

Appendix A

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

Product Name: Projector

Trade Mark: N/A

Test Model: X-901

Environmental Conditions

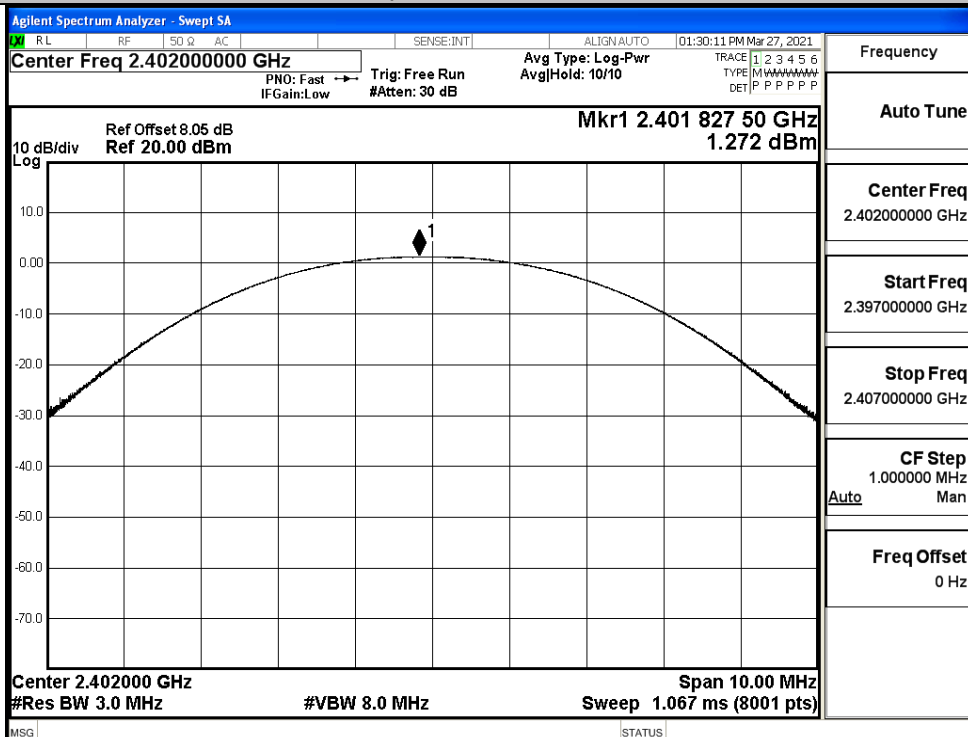
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

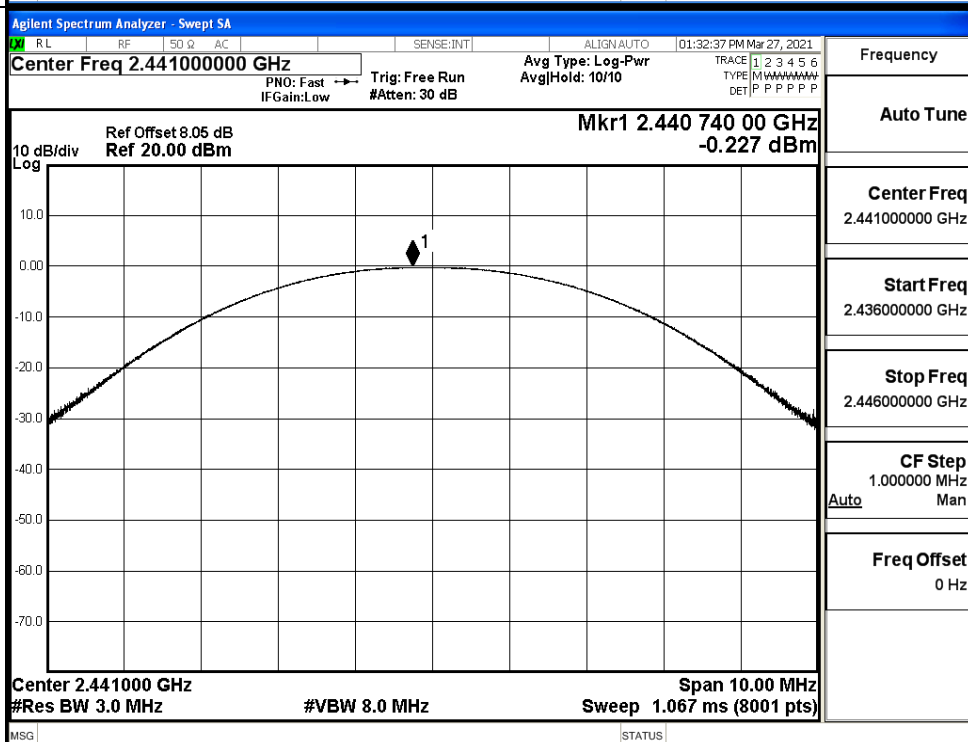
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.272	21	PASS
	MCH	-0.227	21	PASS
	HCH	-0.380	21	PASS
$\pi/4$ DQPSK	LCH	0.335	21	PASS
	MCH	-0.892	21	PASS
	HCH	-0.896	21	PASS
8DPSK	LCH	0.868	21	PASS
	MCH	-0.498	21	PASS
	HCH	-0.445	21	PASS

Test Graphs

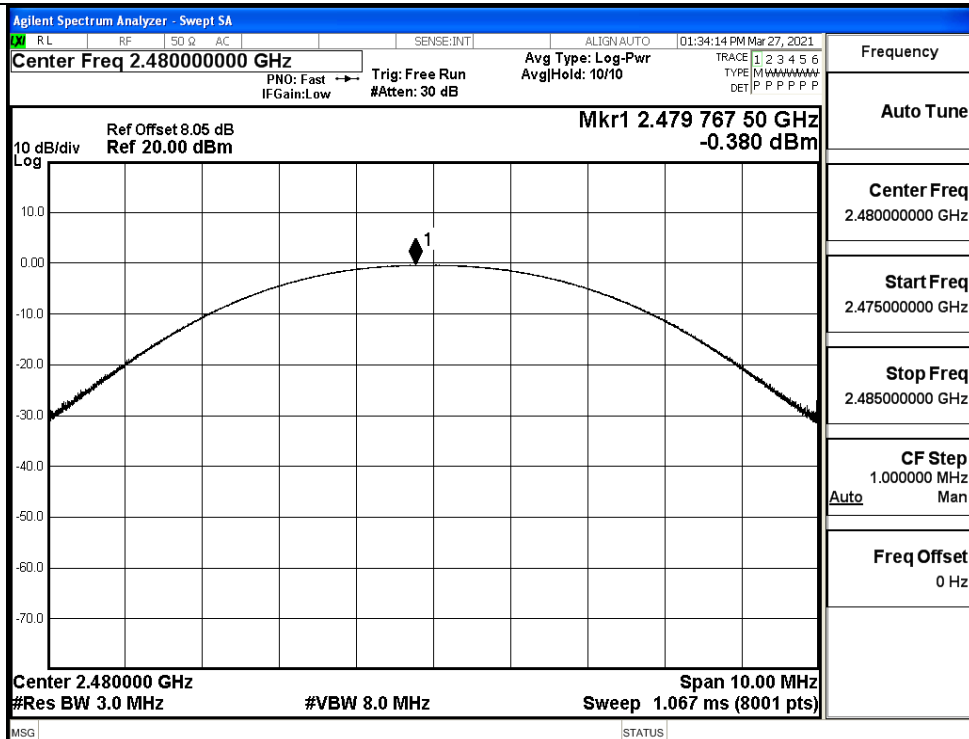
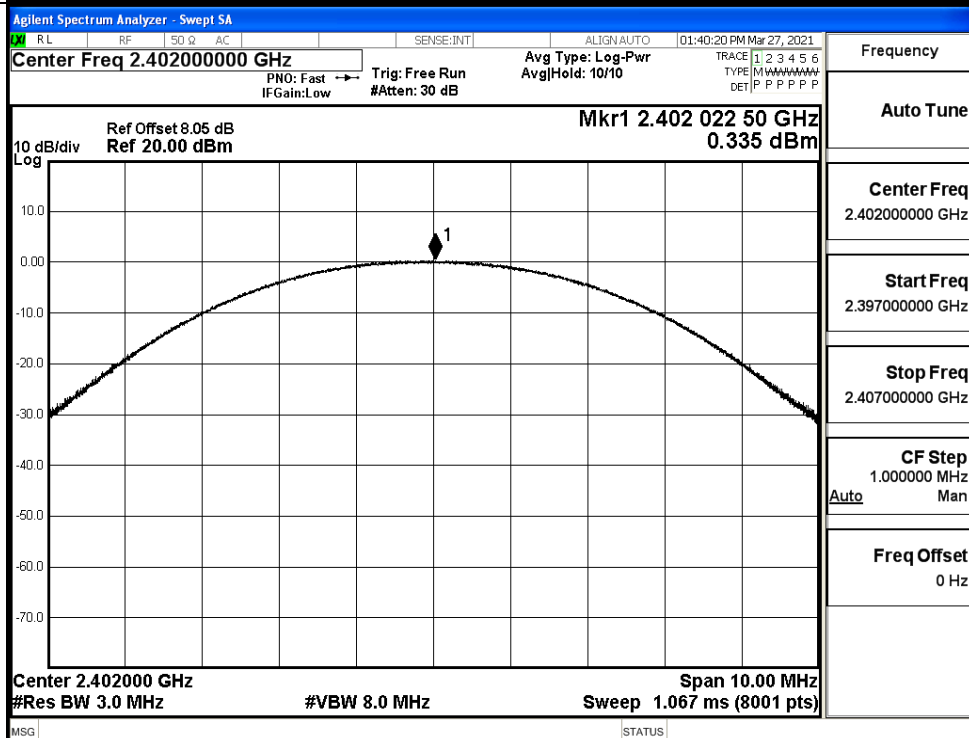
GFSK/LCH

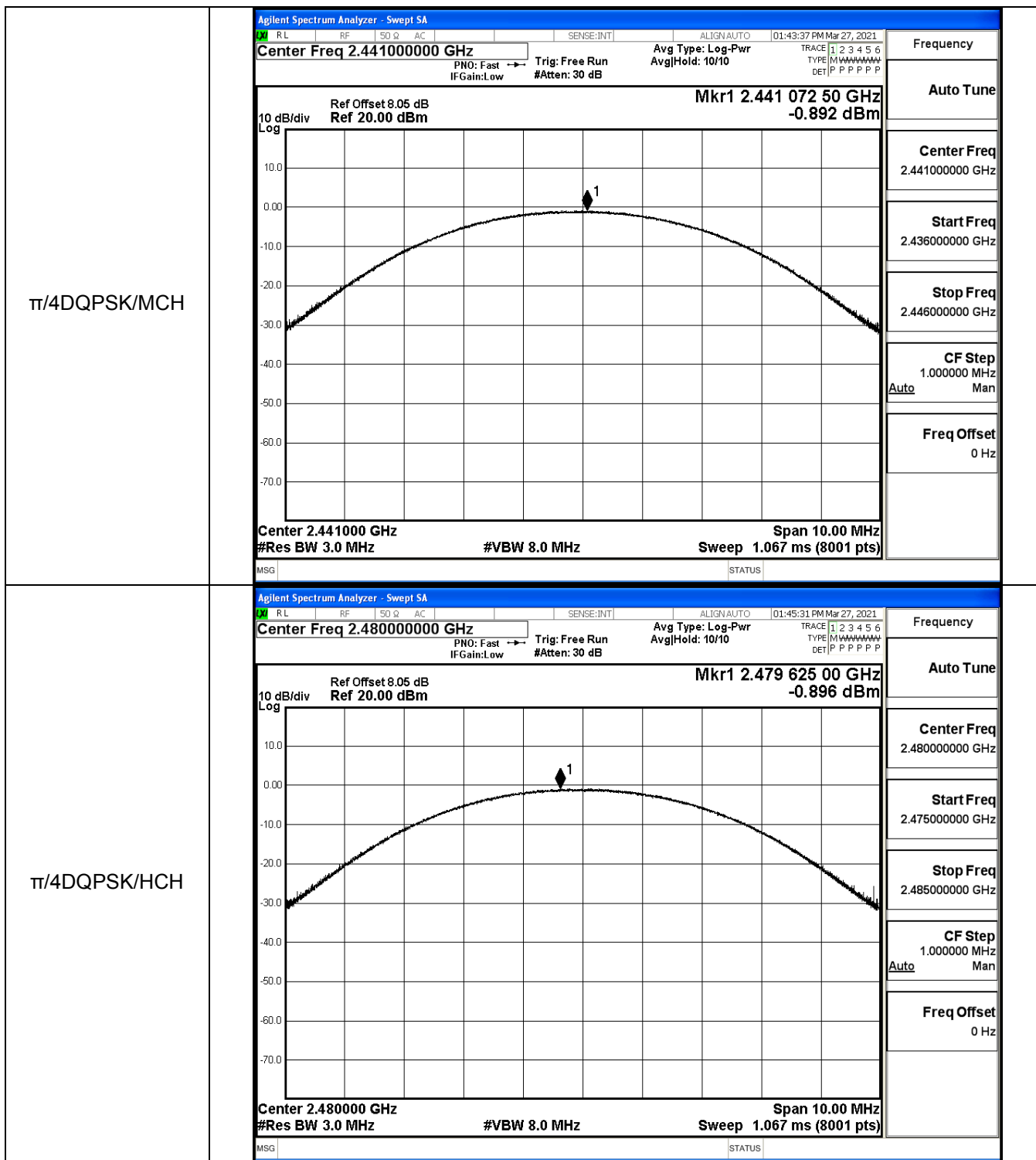


GFSK/MCH

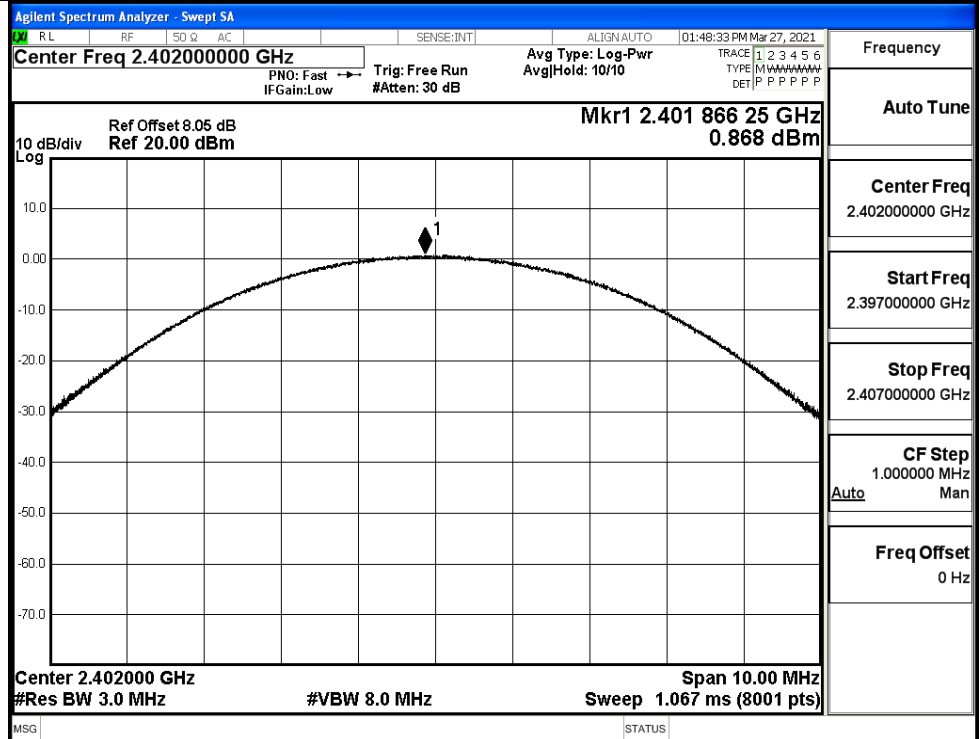


GFSK/HCH

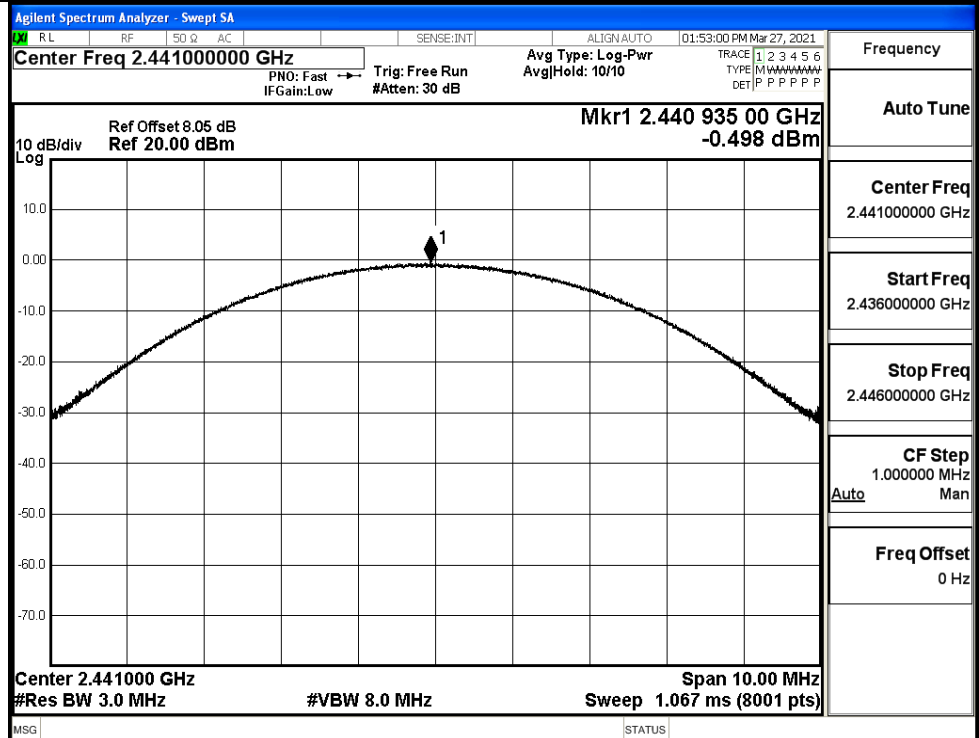
 $\pi/4$ DQPSK/LCH



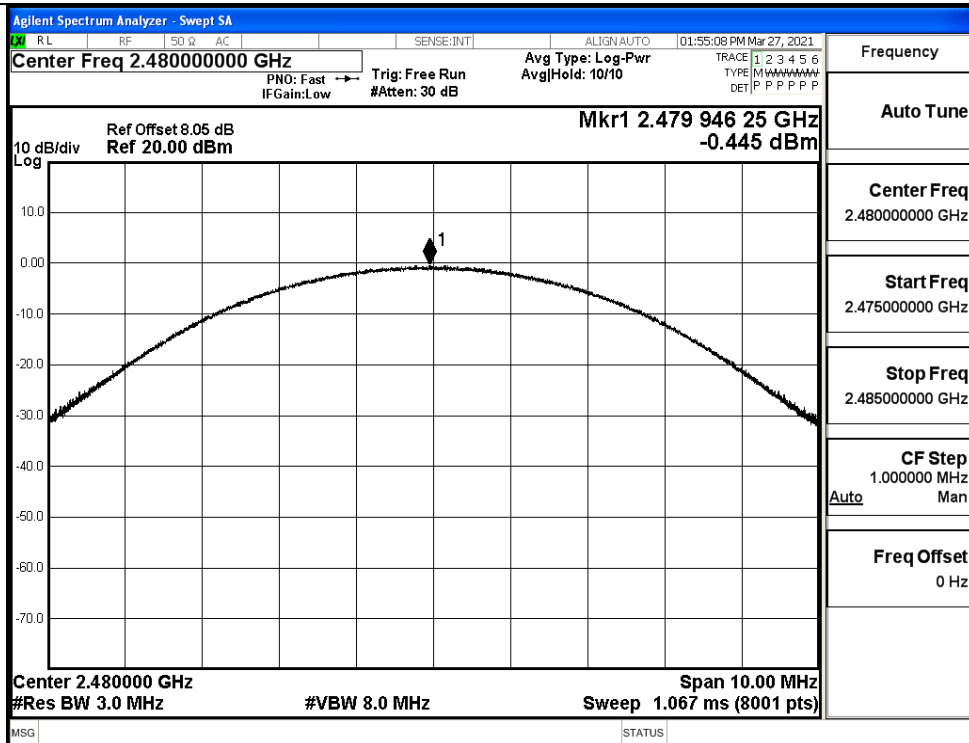
8DPSK/LCH



8DPSK/MCH



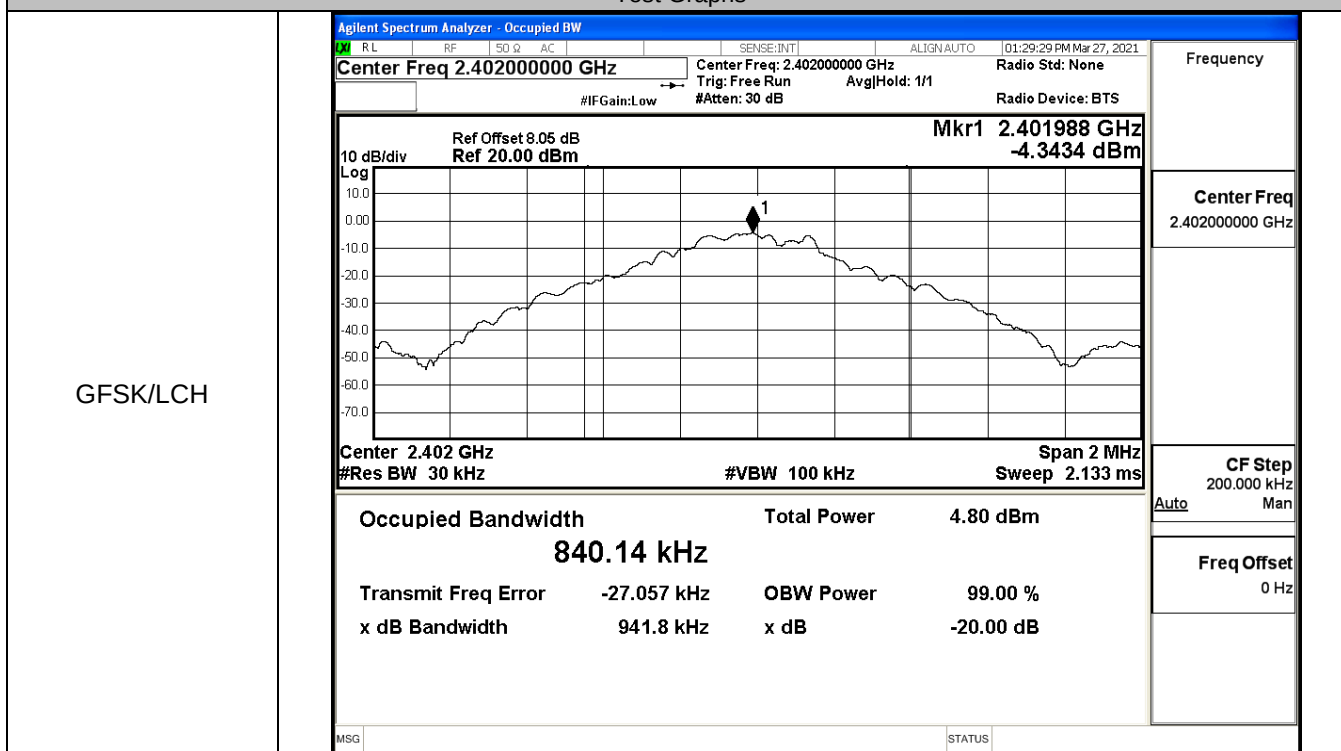
8DPSK/HCH



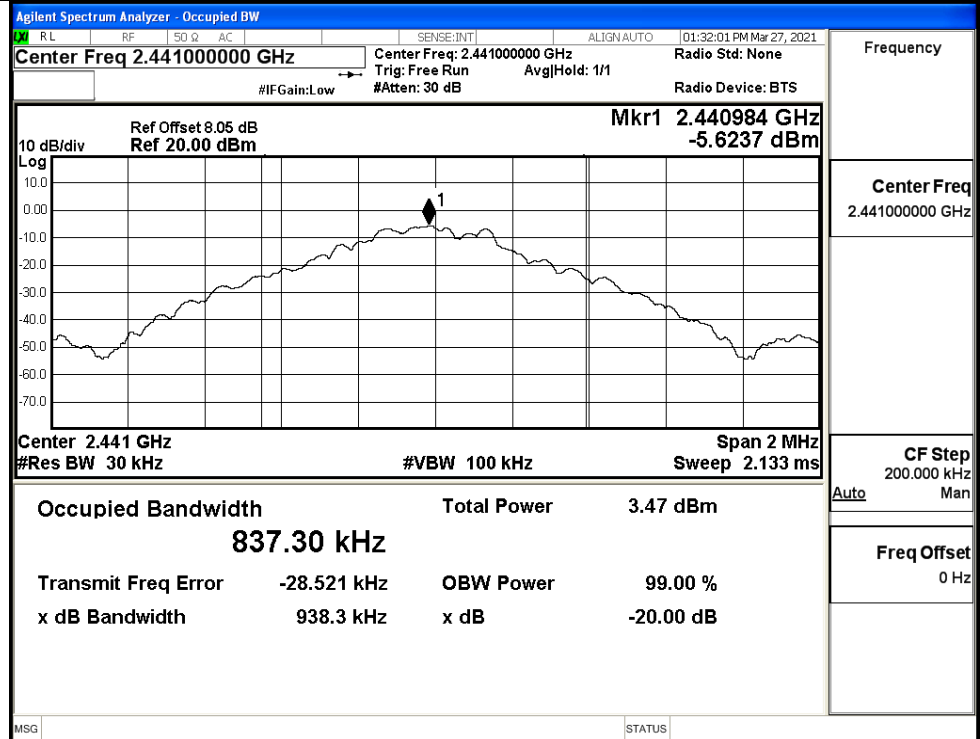
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9418	Not Specified	PASS
	MCH	0.9383	Not Specified	PASS
	HCH	0.9394	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.317	Not Specified	PASS
	MCH	1.319	Not Specified	PASS
	HCH	1.315	Not Specified	PASS
8DPSK	LCH	1.311	Not Specified	PASS
	MCH	1.311	Not Specified	PASS
	HCH	1.308	Not Specified	PASS

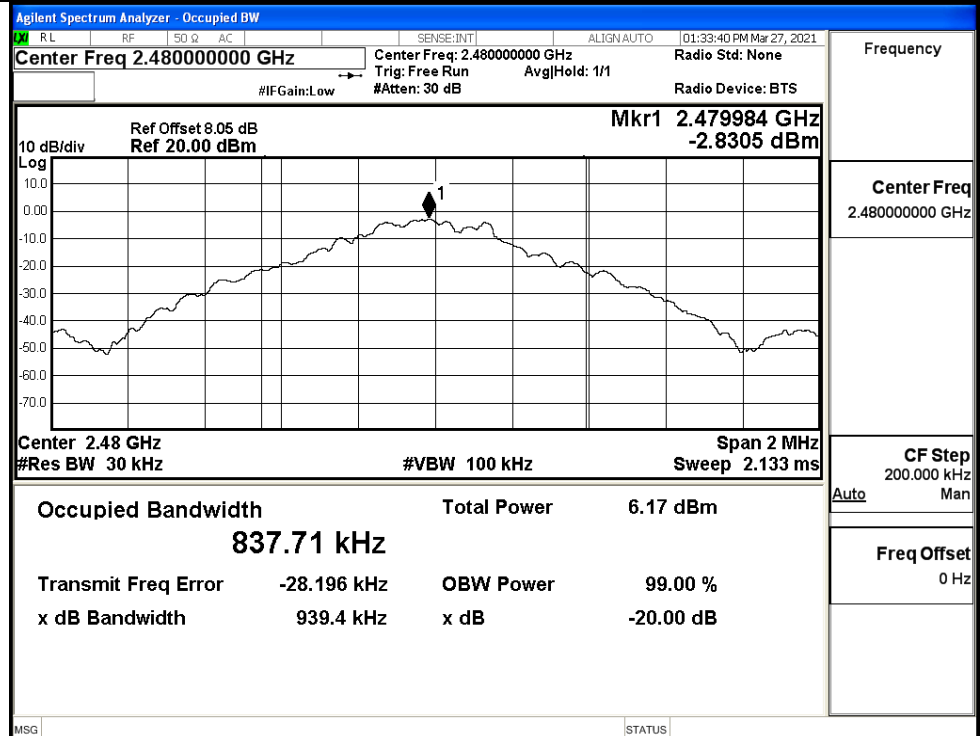
Test Graphs

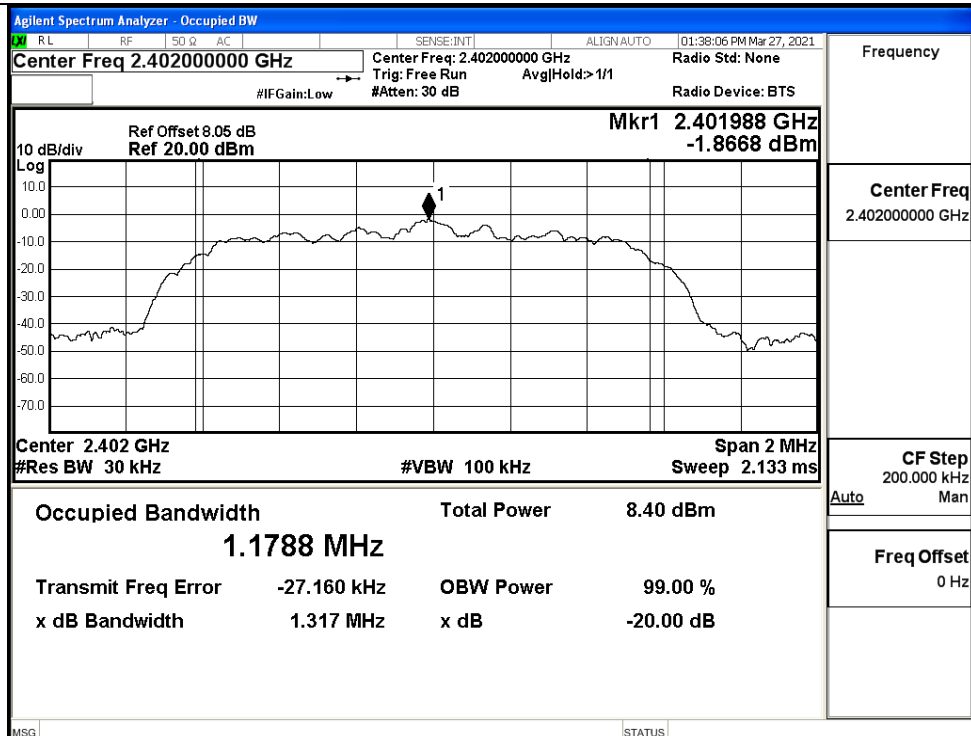
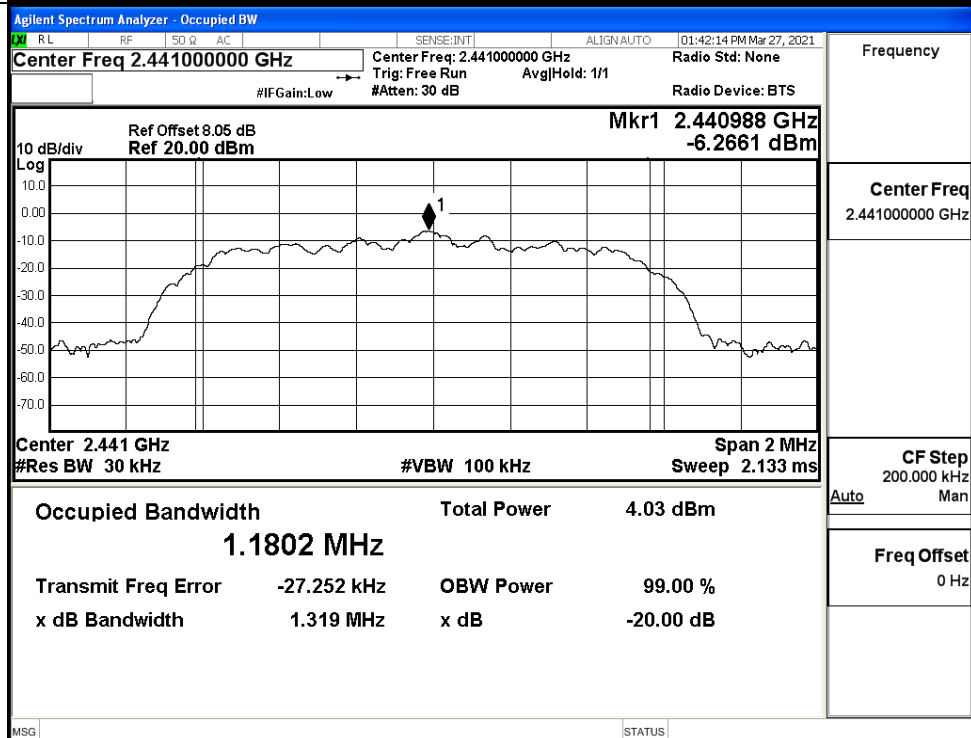


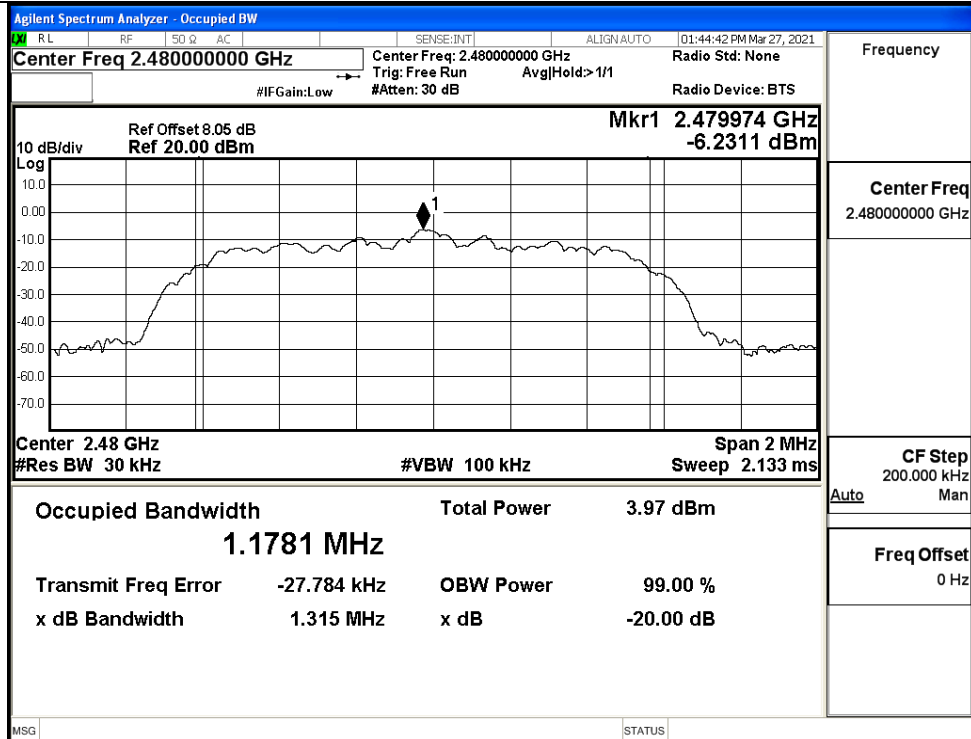
GFSK/MCH



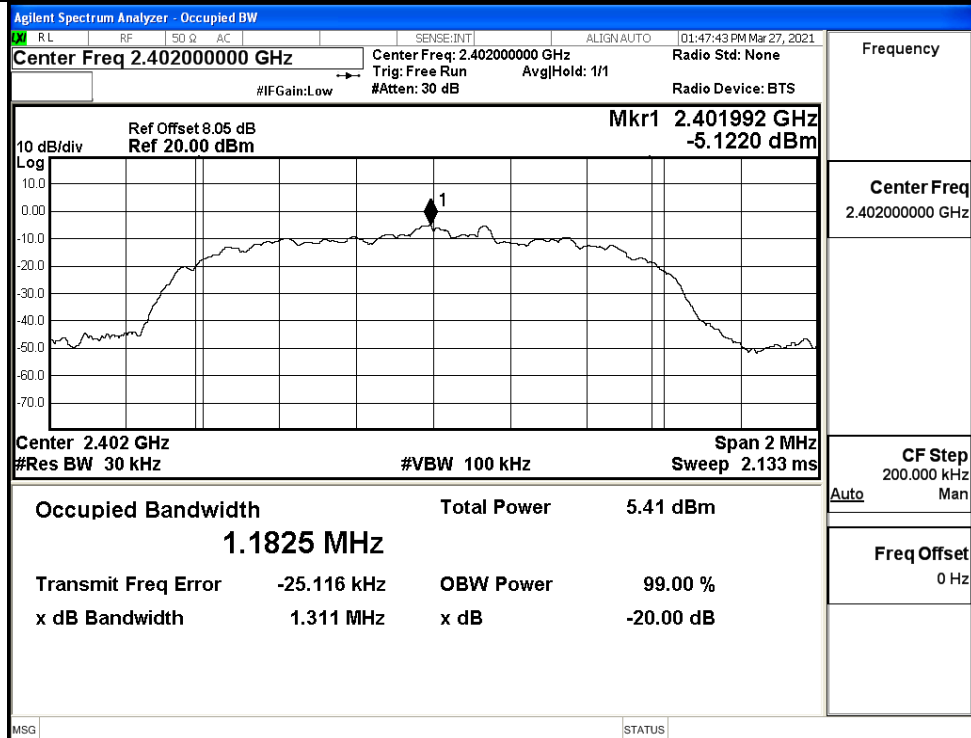
GFSK/HCH



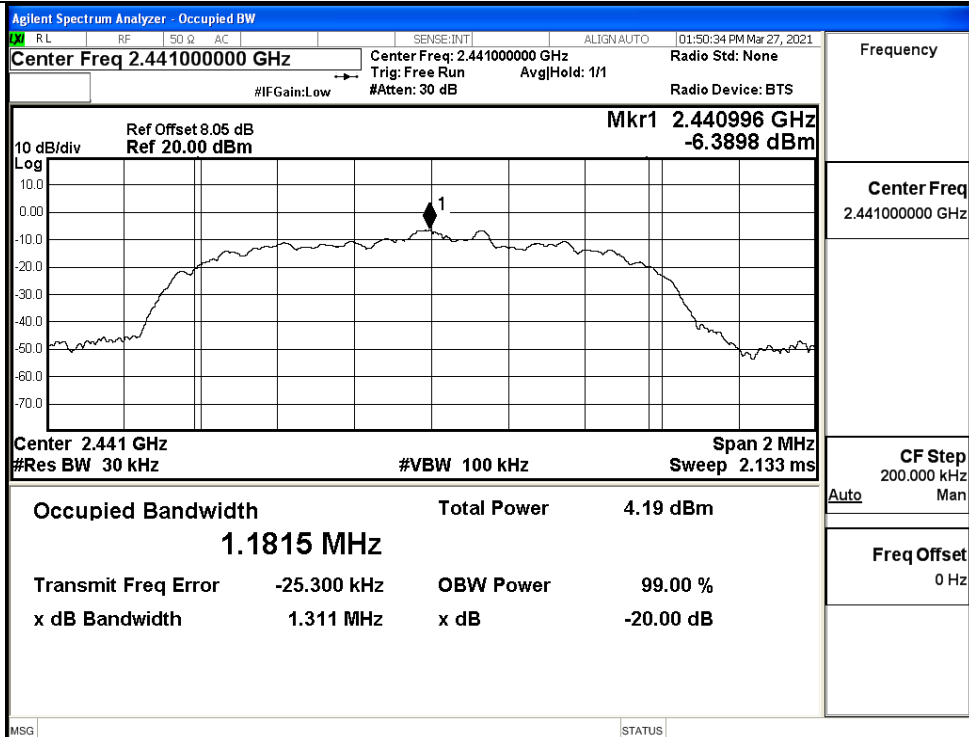
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

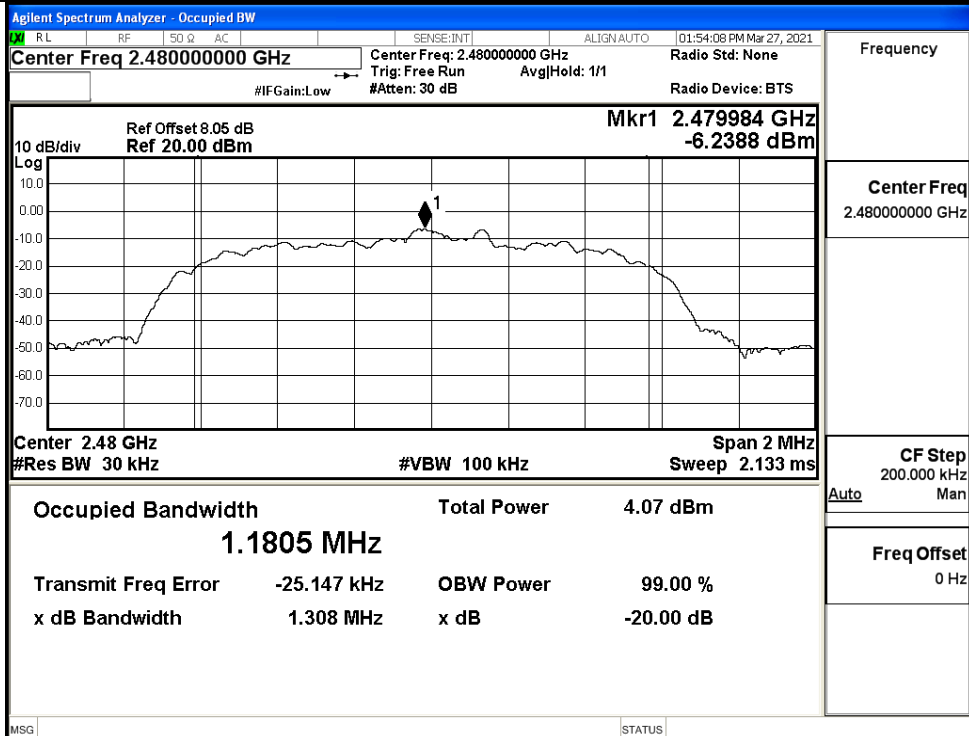
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

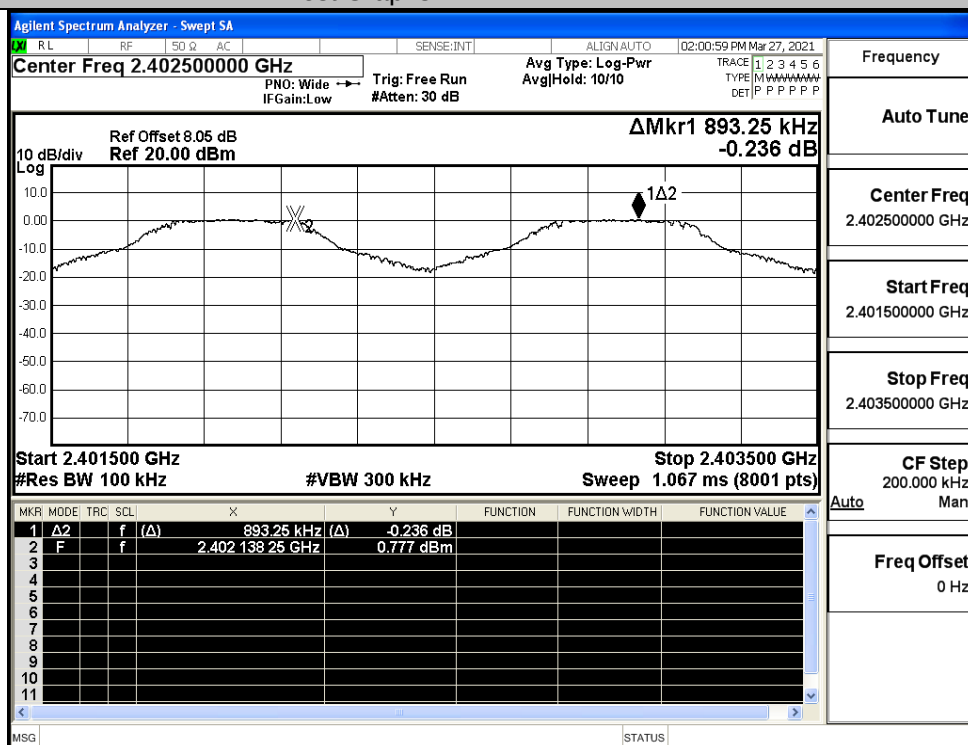


A.3 Carrier Frequency Separation

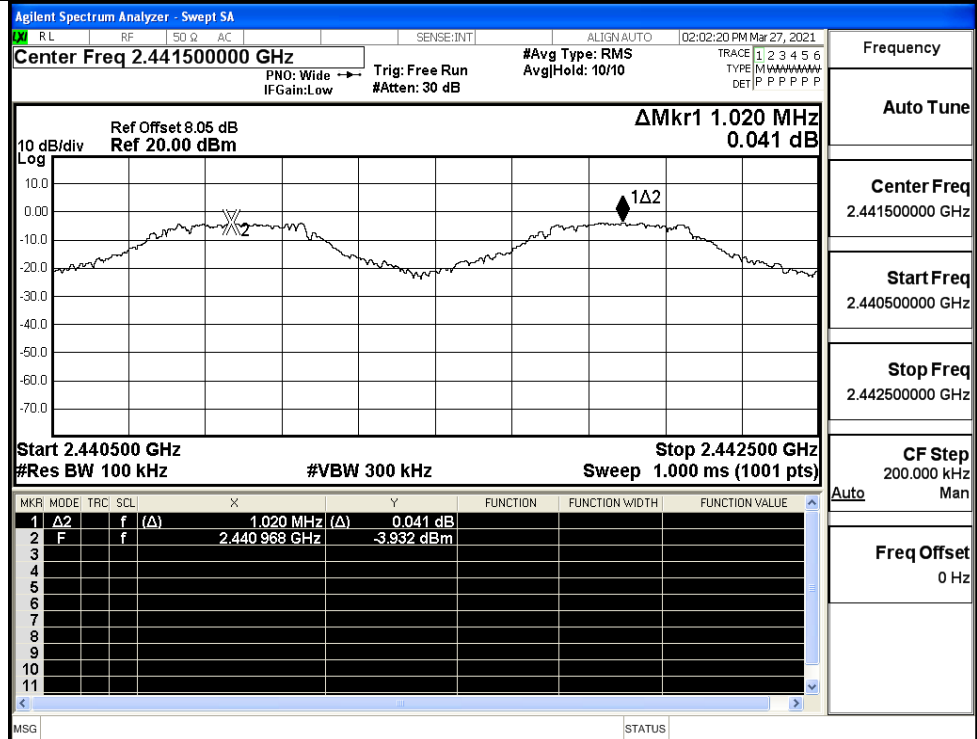
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.893	0.628	PASS
	MCH	1.020	0.628	PASS
	HCH	1.048	0.628	PASS
$\pi/4$ DQPSK	LCH	0.978	0.879	PASS
	MCH	0.932	0.879	PASS
	HCH	1.038	0.879	PASS
8DPSK	LCH	1.022	0.874	PASS
	MCH	1.002	0.874	PASS
	HCH	1.074	0.874	PASS

Test Graphs

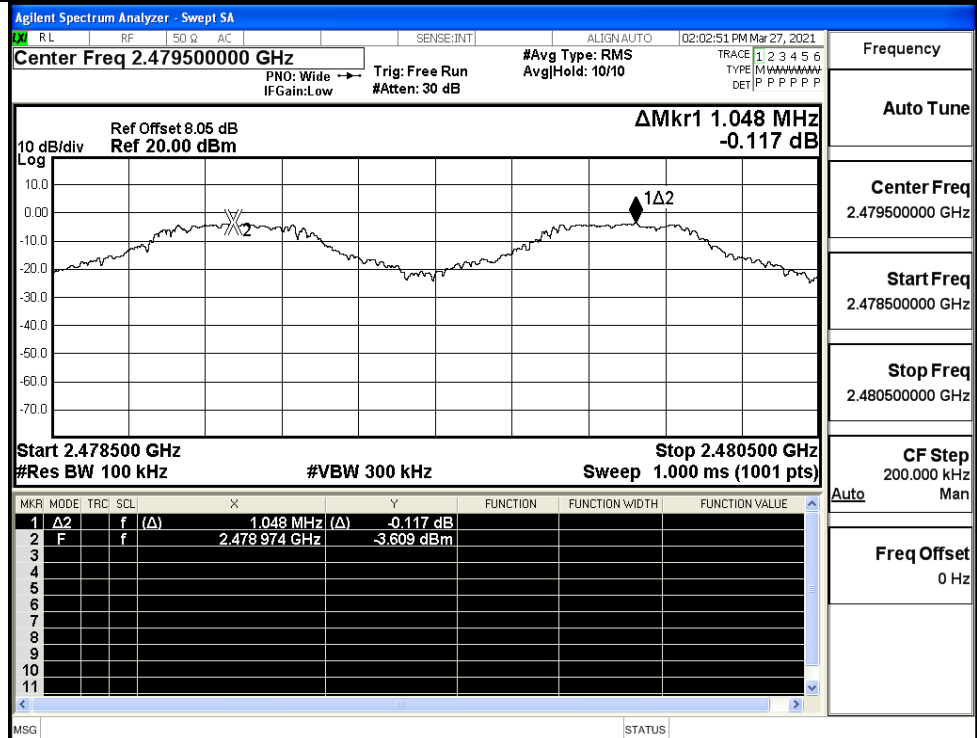
GFSK/LCH

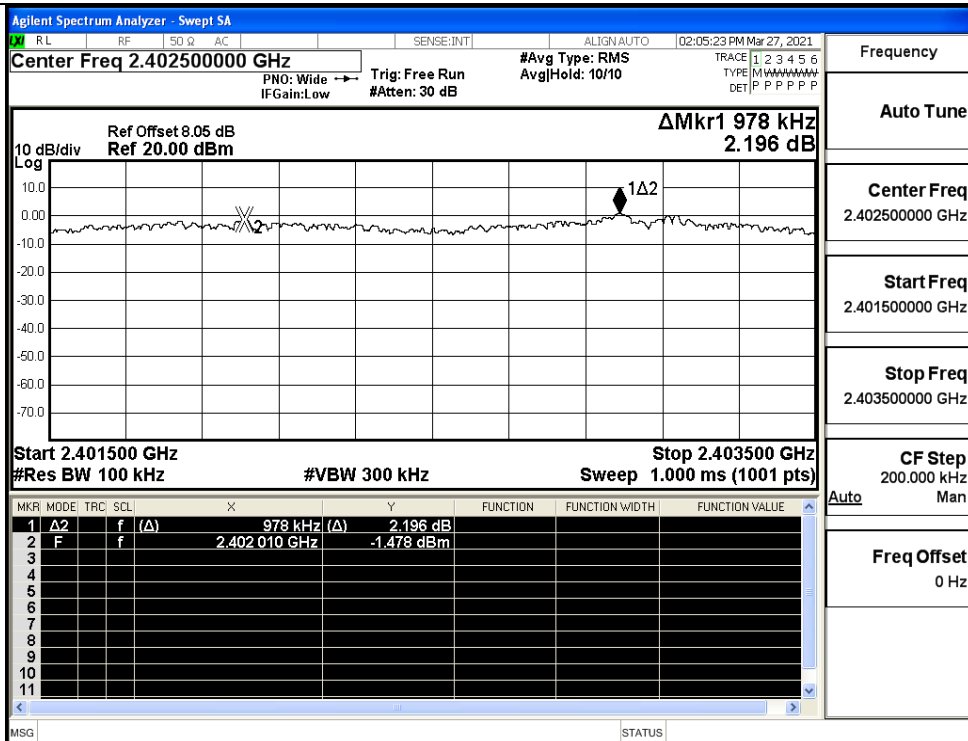
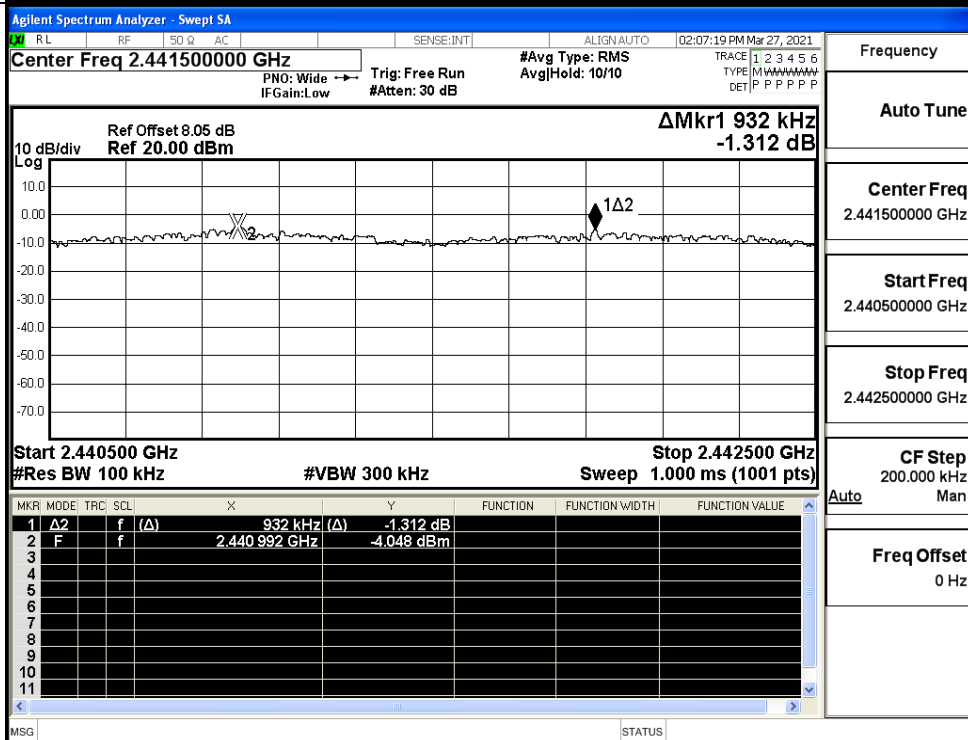


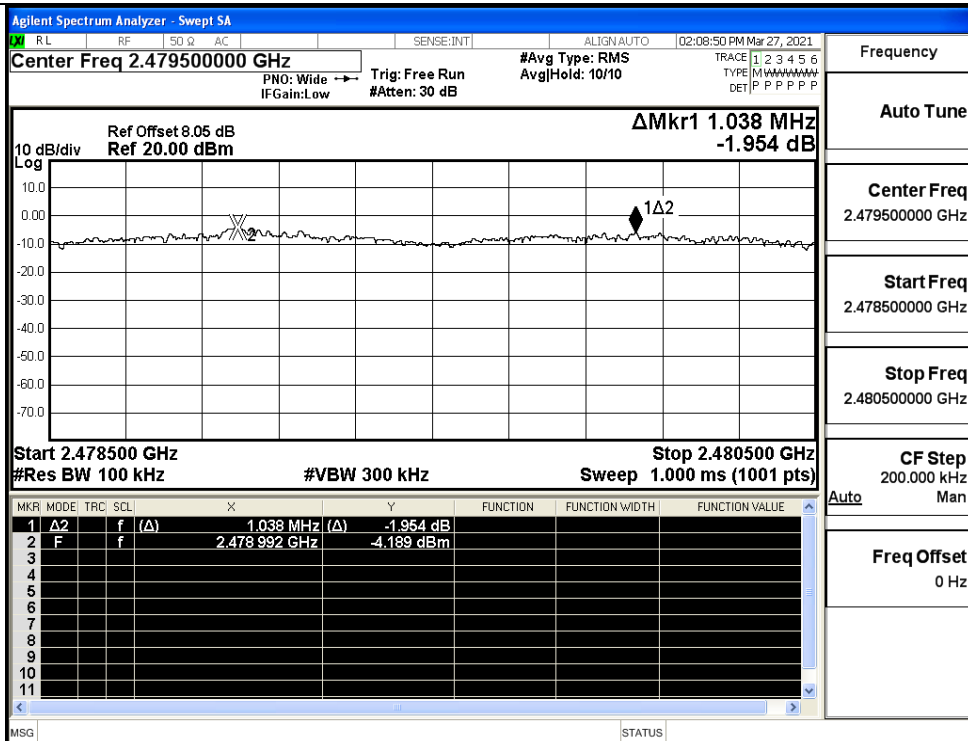
GFSK/MCH



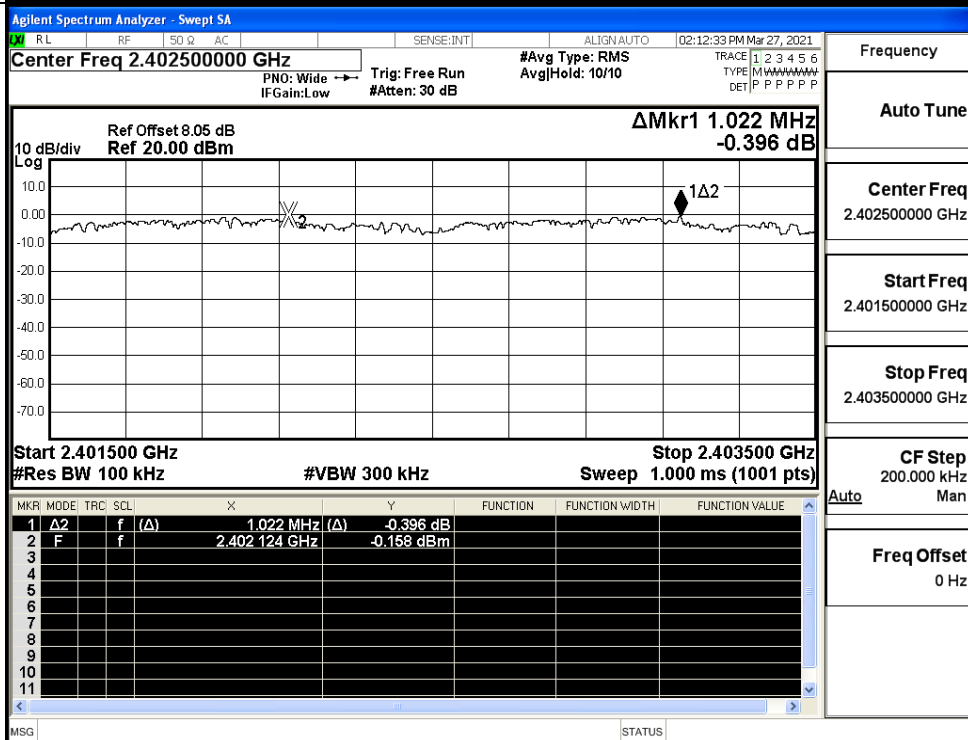
GFSK/HCH



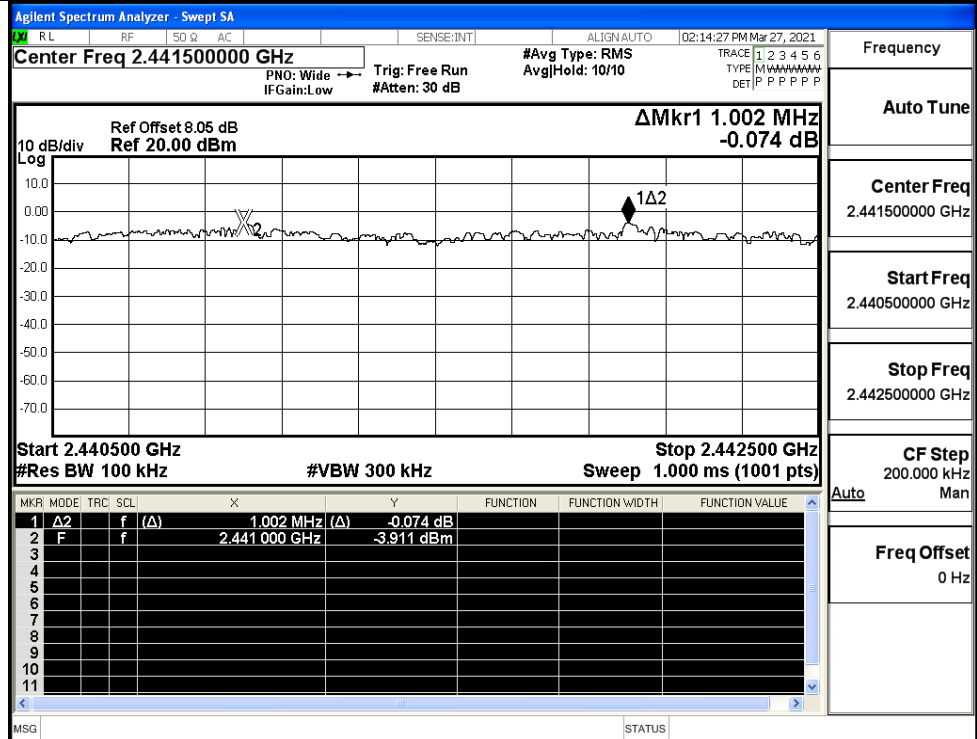
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

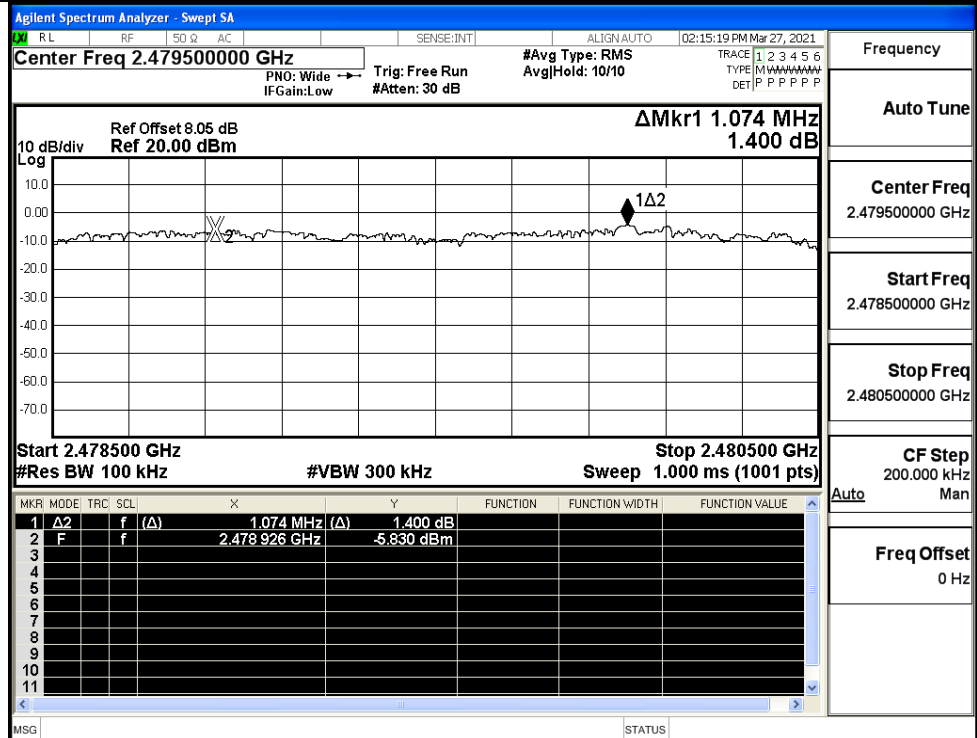
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

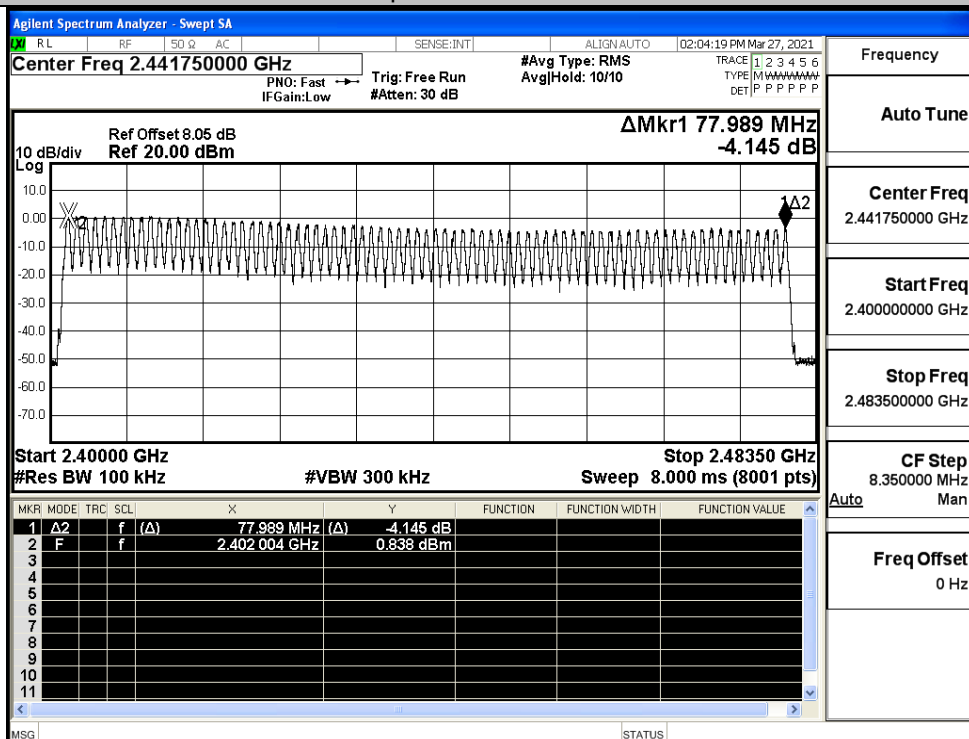
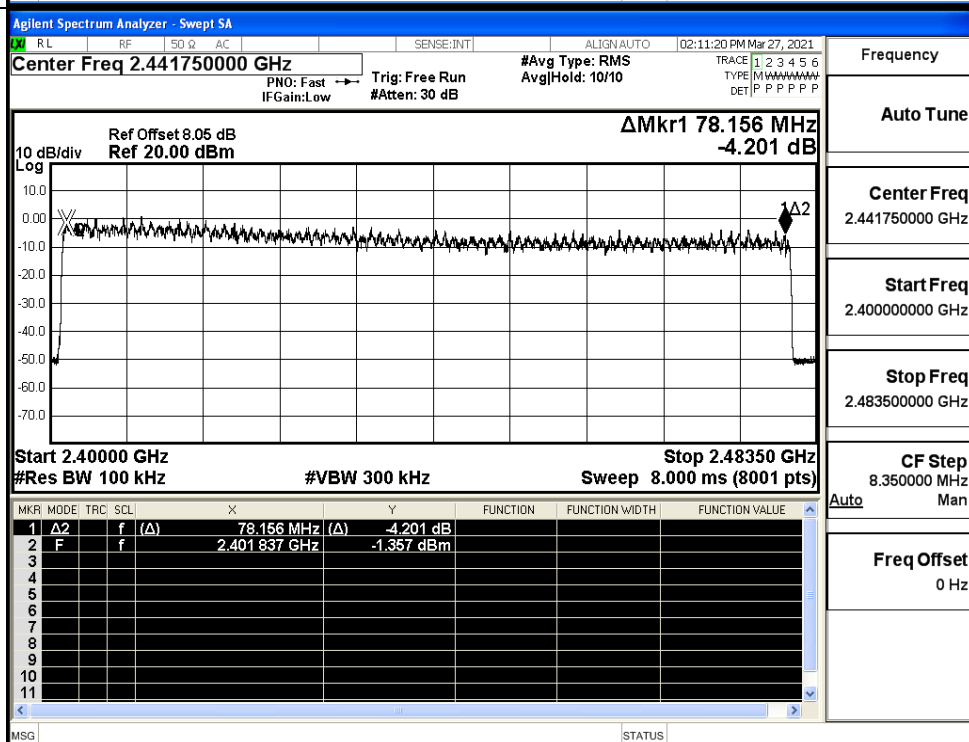


A.4 Hopping Channel Number

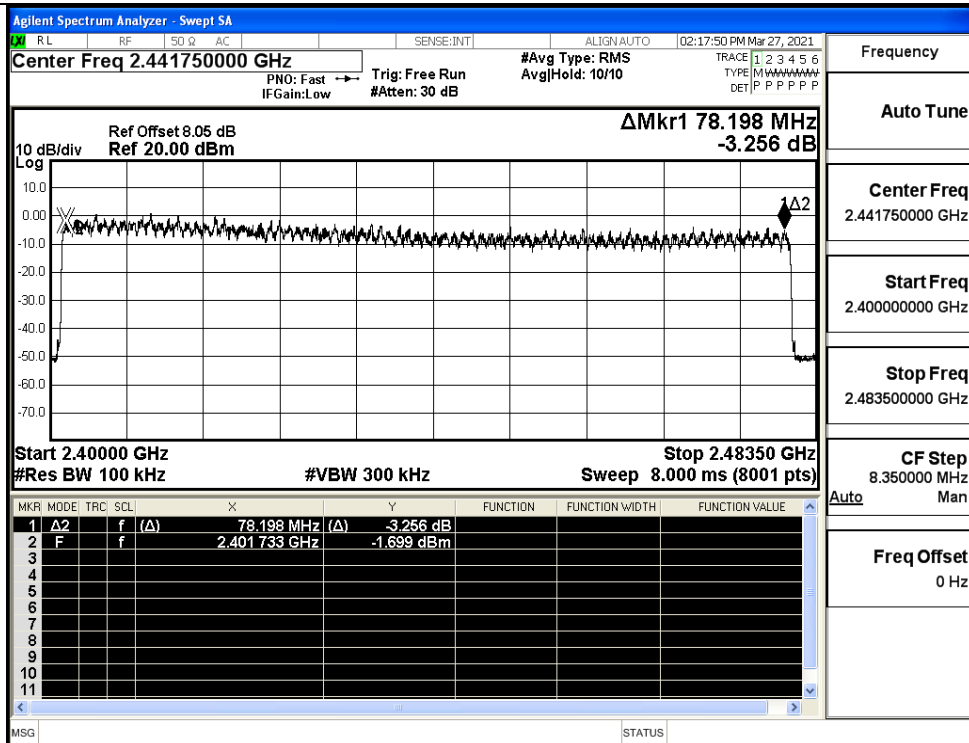
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

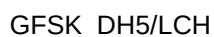
GFSK/Hop

 $\pi/4$ DQPSK/Hop

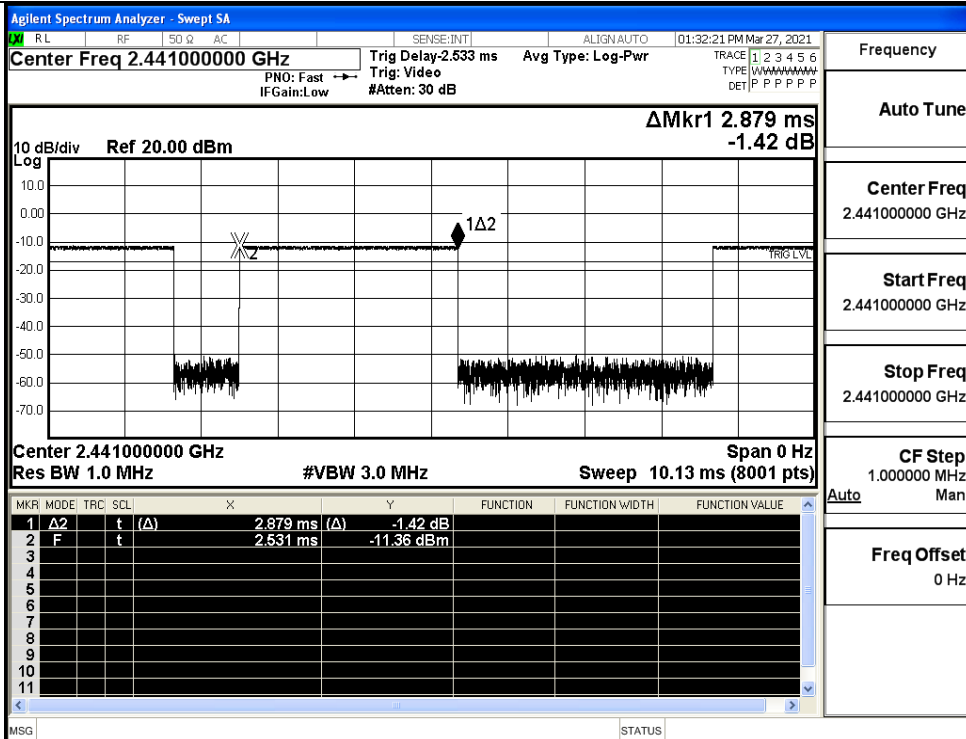
8DPSK/Hop



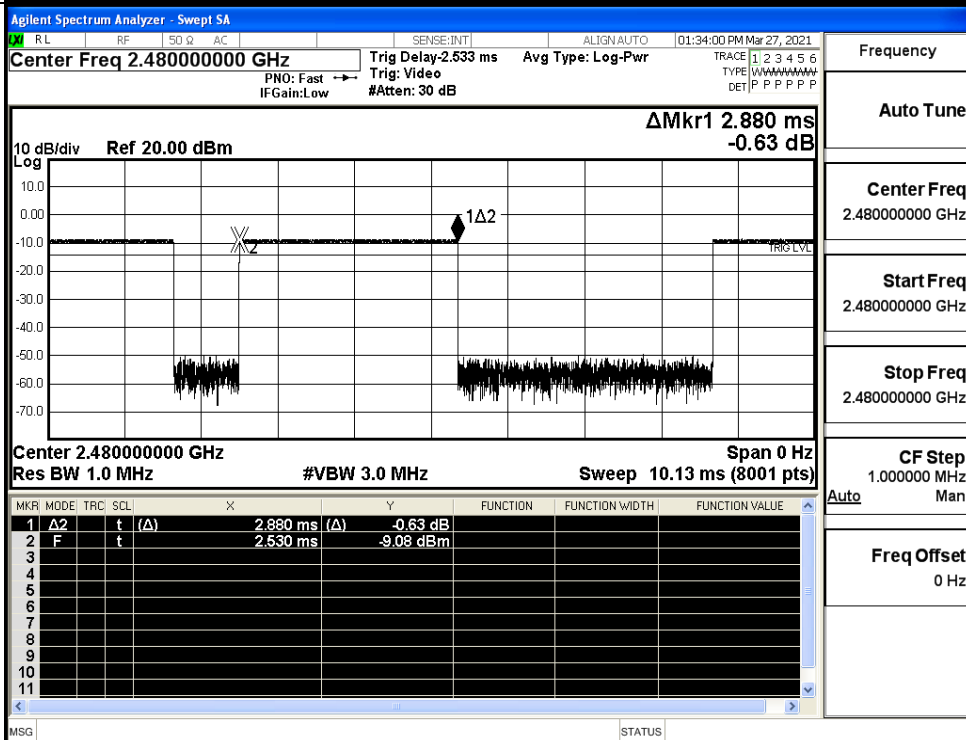
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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



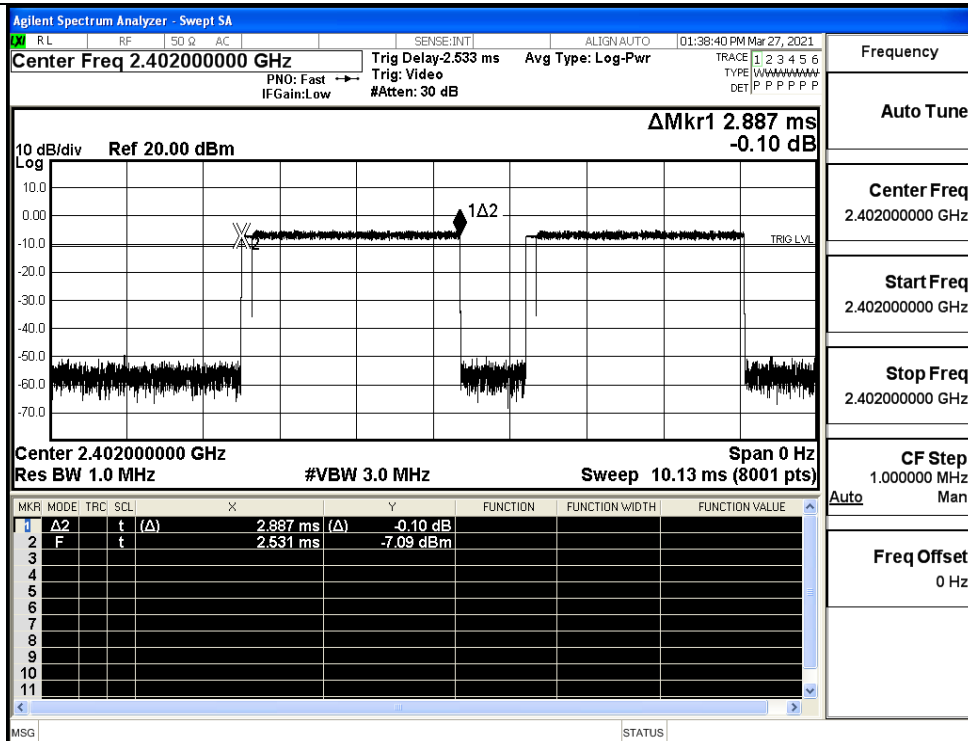
GFSK_DH5/MCH



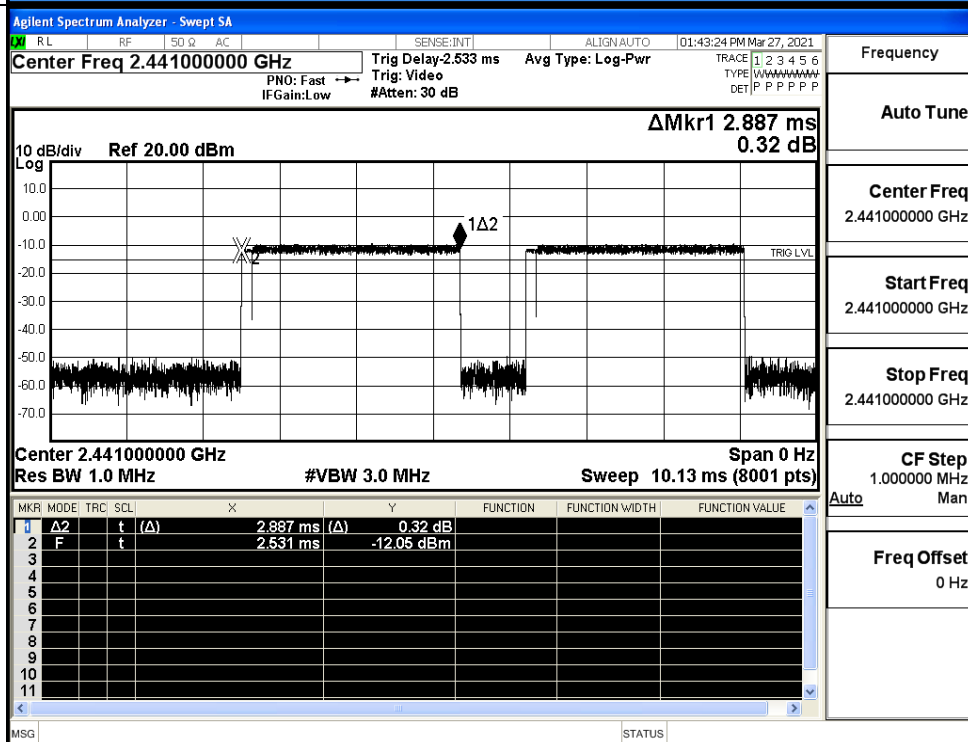
GFSK_DH5/HCH



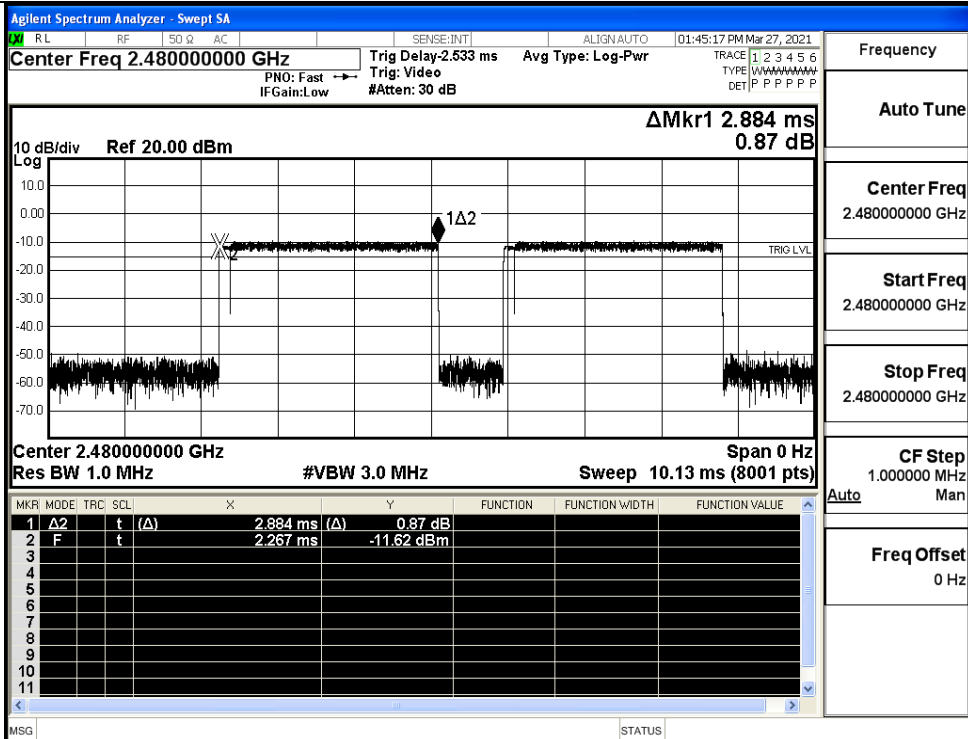
$\pi/4$ DQPSK
_2DH5/LCH



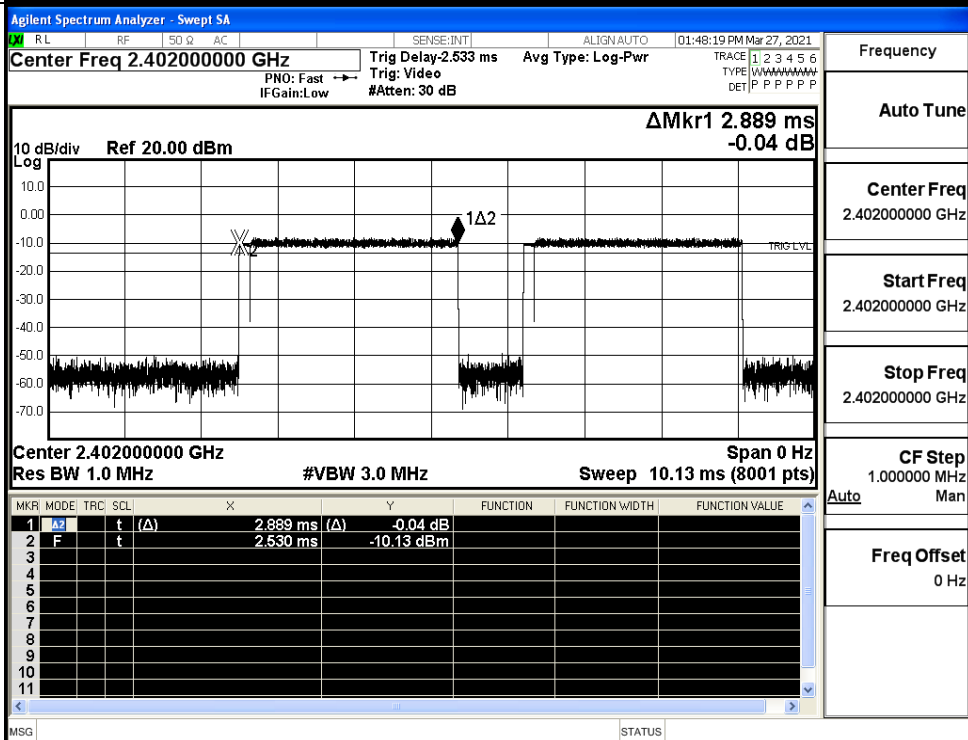
$\pi/4$ DQPSK
_2DH5/MCH



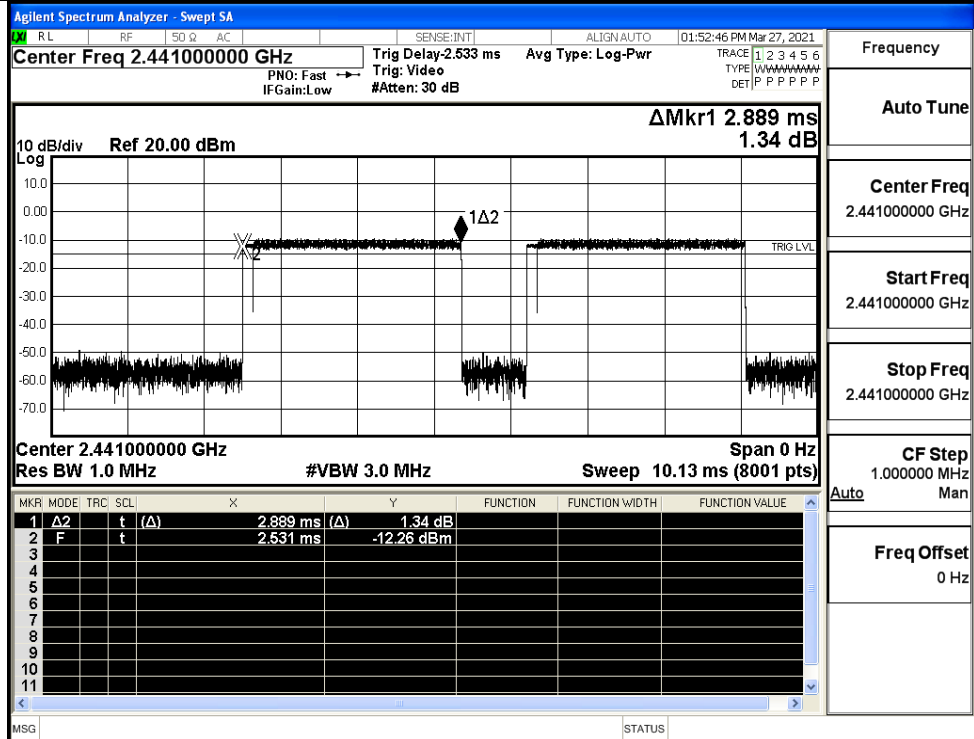
$\pi/4$ DQPSK
_2DH5/HCH



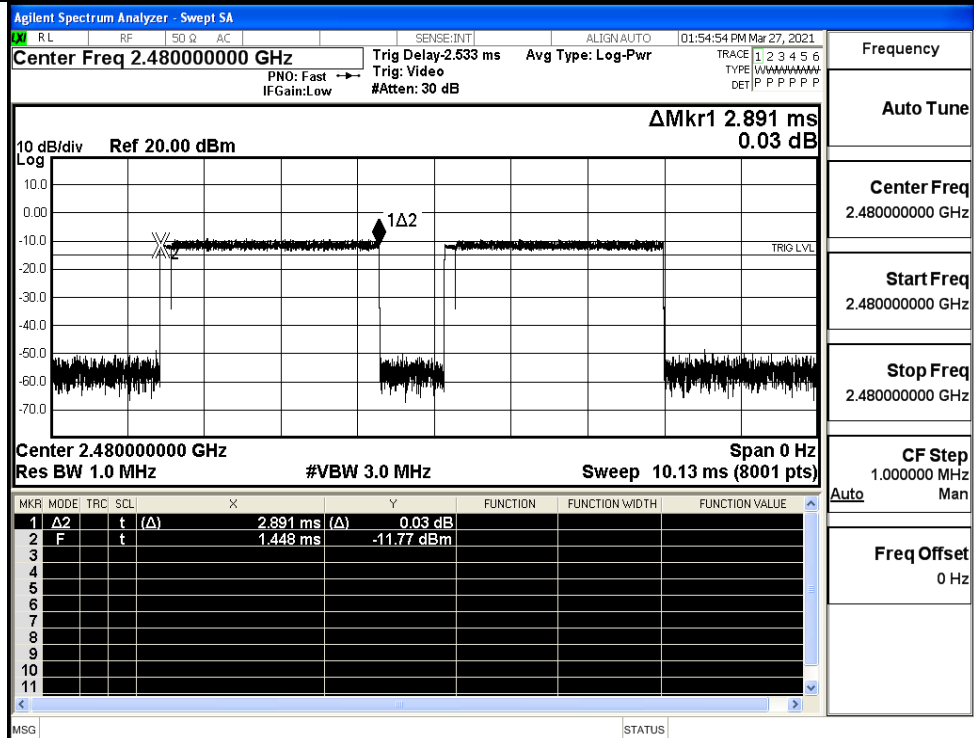
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



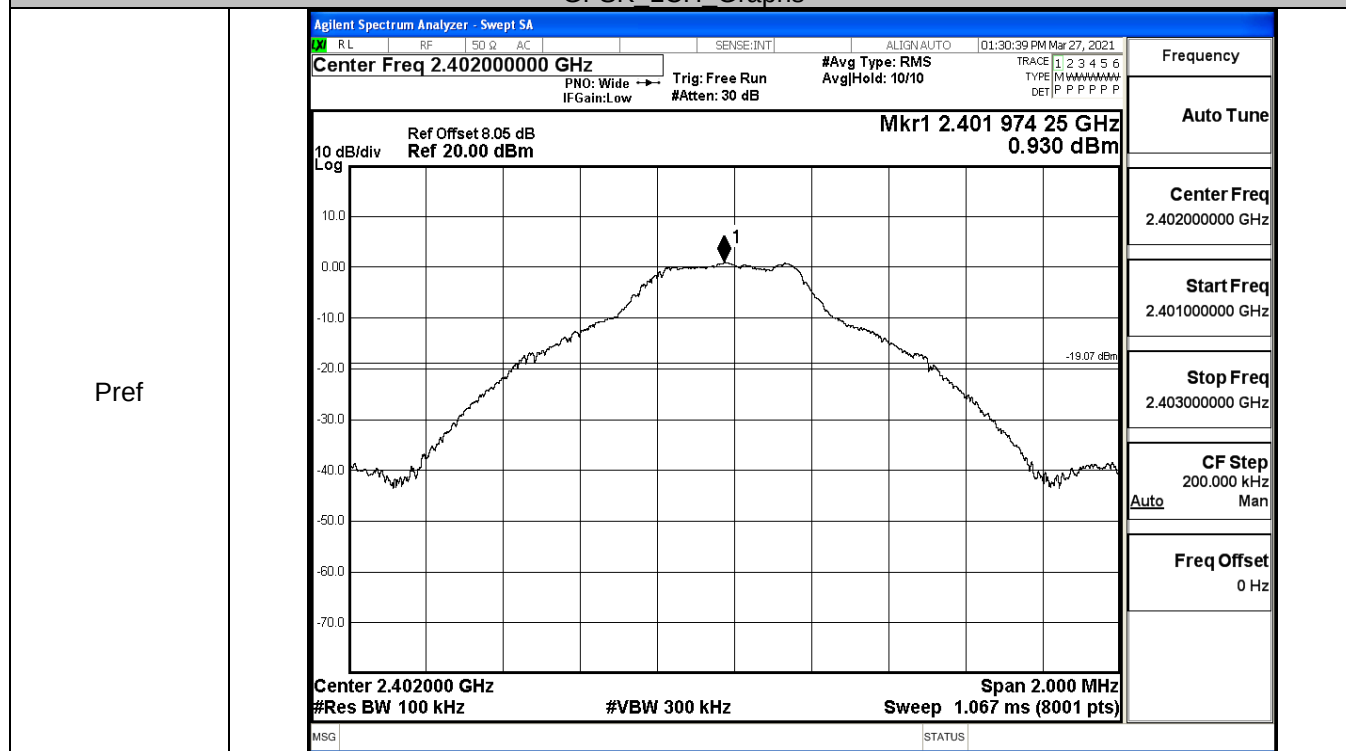
8DPSK_3DH5/HCH

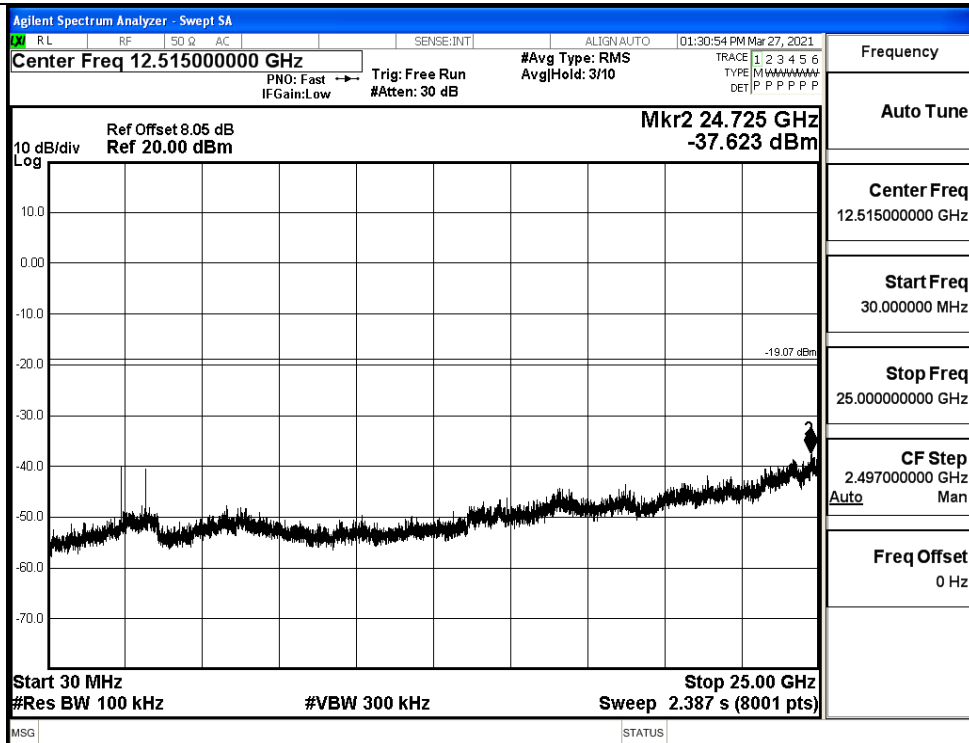


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.93	-37.623	-19.070	PASS
	MCH	-1.037	-37.151	-21.037	PASS
	HCH	-0.835	-38.356	-20.835	PASS
$\pi/4$ DQPSK	LCH	-2.679	-38.029	-22.679	PASS
	MCH	-4.077	-37.934	-24.077	PASS
	HCH	-3.411	-38.044	-23.411	PASS
8DPSK	LCH	-2.355	-34.219	-22.355	PASS
	MCH	-4.033	-37.798	-24.033	PASS
	HCH	-3.791	-38.187	-23.791	PASS

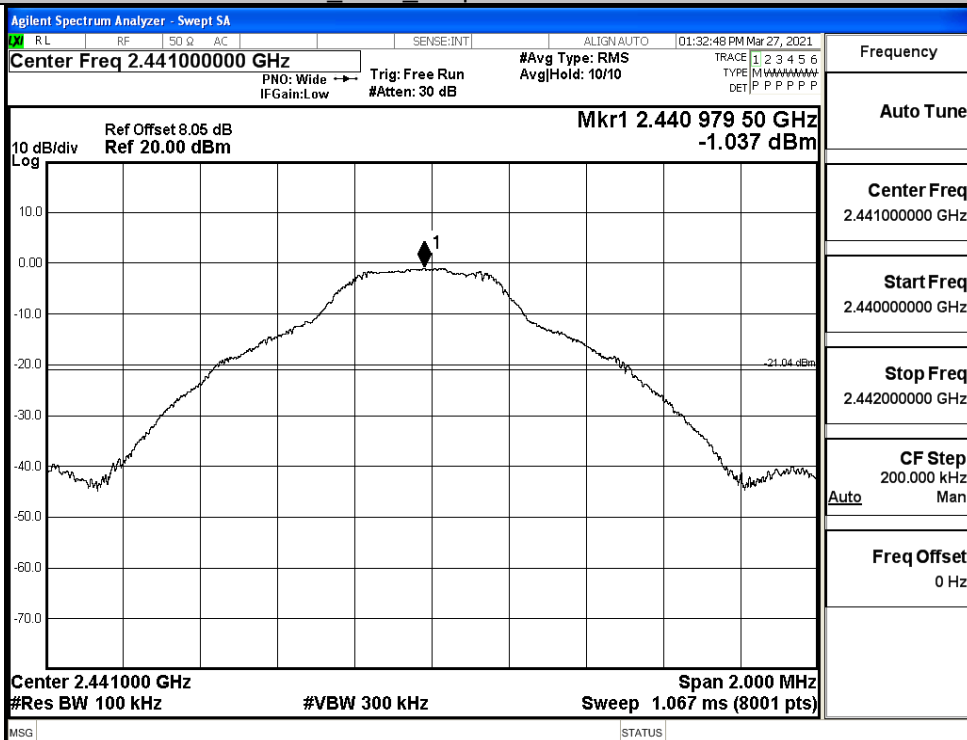
GFSK LCH Graphs



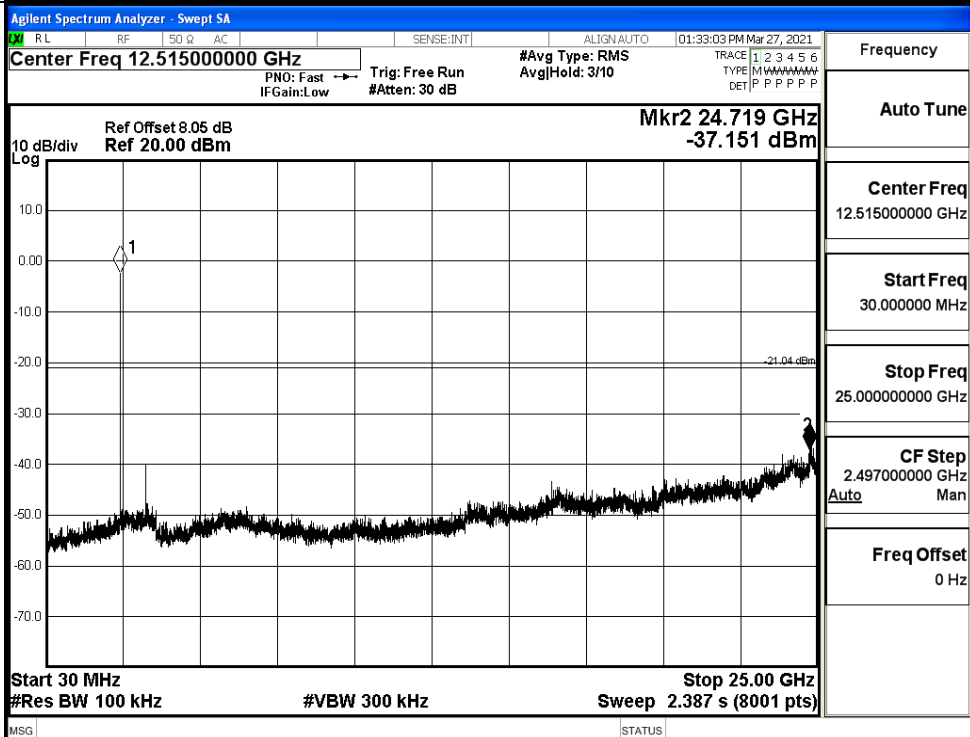
P_{uw}

GFSK_MCH_Graphs

Pref

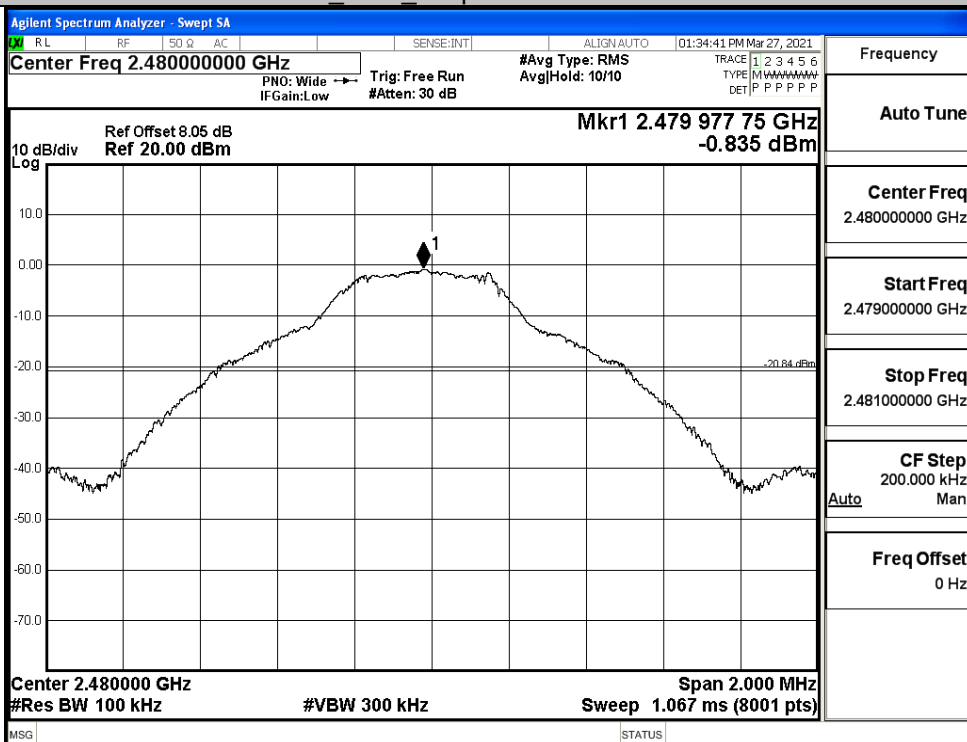


Puw

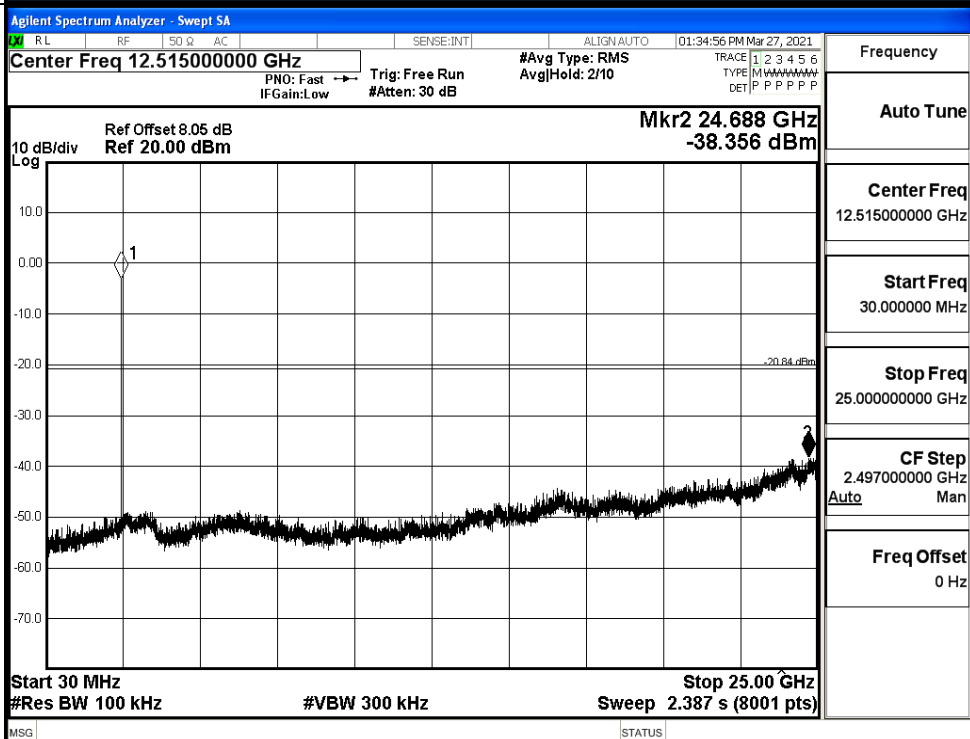


GFSK HCH Graphs

Pref

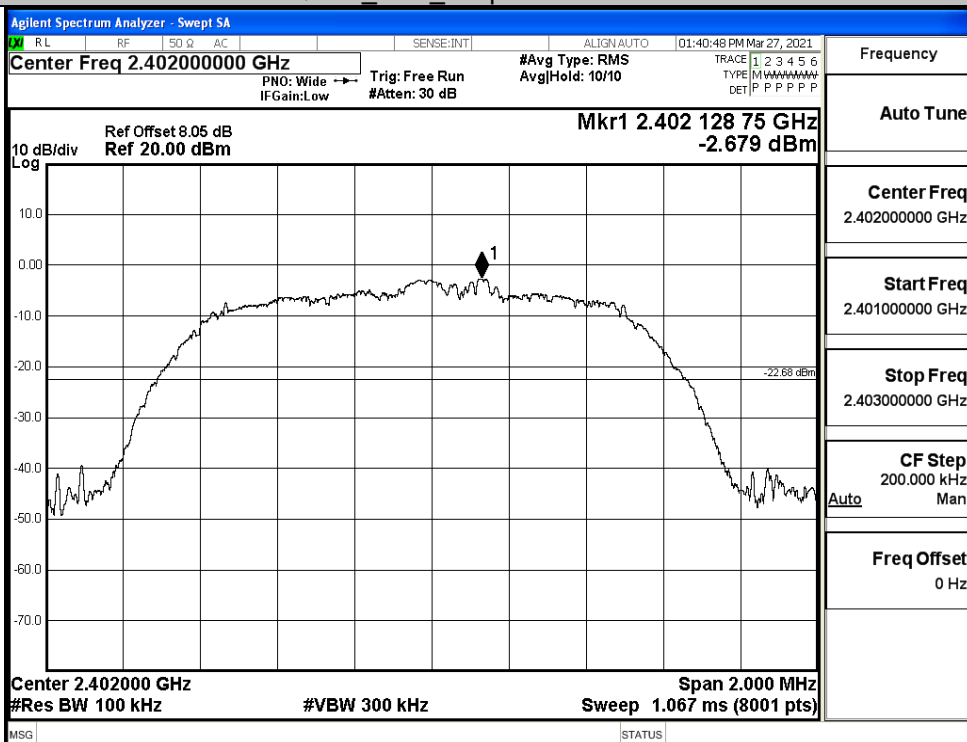


Puw

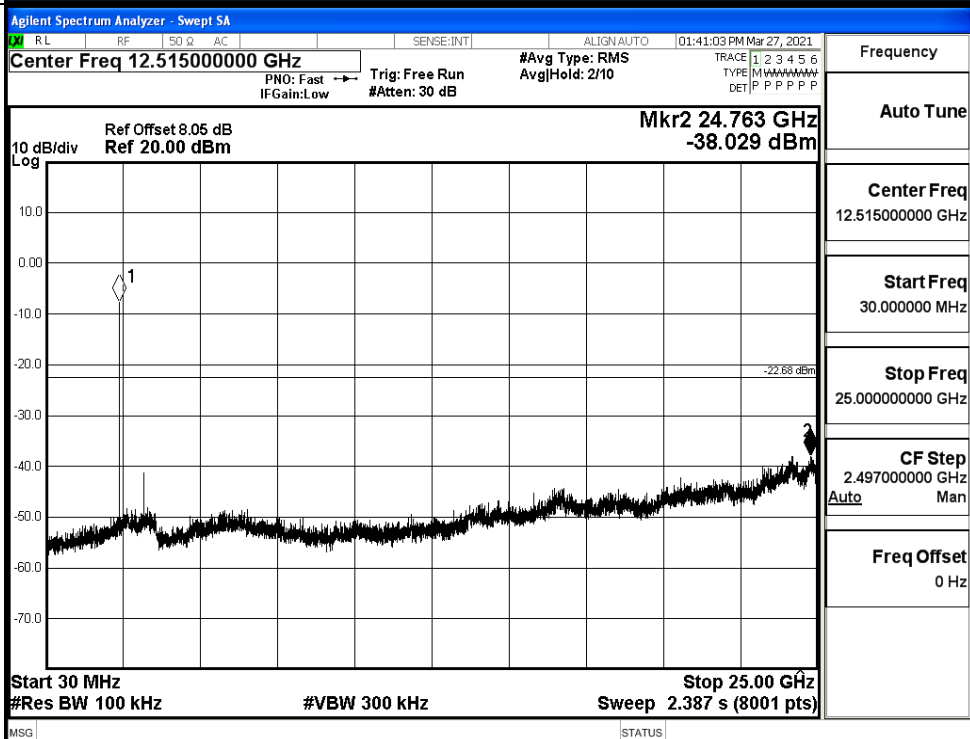


π /4DQPSK_LCH_Graphs

Pref

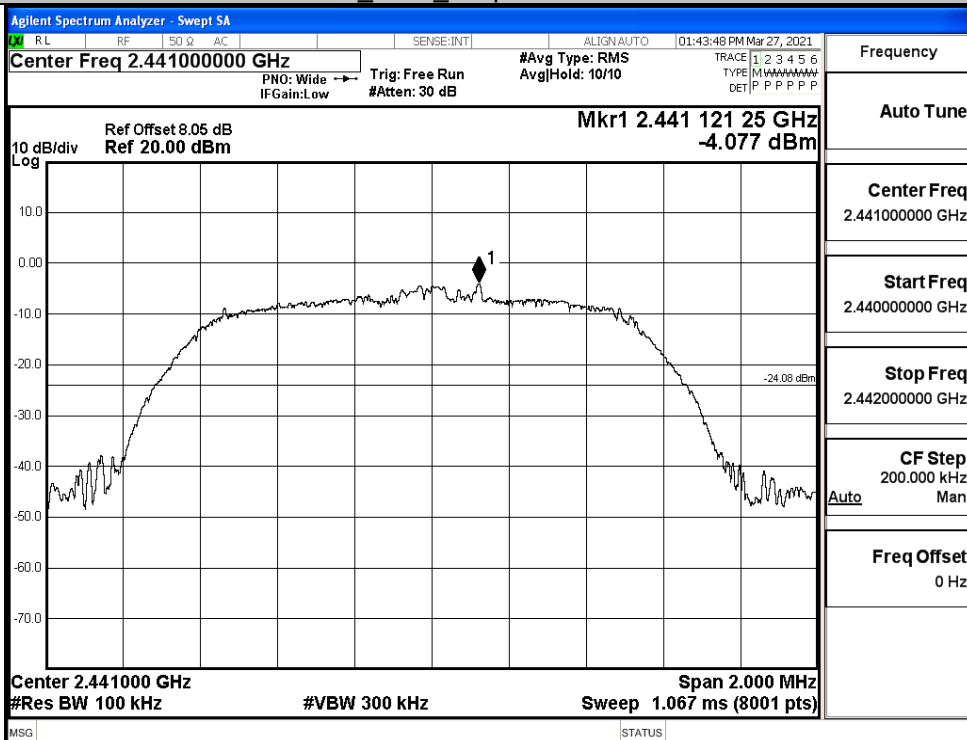


Puw

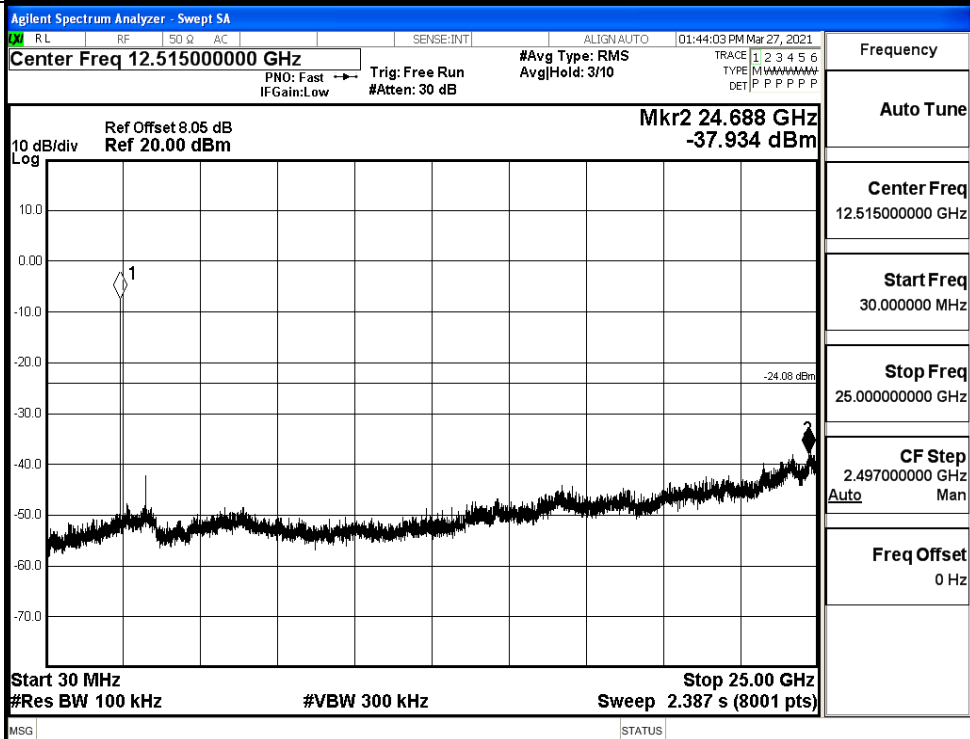


$\pi/4$ DQPSK_MCH_Graphs

Pref

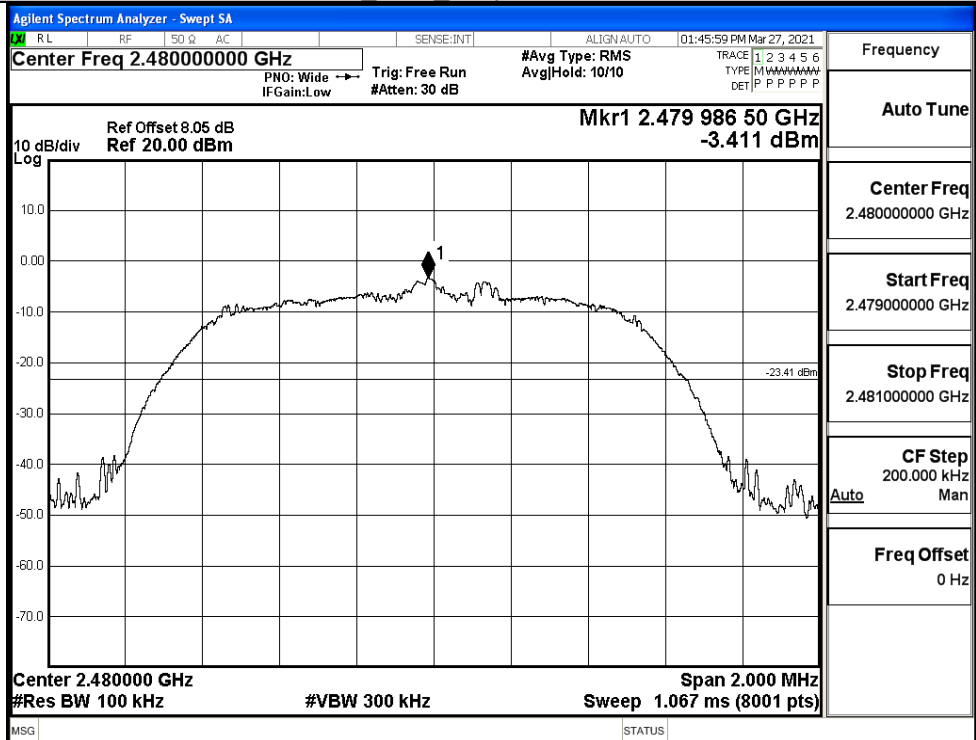


Puw

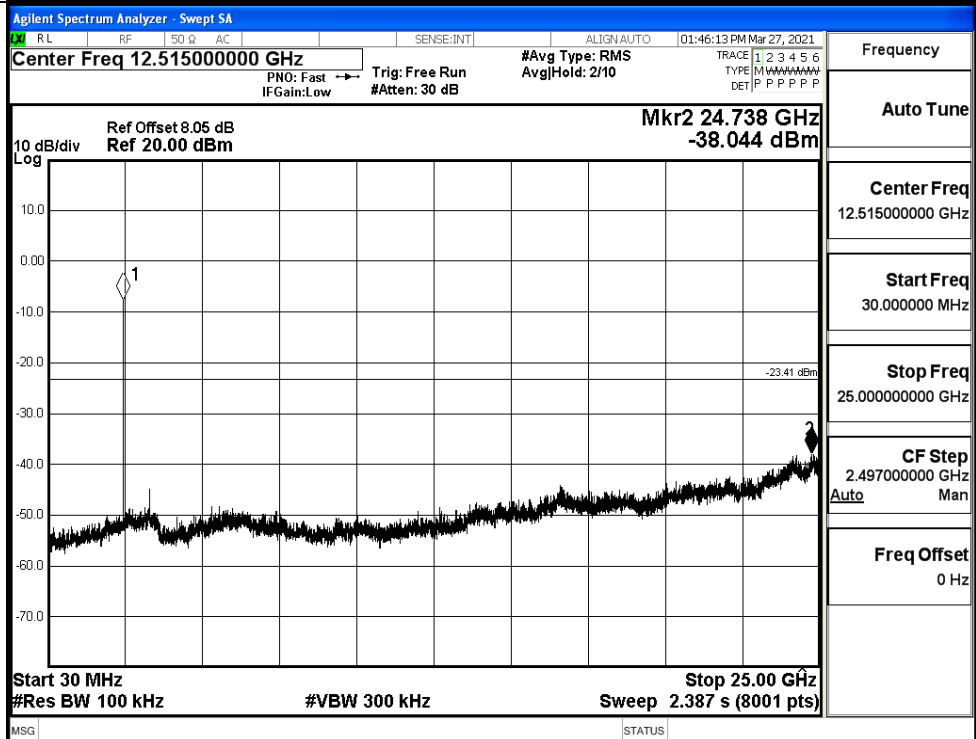


$\pi/4$ DQPSK_HCH_Graphs

Pref

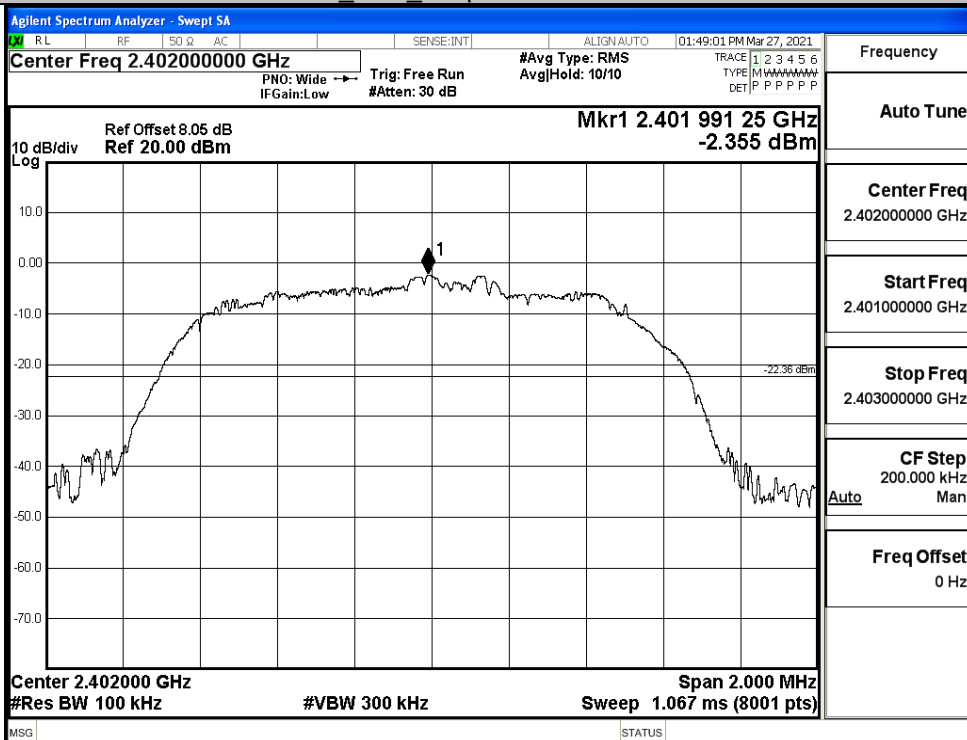


Puw

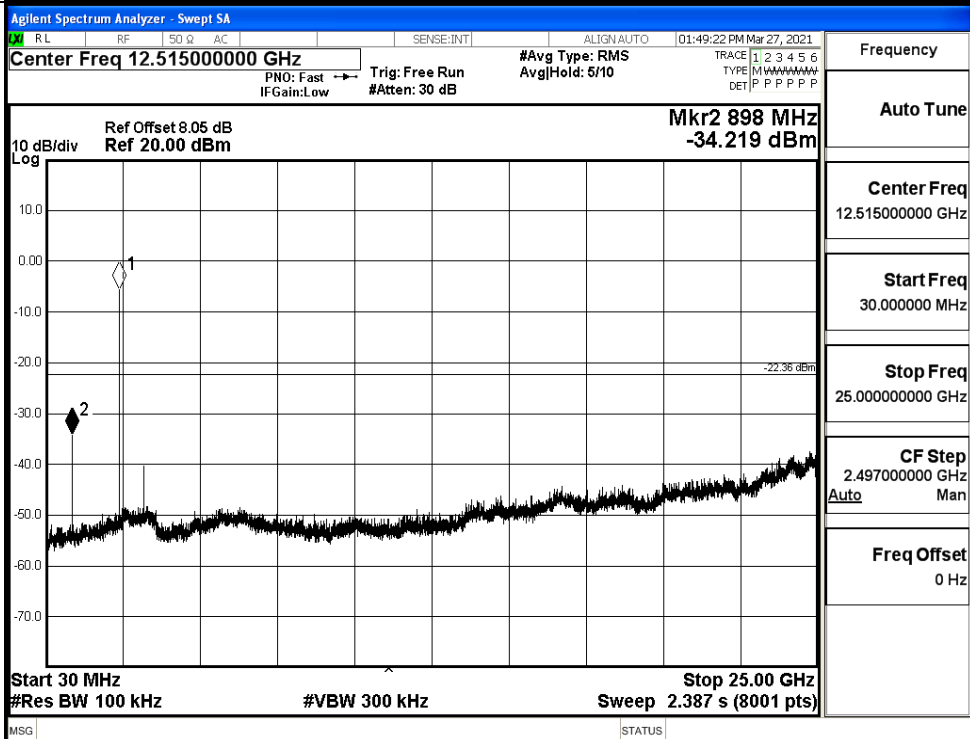


8DPSK_LCH_Graphs

Pref

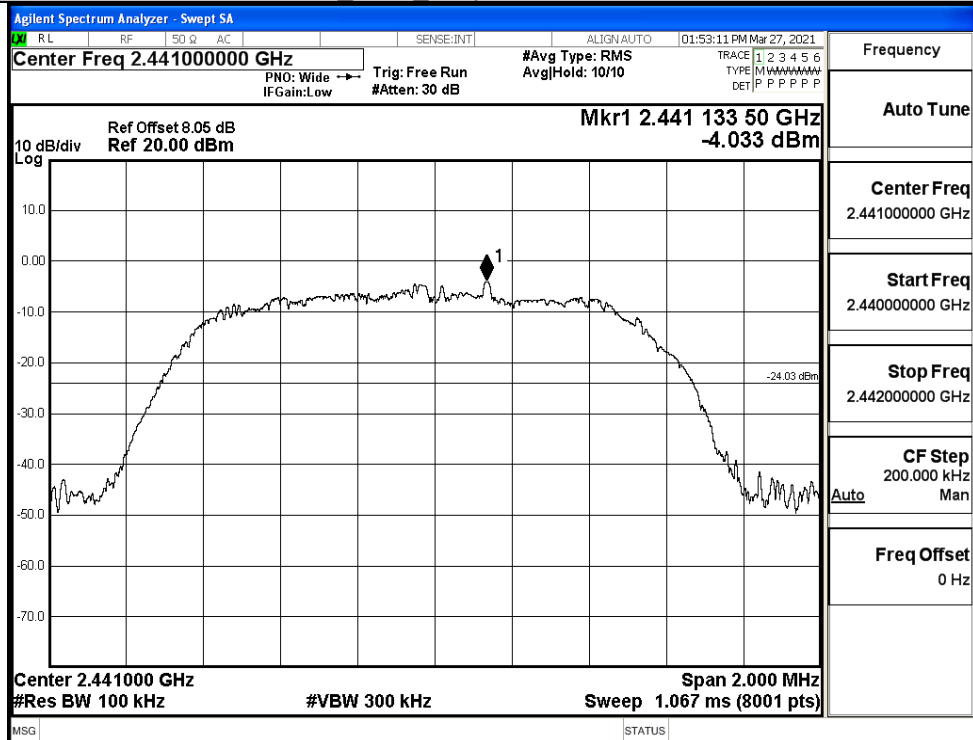


Puw

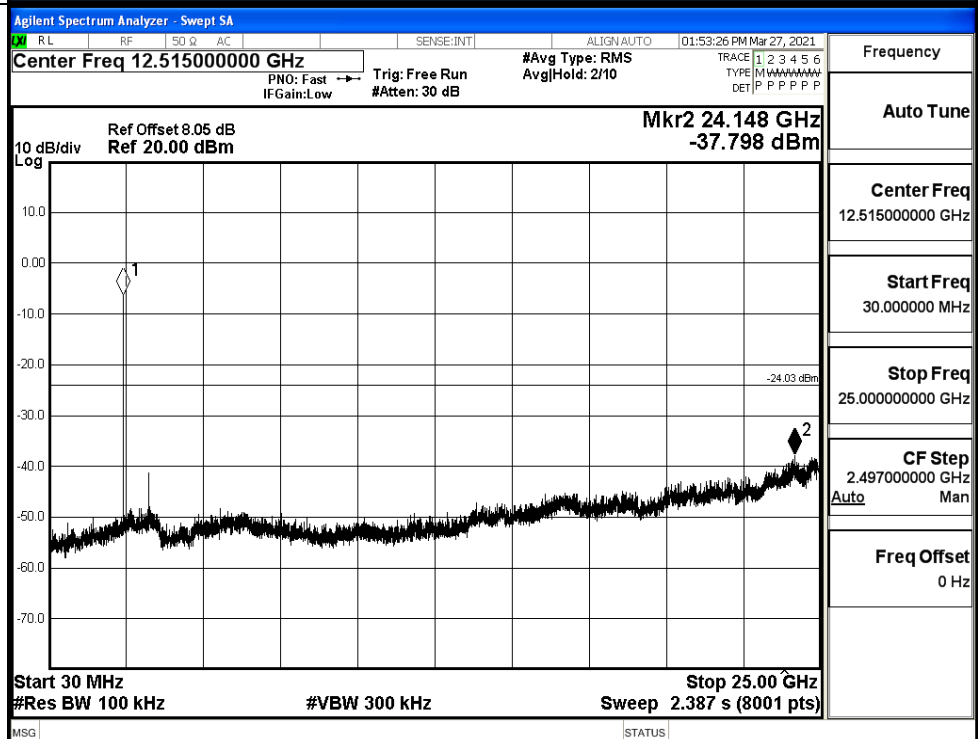


8DPSK_MCH_Graphs

Pref

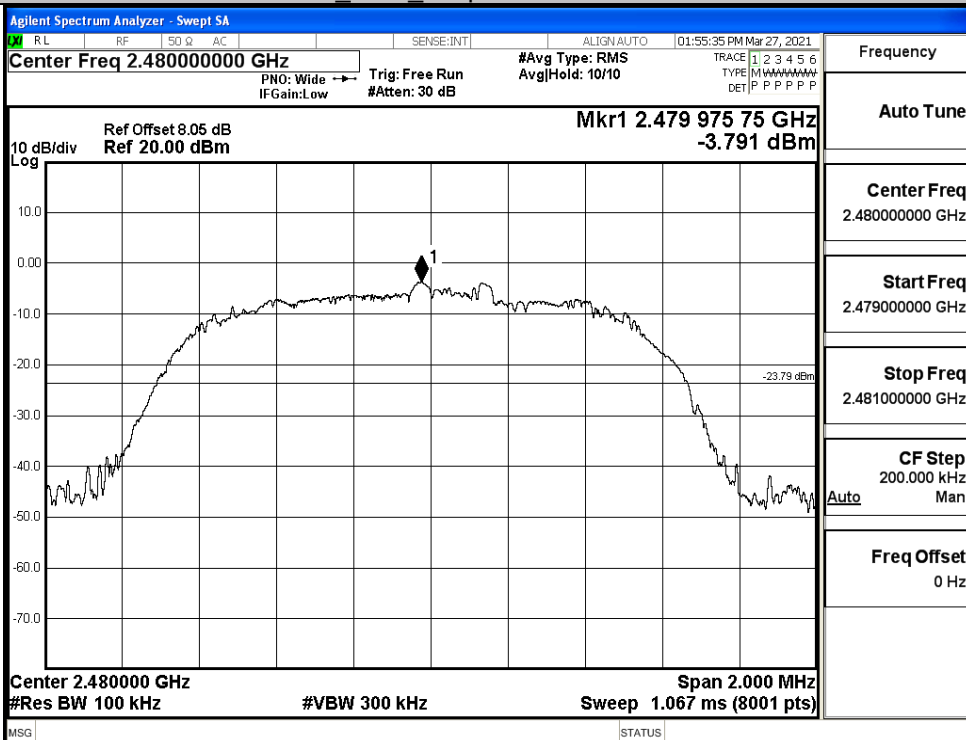


Puw

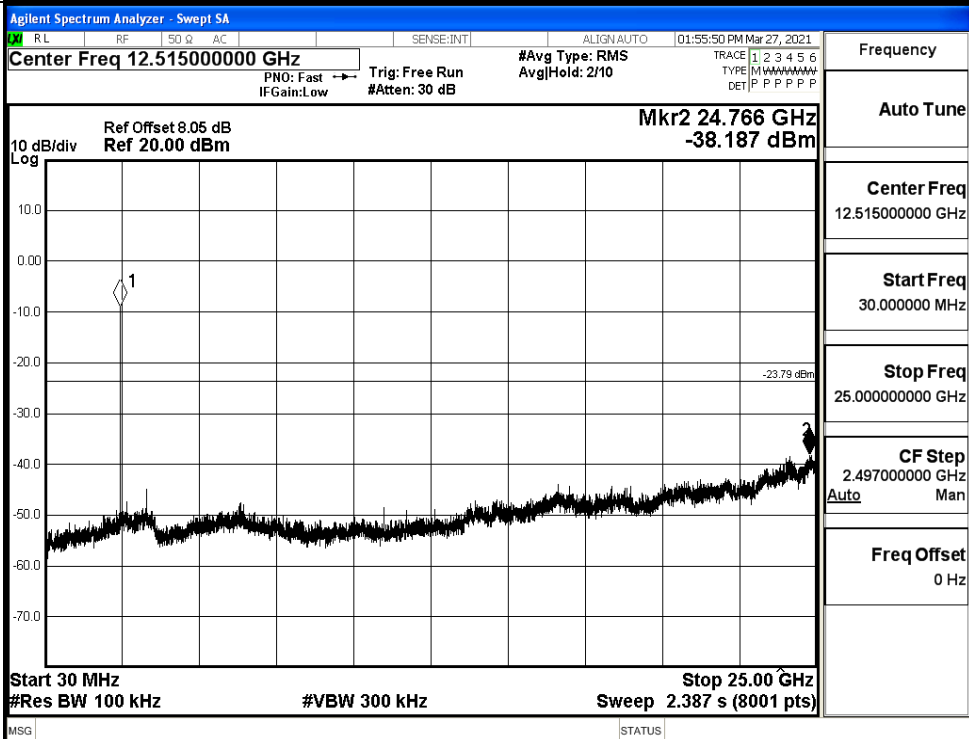


8DPSK_HCH_Graphs

Pref



Puw

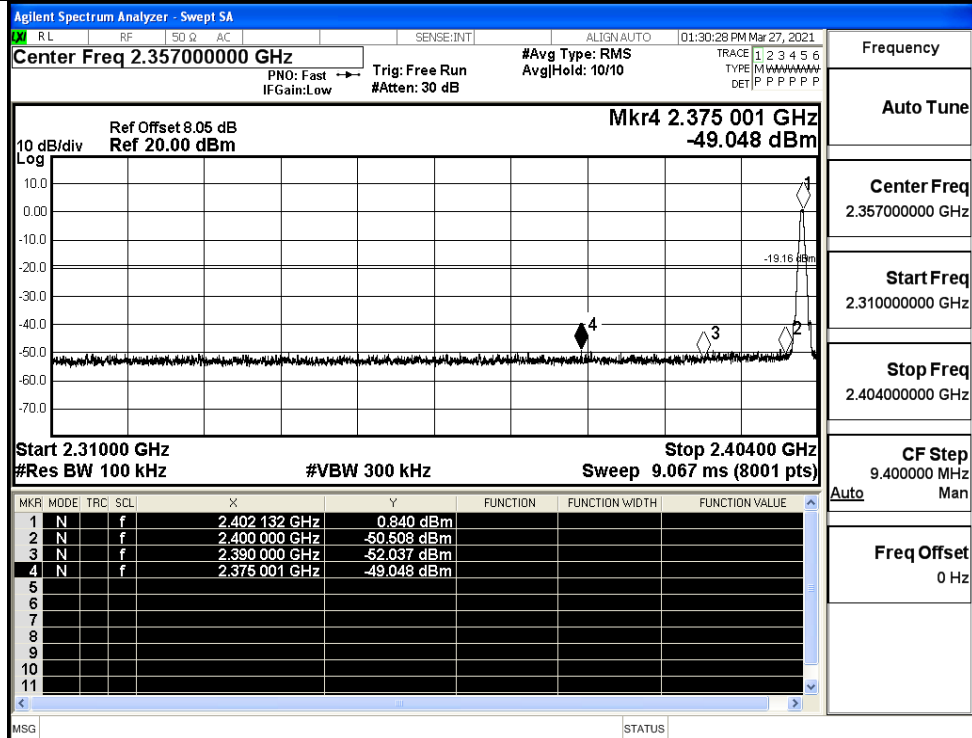


A.7 Band-edge for RF Conducted Emissions

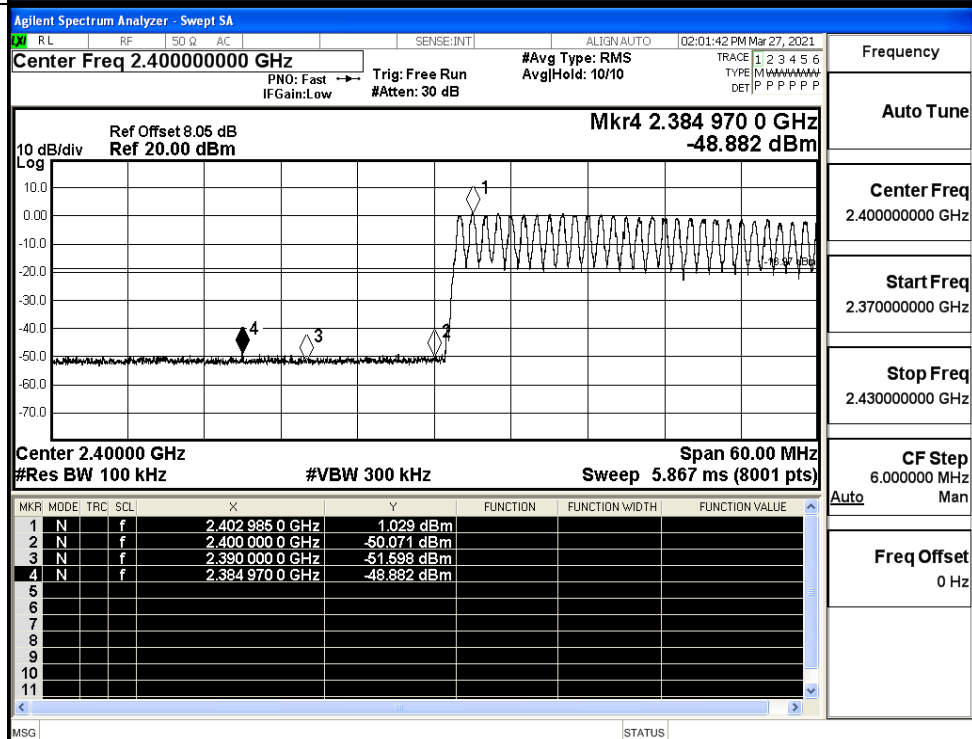
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.840	Off	-49.048	-19.16	PASS
			1.029	On	-48.882	-18.97	PASS
	HCH	2480	-0.561	Off	-46.787	-20.56	PASS
			-3.470	On	-47.934	-23.47	PASS
$\pi/4$ DQPSK	LCH	2402	-4.072	Off	-49.743	-24.07	PASS
			0.439	On	-49.304	-19.56	PASS
	HCH	2480	-3.895	Off	-48.154	-23.9	PASS
			-3.885	On	-47.727	-23.89	PASS
8DPSK	LCH	2402	-2.456	Off	-48.847	-22.46	PASS
			0.690	On	-49.043	-19.31	PASS
	HCH	2480	-4.251	Off	-48.033	-24.25	PASS
			-3.285	On	-46.479	-23.29	PASS

Test Graphs

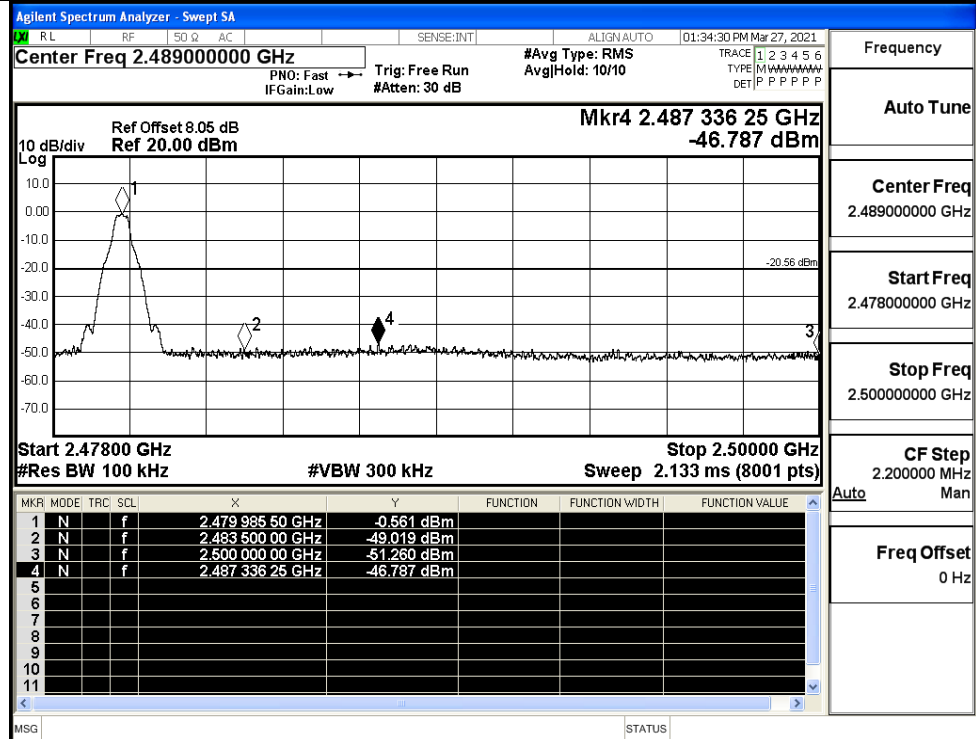
GFSK/LCH/No Hop



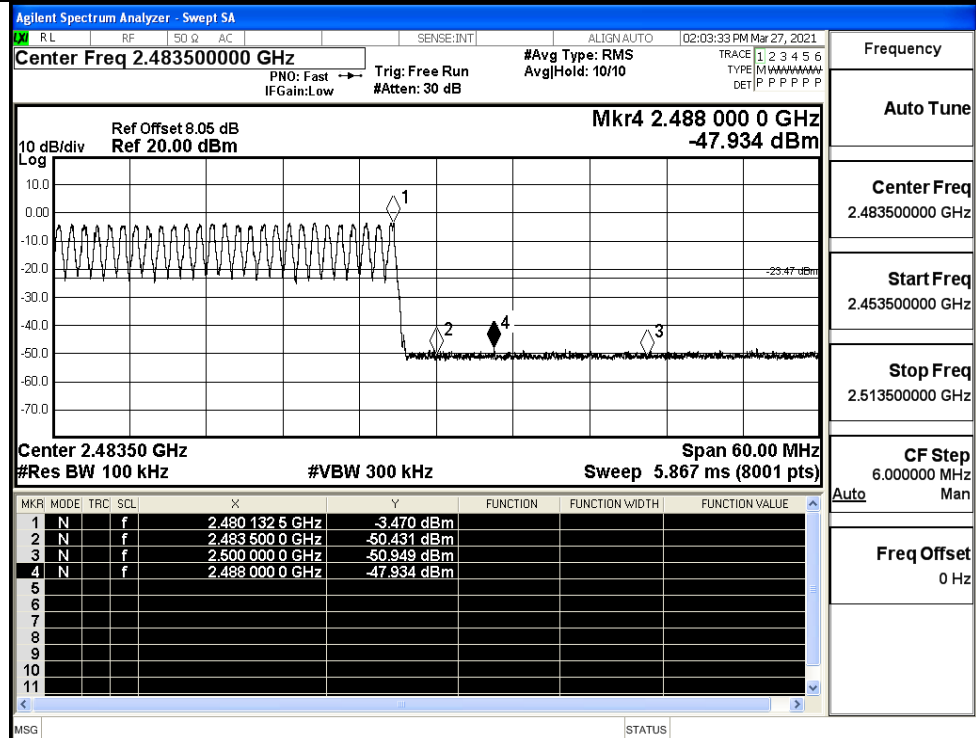
GFSK/LCH/Hop



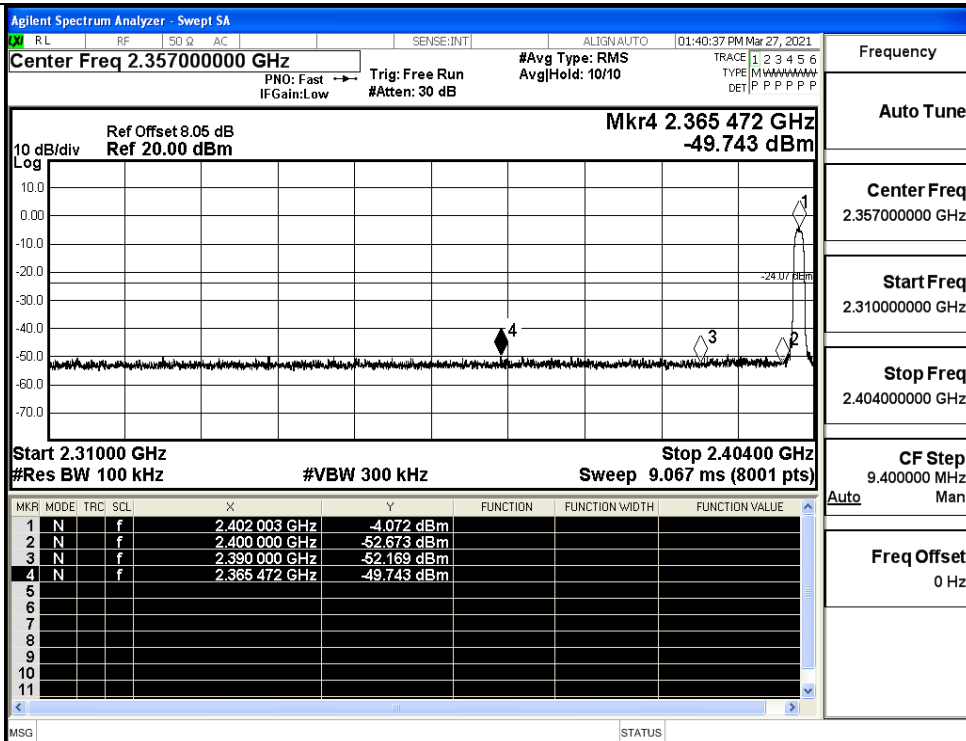
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

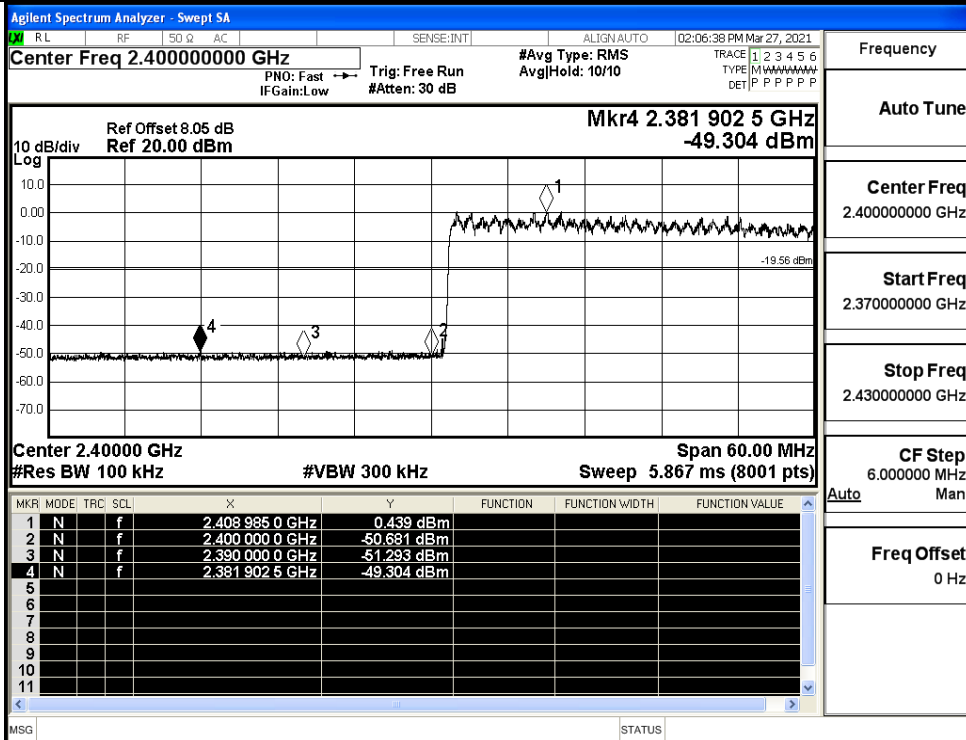
Start Freq
2.310000000 GHz

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

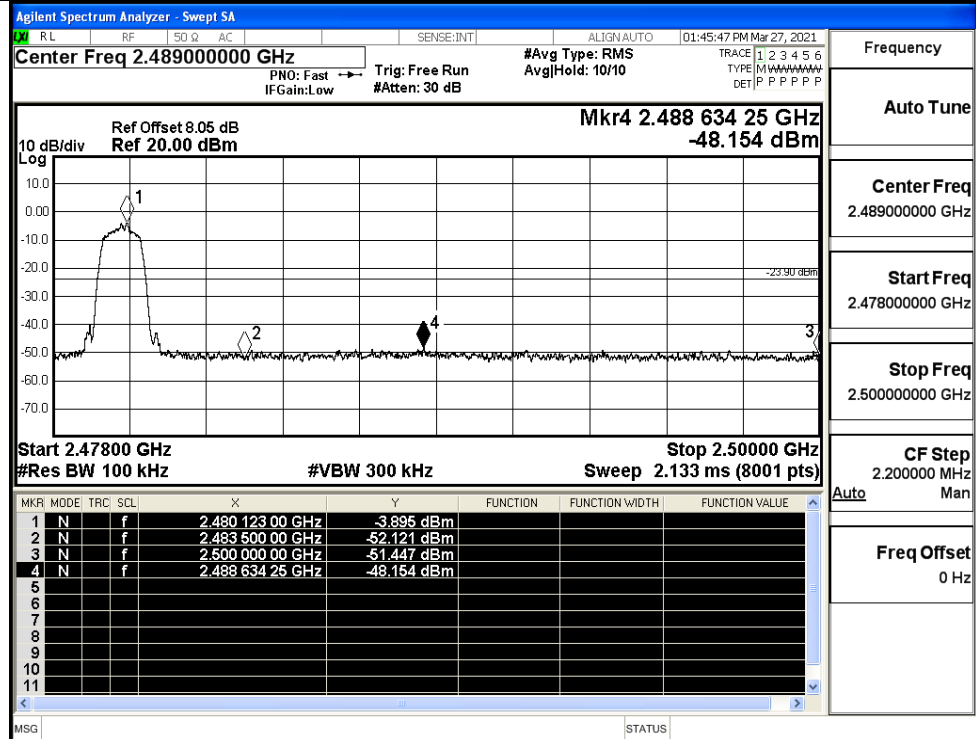
Start Freq
2.370000000 GHz

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

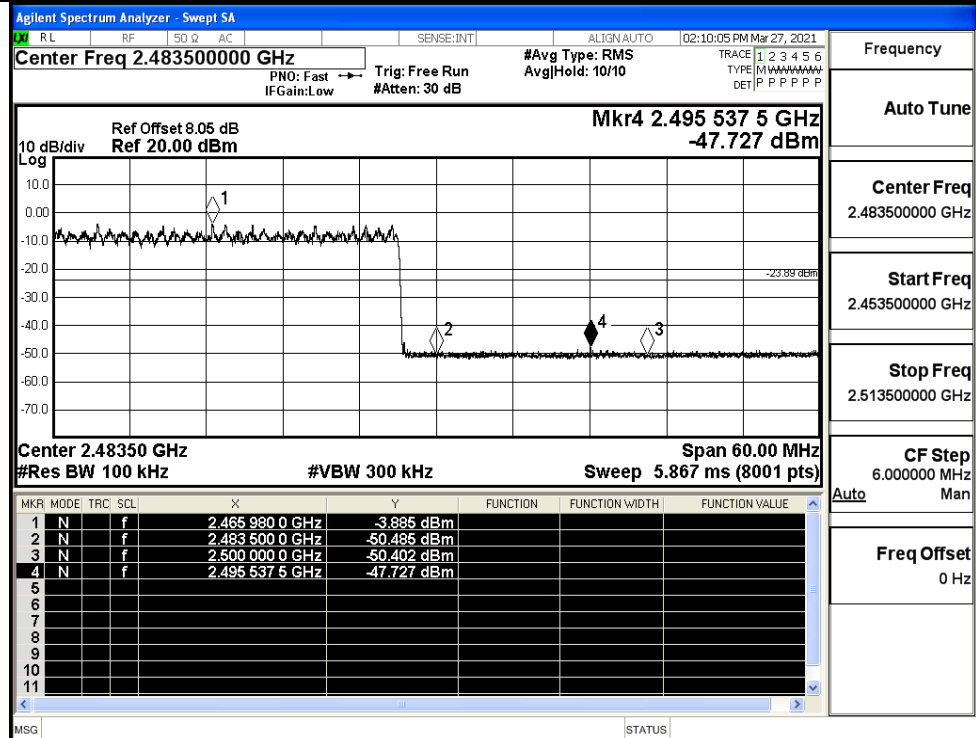
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

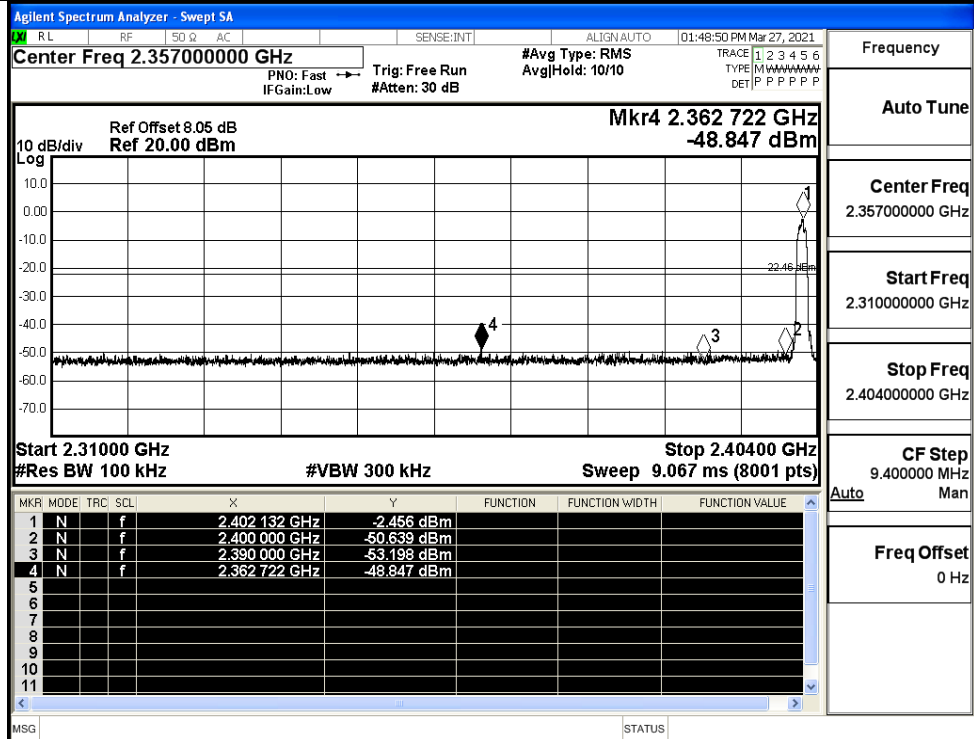
Start Freq
2.465500000 GHz

Stop Freq
2.513500000 GHz

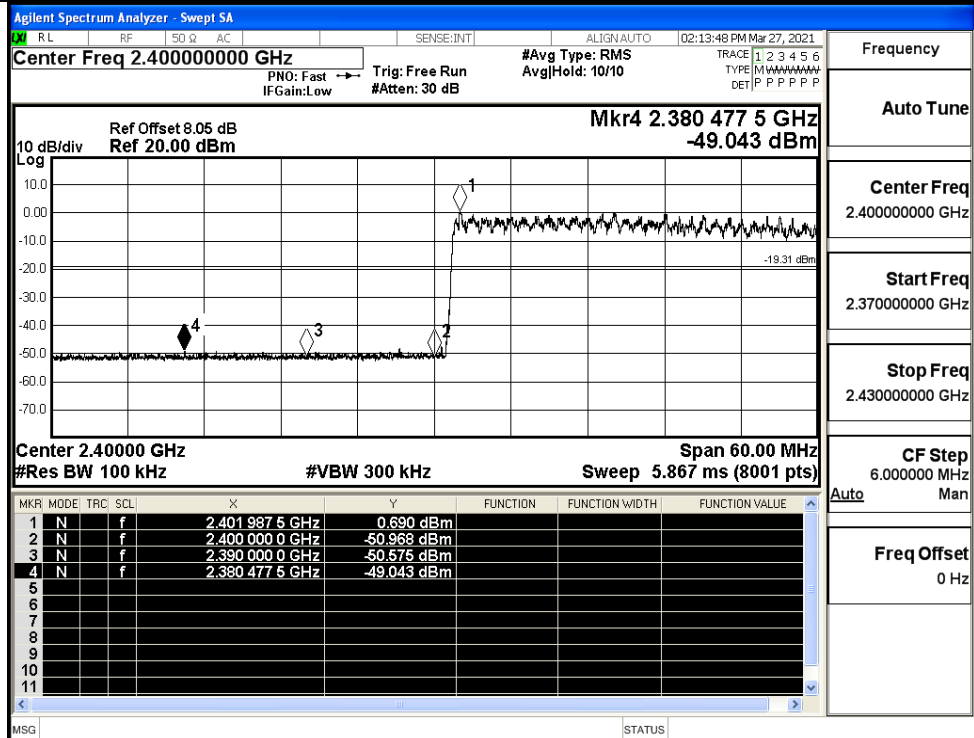
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

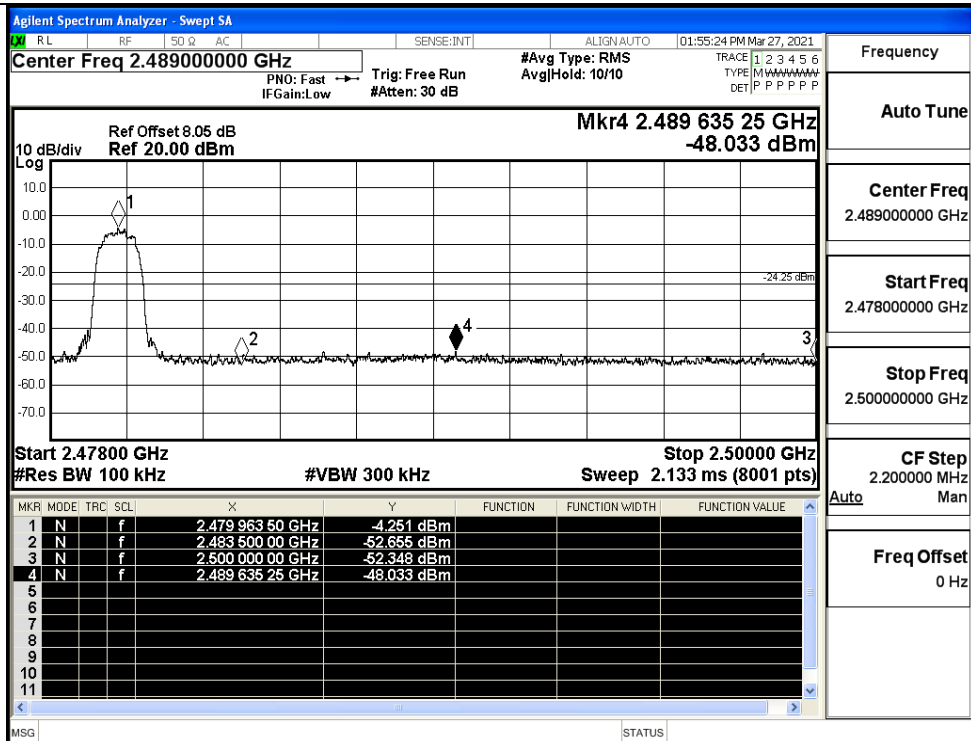
8DPSK/LCH/No Hop



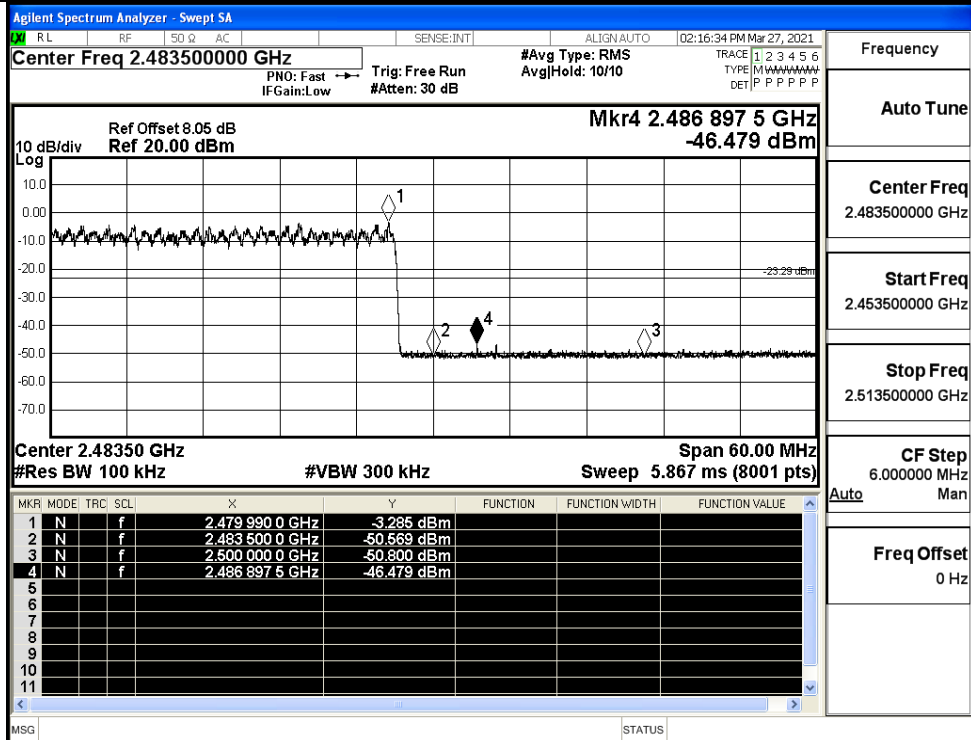
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



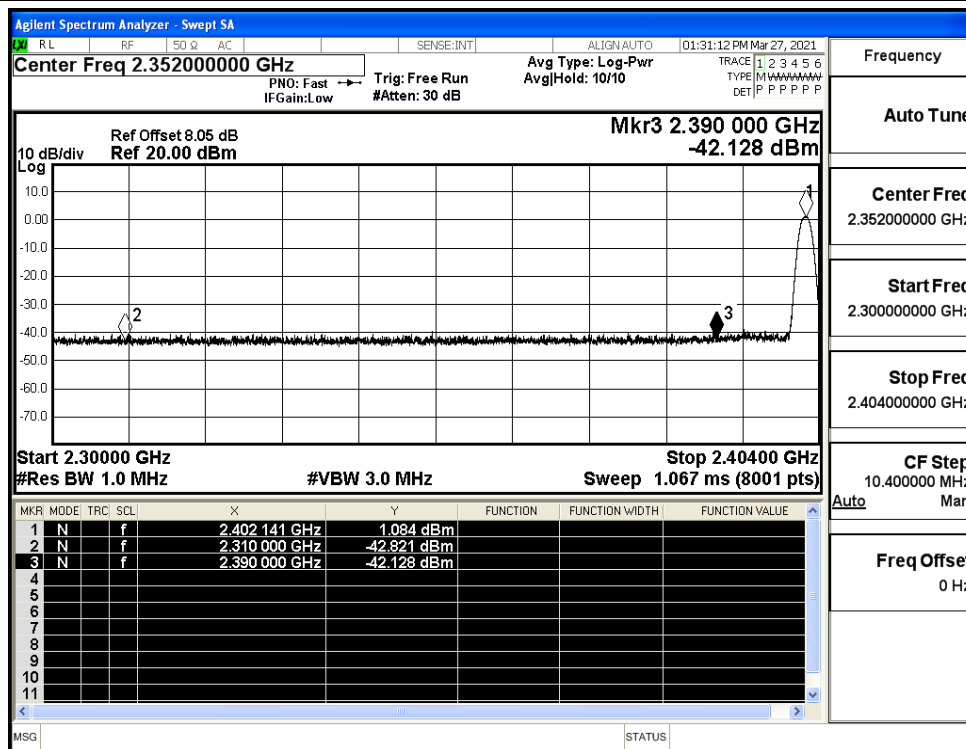
8DPSK/HCH/Hop



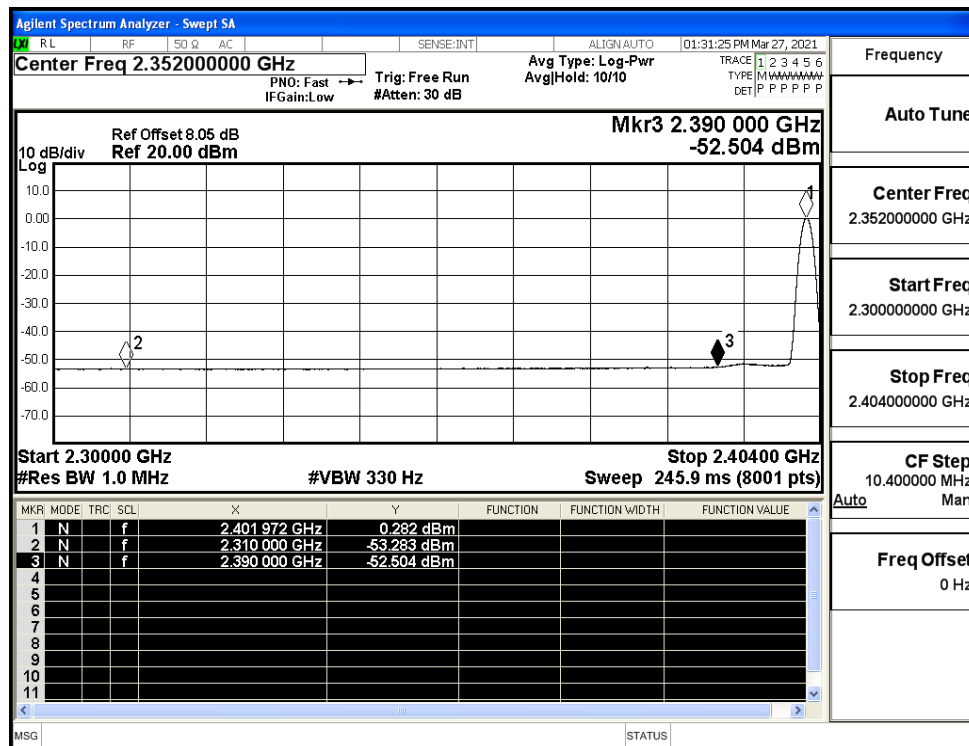
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.82	2.0	0	54.44	PEAK	74	PASS
	Off	2310.0	-53.28	2.0	0	43.98	AV	54	PASS
	Off	2390.0	-42.13	2.0	0	55.13	PEAK	74	PASS
	Off	2390.0	-52.50	2.0	0	44.76	AV	54	PASS
	Off	2483.5	-41.21	2.0	0	56.05	PEAK	74	PASS
	Off	2483.5	-50.84	2.0	0	46.42	AV	54	PASS
	Off	2500.0	-40.44	2.0	0	56.82	PEAK	74	PASS
	Off	2500.0	-52.19	2.0	0	45.07	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.51	2.0	0	53.75	PEAK	74	PASS
	Off	2310.0	-53.27	2.0	0	43.99	AV	54	PASS
	Off	2390.0	-41.85	2.0	0	55.41	PEAK	74	PASS
	Off	2390.0	-52.80	2.0	0	44.46	AV	54	PASS
	Off	2483.5	-41.95	2.0	0	55.31	PEAK	74	PASS
	Off	2483.5	-51.64	2.0	0	45.62	AV	54	PASS
	Off	2500.0	-42.13	2.0	0	55.13	PEAK	74	PASS
	Off	2500.0	-52.25	2.0	0	45.01	AV	54	PASS
8DPSK	Off	2310.0	-42.00	2.0	0	55.26	PEAK	74	PASS
	Off	2310.0	-53.25	2.0	0	44.01	AV	54	PASS
	Off	2390.0	-43.25	2.0	0	54.01	PEAK	74	PASS
	Off	2390.0	-52.90	2.0	0	44.36	AV	54	PASS
	Off	2483.5	-41.58	2.0	0	55.68	PEAK	74	PASS
	Off	2483.5	-51.67	2.0	0	45.59	AV	54	PASS
	Off	2500.0	-41.34	2.0	0	55.92	PEAK	74	PASS
	Off	2500.0	-52.27	2.0	0	44.99	AV	54	PASS

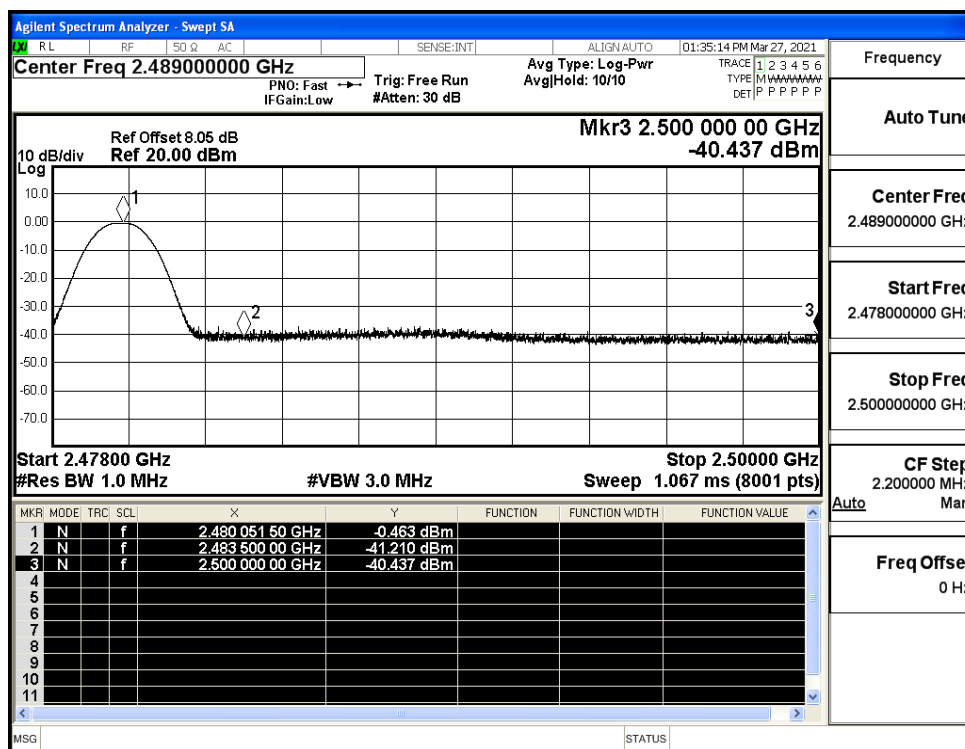
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



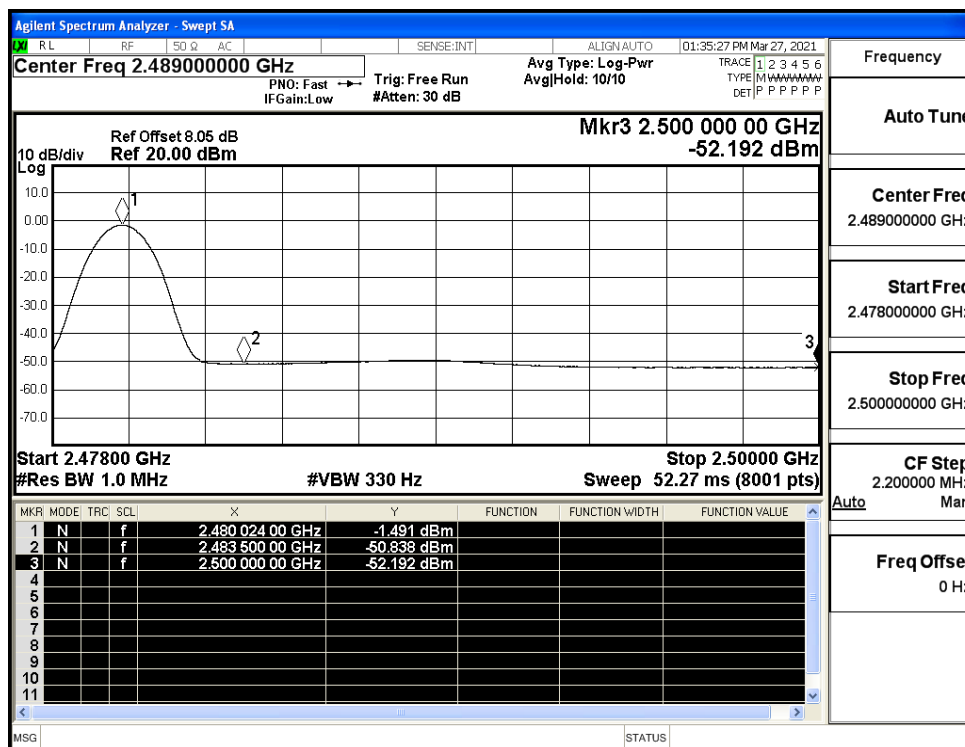
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

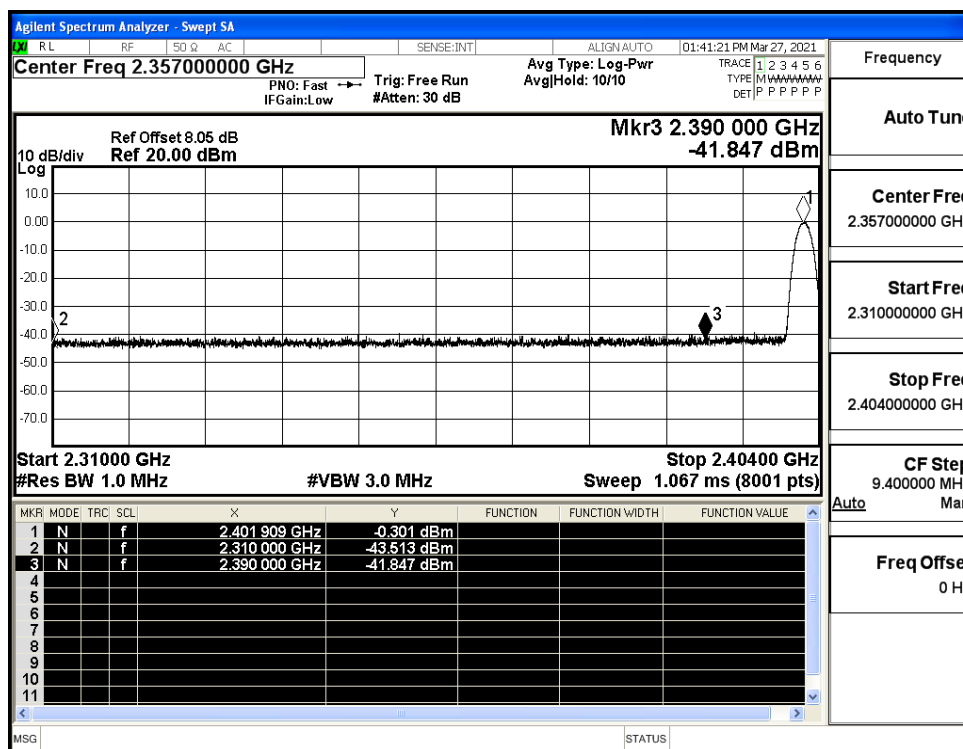
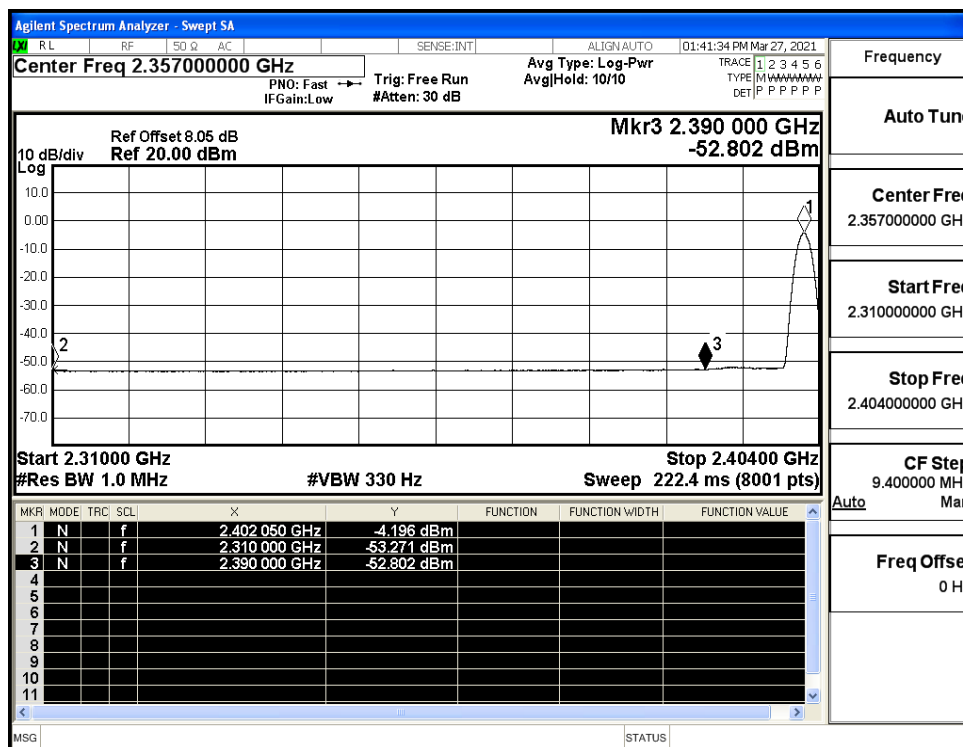


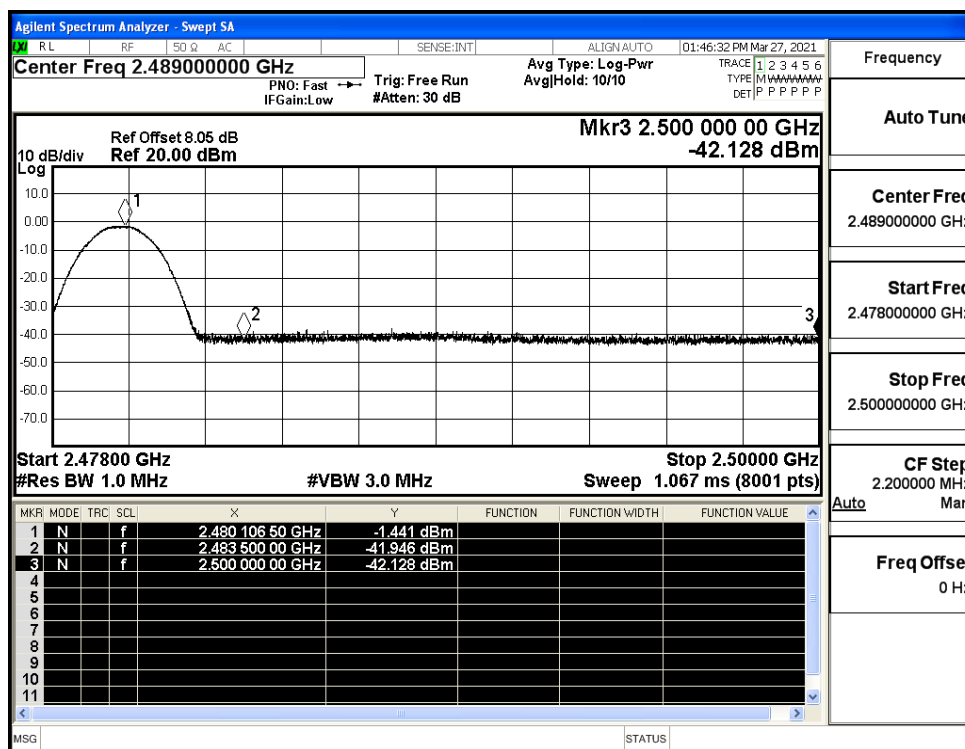
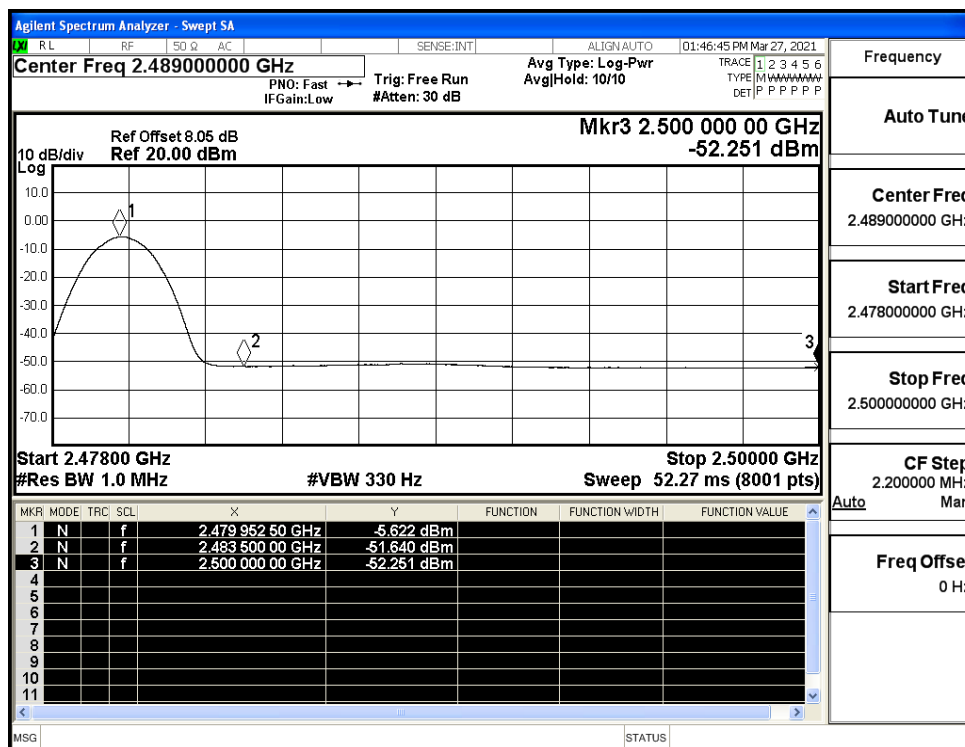
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



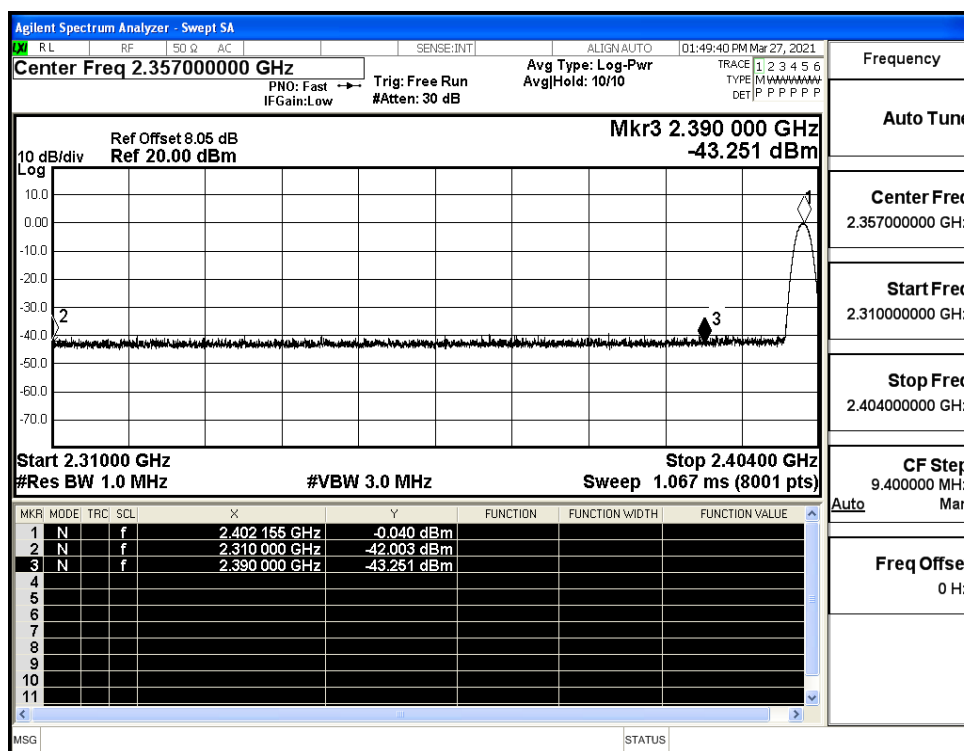
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



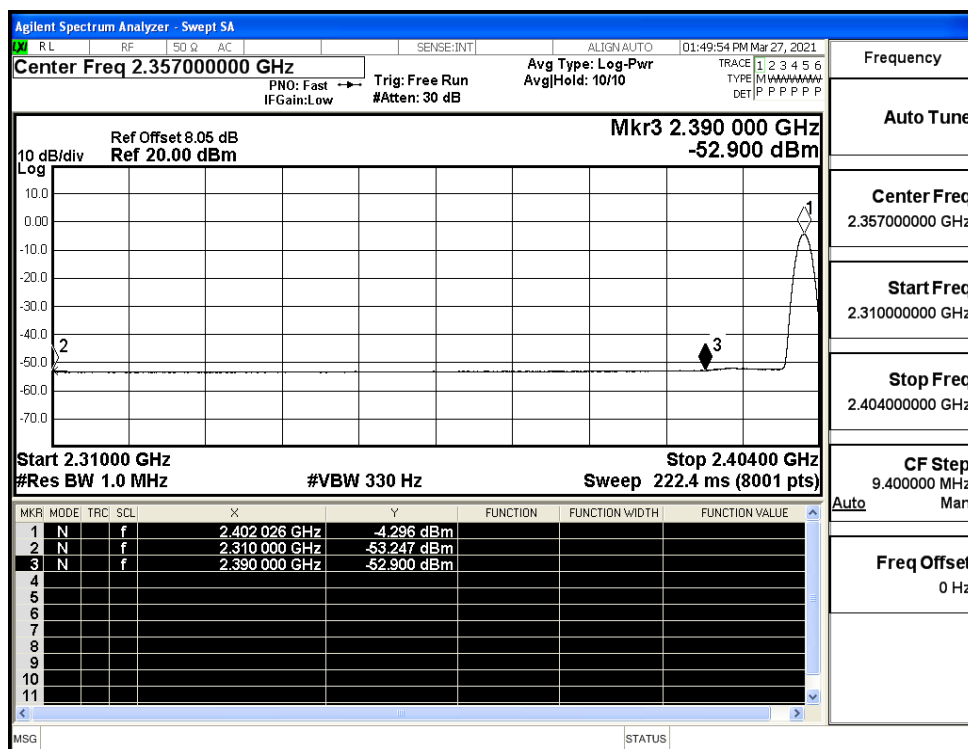
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

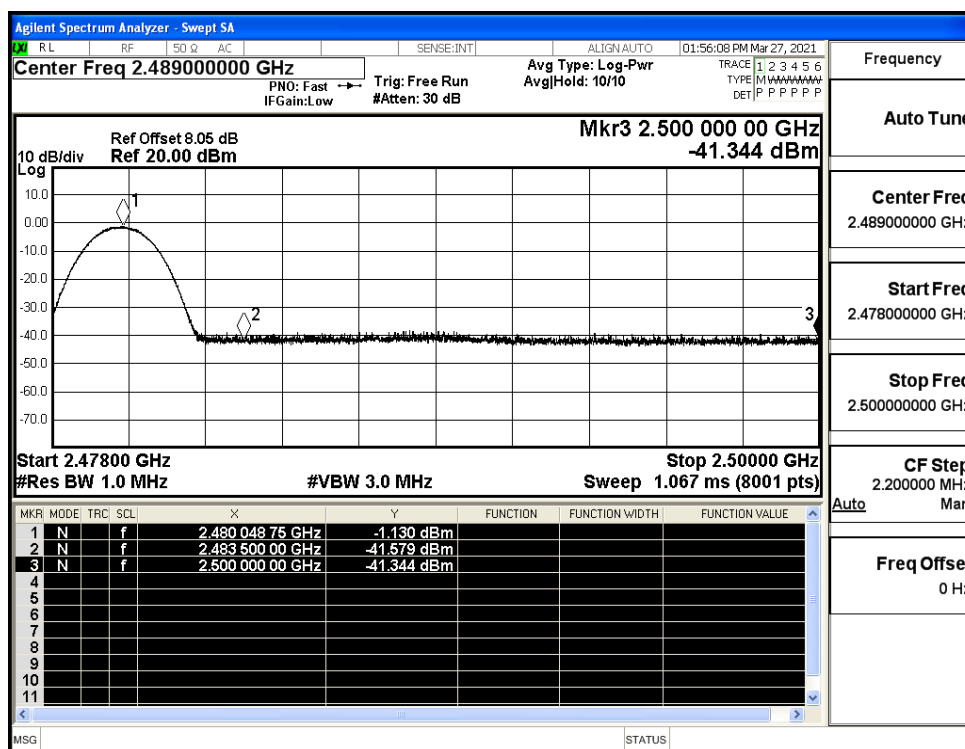
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

