

Appendix A

RF Test Data for BT V4.2(BDR/EDR) (Conducted Measurement)

Product Name: Remote Control

Trade Mark: NEEWER

Test Model: RT-103

Environmental Conditions

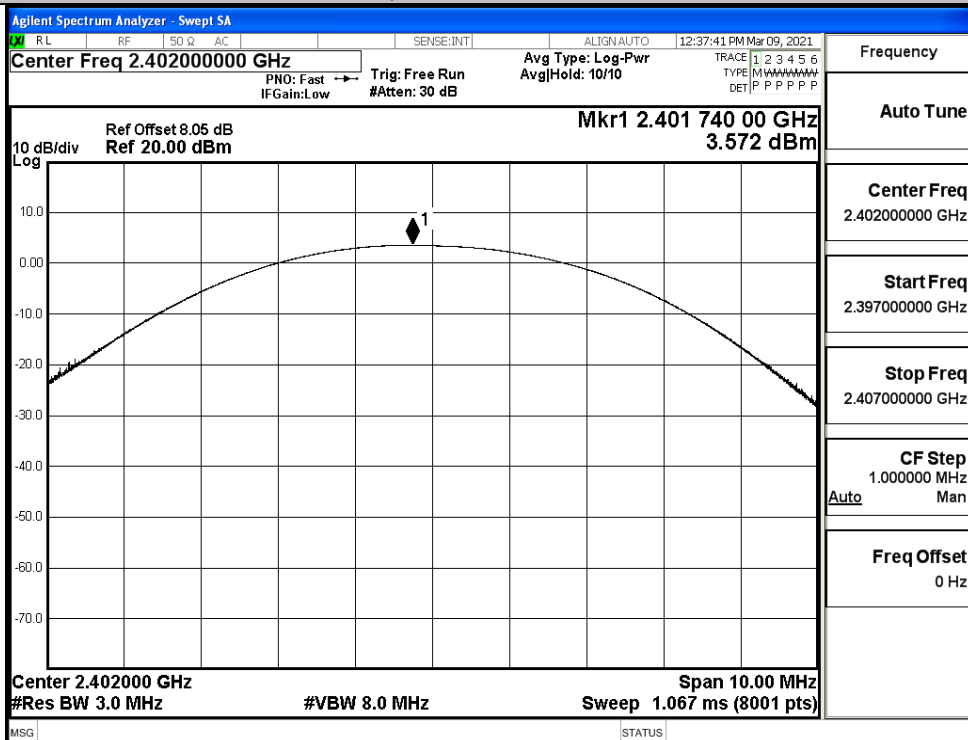
Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

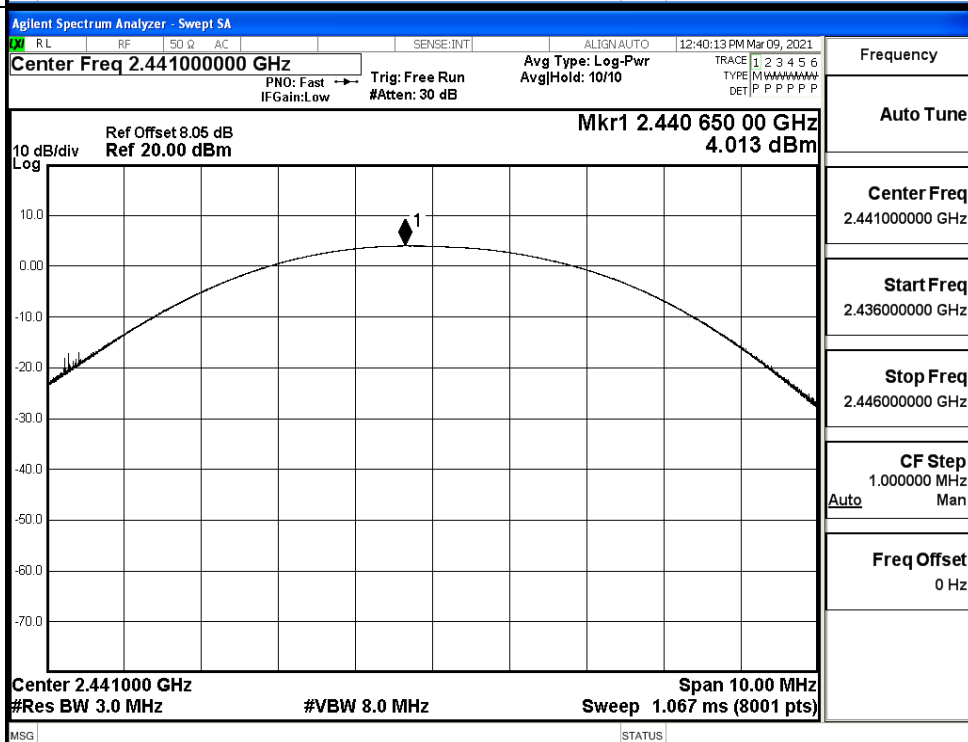
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.572	21	PASS
	MCH	4.013	21	PASS
	HCH	3.753	21	PASS
$\pi/4$ DQPSK	LCH	4.176	21	PASS
	MCH	4.628	21	PASS
	HCH	4.359	21	PASS
8DPSK	LCH	4.156	21	PASS
	MCH	4.618	21	PASS
	HCH	4.374	21	PASS

Test Graphs

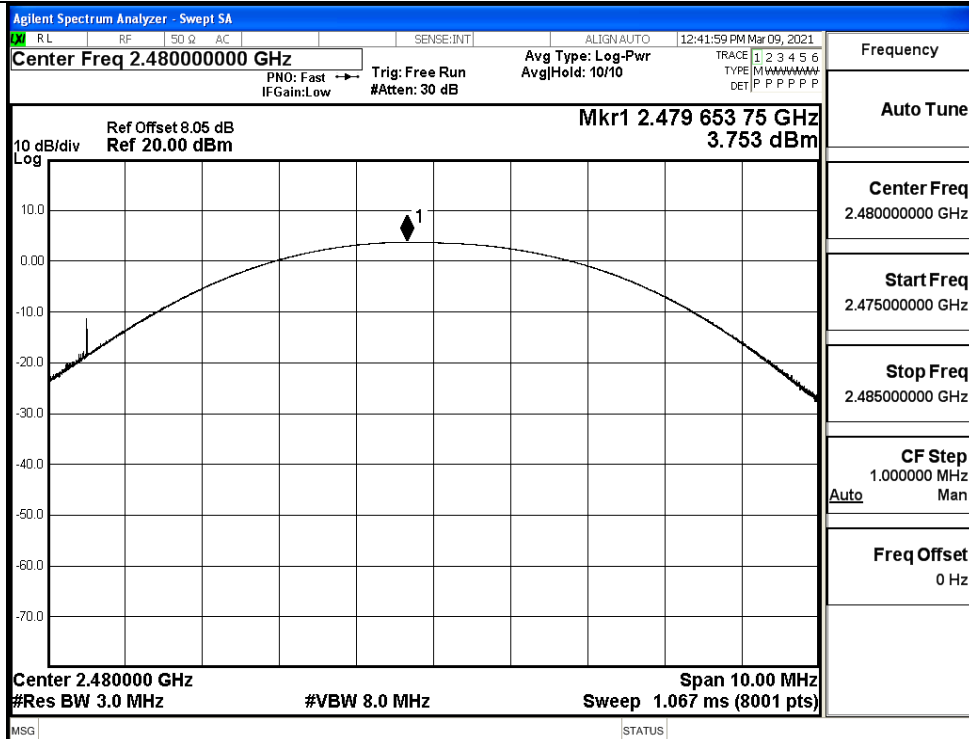
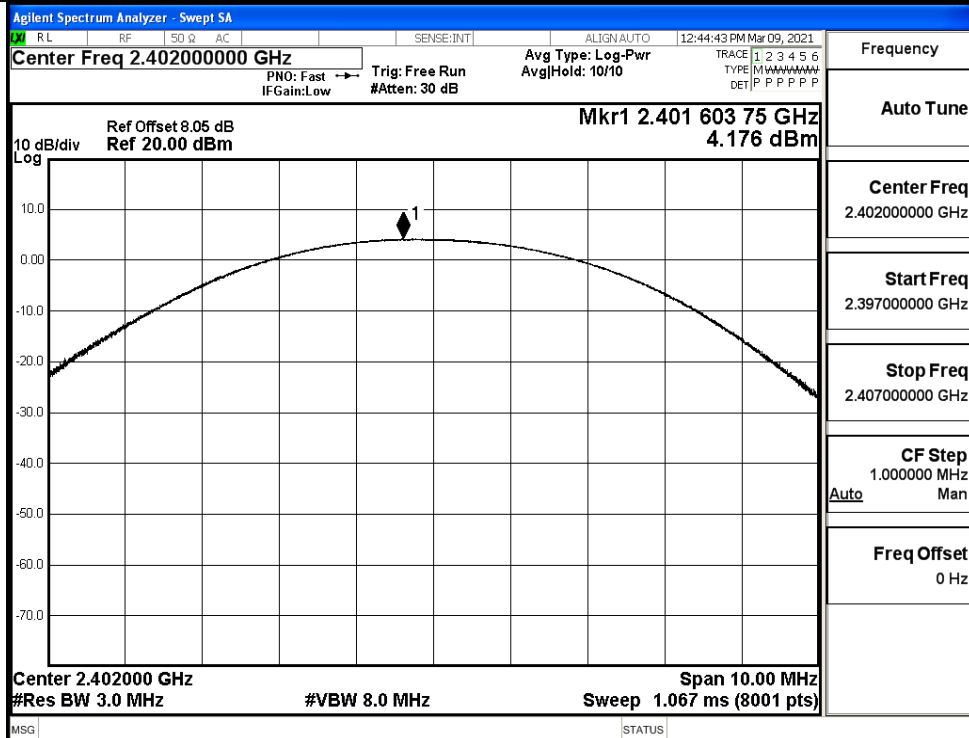
GFSK/LCH

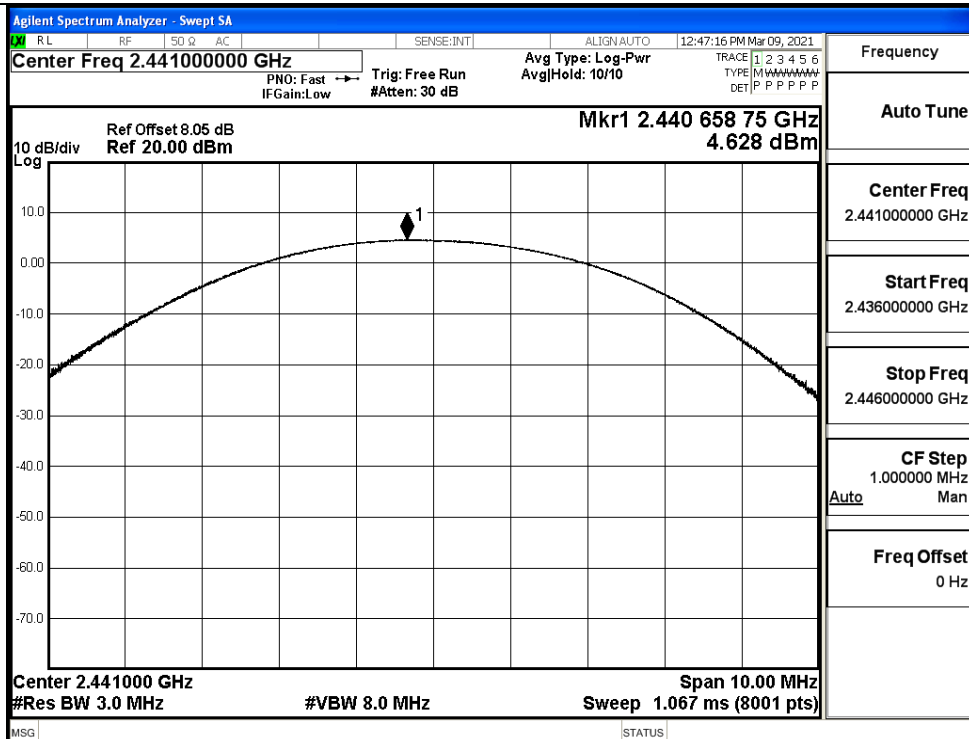
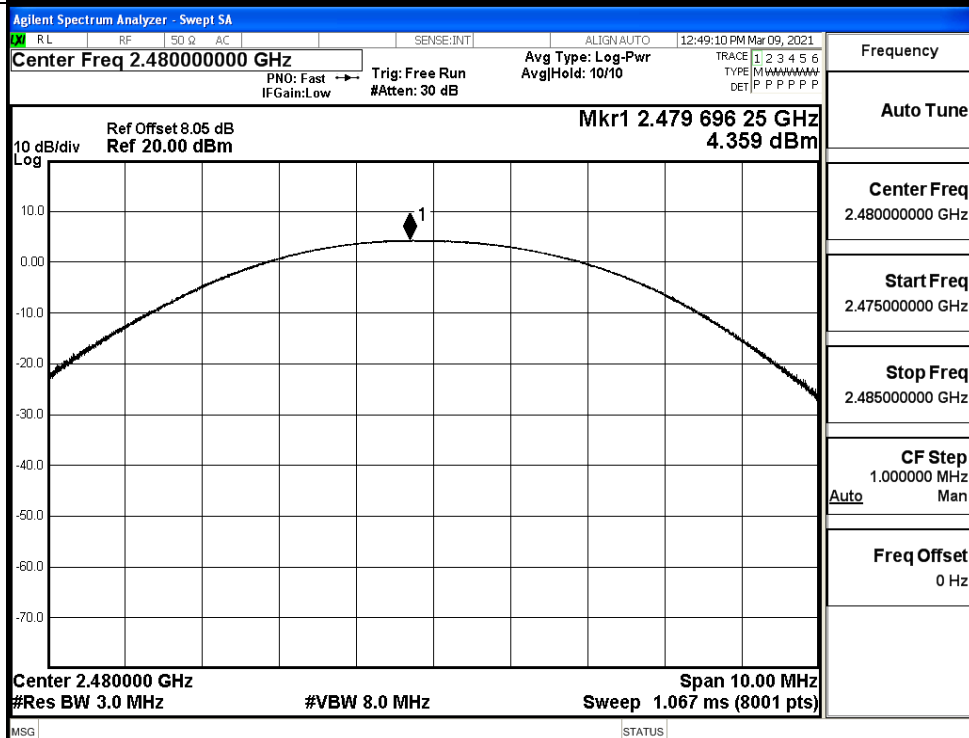


GFSK/MCH

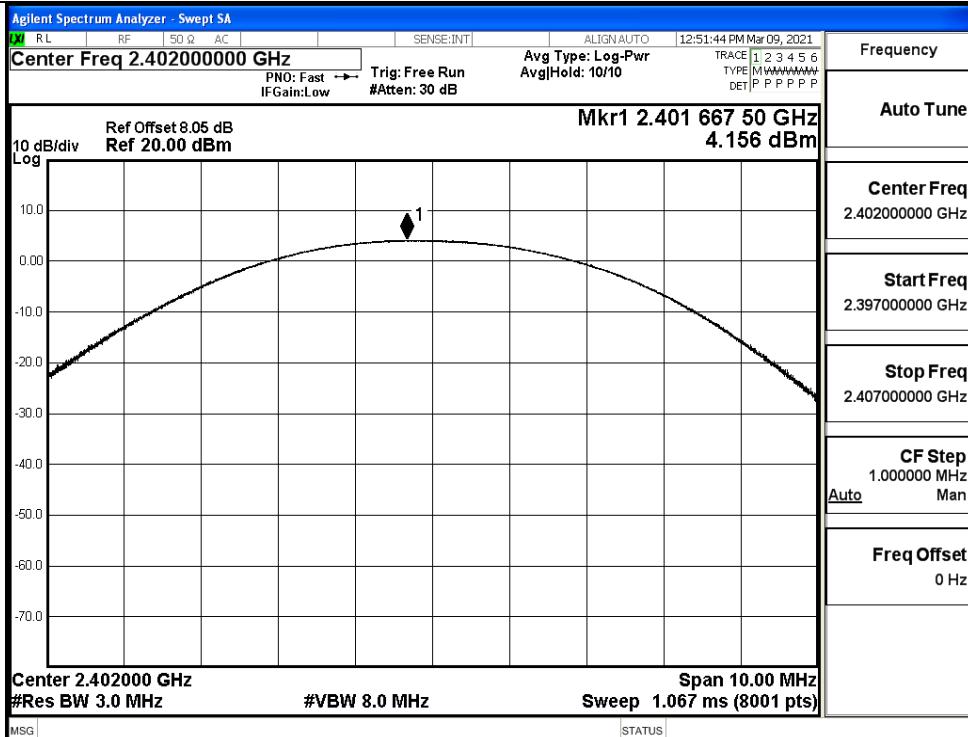


GFSK/HCH

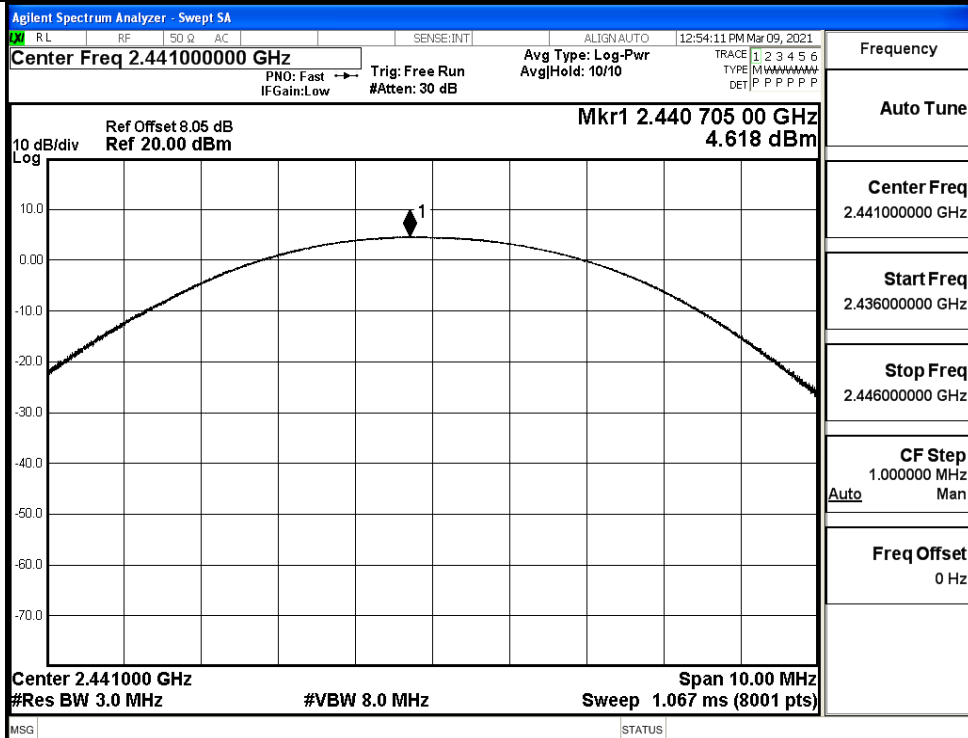
 $\pi/4$ DQPSK/LCH

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

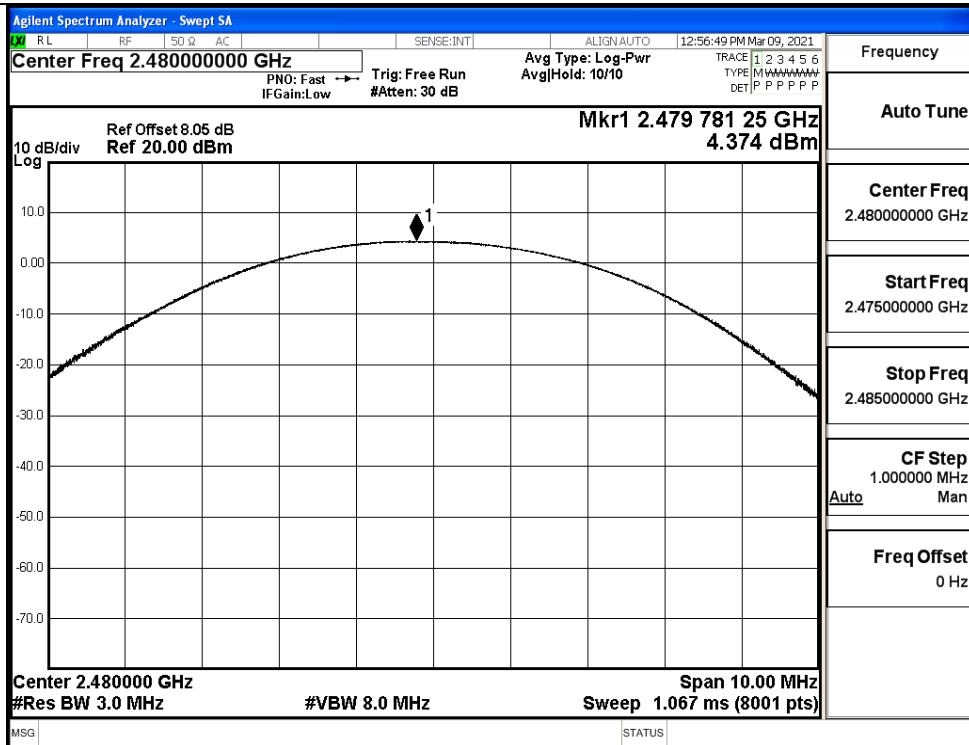
8DPSK/LCH



8DPSK/MCH



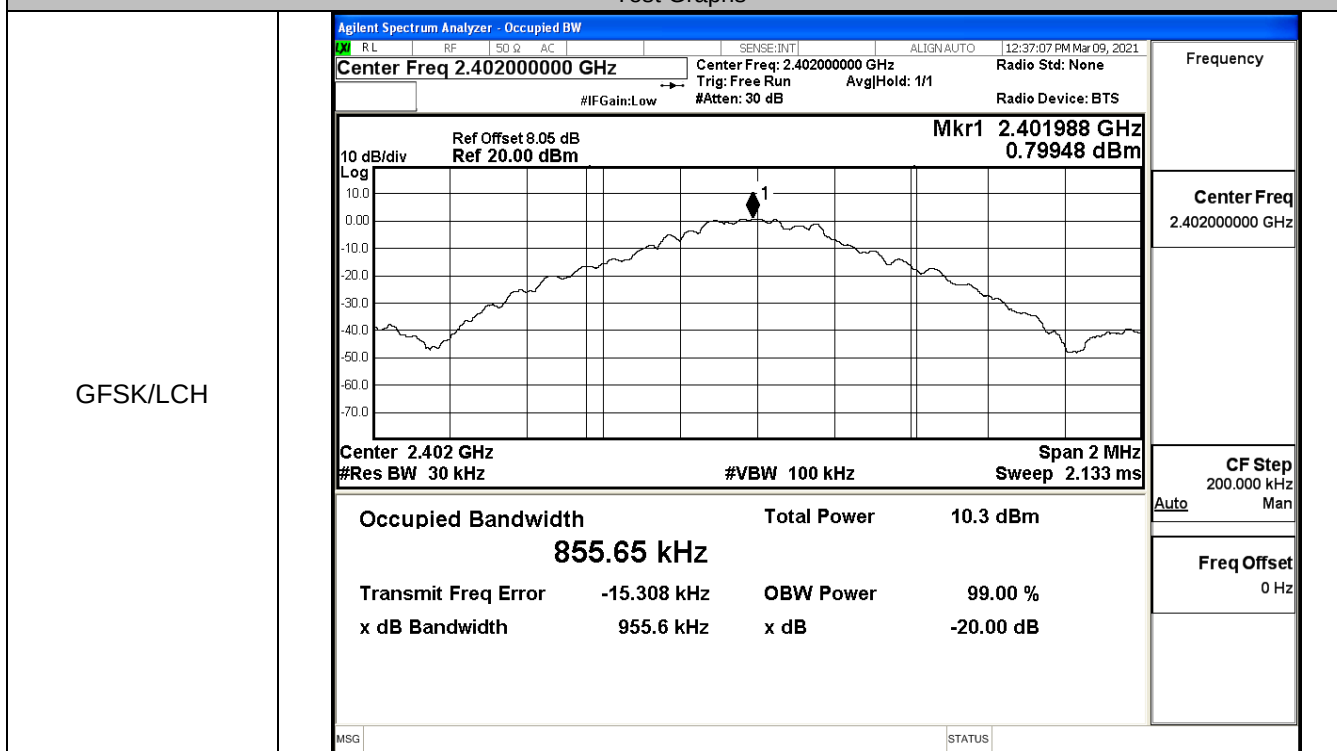
8DPSK/HCH



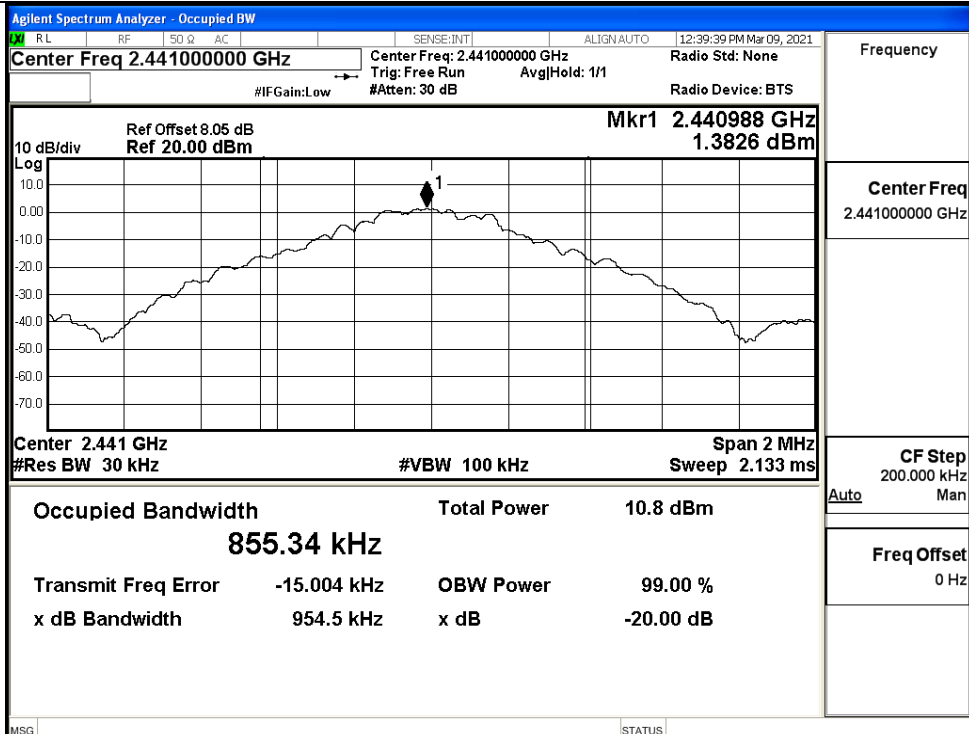
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9556	Not Specified	PASS
	MCH	0.9545	Not Specified	PASS
	HCH	0.9529	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.313	Not Specified	PASS
	MCH	1.312	Not Specified	PASS
	HCH	1.314	Not Specified	PASS
8DPSK	LCH	1.313	Not Specified	PASS
	MCH	1.313	Not Specified	PASS
	HCH	1.314	Not Specified	PASS

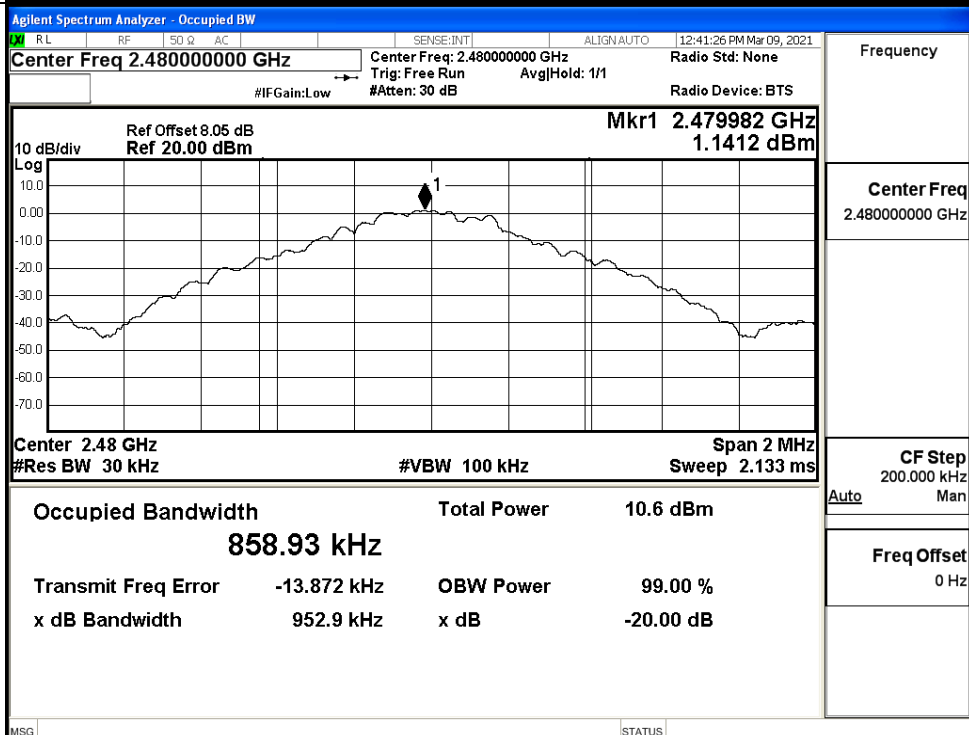
Test Graphs

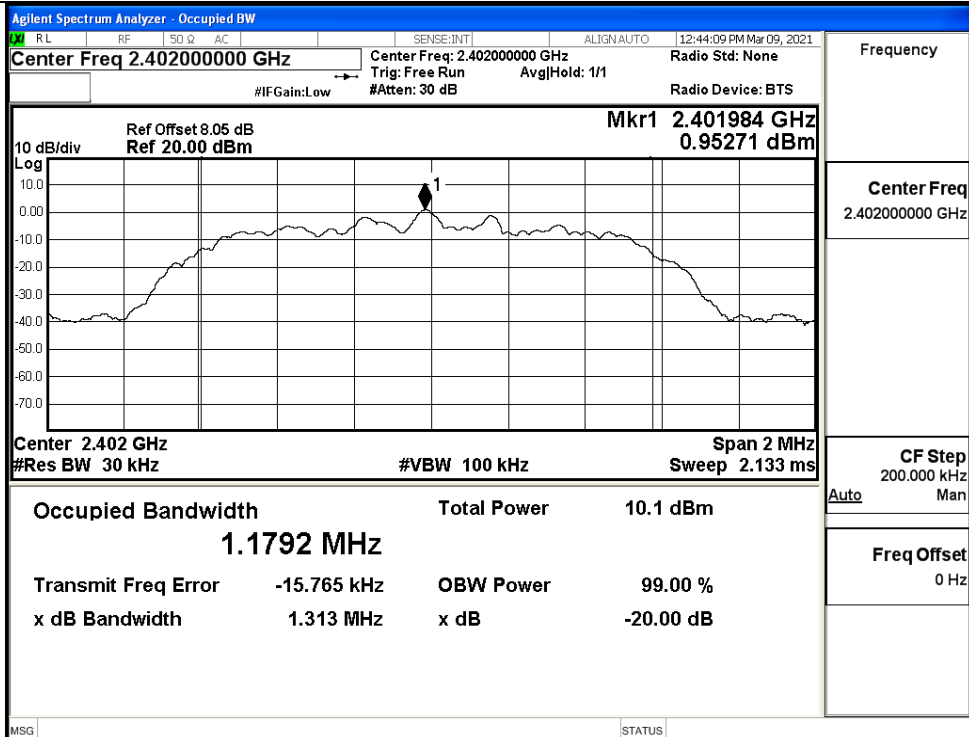
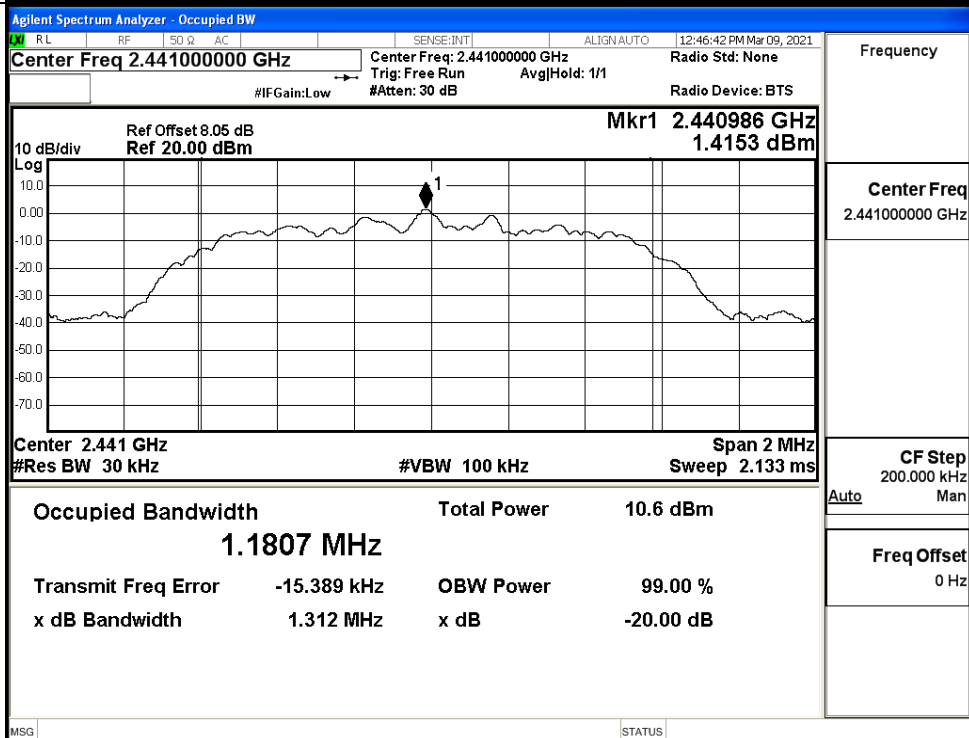


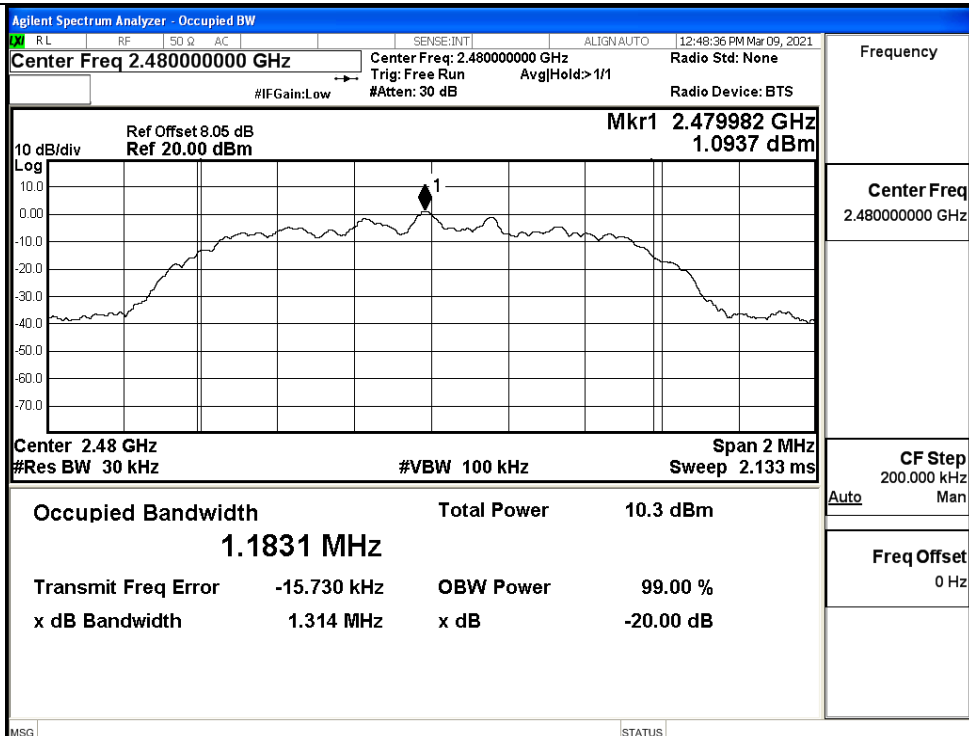
GFSK/MCH



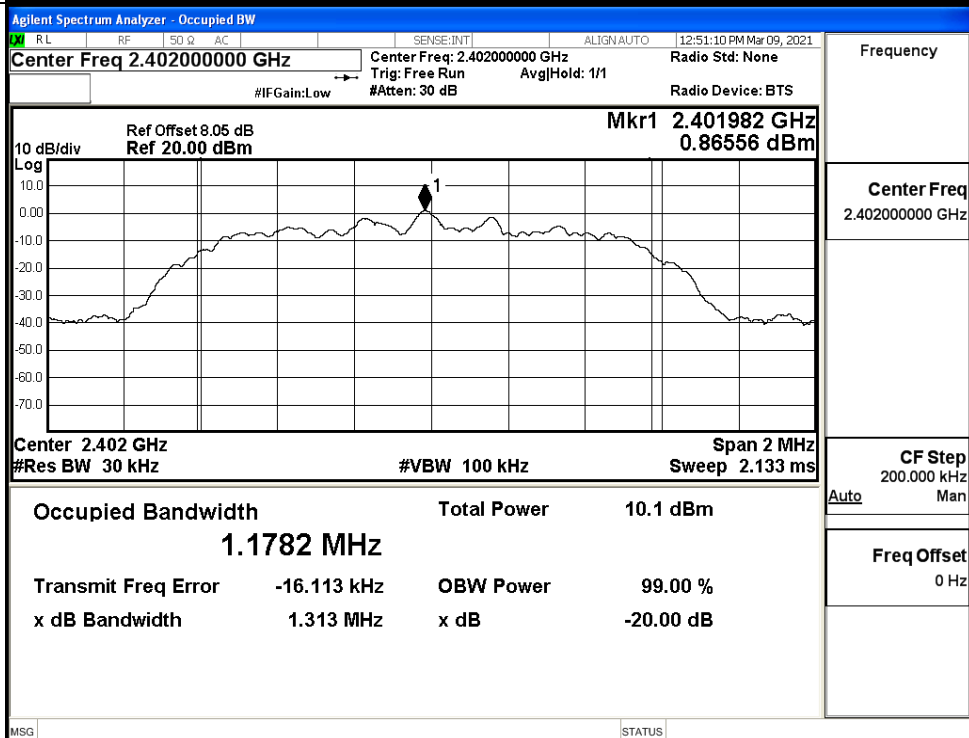
GFSK/HCH



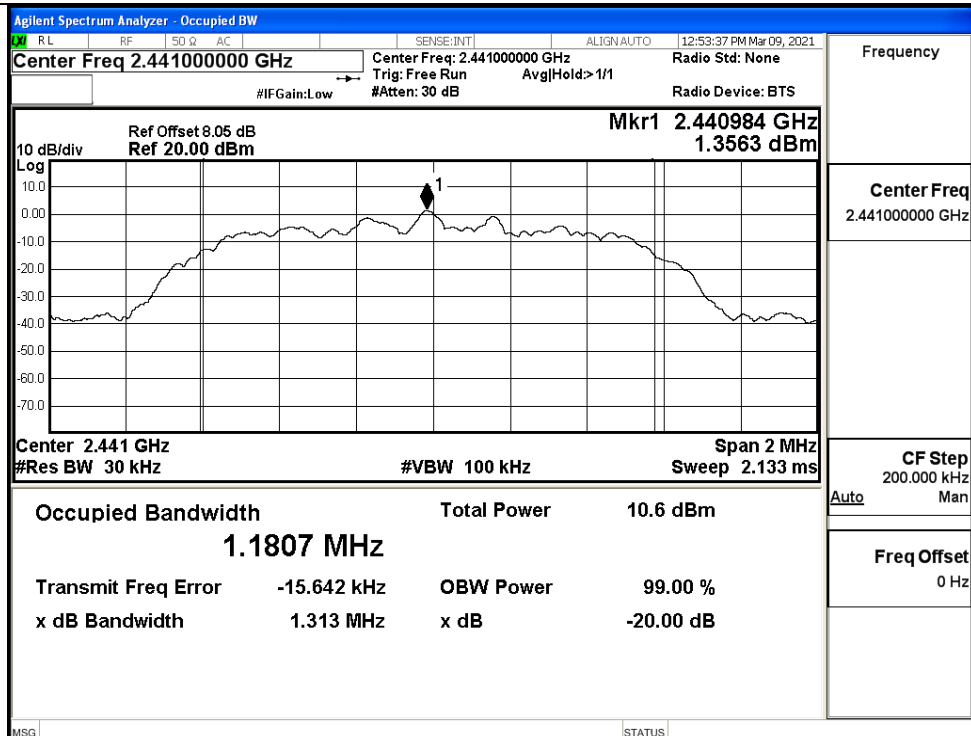
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

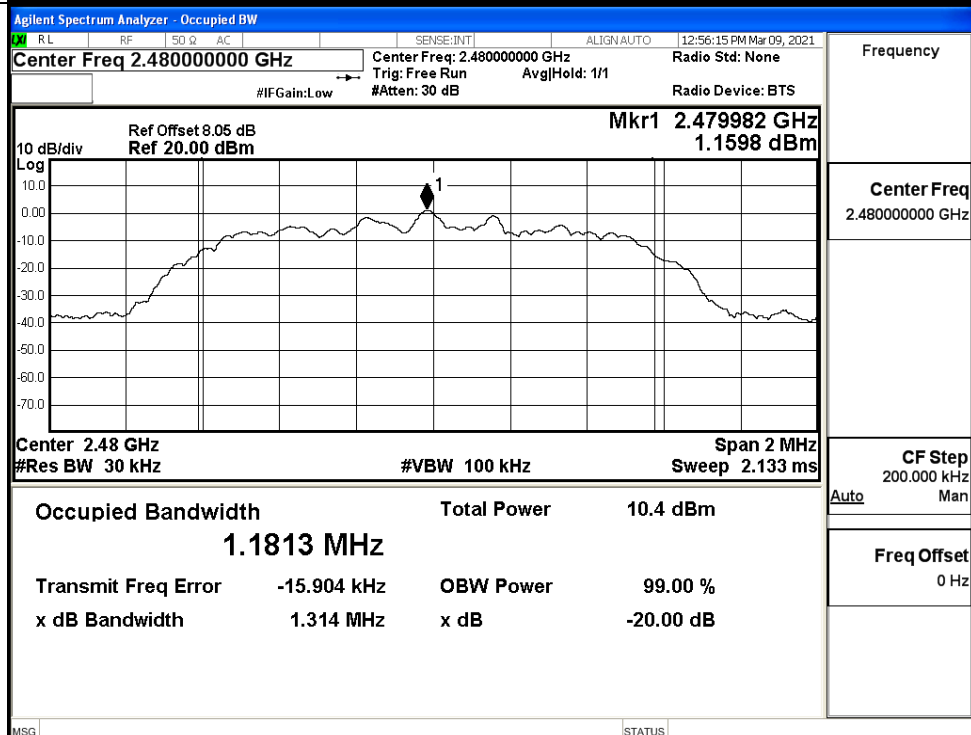
8DPSK/LCH



8DPSK/MCH



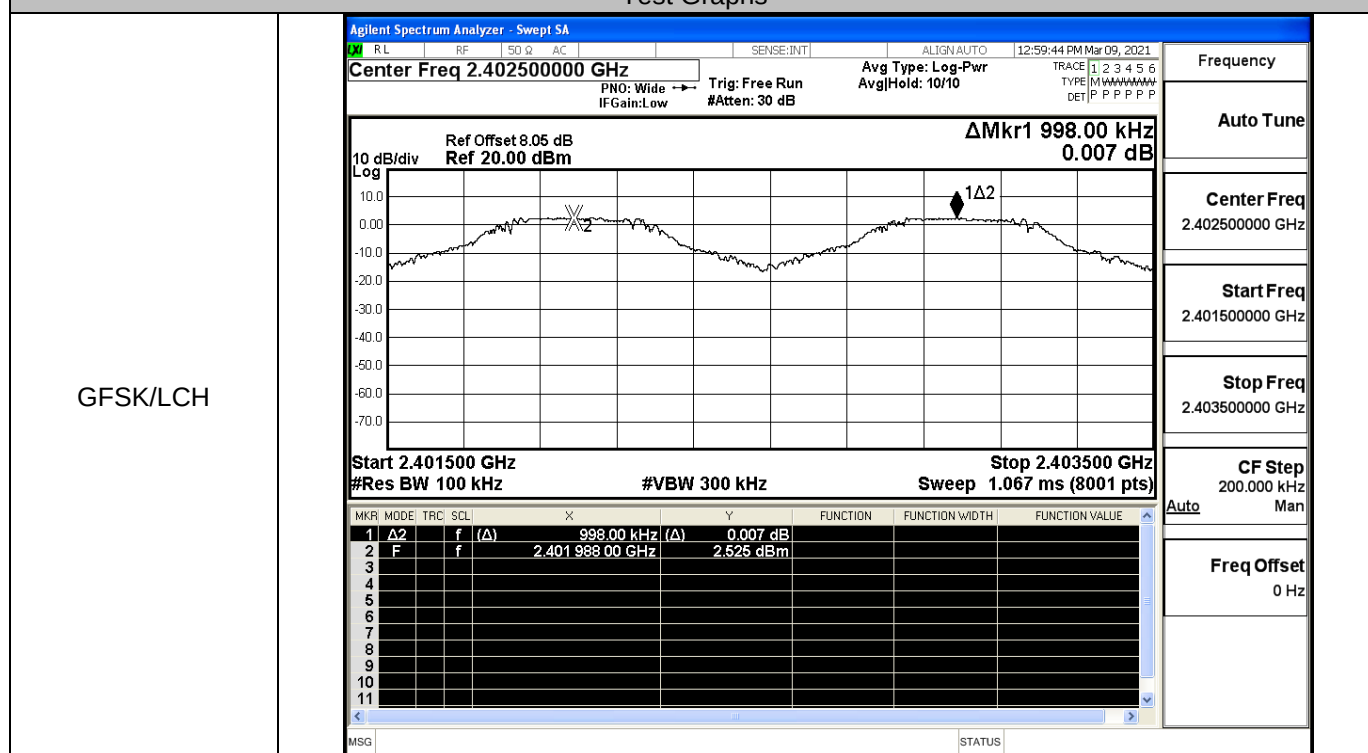
8DPSK/HCH



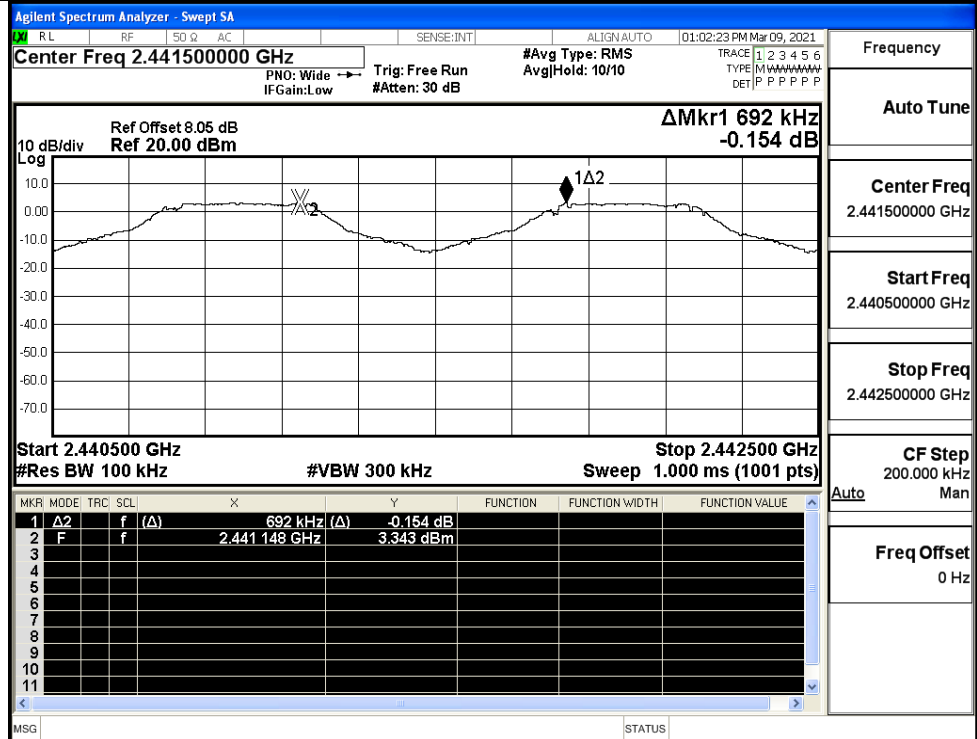
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.998	0.637	PASS
	MCH	0.692	0.637	PASS
	HCH	1.164	0.637	PASS
$\pi/4$ DQPSK	LCH	1.170	0.876	PASS
	MCH	0.876	0.876	PASS
	HCH	1.022	0.876	PASS
8DPSK	LCH	1.200	0.876	PASS
	MCH	1.164	0.876	PASS
	HCH	1.148	0.876	PASS

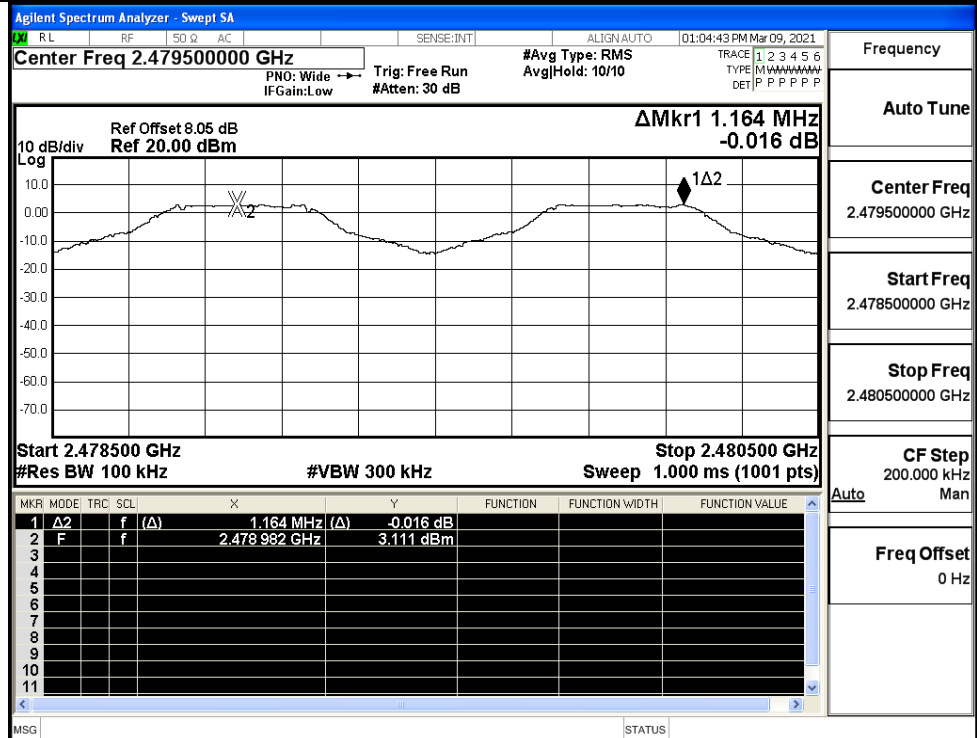
Test Graphs

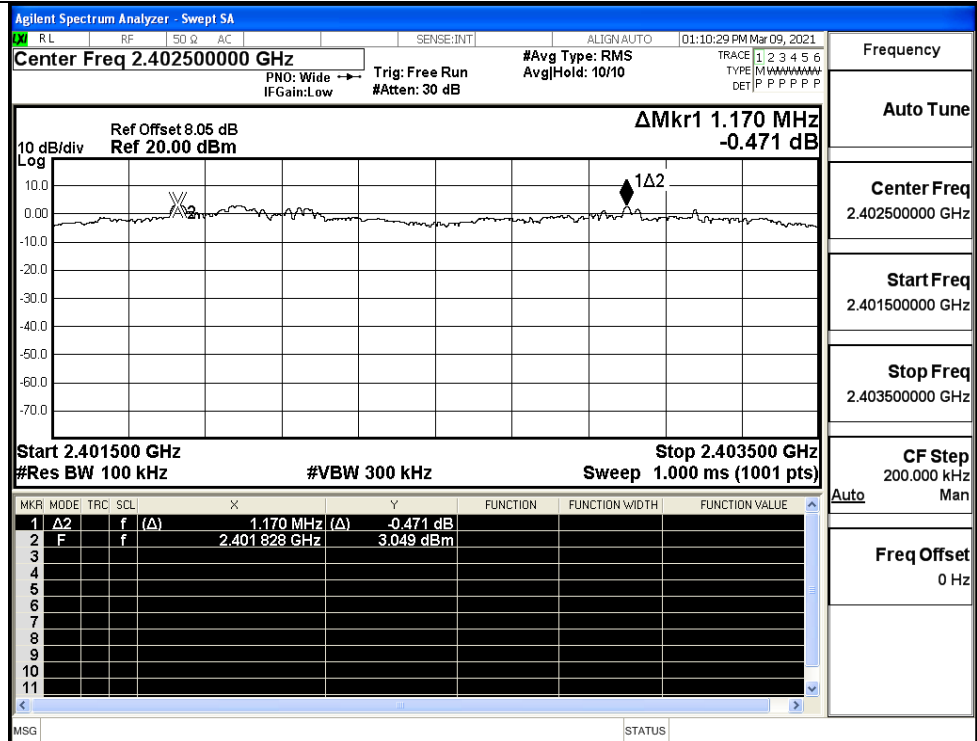
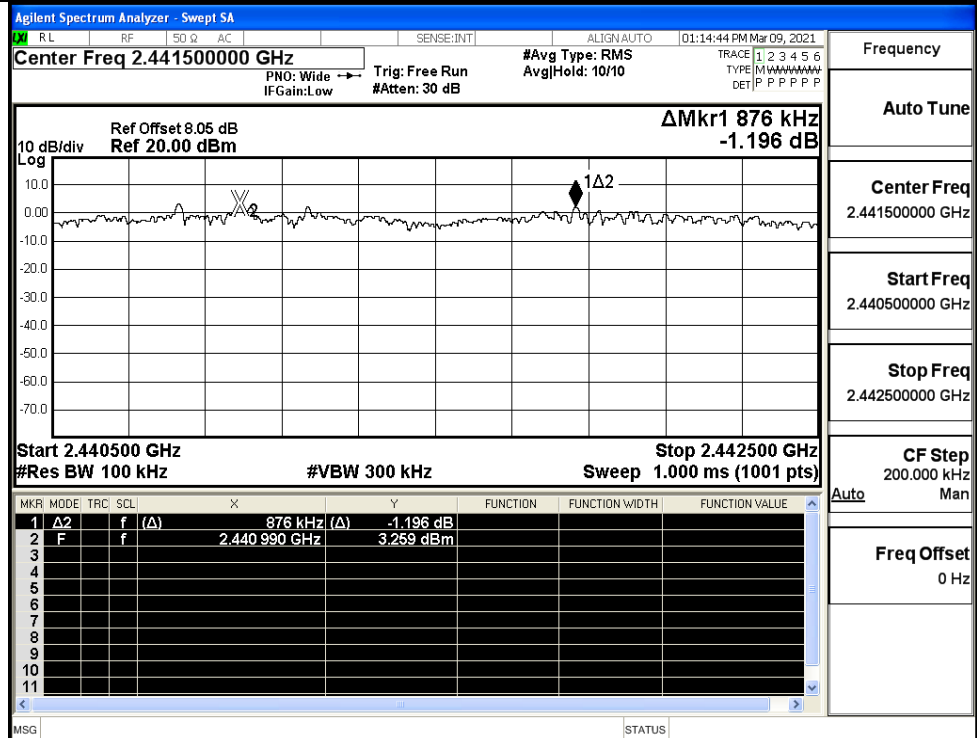


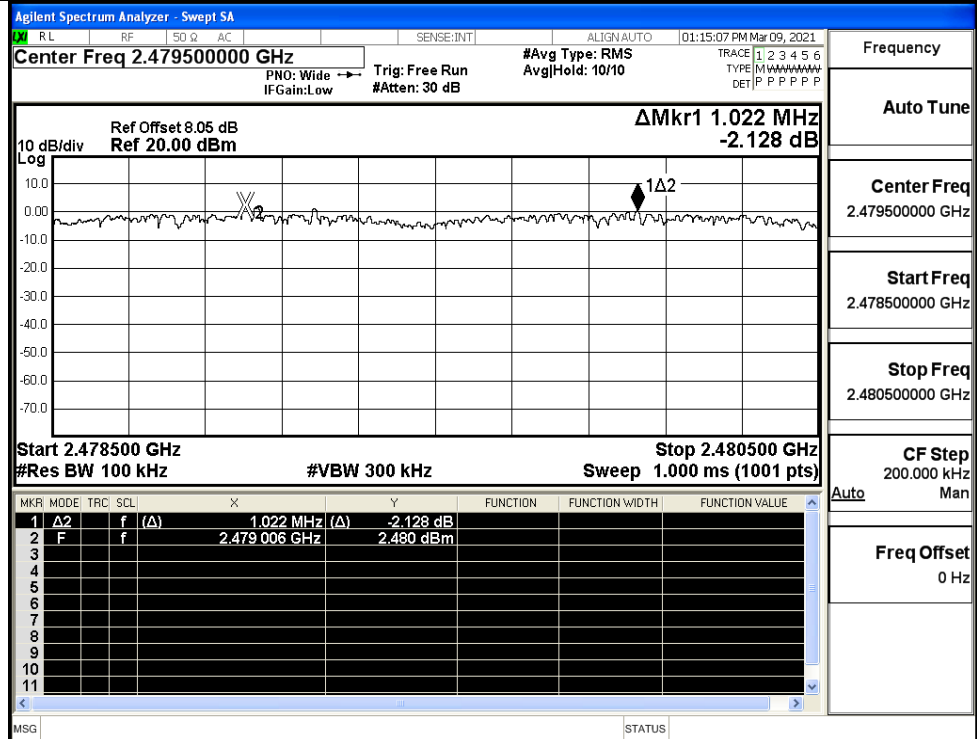
GFSK/MCH



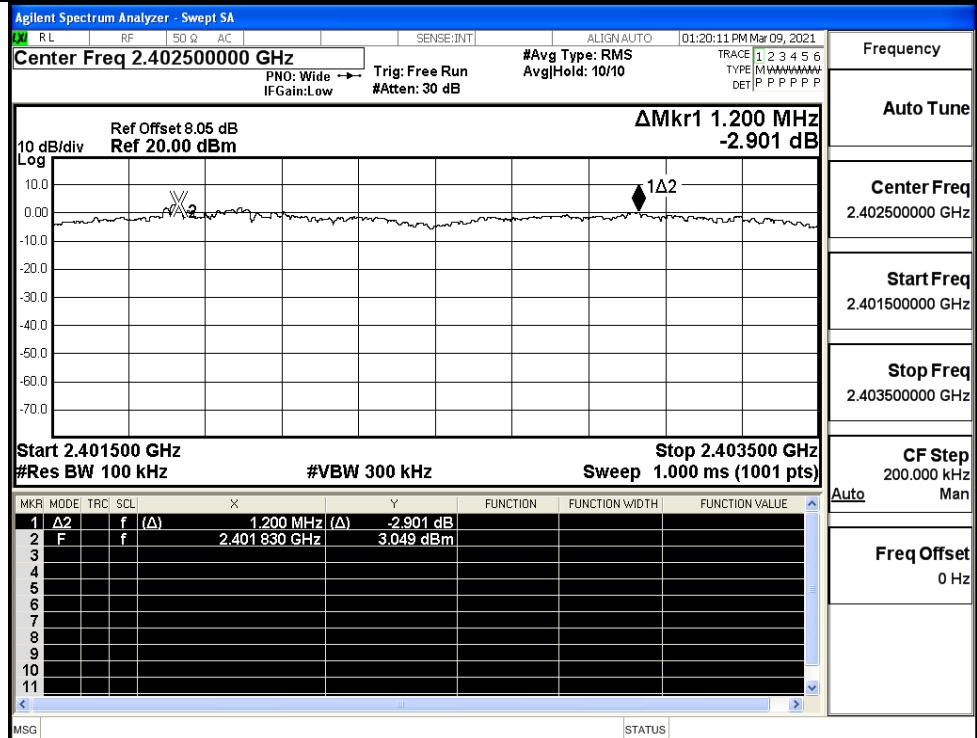
GFSK/HCH



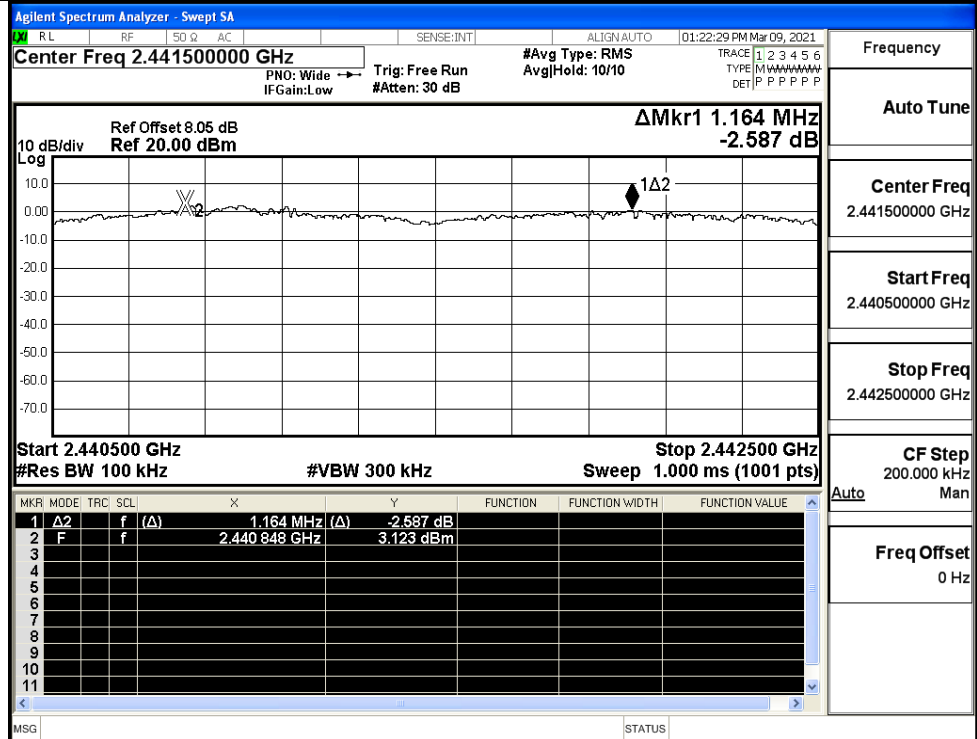
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

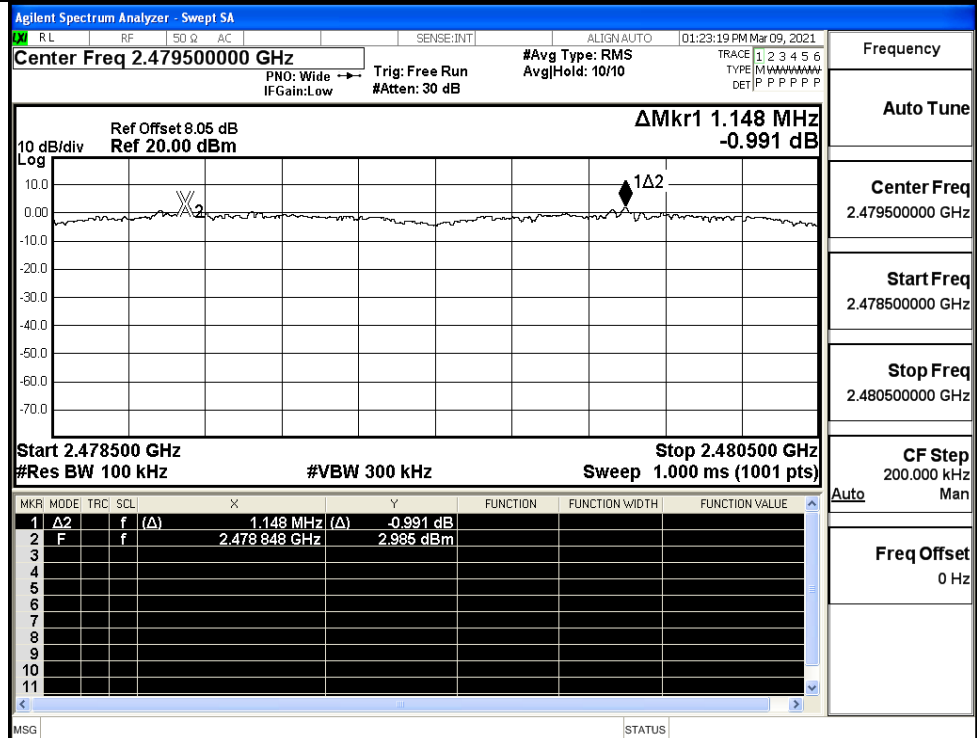
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

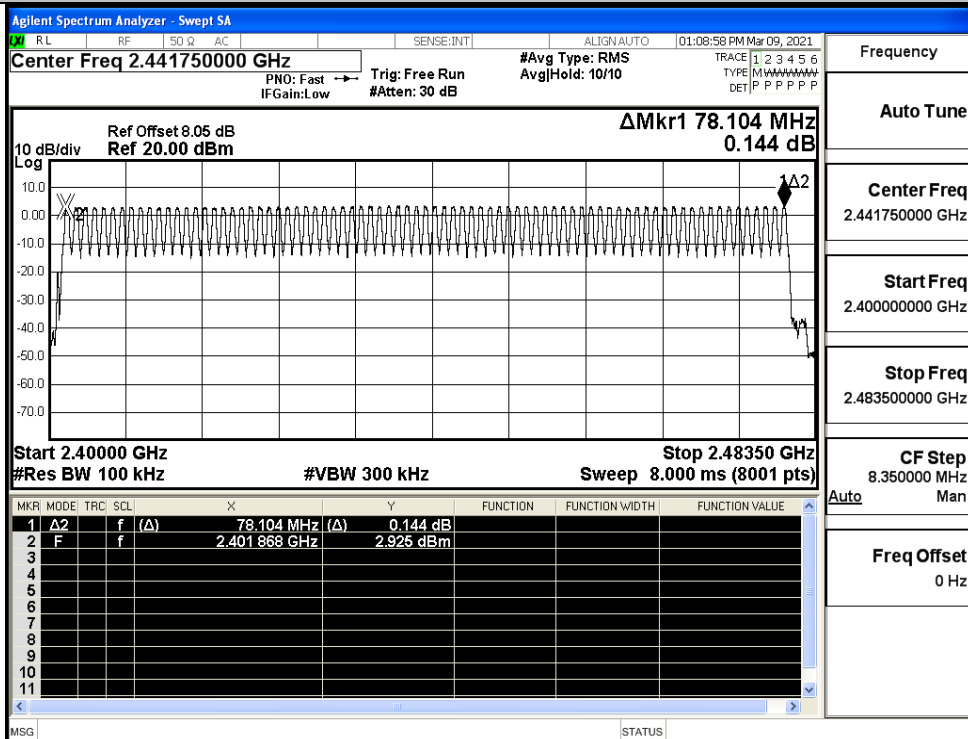
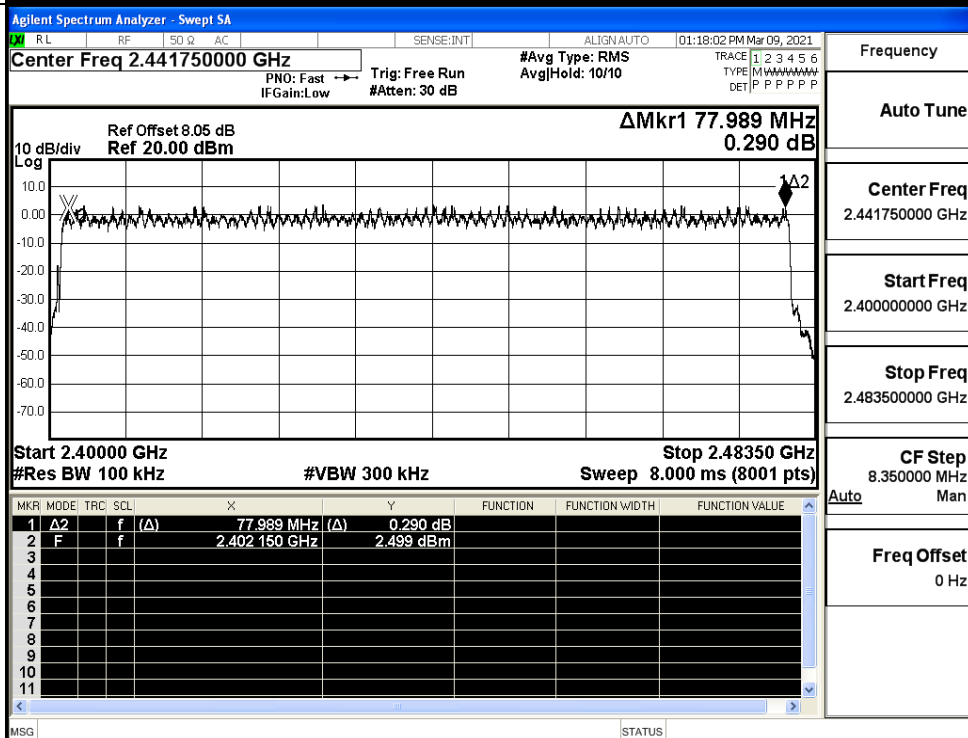


A.4 Hopping Channel Number

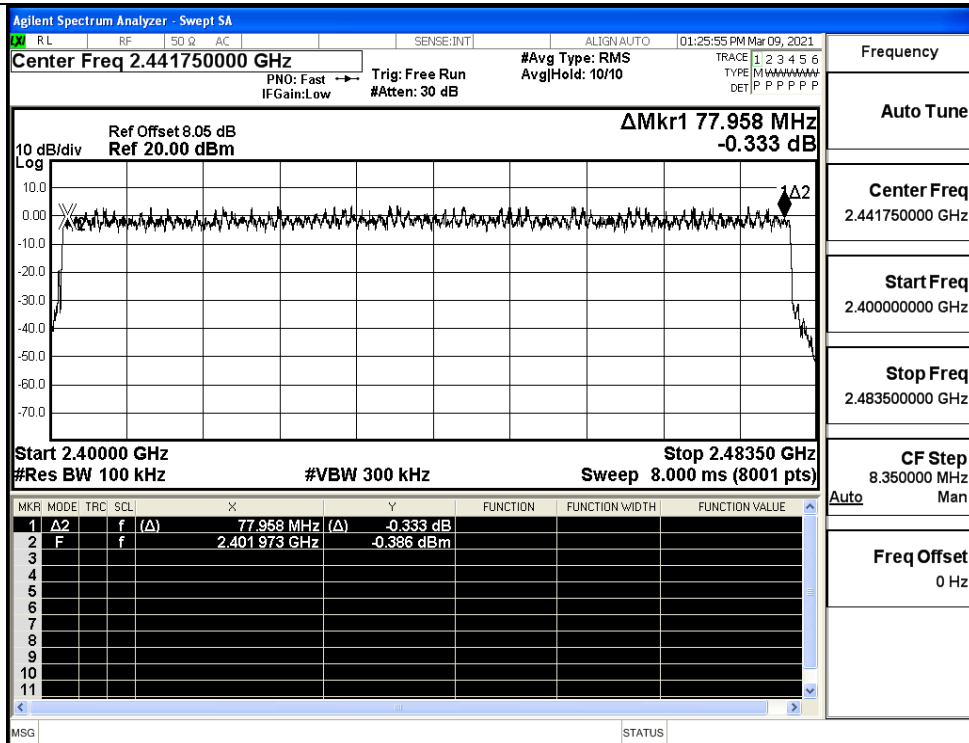
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

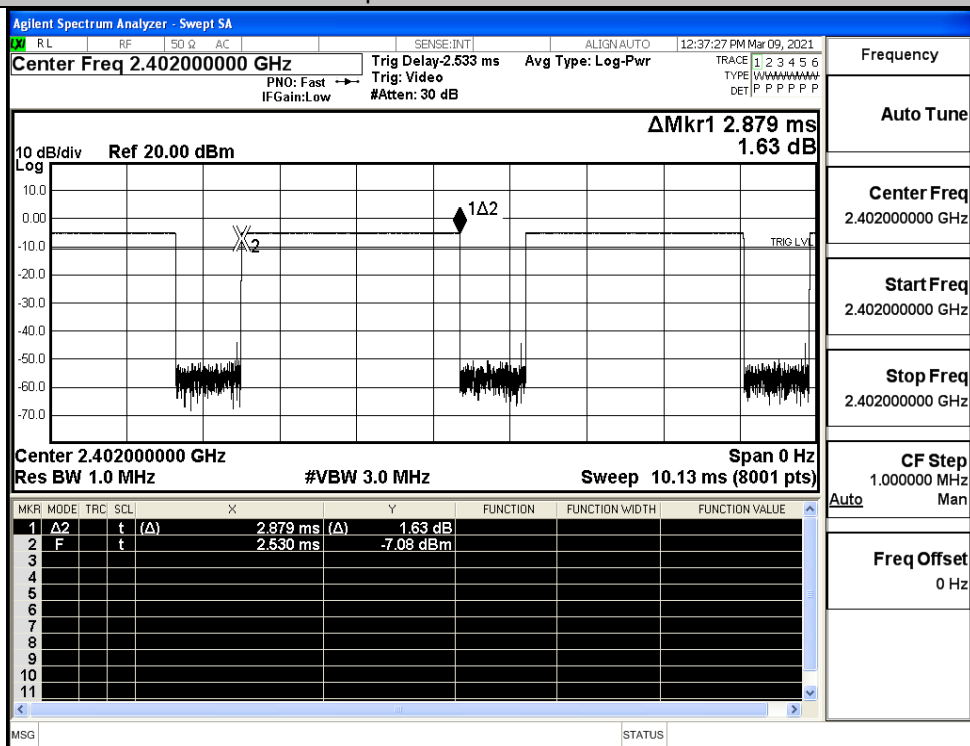


A.5 Dwell Time

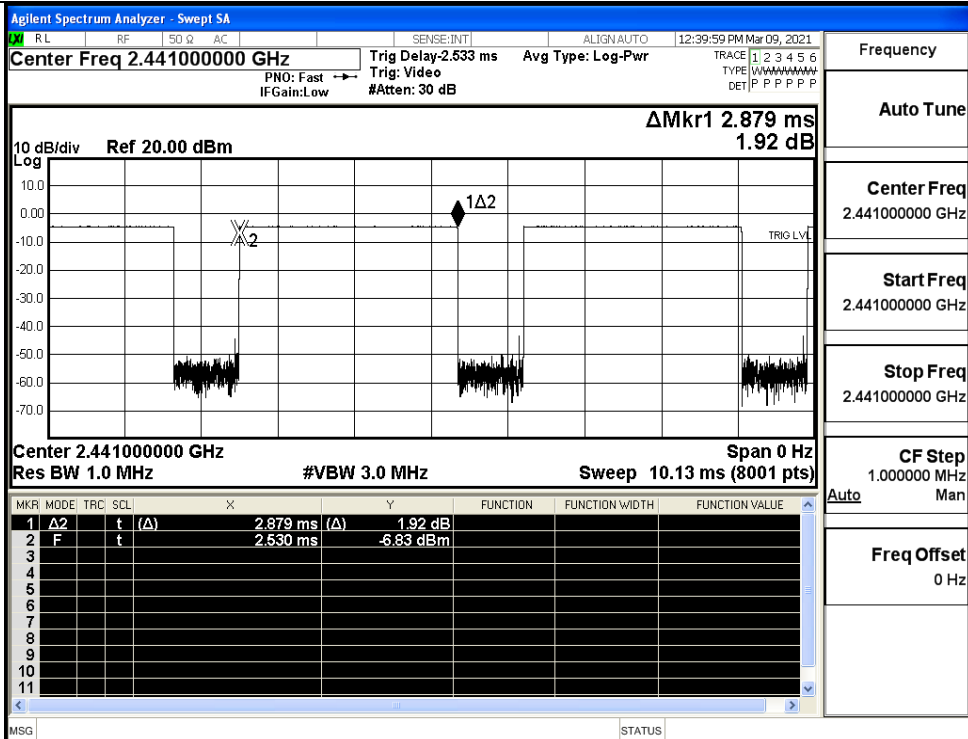
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.308	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

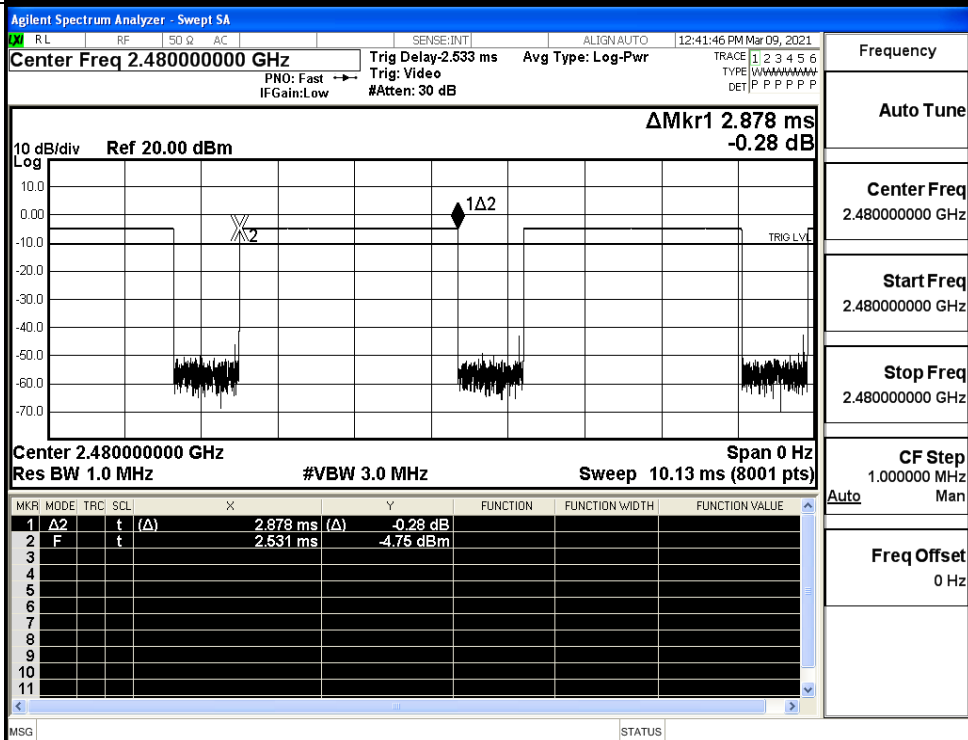
GFSK_DH5/LCH



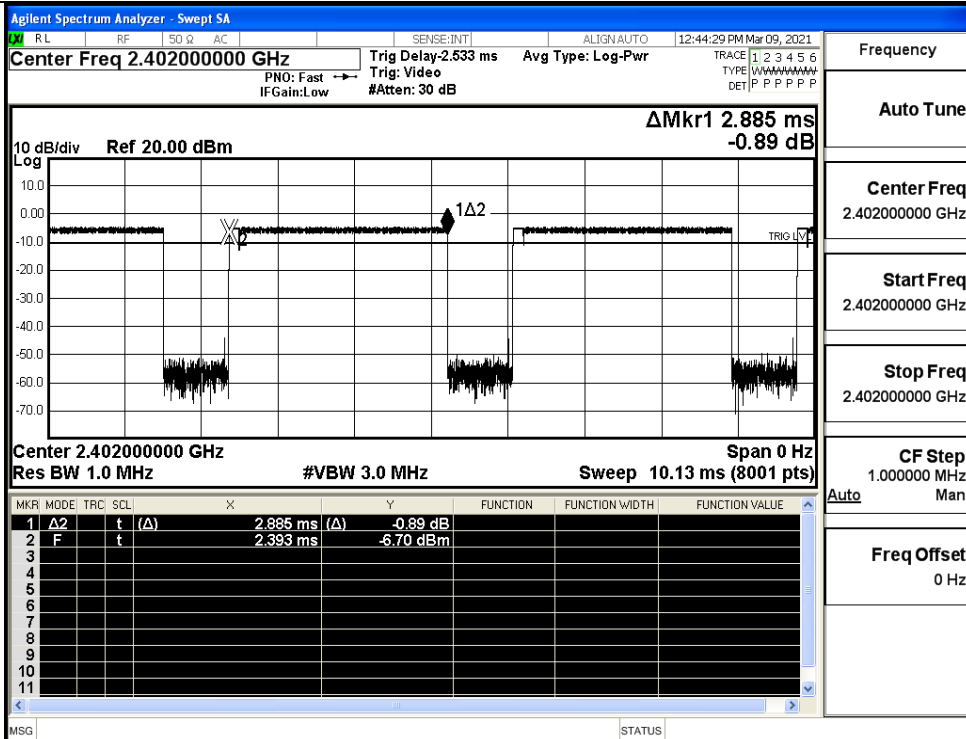
GFSK_DH5/MCH



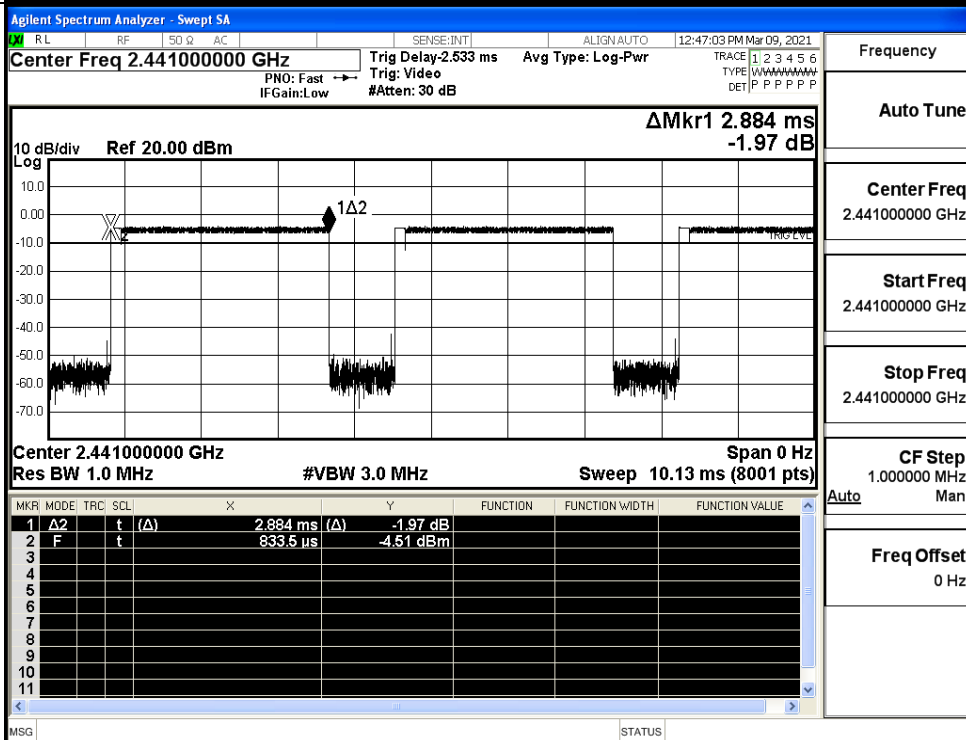
GFSK_DH5/HCH



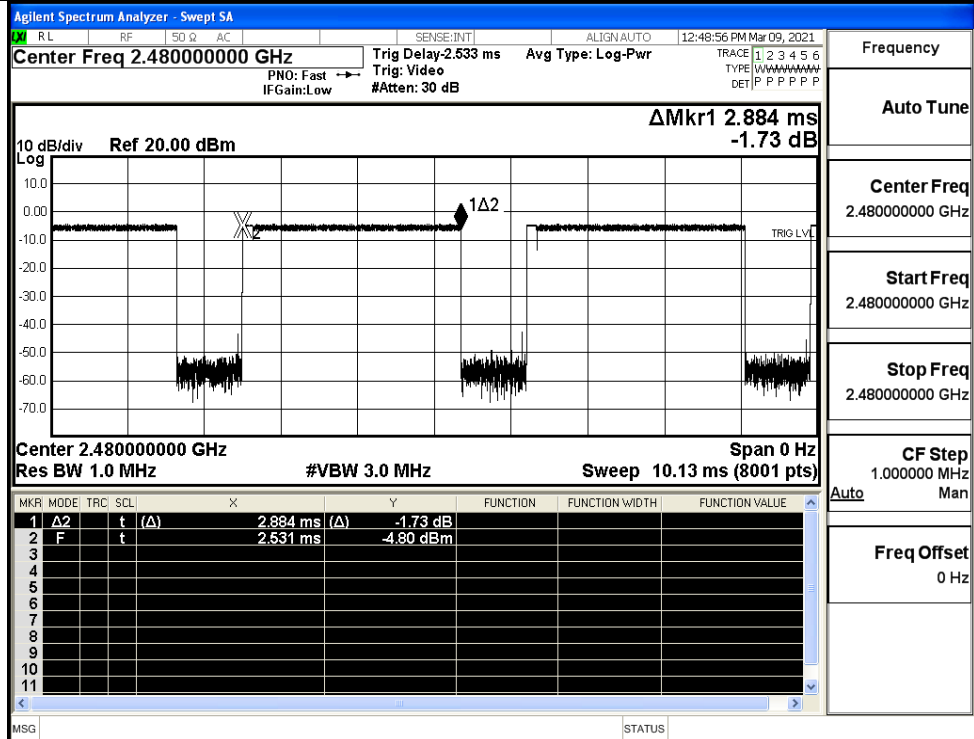
$\pi/4$ DQPSK
_2DH5/LCH



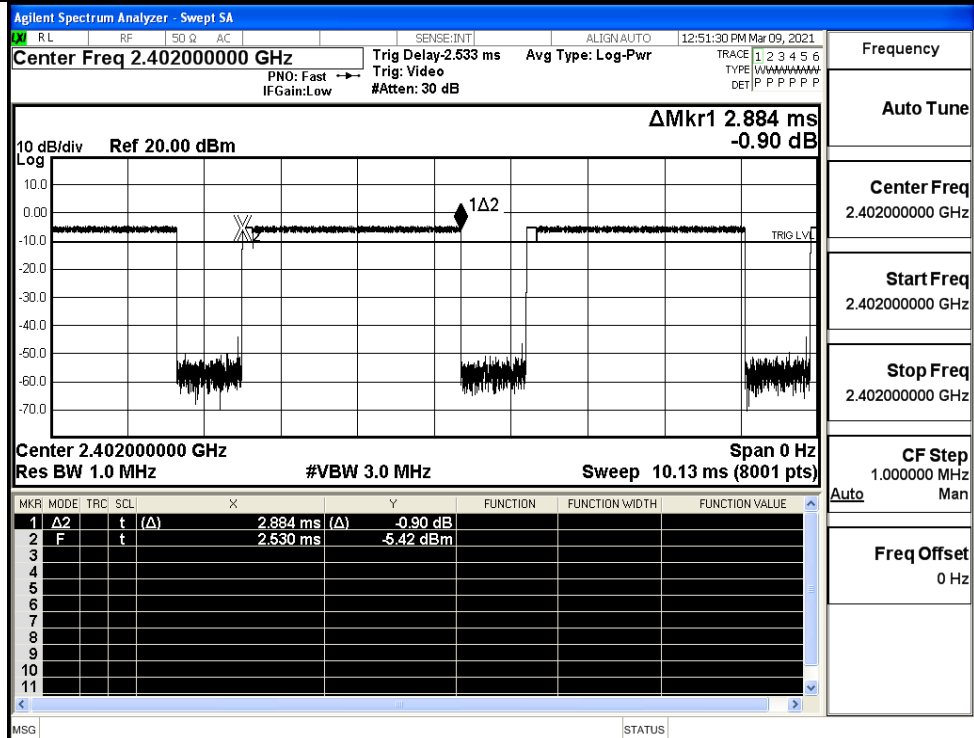
$\pi/4$ DQPSK
_2DH5/MCH



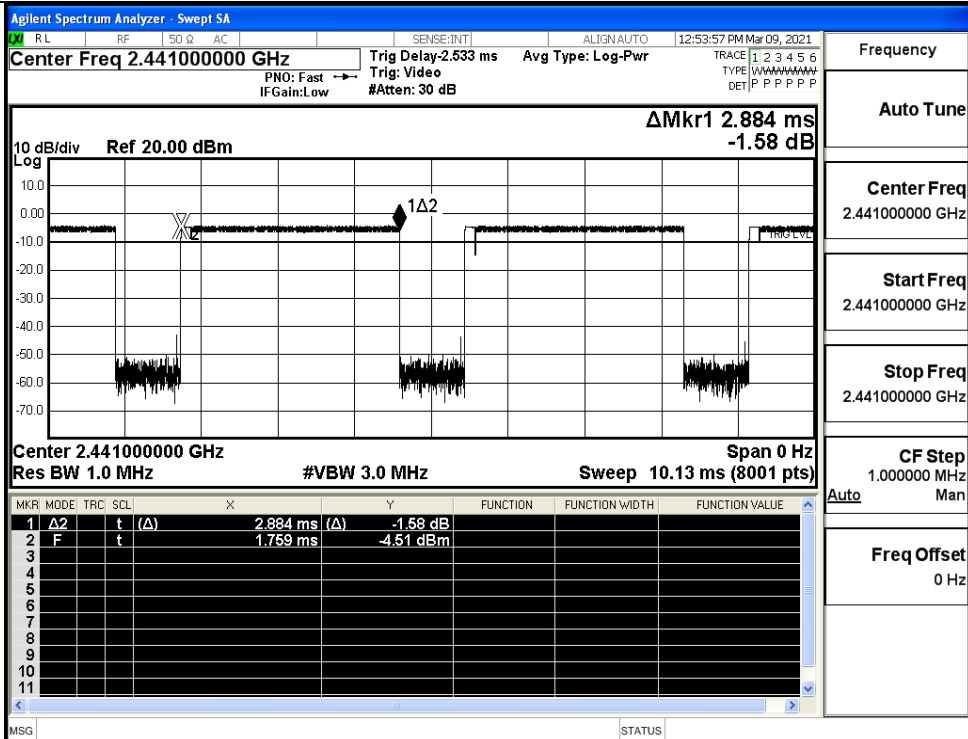
$\pi/4$ DQPSK
_2DH5/HCH



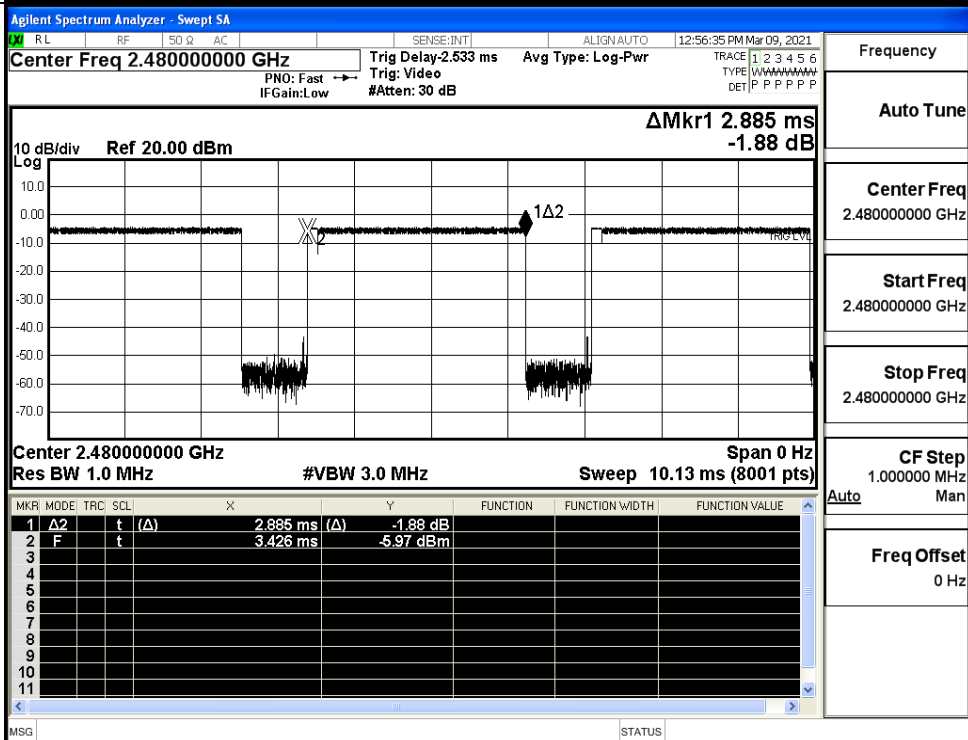
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



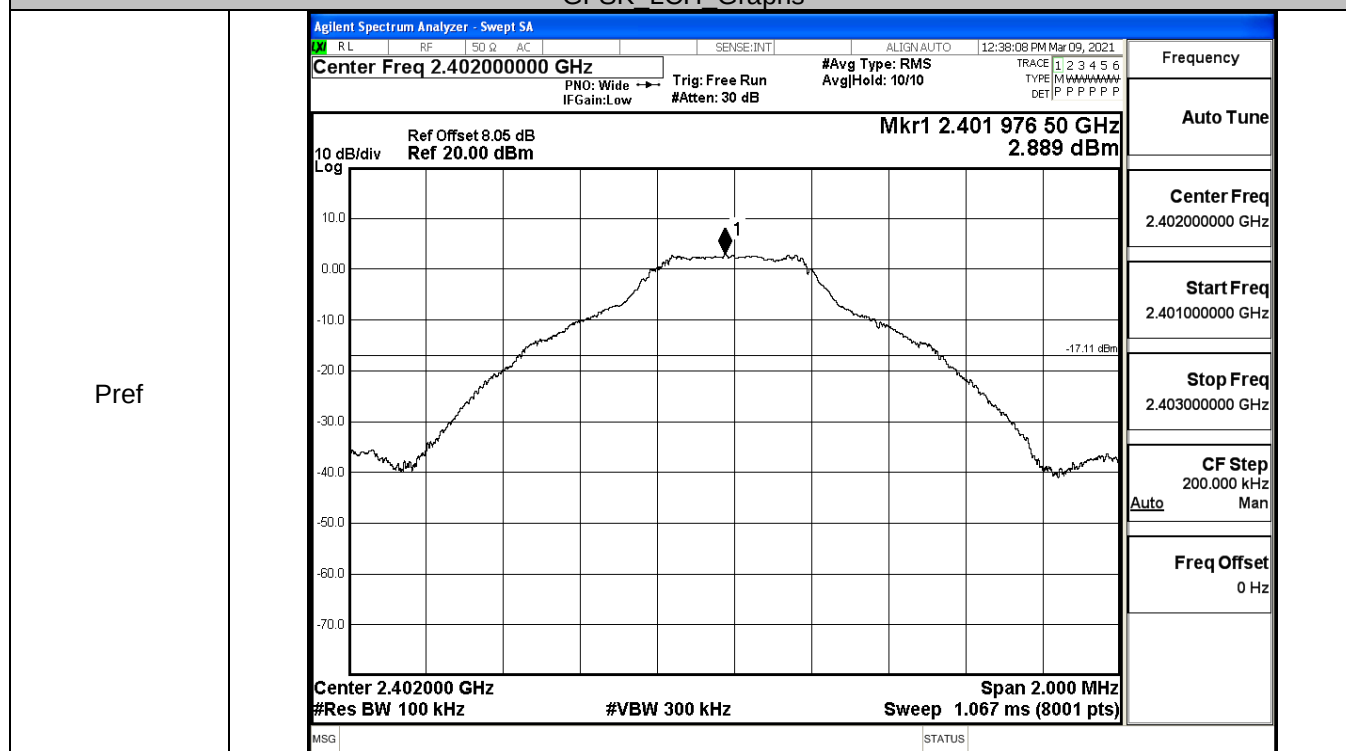
8DPSK_3DH5/HCH



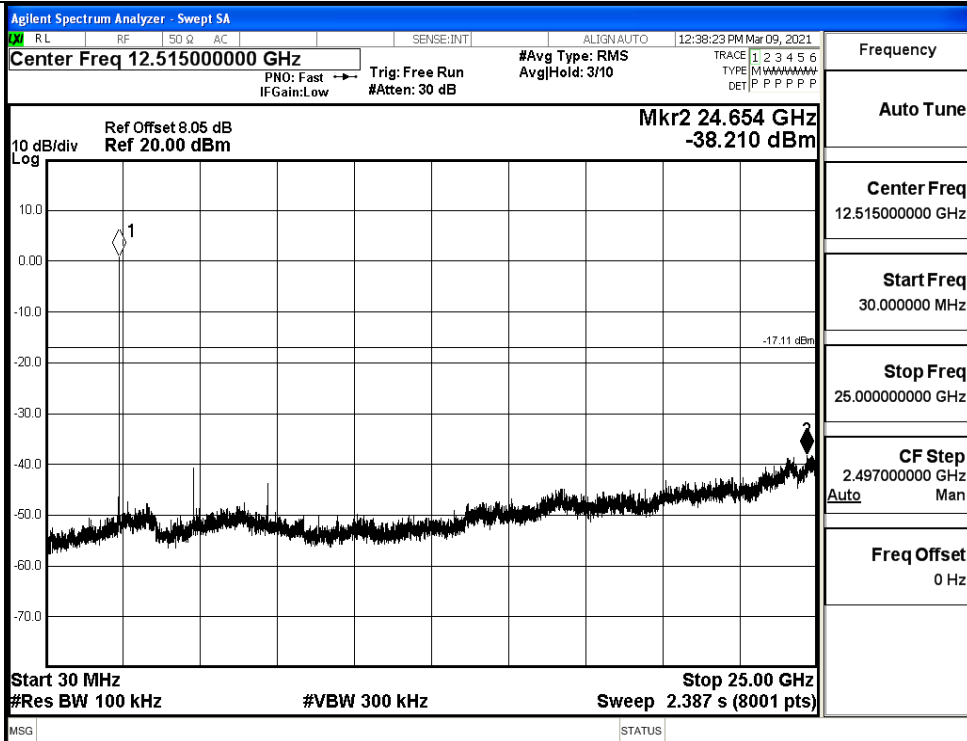
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.889	-38.210	-17.111	PASS
	MCH	3.358	-37.575	-16.642	PASS
	HCH	3.097	-37.038	-16.903	PASS
$\pi/4$ DQPSK	LCH	2.916	-37.102	-17.084	PASS
	MCH	3.531	-37.684	-16.469	PASS
	HCH	2.814	-37.678	-17.186	PASS
8DPSK	LCH	2.865	-37.893	-17.135	PASS
	MCH	3.336	-36.982	-16.664	PASS
	HCH	3.087	-38.148	-16.913	PASS

GFSK LCH Graphs

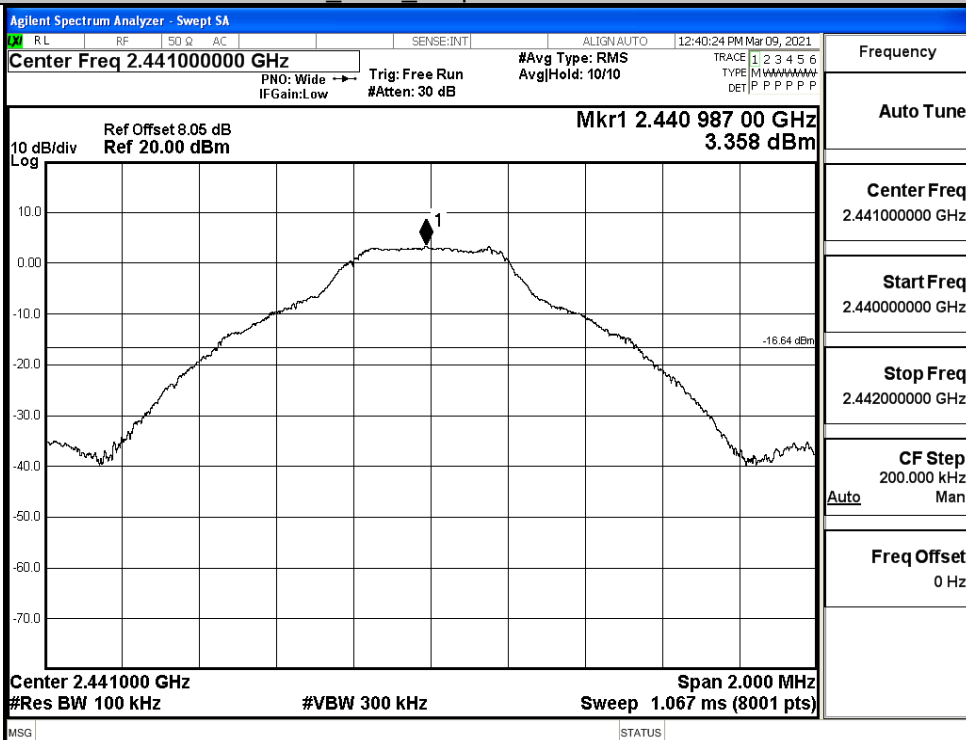


Puw

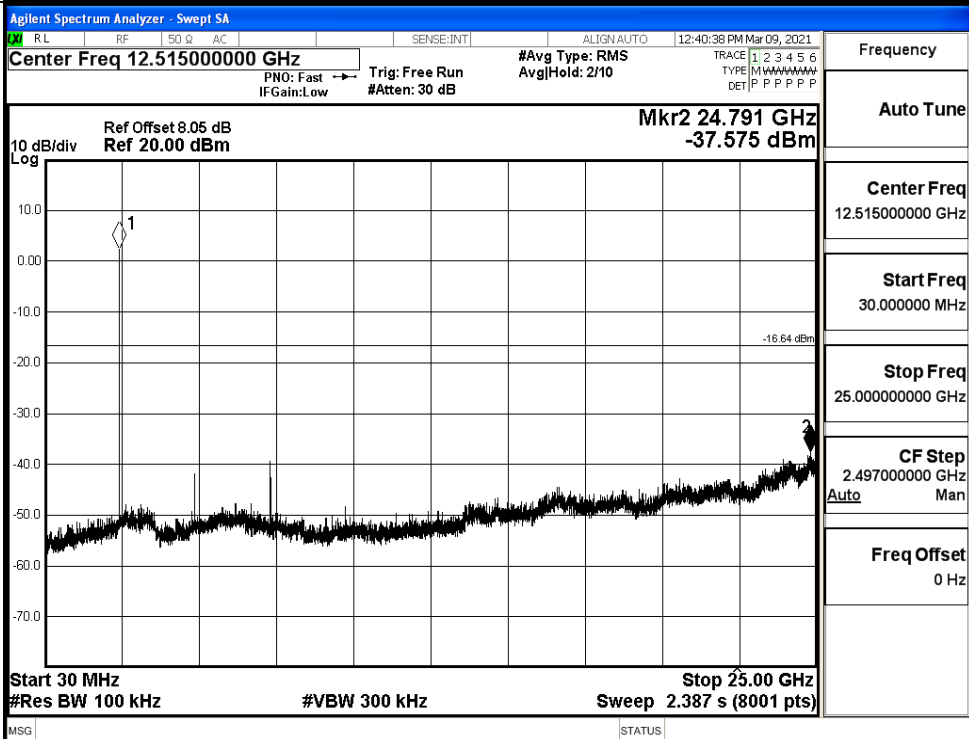


GFSK_MCH_Graphs

Pref

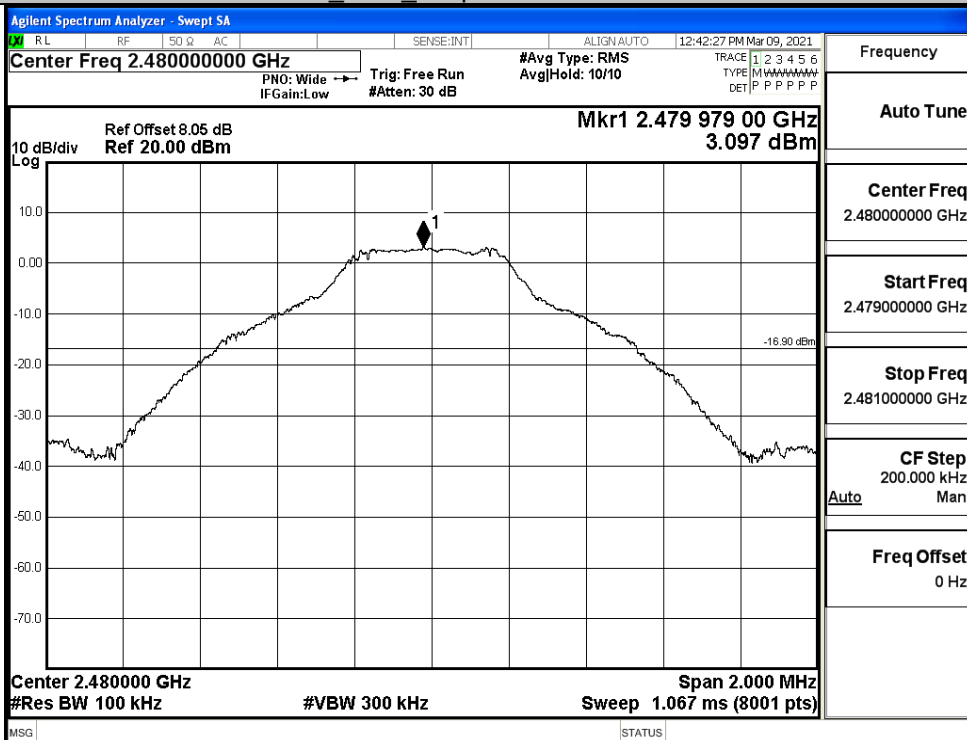


Puw

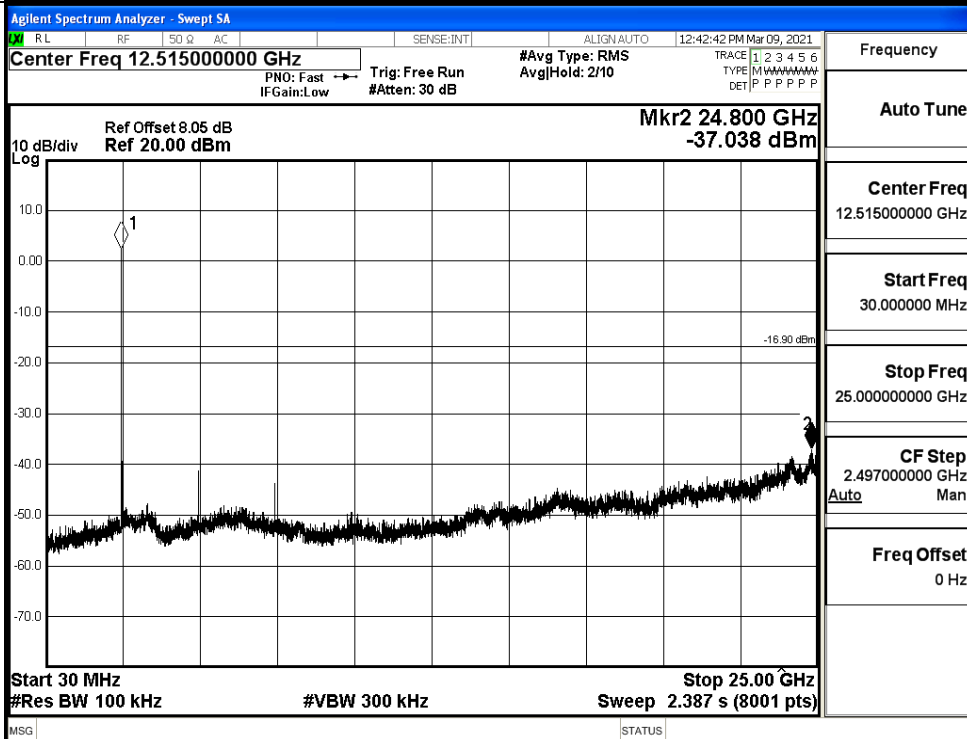


GFSK_HCH_Graphs

Pref

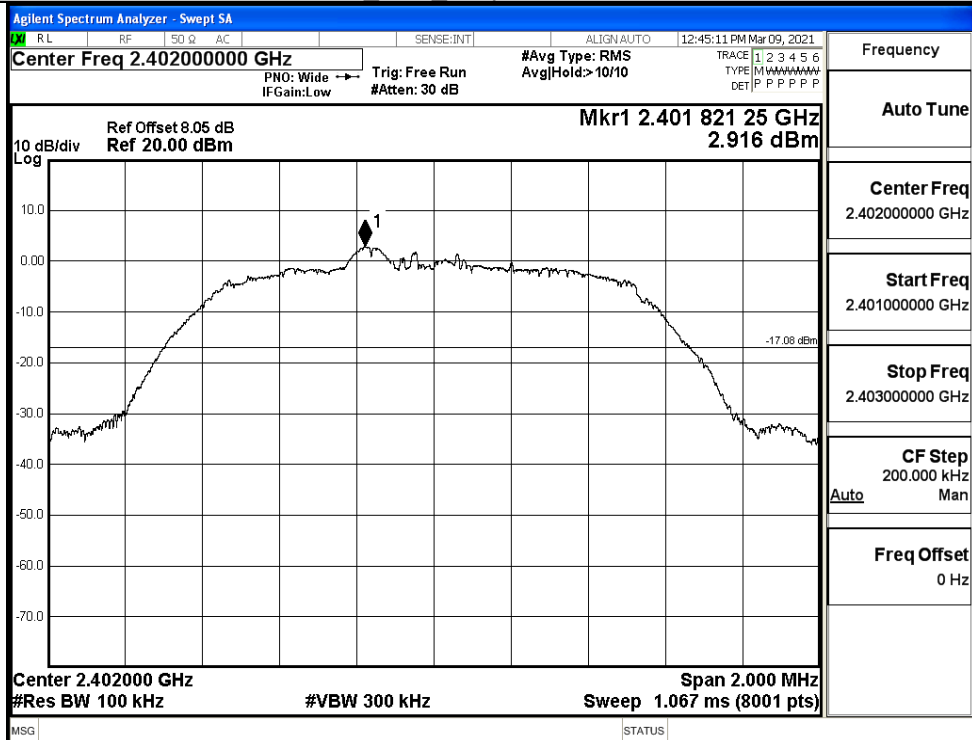


Puw

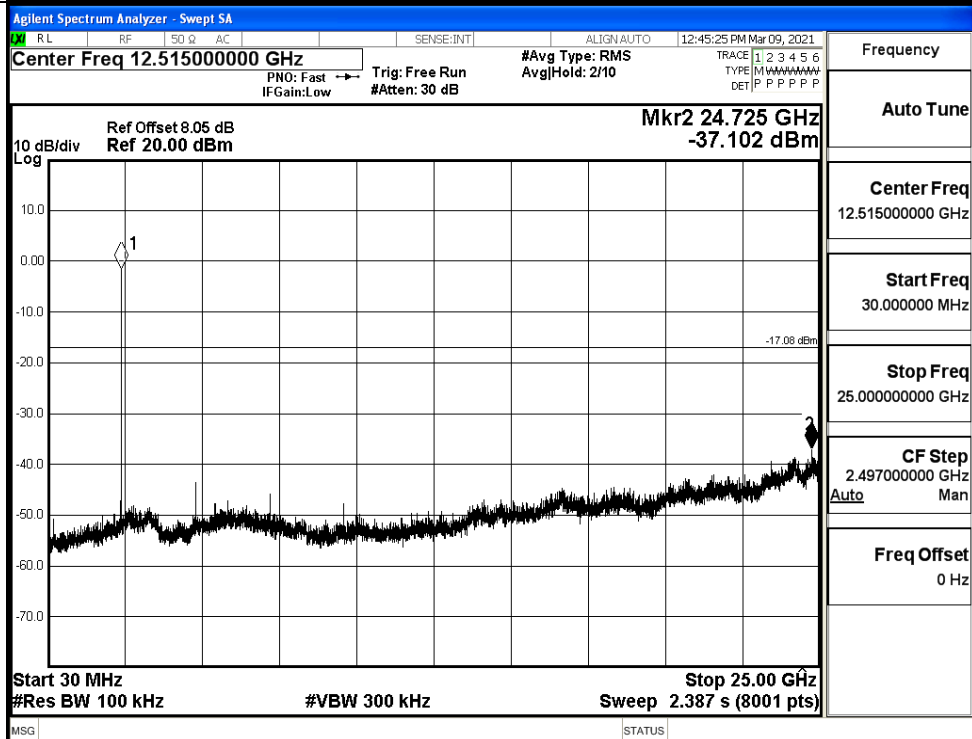


$\pi/4$ DQPSK_LCH_Graphs

Pref

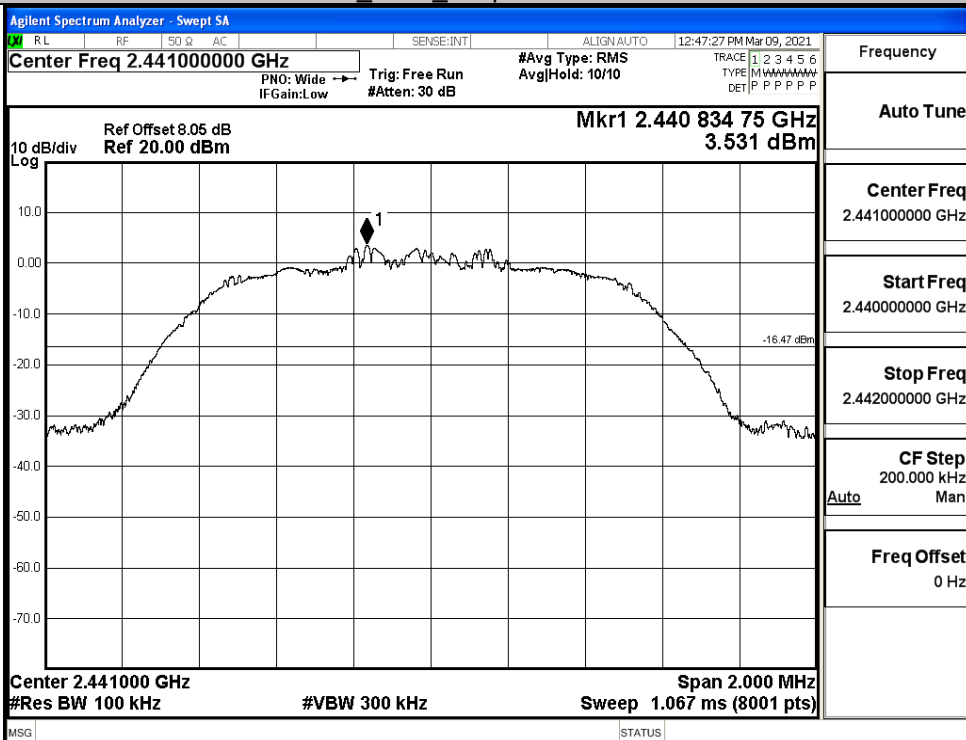


Puw

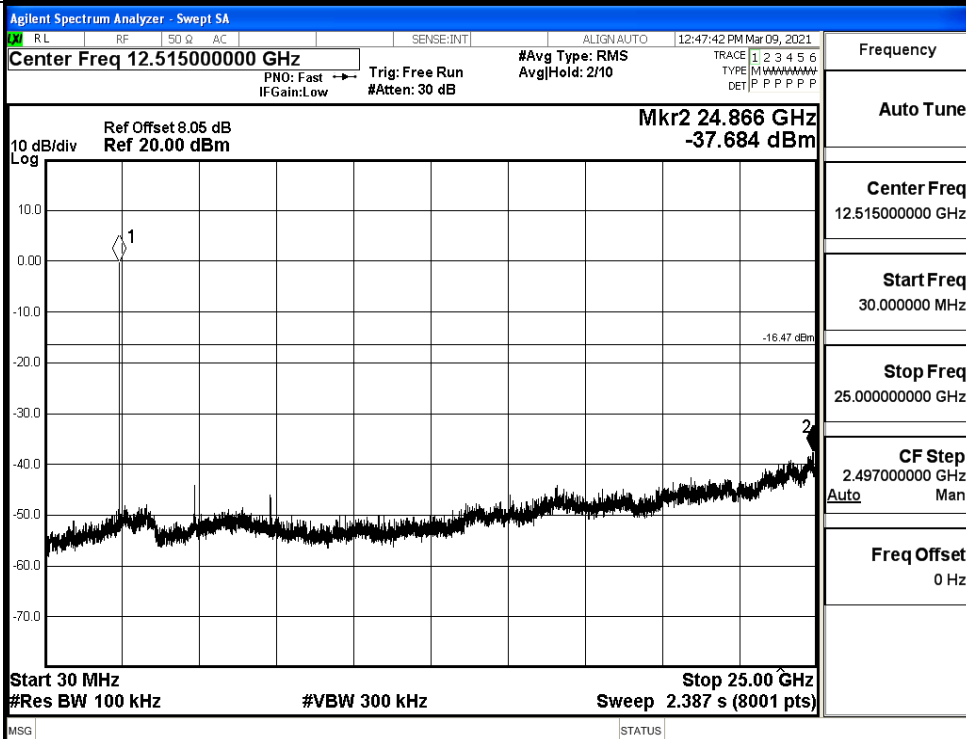


π /4DQPSK_MCH_Graphs

Pref

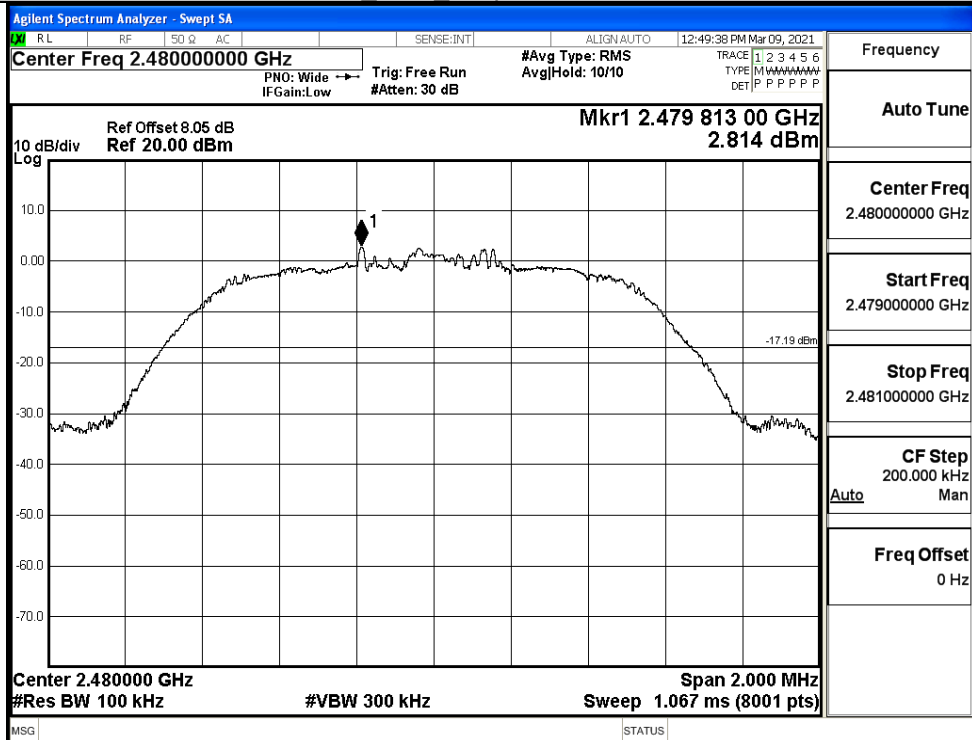


Puw

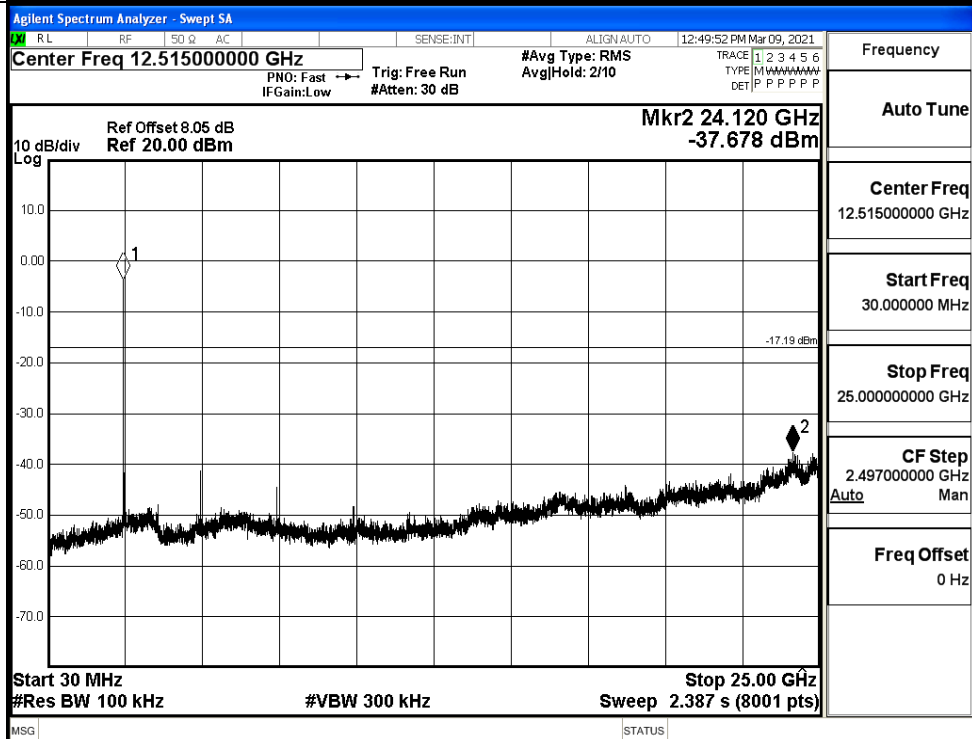


π /4DQPSK_HCH_Graphs

Pref

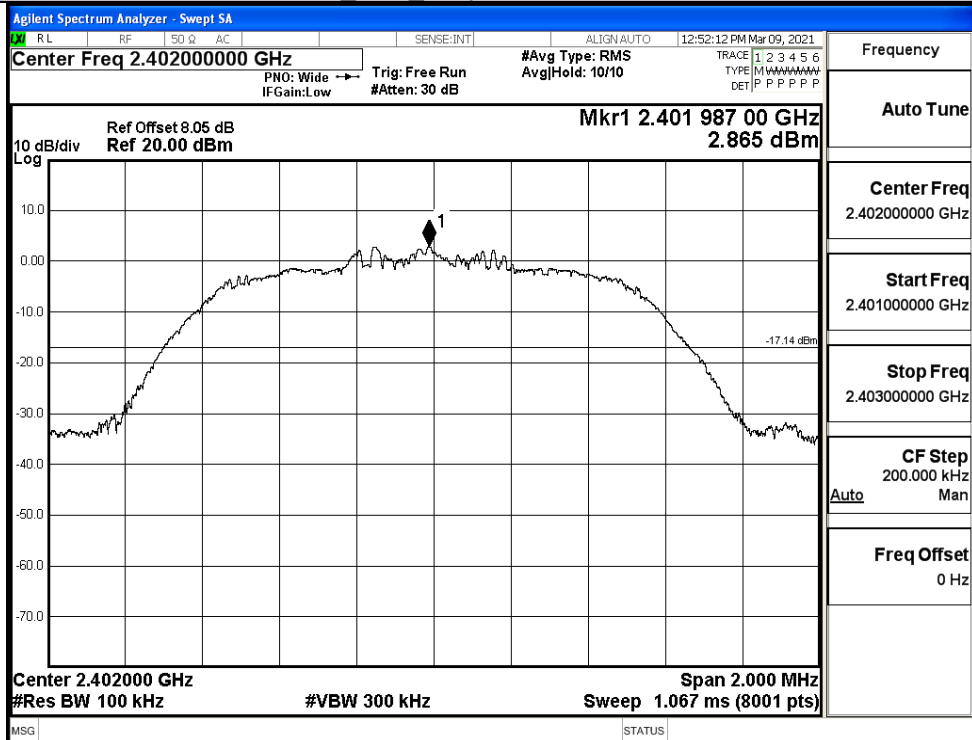


Puw

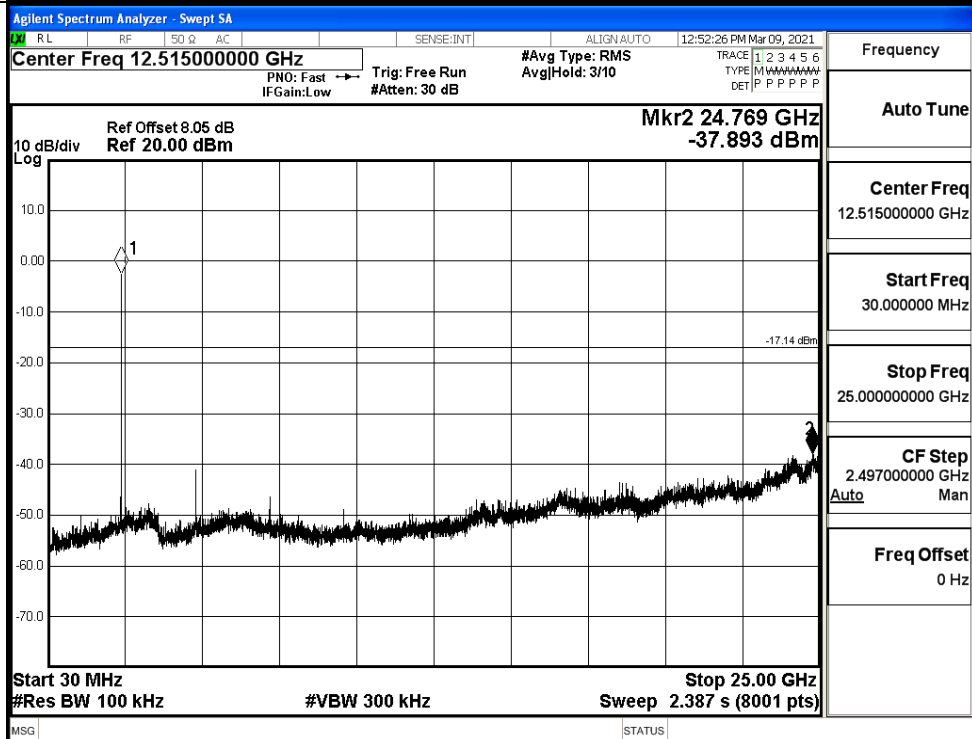


8DPSK_LCH_Graphs

Pref

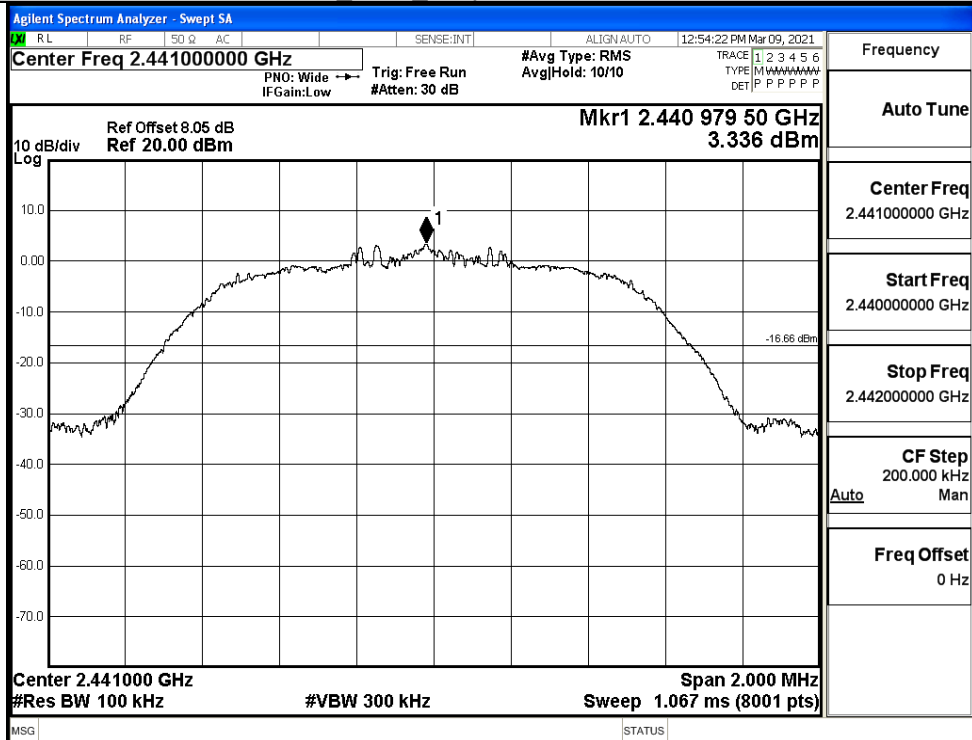


Puw

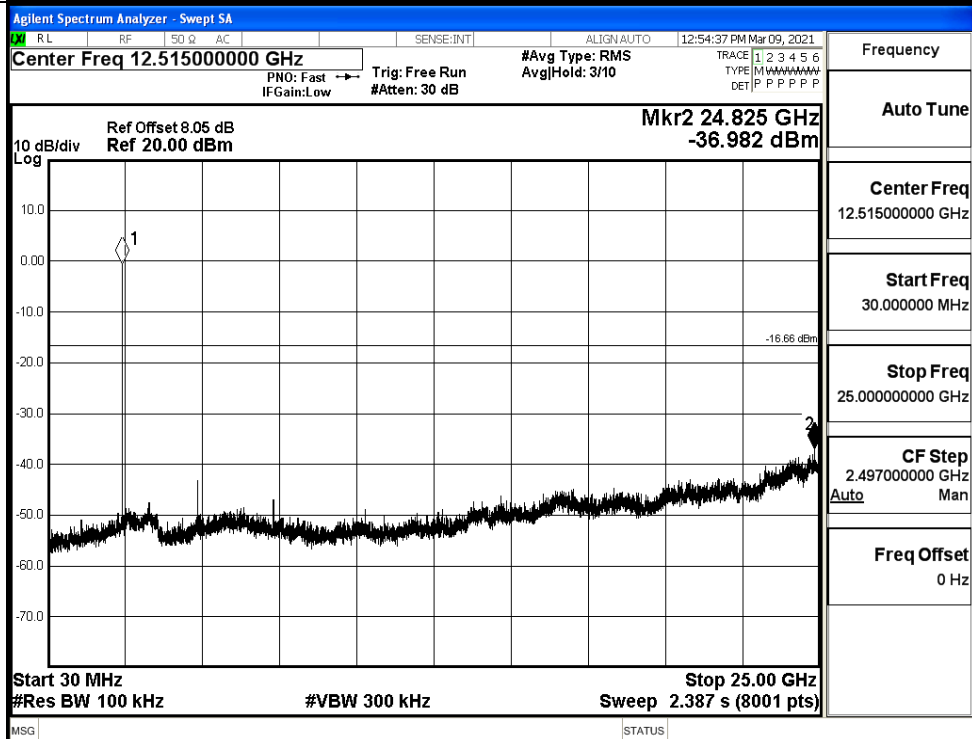


8DPSK_MCH_Graphs

Pref

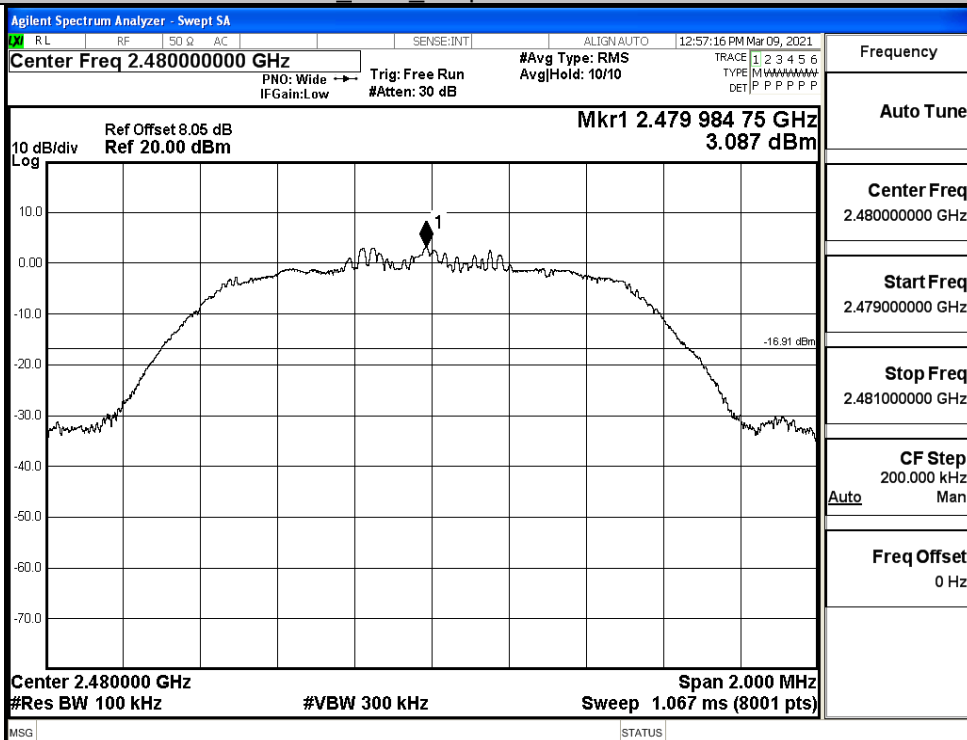


Puw

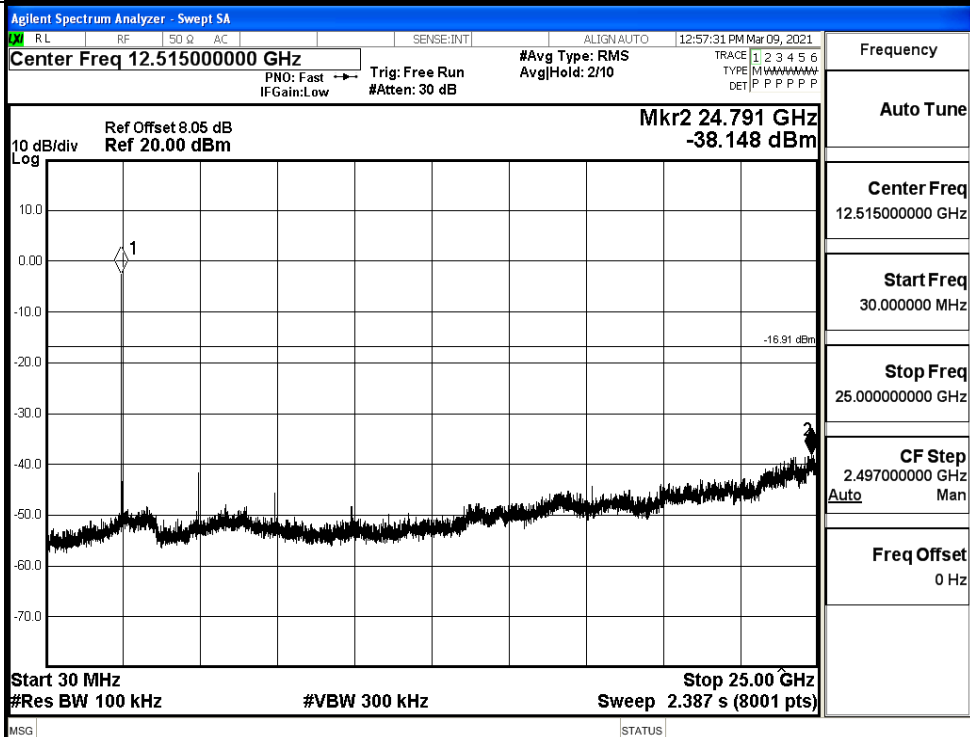


8DPSK_HCH_Graphs

Pref



Puw

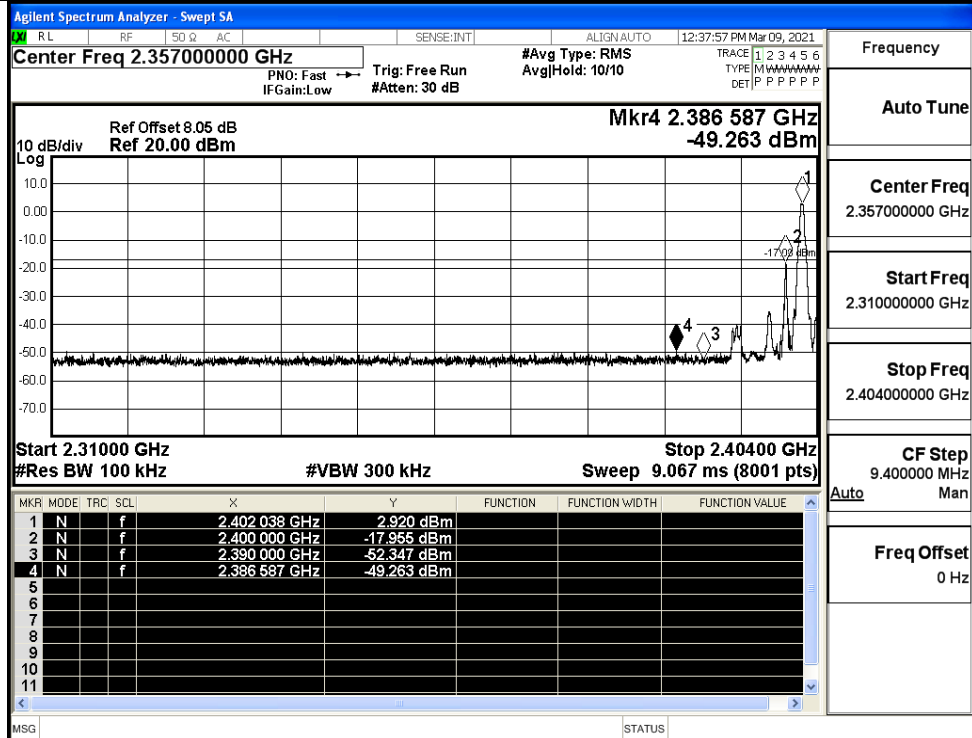


A.7 Band-edge for RF Conducted Emissions

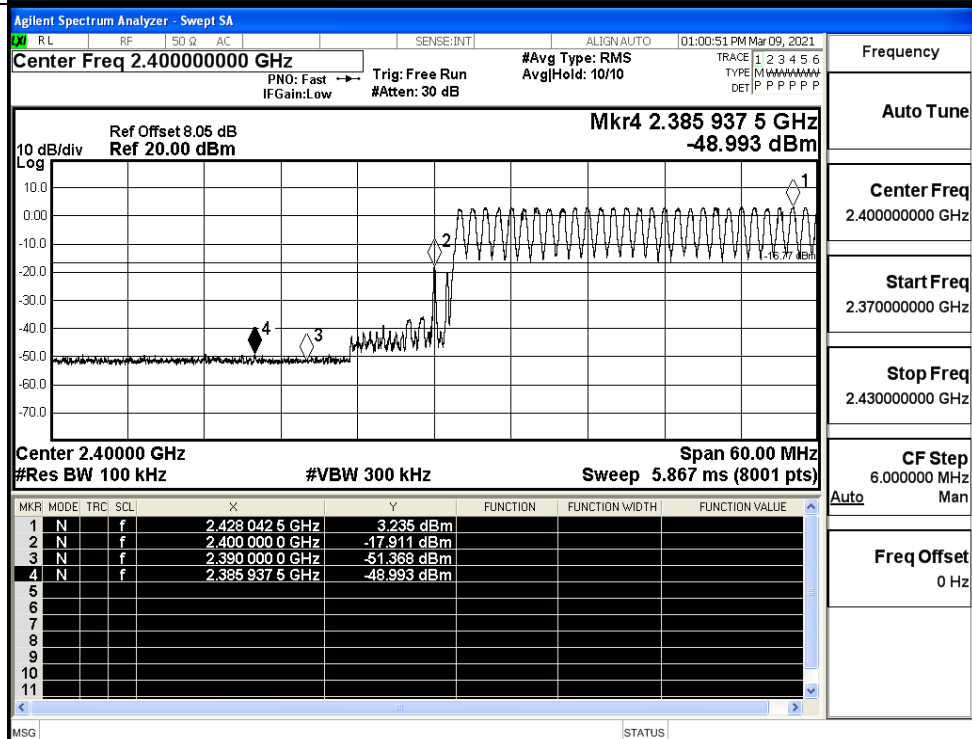
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	2.920	Off	-49.263	-17.08	PASS
			3.235	On	-48.993	-16.77	PASS
	HCH	2480	3.224	Off	-45.820	-16.78	PASS
			3.215	On	-47.923	-16.79	PASS
$\pi/4$ DQPSK	LCH	2402	2.792	Off	-49.912	-17.21	PASS
			3.040	On	-48.854	-16.96	PASS
	HCH	2480	3.320	Off	-47.048	-16.68	PASS
			2.792	On	-48.105	-17.21	PASS
8DPSK	LCH	2402	3.178	Off	-49.835	-16.82	PASS
			3.300	On	-48.751	-16.7	PASS
	HCH	2480	3.342	Off	-47.981	-16.66	PASS
			3.129	On	-48.673	-16.87	PASS

Test Graphs

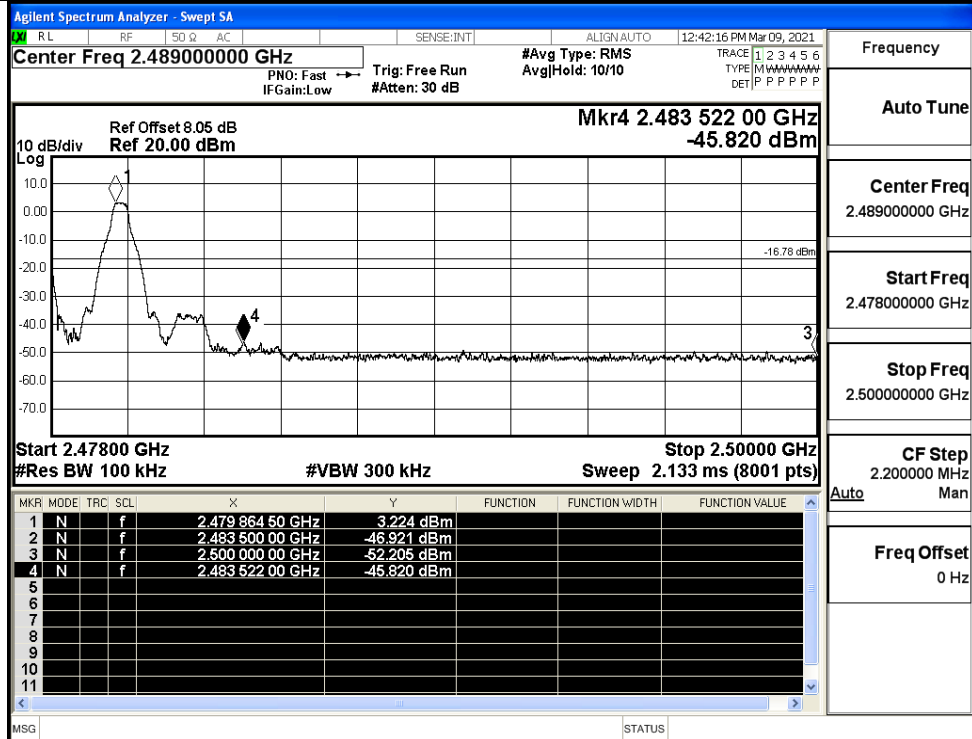
GFSK/LCH/No Hop



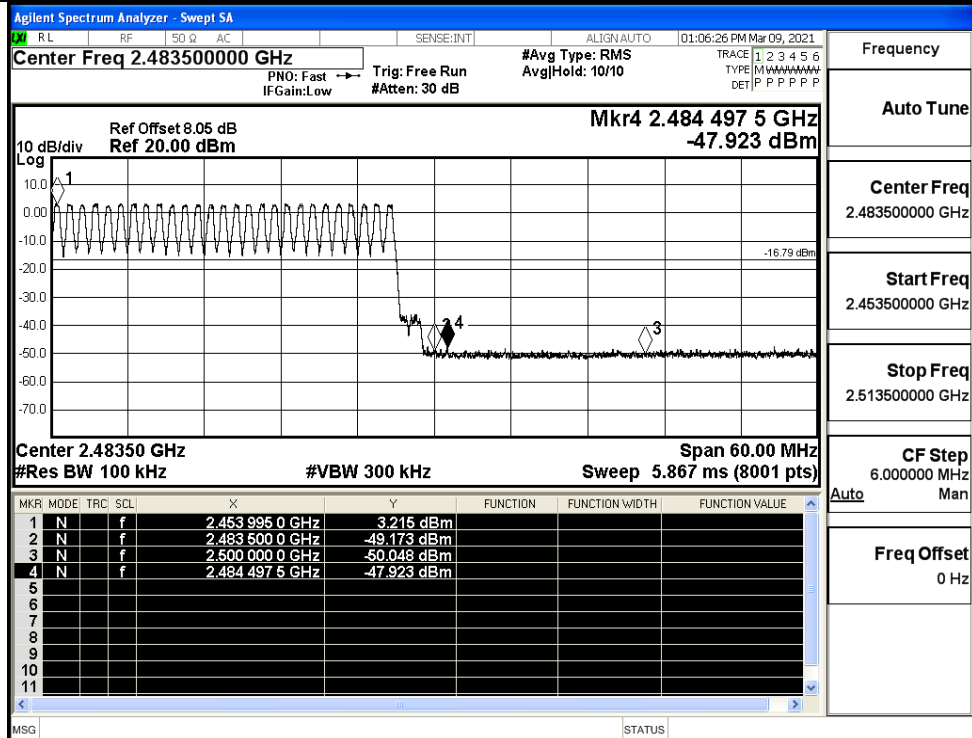
GFSK/LCH/Hop



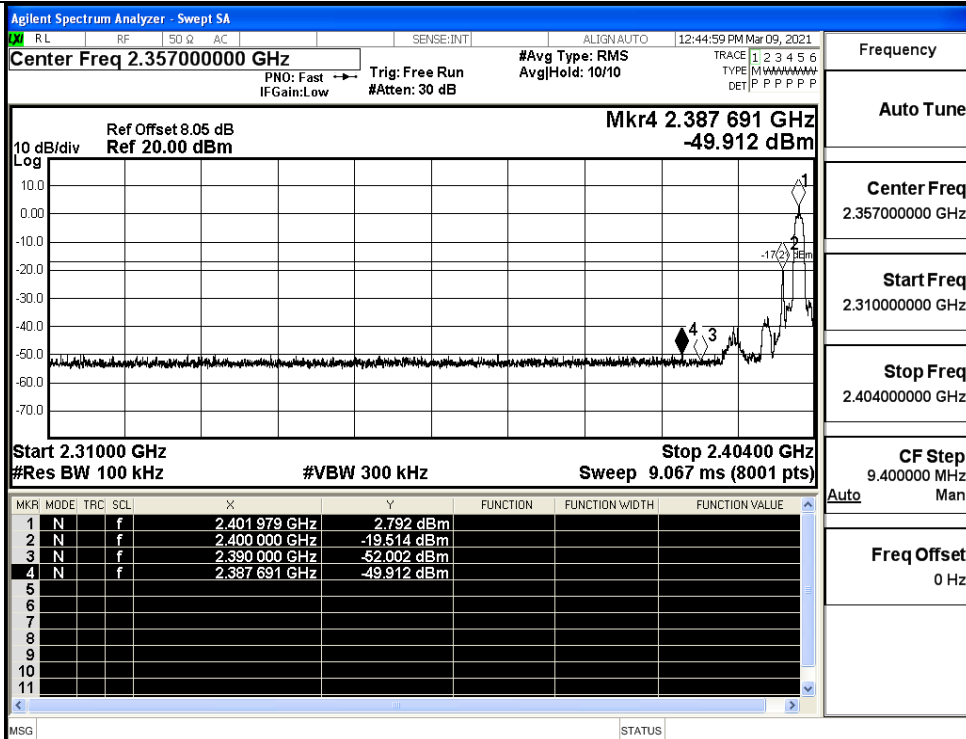
GFSK/HCH/No Hop



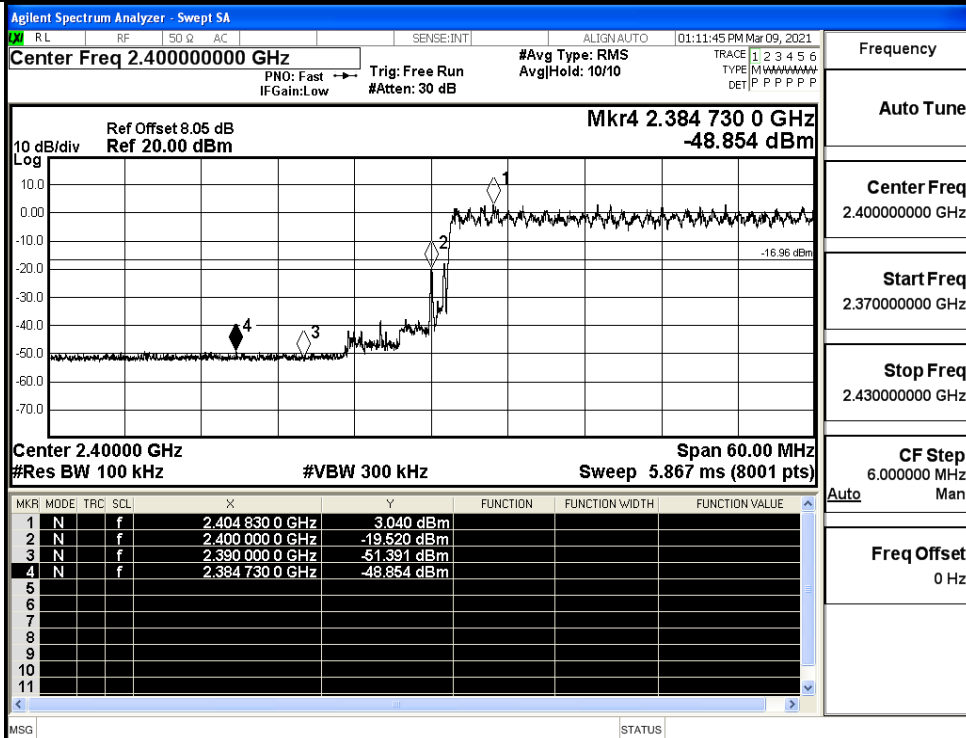
GFSK/HCH/Hop



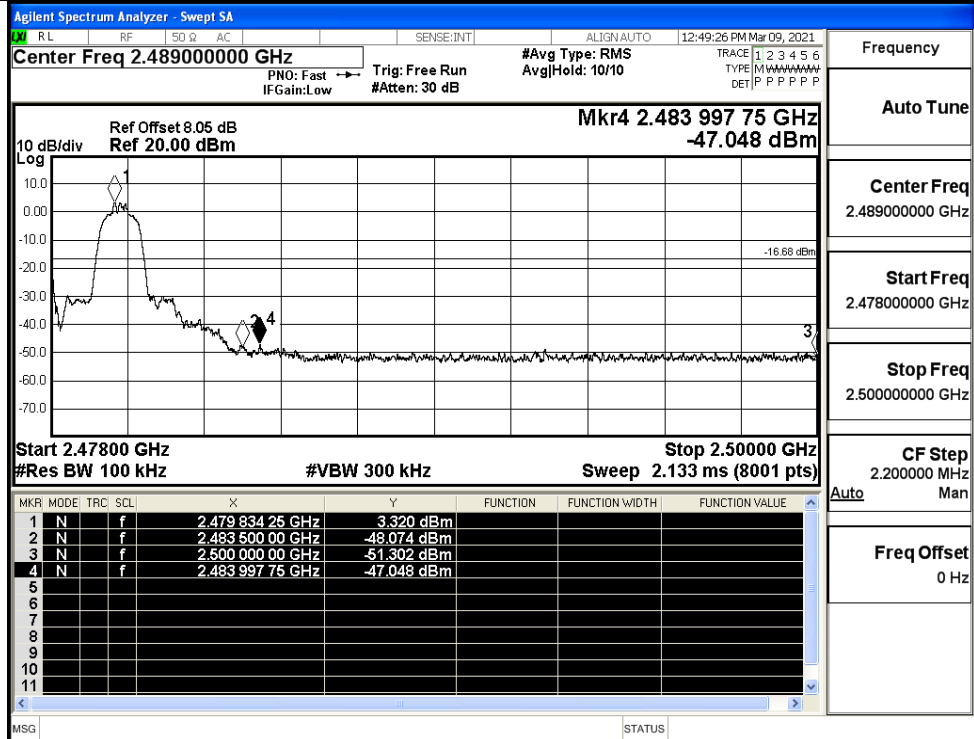
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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



Frequency

Auto Tune

Center Freq
2.489000000 GHz

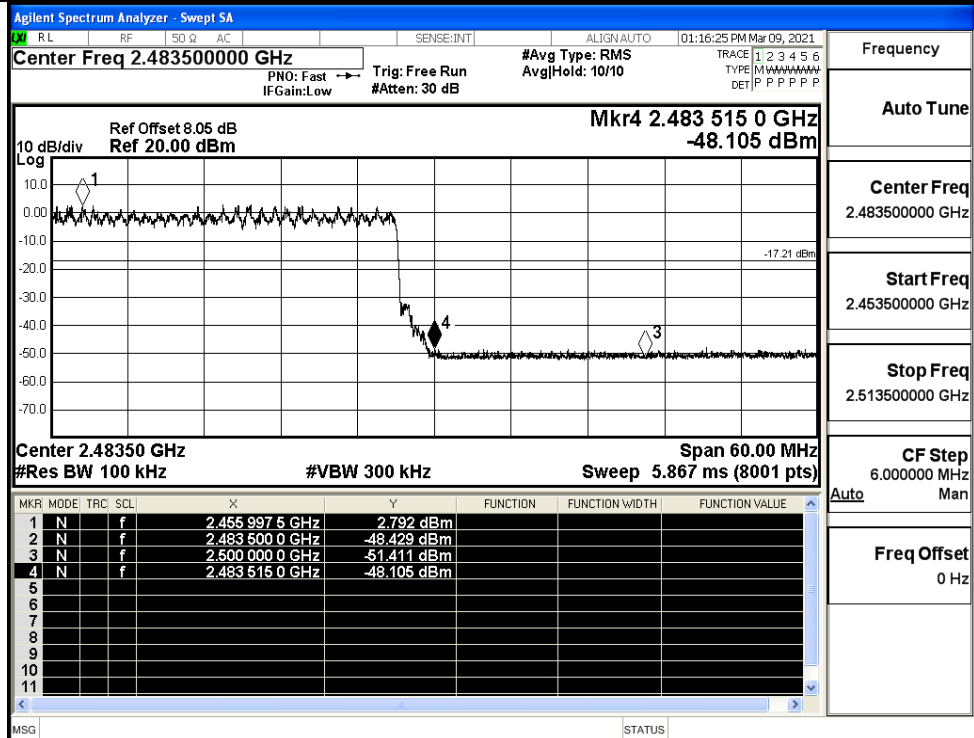
Start Freq
2.478000000 GHz

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

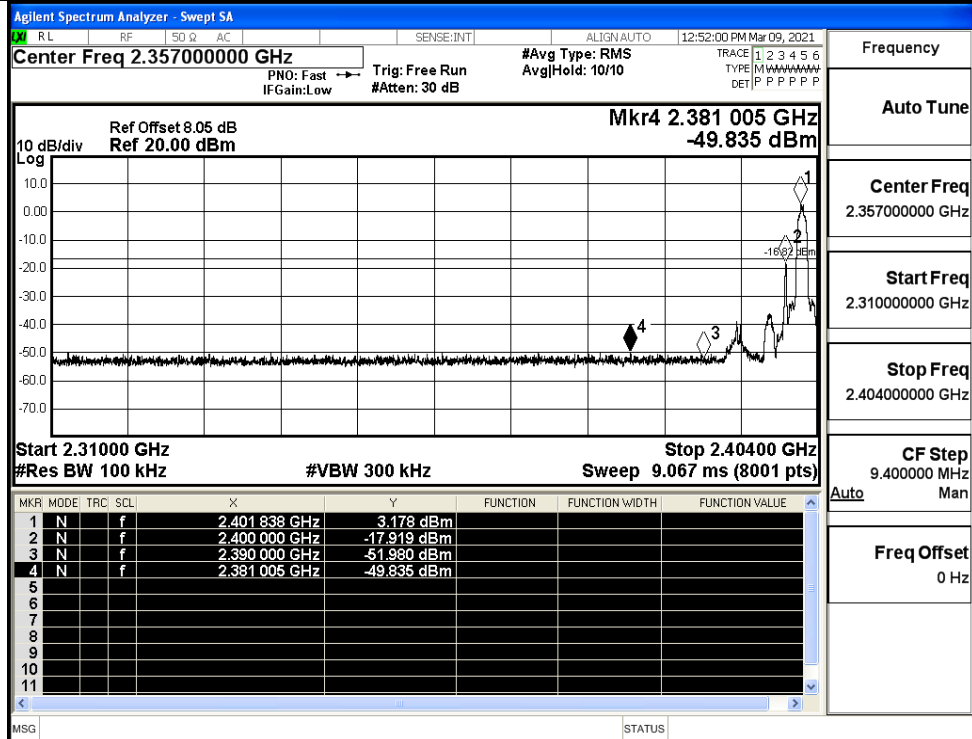
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

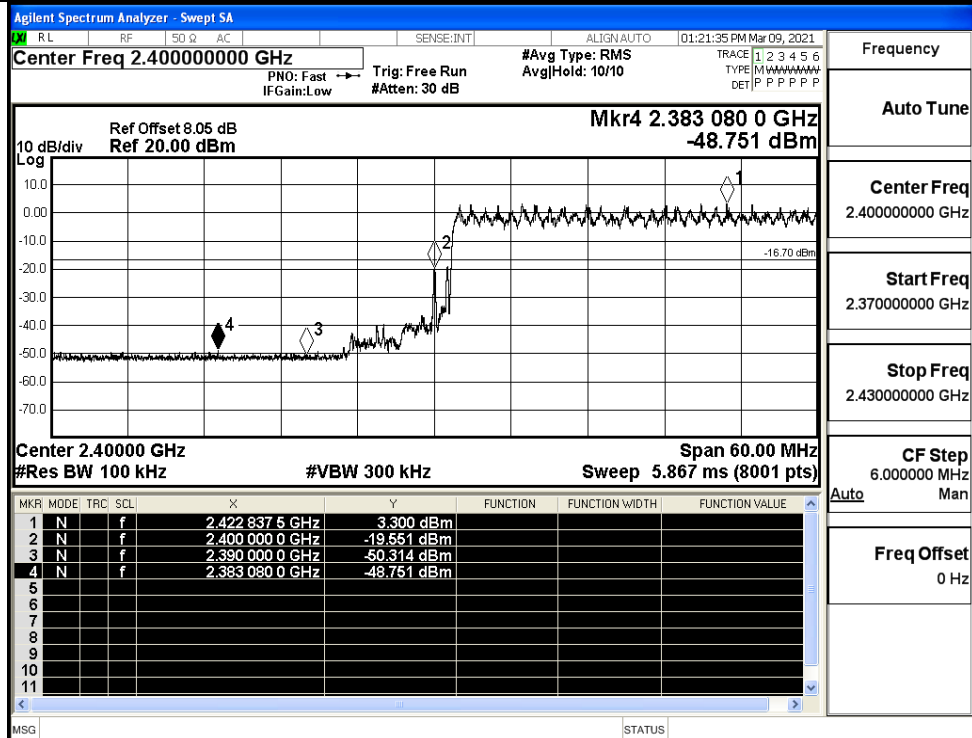
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

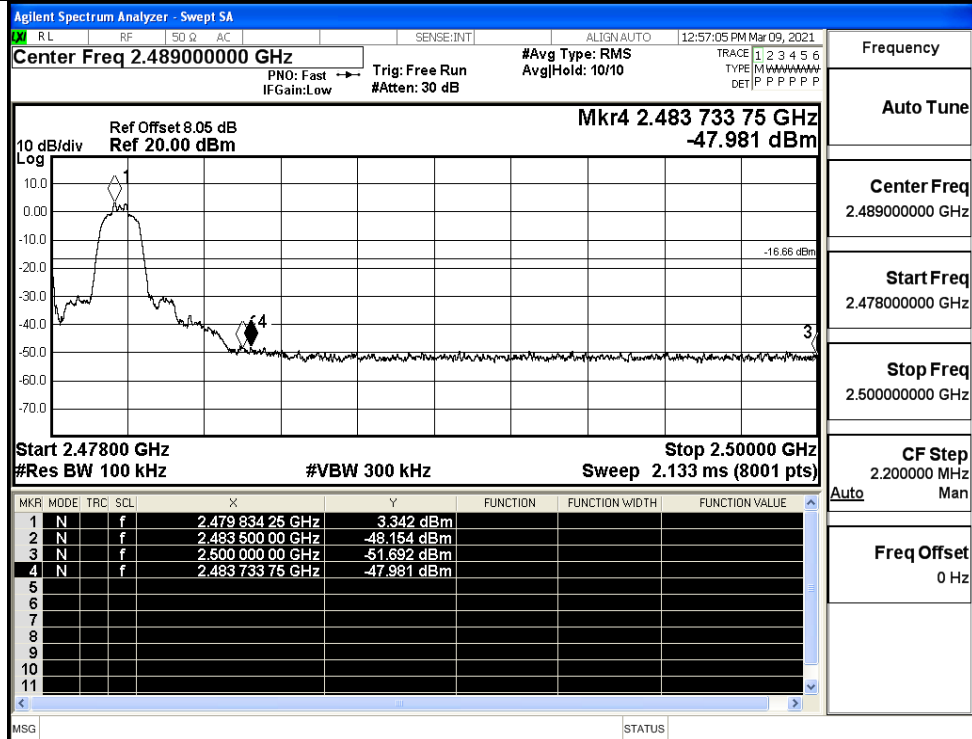
8DPSK/LCH/No Hop



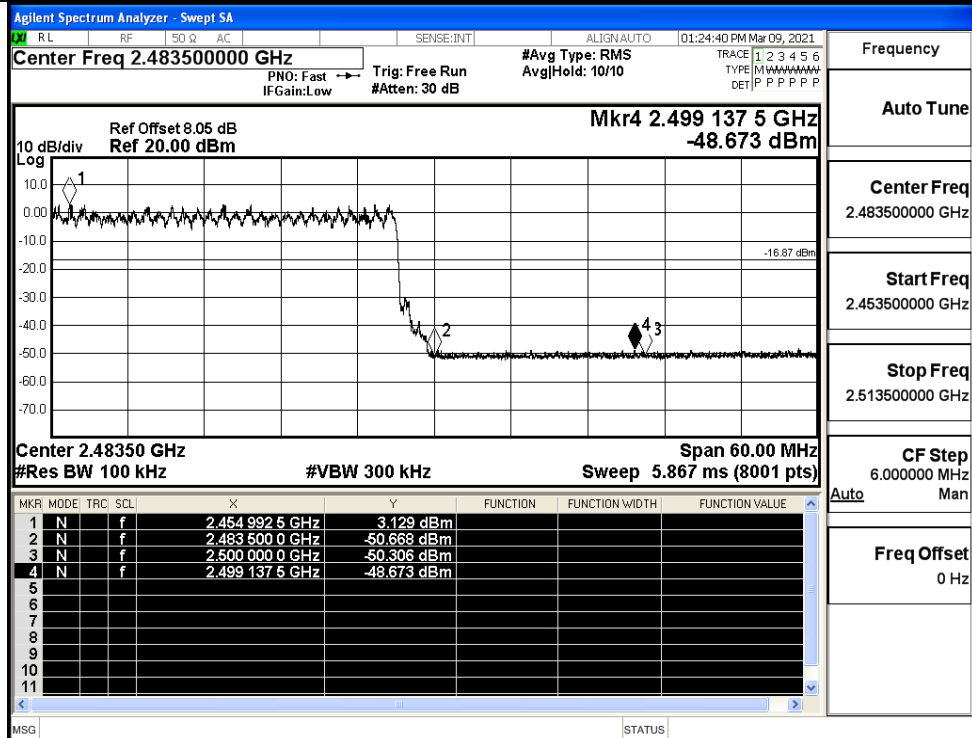
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



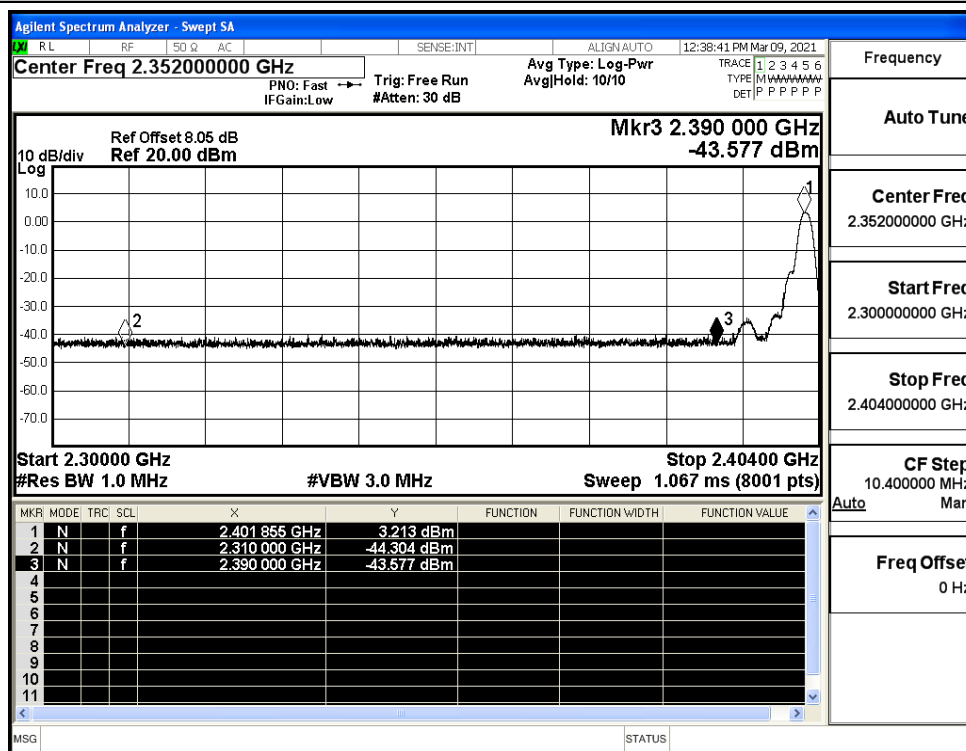
8DPSK/HCH/Hop



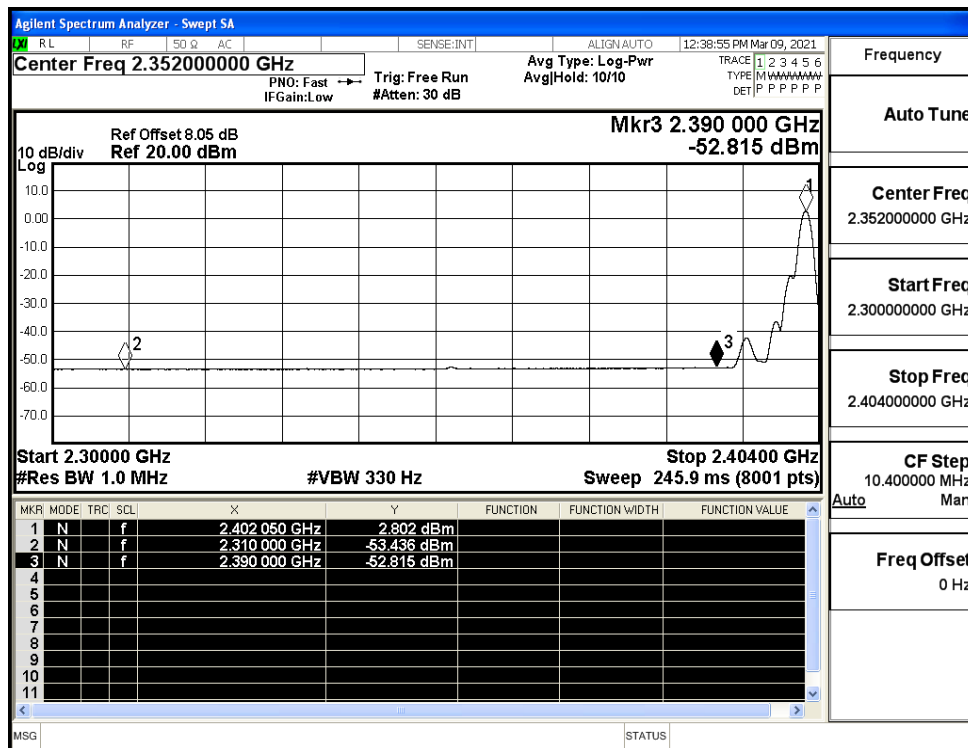
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.30	2.0	0	52.93	PEAK	74	PASS
	Off	2310.0	-53.44	2.0	0	43.79	AV	54	PASS
	Off	2390.0	-43.58	2.0	0	53.65	PEAK	74	PASS
	Off	2390.0	-52.82	2.0	0	44.41	AV	54	PASS
	Off	2483.5	-39.83	2.0	0	57.40	PEAK	74	PASS
	Off	2483.5	-48.37	2.0	0	48.86	AV	54	PASS
	Off	2500.0	-41.51	2.0	0	55.72	PEAK	74	PASS
	Off	2500.0	-52.40	2.0	0	44.83	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.66	2.0	0	54.57	PEAK	74	PASS
	Off	2310.0	-53.38	2.0	0	43.85	AV	54	PASS
	Off	2390.0	-42.94	2.0	0	54.29	PEAK	74	PASS
	Off	2390.0	-52.92	2.0	0	44.31	AV	54	PASS
	Off	2483.5	-38.77	2.0	0	58.46	PEAK	74	PASS
	Off	2483.5	-48.55	2.0	0	48.68	AV	54	PASS
	Off	2500.0	-42.75	2.0	0	54.48	PEAK	74	PASS
	Off	2500.0	-52.39	2.0	0	44.84	AV	54	PASS
8DPSK	Off	2310.0	-43.24	2.0	0	53.99	PEAK	74	PASS
	Off	2310.0	-53.36	2.0	0	43.87	AV	54	PASS
	Off	2390.0	-40.65	2.0	0	56.58	PEAK	74	PASS
	Off	2390.0	-53.02	2.0	0	44.21	AV	54	PASS
	Off	2483.5	-39.51	2.0	0	57.72	PEAK	74	PASS
	Off	2483.5	-48.49	2.0	0	48.74	AV	54	PASS
	Off	2500.0	-42.84	2.0	0	54.39	PEAK	74	PASS
	Off	2500.0	-52.39	2.0	0	44.84	AV	54	PASS

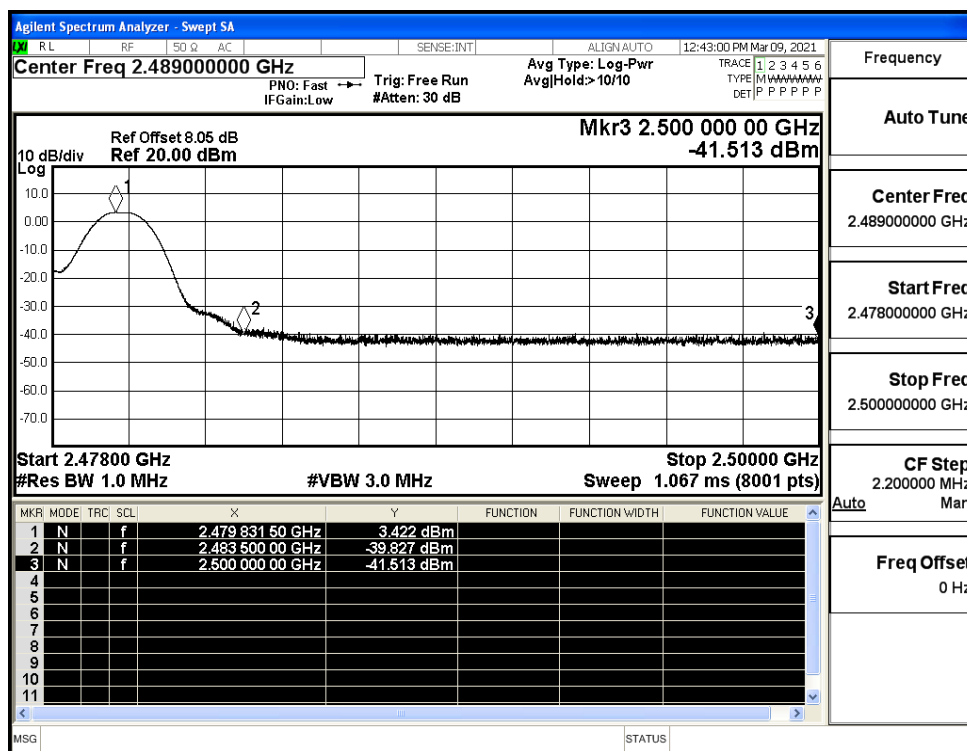
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



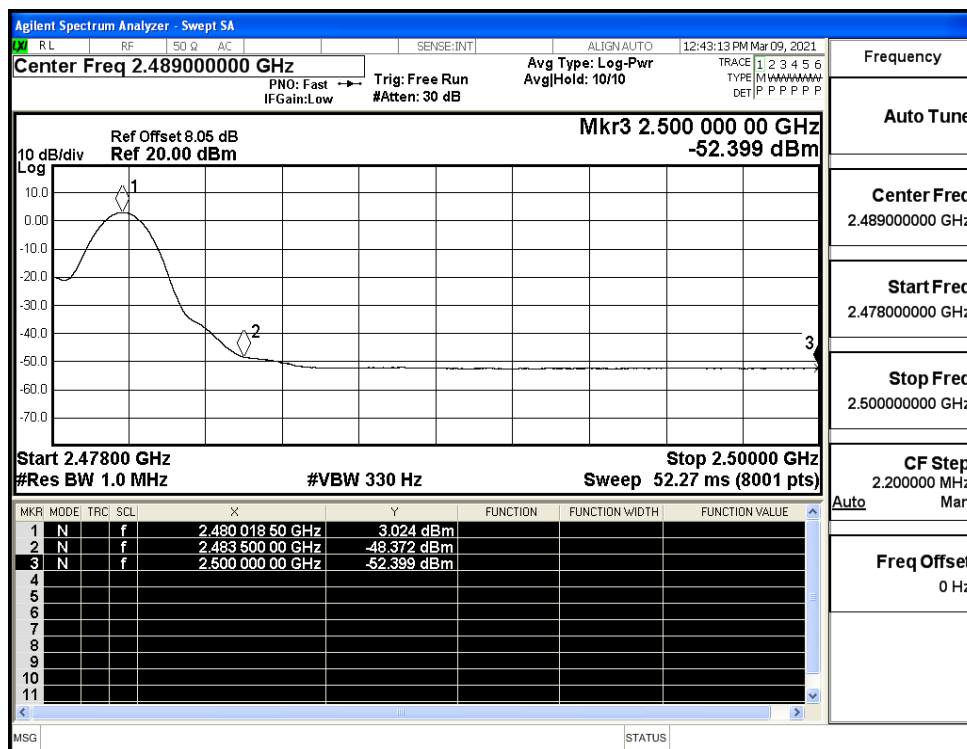
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

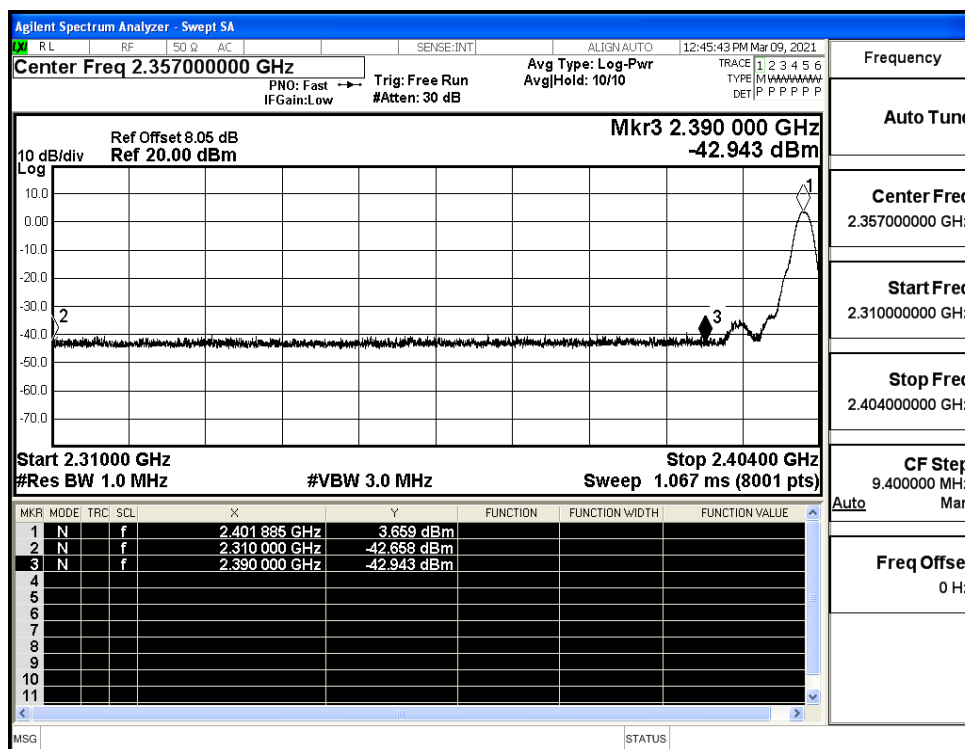
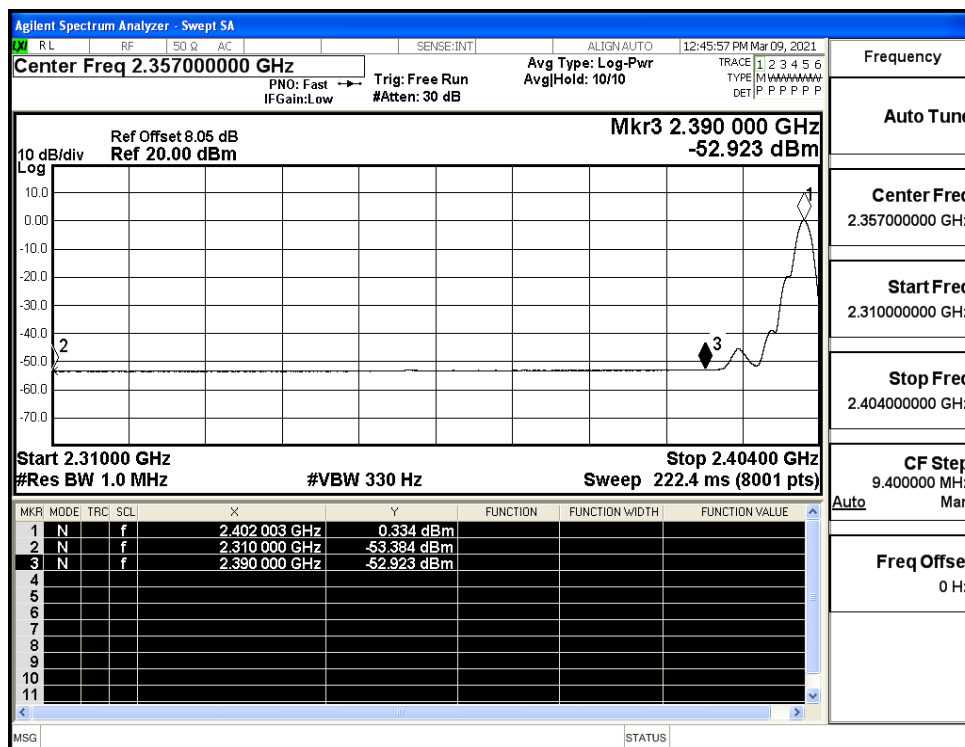


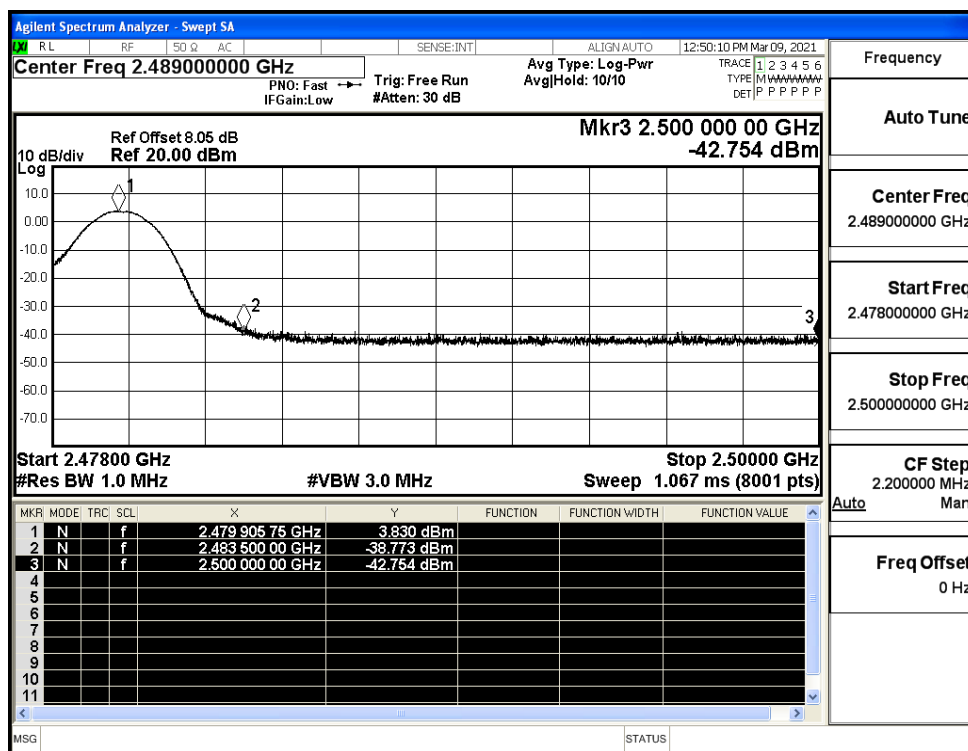
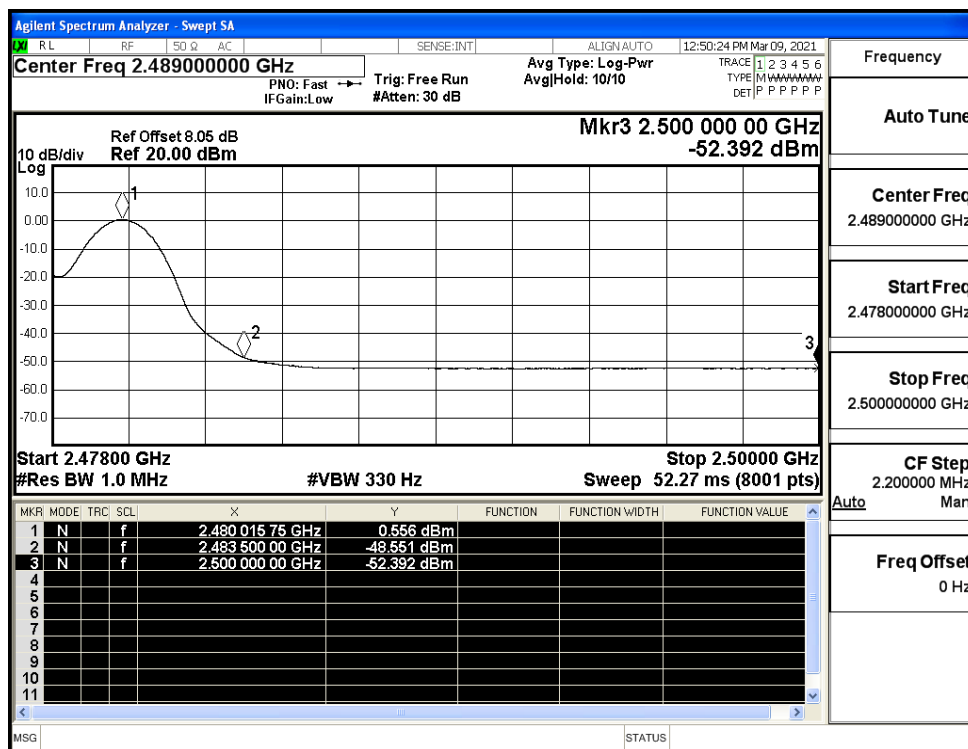
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



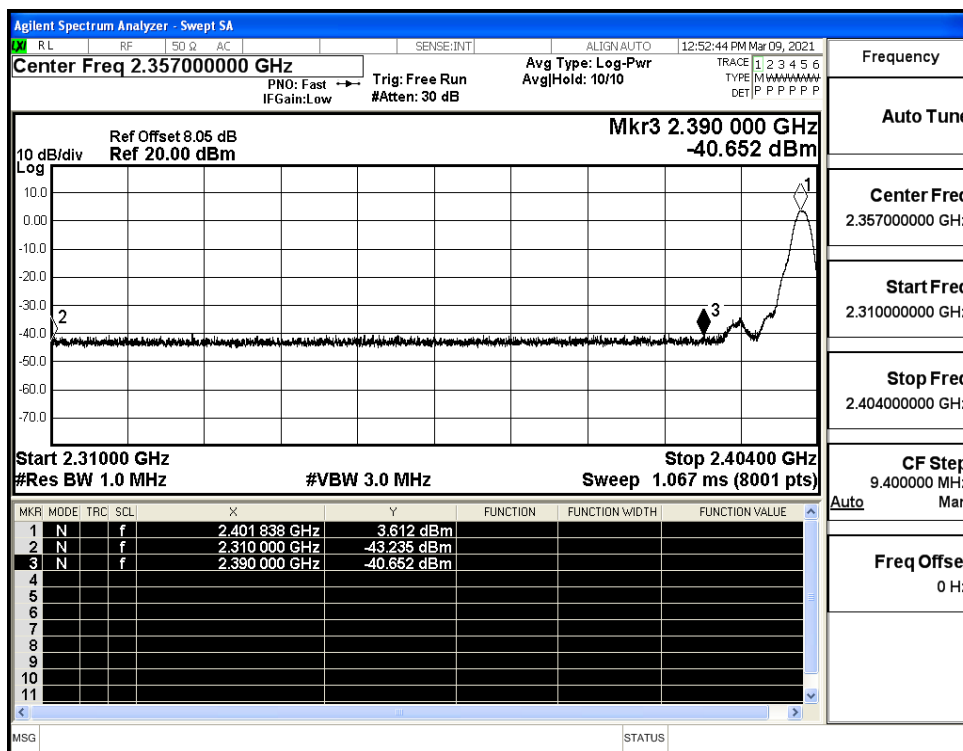
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



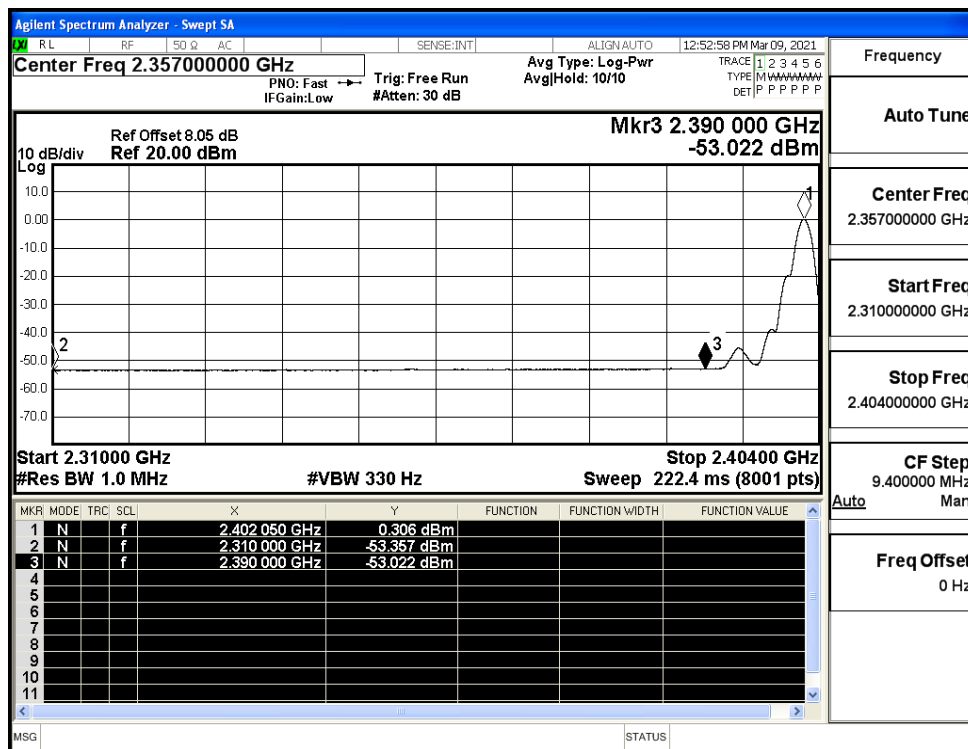
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

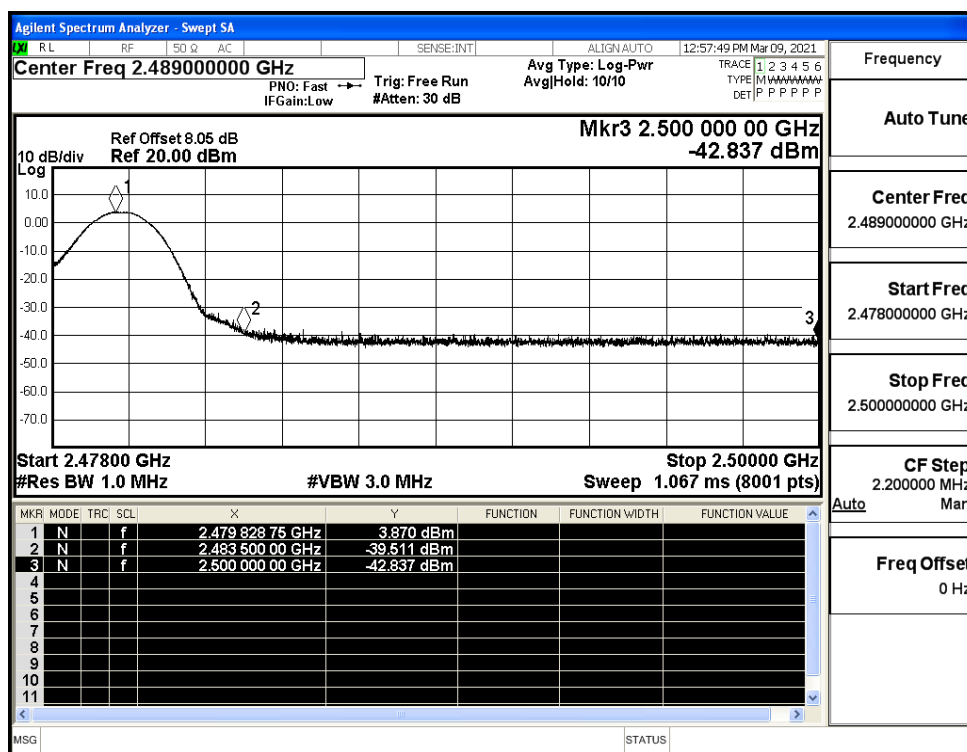
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

