

Appendix A

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

Product Name: Wireless Keyboard

Trade Mark: FUNDIAN

Test Model: PV-K02

Environmental Conditions

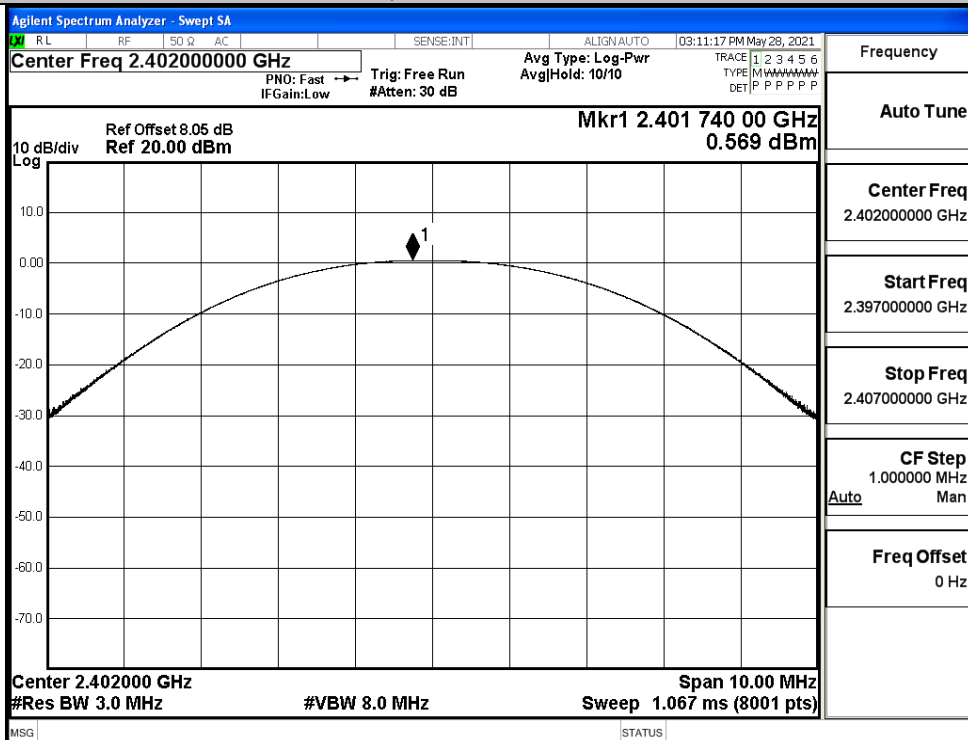
Temperature:	24.2° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

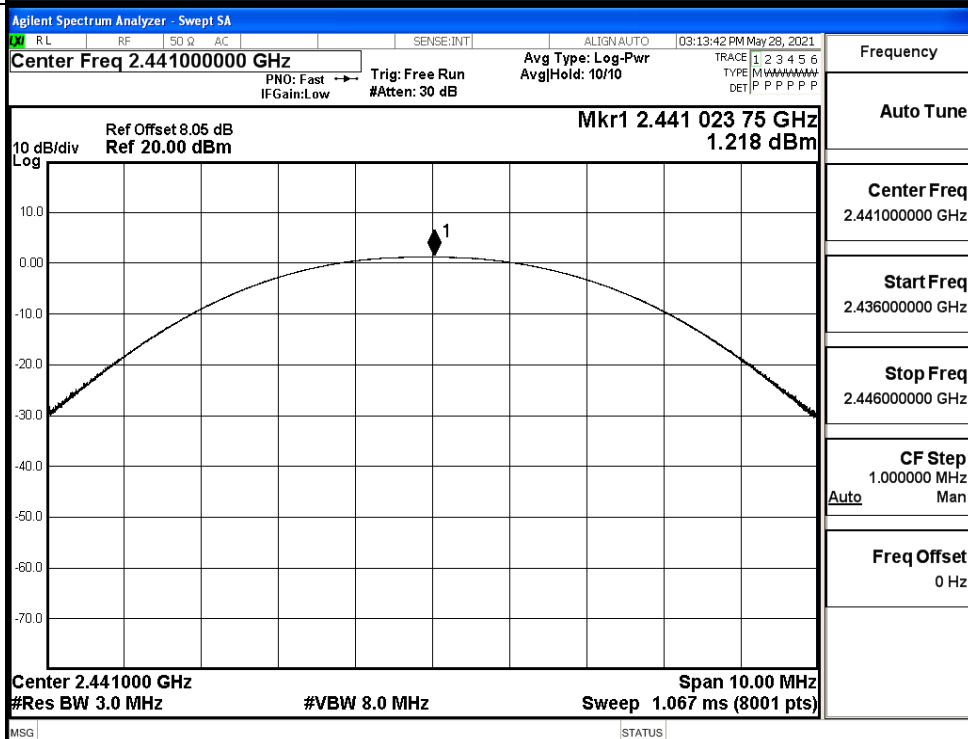
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.569	21	PASS
	MCH	1.218	21	PASS
	HCH	1.990	21	PASS
$\pi/4$ DQPSK	LCH	3.374	21	PASS
	MCH	3.762	21	PASS
	HCH	4.060	21	PASS
8DPSK	LCH	3.997	21	PASS
	MCH	3.873	21	PASS
	HCH	4.702	21	PASS

Test Graphs

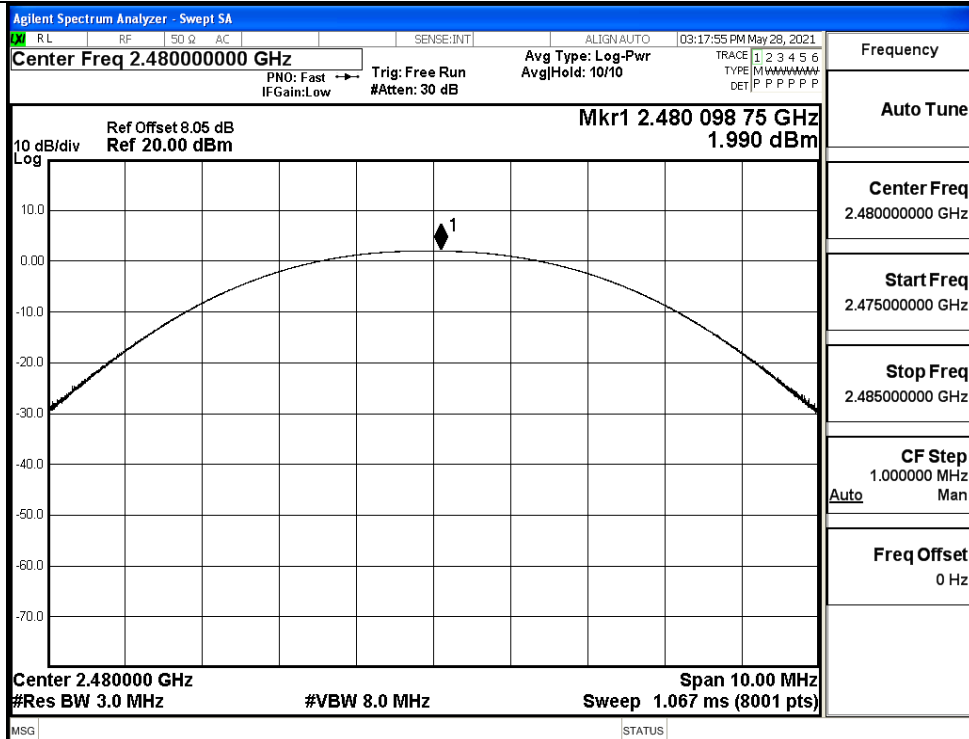
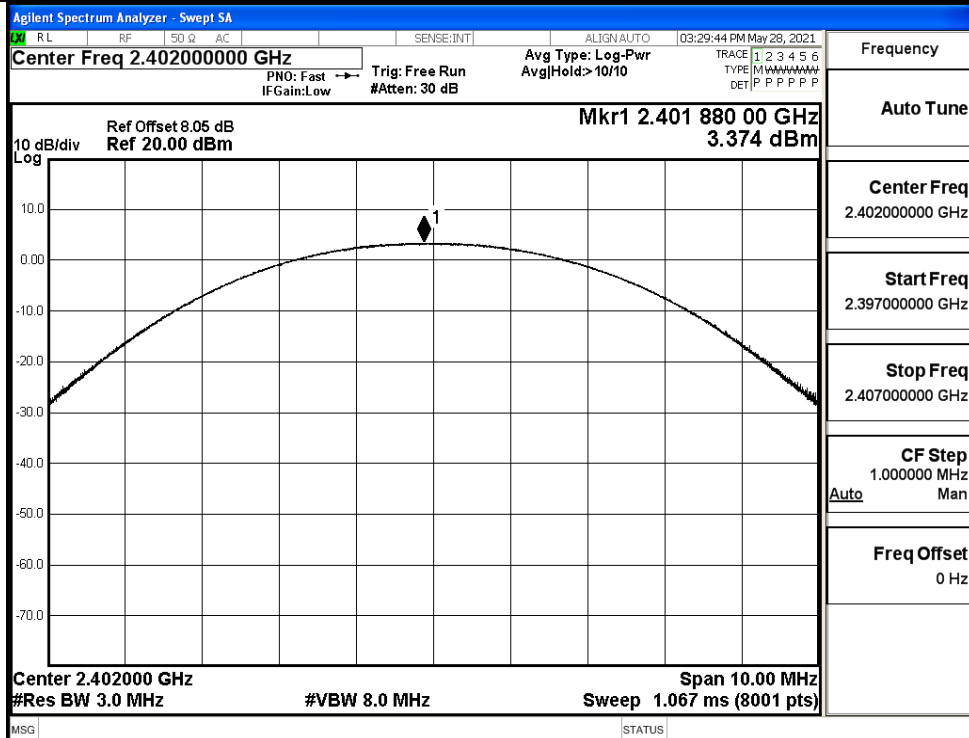
GFSK/LCH

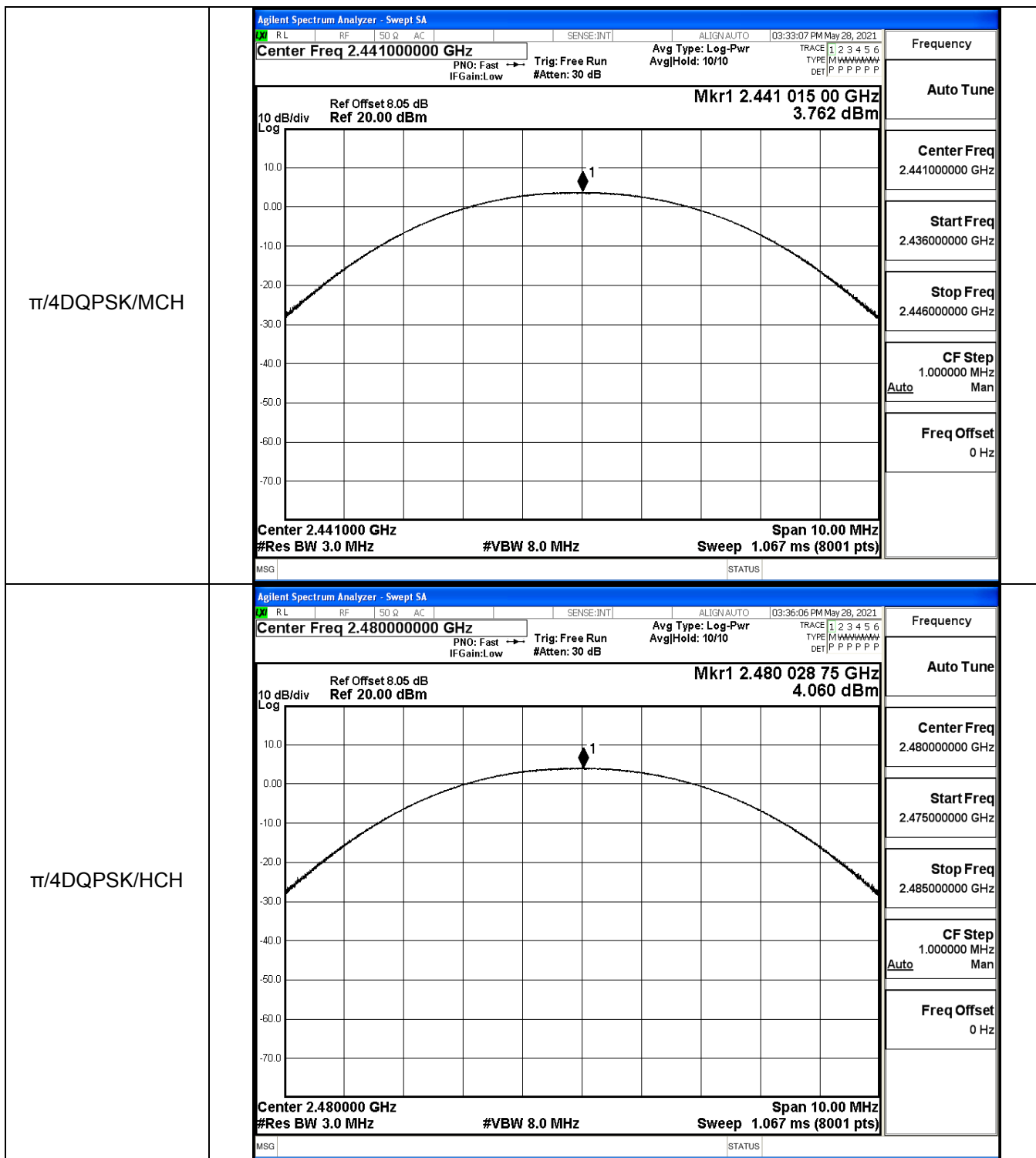


GFSK/MCH

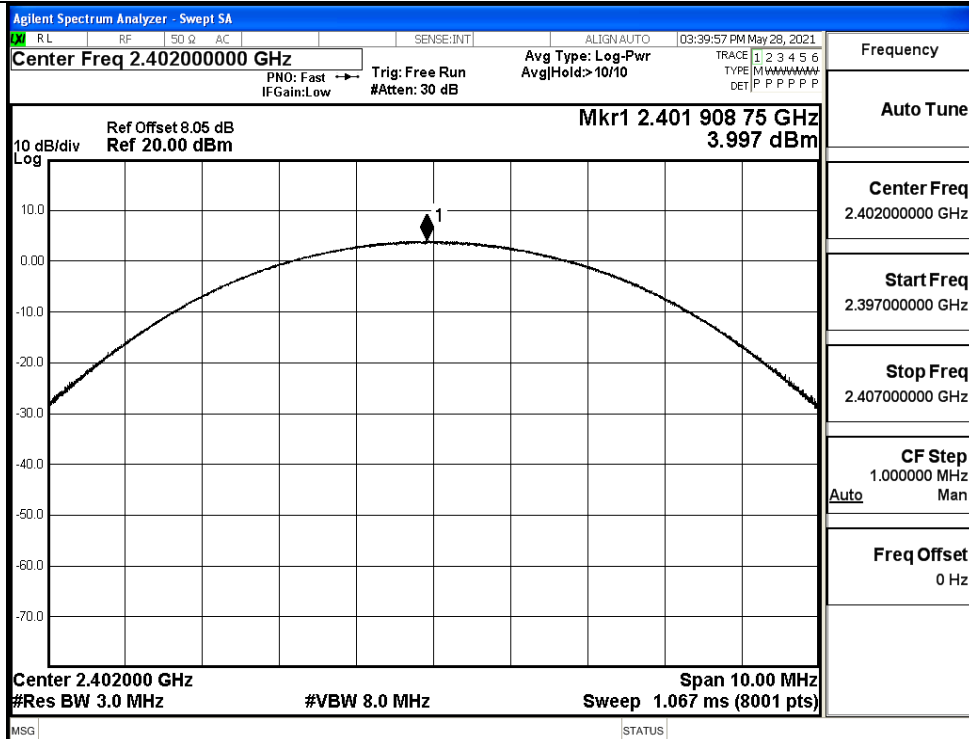


GFSK/HCH

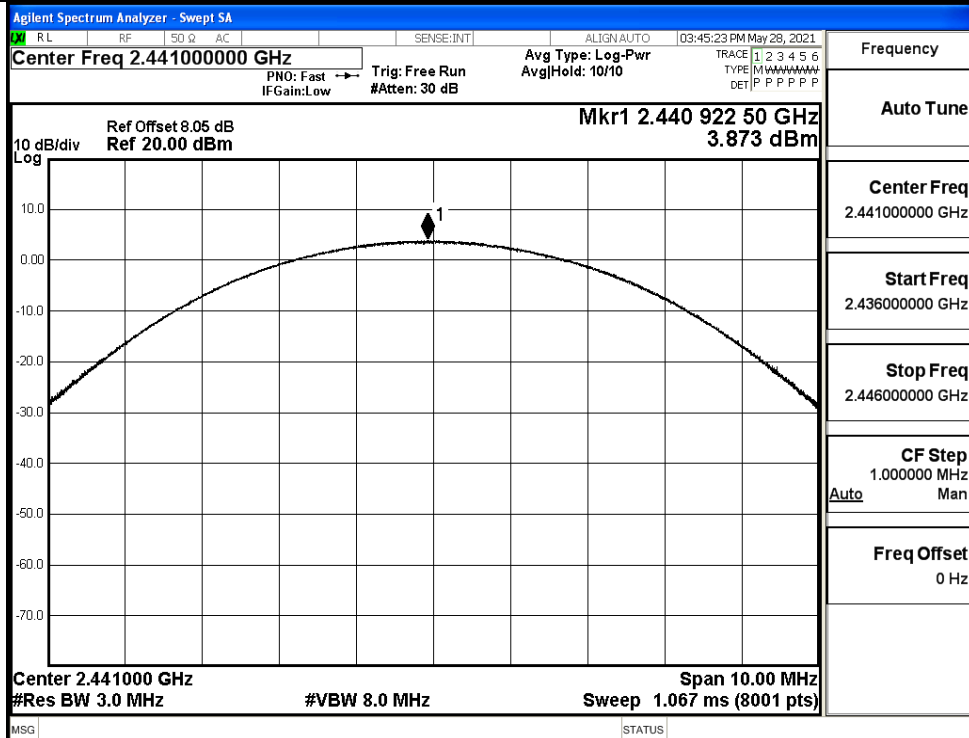
 $\pi/4$ DQPSK/LCH



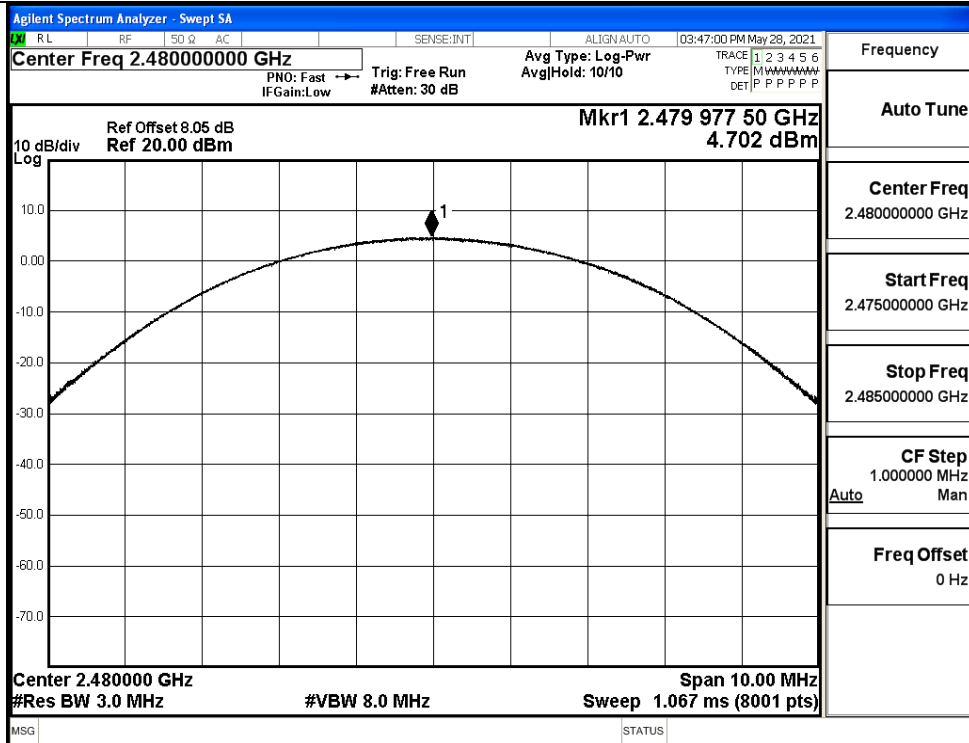
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH



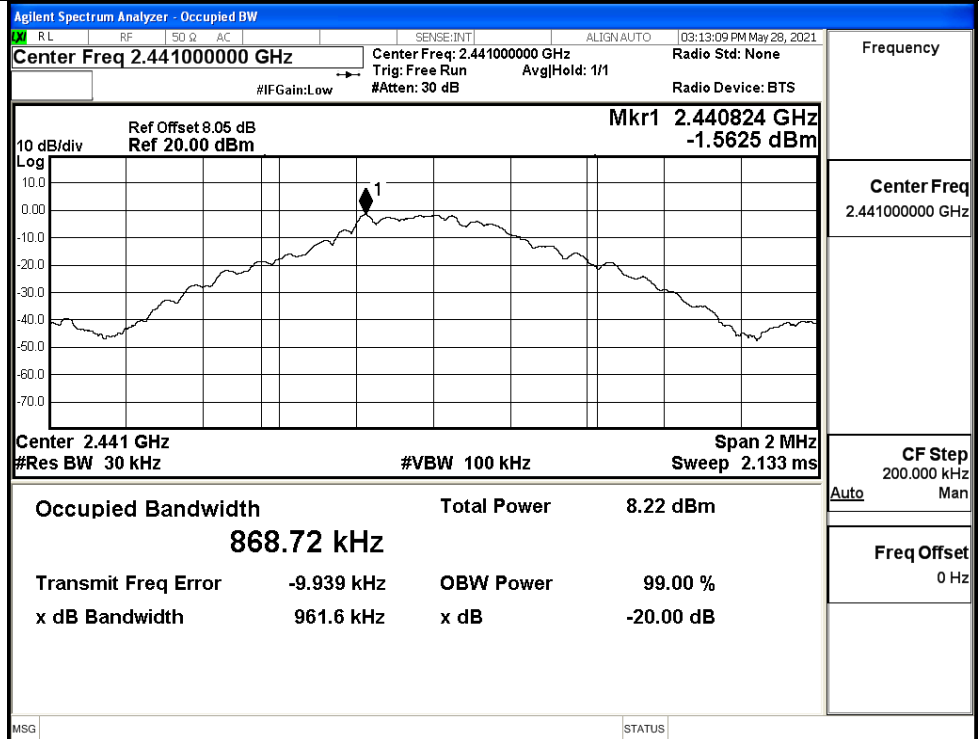
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9621	Not Specified	PASS
	MCH	0.9616	Not Specified	PASS
	HCH	0.9619	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.282	Not Specified	PASS
	MCH	1.282	Not Specified	PASS
	HCH	1.281	Not Specified	PASS
8DPSK	LCH	1.299	Not Specified	PASS
	MCH	1.300	Not Specified	PASS
	HCH	1.301	Not Specified	PASS

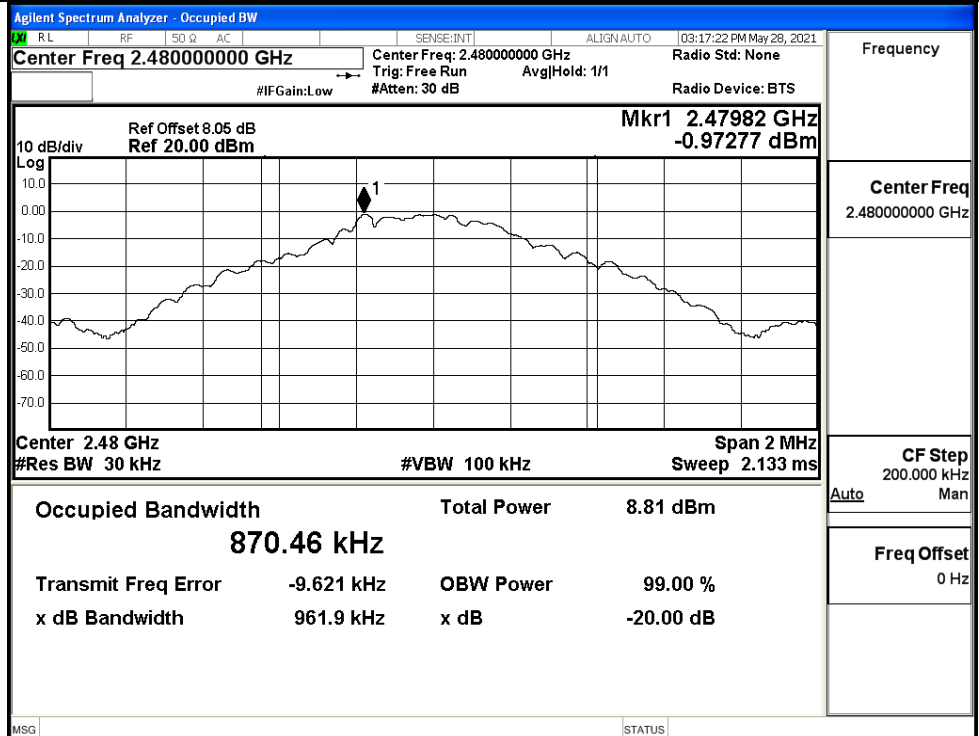
Test Graphs

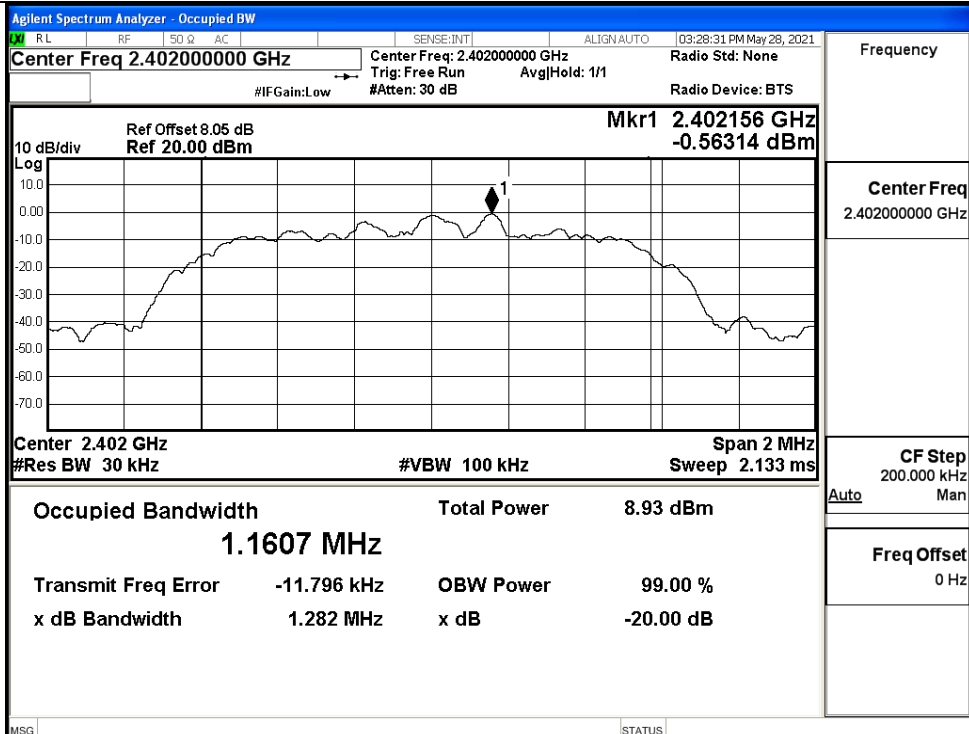


GFSK/MCH

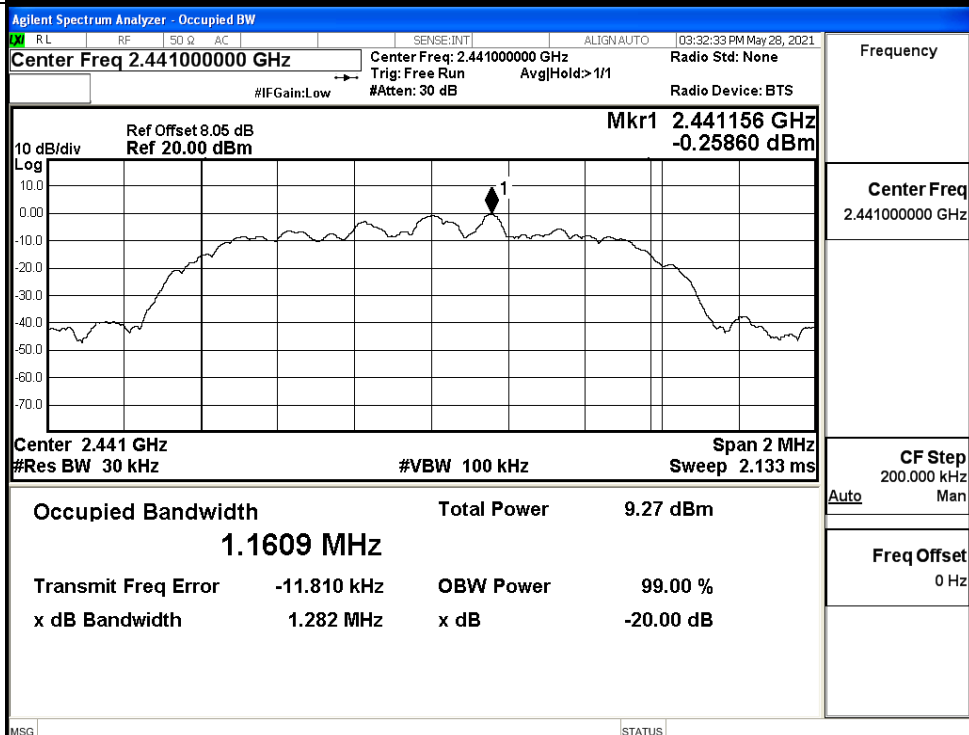


GFSK/HCH



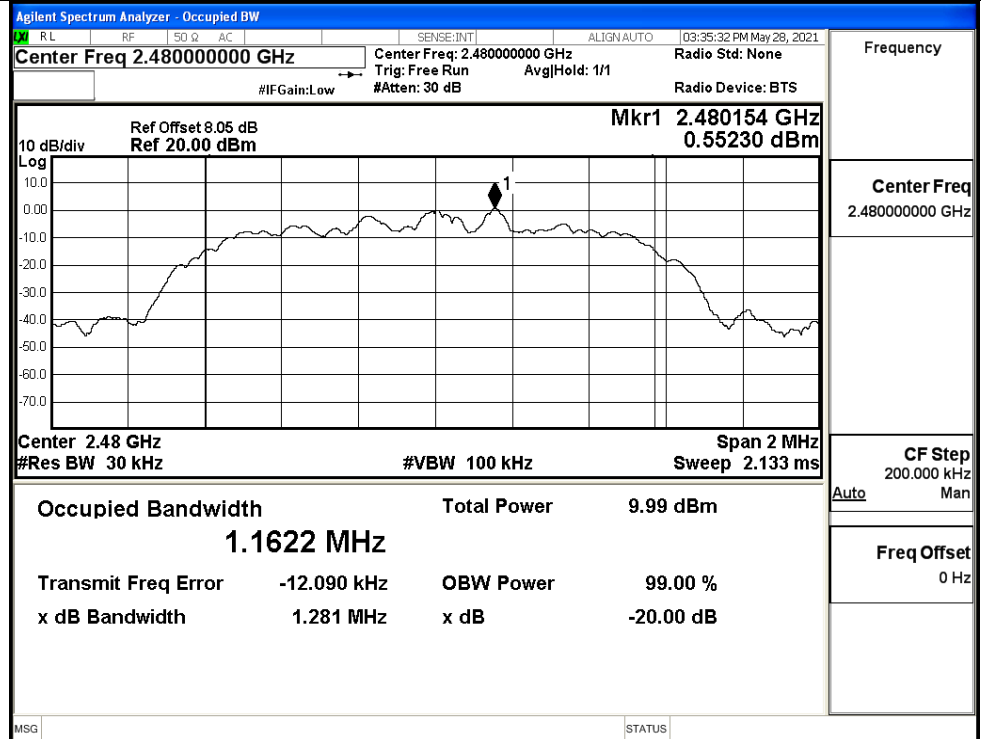
$\pi/4$ DQPSK/LCH

Frequency

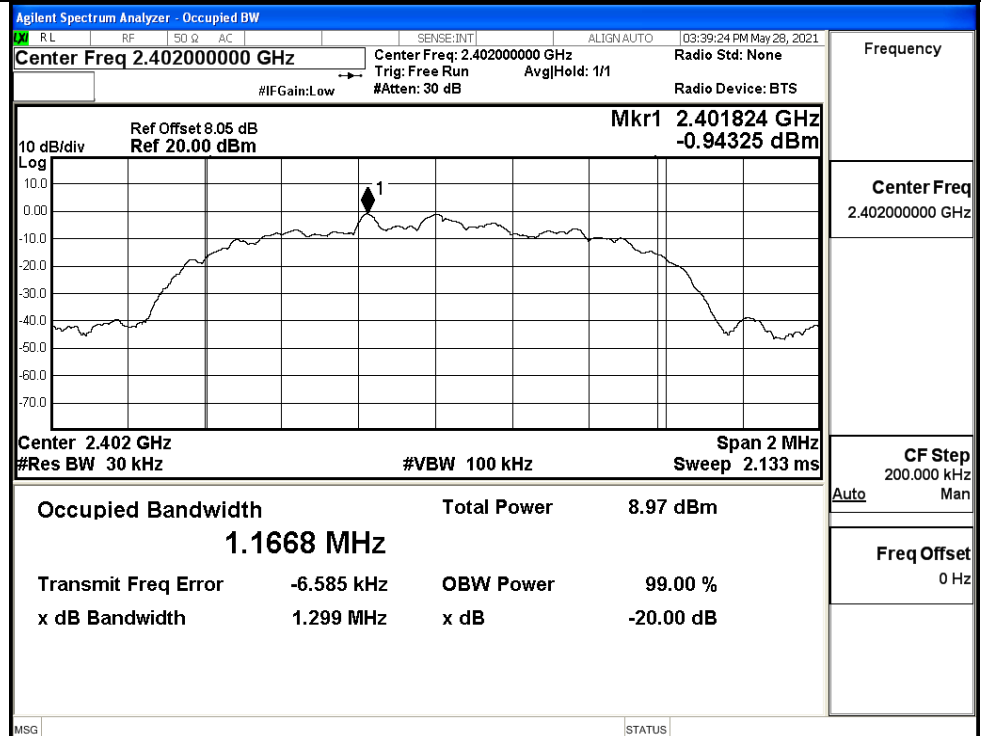
Center Freq
2.40200000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/MCH

Frequency

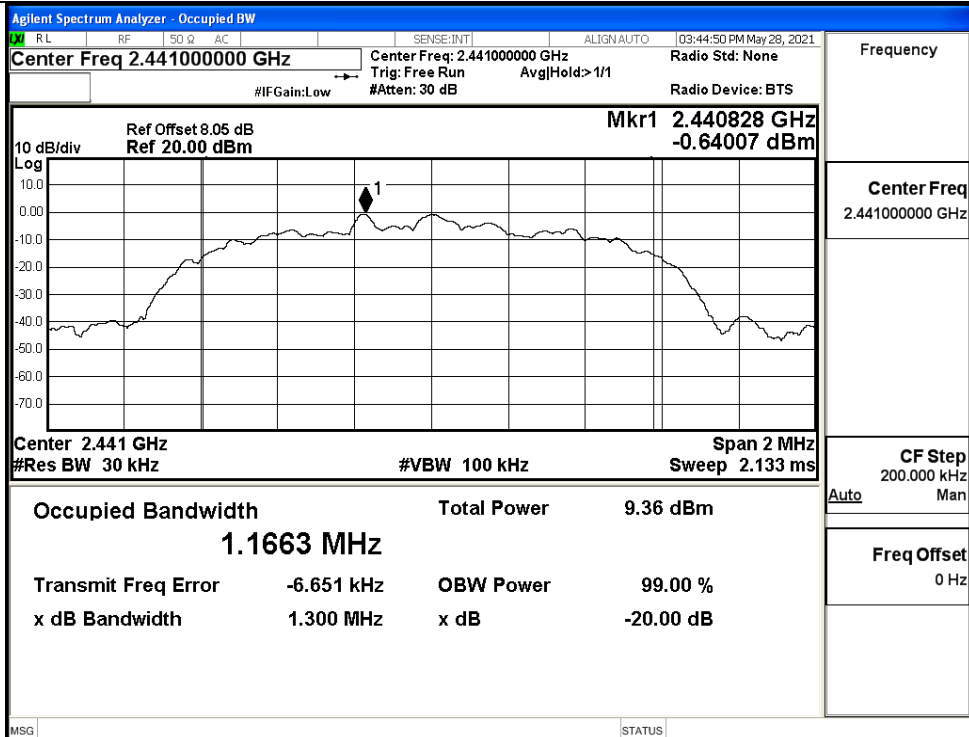
Center Freq
2.44100000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH

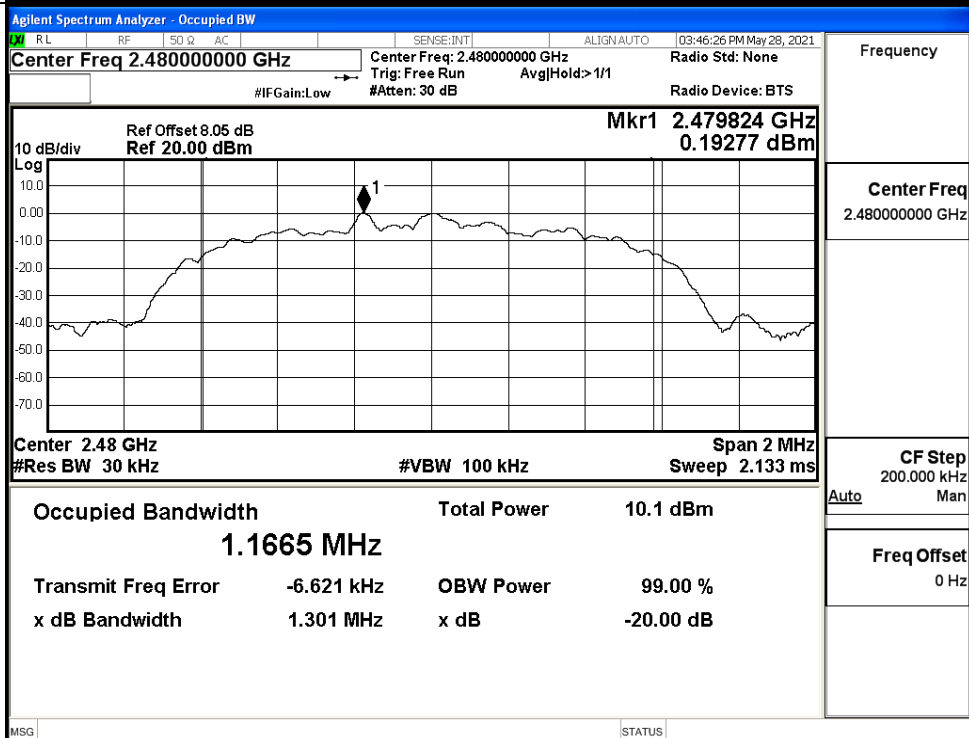
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

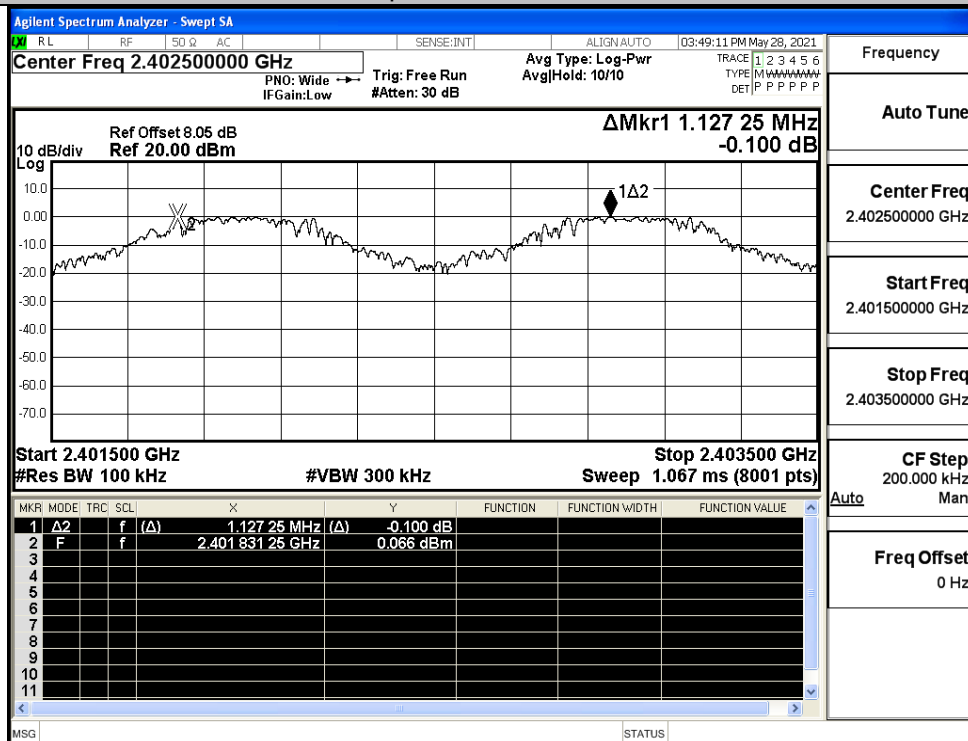


A.4 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.127	0.641	PASS
	MCH	1.176	0.641	PASS
	HCH	0.998	0.641	PASS
$\pi/4$ DQPSK	LCH	1.142	0.855	PASS
	MCH	1.130	0.855	PASS
	HCH	1.080	0.855	PASS
8DPSK	LCH	1.146	0.867	PASS
	MCH	0.906	0.867	PASS
	HCH	0.880	0.867	PASS

Test Graphs

GFSK/LCH

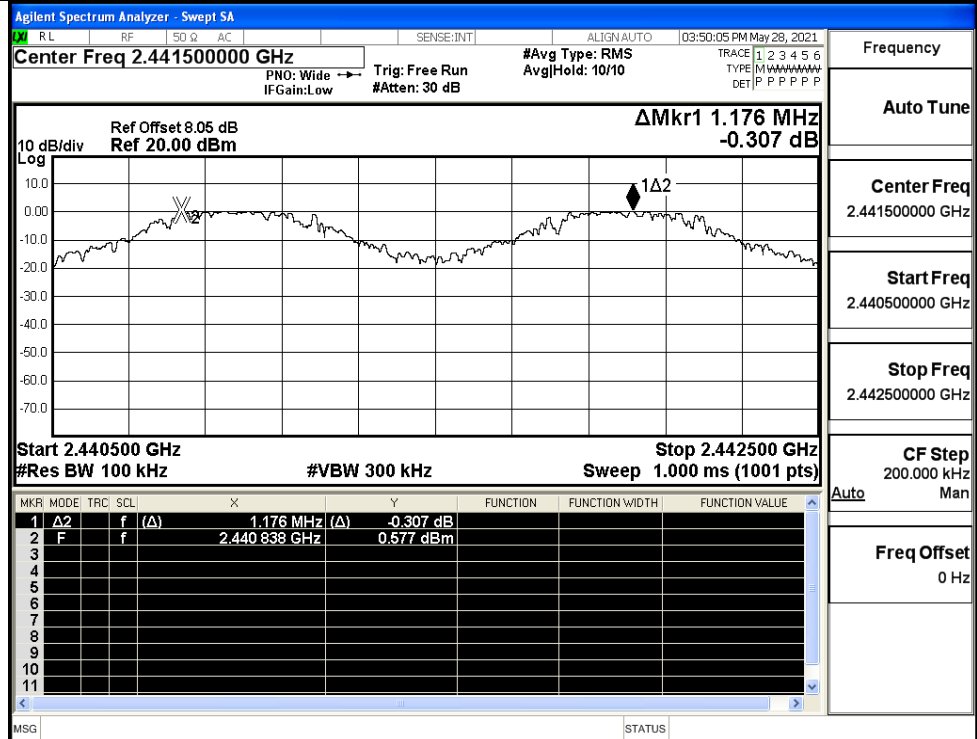


Frequency

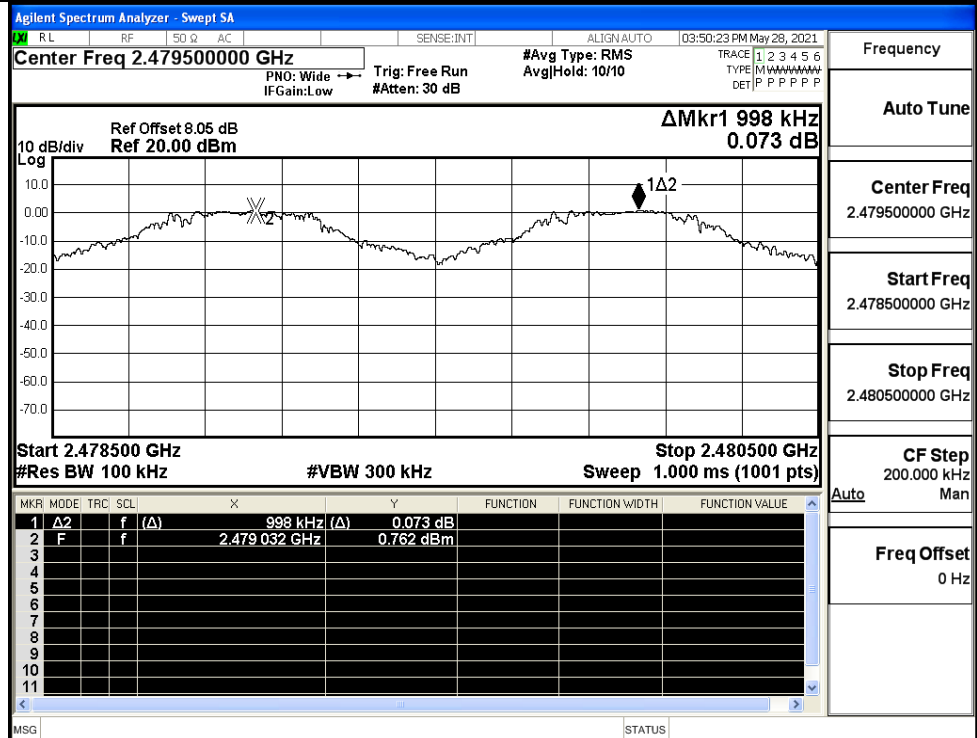
Auto Tune

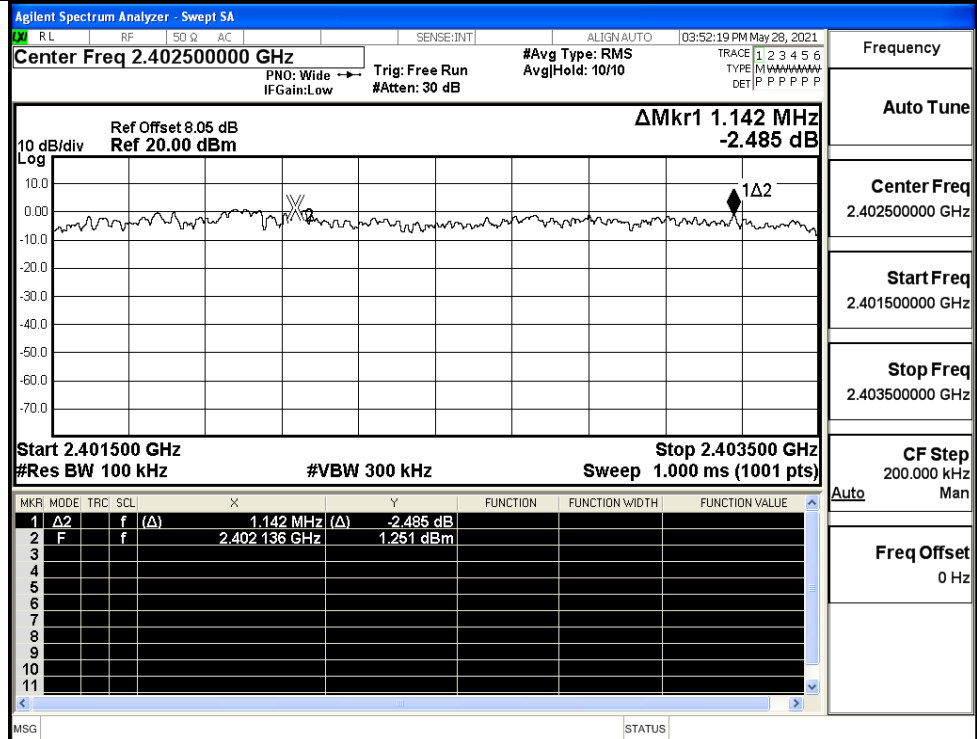
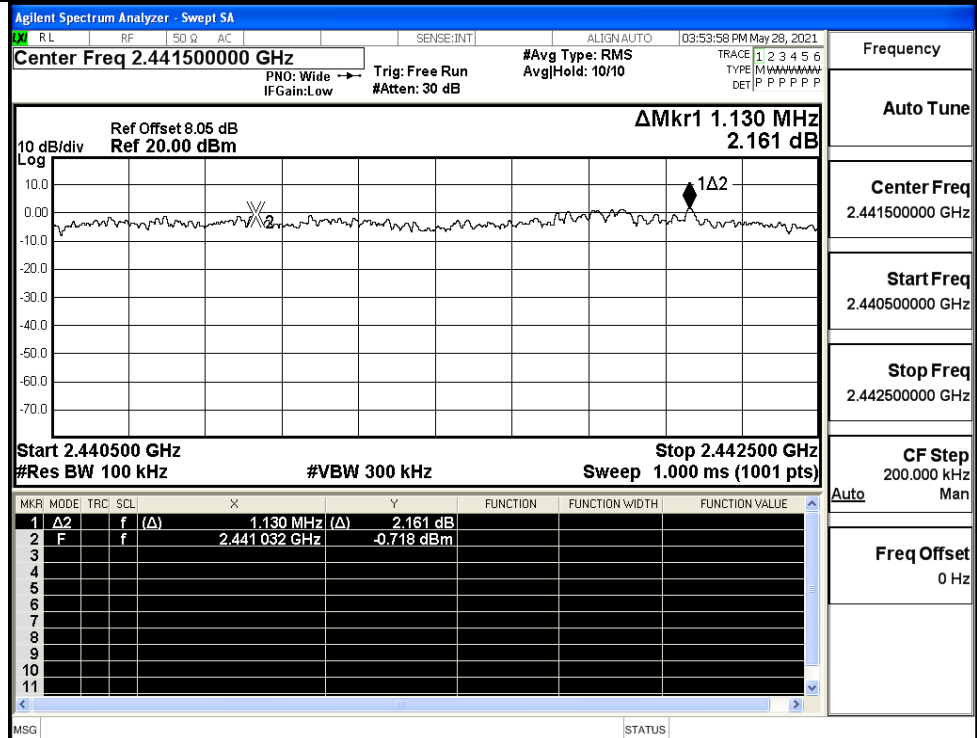
Center Freq
2.402500000 GHzStart Freq
2.401500000 GHzStop Freq
2.403500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

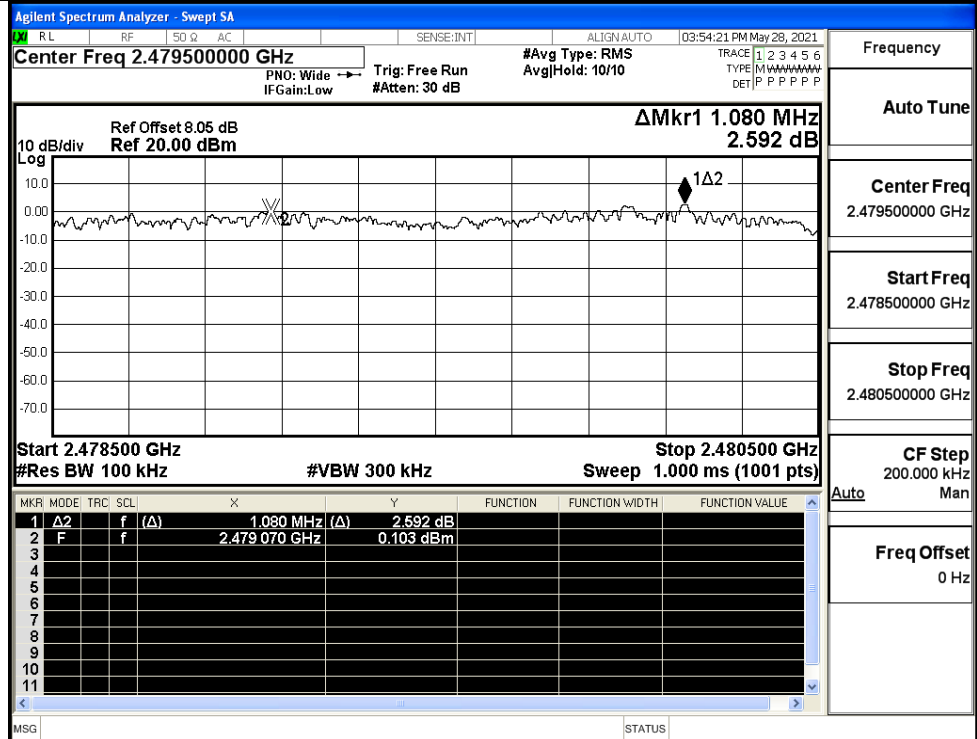
GFSK/MCH



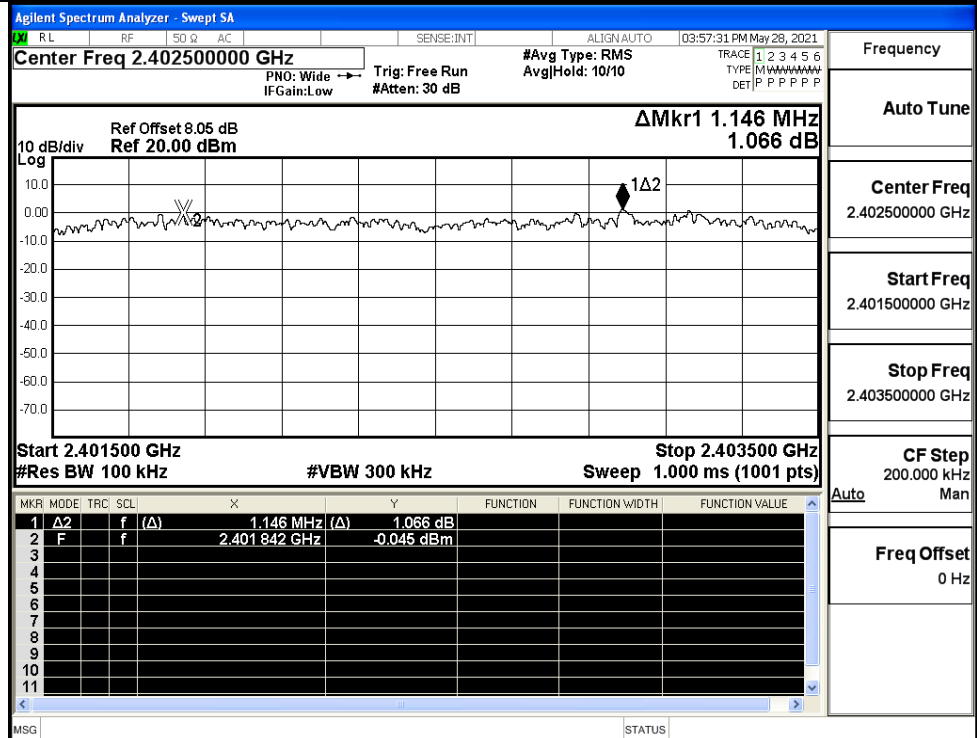
GFSK/HCH



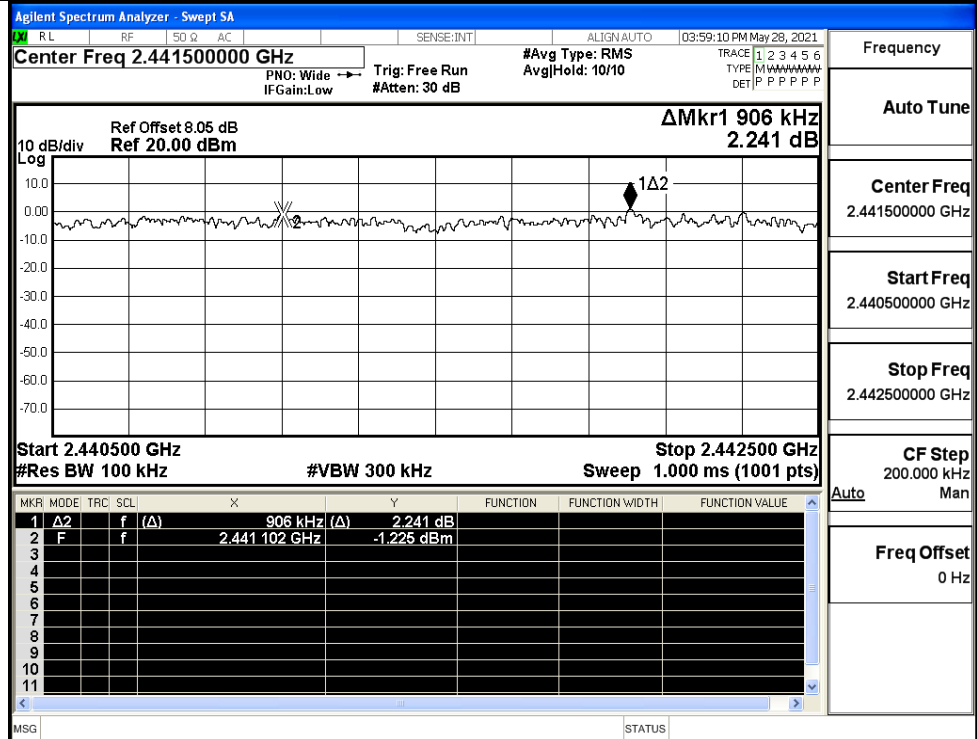
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

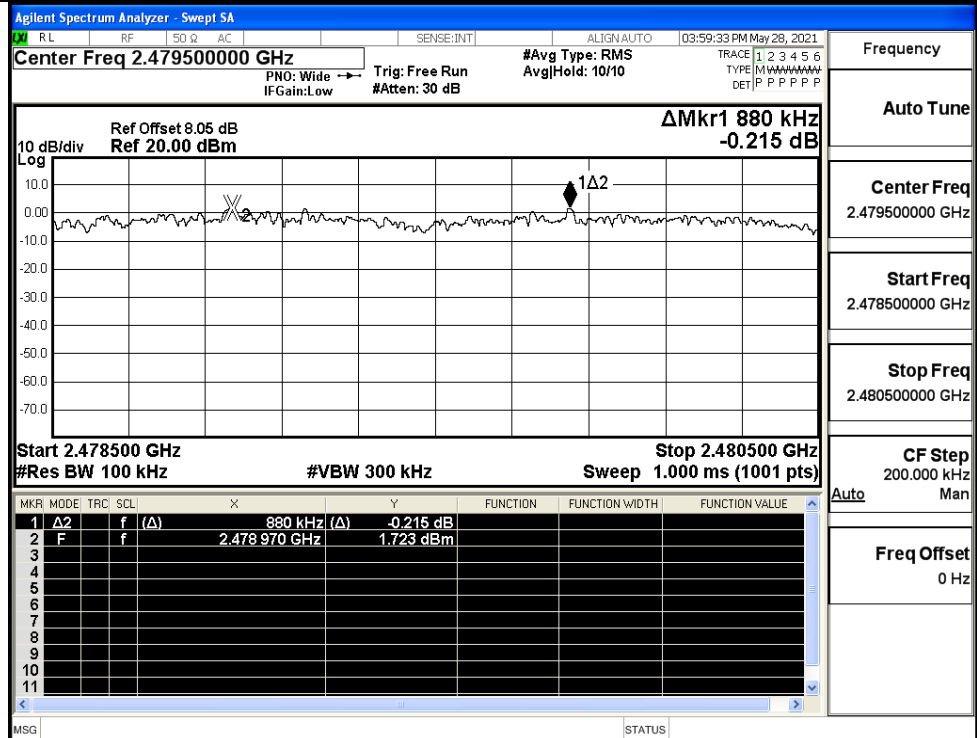
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

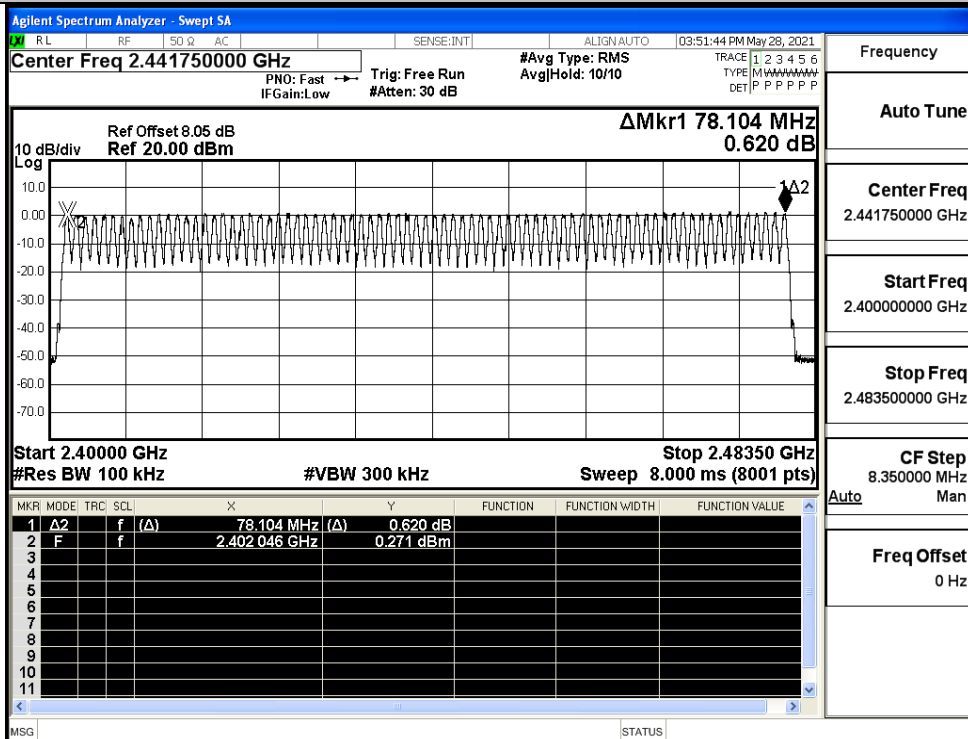


A.5 Hopping Channel Number

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

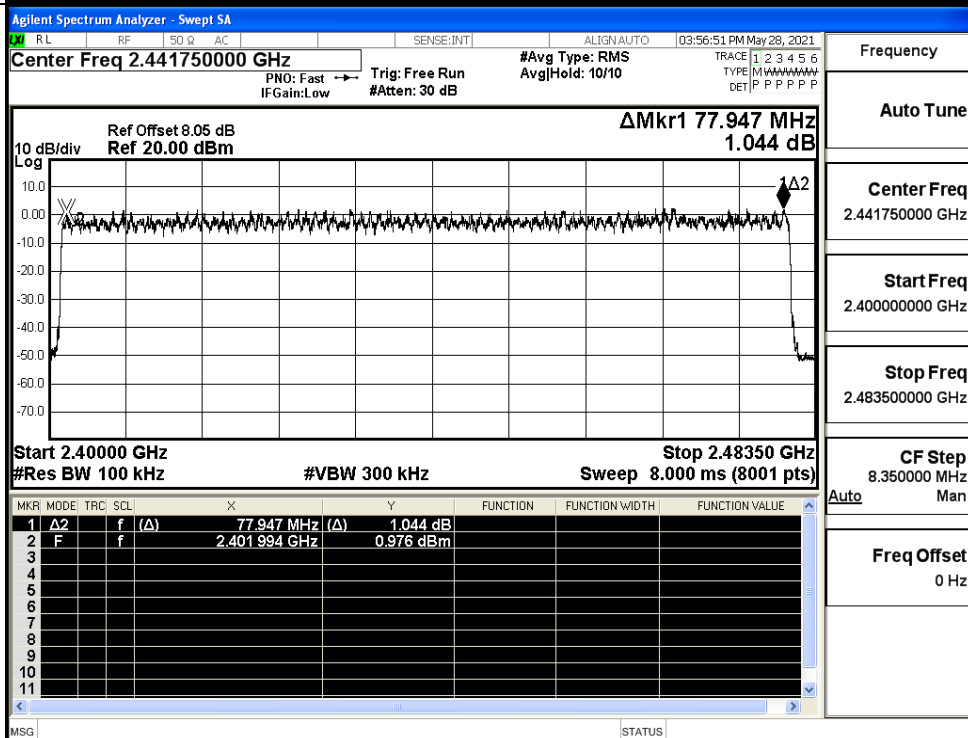
Test Graphs

GFSK/Hop



Frequency

Auto Tune

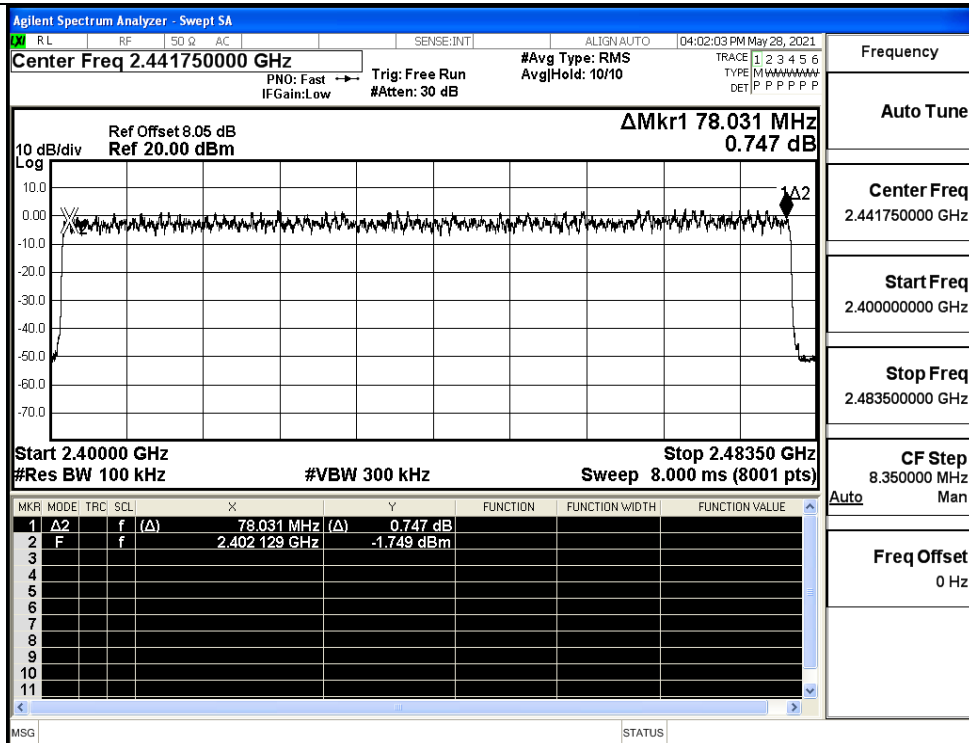
Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/Hop

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

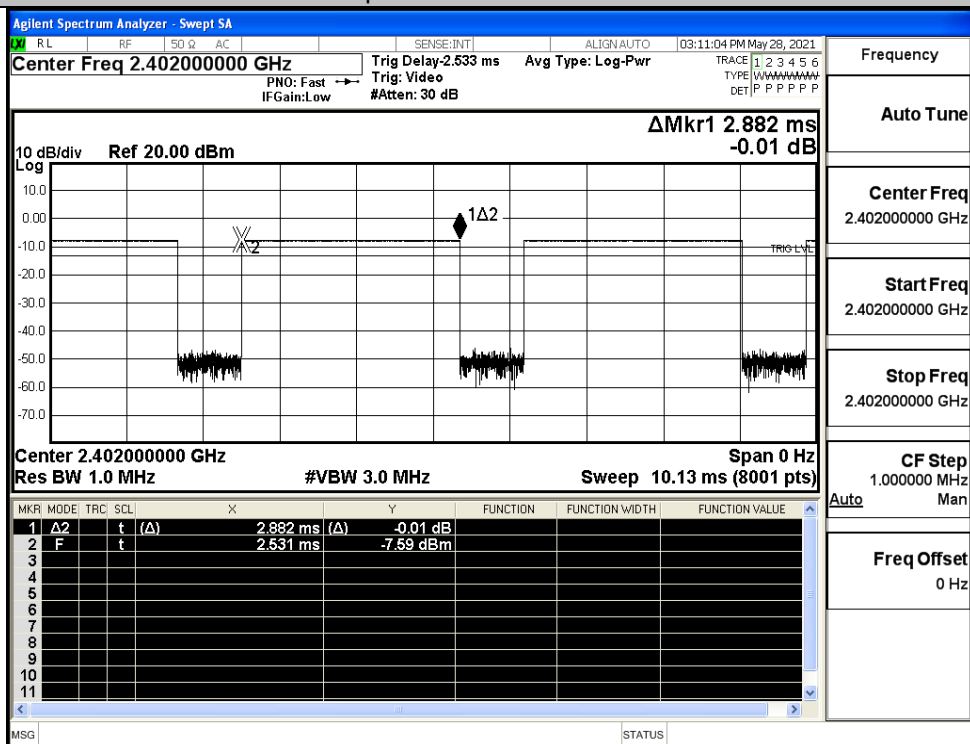


A.6 Dwell Time

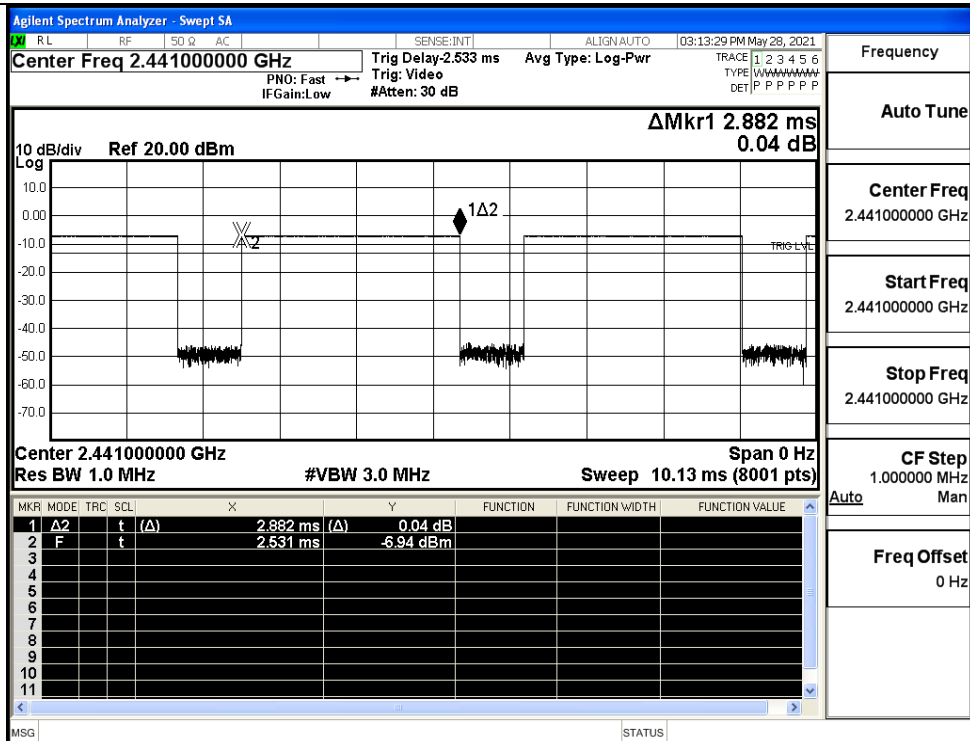
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.308	0.4	PASS
	2DH5	MCH	2.88	106.7	0.015	0.4	PASS
	2DH5	HCH	2.88	106.7	0.308	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.015	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.015	0.4	PASS

Test Graphs

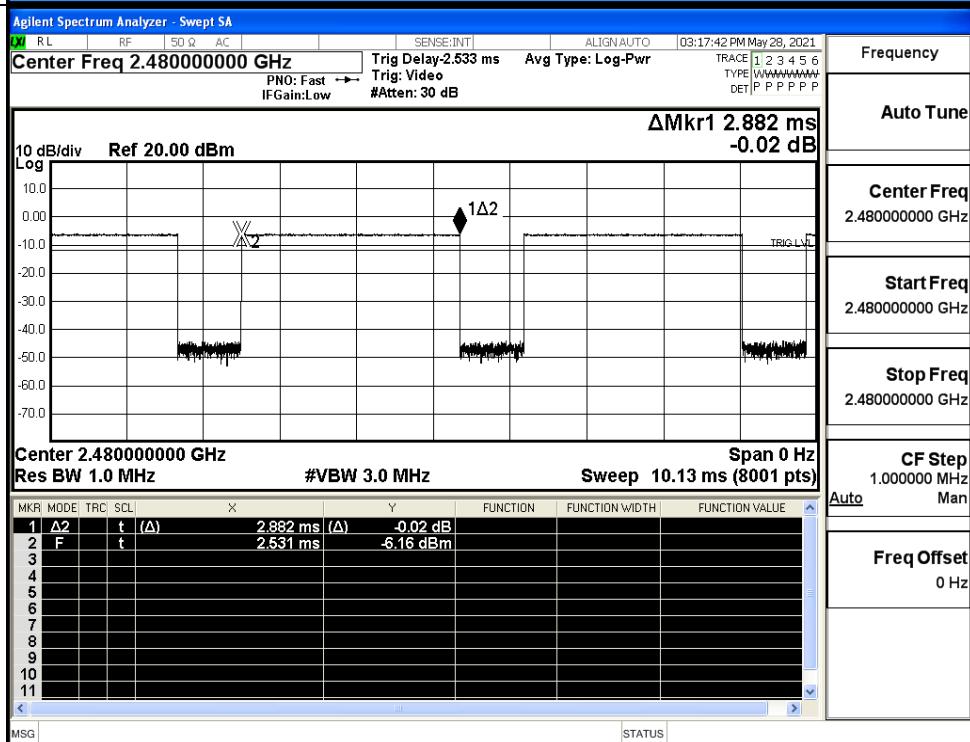
GFSK_DH5/LCH



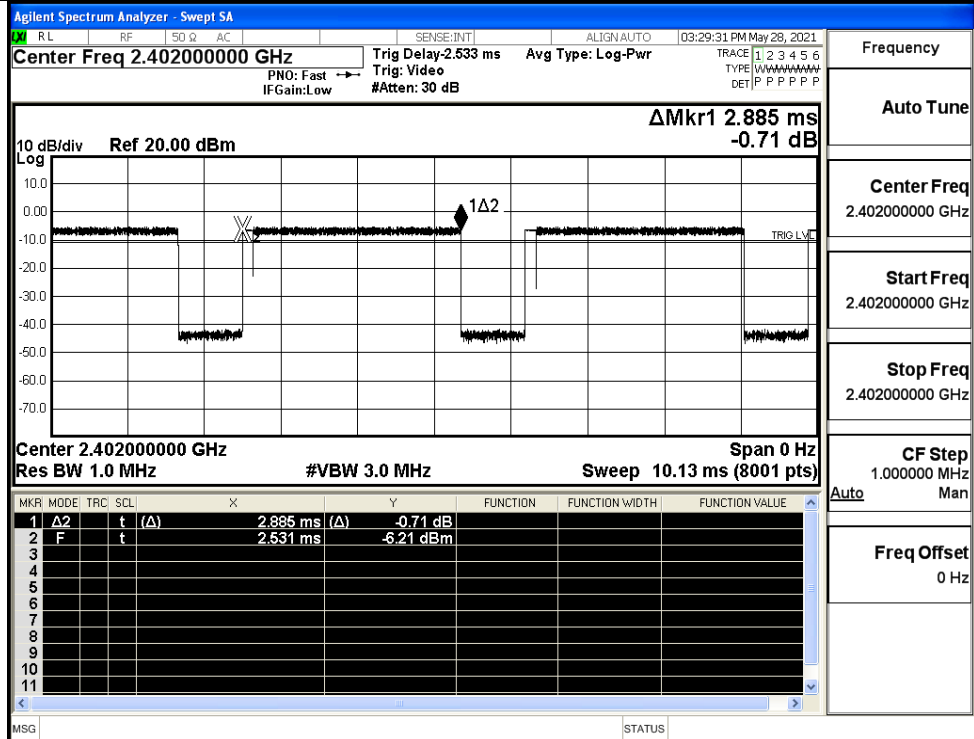
GFSK_DH5/MCH



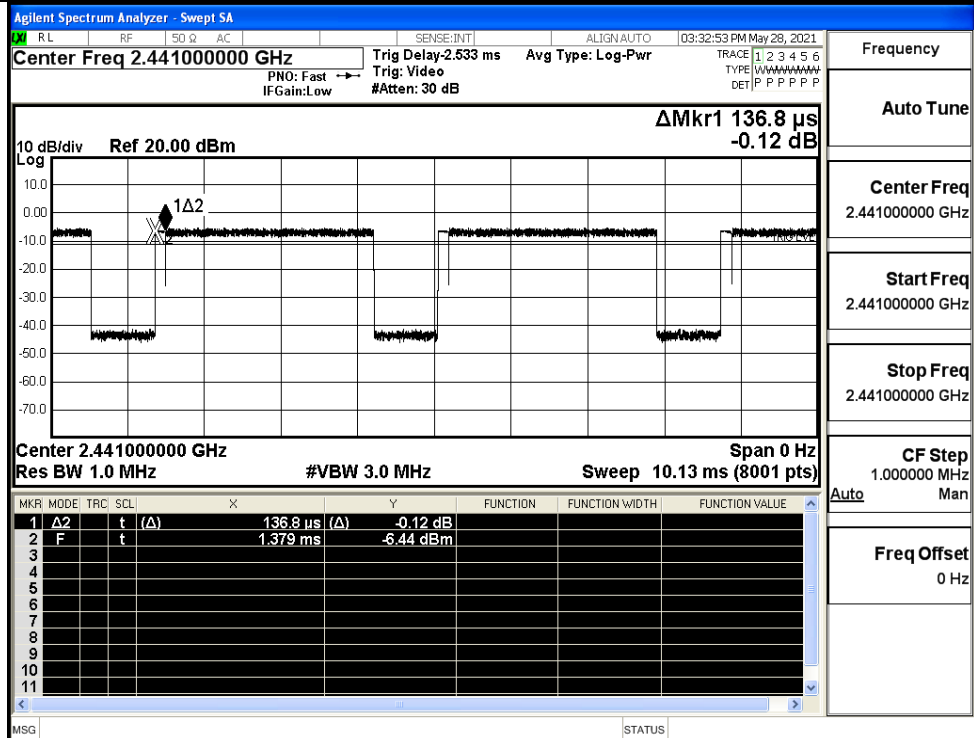
GFSK_DH5/HCH



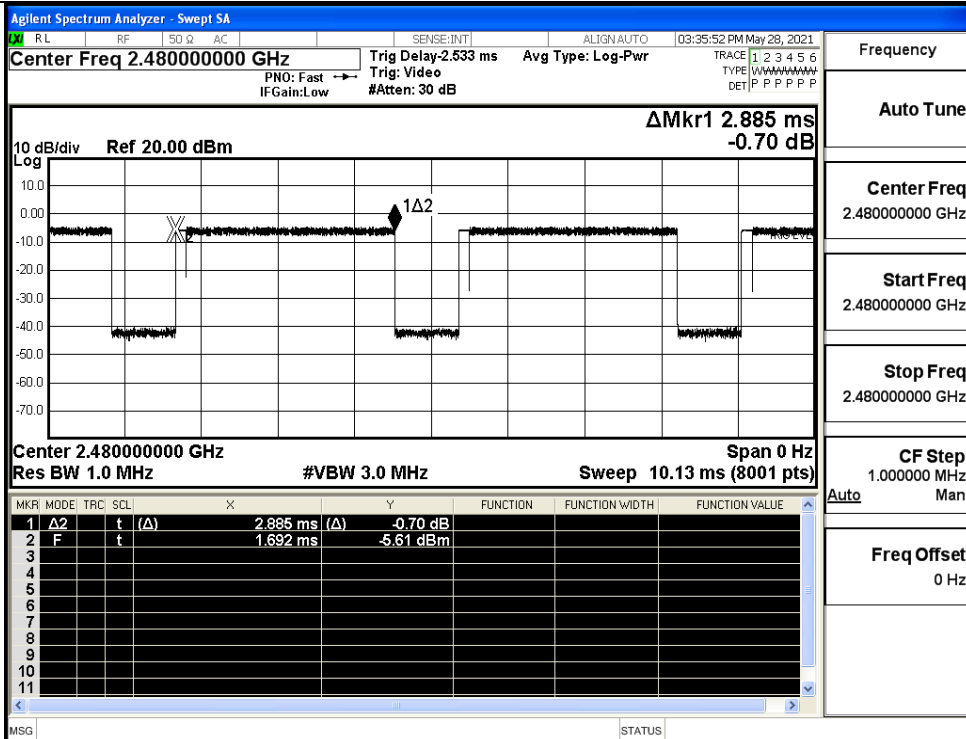
$\pi/4$ DQPSK
_2DH5/LCH



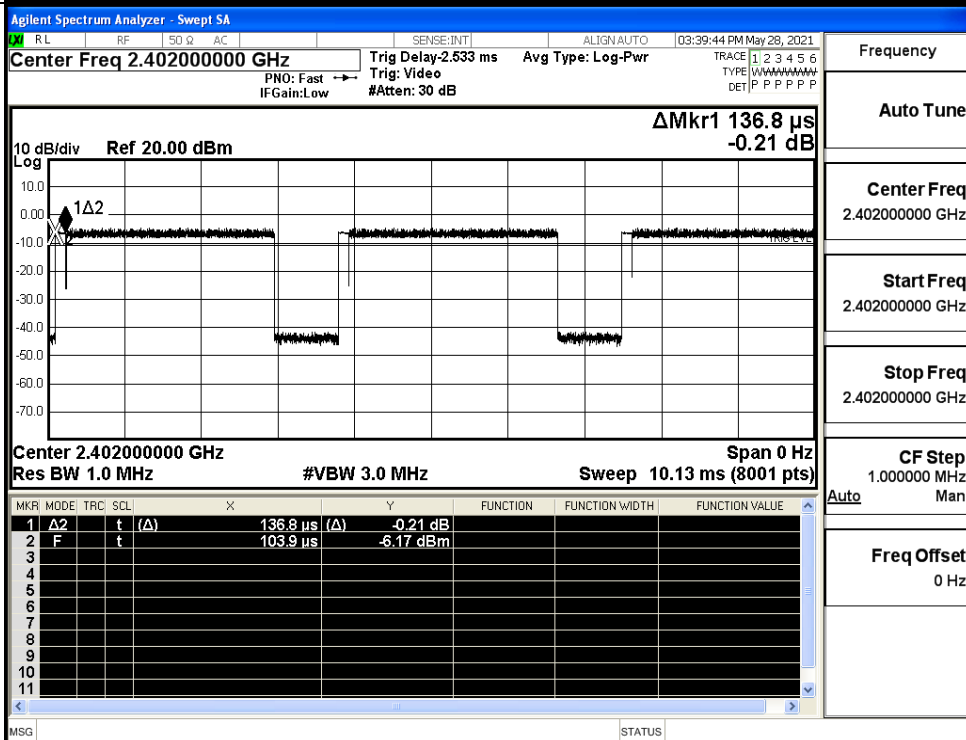
$\pi/4$ DQPSK
_2DH5/MCH



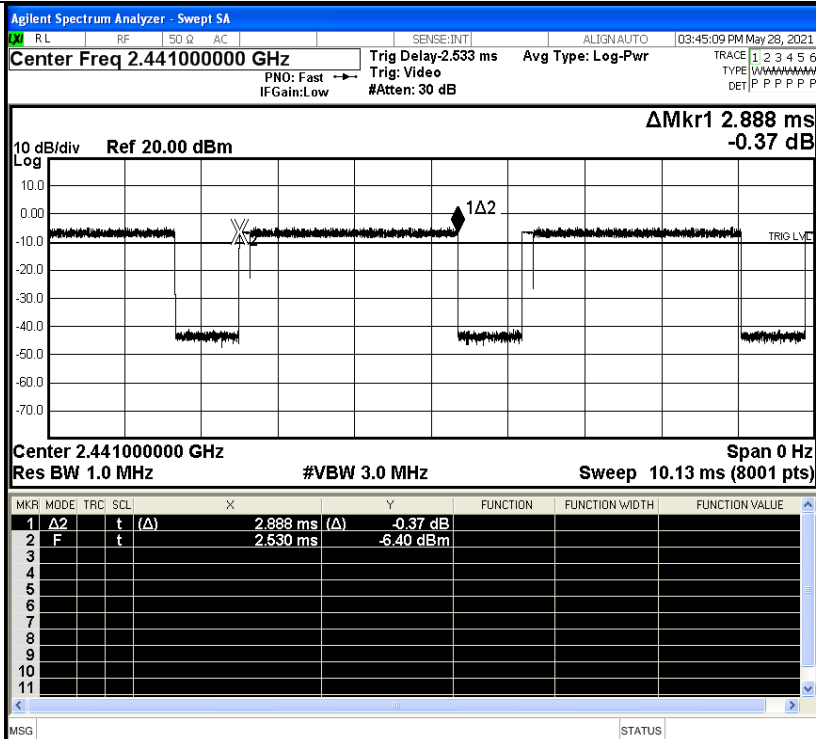
$\pi/4$ DQPSK
_2DH5/HCH



8DPSK _3DH5/LCH



8DPSK_3DH5/MCH

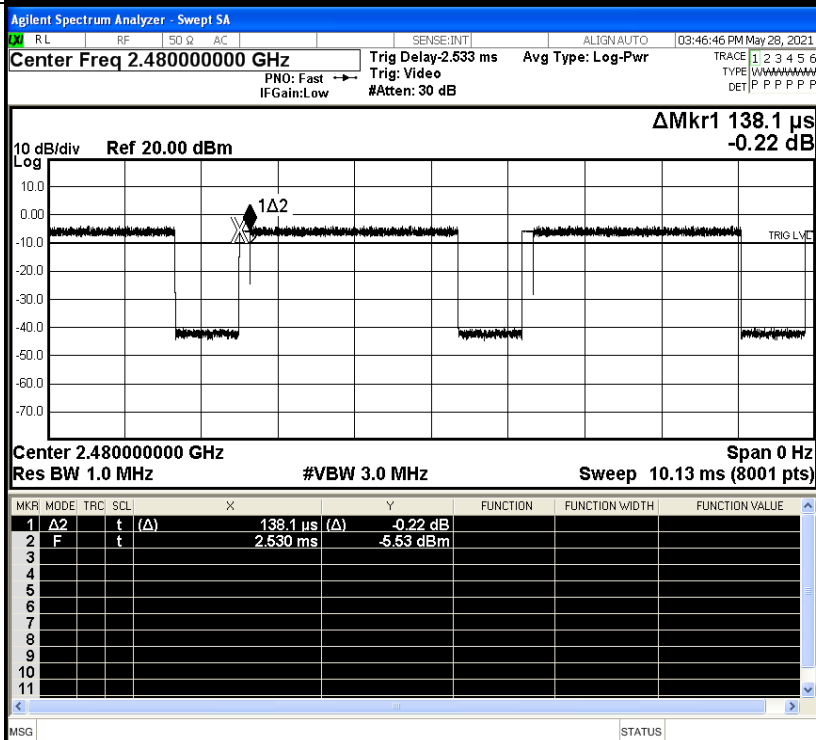


Frequency

Auto Tune

Center Freq
2.441000000 GHzStart Freq
2.441000000 GHzStop Freq
2.441000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

8DPSK_3DH5/HCH



Frequency

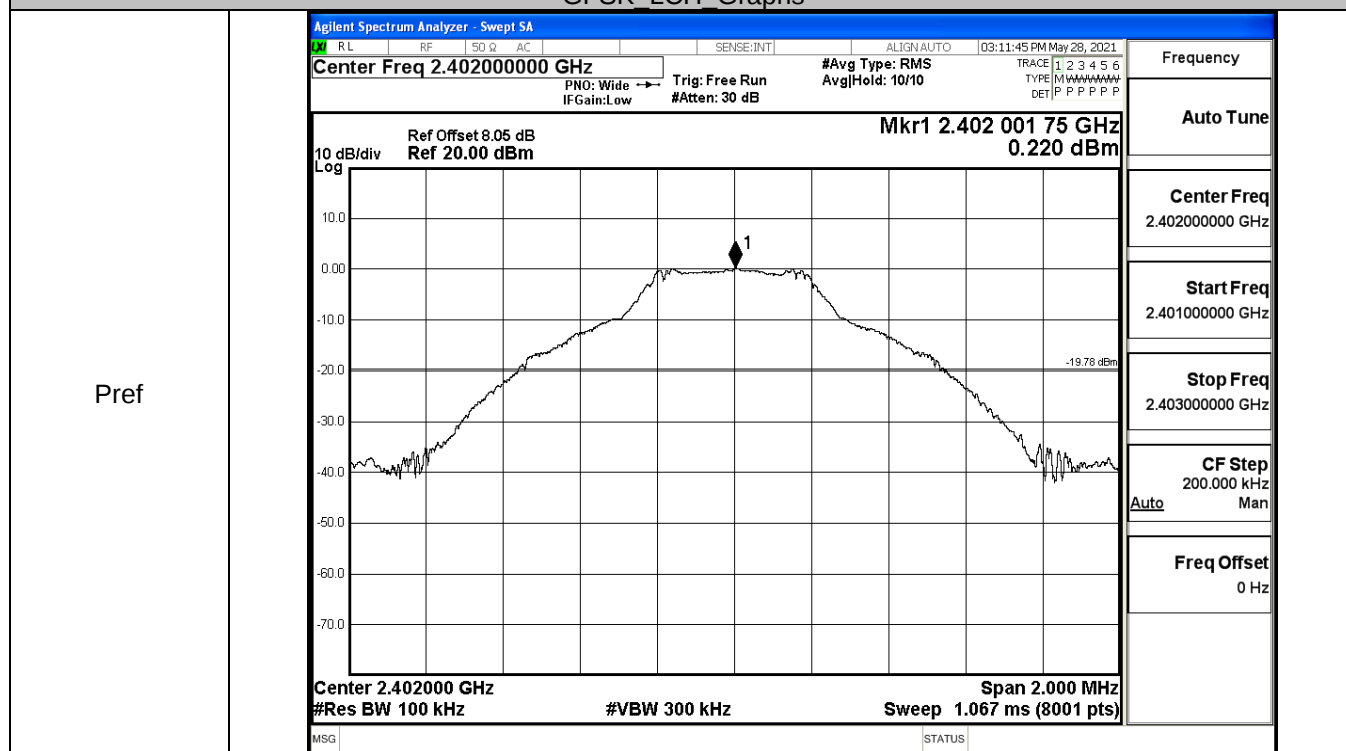
Auto Tune

Center Freq
2.480000000 GHzStart Freq
2.480000000 GHzStop Freq
2.480000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

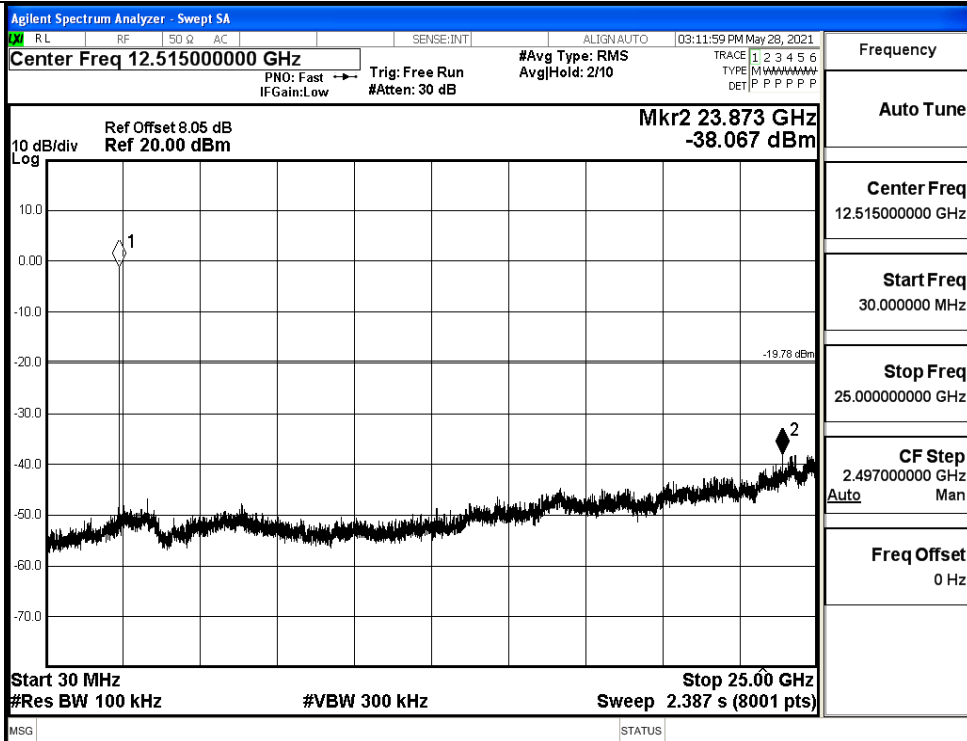
A.7 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.22	-38.067	-19.780	PASS
	MCH	1.04	-36.802	-18.960	PASS
	HCH	1.803	-37.832	-18.197	PASS
$\pi/4$ DQPSK	LCH	1.702	-36.686	-18.298	PASS
	MCH	2.045	-37.718	-17.955	PASS
	HCH	2.82	-36.664	-17.180	PASS
8DPSK	LCH	1.713	-37.116	-18.287	PASS
	MCH	2.105	-37.875	-17.895	PASS
	HCH	2.386	-35.974	-17.614	PASS

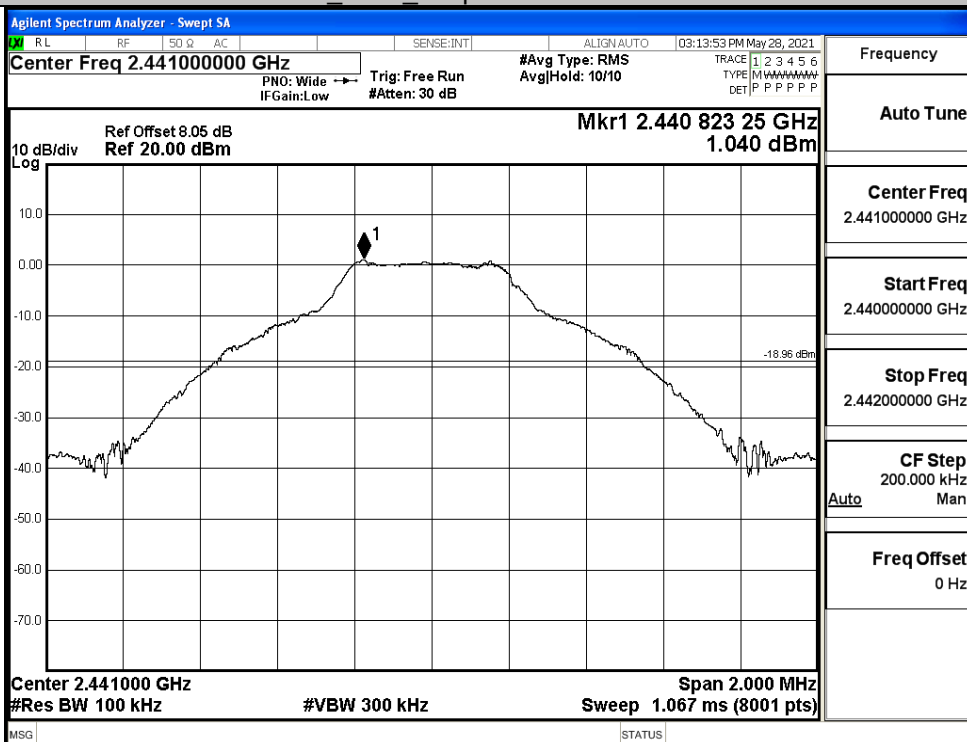
GFSK LCH Graphs



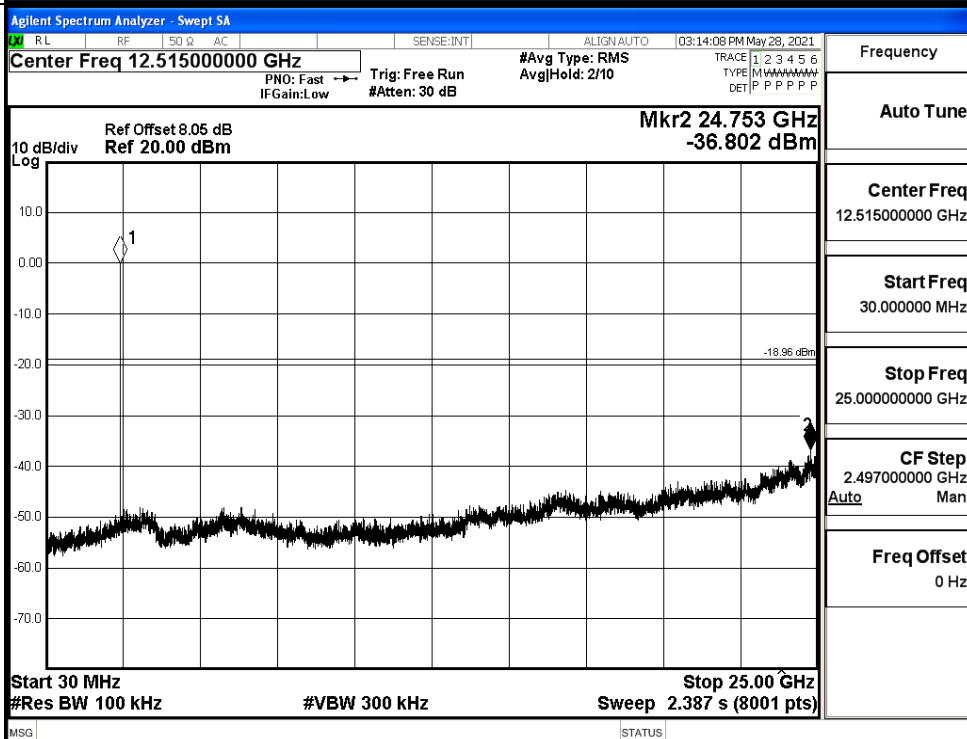
Puw



Pref

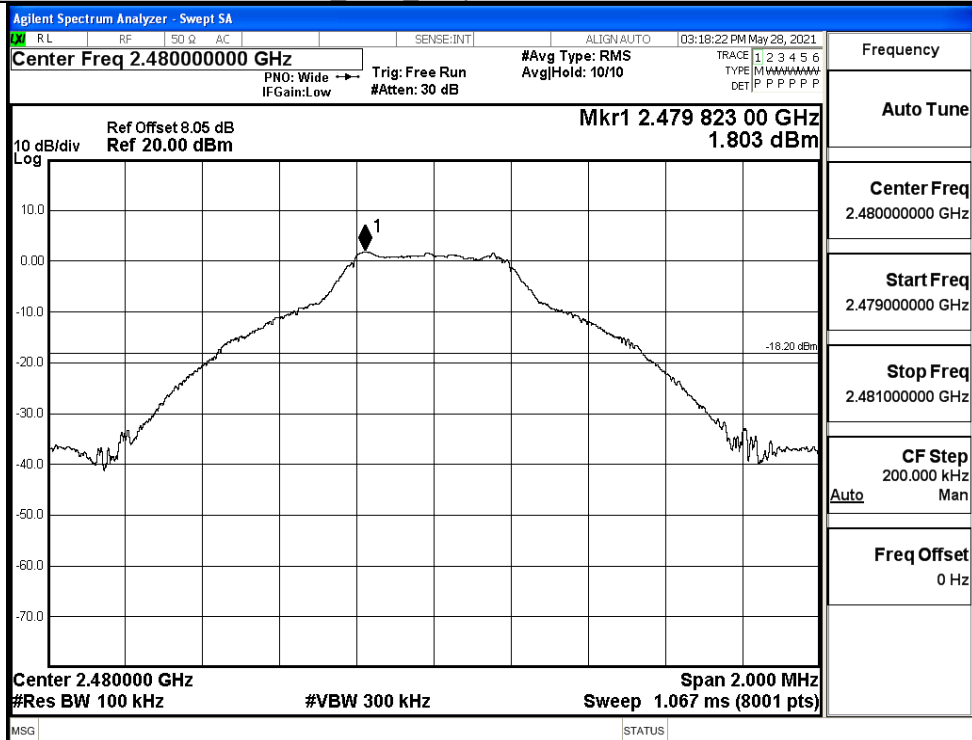


Puw

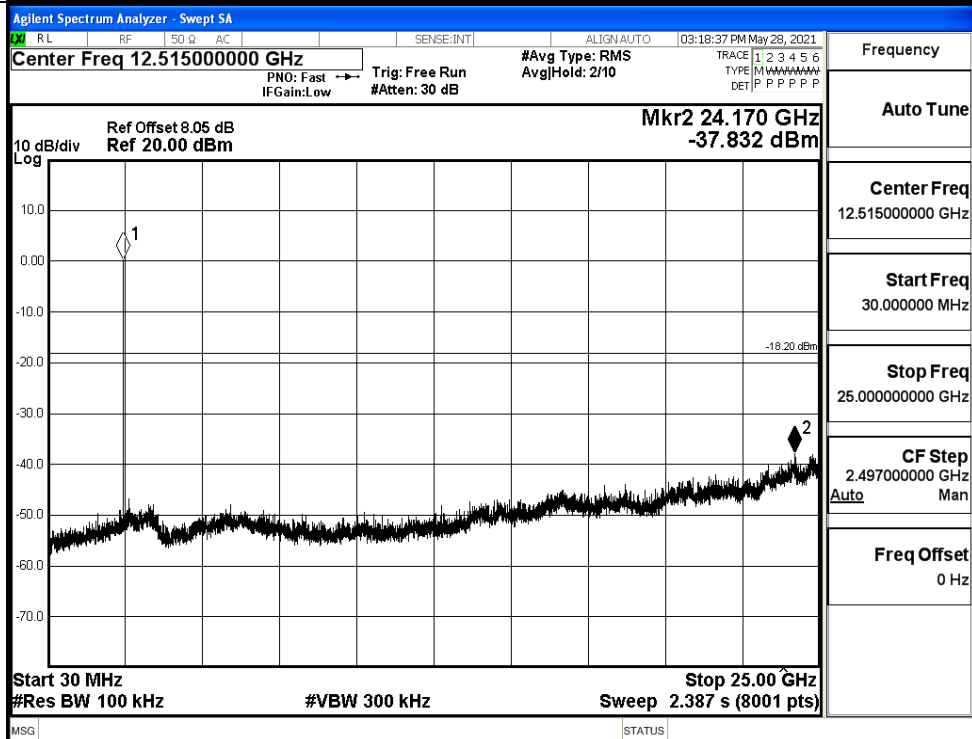


GFSK HCH_Graphs

Pref

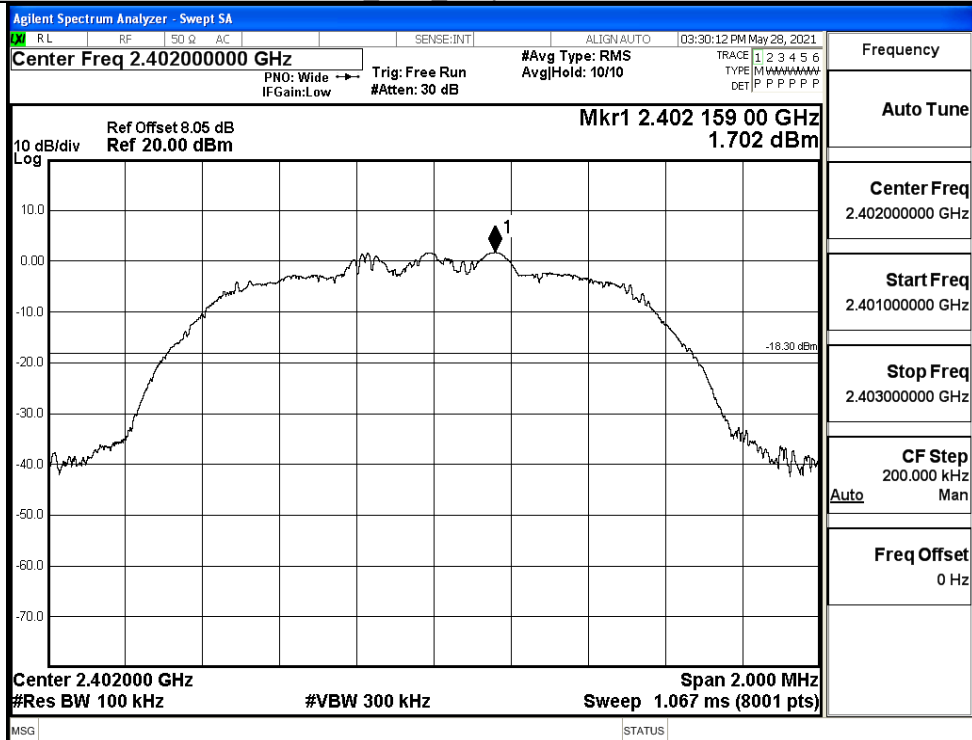


Puw

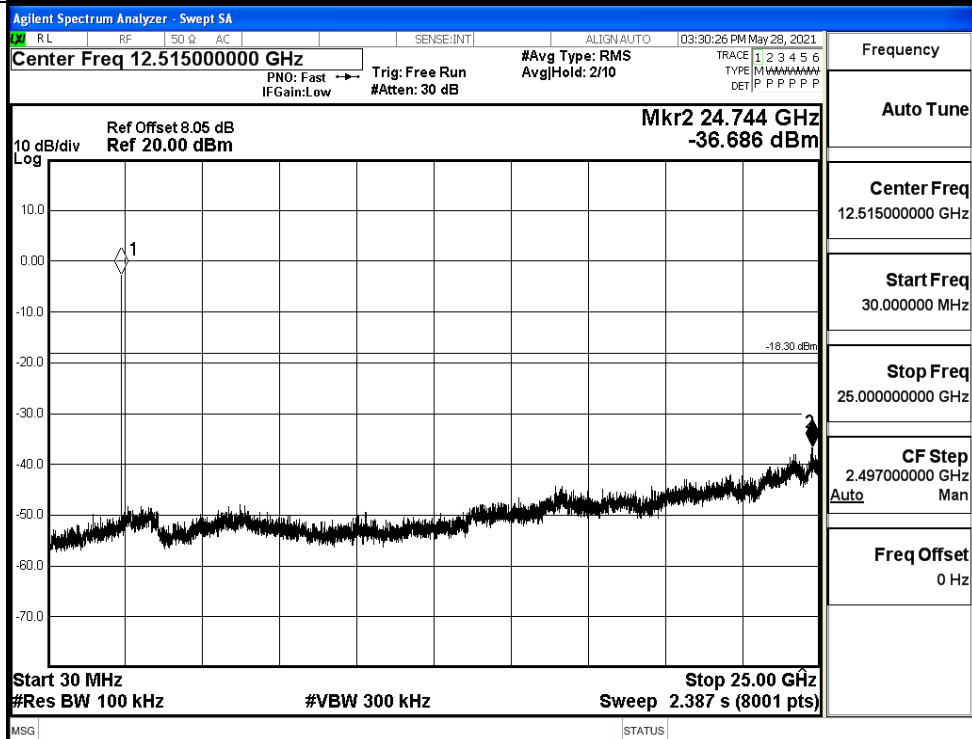


$\pi/4$ DQPSK_LCH_Graphs

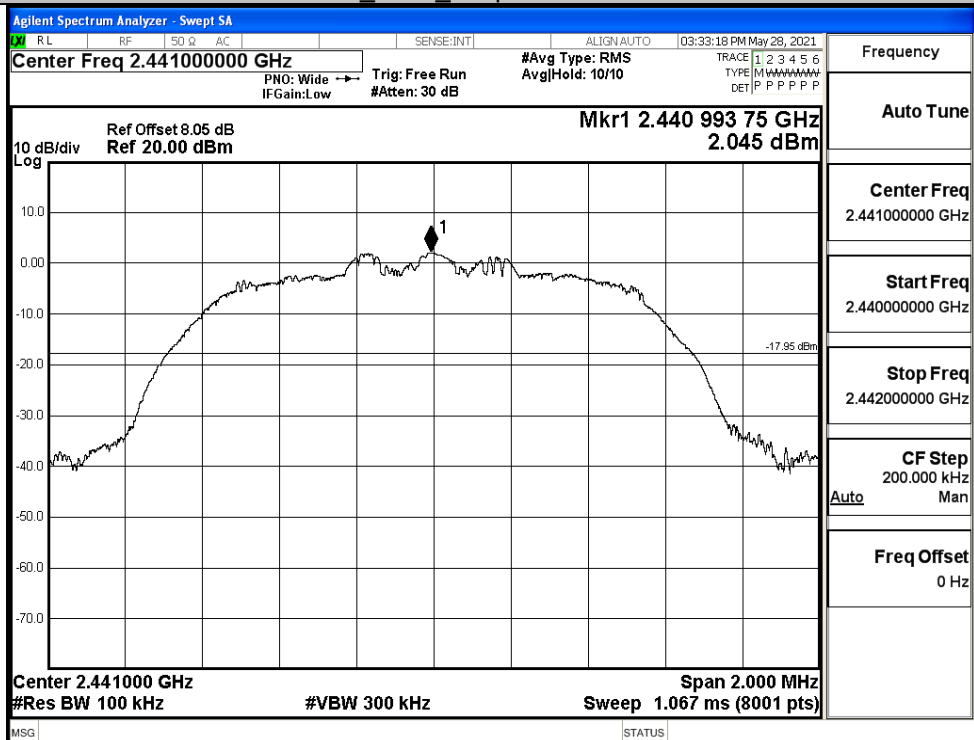
Pref



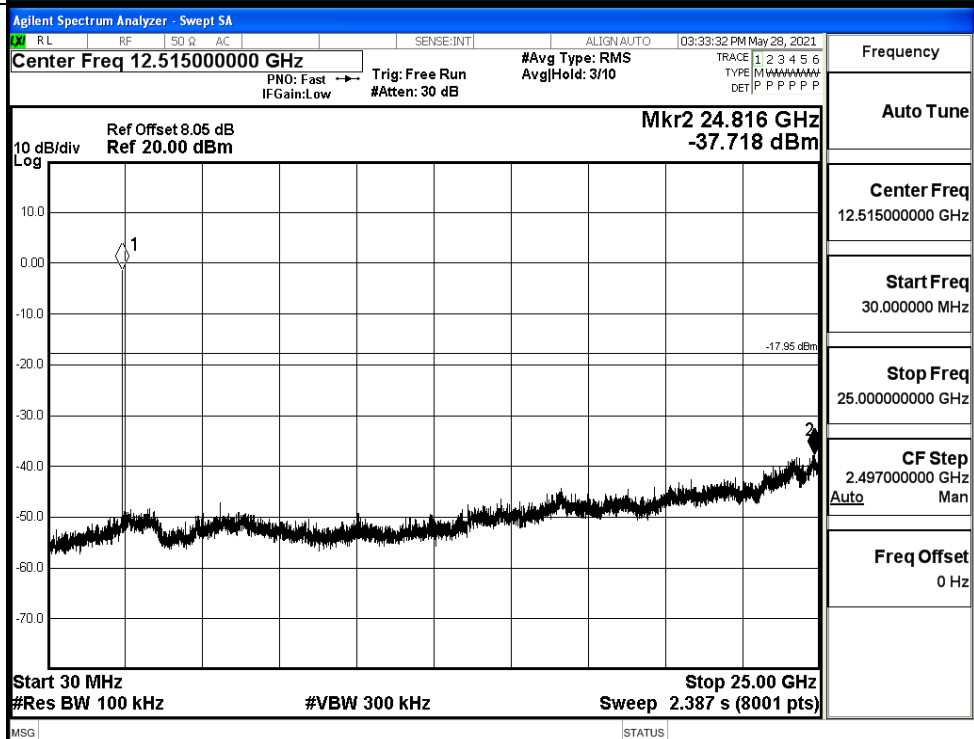
Puw



Pref

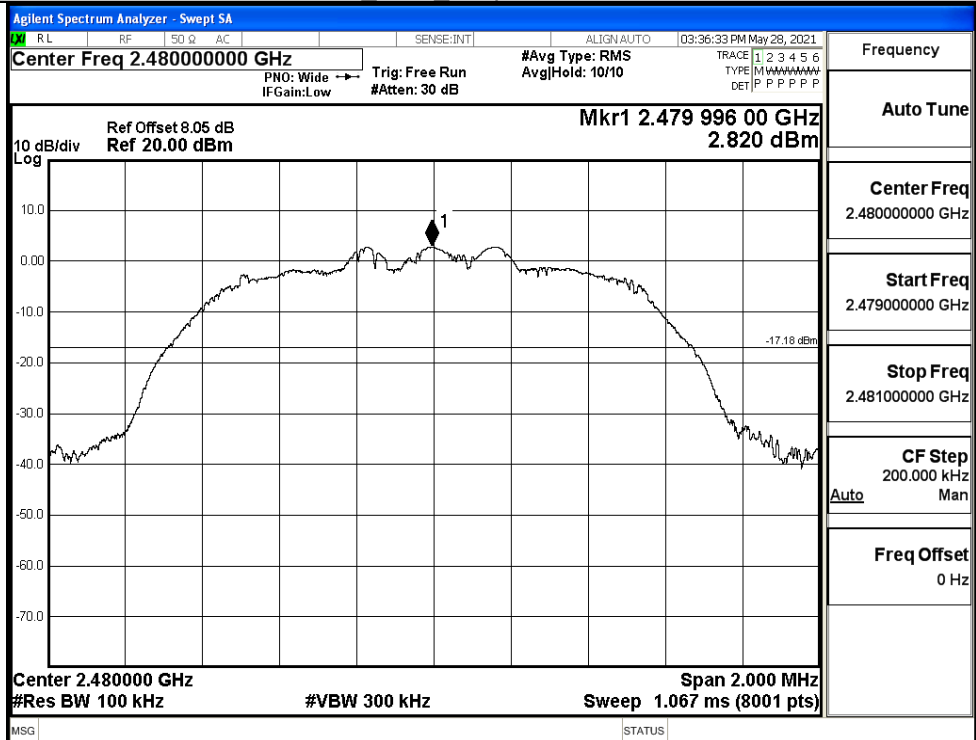


PuW

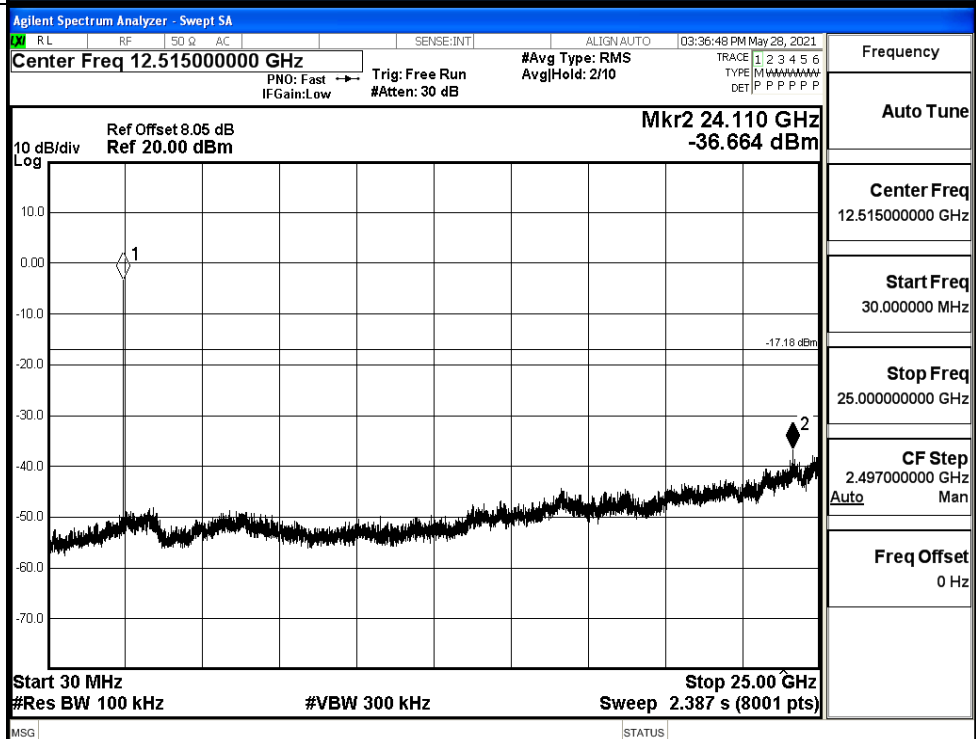


π /4DQPSK_HCH_Graphs

Pref

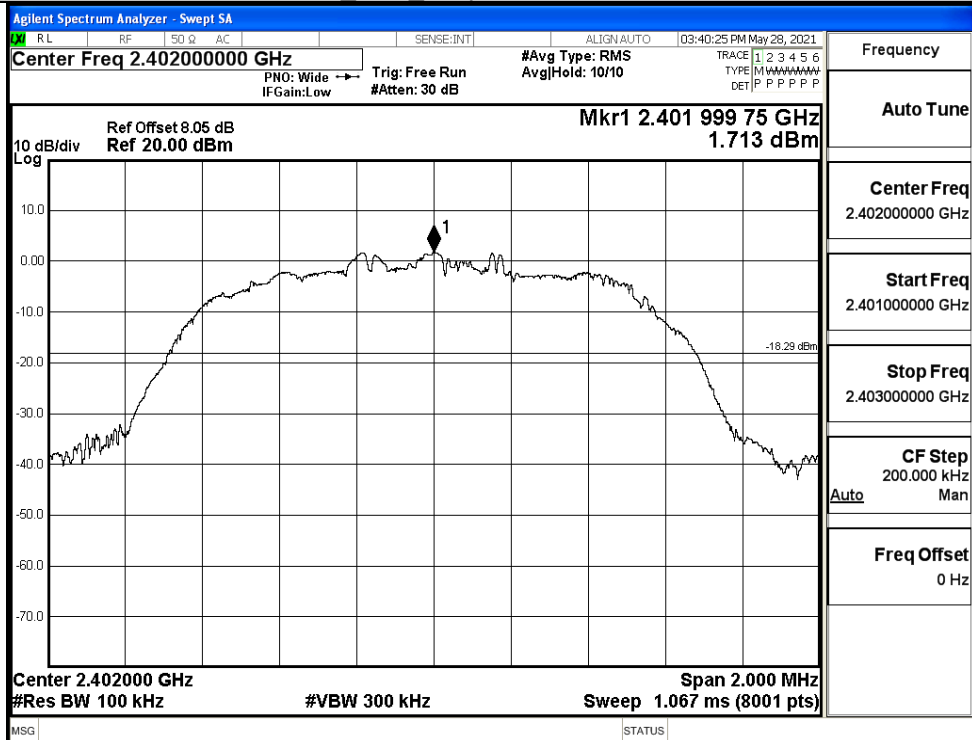


Puw

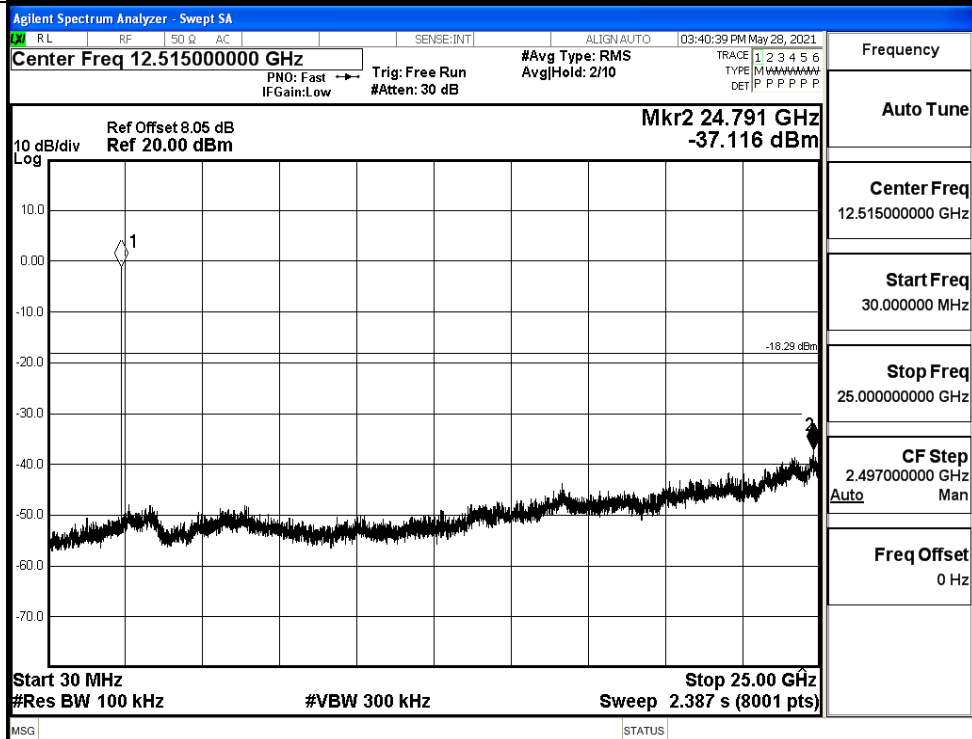


8DPSK_LCH_Graphs

Pref

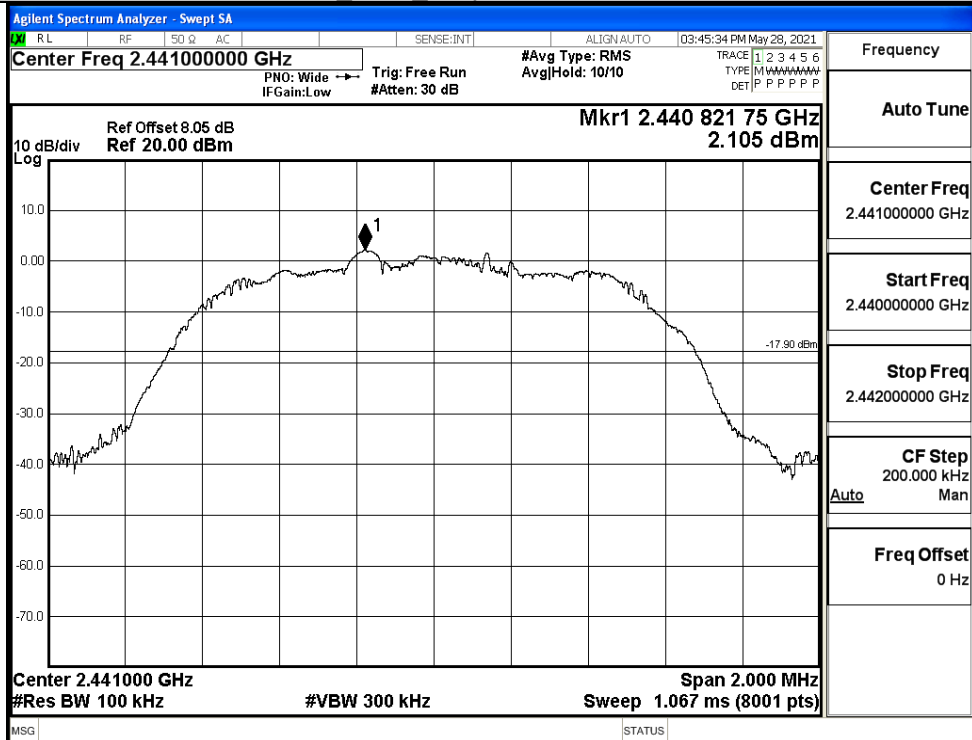


Puw

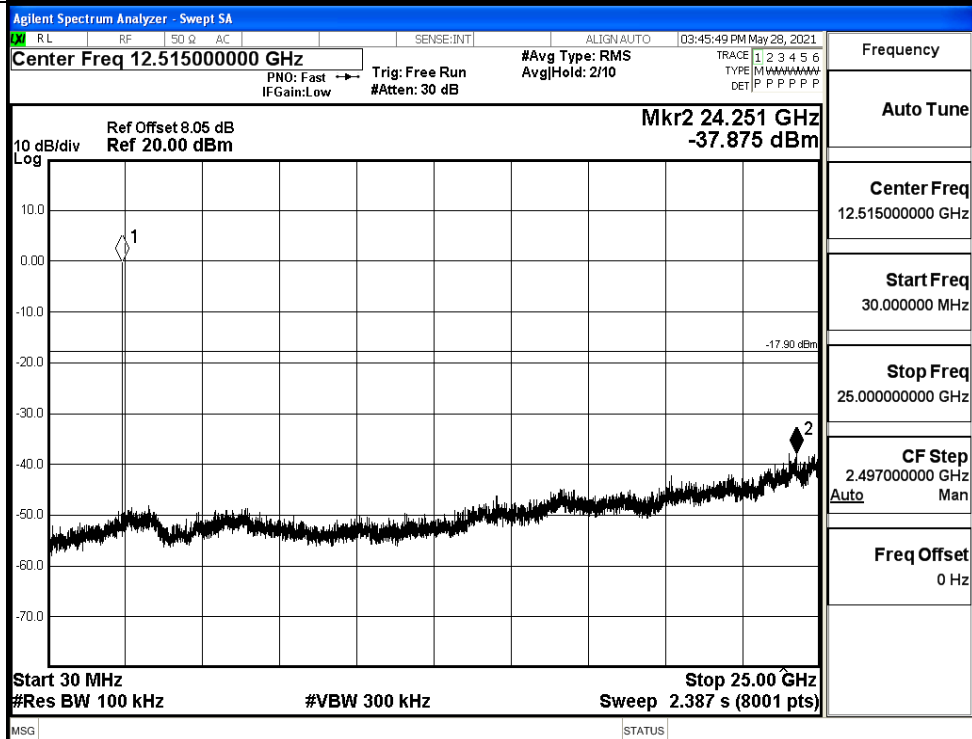


8DPSK_MCH_Graphs

Pref

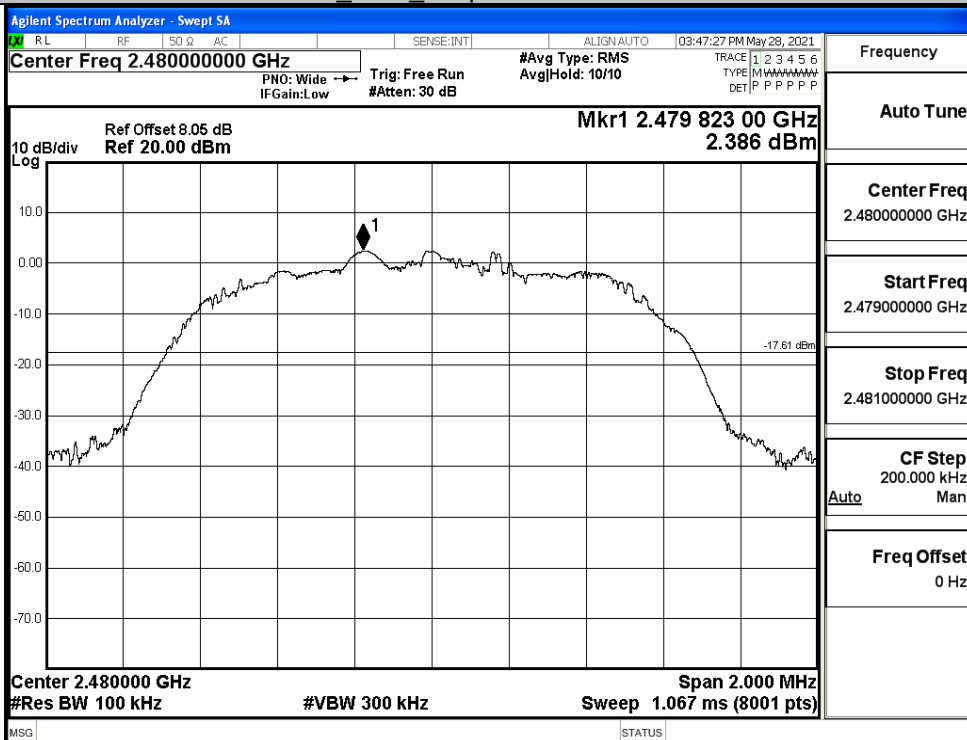


Puw

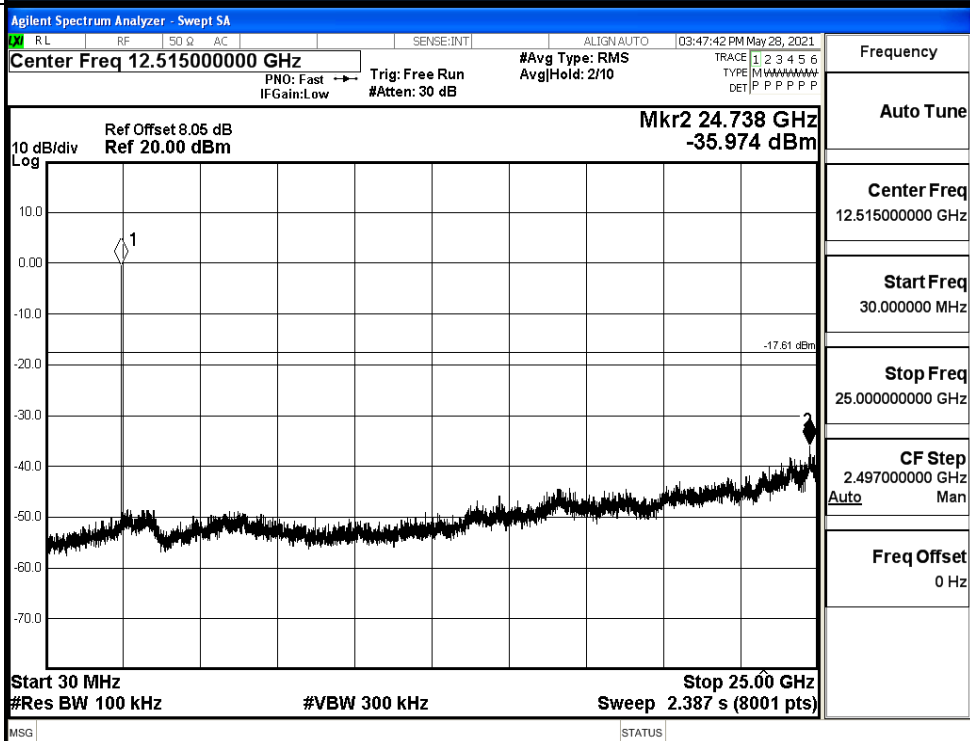


8DPSK_HCH_Graphs

Pref



Puw

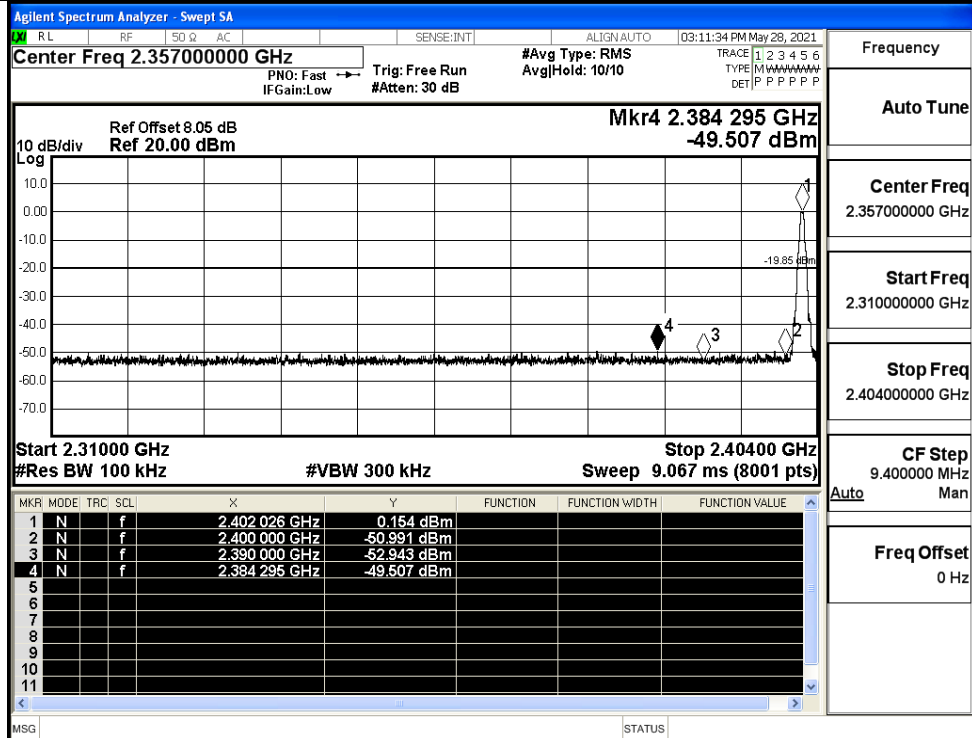


A.8 Band-edge for RF Conducted Emissions

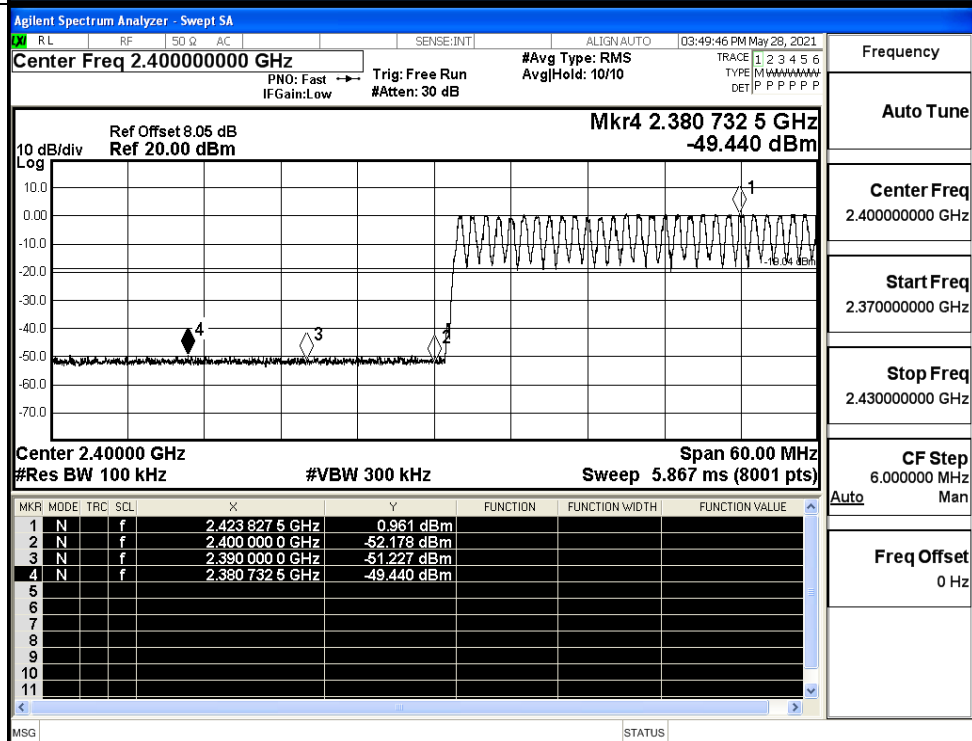
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.154	Off	-49.507	-19.85	PASS
			0.961	On	-49.440	-19.04	PASS
	HCH	2480	1.836	Off	-49.213	-18.16	PASS
			1.355	On	-48.950	-18.65	PASS
$\pi/4$ DQPSK	LCH	2402	1.840	Off	-48.900	-18.16	PASS
			1.841	On	-49.064	-18.16	PASS
	HCH	2480	2.717	Off	-48.179	-17.28	PASS
			2.599	On	-48.679	-17.4	PASS
8DPSK	LCH	2402	1.659	Off	-49.318	-18.34	PASS
			1.699	On	-48.868	-18.3	PASS
	HCH	2480	2.404	Off	-48.834	-17.6	PASS
			2.251	On	-48.385	-17.75	PASS

Test Graphs

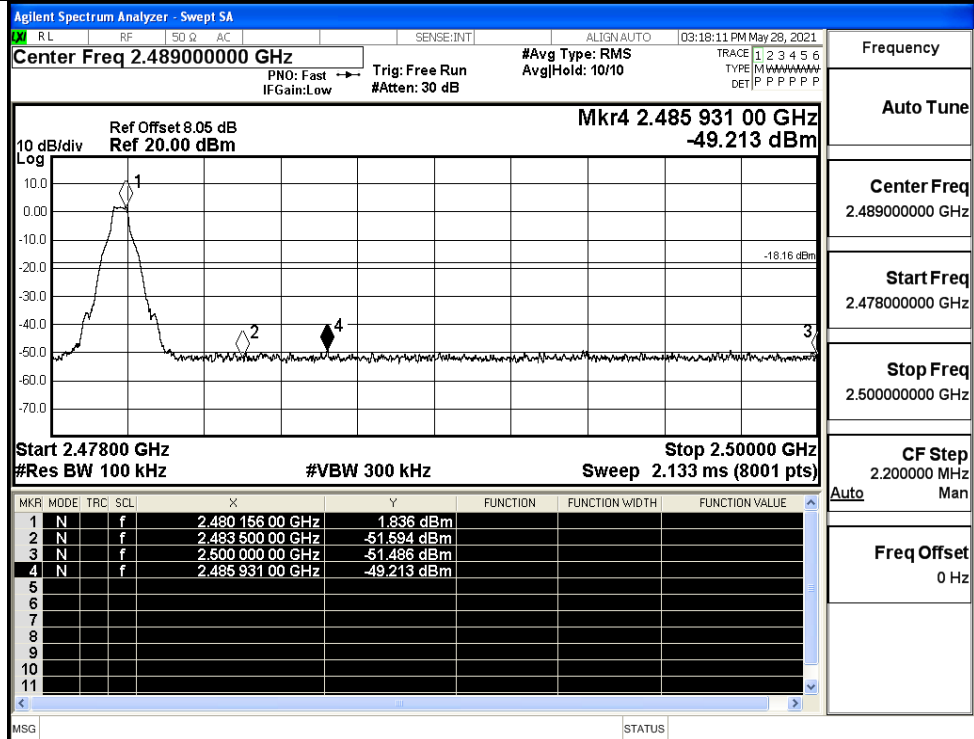
GFSK/LCH/No Hop



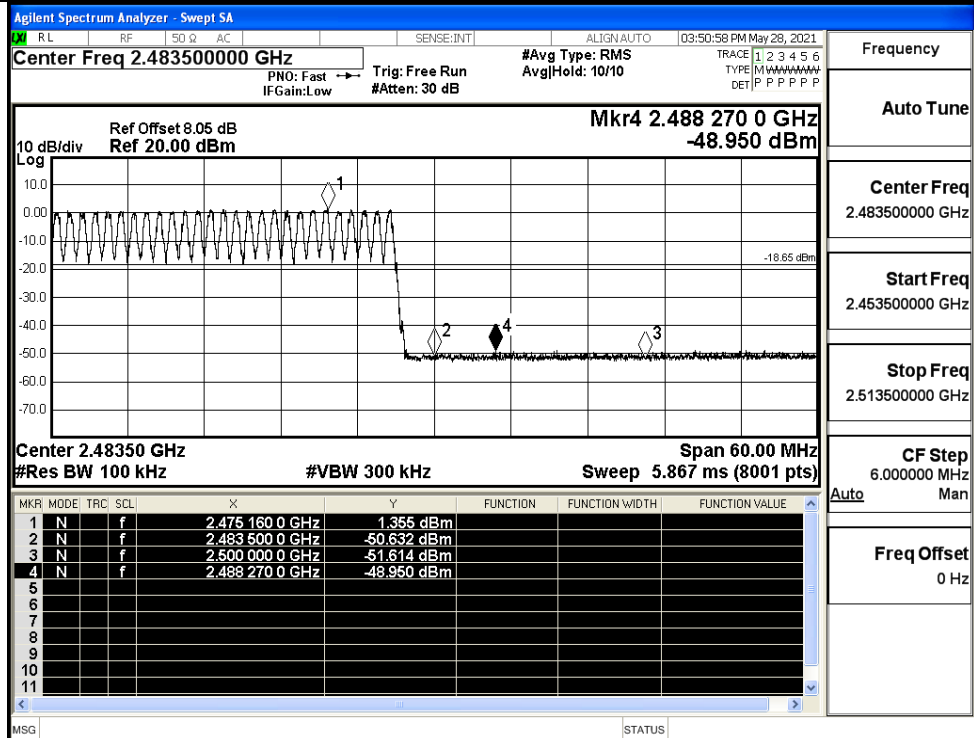
GFSK/LCH/Hop



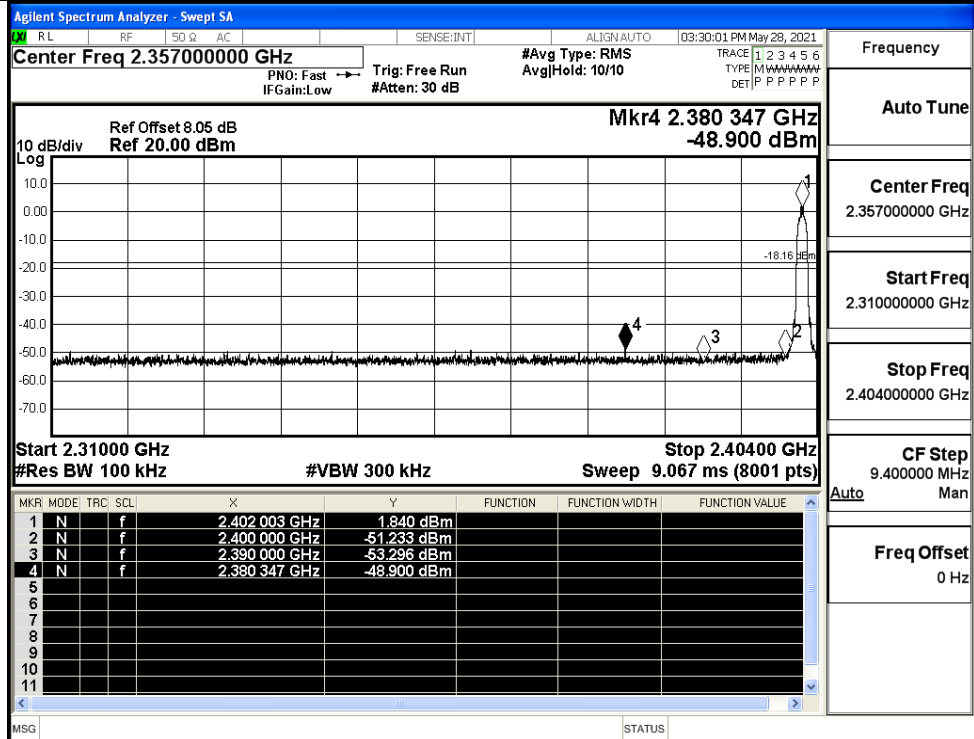
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

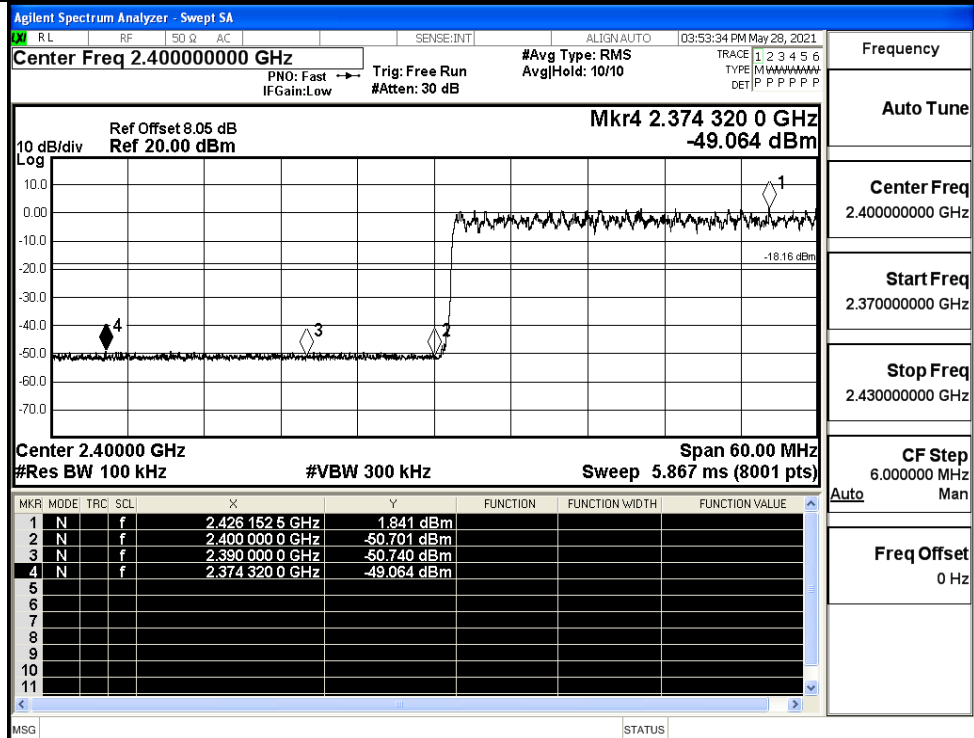
Start Freq
2.310000000 GHz

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

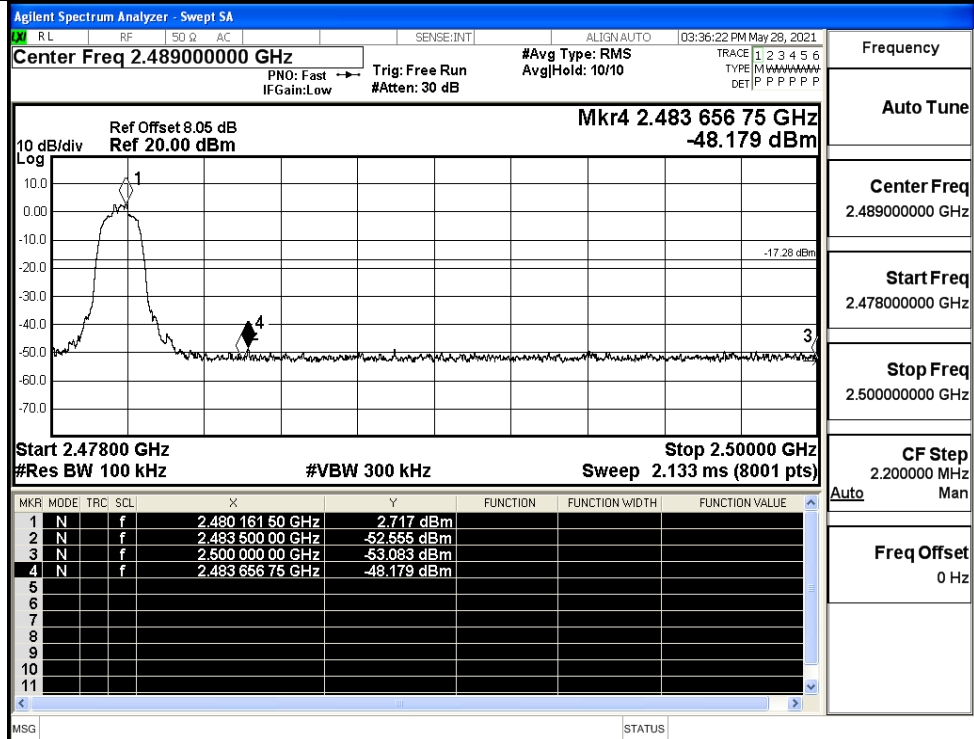
Start Freq
2.370000000 GHz

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 GHz

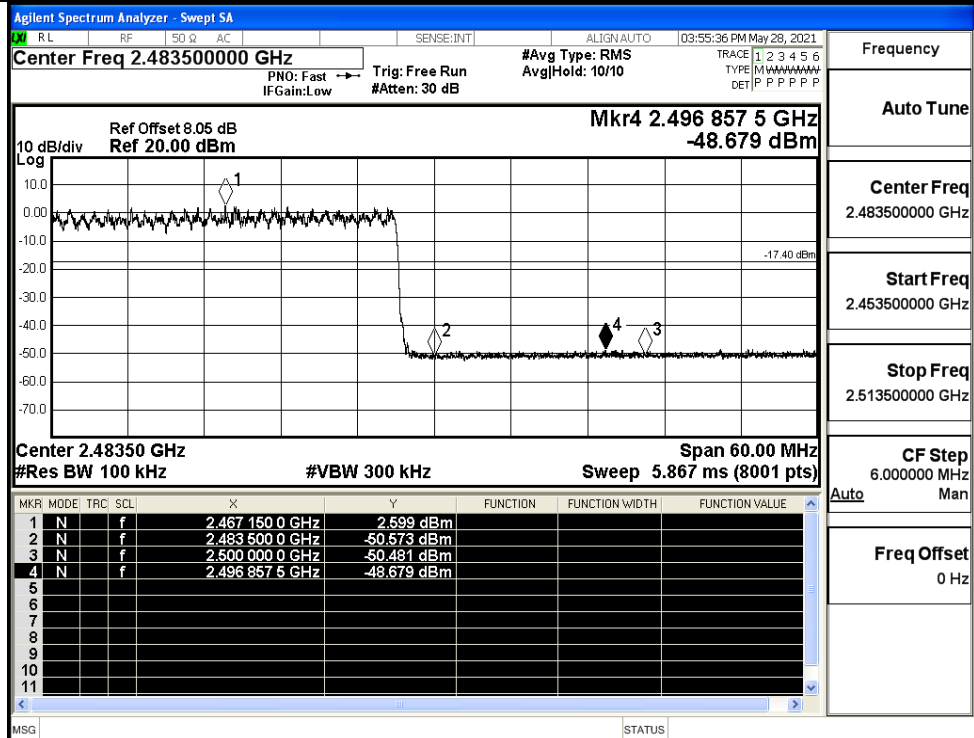
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

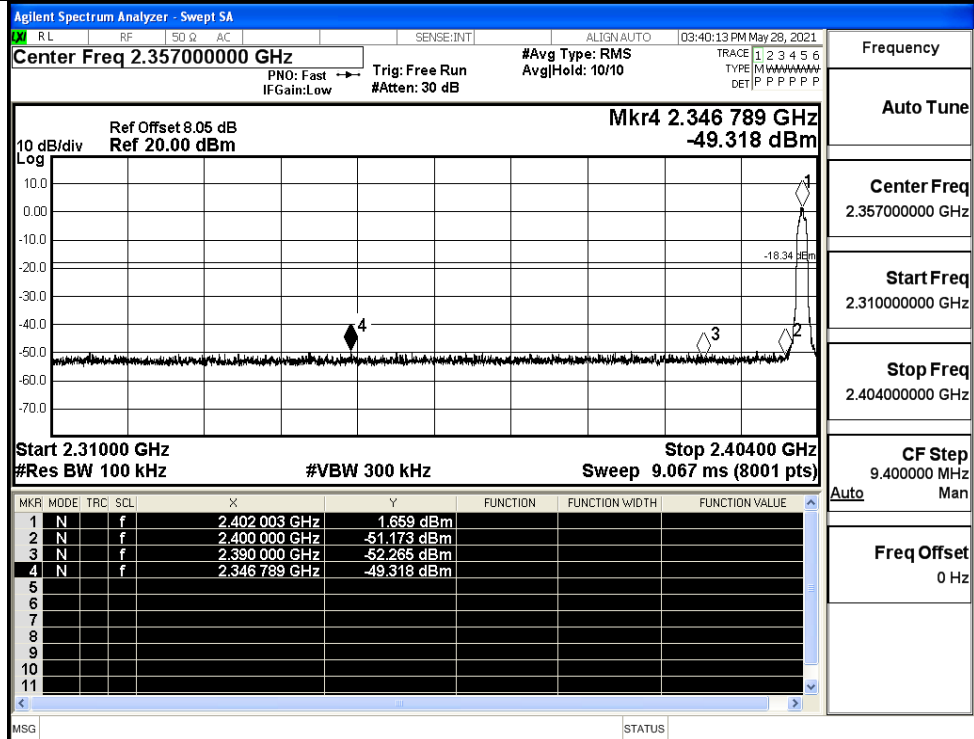
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

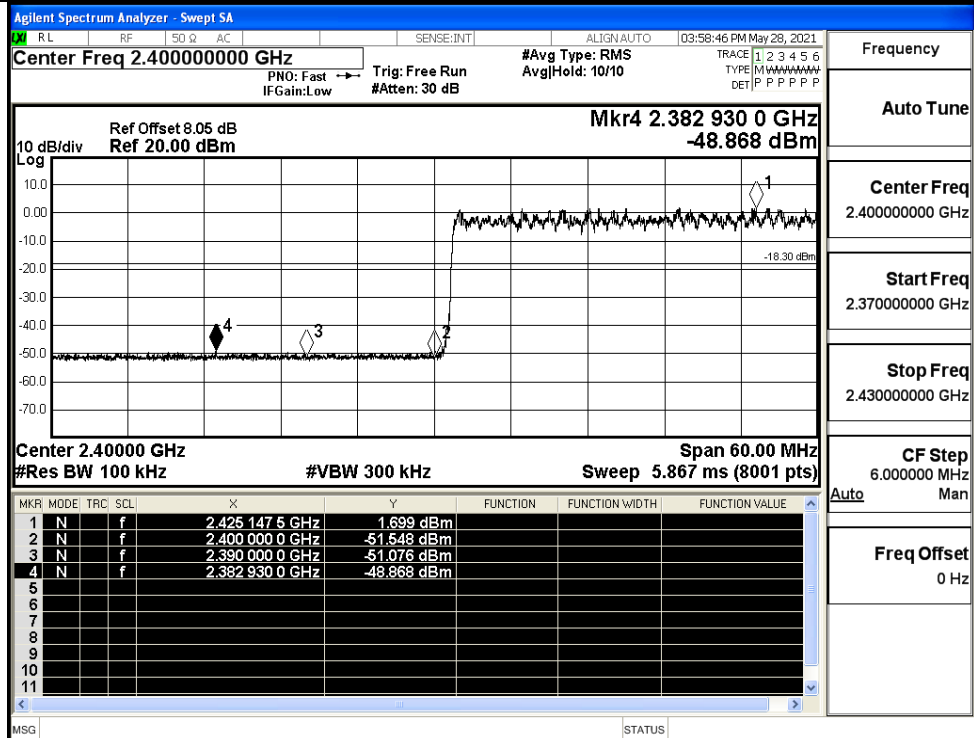
CF Step
6.000000 MHz

Freq Offset
0 Hz

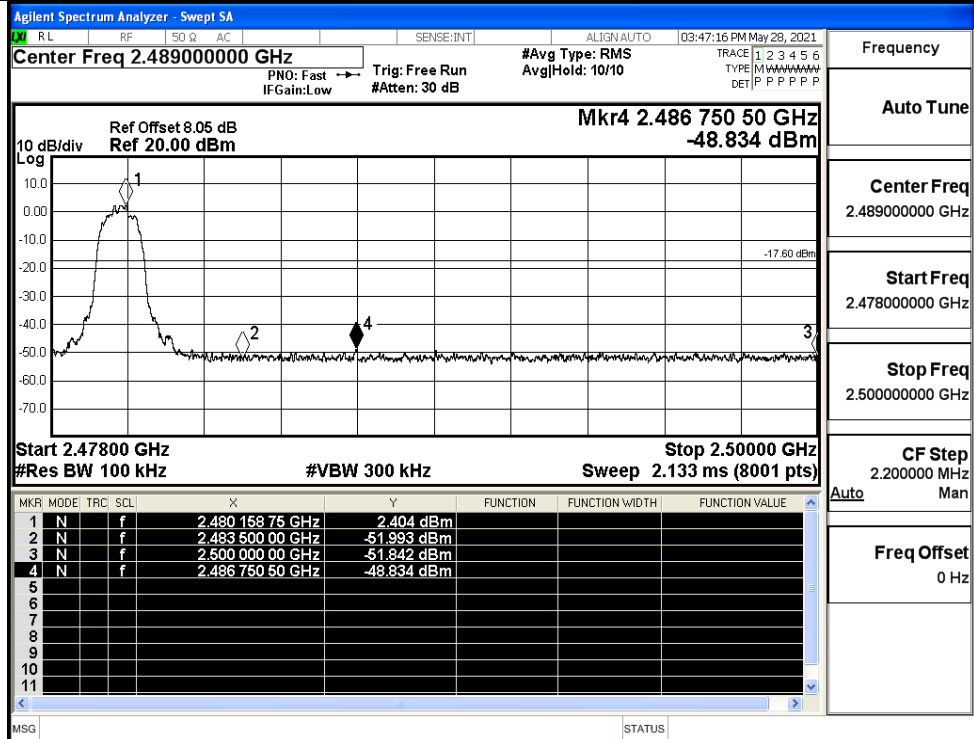
8DPSK/LCH/No Hop



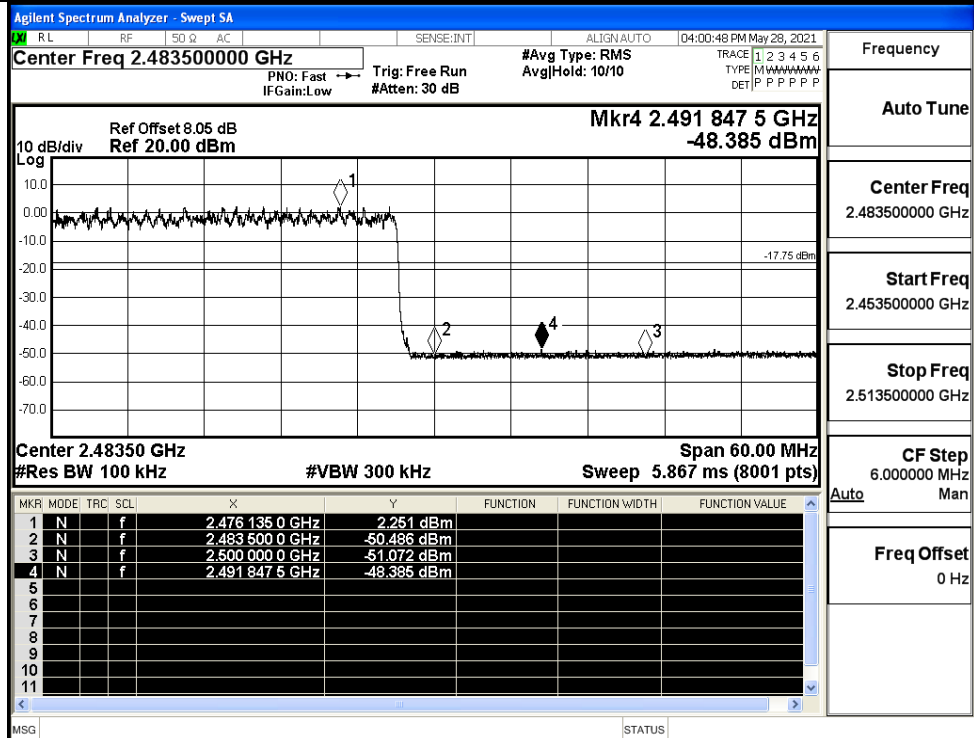
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



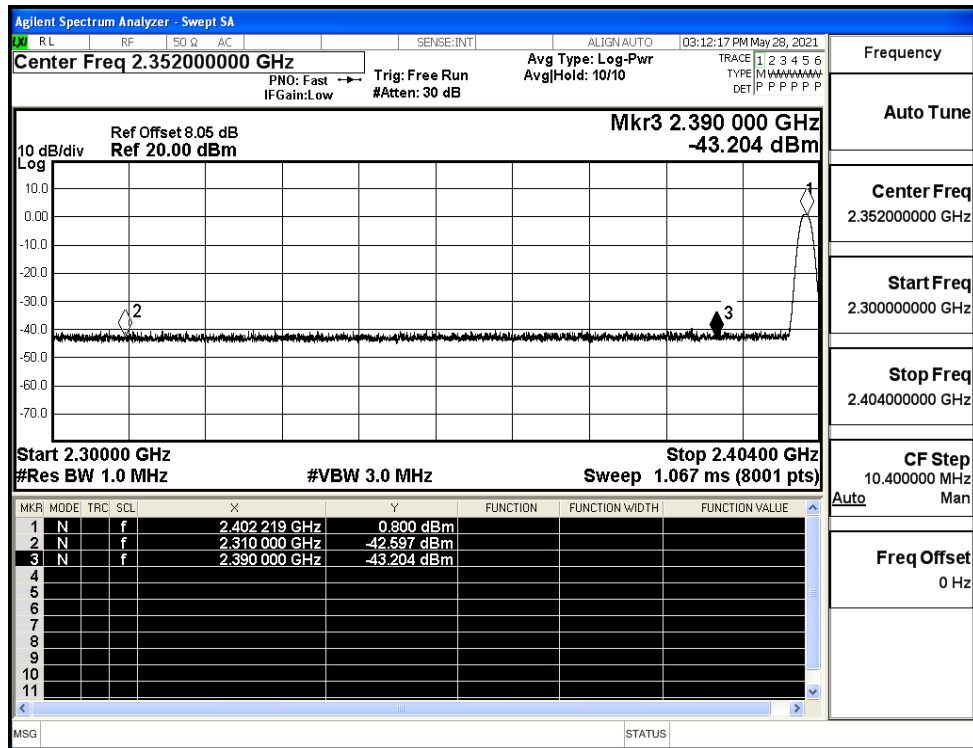
8DPSK/HCH/Hop



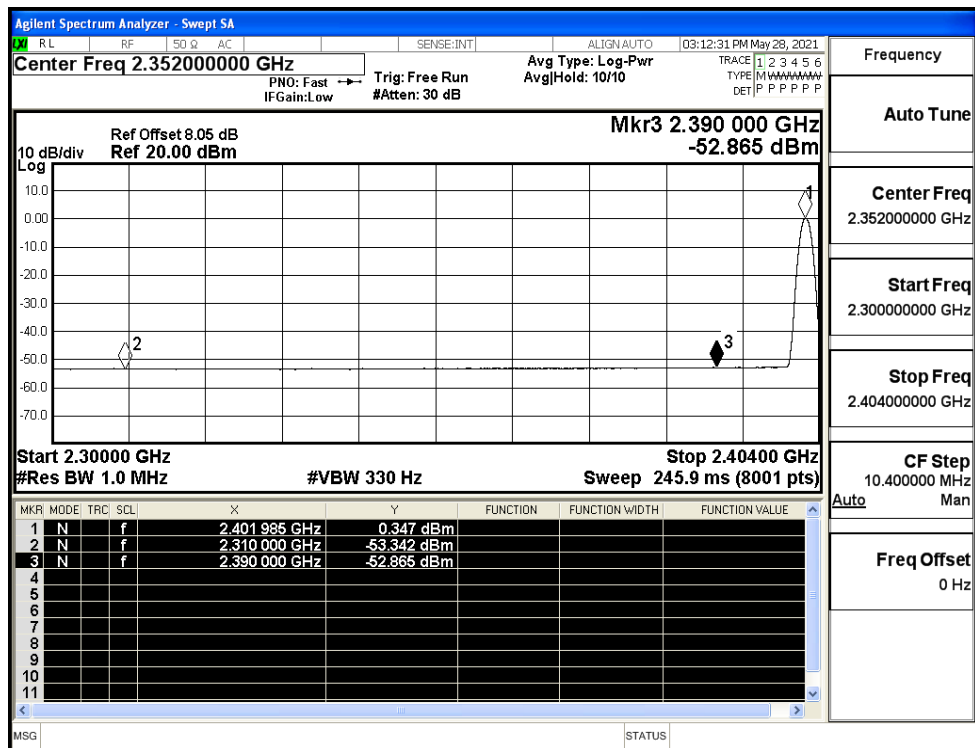
A.9 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.60	2.0	0	54.66	PEAK	74	PASS
	Off	2310.0	-53.34	2.0	0	43.92	AV	54	PASS
	Off	2390.0	-43.20	2.0	0	54.06	PEAK	74	PASS
	Off	2390.0	-52.87	2.0	0	44.39	AV	54	PASS
	Off	2483.5	-43.07	2.0	0	54.19	PEAK	74	PASS
	Off	2483.5	-52.17	2.0	0	45.09	AV	54	PASS
	Off	2500.0	-42.12	2.0	0	55.14	PEAK	74	PASS
	Off	2500.0	-52.29	2.0	0	44.97	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.38	2.0	0	53.88	PEAK	74	PASS
	Off	2310.0	-53.36	2.0	0	43.9	AV	54	PASS
	Off	2390.0	-42.75	2.0	0	54.51	PEAK	74	PASS
	Off	2390.0	-52.98	2.0	0	44.28	AV	54	PASS
	Off	2483.5	-41.62	2.0	0	55.64	PEAK	74	PASS
	Off	2483.5	-52.38	2.0	0	44.88	AV	54	PASS
	Off	2500.0	-41.30	2.0	0	55.96	PEAK	74	PASS
	Off	2500.0	-52.33	2.0	0	44.93	AV	54	PASS
8DPSK	Off	2310.0	-41.58	2.0	0	55.68	PEAK	74	PASS
	Off	2310.0	-53.29	2.0	0	43.97	AV	54	PASS
	Off	2390.0	-42.80	2.0	0	54.46	PEAK	74	PASS
	Off	2390.0	-52.97	2.0	0	44.29	AV	54	PASS
	Off	2483.5	-42.23	2.0	0	55.03	PEAK	74	PASS
	Off	2483.5	-52.30	2.0	0	44.96	AV	54	PASS
	Off	2500.0	-42.58	2.0	0	54.68	PEAK	74	PASS
	Off	2500.0	-52.23	2.0	0	45.03	AV	54	PASS

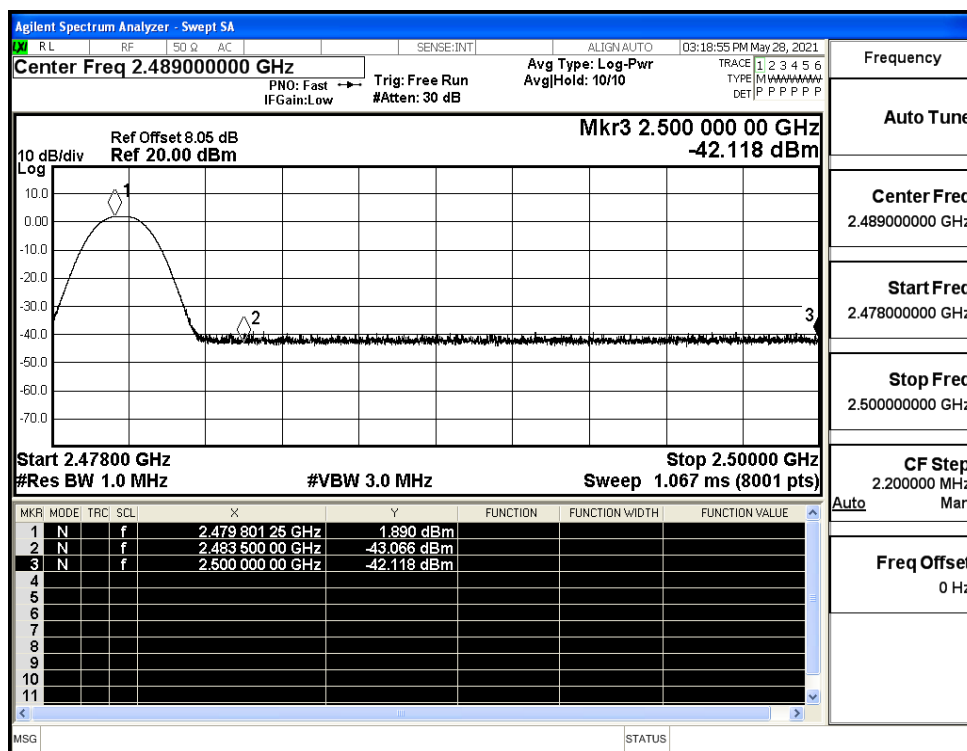
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



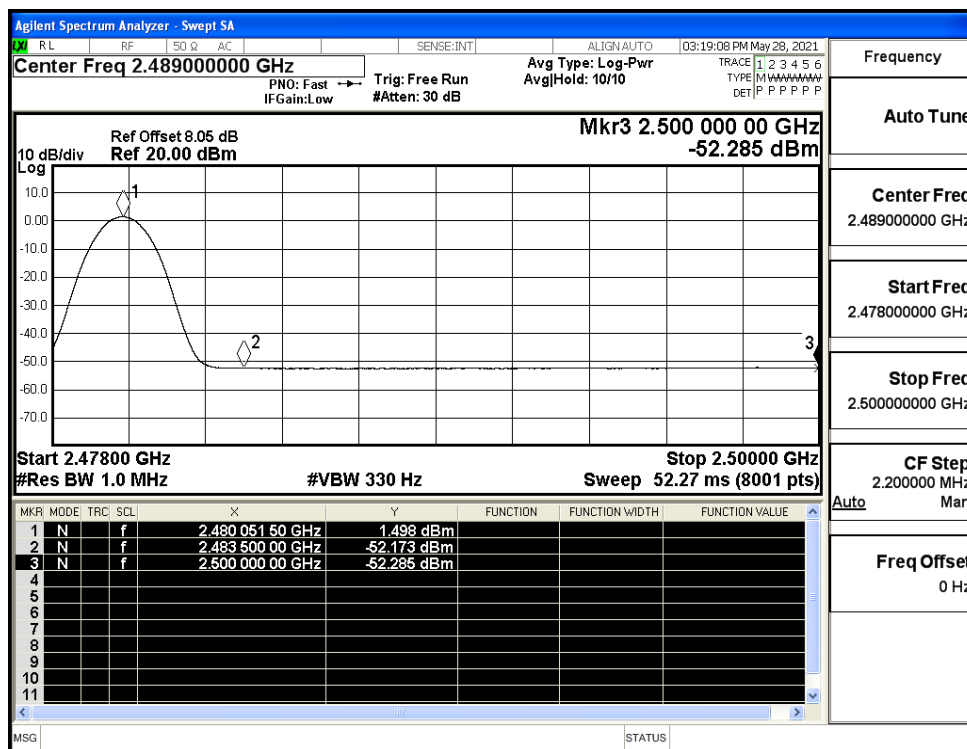
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

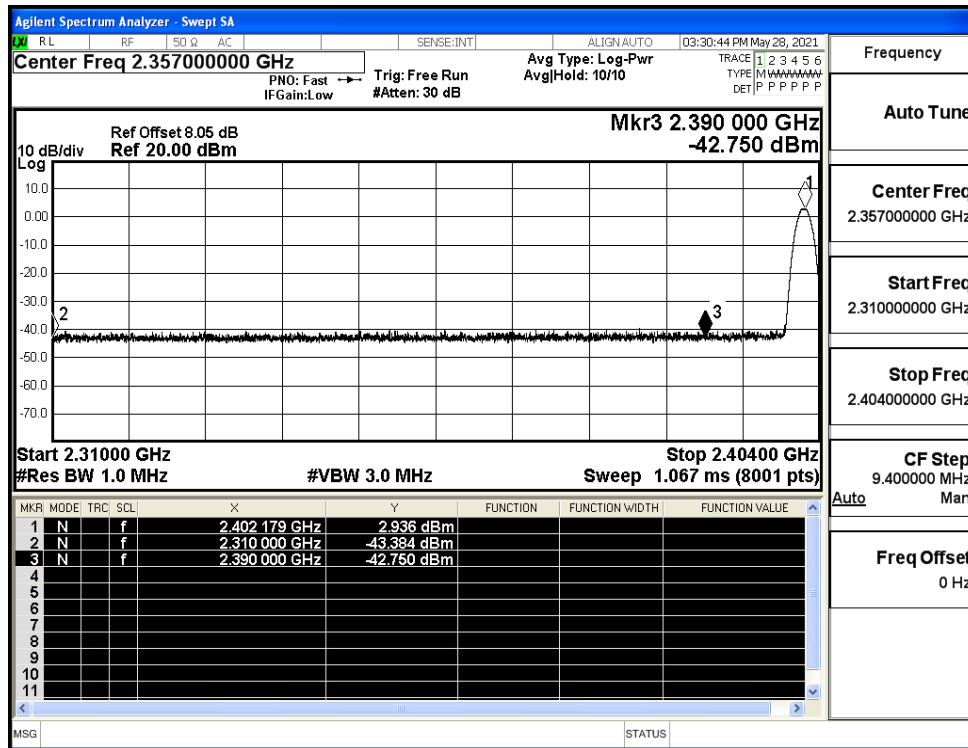
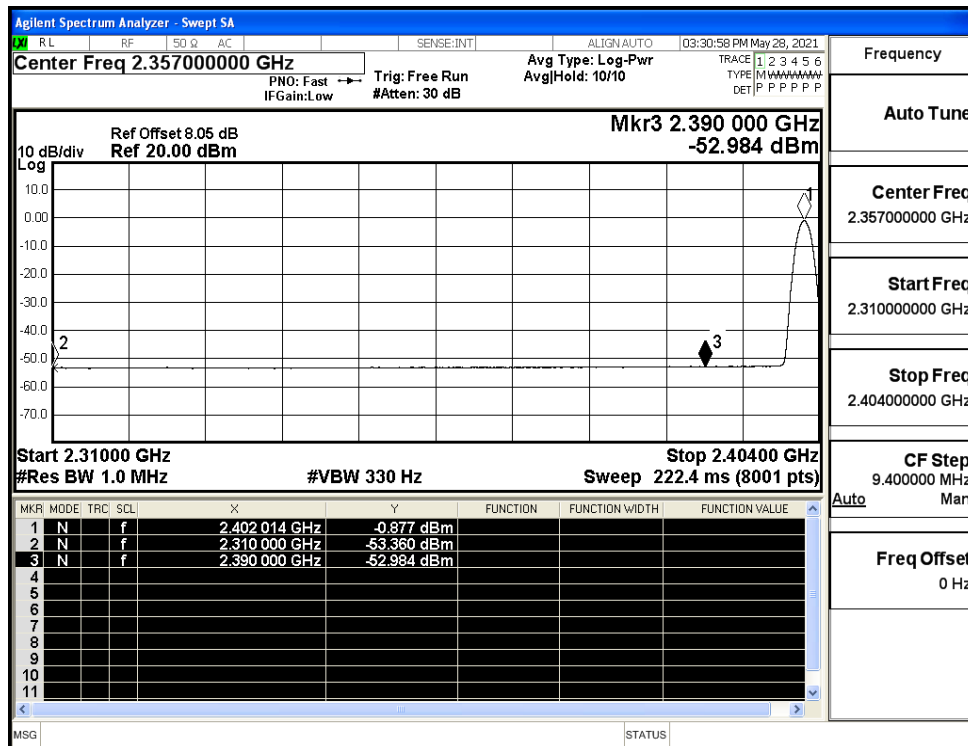


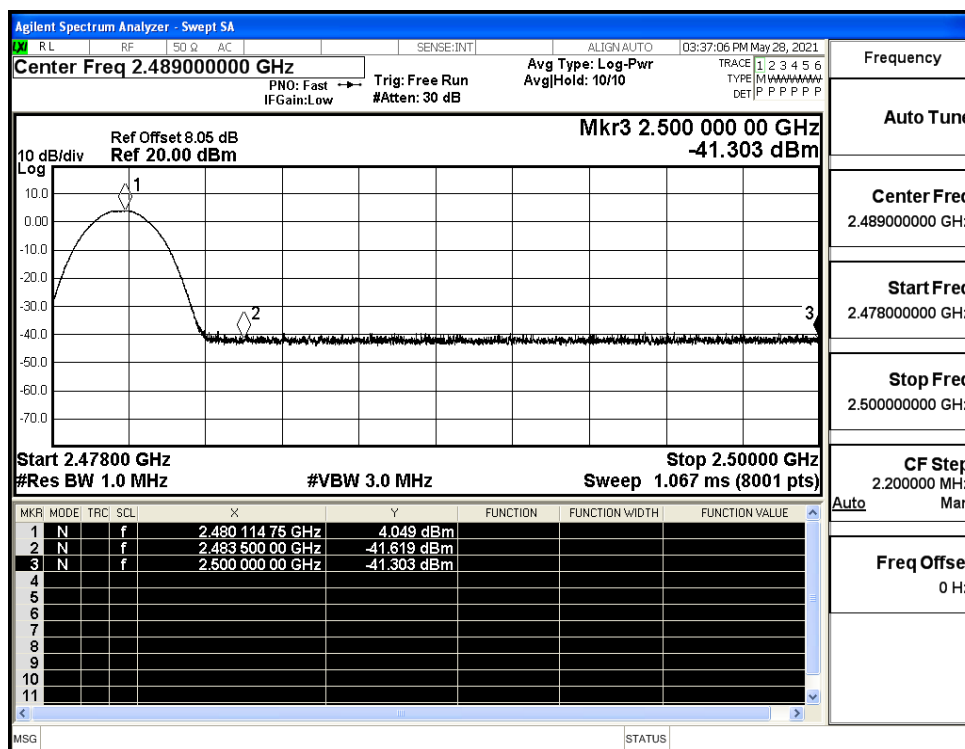
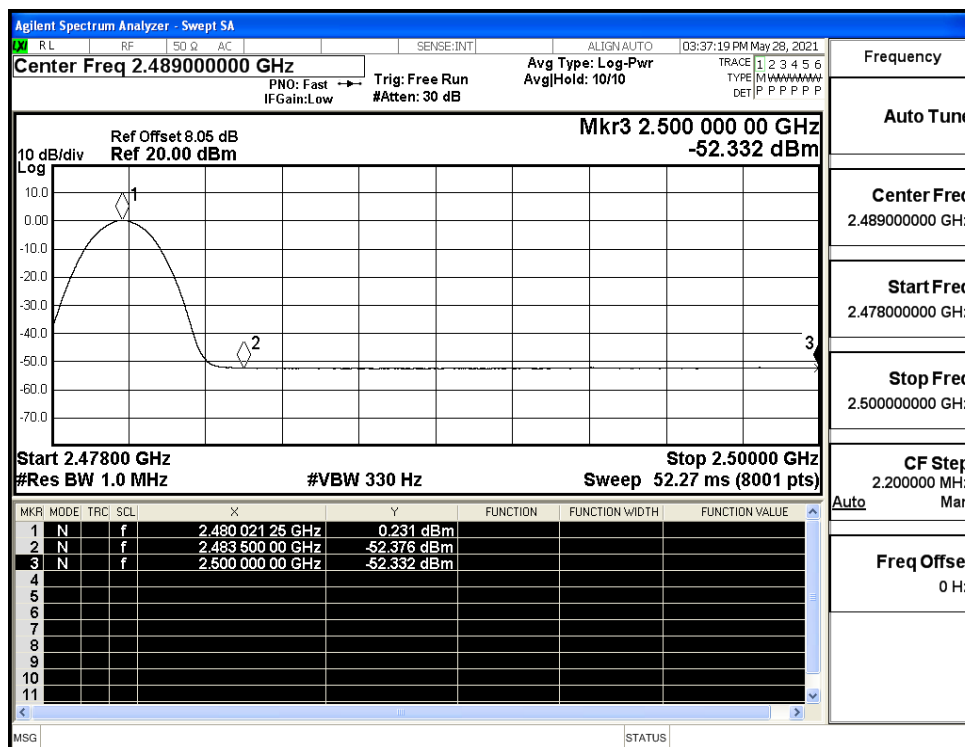
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



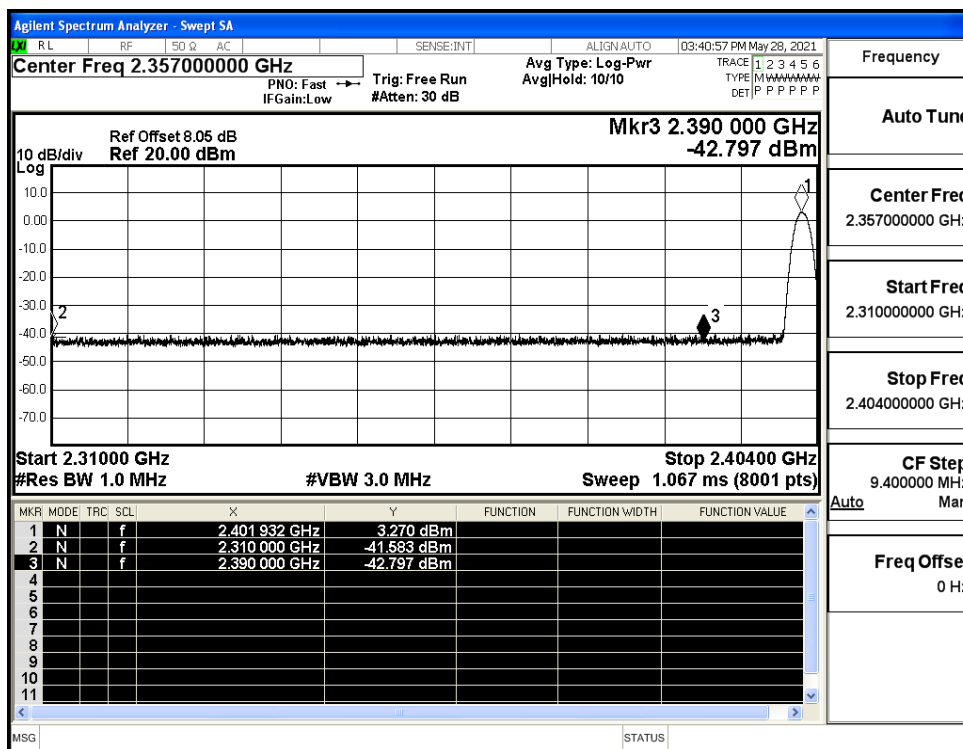
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



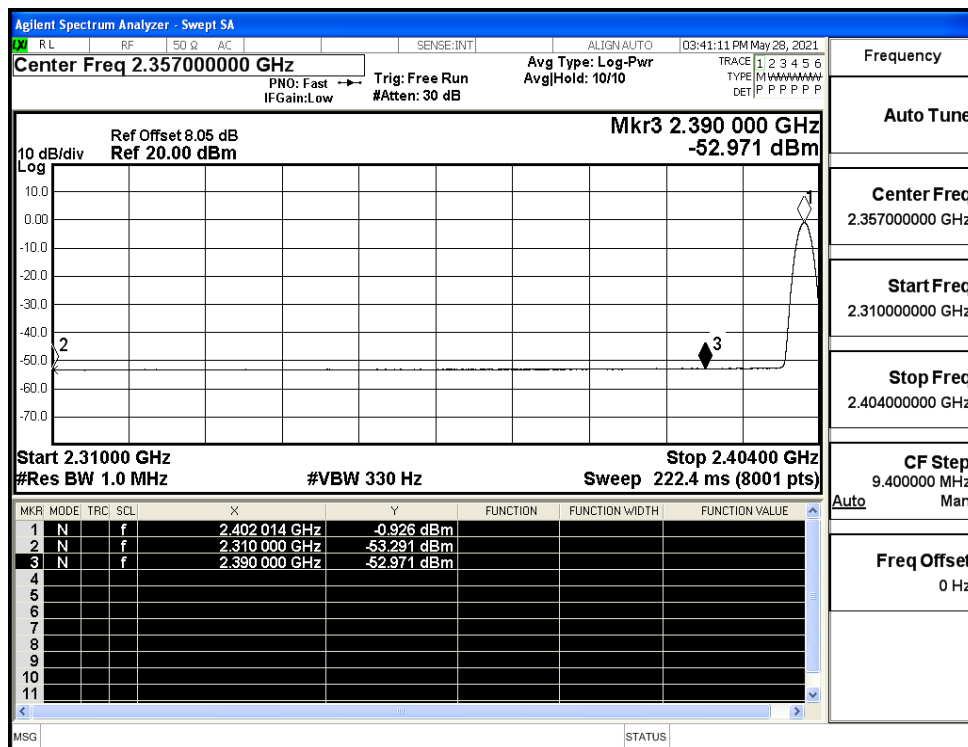
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

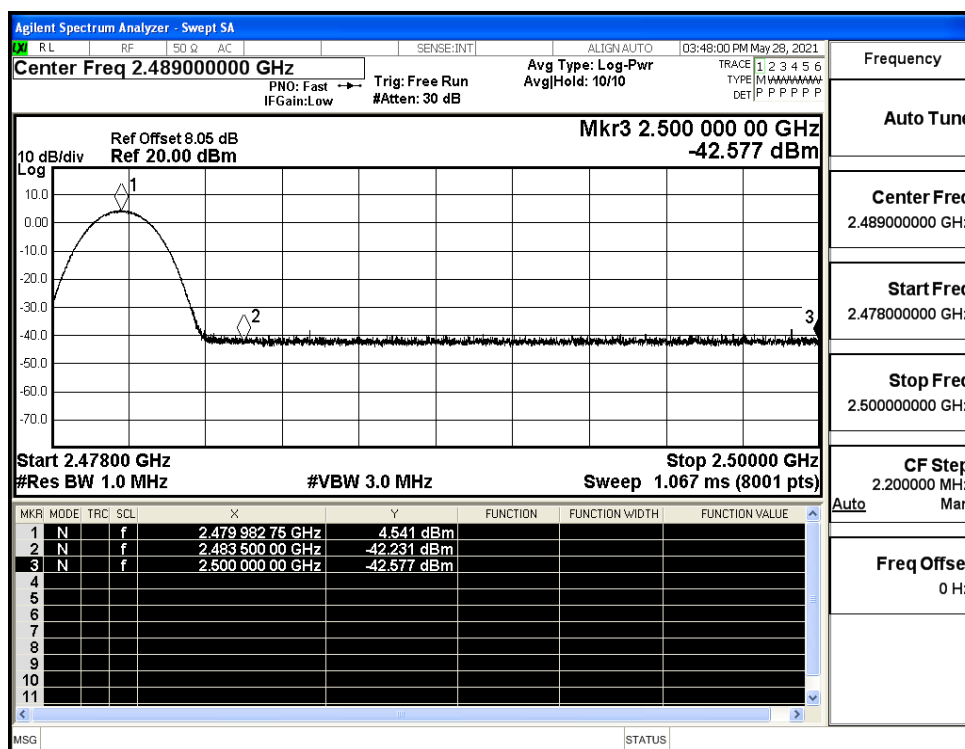
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

