

Appendix A

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

Product Name: Sitka Bluetooth® Outdoor Speaker

Trade Mark: Gemline

Test Model: 100242-001B

Environmental Conditions

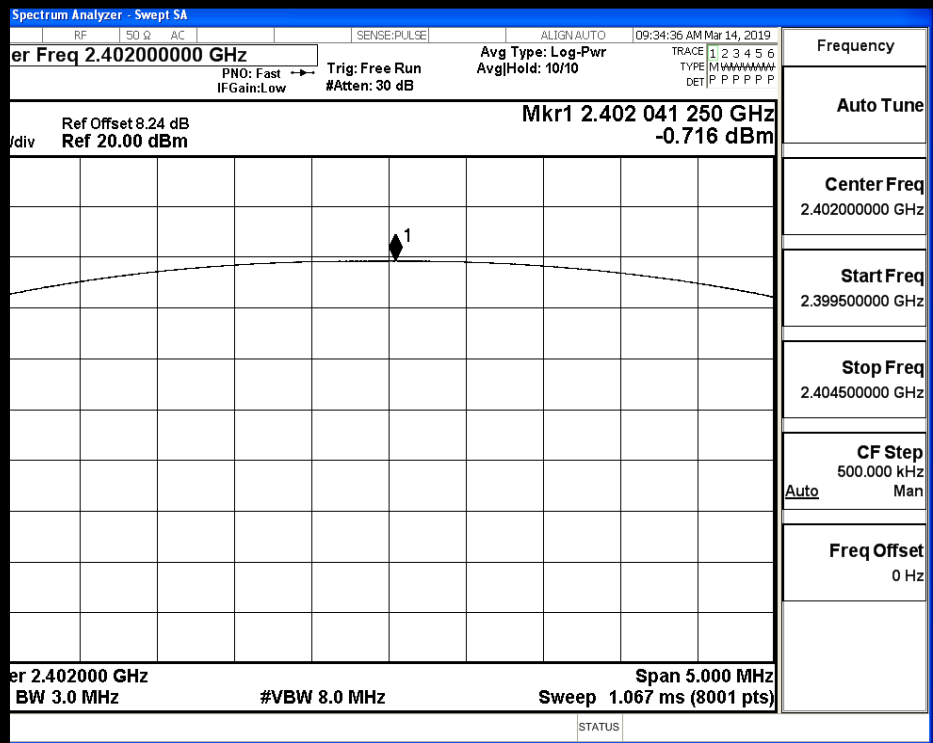
Temperature:	24.5 °C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.ZENG
Supervised by:	Tom.Liu

A.1 Maximum Conducted Peak Output Power

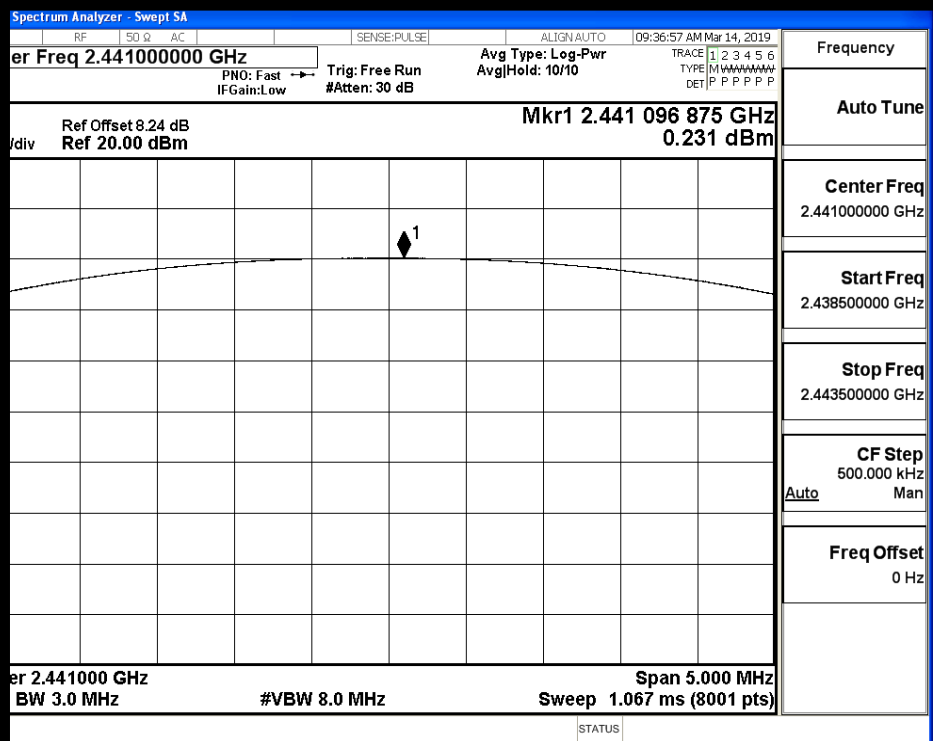
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.716	21	PASS
	MCH	0.231	21	PASS
	HCH	-0.830	21	PASS
$\pi/4$ DQPSK	LCH	-1.289	21	PASS
	MCH	-0.328	21	PASS
	HCH	-1.503	21	PASS
8DPSK	LCH	-1.156	21	PASS
	MCH	-0.136	21	PASS
	HCH	-1.344	21	PASS

Test Graphs

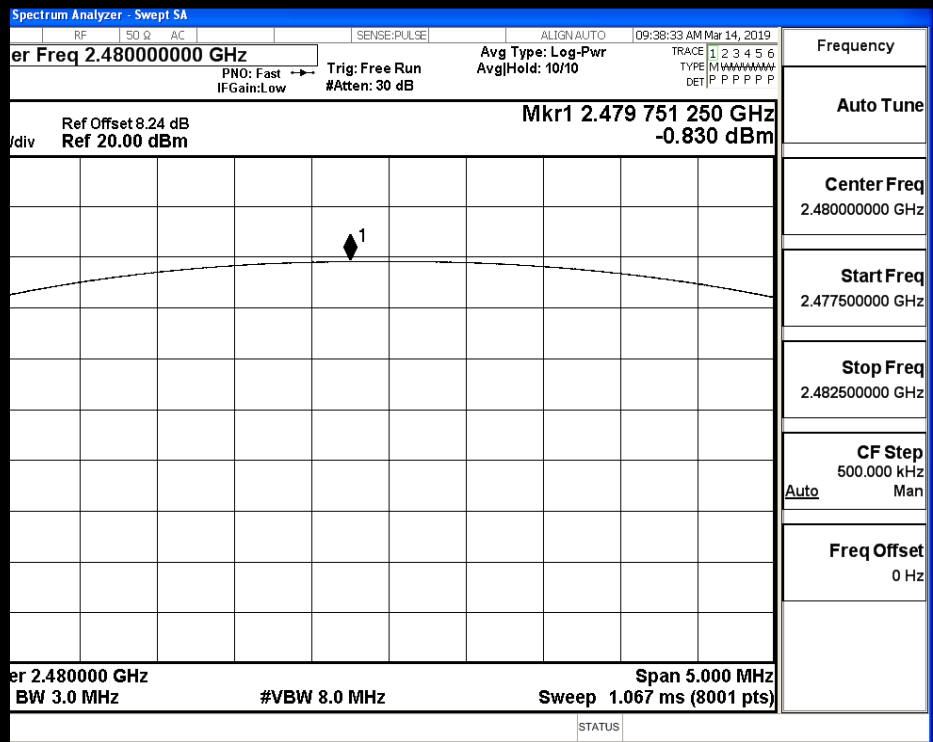
GFSK/LCH



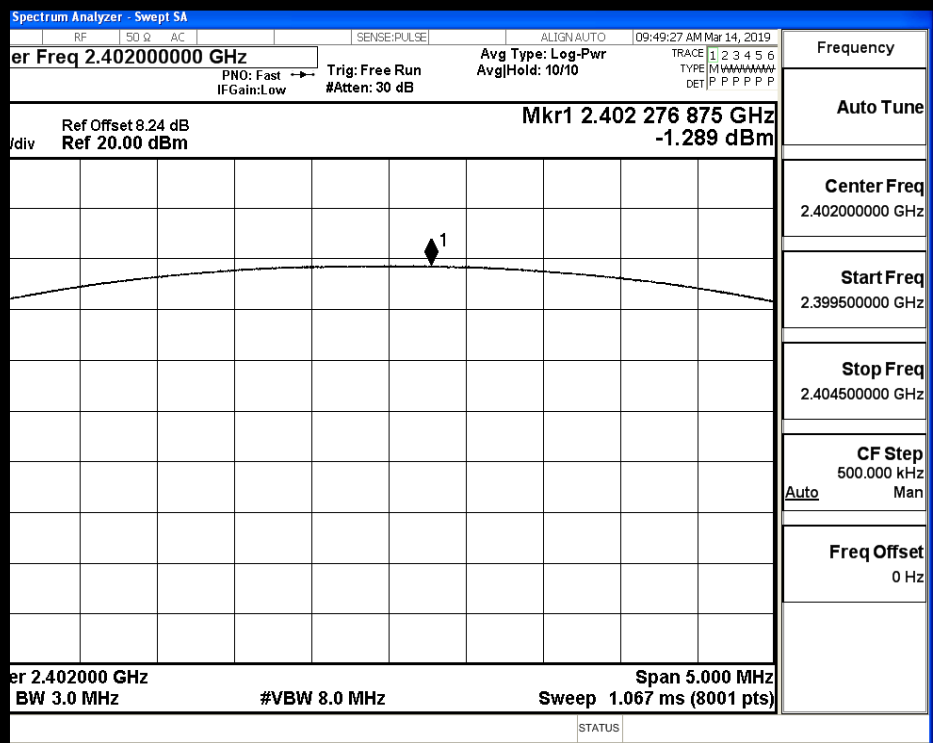
GFSK/MCH



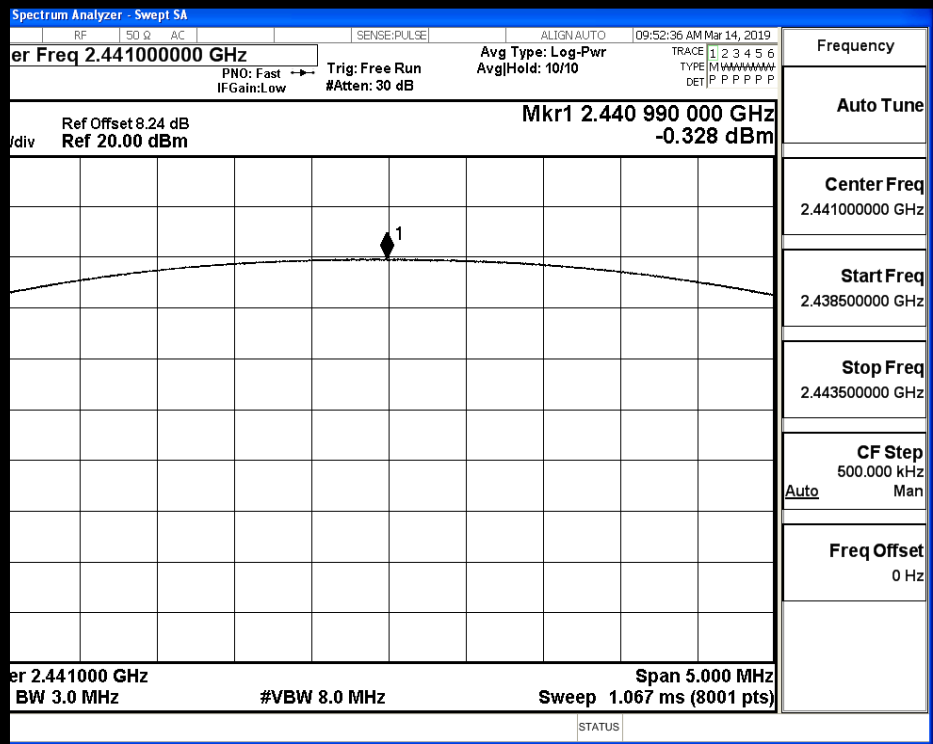
GFSK/HCH



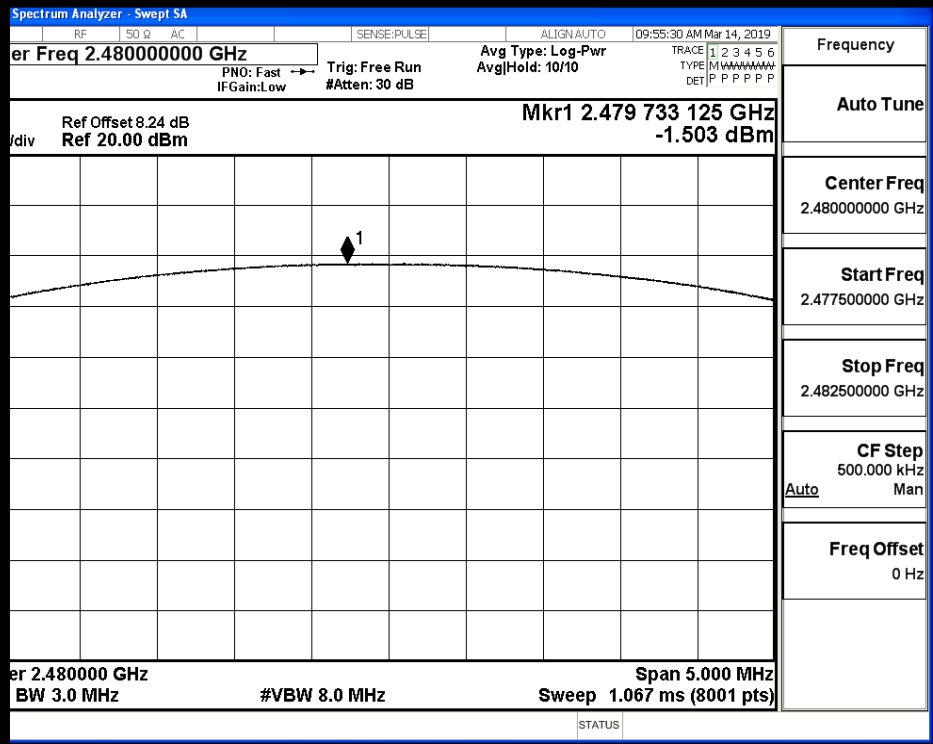
π /4DQPSK/LCH



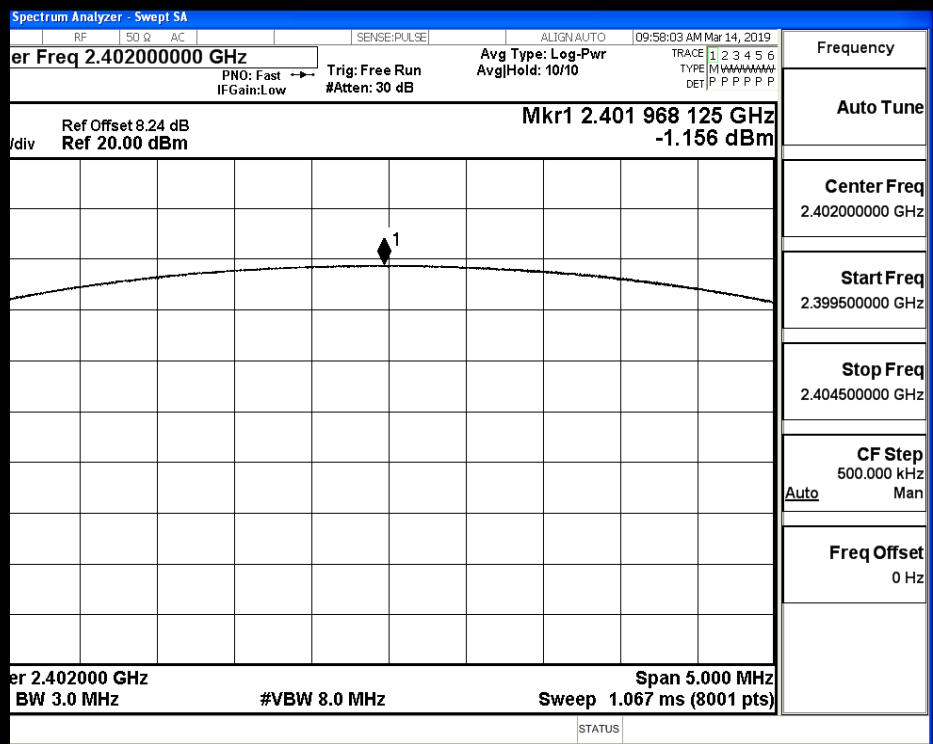
π /4DQPSK/MCH



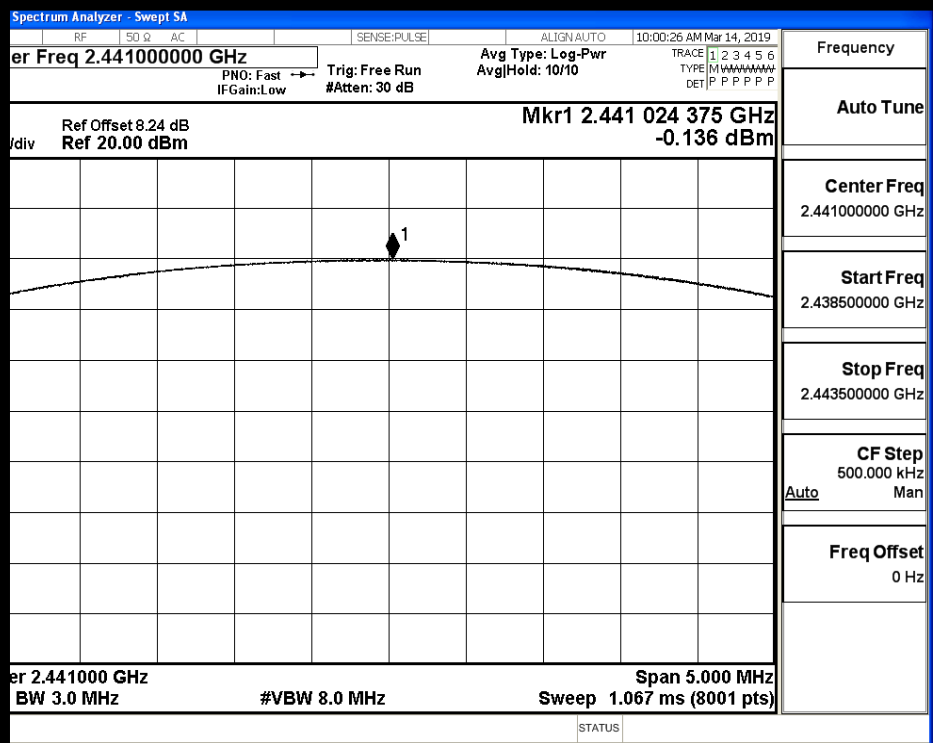
π /4DQPSK/HCH

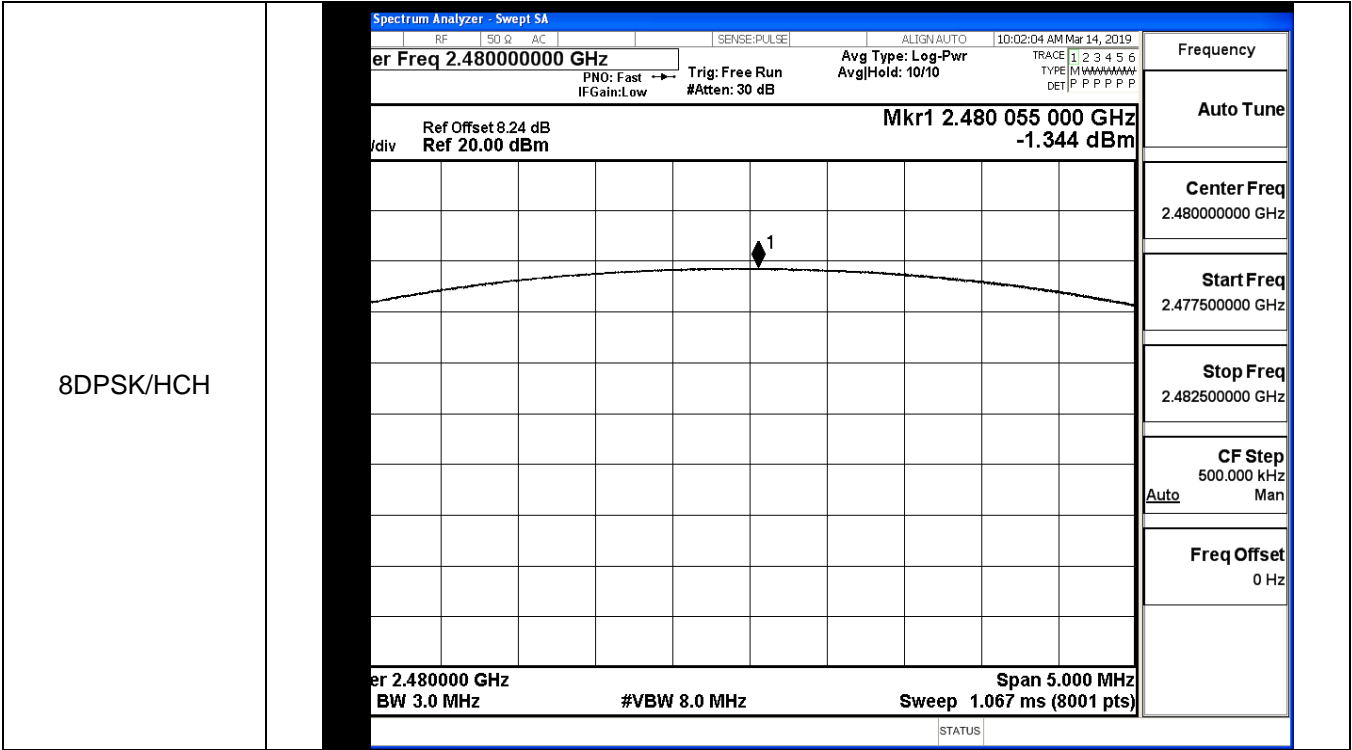


8DPSK/LCH



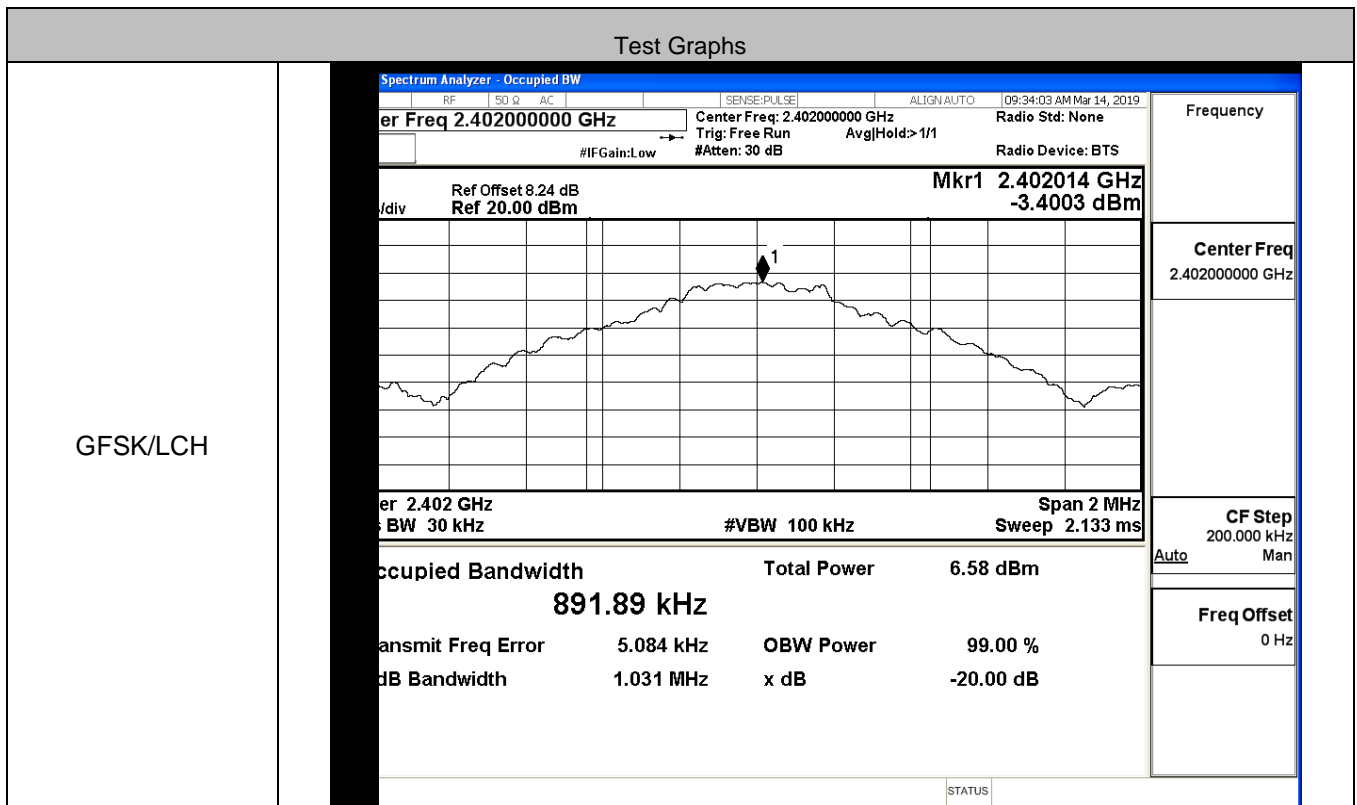
8DPSK/MCH



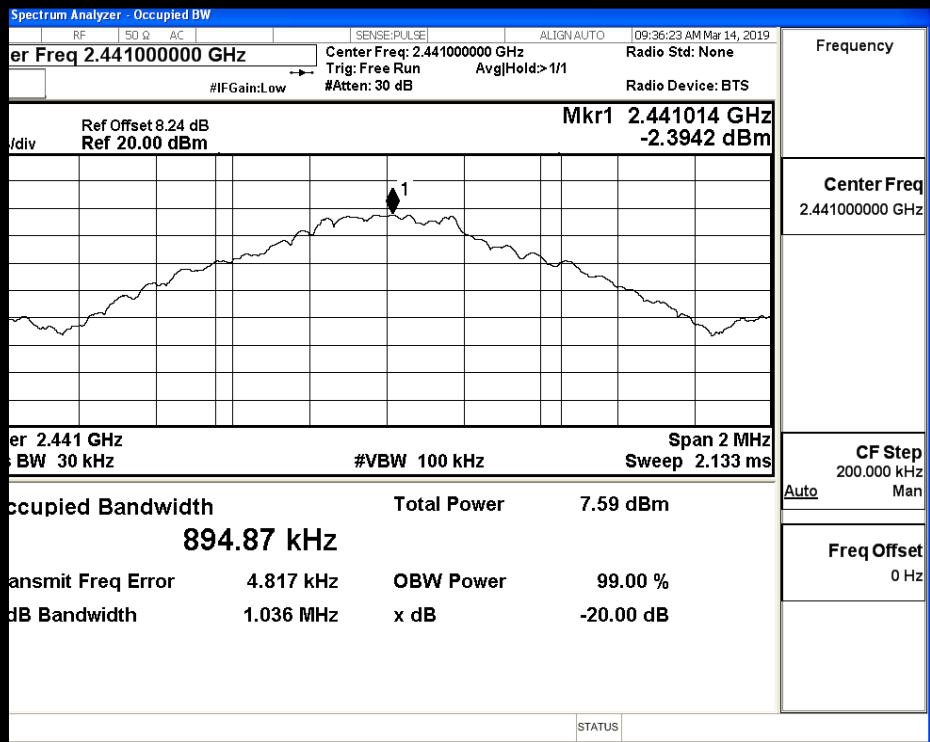


A.2 99% and 20dB Bandwidth

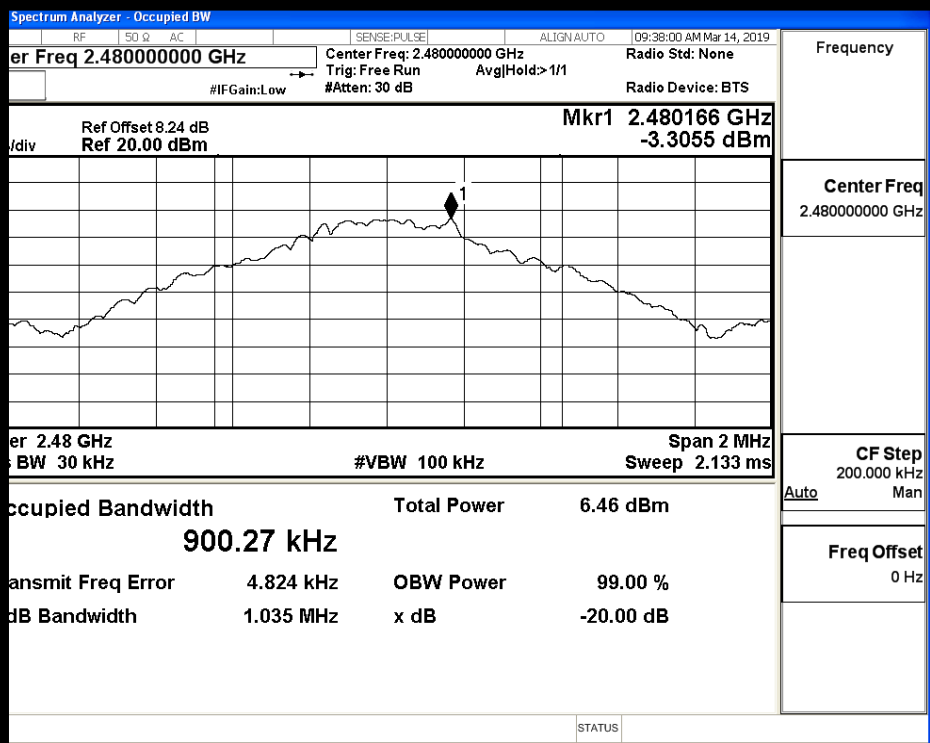
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89189	1.031	Not Specified	PASS
	MCH	0.89487	1.036	Not Specified	PASS
	HCH	0.90027	1.035	Not Specified	PASS
π/4DQPSK	LCH	1.1766	1.293	Not Specified	PASS
	MCH	1.1748	1.308	Not Specified	PASS
	HCH	1.1756	1.305	Not Specified	PASS
8DPSK	LCH	1.1893	1.296	Not Specified	PASS
	MCH	1.1868	1.297	Not Specified	PASS
	HCH	1.1858	1.297	Not Specified	PASS



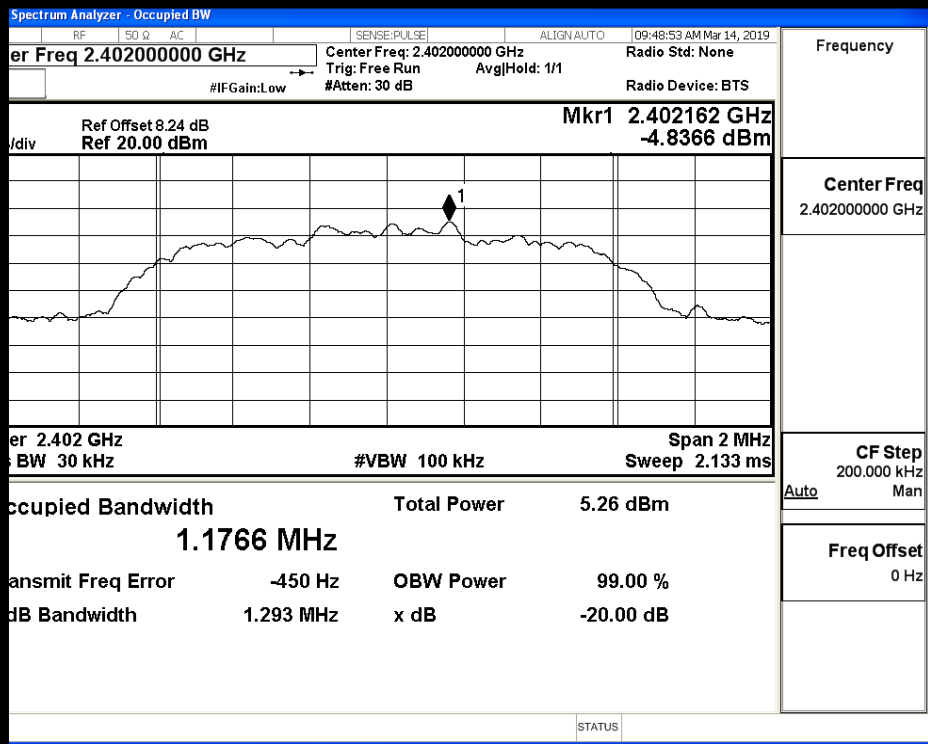
GFSK/MCH



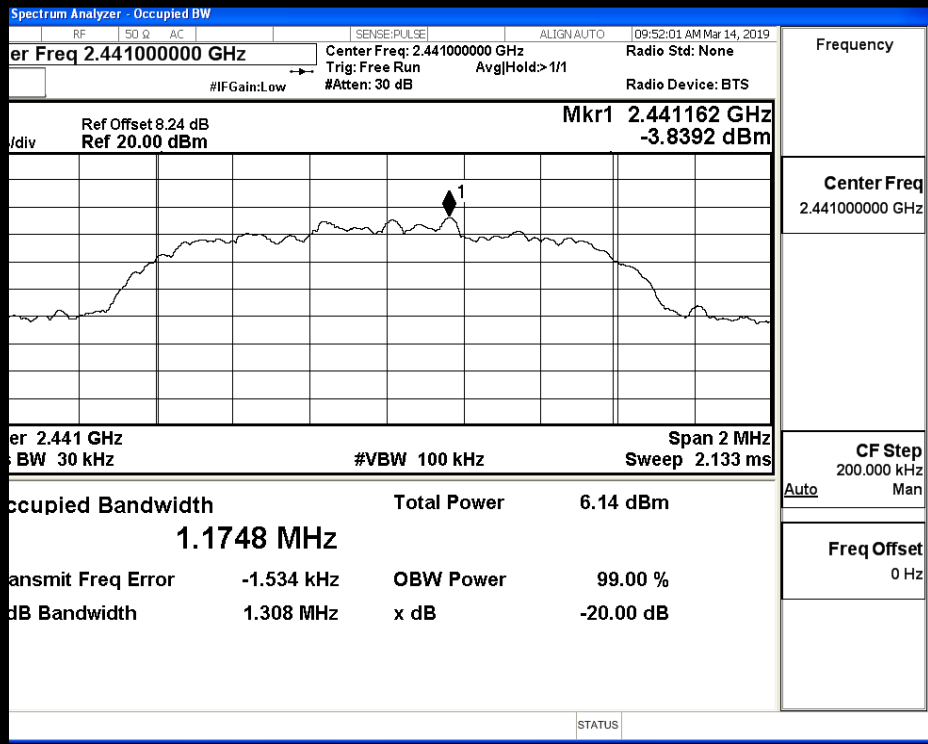
GFSK/HCH



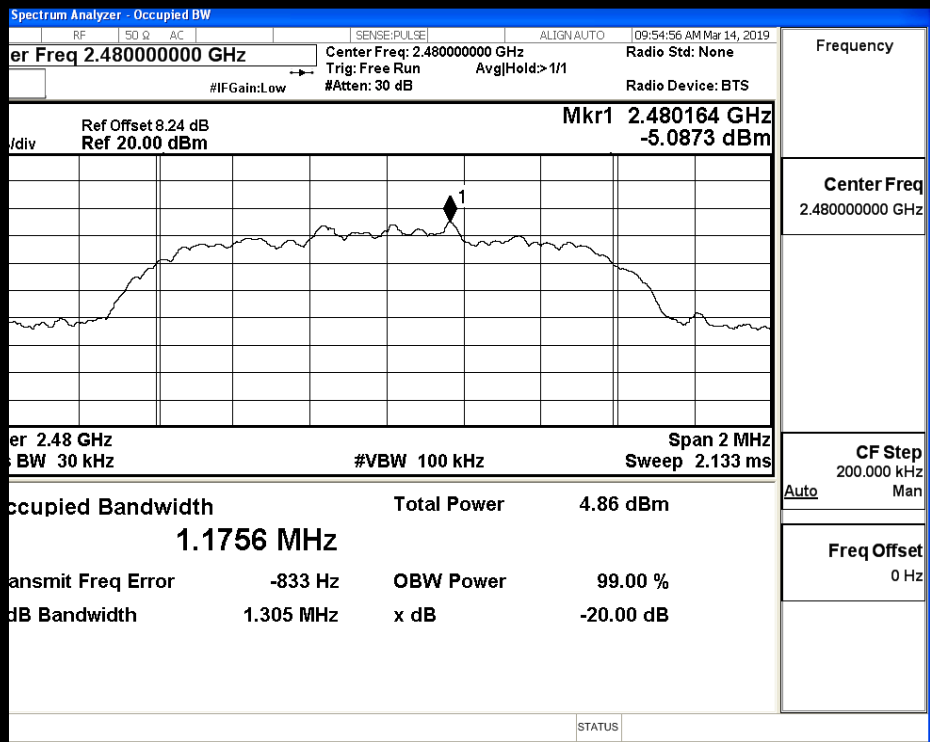
$\pi/4$ DQPSK/LCH



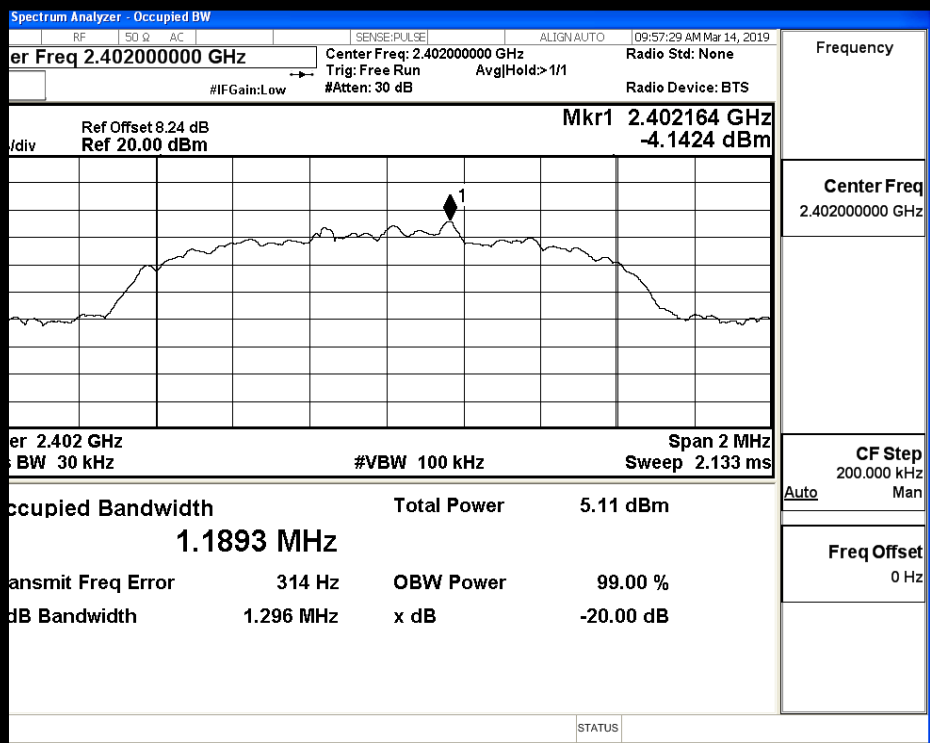
$\pi/4$ DQPSK/MCH



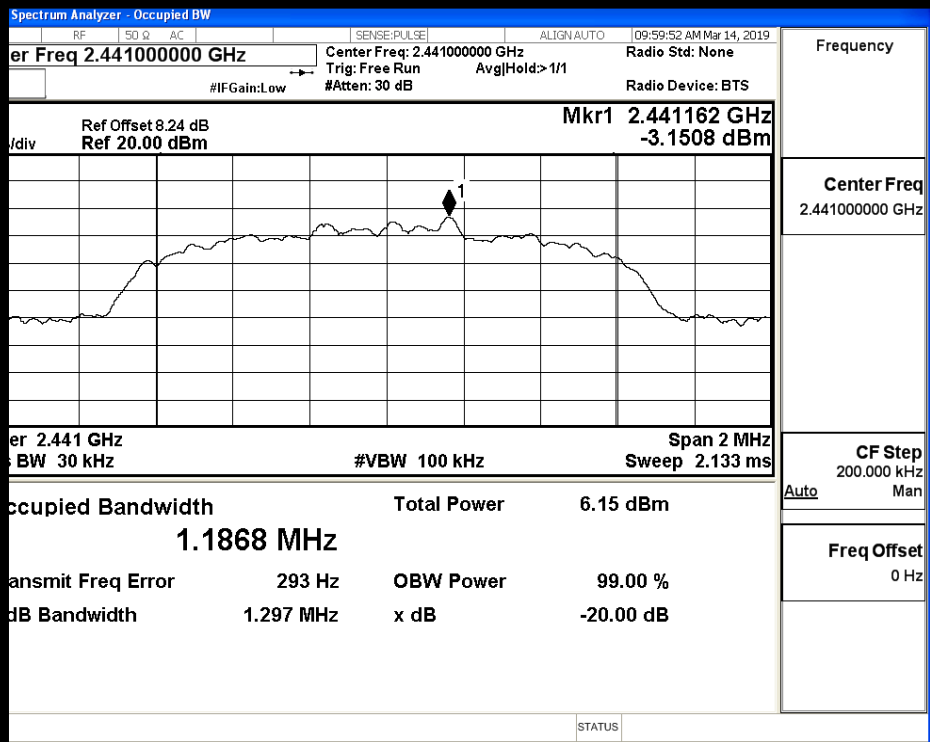
$\pi/4$ DQPSK/HCH



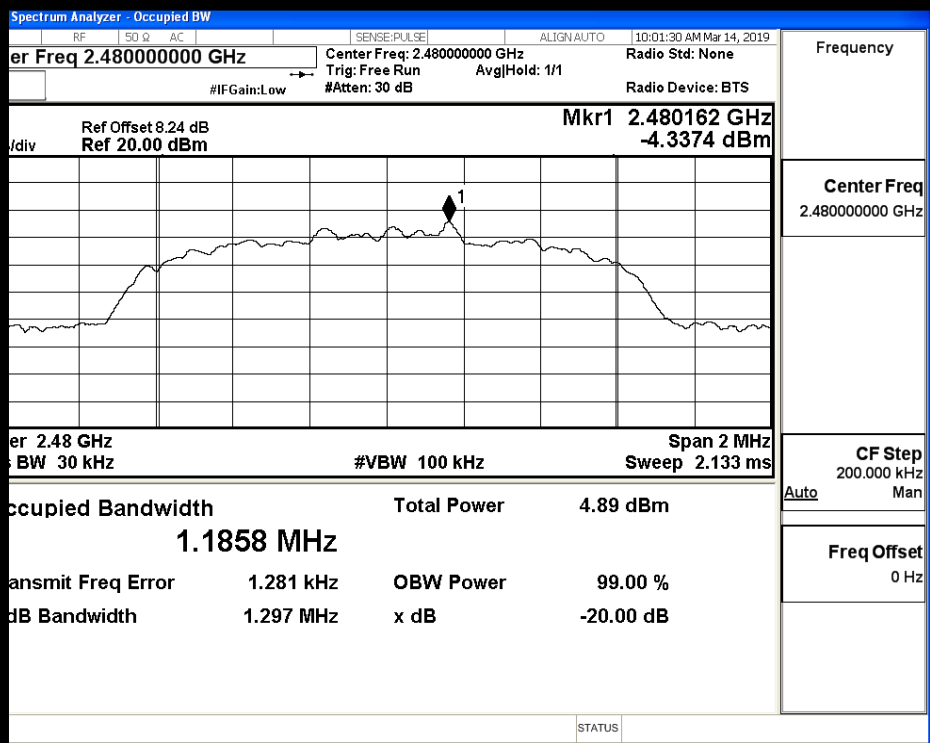
8DPSK/LCH



8DPSK/MCH

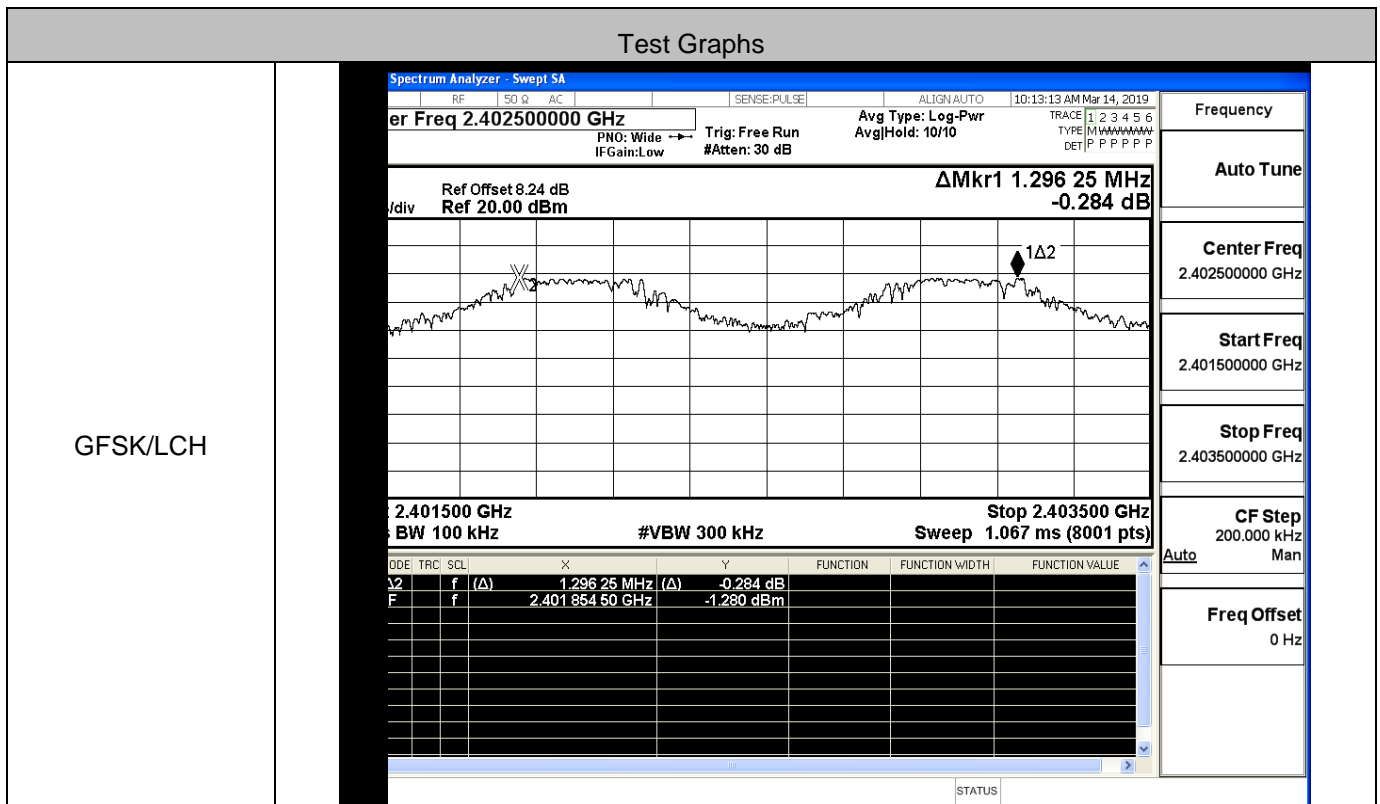


8DPSK/HCH

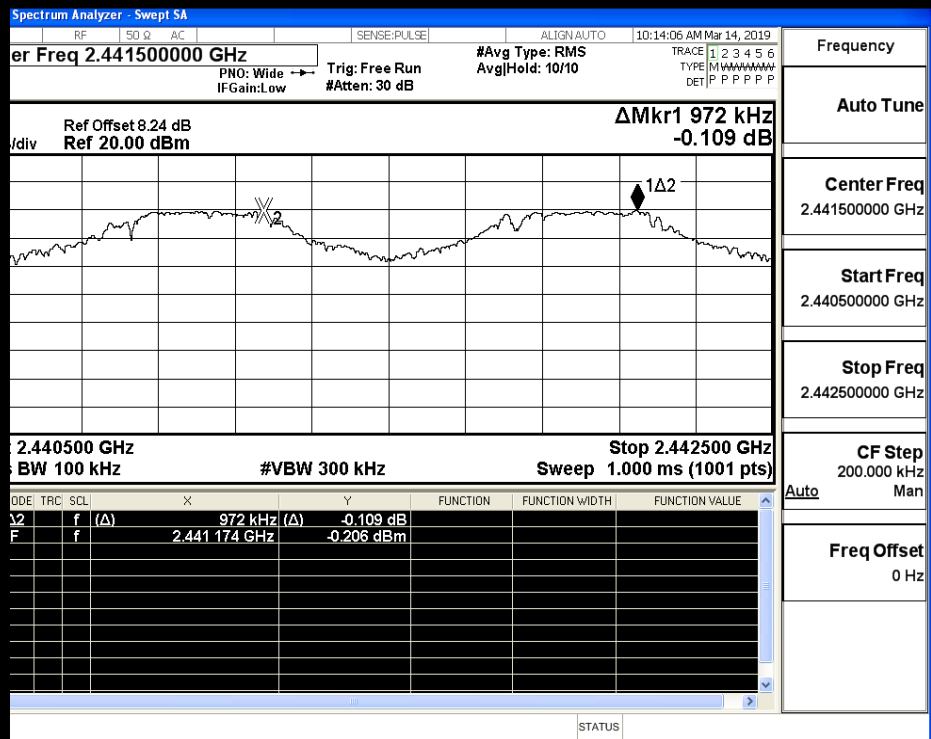


A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.296	0.691	PASS
	MCH	0.972	0.691	PASS
	HCH	1.154	0.691	PASS
π/4DQPSK	LCH	1.068	0.872	PASS
	MCH	1.212	0.872	PASS
	HCH	1.176	0.872	PASS
8DPSK	LCH	1.130	0.865	PASS
	MCH	0.918	0.865	PASS
	HCH	1.176	0.865	PASS

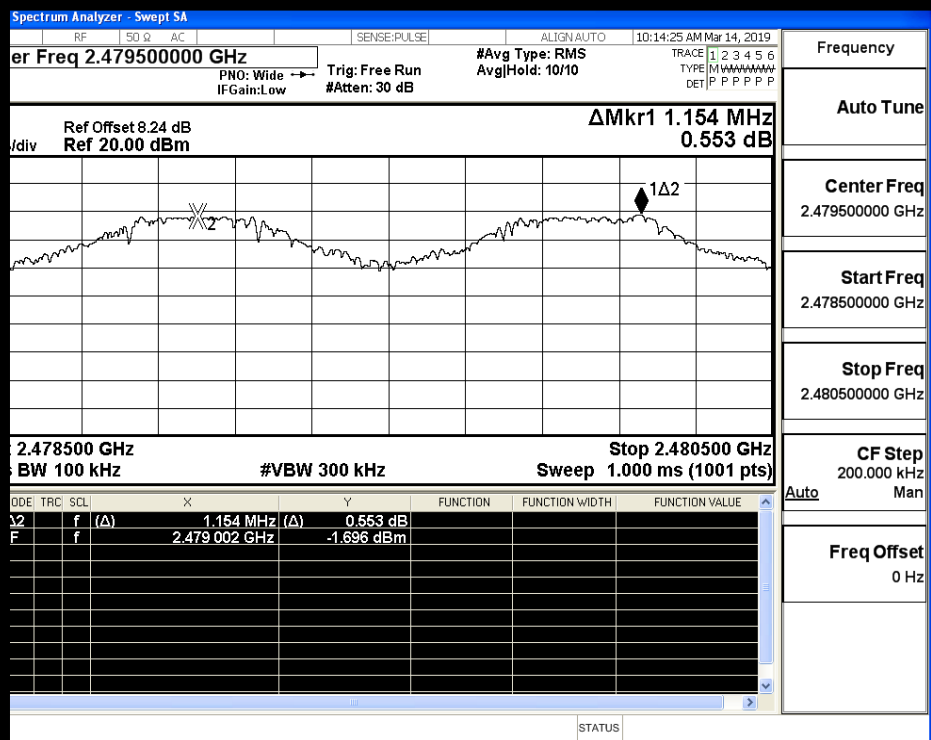


GFSK/MCH



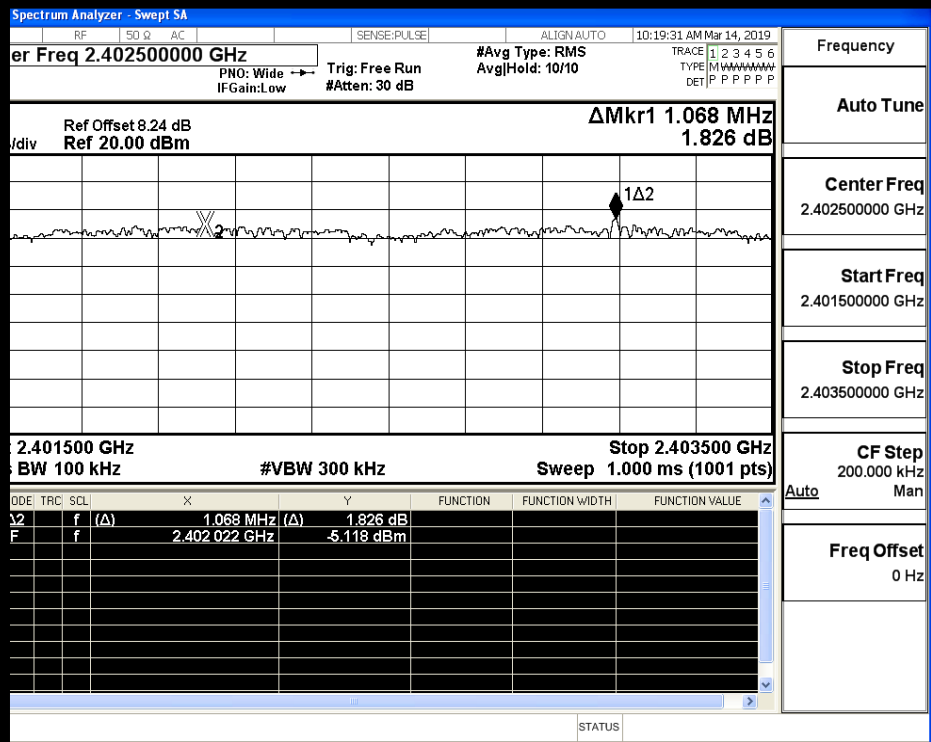
Frequency	Auto Tune
Center Freq	2.441500000 GHz
Start Freq	2.440500000 GHz
Stop Freq	2.442500000 GHz
CF Step	200.000 kHz
Freq Offset	0 Hz

GFSK/HCH

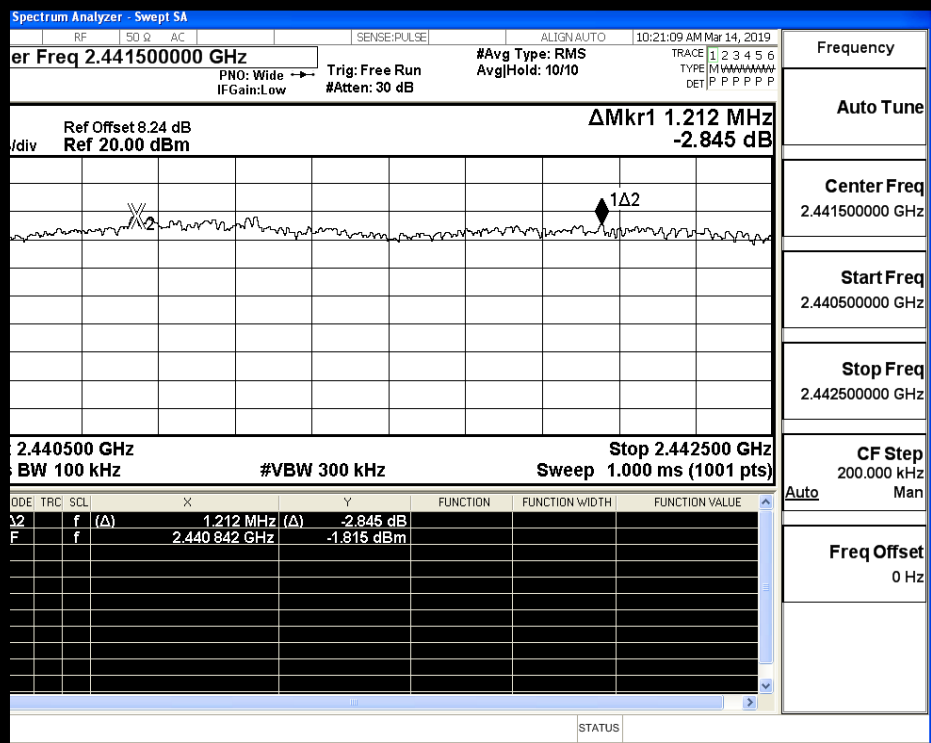


Frequency	Auto Tune
Center Freq	2.479500000 GHz
Start Freq	2.478500000 GHz
Stop Freq	2.480500000 GHz
CF Step	200.000 kHz
Freq Offset	0 Hz

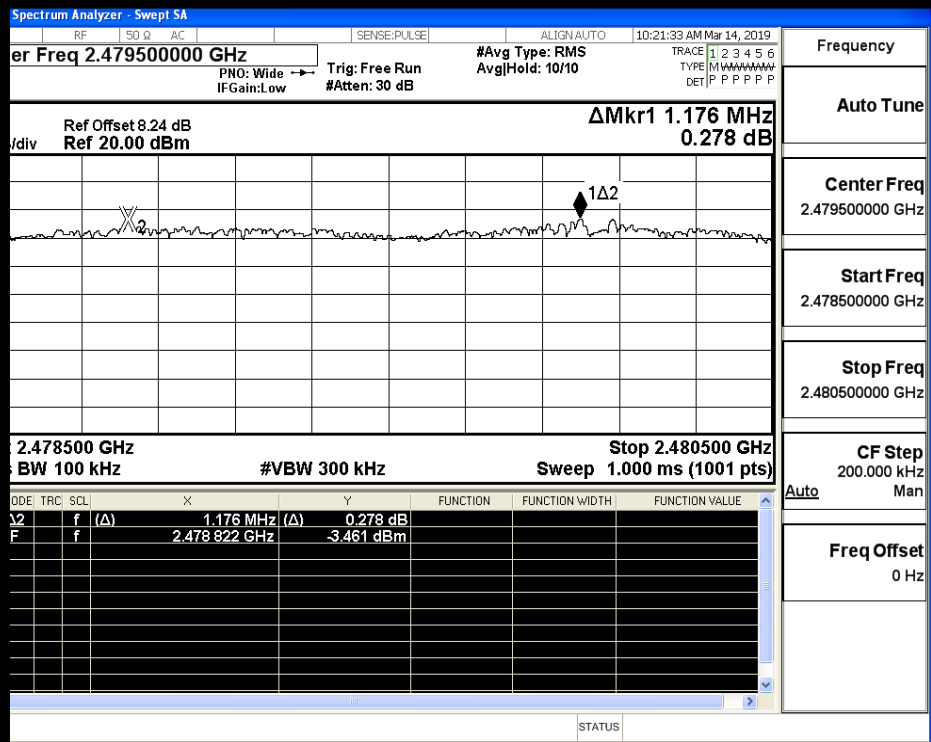
$\pi/4$ DQPSK/LCH



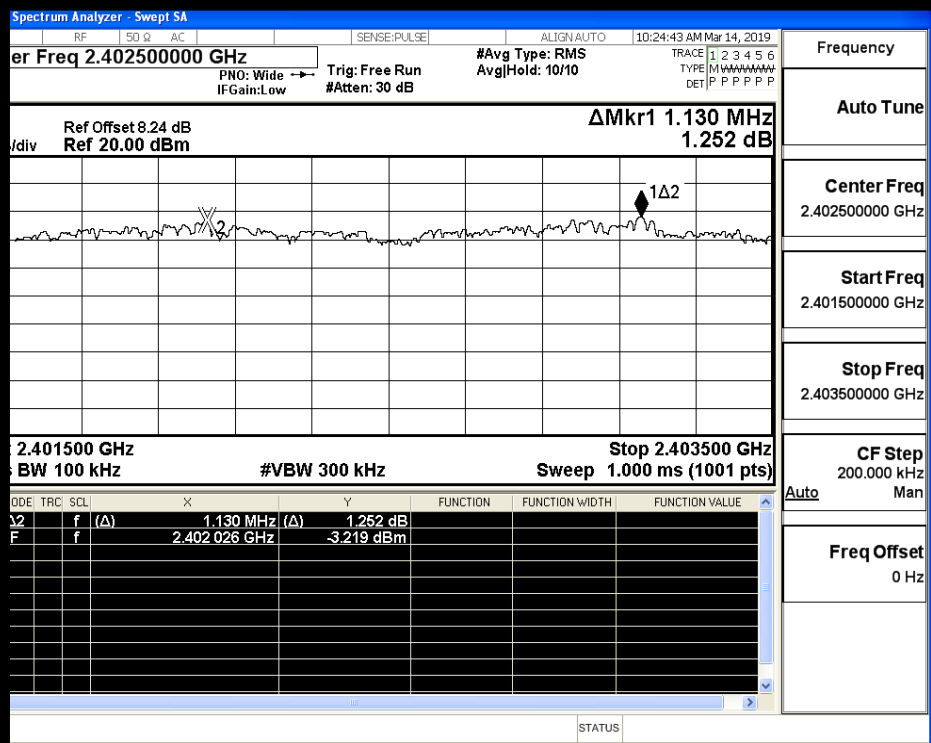
$\pi/4$ DQPSK/MCH



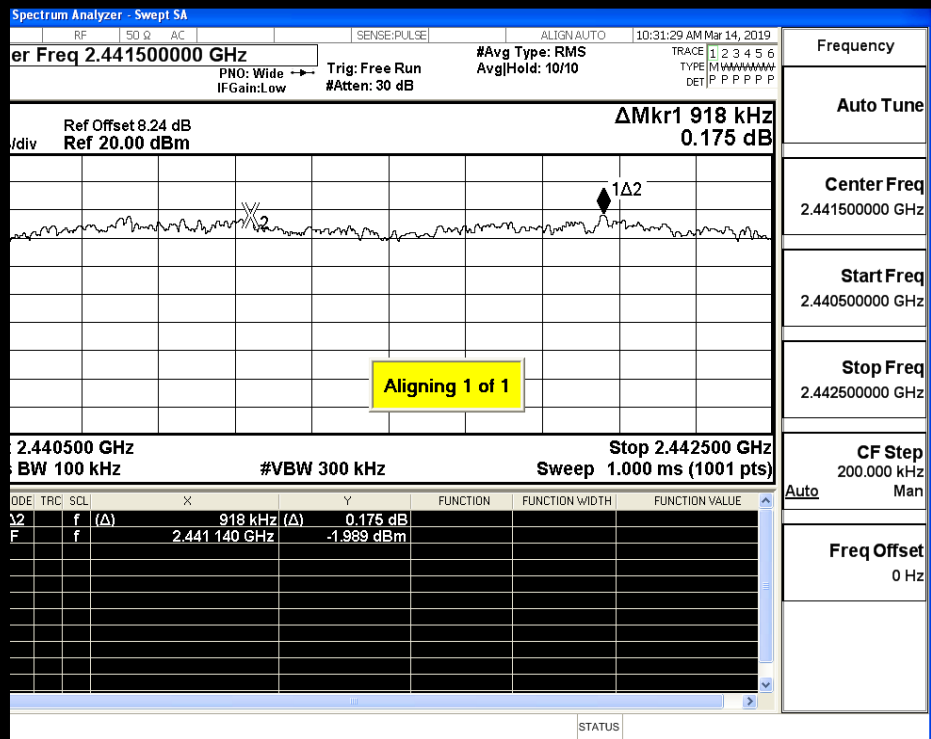
π/4DQPSK/HCH



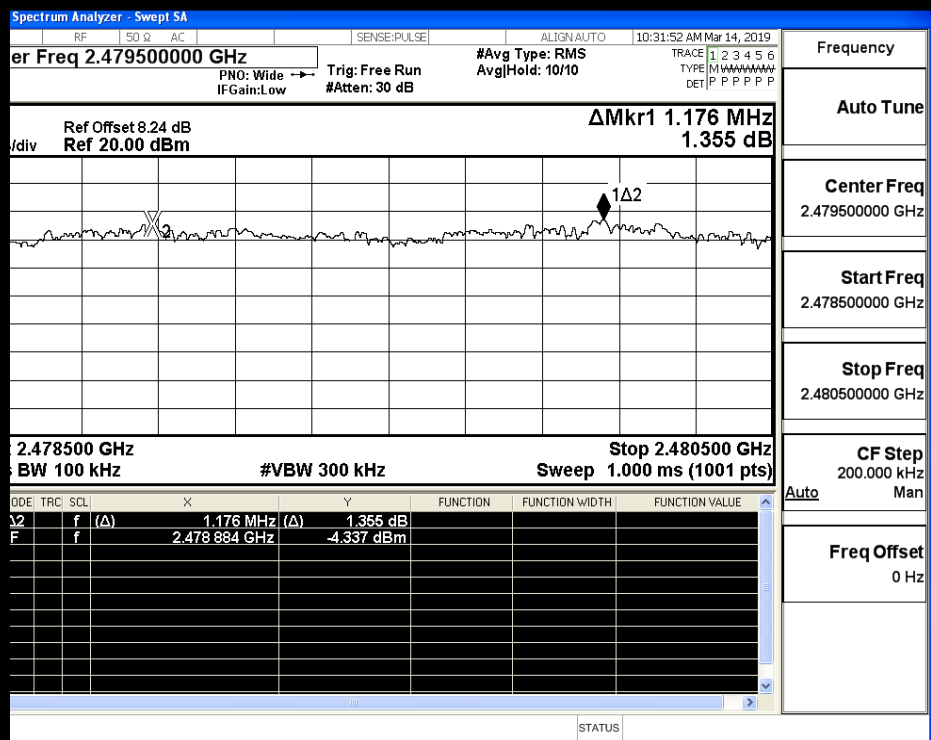
8DPSK/LCH



8DPSK/MCH

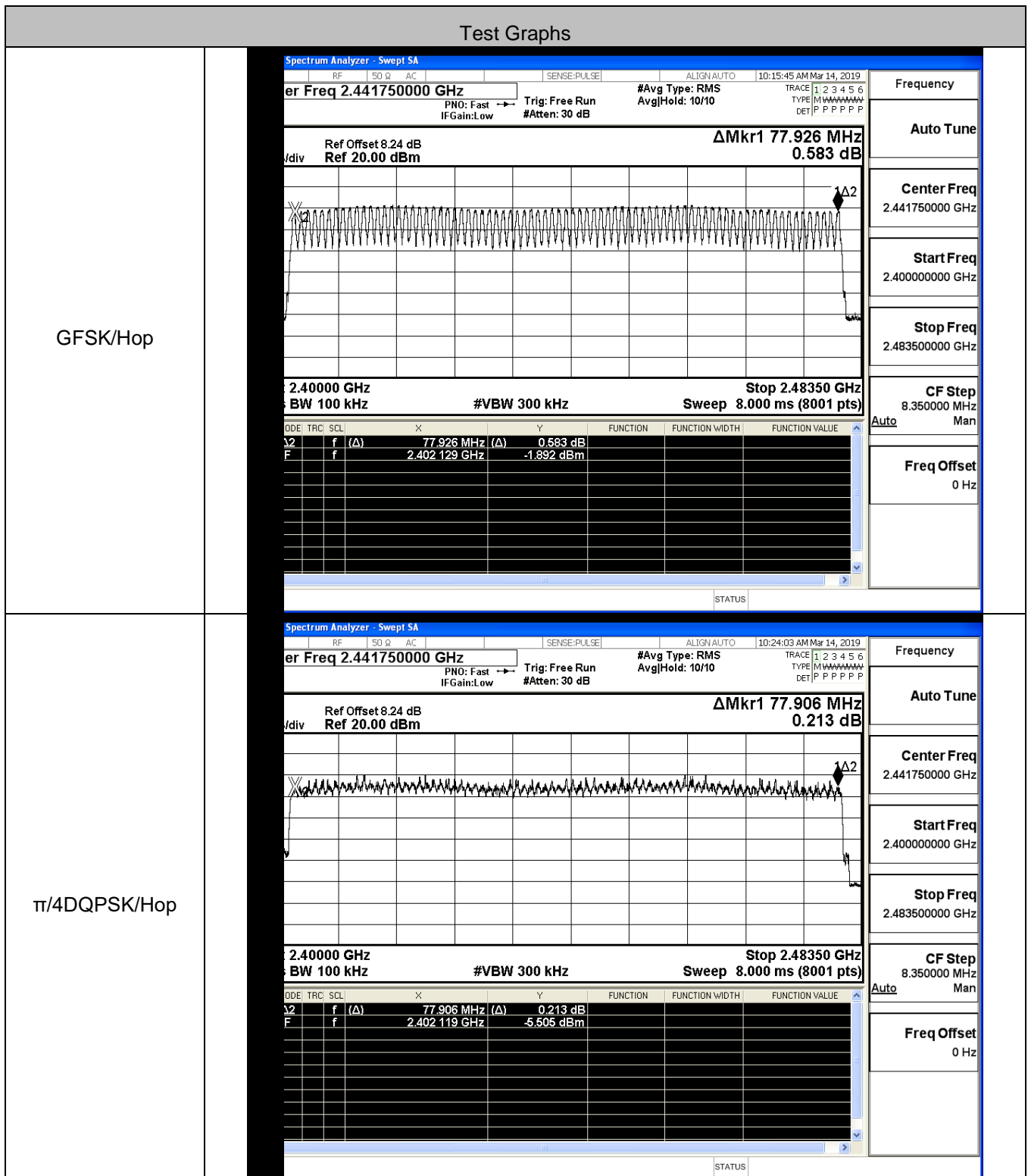


8DPSK/HCH

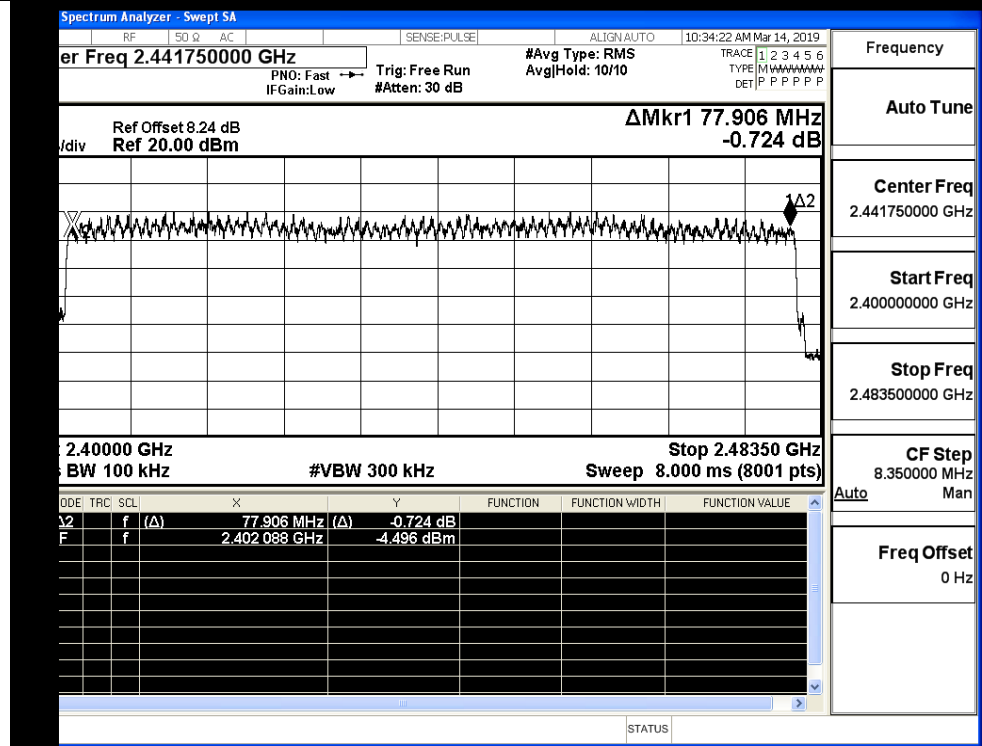


A.4 Hopping Channel Number

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

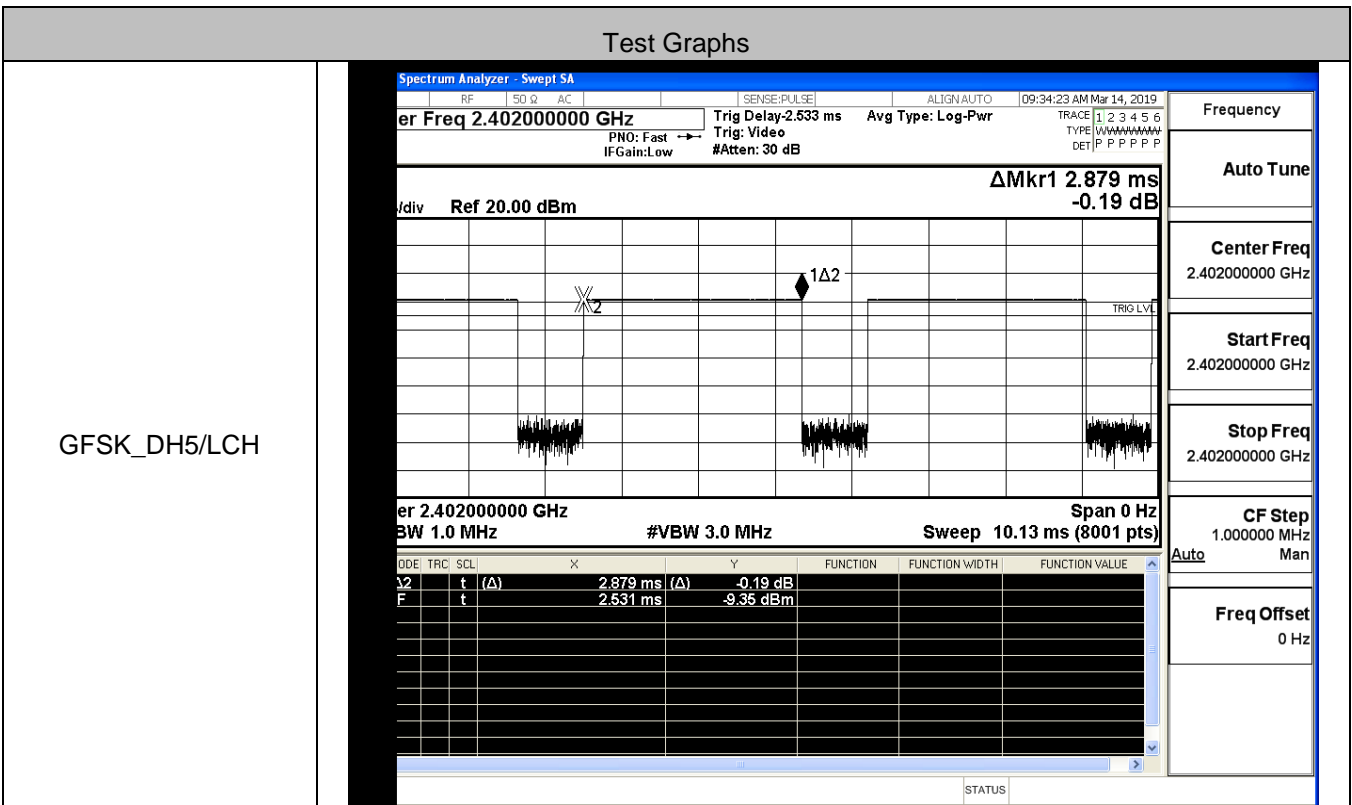


8DPSK/Hop

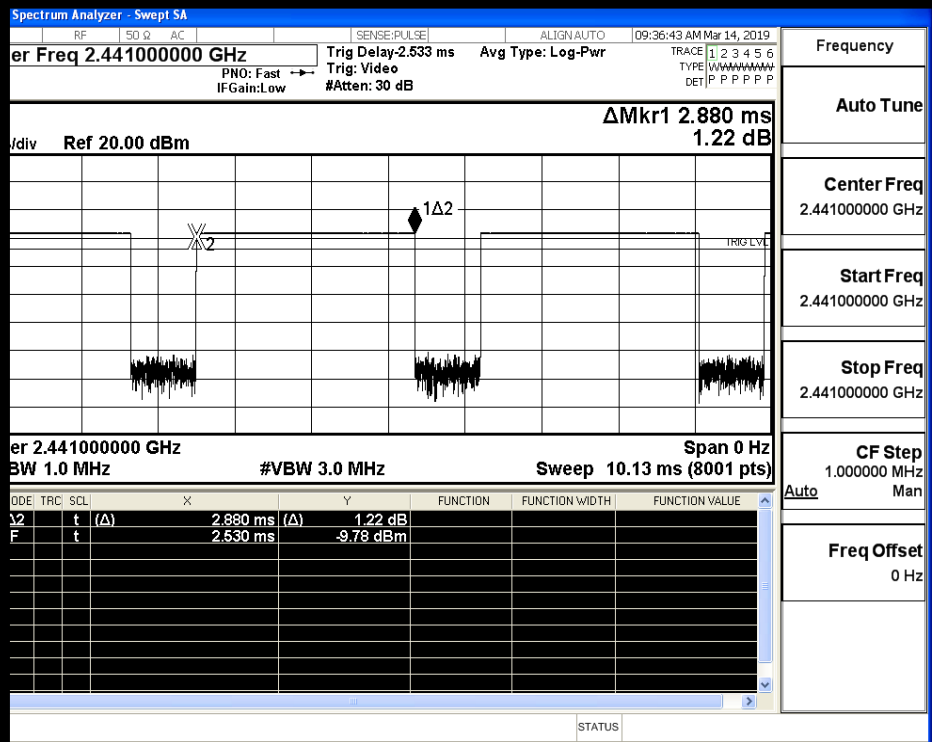


A.5 Dwell Time

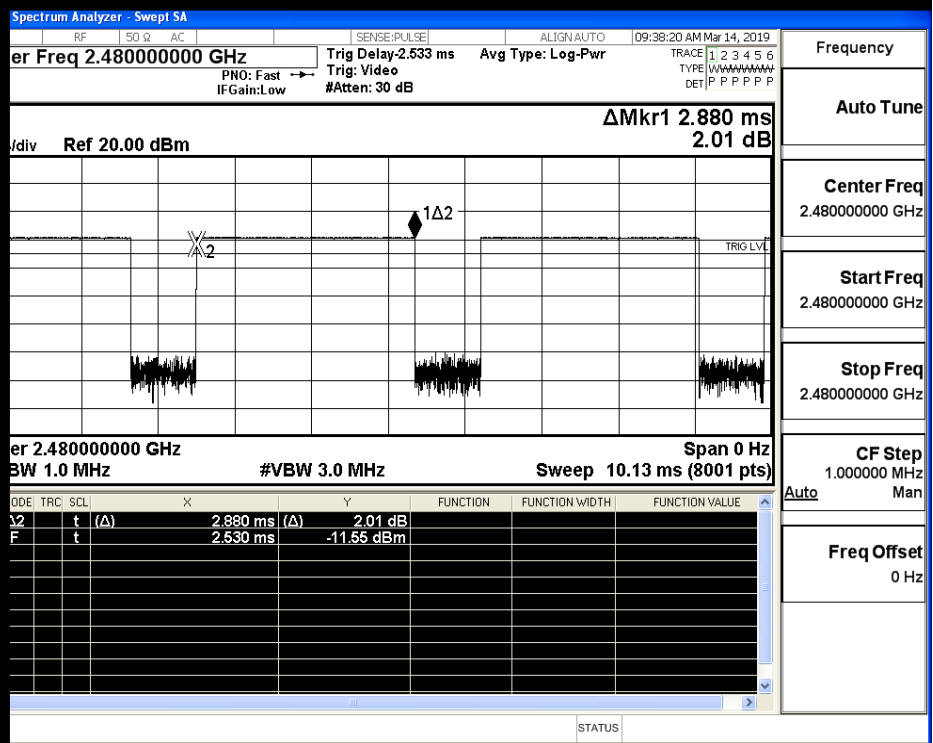
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.89	106.7	0.308	0.4	PASS
	3DH5	HCH	2.89	106.7	0.308	0.4	PASS



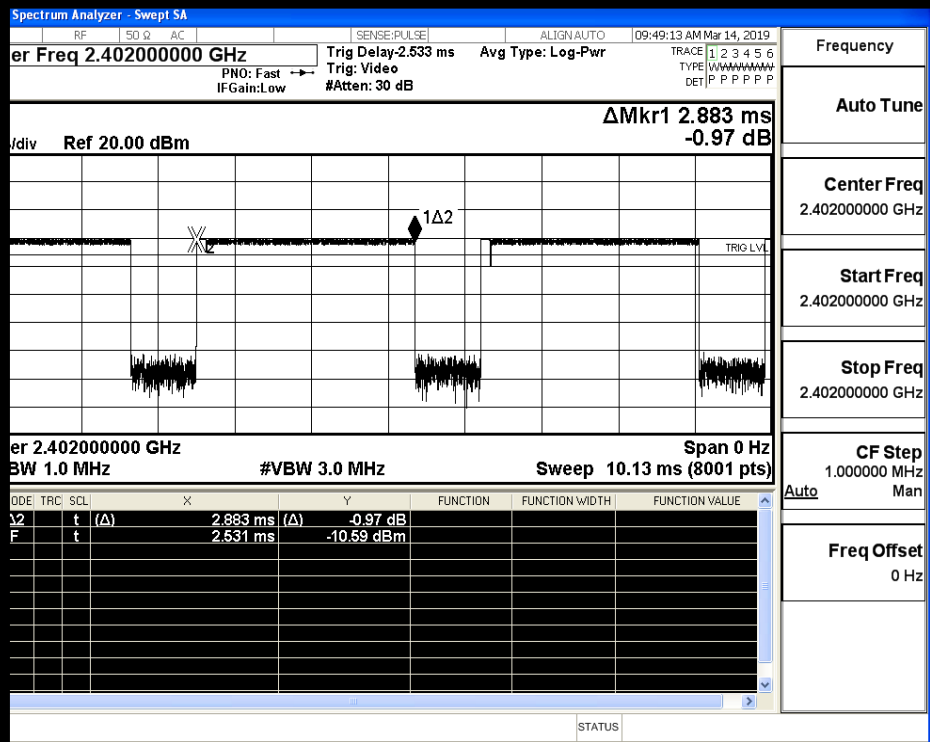
GFSK_DH5/MCH



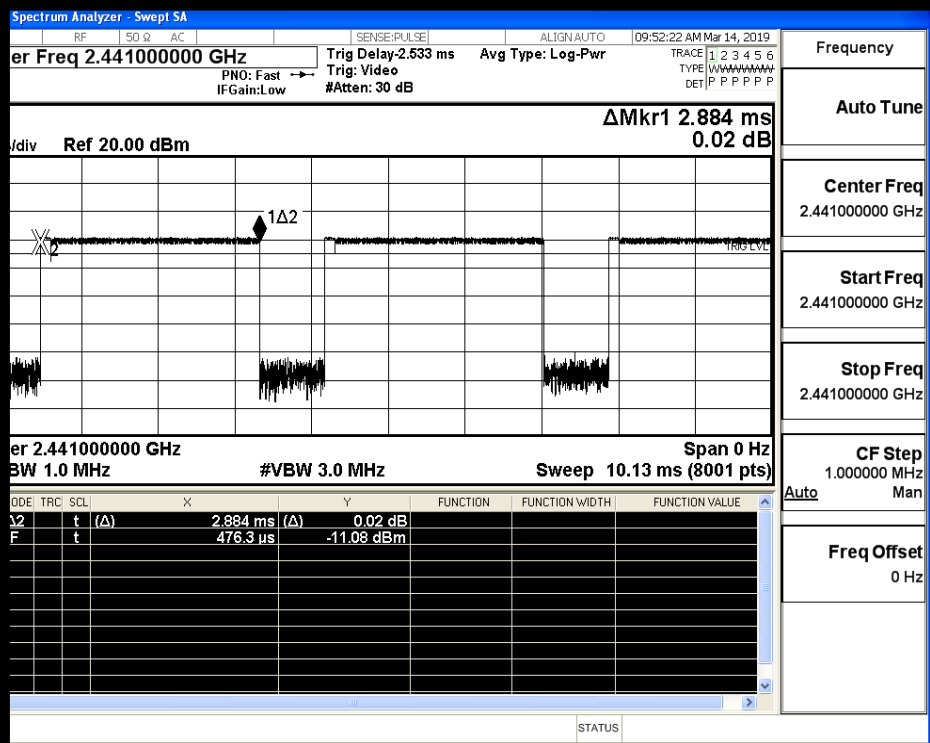
GFSK_DH5/HCH



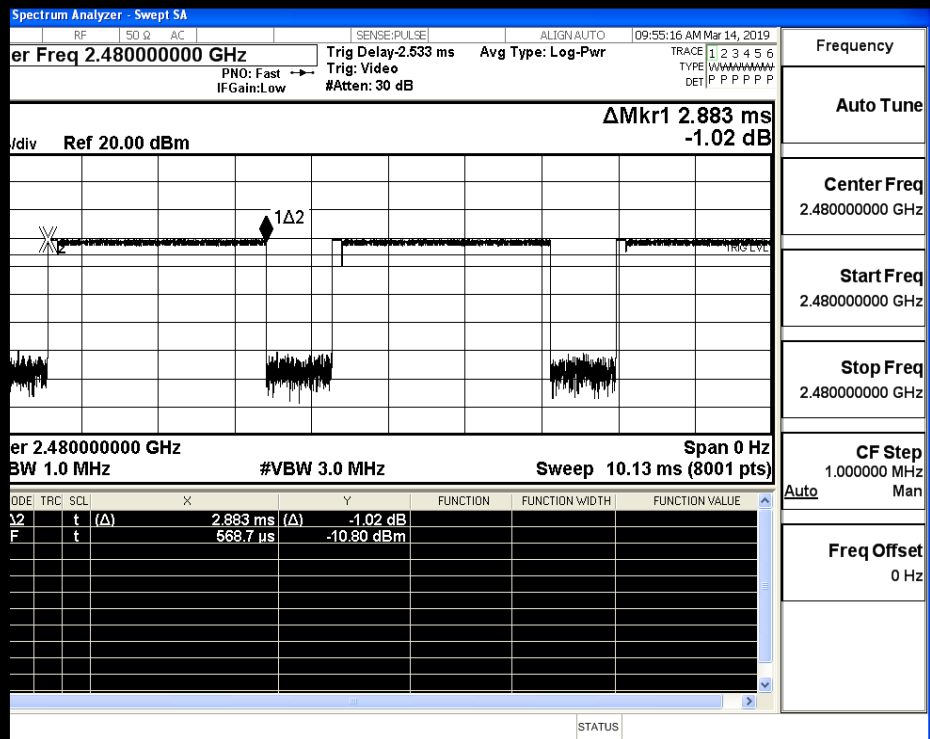
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH

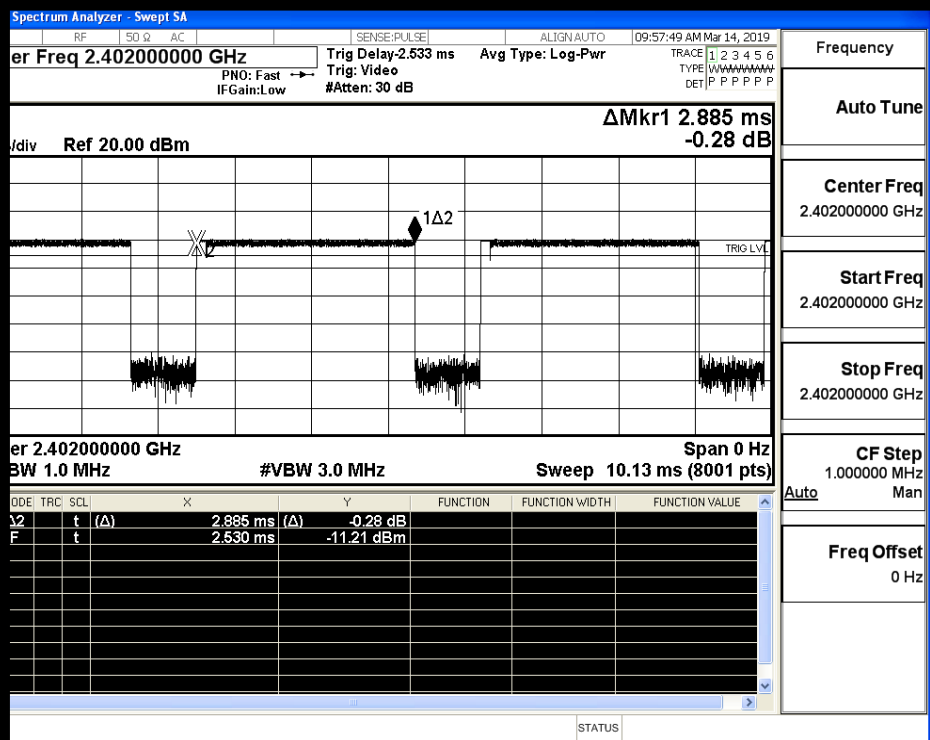


$\pi/4$ DQPSK
_2DH5/HCH



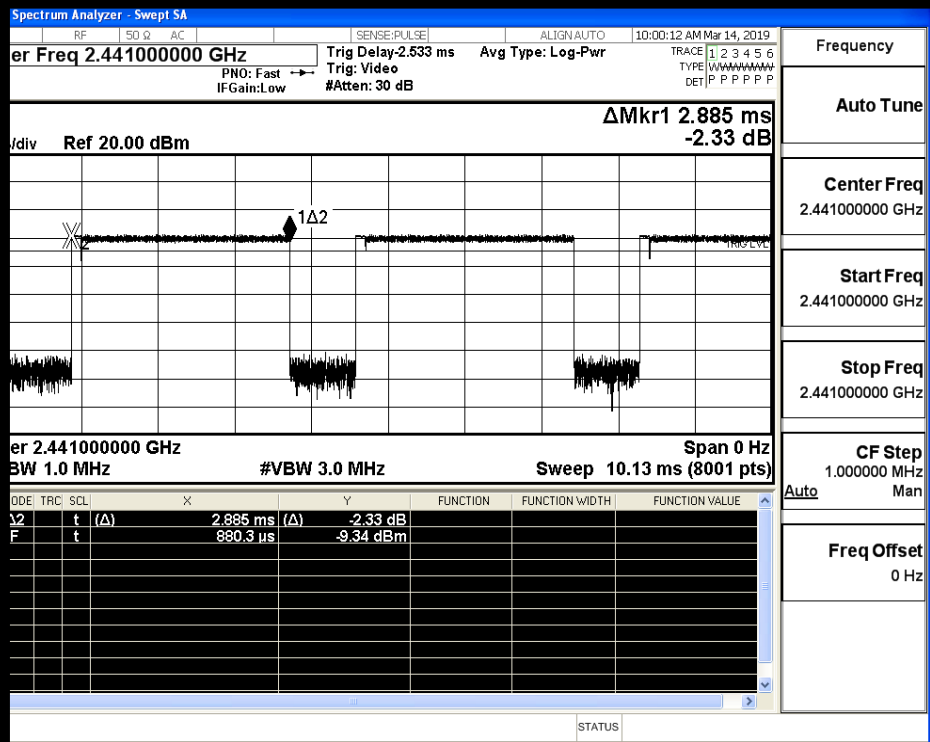
Frequency	
Auto Tune	
Center Freq	2.480000000 GHz
Start Freq	2.480000000 GHz
Stop Freq	2.480000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK_3DH5/LCH

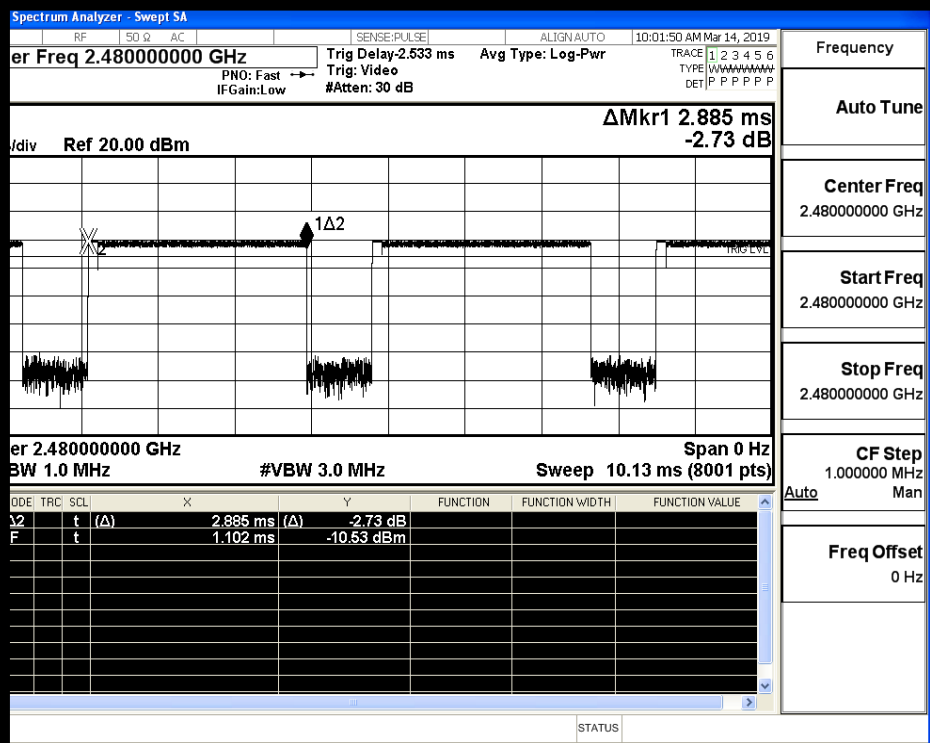


Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.402000000 GHz
Stop Freq	2.402000000 GHz
CF Step	1.000000 MHz
Auto	Man
Freq Offset	0 Hz

8DPSK_3DH5/MCH



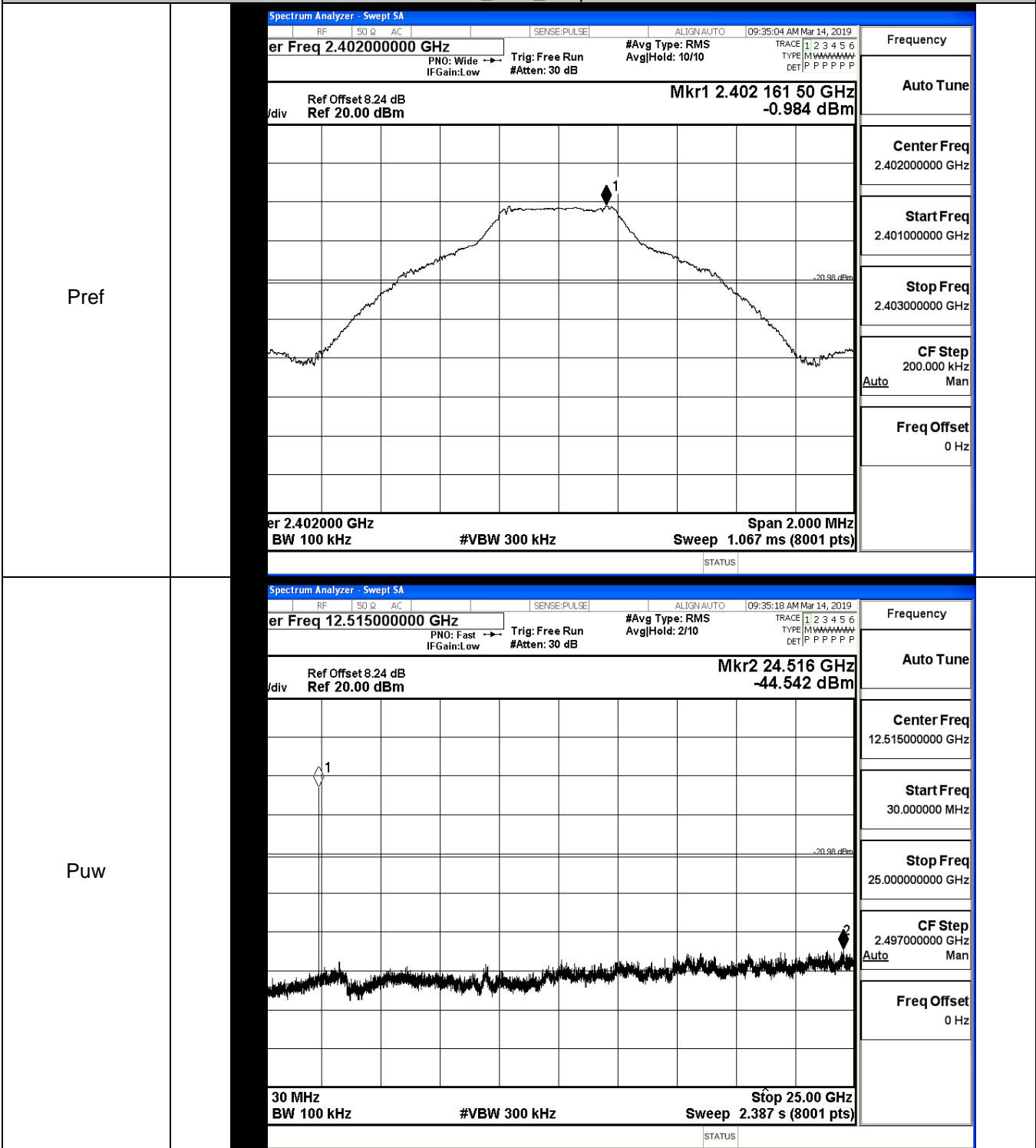
8DPSK_3DH5/HCH



A.6 RF Conducted Spurious Emissions

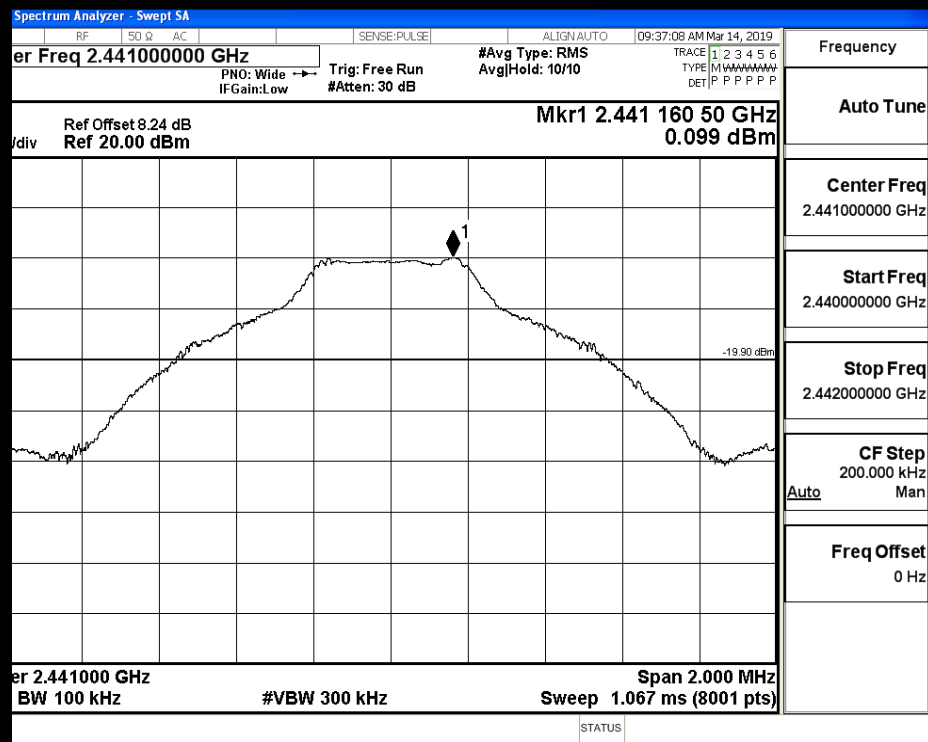
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.984	-44.542	-20.984	PASS
	MCH	0.099	-44.787	-19.901	PASS
	HCH	-1.36	-44.382	-21.360	PASS
$\pi/4$ DQPSK	LCH	-2.169	-41.336	-22.169	PASS
	MCH	-1.143	-42.668	-21.143	PASS
	HCH	-2.355	-44.554	-22.355	PASS
8DPSK	LCH	-2.715	-44.622	-22.715	PASS
	MCH	-1.052	-43.996	-21.052	PASS
	HCH	-2.335	-45.184	-22.335	PASS

GFSK_LCH_Graphs

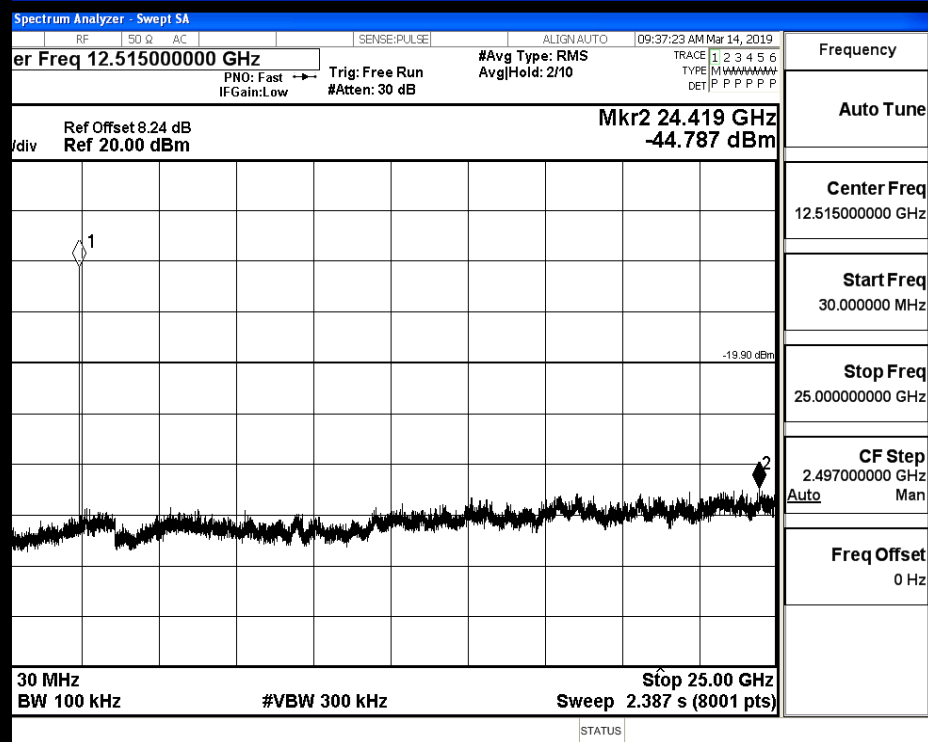


GFSK_MCH_Graphs

Pref

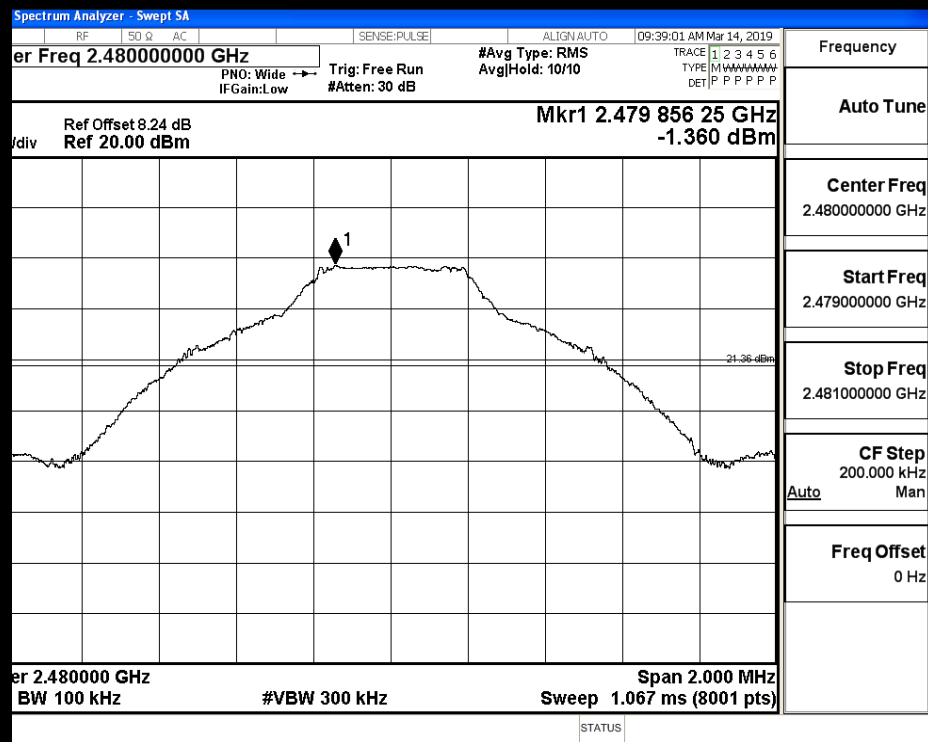


Puw

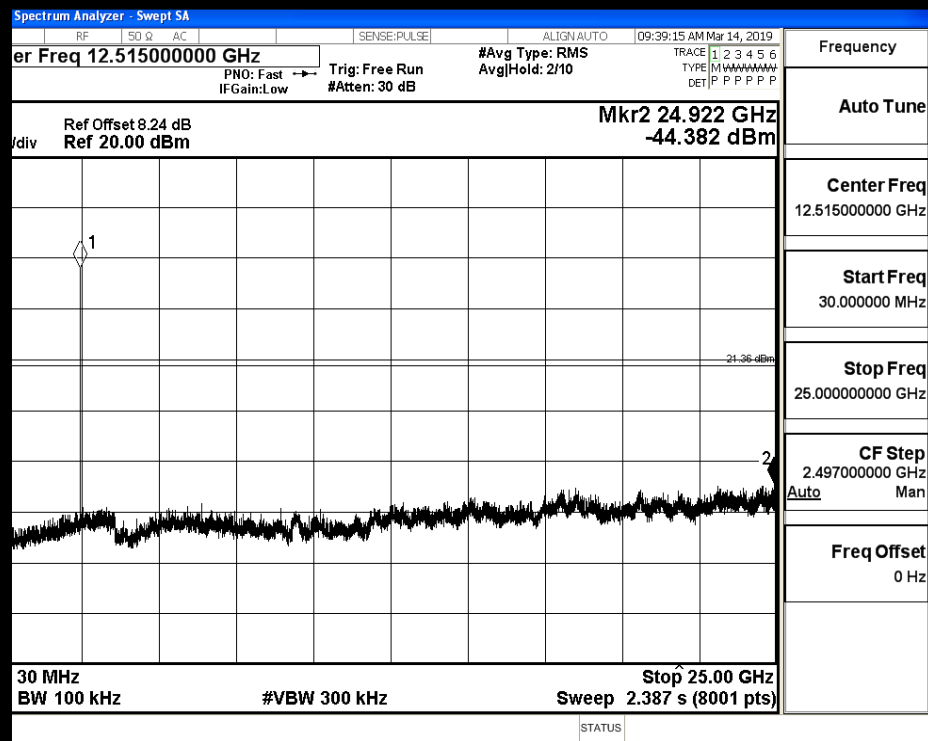


GFSK_HCH_Graphs

Pref

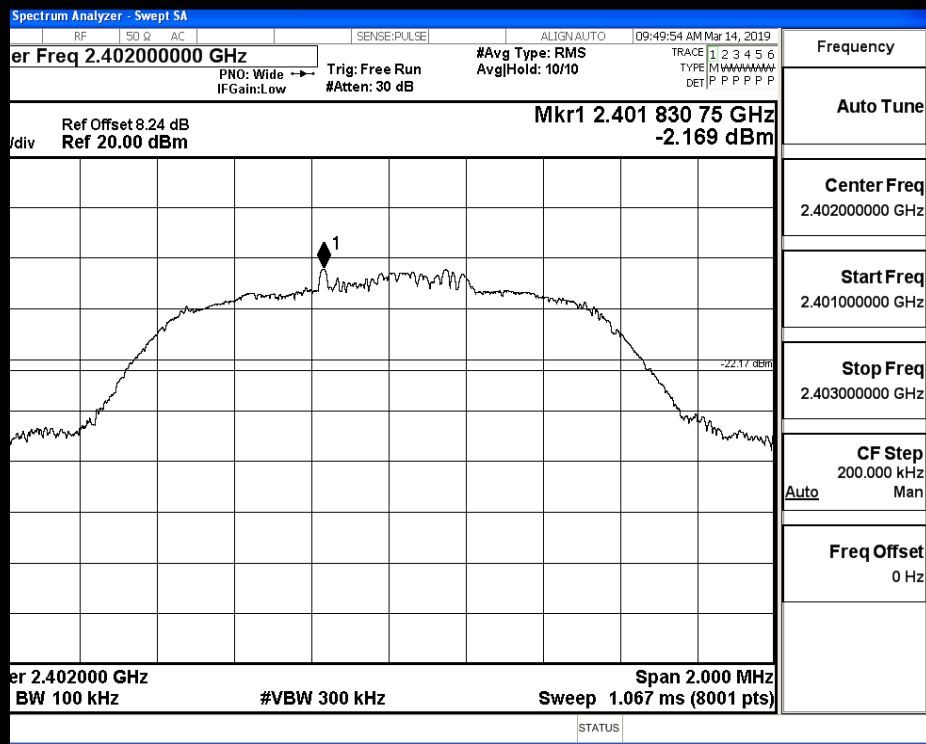


Puw

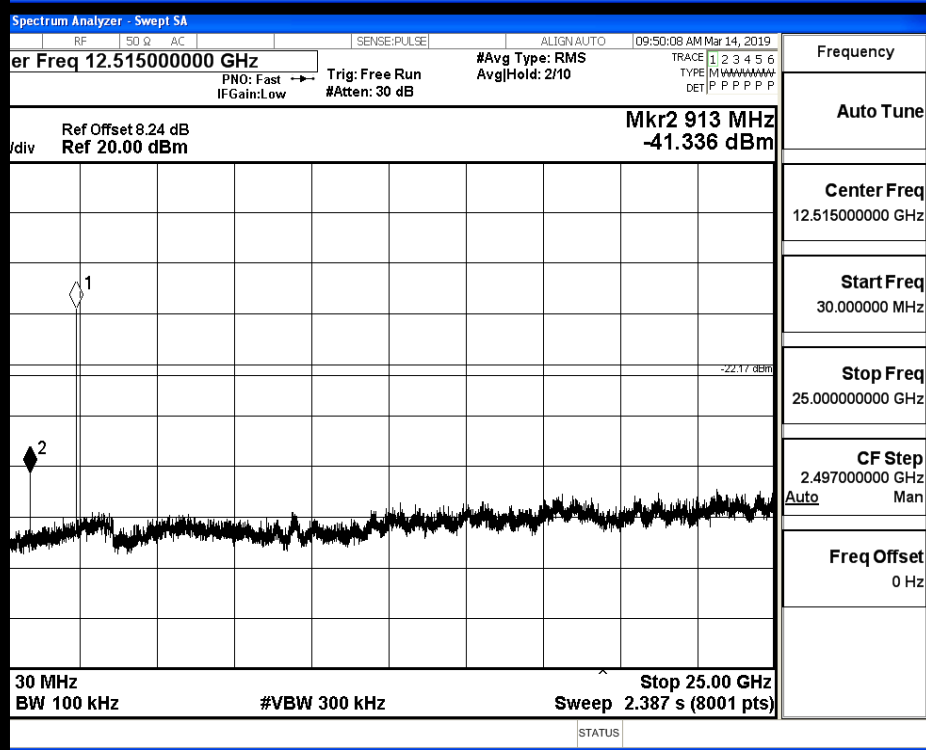


$\pi/4$ DQPSK_LCH_Graphs

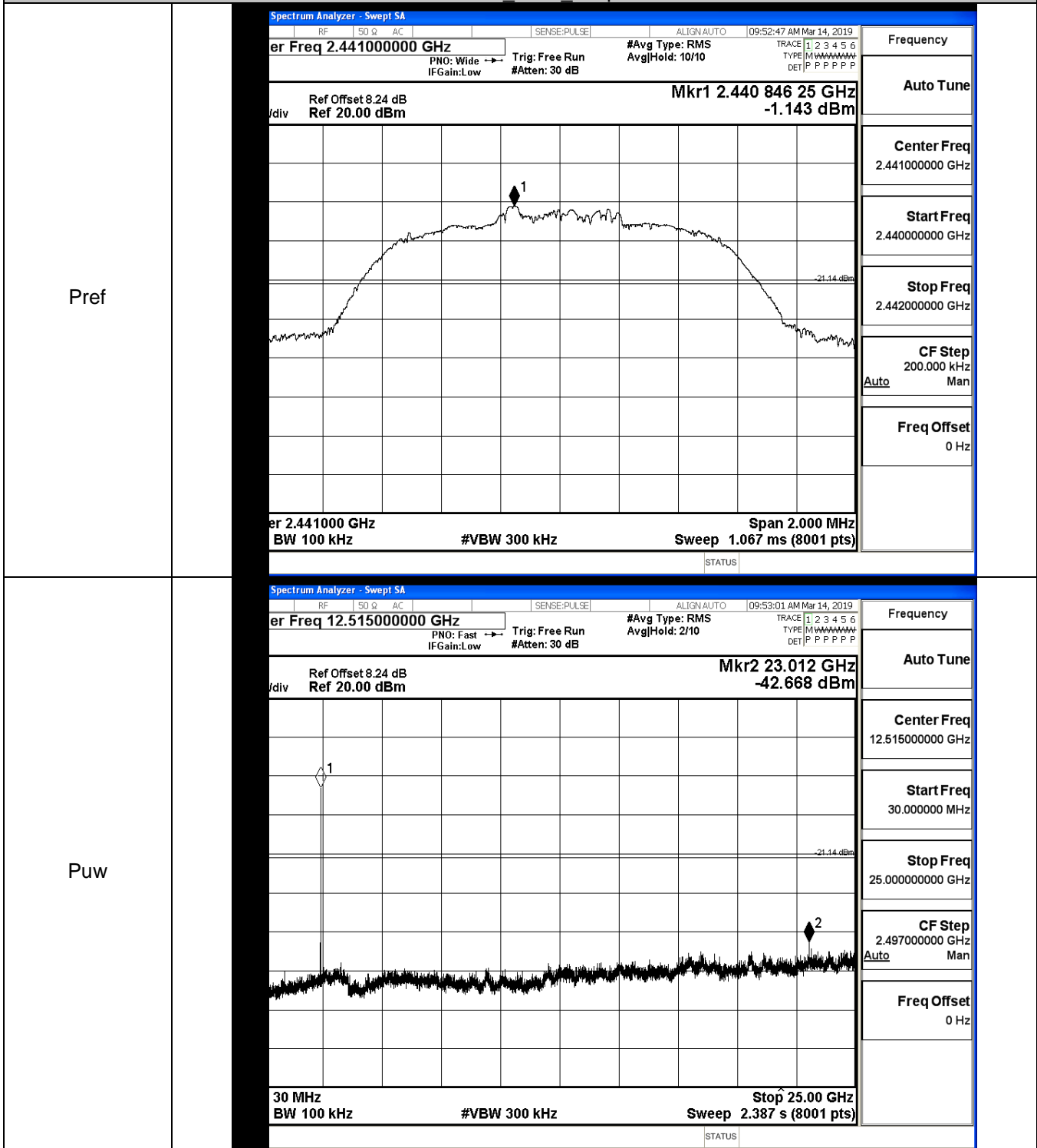
Pref



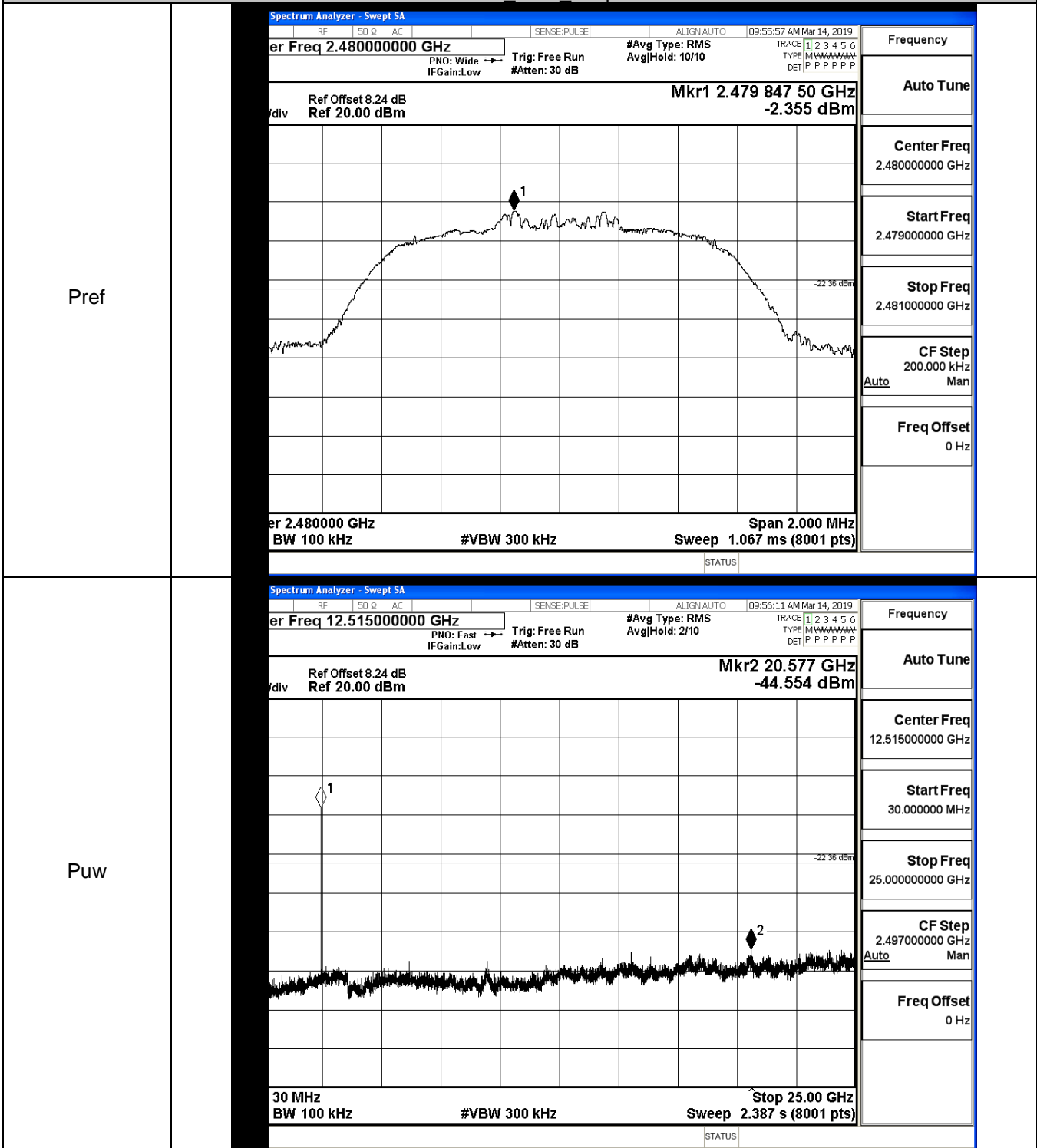
Puw



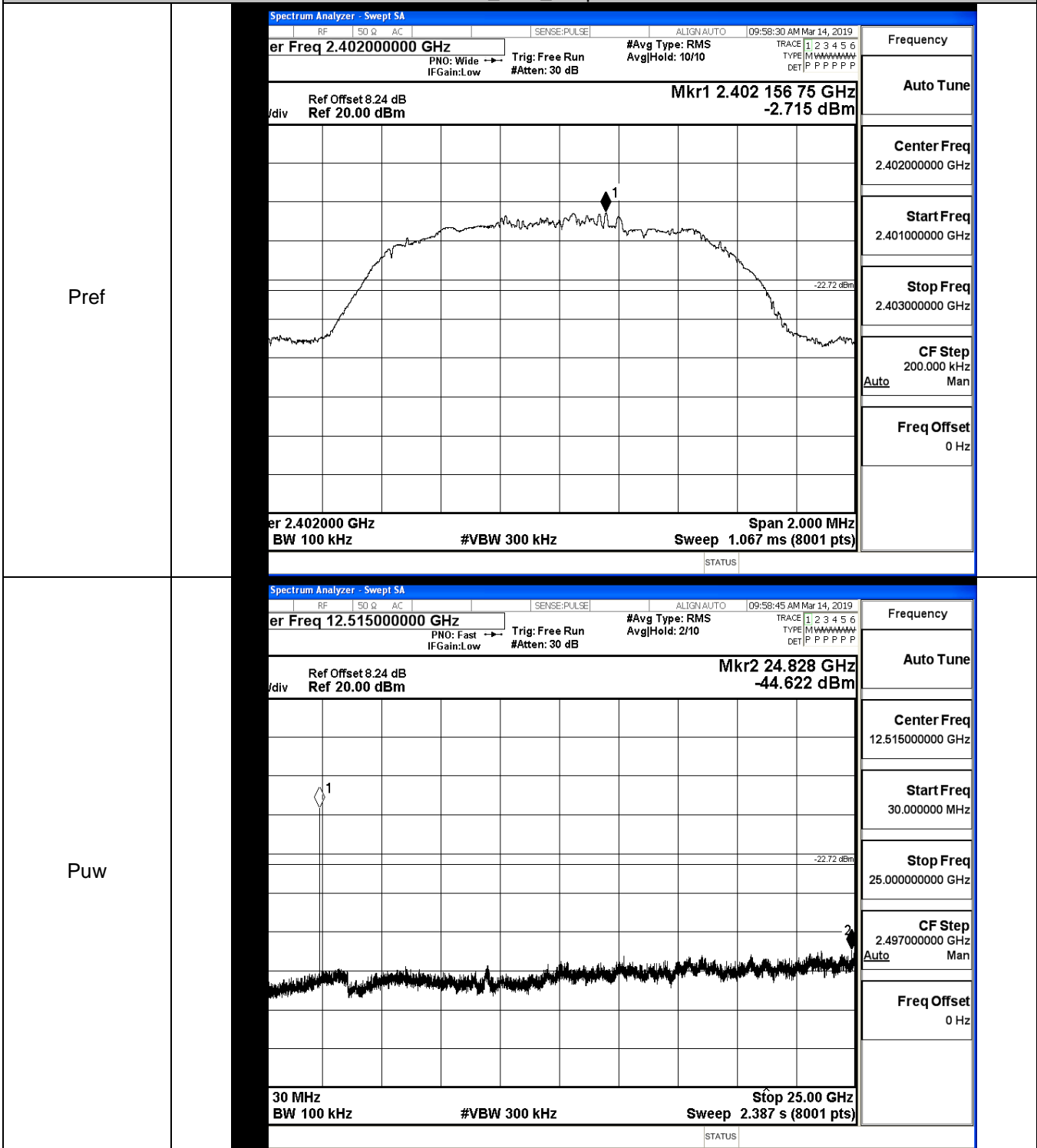
$\pi/4$ DQPSK_MCH_Graphs



$\pi/4$ DQPSK_HCH_Graphs

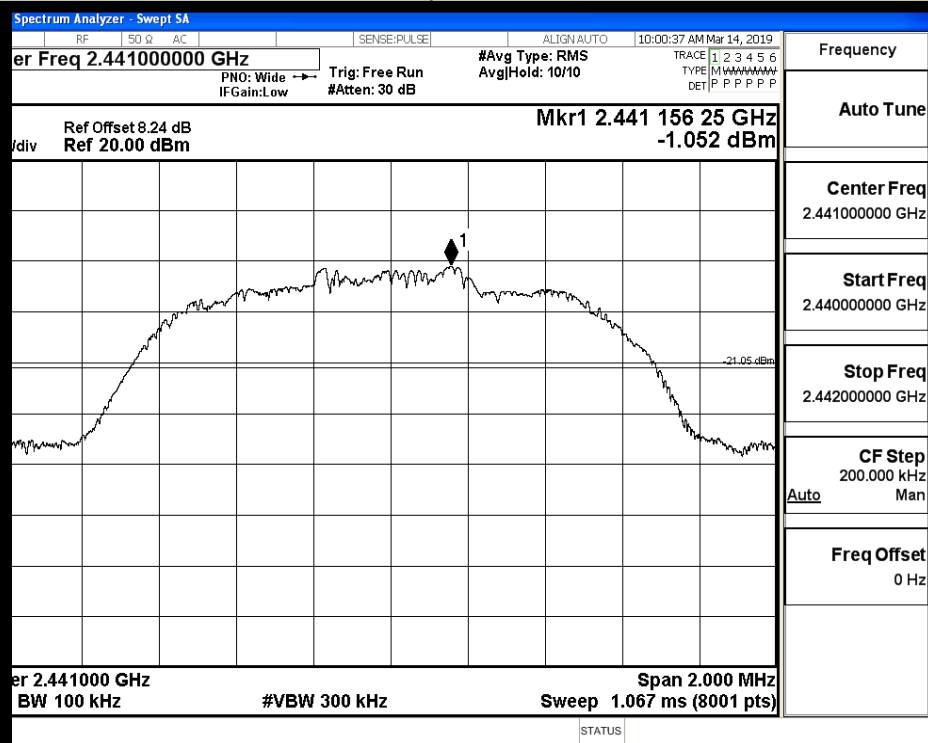


8DPSK_LCH_Graphs

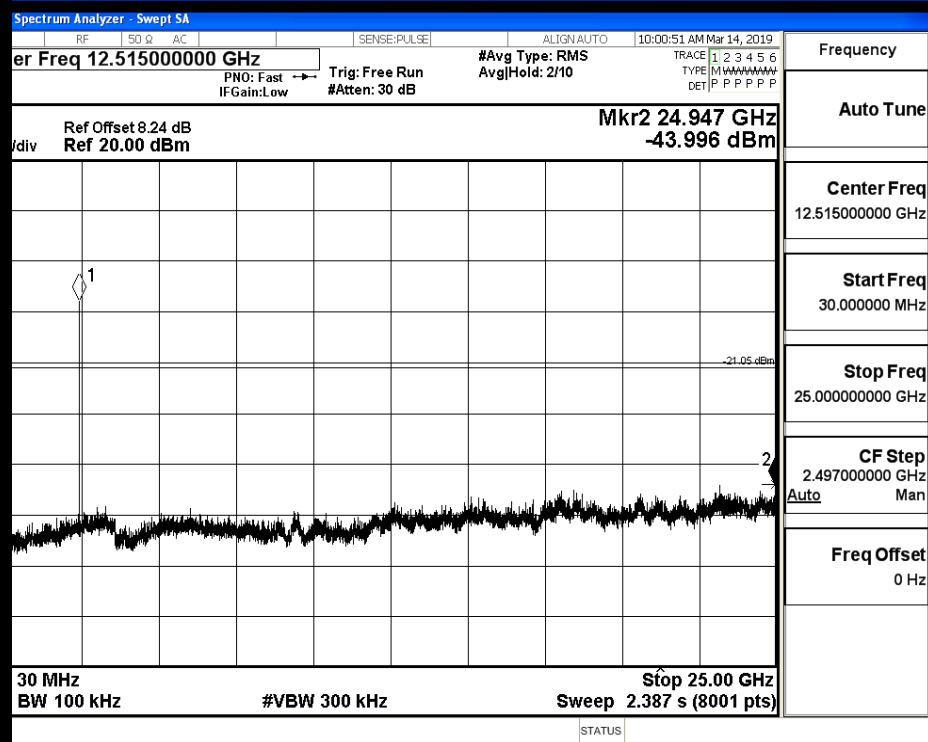


8DPSK_MCH_Graphs

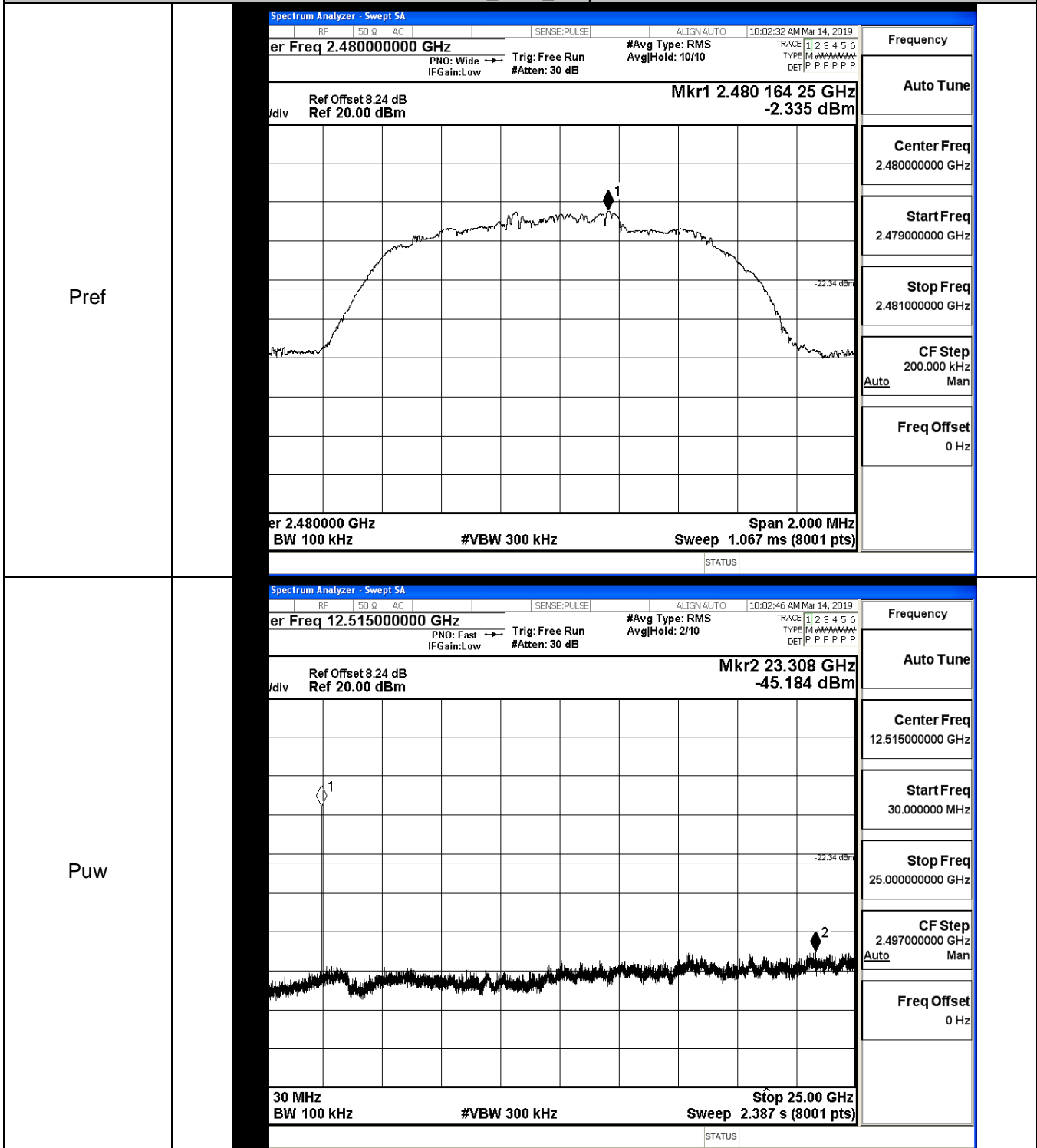
Pref



Puw



8DPSK_HCH_Graphs

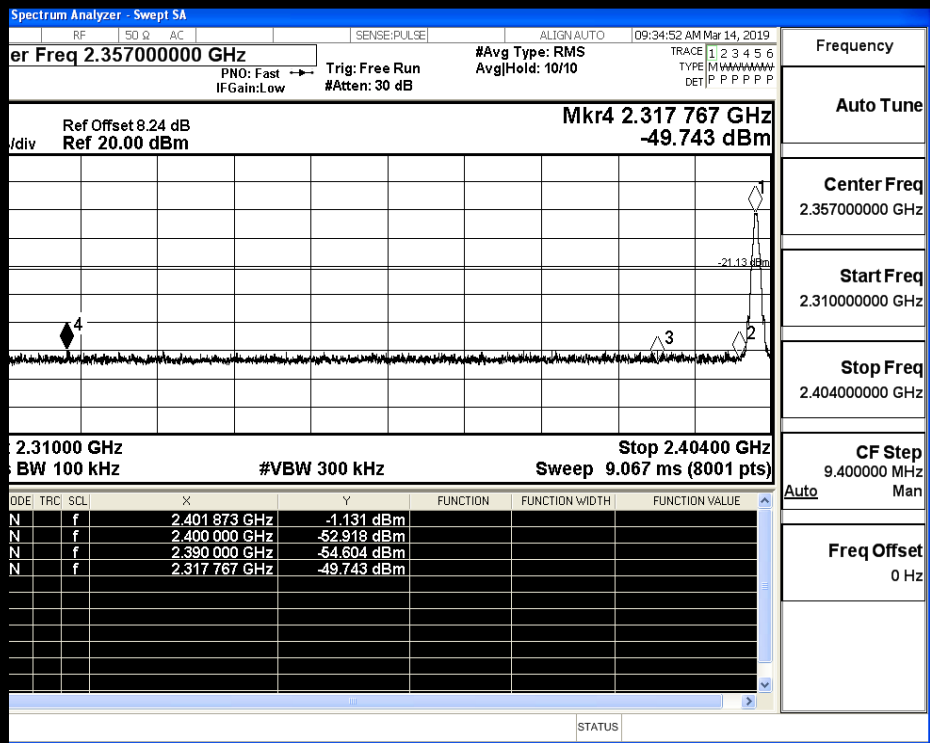


A.7 Band-edge for RF Conducted Emissions

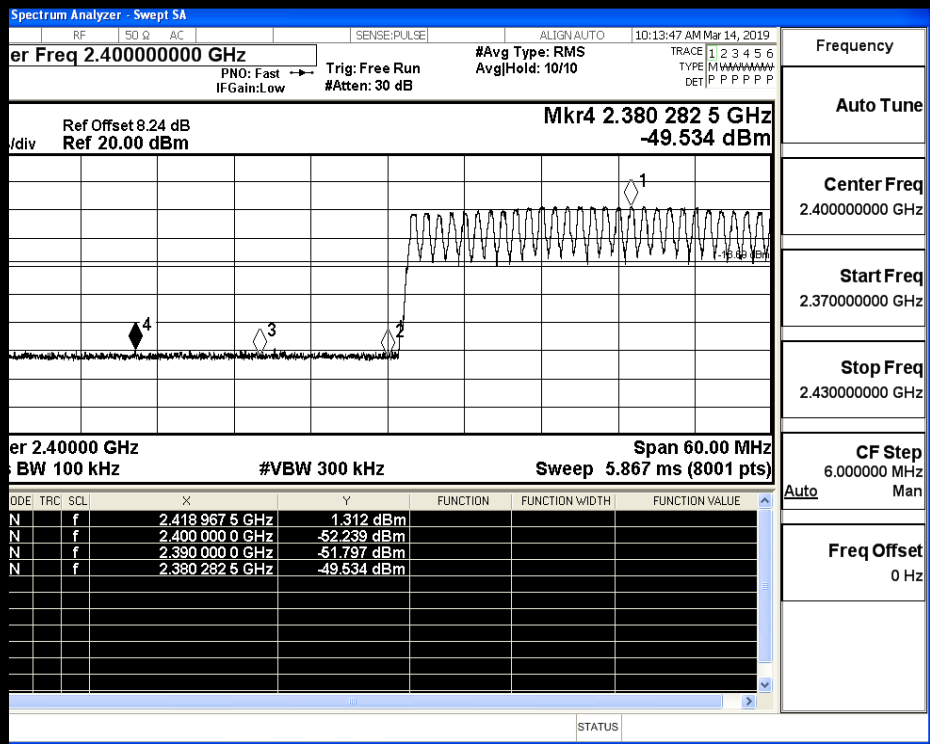
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.131	Off	-49.743	-21.13	PASS
			1.312	On	-49.534	-18.69	PASS
	HCH	2480	-0.990	Off	-49.755	-20.99	PASS
			1.568	On	-49.231	-18.43	PASS
$\pi/4$ DQPSK	LCH	2402	-2.323	Off	-49.967	-22.32	PASS
			0.220	On	-49.009	-19.78	PASS
	HCH	2480	-2.261	Off	-49.527	-22.26	PASS
			-0.115	On	-48.707	-20.12	PASS
8DPSK	LCH	2402	-2.130	Off	-49.901	-22.13	PASS
			0.224	On	-49.814	-19.78	PASS
	HCH	2480	-2.502	Off	-49.452	-22.5	PASS
			0.311	On	-48.661	-19.69	PASS

Test Graphs

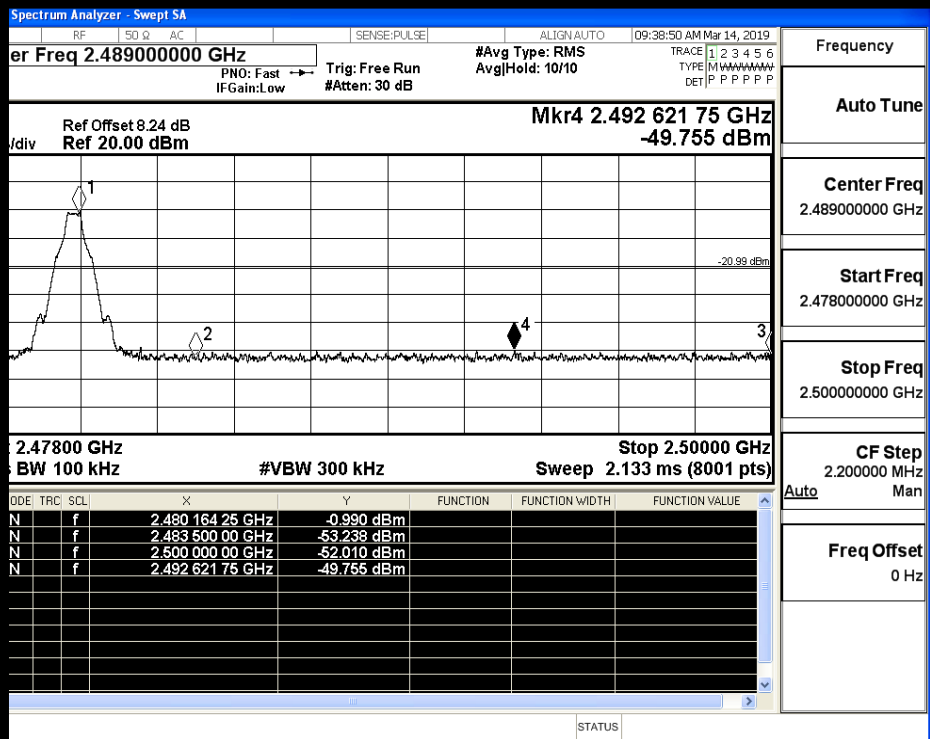
GFSK/LCH/No Hop



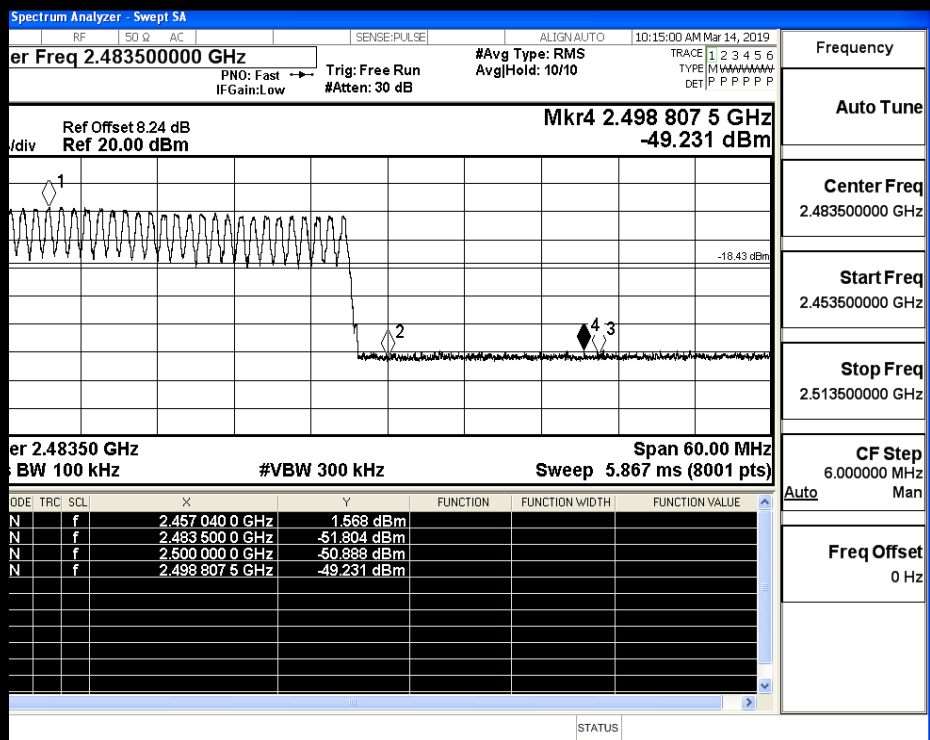
GFSK/LCH/Hop



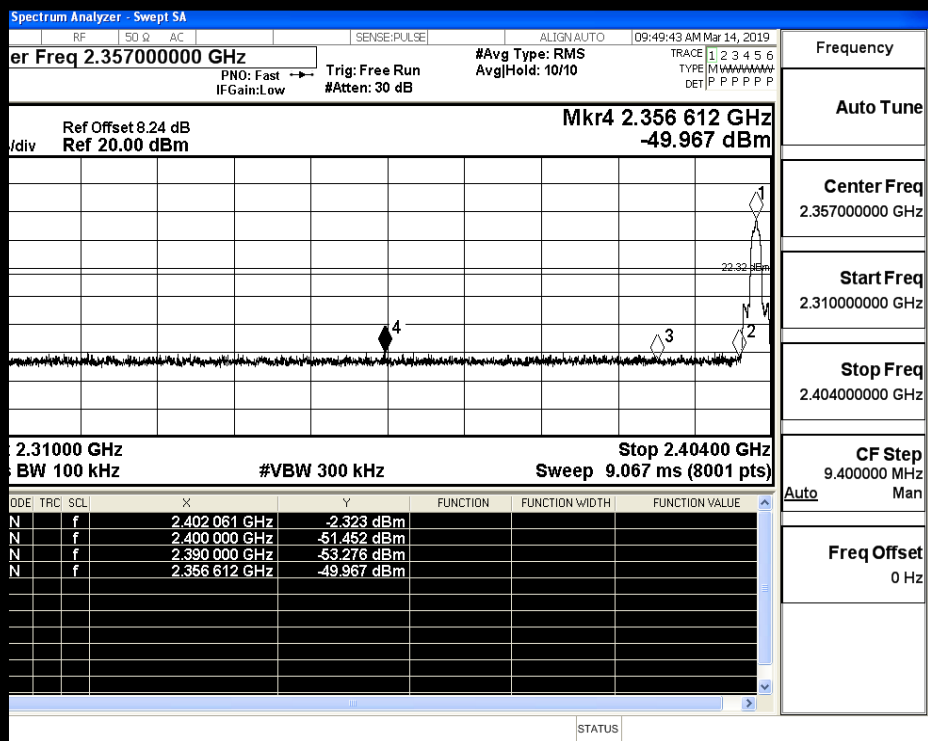
GFSK/HCH/No Hop



GFSK/HCH/Hop

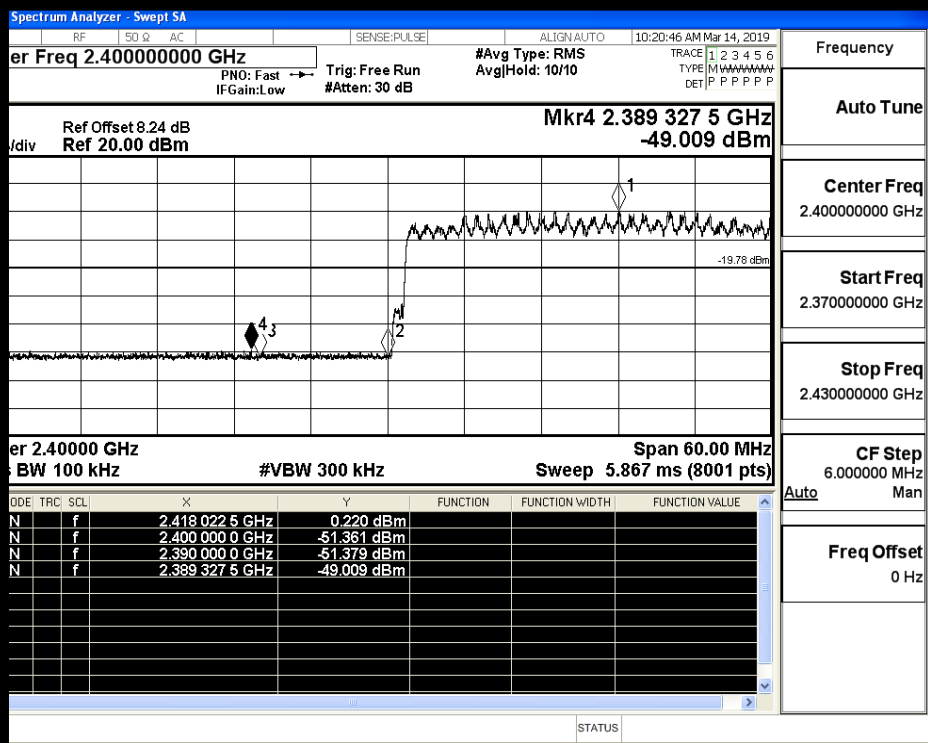


$\pi/4$ DQPSK/LCH/No
Hop



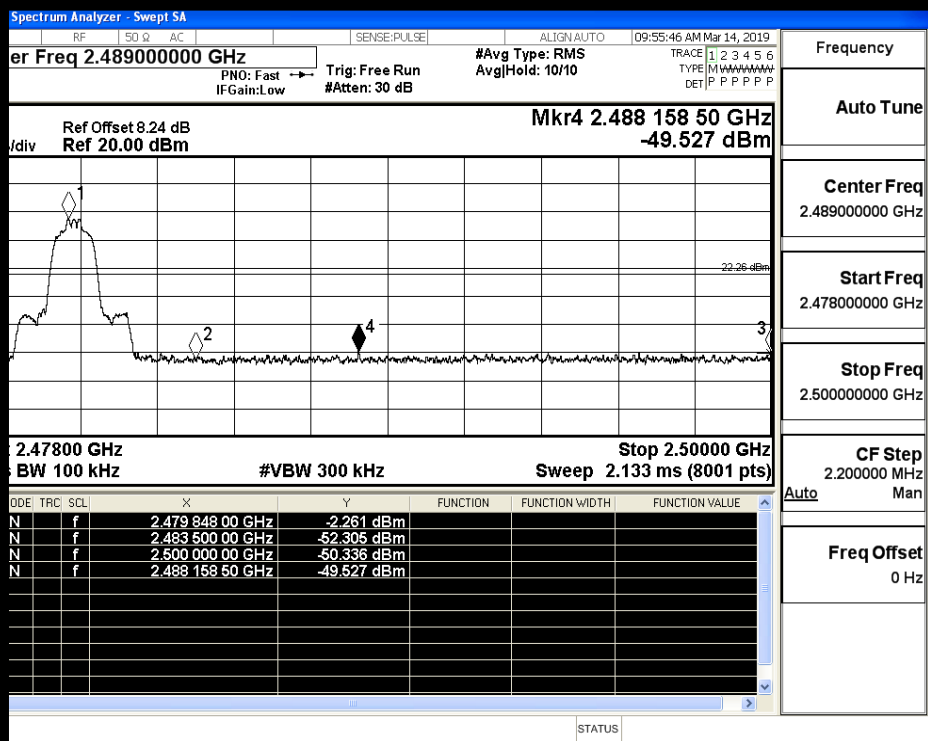
Frequency	2.357000000 GHz
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Auto	Man
Freq Offset	0 Hz

$\pi/4$ DQPSK/LCH/Hop



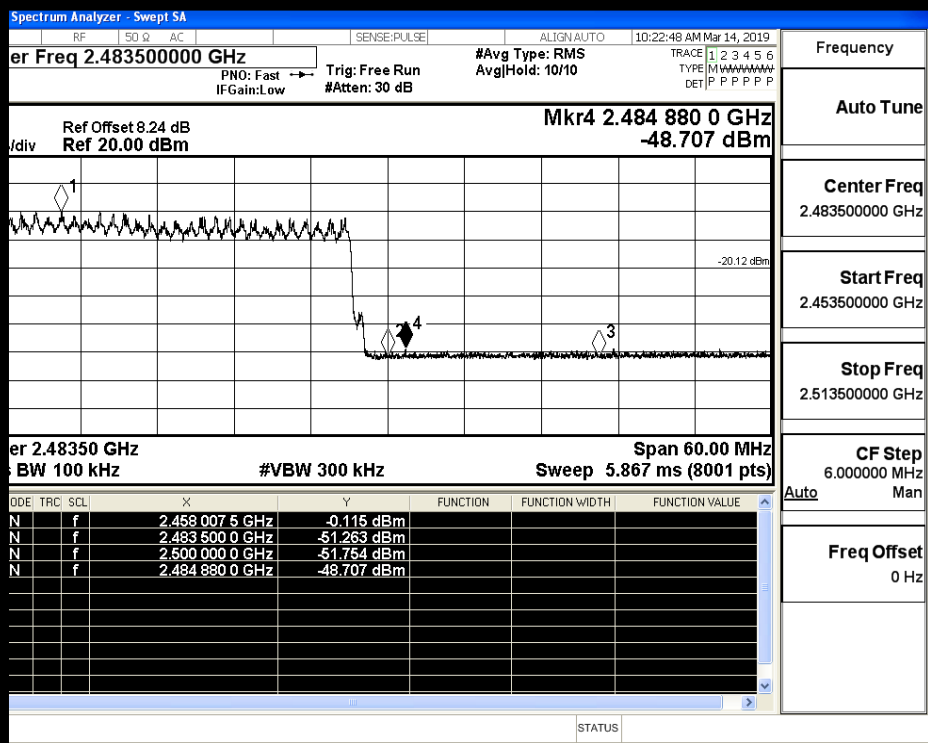
Frequency	2.400000000 GHz
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Auto	Man
Freq Offset	0 Hz

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



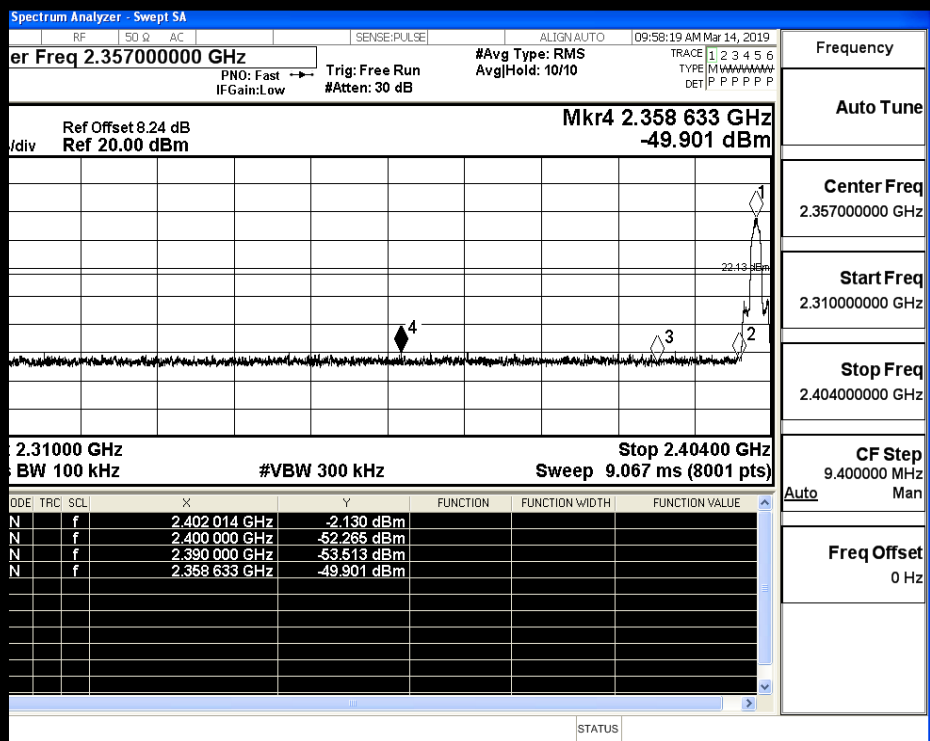
Frequency
Auto Tune
Center Freq
2.489000000 GHz
Start Freq
2.478000000 GHz
Stop Freq
2.500000000 GHz
CF Step
2.200000 MHz
Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop



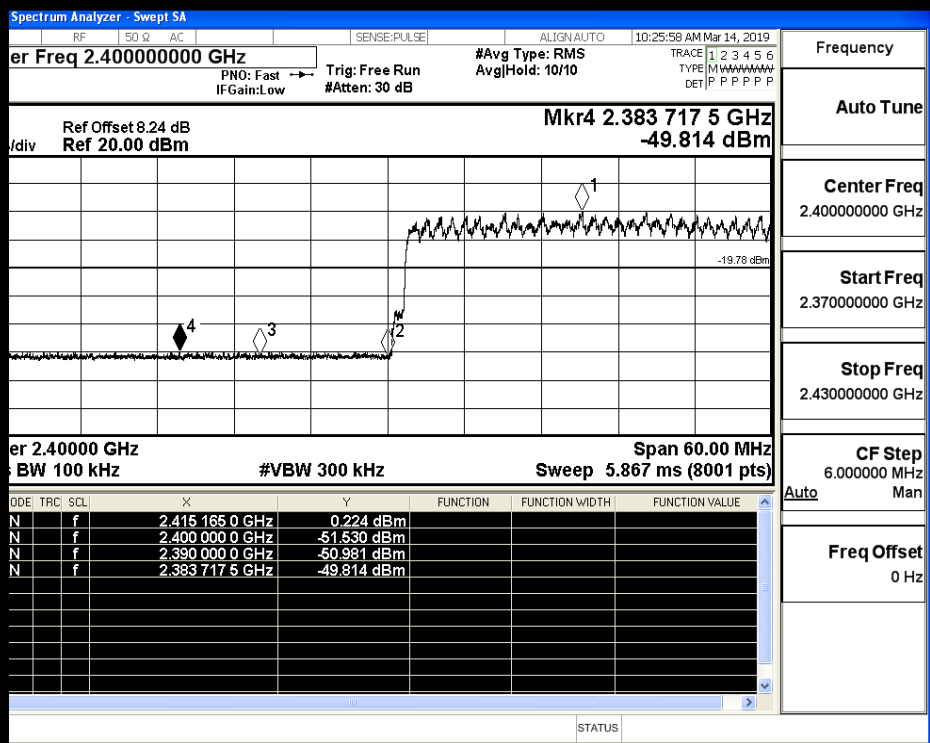
Frequency
Auto Tune
Center Freq
2.483500000 GHz
Start Freq
2.453500000 GHz
Stop Freq
2.513500000 GHz
CF Step
6.000000 MHz
Freq Offset
0 Hz

8DPSK/LCH/No Hop



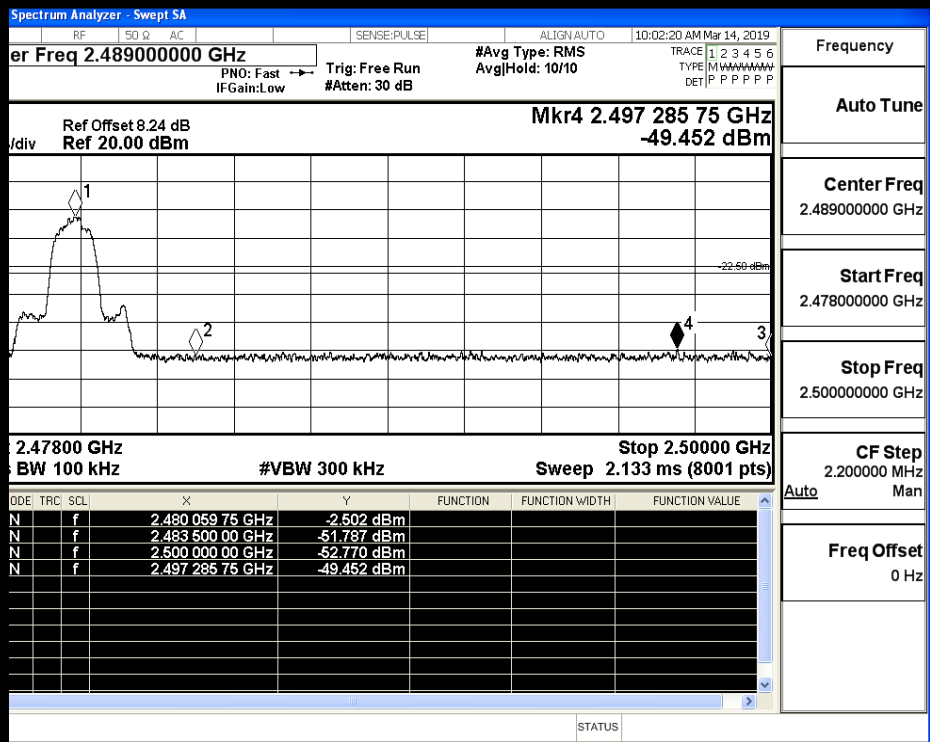
Frequency	
Auto Tune	
Center Freq	2.357000000 GHz
Start Freq	2.310000000 GHz
Stop Freq	2.404000000 GHz
CF Step	9.400000 MHz
Freq Offset	0 Hz

8DPSK/LCH/Hop

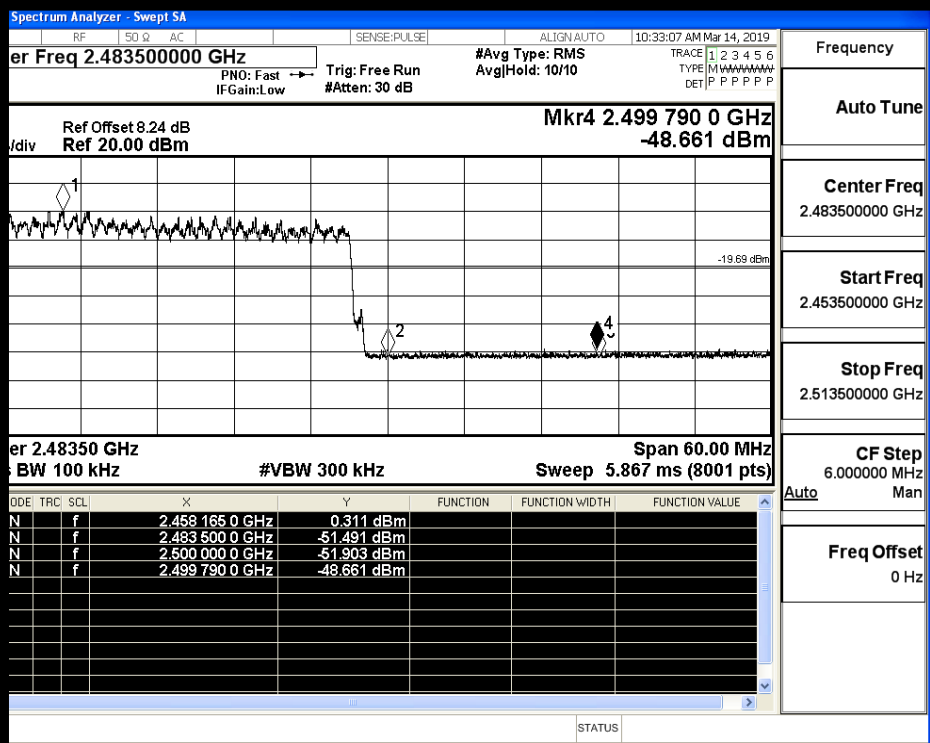


Frequency	
Auto Tune	
Center Freq	2.400000000 GHz
Start Freq	2.370000000 GHz
Stop Freq	2.430000000 GHz
CF Step	6.000000 MHz
Freq Offset	0 Hz

8DPSK/HCH/No Hop



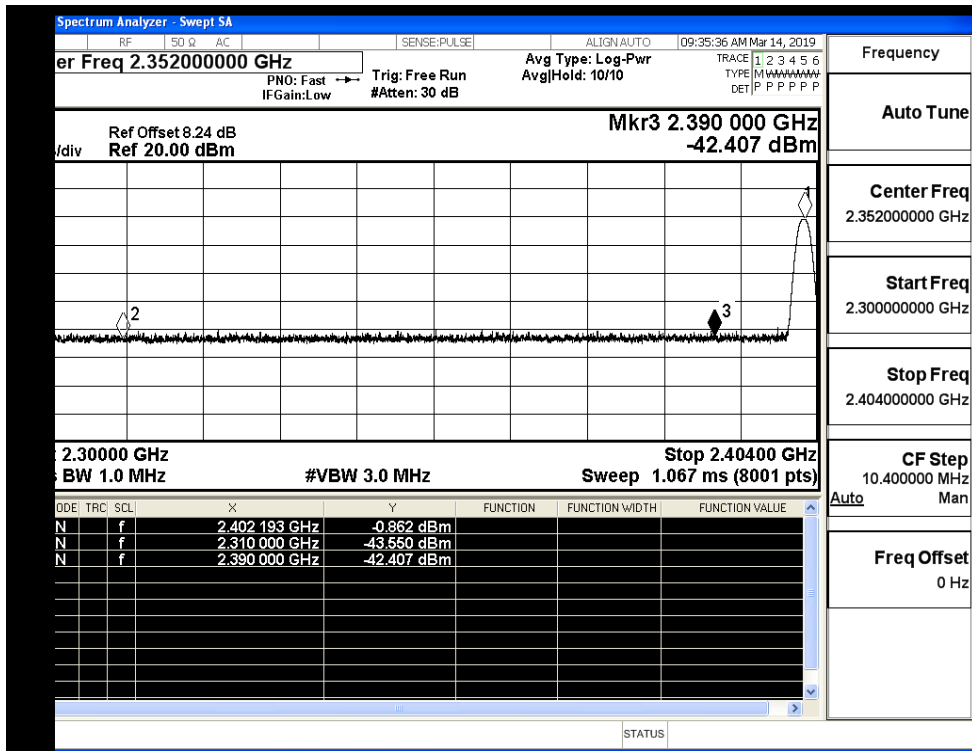
8DPSK/HCH/Hop



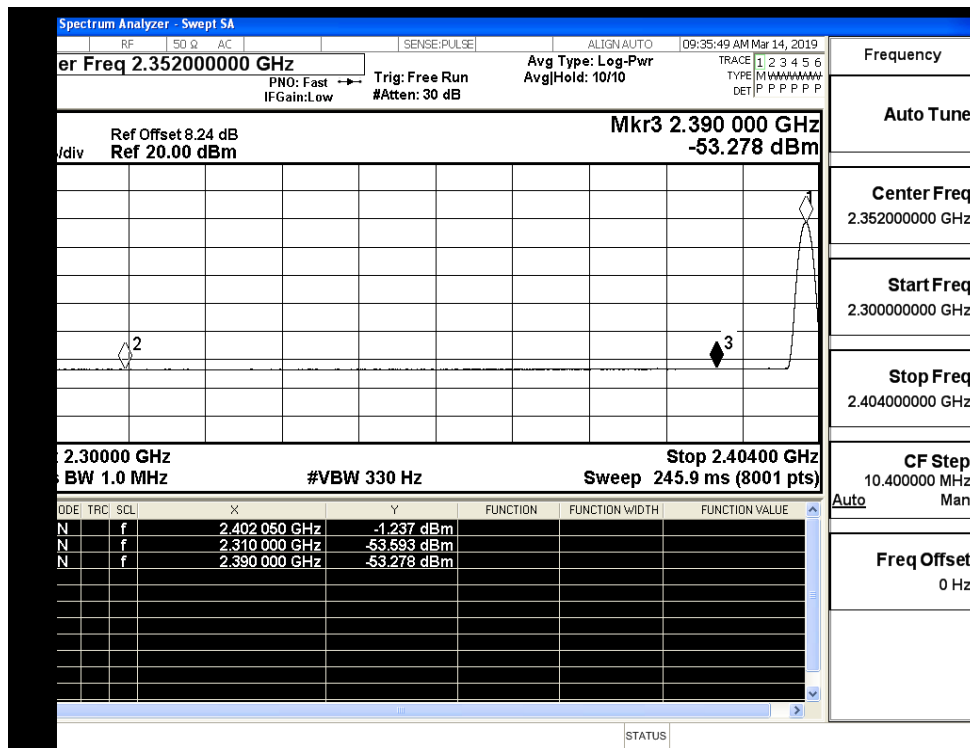
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.55	2.0	0	53.71	PEAK	74	PASS
	Off	2310.0	-53.59	2.0	0	43.66	AV	54	PASS
	Off	2390.0	-42.41	2.0	0	54.85	PEAK	74	PASS
	Off	2390.0	-53.28	2.0	0	43.98	AV	54	PASS
	Off	2483.5	-41.26	2.0	0	56.00	PEAK	74	PASS
	Off	2483.5	-53.03	2.0	0	44.23	AV	54	PASS
	Off	2500.0	-42.52	2.0	0	54.74	PEAK	74	PASS
	Off	2500.0	-52.90	2.0	0	44.36	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.23	2.0	0	55.03	PEAK	74	PASS
	Off	2310.0	-53.47	2.0	0	43.79	AV	54	PASS
	Off	2390.0	-43.35	2.0	0	53.91	PEAK	74	PASS
	Off	2390.0	-53.25	2.0	0	44.01	AV	54	PASS
	Off	2483.5	-42.35	2.0	0	54.91	PEAK	74	PASS
	Off	2483.5	-53.02	2.0	0	44.24	AV	54	PASS
	Off	2500.0	-41.90	2.0	0	55.35	PEAK	74	PASS
	Off	2500.0	-53.04	2.0	0	44.22	AV	54	PASS
8DPSK	Off	2310.0	-43.52	2.0	0	53.74	PEAK	74	PASS
	Off	2310.0	-53.56	2.0	0	43.70	AV	54	PASS
	Off	2390.0	-43.78	2.0	0	53.48	PEAK	74	PASS
	Off	2390.0	-53.18	2.0	0	44.08	AV	54	PASS
	Off	2483.5	-42.39	2.0	0	54.87	PEAK	74	PASS
	Off	2483.5	-52.89	2.0	0	44.37	AV	54	PASS
	Off	2500.0	-39.81	2.0	0	57.45	PEAK	74	PASS
	Off	2500.0	-52.96	2.0	0	44.30	AV	54	PASS

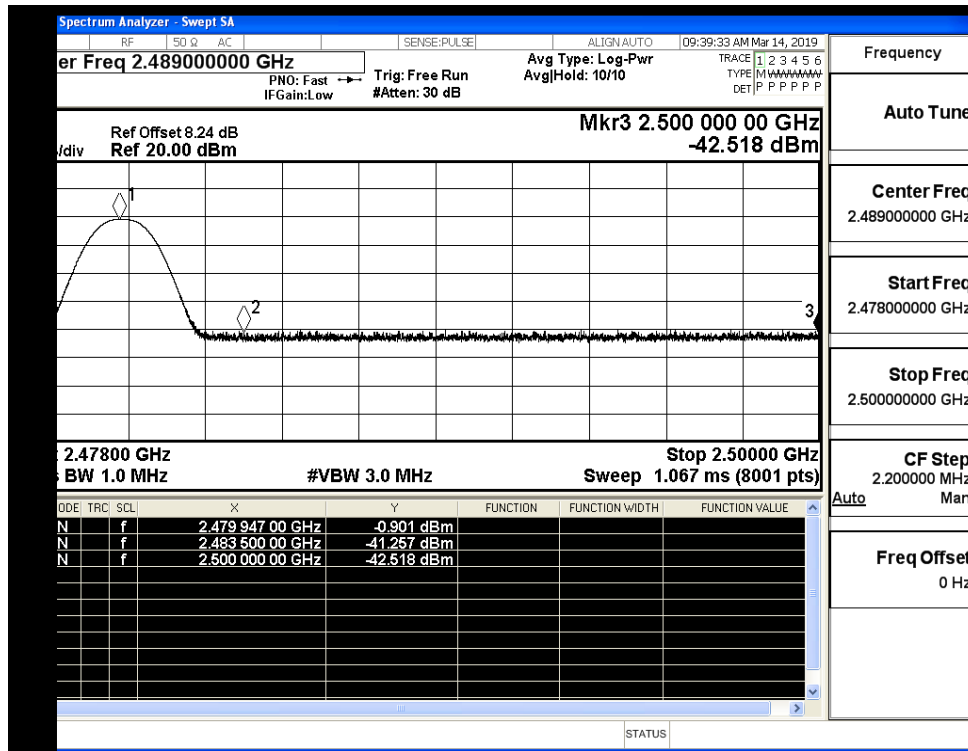
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



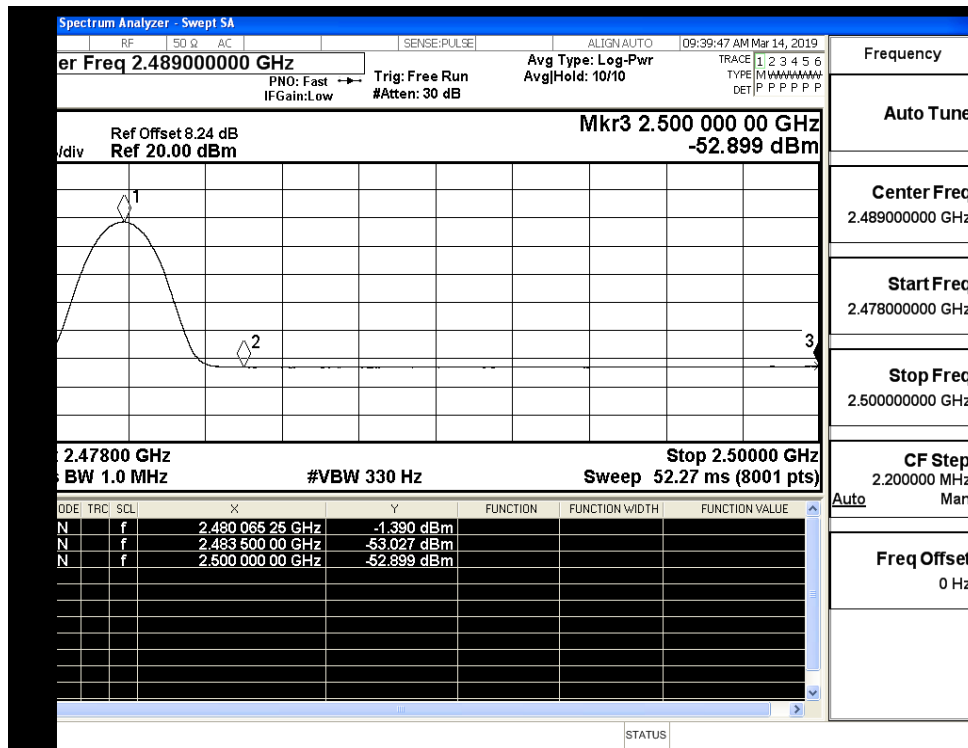
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



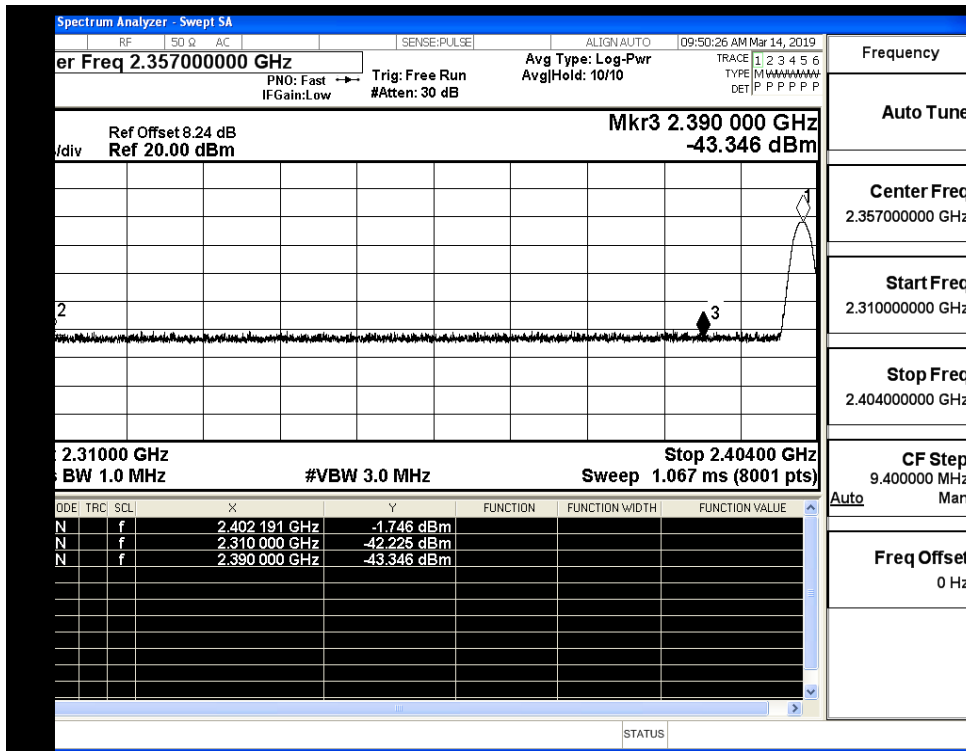
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



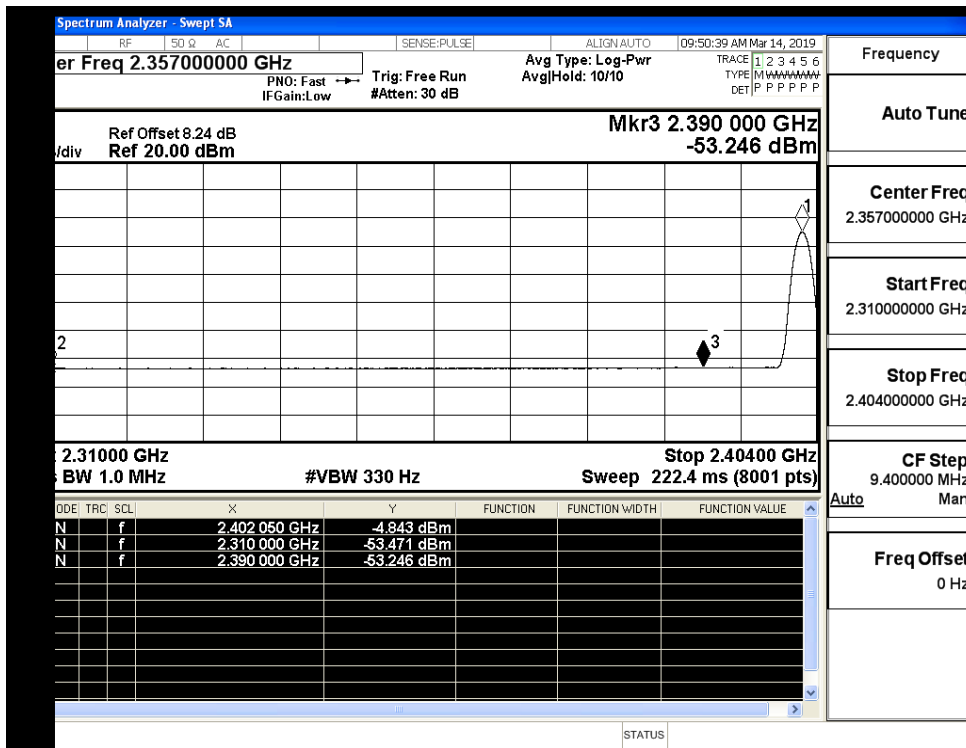
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



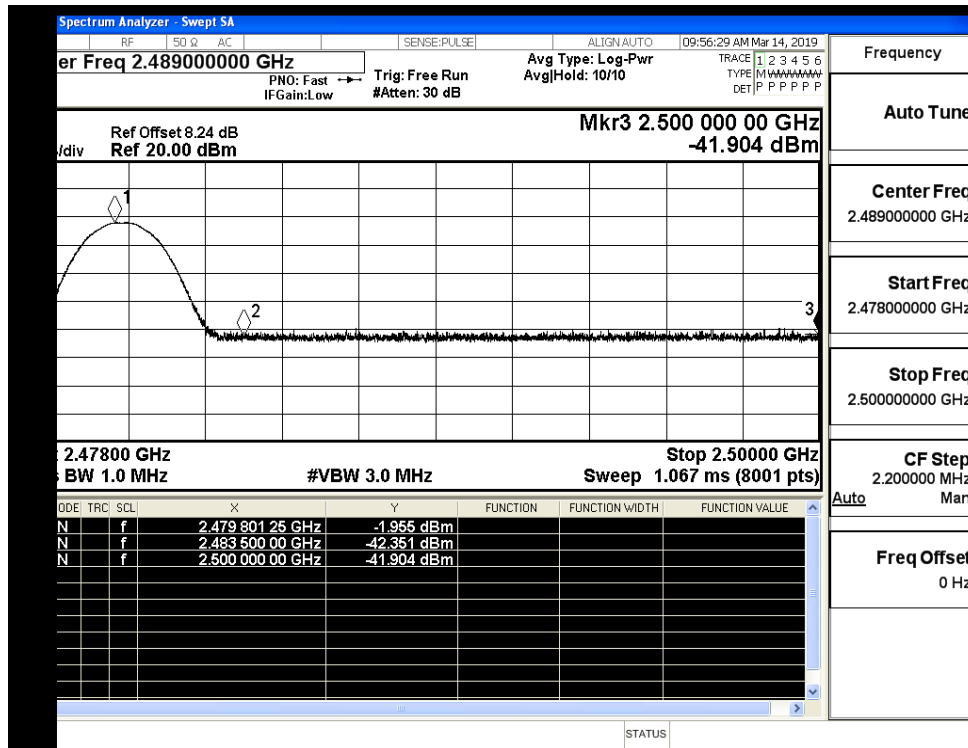
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



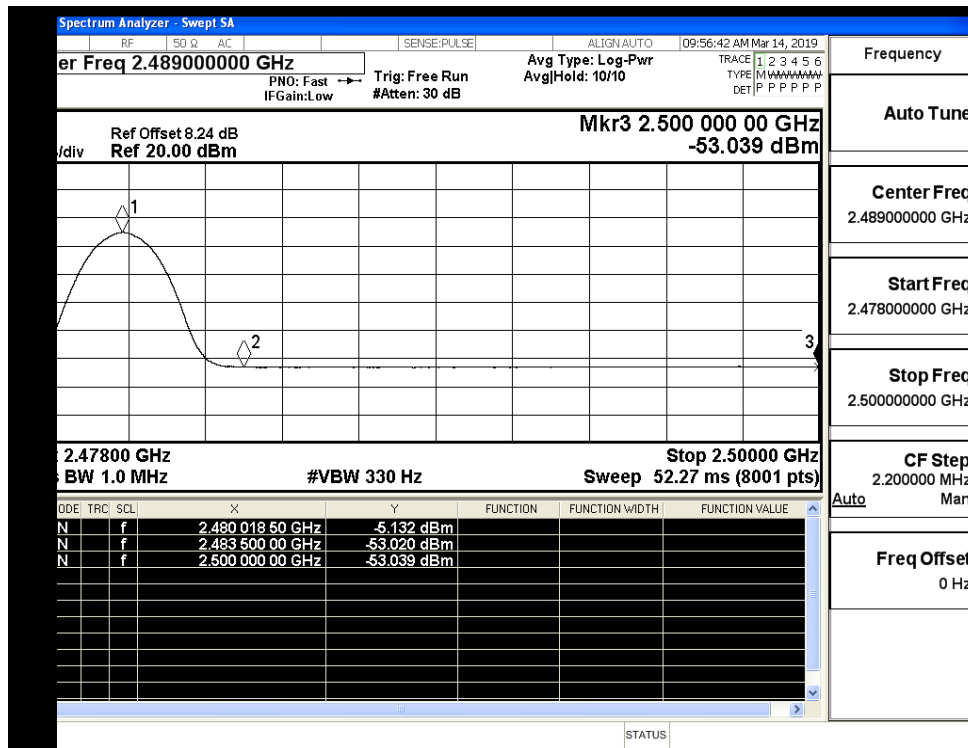
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



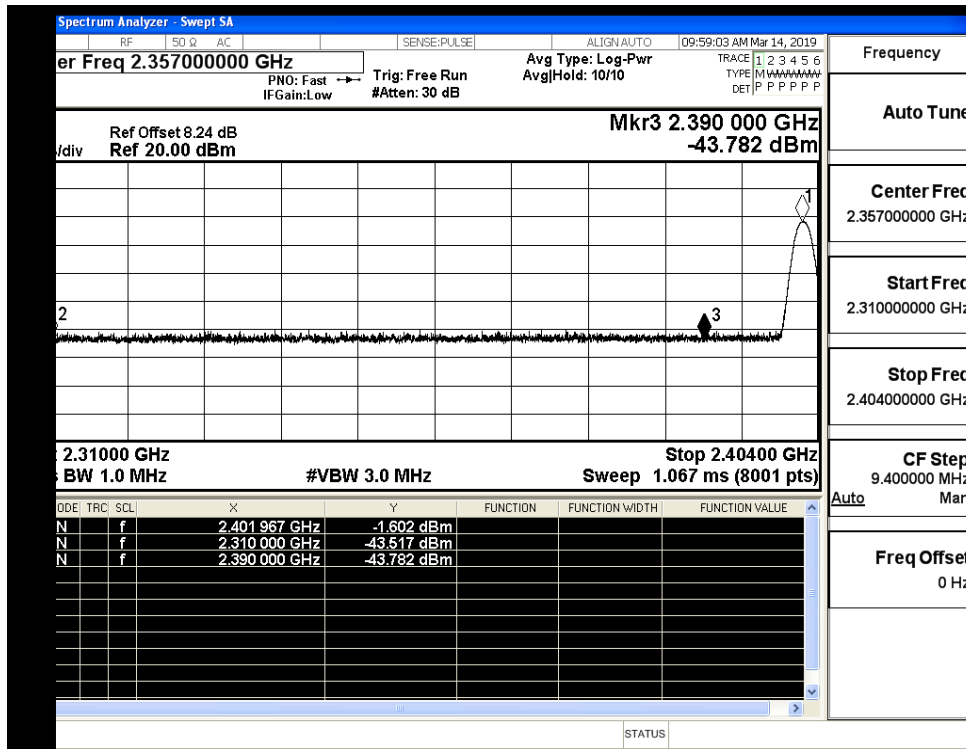
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (High Channel)



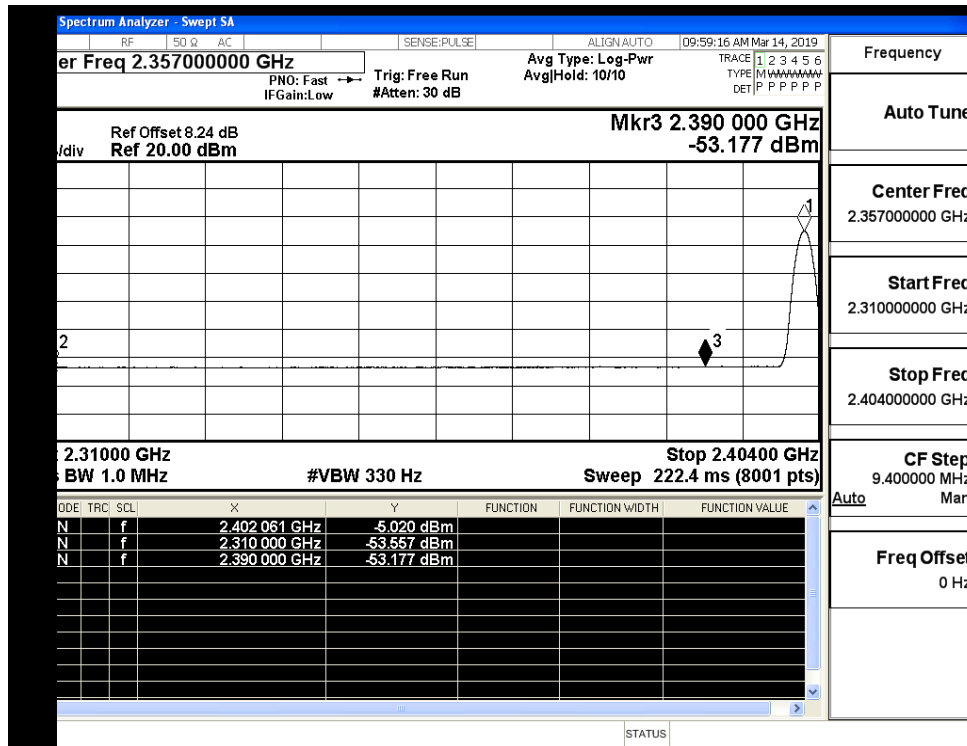
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (High Channel)



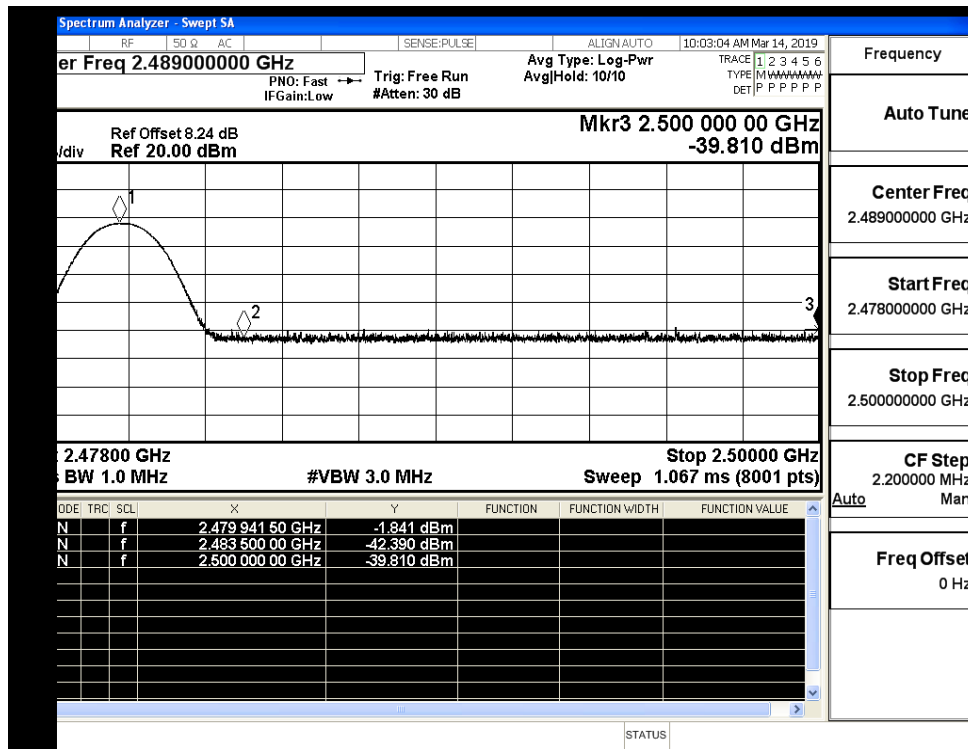
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

