

Appendix A

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

Product Name: 4G dash Camera

Trade Mark: N/A

Test Model: ES-D4

Environmental Conditions

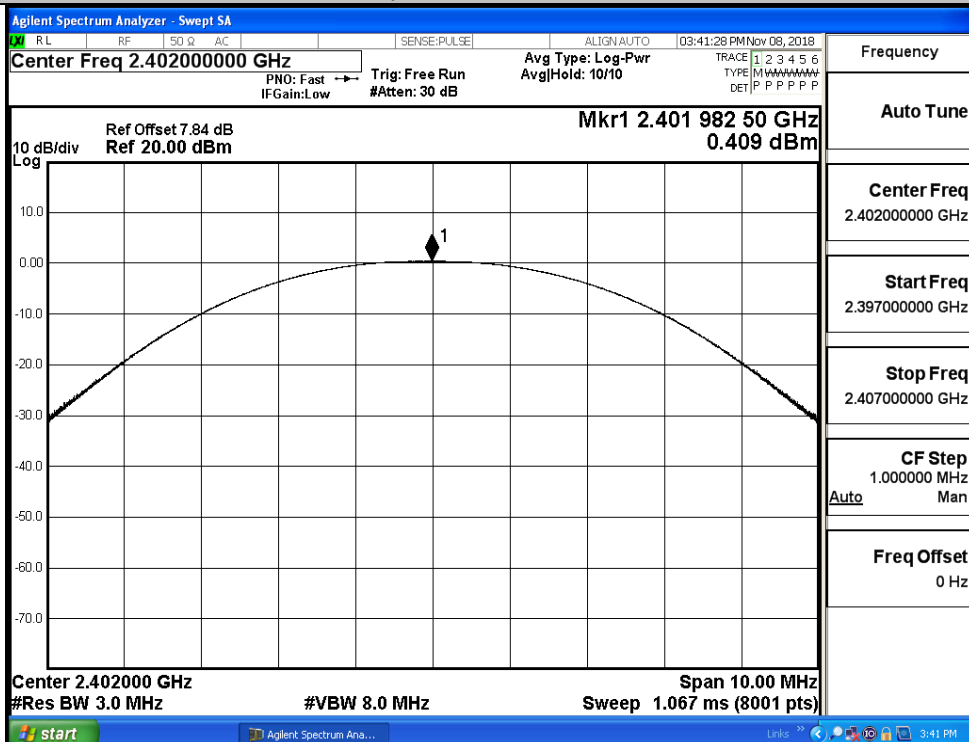
Temperature:	23.5 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Output Power

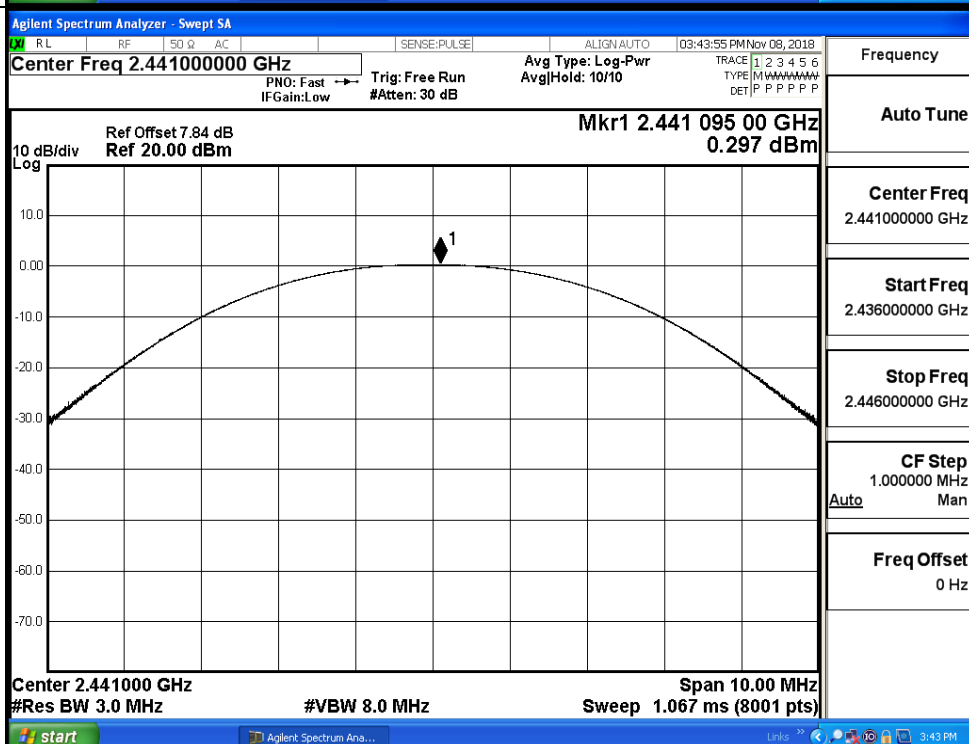
Mode	Channel.	Maximum Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.409	30	PASS
	MCH	0.297	30	PASS
	HCH	0.189	30	PASS
$\pi/4$ DQPSK	LCH	-0.262	21	PASS
	MCH	-0.400	21	PASS
	HCH	-0.556	21	PASS
8DPSK	LCH	-0.064	21	PASS
	MCH	-0.223	21	PASS
	HCH	-0.379	21	PASS

Test Graphs

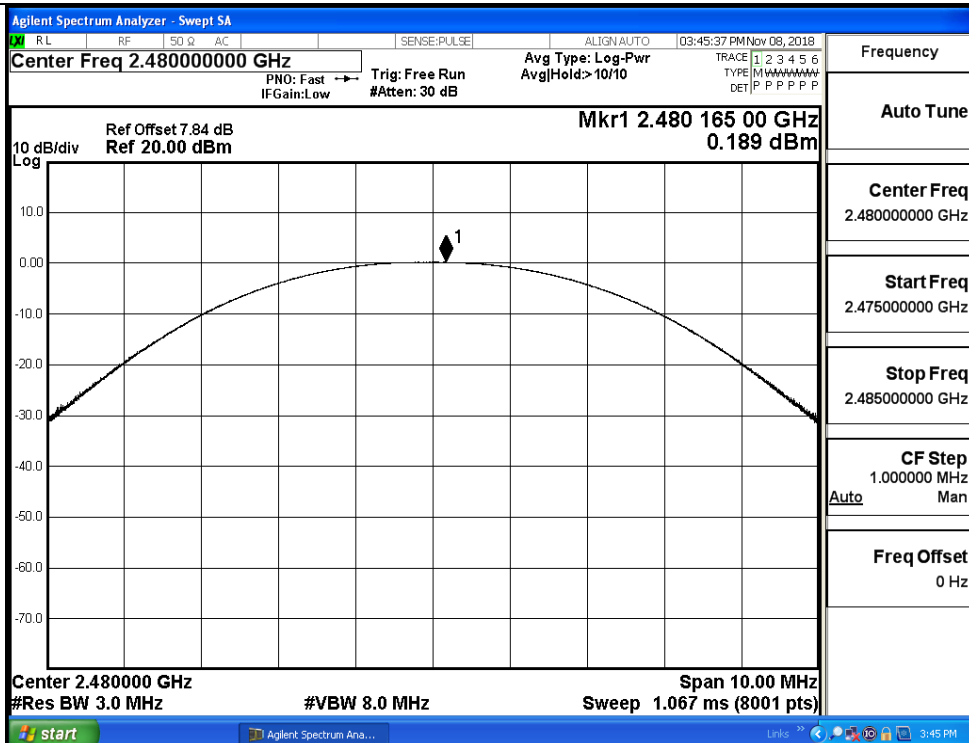
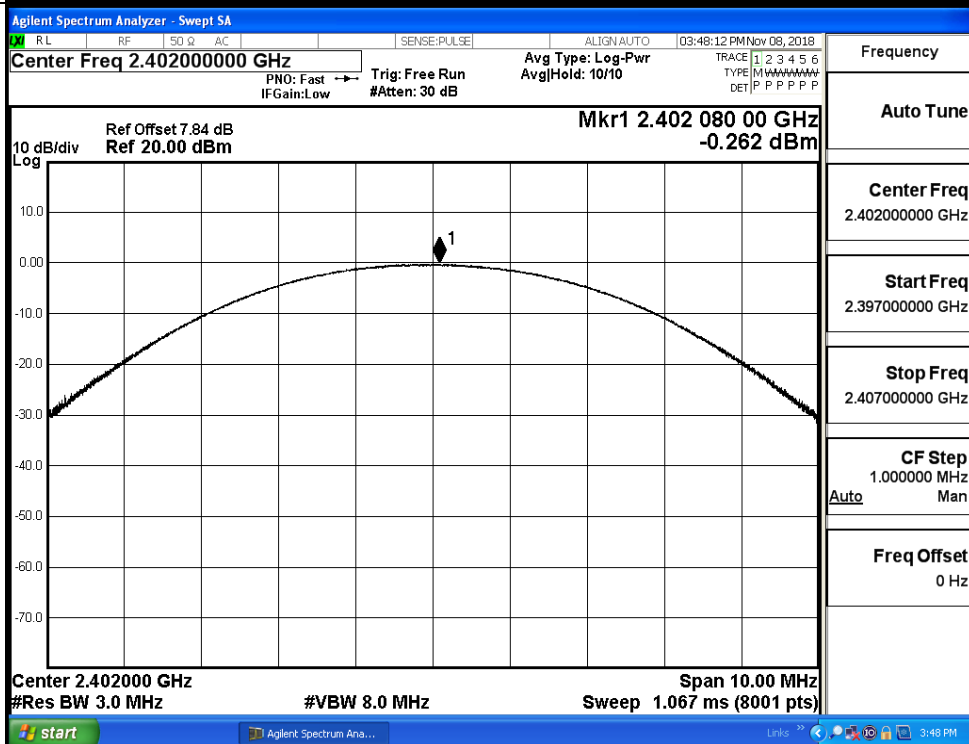
GFSK/LCH

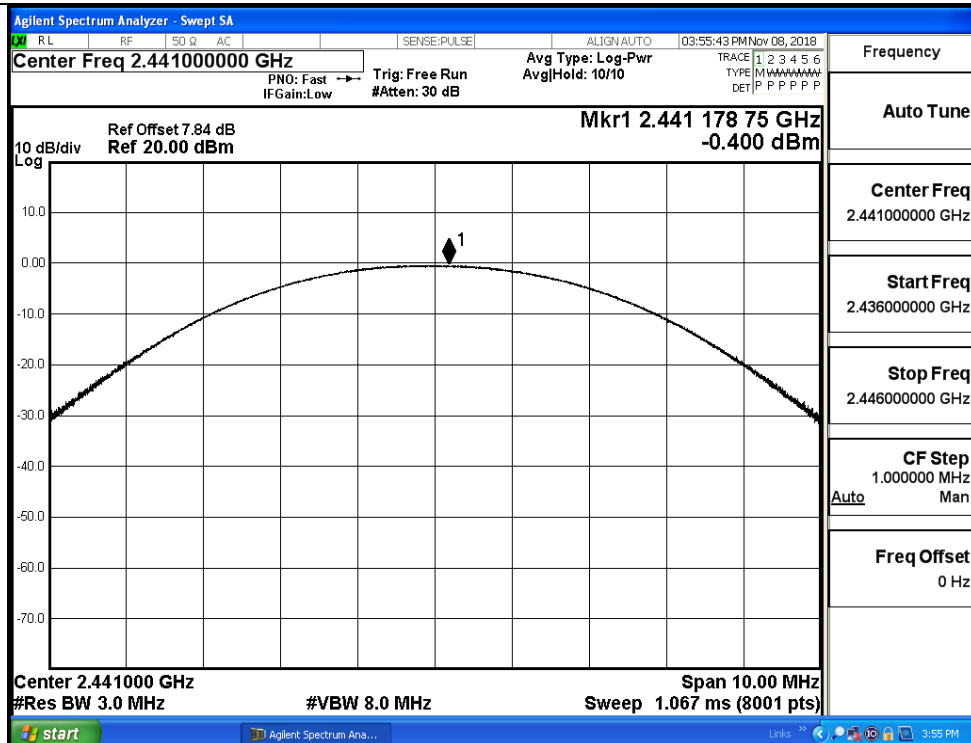
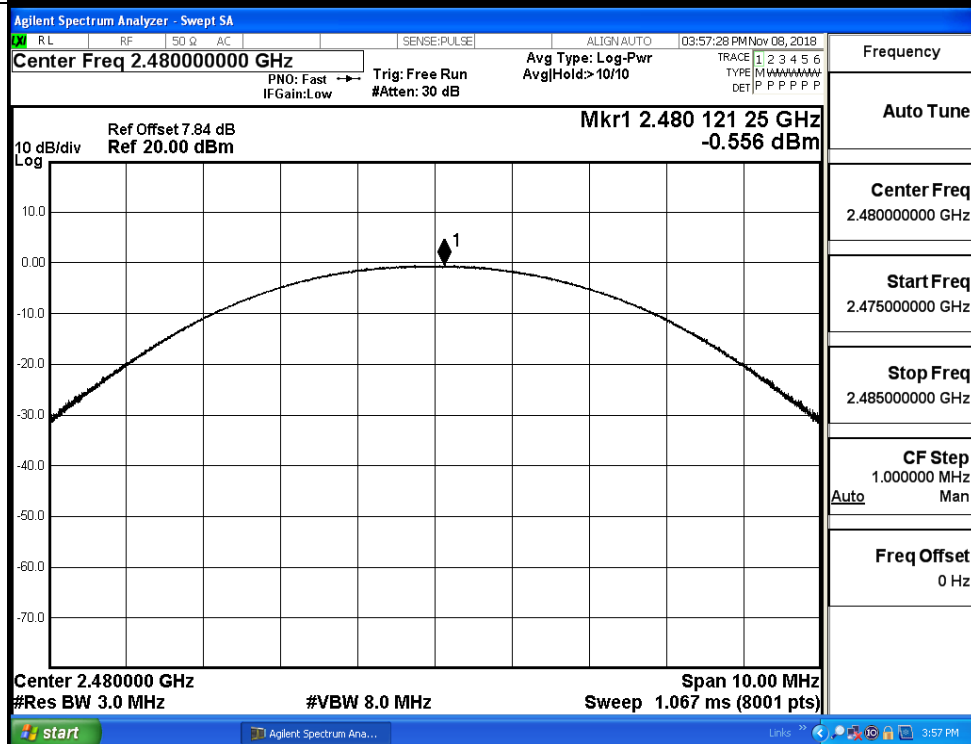


GFSK/MCH

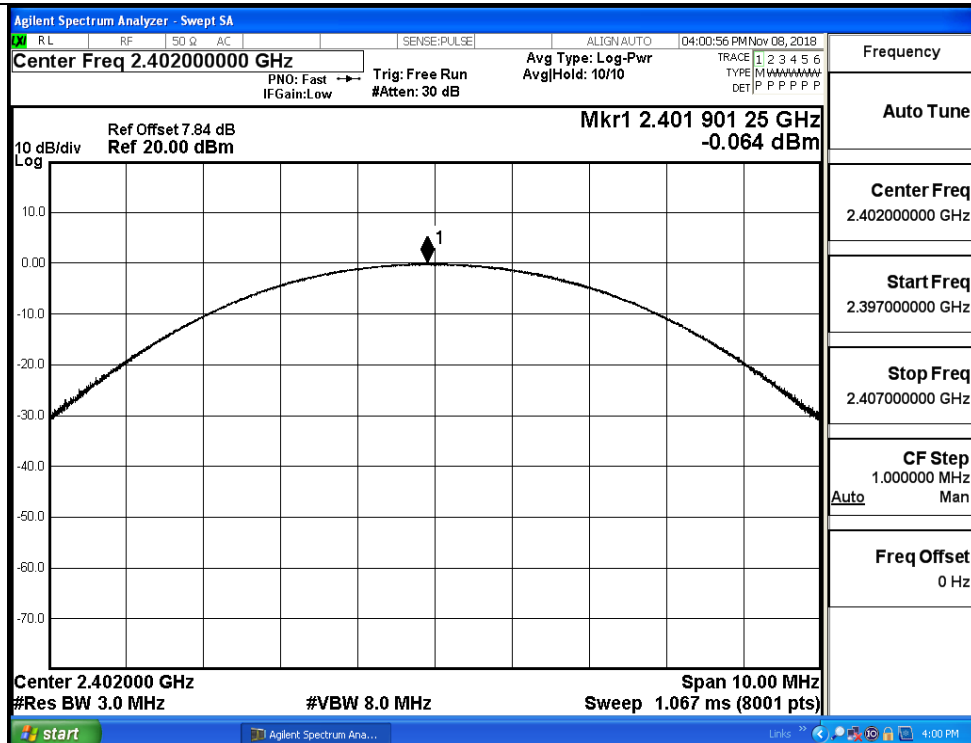


GFSK/HCH

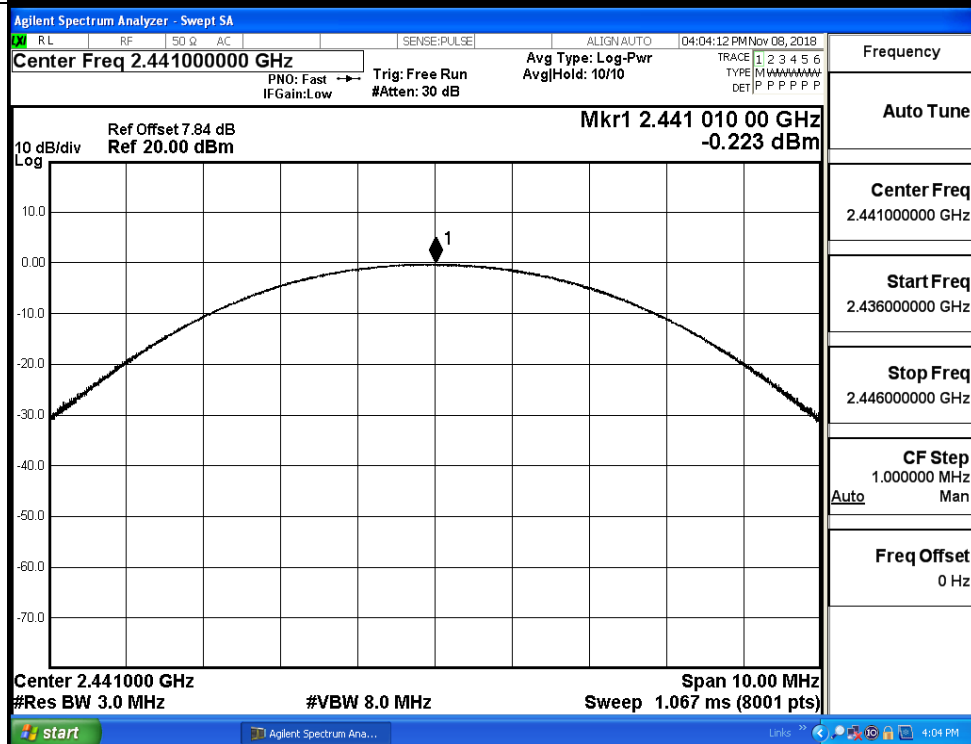
 $\pi/4$ DQPSK/LCH

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

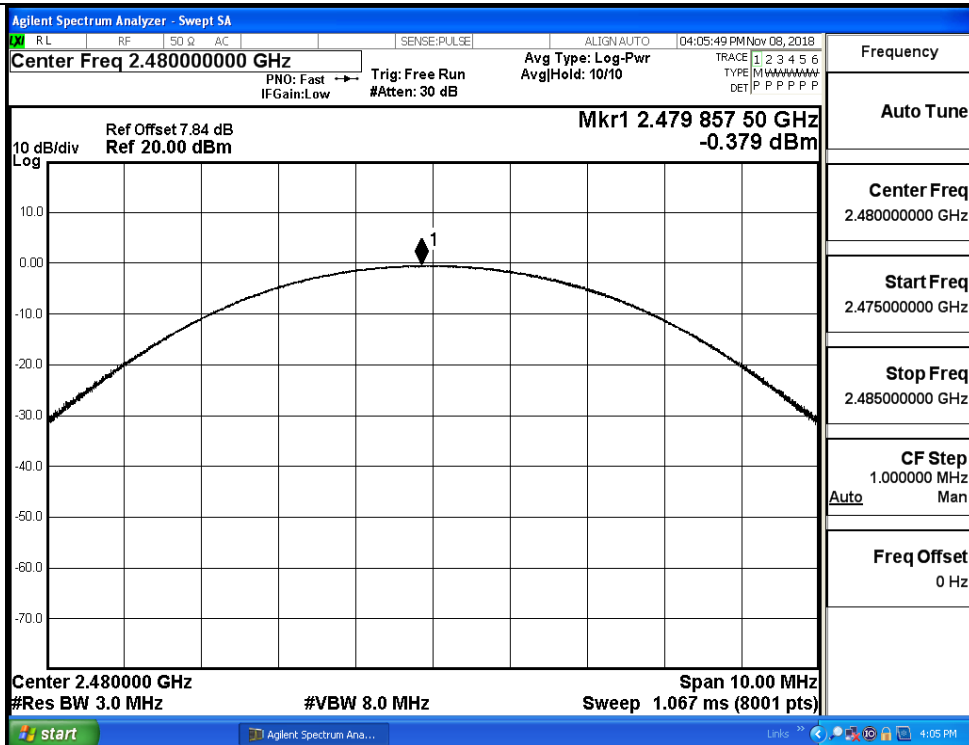
8DPSK/LCH



8DPSK/MCH



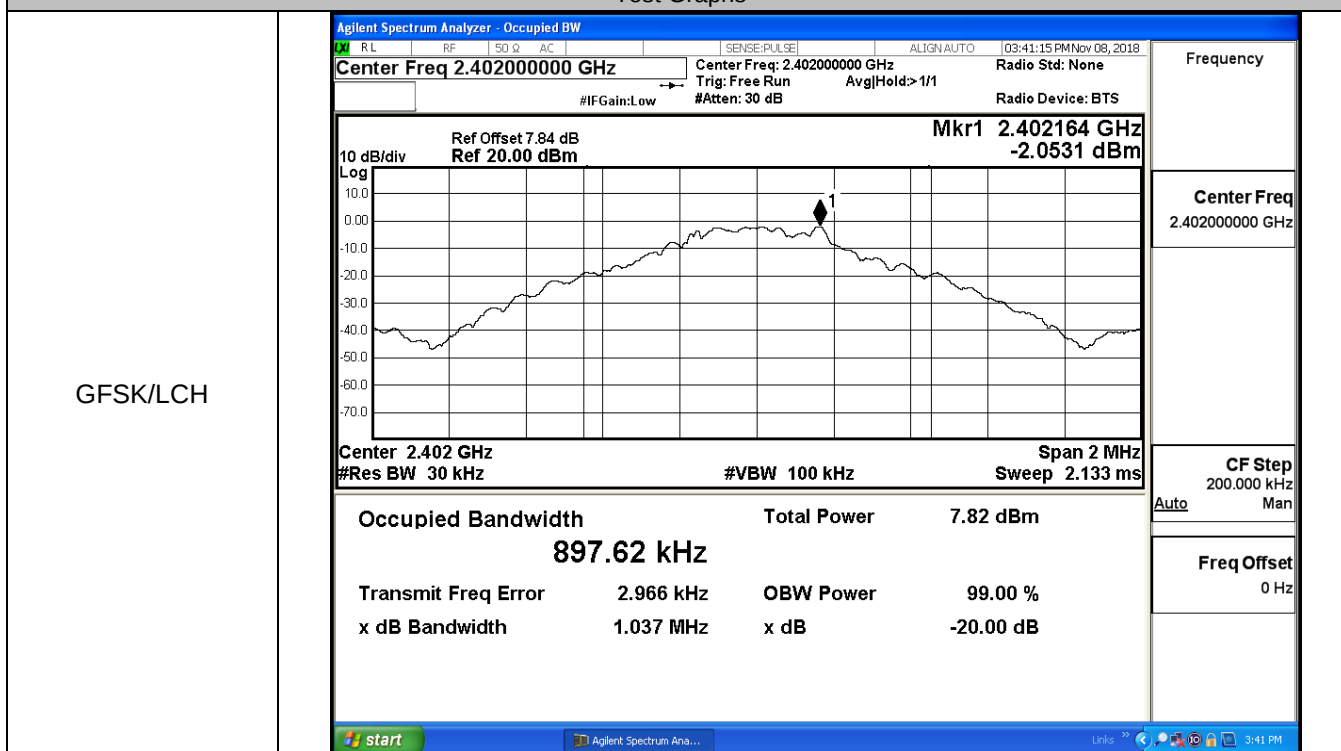
8DPSK/HCH



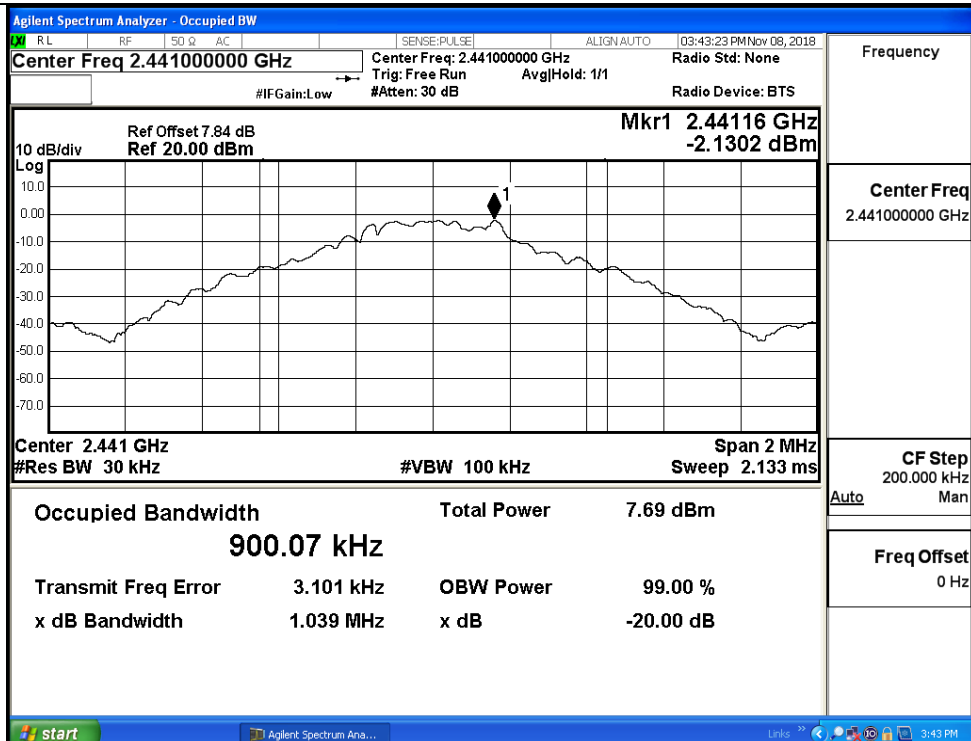
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.037	Not Specified	PASS
	MCH	1.039	Not Specified	PASS
	HCH	1.040	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.296	Not Specified	PASS
	MCH	1.313	Not Specified	PASS
	HCH	1.312	Not Specified	PASS
8DPSK	LCH	1.295	Not Specified	PASS
	MCH	1.295	Not Specified	PASS
	HCH	1.295	Not Specified	PASS

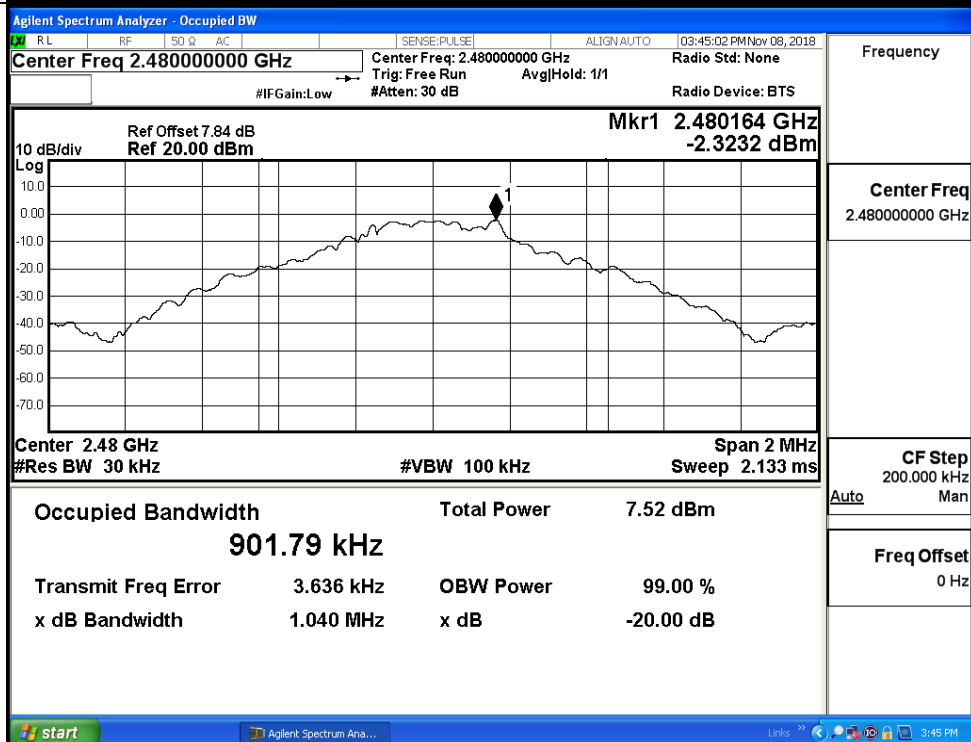
Test Graphs

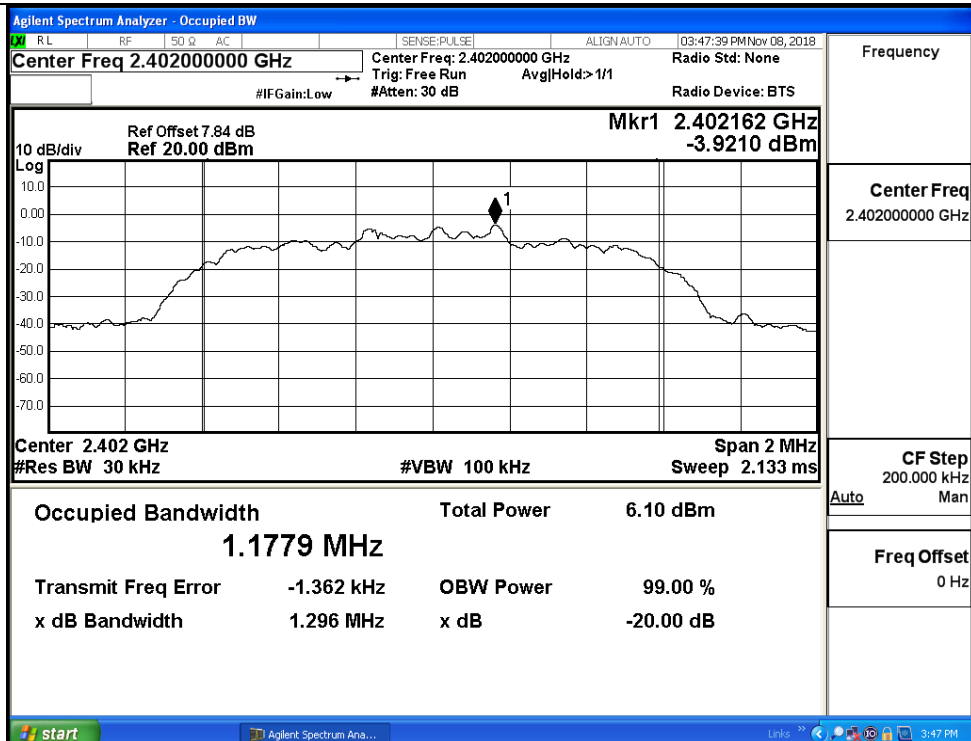
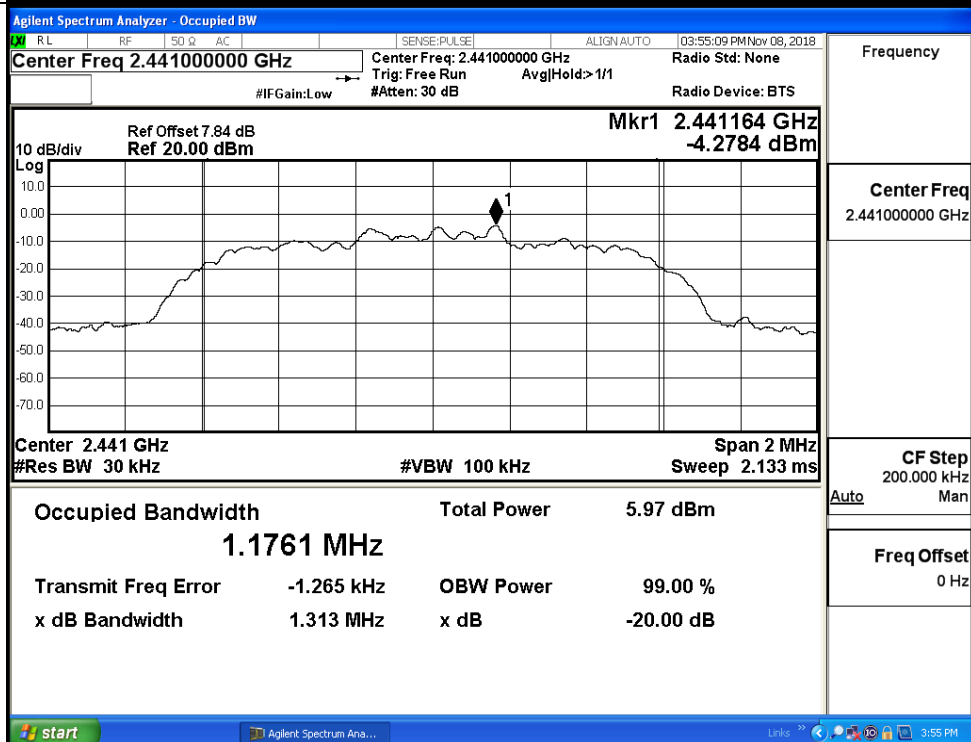


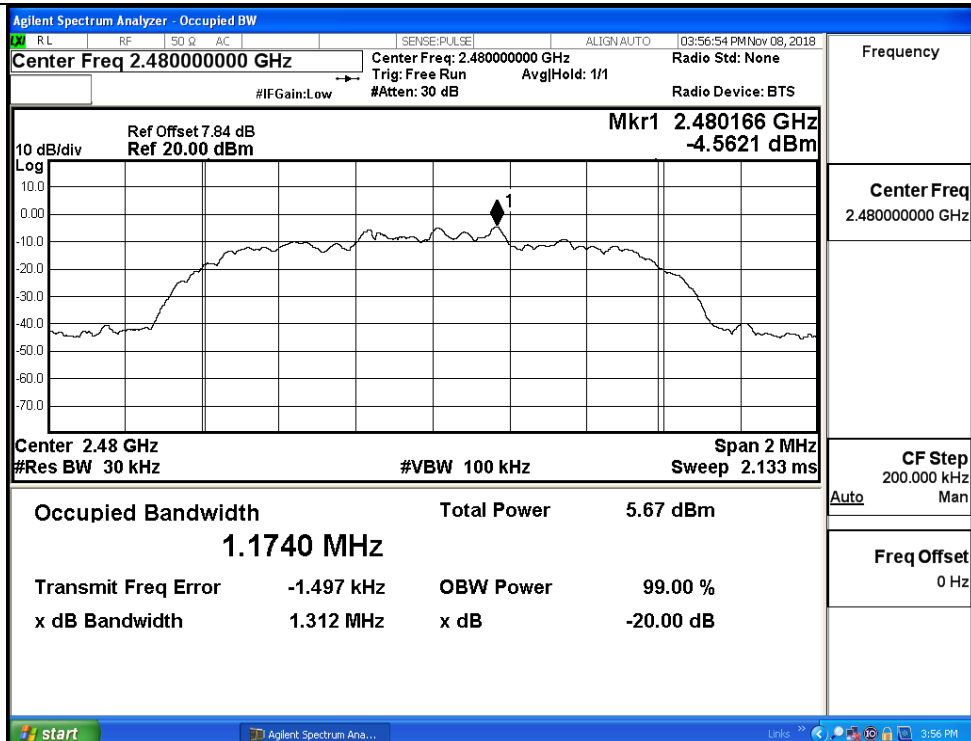
GFSK/MCH



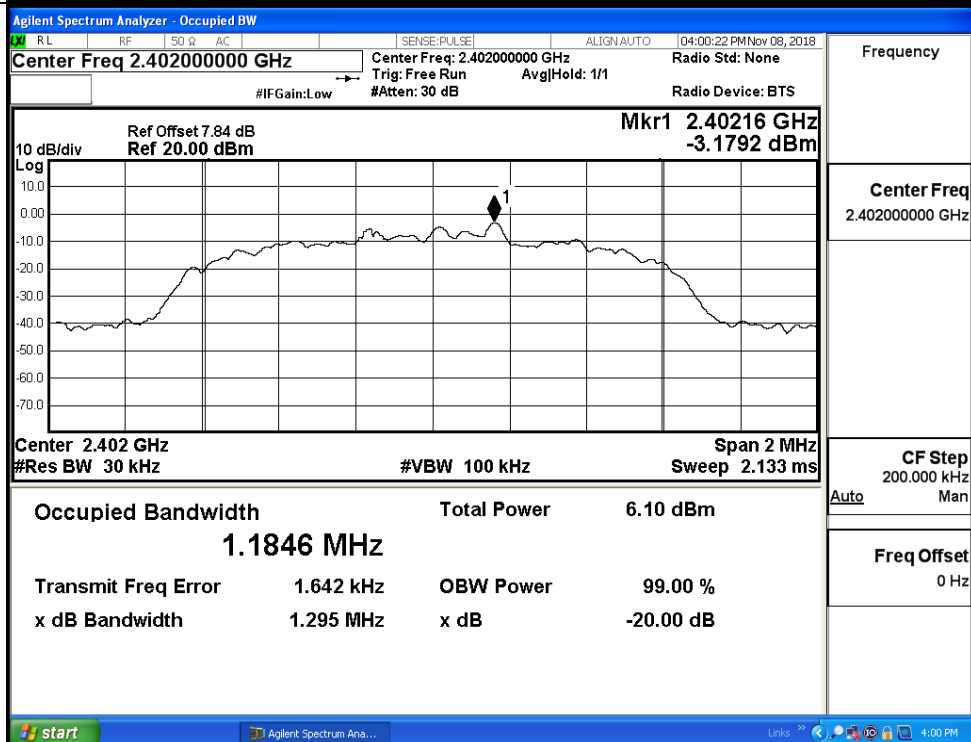
GFSK/HCH



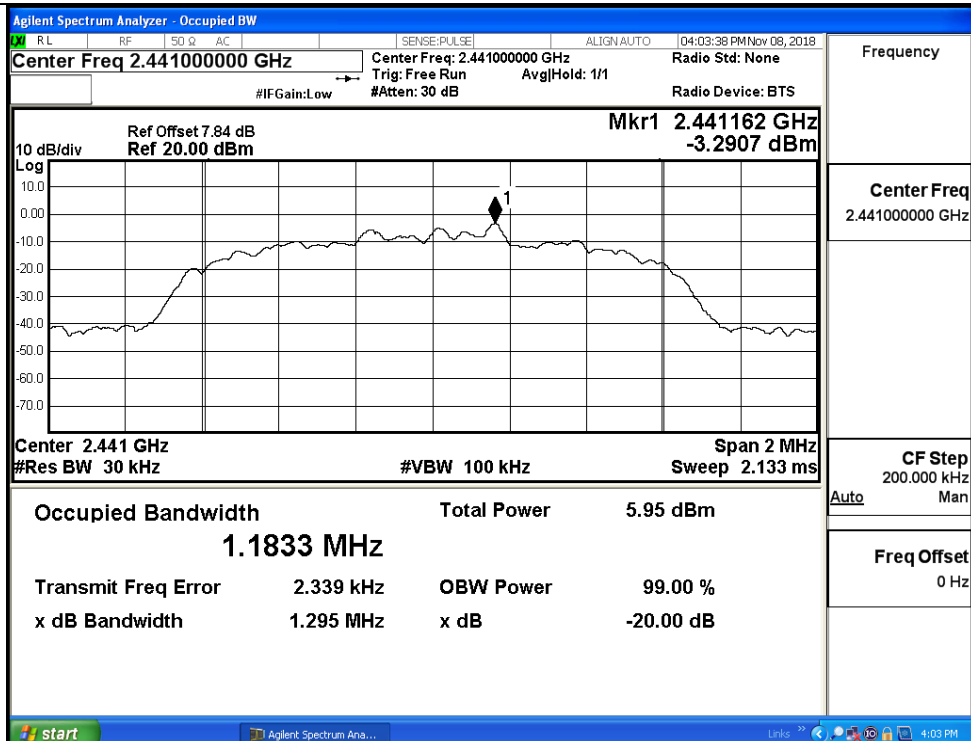
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

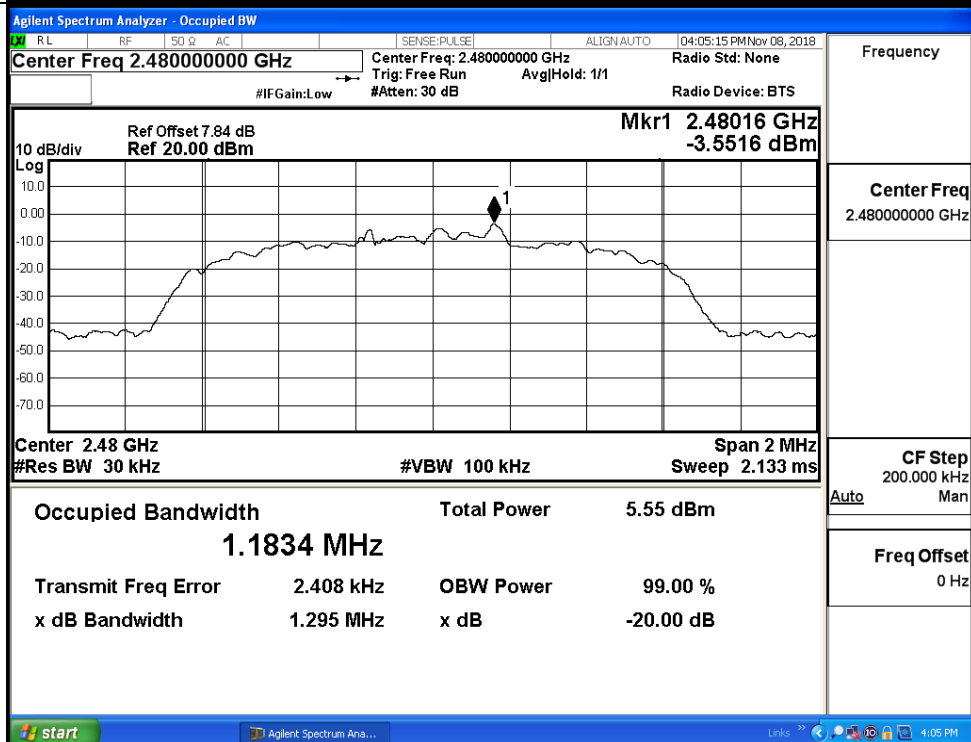
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

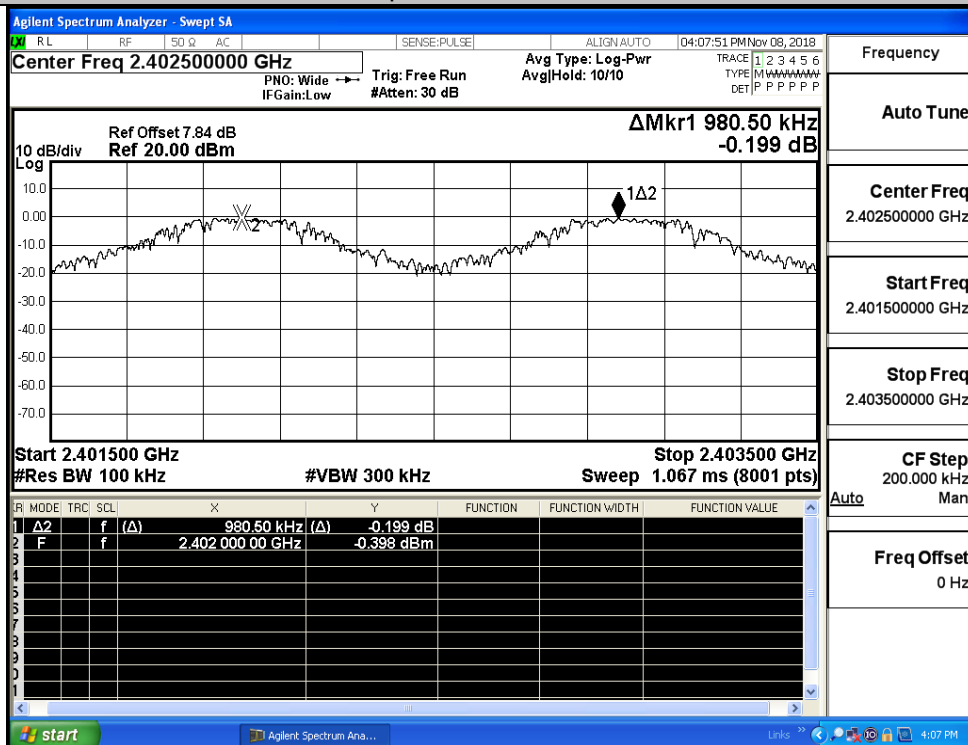


A.3 Carrier Frequency Separation

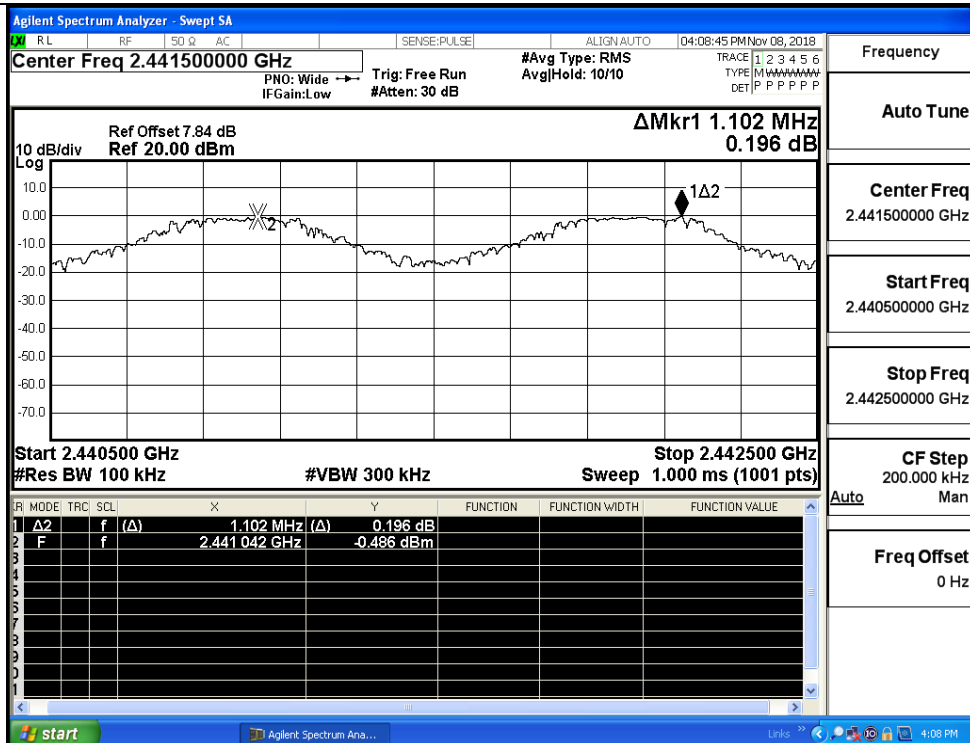
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.981	0.693	PASS
	MCH	1.102	0.693	PASS
	HCH	0.874	0.693	PASS
$\pi/4$ DQPSK	LCH	1.110	0.875	PASS
	MCH	1.184	0.875	PASS
	HCH	1.018	0.875	PASS
8DPSK	LCH	1.140	0.863	PASS
	MCH	1.052	0.863	PASS
	HCH	0.918	0.863	PASS

Test Graphs

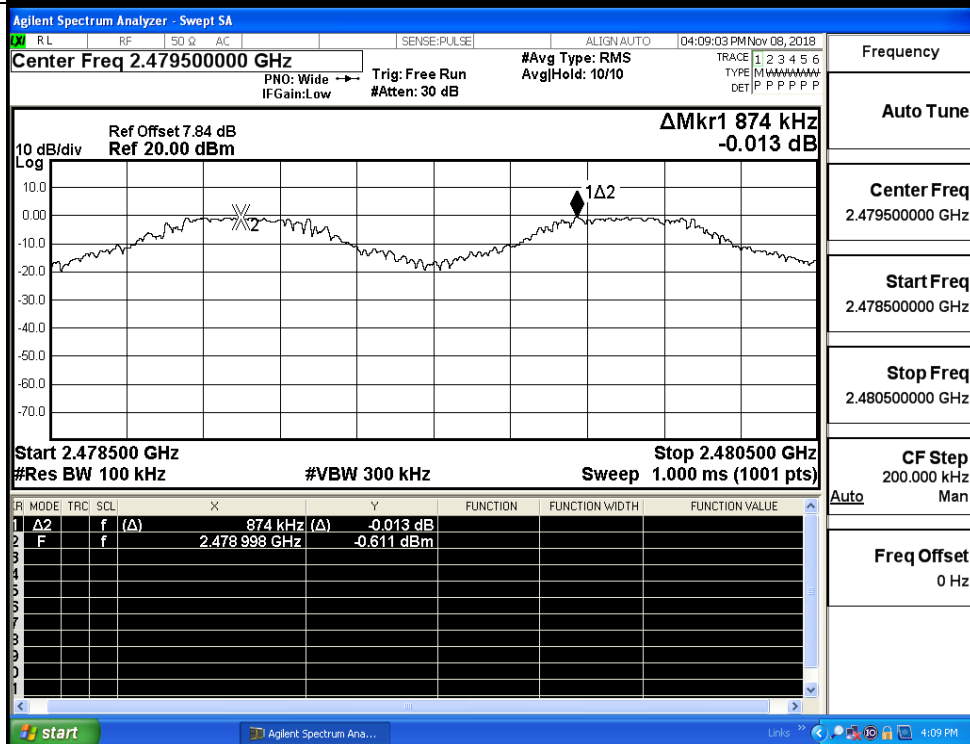
GFSK/LCH

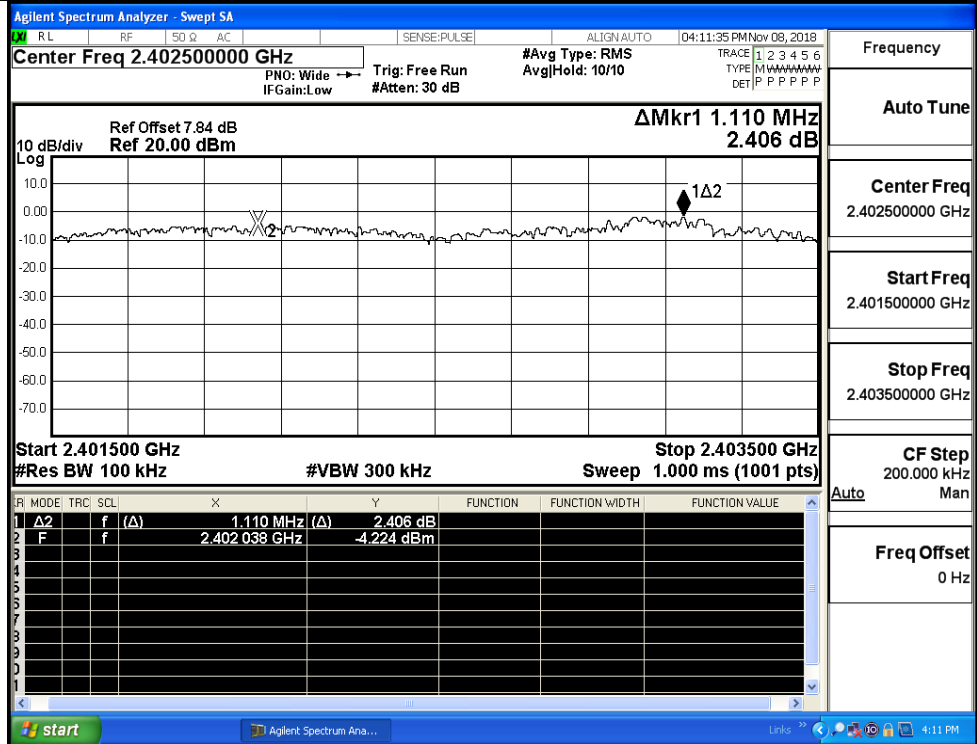
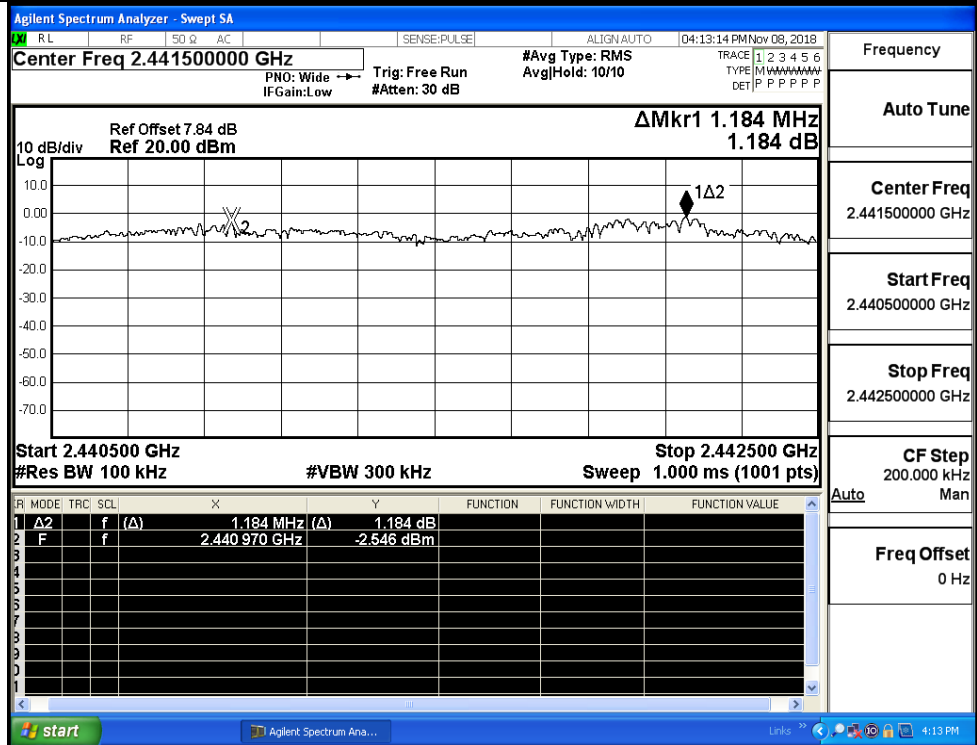


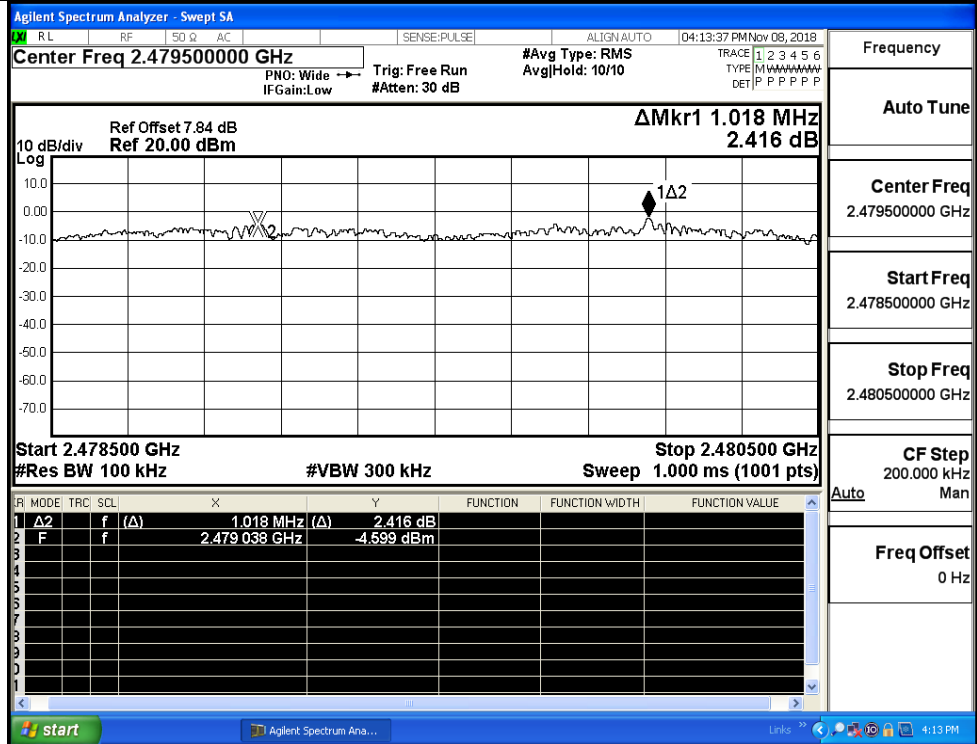
GFSK/MCH



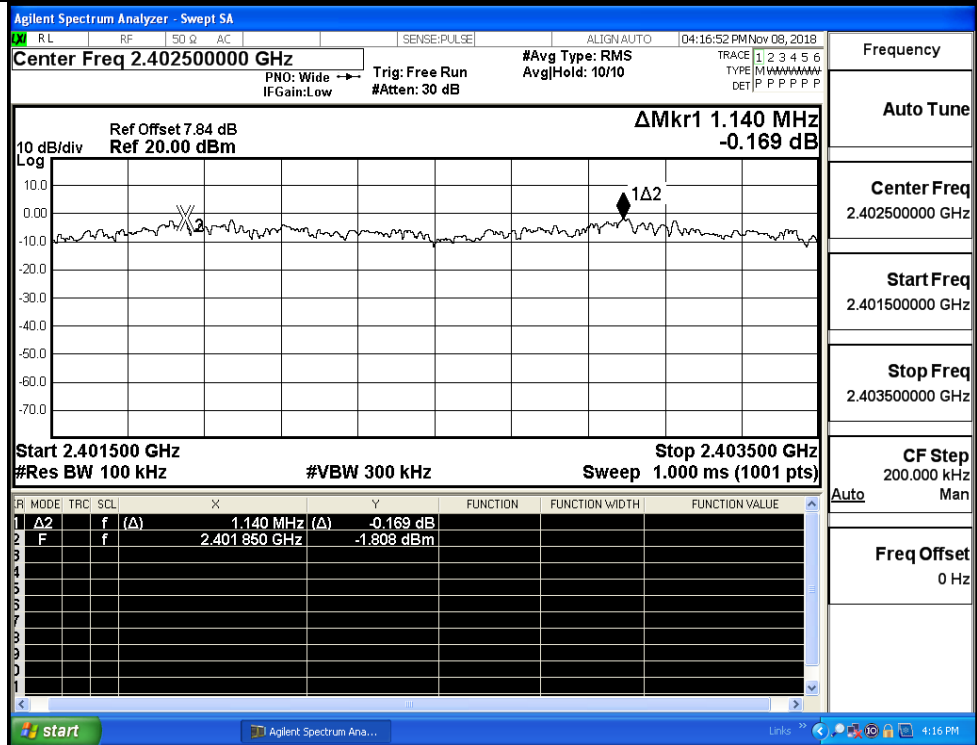
GFSK/HCH



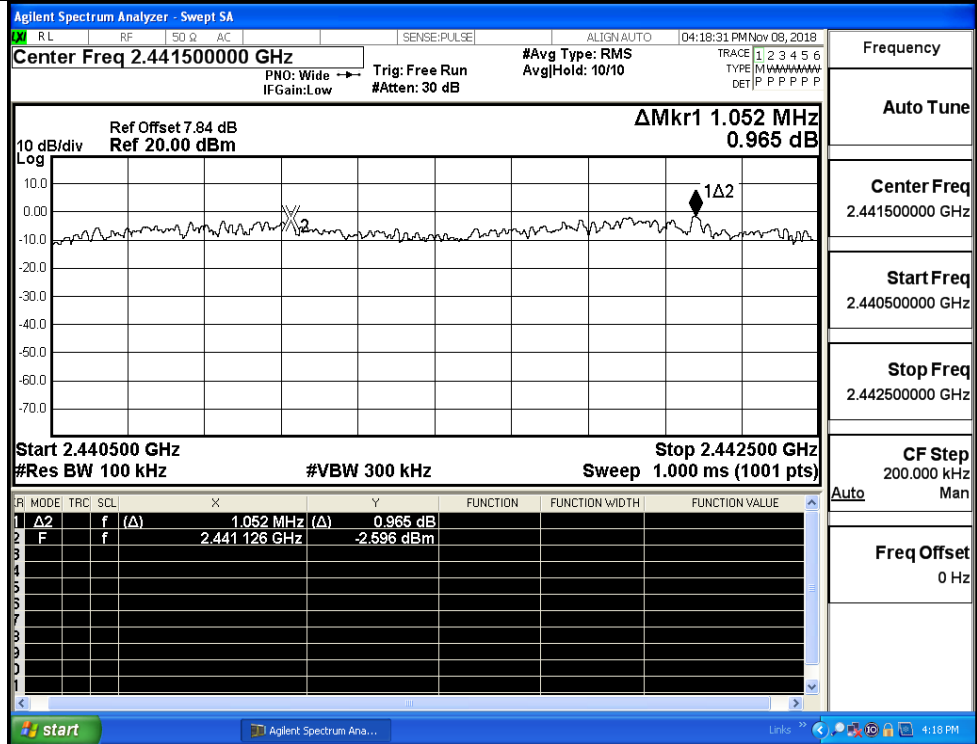
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

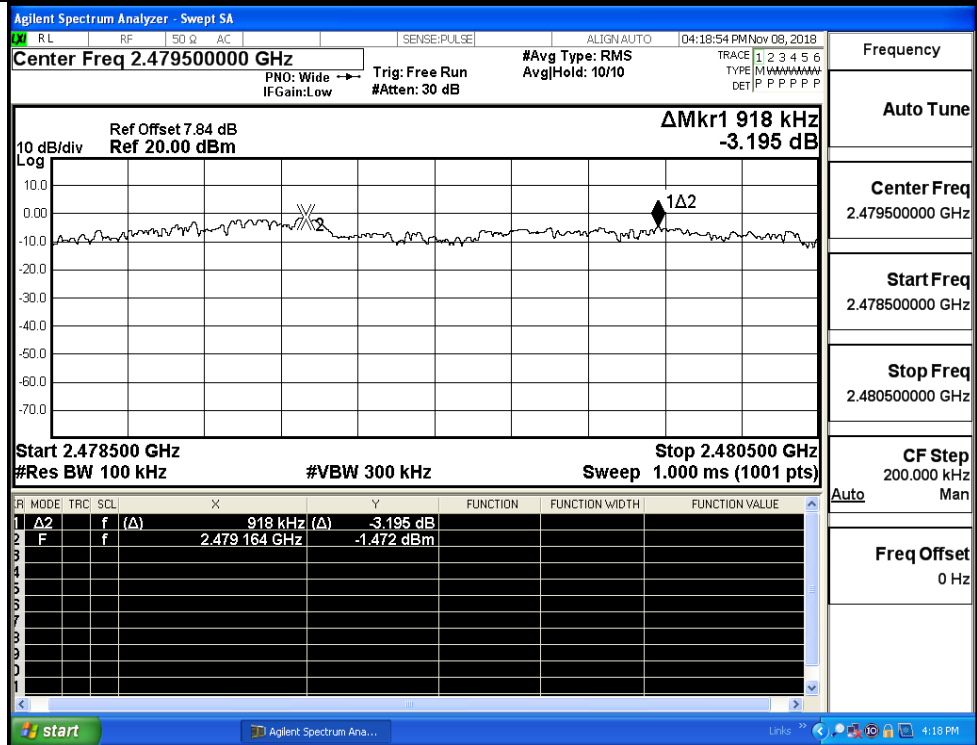
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

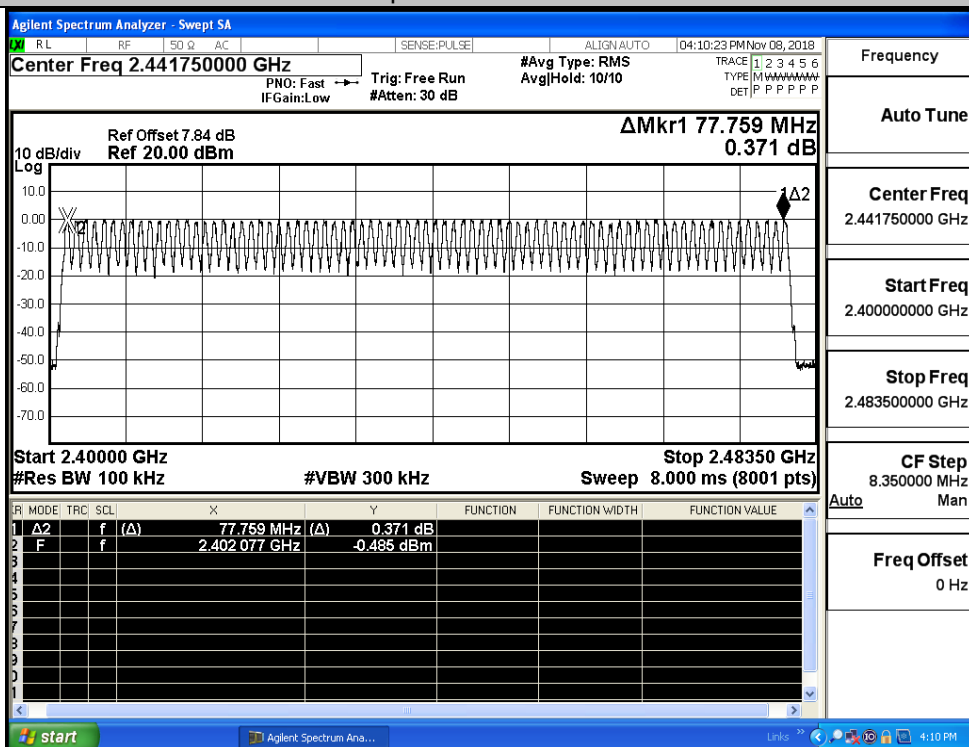


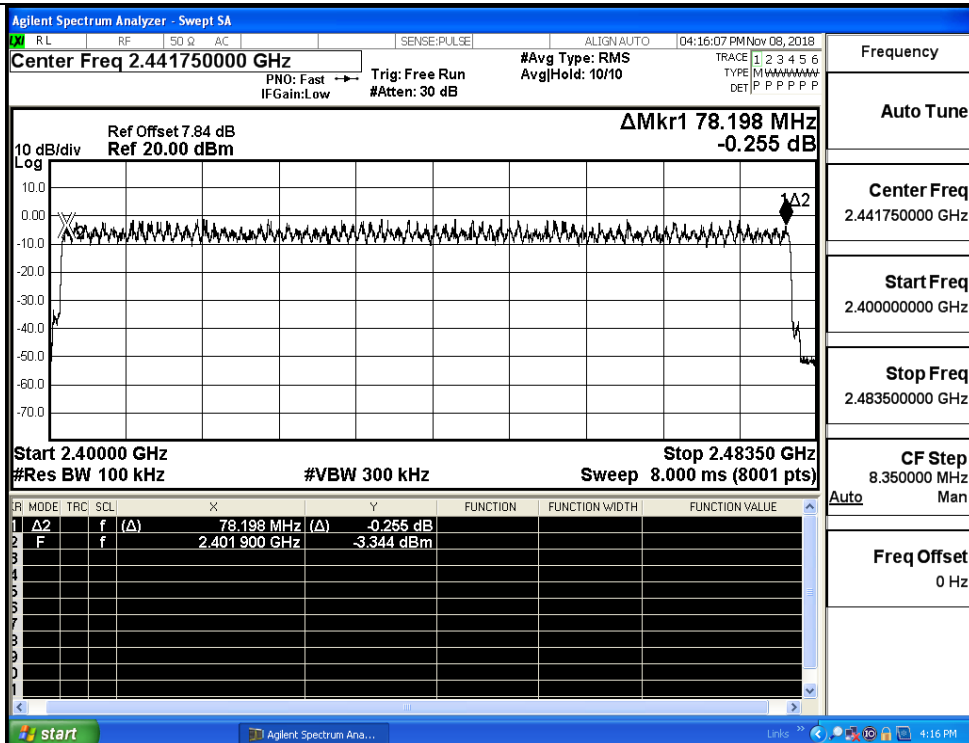
A.4 Hopping Channel Number

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

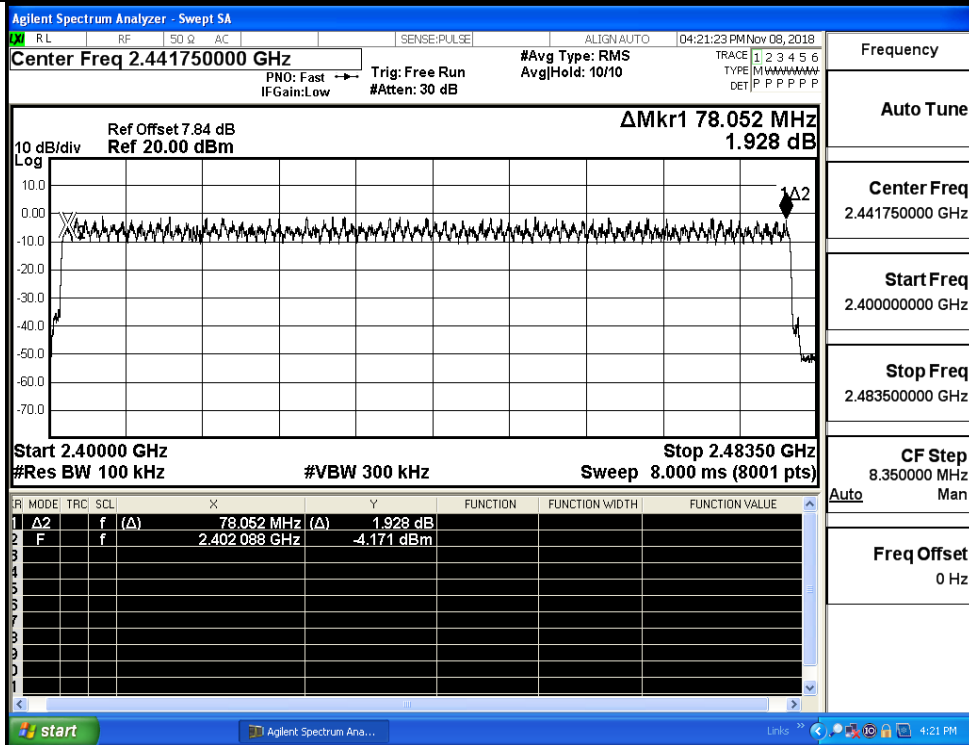
Test Graphs

GFSK/Hop



$\pi/4$ DQPSK/Hop

8DPSK/Hop

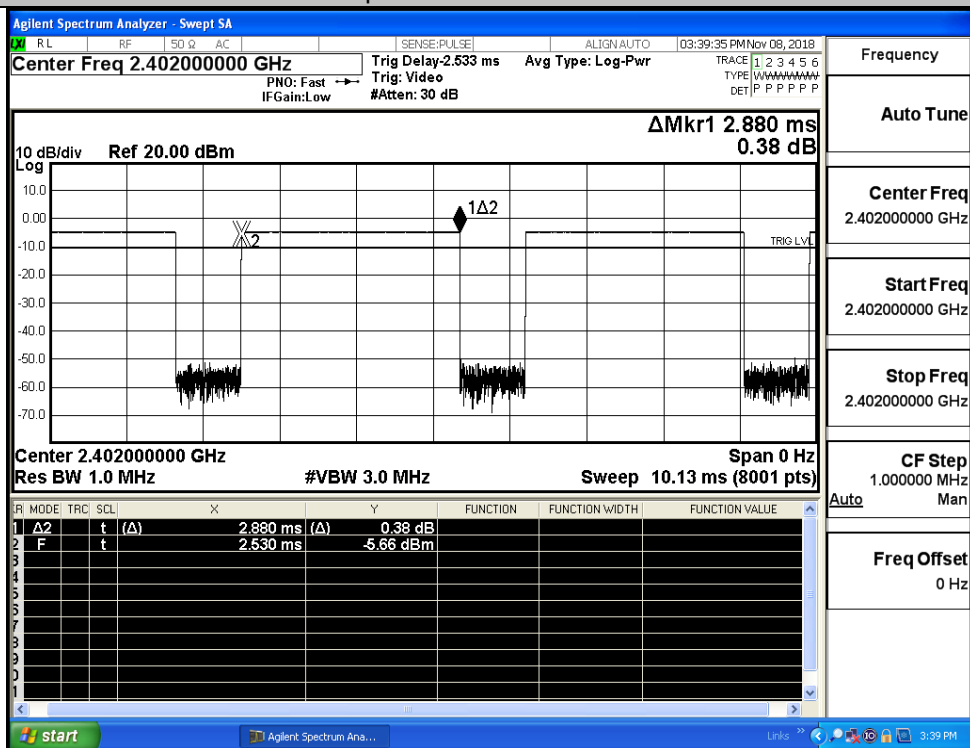


A.5 Dwell Time

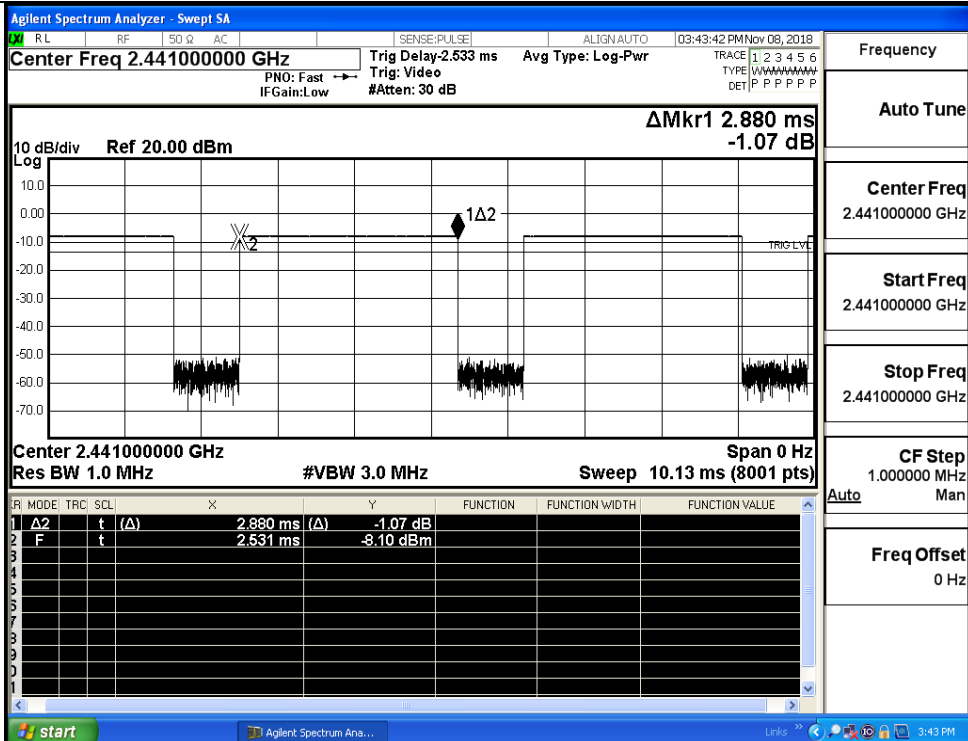
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

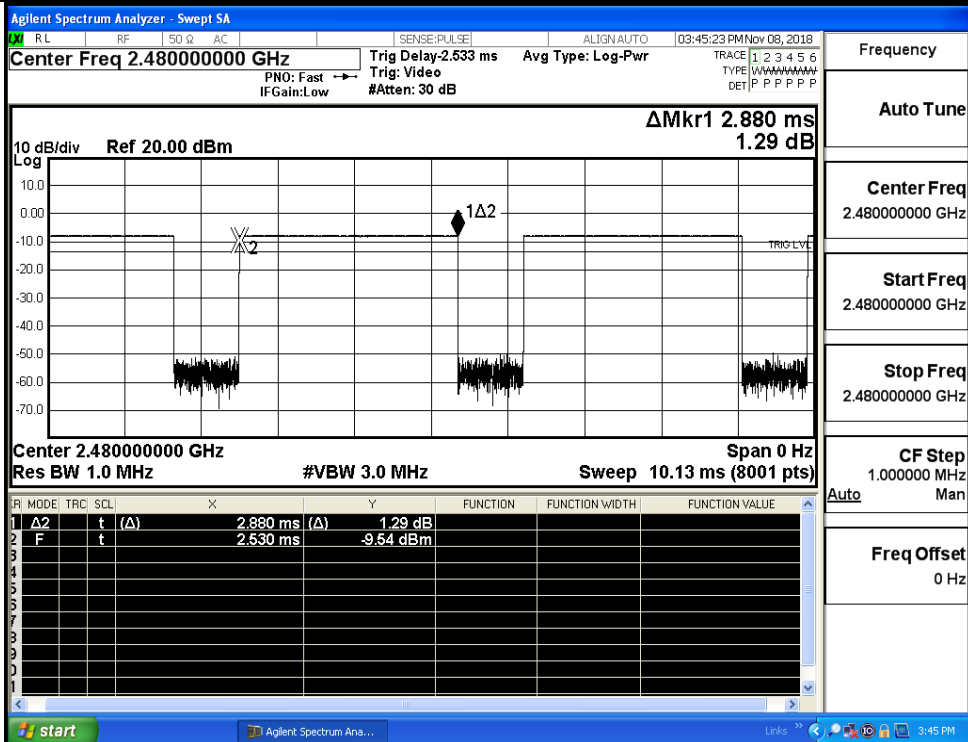
GFSK_DH5/LCH



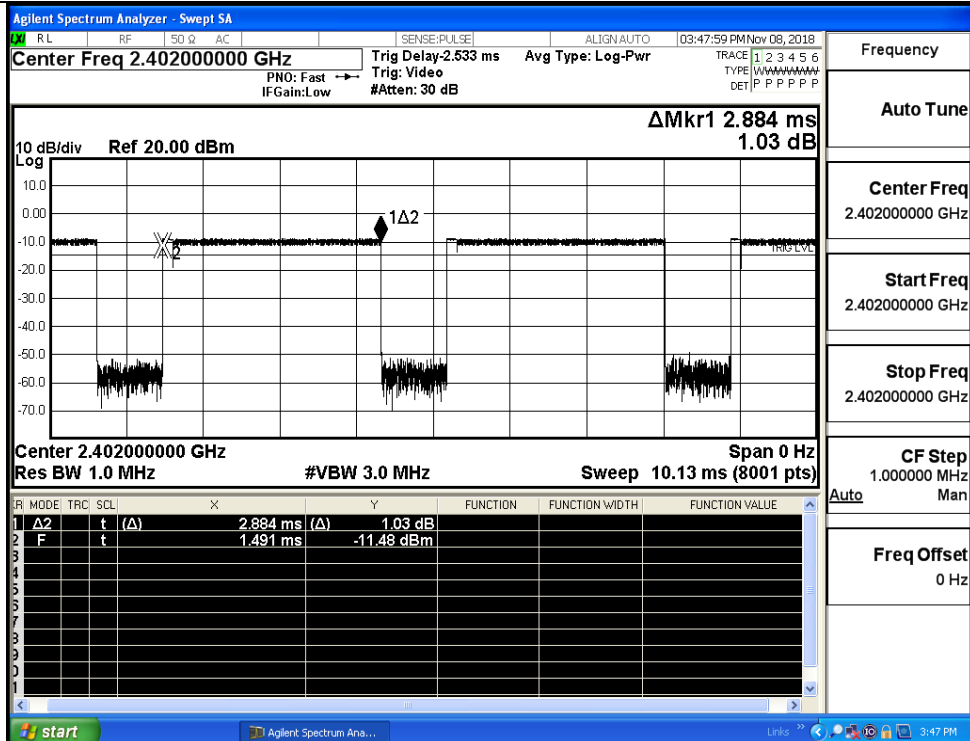
GFSK_DH5/MCH



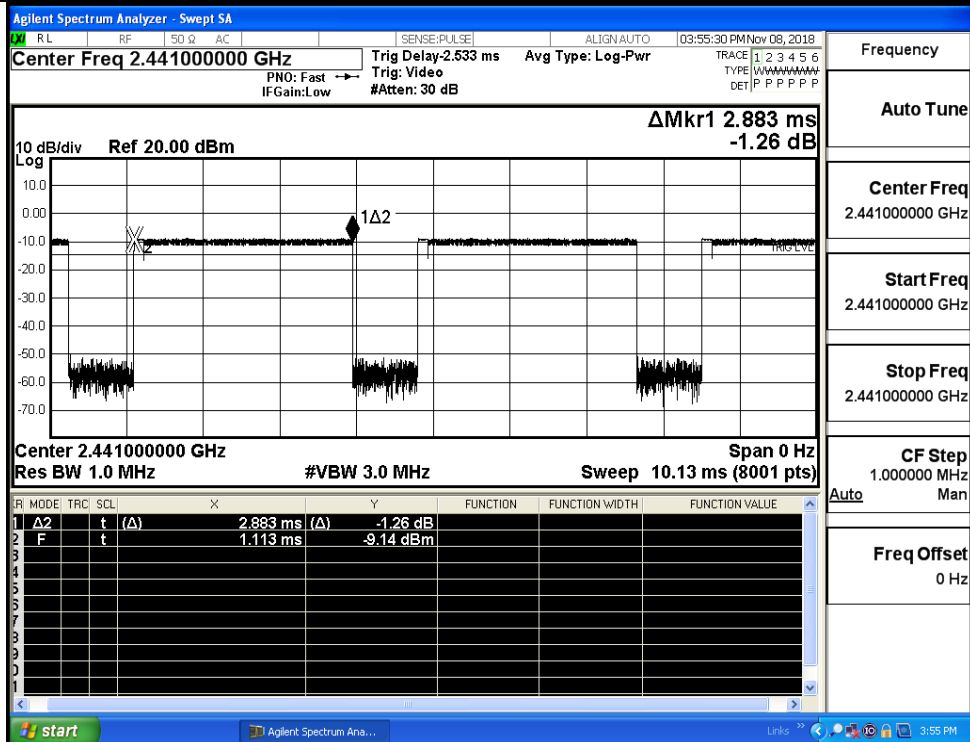
GFSK_DH5/HCH



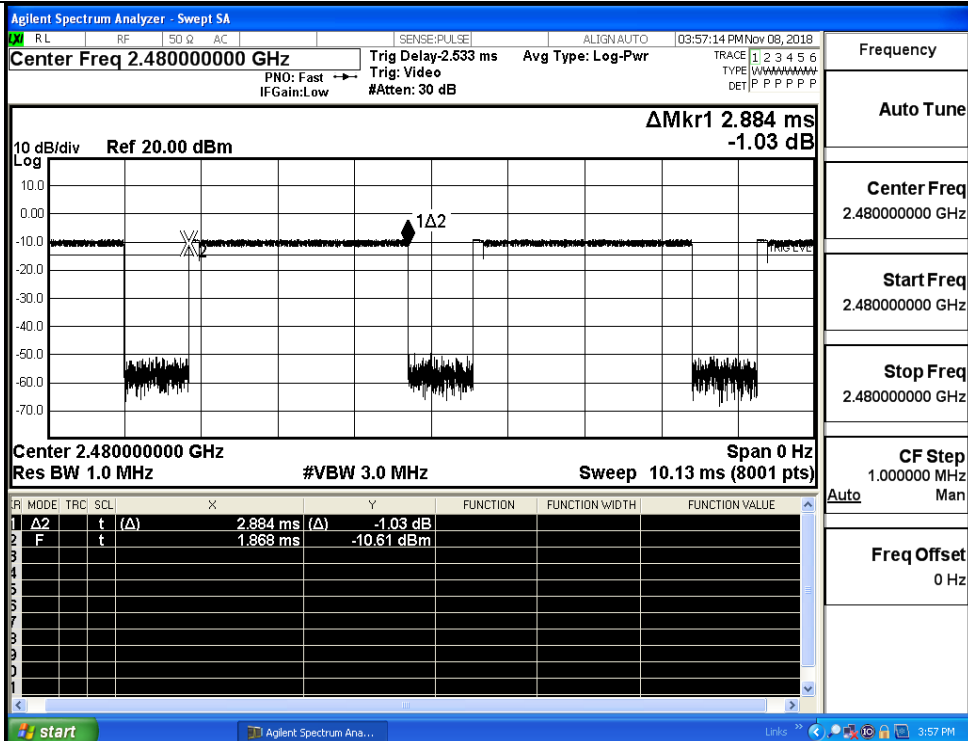
$\pi/4$ DQPSK
_2DH5/LCH



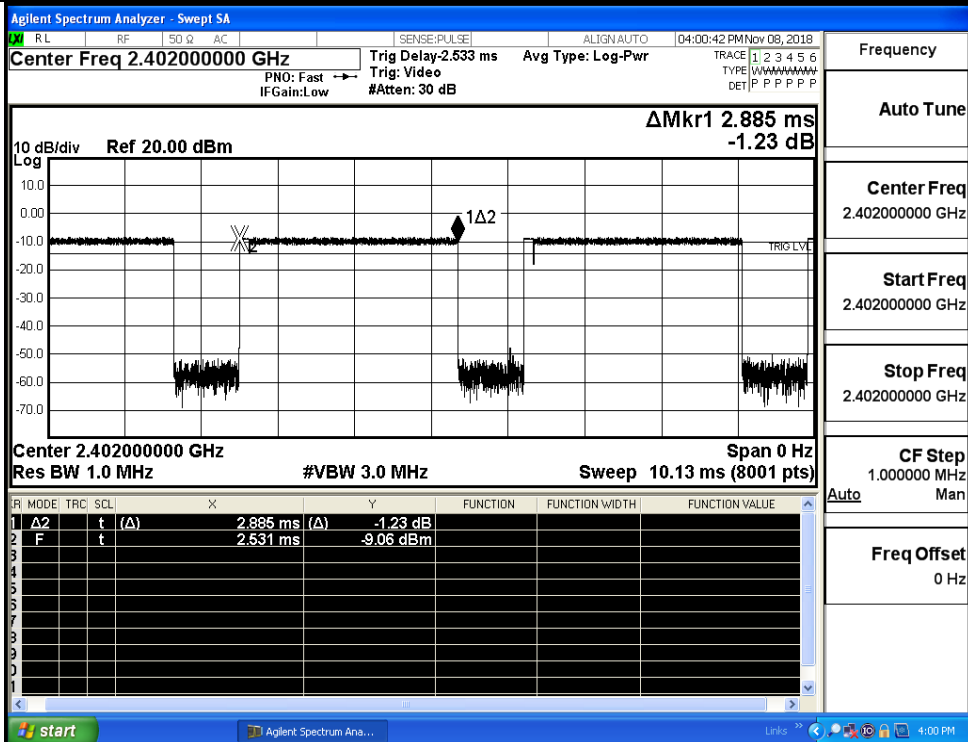
$\pi/4$ DQPSK
_2DH5/MCH



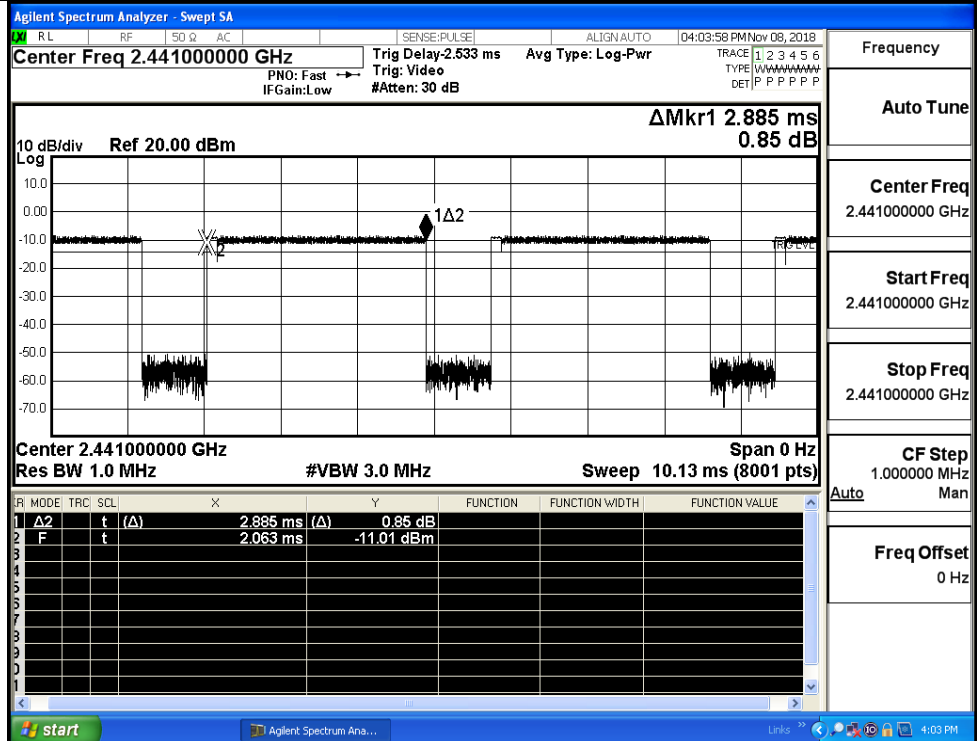
$\pi/4$ DQPSK
_2DH5/HCH



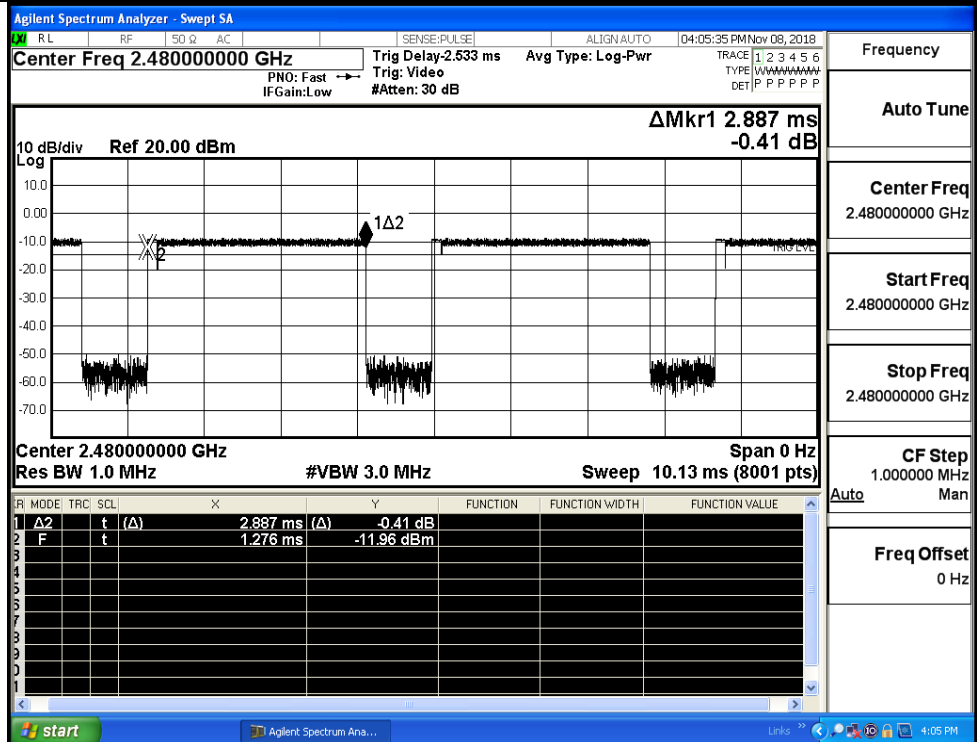
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

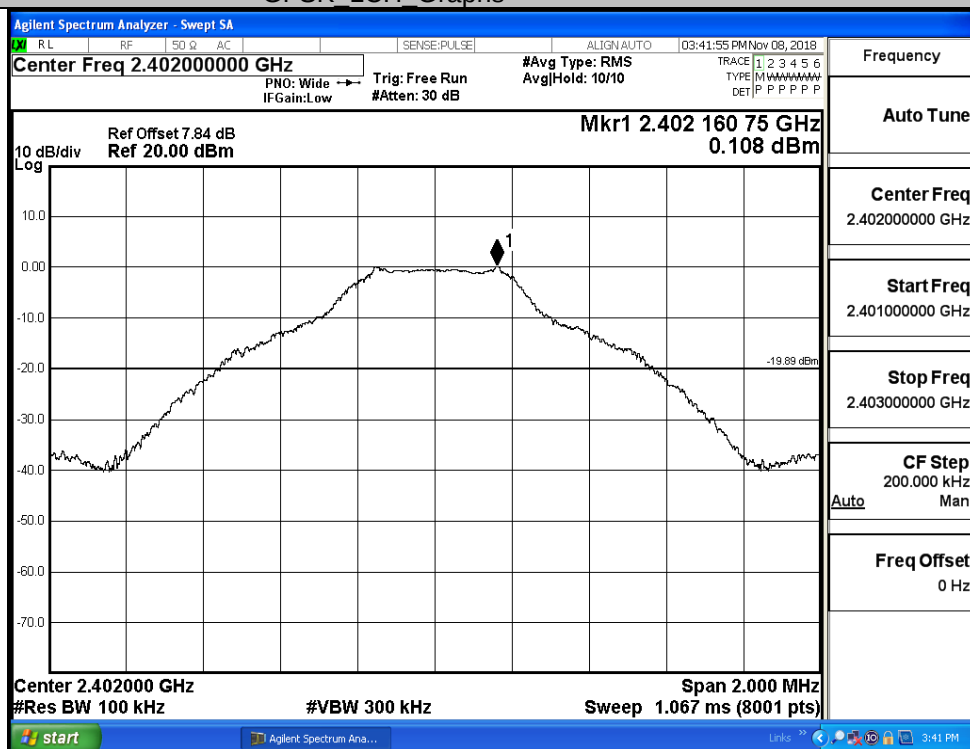


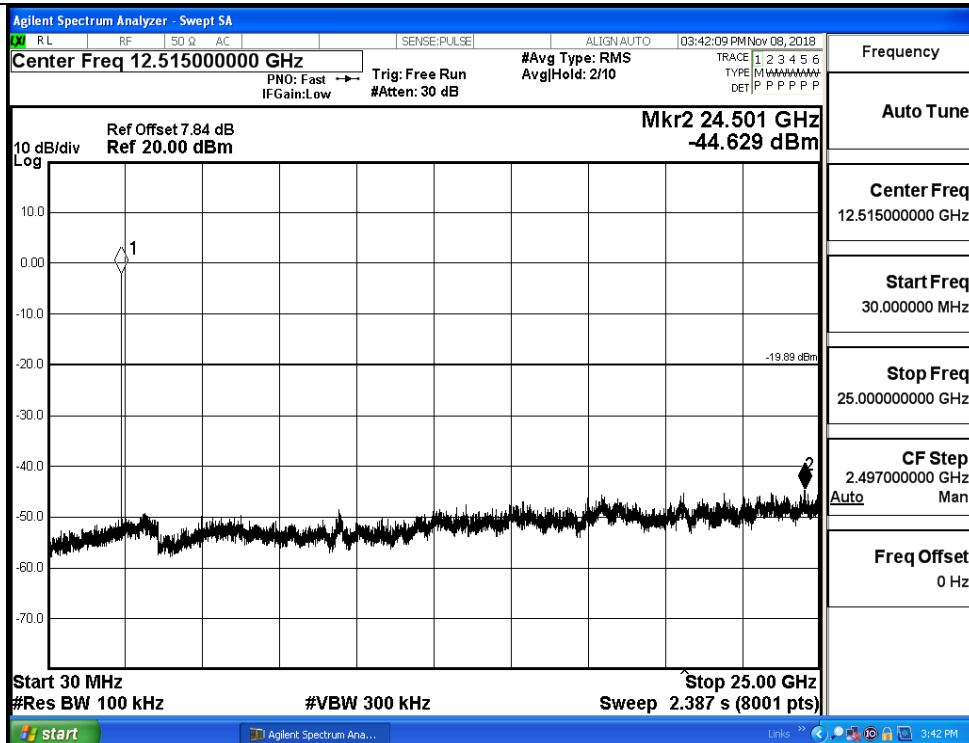
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.108	-44.629	-19.892	PASS
	MCH	-0.06	-45.164	-20.060	PASS
	HCH	-0.13	-35.667	-20.130	PASS
$\pi/4$ DQPSK	LCH	-1.262	-44.629	-21.262	PASS
	MCH	-1.357	-45.148	-21.357	PASS
	HCH	-1.802	-44.112	-21.802	PASS
8DPSK	LCH	-1.086	-45.051	-21.086	PASS
	MCH	-1.333	-45.039	-21.333	PASS
	HCH	-1.45	-43.780	-21.450	PASS

GFSK LCH Graphs

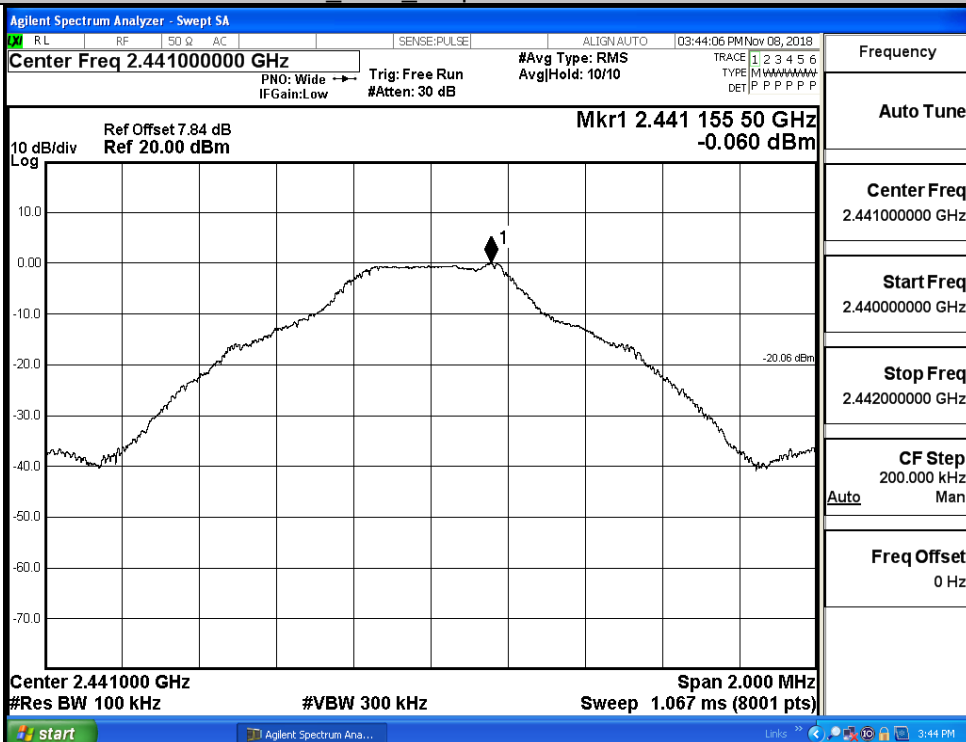
Pref



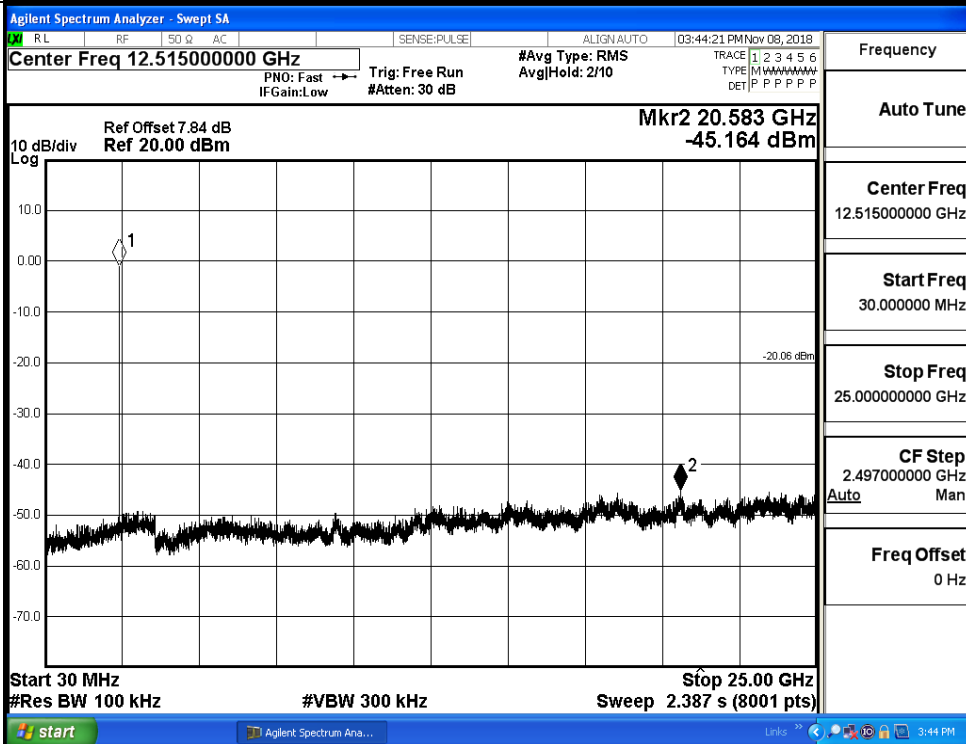


GFSK_MCH_Graphs

Pref

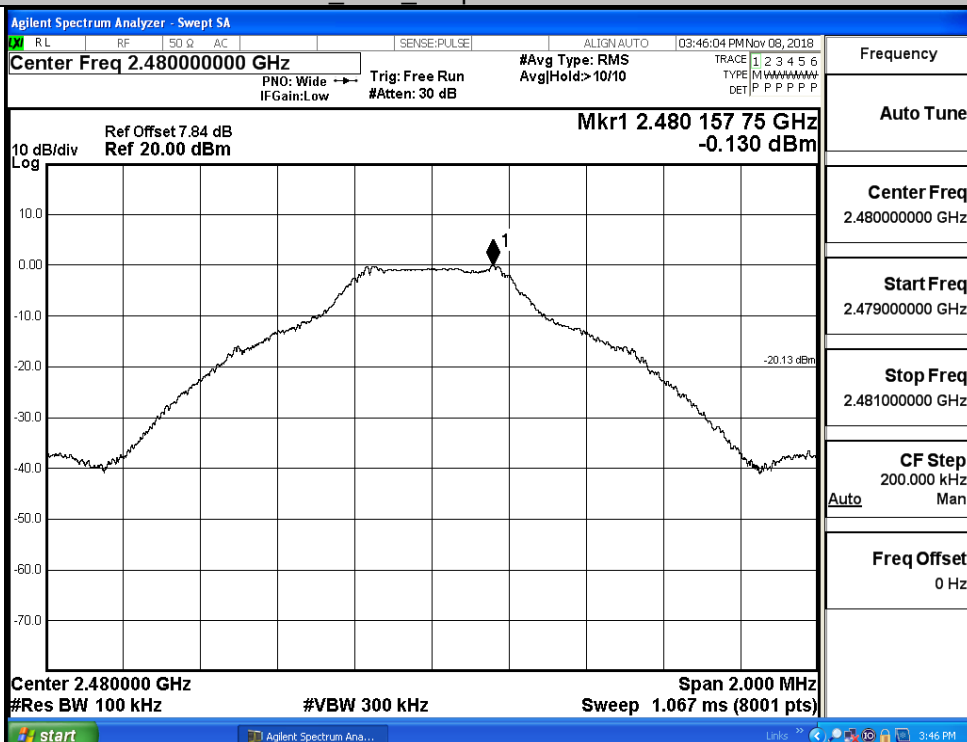


Puw

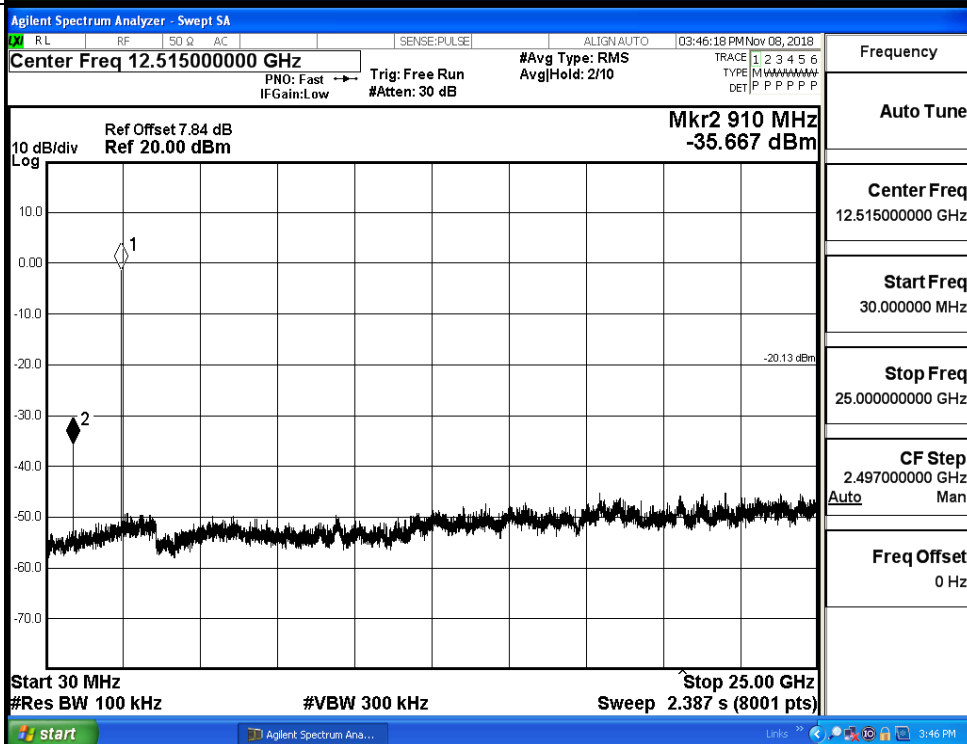


GFSK_HCH_Graphs

Pref

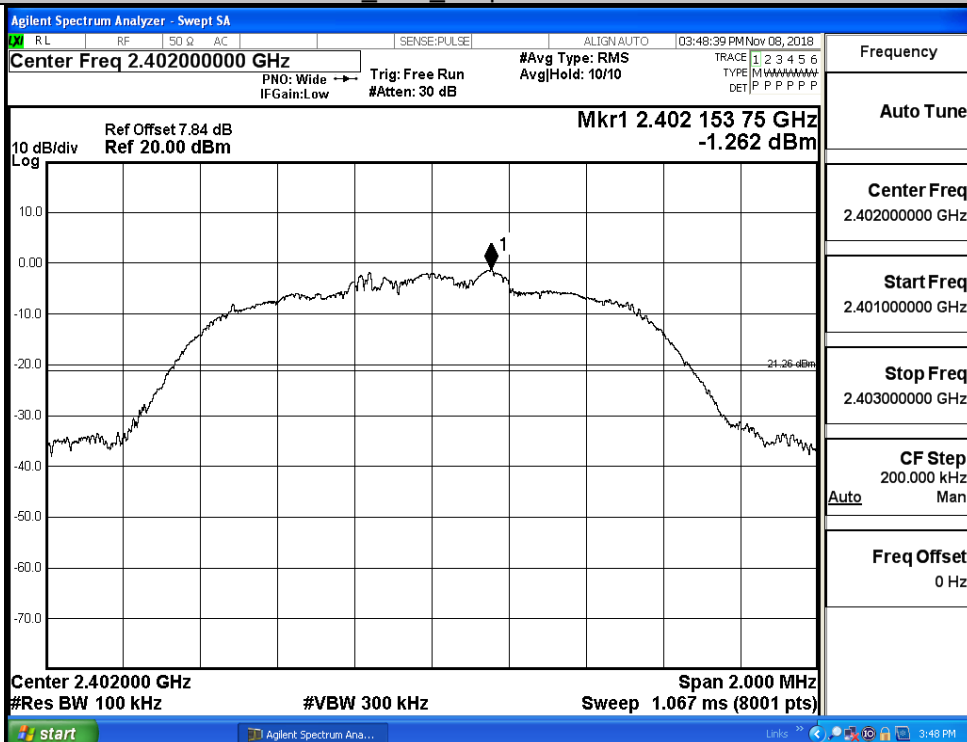


Puw

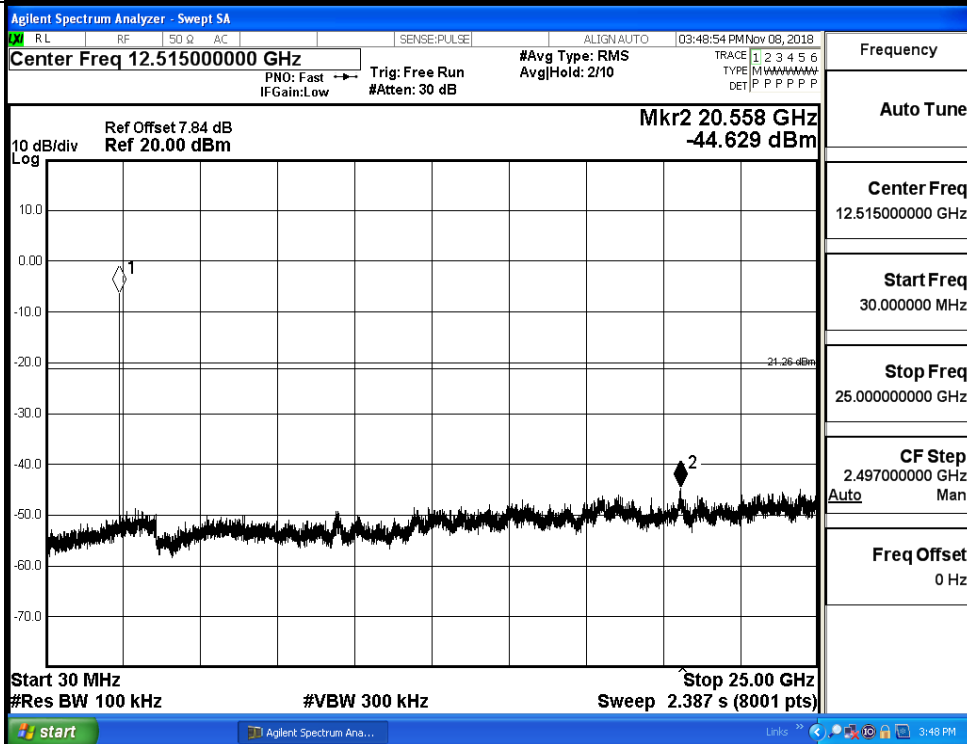


$\pi/4$ DQPSK_LCH_Graphs

Pref

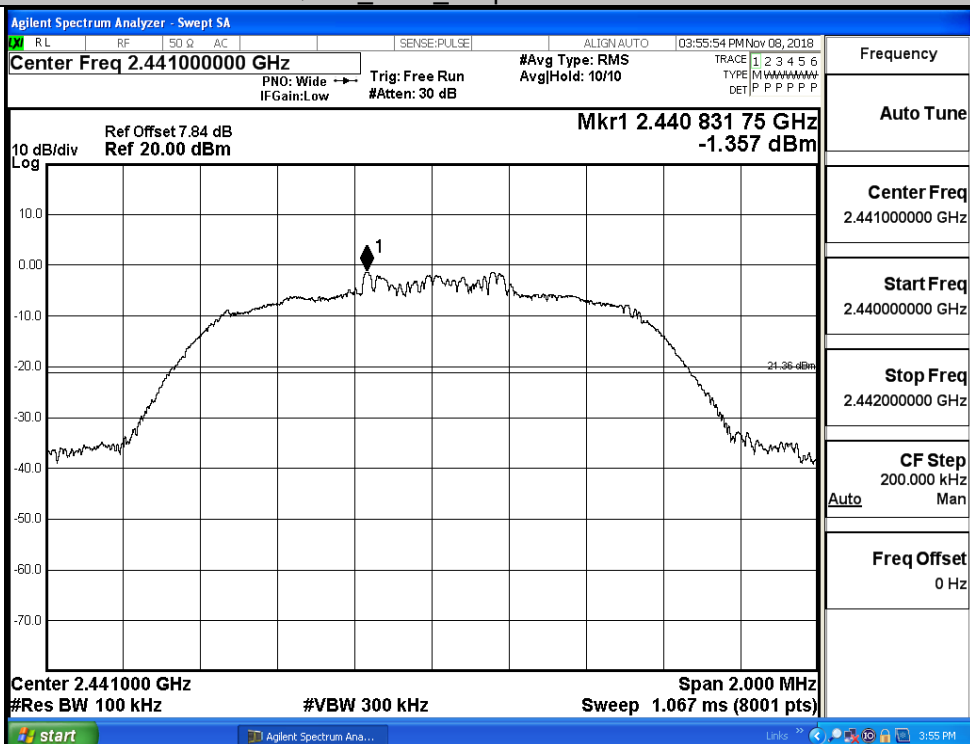


Puw

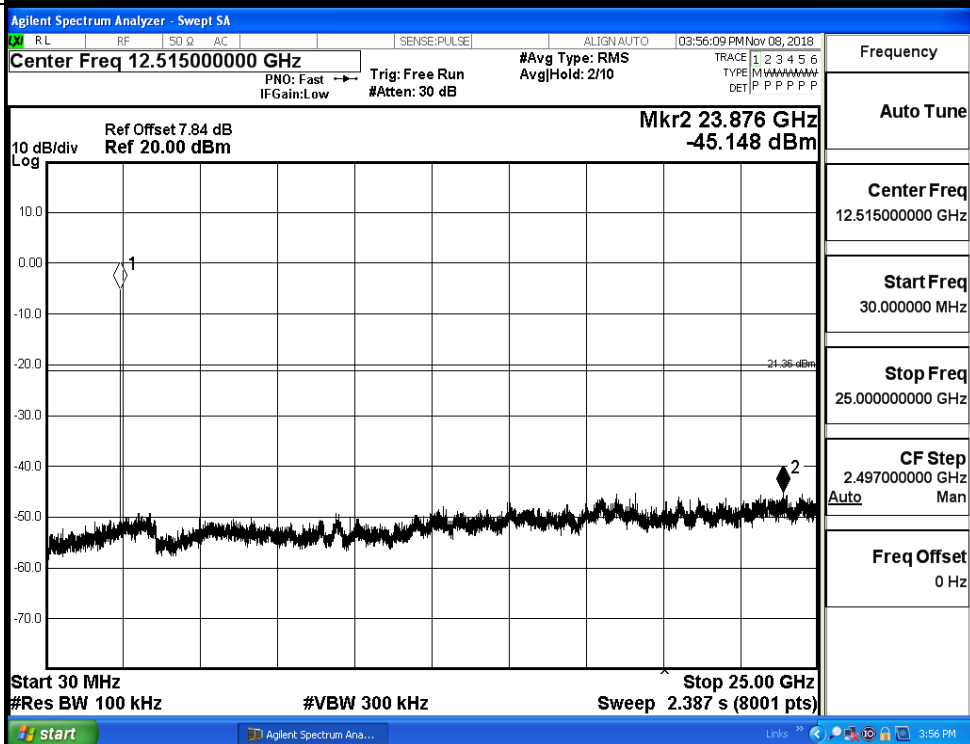


$\pi/4$ DQPSK_MCH_Graphs

Pref

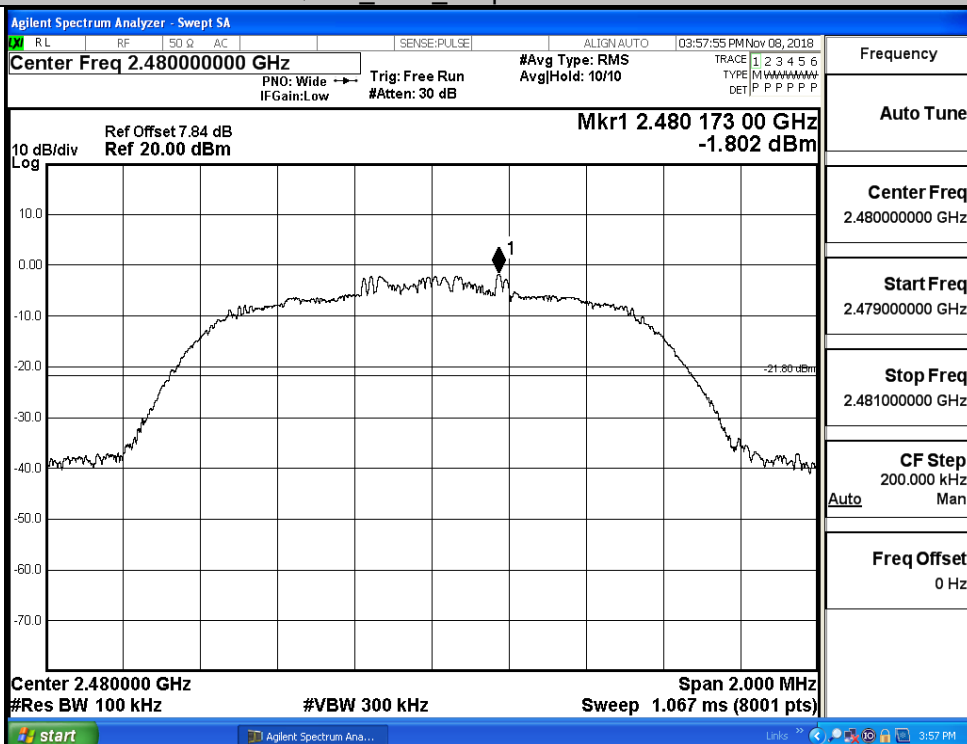


Puw

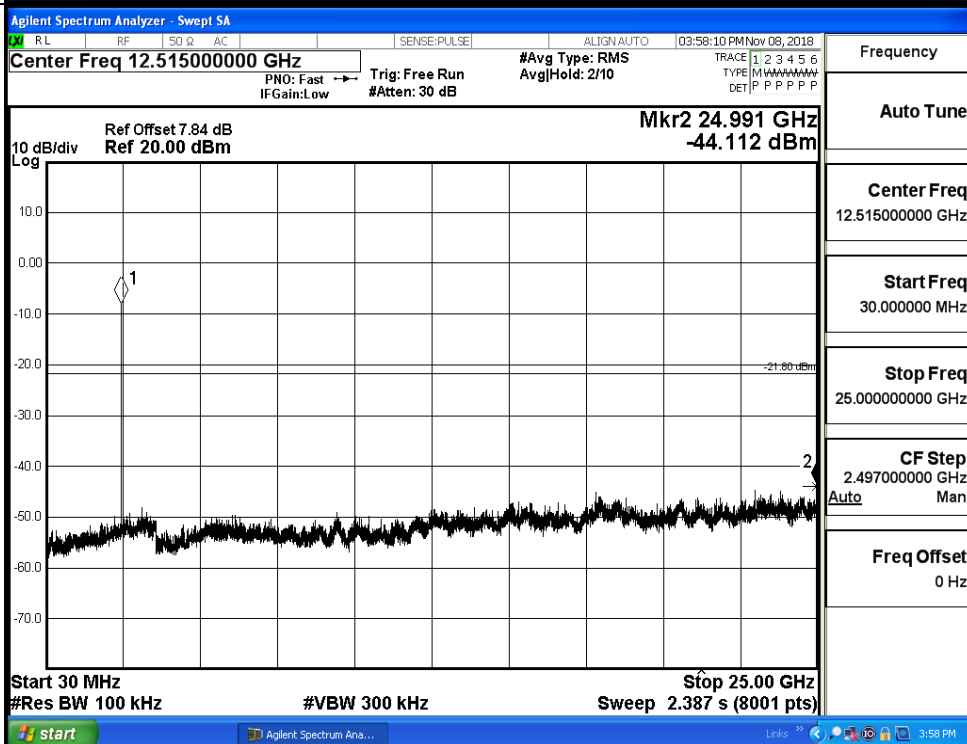


$\pi/4$ DQPSK_HCH_Graphs

Pref

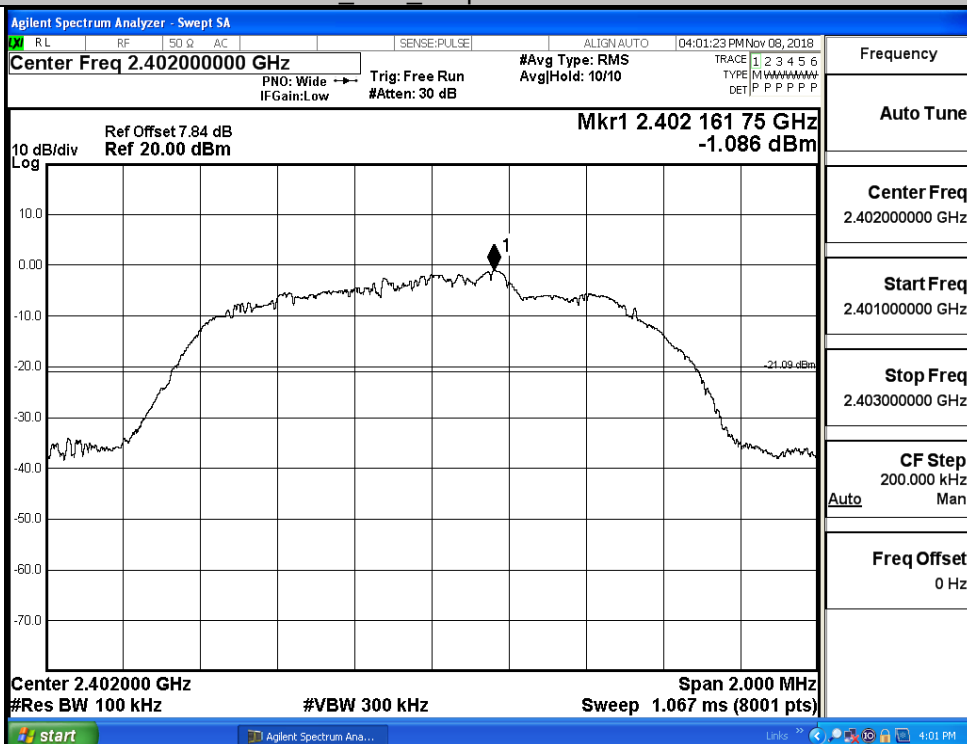


Puw

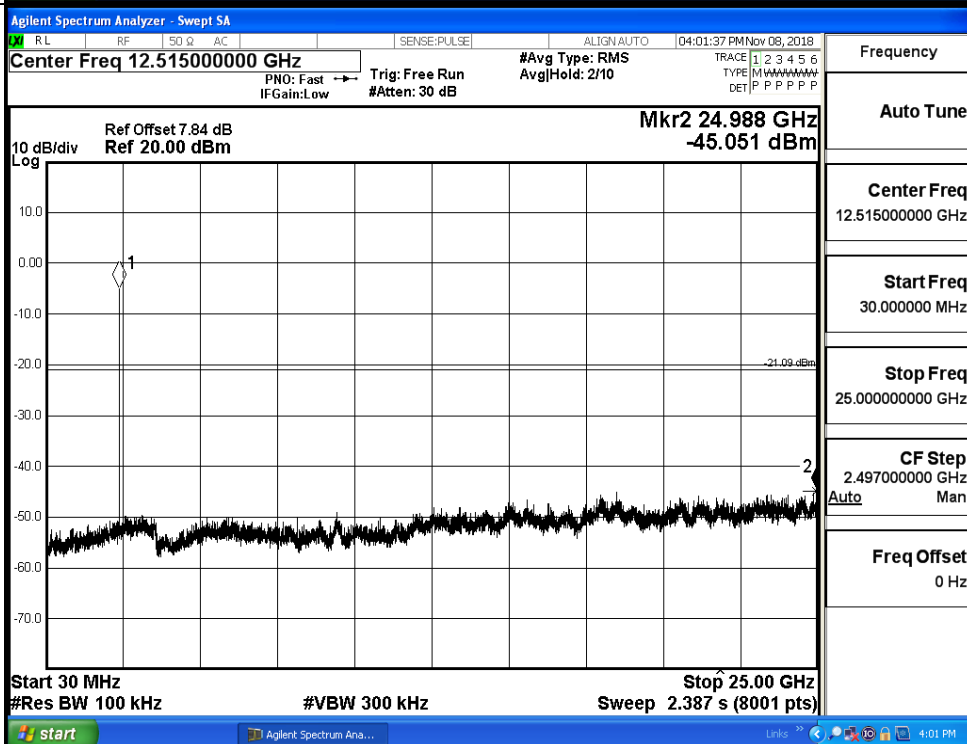


8DPSK_LCH_Graphs

Pref

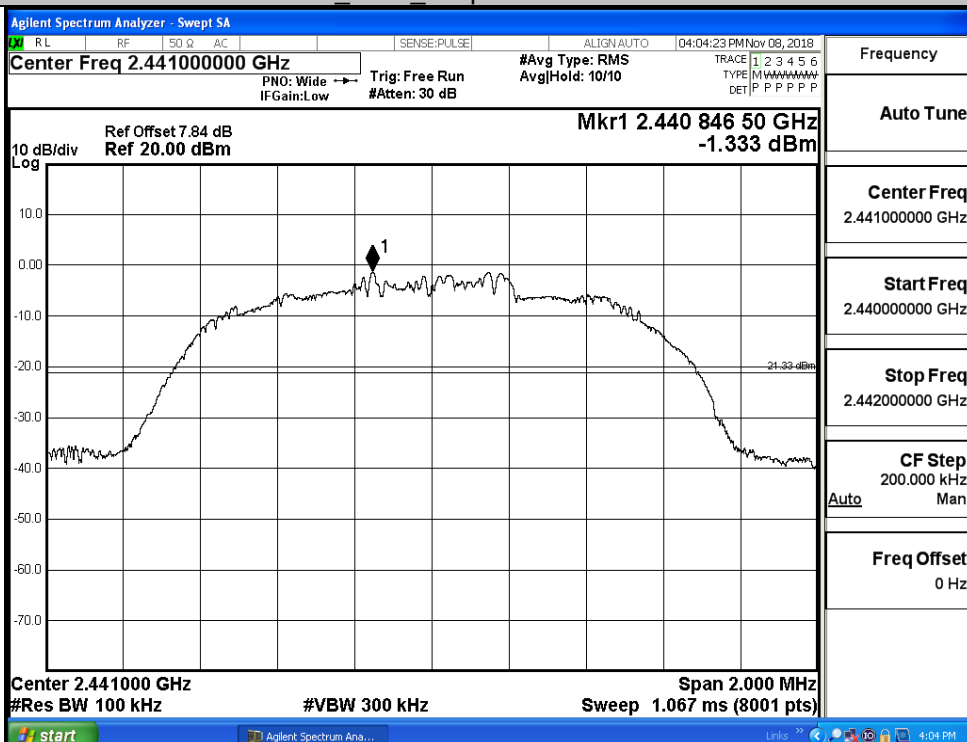


Puw

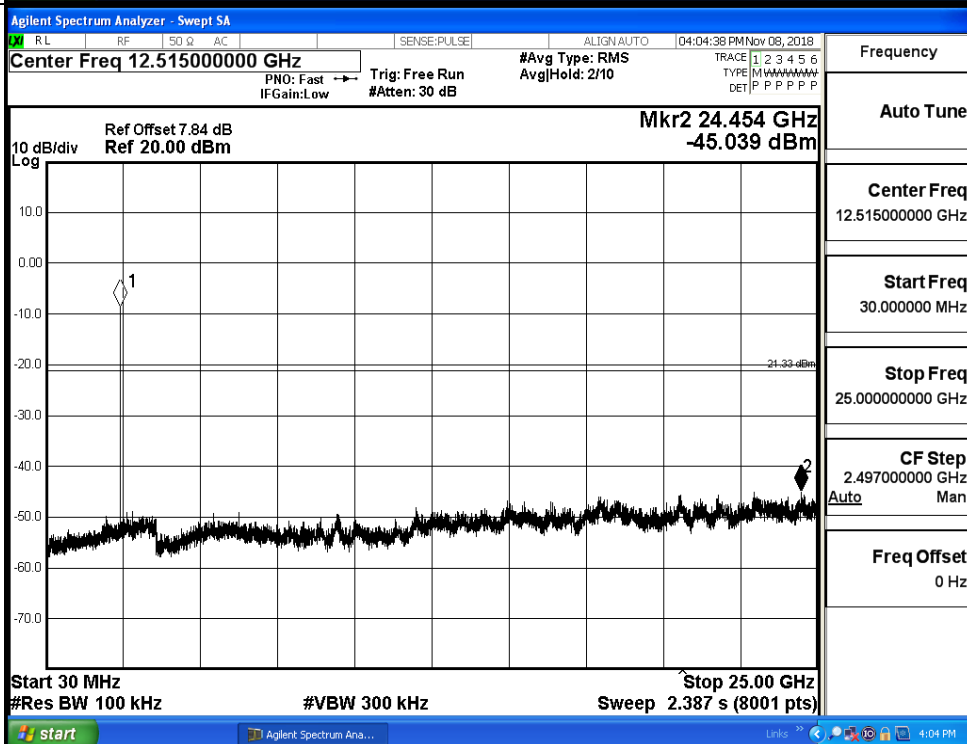


8DPSK_MCH_Graphs

Pref

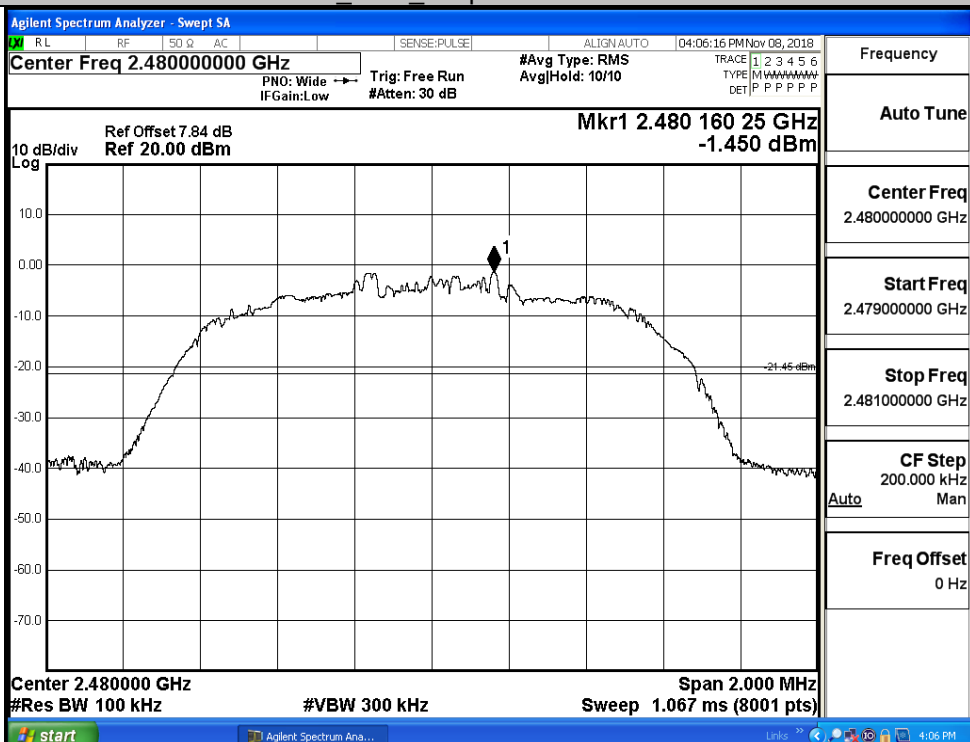


Puw

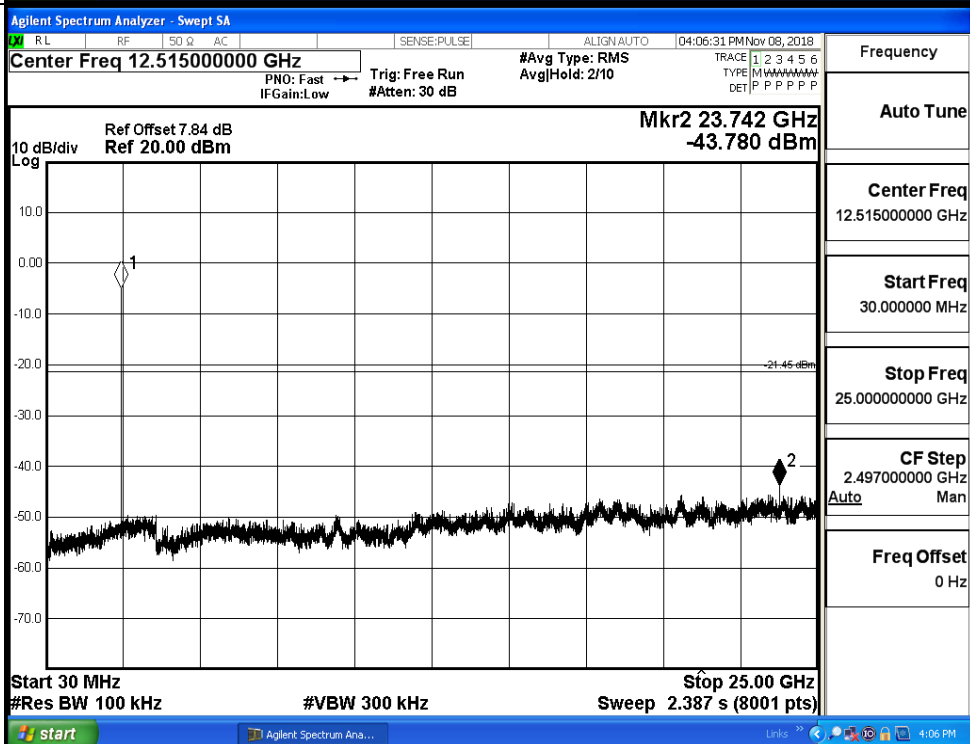


8DPSK_HCH_Graphs

Pref



Puw

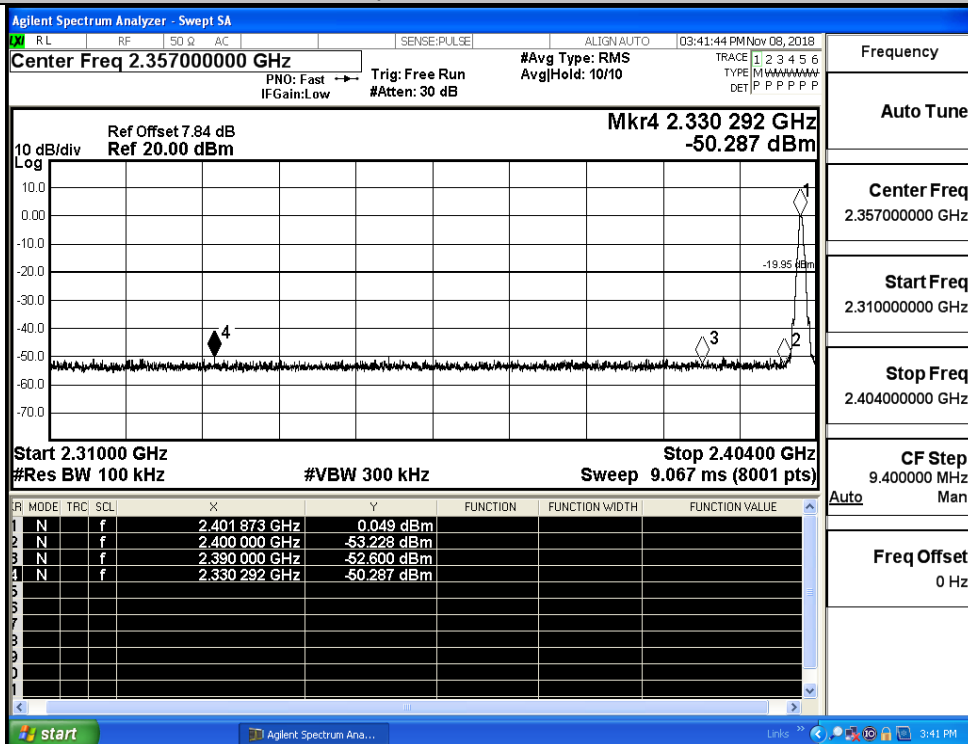


A.7 Band-edge for RF Conducted Emissions

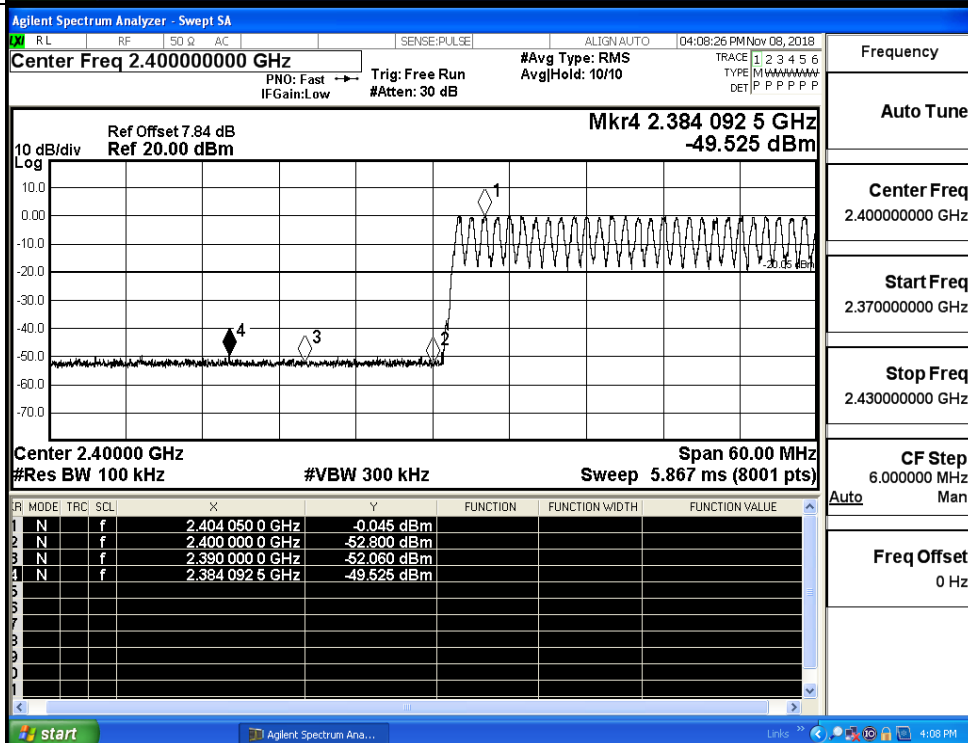
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.049	Off	-50.287	-19.95	PASS
			-0.045	On	-49.525	-20.05	PASS
	HCH	2480	-0.021	Off	-49.888	-20.02	PASS
			-0.146	On	-50.002	-20.15	PASS
$\pi/4$ DQPSK	LCH	2402	-1.064	Off	-49.969	-21.06	PASS
			-1.205	On	-49.149	-21.21	PASS
	HCH	2480	-1.392	Off	-50.214	-21.39	PASS
			-1.394	On	-49.176	-21.39	PASS
8DPSK	LCH	2402	-2.981	Off	-50.258	-22.98	PASS
			-1.046	On	-49.565	-21.05	PASS
	HCH	2480	-1.419	Off	-49.963	-21.42	PASS
			-1.381	On	-49.581	-21.38	PASS

Test Graphs

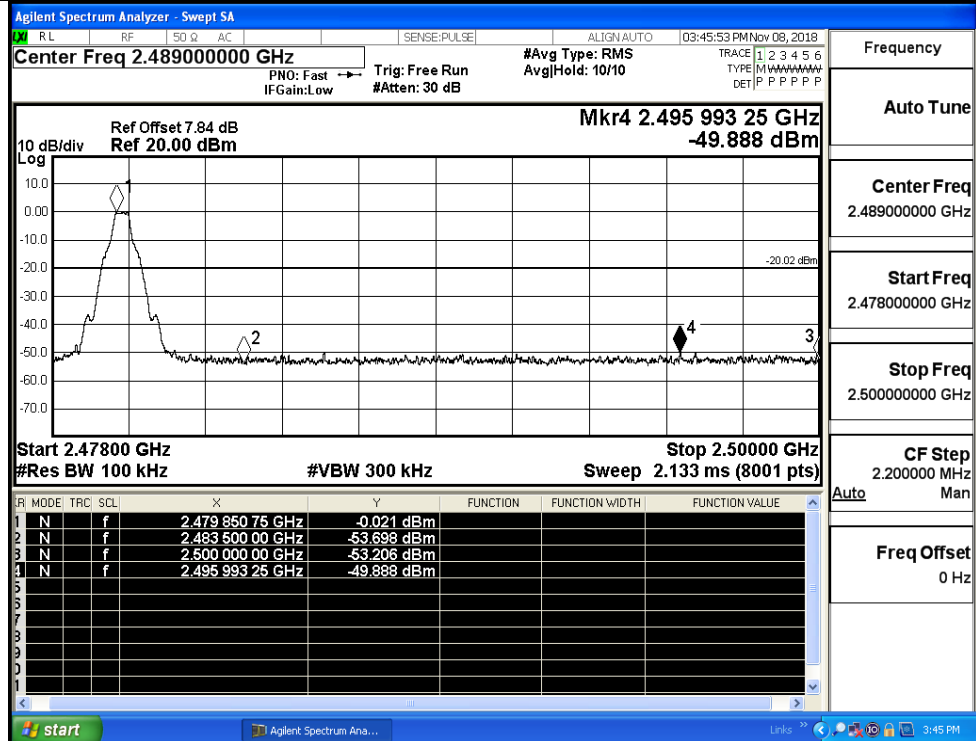
GFSK/LCH/No Hop



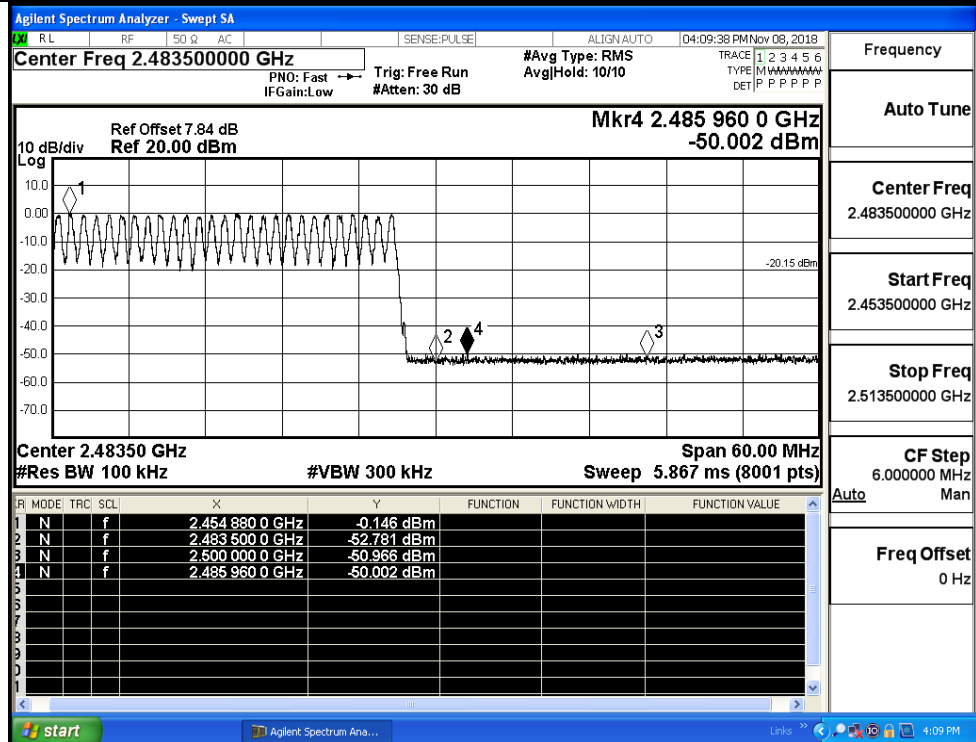
GFSK/LCH/Hop



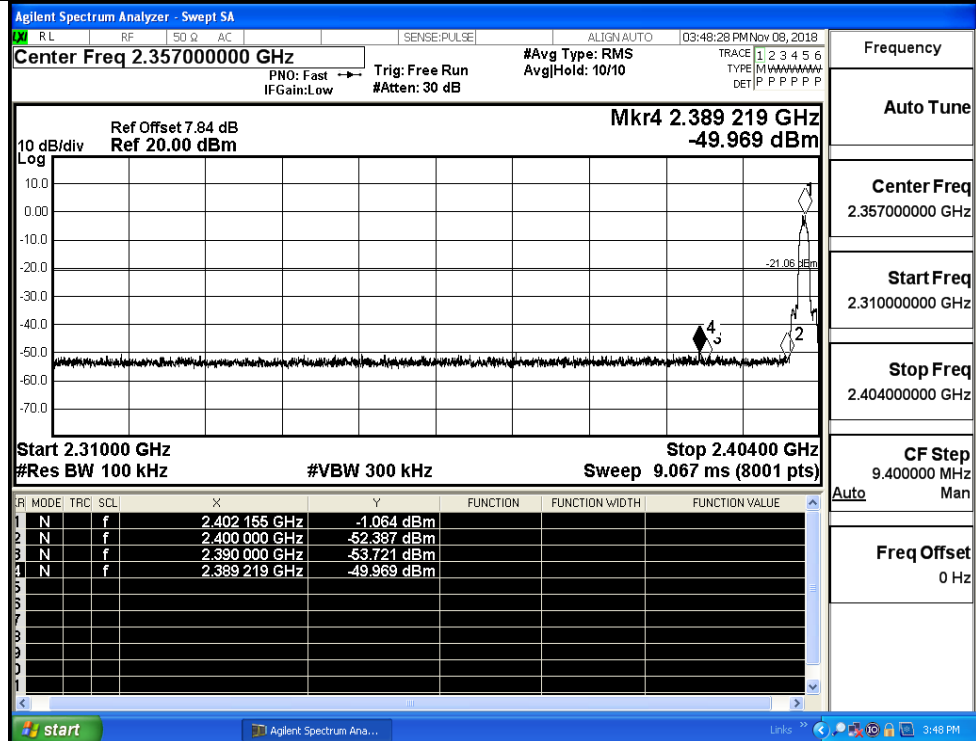
GFSK/HCH/No Hop



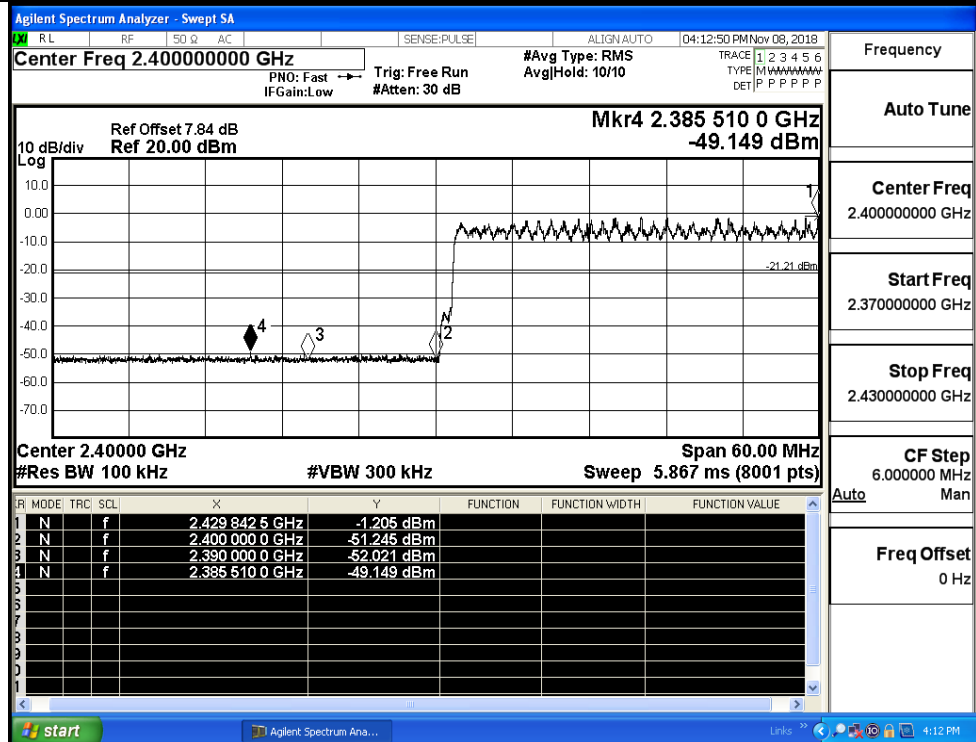
GFSK/HCH/Hop



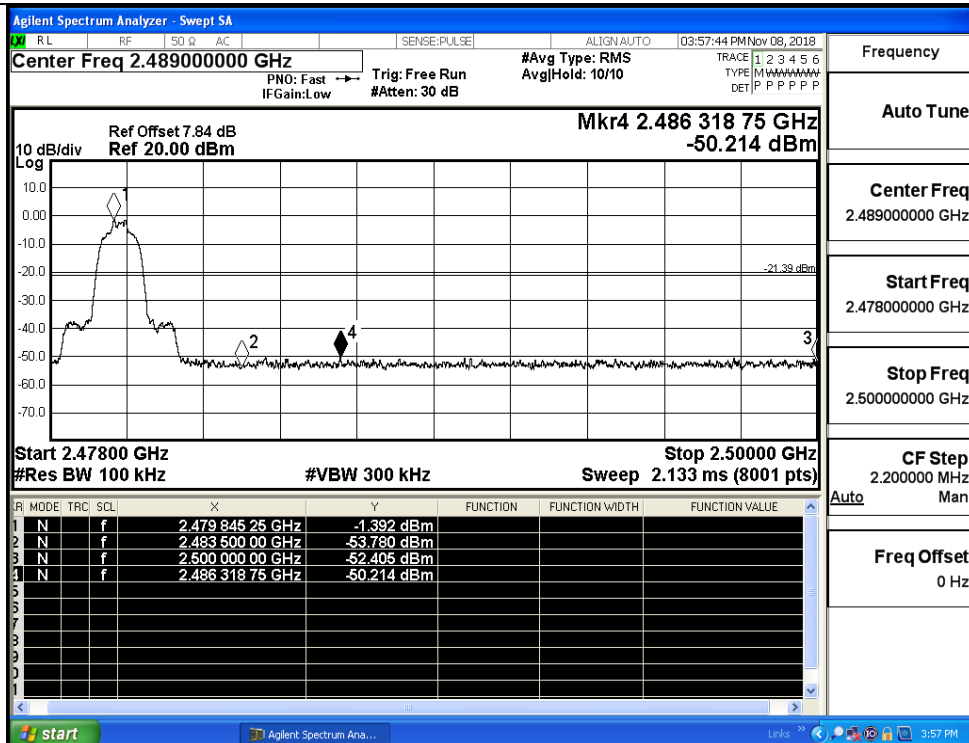
$\pi/4$ DQPSK/LCH/No
Hop



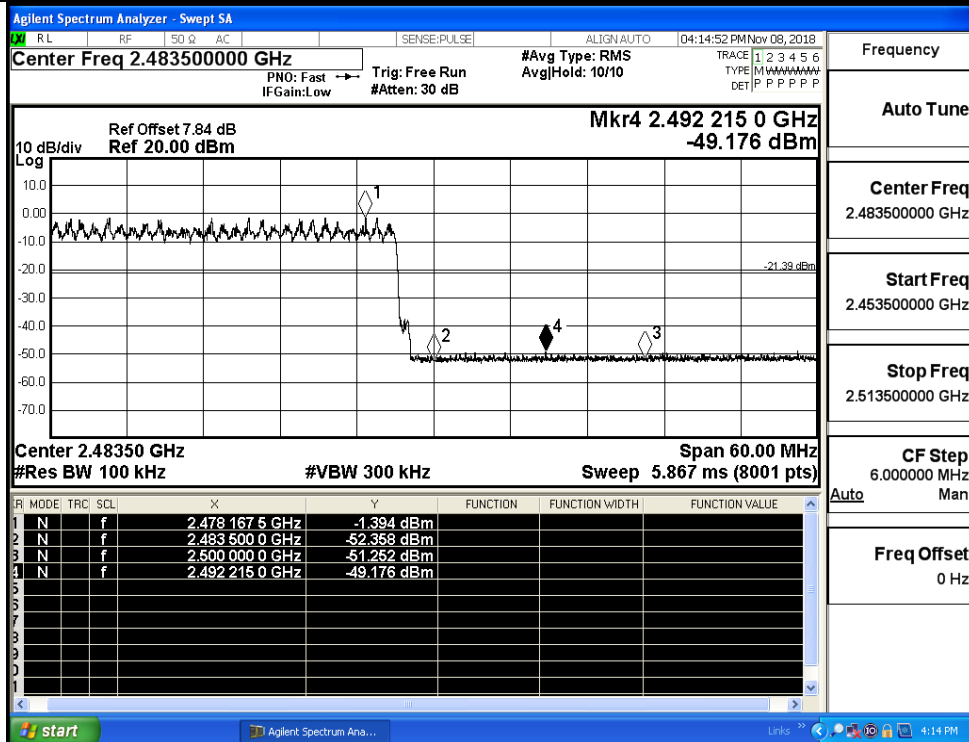
$\pi/4$ DQPSK/LCH/Hop



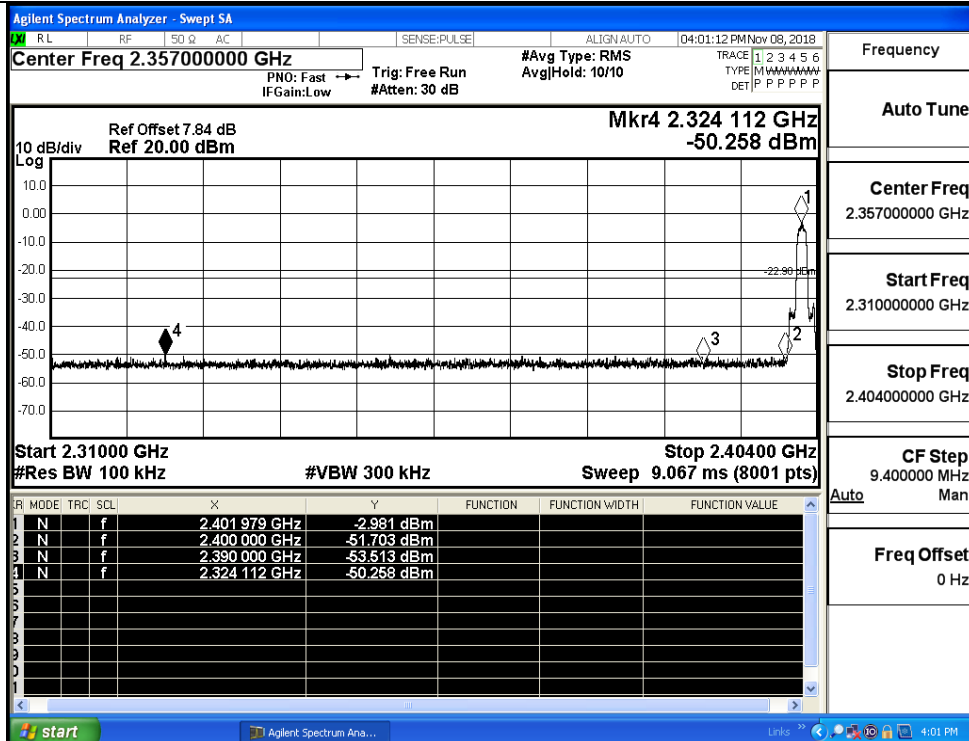
$\pi/4$ DQPSK/HCH/No
Hop



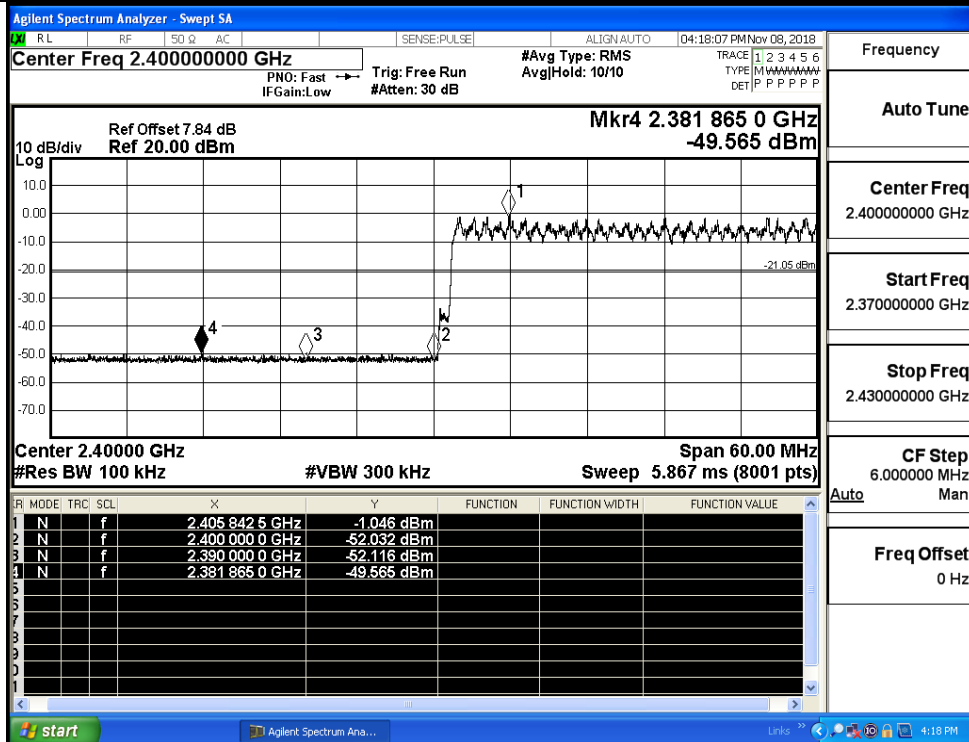
$\pi/4$ DQPSK/HCH/Hop



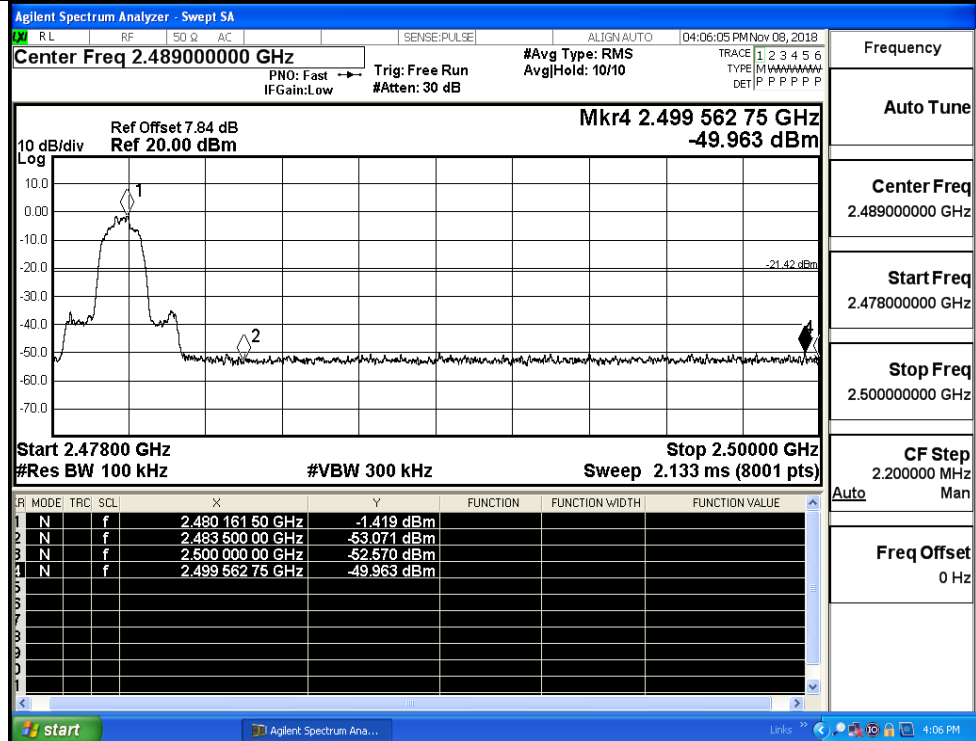
8DPSK/LCH/No Hop



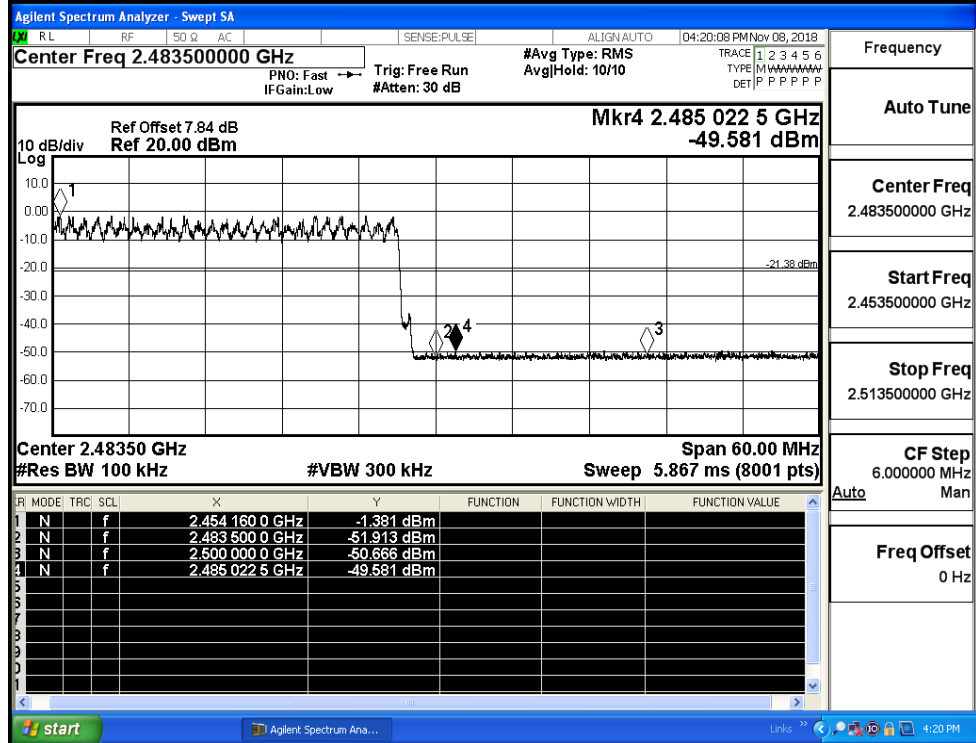
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



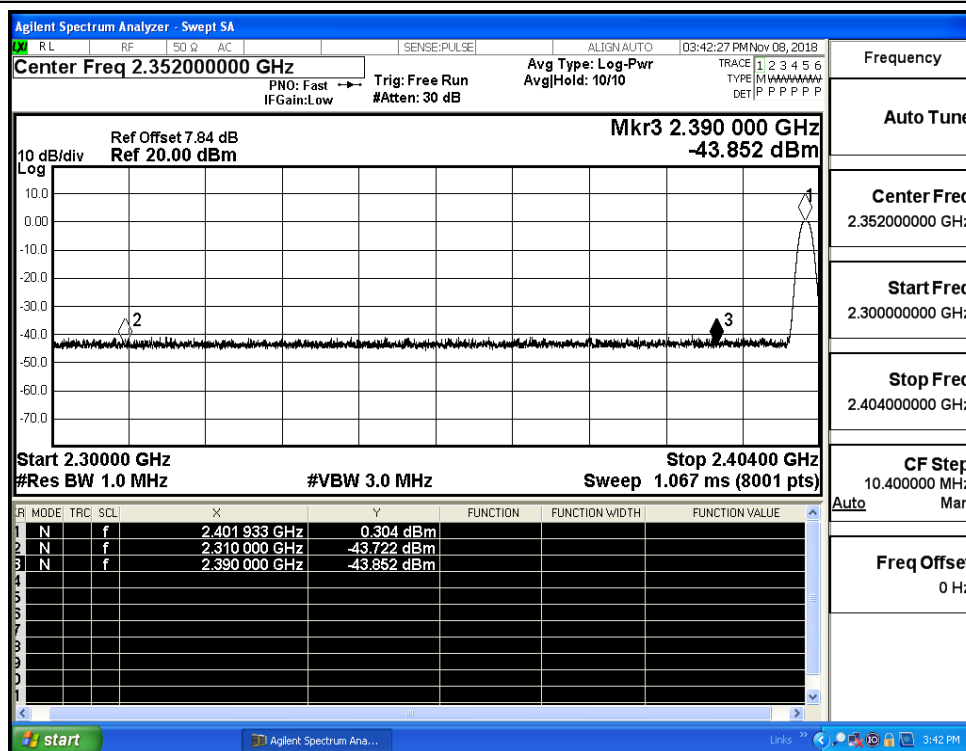
8DPSK/HCH/Hop



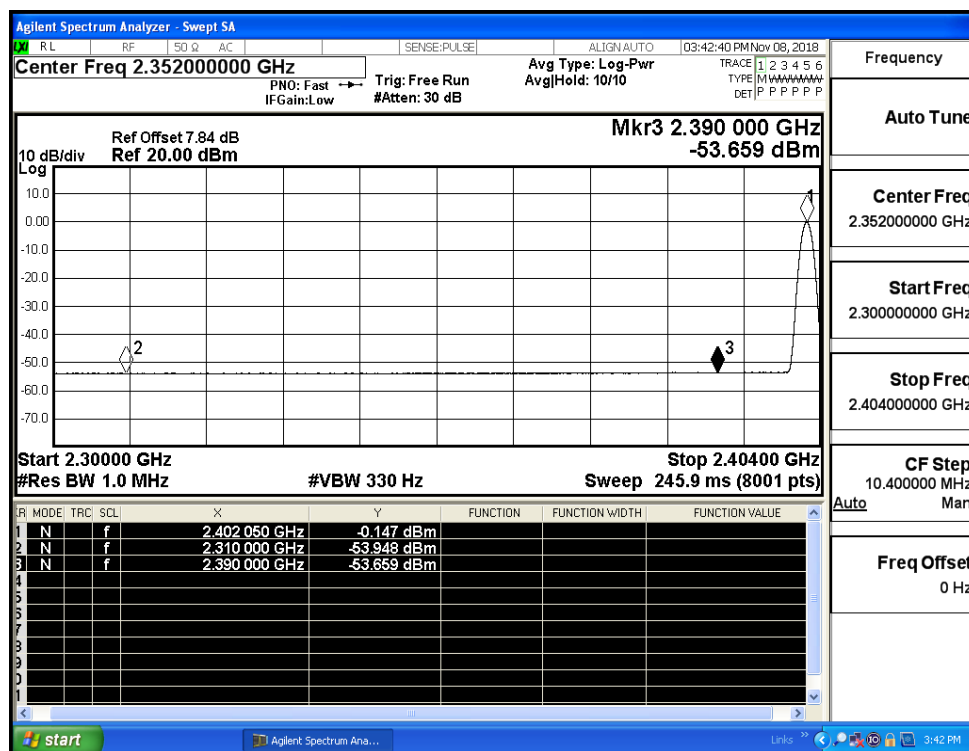
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.72	2.0	0	53.54	PEAK	74	PASS
	Off	2310.0	-53.95	2.0	0	43.31	AV	54	PASS
	Off	2390.0	-43.85	2.0	0	53.41	PEAK	74	PASS
	Off	2390.0	-53.66	2.0	0	43.60	AV	54	PASS
	Off	2483.5	-43.58	2.0	0	53.67	PEAK	74	PASS
	Off	2483.5	-53.45	2.0	0	43.81	AV	54	PASS
	Off	2500.0	-42.44	2.0	0	54.82	PEAK	74	PASS
	Off	2500.0	-53.28	2.0	0	43.98	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.82	2.0	0	54.44	PEAK	74	PASS
	Off	2310.0	-53.86	2.0	0	43.40	AV	54	PASS
	Off	2390.0	-43.88	2.0	0	53.38	PEAK	74	PASS
	Off	2390.0	-53.64	2.0	0	43.62	AV	54	PASS
	Off	2483.5	-42.31	2.0	0	54.95	PEAK	74	PASS
	Off	2483.5	-53.29	2.0	0	43.97	AV	54	PASS
	Off	2500.0	-43.73	2.0	0	53.53	PEAK	74	PASS
	Off	2500.0	-53.34	2.0	0	43.92	AV	54	PASS
8DPSK	Off	2310.0	-43.88	2.0	0	53.38	PEAK	74	PASS
	Off	2310.0	-53.84	2.0	0	43.42	AV	54	PASS
	Off	2390.0	-44.40	2.0	0	52.86	PEAK	74	PASS
	Off	2390.0	-53.57	2.0	0	43.69	AV	54	PASS
	Off	2483.5	-42.89	2.0	0	54.37	PEAK	74	PASS
	Off	2483.5	-53.26	2.0	0	44.00	AV	54	PASS
	Off	2500.0	-41.77	2.0	0	55.49	PEAK	74	PASS
	Off	2500.0	-53.26	2.0	0	44.00	AV	54	PASS

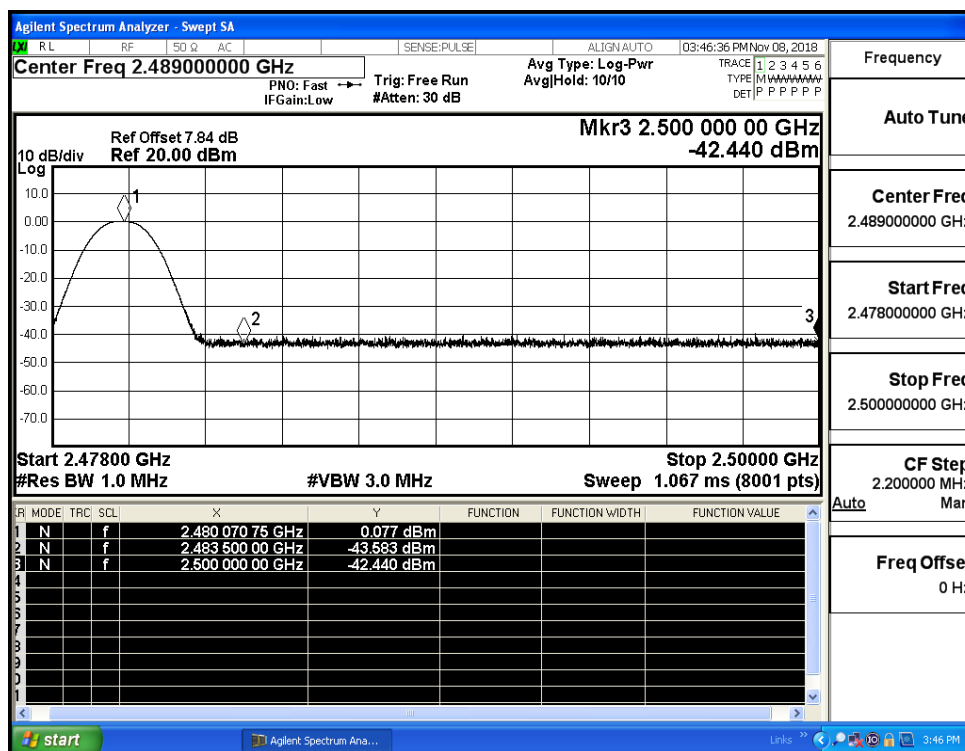
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



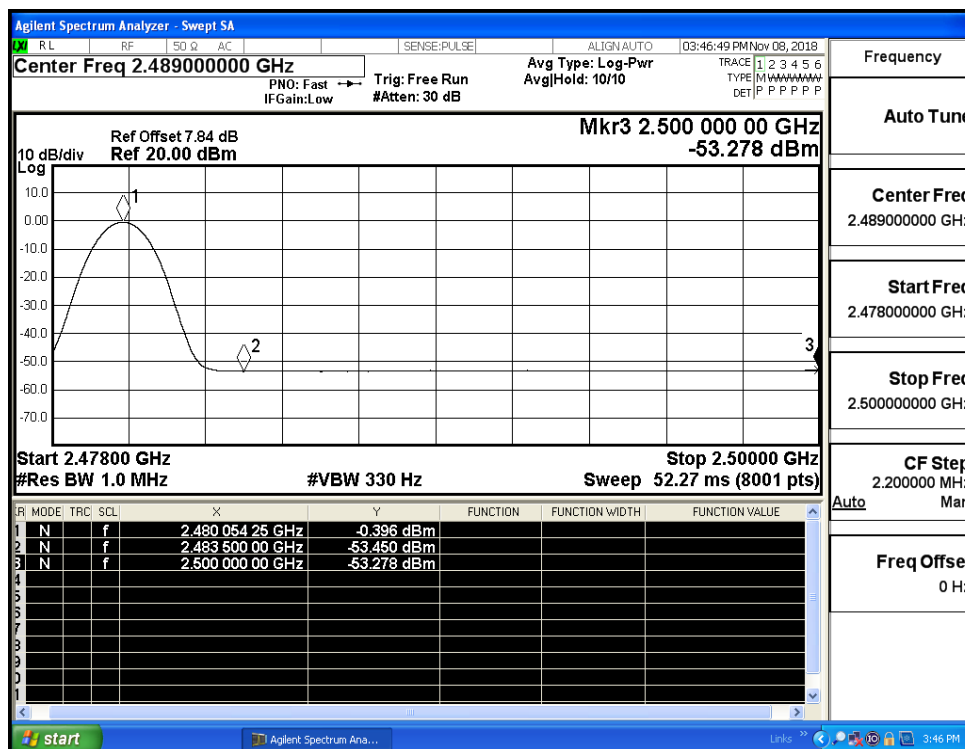
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

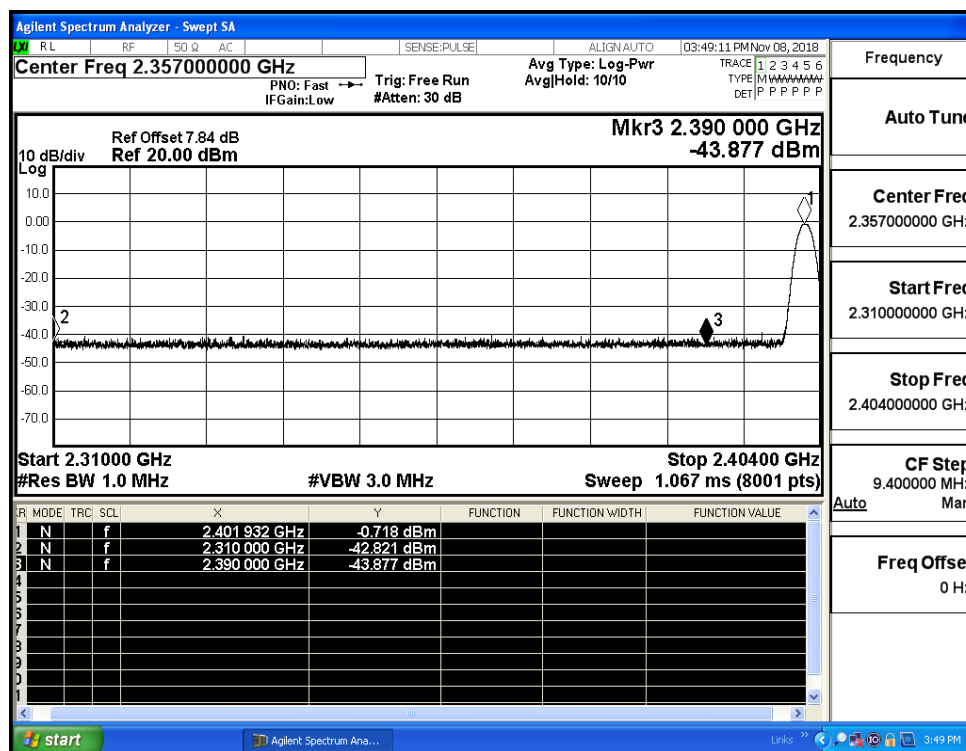
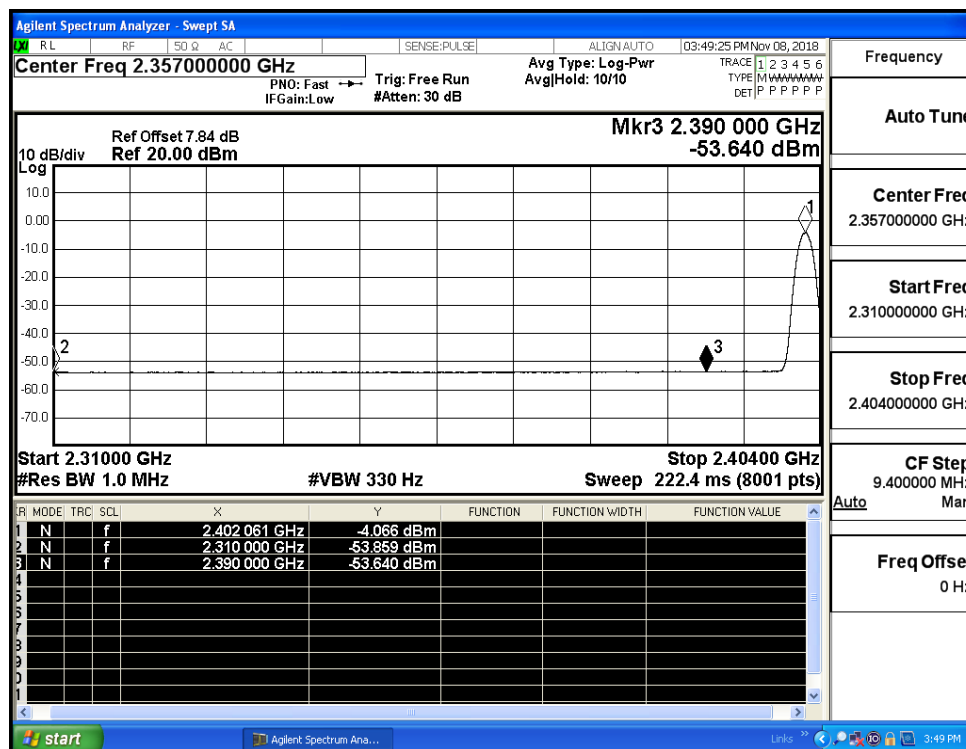


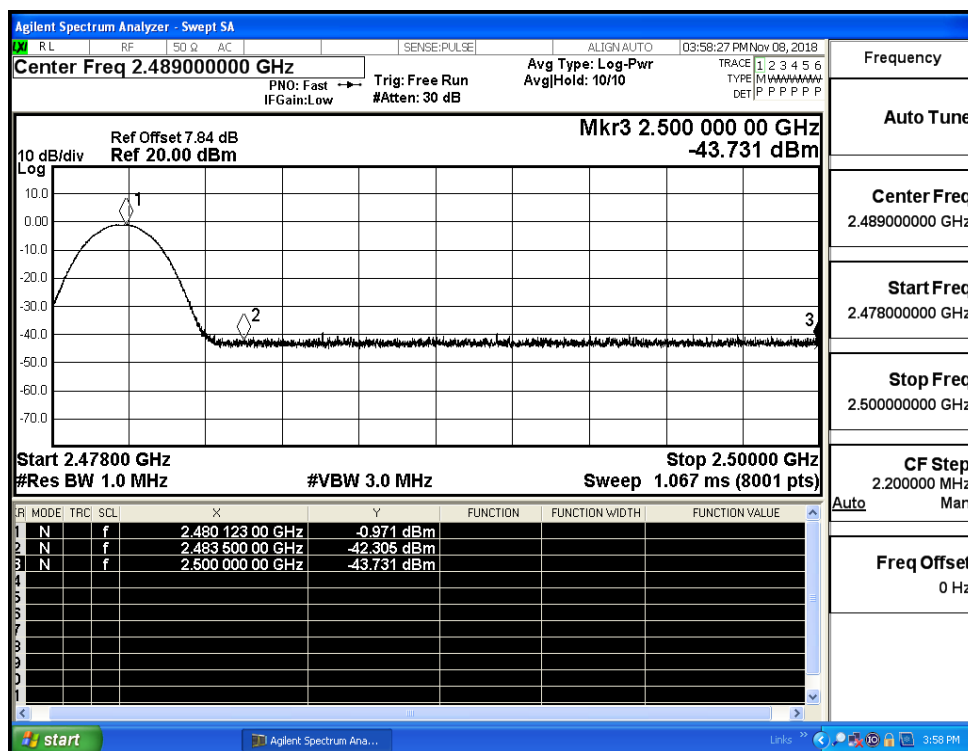
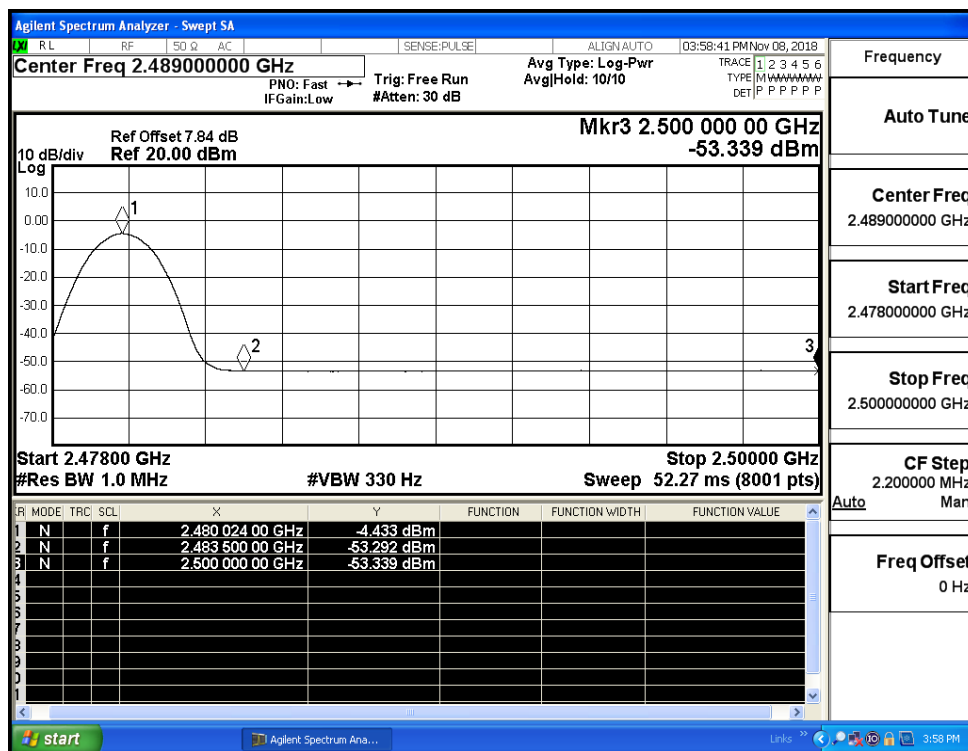
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



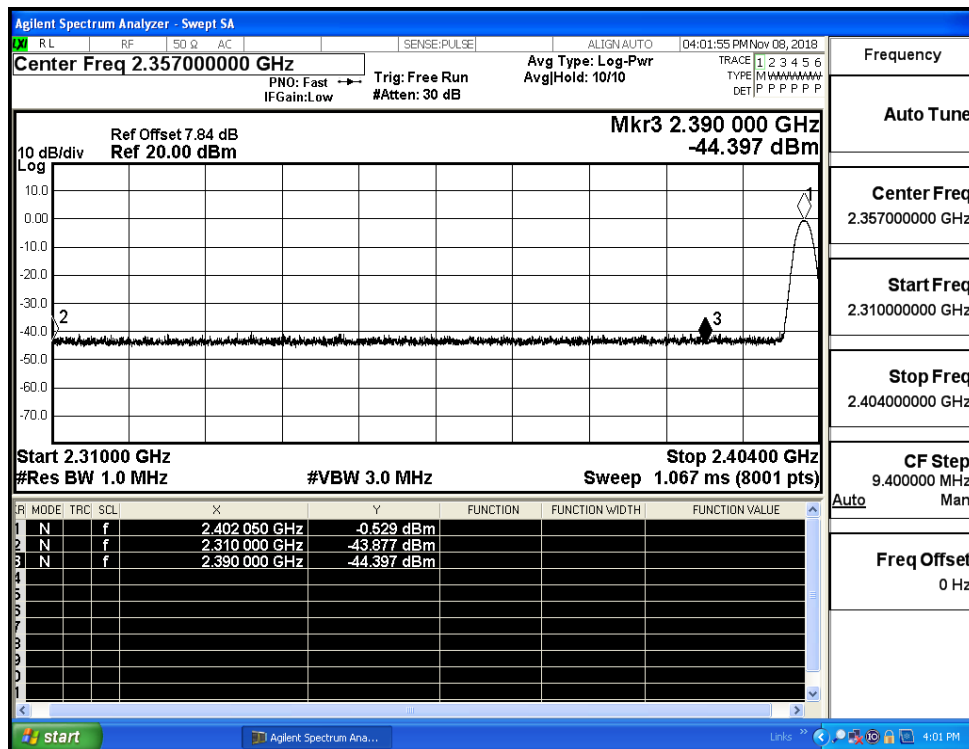
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



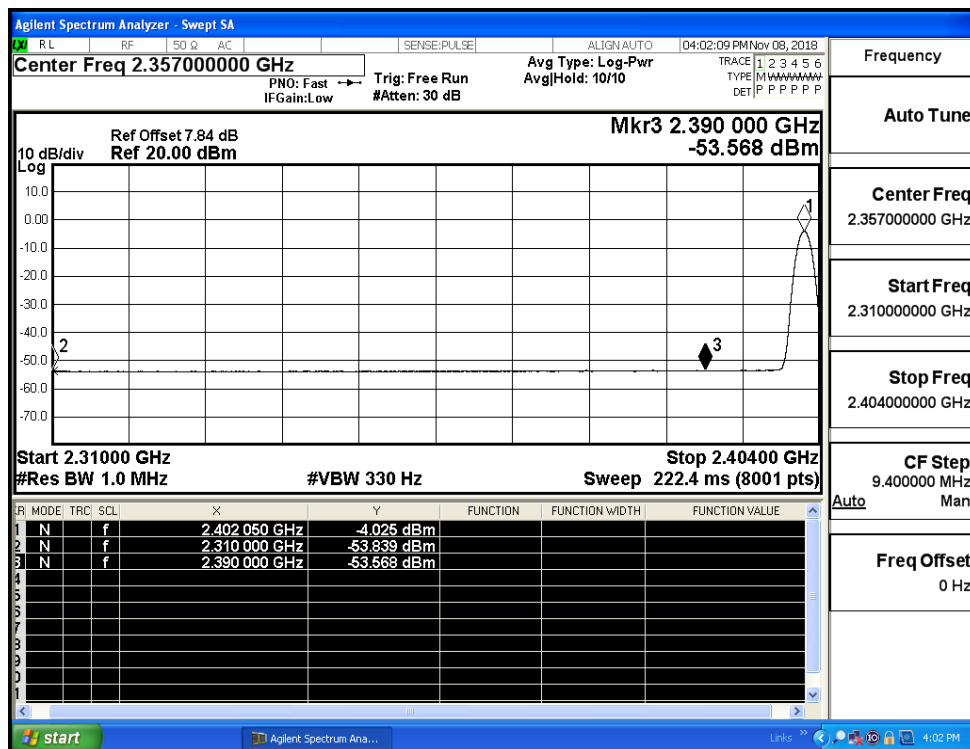
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

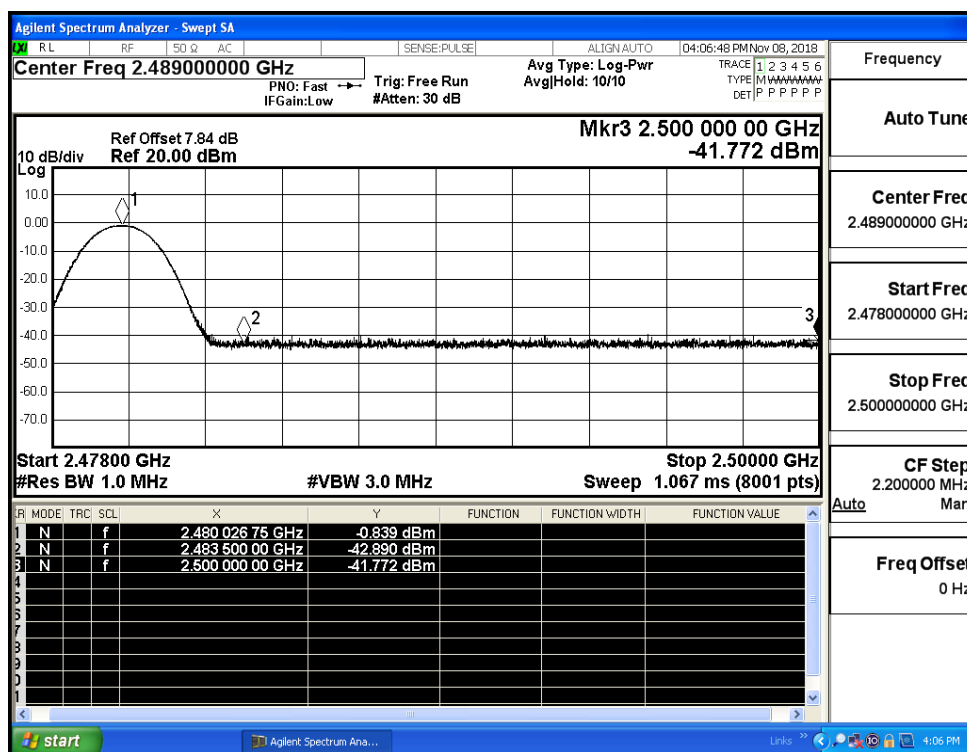
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

