

Appendix A

RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Tower Stereo

Trade Mark: IT

Test Model: ITSB-105

Environmental Conditions

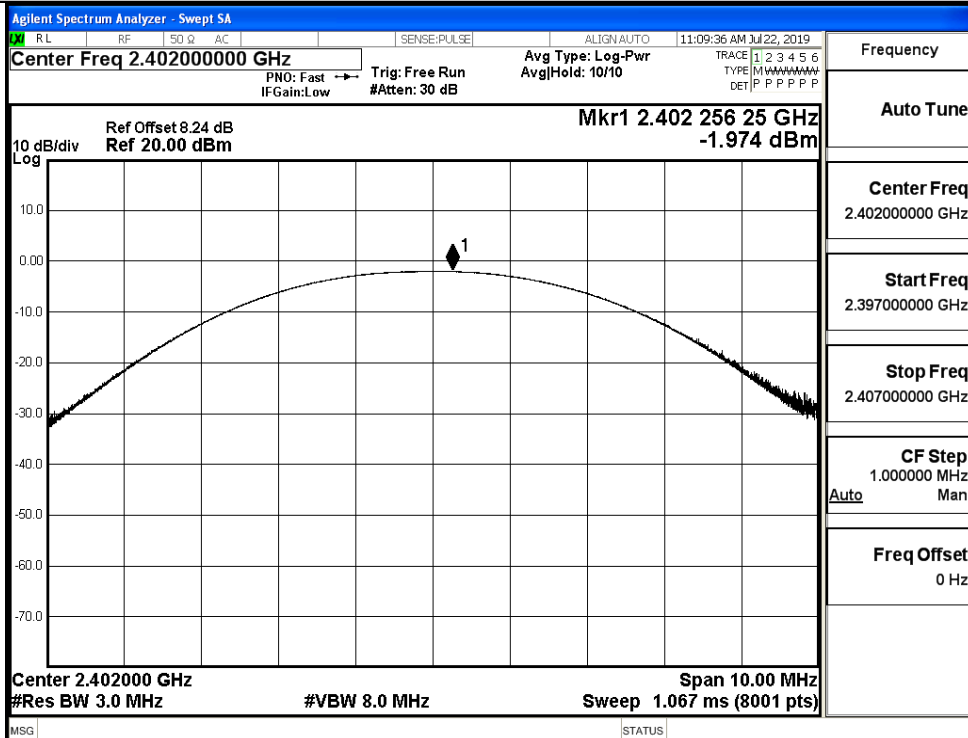
Temperature:	24.7 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond.Lu
Supervised by:	Wang.Chuang

A.1 Maximum Conducted Peak Output Power

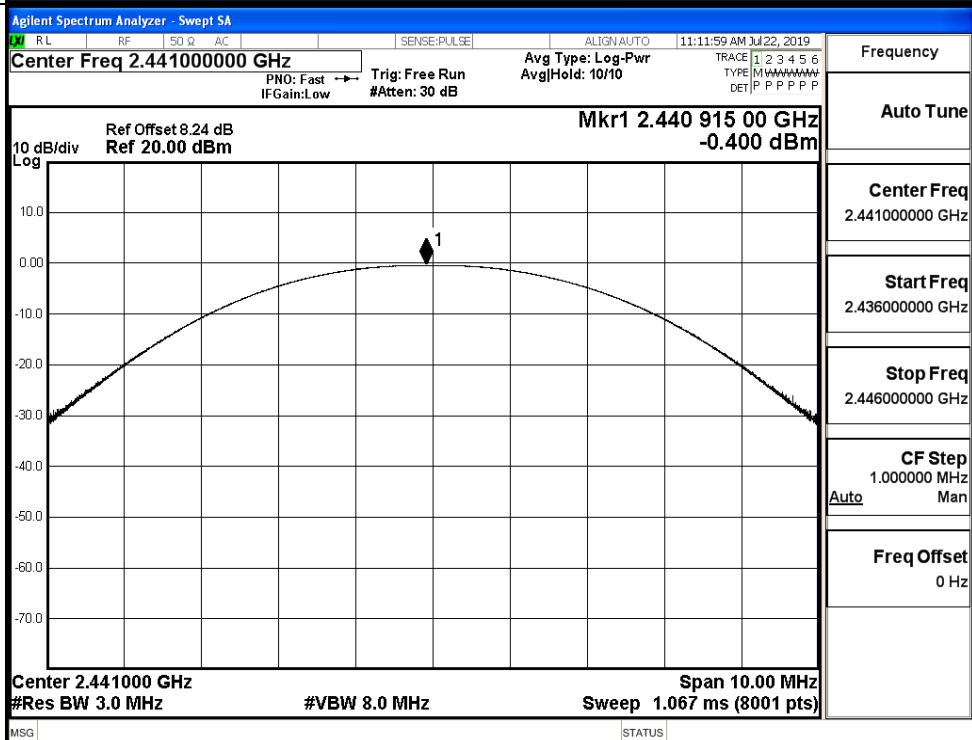
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.974	30	PASS
	MCH	-0.400	30	PASS
	HCH	-0.797	30	PASS
$\pi/4$ DQPSK	LCH	-2.519	21	PASS
	MCH	-1.050	21	PASS
	HCH	-1.477	21	PASS
8DPSK	LCH	-2.311	21	PASS
	MCH	-0.797	21	PASS
	HCH	-1.391	21	PASS

Test Graphs

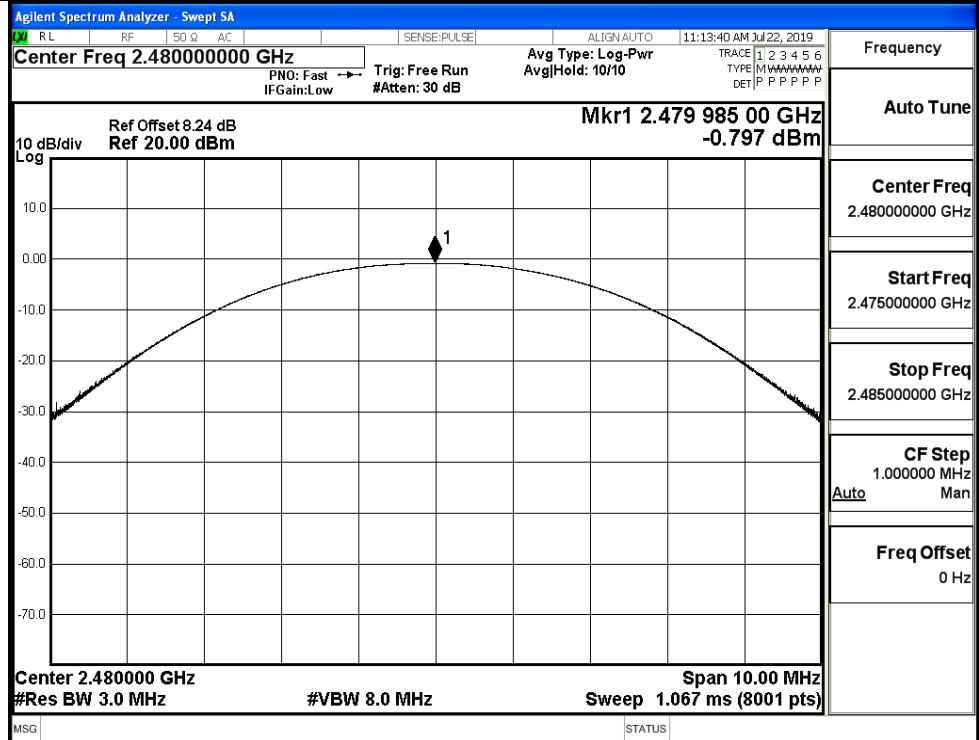
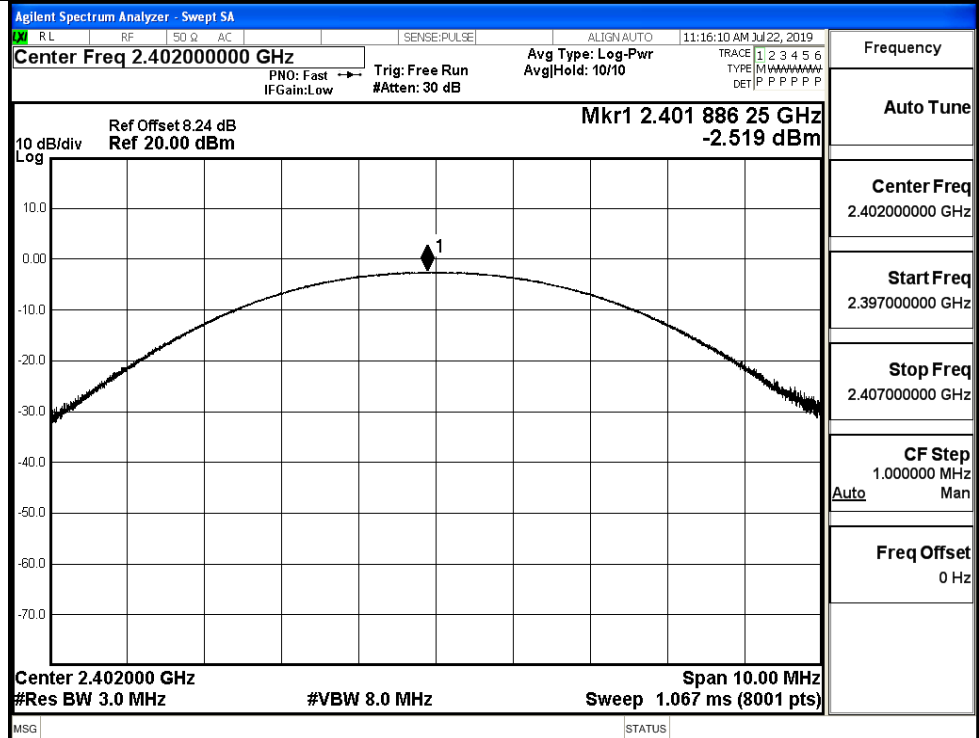
GFSK/LCH

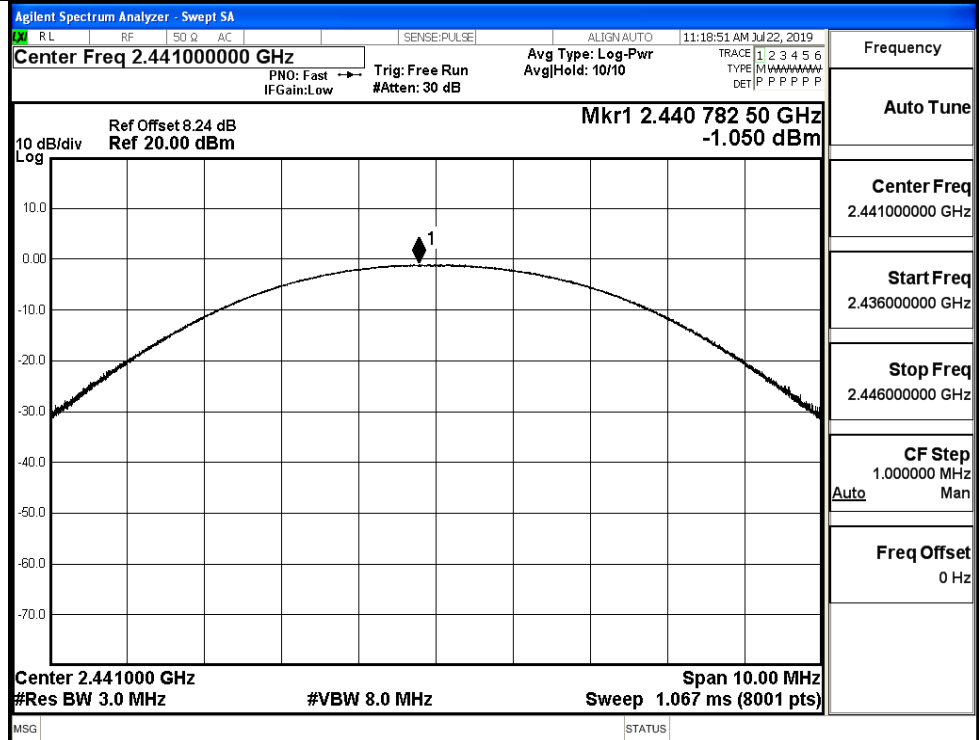
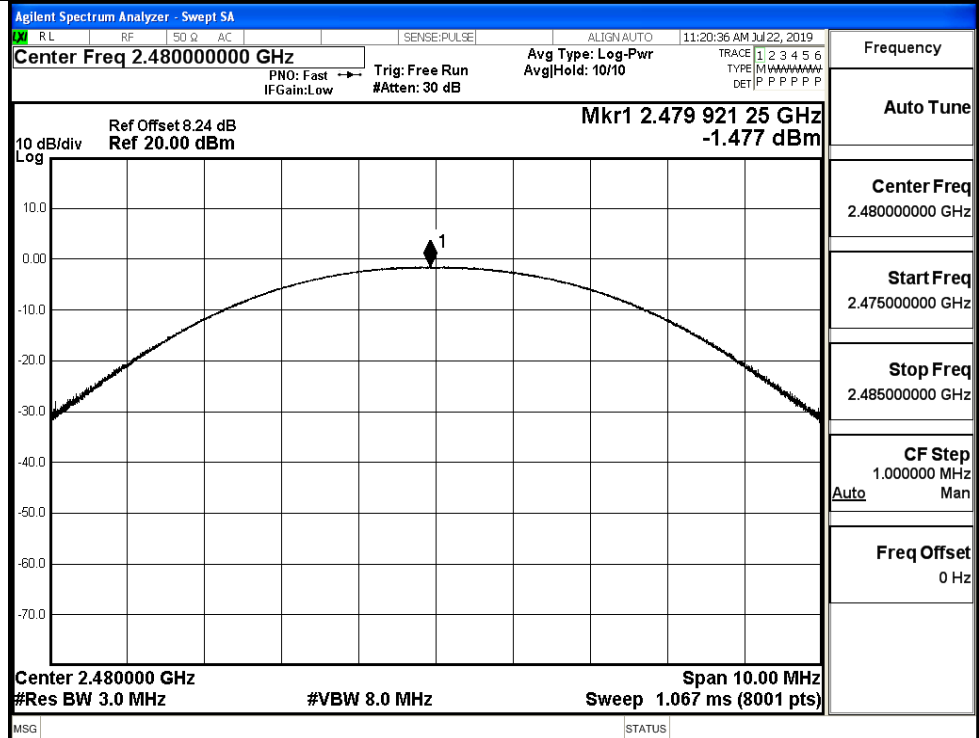


GFSK/MCH

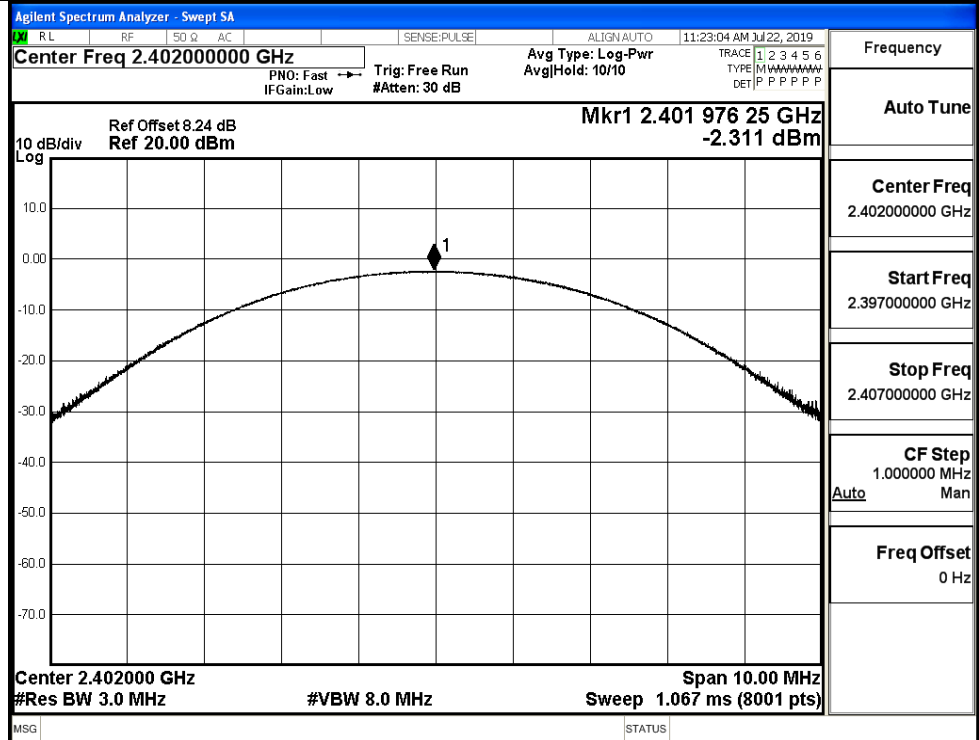


GFSK/HCH

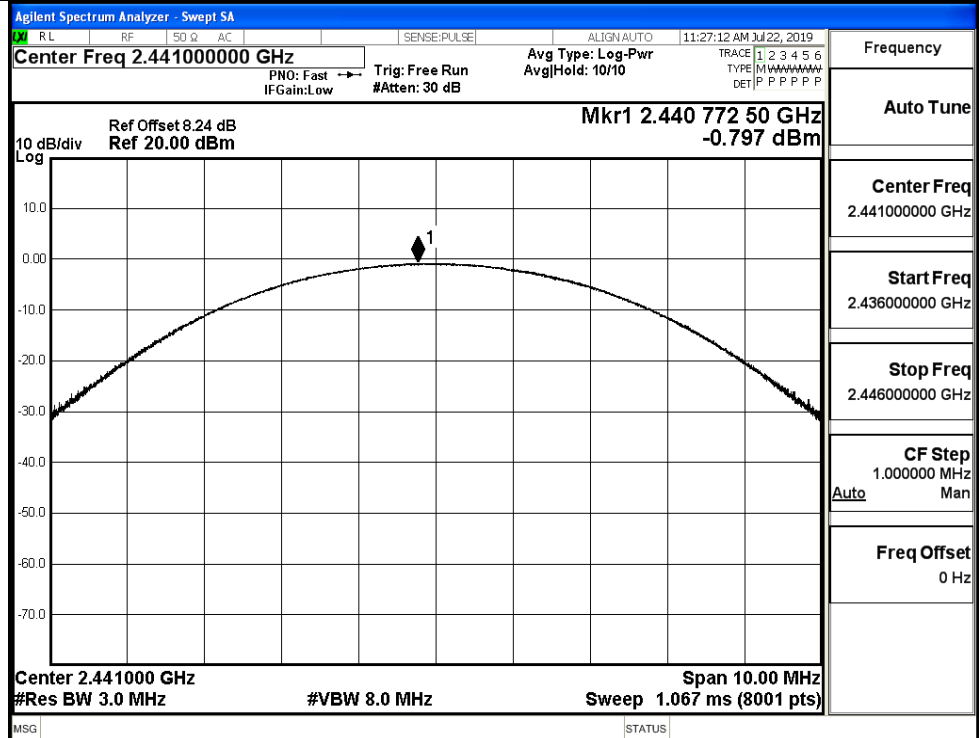
 $\pi/4$ DQPSK/LCH

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

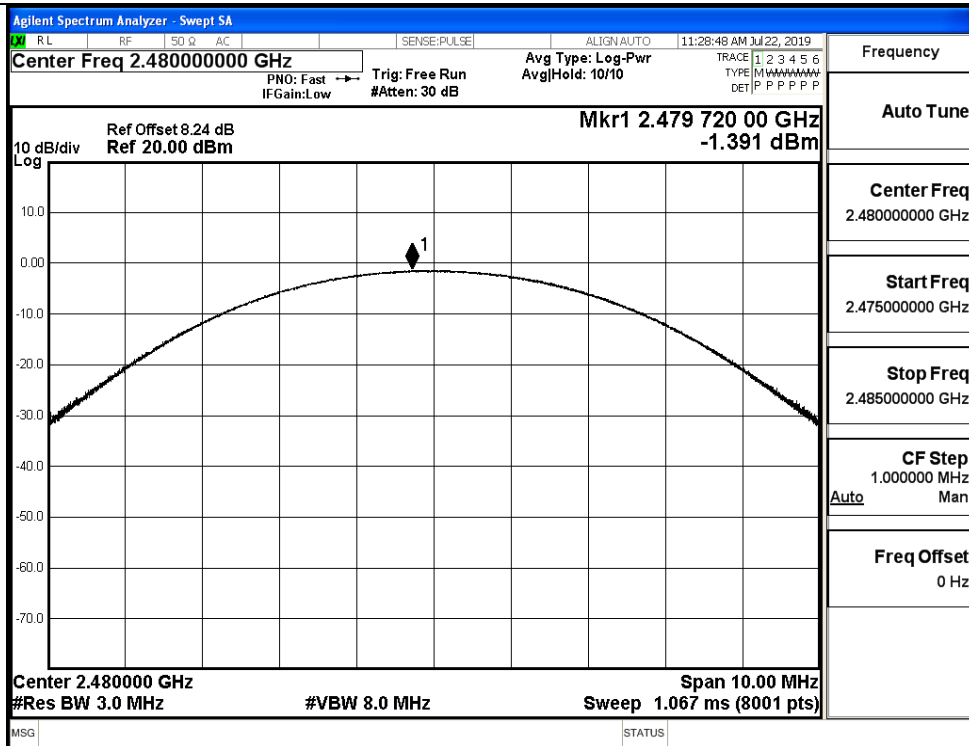
8DPSK/LCH



8DPSK/MCH



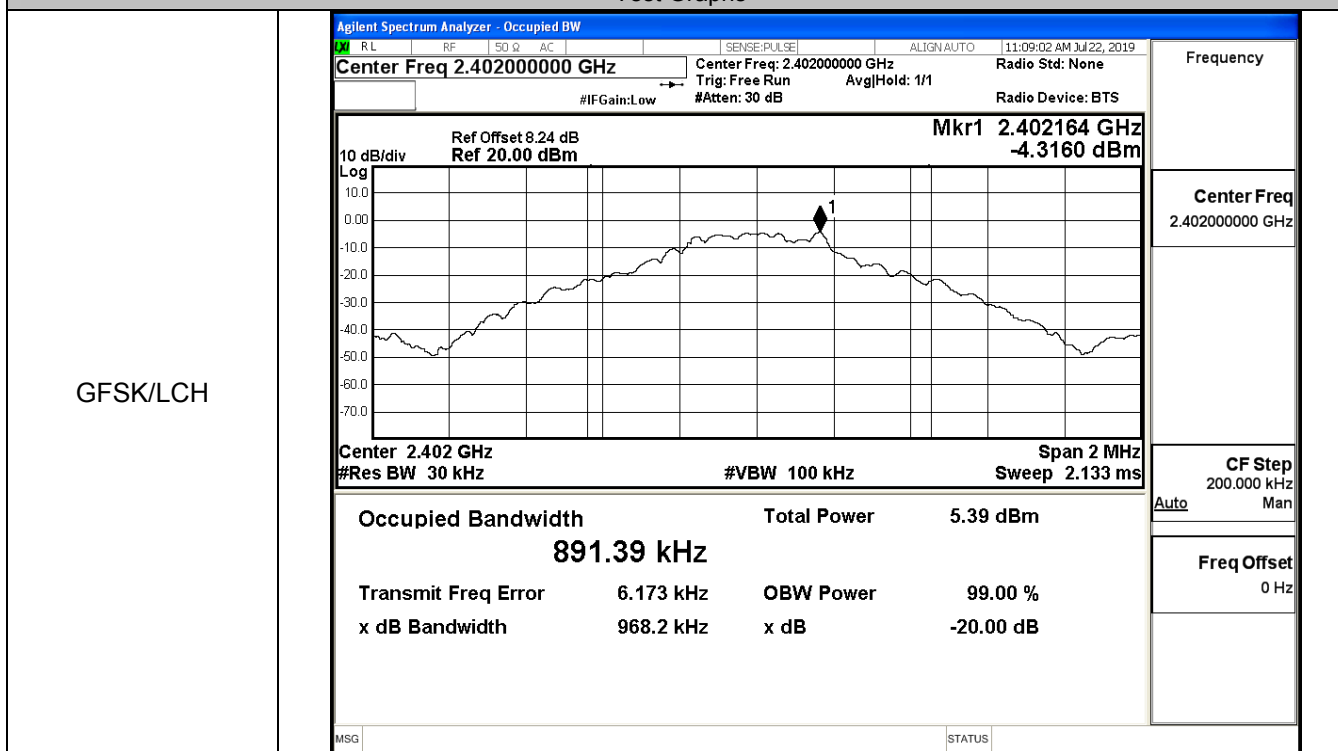
8DPSK/HCH



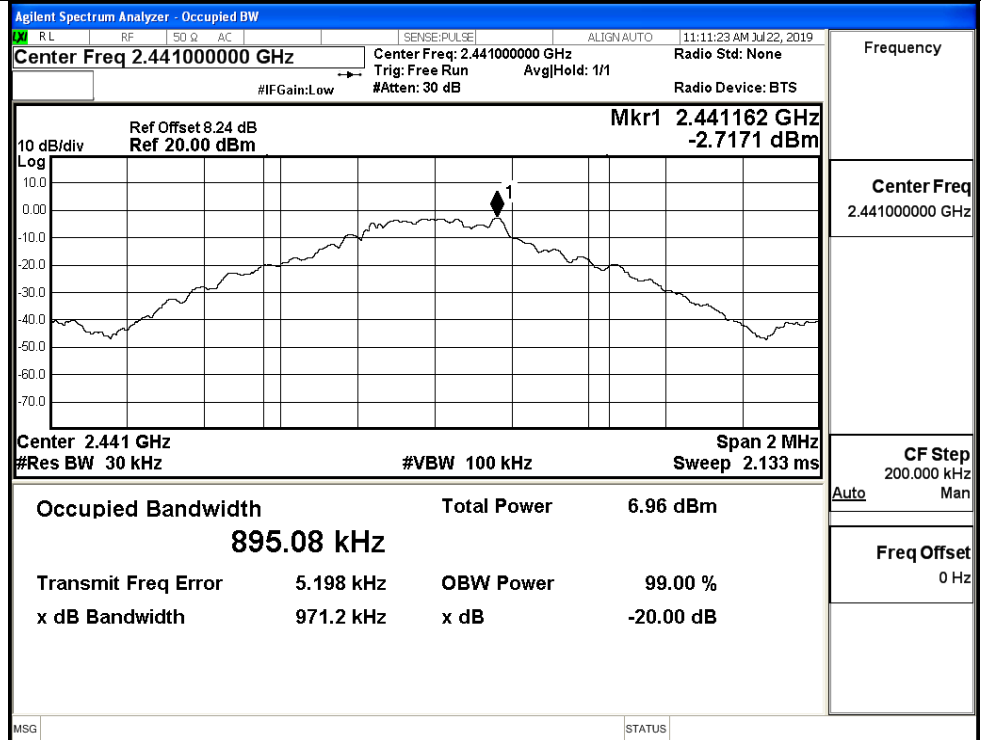
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9682	Not Specified	PASS
	MCH	0.9712	Not Specified	PASS
	HCH	1.015	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.292	Not Specified	PASS
	MCH	1.292	Not Specified	PASS
	HCH	1.291	Not Specified	PASS
8DPSK	LCH	1.295	Not Specified	PASS
	MCH	1.295	Not Specified	PASS
	HCH	1.311	Not Specified	PASS

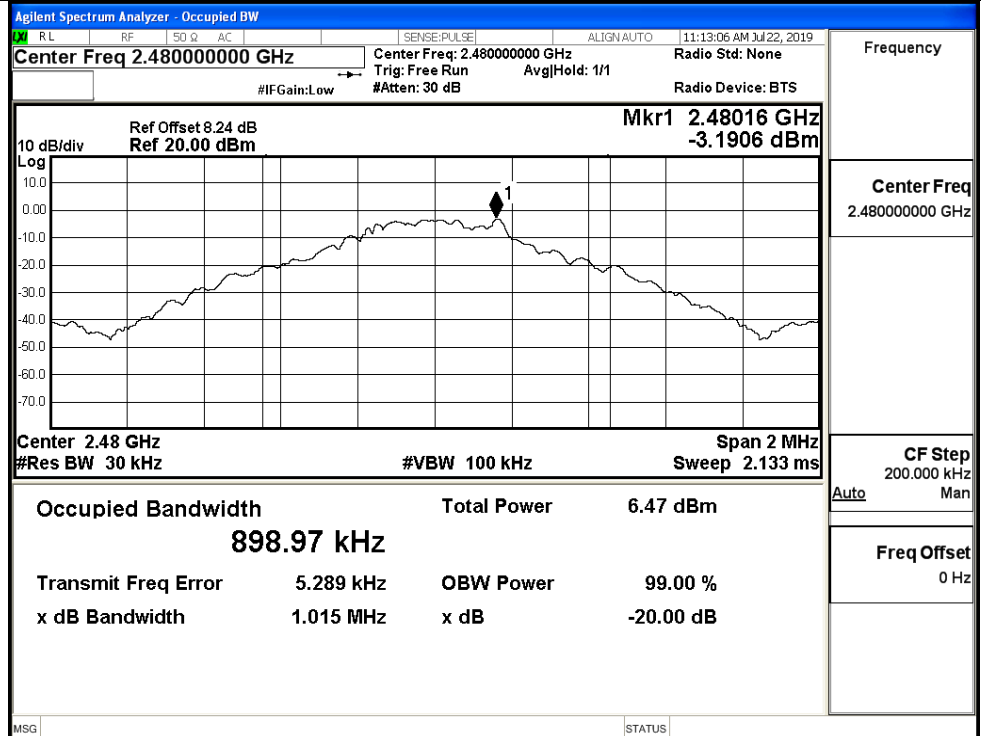
Test Graphs

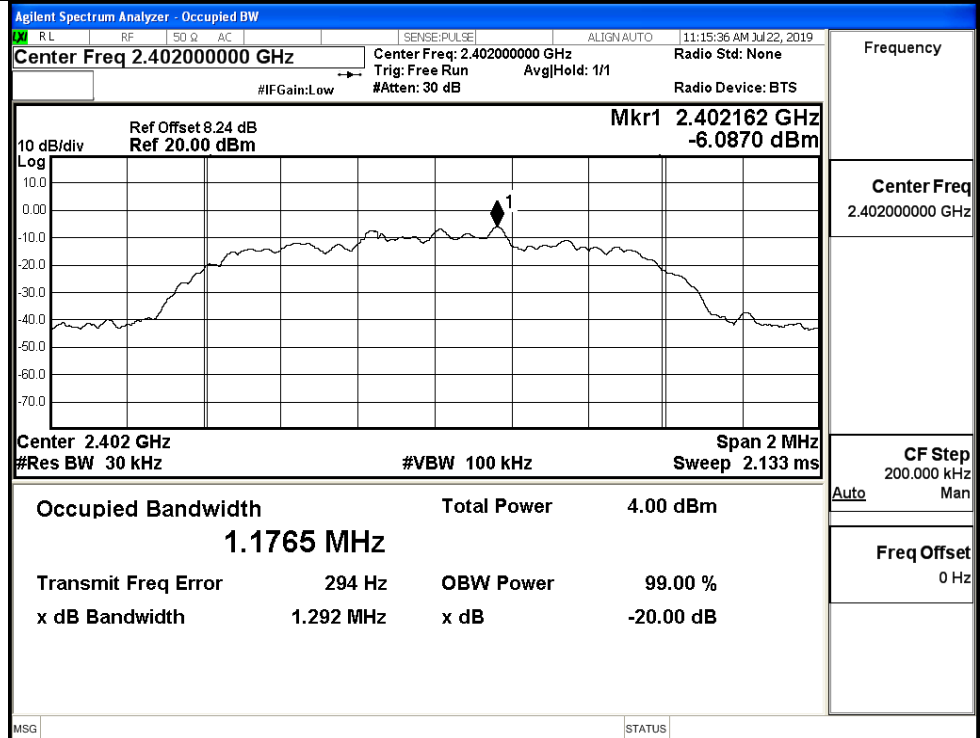
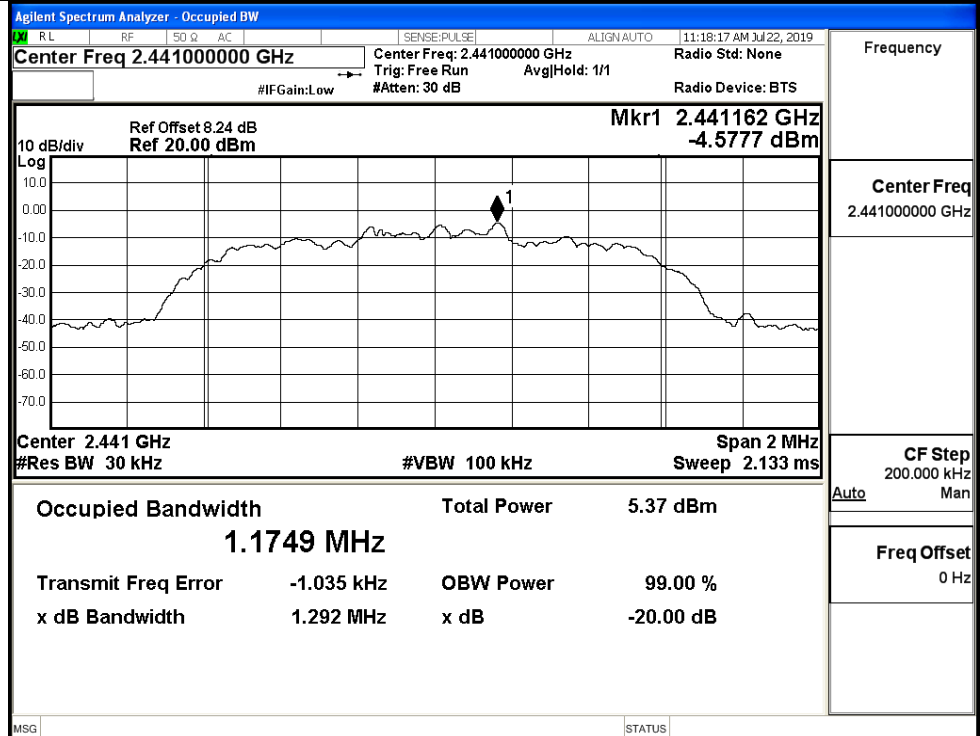


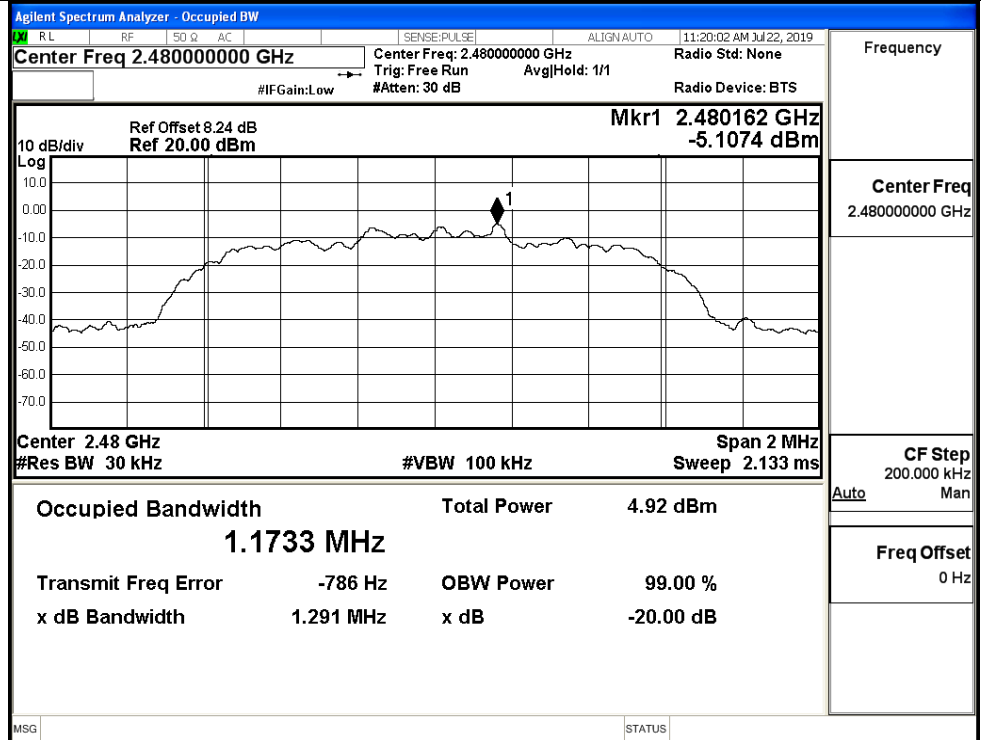
GFSK/MCH



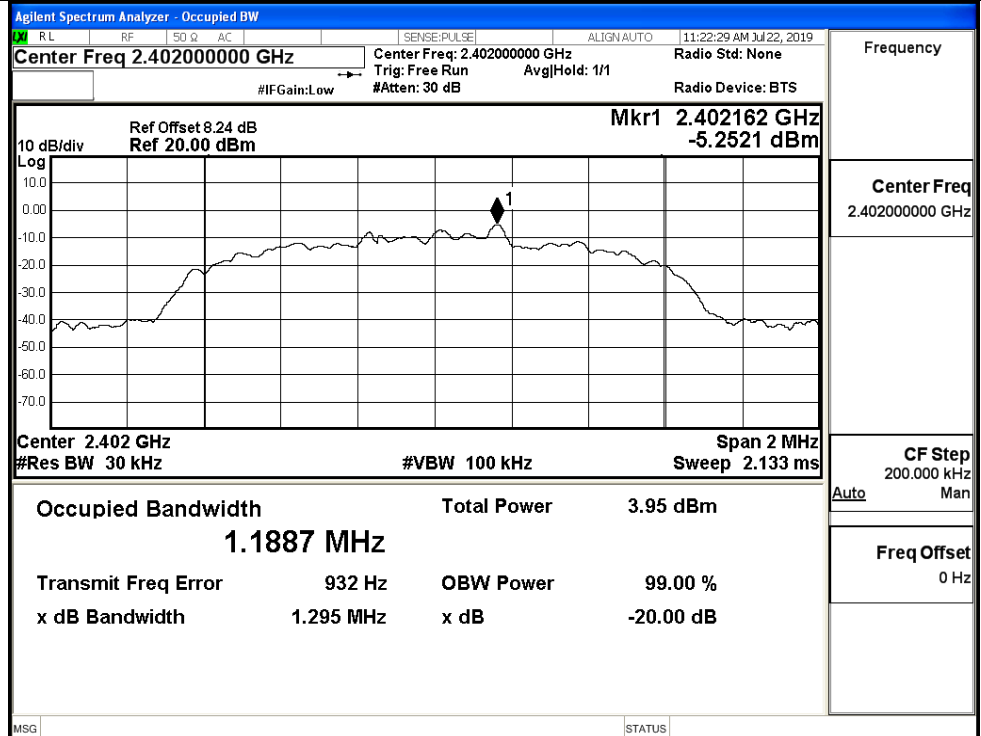
GFSK/HCH



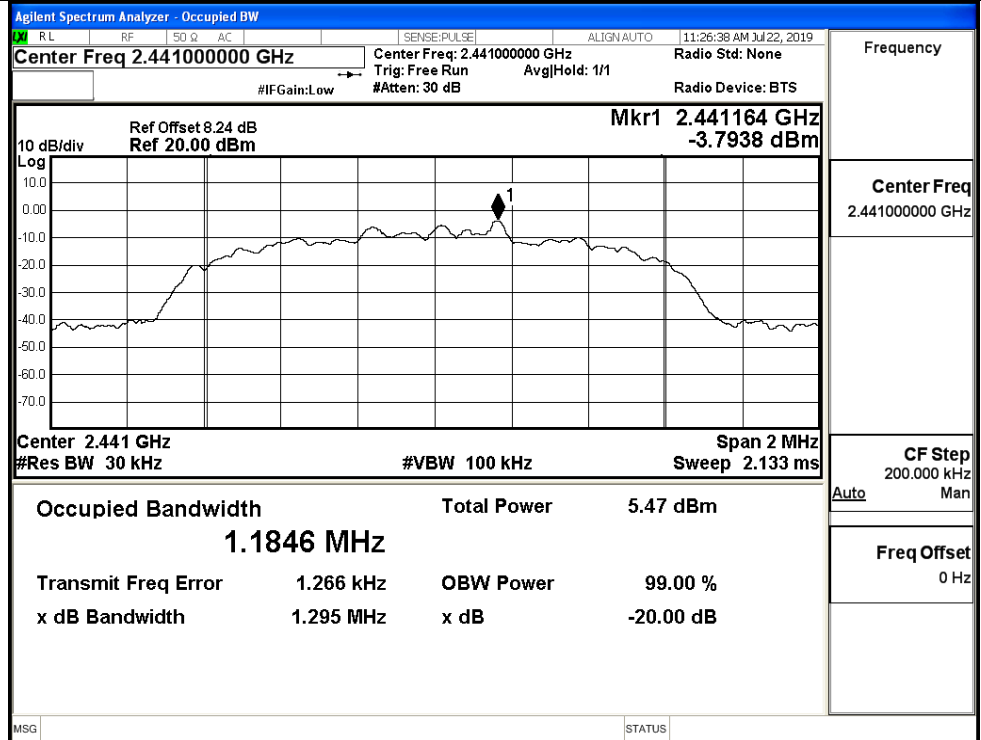
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

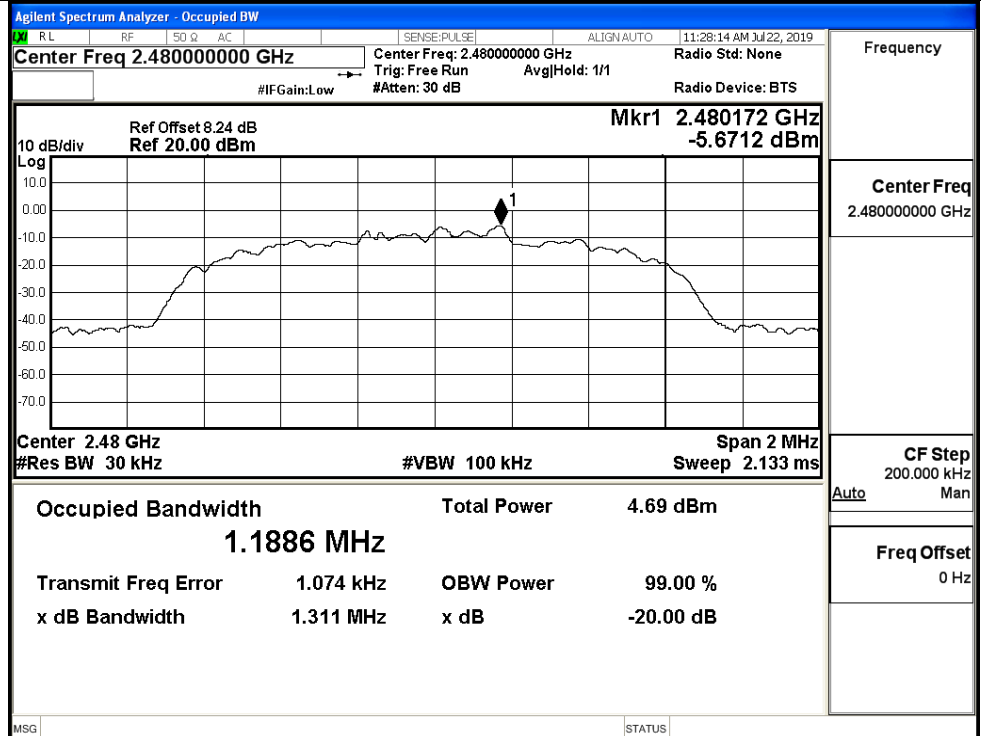
8DPSK/LCH



8DPSK/MCH



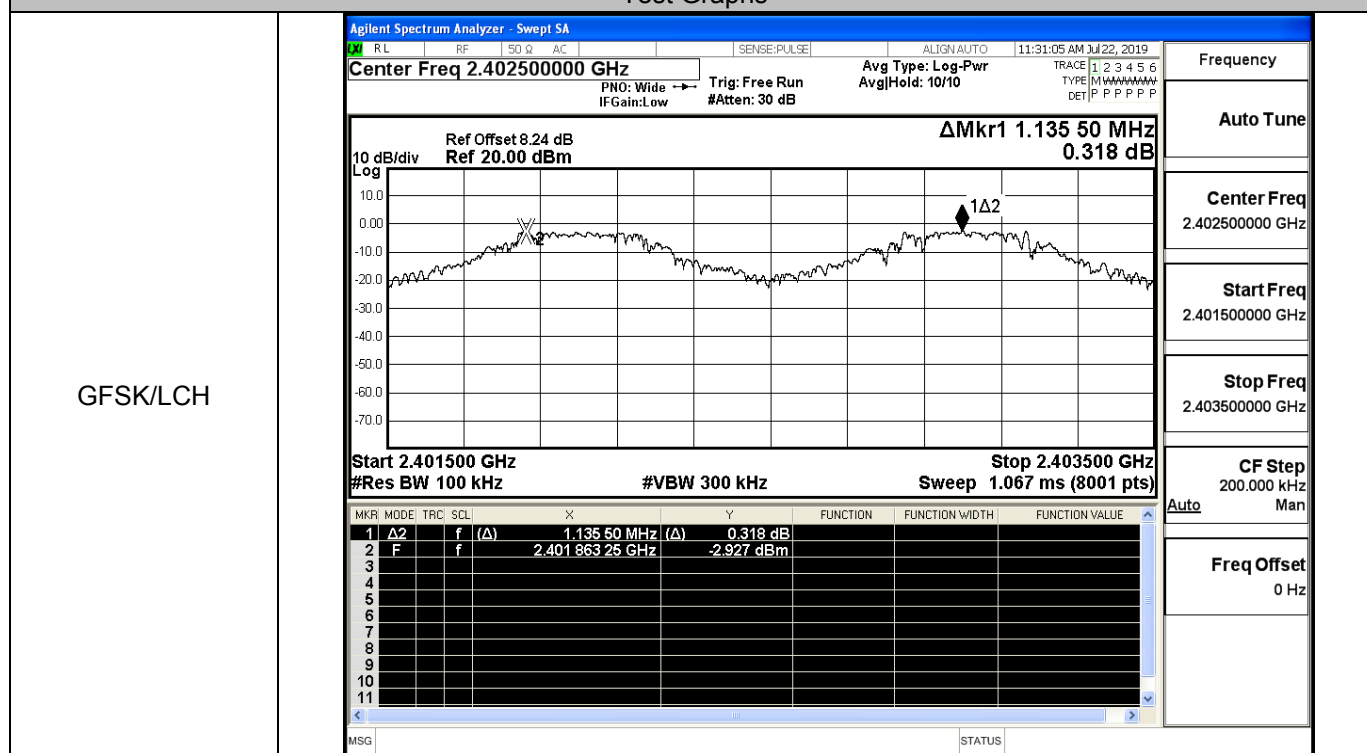
8DPSK/HCH



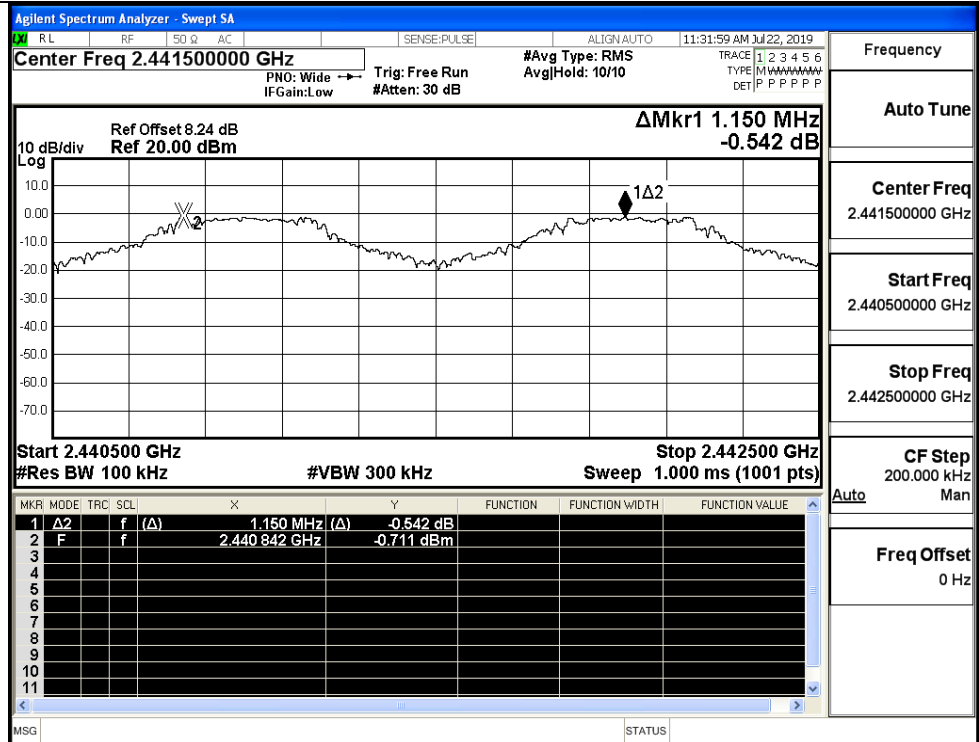
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.136	0.677	PASS
	MCH	1.150	0.677	PASS
	HCH	0.864	0.677	PASS
$\pi/4$ DQPSK	LCH	0.996	0.861	PASS
	MCH	0.884	0.861	PASS
	HCH	1.118	0.861	PASS
8DPSK	LCH	0.986	0.874	PASS
	MCH	1.206	0.874	PASS
	HCH	1.102	0.874	PASS

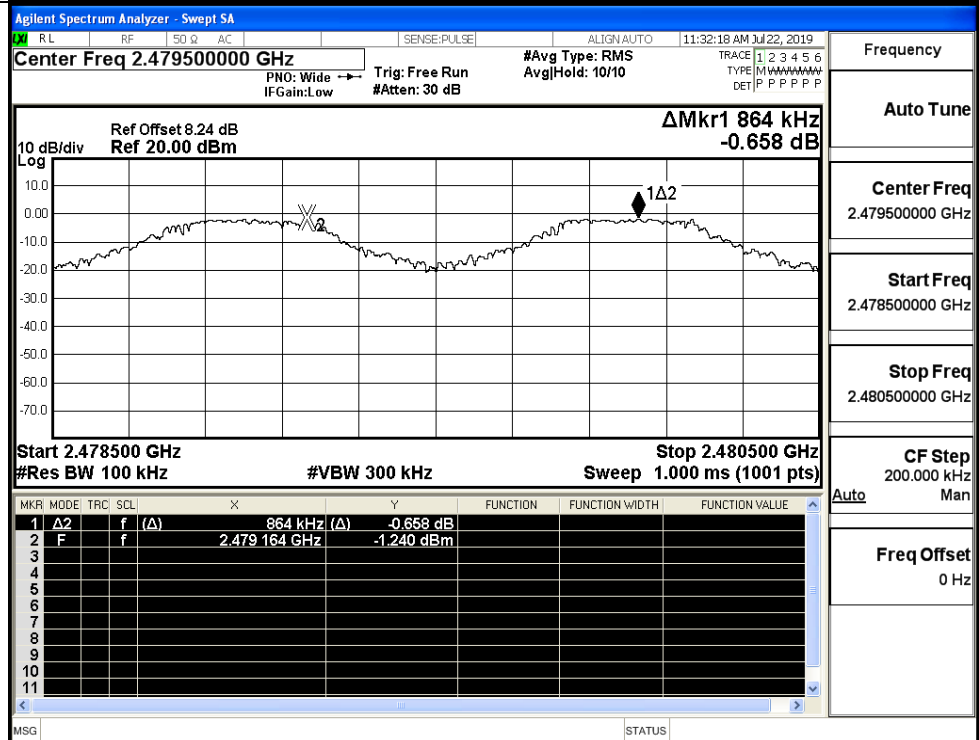
Test Graphs

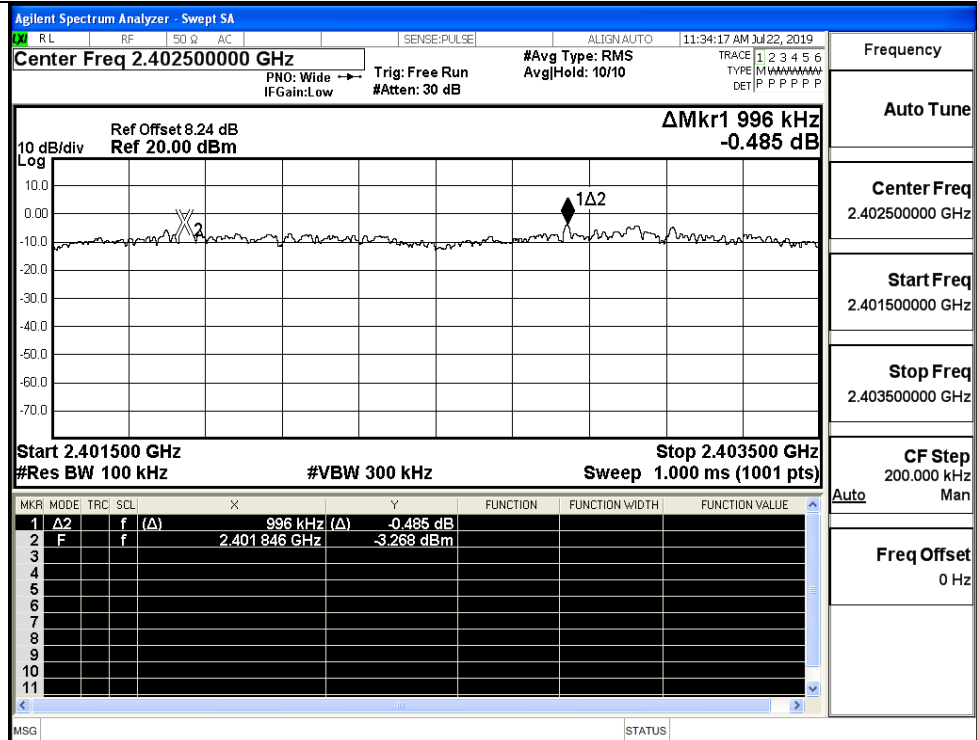
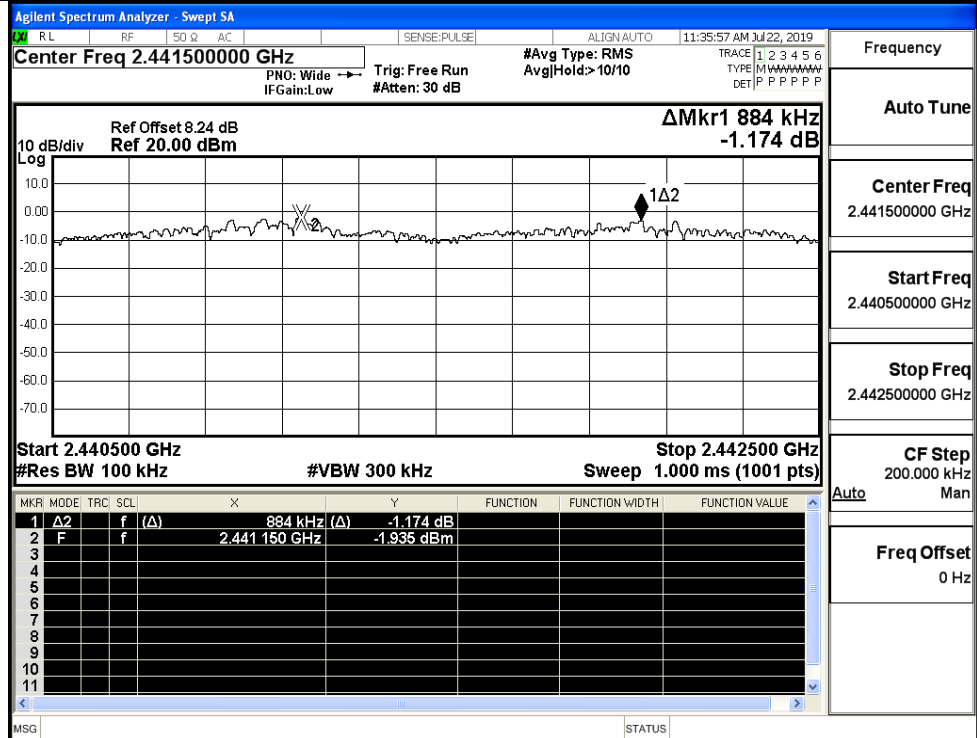


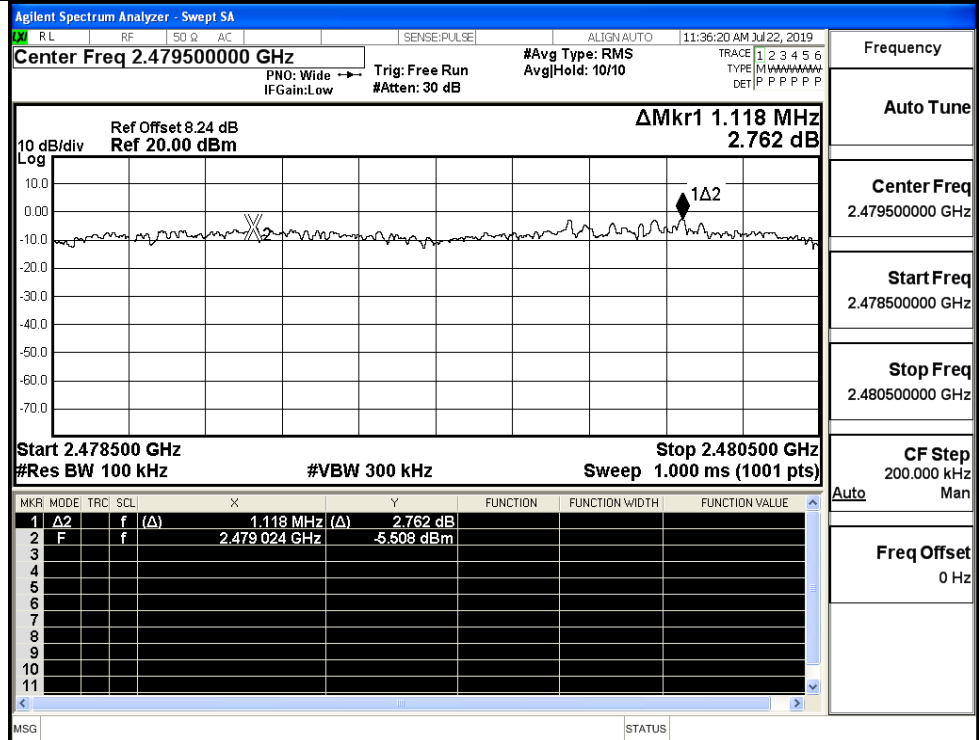
GFSK/MCH



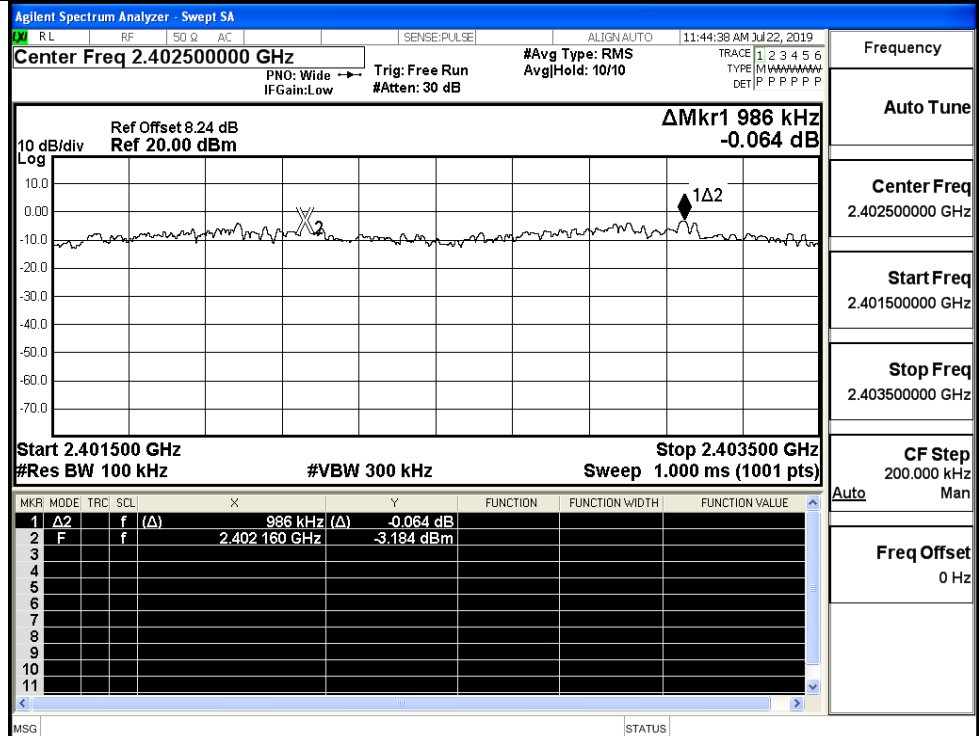
GFSK/HCH

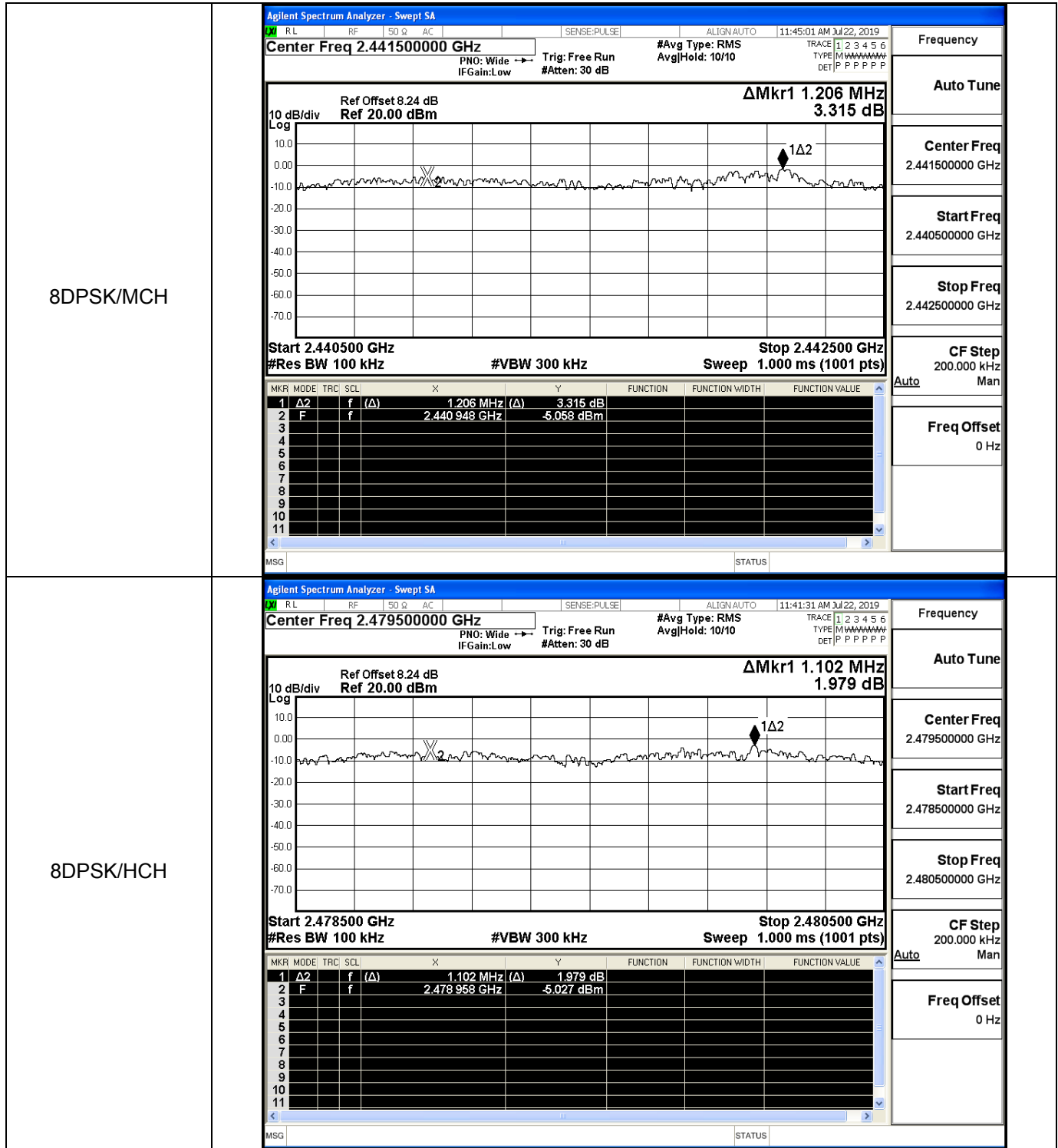


$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

π /4DQPSK/HCH

8DPSK/LCH



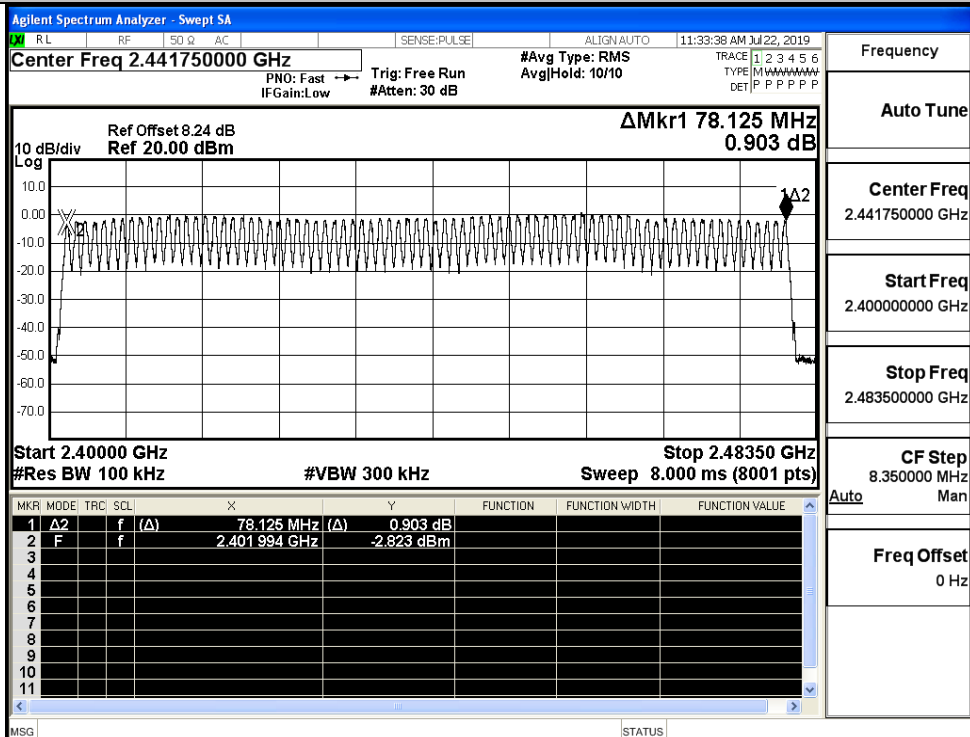
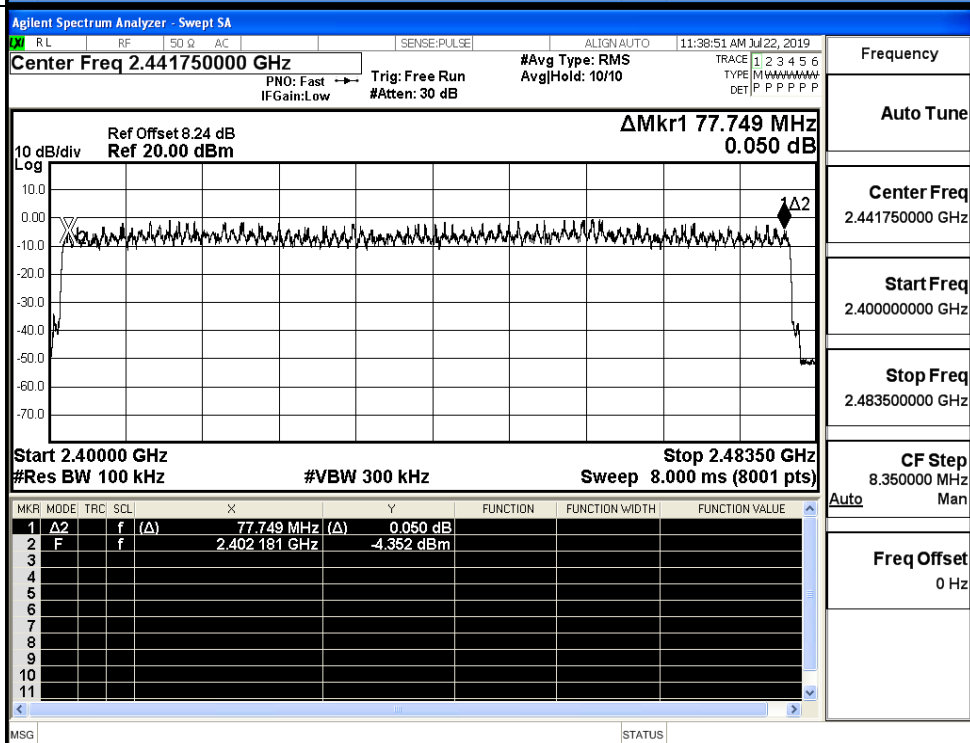


A.4 Hopping Channel Number

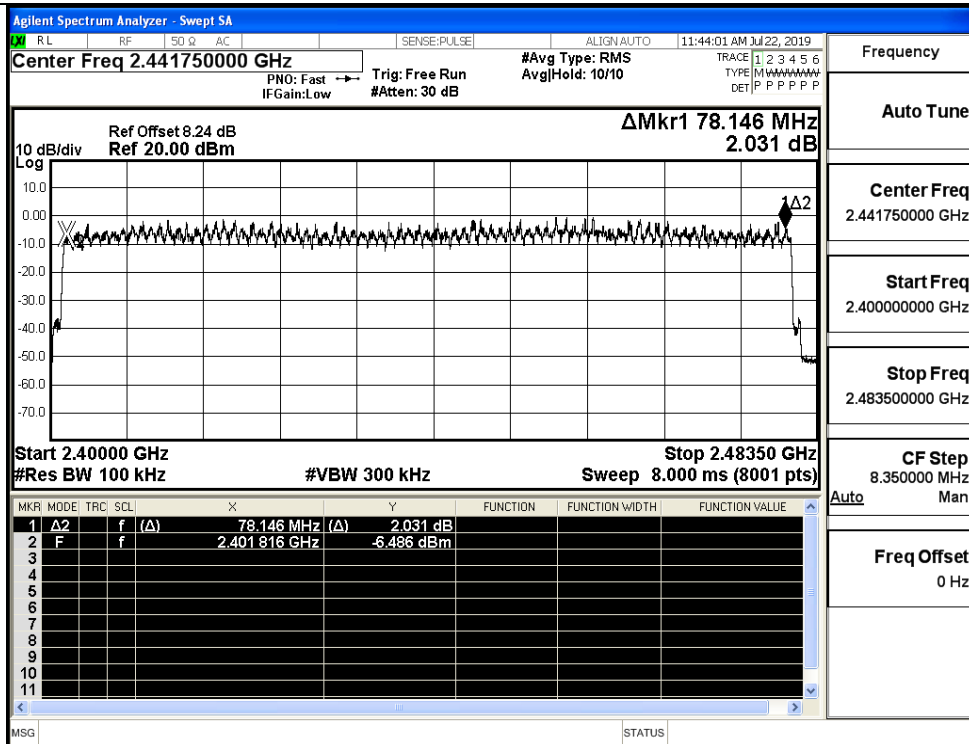
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

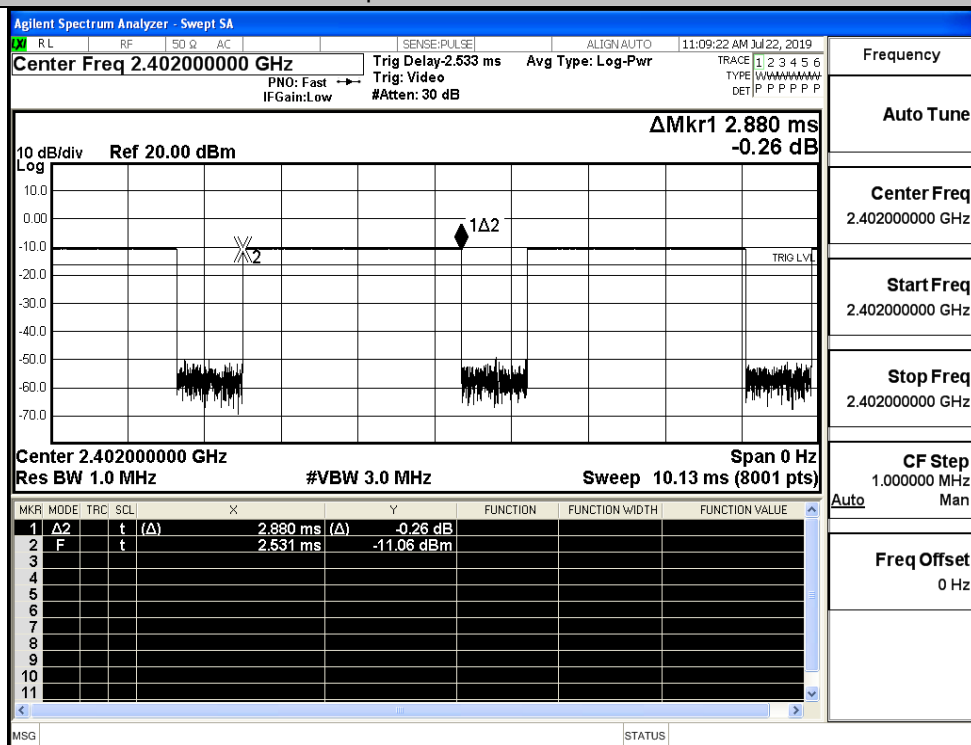


A.5 Dwell Time

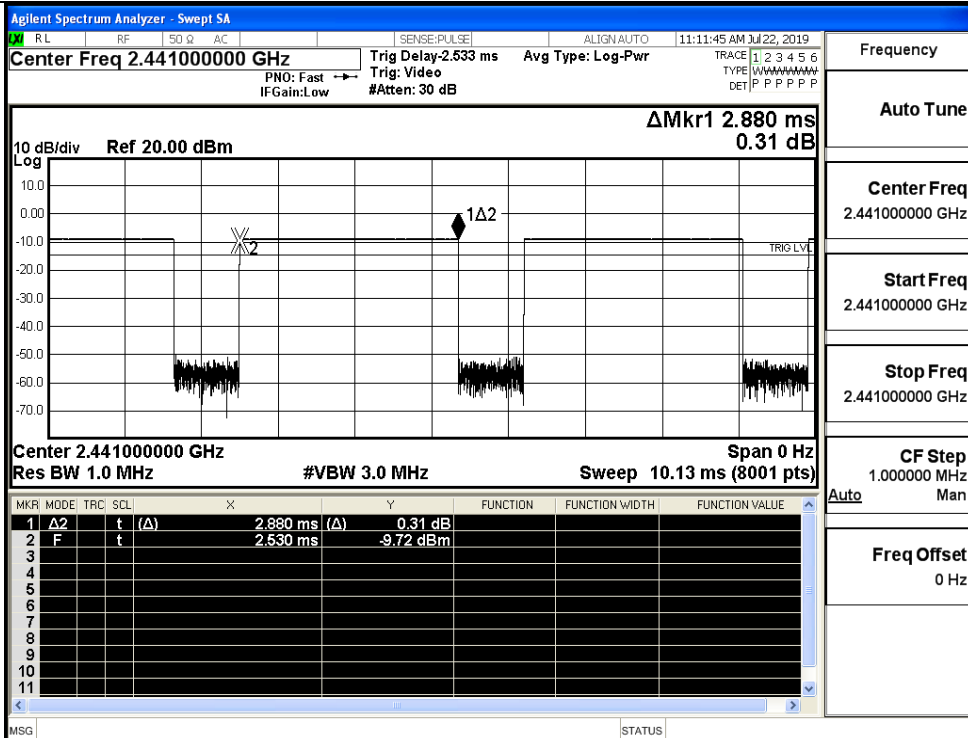
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

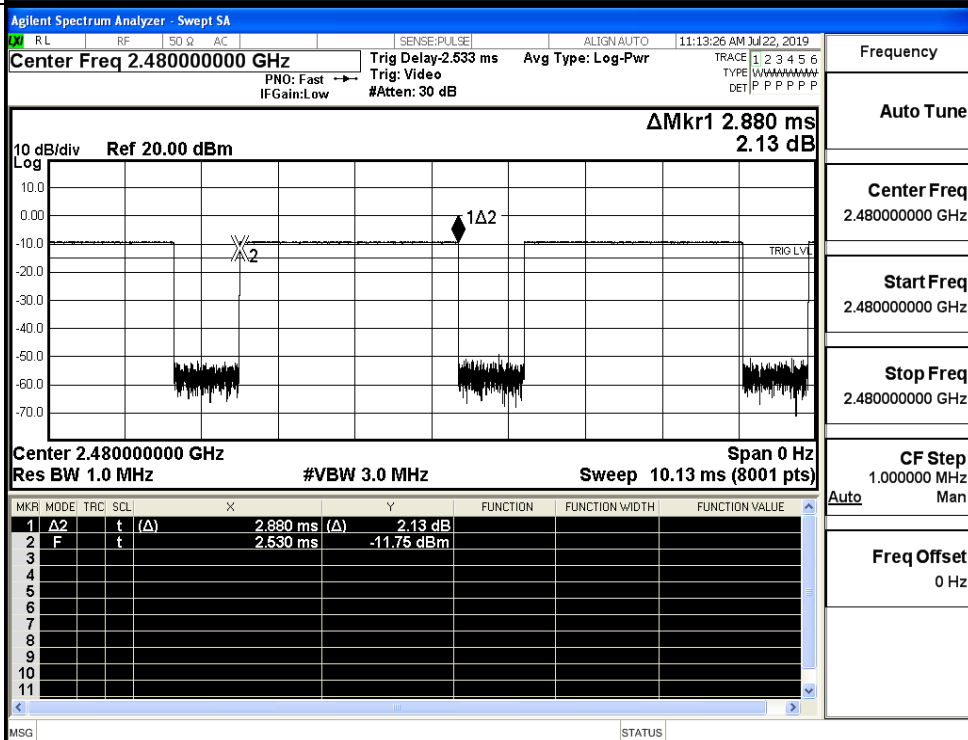
GFSK_DH5/LCH



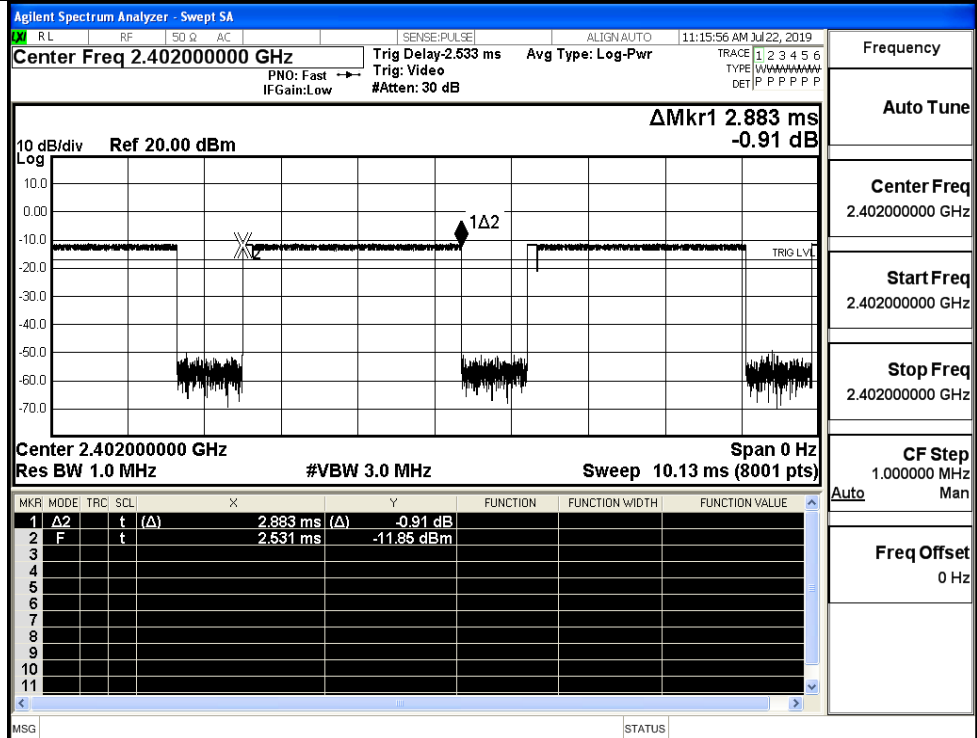
GFSK_DH5/MCH



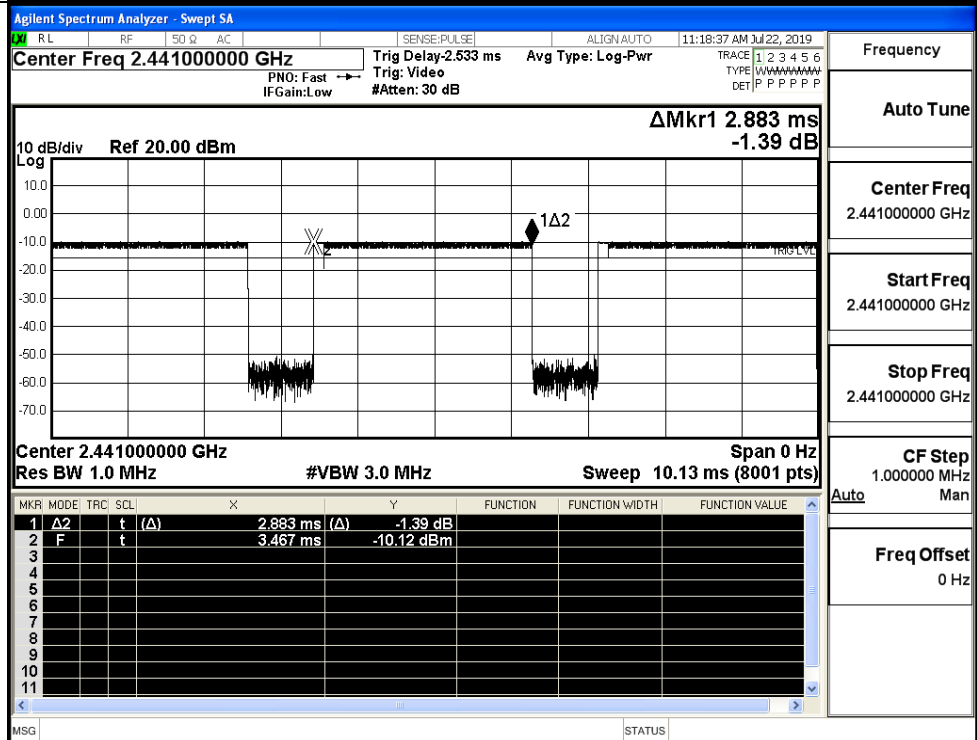
GFSK_DH5/HCH



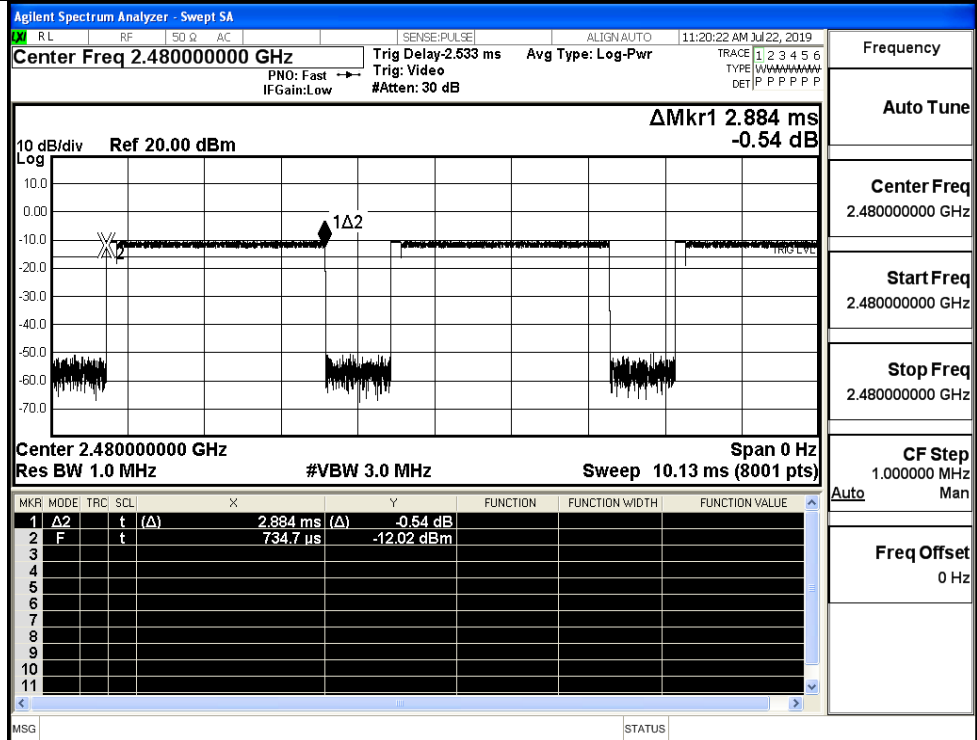
$\pi/4$ DQPSK
_2DH5/LCH



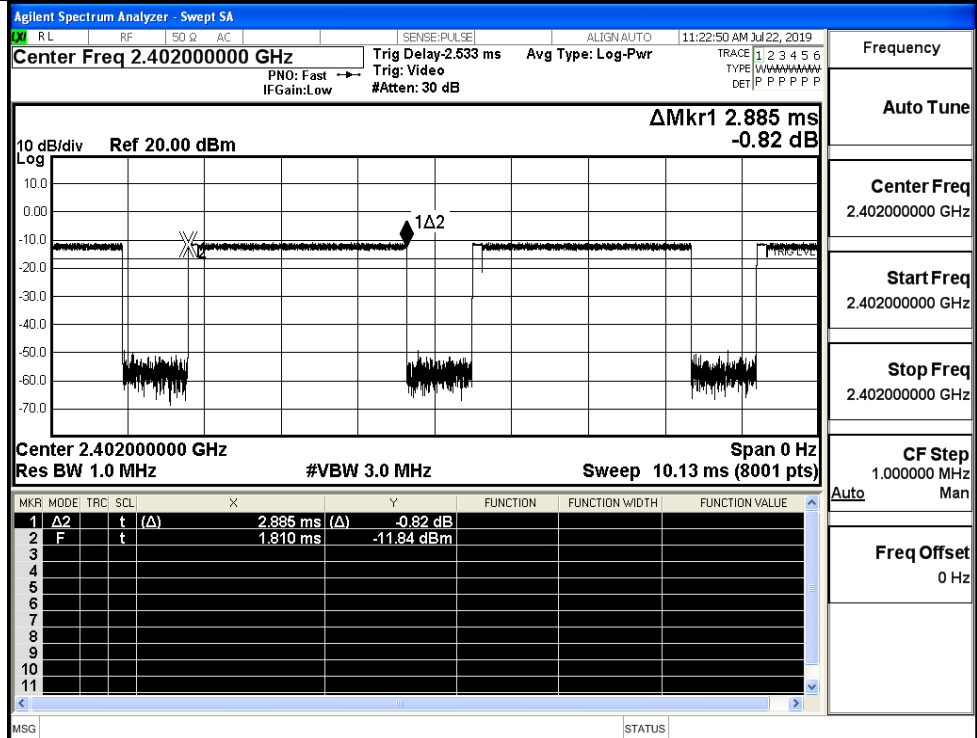
$\pi/4$ DQPSK
_2DH5/MCH



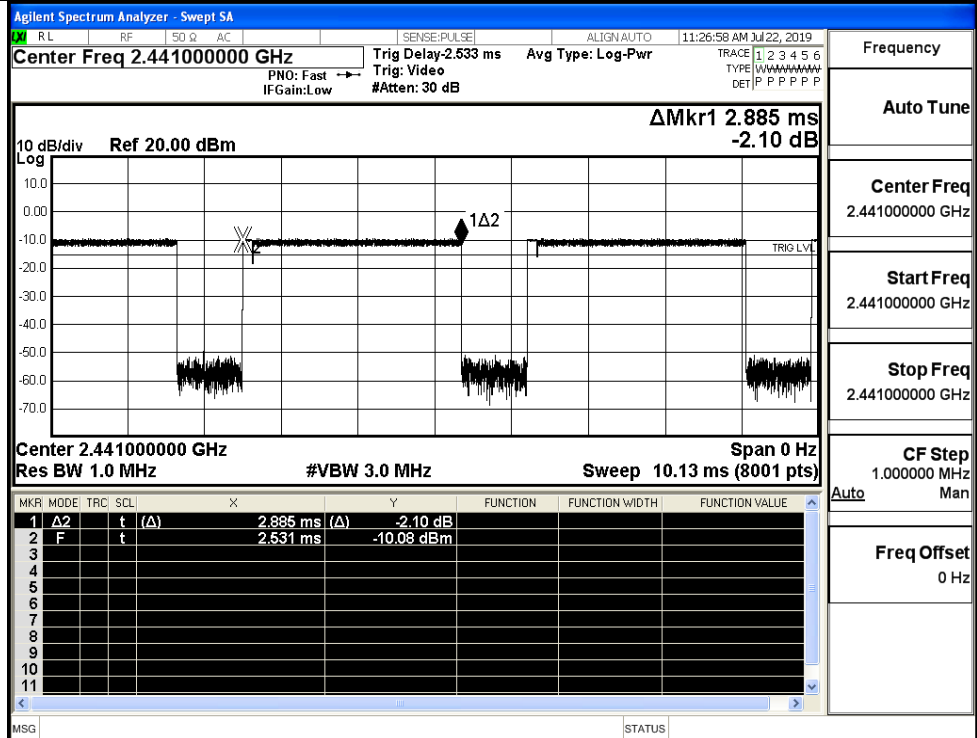
$\pi/4$ DQPSK
_2DH5/HCH



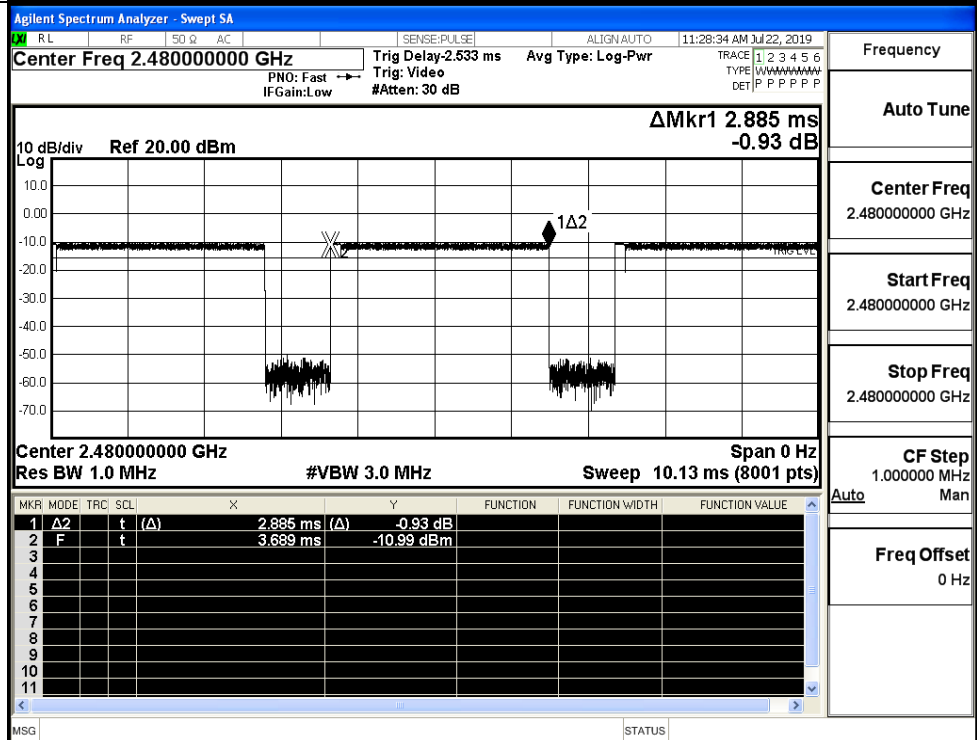
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



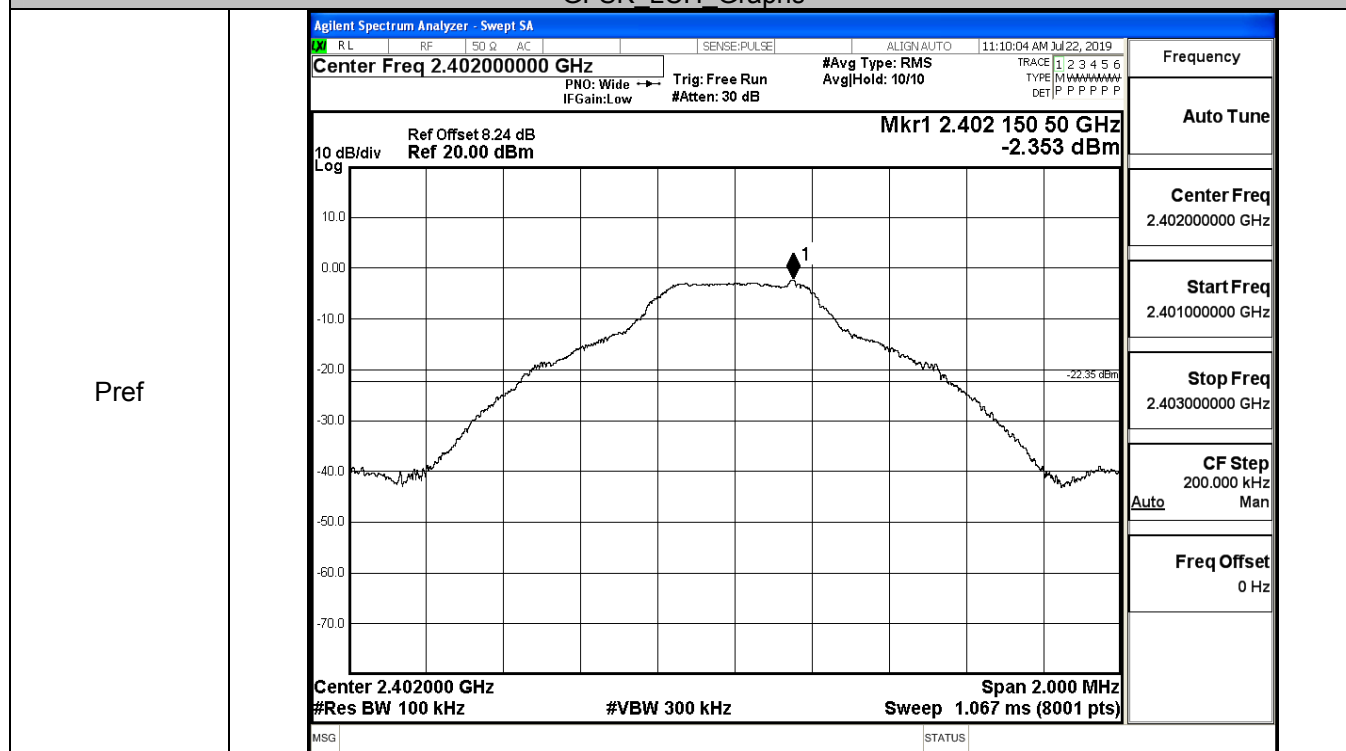
8DPSK_3DH5/HCH

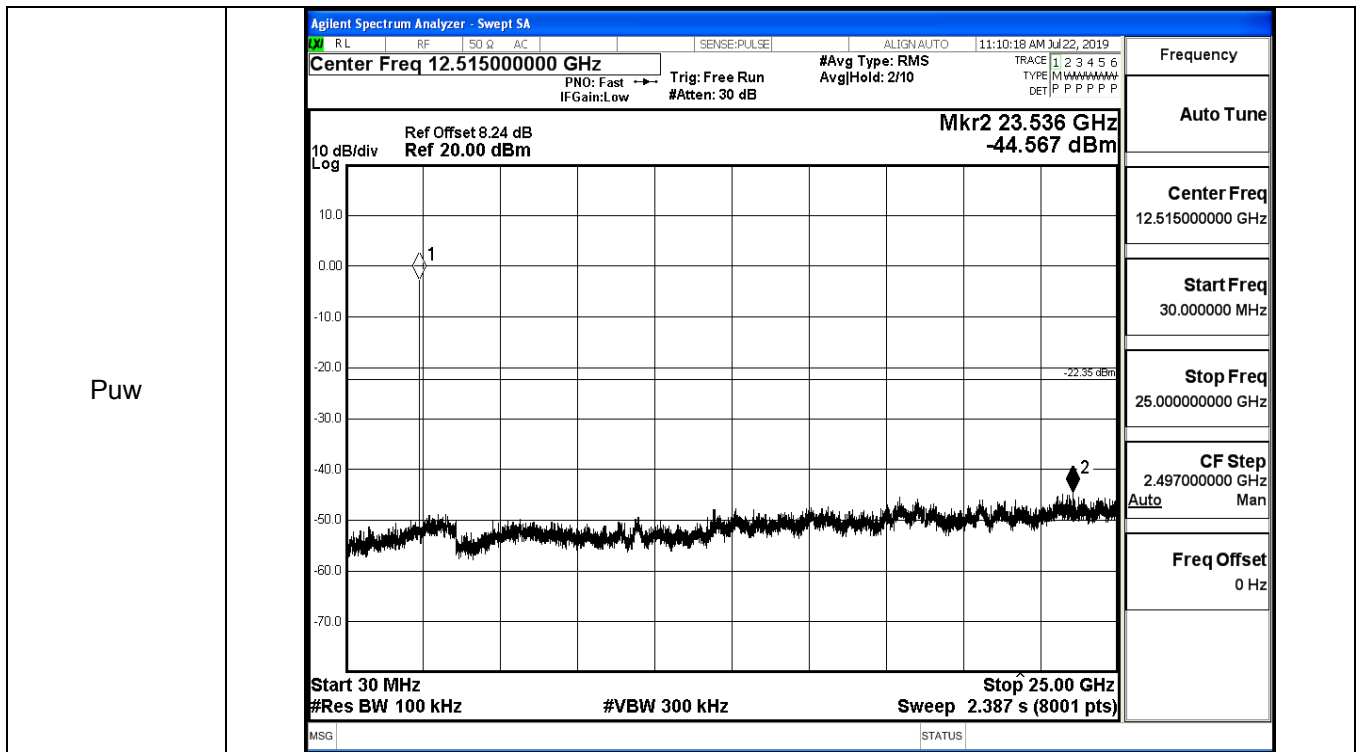


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.353	-44.567	-22.353	PASS
	MCH	-1.199	-44.651	-21.199	PASS
	HCH	-1.004	-44.802	-21.004	PASS
$\pi/4$ DQPSK	LCH	-3.364	-44.702	-23.364	PASS
	MCH	-1.873	-44.299	-21.873	PASS
	HCH	-3.094	-44.895	-23.094	PASS
8DPSK	LCH	-3.135	-41.224	-23.135	PASS
	MCH	-1.746	-44.466	-21.746	PASS
	HCH	-2.366	-44.536	-22.366	PASS

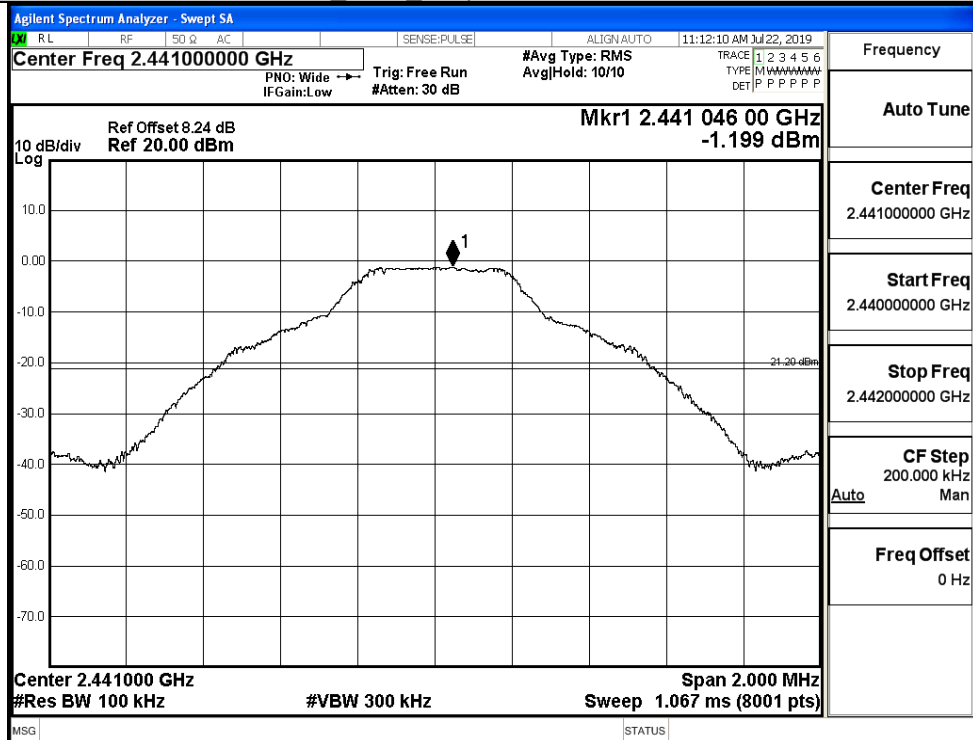
GFSK LCH Graphs



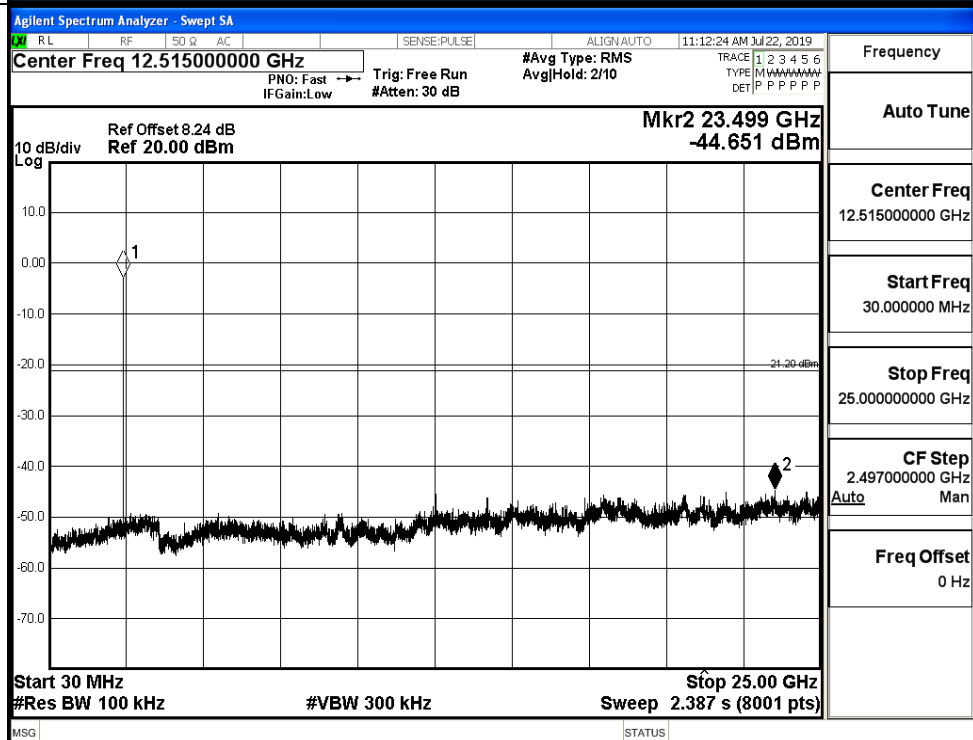


GFSK_MCH_Graphs

Pref

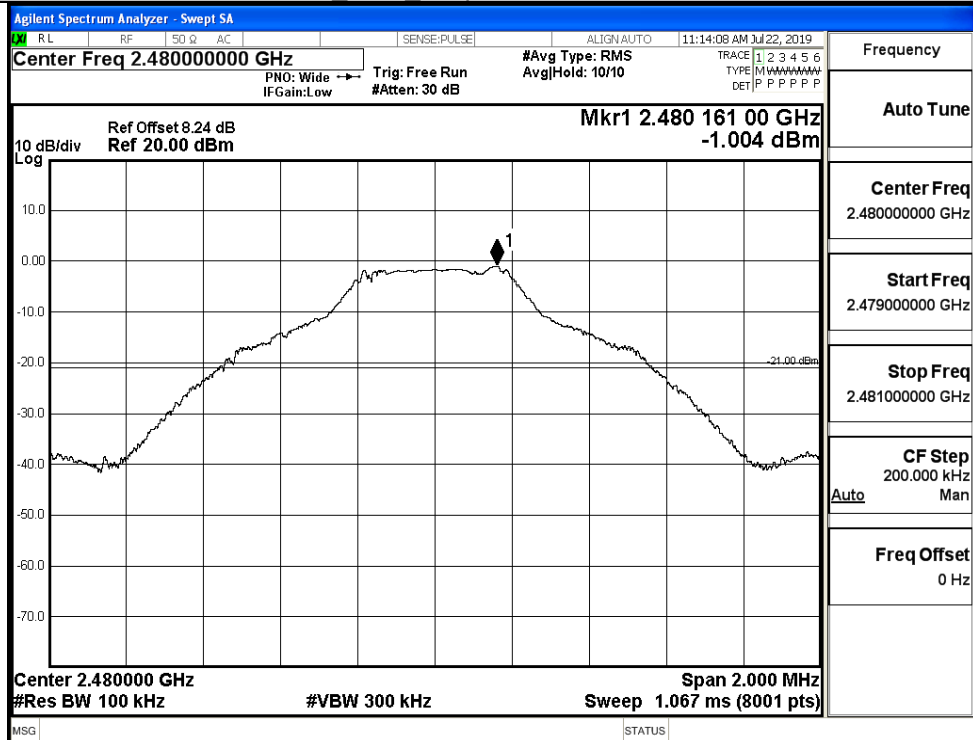


Puw

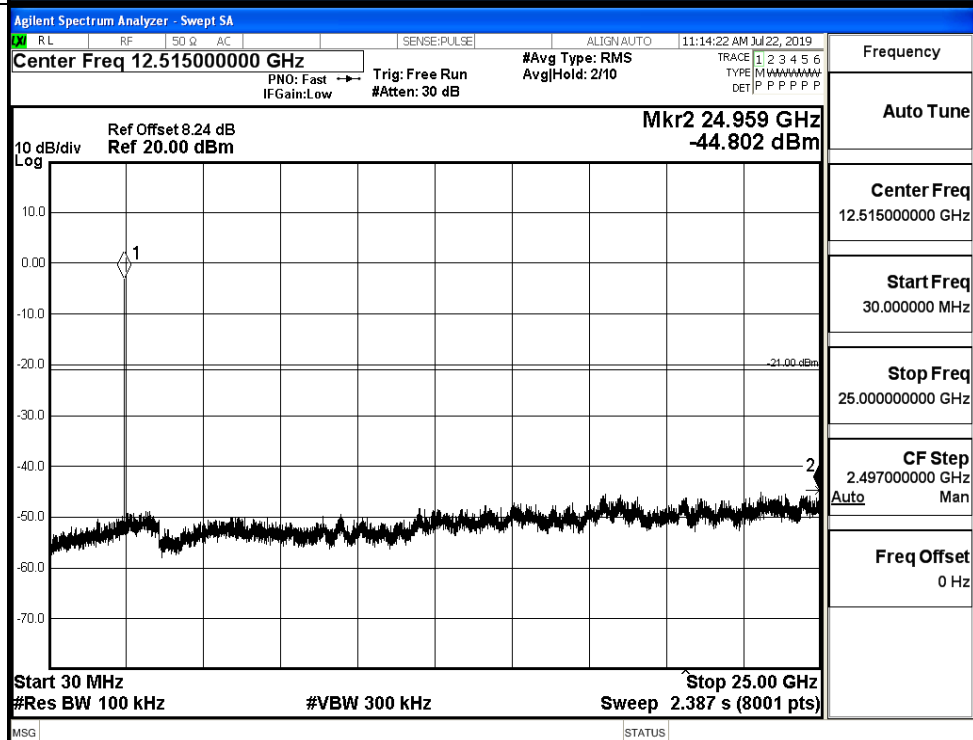


GFSK_HCH_Graphs

Pref

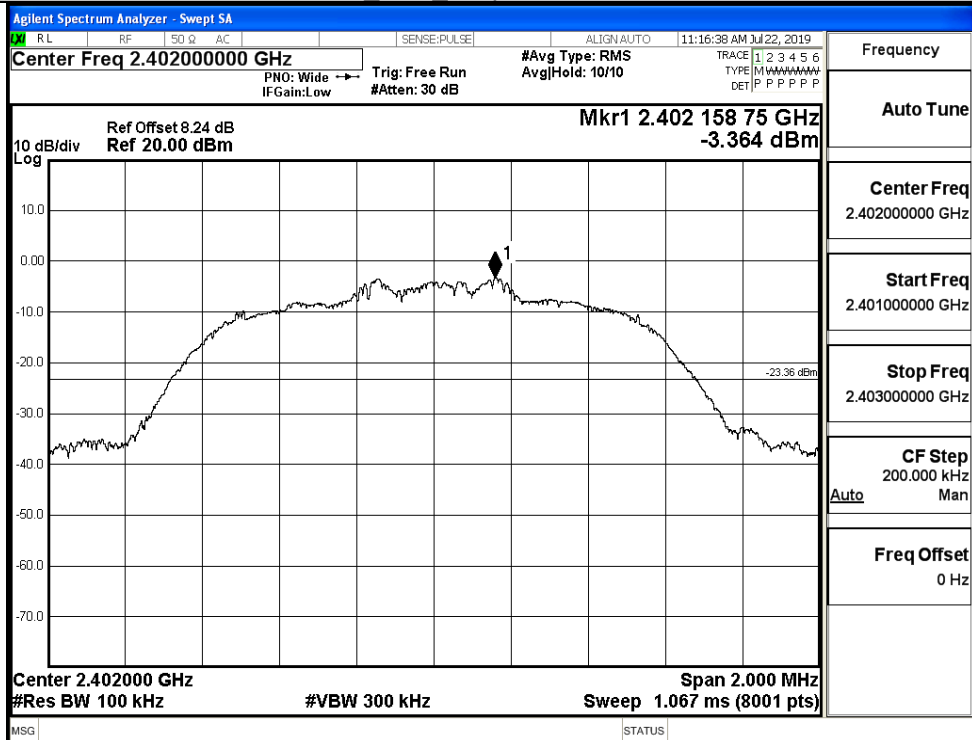


Puw

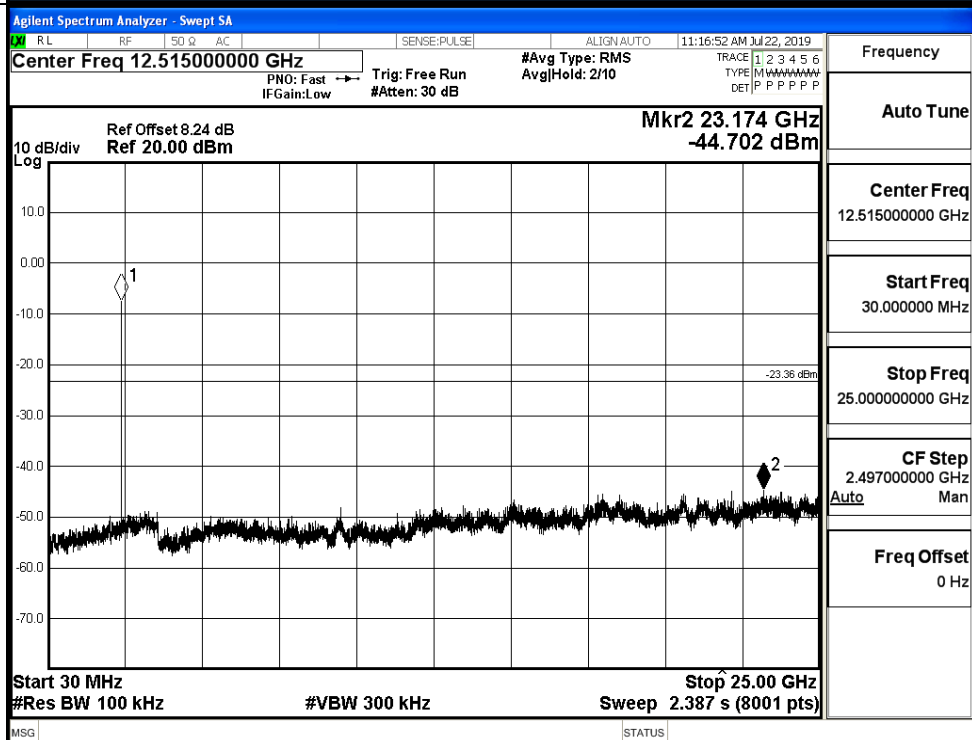


$\pi/4$ DQPSK_LCH_Graphs

Pref

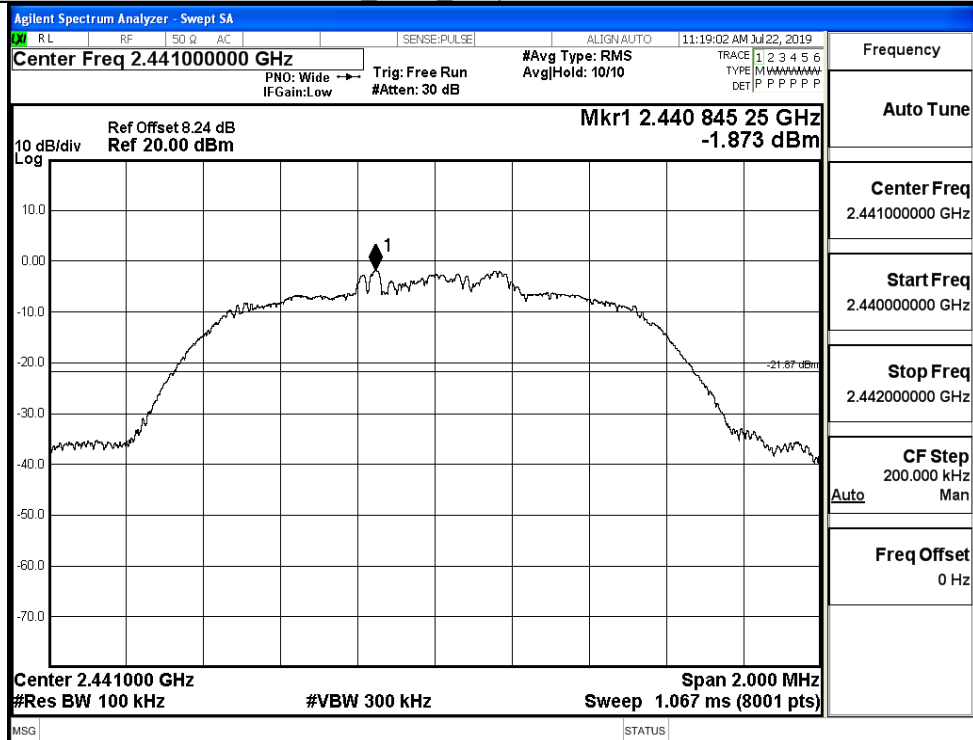


Puw

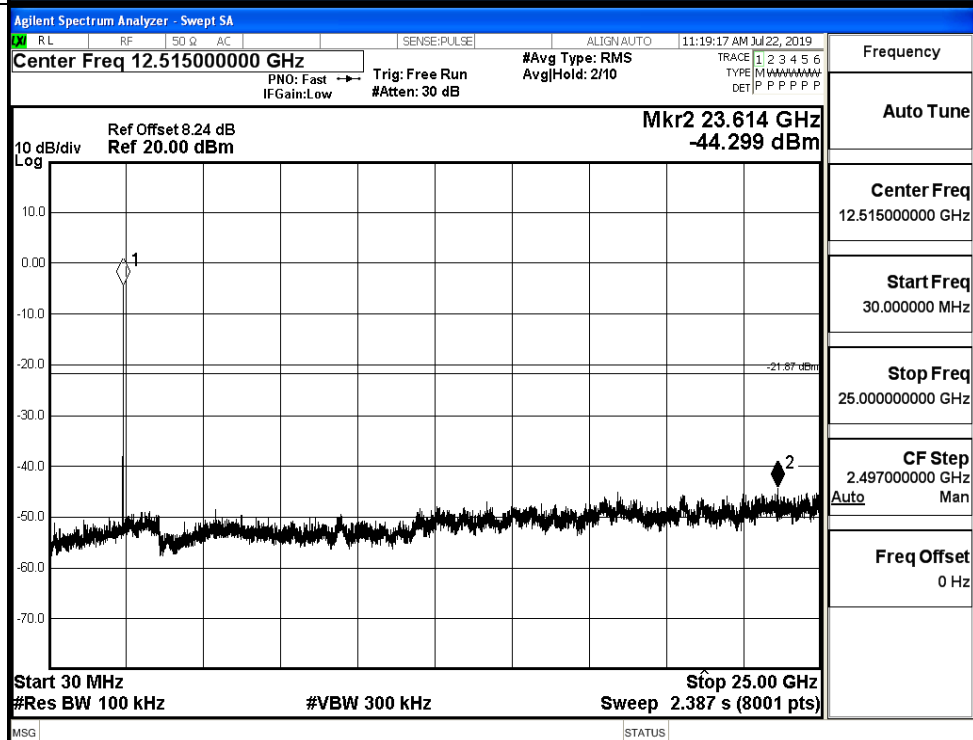


π /4DQPSK_MCH_Graphs

Pref

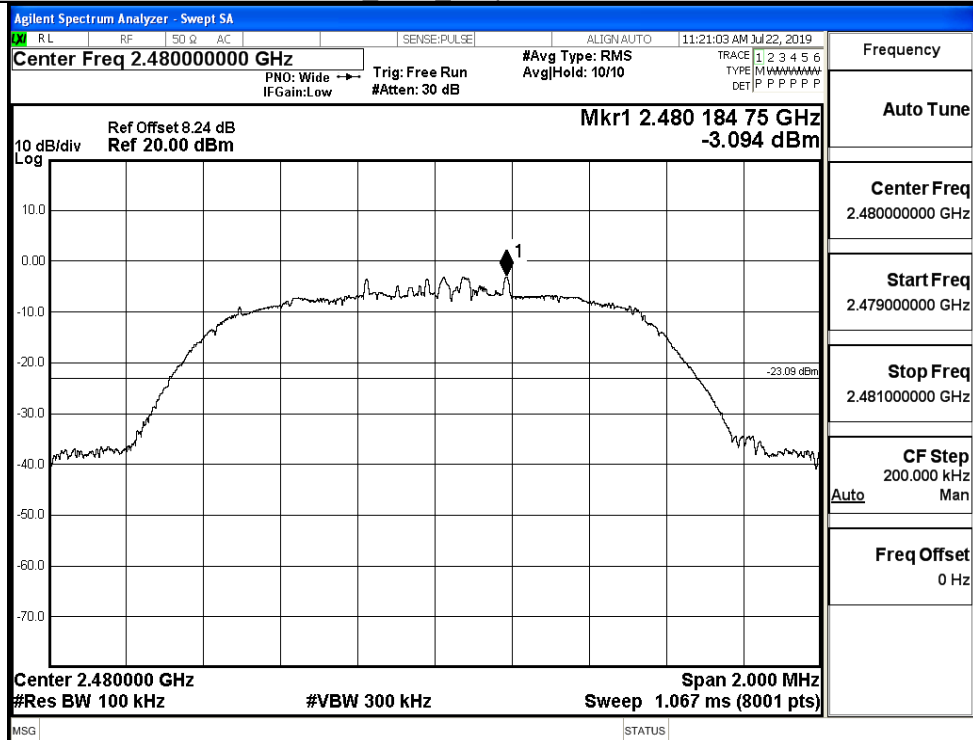


Puw

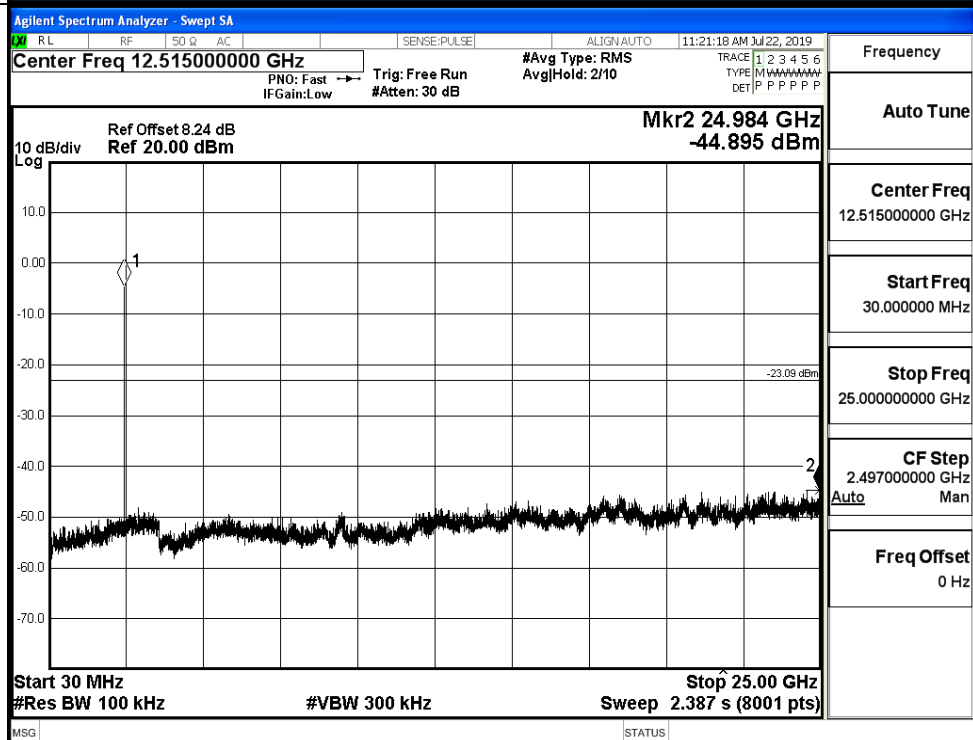


$\pi/4$ DQPSK_HCH_Graphs

Pref

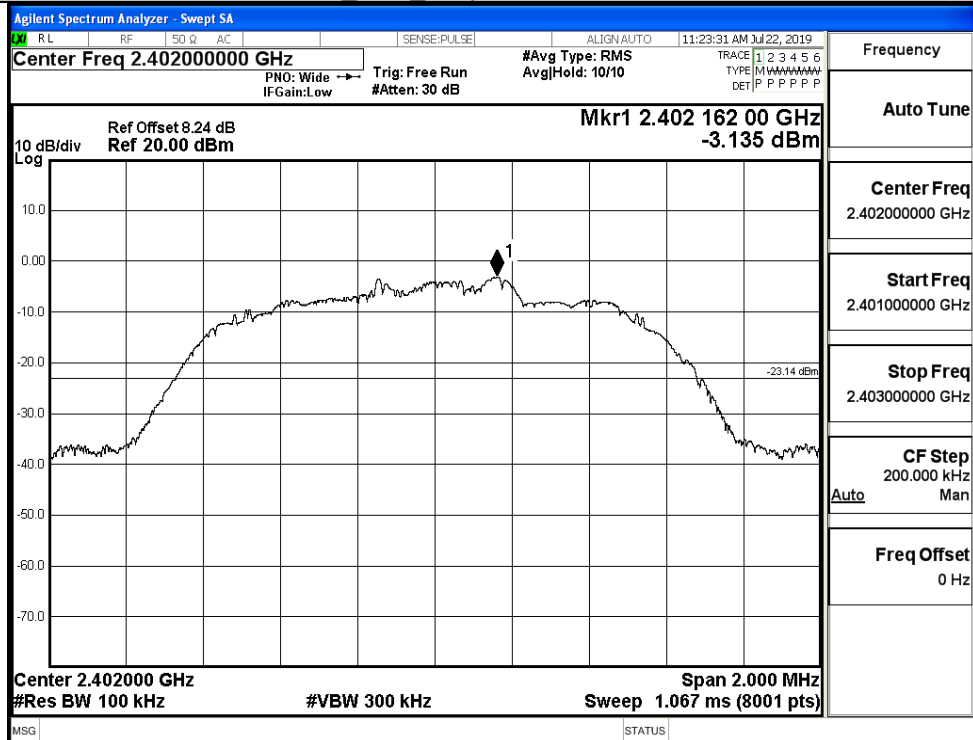


Puw

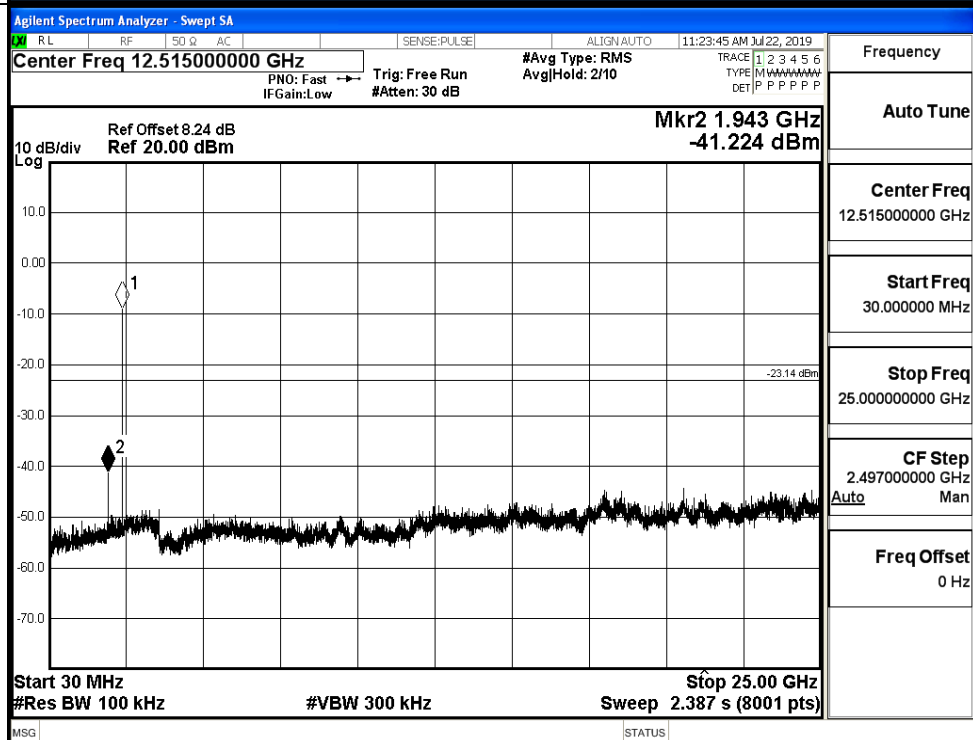


8DPSK_LCH_Graphs

Pref

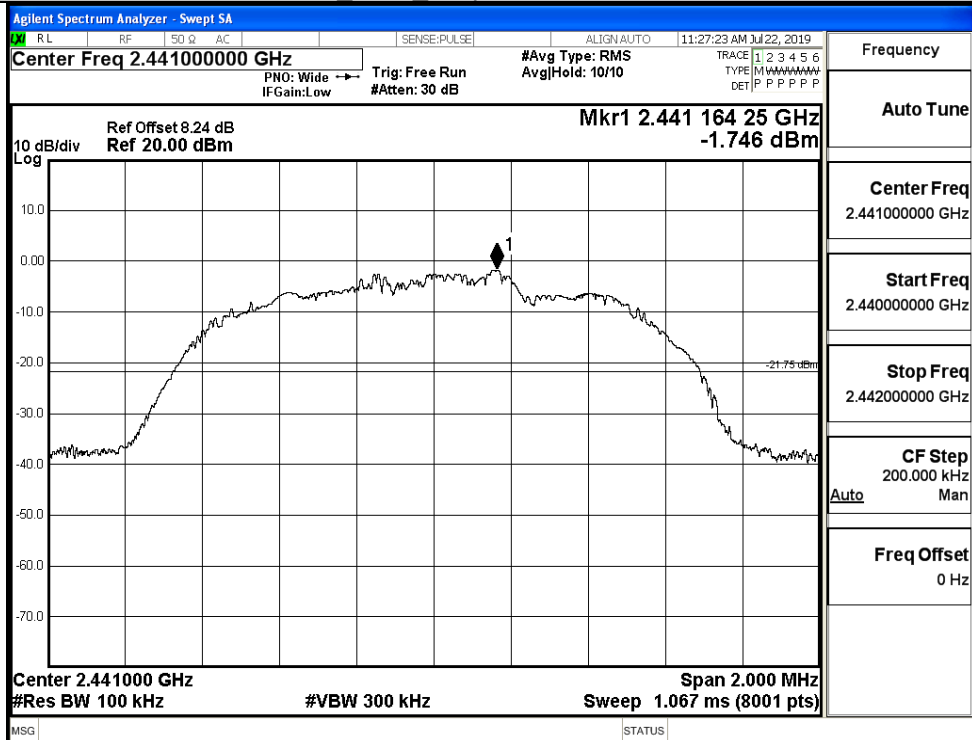


Puw

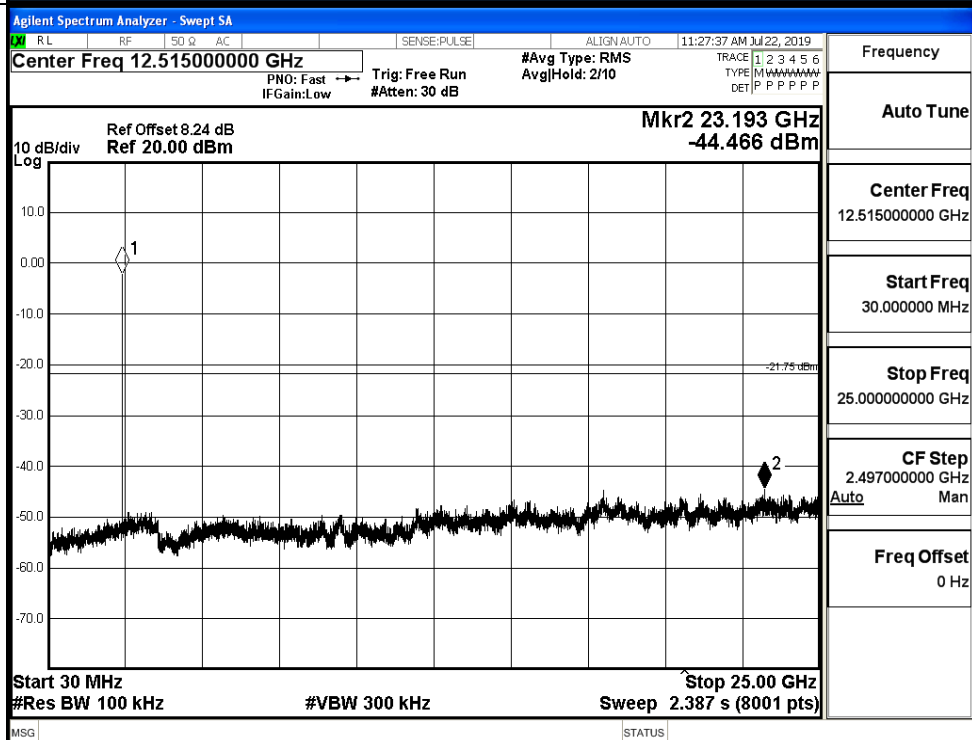


8DPSK_MCH_Graphs

Pref

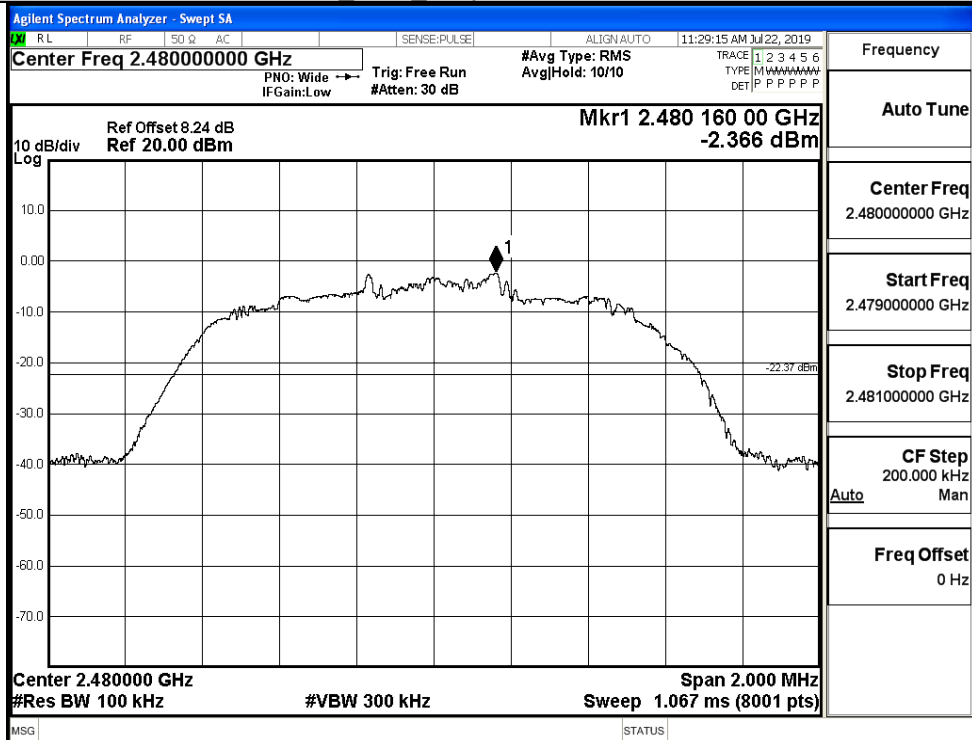


Puw

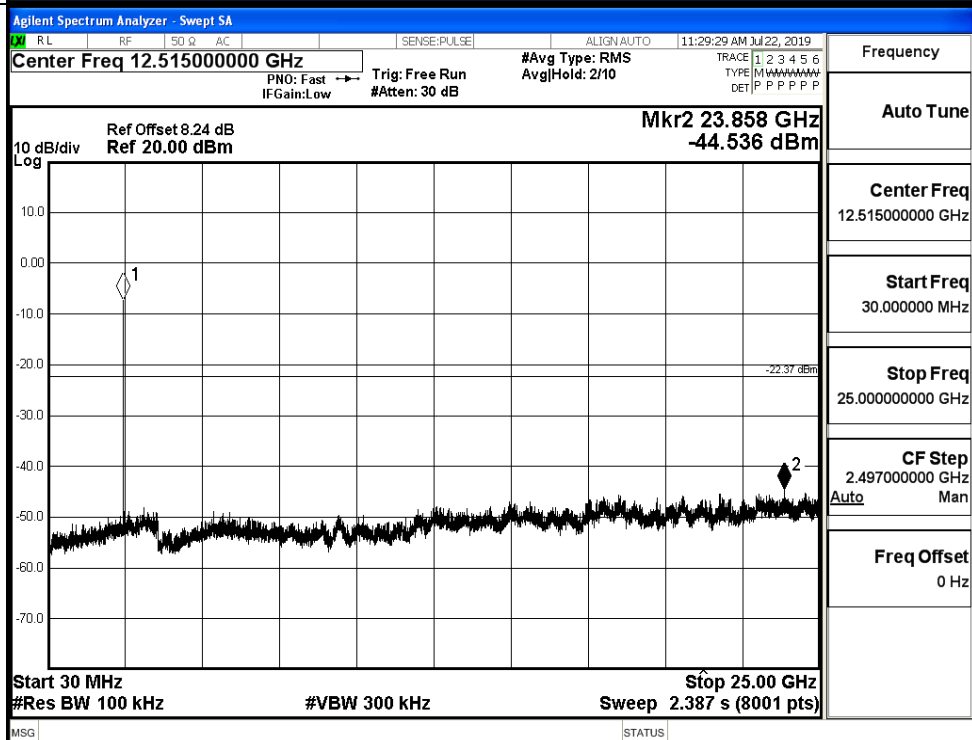


8DPSK_HCH_Graphs

Pref



Puw

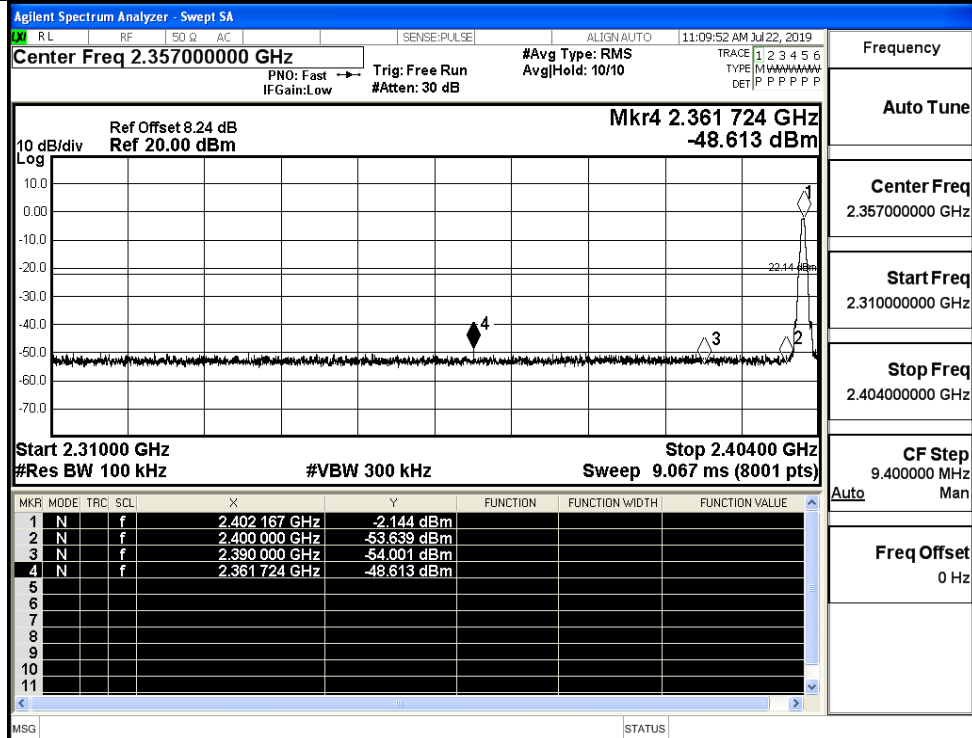


A.7 Band-edge for RF Conducted Emissions

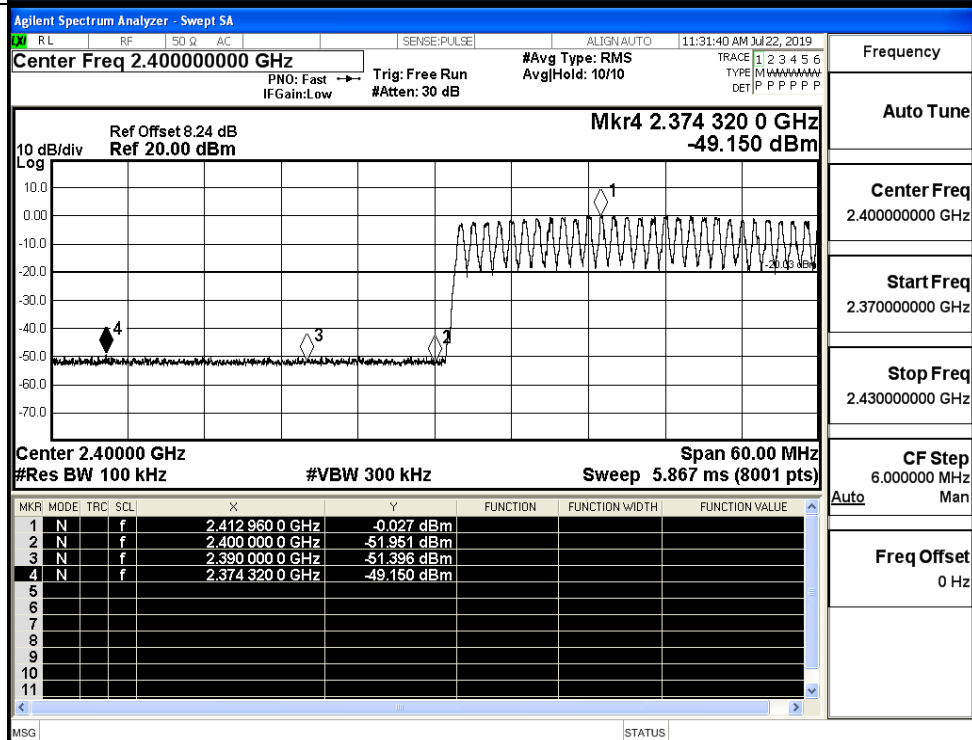
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.144	Off	-48.613	-22.14	PASS
			-0.027	On	-49.150	-20.03	PASS
	HCH	2480	-1.144	Off	-49.109	-21.14	PASS
			0.561	On	-49.498	-19.44	PASS
$\pi/4$ DQPSK	LCH	2402	-4.486	Off	-49.680	-24.49	PASS
			-1.353	On	-49.199	-21.35	PASS
	HCH	2480	-2.301	Off	-48.845	-22.3	PASS
			-0.576	On	-48.897	-20.58	PASS
8DPSK	LCH	2402	-5.029	Off	-49.173	-25.03	PASS
			-1.214	On	-48.843	-21.21	PASS
	HCH	2480	-2.289	Off	-50.042	-22.29	PASS
			-0.671	On	-49.243	-20.67	PASS

Test Graphs

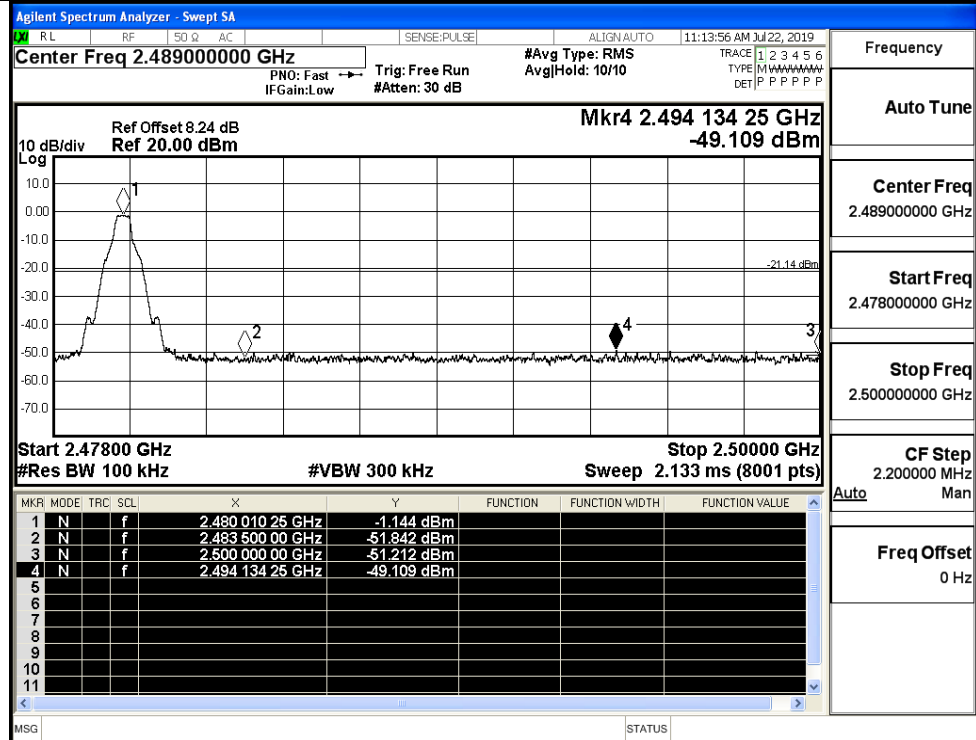
GFSK/LCH/No Hop



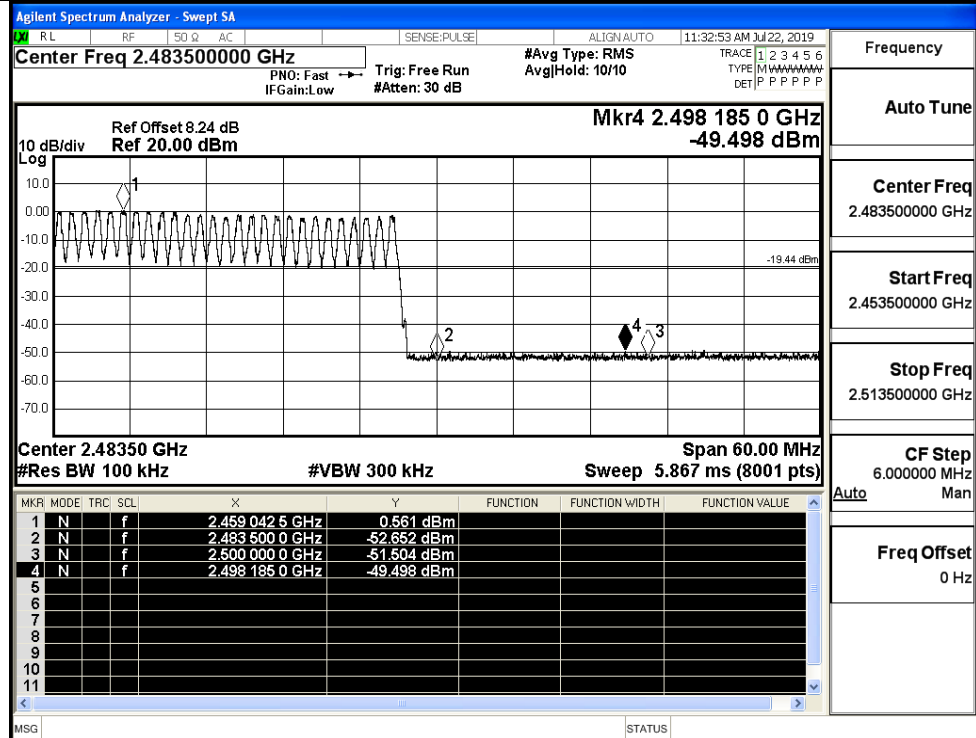
GFSK/LCH/Hop



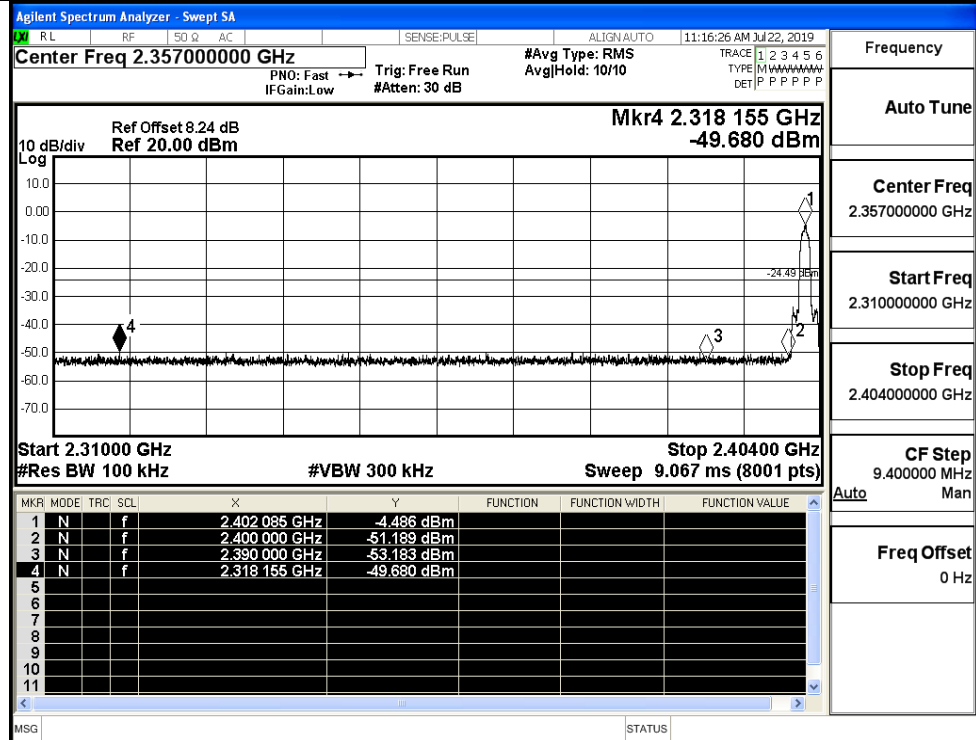
GFSK/HCH/No Hop



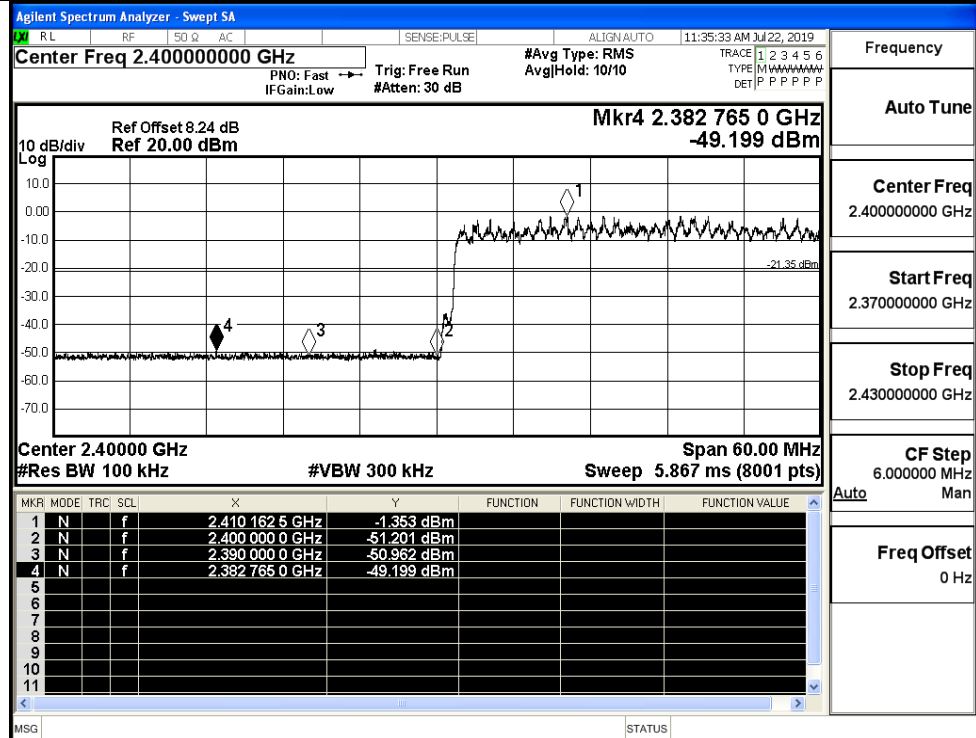
GFSK/HCH/Hop



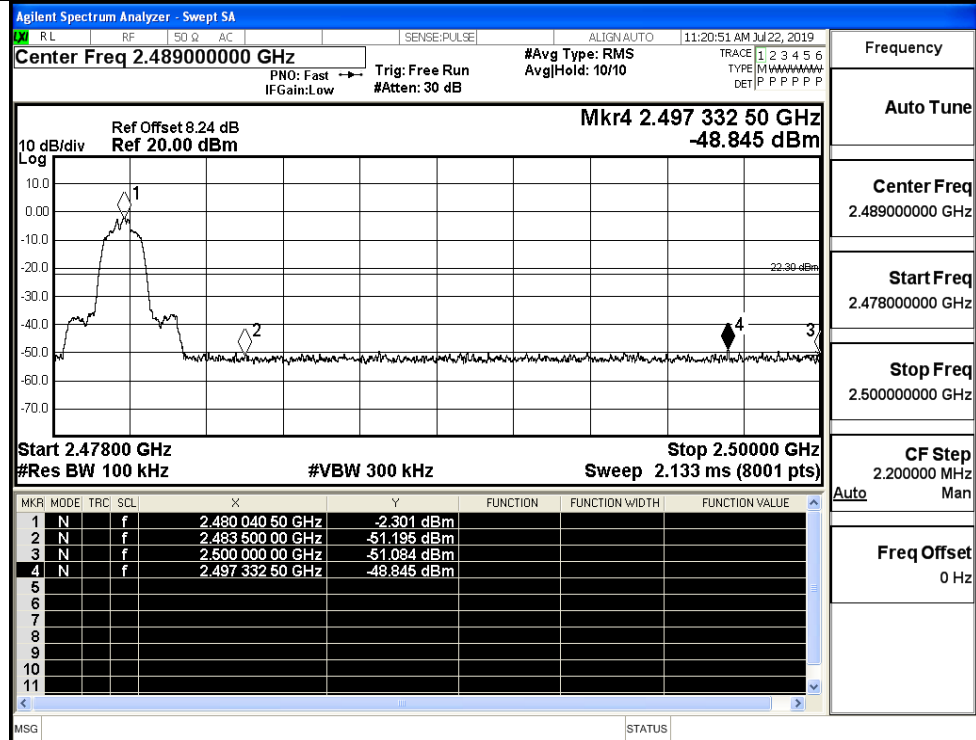
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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

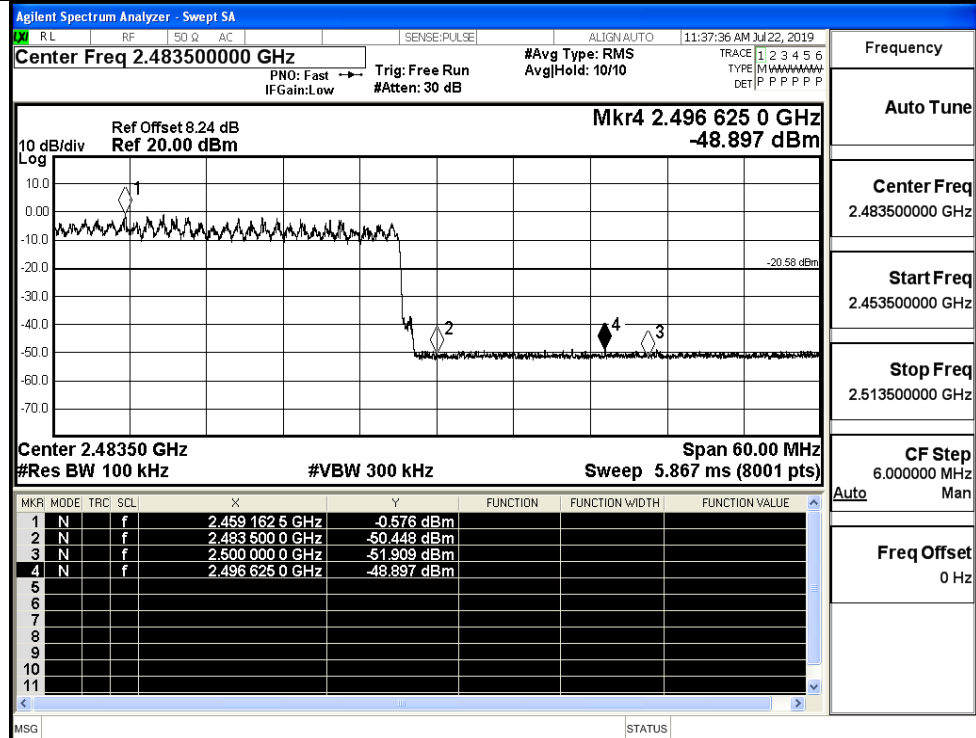


Frequency

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

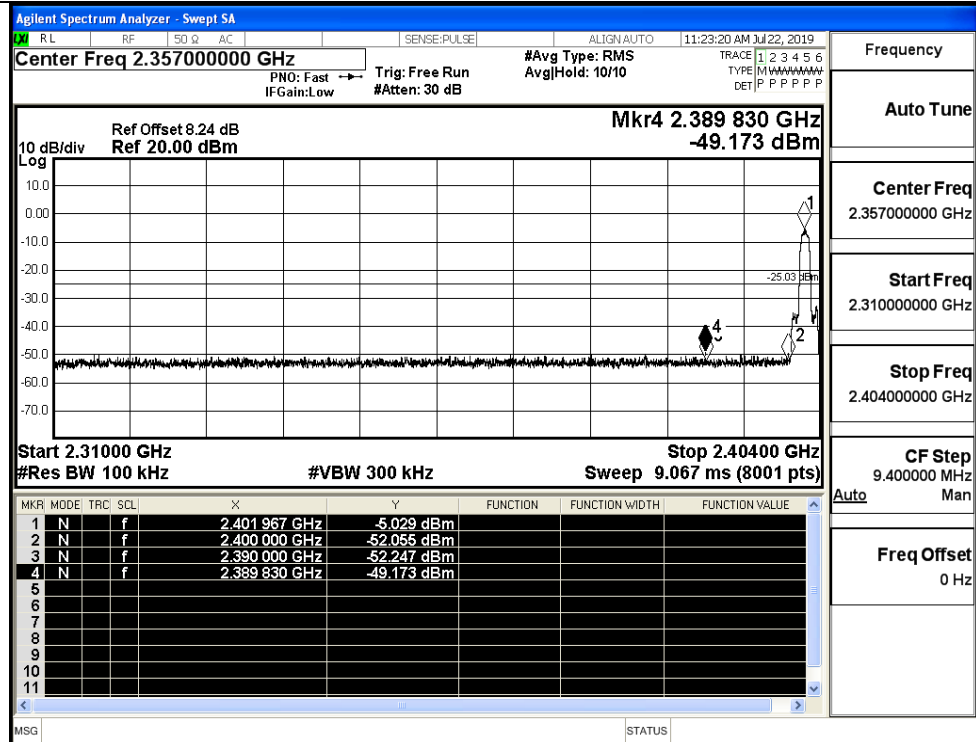


Frequency

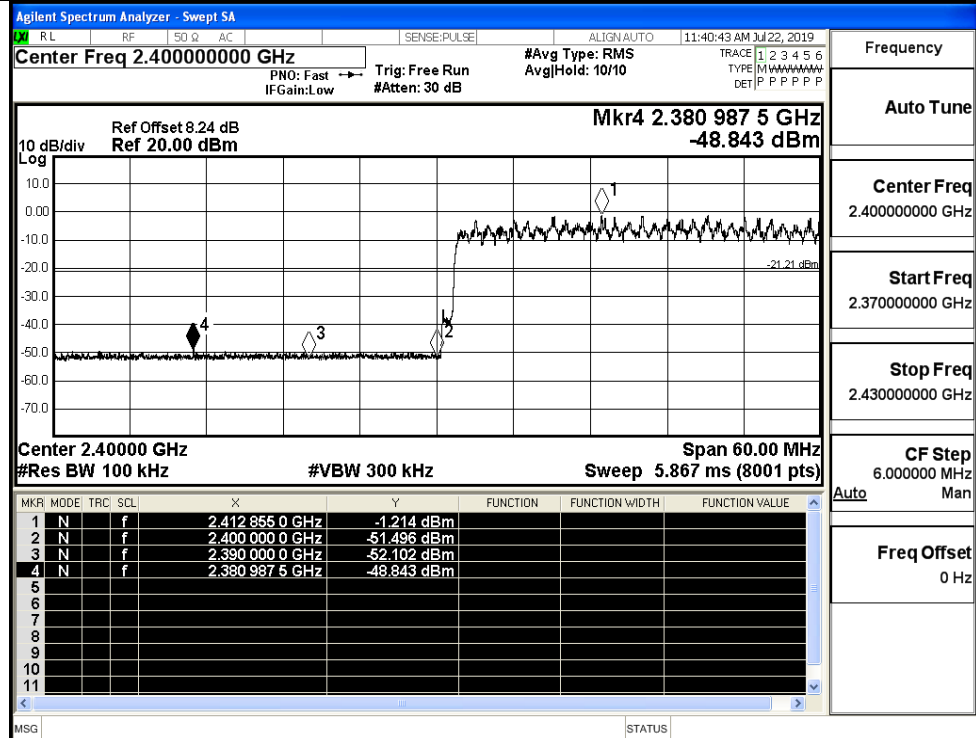
Auto Tune

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

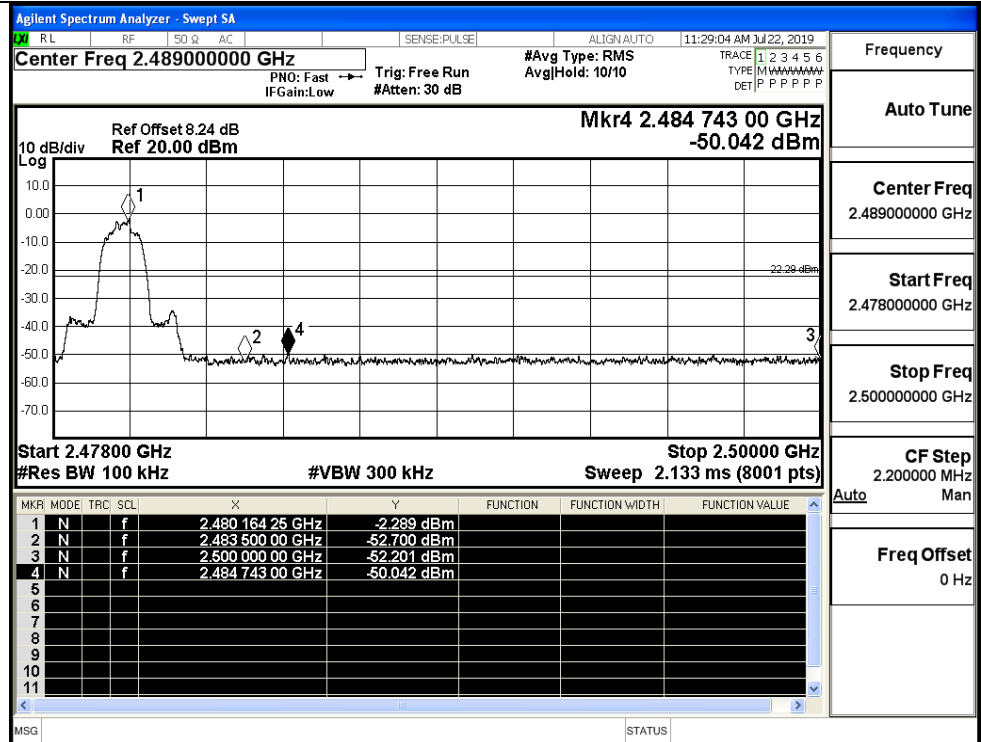
8DPSK/LCH/No Hop



8DPSK/LCH/Hop



8DPSK/HCH/No Hop



Frequency

Auto Tune

Center Freq
2.489000000 GHz

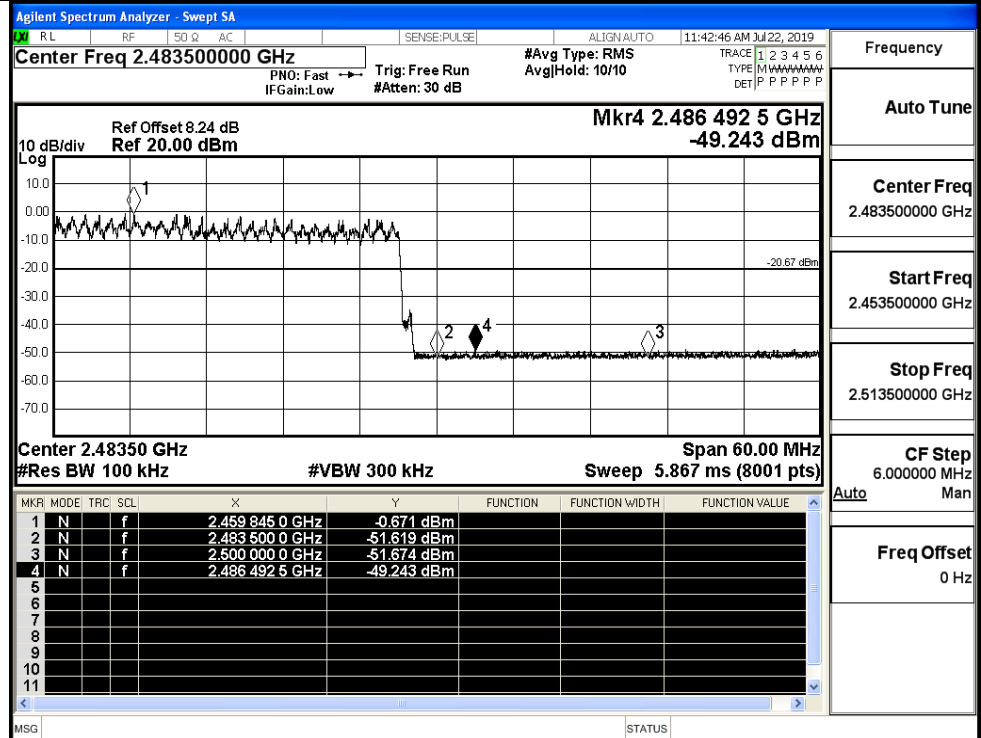
Start Freq
2.478000000 GHz

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

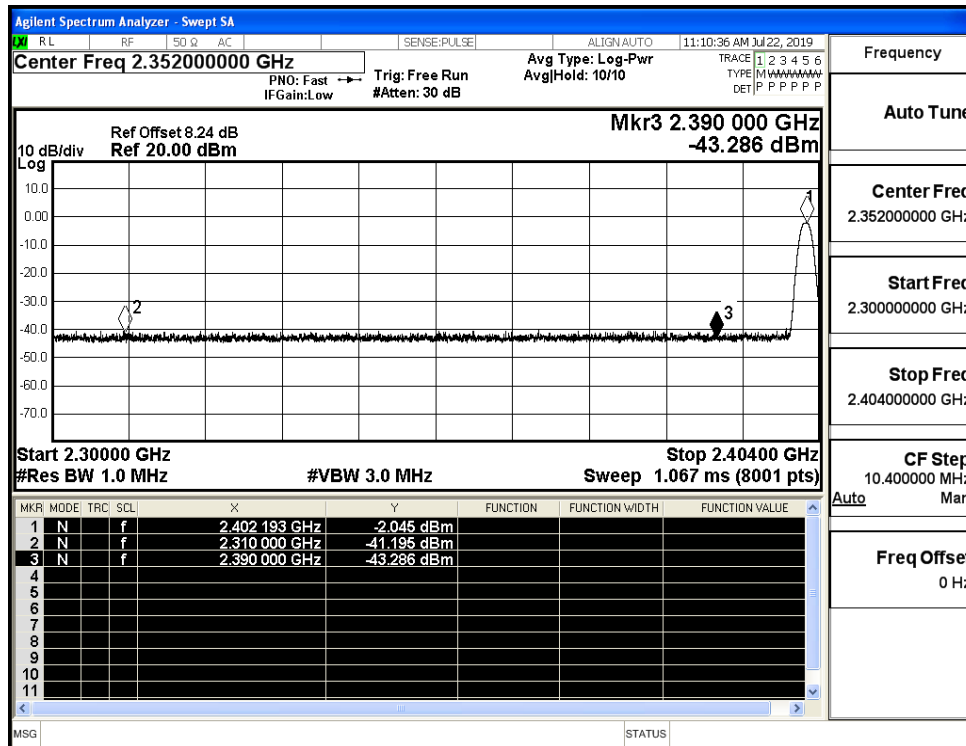
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

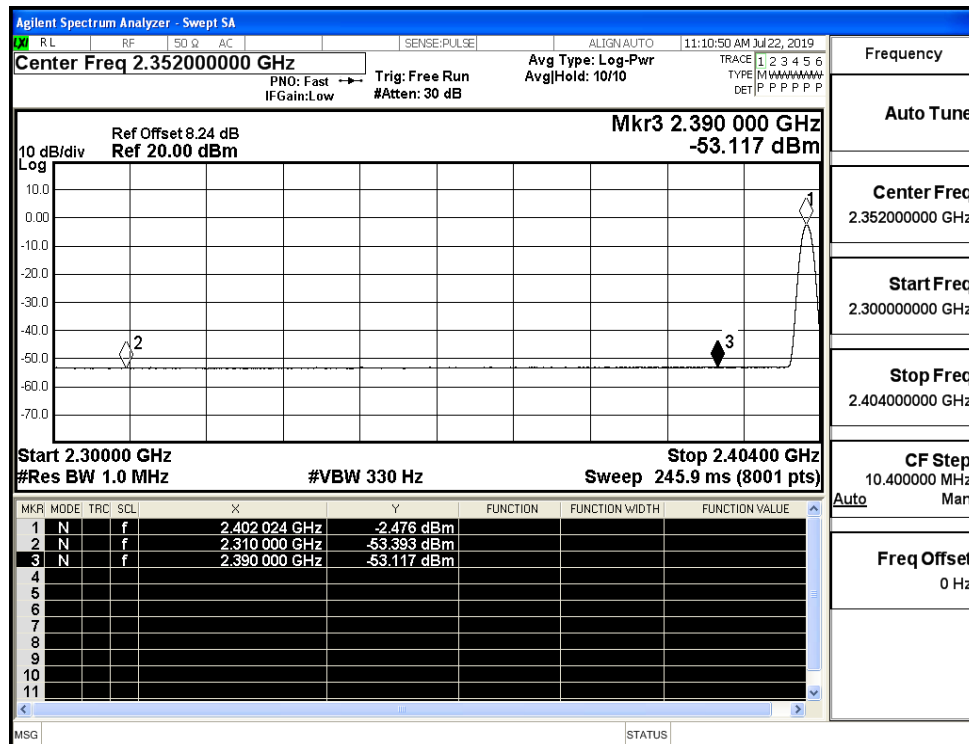
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-41.20	2.0	0	56.06	PEAK	74	PASS
	Off	2310.0	-53.39	2.0	0	43.86	AV	54	PASS
	Off	2390.0	-43.29	2.0	0	53.97	PEAK	74	PASS
	Off	2390.0	-53.12	2.0	0	44.14	AV	54	PASS
	Off	2483.5	-42.41	2.0	0	54.84	PEAK	74	PASS
	Off	2483.5	-52.86	2.0	0	44.40	AV	54	PASS
	Off	2500.0	-42.21	2.0	0	55.05	PEAK	74	PASS
	Off	2500.0	-52.60	2.0	0	44.66	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.78	2.0	0	54.48	PEAK	74	PASS
	Off	2310.0	-53.30	2.0	0	43.96	AV	54	PASS
	Off	2390.0	-41.85	2.0	0	55.40	PEAK	74	PASS
	Off	2390.0	-53.16	2.0	0	44.10	AV	54	PASS
	Off	2483.5	-42.78	2.0	0	54.48	PEAK	74	PASS
	Off	2483.5	-52.75	2.0	0	44.51	AV	54	PASS
	Off	2500.0	-42.91	2.0	0	54.35	PEAK	74	PASS
	Off	2500.0	-52.67	2.0	0	44.59	AV	54	PASS
8DPSK	Off	2310.0	-42.48	2.0	0	54.78	PEAK	74	PASS
	Off	2310.0	-53.39	2.0	0	43.87	AV	54	PASS
	Off	2390.0	-42.68	2.0	0	54.58	PEAK	74	PASS
	Off	2390.0	-53.13	2.0	0	44.13	AV	54	PASS
	Off	2483.5	-42.10	2.0	0	55.16	PEAK	74	PASS
	Off	2483.5	-52.81	2.0	0	44.44	AV	54	PASS
	Off	2500.0	-42.36	2.0	0	54.90	PEAK	74	PASS
	Off	2500.0	-52.64	2.0	0	44.61	AV	54	PASS

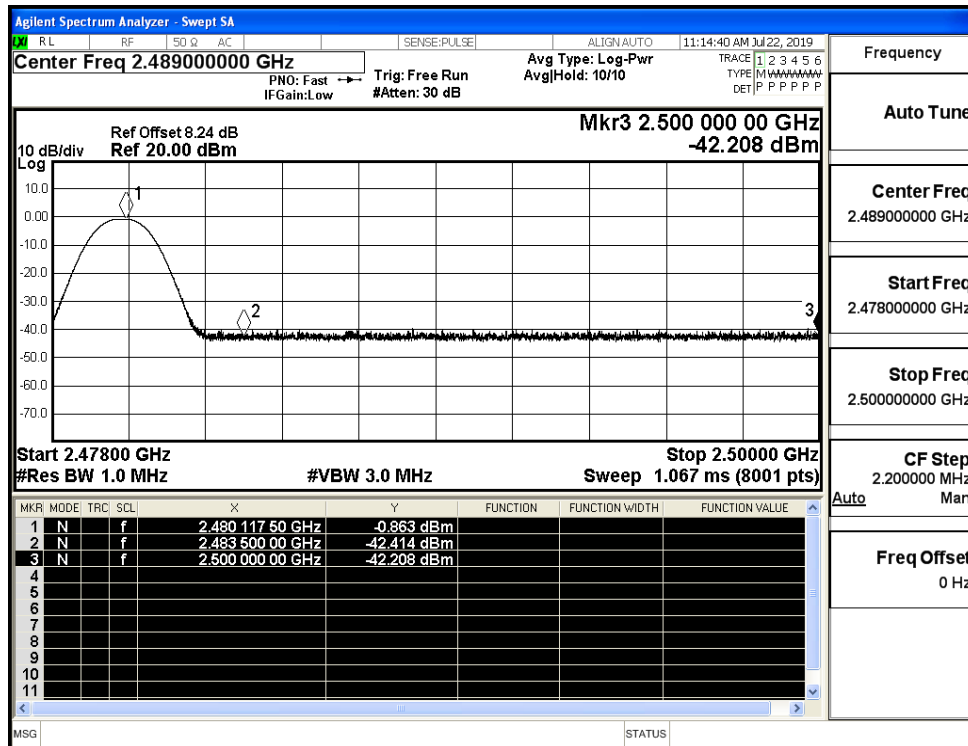
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



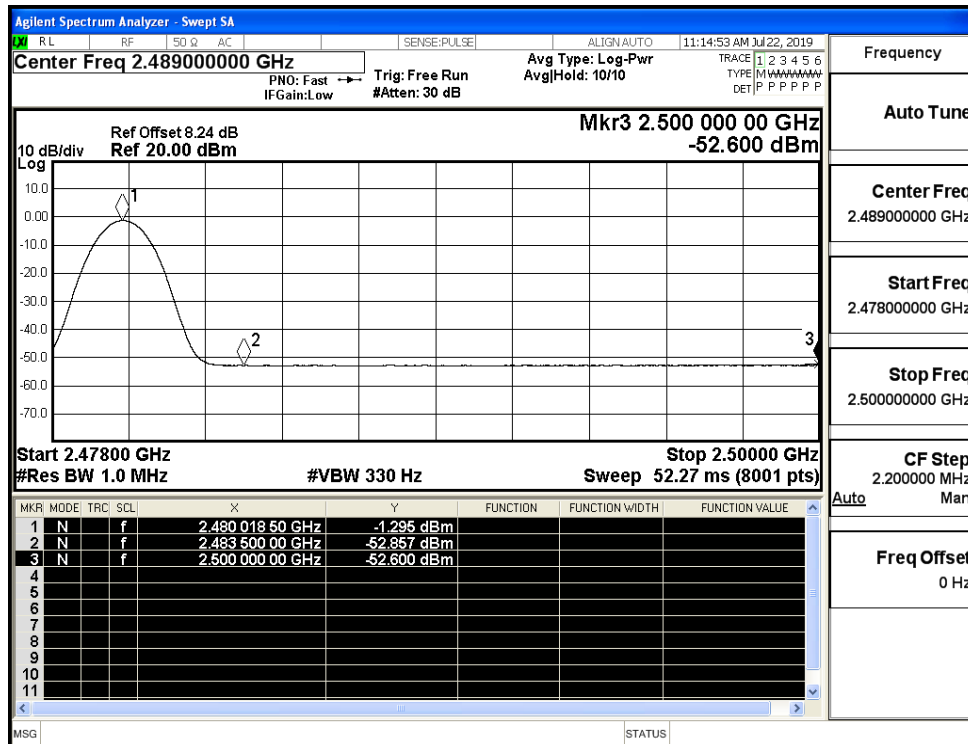
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

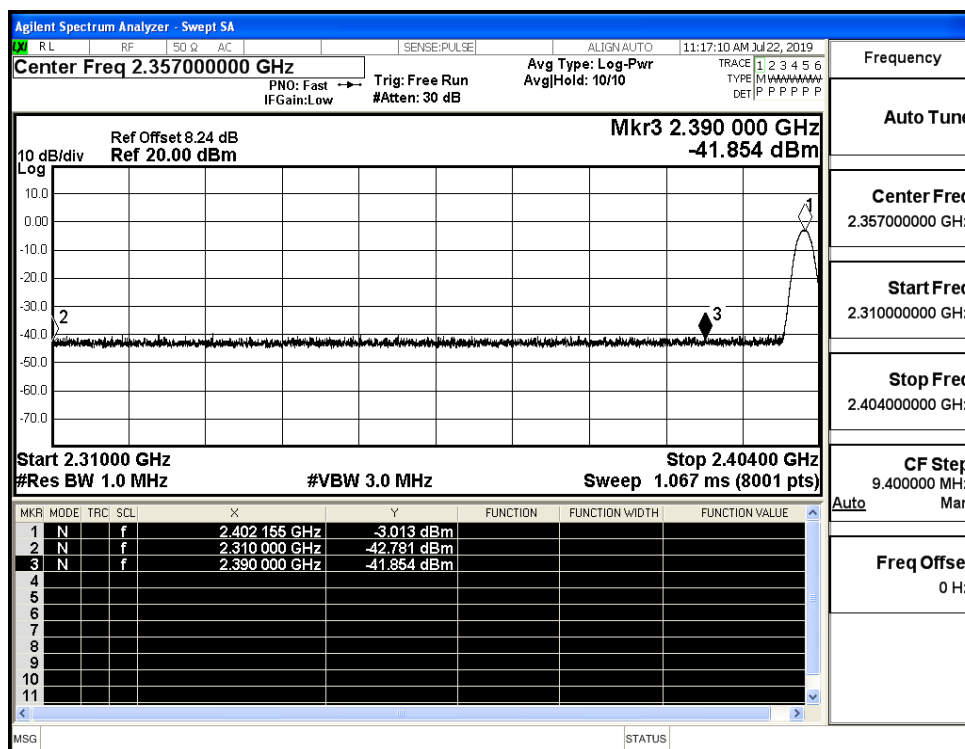
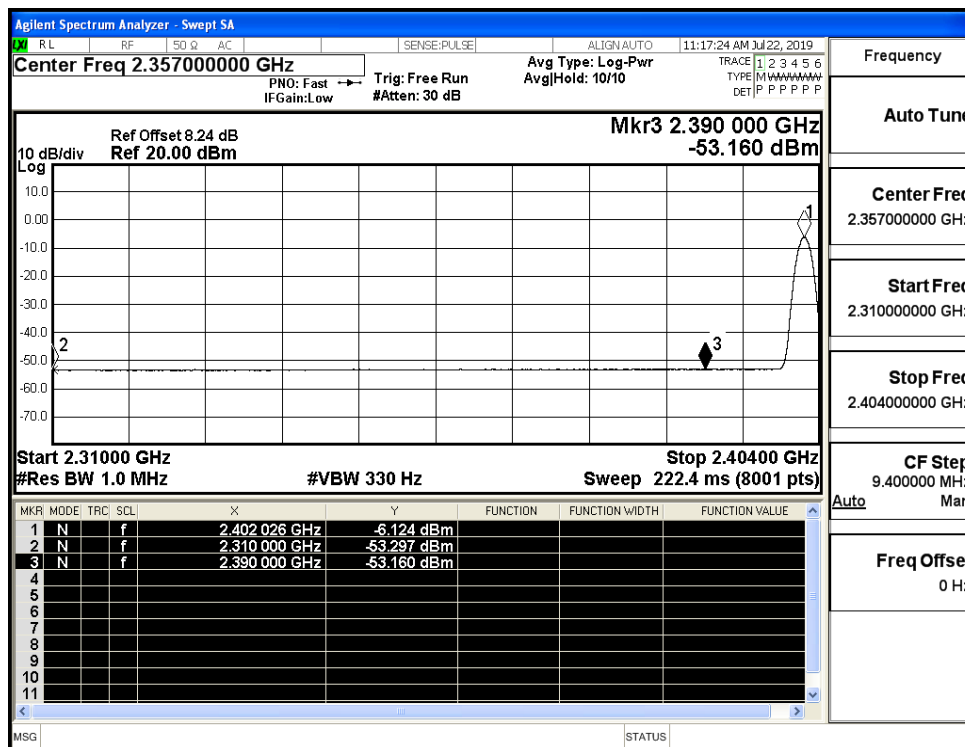


Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)

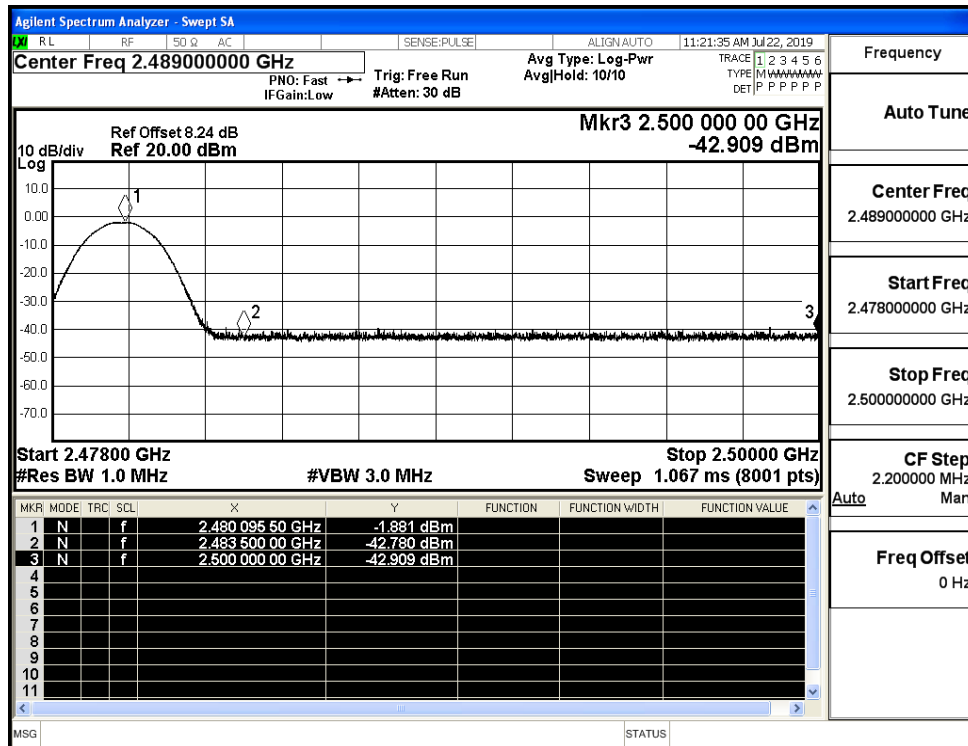


Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)

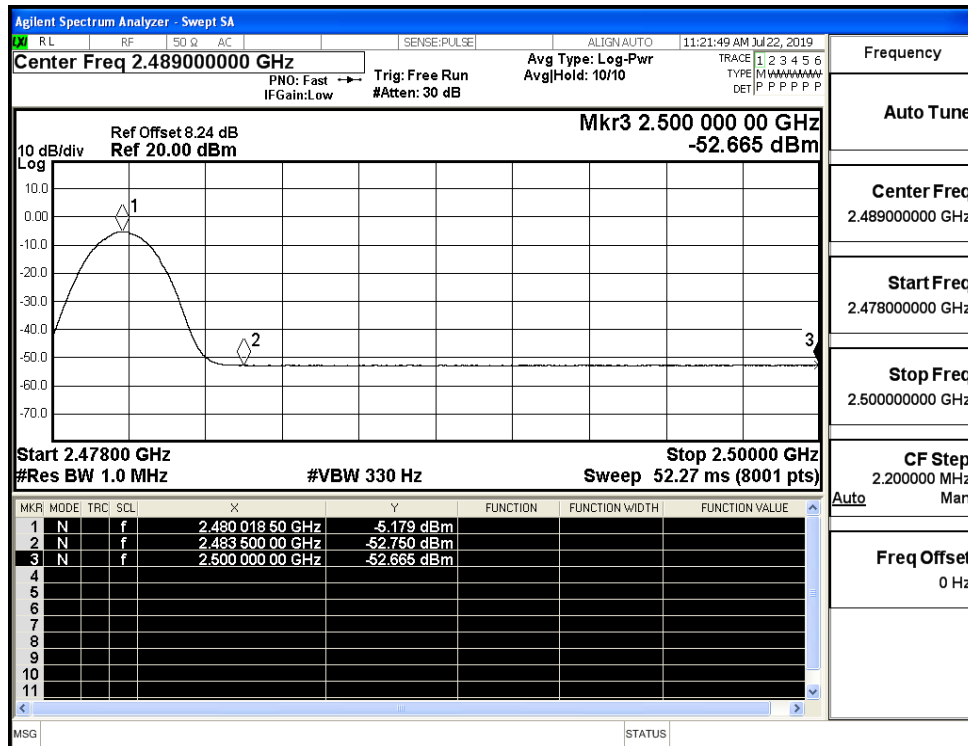


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

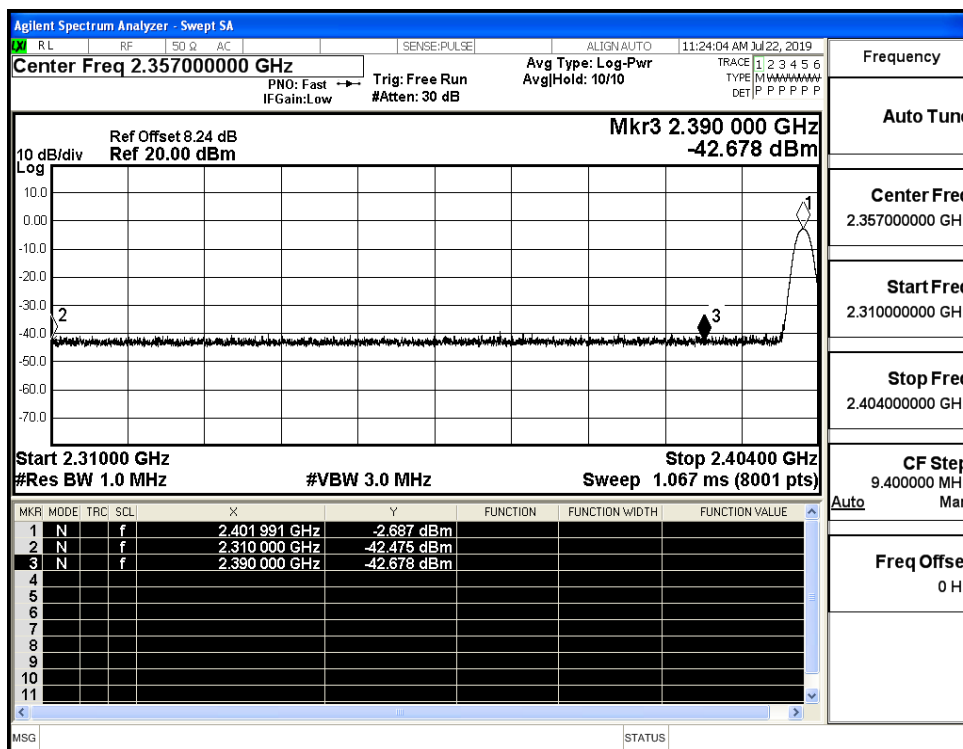
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



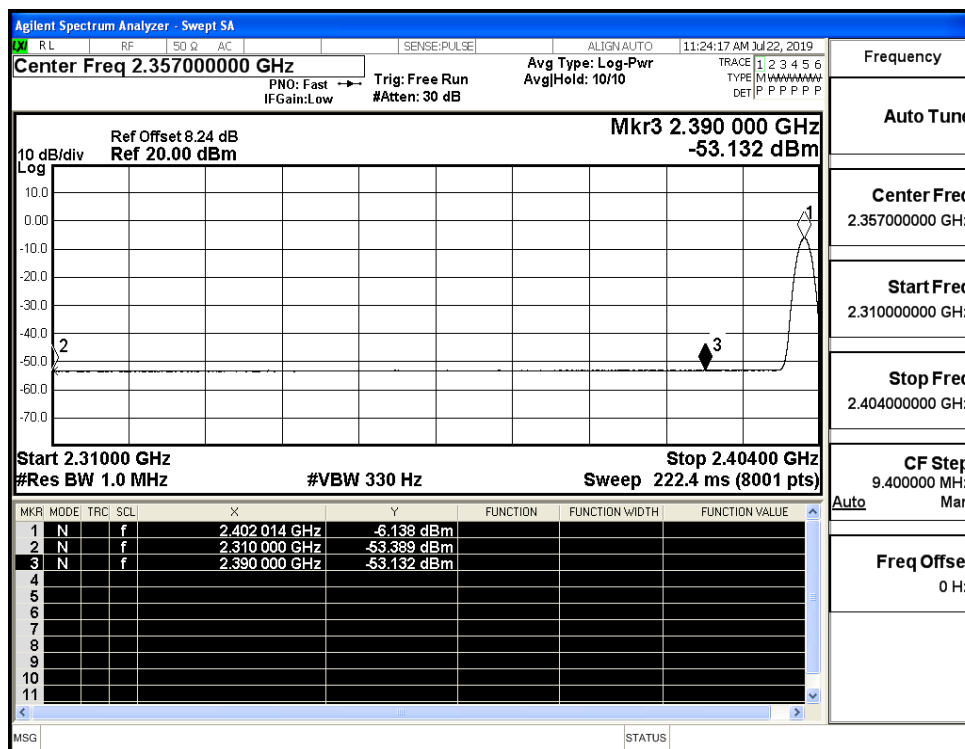
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



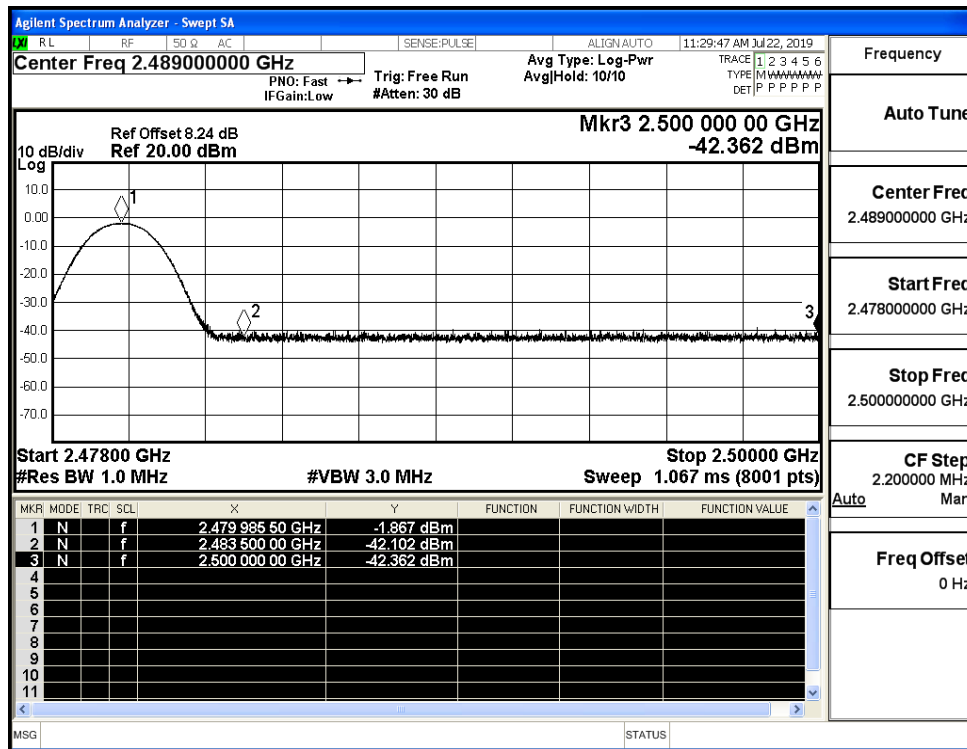
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

