

Appendix A

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

Product Name: bluetooth headphone

Trade Mark: /

Test Model: 2018BP4

Environmental Conditions

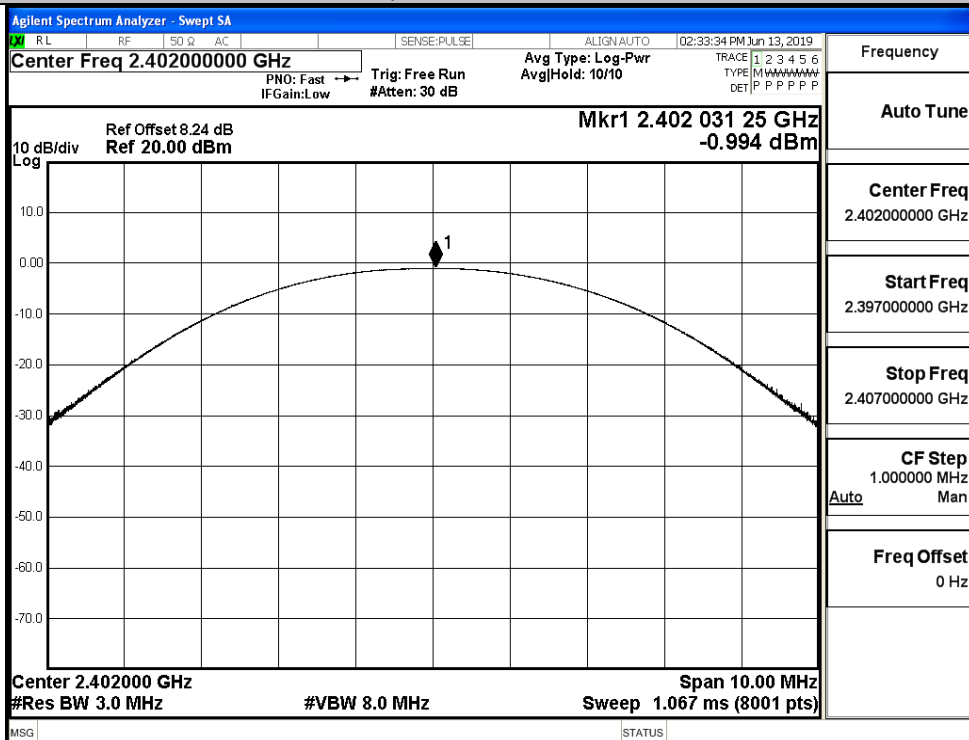
Temperature:	25.4 ° C
Relative Humidity:	52.8 %
ATM Pressure:	100.0 kPa
Test Engineer:	SCENT HU
Supervised by:	Tom.Liu

A.1 Maximum Conducted Peak Output Power

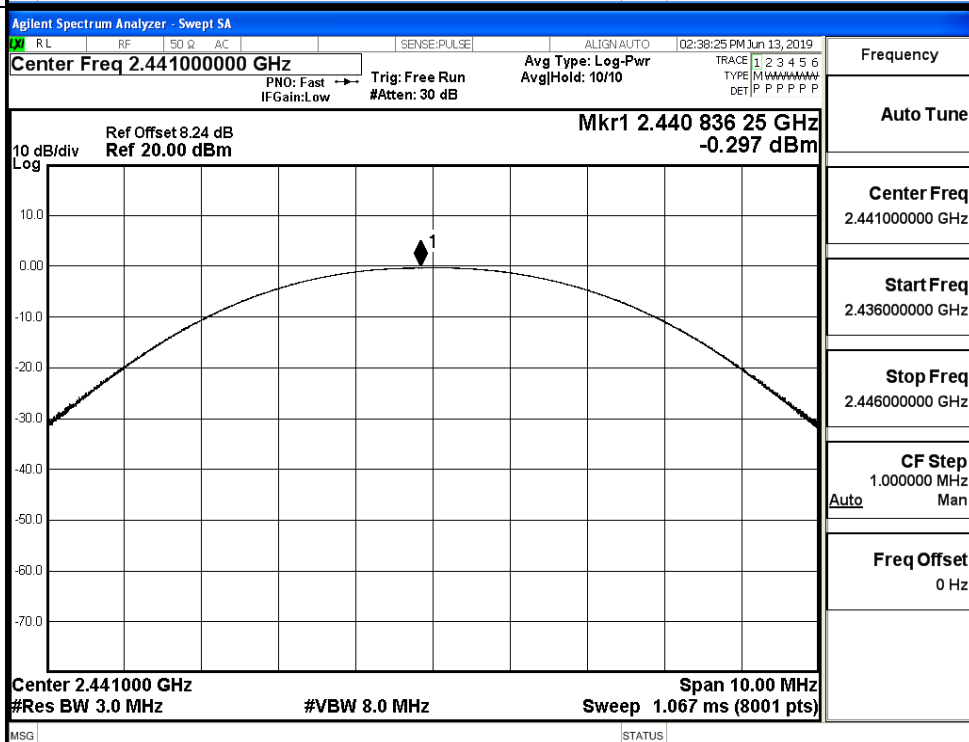
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.994	21	PASS
	MCH	-0.297	21	PASS
	HCH	-0.588	21	PASS
$\pi/4$ DQPSK	LCH	-1.740	21	PASS
	MCH	-0.965	21	PASS
	HCH	-1.167	21	PASS
8DPSK	LCH	-1.617	21	PASS
	MCH	-0.768	21	PASS
	HCH	-0.941	21	PASS

Test Graphs

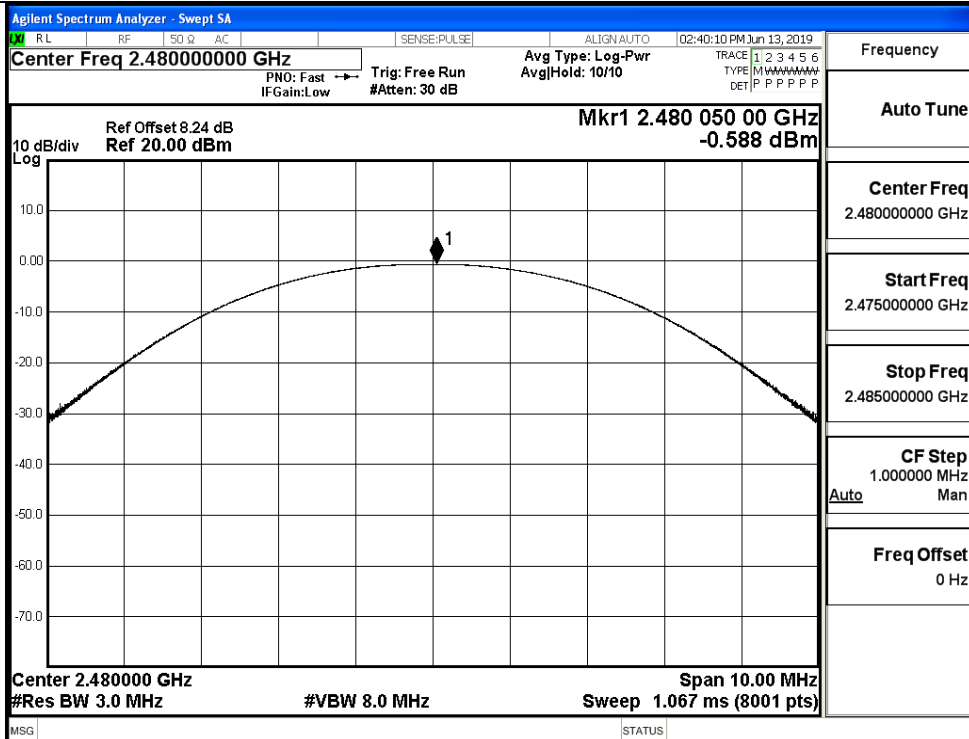
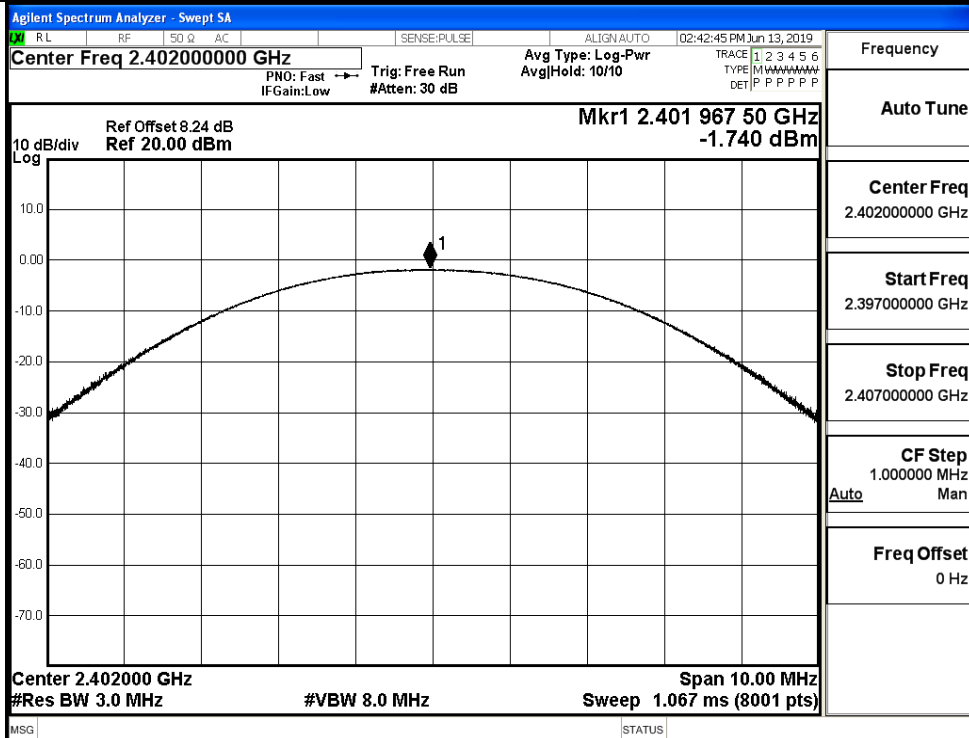
GFSK/LCH

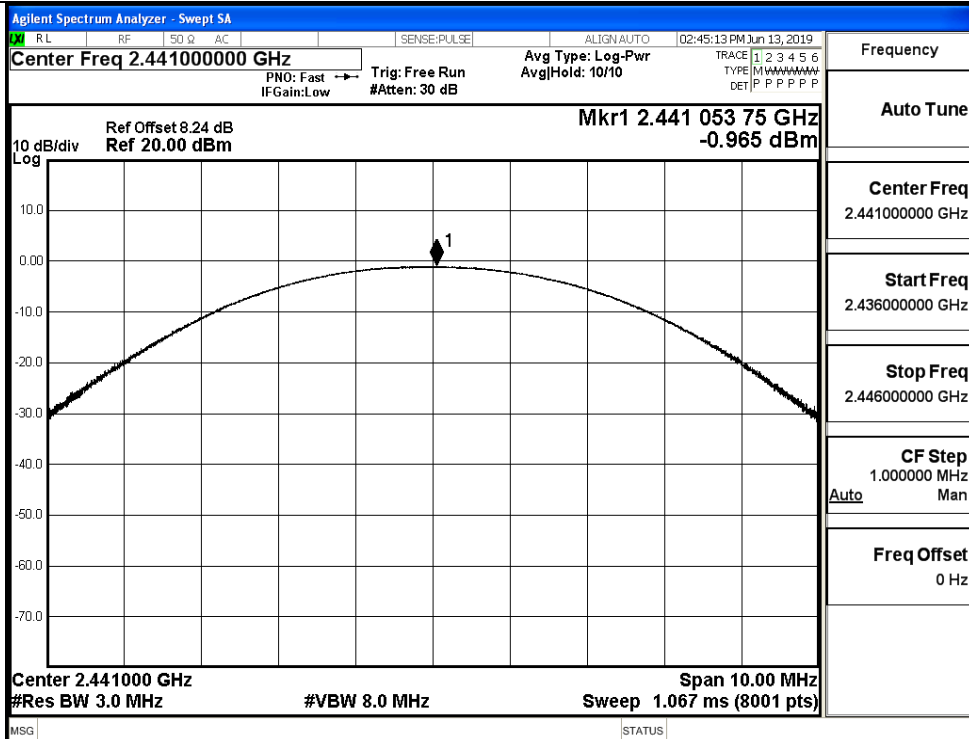
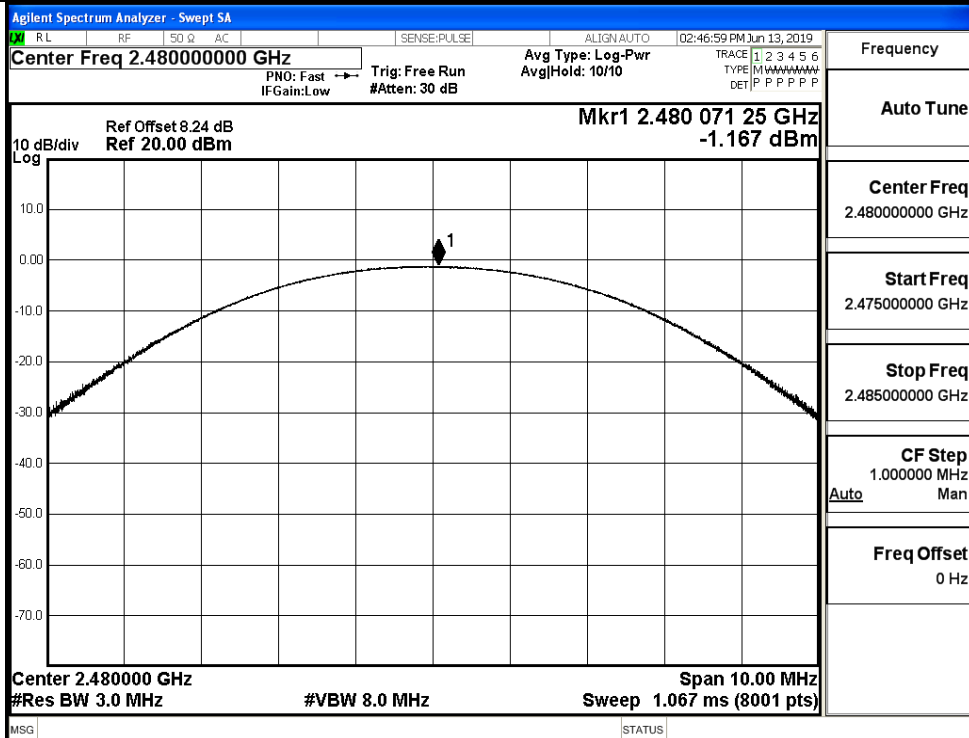


GFSK/MCH

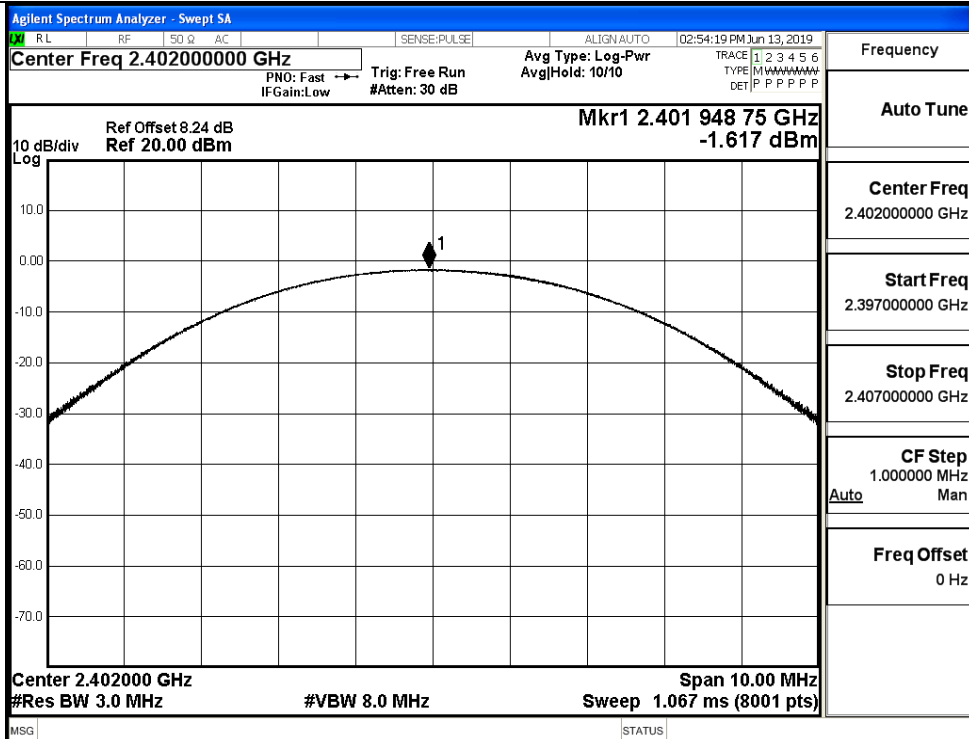


GFSK/HCH

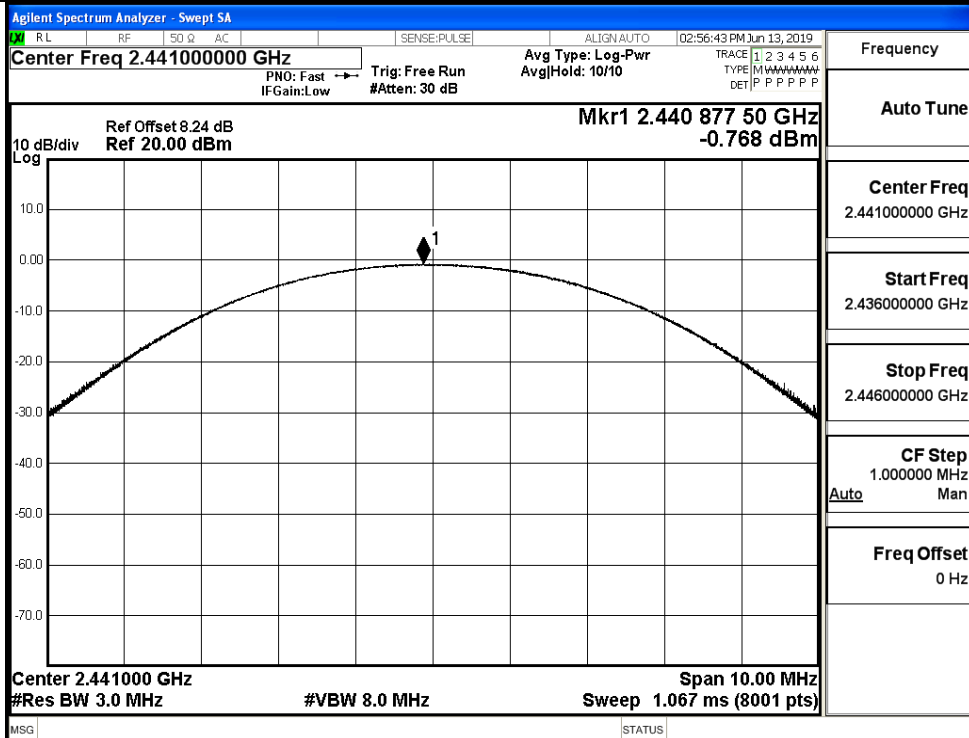
 π /4DQPSK/LCH

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

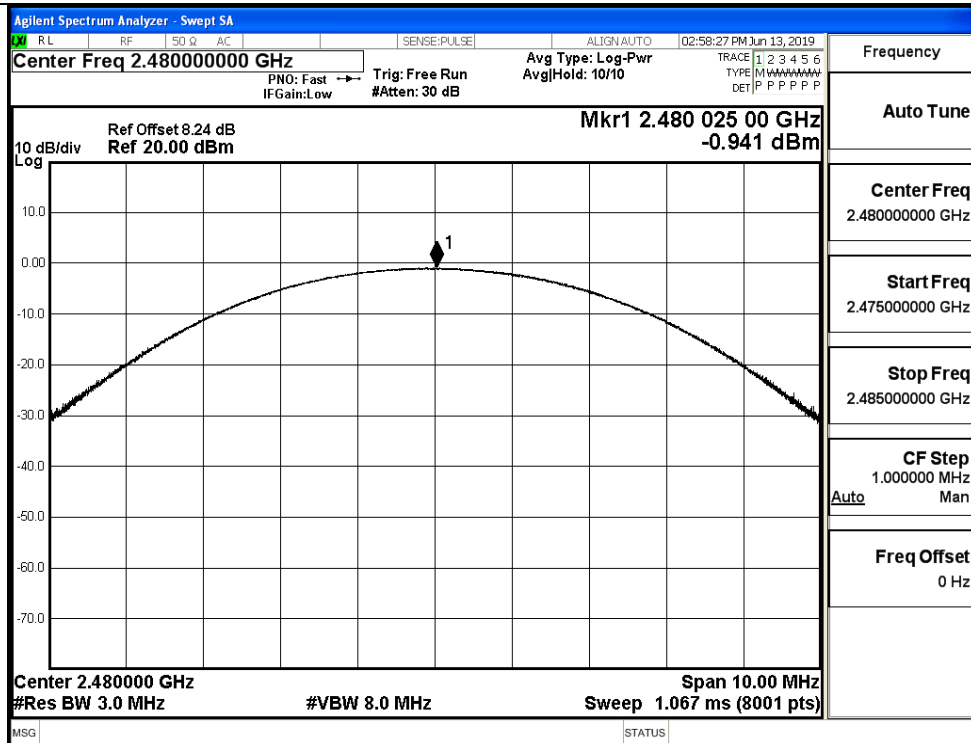
8DPSK/LCH



8DPSK/MCH



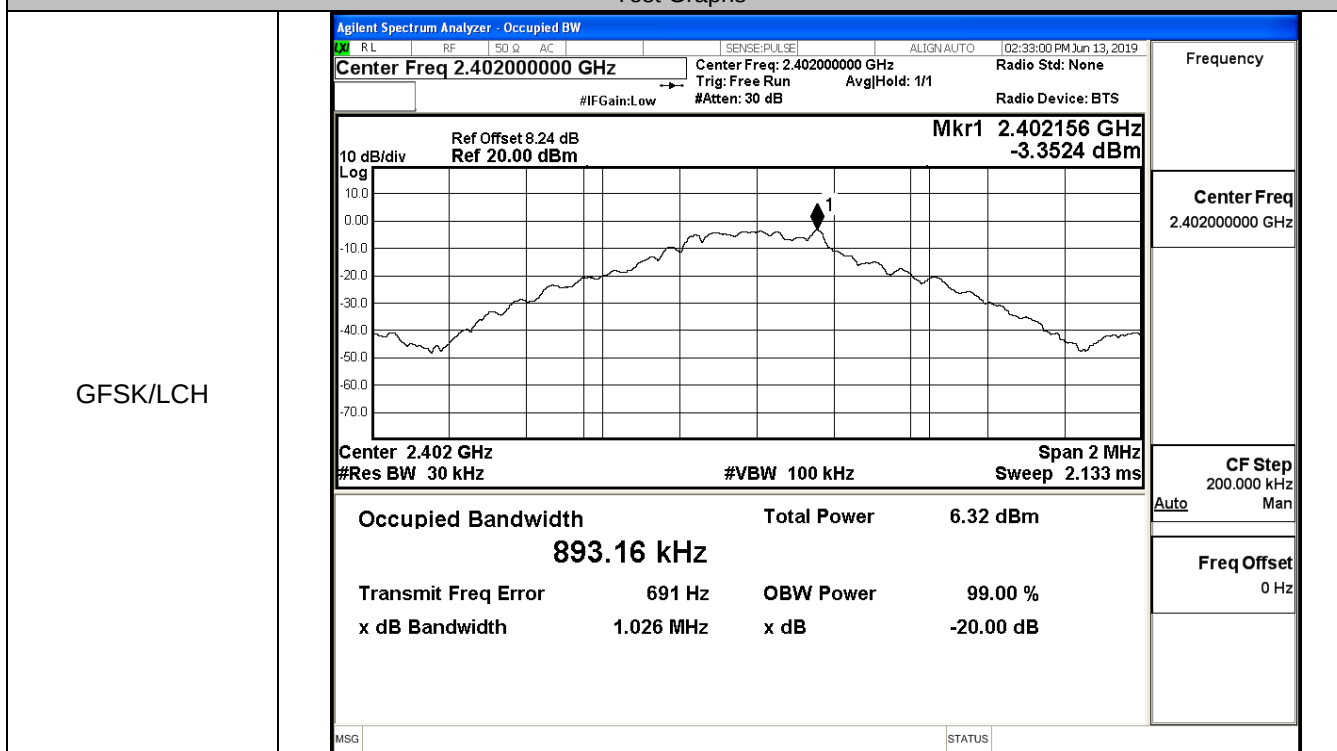
8DPSK/HCH



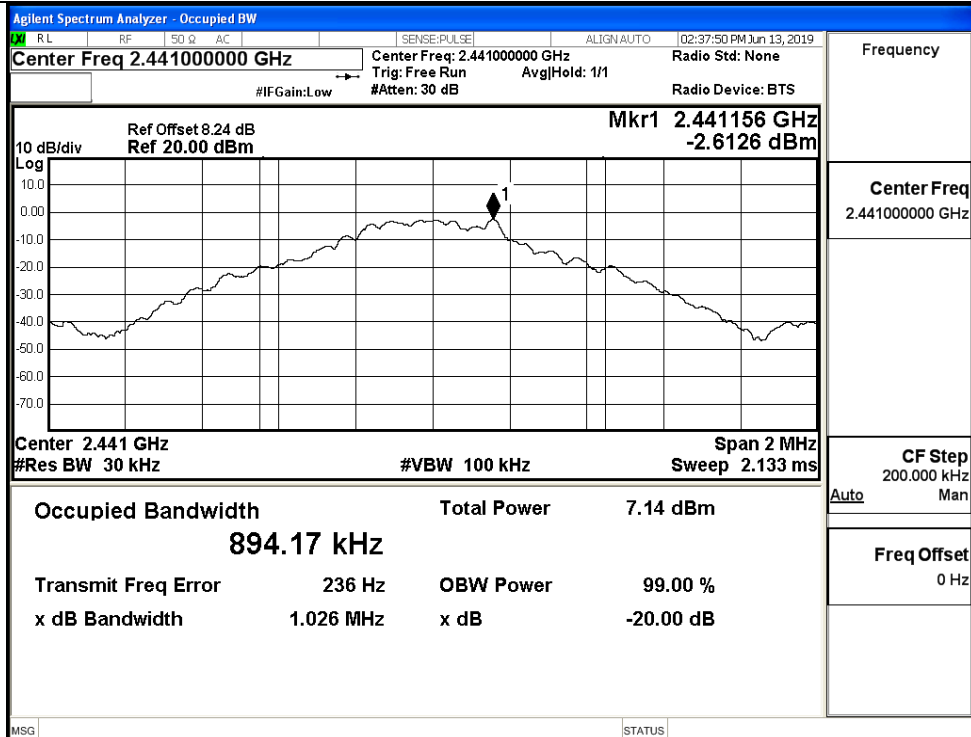
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.026	Not Specified	PASS
	MCH	1.026	Not Specified	PASS
	HCH	1.034	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.293	Not Specified	PASS
	MCH	1.294	Not Specified	PASS
	HCH	1.314	Not Specified	PASS
8DPSK	LCH	1.298	Not Specified	PASS
	MCH	1.297	Not Specified	PASS
	HCH	1.298	Not Specified	PASS

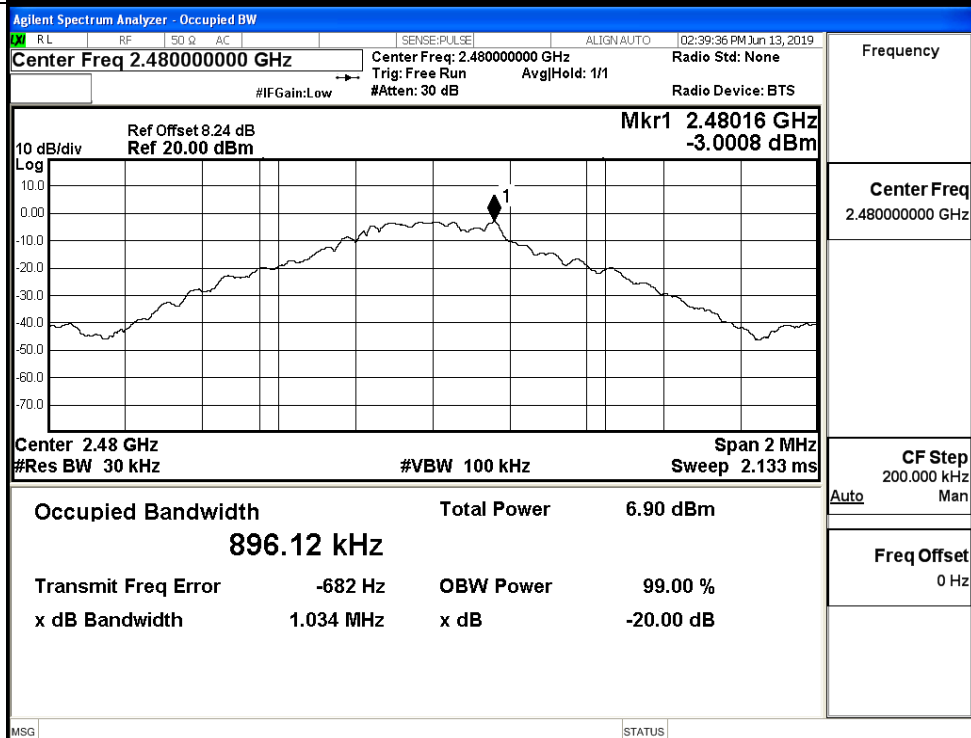
Test Graphs

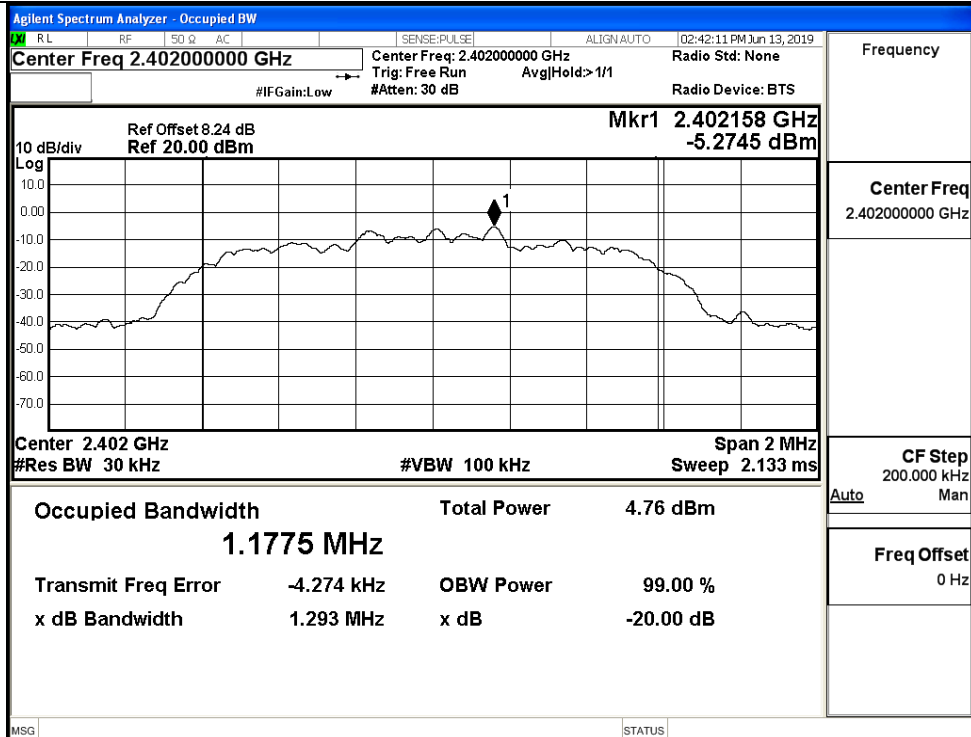
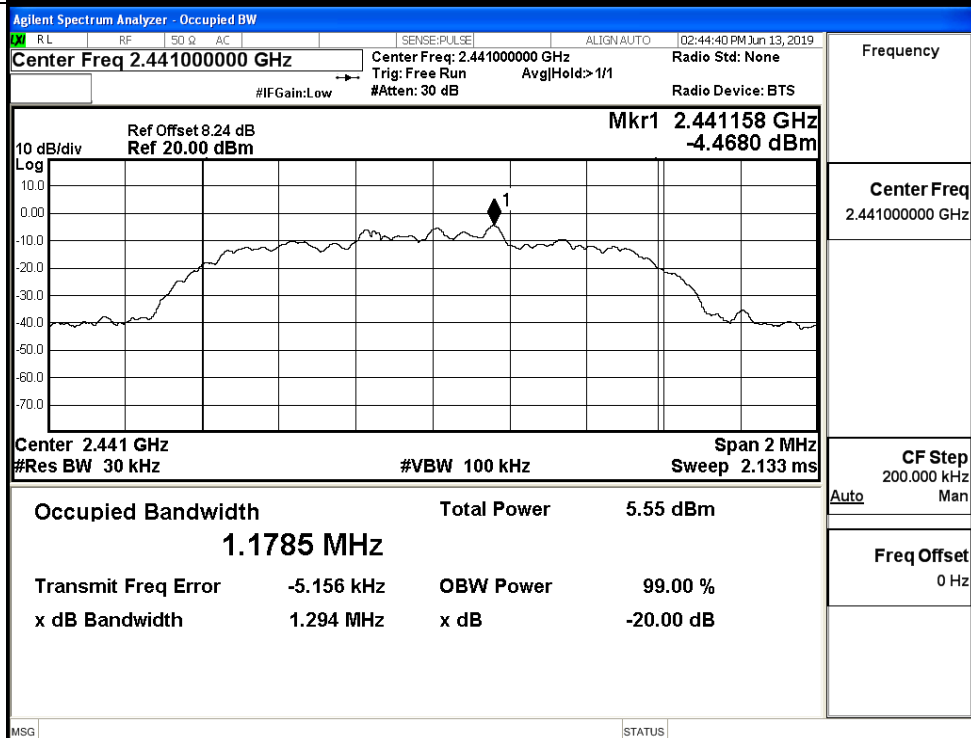


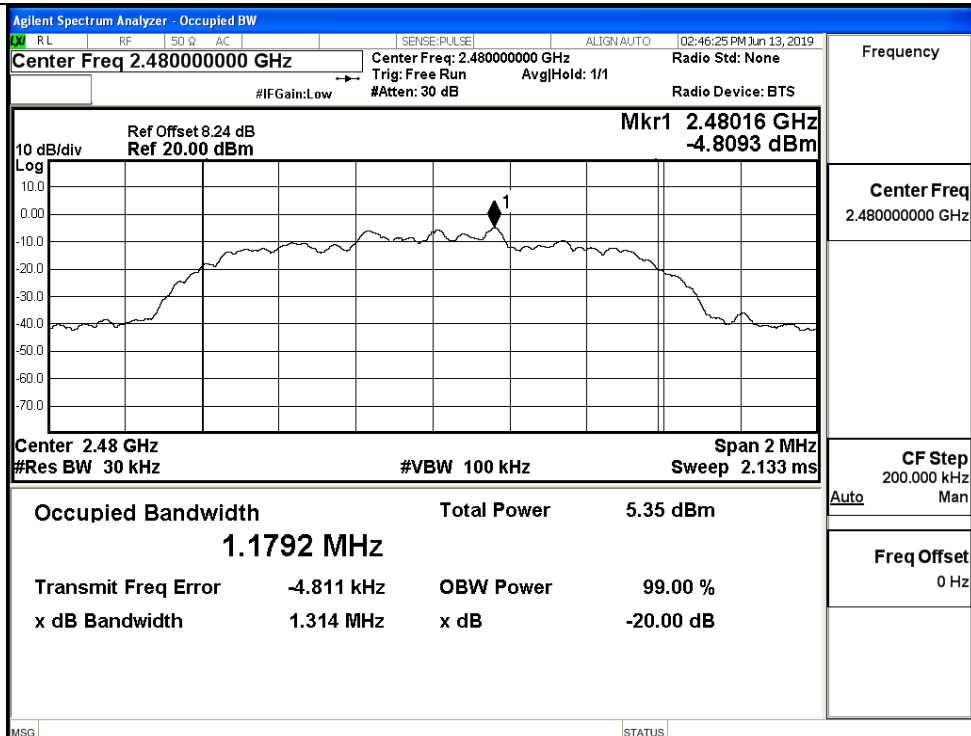
GFSK/MCH



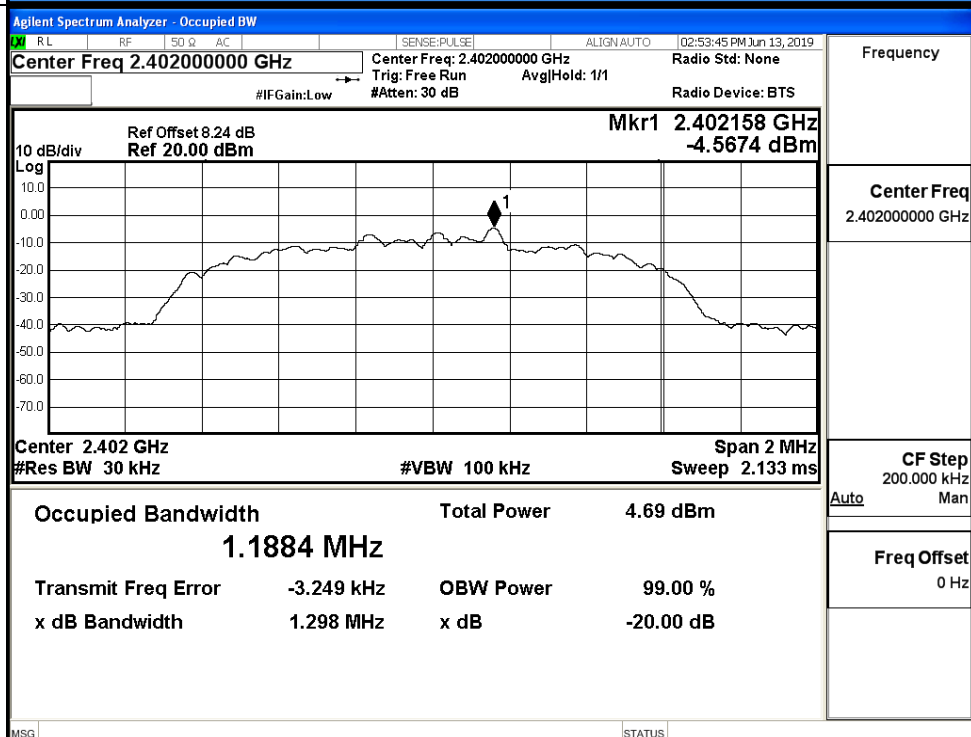
GFSK/HCH



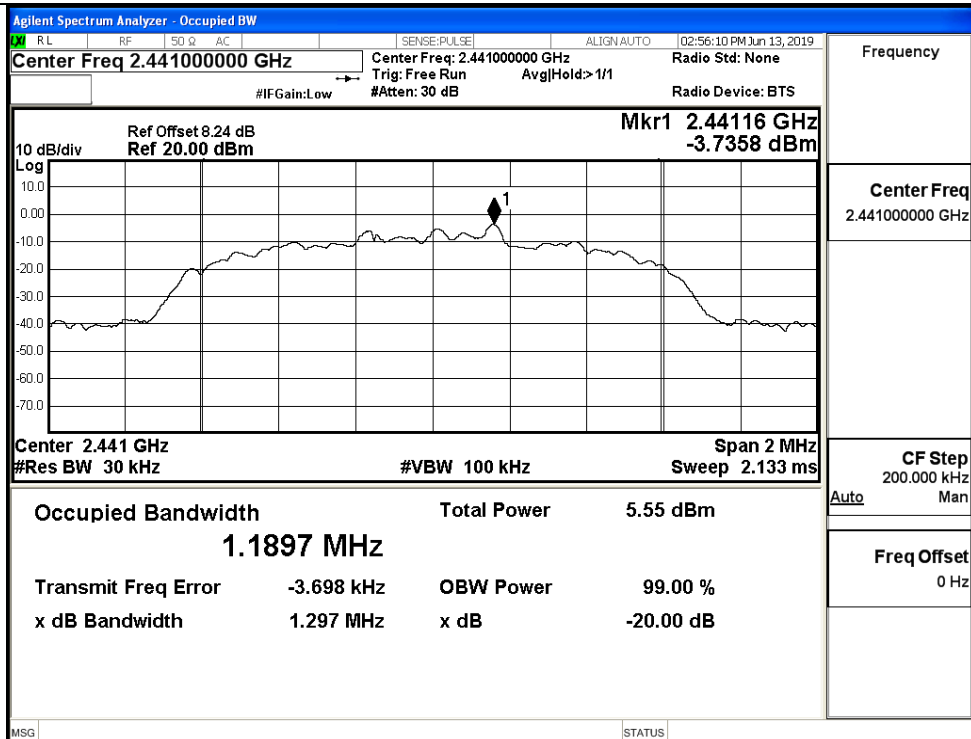
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

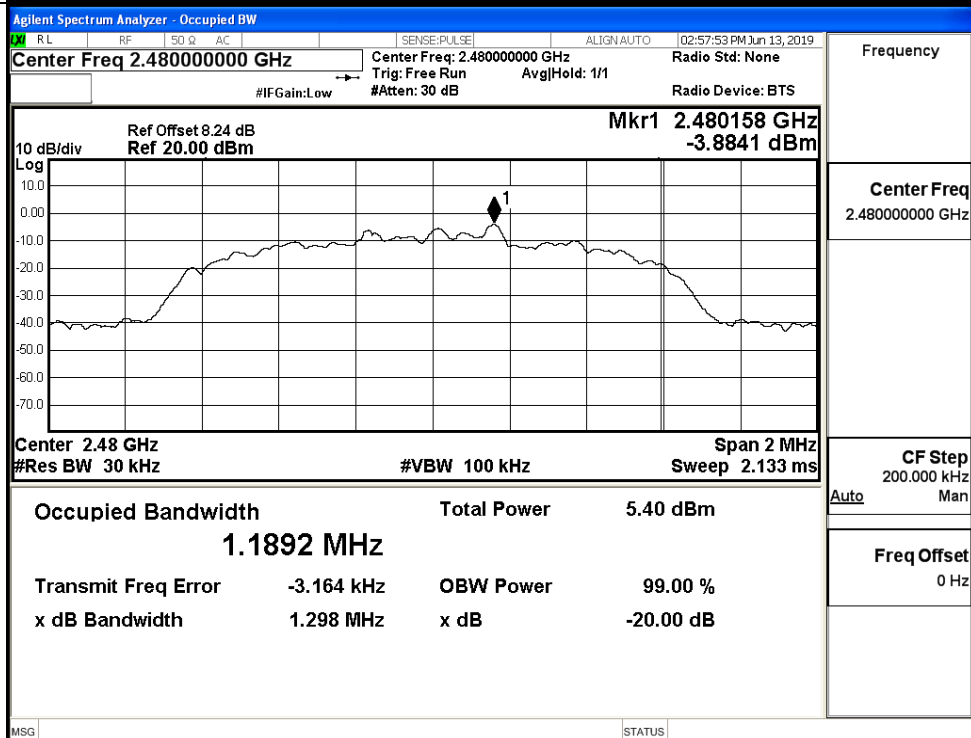
8DPSK/LCH



8DPSK/MCH



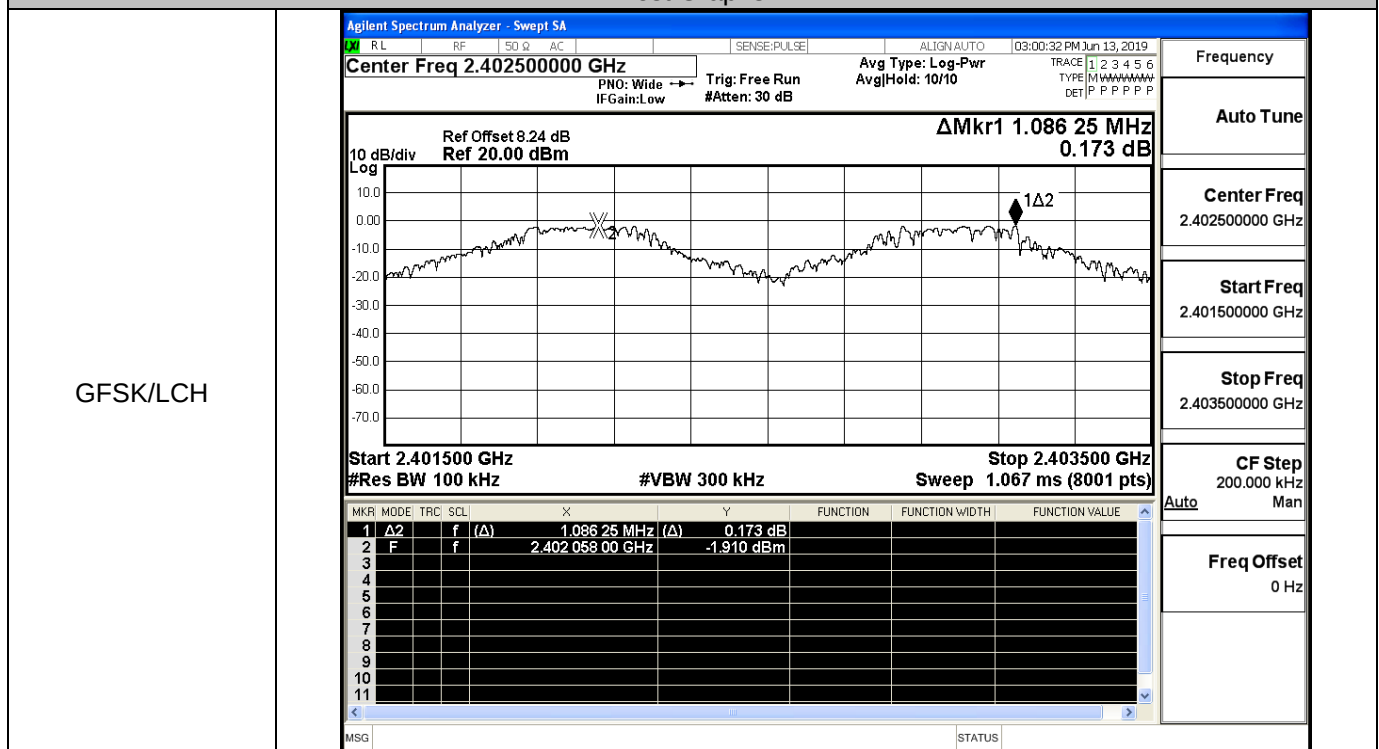
8DPSK/HCH



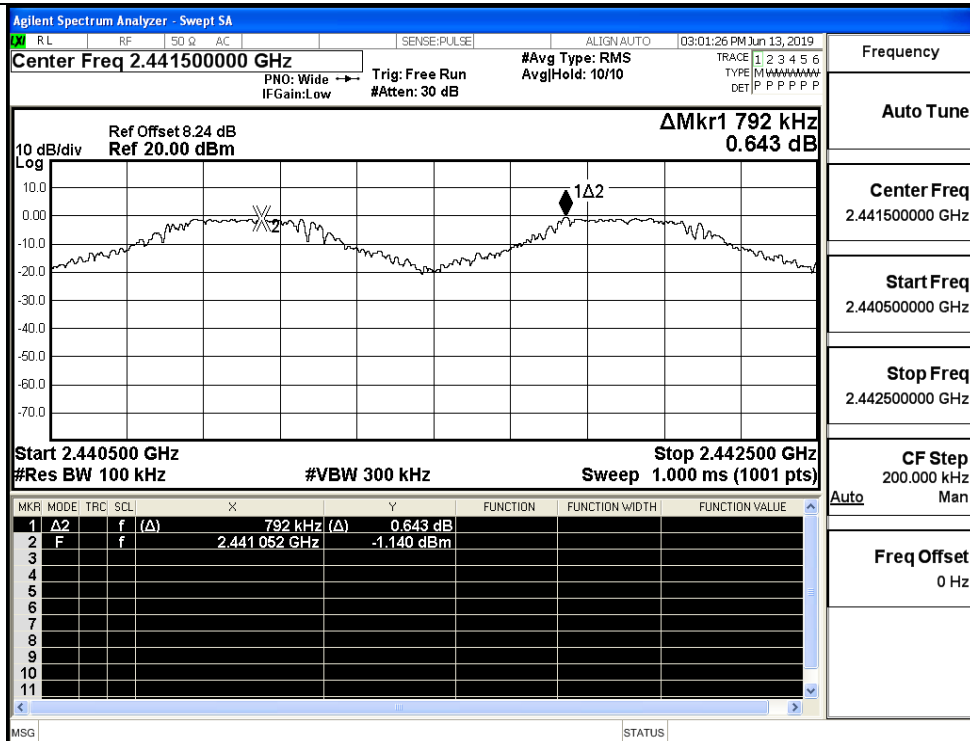
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.086	0.689	PASS
	MCH	0.792	0.689	PASS
	HCH	0.898	0.689	PASS
π /4DQPSK	LCH	0.972	0.876	PASS
	MCH	1.022	0.876	PASS
	HCH	1.296	0.876	PASS
8DPSK	LCH	1.110	0.865	PASS
	MCH	1.132	0.865	PASS
	HCH	1.086	0.865	PASS

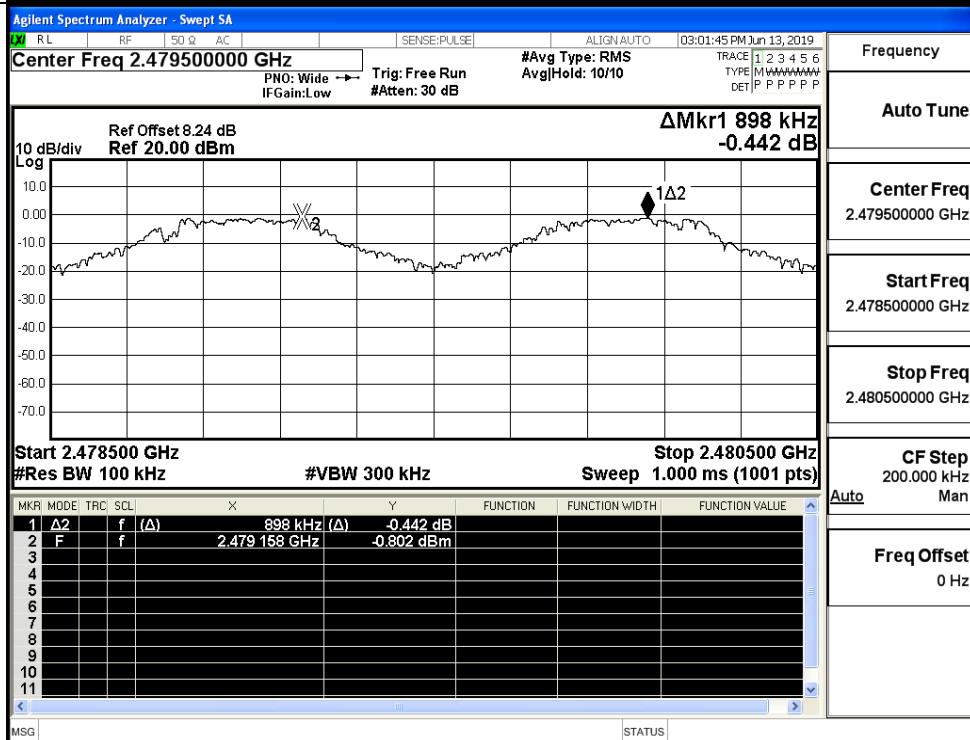
Test Graphs

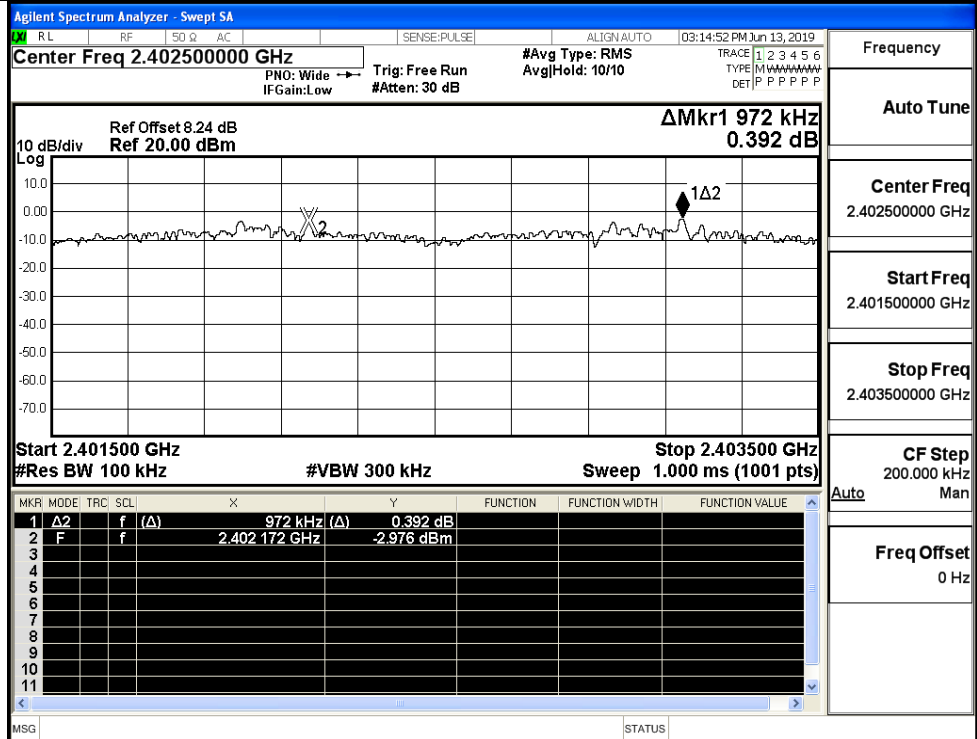
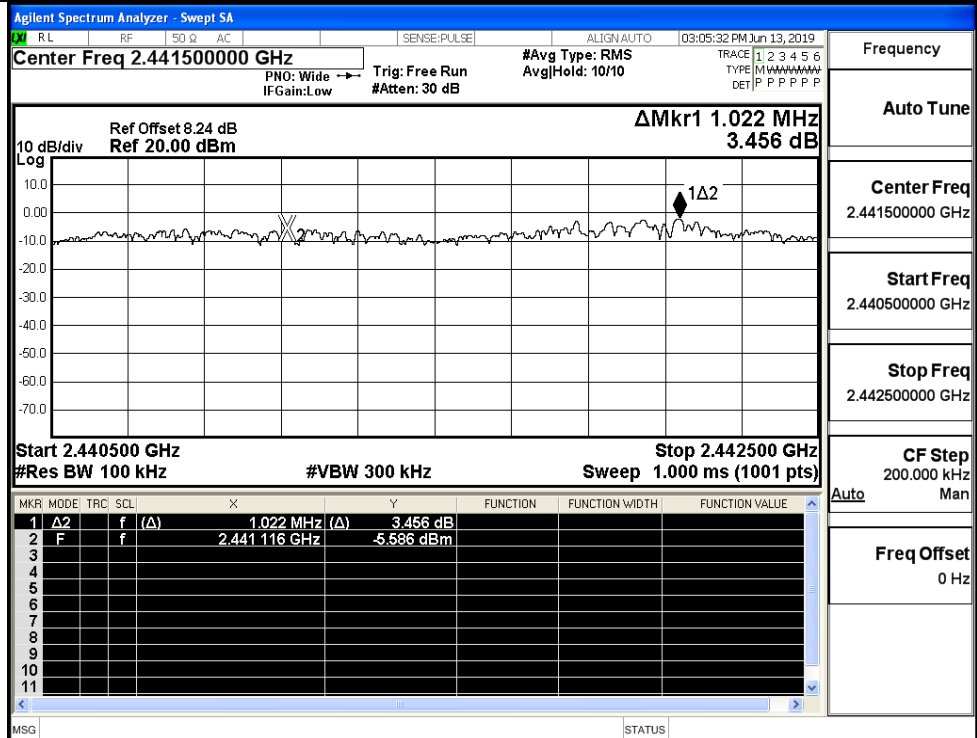


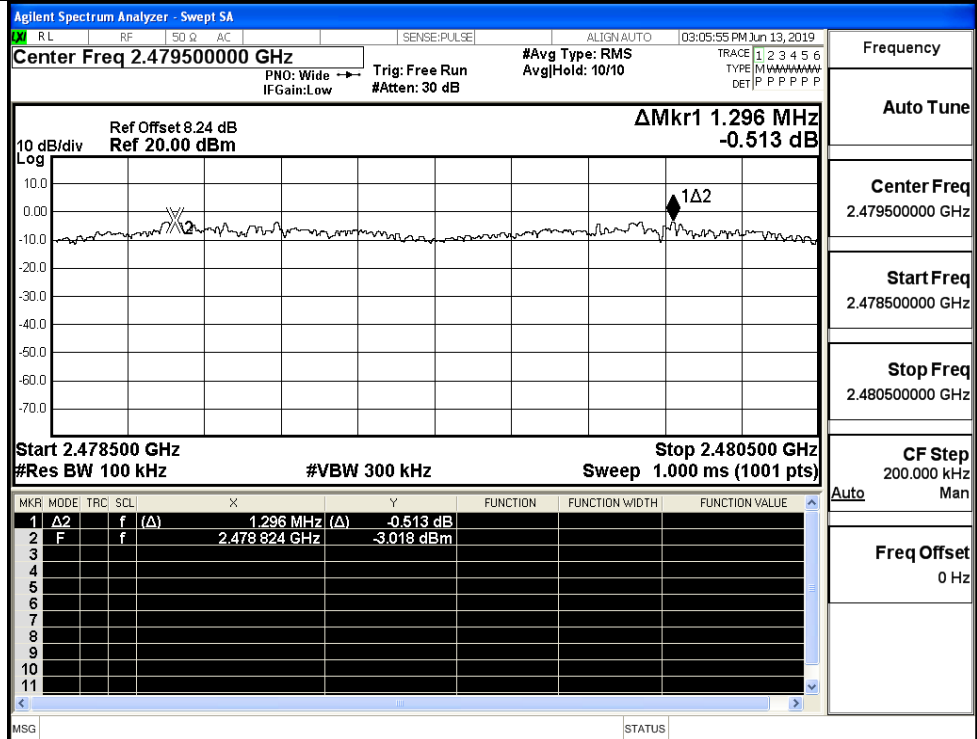
GFSK/MCH



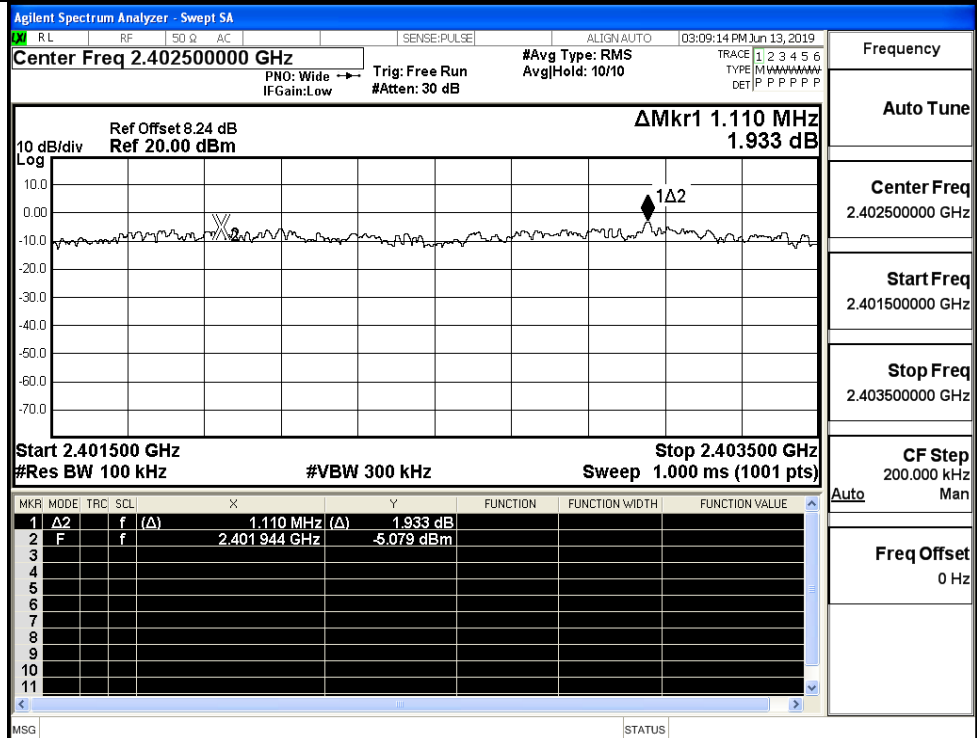
GFSK/HCH



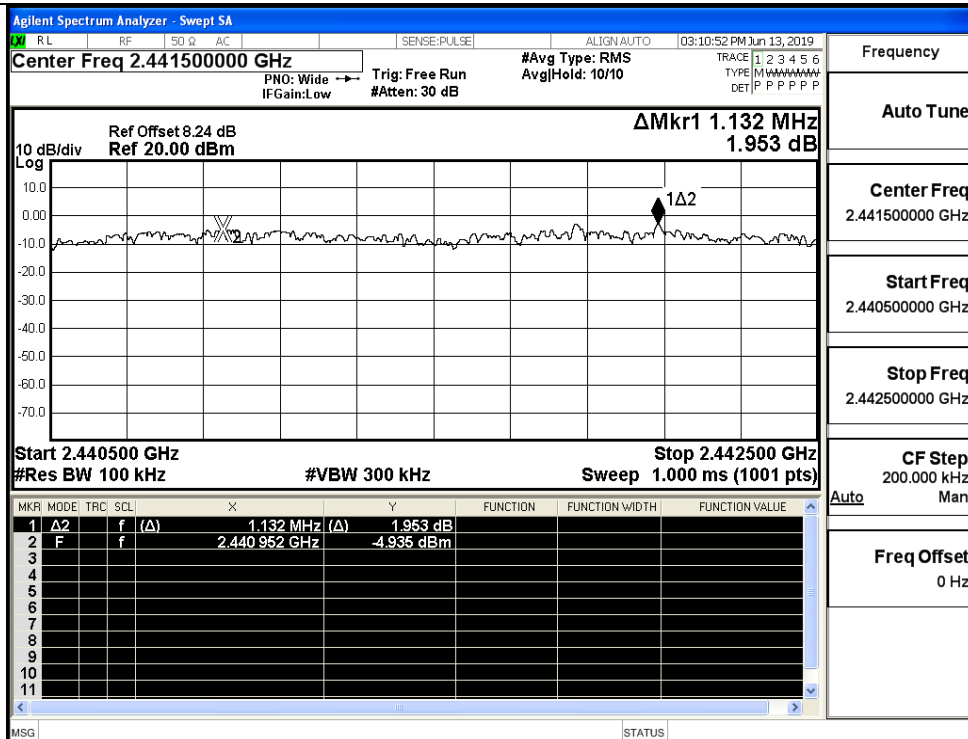
π /4DQPSK/LCH π /4DQPSK/MCH

$\pi/4$ DQPSK/HCH

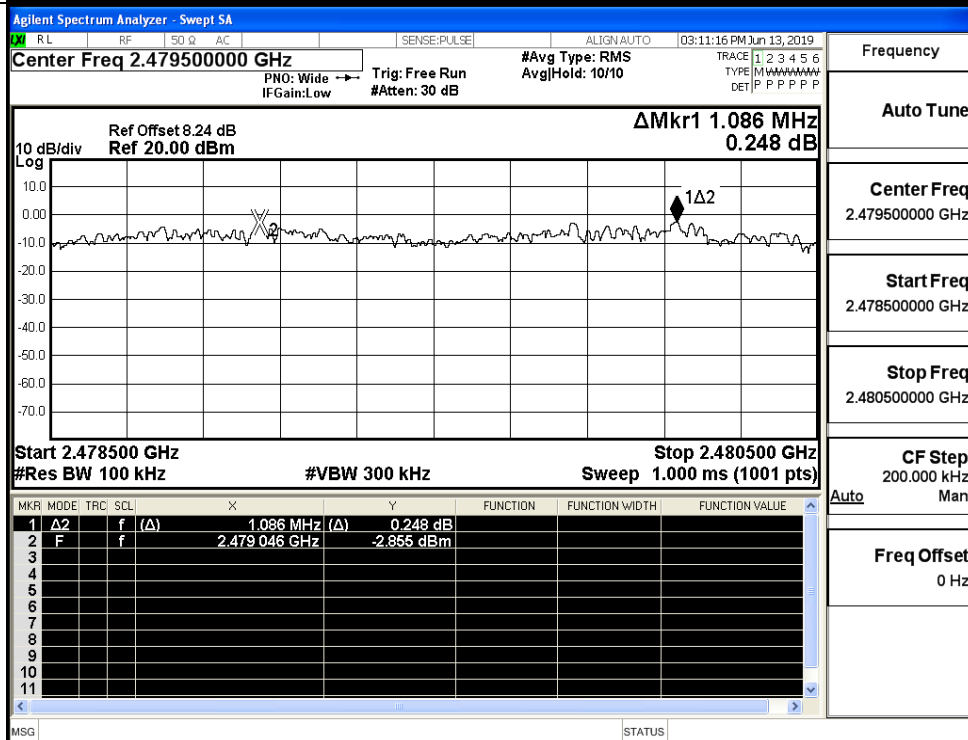
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

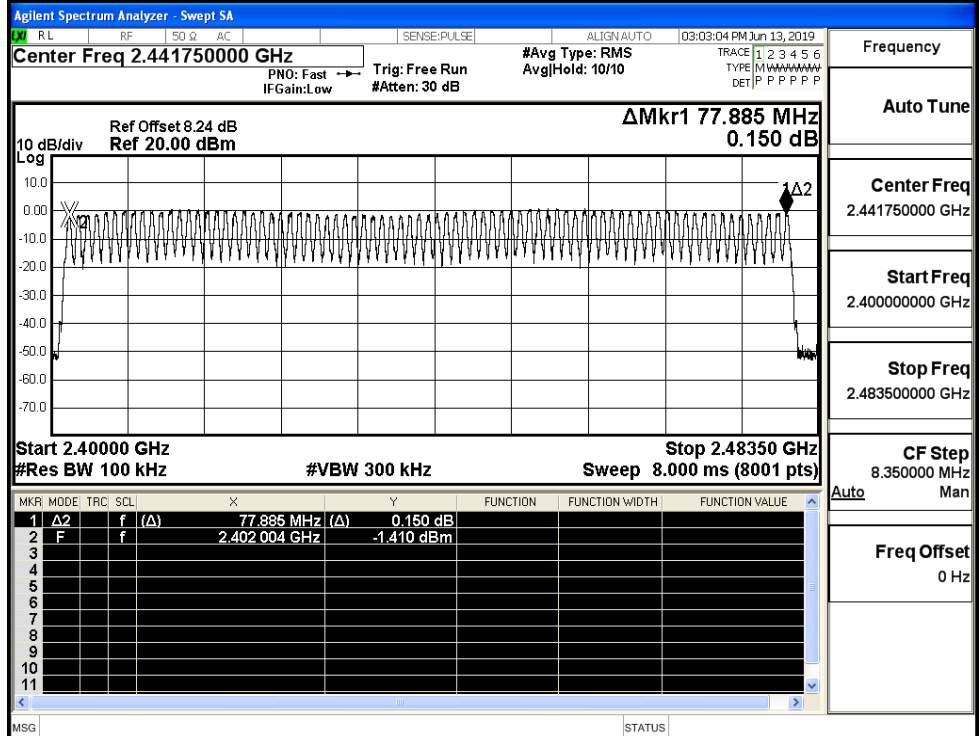
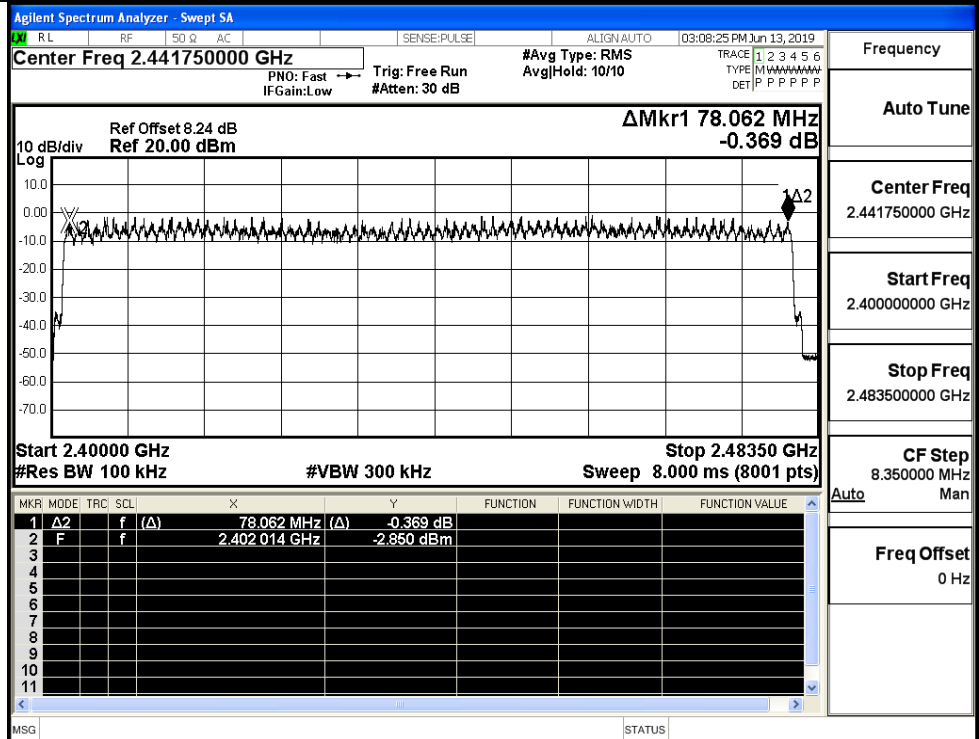


A.4 Hopping Channel Number

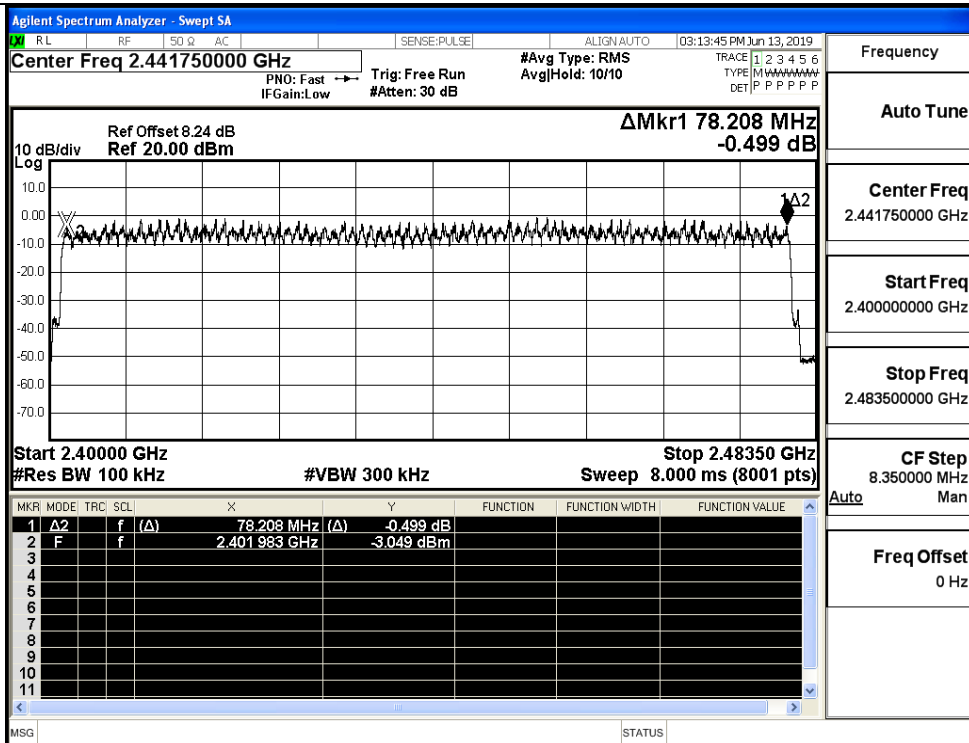
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

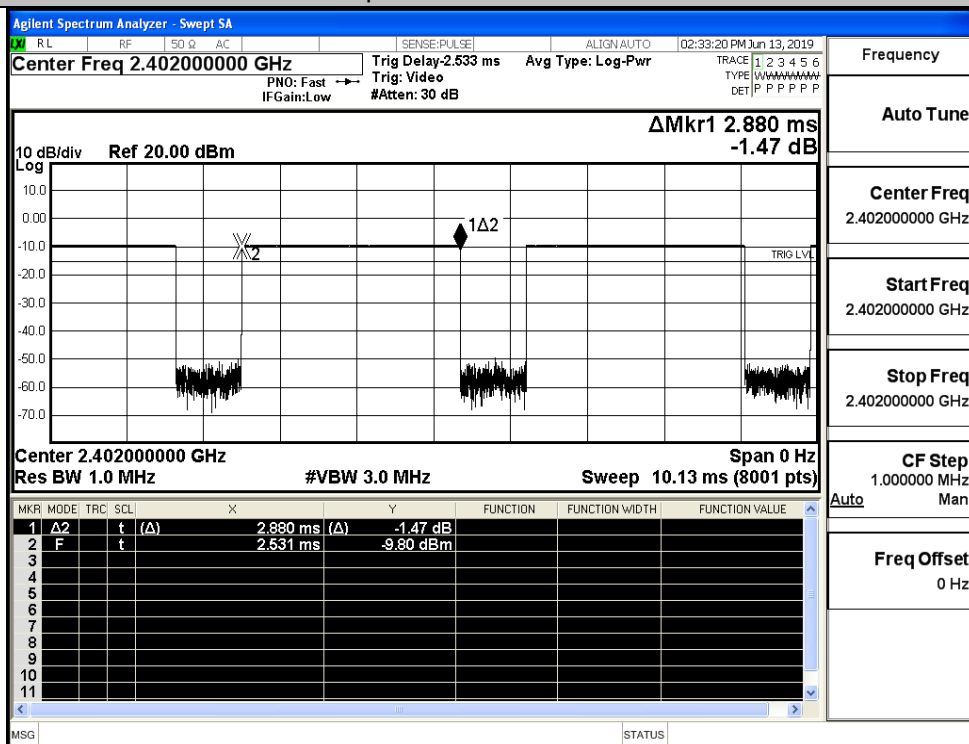


A.5 Dwell Time

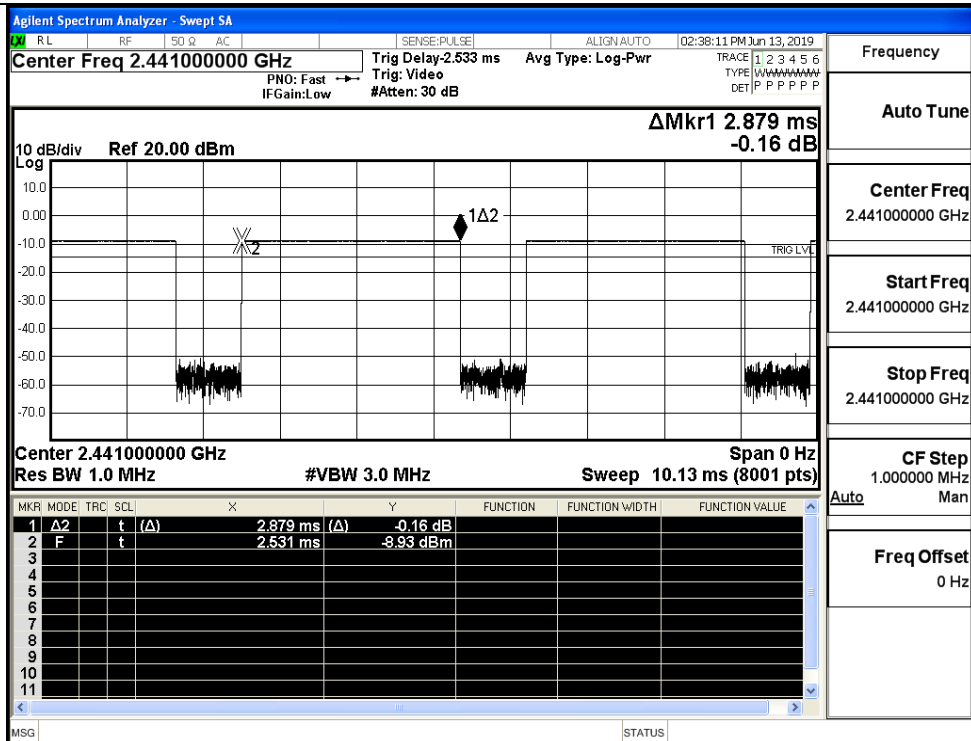
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

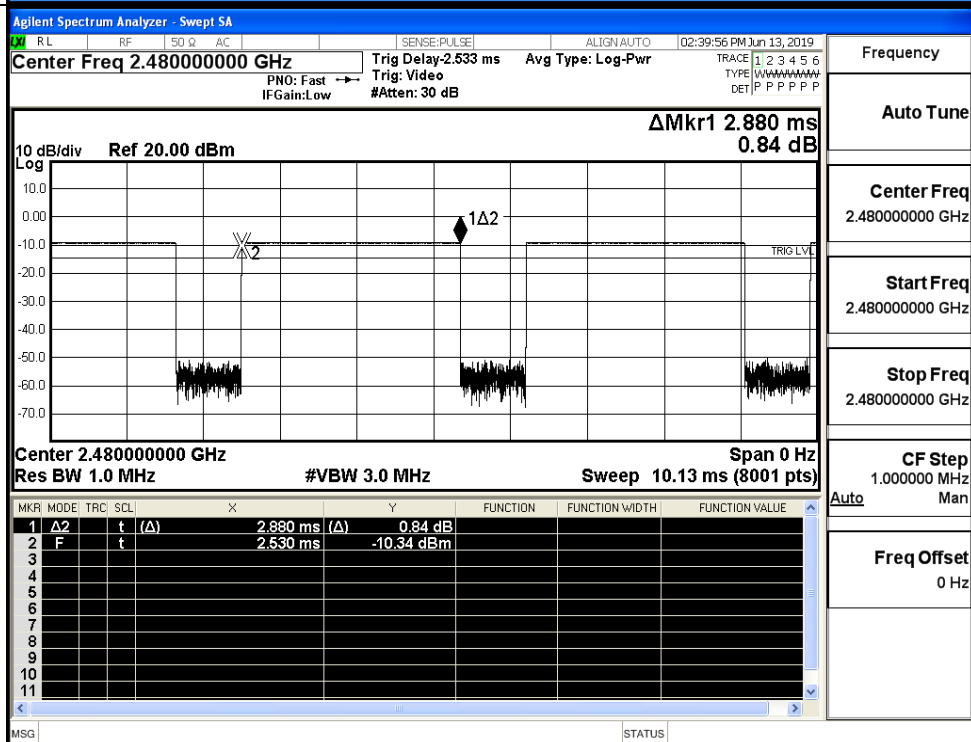
GFSK_DH5/LCH



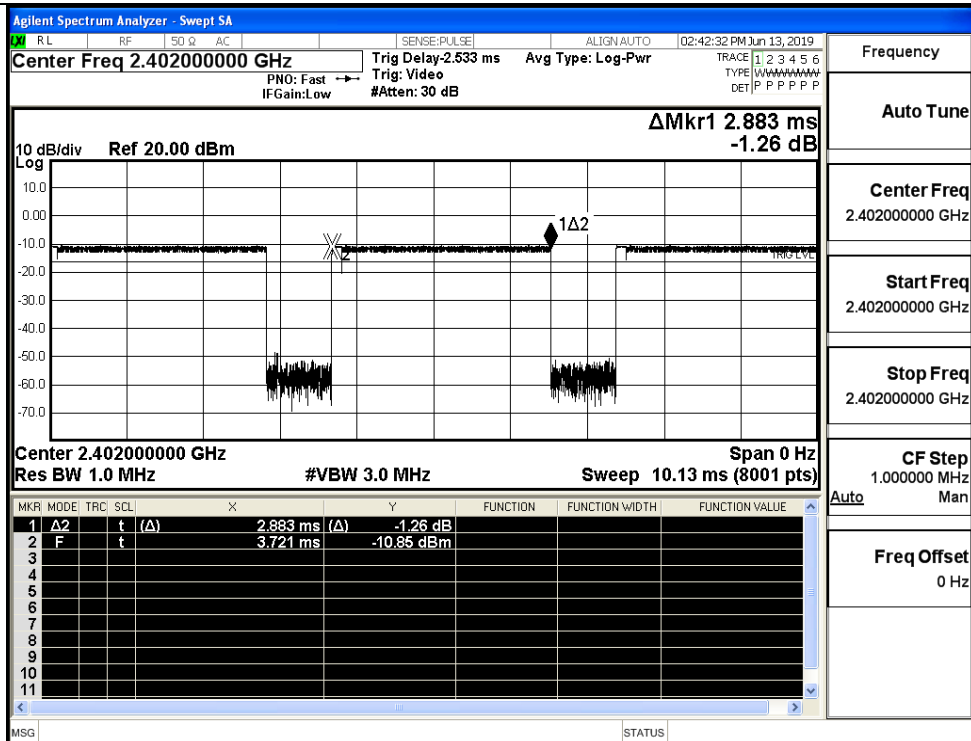
GFSK_DH5/MCH



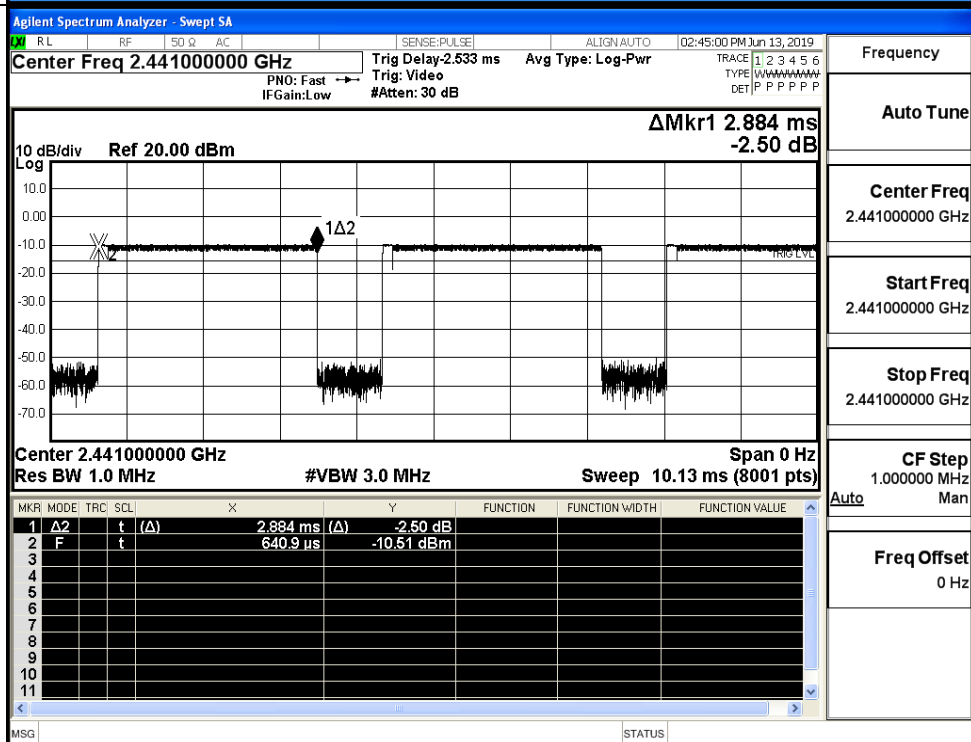
GFSK_DH5/HCH



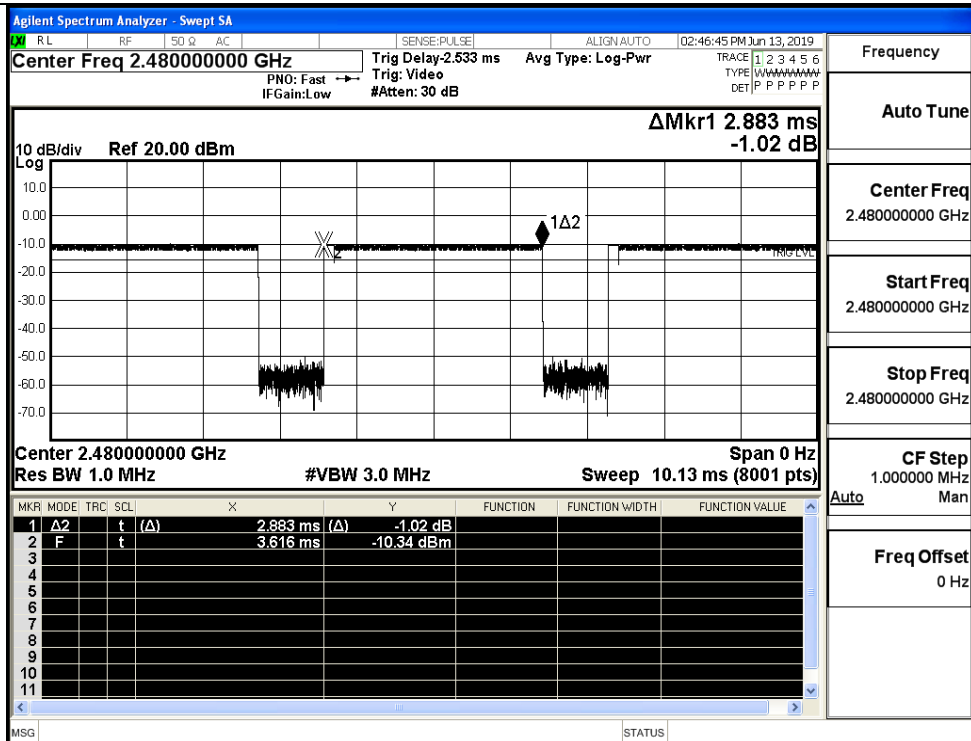
$\pi/4$ DQPSK
_2DH5/LCH



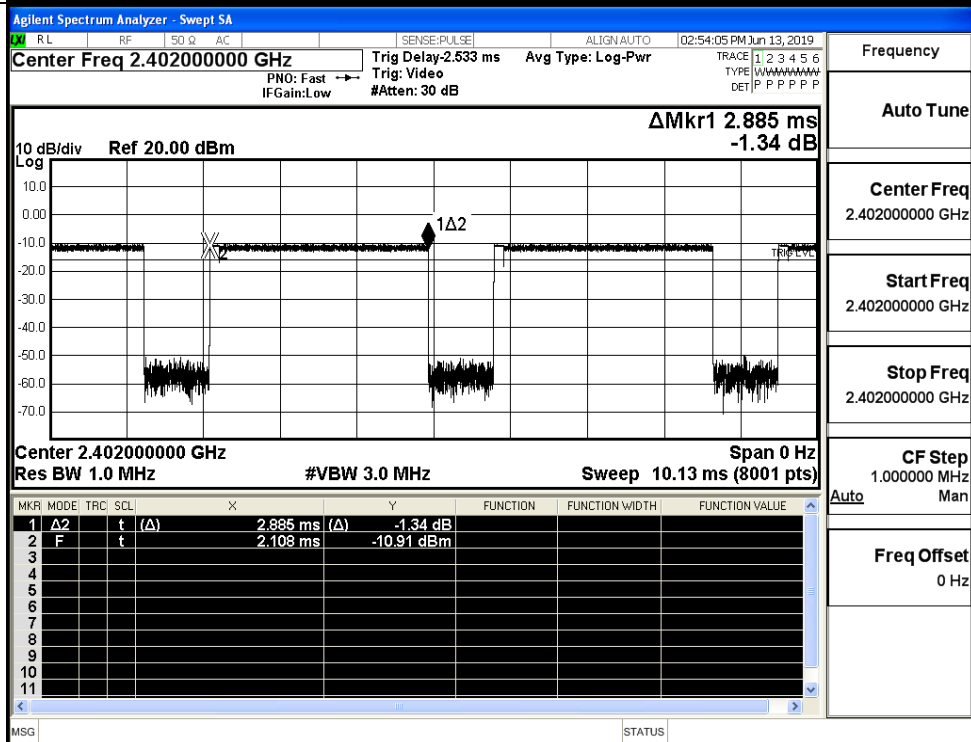
$\pi/4$ DQPSK
_2DH5/MCH



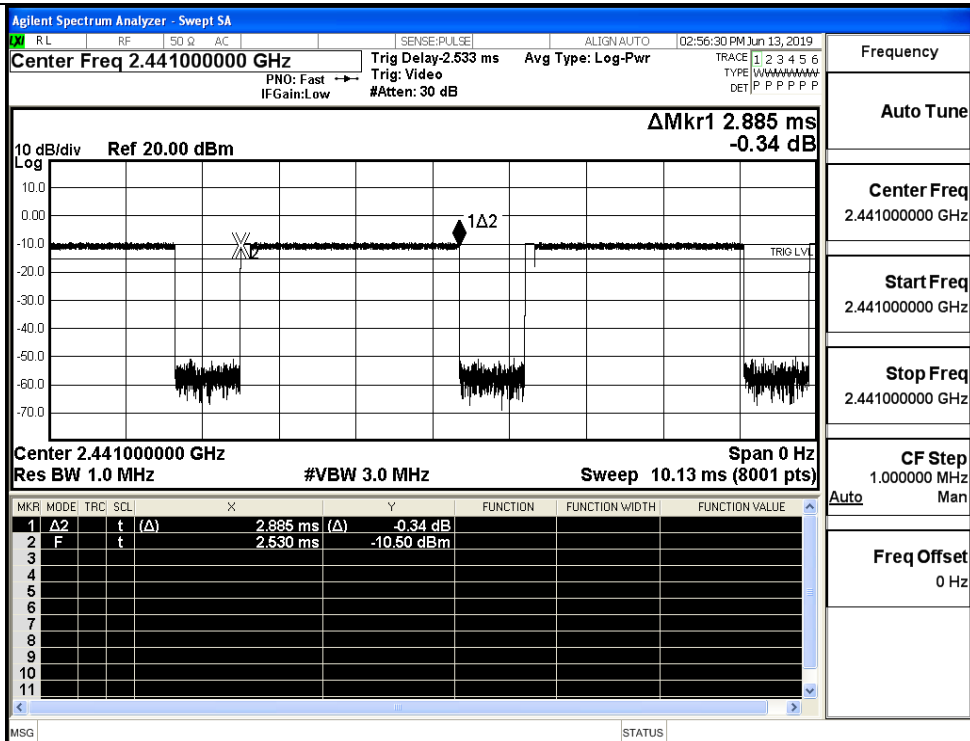
$\pi/4$ DQPSK
_2DH5/HCH



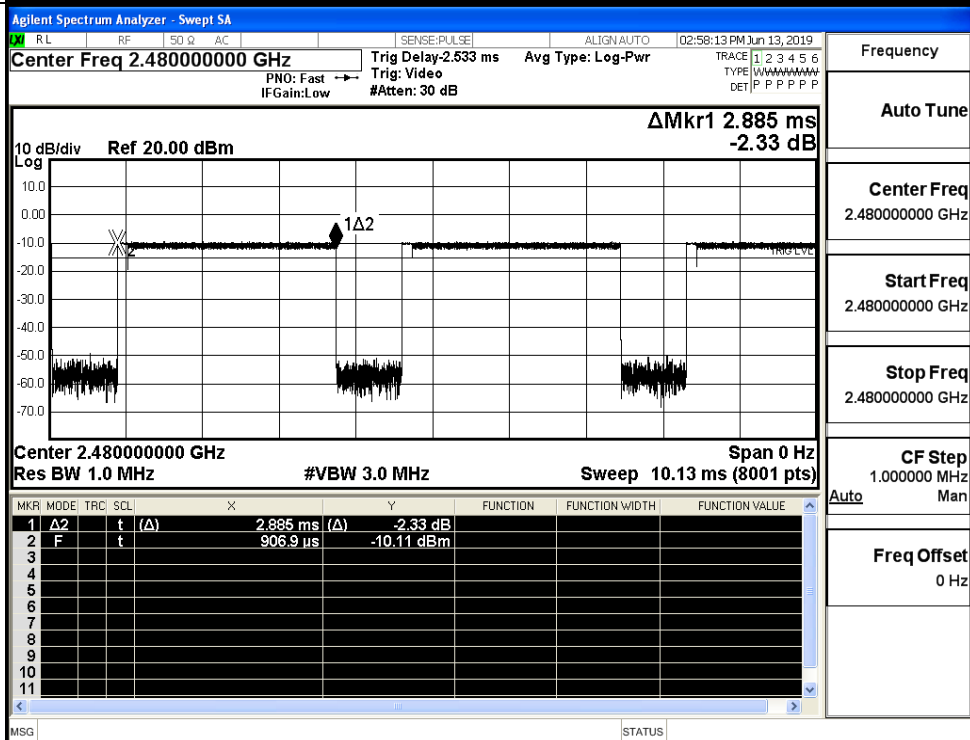
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



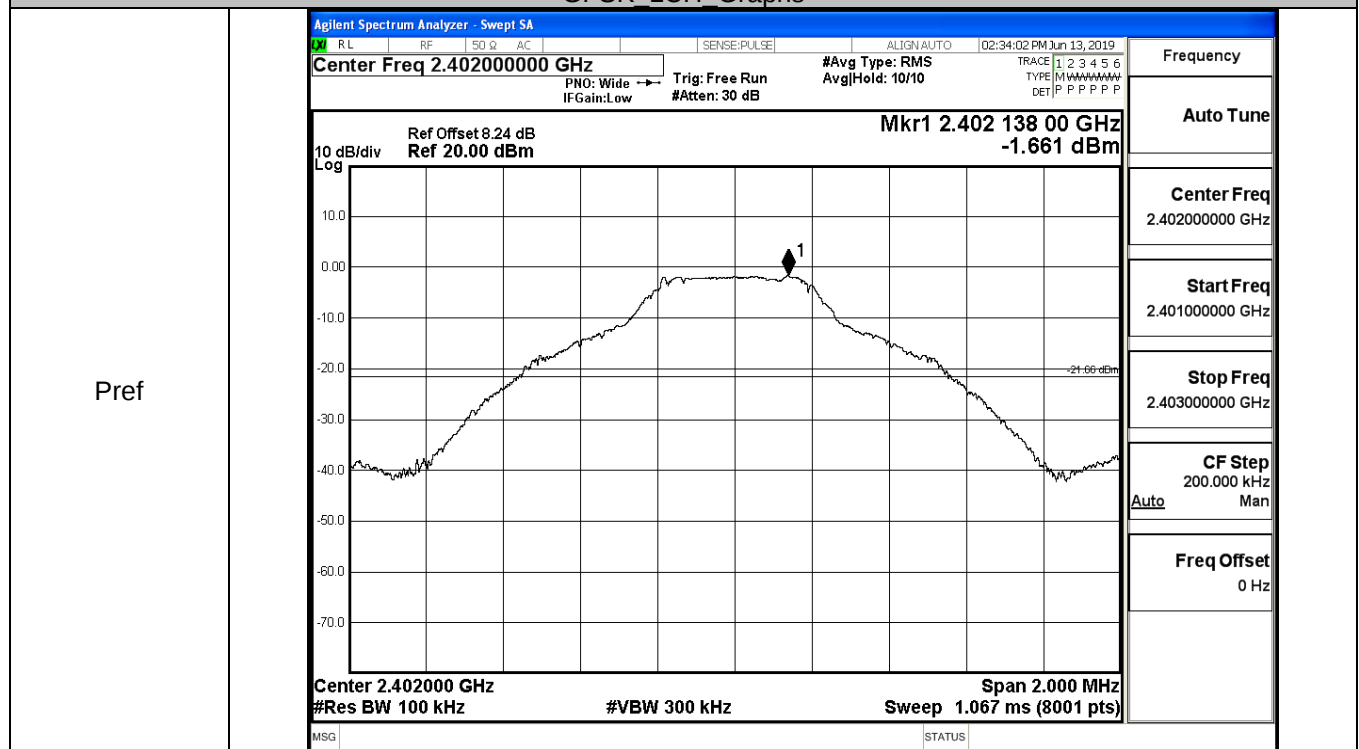
8DPSK_3DH5/HCH

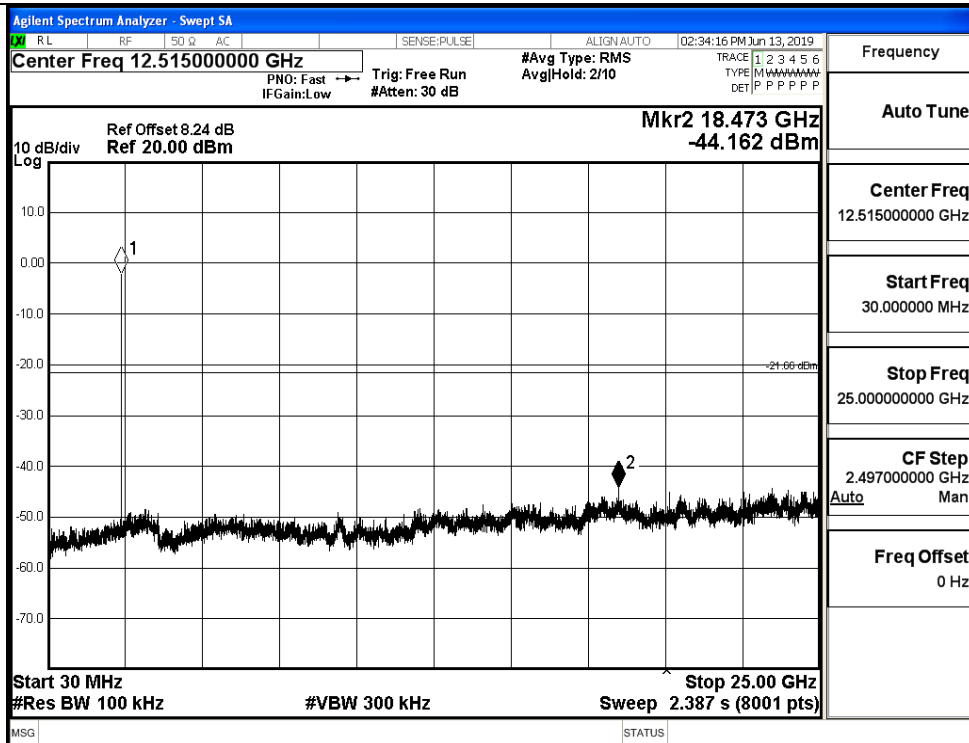


A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.661	-44.162	-21.661	PASS
	MCH	-0.561	-44.223	-20.561	PASS
	HCH	-0.829	-44.510	-20.829	PASS
$\pi/4$ DQPSK	LCH	-2.612	-43.838	-22.612	PASS
	MCH	-1.745	-44.557	-21.745	PASS
	HCH	-2.401	-44.533	-22.401	PASS
8DPSK	LCH	-2.586	-37.616	-22.586	PASS
	MCH	-1.701	-44.509	-21.701	PASS
	HCH	-1.798	-44.520	-21.798	PASS

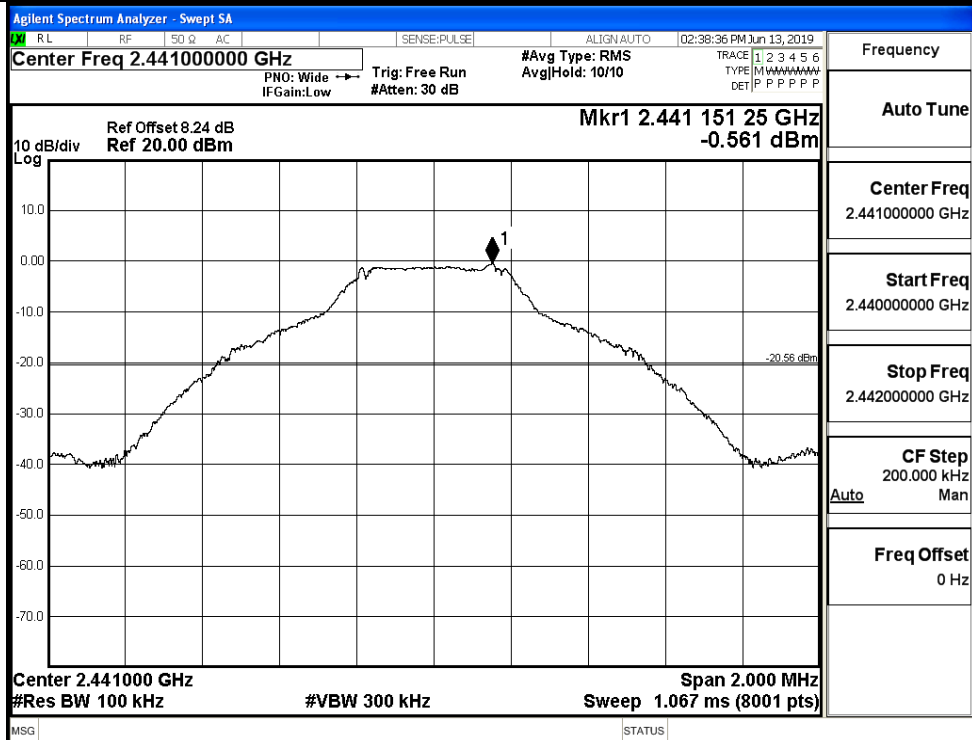
GFSK LCH Graphs



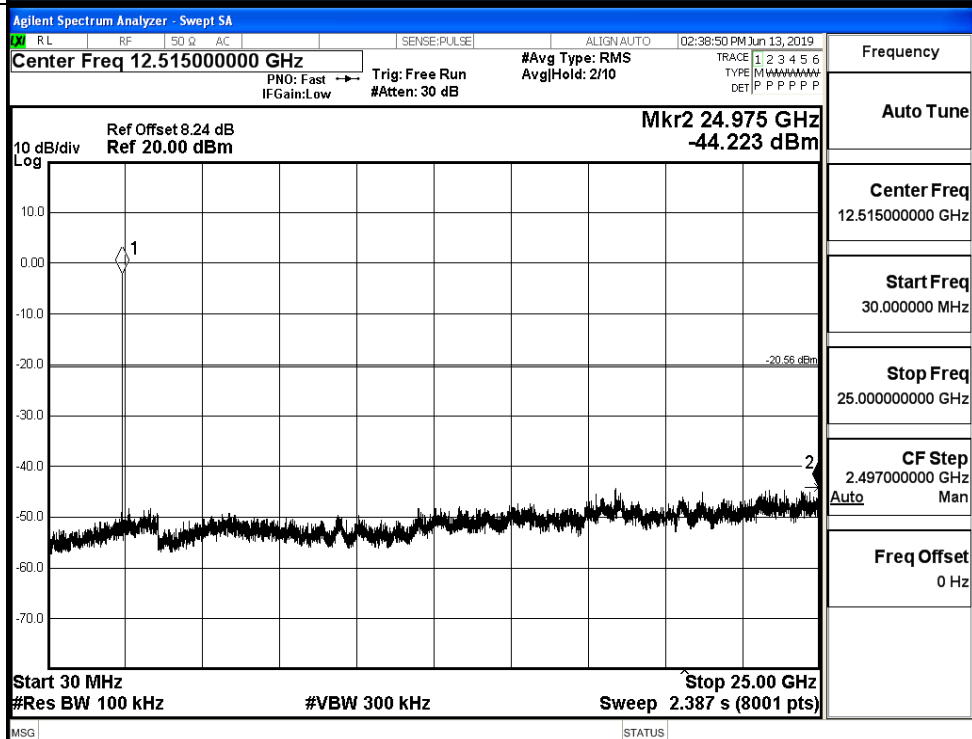


GFSK MCH Graphs

Pref

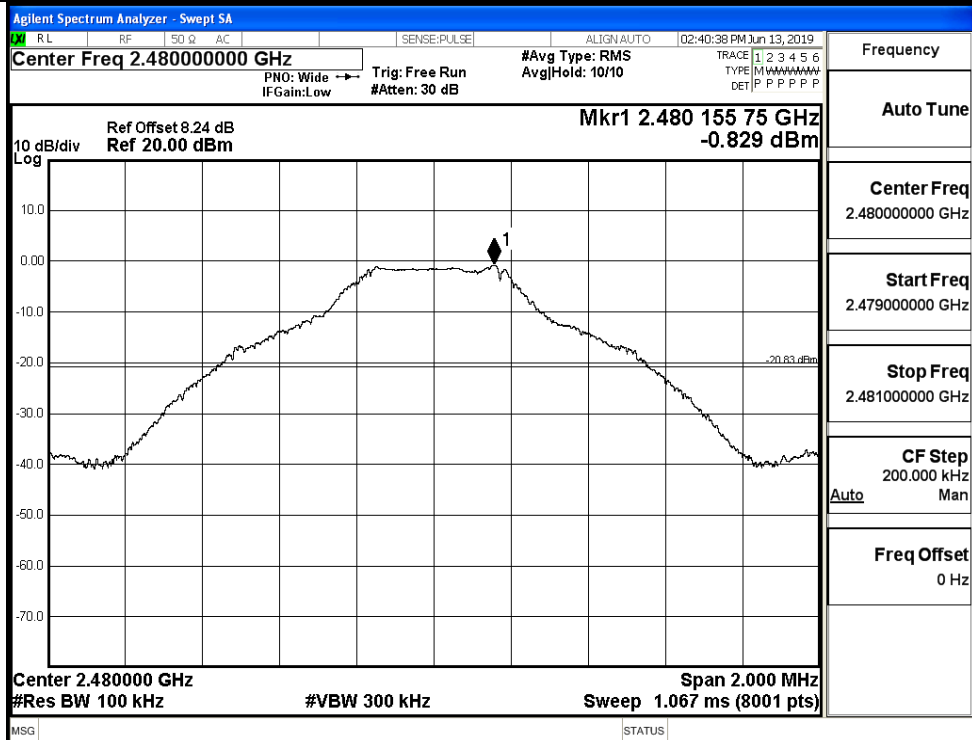


Puw

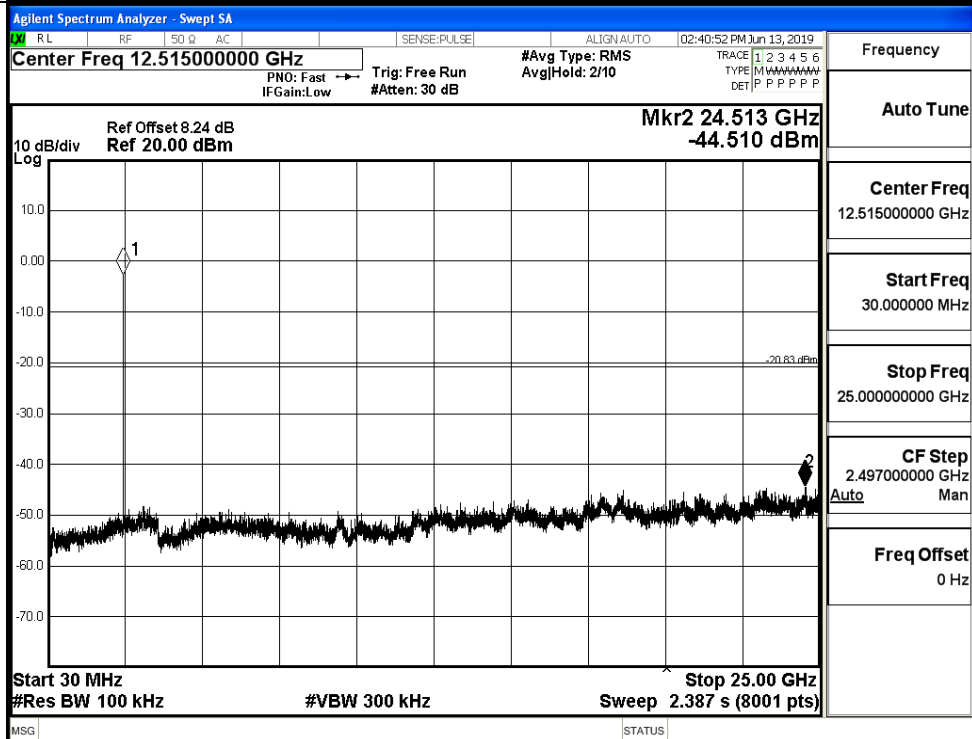


GFSK HCH Graphs

Pref

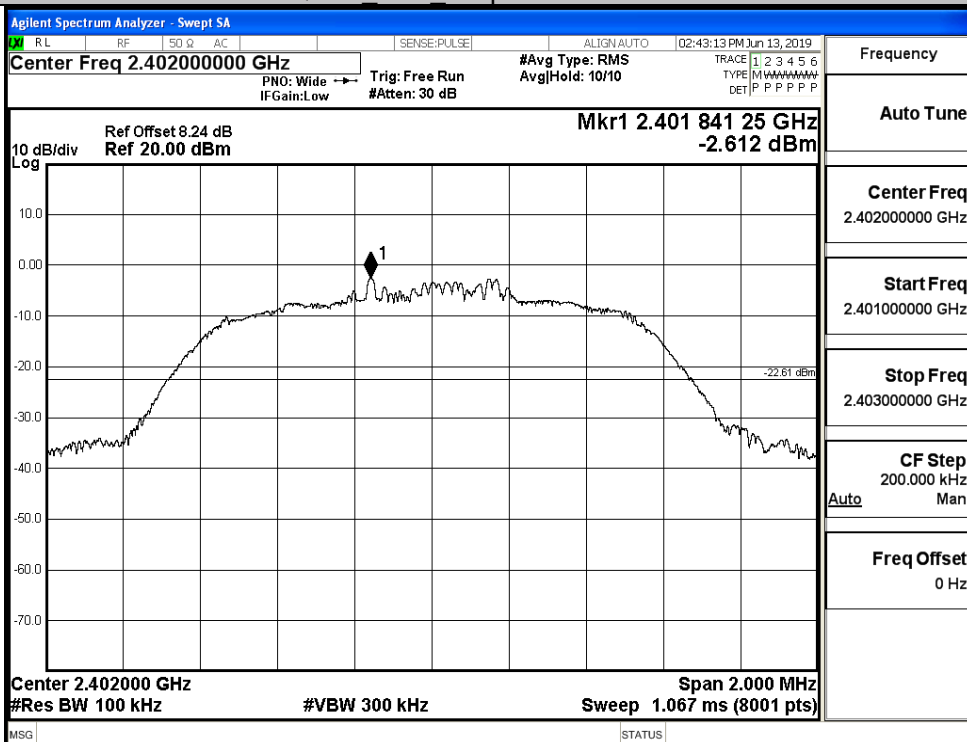


Puw

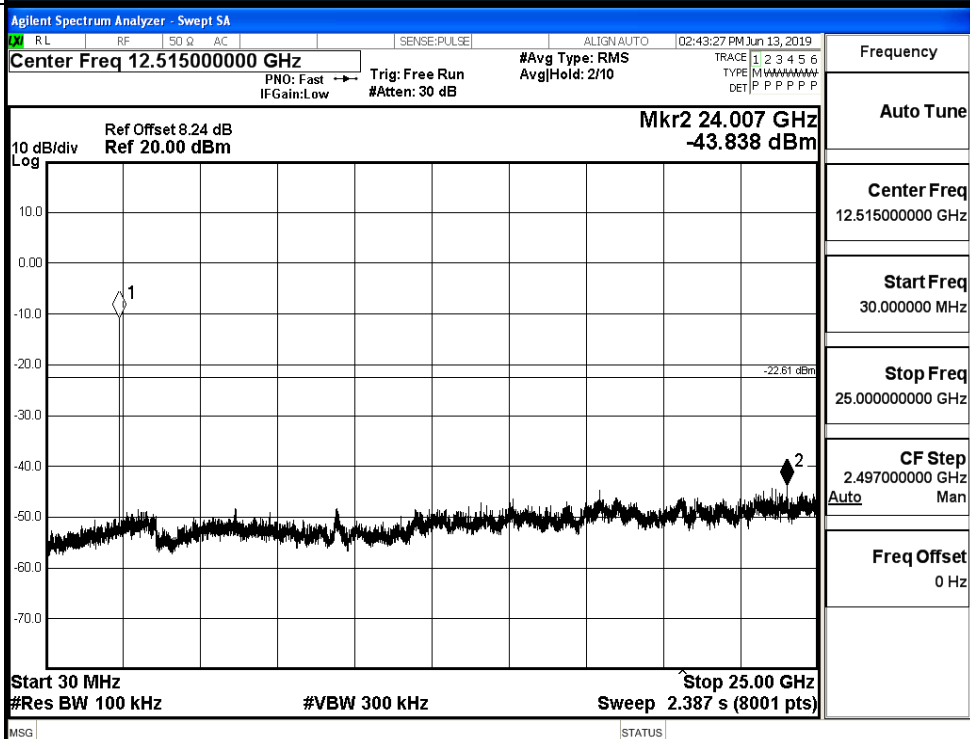


$\pi/4$ DQPSK LCH Graphs

Pref

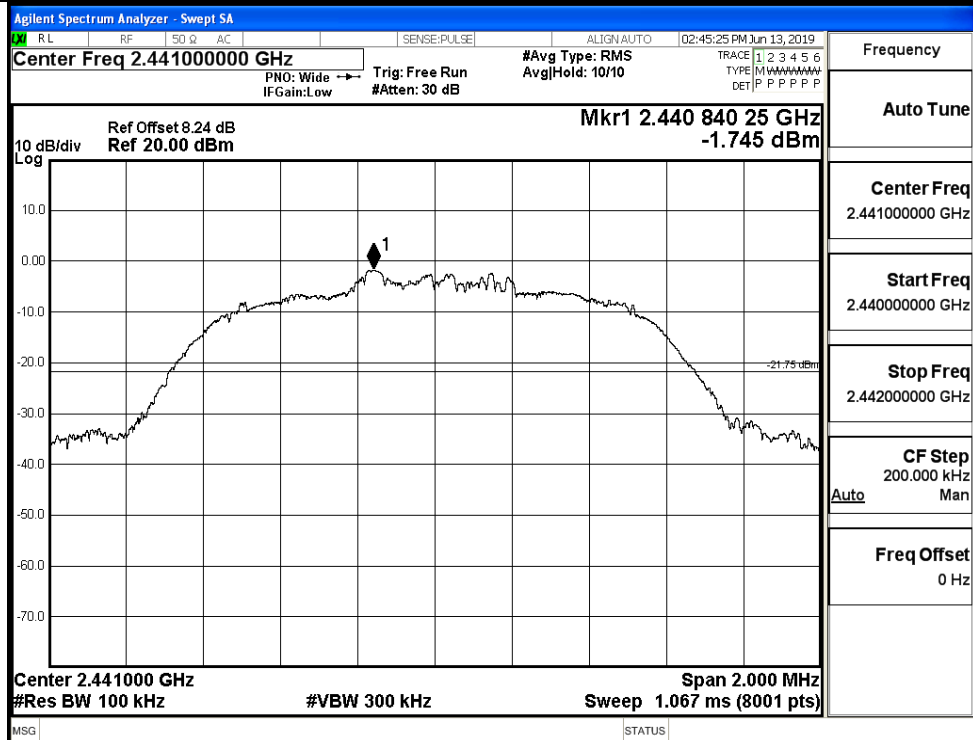


Puw

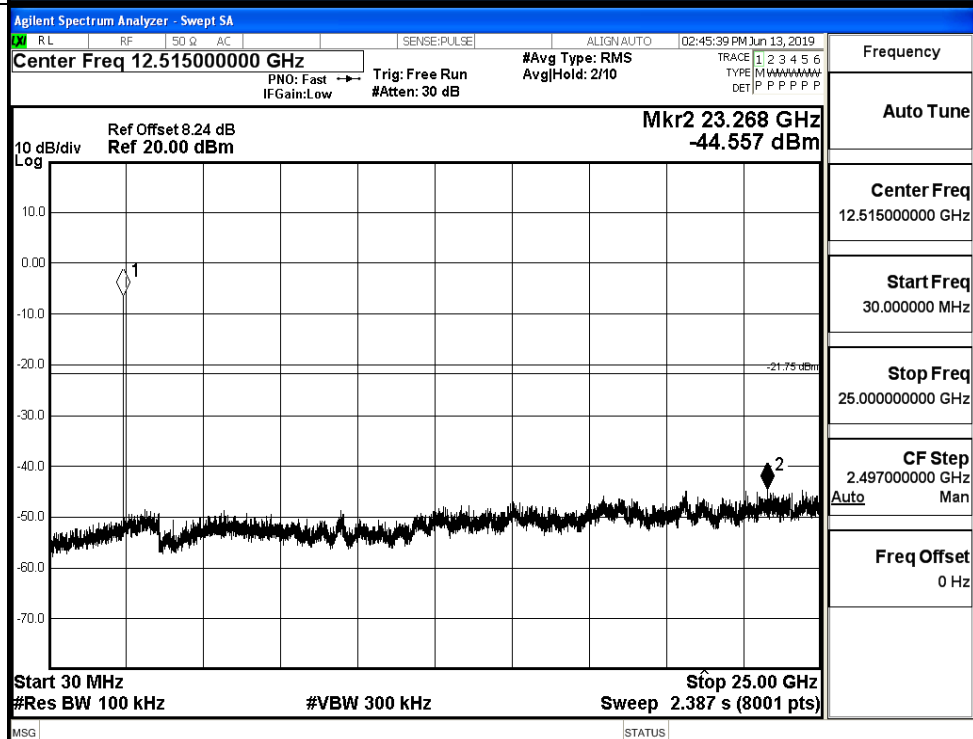


π /4DQPSK MCH Graphs

Pref

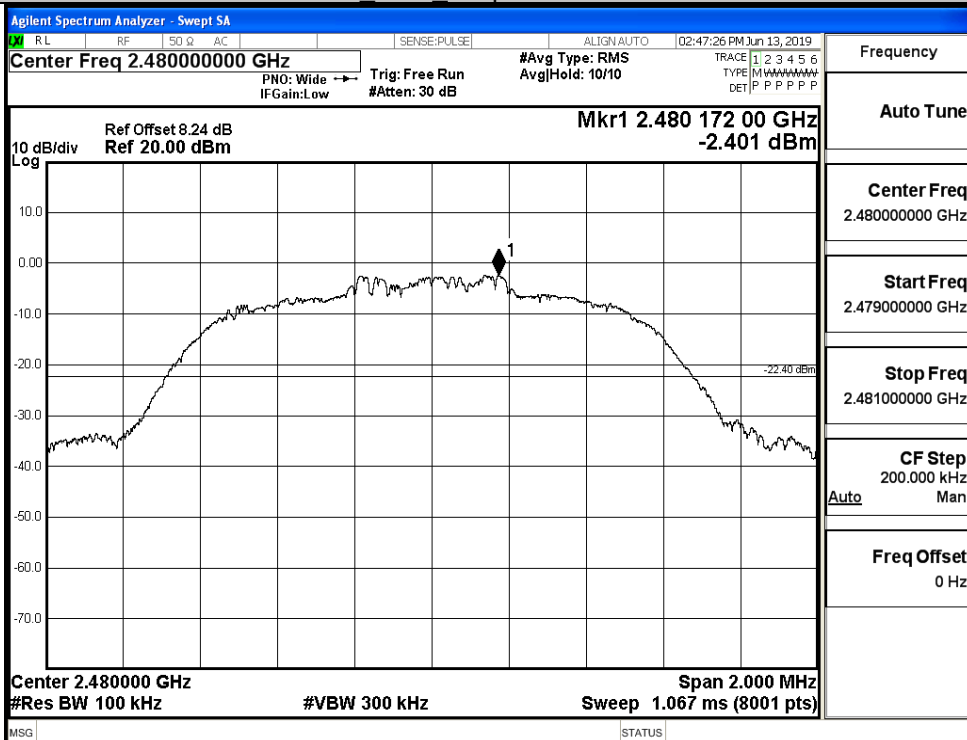


Puw

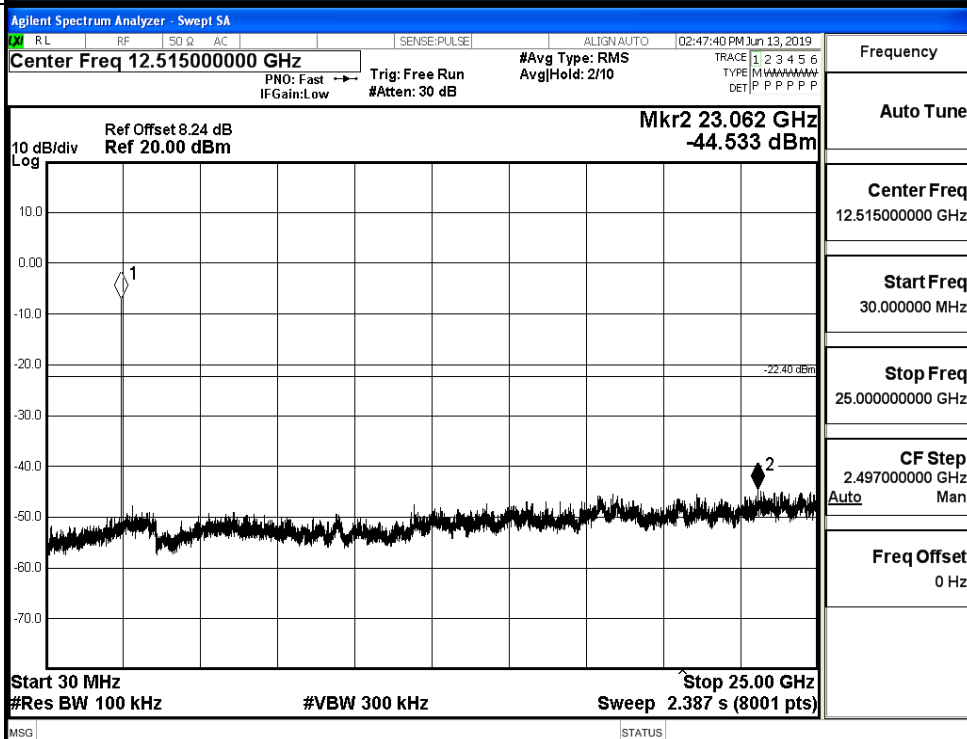


π /4DQPSK HCH Graphs

Pref

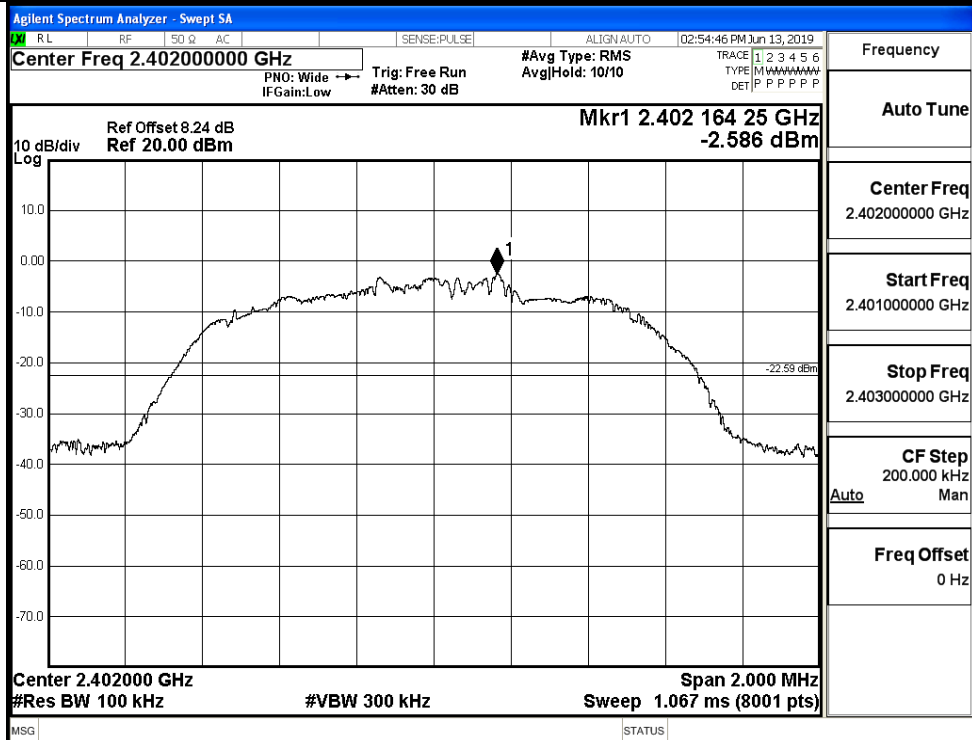


Puw

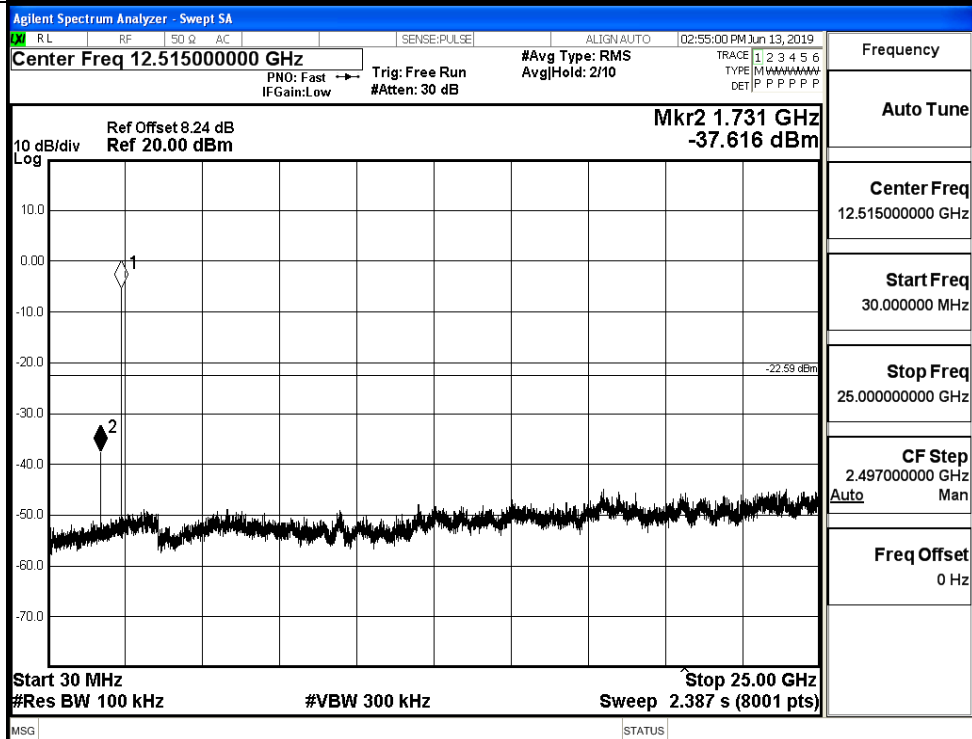


8DPSK_LCH_Graphs

Pref

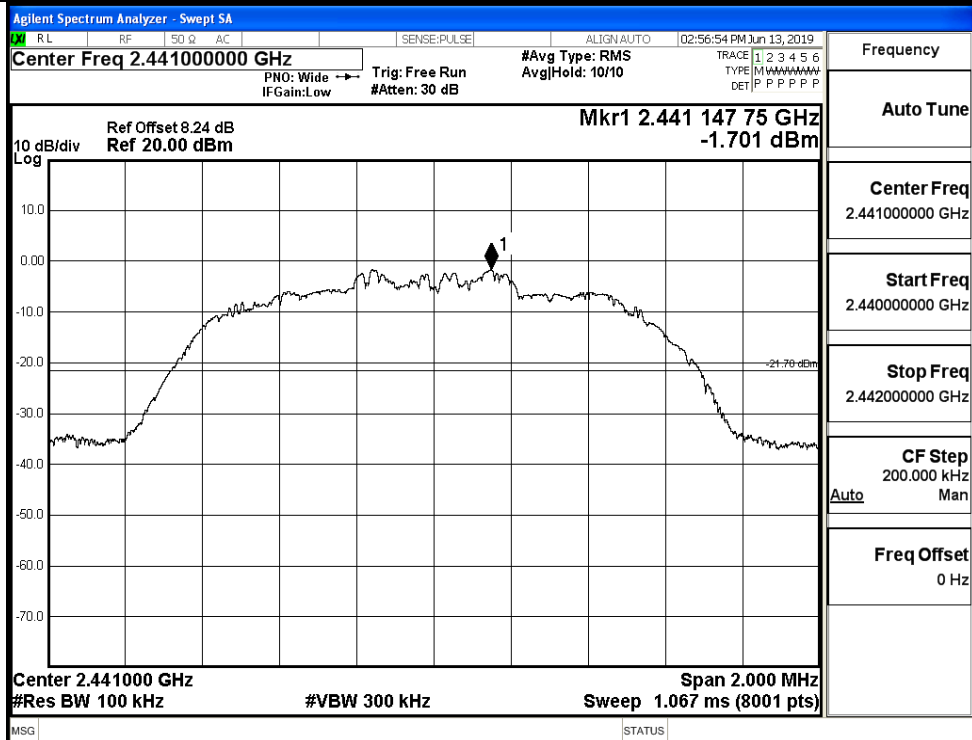


Puw

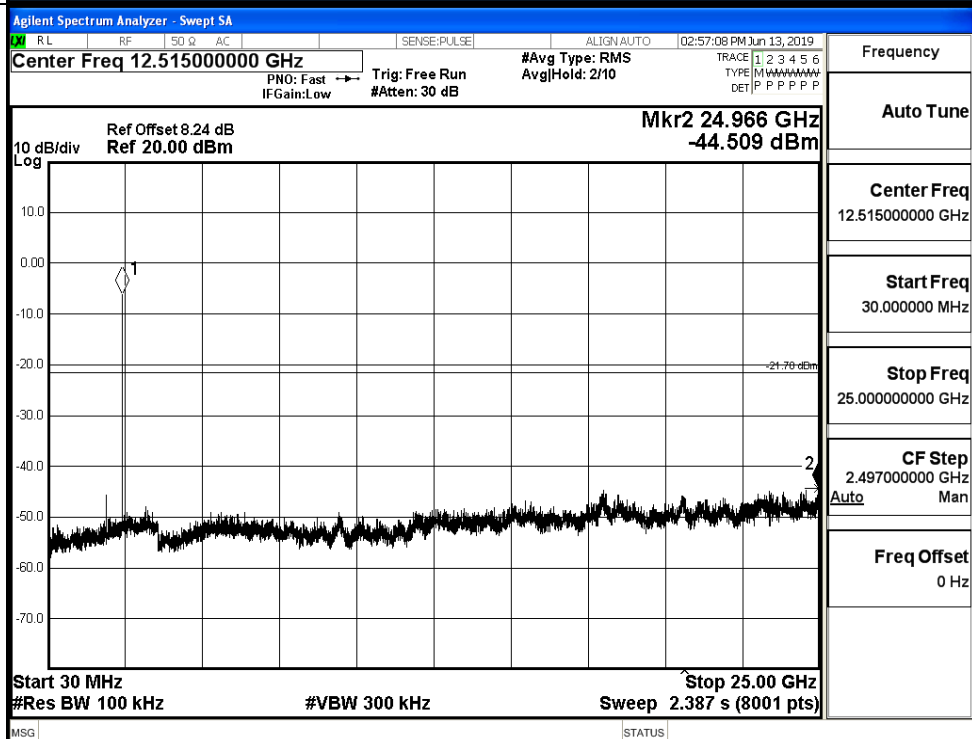


8DPSK MCH Graphs

Pref

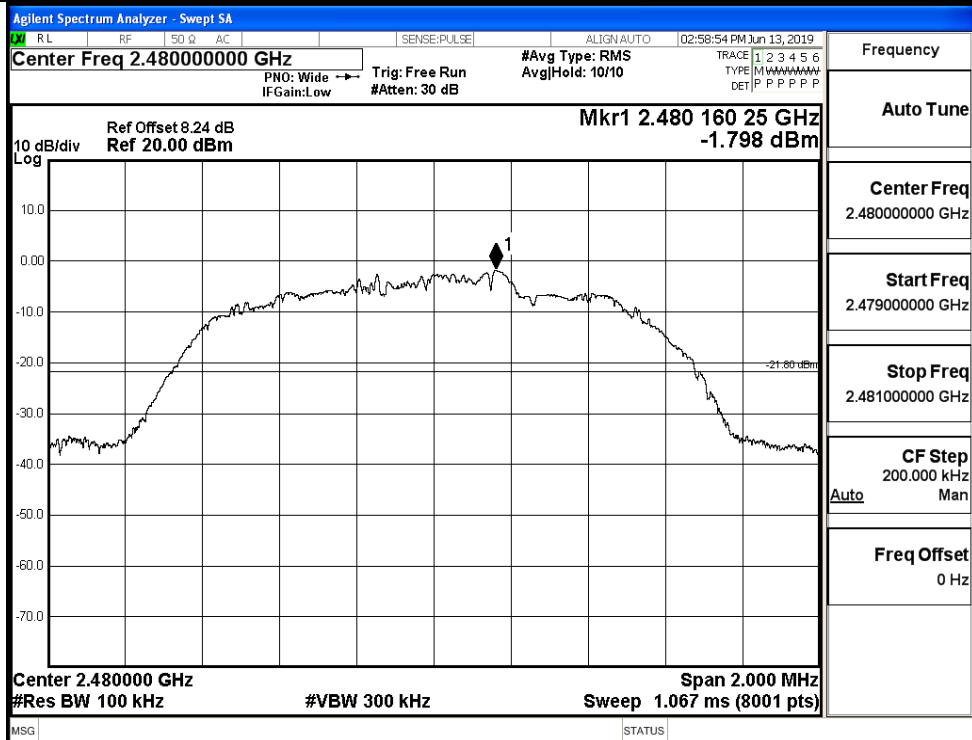


Puw

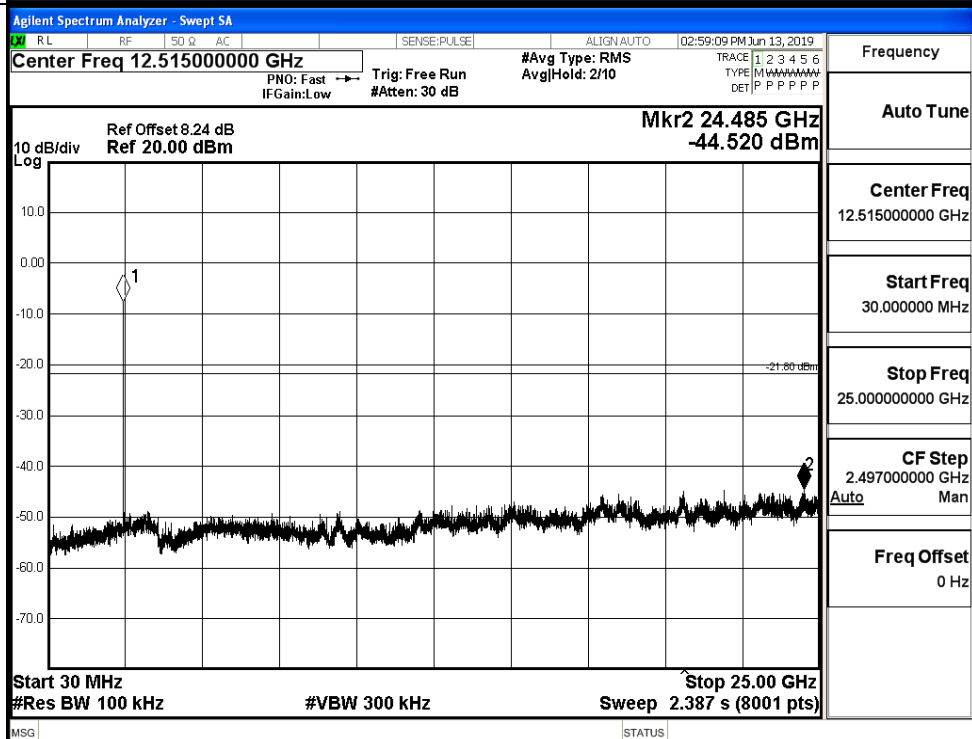


8DPSK_HCH Graphs

Pref



Puw

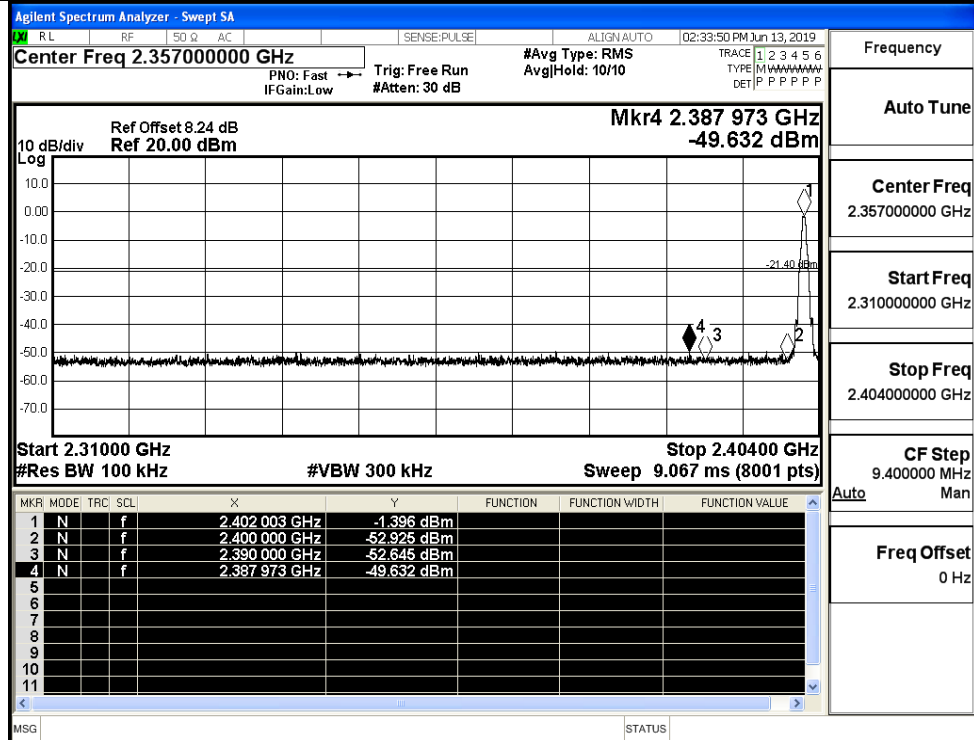


A.7 Band-edge for RF Conducted Emissions

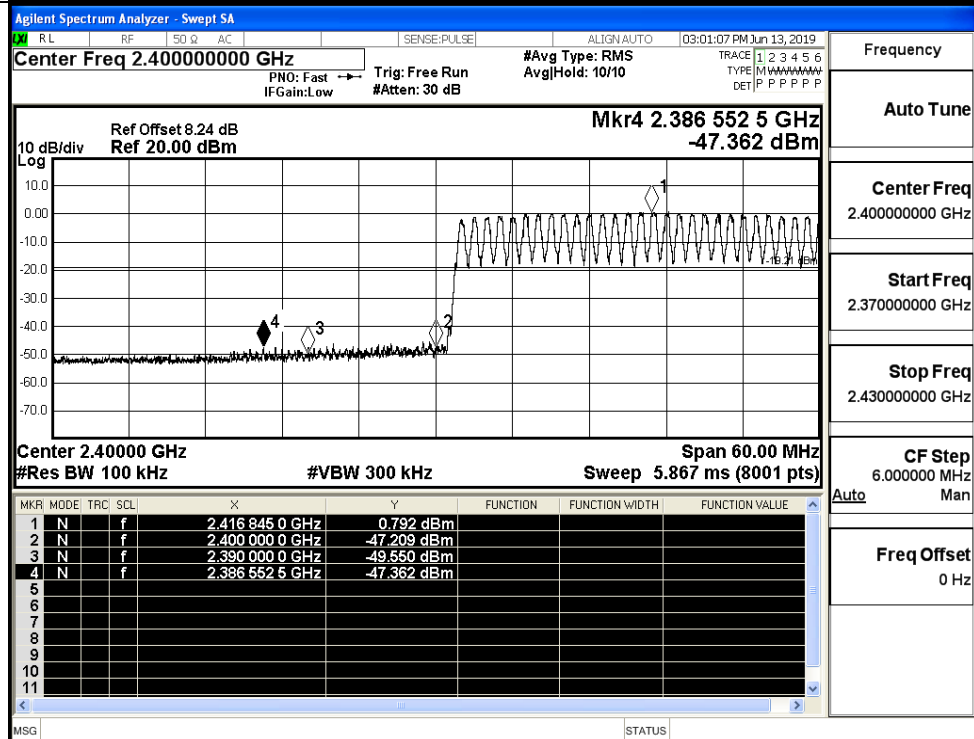
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.396	Off	-49.632	-21.4	PASS
			0.792	On	-47.362	-19.21	PASS
	HCH	2480	-0.915	Off	-49.396	-20.92	PASS
			0.753	On	-47.267	-19.25	PASS
$\pi/4$ DQPSK	LCH	2402	-4.414	Off	-49.273	-24.41	PASS
			-0.835	On	-49.144	-20.84	PASS
	HCH	2480	-1.873	Off	-49.859	-21.87	PASS
			-0.437	On	-48.886	-20.44	PASS
8DPSK	LCH	2402	-4.187	Off	-49.256	-24.19	PASS
			-1.086	On	-48.978	-21.09	PASS
	HCH	2480	-1.849	Off	-49.652	-21.85	PASS
			-0.496	On	-49.037	-20.5	PASS

Test Graphs

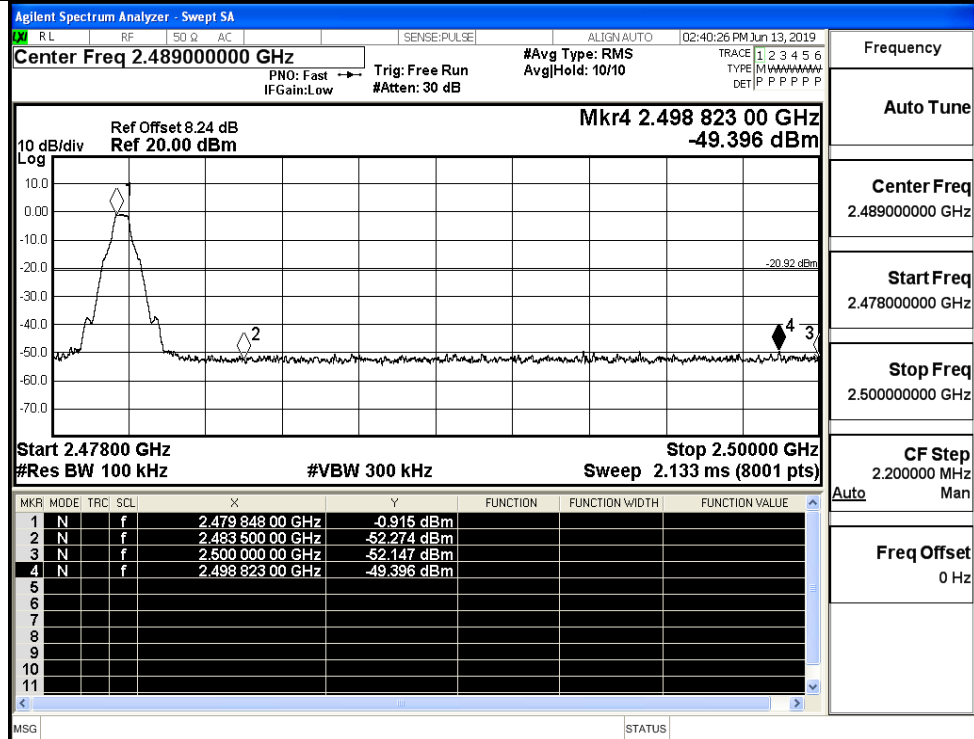
GFSK/LCH/No Hop



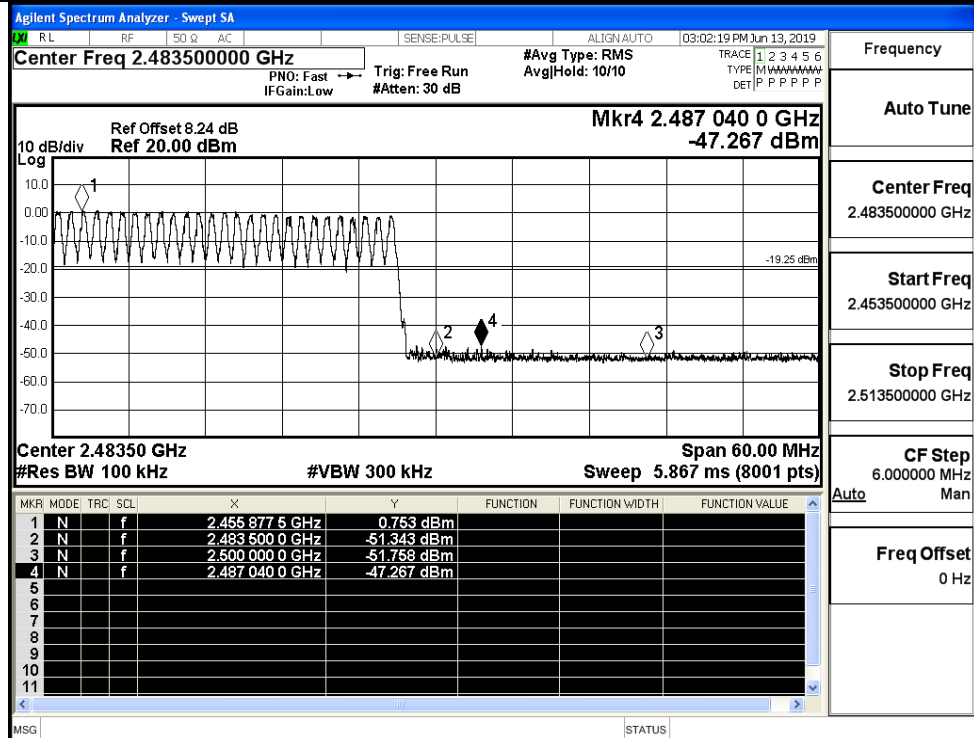
GFSK/LCH/Hop



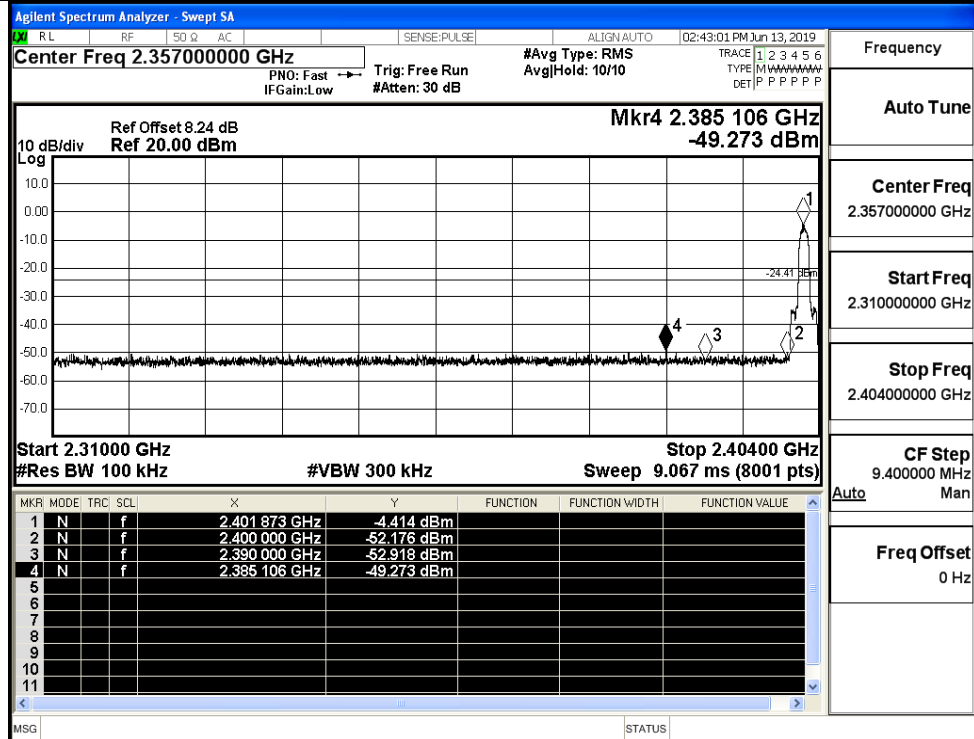
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

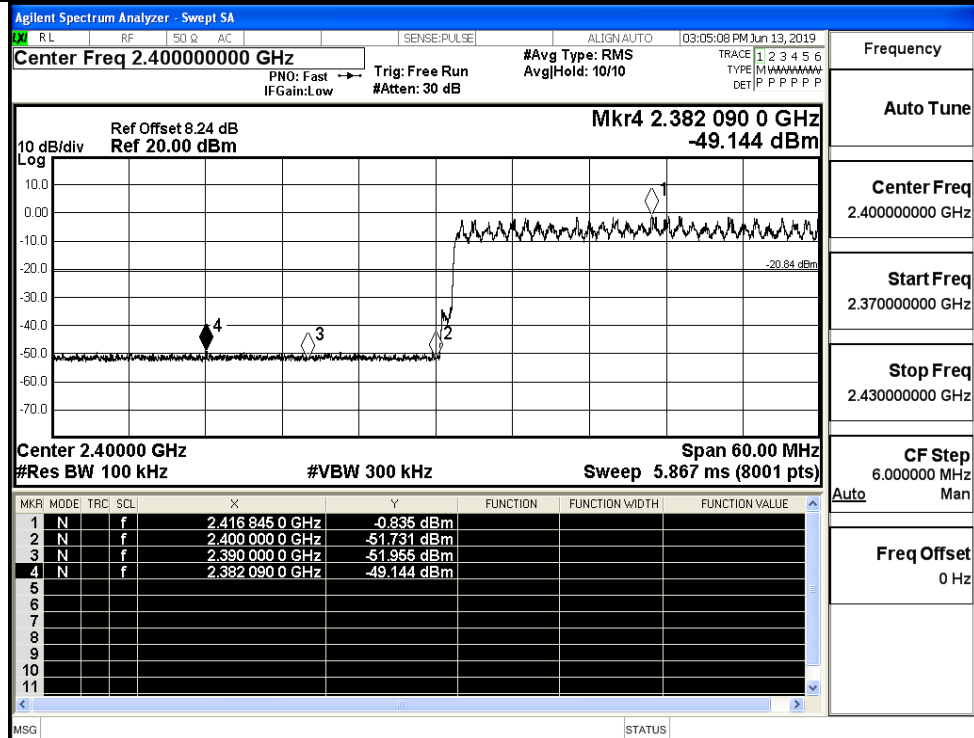
Start Freq
2.310000000 GHz

Stop Freq
2.404000000 GHz

CF Step
9.400000 MHz
Auto Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq
2.400000000 GHz

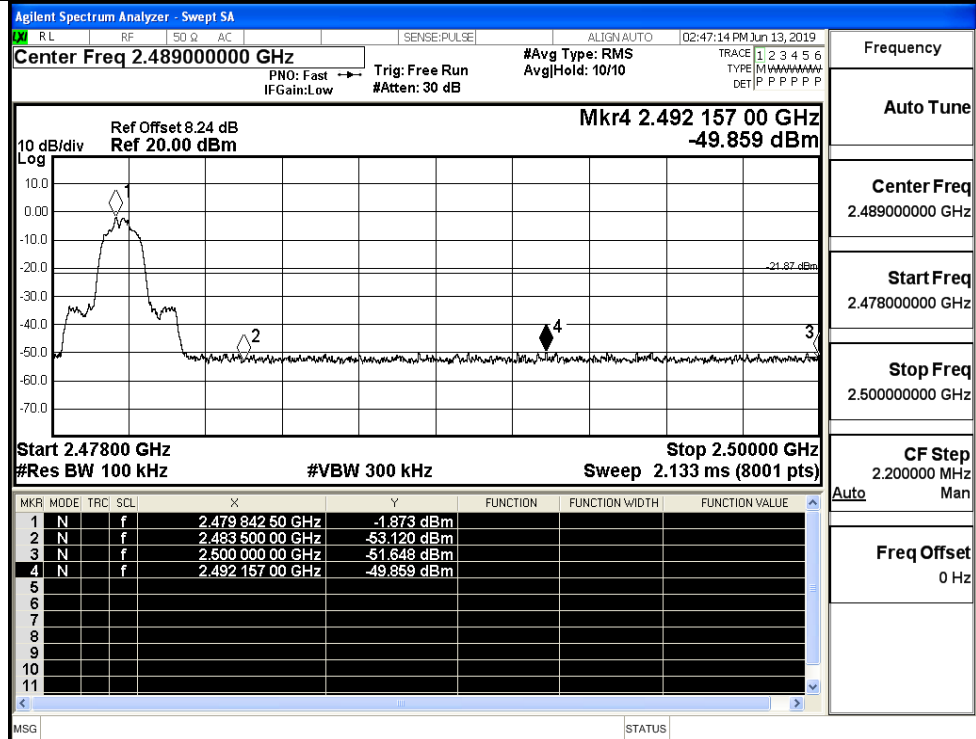
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

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

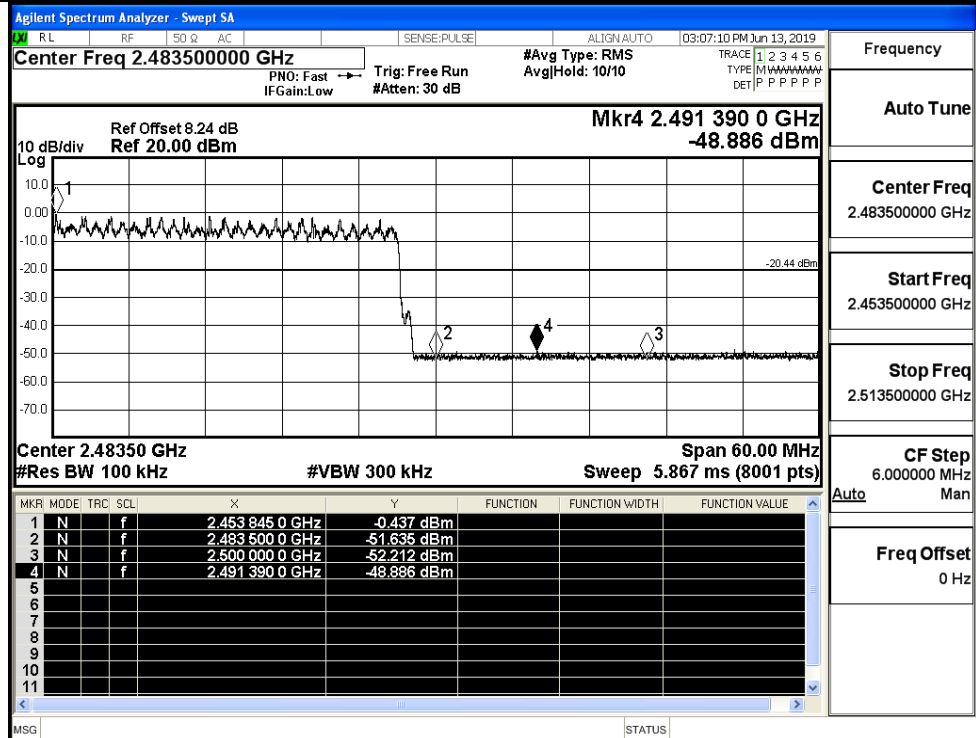


Frequency

Auto Tune

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

$\pi/4$ DQPSK/HCH/Hop

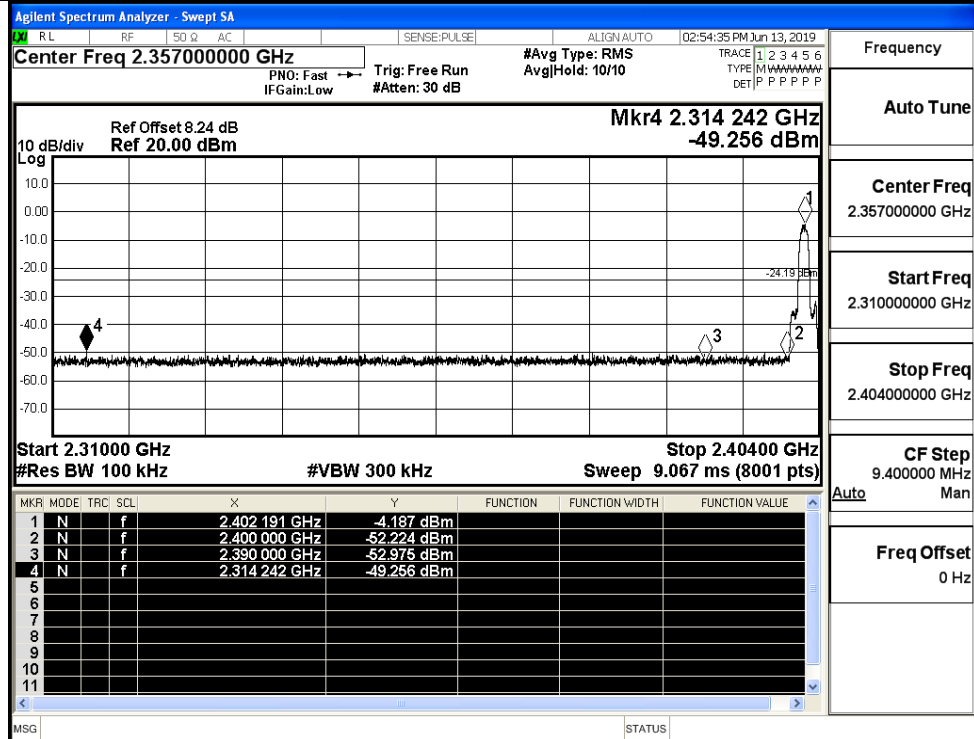


Frequency

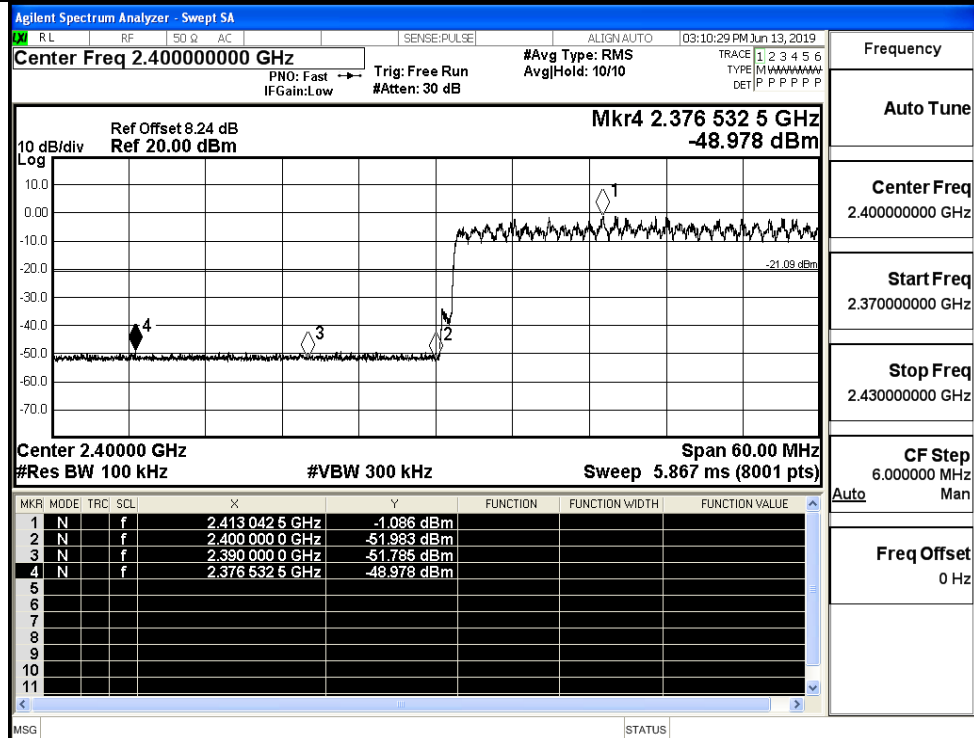
Auto Tune

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

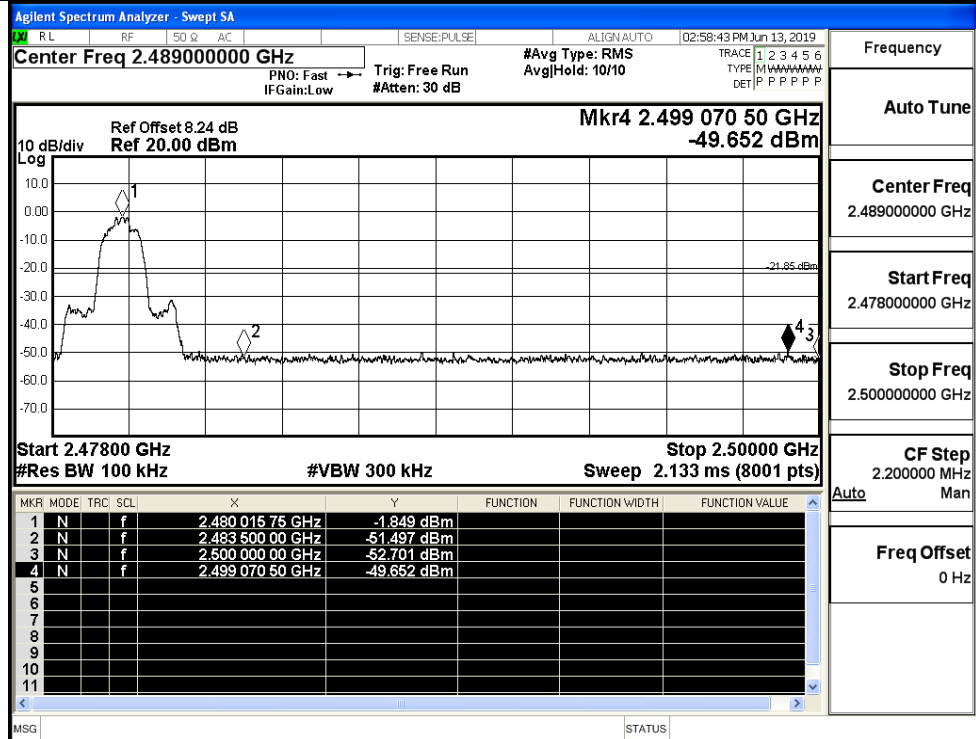
8DPSK/LCH/No Hop



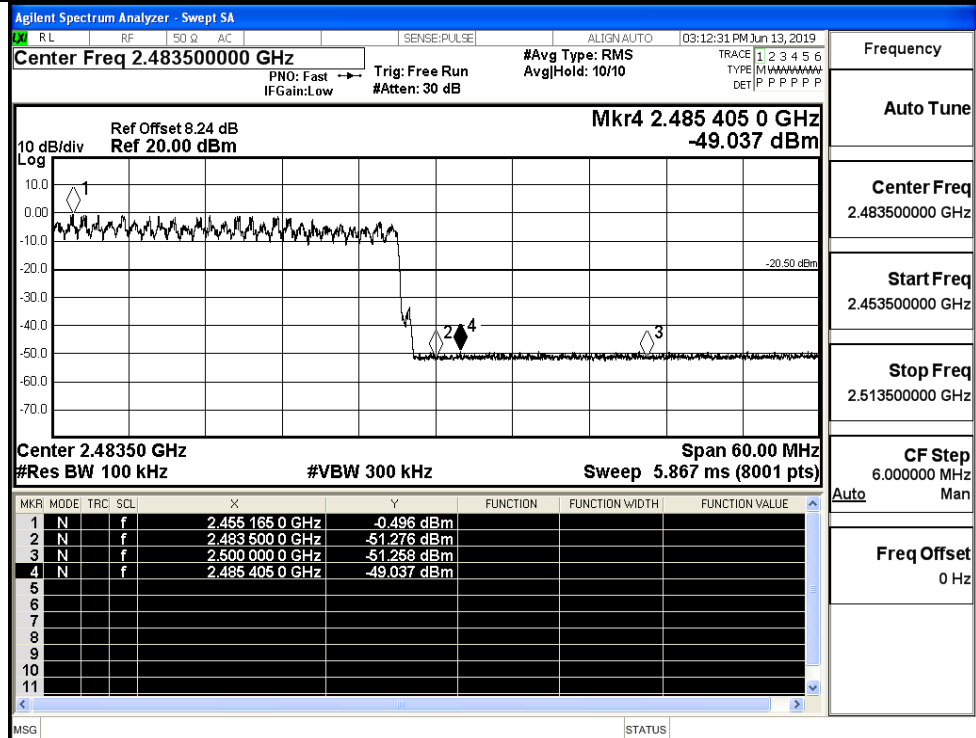
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



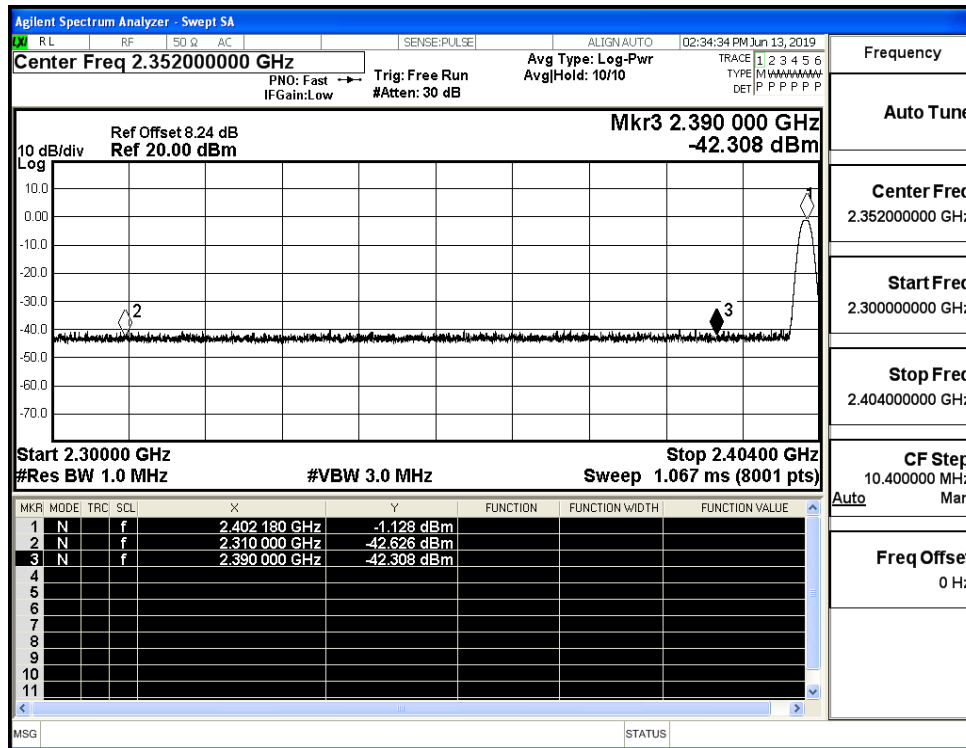
8DPSK/HCH/Hop



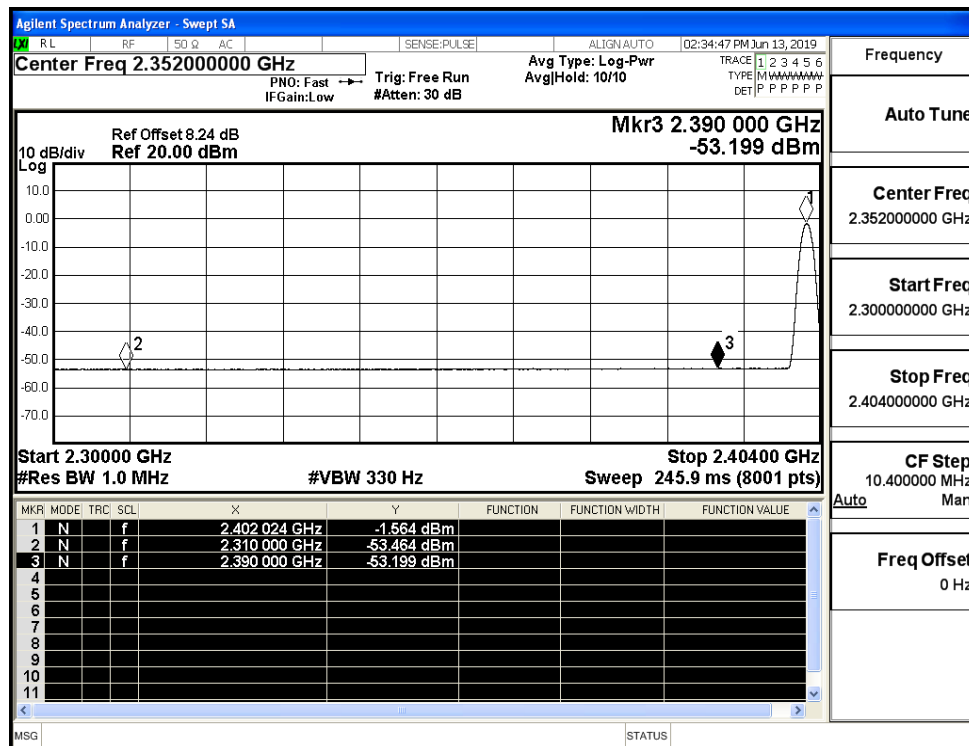
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.63	2.0	0	54.63	PEAK	74	PASS
	Off	2310.0	-53.46	2.0	0	43.79	AV	54	PASS
	Off	2390.0	-42.31	2.0	0	54.95	PEAK	74	PASS
	Off	2390.0	-53.20	2.0	0	44.06	AV	54	PASS
	Off	2483.5	-43.61	2.0	0	53.65	PEAK	74	PASS
	Off	2483.5	-53.03	2.0	0	44.23	AV	54	PASS
	Off	2500.0	-41.90	2.0	0	55.35	PEAK	74	PASS
	Off	2500.0	-52.92	2.0	0	44.34	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.64	2.0	0	53.62	PEAK	74	PASS
	Off	2310.0	-53.46	2.0	0	43.80	AV	54	PASS
	Off	2390.0	-41.77	2.0	0	55.49	PEAK	74	PASS
	Off	2390.0	-53.29	2.0	0	43.96	AV	54	PASS
	Off	2483.5	-42.58	2.0	0	54.67	PEAK	74	PASS
	Off	2483.5	-52.95	2.0	0	44.30	AV	54	PASS
	Off	2500.0	-41.20	2.0	0	56.06	PEAK	74	PASS
	Off	2500.0	-52.84	2.0	0	44.42	AV	54	PASS
8DPSK	Off	2310.0	-42.25	2.0	0	55.01	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	43.83	AV	54	PASS
	Off	2390.0	-43.70	2.0	0	53.55	PEAK	74	PASS
	Off	2390.0	-53.25	2.0	0	44.01	AV	54	PASS
	Off	2483.5	-41.86	2.0	0	55.40	PEAK	74	PASS
	Off	2483.5	-52.86	2.0	0	44.39	AV	54	PASS
	Off	2500.0	-43.65	2.0	0	53.60	PEAK	74	PASS
	Off	2500.0	-52.87	2.0	0	44.39	AV	54	PASS

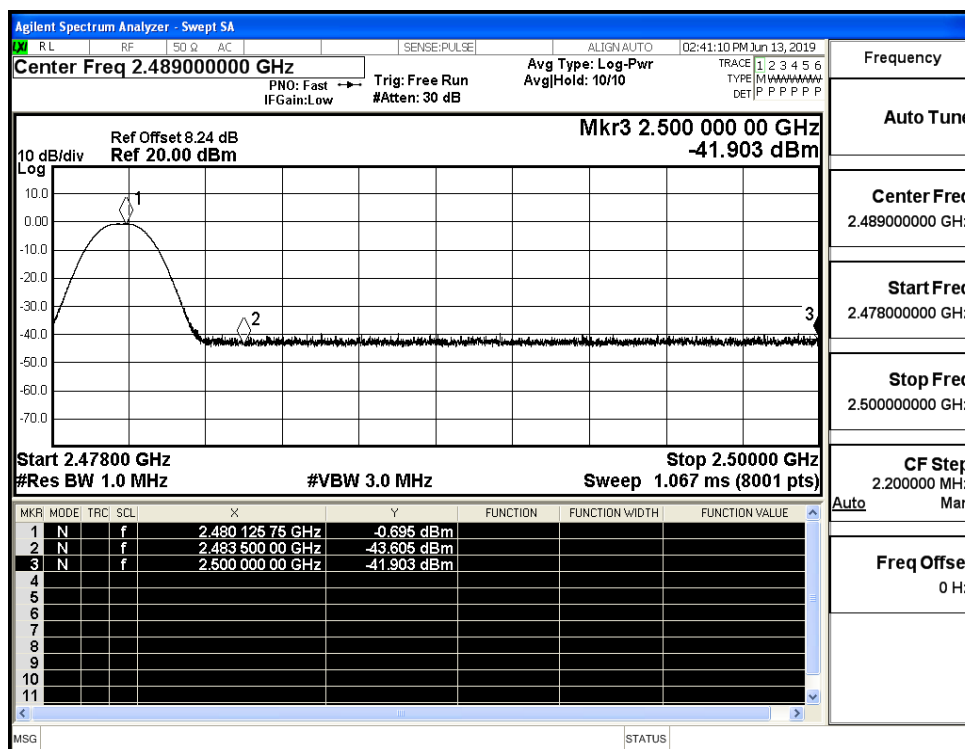
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



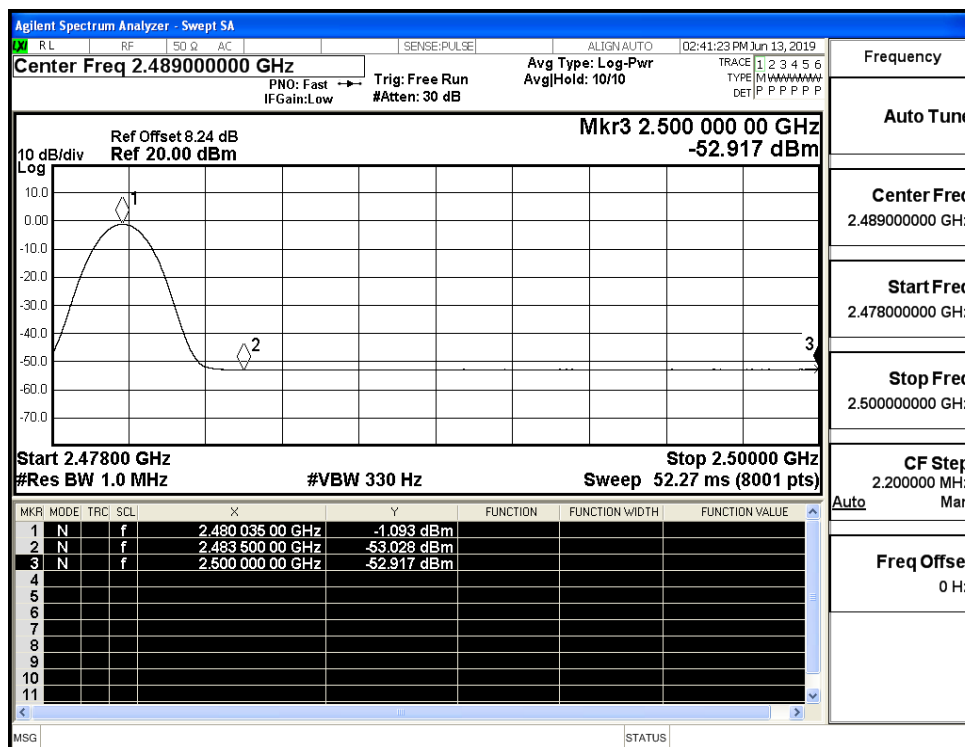
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

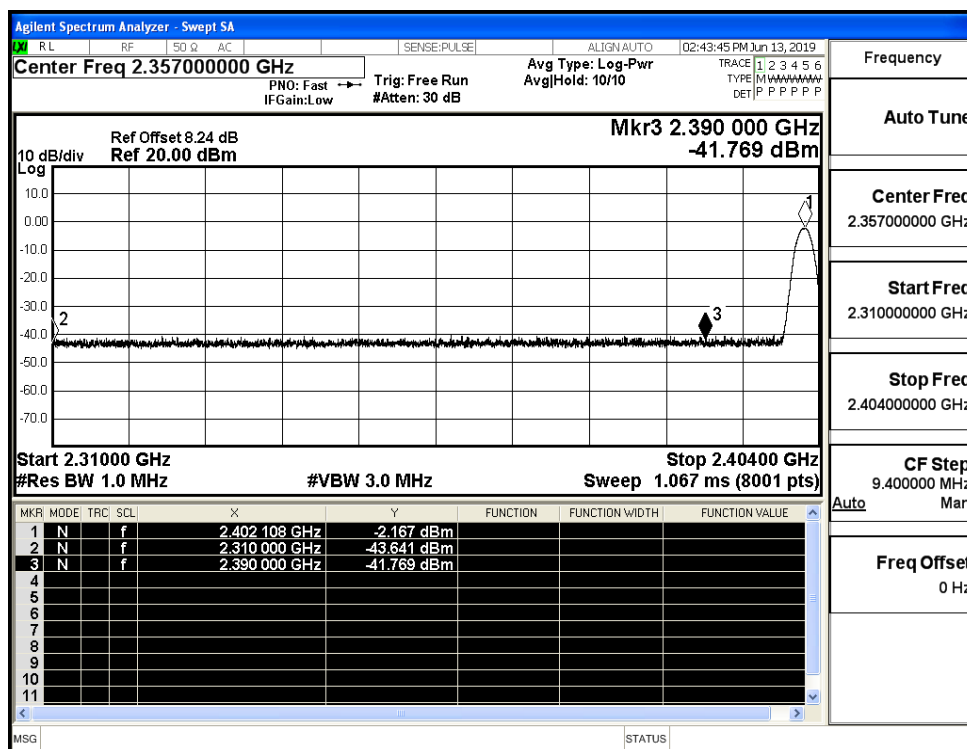
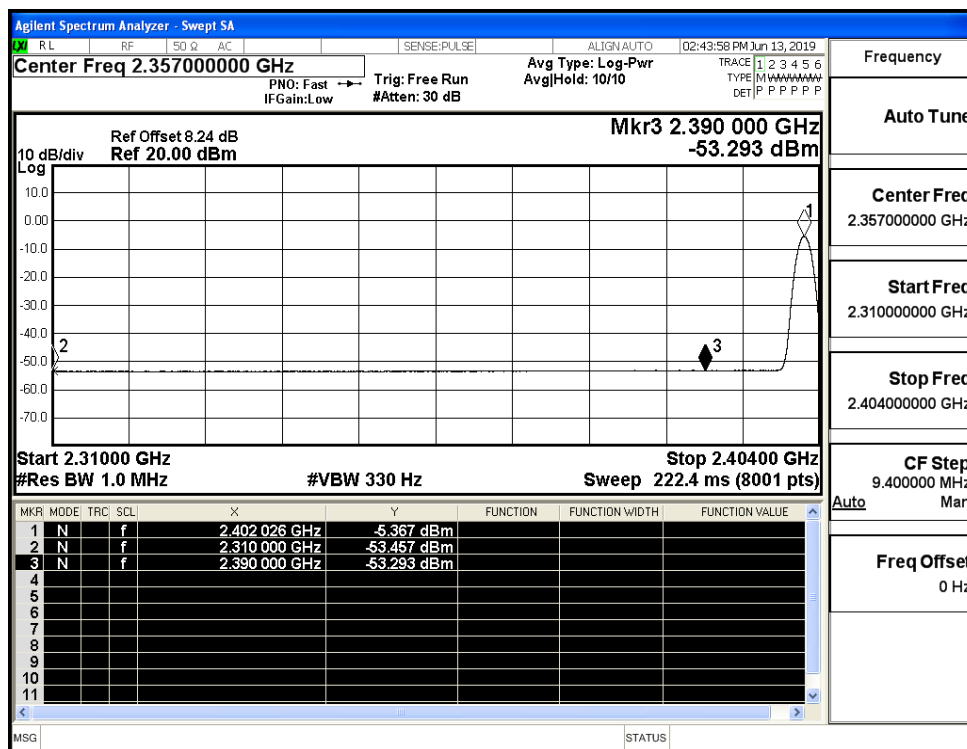


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

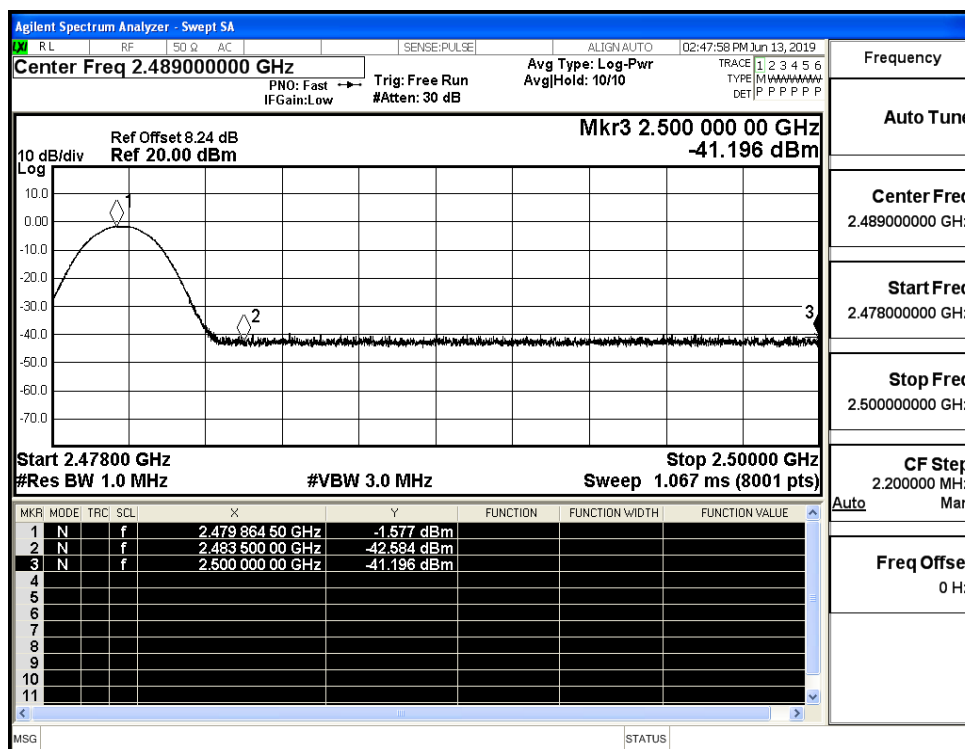


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

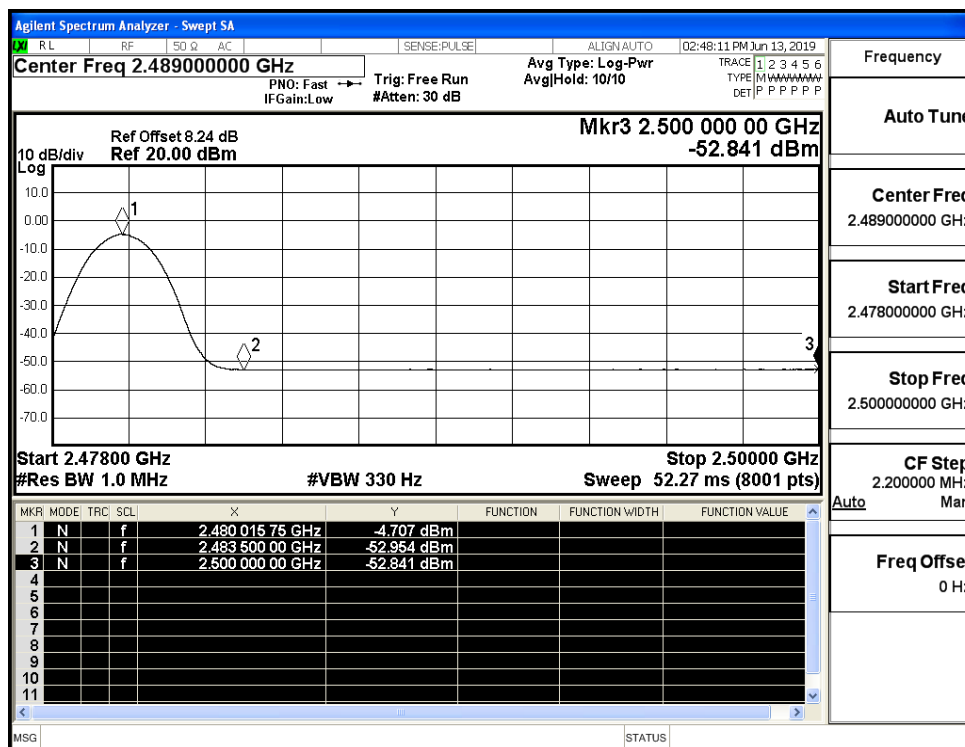


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

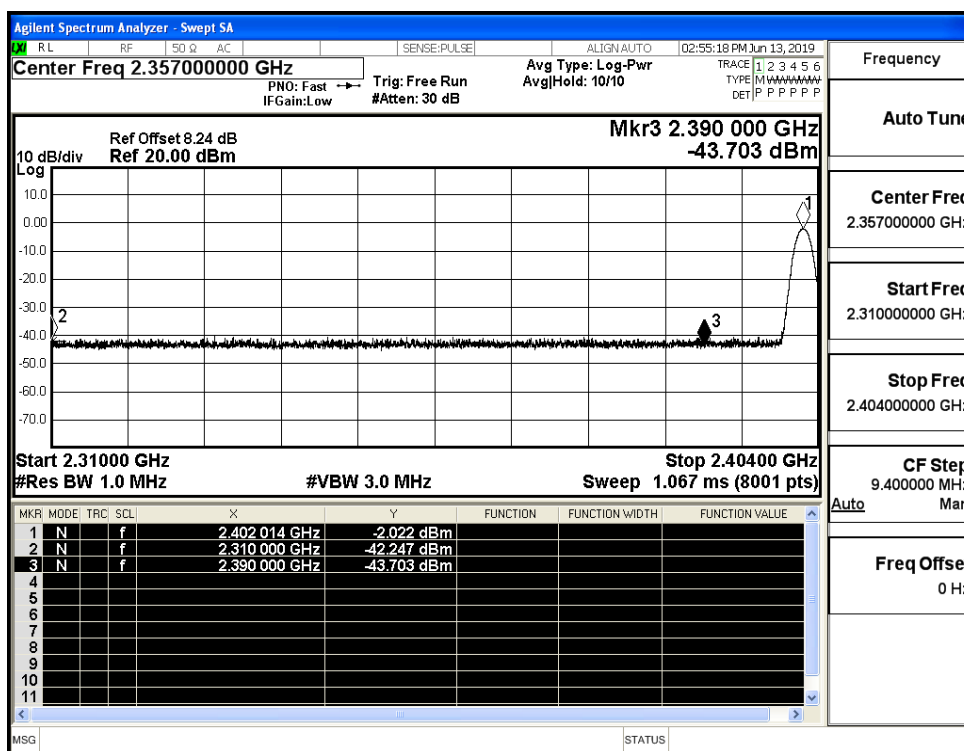
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



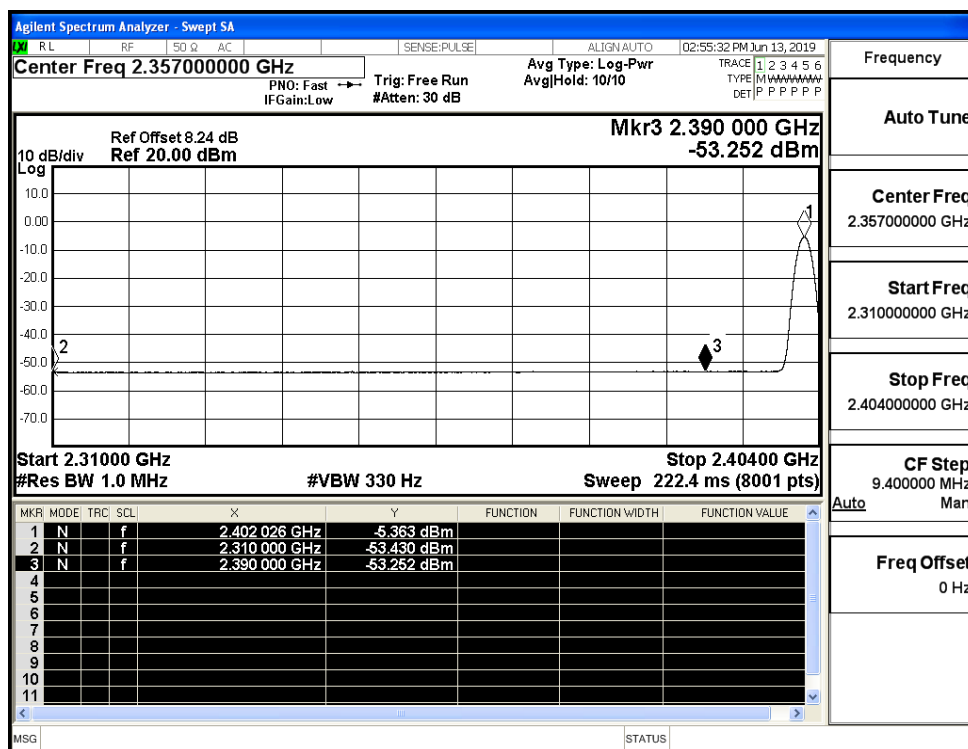
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



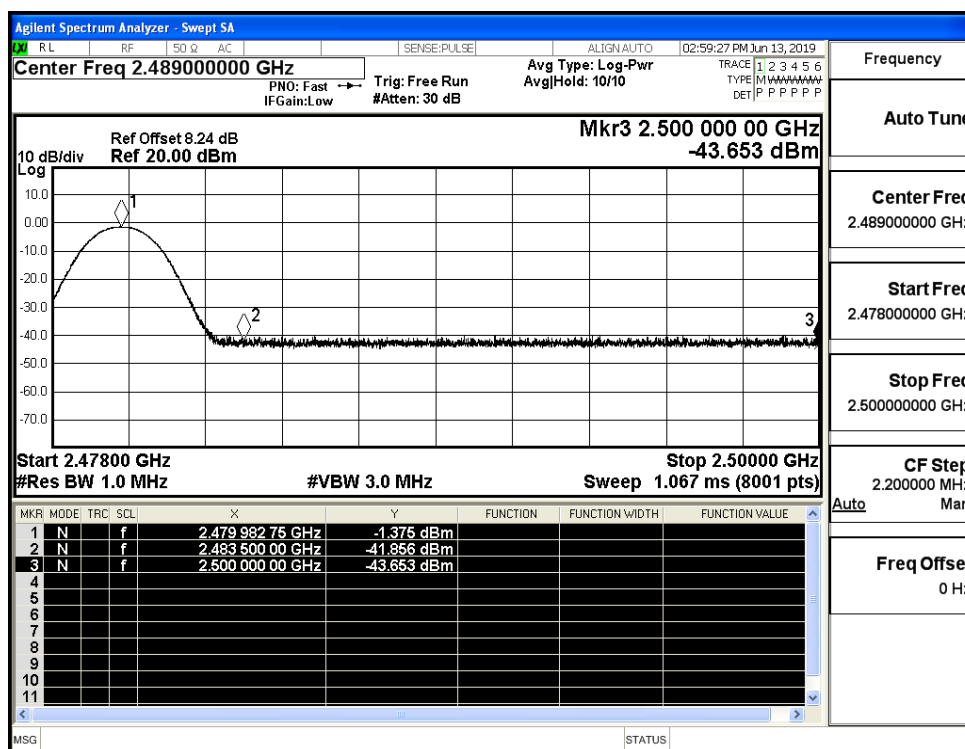
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

