

Appendix A

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

Product Name: **WIRELESS SPEAKER**

Trade Mark: **SYLVANIA**

Test Model: **SP429**

Environmental Conditions

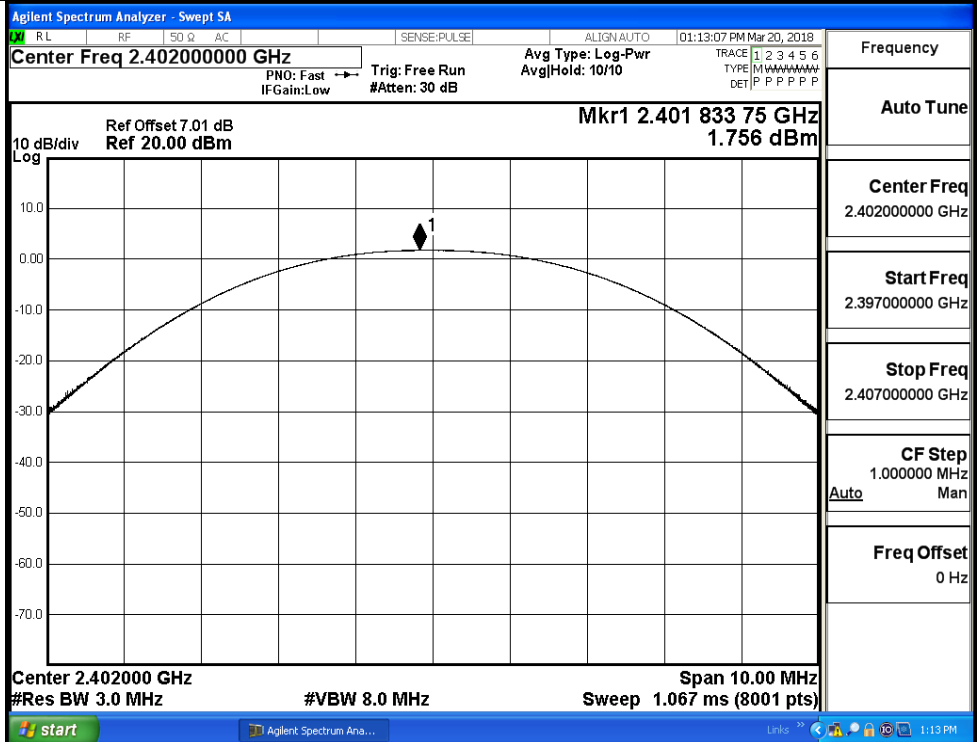
Temperature:	20.1 °C
Relative Humidity:	50.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Jayden Zhuo

A.1 Maximum Conducted Peak Output Power

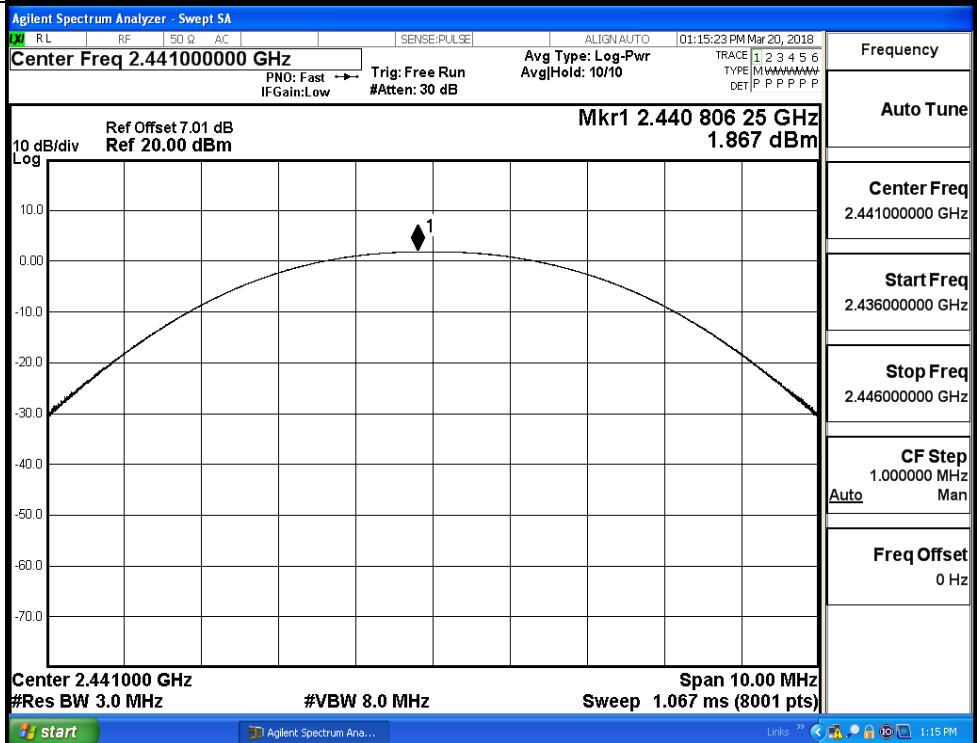
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.756	21	PASS
	MCH	1.867	21	PASS
	HCH	1.735	21	PASS
$\pi/4$ DQPSK	LCH	1.581	21	PASS
	MCH	1.662	21	PASS
	HCH	1.469	21	PASS
8DPSK	LCH	1.690	21	PASS
	MCH	1.770	21	PASS
	HCH	1.523	21	PASS

Test Graphs

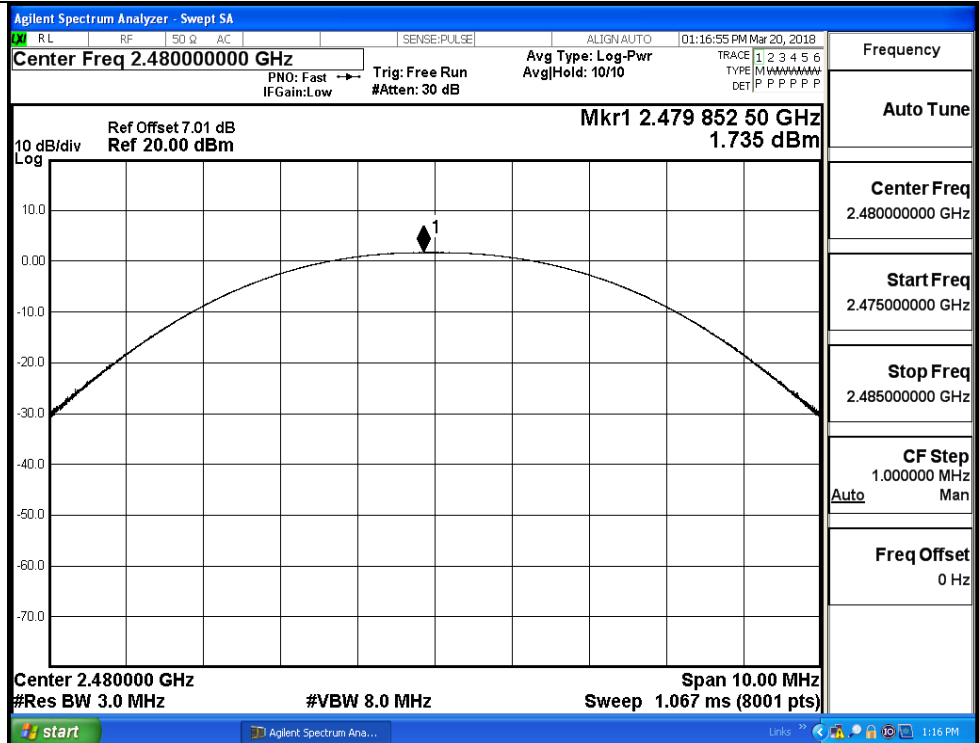
GFSK/LCH



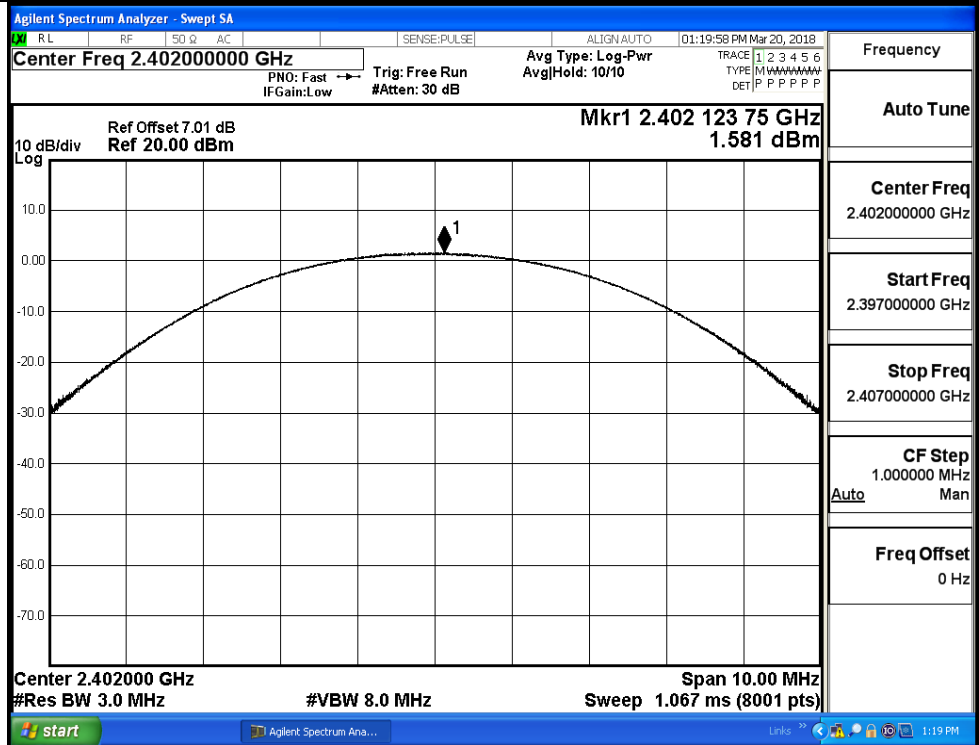
GFSK/MCH



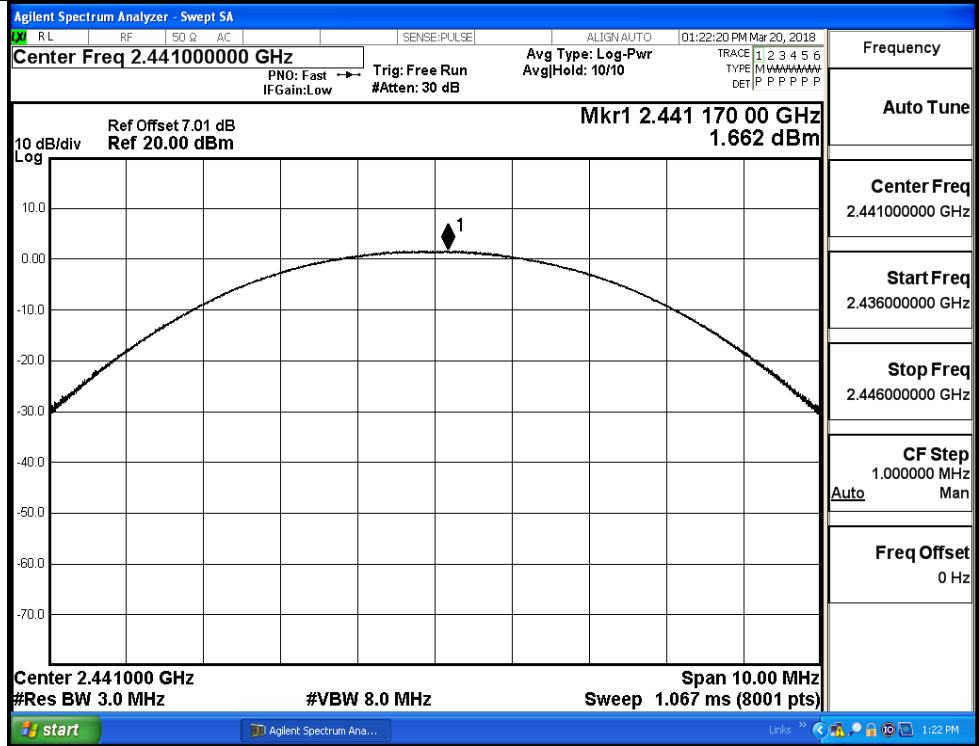
GFSK/HCH



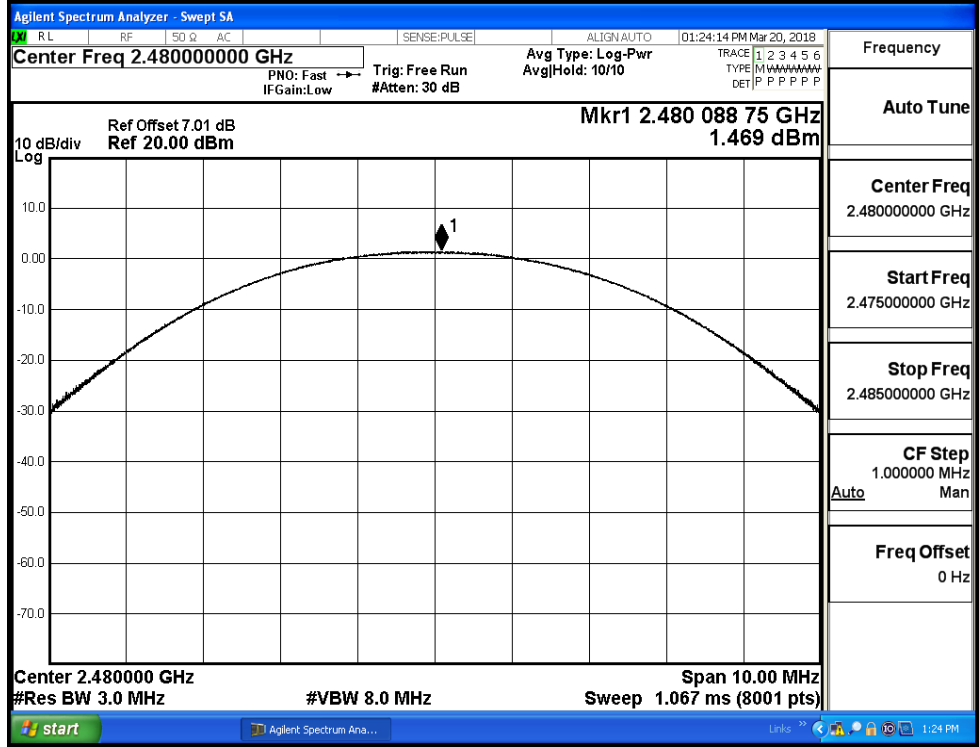
π /4DQPSK/LCH



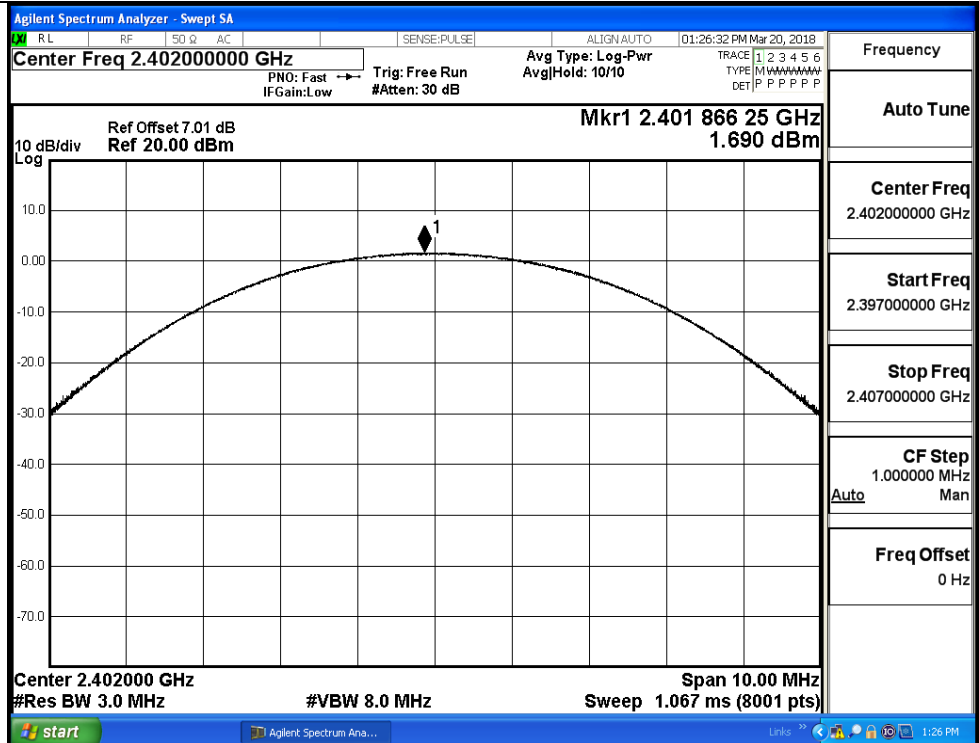
π /4DQPSK/MCH



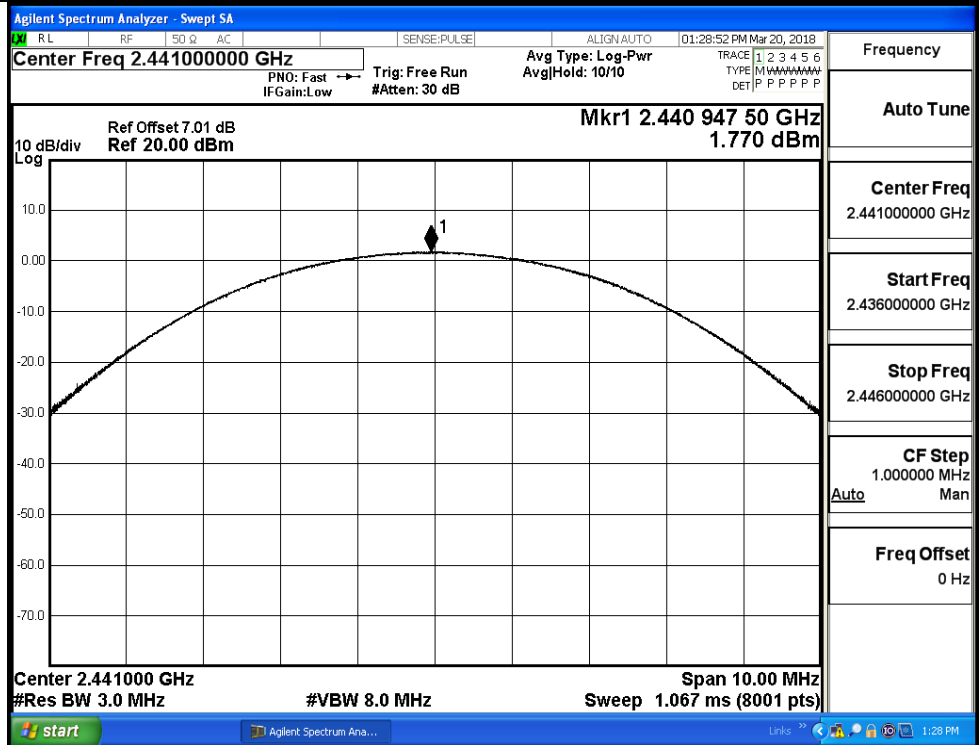
π /4DQPSK/HCH



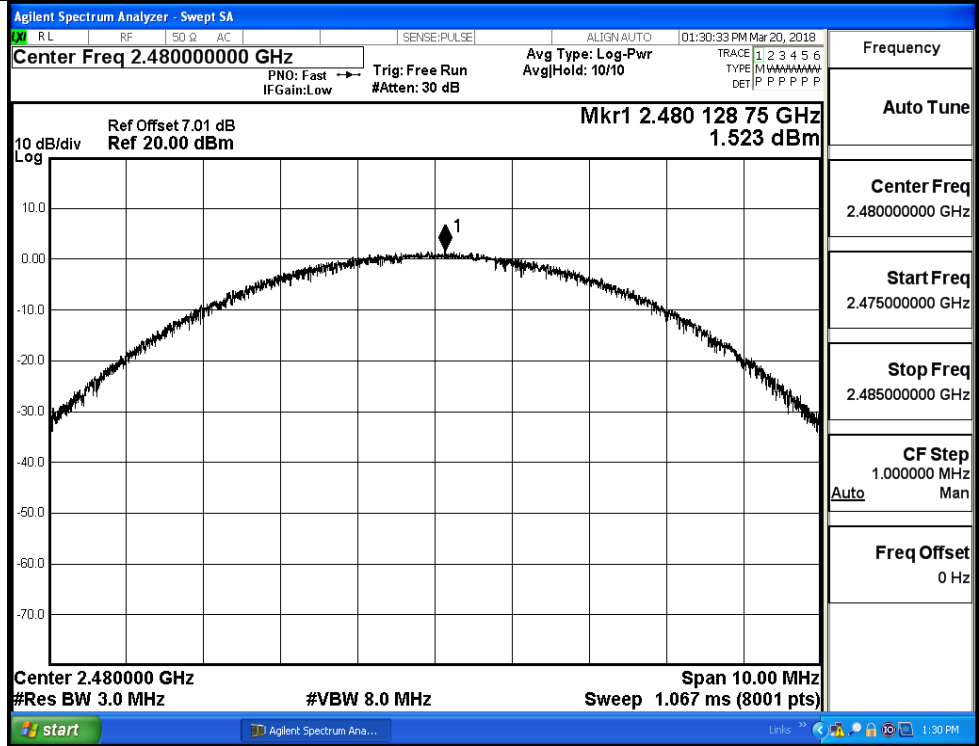
8DPSK/LCH



8DPSK/MCH

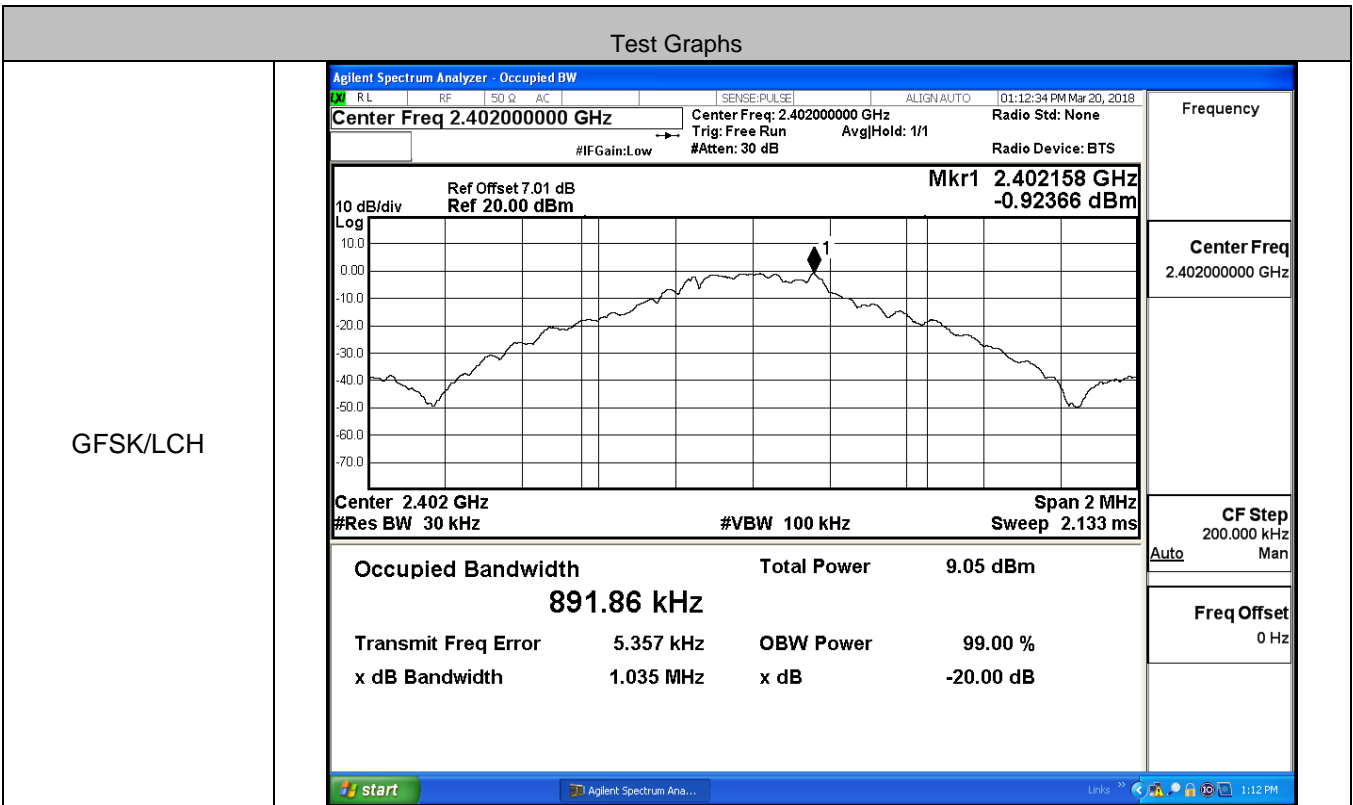


8DPSK/HCH



A.2 20dB Bandwidth

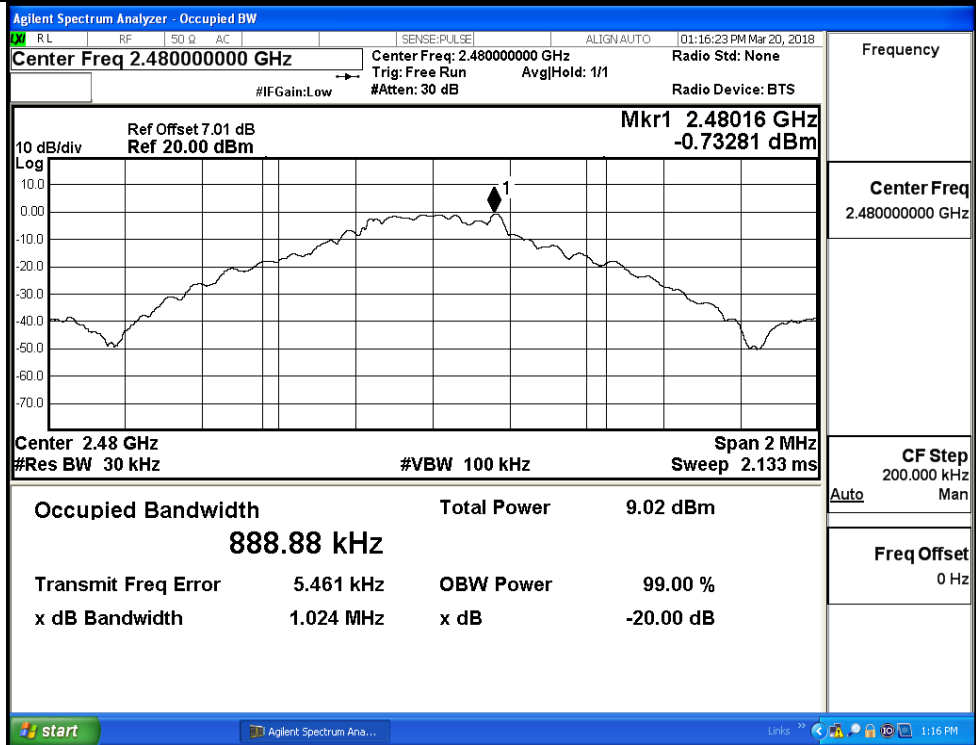
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.035	Not Specified	PASS
	MCH	1.024	Not Specified	PASS
	HCH	1.024	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.287	Not Specified	PASS
	MCH	1.287	Not Specified	PASS
	HCH	1.286	Not Specified	PASS
8DPSK	LCH	1.291	Not Specified	PASS
	MCH	1.290	Not Specified	PASS
	HCH	1.290	Not Specified	PASS



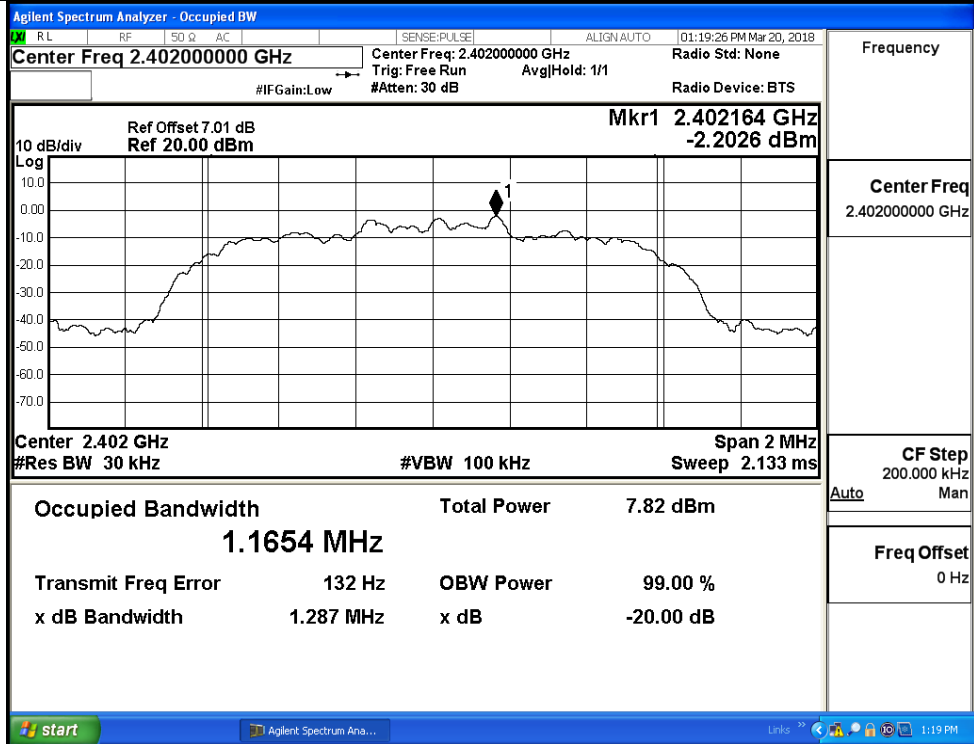
GFSK/MCH



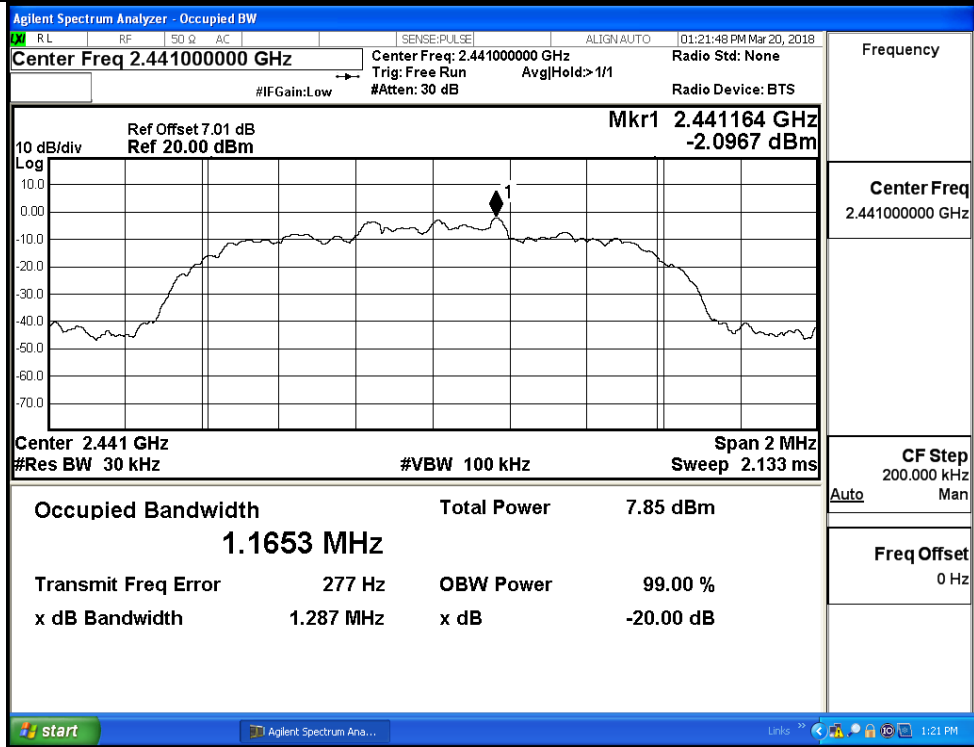
GFSK/HCH



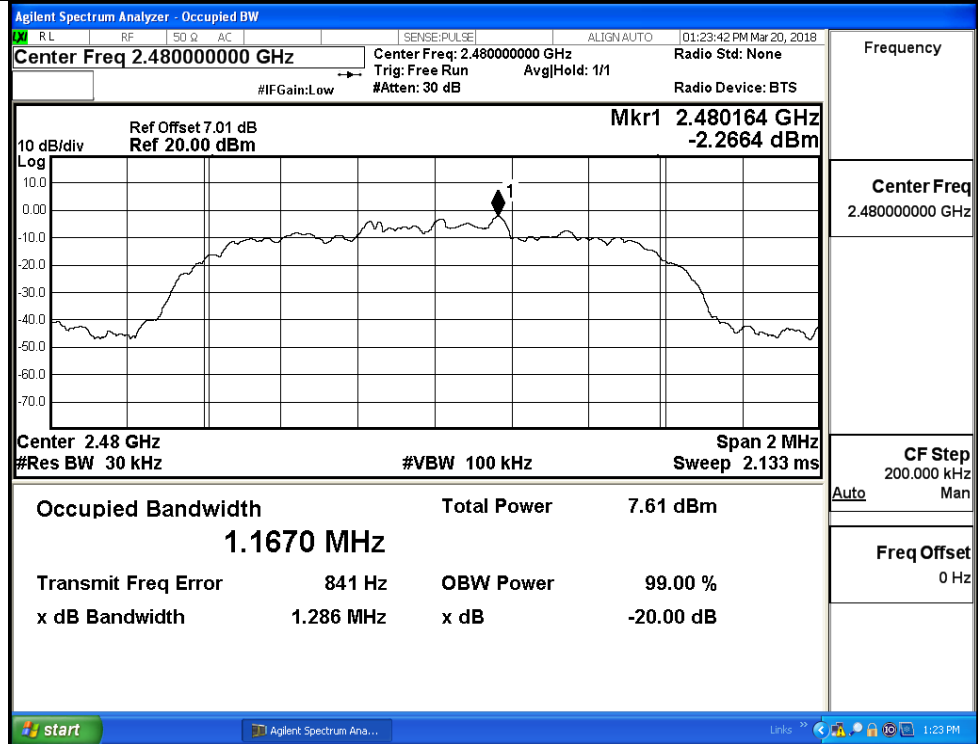
$\pi/4$ DQPSK/LCH



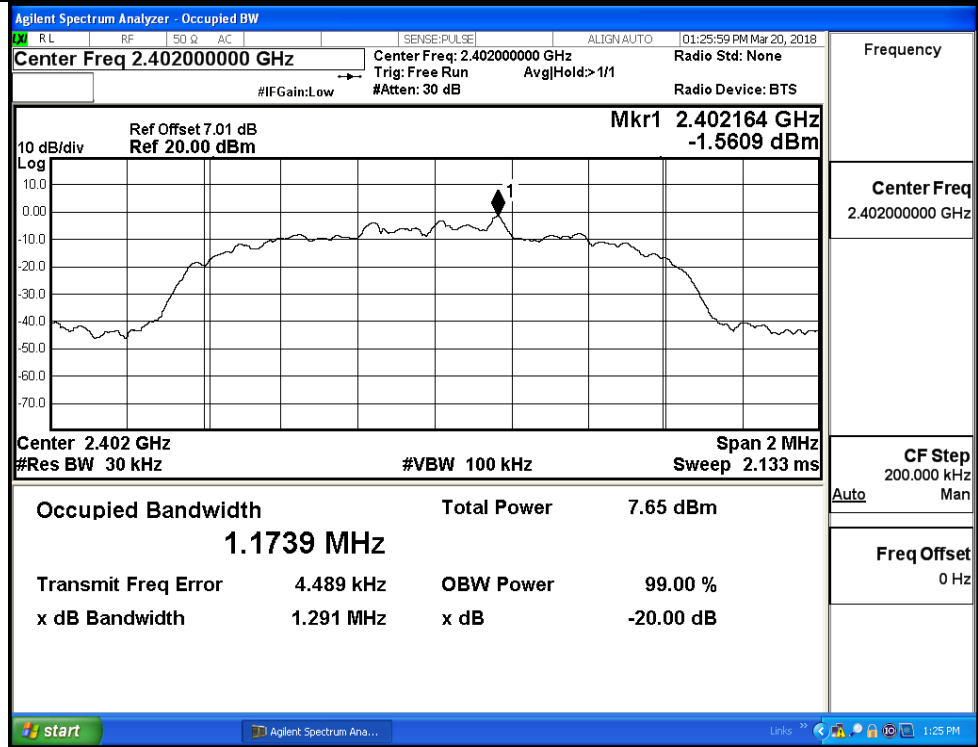
$\pi/4$ DQPSK/MCH



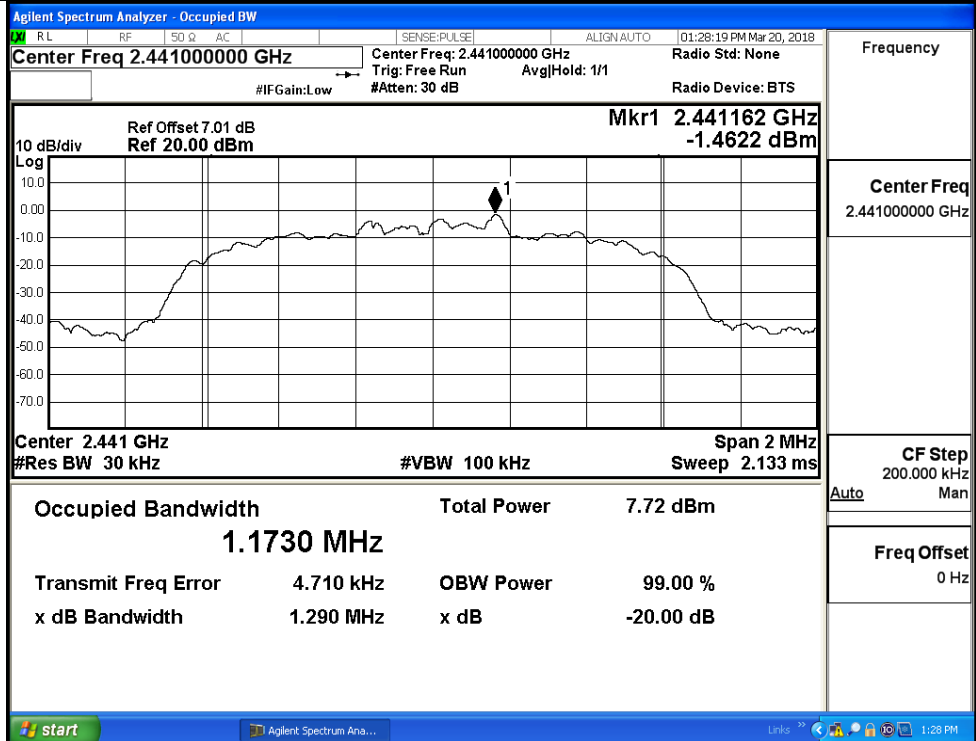
$\pi/4$ DQPSK/HCH



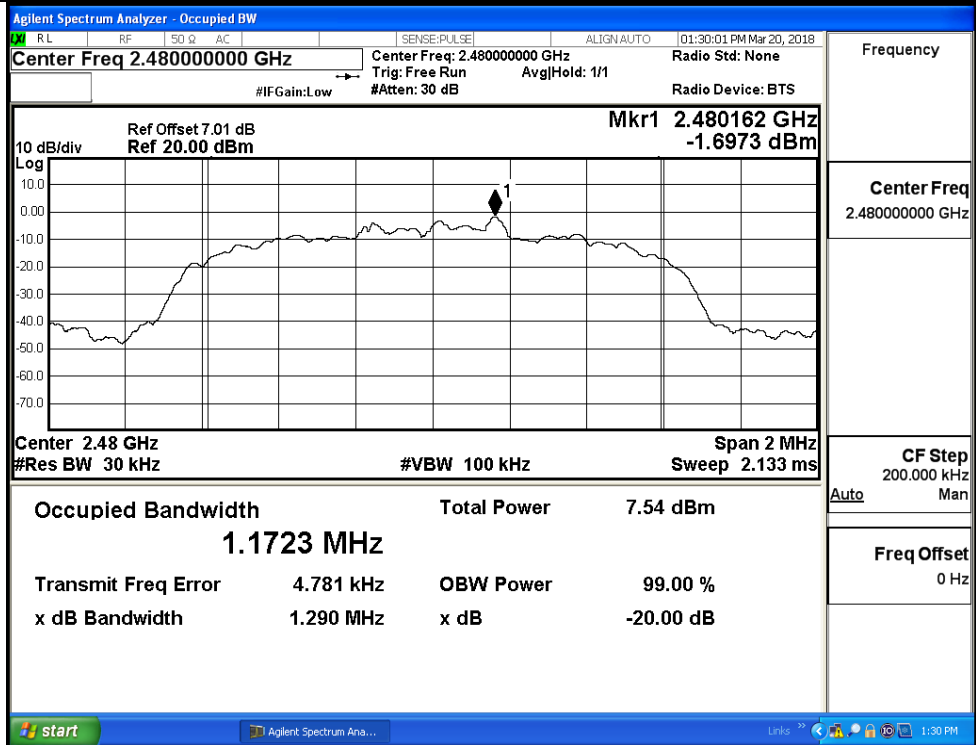
8DPSK/LCH



8DPSK/MCH

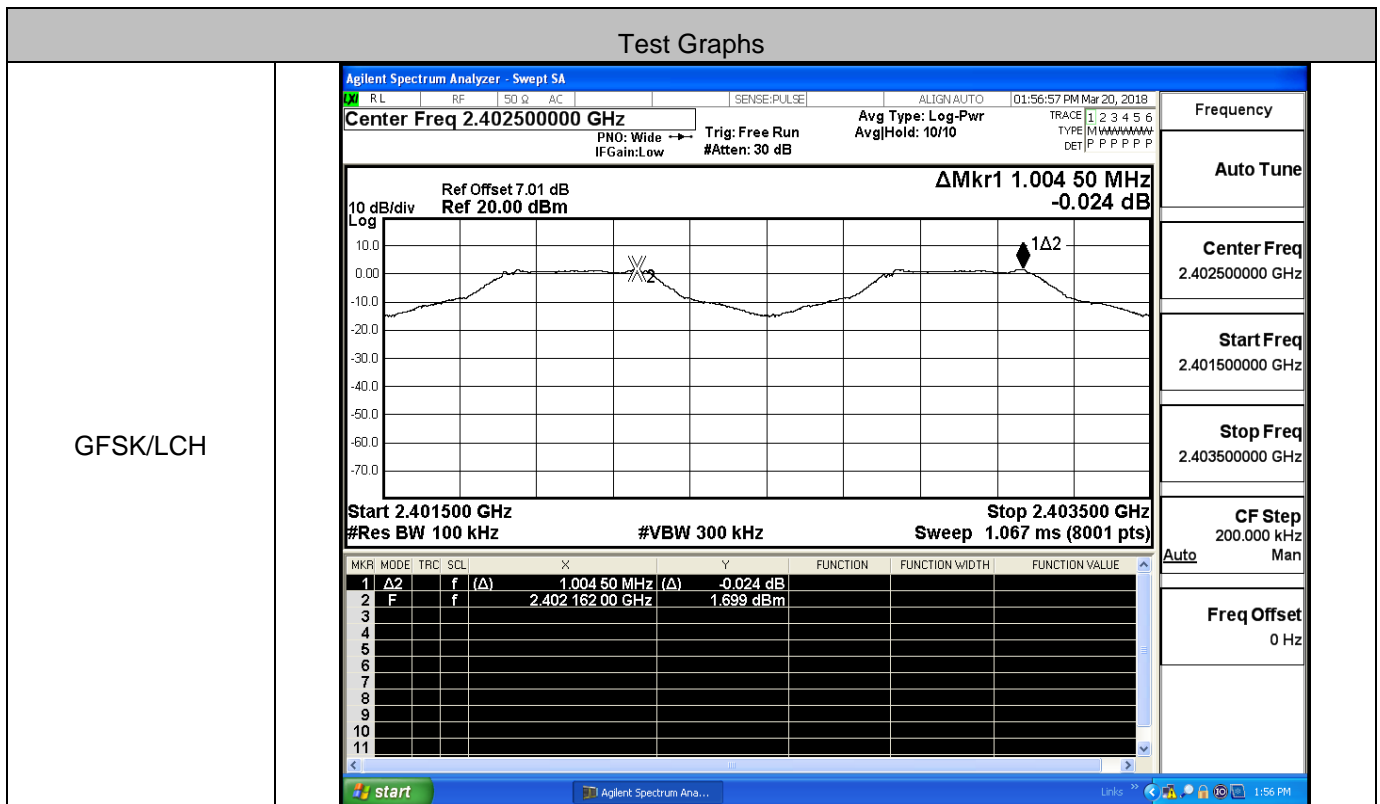


8DPSK/HCH

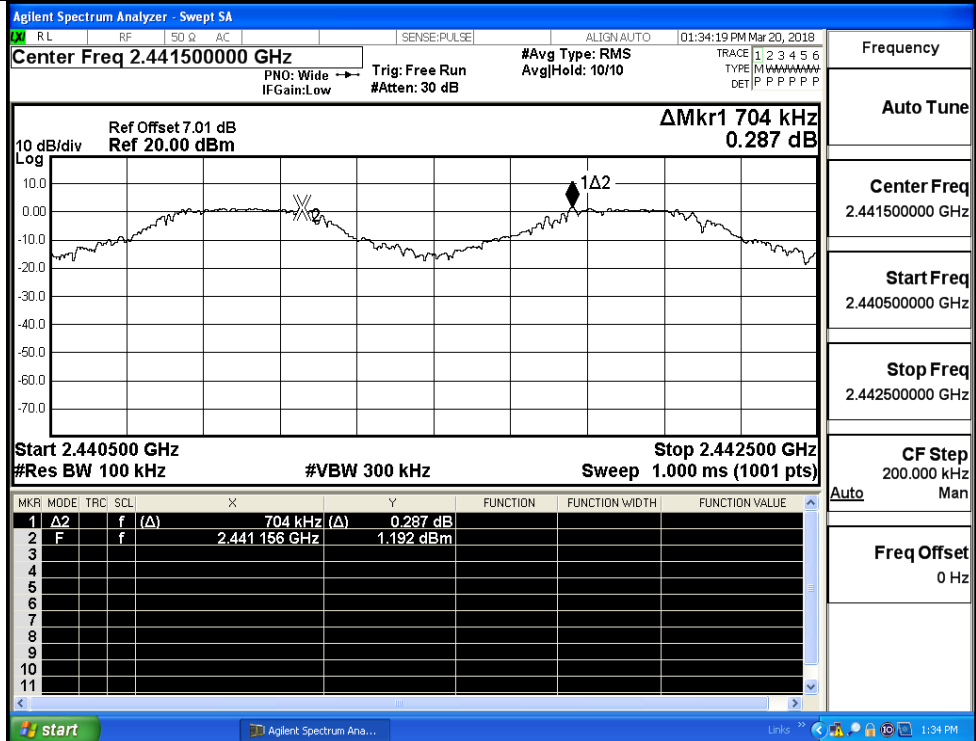


A.3 Carrier Frequency Separation

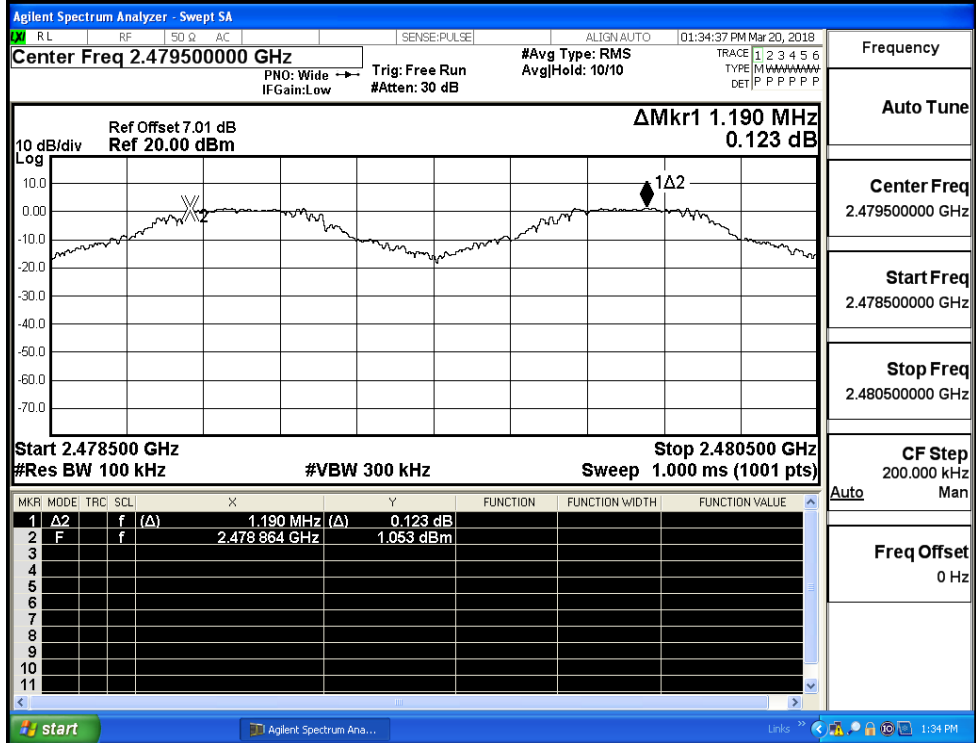
Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.005	0.690	PASS
	MCH	0.704	0.690	PASS
	HCH	1.190	0.690	PASS
π/4DQPSK	LCH	0.992	0.858	PASS
	MCH	0.872	0.858	PASS
	HCH	0.992	0.858	PASS
8DPSK	LCH	1.280	0.861	PASS
	MCH	0.986	0.861	PASS
	HCH	0.994	0.861	PASS



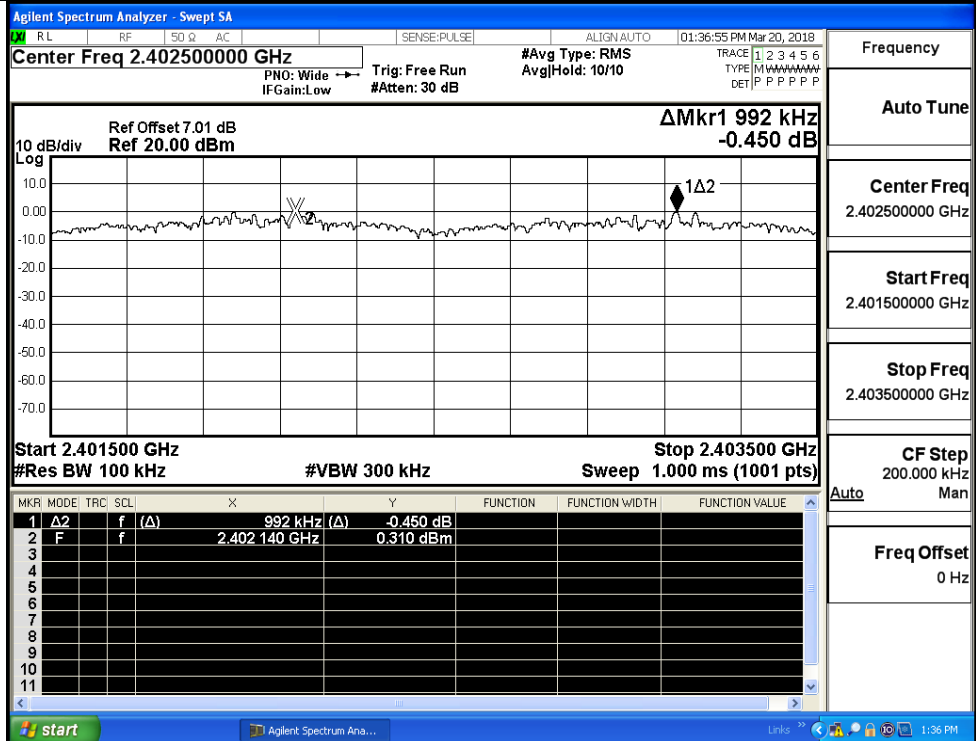
GFSK/MCH



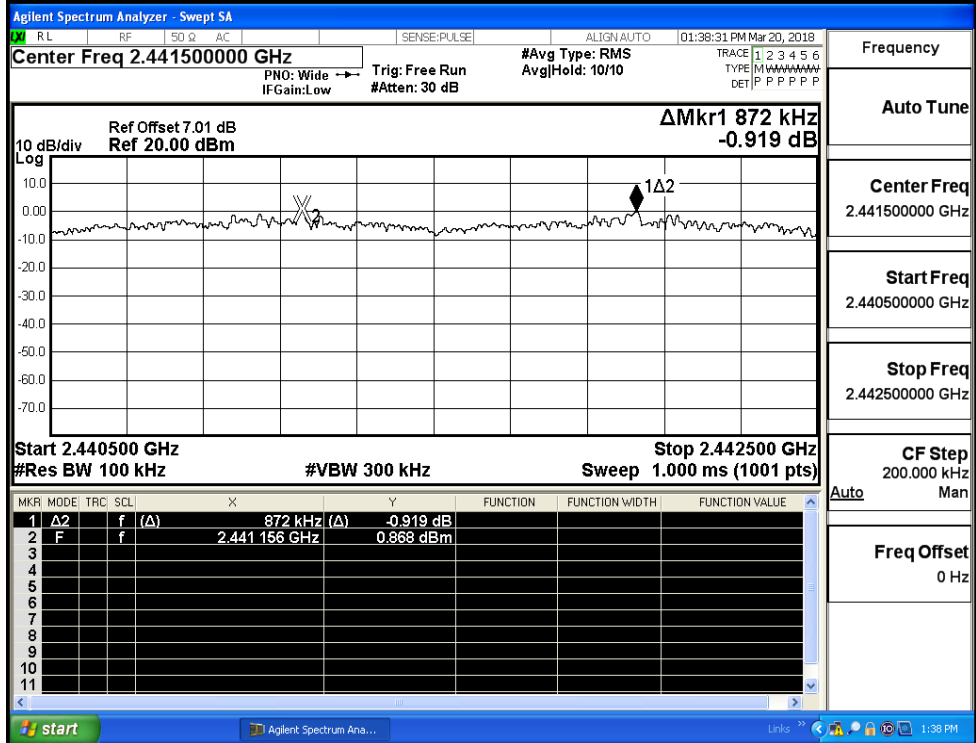
GFSK/HCH



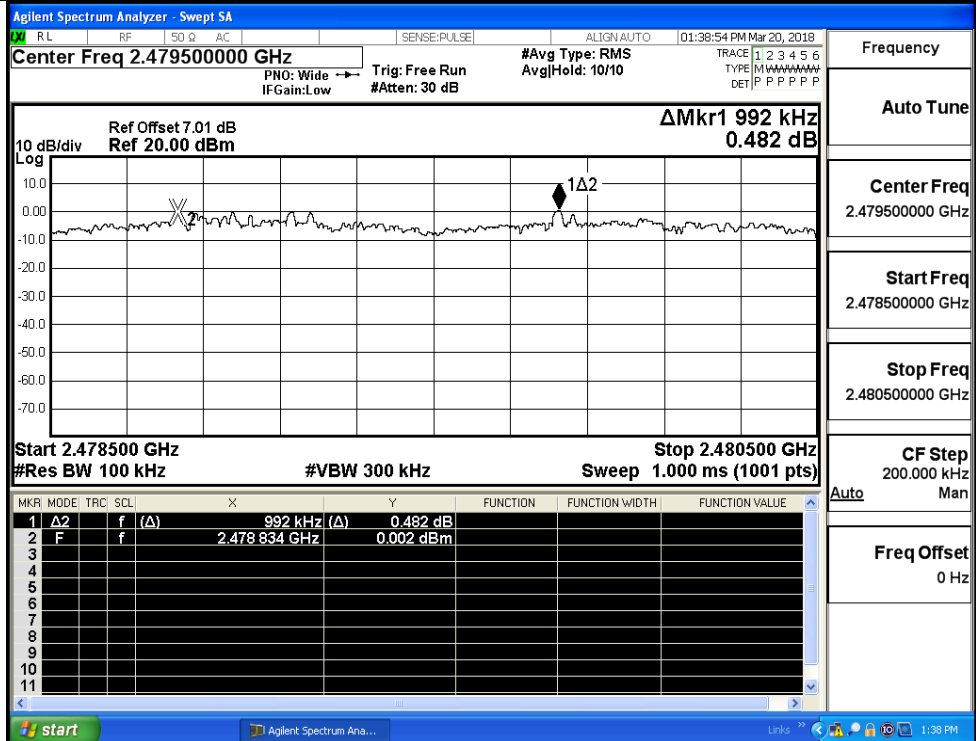
$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



π/4DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

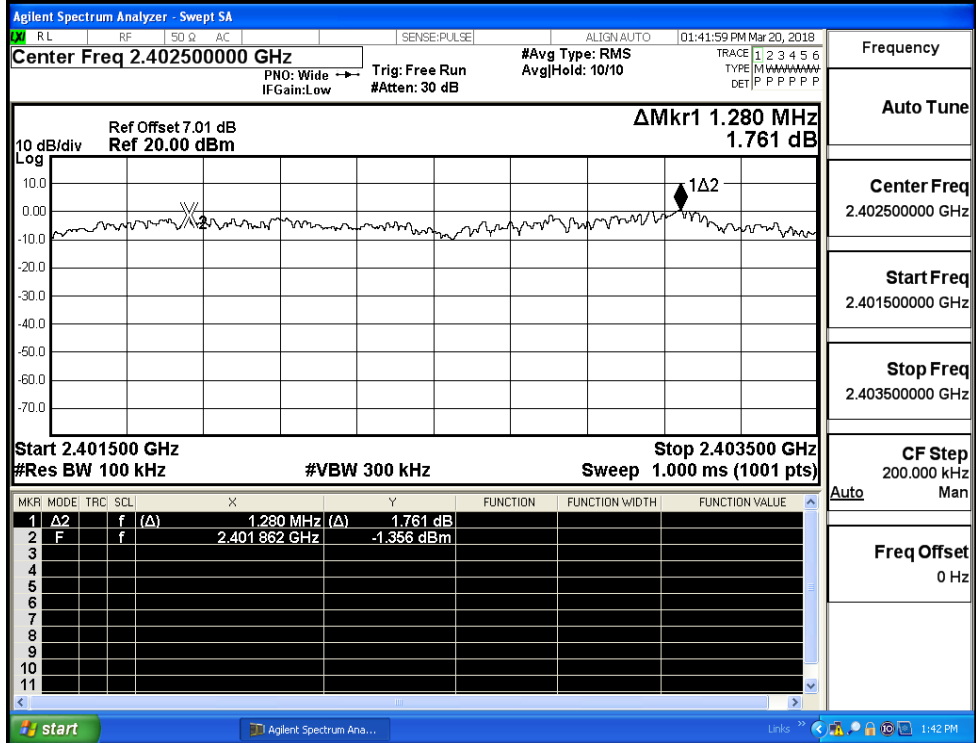
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

8DPSK/LCH



Frequency

Auto Tune

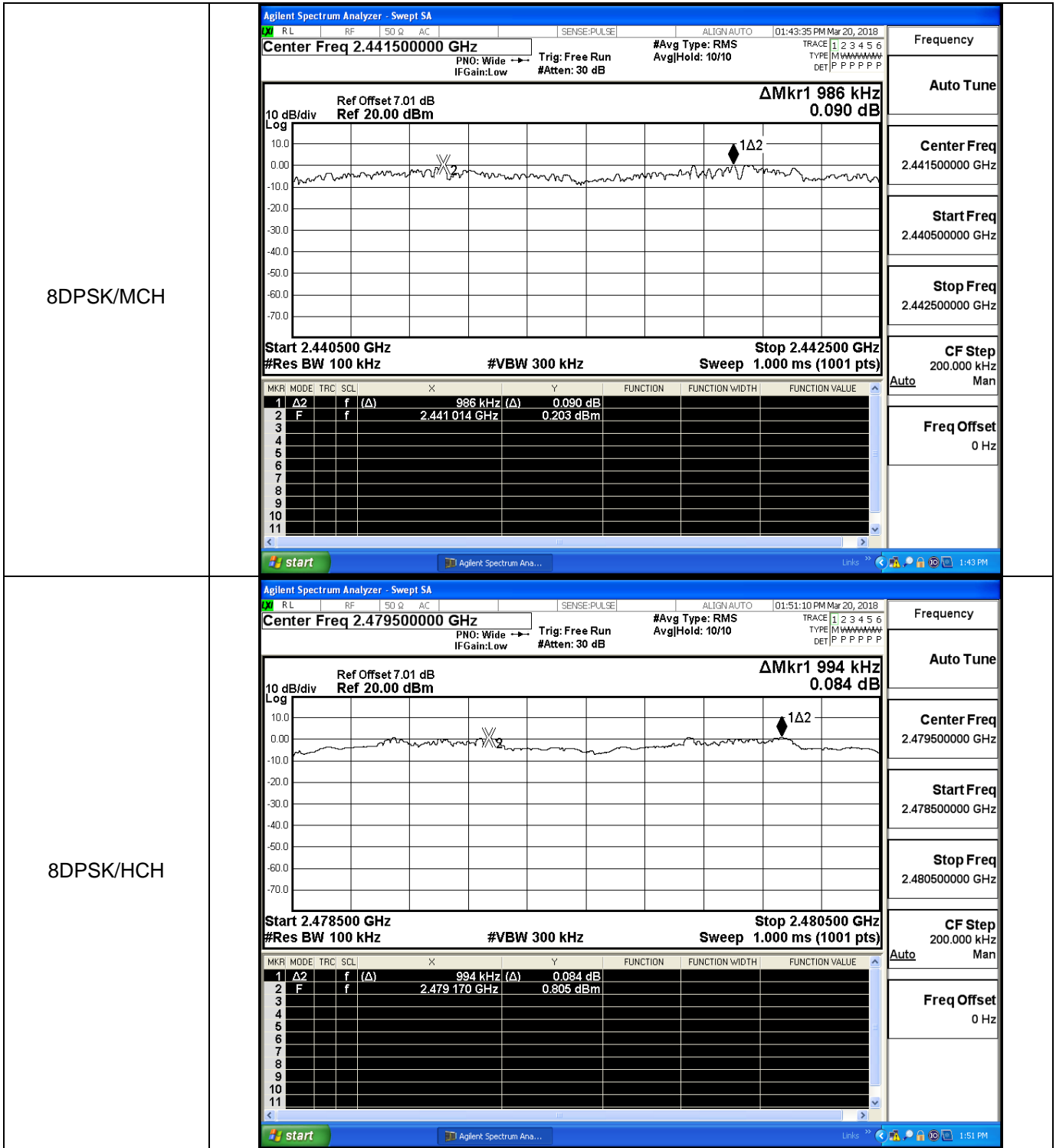
Center Freq
2.402500000 GHz

Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

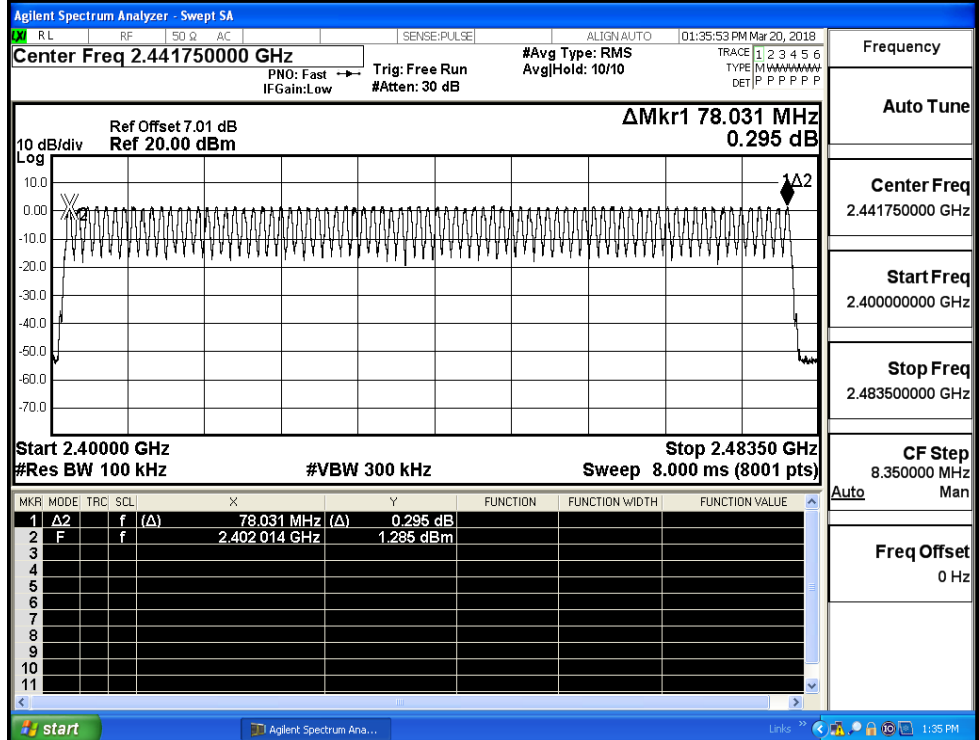


A.4 Hopping Channel Number

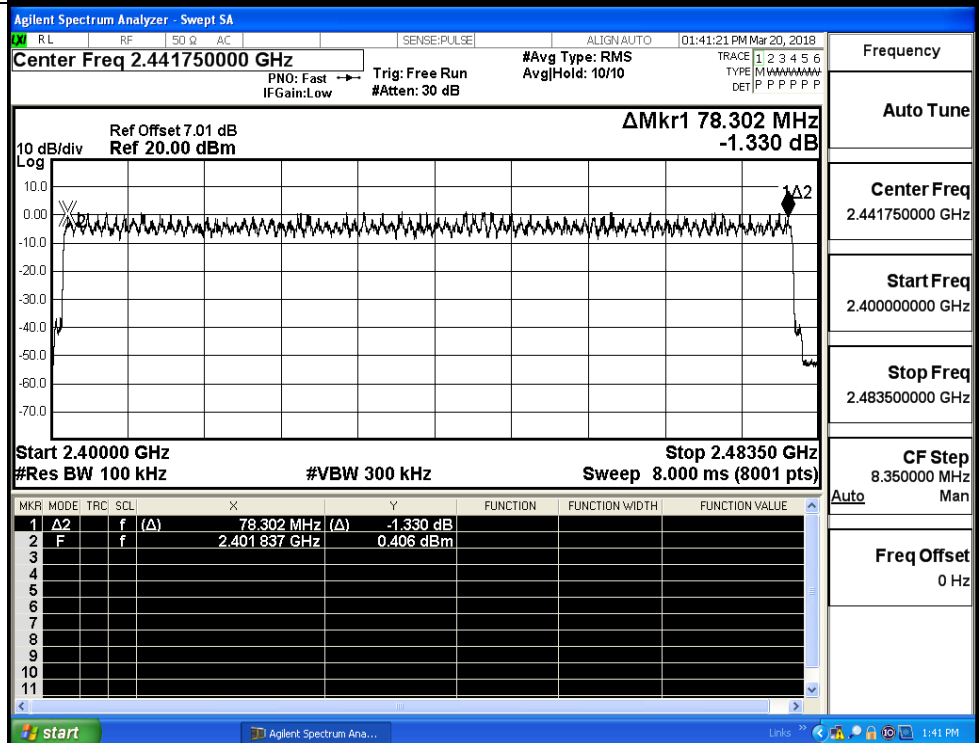
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

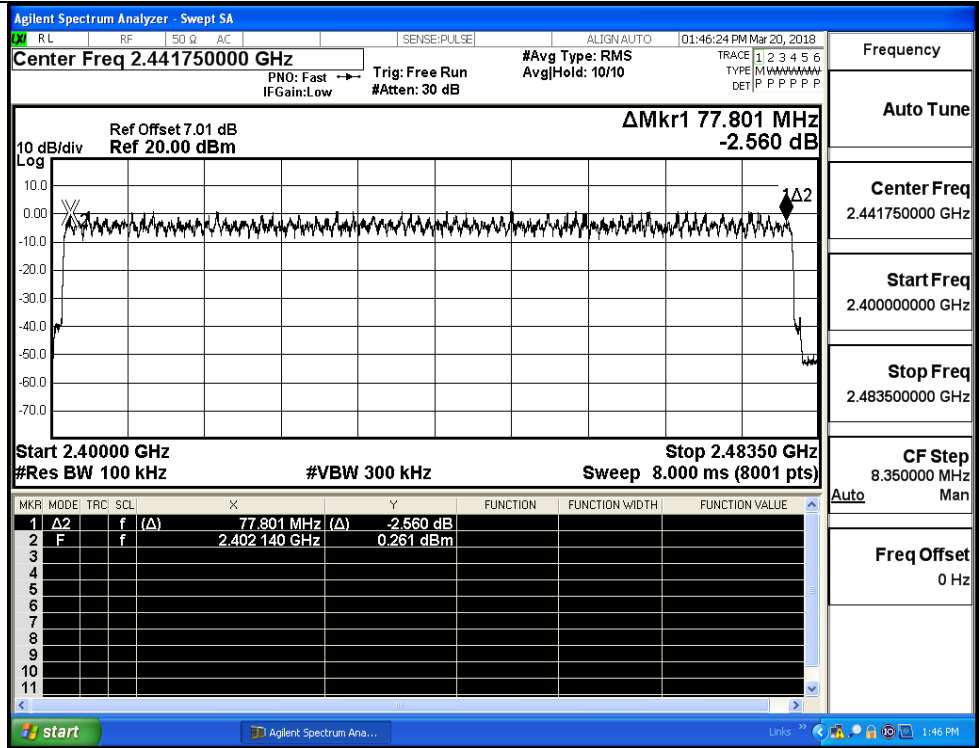
GFSK/Hop



π/4DQPSK/Hop

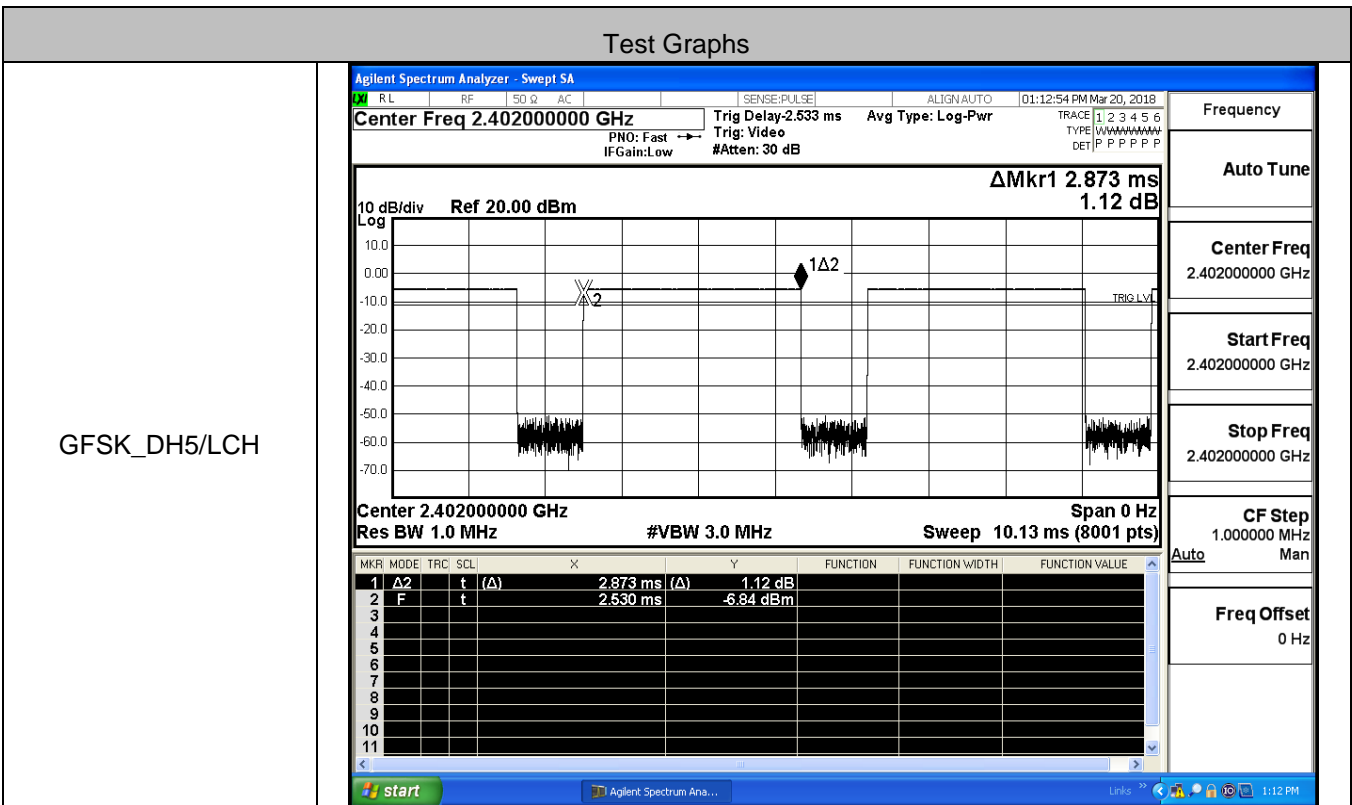


8DPSK/Hop

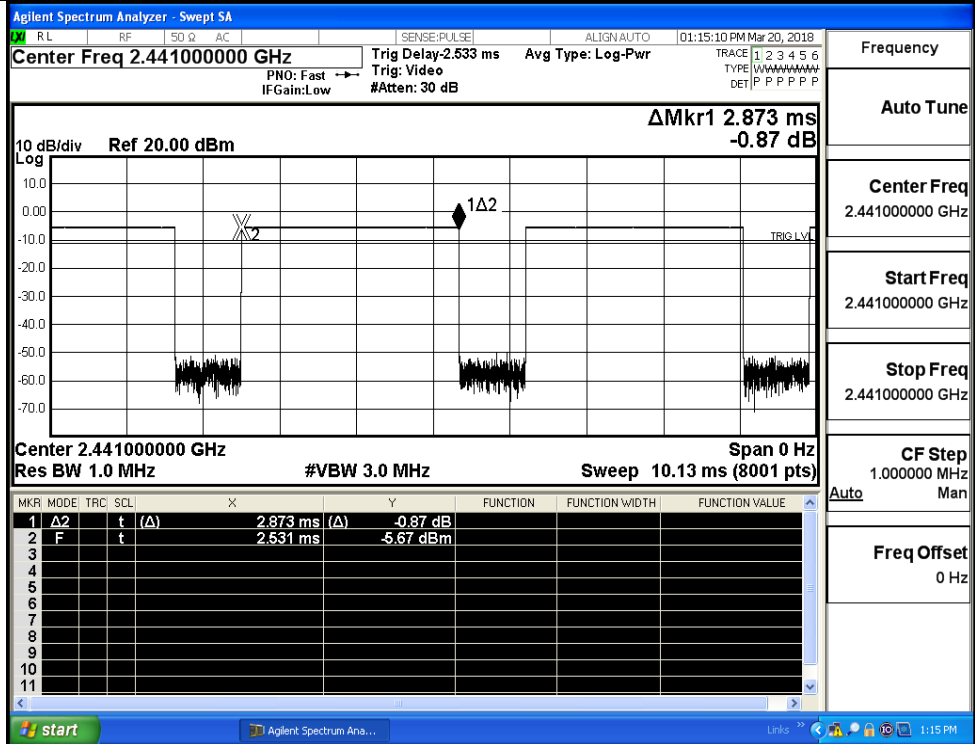


A.5 Dwell Time

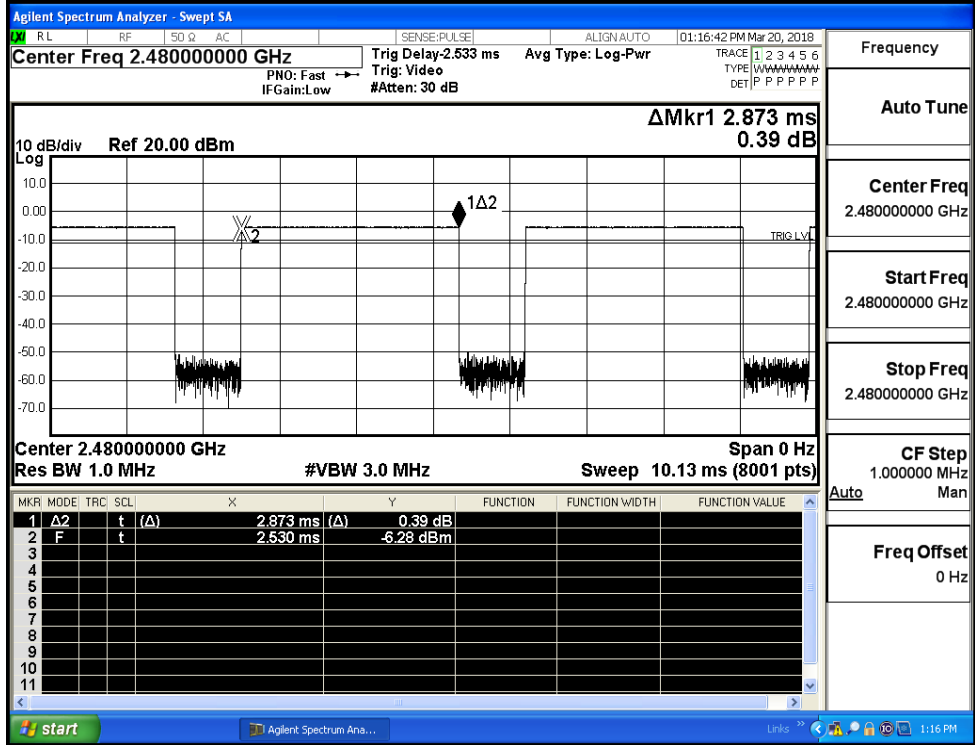
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.87	106.7	0.306	0.4	PASS
	DH5	MCH	2.87	106.7	0.306	0.4	PASS
	DH5	HCH	2.87	106.7	0.306	0.4	PASS
π/4DQPSK	2DH5	LCH	2.87	106.7	0.307	0.4	PASS
	2DH5	MCH	2.87	106.7	0.307	0.4	PASS
	2DH5	HCH	2.87	106.7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



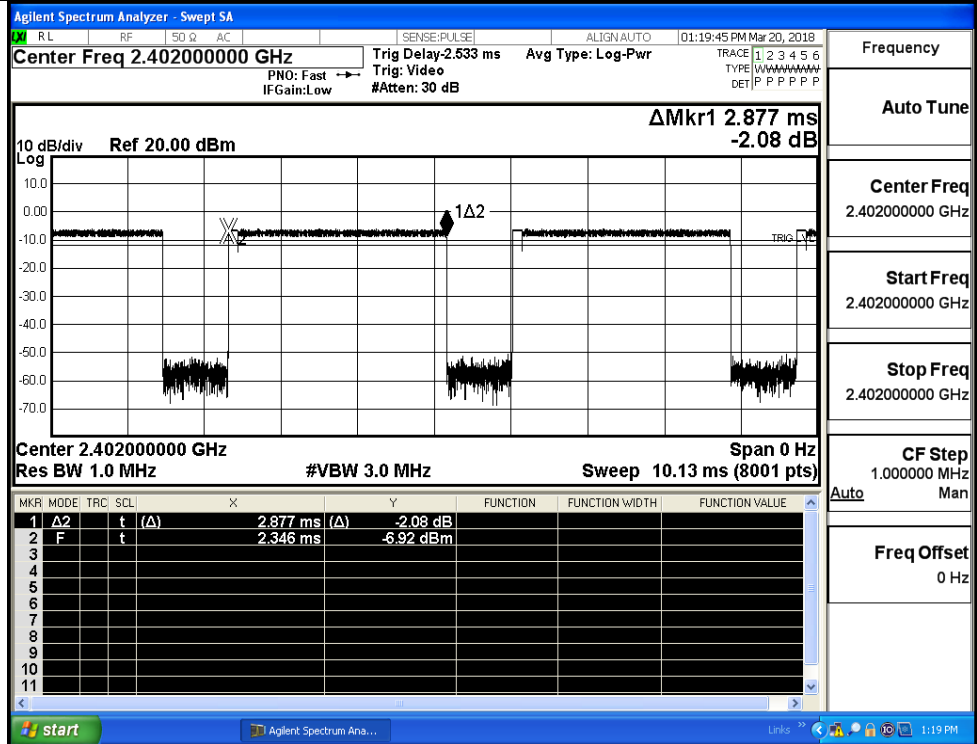
GFSK_DH5/MCH



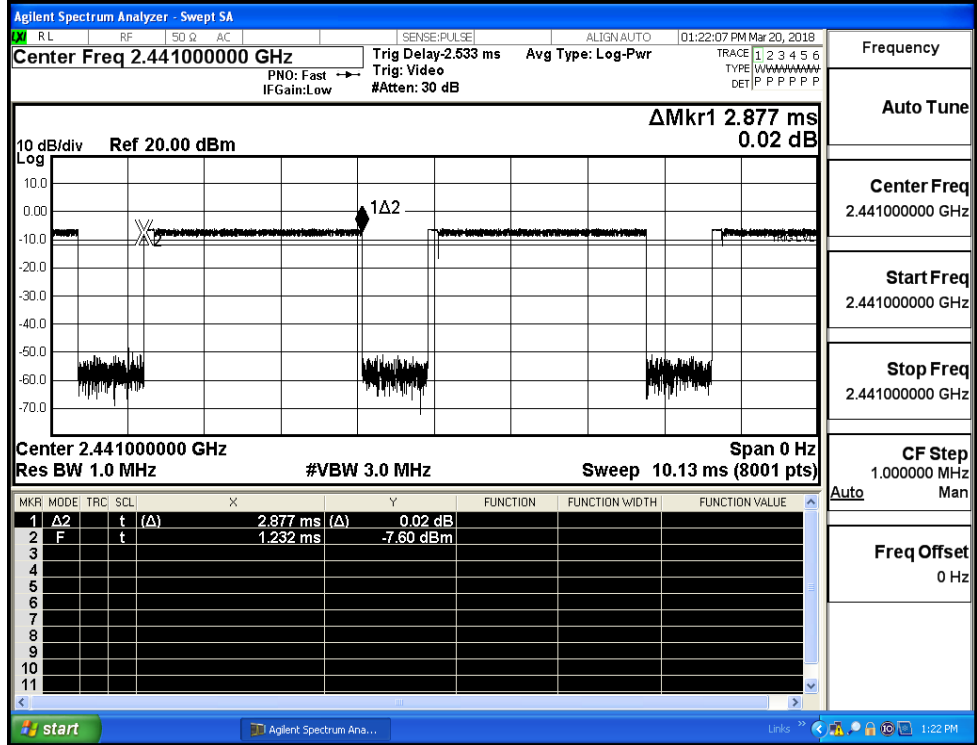
GFSK_DH5/HCH



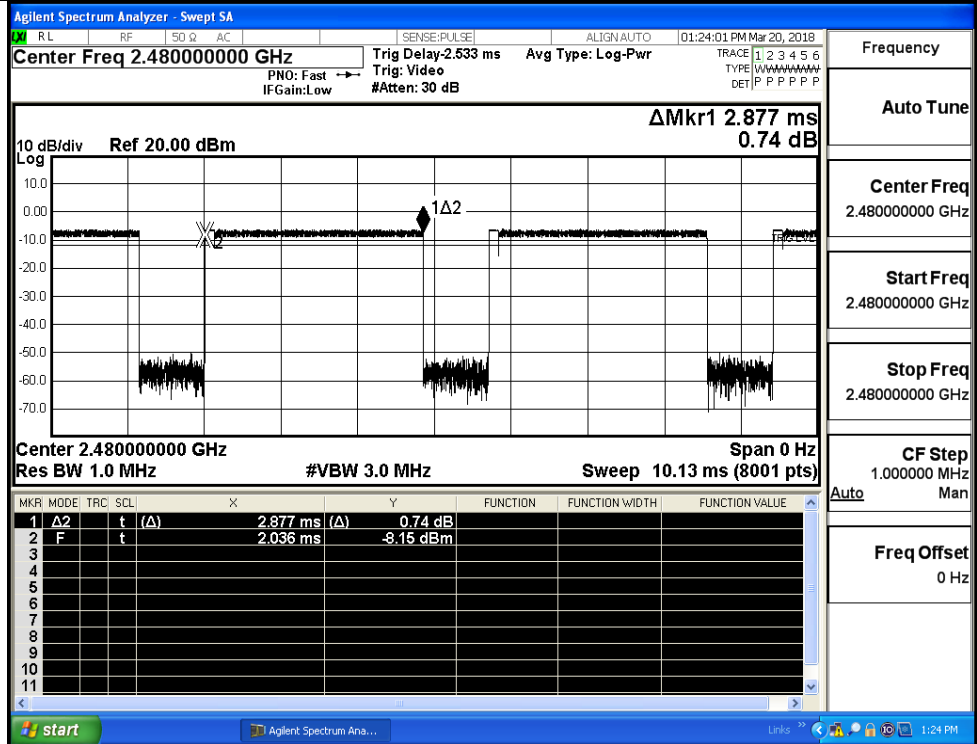
$\pi/4$ DQPSK
_2DH5/LCH



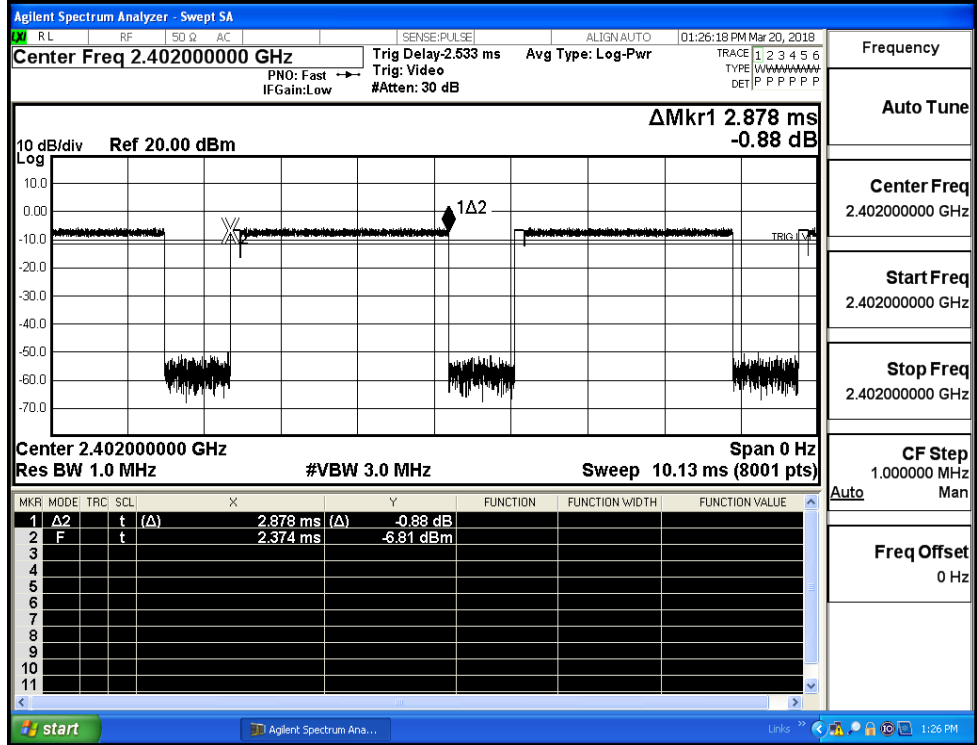
$\pi/4$ DQPSK
_2DH5/MCH



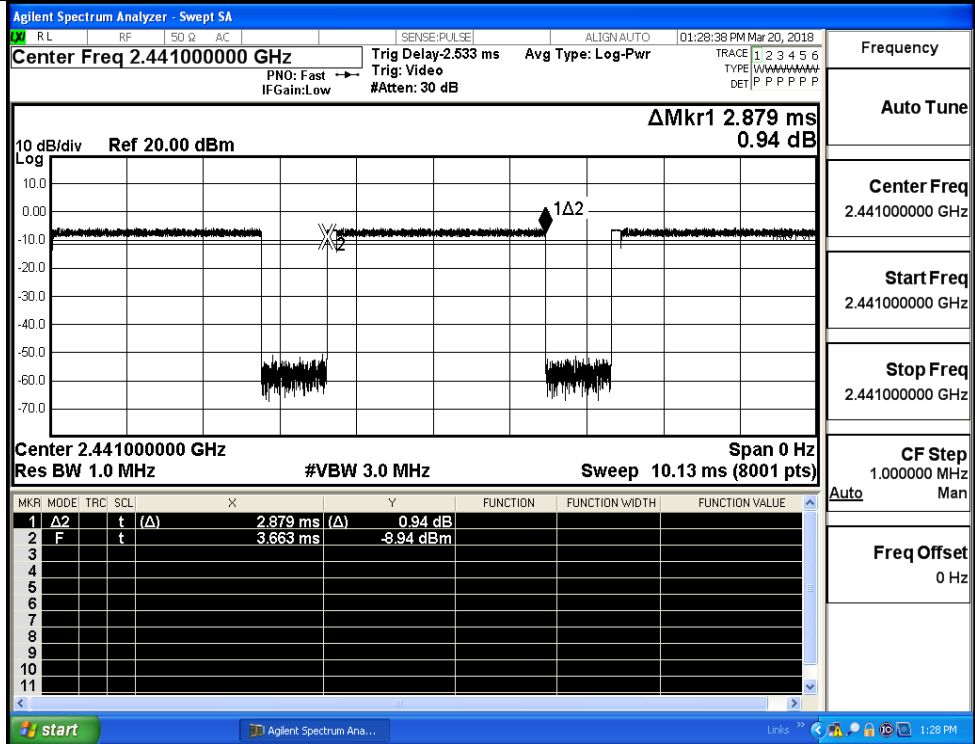
$\pi/4$ DQPSK
_2DH5/HCH



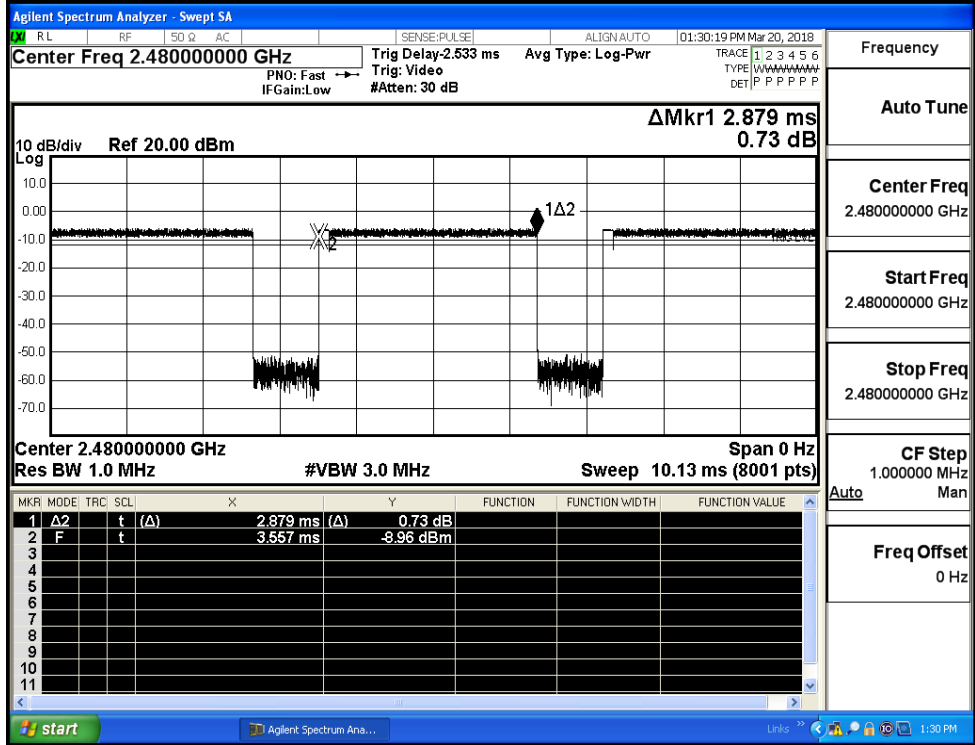
8DPSK_3DH5/LCH



8DPSK_3DH5/MCH



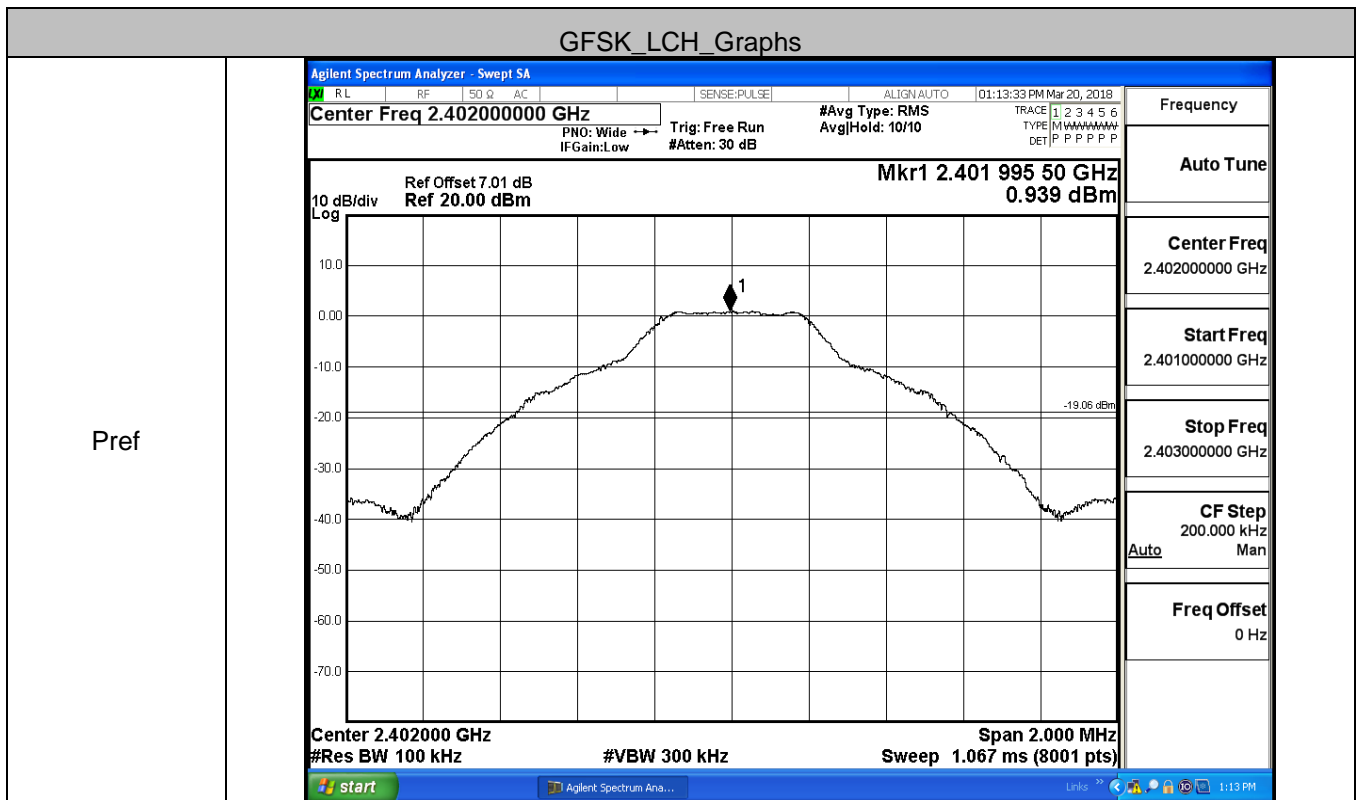
8DPSK_3DH5/HCH

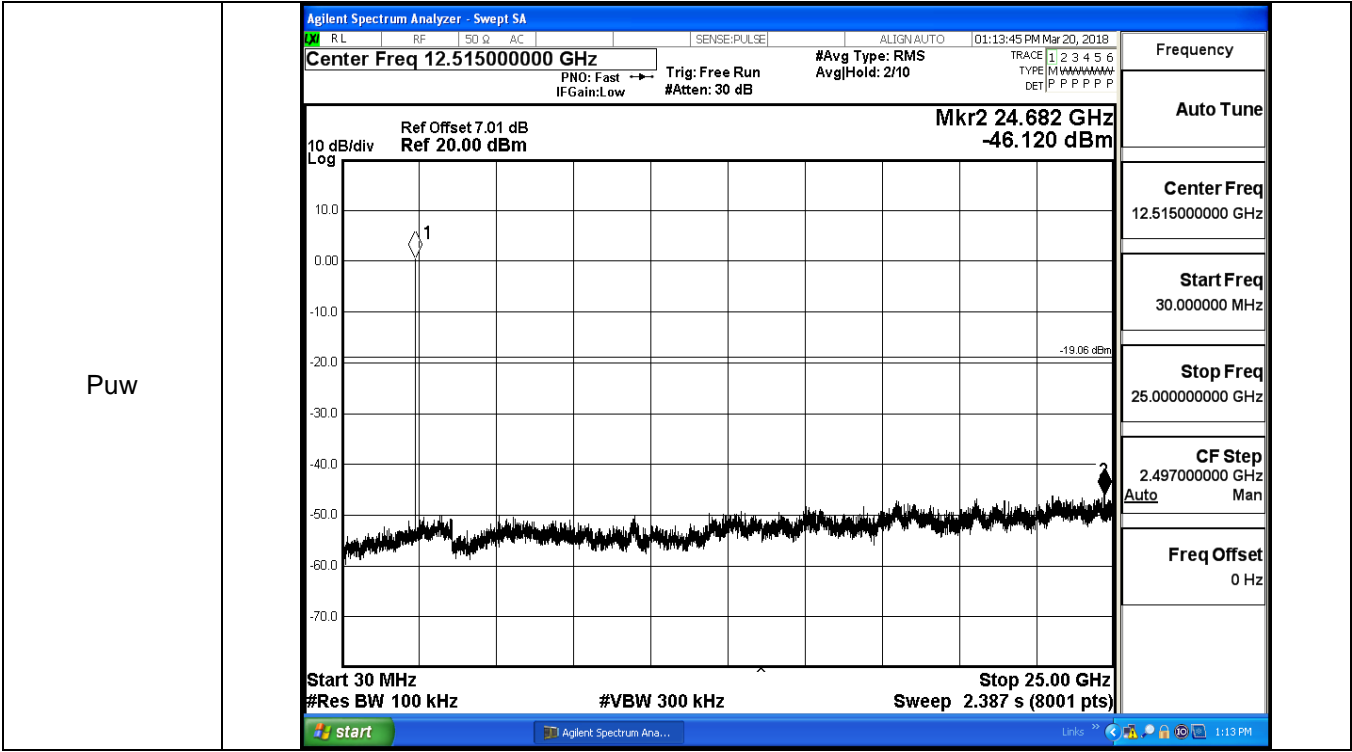


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.939	-46.120	-19.061	PASS
	MCH	1.586	-44.896	-18.414	PASS
	HCH	1.438	-45.673	-18.562	PASS
π /4DQPSK	LCH	0.398	-44.965	-19.602	PASS
	MCH	0.666	-45.204	-19.334	PASS
	HCH	0.321	-45.569	-19.679	PASS
8DPSK	LCH	0.557	-45.661	-19.443	PASS
	MCH	0.581	-45.908	-19.419	PASS
	HCH	0.439	-45.327	-19.561	PASS

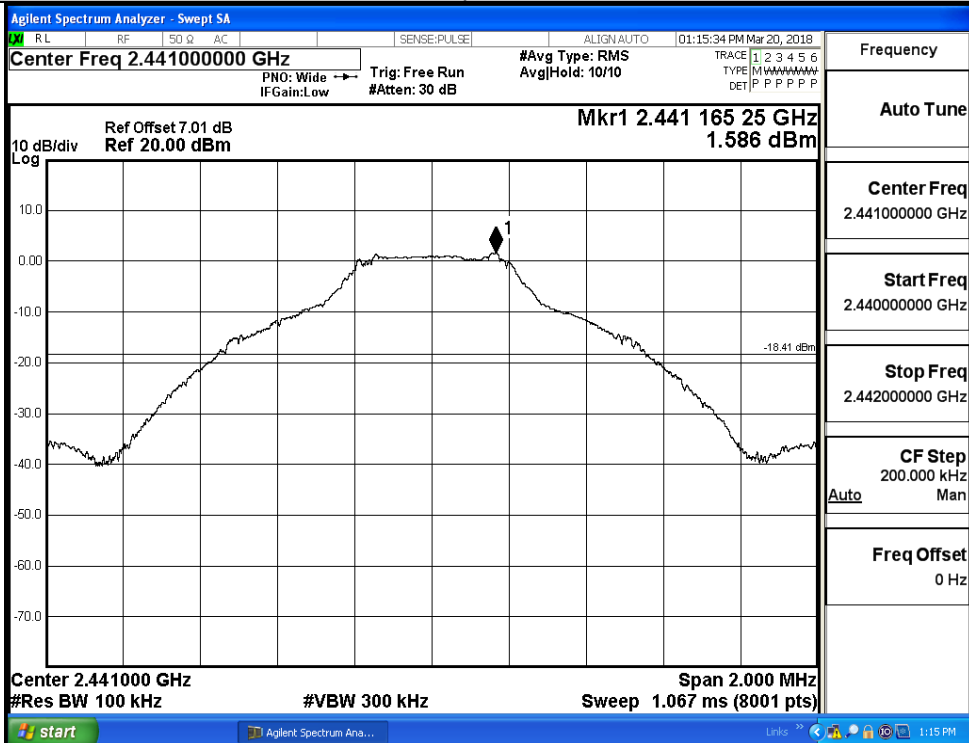
GFSK_LCH_Graphs





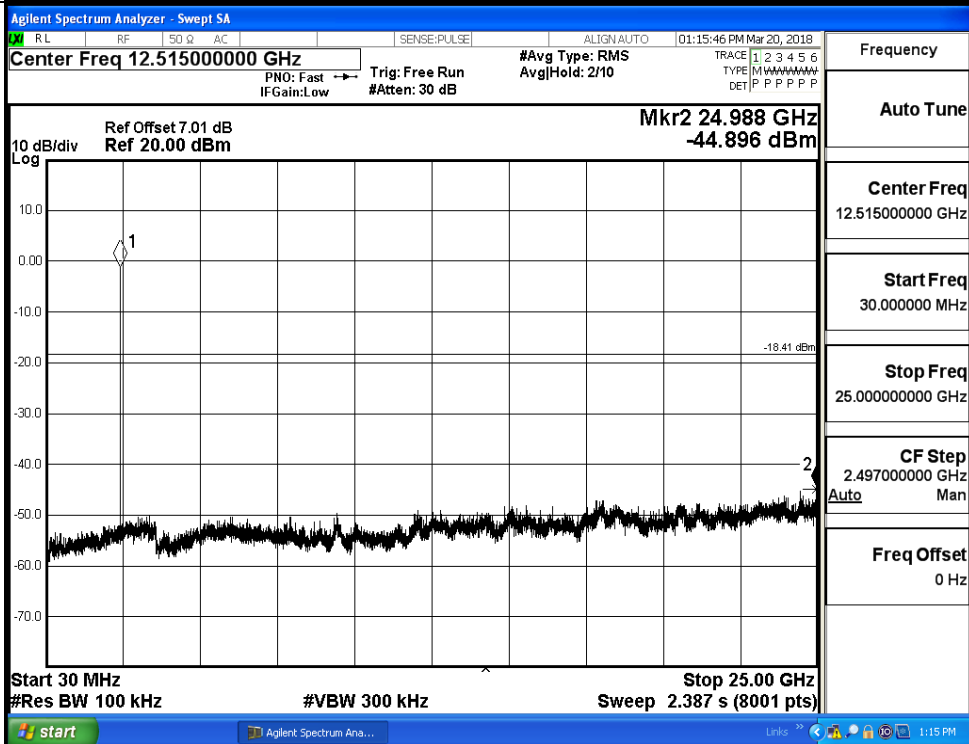
GFSK_MCH_Graphs

Pref



Frequency	
Auto Tune	
Center Freq	2.441000000 GHz
Start Freq	2.440000000 GHz
Stop Freq	2.442000000 GHz
CF Step	200.000 kHz Auto Man
Freq Offset	0 Hz

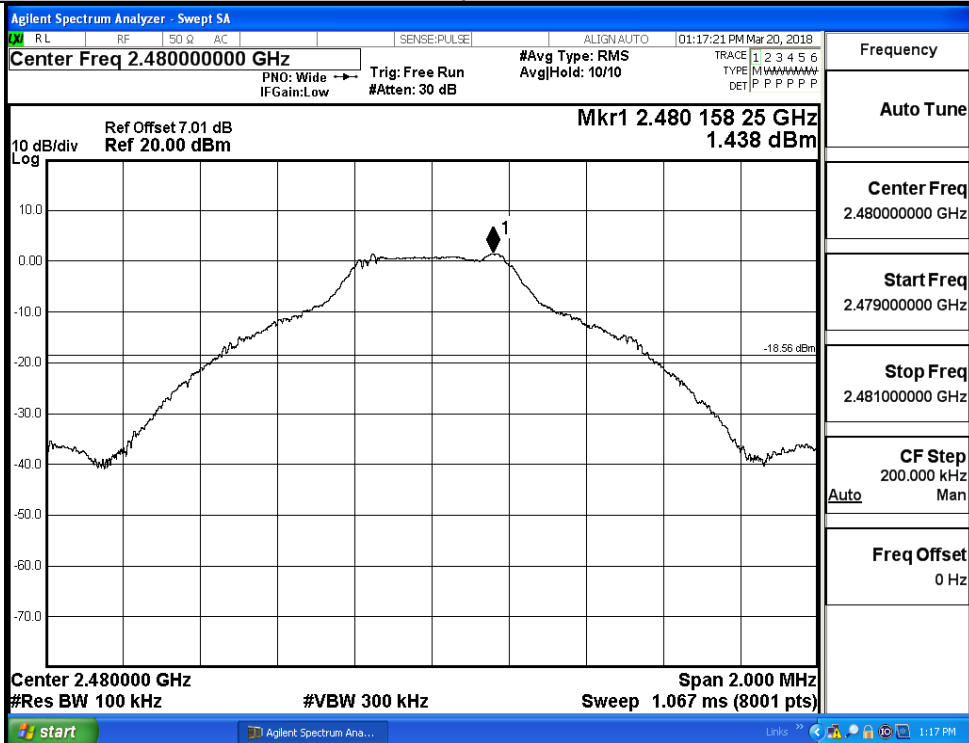
Puw



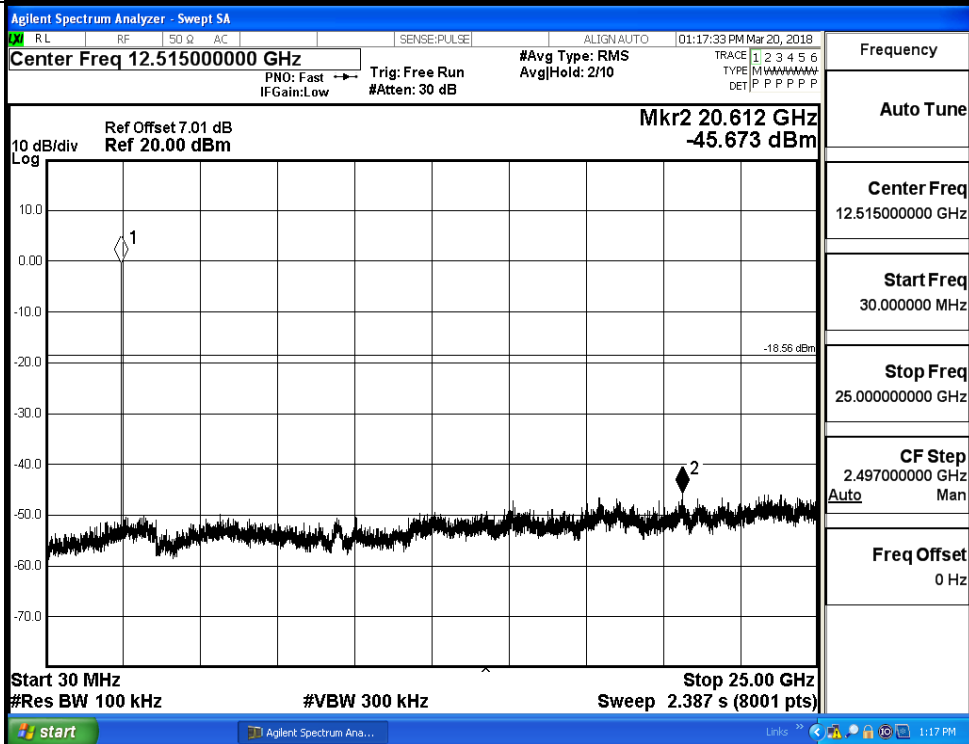
Frequency	
Auto Tune	
Center Freq	12.515000000 GHz
Start Freq	30.000000 MHz
Stop Freq	25.000000000 GHz
CF Step	2.497000000 GHz Auto Man
Freq Offset	0 Hz

GFSK_HCH_Graphs

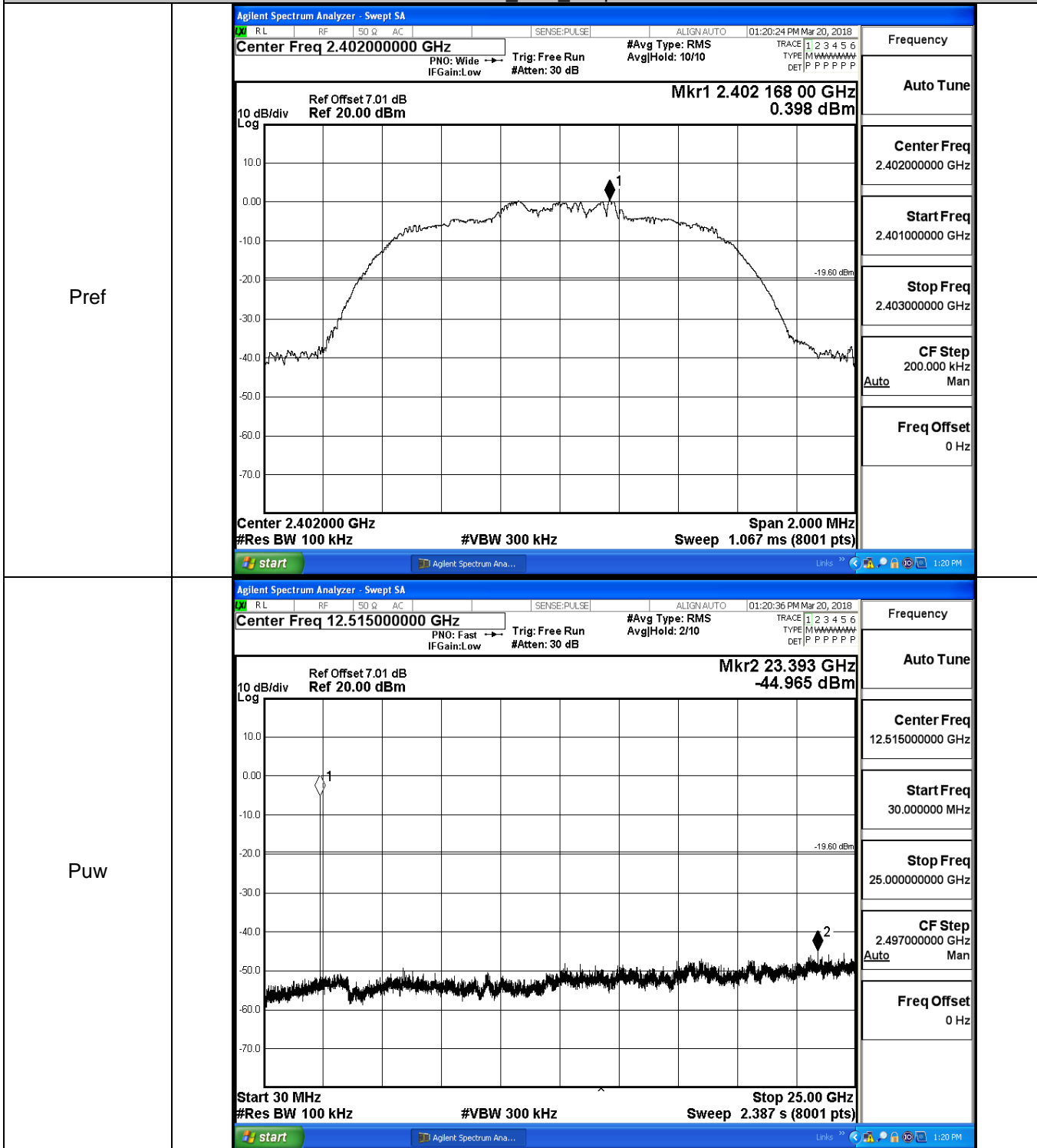
Pref



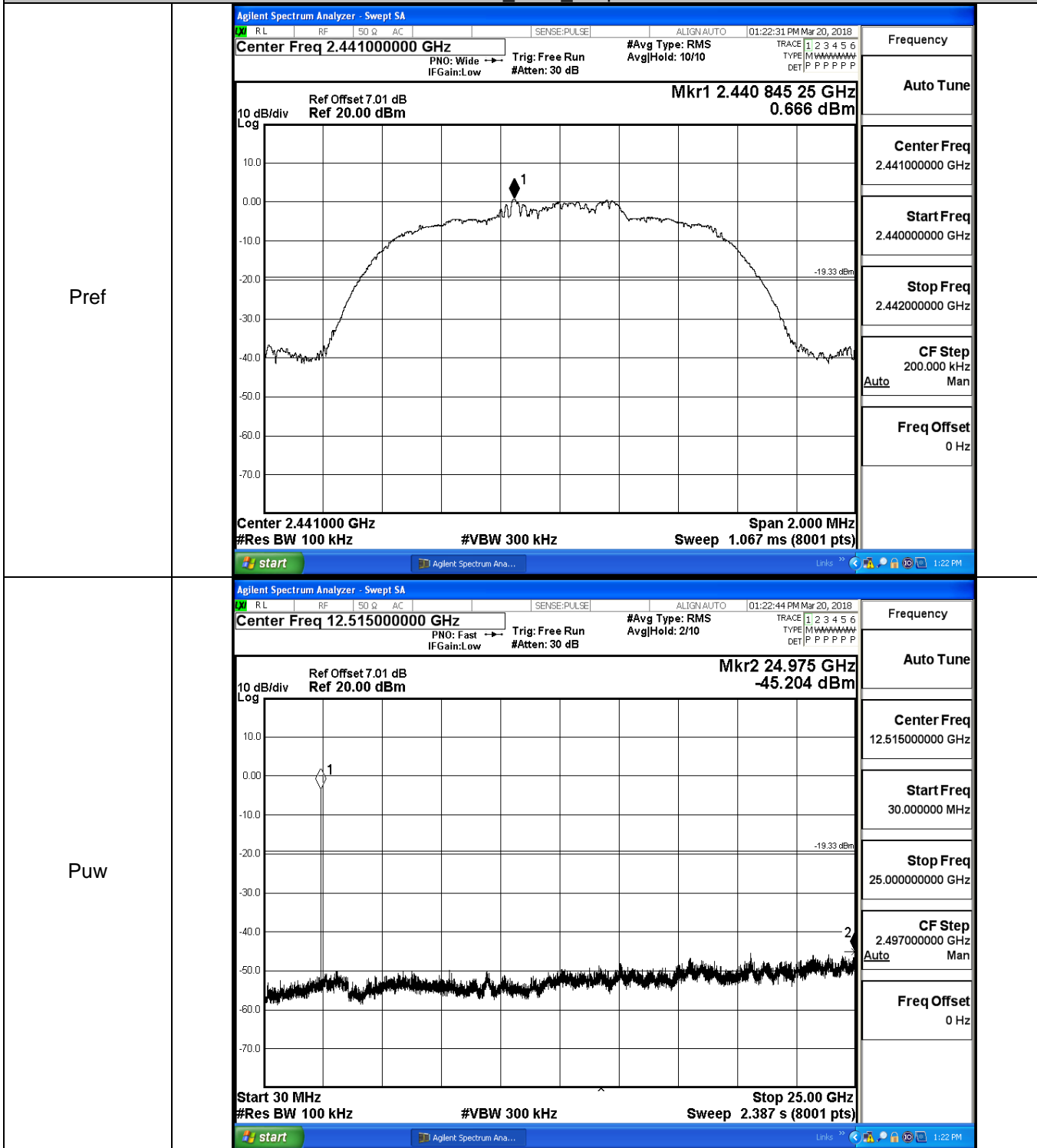
Puw



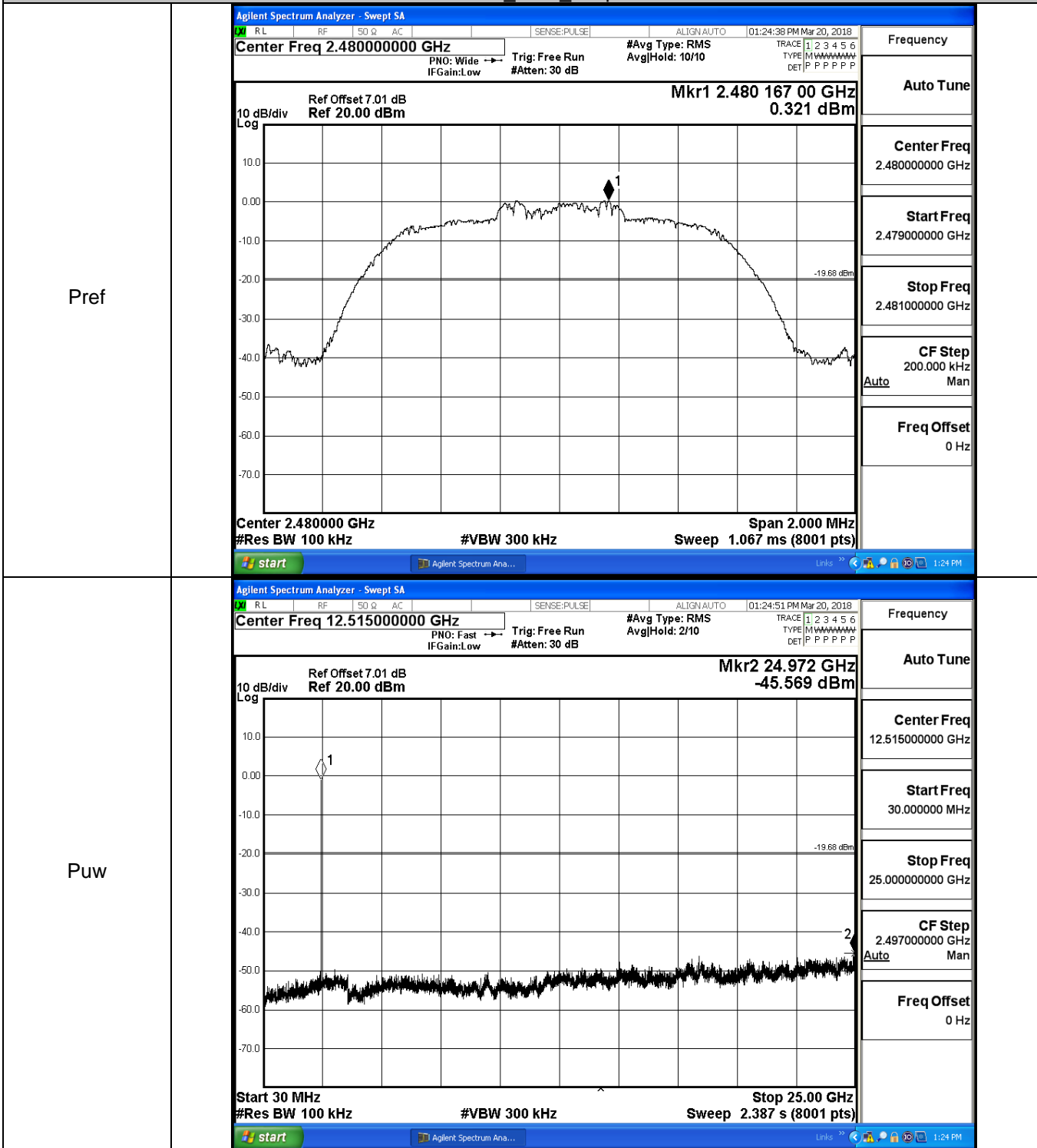
$\pi/4$ DQPSK_LCH_Graphs



$\pi/4$ DQPSK_MCH_Graphs

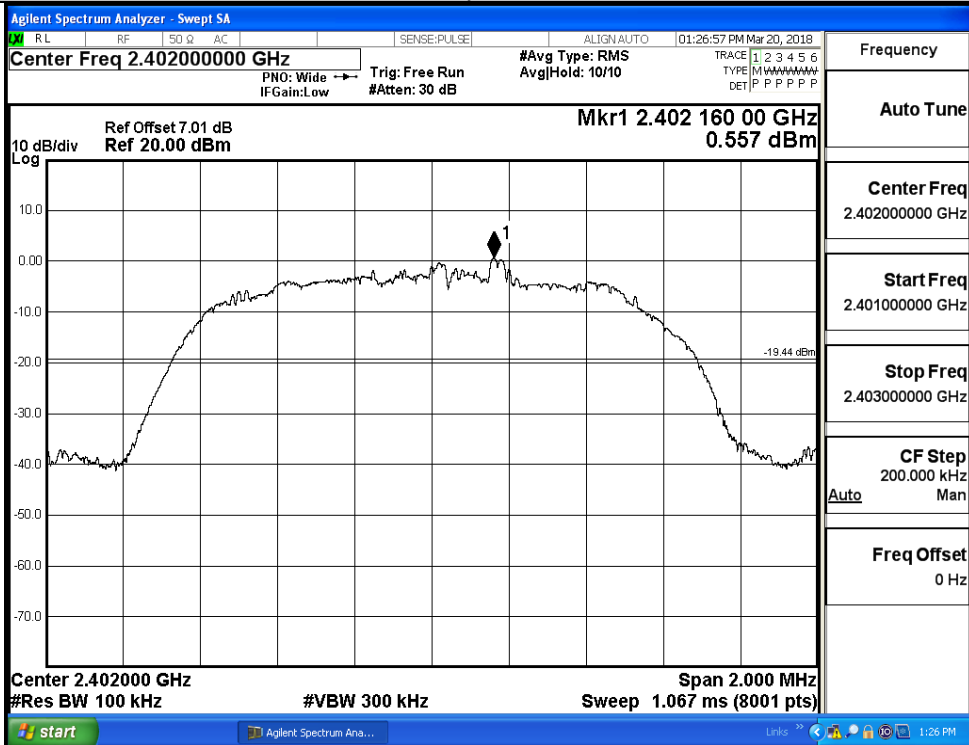


$\pi/4$ DQPSK_HCH_Graphs

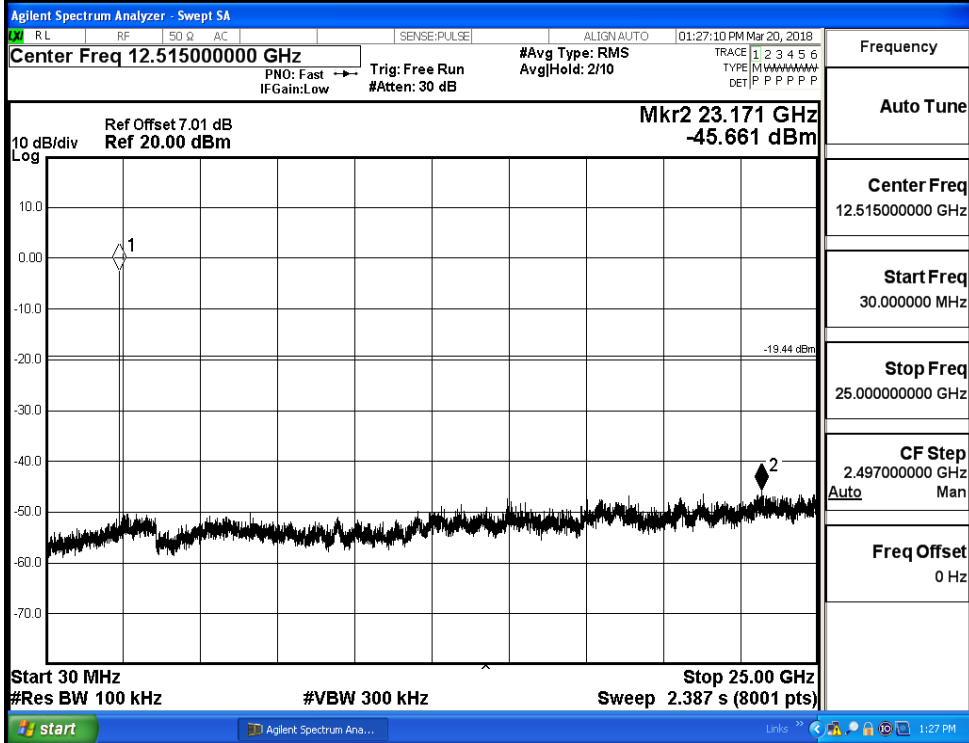


8DPSK_LCH_Graphs

Pref

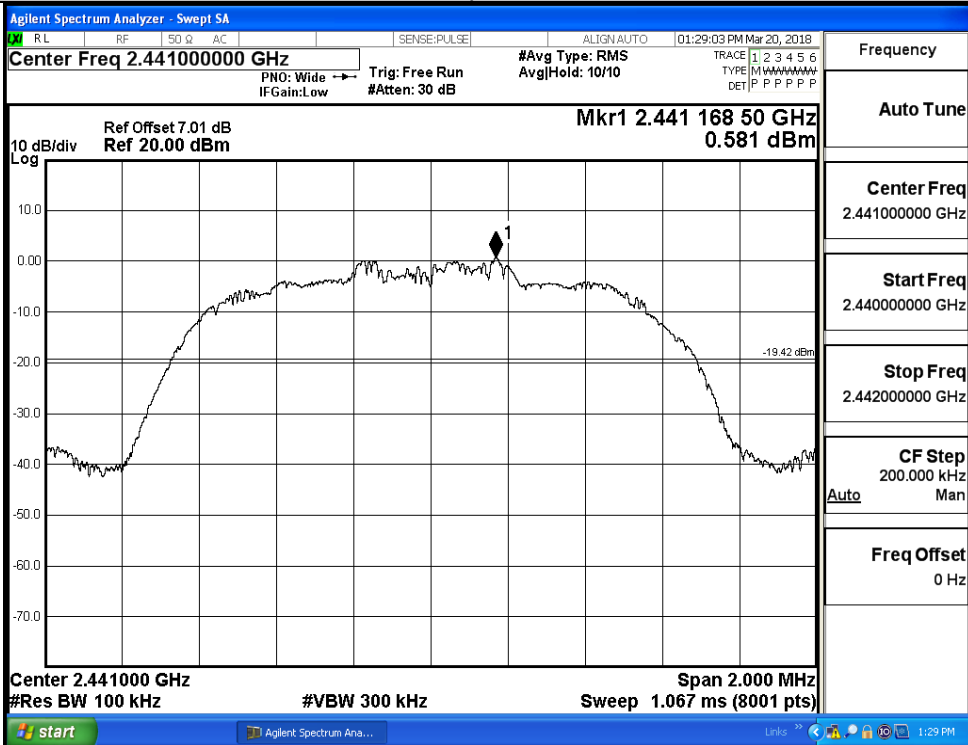


Puw

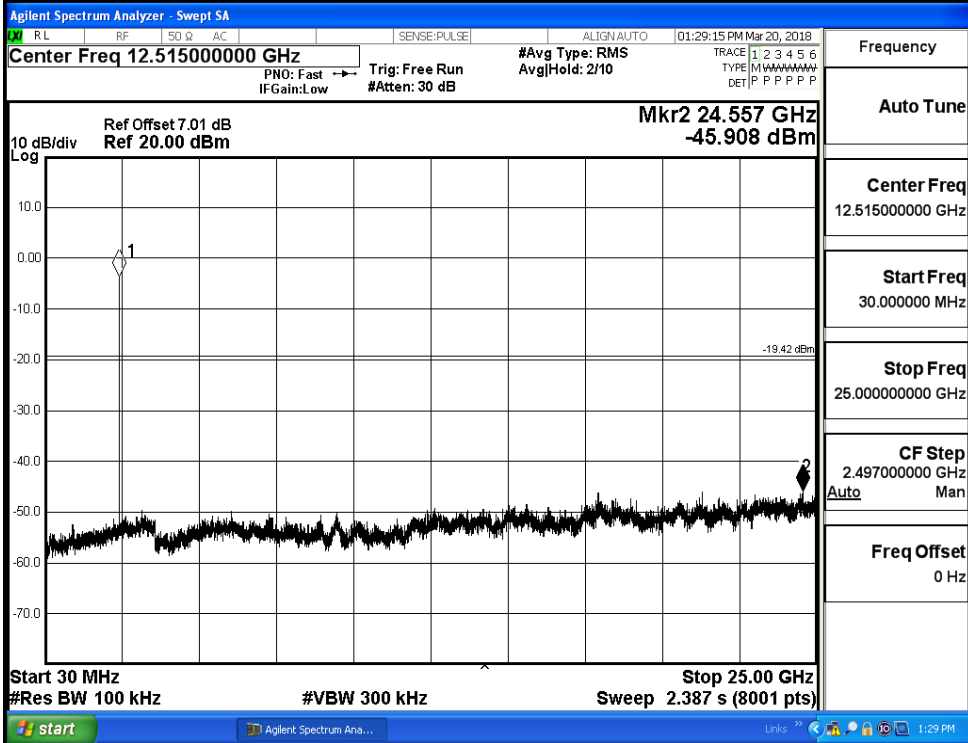


8DPSK_MCH_Graphs

Pref

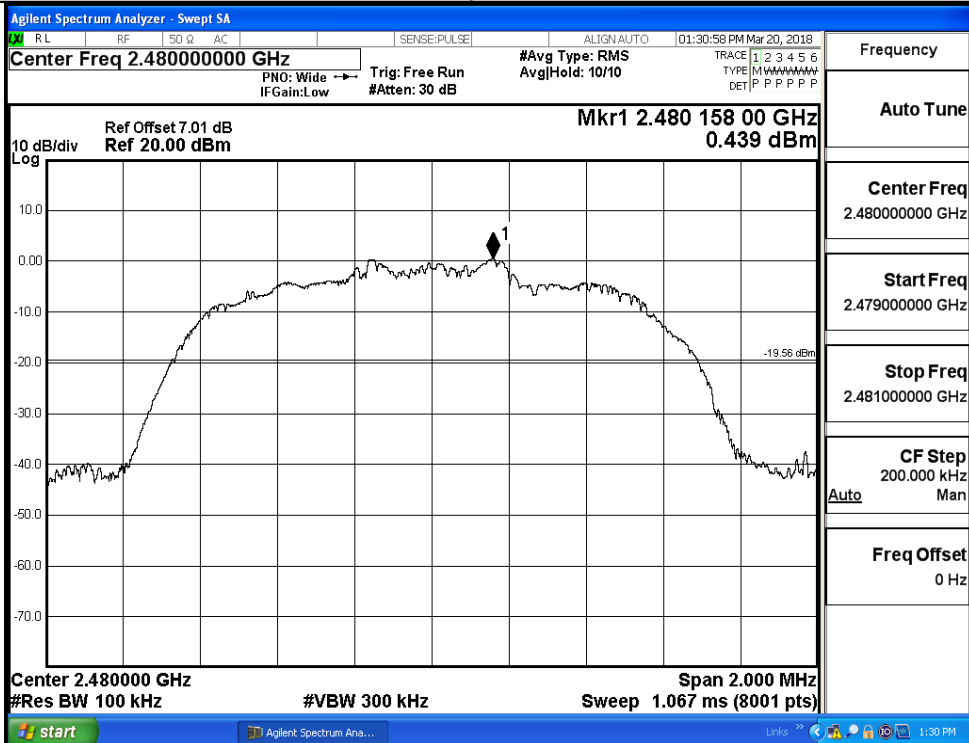


Puw

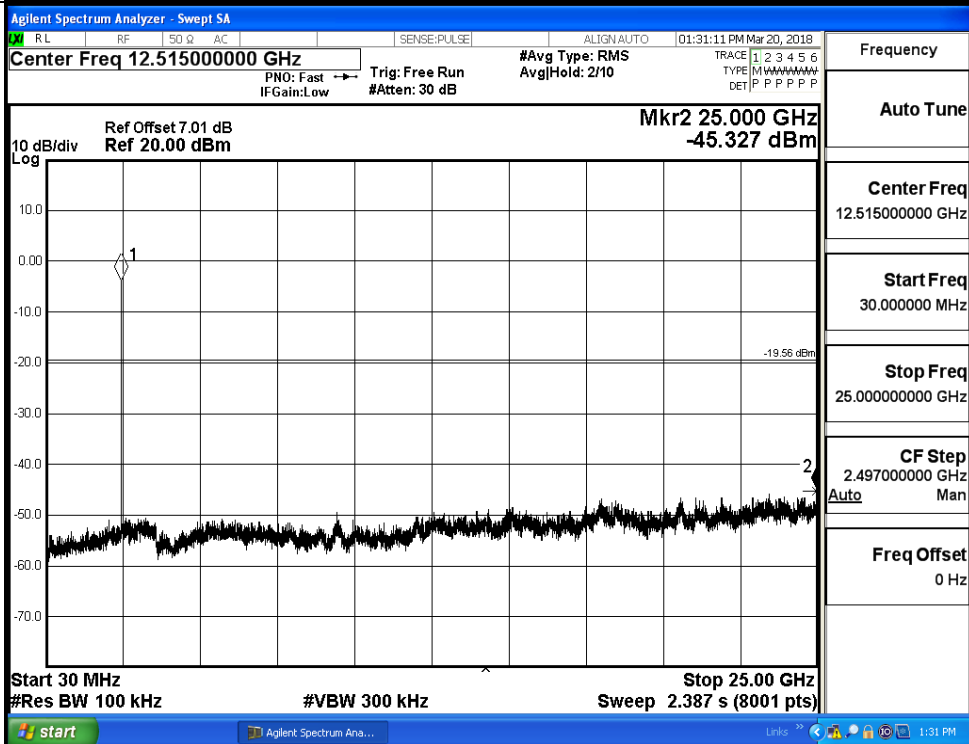


8DPSK_HCH_Graphs

Pref



Puw

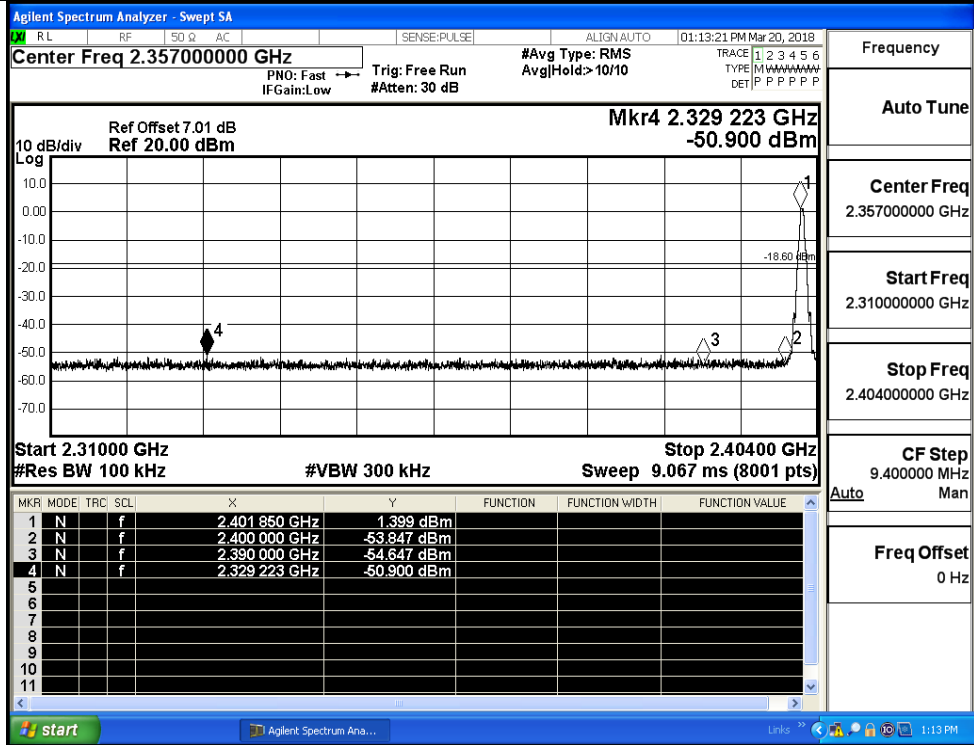


A.7 Band-edge for RF Conducted Emissions

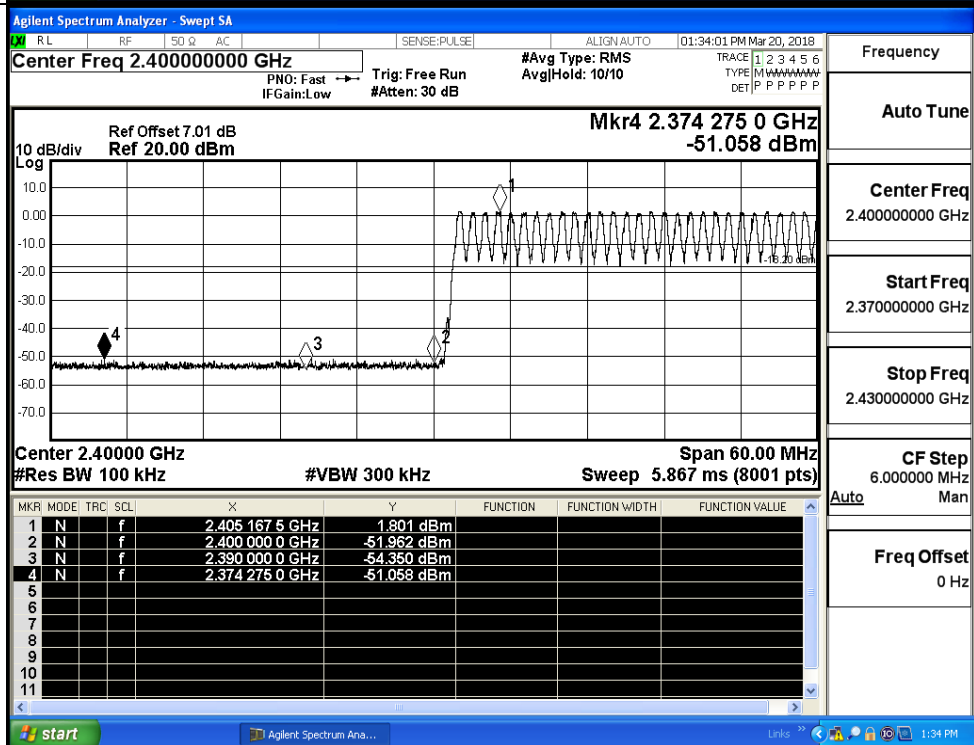
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.399	Off	-50.900	-18.6	PASS
			1.801	On	-51.058	-18.2	PASS
	HCH	2480	1.441	Off	-51.040	-18.56	PASS
			1.557	On	-50.466	-18.44	PASS
$\pi/4$ DQPSK	LCH	2402	-1.647	Off	-51.573	-21.65	PASS
			0.996	On	-50.515	-19	PASS
	HCH	2480	0.467	Off	-50.700	-19.53	PASS
			0.940	On	-50.434	-19.06	PASS
8DPSK	LCH	2402	0.357	Off	-51.460	-19.64	PASS
			0.973	On	-50.417	-19.03	PASS
	HCH	2480	0.513	Off	-50.478	-19.49	PASS
			0.963	On	-49.141	-19.04	PASS

Test Graphs

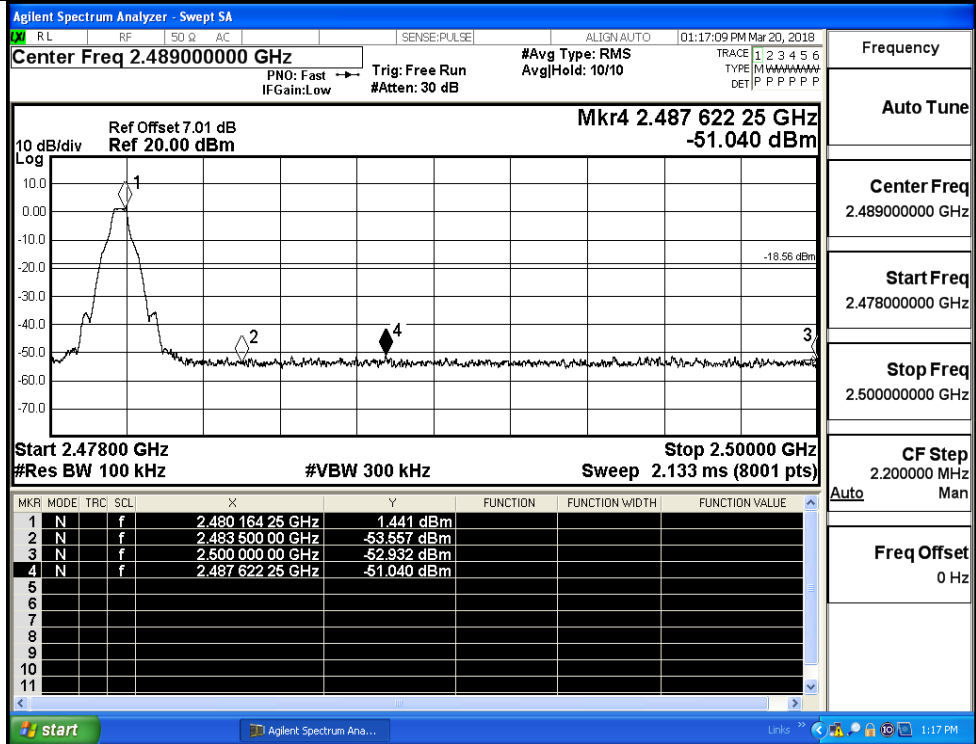
GFSK/LCH/No Hop



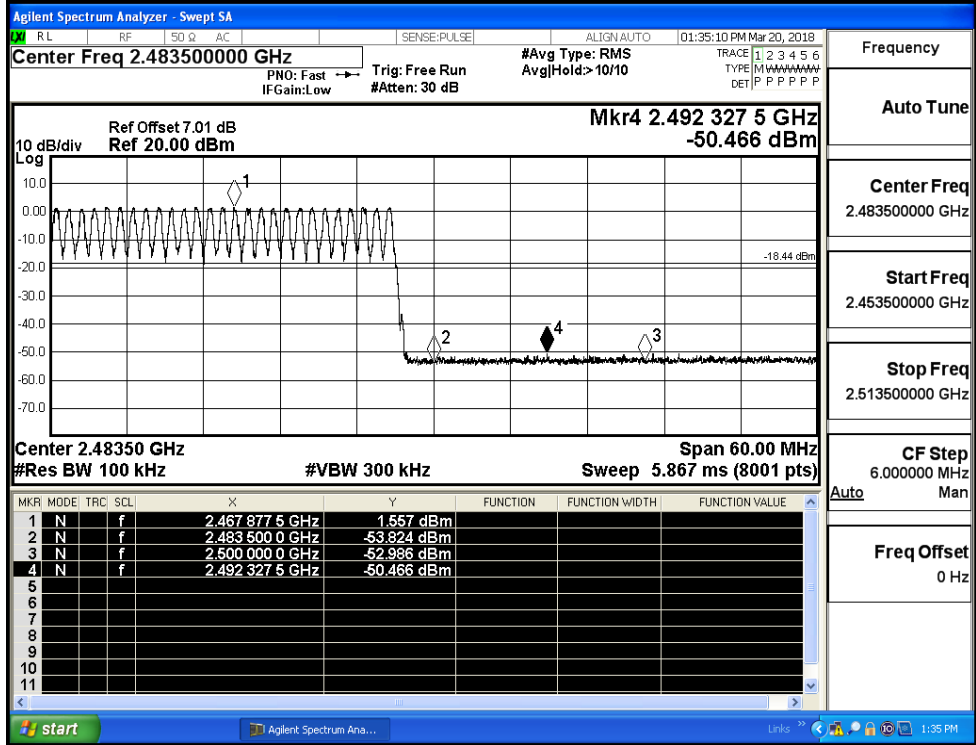
GFSK/LCH/Hop



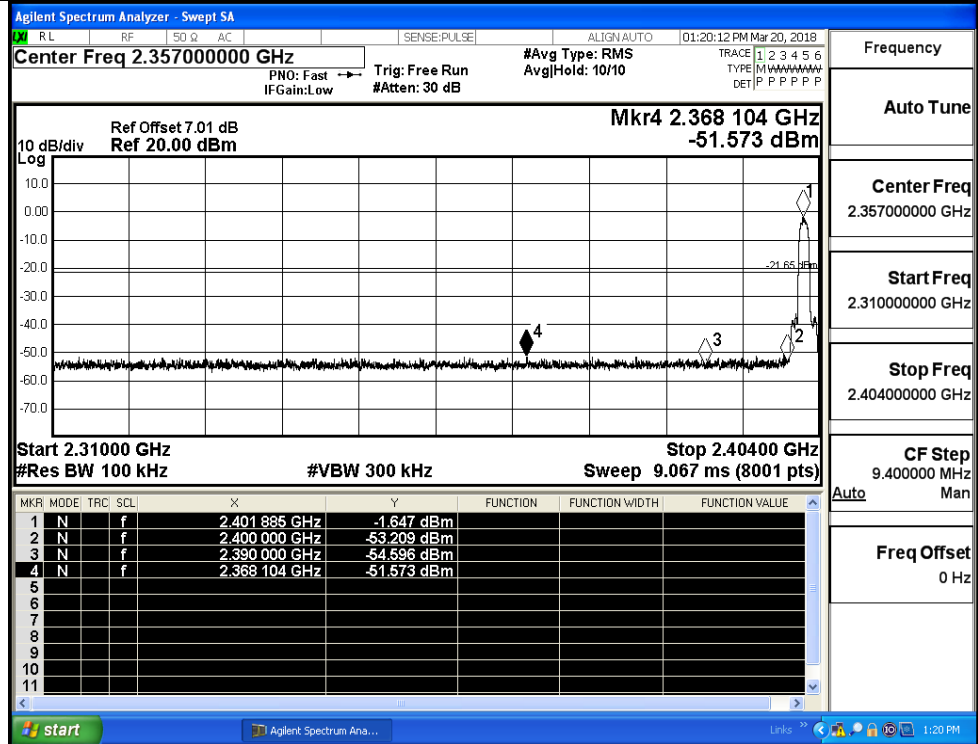
GFSK/HCH/No Hop



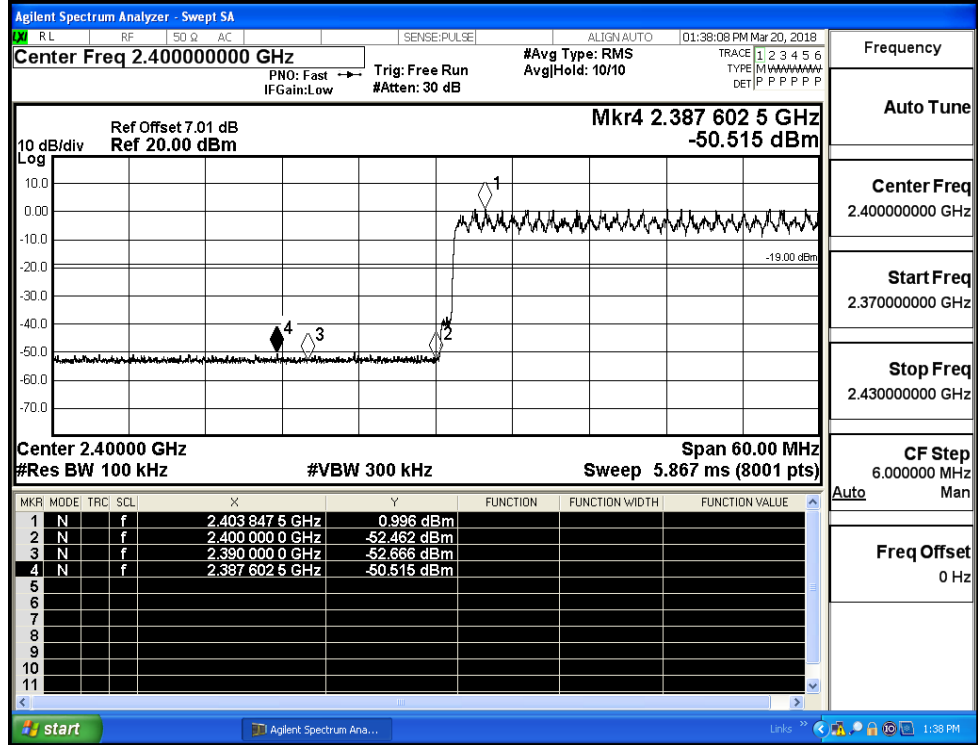
GFSK/HCH/Hop



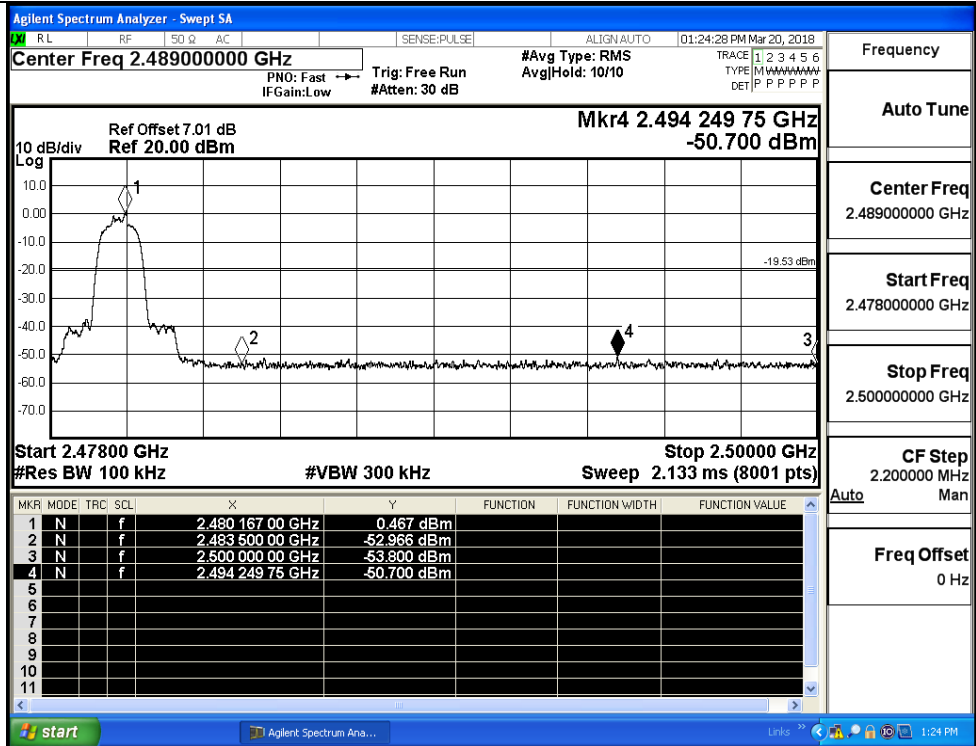
$\pi/4$ DQPSK/LCH/No
Hop



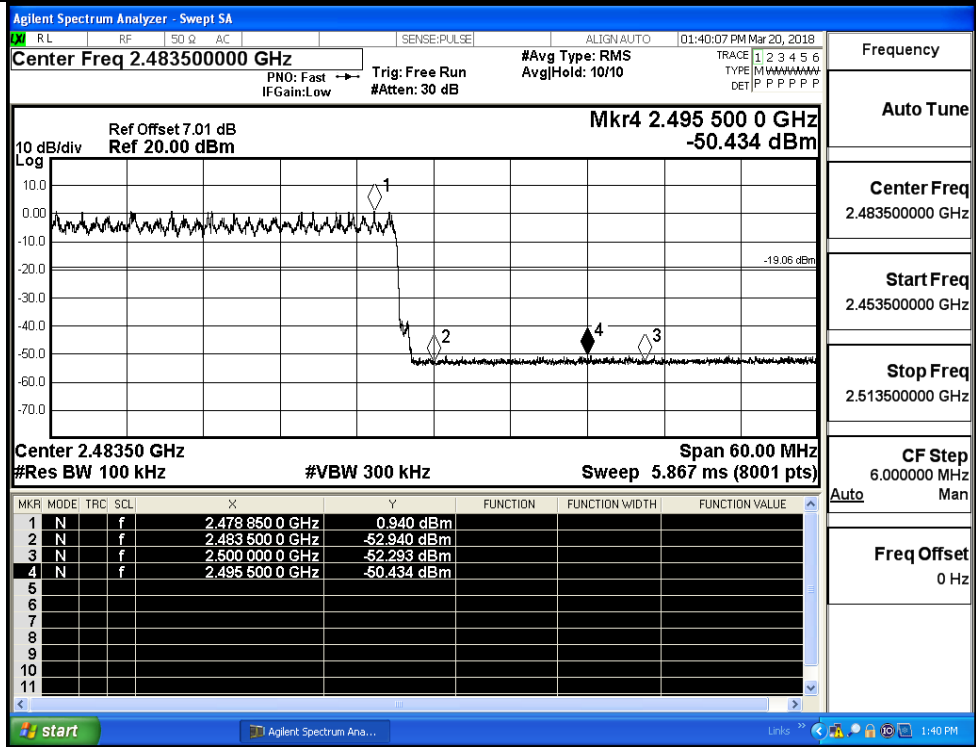
$\pi/4$ DQPSK/LCH/Hop



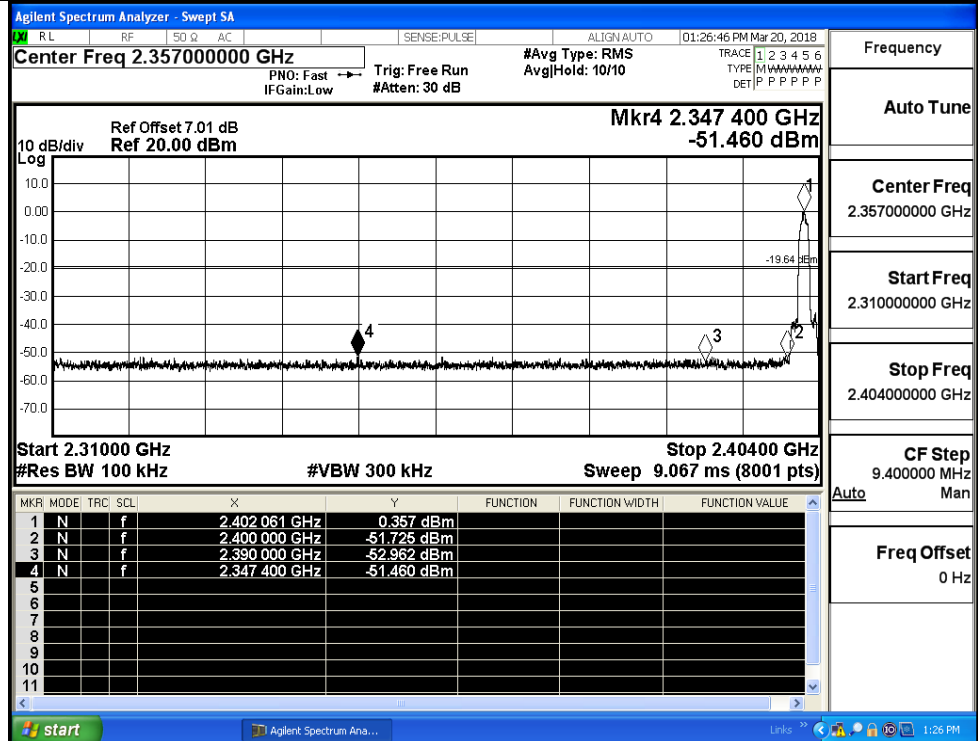
$\pi/4$ DQPSK/HCH/No Hop



$\pi/4$ DQPSK/HCH/Hop

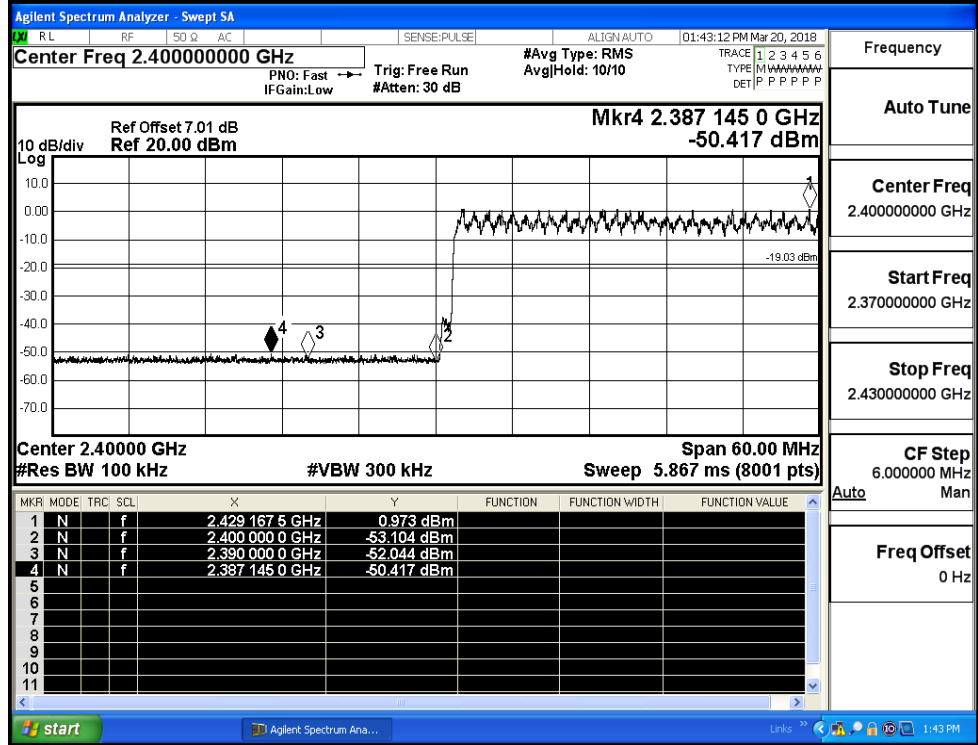


8DPSK/LCH/No Hop



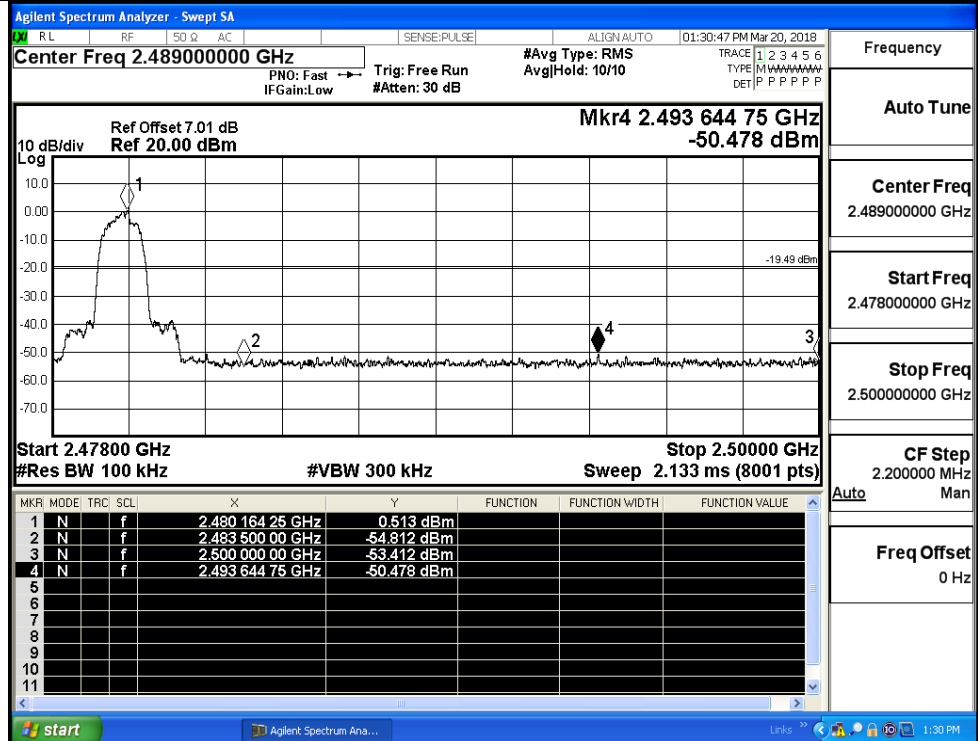
Frequency
Auto Tune
Center Freq
2.357000000 GHz
Start Freq
2.310000000 GHz
Stop Freq
2.404000000 GHz
CF Step
9.400000 MHz
Auto Man
Freq Offset
0 Hz

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
Auto Man
Freq Offset
0 Hz

8DPSK/HCH/No Hop



Frequency

Auto Tune

Center Freq
2.489000000 GHz

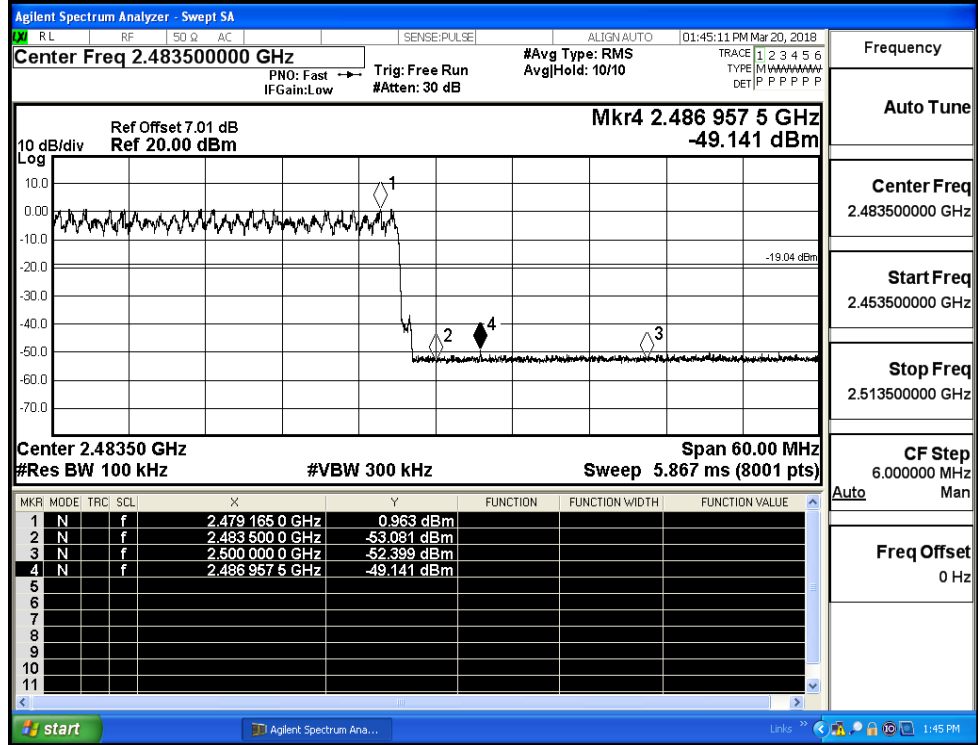
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz

Freq Offset
0 Hz

8DPSK/HCH/Hop



Frequency

Auto Tune

Center Freq
2.483500000 GHz

Start Freq
2.453500000 GHz

Stop Freq
2.513500000 GHz

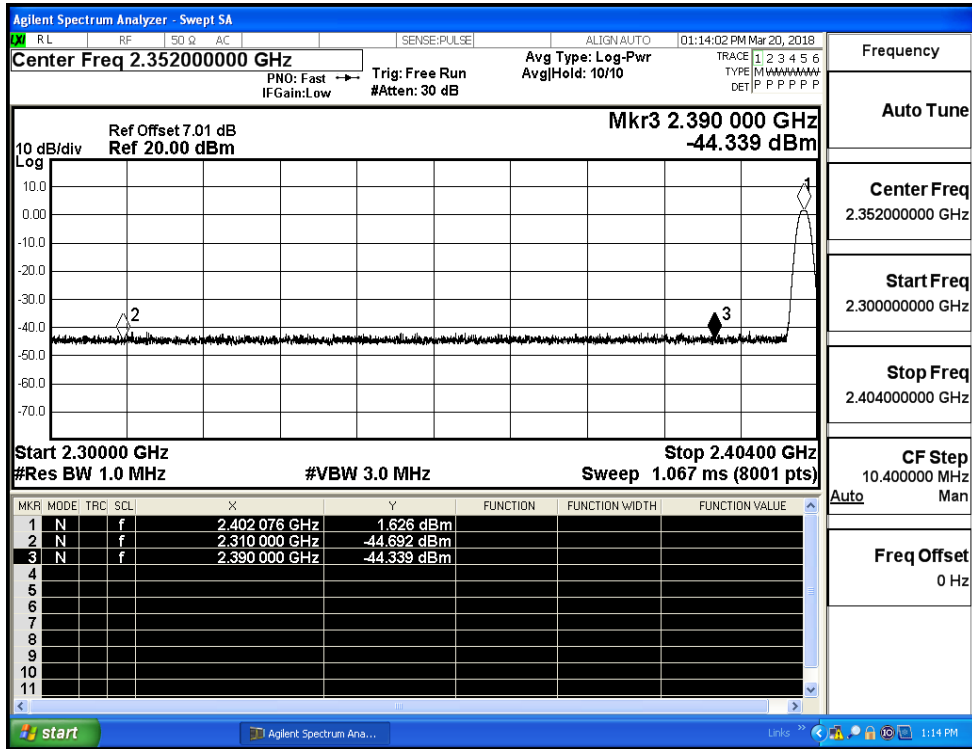
CF Step
6.000000 MHz

Freq Offset
0 Hz

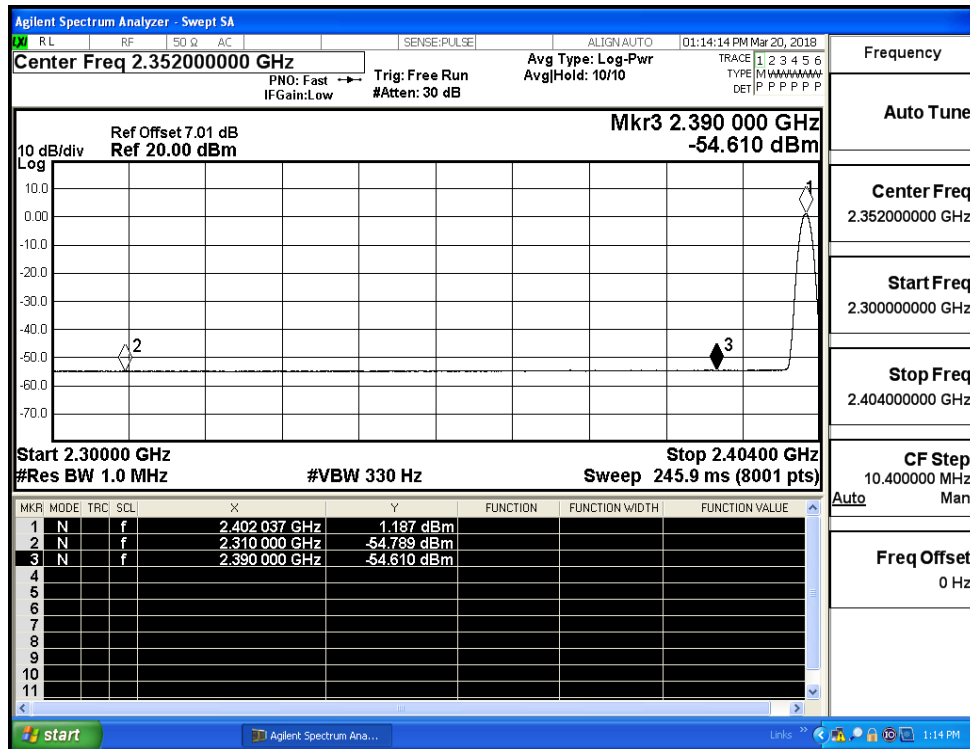
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.69	2.0	0	50.57	PEAK	74	PASS
	Off	2310.0	-54.79	2.0	0	40.47	AV	54	PASS
	Off	2390.0	-44.34	2.0	0	50.92	PEAK	74	PASS
	Off	2390.0	-54.61	2.0	0	40.65	AV	54	PASS
	Off	2483.5	-44.66	2.0	0	50.59	PEAK	74	PASS
	Off	2483.5	-54.19	2.0	0	41.07	AV	54	PASS
	Off	2500.0	-44.11	2.0	0	51.15	PEAK	74	PASS
	Off	2500.0	-54.20	2.0	0	41.06	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.14	2.0	0	52.12	PEAK	74	PASS
	Off	2310.0	-54.86	2.0	0	40.40	AV	54	PASS
	Off	2390.0	-44.24	2.0	0	51.02	PEAK	74	PASS
	Off	2390.0	-54.57	2.0	0	40.69	AV	54	PASS
	Off	2483.5	-44.86	2.0	0	50.40	PEAK	74	PASS
	Off	2483.5	-54.30	2.0	0	40.95	AV	54	PASS
	Off	2500.0	-43.68	2.0	0	51.58	PEAK	74	PASS
	Off	2500.0	-54.12	2.0	0	41.14	AV	54	PASS
8DPSK	Off	2310.0	-46.08	2.0	0	49.18	PEAK	74	PASS
	Off	2310.0	-54.93	2.0	0	40.33	AV	54	PASS
	Off	2390.0	-44.55	2.0	0	50.71	PEAK	74	PASS
	Off	2390.0	-54.54	2.0	0	40.72	AV	54	PASS
	Off	2483.5	-42.91	2.0	0	52.35	PEAK	74	PASS
	Off	2483.5	-54.19	2.0	0	41.07	AV	54	PASS
	Off	2500.0	-44.84	2.0	0	50.42	PEAK	74	PASS
	Off	2500.0	-54.29	2.0	0	40.97	AV	54	PASS

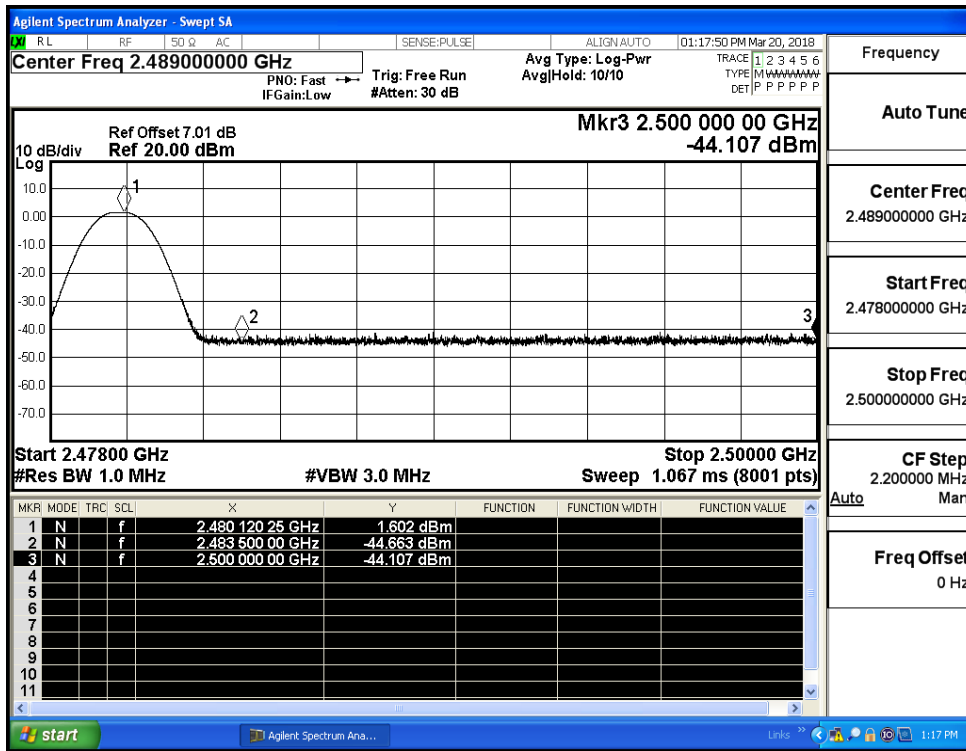
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



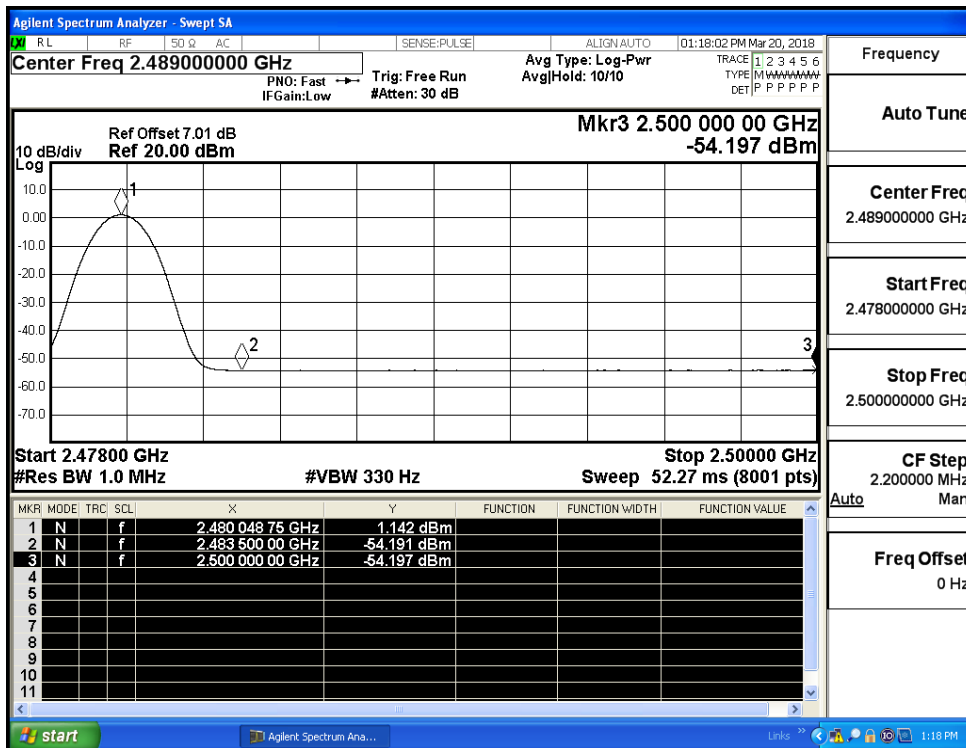
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



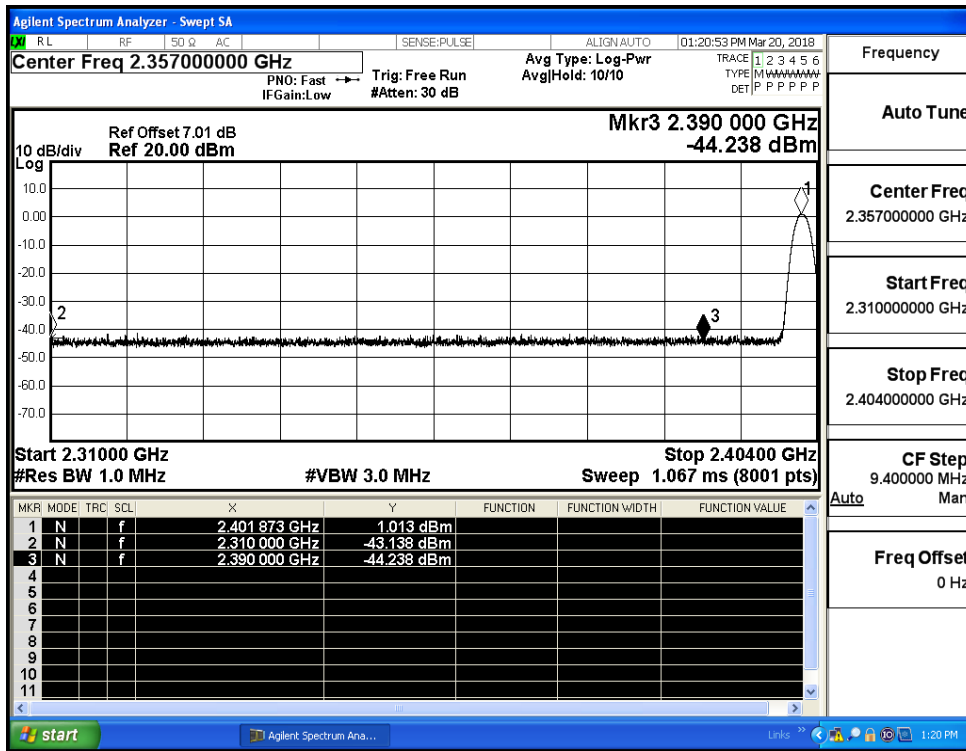
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



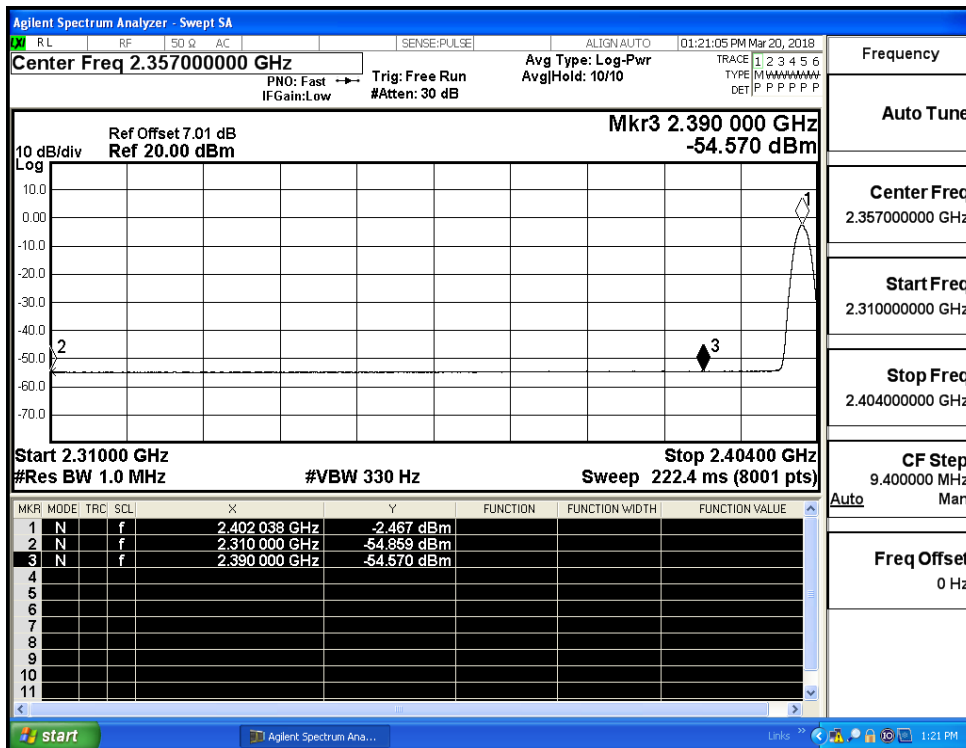
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



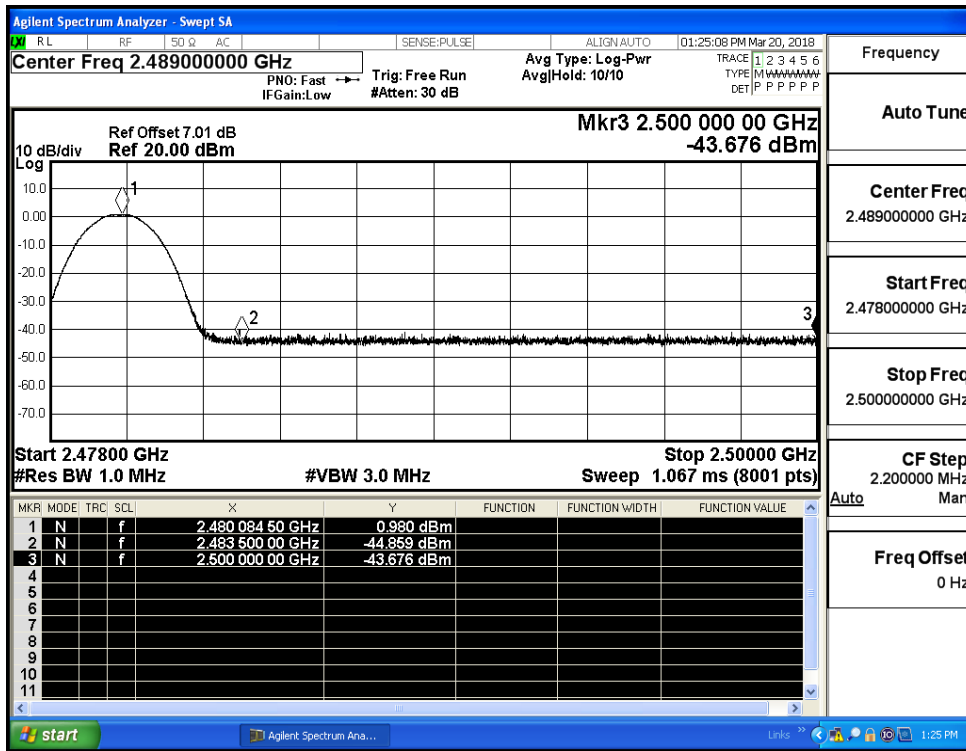
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)



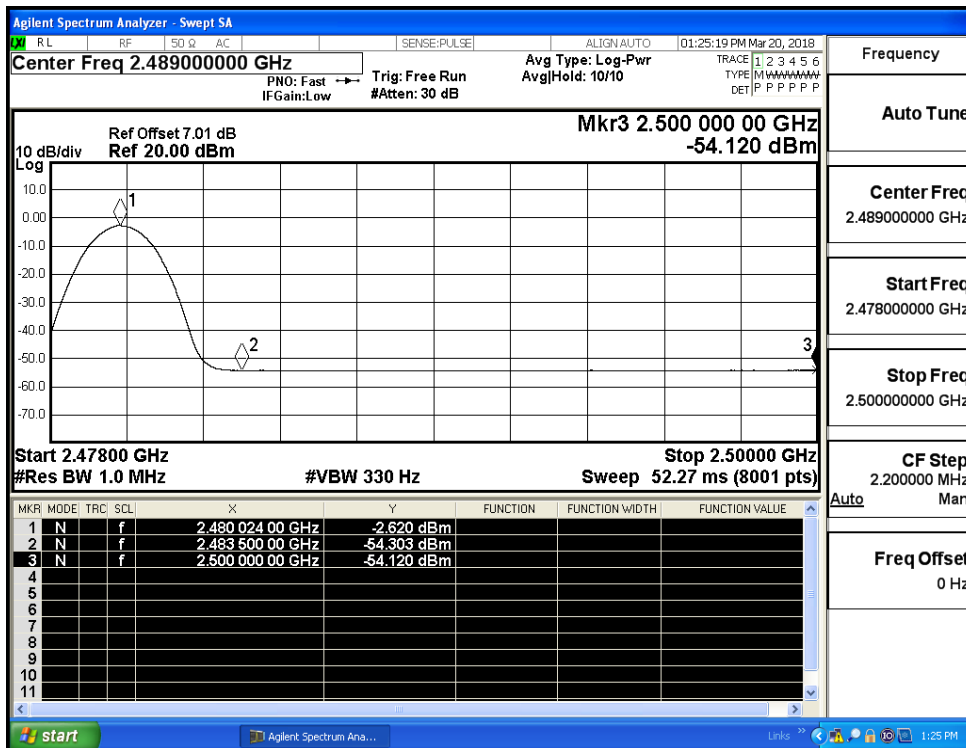
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)



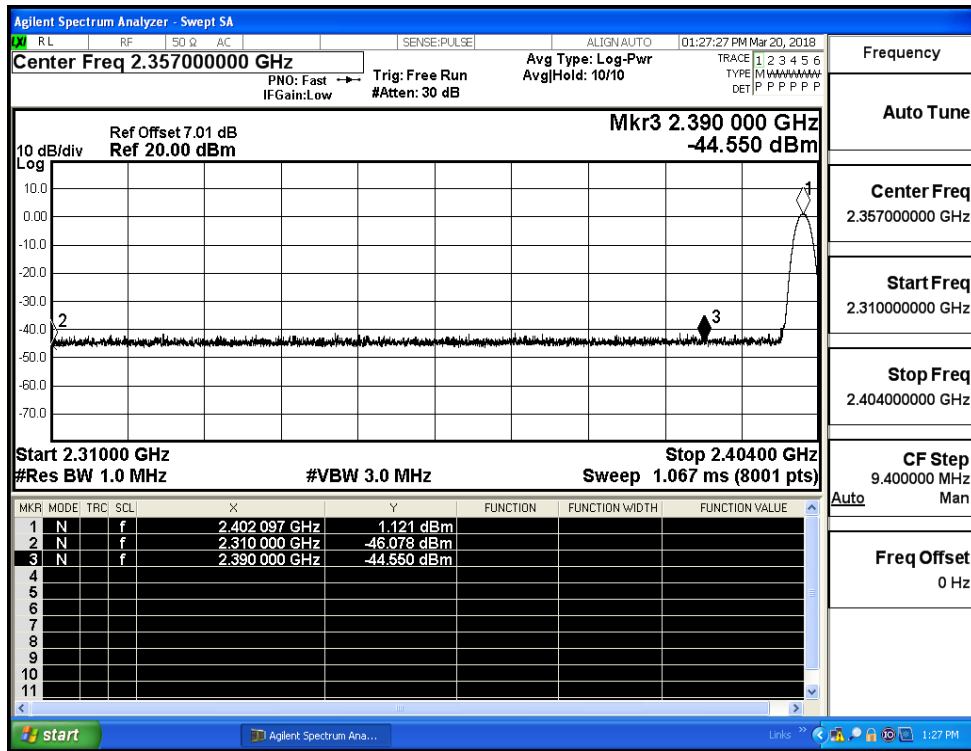
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



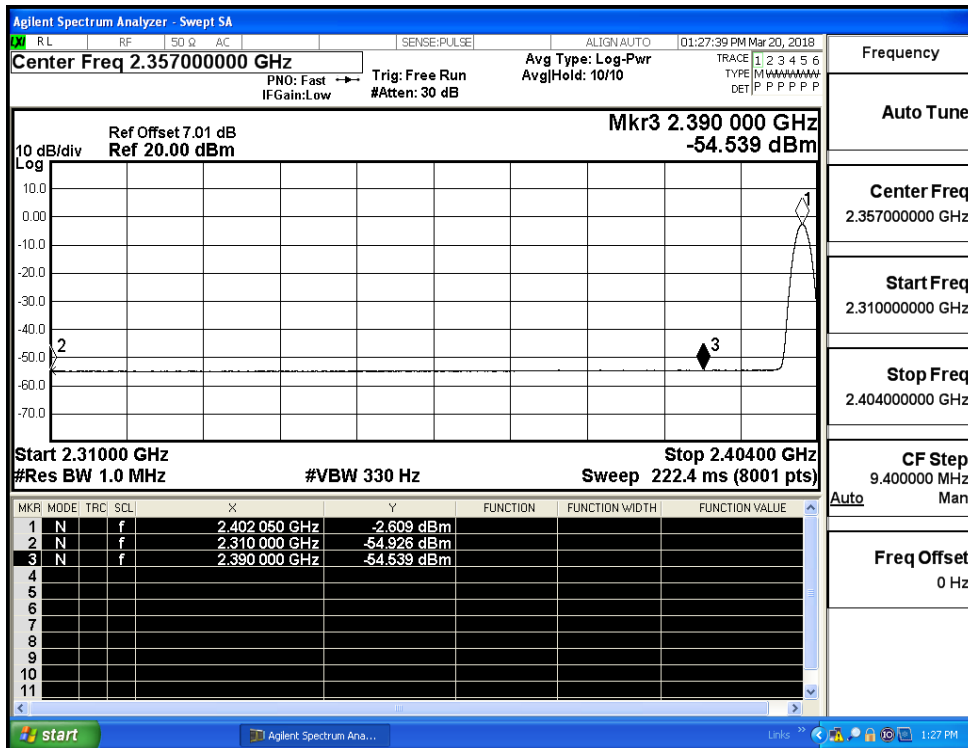
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



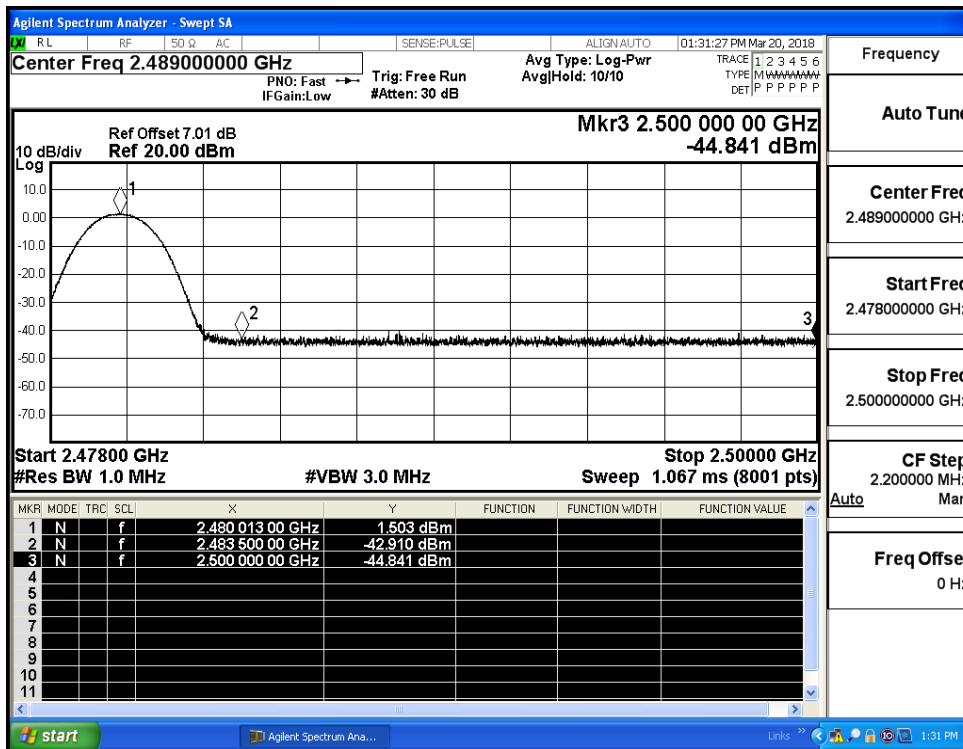
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

