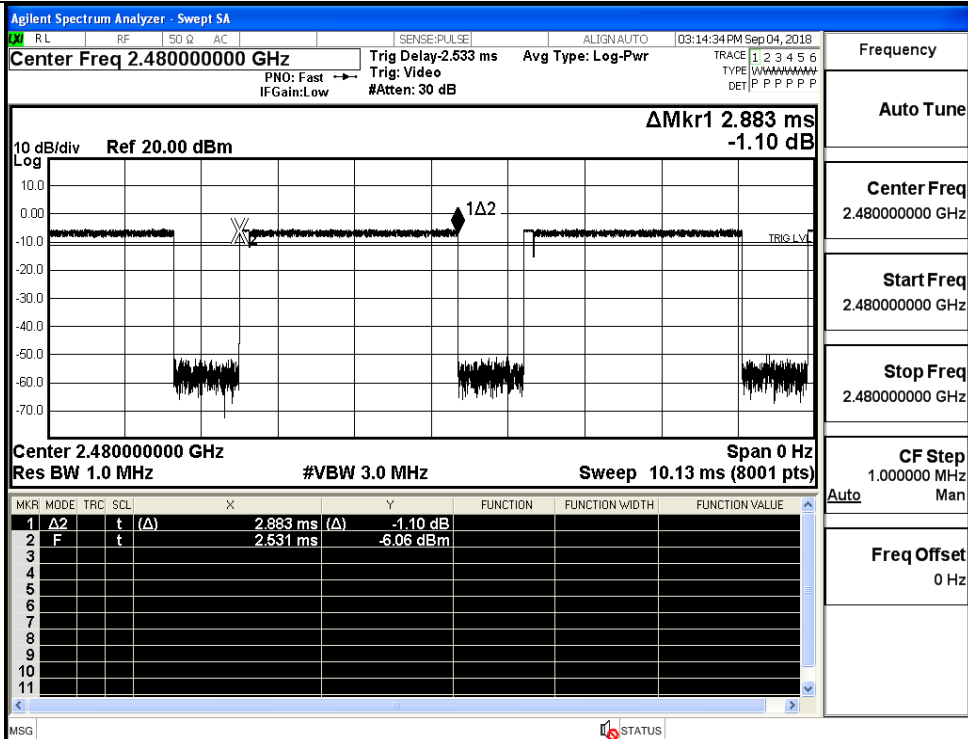
$\pi/4$ DQPSK
_2DH5/LCH



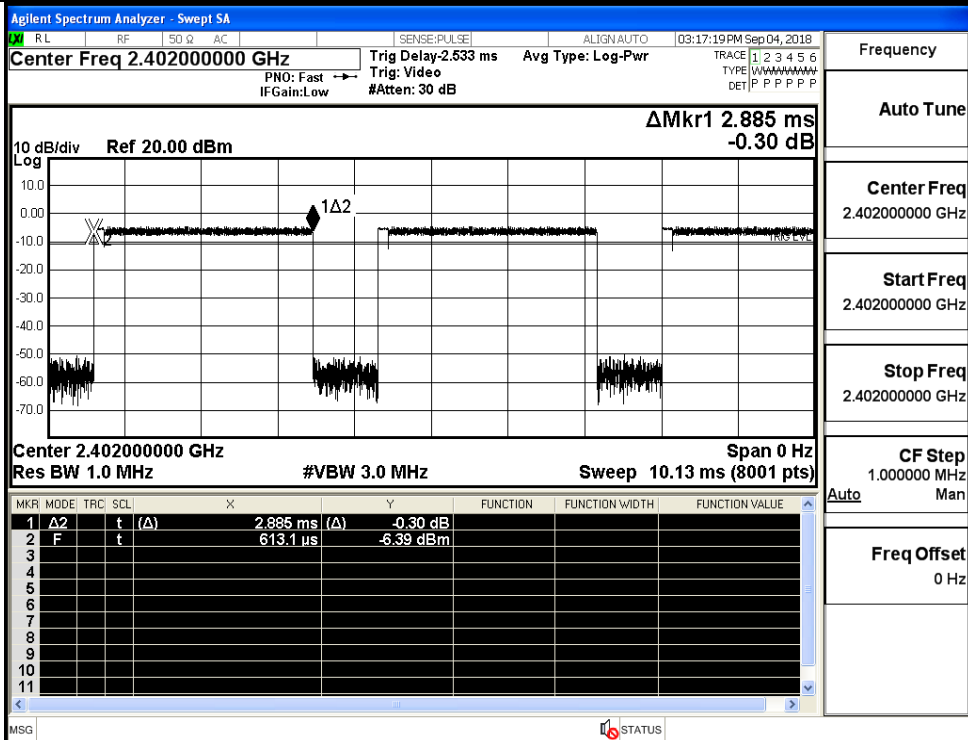
$\pi/4$ DQPSK
_2DH5/MCH



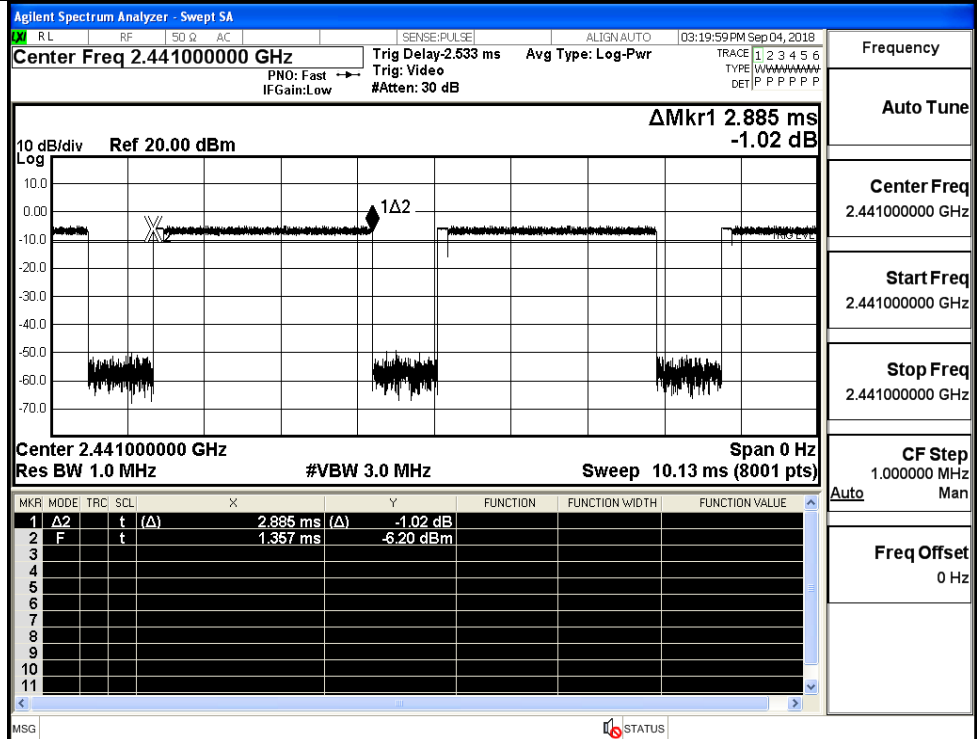
$\pi/4$ DQPSK
_2DH5/HCH



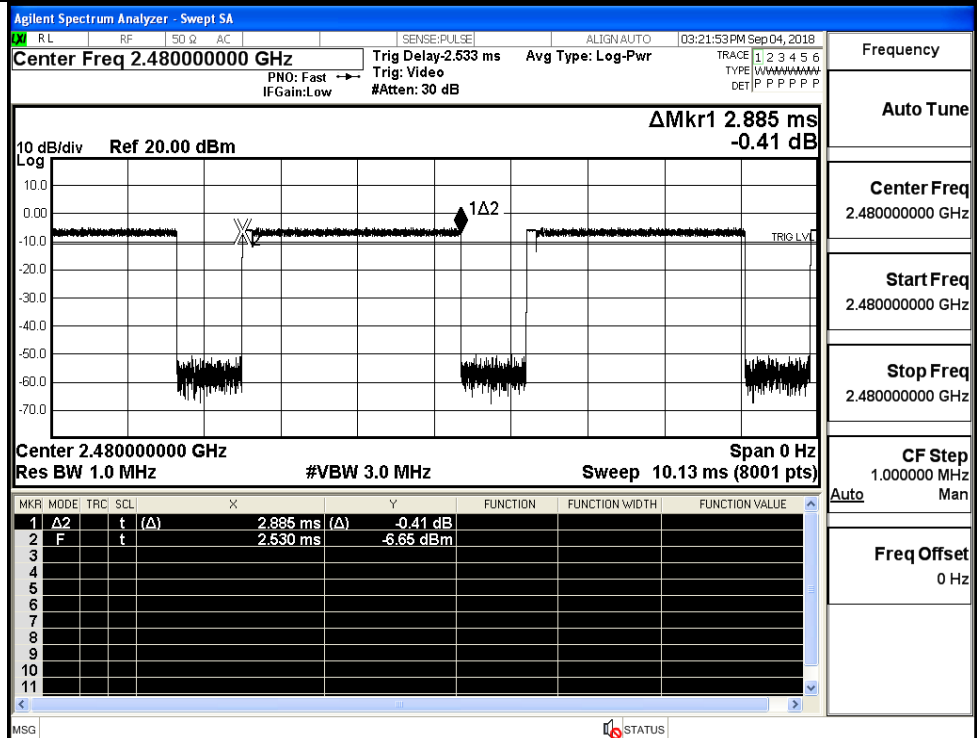
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

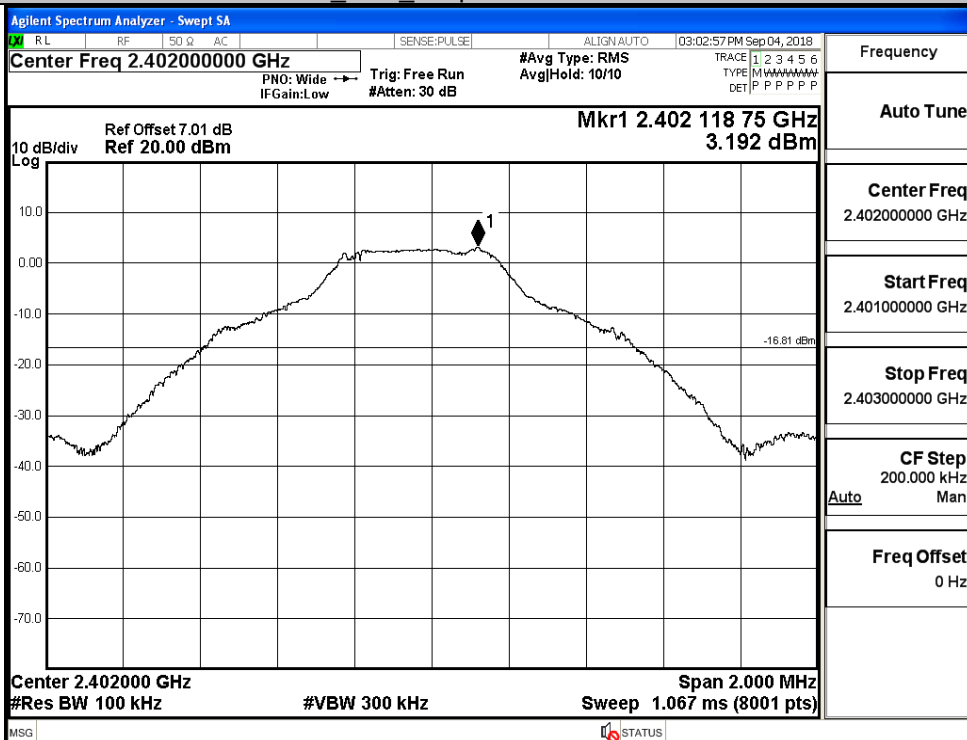


A.6 RF Conducted Spurious Emissions

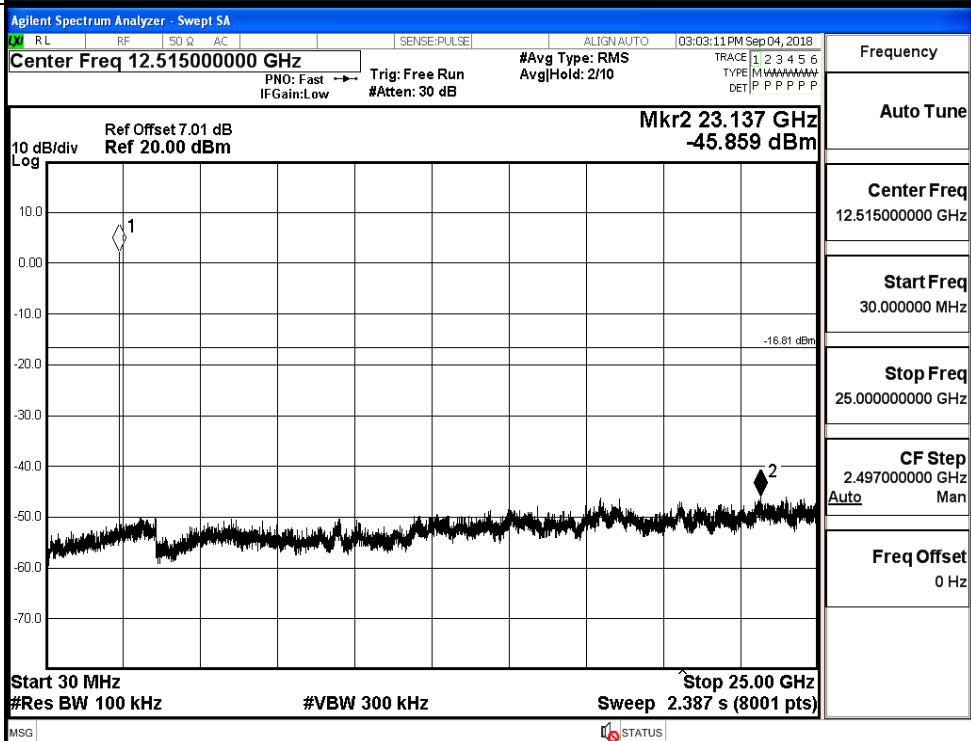
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.192	-45.859	-16.808	PASS
	MCH	3.172	-45.571	-16.828	PASS
	HCH	2.959	-45.699	-17.041	PASS
$\pi/4$ DQPSK	LCH	1.565	-44.959	-18.435	PASS
	MCH	0.942	-45.598	-19.058	PASS
	HCH	1.289	-46.212	-18.711	PASS
8DPSK	LCH	1.27	-45.384	-18.730	PASS
	MCH	1.005	-46.004	-18.995	PASS
	HCH	0.637	-45.286	-19.363	PASS

GFSK LCH Graphs

Pref

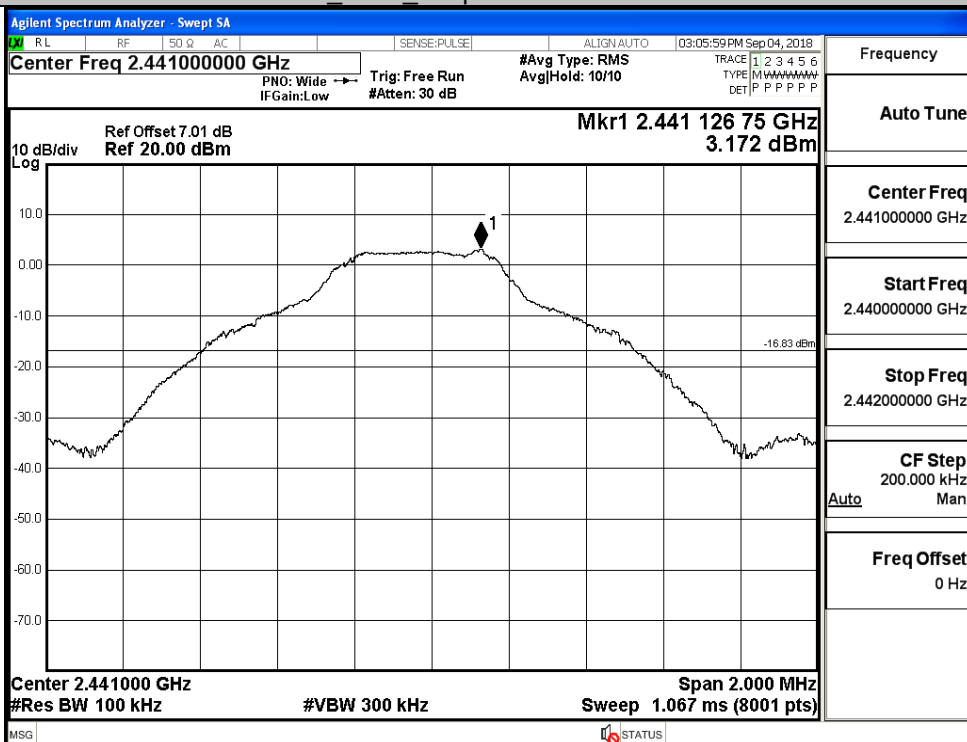


Puw

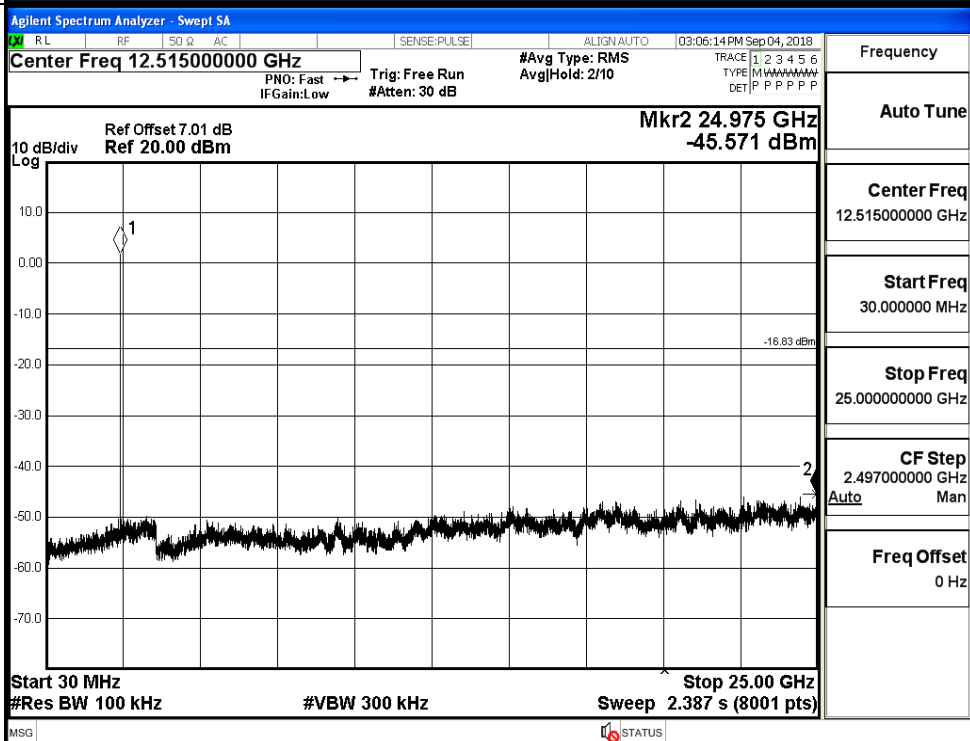


GFSK_MCH_Graphs

Pref

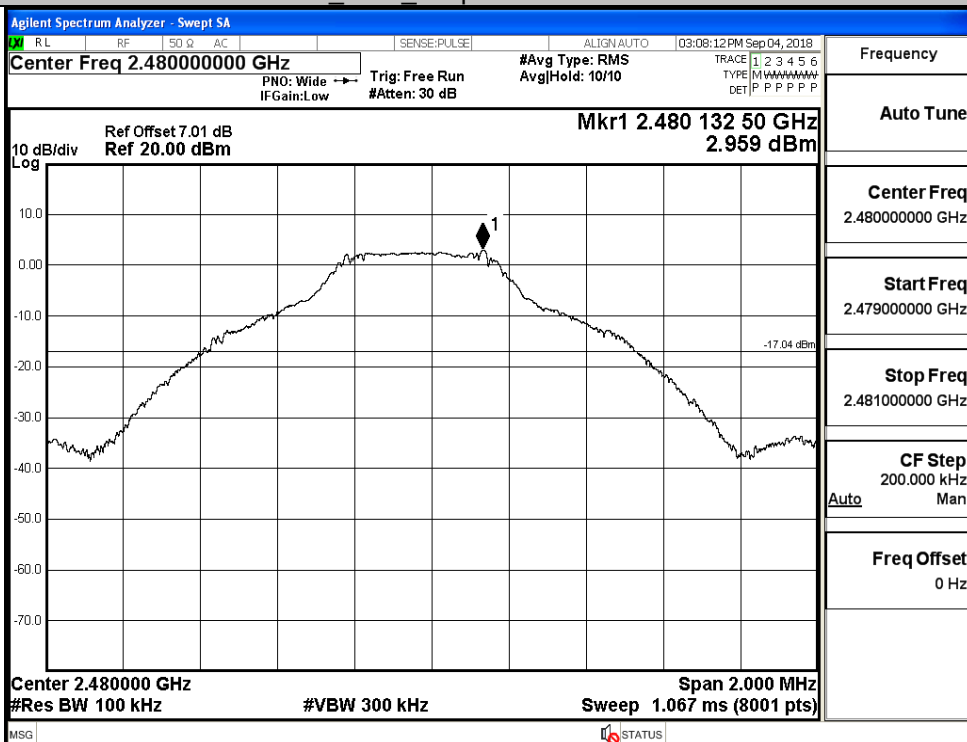


Puw

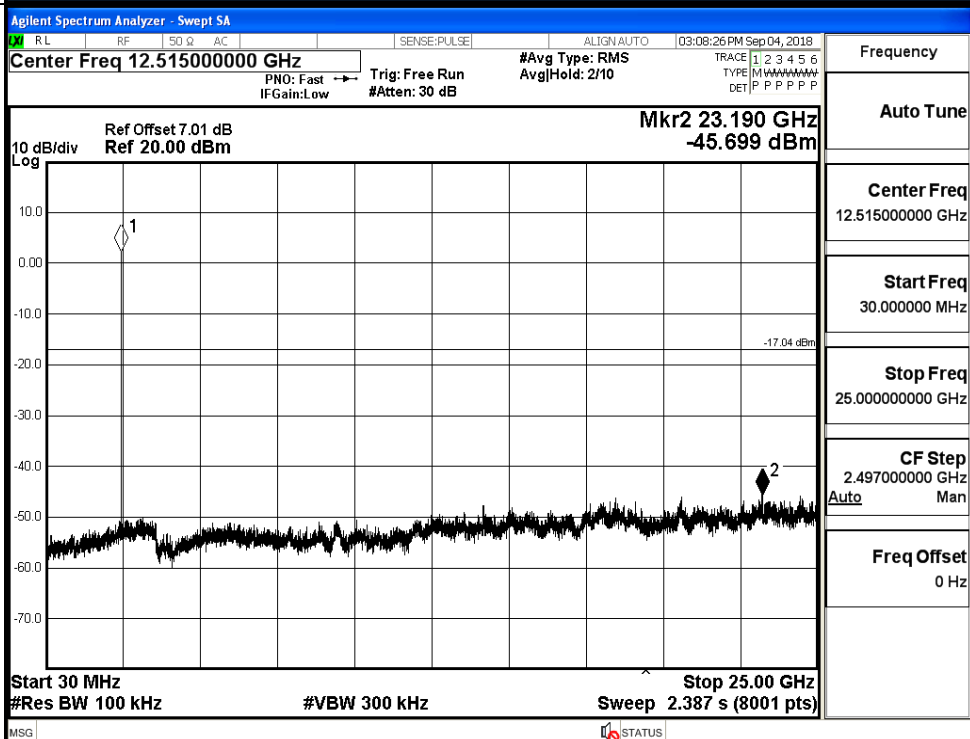


GFSK_HCH_Graphs

Pref

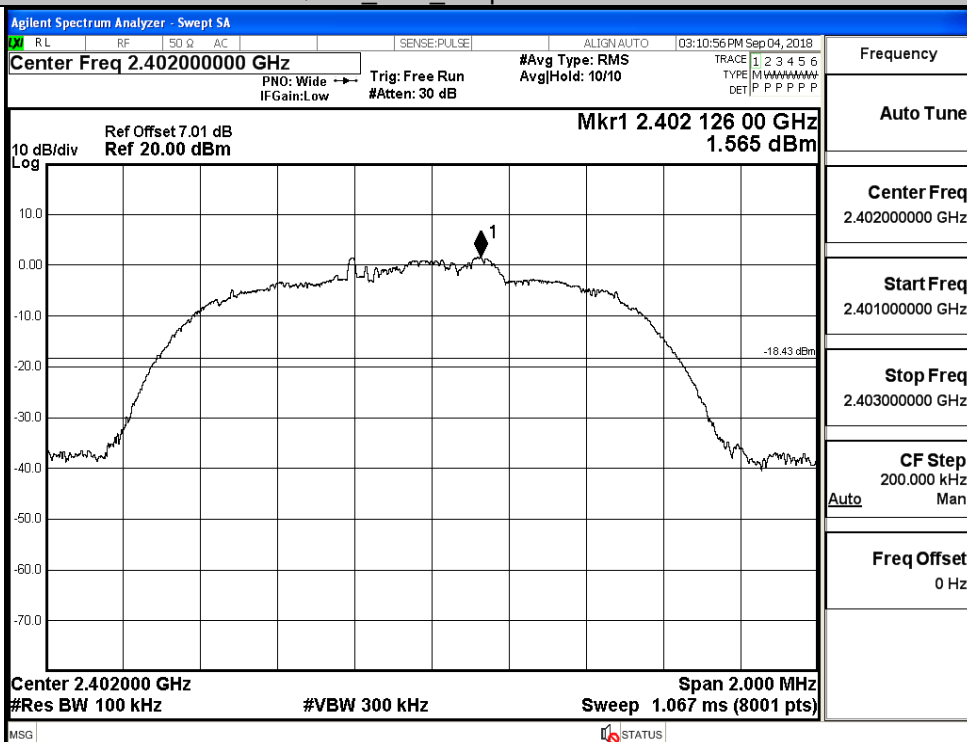


Puw

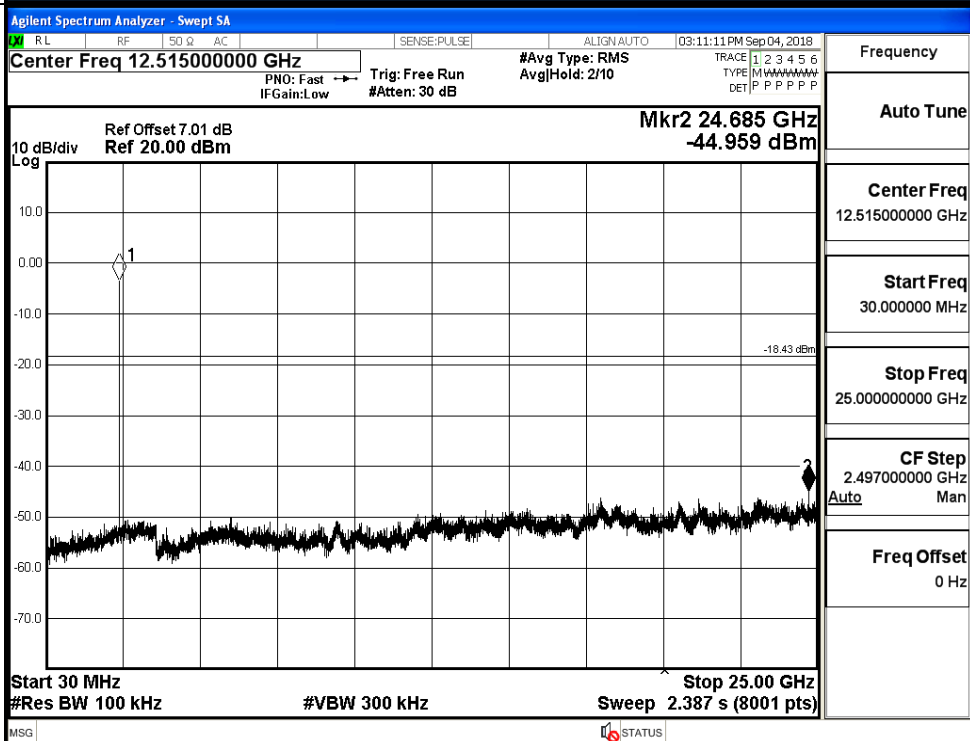


π /4DQPSK LCH_Graphs

Pref

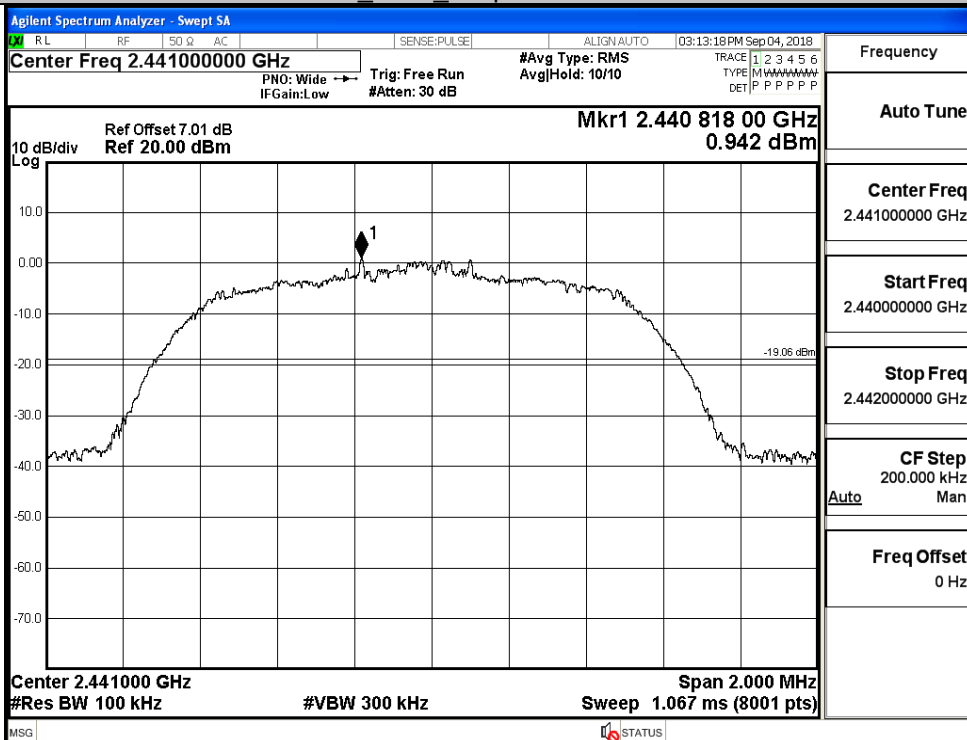


Puw

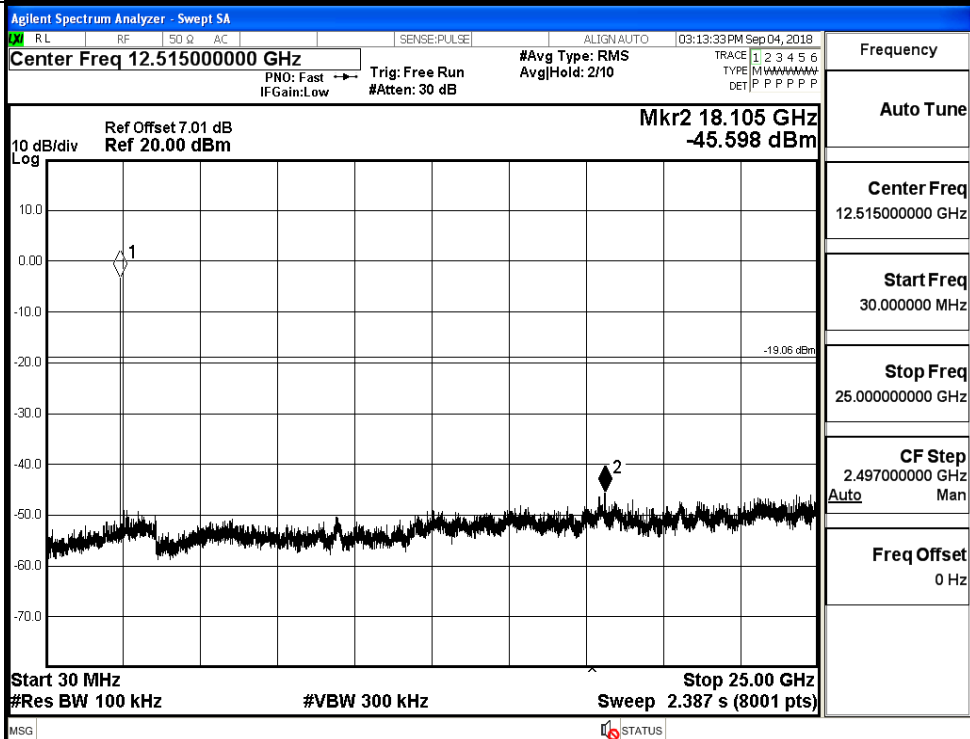


π /4DQPSK_MCH_Graphs

Pref

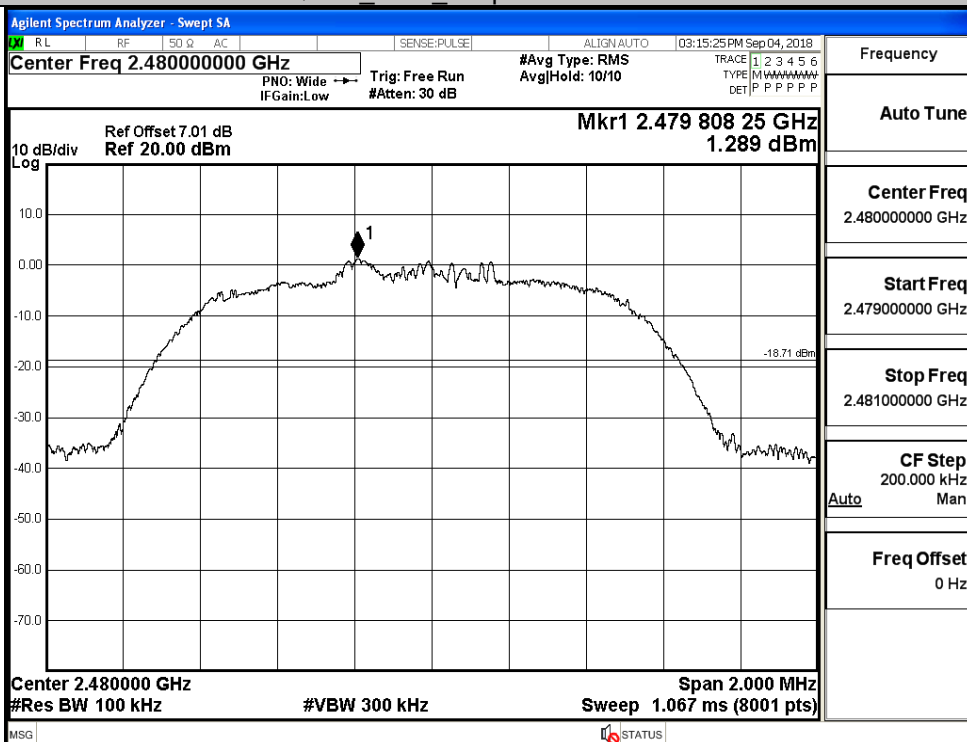


Puw

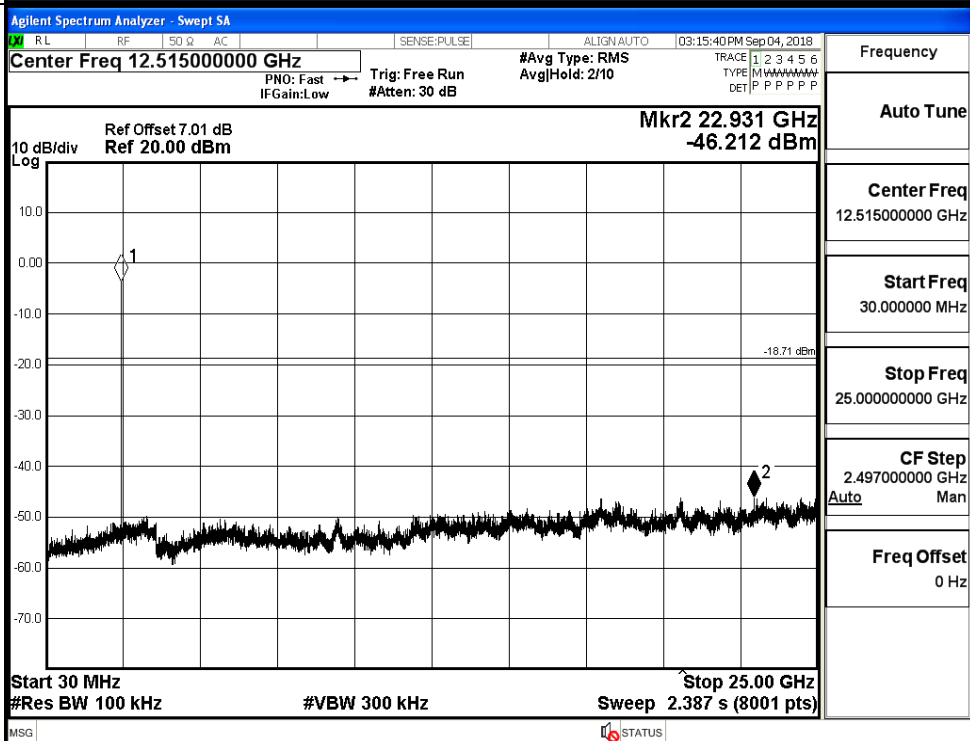


π /4DQPSK_HCH_Graphs

Pref

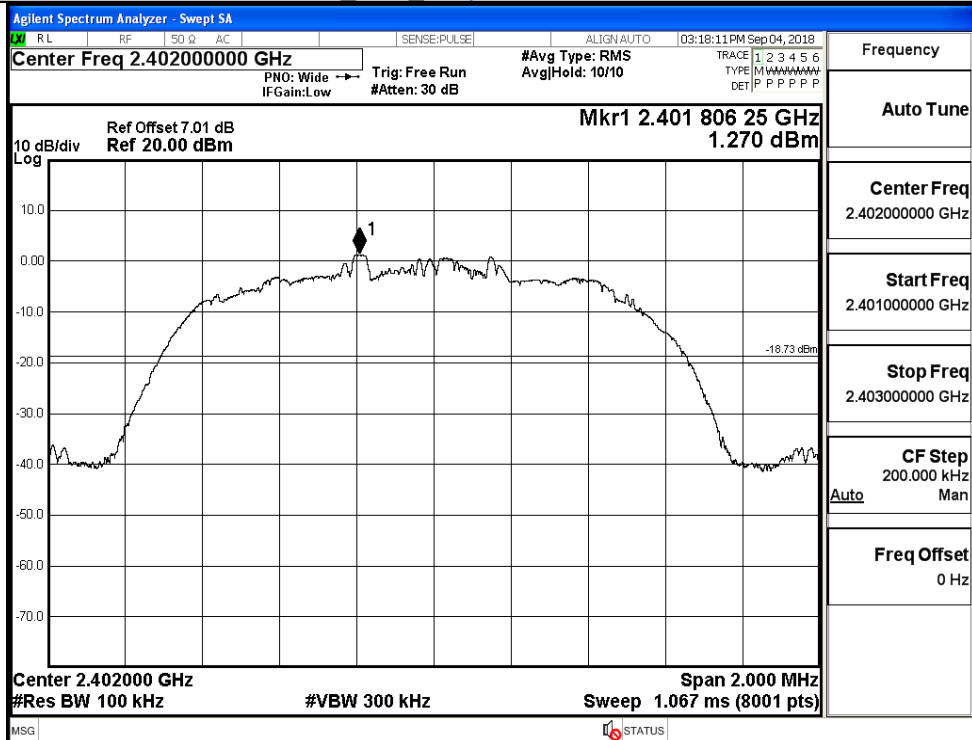


Puw

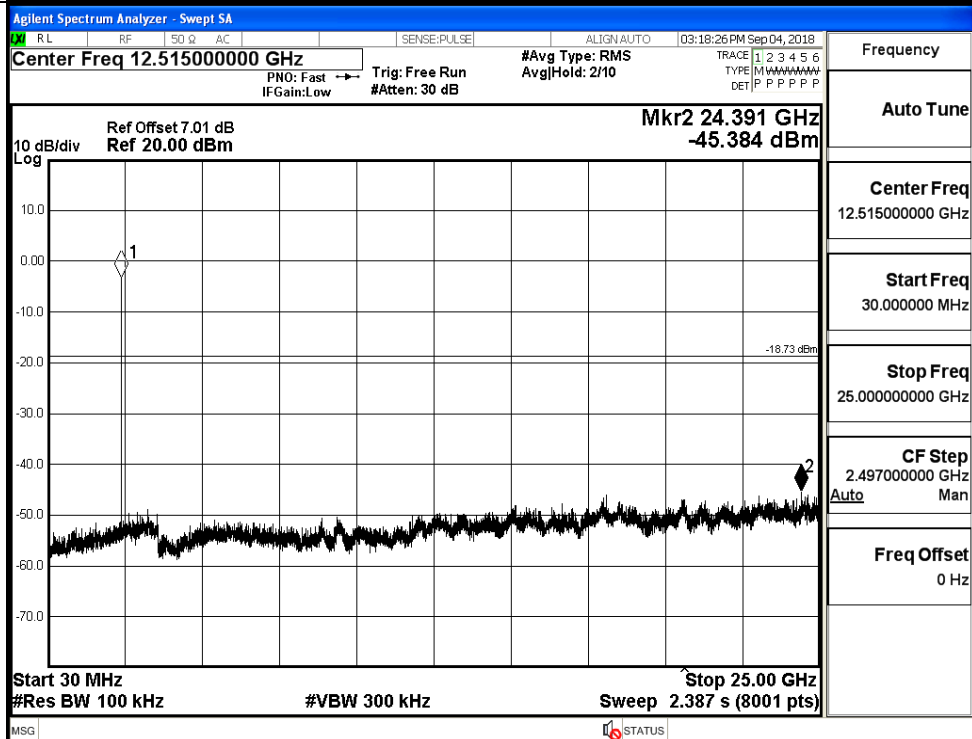


8DPSK_LCH_Graphs

Pref

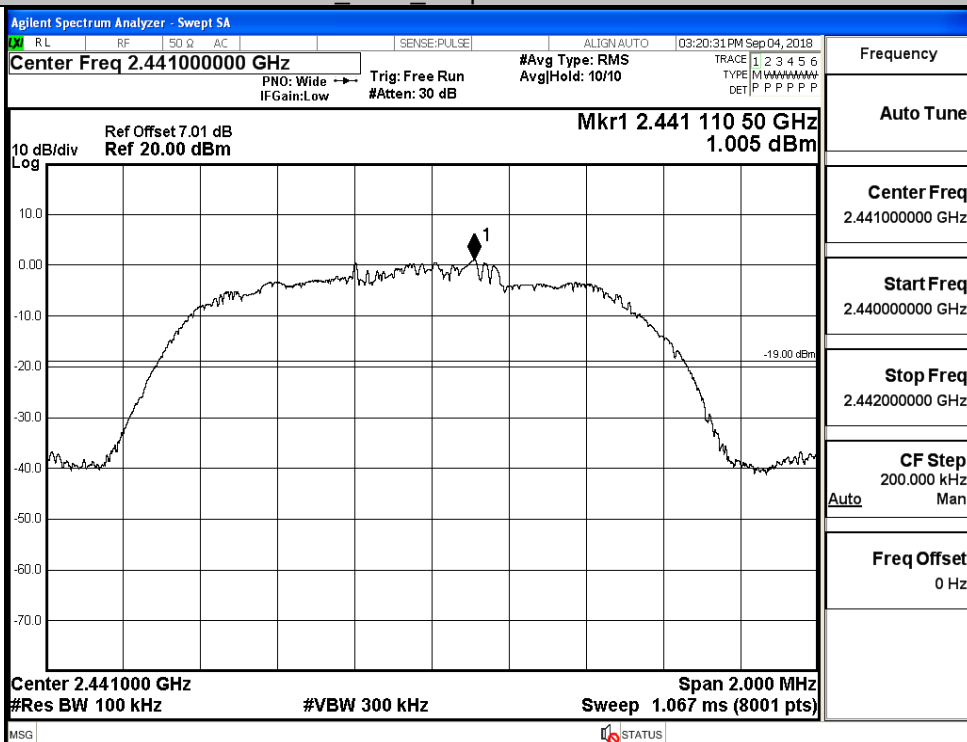


Puw

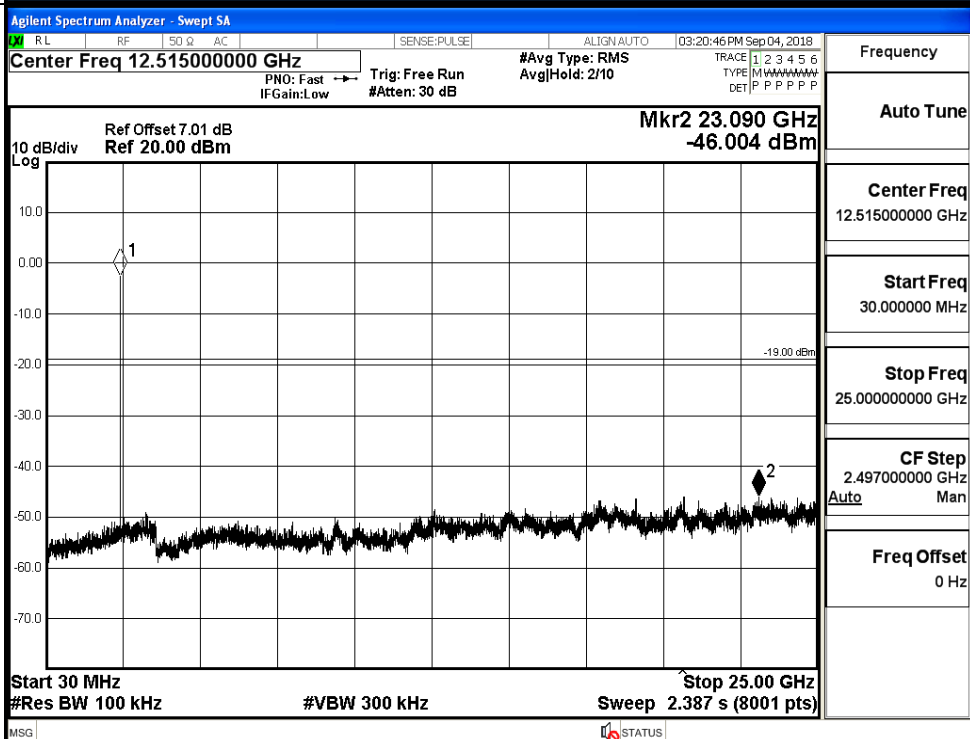


8DPSK_MCH_Graphs

Pref

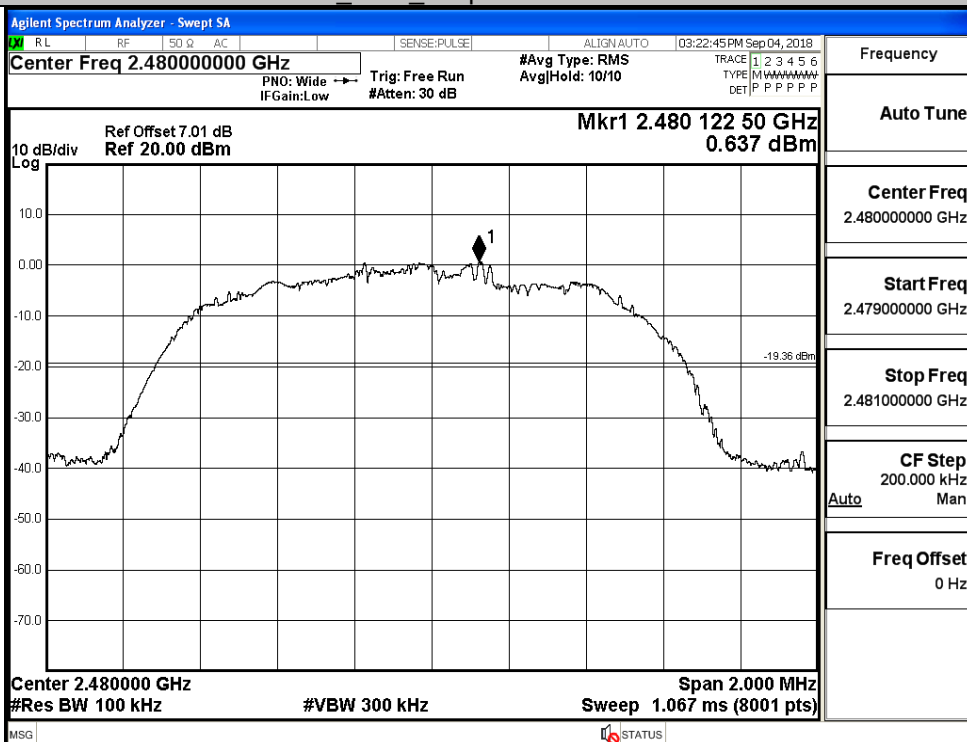


Puw

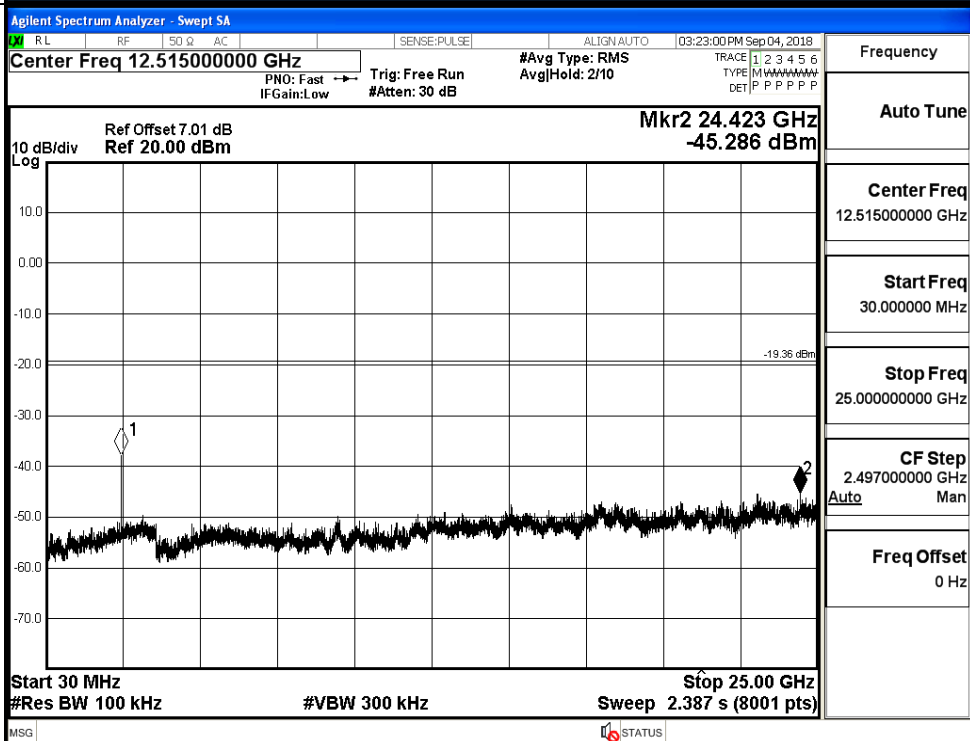


8DPSK_HCH_Graphs

Pref



Puw

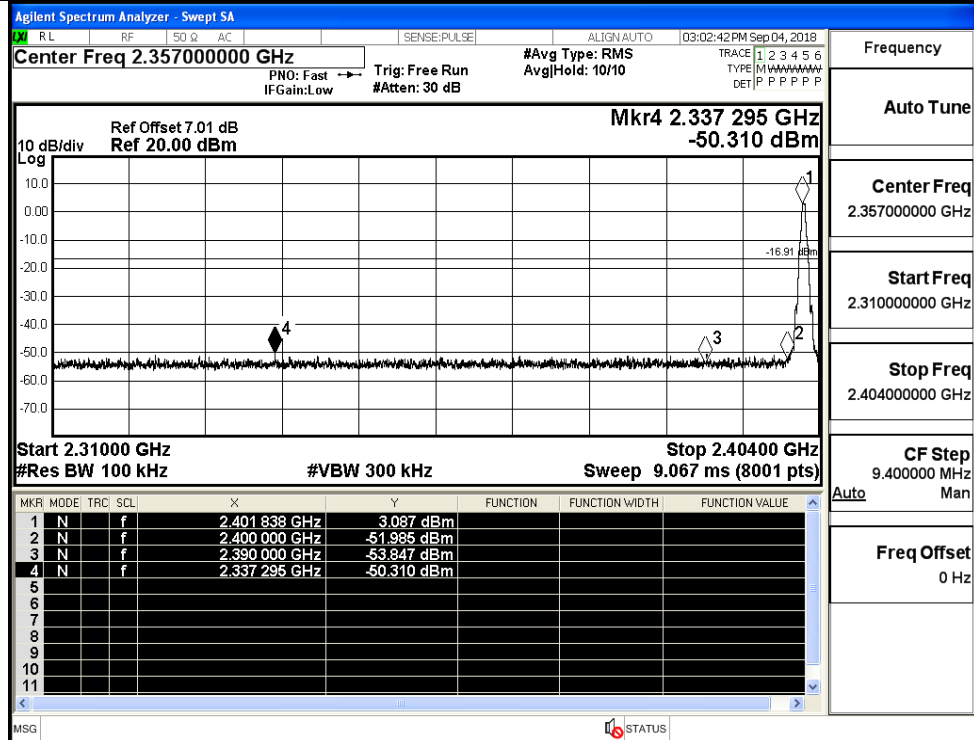


A.7 Band-edge for RF Conducted Emissions

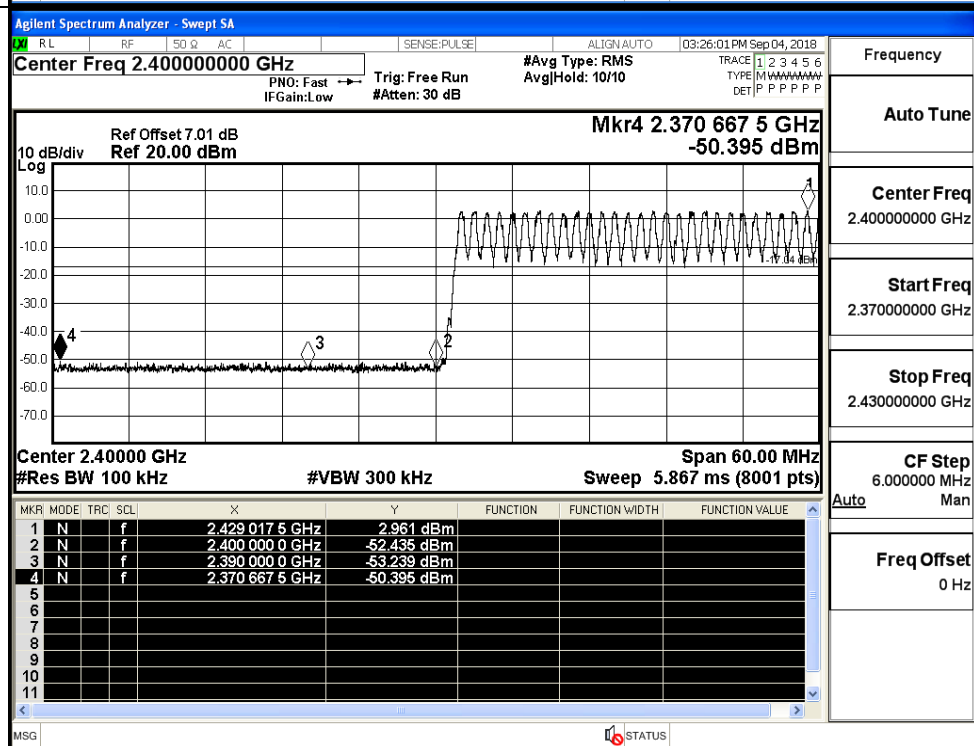
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	3.087	Off	-50.310	-16.91	PASS
			2.961	On	-50.395	-17.04	PASS
	HCH	2480	3.089	Off	-50.820	-16.91	PASS
			2.827	On	-50.121	-17.17	PASS
$\pi/4$ DQPSK	LCH	2402	-0.094	Off	-50.826	-20.09	PASS
			1.342	On	-50.694	-18.66	PASS
	HCH	2480	1.679	Off	-50.127	-18.32	PASS
			1.459	On	-50.391	-18.54	PASS
8DPSK	LCH	2402	1.679	Off	-50.167	-18.32	PASS
			1.219	On	-50.003	-18.78	PASS
	HCH	2480	0.498	Off	-50.060	-19.5	PASS
			1.445	On	-50.170	-18.56	PASS

Test Graphs

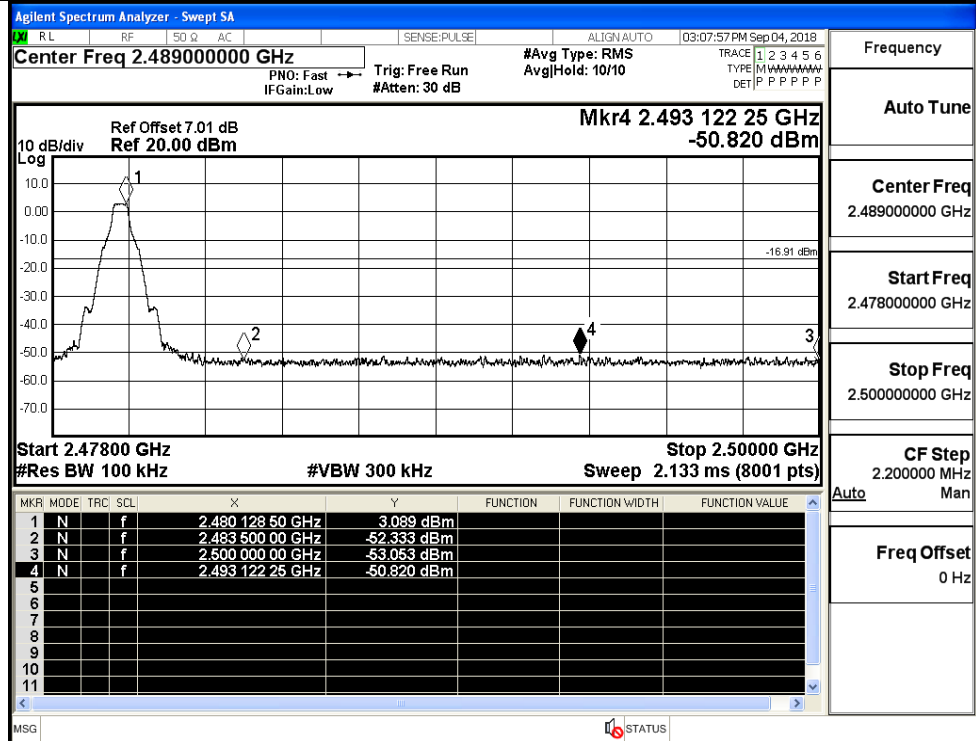
GFSK/LCH/No Hop



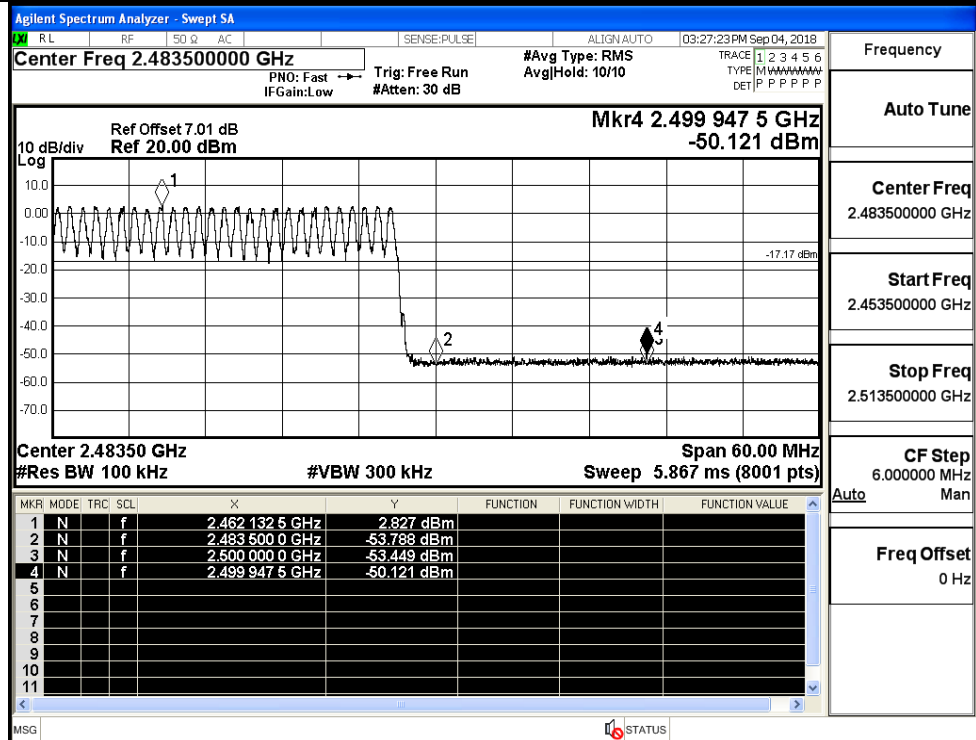
GFSK/LCH/Hop



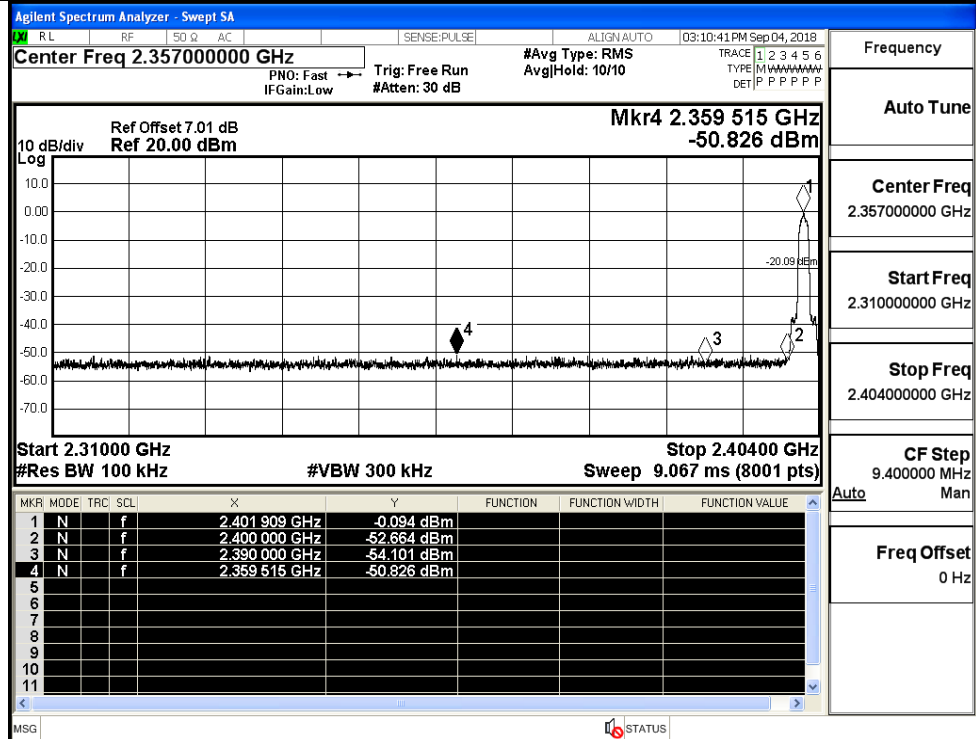
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

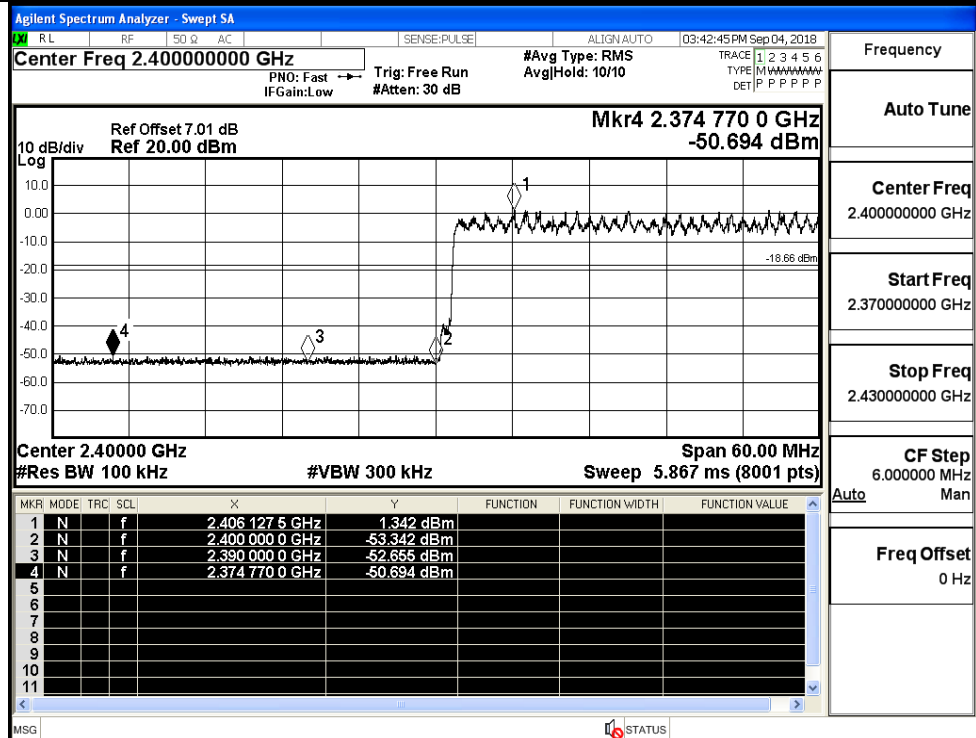
Start Freq
2.310000000 GHz

Stop Freq
2.404000000 GHz

CF Step
9.400000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq
2.400000000 GHz

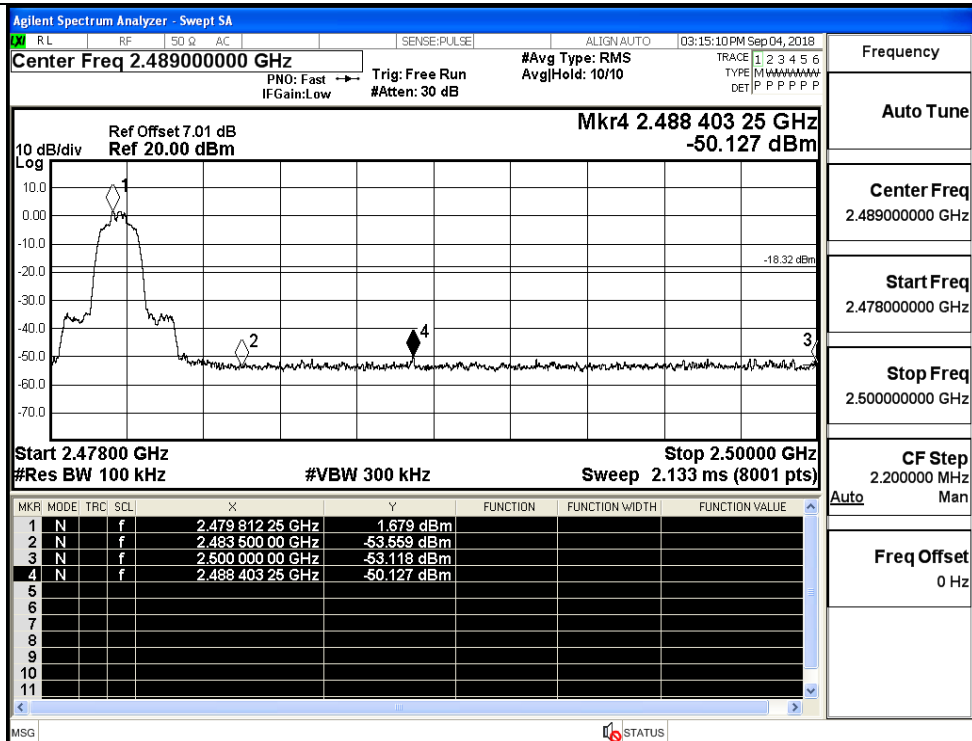
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

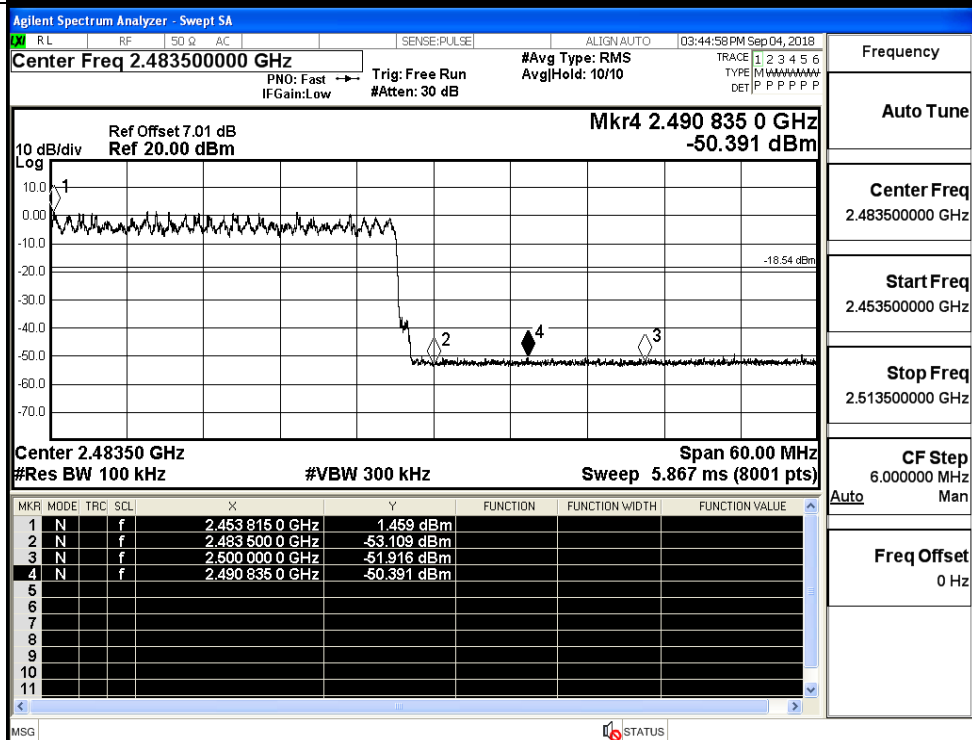
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

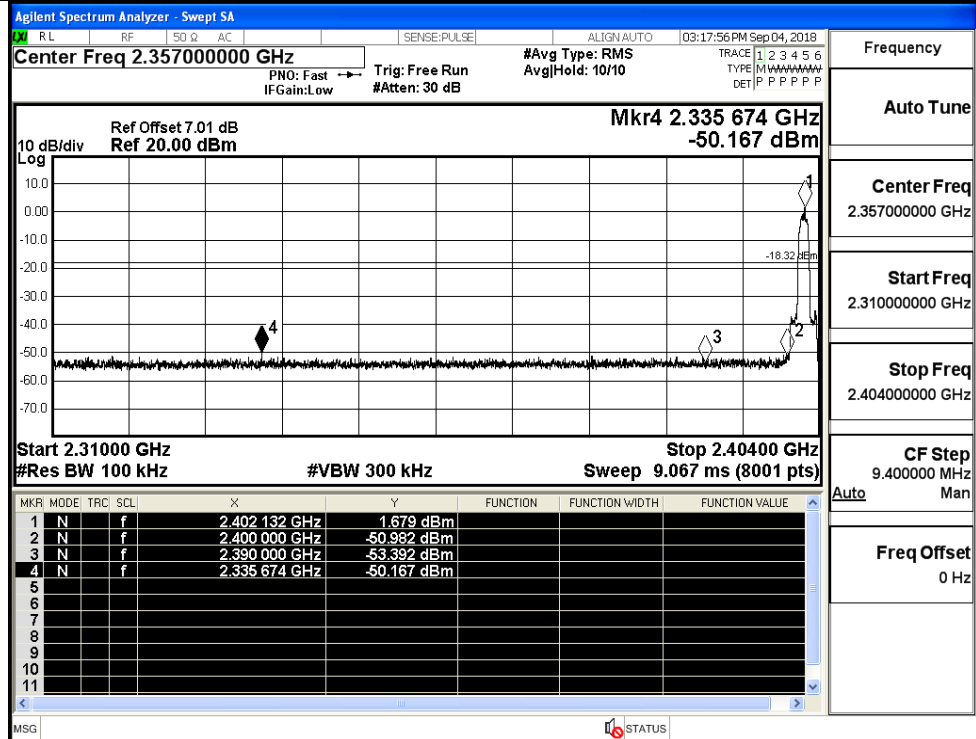
$\pi/4$ DQPSK/HCH/No
Hop



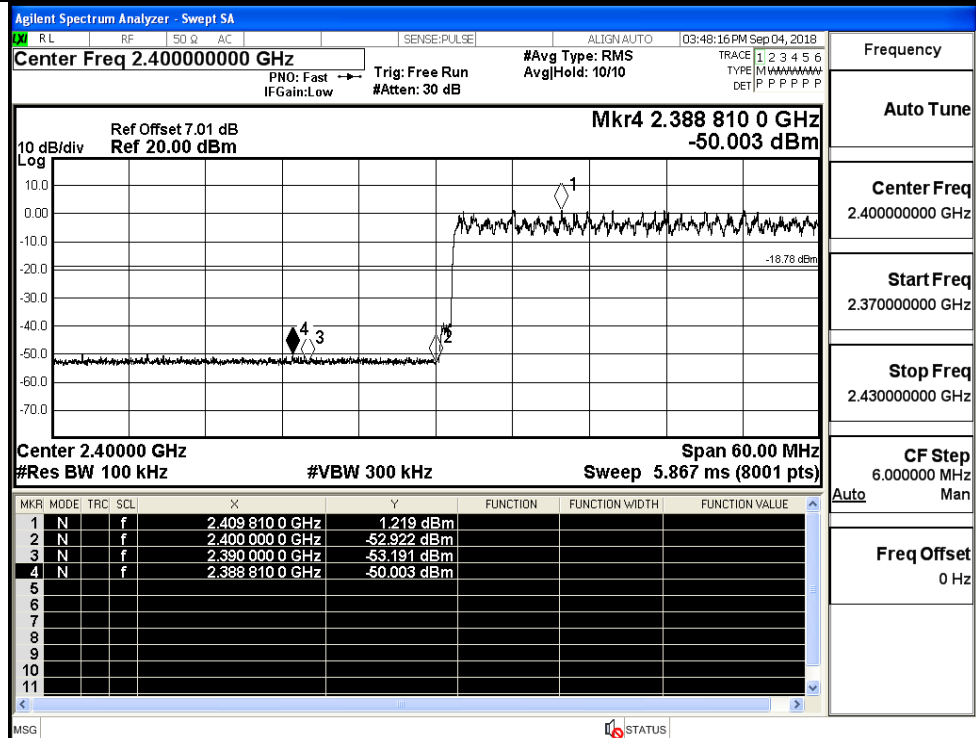
$\pi/4$ DQPSK/HCH/Hop



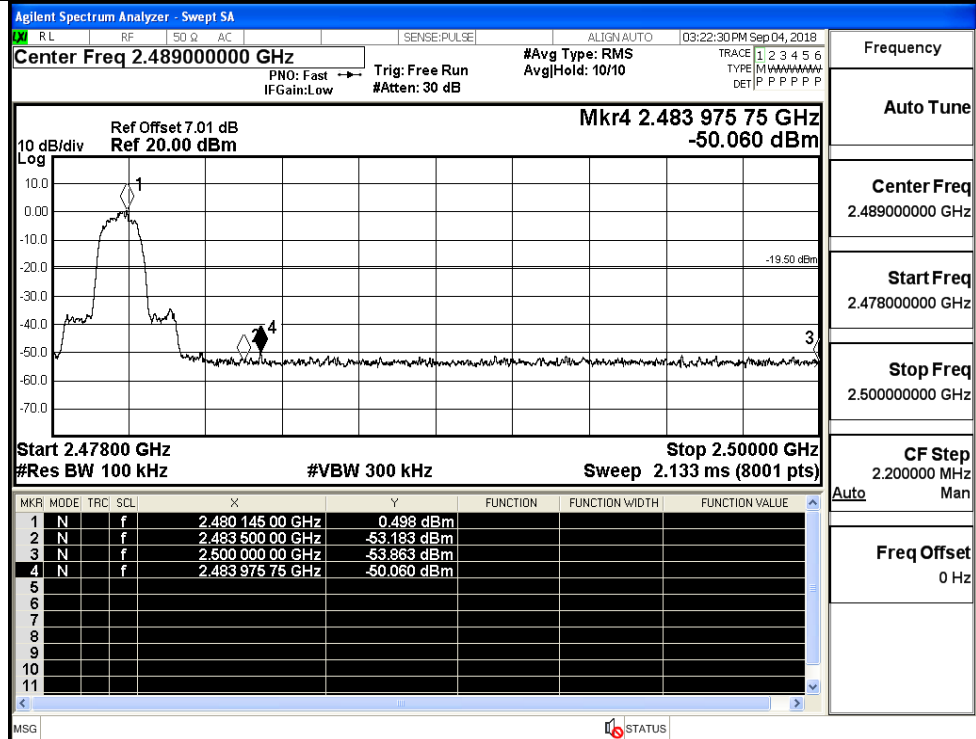
8DPSK/LCH/No Hop



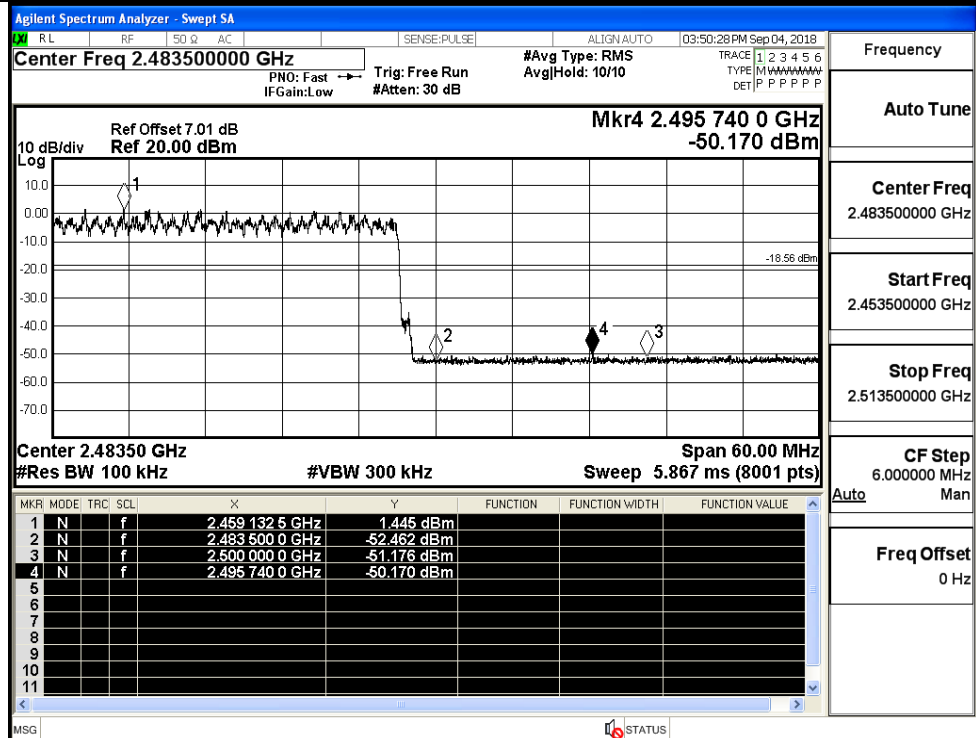
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



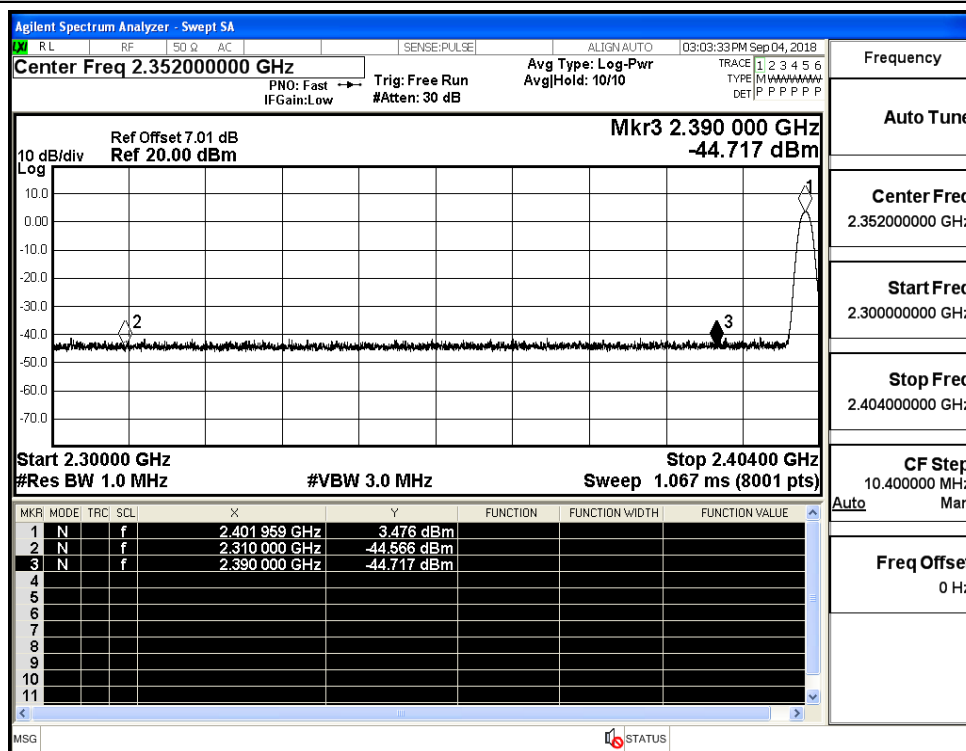
8DPSK/HCH/Hop



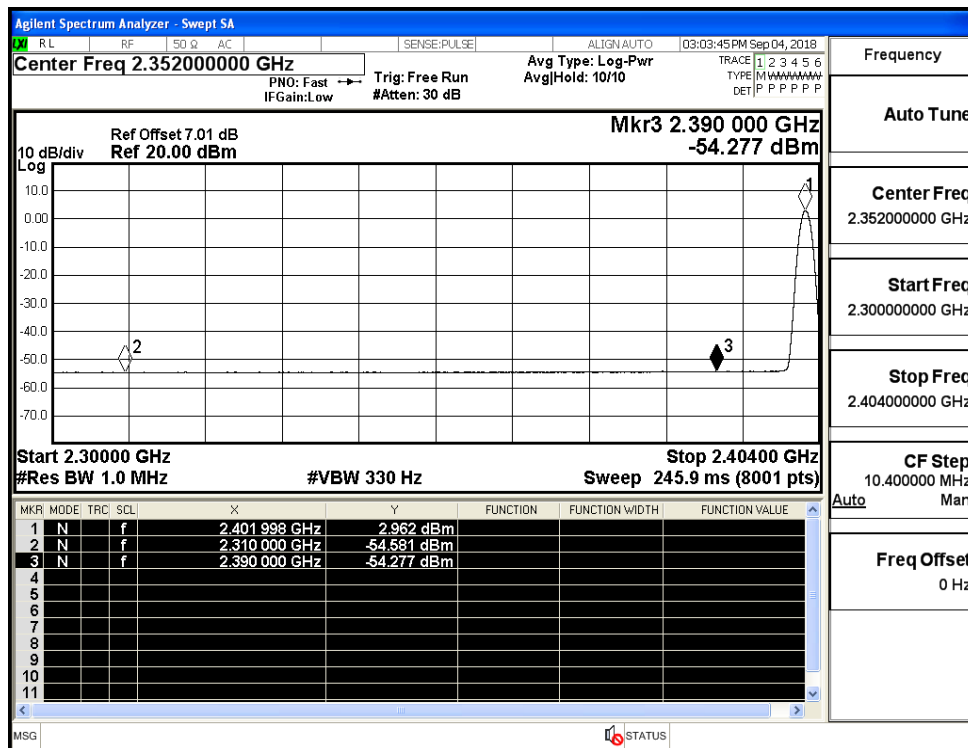
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.57	2.0	0	52.69	PEAK	74	PASS
	Off	2310.0	-54.58	2.0	0	42.68	AV	54	PASS
	Off	2390.0	-44.72	2.0	0	52.54	PEAK	74	PASS
	Off	2390.0	-54.28	2.0	0	42.98	AV	54	PASS
	Off	2483.5	-44.30	2.0	0	52.96	PEAK	74	PASS
	Off	2483.5	-53.88	2.0	0	43.38	AV	54	PASS
	Off	2500.0	-43.18	2.0	0	54.08	PEAK	74	PASS
	Off	2500.0	-53.95	2.0	0	43.31	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.96	2.0	0	52.30	PEAK	74	PASS
	Off	2310.0	-54.64	2.0	0	42.62	AV	54	PASS
	Off	2390.0	-43.67	2.0	0	53.59	PEAK	74	PASS
	Off	2390.0	-54.39	2.0	0	42.87	AV	54	PASS
	Off	2483.5	-44.36	2.0	0	52.89	PEAK	74	PASS
	Off	2483.5	-53.87	2.0	0	43.39	AV	54	PASS
	Off	2500.0	-44.57	2.0	0	52.69	PEAK	74	PASS
	Off	2500.0	-54.02	2.0	0	43.24	AV	54	PASS
8DPSK	Off	2310.0	-44.51	2.0	0	52.74	PEAK	74	PASS
	Off	2310.0	-54.64	2.0	0	42.62	AV	54	PASS
	Off	2390.0	-43.33	2.0	0	53.93	PEAK	74	PASS
	Off	2390.0	-54.34	2.0	0	42.92	AV	54	PASS
	Off	2483.5	-43.98	2.0	0	53.28	PEAK	74	PASS
	Off	2483.5	-53.74	2.0	0	43.52	AV	54	PASS
	Off	2500.0	-43.40	2.0	0	53.86	PEAK	74	PASS
	Off	2500.0	-54.00	2.0	0	43.26	AV	54	PASS

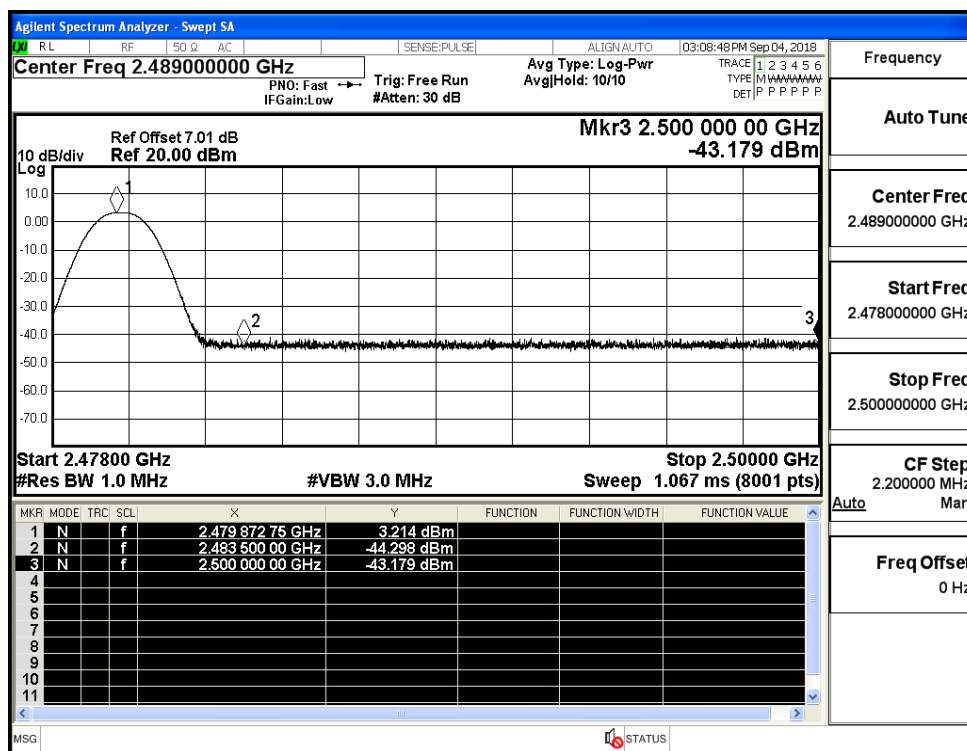
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



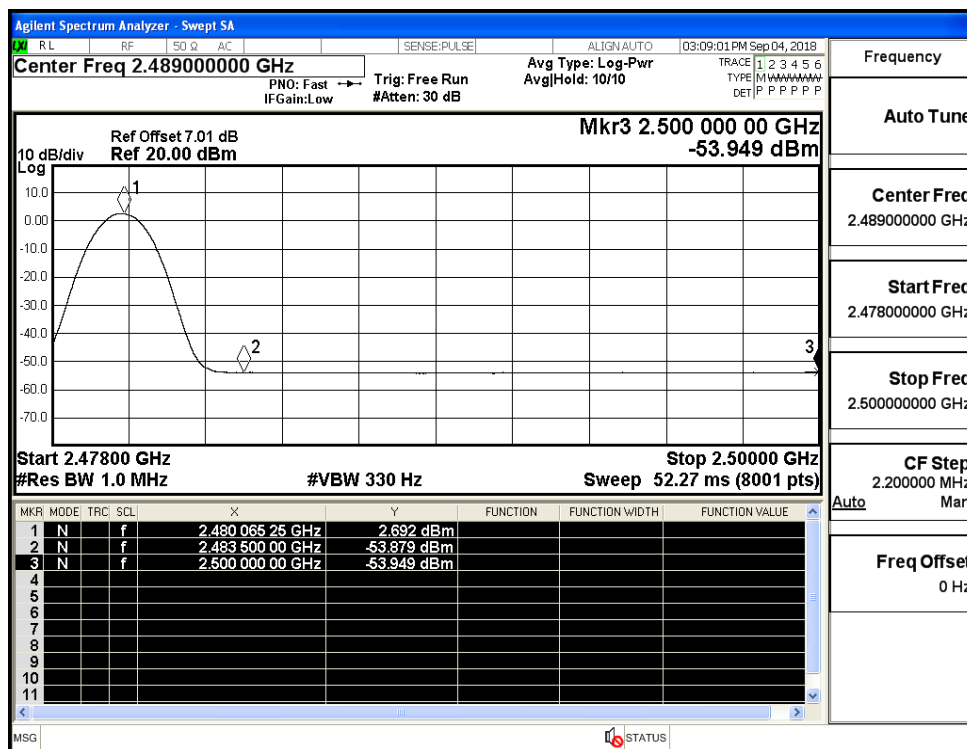
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

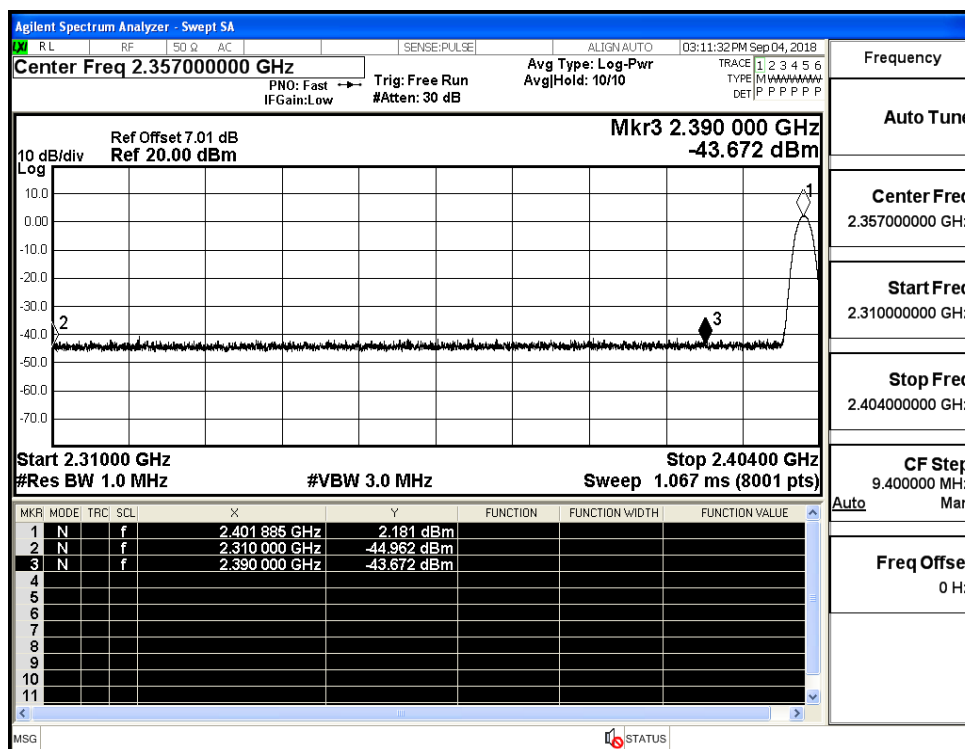
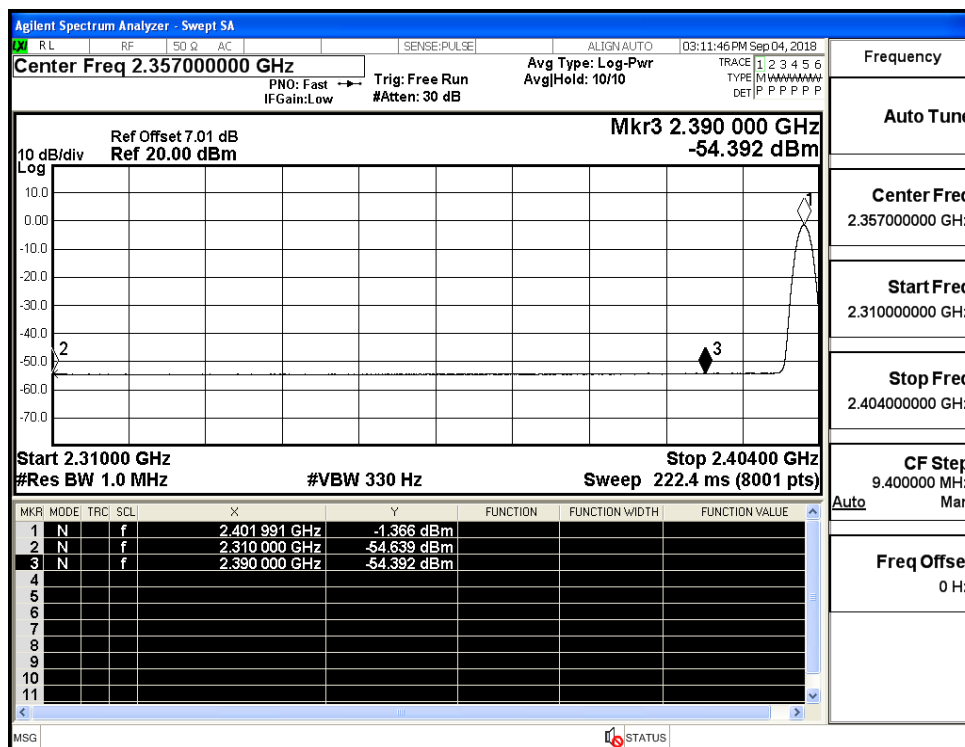


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

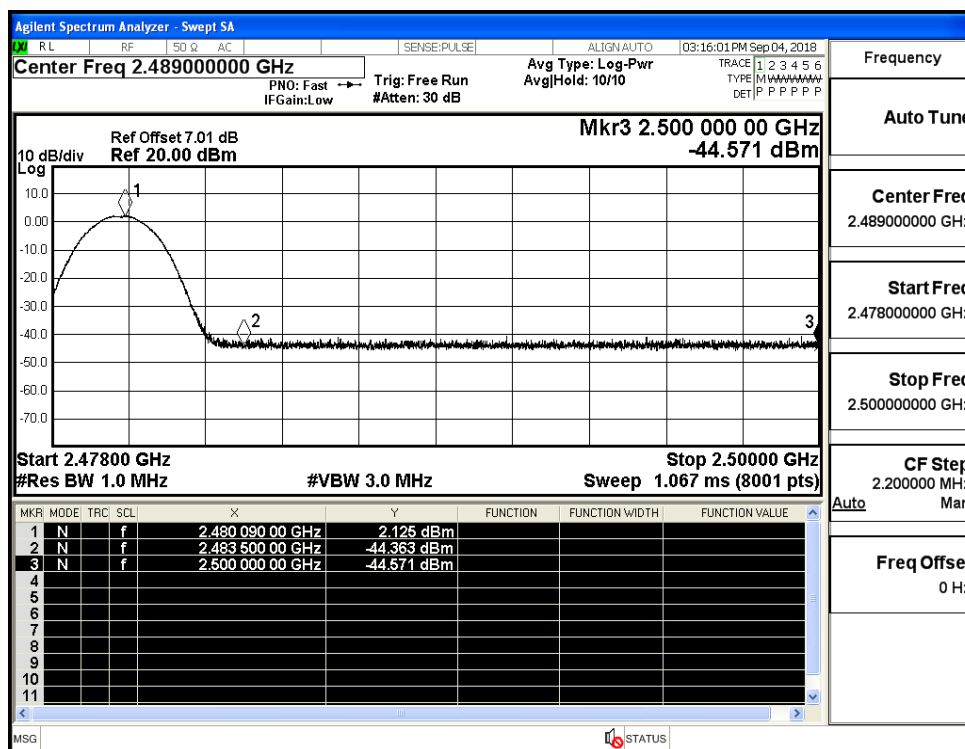


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

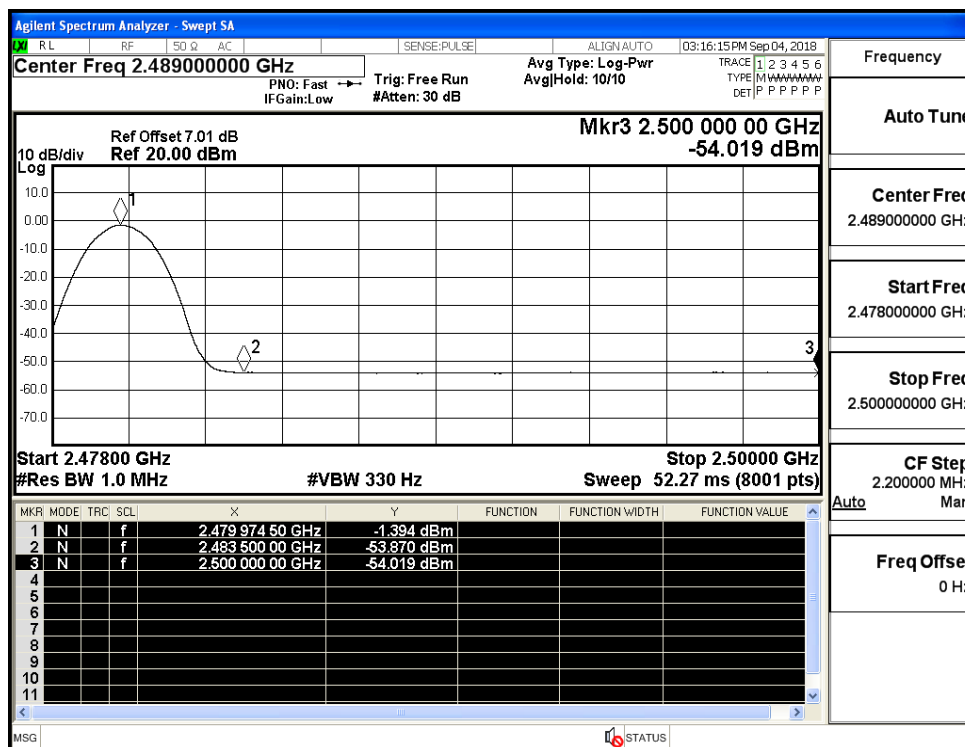


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

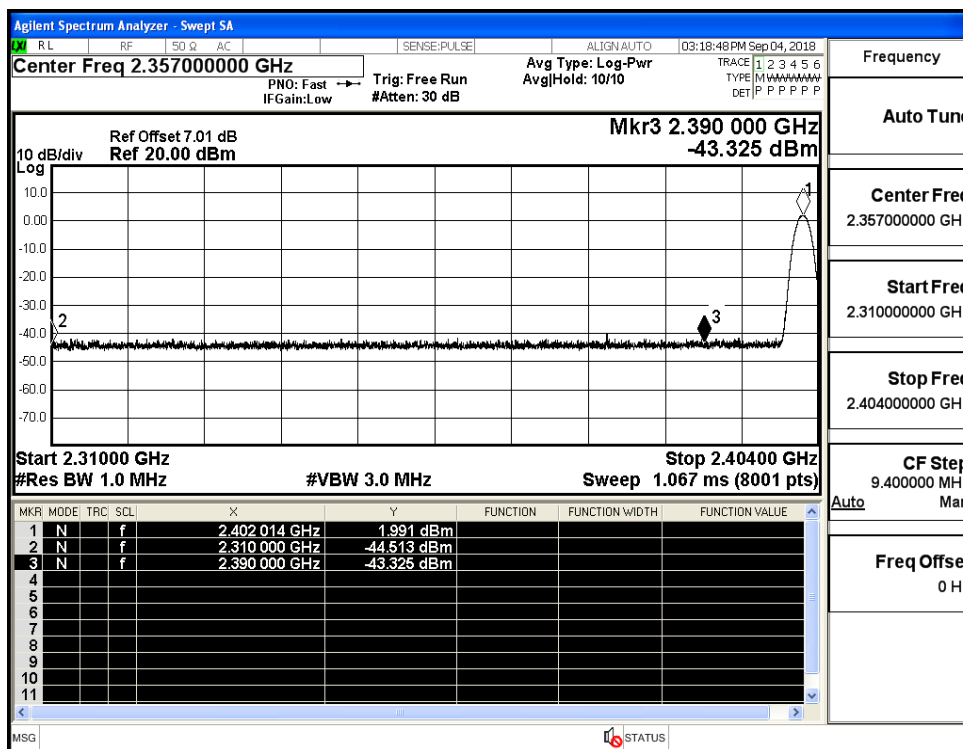
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



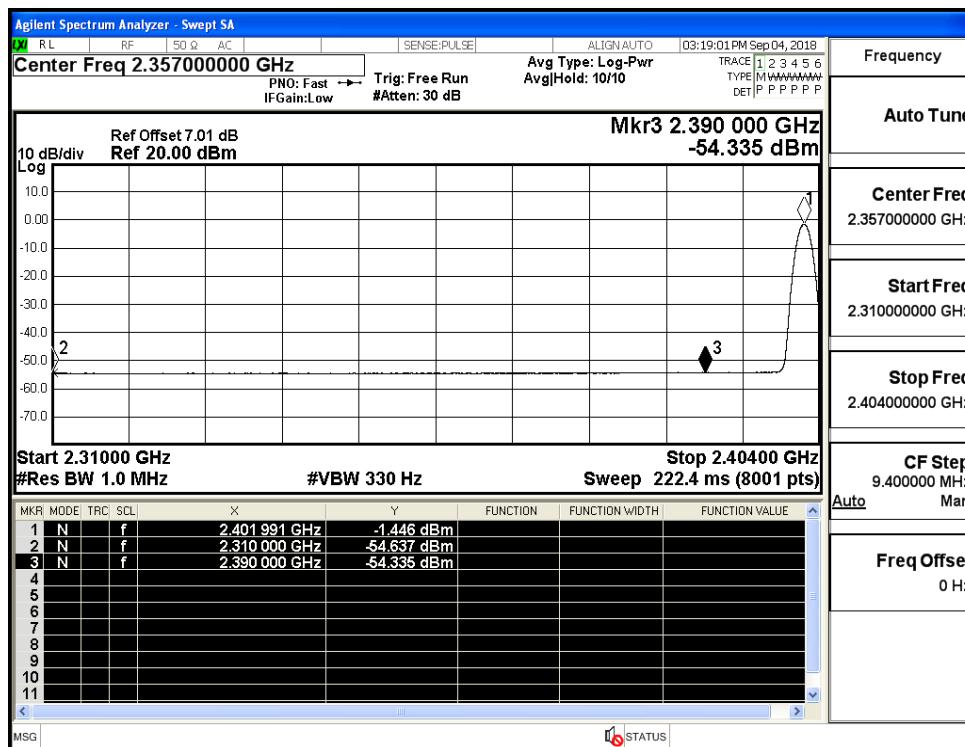
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



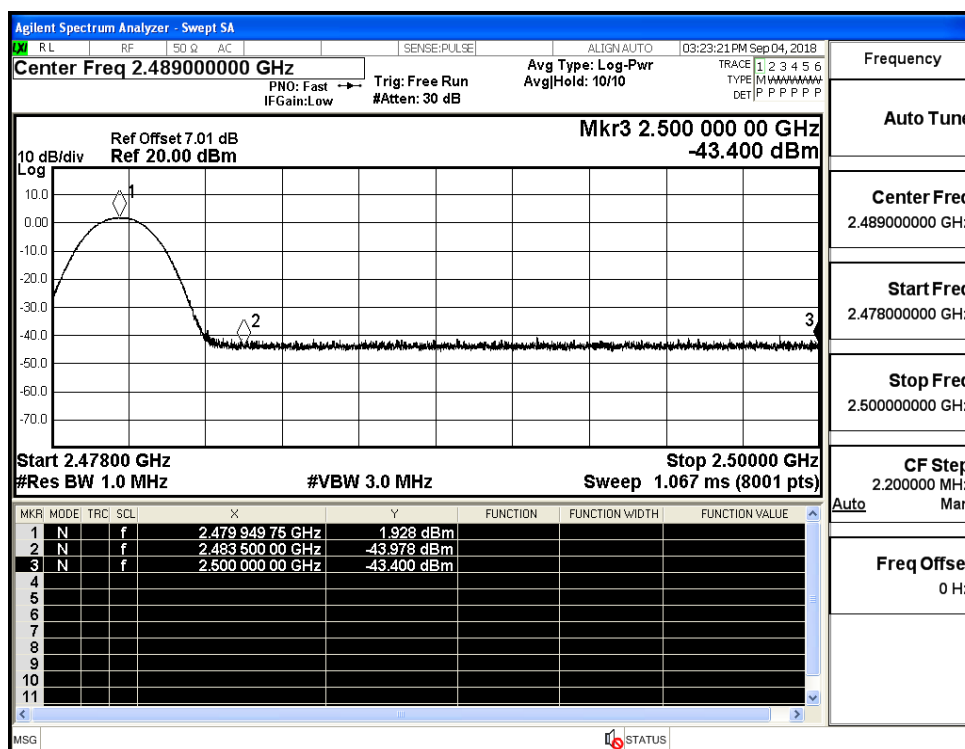
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

