

Appendix A

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

Product Name: Wi-Fi Module

Trade Mark: N/A

Test Model: EWN-1638ACX2AA

Environmental Conditions

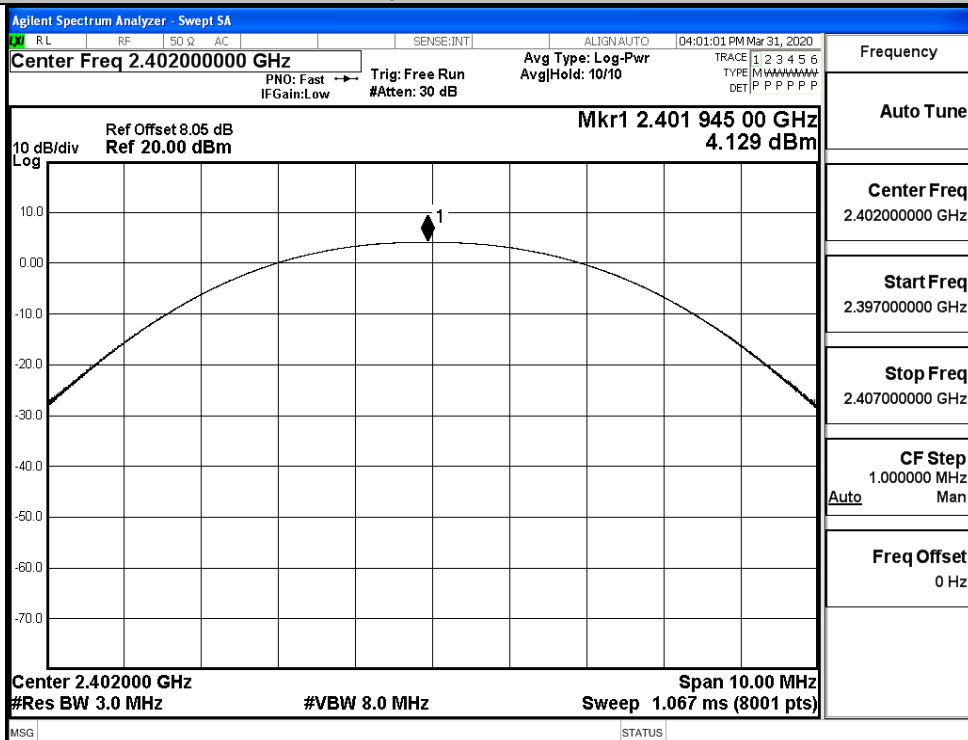
Temperature:	22.8°C
Relative Humidity:	51.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Jack Liu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

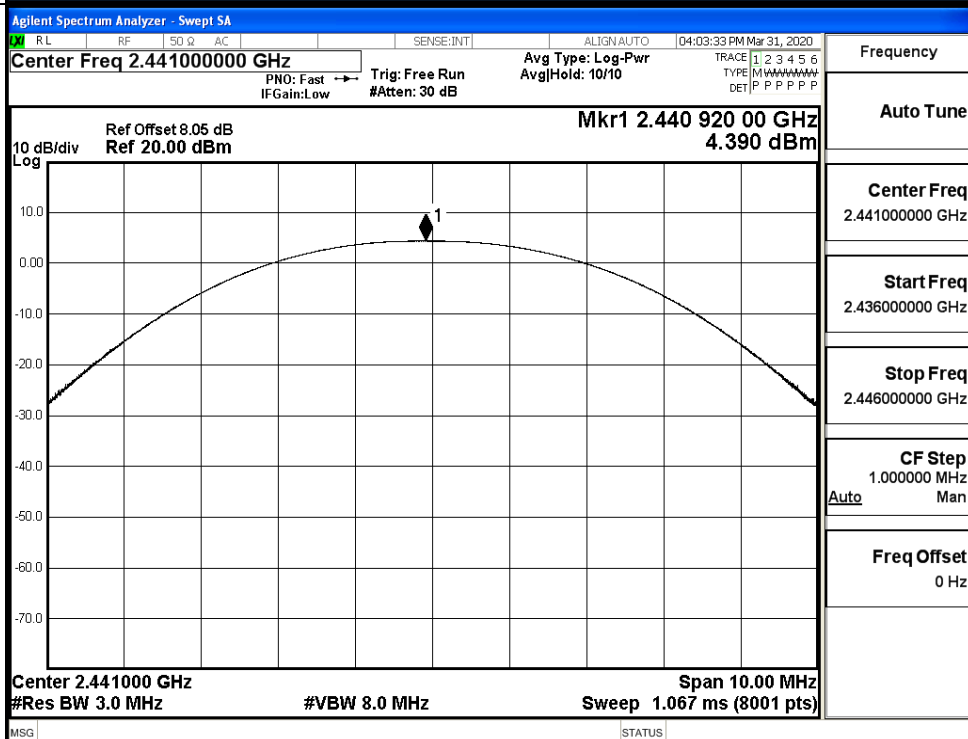
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.129	21	PASS
	MCH	4.390	21	PASS
	HCH	4.113	21	PASS
$\pi/4$ DQPSK	LCH	5.466	21	PASS
	MCH	5.812	21	PASS
	HCH	5.633	21	PASS
8DPSK	LCH	6.123	21	PASS
	MCH	6.387	21	PASS
	HCH	6.079	21	PASS

Test Graphs

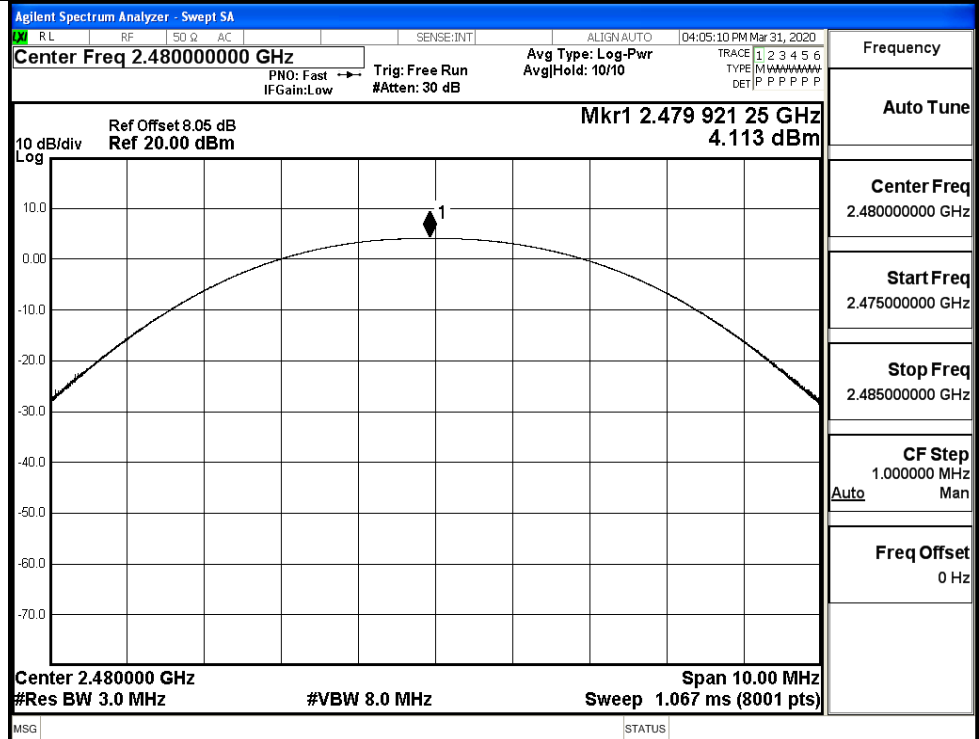
GFSK/LCH



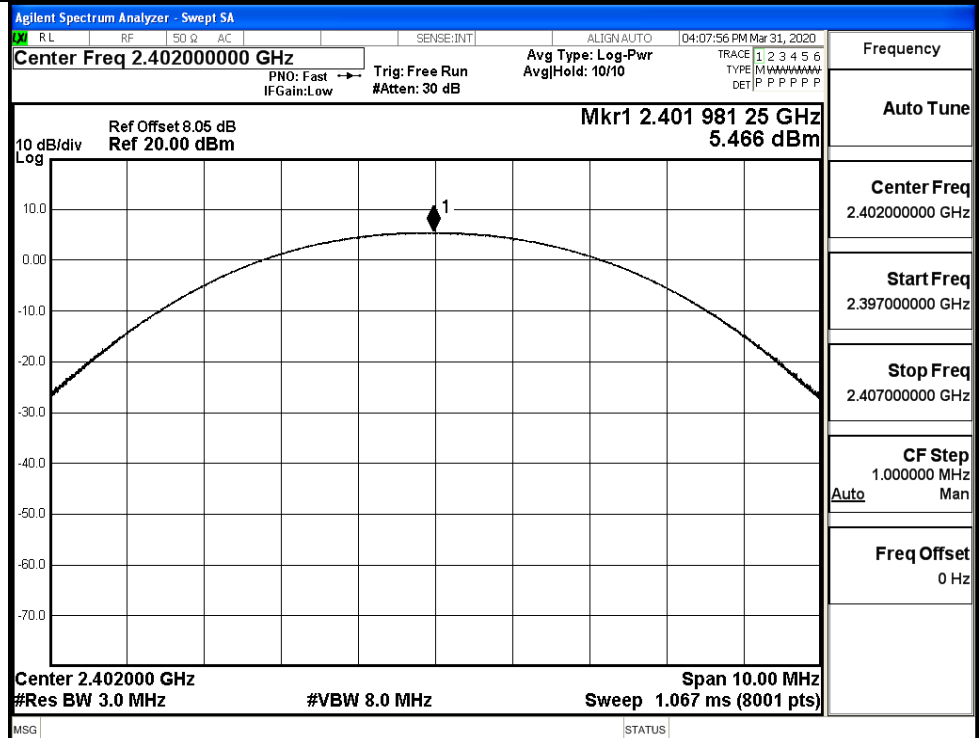
GFSK/MCH

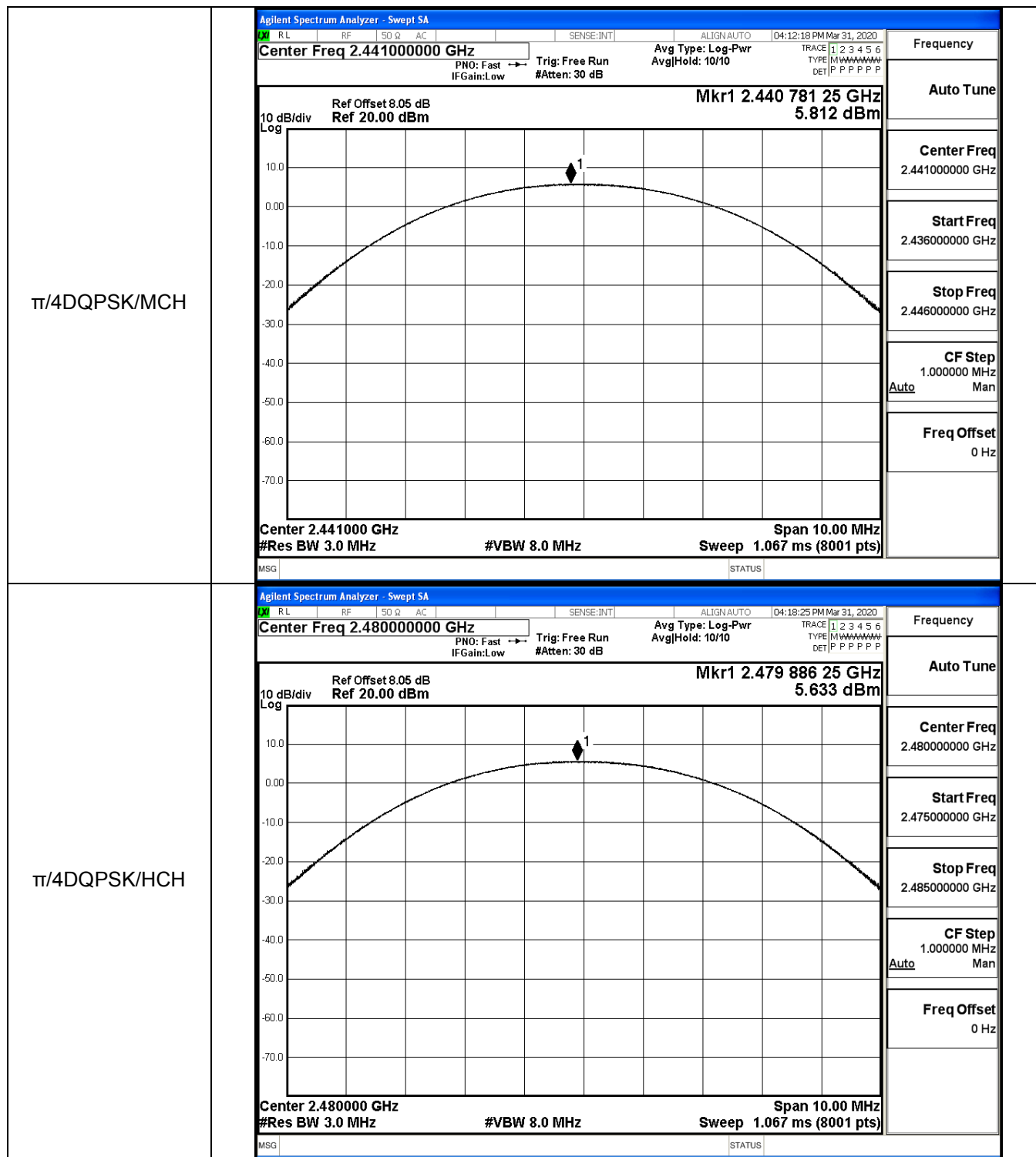


GFSK/HCH

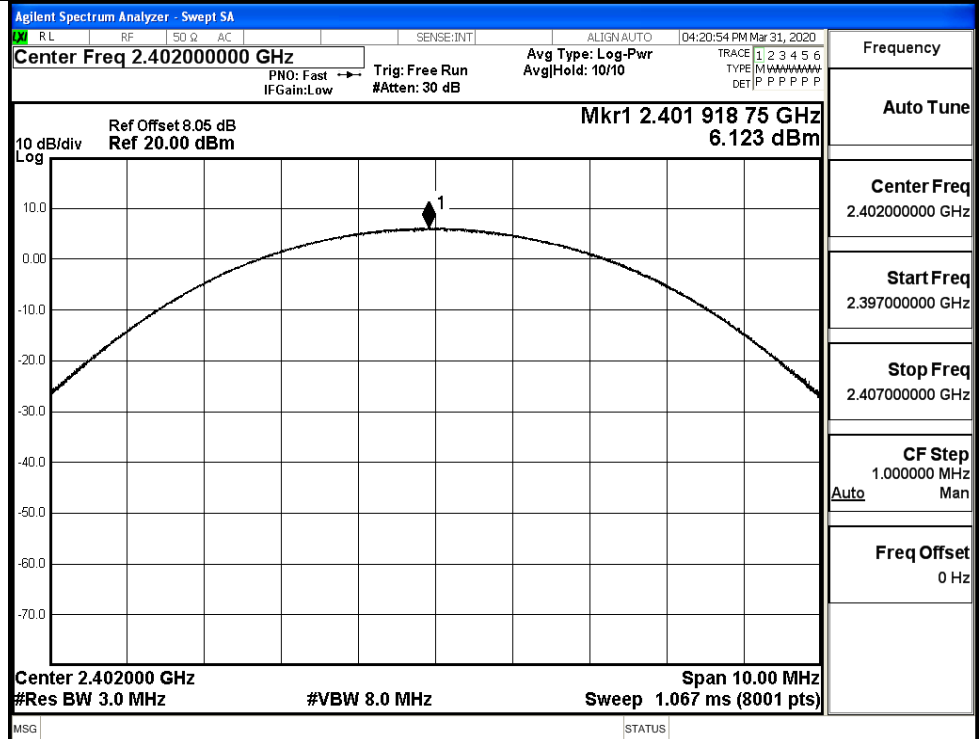


$\pi/4$ DQPSK/LCH

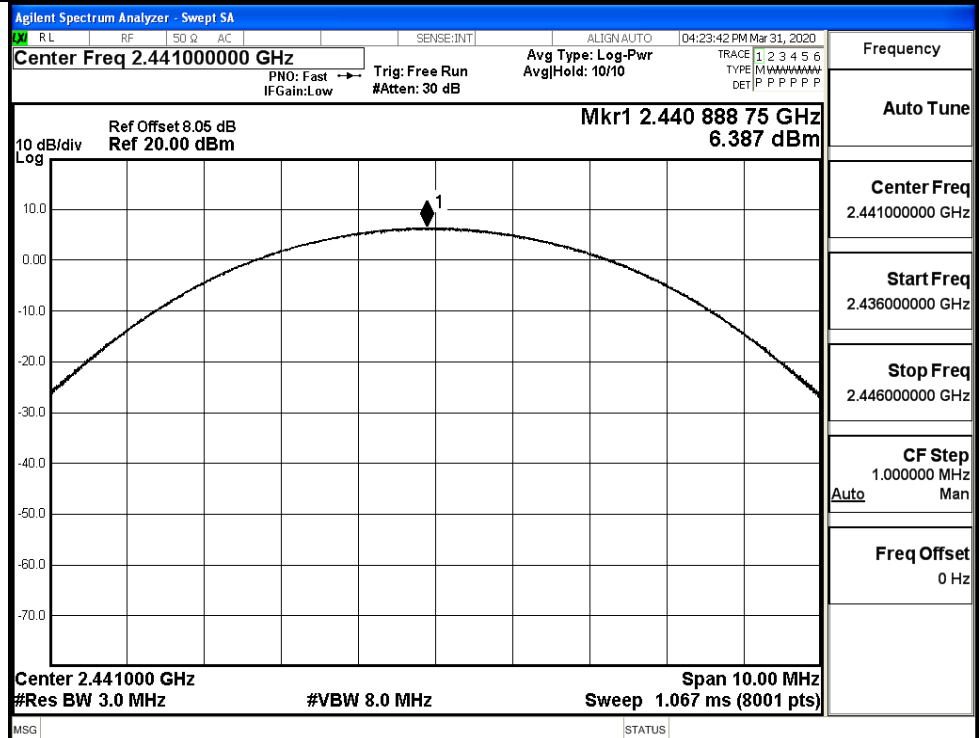




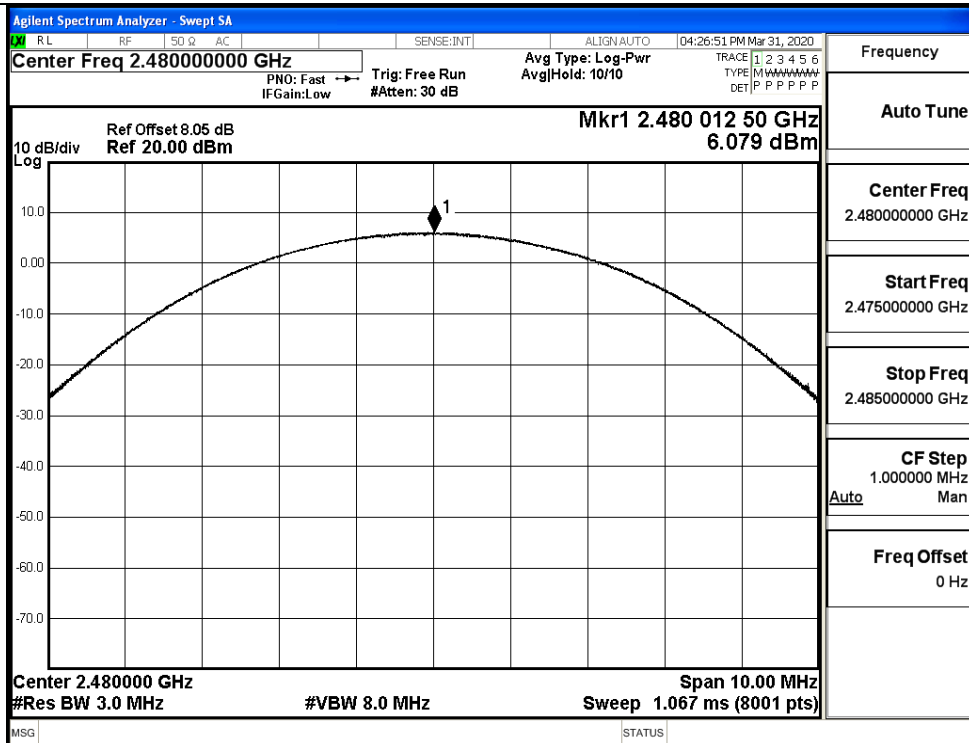
8DPSK/LCH



8DPSK/MCH



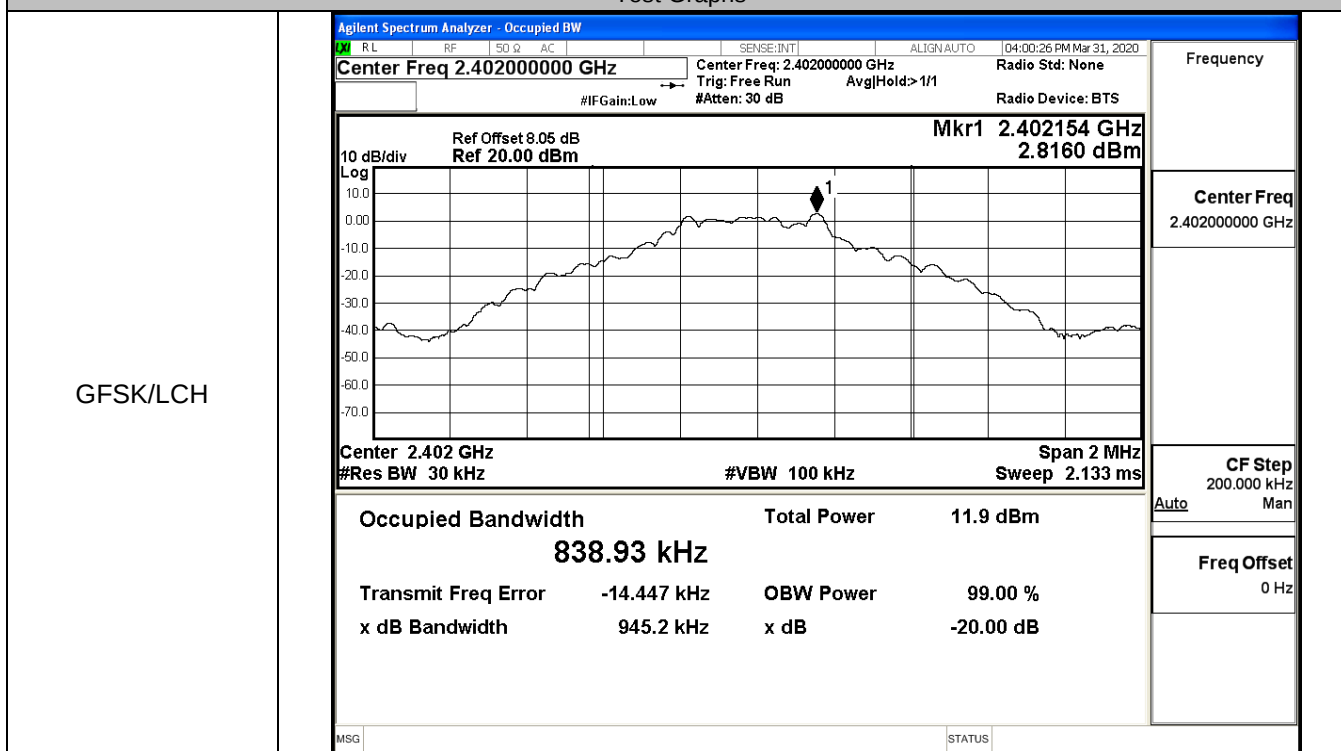
8DPSK/HCH



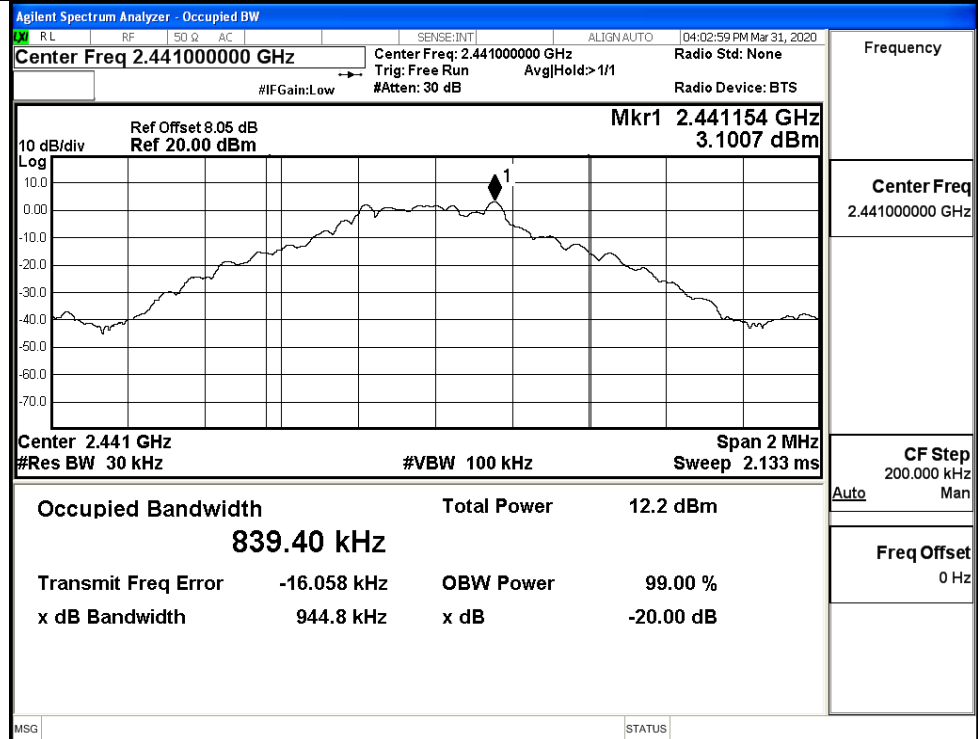
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9452	Not Specified	PASS
	MCH	0.9448	Not Specified	PASS
	HCH	0.9456	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.288	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.288	Not Specified	PASS
8DPSK	LCH	1.296	Not Specified	PASS
	MCH	1.295	Not Specified	PASS
	HCH	1.296	Not Specified	PASS

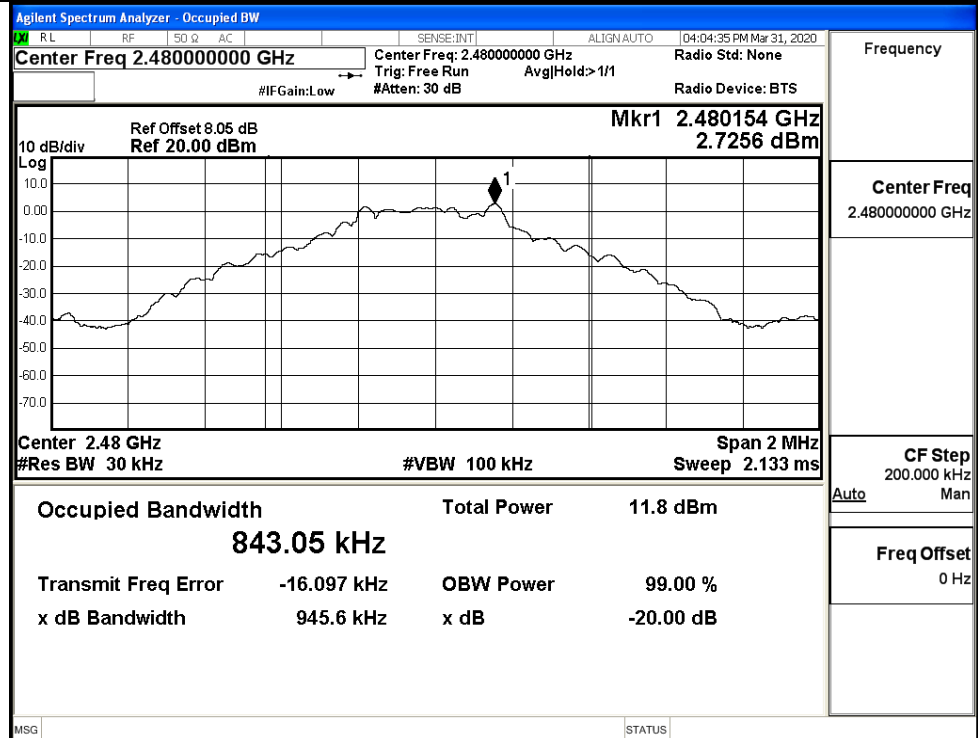
Test Graphs



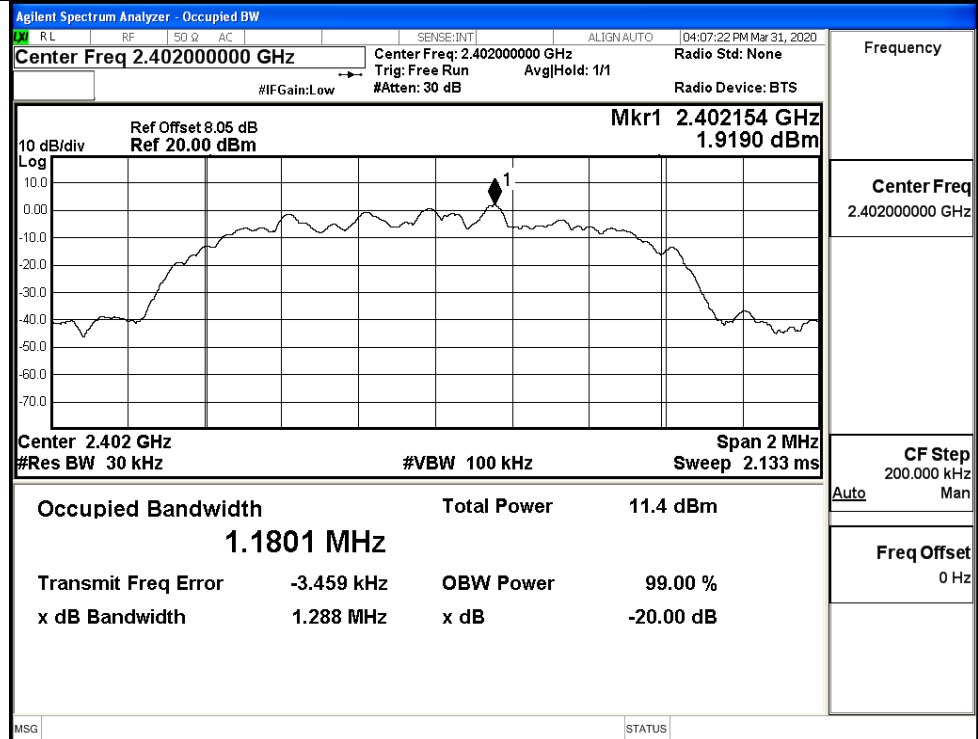
GFSK/MCH



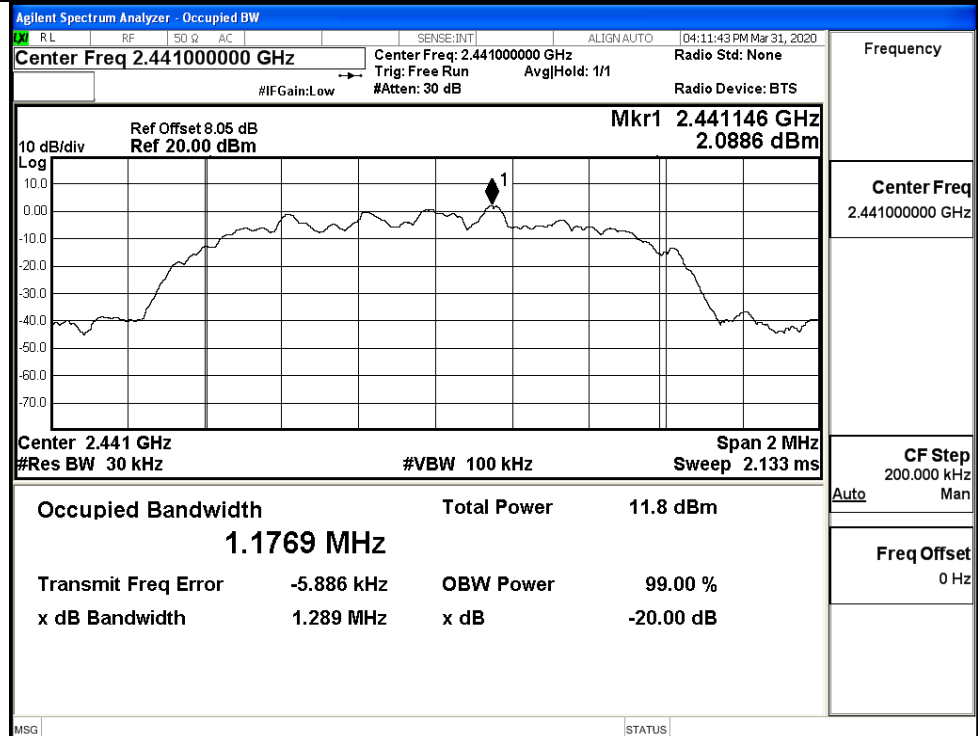
GFSK/HCH



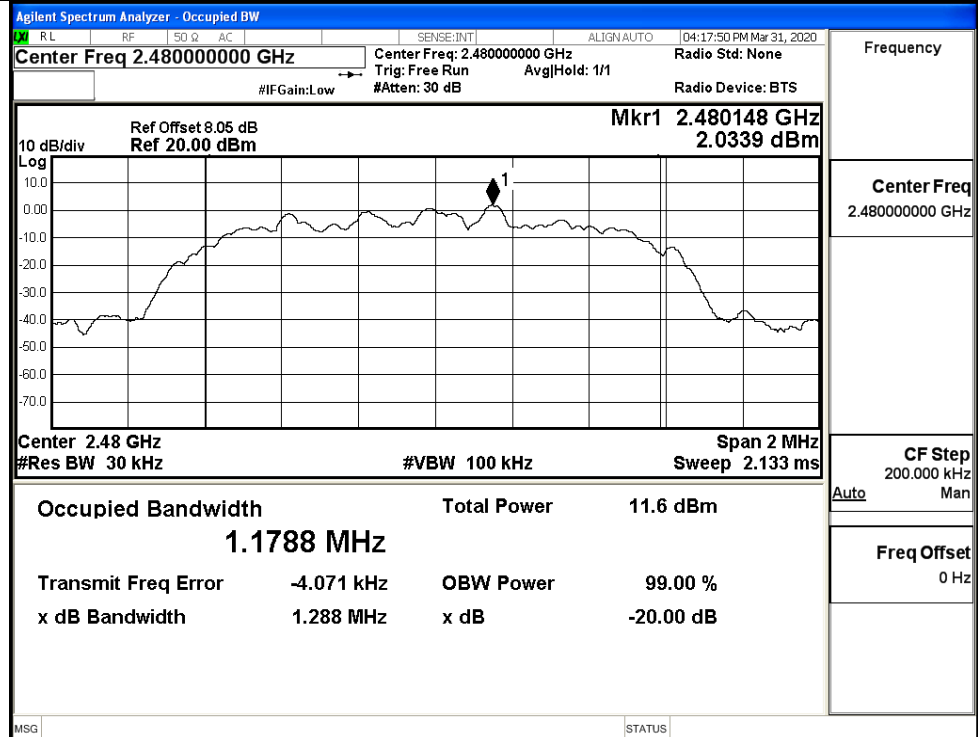
$\pi/4$ DQPSK/LCH



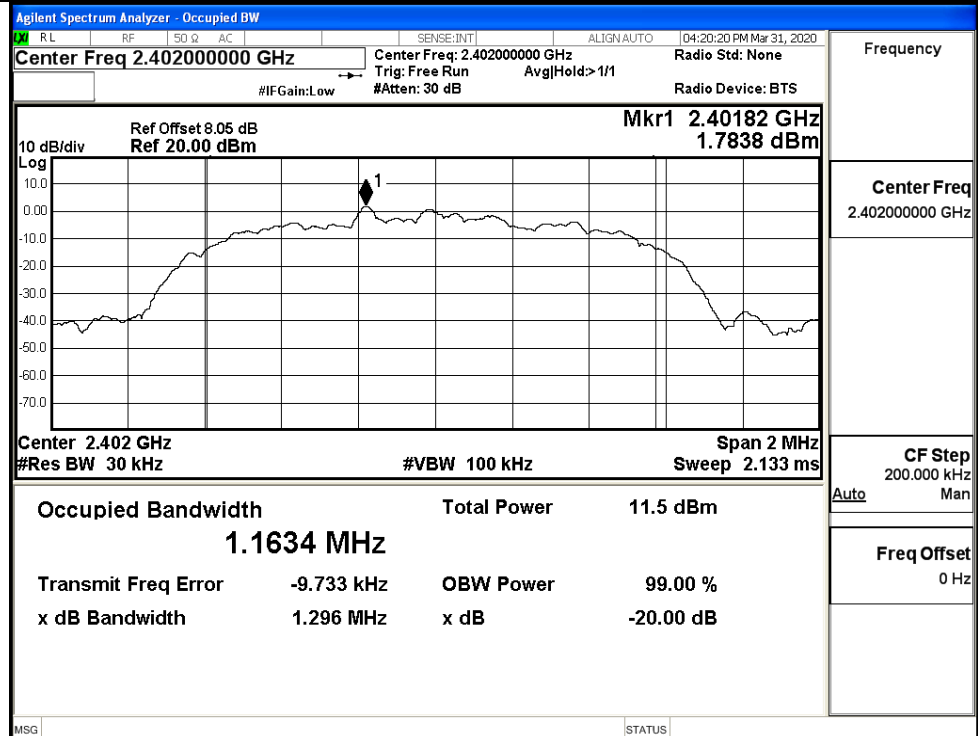
$\pi/4$ DQPSK/MCH



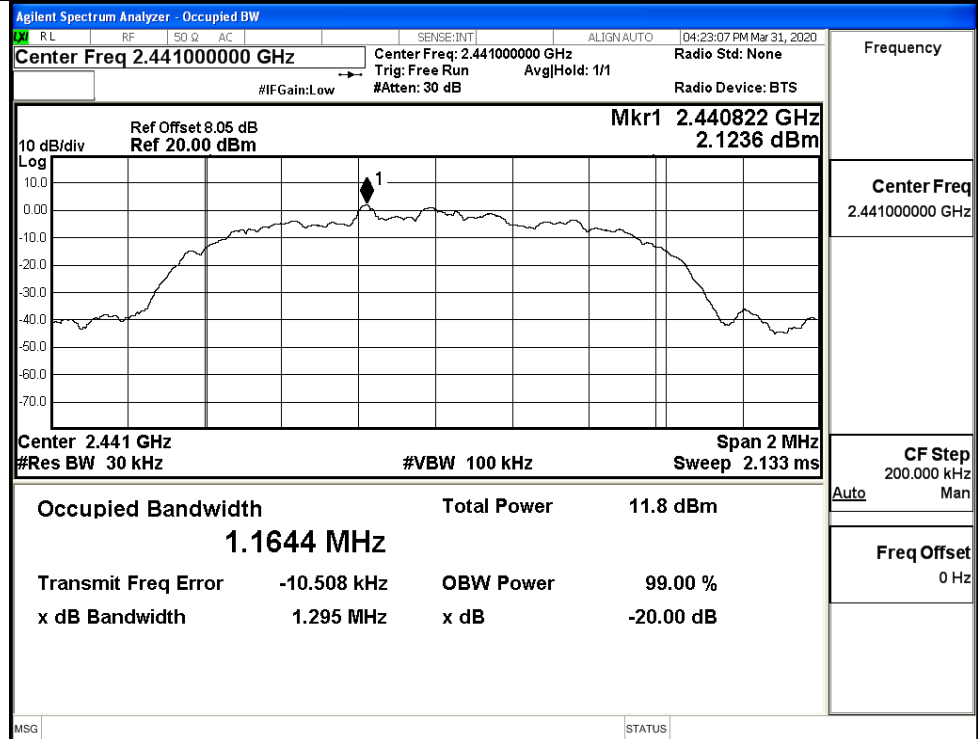
$\pi/4$ DQPSK/HCH



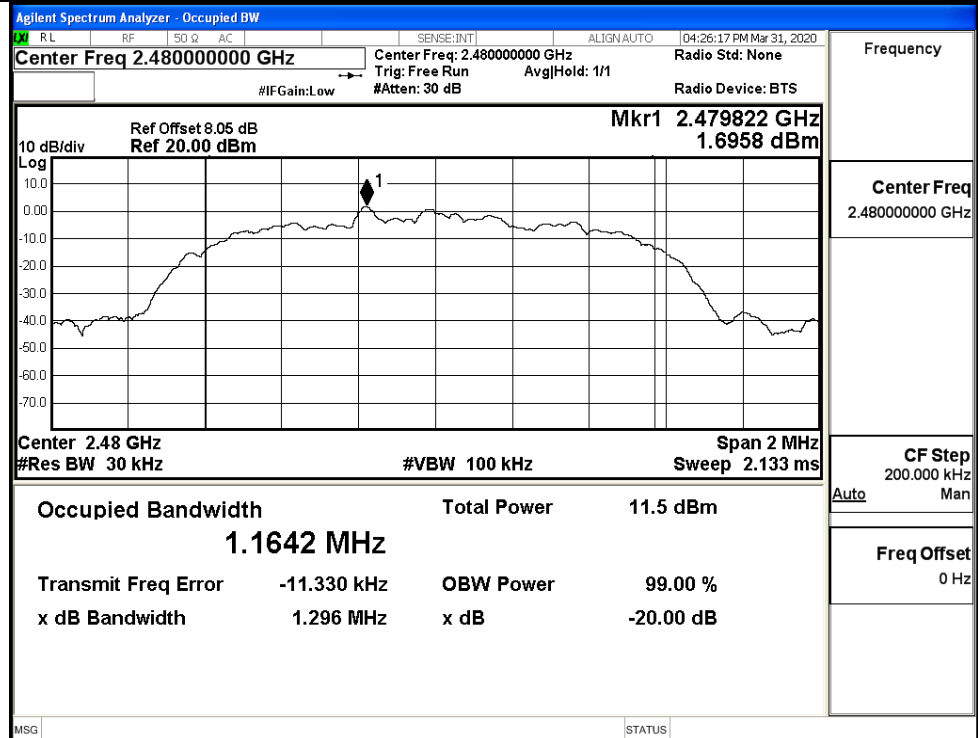
8DPSK/LCH



8DPSK/MCH



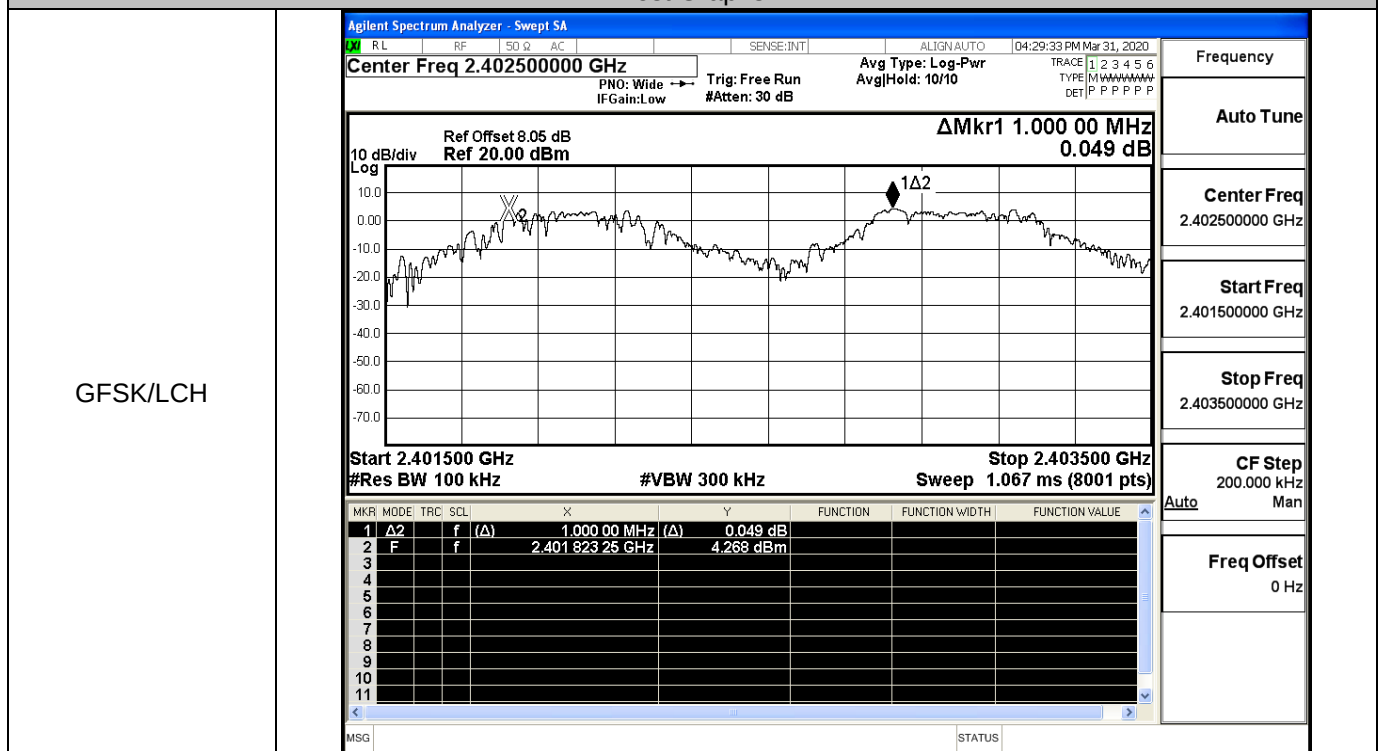
8DPSK/HCH



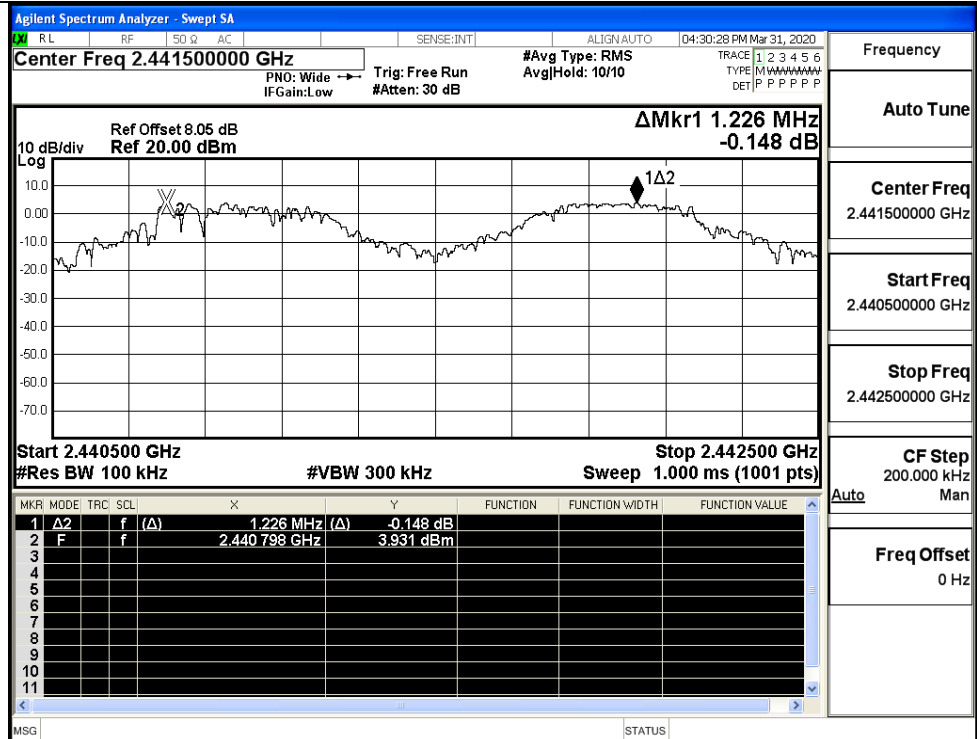
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.000	0.630	PASS
	MCH	1.226	0.630	PASS
	HCH	1.022	0.630	PASS
$\pi/4$ DQPSK	LCH	1.008	0.859	PASS
	MCH	1.112	0.859	PASS
	HCH	1.208	0.859	PASS
8DPSK	LCH	0.976	0.864	PASS
	MCH	0.932	0.864	PASS
	HCH	1.012	0.864	PASS

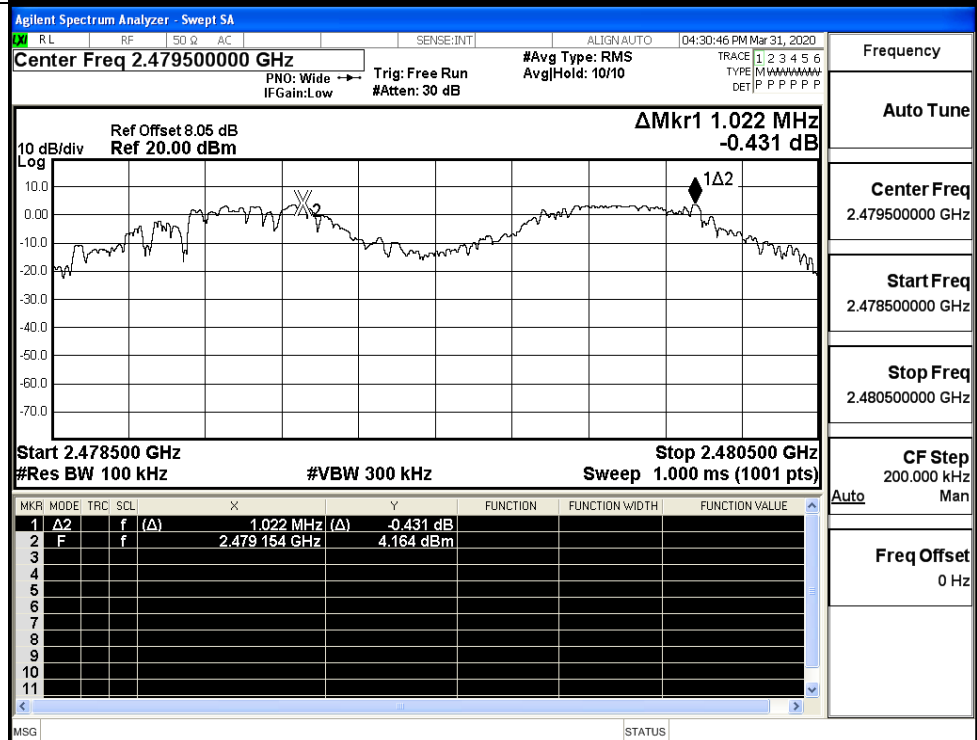
Test Graphs



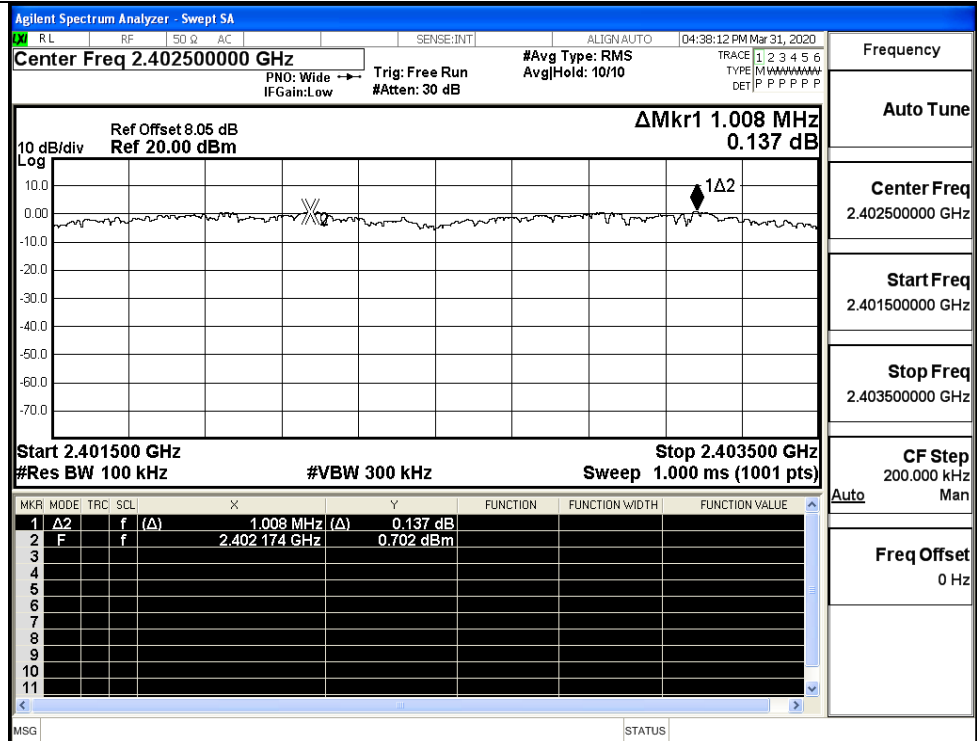
GFSK/MCH



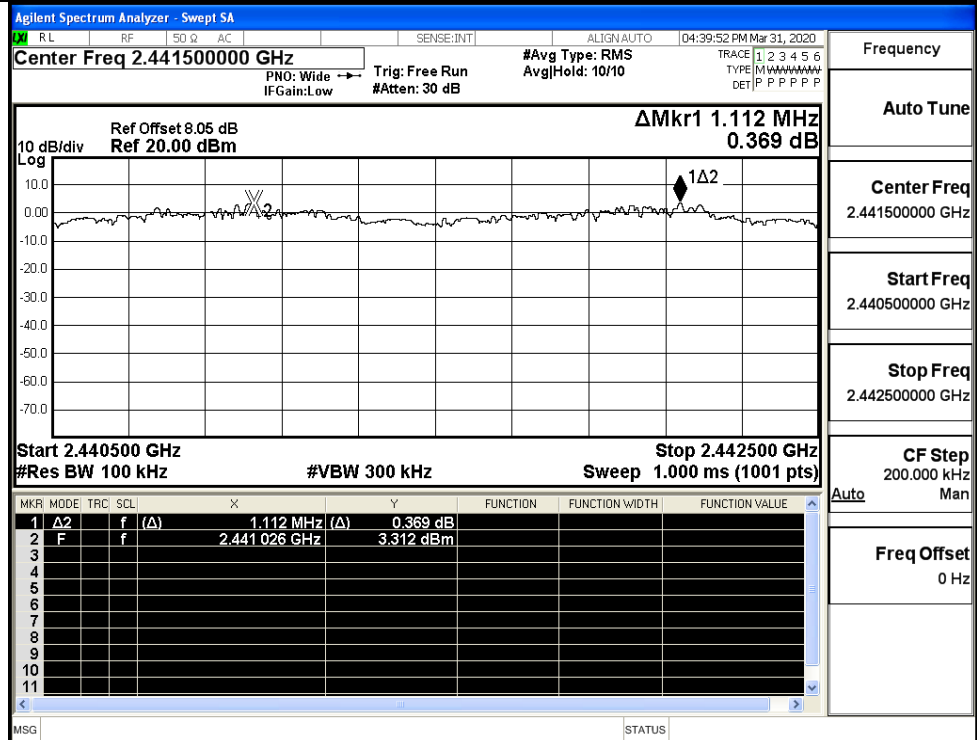
GFSK/HCH



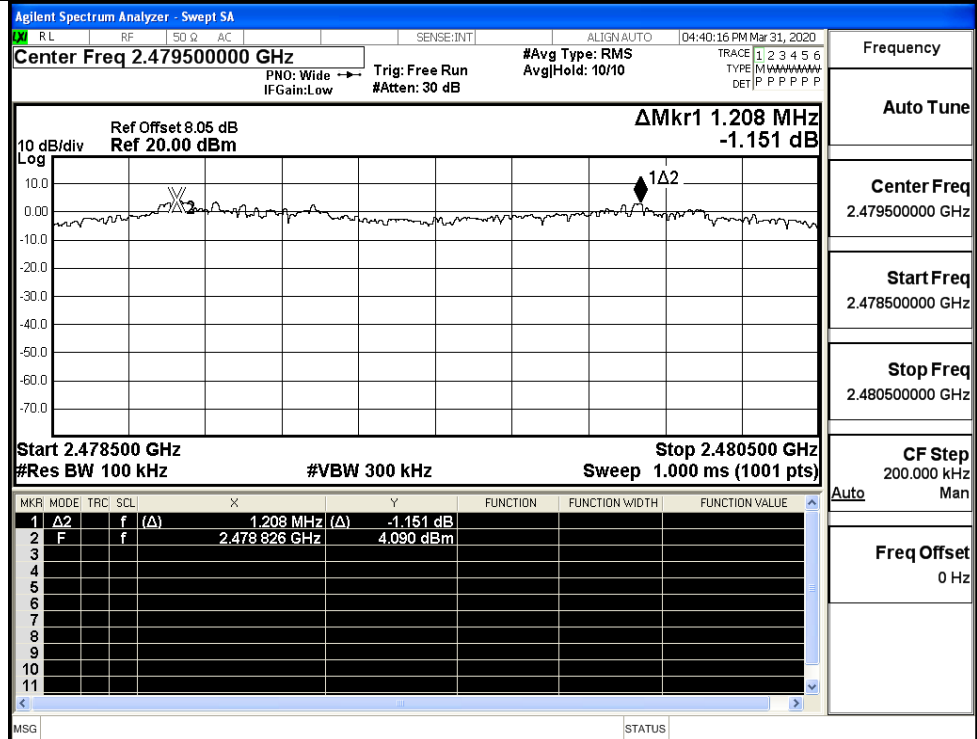
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

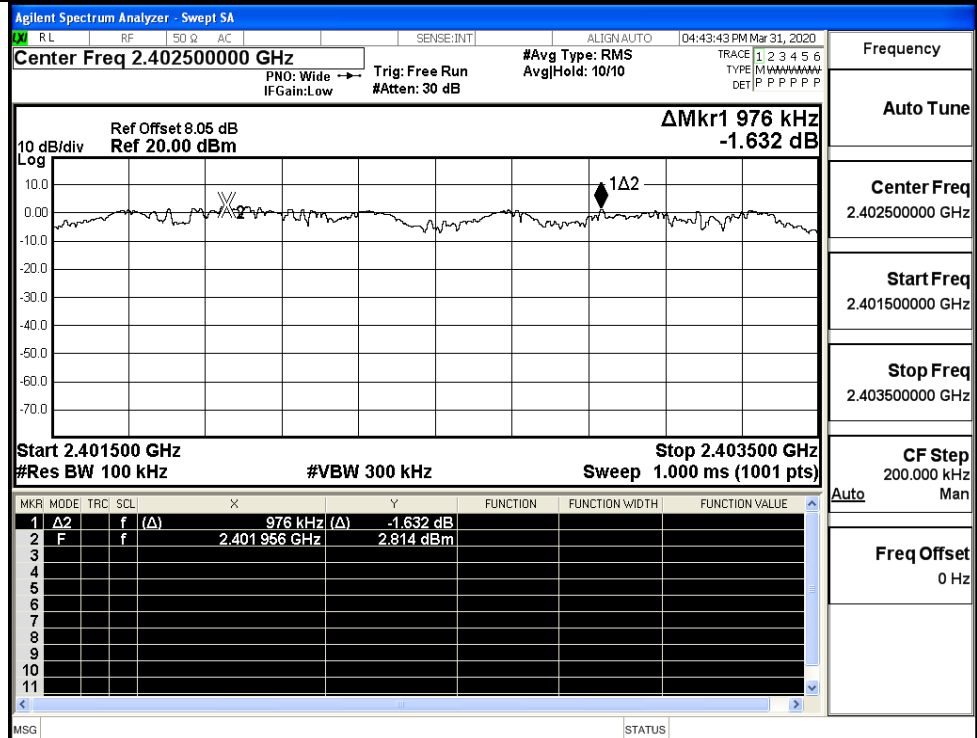
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

8DPSK/LCH



Frequency

Auto Tune

Center Freq
2.402500000 GHz

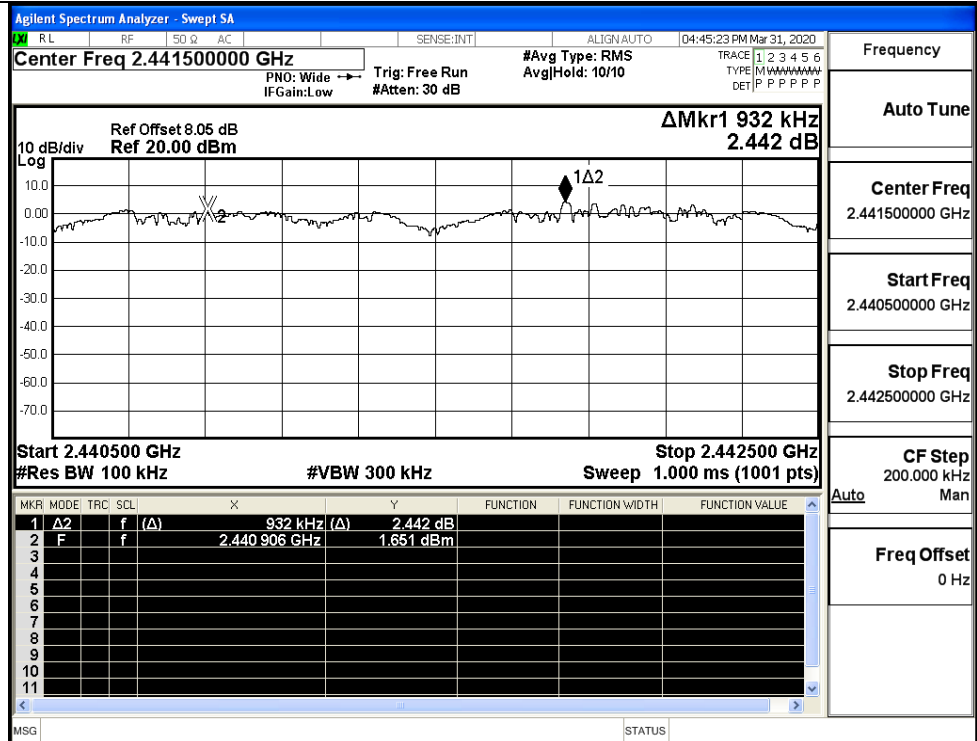
Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

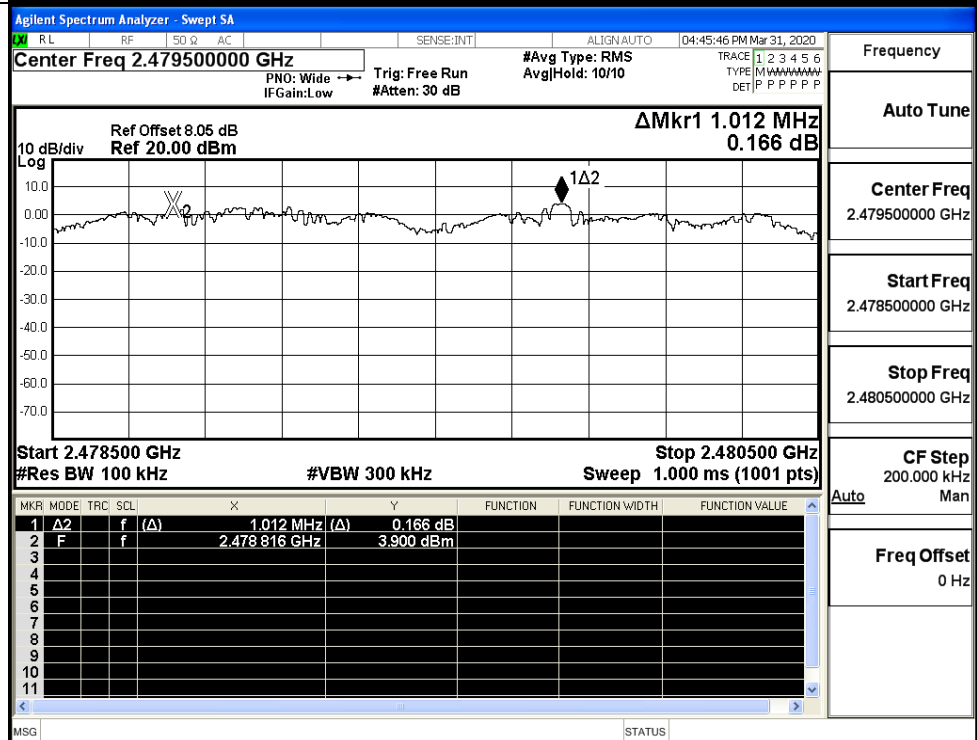
CF Step
200.000 kHz
Man

Freq Offset
0 Hz

8DPSK/MCH



8DPSK/HCH

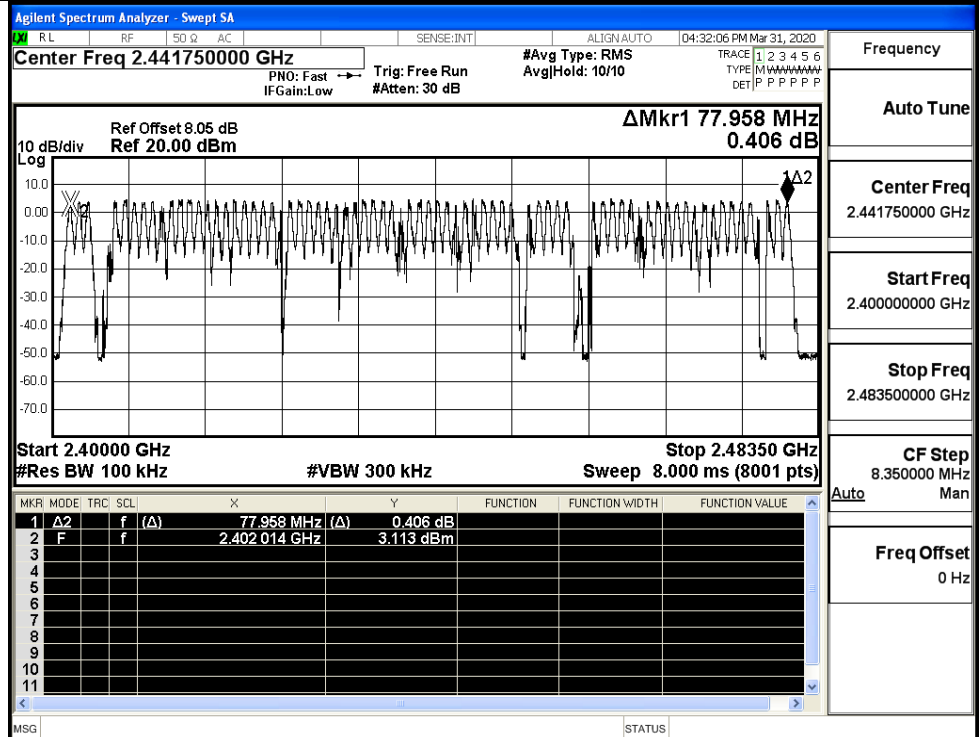


A.4 Hopping Channel Number

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

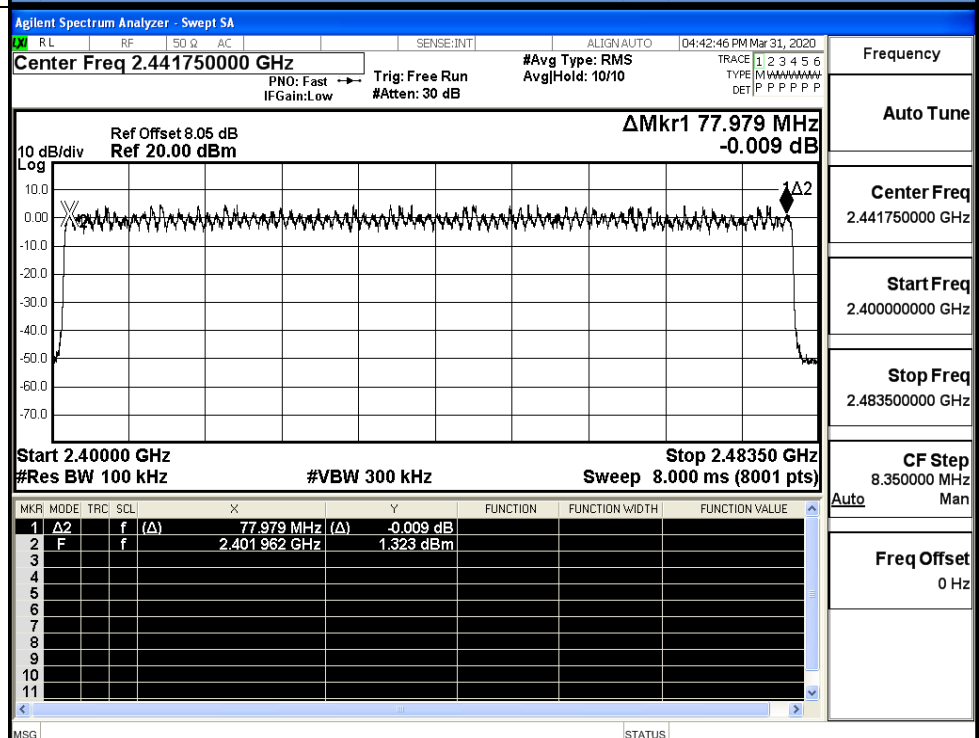
Test Graphs

GFSK/Hop



Frequency

Auto Tune

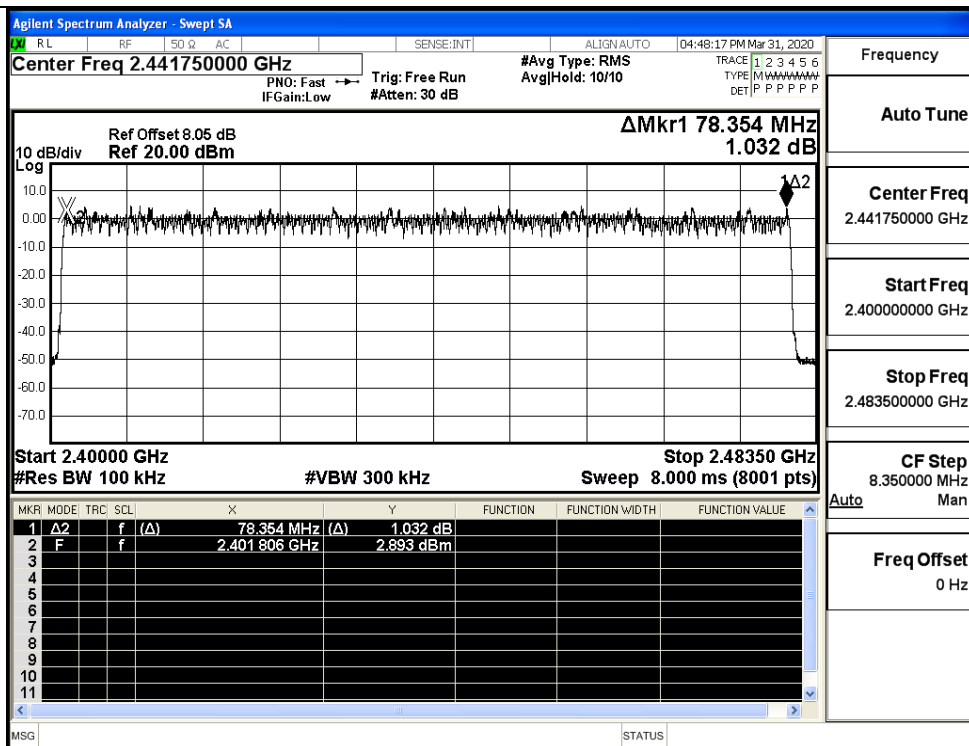
Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
Auto ManFreq Offset
0 Hz $\pi/4$ DQPSK/Hop

Frequency

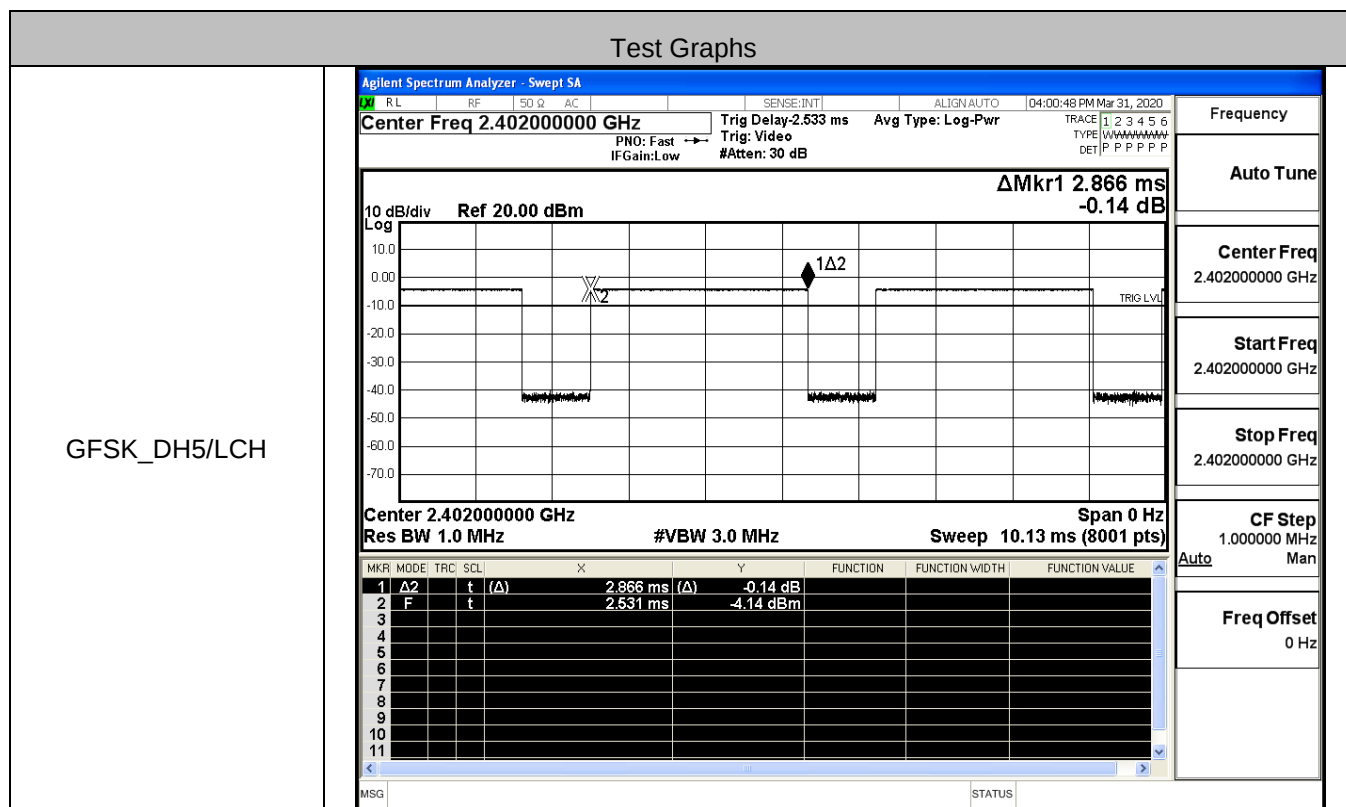
Auto Tune

Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
Auto ManFreq Offset
0 Hz

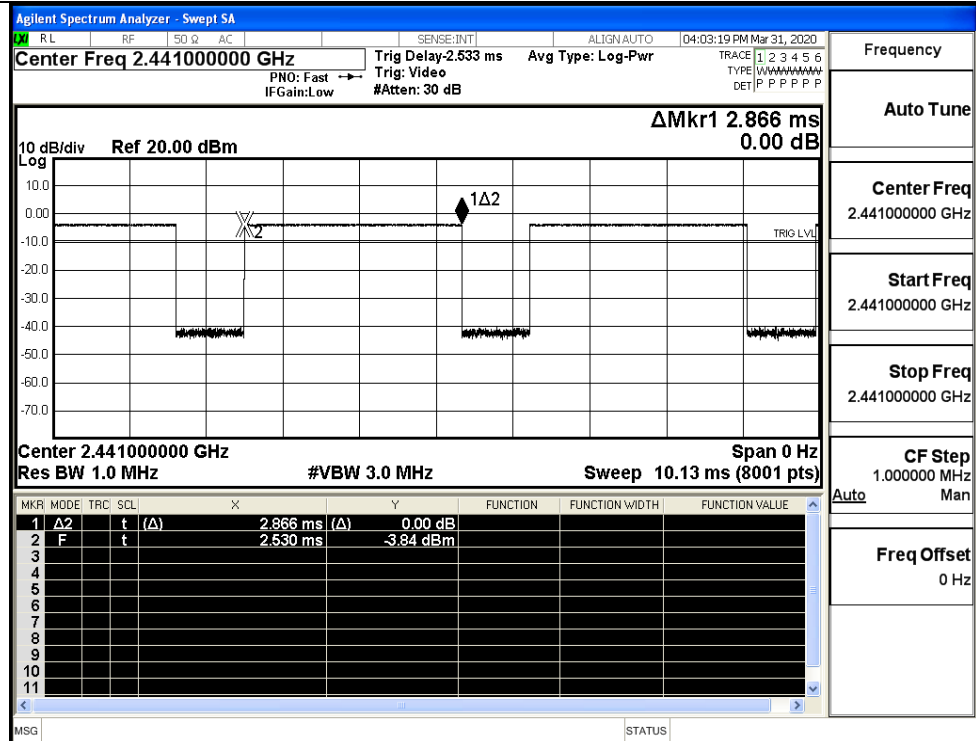
8DPSK/Hop



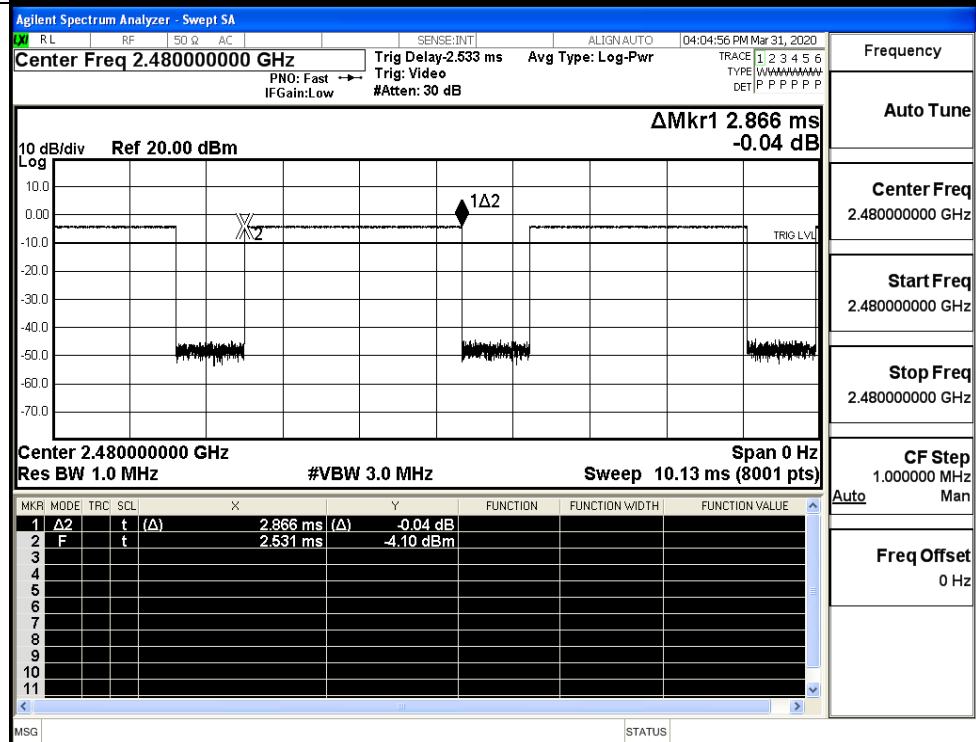
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.87	106.7	0.306	0.4	PASS
	DH5	MCH	2.87	106.7	0.306	0.4	PASS
	DH5	HCH	2.87	106.7	0.306	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.87	106.7	0.015	0.4	PASS
	2DH5	MCH	2.87	106.7	0.015	0.4	PASS
	2DH5	HCH	2.87	106.7	0.015	0.4	PASS
8DPSK	3DH5	LCH	2.87	106.7	0.015	0.4	PASS
	3DH5	MCH	2.87	106.7	0.307	0.4	PASS
	3DH5	HCH	2.87	106.7	0.015	0.4	PASS



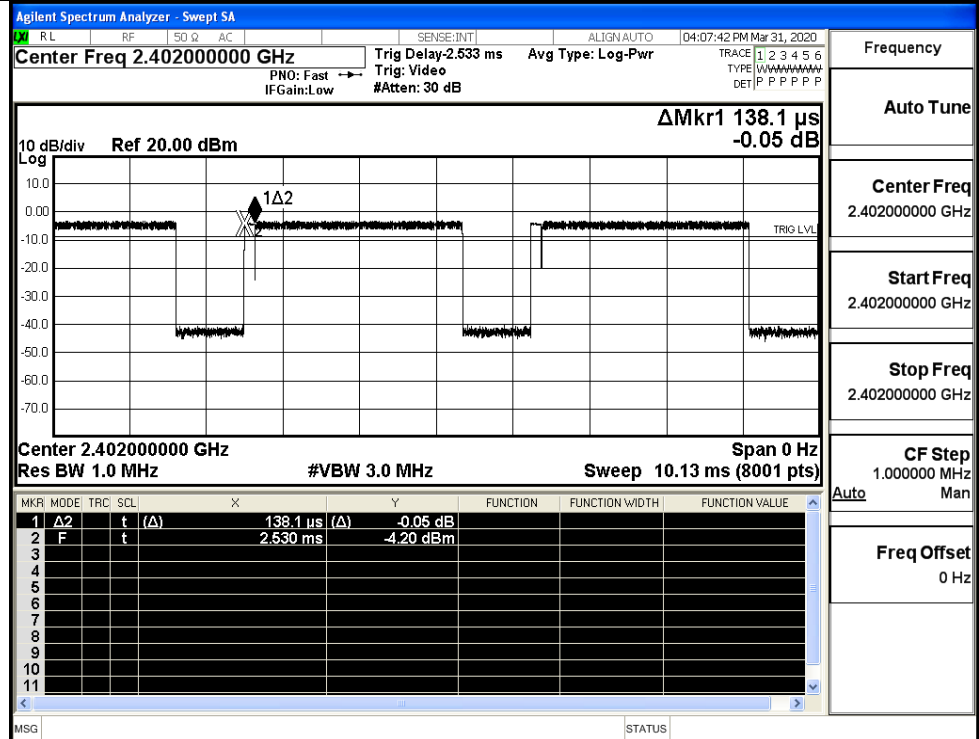
GFSK_DH5/MCH



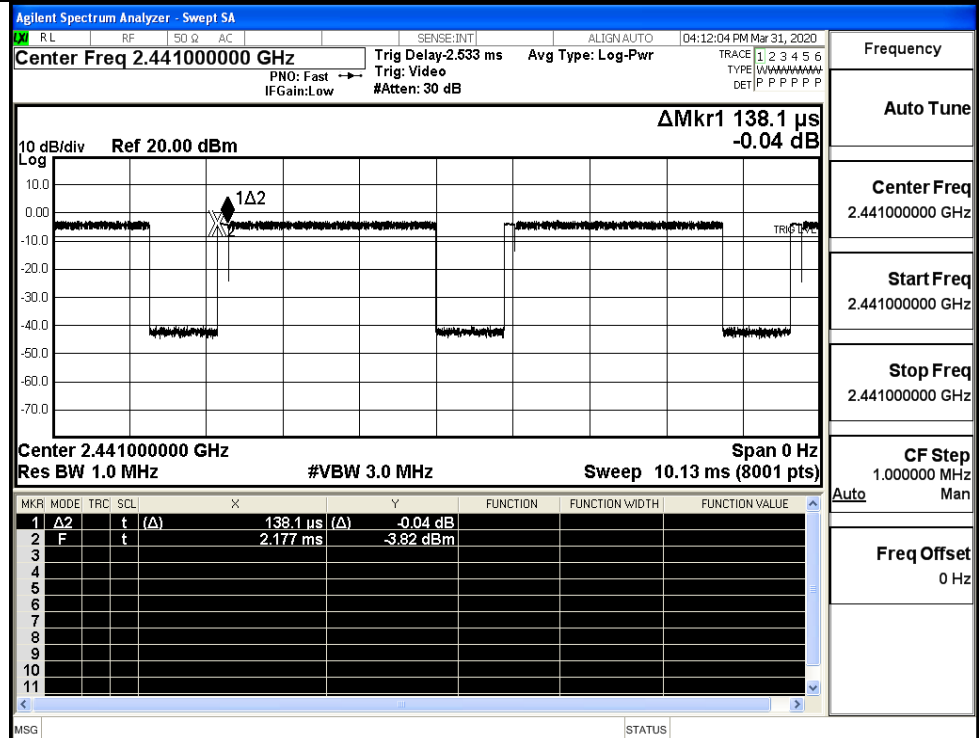
GFSK_DH5/HCH



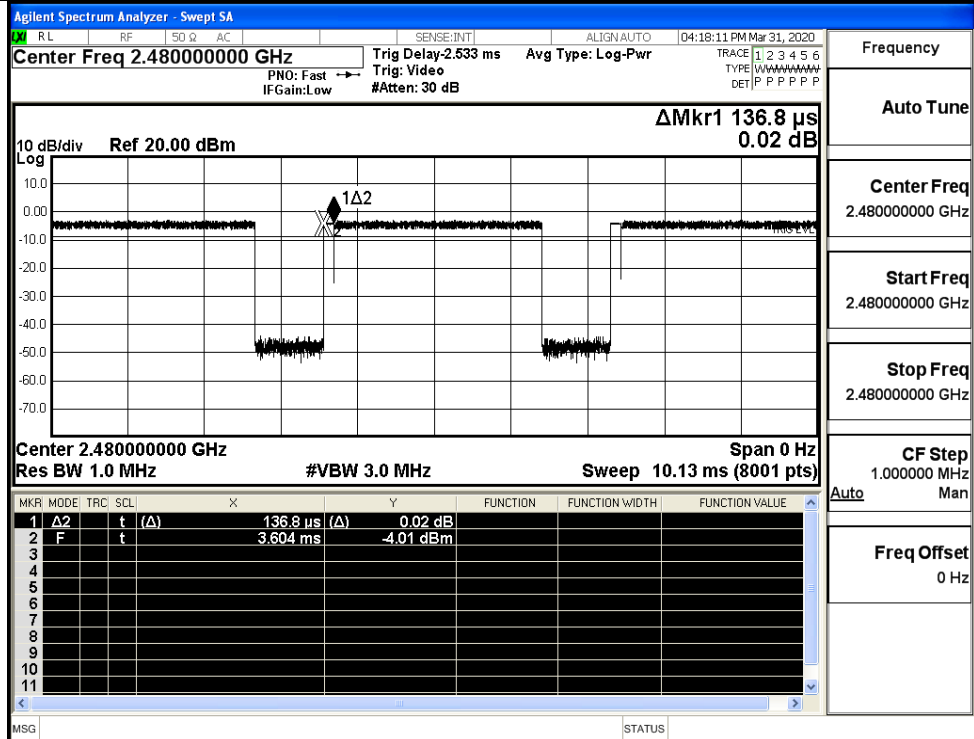
$\pi/4$ DQPSK
_2DH5/LCH



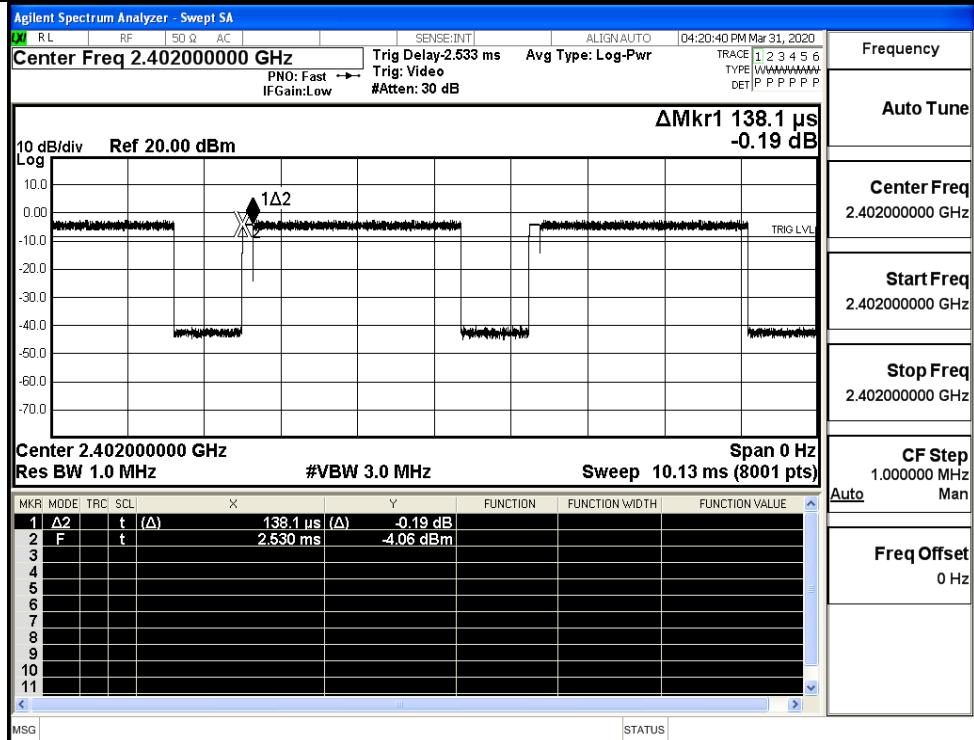
$\pi/4$ DQPSK
_2DH5/MCH



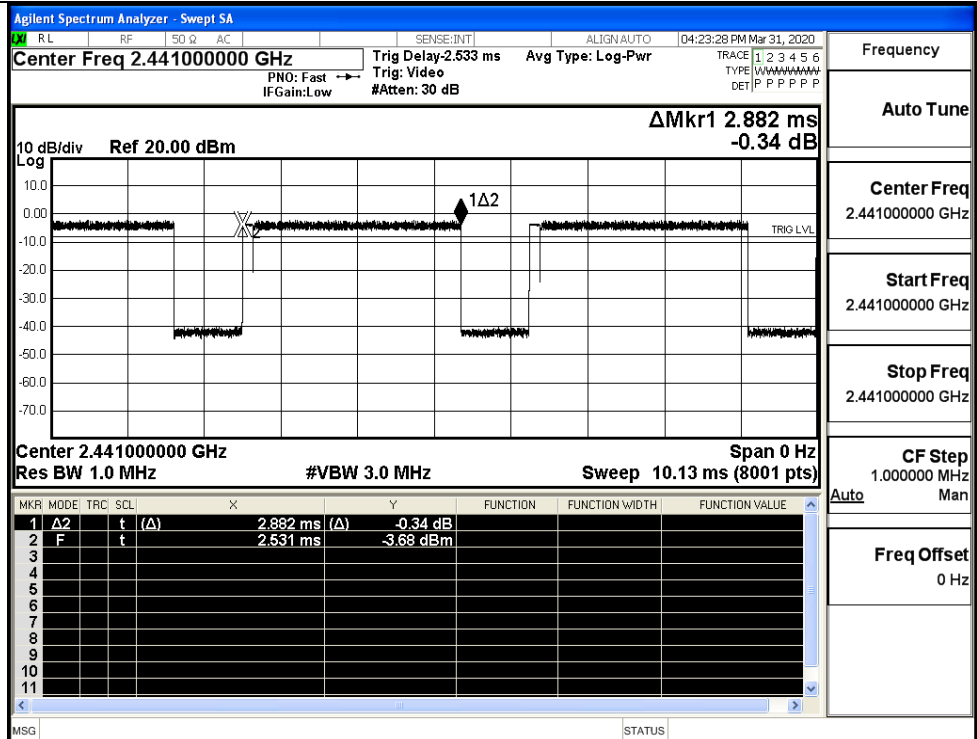
π /4DQPSK
_2DH5/HCH



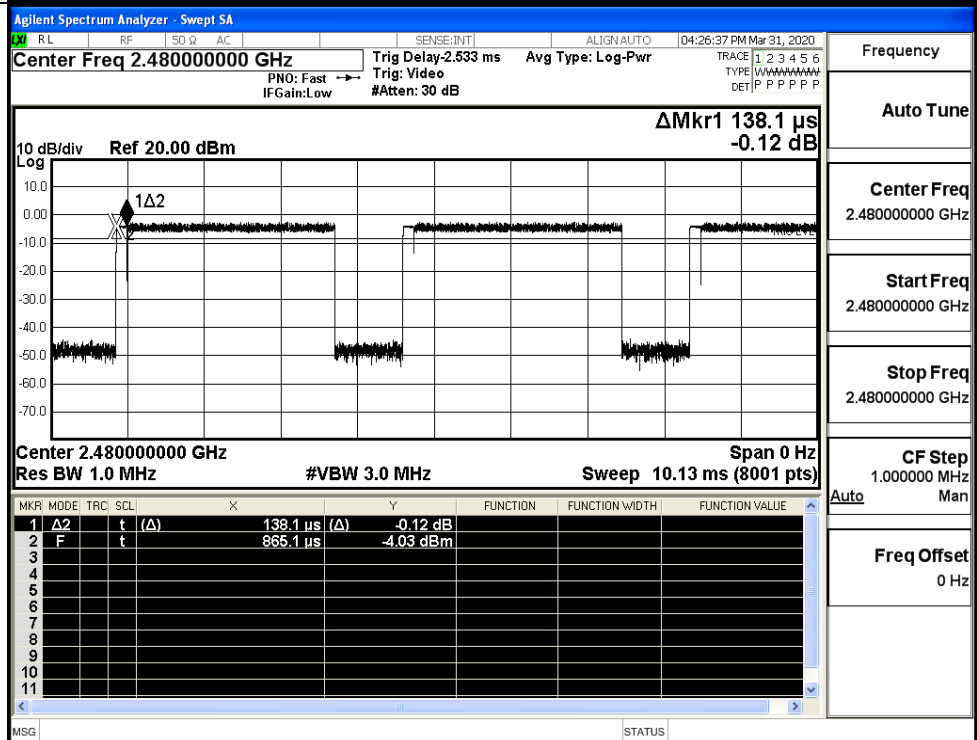
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



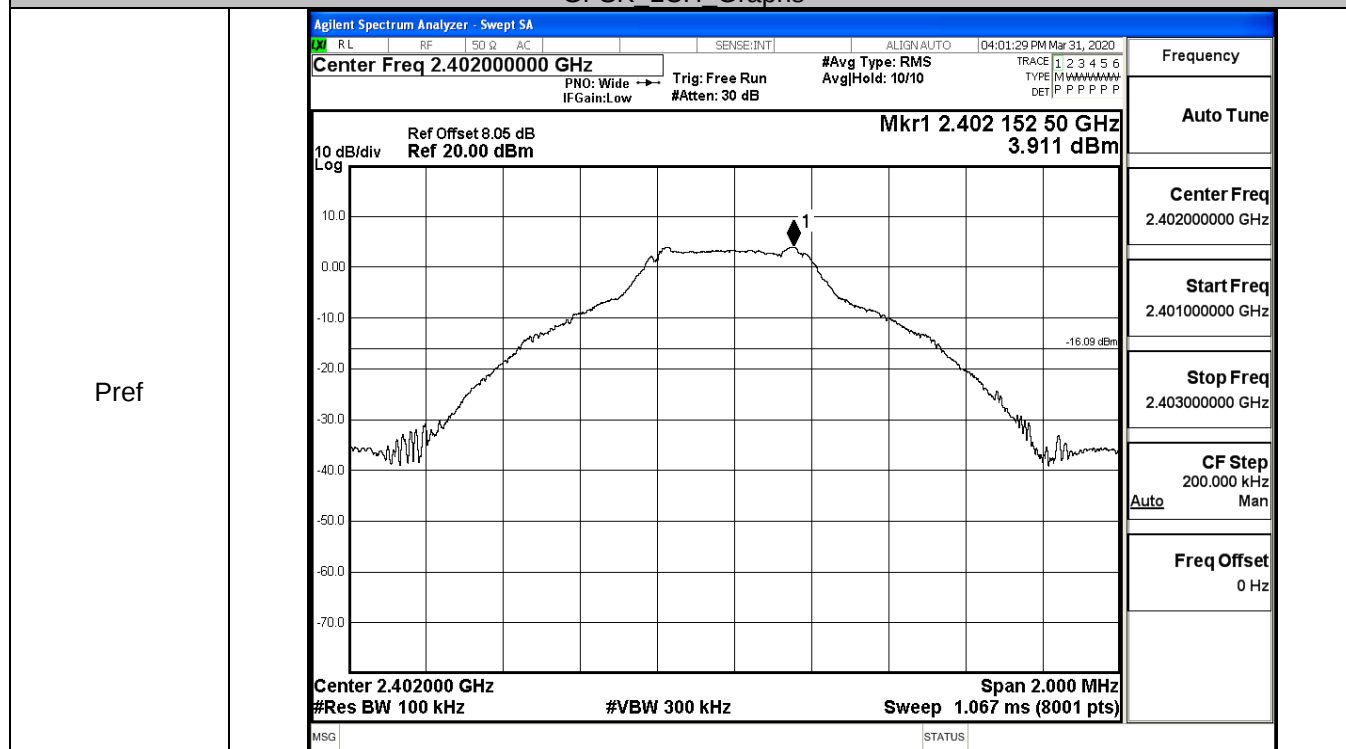
8DPSK_3DH5/HCH



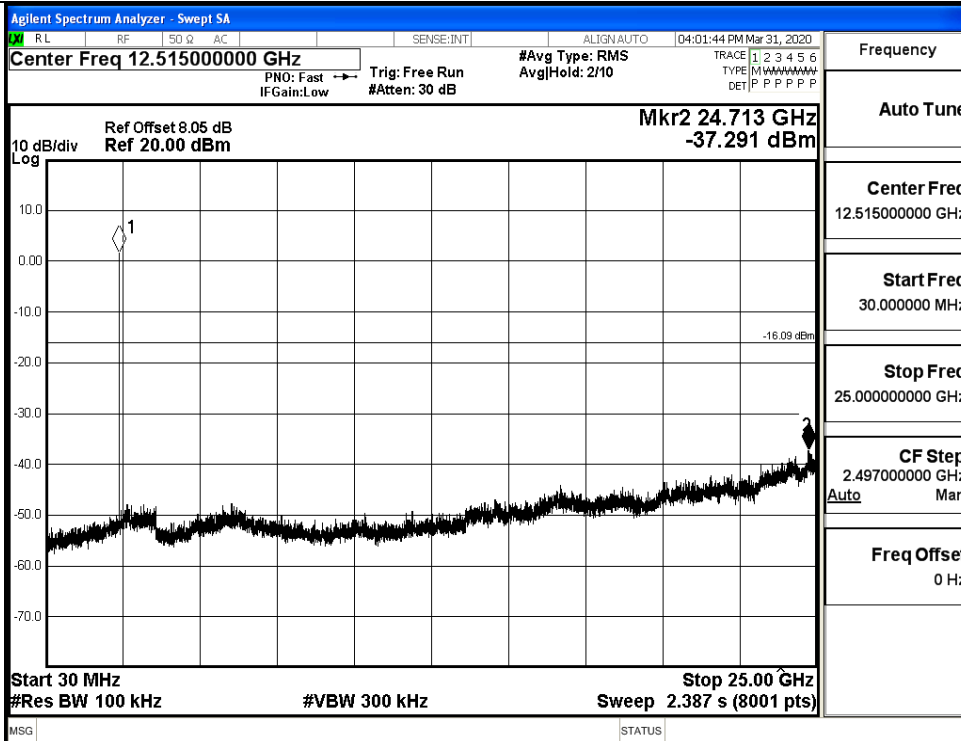
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.911	-37.291	-16.089	PASS
	MCH	4.187	-36.661	-15.813	PASS
	HCH	3.866	-36.371	-16.134	PASS
$\pi/4$ DQPSK	LCH	3.866	-36.361	-16.134	PASS
	MCH	4.21	-36.306	-15.790	PASS
	HCH	3.913	-37.726	-16.087	PASS
8DPSK	LCH	3.886	-37.618	-16.114	PASS
	MCH	4.262	-37.700	-15.738	PASS
	HCH	3.971	-37.391	-16.029	PASS

GFSK LCH Graphs

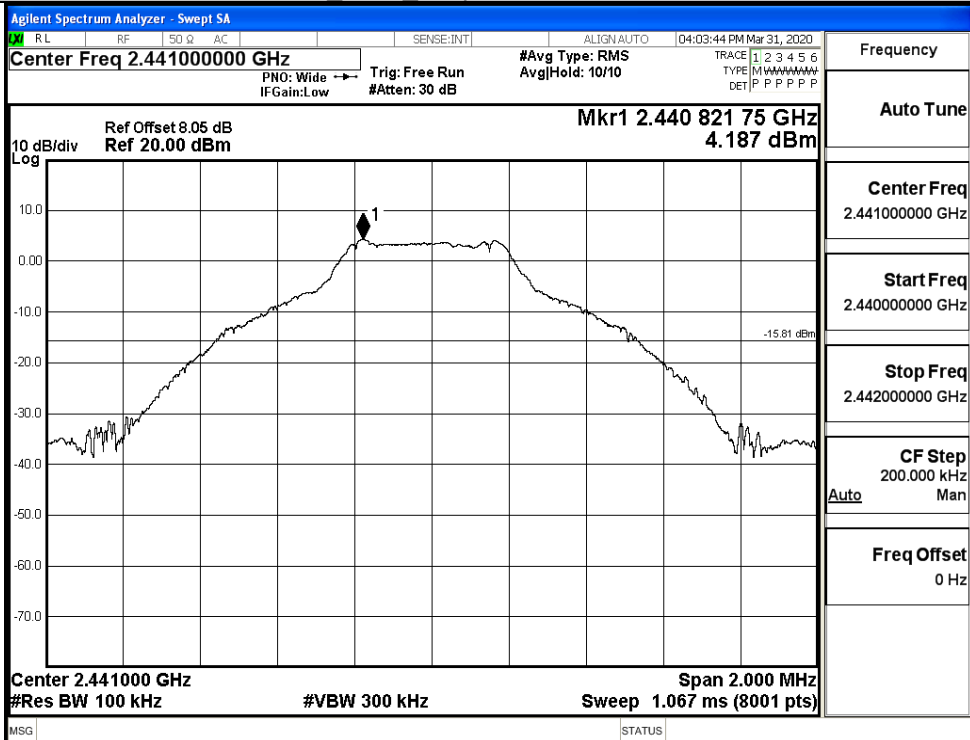


Puw

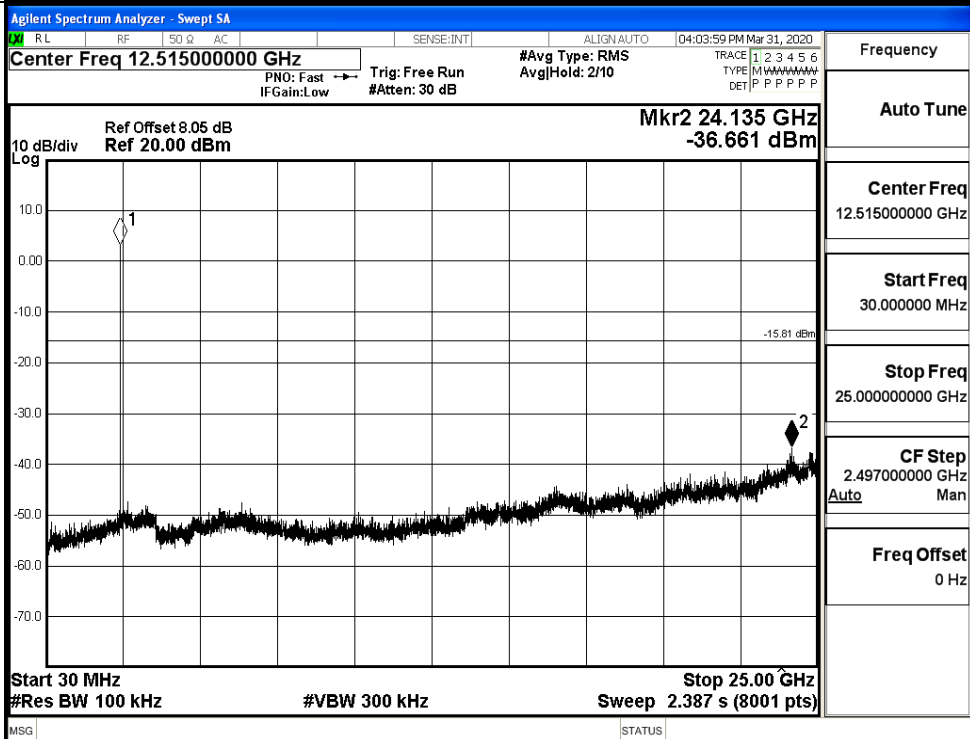


GFSK_MCH_Graphs

Pref

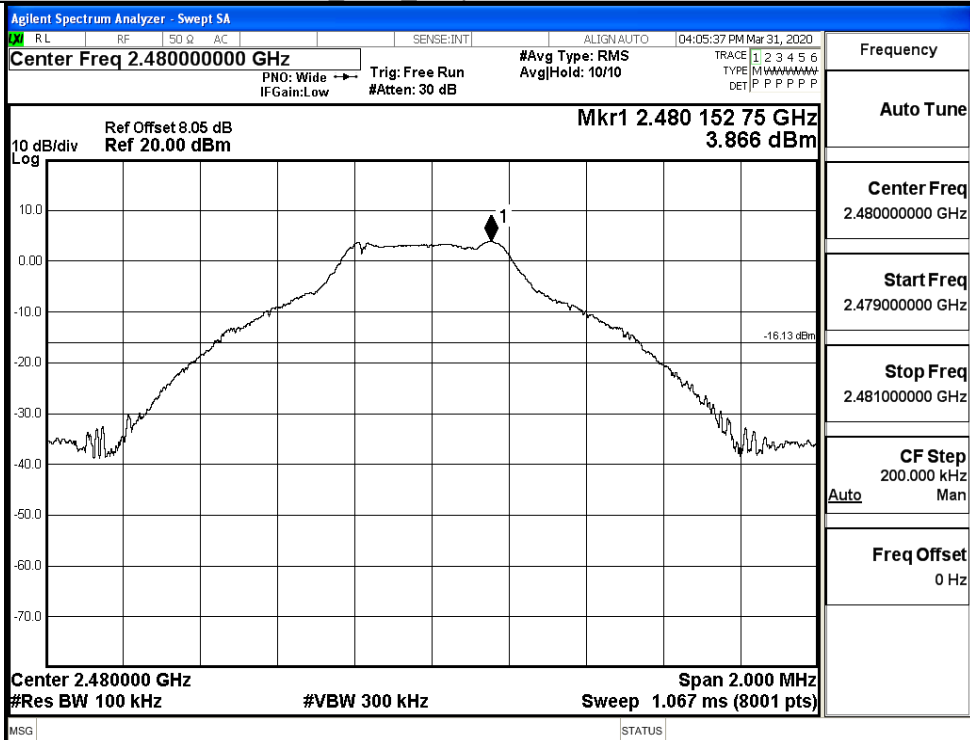


Puw

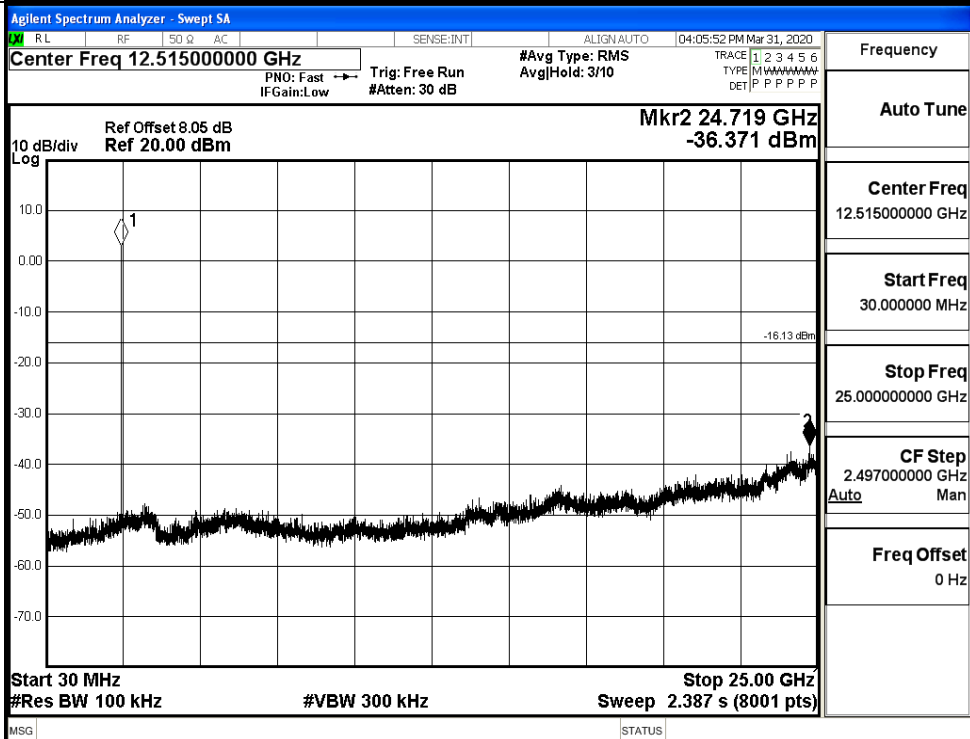


GFSK HCH_Graphs

Pref

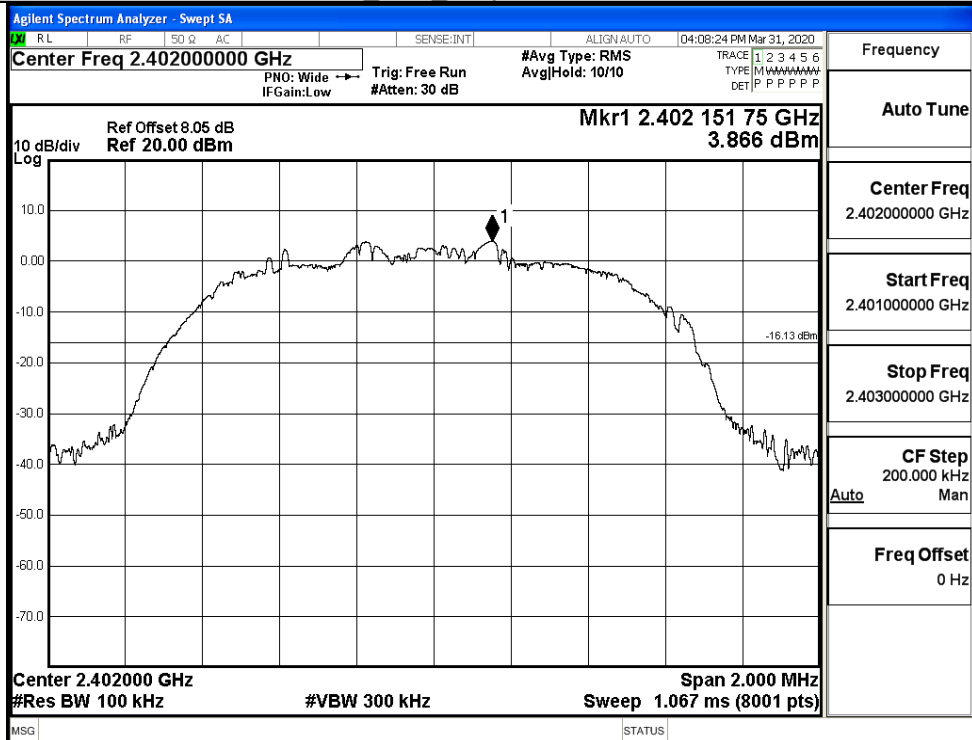


Puw

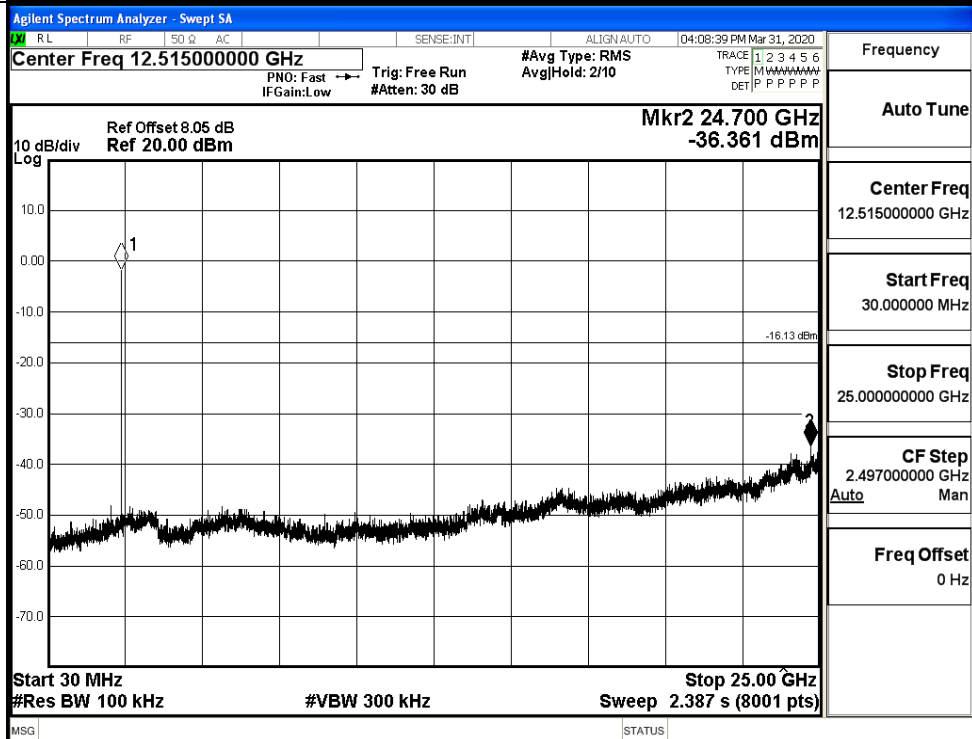


$\pi/4$ DQPSK_LCH_Graphs

Pref

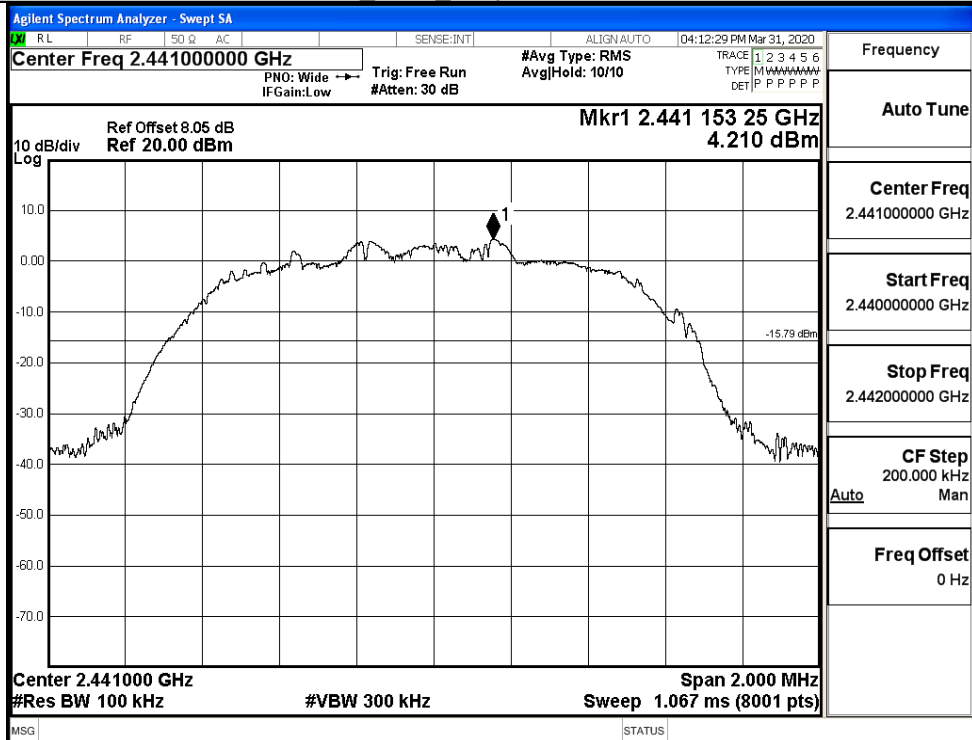


Puw

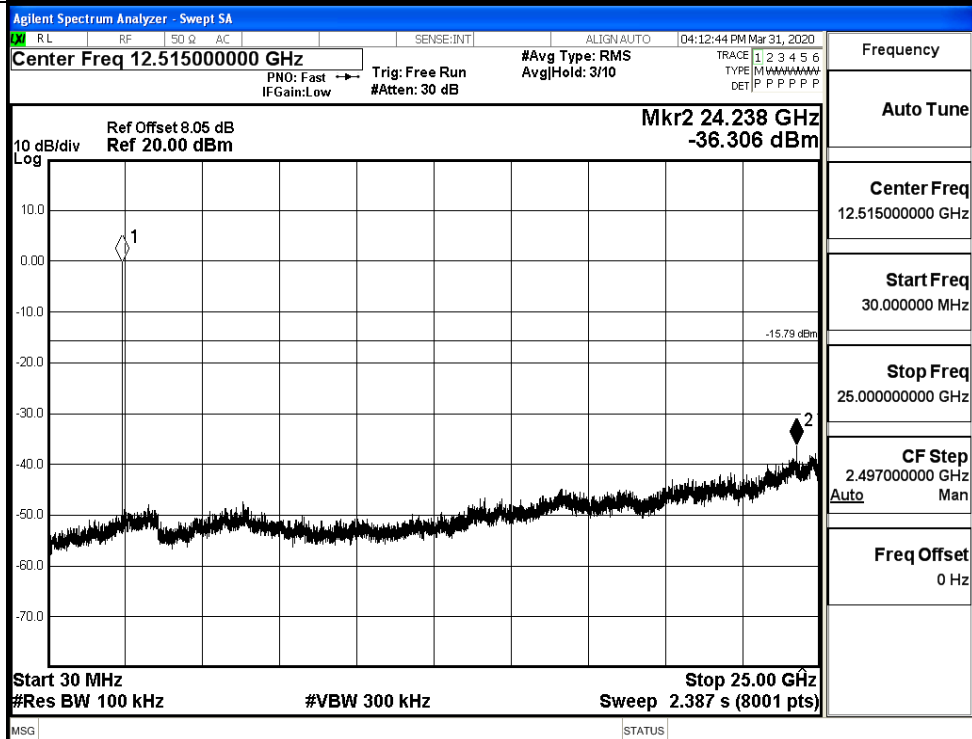


π /4DQPSK_MCH_Graphs

Pref

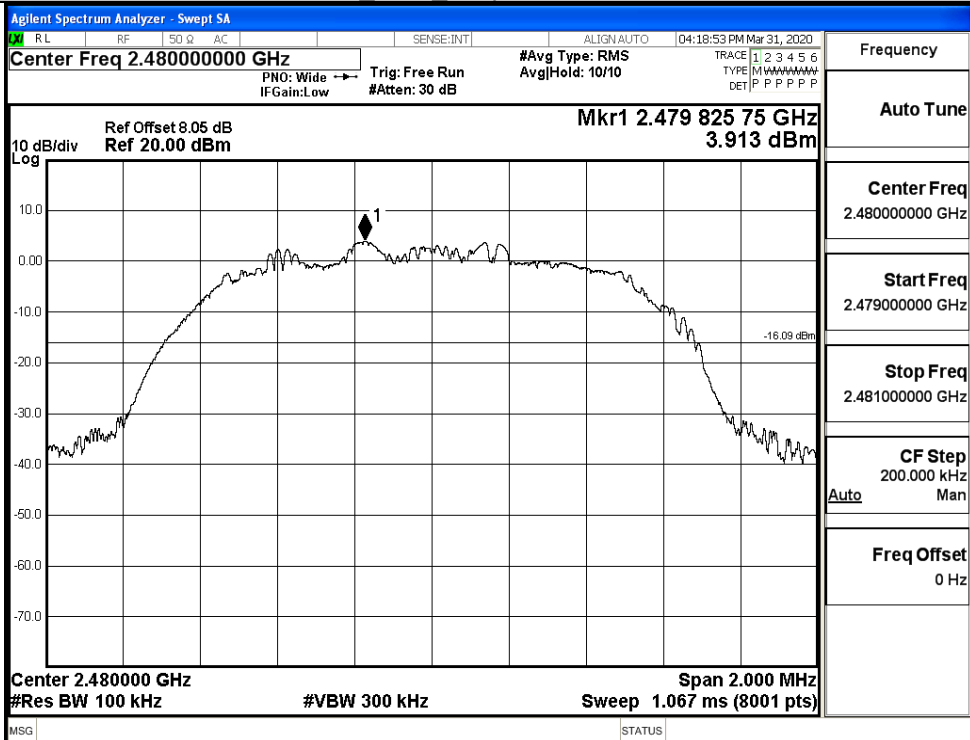


Puw

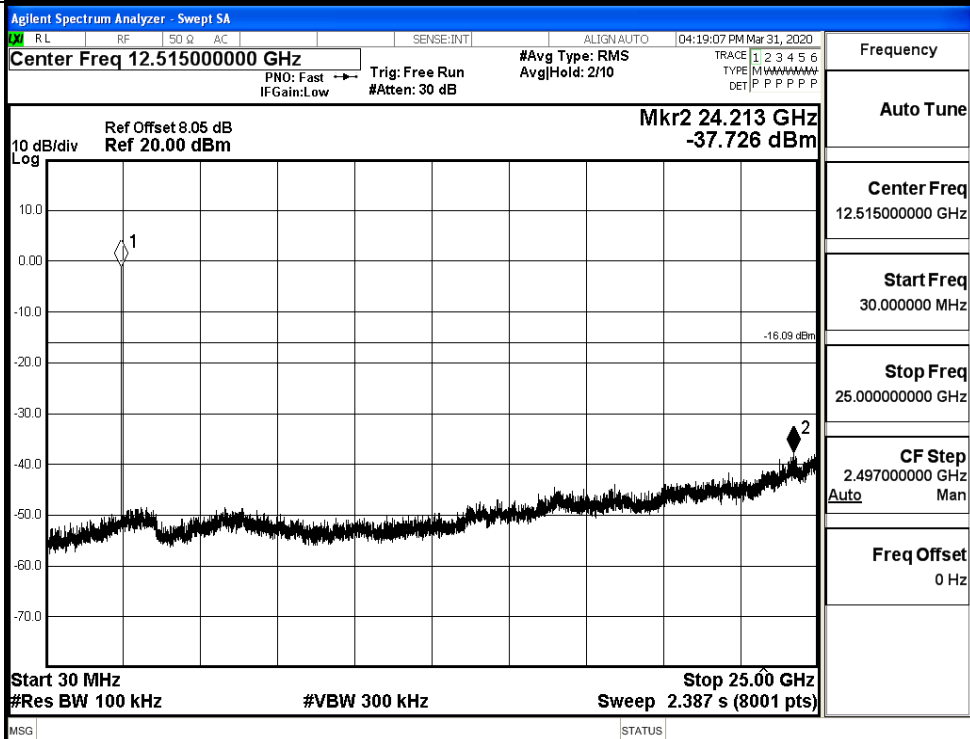


$\pi/4$ DQPSK_HCH_Graphs

Pref

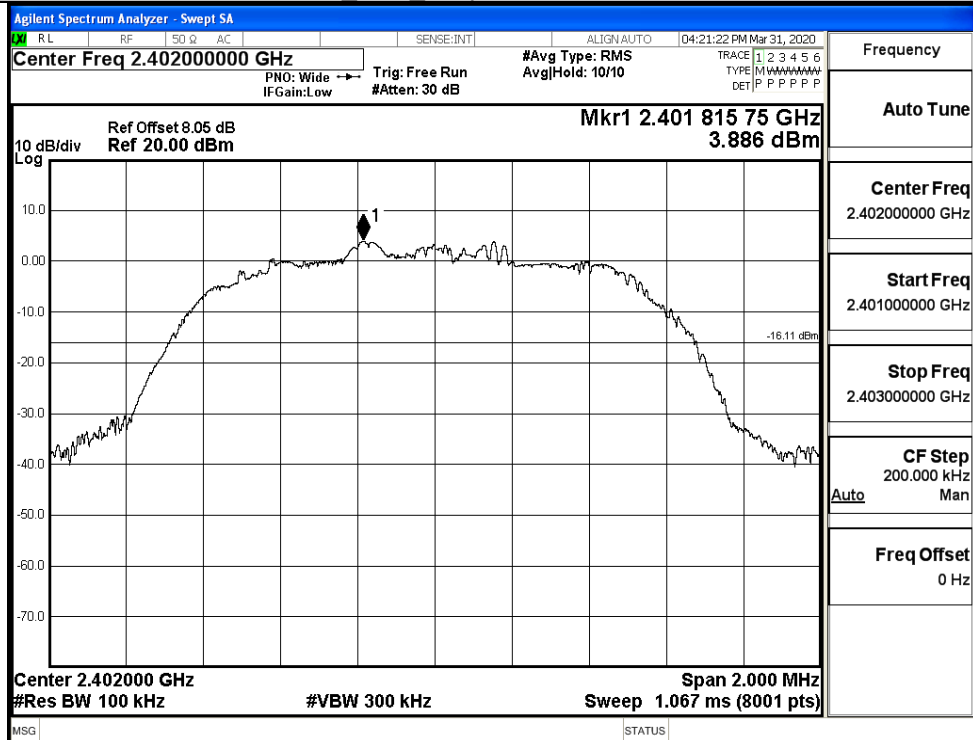


Puw

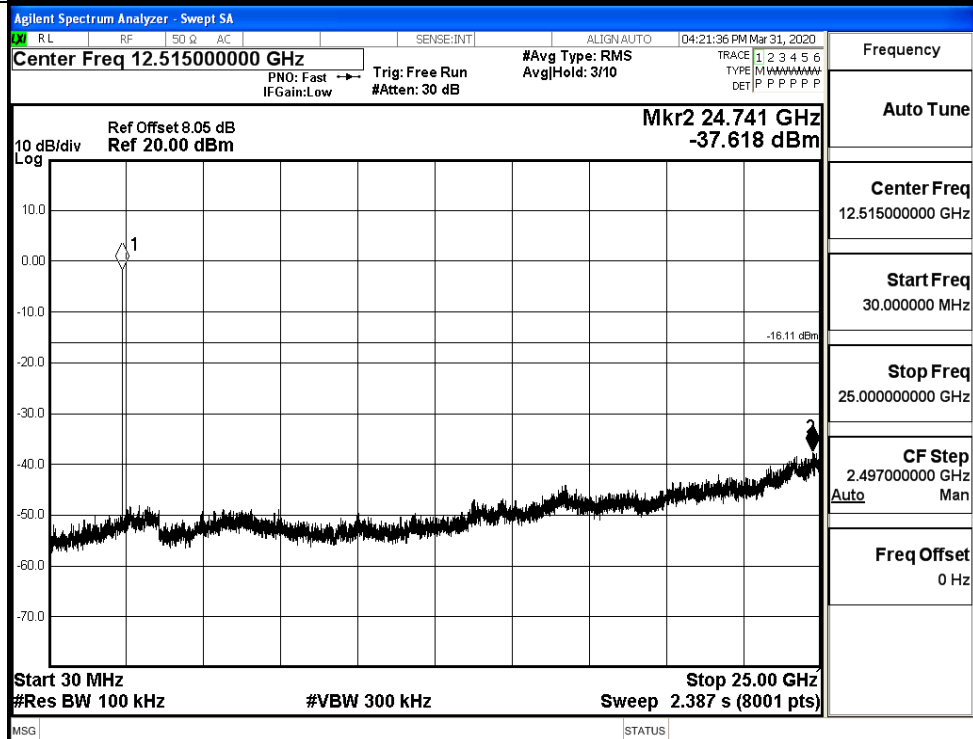


8DPSK_LCH_Graphs

Pref

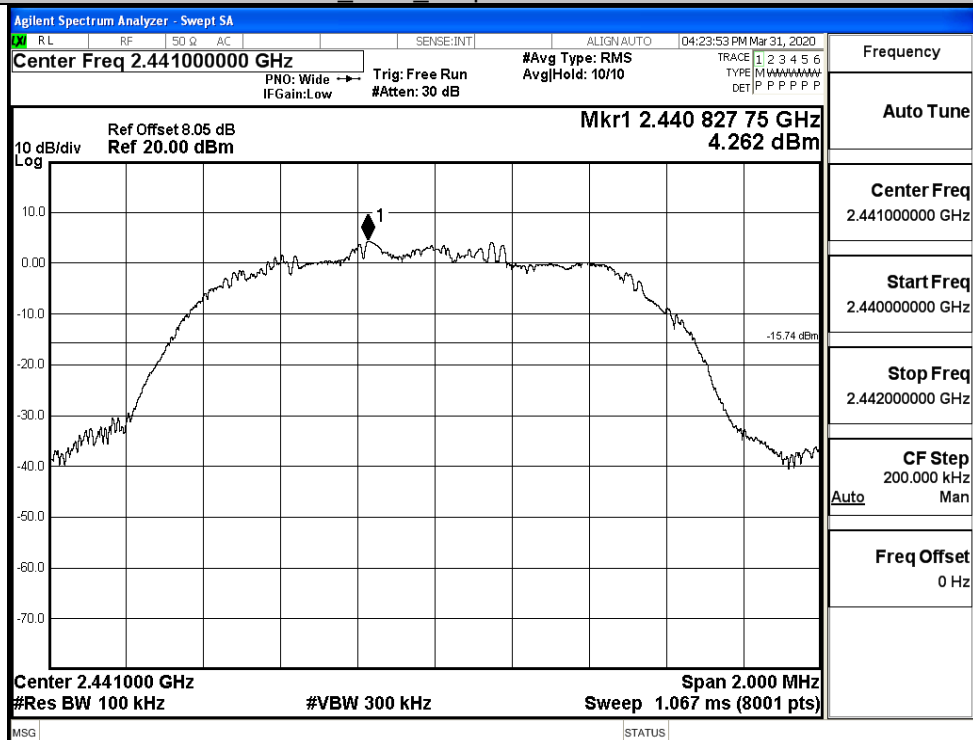


Puw

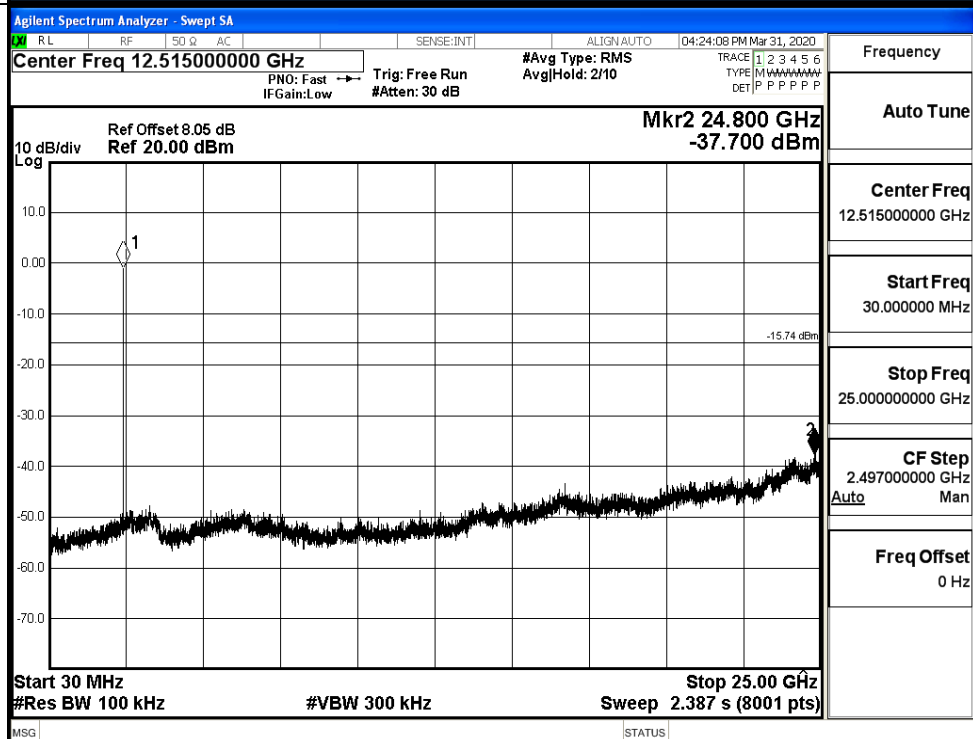


8DPSK_MCH_Graphs

Pref

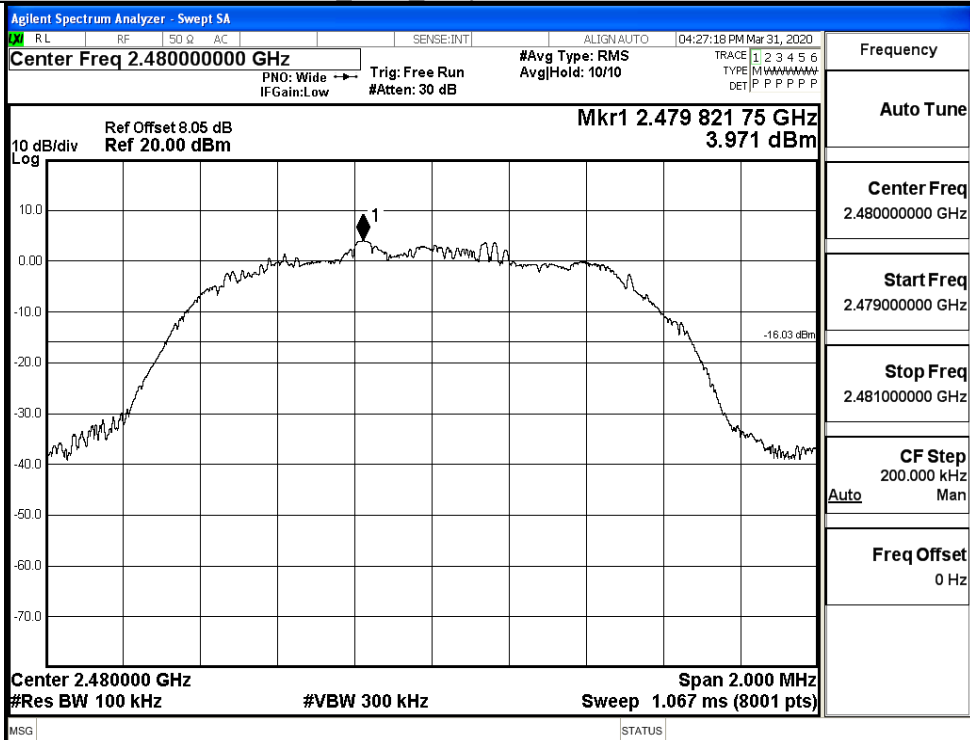


Puw

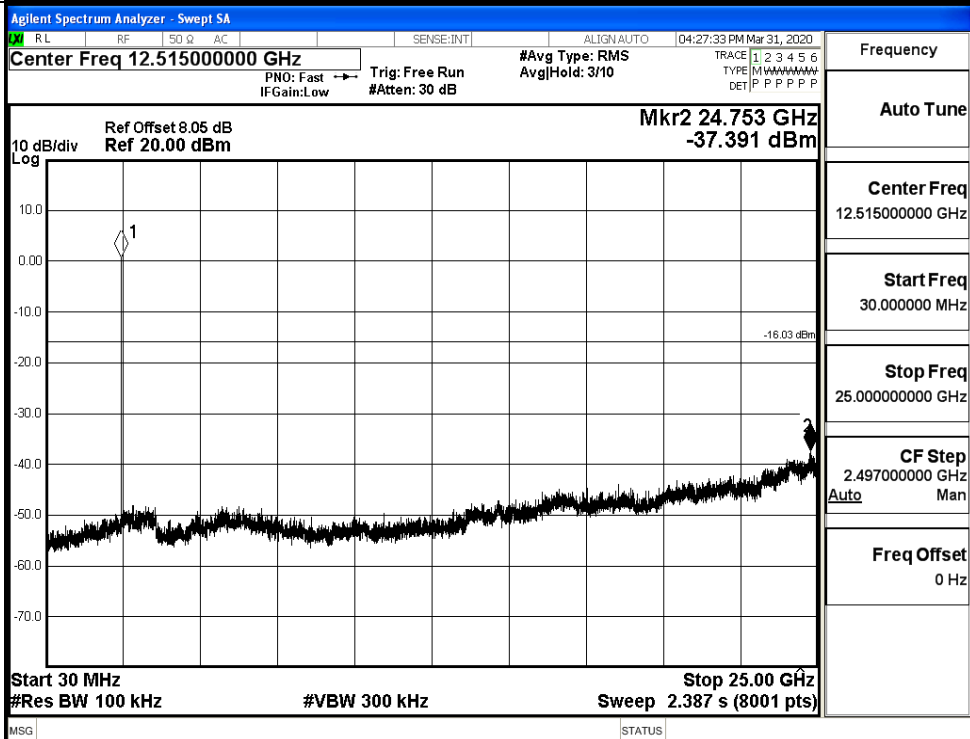


8DPSK_HCH_Graphs

Pref



Puw

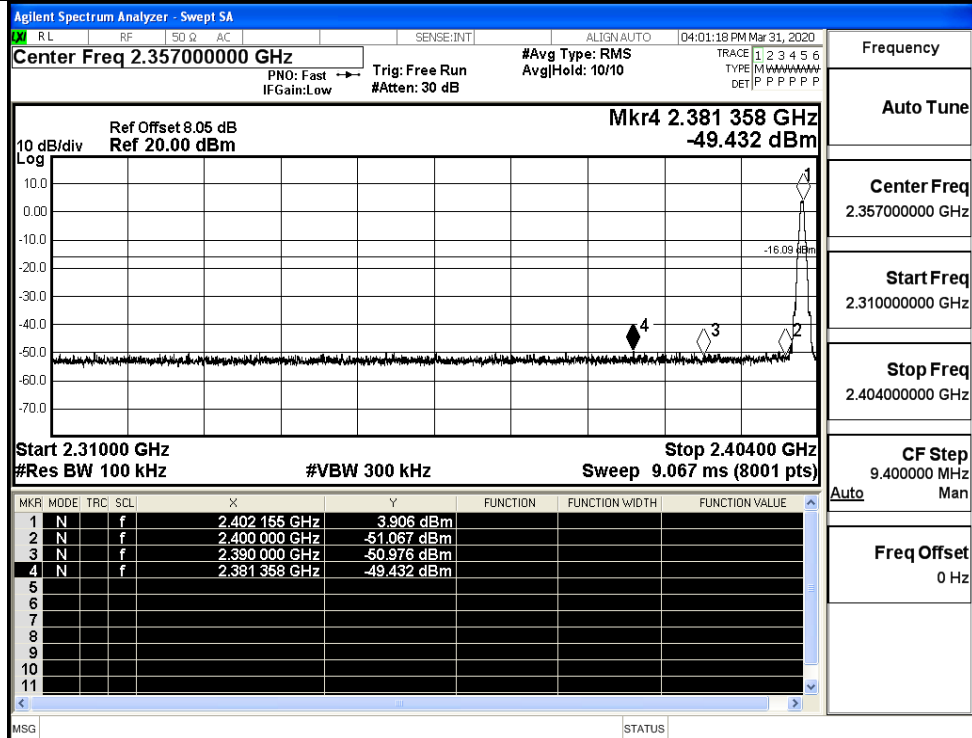


A.7 Band-edge for RF Conducted Emissions

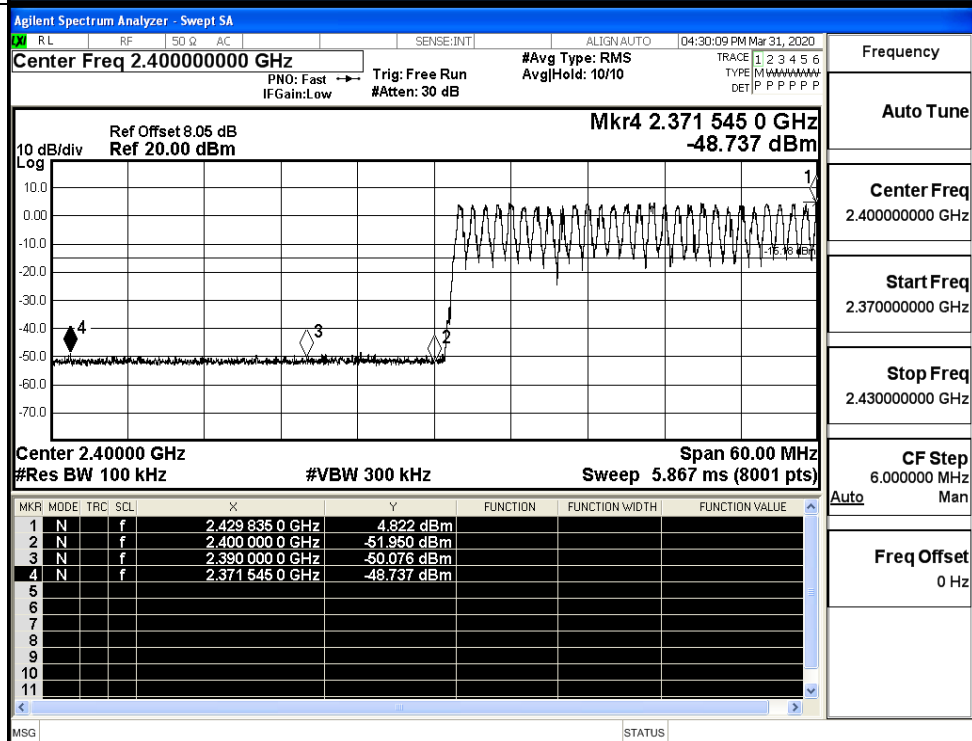
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	3.906	Off	-49.432	-16.09	PASS
			4.822	On	-48.737	-15.18	PASS
	HCH	2480	3.906	Off	-48.753	-16.09	PASS
			5.105	On	-48.959	-14.9	PASS
$\pi/4$ DQPSK	LCH	2402	3.741	Off	-49.652	-16.26	PASS
			4.577	On	-48.654	-15.42	PASS
	HCH	2480	4.003	Off	-48.351	-16	PASS
			4.596	On	-48.555	-15.4	PASS
8DPSK	LCH	2402	4.022	Off	-48.982	-15.98	PASS
			4.539	On	-48.879	-15.46	PASS
	HCH	2480	4.041	Off	-48.257	-15.96	PASS
			4.817	On	-48.600	-15.18	PASS

Test Graphs

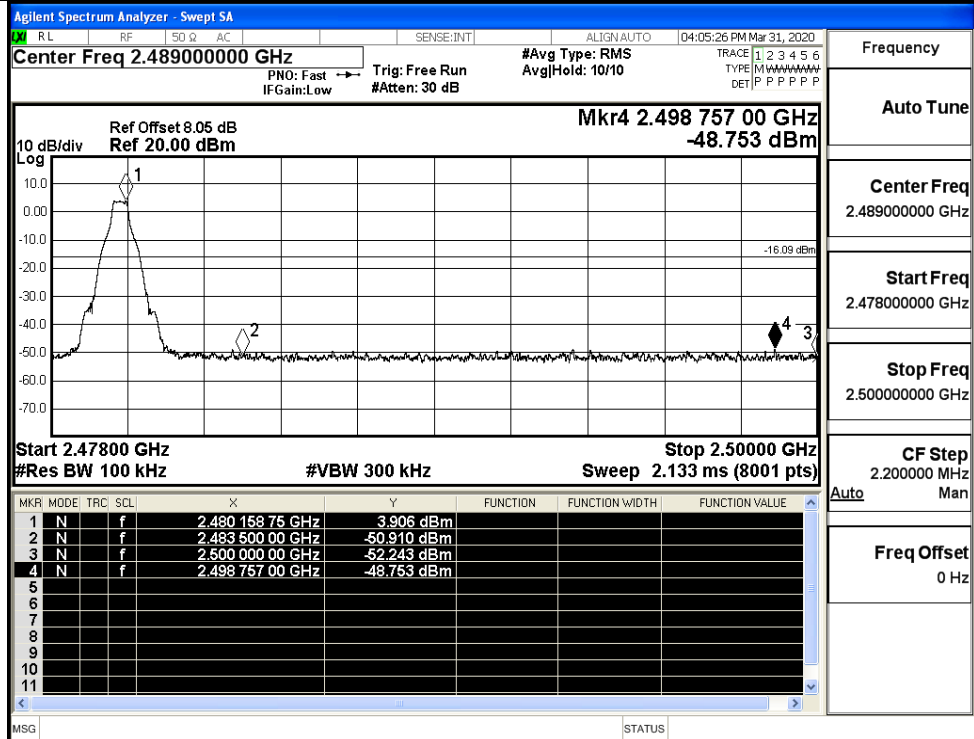
GFSK/LCH/No Hop



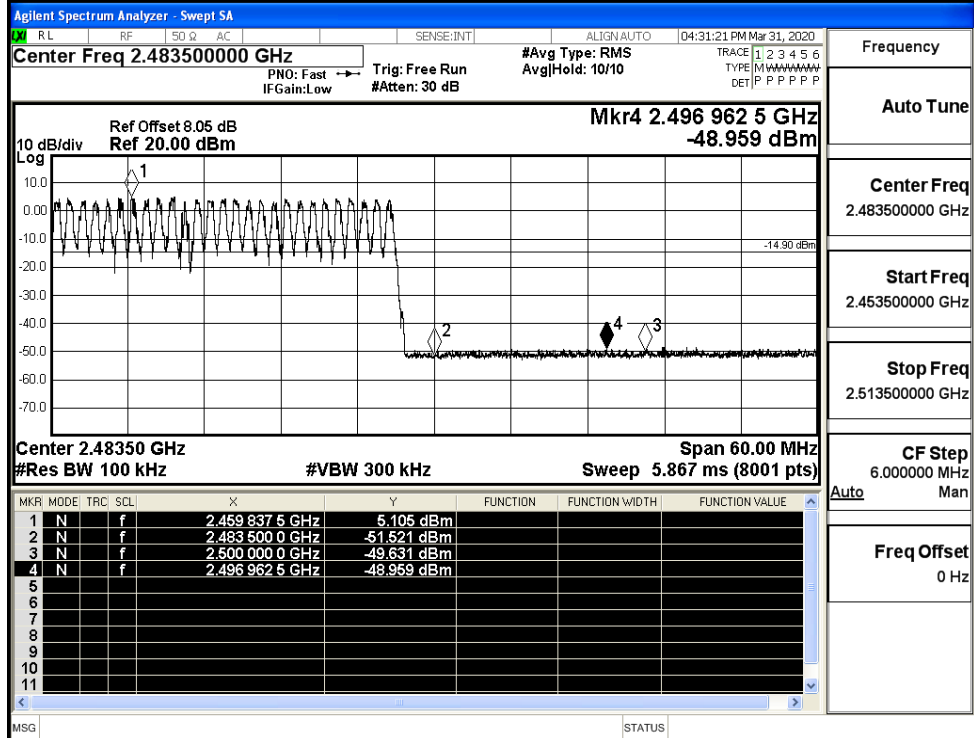
GFSK/LCH/Hop



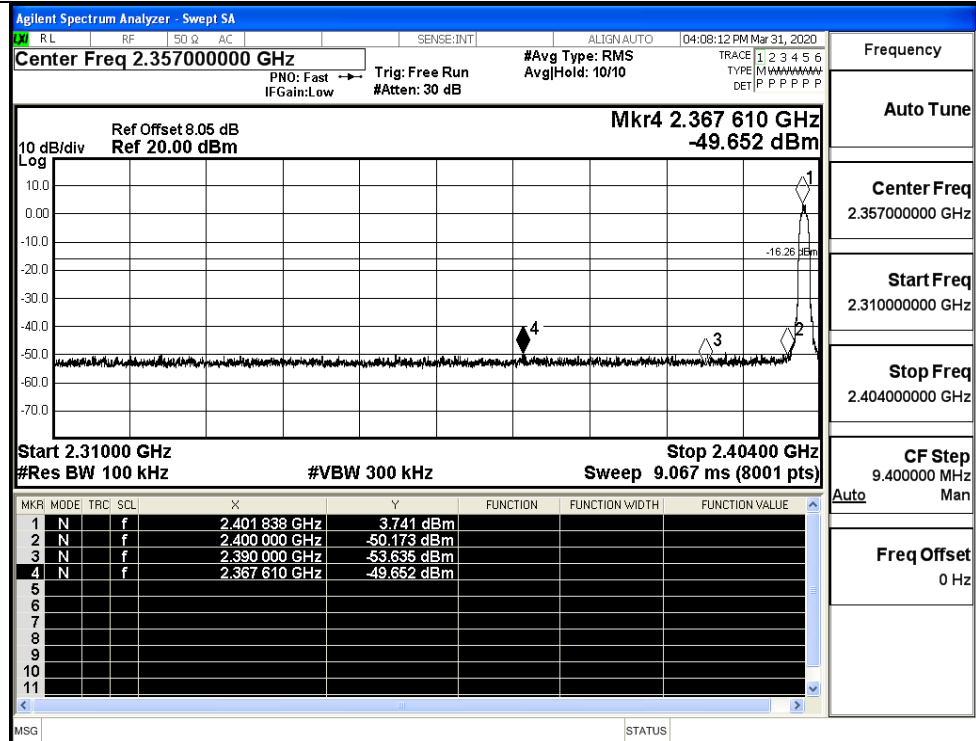
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

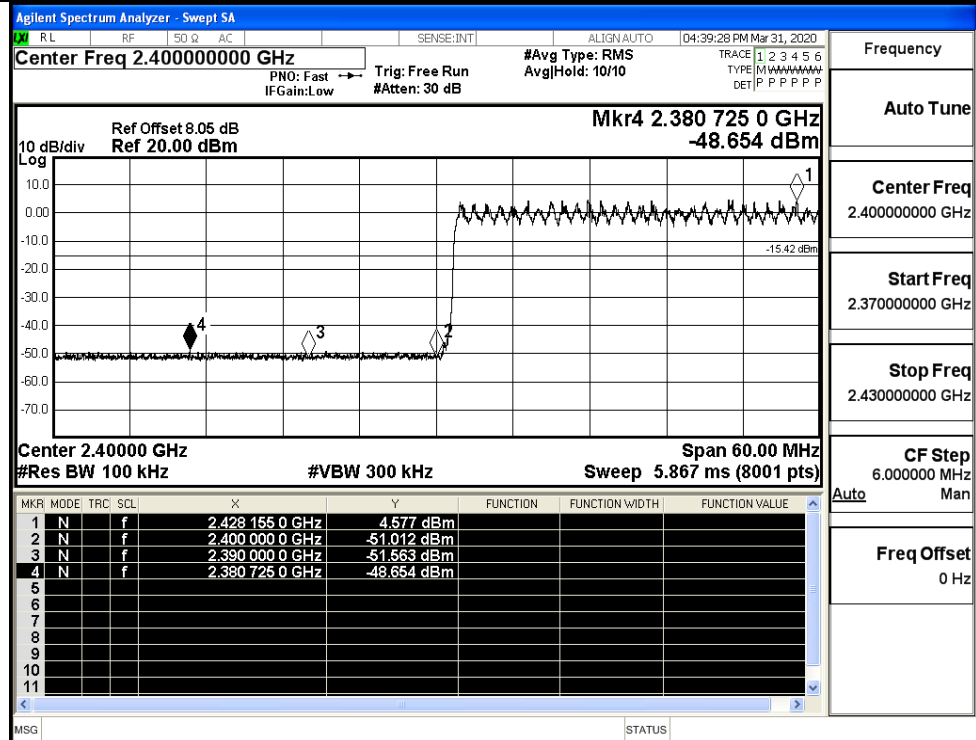
Start Freq
2.310000000 GHz

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

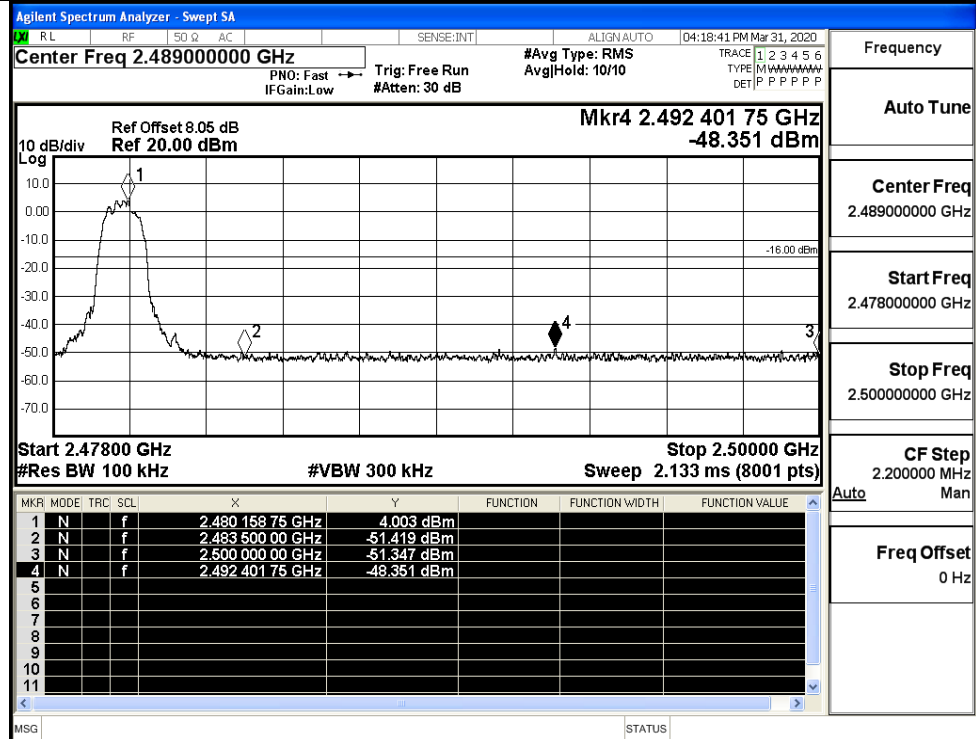
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

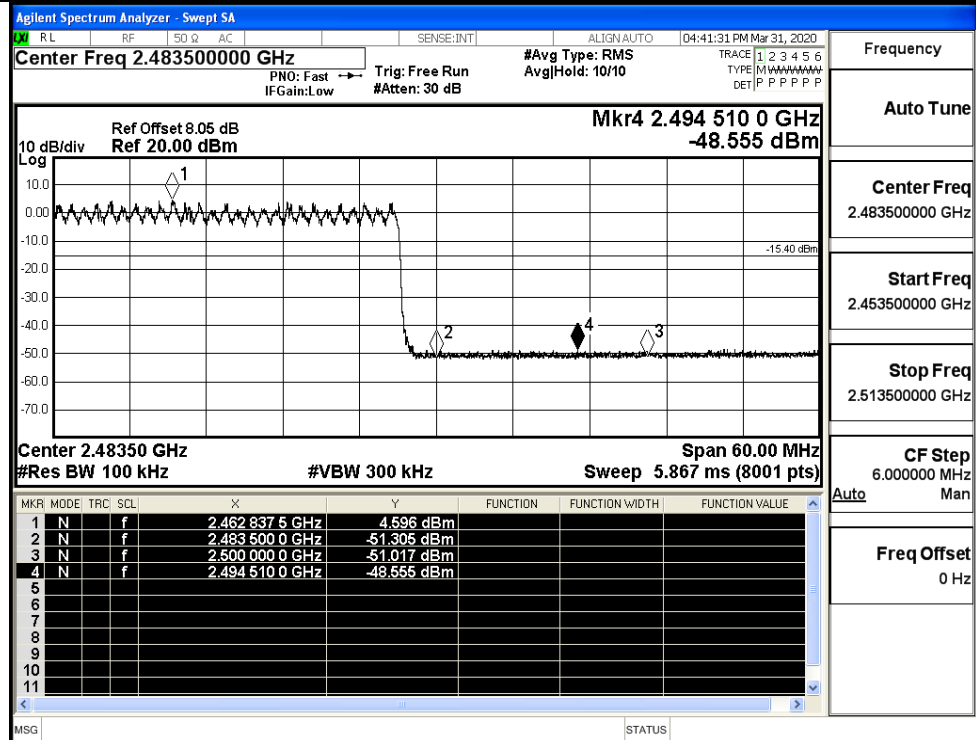
Freq Offset
0 Hz

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



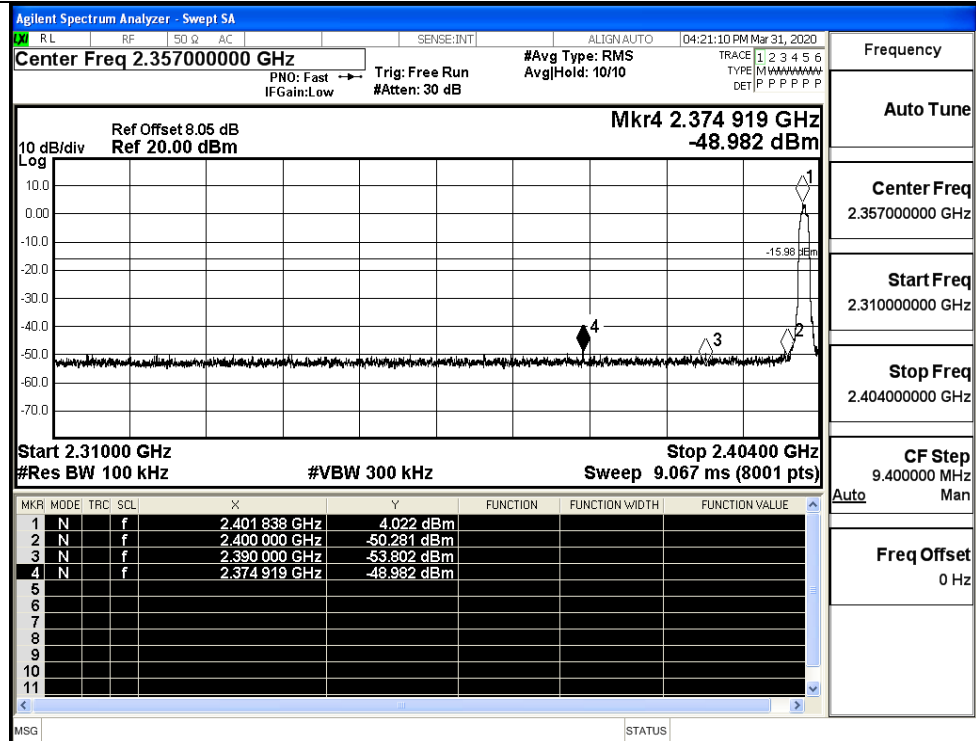
Frequency
Auto Tune
Center Freq 2.489000000 GHz
Start Freq 2.478000000 GHz
Stop Freq 2.500000000 GHz
CF Step 2.200000 MHz
Auto Man
Freq Offset 0 Hz

$\pi/4$ DQPSK/HCH/Hop

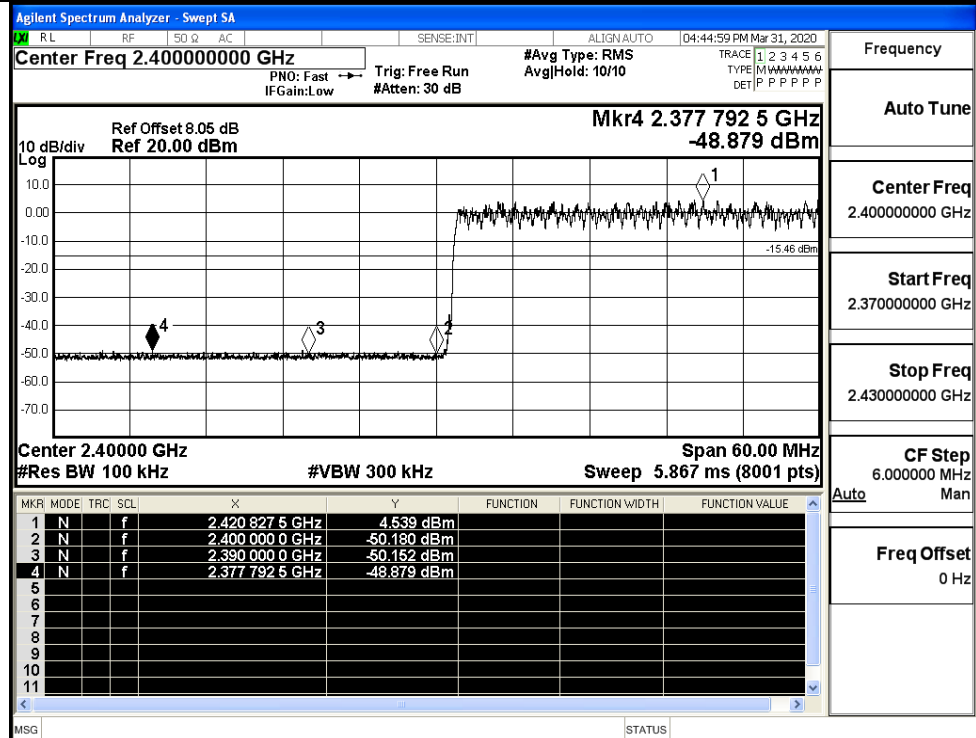


Frequency
Auto Tune
Center Freq 2.483500000 GHz
Start Freq 2.453500000 GHz
Stop Freq 2.513500000 GHz
CF Step 6.000000 MHz
Auto Man
Freq Offset 0 Hz

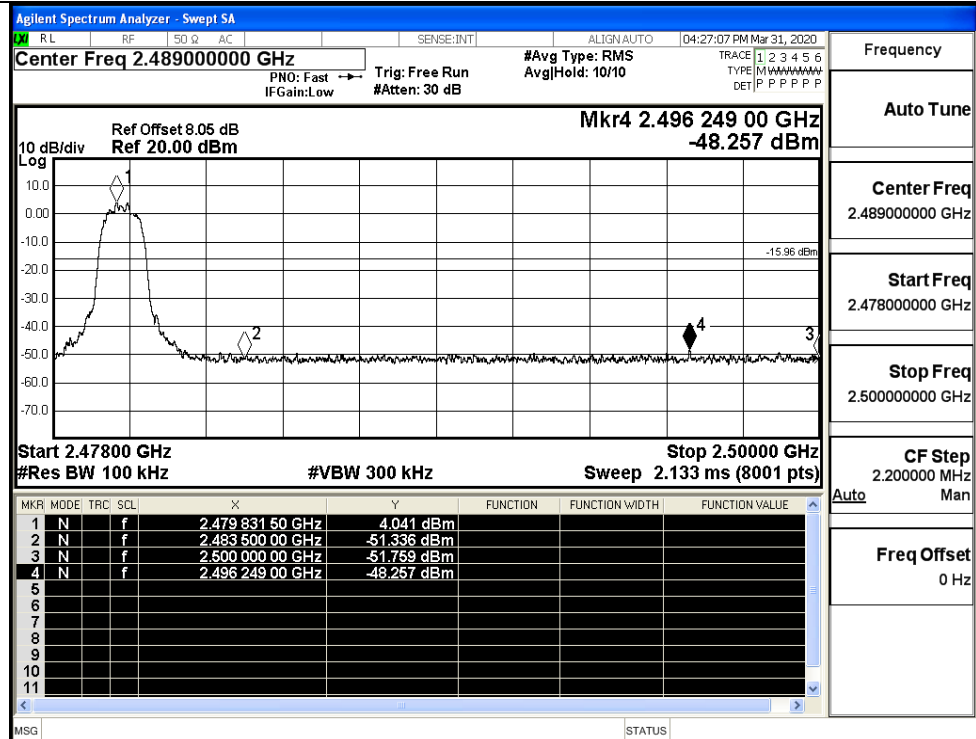
8DPSK/LCH/No Hop



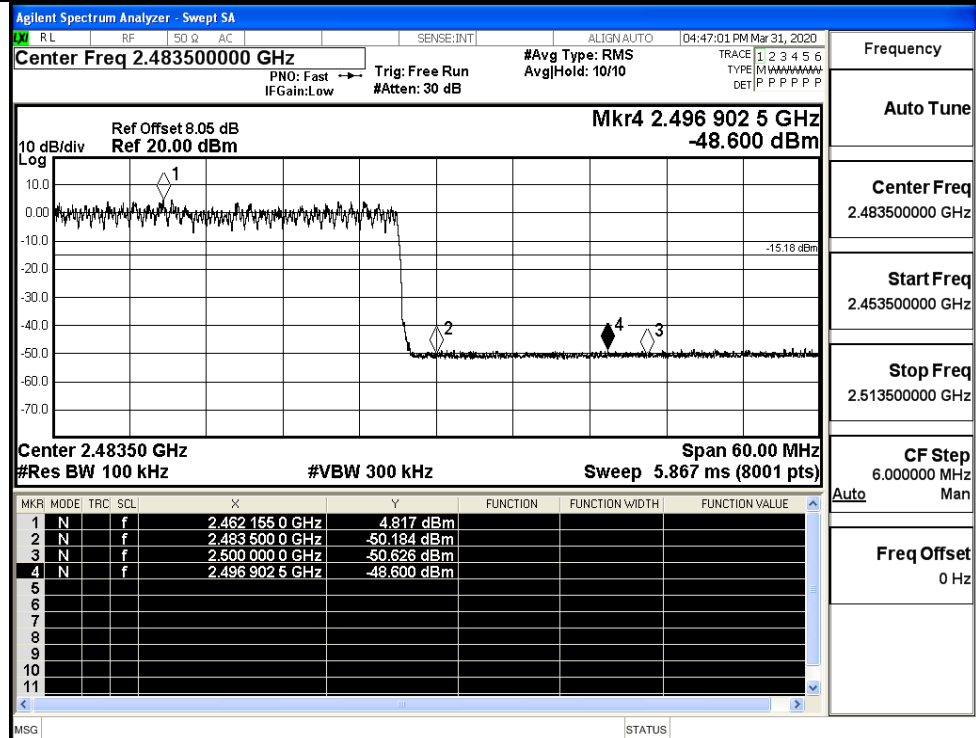
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



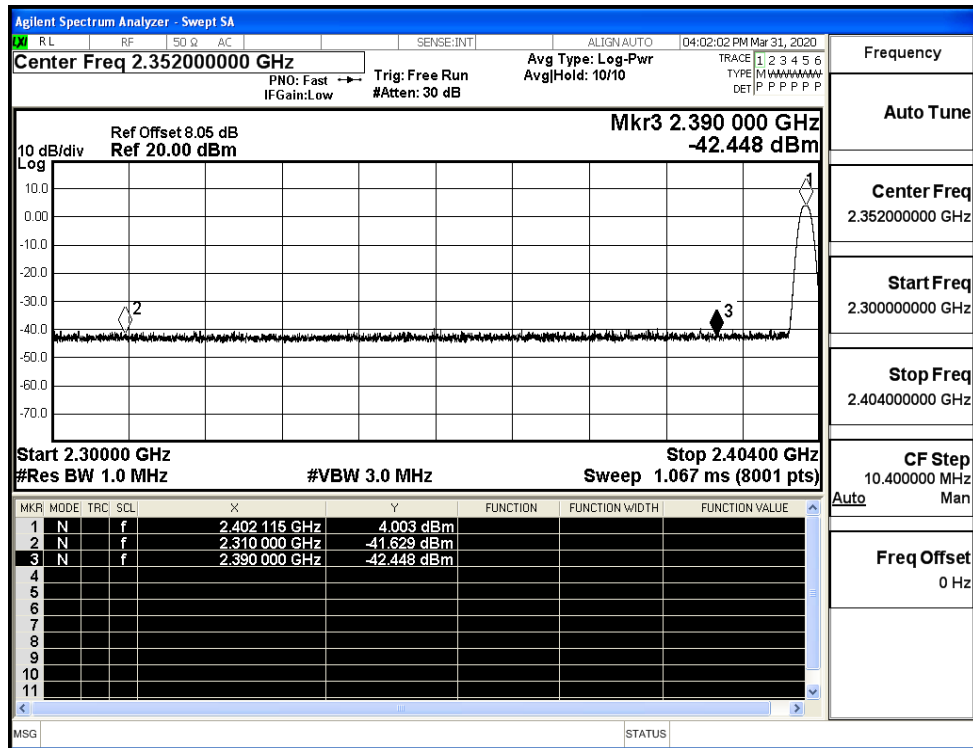
8DPSK/HCH/Hop



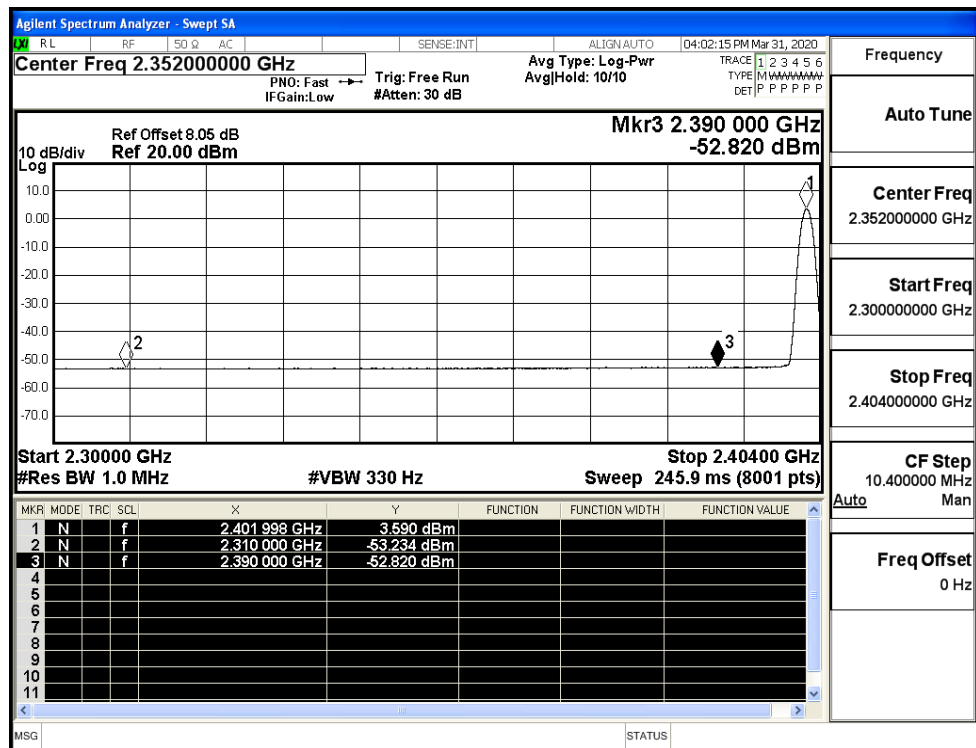
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-41.63	2.0	0	55.63	PEAK	74	PASS
	Off	2310.0	-53.23	2.0	0	44.03	AV	54	PASS
	Off	2390.0	-42.45	2.0	0	54.81	PEAK	74	PASS
	Off	2390.0	-52.82	2.0	0	44.44	AV	54	PASS
	Off	2483.5	-41.26	2.0	a0	56.00	PEAK	74	PASS
	Off	2483.5	-52.13	2.0	0	45.13	AV	54	PASS
	Off	2500.0	-42.82	2.0	0	54.44	PEAK	74	PASS
	Off	2500.0	-52.23	2.0	0	45.03	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.98	2.0	0	54.28	PEAK	74	PASS
	Off	2310.0	-53.34	2.0	0	43.92	AV	54	PASS
	Off	2390.0	-42.73	2.0	0	54.53	PEAK	74	PASS
	Off	2390.0	-52.87	2.0	0	44.39	AV	54	PASS
	Off	2483.5	-42.03	2.0	0	55.23	PEAK	74	PASS
	Off	2483.5	-52.21	2.0	0	45.05	AV	54	PASS
	Off	2500.0	-41.72	2.0	0	55.54	PEAK	74	PASS
	Off	2500.0	-52.23	2.0	0	45.03	AV	54	PASS
8DPSK	Off	2310.0	-42.76	2.0	0	54.50	PEAK	74	PASS
	Off	2310.0	-53.29	2.0	0	43.97	AV	54	PASS
	Off	2390.0	-42.89	2.0	0	54.37	PEAK	74	PASS
	Off	2390.0	-52.85	2.0	0	44.41	AV	54	PASS
	Off	2483.5	-42.65	2.0	0	54.61	PEAK	74	PASS
	Off	2483.5	-52.00	2.0	0	45.26	AV	54	PASS
	Off	2500.0	-42.13	2.0	0	55.13	PEAK	74	PASS
	Off	2500.0	-52.27	2.0	0	44.99	AV	54	PASS

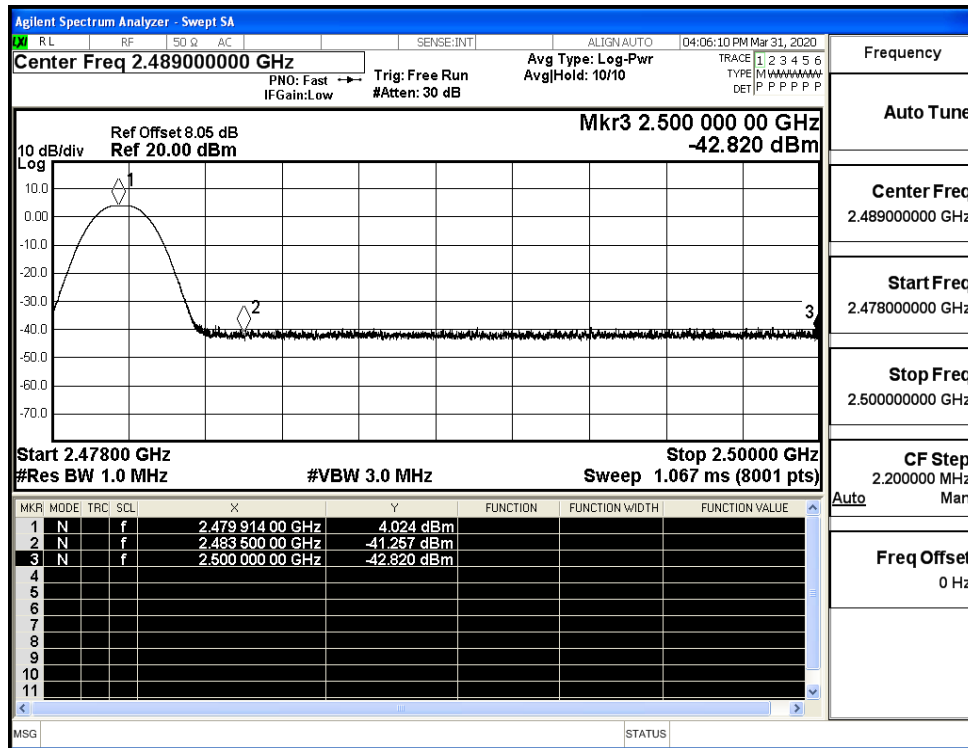
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



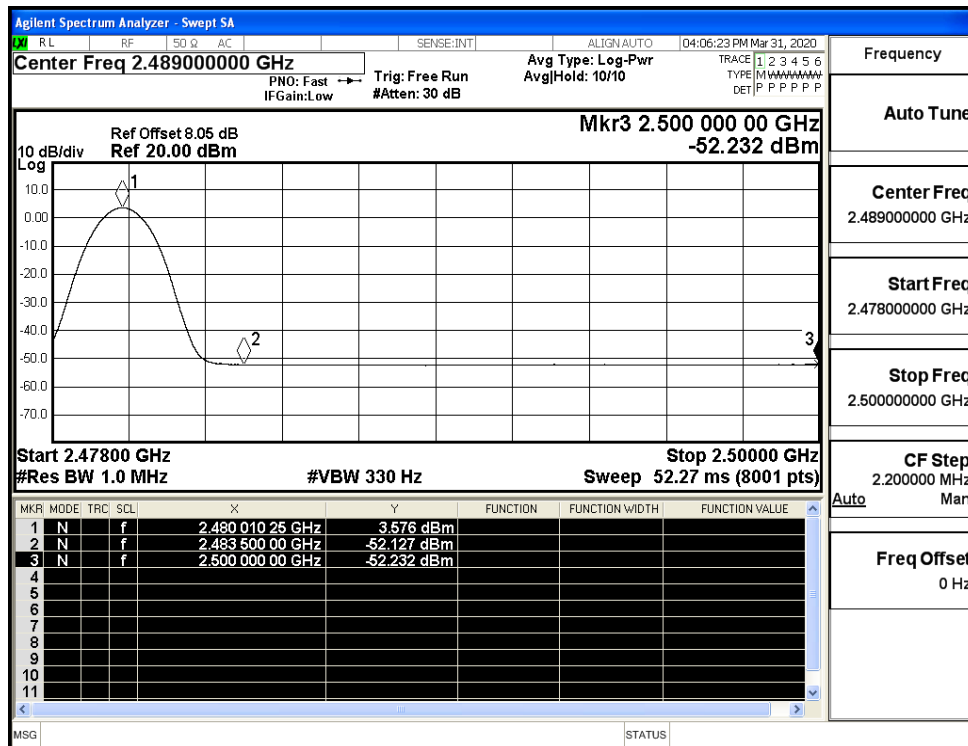
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

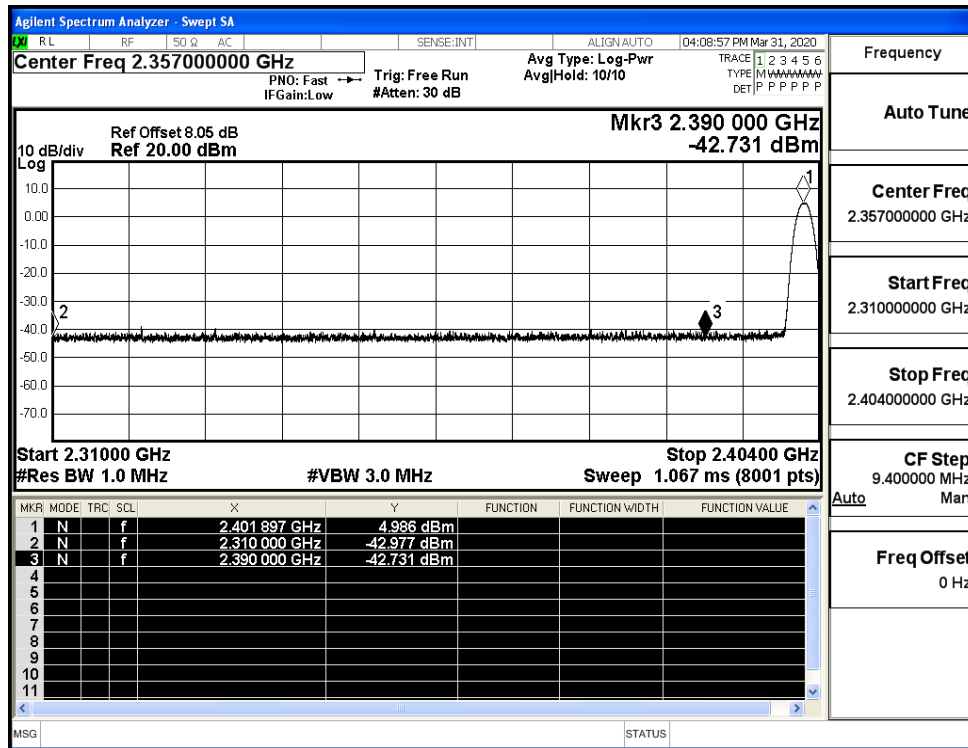
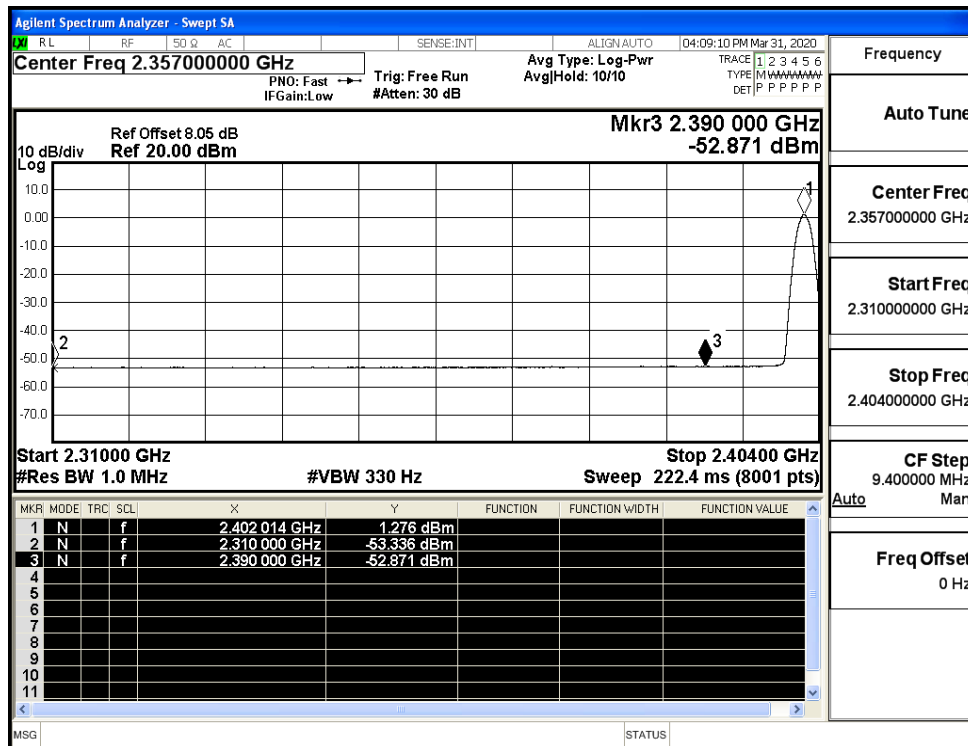


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

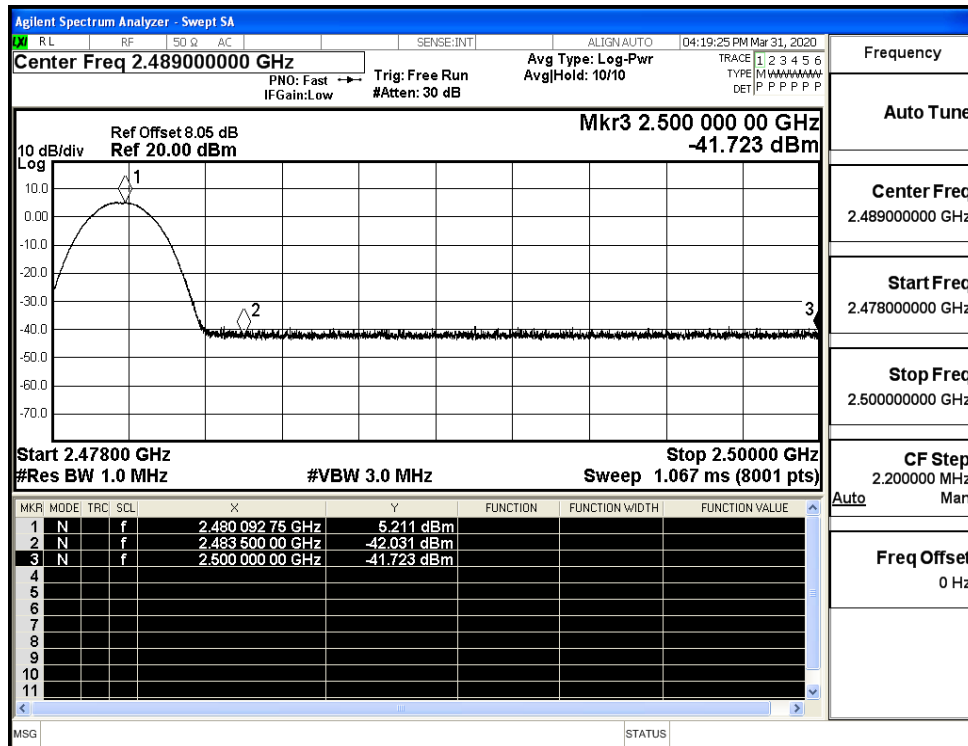


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

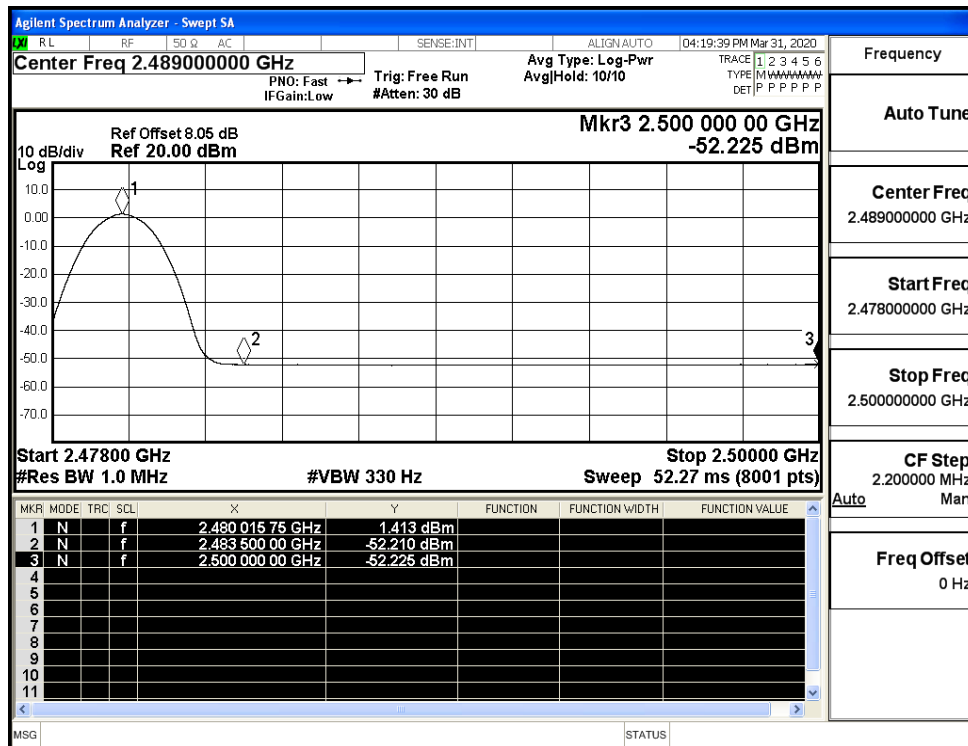


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

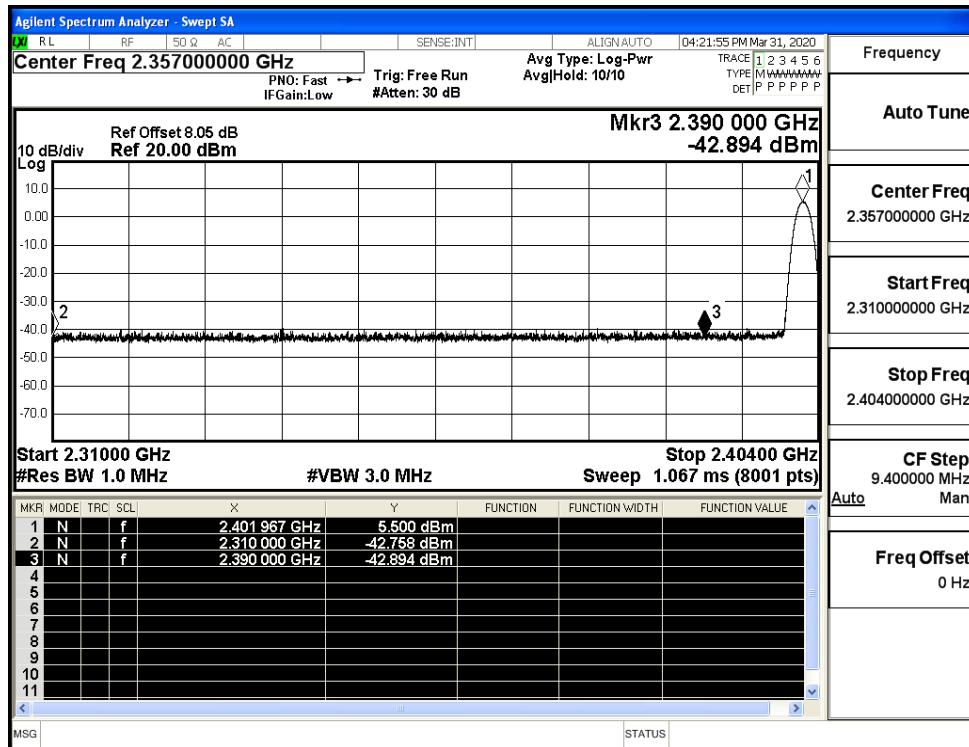
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



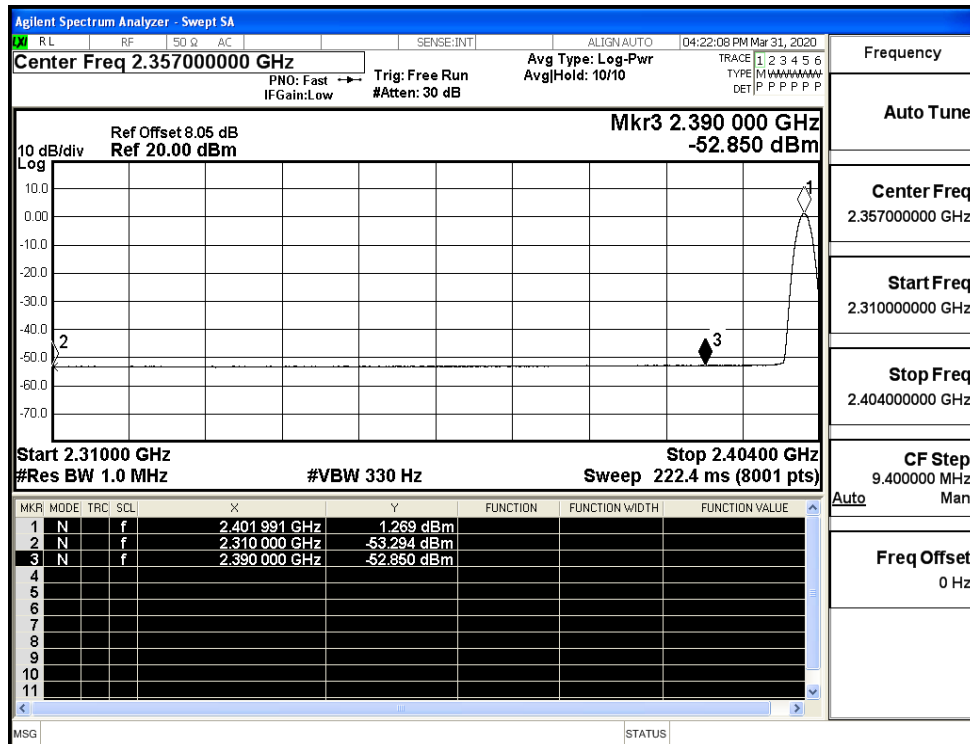
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



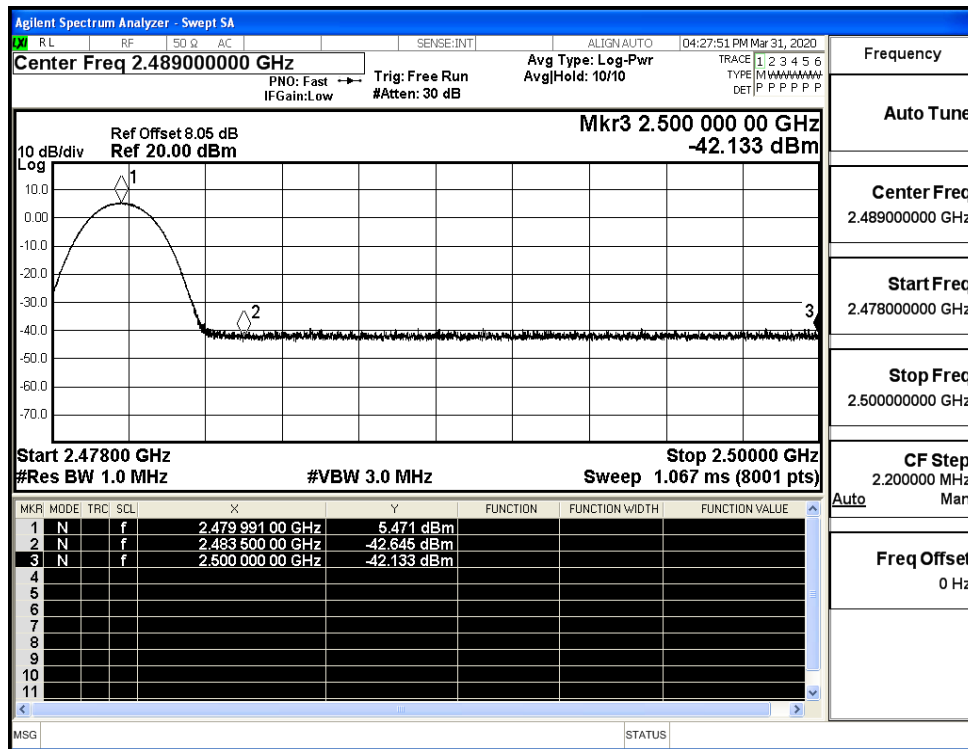
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

