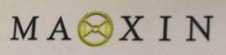


Appendix A

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

Product Name: Network audio system (built-in amplifier)

Trade Mark:  X I N
Test Model: RAPNAS MF-1

Environmental Conditions

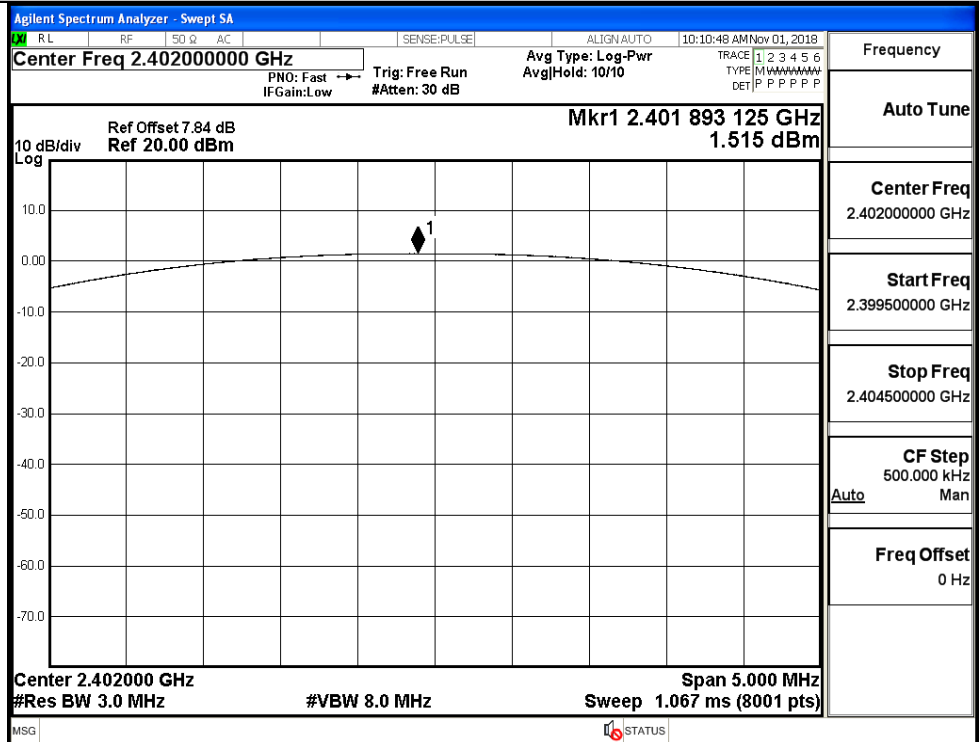
Temperature:	23.5 ° C
Relative Humidity:	54.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Tom Liu
Supervised by:	Jayden Zhuo

A.1 Maximum Conducted Peak Output Power

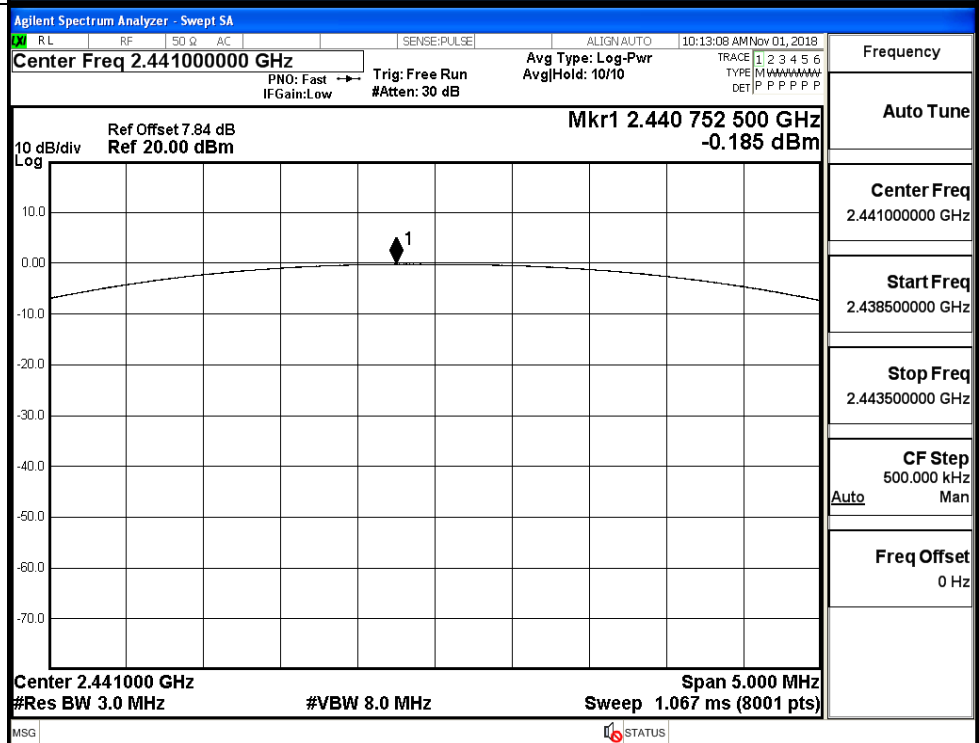
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.515	21	PASS
	MCH	-0.185	21	PASS
	HCH	0.275	21	PASS
$\pi/4$ DQPSK	LCH	0.732	21	PASS
	MCH	-0.811	21	PASS
	HCH	-0.588	21	PASS
8DPSK	LCH	0.881	21	PASS
	MCH	-0.642	21	PASS
	HCH	-0.387	21	PASS

Test Graphs

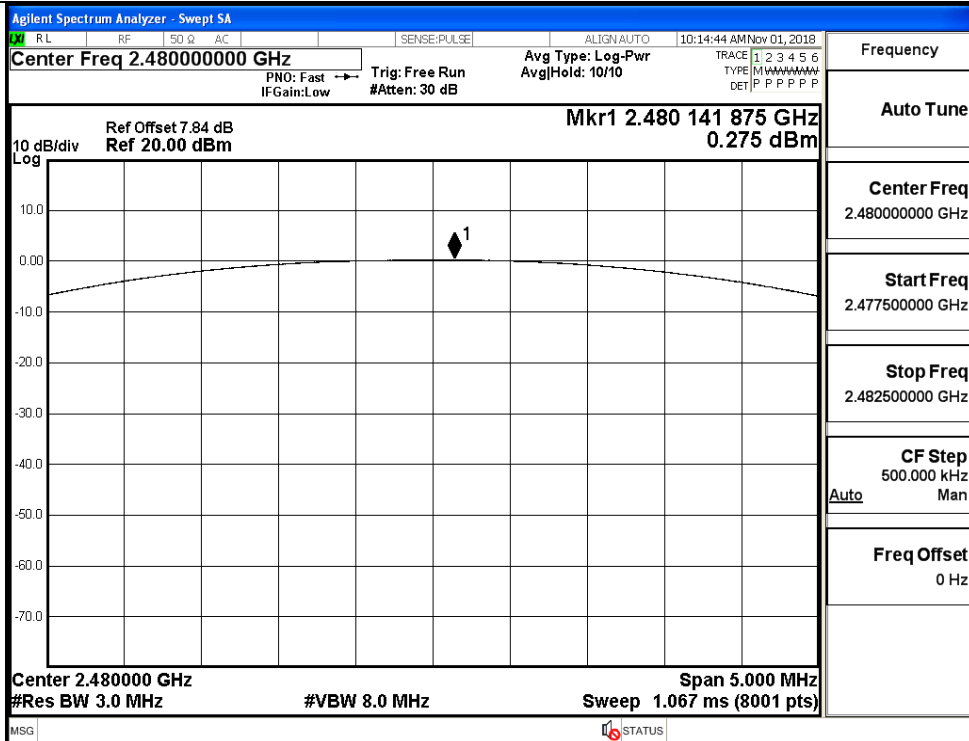
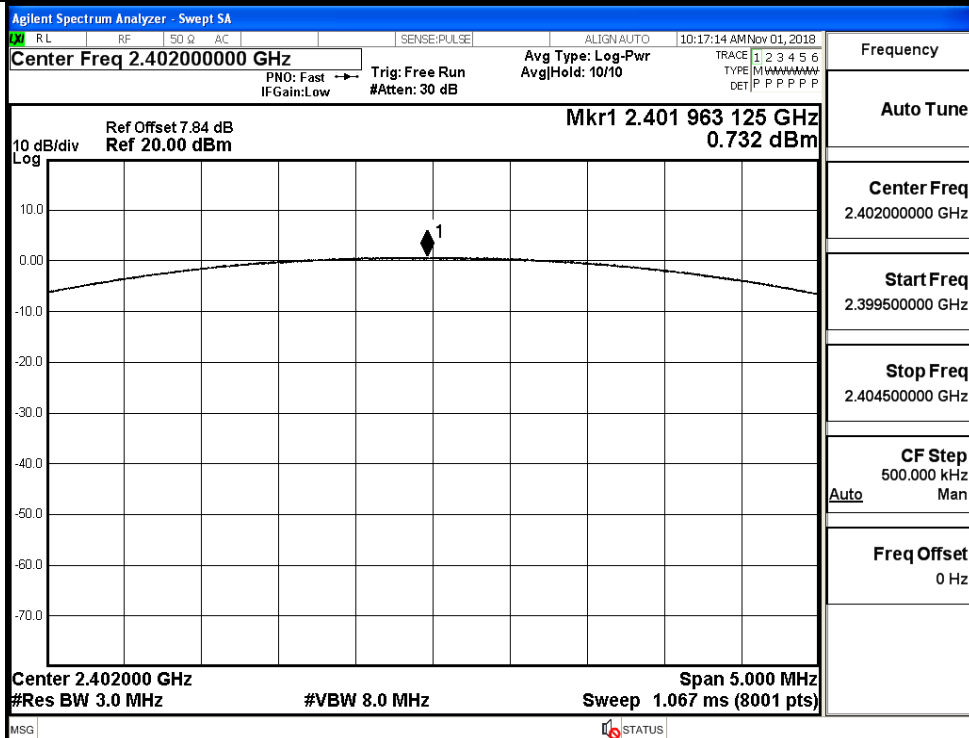
GFSK/LCH

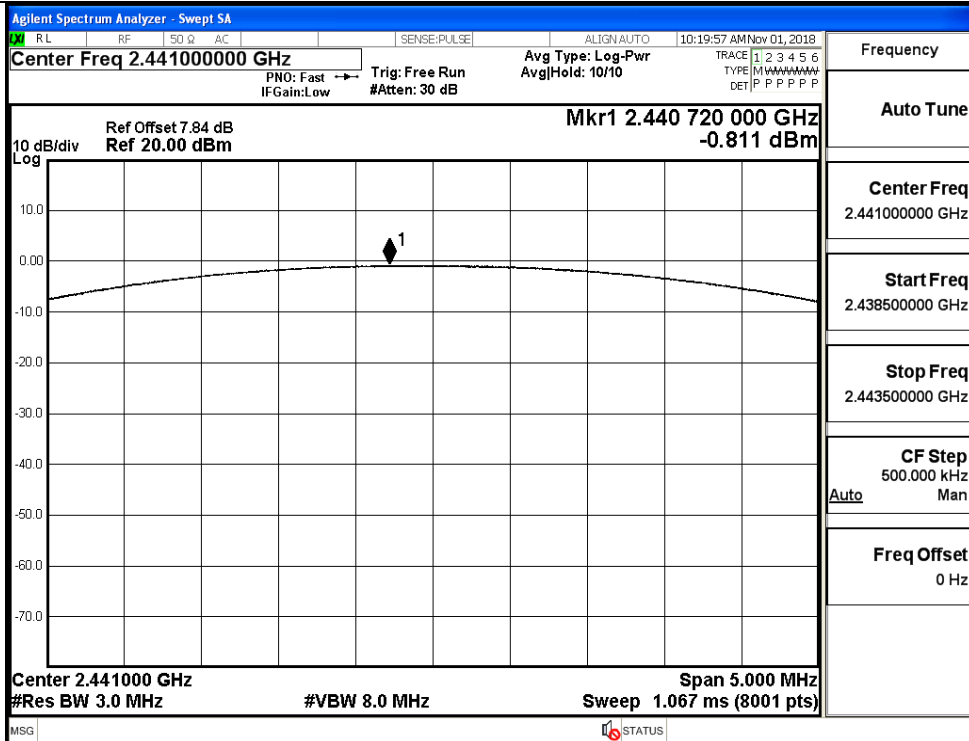
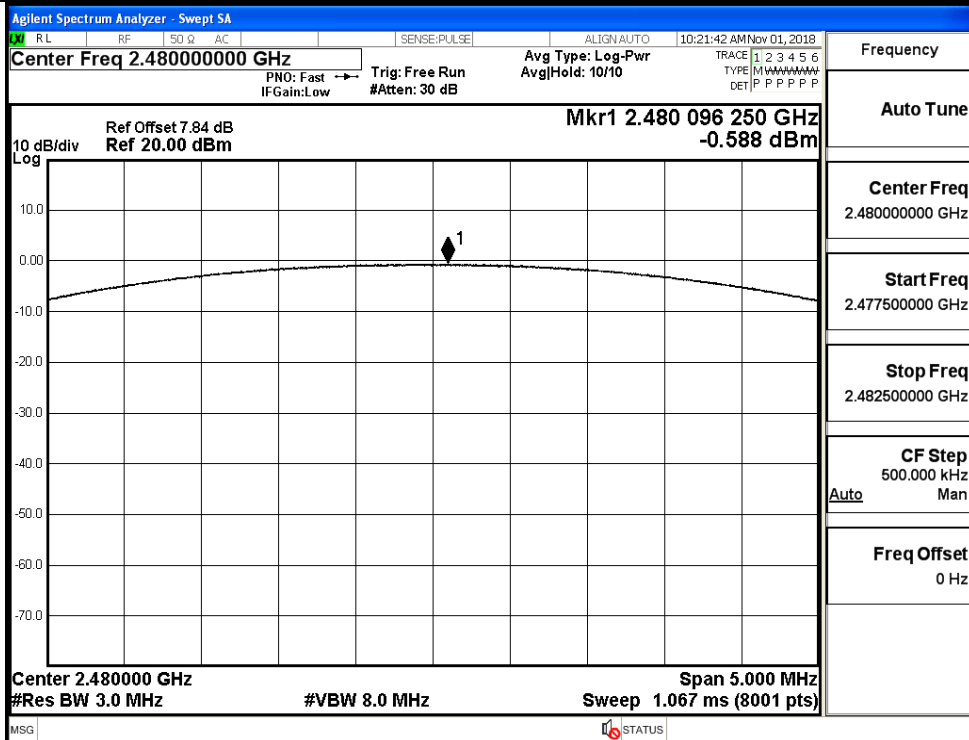


GFSK/MCH

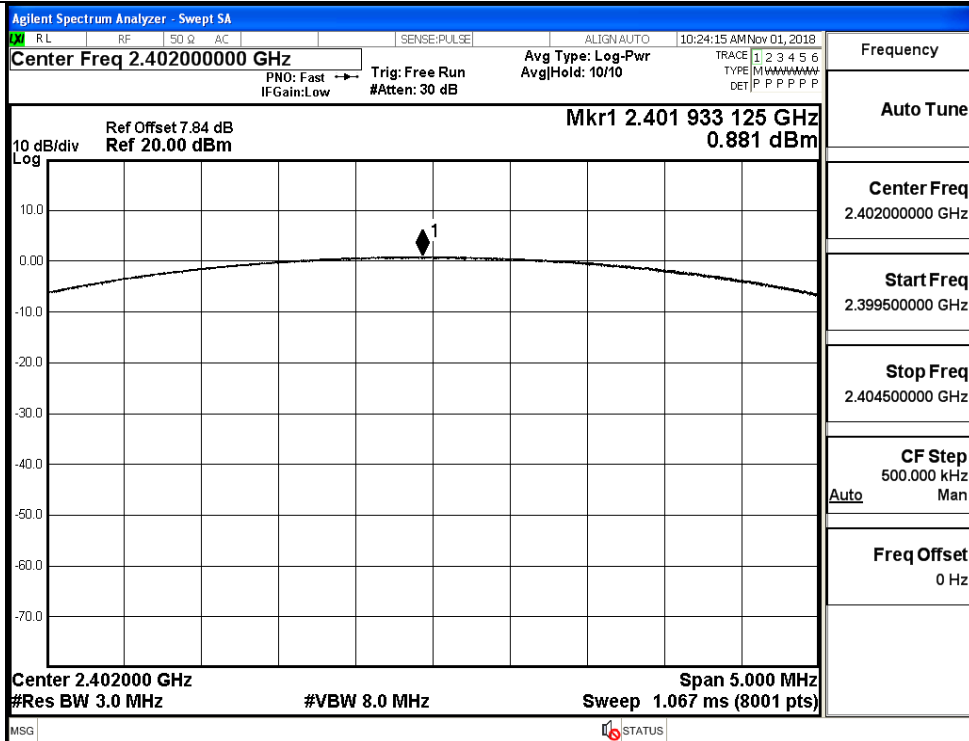


GFSK/HCH

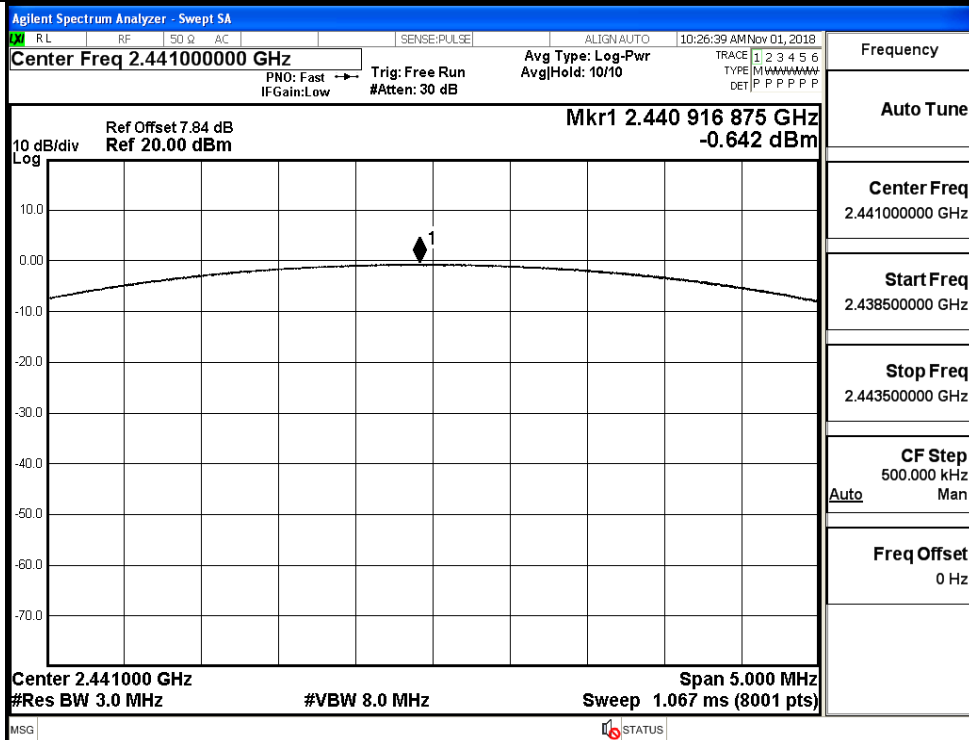
 π /4DQPSK/LCH

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

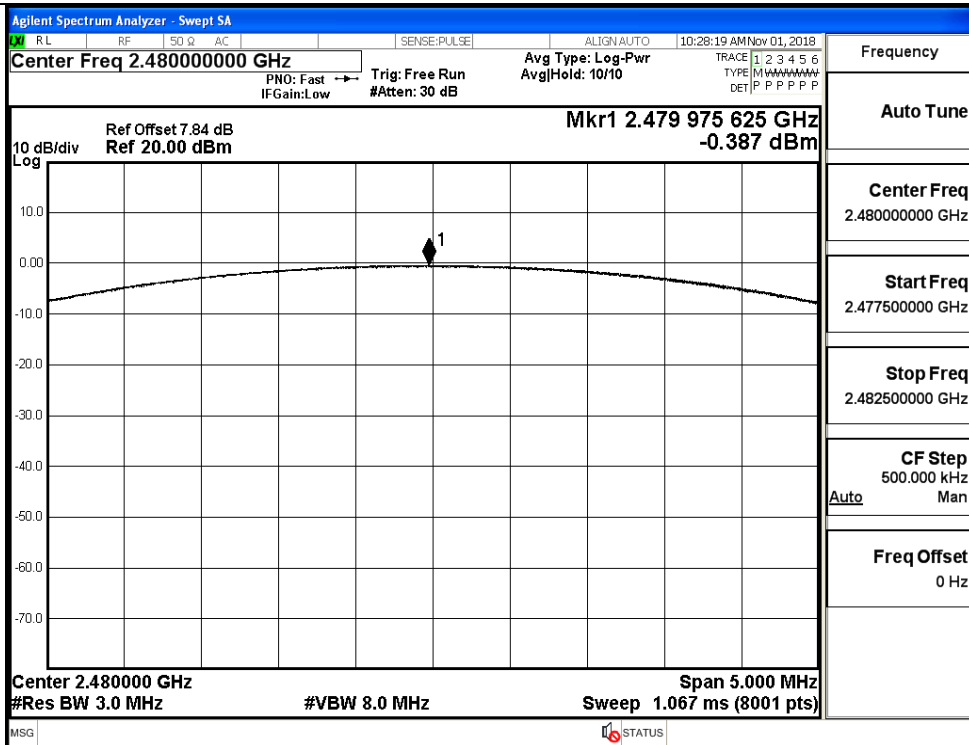
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

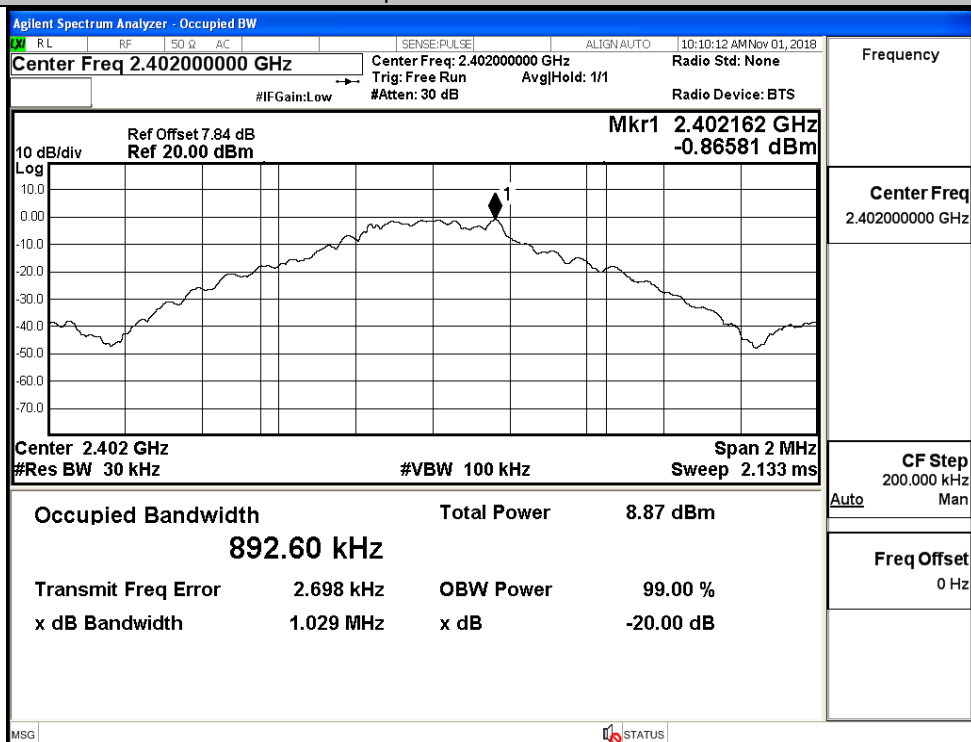


A.2 99% and 20dB Bandwidth

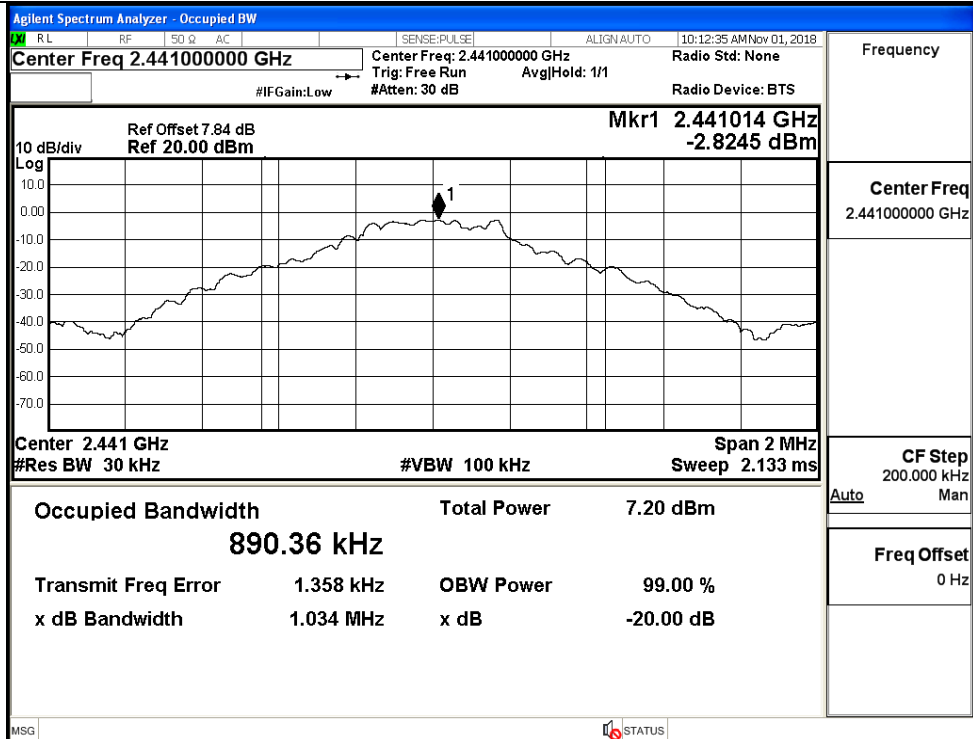
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89260	1.029	Not Specified	PASS
	MCH	0.89036	1.034	Not Specified	PASS
	HCH	0.89384	0.9718	Not Specified	PASS
π /4DQPSK	LCH	1.1687	1.288	Not Specified	PASS
	MCH	1.1790	1.314	Not Specified	PASS
	HCH	1.1691	1.288	Not Specified	PASS
8DPSK	LCH	1.1825	1.308	Not Specified	PASS
	MCH	1.1958	1.299	Not Specified	PASS
	HCH	1.1787	1.295	Not Specified	PASS

Test Graphs

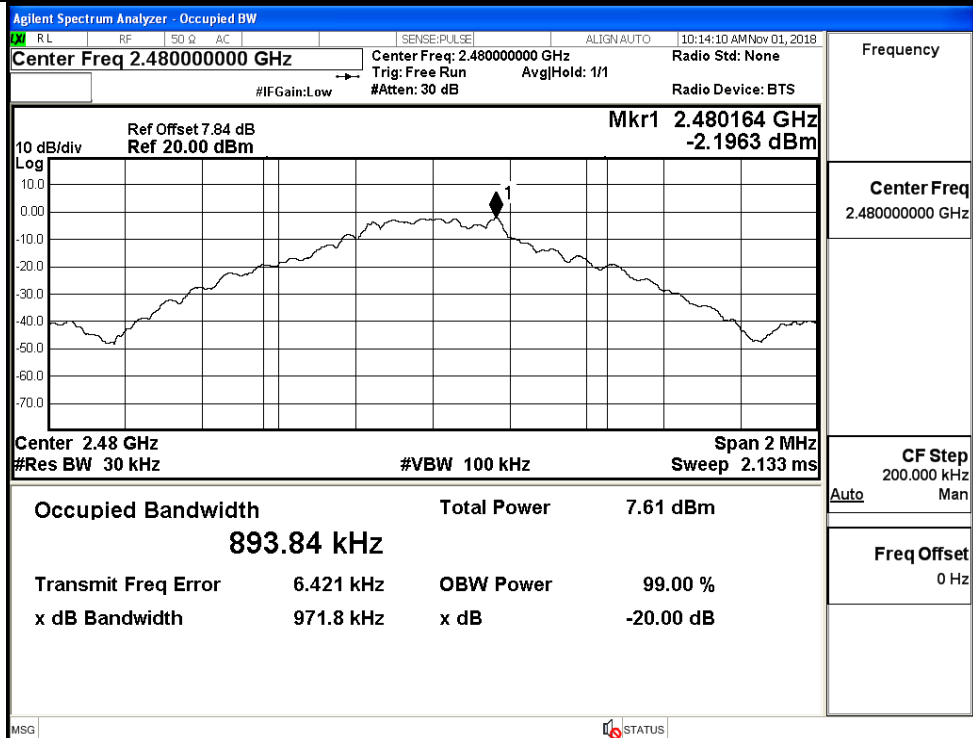
GFSK/LCH

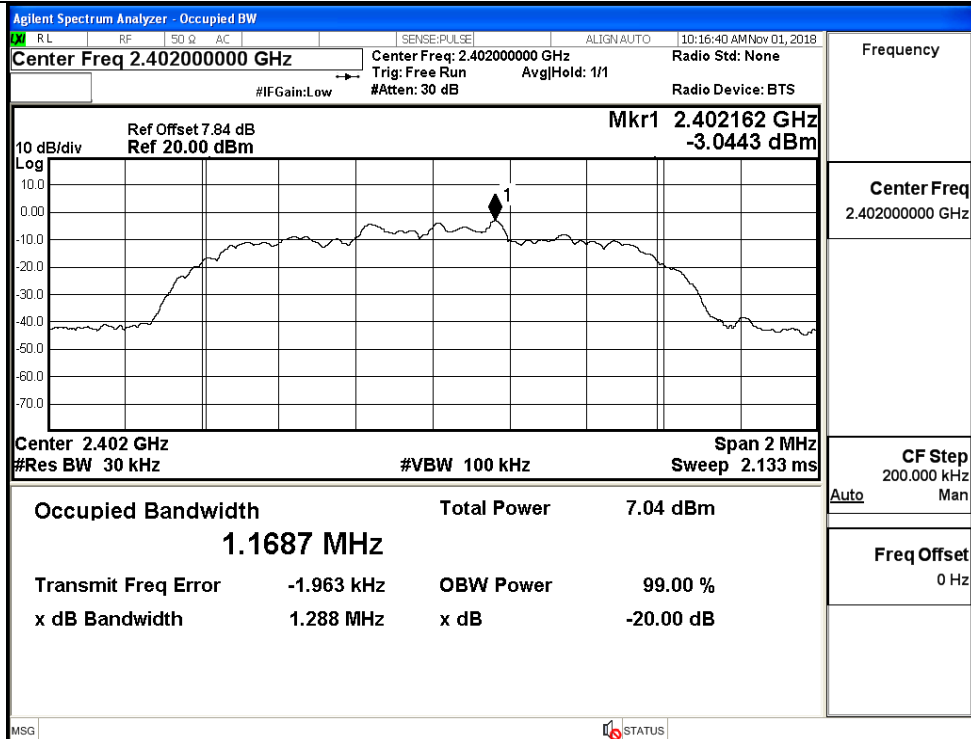
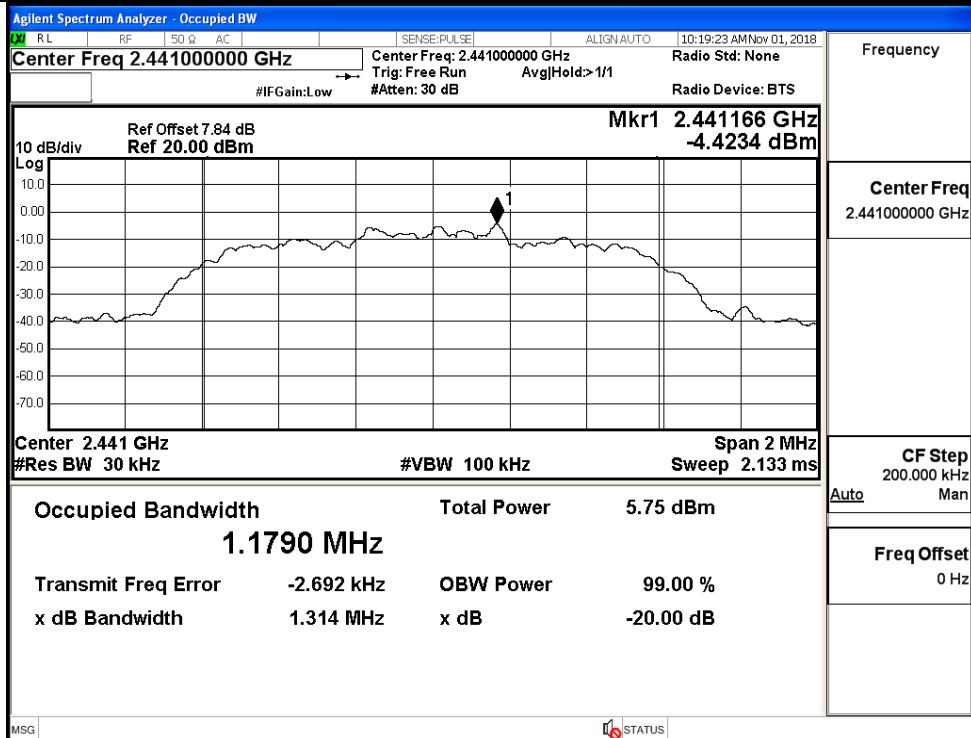


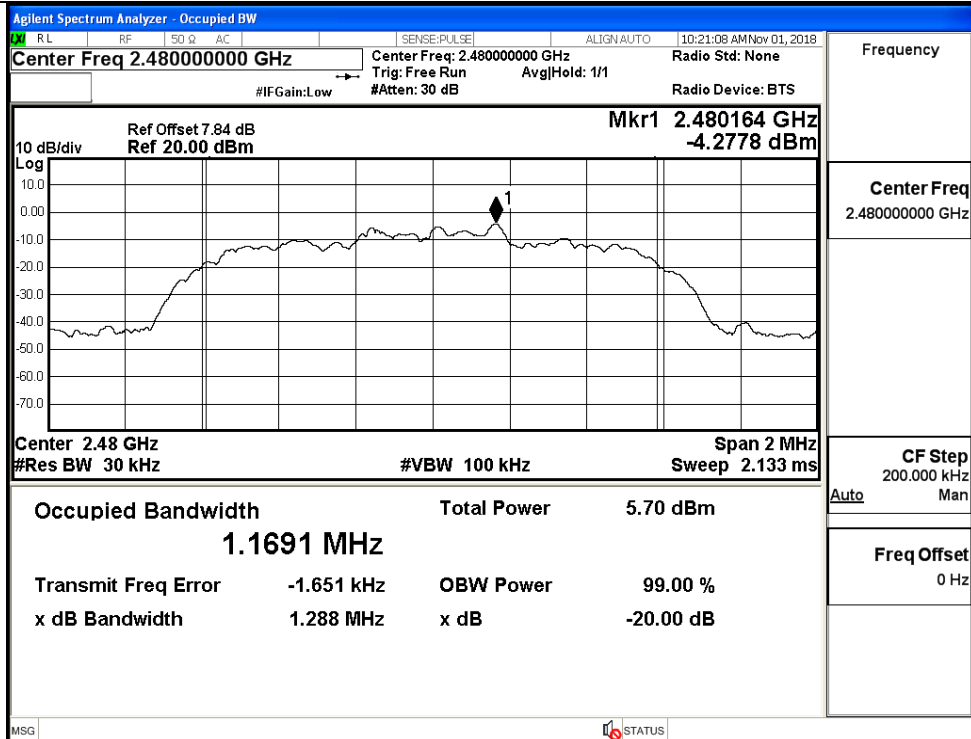
GFSK/MCH



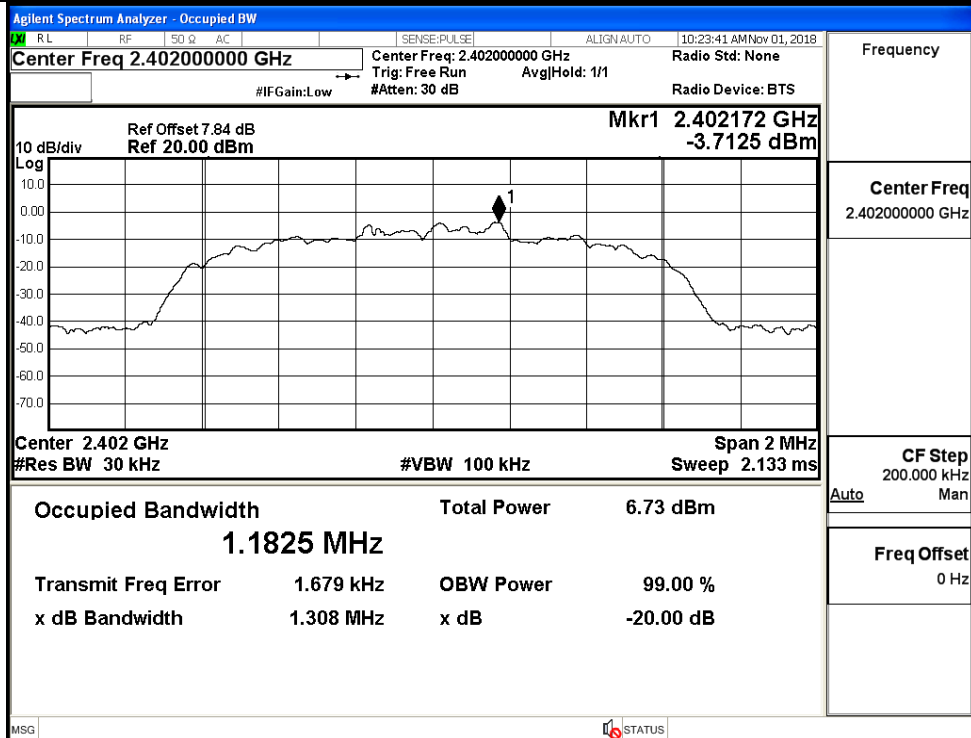
GFSK/HCH



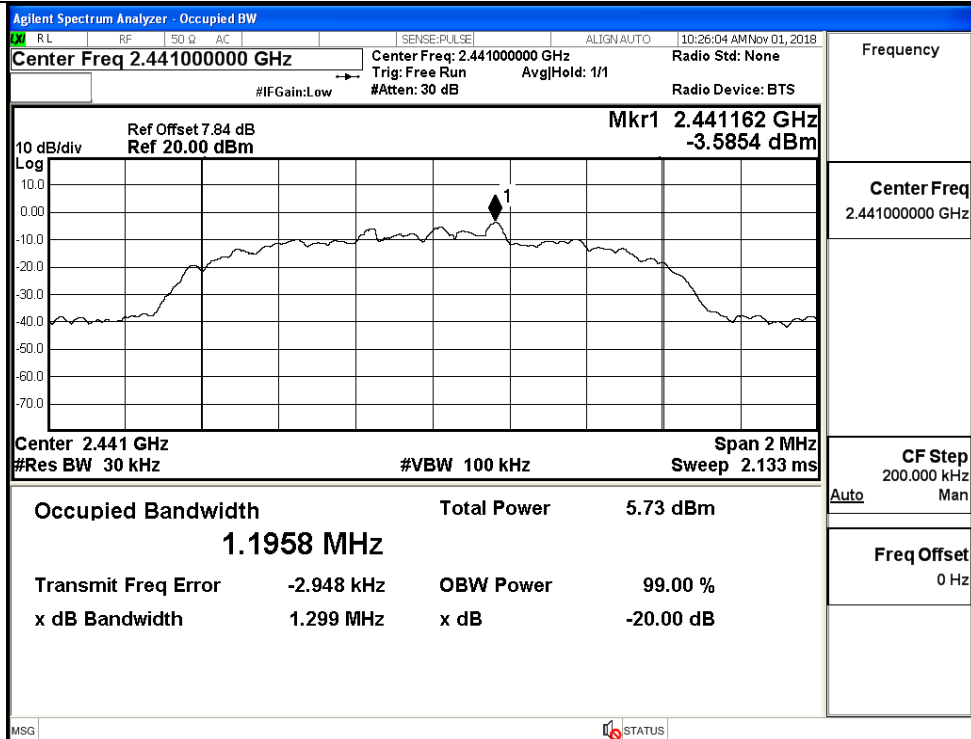
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

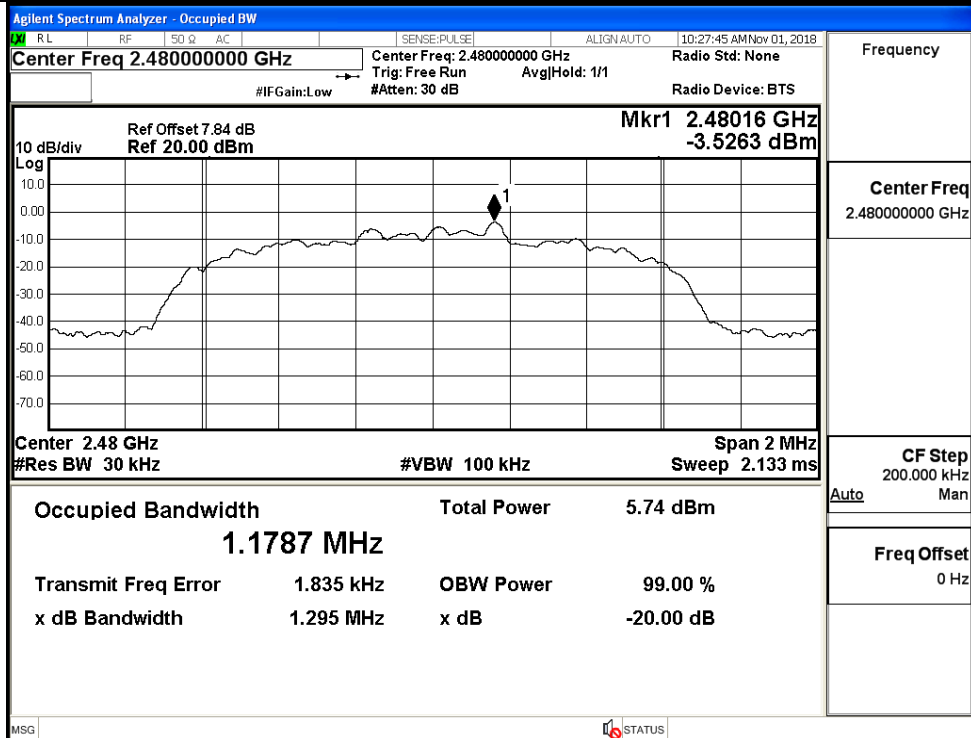
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

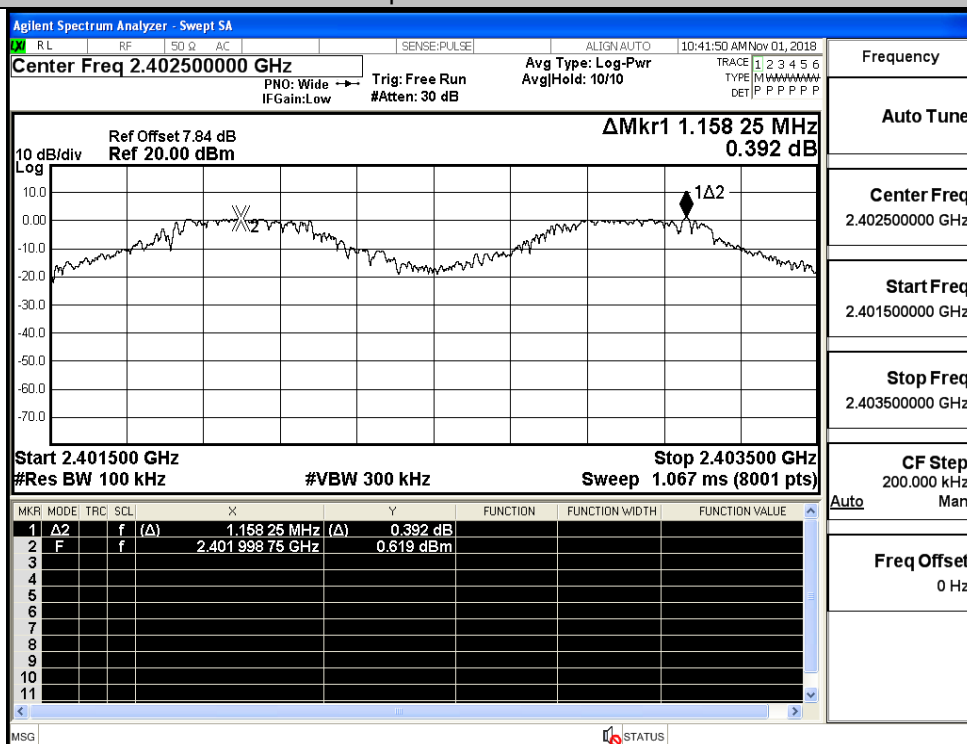


A.3 Carrier Frequency Separation

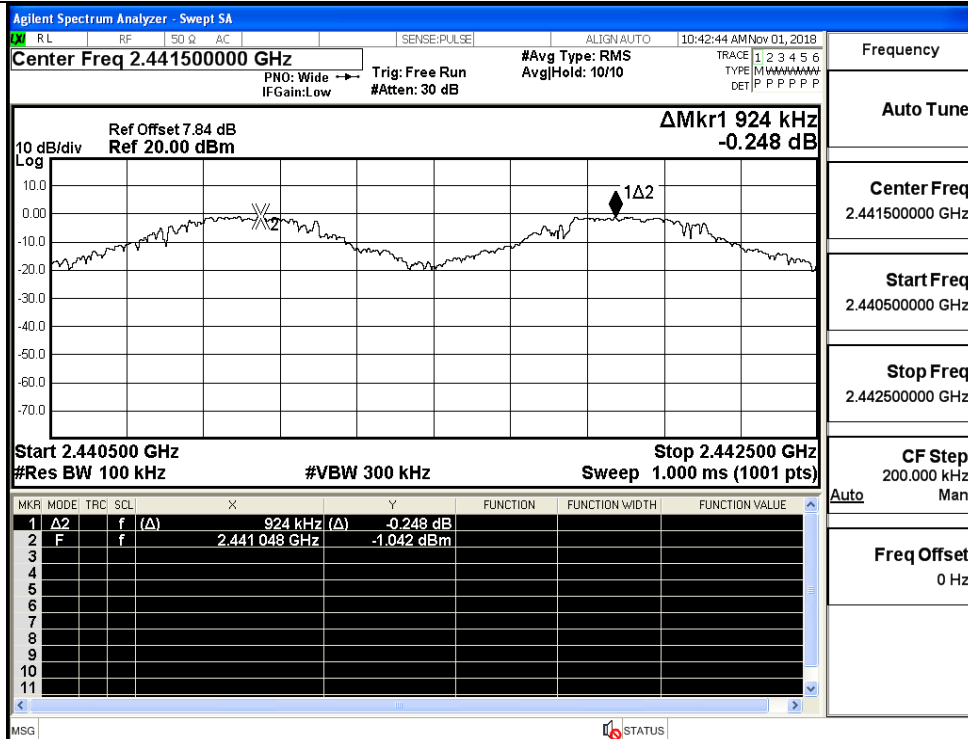
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.158	0.689	PASS
	MCH	0.924	0.689	PASS
	HCH	1.100	0.689	PASS
$\pi/4$ DQPSK	LCH	1.288	0.876	PASS
	MCH	1.342	0.876	PASS
	HCH	1.086	0.876	PASS
8DPSK	LCH	1.278	0.872	PASS
	MCH	1.166	0.872	PASS
	HCH	1.060	0.872	PASS

Test Graphs

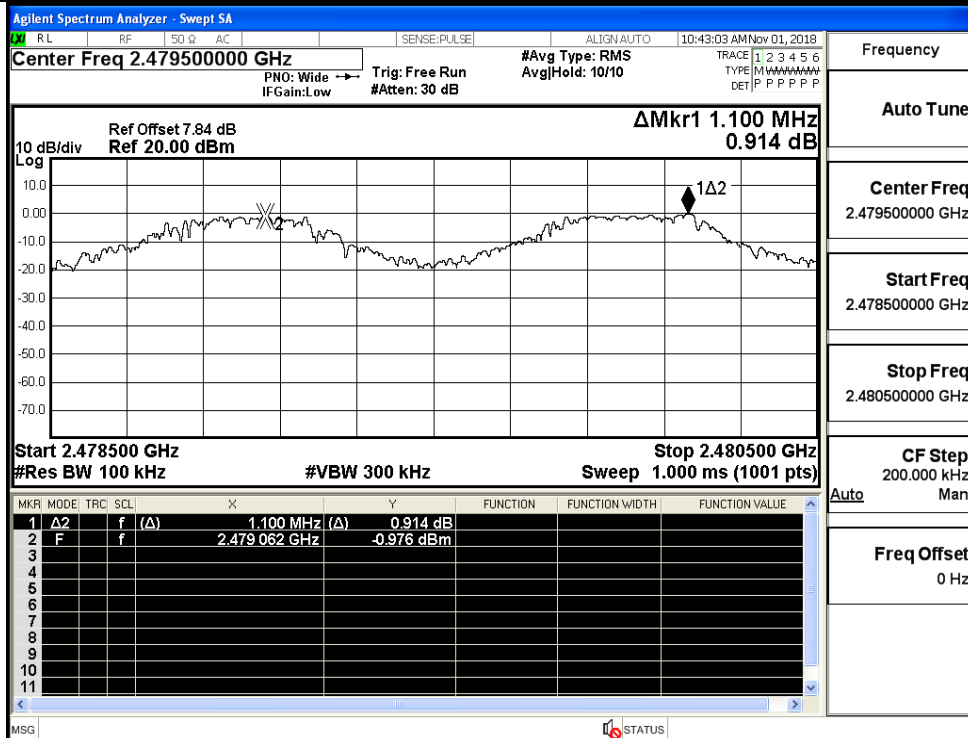
GFSK/LCH

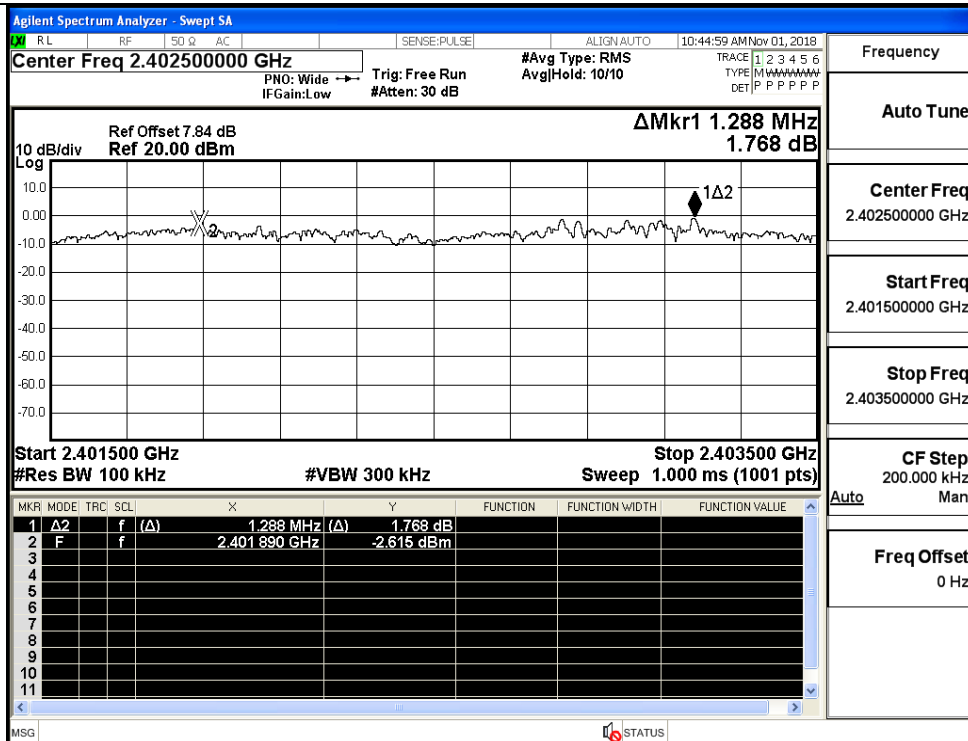
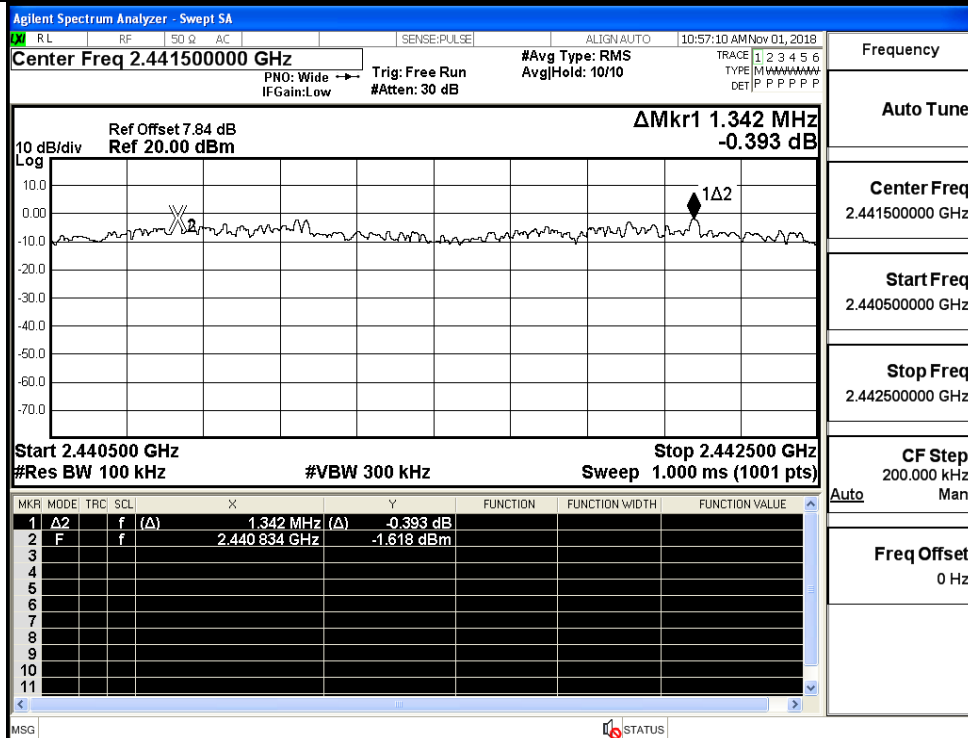


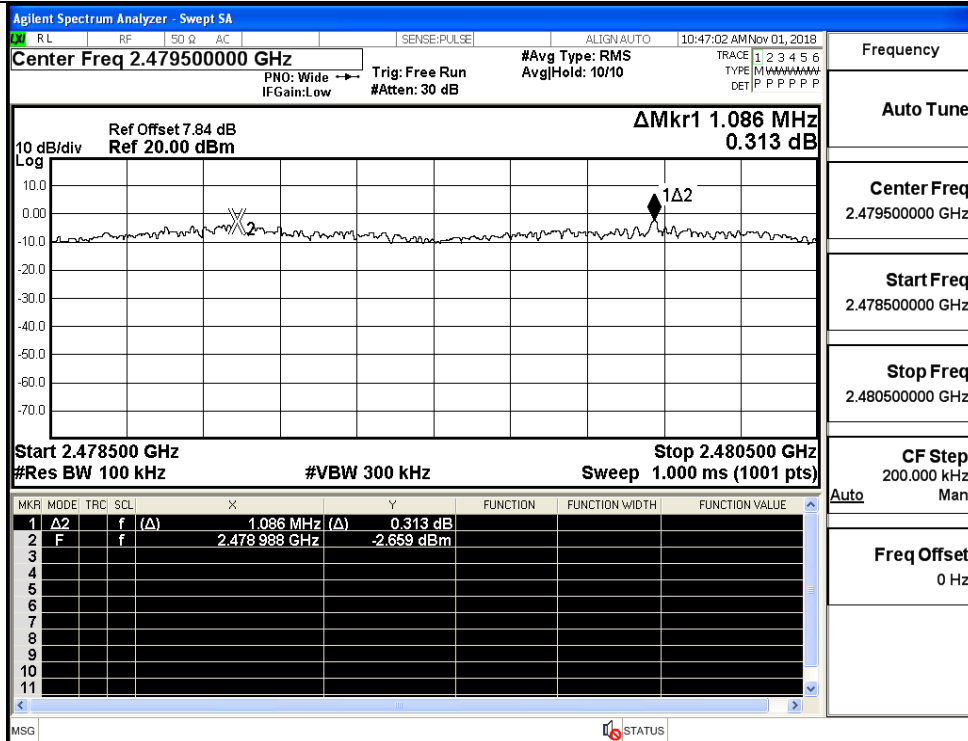
GFSK/MCH



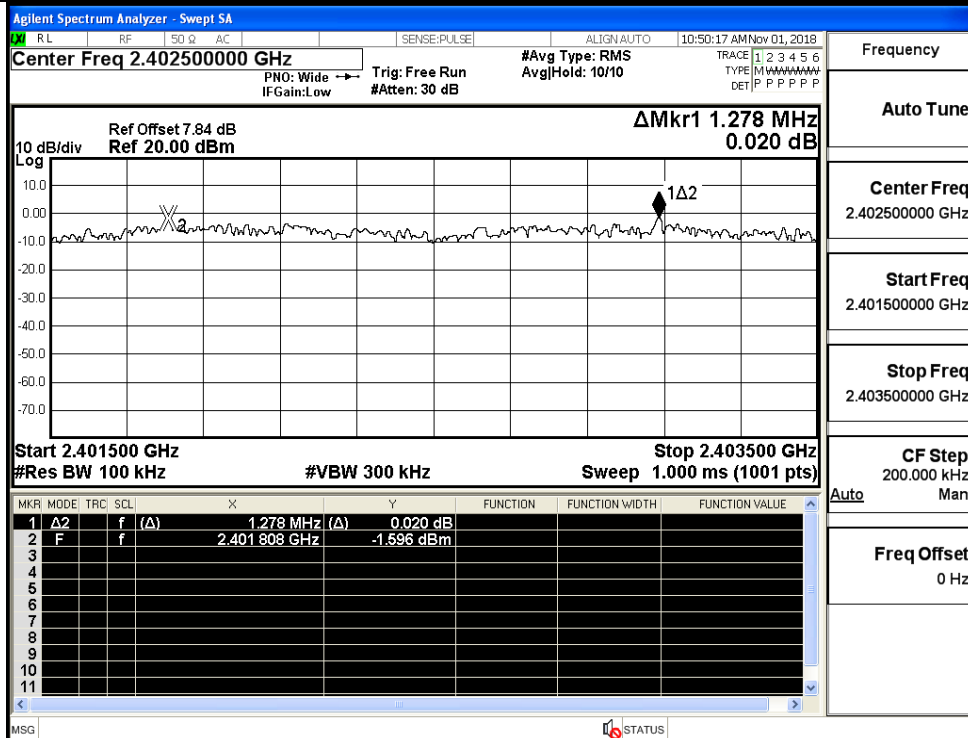
GFSK/HCH



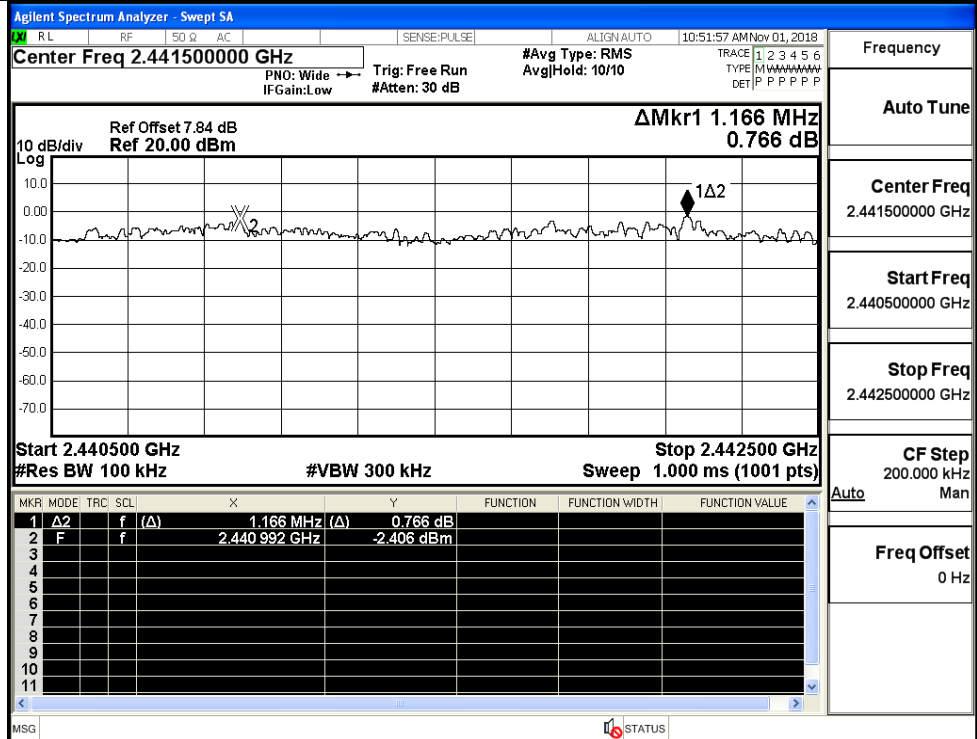
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

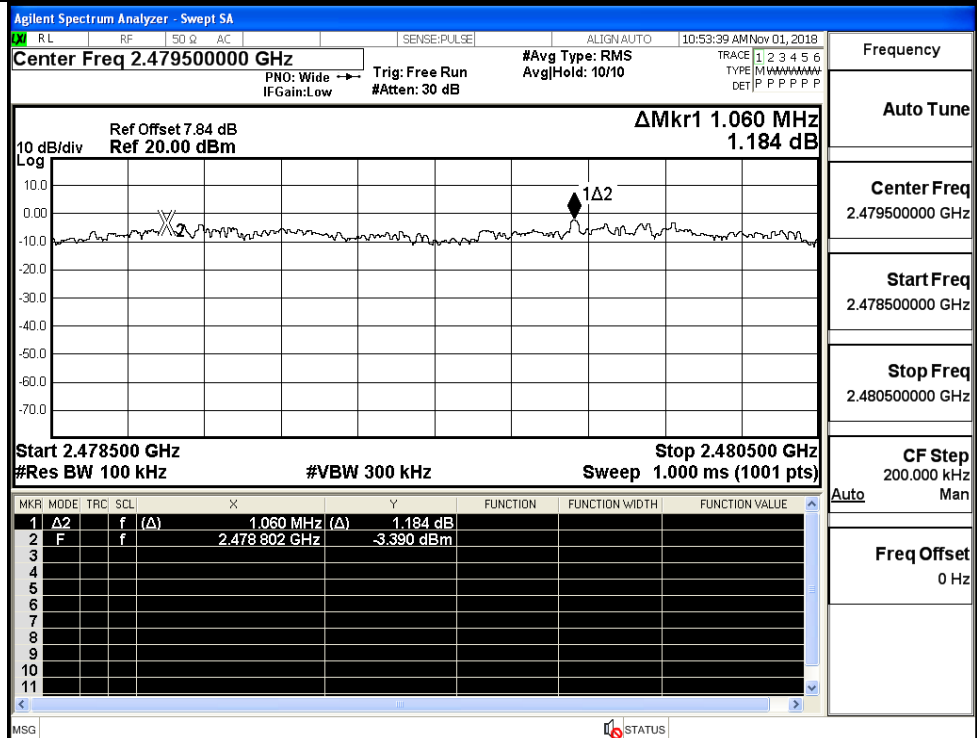
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

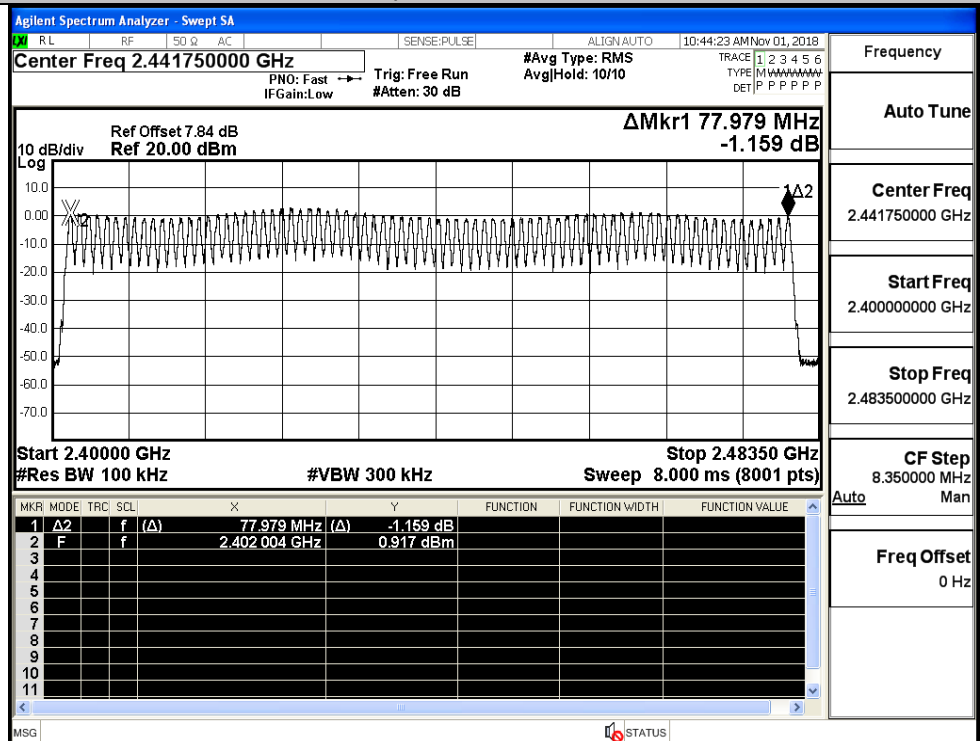
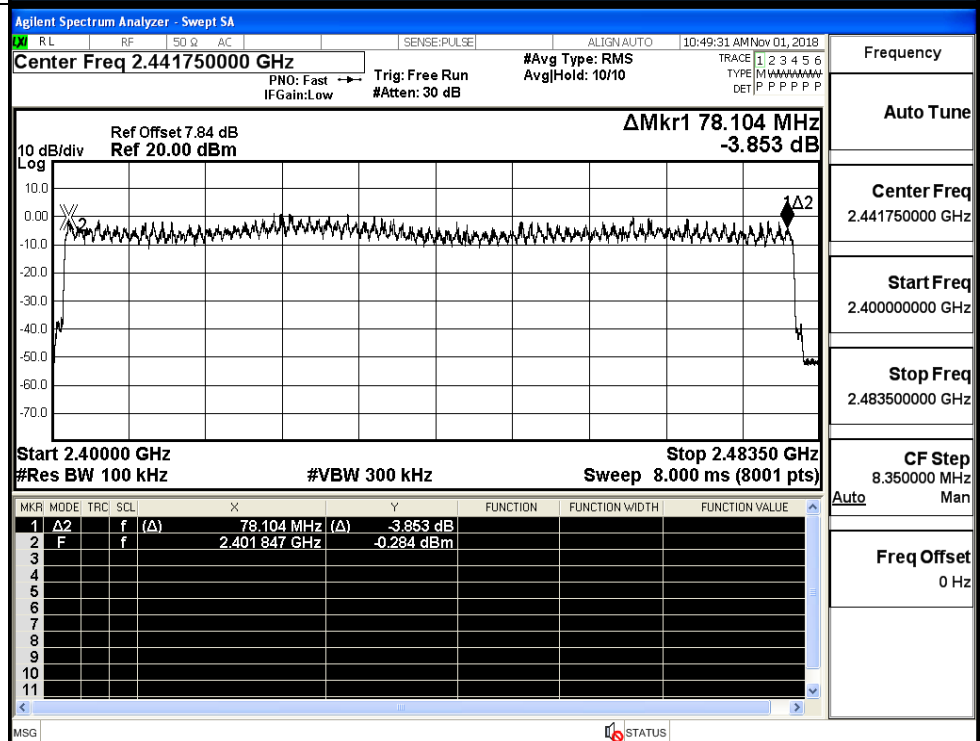


A.4 Hopping Channel Number

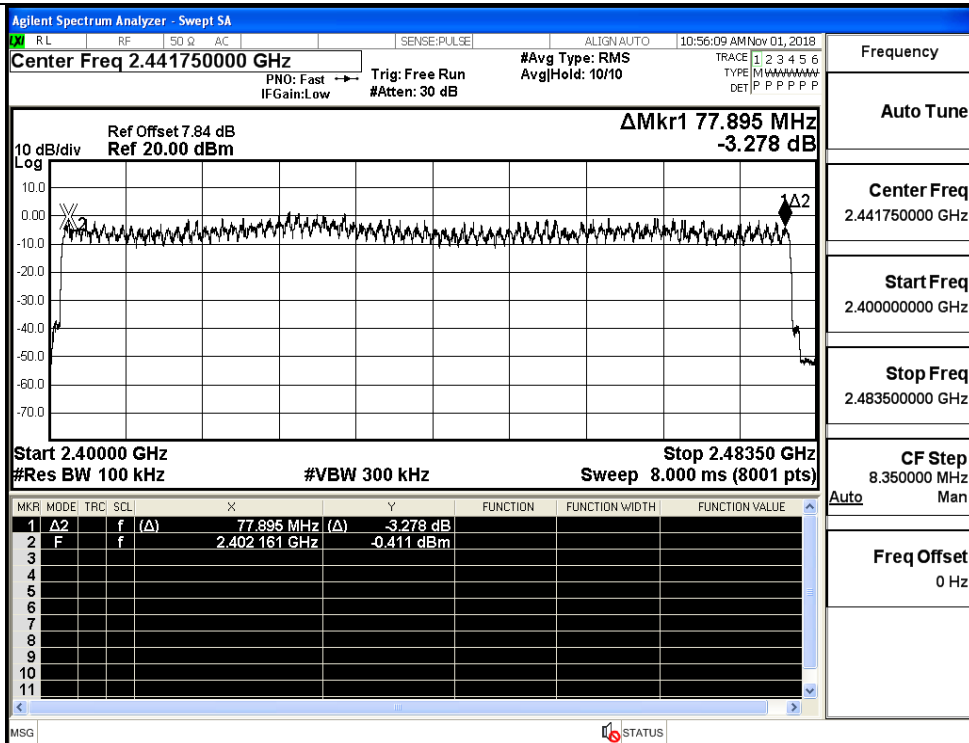
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

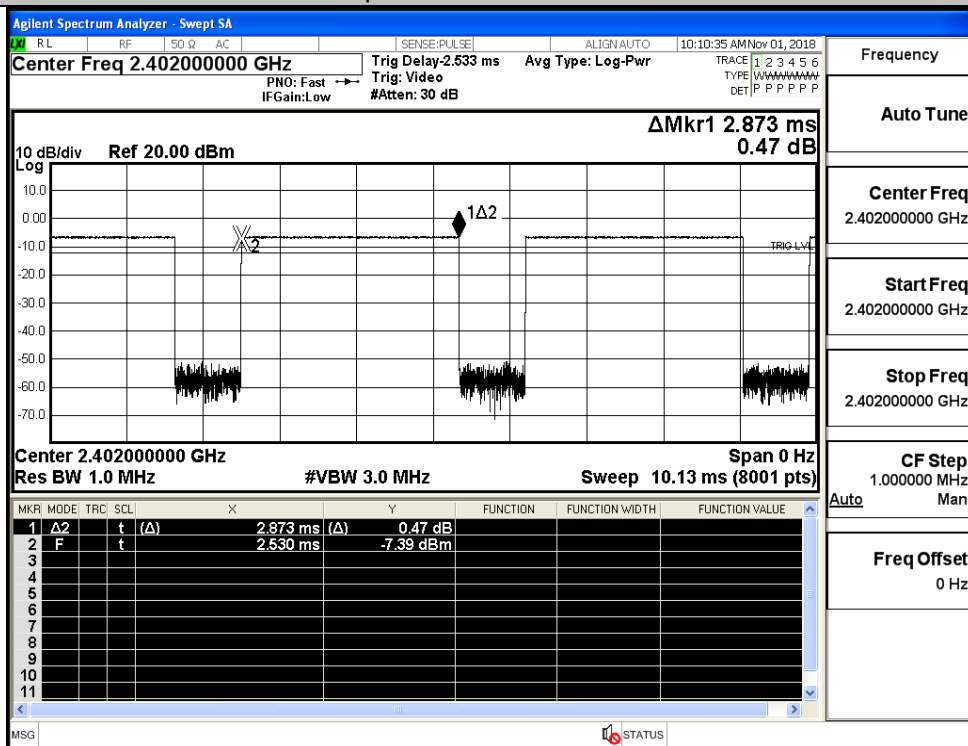


A.5 Dwell Time

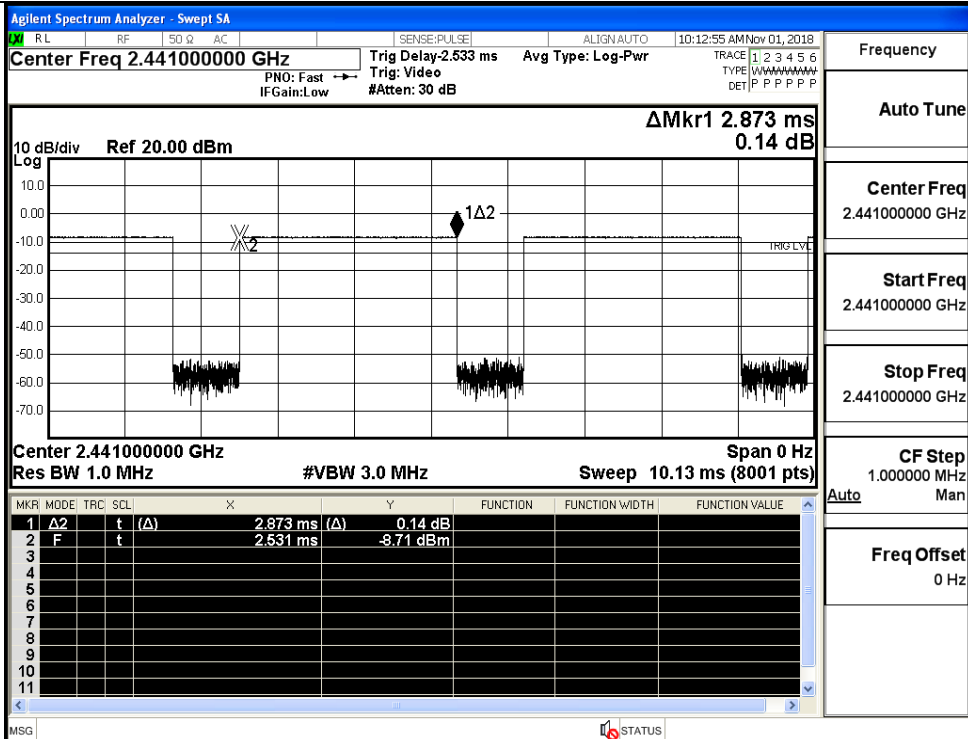
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.87	106.7	0.306	0.4	PASS
	DH5	MCH	2.87	106.7	0.306	0.4	PASS
	DH5	HCH	2.87	106.7	0.306	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	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	0.307	0.4	PASS

Test Graphs

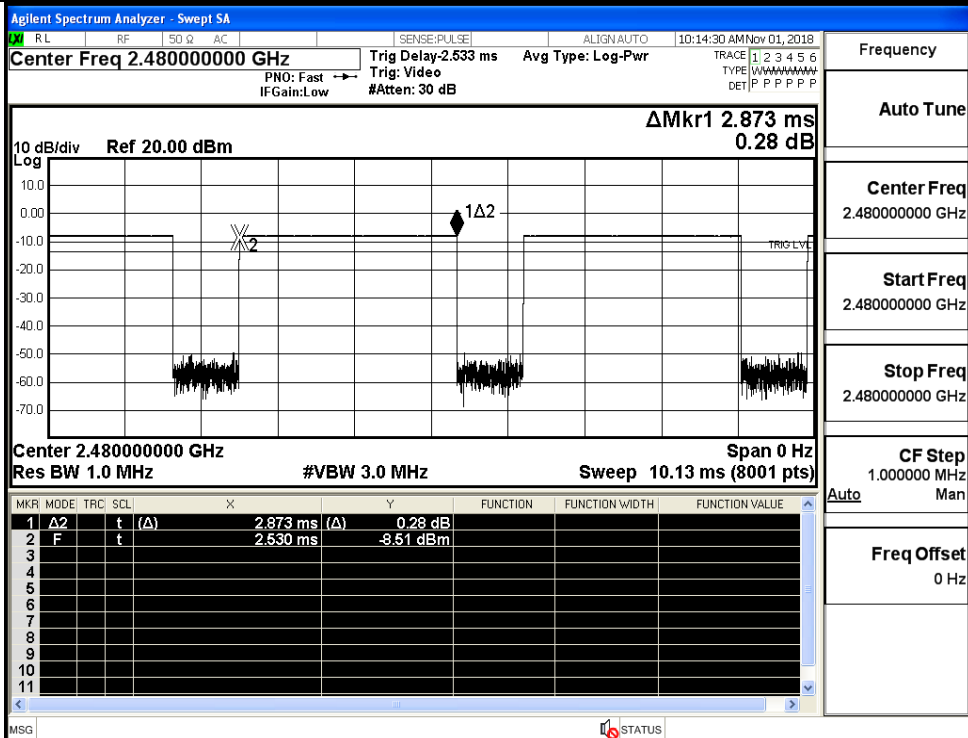
GFSK_DH5/LCH



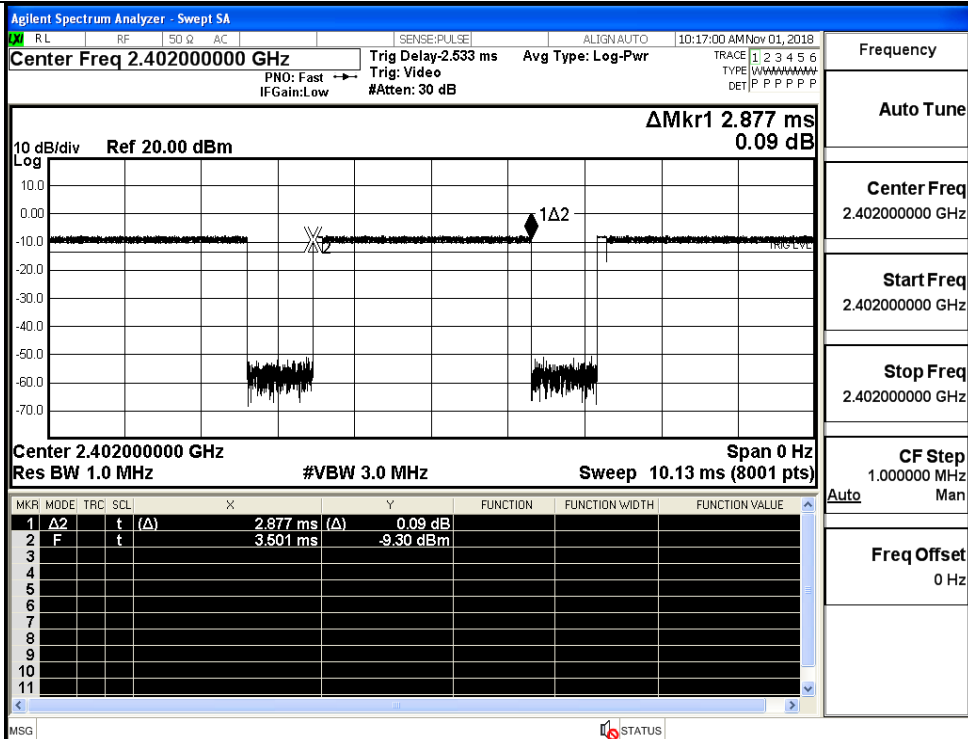
GFSK_DH5/MCH



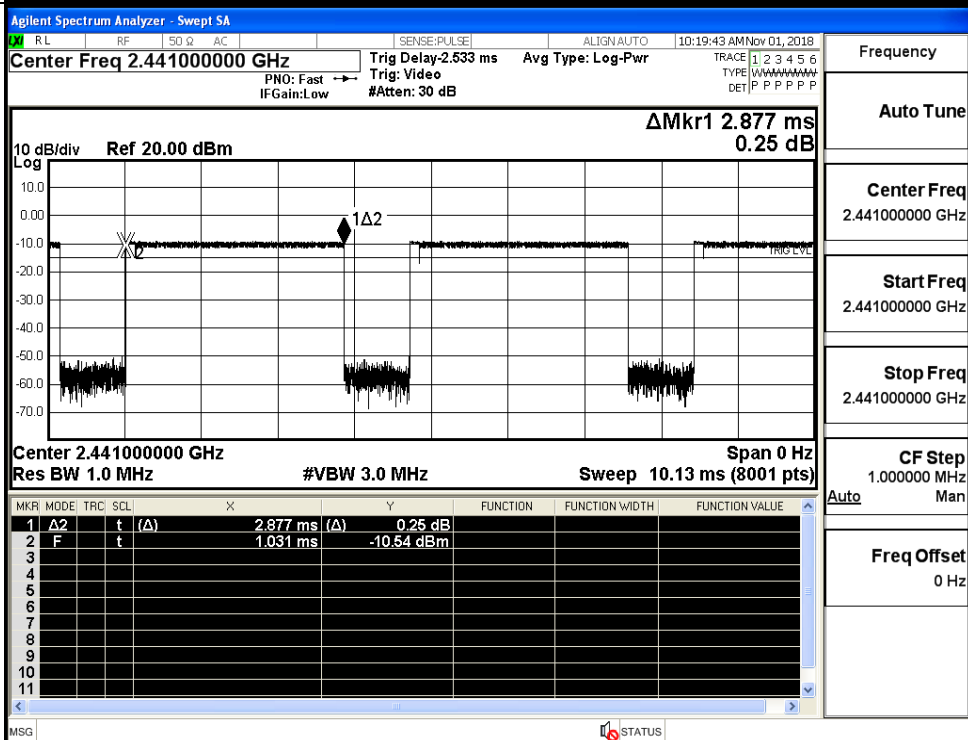
GFSK_DH5/HCH



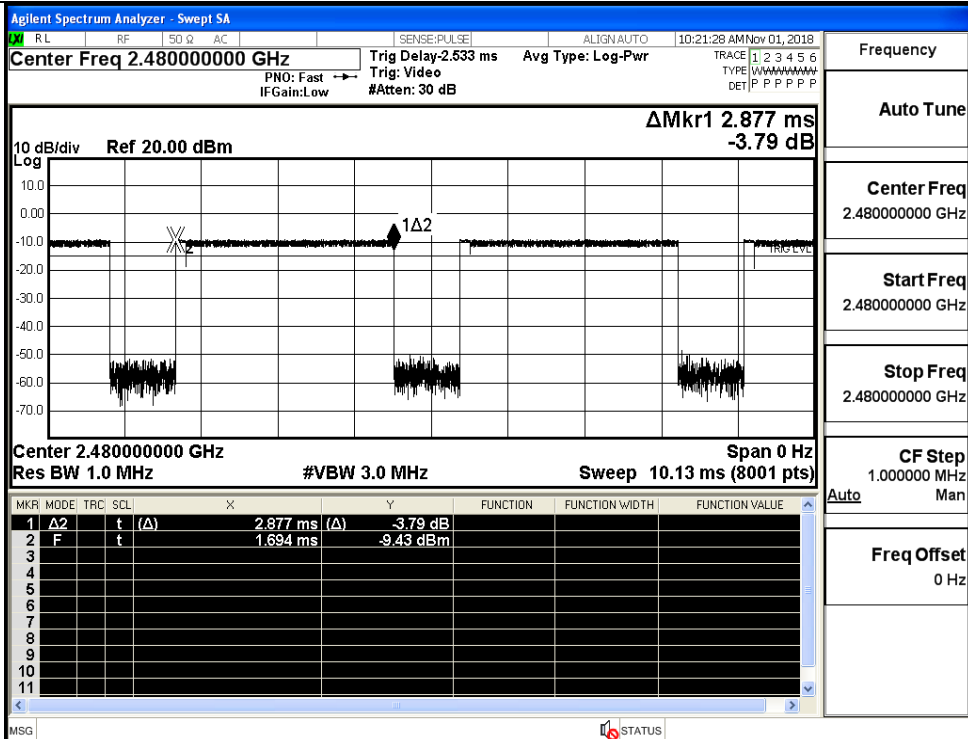
$\pi/4$ DQPSK
_2DH5/LCH



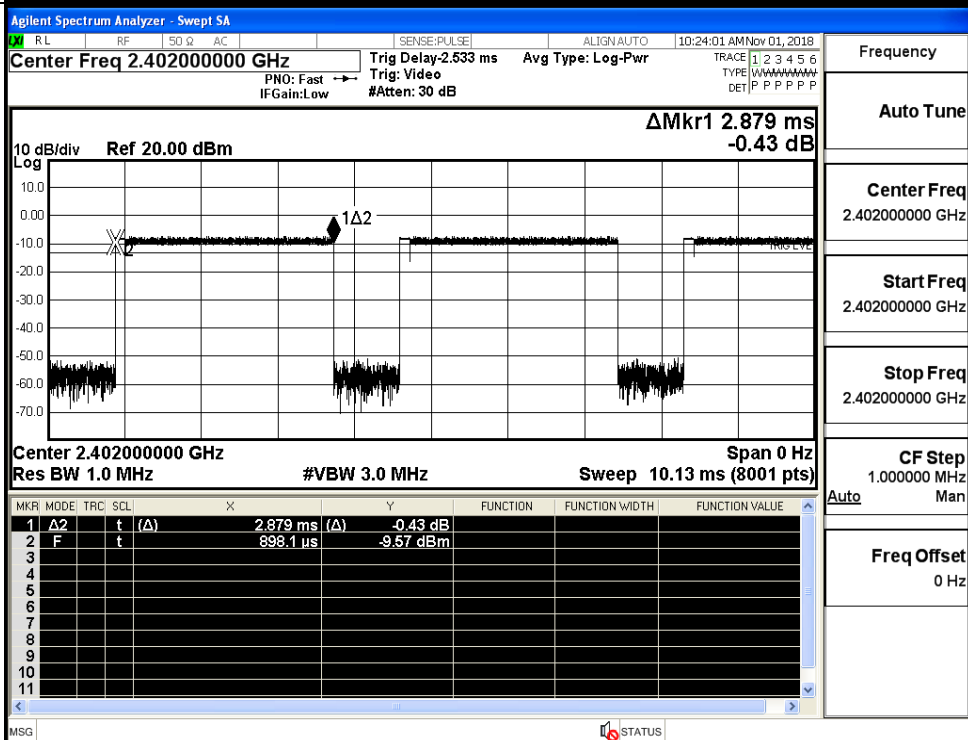
$\pi/4$ DQPSK
_2DH5/MCH



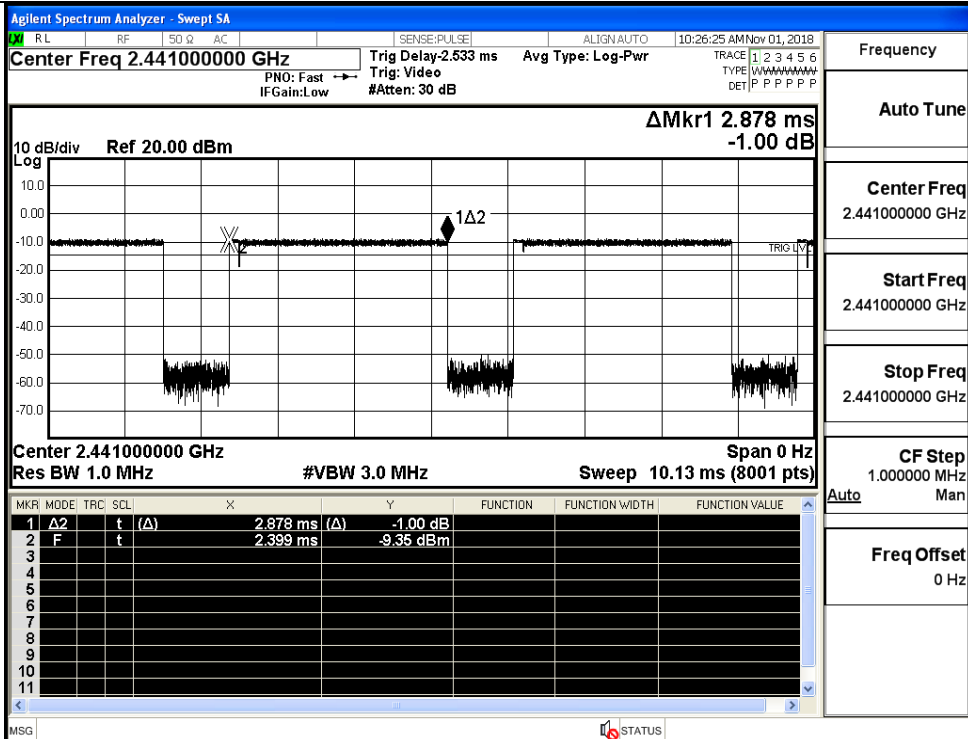
$\pi/4$ DQPSK
_2DH5/HCH



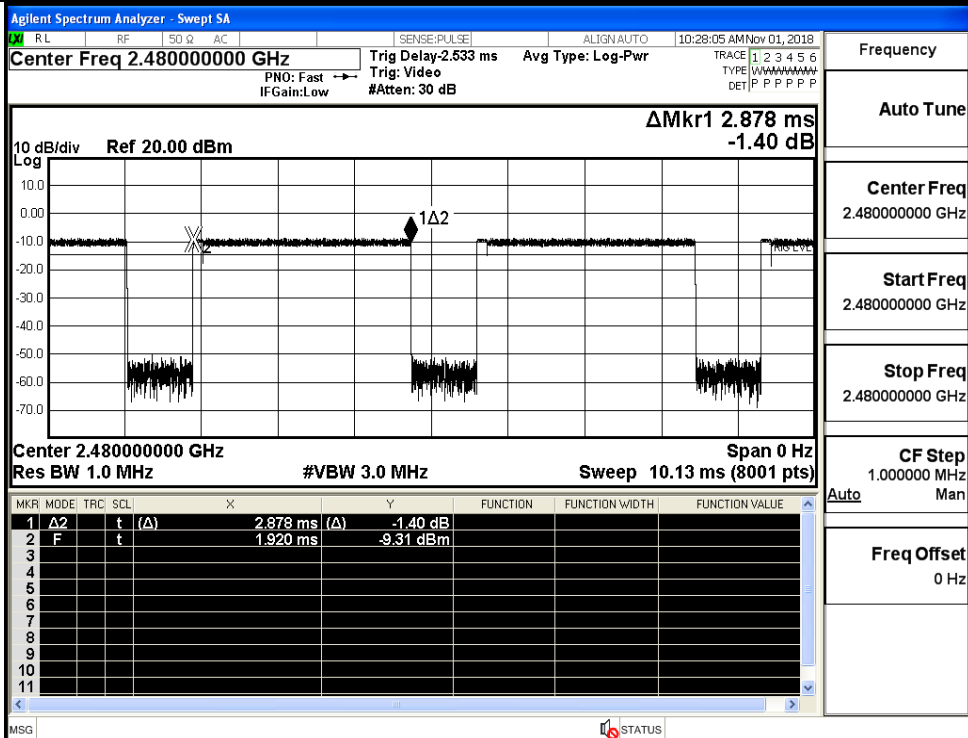
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

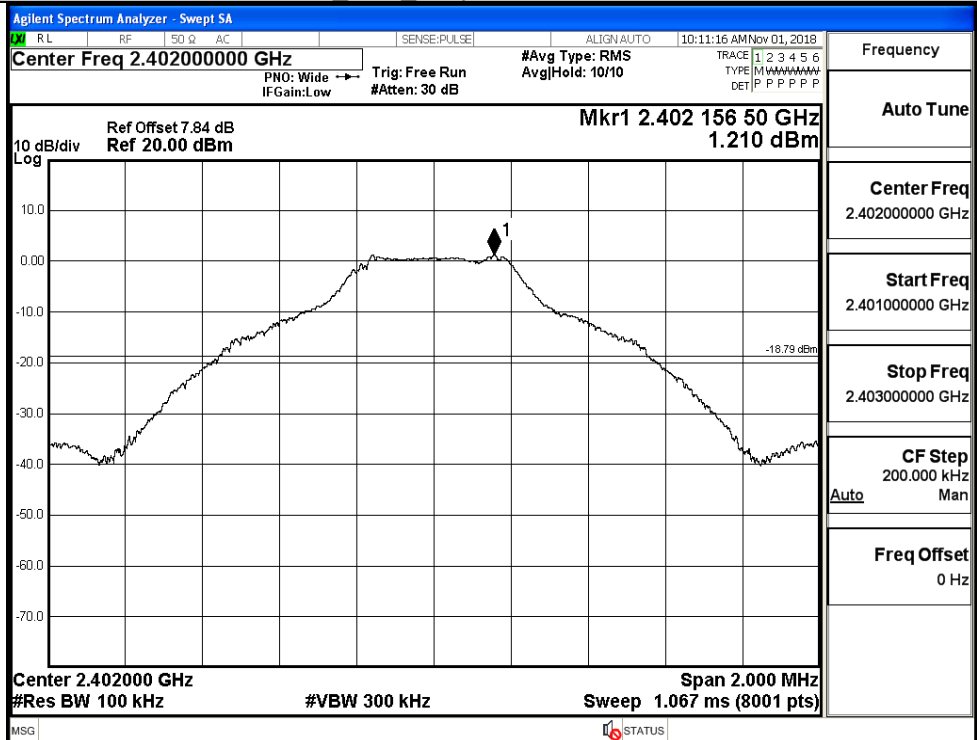


A.6 RF Conducted Spurious Emissions

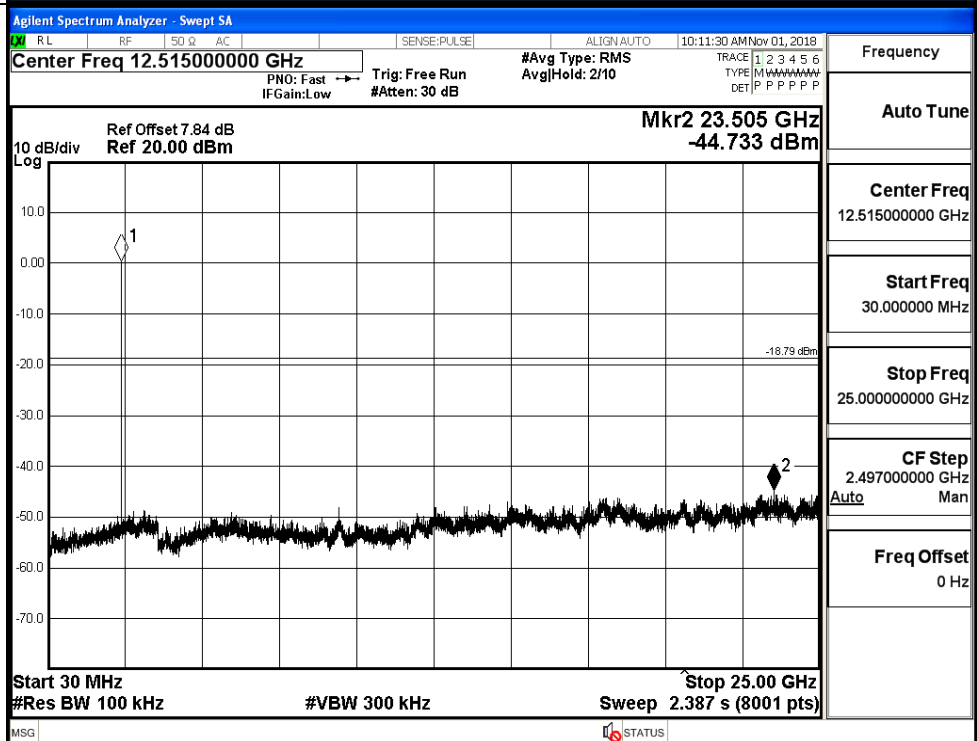
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.21	-44.733	-18.790	PASS
	MCH	-0.493	-44.925	-20.493	PASS
	HCH	-0.576	-44.489	-20.576	PASS
$\pi/4$ DQPSK	LCH	-0.891	-43.831	-20.891	PASS
	MCH	-1.592	-44.440	-21.592	PASS
	HCH	-1.918	-44.796	-21.918	PASS
8DPSK	LCH	-0.393	-44.928	-20.393	PASS
	MCH	-1.507	-44.777	-21.507	PASS
	HCH	-1.447	-45.232	-21.447	PASS

GFSK LCH Graphs

Pref

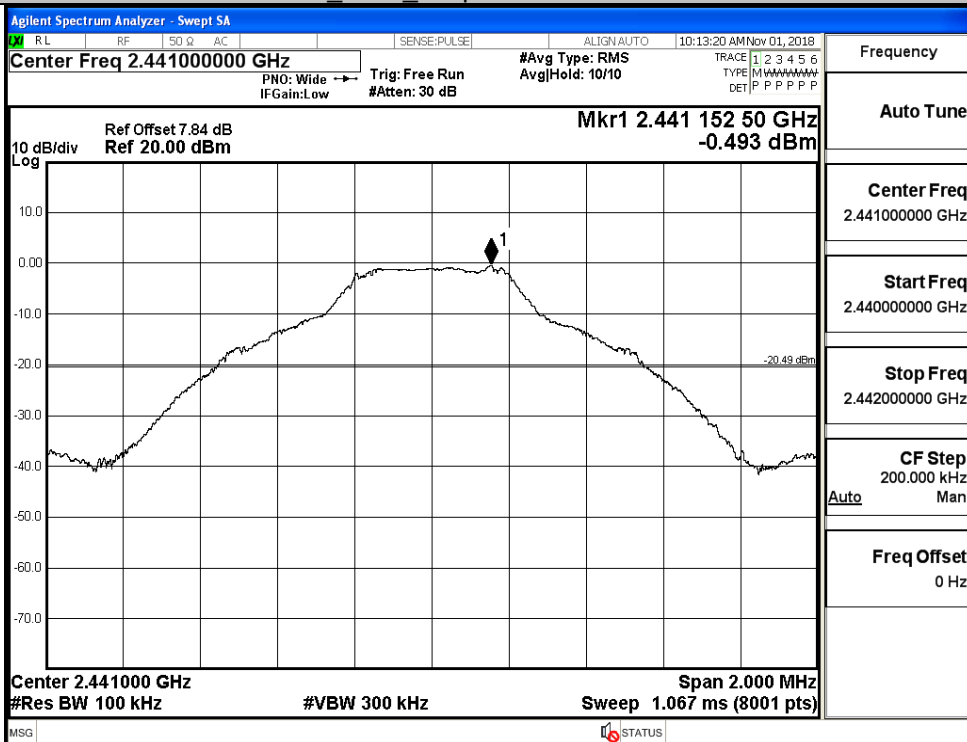


Puw

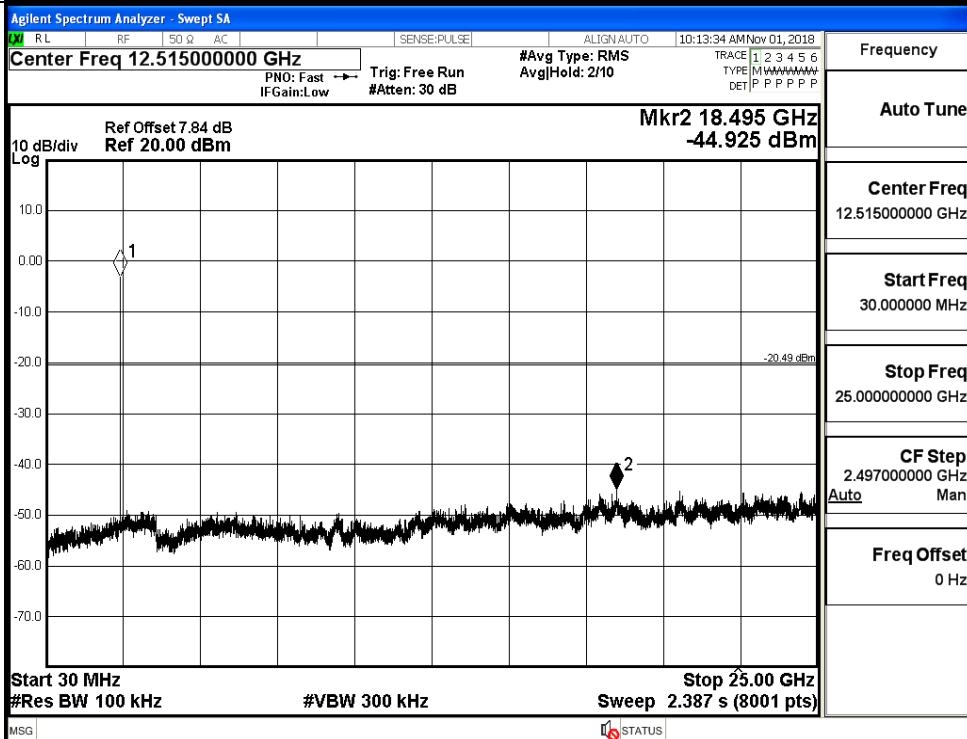


GFSK_MCH_Graphs

Pref

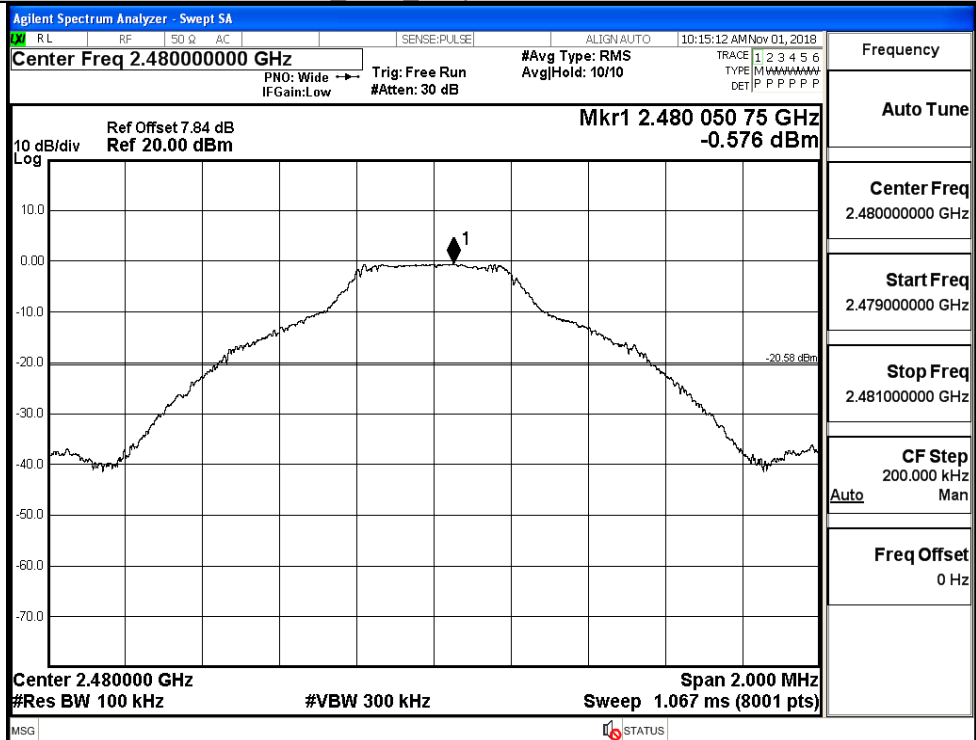


Puw

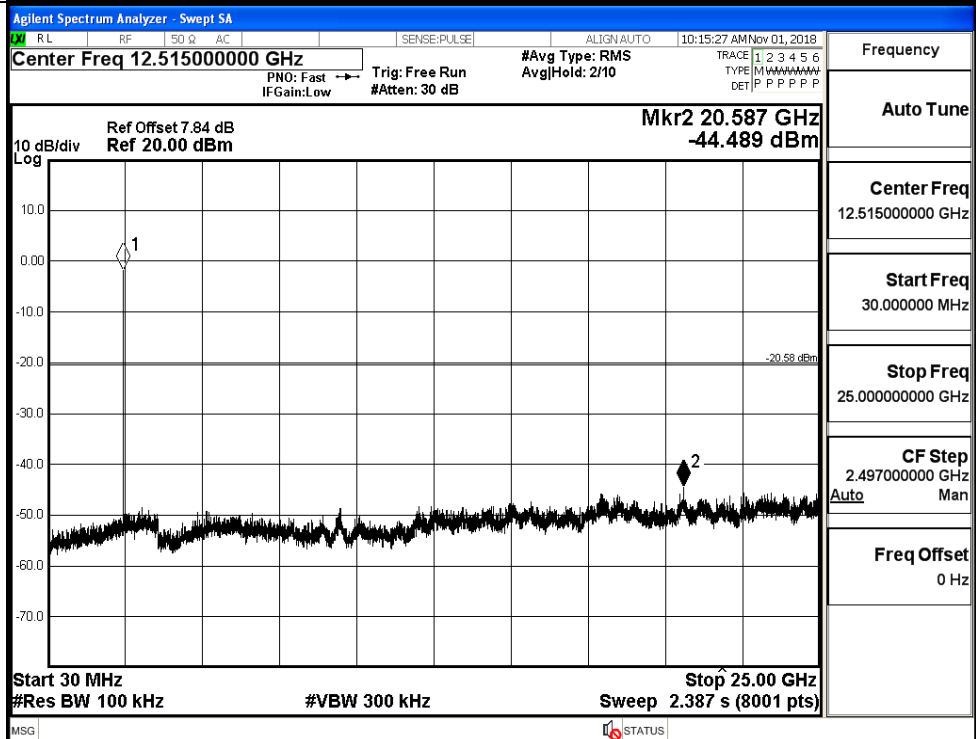


GFSK HCH_Graphs

Pref

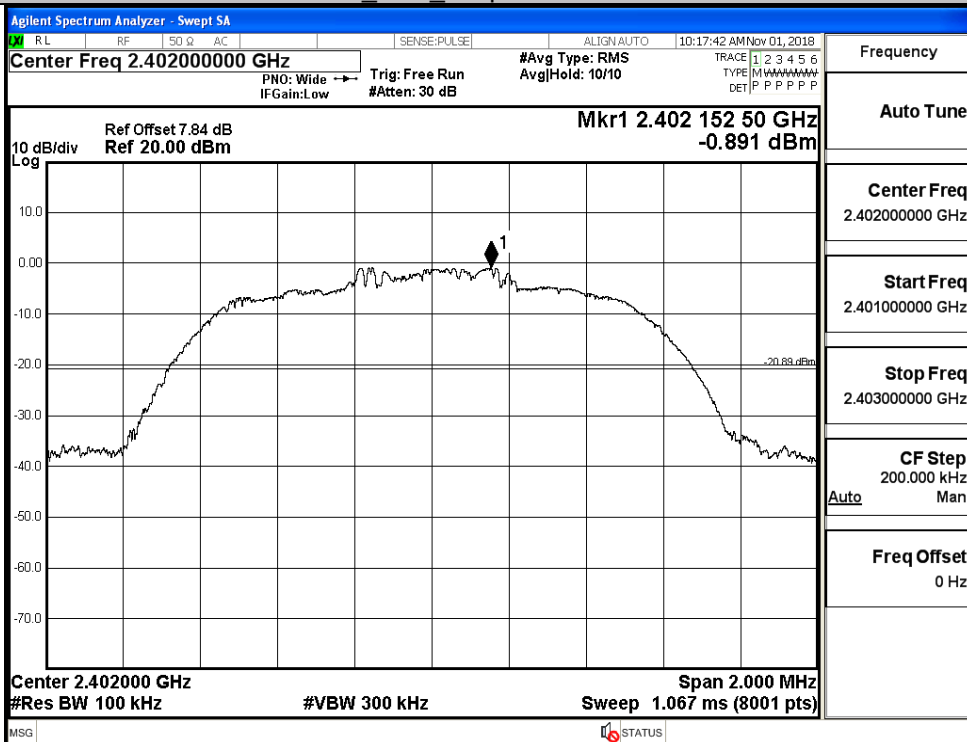


Puw

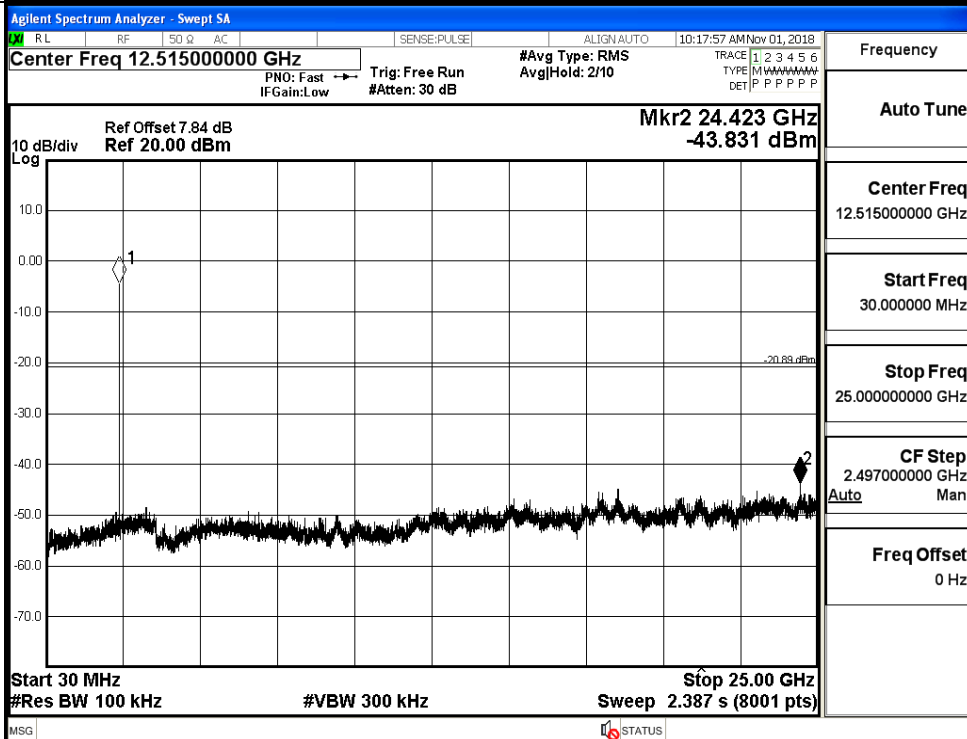


$\pi/4$ DQPSK LCH_Graphs

Pref

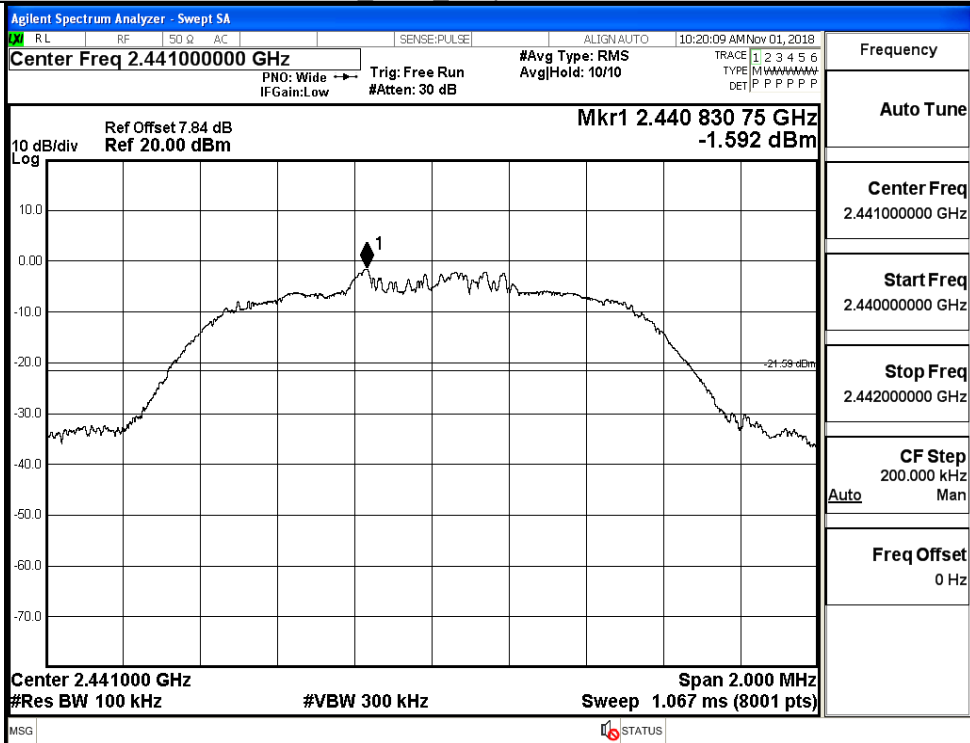


Puw

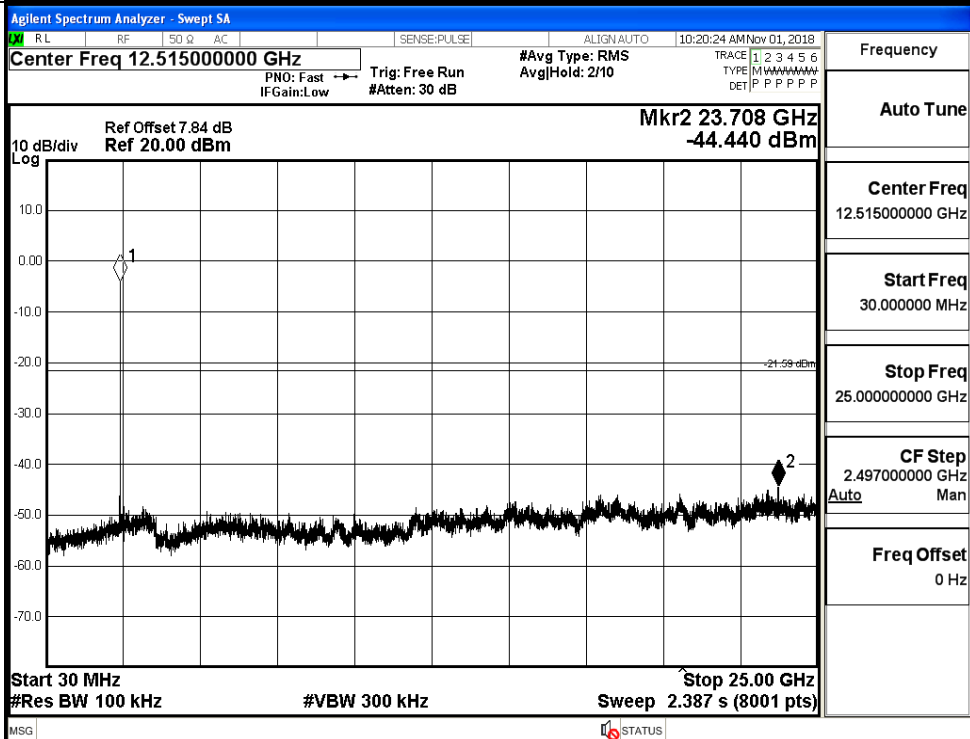


π /4DQPSK_MCH_Graphs

Pref

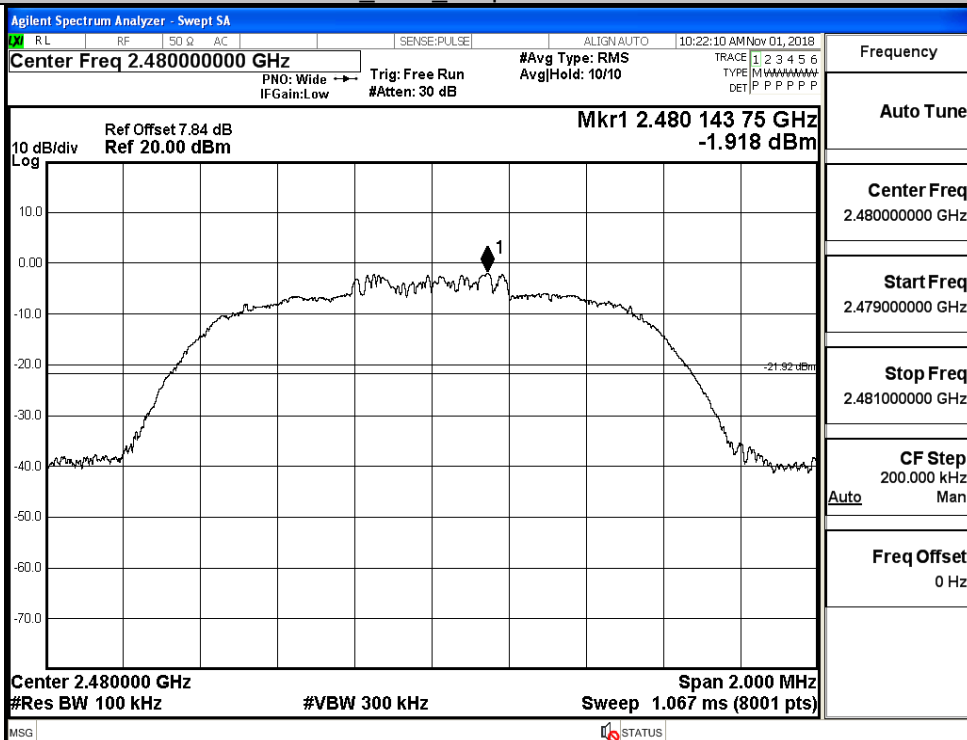


Puw

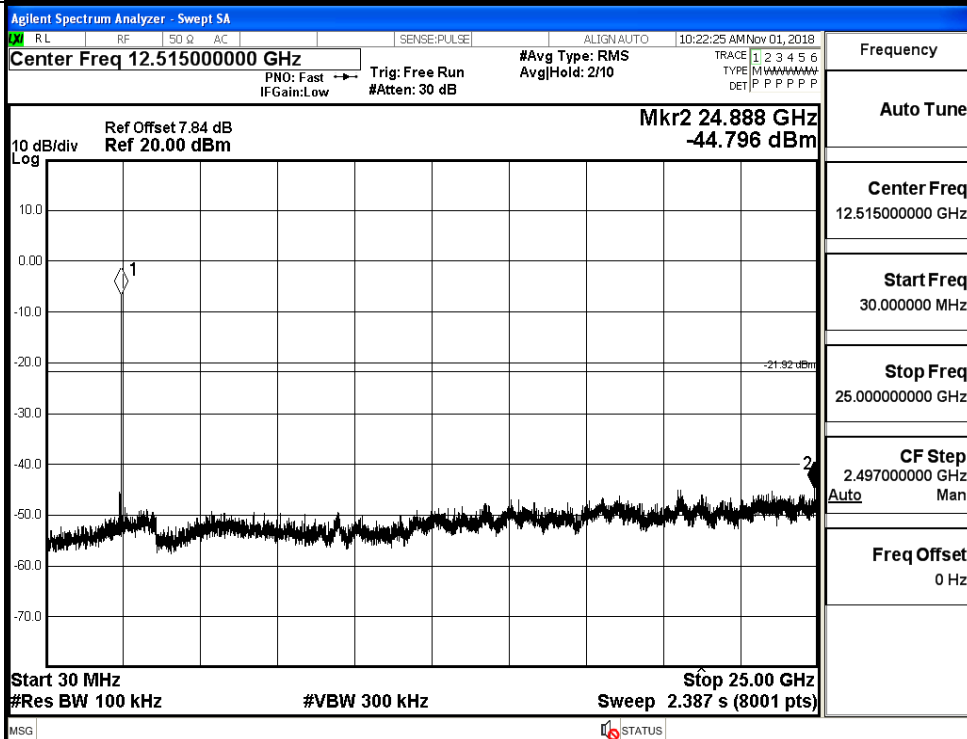


π /4DQPSK_HCH_Graphs

Pref

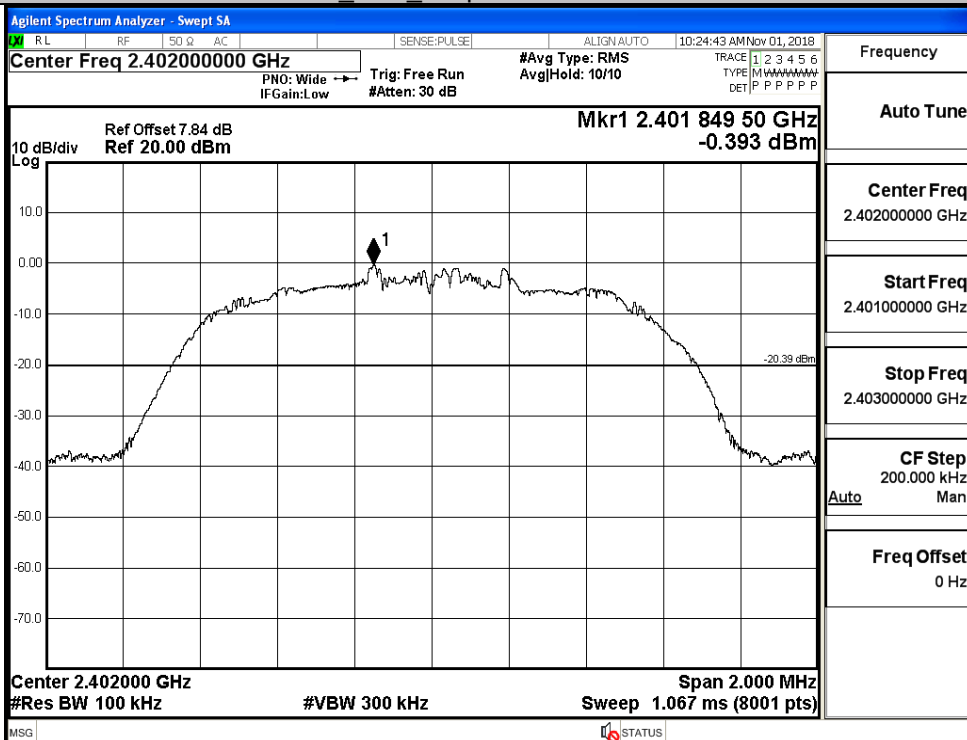


Puw

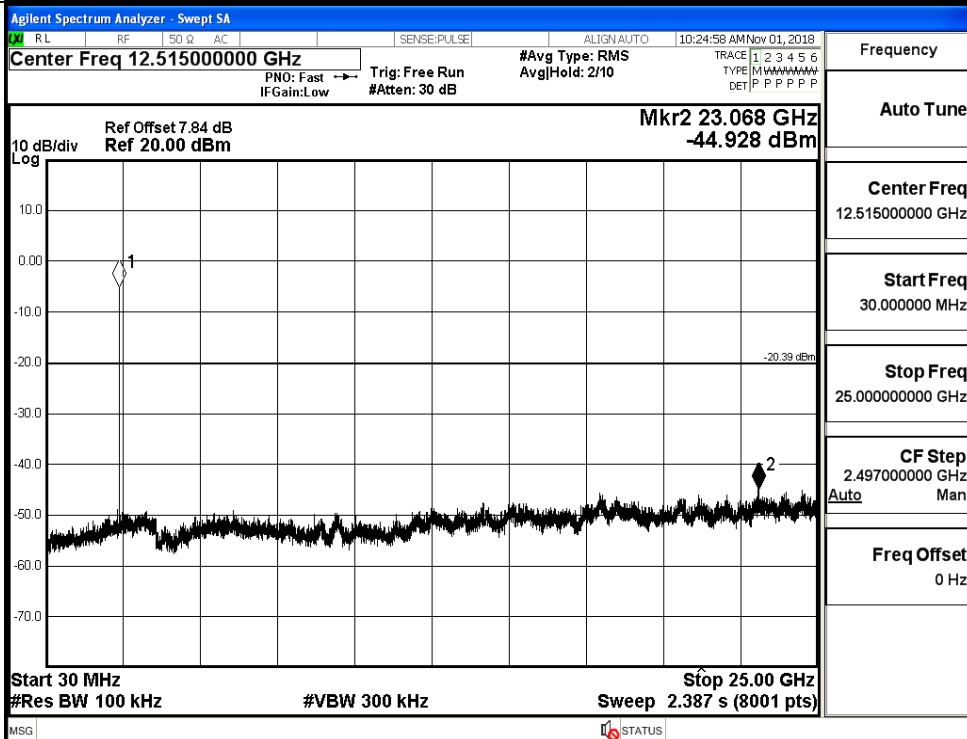


8DPSK_LCH_Graphs

Pref

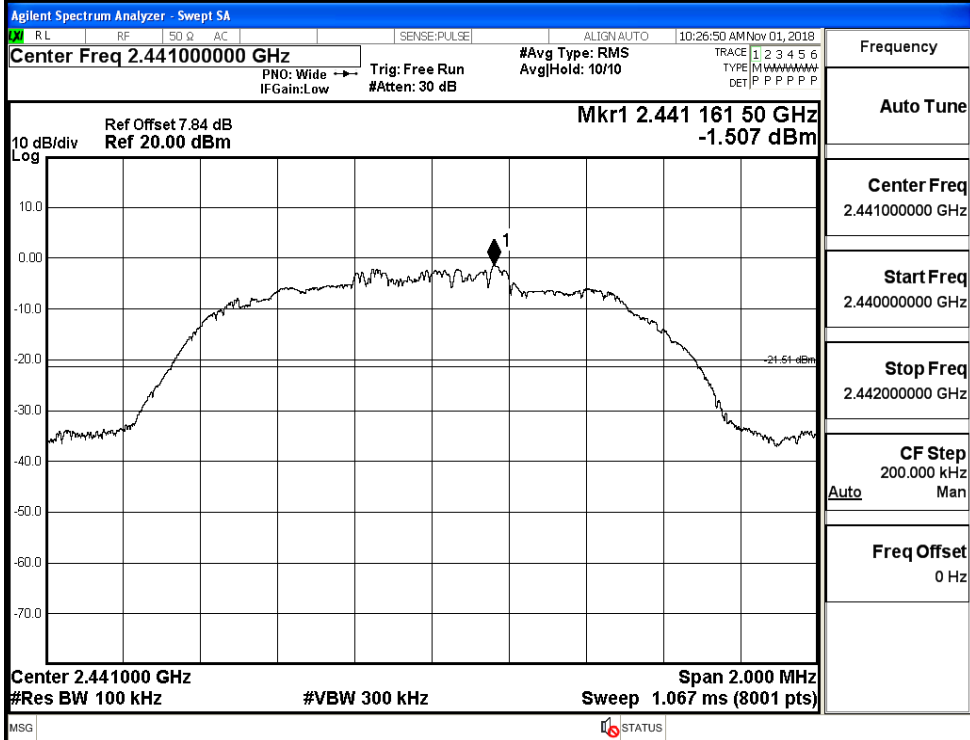


Puw

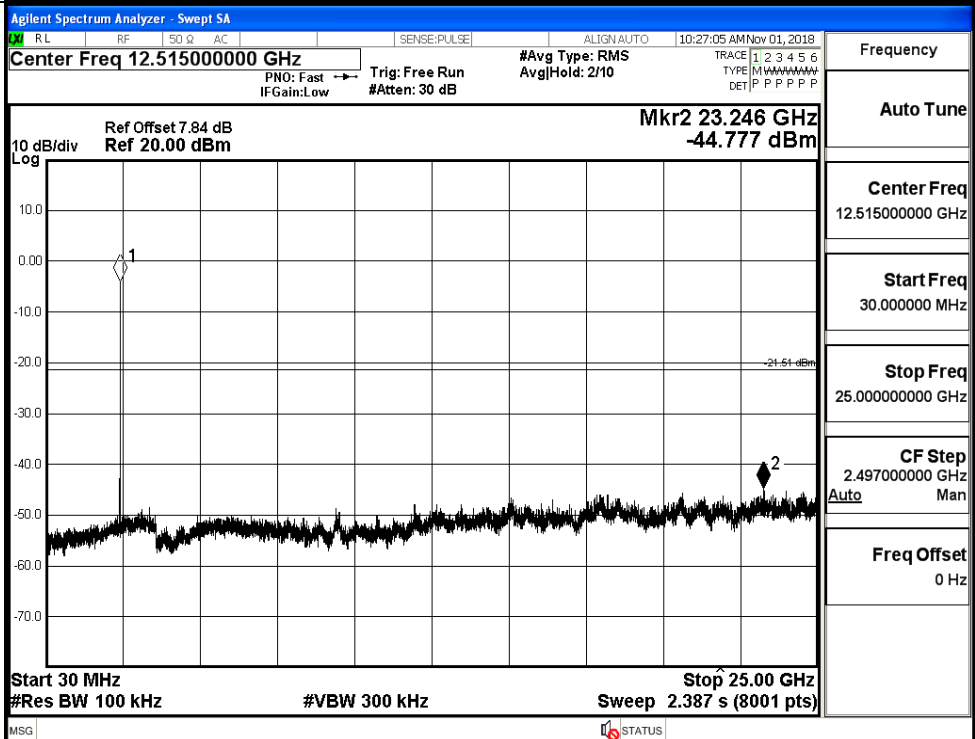


8DPSK_MCH_Graphs

Pref

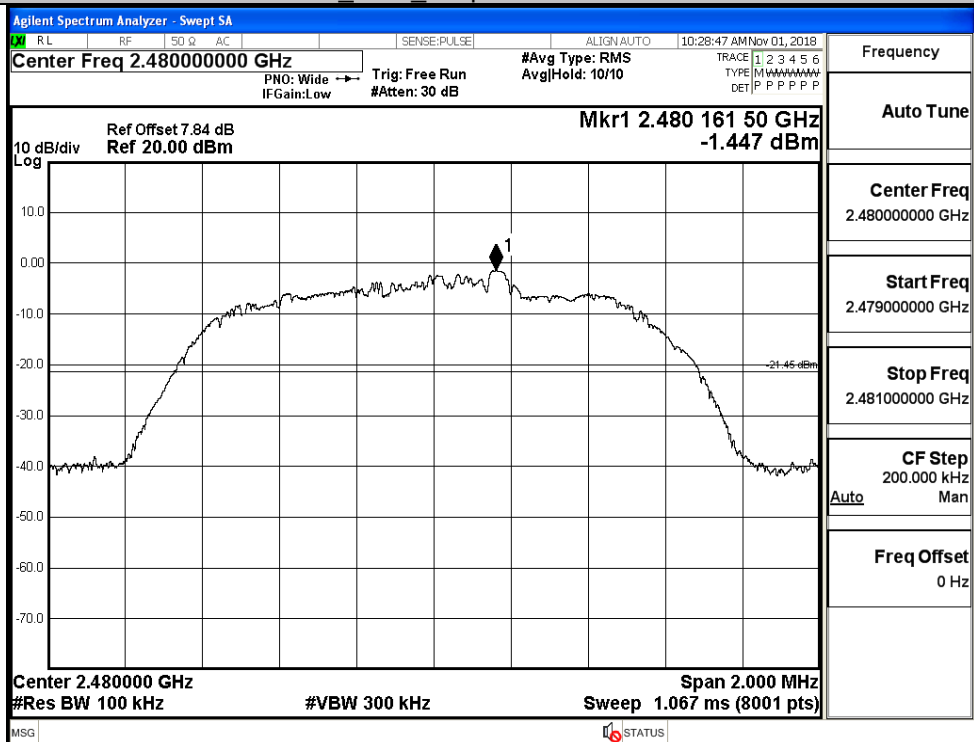


Puw

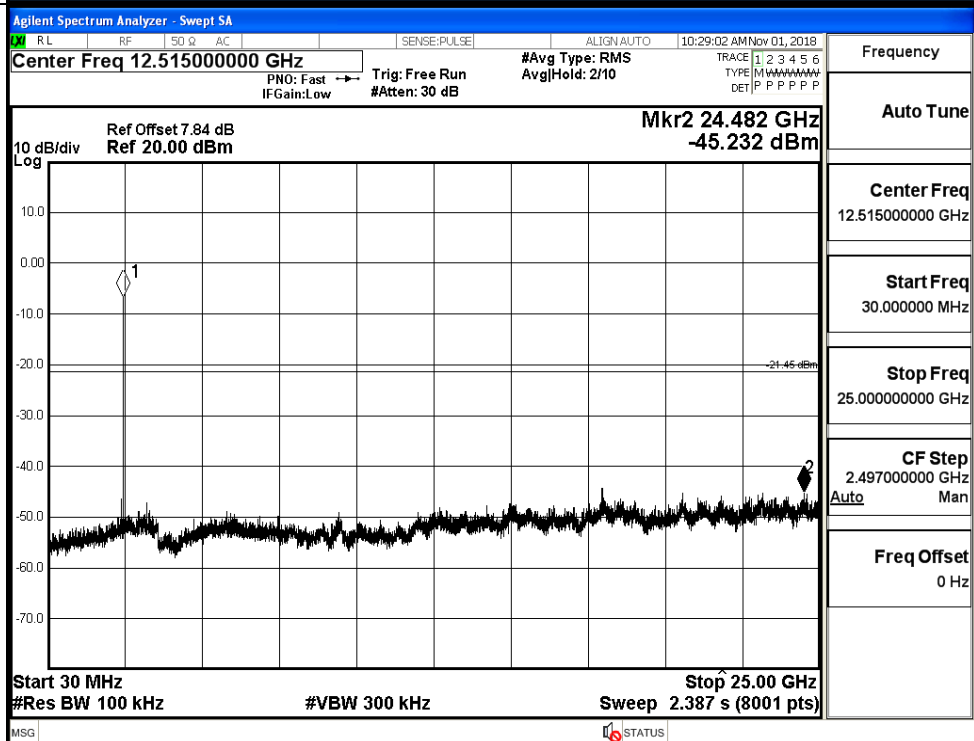


8DPSK_HCH_Graphs

Pref



Puw

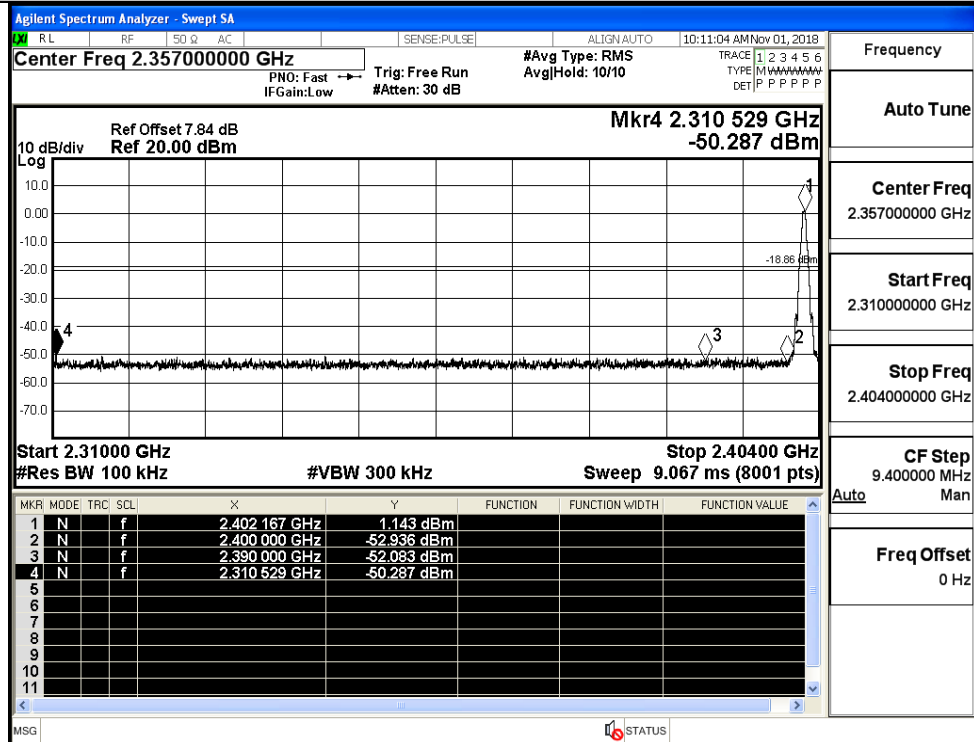


A.7 Band-edge for RF Conducted Emissions

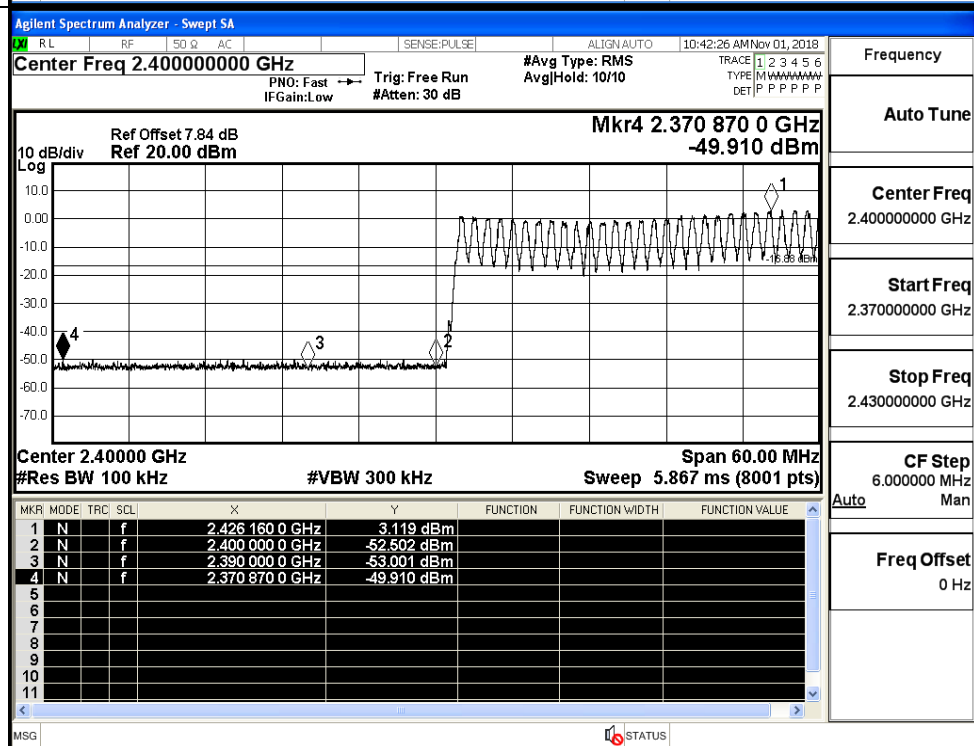
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.143	Off	-50.287	-18.86	PASS
			3.119	On	-49.910	-16.88	PASS
	HCH	2480	0.002	Off	-49.528	-20	PASS
			1.323	On	-50.029	-18.68	PASS
$\pi/4$ DQPSK	LCH	2402	-0.105	Off	-49.783	-20.11	PASS
			1.646	On	-49.820	-18.35	PASS
	HCH	2480	-3.025	Off	-49.993	-23.03	PASS
			-0.331	On	-49.202	-20.33	PASS
8DPSK	LCH	2402	-0.255	Off	-50.142	-20.26	PASS
			1.526	On	-50.043	-18.47	PASS
	HCH	2480	-1.421	Off	-49.793	-21.42	PASS
			-0.323	On	-50.029	-20.32	PASS

Test Graphs

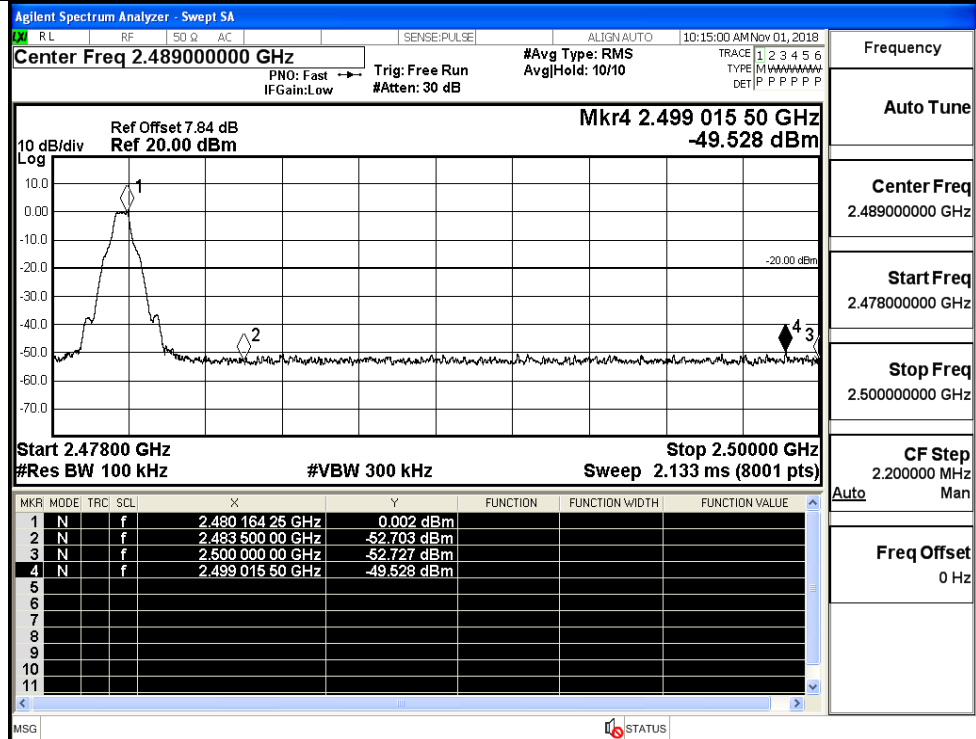
GFSK/LCH/No Hop



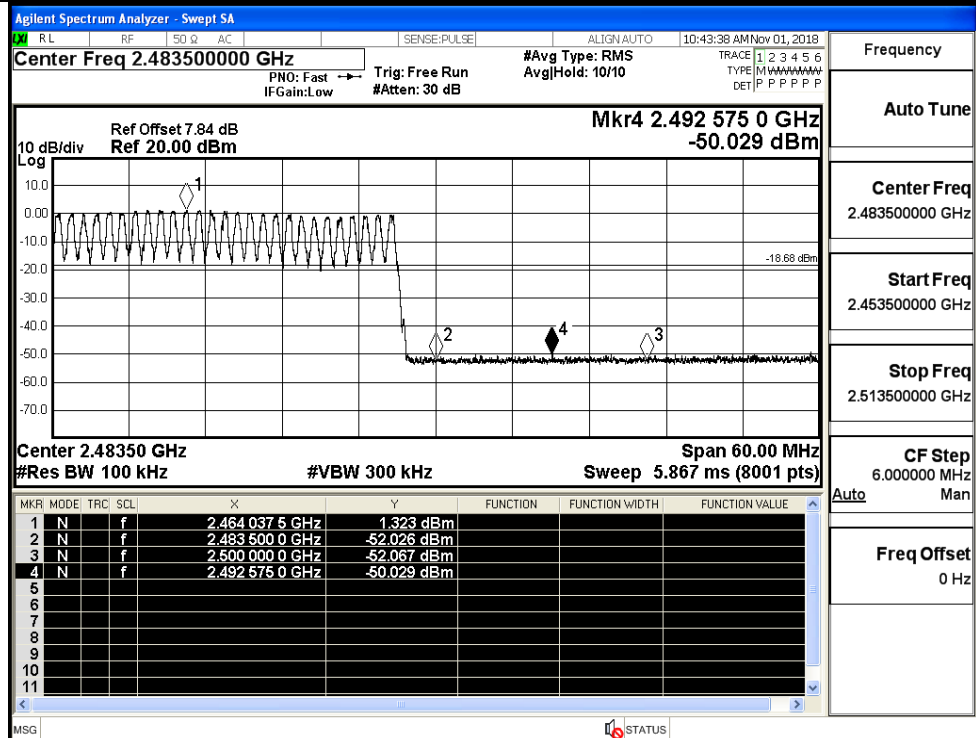
GFSK/LCH/Hop



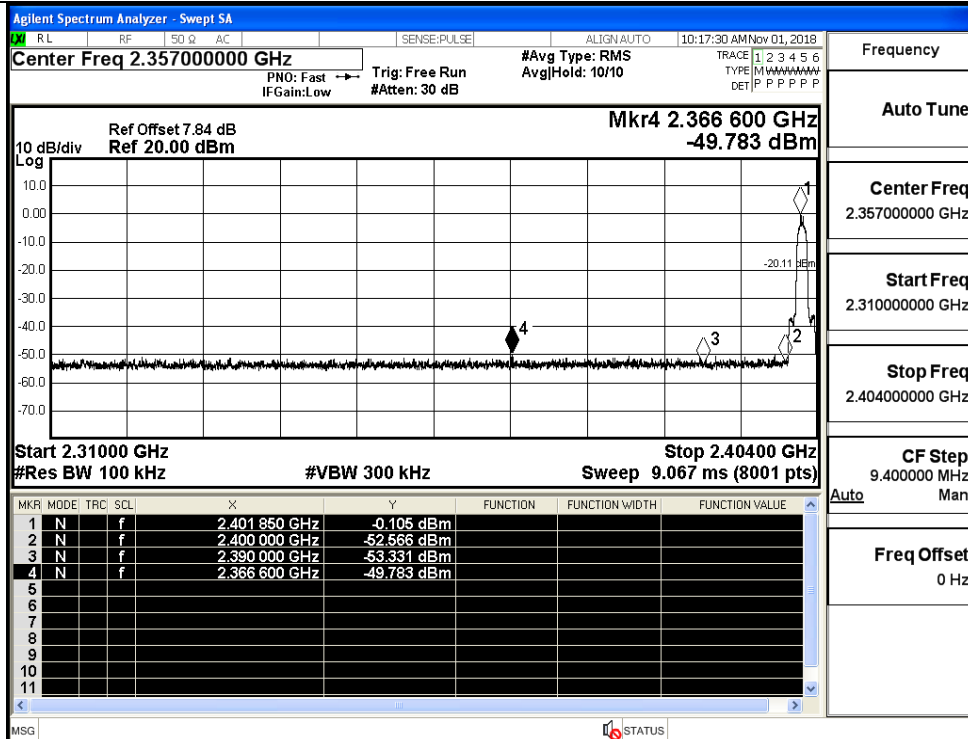
GFSK/HCH/No Hop



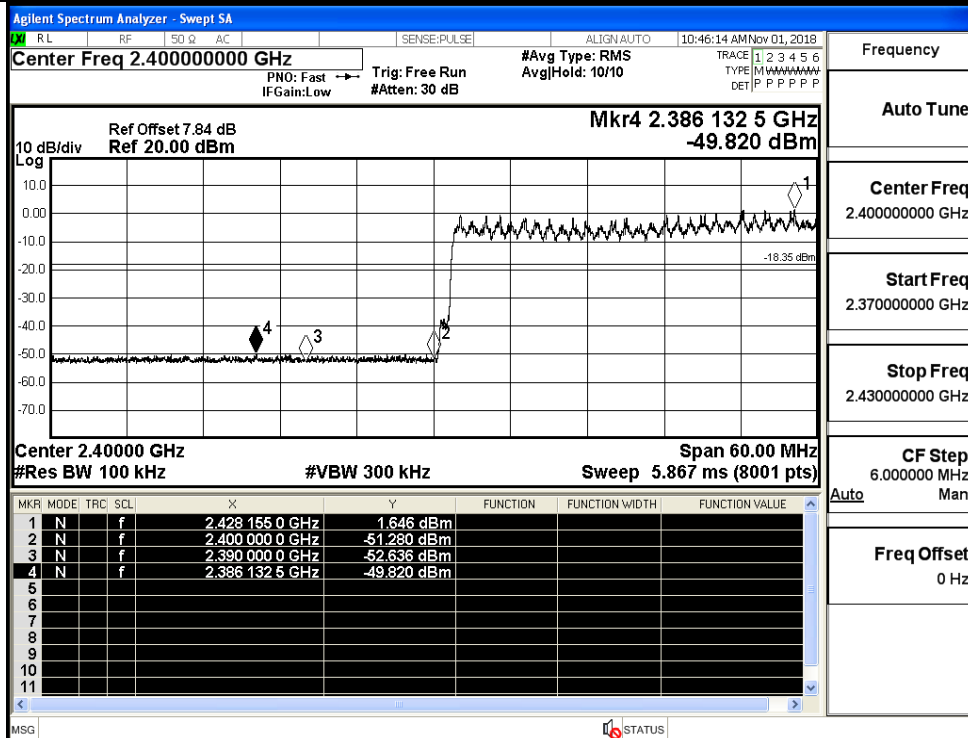
GFSK/HCH/Hop



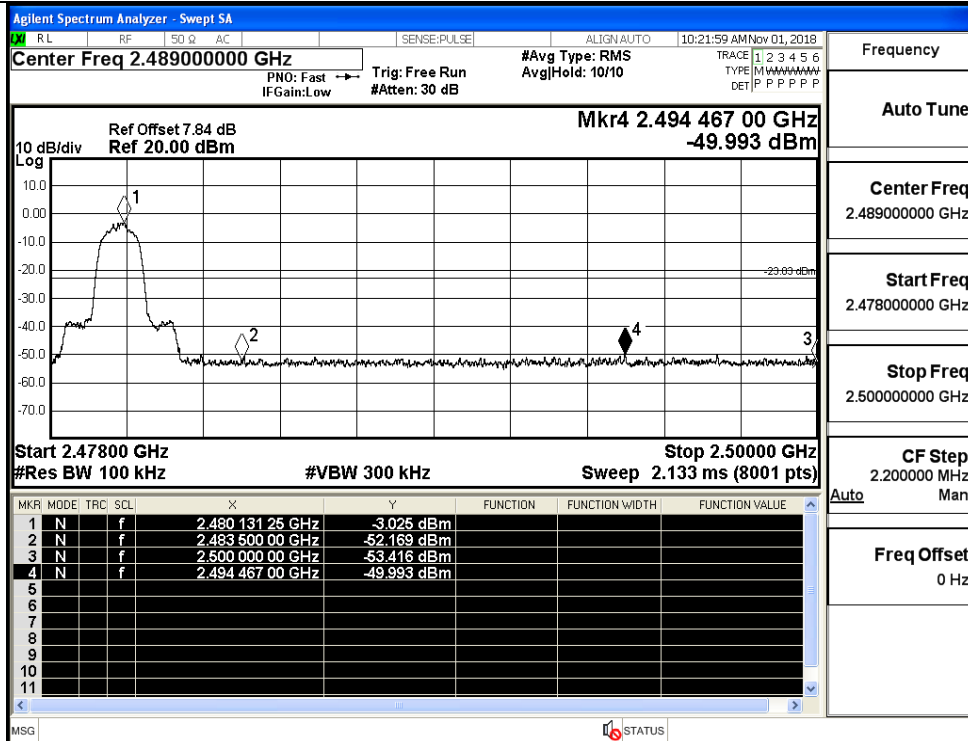
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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

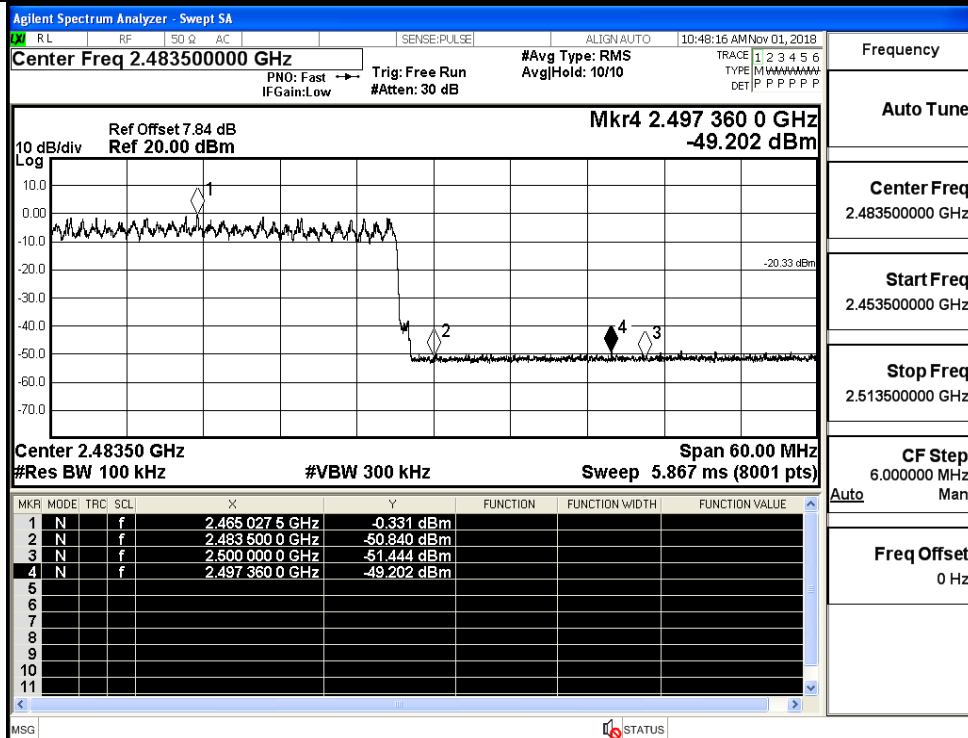


Frequency

Auto Tune

Center Freq
2.489000000 GHzStart Freq
2.478000000 GHzStop Freq
2.500000000 GHzCF Step
2.200000 MHz
Auto ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH/Hop

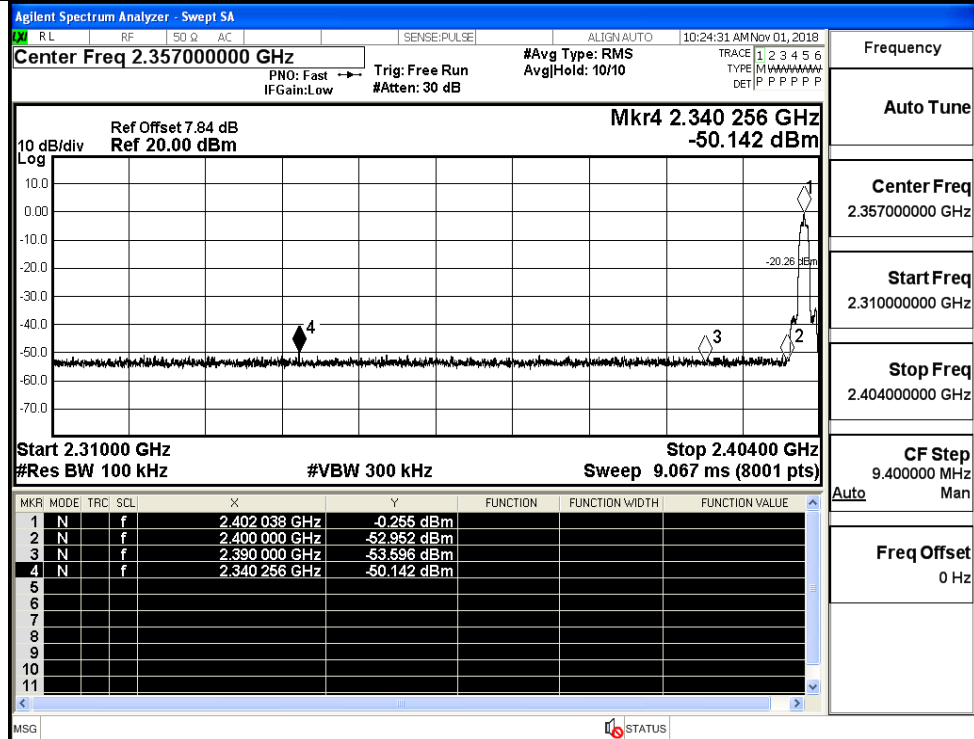


Frequency

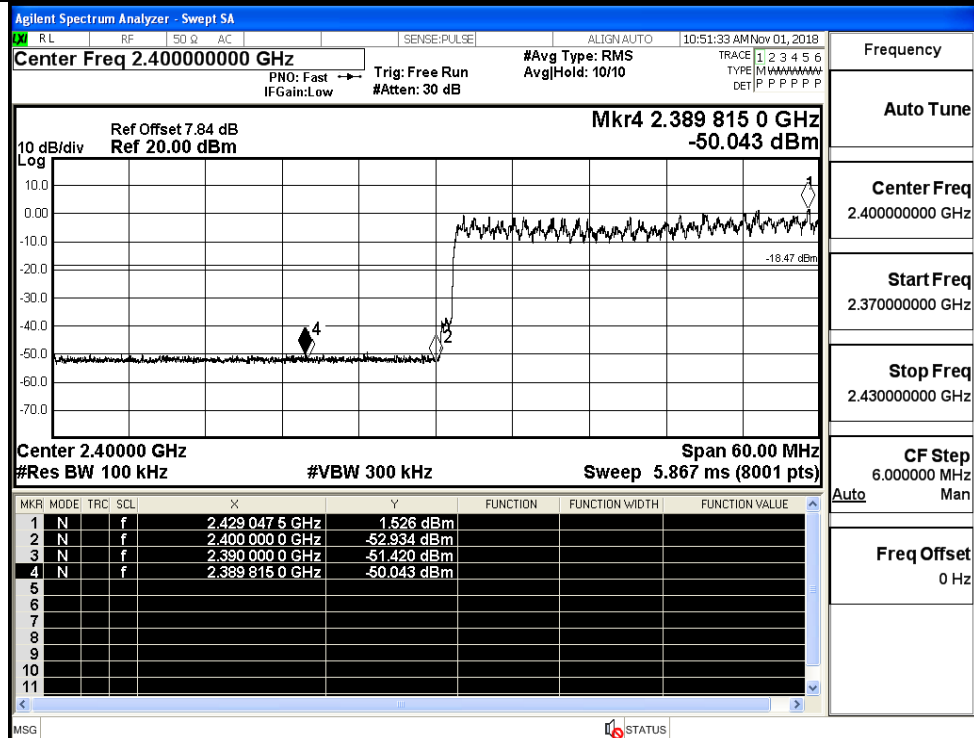
Auto Tune

Center Freq
2.483500000 GHzStart Freq
2.453500000 GHzStop Freq
2.513500000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

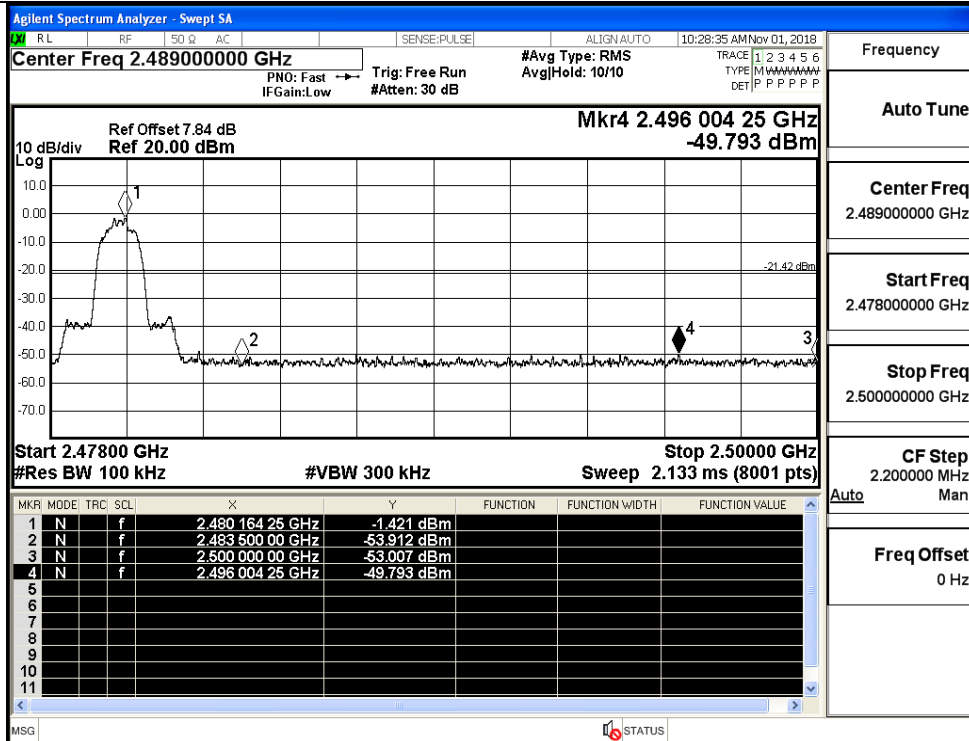
8DPSK/LCH/No Hop



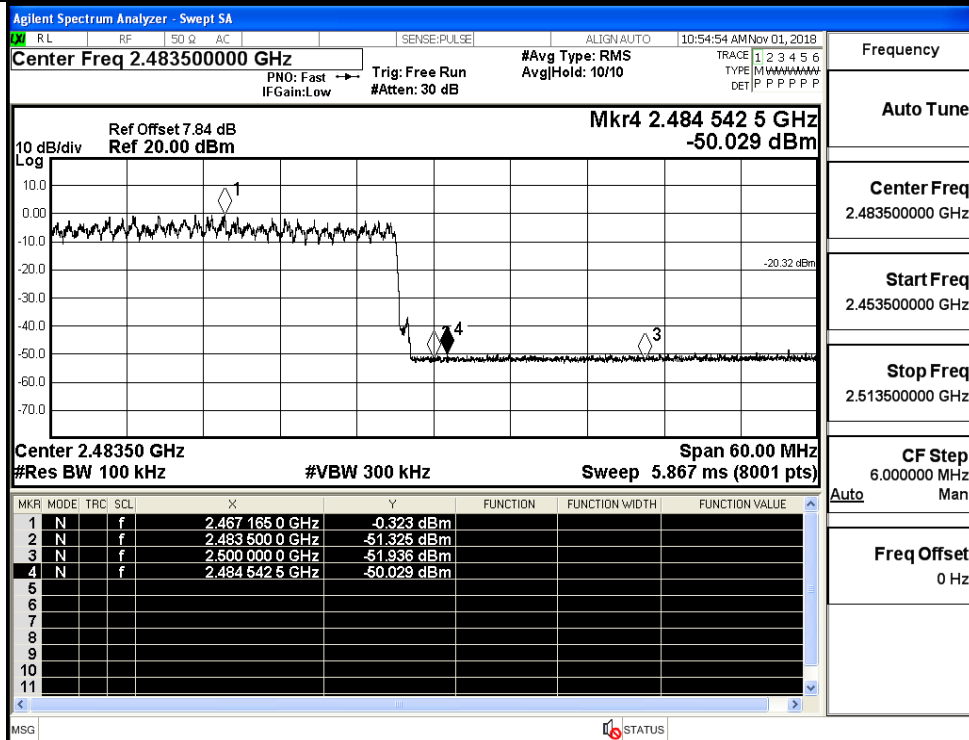
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



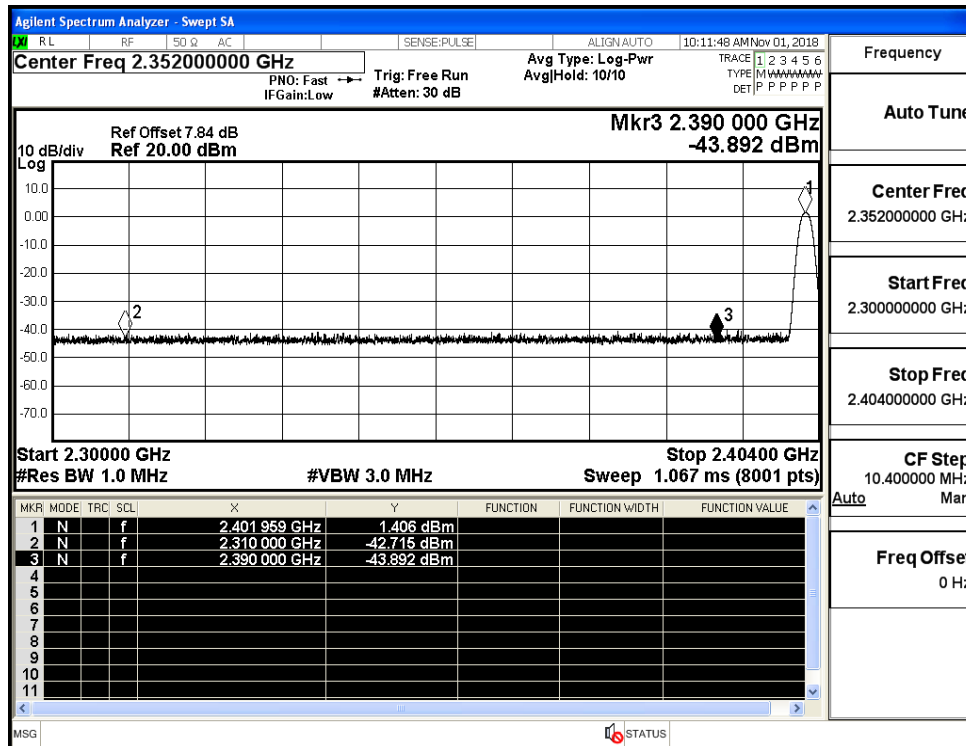
8DPSK/HCH/Hop



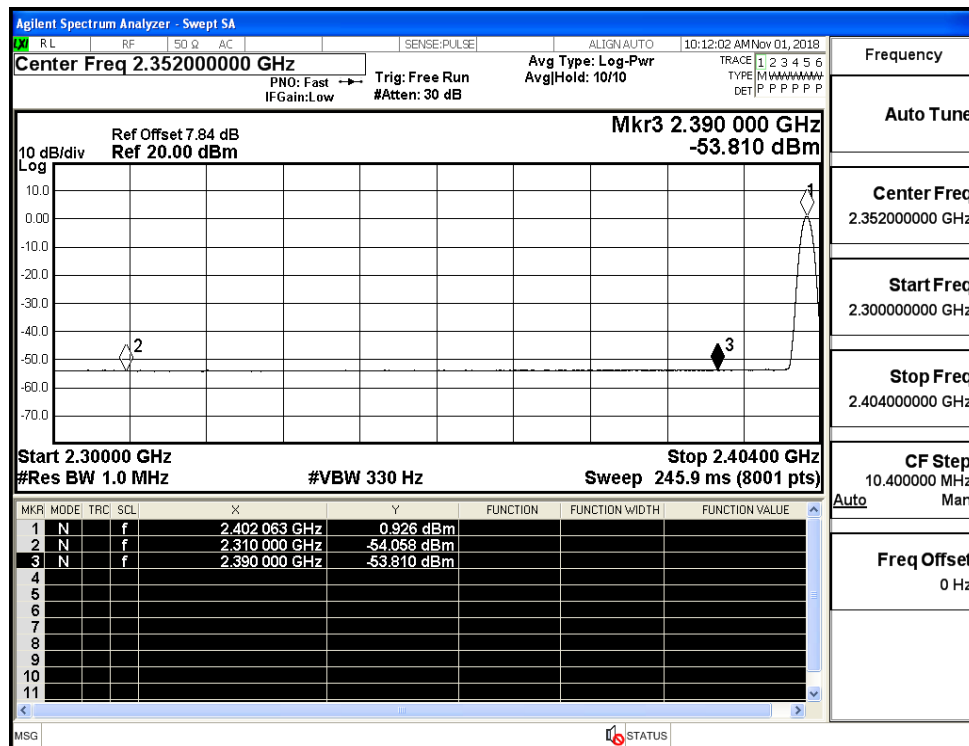
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.72	3.5	0	56.04	PEAK	74	PASS
	Off	2310.0	-54.06	3.5	0	44.70	AV	54	PASS
	Off	2390.0	-43.89	3.5	0	54.87	PEAK	74	PASS
	Off	2390.0	-53.81	3.5	0	44.95	AV	54	PASS
	Off	2483.5	-43.67	3.5	0	55.09	PEAK	74	PASS
	Off	2483.5	-53.43	3.5	0	45.33	AV	54	PASS
	Off	2500.0	-43.70	3.5	0	55.06	PEAK	74	PASS
	Off	2500.0	-53.26	3.5	0	45.50	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.07	3.5	0	55.69	PEAK	74	PASS
	Off	2310.0	-54.04	3.5	0	44.72	AV	54	PASS
	Off	2390.0	-44.43	3.5	0	54.33	PEAK	74	PASS
	Off	2390.0	-53.75	3.5	0	45.01	AV	54	PASS
	Off	2483.5	-43.07	3.5	0	55.69	PEAK	74	PASS
	Off	2483.5	-53.32	3.5	0	45.44	AV	54	PASS
	Off	2500.0	-43.34	3.5	0	55.42	PEAK	74	PASS
	Off	2500.0	-53.39	3.5	0	45.37	AV	54	PASS
8DPSK	Off	2310.0	-44.62	3.5	0	54.14	PEAK	74	PASS
	Off	2310.0	-53.99	3.5	0	44.77	AV	54	PASS
	Off	2390.0	-42.58	3.5	0	56.18	PEAK	74	PASS
	Off	2390.0	-53.54	3.5	0	45.22	AV	54	PASS
	Off	2483.5	-42.28	3.5	0	56.48	PEAK	74	PASS
	Off	2483.5	-53.40	3.5	0	45.36	AV	54	PASS
	Off	2500.0	-43.42	3.5	0	55.34	PEAK	74	PASS
	Off	2500.0	-53.36	3.5	0	45.40	AV	54	PASS

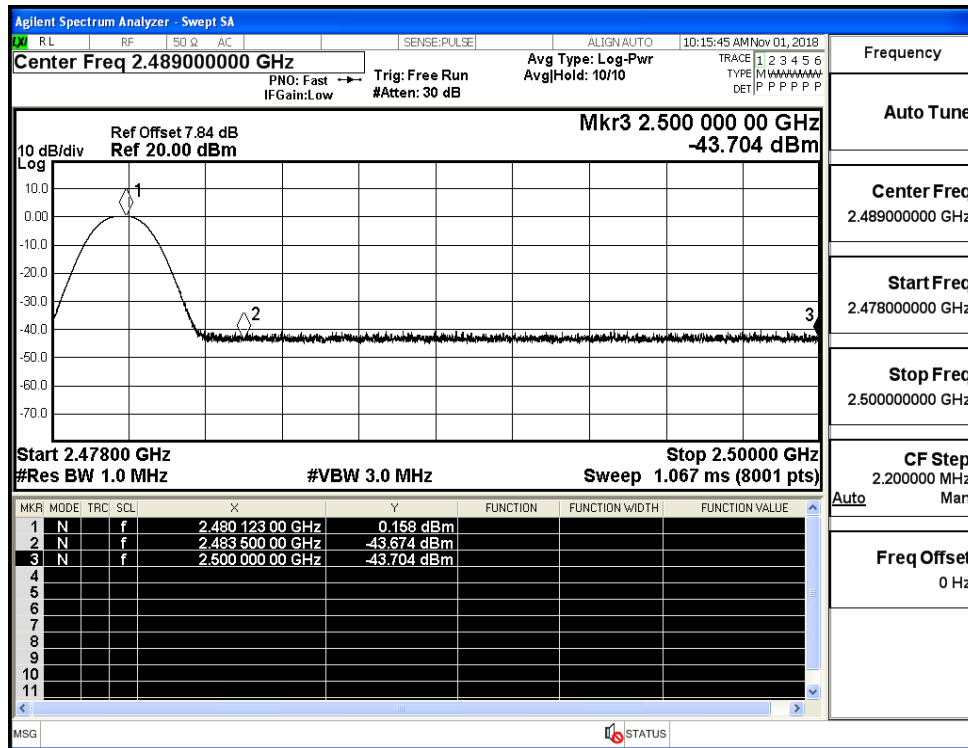
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



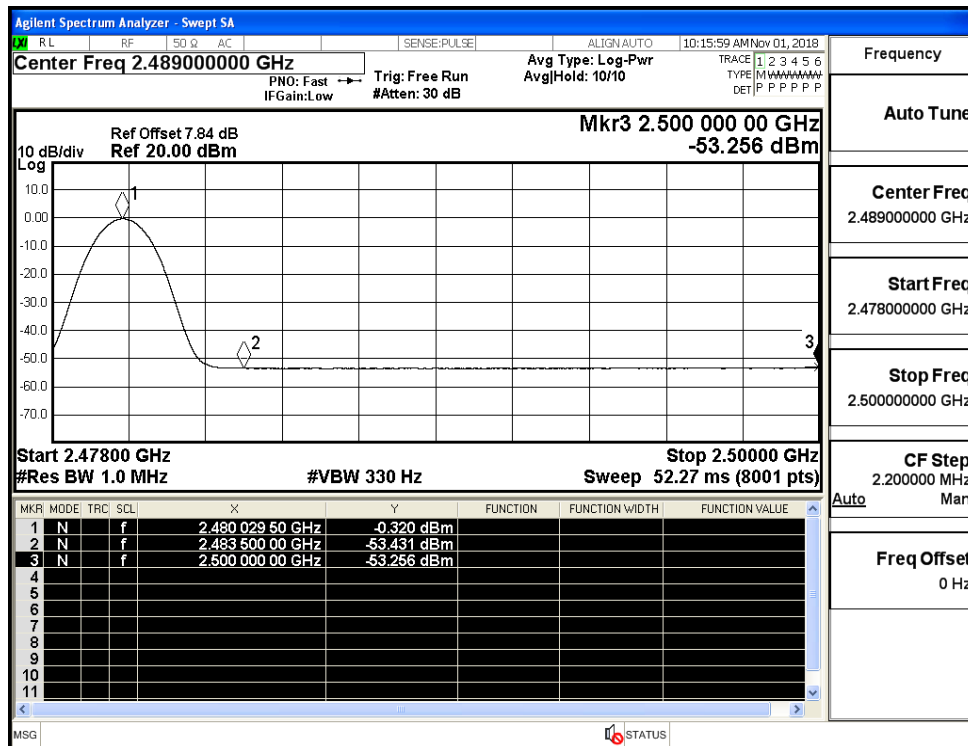
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

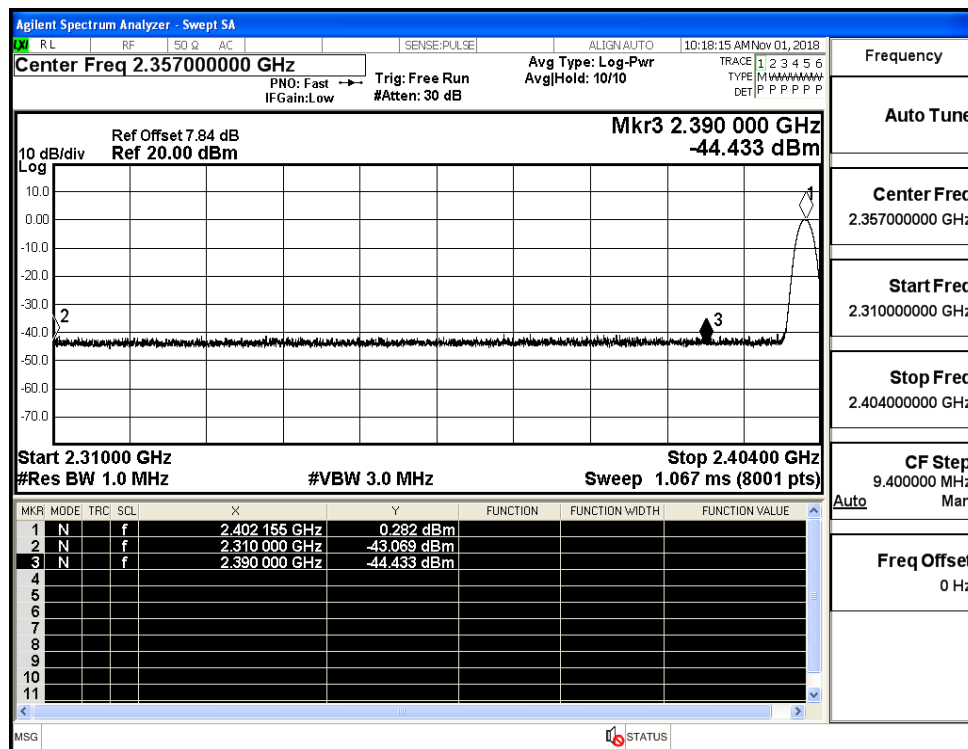
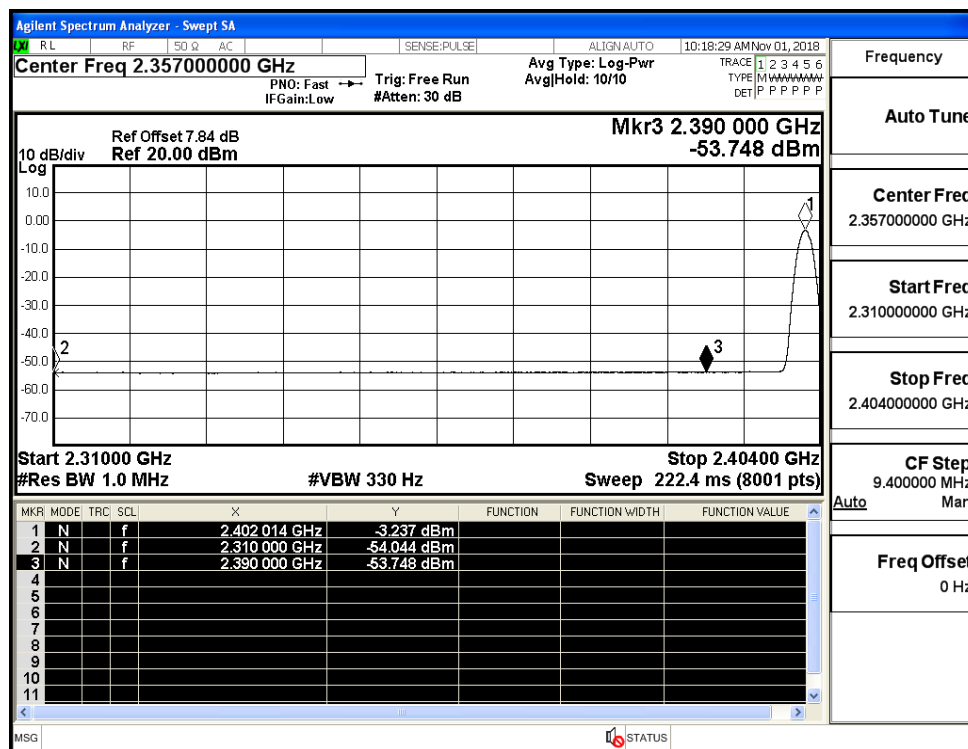


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

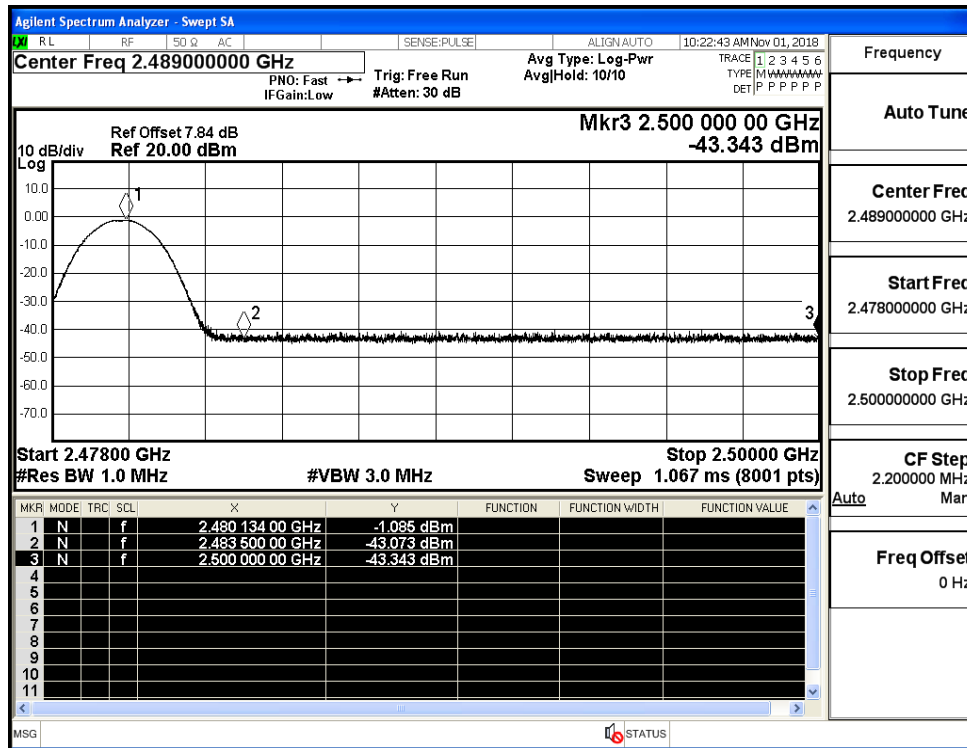


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

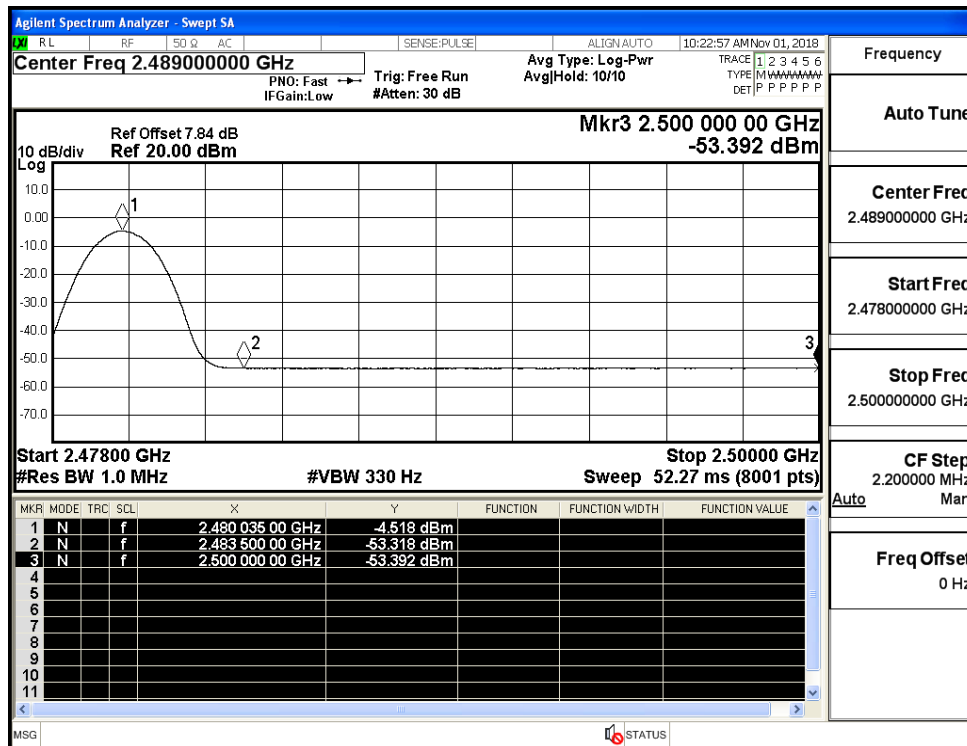


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

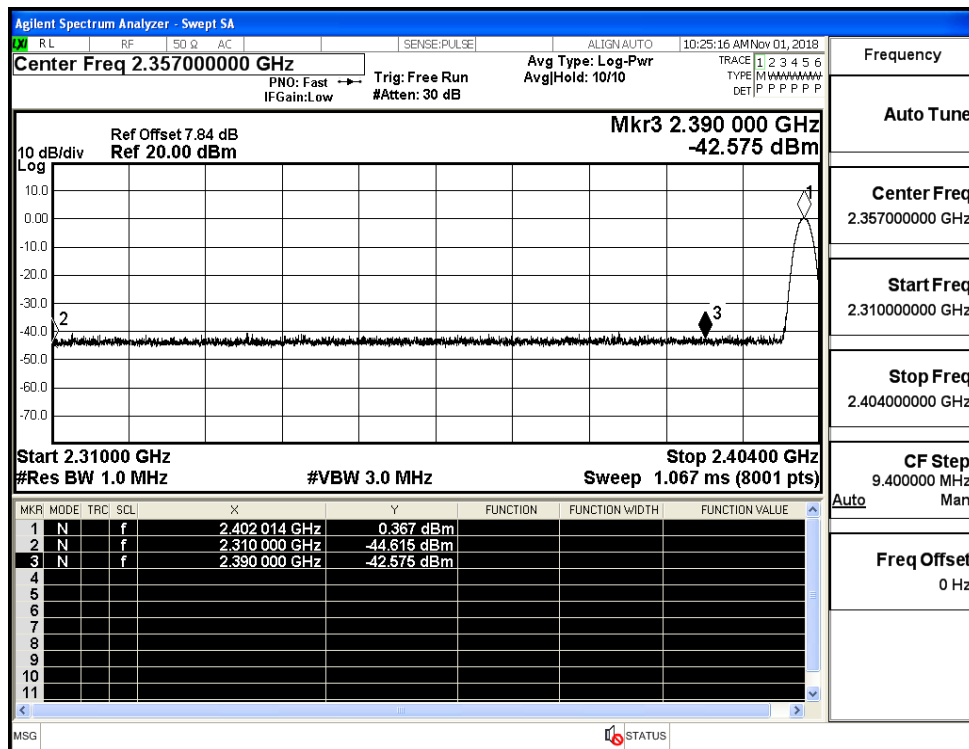
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (High Channel)



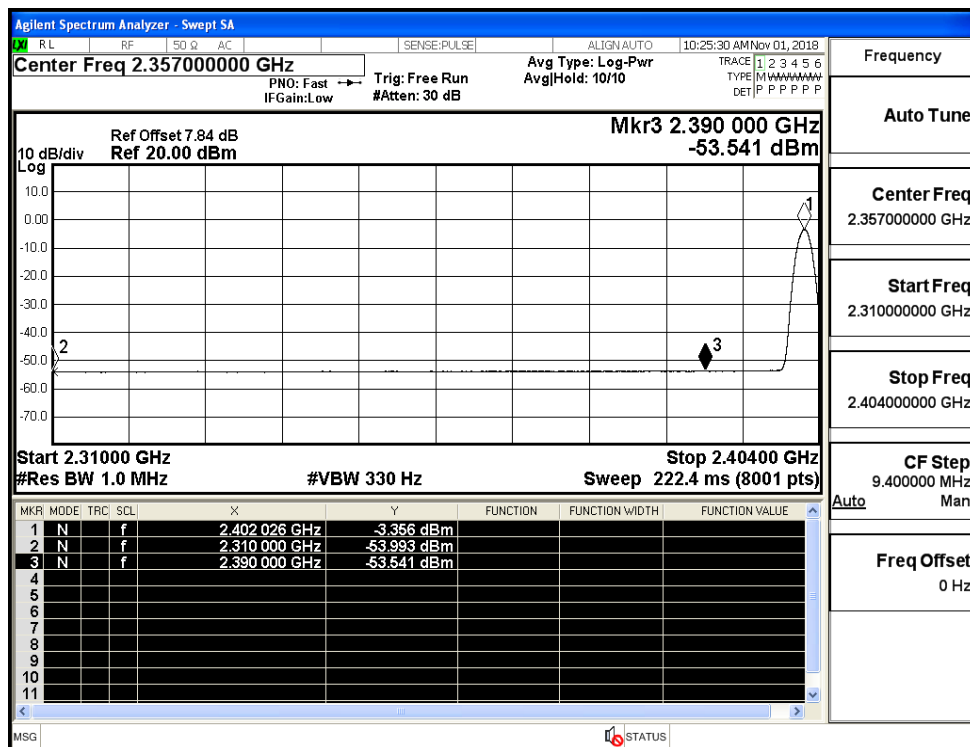
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (High Channel)



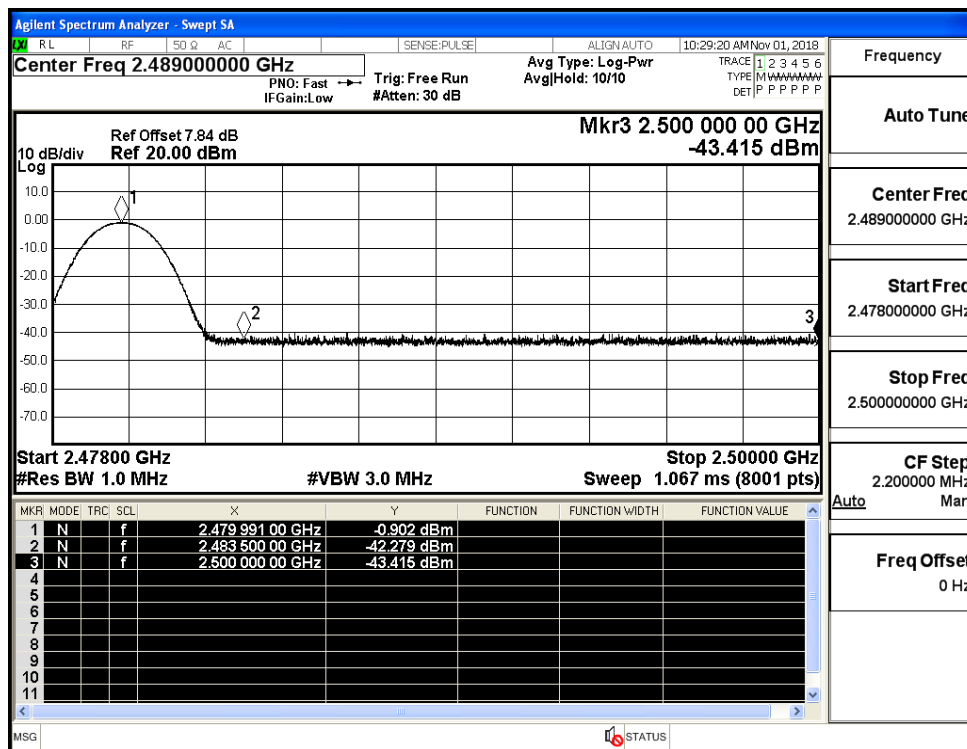
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

