

Appendix A

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

Product Name: Bluetooth Speaker

Trade Mark: GSOU

Test Model: U3

Environmental Conditions

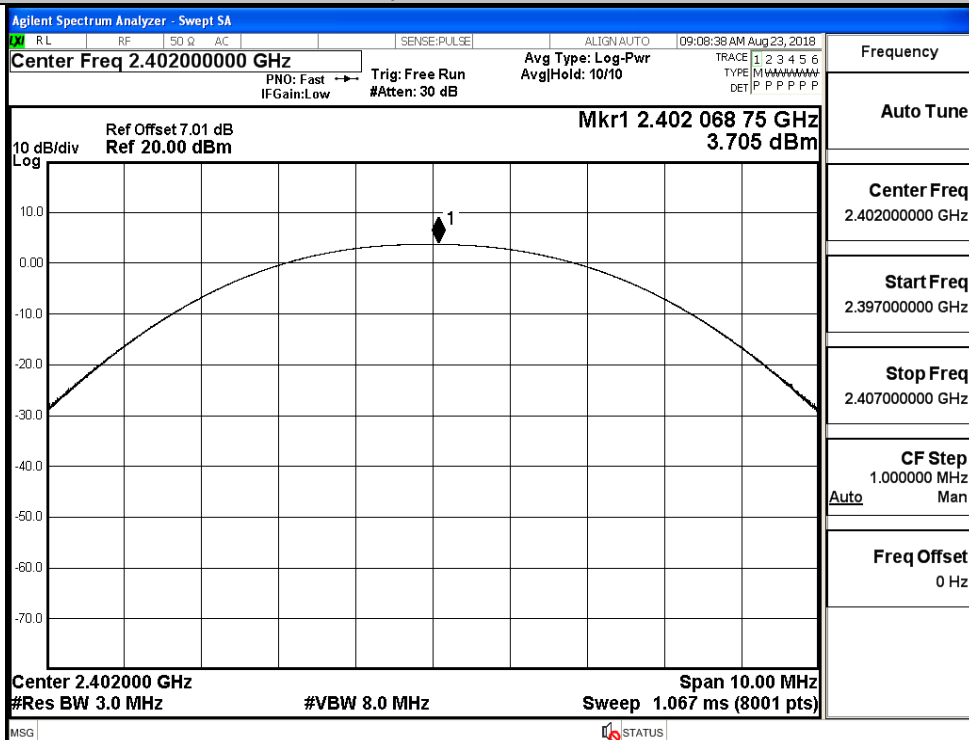
Temperature:	22.6 ° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

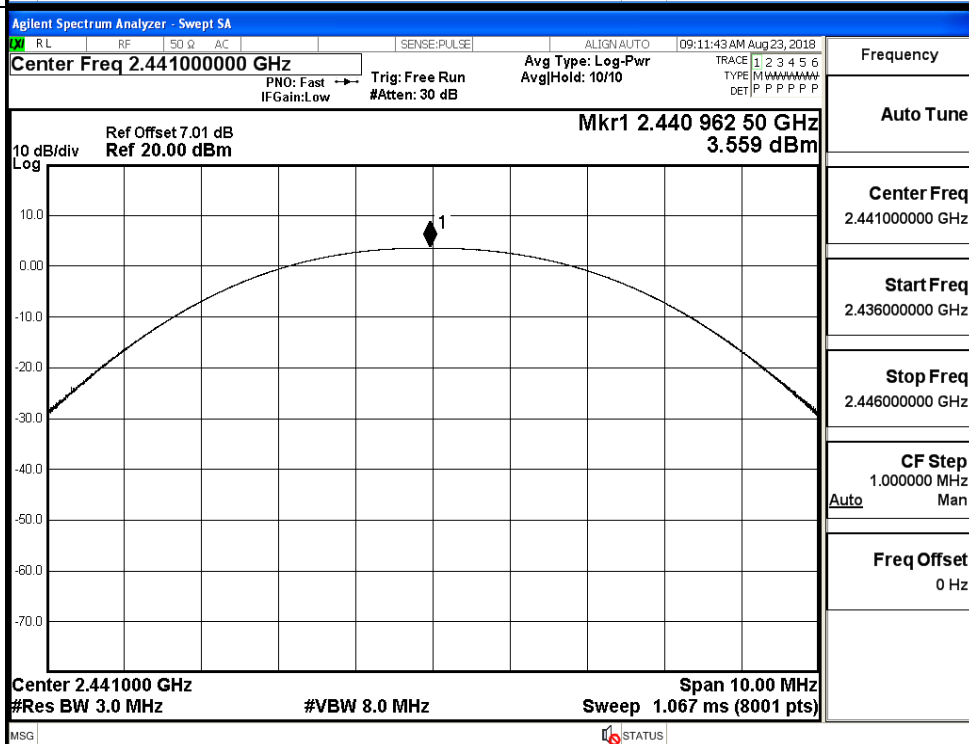
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.705	21	PASS
	MCH	3.559	21	PASS
	HCH	3.347	21	PASS
$\pi/4$ DQPSK	LCH	3.399	21	PASS
	MCH	3.305	21	PASS
	HCH	3.129	21	PASS
8DPSK	LCH	3.542	21	PASS
	MCH	3.480	21	PASS
	HCH	3.306	21	PASS

Test Graphs

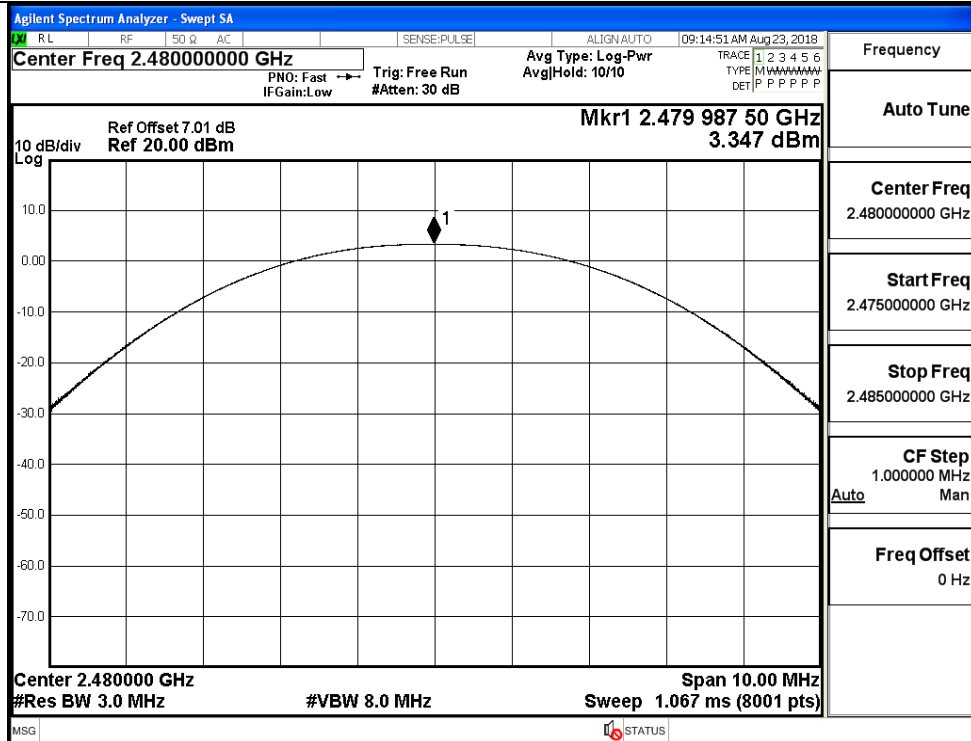
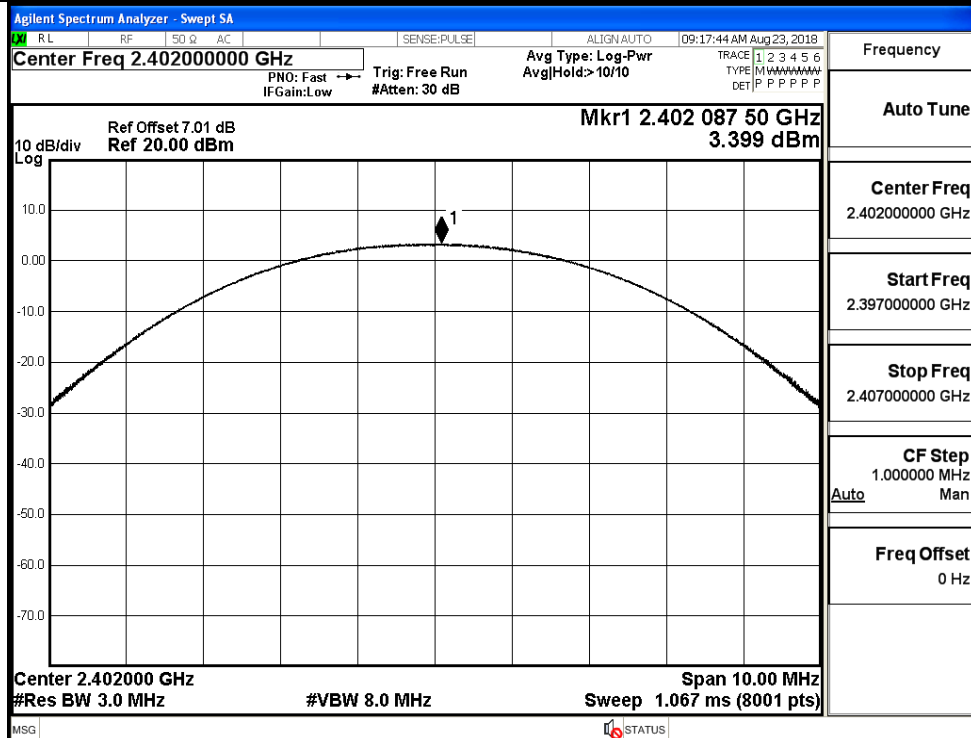
GFSK/LCH

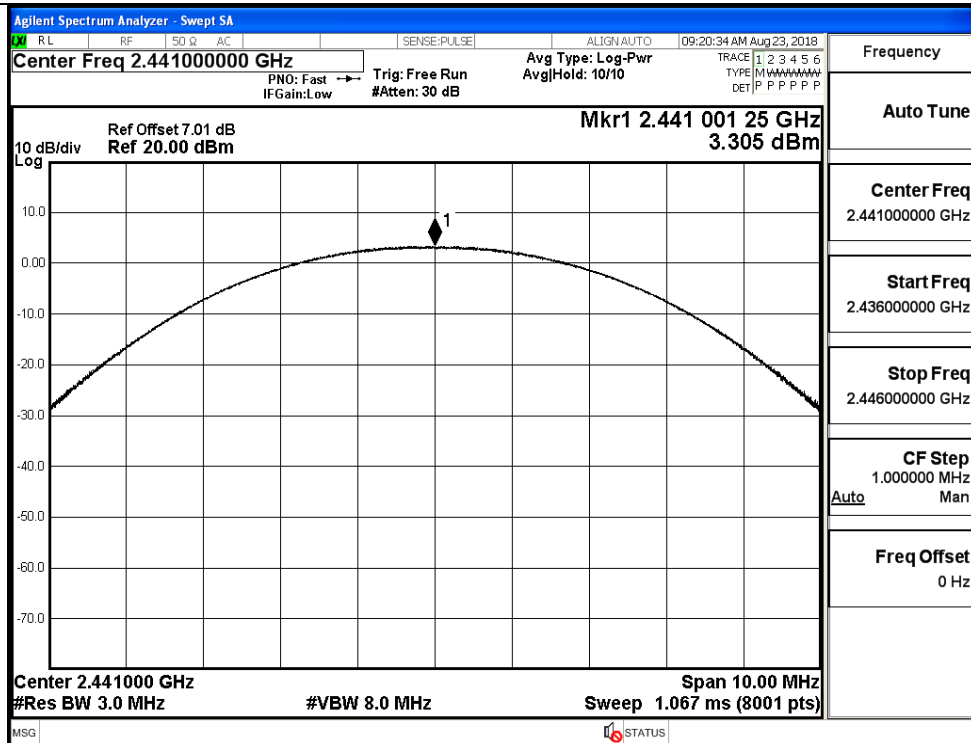
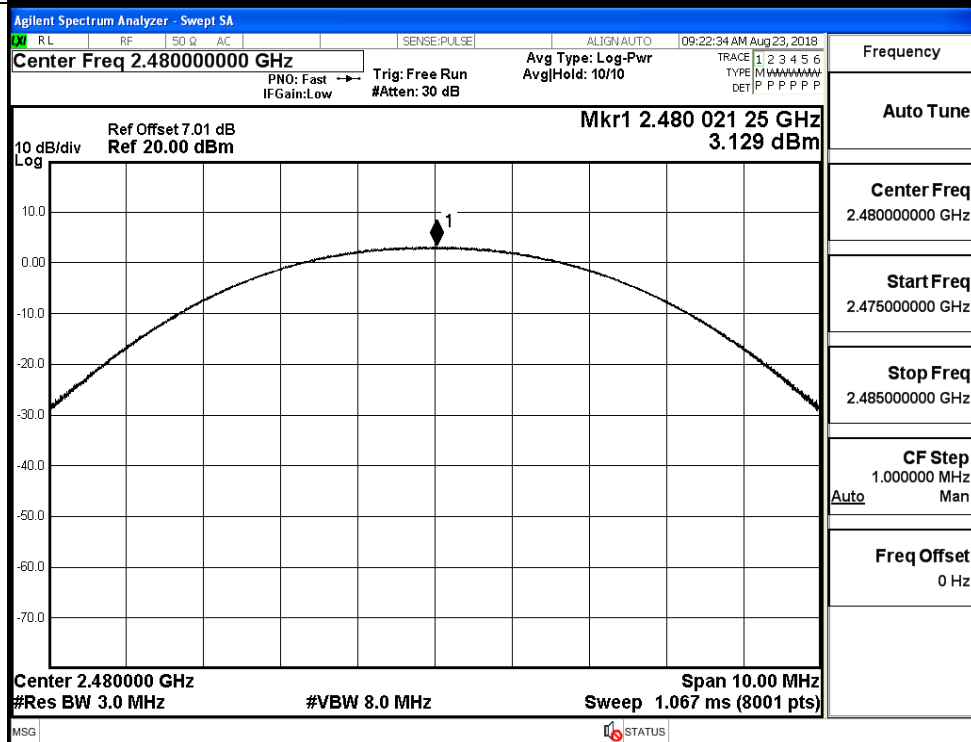


GFSK/MCH

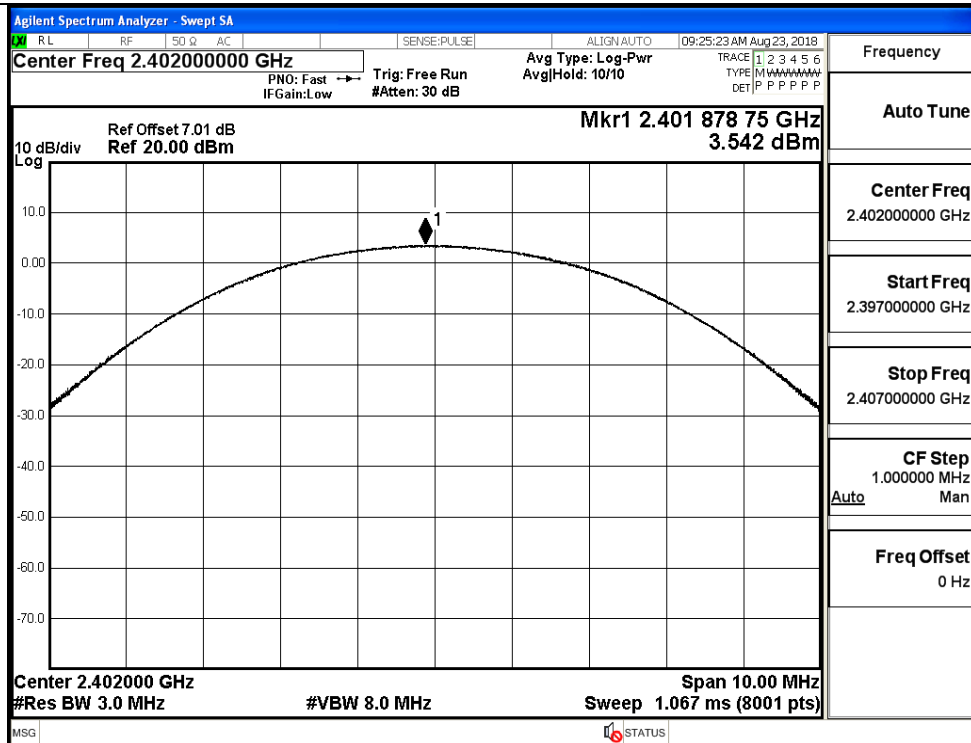


GFSK/HCH

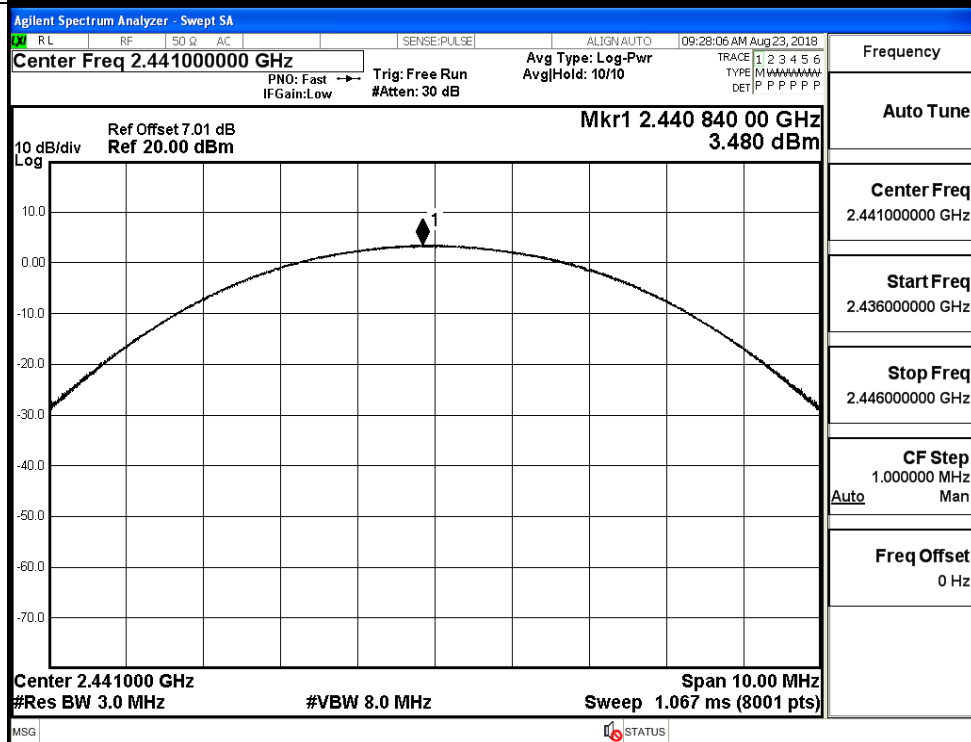
 π /4DQPSK/LCH

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

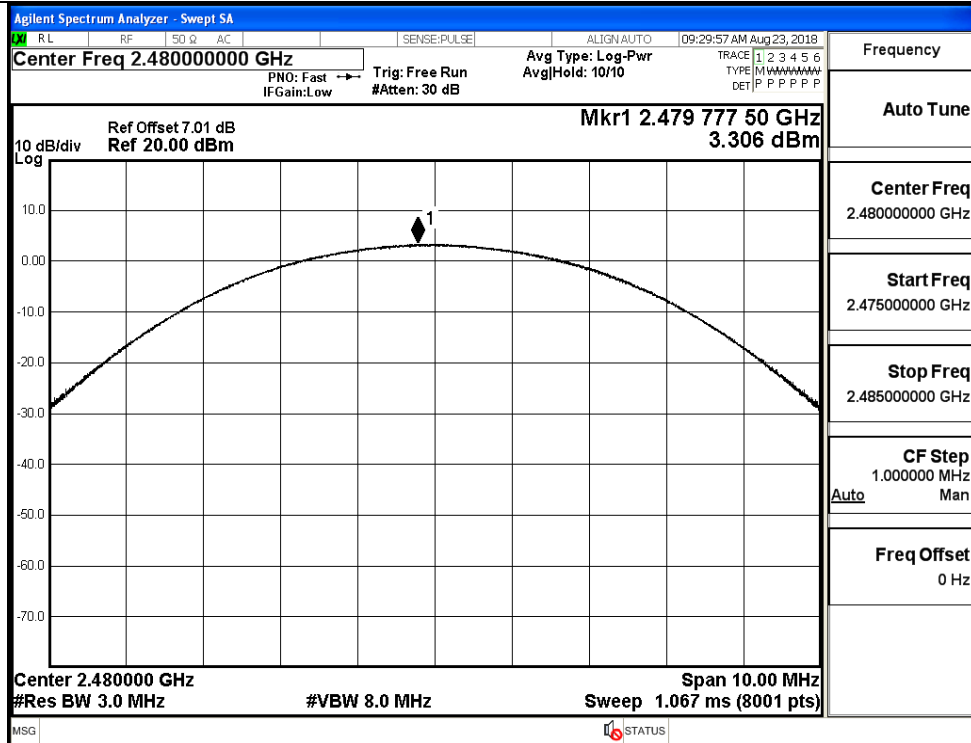
8DPSK/LCH



8DPSK/MCH



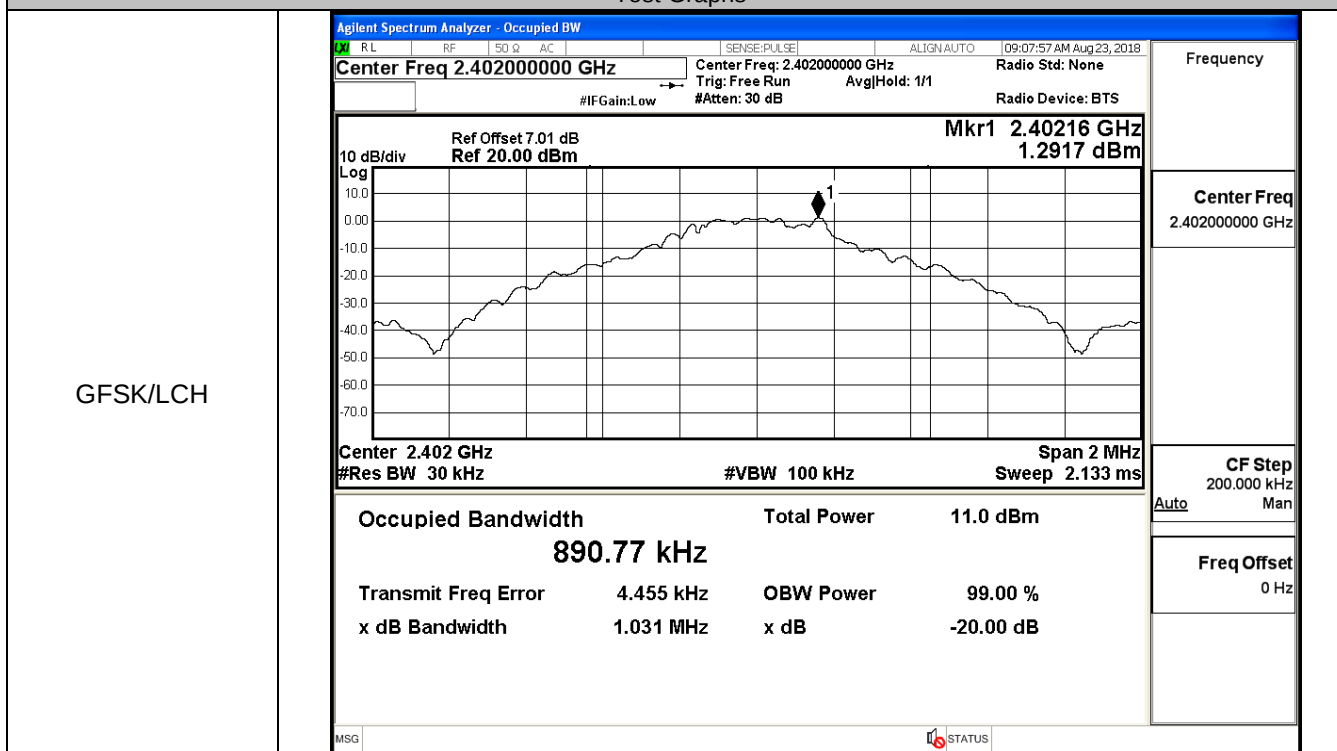
8DPSK/HCH



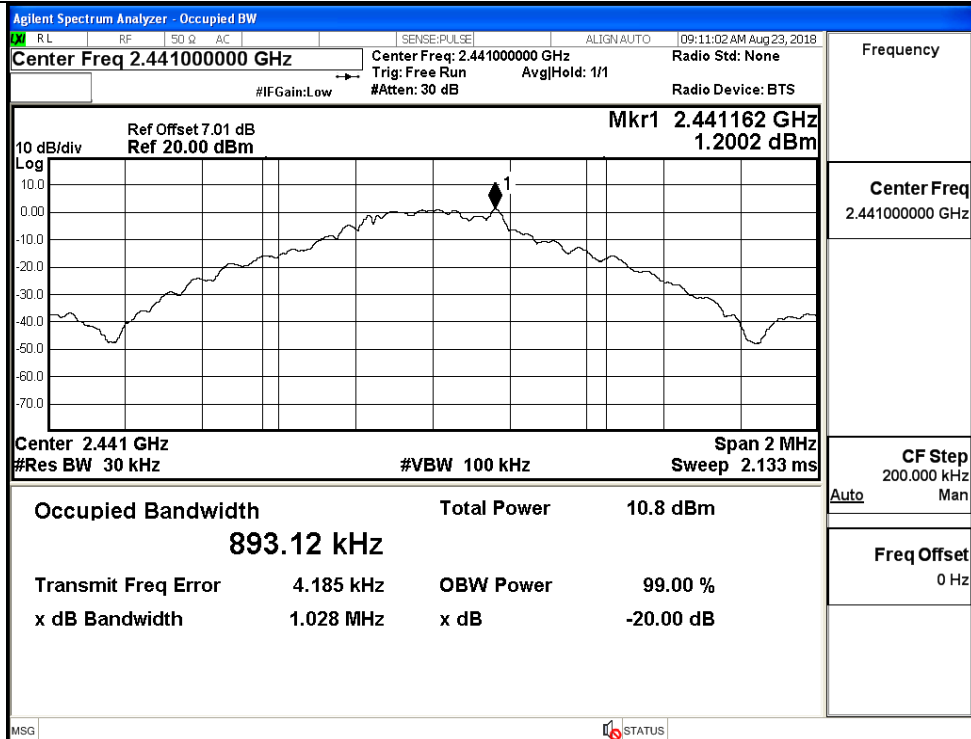
A.2 99% and 20dB Bandwidth

Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89077	1.031	Not Specified	PASS
	MCH	0.89312	1.028	Not Specified	PASS
	HCH	0.89238	1.037	Not Specified	PASS
π /4DQPSK	LCH	1.1680	1.287	Not Specified	PASS
	MCH	1.1663	1.286	Not Specified	PASS
	HCH	1.1677	1.286	Not Specified	PASS
8DPSK	LCH	1.1752	1.291	Not Specified	PASS
	MCH	1.1710	1.285	Not Specified	PASS
	HCH	1.1710	1.284	Not Specified	PASS

Test Graphs



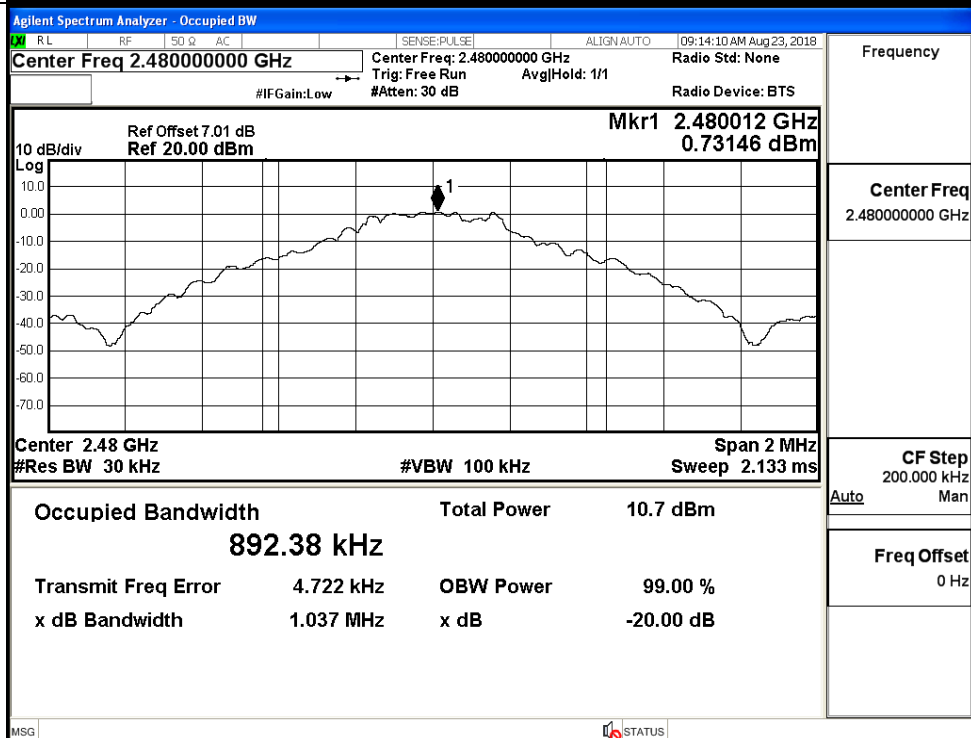
GFSK/MCH



Frequency

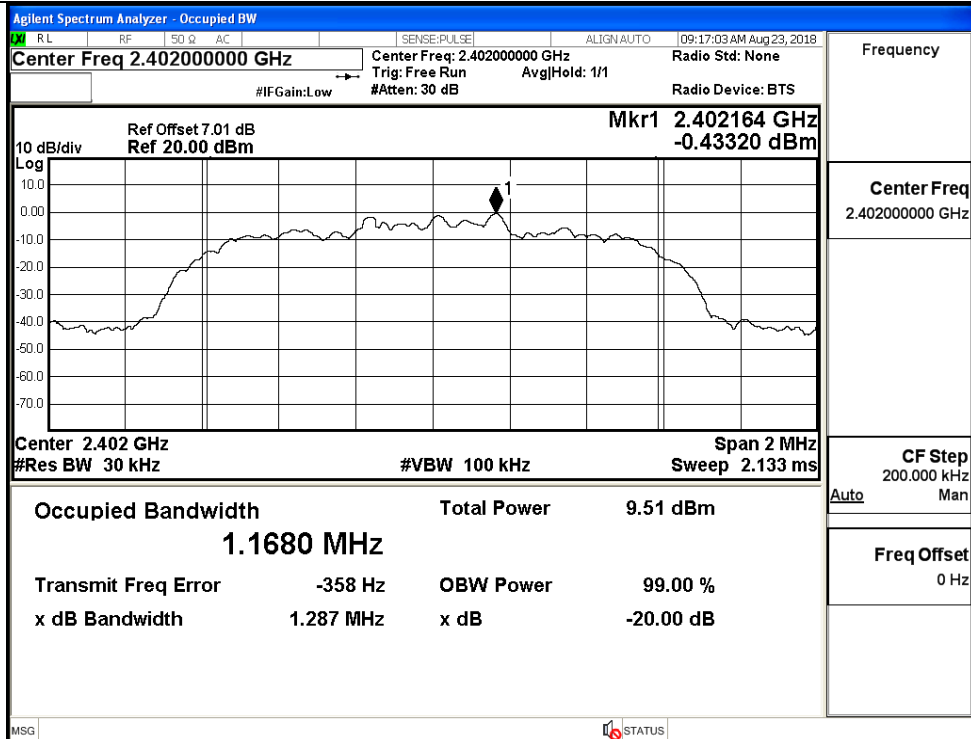
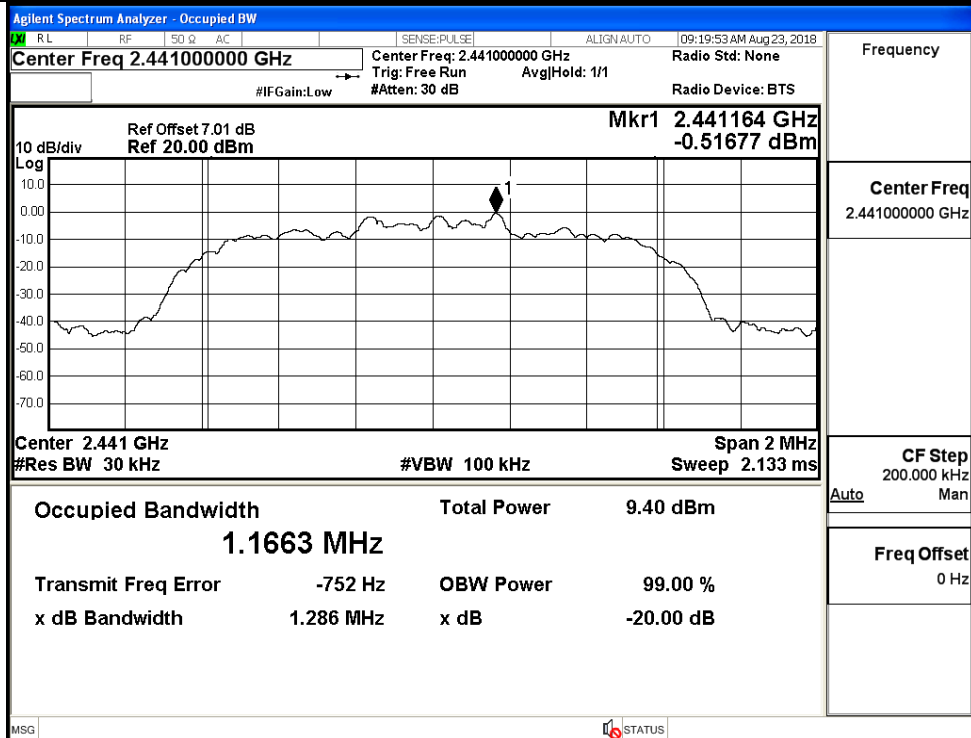
Center Freq
2.441000000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

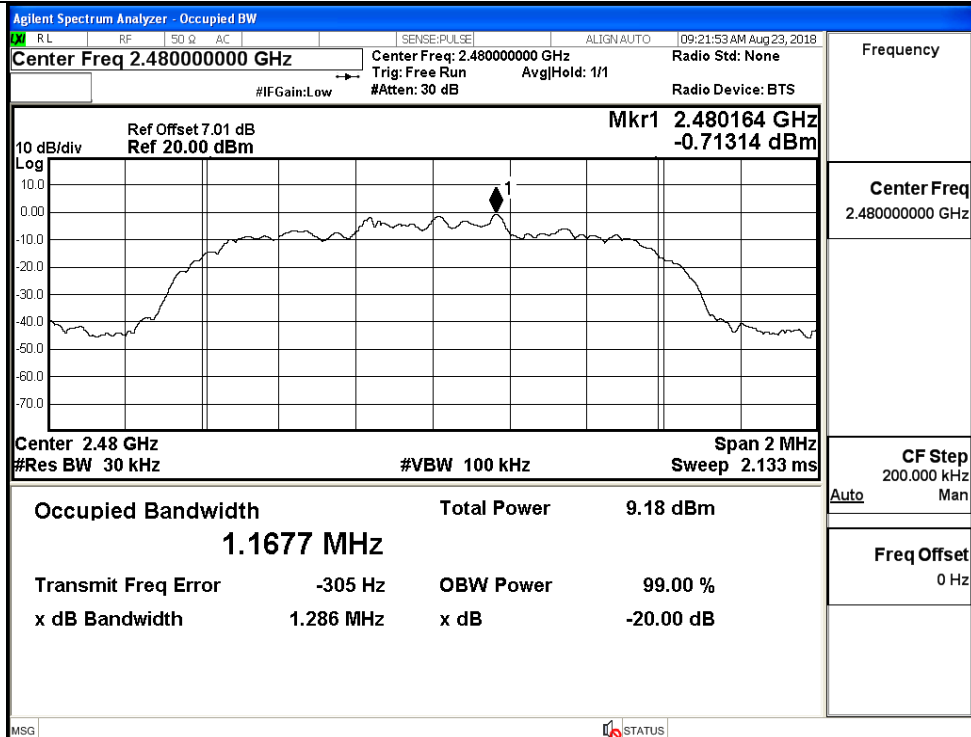
GFSK/HCH



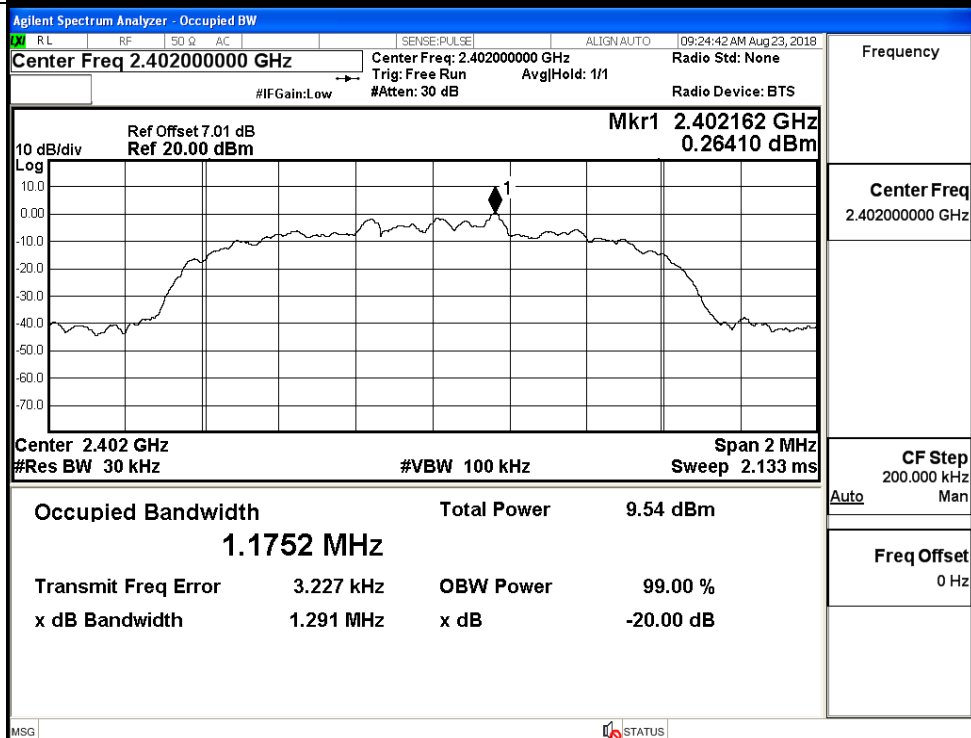
Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

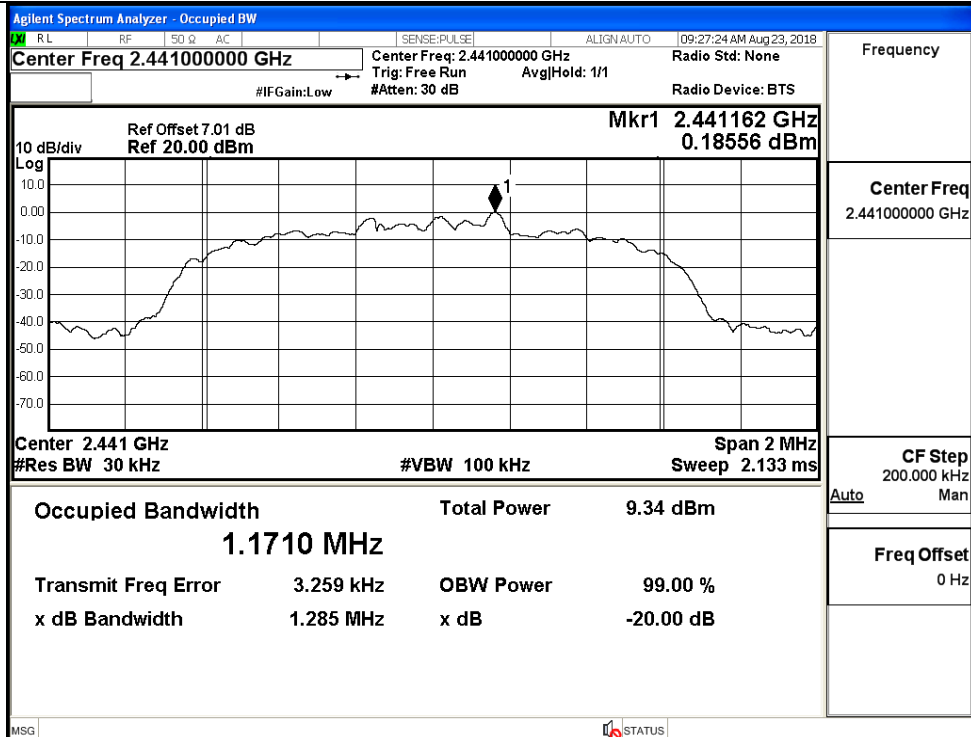
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

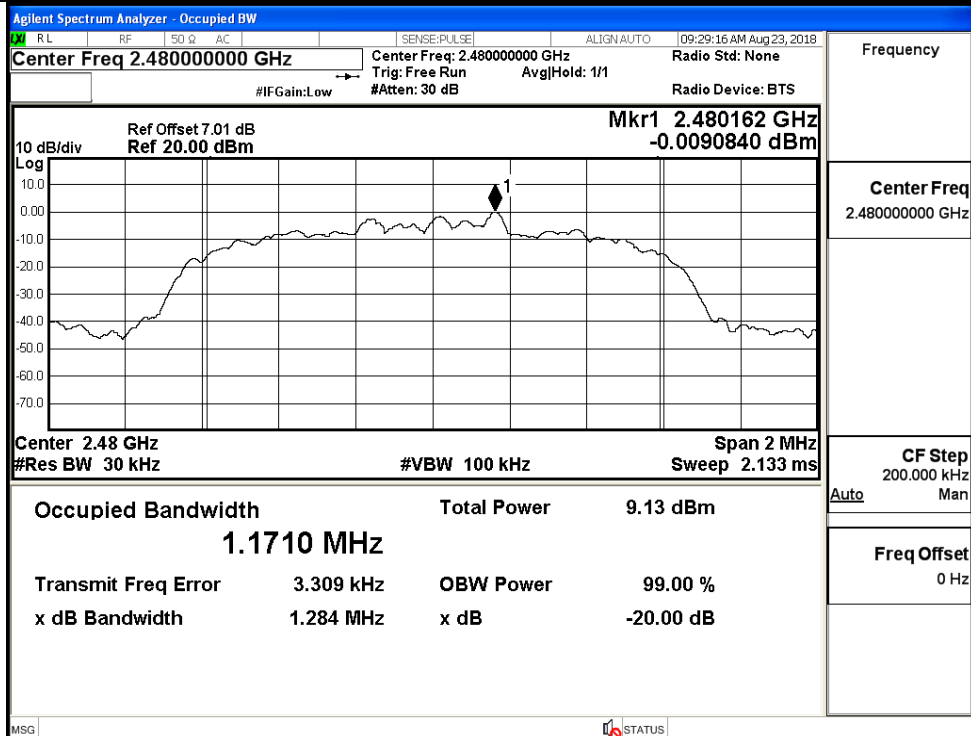
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

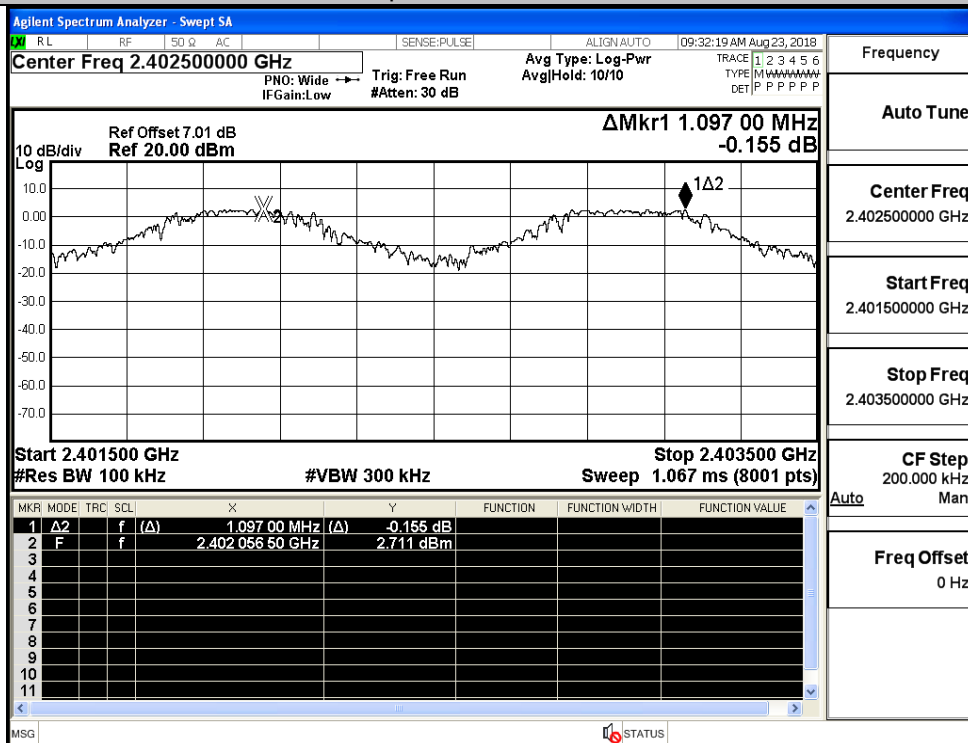


A.3 Carrier Frequency Separation

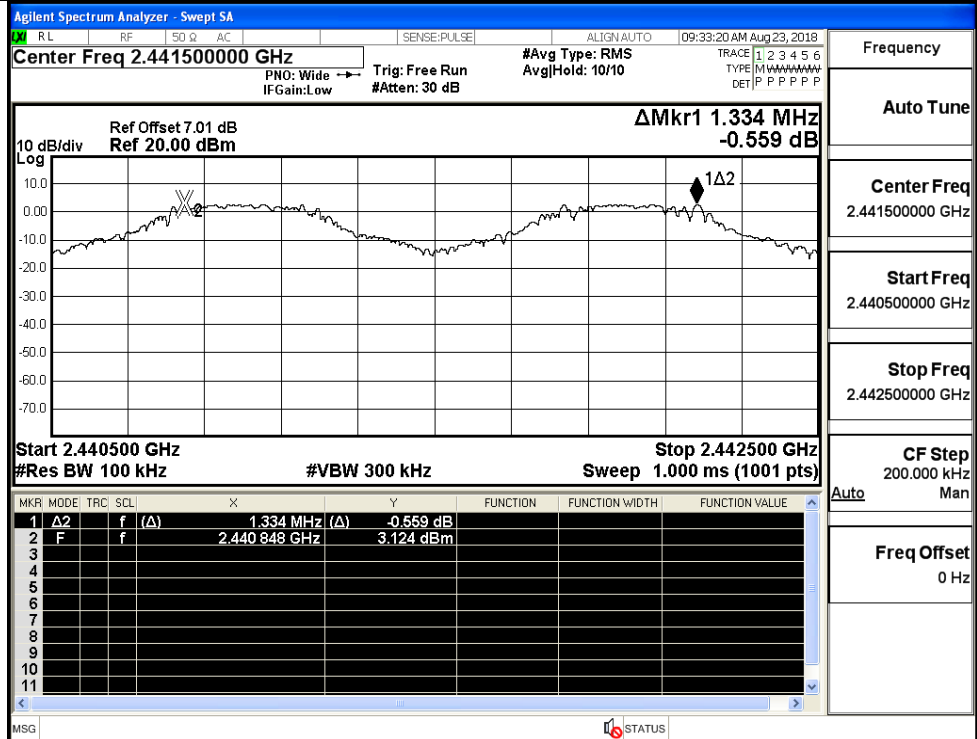
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.097	0.691	PASS
	MCH	1.334	0.691	PASS
	HCH	0.974	0.691	PASS
$\pi/4$ DQPSK	LCH	1.178	0.858	PASS
	MCH	0.934	0.858	PASS
	HCH	1.152	0.858	PASS
8DPSK	LCH	0.966	0.861	PASS
	MCH	1.100	0.861	PASS
	HCH	0.904	0.861	PASS

Test Graphs

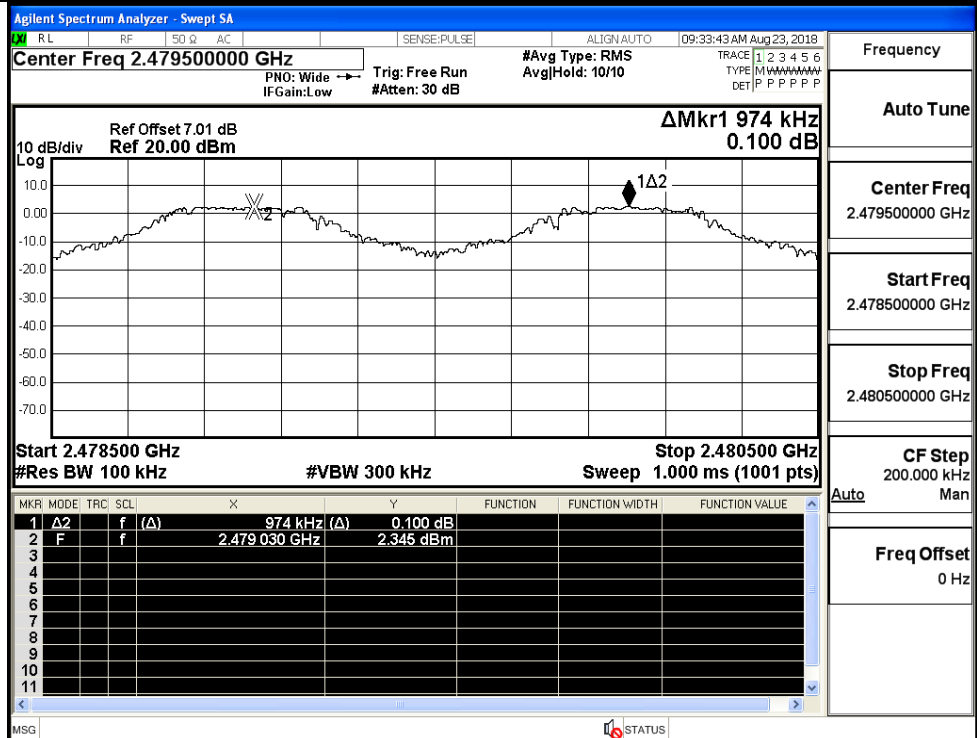
GFSK/LCH

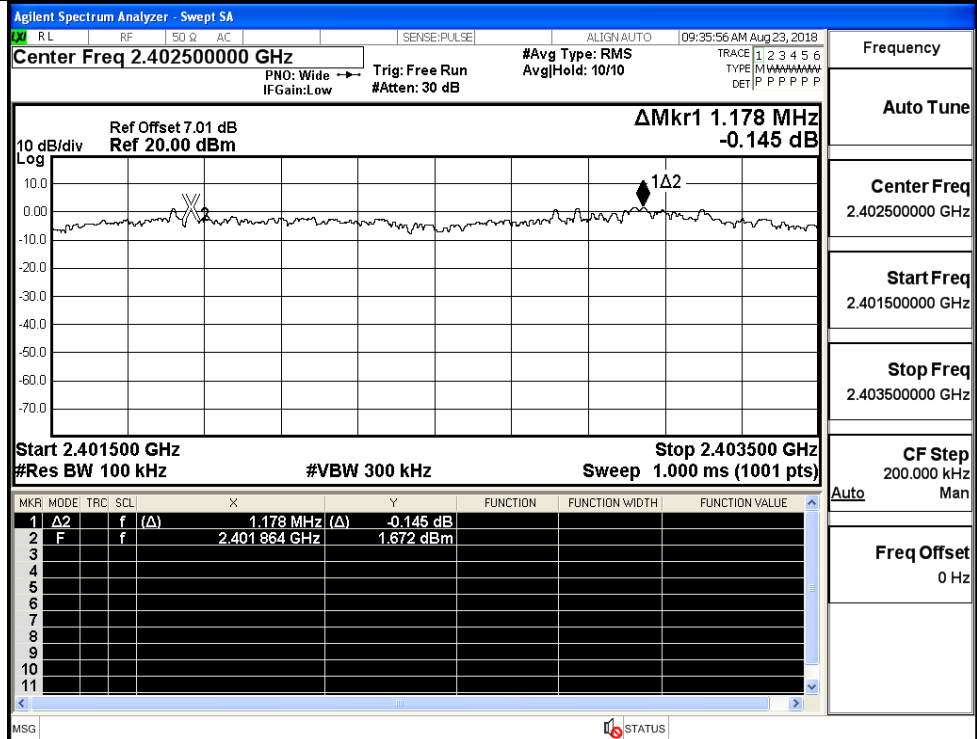
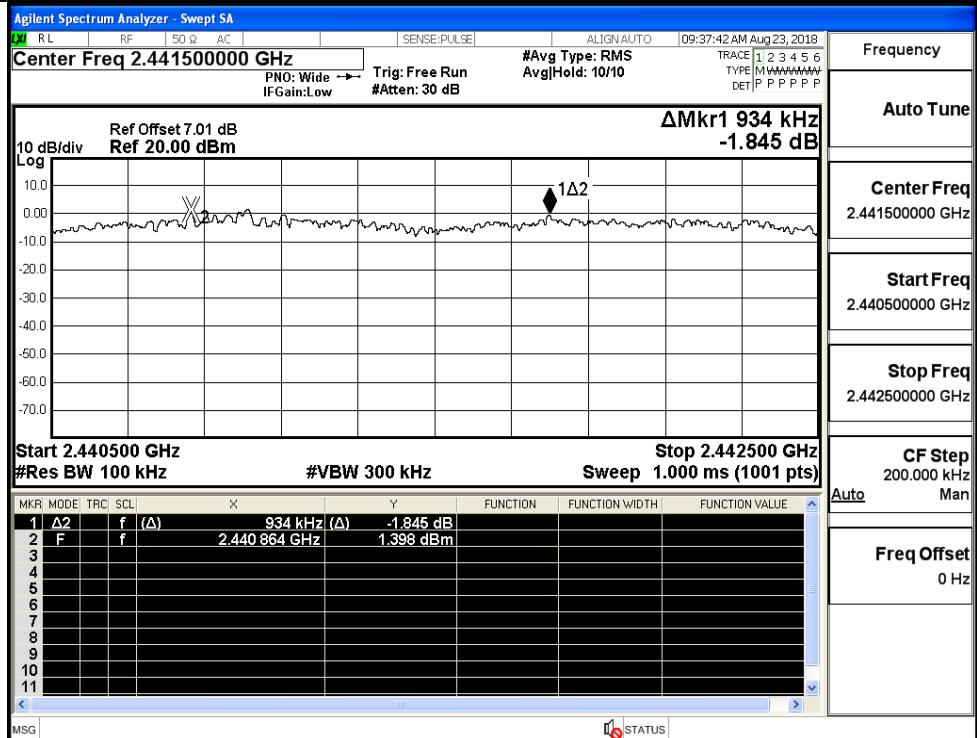


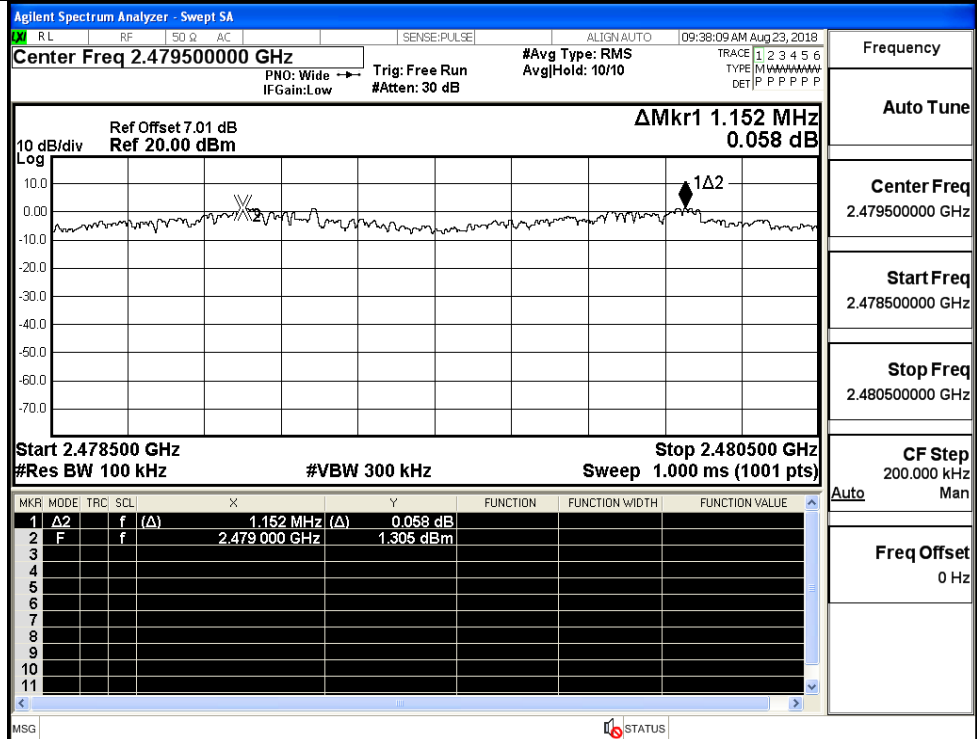
GFSK/MCH



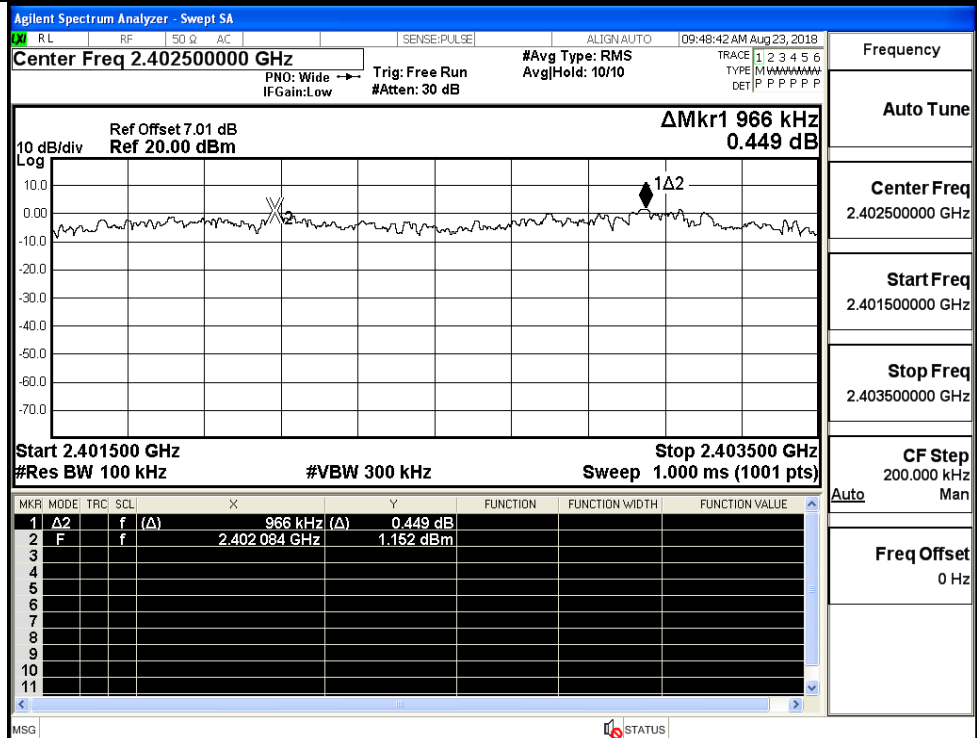
GFSK/HCH



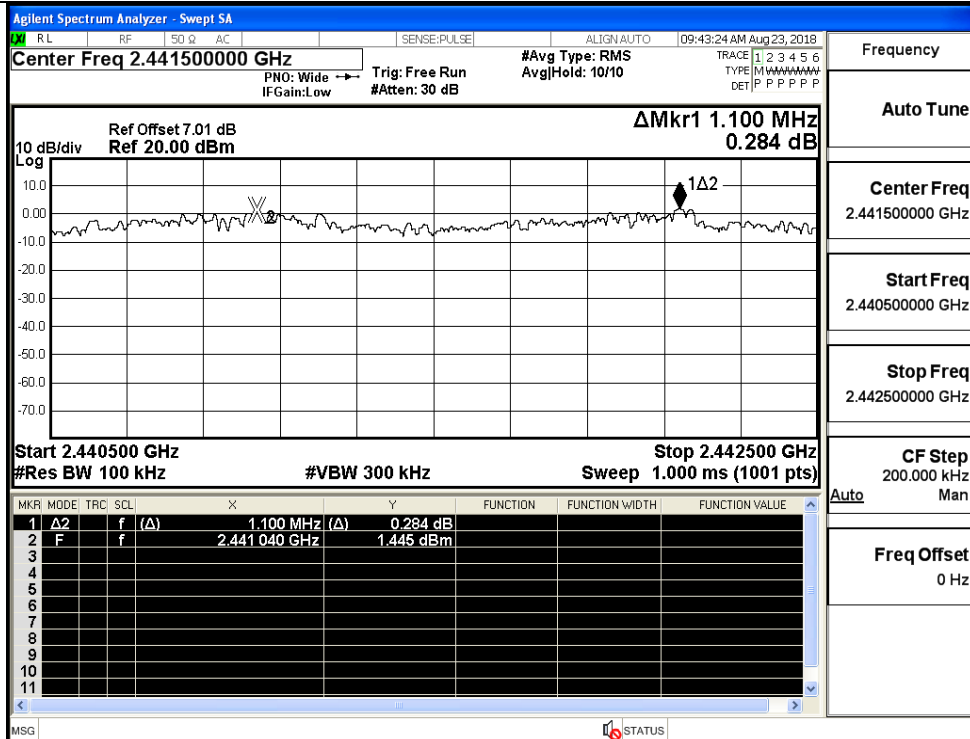
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

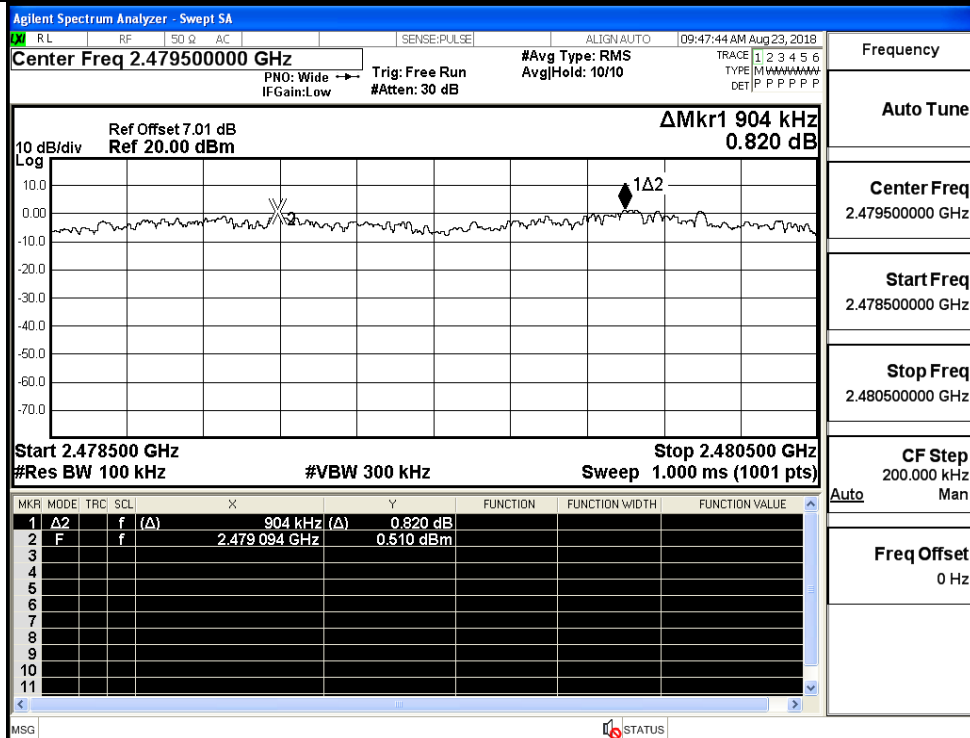
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

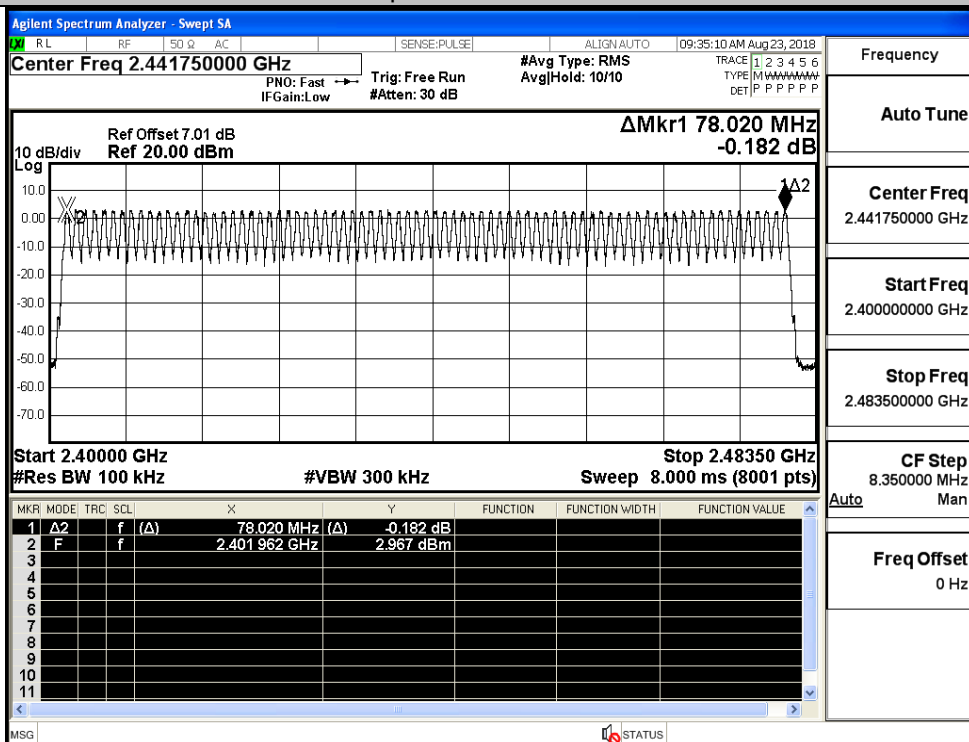
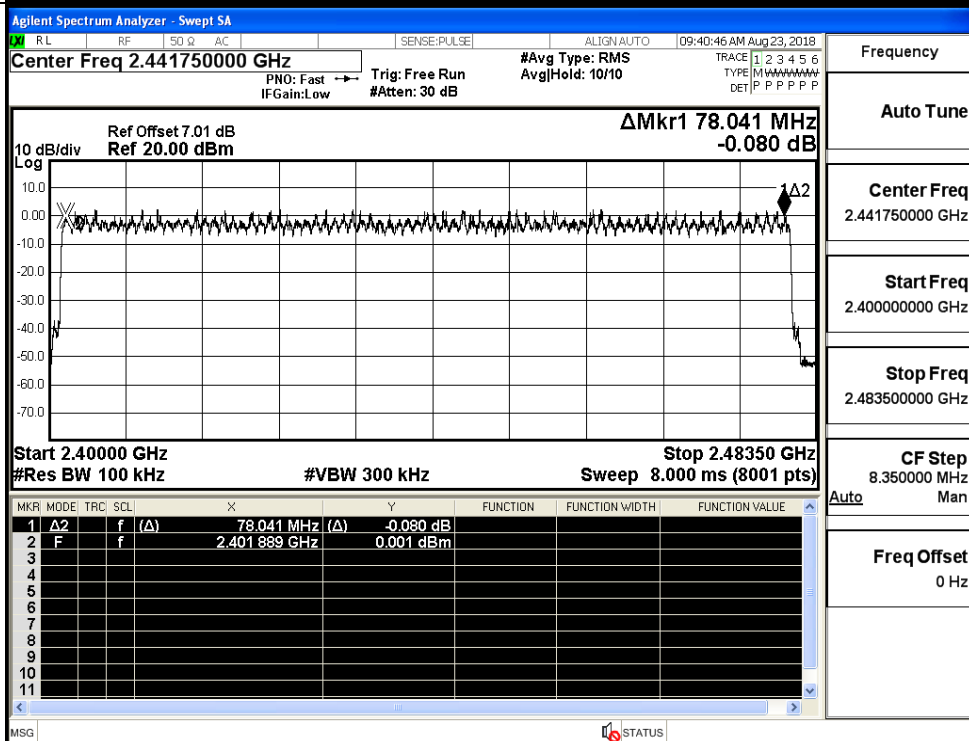


A.4 Hopping Channel Number

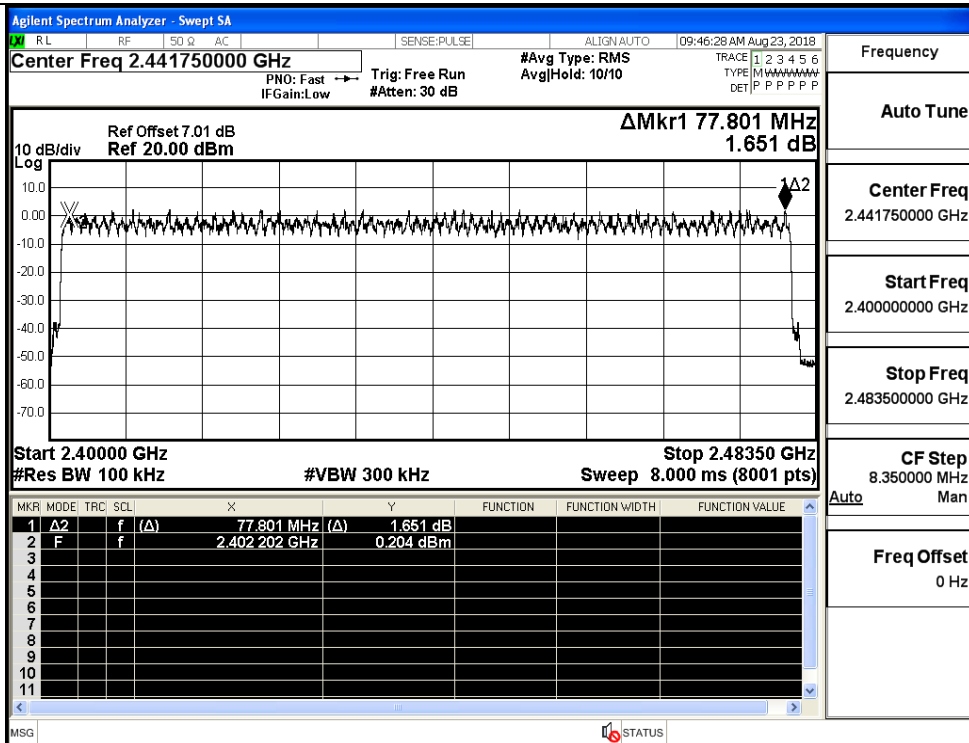
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

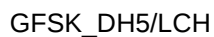
GFSK/Hop

 $\pi/4$ DQPSK/Hop

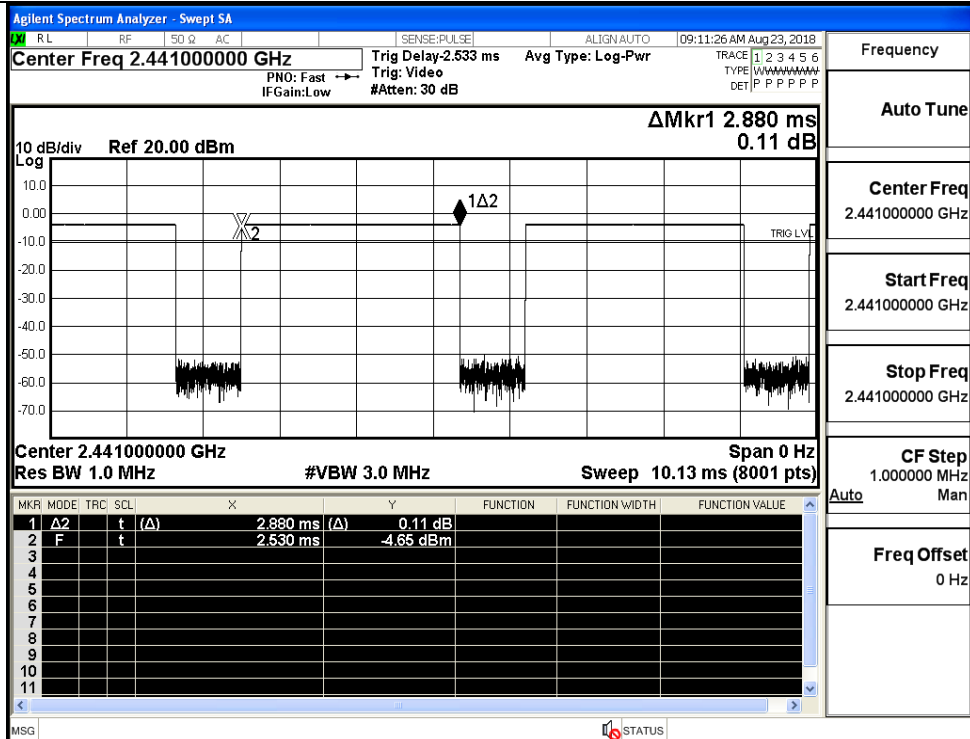
8DPSK/Hop



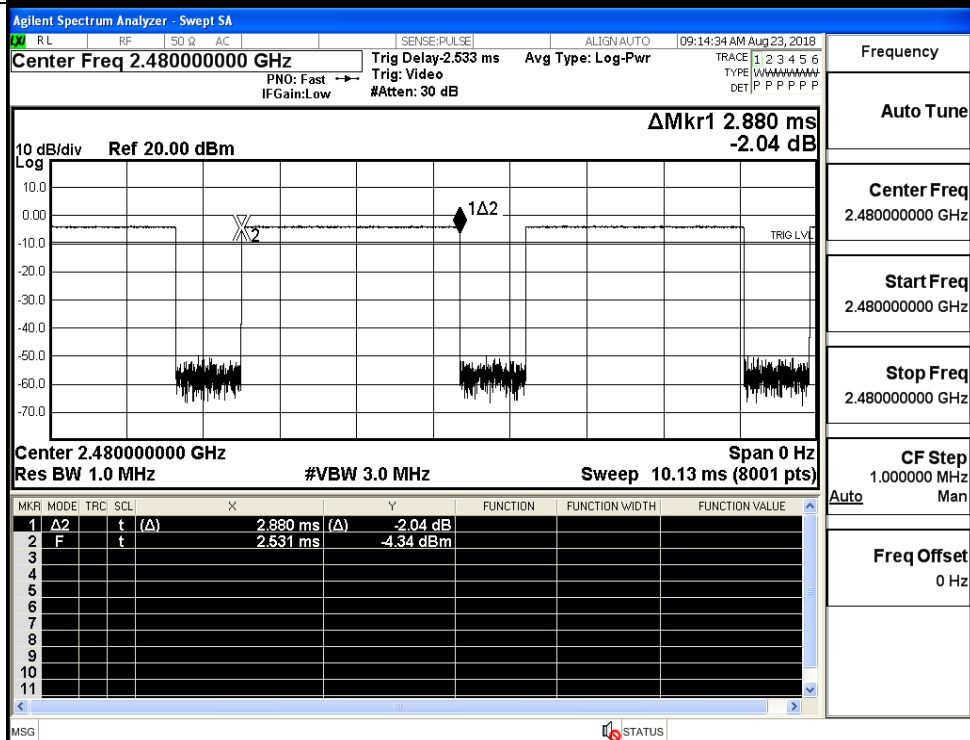
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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



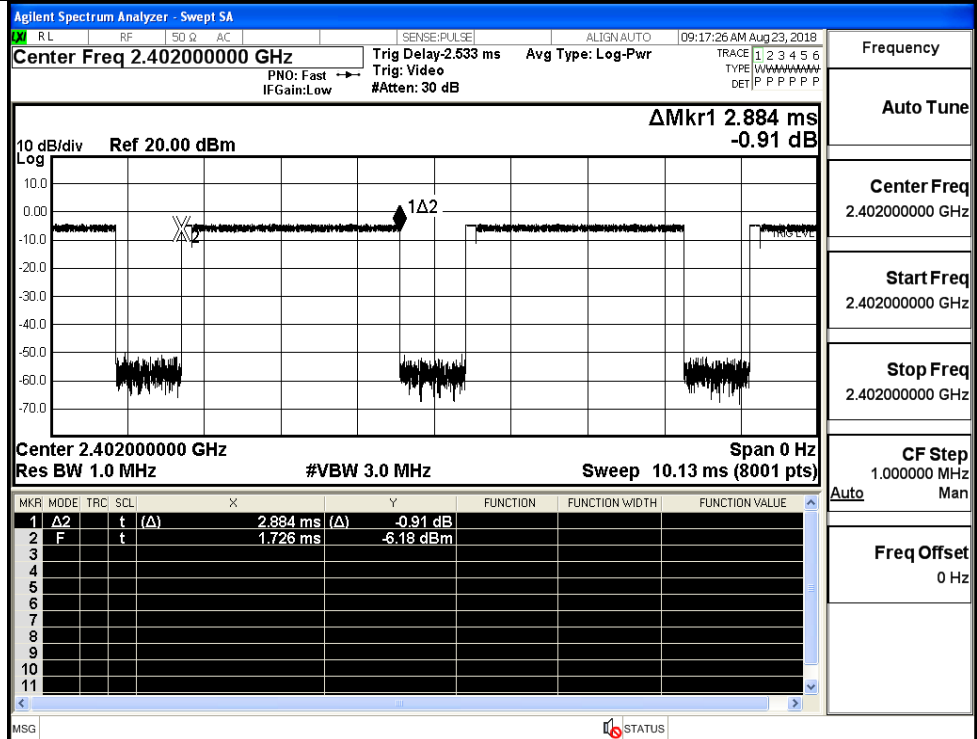
GFSK_DH5/MCH



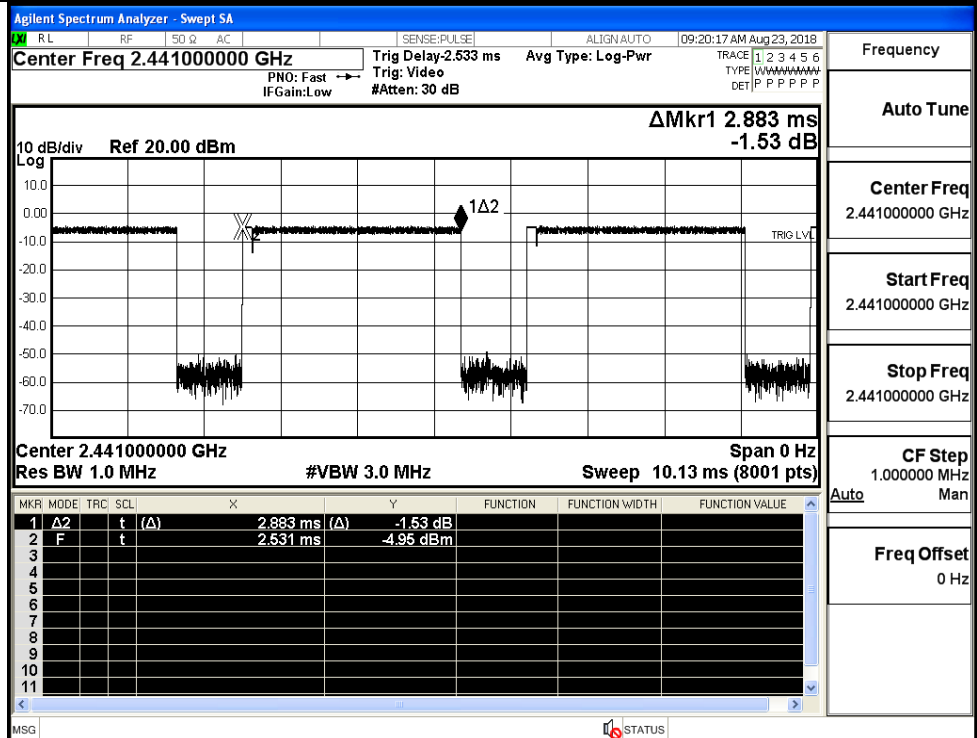
GFSK_DH5/HCH



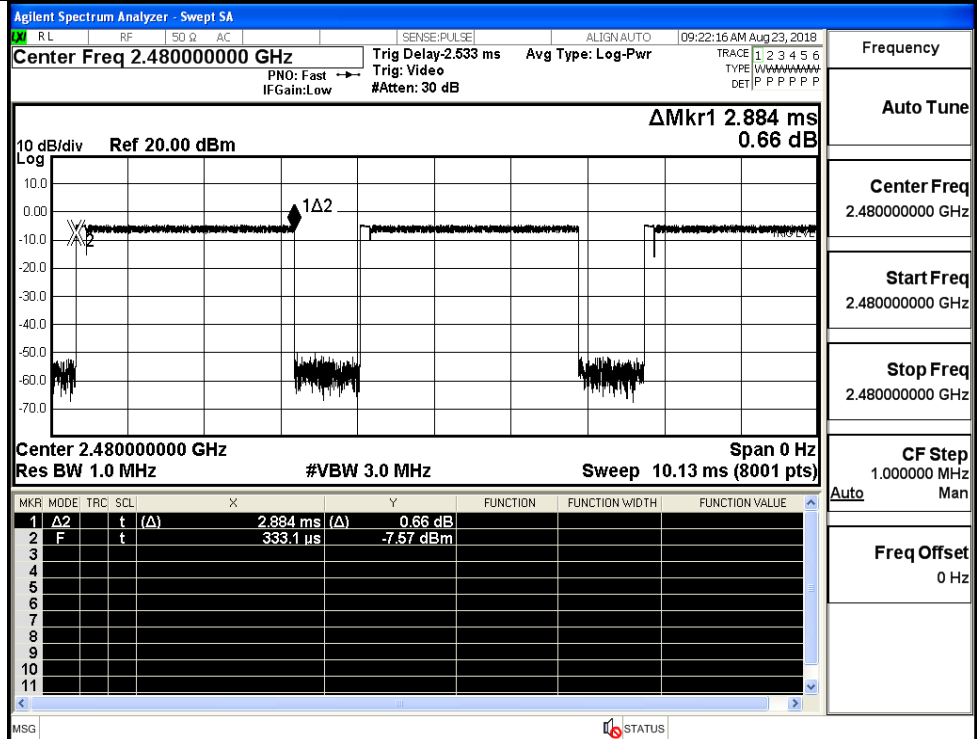
$\pi/4$ DQPSK
_2DH5/LCH



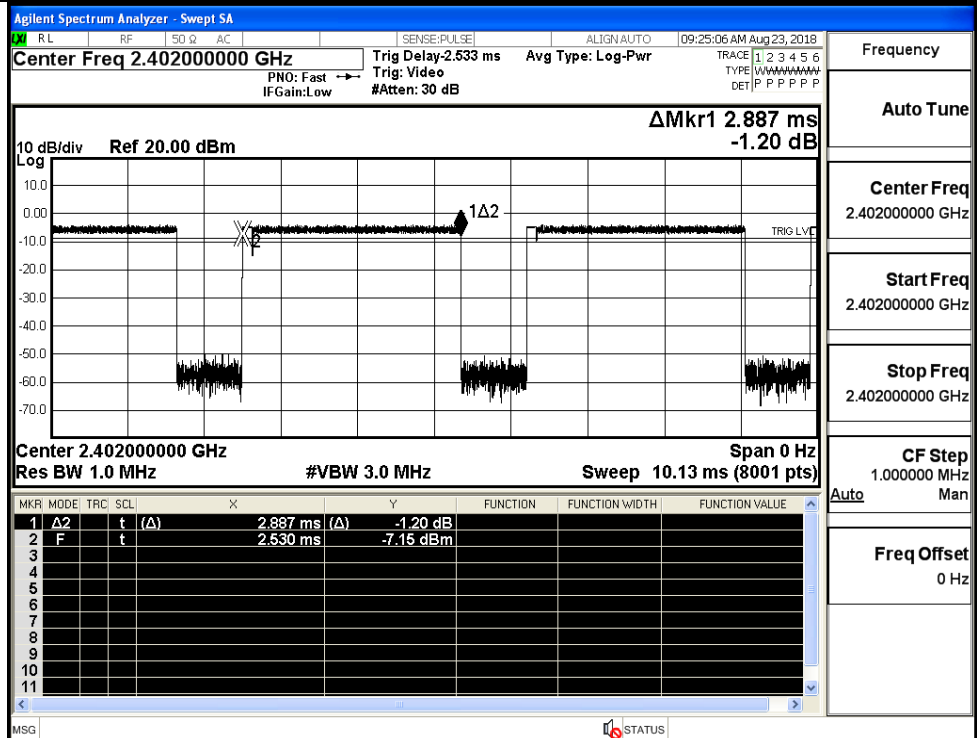
$\pi/4$ DQPSK
_2DH5/MCH



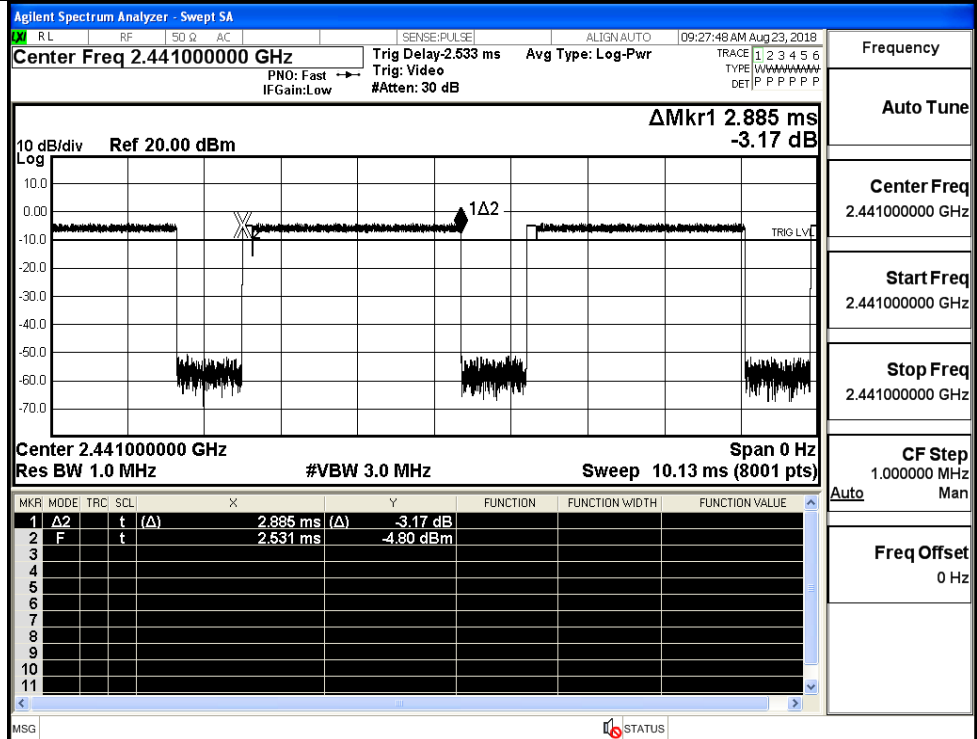
$\pi/4$ DQPSK
_2DH5/HCH



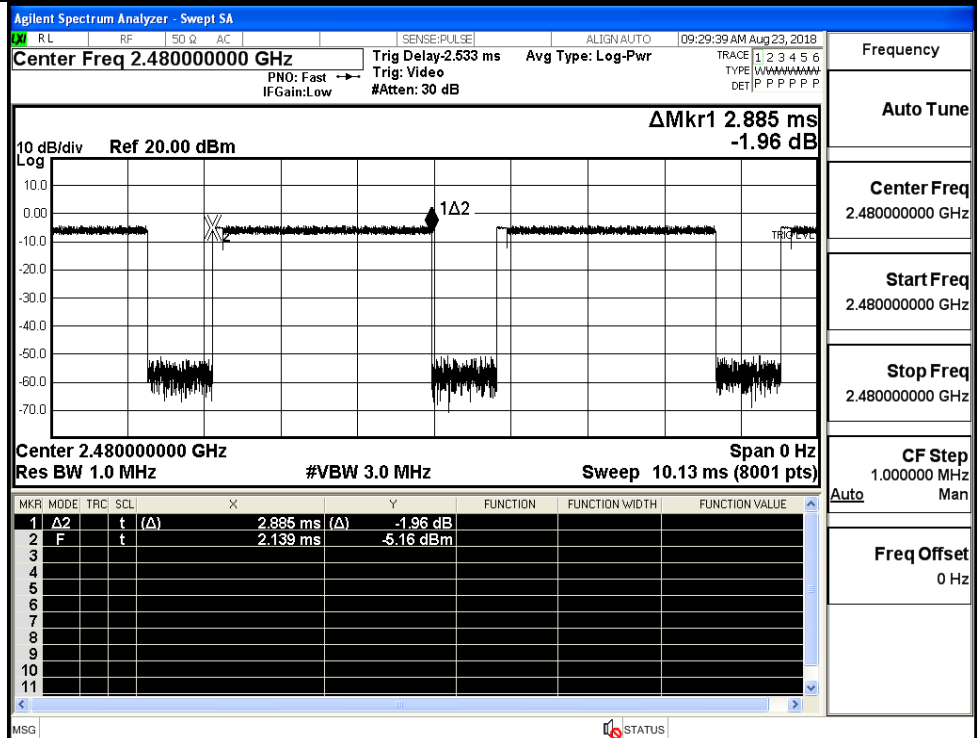
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

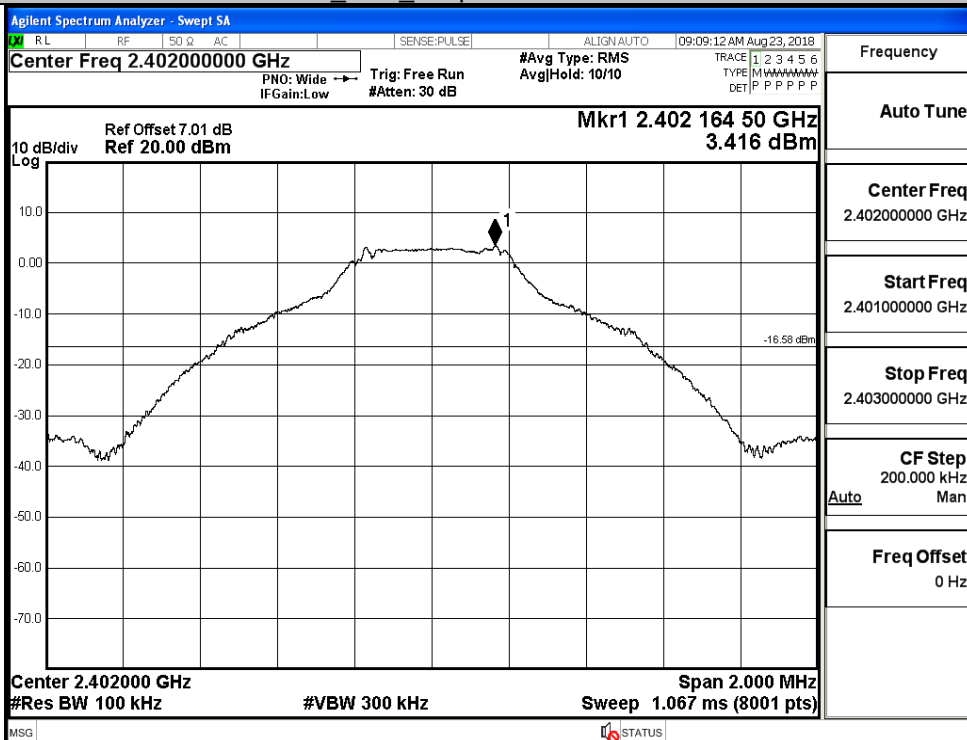


A.6 RF Conducted Spurious Emissions

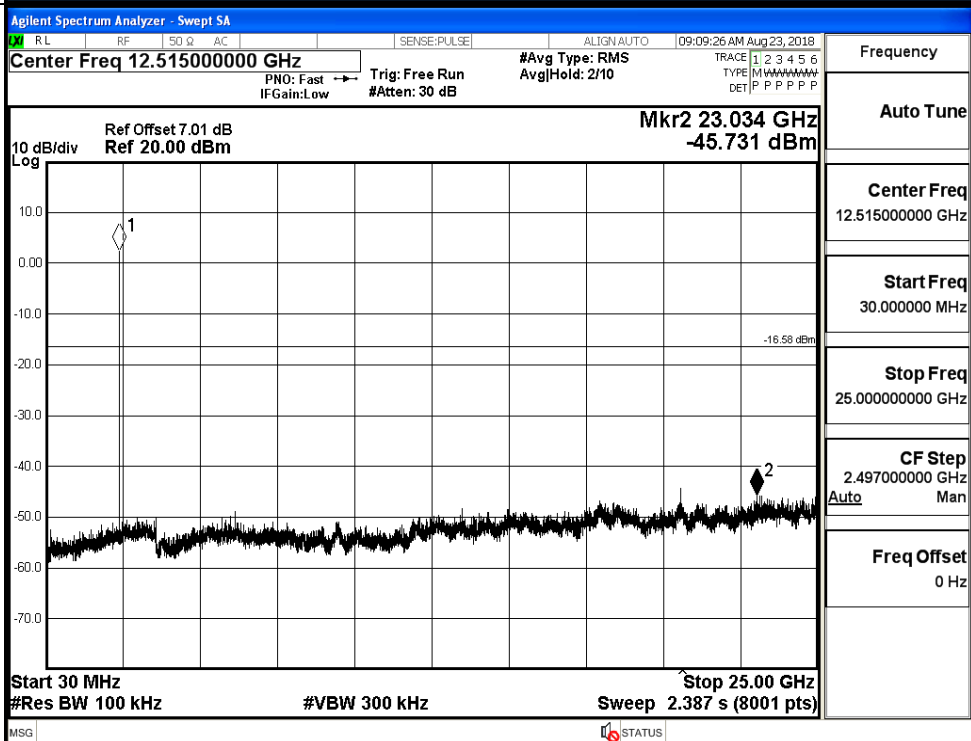
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.416	-45.731	-16.584	PASS
	MCH	3.255	-45.970	-16.745	PASS
	HCH	2.52	-45.247	-17.480	PASS
$\pi/4$ DQPSK	LCH	2.234	-46.016	-17.766	PASS
	MCH	2.268	-45.688	-17.732	PASS
	HCH	2.003	-45.296	-17.997	PASS
8DPSK	LCH	2.349	-45.116	-17.651	PASS
	MCH	2.269	-46.302	-17.731	PASS
	HCH	2	-45.370	-18.000	PASS

GFSK LCH Graphs

Pref

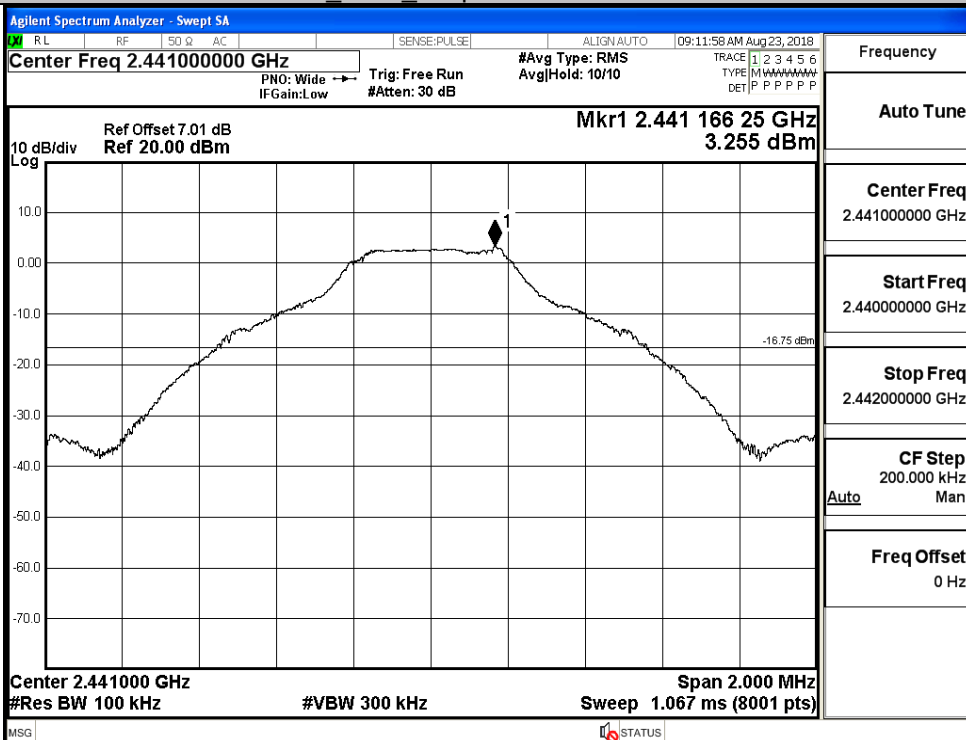


Puw

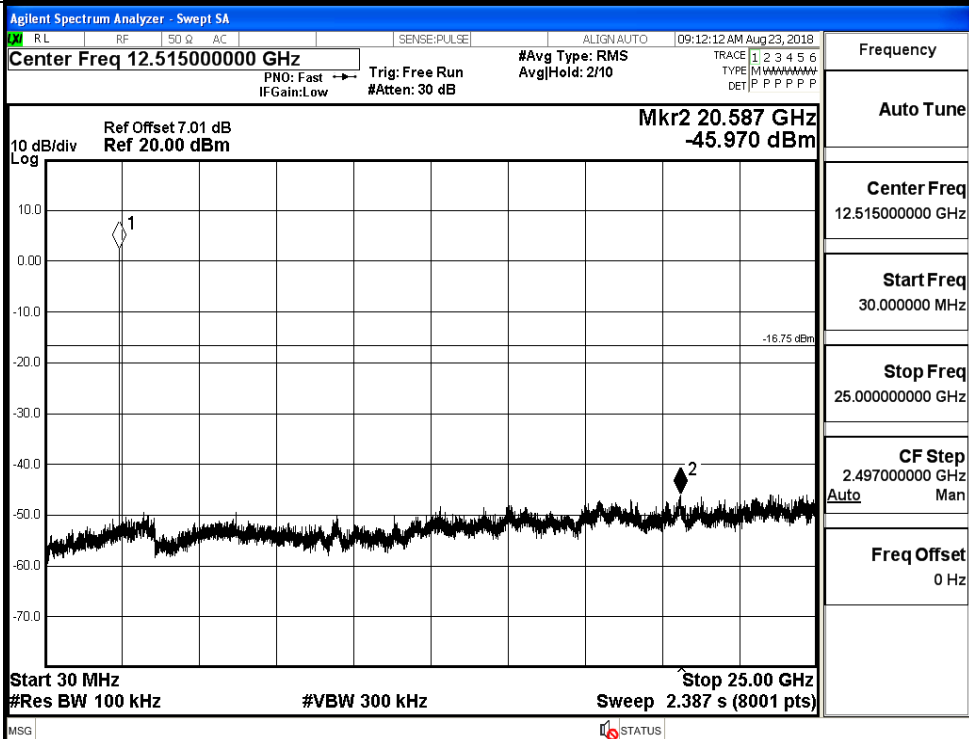


GFSK_MCH_Graphs

Pref

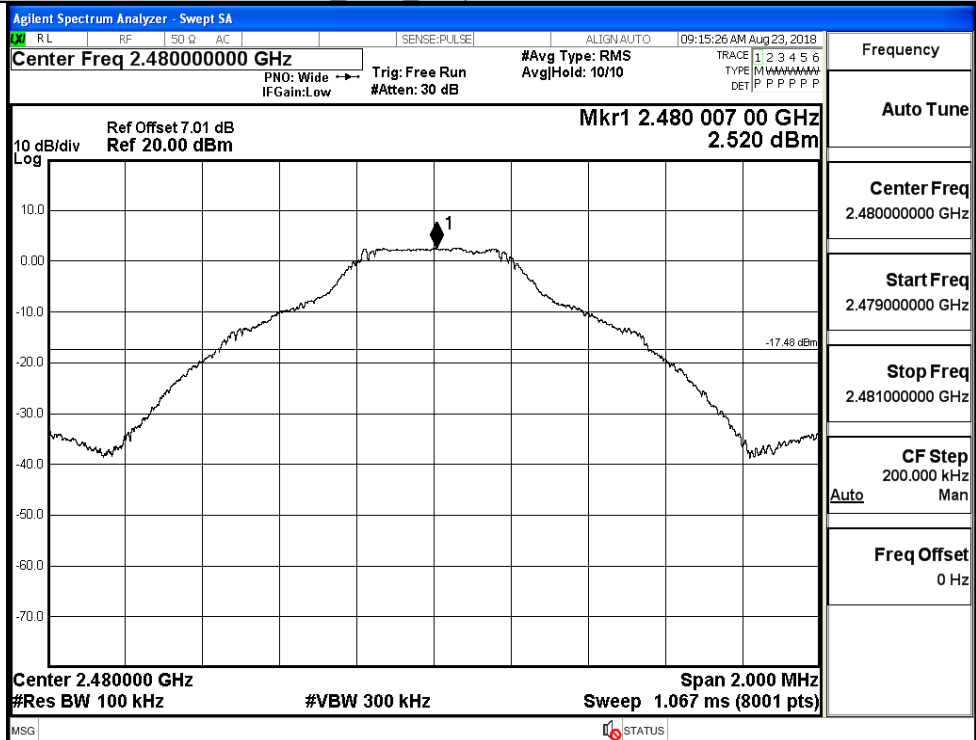


Puw

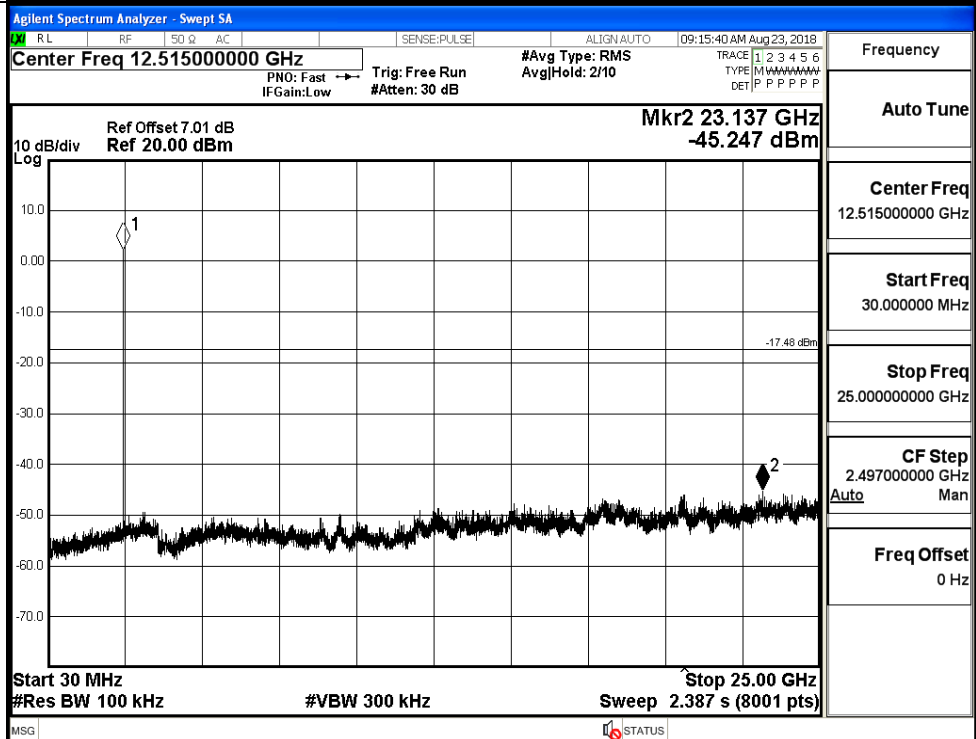


GFSK_HCH_Graphs

Pref

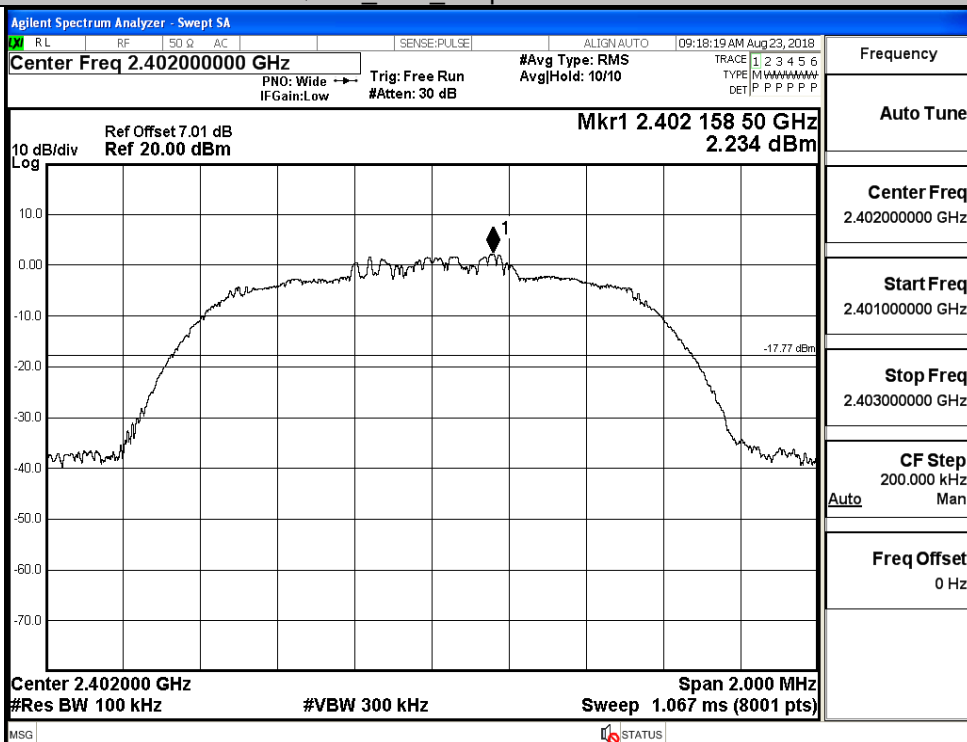


Puw

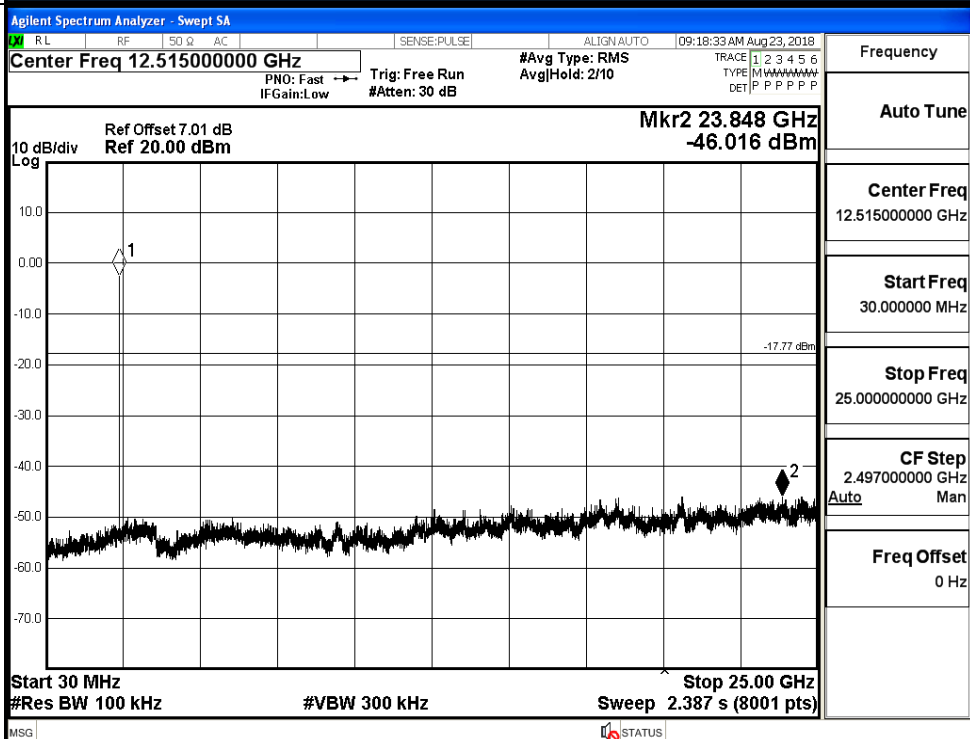


π /4DQPSK LCH_Graphs

Pref

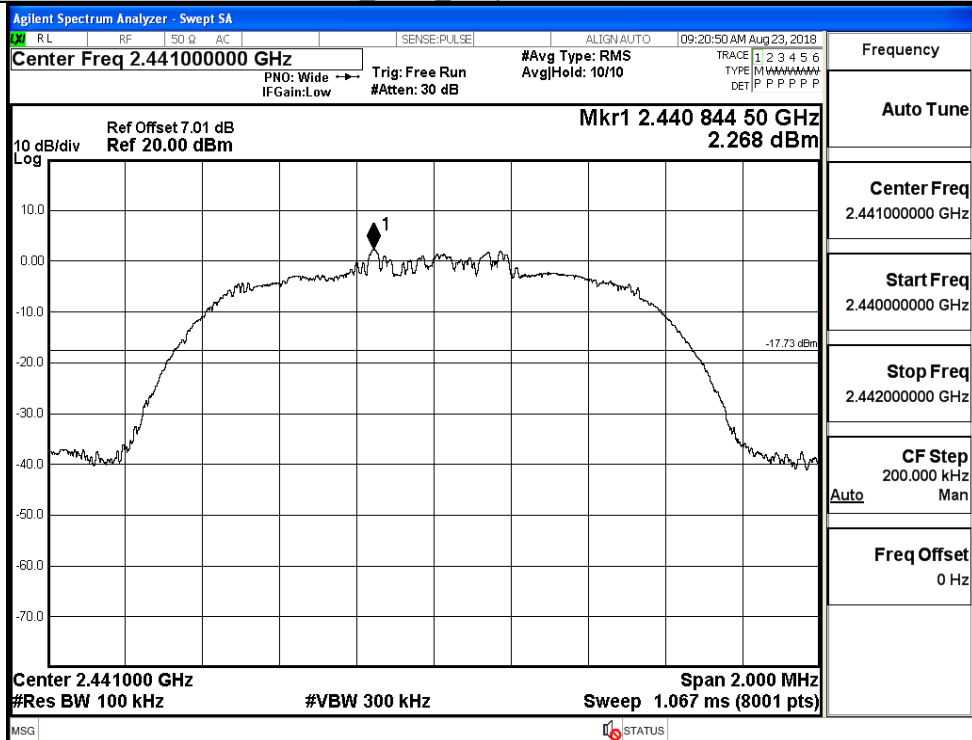


Puw

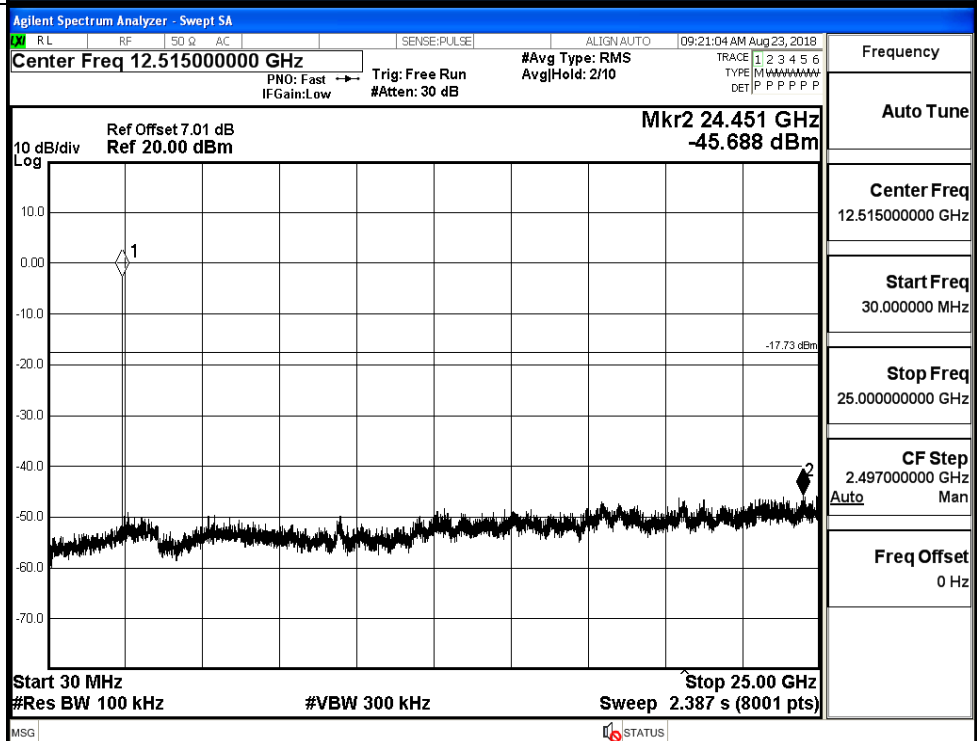


π /4DQPSK_MCH_Graphs

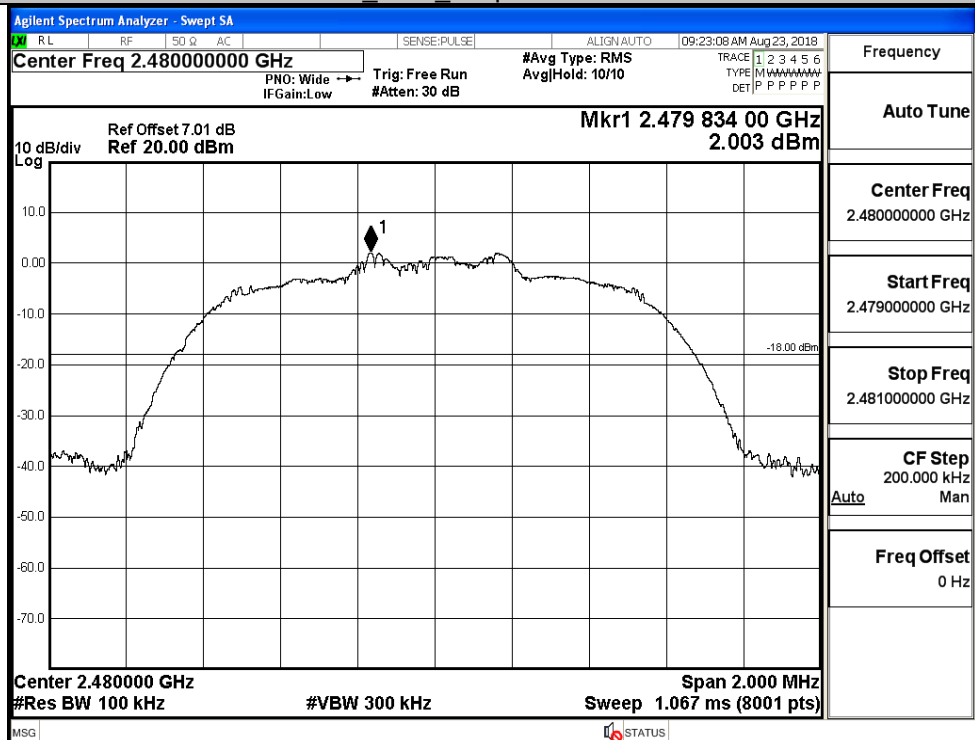
Pref



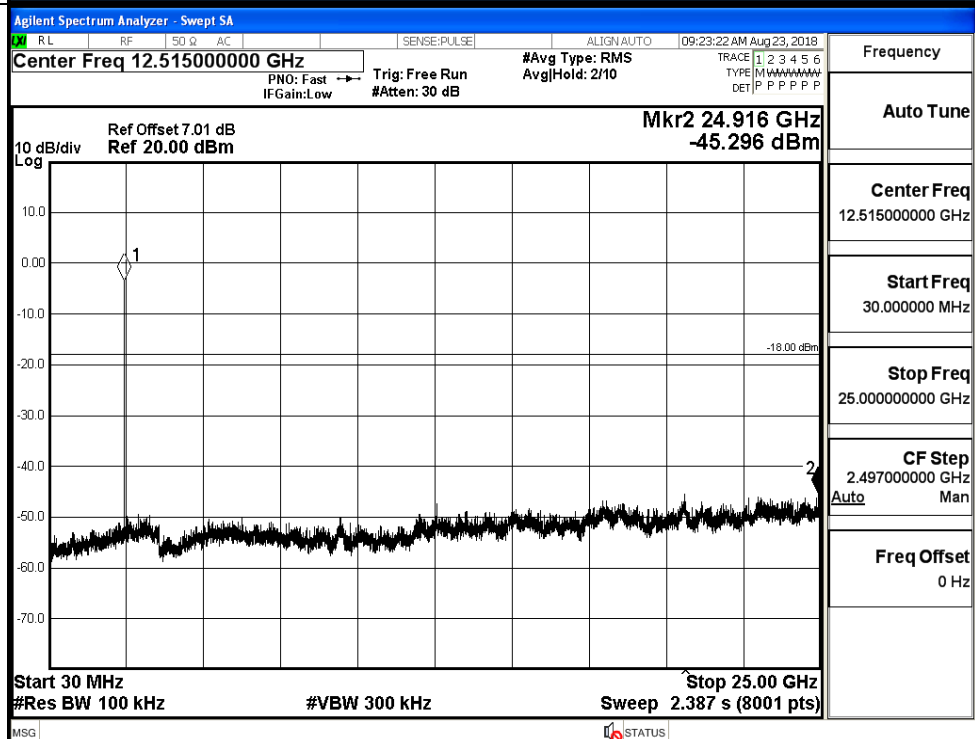
Puw



Pref

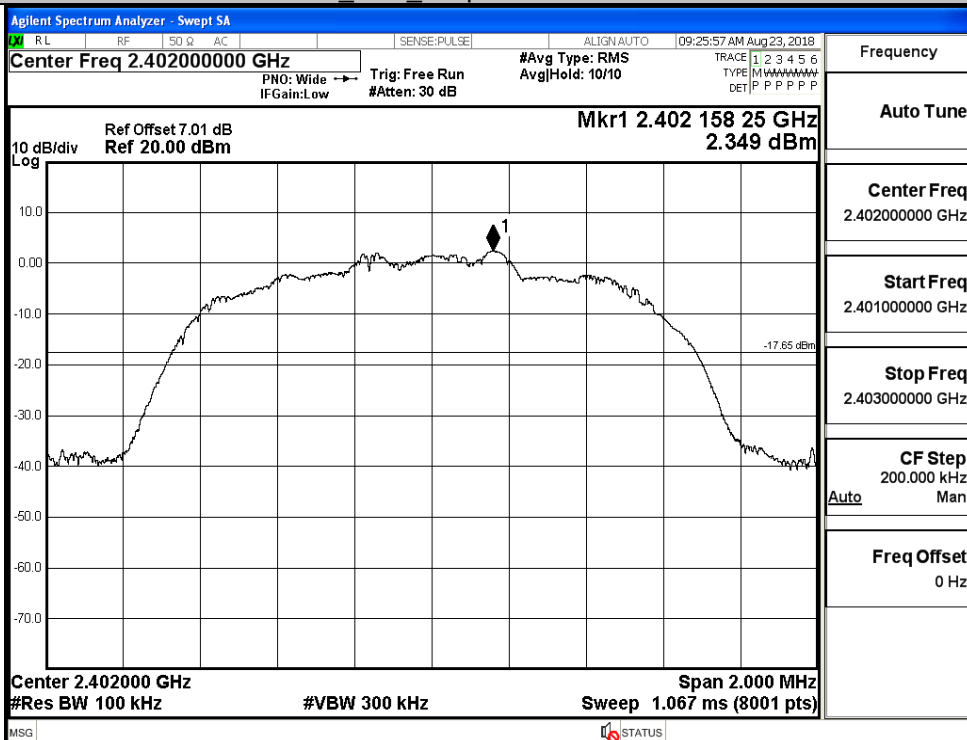


PuW

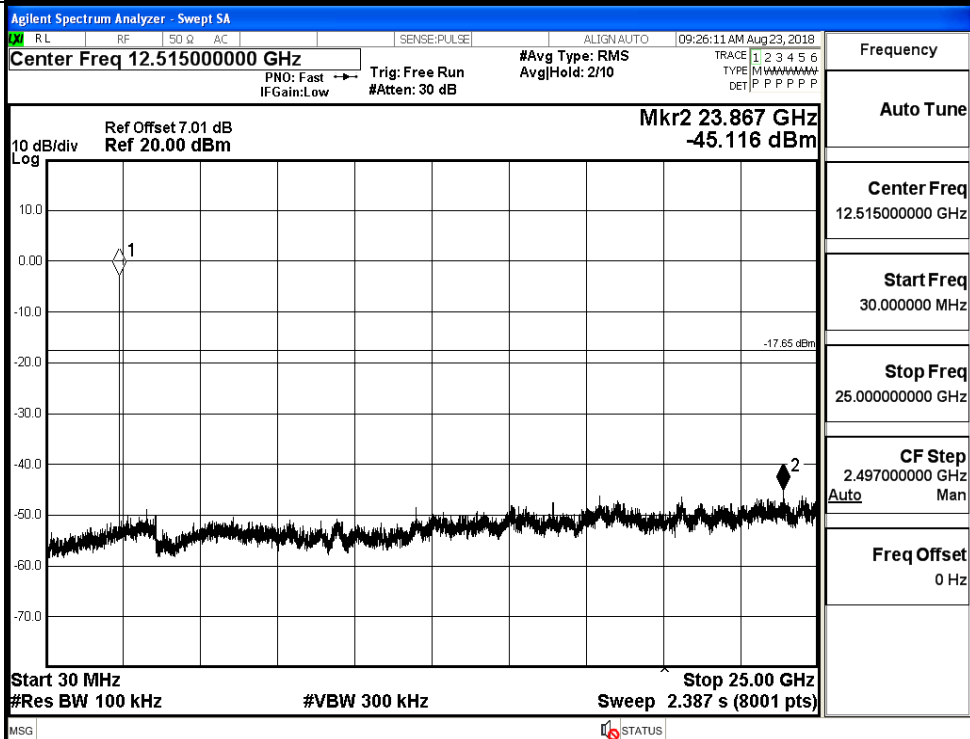


8DPSK_LCH_Graphs

Pref

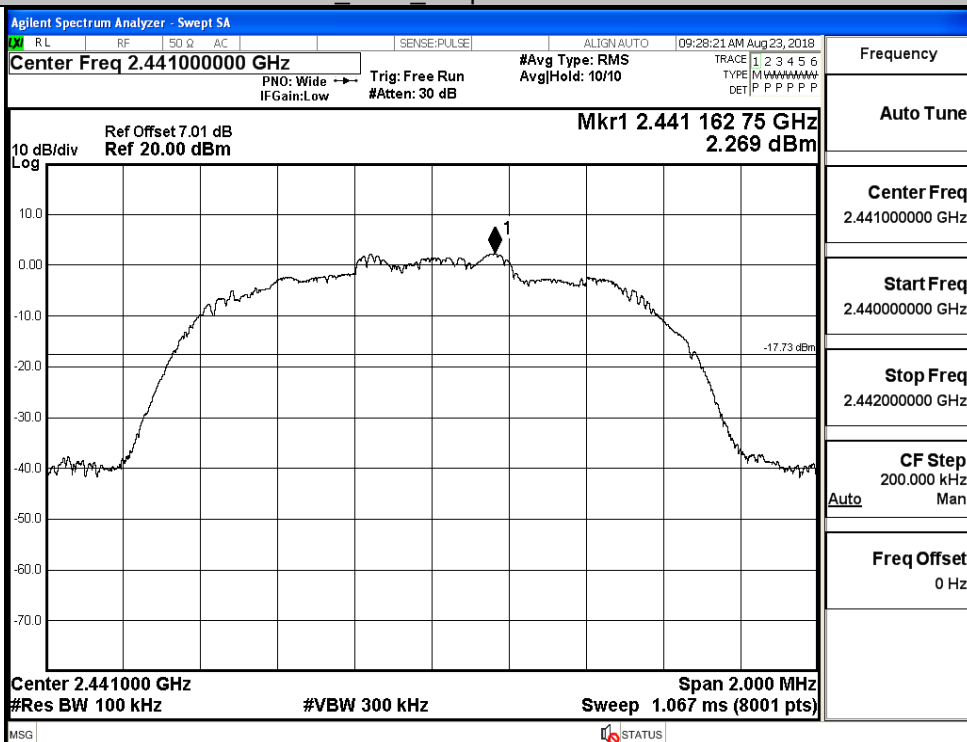


Puw

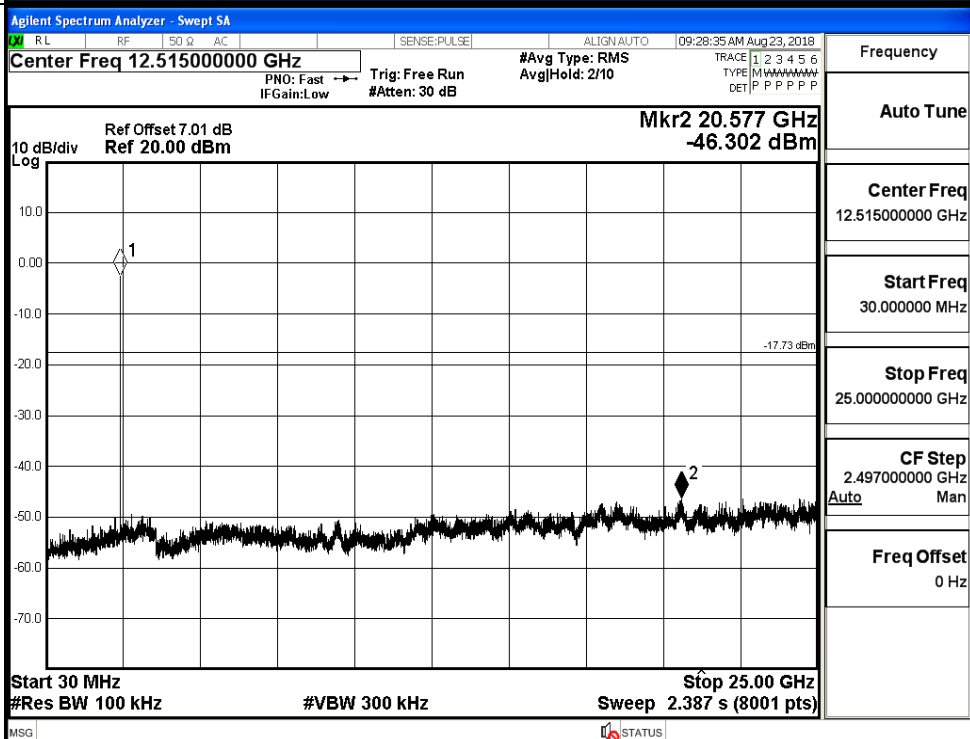


8DPSK_MCH_Graphs

Pref

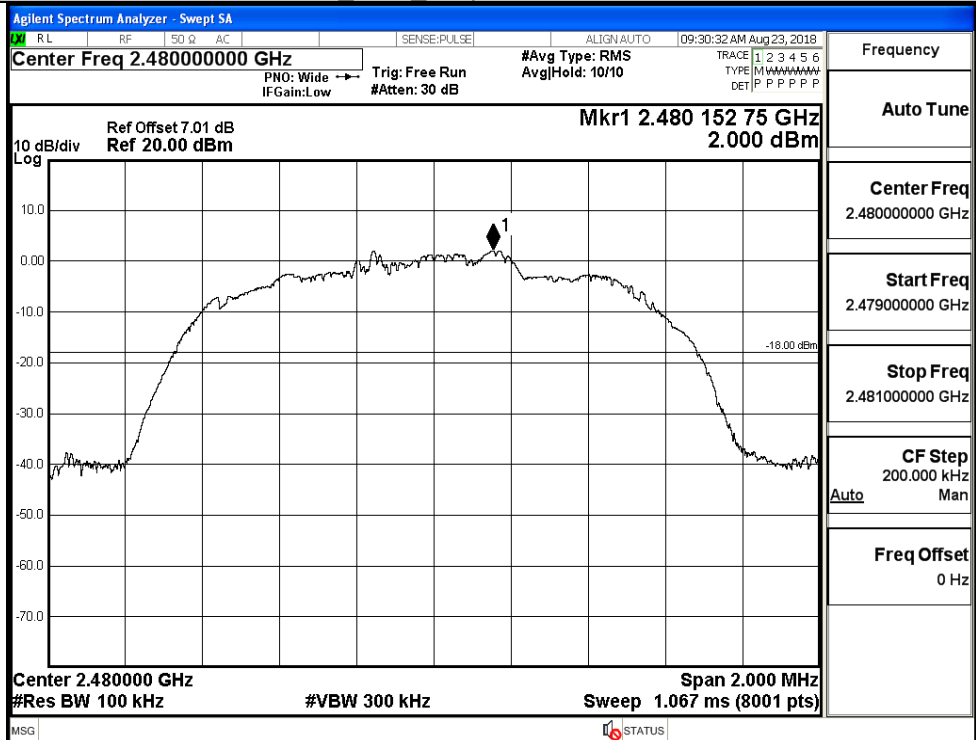


Puw

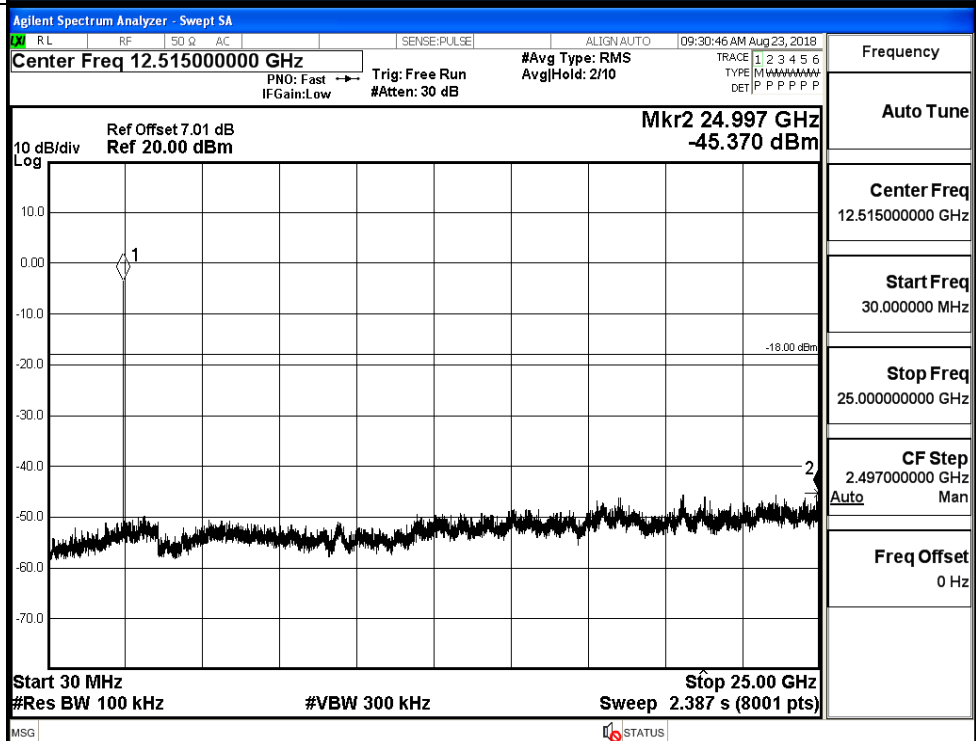


8DPSK_HCH_Graphs

Pref



Puw

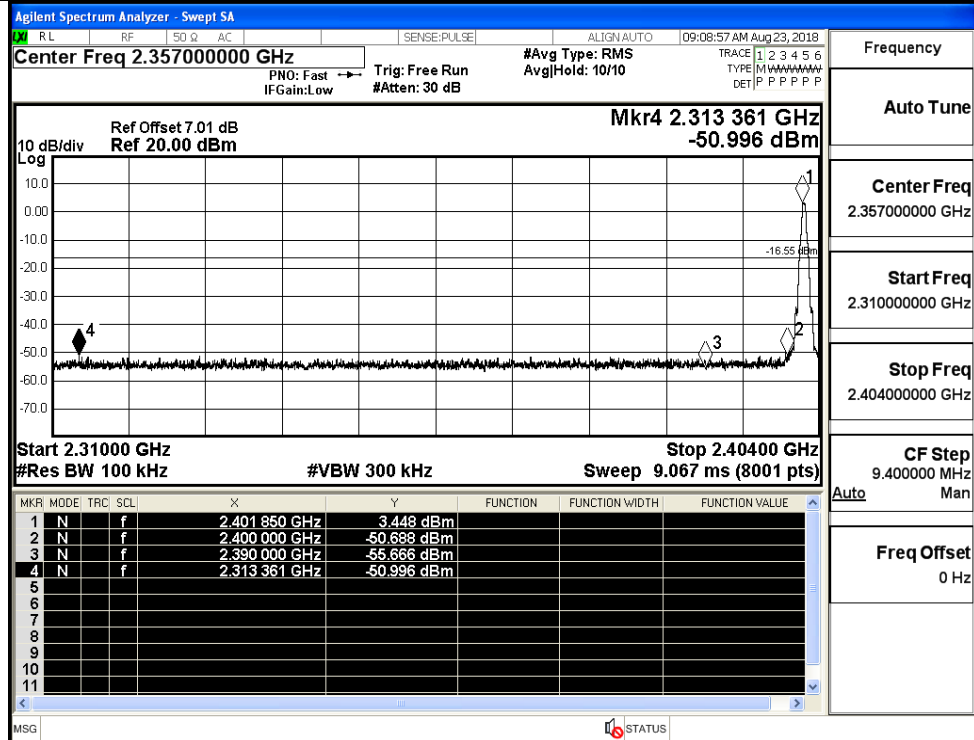


A.7 Band-edge for RF Conducted Emissions

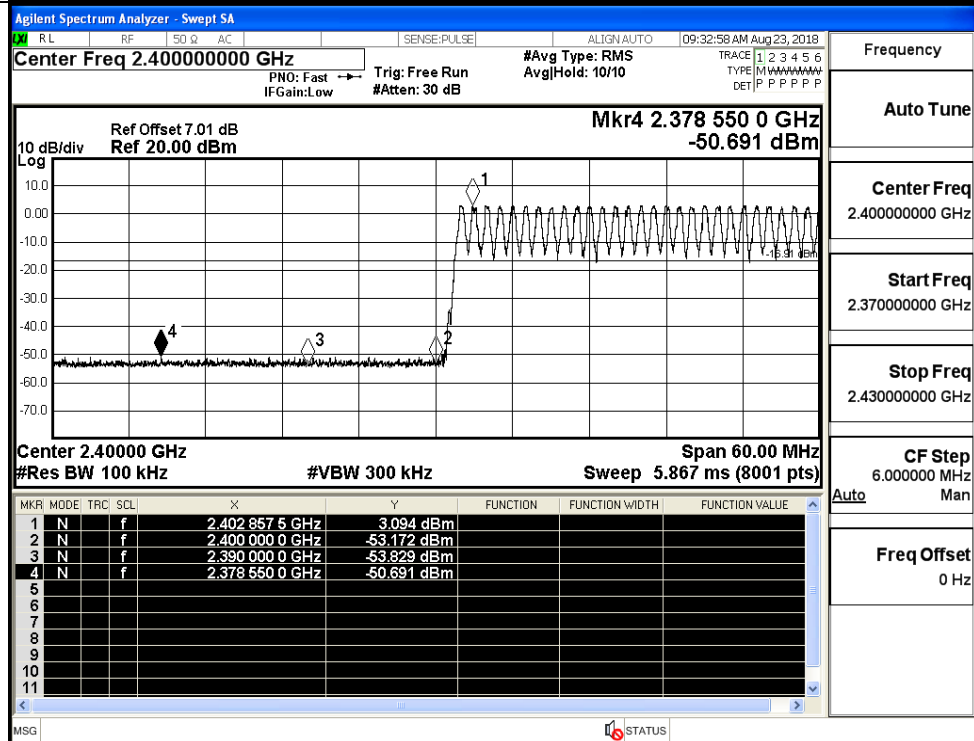
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	3.448	Off	-50.996	-16.55	PASS
			3.094	On	-50.691	-16.91	PASS
	HCH	2480	2.993	Off	-50.536	-17.01	PASS
			3.104	On	-50.692	-16.9	PASS
$\pi/4$ DQPSK	LCH	2402	1.782	Off	-50.838	-18.22	PASS
			2.309	On	-49.818	-17.69	PASS
	HCH	2480	2.084	Off	-50.770	-17.92	PASS
			2.181	On	-49.476	-17.82	PASS
8DPSK	LCH	2402	2.275	Off	-51.237	-17.73	PASS
			2.384	On	-50.132	-17.62	PASS
	HCH	2480	2.082	Off	-49.705	-17.92	PASS
			2.103	On	-49.827	-17.9	PASS

Test Graphs

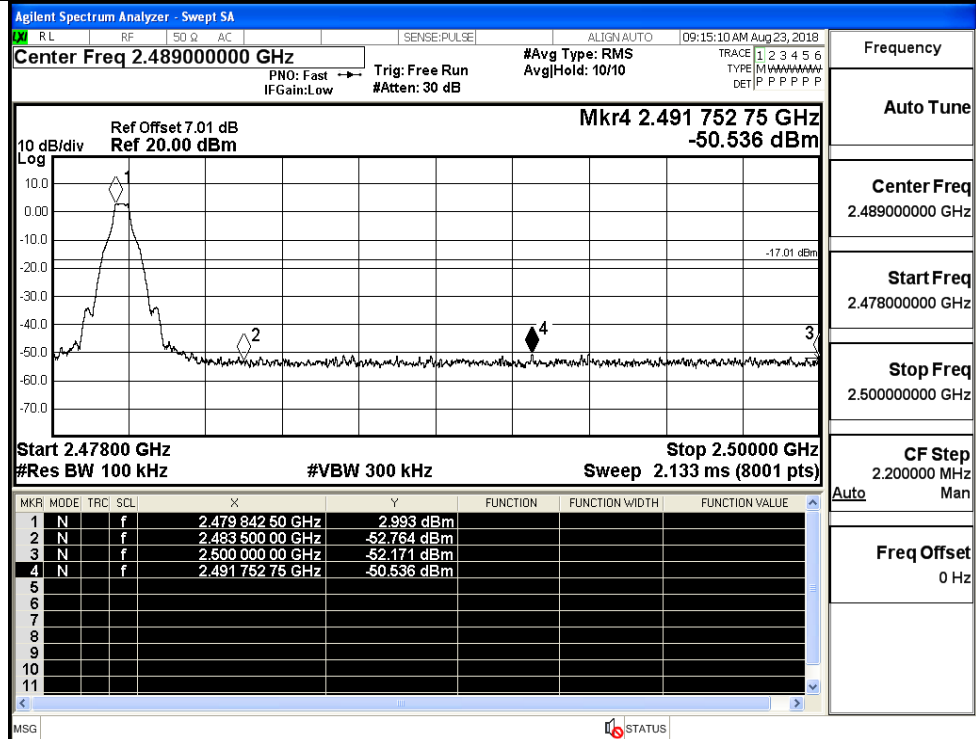
GFSK/LCH/No Hop



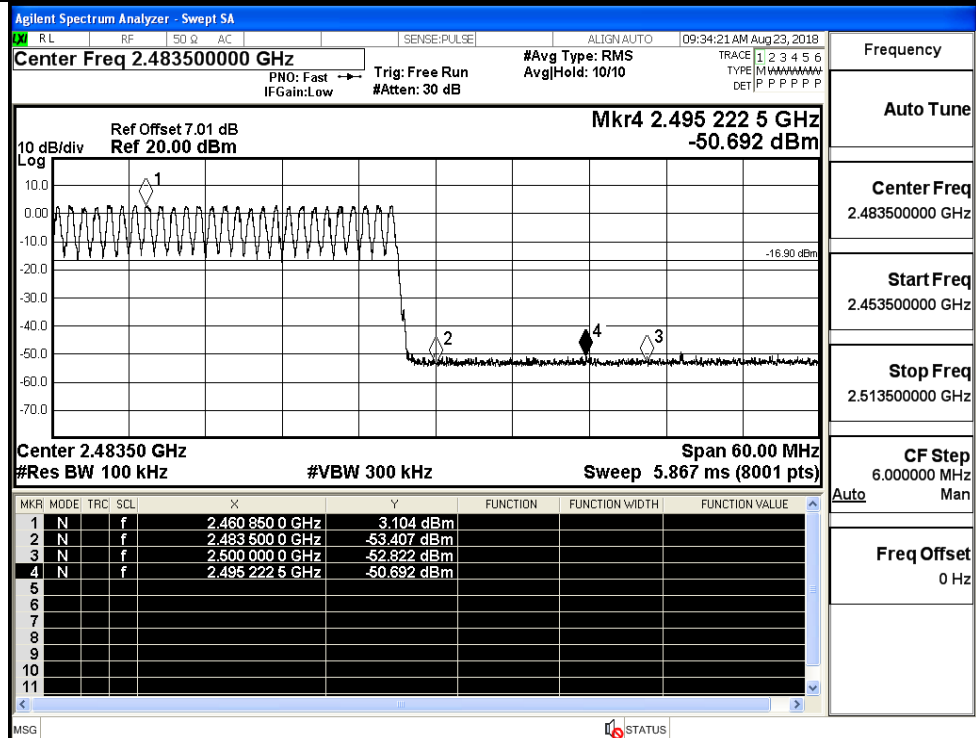
GFSK/LCH/Hop



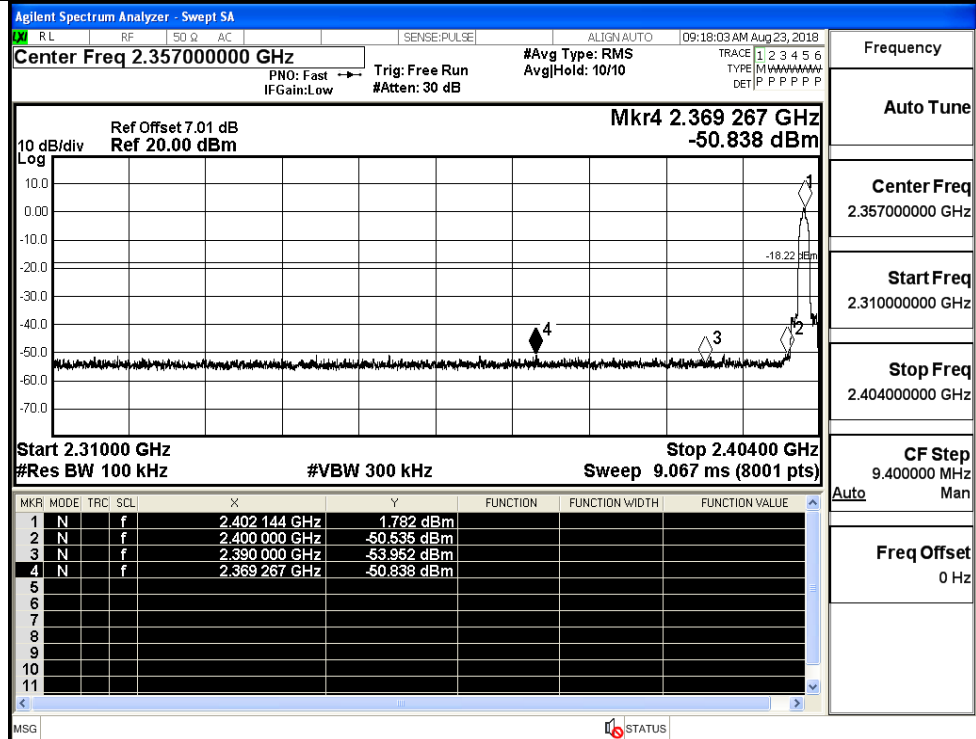
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

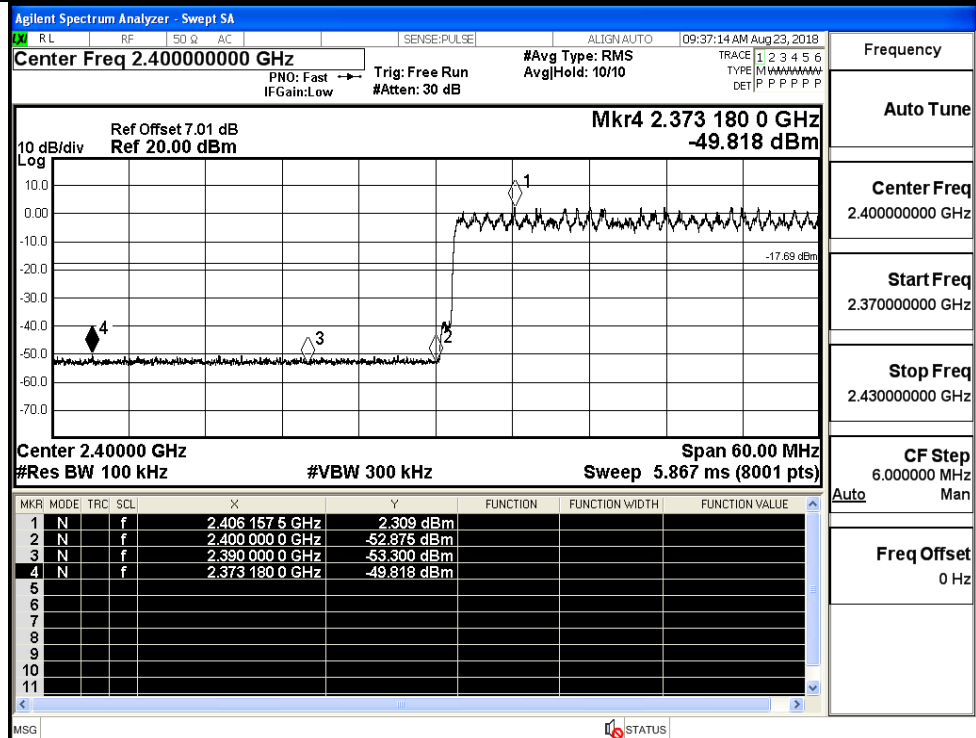
Start Freq
2.310000000 GHz

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

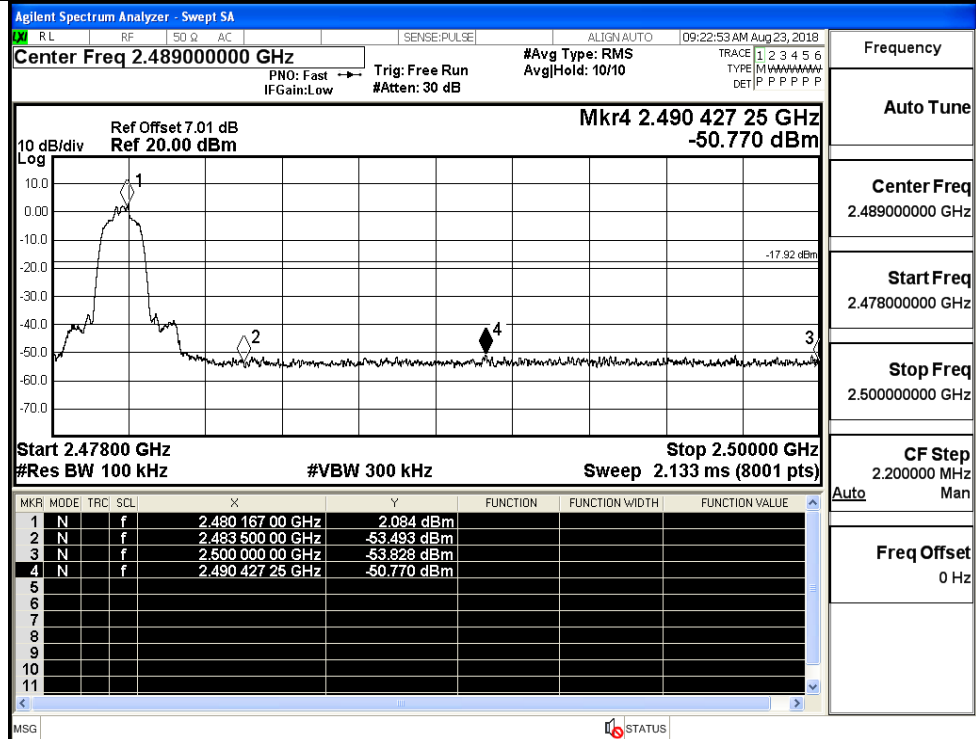
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

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

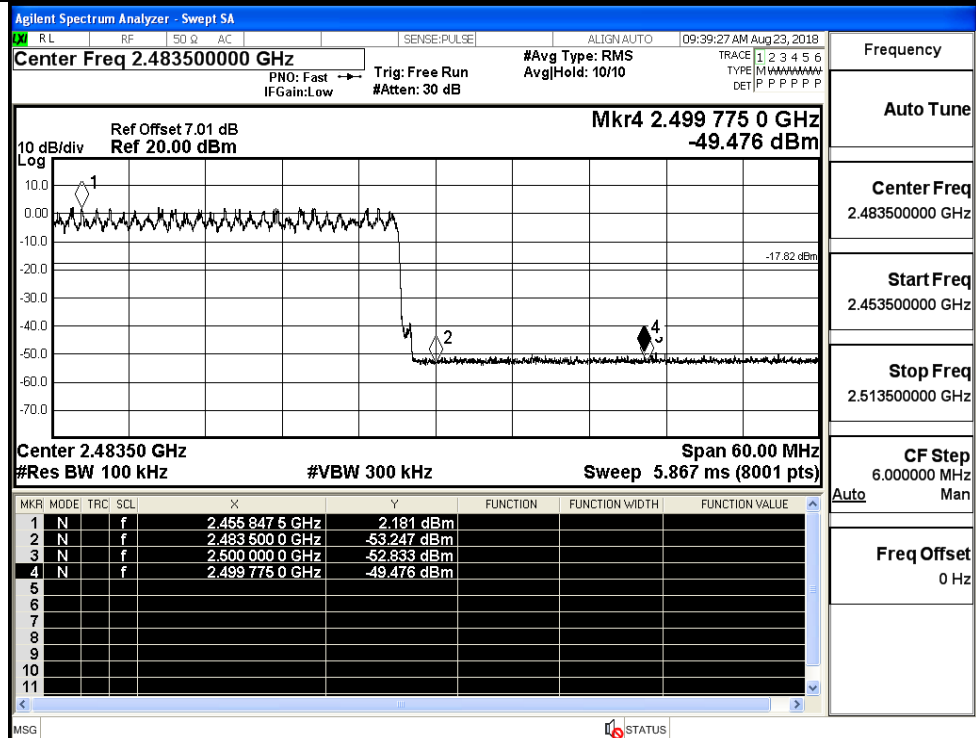


Frequency

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

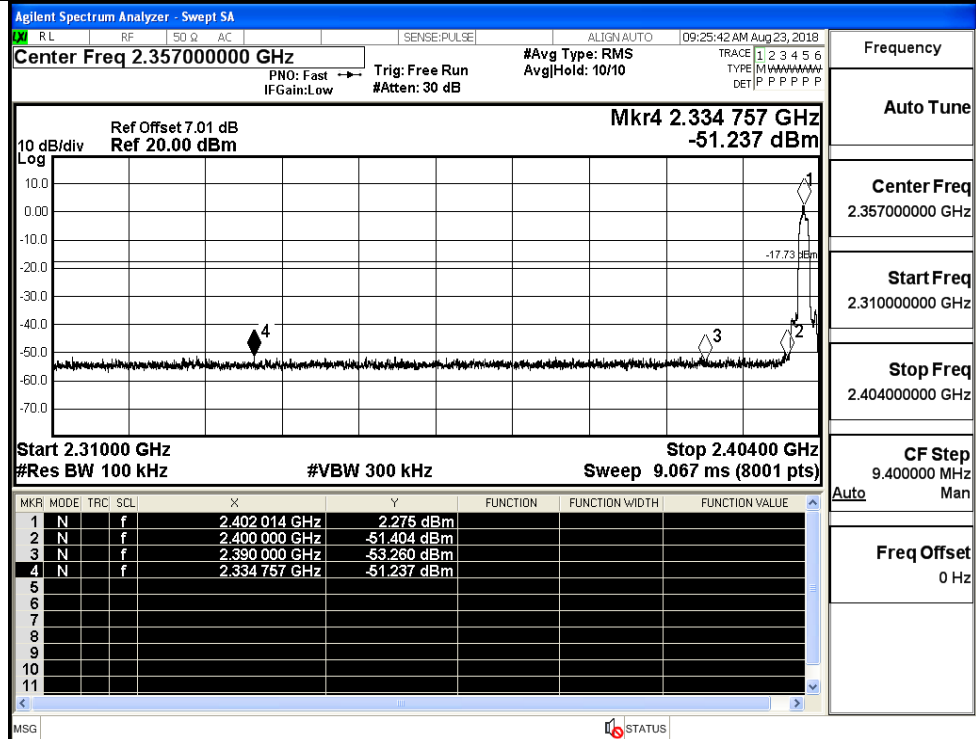


Frequency

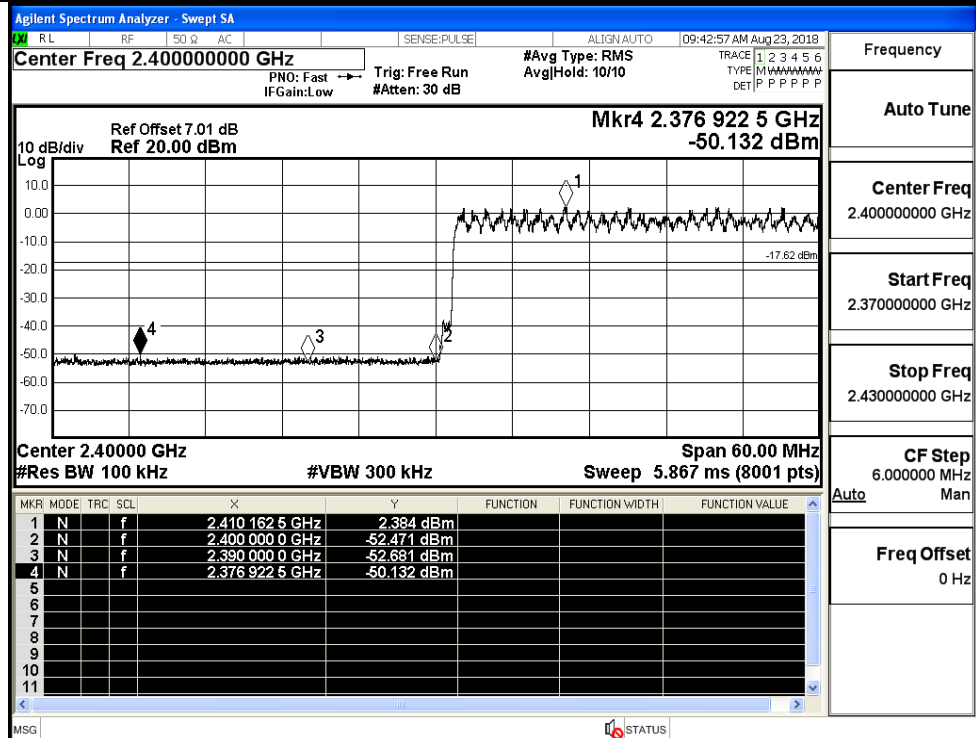
Auto Tune

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

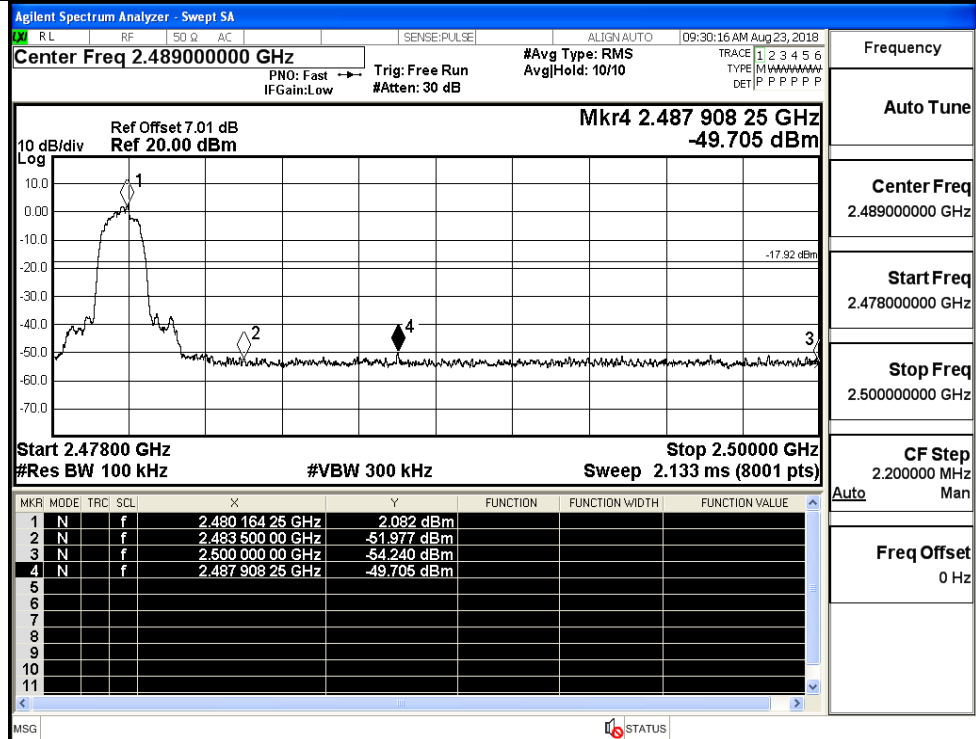
8DPSK/LCH/No Hop



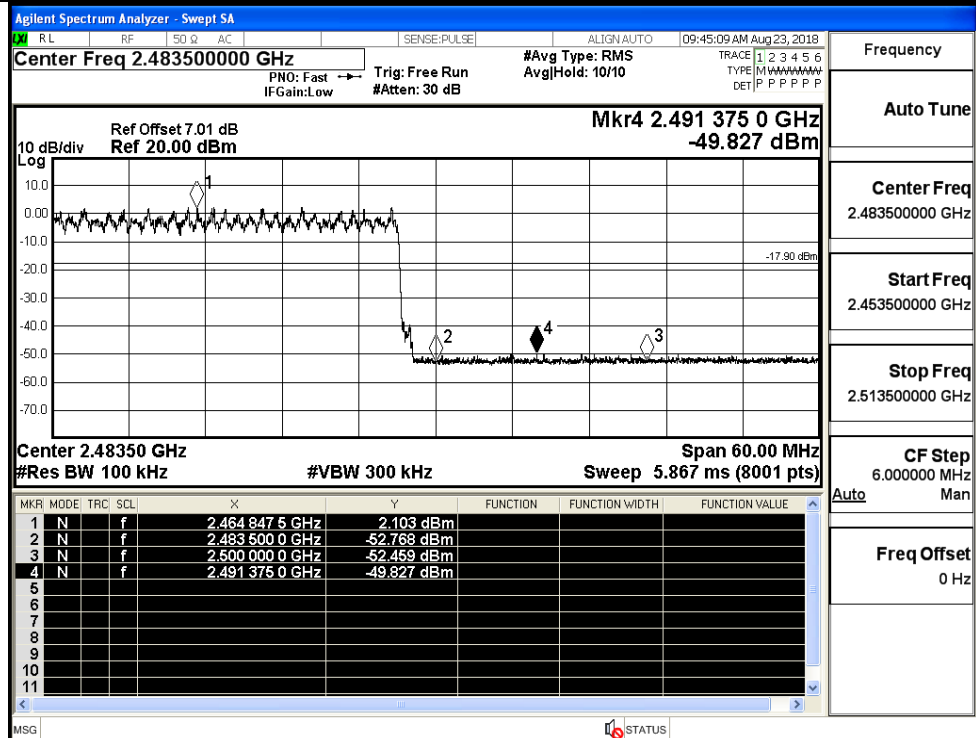
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



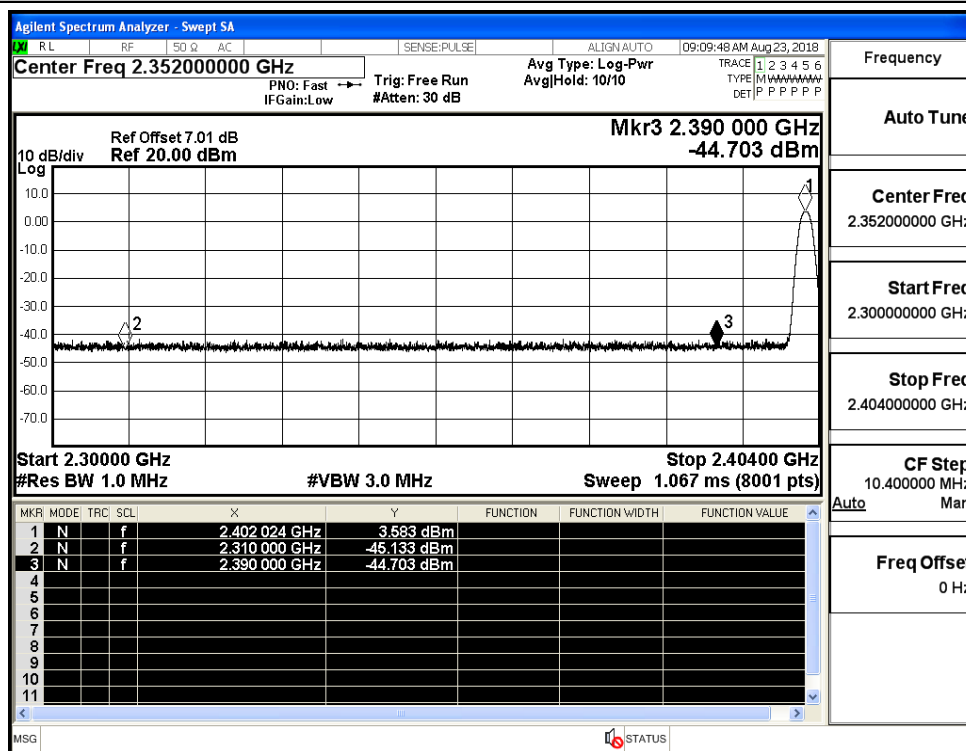
8DPSK/HCH/Hop



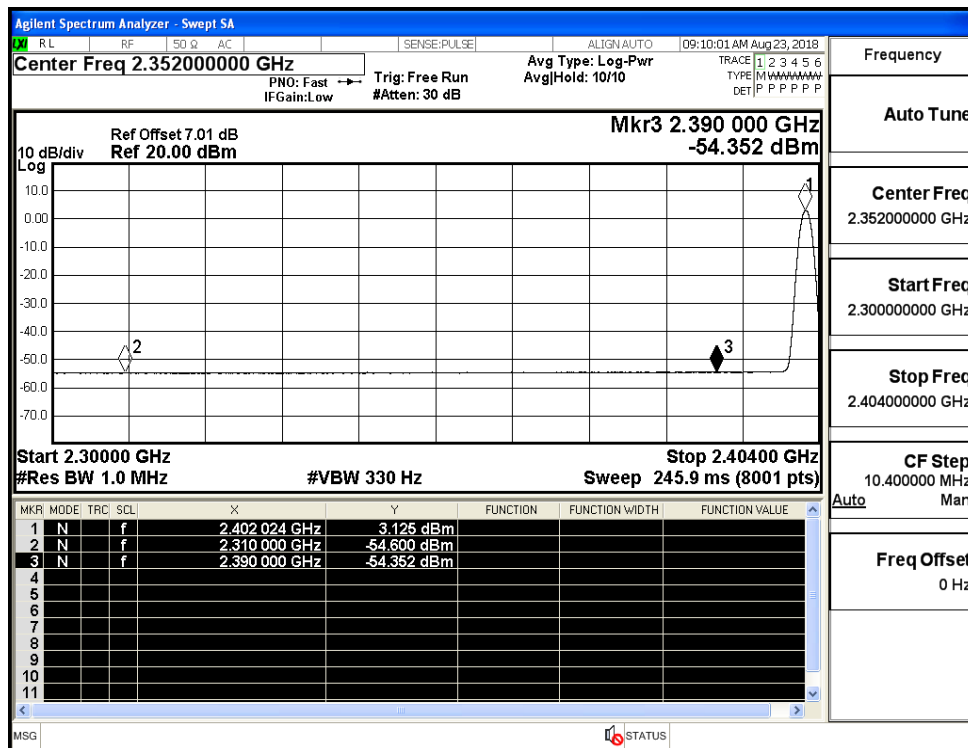
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-45.13	2.0	0	52.12	PEAK	74	PASS
	Off	2310.0	-54.60	2.0	0	42.66	AV	54	PASS
	Off	2390.0	-44.70	2.0	0	52.55	PEAK	74	PASS
	Off	2390.0	-54.35	2.0	0	42.91	AV	54	PASS
	Off	2483.5	-43.56	2.0	0	53.69	PEAK	74	PASS
	Off	2483.5	-54.11	2.0	0	43.15	AV	54	PASS
	Off	2500.0	-43.55	2.0	0	53.71	PEAK	74	PASS
	Off	2500.0	-54.11	2.0	0	43.15	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.37	2.0	0	52.89	PEAK	74	PASS
	Off	2310.0	-54.77	2.0	0	42.49	AV	54	PASS
	Off	2390.0	-44.92	2.0	0	52.34	PEAK	74	PASS
	Off	2390.0	-54.27	2.0	0	42.99	AV	54	PASS
	Off	2483.5	-44.27	2.0	0	52.99	PEAK	74	PASS
	Off	2483.5	-54.07	2.0	0	43.18	AV	54	PASS
	Off	2500.0	-42.50	2.0	0	54.76	PEAK	74	PASS
	Off	2500.0	-54.03	2.0	0	43.23	AV	54	PASS
8DPSK	Off	2310.0	-44.10	2.0	0	53.16	PEAK	74	PASS
	Off	2310.0	-54.80	2.0	0	42.46	AV	54	PASS
	Off	2390.0	-43.98	2.0	0	53.27	PEAK	74	PASS
	Off	2390.0	-54.47	2.0	0	42.79	AV	54	PASS
	Off	2483.5	-44.39	2.0	0	52.87	PEAK	74	PASS
	Off	2483.5	-53.98	2.0	0	43.28	AV	54	PASS
	Off	2500.0	-44.24	2.0	0	53.01	PEAK	74	PASS
	Off	2500.0	-54.07	2.0	0	43.19	AV	54	PASS

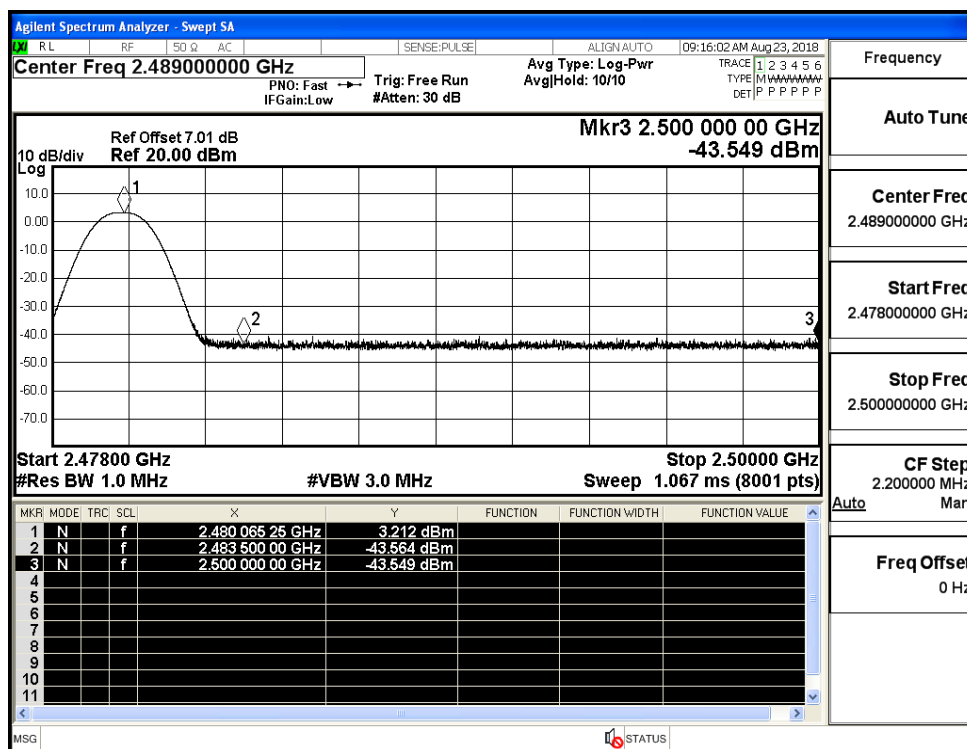
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



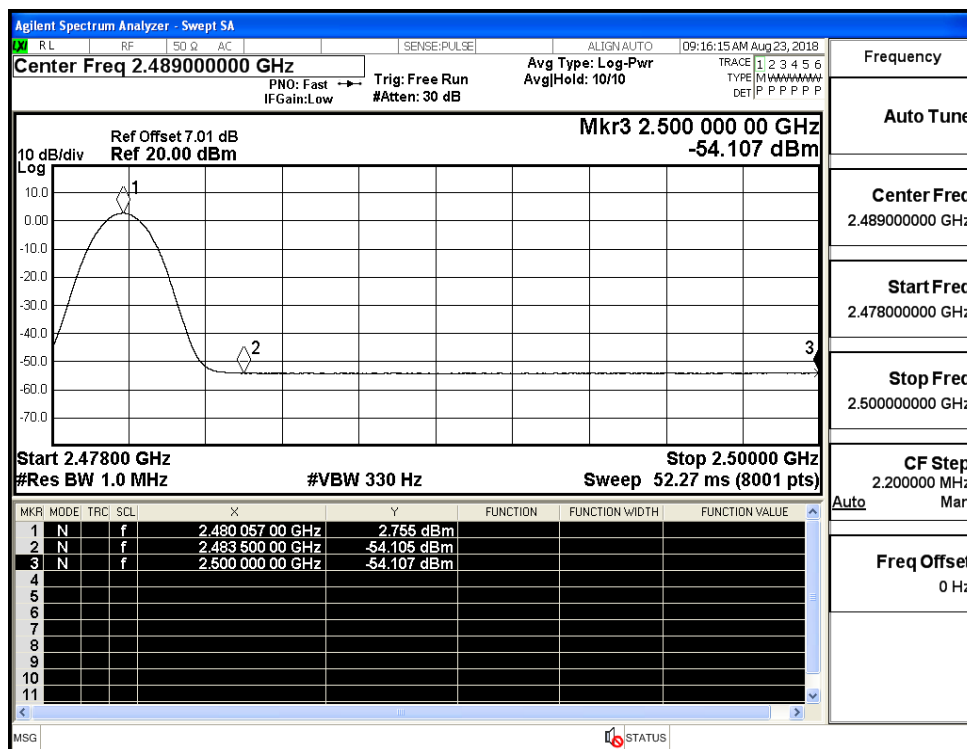
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

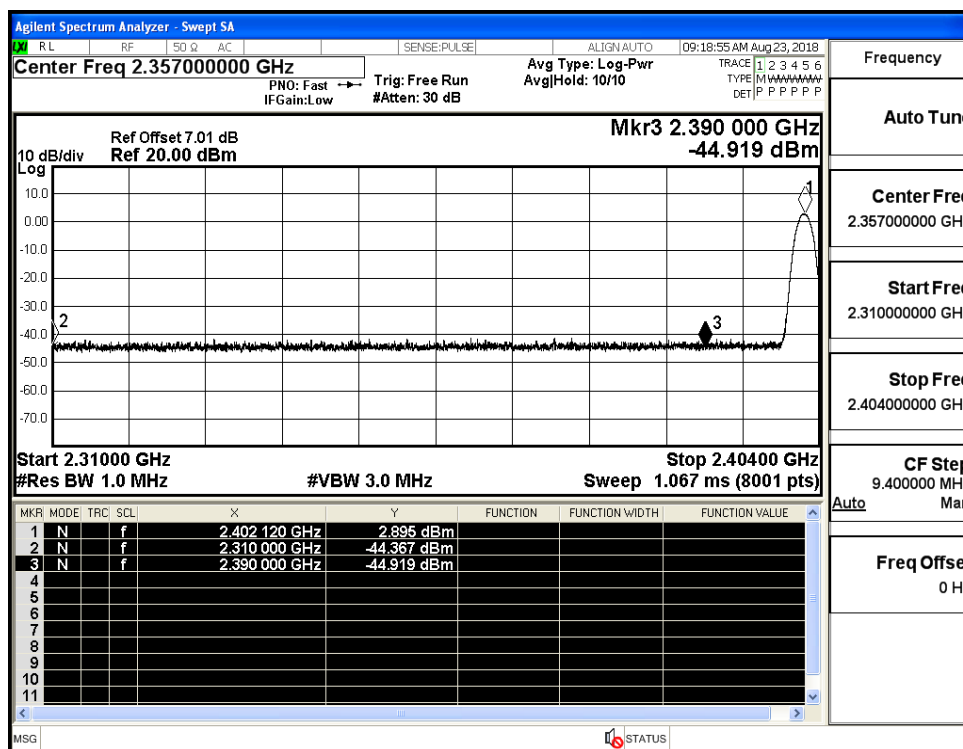
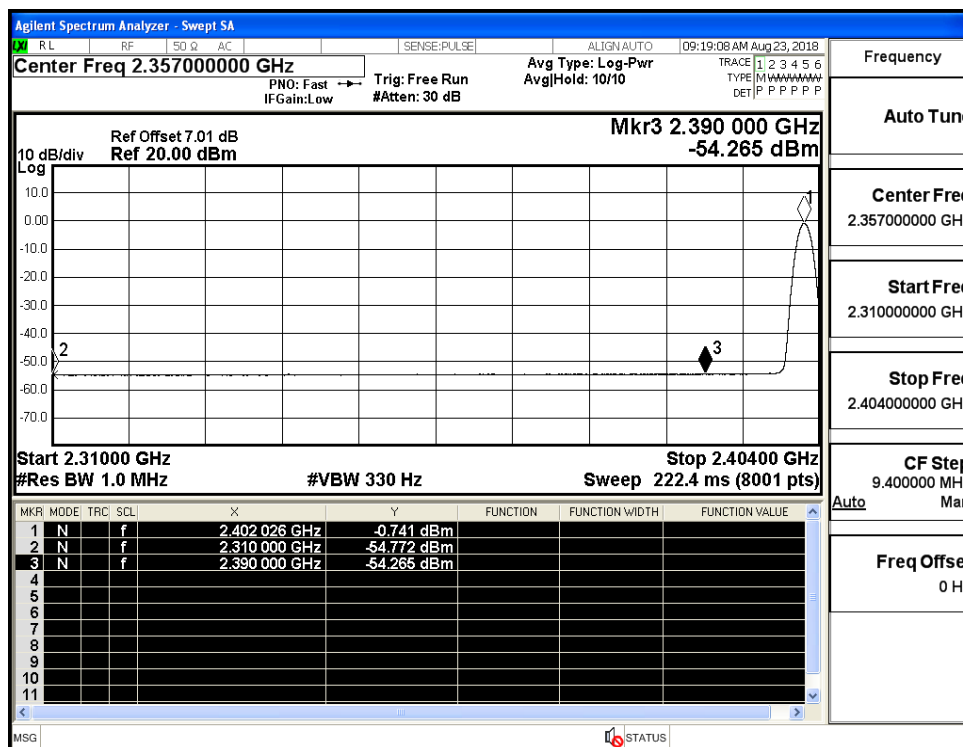


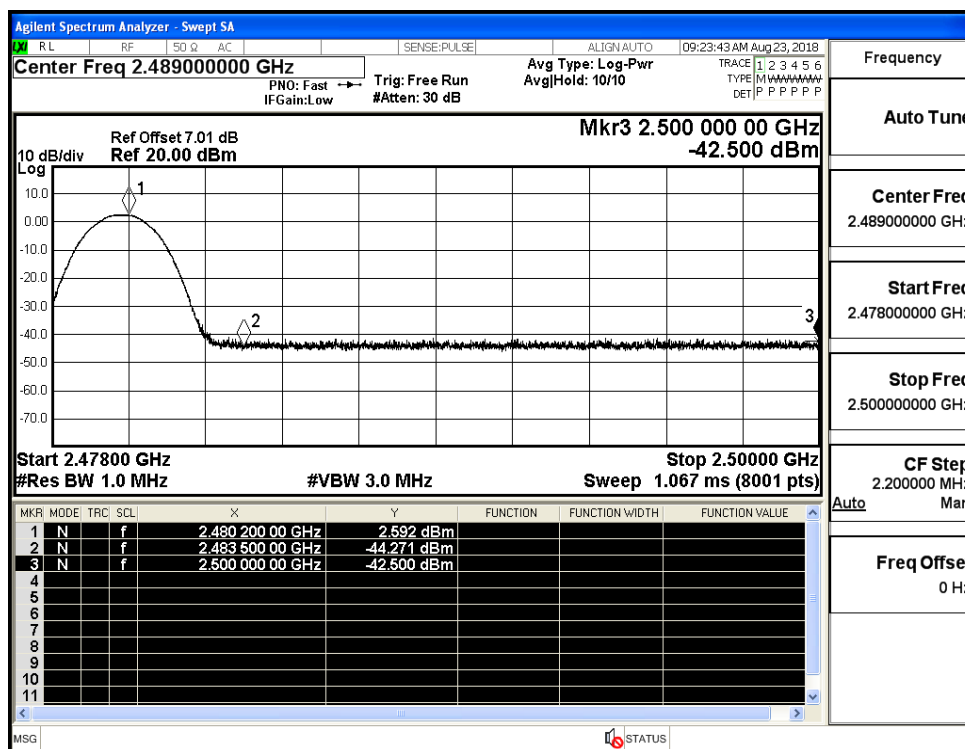
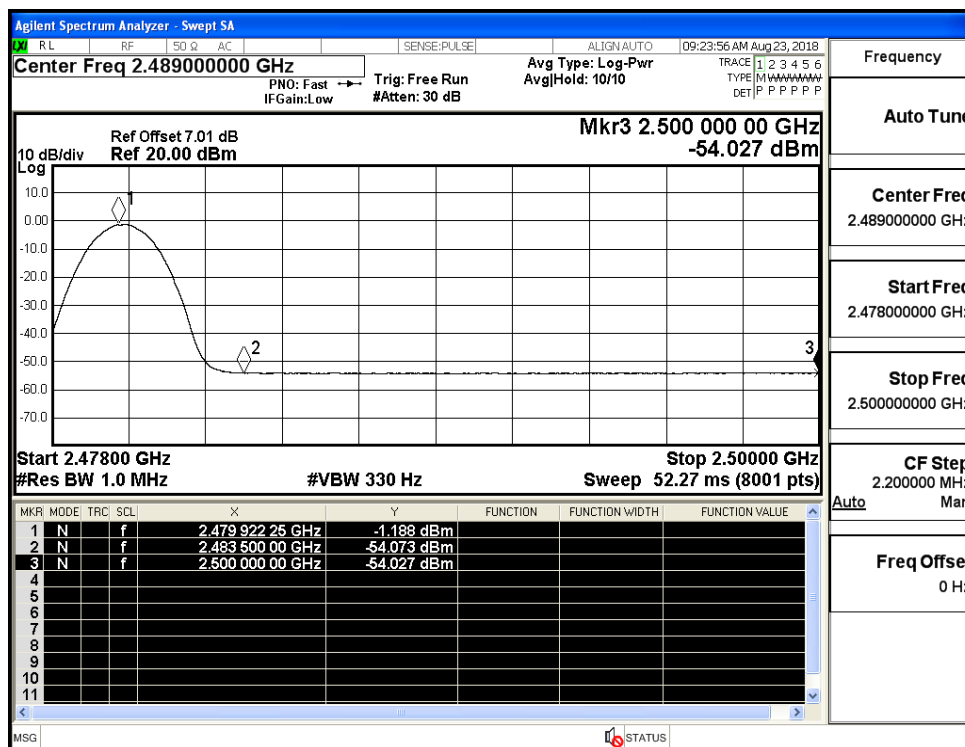
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



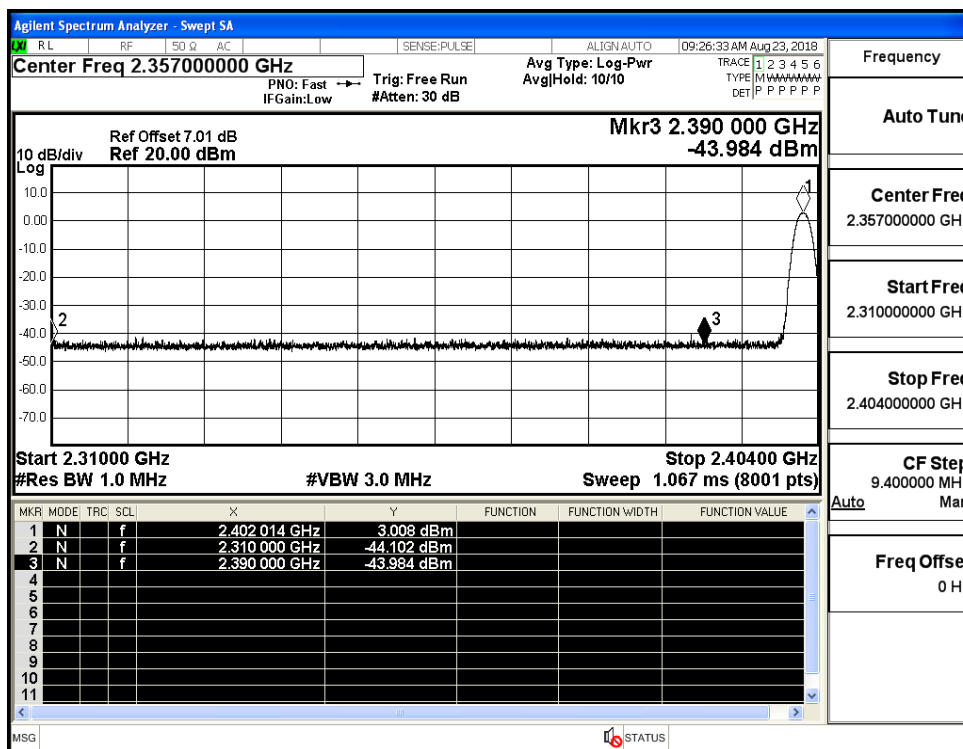
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



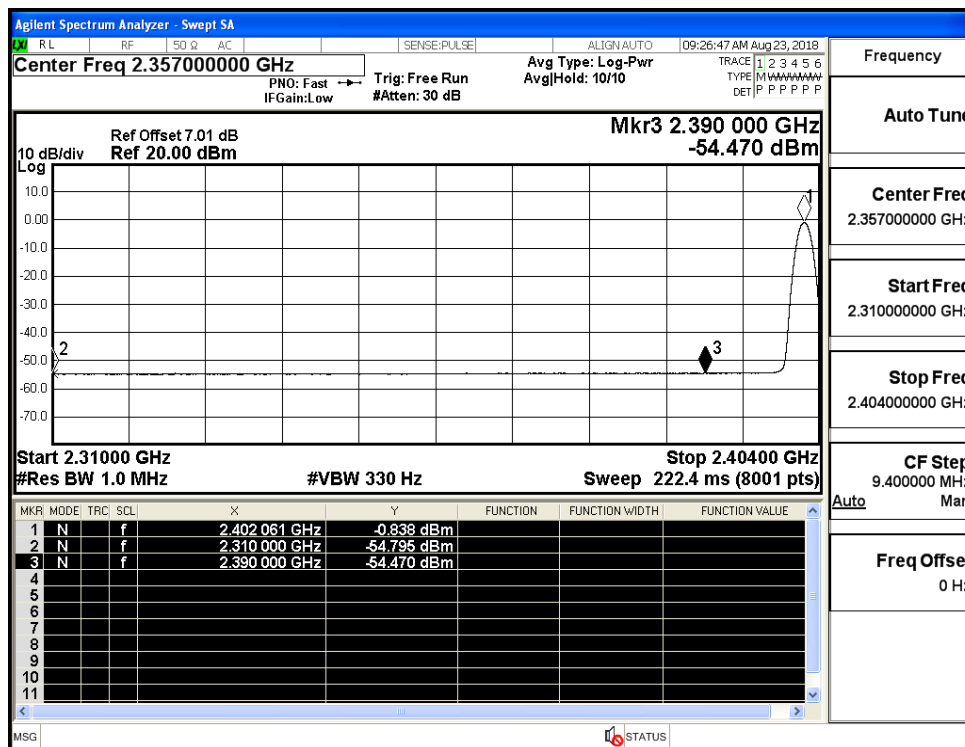
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

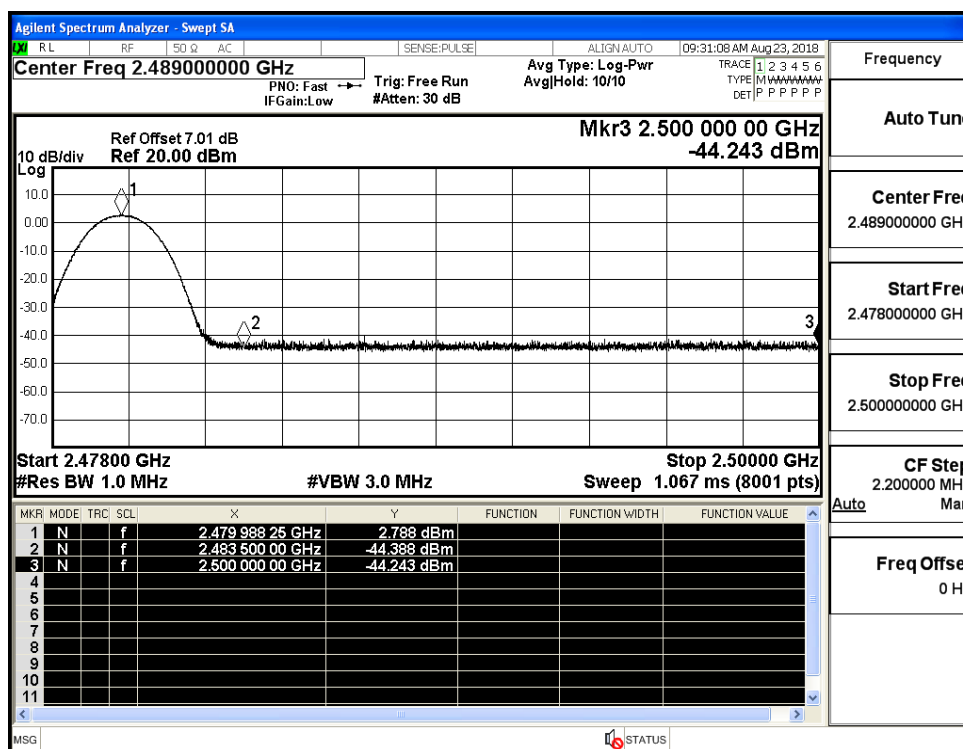
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

