

Appendix A

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

Product Name: Powerbar

Trade Mark: Kicker

Test Model: KPB2

Environmental Conditions

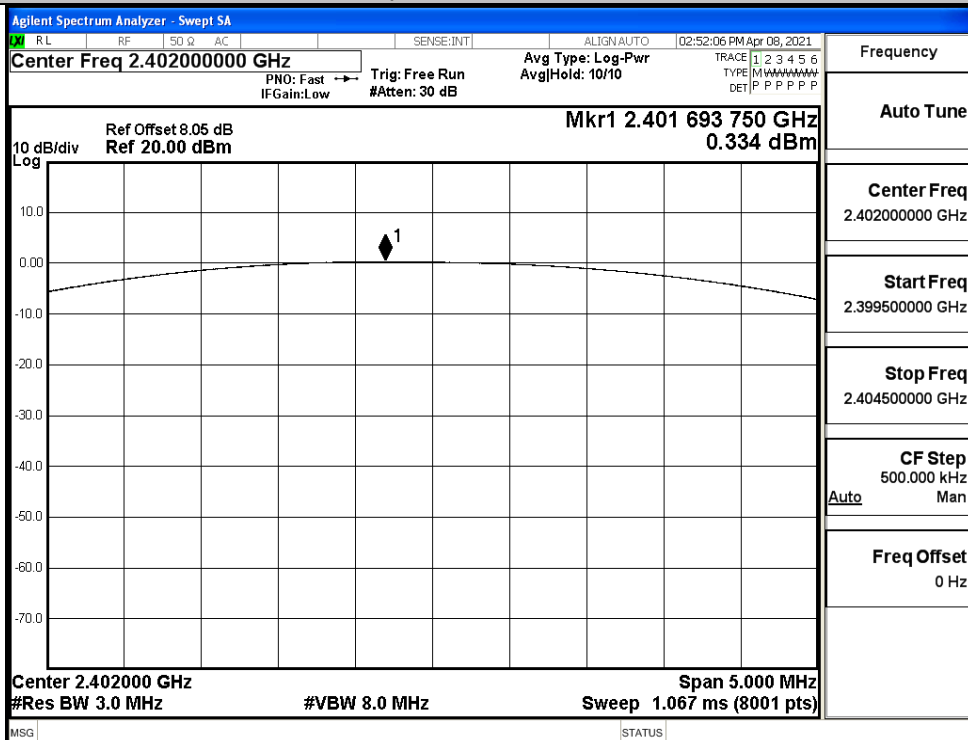
Temperature:	24.9°C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

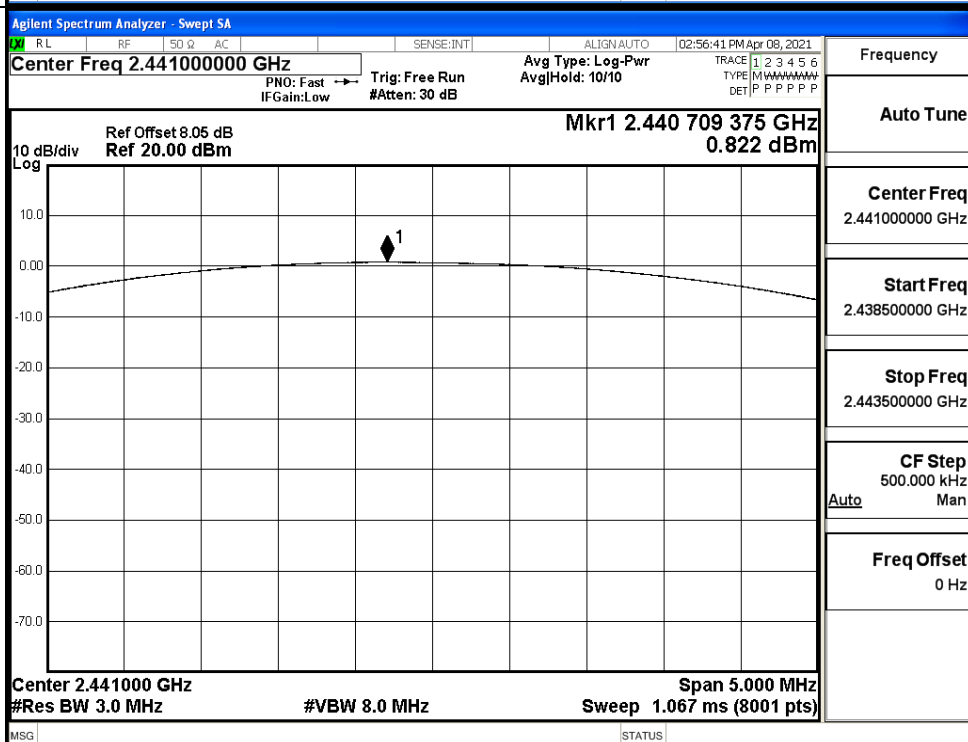
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.334	21	PASS
	MCH	0.822	21	PASS
	HCH	0.572	21	PASS
$\pi/4$ DQPSK	LCH	1.022	21	PASS
	MCH	1.465	21	PASS
	HCH	1.219	21	PASS
8DPSK	LCH	1.020	21	PASS
	MCH	1.488	21	PASS
	HCH	1.192	21	PASS

Test Graphs

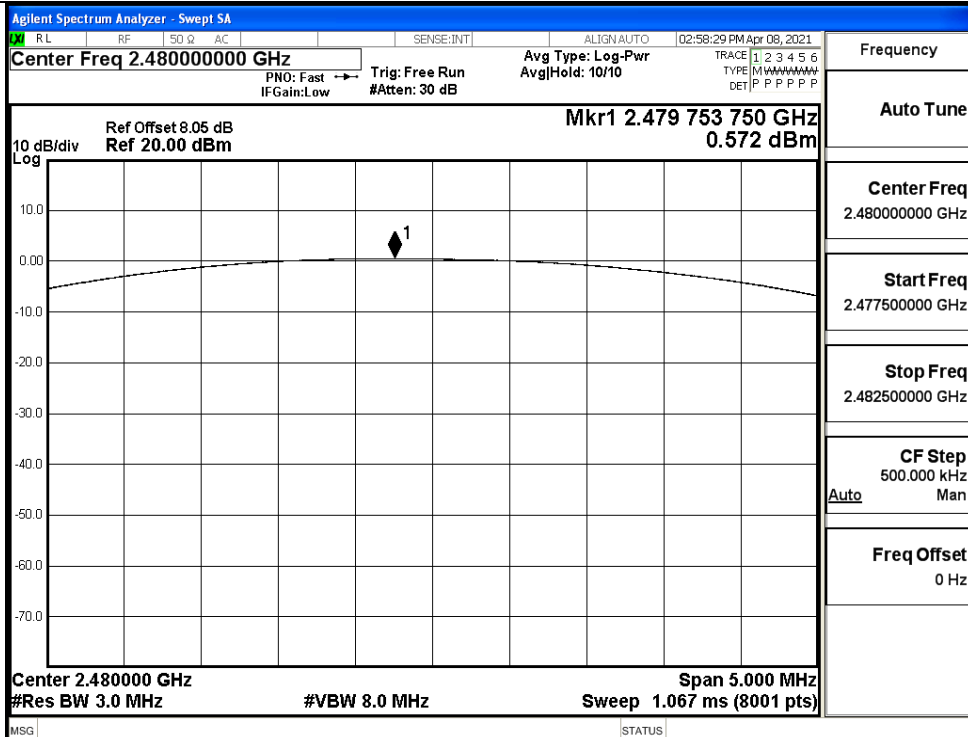
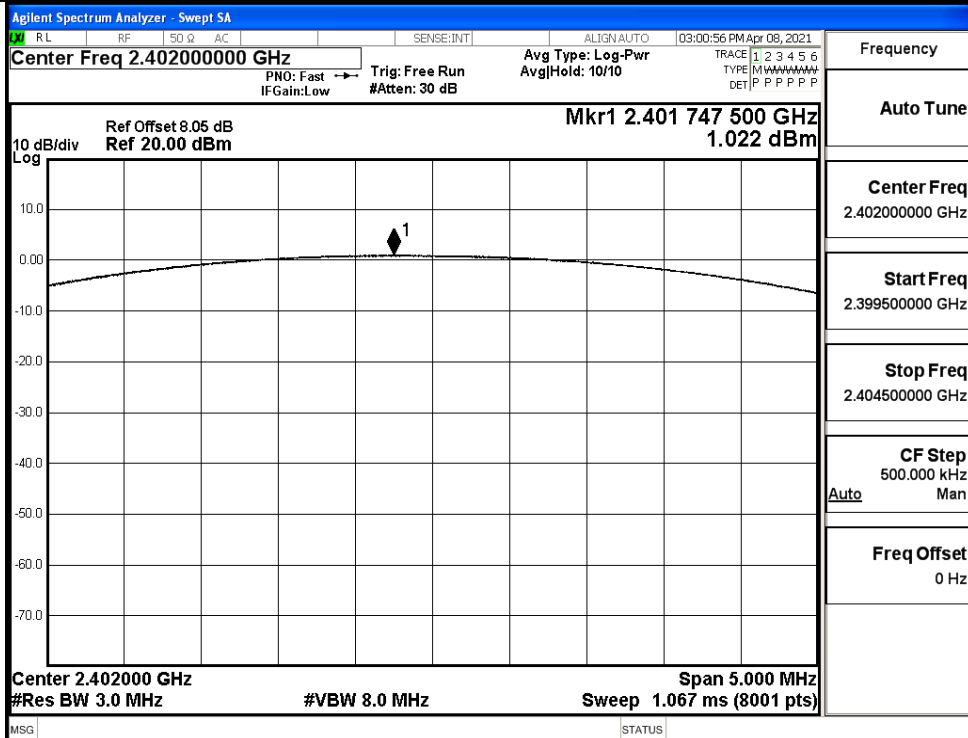
GFSK/LCH

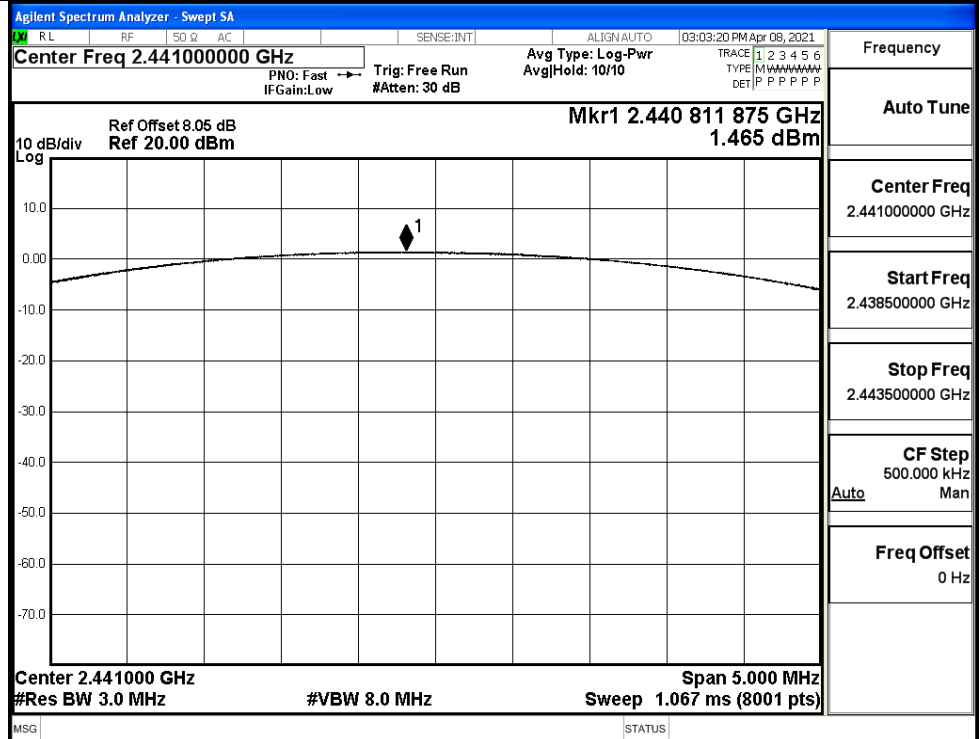
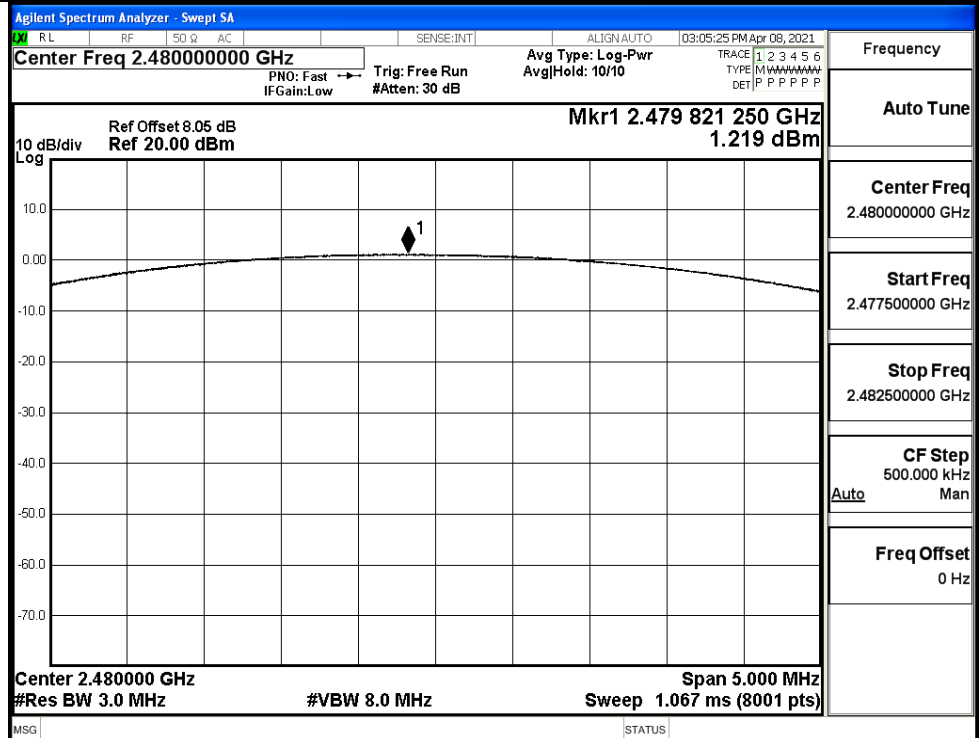


GFSK/MCH

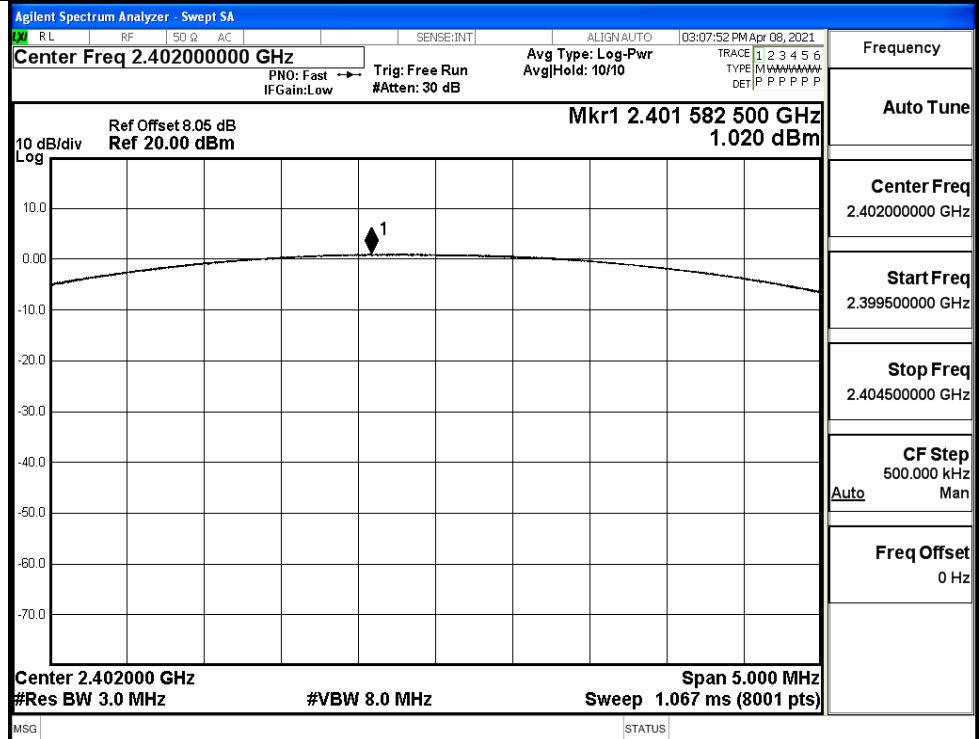


GFSK/HCH

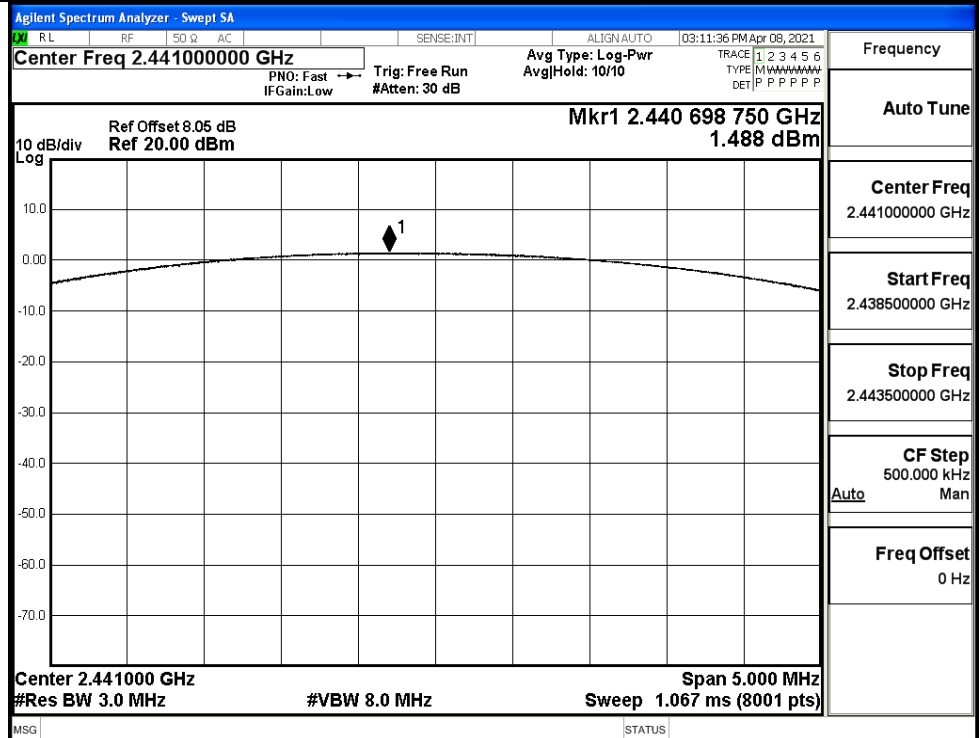
 $\pi/4$ DQPSK/LCH

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

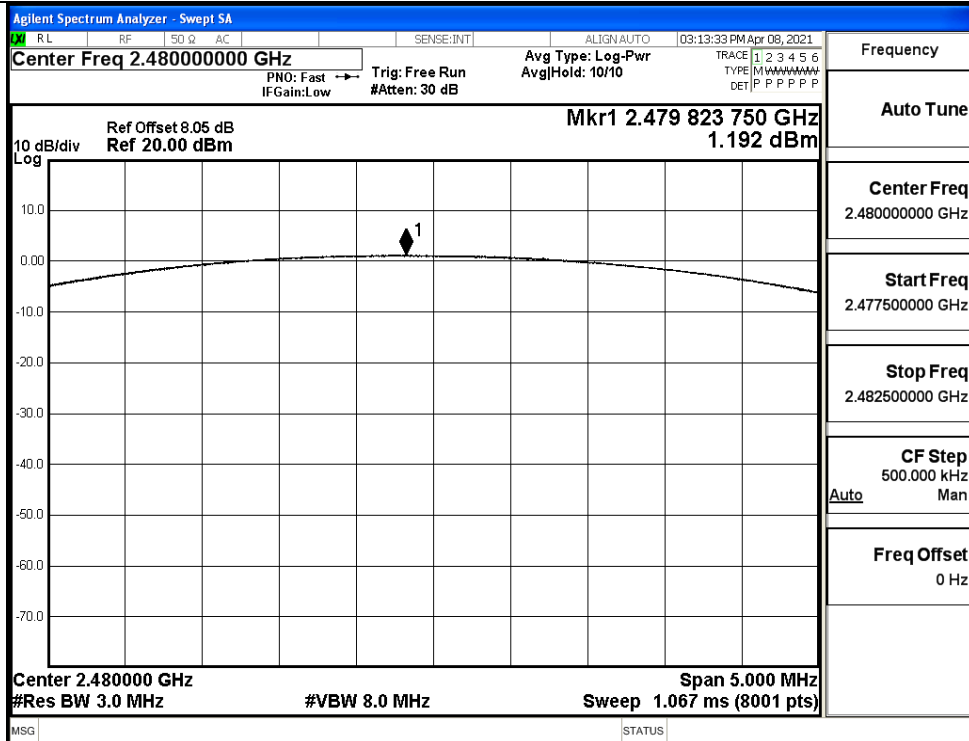
8DPSK/LCH



8DPSK/MCH



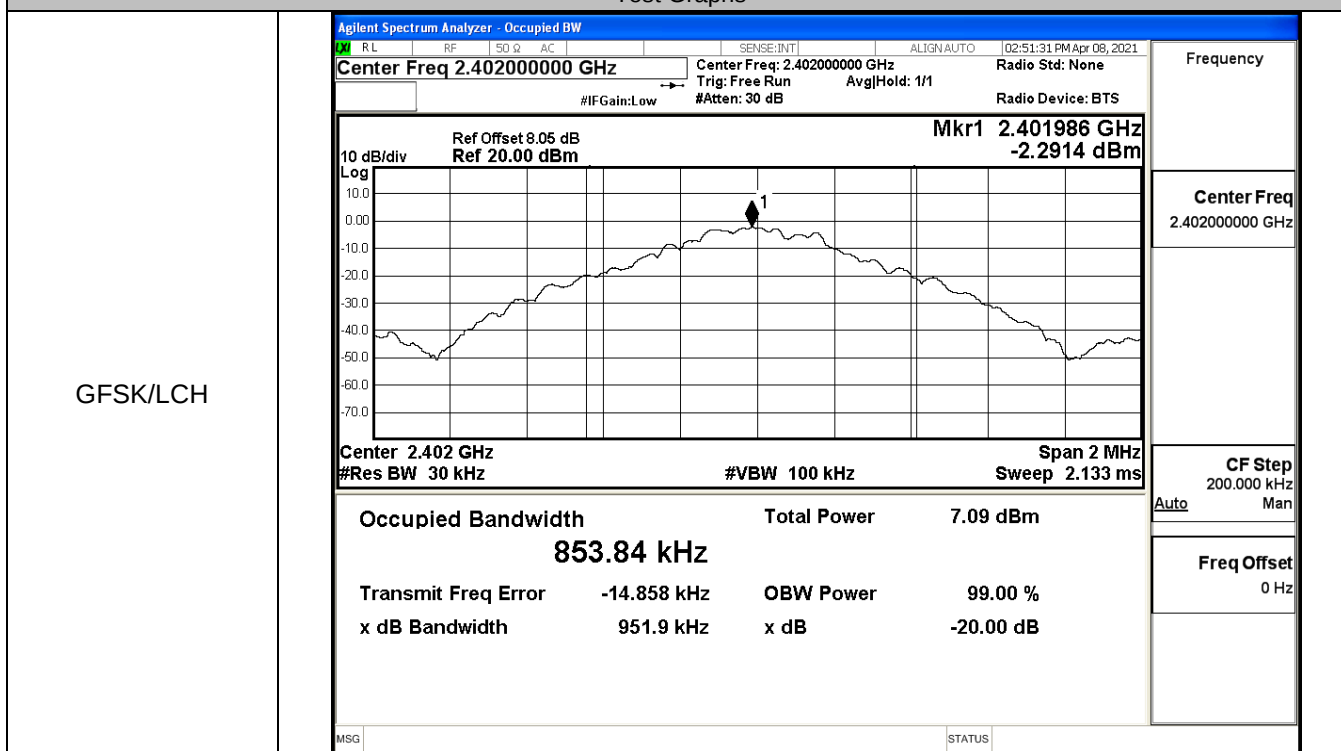
8DPSK/HCH



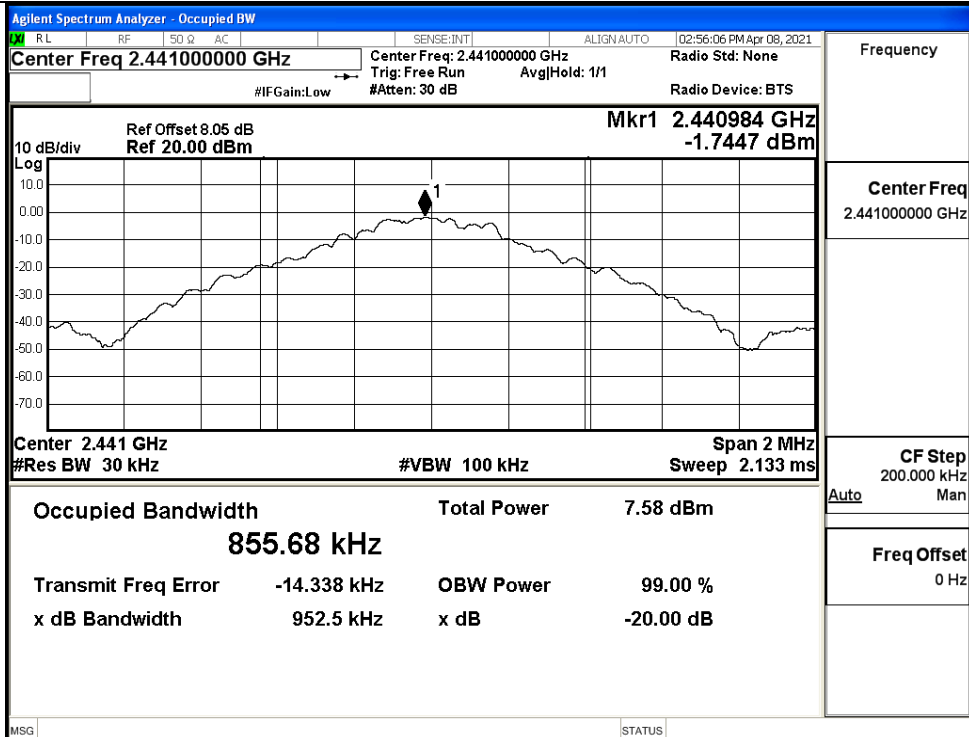
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9519	Not Specified	PASS
	MCH	0.9525	Not Specified	PASS
	HCH	0.9542	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.311	Not Specified	PASS
	MCH	1.315	Not Specified	PASS
	HCH	1.312	Not Specified	PASS
8DPSK	LCH	1.312	Not Specified	PASS
	MCH	1.313	Not Specified	PASS
	HCH	1.313	Not Specified	PASS

Test Graphs



GFSK/MCH



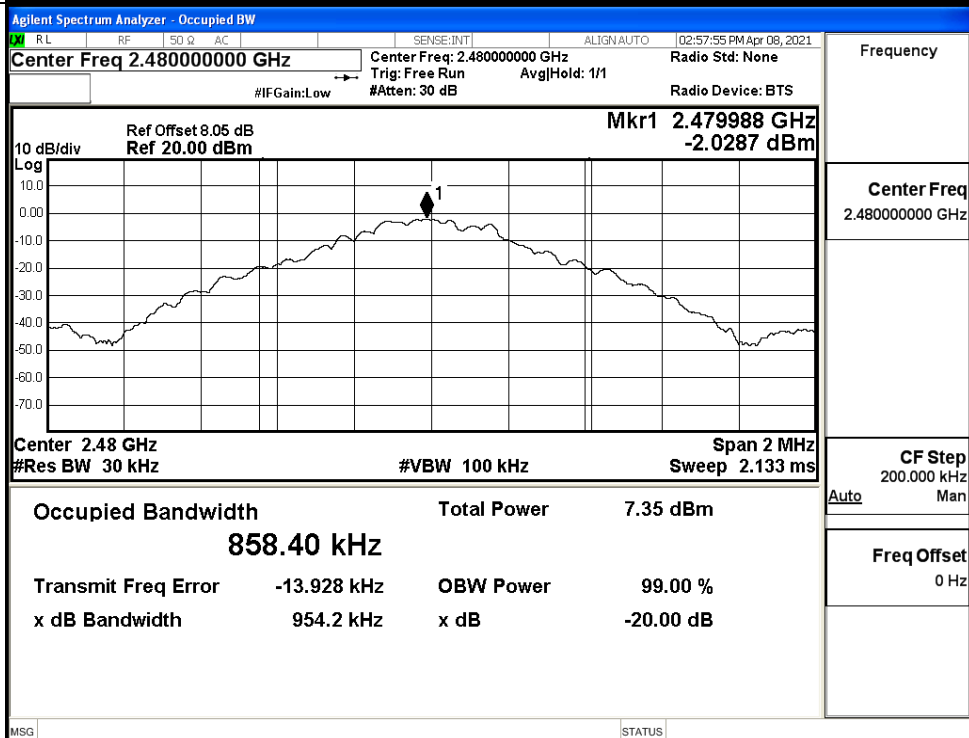
Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

GFSK/HCH

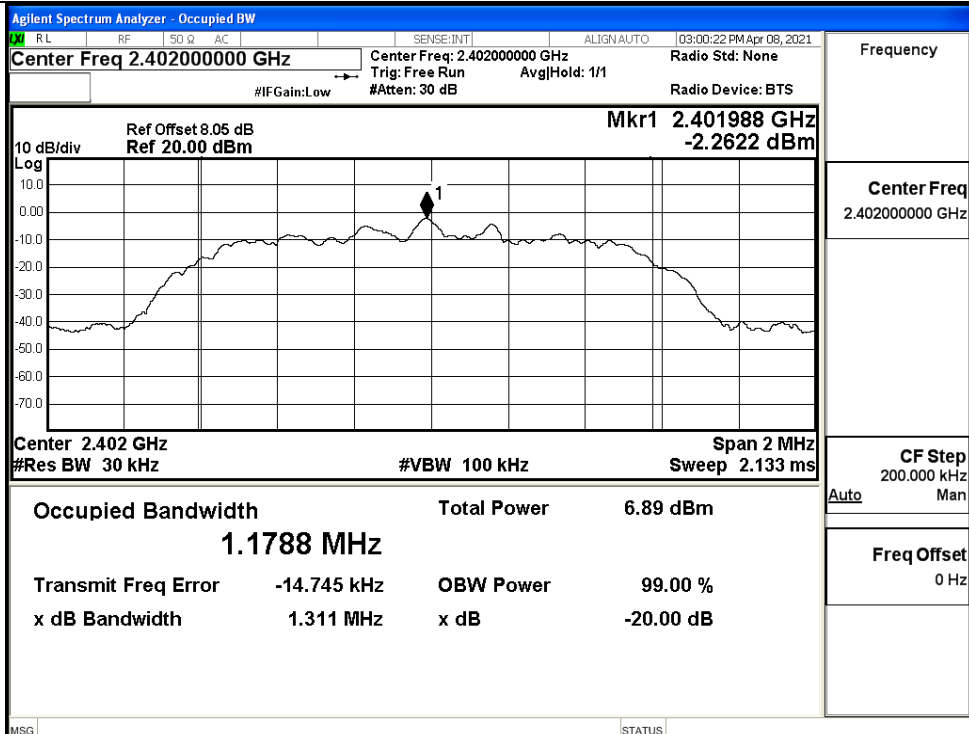
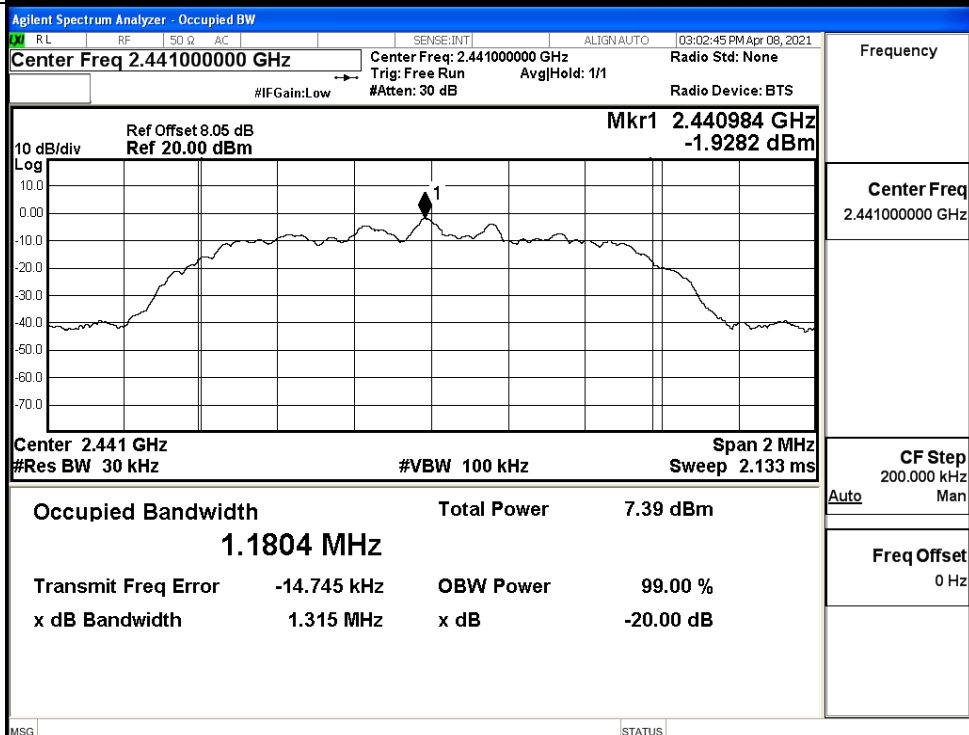


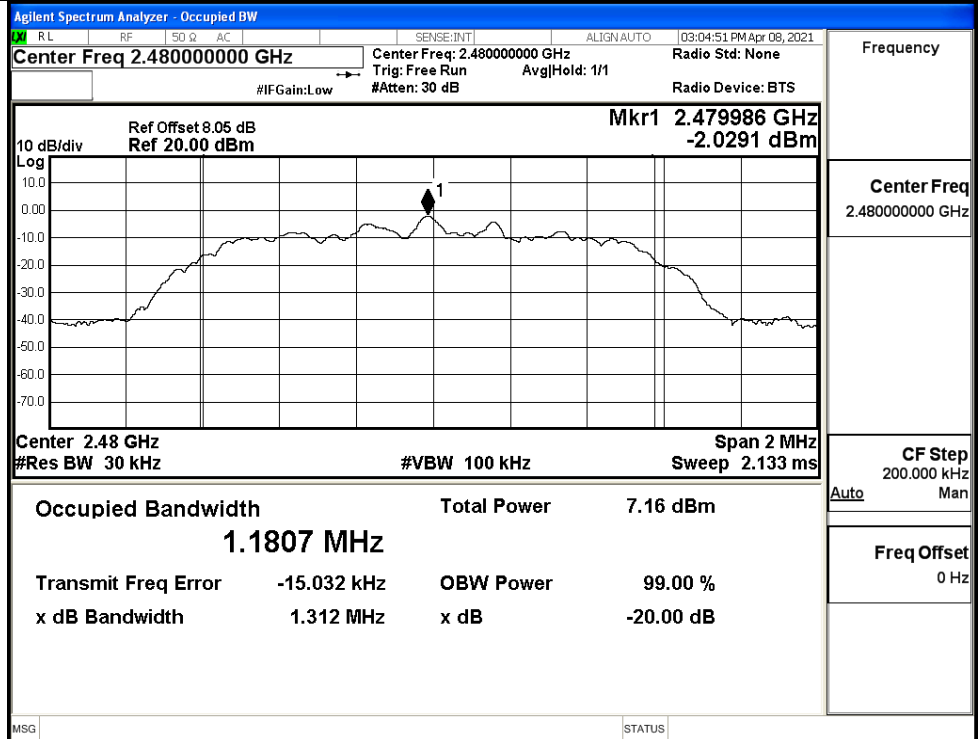
Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
Man

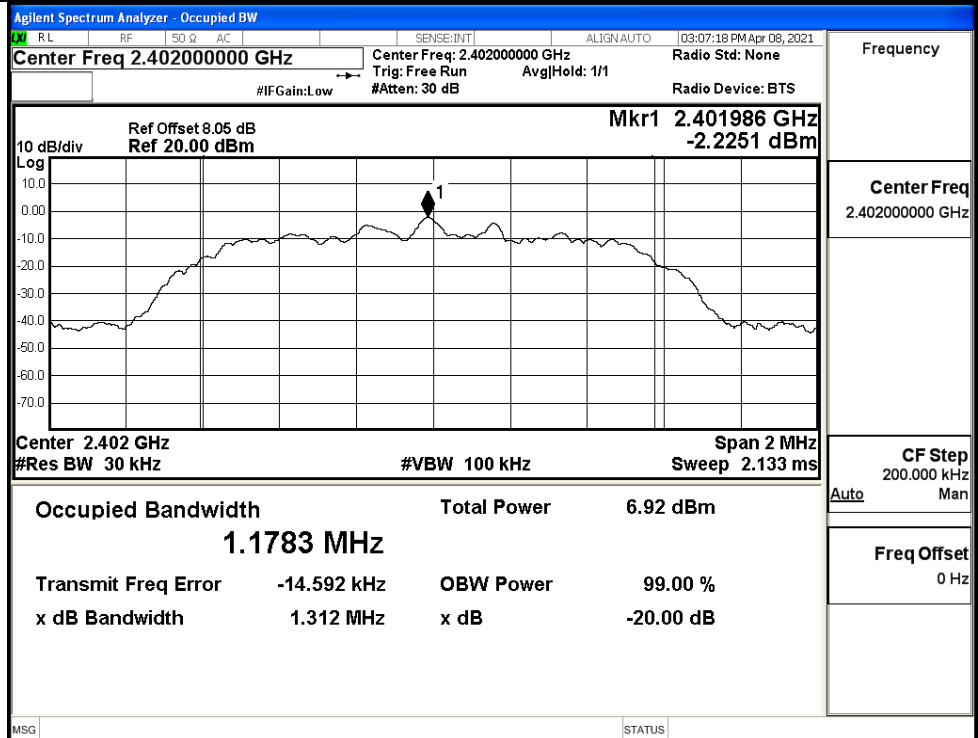
Auto

Freq Offset
0 Hz

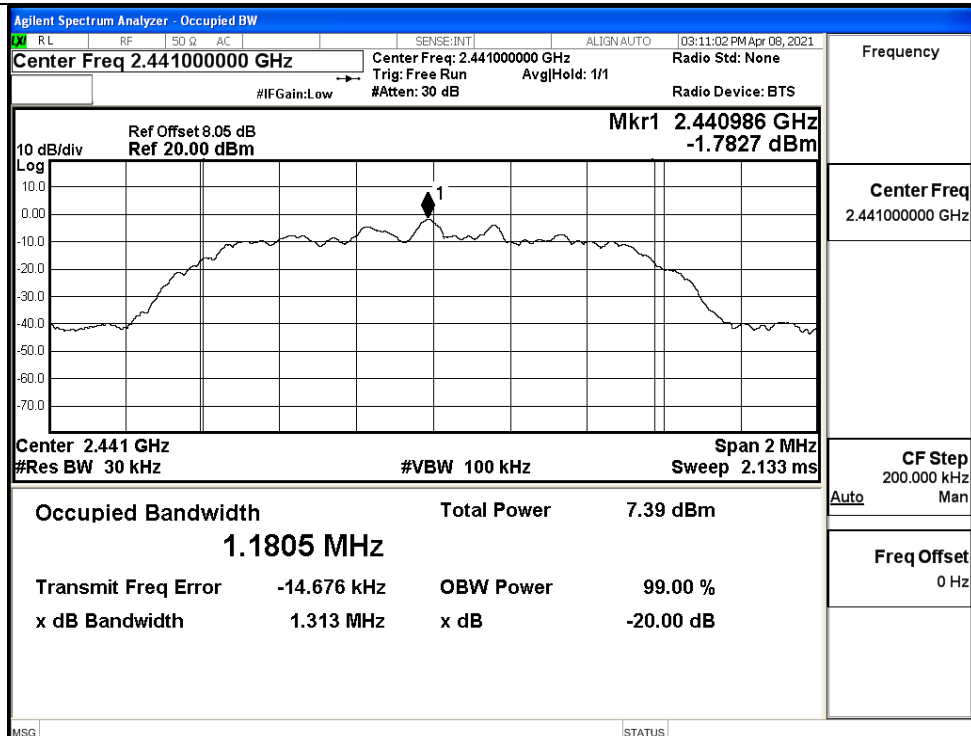
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

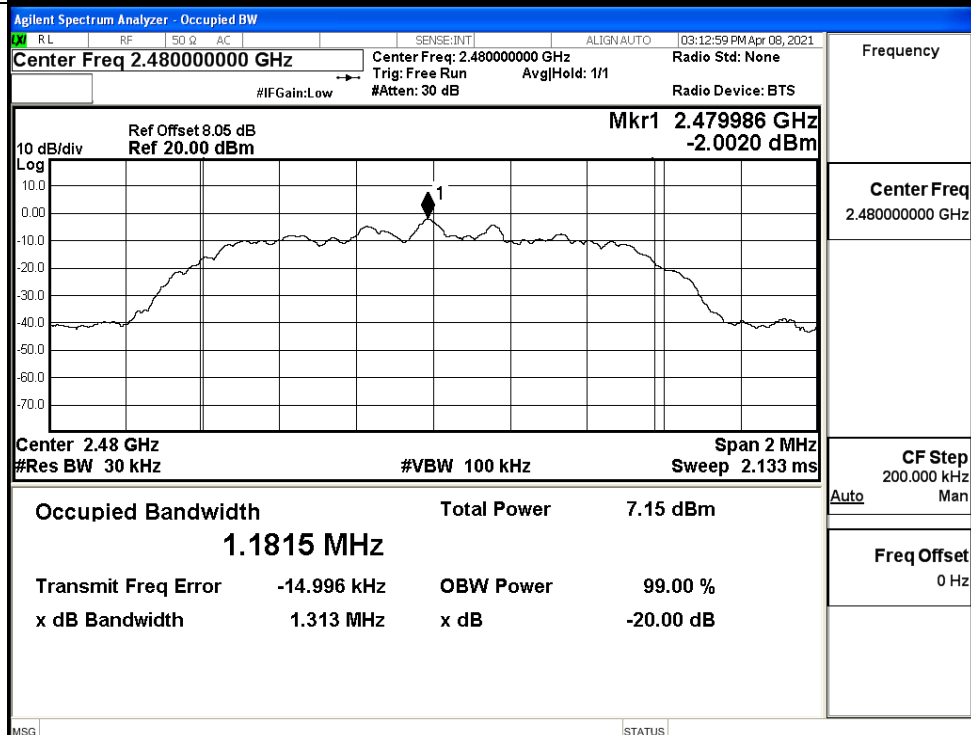
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

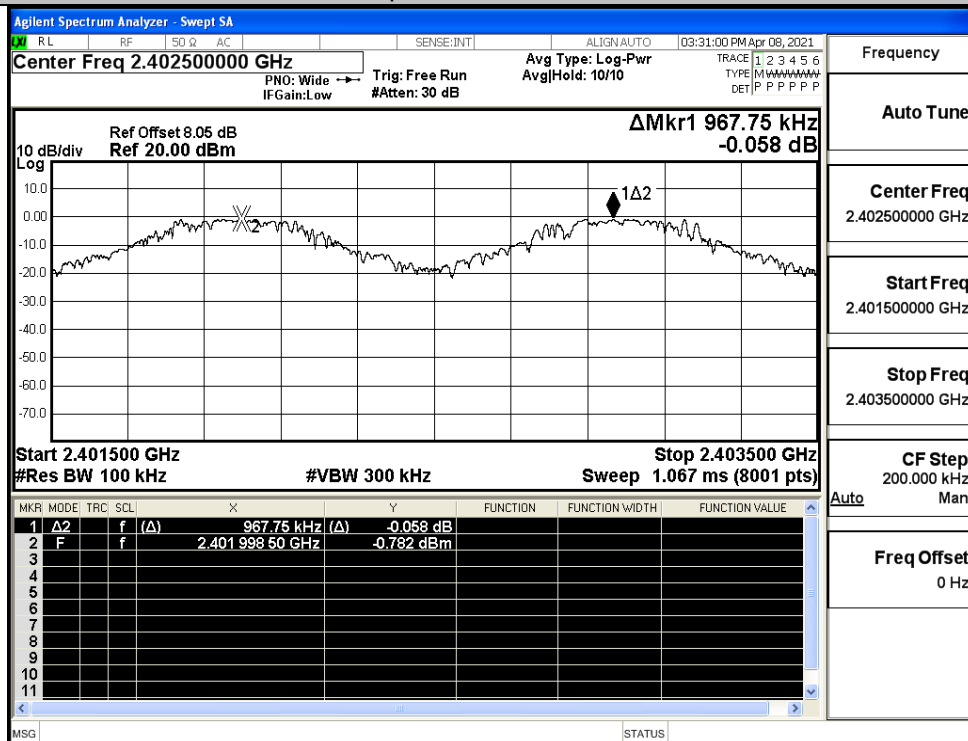


A.4 Carrier Frequency Separation

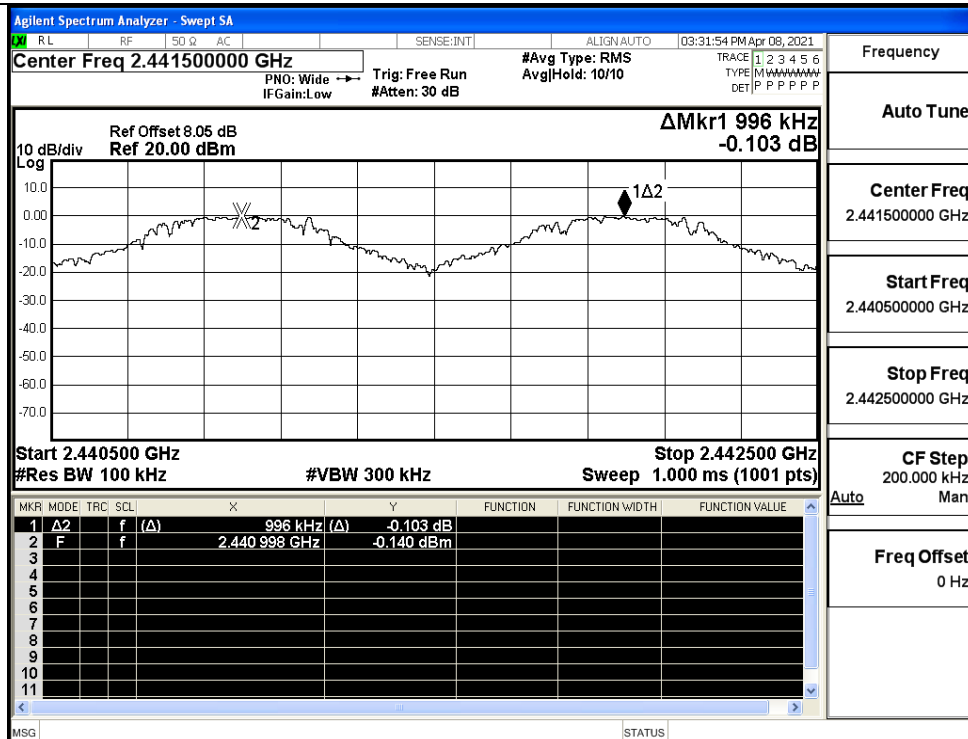
Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.968	0.636	PASS
	MCH	0.996	0.636	PASS
	HCH	0.994	0.636	PASS
$\pi/4$ DQPSK	LCH	1.020	0.877	PASS
	MCH	0.942	0.877	PASS
	HCH	0.986	0.877	PASS
8DPSK	LCH	1.178	0.875	PASS
	MCH	0.960	0.875	PASS
	HCH	1.160	0.875	PASS

Test Graphs

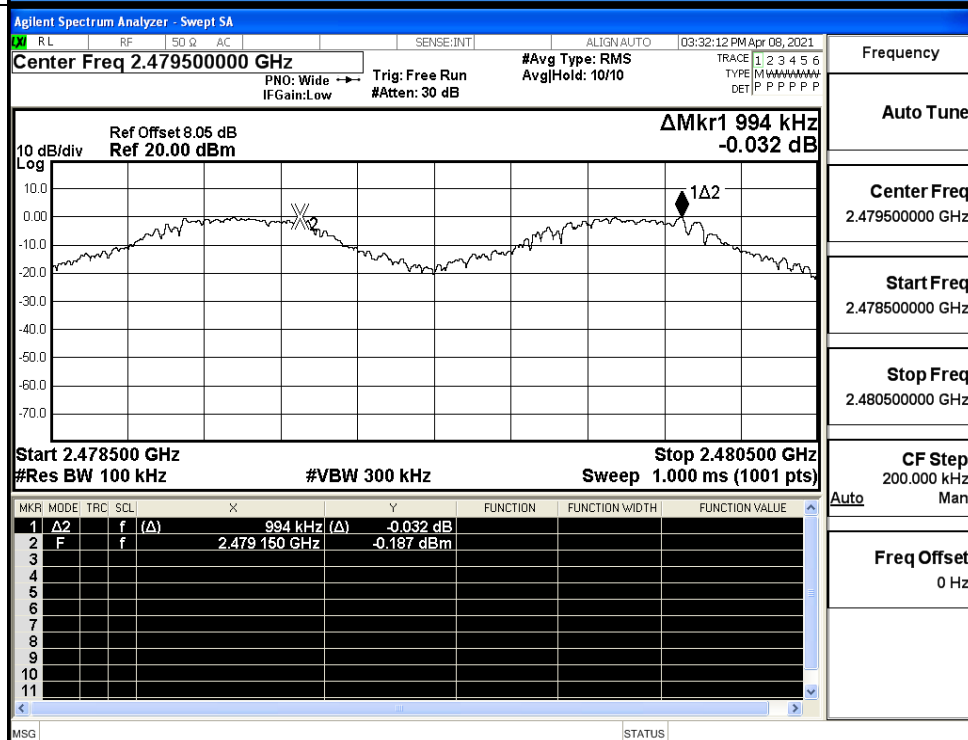
GFSK/LCH

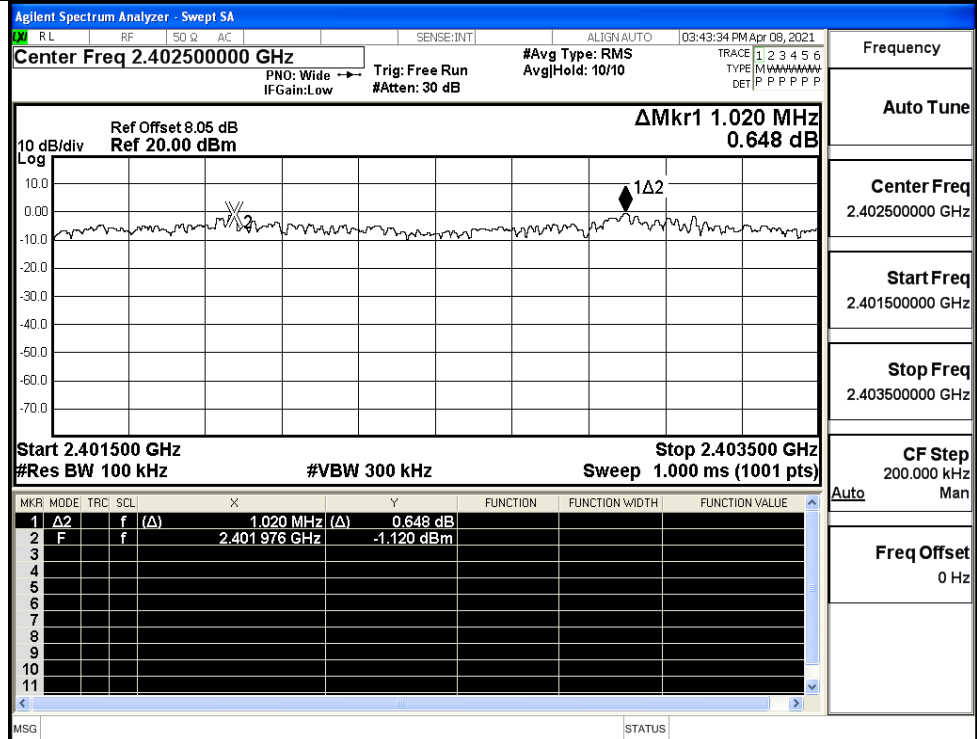
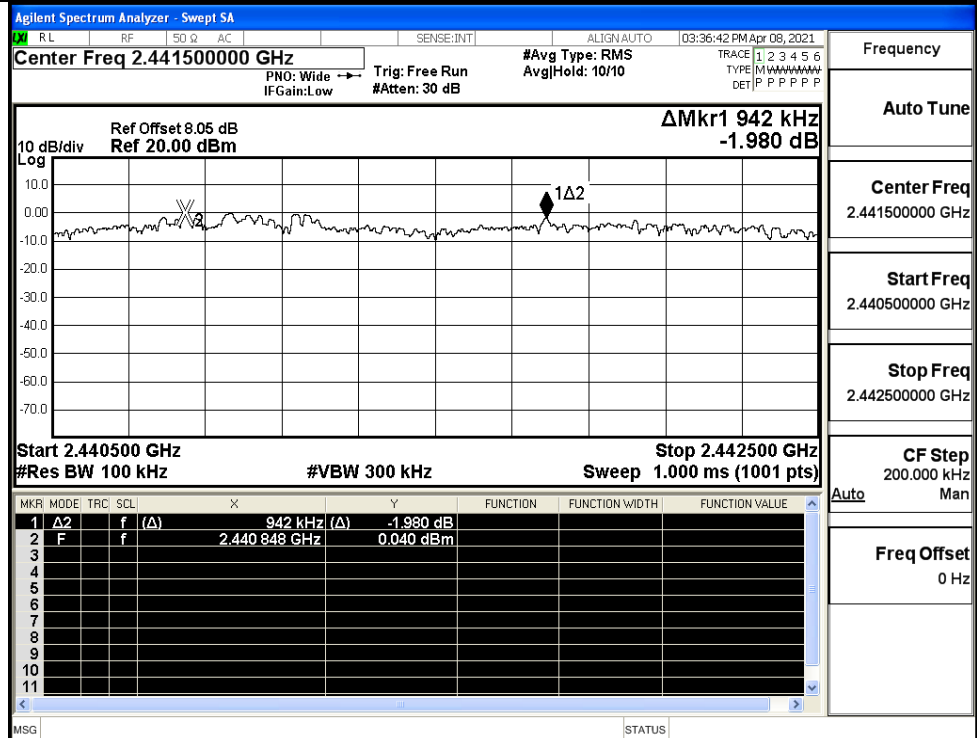


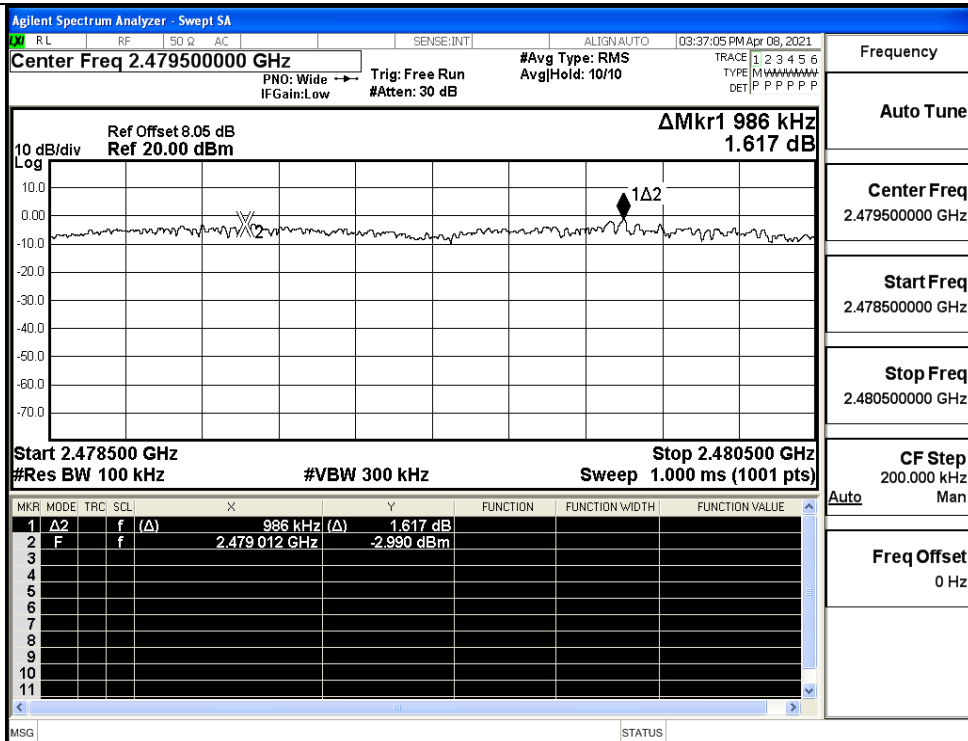
GFSK/MCH



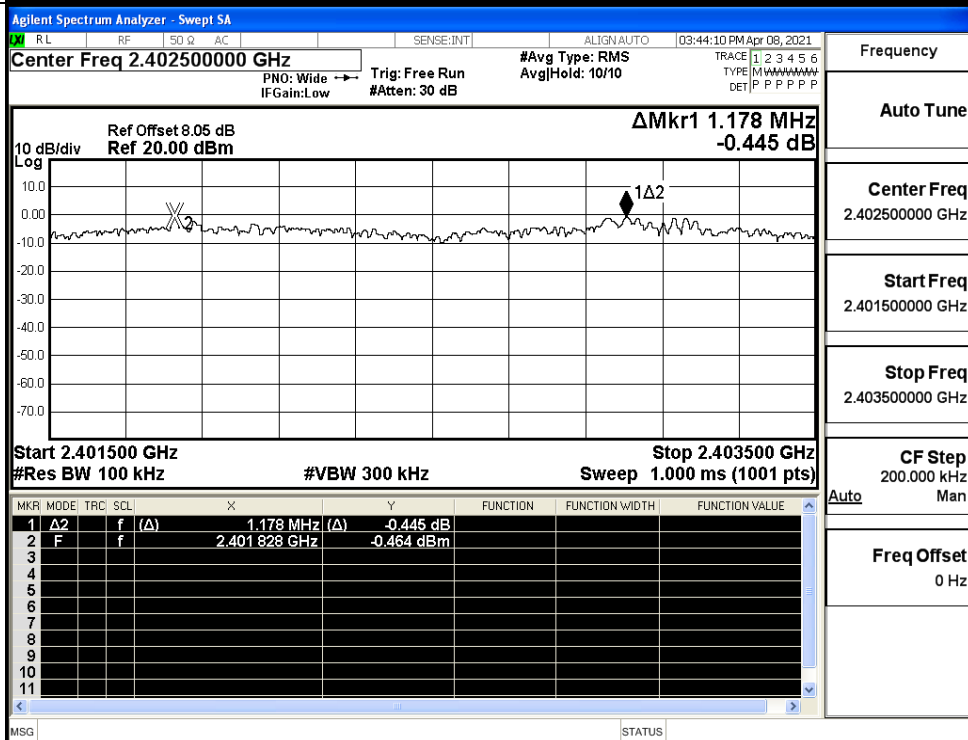
GFSK/HCH



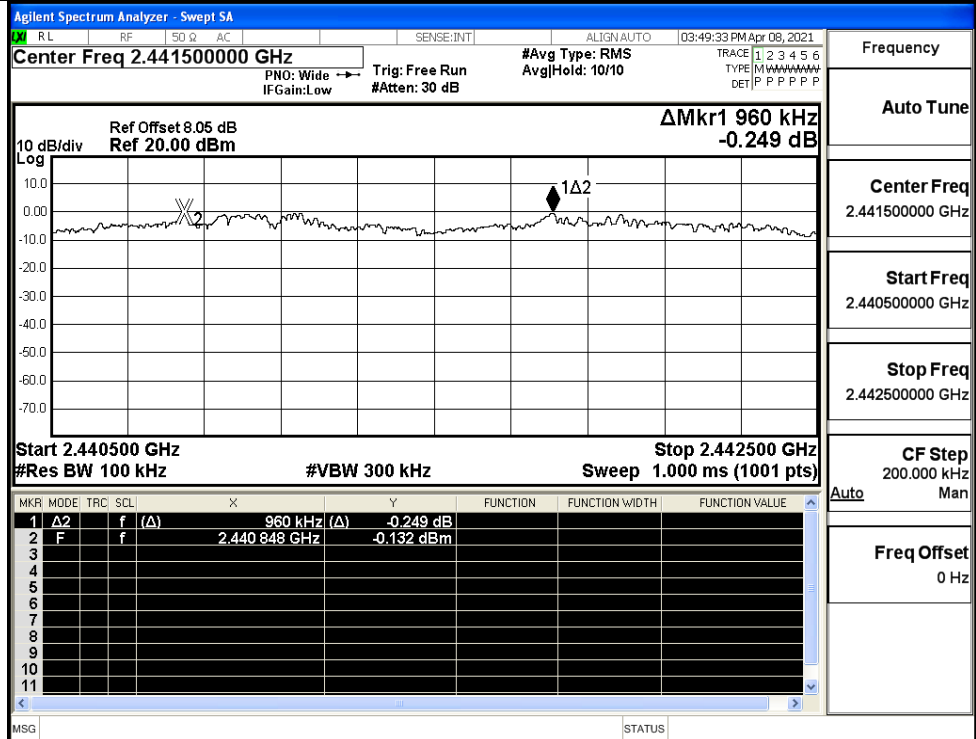
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

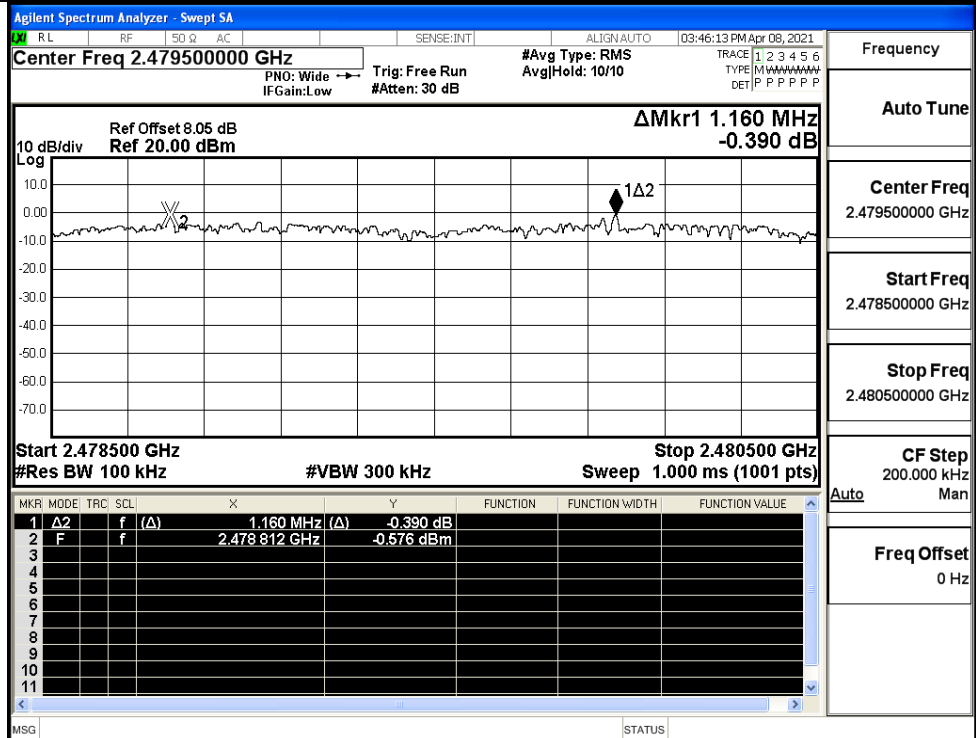
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

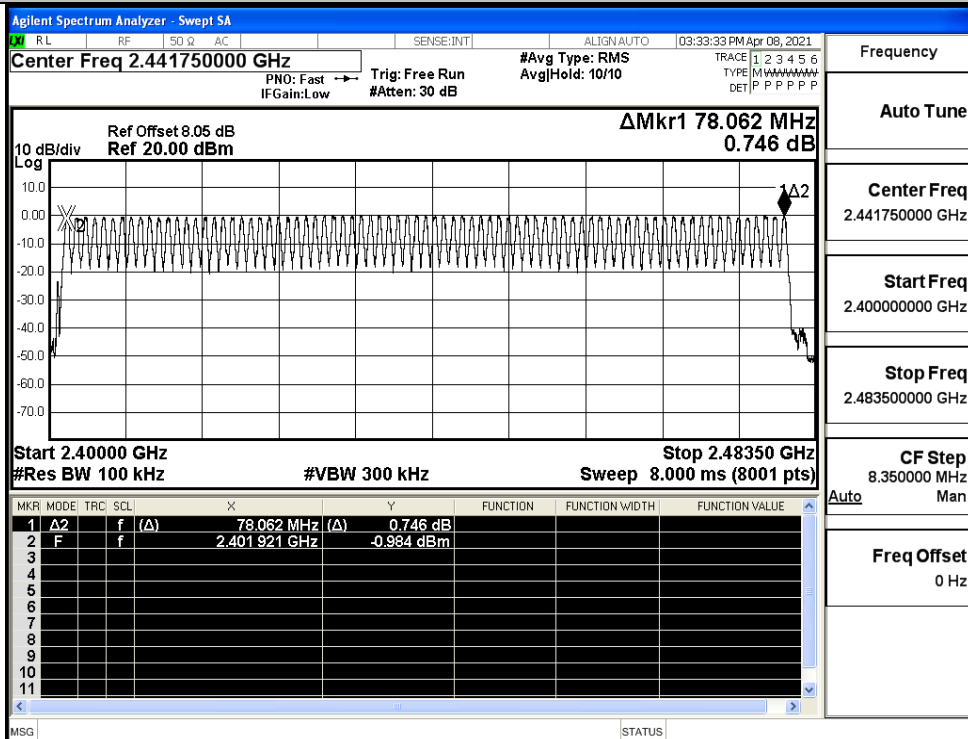
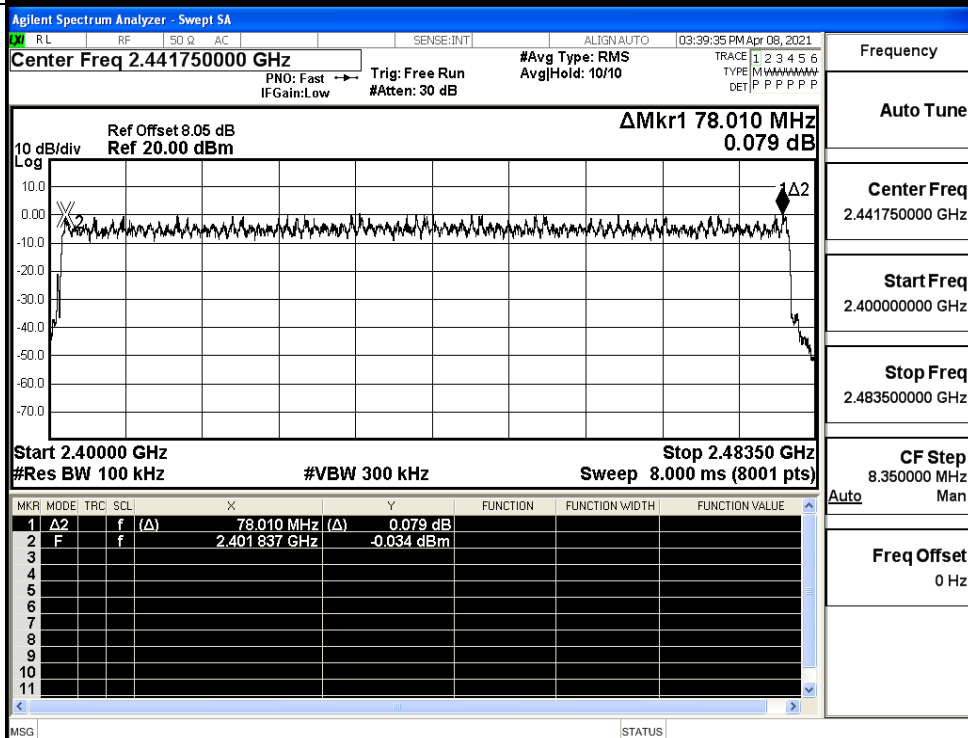


A.5 Hopping Channel Number

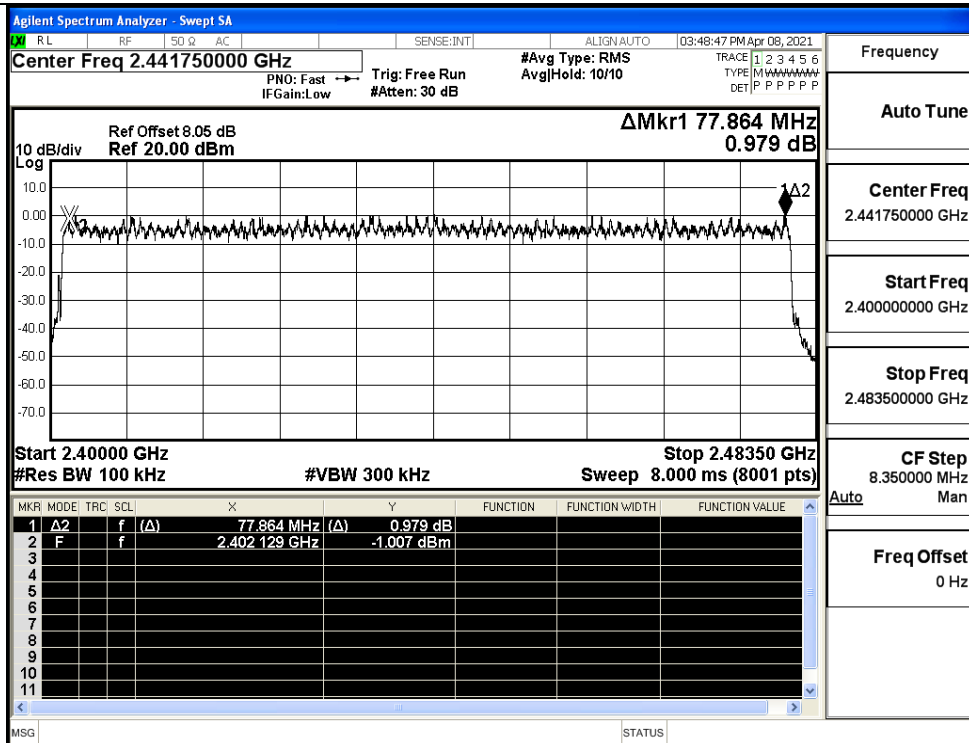
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

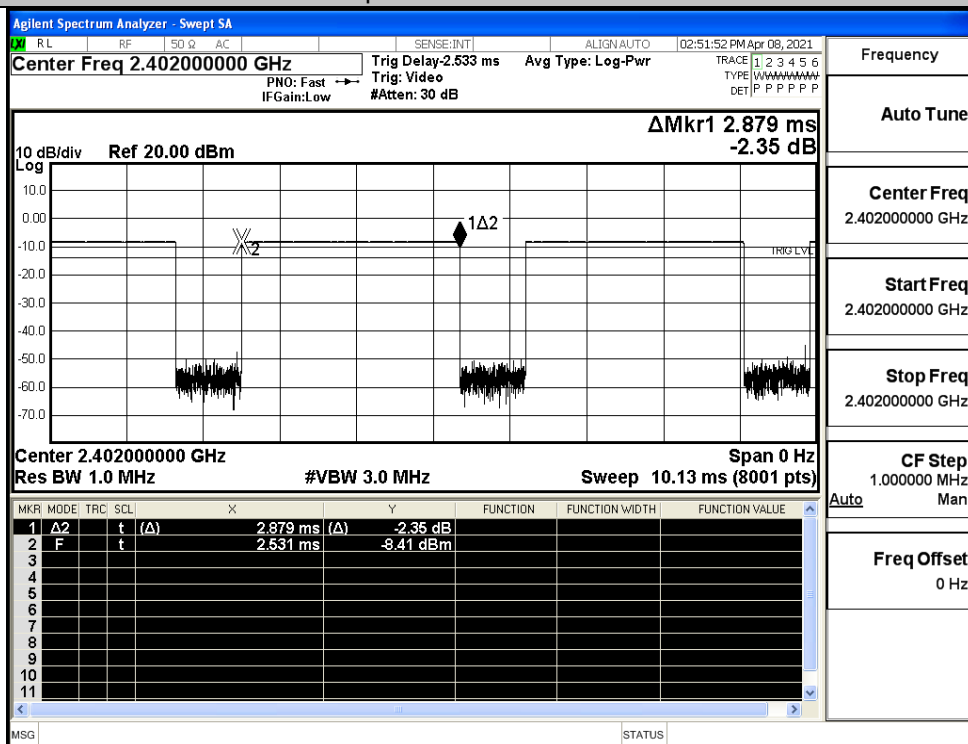


A.6 Dwell Time

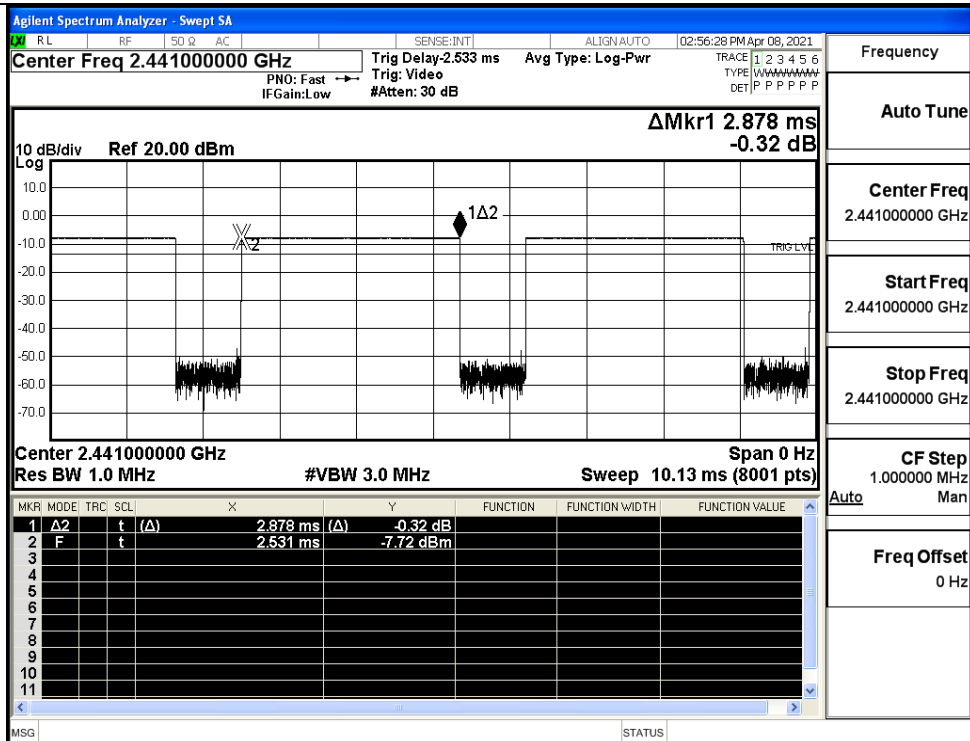
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

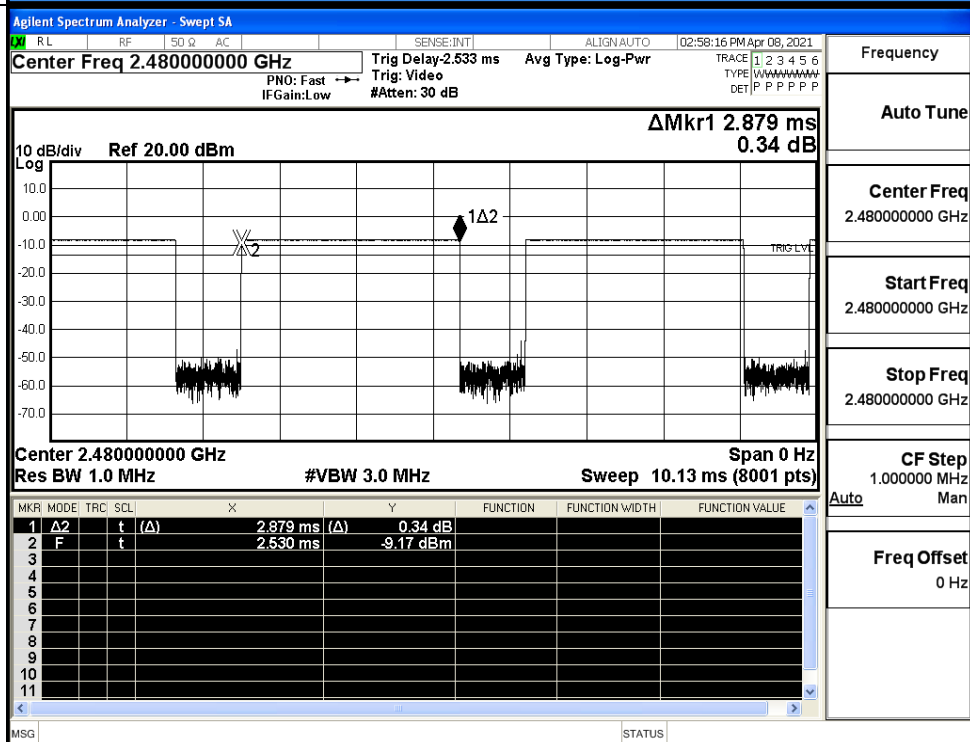
GFSK_DH5/LCH



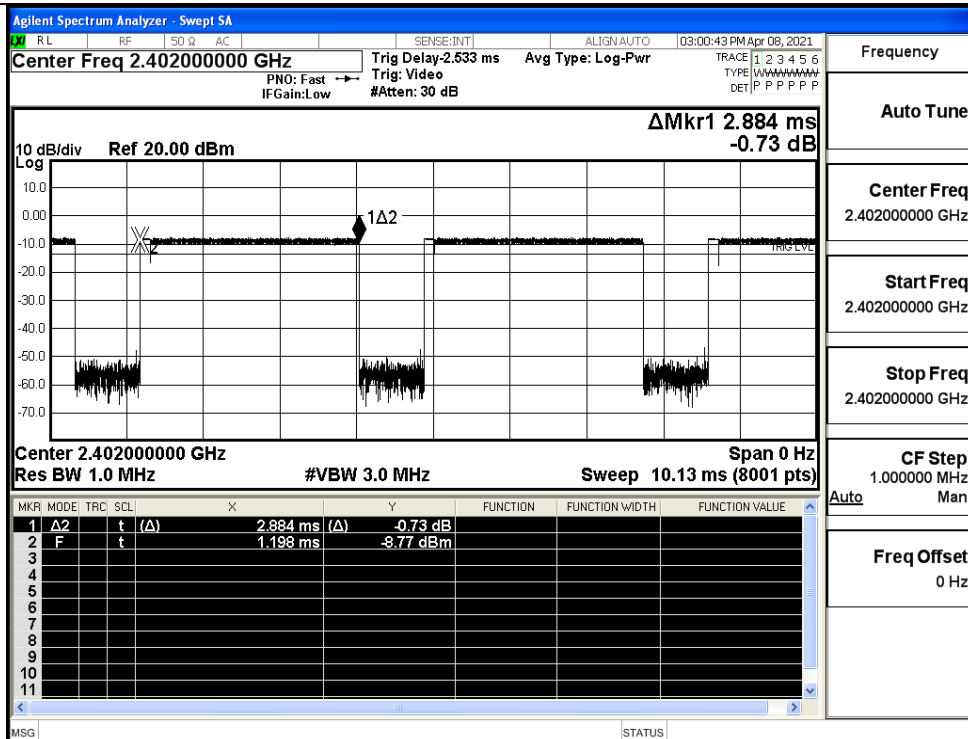
GFSK_DH5/MCH



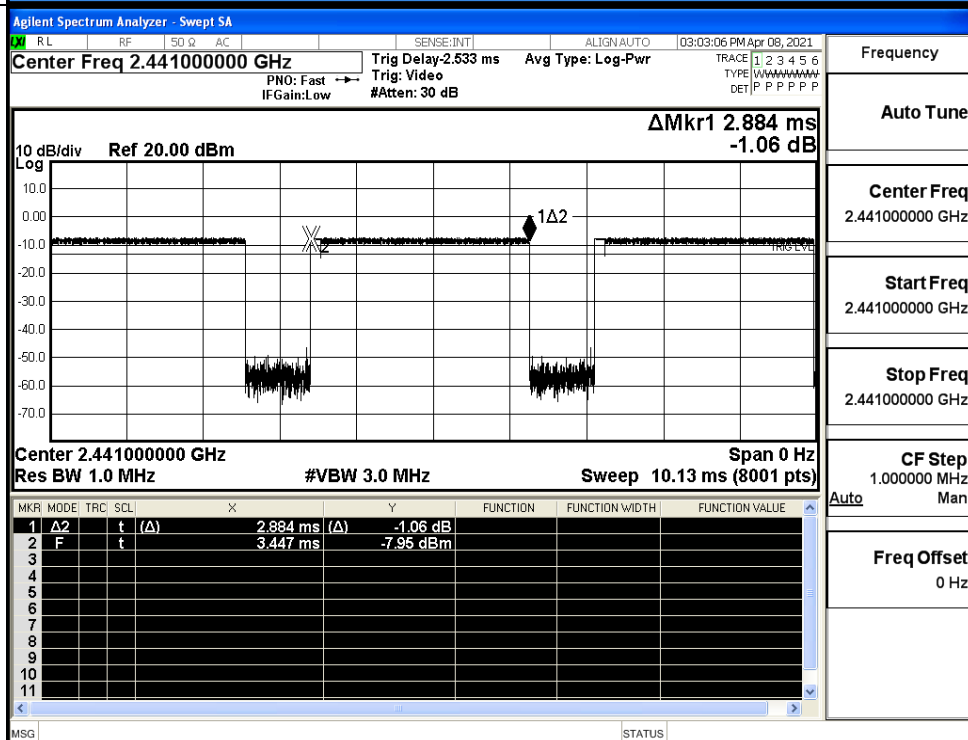
GFSK_DH5/HCH



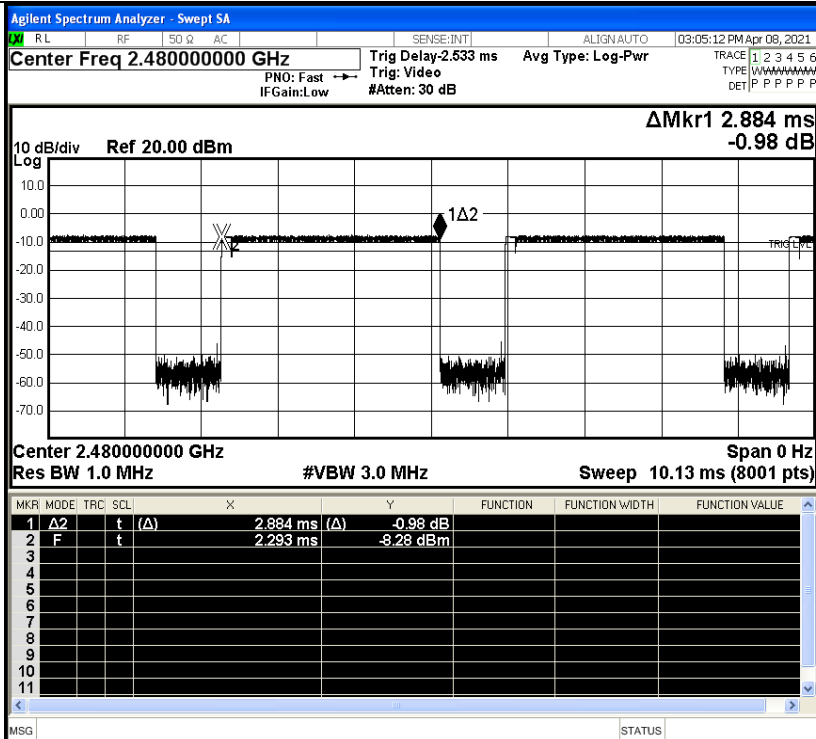
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



$\pi/4$ DQPSK
_2DH5/HCH

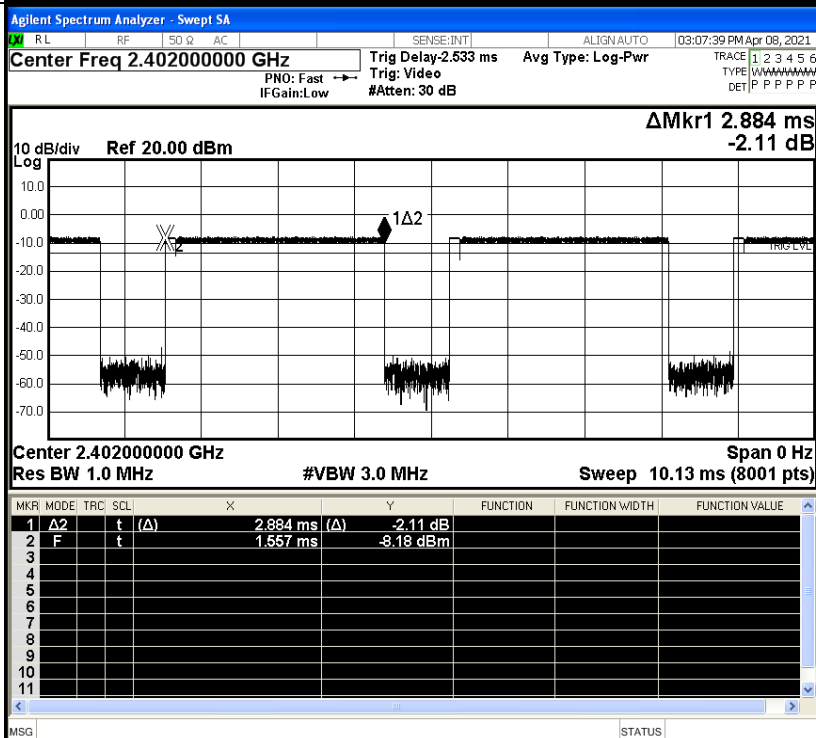


Frequency

Auto Tune

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

8DPSK _3DH5/LCH

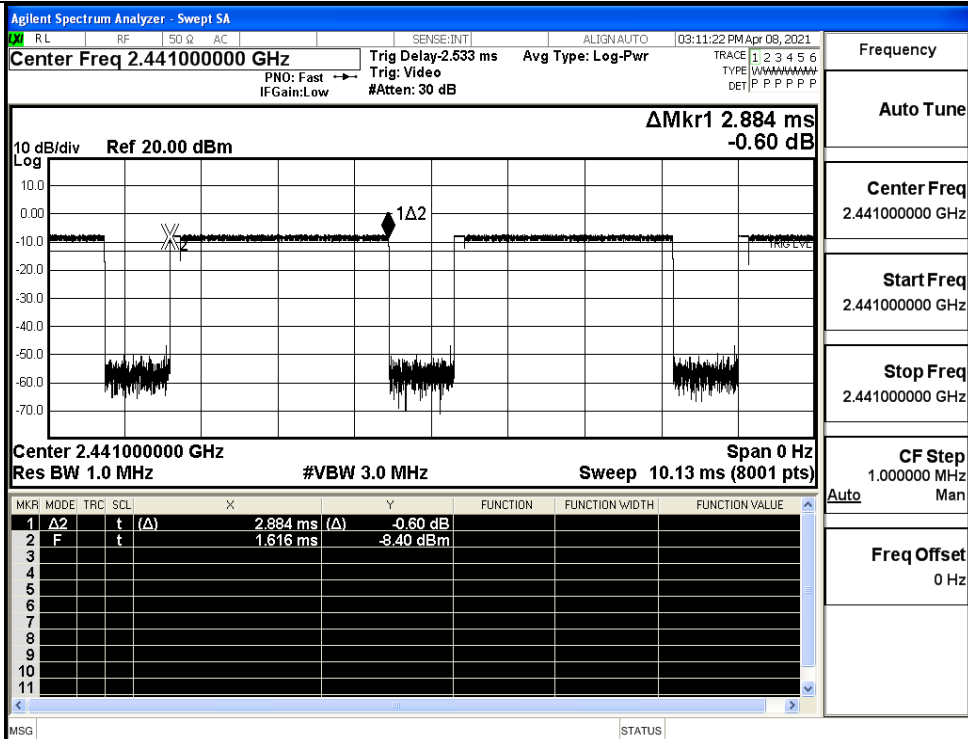


Frequency

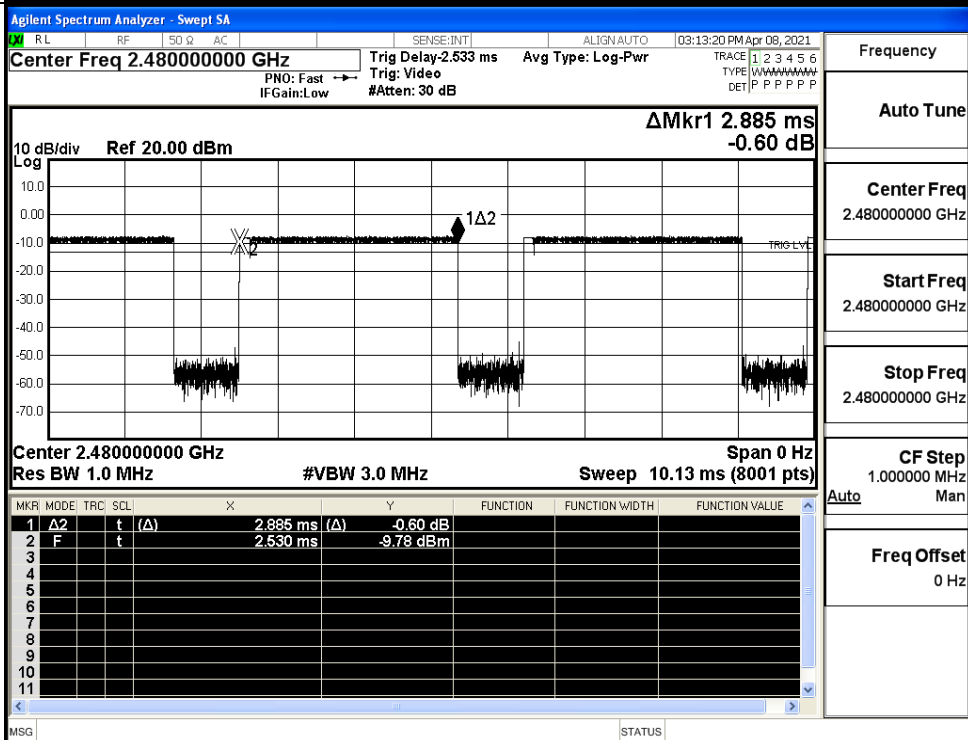
Auto Tune

Center Freq
2.402000000 GHzStart Freq
2.402000000 GHzStop Freq
2.402000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

8DPSK_3DH5/MCH



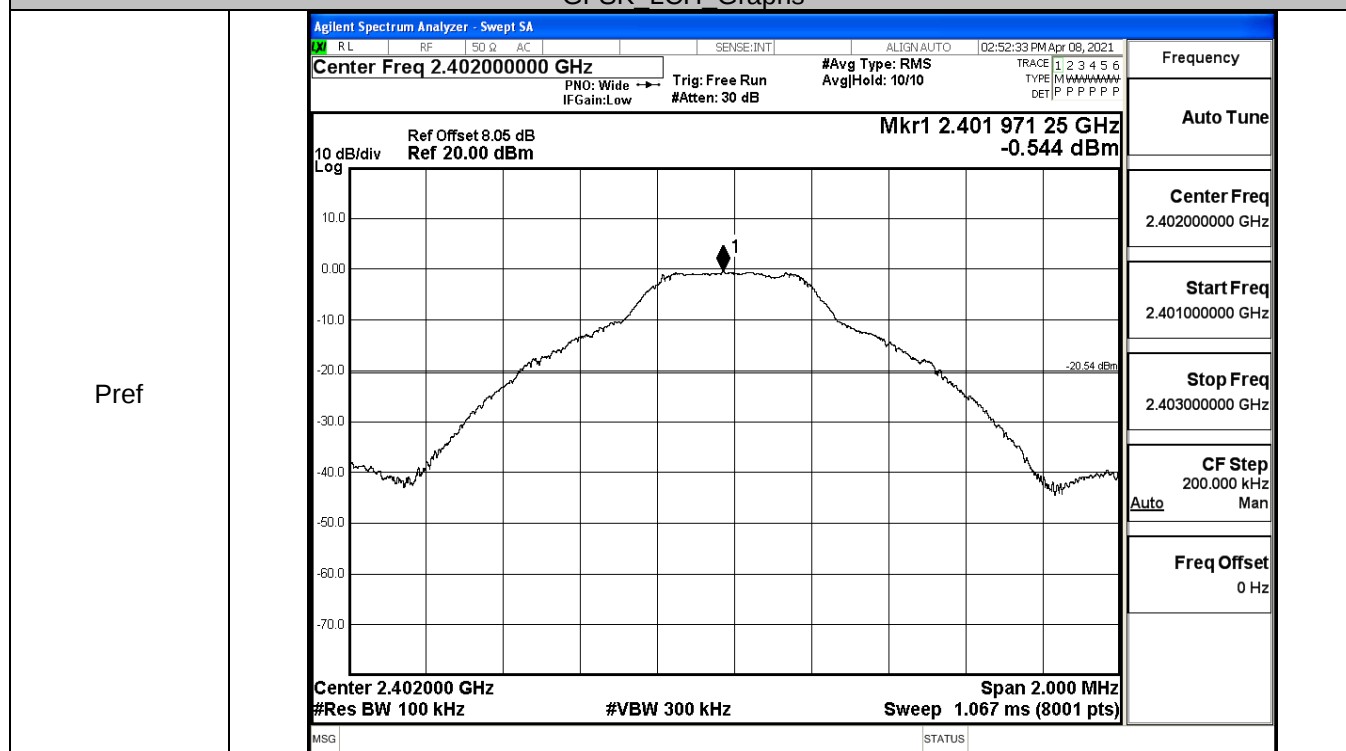
8DPSK_3DH5/HCH



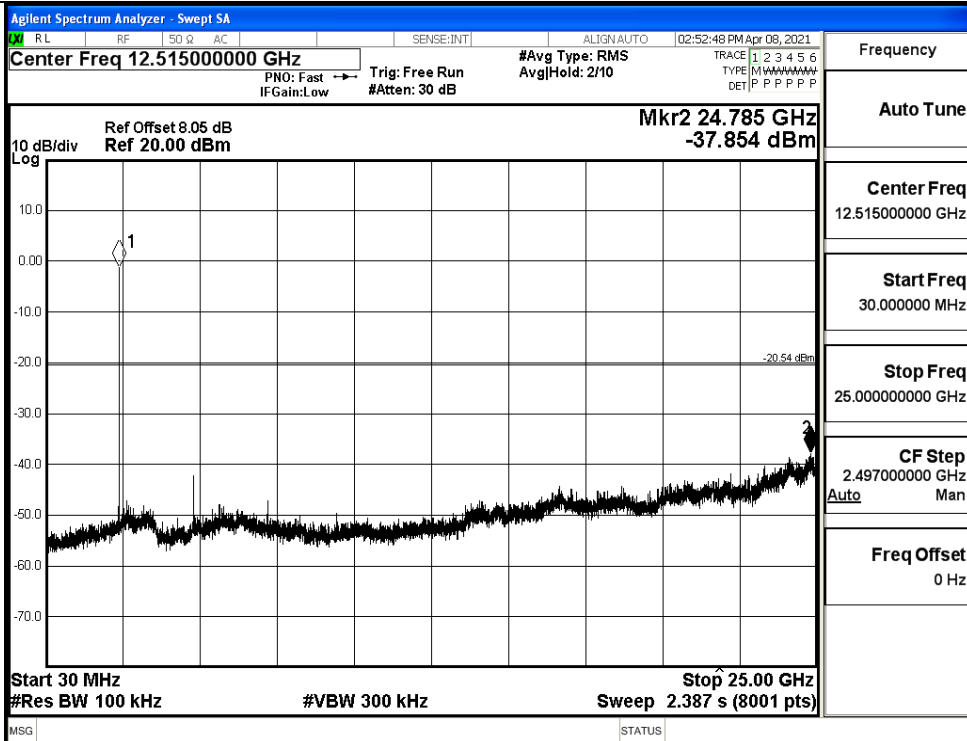
A.7 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.544	-37.854	-20.544	PASS
	MCH	-0.056	-38.408	-20.056	PASS
	HCH	-0.318	-37.933	-20.318	PASS
$\pi/4$ DQPSK	LCH	-0.16	-37.936	-20.160	PASS
	MCH	0.319	-37.540	-19.681	PASS
	HCH	-0.155	-38.215	-20.155	PASS
8DPSK	LCH	-0.443	-37.688	-20.443	PASS
	MCH	0.163	-38.076	-19.837	PASS
	HCH	0.021	-38.163	-19.979	PASS

GFSK LCH Graphs

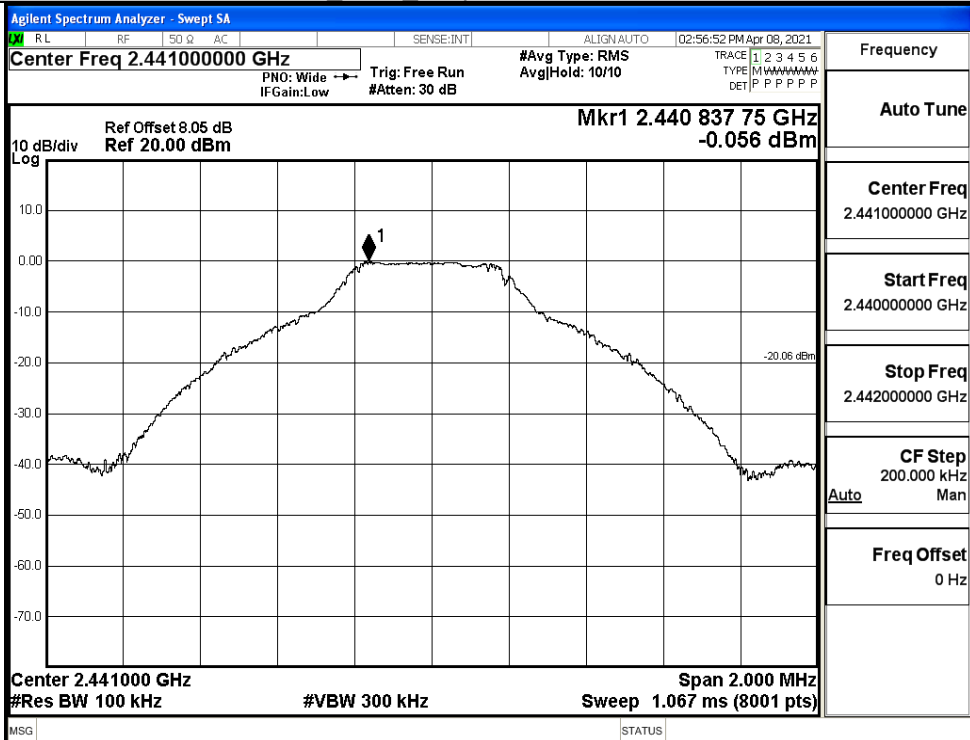


Puw

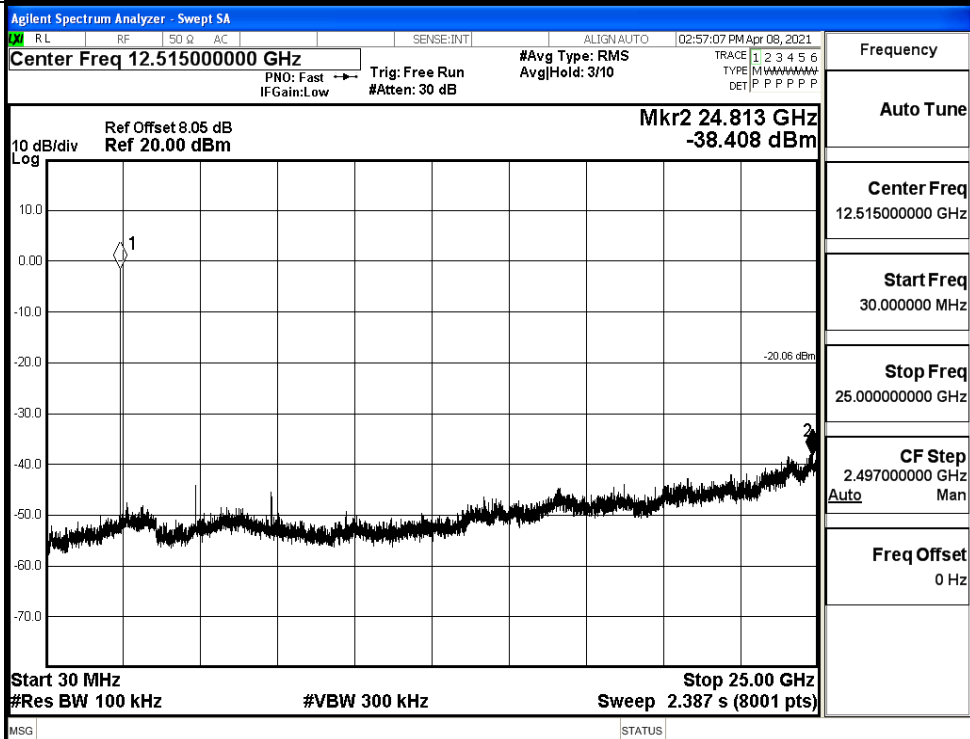


GFSK_MCH_Graphs

Pref

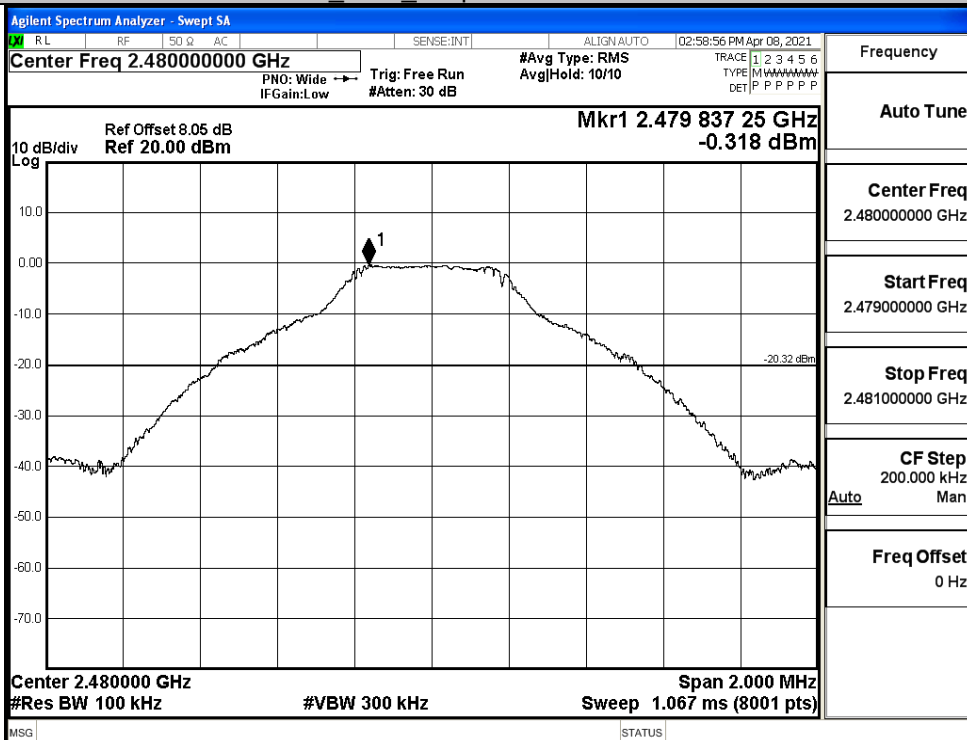


Puw

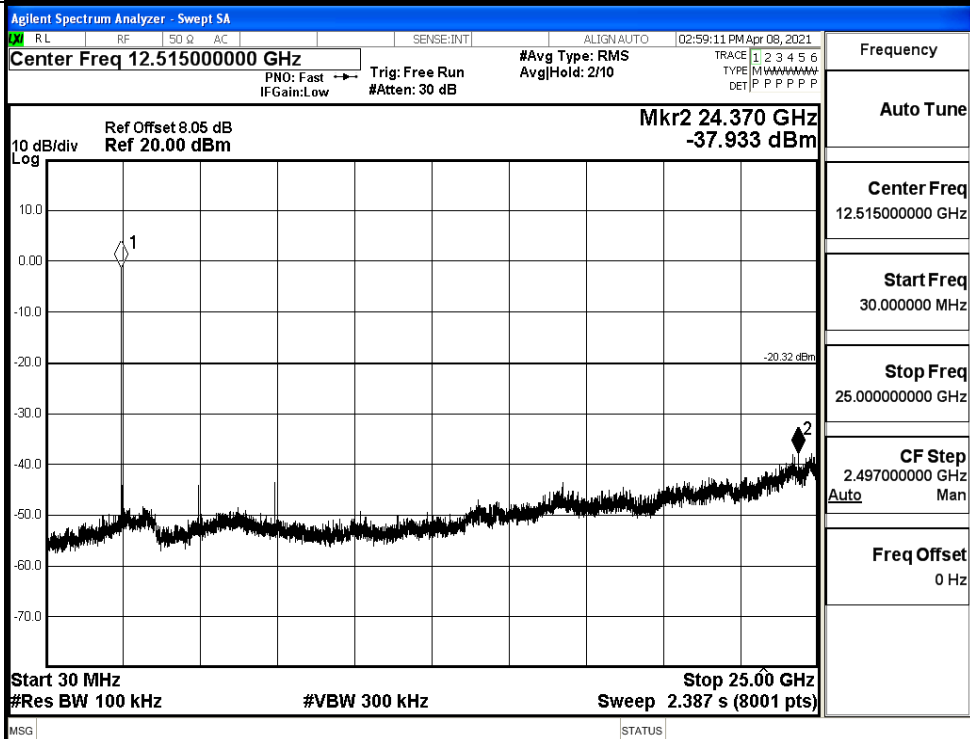


GFSK HCH Graphs

Pref

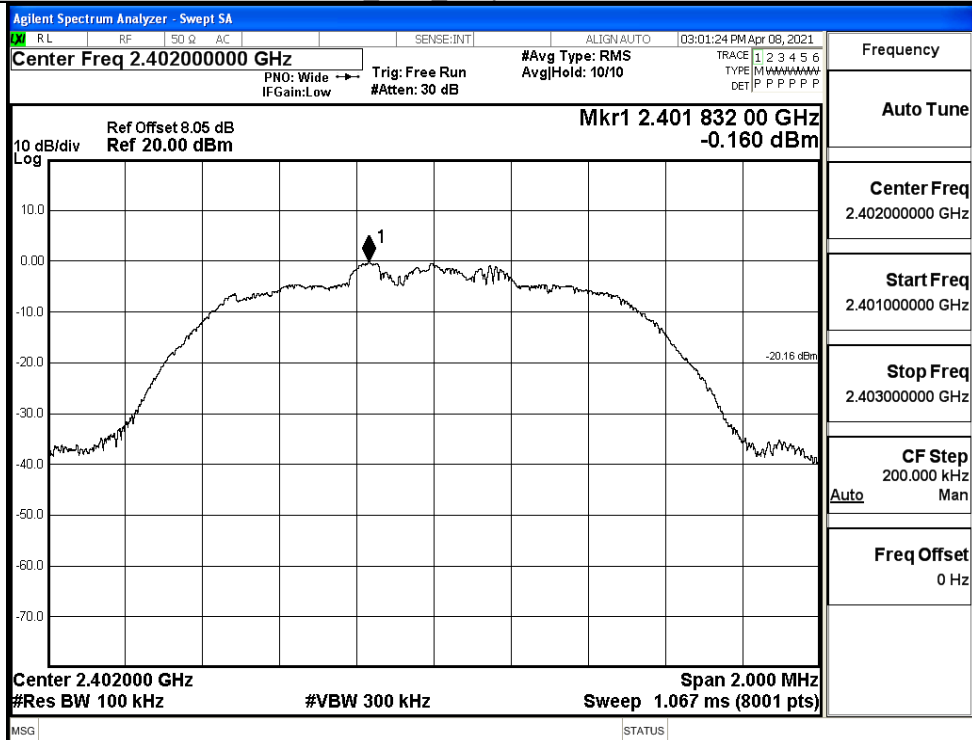


Puw

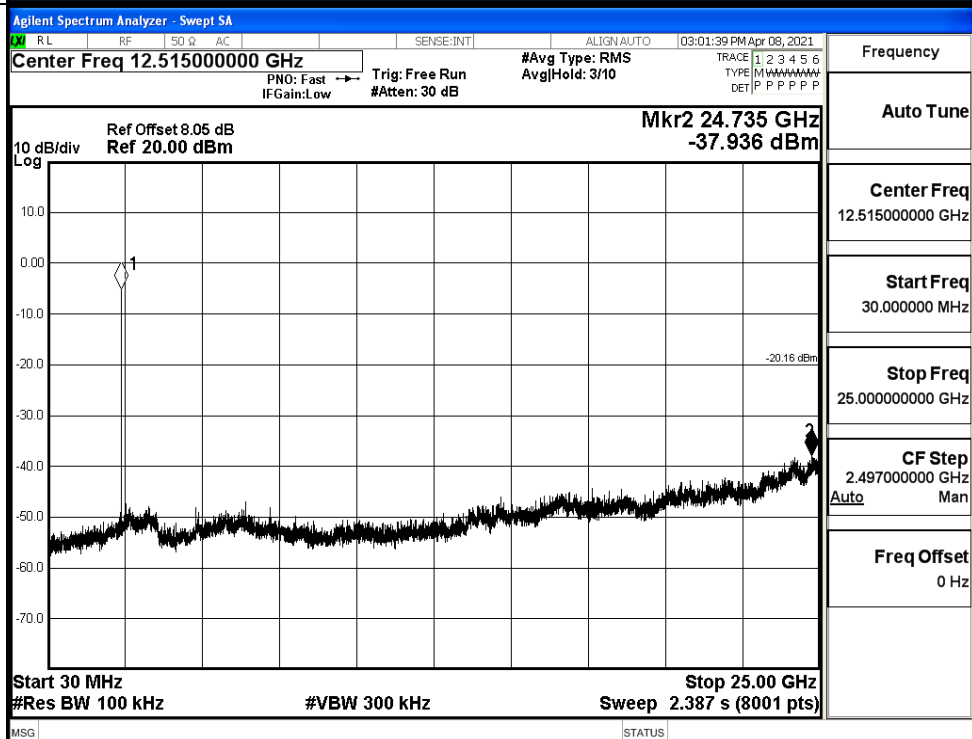


$\pi/4$ DQPSK_LCH_Graphs

Pref

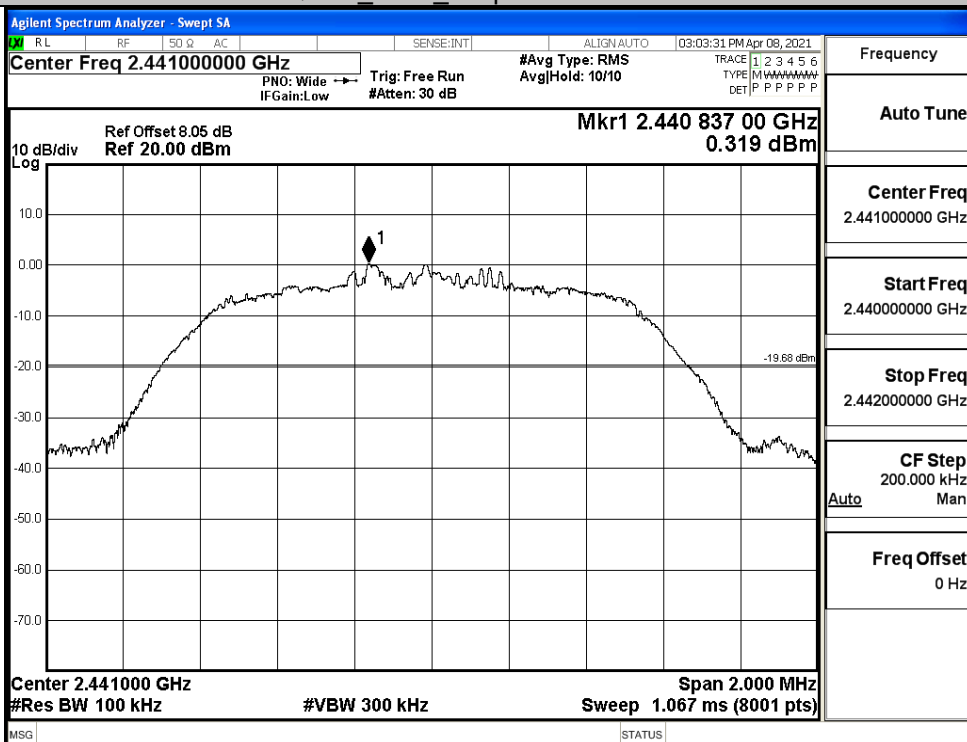


Puw

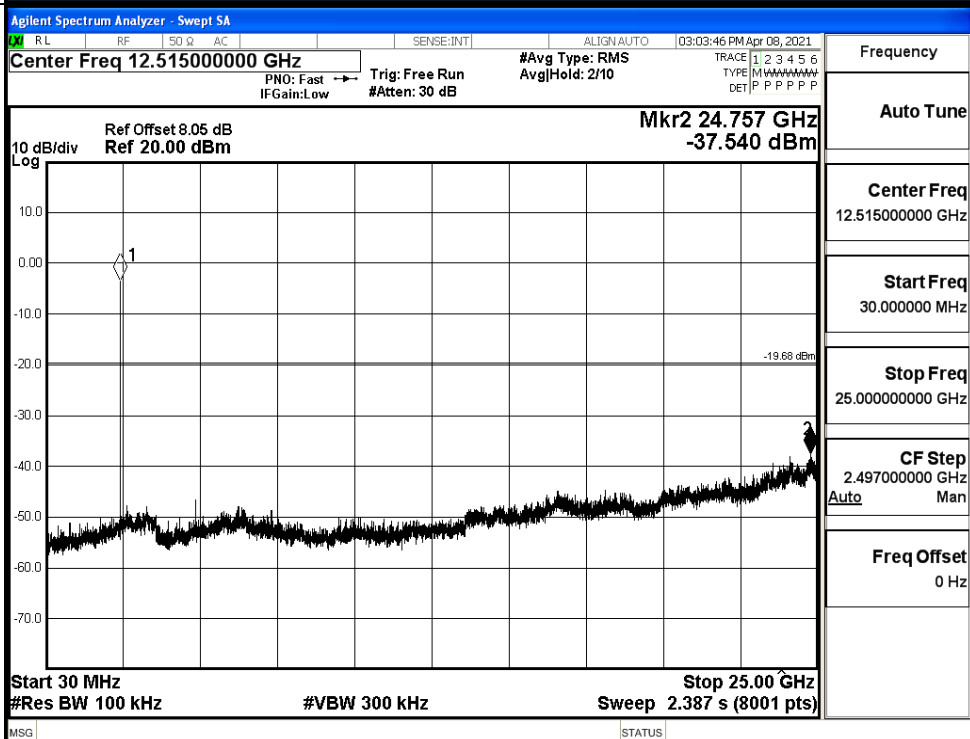


π /4DQPSK_MCH_Graphs

Pref

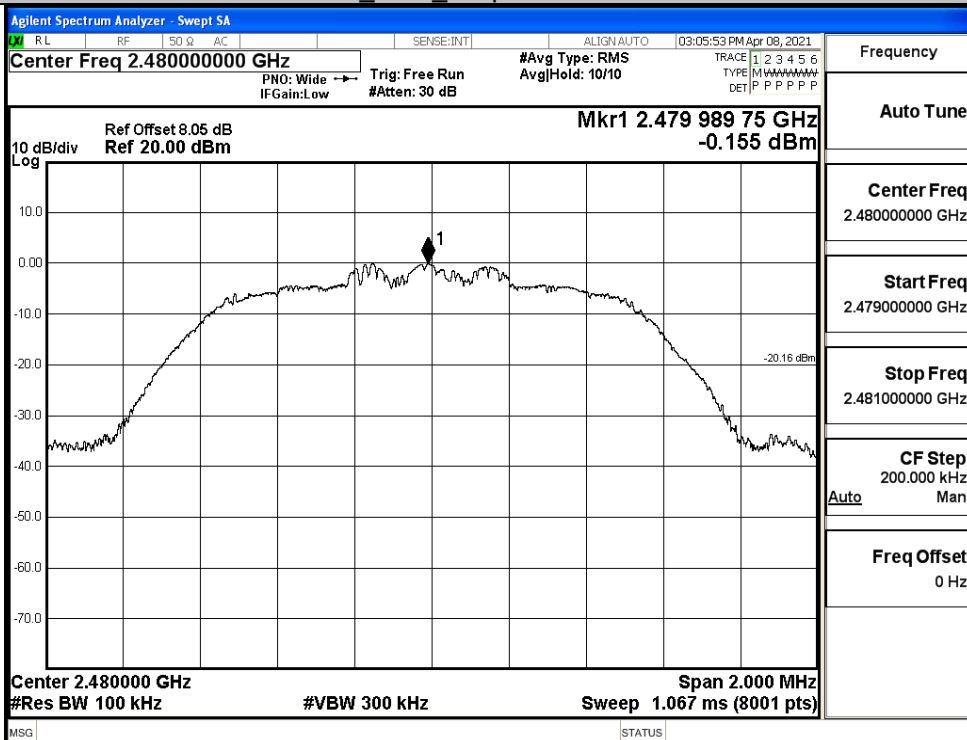


Puw

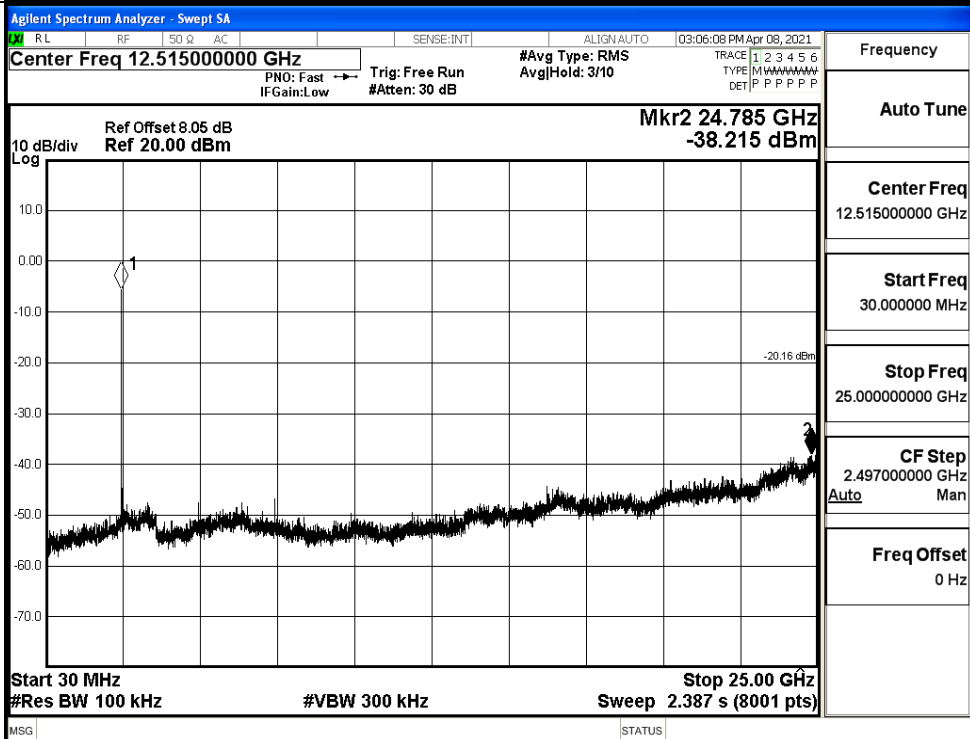


π /4DQPSK_HCH_Graphs

Pref

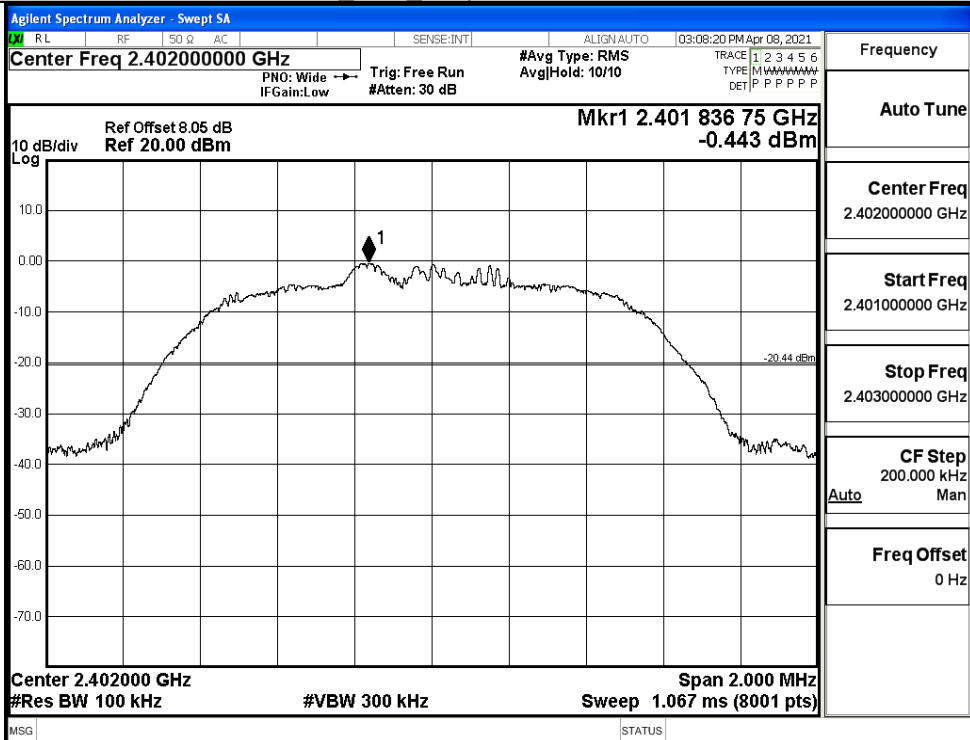


Puw

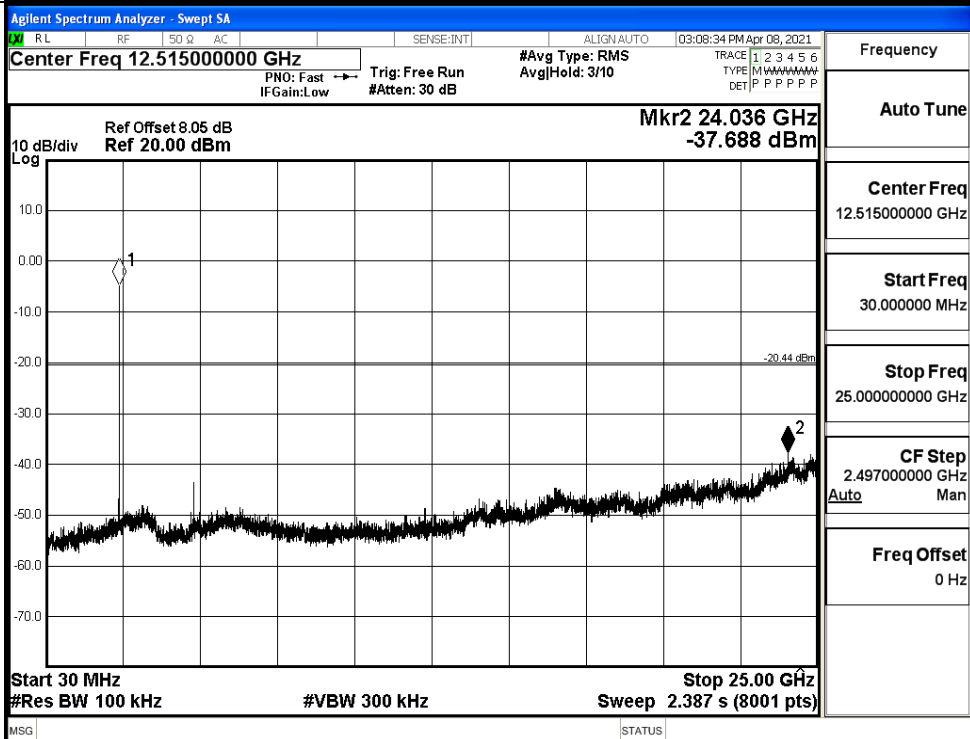


8DPSK_LCH_Graphs

Pref

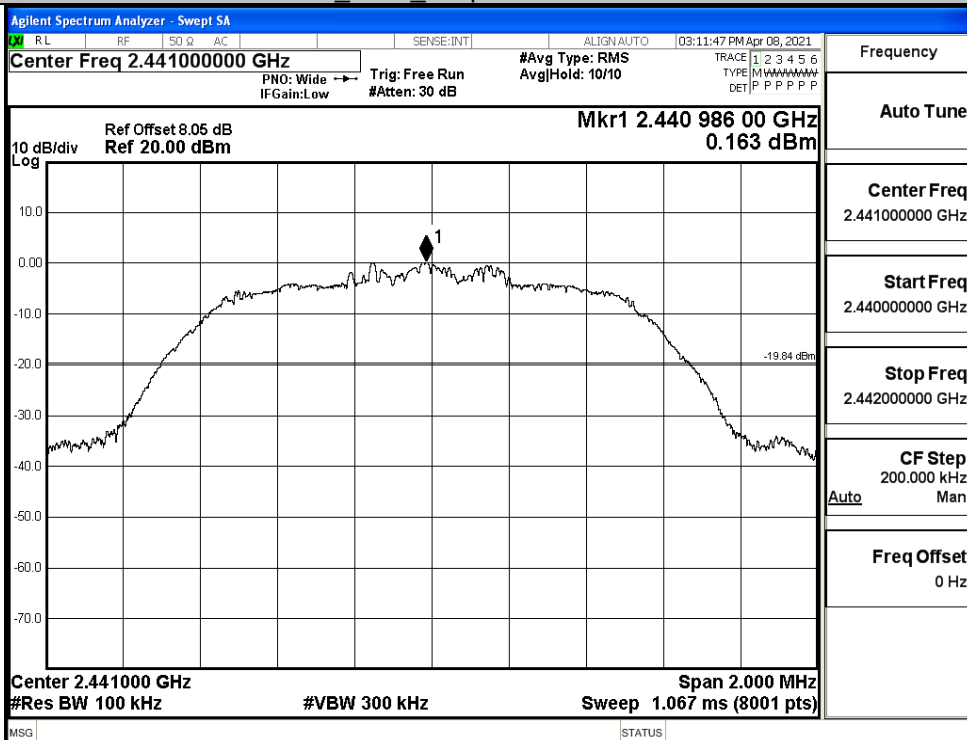


Puw

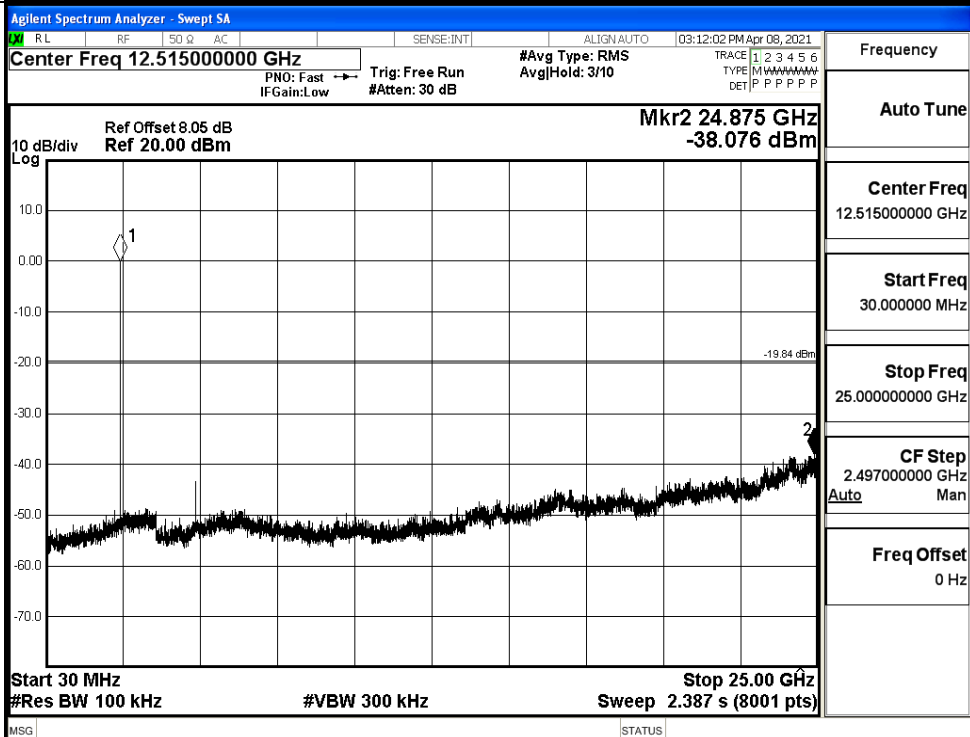


8DPSK_MCH_Graphs

Pref

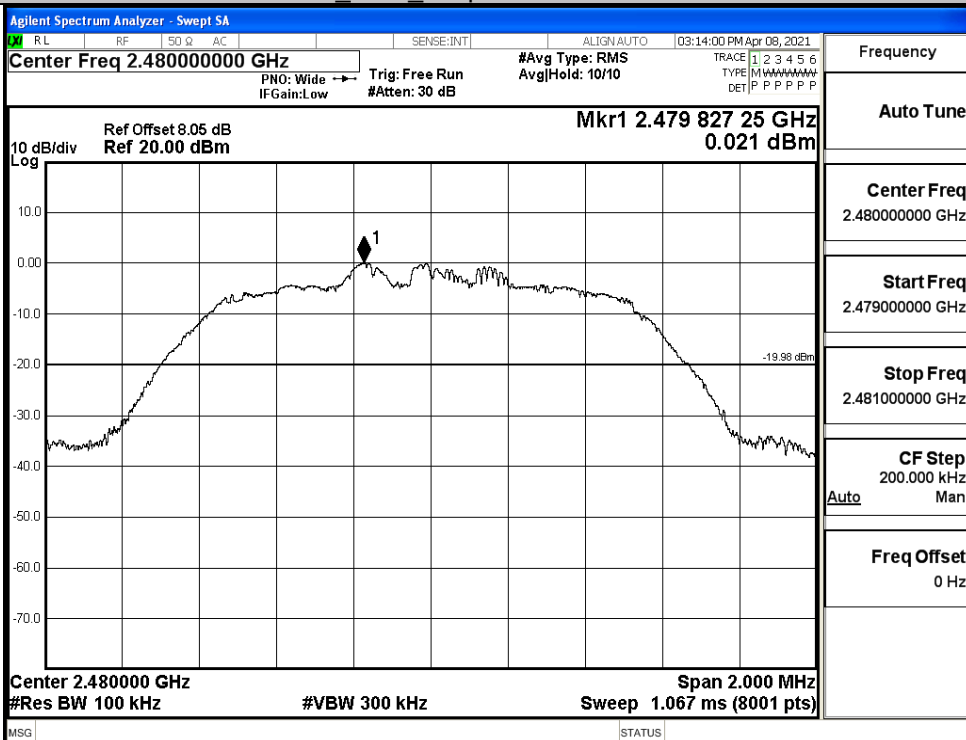


Puw

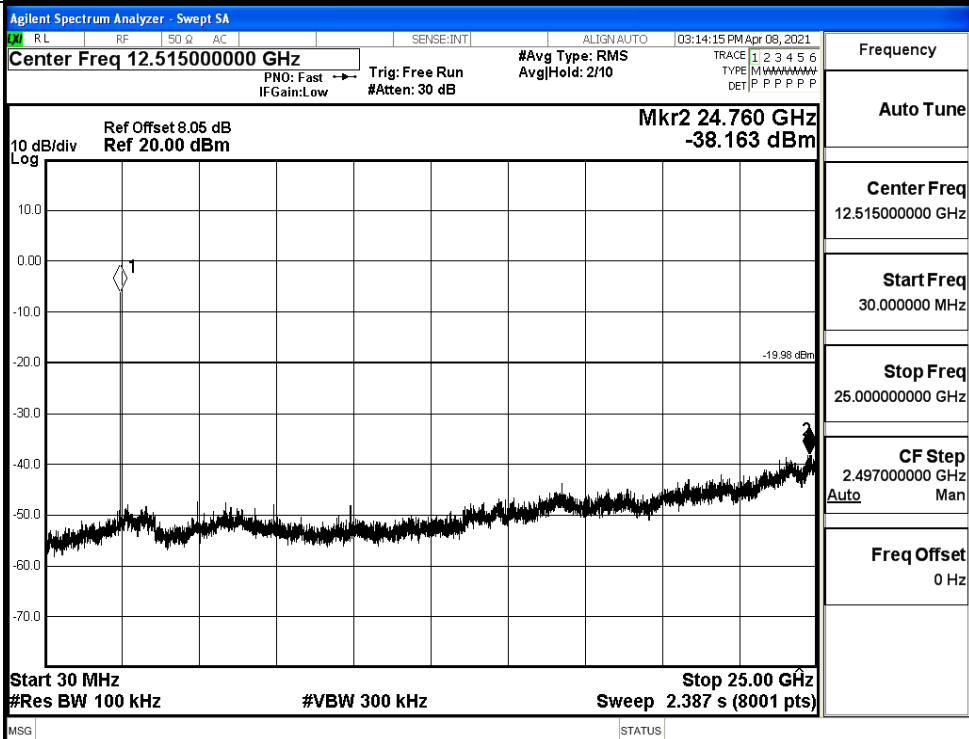


8DPSK_HCH_Graphs

Pref



Puw

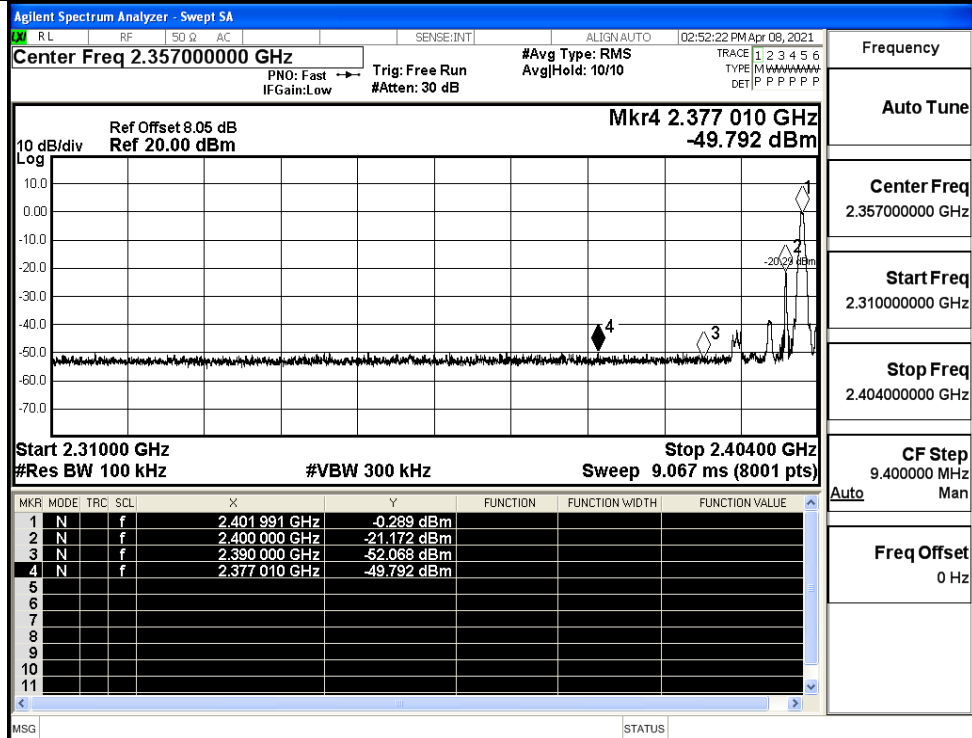


A.8 Band-edge for RF Conducted Emissions

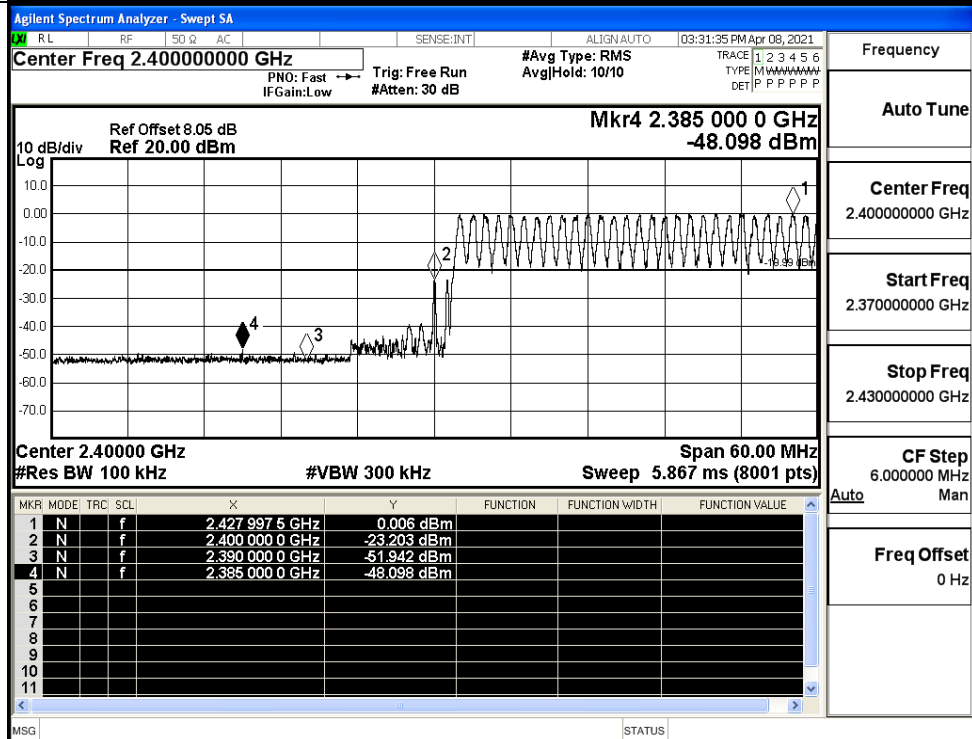
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.289	Off	-49.792	-20.29	PASS
			0.006	On	-48.098	-19.99	PASS
	HCH	2480	-0.016	Off	-48.224	-20.02	PASS
			-0.143	On	-48.353	-20.14	PASS
$\pi/4$ DQPSK	LCH	2402	-0.498	Off	-49.837	-20.5	PASS
			0.033	On	-48.796	-19.97	PASS
	HCH	2480	-0.074	Off	-49.019	-20.07	PASS
			0.075	On	-48.531	-19.93	PASS
8DPSK	LCH	2402	-0.392	Off	-49.380	-20.39	PASS
			0.032	On	-47.416	-19.97	PASS
	HCH	2480	0.181	Off	-48.280	-19.82	PASS
			0.162	On	-48.514	-19.84	PASS

Test Graphs

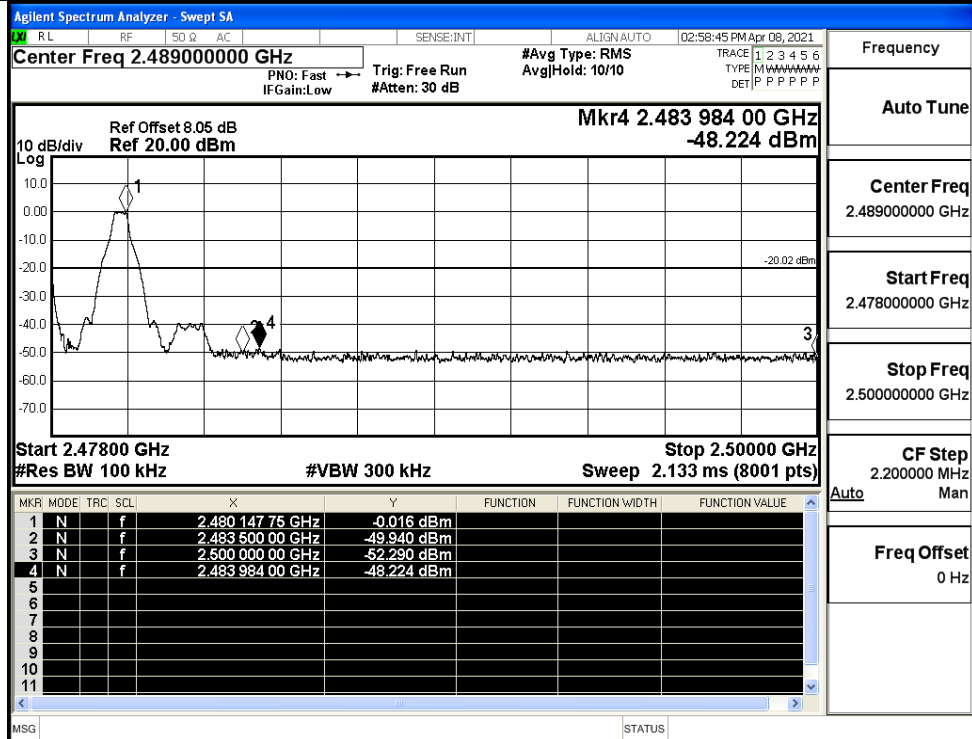
GFSK/LCH/No Hop



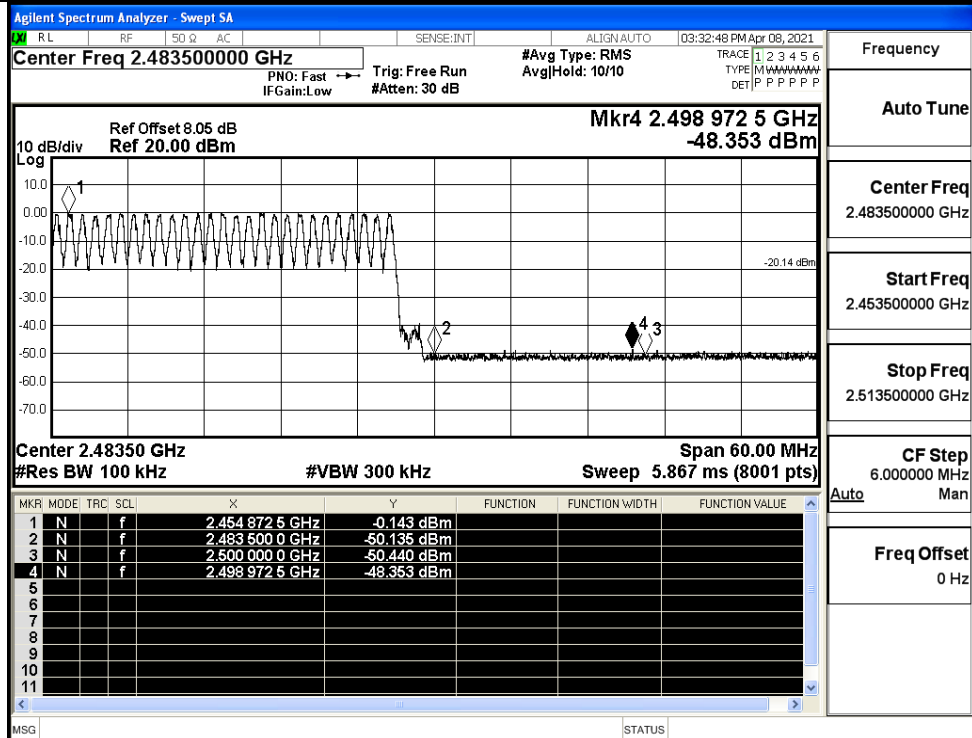
GFSK/LCH/Hop



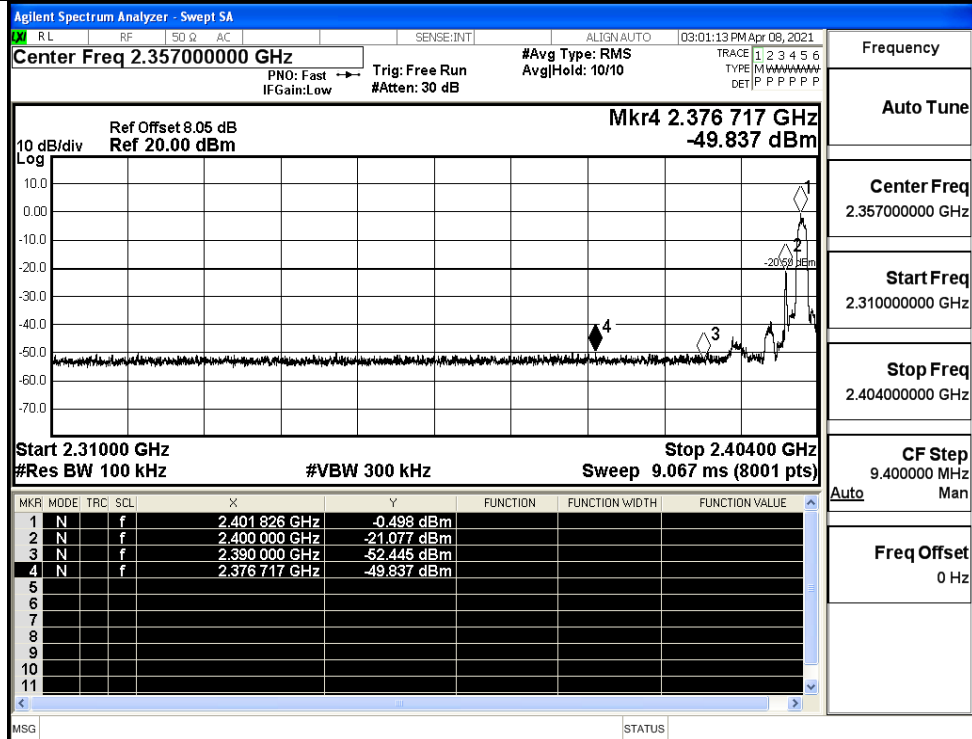
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

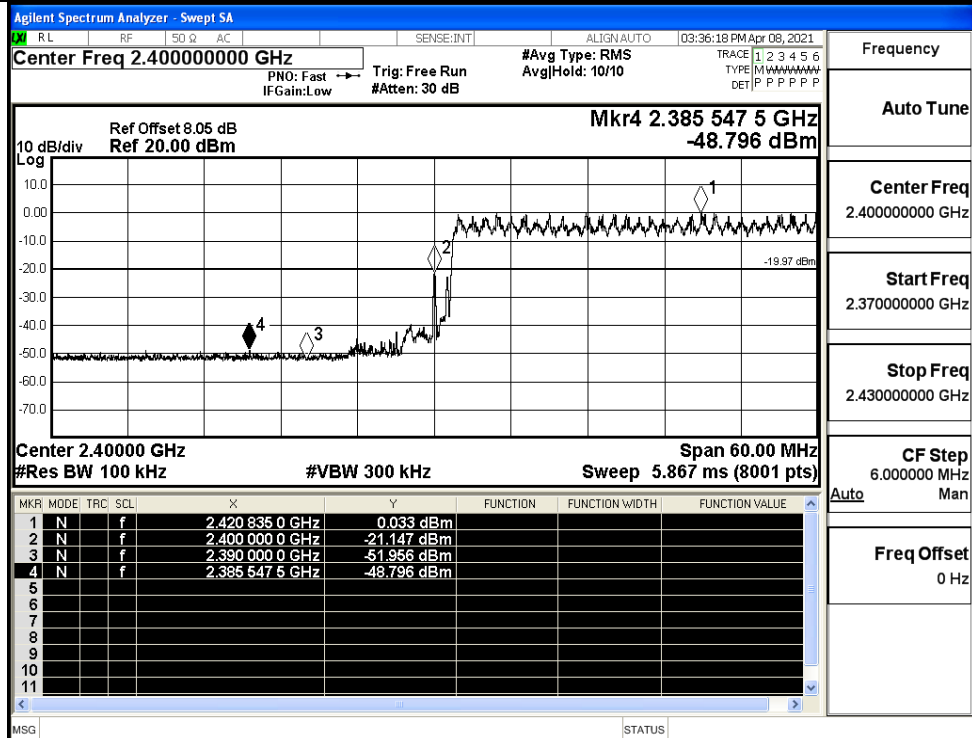
Start Freq
2.310000000 GHz

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

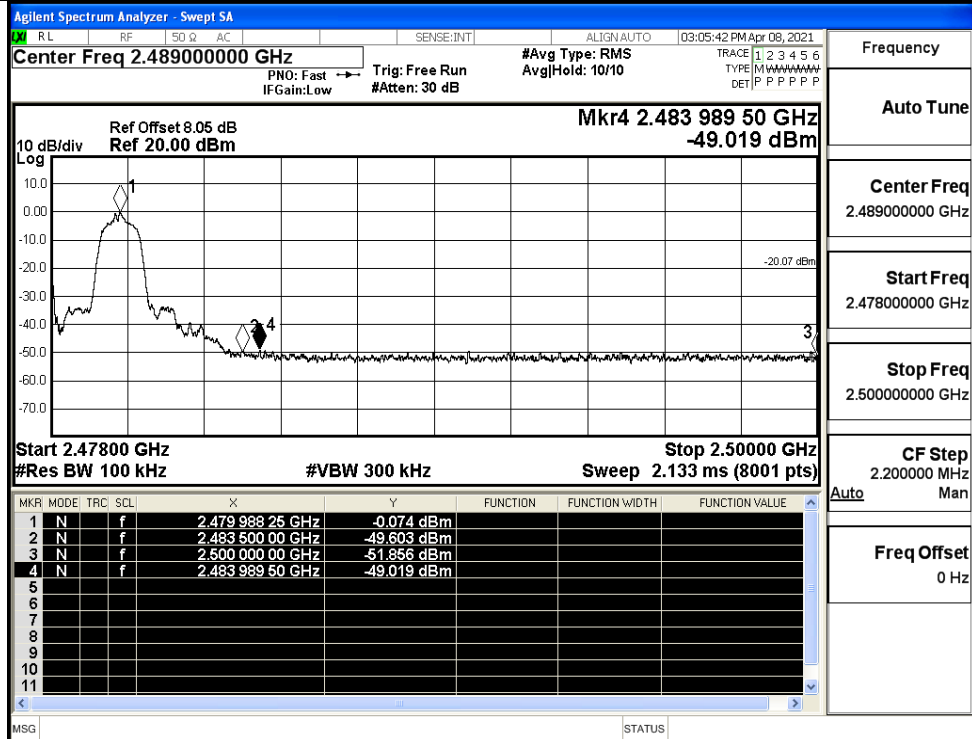
Start Freq
2.370000000 GHz

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

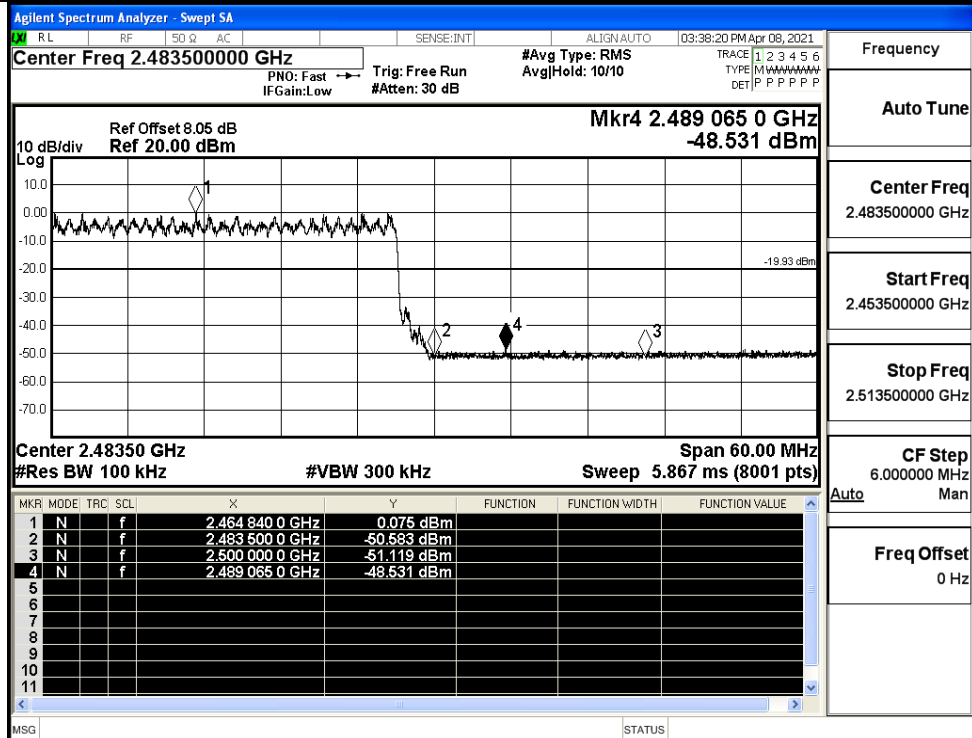
Start Freq
2.478000000 GHz

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

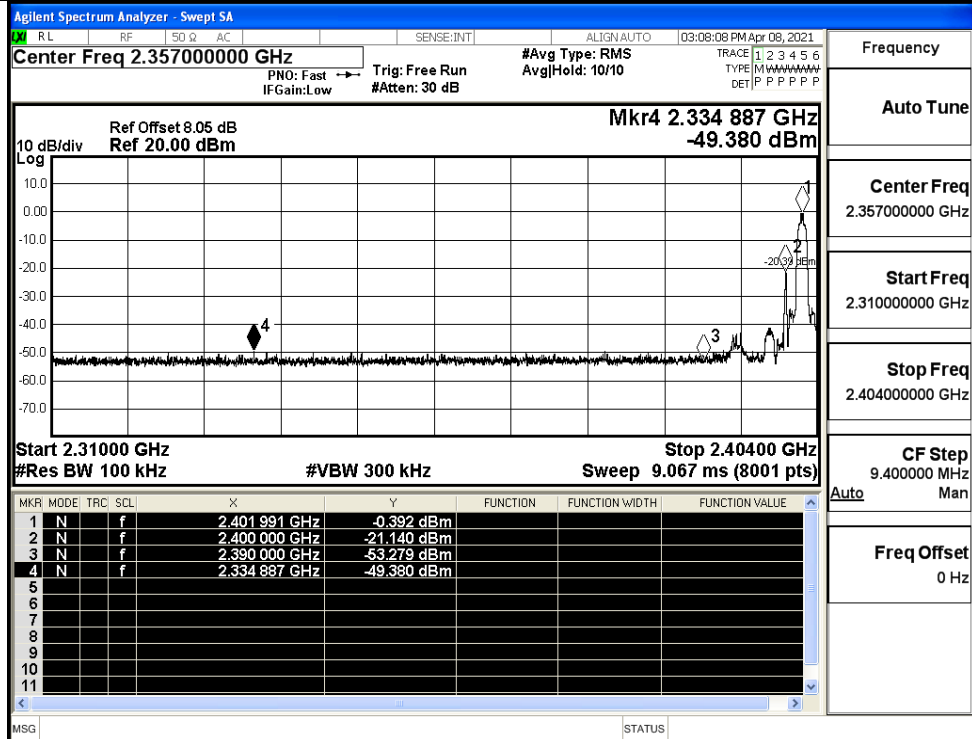
Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

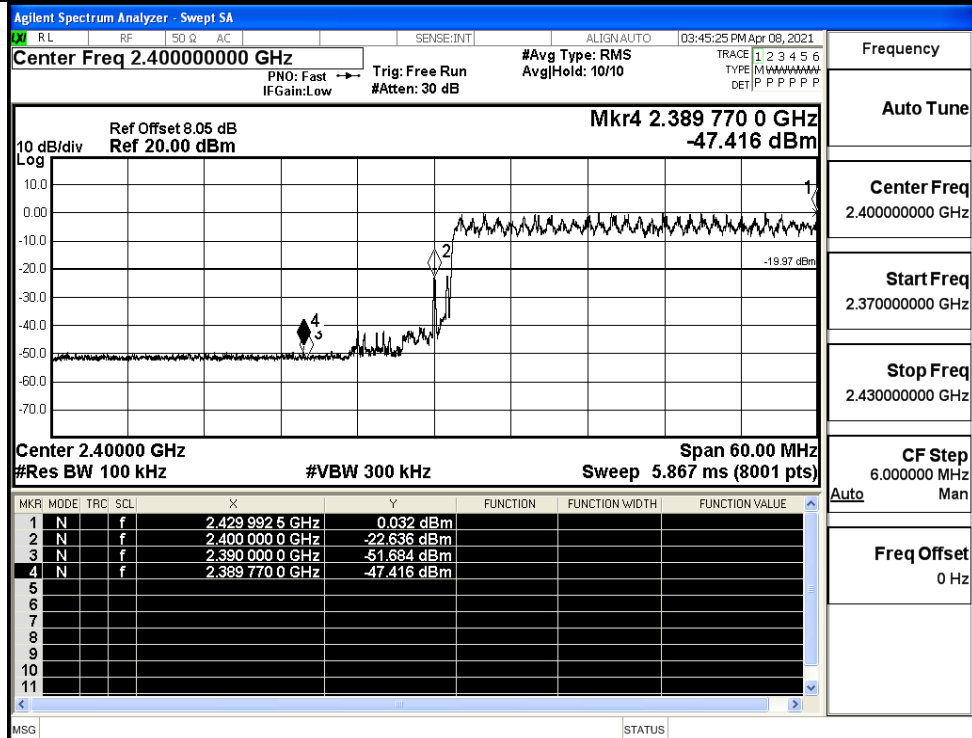
CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

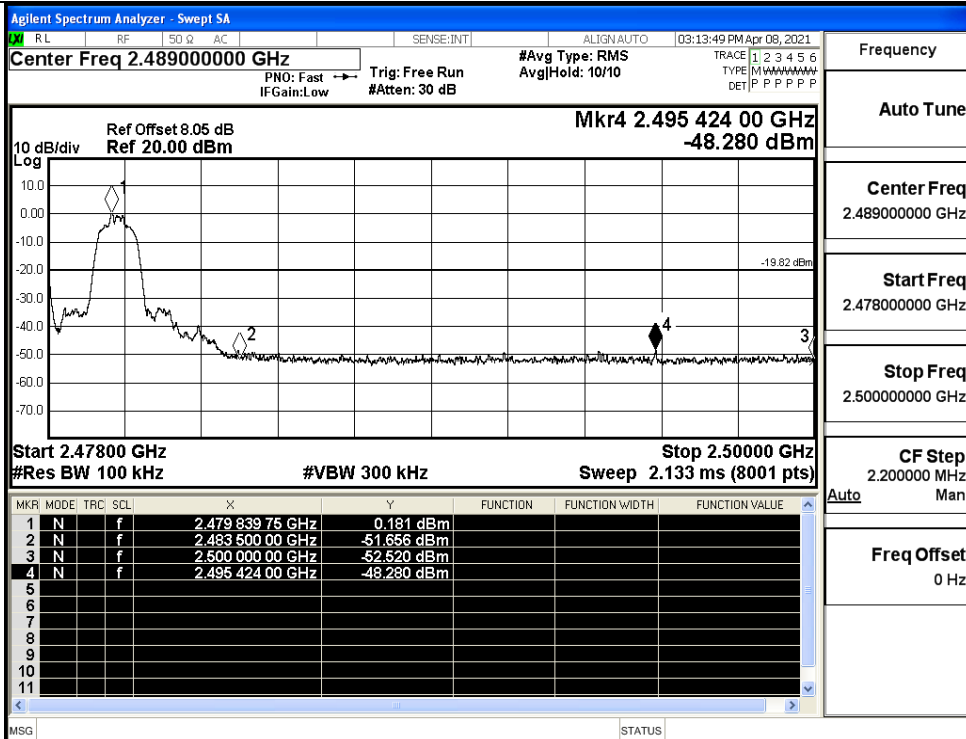
8DPSK/LCH/No Hop



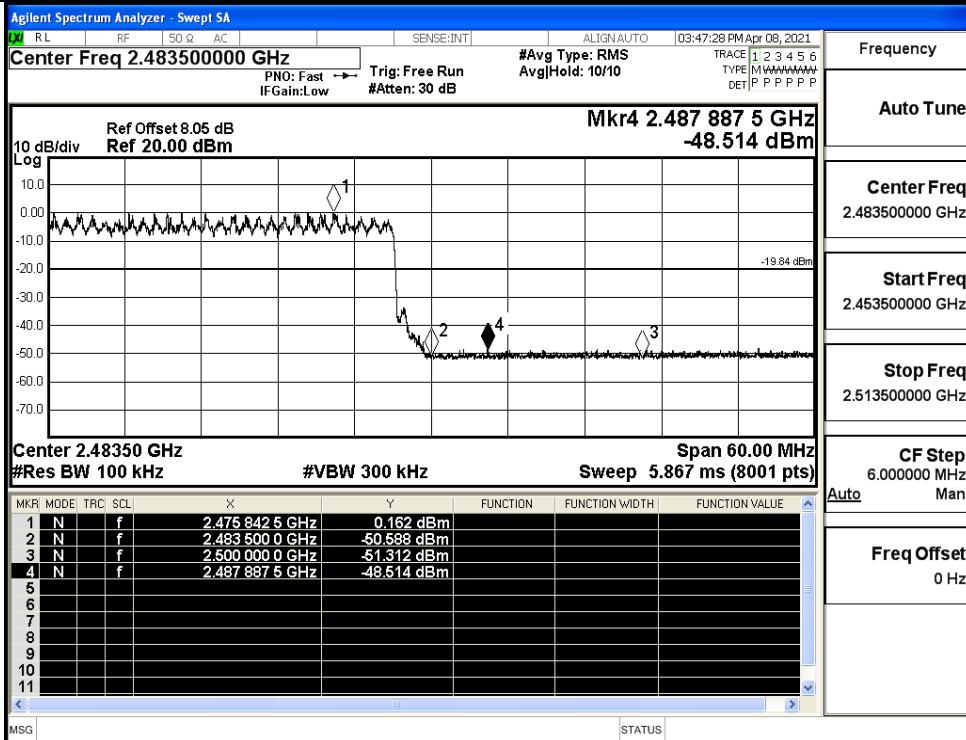
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



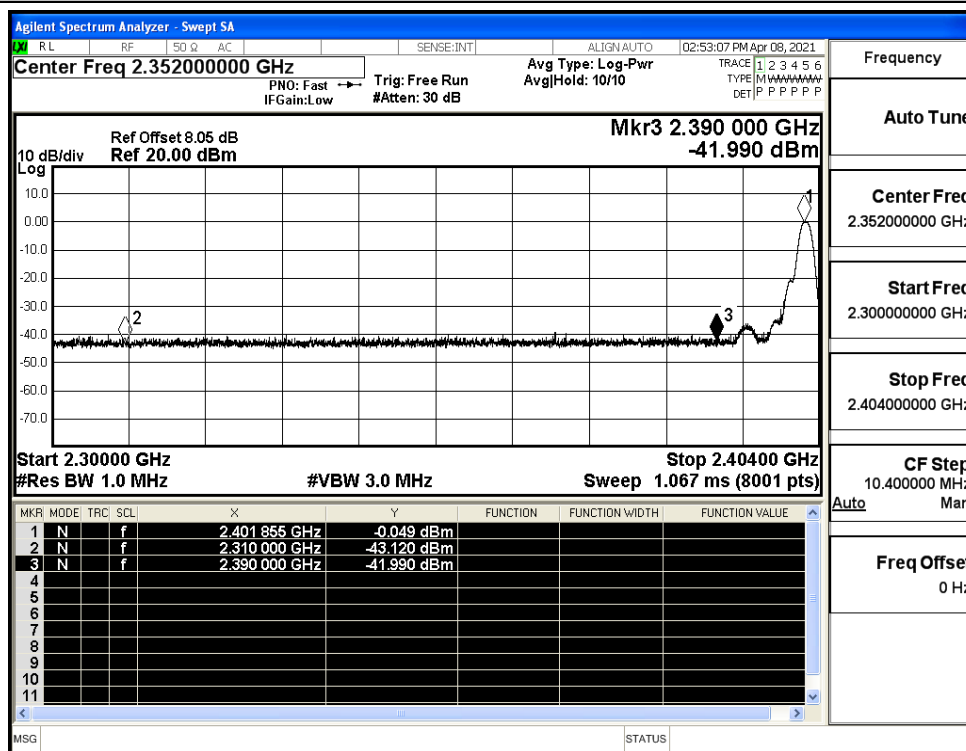
8DPSK/HCH/Hop



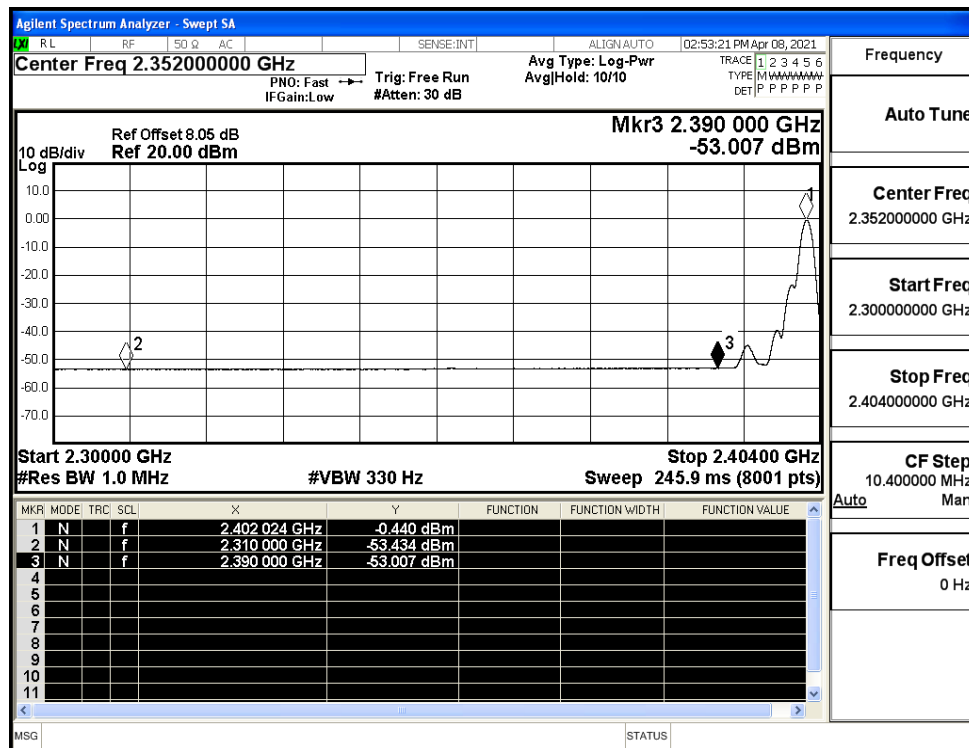
A.9 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.12	2.0	0	52.14	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	41.82	AV	54	PASS
	Off	2390.0	-41.99	2.0	0	53.27	PEAK	74	PASS
	Off	2390.0	-53.01	2.0	0	42.25	AV	54	PASS
	Off	2483.5	-41.01	2.0	0	54.25	PEAK	74	PASS
	Off	2483.5	-50.28	2.0	0	44.97	AV	54	PASS
	Off	2500.0	-42.34	2.0	0	52.92	PEAK	74	PASS
	Off	2500.0	-52.37	2.0	0	42.89	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-41.07	2.0	0	54.18	PEAK	74	PASS
	Off	2310.0	-53.45	2.0	0	41.81	AV	54	PASS
	Off	2390.0	-42.55	2.0	0	52.71	PEAK	74	PASS
	Off	2390.0	-53.06	2.0	0	42.20	AV	54	PASS
	Off	2483.5	-40.76	2.0	0	54.50	PEAK	74	PASS
	Off	2483.5	-50.19	2.0	0	45.07	AV	54	PASS
	Off	2500.0	-43.35	2.0	0	51.91	PEAK	74	PASS
	Off	2500.0	-52.44	2.0	0	42.82	AV	54	PASS
8DPSK	Off	2310.0	-42.43	2.0	0	52.82	PEAK	74	PASS
	Off	2310.0	-53.31	2.0	0	41.95	AV	54	PASS
	Off	2390.0	-42.85	2.0	0	52.40	PEAK	74	PASS
	Off	2390.0	-53.09	2.0	0	42.17	AV	54	PASS
	Off	2483.5	-39.97	2.0	0	55.29	PEAK	74	PASS
	Off	2483.5	-50.20	2.0	0	45.06	AV	54	PASS
	Off	2500.0	-42.85	2.0	0	52.41	PEAK	74	PASS
	Off	2500.0	-52.45	2.0	0	42.80	AV	54	PASS

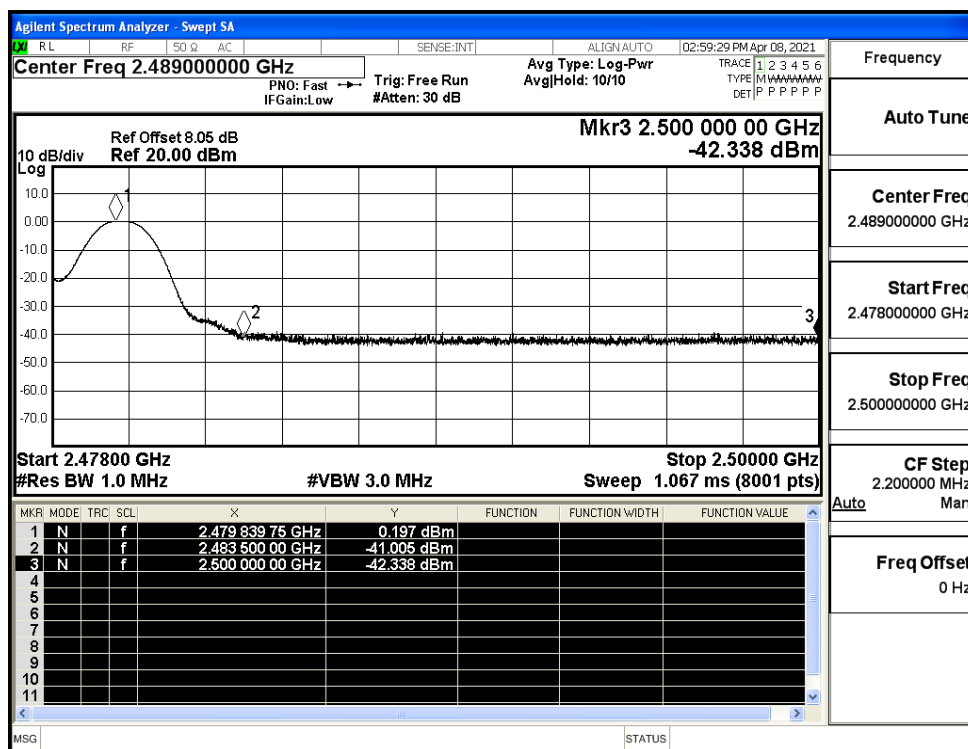
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



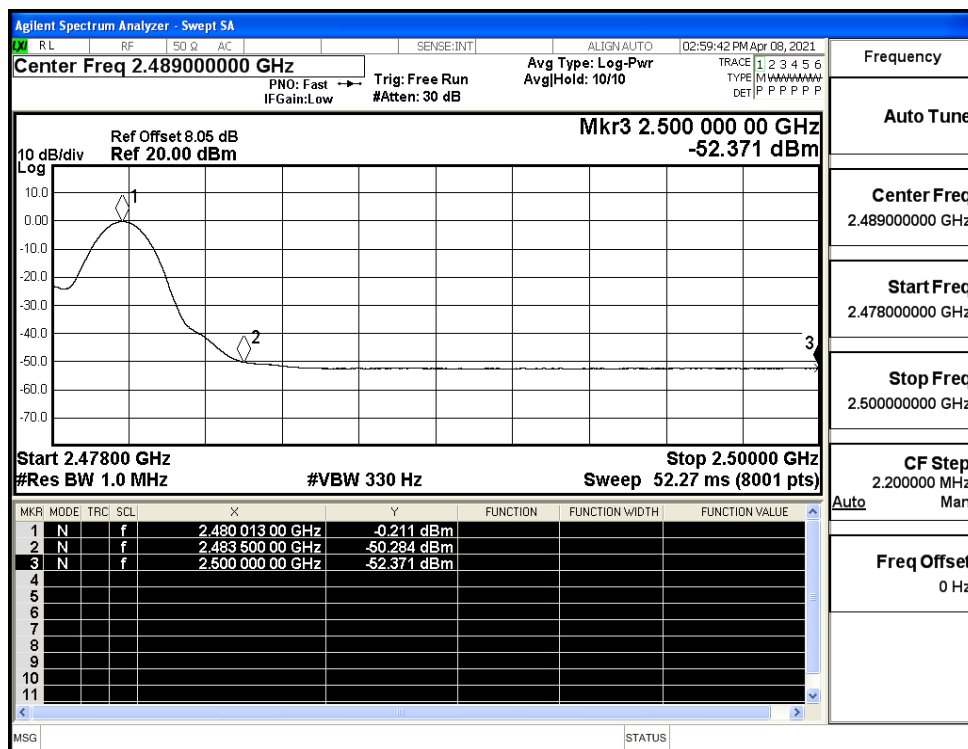
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

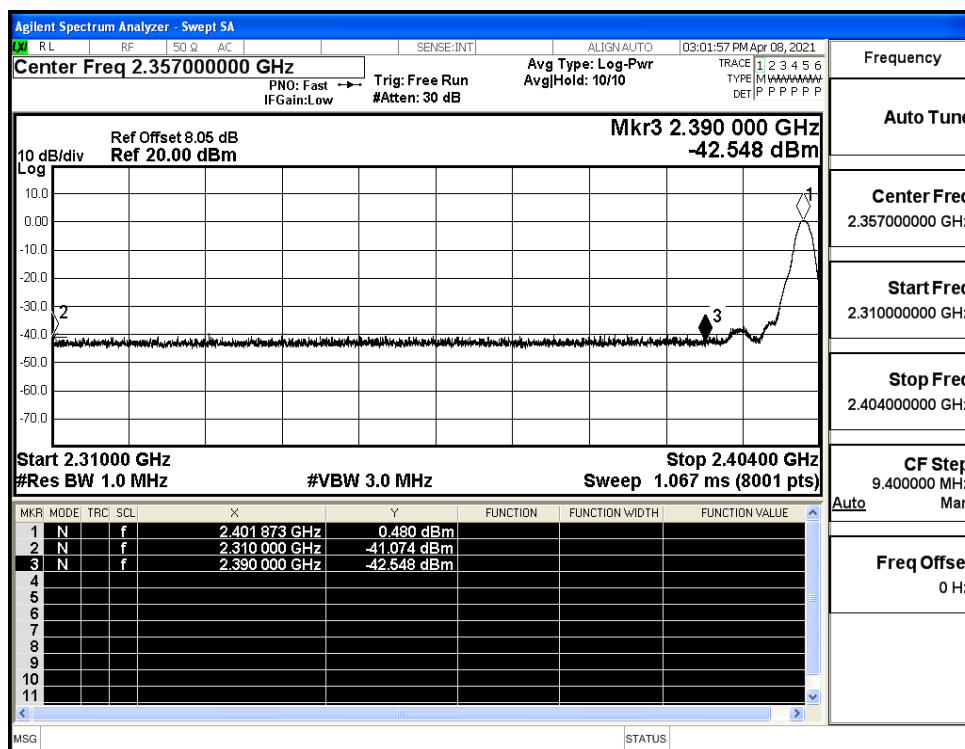
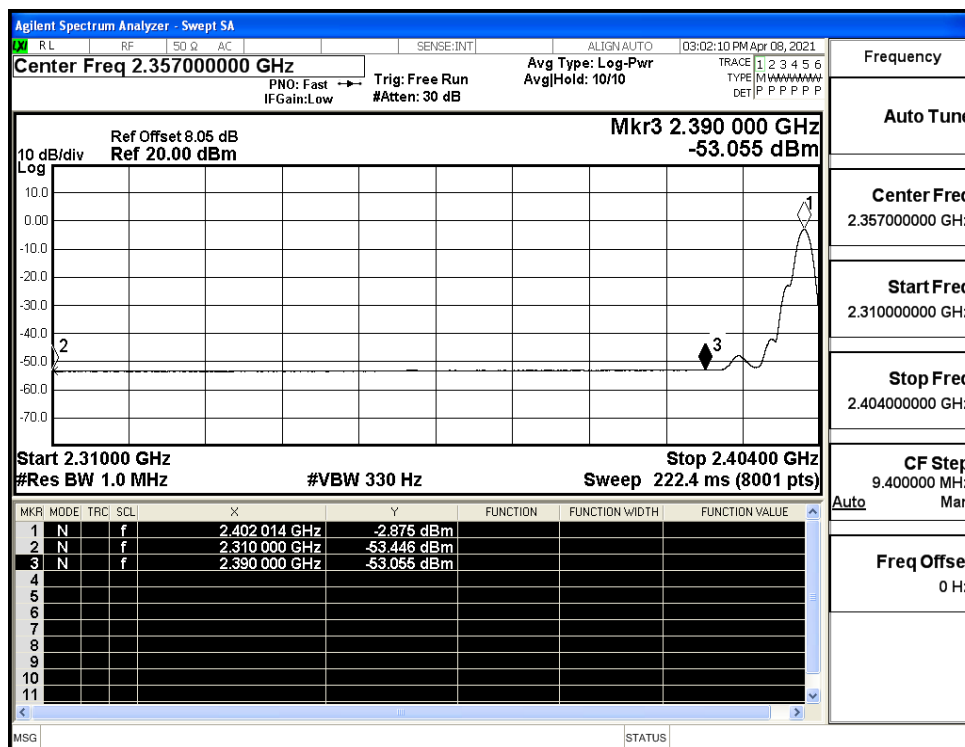


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

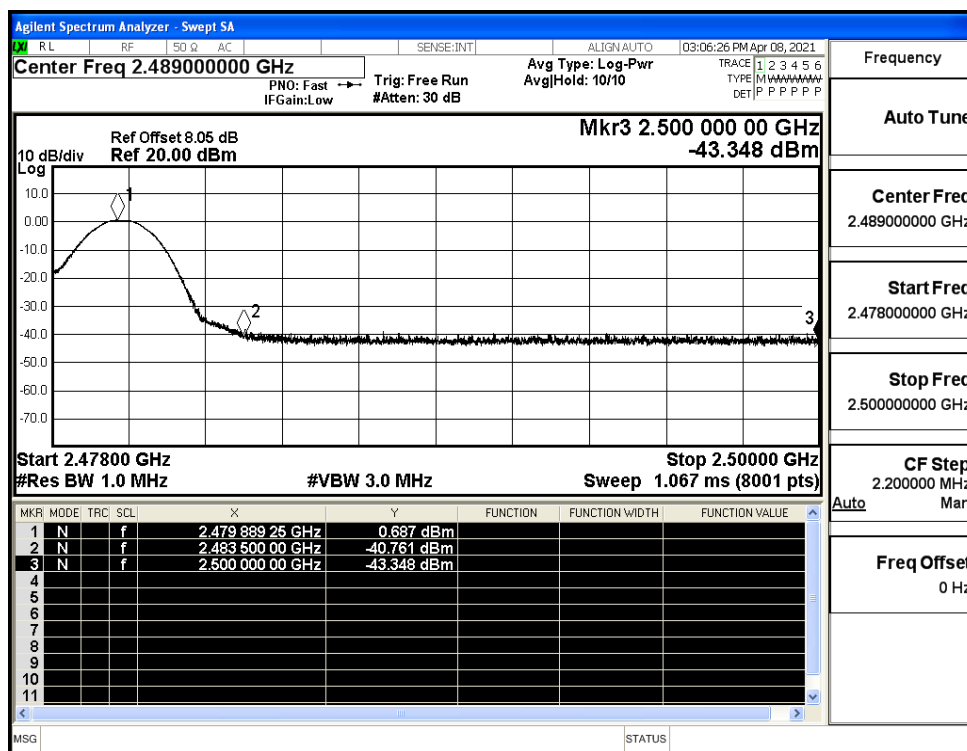


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

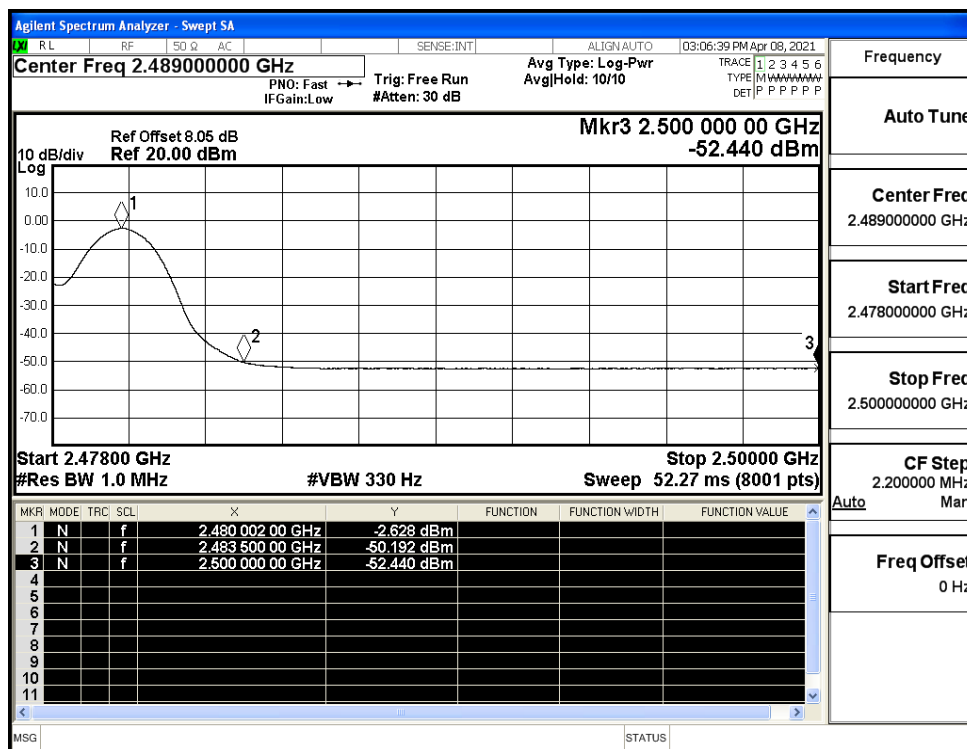


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

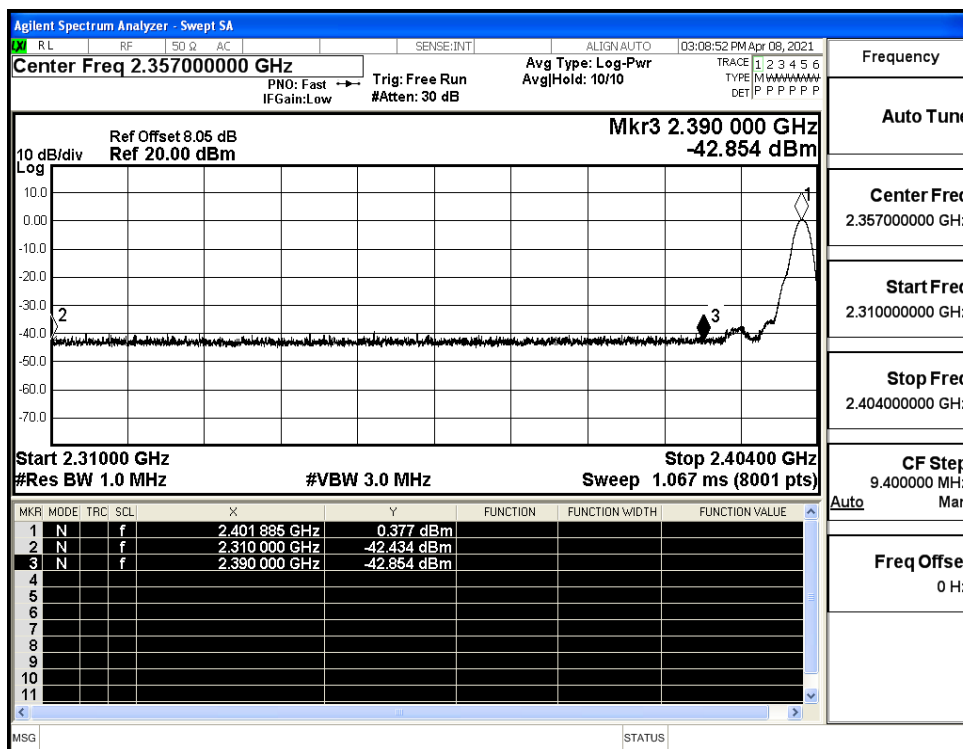
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



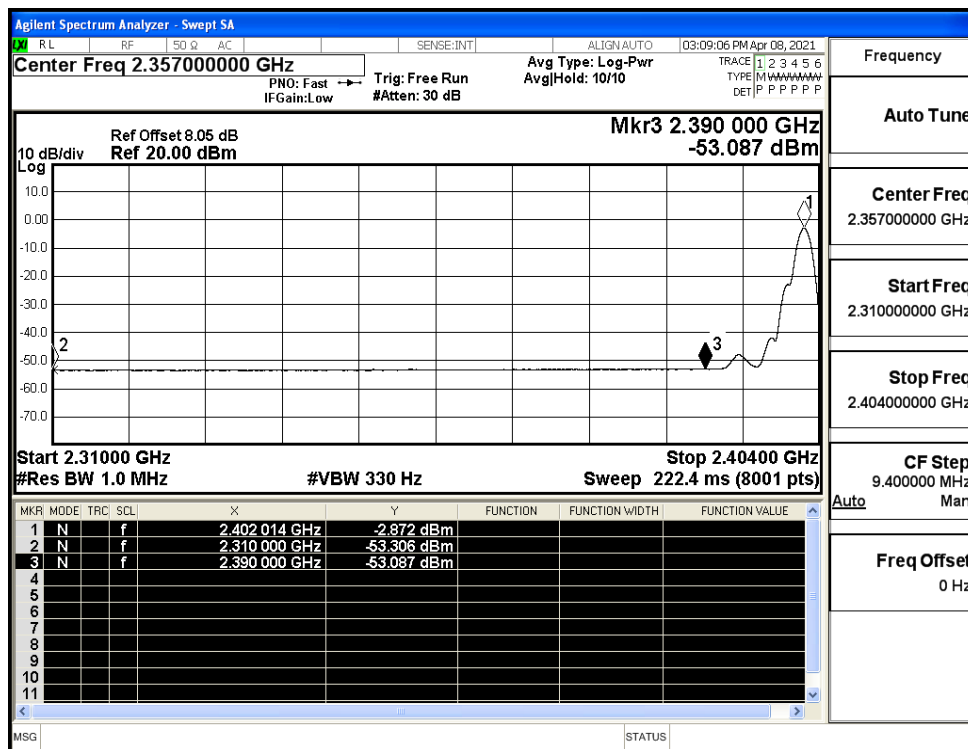
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



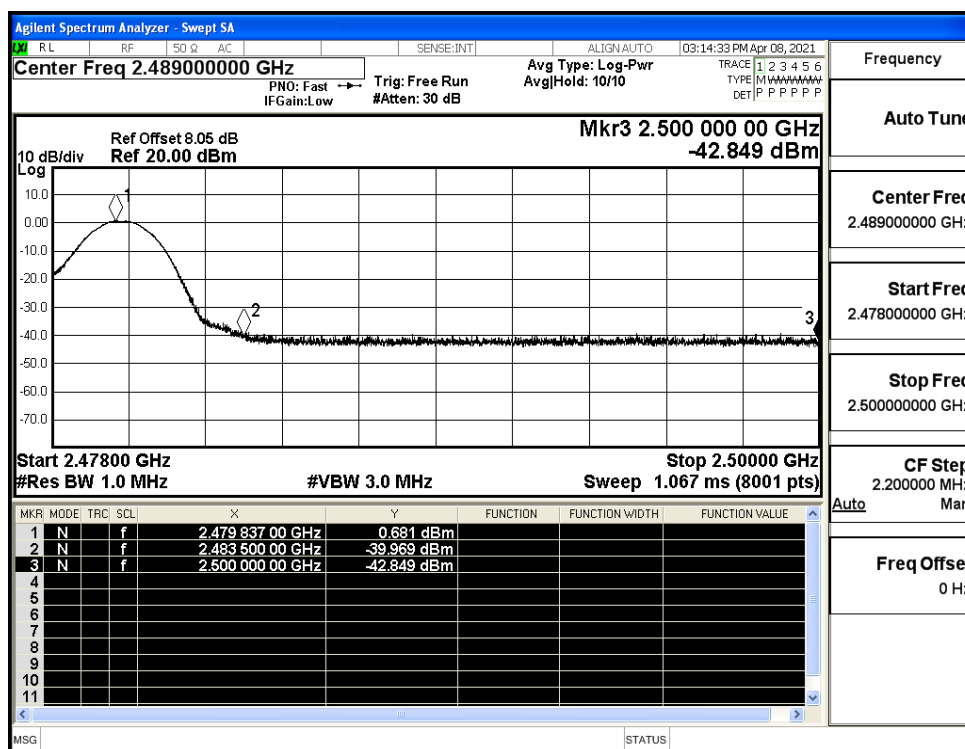
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

