

Appendix A

RF Test Data for BT V5.0(Classics) (Conducted Measurement)

Product Name: Bluetooth earphone

Trade Mark: N/A

Test Model: WA10

Environmental Conditions

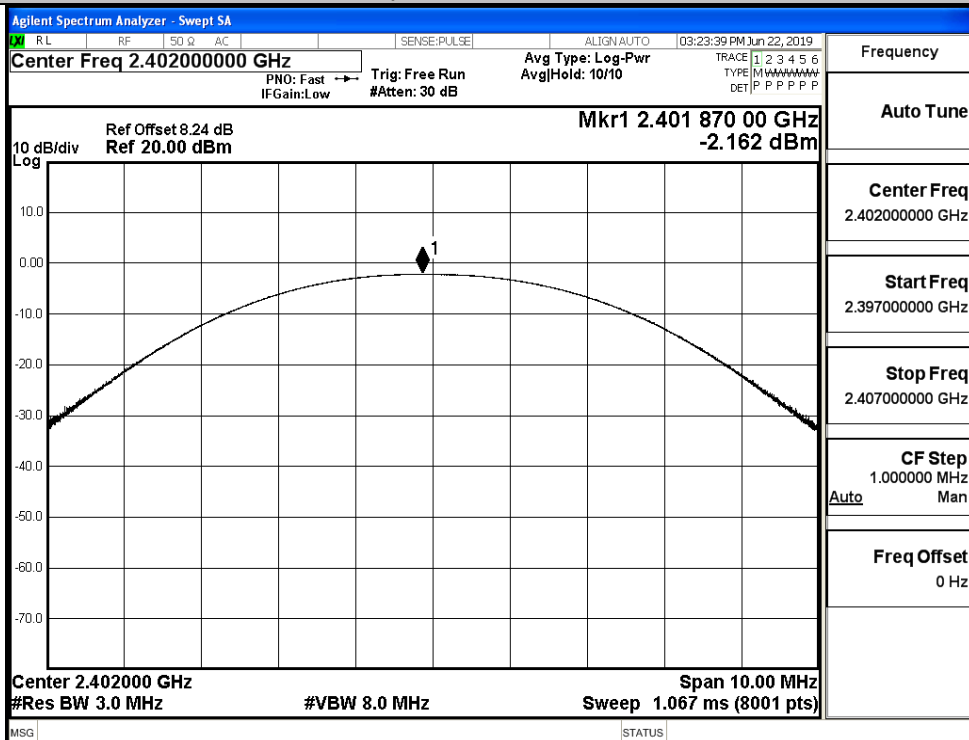
Temperature:	23.8° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.ZENG
Supervised by:	Wang.Chuang

A.1 Maximum Conducted Peak Output Power

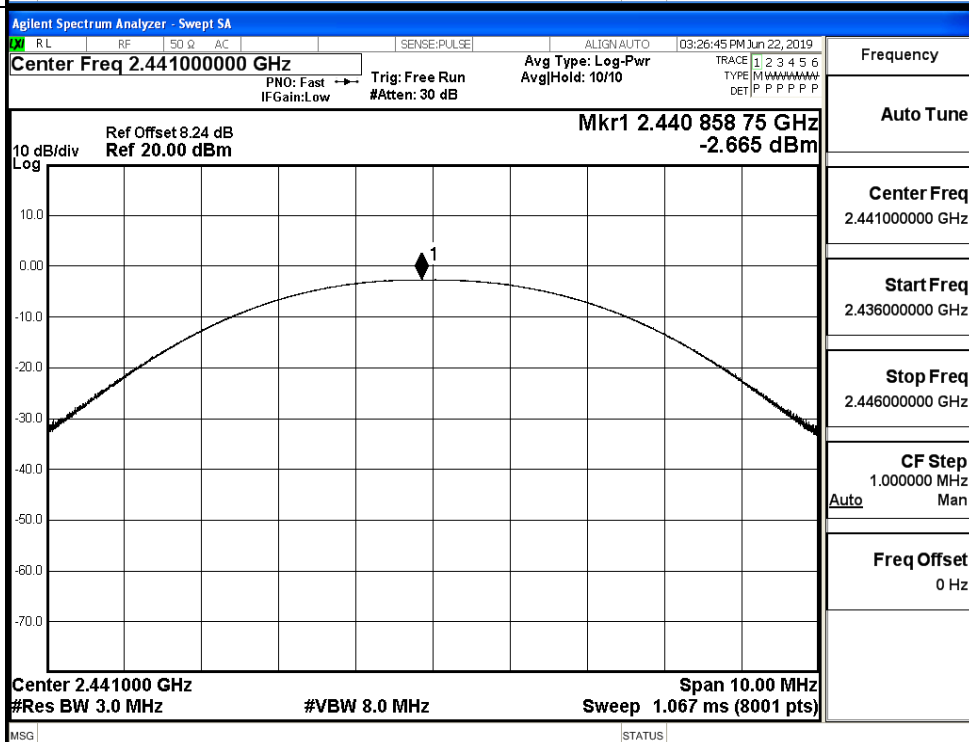
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.162	30	PASS
	MCH	-2.665	30	PASS
	HCH	-4.278	30	PASS
$\pi/4$ DQPSK	LCH	0.075	21	PASS
	MCH	-0.492	21	PASS
	HCH	-2.225	21	PASS
8DPSK	LCH	0.620	21	PASS
	MCH	0.066	21	PASS
	HCH	-1.764	21	PASS

Test Graphs

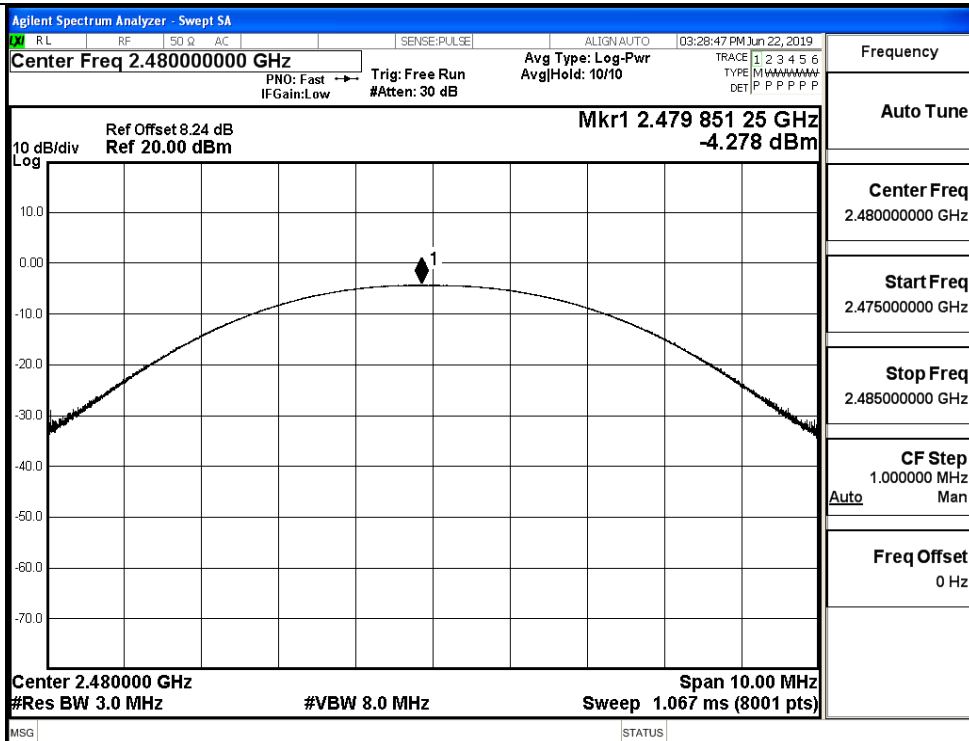
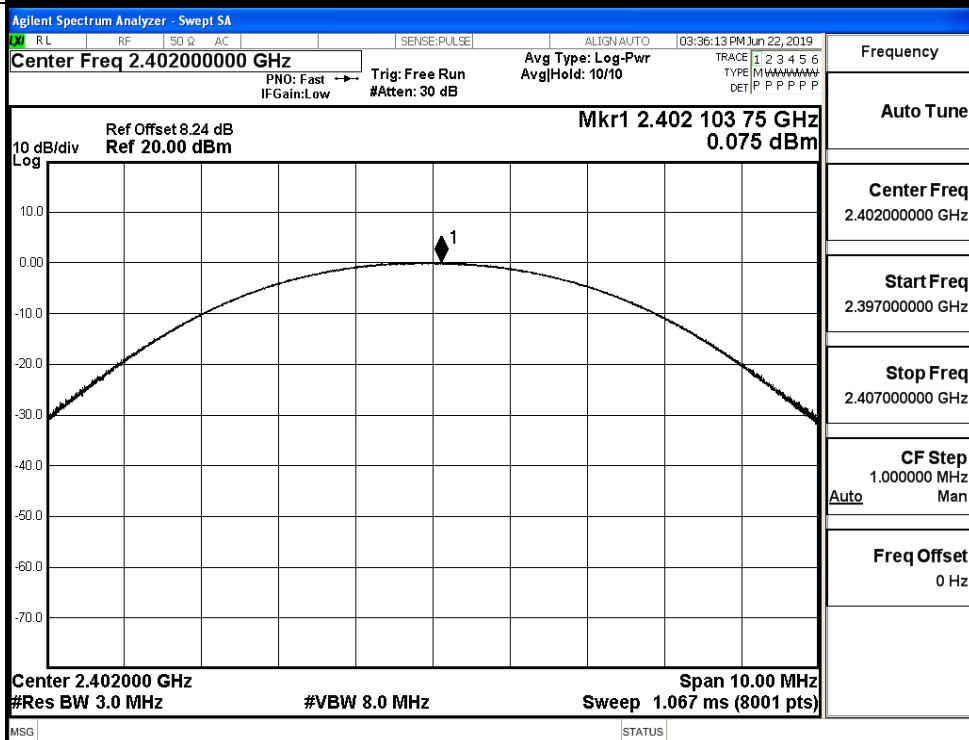
GFSK/LCH

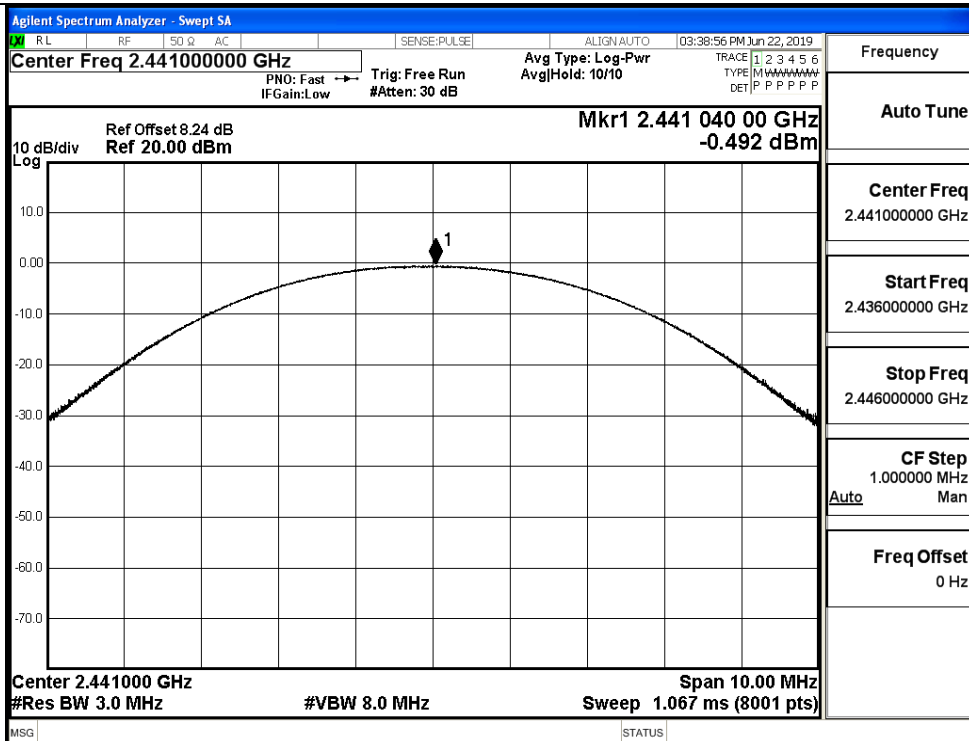
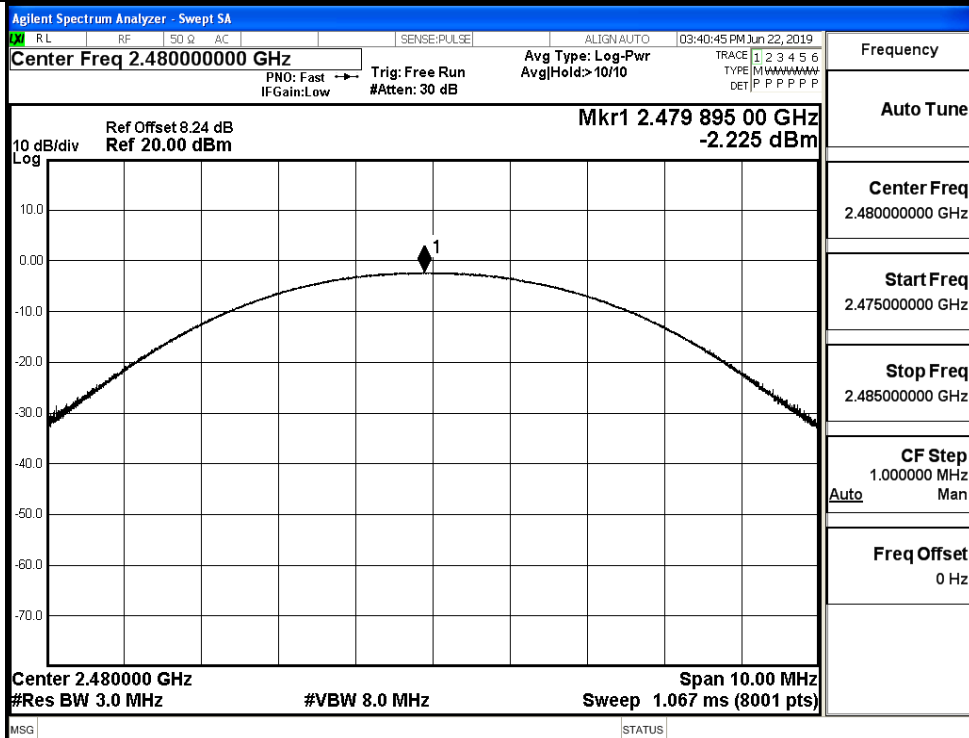


GFSK/MCH

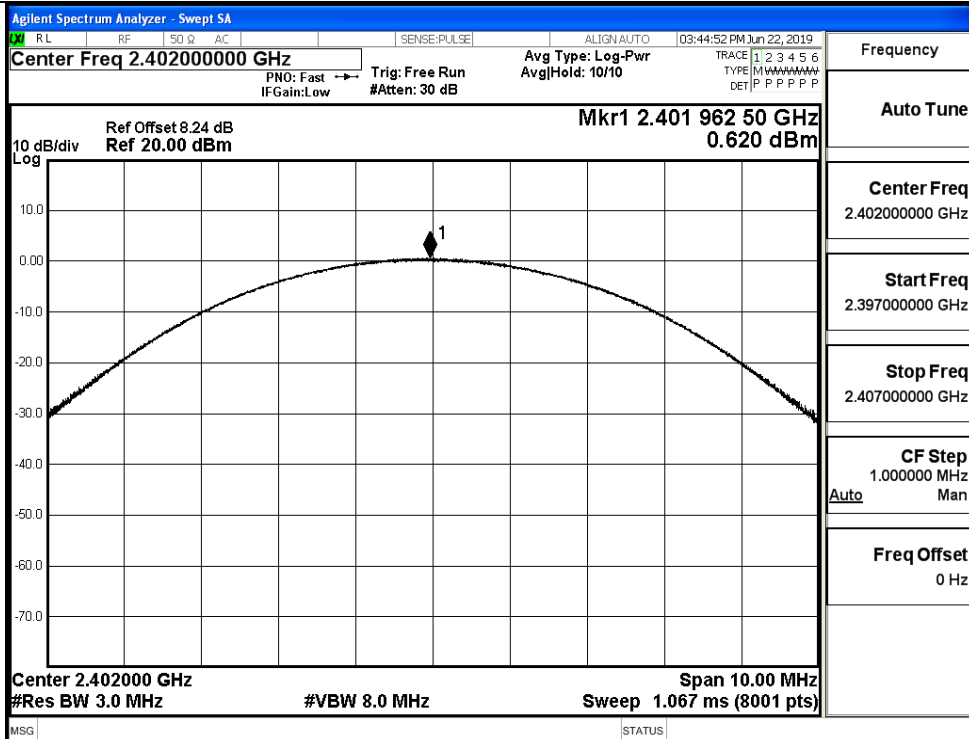


GFSK/HCH

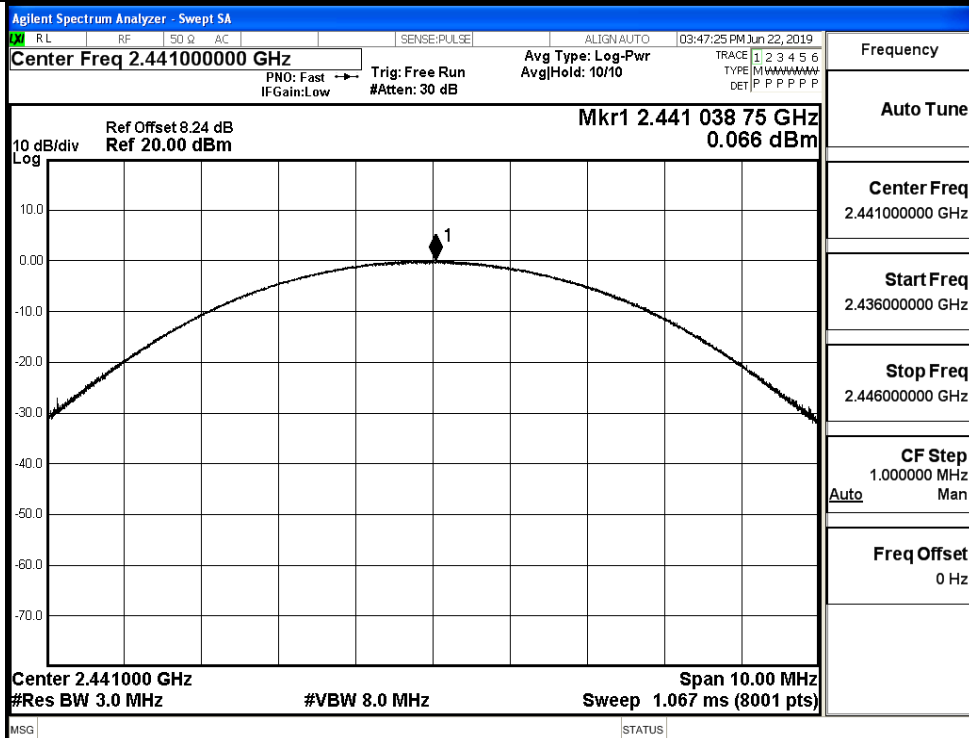
 π /4DQPSK/LCH

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

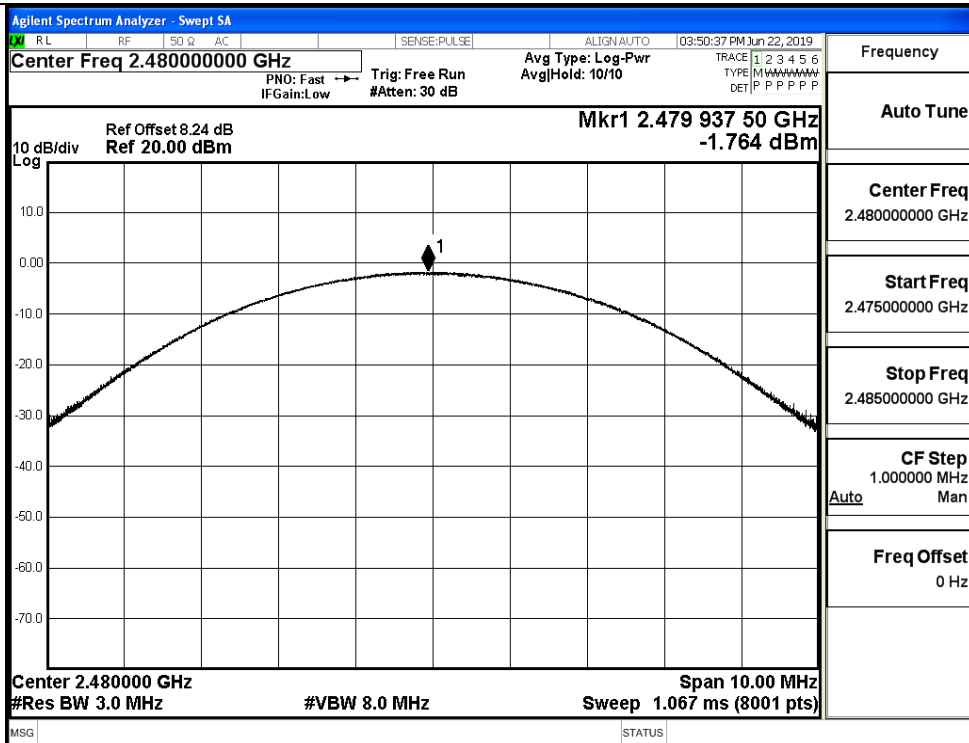
8DPSK/LCH



8DPSK/MCH



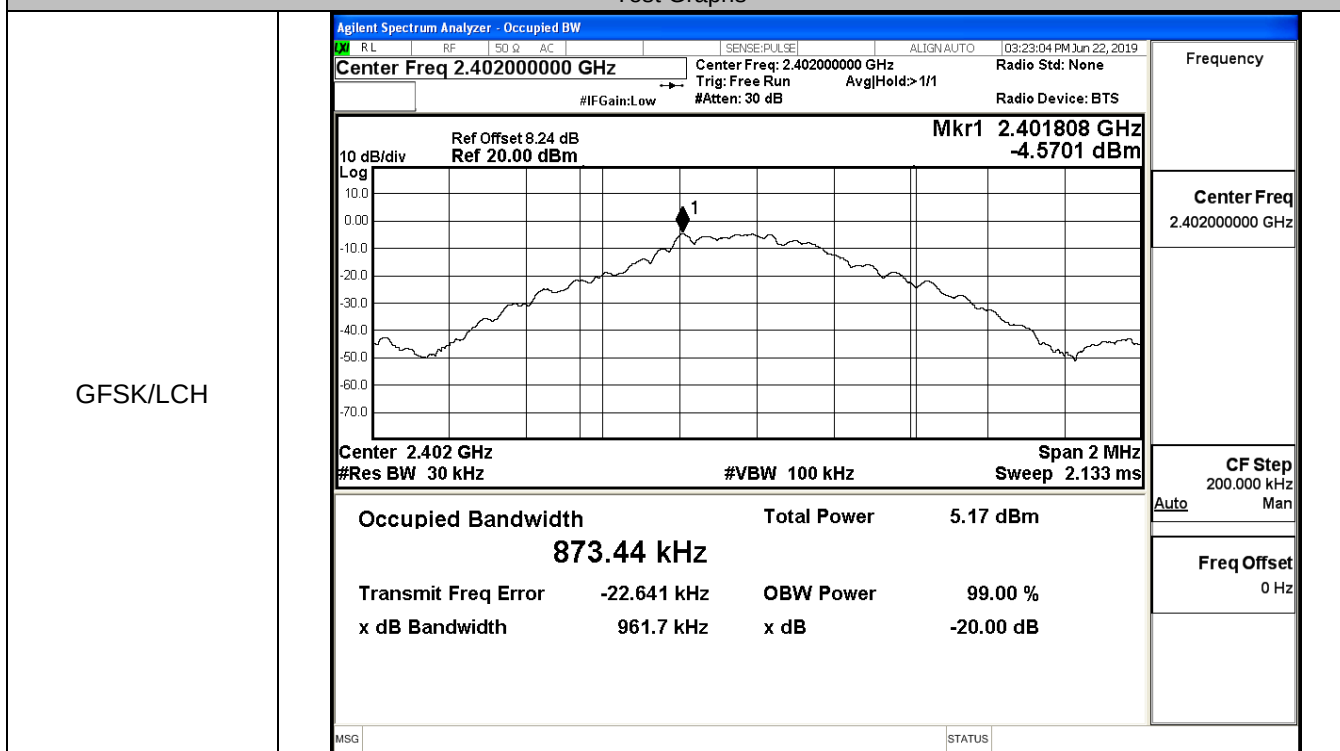
8DPSK/HCH



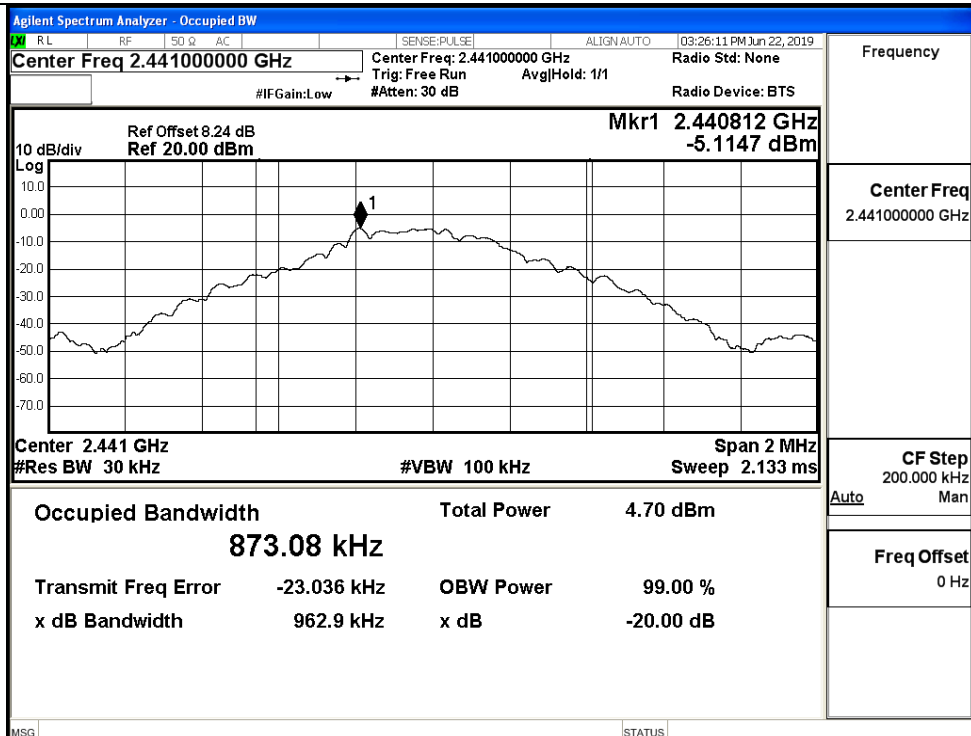
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9617	Not Specified	PASS
	MCH	0.9629	Not Specified	PASS
	HCH	0.9609	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.281	Not Specified	PASS
	MCH	1.282	Not Specified	PASS
	HCH	1.281	Not Specified	PASS
8DPSK	LCH	1.302	Not Specified	PASS
	MCH	1.303	Not Specified	PASS
	HCH	1.301	Not Specified	PASS

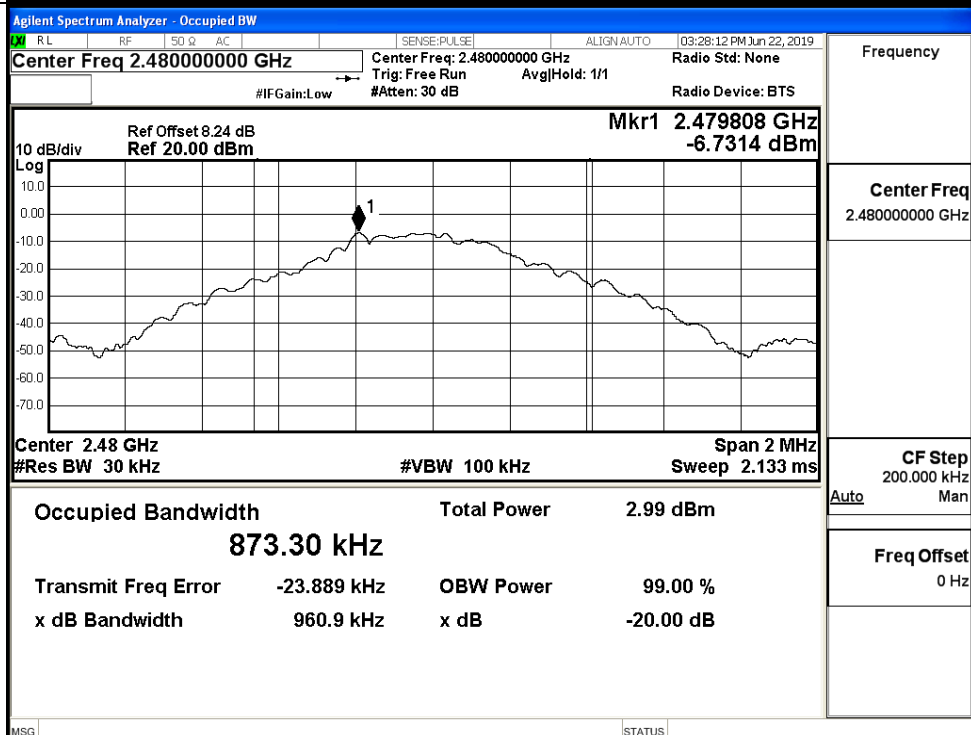
Test Graphs

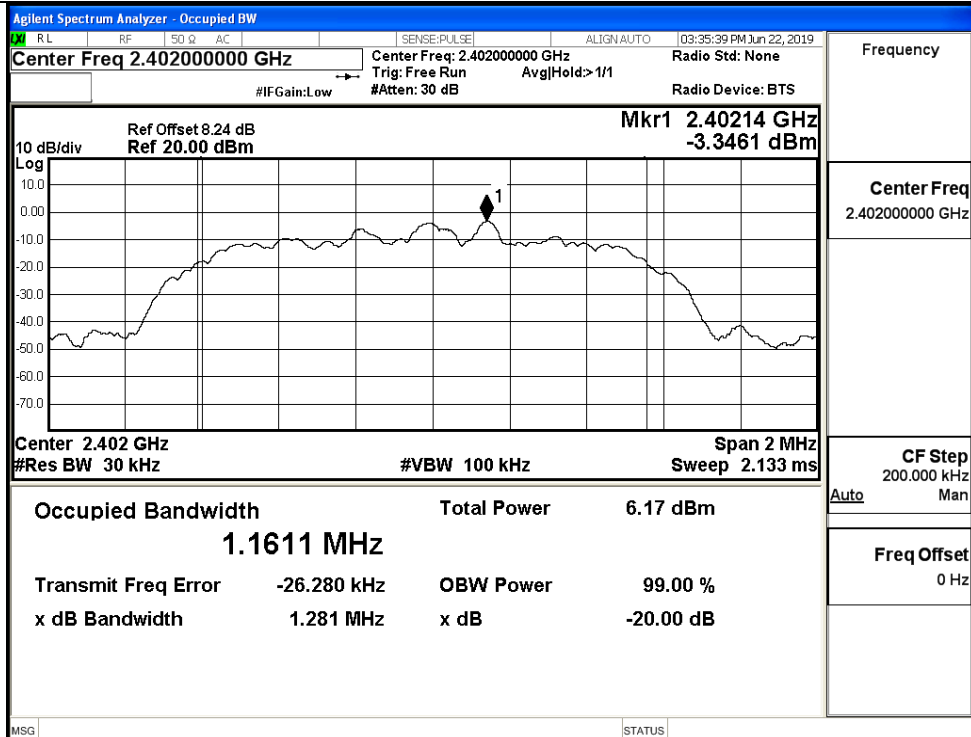
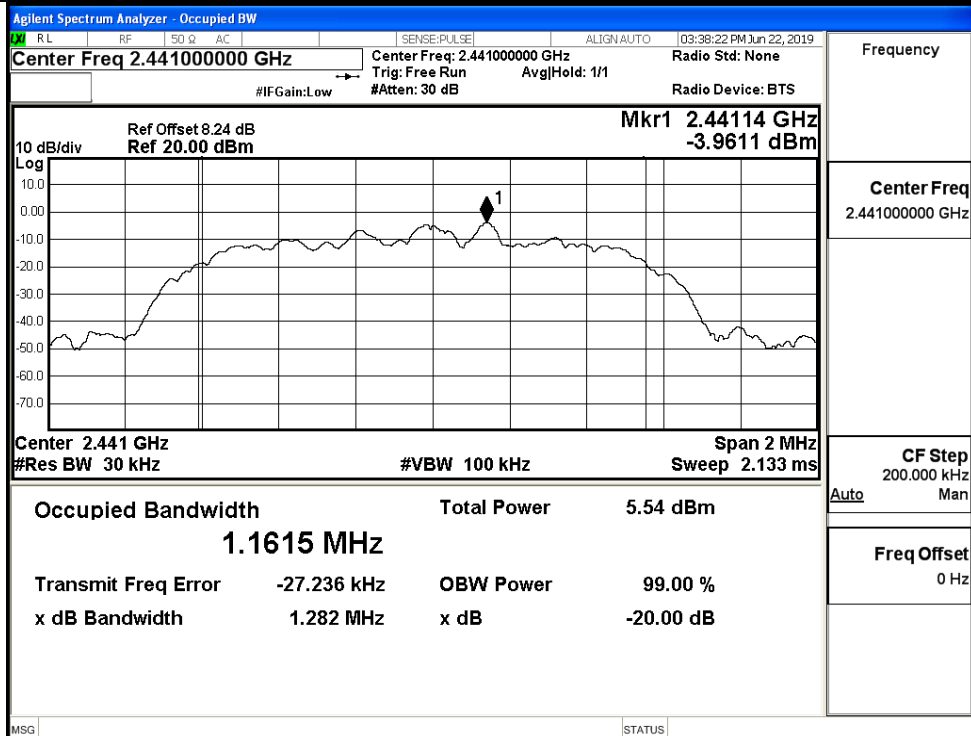


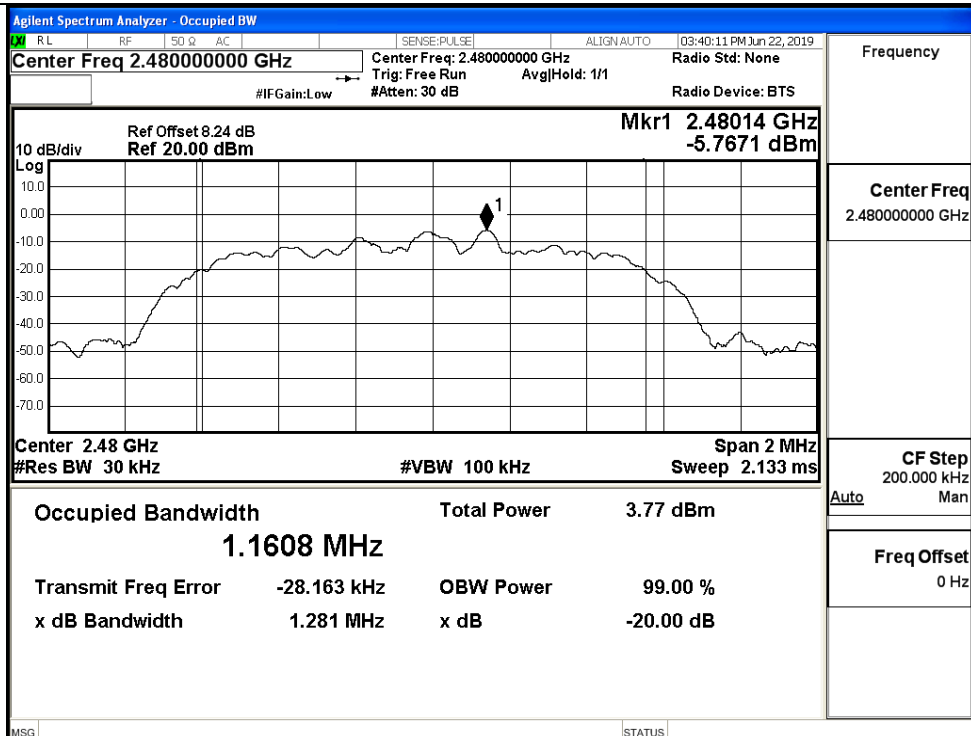
GFSK/MCH



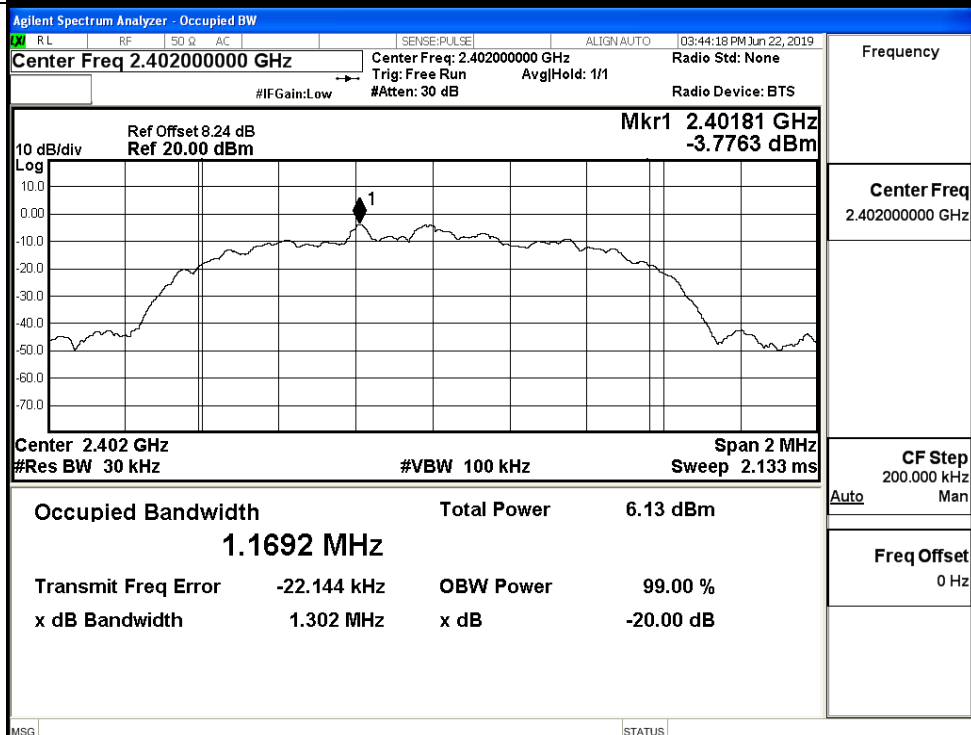
GFSK/HCH



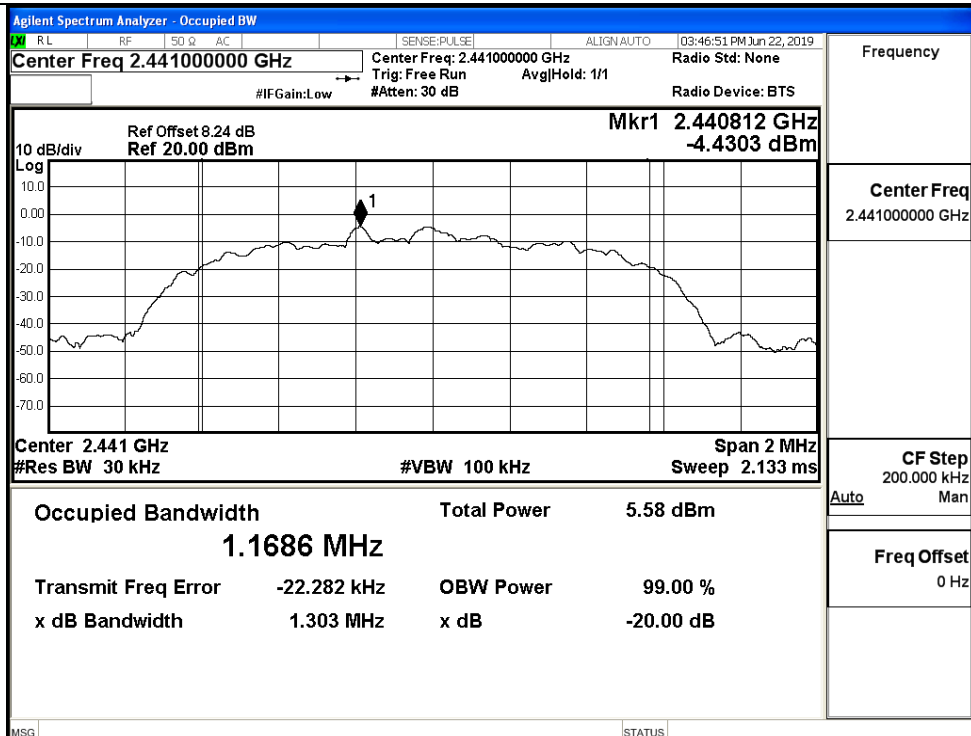
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

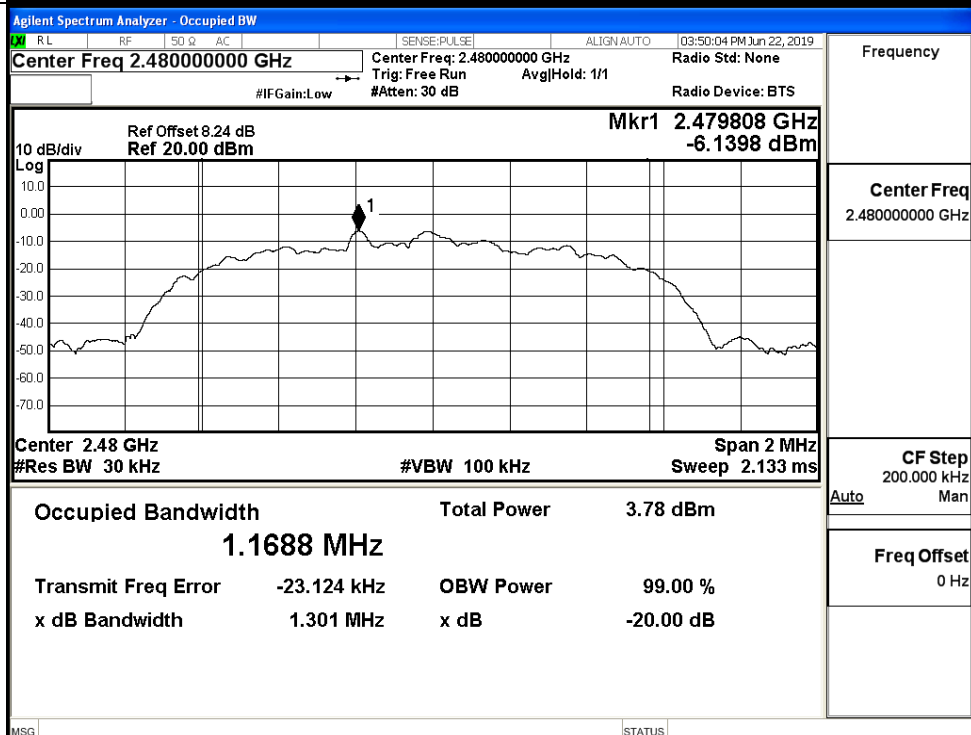
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

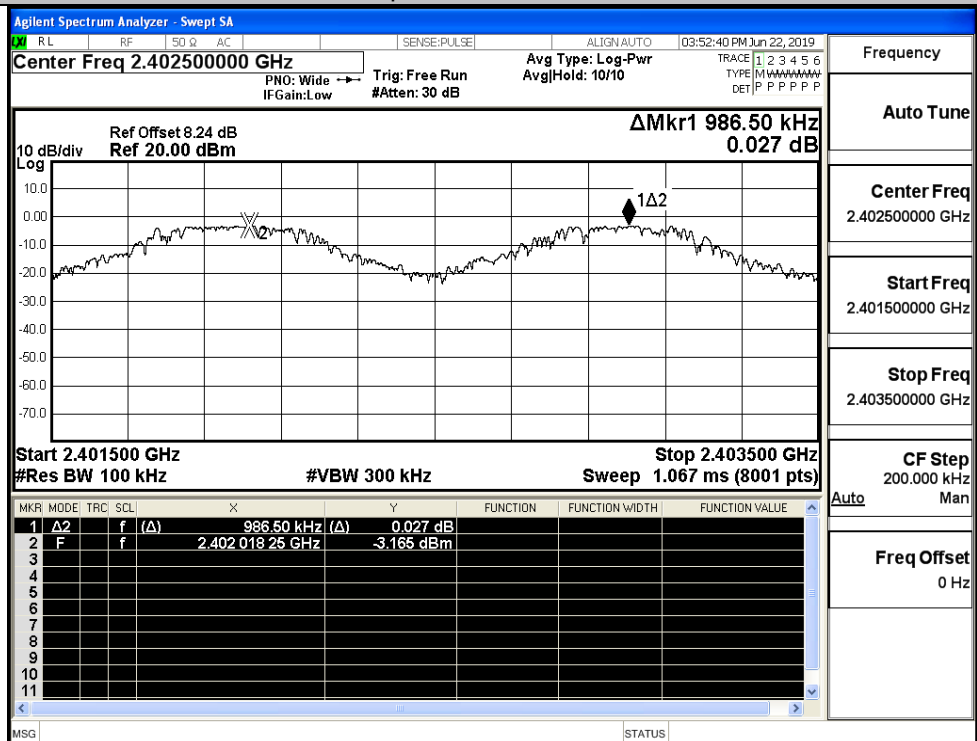


A.3 Carrier Frequency Separation

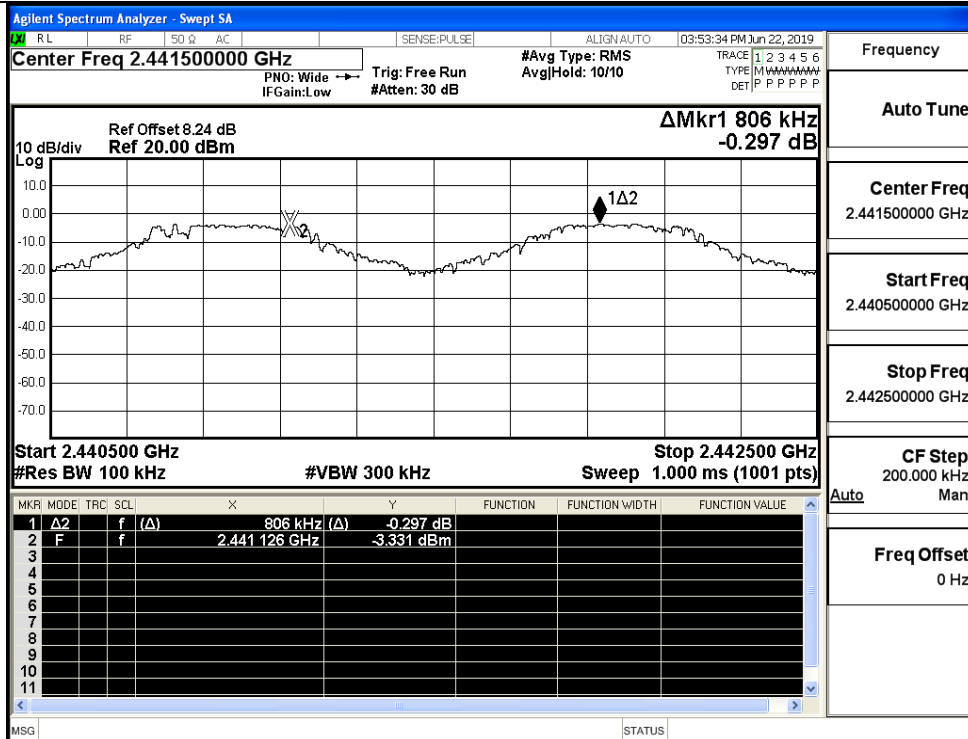
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.986	0.642	PASS
	MCH	0.806	0.642	PASS
	HCH	0.958	0.642	PASS
$\pi/4$ DQPSK	LCH	1.184	0.855	PASS
	MCH	0.946	0.855	PASS
	HCH	1.106	0.855	PASS
8DPSK	LCH	1.174	0.869	PASS
	MCH	1.308	0.869	PASS
	HCH	1.276	0.869	PASS

Test Graphs

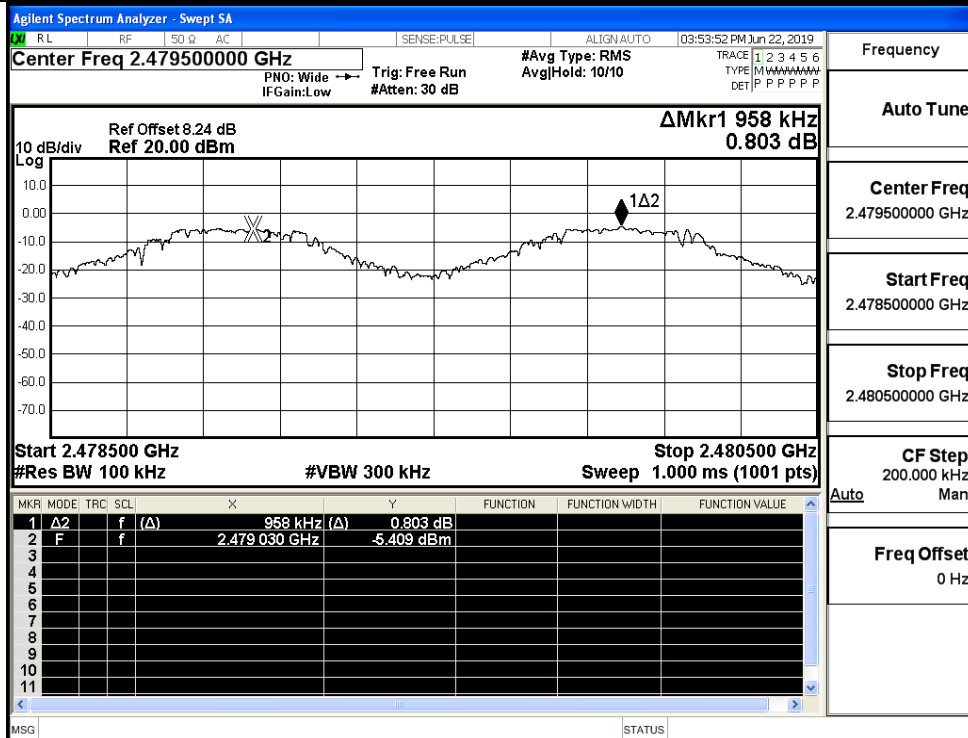
GFSK/LCH

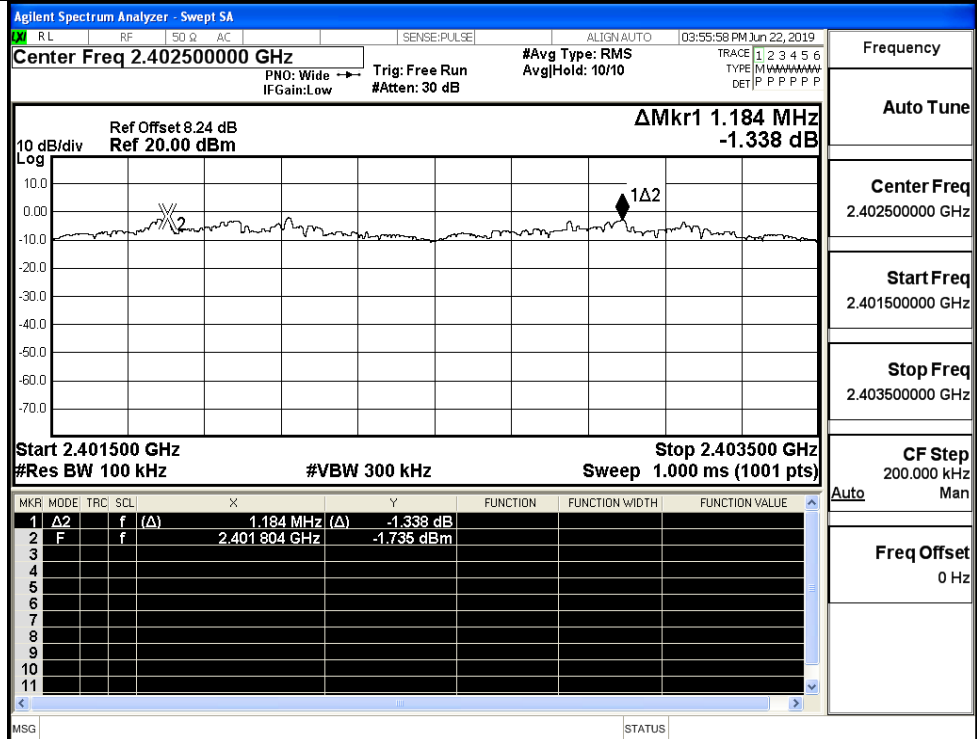
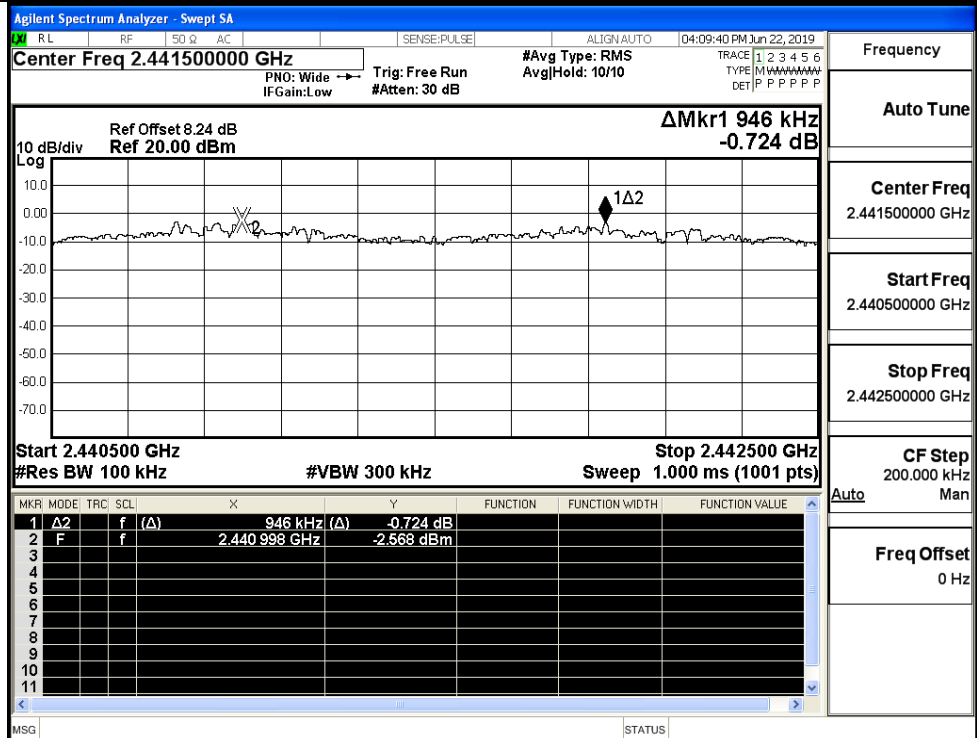


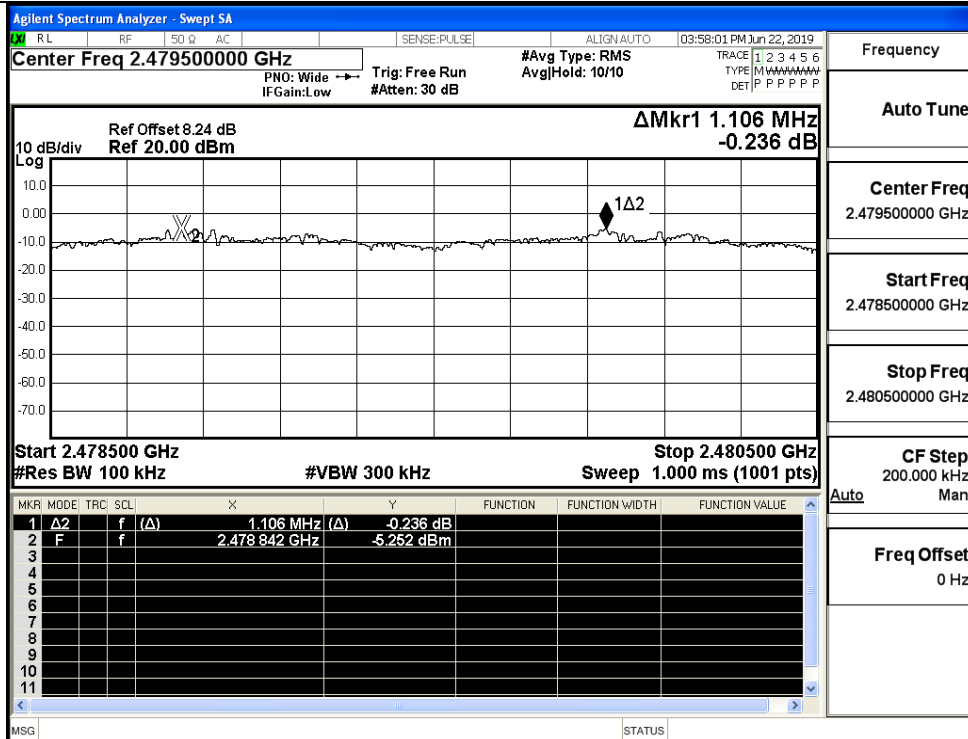
GFSK/MCH



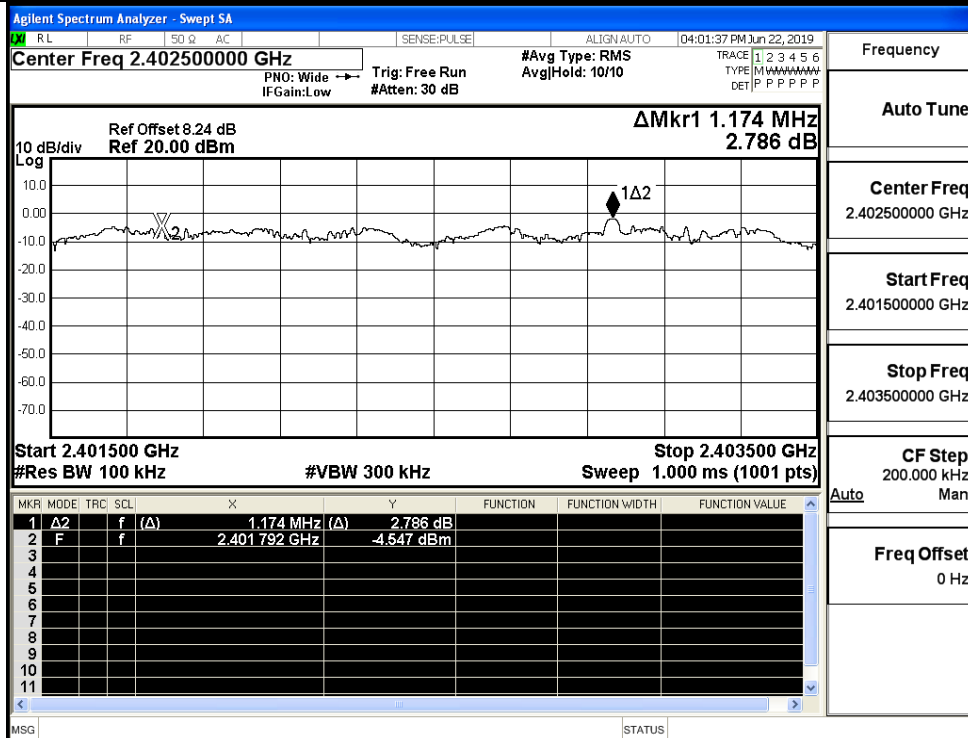
GFSK/HCH



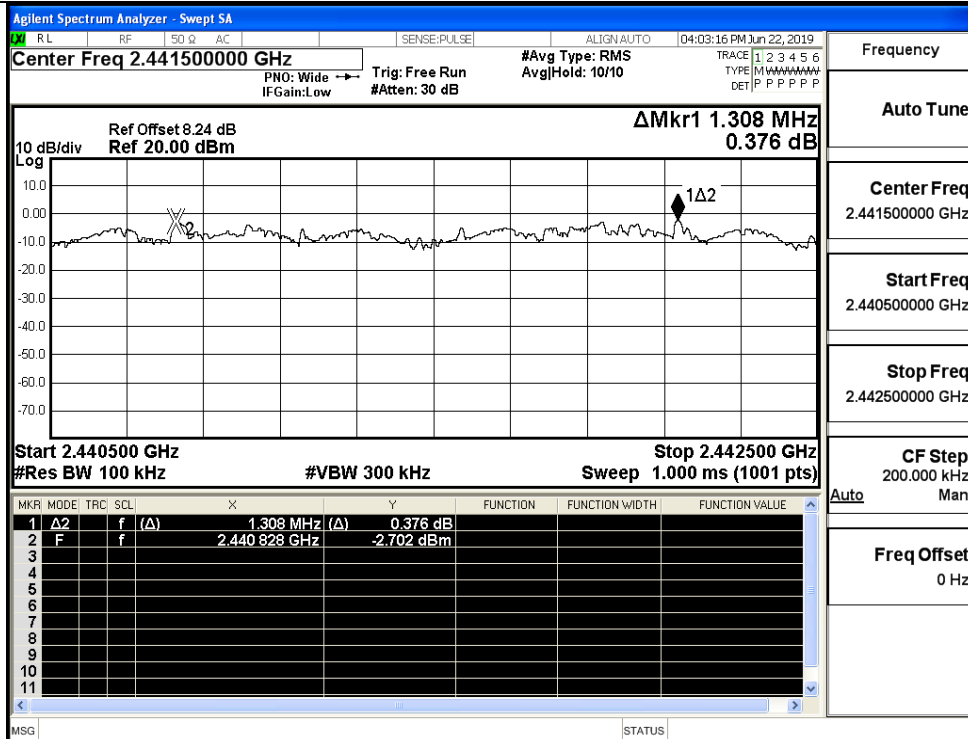
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

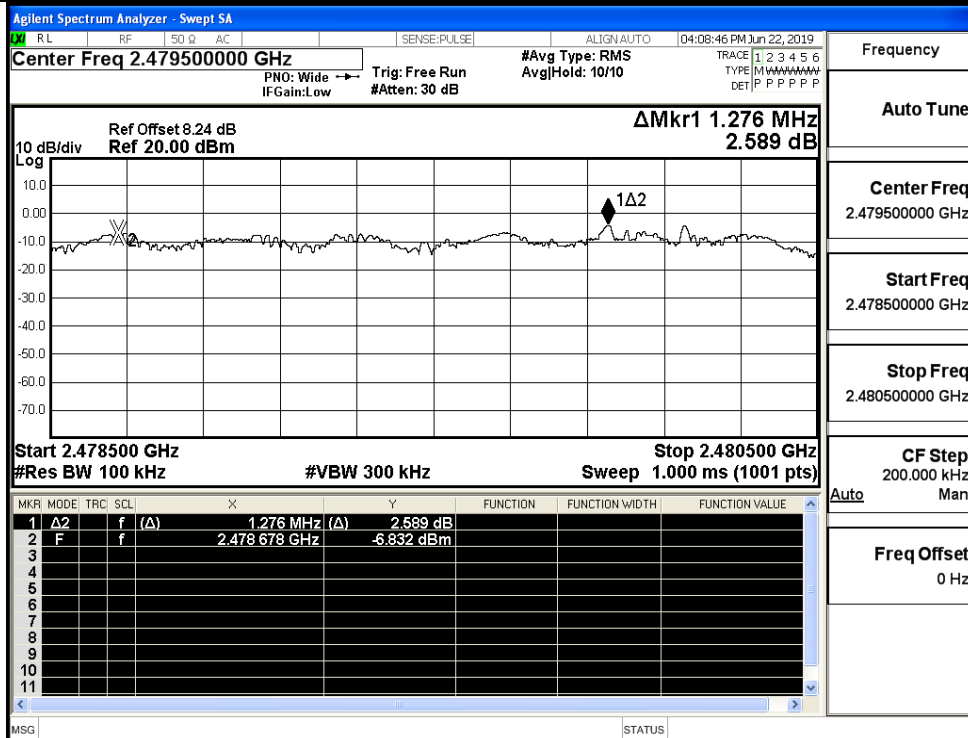
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

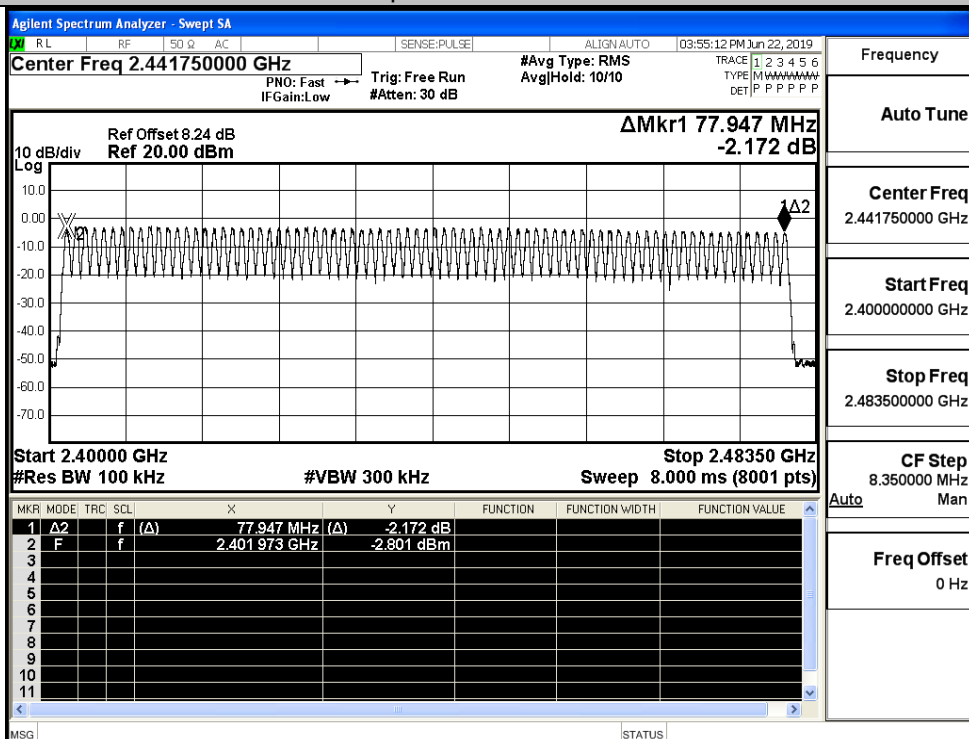


A.4 Hopping Channel Number

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

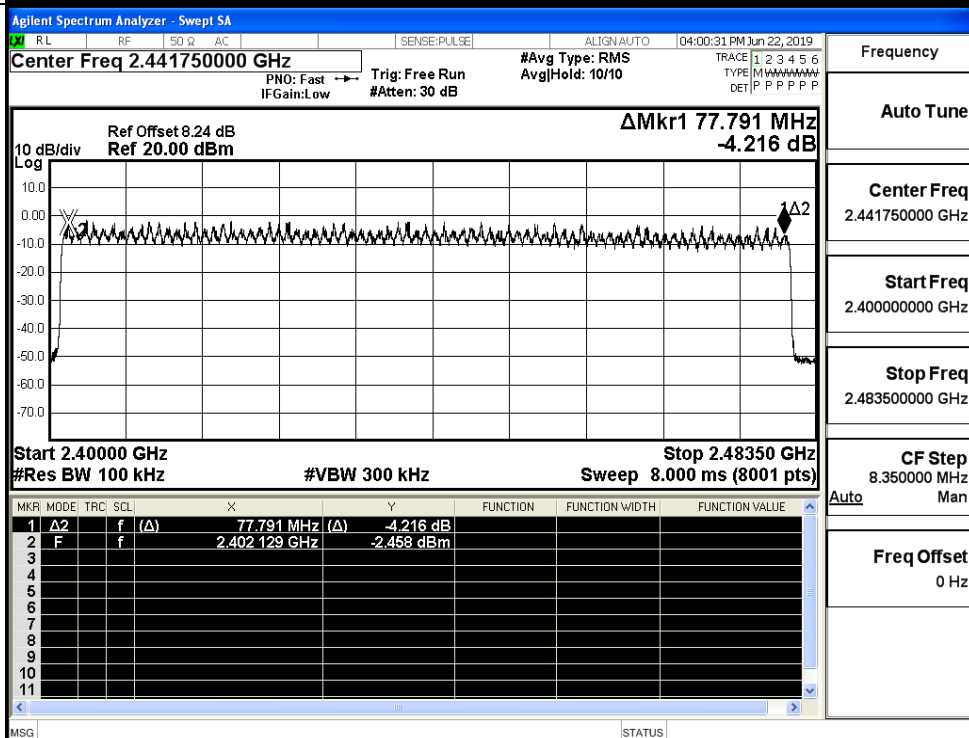
Test Graphs

GFSK/Hop



Frequency

Auto Tune

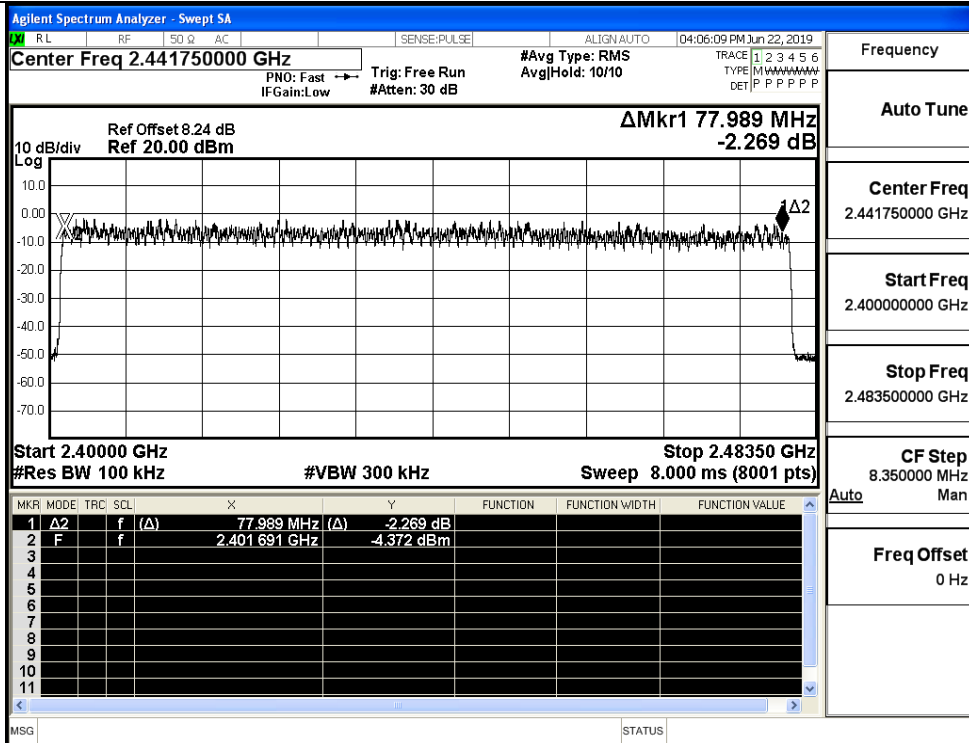
Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/Hop

Frequency

Auto Tune

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

8DPSK/Hop

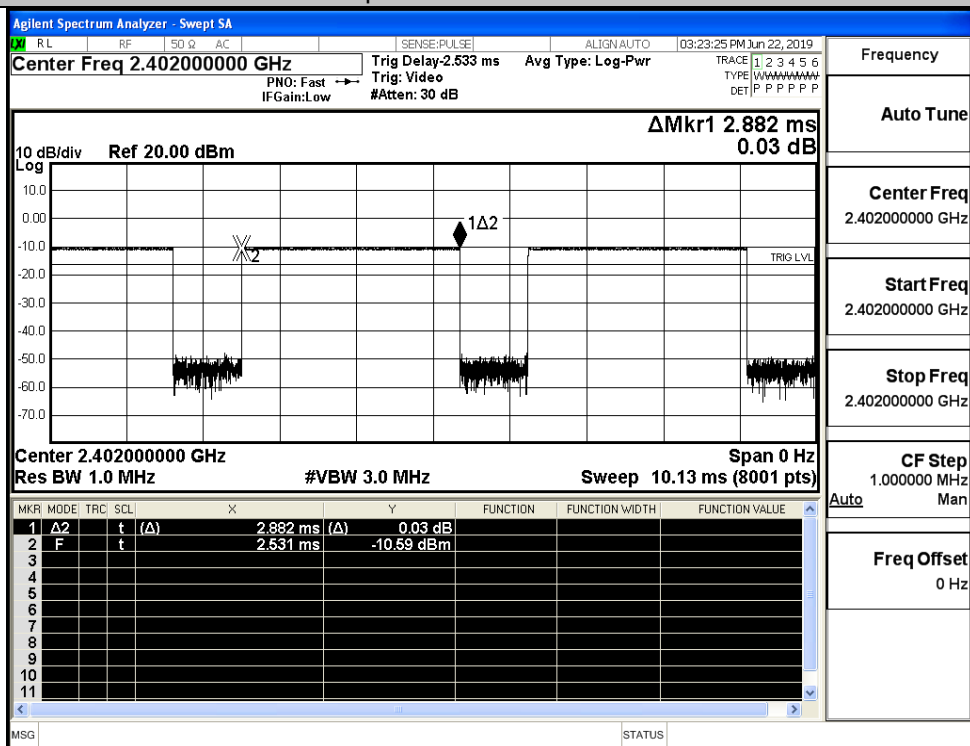


A.5 Dwell Time

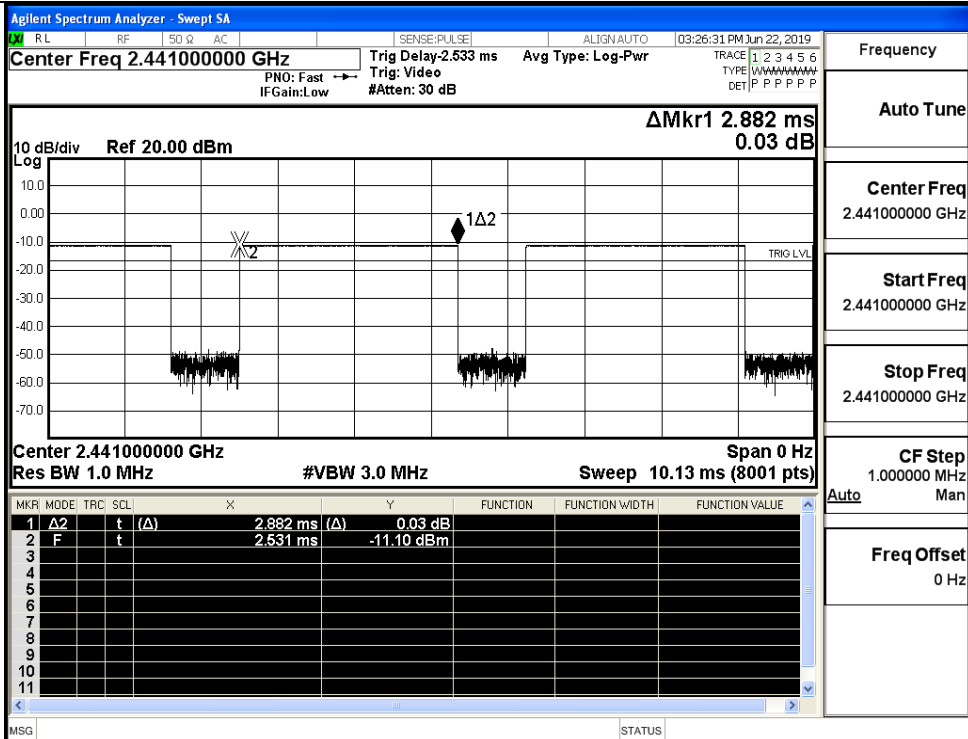
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.308	0.4	PASS
	2DH5	MCH	2.88	106.7	0.308	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

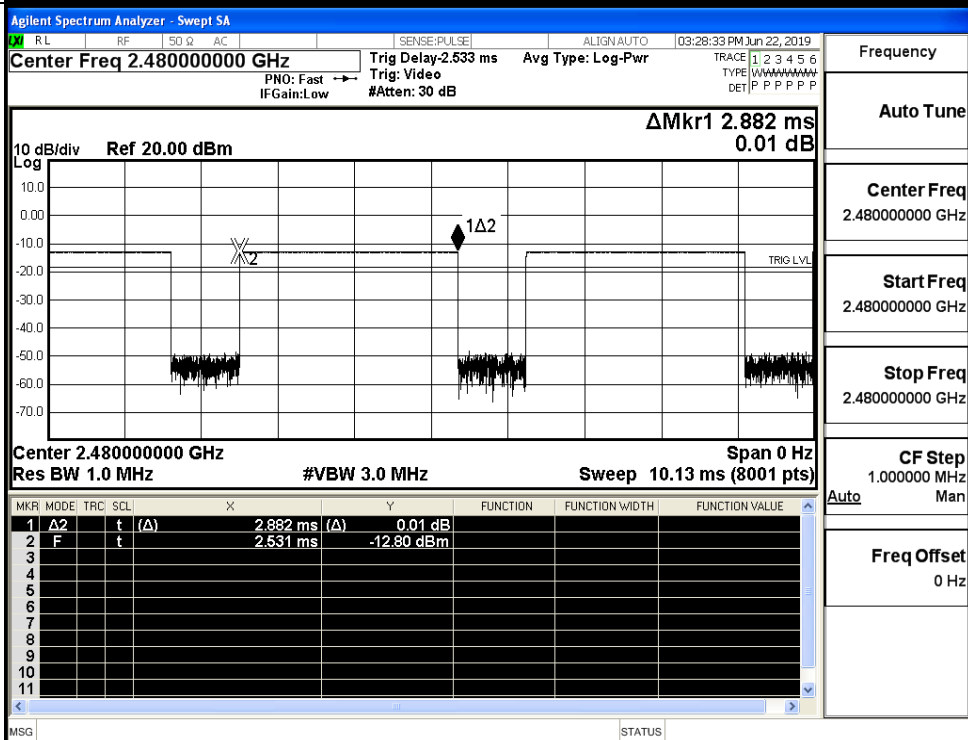
GFSK_DH5/LCH



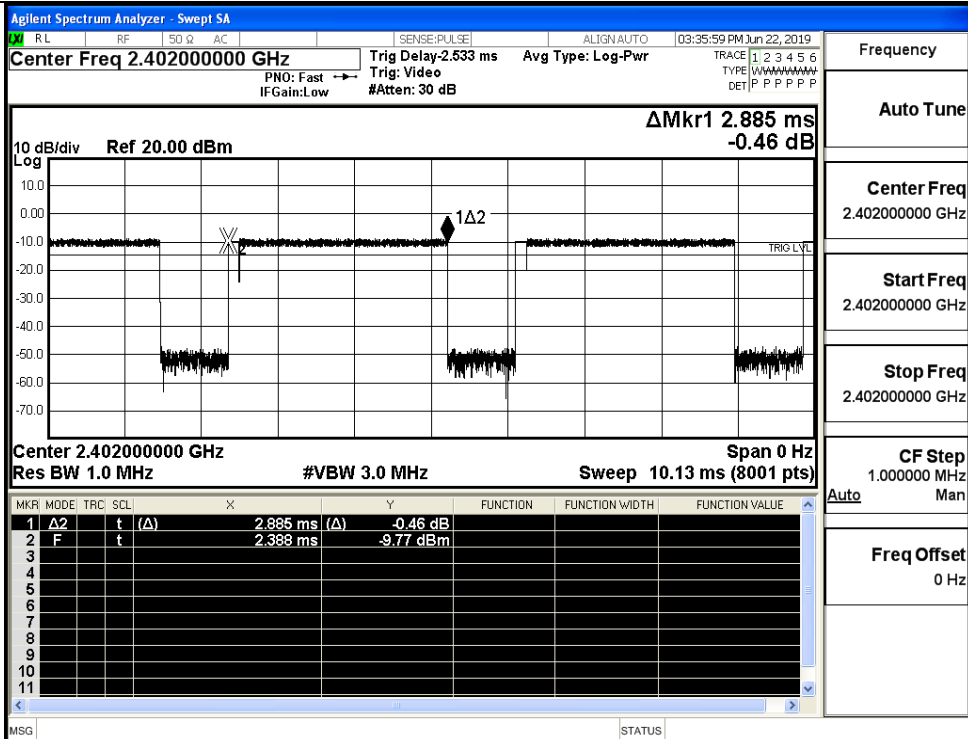
GFSK_DH5/MCH



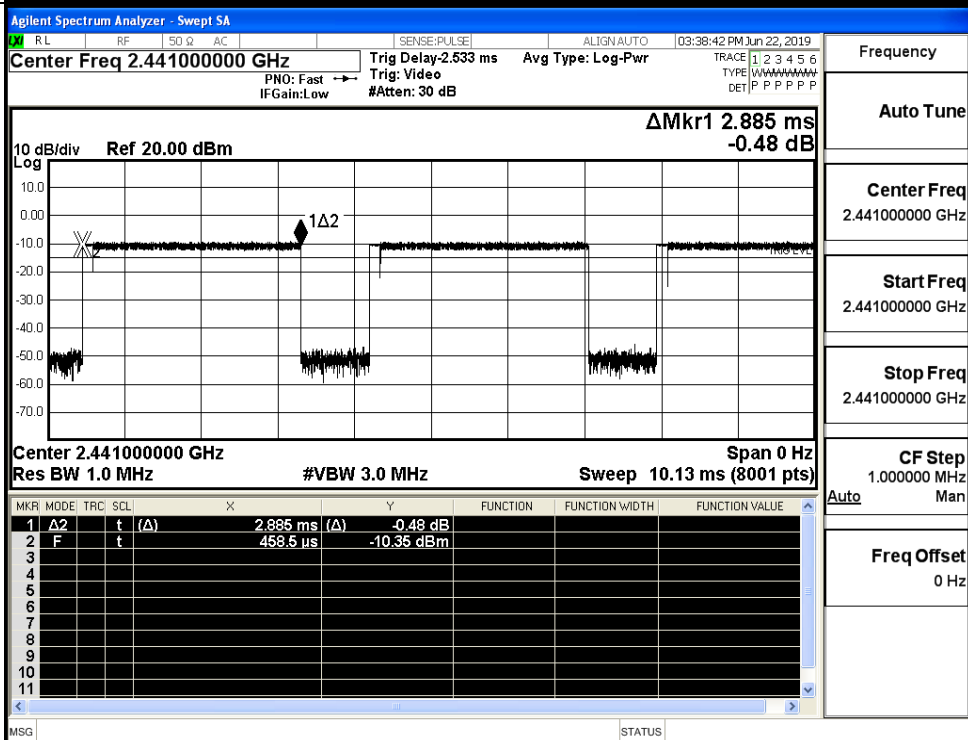
GFSK_DH5/HCH



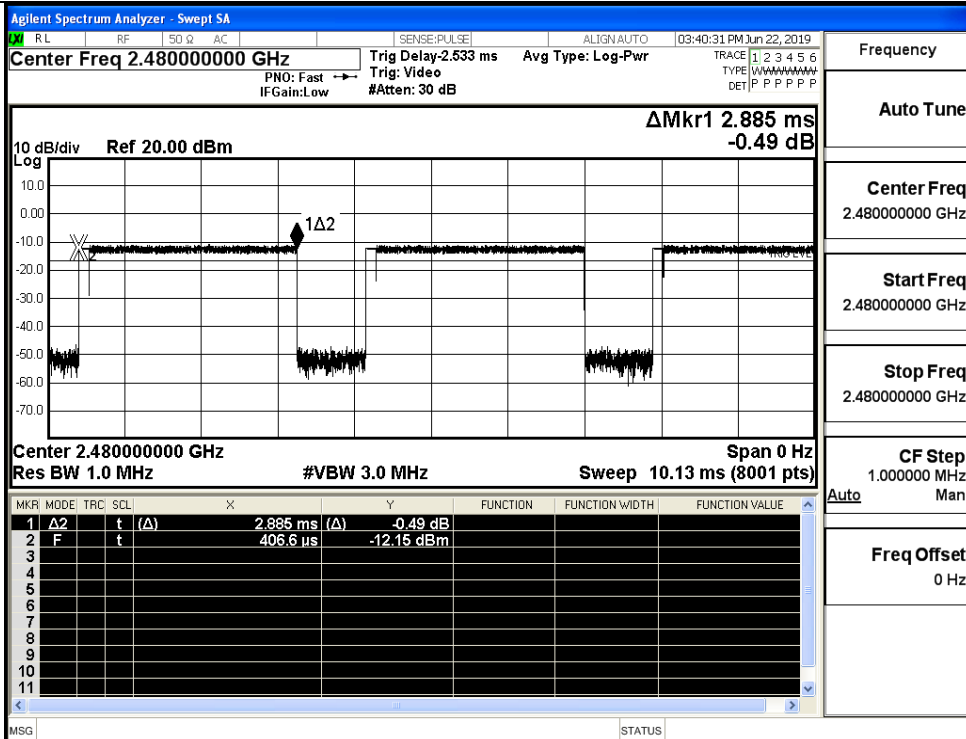
$\pi/4$ DQPSK
_2DH5/LCH



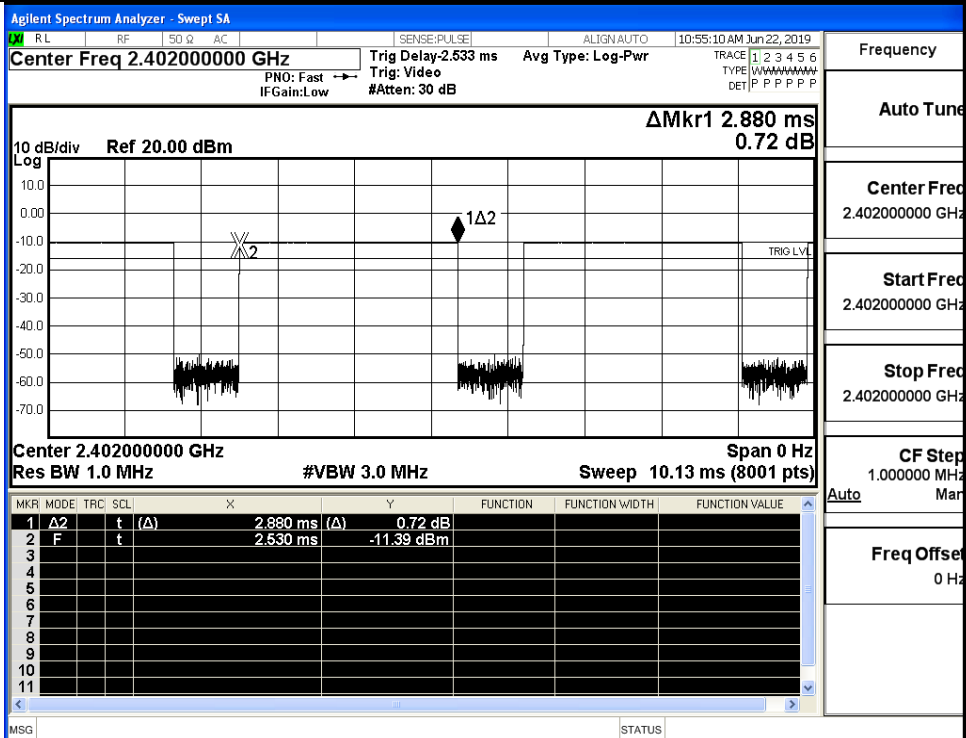
$\pi/4$ DQPSK
_2DH5/MCH



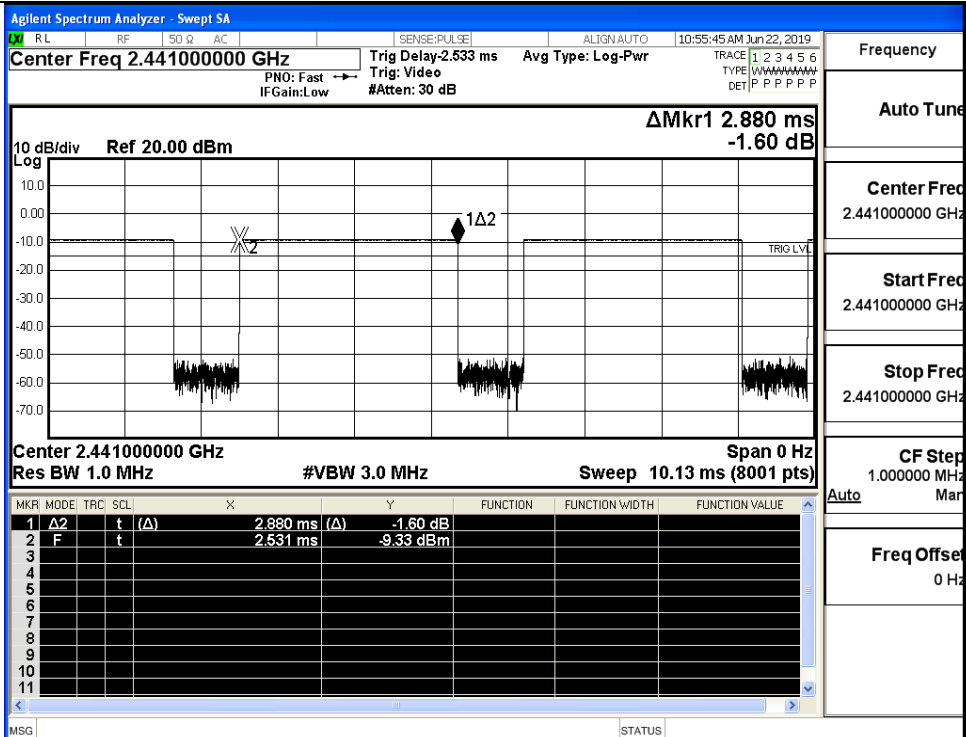
$\pi/4$ DQPSK
_2DH5/HCH



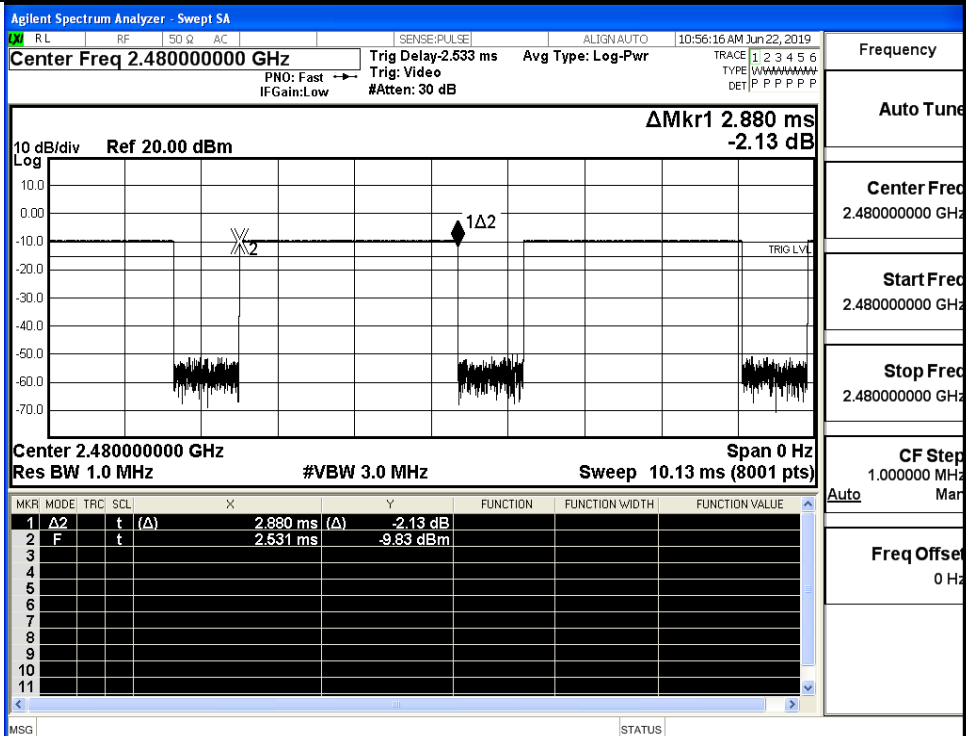
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



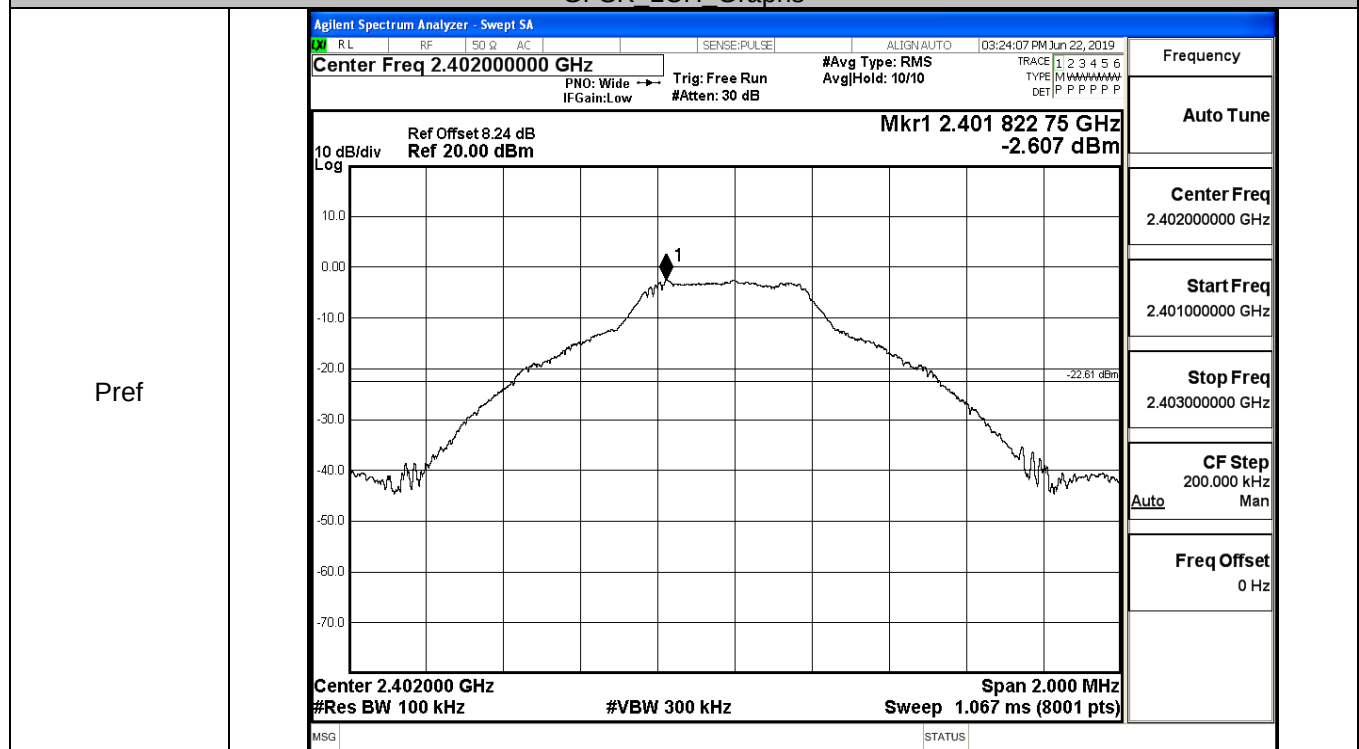
8DPSK_3DH5/HCH



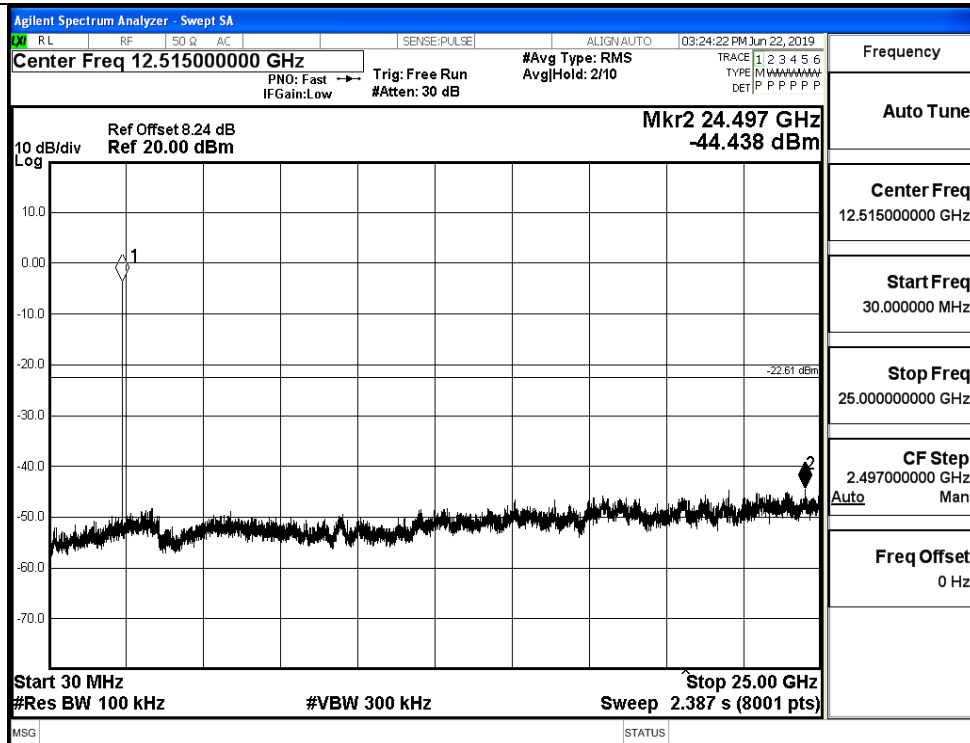
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.607	-44.438	-22.607	PASS
	MCH	-2.866	-43.631	-22.866	PASS
	HCH	-4.582	-43.724	-24.582	PASS
$\pi/4$ DQPSK	LCH	-1.471	-44.773	-21.471	PASS
	MCH	-2.197	-44.298	-22.197	PASS
	HCH	-3.904	-43.549	-23.904	PASS
8DPSK	LCH	-1.586	-44.970	-21.586	PASS
	MCH	-2.198	-43.975	-22.198	PASS
	HCH	-4.255	-44.267	-24.255	PASS

GFSK LCH Graphs

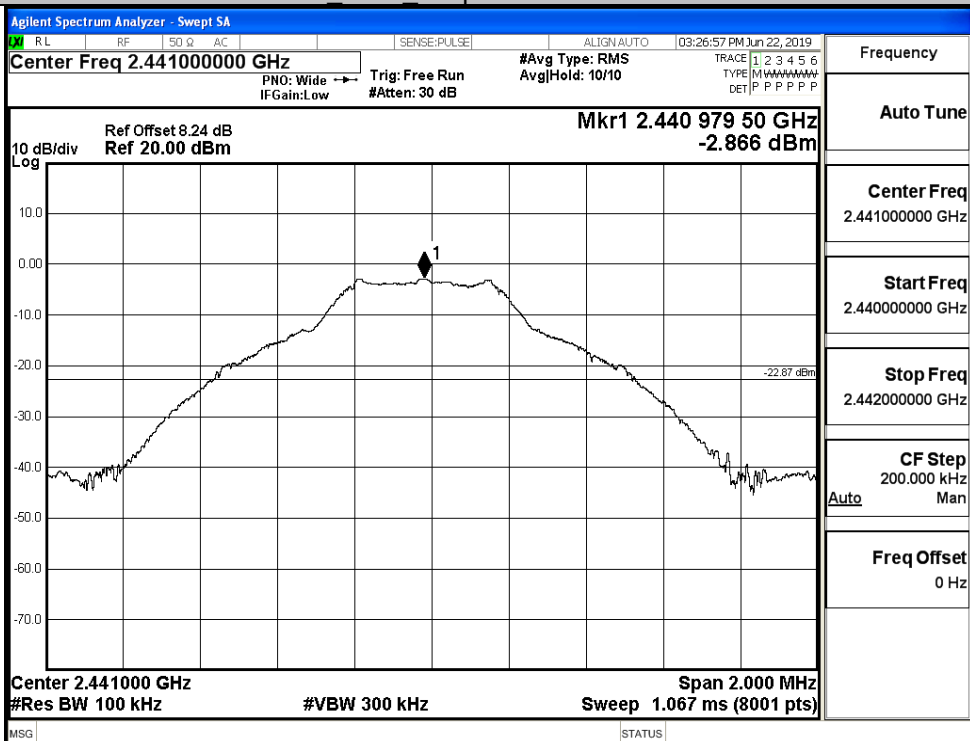


Puw

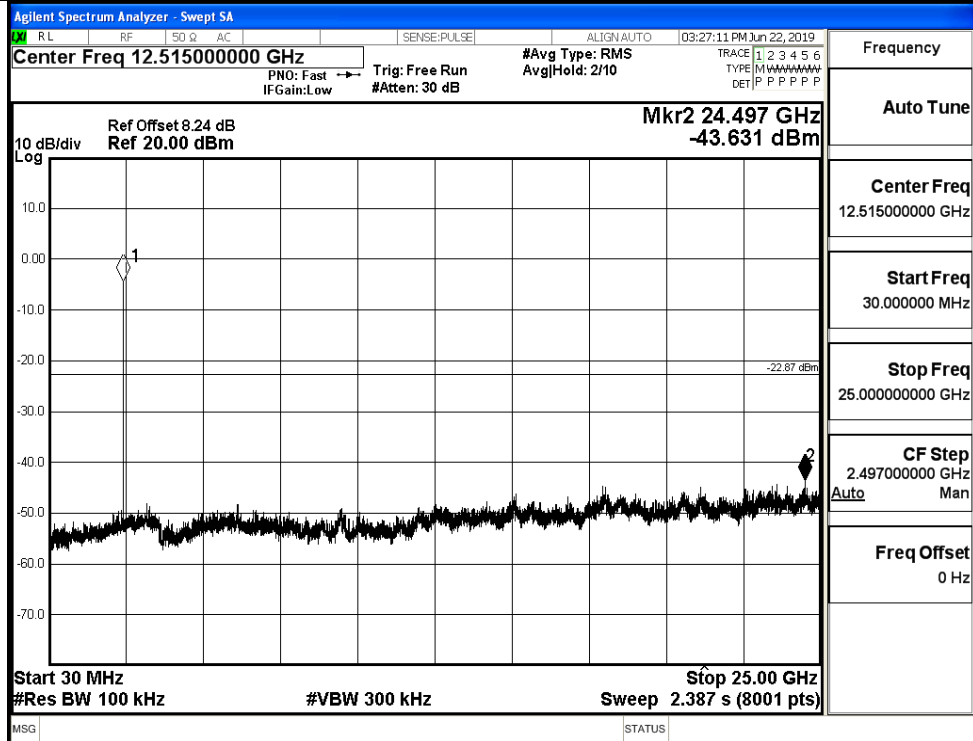


GFSK MCH Graphs

Pref

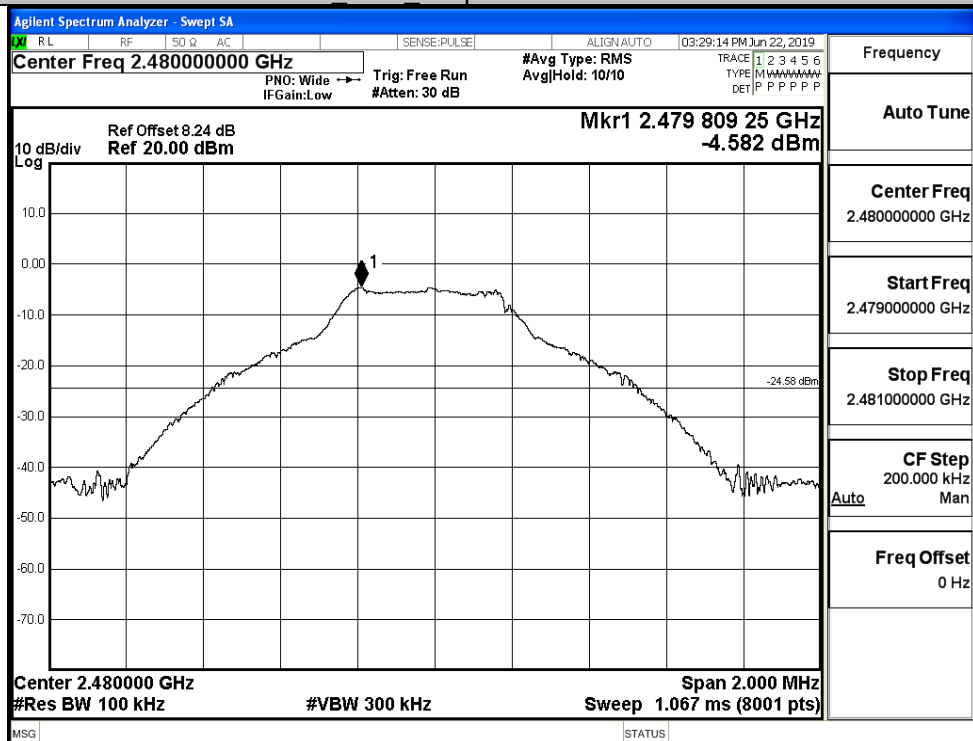


Puw

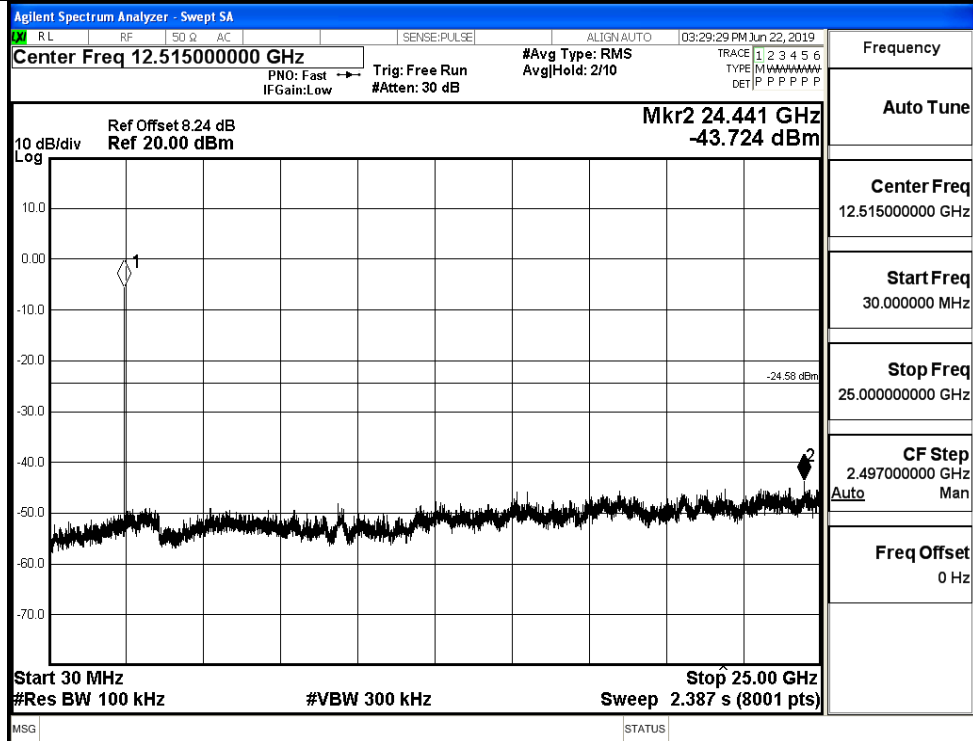


GFSK HCH Graphs

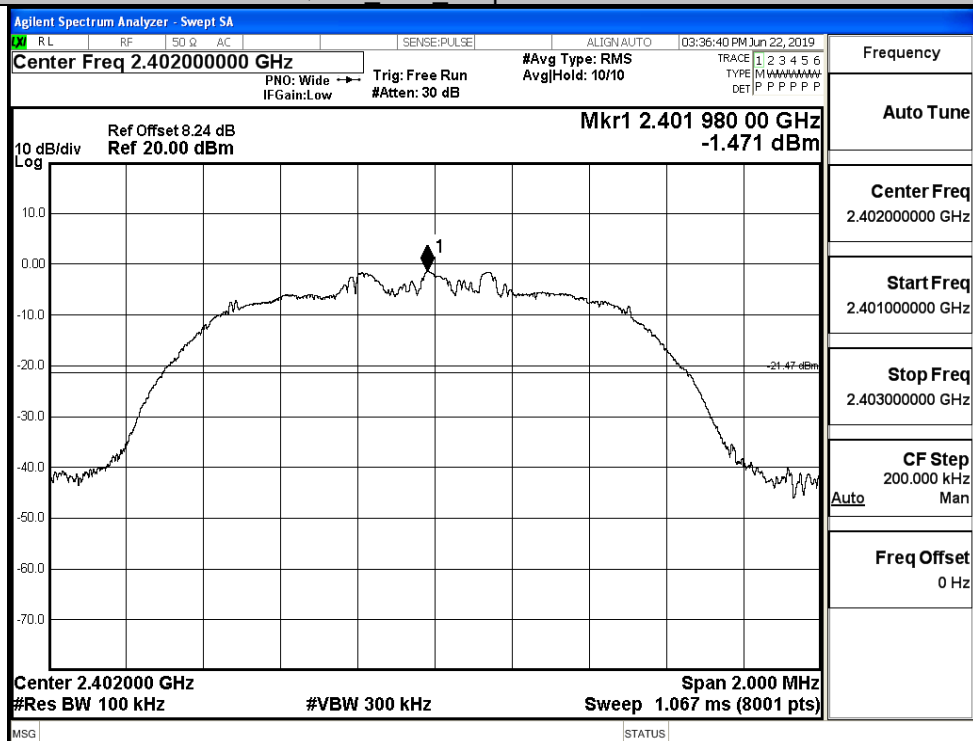
Pref



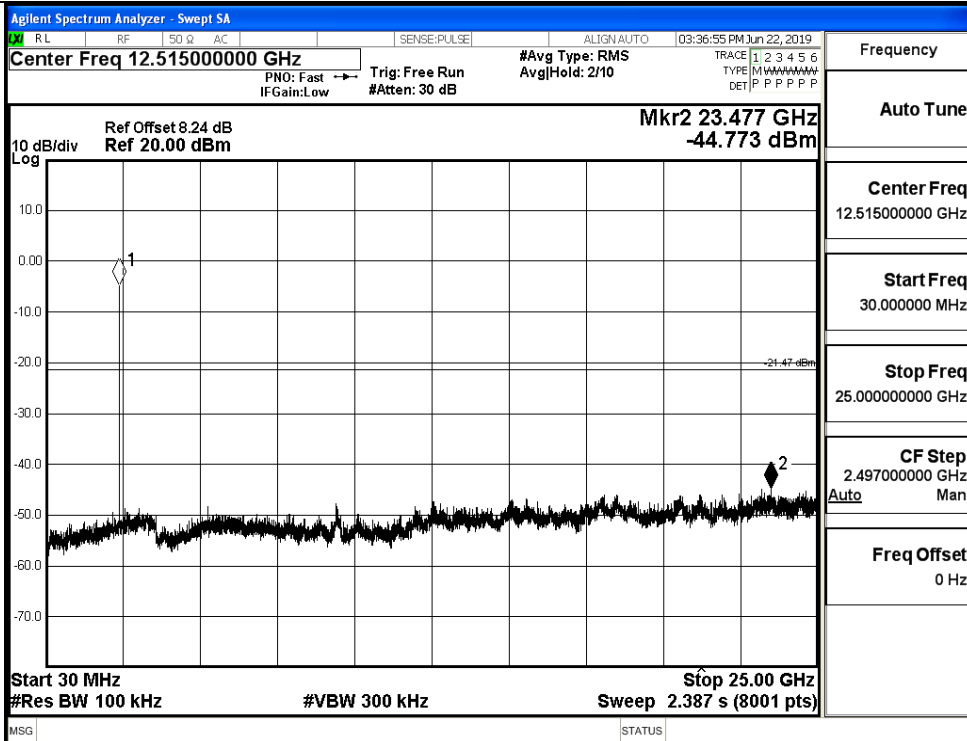
Puw

 $\pi/4$ DQPSK LCH Graphs

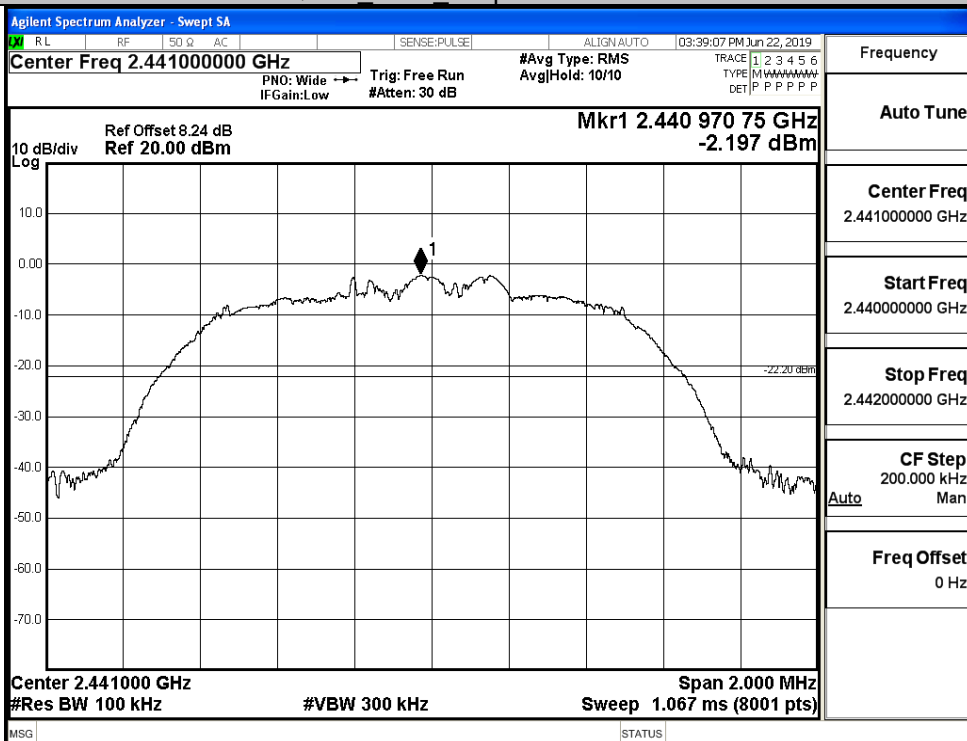
Pref



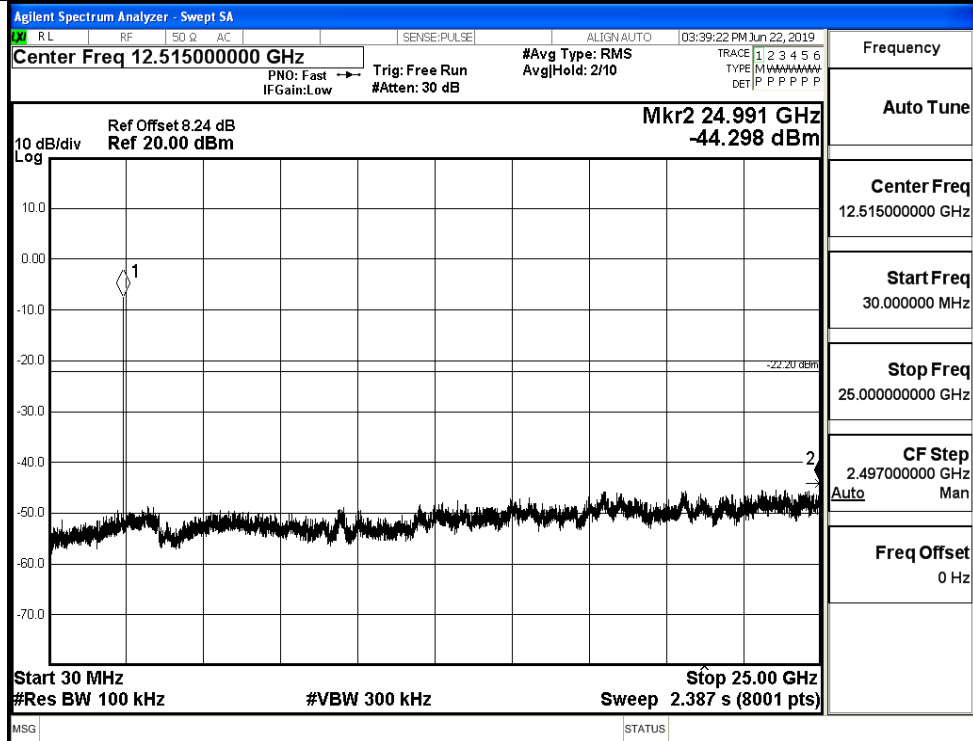
Puw

 $\pi/4$ DQPSK MCH Graphs

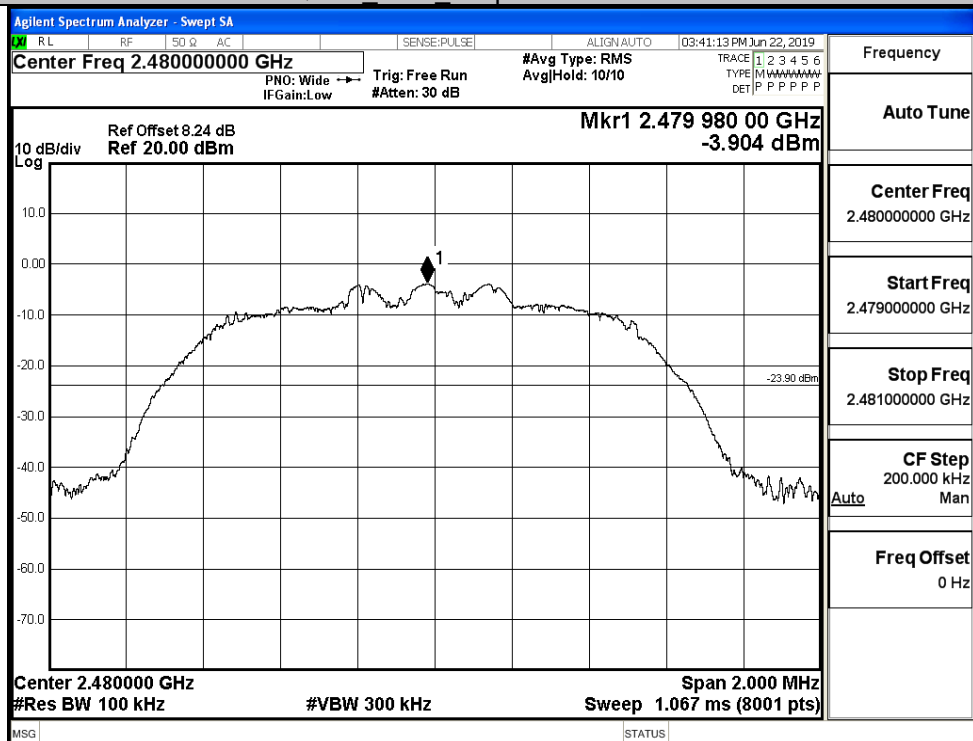
Pref



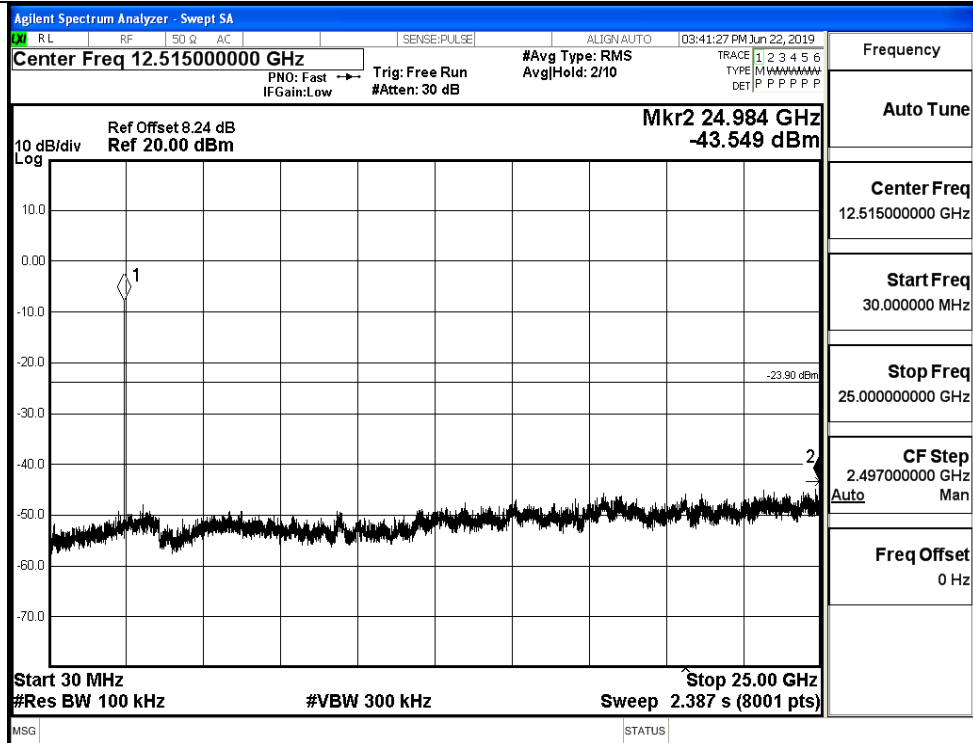
Puw

 $\pi/4$ DQPSK HCH Graphs

Pref

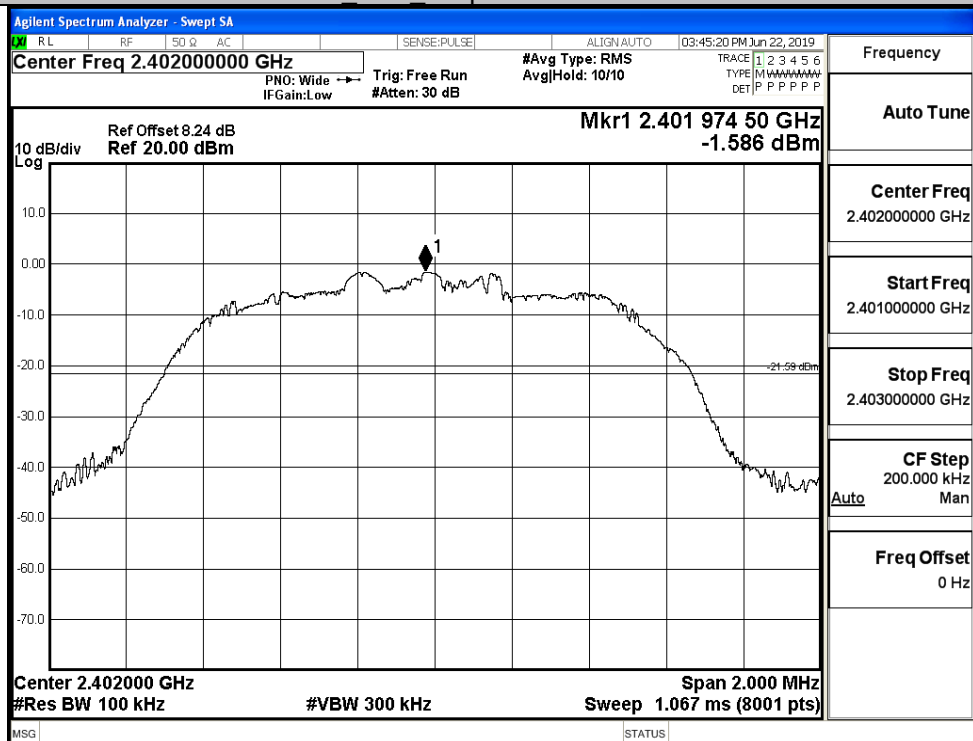


Puw

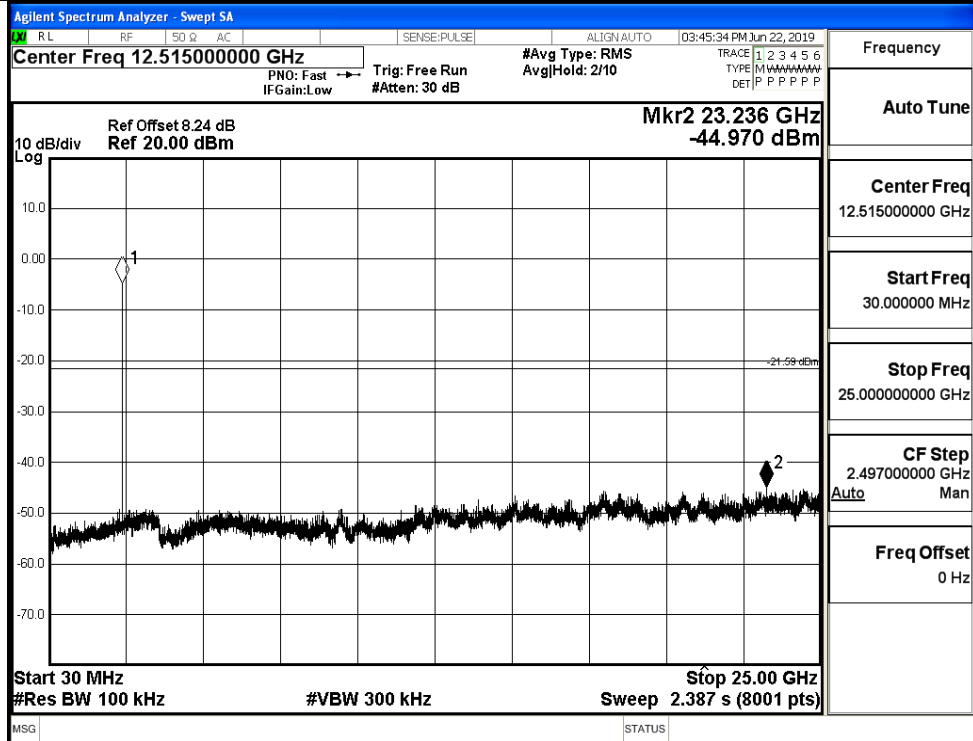


8DPSK LCH Graphs

Pref

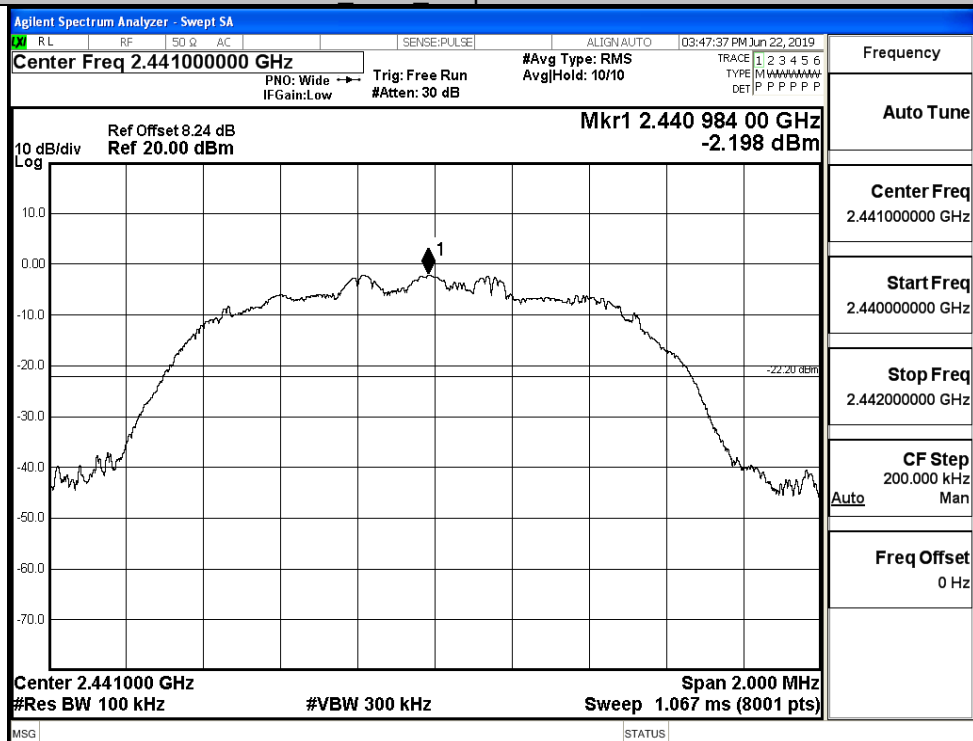


Puw

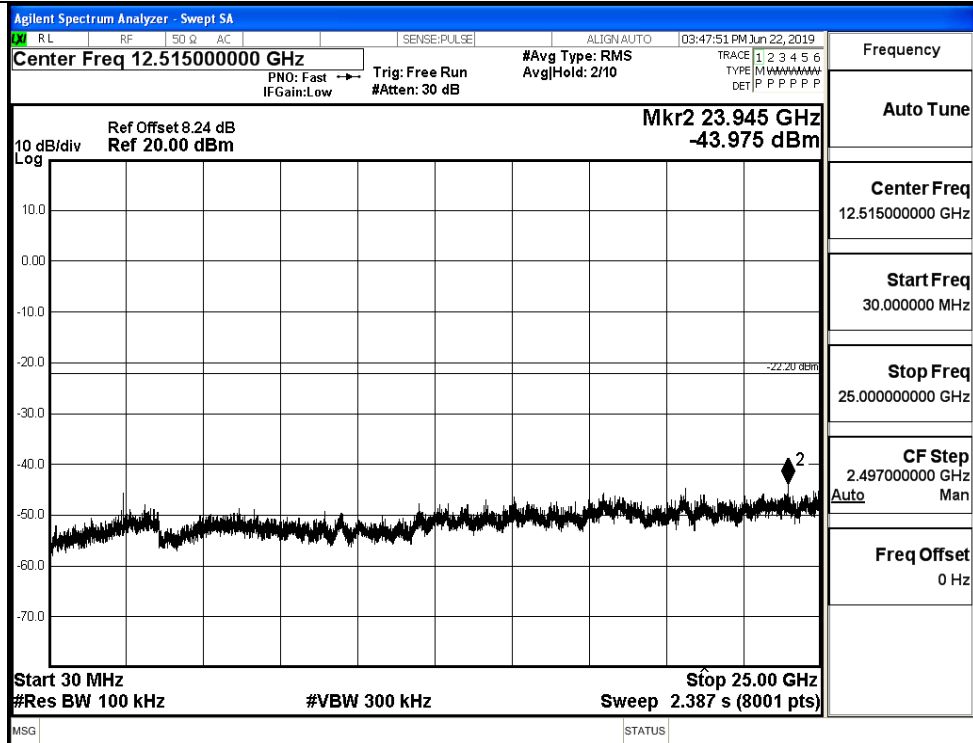


8DPSK MCH Graphs

Pref

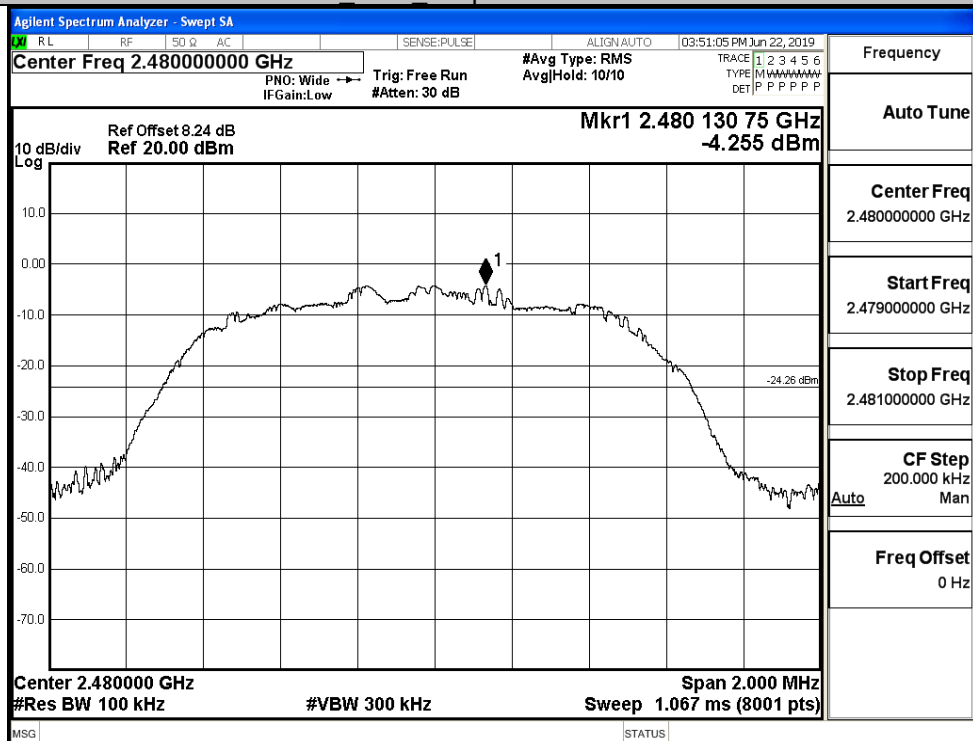


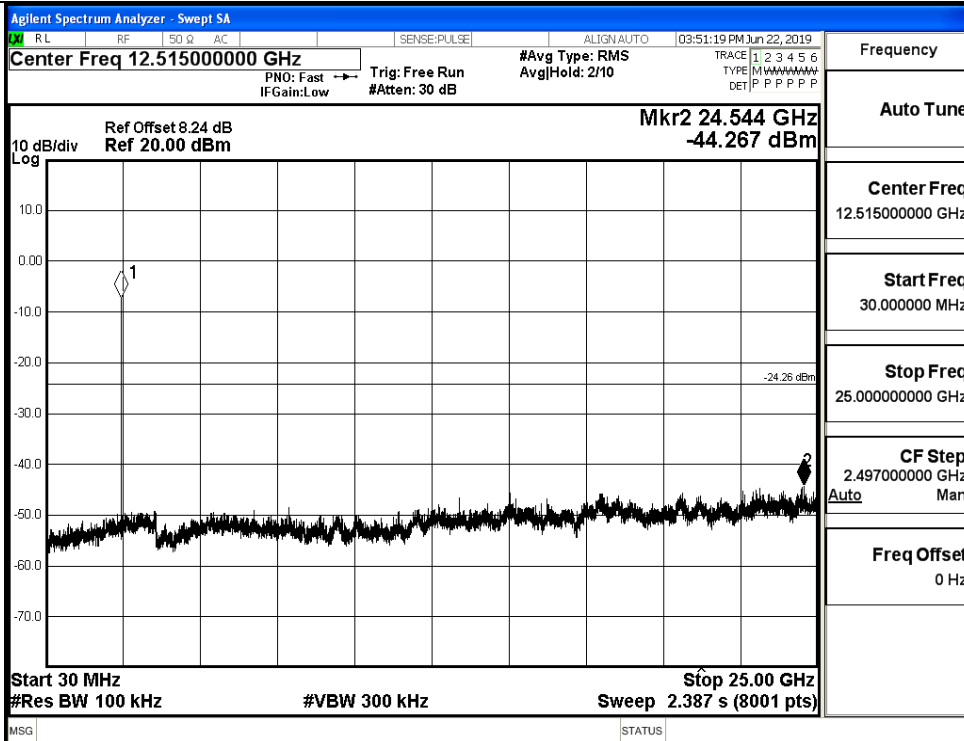
Puw



8DPSK HCH Graphs

Pref



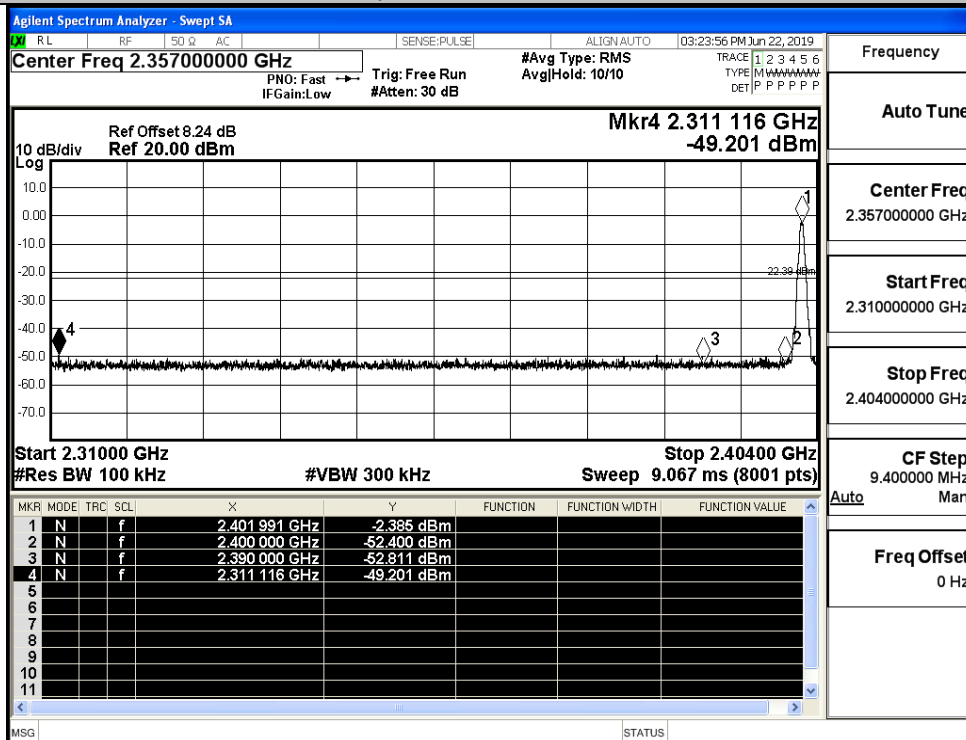
P_uw

A.7 Band-edge for RF Conducted Emissions

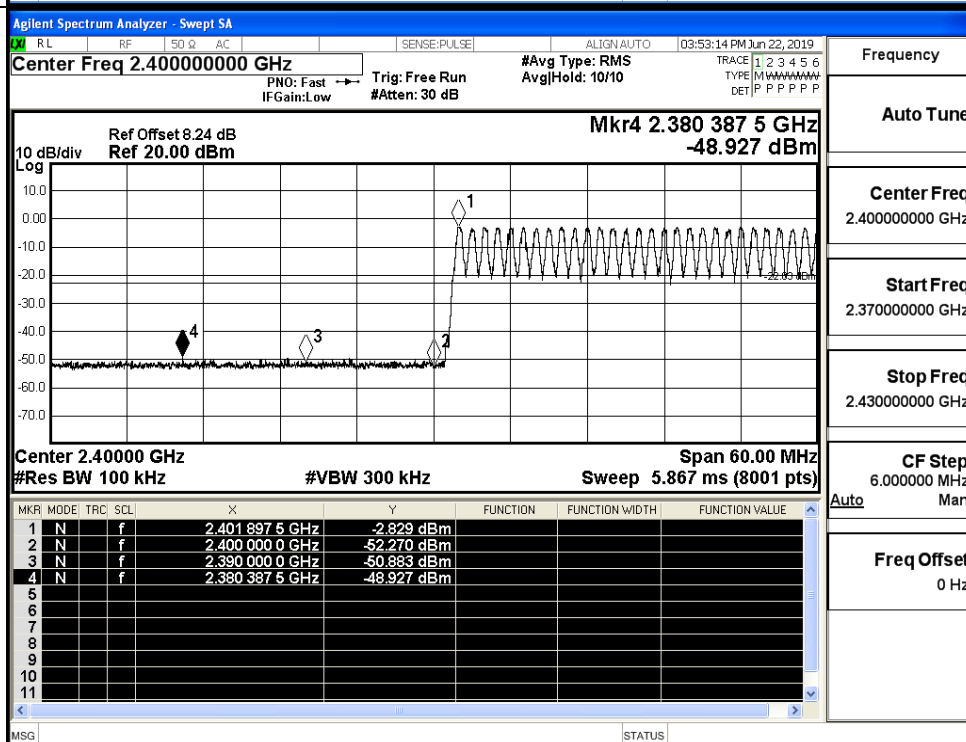
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.385	Off	-49.201	-22.39	PASS
			-2.829	On	-48.927	-22.83	PASS
	HCH	2480	-4.448	Off	-49.691	-24.45	PASS
			-3.606	On	-49.473	-23.61	PASS
$\pi/4$ DQPSK	LCH	2402	-1.736	Off	-49.814	-21.74	PASS
			-1.735	On	-48.923	-21.74	PASS
	HCH	2480	-3.805	Off	-48.408	-23.81	PASS
			-2.616	On	-48.563	-22.62	PASS
8DPSK	LCH	2402	-2.013	Off	-49.917	-22.01	PASS
			-1.788	On	-49.194	-21.79	PASS
	HCH	2480	-3.873	Off	-49.210	-23.87	PASS
			-2.761	On	-48.957	-22.76	PASS

Test Graphs

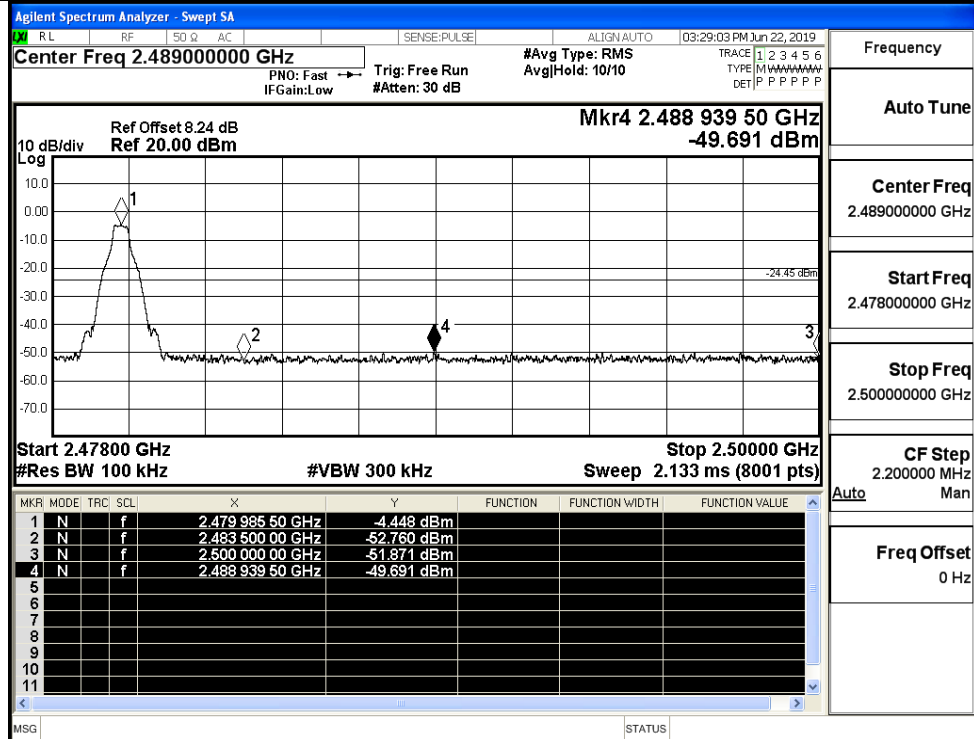
GFSK/LCH/No Hop



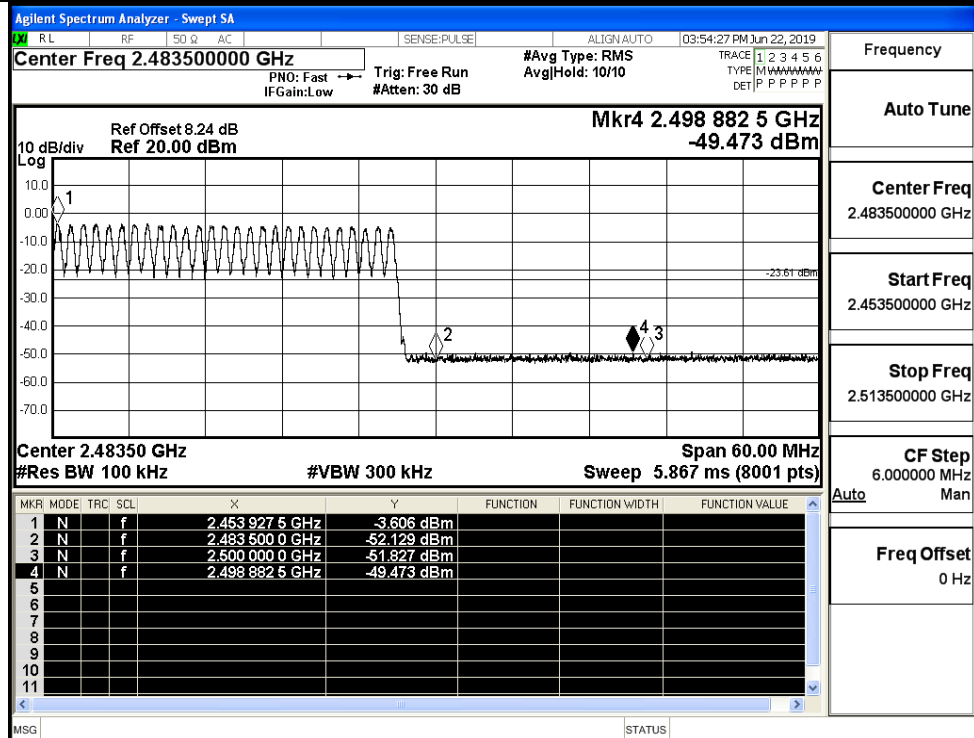
GFSK/LCH/Hop



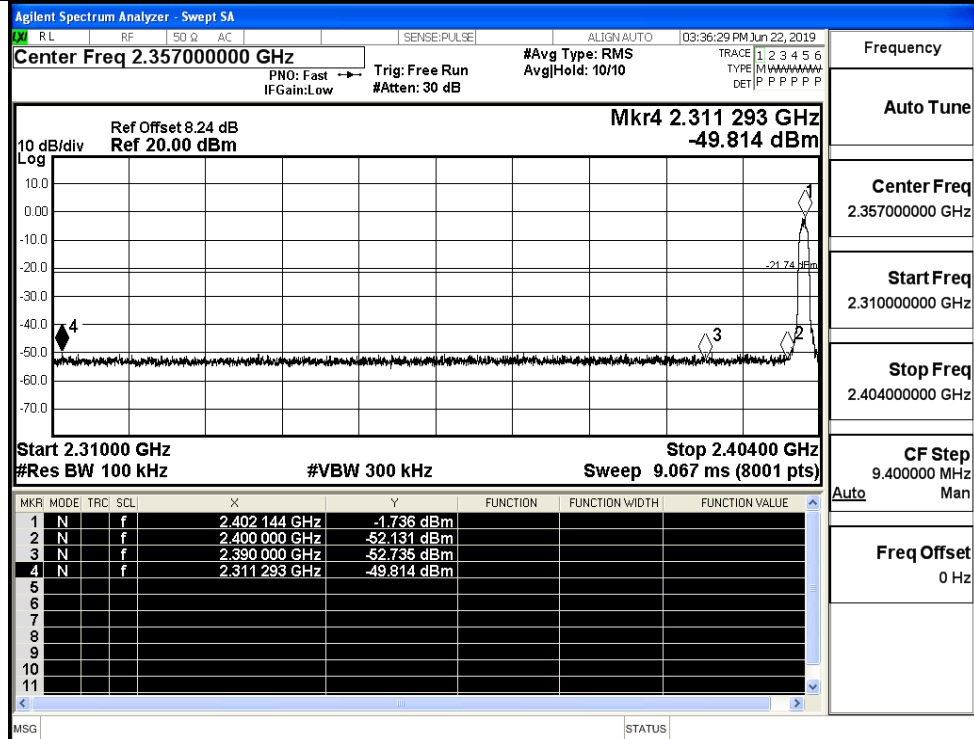
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

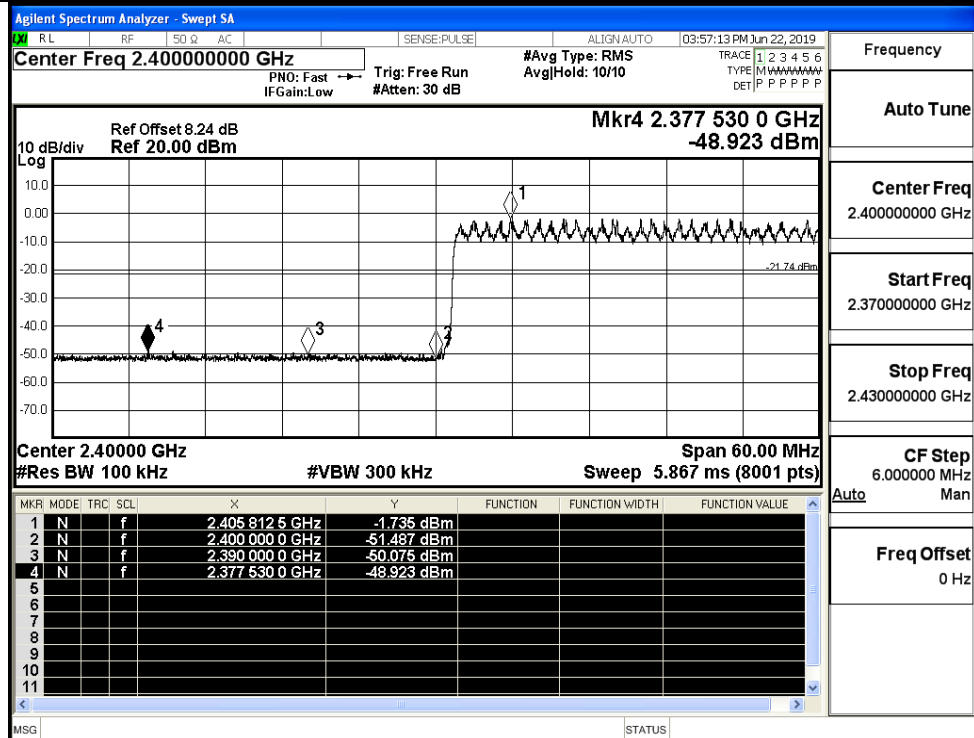
Start Freq
2.310000000 GHz

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

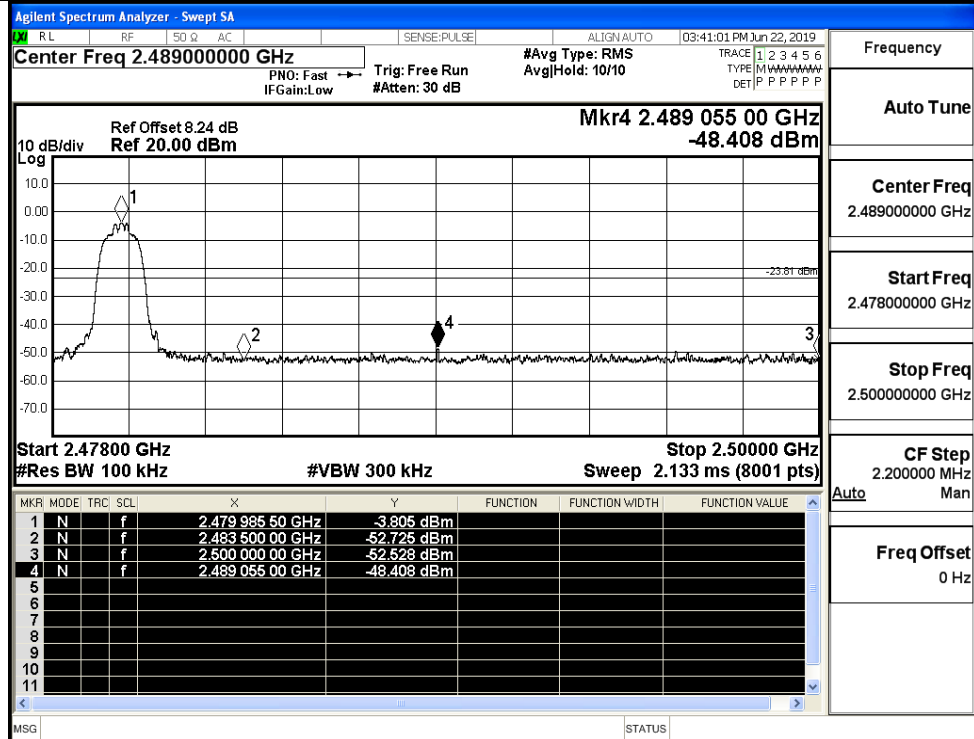
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

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

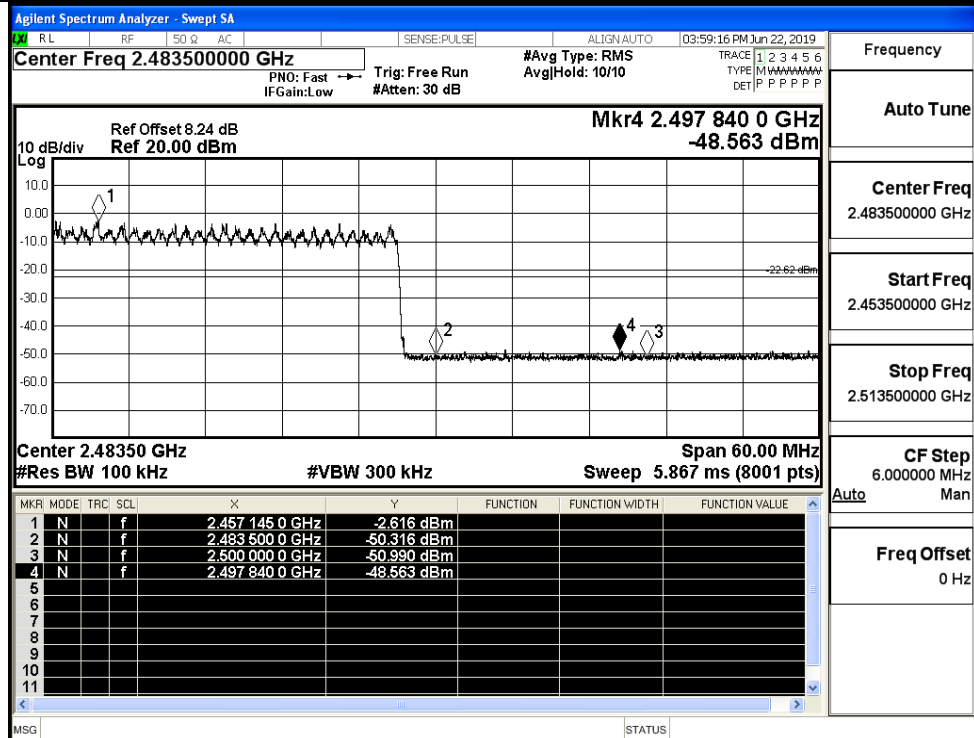


Frequency

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

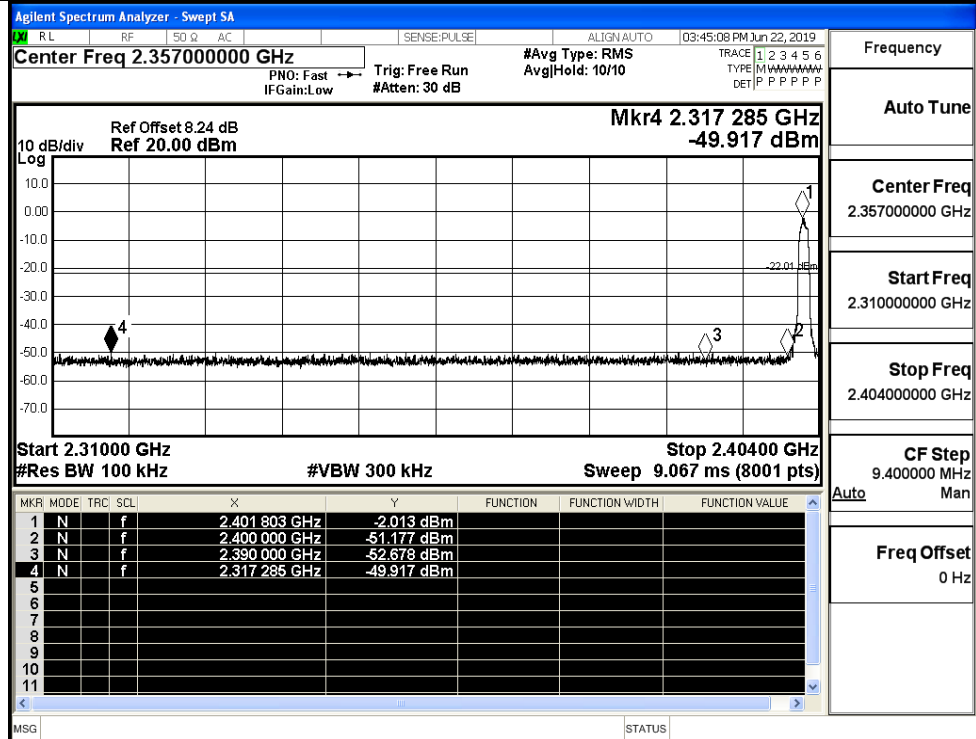


Frequency

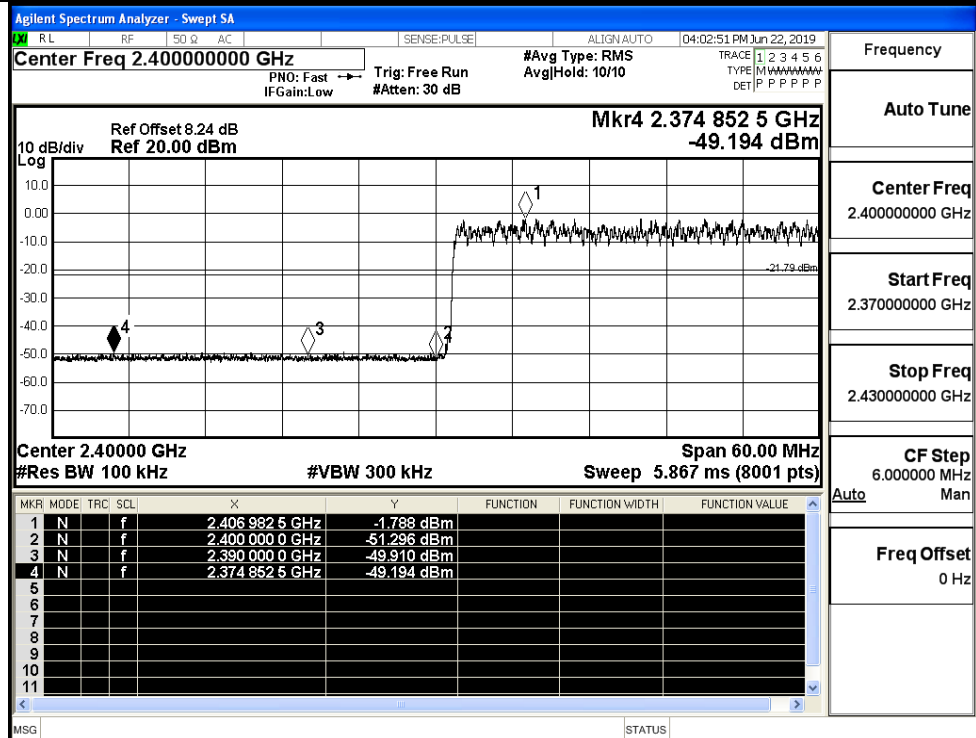
Auto Tune

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

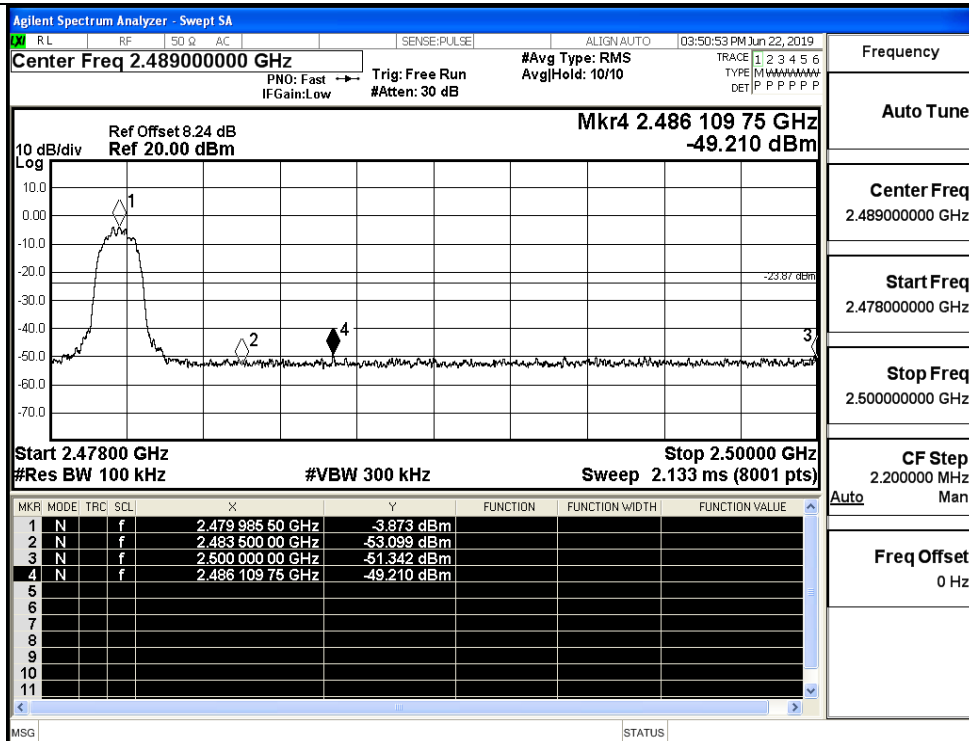
8DPSK/LCH/No Hop



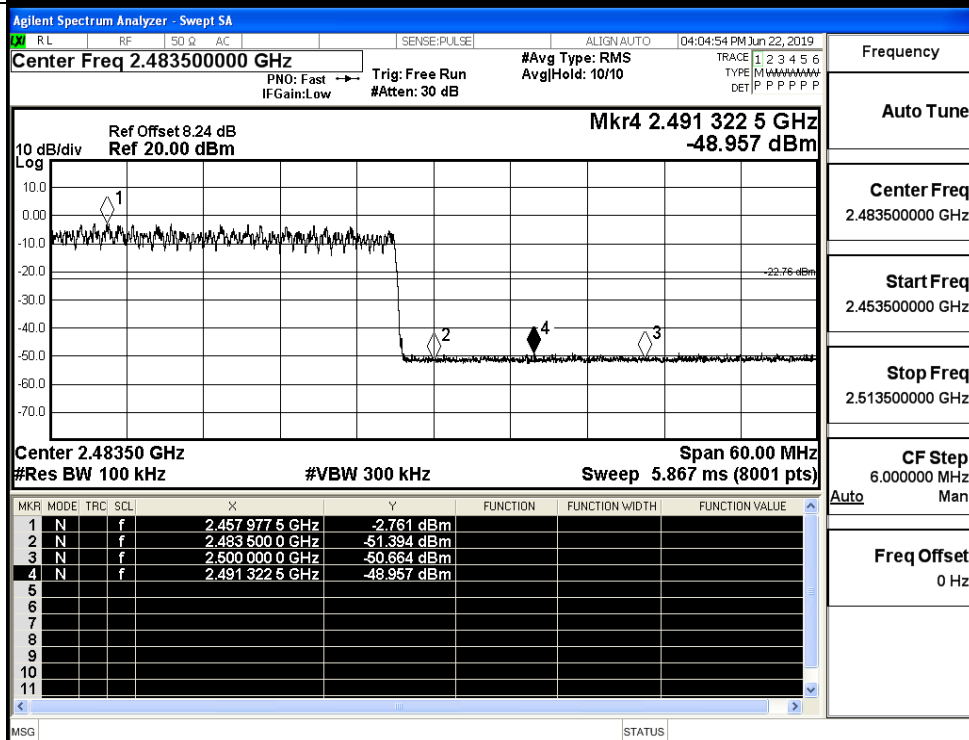
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



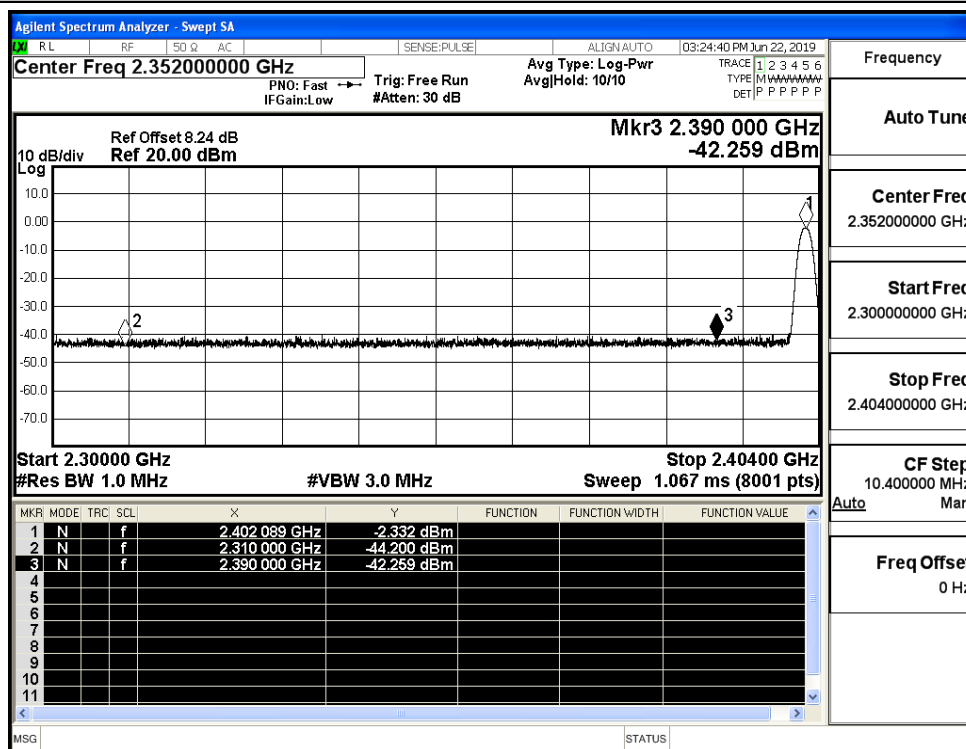
8DPSK/HCH/Hop



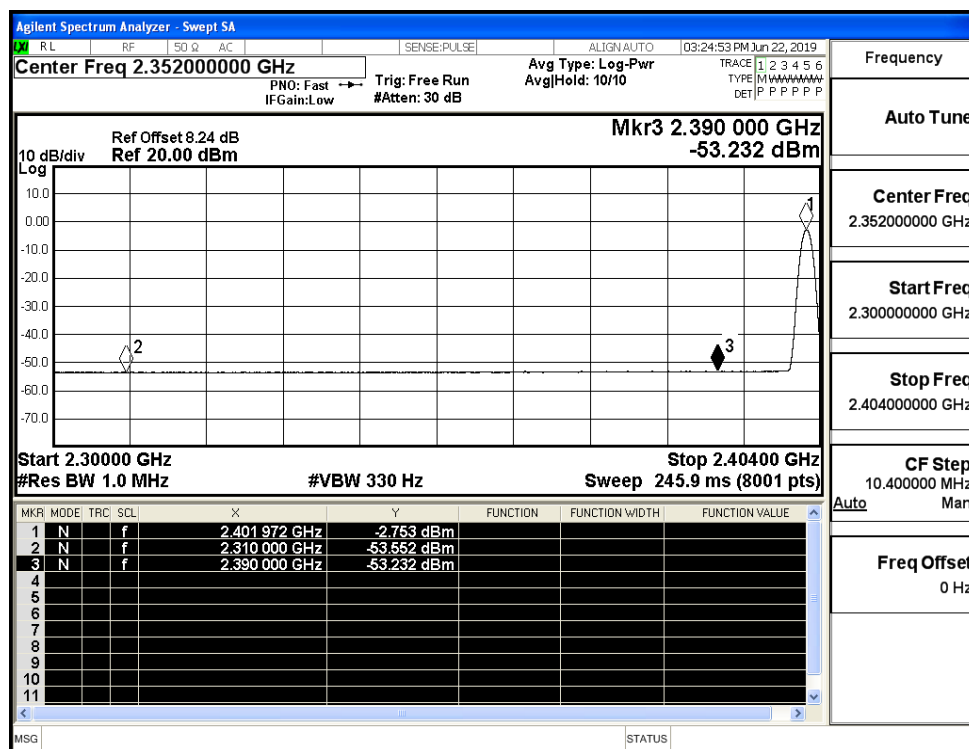
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.20	2.0	0	53.06	PEAK	74	PASS
	Off	2310.0	-53.55	2.0	0	43.71	AV	54	PASS
	Off	2390.0	-42.26	2.0	0	55.00	PEAK	74	PASS
	Off	2390.0	-53.23	2.0	0	44.03	AV	54	PASS
	Off	2483.5	-43.79	2.0	0	53.47	PEAK	74	PASS
	Off	2483.5	-52.89	2.0	0	44.37	AV	54	PASS
	Off	2500.0	-42.95	2.0	0	54.31	PEAK	74	PASS
	Off	2500.0	-52.85	2.0	0	44.41	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.04	2.0	0	53.22	PEAK	74	PASS
	Off	2310.0	-53.53	2.0	0	43.73	AV	54	PASS
	Off	2390.0	-42.56	2.0	0	54.69	PEAK	74	PASS
	Off	2390.0	-53.26	2.0	0	44.00	AV	54	PASS
	Off	2483.5	-42.57	2.0	0	54.68	PEAK	74	PASS
	Off	2483.5	-52.90	2.0	0	44.36	AV	54	PASS
	Off	2500.0	-42.65	2.0	0	54.61	PEAK	74	PASS
	Off	2500.0	-52.79	2.0	0	44.47	AV	54	PASS
8DPSK	Off	2310.0	-41.94	2.0	0	55.31	PEAK	74	PASS
	Off	2310.0	-53.34	2.0	0	43.92	AV	54	PASS
	Off	2390.0	-43.55	2.0	0	53.71	PEAK	74	PASS
	Off	2390.0	-53.22	2.0	0	44.04	AV	54	PASS
	Off	2483.5	-42.87	2.0	0	54.39	PEAK	74	PASS
	Off	2483.5	-52.80	2.0	0	44.46	AV	54	PASS
	Off	2500.0	-43.51	2.0	0	53.75	PEAK	74	PASS
	Off	2500.0	-52.89	2.0	0	44.37	AV	54	PASS

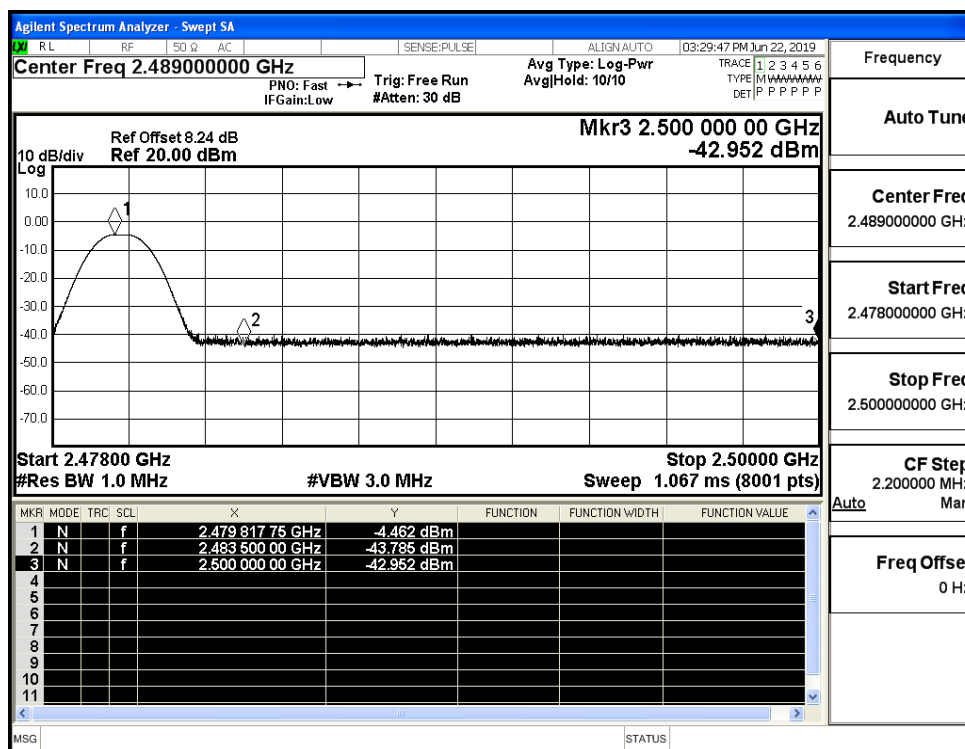
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



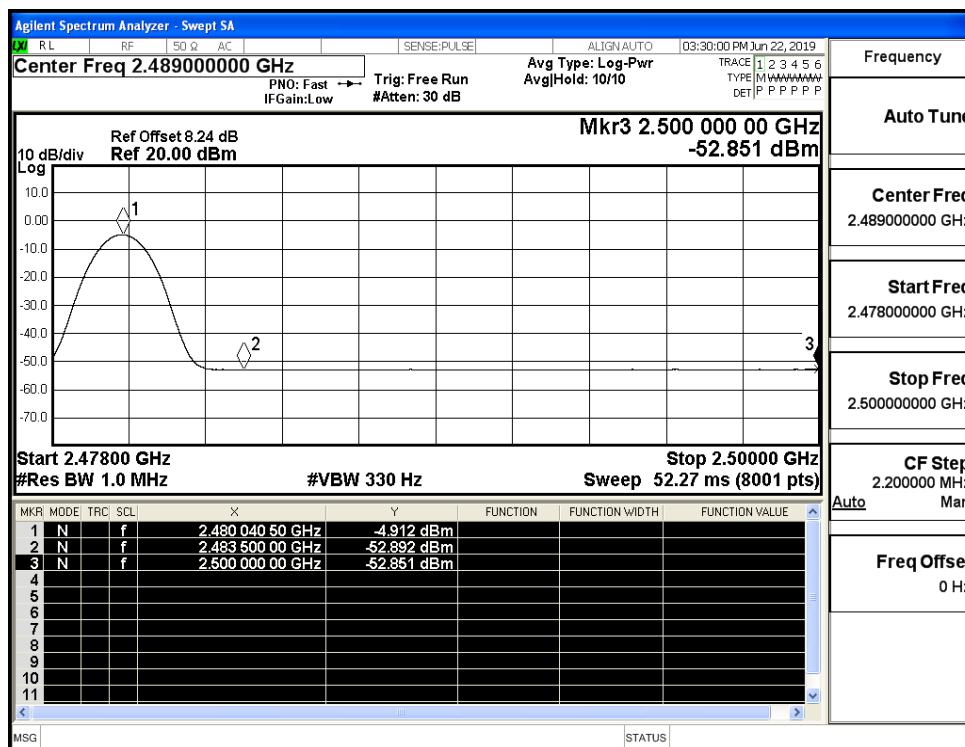
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

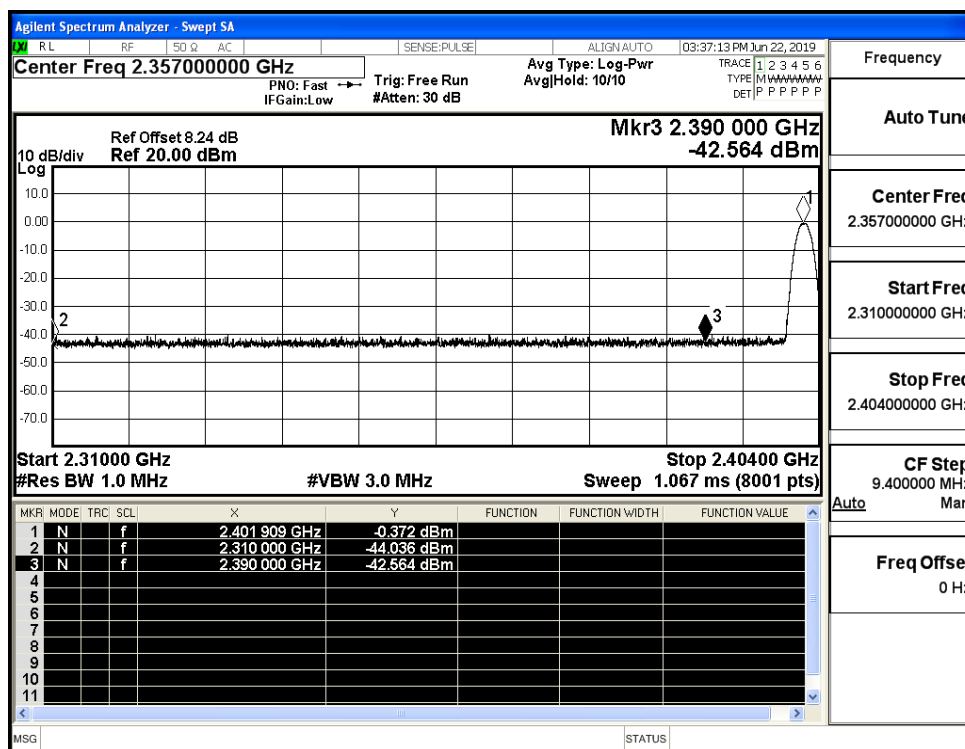
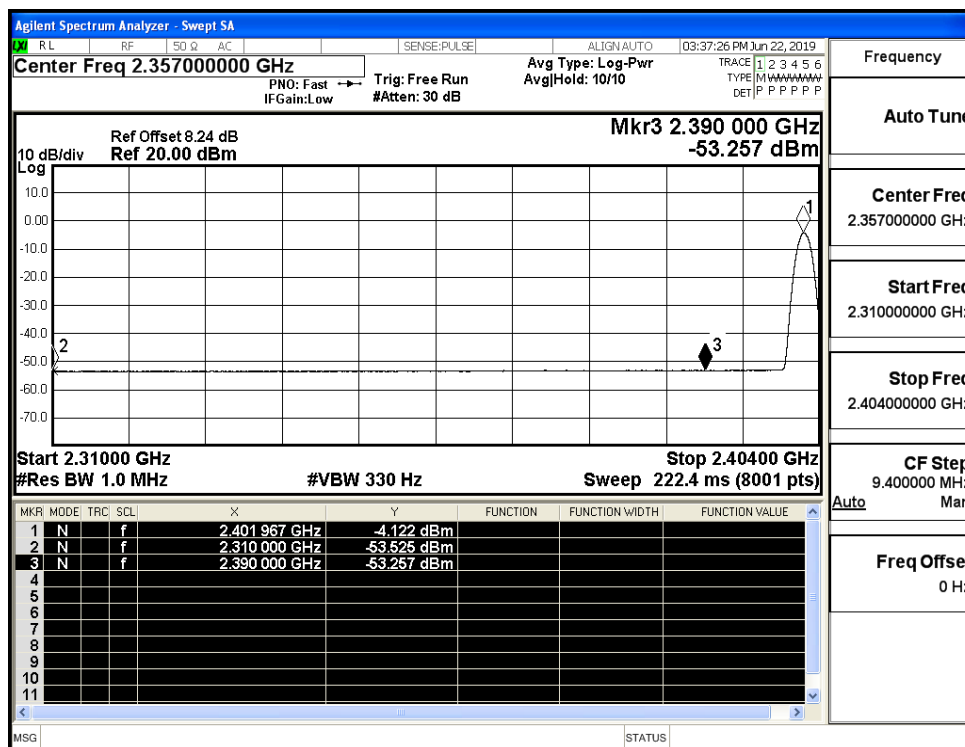


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

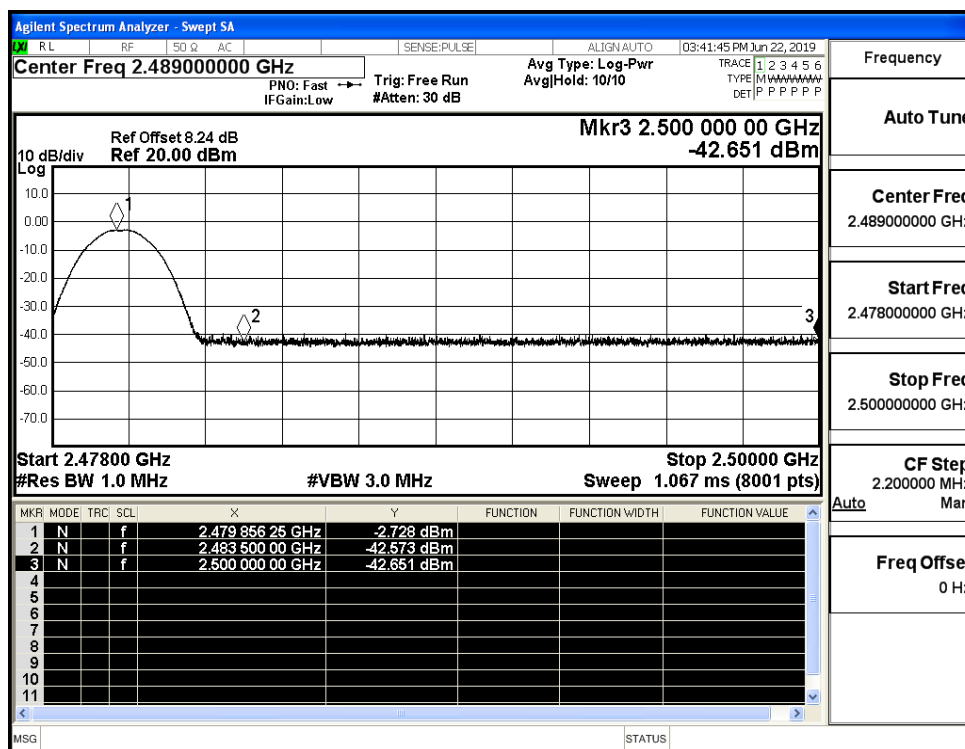


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

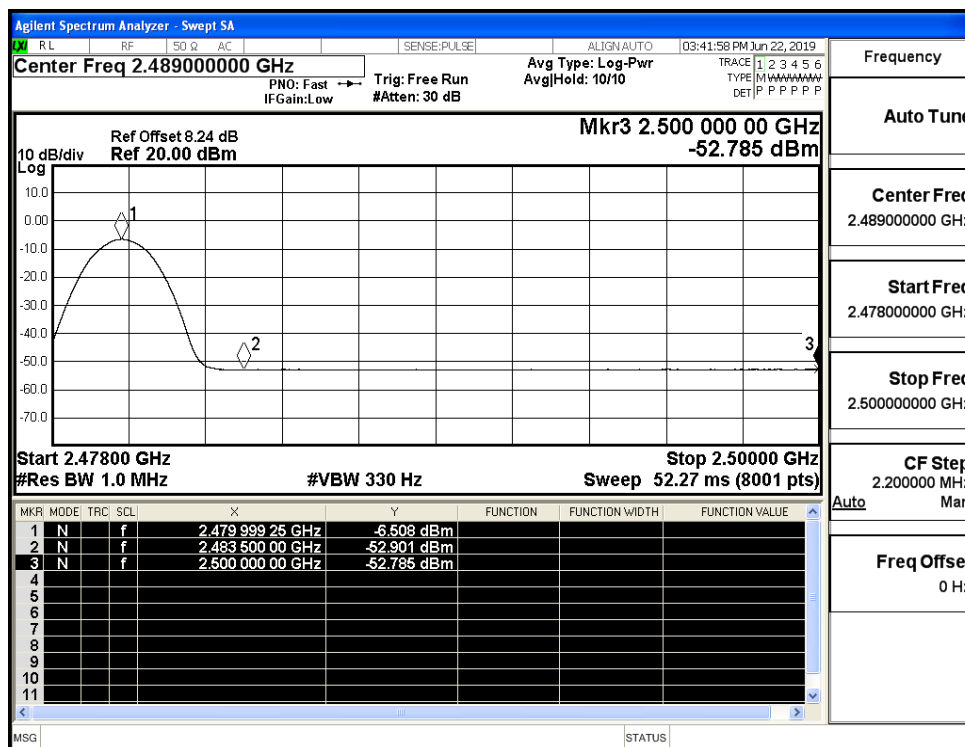


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

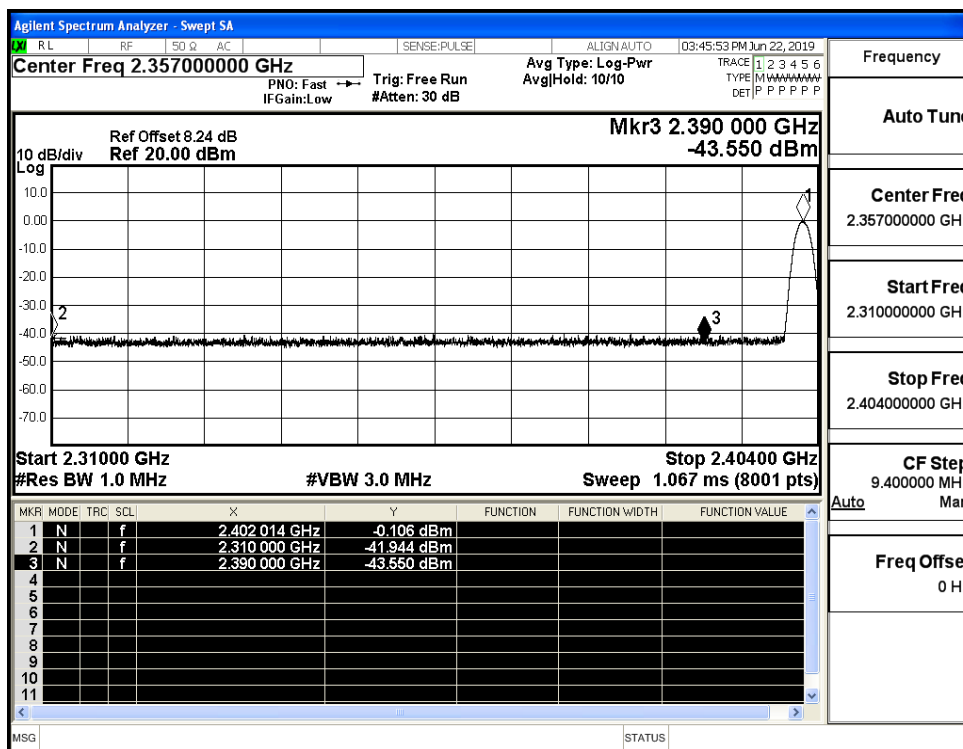
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



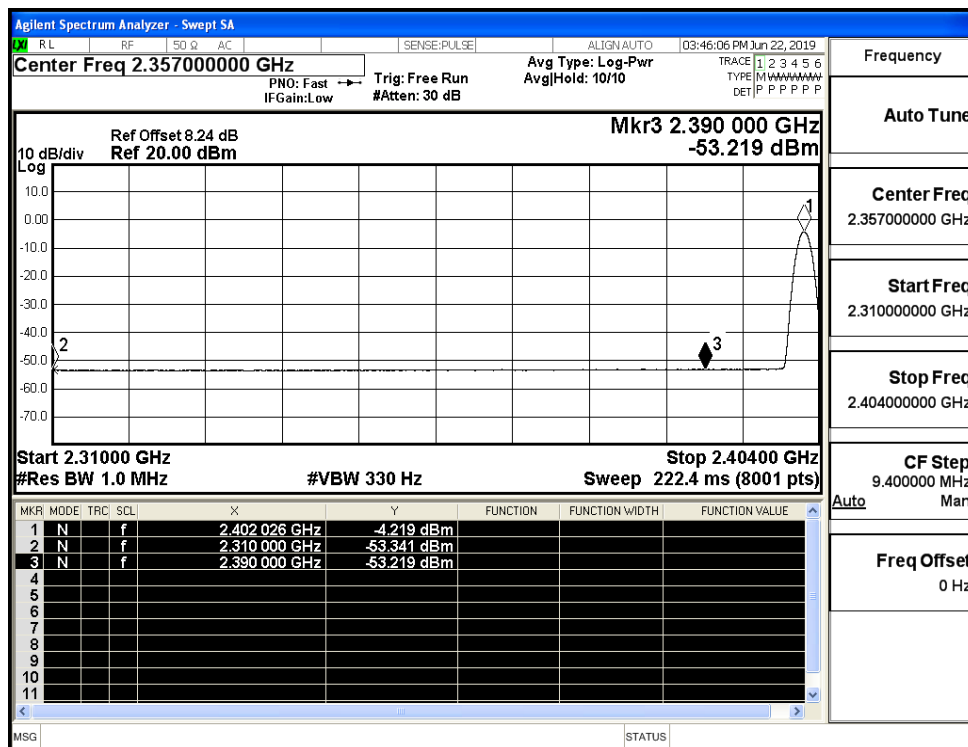
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



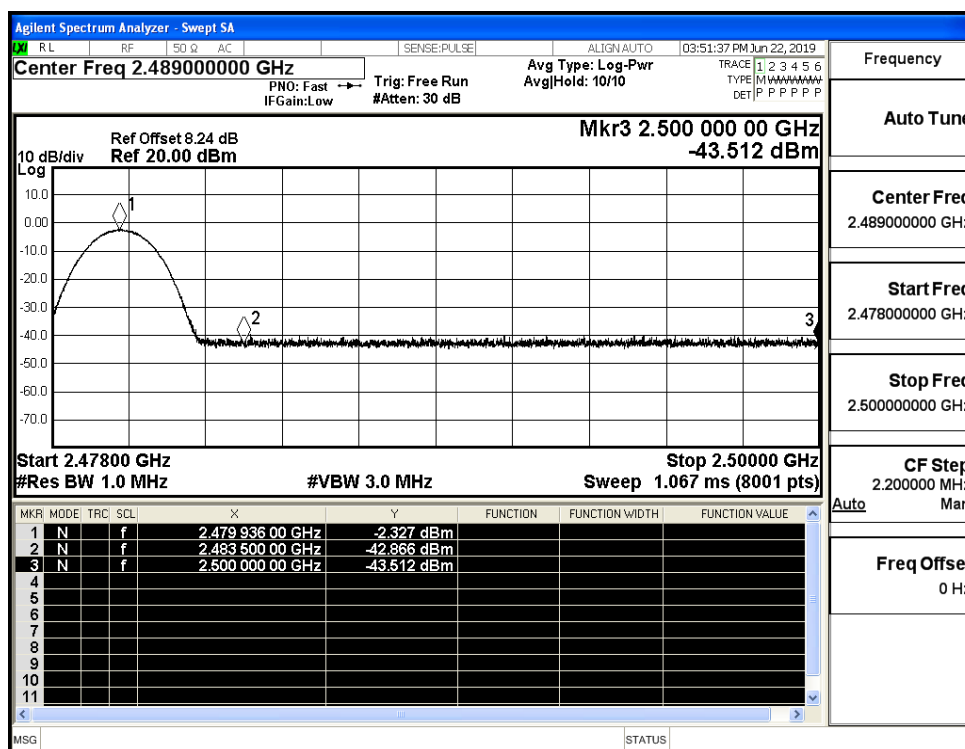
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

