

Appendix A

RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: Sonic Solace ANC BT Headphones

Trade Mark: N/A

Test Model: 16219

Environmental Conditions

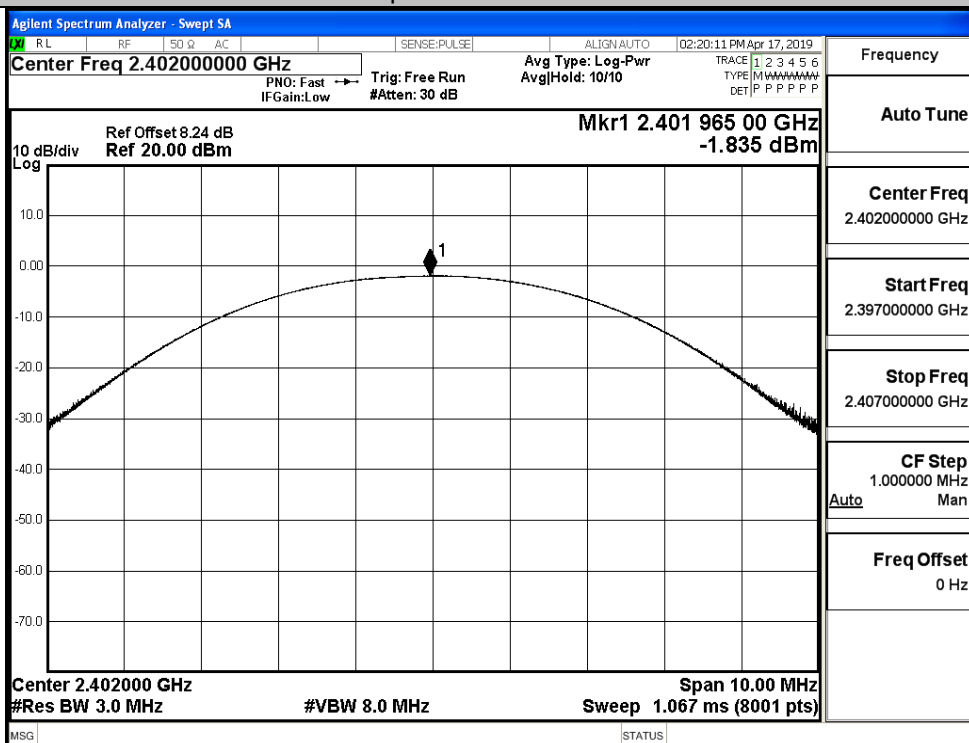
Temperature:	23.8 ° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	David.Luo
Supervised by:	Tom.Liu

A.1 Maximum Conducted Peak Output Power

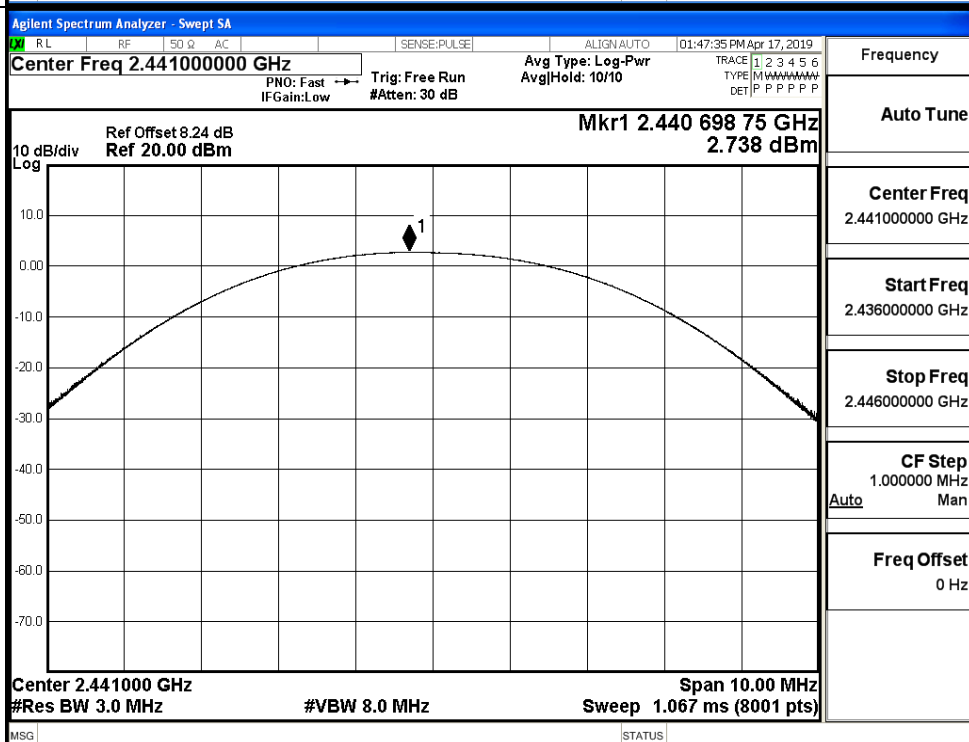
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.835	30	PASS
	MCH	2.738	30	PASS
	HCH	3.200	30	PASS
$\pi/4$ DQPSK	LCH	-0.575	21	PASS
	MCH	0.913	21	PASS
	HCH	1.457	21	PASS
8DPSK	LCH	-0.179	21	PASS
	MCH	1.287	21	PASS
	HCH	1.900	21	PASS

Test Graphs

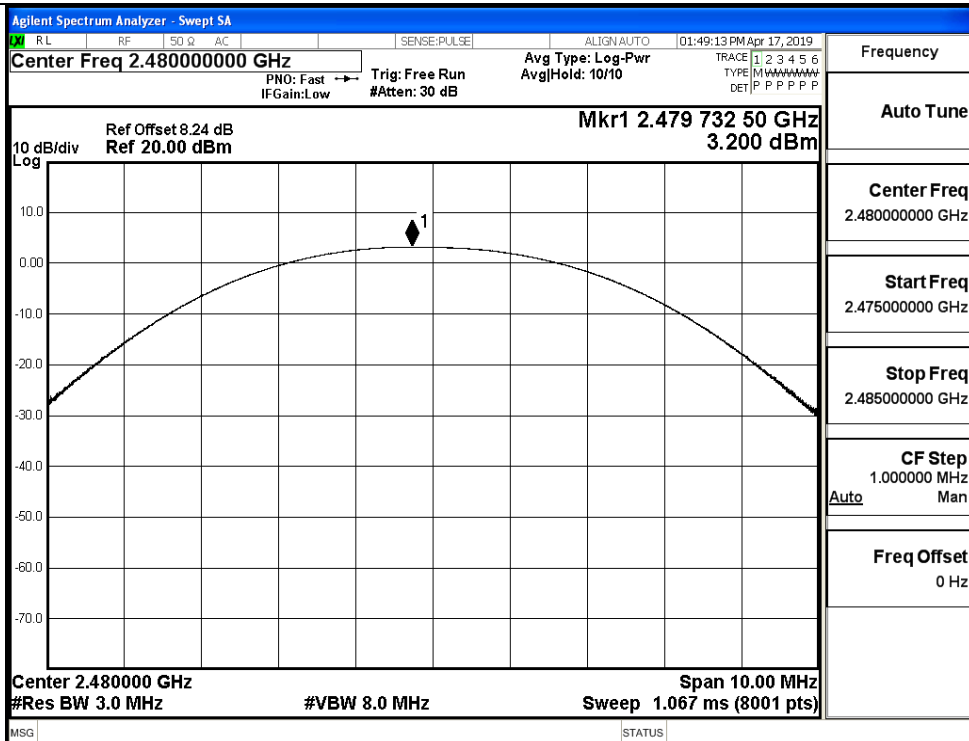
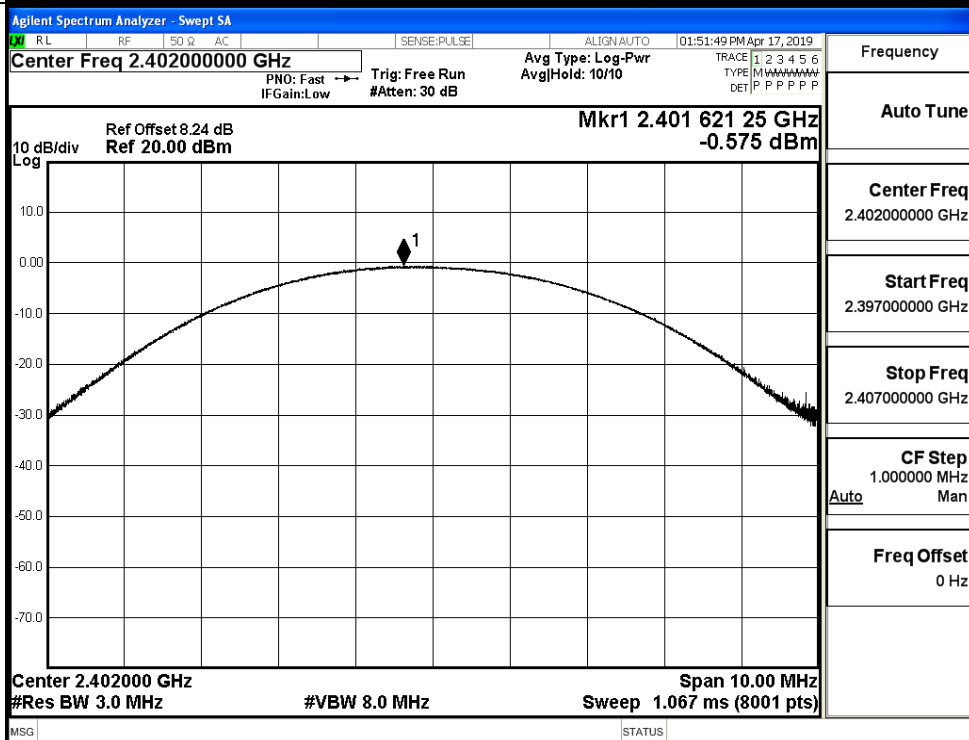
GFSK/LCH

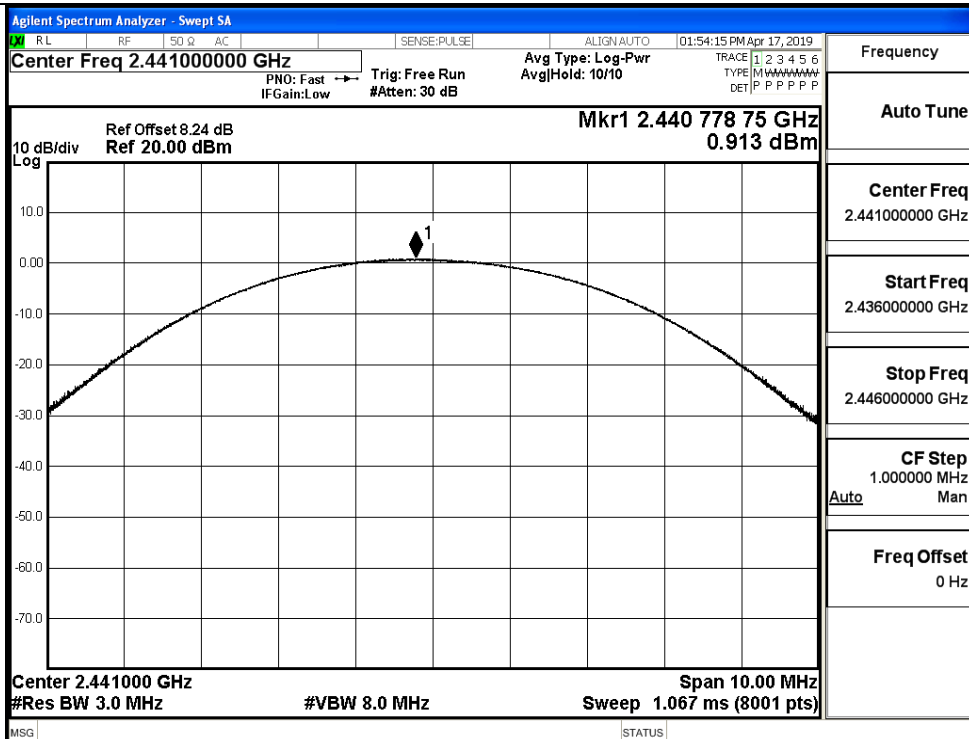
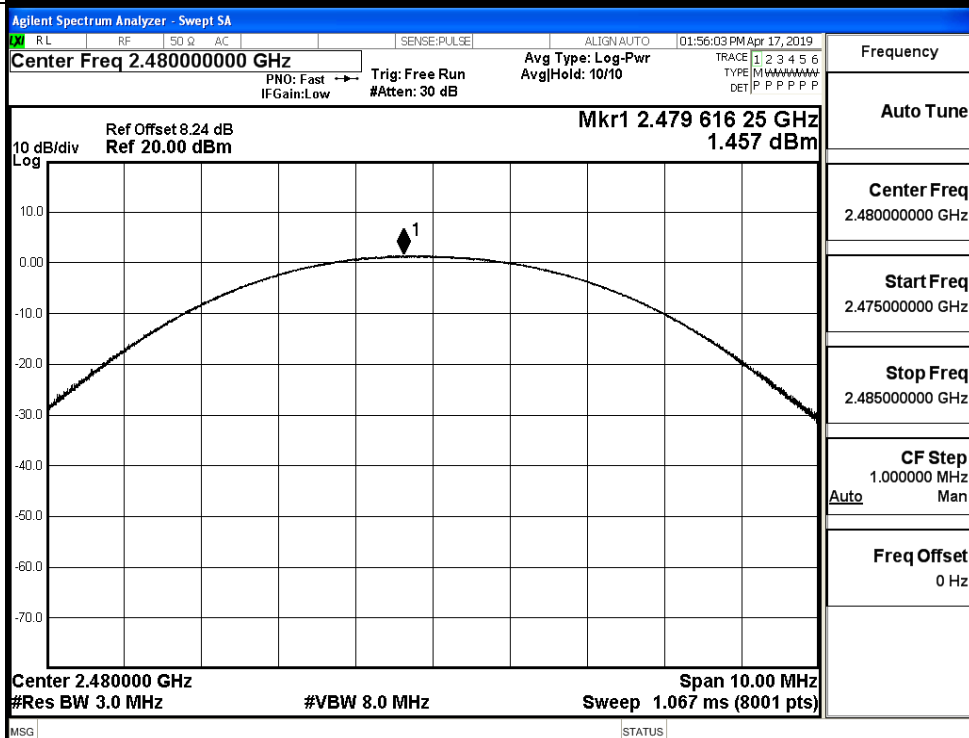


GFSK/MCH

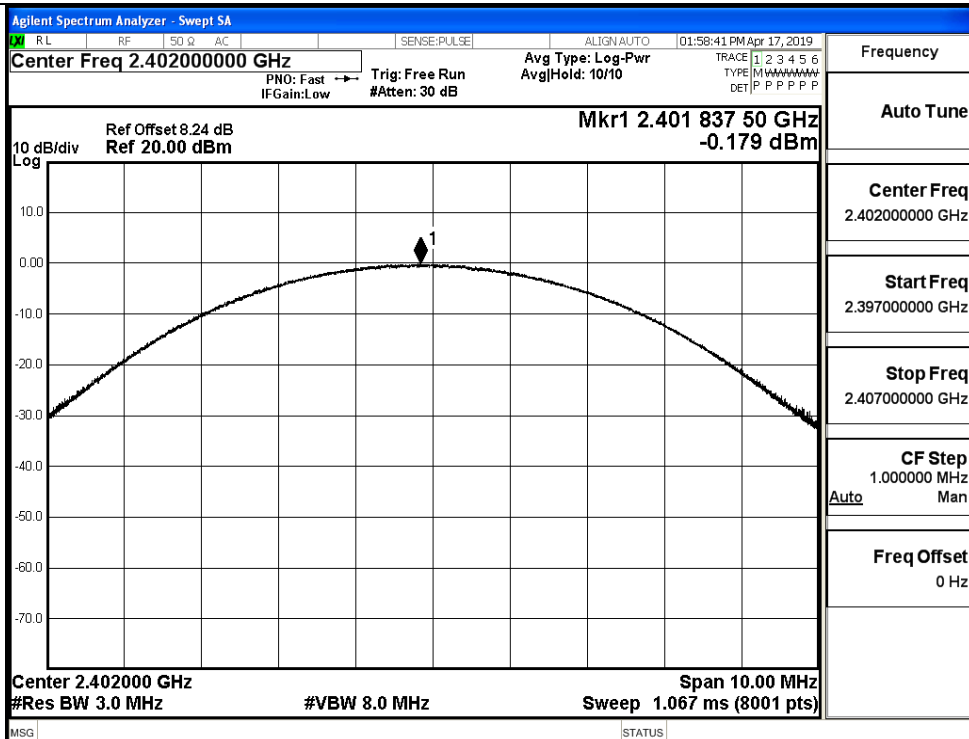


GFSK/HCH

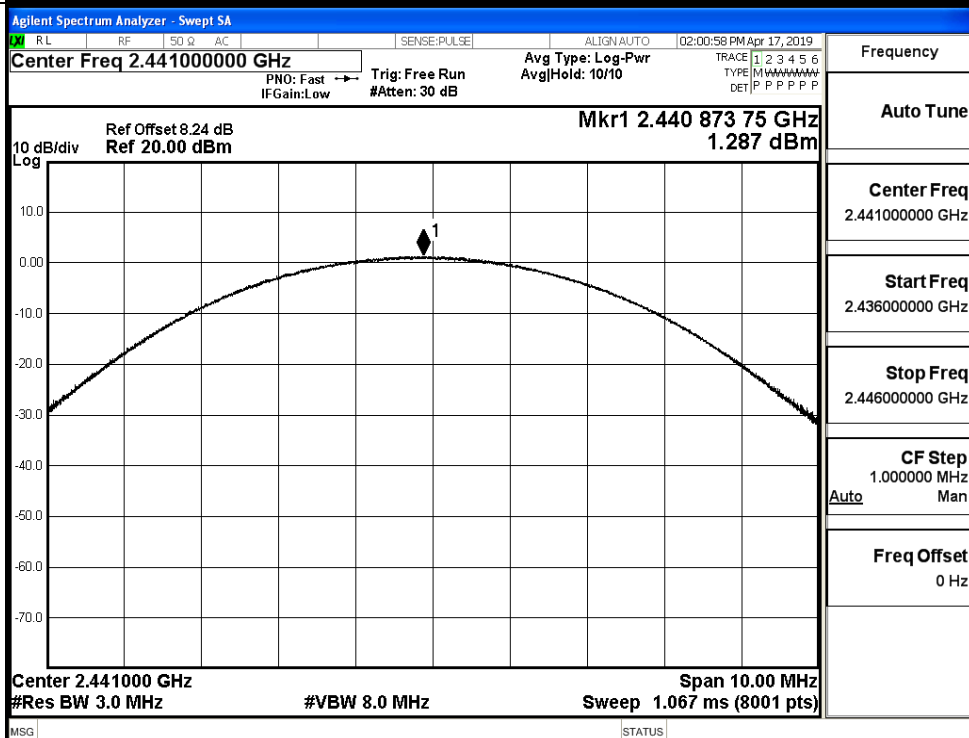
 $\pi/4$ DQPSK/LCH

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

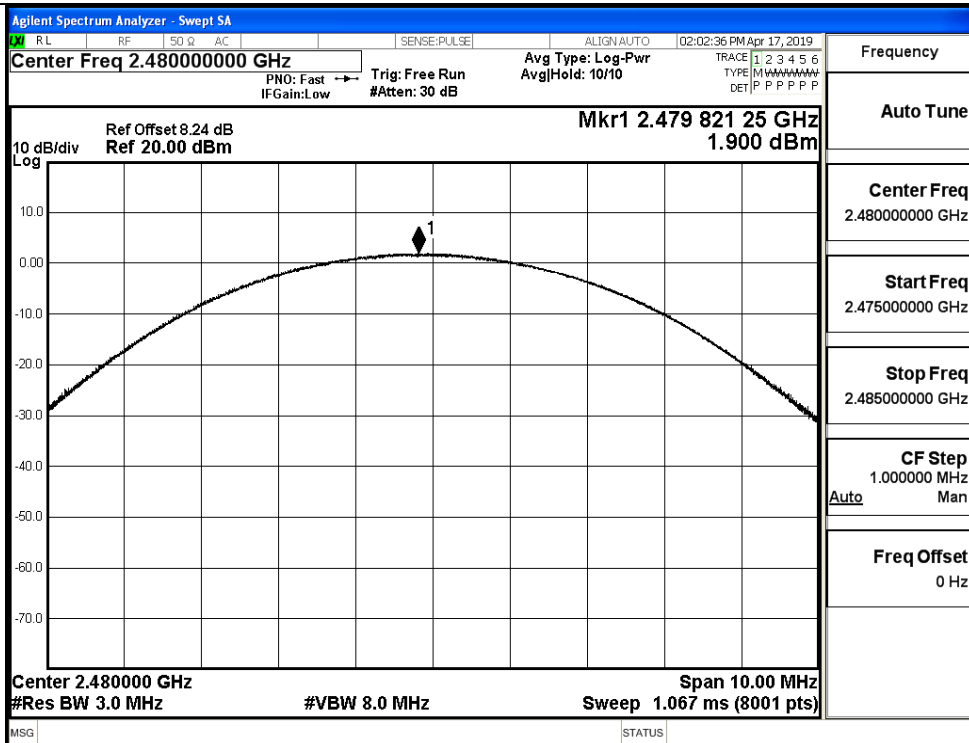
8DPSK/LCH



8DPSK/MCH



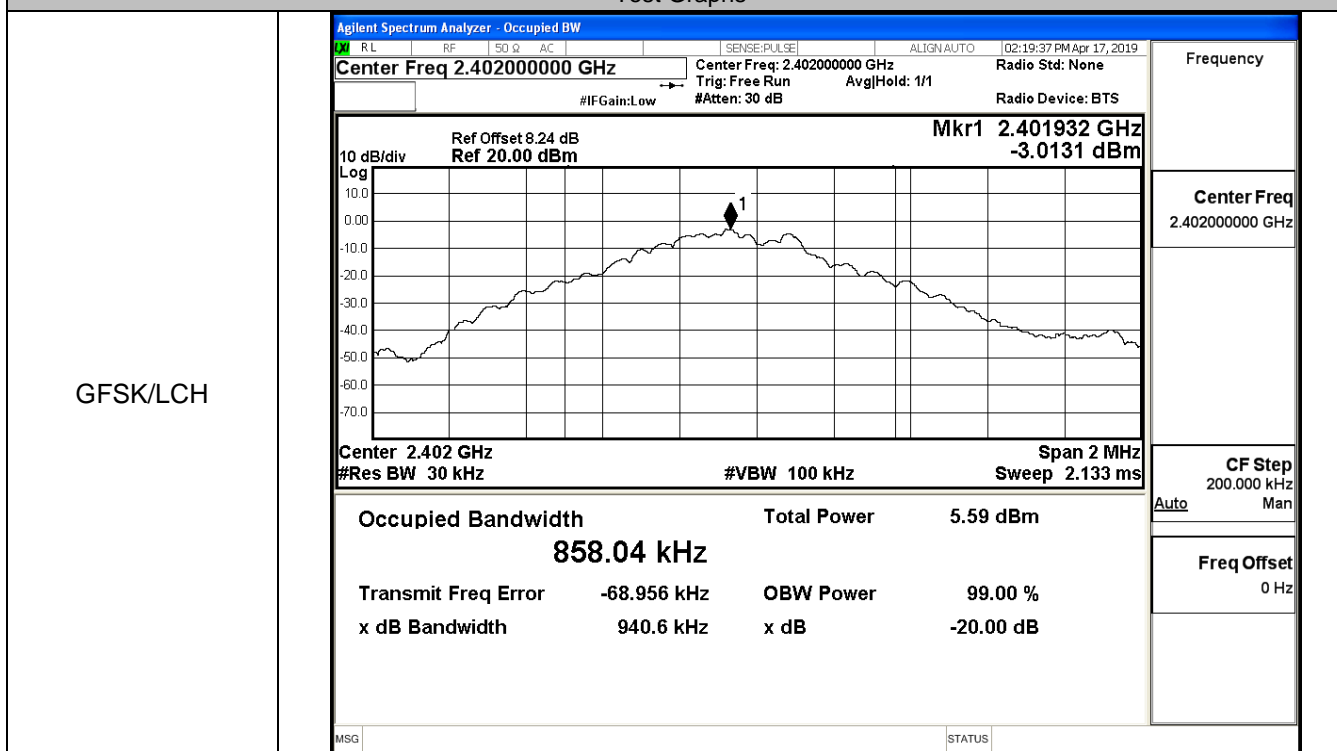
8DPSK/HCH



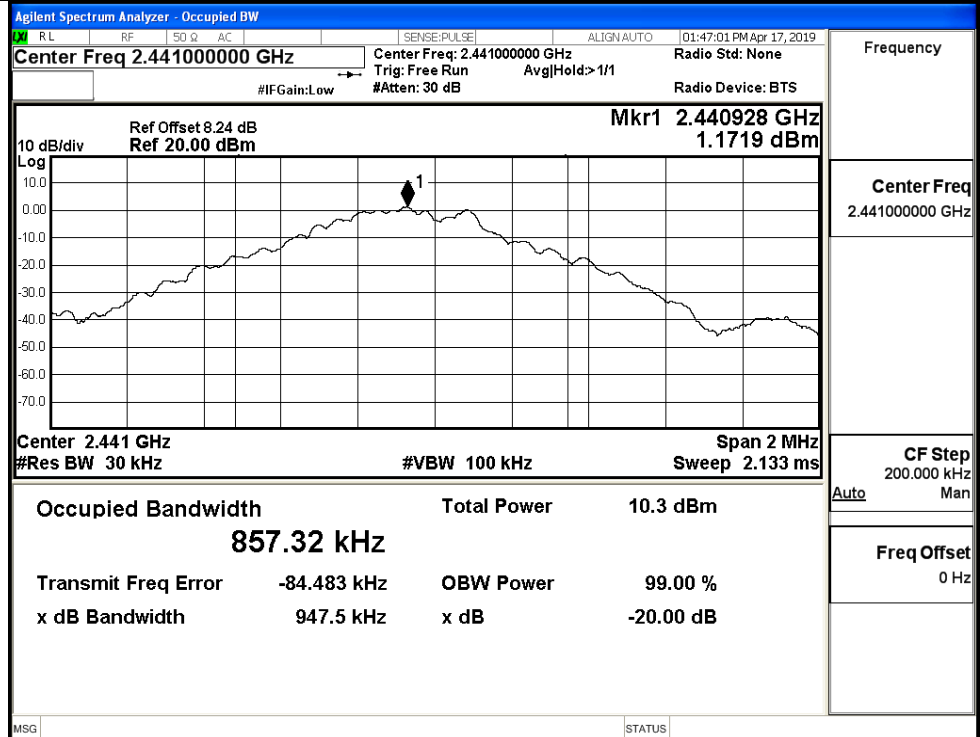
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9406	Not Specified	PASS
	MCH	0.9475	Not Specified	PASS
	HCH	0.9455	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.232	Not Specified	PASS
	MCH	1.232	Not Specified	PASS
	HCH	1.228	Not Specified	PASS
8DPSK	LCH	1.262	Not Specified	PASS
	MCH	1.261	Not Specified	PASS
	HCH	1.262	Not Specified	PASS

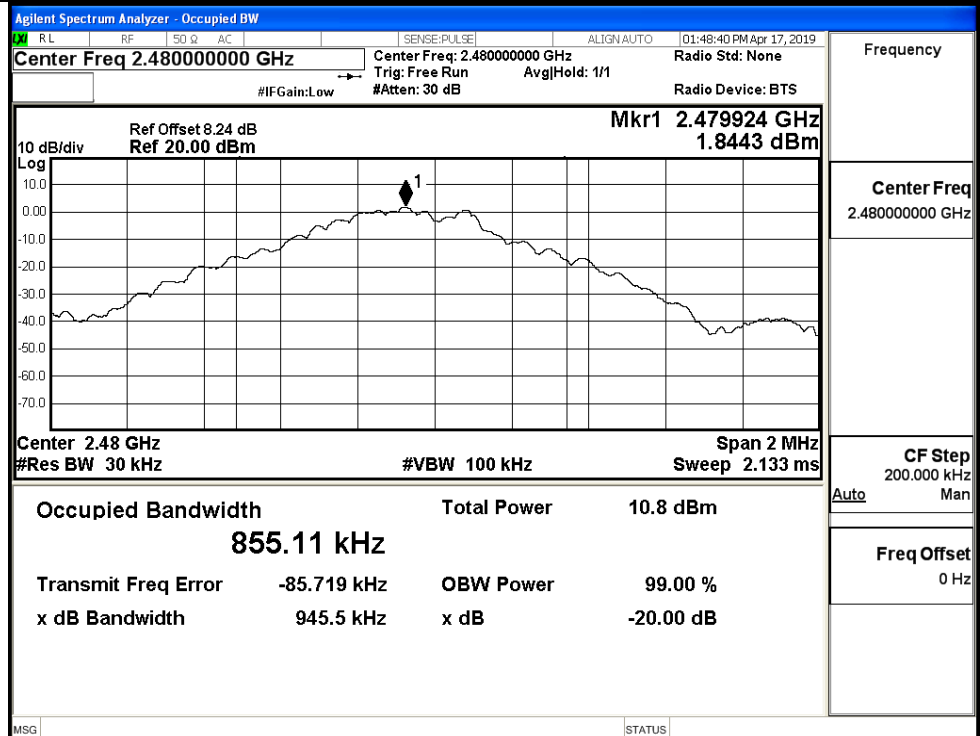
Test Graphs

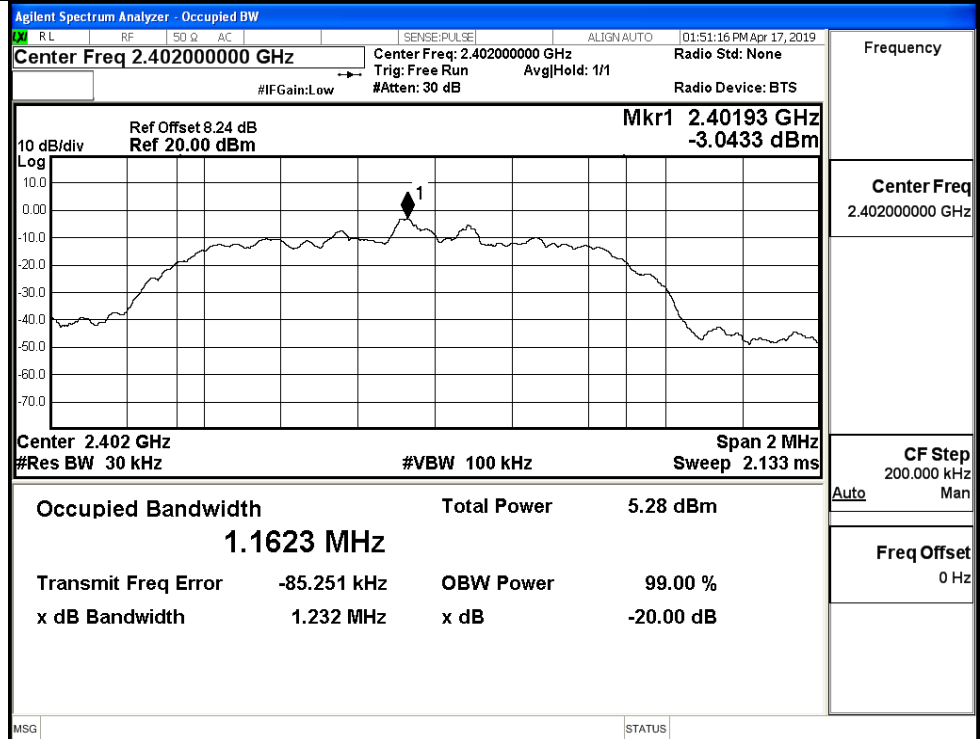
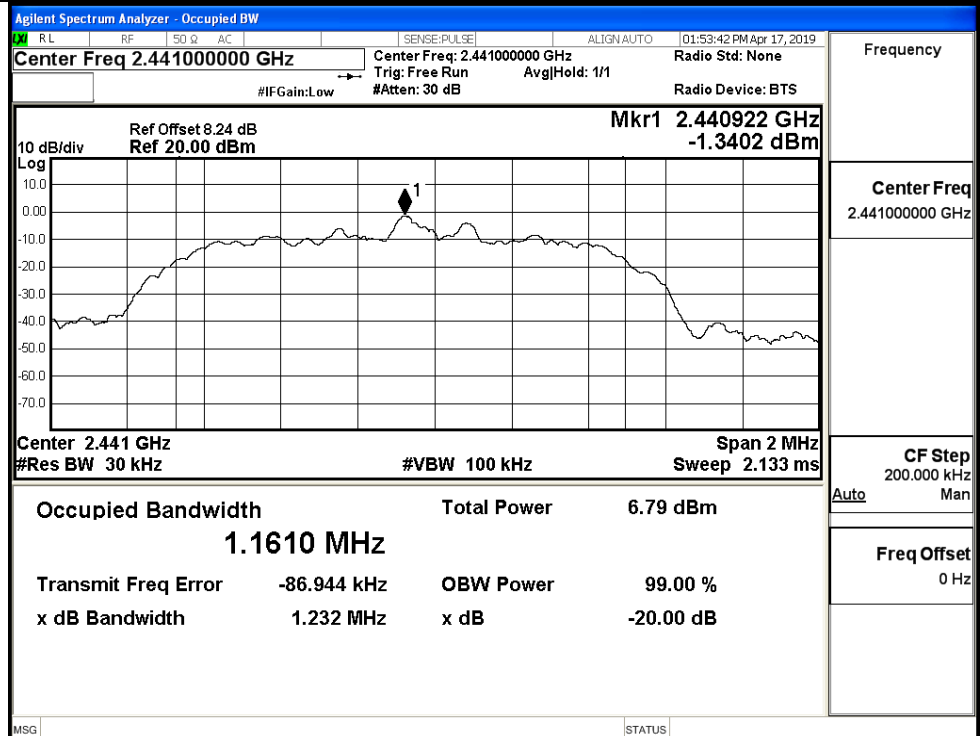


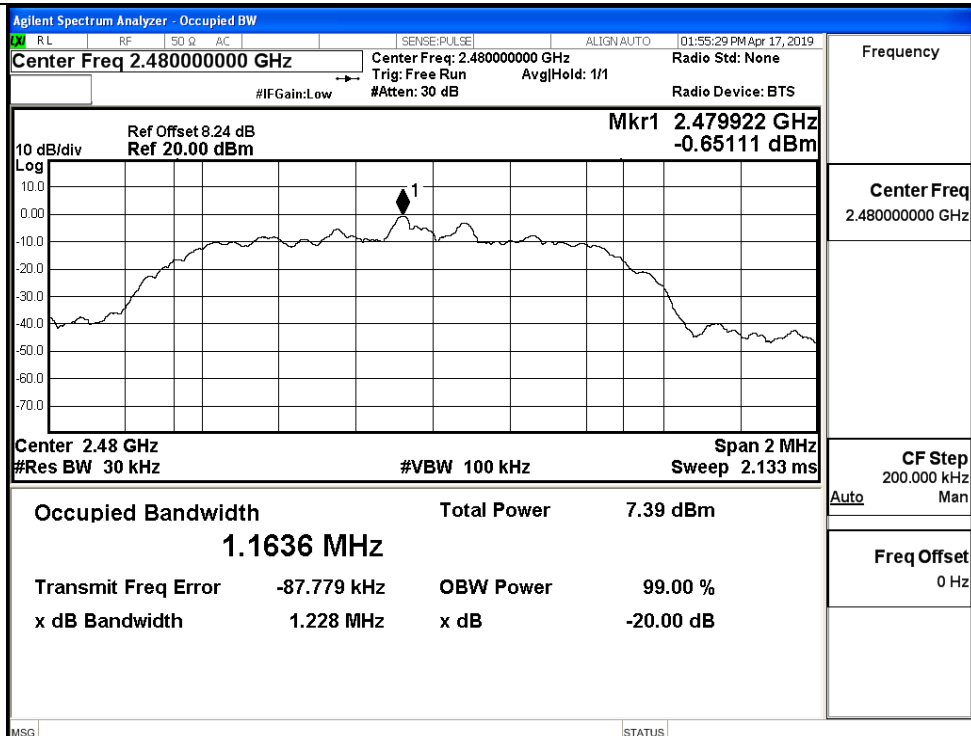
GFSK/MCH



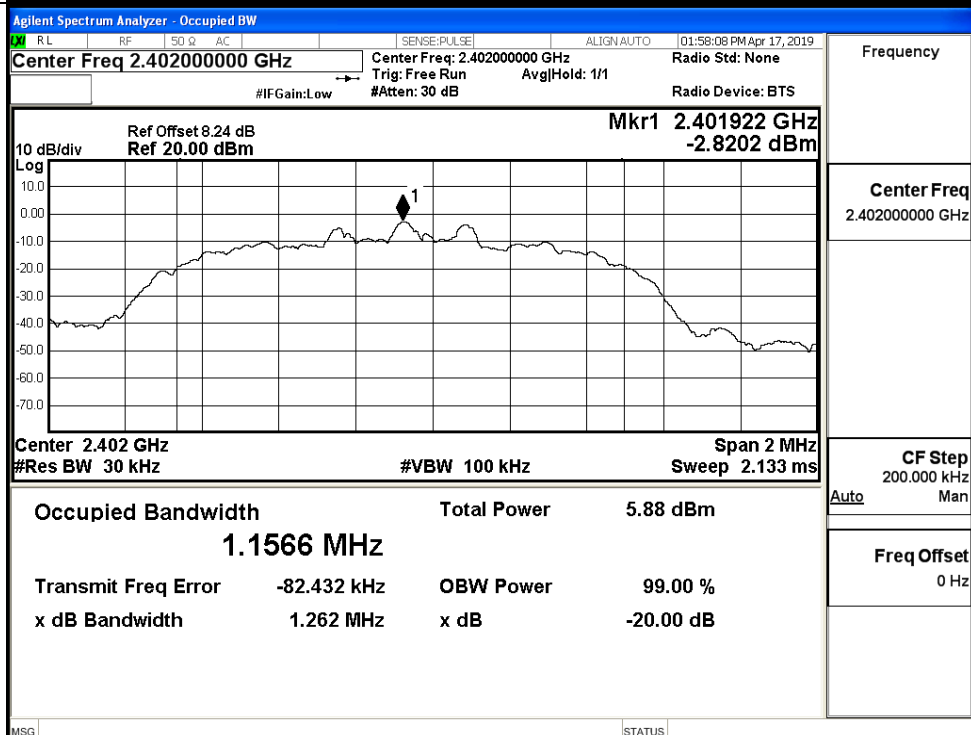
GFSK/HCH



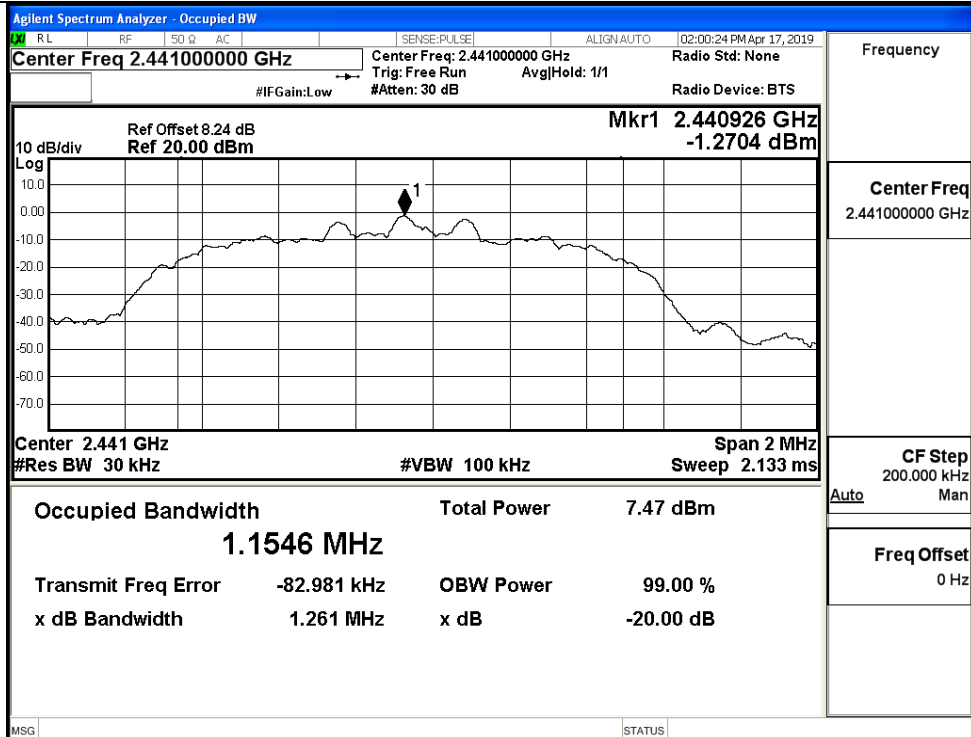
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

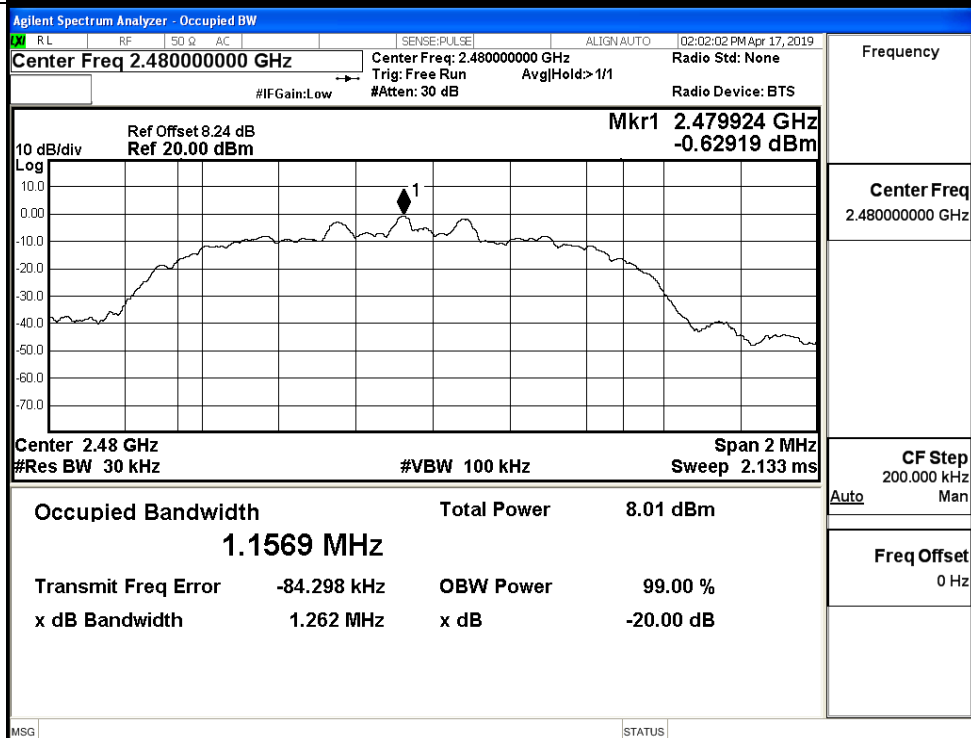
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

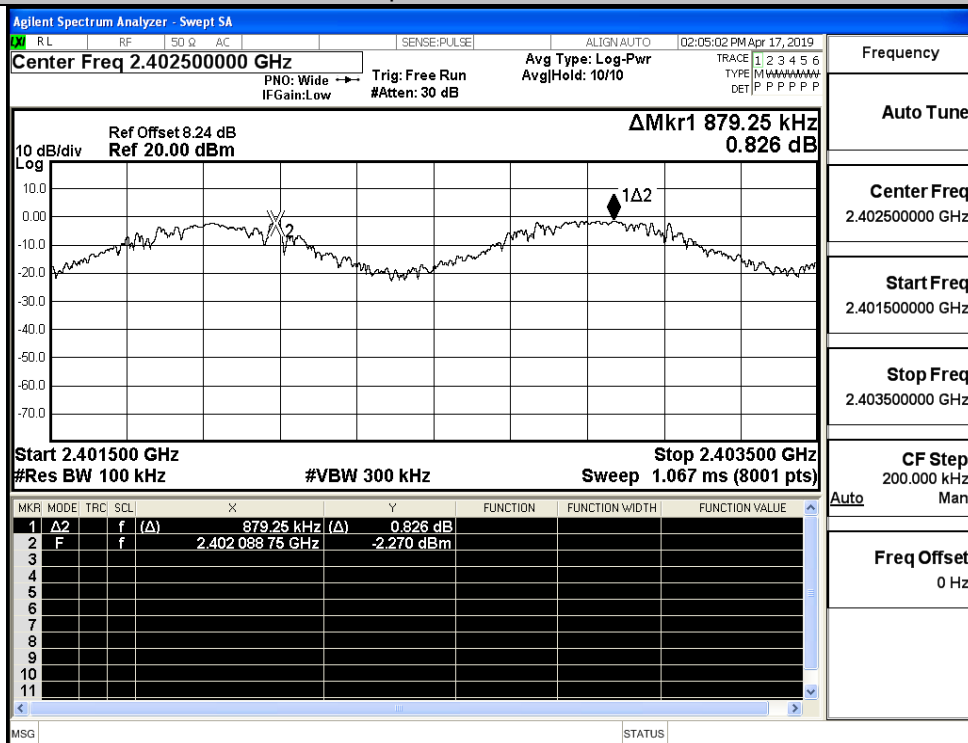


A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.879	0.632	PASS
	MCH	1.000	0.632	PASS
	HCH	1.092	0.632	PASS
$\pi/4$ DQPSK	LCH	0.848	0.821	PASS
	MCH	0.876	0.821	PASS
	HCH	1.156	0.821	PASS
8DPSK	LCH	1.196	0.841	PASS
	MCH	1.128	0.841	PASS
	HCH	0.870	0.841	PASS

Test Graphs

GFSK/LCH



Frequency

Auto Tune

Center Freq

2.402500000 GHz

Start Freq

2.401500000 GHz

Stop Freq

2.403500000 GHz

CF Step

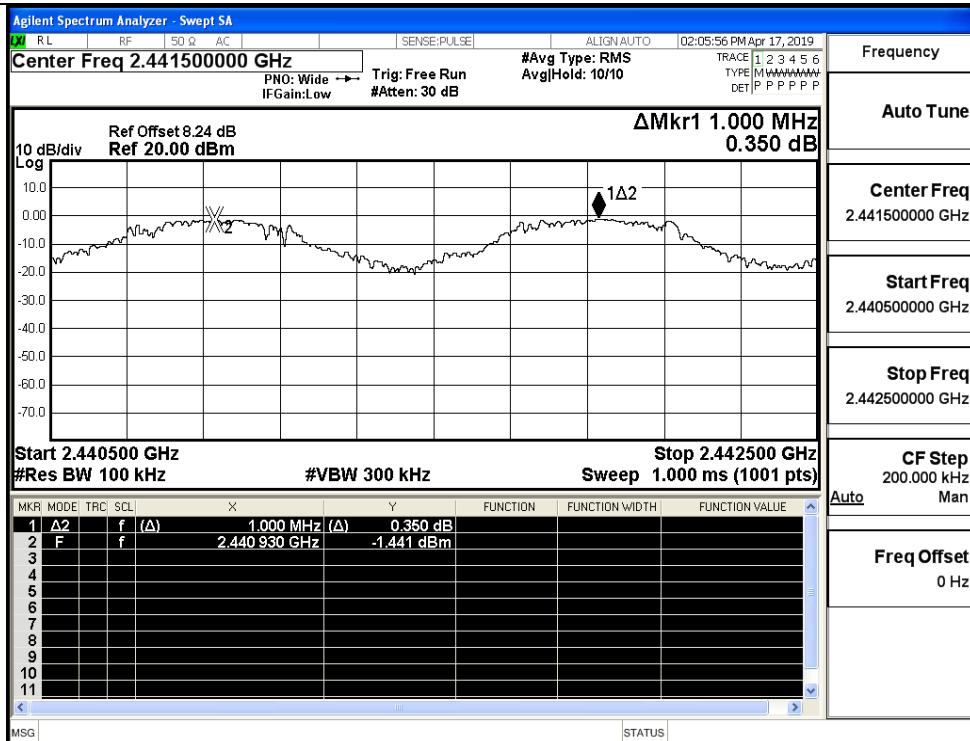
200.000 kHz

Man

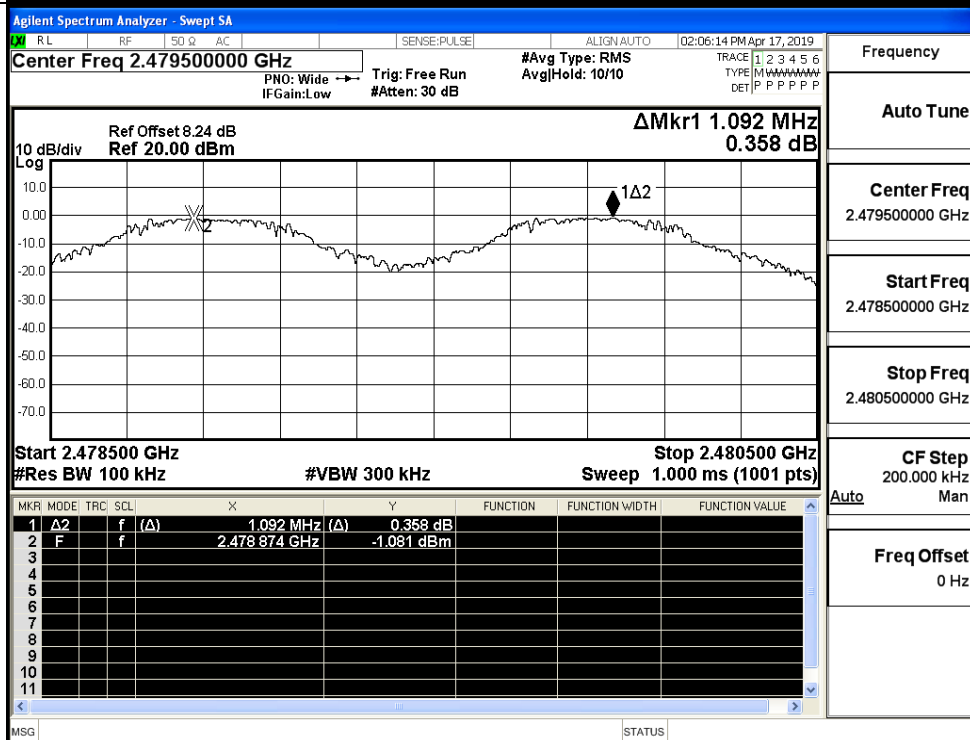
Freq Offset

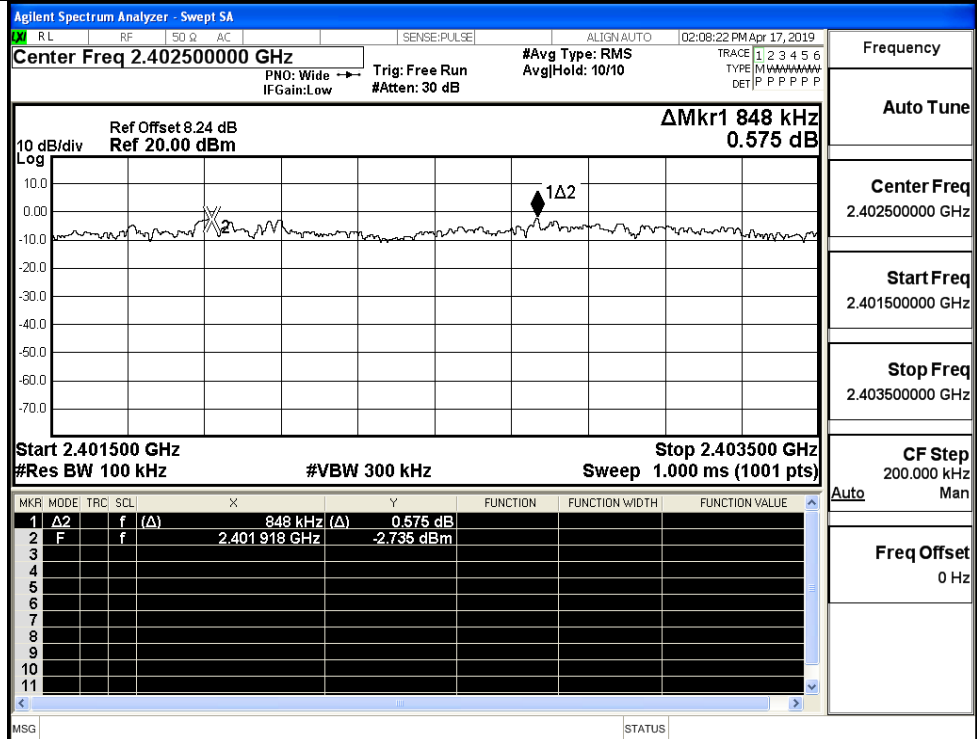
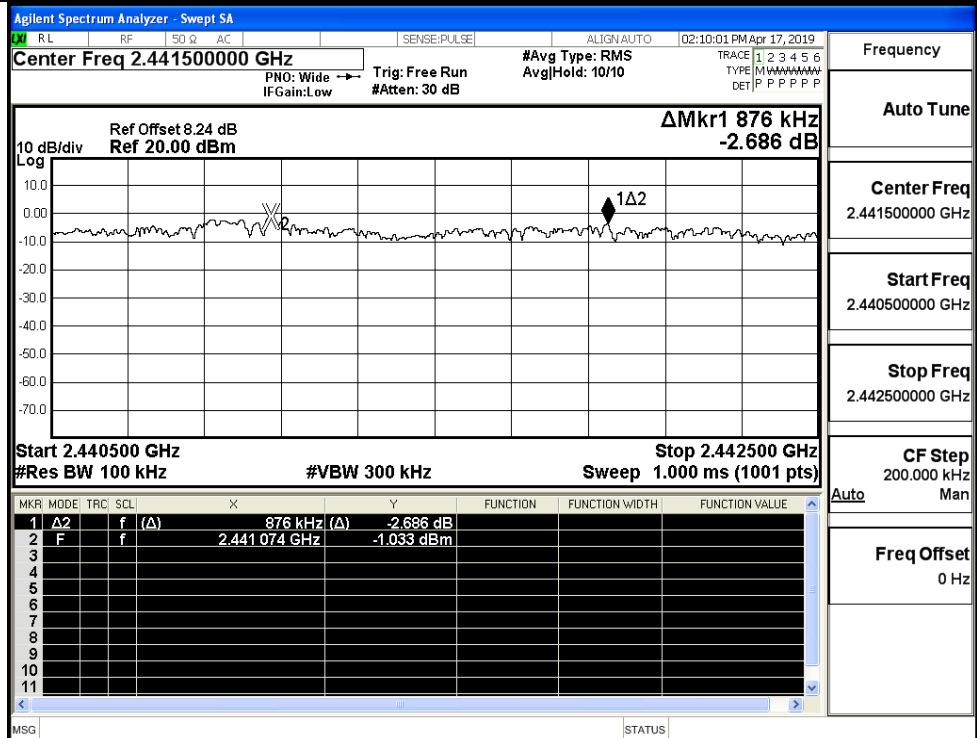
0 Hz

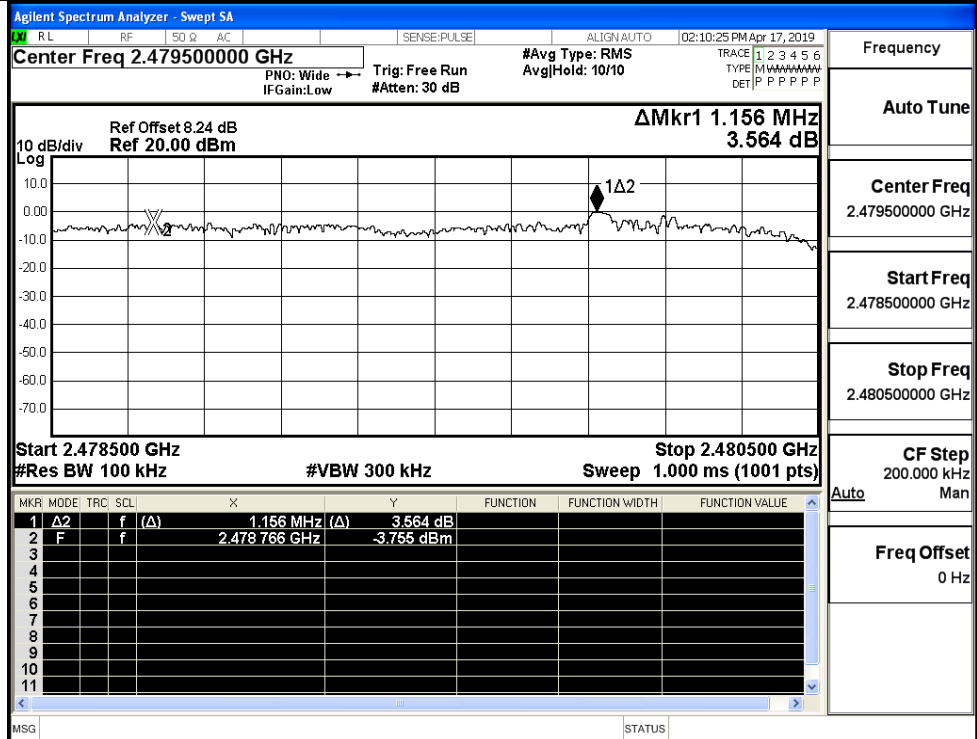
GFSK/MCH



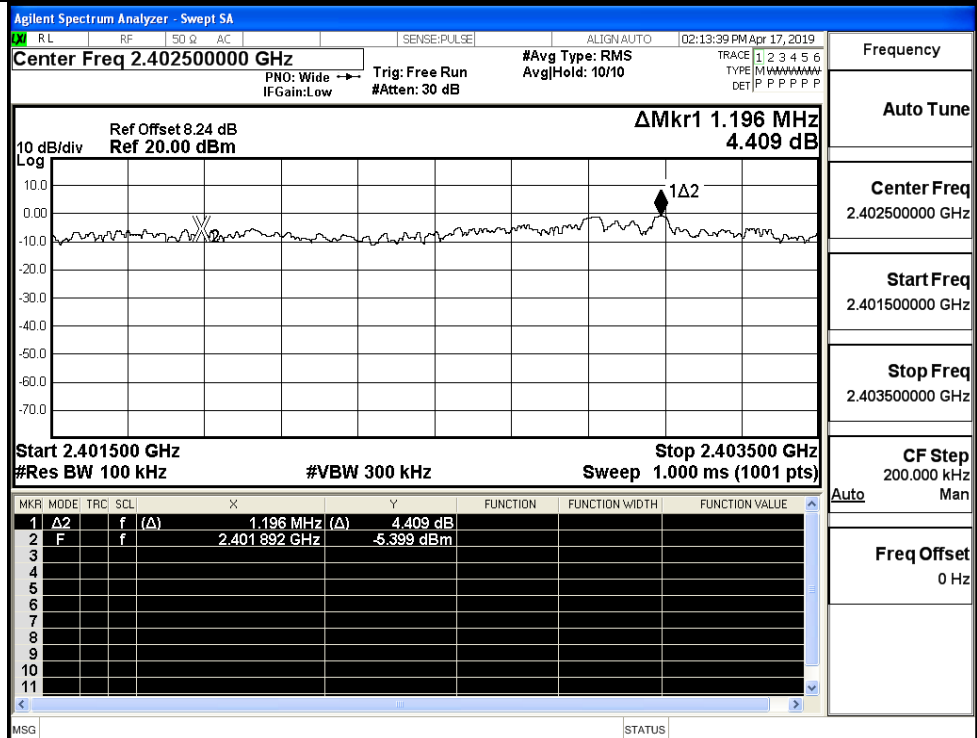
GFSK/HCH



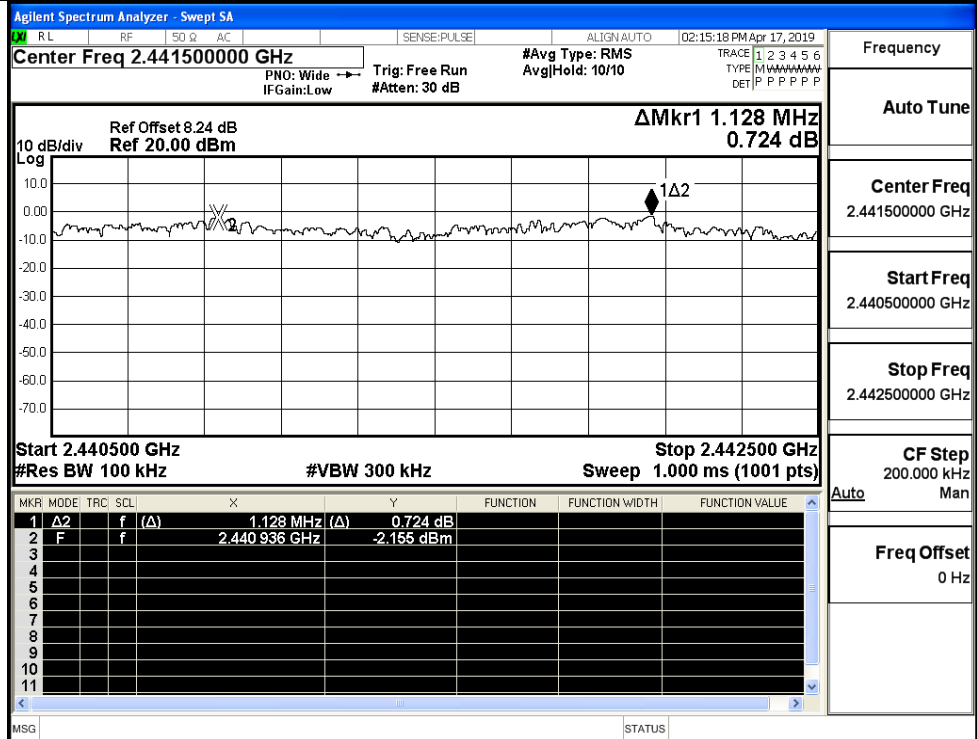
π /4DQPSK/LCH π /4DQPSK/MCH

$\pi/4$ DQPSK/HCH

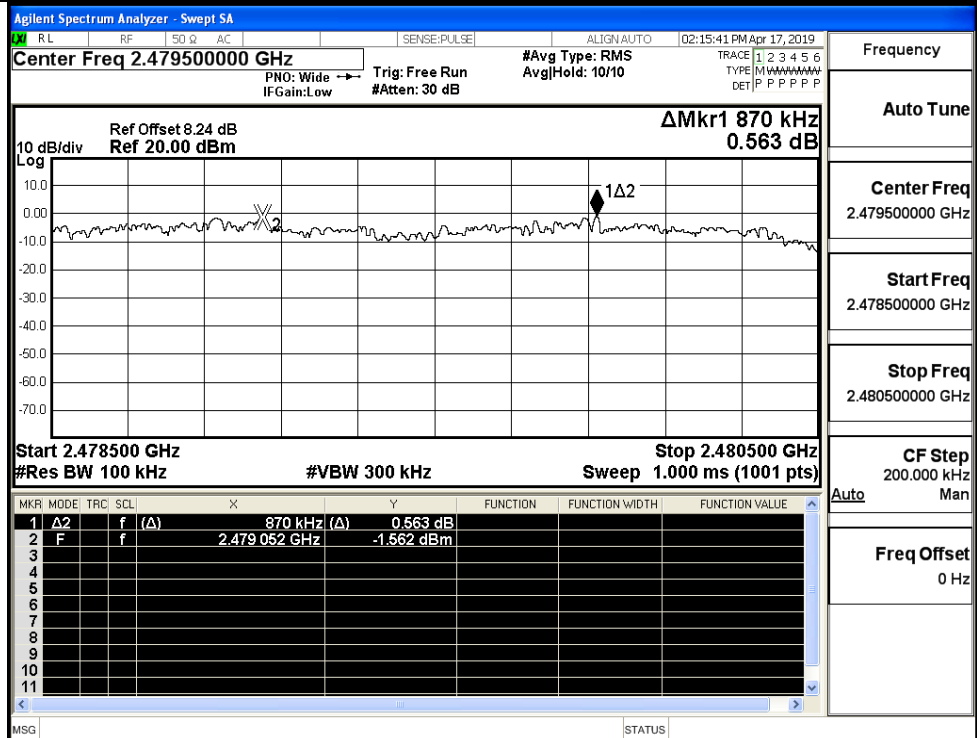
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

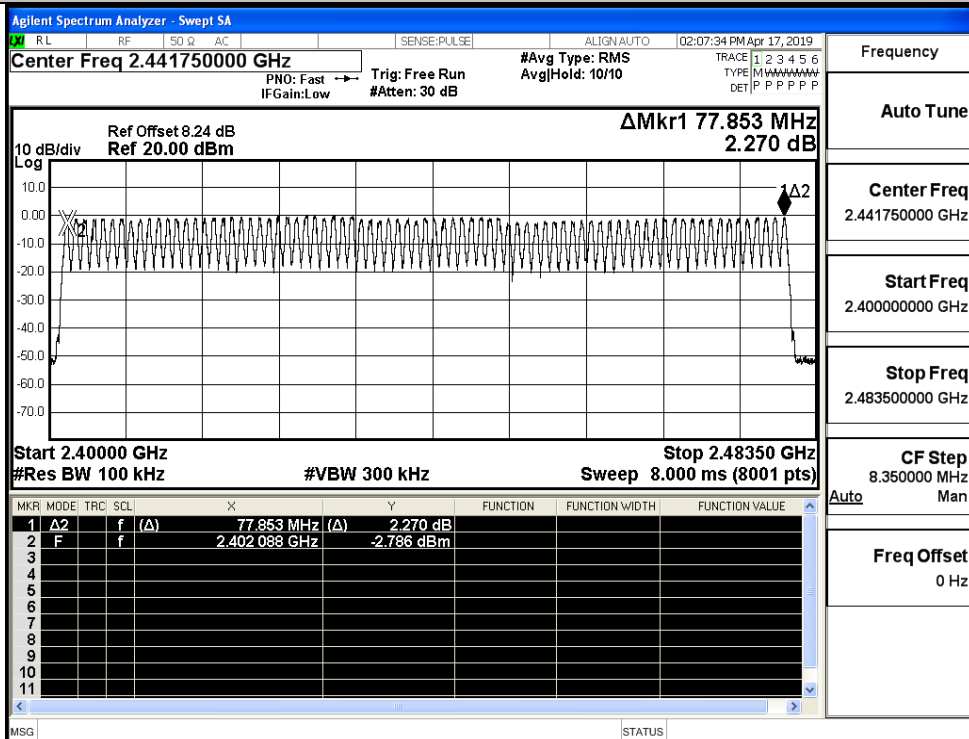
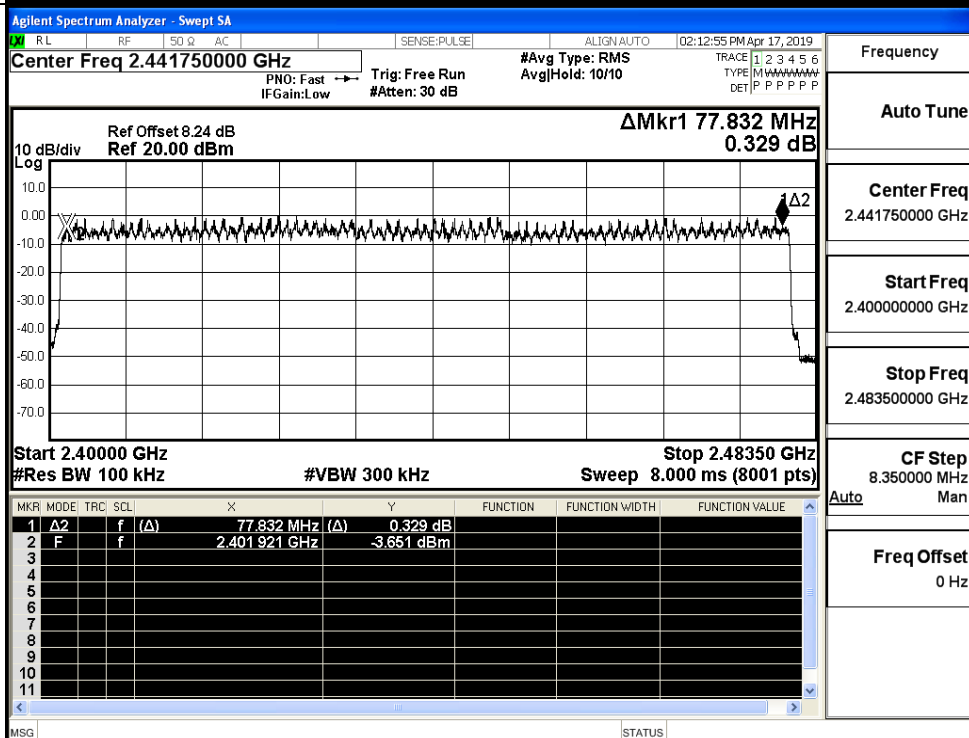


A.4 Hopping Channel Number

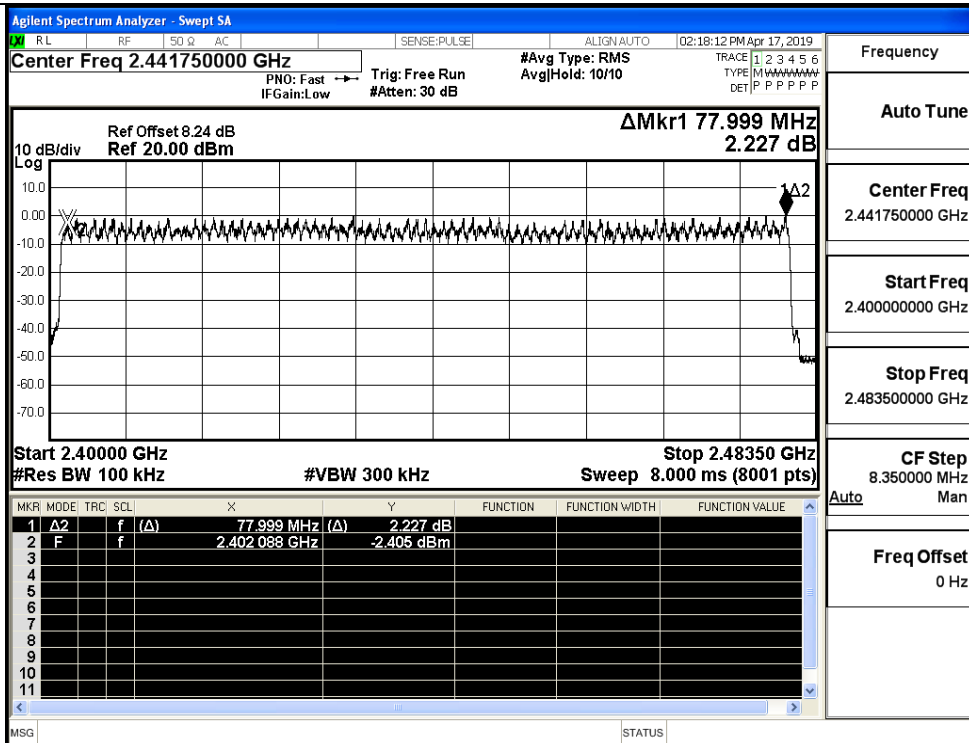
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

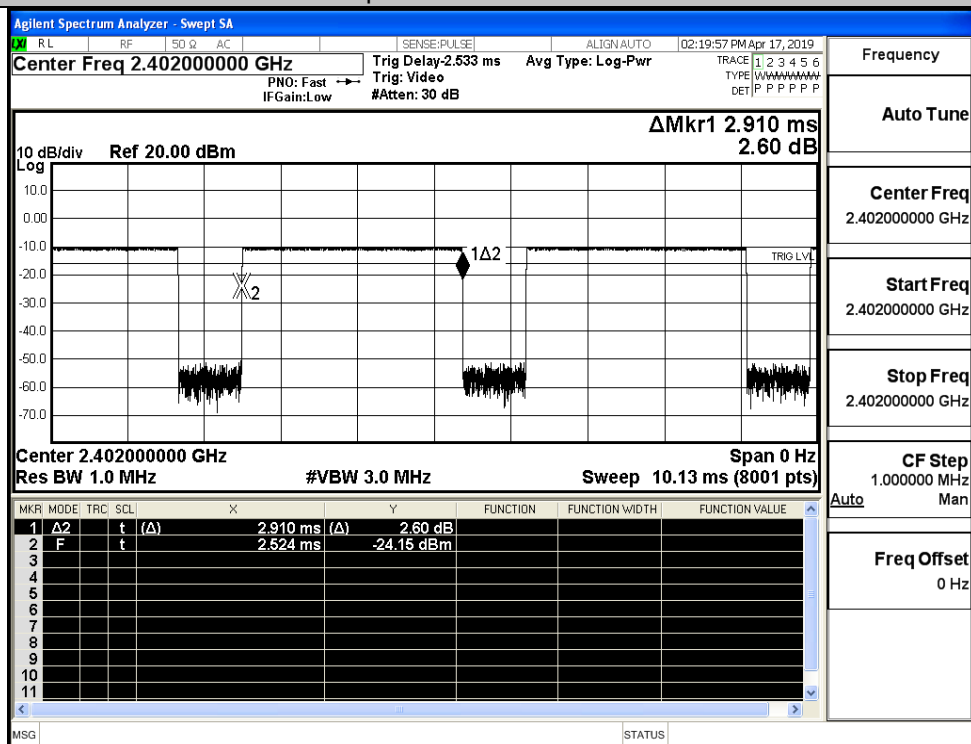


A.5 Dwell Time

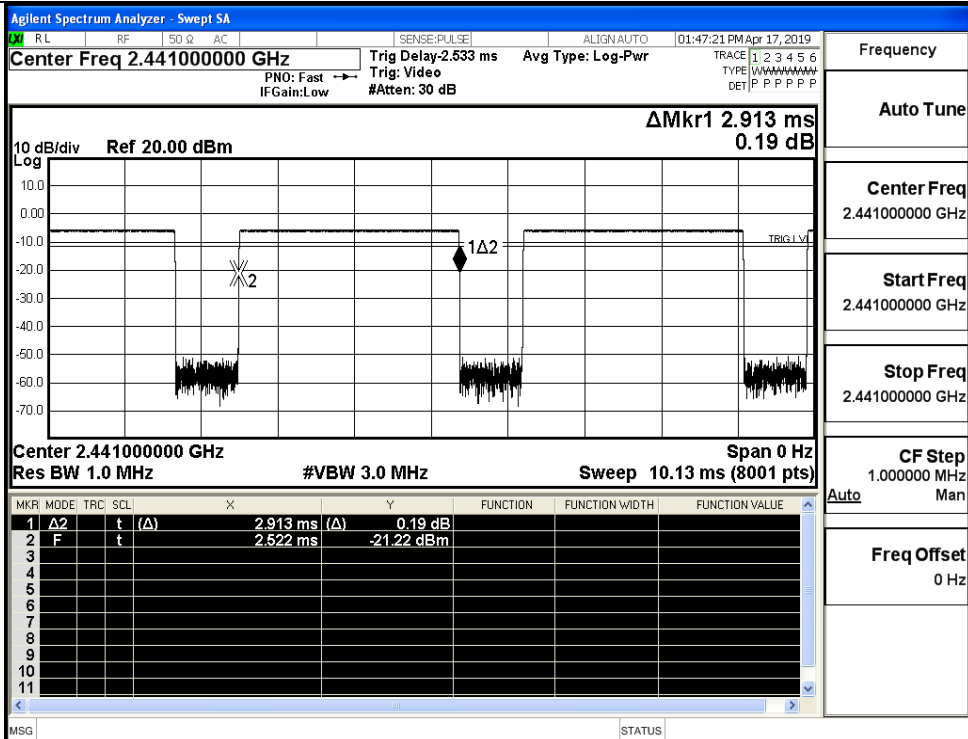
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.91	106.7	0.31	0.4	PASS
	DH5	MCH	2.91	106.7	0.31	0.4	PASS
	DH5	HCH	2.91	106.7	0.31	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.91	106.7	0.312	0.4	PASS
	2DH5	MCH	2.91	106.7	0.312	0.4	PASS
	2DH5	HCH	2.91	106.7	0.312	0.4	PASS
8DPSK	3DH5	LCH	2.91	106.7	0.312	0.4	PASS
	3DH5	MCH	2.91	106.7	0.312	0.4	PASS
	3DH5	HCH	2.91	106.7	0.312	0.4	PASS

Test Graphs

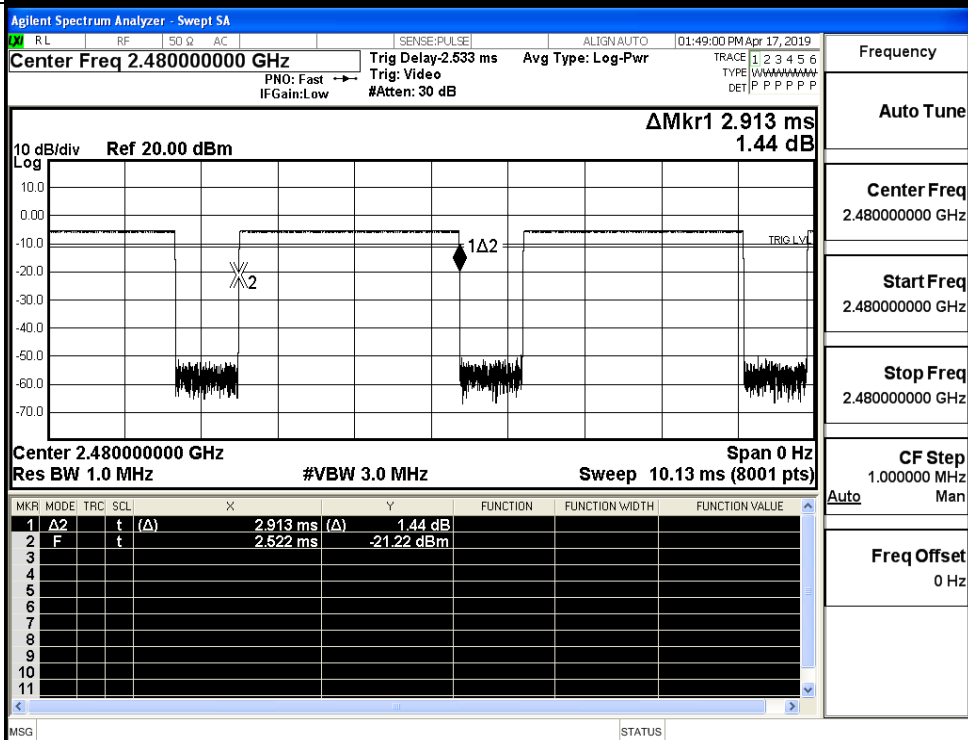
GFSK_DH5/LCH



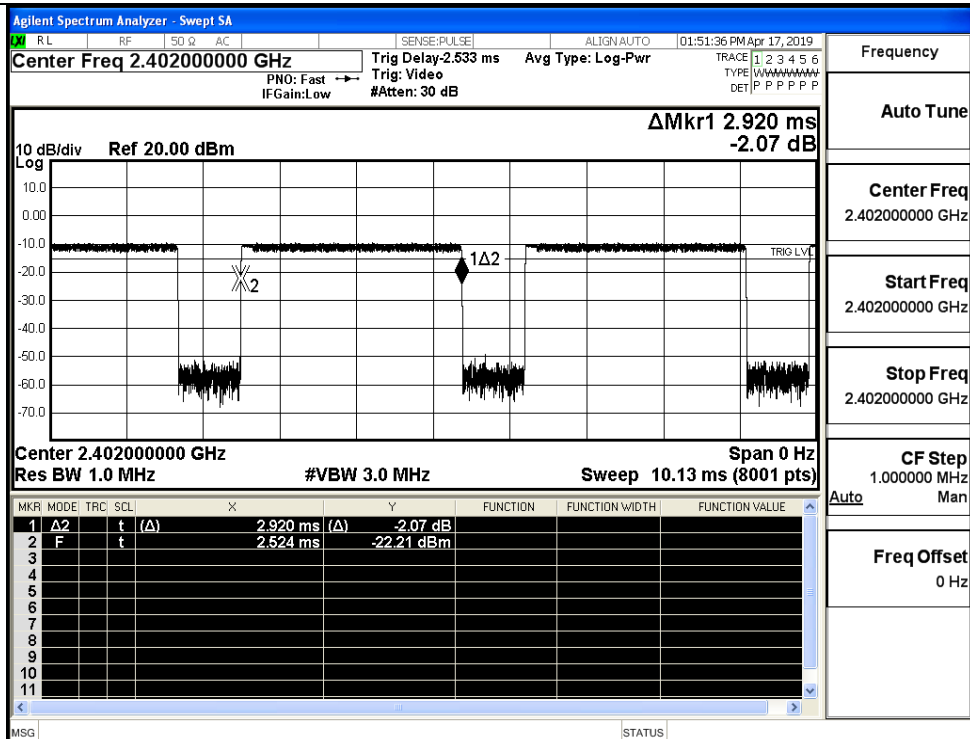
GFSK_DH5/MCH



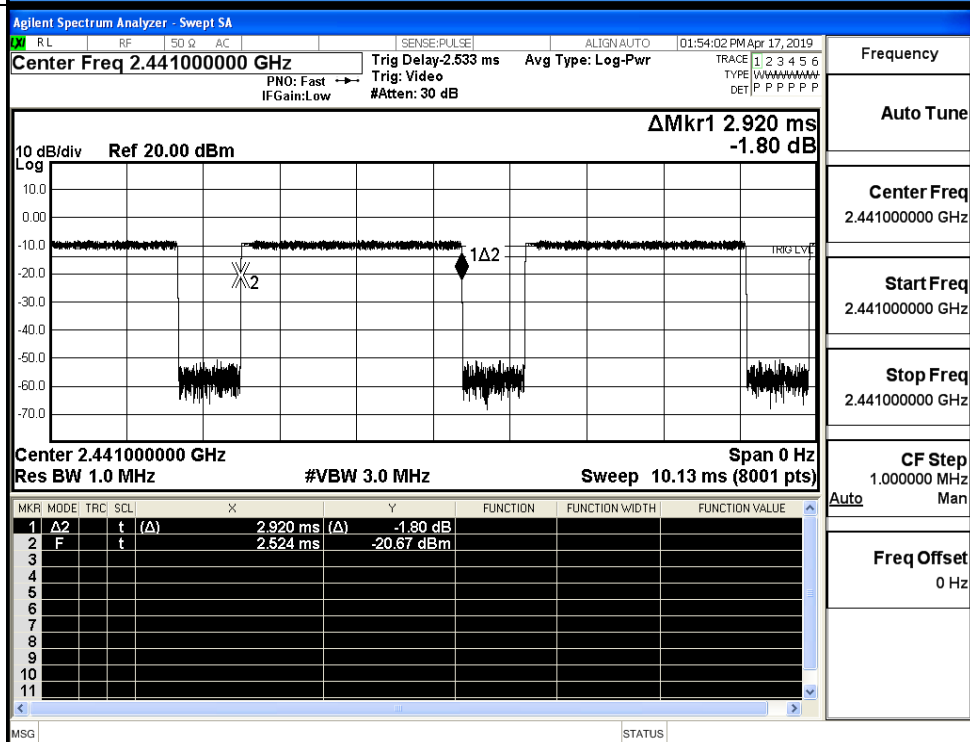
GFSK_DH5/HCH



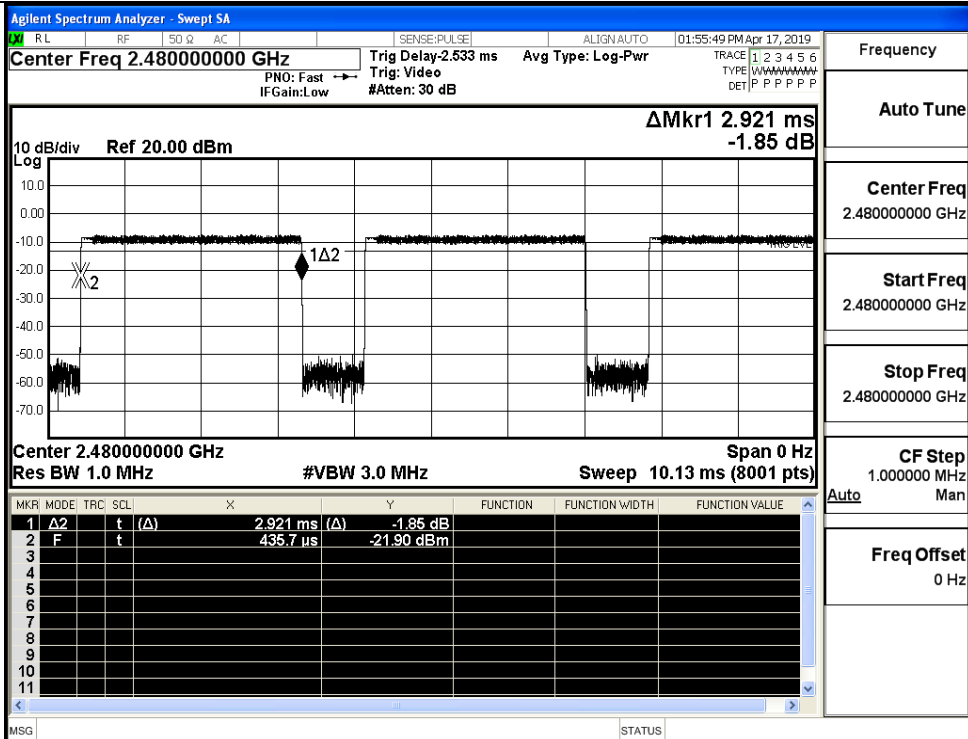
$\pi/4$ DQPSK
_2DH5/LCH



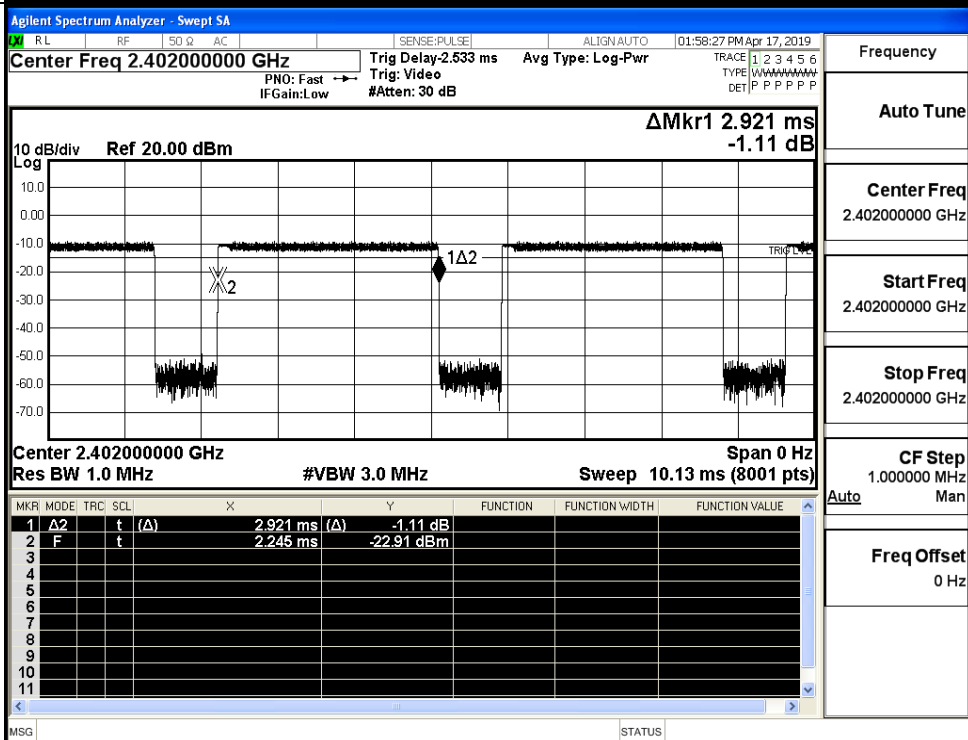
$\pi/4$ DQPSK
_2DH5/MCH



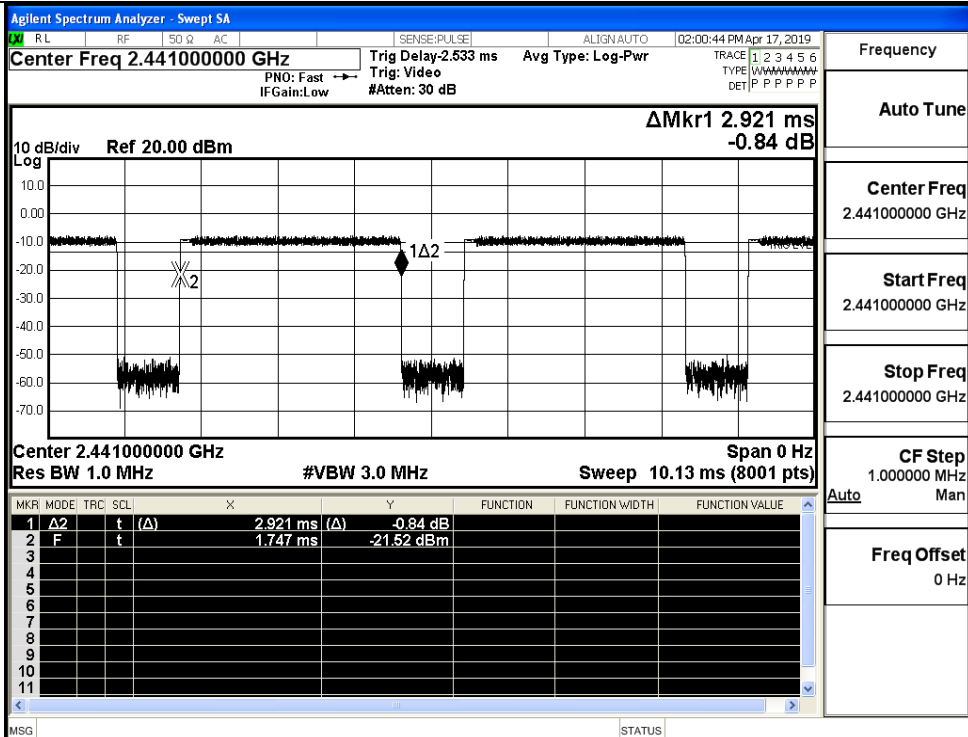
$\pi/4$ DQPSK
_2DH5/HCH



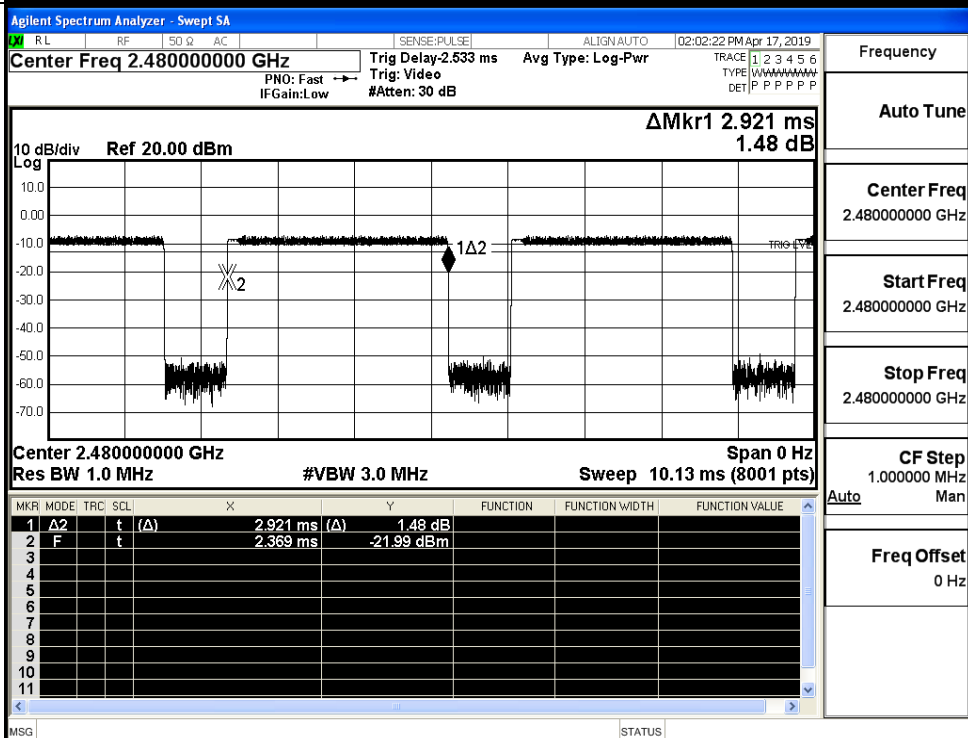
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



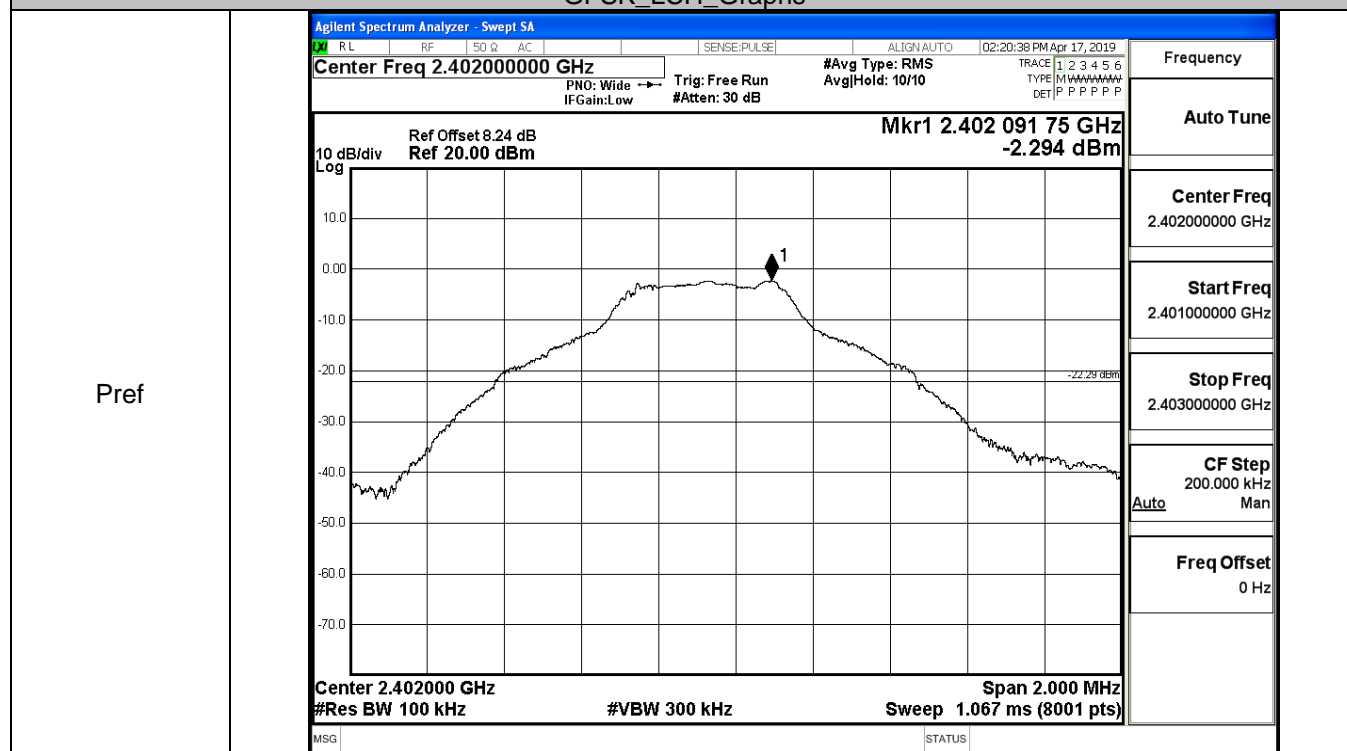
8DPSK_3DH5/HCH



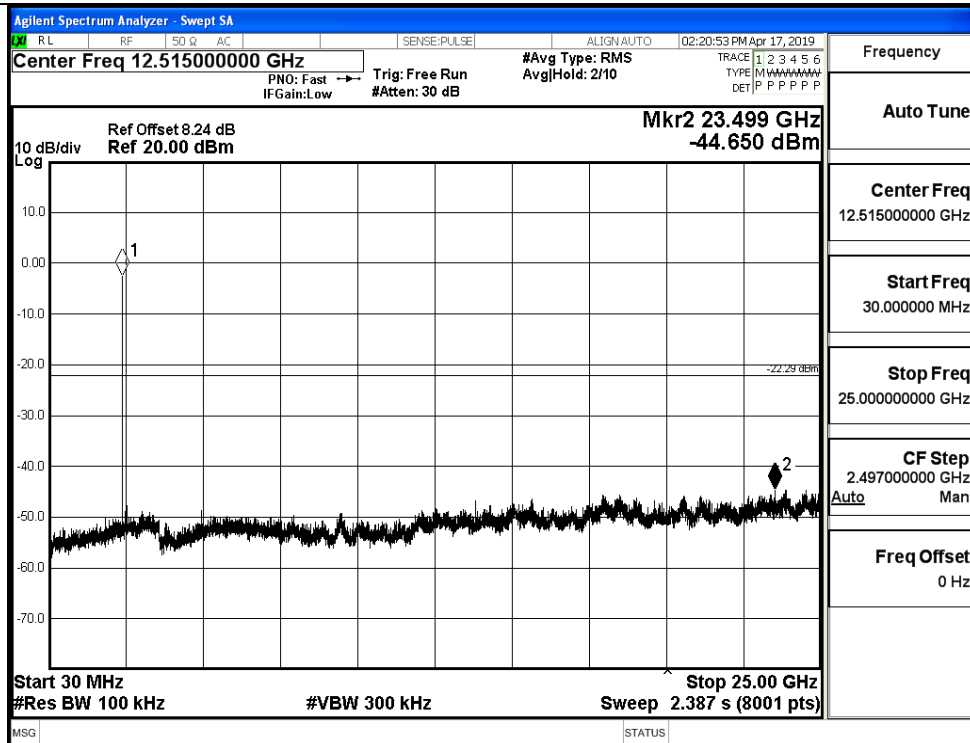
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.294	-44.650	-22.294	PASS
	MCH	2.326	-44.848	-17.674	PASS
	HCH	2.893	-43.086	-17.107	PASS
$\pi/4$ DQPSK	LCH	-2.369	-43.628	-22.369	PASS
	MCH	-0.856	-44.731	-20.856	PASS
	HCH	-0.188	-43.983	-20.188	PASS
8DPSK	LCH	-2.341	-44.120	-22.341	PASS
	MCH	-0.892	-43.231	-20.892	PASS
	HCH	-0.073	-44.629	-20.073	PASS

GFSK_LCH_Graphs

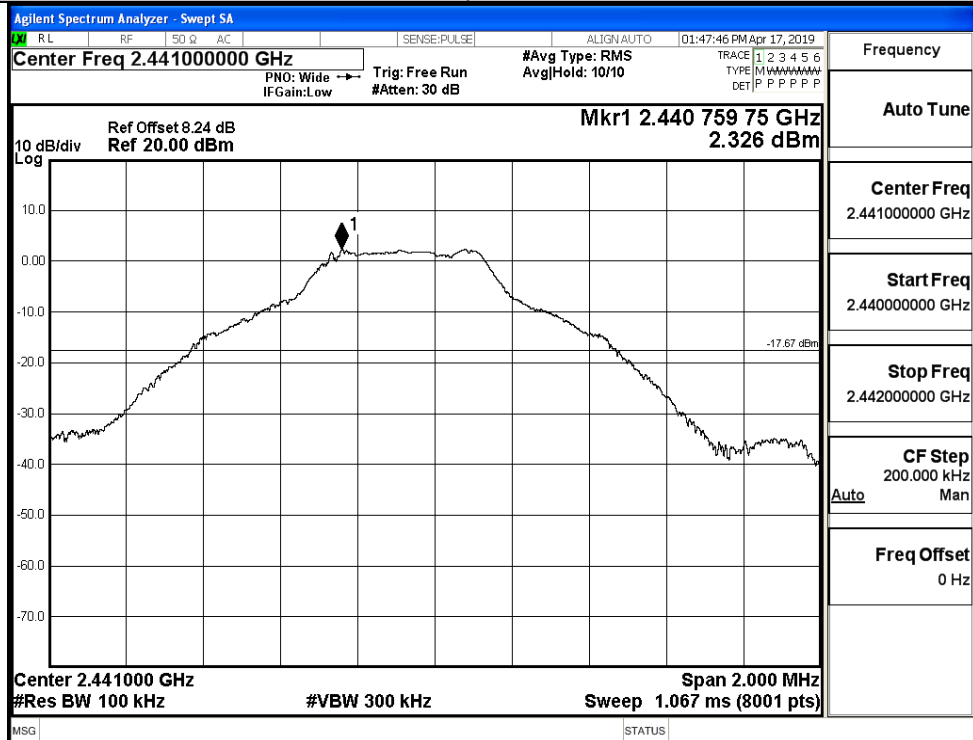


Puw

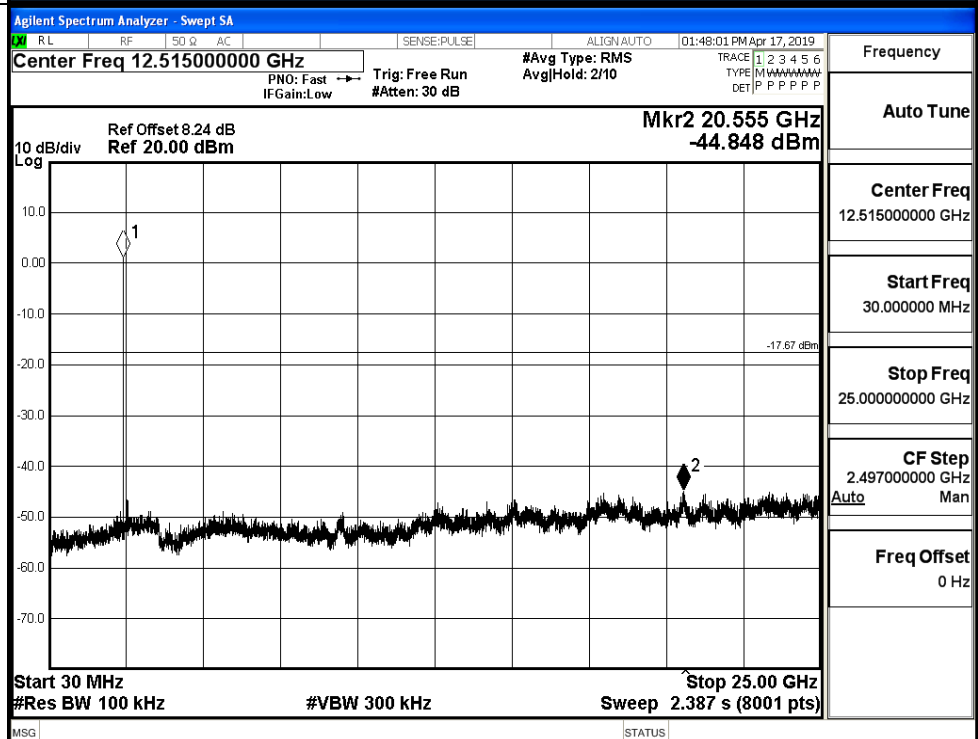


GFSK_MCH_Graphs

Pref

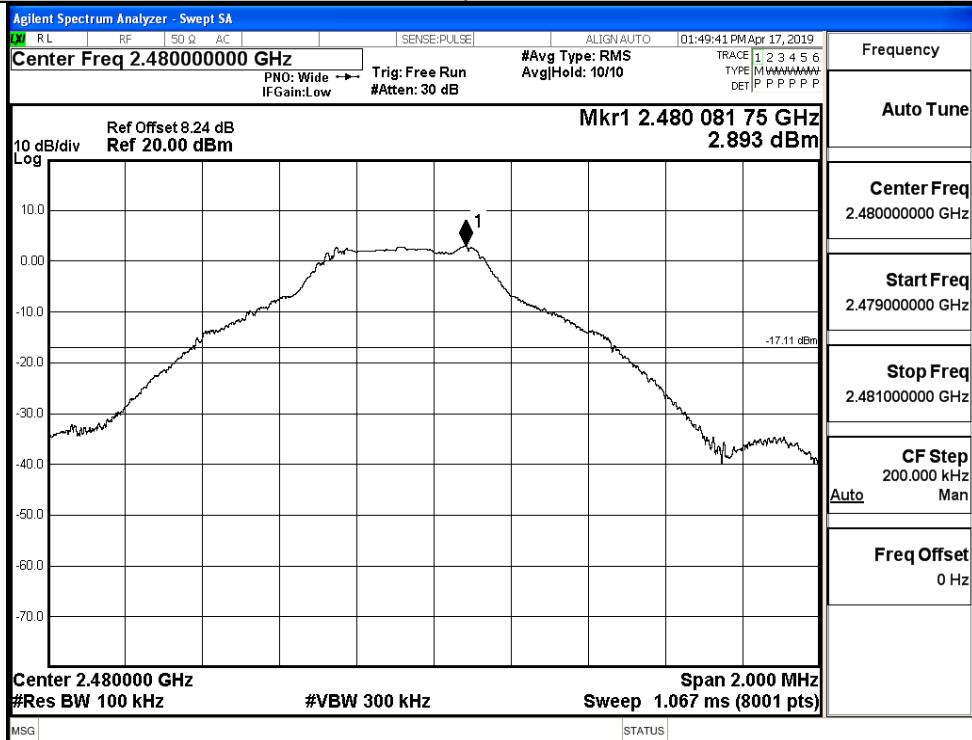


Puw

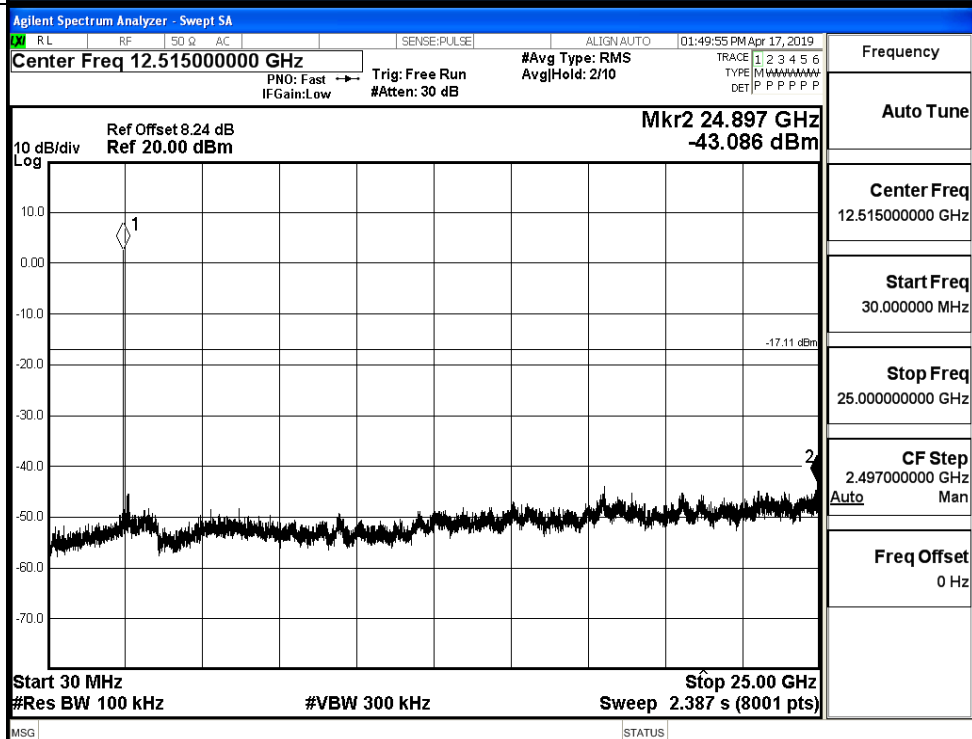


GFSK_HCH_Graphs

Pref

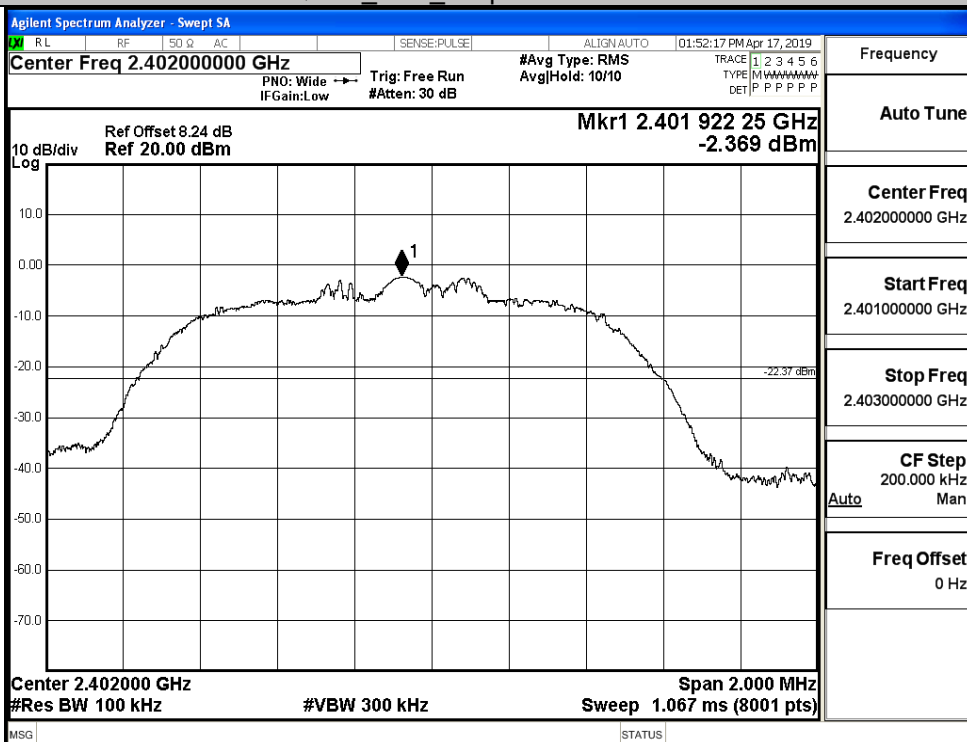


Puw

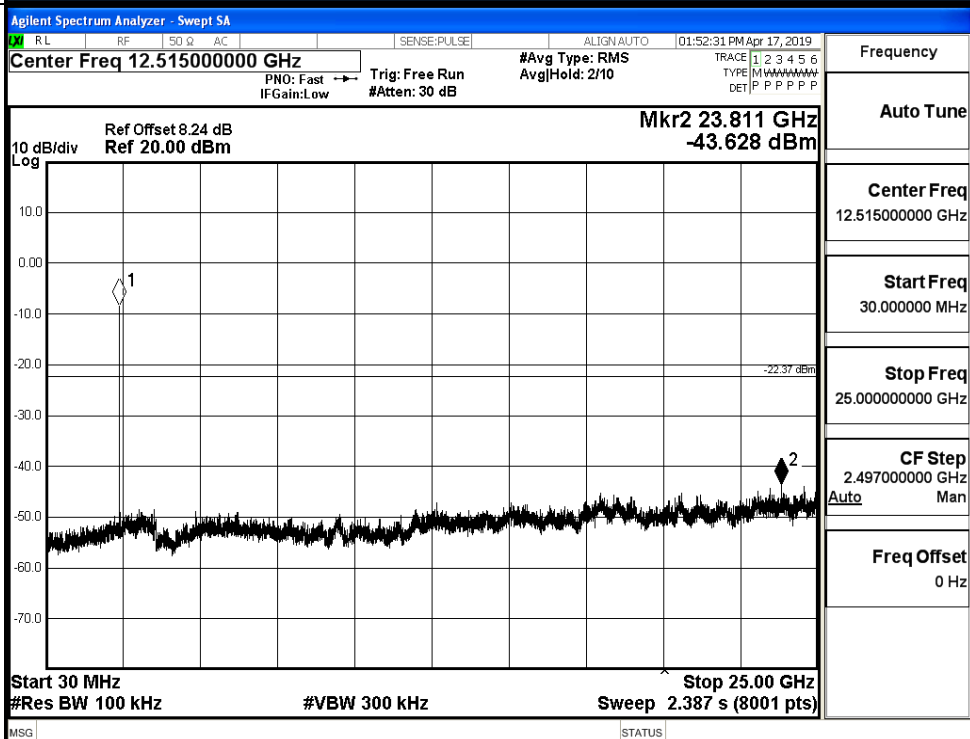


π /4DQPSK_LCH_Graphs

Pref

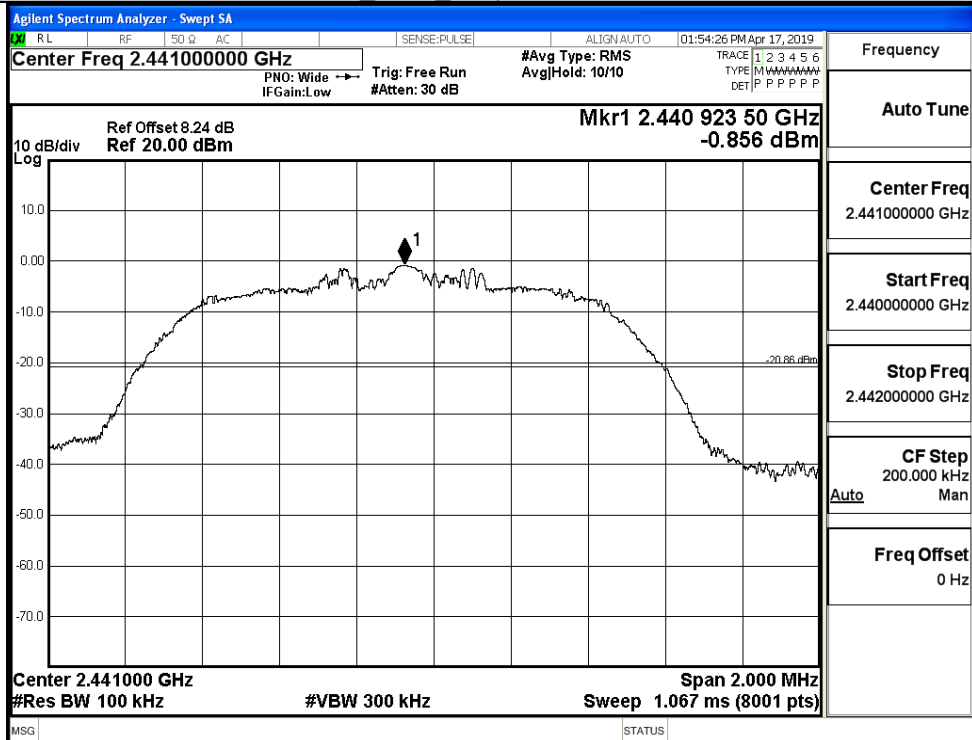


Puw

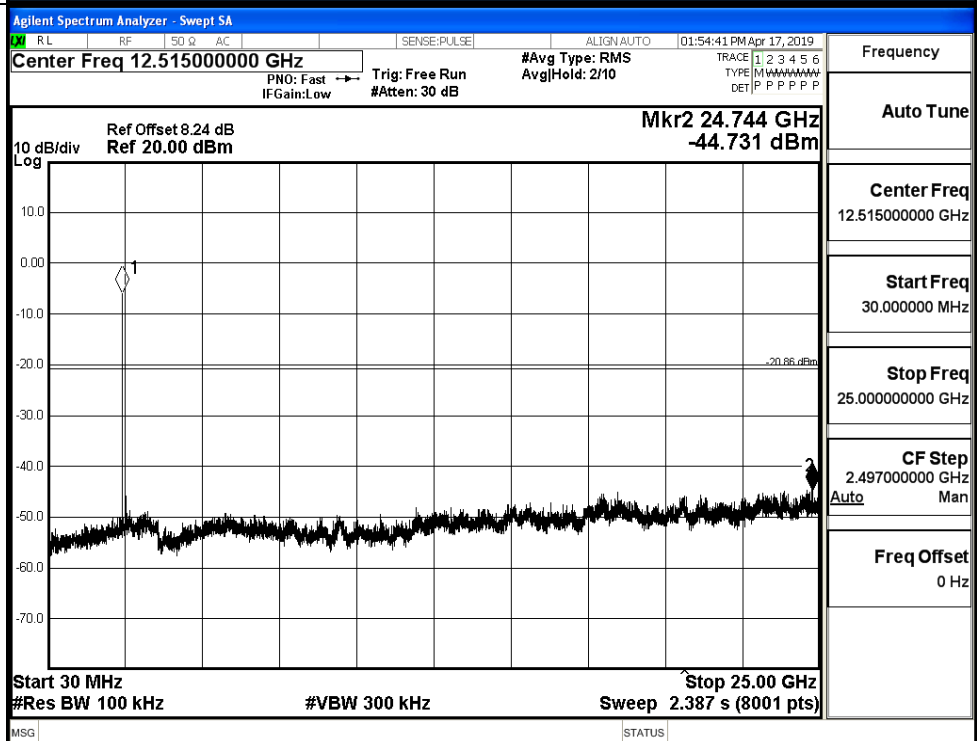


π /4DQPSK_MCH_Graphs

Pref

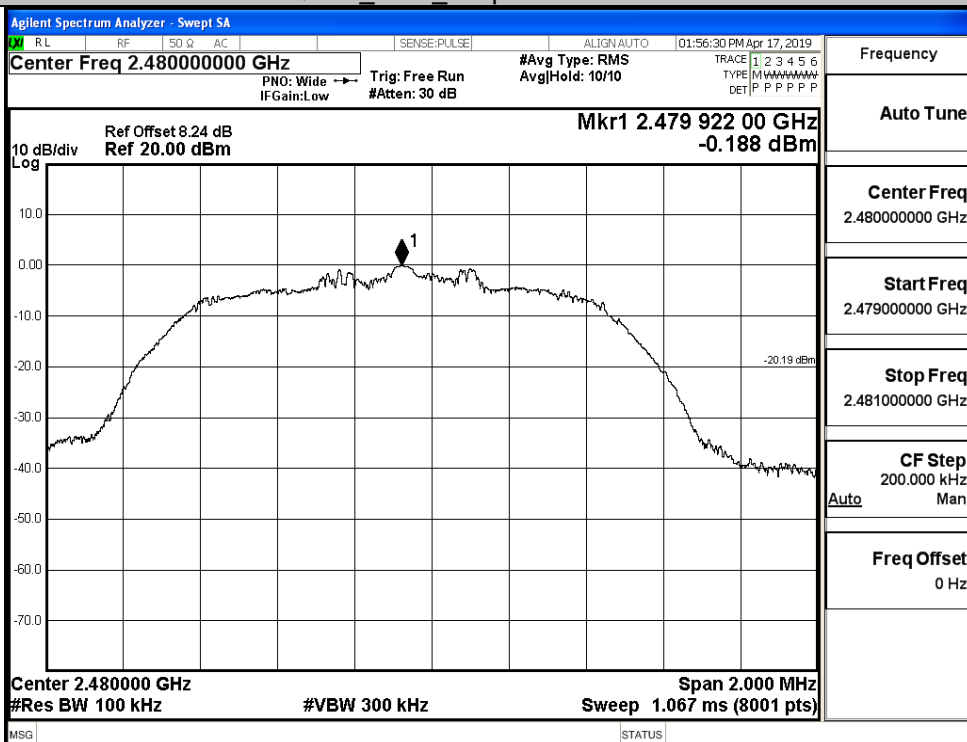


Puw

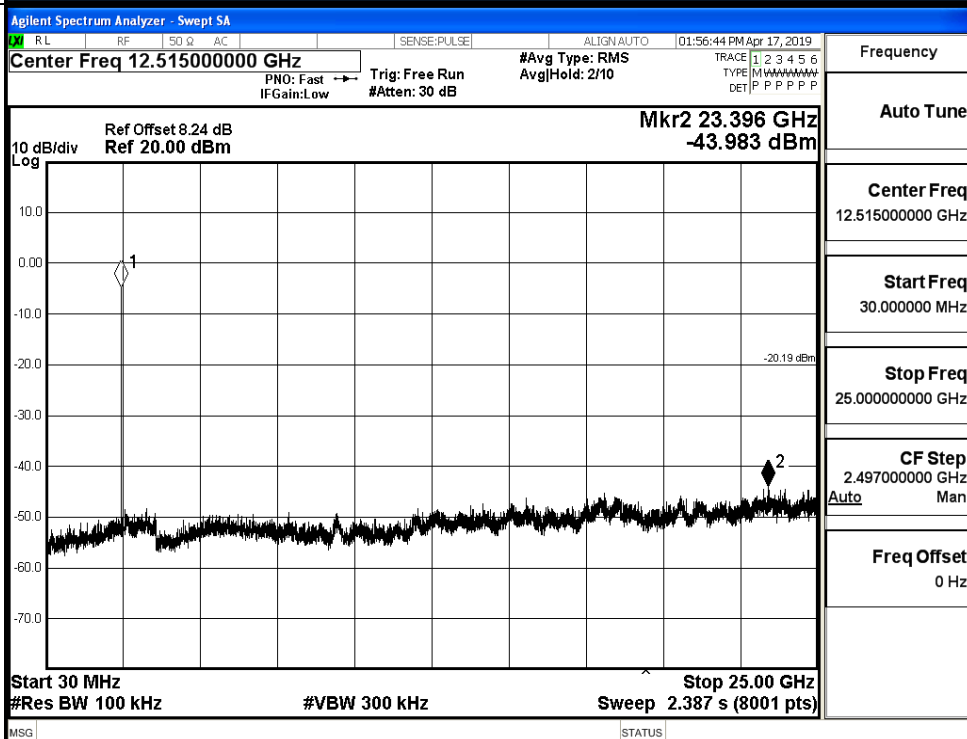


$\pi/4$ DQPSK_HCH_Graphs

Pref

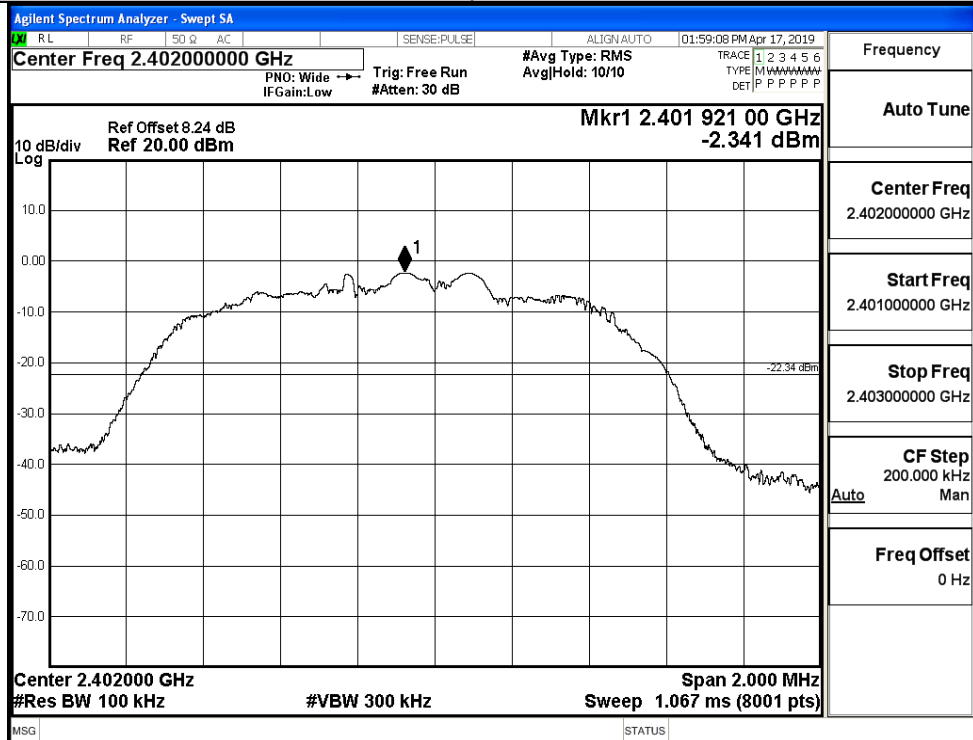


Puw

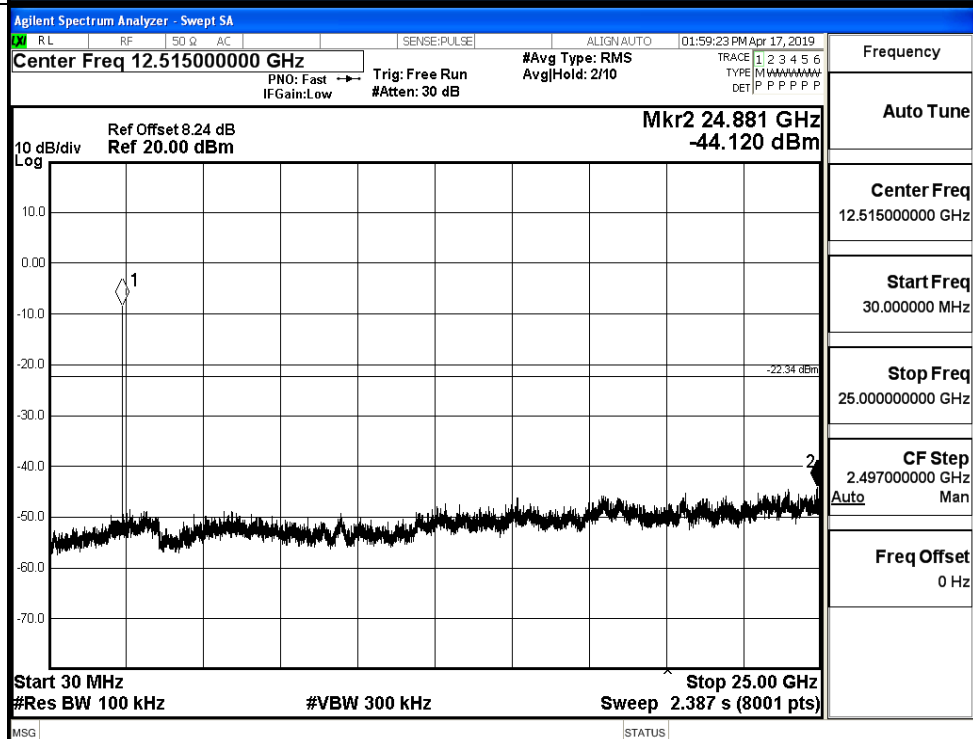


8DPSK_LCH_Graphs

Pref

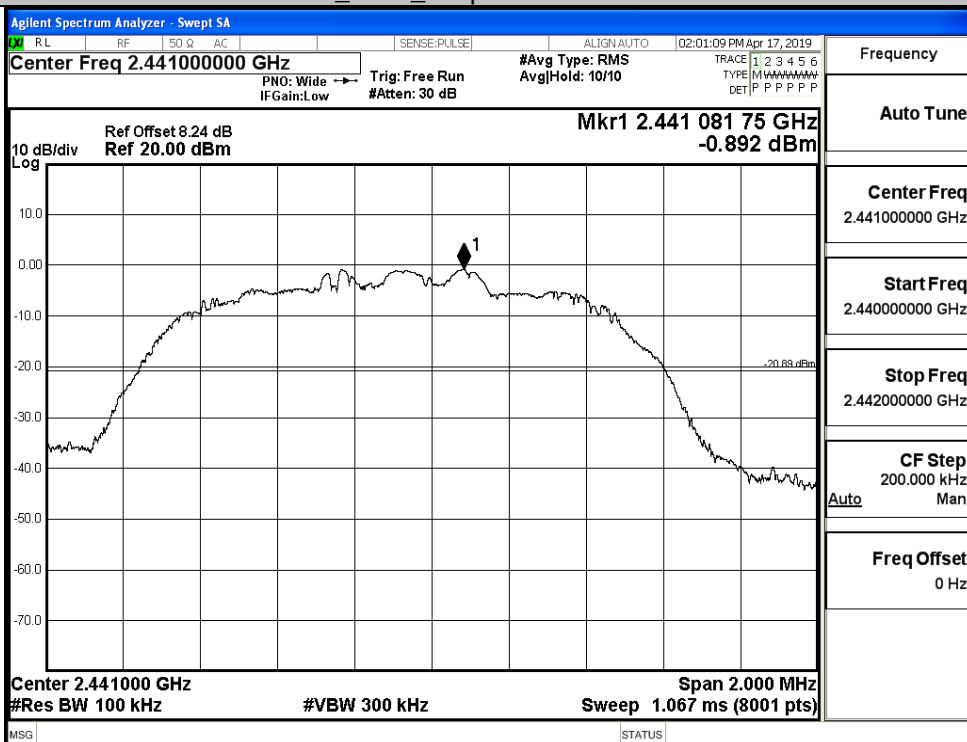


Puw

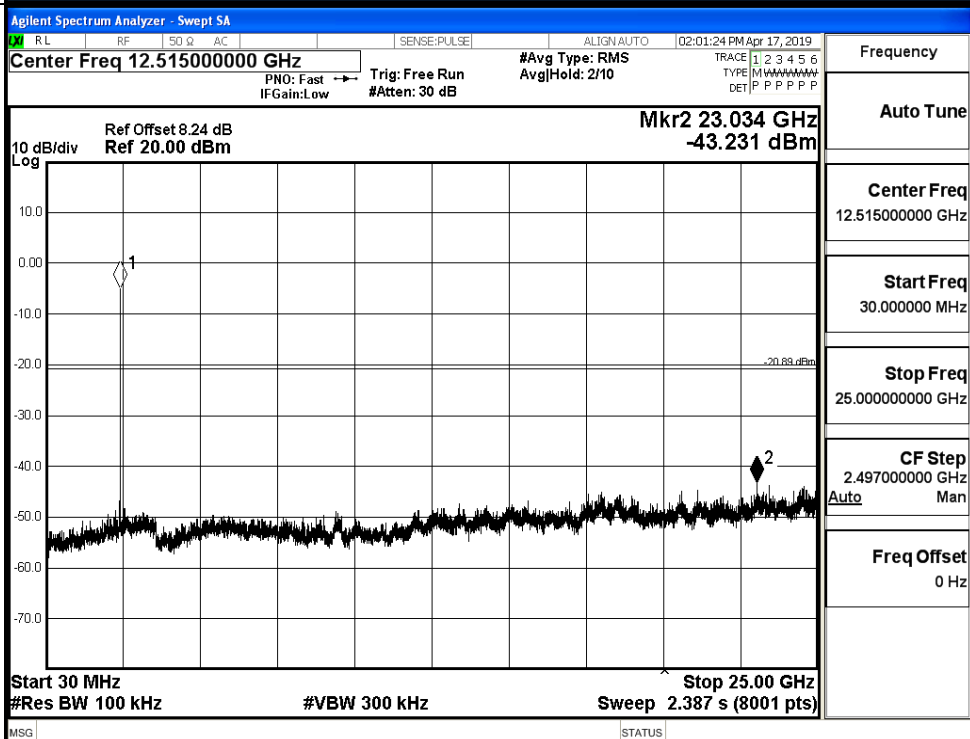


8DPSK_MCH_Graphs

Pref

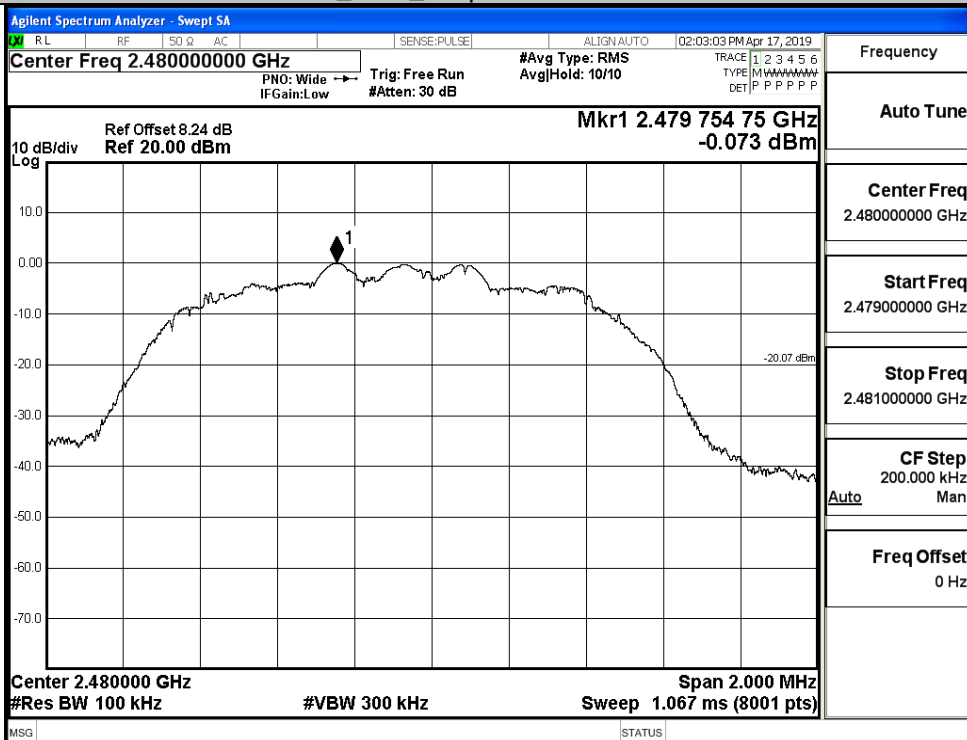


Puw

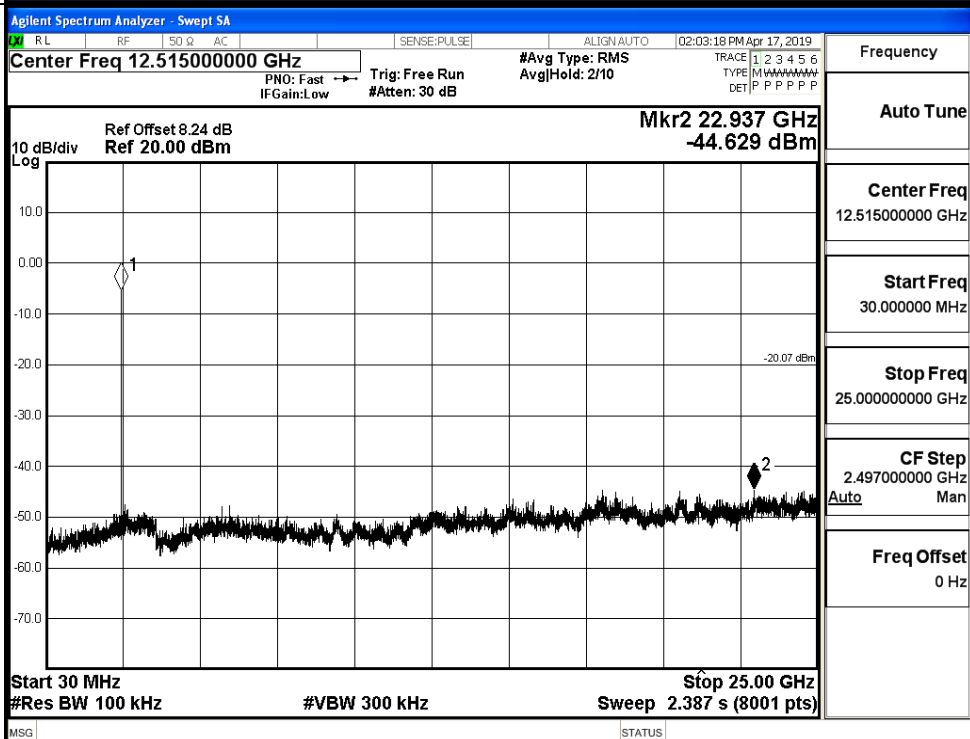


8DPSK_HCH_Graphs

Pref



Puw

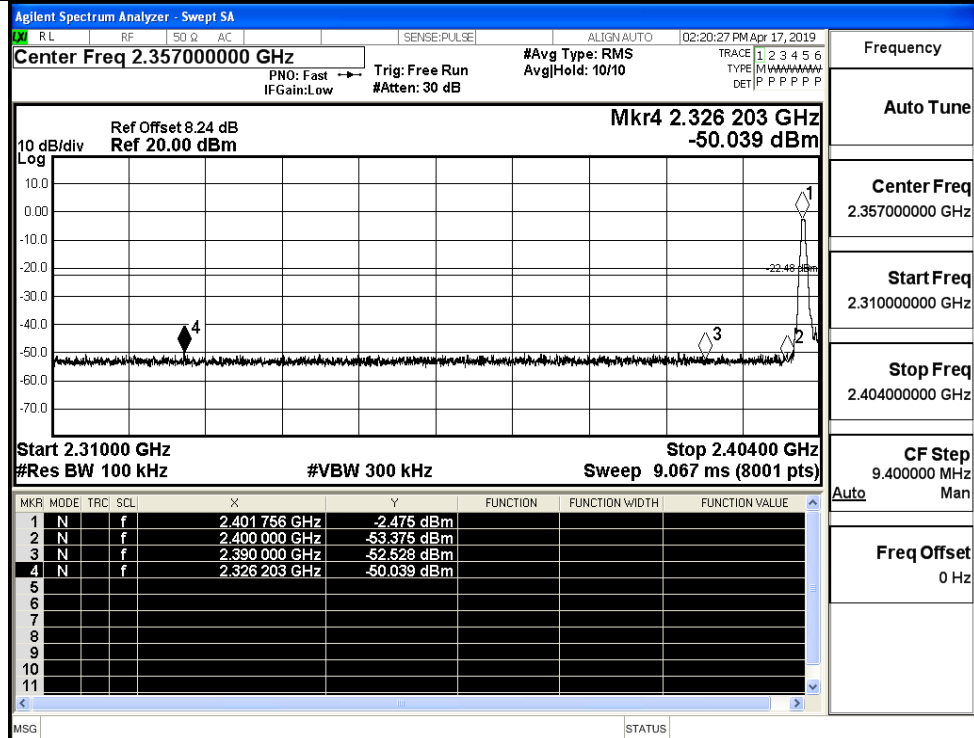


A.7 Band-edge for RF Conducted Emissions

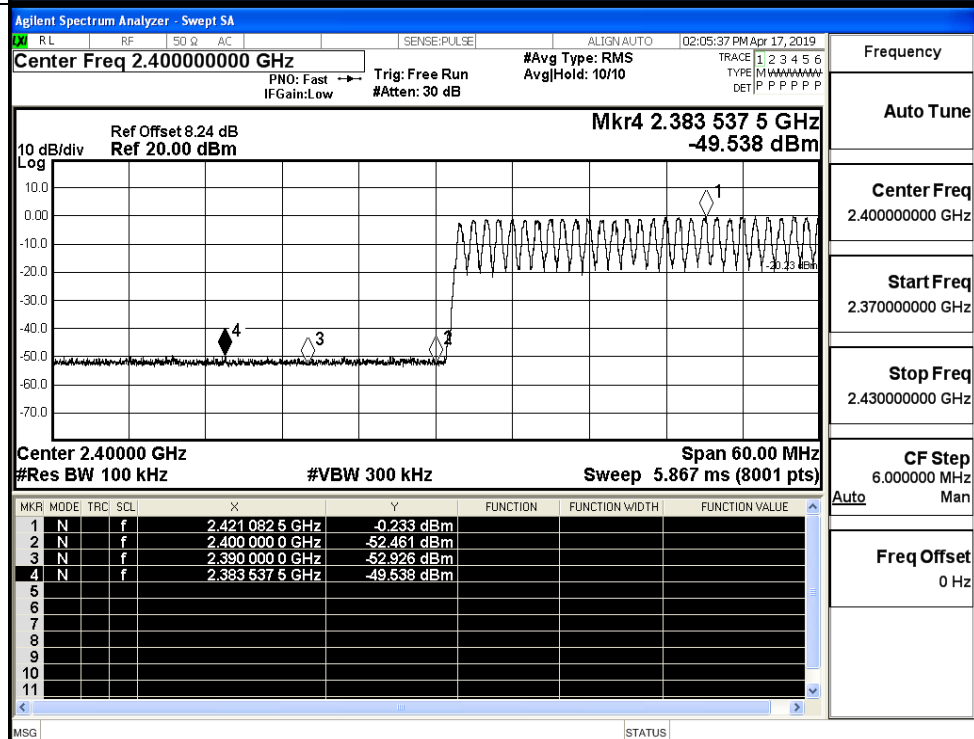
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.475	Off	-50.039	-22.48	PASS
			-0.233	On	-49.538	-20.23	PASS
	HCH	2480	2.997	Off	-49.431	-17	PASS
			-0.496	On	-48.905	-20.5	PASS
$\pi/4$ DQPSK	LCH	2402	-2.316	Off	-49.381	-22.32	PASS
			0.034	On	-49.377	-19.97	PASS
	HCH	2480	-0.155	Off	-48.656	-20.16	PASS
			-0.313	On	-48.155	-20.31	PASS
8DPSK	LCH	2402	-2.375	Off	-49.377	-22.38	PASS
			-0.088	On	-49.103	-20.09	PASS
	HCH	2480	-0.029	Off	-49.717	-20.03	PASS
			-0.220	On	-48.917	-20.22	PASS

Test Graphs

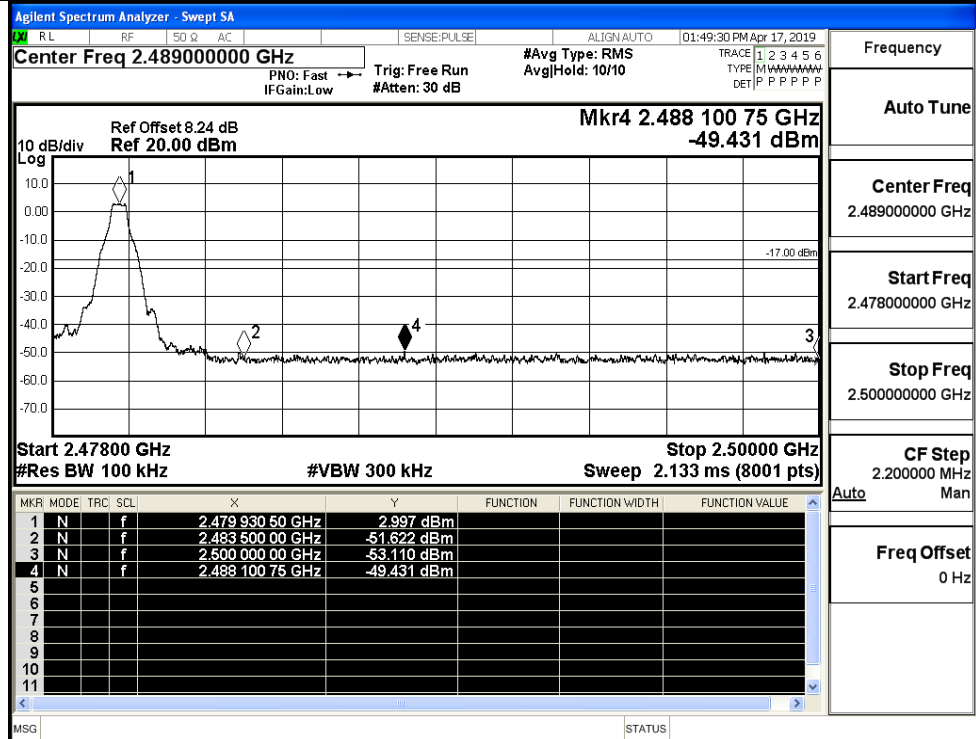
GFSK/LCH/No Hop



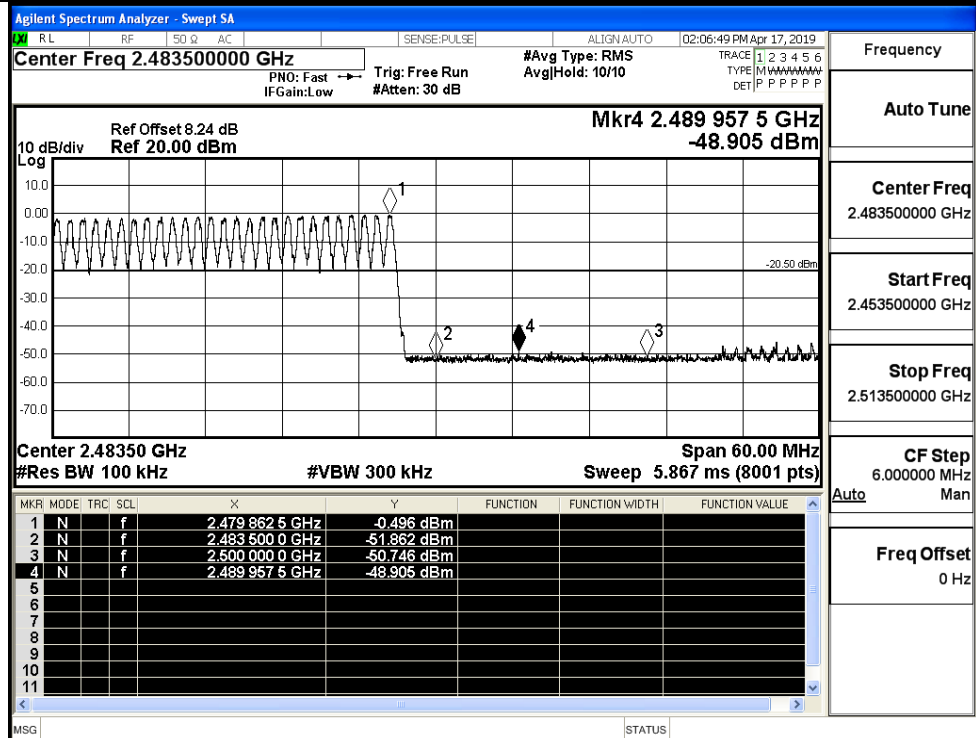
GFSK/LCH/Hop



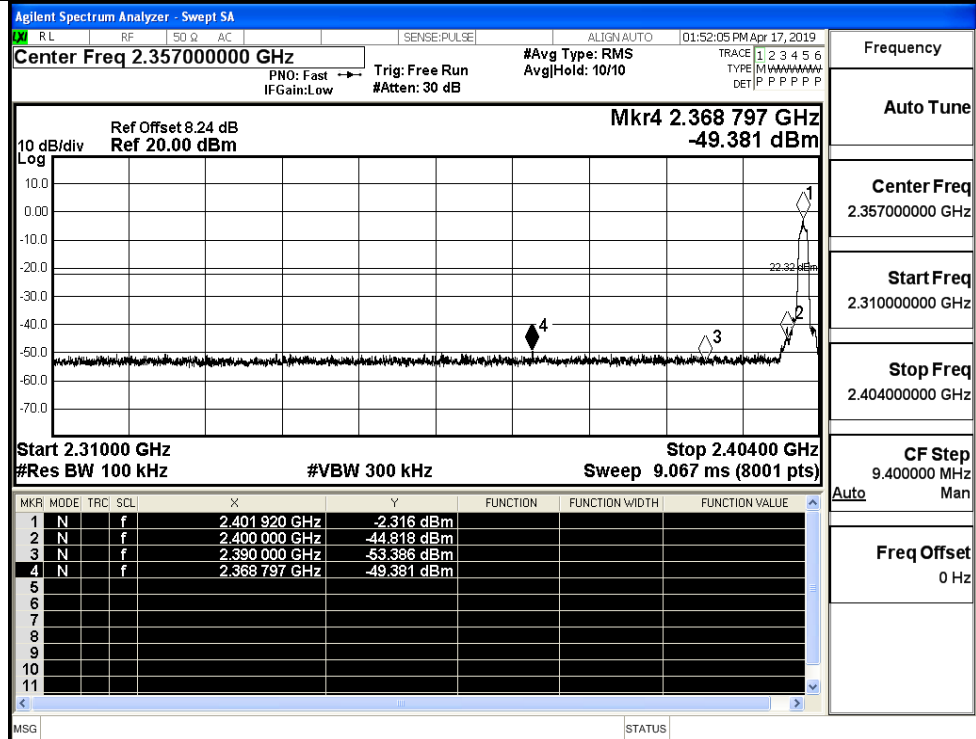
GFSK/HCH/No Hop



GFSK/HCH/Hop



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

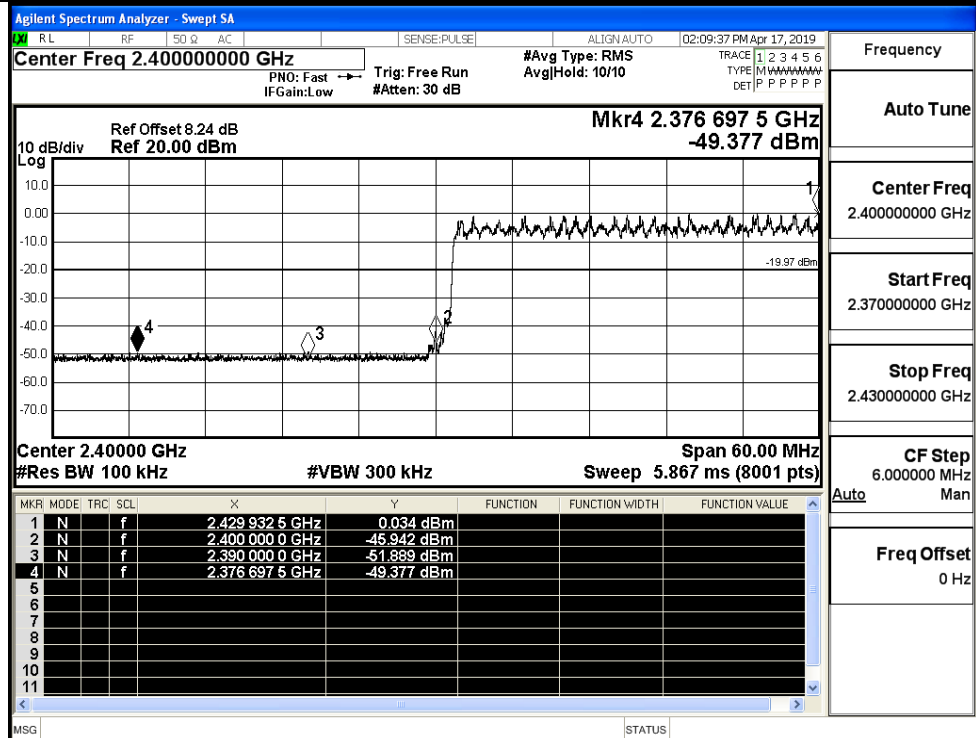


Frequency

Auto Tune

Center Freq
2.357000000 GHzStart Freq
2.310000000 GHzStop Freq
2.404000000 GHzCF Step
9.400000 MHz
Auto ManFreq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop

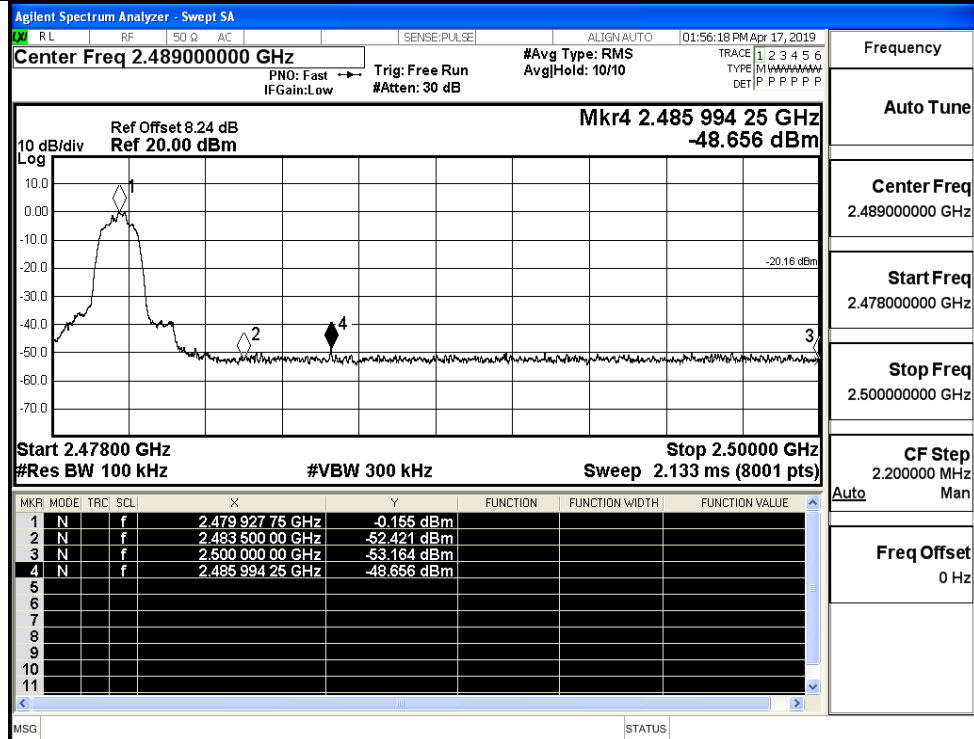


Frequency

Auto Tune

Center Freq
2.400000000 GHzStart Freq
2.370000000 GHzStop Freq
2.430000000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

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

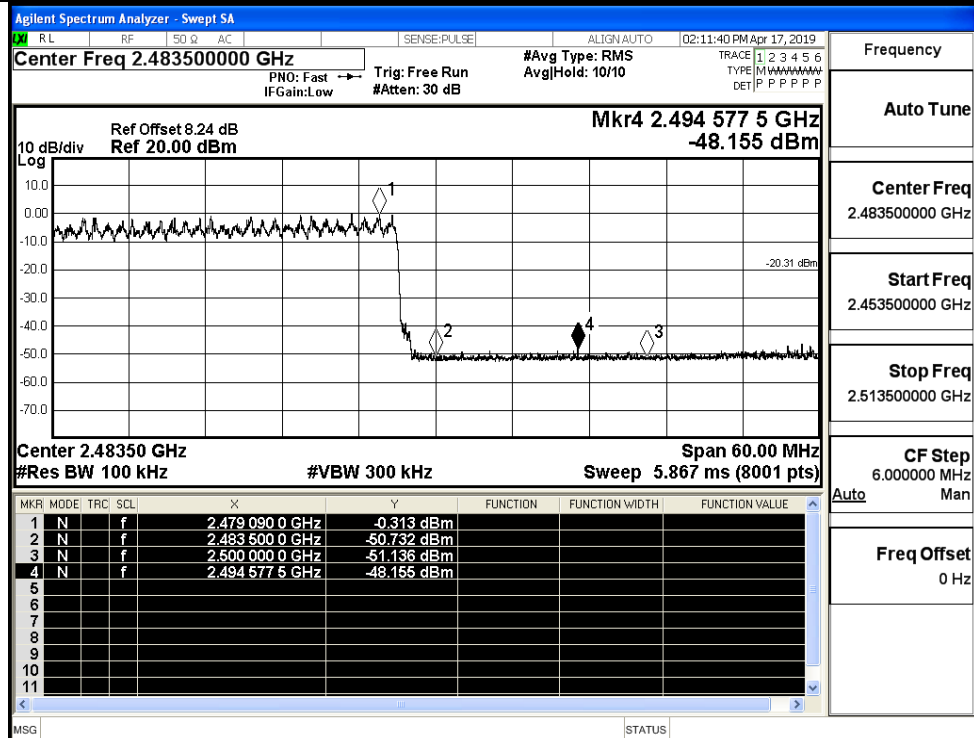


Frequency

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

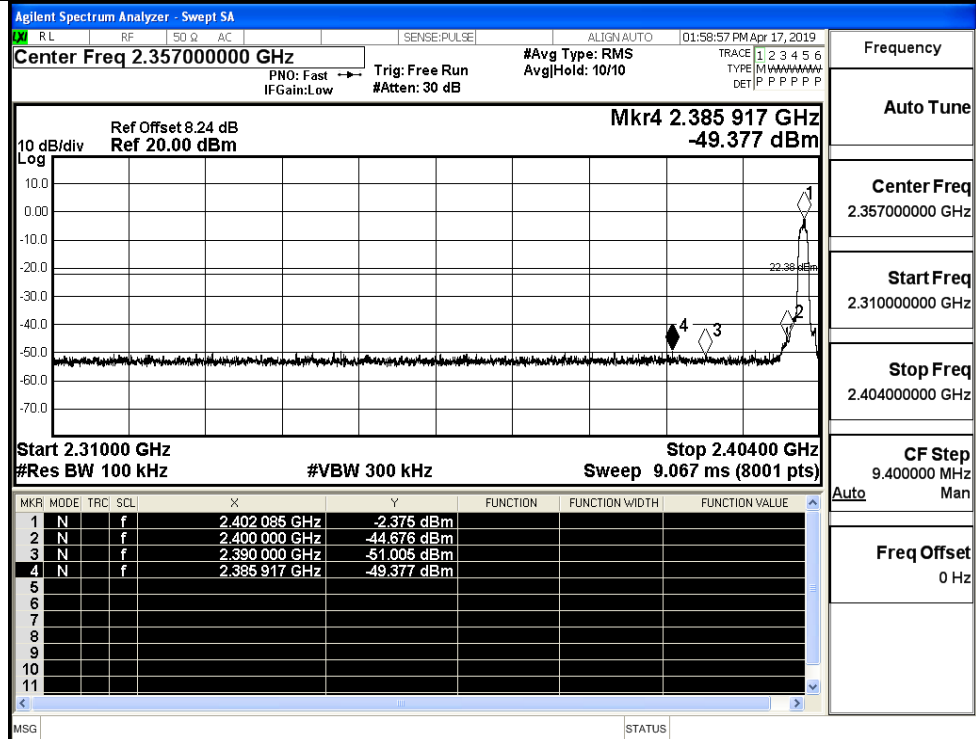


Frequency

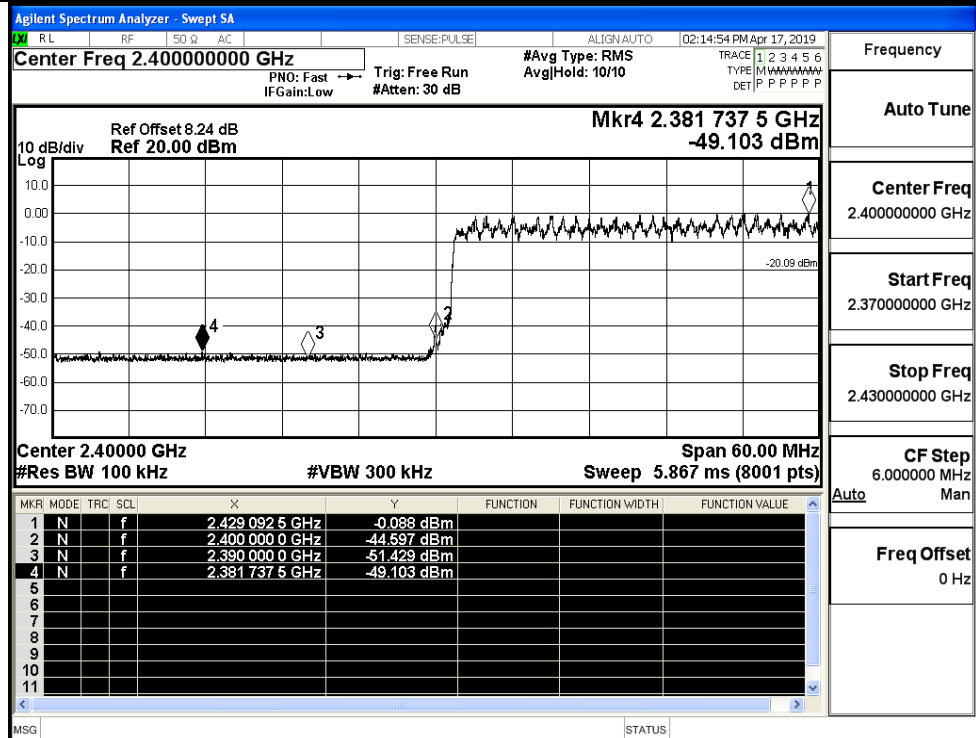
Auto Tune

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

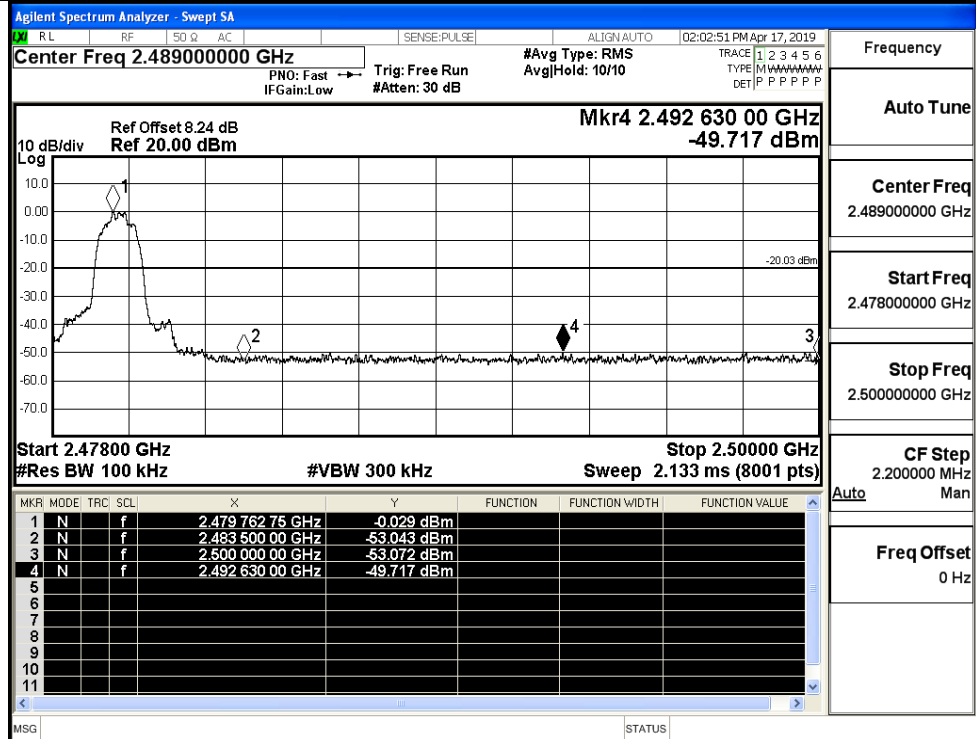
8DPSK/LCH/No Hop



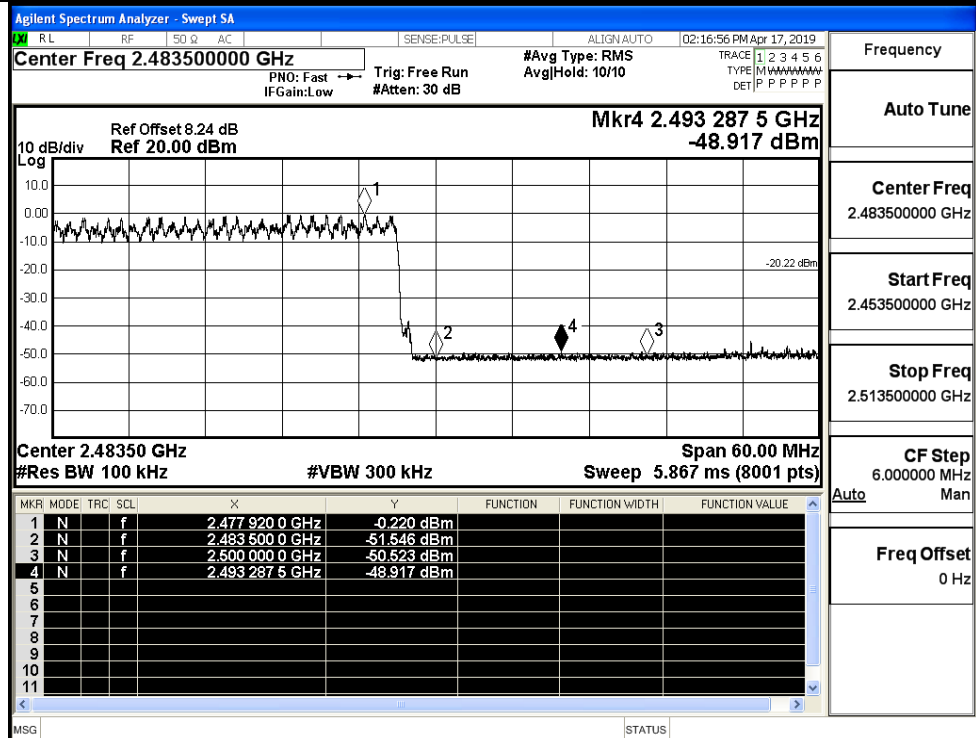
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



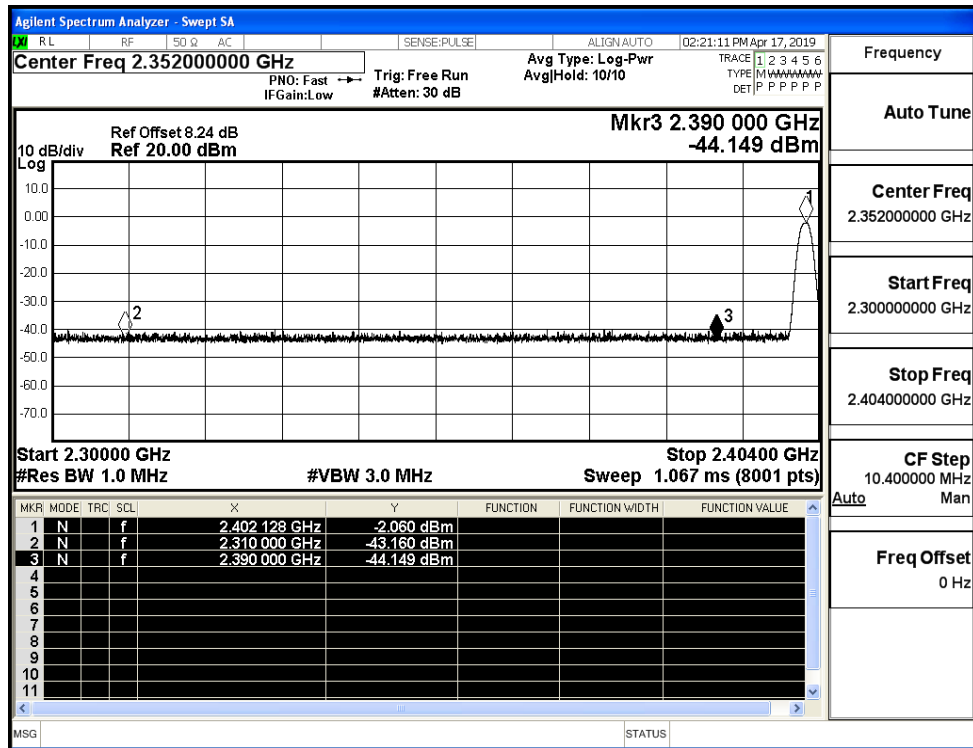
8DPSK/HCH/Hop



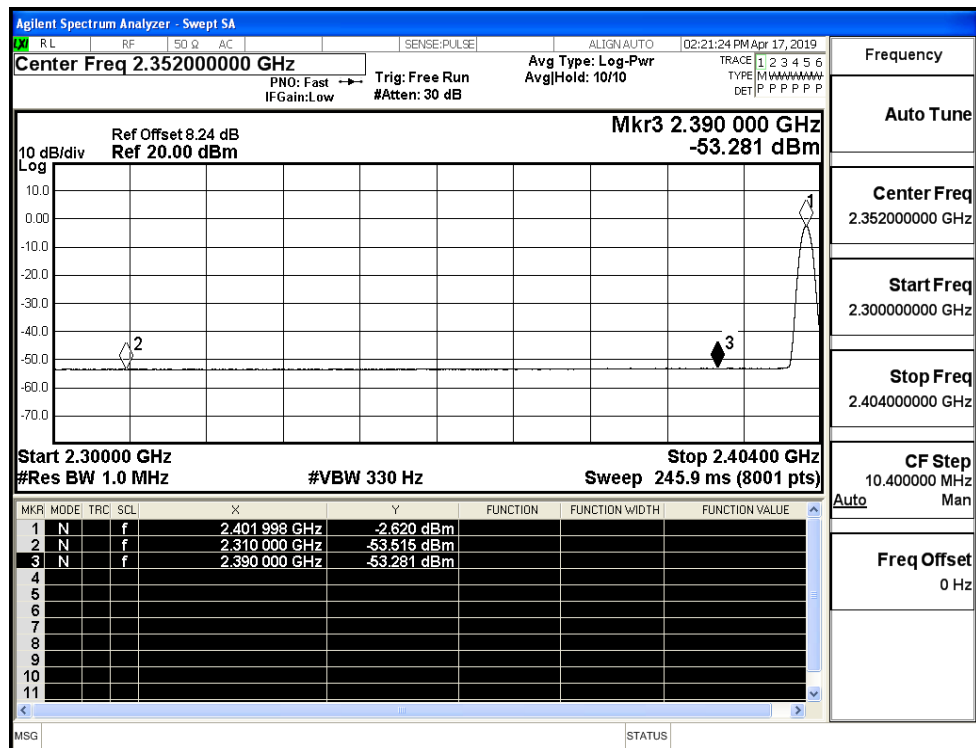
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.16	2.0	0	54.10	PEAK	74	PASS
	Off	2310.0	-53.52	2.0	0	43.74	AV	54	PASS
	Off	2390.0	-44.15	2.0	0	53.11	PEAK	74	PASS
	Off	2390.0	-53.28	2.0	0	43.98	AV	54	PASS
	Off	2483.5	-42.92	2.0	0	54.34	PEAK	74	PASS
	Off	2483.5	-52.72	2.0	0	44.53	AV	54	PASS
	Off	2500.0	-43.66	2.0	0	53.60	PEAK	74	PASS
	Off	2500.0	-52.83	2.0	0	44.43	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-40.81	2.0	0	56.44	PEAK	74	PASS
	Off	2310.0	-53.56	2.0	0	43.70	AV	54	PASS
	Off	2390.0	-42.24	2.0	0	55.02	PEAK	74	PASS
	Off	2390.0	-53.16	2.0	0	44.10	AV	54	PASS
	Off	2483.5	-42.76	2.0	0	54.50	PEAK	74	PASS
	Off	2483.5	-52.81	2.0	0	44.45	AV	54	PASS
	Off	2500.0	-42.78	2.0	0	54.48	PEAK	74	PASS
	Off	2500.0	-52.89	2.0	0	44.37	AV	54	PASS
8DPSK	Off	2310.0	-43.76	2.0	0	53.50	PEAK	74	PASS
	Off	2310.0	-53.32	2.0	0	43.94	AV	54	PASS
	Off	2390.0	-42.52	2.0	0	54.73	PEAK	74	PASS
	Off	2390.0	-53.17	2.0	0	44.09	AV	54	PASS
	Off	2483.5	-43.35	2.0	0	53.91	PEAK	74	PASS
	Off	2483.5	-52.85	2.0	0	44.41	AV	54	PASS
	Off	2500.0	-42.45	2.0	0	54.81	PEAK	74	PASS
	Off	2500.0	-52.82	2.0	0	44.44	AV	54	PASS

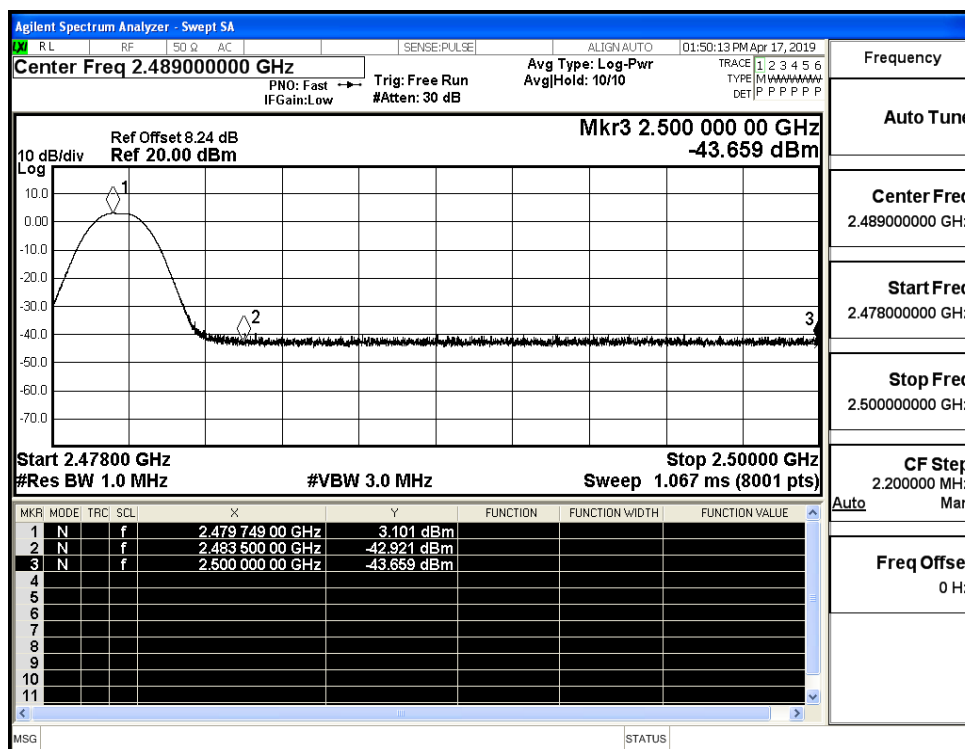
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



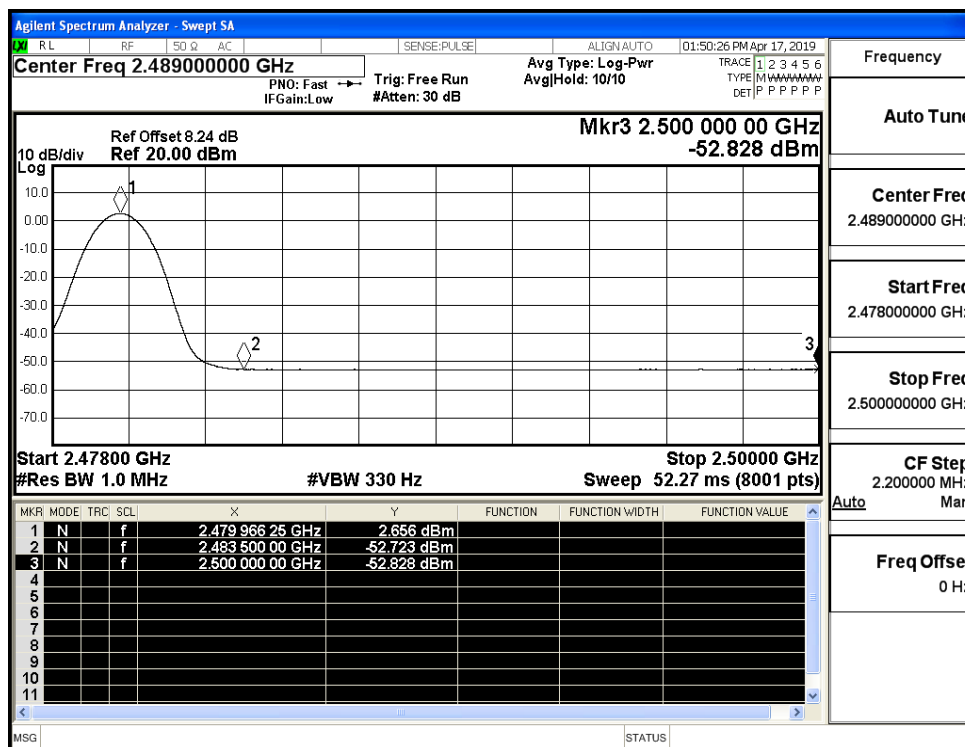
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

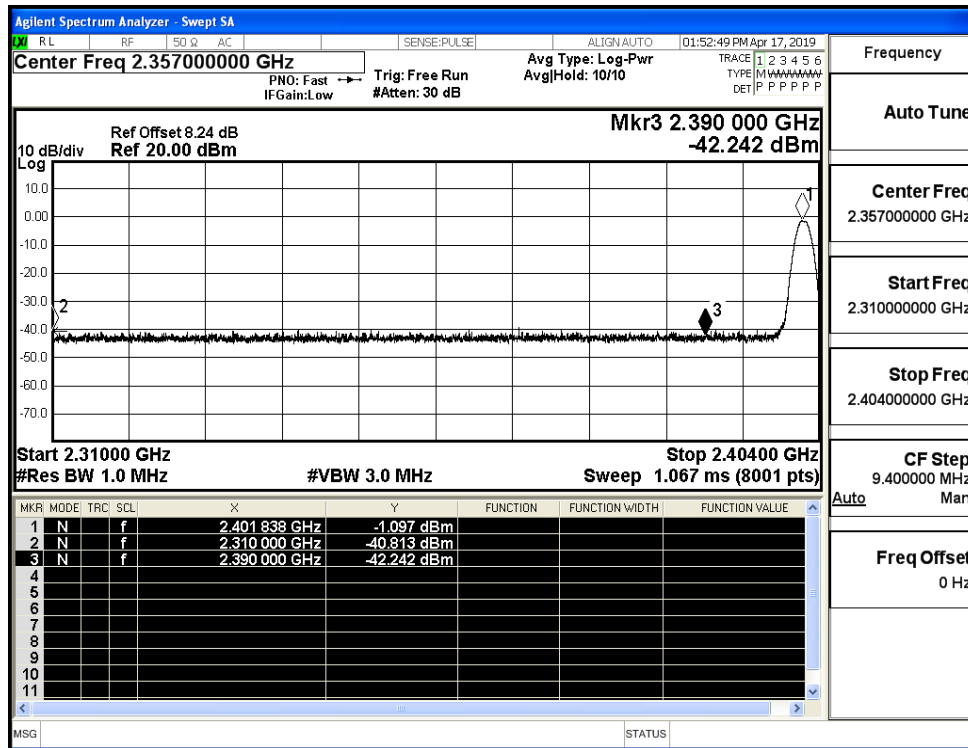
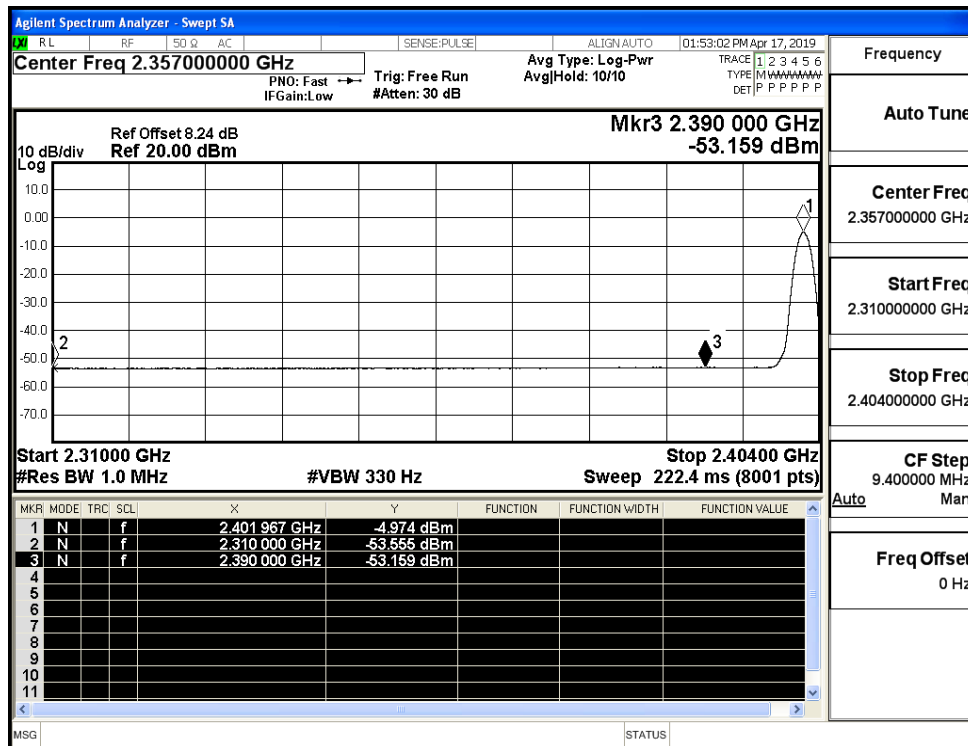


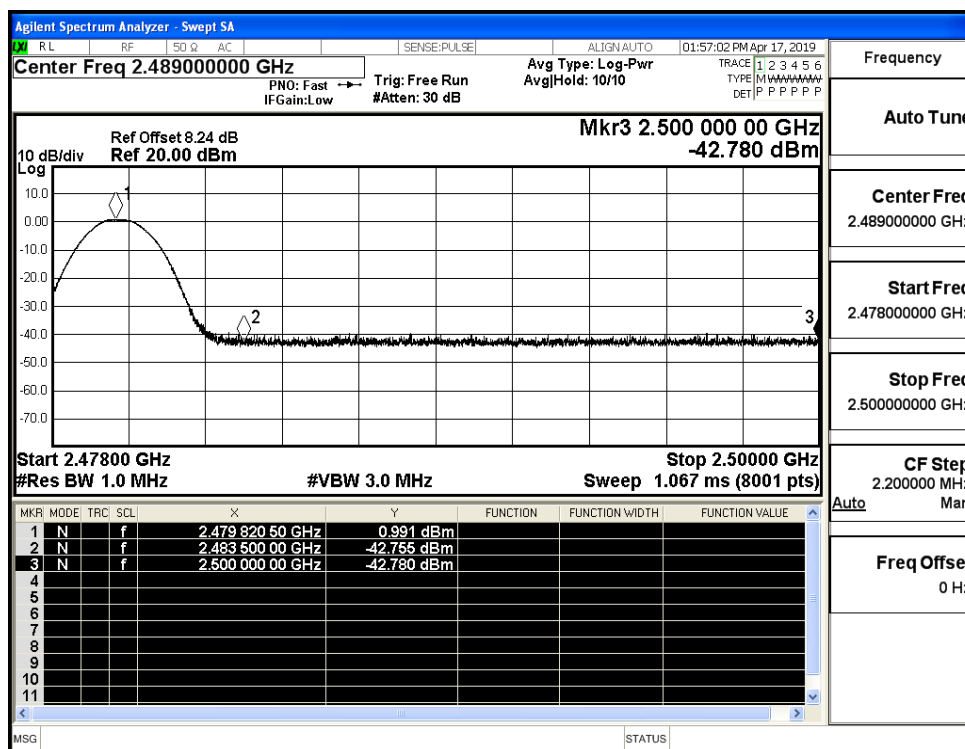
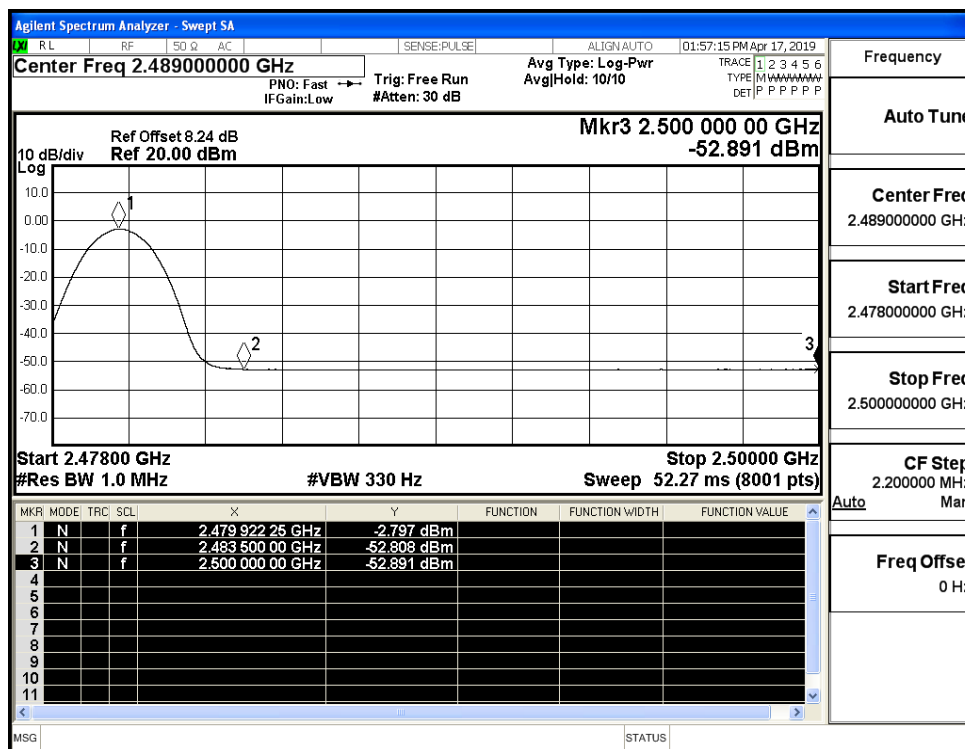
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



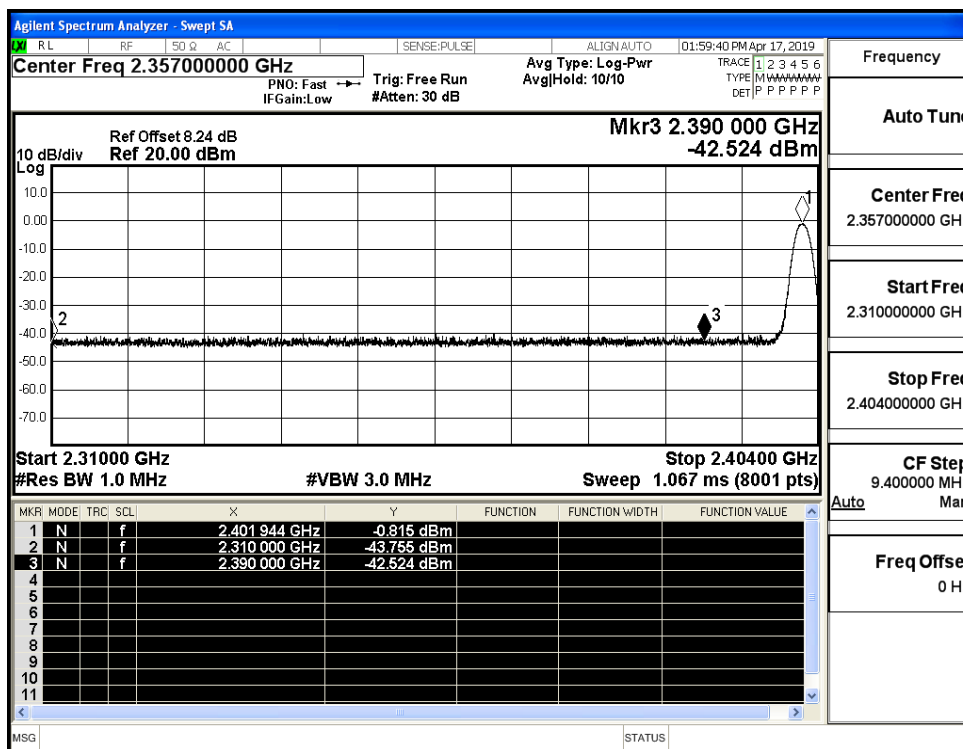
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



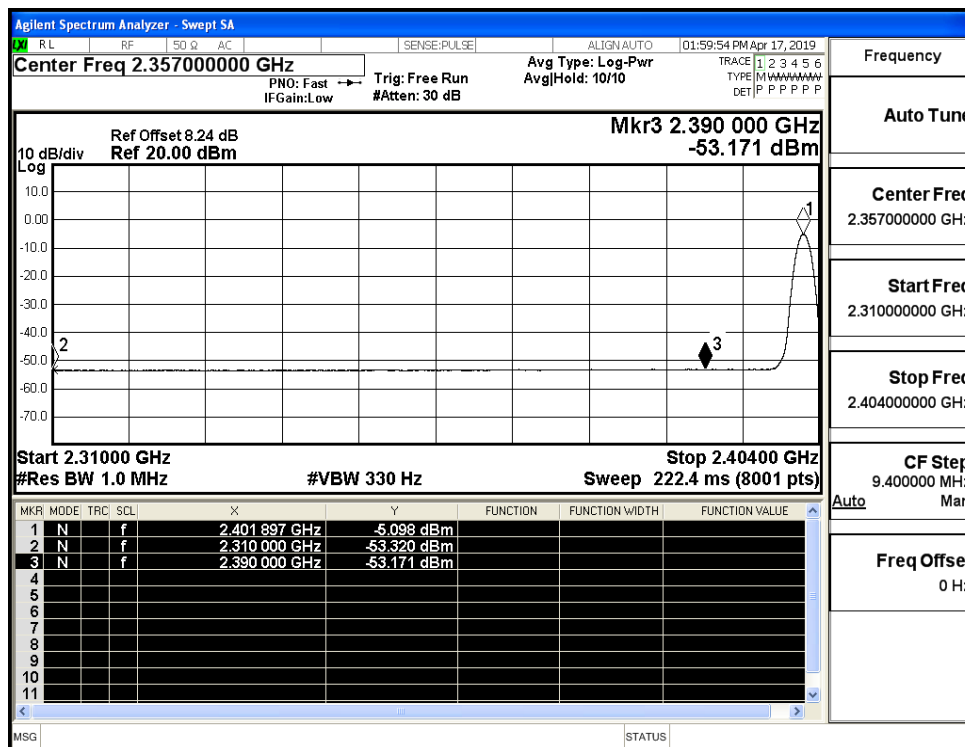
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

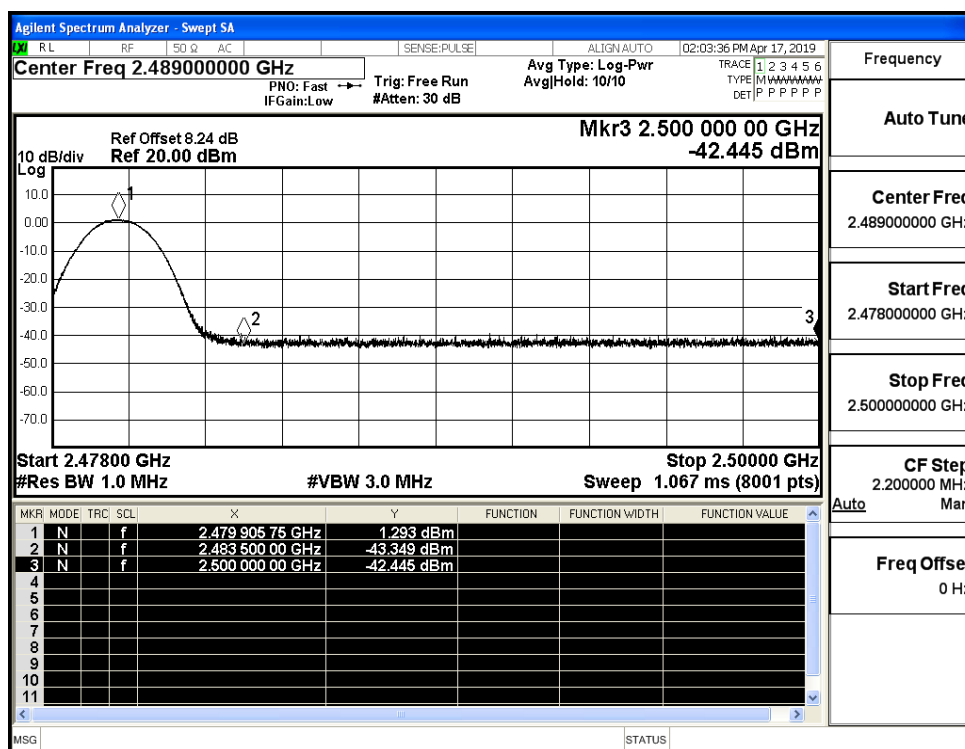
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

