

Appendix A

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

Product Name: Bluetooth Rechargeable Speaker

Trade Mark: iHome, iH

Test Model: Q501

Environmental Conditions

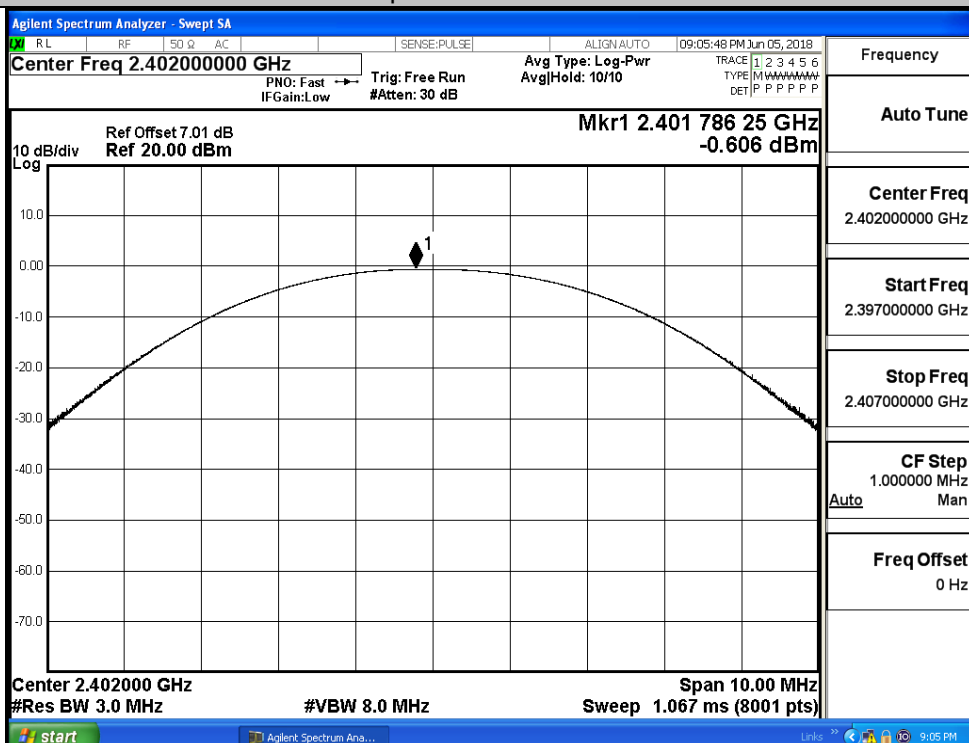
Temperature:	24.6 ° C
Relative Humidity:	54.4%
ATM Pressure:	100.0 kPa
Test Engineer:	WANGCHUANG
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

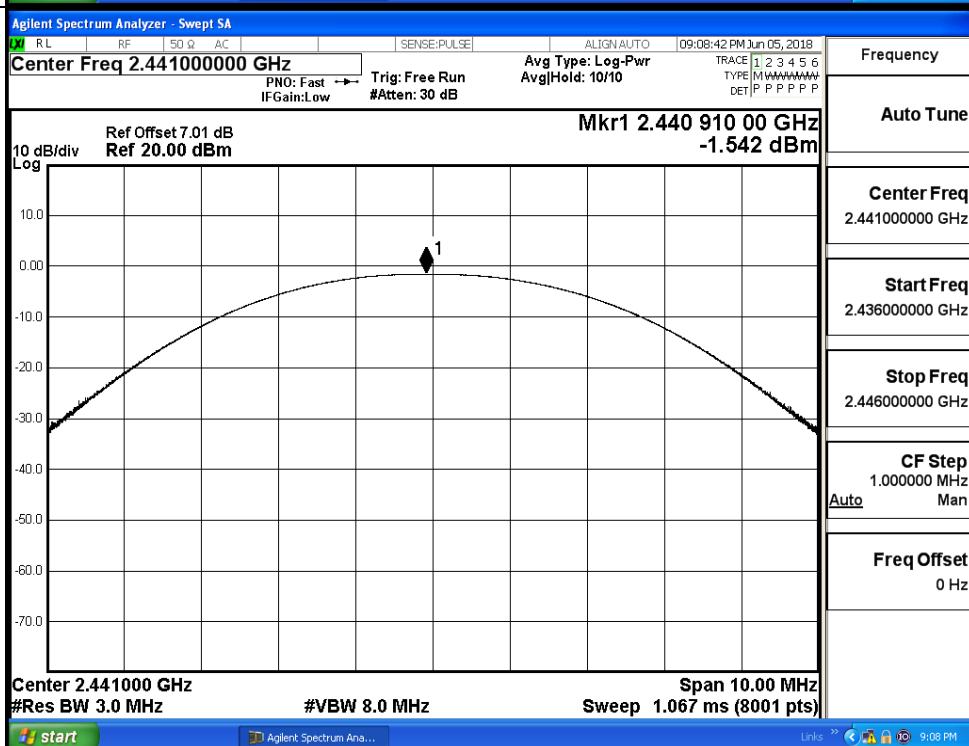
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.606	30	PASS
	MCH	-1.542	30	PASS
	HCH	-1.615	30	PASS
$\pi/4$ DQPSK	LCH	-1.319	21	PASS
	MCH	-2.113	21	PASS
	HCH	-2.261	21	PASS
8DPSK	LCH	-0.928	21	PASS
	MCH	-1.813	21	PASS
	HCH	-1.962	21	PASS

Test Graphs

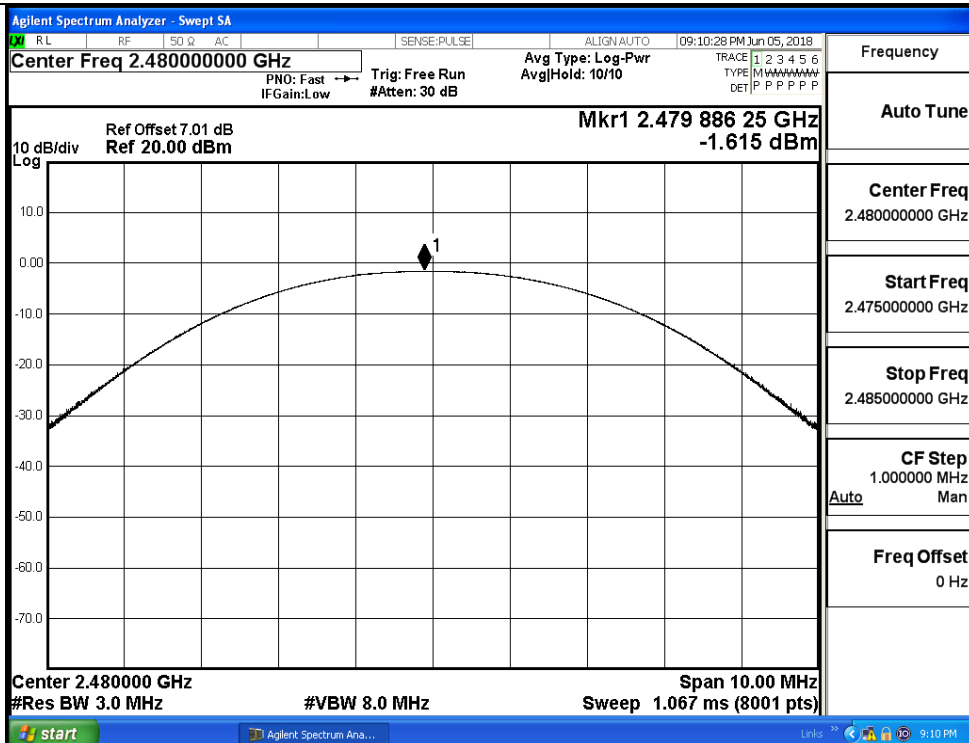
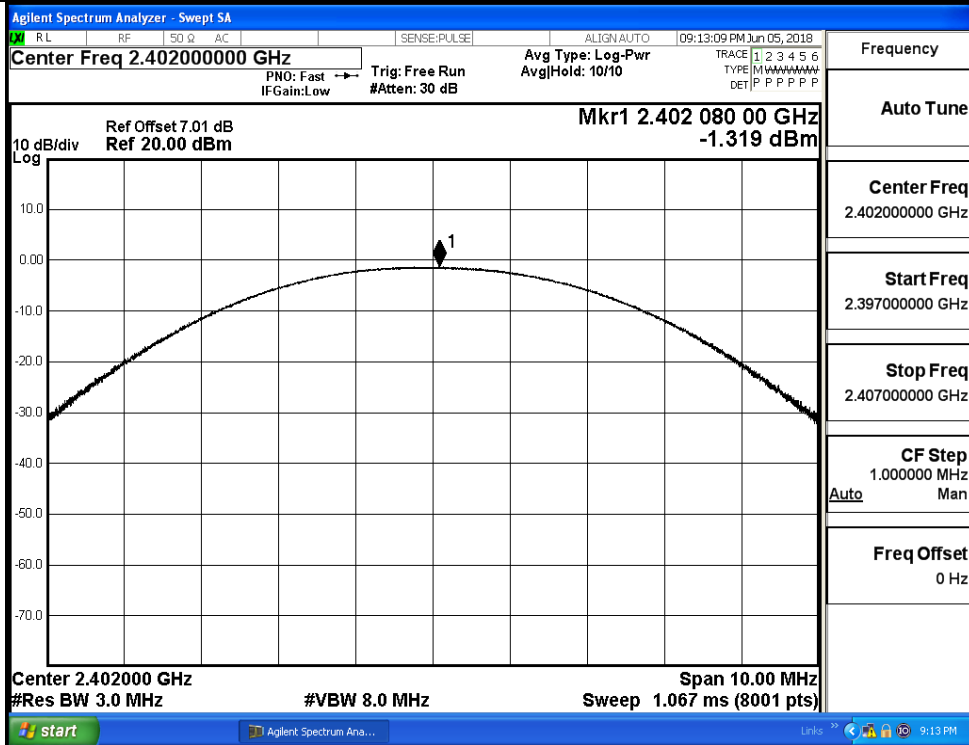
GFSK/LCH

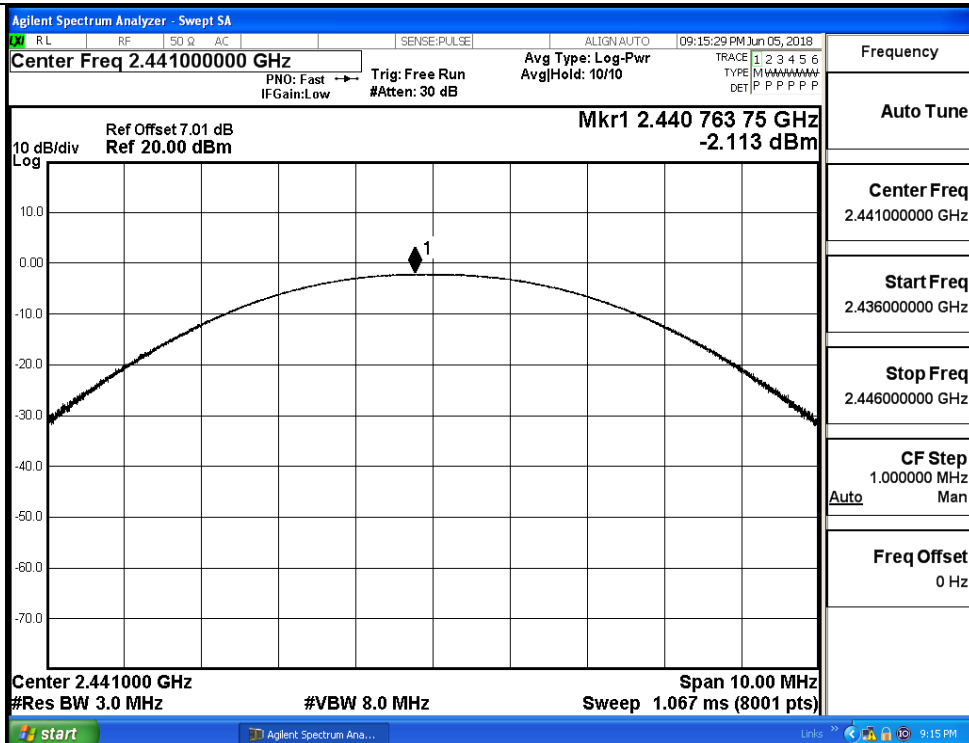
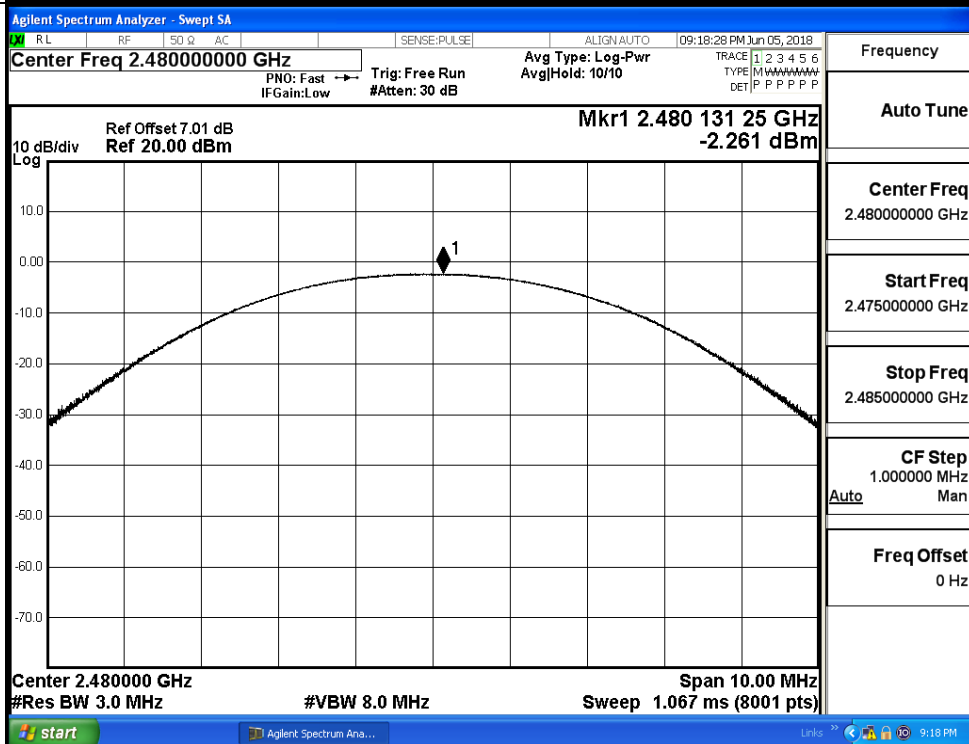


GFSK/MCH

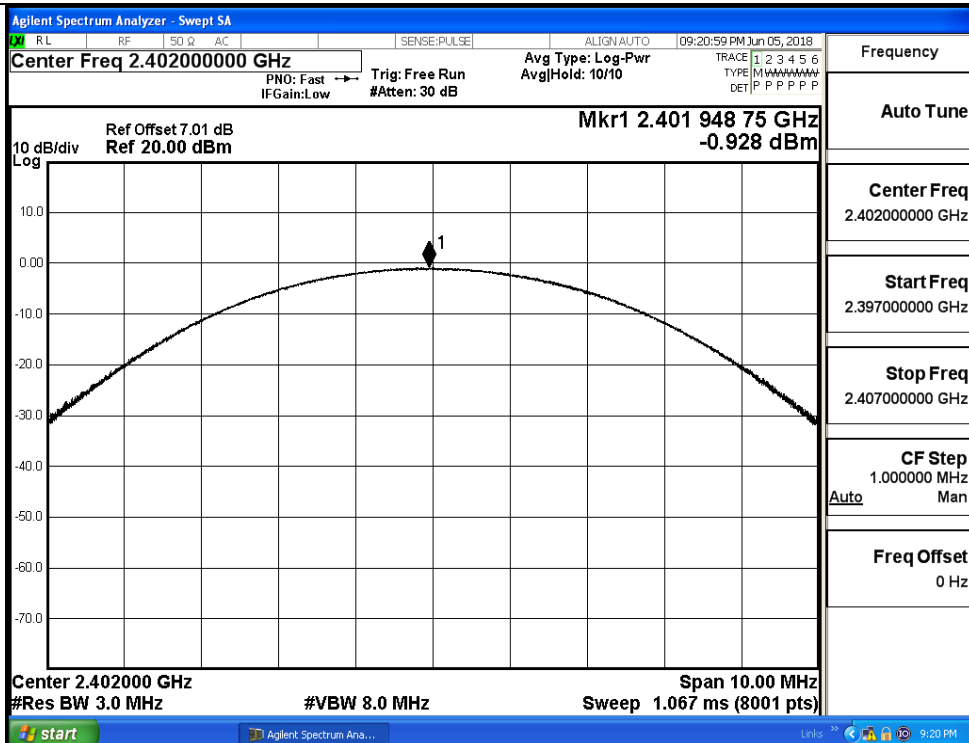


GFSK/HCH

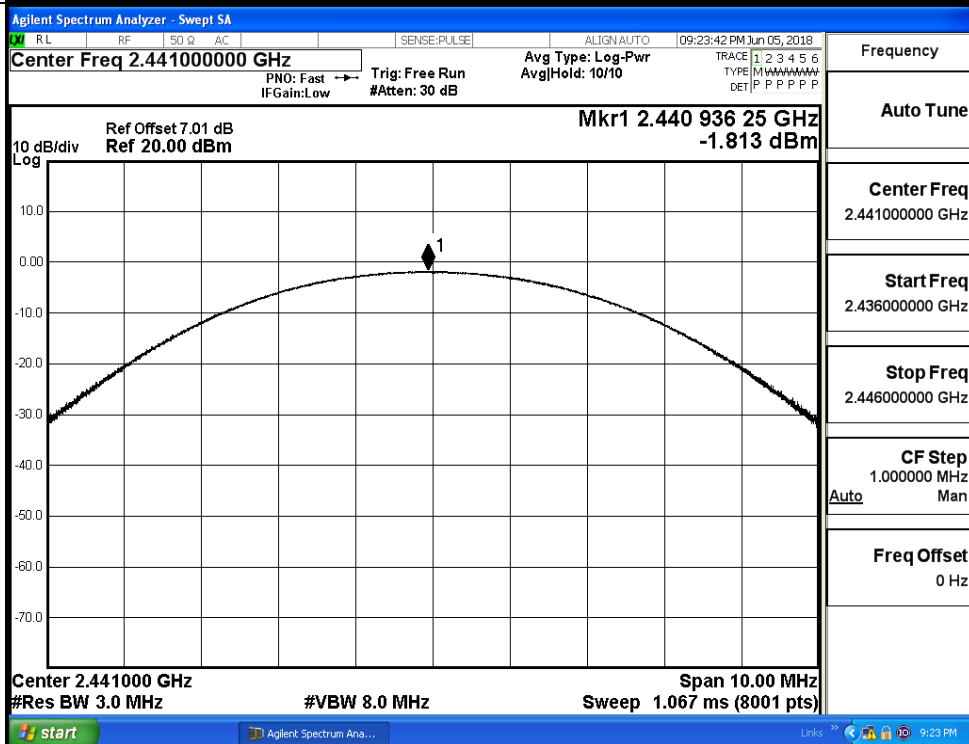
 π /4DQPSK/LCH

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

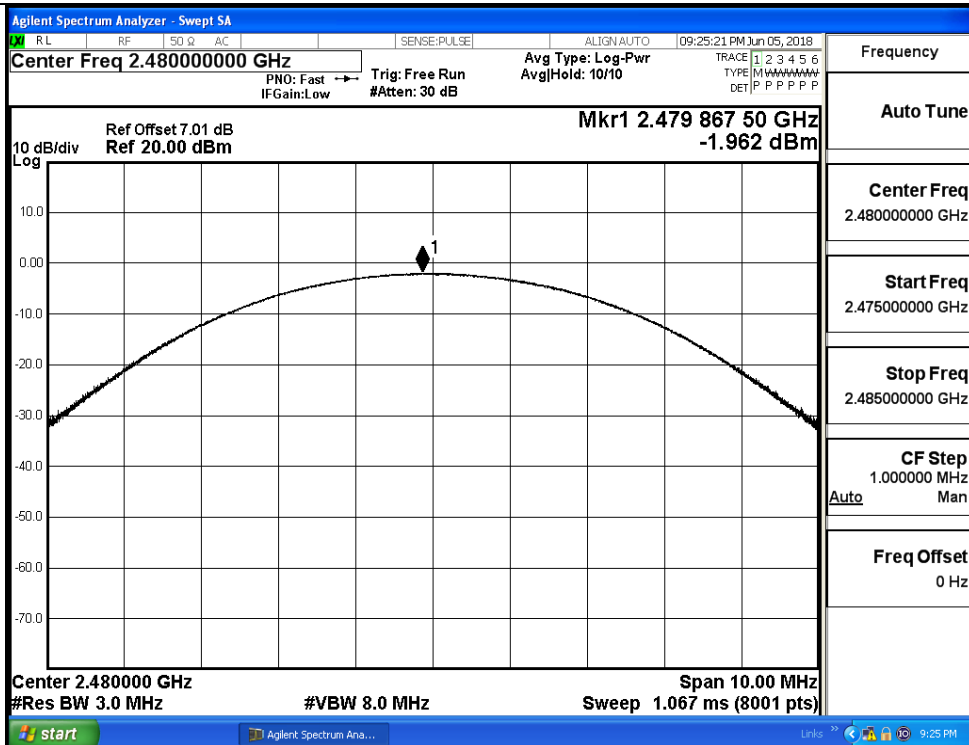
8DPSK/LCH



8DPSK/MCH



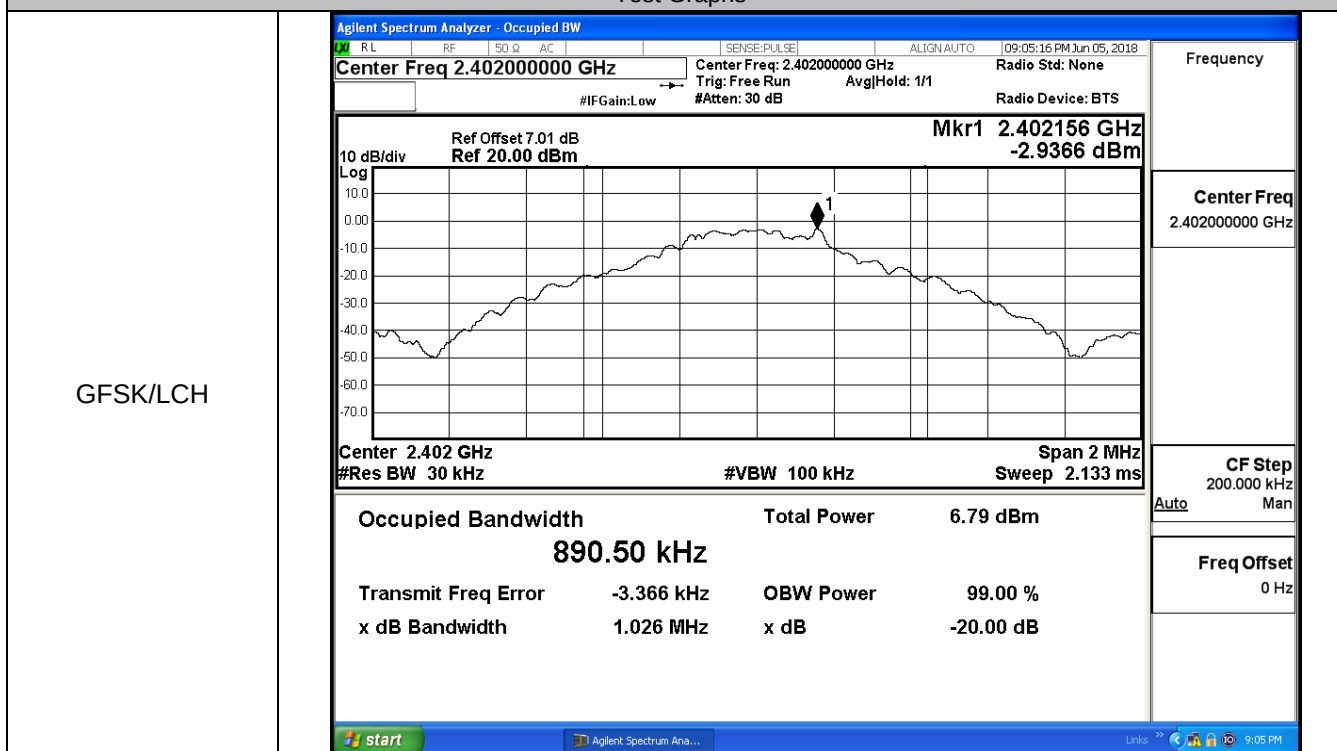
8DPSK/HCH



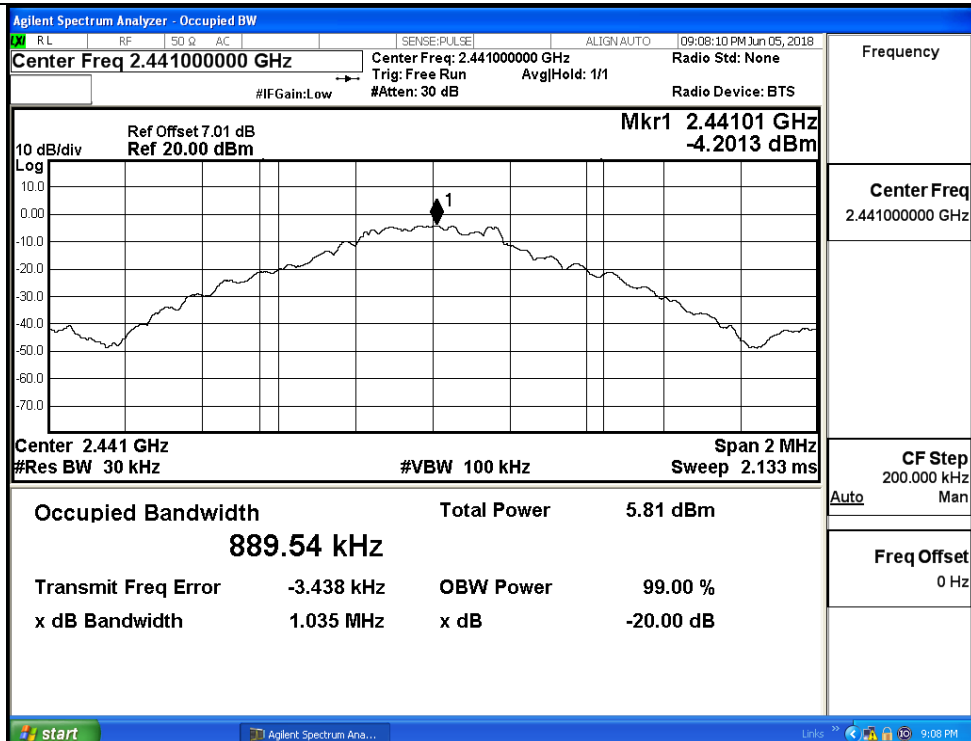
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.026	Not Specified	PASS
	MCH	1.035	Not Specified	PASS
	HCH	1.032	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.291	Not Specified	PASS
	MCH	1.294	Not Specified	PASS
	HCH	1.293	Not Specified	PASS
8DPSK	LCH	1.301	Not Specified	PASS
	MCH	1.302	Not Specified	PASS
	HCH	1.301	Not Specified	PASS

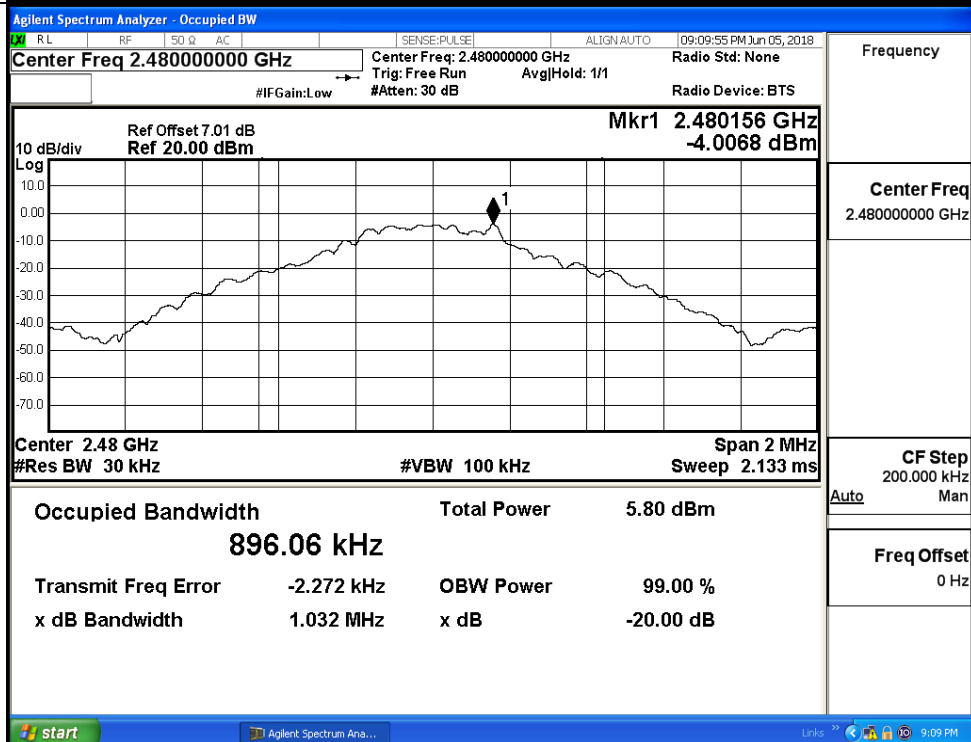
Test Graphs

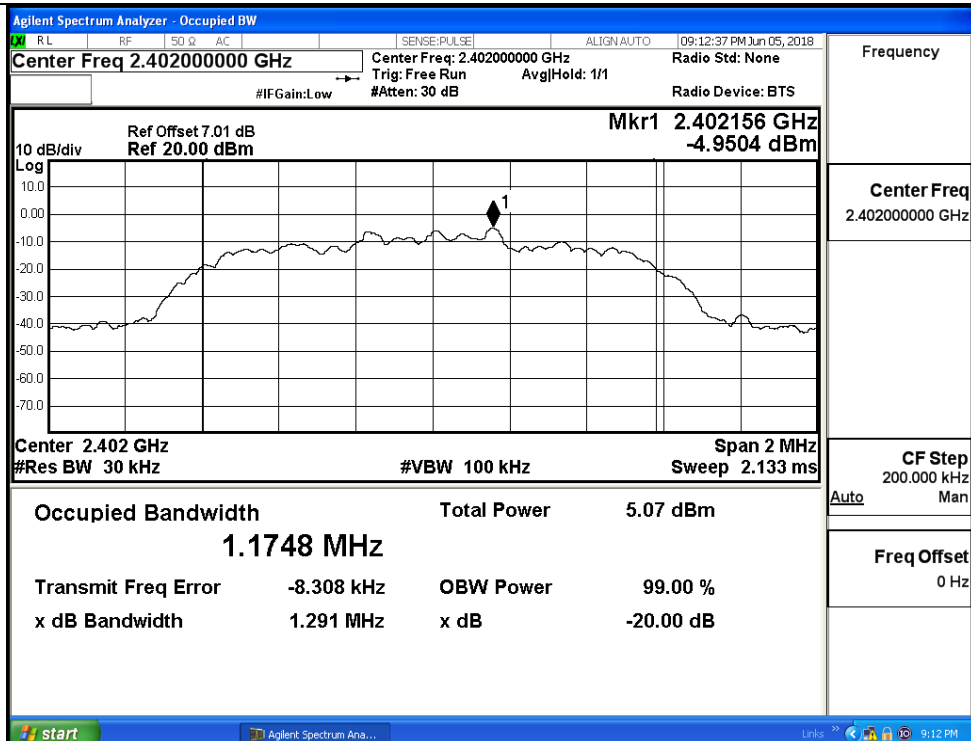
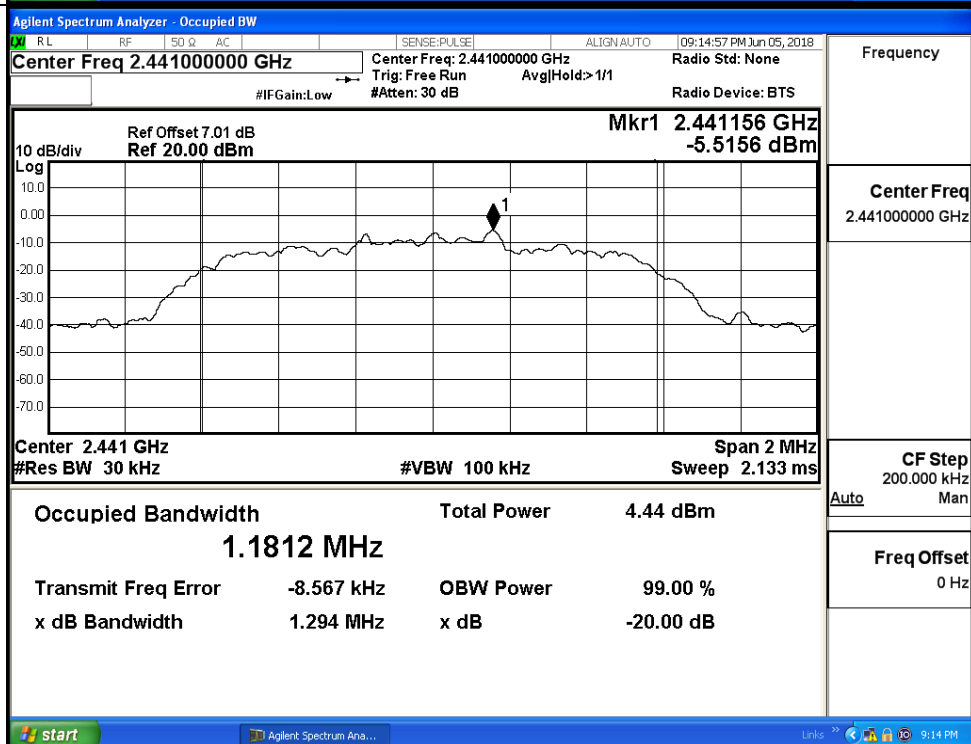


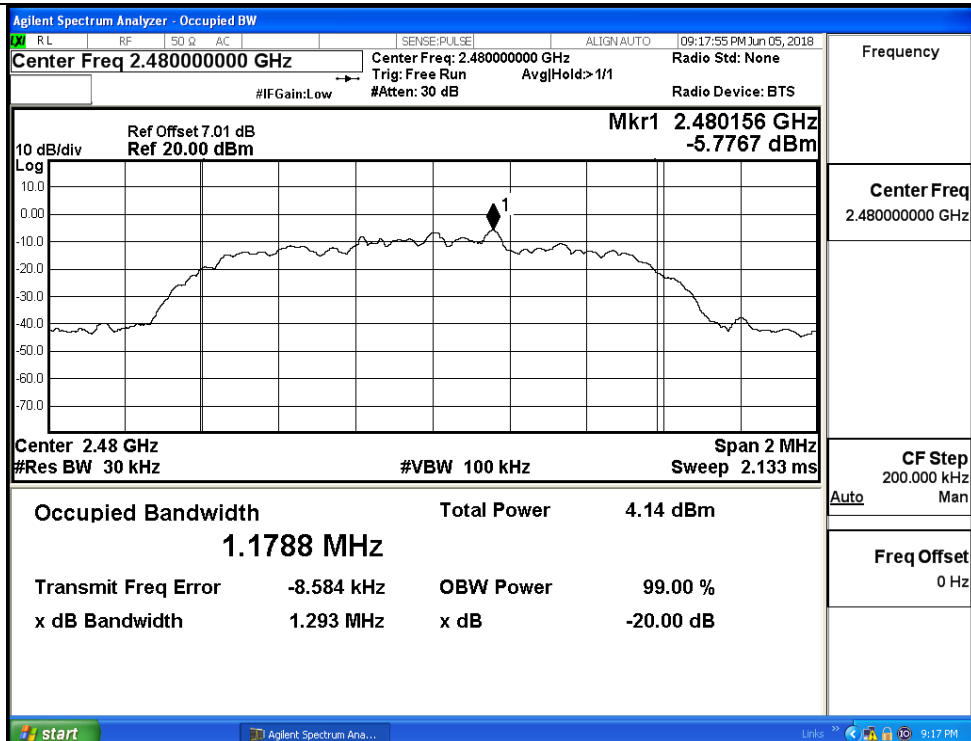
GFSK/MCH



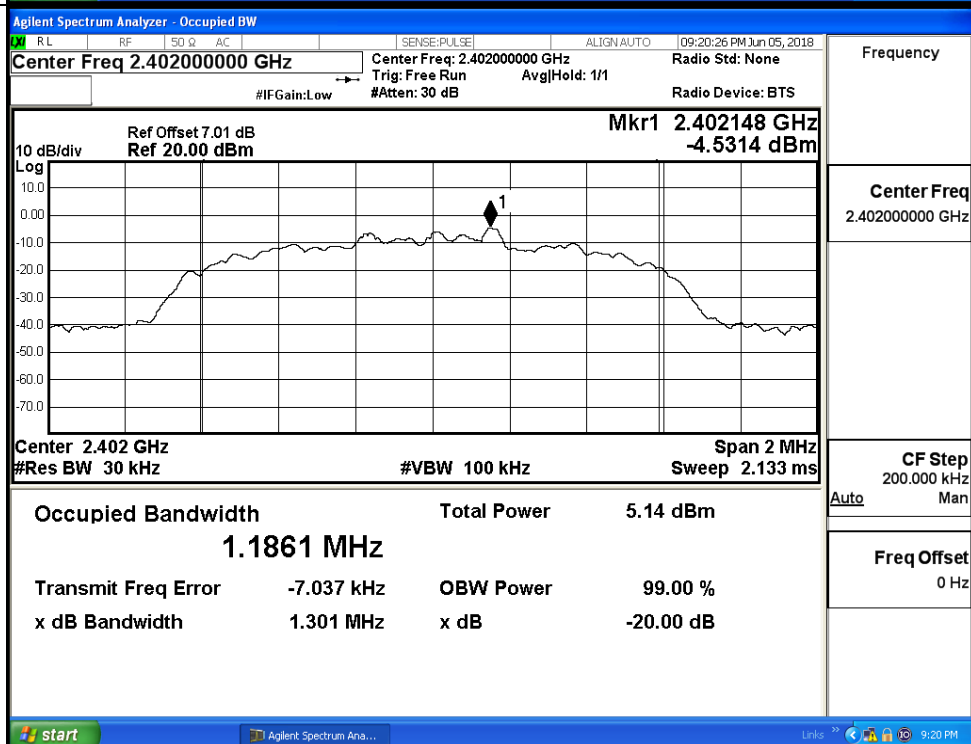
GFSK/HCH



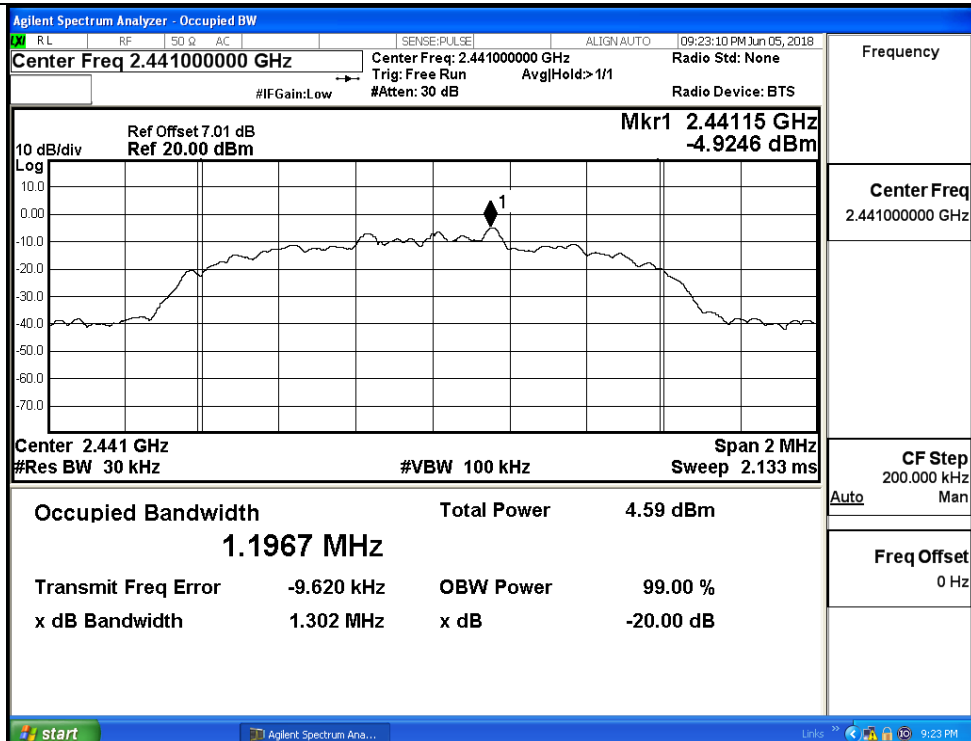
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

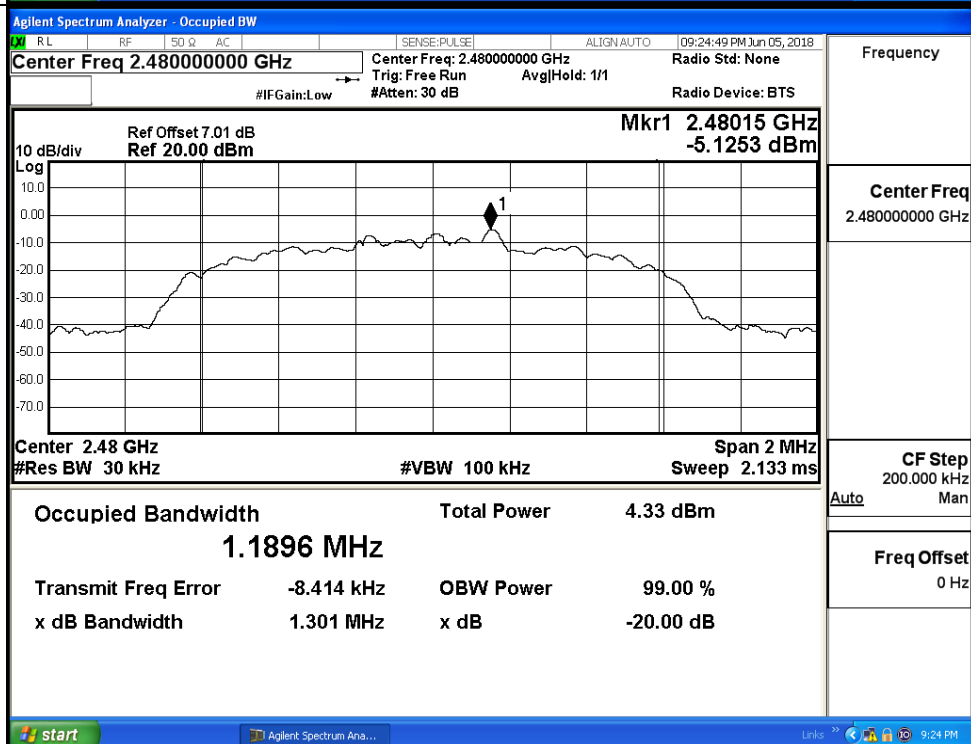
8DPSK/LCH



8DPSK/MCH



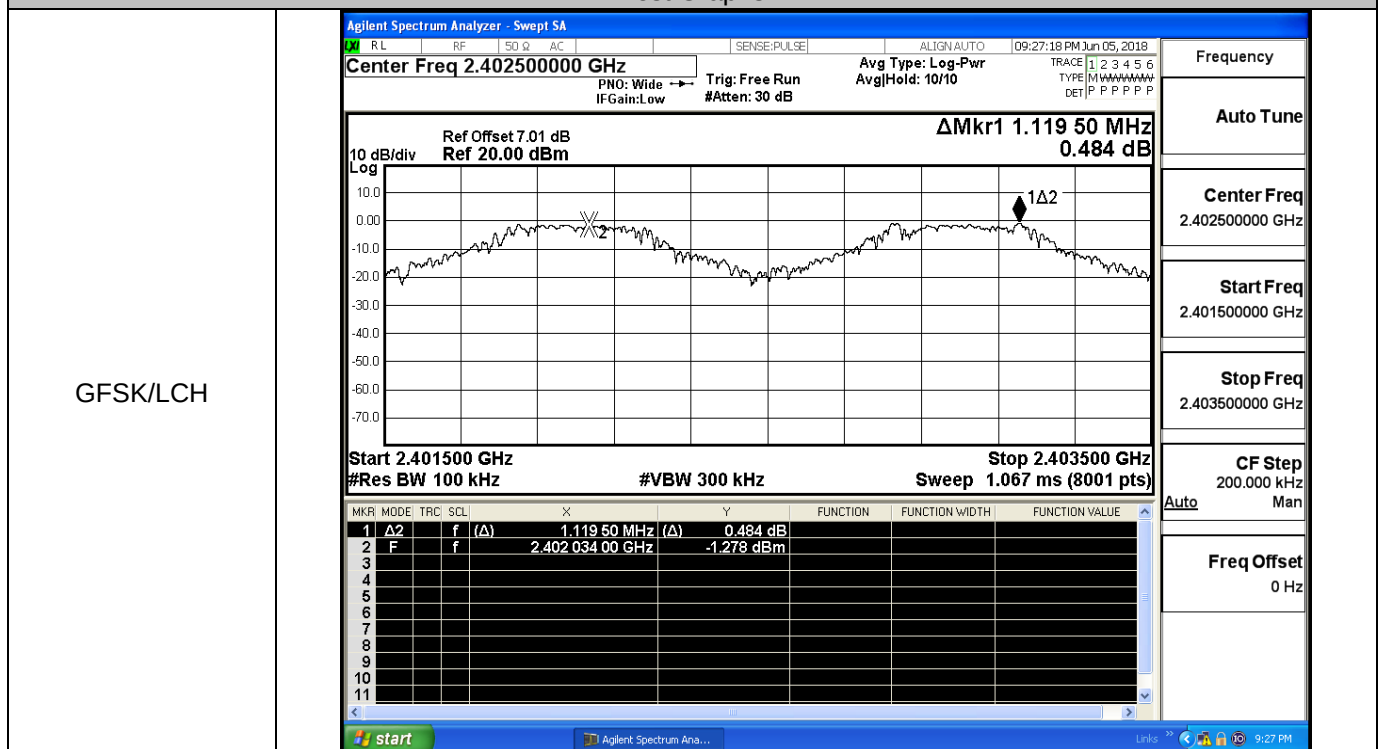
8DPSK/HCH



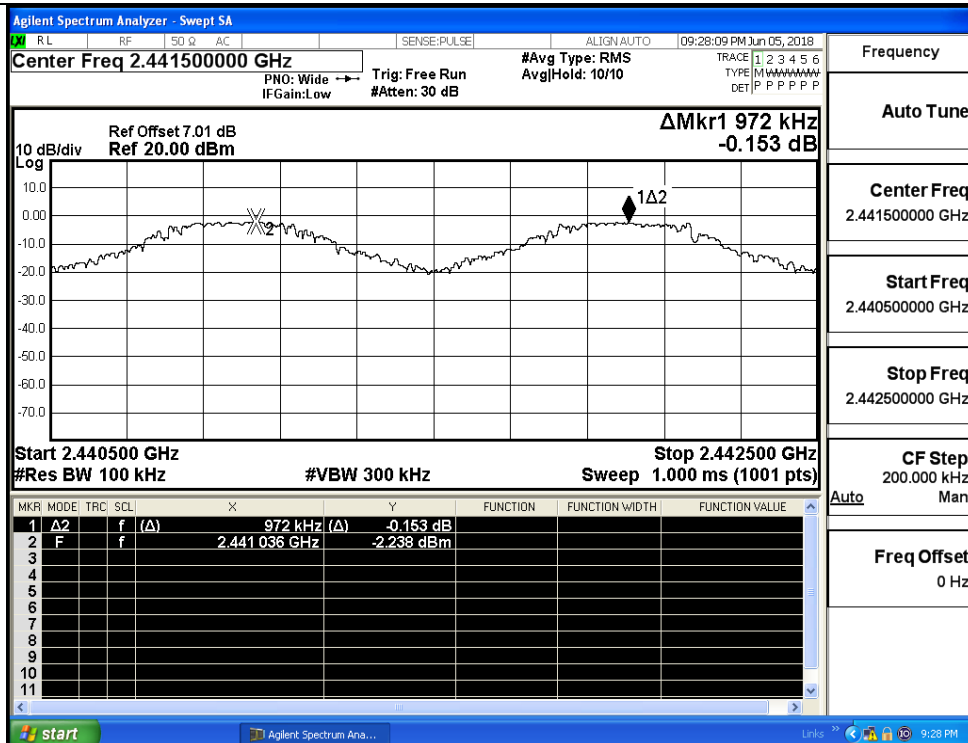
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.119	0.690	PASS
	MCH	0.972	0.690	PASS
	HCH	1.004	0.690	PASS
$\pi/4$ DQPSK	LCH	1.020	0.863	PASS
	MCH	0.996	0.863	PASS
	HCH	1.016	0.863	PASS
8DPSK	LCH	1.000	0.868	PASS
	MCH	0.900	0.868	PASS
	HCH	1.122	0.868	PASS

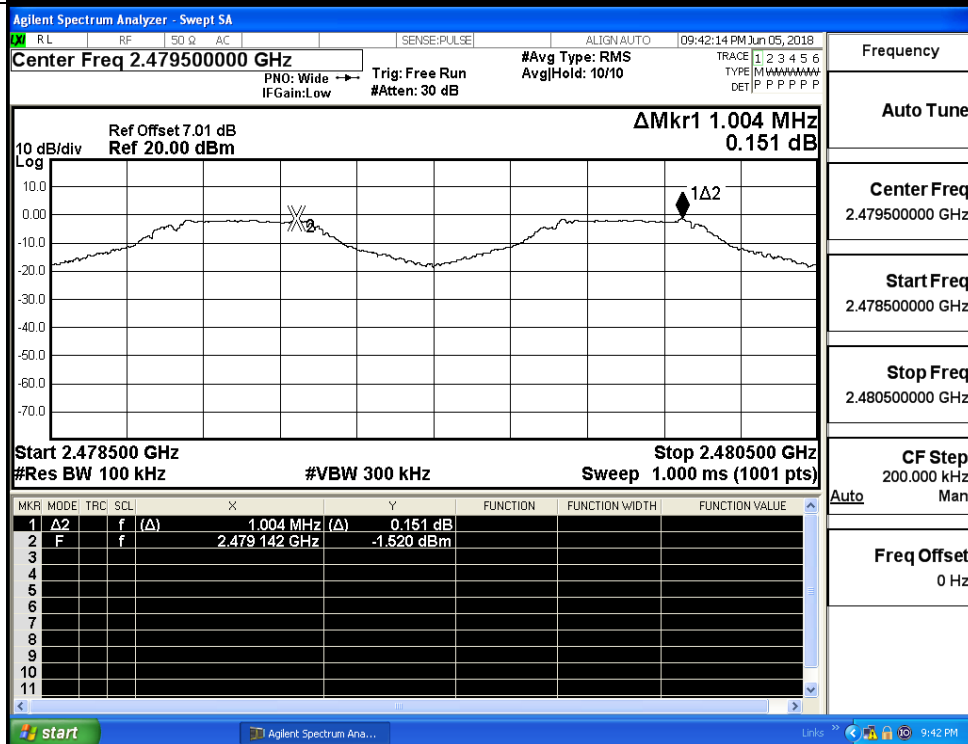
Test Graphs

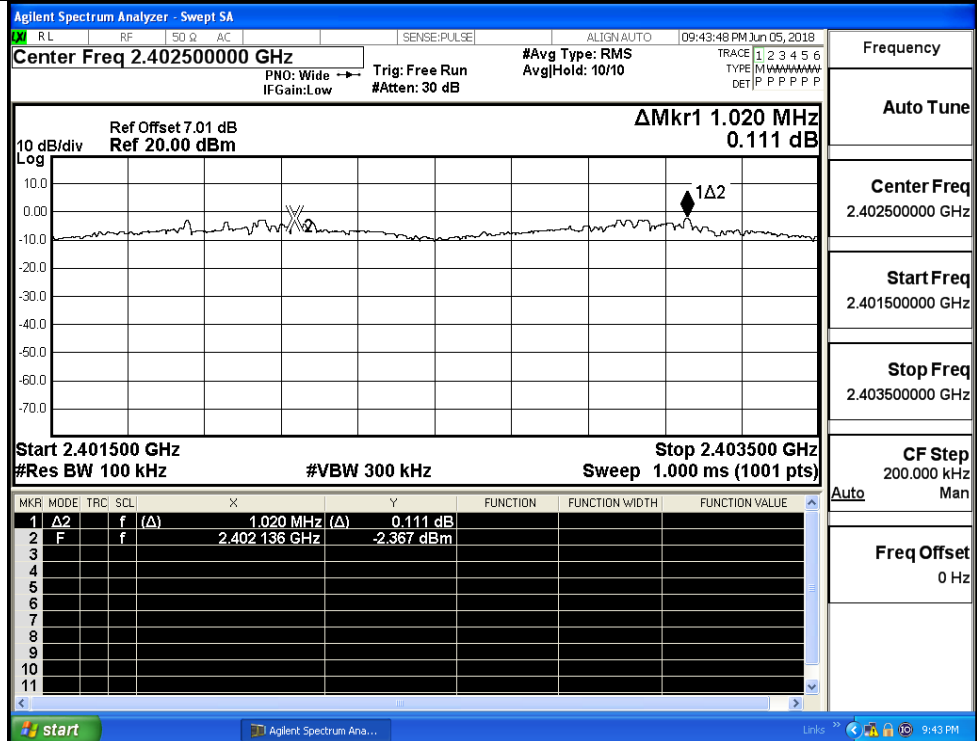
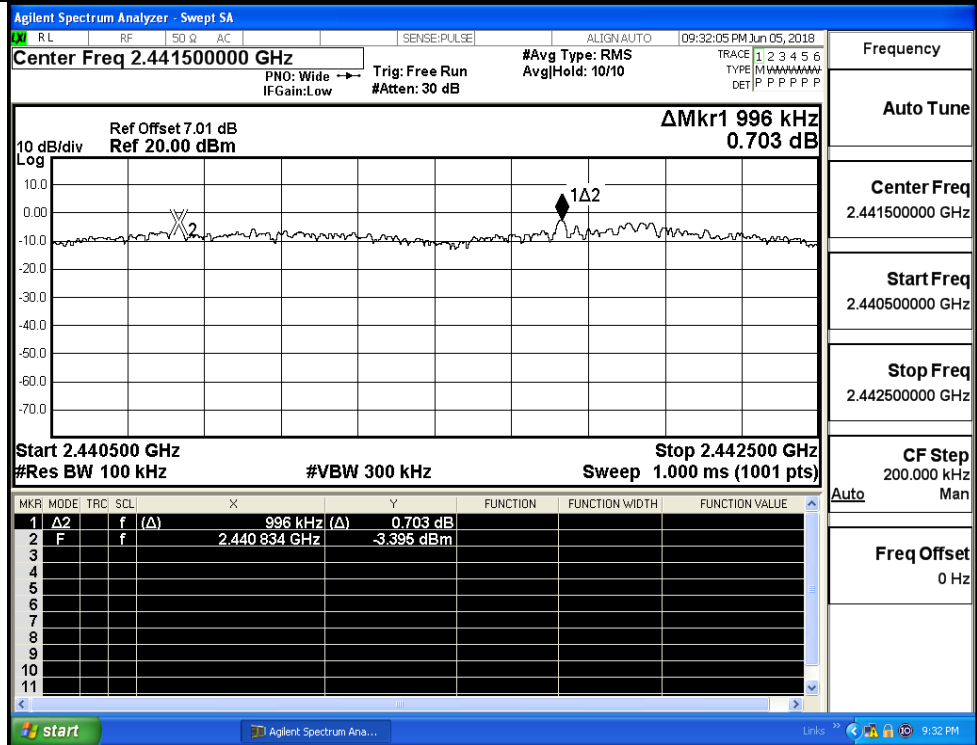


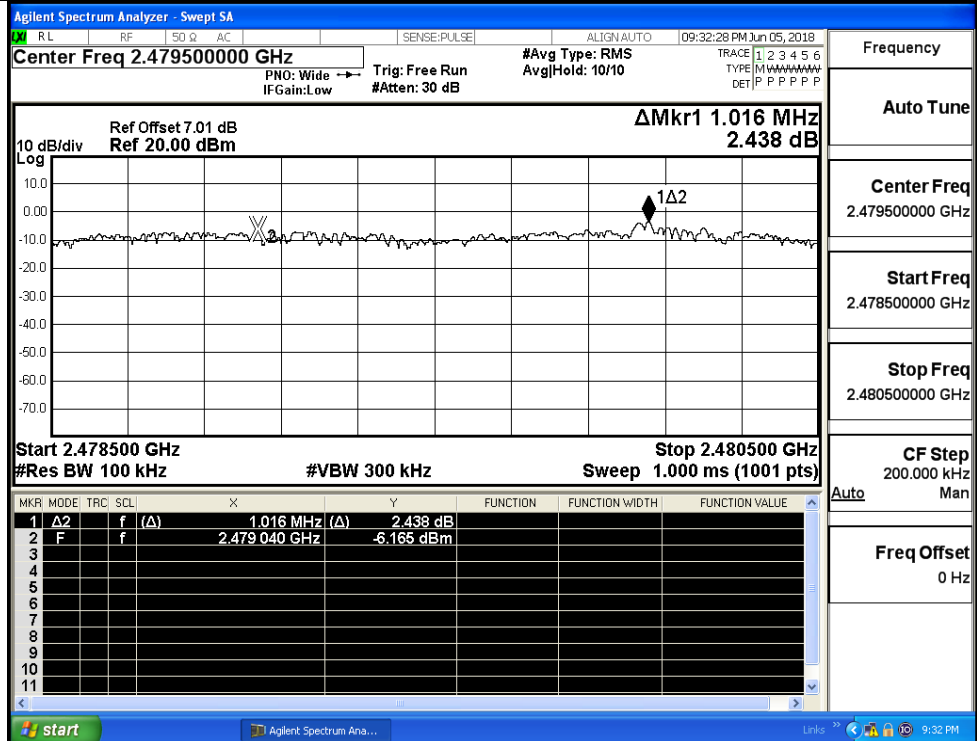
GFSK/MCH



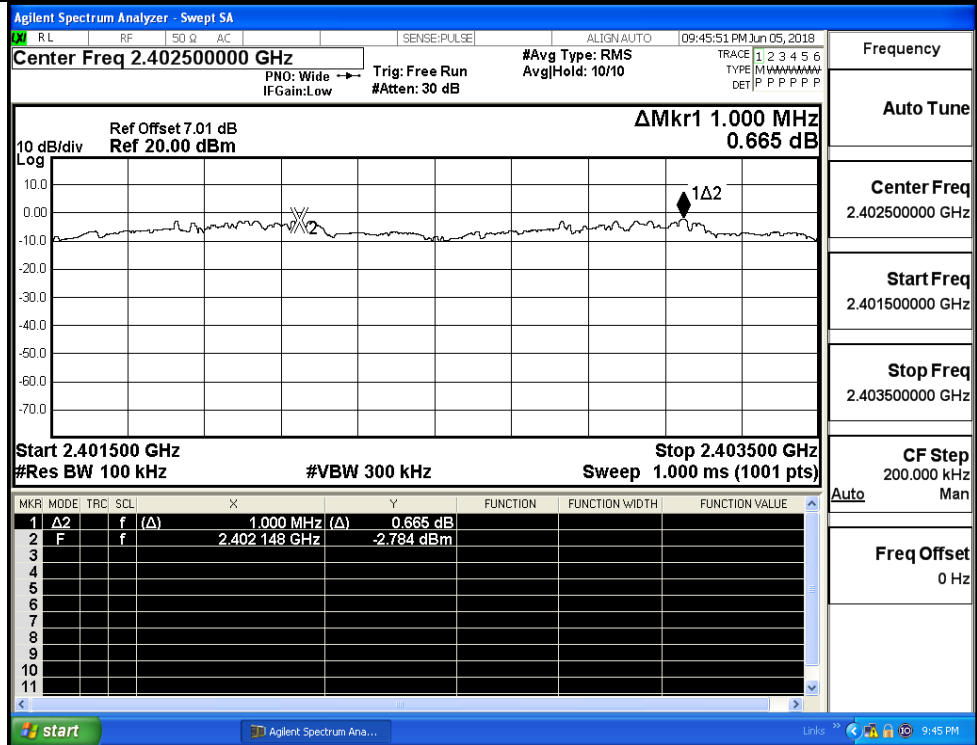
GFSK/HCH



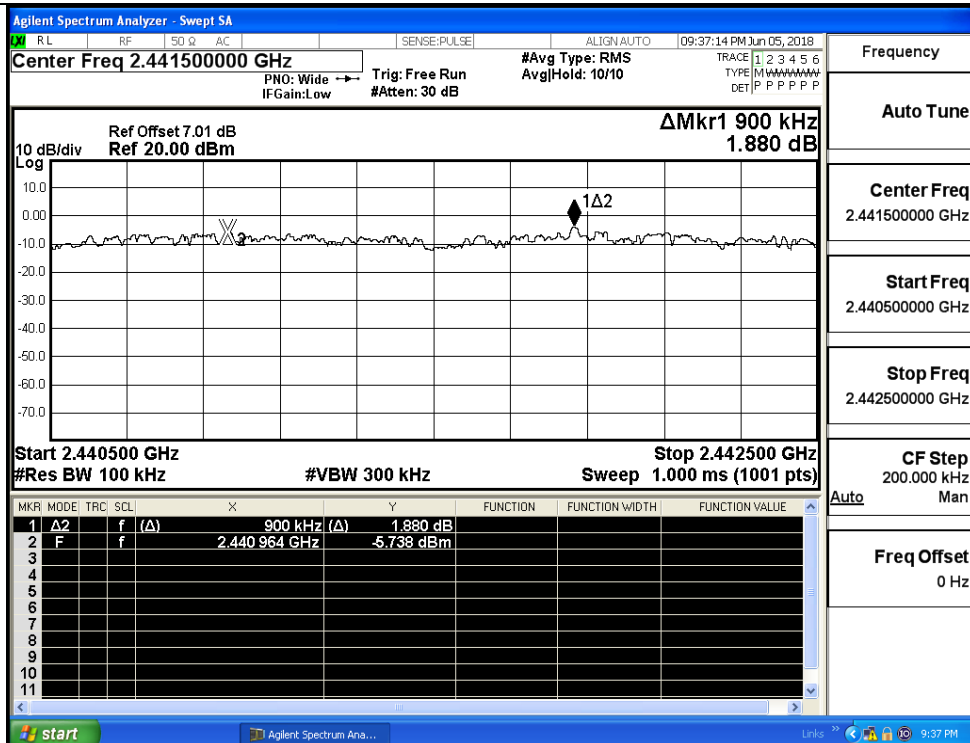
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

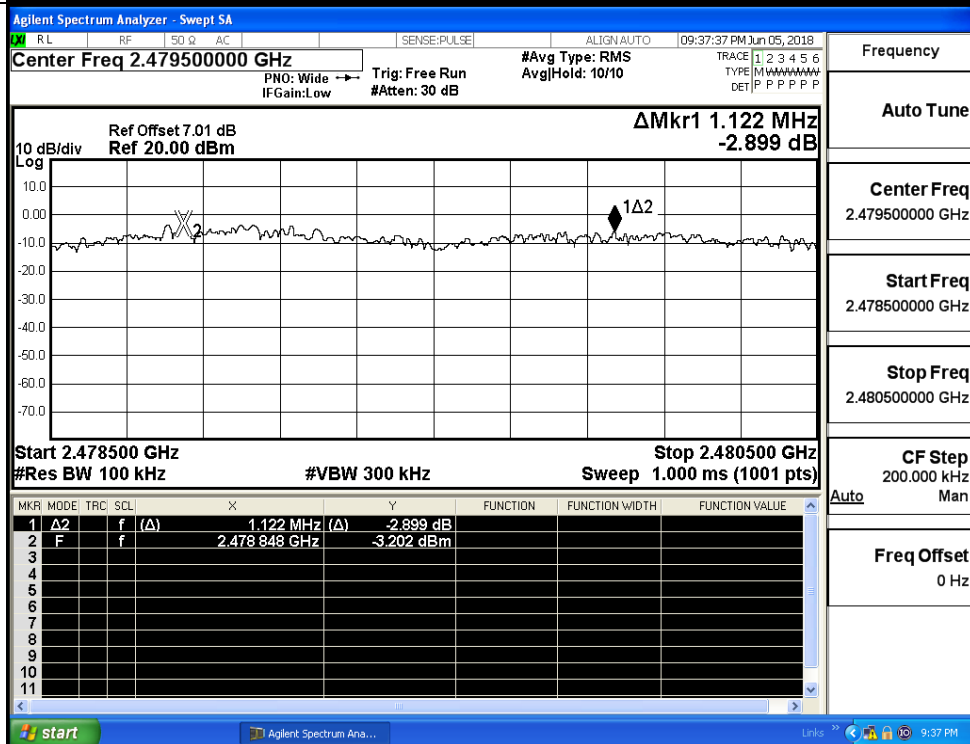
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

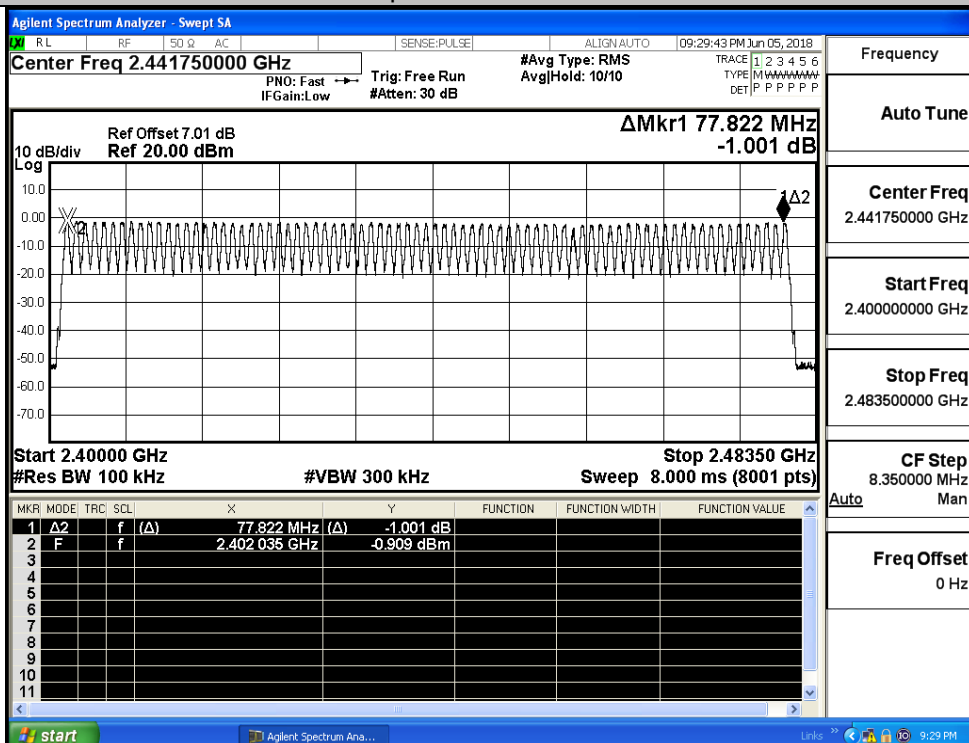


A.4 Hopping Channel Number

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

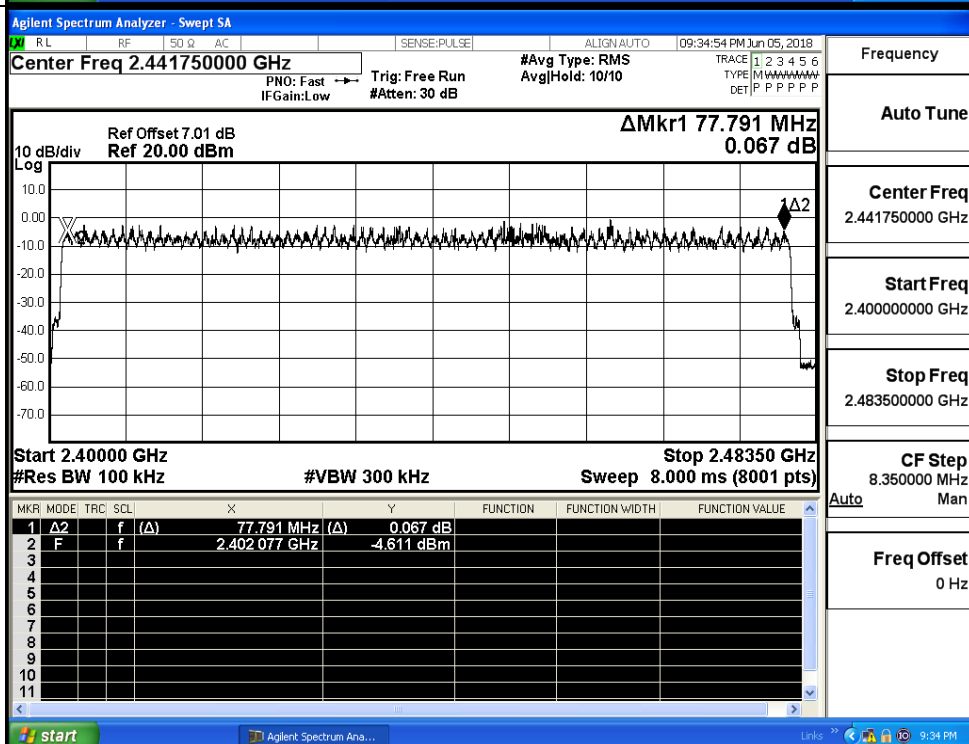
Test Graphs

GFSK/Hop



Frequency

Auto Tune

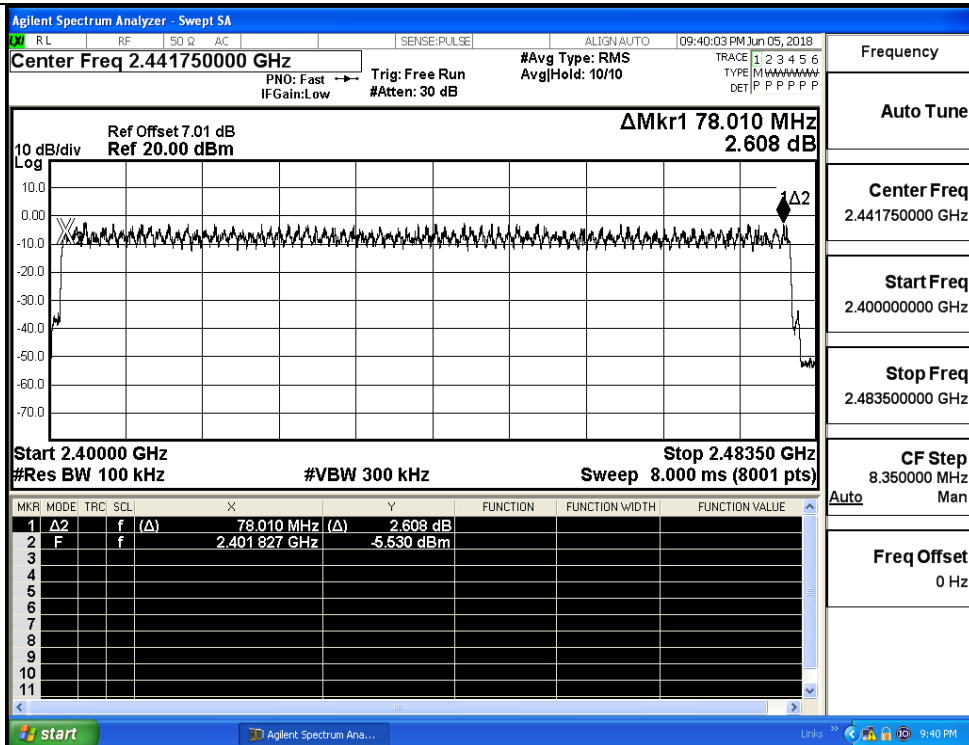
Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
Auto ManFreq Offset
0 Hz $\pi/4$ DQPSK/Hop

Frequency

Auto Tune

Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
Auto ManFreq Offset
0 Hz

8DPSK/Hop

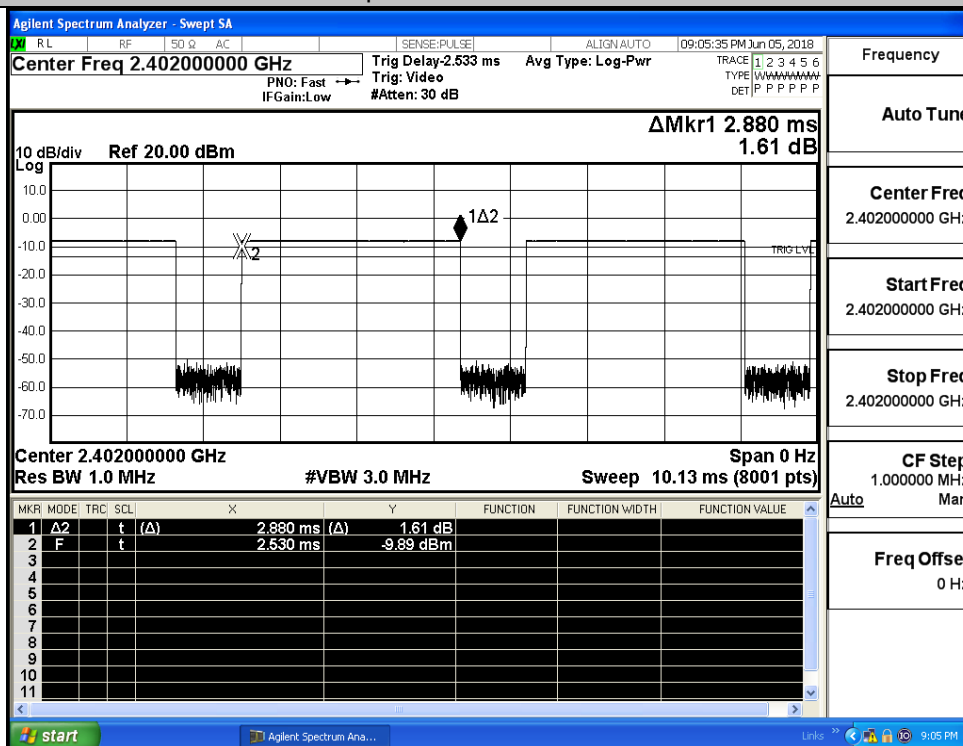


A.5 Dwell Time

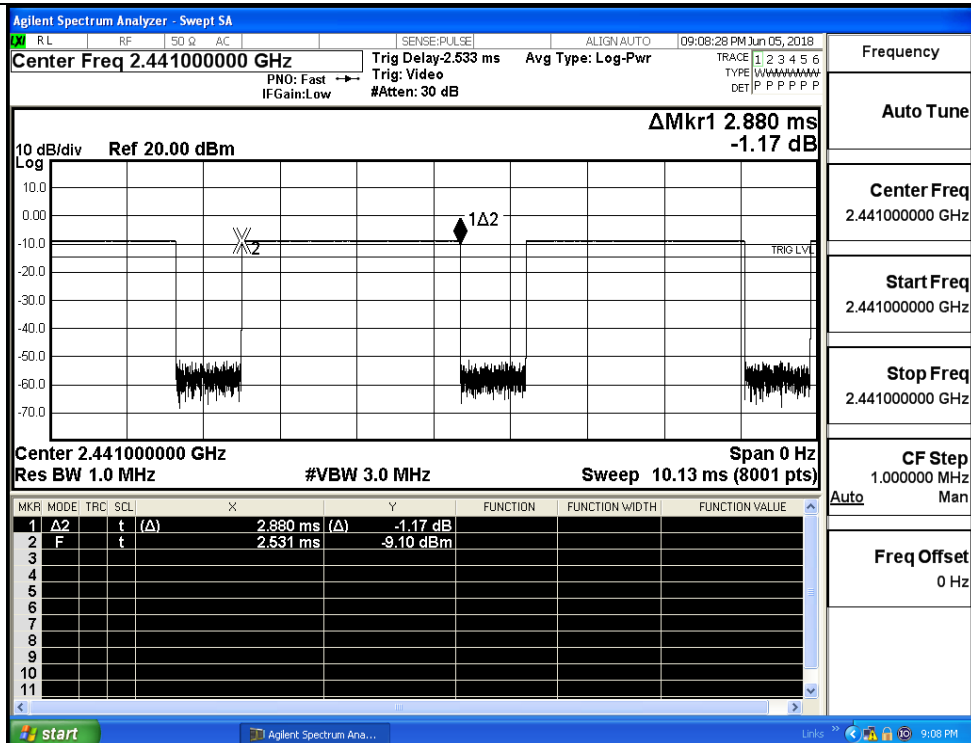
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

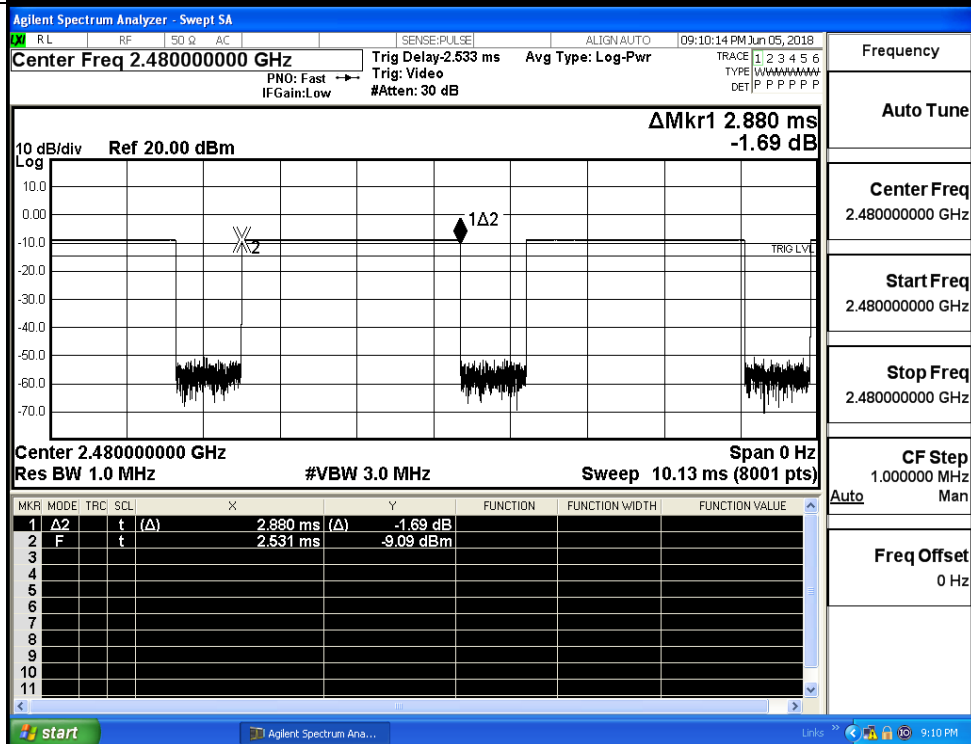
GFSK_DH5/LCH



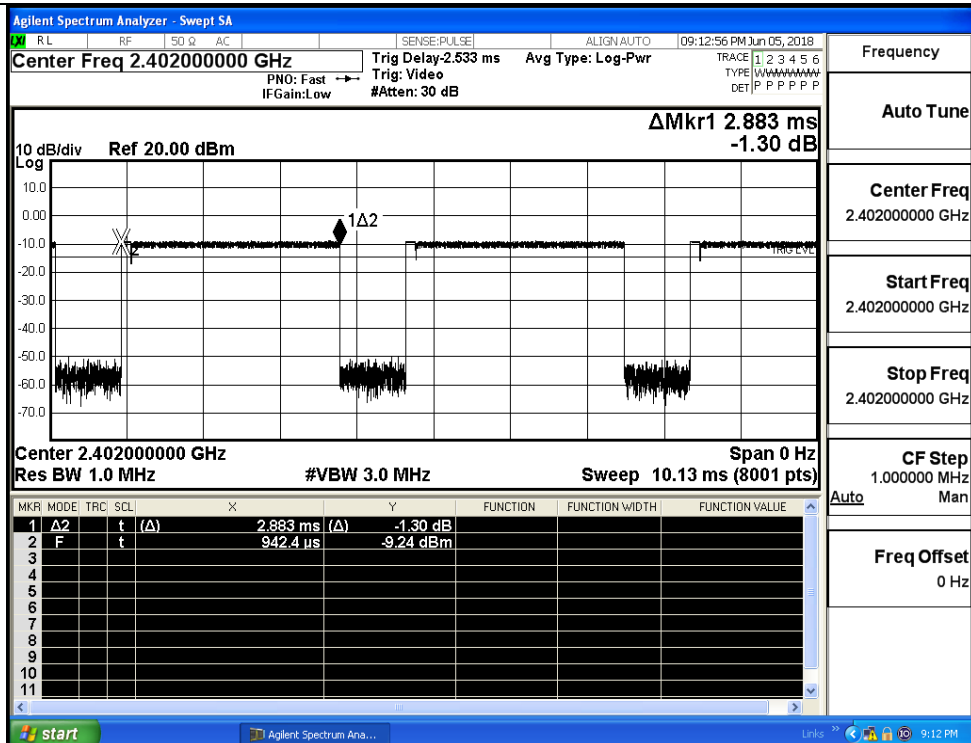
GFSK_DH5/MCH



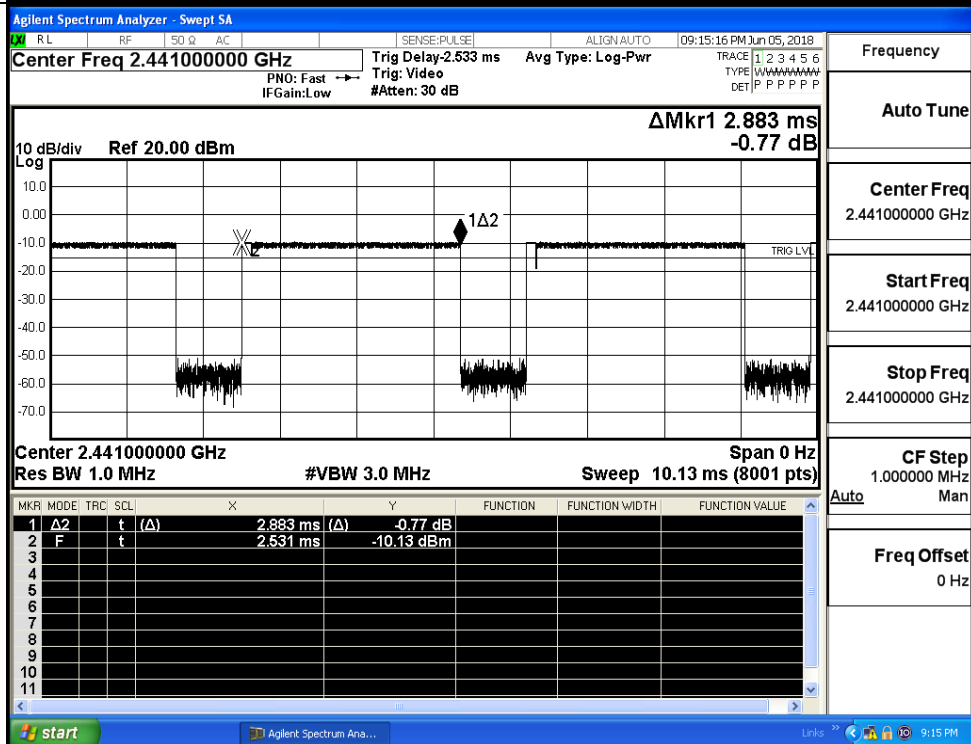
GFSK_DH5/HCH



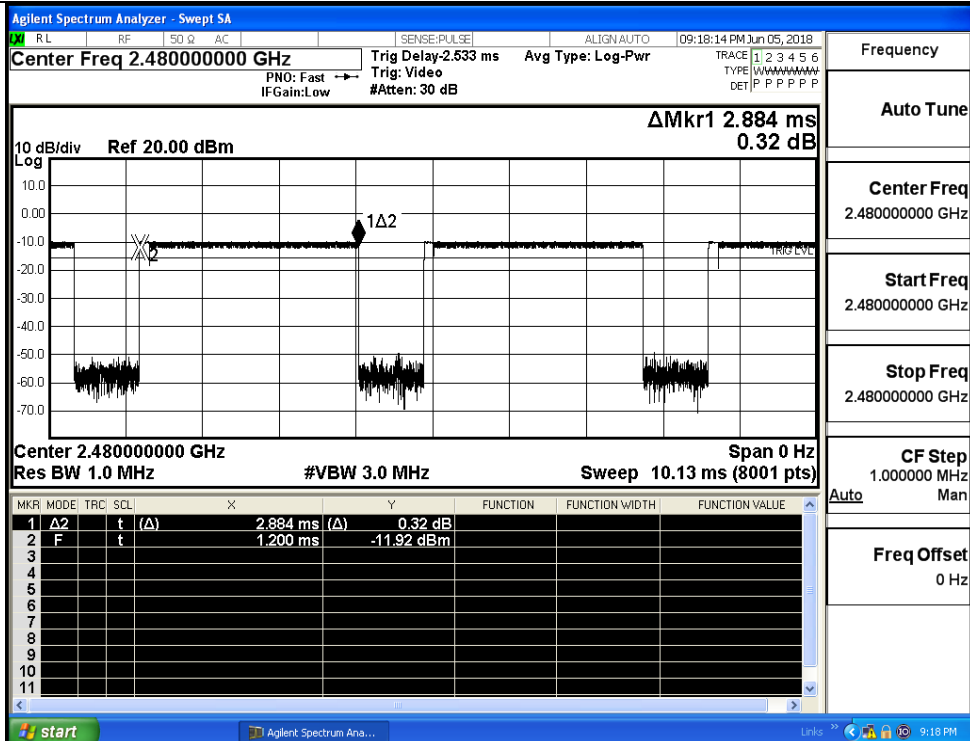
$\pi/4$ DQPSK
_2DH5/LCH



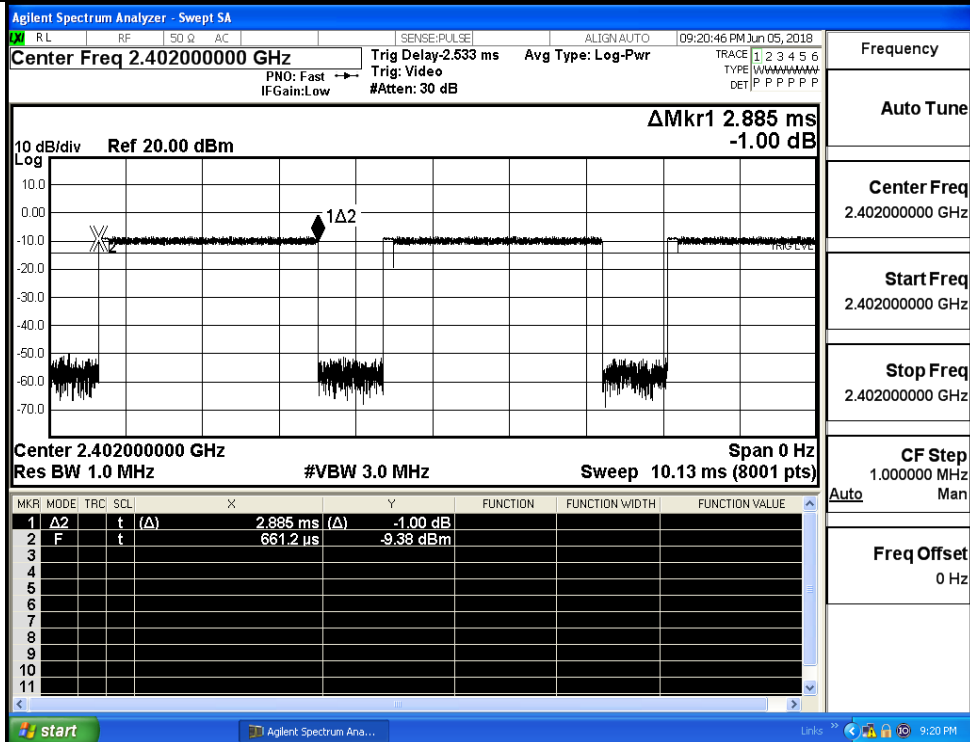
$\pi/4$ DQPSK
_2DH5/MCH



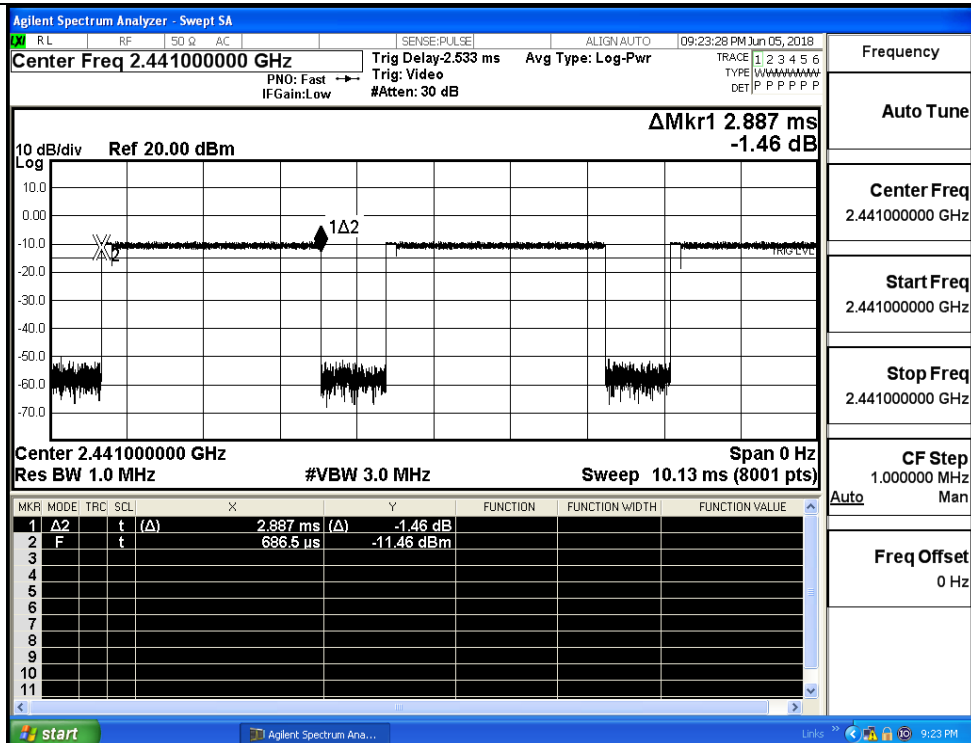
$\pi/4$ DQPSK
_2DH5/HCH



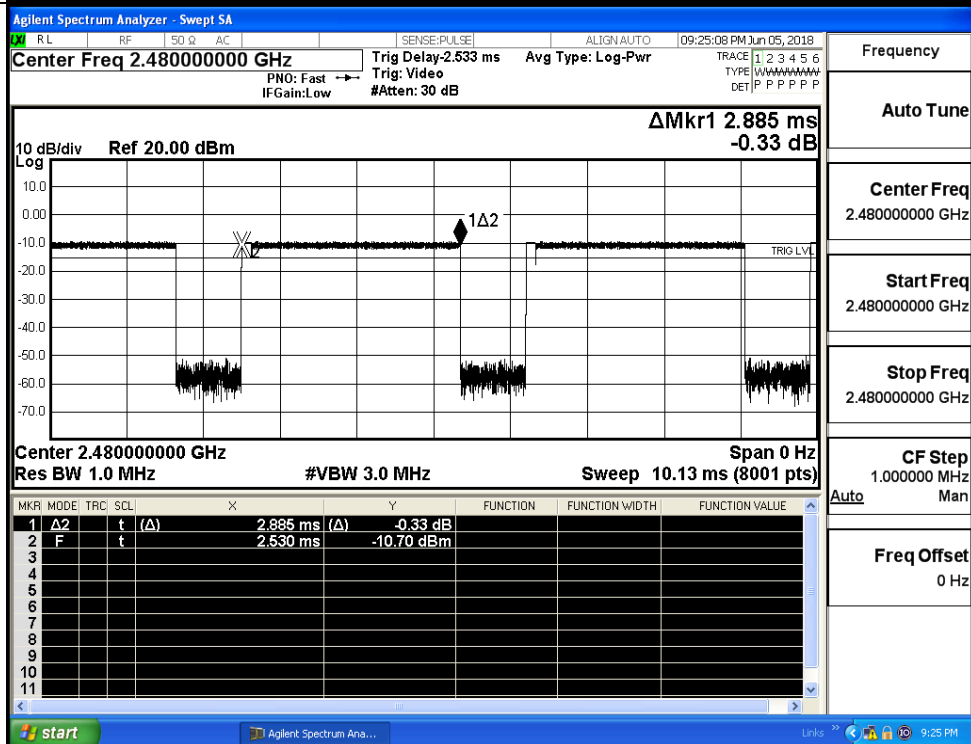
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



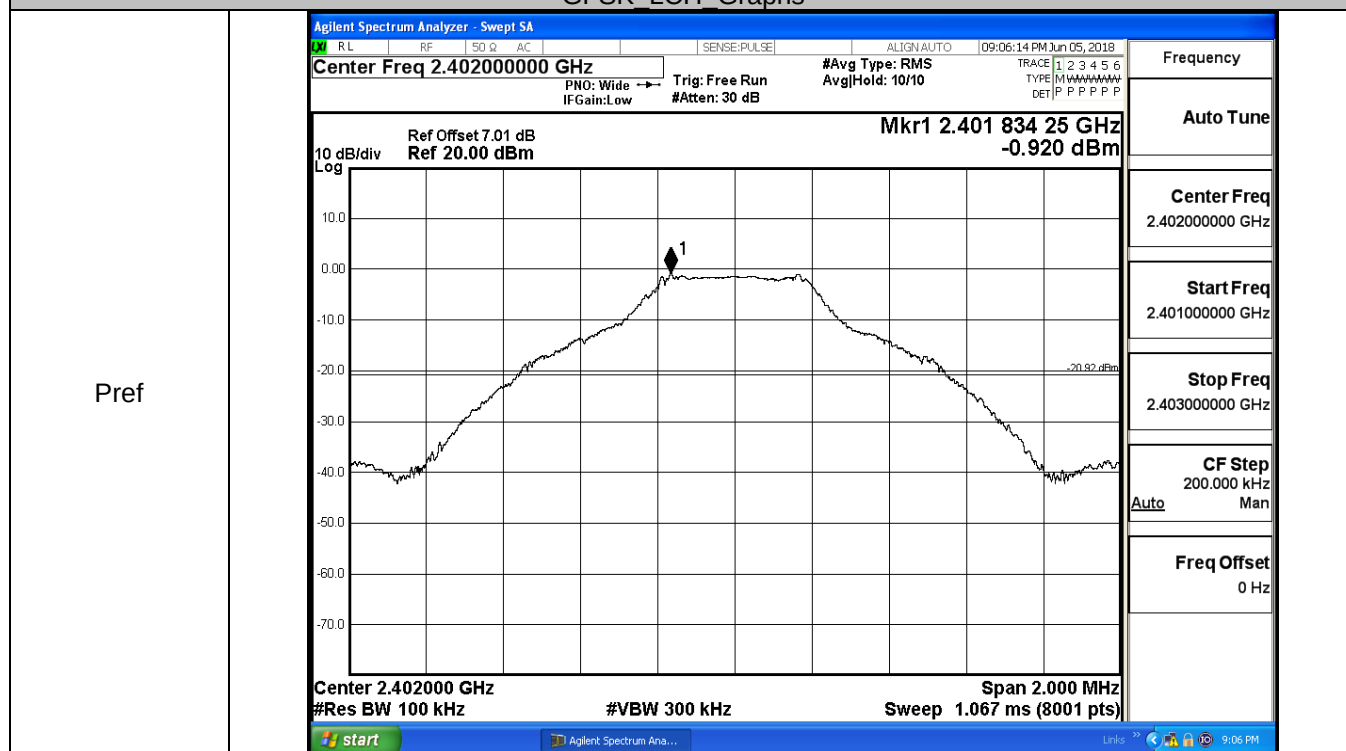
8DPSK_3DH5/HCH



A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.92	-43.809	-20.920	PASS
	MCH	-2.3	-45.625	-22.300	PASS
	HCH	-1.819	-44.994	-21.819	PASS
$\pi/4$ DQPSK	LCH	-2.137	-45.531	-22.137	PASS
	MCH	-2.752	-44.953	-22.752	PASS
	HCH	-3.013	-45.344	-23.013	PASS
8DPSK	LCH	-2.093	-45.595	-22.093	PASS
	MCH	-2.676	-44.620	-22.676	PASS
	HCH	-2.994	-44.759	-22.994	PASS

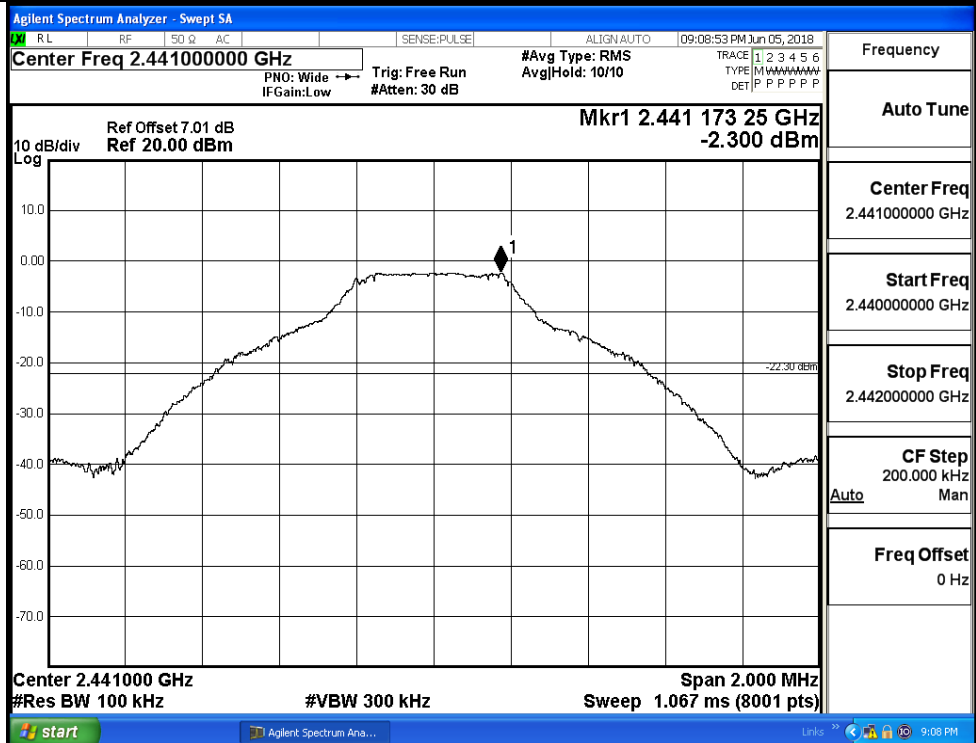
GFSK LCH Graphs



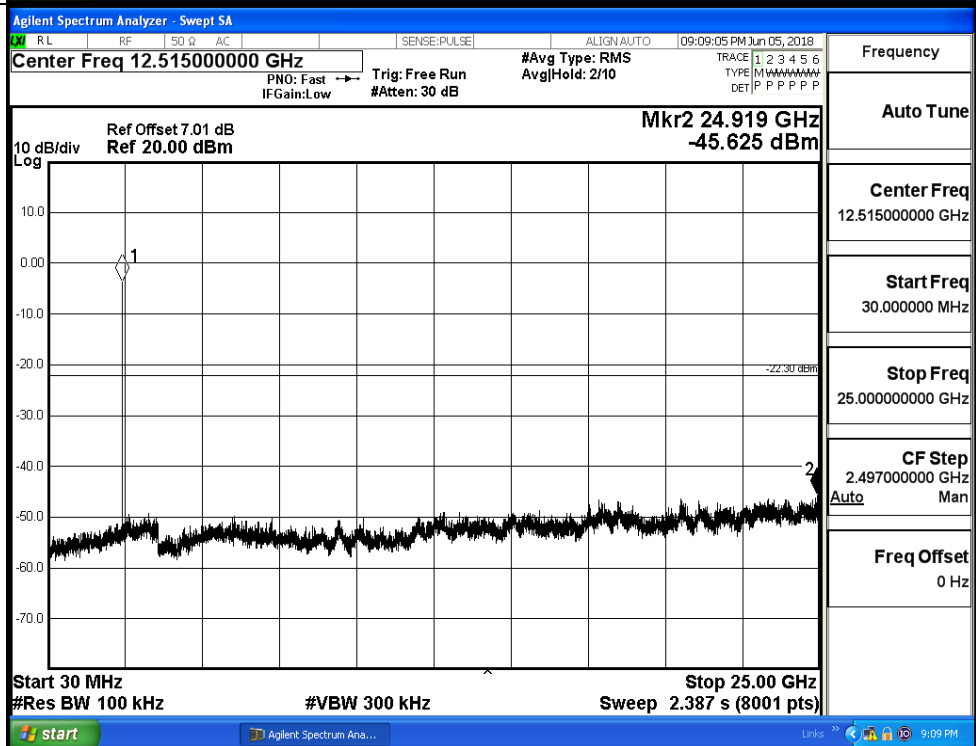


GFSK MCH Graphs

Pref

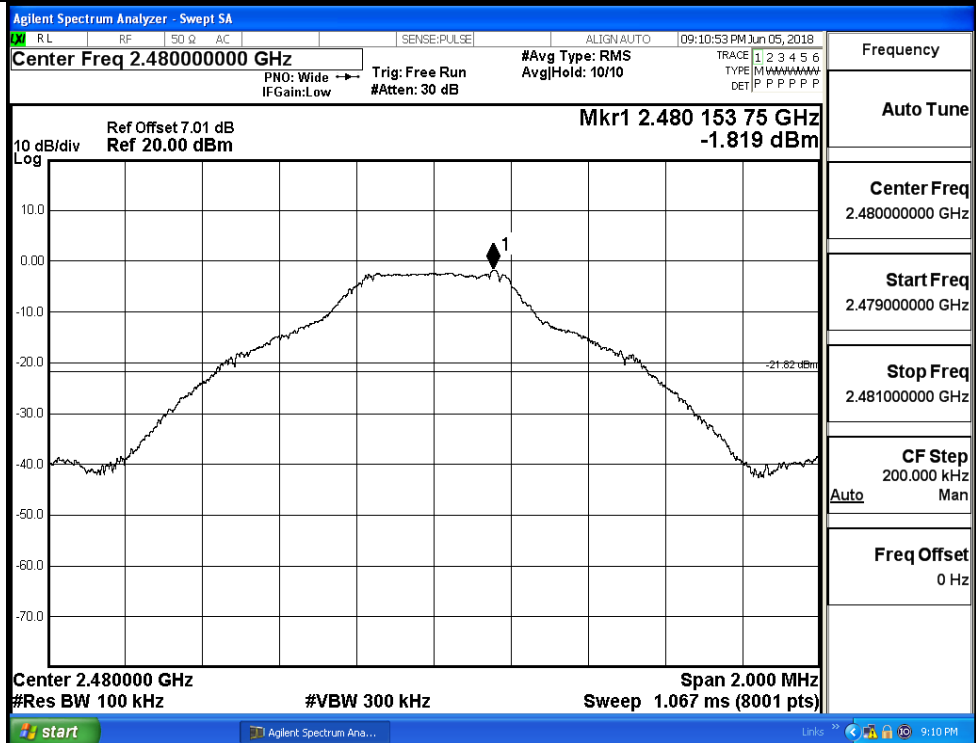


Puw

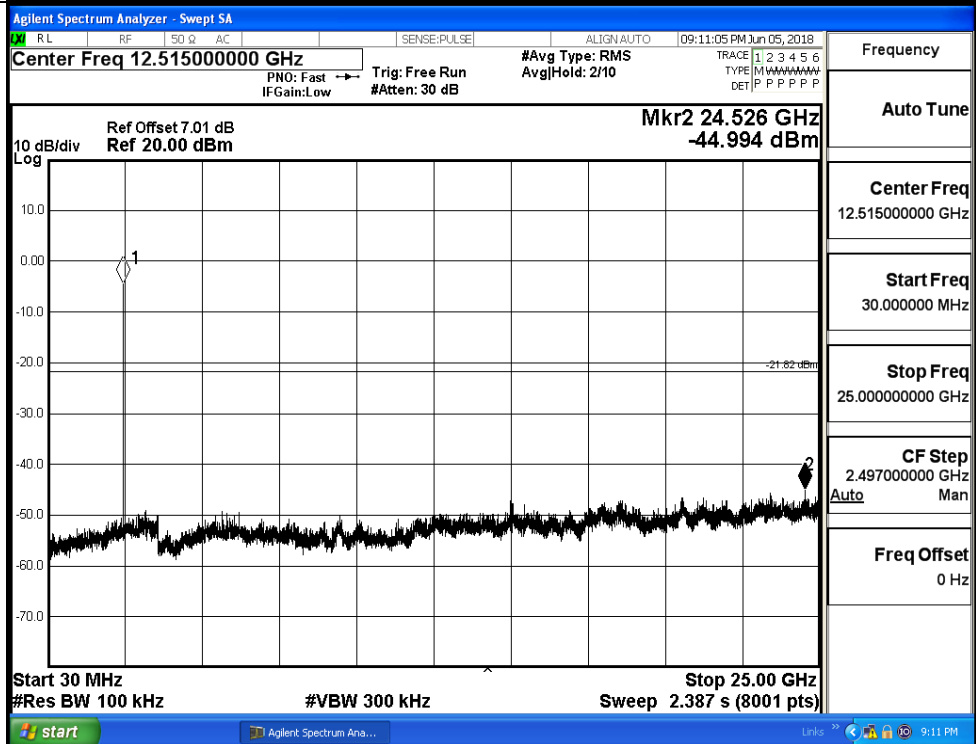


GFSK HCH Graphs

Pref

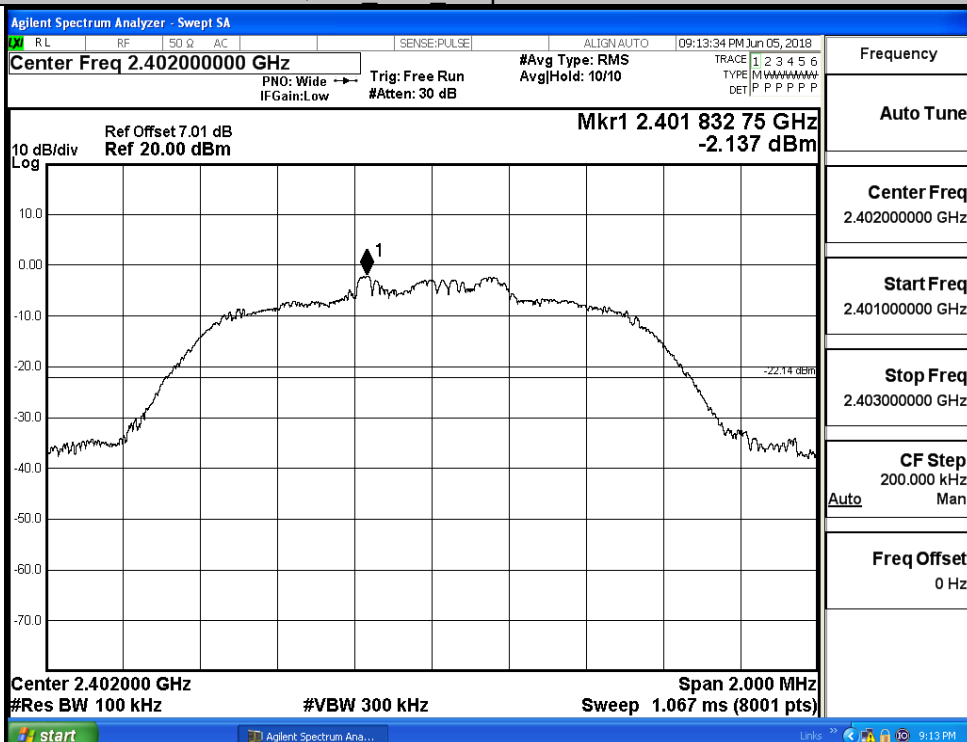


Puw

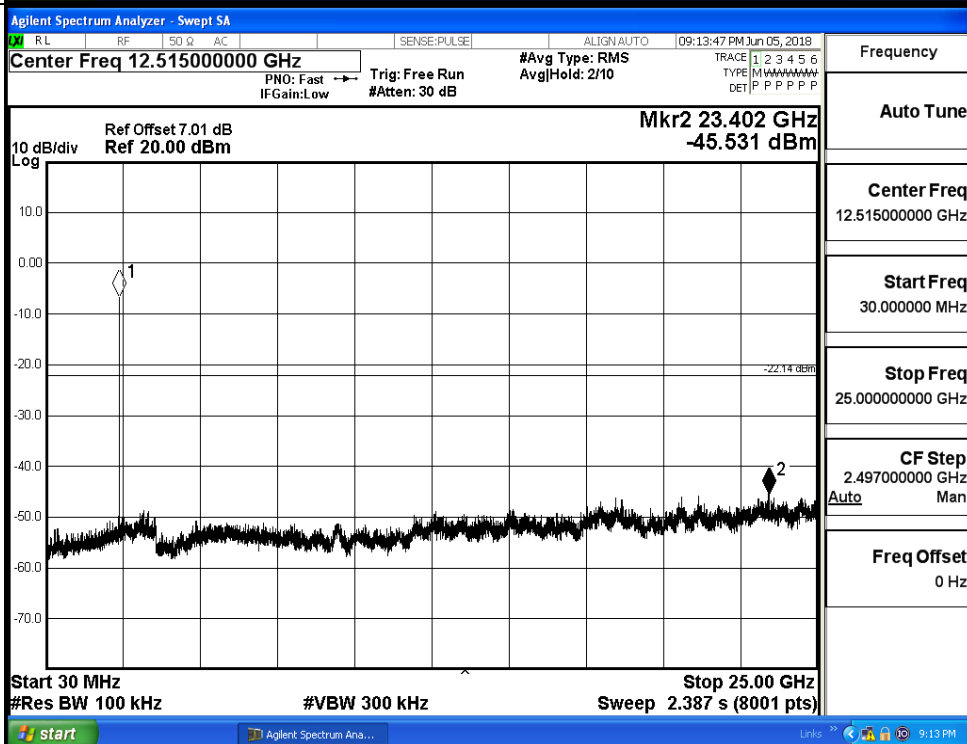


$\pi/4$ DQPSK LCH Graphs

Pref

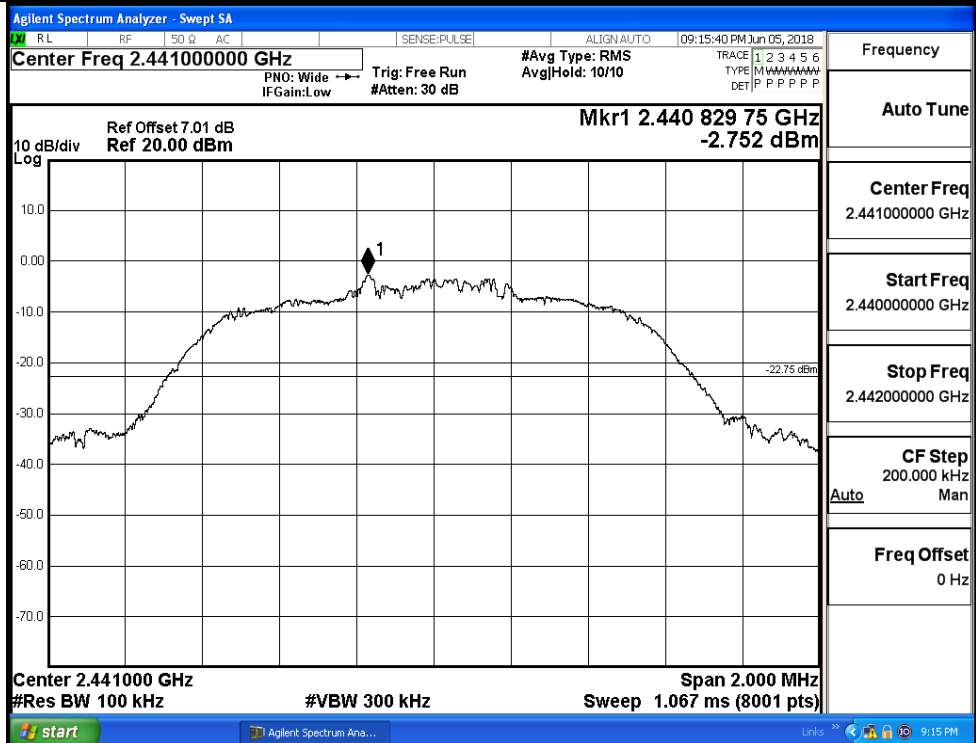


Puw

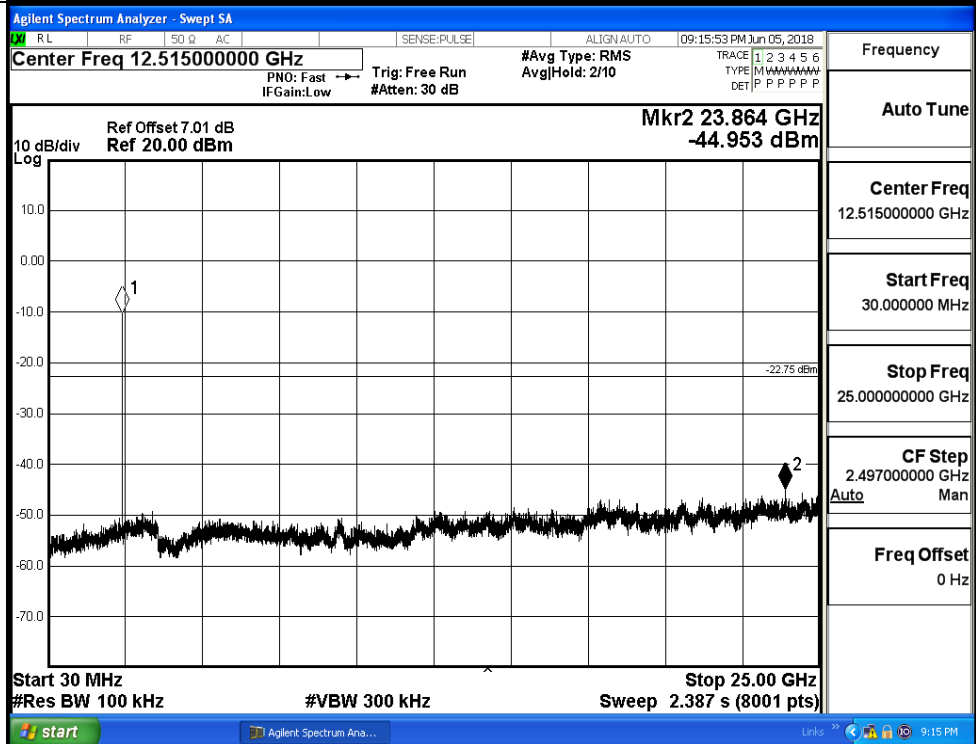


π /4DQPSK MCH Graphs

Pref

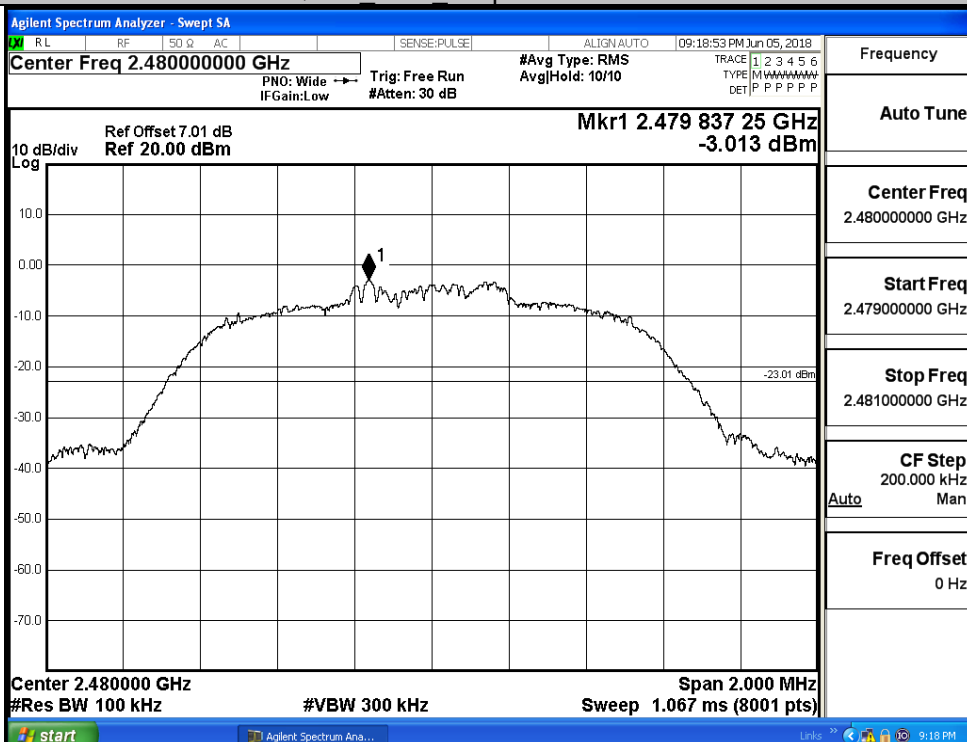


Puw

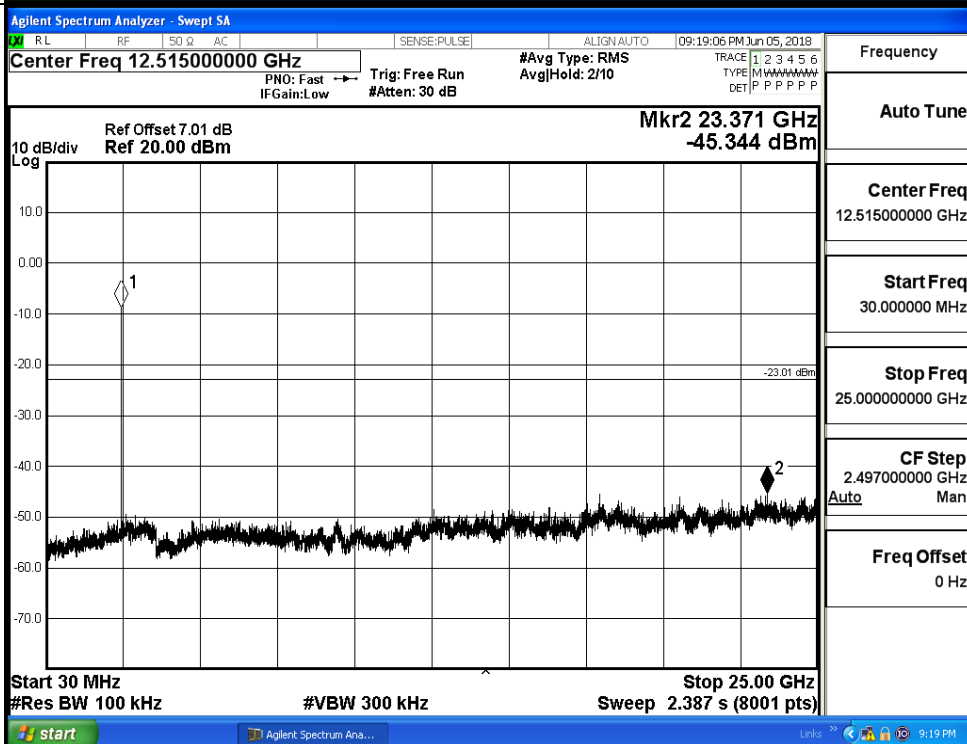


$\pi/4$ DQPSK HCH Graphs

Pref

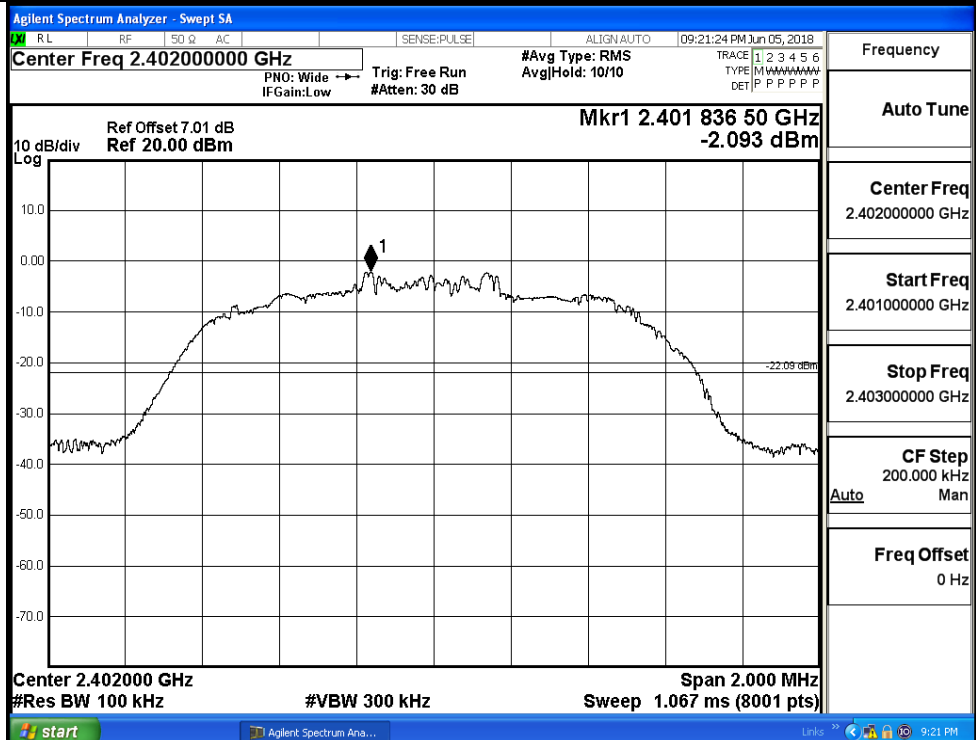


Puw

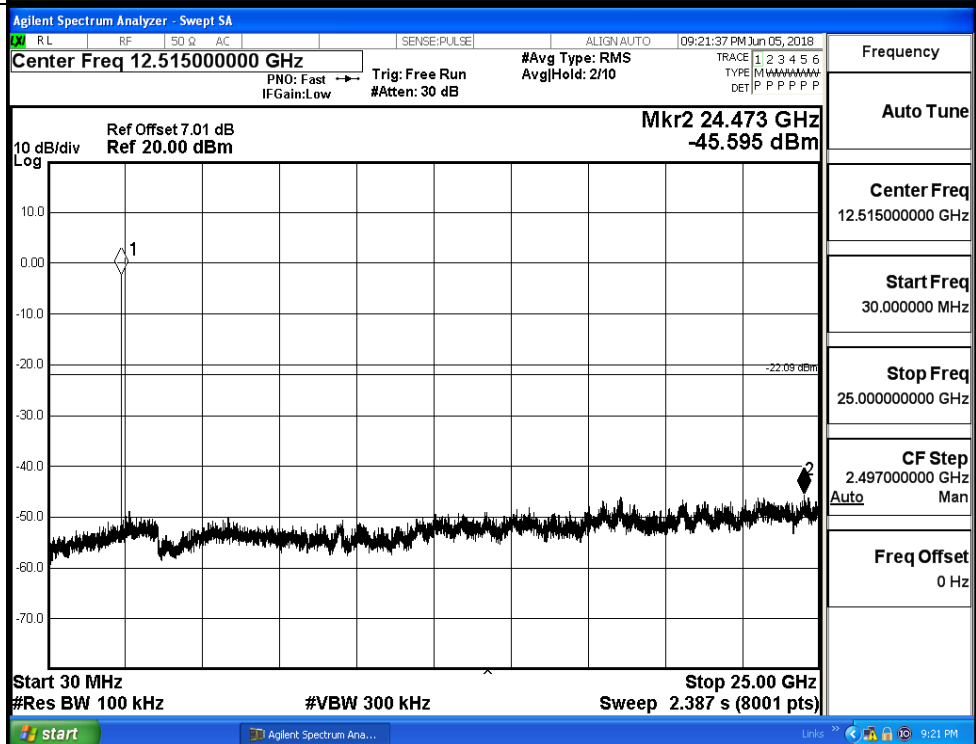


8DPSK_LCH_Graphs

Pref

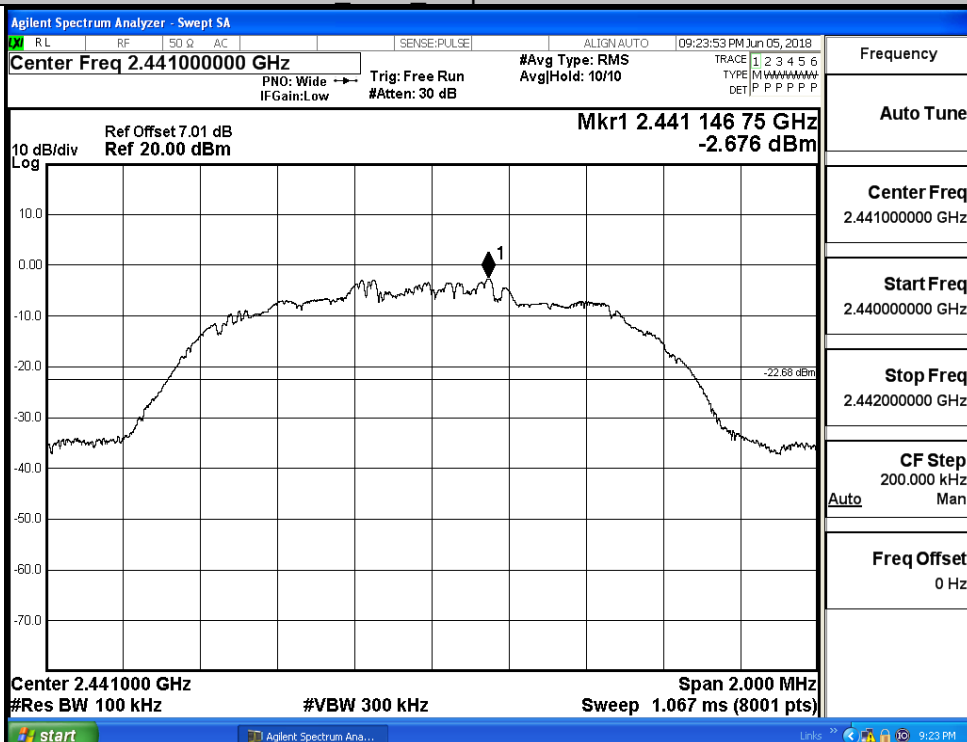


Puw

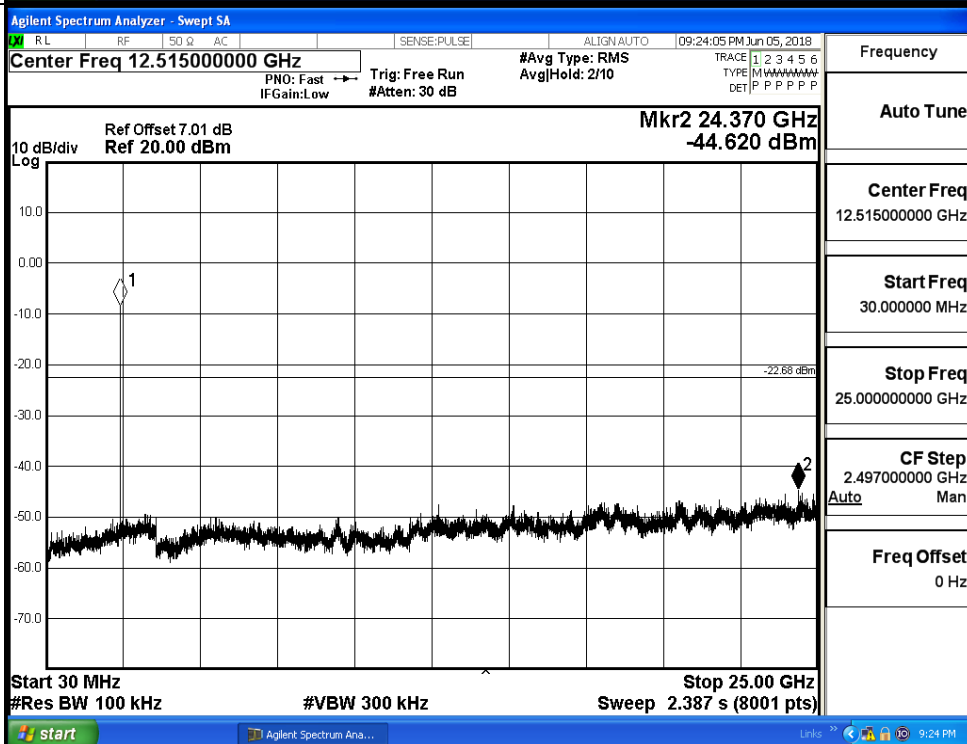


8DPSK MCH Graphs

Pref

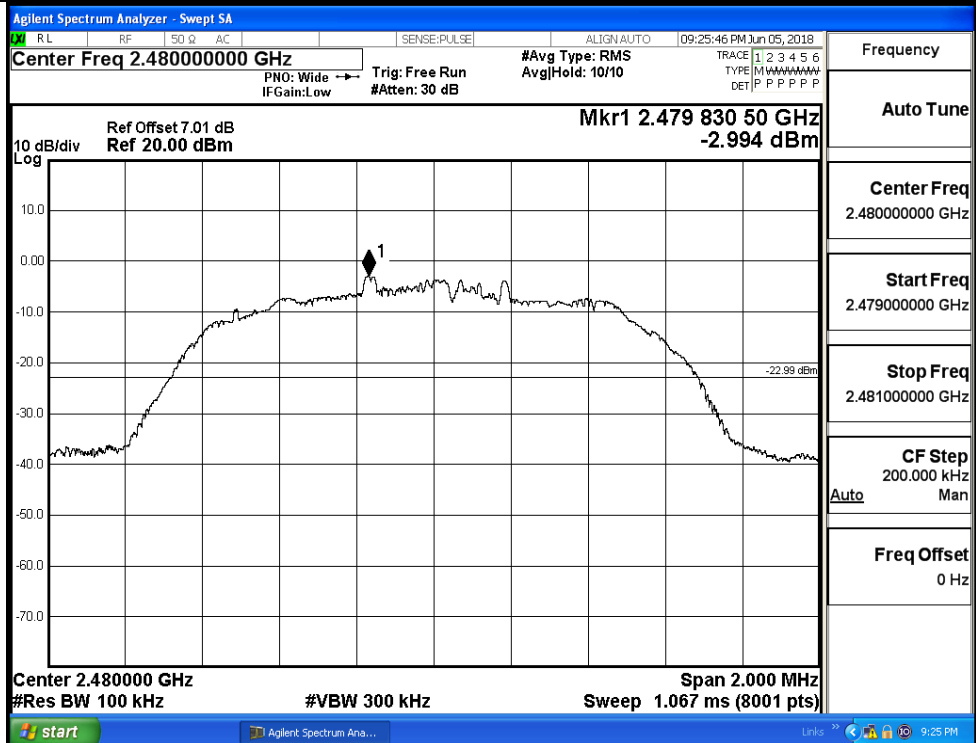


Puw

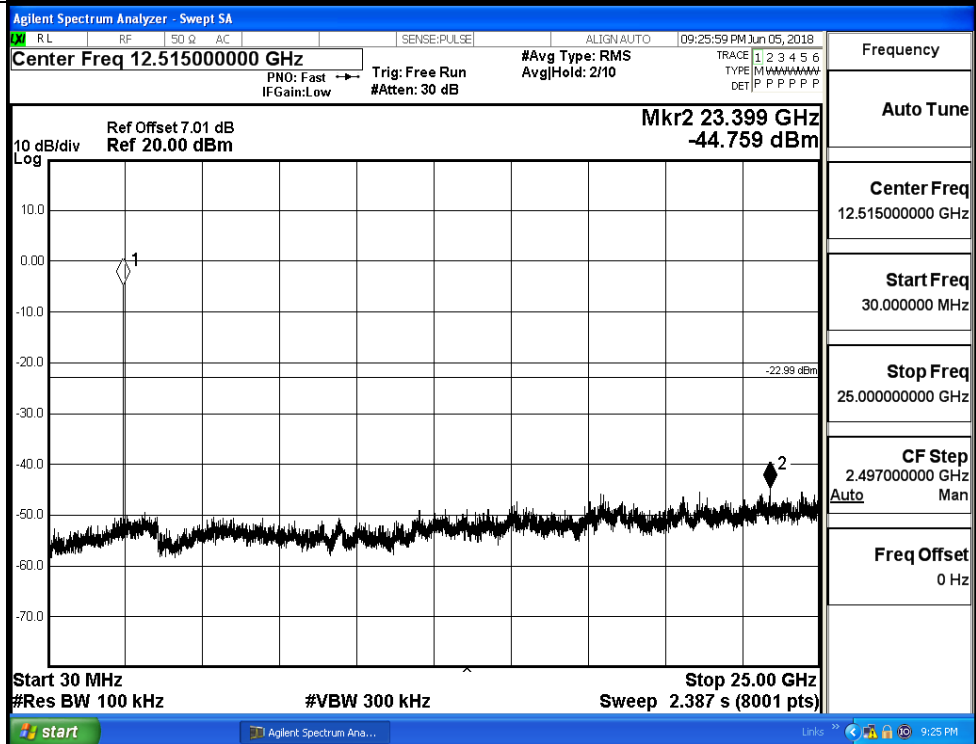


8DPSK_HCH Graphs

Pref



Puw

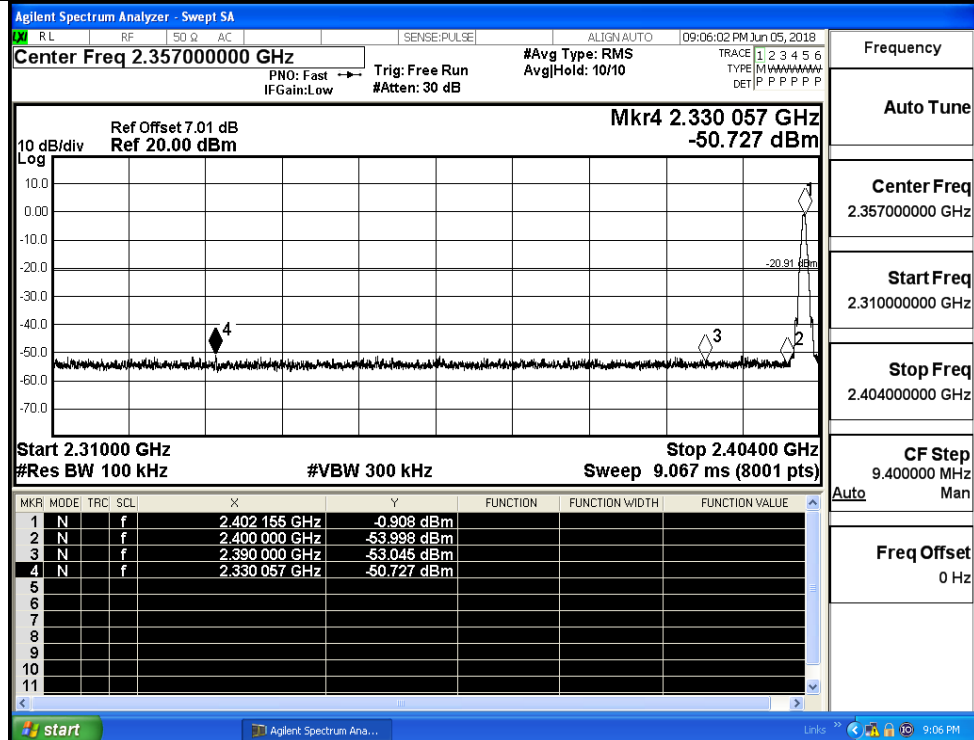


A.7 Band-edge for RF Conducted Emissions

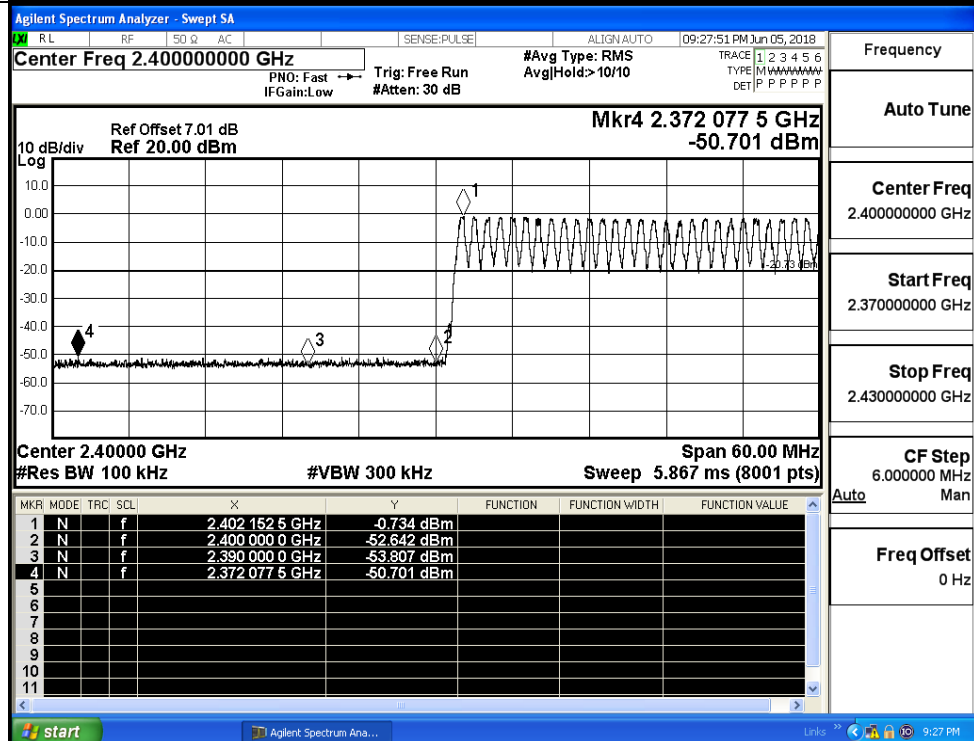
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.908	Off	-50.727	-20.91	PASS
			-0.734	On	-50.701	-20.73	PASS
	HCH	2480	-1.787	Off	-50.910	-21.79	PASS
			-1.866	On	-50.548	-21.87	PASS
$\pi/4$ DQPSK	LCH	2402	-2.195	Off	-51.104	-22.2	PASS
			-2.254	On	-49.622	-22.25	PASS
	HCH	2480	-3.220	Off	-51.026	-23.22	PASS
			-2.957	On	-49.866	-22.96	PASS
8DPSK	LCH	2402	-1.998	Off	-50.427	-22	PASS
			-2.416	On	-50.541	-22.42	PASS
	HCH	2480	-2.833	Off	-51.286	-22.83	PASS
			-2.885	On	-50.199	-22.89	PASS

Test Graphs

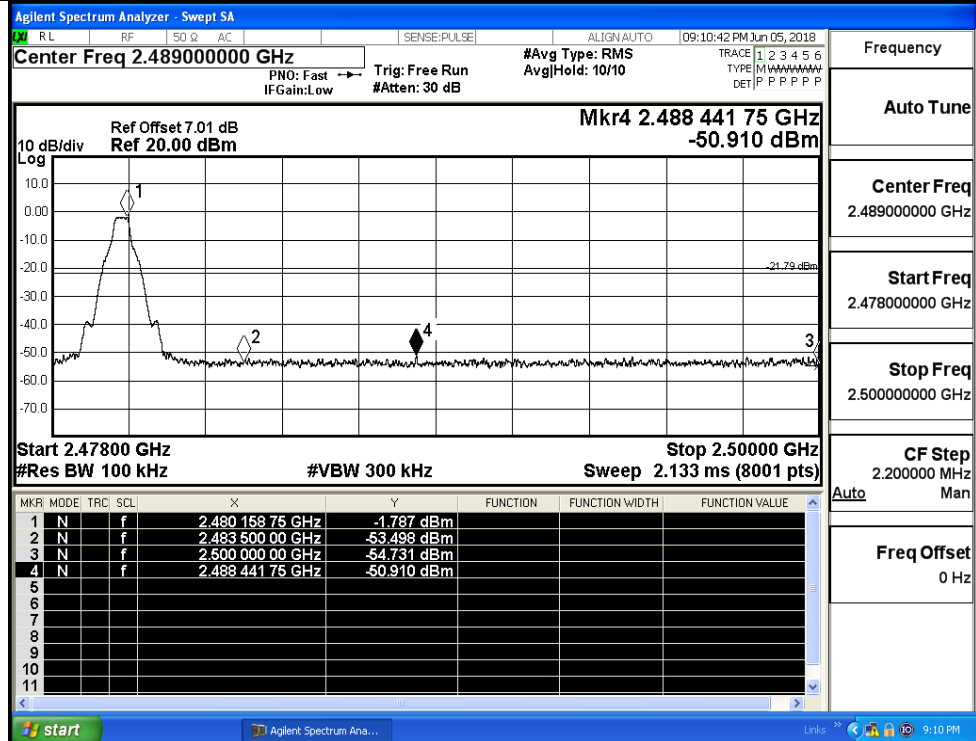
GFSK/LCH/No Hop



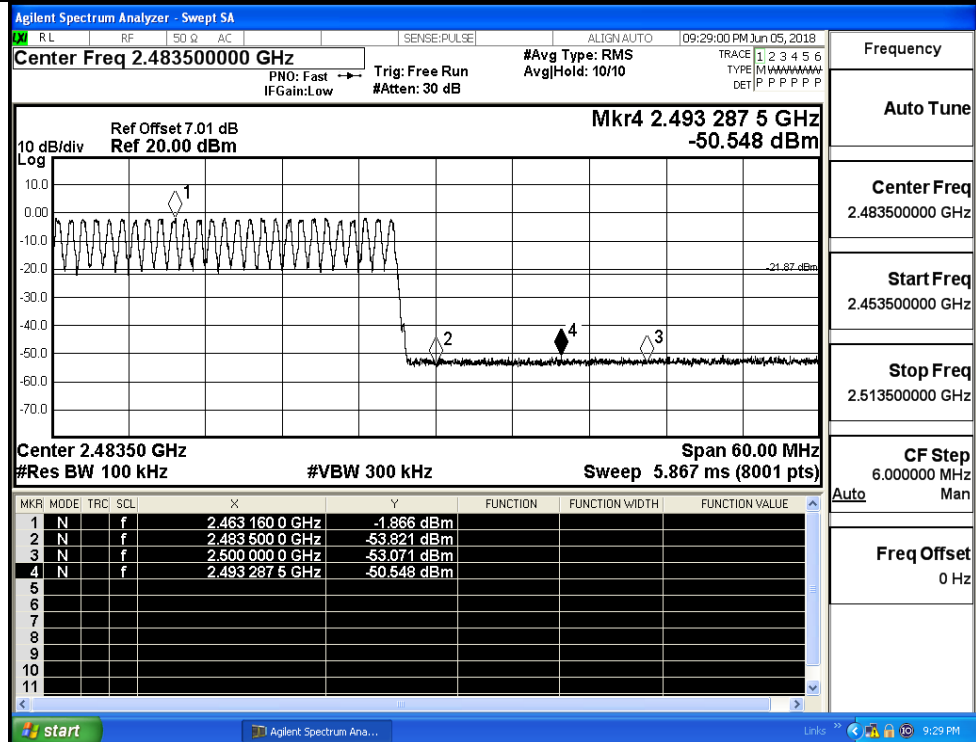
GFSK/LCH/Hop



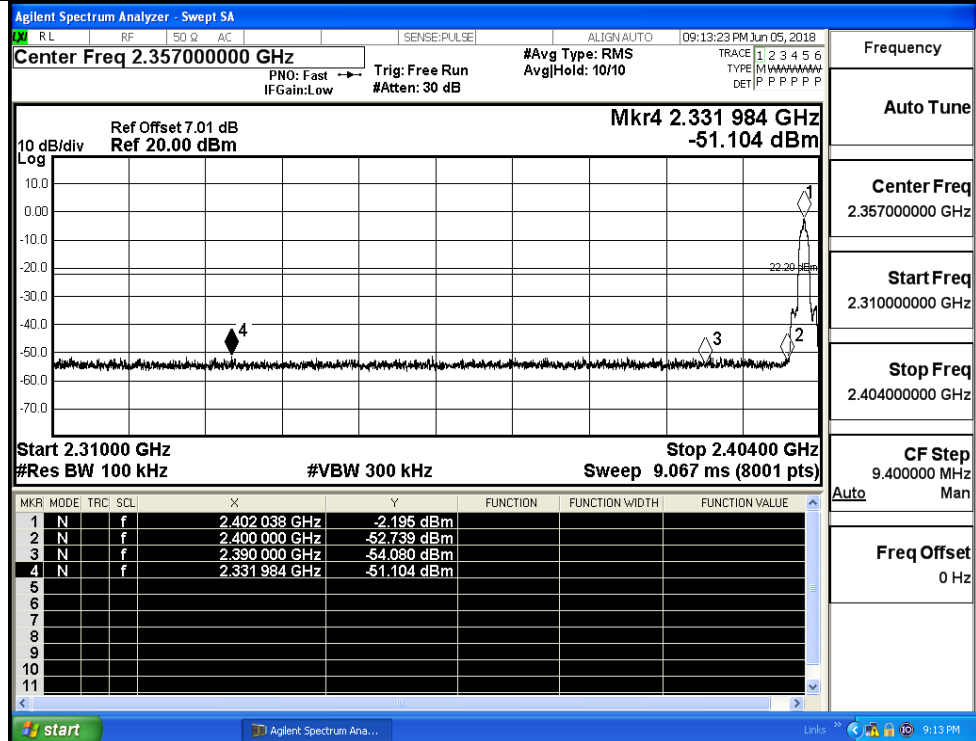
GFSK/HCH/No Hop



GFSK/HCH/Hop



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

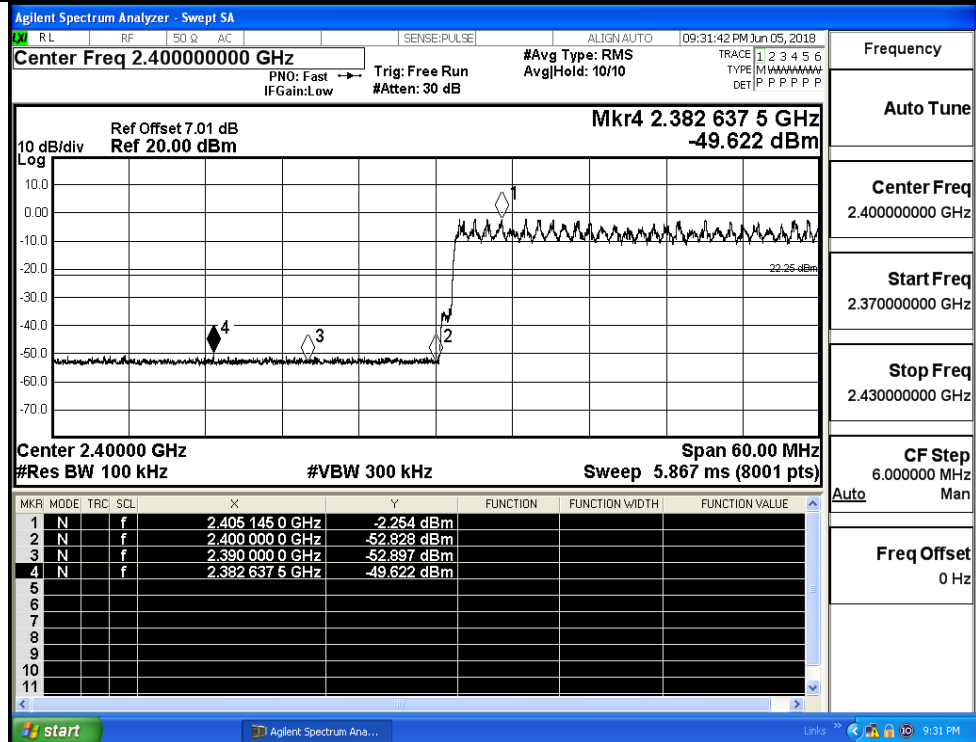


Frequency

Auto Tune

Center Freq
2.357000000 GHzStart Freq
2.310000000 GHzStop Freq
2.404000000 GHzCF Step
9.400000 MHz
Auto ManFreq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop

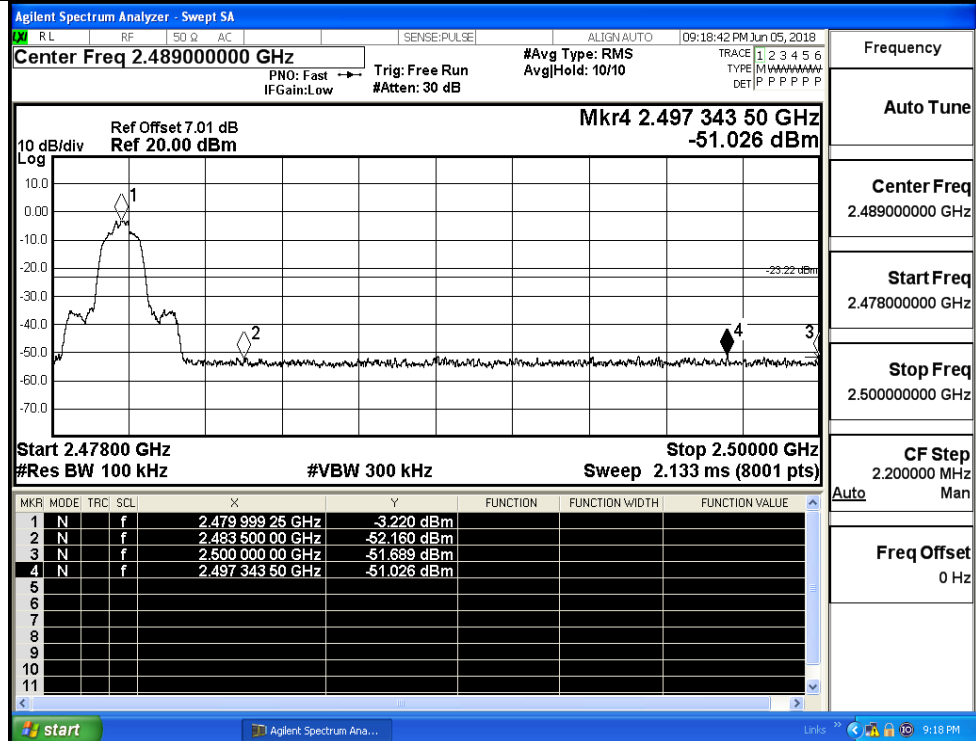


Frequency

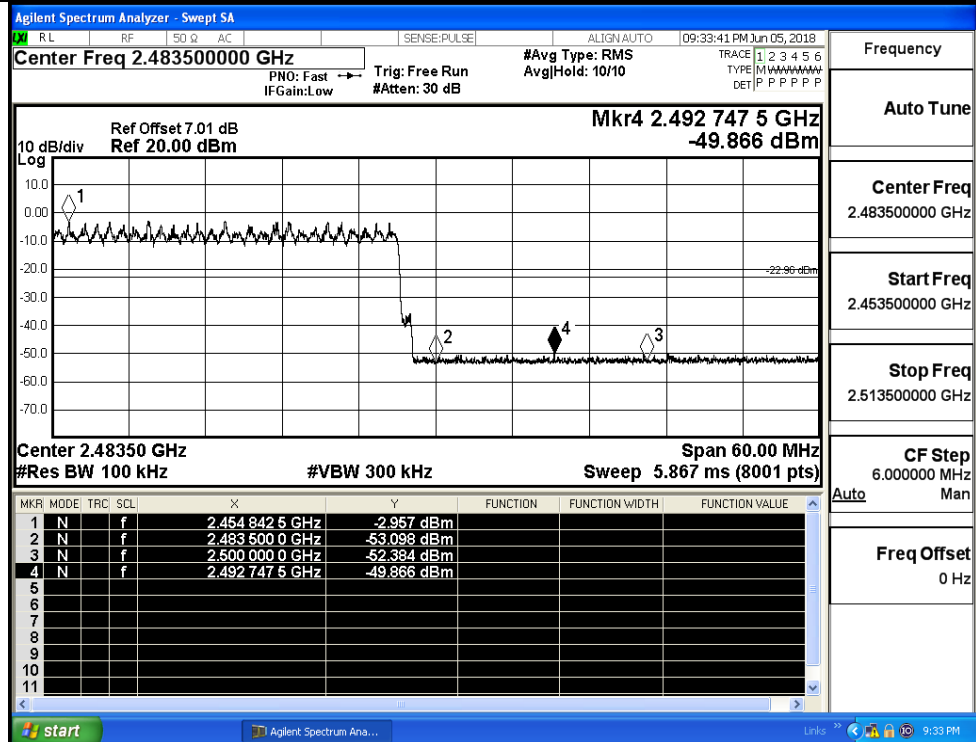
Auto Tune

Center Freq
2.400000000 GHzStart Freq
2.370000000 GHzStop Freq
2.430000000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

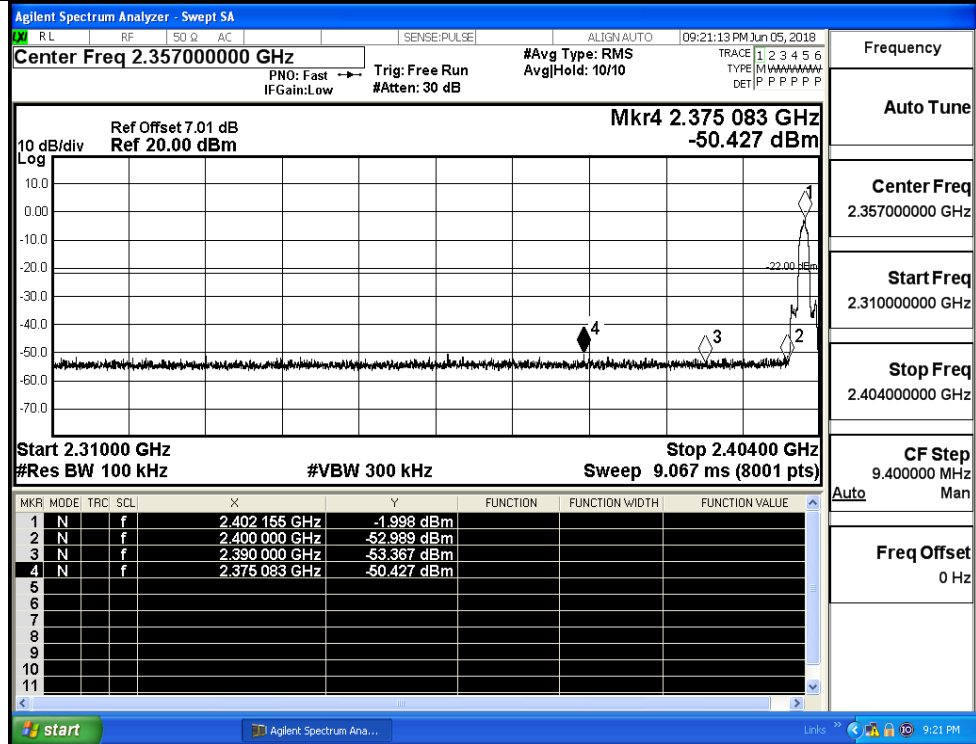
$\pi/4$ DQPSK/HCH/No
Hop



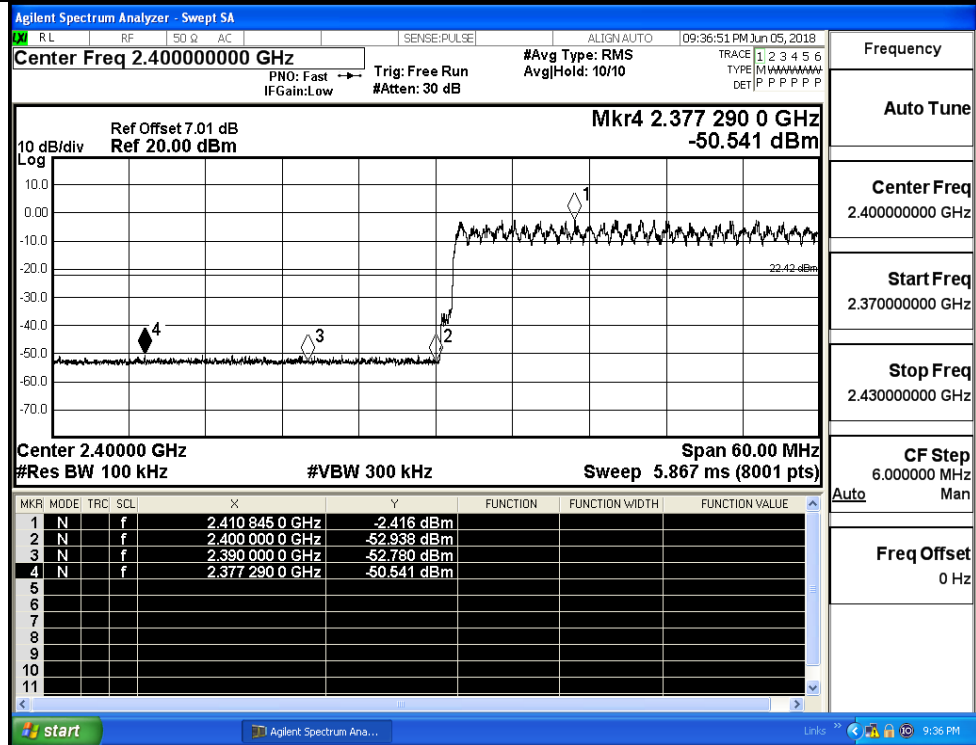
$\pi/4$ DQPSK/HCH/Hop



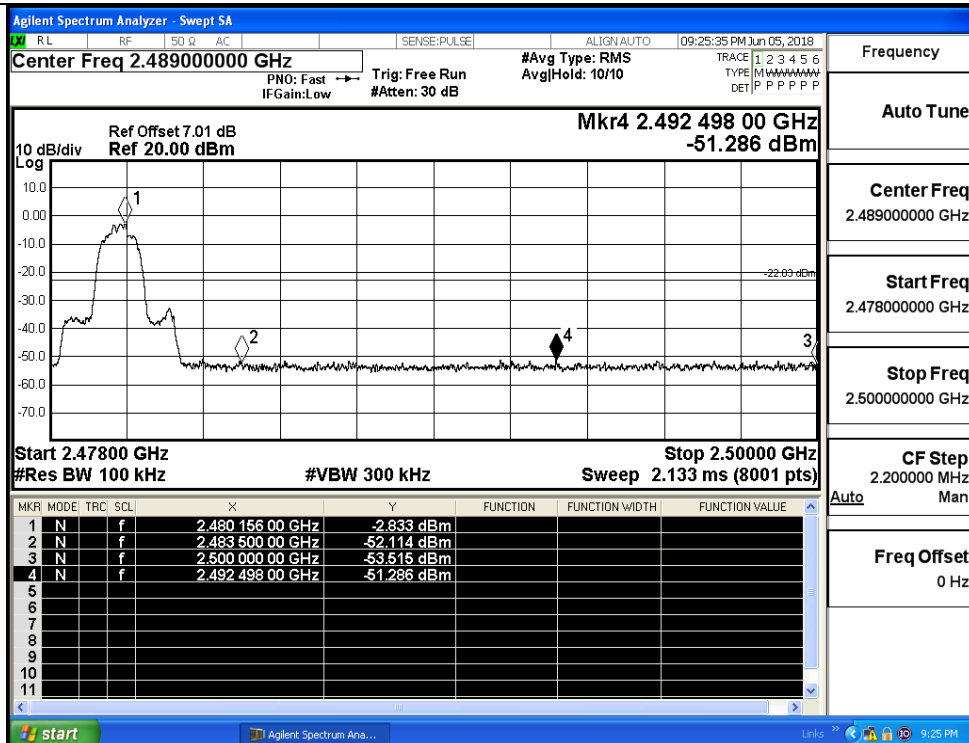
8DPSK/LCH/No Hop



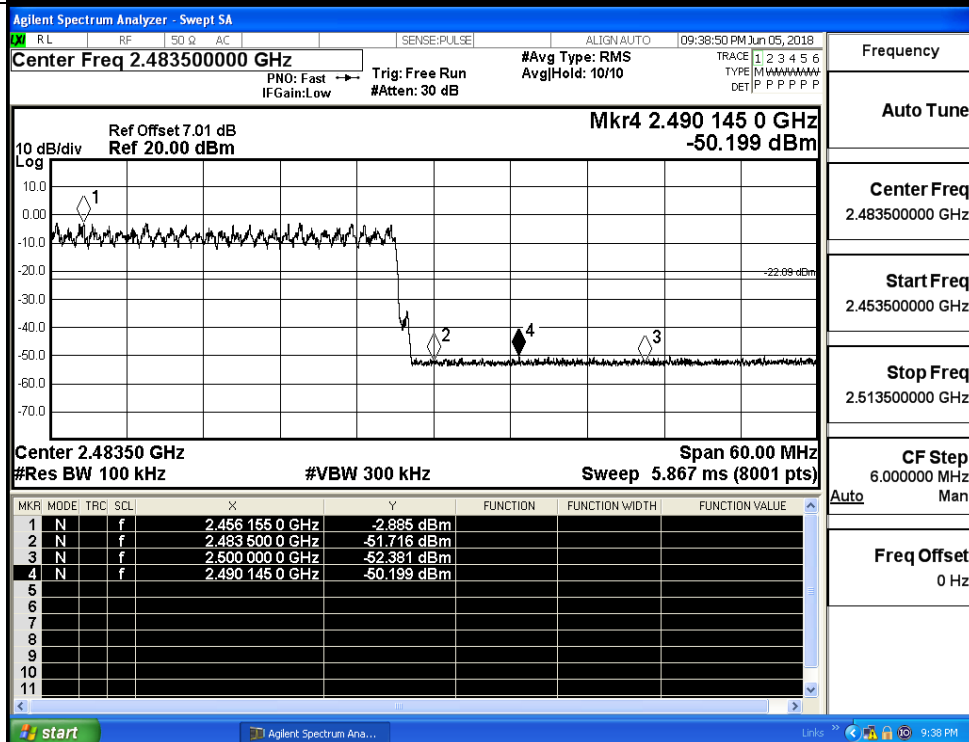
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



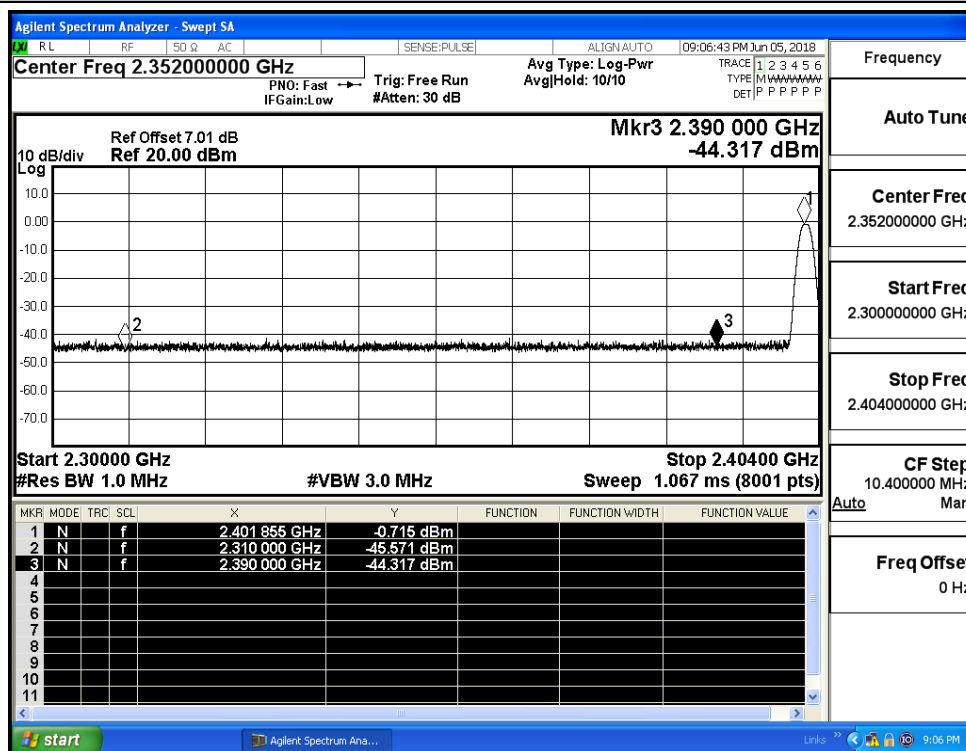
8DPSK/HCH/Hop



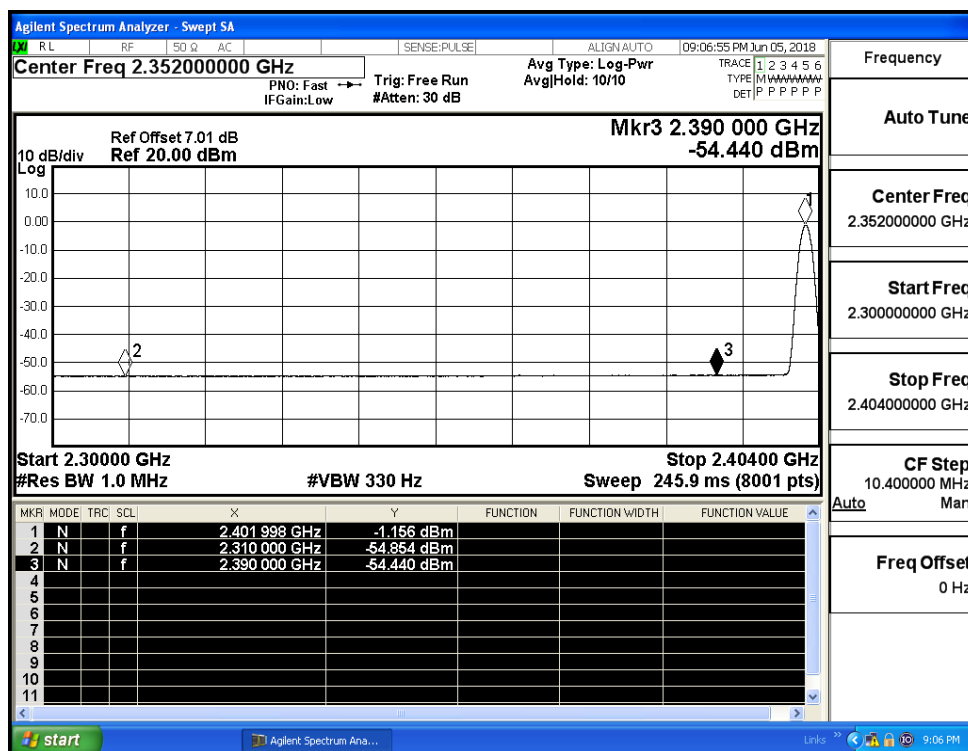
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-45.57	2.0	0	51.69	PEAK	74	PASS
	Off	2310.0	-54.85	2.0	0	42.40	AV	54	PASS
	Off	2390.0	-44.32	2.0	0	52.94	PEAK	74	PASS
	Off	2390.0	-54.44	2.0	0	42.82	AV	54	PASS
	Off	2483.5	-42.68	2.0	0	54.58	PEAK	74	PASS
	Off	2483.5	-54.05	2.0	0	43.21	AV	54	PASS
	Off	2500.0	-43.95	2.0	0	53.31	PEAK	74	PASS
	Off	2500.0	-54.01	2.0	0	43.25	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.03	2.0	0	53.23	PEAK	74	PASS
	Off	2310.0	-54.86	2.0	0	42.39	AV	54	PASS
	Off	2390.0	-44.17	2.0	0	53.09	PEAK	74	PASS
	Off	2390.0	-54.61	2.0	0	42.65	AV	54	PASS
	Off	2483.5	-44.69	2.0	0	52.56	PEAK	74	PASS
	Off	2483.5	-54.21	2.0	0	43.05	AV	54	PASS
	Off	2500.0	-44.97	2.0	0	52.29	PEAK	74	PASS
	Off	2500.0	-54.14	2.0	0	43.11	AV	54	PASS
8DPSK	Off	2310.0	-44.68	2.0	0	52.57	PEAK	74	PASS
	Off	2310.0	-54.80	2.0	0	42.45	AV	54	PASS
	Off	2390.0	-42.77	2.0	0	54.49	PEAK	74	PASS
	Off	2390.0	-54.53	2.0	0	42.73	AV	54	PASS
	Off	2483.5	-42.58	2.0	0	54.68	PEAK	74	PASS
	Off	2483.5	-54.16	2.0	0	43.09	AV	54	PASS
	Off	2500.0	-42.23	2.0	0	55.03	PEAK	74	PASS
	Off	2500.0	-54.19	2.0	0	43.07	AV	54	PASS

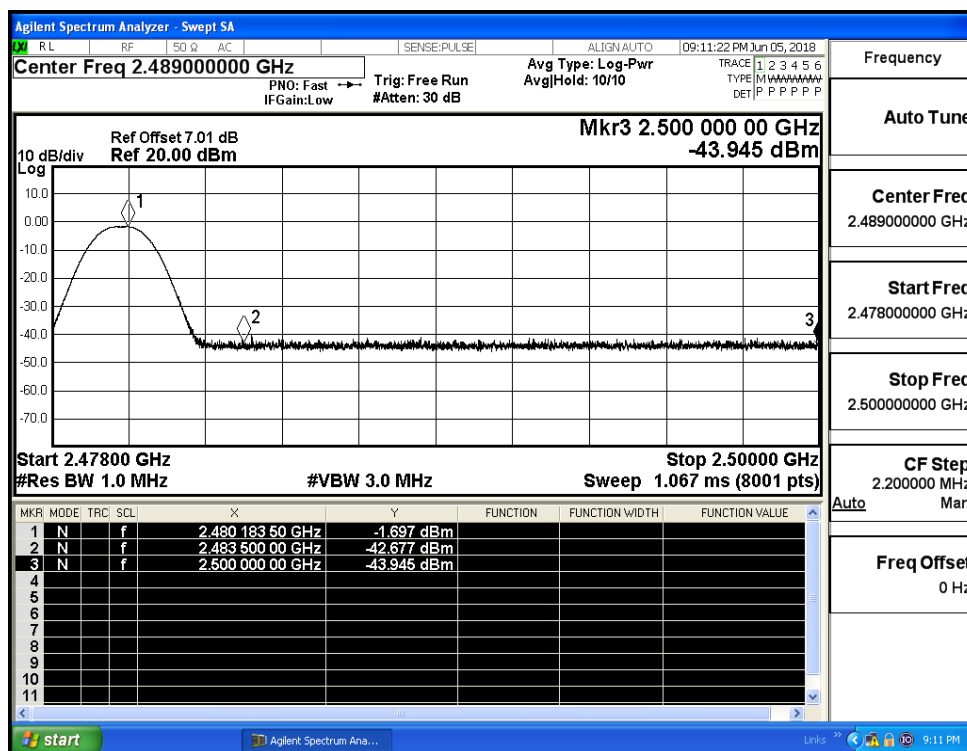
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



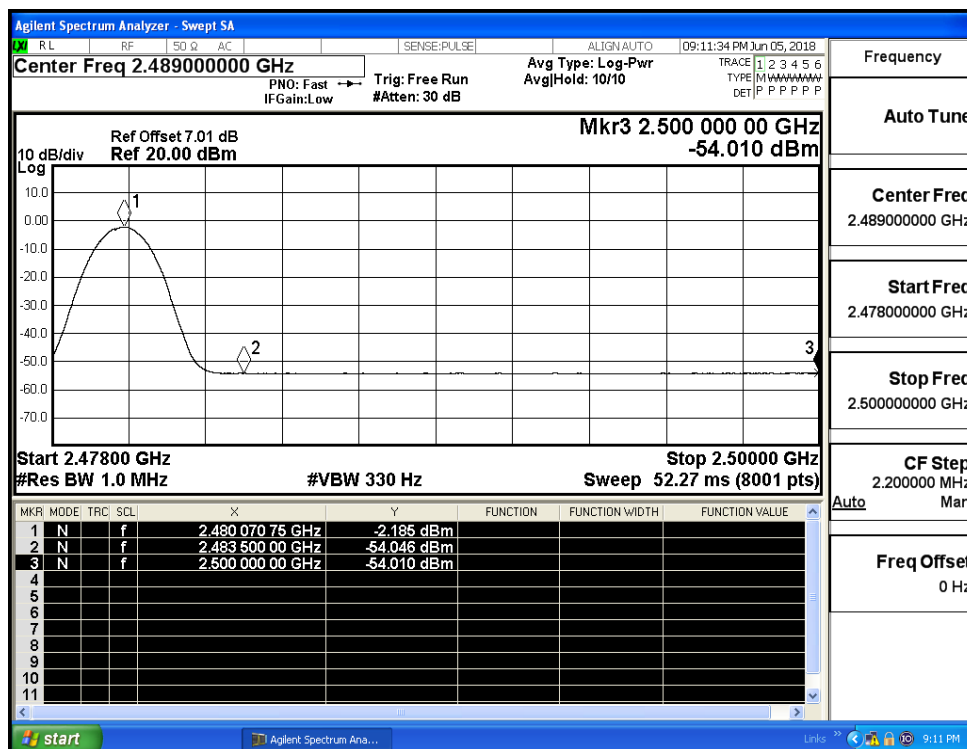
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

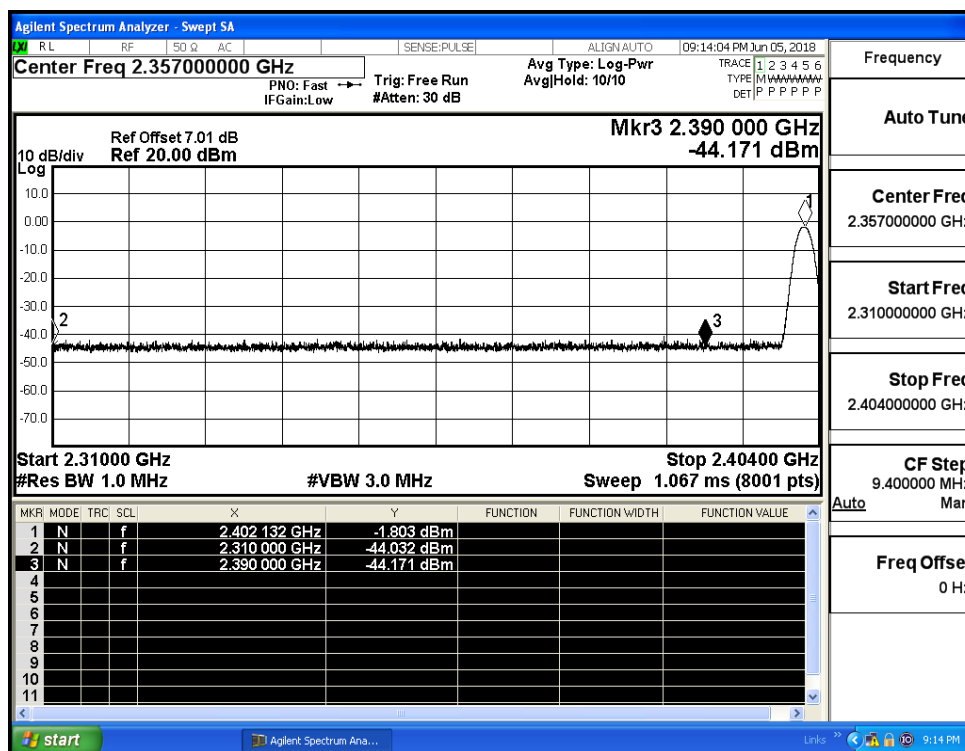
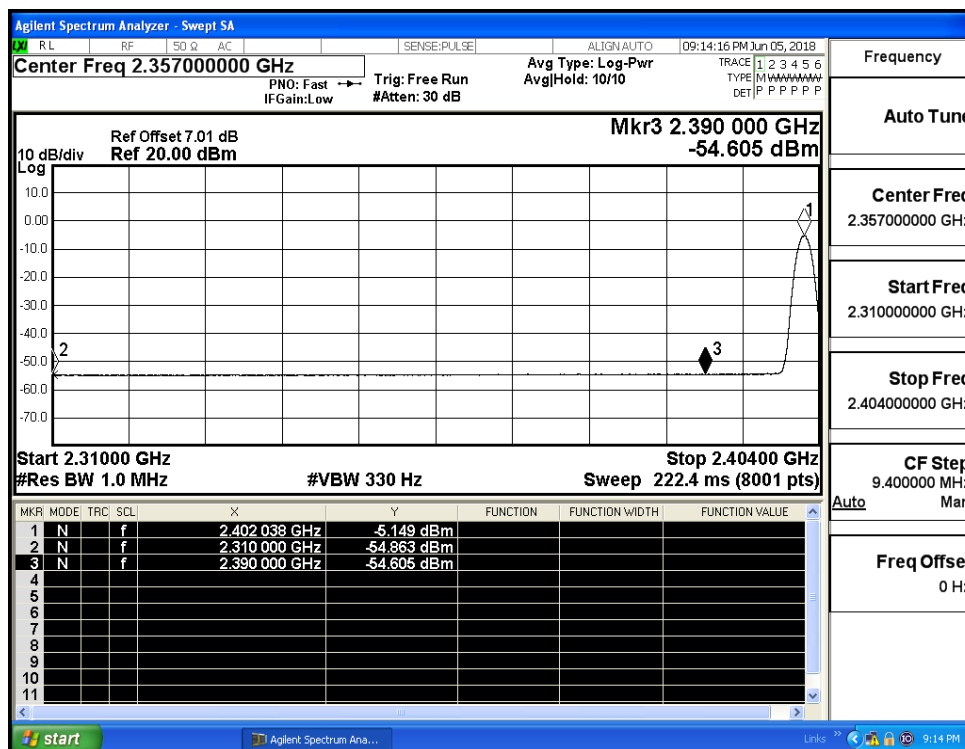


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

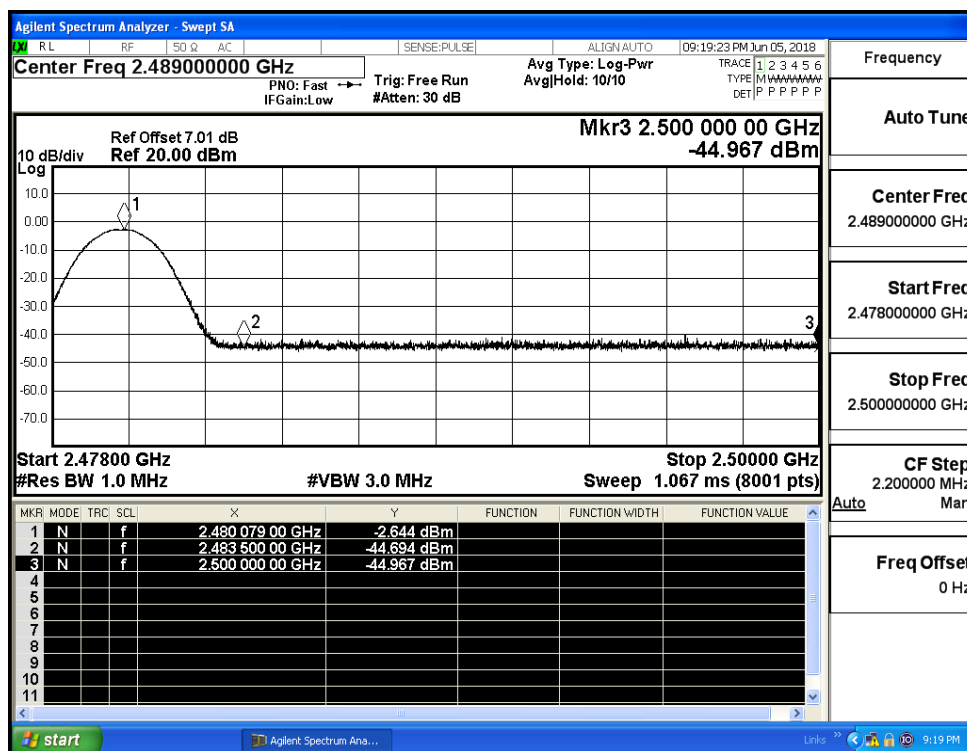


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

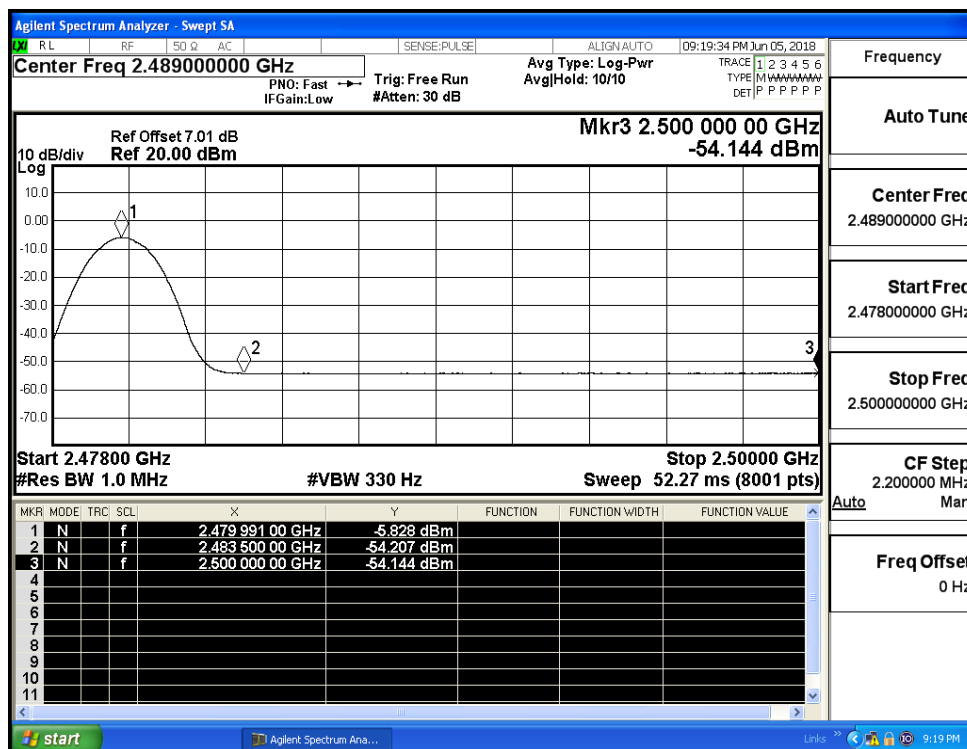


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

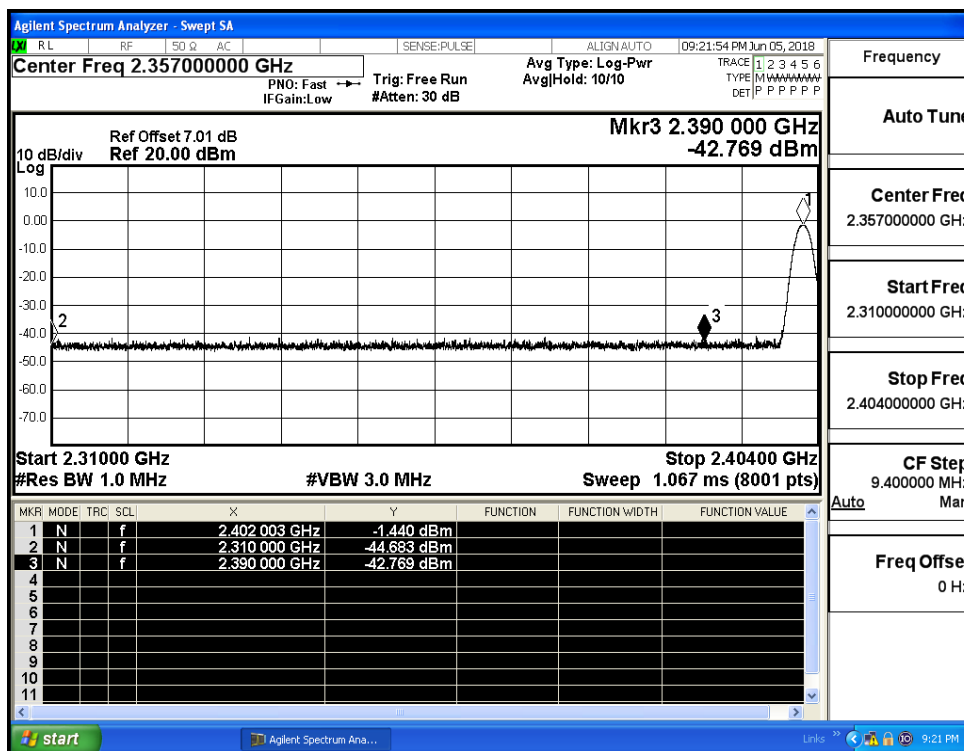
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



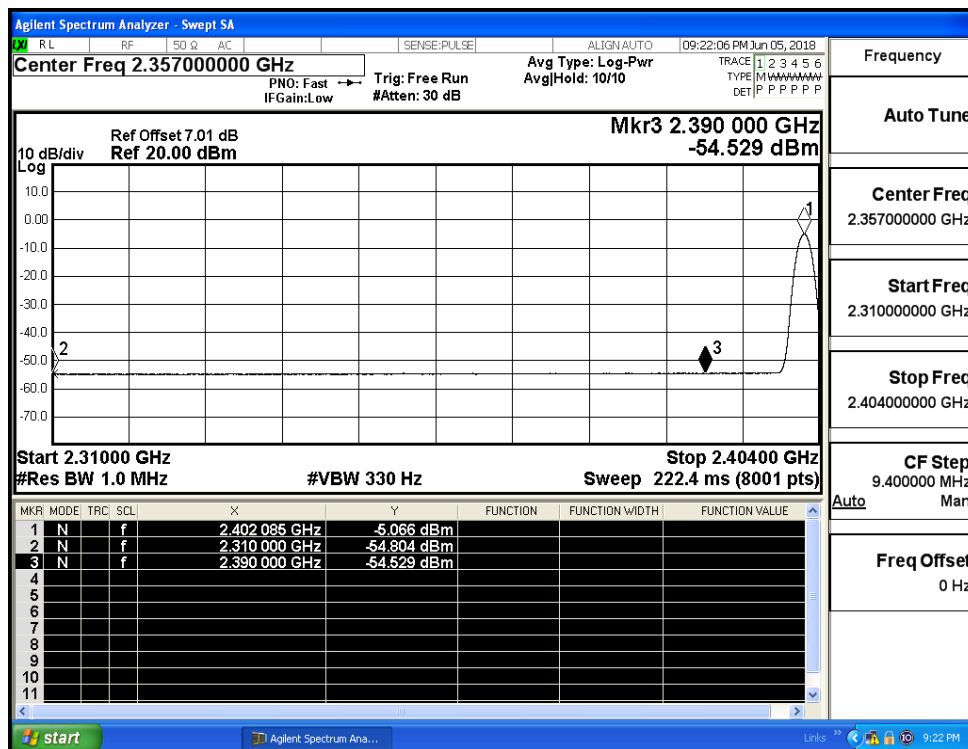
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



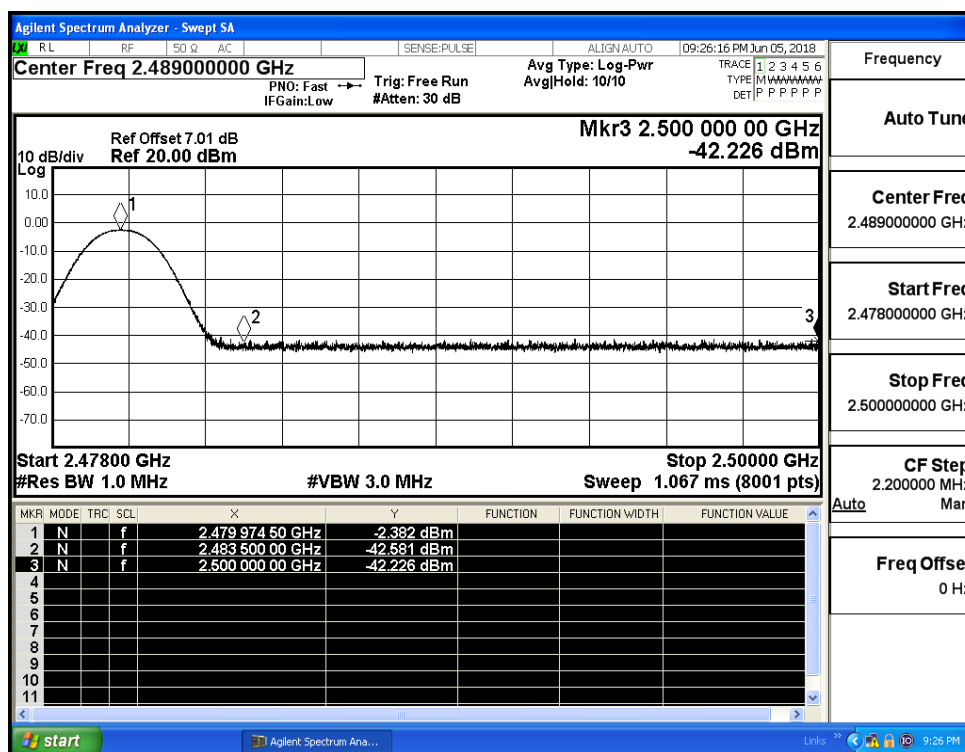
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

