

Appendix A

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

Product Name: KIDS WATCH

Test Model: BUBBLE

Environmental Conditions

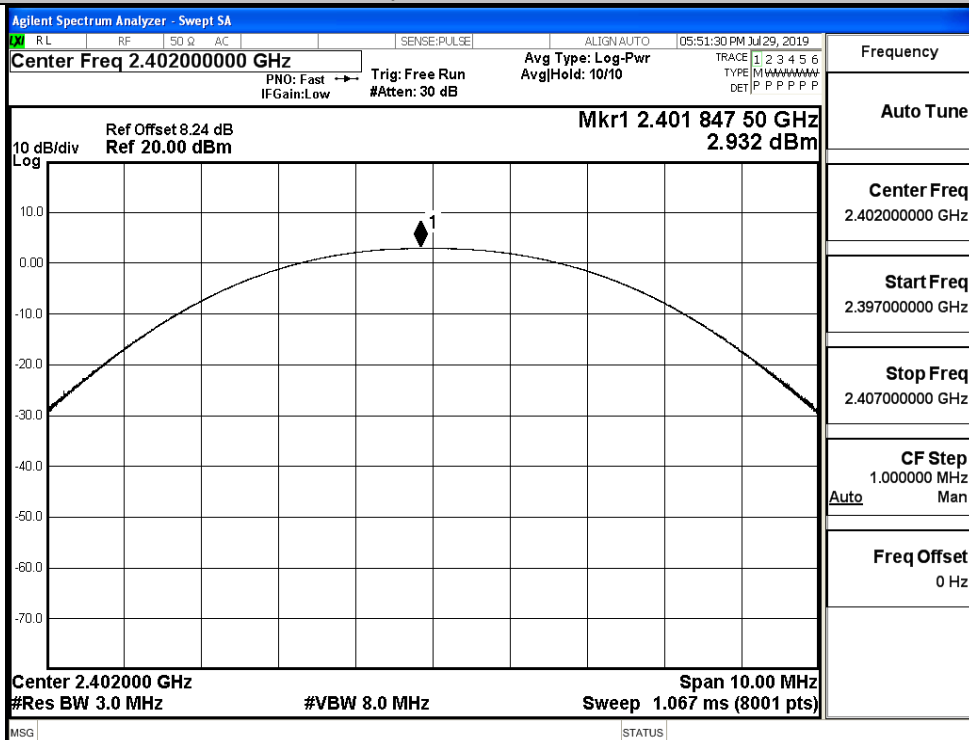
Temperature:	23.7 ° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Wang Chuang

A.1 Maxmum Conducted Peak Output Power

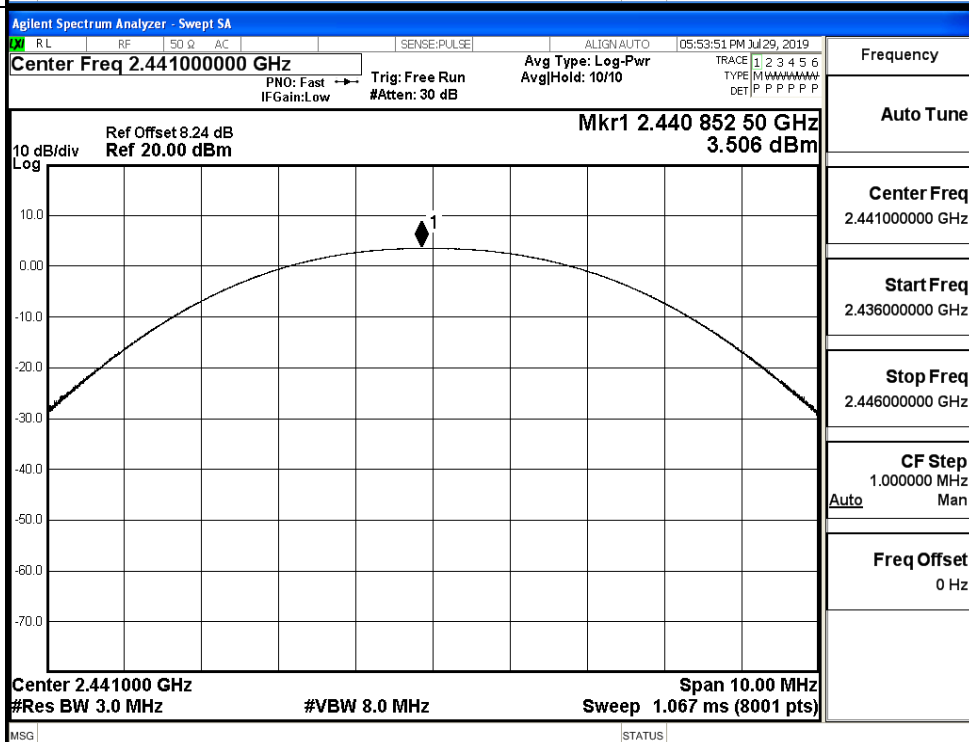
Mode	Channel.	Maximum Peak Output Power [dBm]	Maximum Average Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.932	2.786	21	PASS
	MCH	3.506	3.306	21	PASS
	HCH	2.397	2.238	21	PASS
$\pi/4$ DQPSK	LCH	2.165	2.018	21	PASS
	MCH	2.760	2.540	21	PASS
	HCH	1.655	1.500	21	PASS
8DPSK	LCH	2.271	2.141	21	PASS
	MCH	2.868	2.727	21	PASS
	HCH	1.754	1.589	21	PASS

Test Graphs

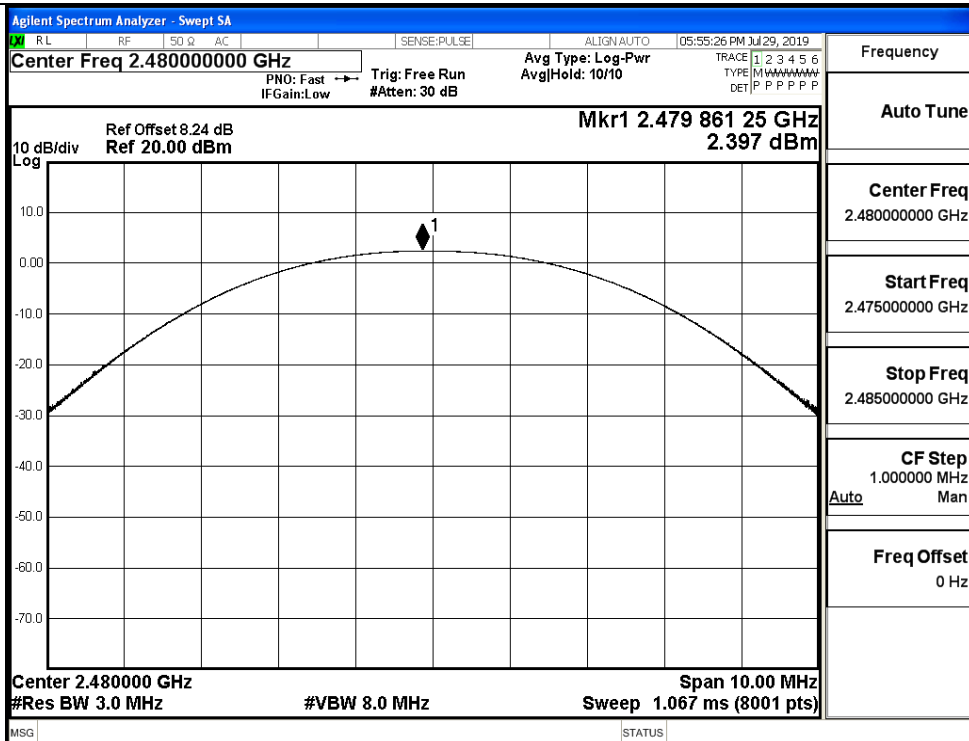
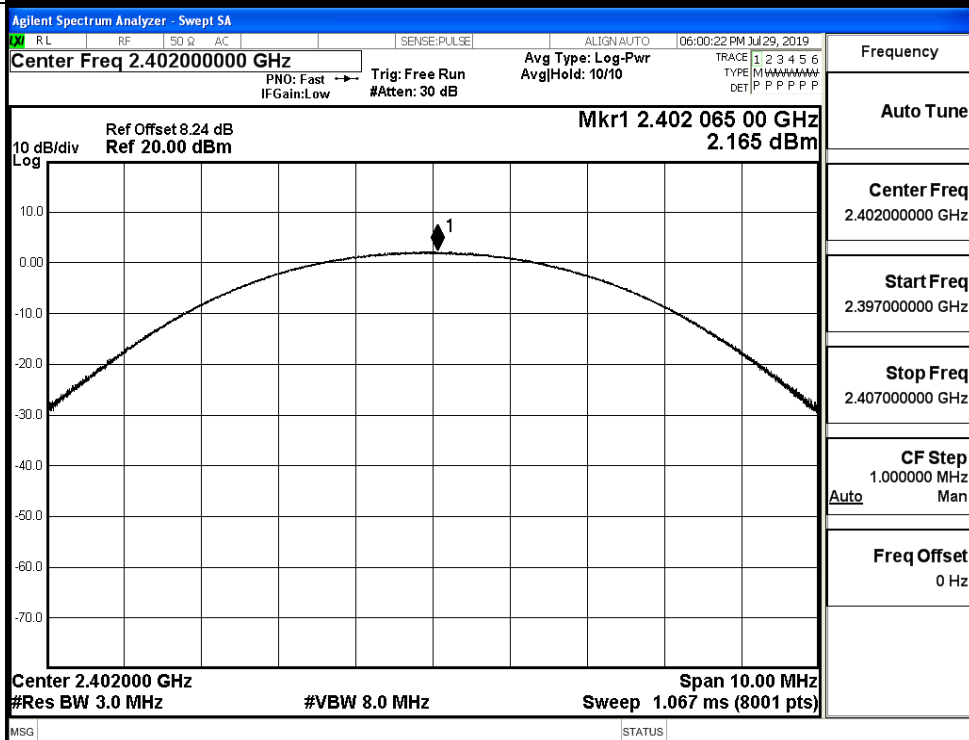
GFSK/LCH

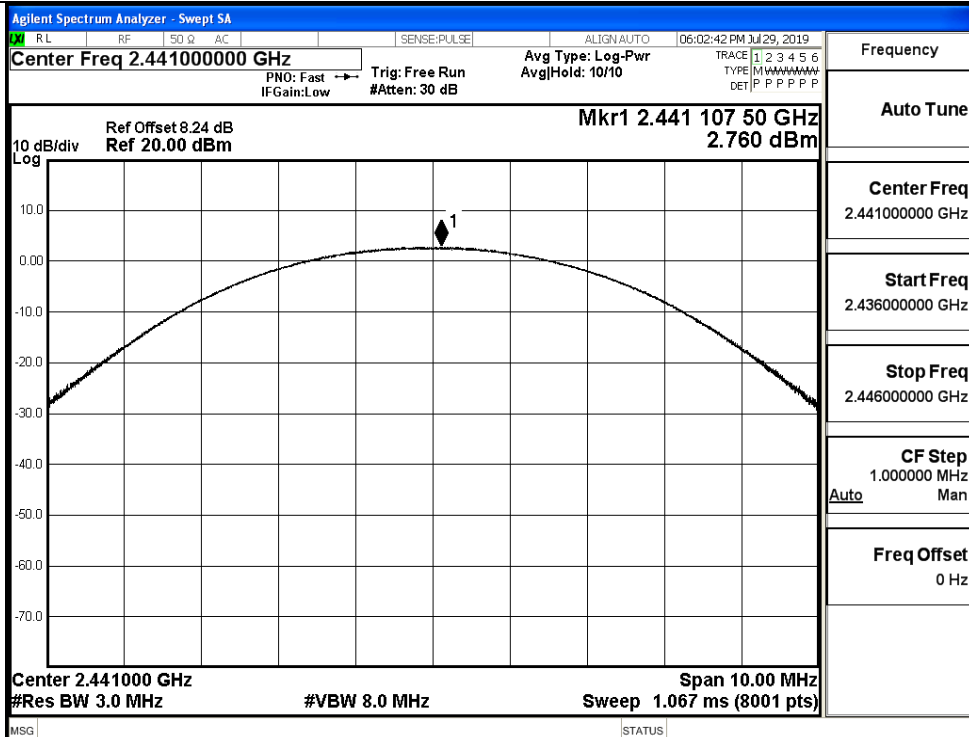
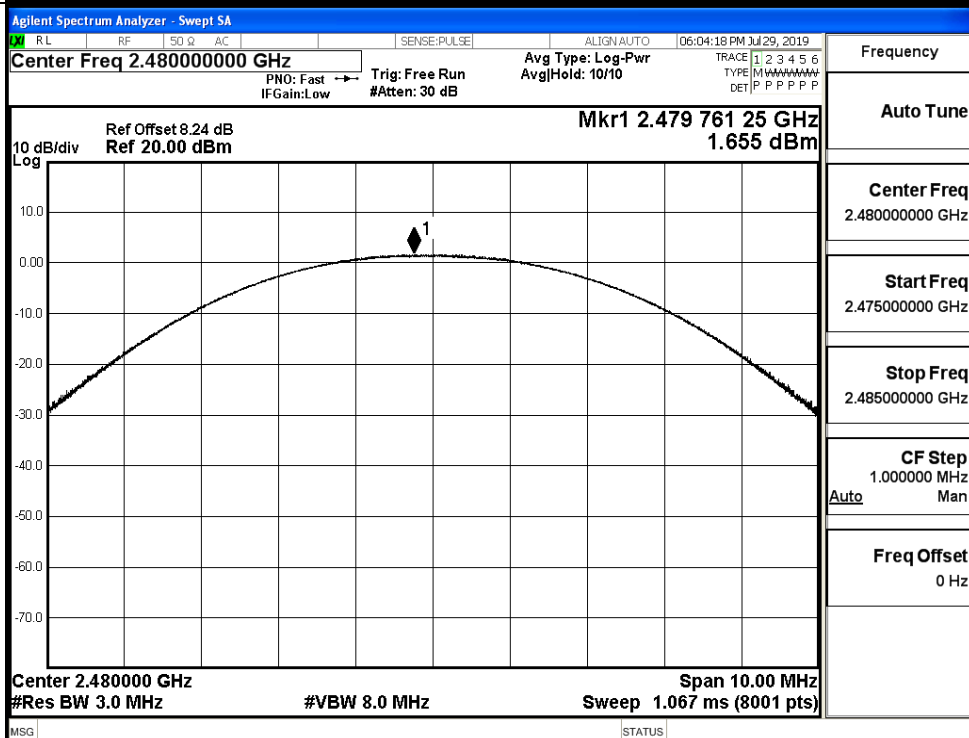


GFSK/MCH

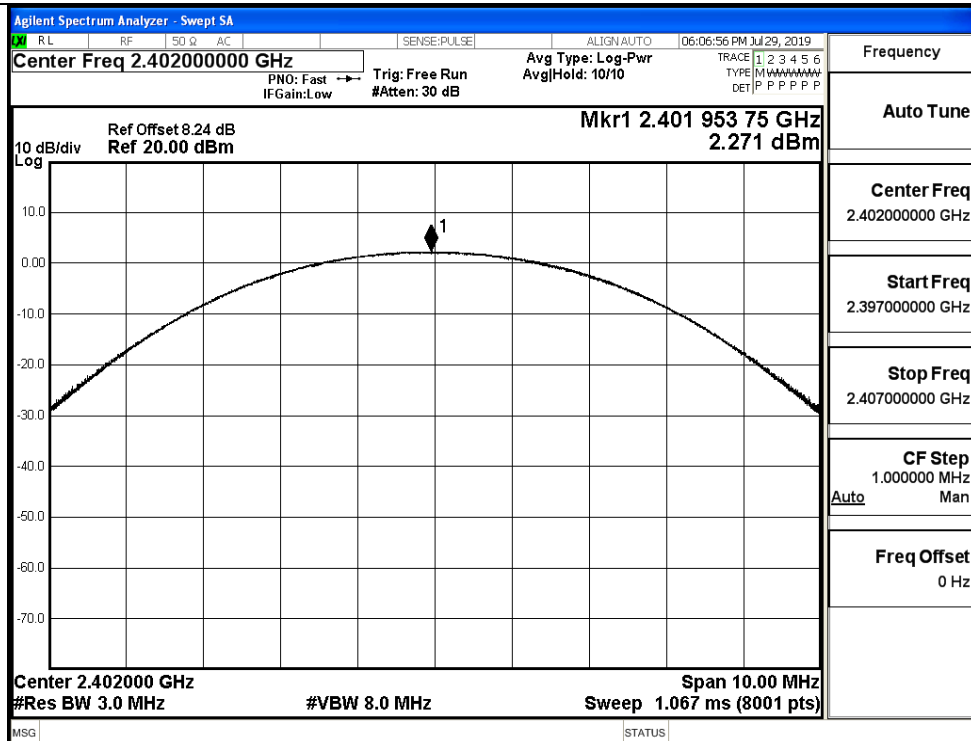


GFSK/HCH

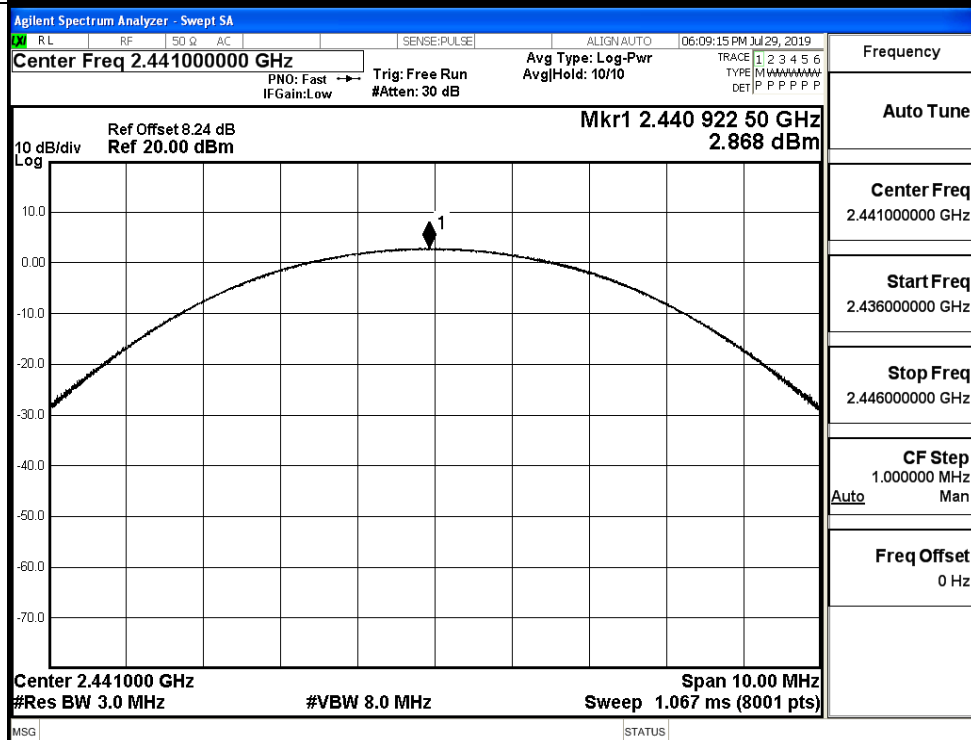
 π /4DQPSK/LCH

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

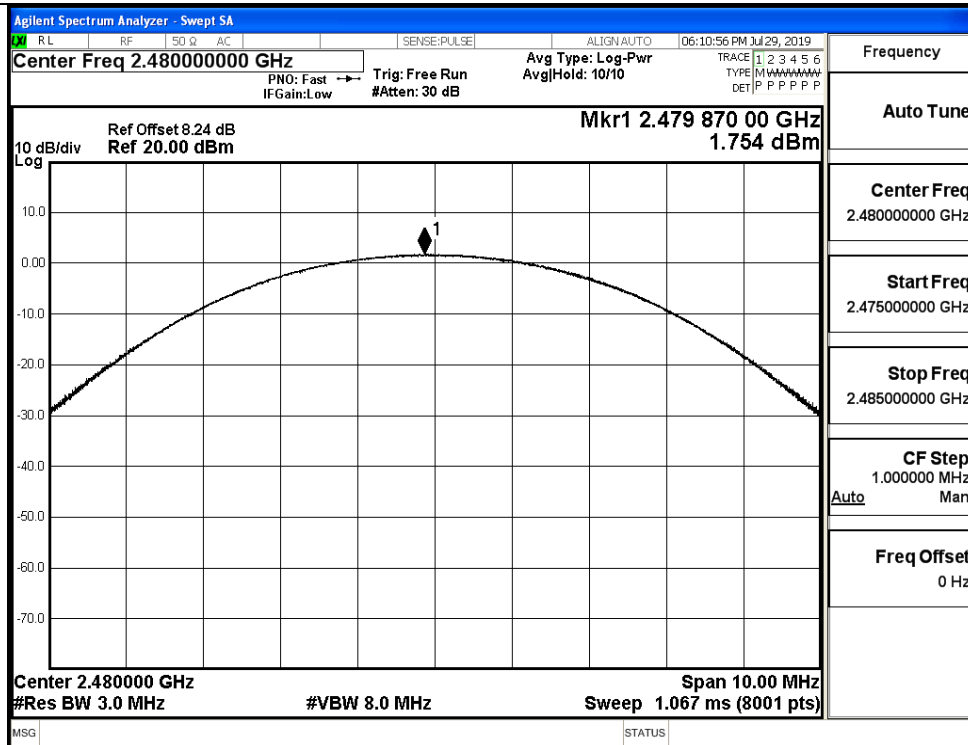
8DPSK/LCH



8DPSK/MCH



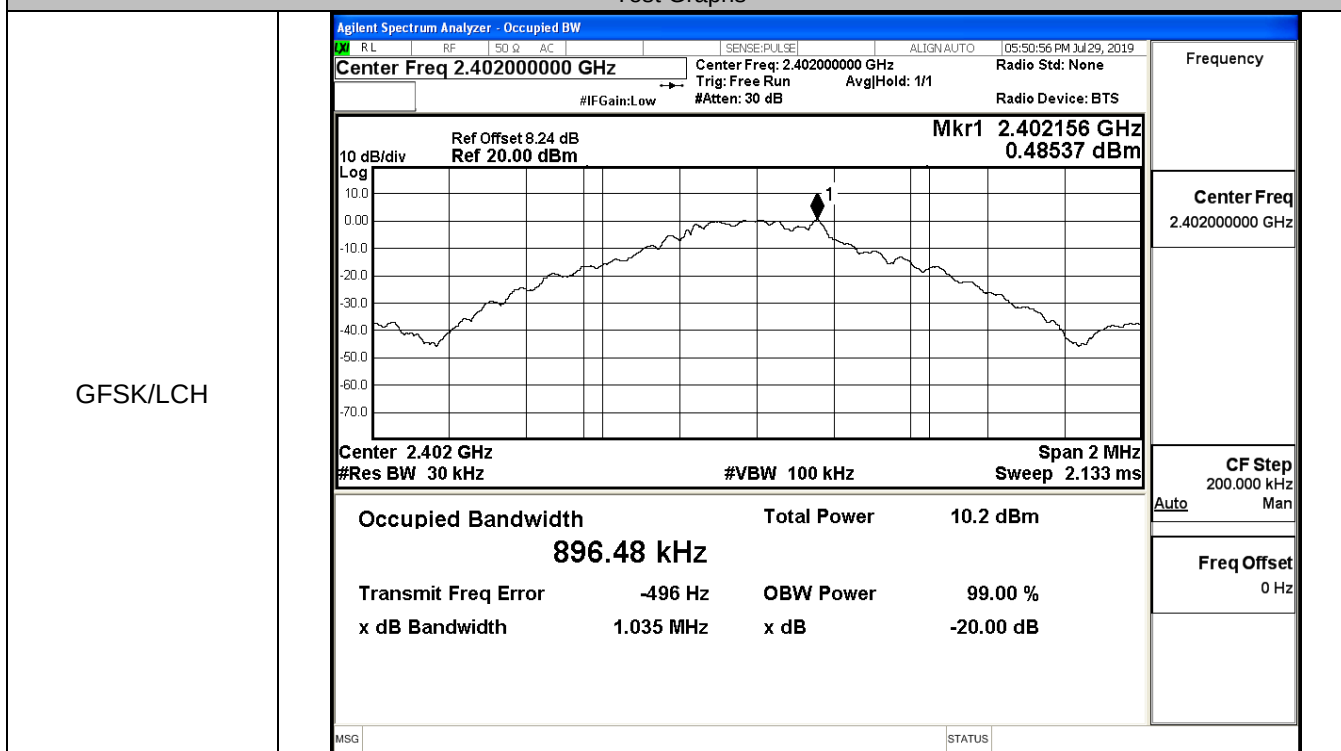
8DPSK/HCH



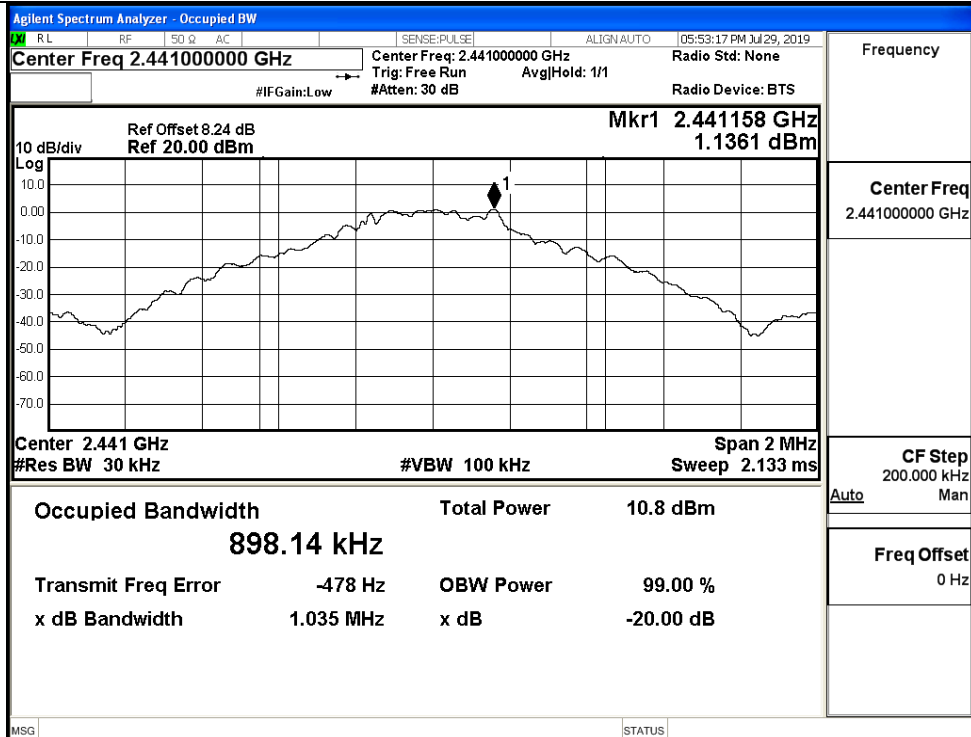
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.035	Not Specified	PASS
	MCH	1.035	Not Specified	PASS
	HCH	1.033	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.289	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.289	Not Specified	PASS
8DPSK	LCH	1.291	Not Specified	PASS
	MCH	1.293	Not Specified	PASS
	HCH	1.293	Not Specified	PASS

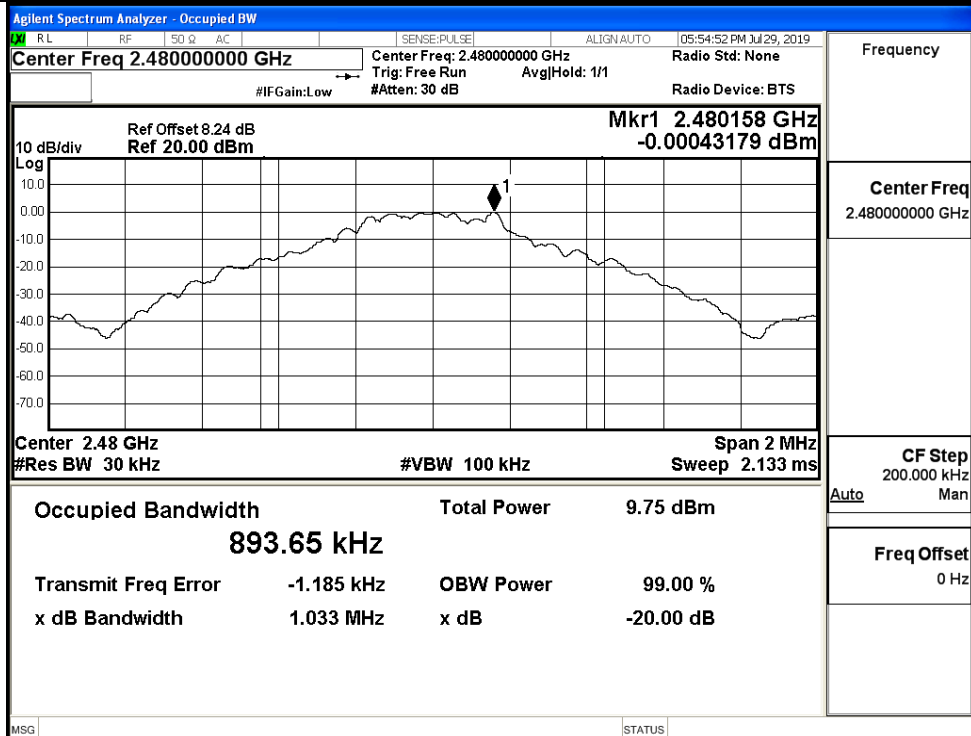
Test Graphs

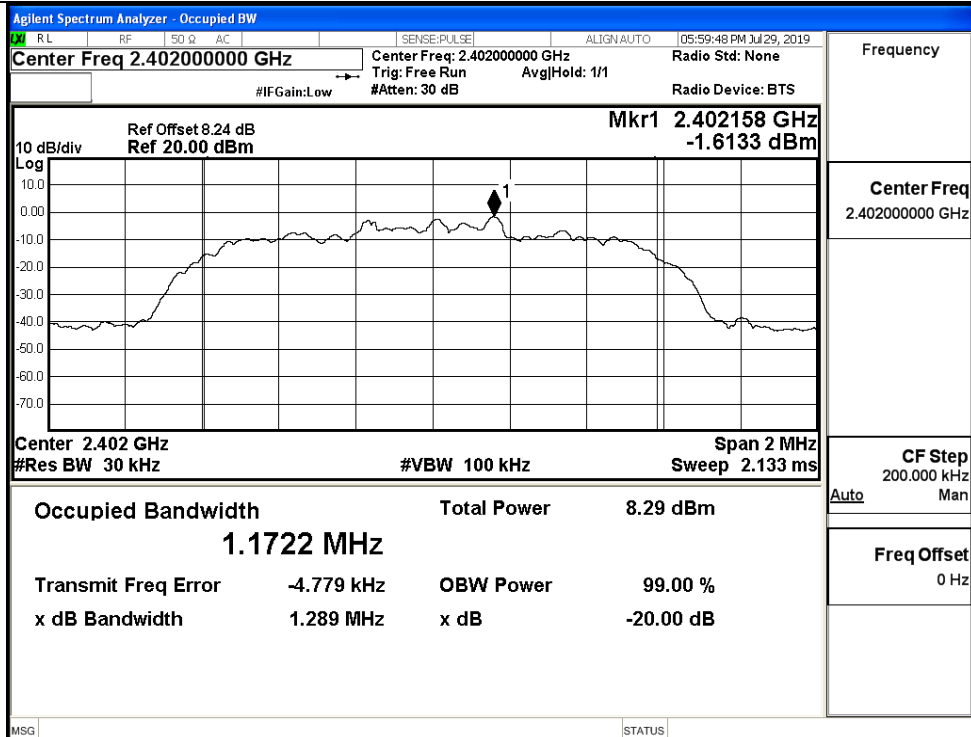
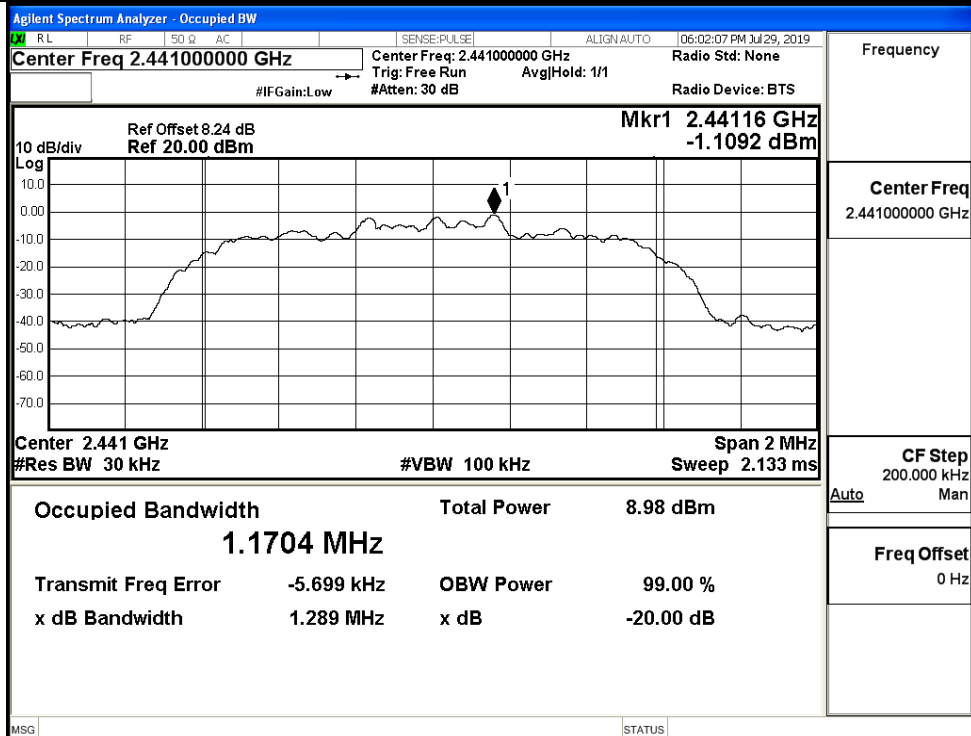


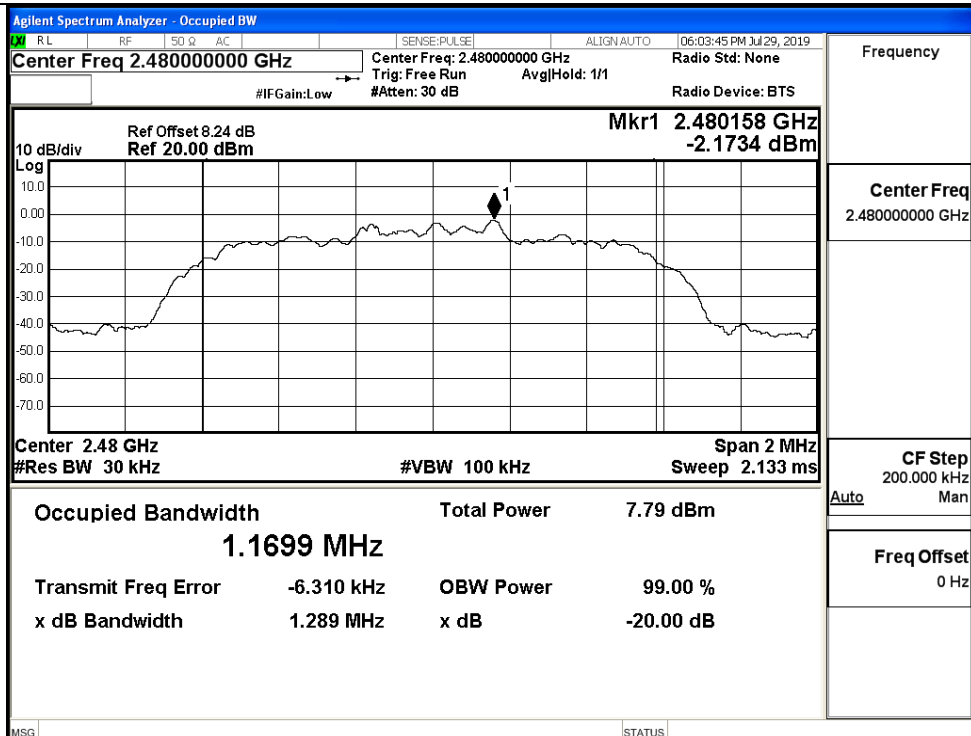
GFSK/MCH



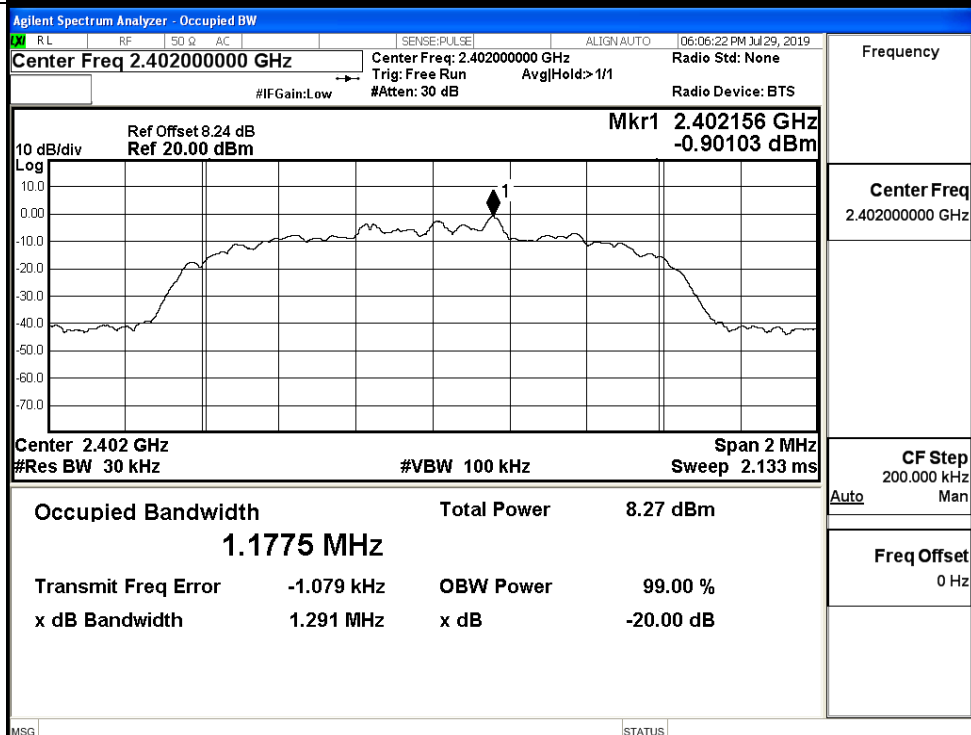
GFSK/HCH



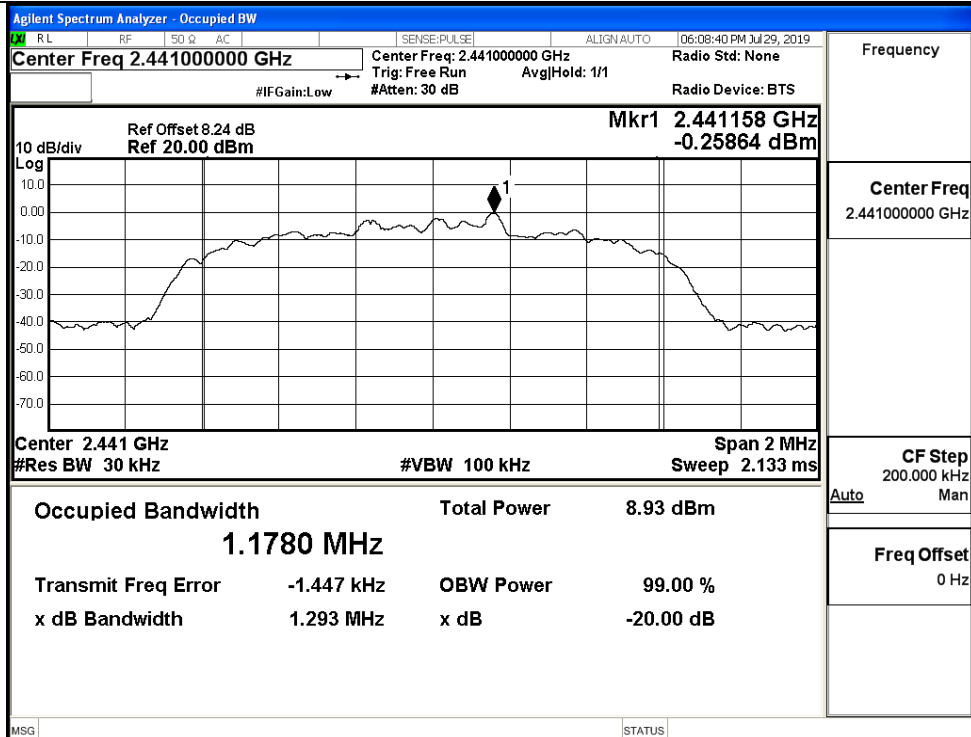
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

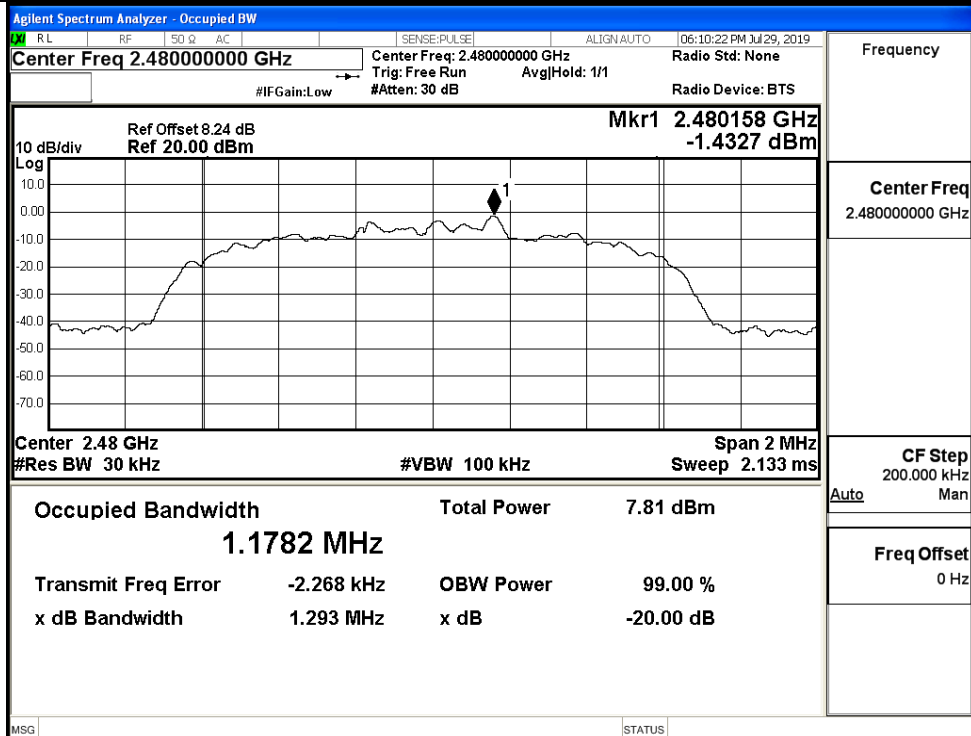
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

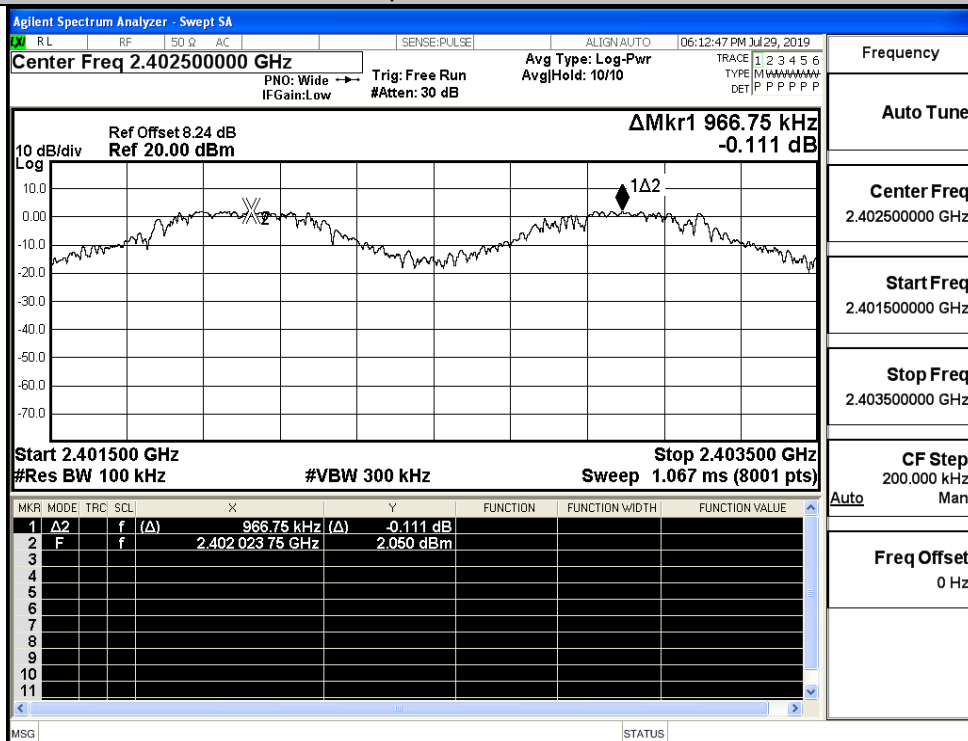


A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.967	0.690	PASS
	MCH	0.976	0.690	PASS
	HCH	1.158	0.690	PASS
$\pi/4$ DQPSK	LCH	1.144	0.859	PASS
	MCH	0.880	0.859	PASS
	HCH	0.888	0.859	PASS
8DPSK	LCH	0.918	0.862	PASS
	MCH	0.988	0.862	PASS
	HCH	1.202	0.862	PASS

Test Graphs

GFSK/LCH

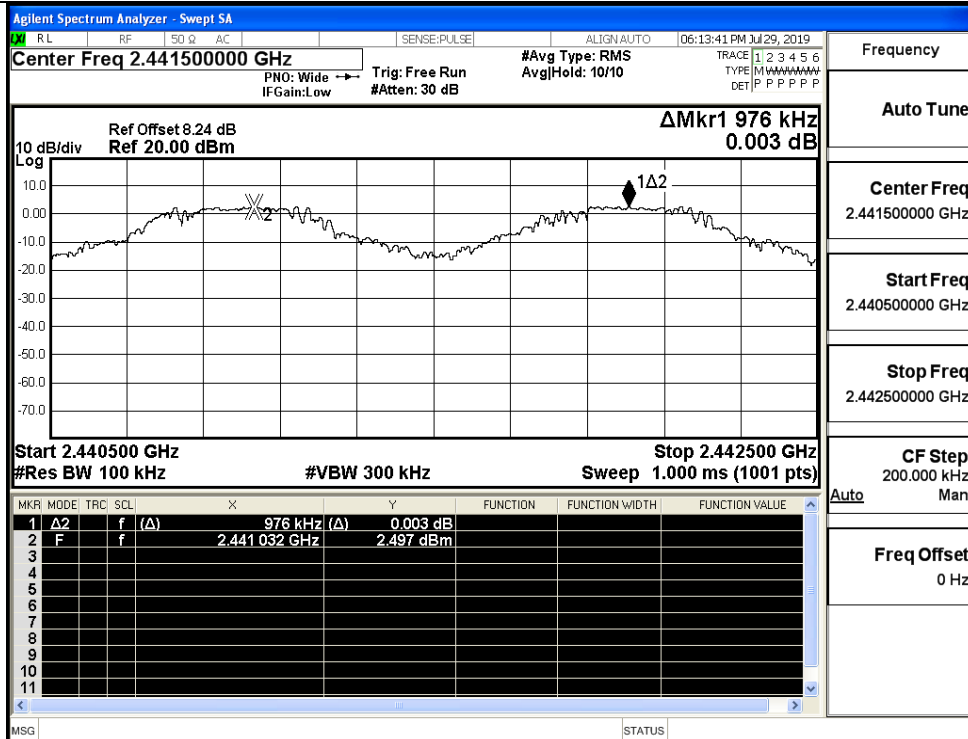


Frequency

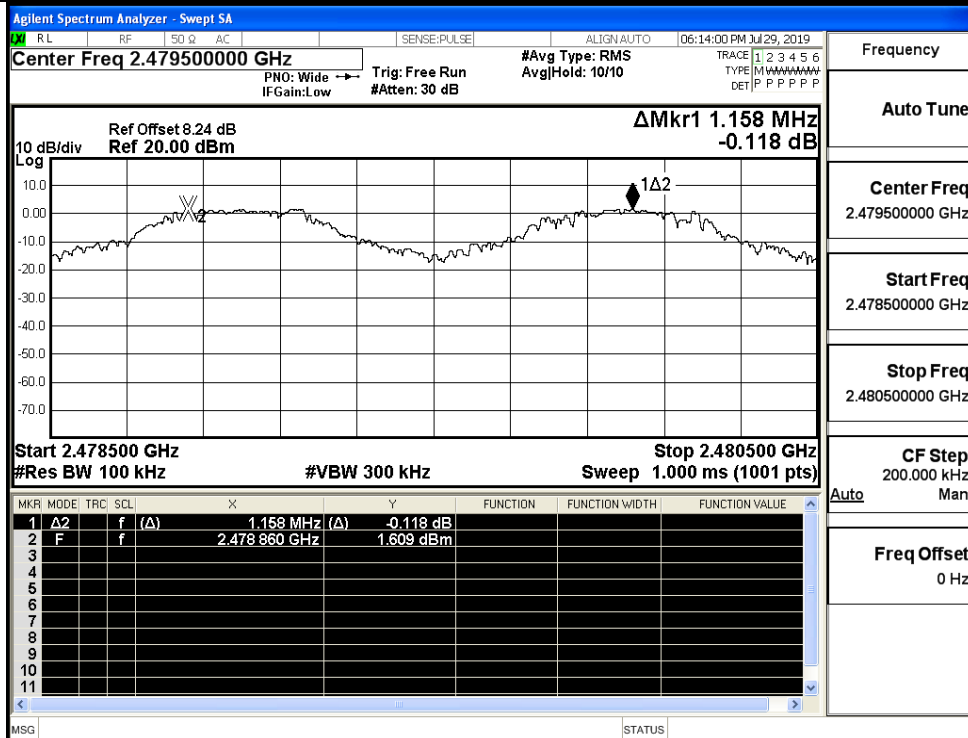
Auto Tune

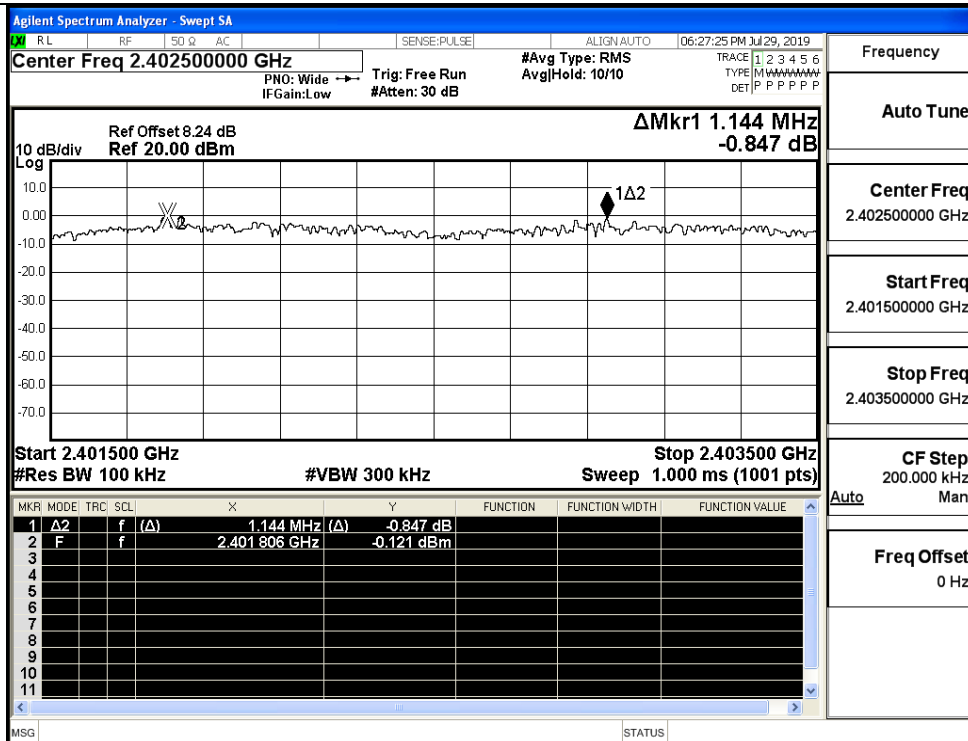
Center Freq
2.402500000 GHzStart Freq
2.401500000 GHzStop Freq
2.403500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

GFSK/MCH



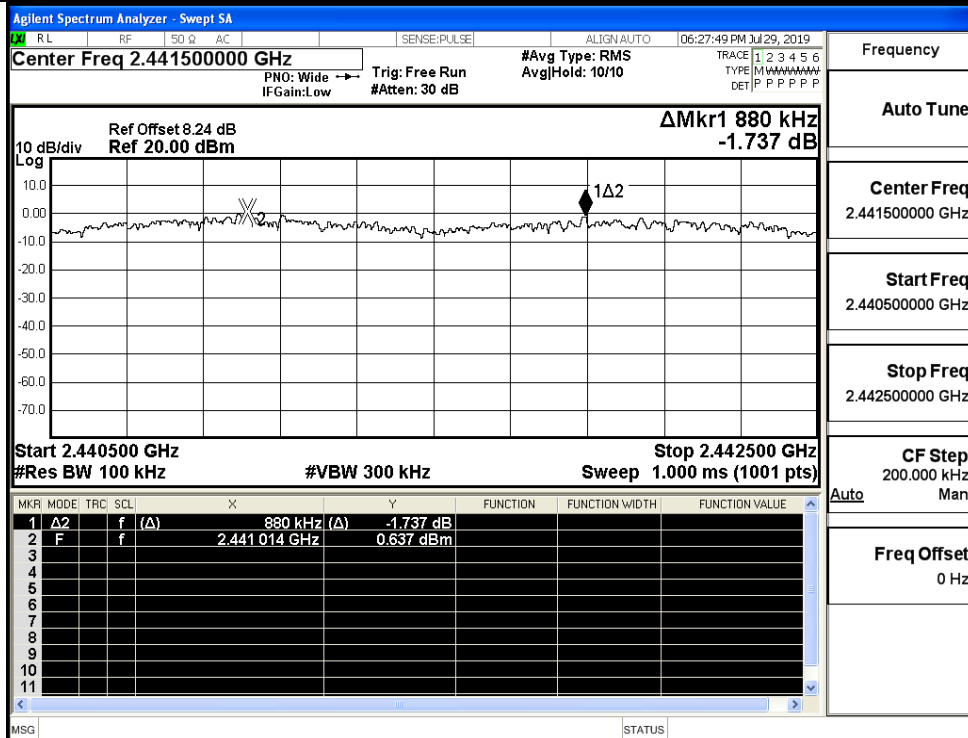
GFSK/HCH



$\pi/4$ DQPSK/LCH

Frequency

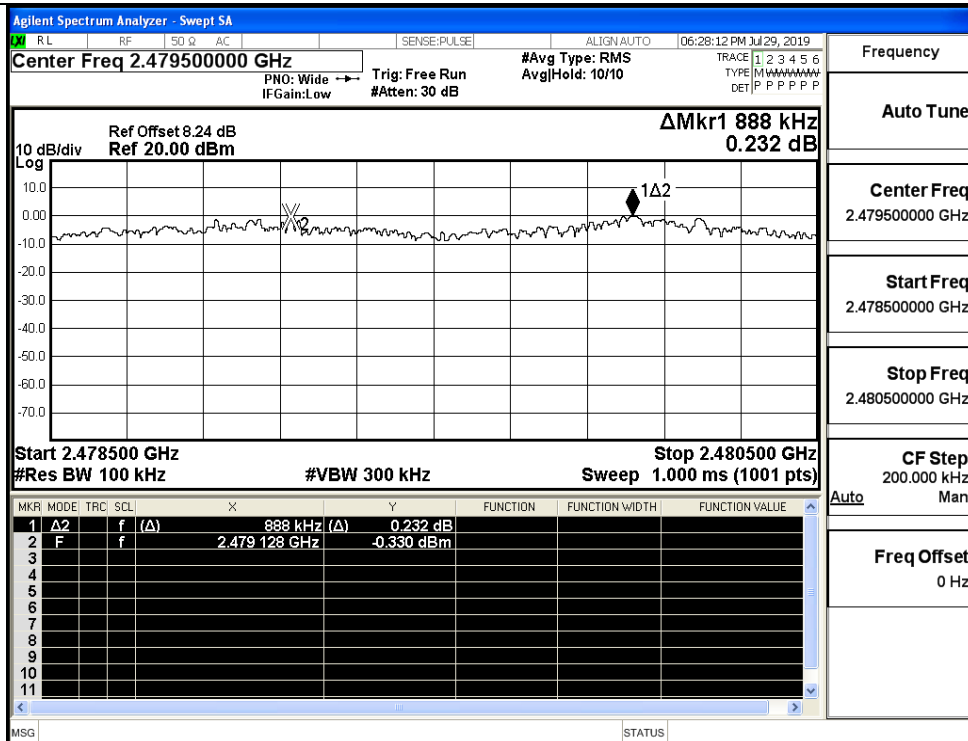
Auto Tune

Center Freq
2.402500000 GHzStart Freq
2.401500000 GHzStop Freq
2.403500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/MCH

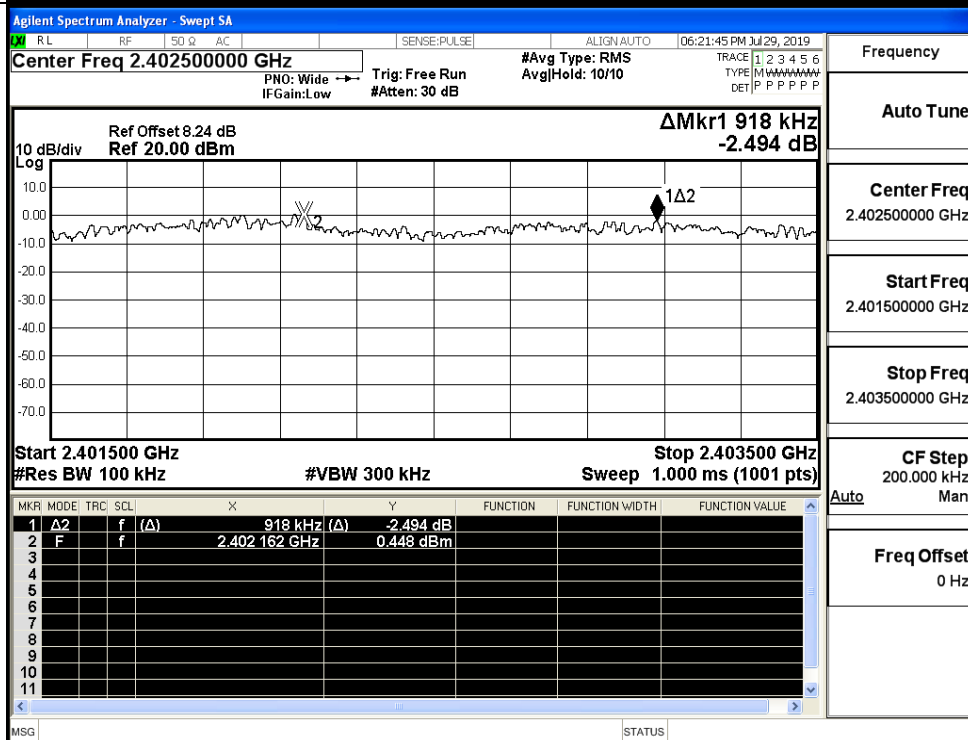
Frequency

Auto Tune

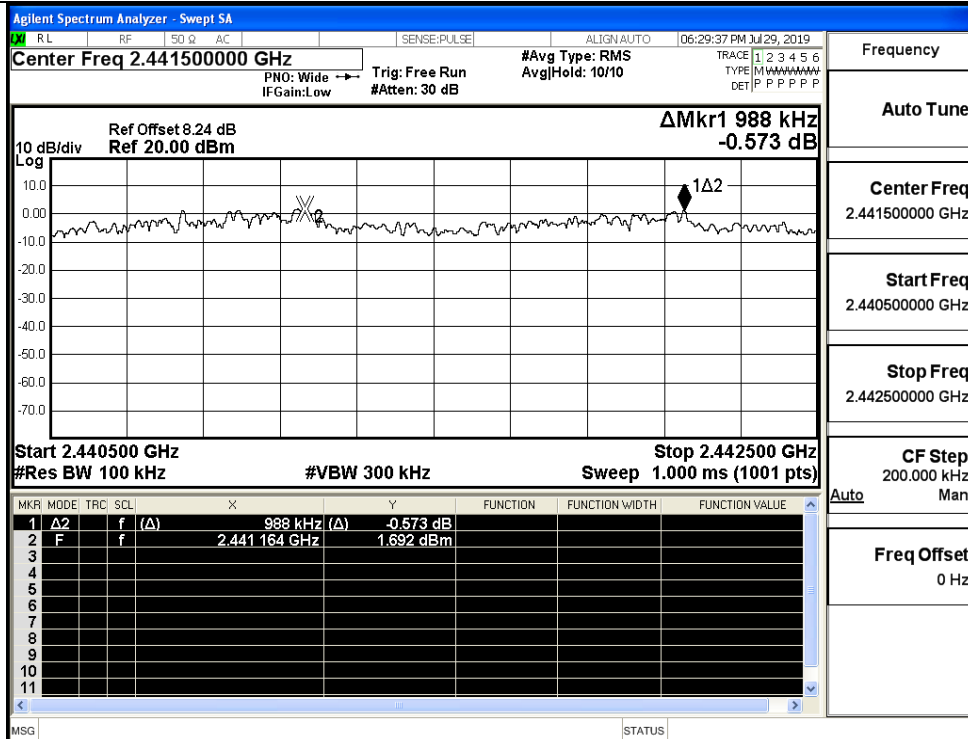
Center Freq
2.441500000 GHzStart Freq
2.440500000 GHzStop Freq
2.442500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH

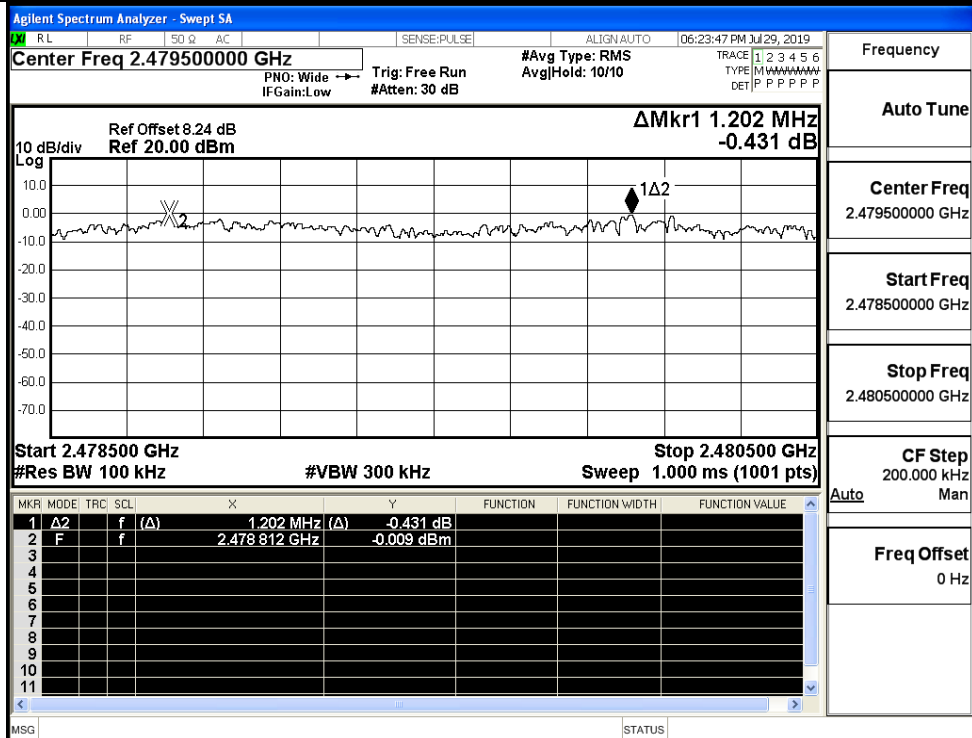
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

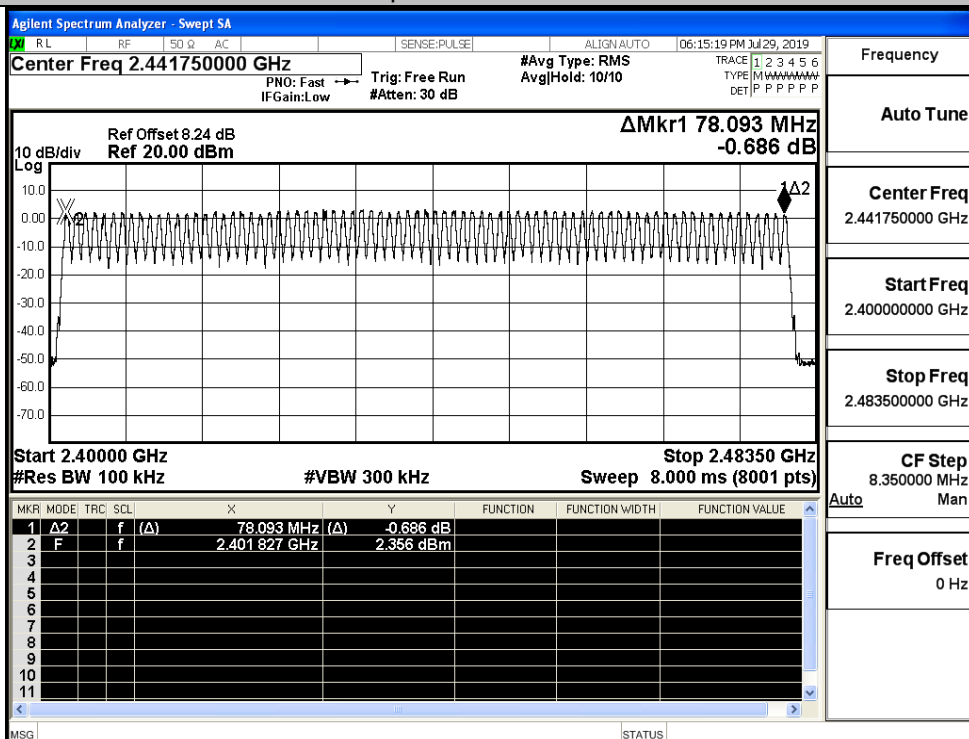
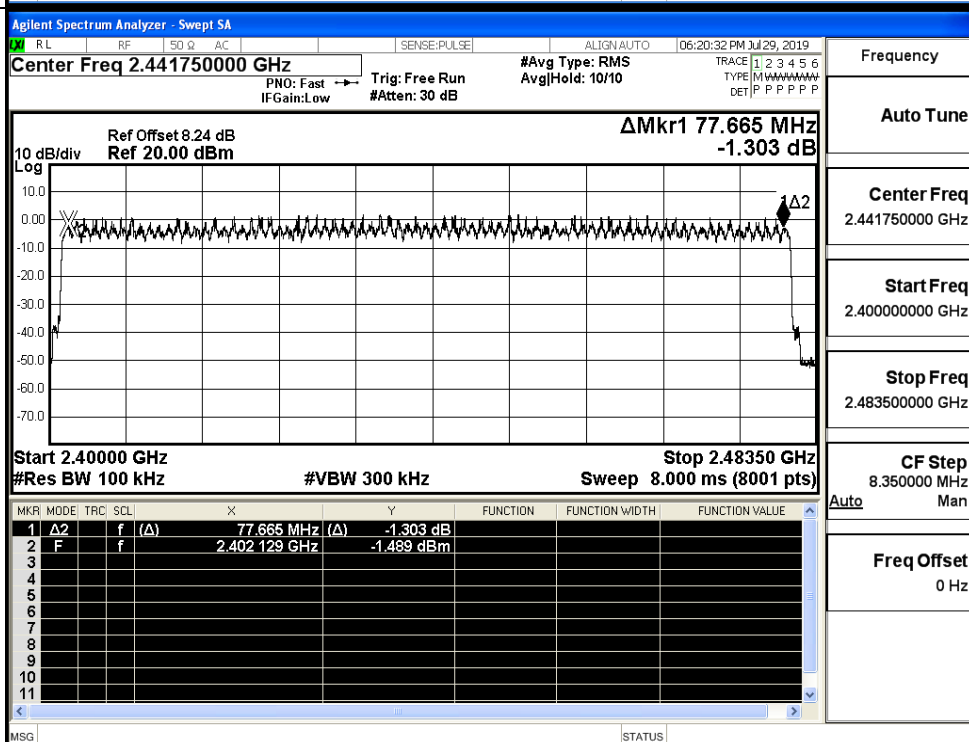


A.4 Hopping Channel Number

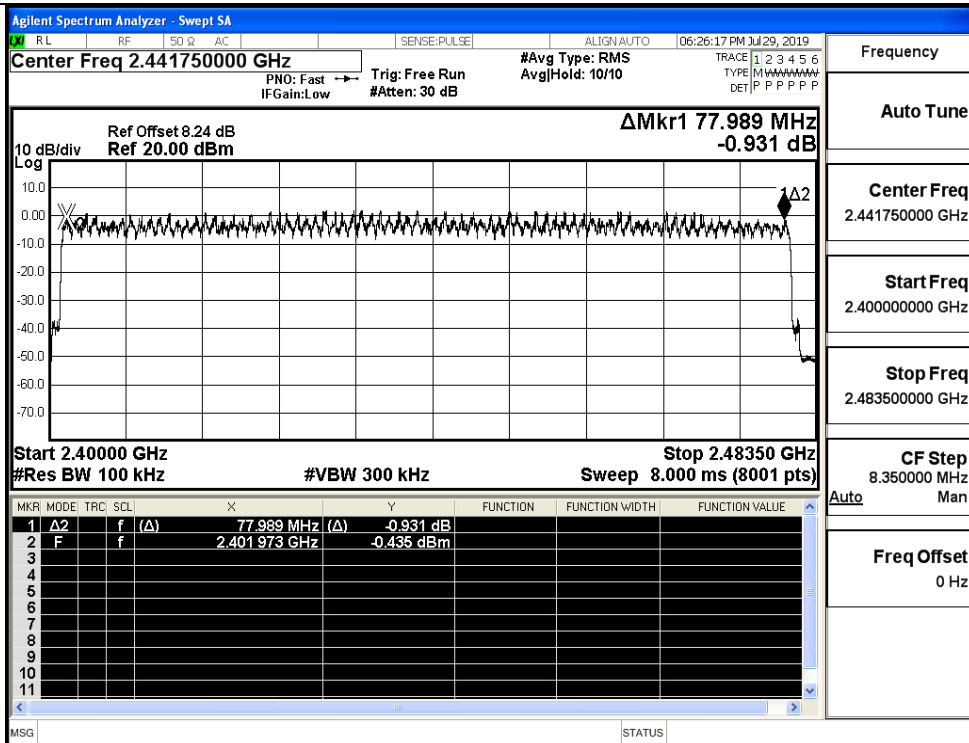
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

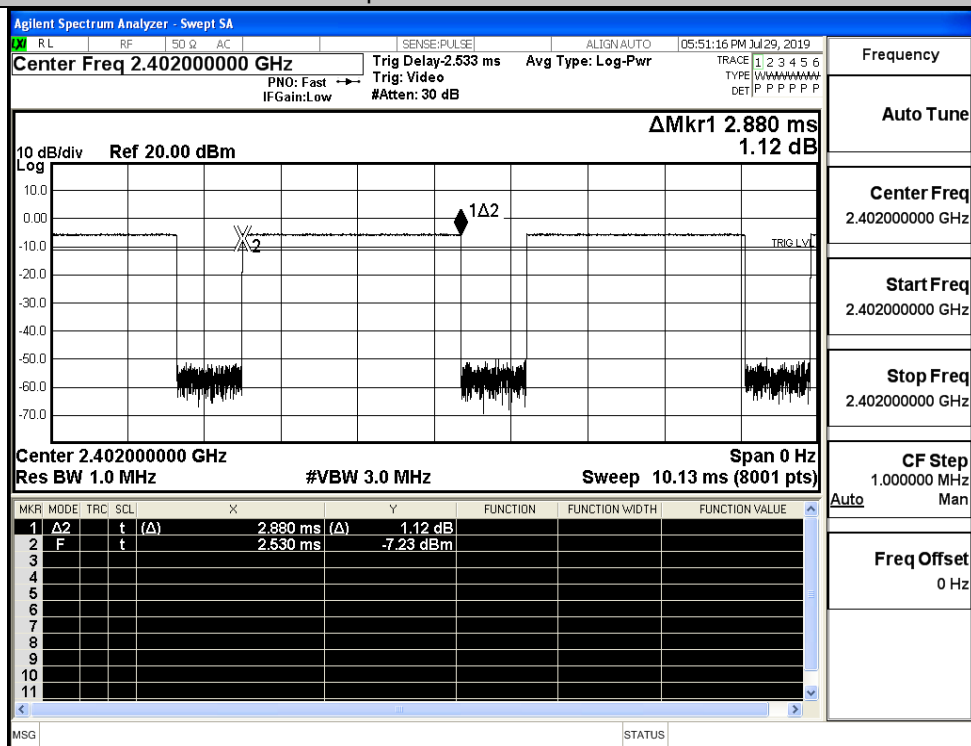


A.5 Dwell Time

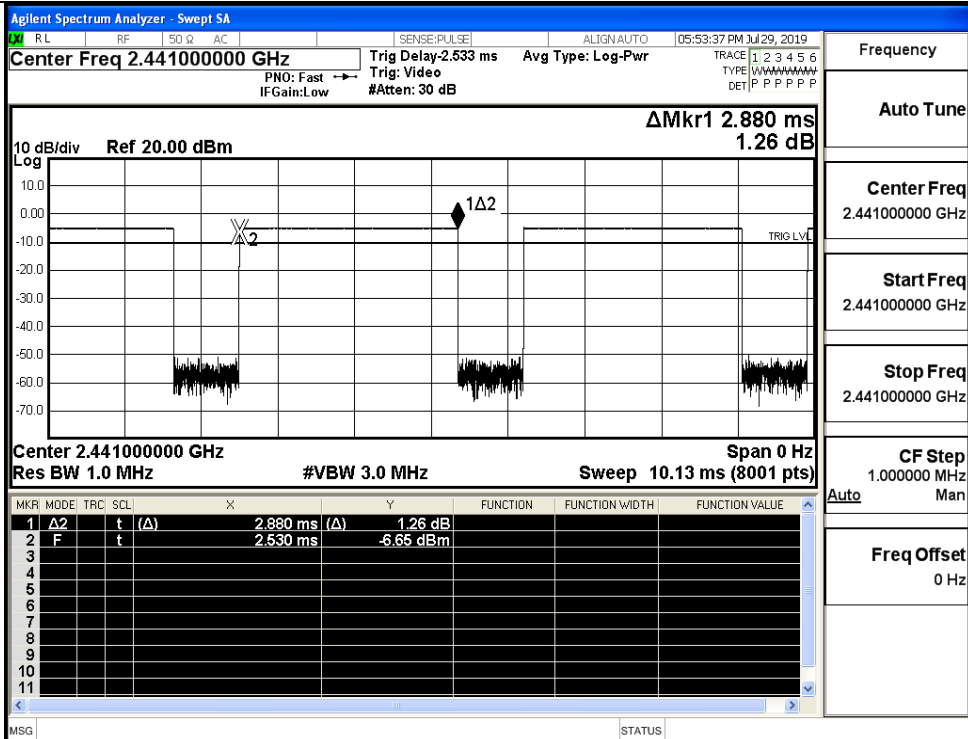
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

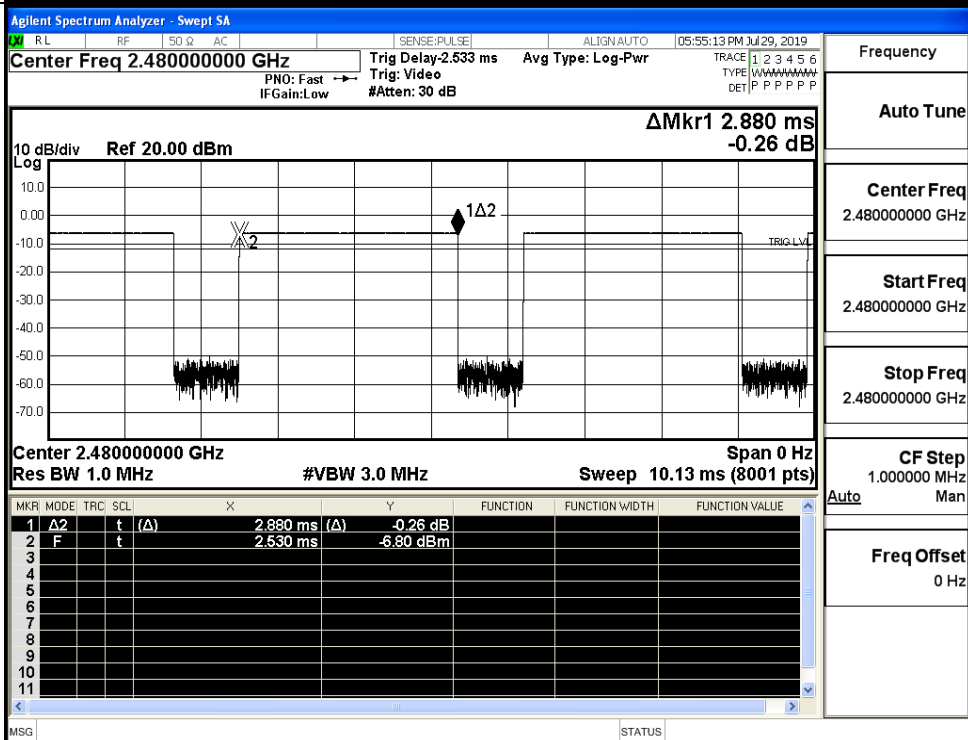
GFSK_DH5/LCH



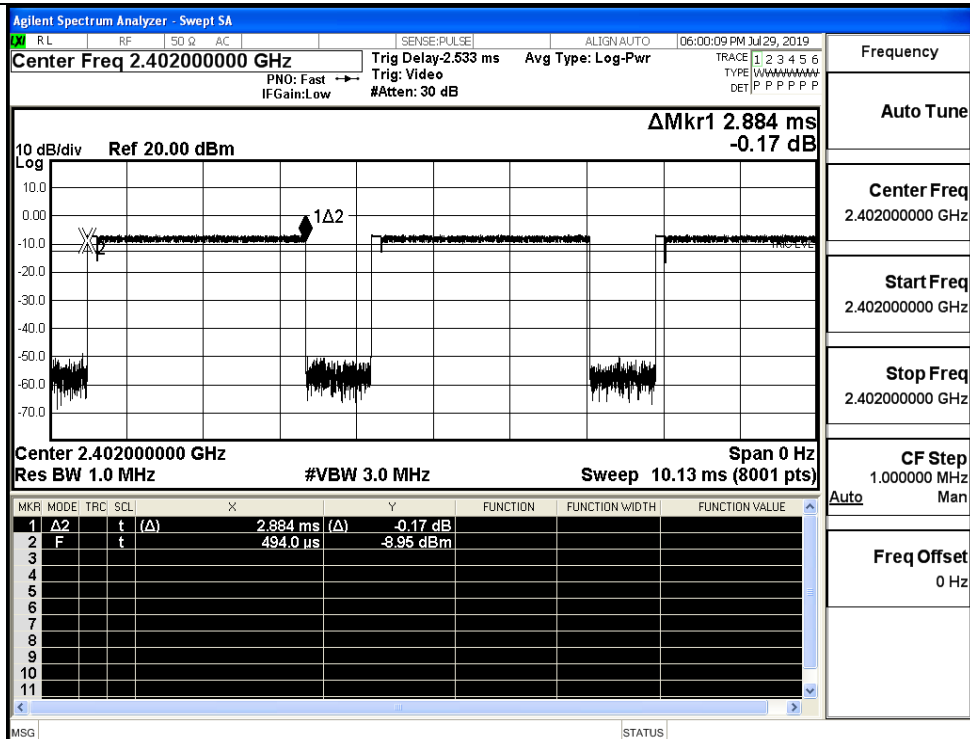
GFSK_DH5/MCH



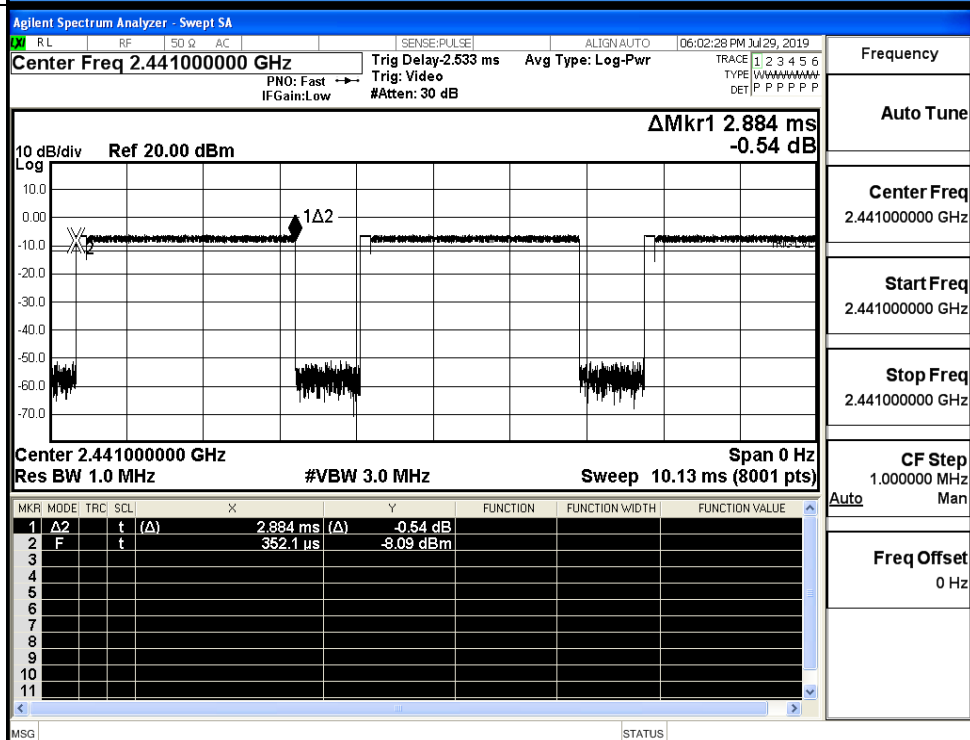
GFSK_DH5/HCH



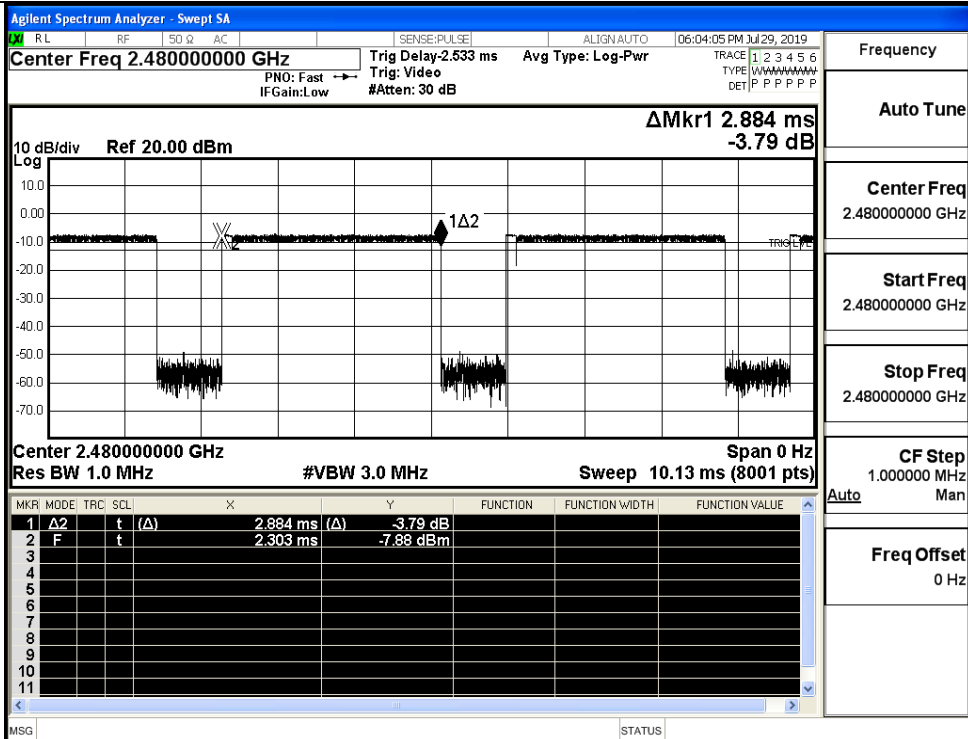
$\pi/4$ DQPSK
_2DH5/LCH



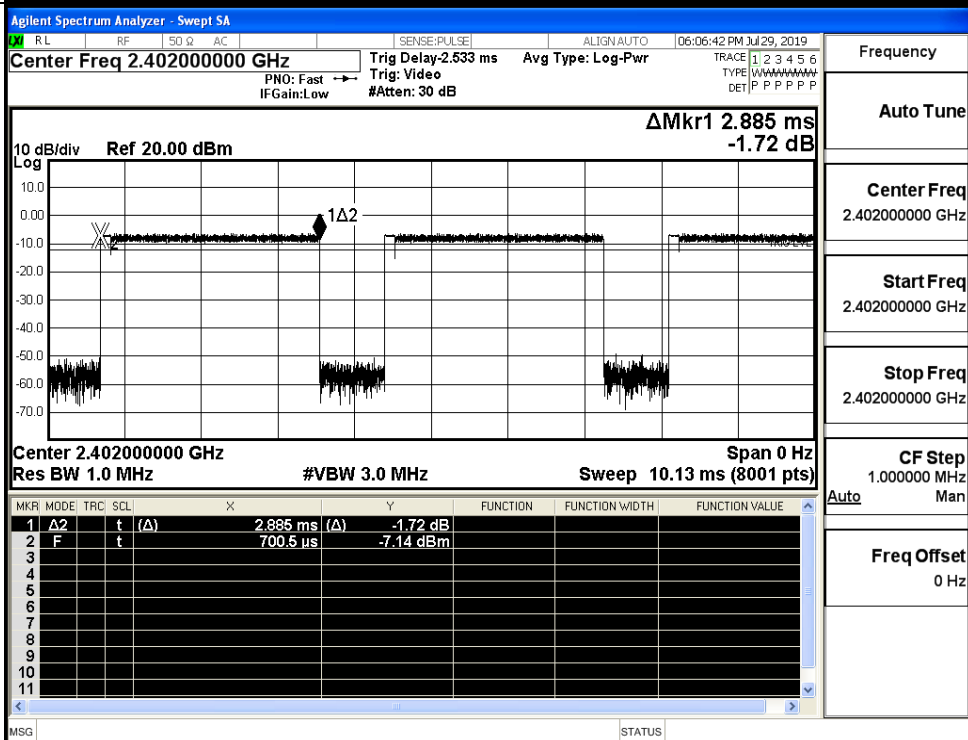
$\pi/4$ DQPSK
_2DH5/MCH



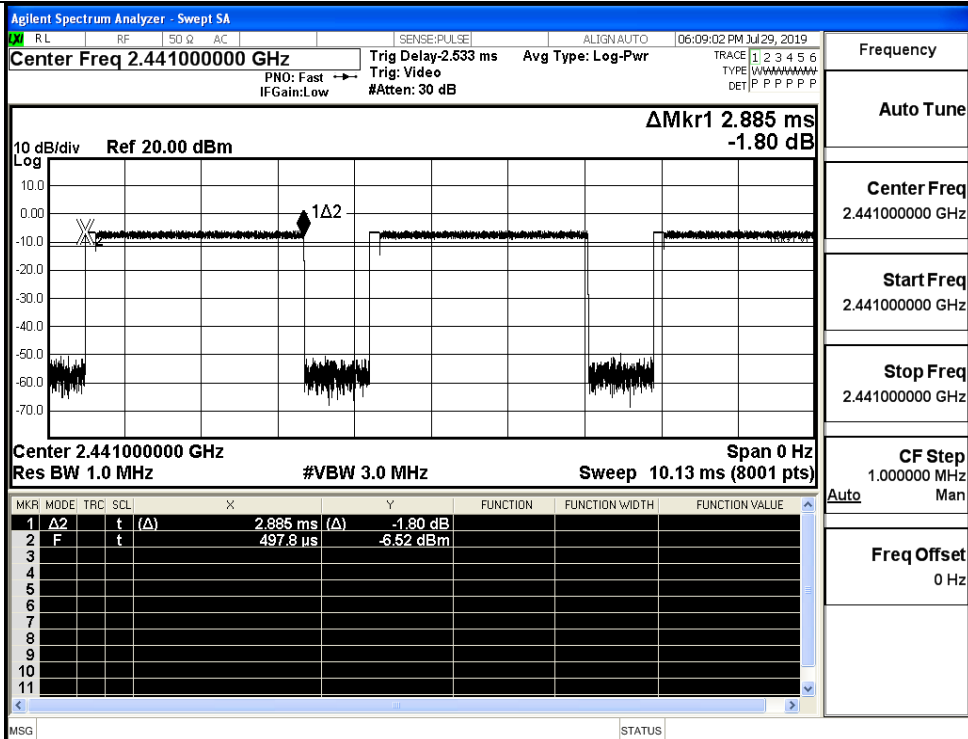
$\pi/4$ DQPSK
_2DH5/HCH



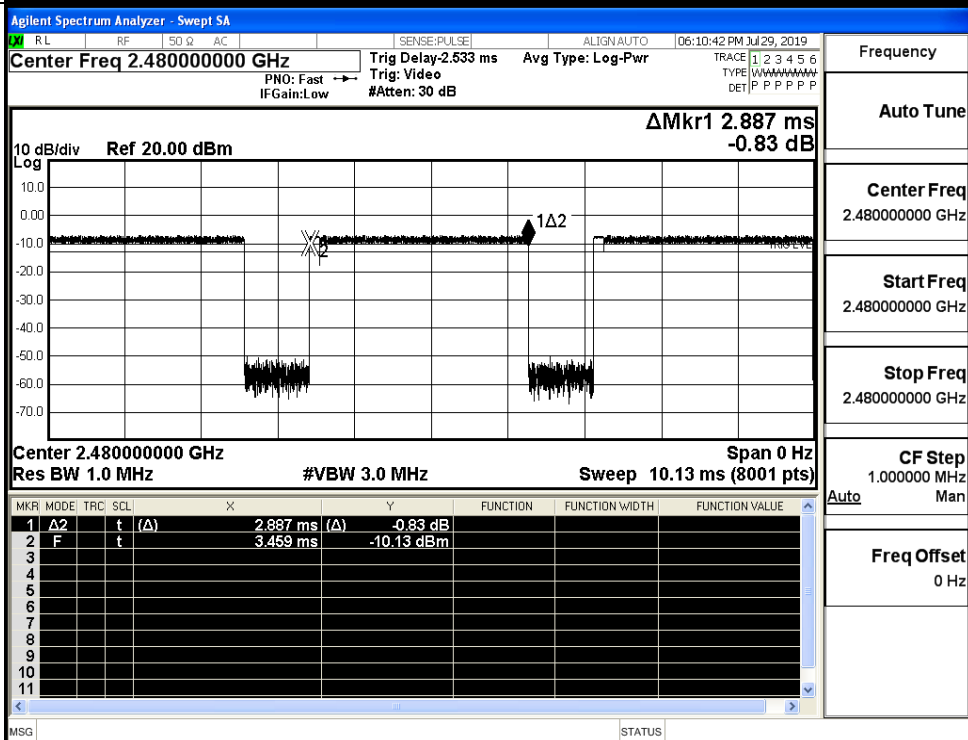
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



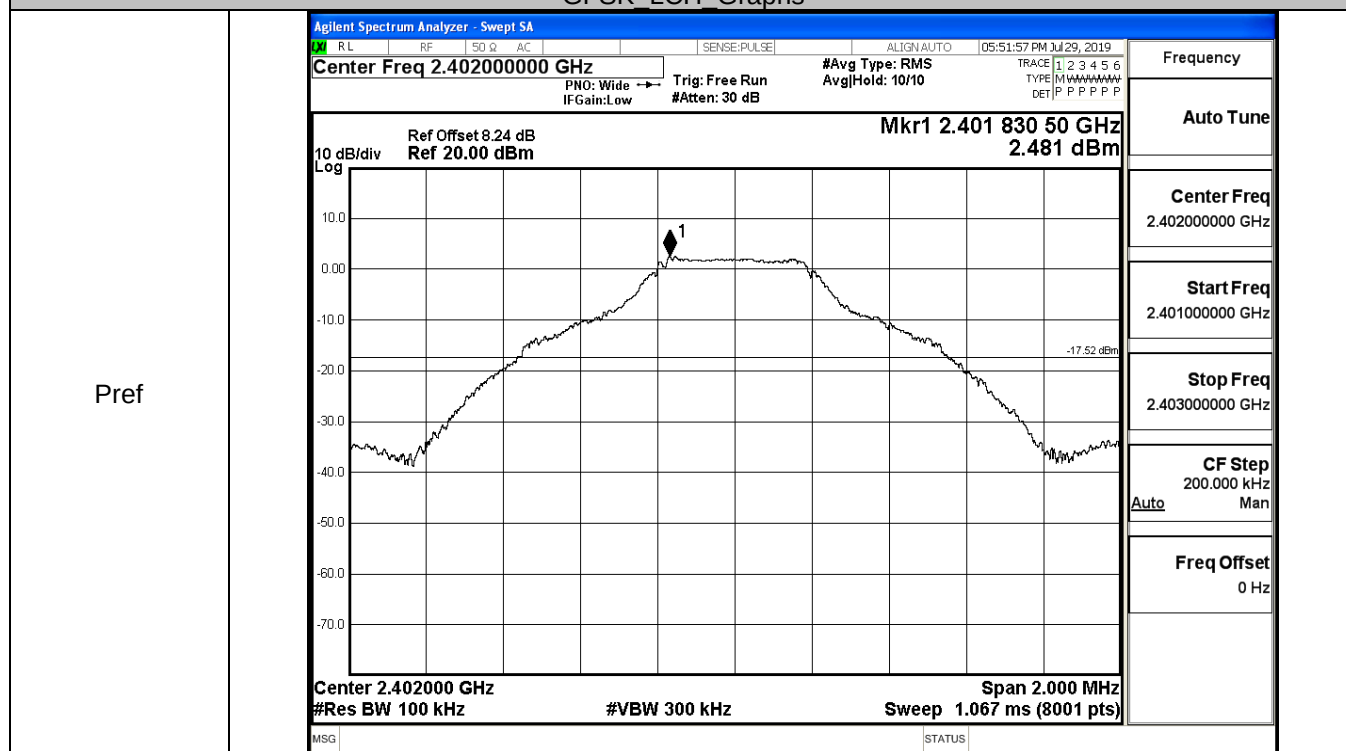
8DPSK_3DH5/HCH

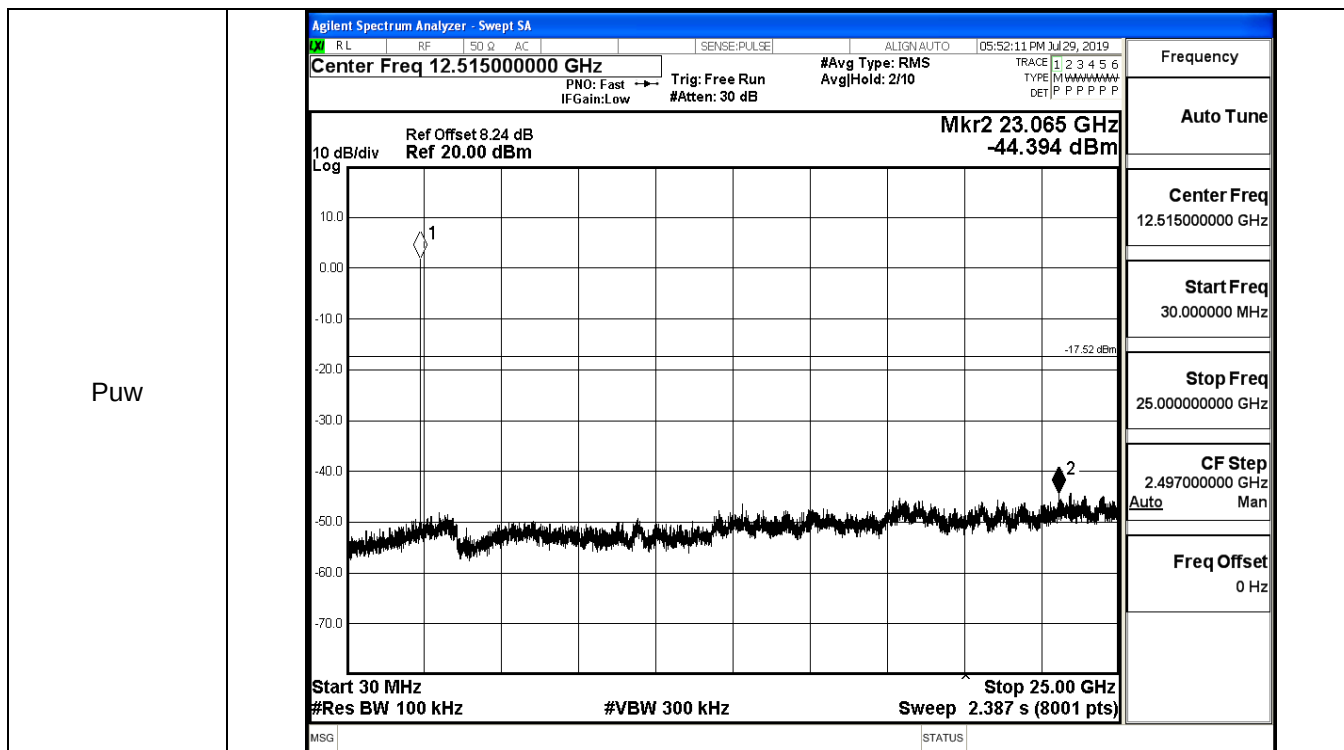


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.481	-44.394	-17.519	PASS
	MCH	3.182	-43.548	-16.818	PASS
	HCH	2.06	-44.429	-17.940	PASS
$\pi/4$ DQPSK	LCH	1.038	-43.141	-18.962	PASS
	MCH	1.711	-43.830	-18.289	PASS
	HCH	0.675	-43.854	-19.325	PASS
8DPSK	LCH	1.201	-44.719	-18.799	PASS
	MCH	1.744	-44.886	-18.256	PASS
	HCH	0.546	-44.496	-19.454	PASS

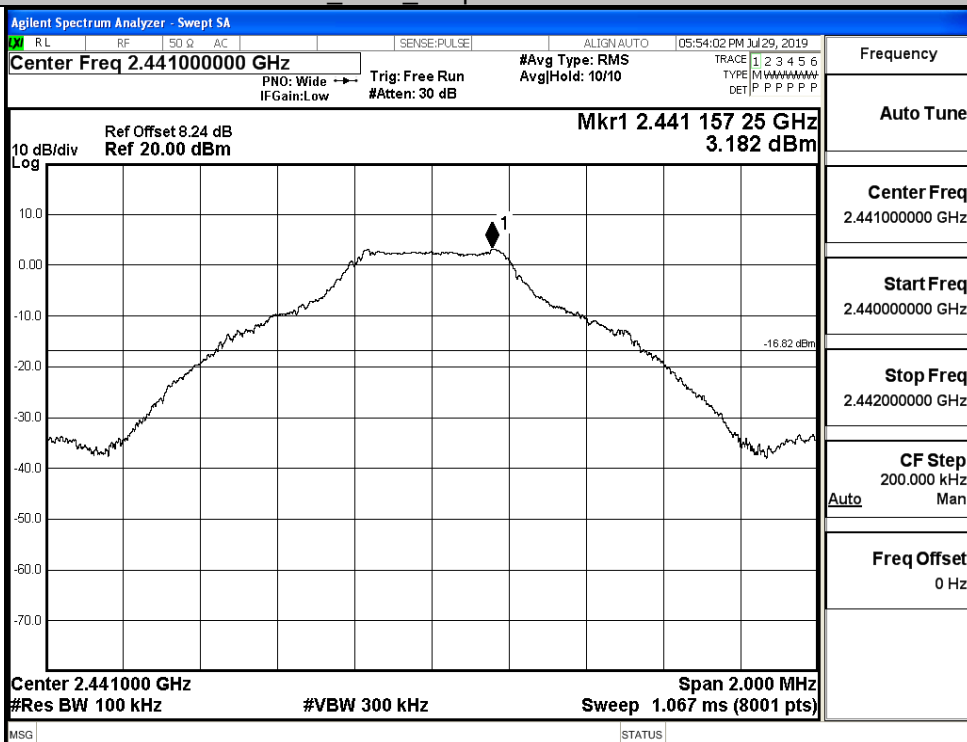
GFSK LCH Graphs



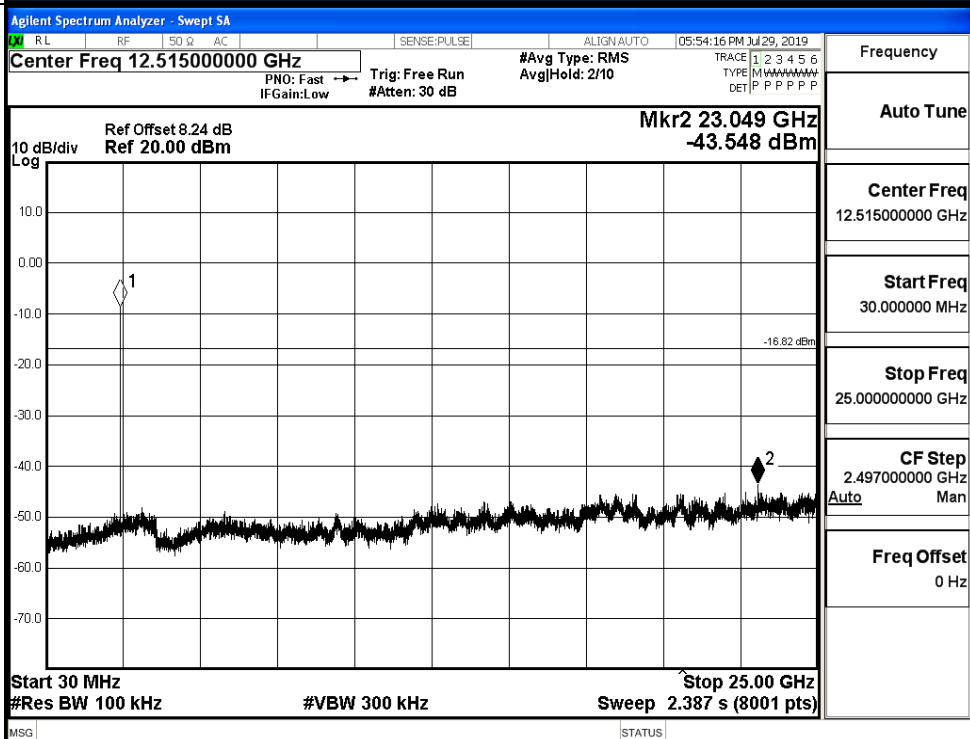


GFSK_MCH_Graphs

Pref

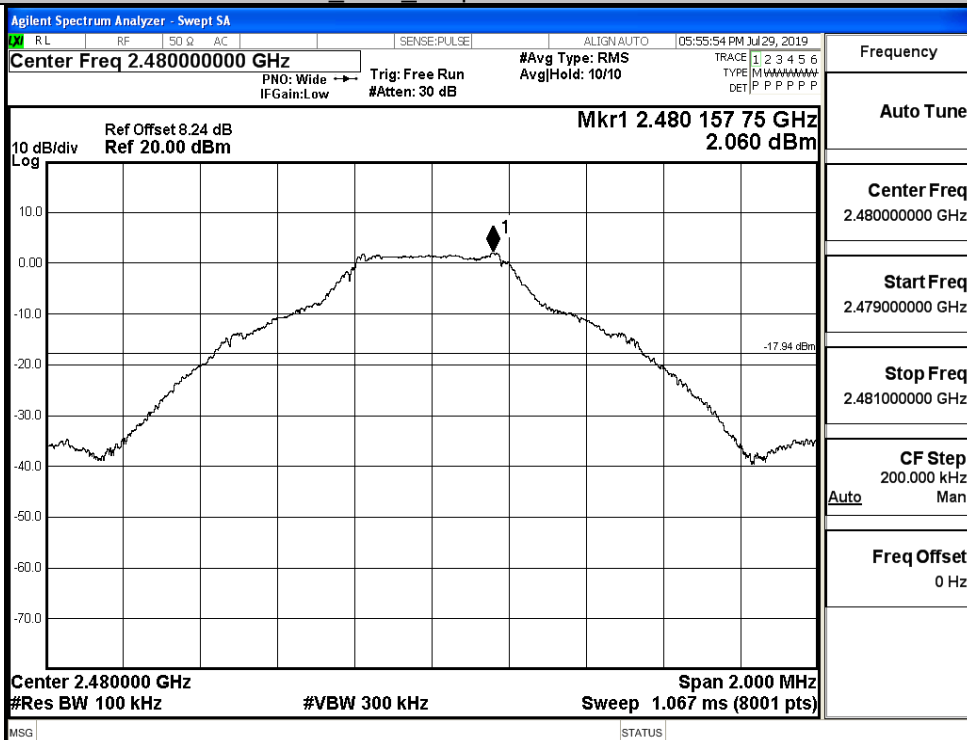


Puw

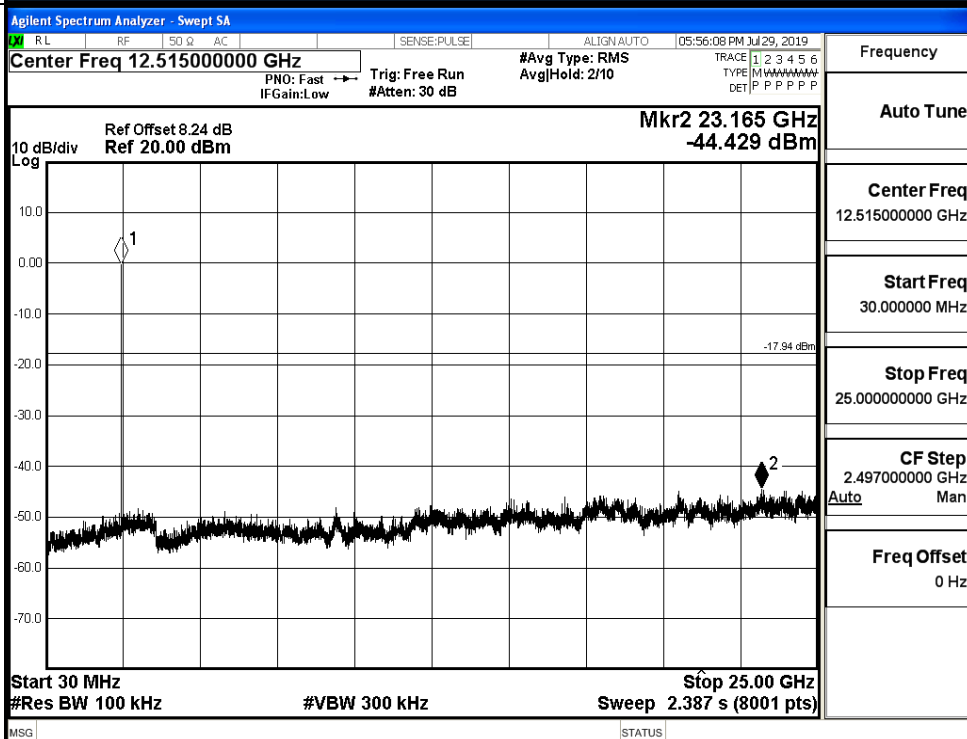


GFSK_HCH_Graphs

Pref

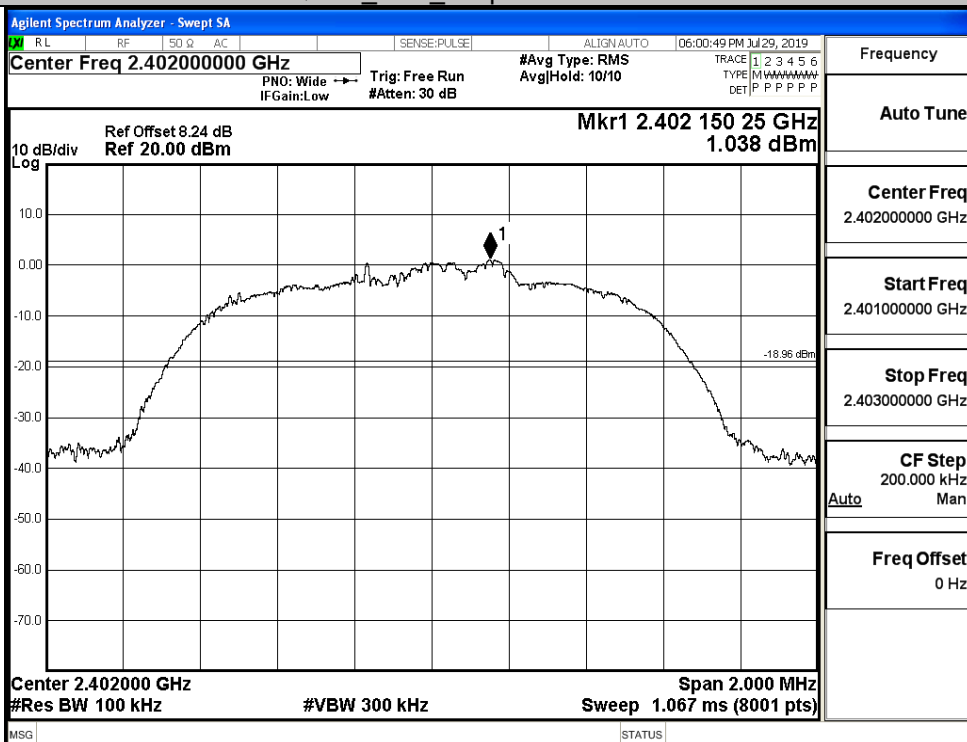


Puw

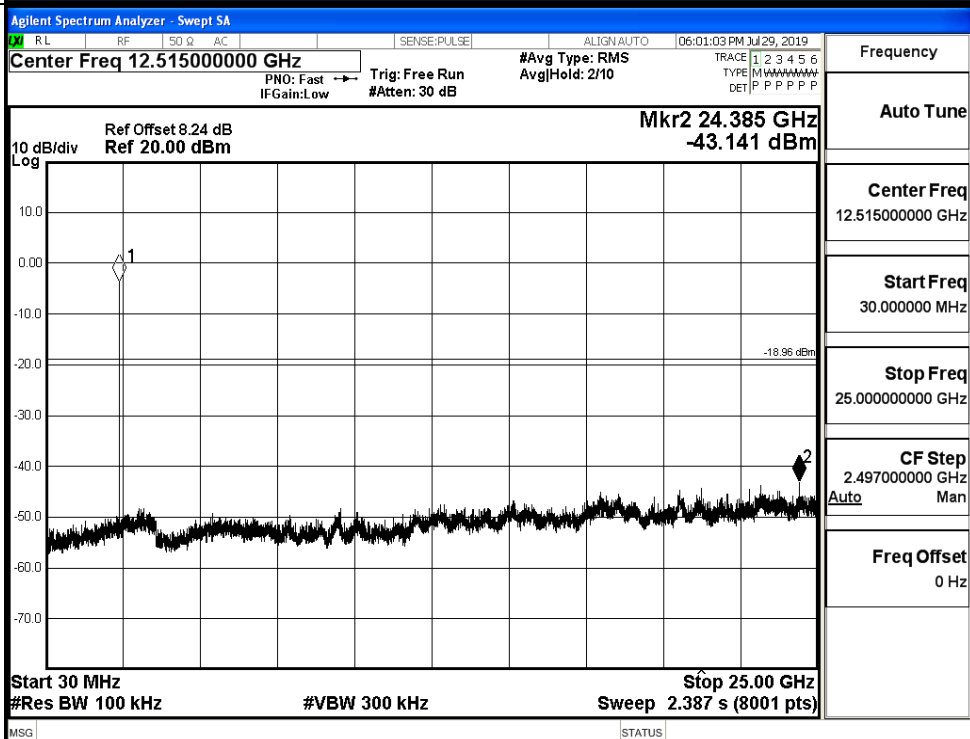


$\pi/4$ DQPSK_LCH_Graphs

Pref

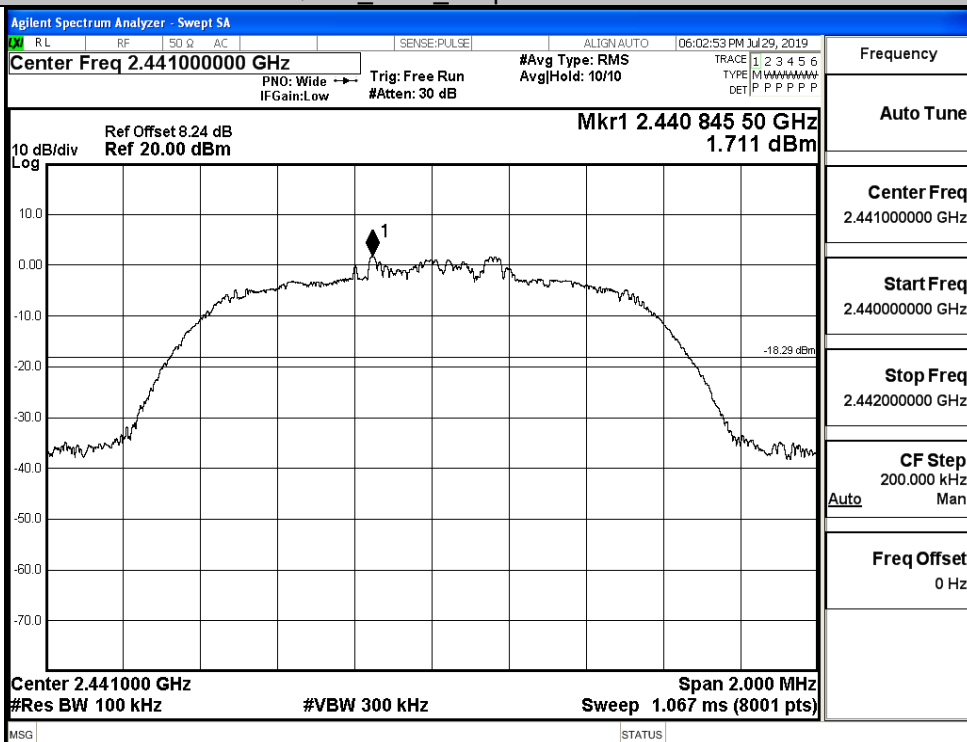


Puw

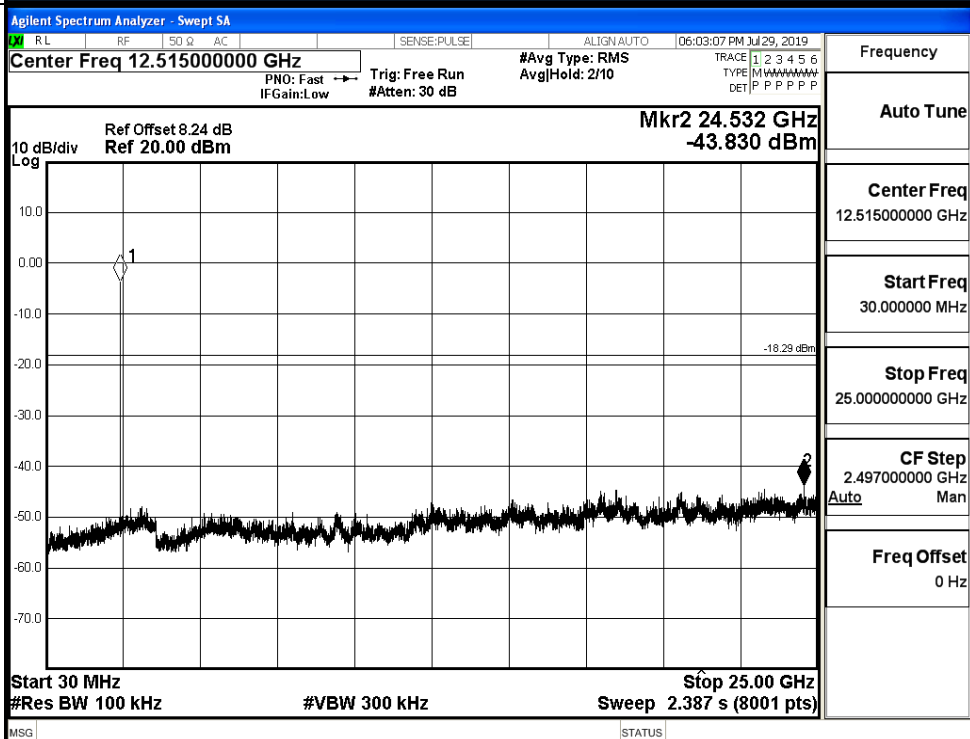


π /4DQPSK_MCH_Graphs

Pref

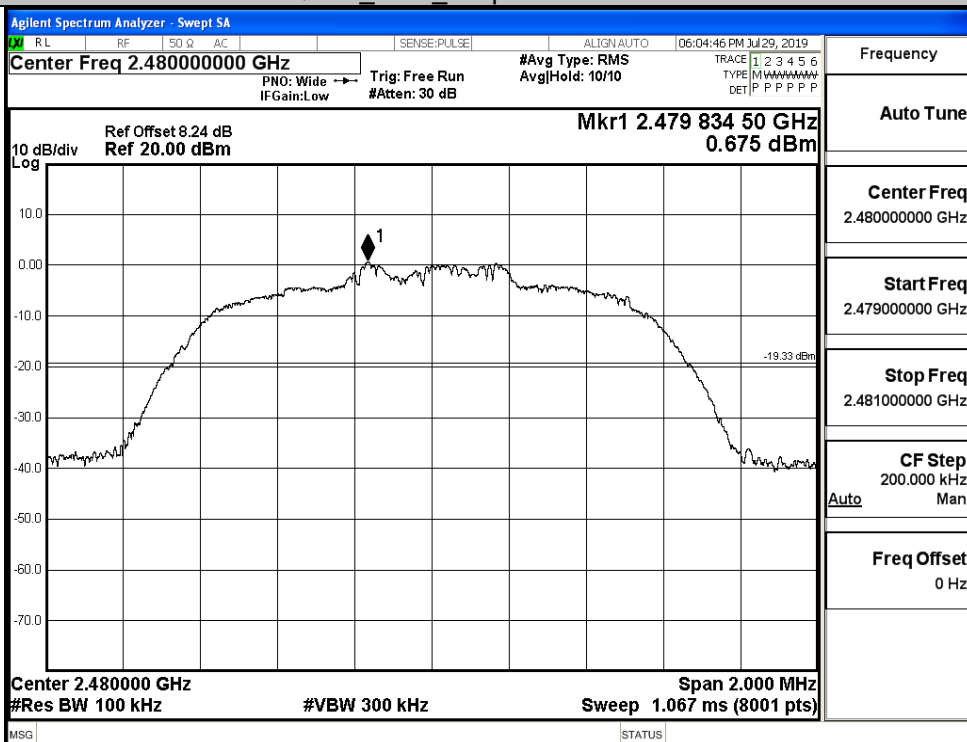


Puw

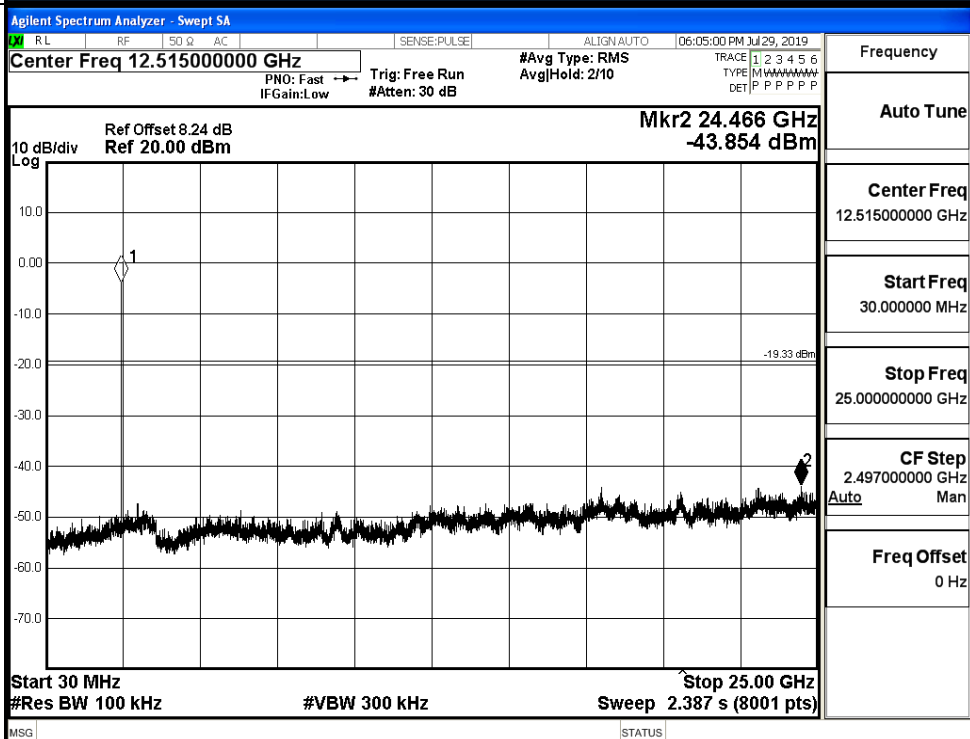


π /4DQPSK_HCH_Graphs

Pref

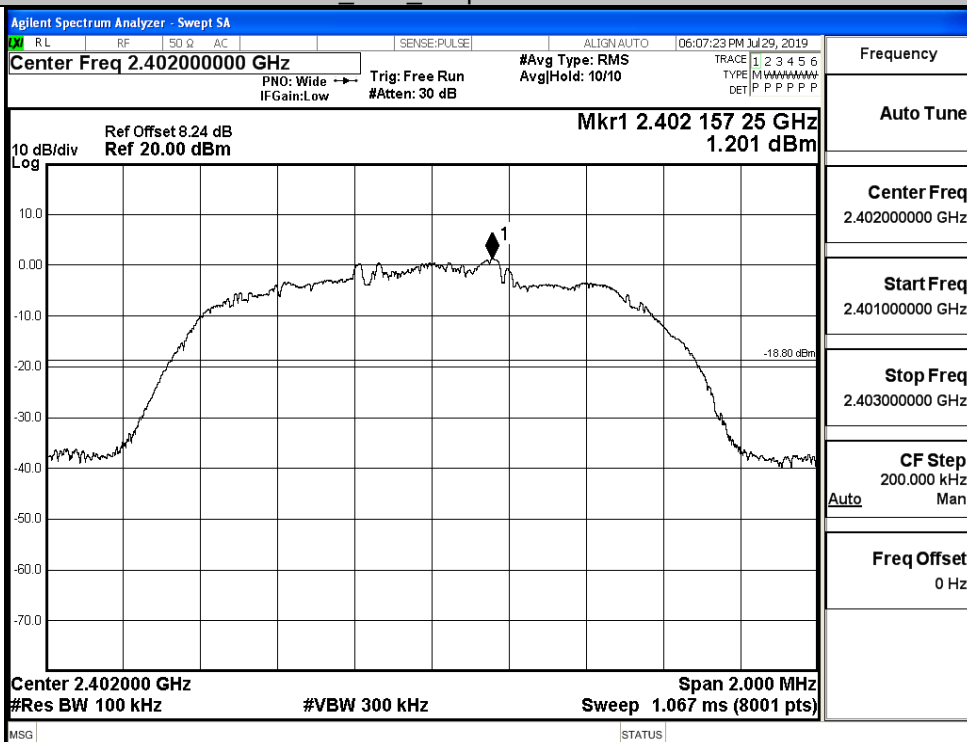


Puw

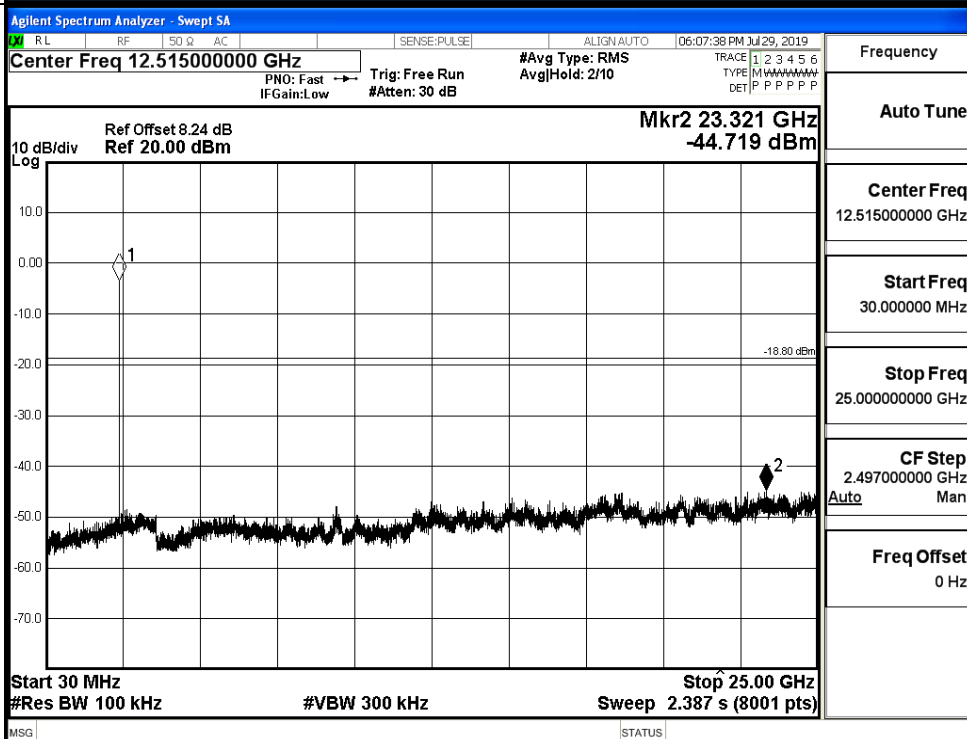


8DPSK_LCH_Graphs

Pref

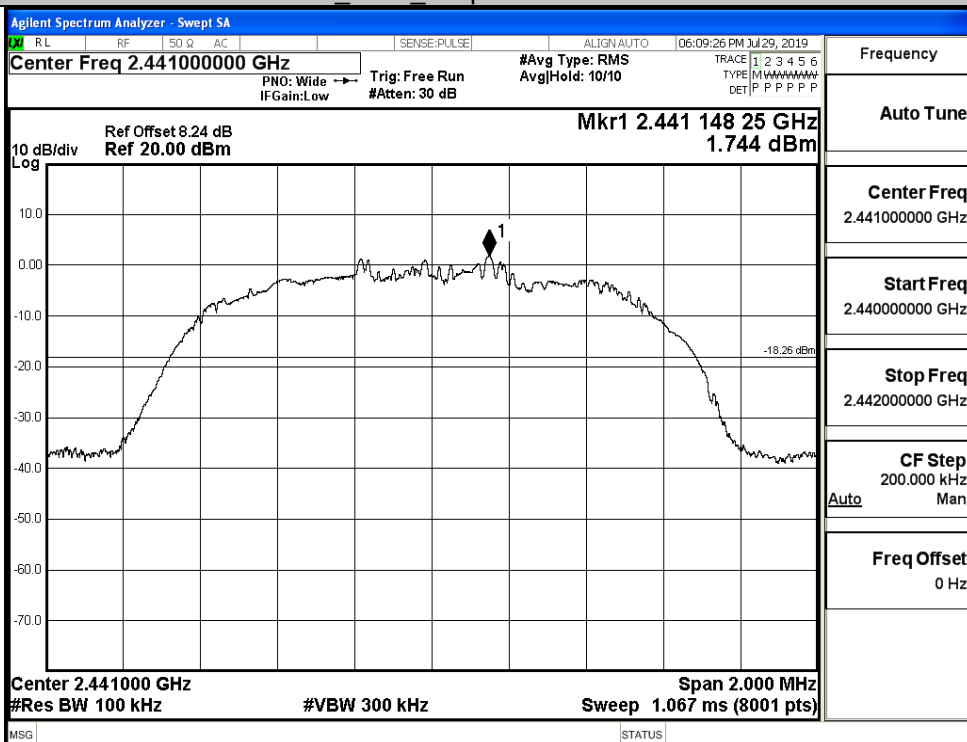


Puw

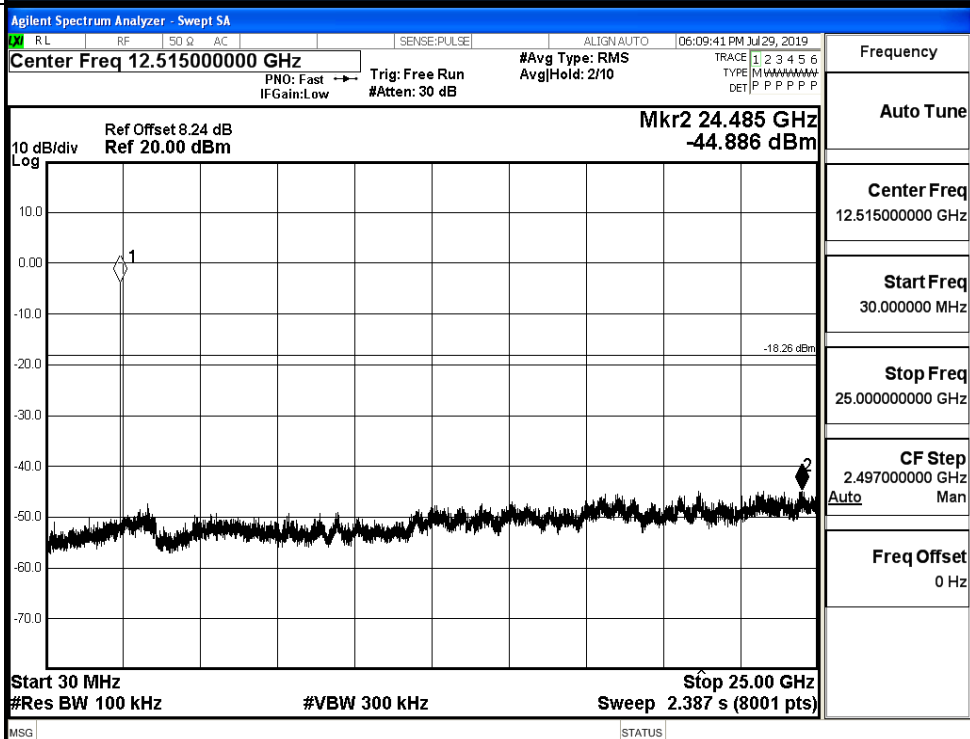


8DPSK_MCH_Graphs

Pref

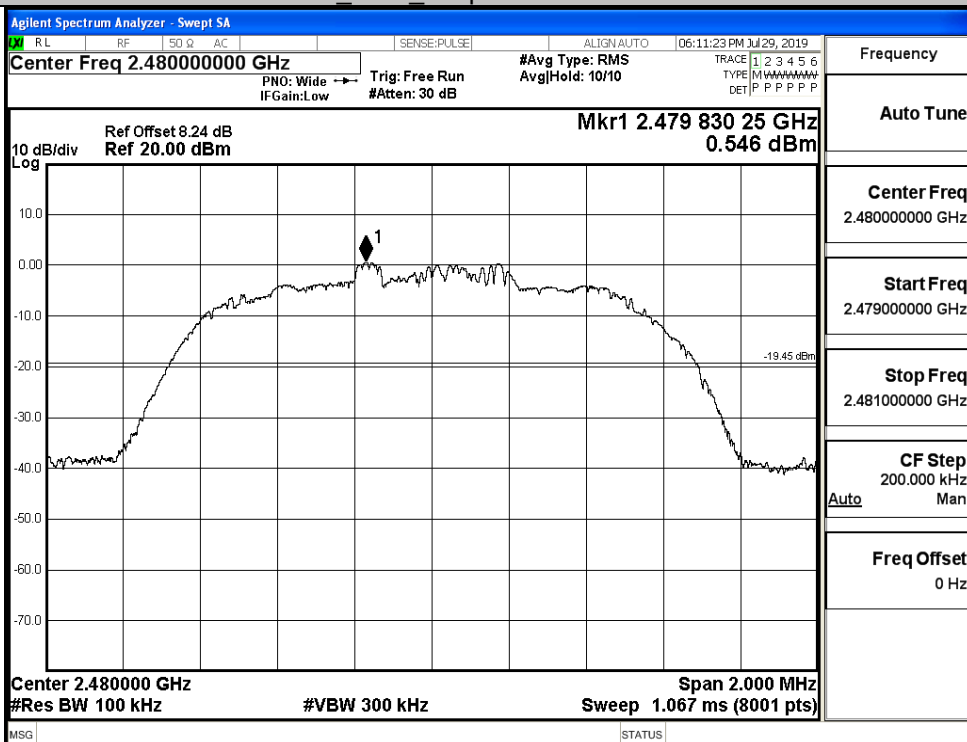


Puw

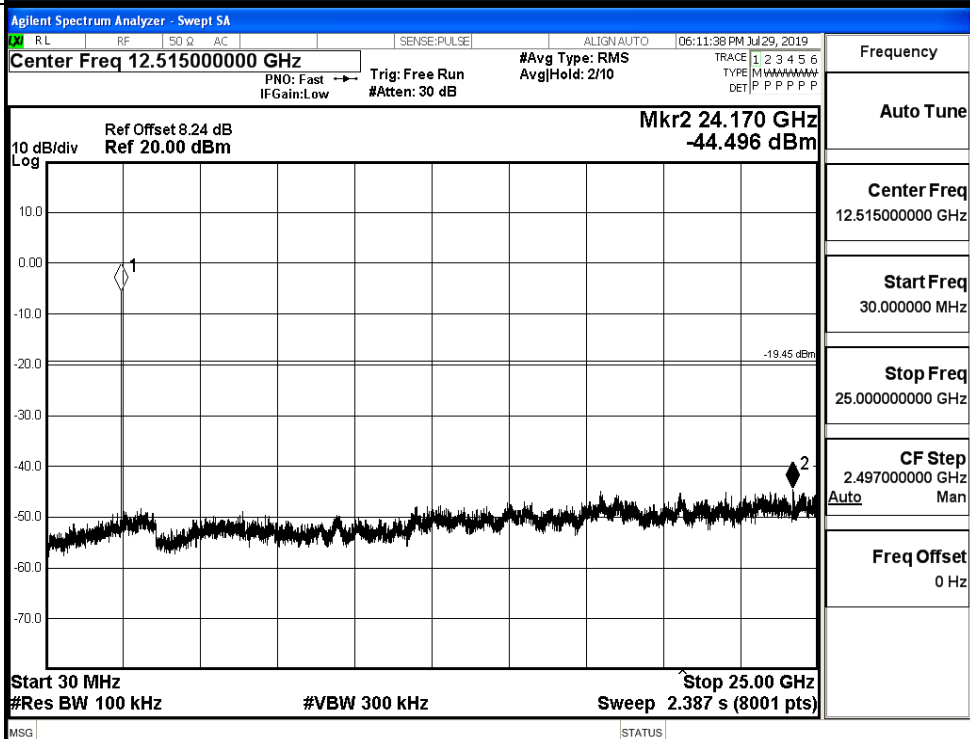


8DPSK_HCH_Graphs

Pref



Puw

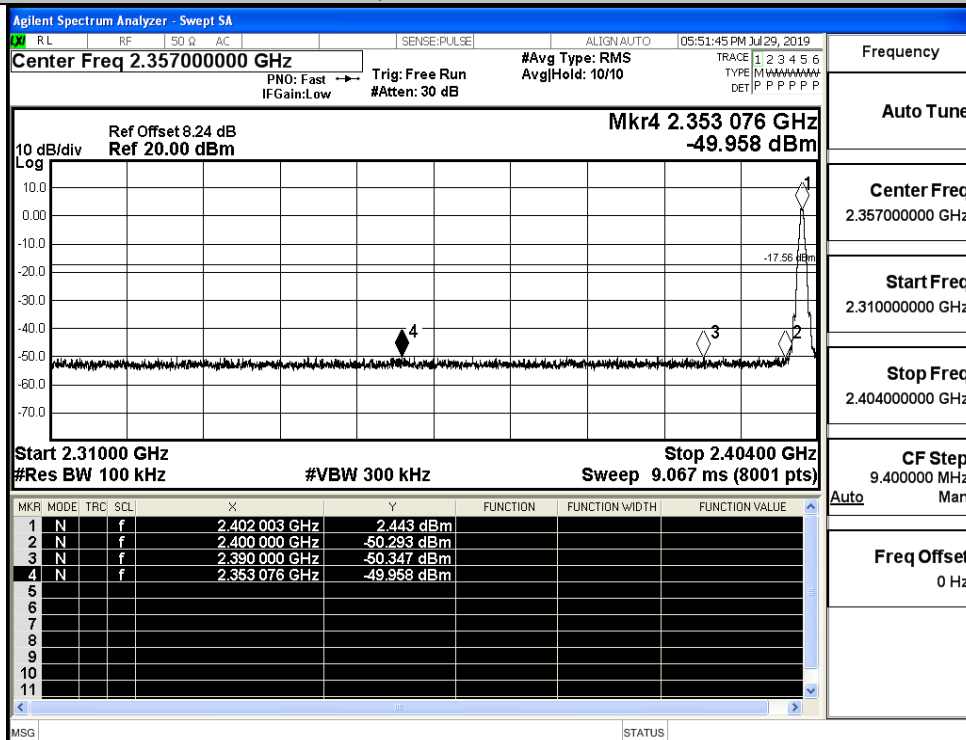


A.7 Band-edge for RF Conducted Emissions

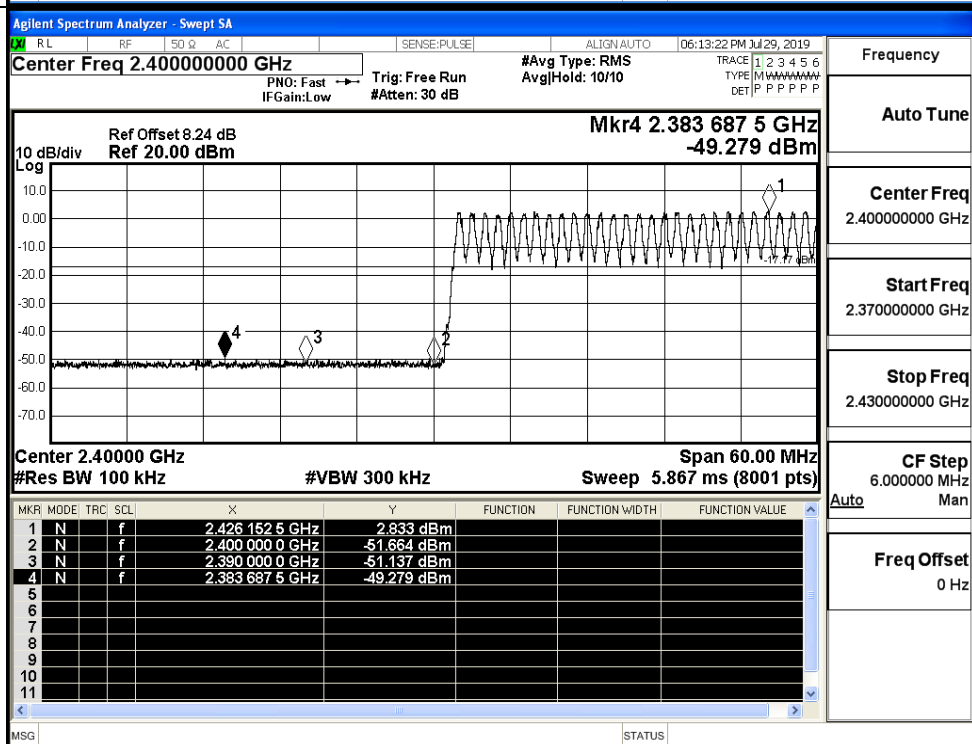
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	2.443	Off	-49.958	-17.56	PASS
			2.833	On	-49.279	-17.17	PASS
	HCH	2480	2.047	Off	-49.016	-17.95	PASS
			2.760	On	-48.543	-17.24	PASS
$\pi/4$ DQPSK	LCH	2402	0.707	Off	-49.077	-19.29	PASS
			1.172	On	-48.847	-18.83	PASS
	HCH	2480	0.606	Off	-49.469	-19.39	PASS
			1.406	On	-47.961	-18.59	PASS
8DPSK	LCH	2402	0.810	Off	-49.631	-19.19	PASS
			1.535	On	-48.172	-18.47	PASS
	HCH	2480	0.396	Off	-49.471	-19.6	PASS
			1.637	On	-48.674	-18.36	PASS

Test Graphs

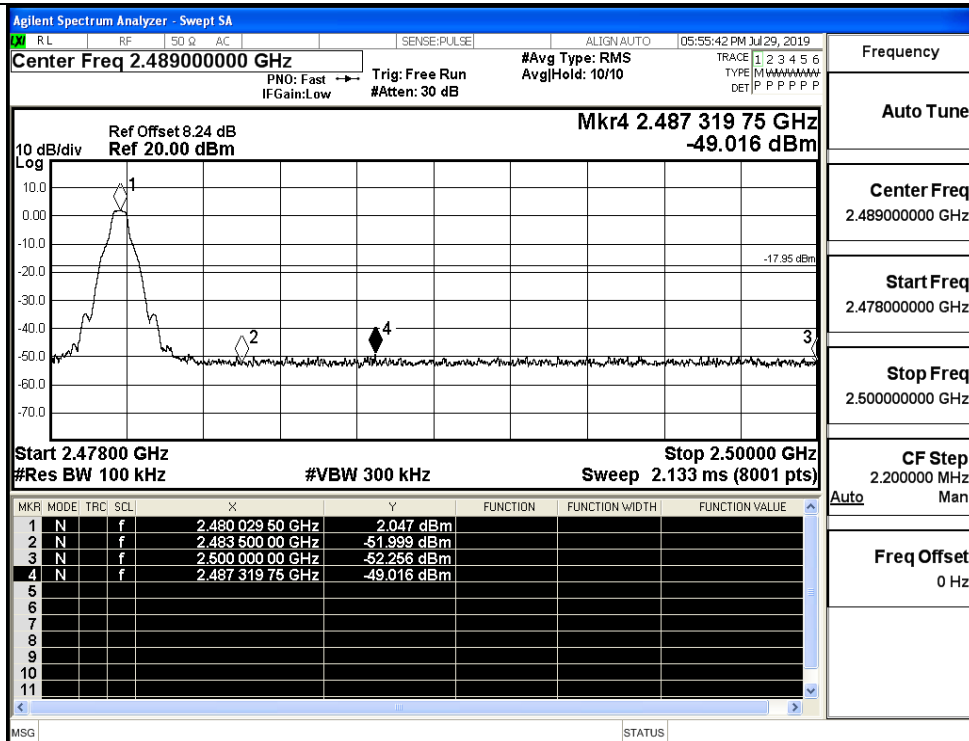
GFSK/LCH/No Hop



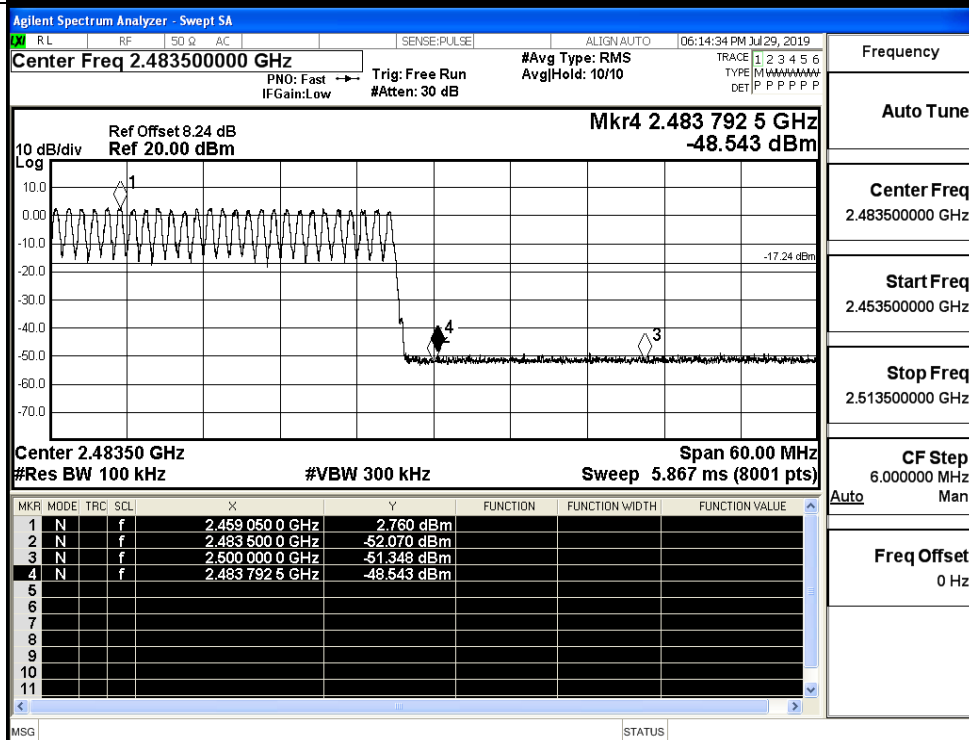
GFSK/LCH/Hop



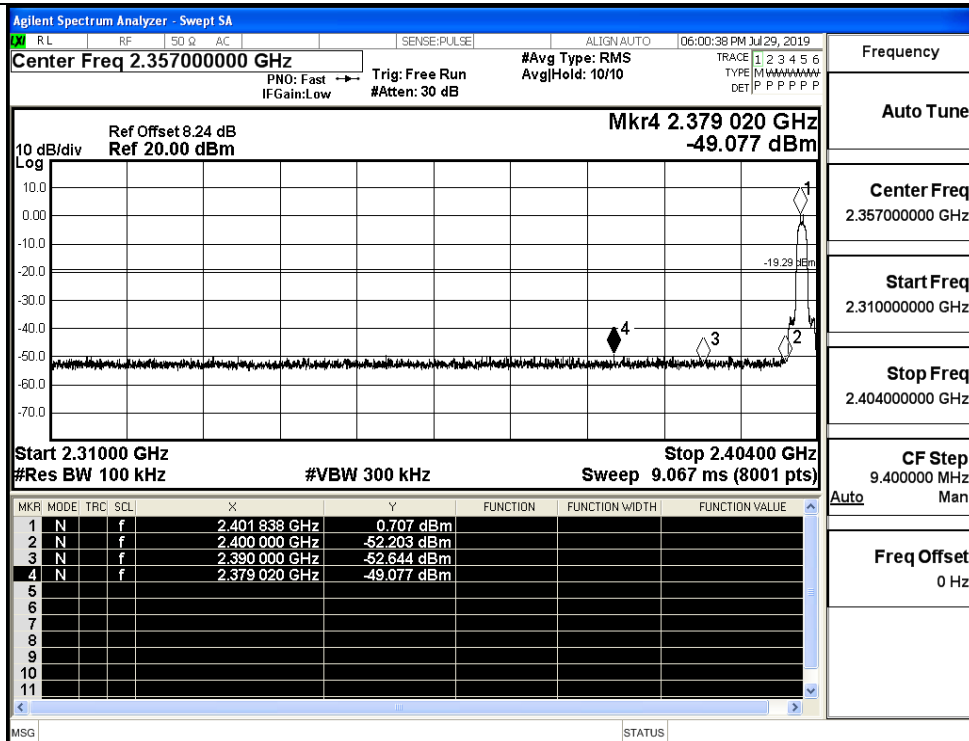
GFSK/HCH/No Hop



GFSK/HCH/Hop



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

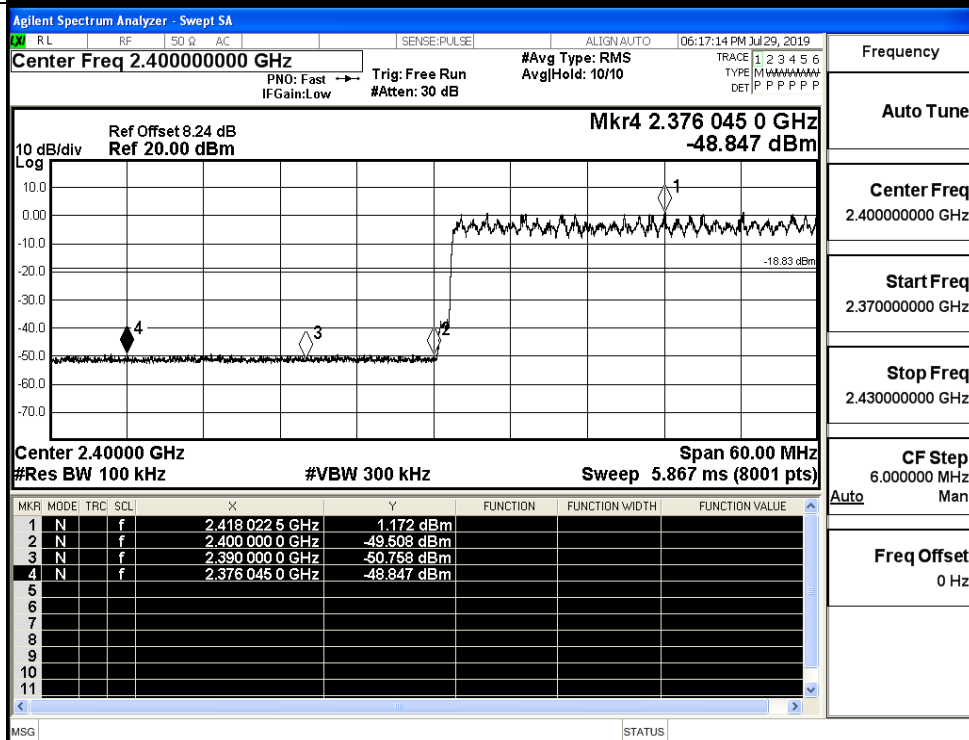


Frequency

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

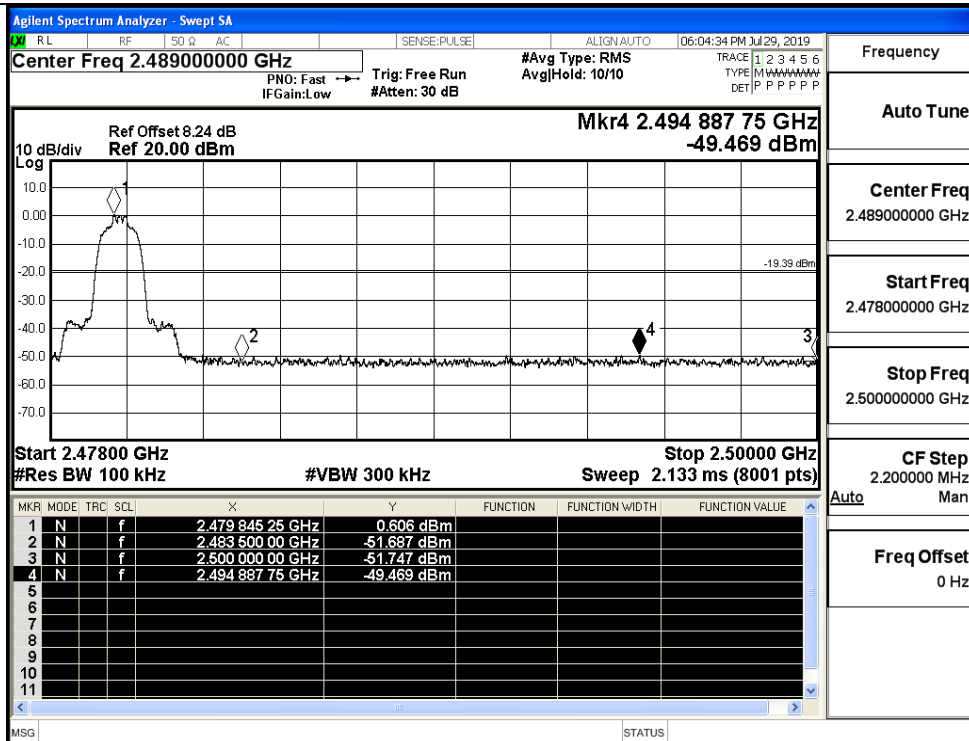


Frequency

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

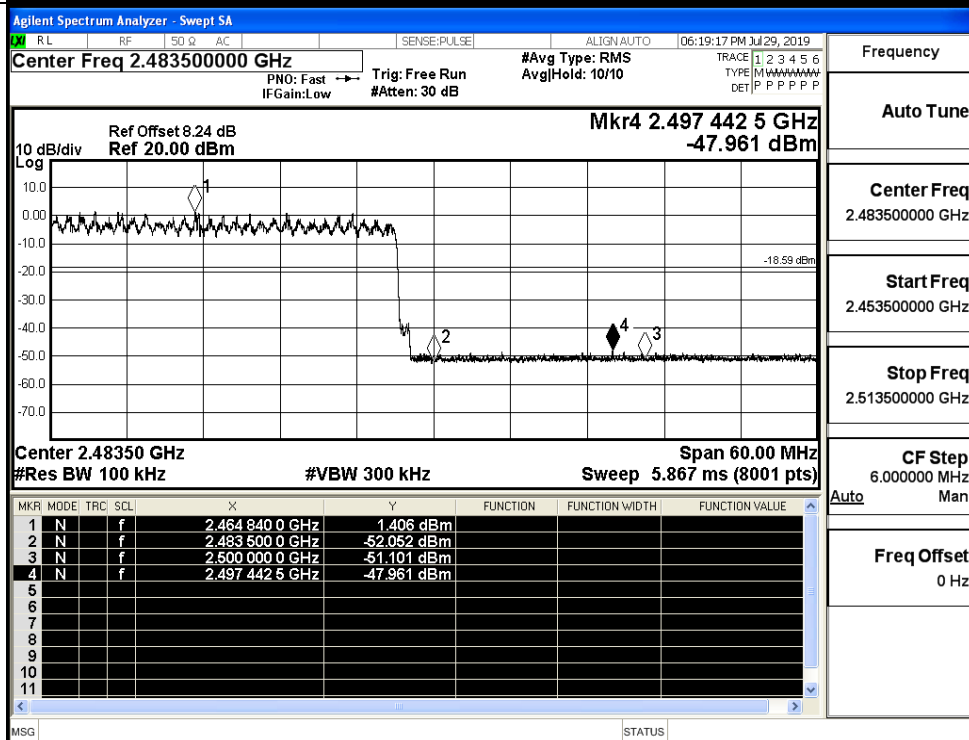


Frequency

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

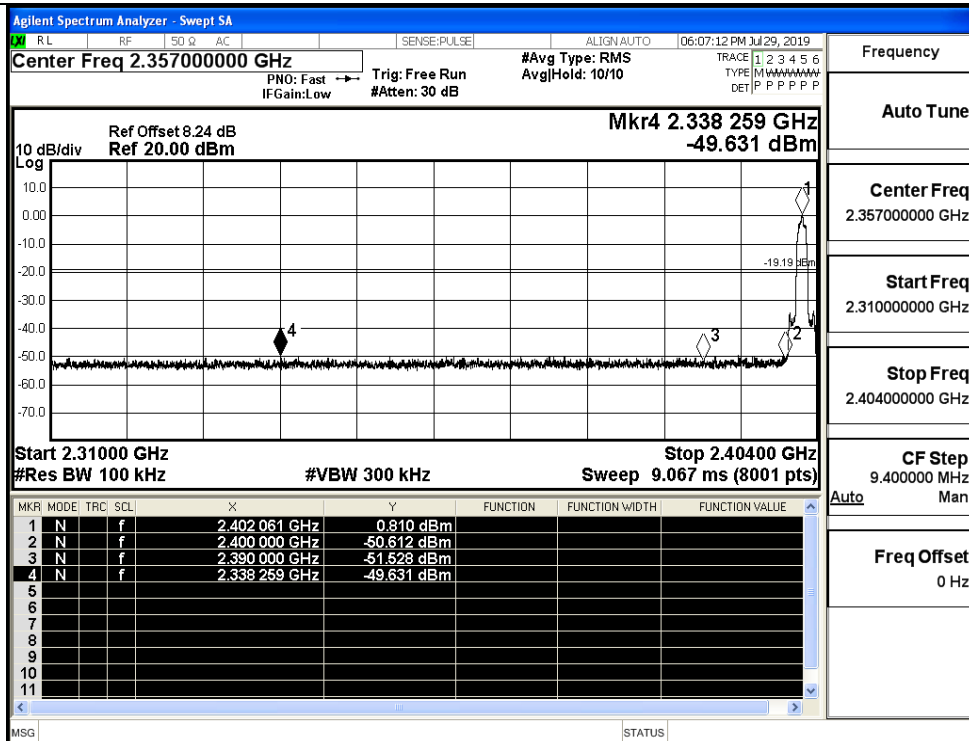


Frequency

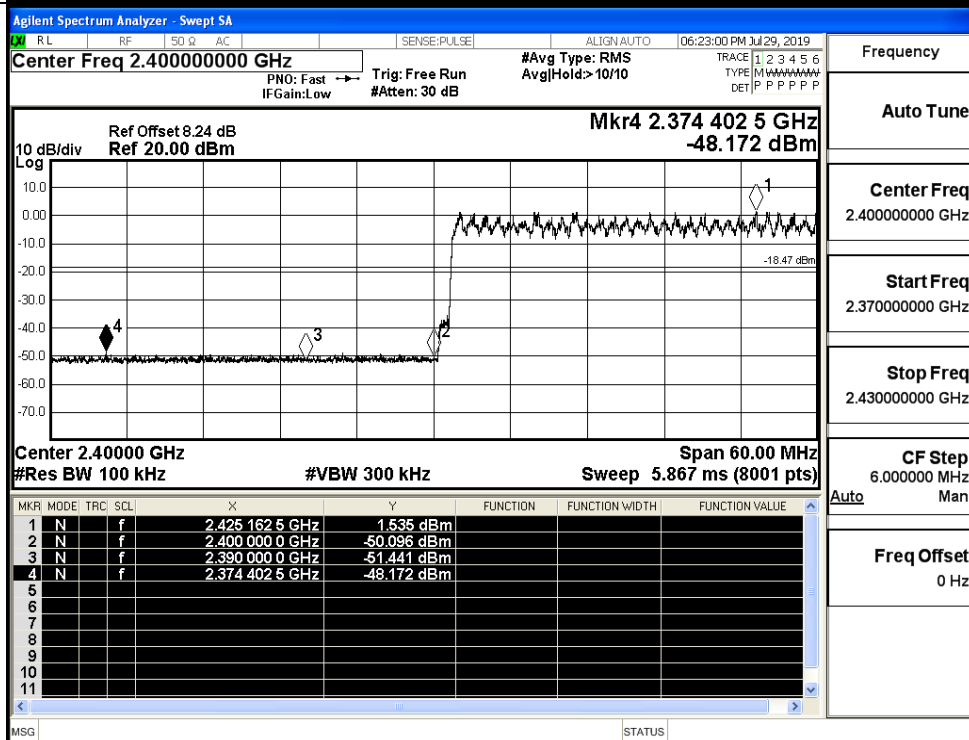
Auto Tune

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

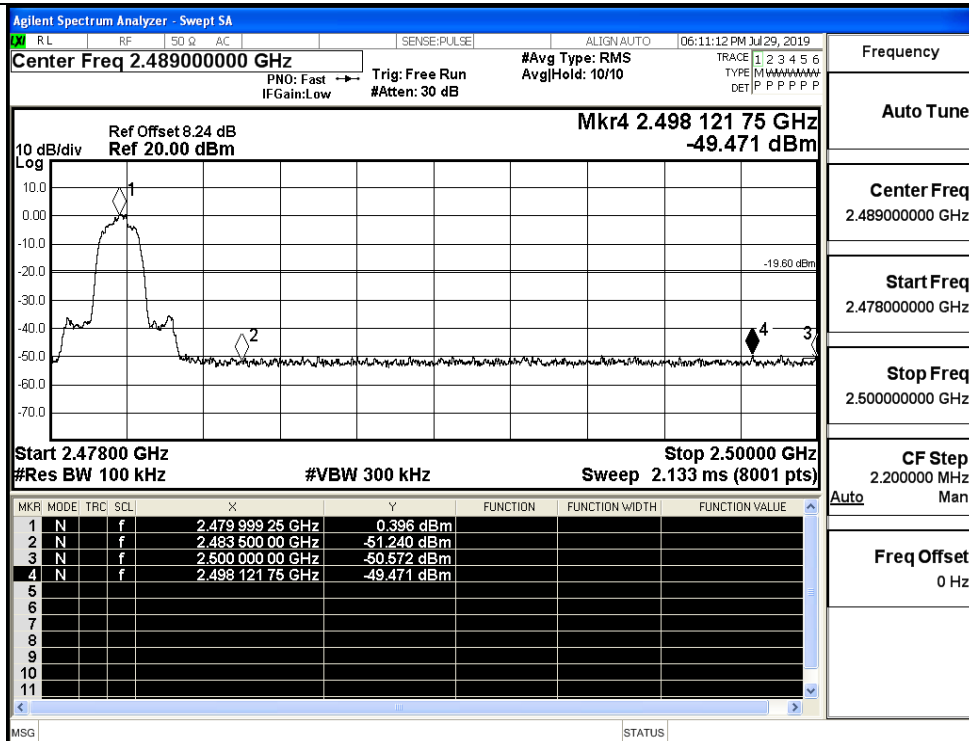
8DPSK/LCH/No Hop



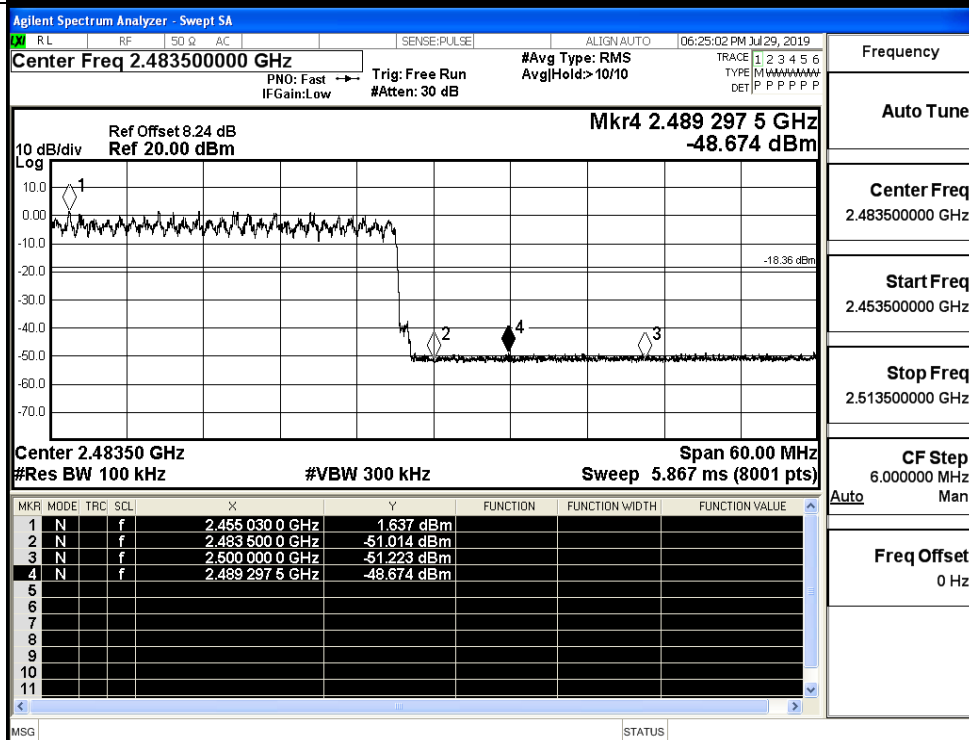
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



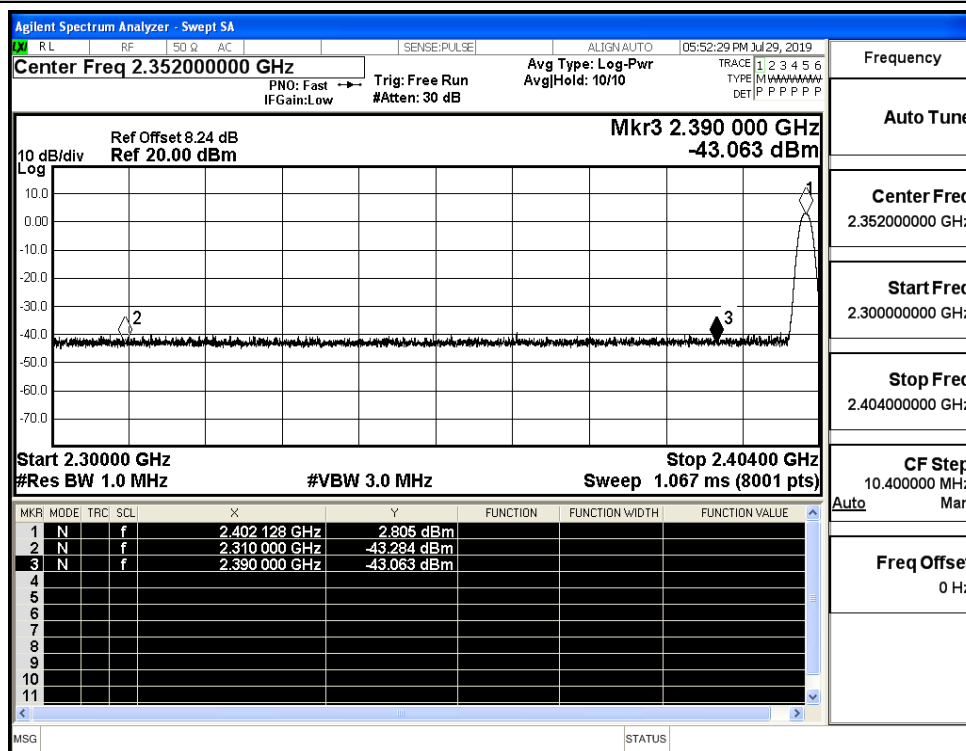
8DPSK/HCH/Hop



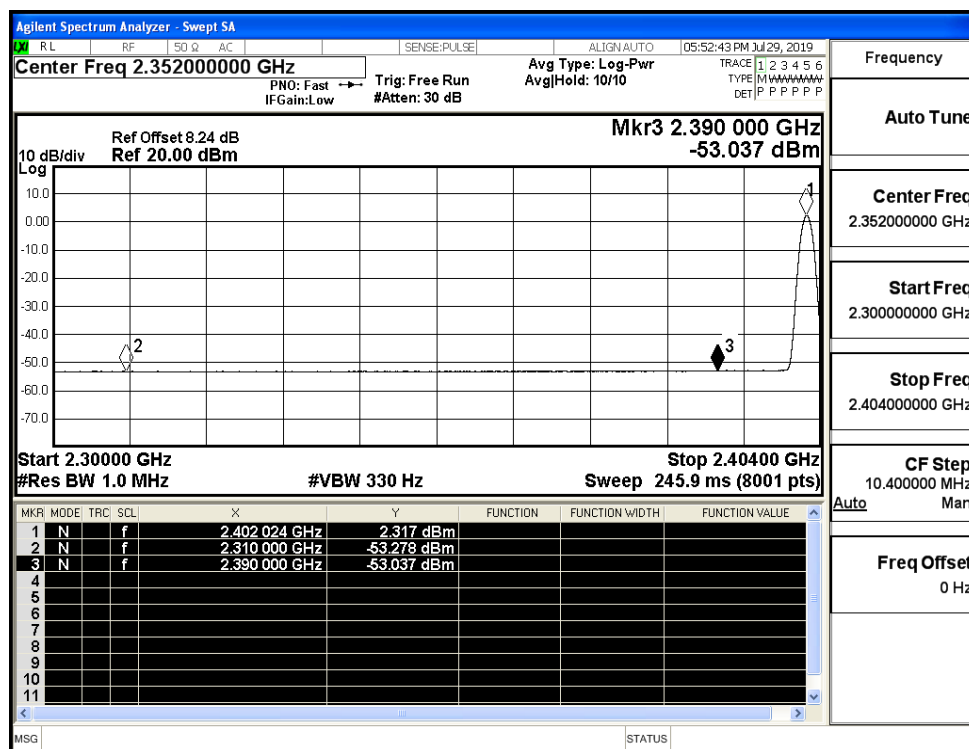
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.28	2.0	0	53.98	PEAK	74	PASS
	Off	2310.0	-53.28	2.0	0	43.98	AV	54	PASS
	Off	2390.0	-43.06	2.0	0	54.20	PEAK	74	PASS
	Off	2390.0	-53.04	2.0	0	44.22	AV	54	PASS
	Off	2483.5	-43.26	2.0	0	54.00	PEAK	74	PASS
	Off	2483.5	-52.71	2.0	0	44.55	AV	54	PASS
	Off	2500.0	-41.90	2.0	0	55.36	PEAK	74	PASS
	Off	2500.0	-52.56	2.0	0	44.70	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.96	2.0	0	53.30	PEAK	74	PASS
	Off	2310.0	-53.20	2.0	0	44.06	AV	54	PASS
	Off	2390.0	-42.53	2.0	0	54.73	PEAK	74	PASS
	Off	2390.0	-53.06	2.0	0	44.20	AV	54	PASS
	Off	2483.5	-43.32	2.0	0	53.94	PEAK	74	PASS
	Off	2483.5	-52.63	2.0	0	44.63	AV	54	PASS
	Off	2500.0	-43.48	2.0	0	53.78	PEAK	74	PASS
	Off	2500.0	-52.64	2.0	0	44.62	AV	54	PASS
8DPSK	Off	2310.0	-42.32	2.0	0	54.94	PEAK	74	PASS
	Off	2310.0	-53.14	2.0	0	44.12	AV	54	PASS
	Off	2390.0	-40.72	2.0	0	56.54	PEAK	74	PASS
	Off	2390.0	-52.93	2.0	0	44.33	AV	54	PASS
	Off	2483.5	-43.46	2.0	0	53.80	PEAK	74	PASS
	Off	2483.5	-52.51	2.0	0	44.75	AV	54	PASS
	Off	2500.0	-41.45	2.0	0	55.81	PEAK	74	PASS
	Off	2500.0	-52.62	2.0	0	44.64	AV	54	PASS

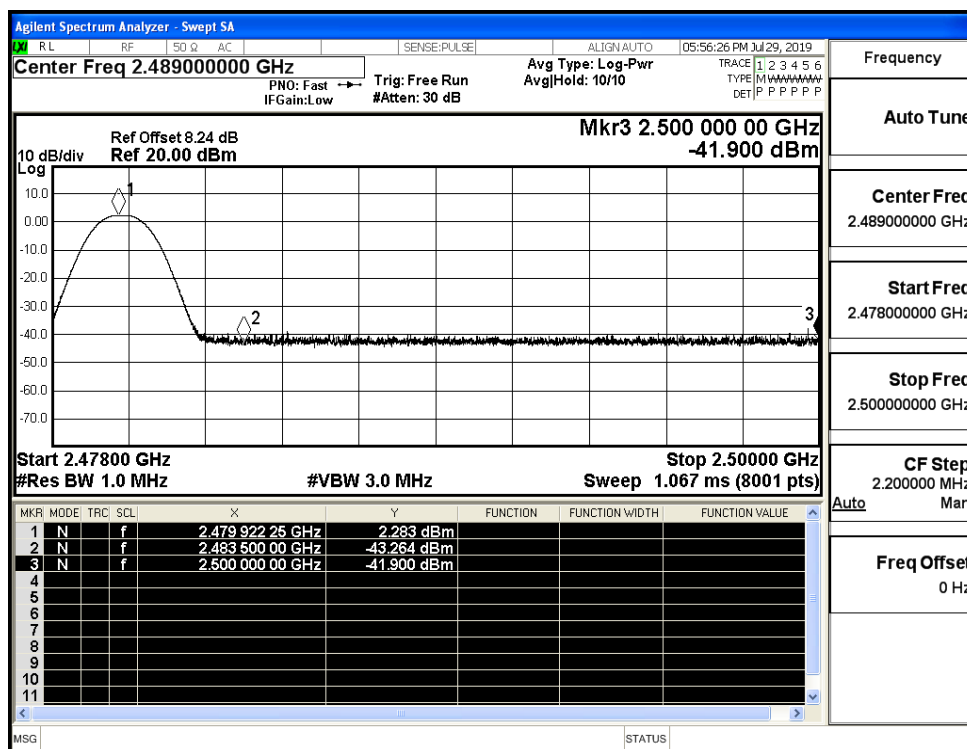
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



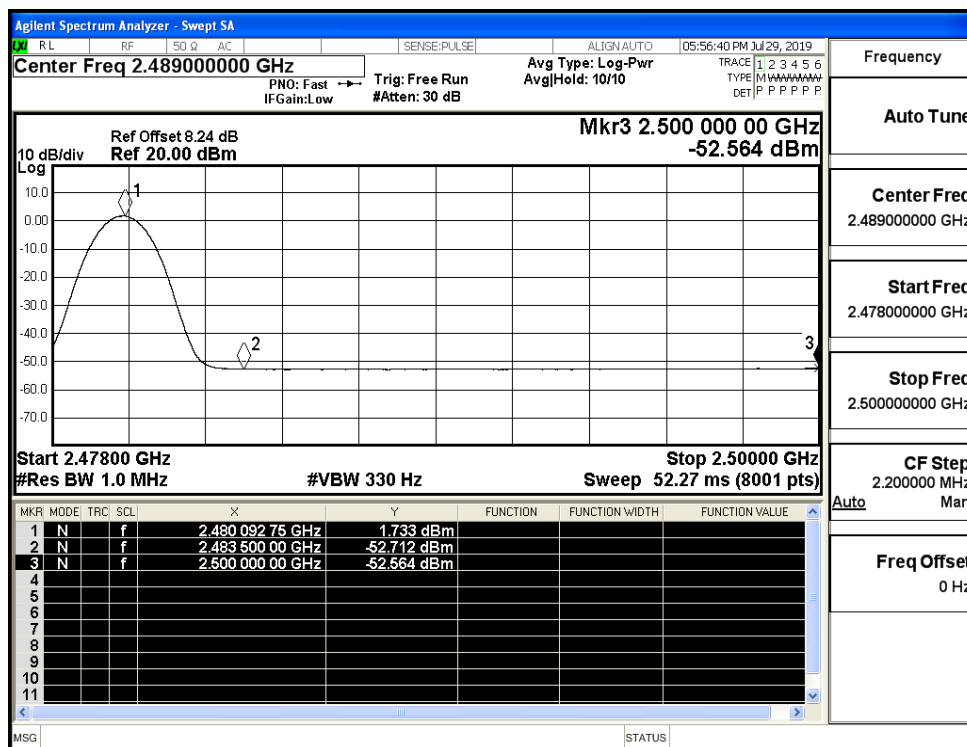
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

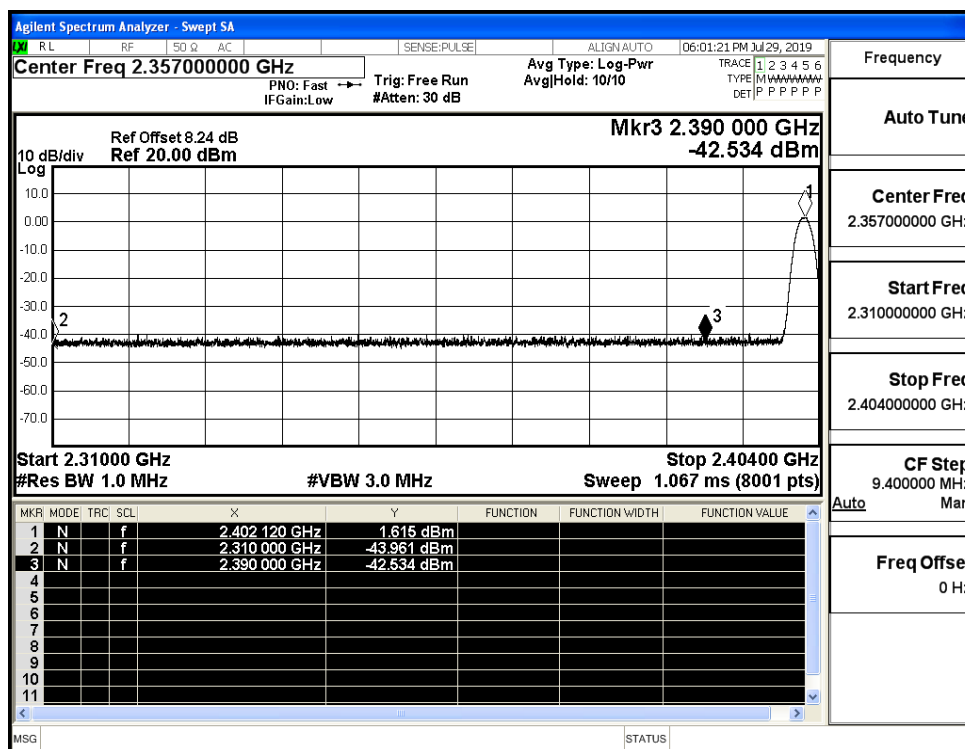
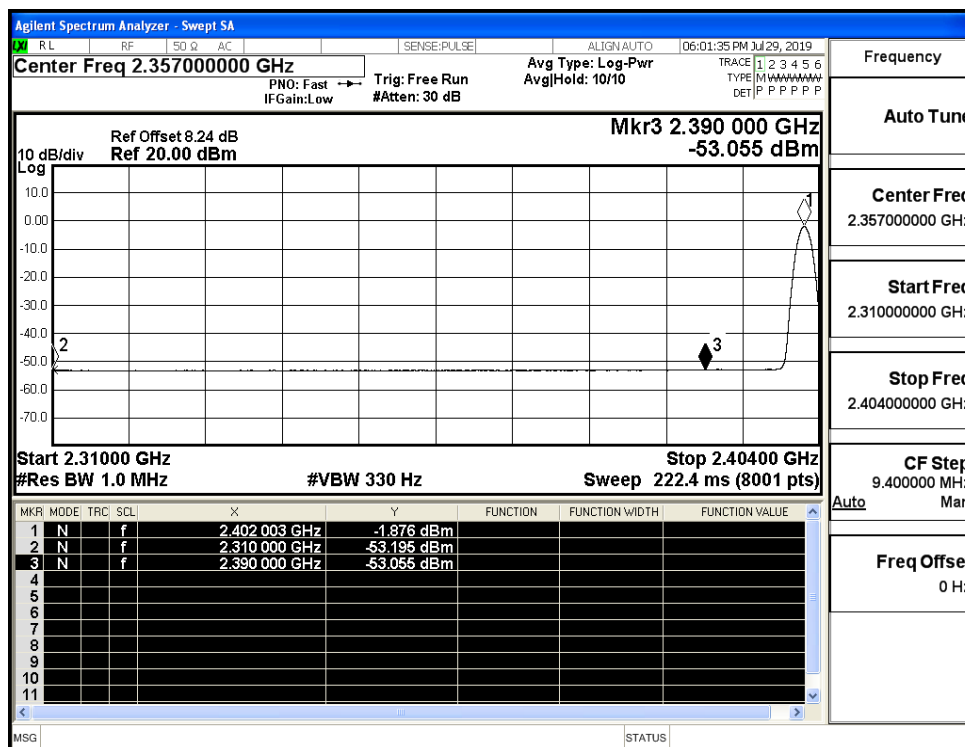


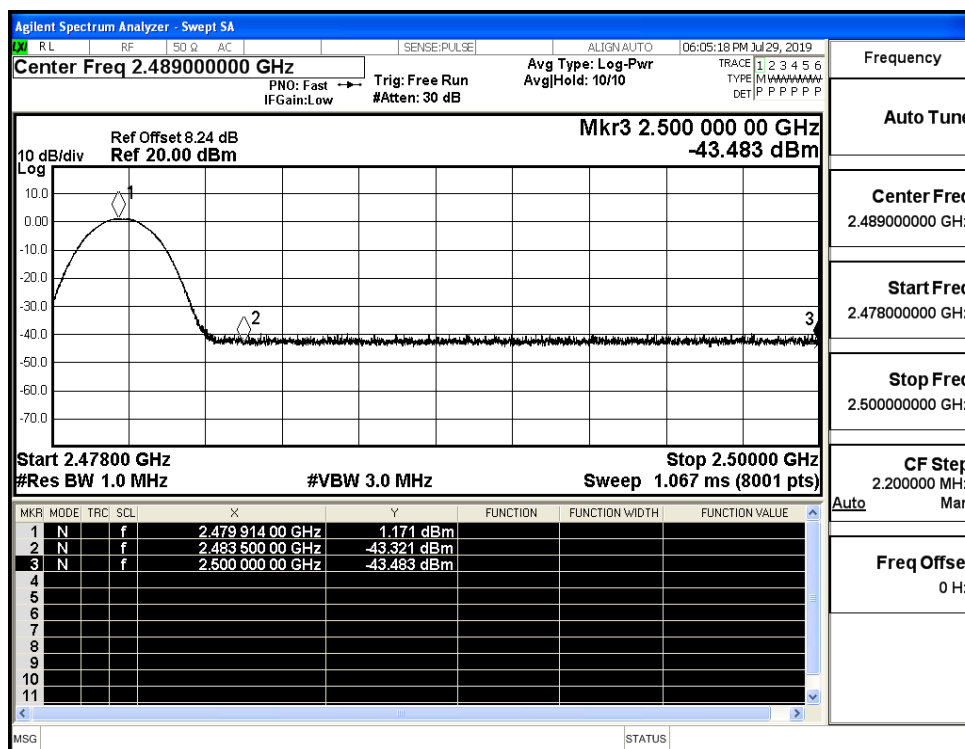
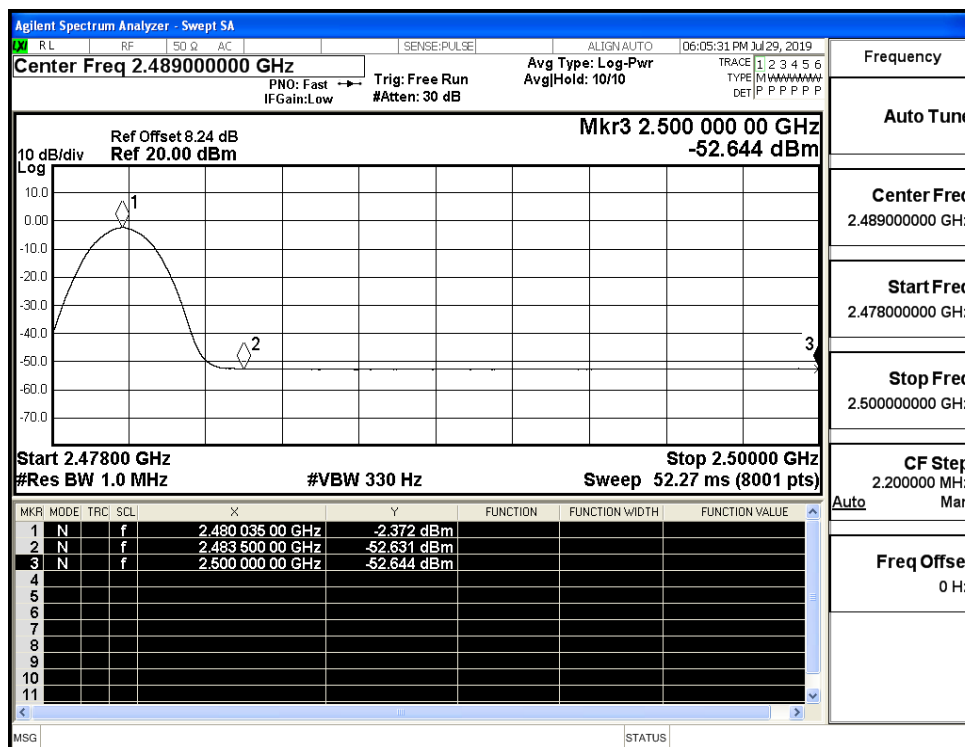
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



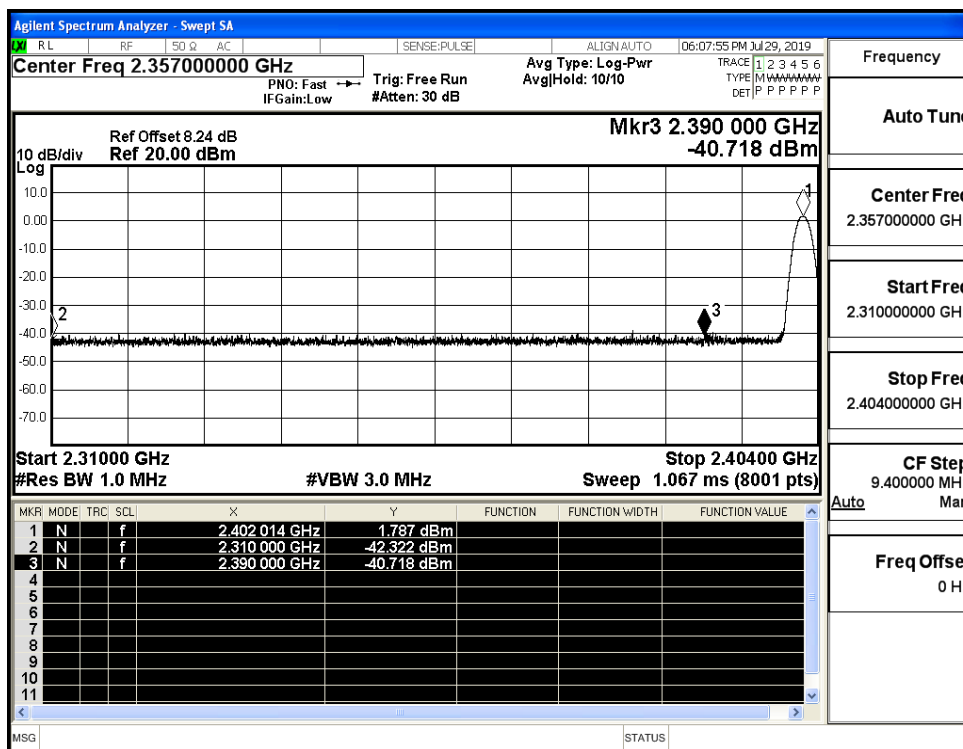
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



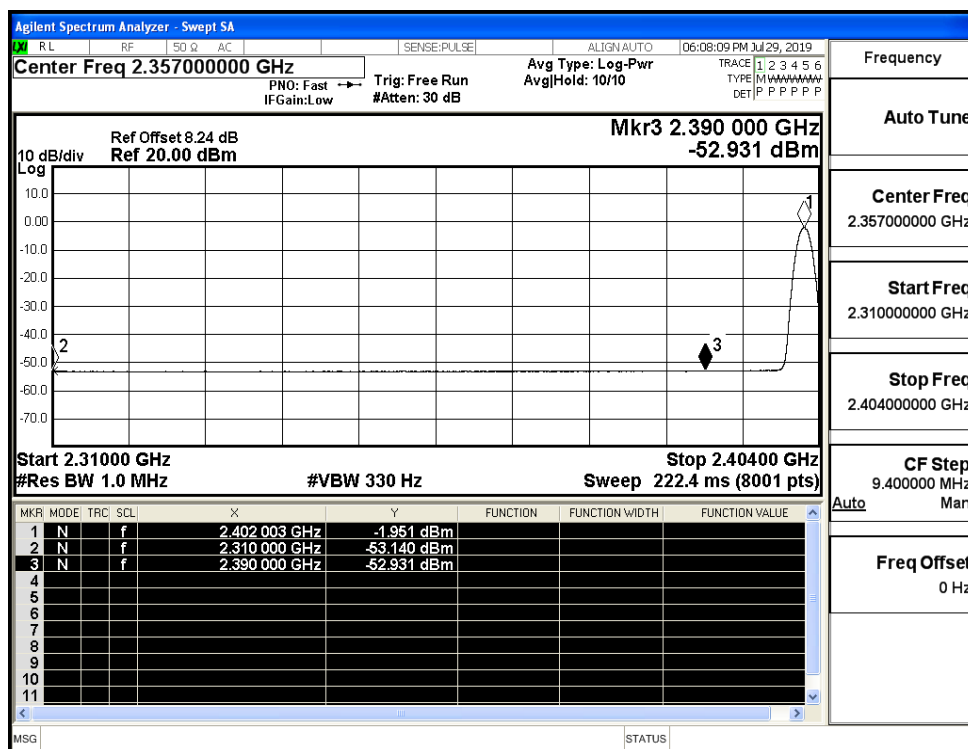
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

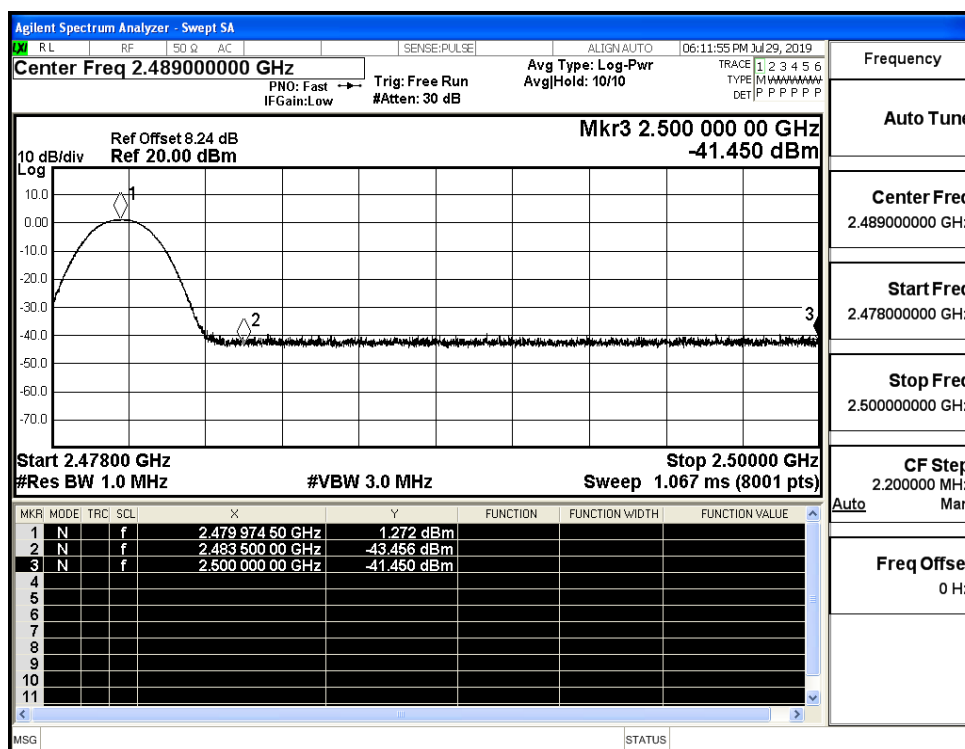
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

