

Appendix A

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

Product Name: Wireless headphone

Trade Mark: N/A

Test Model: boAt Rockerz 480

Environmental Conditions

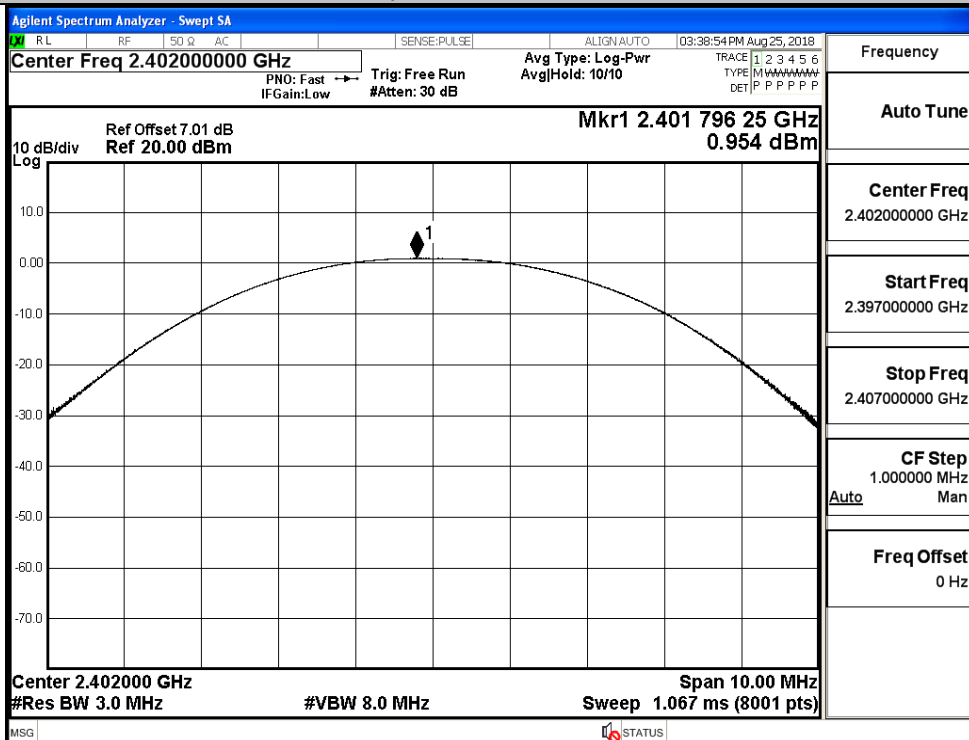
Temperature:	23.5 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	WangChuang
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

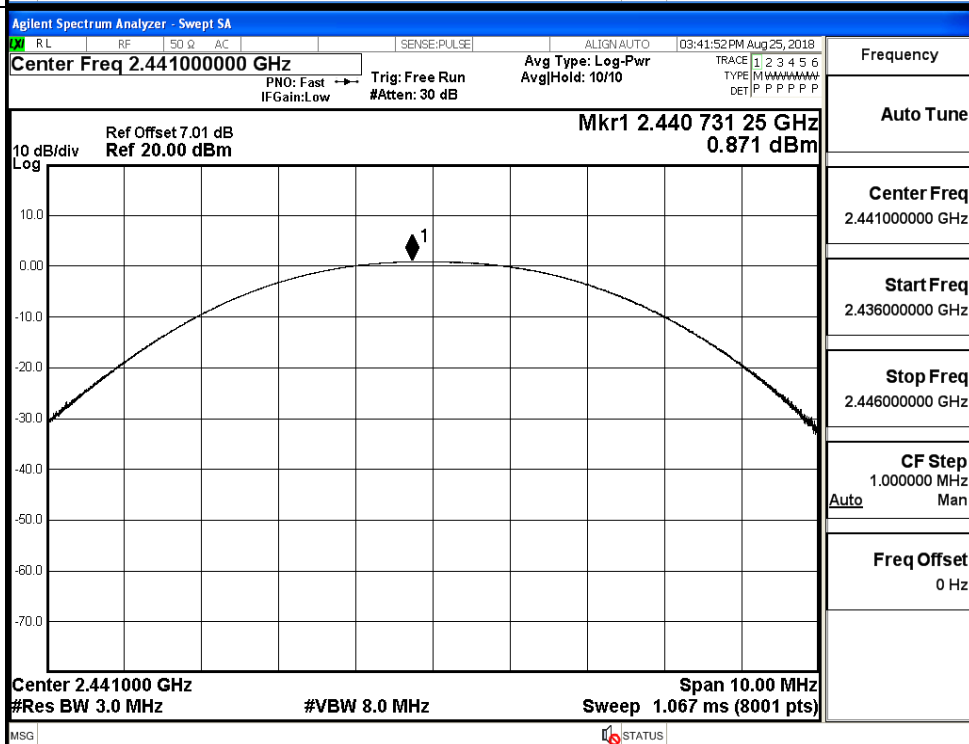
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.954	21	PASS
	MCH	0.871	21	PASS
	HCH	0.689	21	PASS
$\pi/4$ DQPSK	LCH	0.453	21	PASS
	MCH	0.329	21	PASS
	HCH	0.166	21	PASS
8DPSK	LCH	0.371	21	PASS
	MCH	0.292	21	PASS
	HCH	0.102	21	PASS

Test Graphs

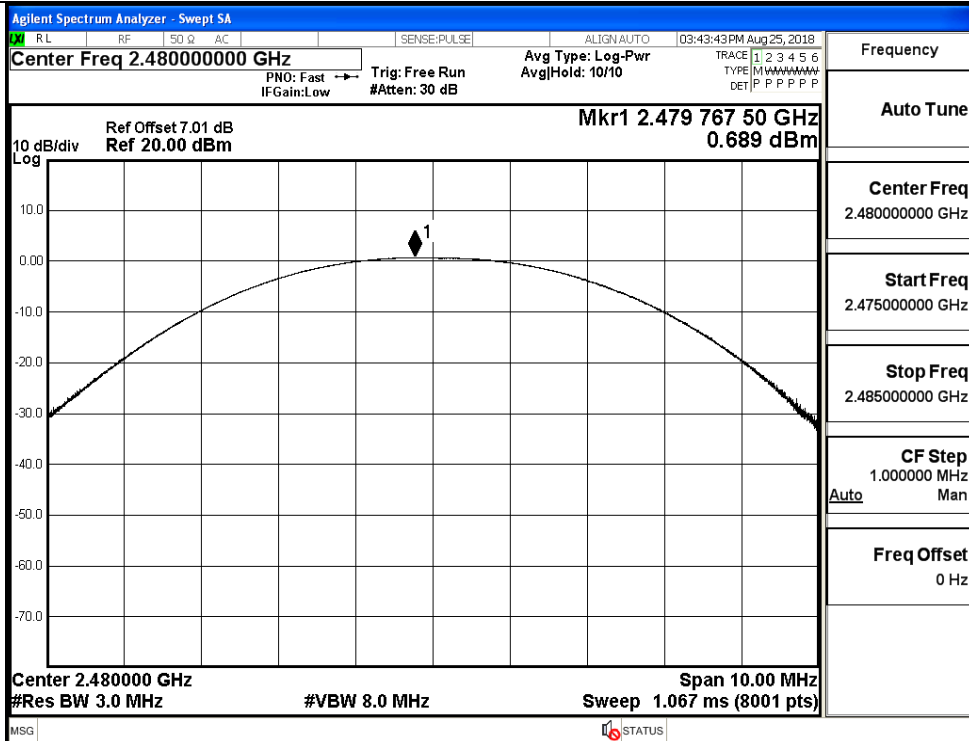
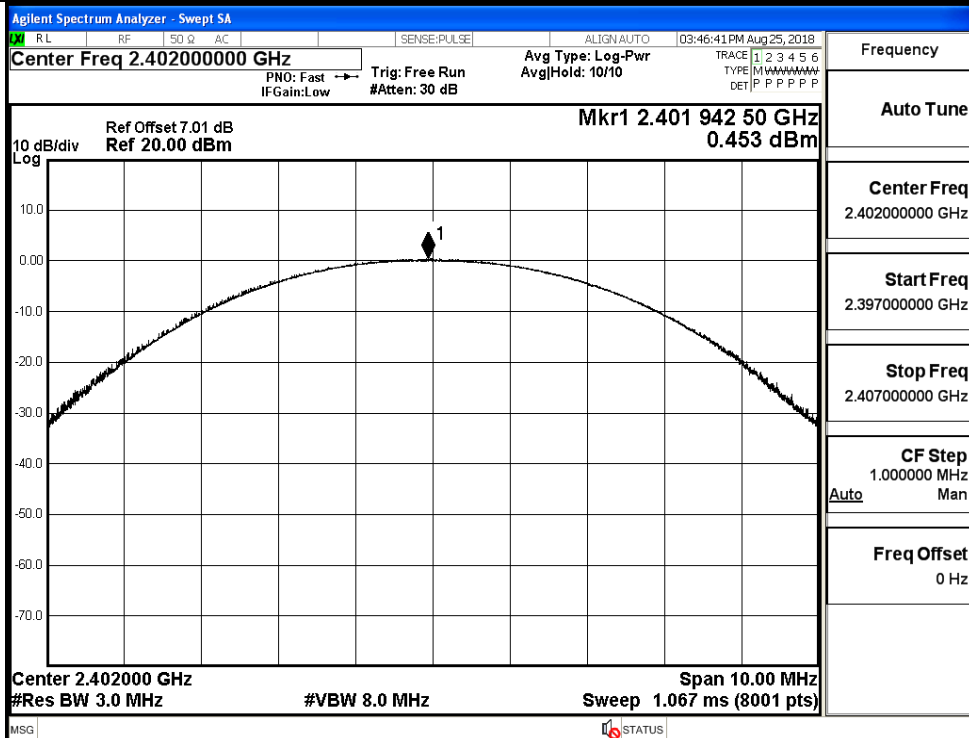
GFSK/LCH

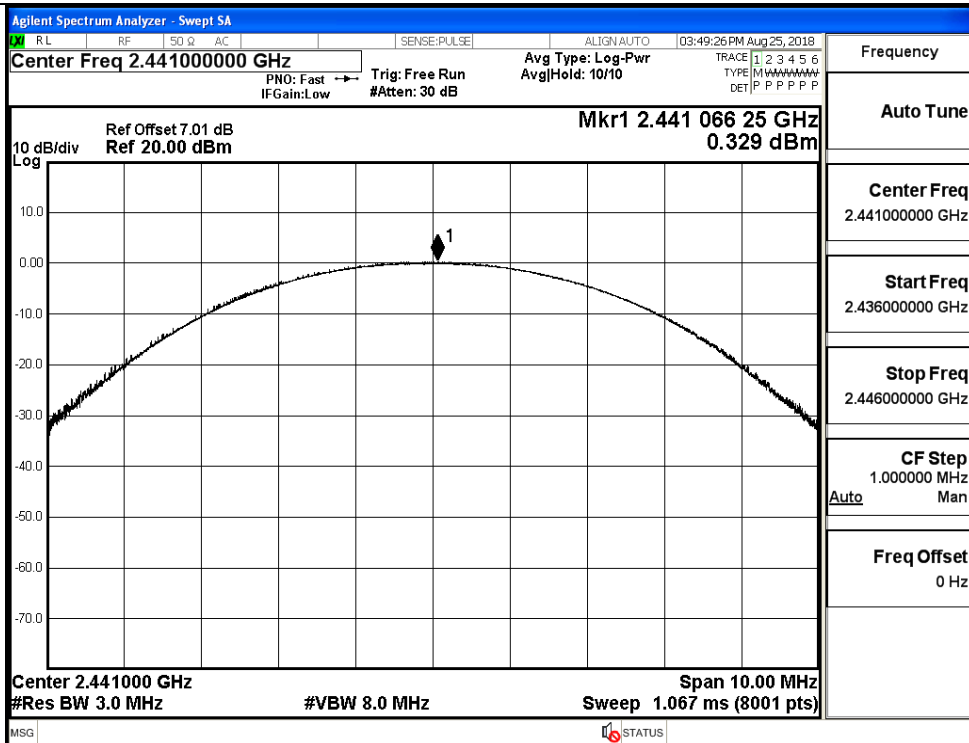
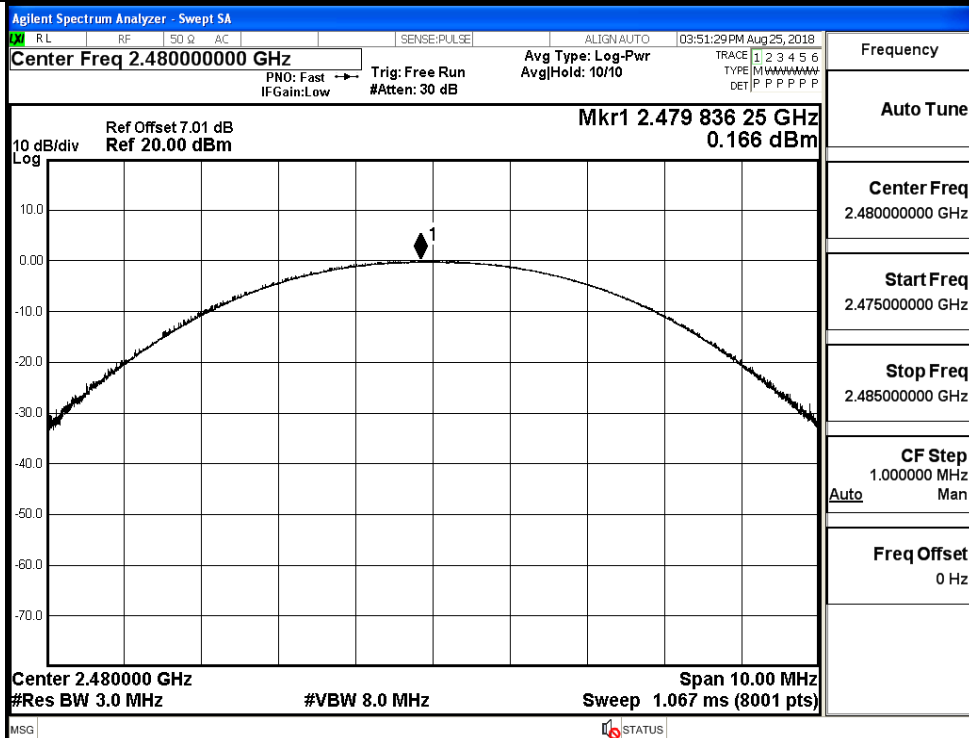


GFSK/MCH

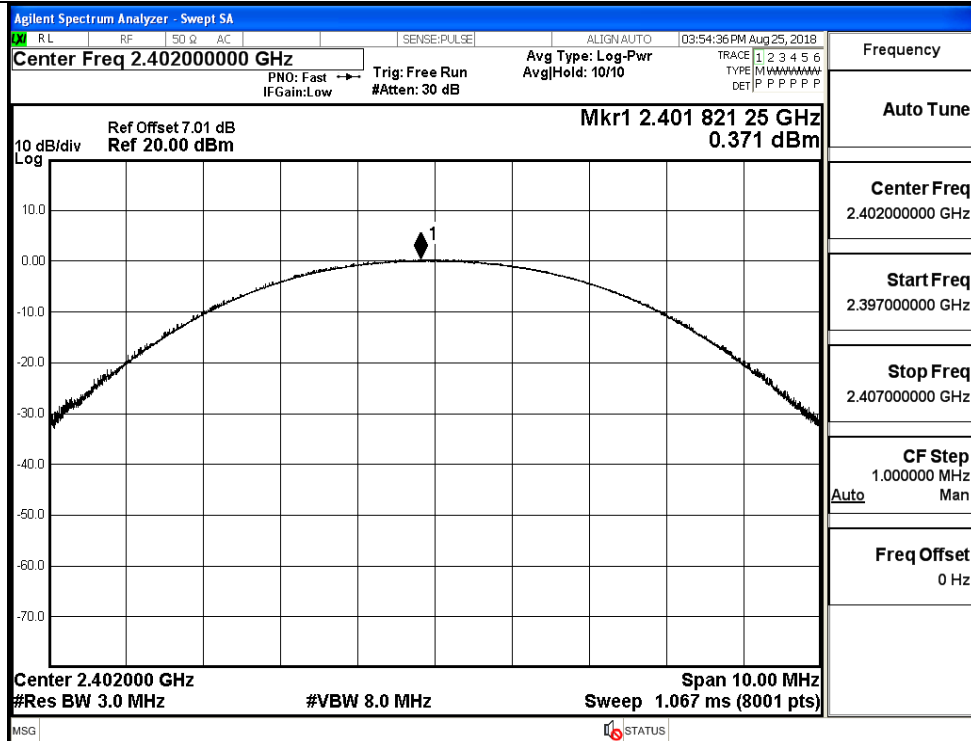


GFSK/HCH

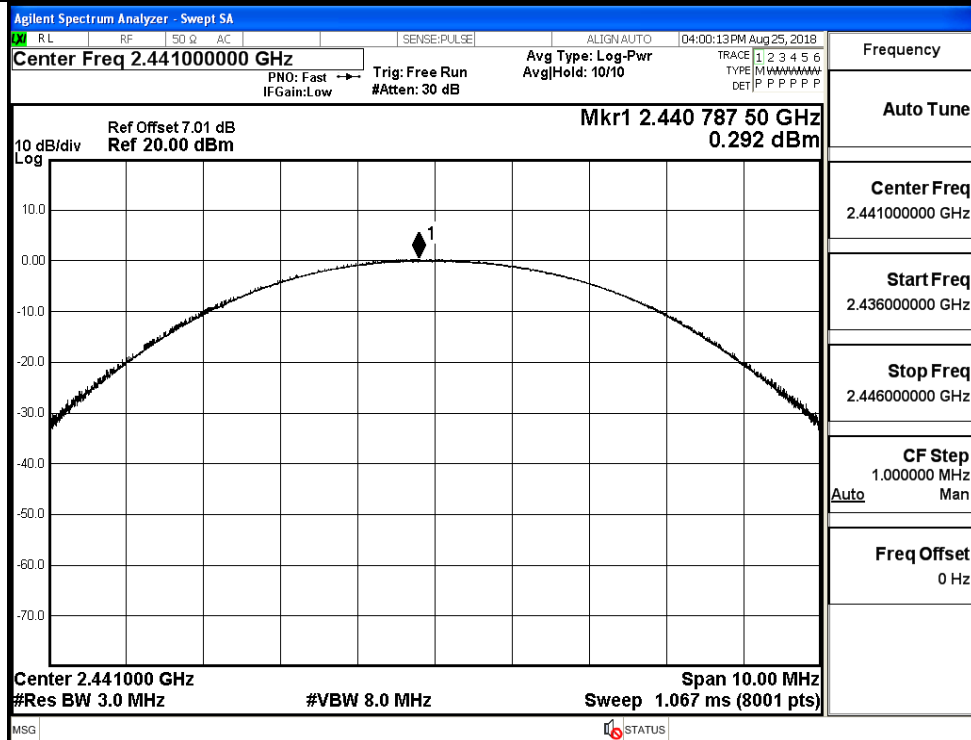
 π /4DQPSK/LCH

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

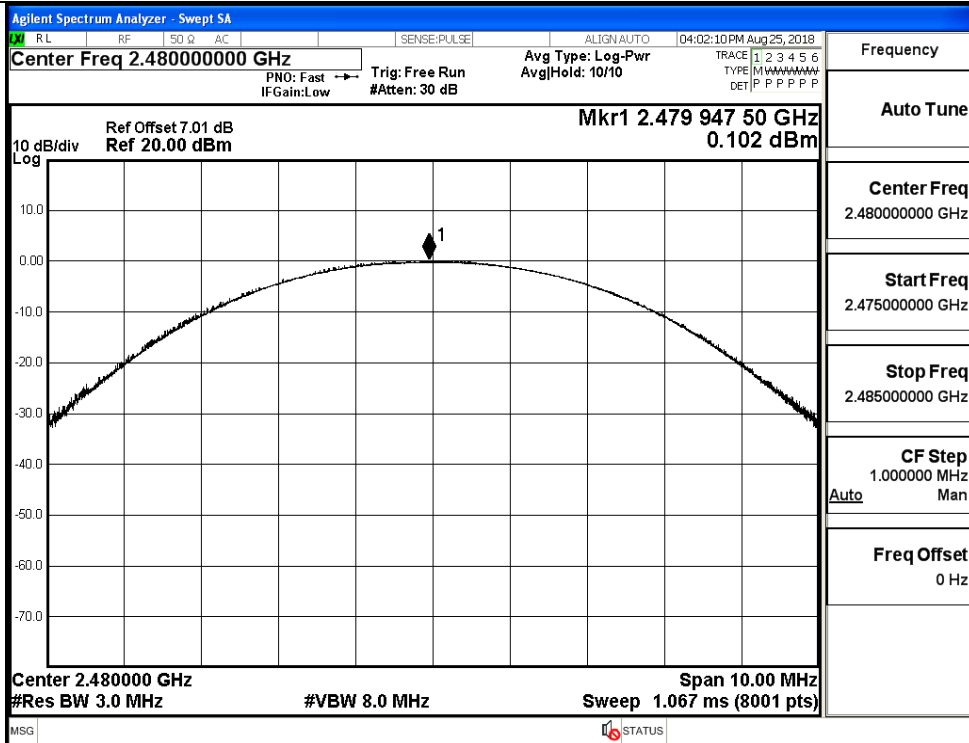
8DPSK/LCH



8DPSK/MCH



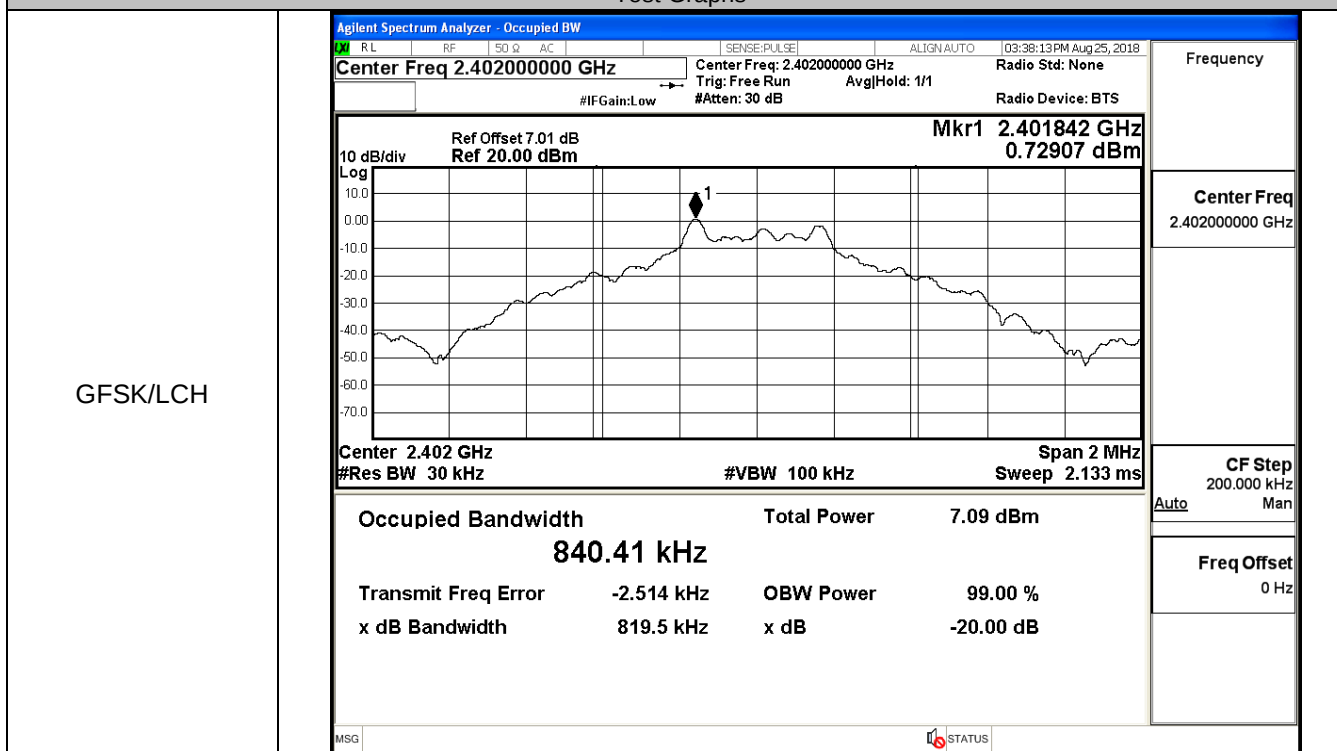
8DPSK/HCH



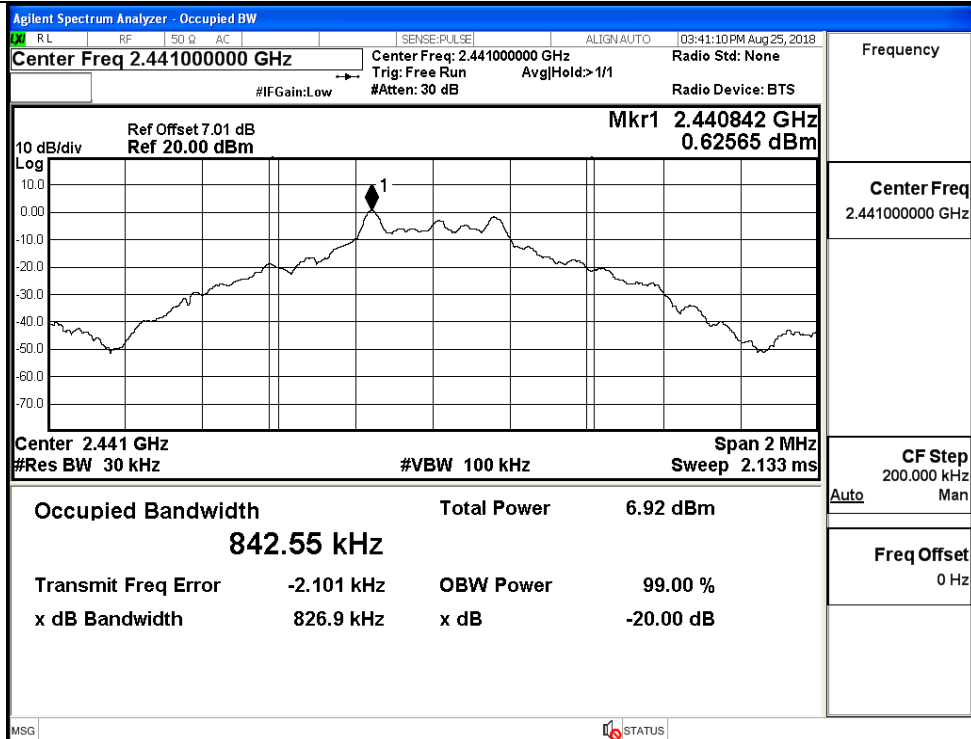
A.2 99% and 20dB Bandwidth

Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.84041	0.820	Not Specified	PASS
	MCH	0.84255	0.827	Not Specified	PASS
	HCH	0.84231	0.826	Not Specified	PASS
π /4DQPSK	LCH	1.0723	1.125	Not Specified	PASS
	MCH	1.0734	1.136	Not Specified	PASS
	HCH	1.0685	1.140	Not Specified	PASS
8DPSK	LCH	1.0702	1.151	Not Specified	PASS
	MCH	1.0719	1.148	Not Specified	PASS
	HCH	1.0710	1.146	Not Specified	PASS

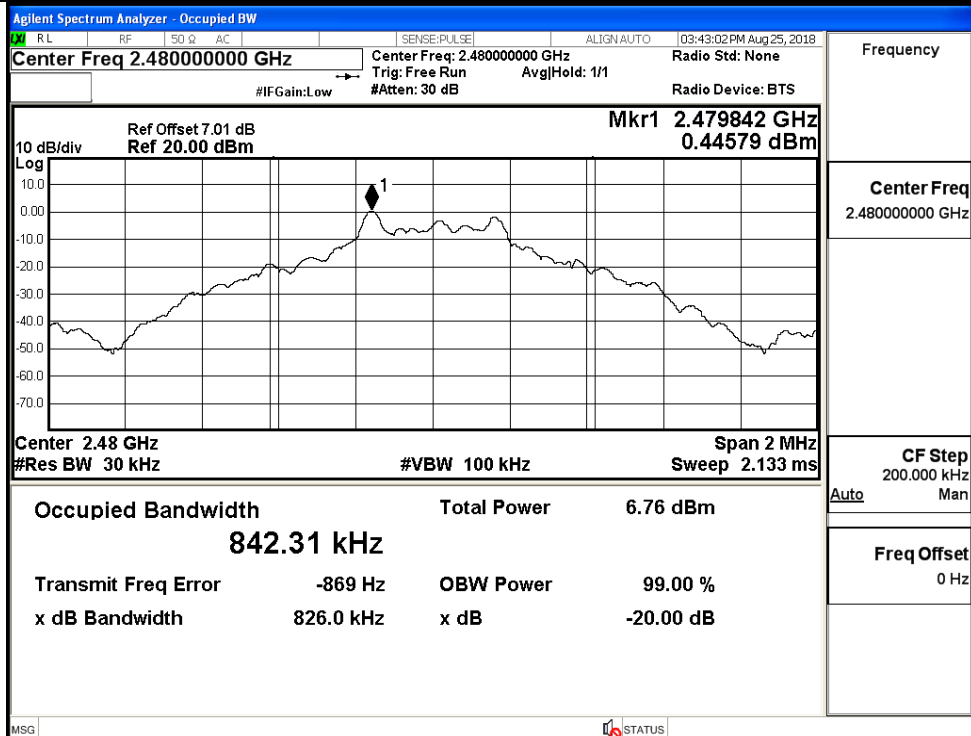
Test Graphs

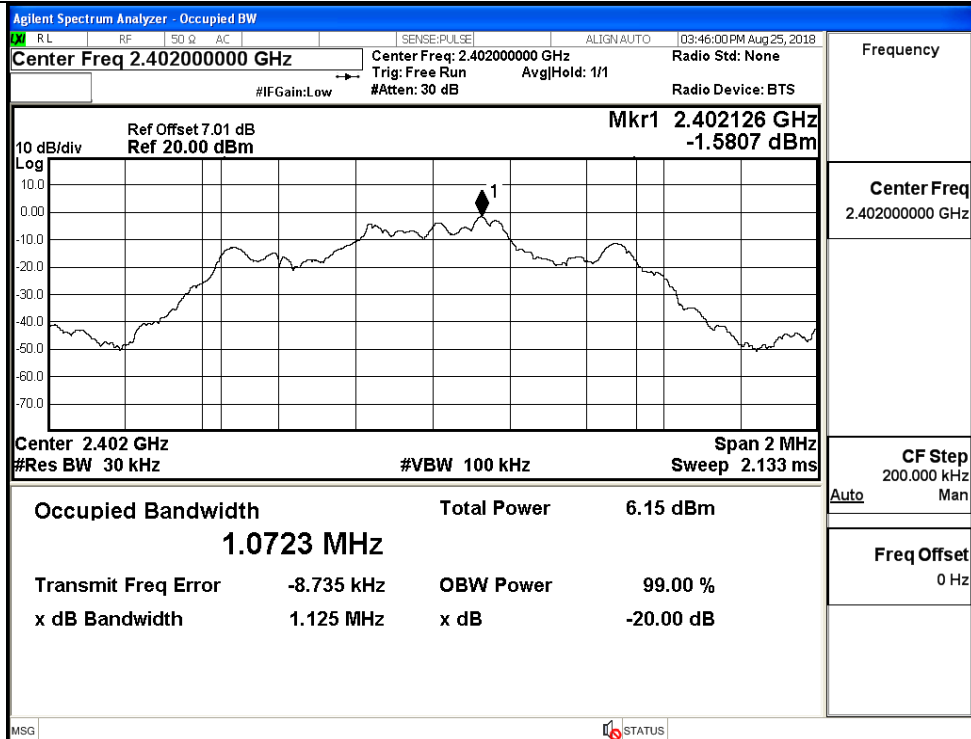
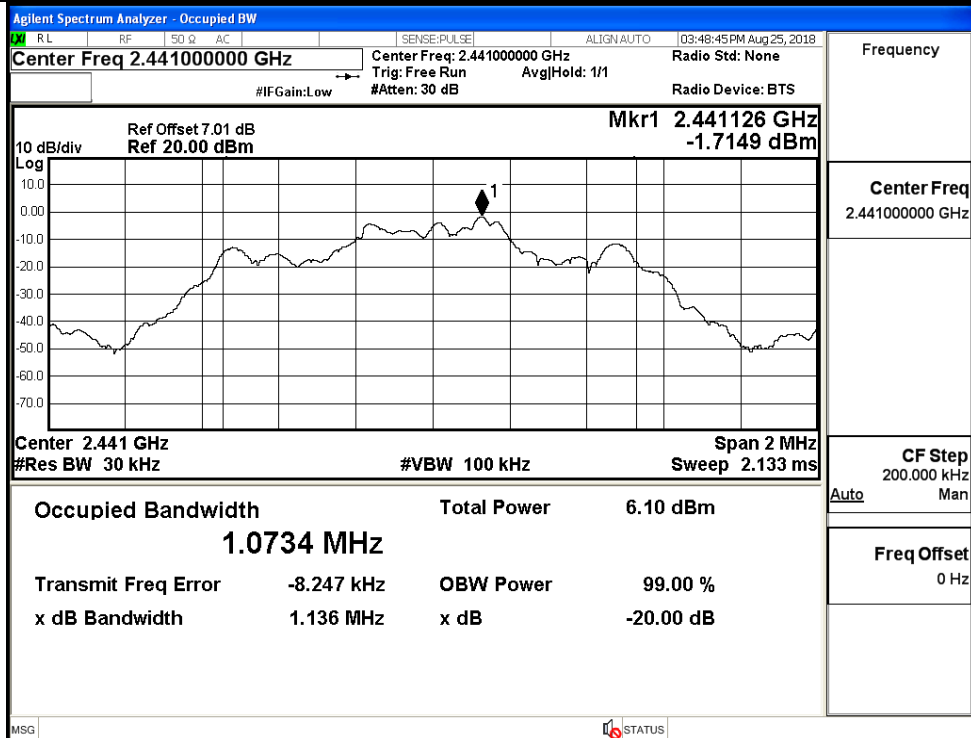


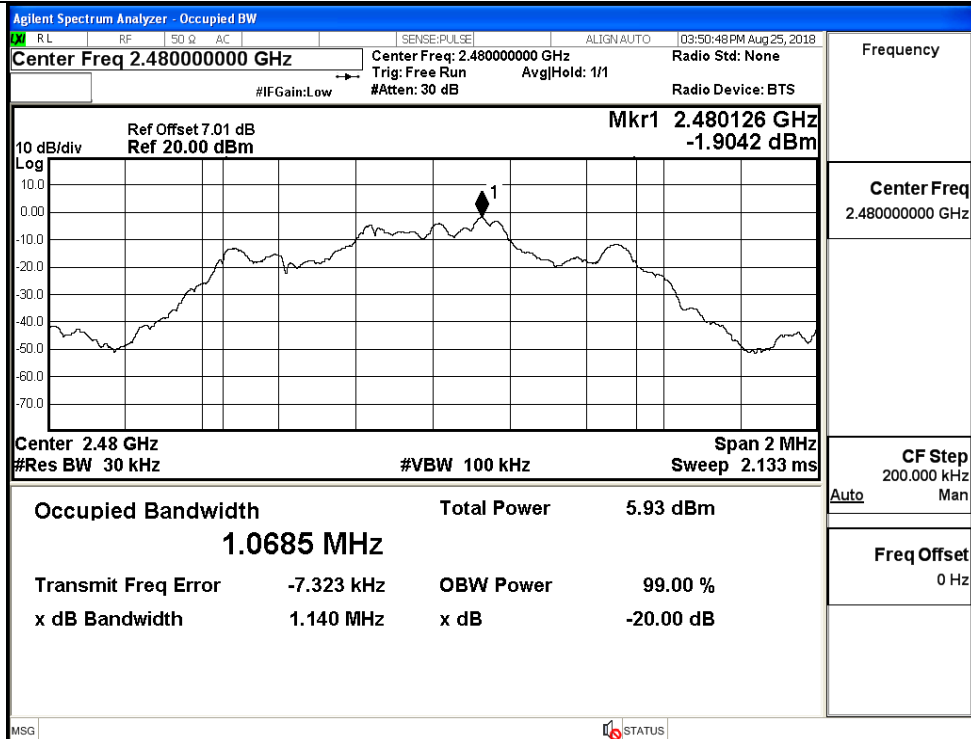
GFSK/MCH



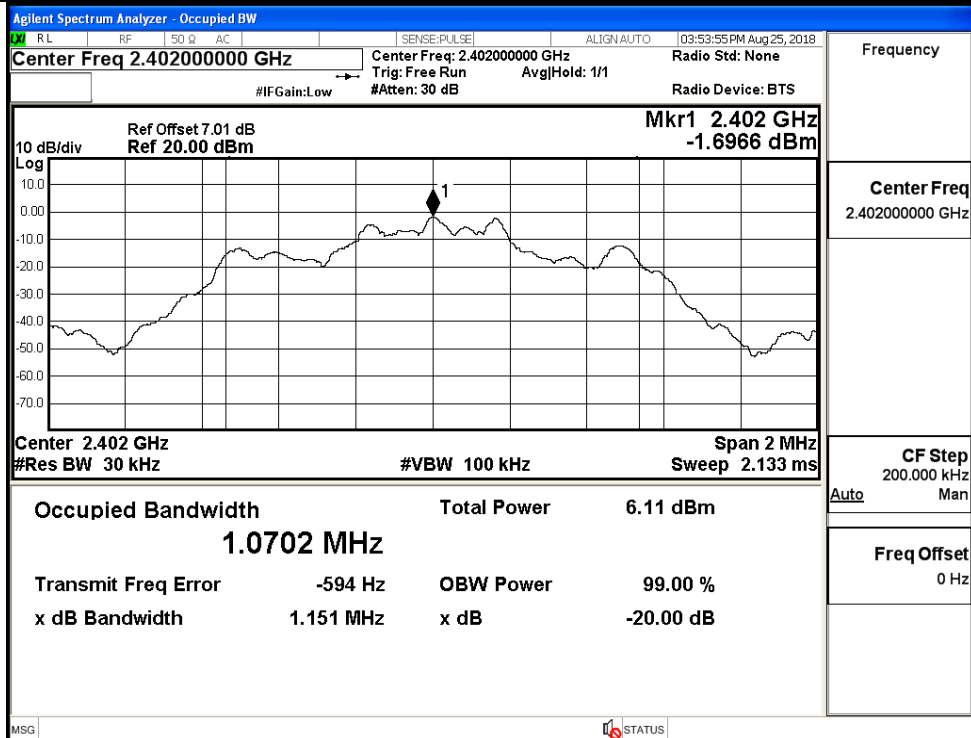
GFSK/HCH



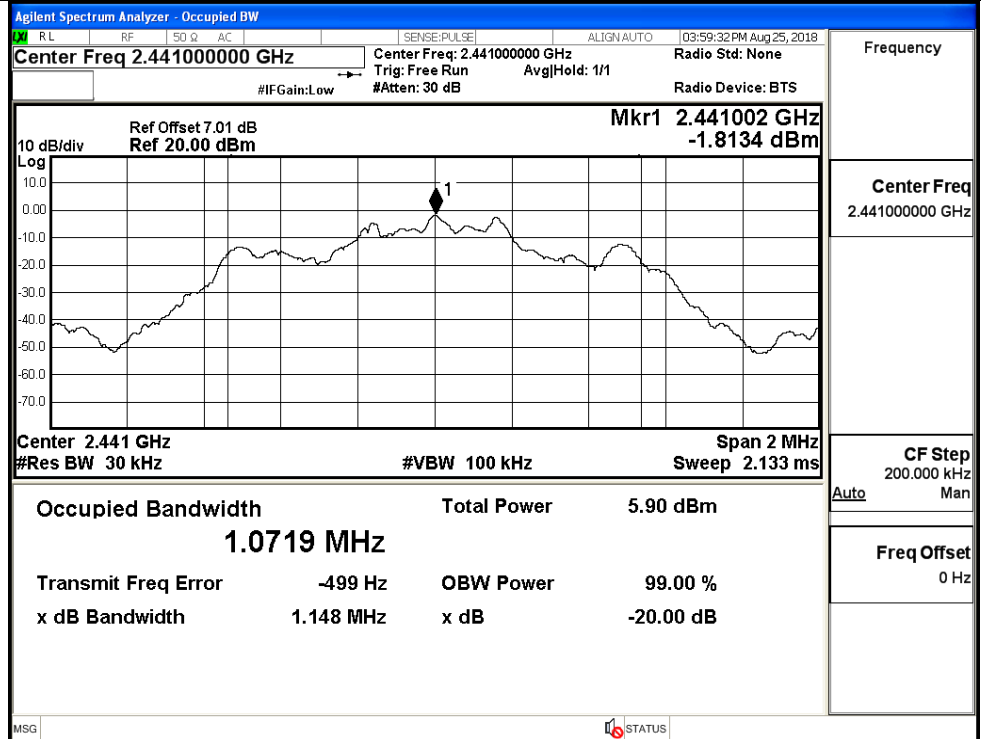
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

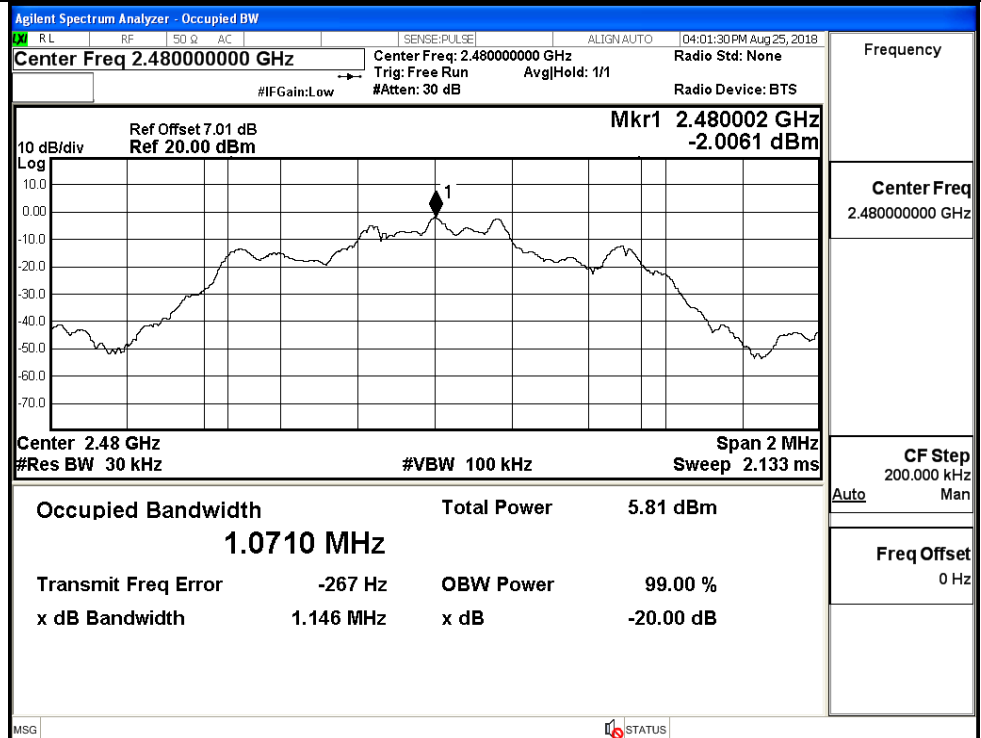
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

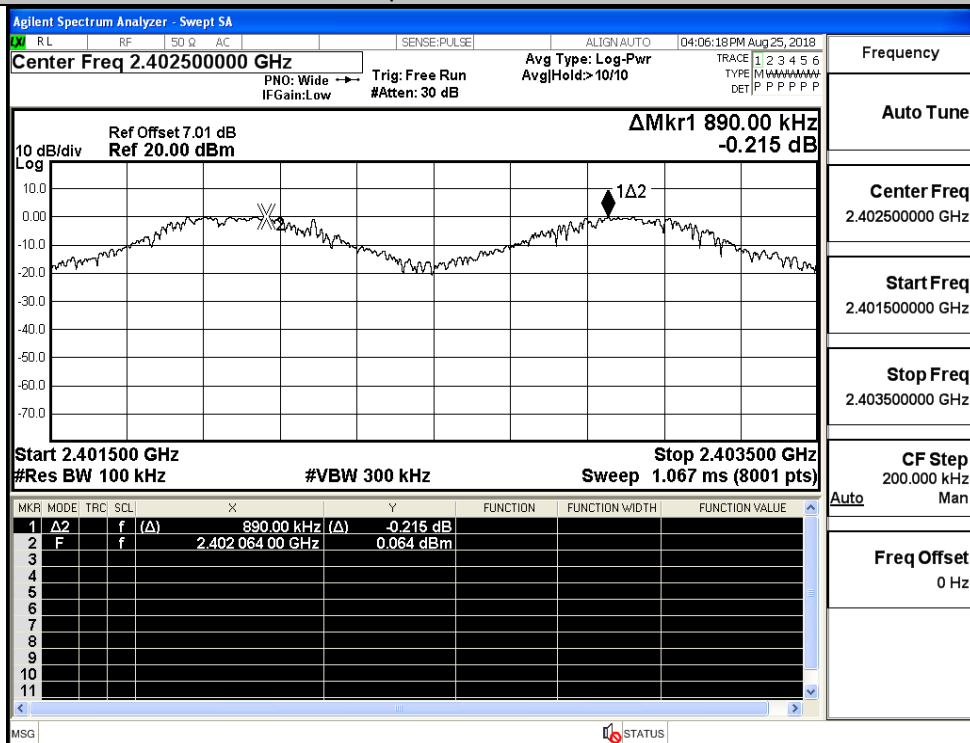


A.3 Carrier Frequency Separation

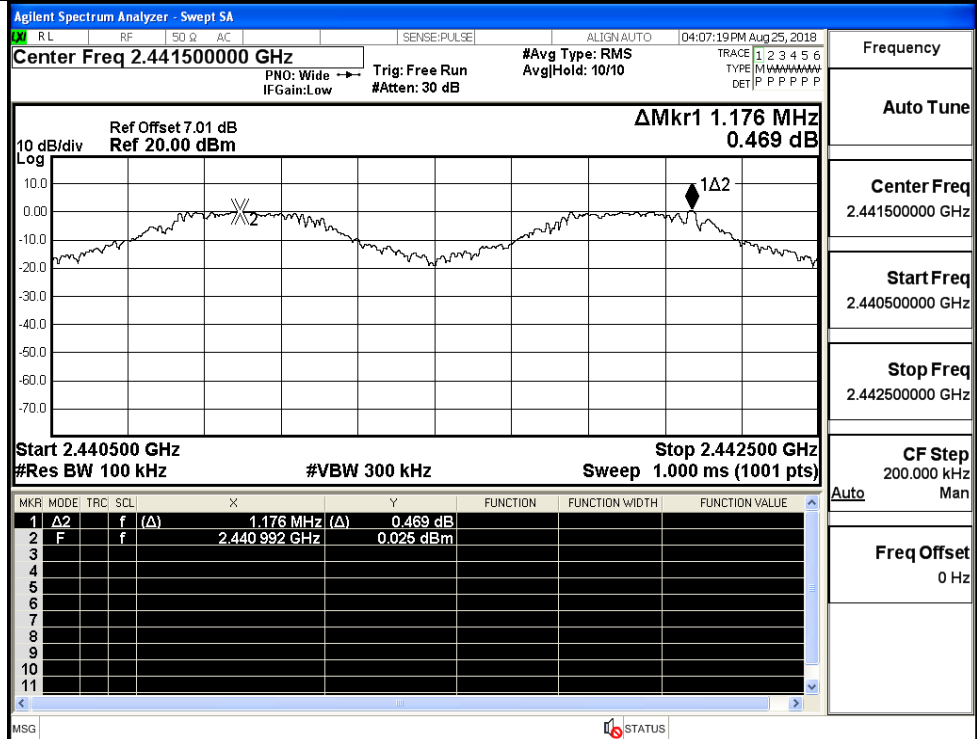
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.890	0.551	PASS
	MCH	1.176	0.551	PASS
	HCH	0.820	0.551	PASS
$\pi/4$ DQPSK	LCH	1.024	0.760	PASS
	MCH	1.062	0.760	PASS
	HCH	1.302	0.760	PASS
8DPSK	LCH	1.012	0.767	PASS
	MCH	0.792	0.767	PASS
	HCH	1.046	0.767	PASS

Test Graphs

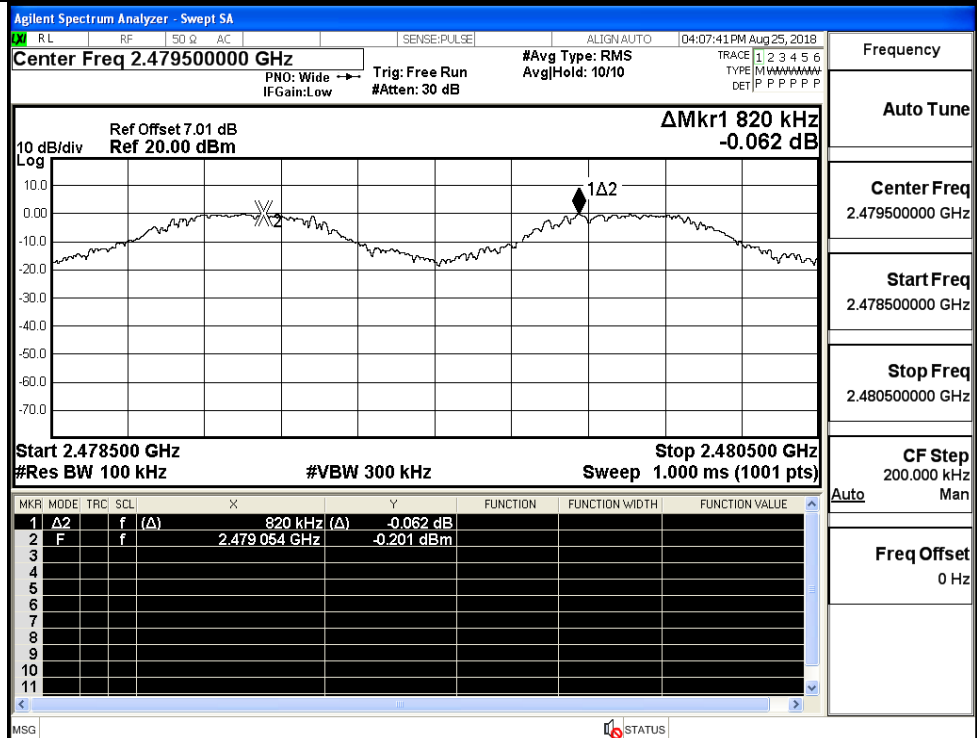
GFSK/LCH

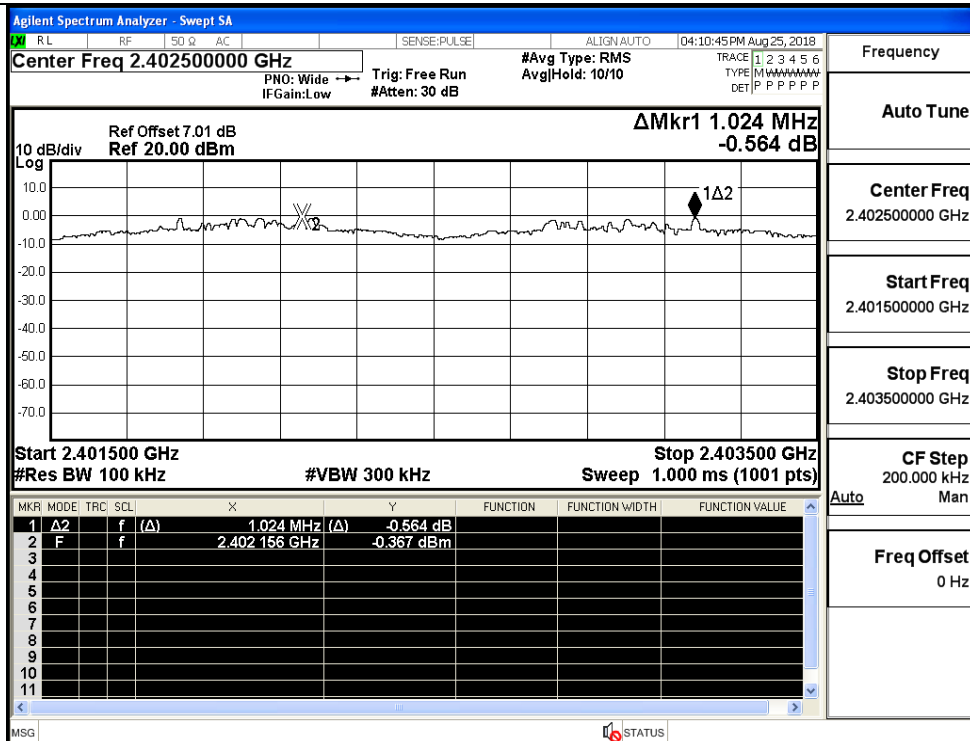


GFSK/MCH



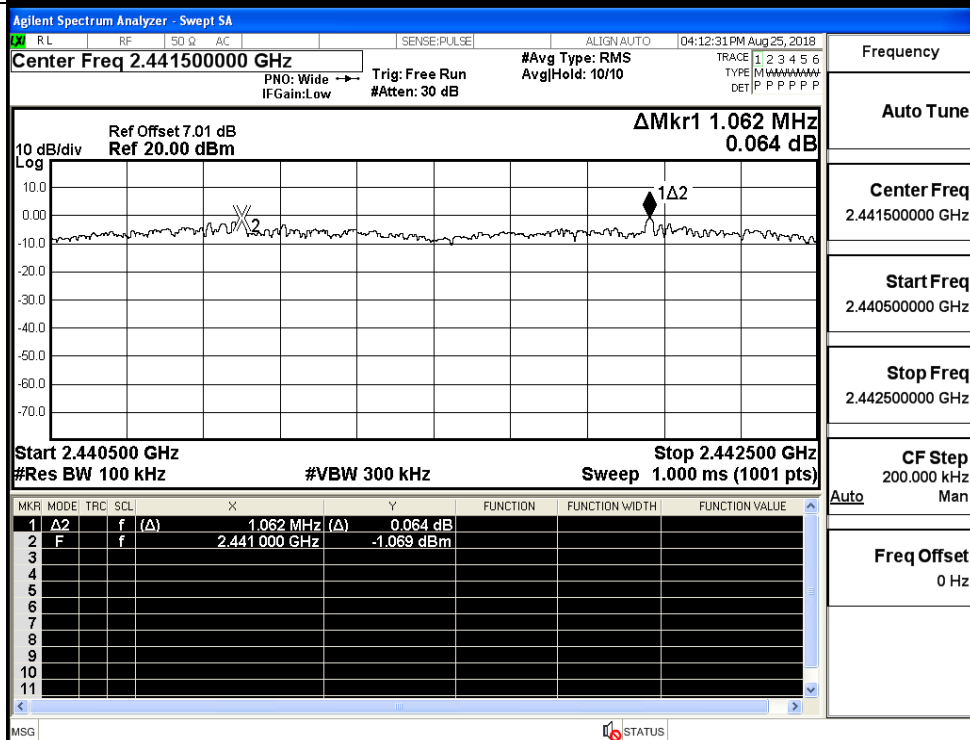
GFSK/HCH



$\pi/4$ DQPSK/LCH

Frequency

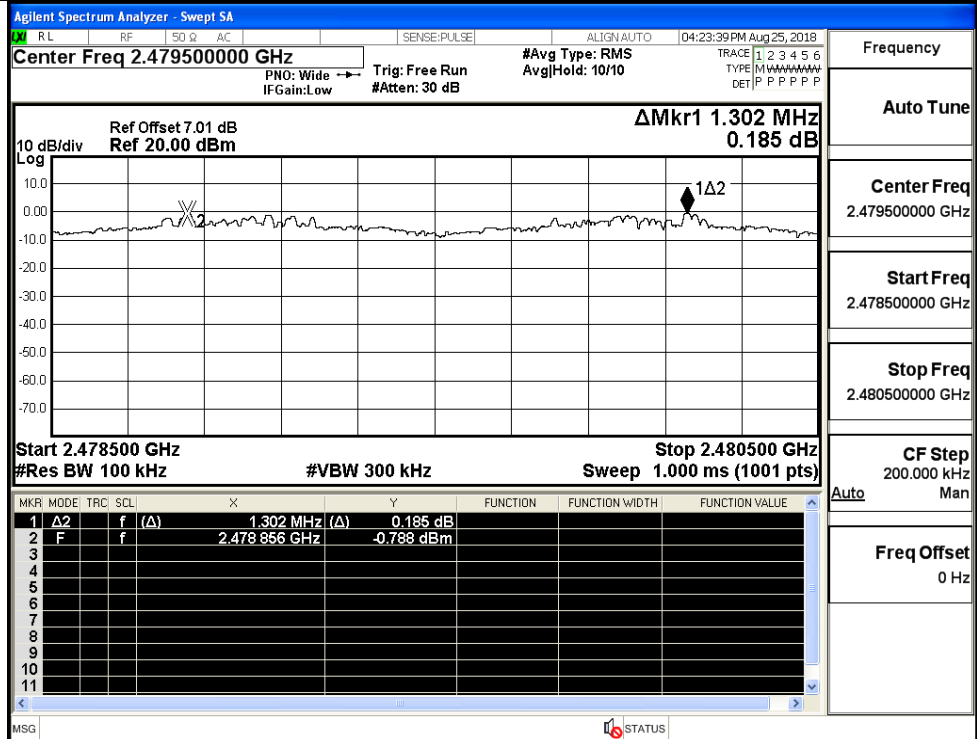
Auto Tune

Center Freq
2.402500000 GHzStart Freq
2.401500000 GHzStop Freq
2.403500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/MCH

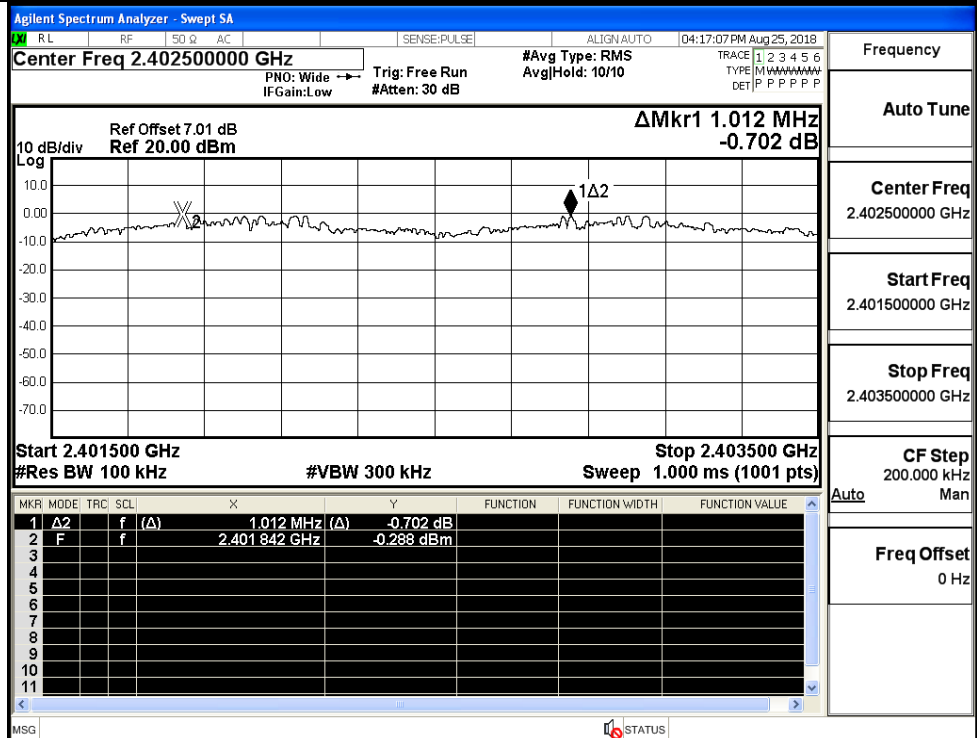
Frequency

Auto Tune

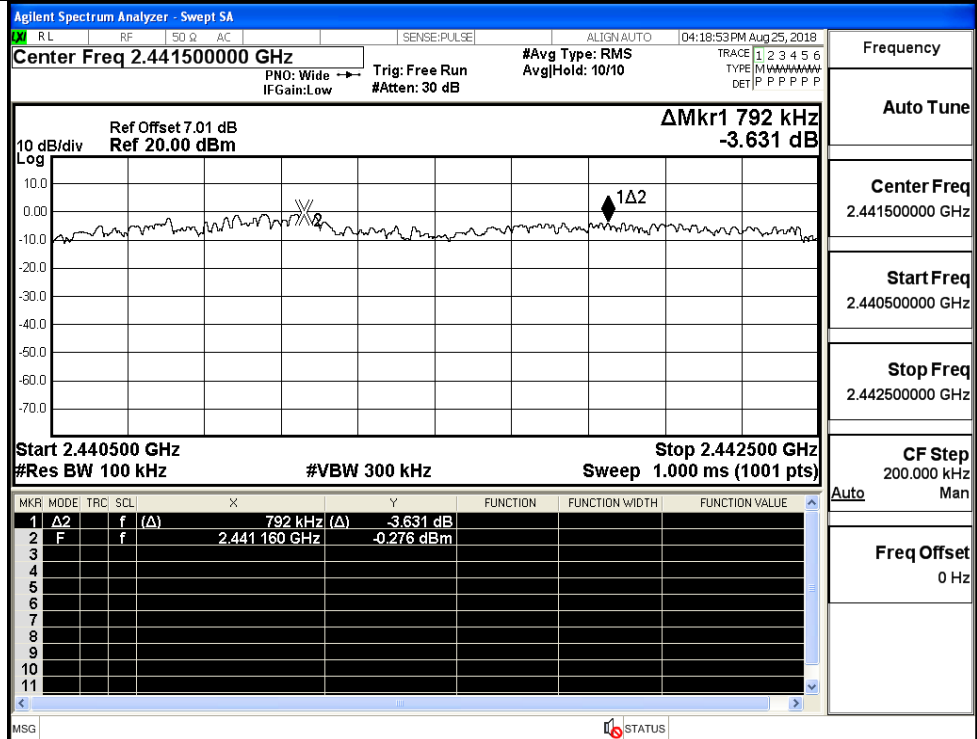
Center Freq
2.441500000 GHzStart Freq
2.440500000 GHzStop Freq
2.442500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH

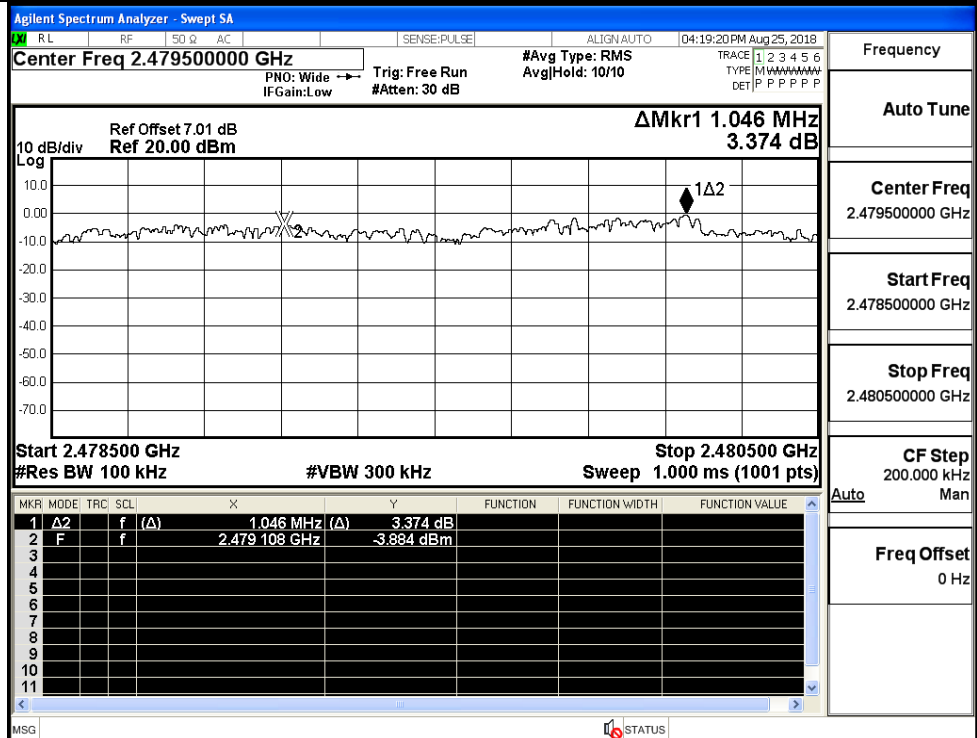
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

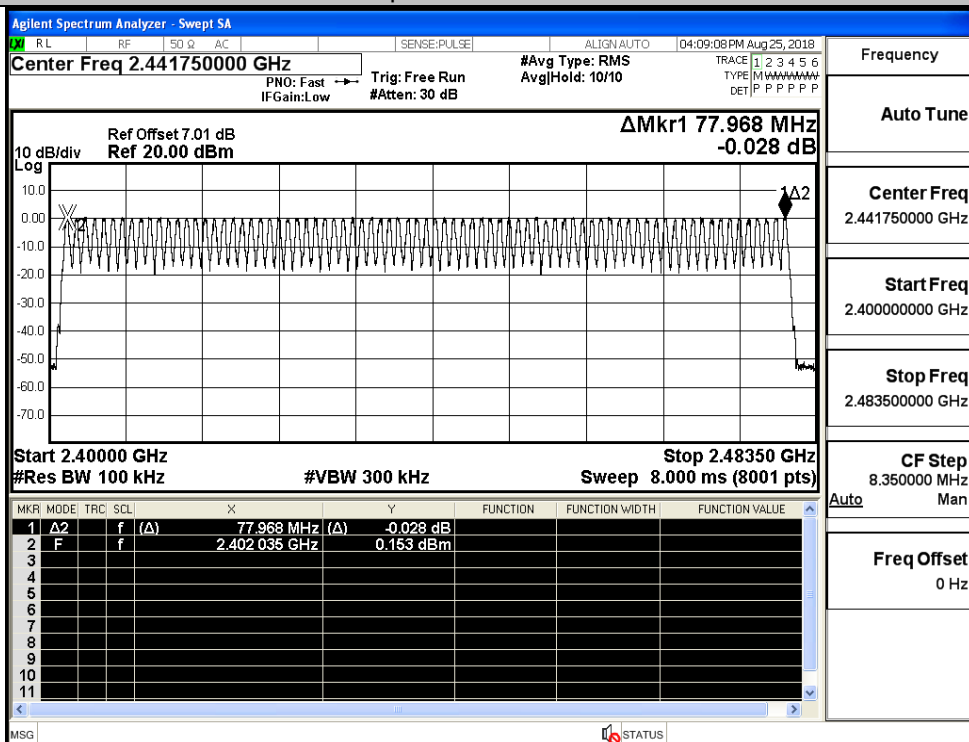
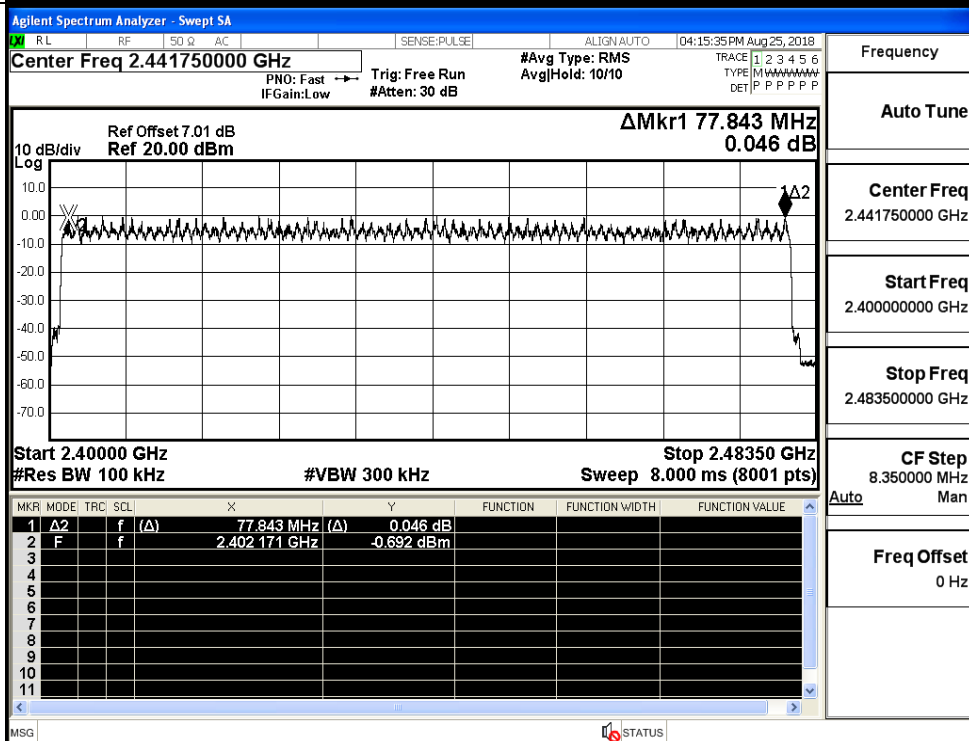


A.4 Hopping Channel Number

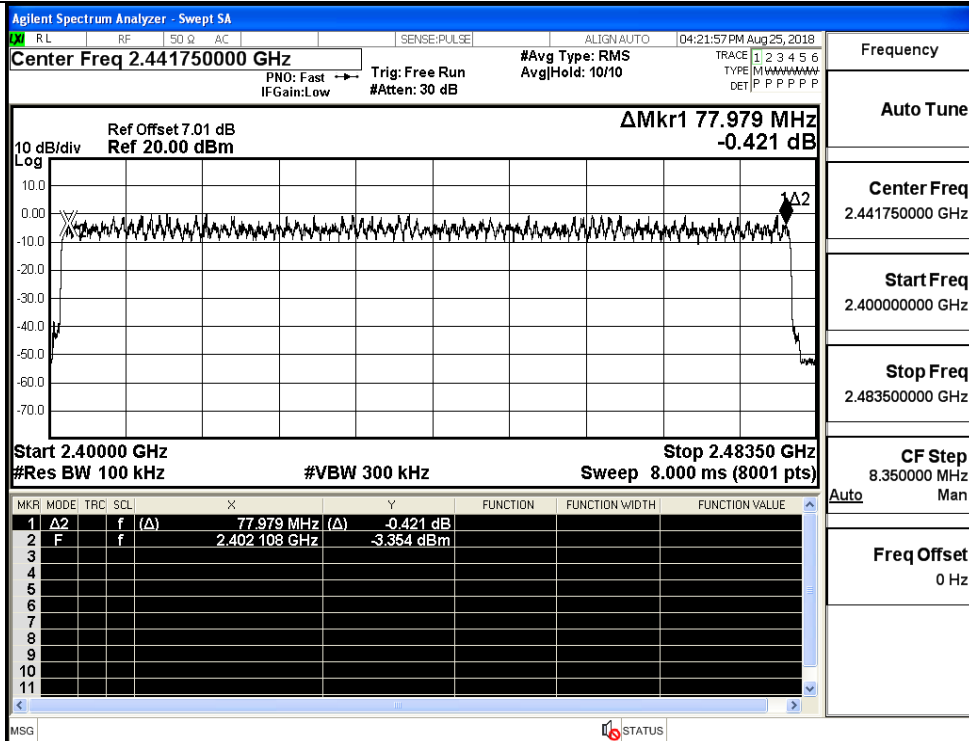
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

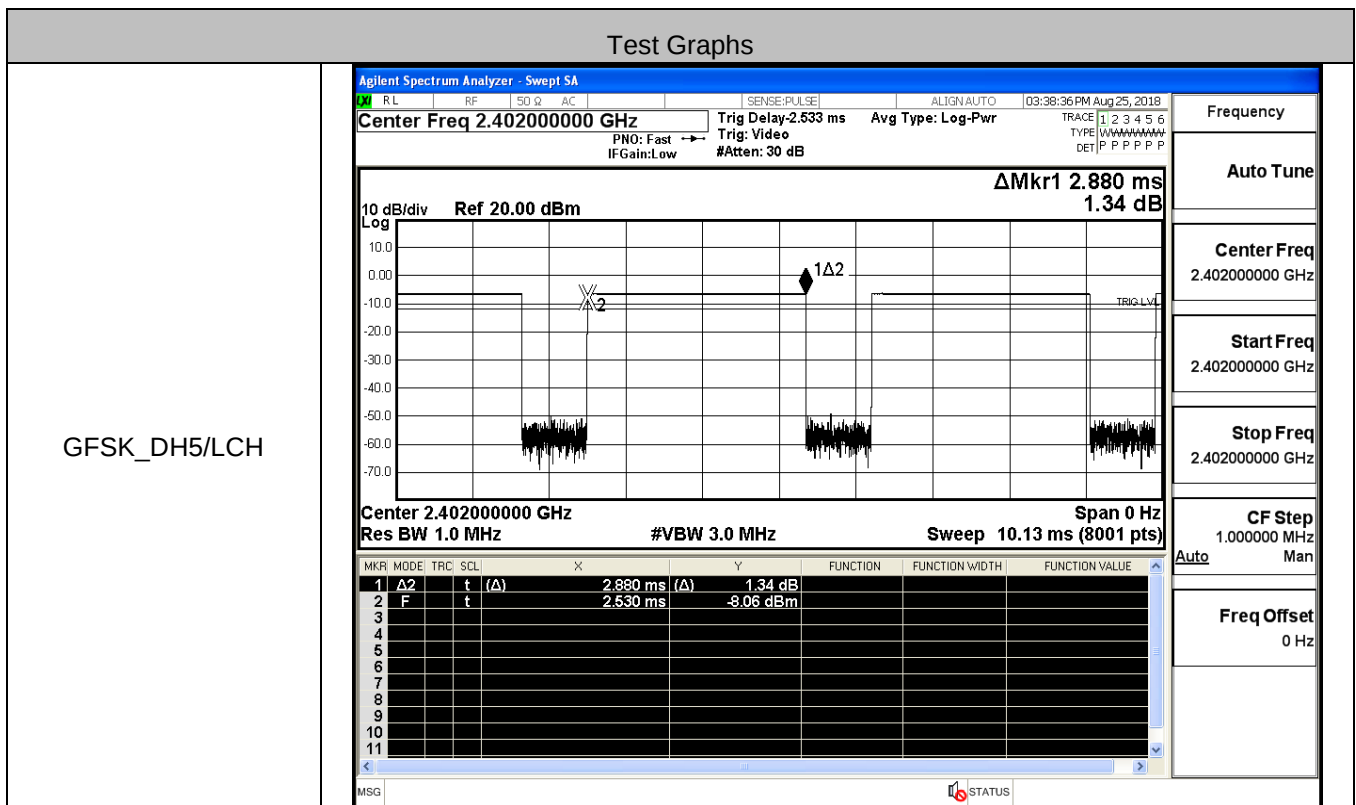
GFSK/Hop

 $\pi/4$ DQPSK/Hop

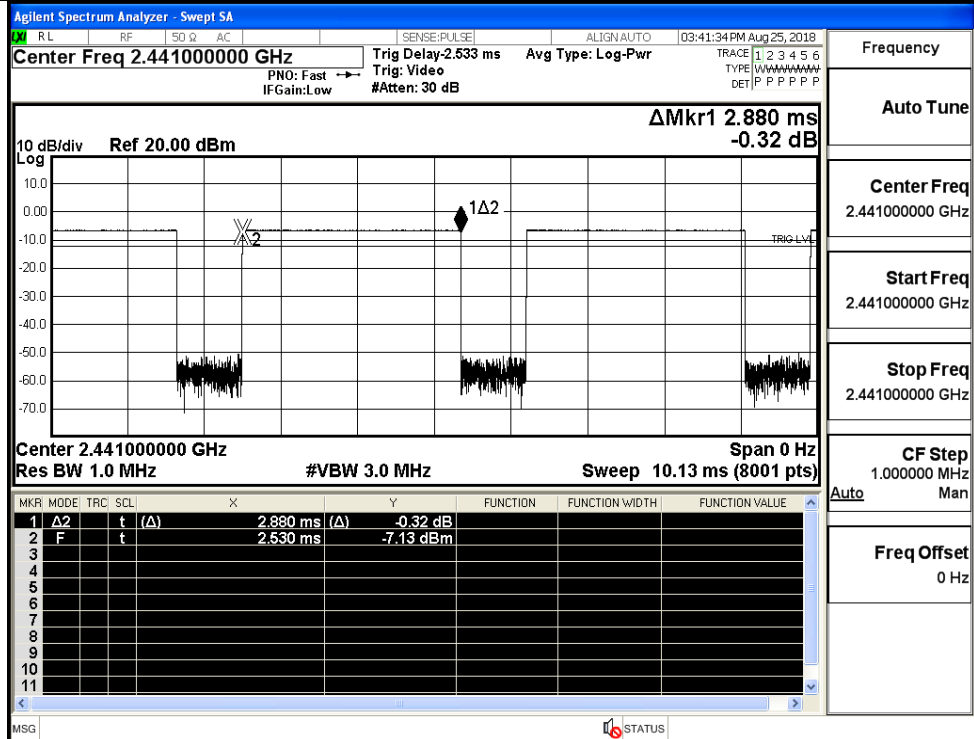
8DPSK/Hop



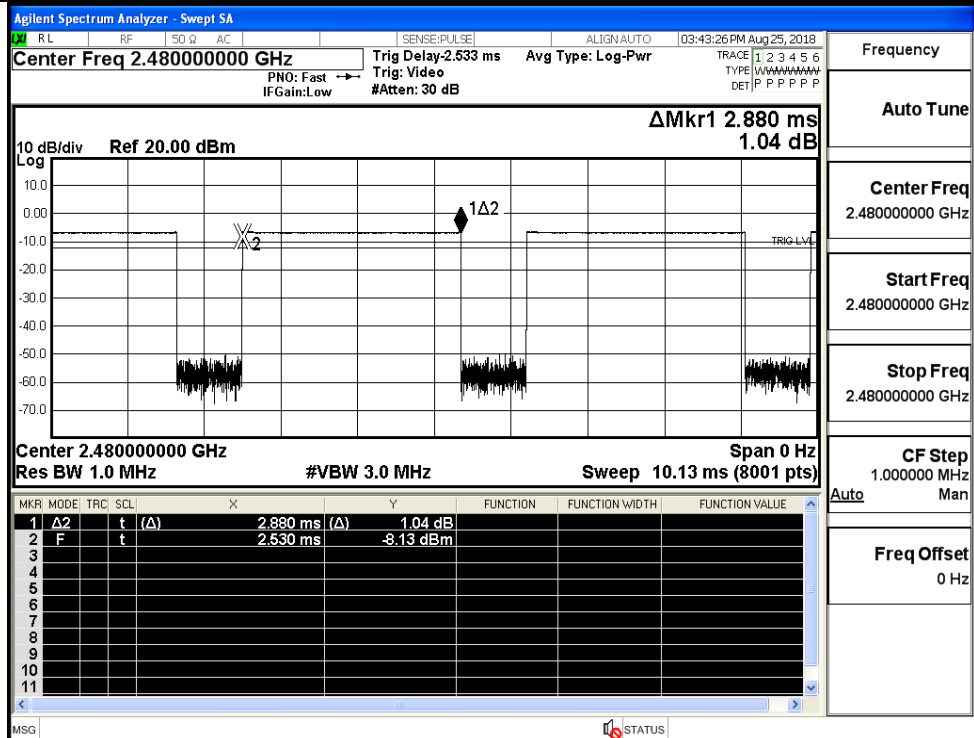
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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



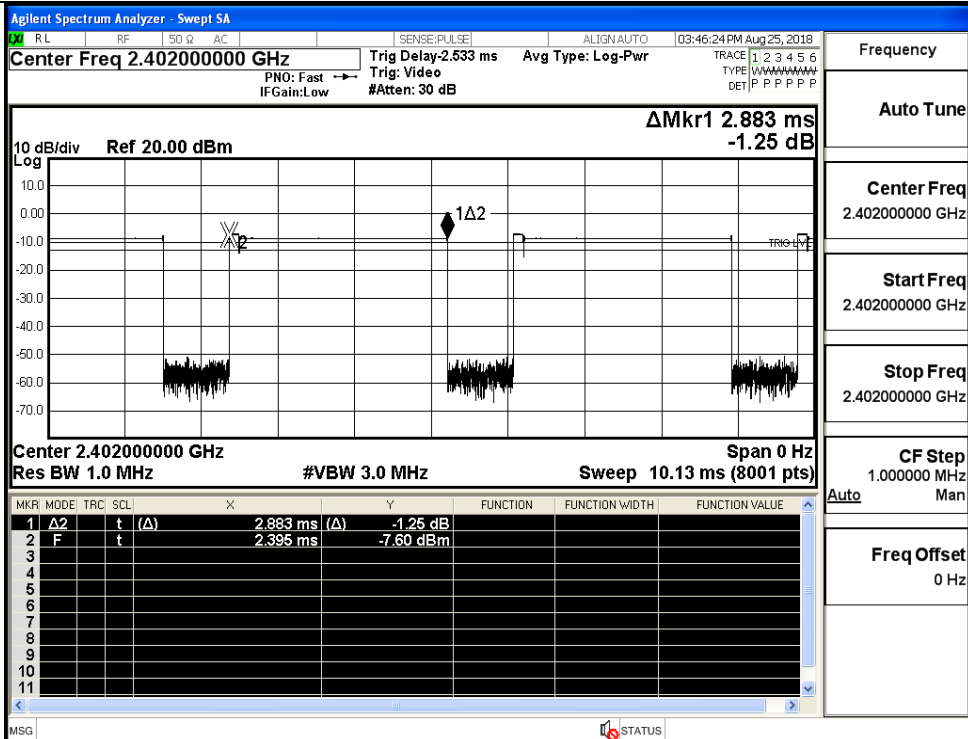
GFSK_DH5/MCH



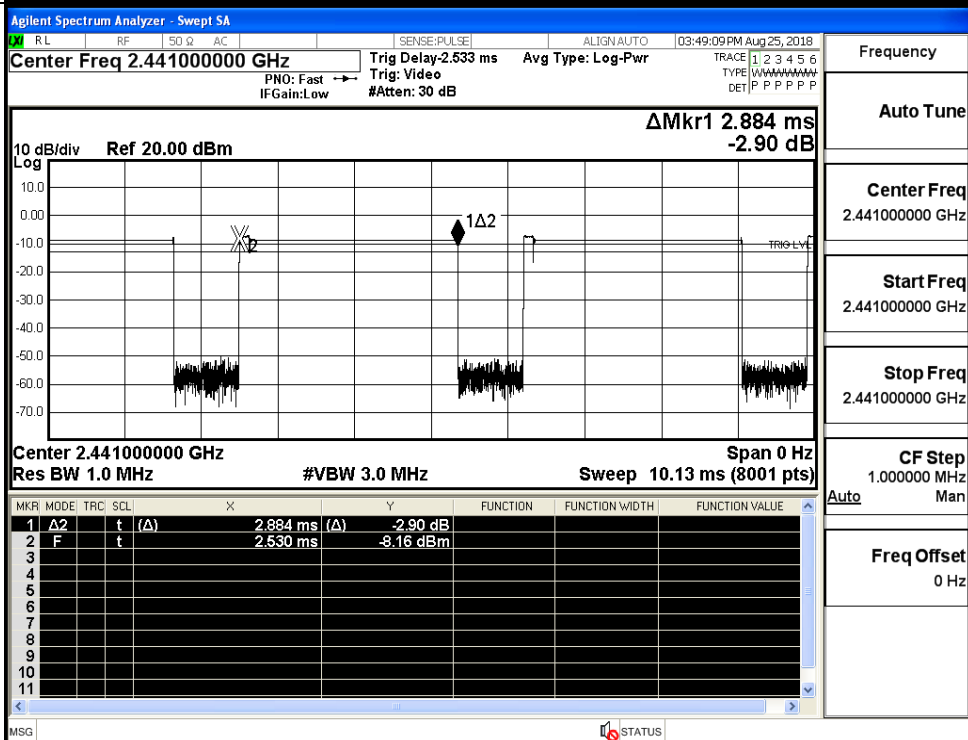
GFSK_DH5/HCH



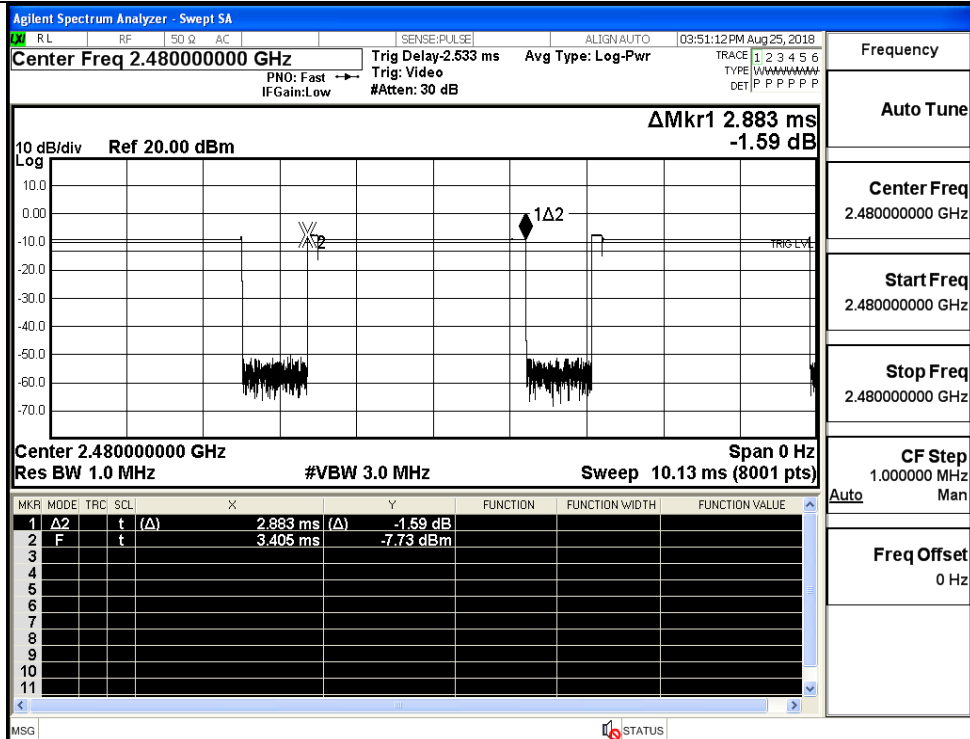
$\pi/4$ DQPSK
_2DH5/LCH



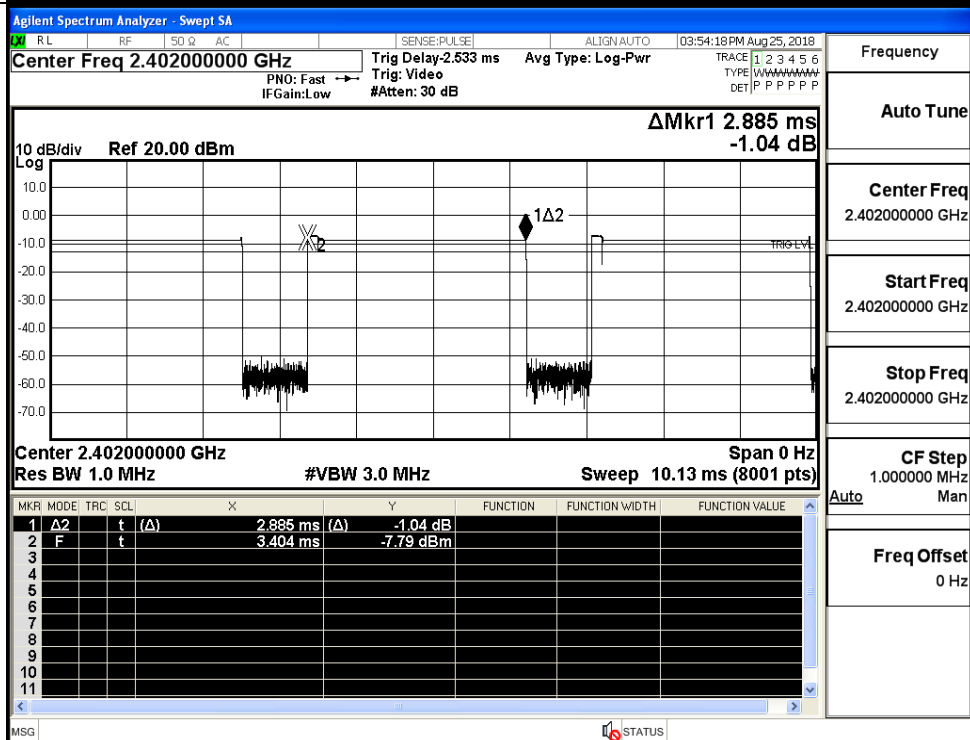
$\pi/4$ DQPSK
_2DH5/MCH



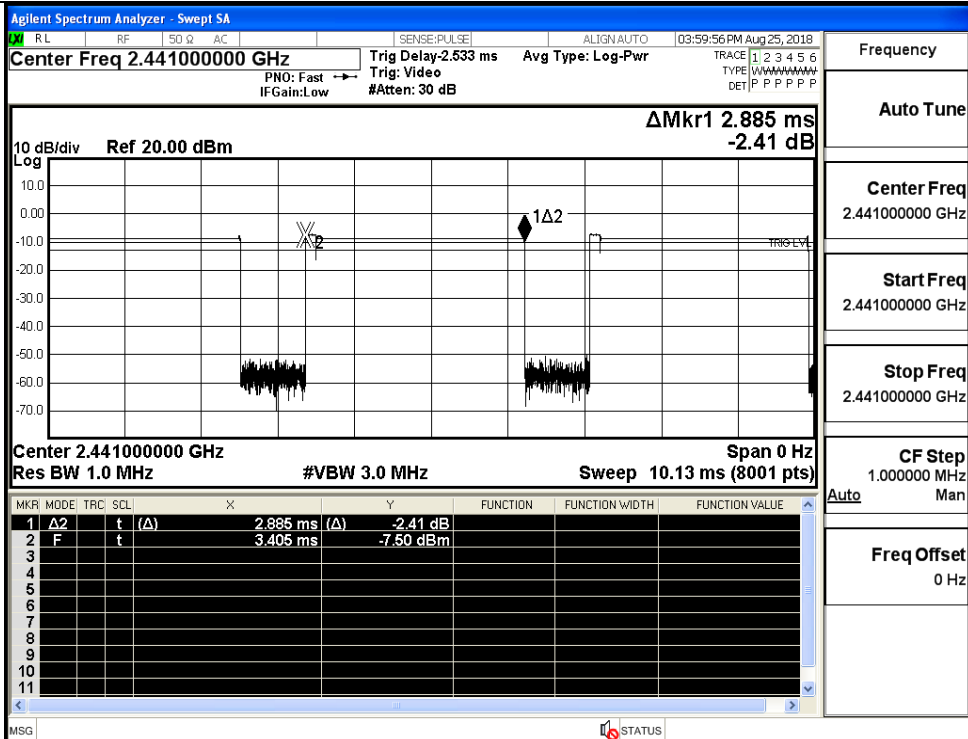
$\pi/4$ DQPSK
_2DH5/HCH



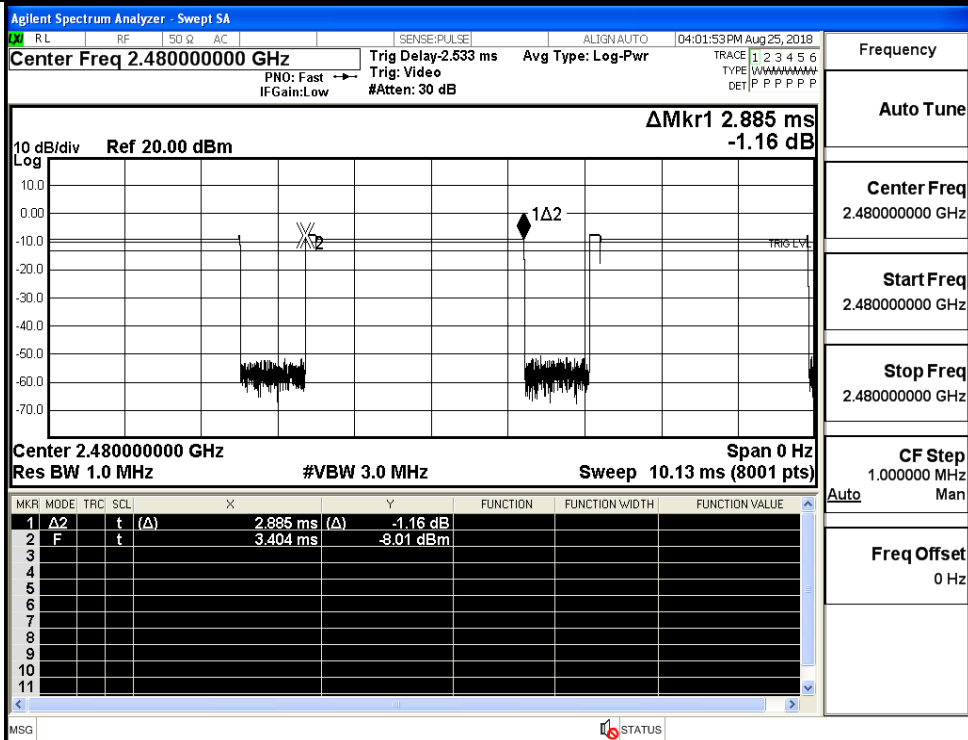
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

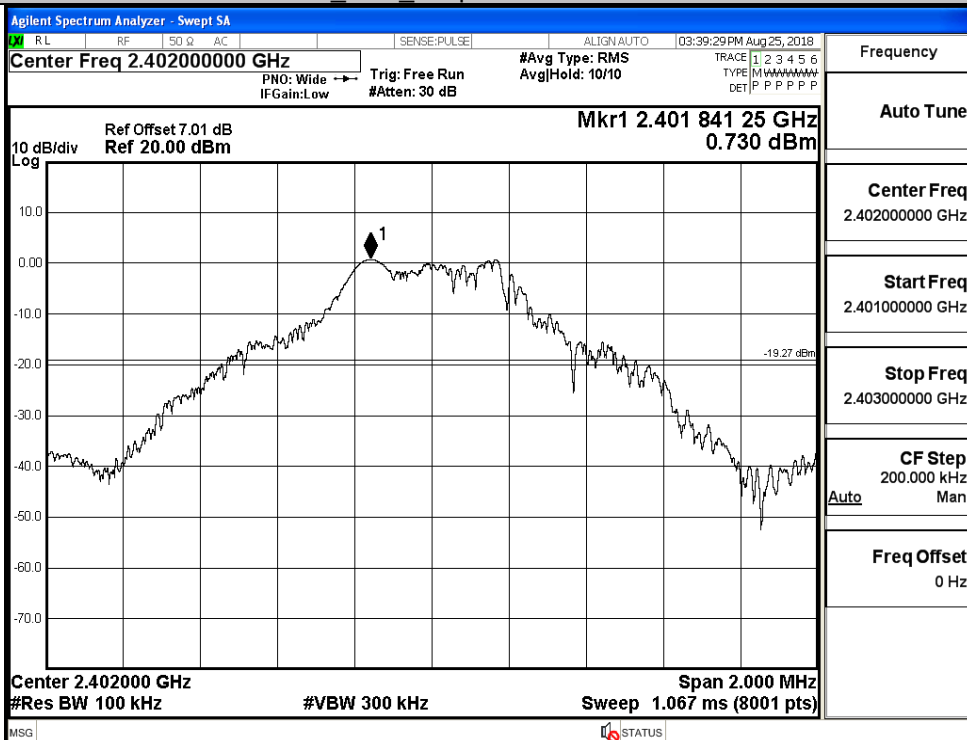


A.6 RF Conducted Spurious Emissions

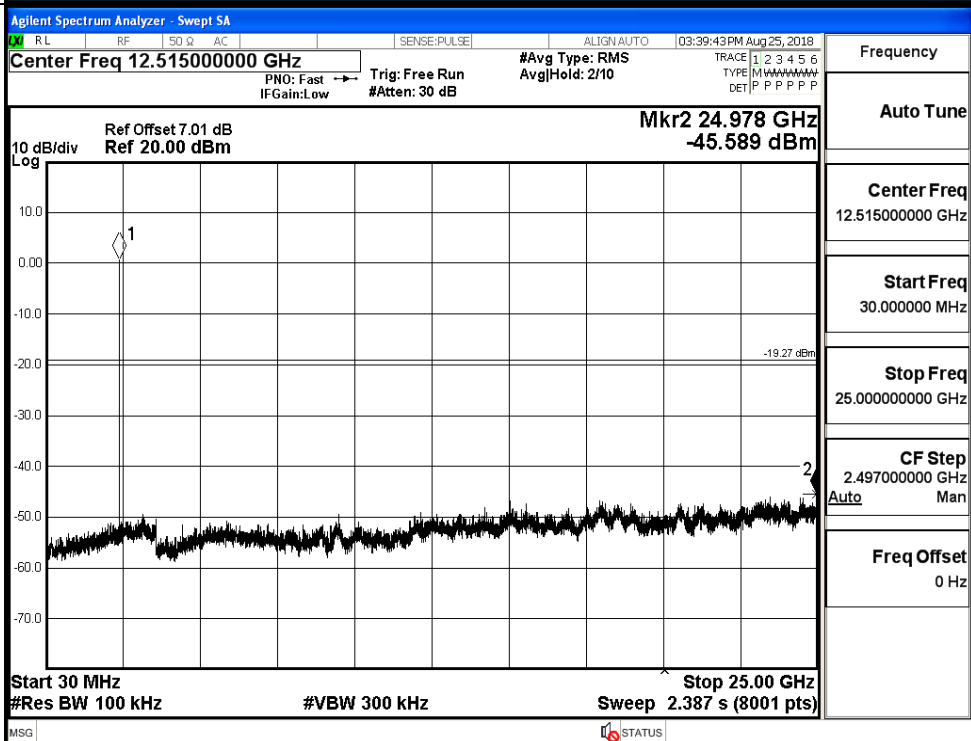
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.73	-45.589	-19.270	PASS
	MCH	0.64	-45.701	-19.360	PASS
	HCH	0.458	-45.735	-19.542	PASS
$\pi/4$ DQPSK	LCH	-0.298	-45.814	-20.298	PASS
	MCH	-0.392	-45.433	-20.392	PASS
	HCH	-0.659	-46.108	-20.659	PASS
8DPSK	LCH	-0.223	-45.211	-20.223	PASS
	MCH	-0.302	-45.060	-20.302	PASS
	HCH	-0.485	-46.178	-20.485	PASS

GFSK LCH Graphs

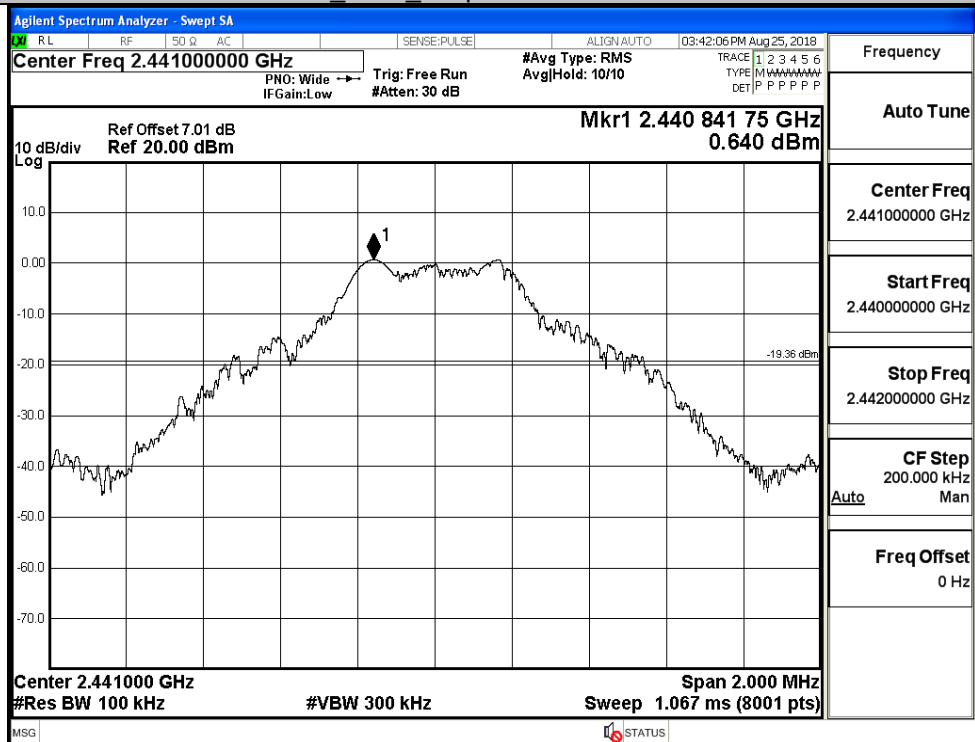
Pref



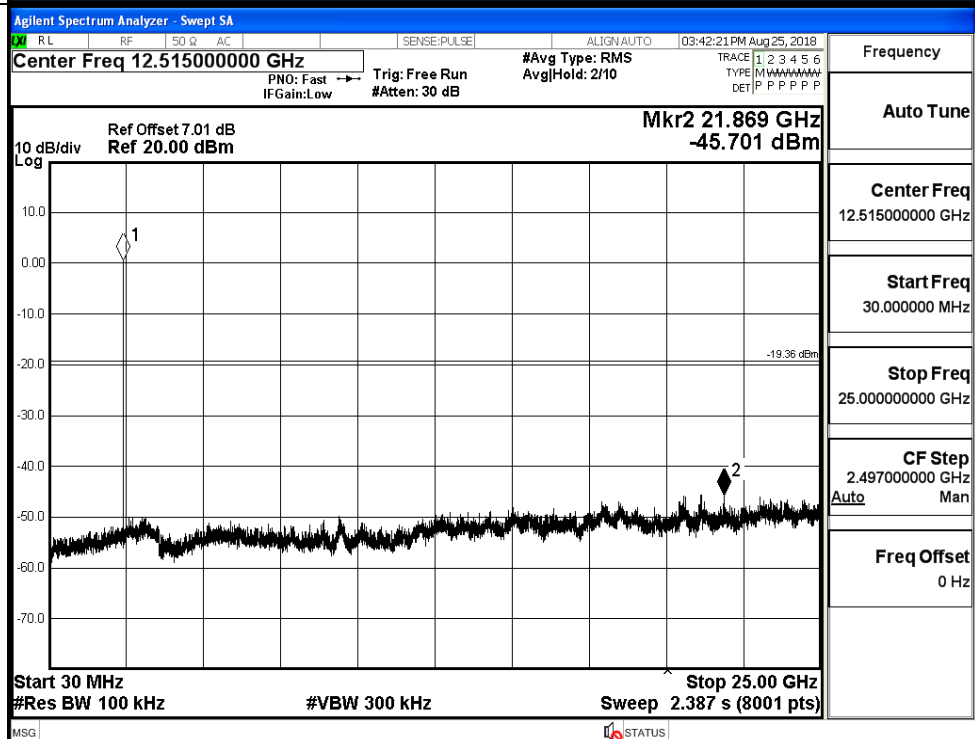
Puw



Pref

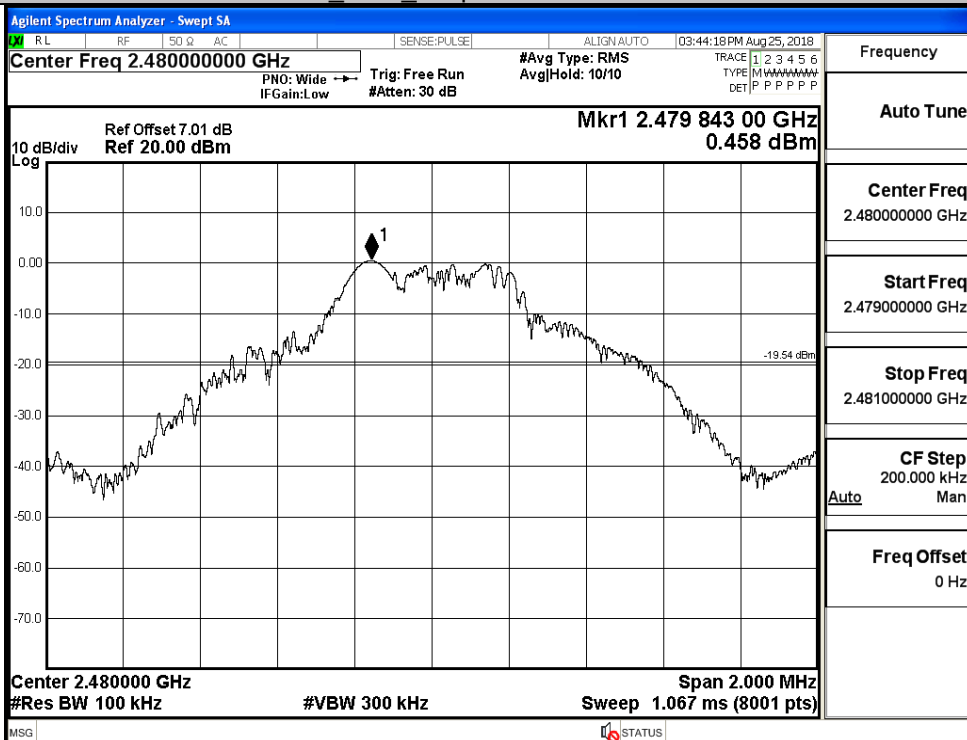


Puw

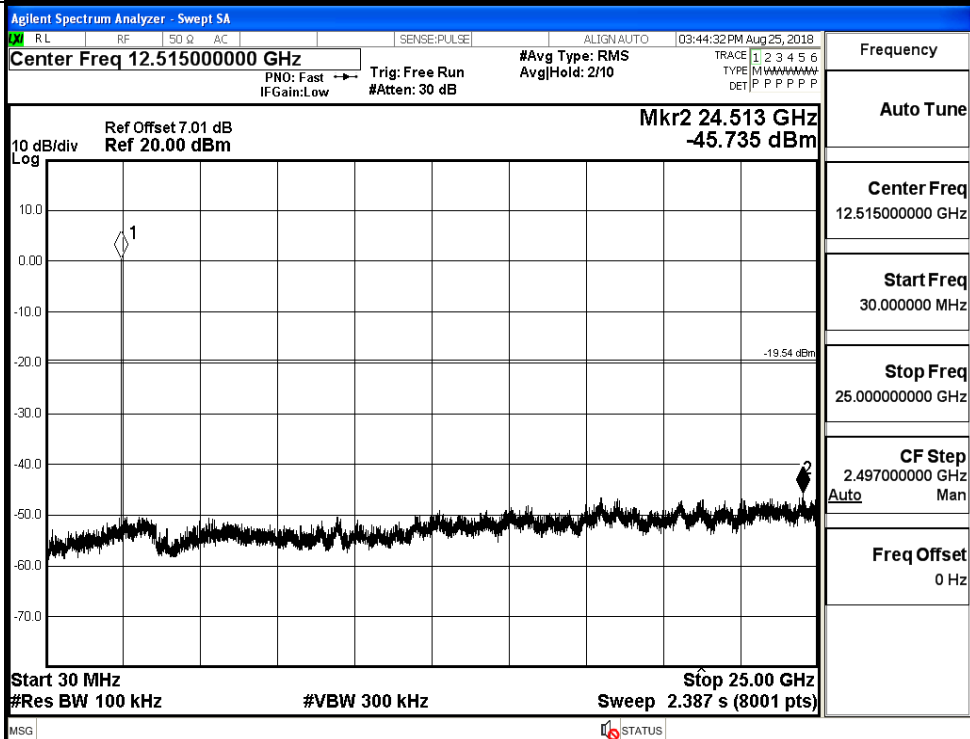


GFSK_HCH_Graphs

Pref



Puw

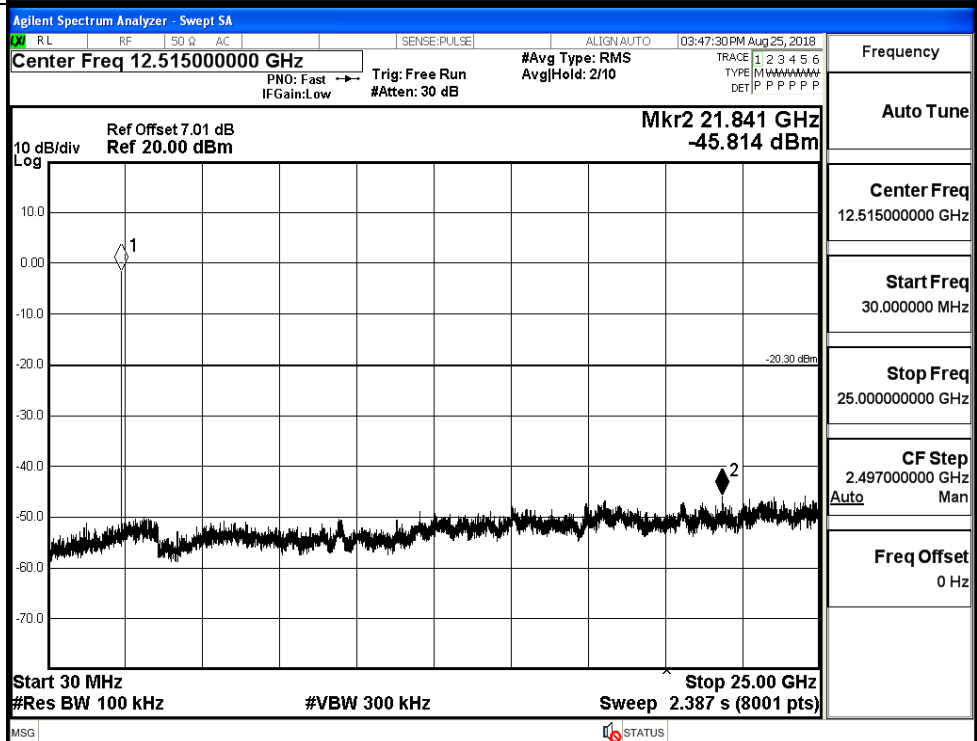


$\pi/4$ DQPSK LCH_Graphs

Pref

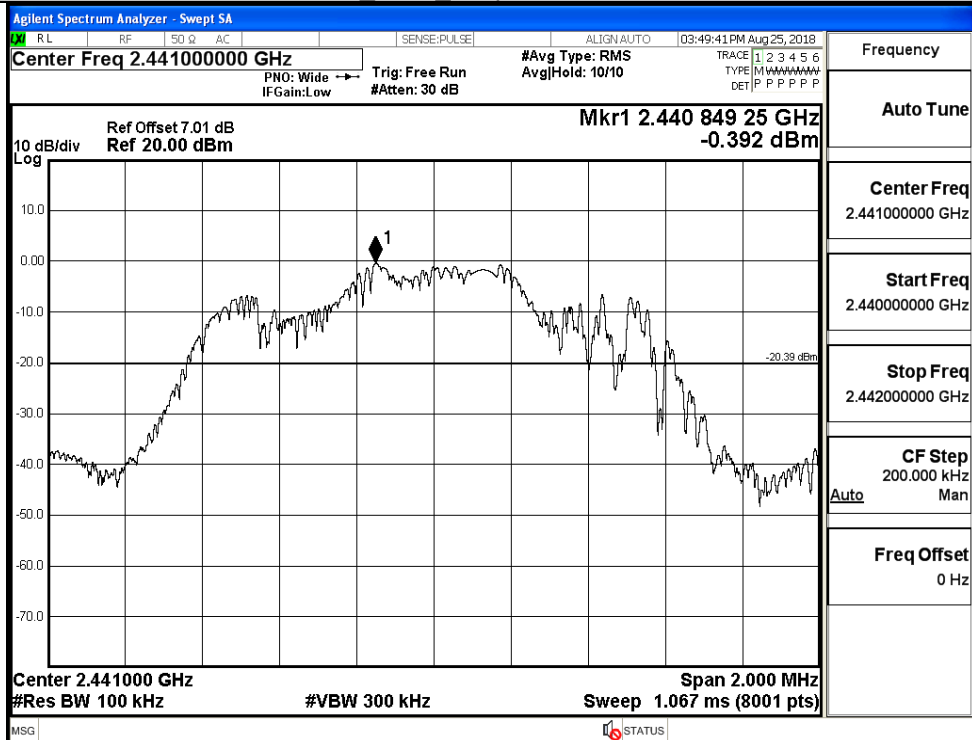


Puw

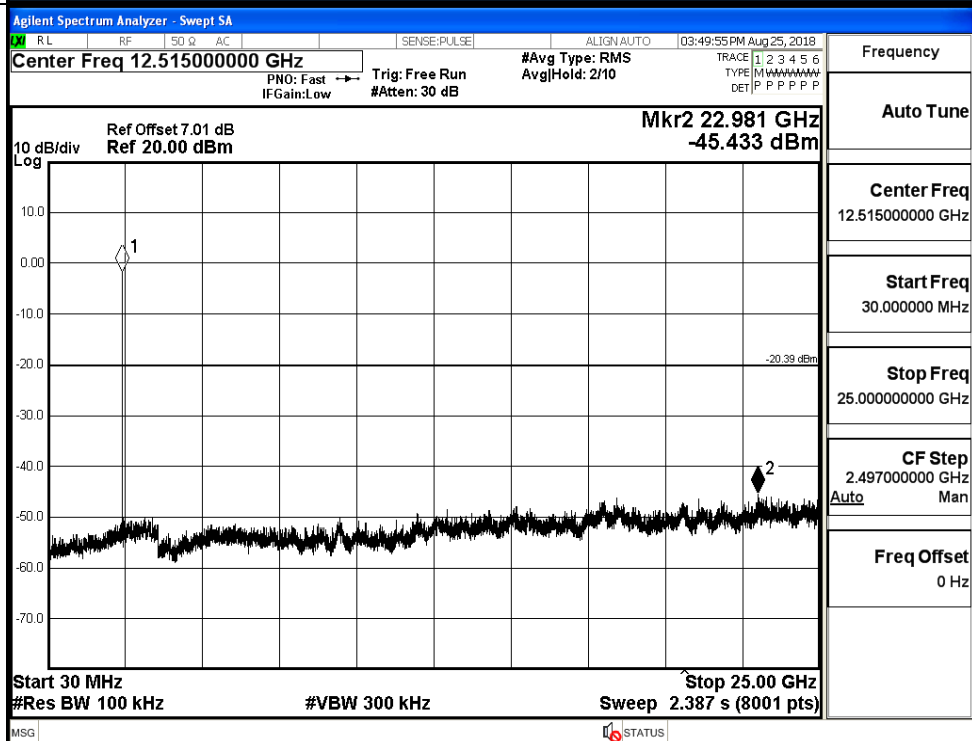


$\pi/4$ DQPSK_MCH_Graphs

Pref

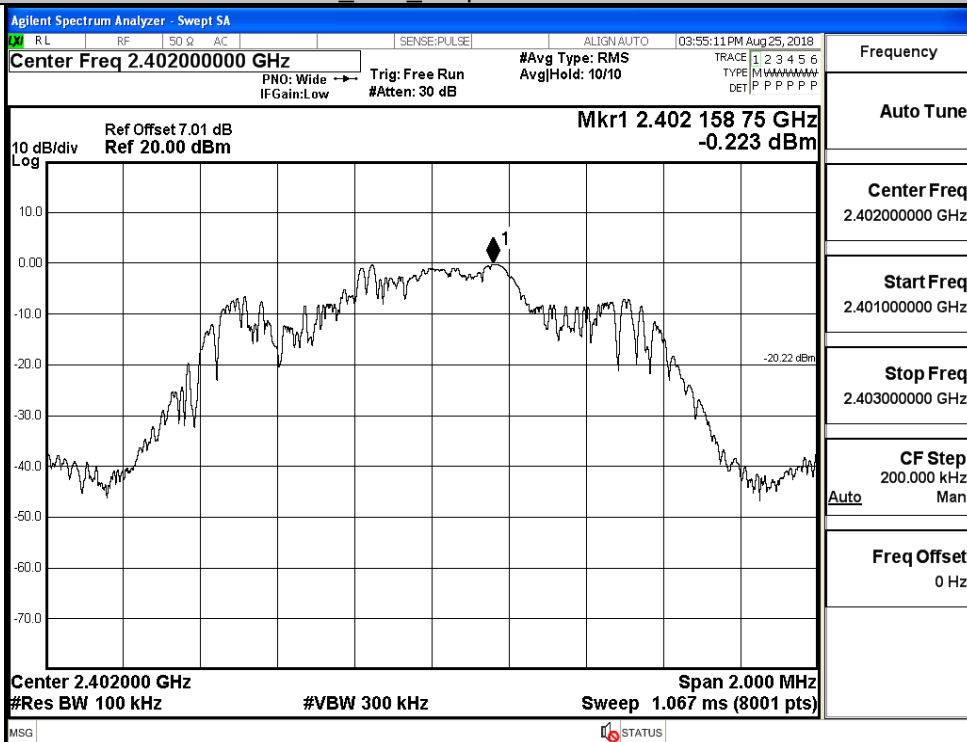


Puw

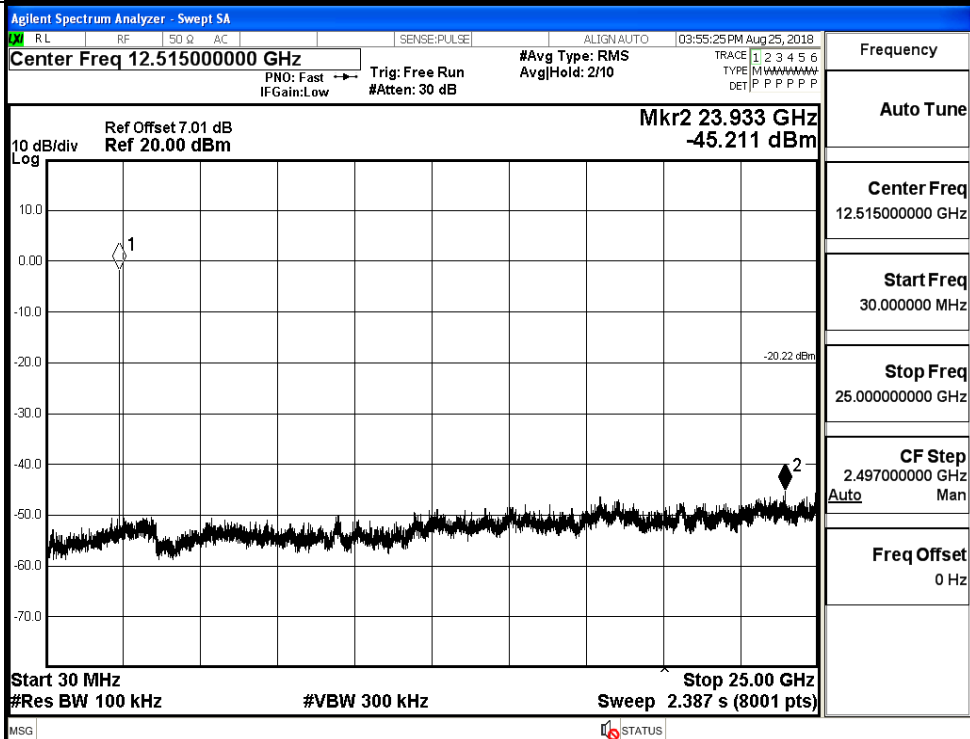


8DPSK_LCH_Graphs

Pref

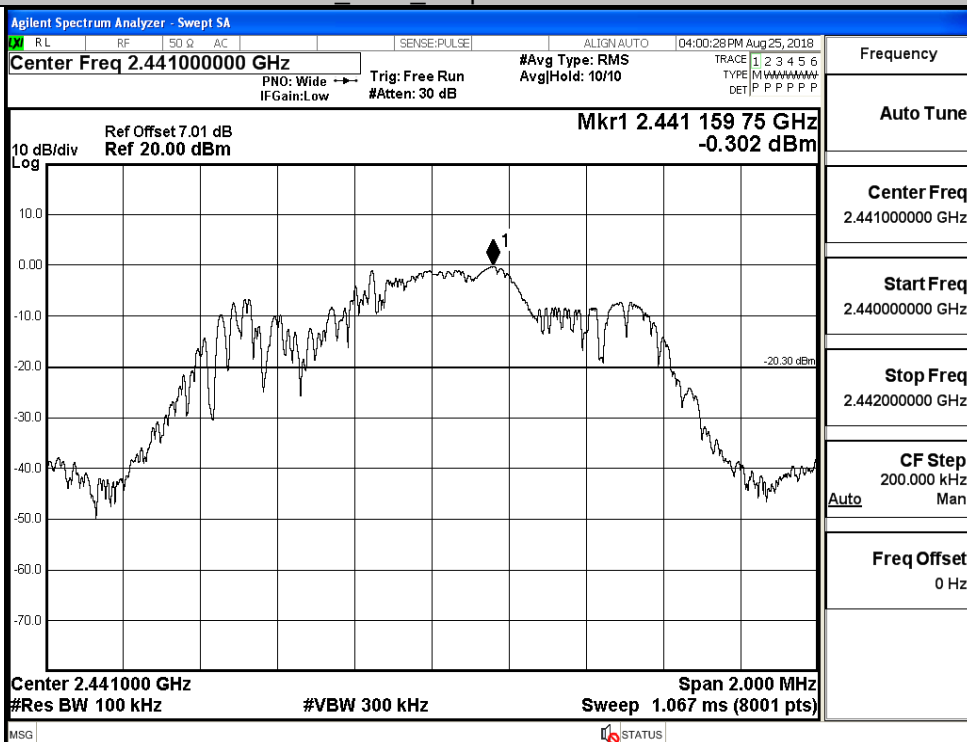


Puw

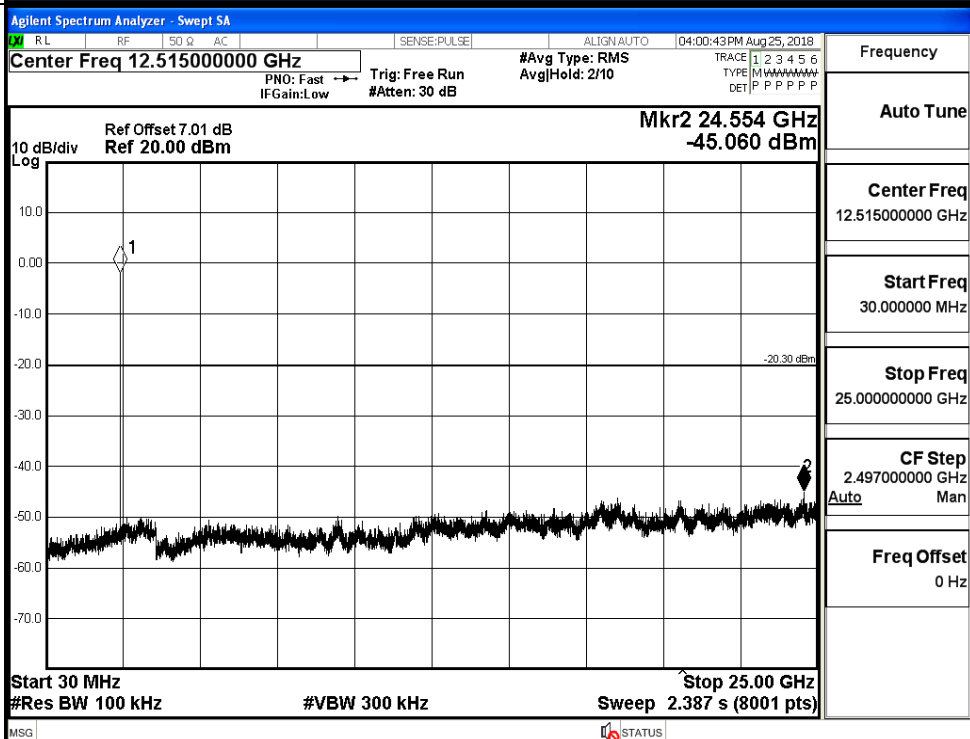


8DPSK_MCH_Graphs

Pref

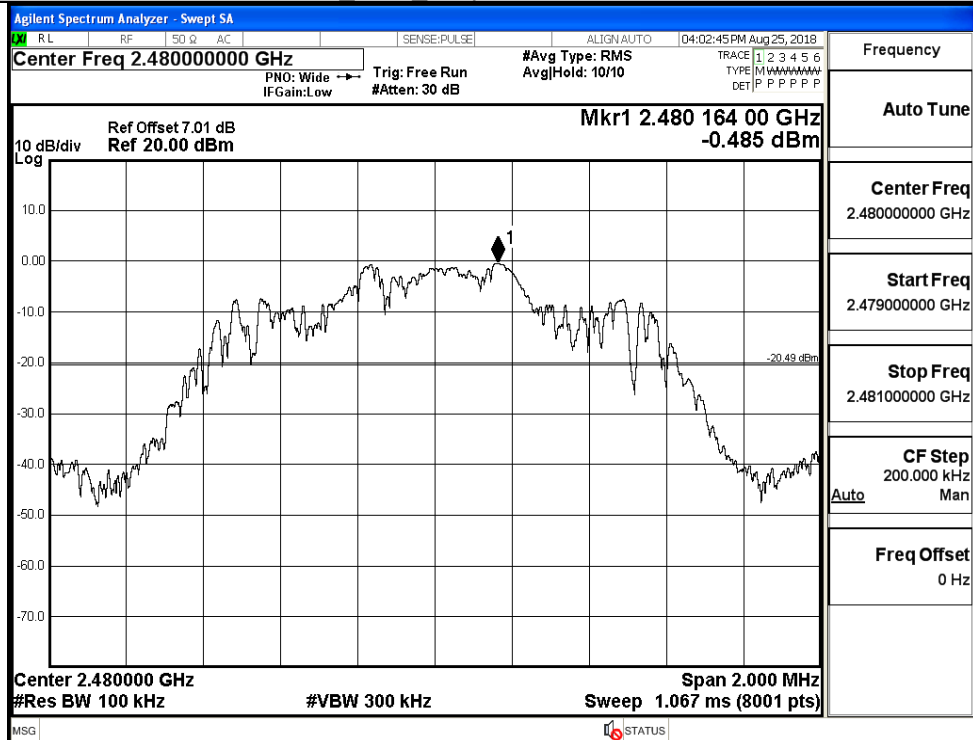


Puw

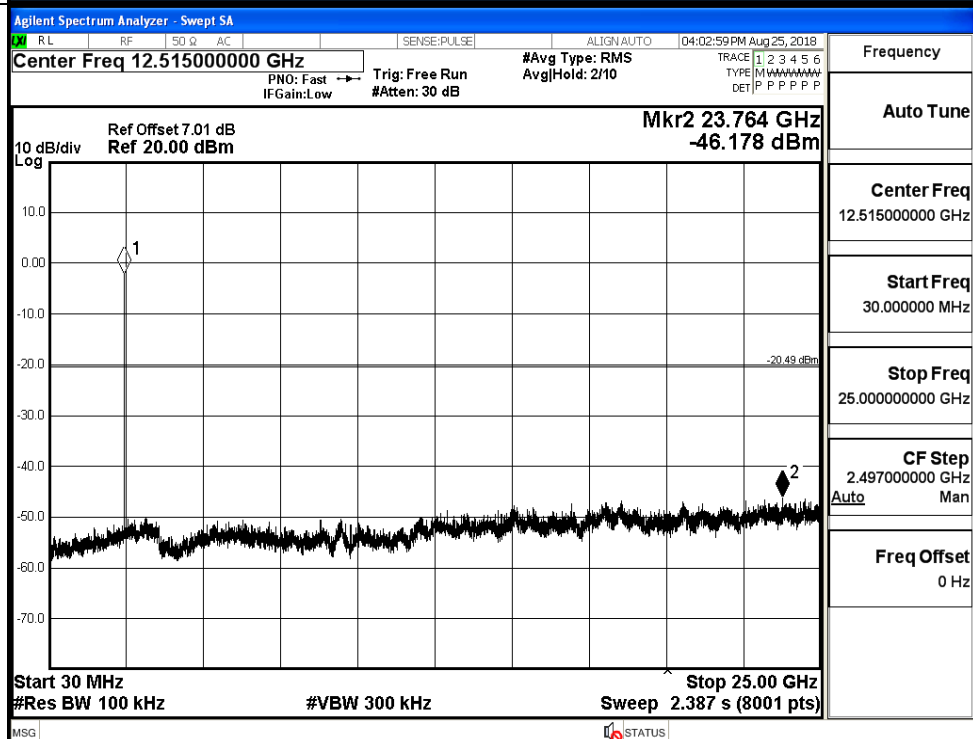


8DPSK_HCH_Graphs

Pref



Puw

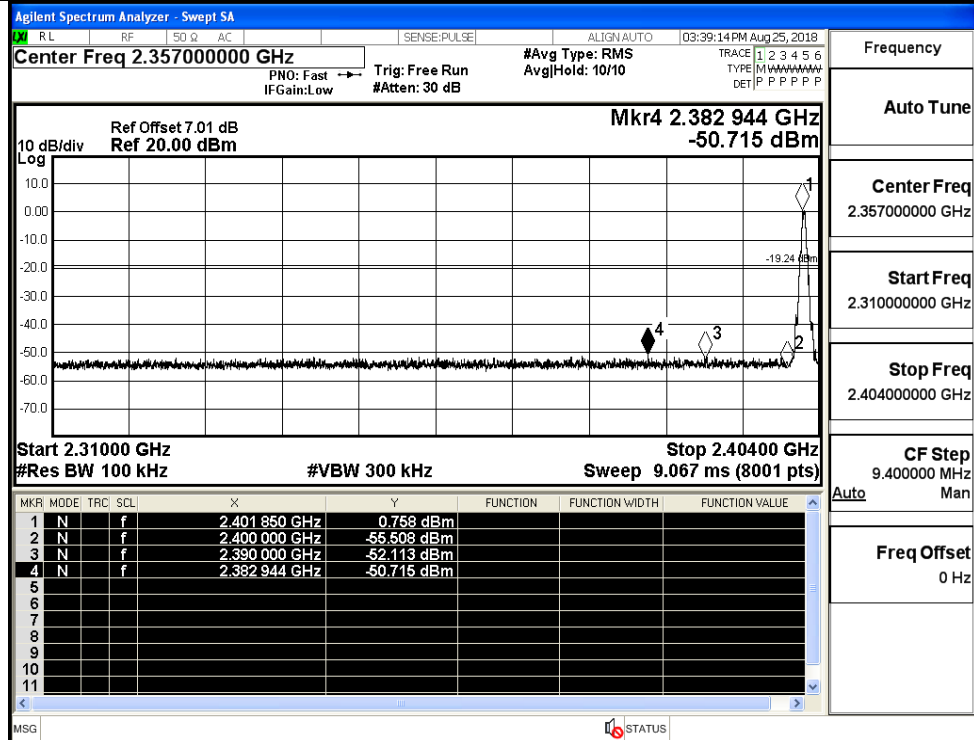


A.7 Band-edge for RF Conducted Emissions

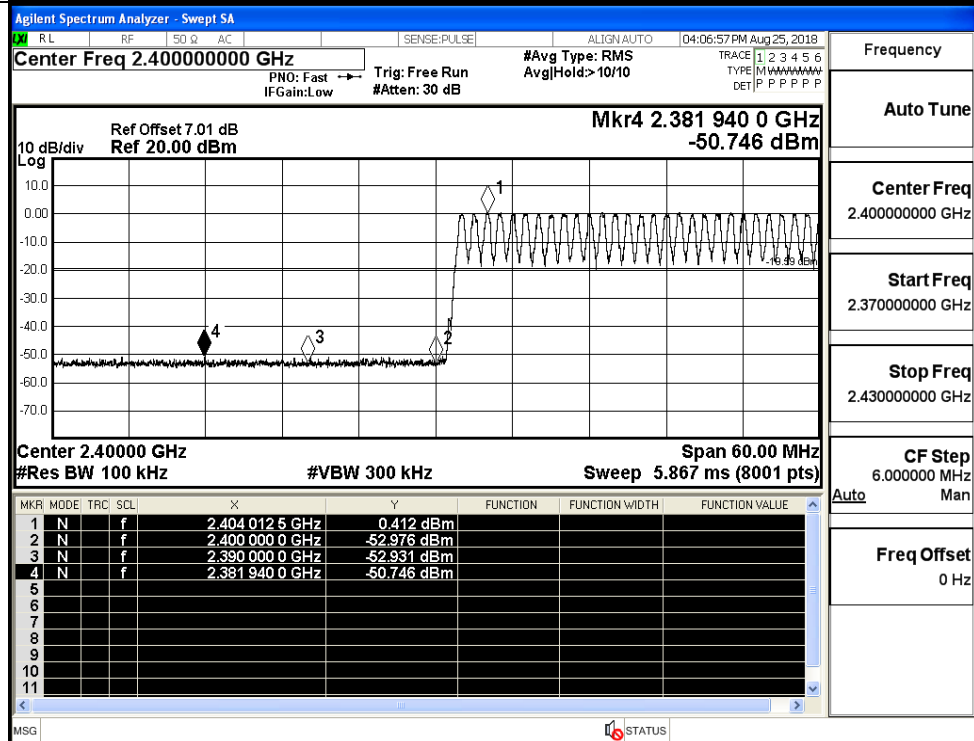
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.758	Off	-50.715	-19.24	PASS
			0.412	On	-50.746	-19.59	PASS
	HCH	2480	0.544	Off	-50.765	-19.46	PASS
			0.485	On	-49.843	-19.52	PASS
$\pi/4$ DQPSK	LCH	2402	-0.358	Off	-51.036	-20.36	PASS
			-0.205	On	-50.598	-20.21	PASS
	HCH	2480	-0.473	Off	-50.636	-20.47	PASS
			-0.424	On	-50.162	-20.42	PASS
8DPSK	LCH	2402	-0.512	Off	-50.521	-20.51	PASS
			-0.172	On	-50.548	-20.17	PASS
	HCH	2480	-0.394	Off	-50.886	-20.39	PASS
			-0.362	On	-50.061	-20.36	PASS

Test Graphs

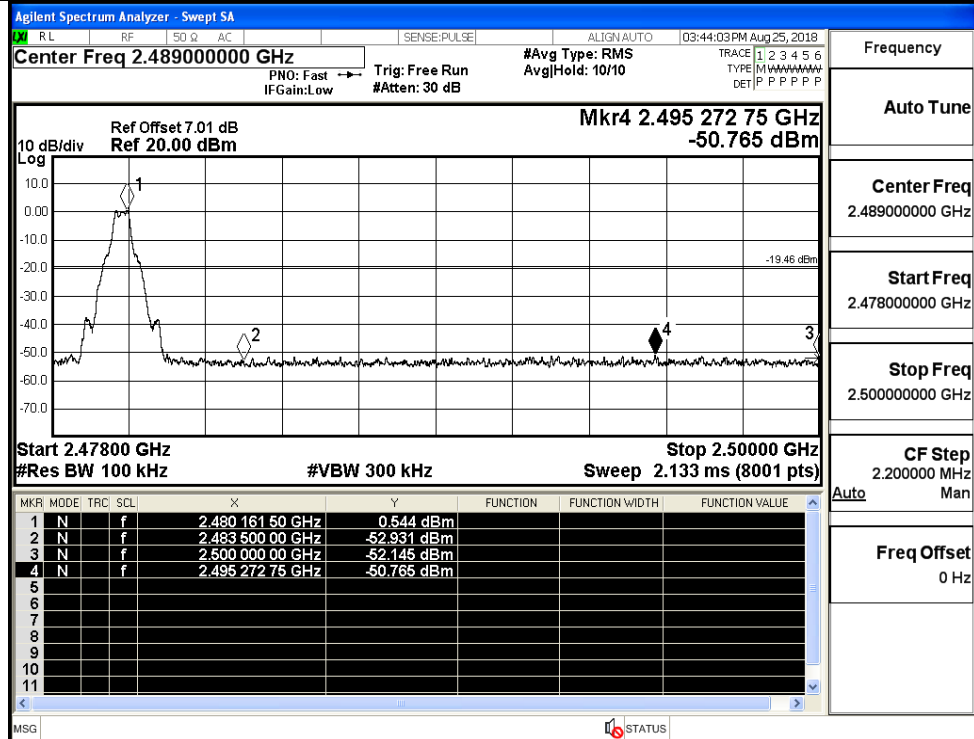
GFSK/LCH/No Hop



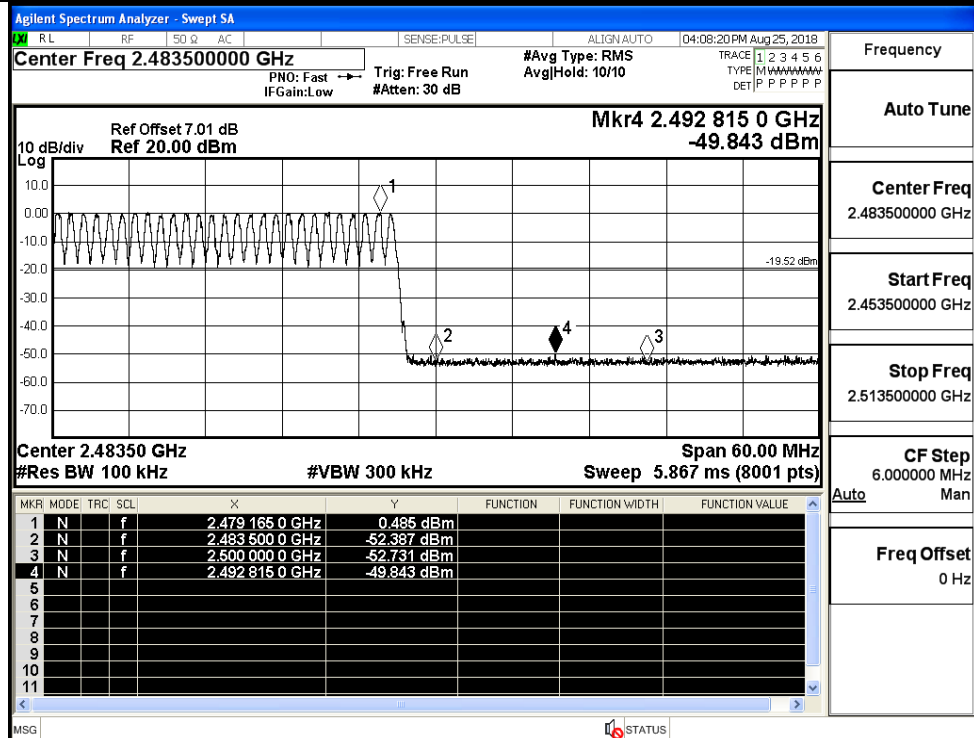
GFSK/LCH/Hop



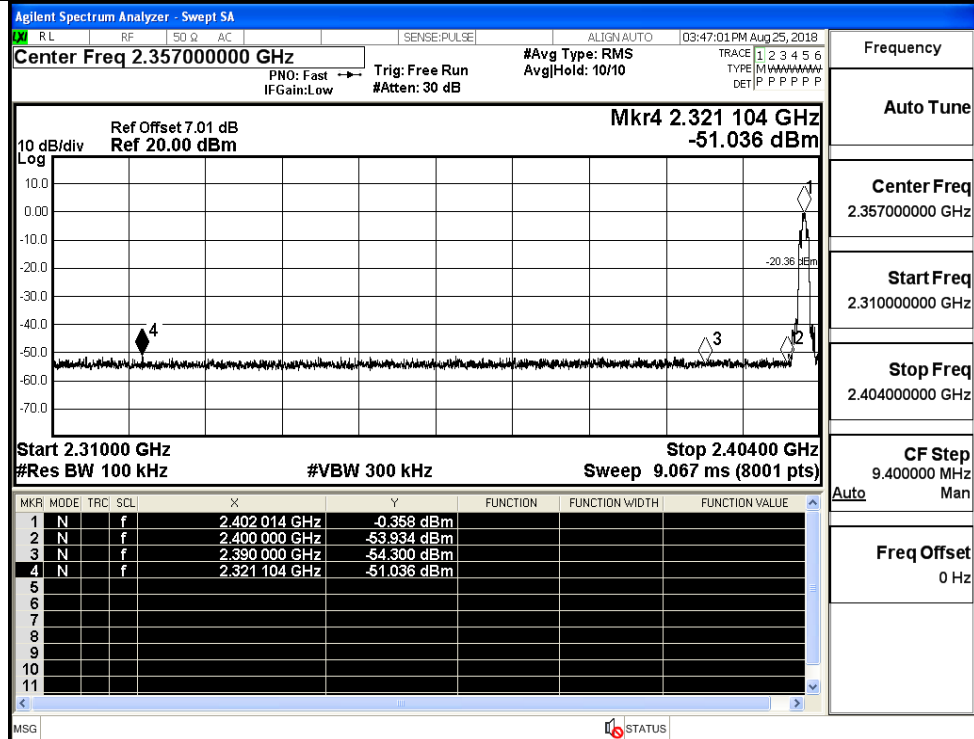
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

Start Freq
2.310000000 GHz

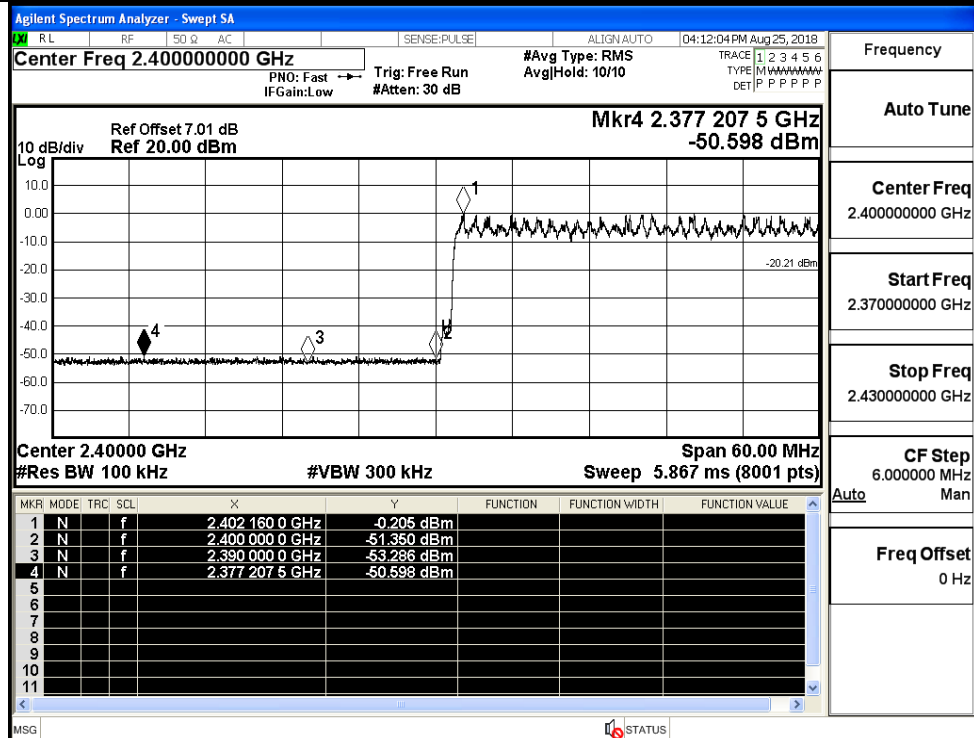
Stop Freq
2.404000000 GHz

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

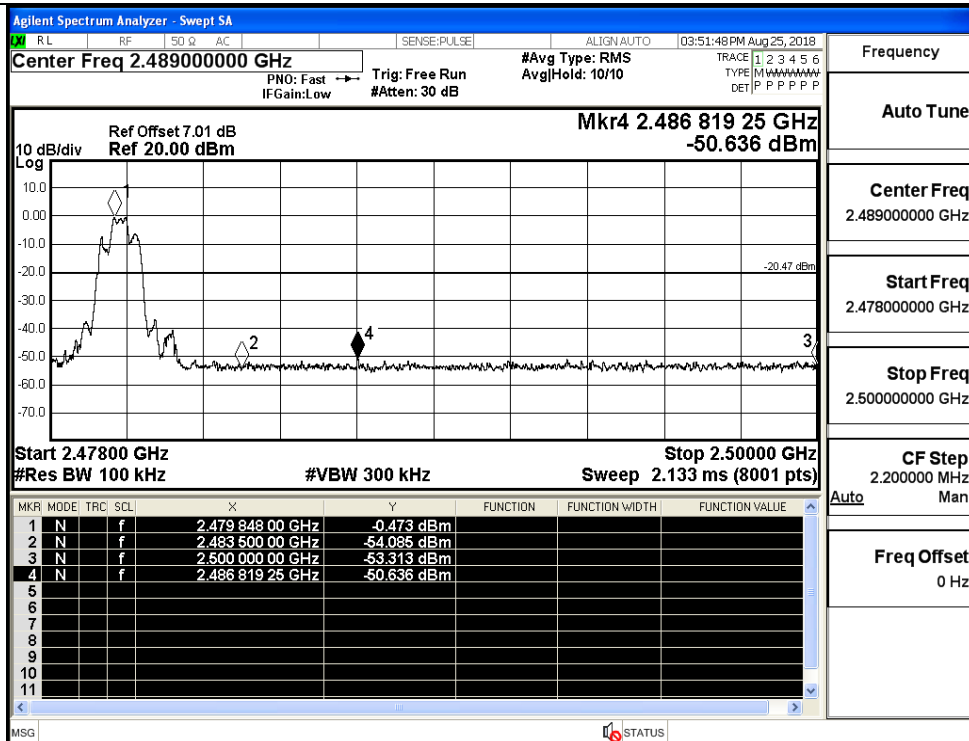
Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz

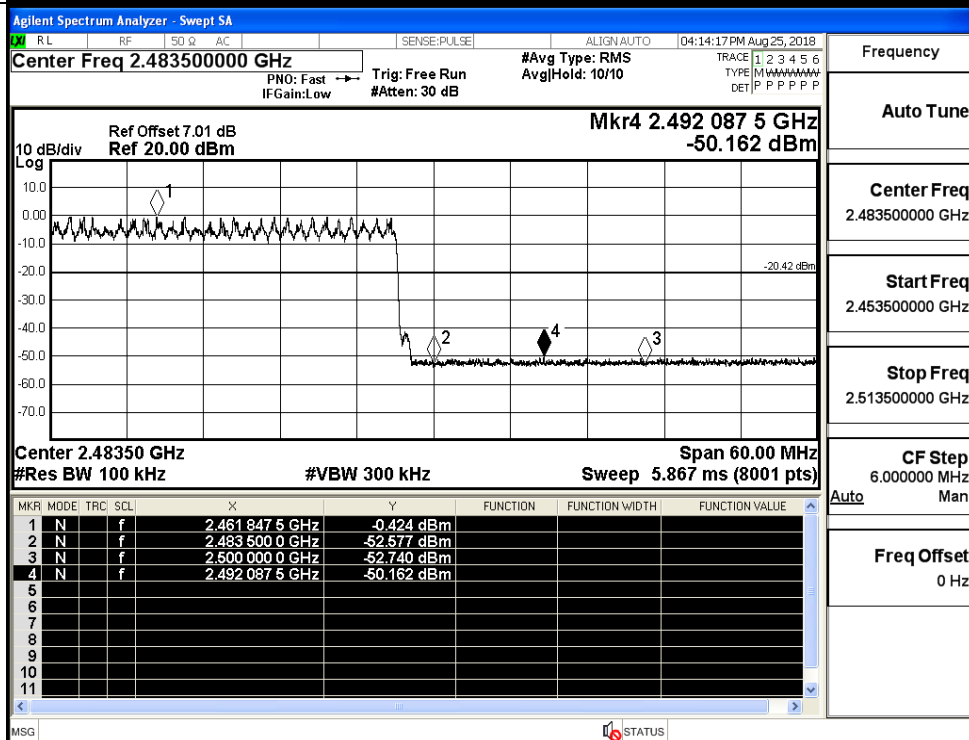
Auto Man

Freq Offset
0 Hz

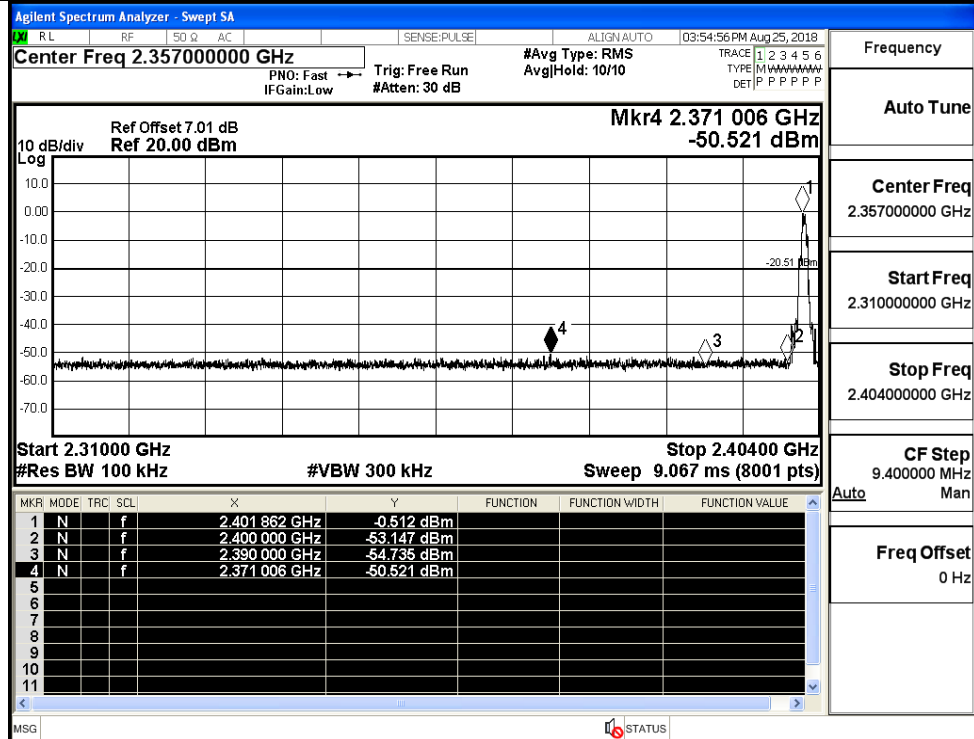
$\pi/4$ DQPSK/HCH/No
Hop



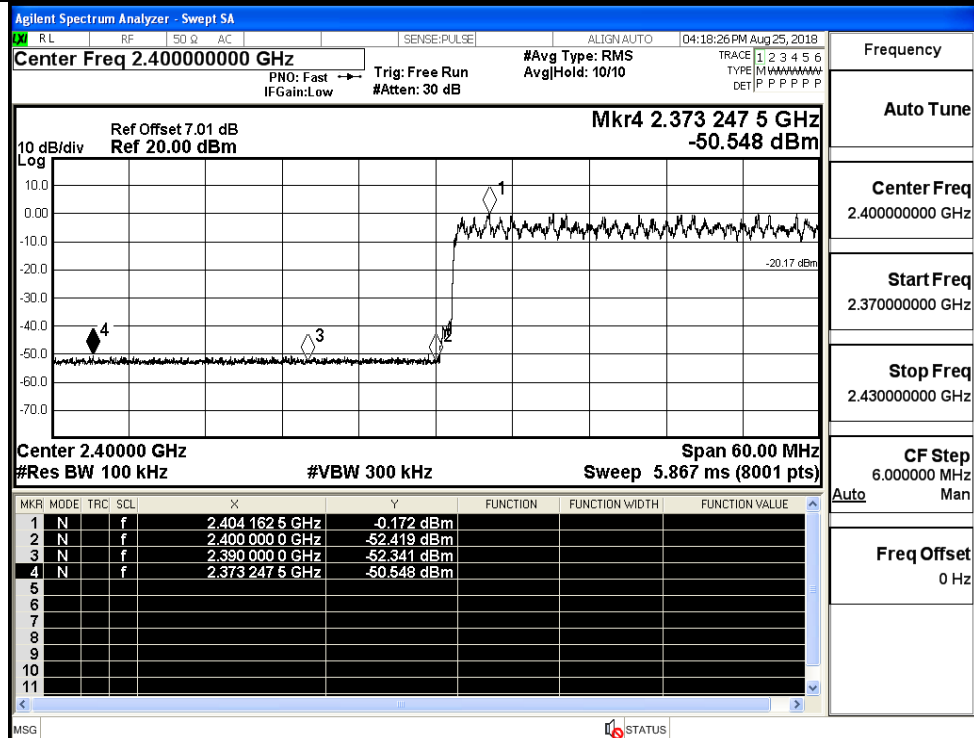
$\pi/4$ DQPSK/HCH/Hop



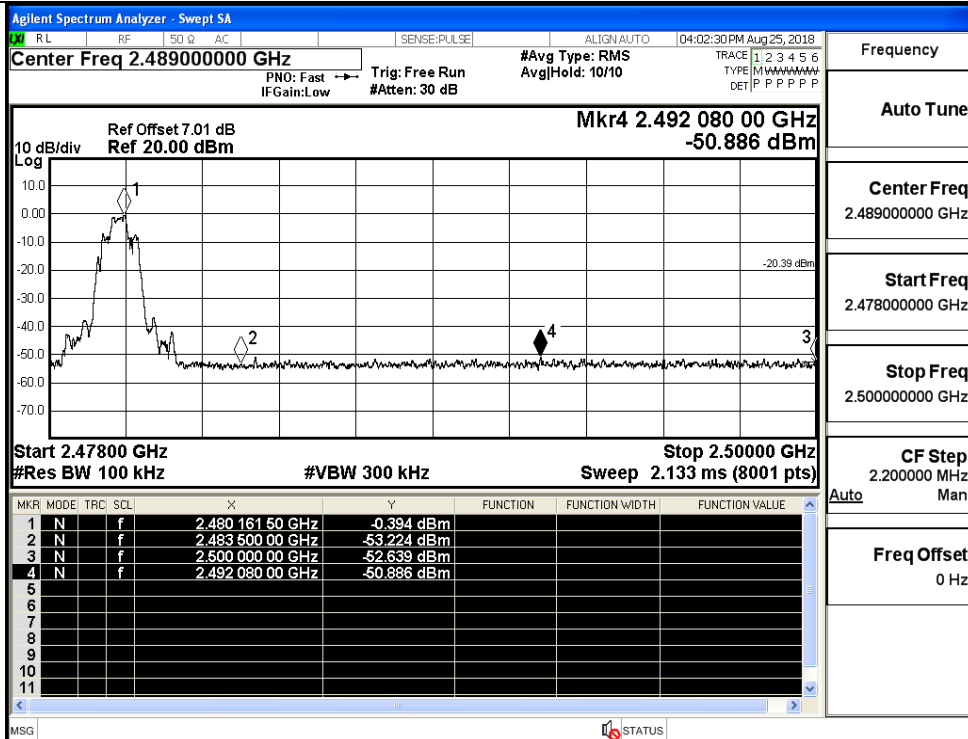
8DPSK/LCH/No Hop



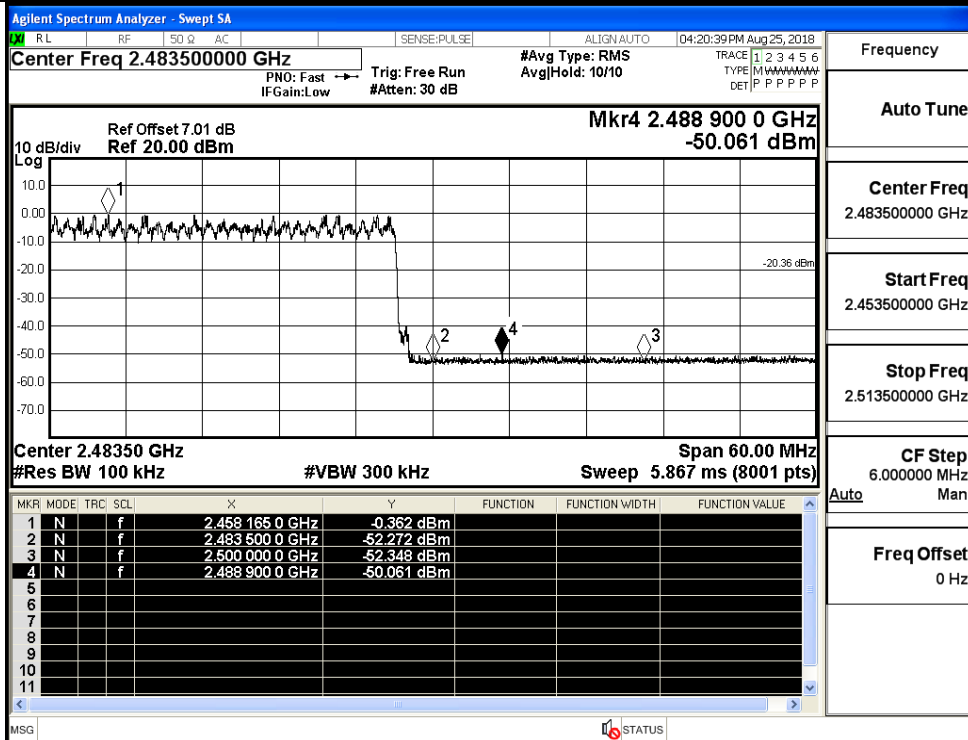
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



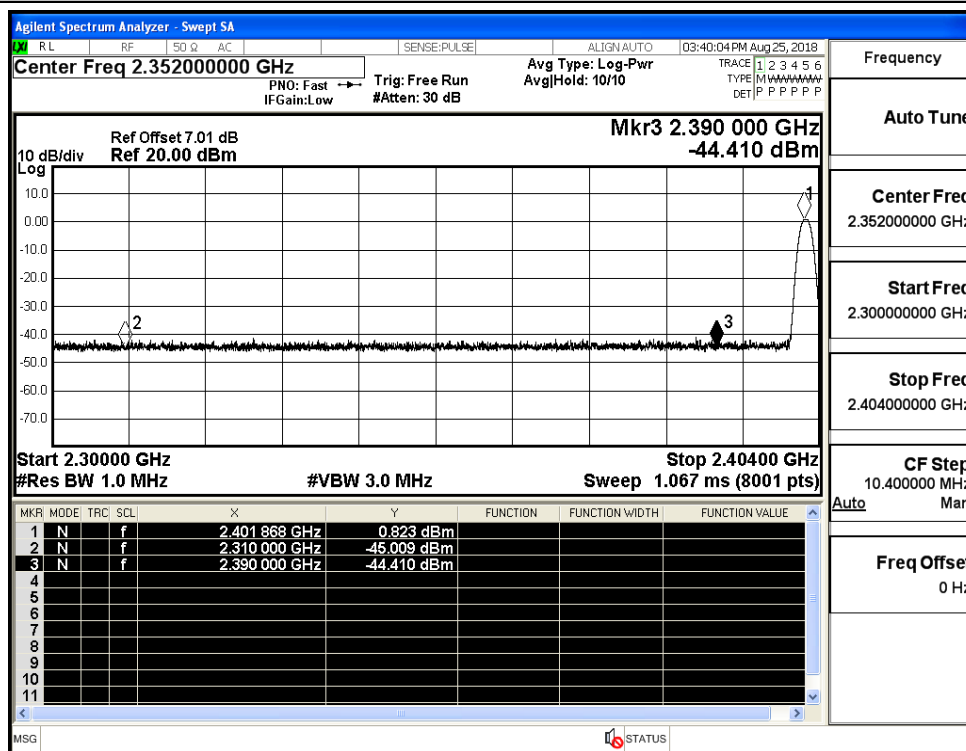
8DPSK/HCH/Hop



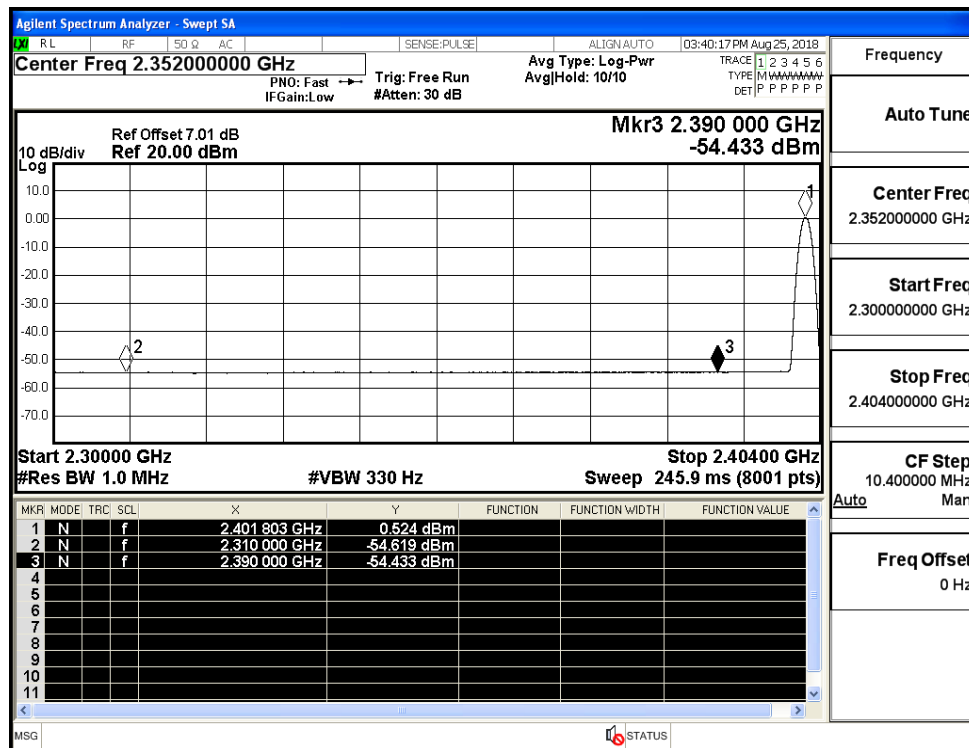
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-45.01	2.0	0	50.25	PEAK	74	PASS
	Off	2310.0	-54.62	2.0	0	40.64	AV	54	PASS
	Off	2390.0	-44.41	2.0	0	50.85	PEAK	74	PASS
	Off	2390.0	-54.43	2.0	0	40.82	AV	54	PASS
	Off	2483.5	-43.81	2.0	0	51.44	PEAK	74	PASS
	Off	2483.5	-54.19	2.0	0	41.07	AV	54	PASS
	Off	2500.0	-44.27	2.0	0	50.99	PEAK	74	PASS
	Off	2500.0	-54.00	2.0	0	41.26	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.93	2.0	0	51.32	PEAK	74	PASS
	Off	2310.0	-54.67	2.0	0	40.59	AV	54	PASS
	Off	2390.0	-43.89	2.0	0	51.37	PEAK	74	PASS
	Off	2390.0	-54.47	2.0	0	40.79	AV	54	PASS
	Off	2483.5	-44.65	2.0	0	50.60	PEAK	74	PASS
	Off	2483.5	-54.12	2.0	0	41.13	AV	54	PASS
	Off	2500.0	-42.51	2.0	0	52.75	PEAK	74	PASS
	Off	2500.0	-54.03	2.0	0	41.22	AV	54	PASS
8DPSK	Off	2310.0	-44.25	2.0	0	51.01	PEAK	74	PASS
	Off	2310.0	-54.68	2.0	0	40.58	AV	54	PASS
	Off	2390.0	-43.68	2.0	0	51.58	PEAK	74	PASS
	Off	2390.0	-54.49	2.0	0	40.77	AV	54	PASS
	Off	2483.5	-42.75	2.0	0	52.51	PEAK	74	PASS
	Off	2483.5	-54.22	2.0	0	41.04	AV	54	PASS
	Off	2500.0	-44.57	2.0	0	50.69	PEAK	74	PASS
	Off	2500.0	-54.05	2.0	0	41.21	AV	54	PASS

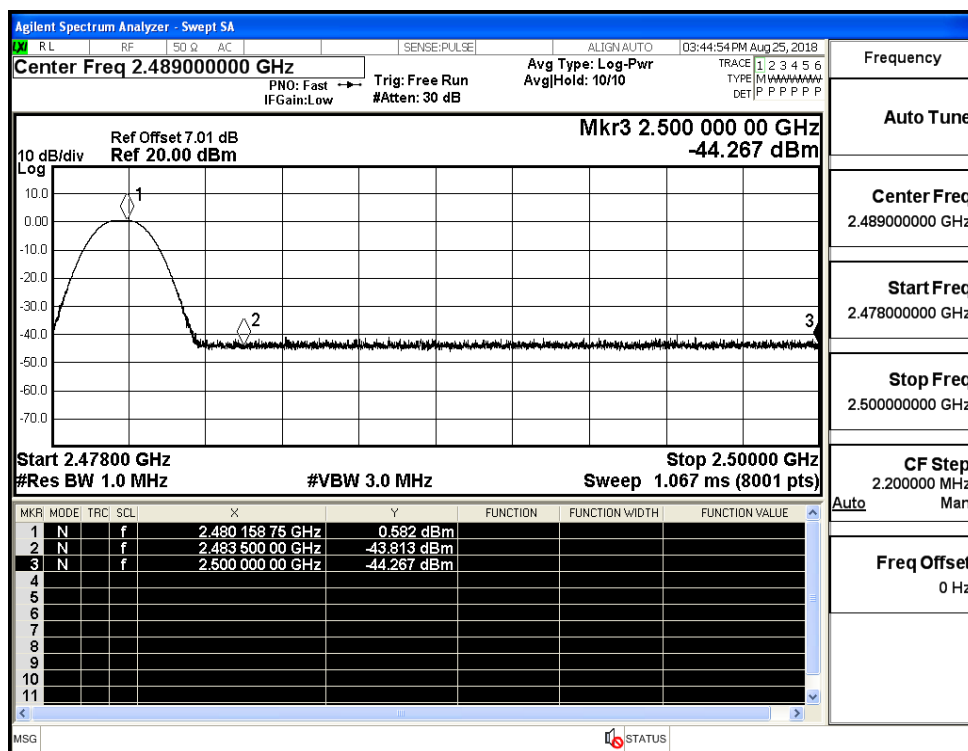
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



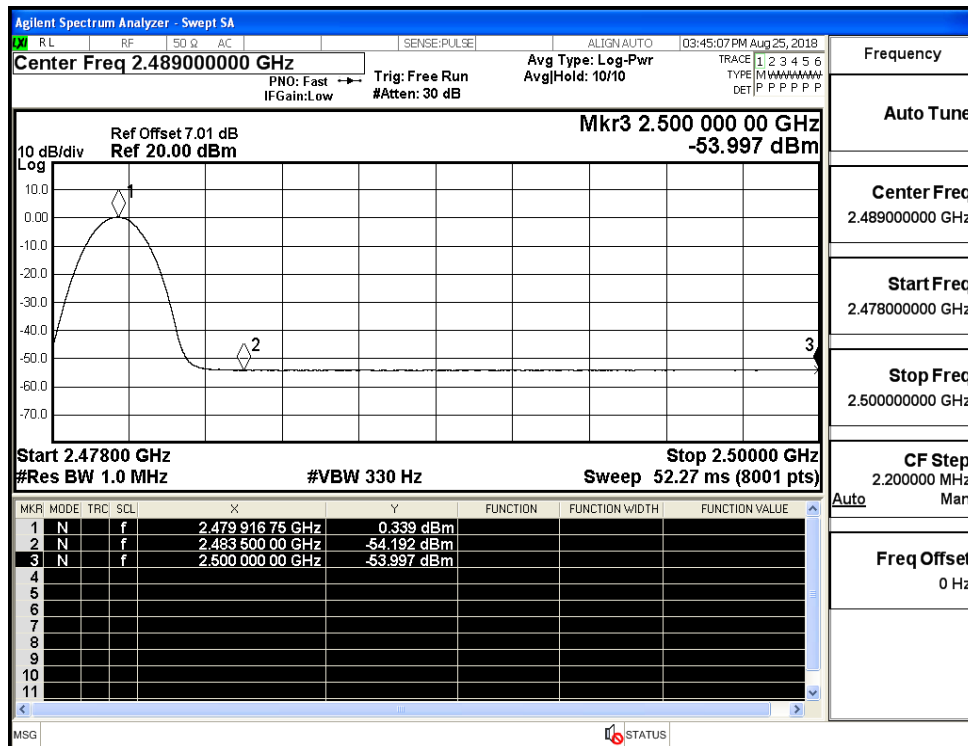
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

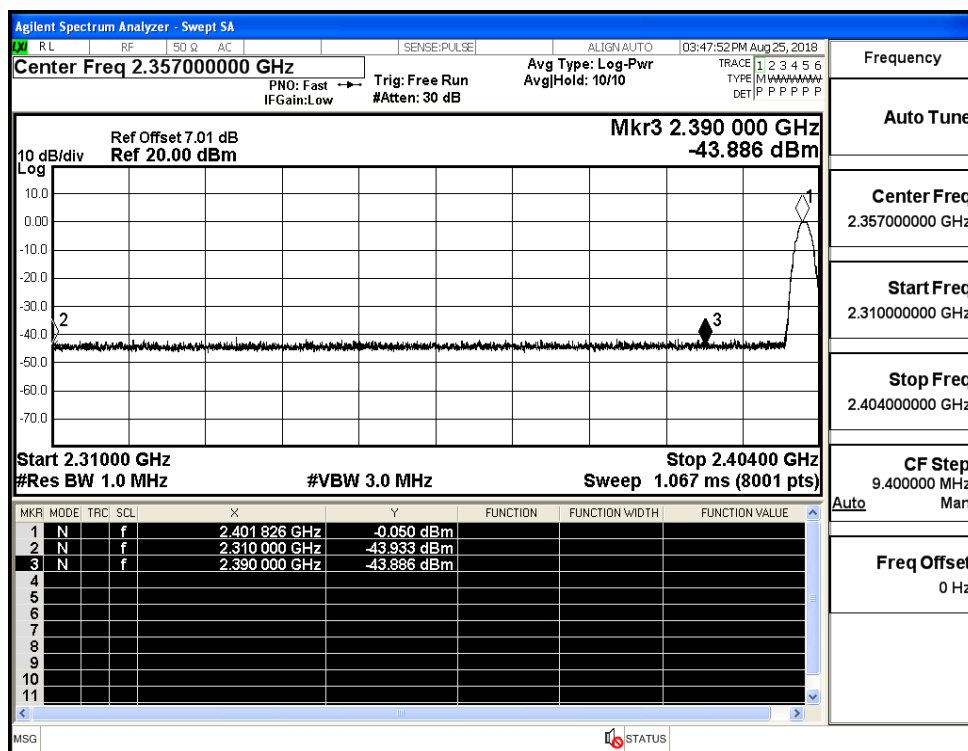
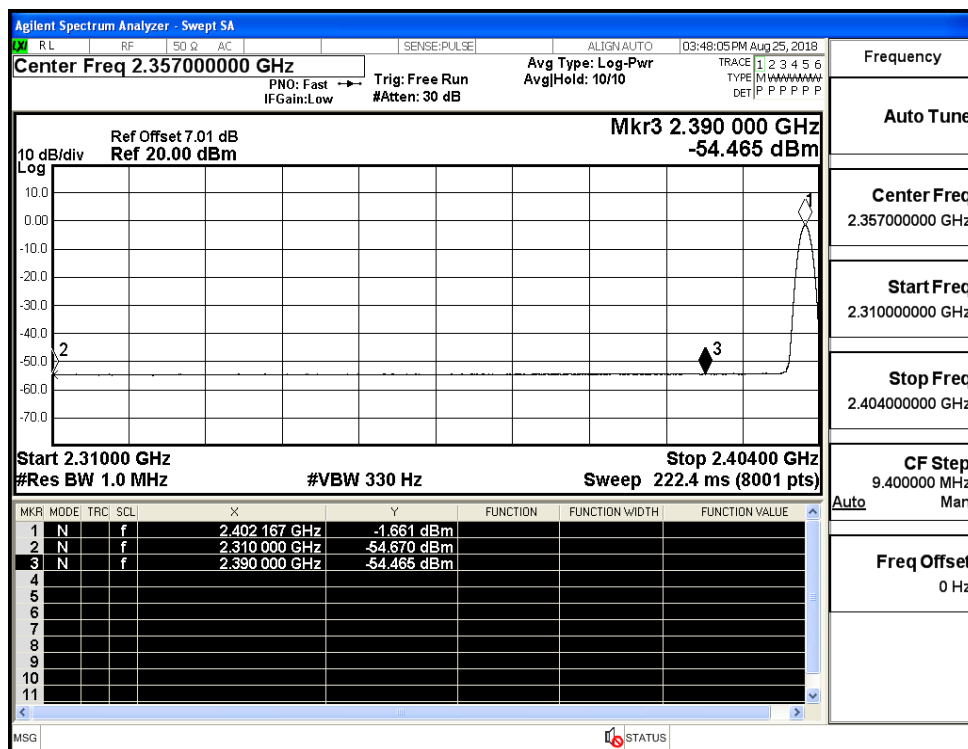


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

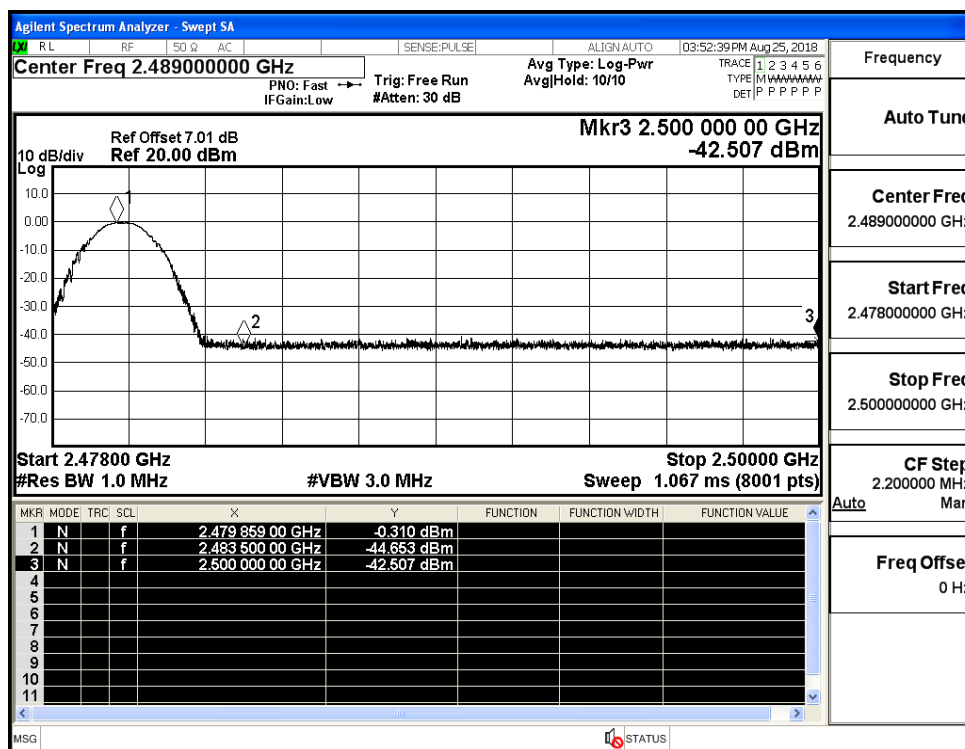


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

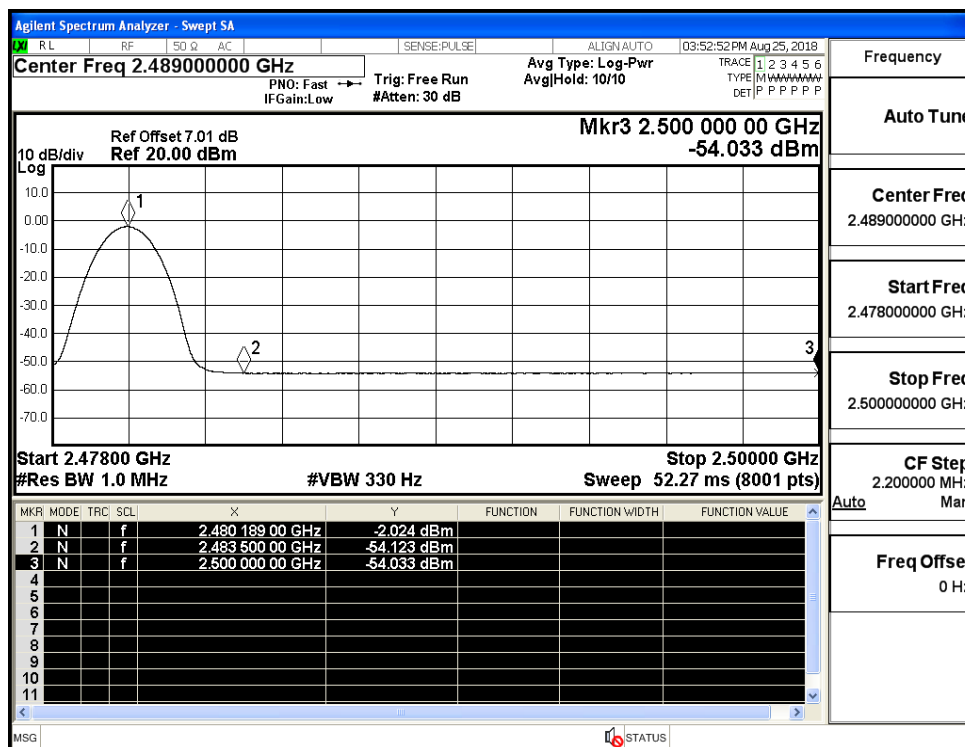


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

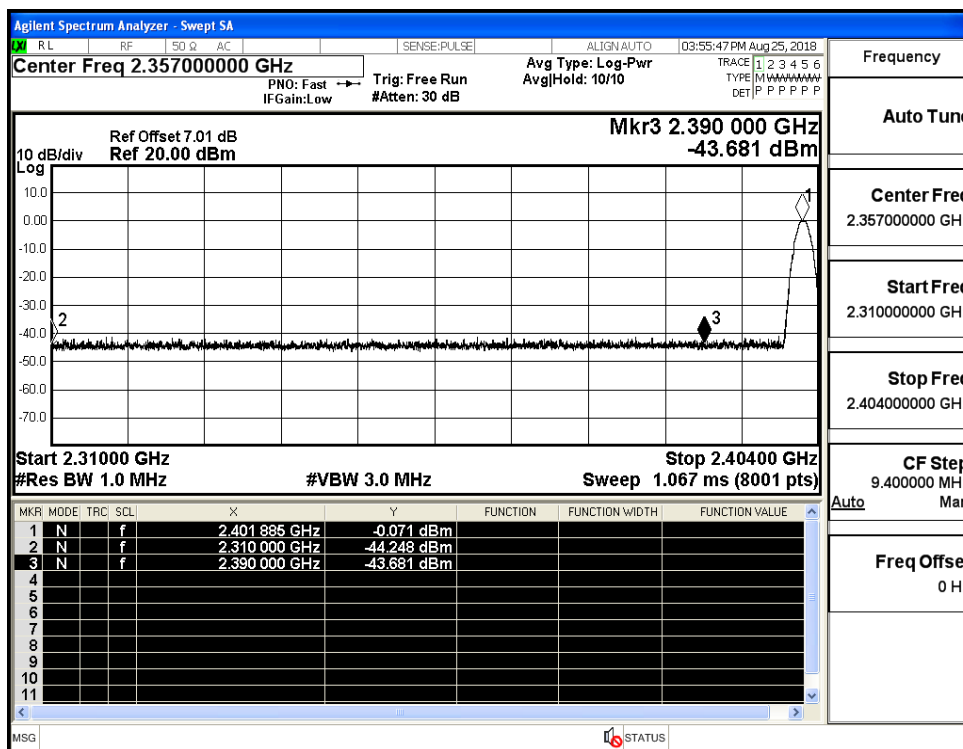
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



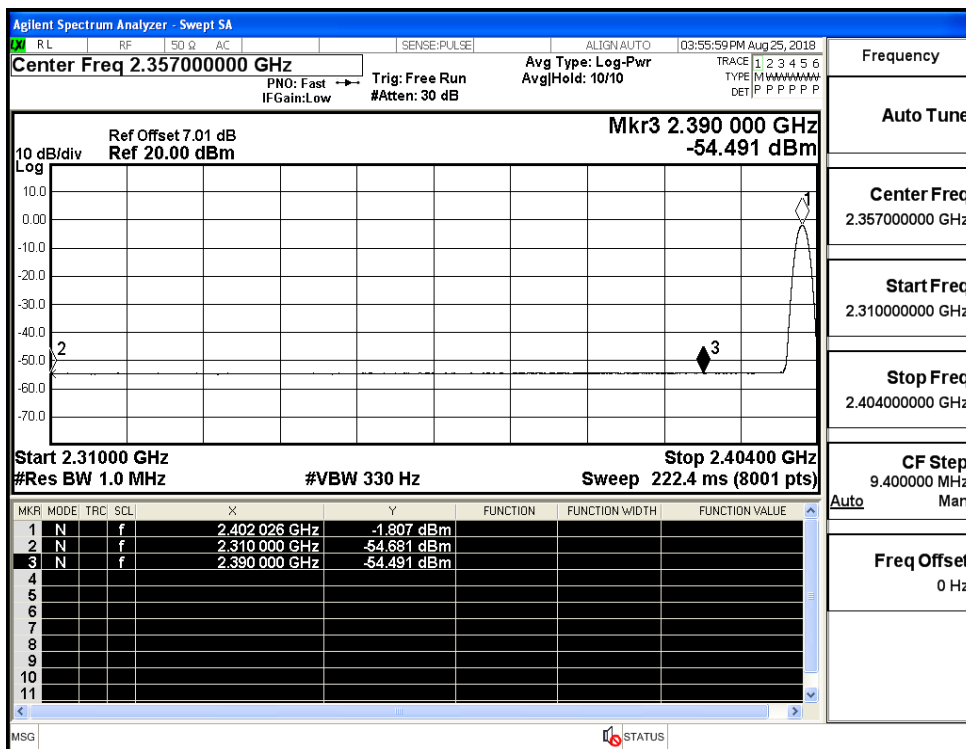
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



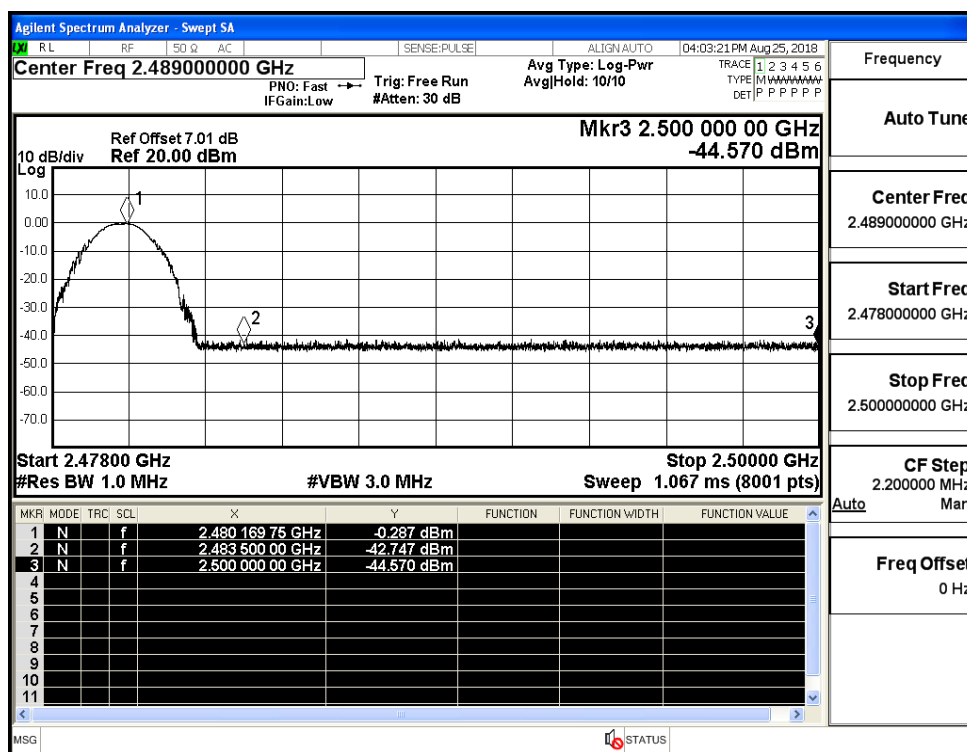
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

