

Appendix A

RF Test Data for BT V3.0 (BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth speaker with clock radi

Trade Mark: N/A

Test Model: HN926 (MCBQ618)

Environmental Conditions

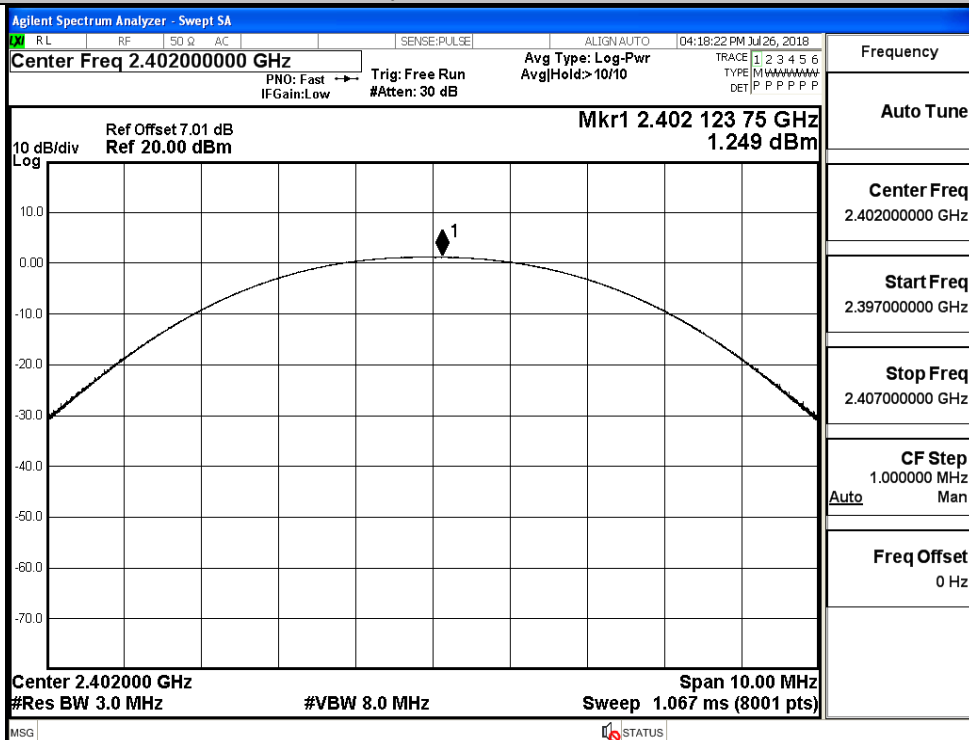
Temperature:	22.5 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Wilson.Hong
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

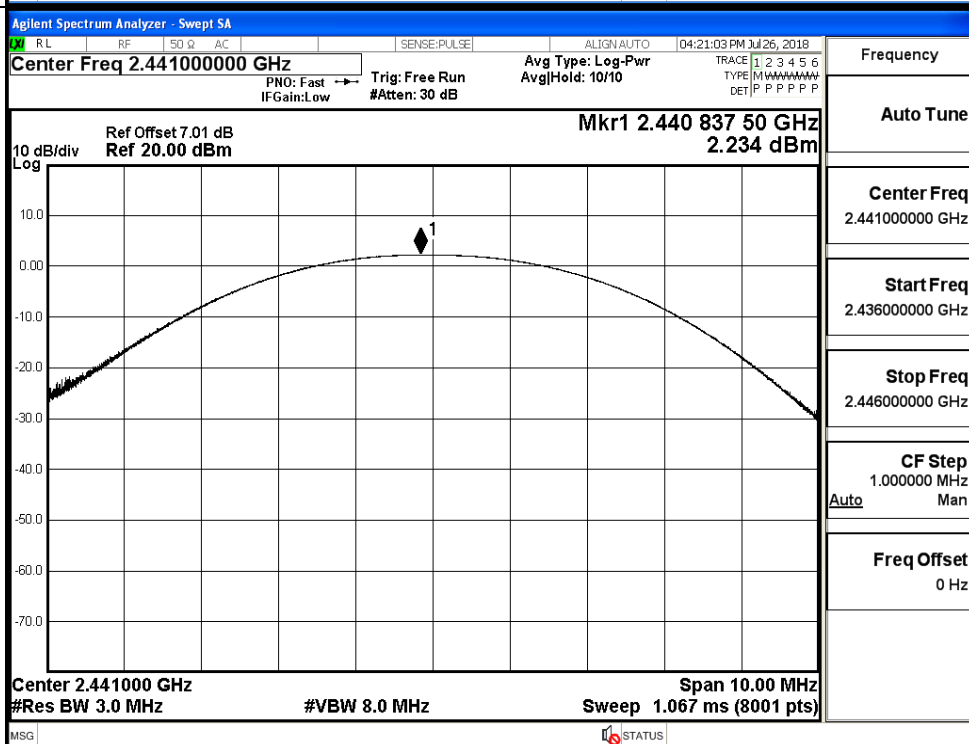
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.249	21	PASS
	MCH	2.234	21	PASS
	HCH	2.264	21	PASS
$\pi/4$ DQPSK	LCH	0.274	21	PASS
	MCH	1.380	21	PASS
	HCH	1.270	21	PASS

Test Graphs

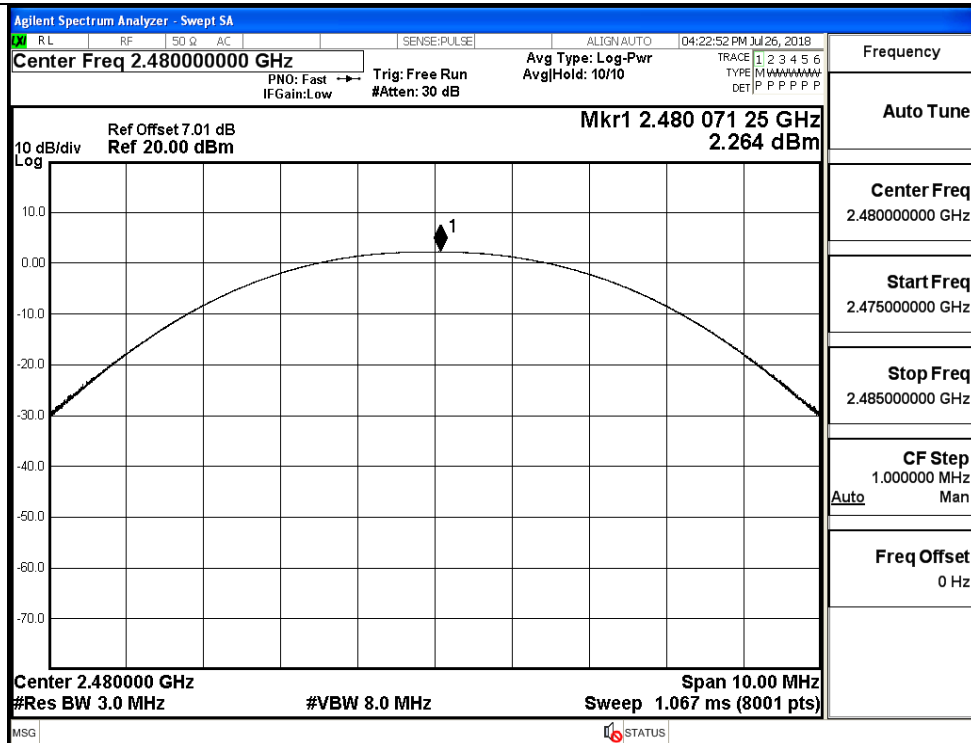
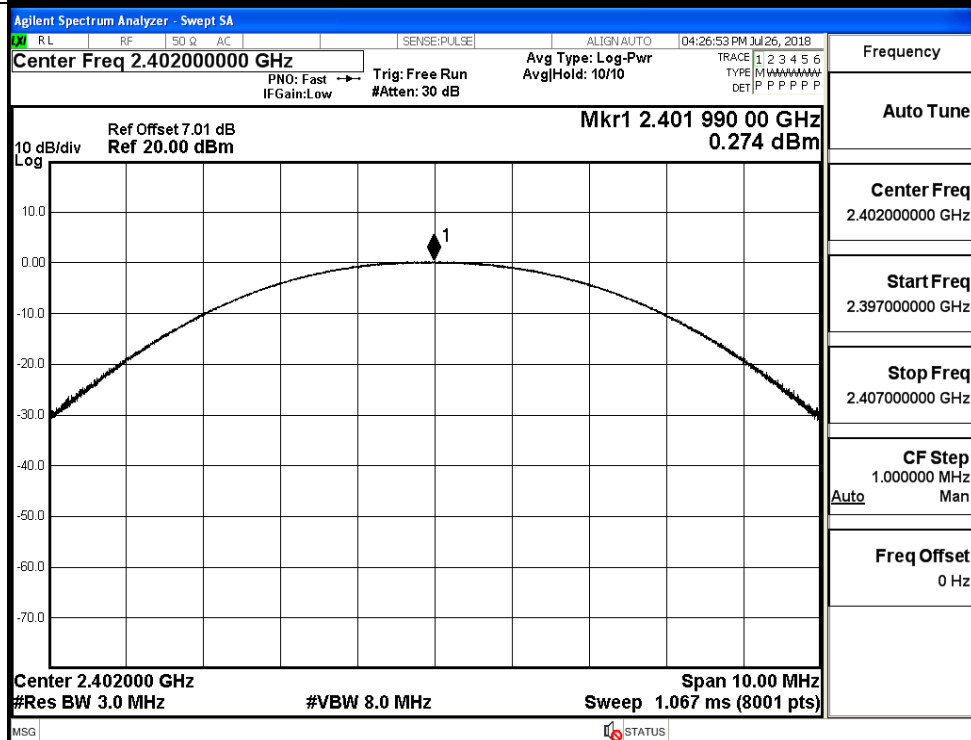
GFSK/LCH

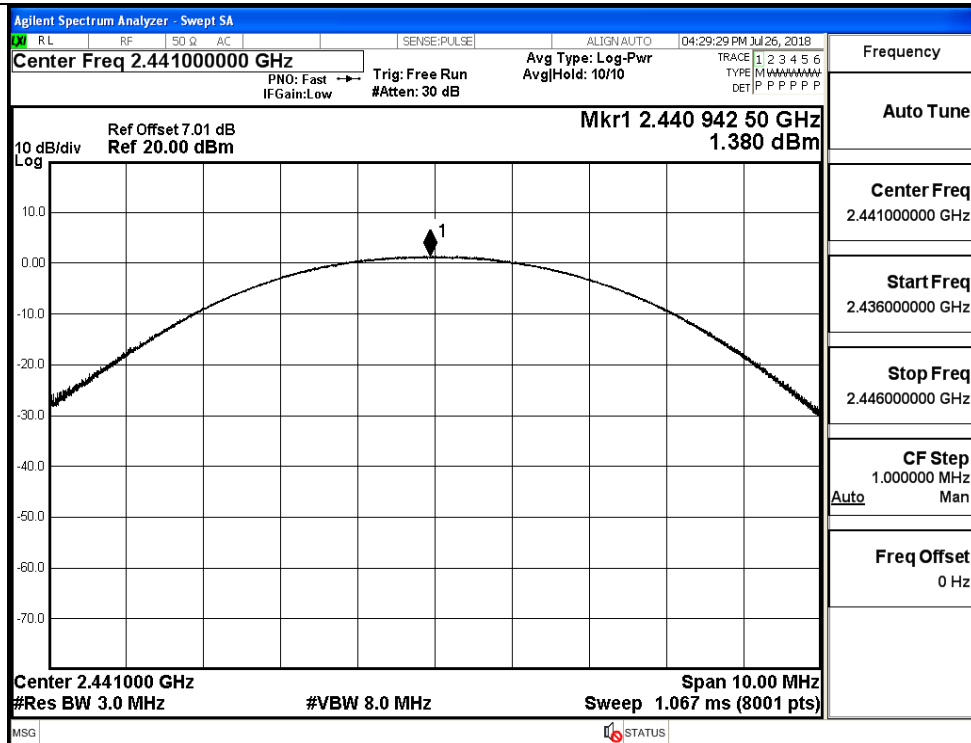
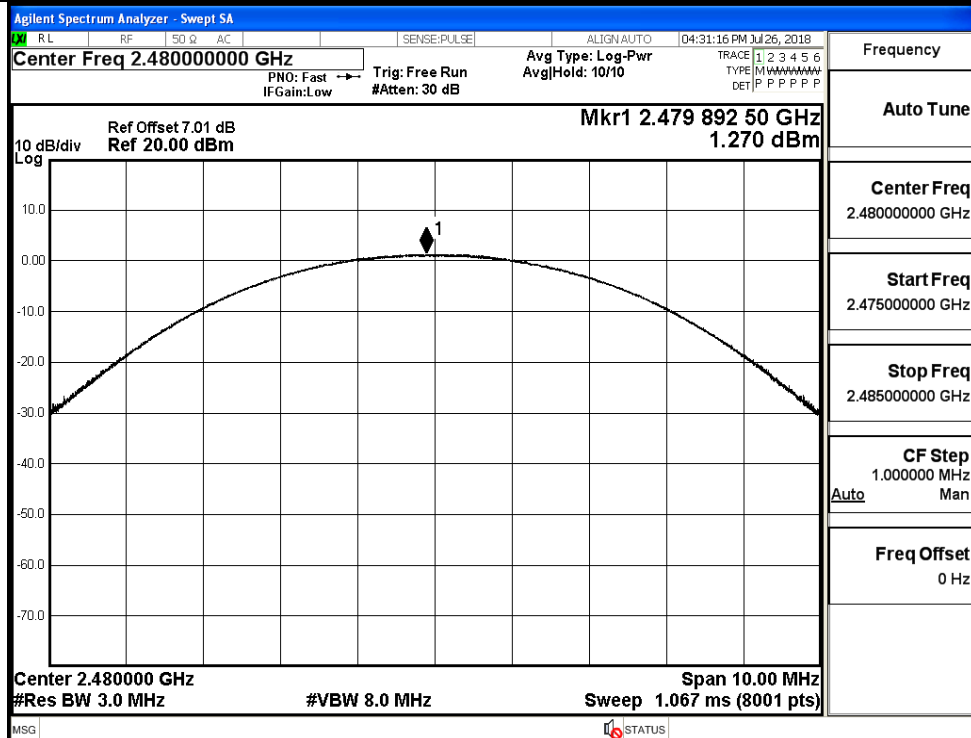


GFSK/MCH



GFSK/HCH

 π /4DQPSK/LCH

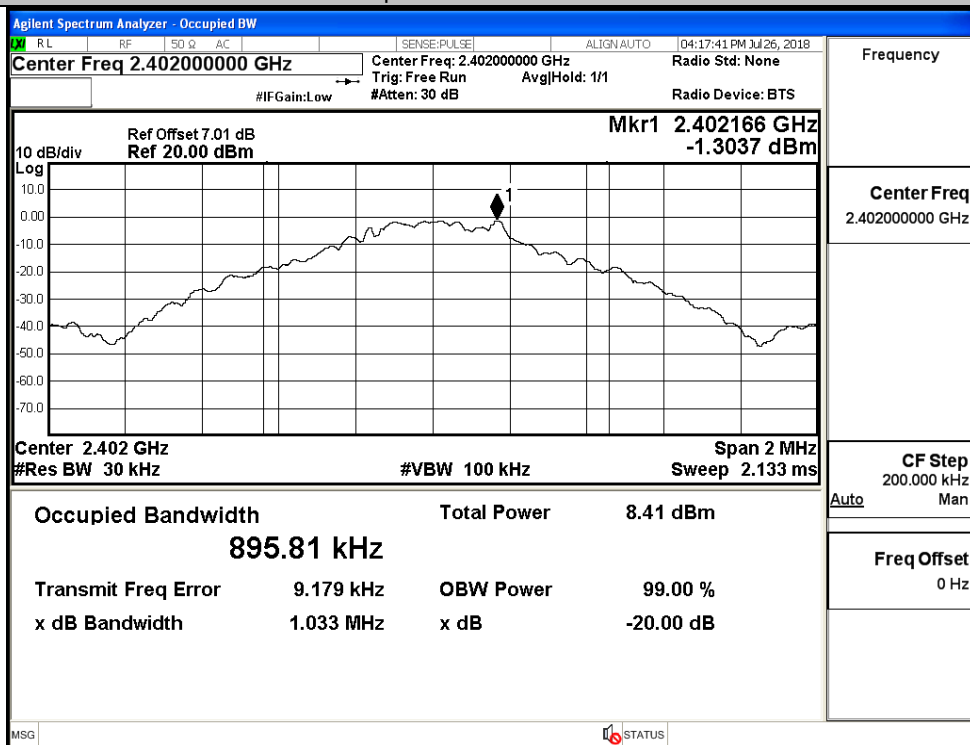
$\pi/4$ DQPSK/MCH $\pi/4$ DQPSK/HCH

A.2 99% and 20dB Bandwidth

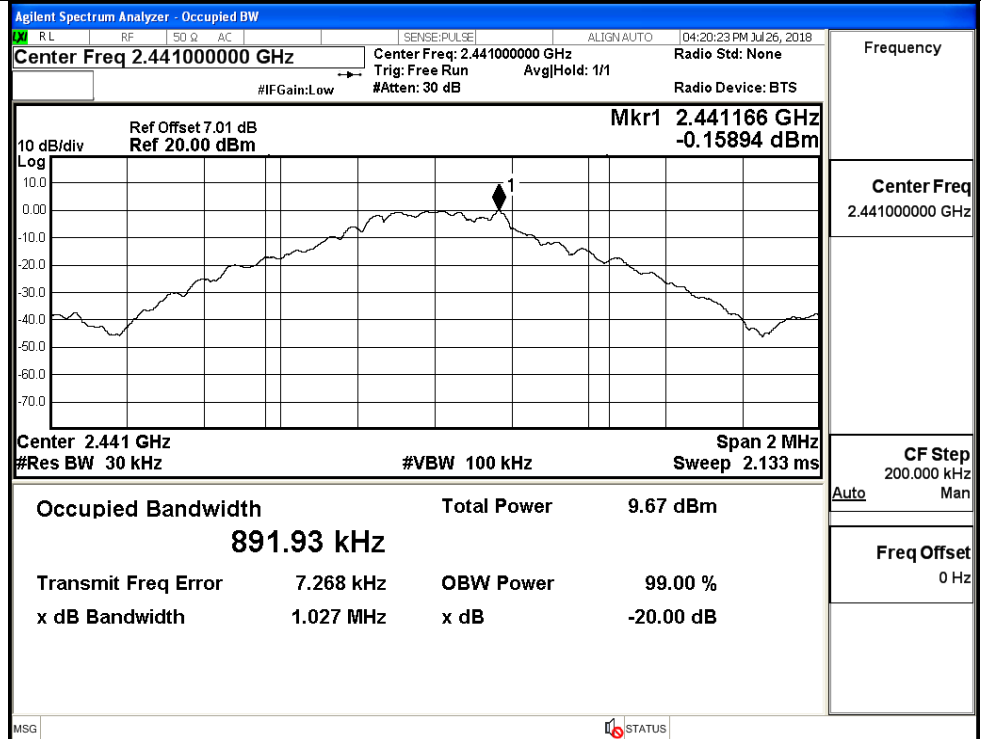
Mode	99%	20dB Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.89581	1.033	Not Specified	PASS
	MCH	0.89193	1.027	Not Specified	PASS
	HCH	0.89649	1.029	Not Specified	PASS
π /4DQPSK	LCH	1.1741	1.292	Not Specified	PASS
	MCH	1.1739	1.291	Not Specified	PASS
	HCH	1.1678	1.289	Not Specified	PASS

Test Graphs

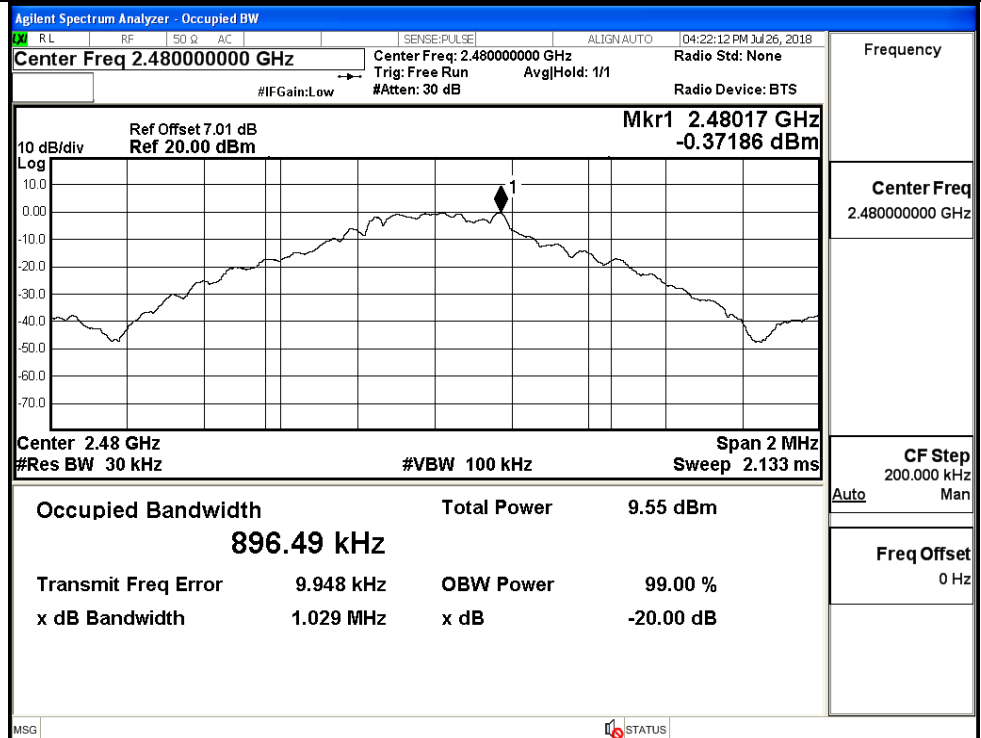
GFSK/LCH

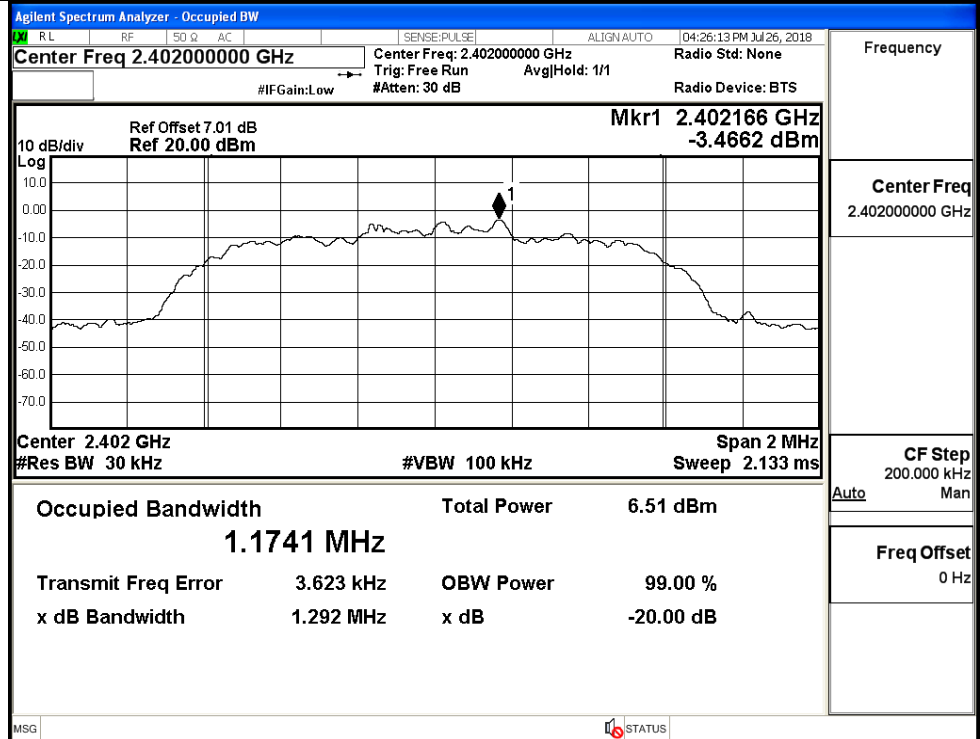
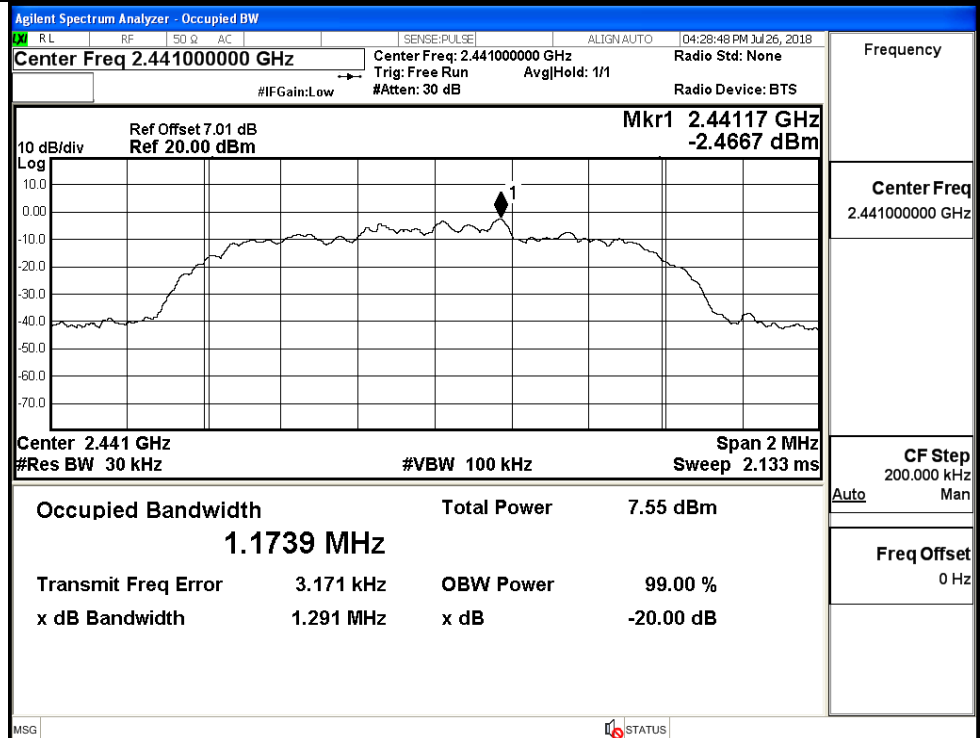


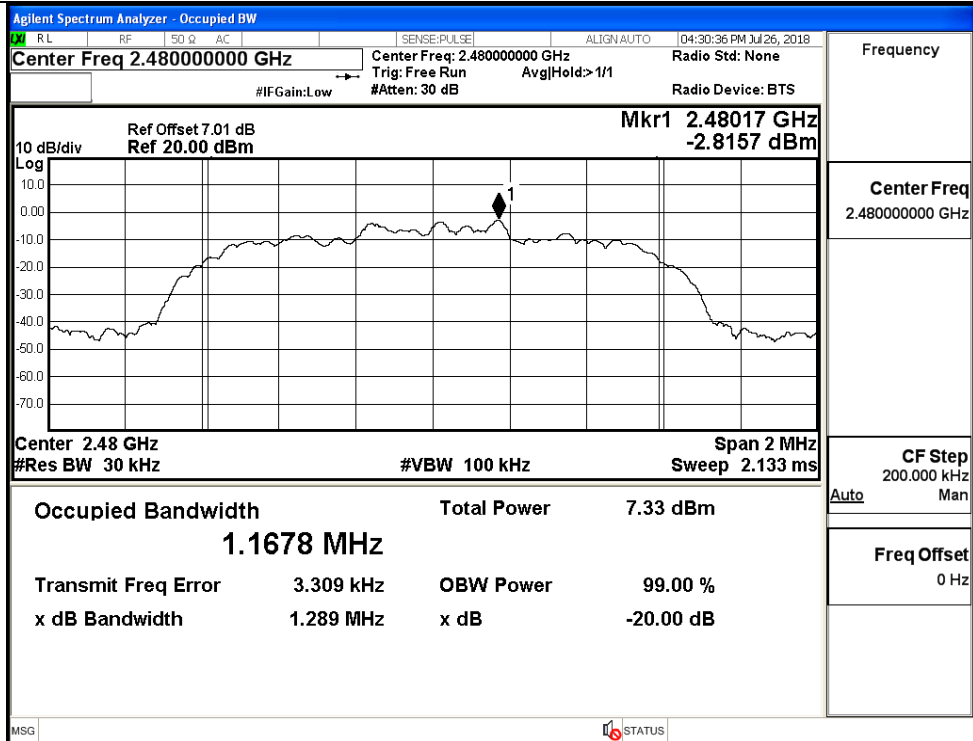
GFSK/MCH



GFSK/HCH



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

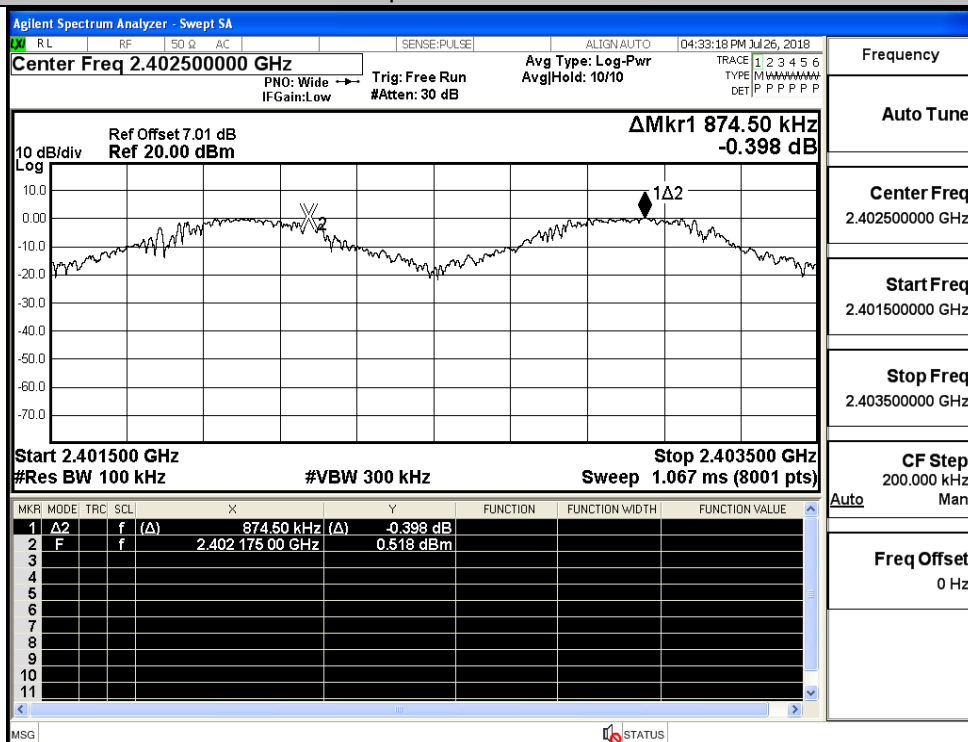
$\pi/4$ DQPSK/HCH

A.3 Carrier Frequency Separation

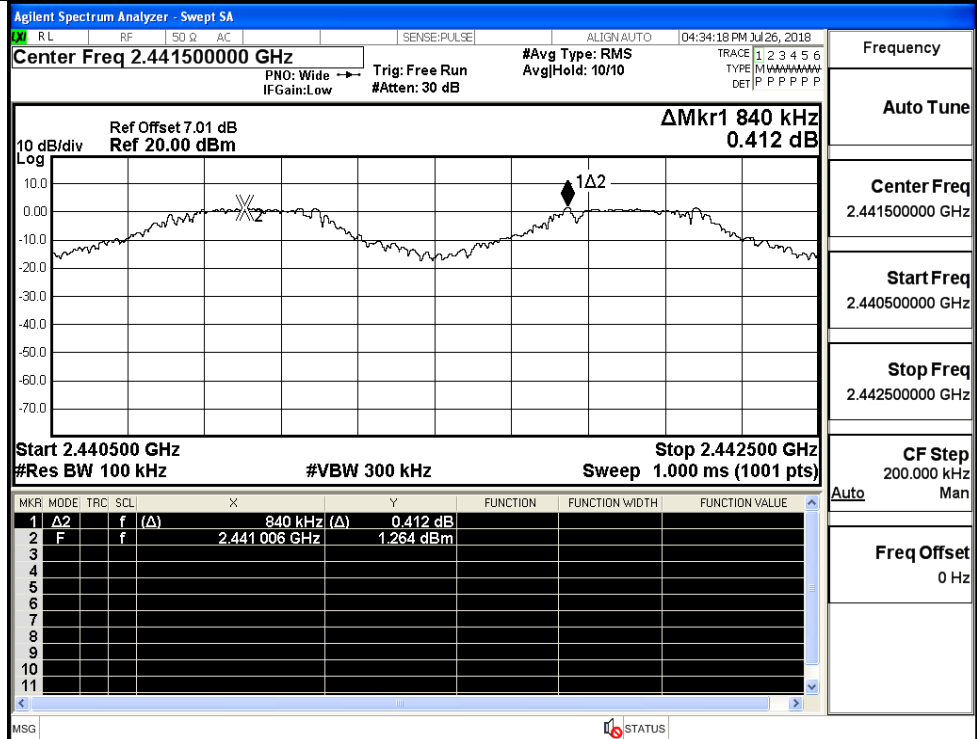
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.874	0.689	PASS
	MCH	0.840	0.689	PASS
	HCH	0.866	0.689	PASS
π /4DQPSK	LCH	1.108	0.861	PASS
	MCH	1.180	0.861	PASS
	HCH	0.986	0.861	PASS

Test Graphs

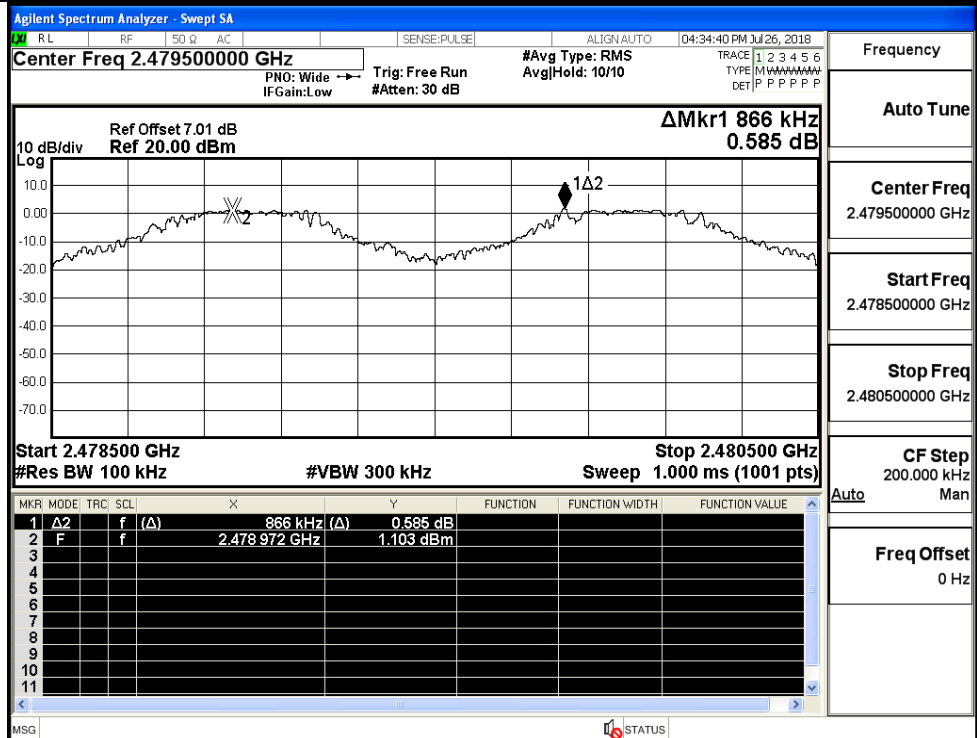
GFSK/LCH

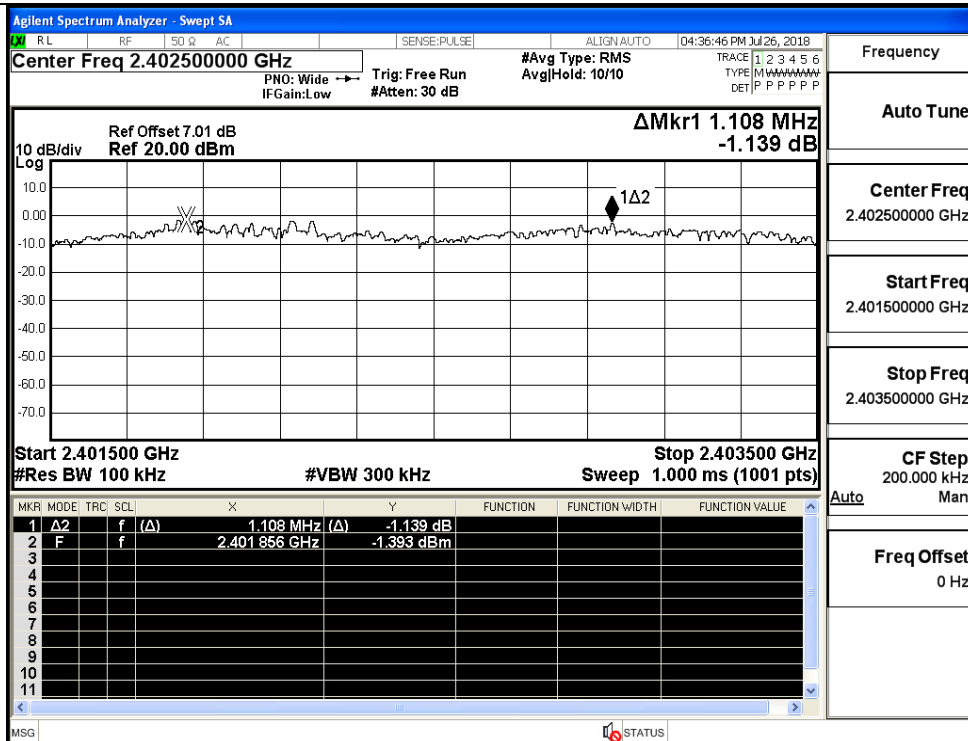
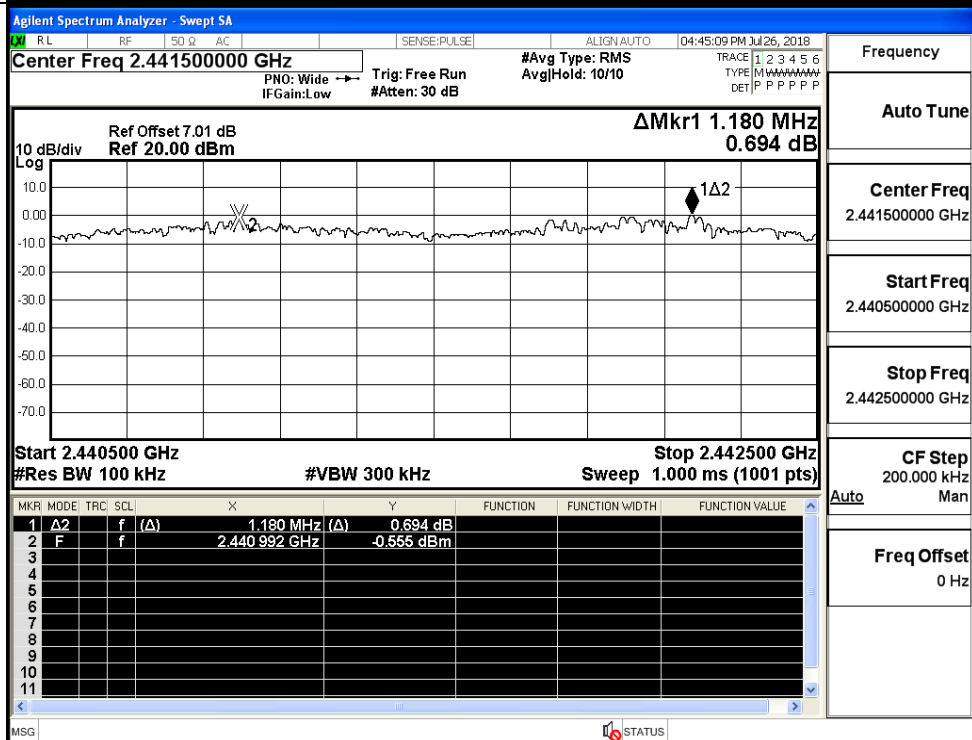


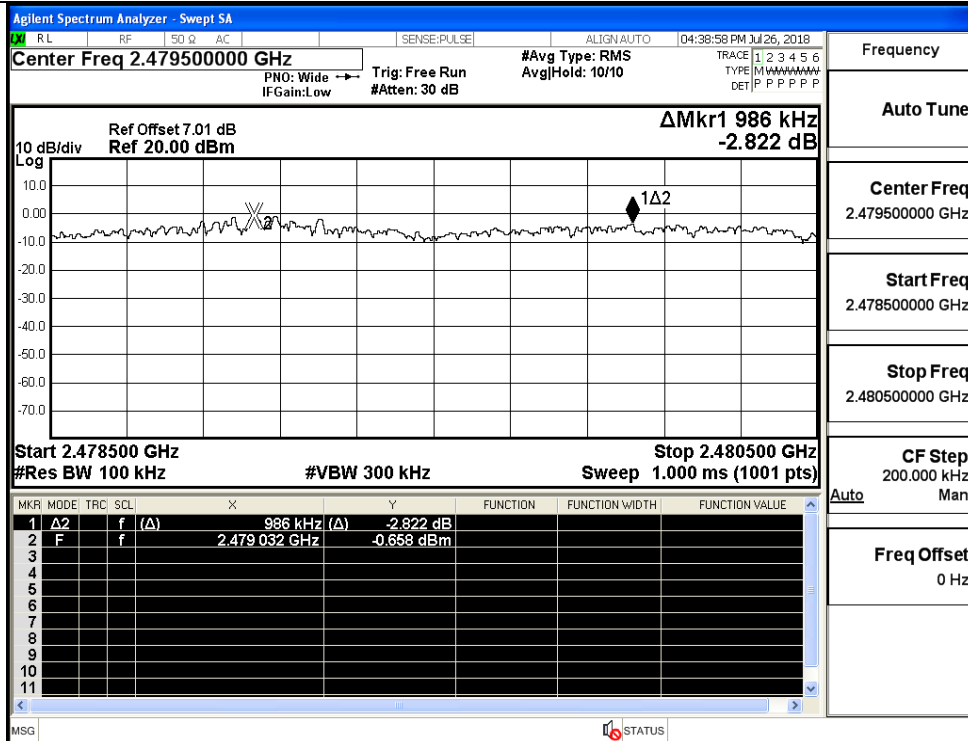
GFSK/MCH



GFSK/HCH



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

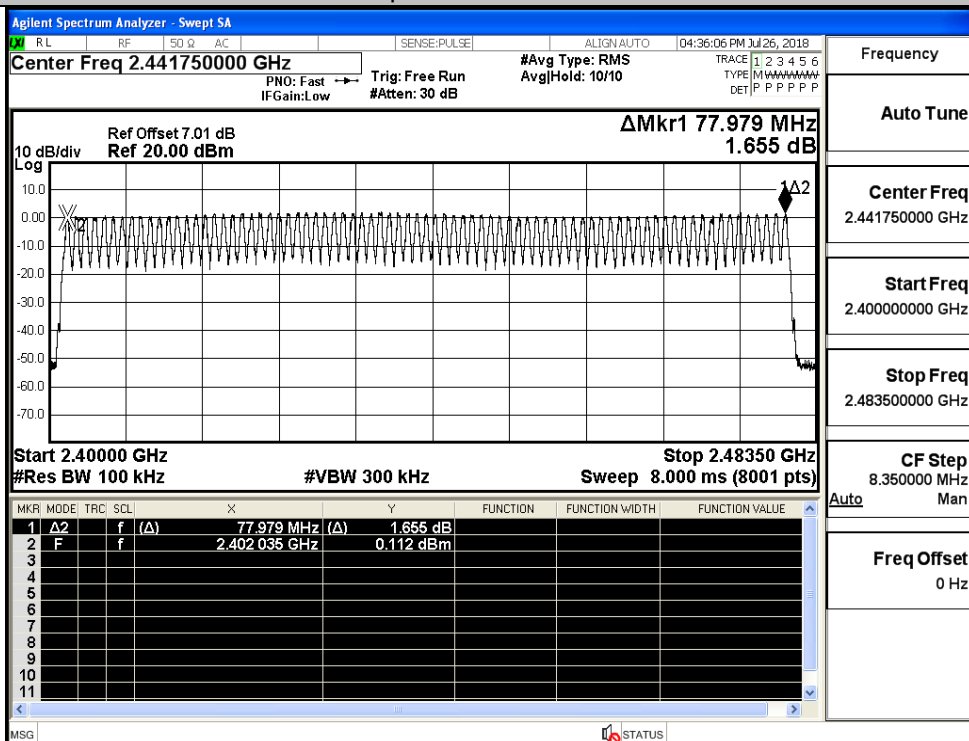
$\pi/4$ DQPSK/HCH

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

Test Graphs

GFSK/Hop



Frequency

Auto Tune

Center Freq

2.441750000 GHz

Start Freq

2.400000000 GHz

Stop Freq

2.483500000 GHz

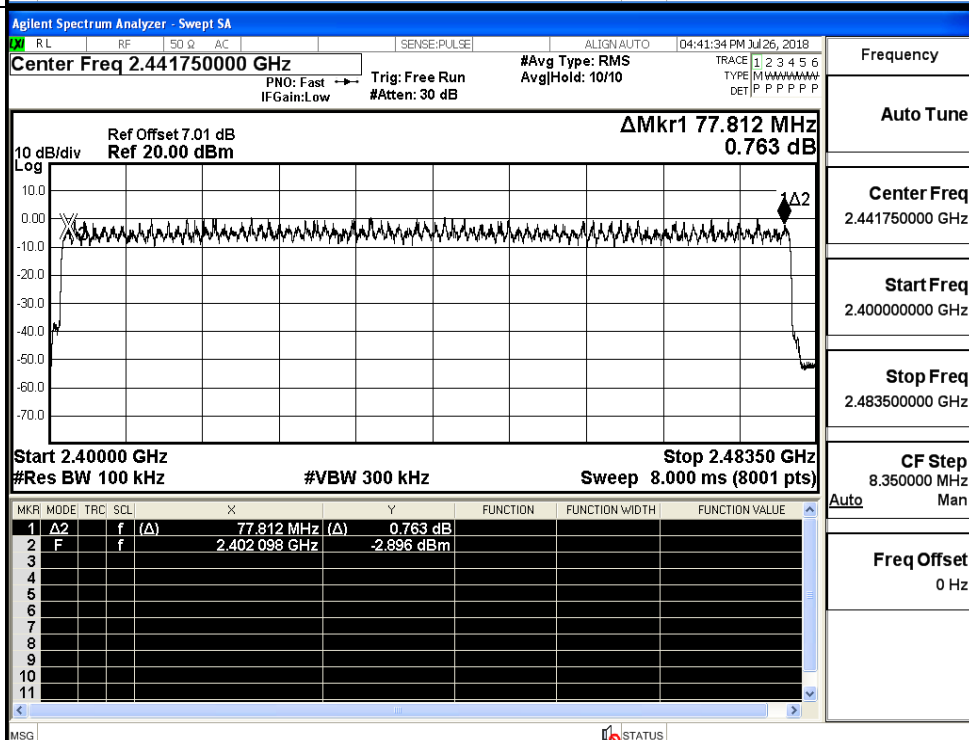
CF Step

8.350000 MHz

Man

Freq Offset

0 Hz

 $\pi/4$ DQPSK/Hop

Frequency

Auto Tune

Center Freq

2.441750000 GHz

Start Freq

2.400000000 GHz

Stop Freq

2.483500000 GHz

CF Step

8.350000 MHz

Man

Freq Offset

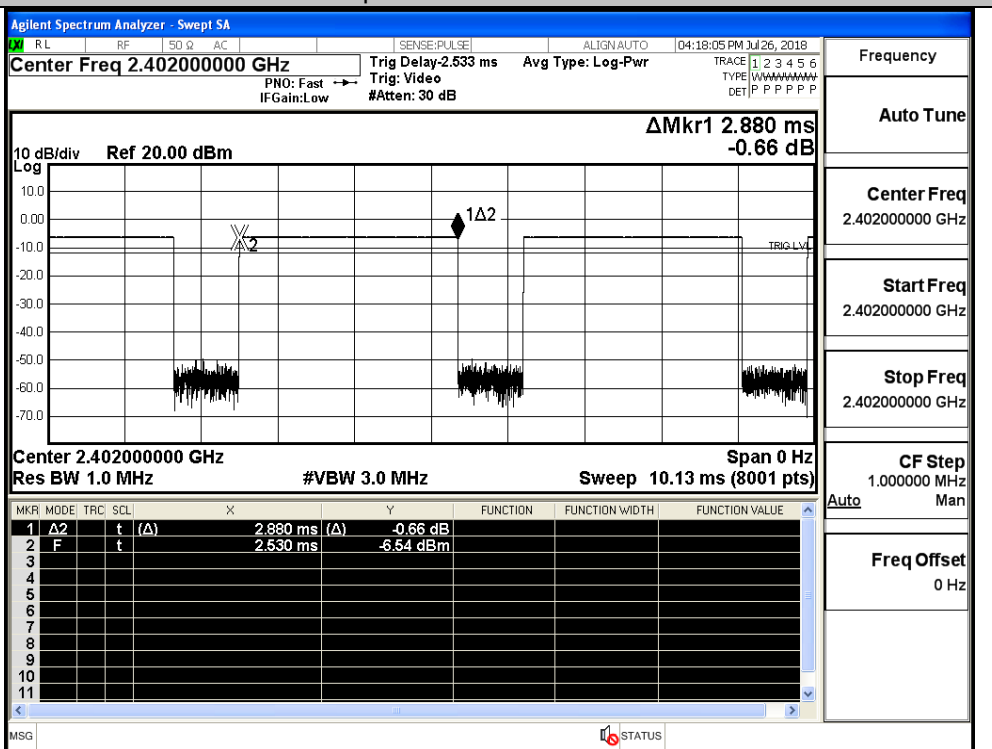
0 Hz

A.5 Dwell Time

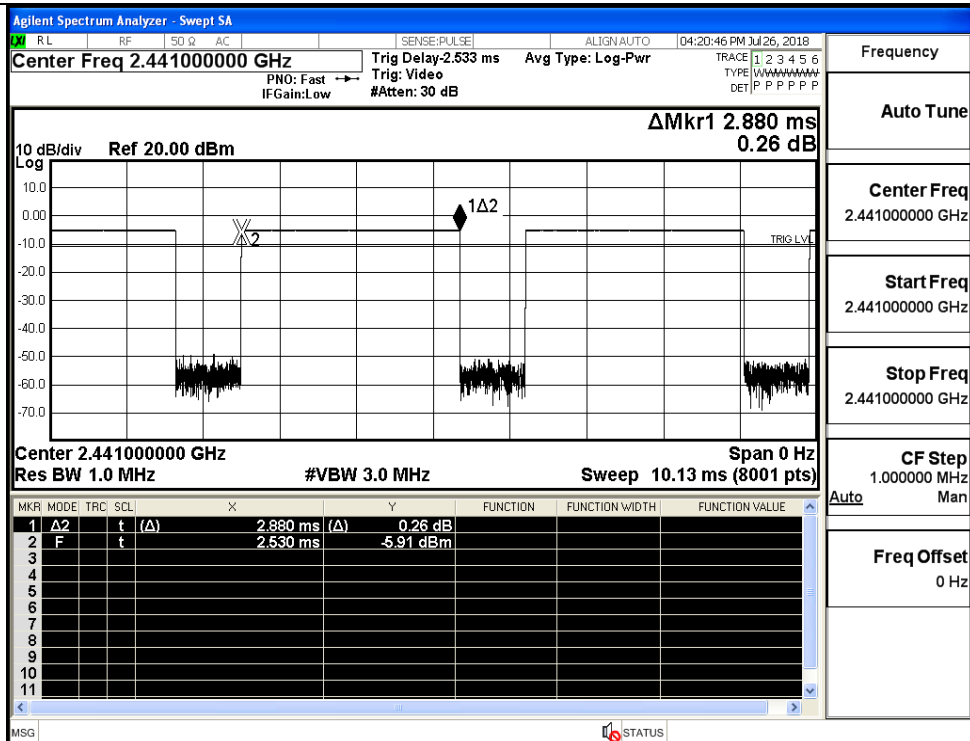
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

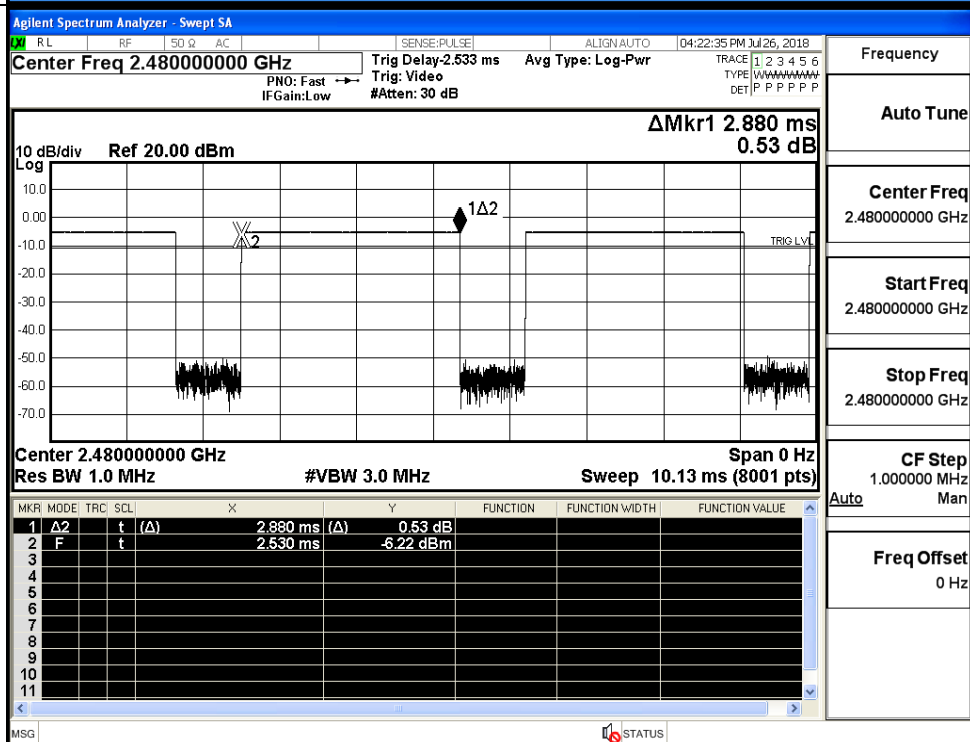
GFSK_DH5/LCH



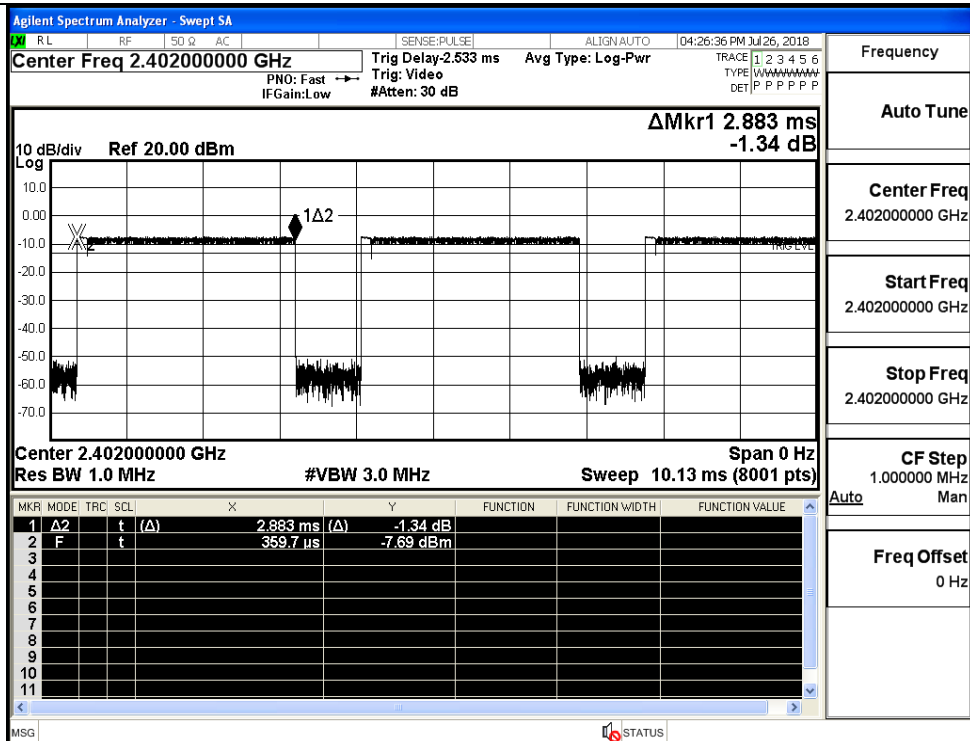
GFSK_DH5/MCH



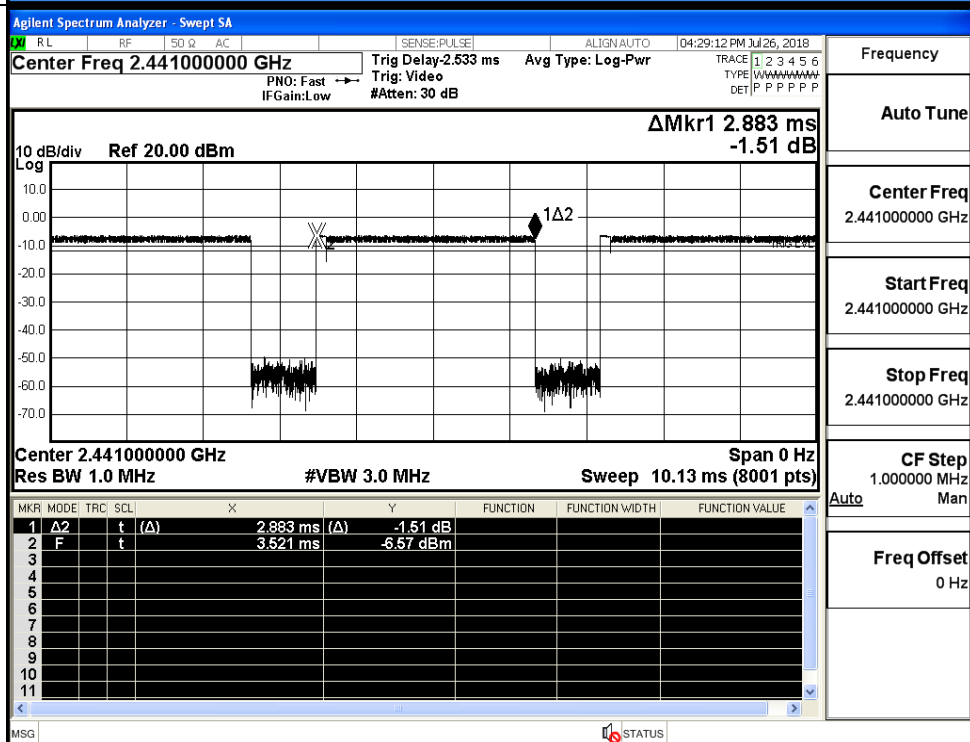
GFSK_DH5/HCH



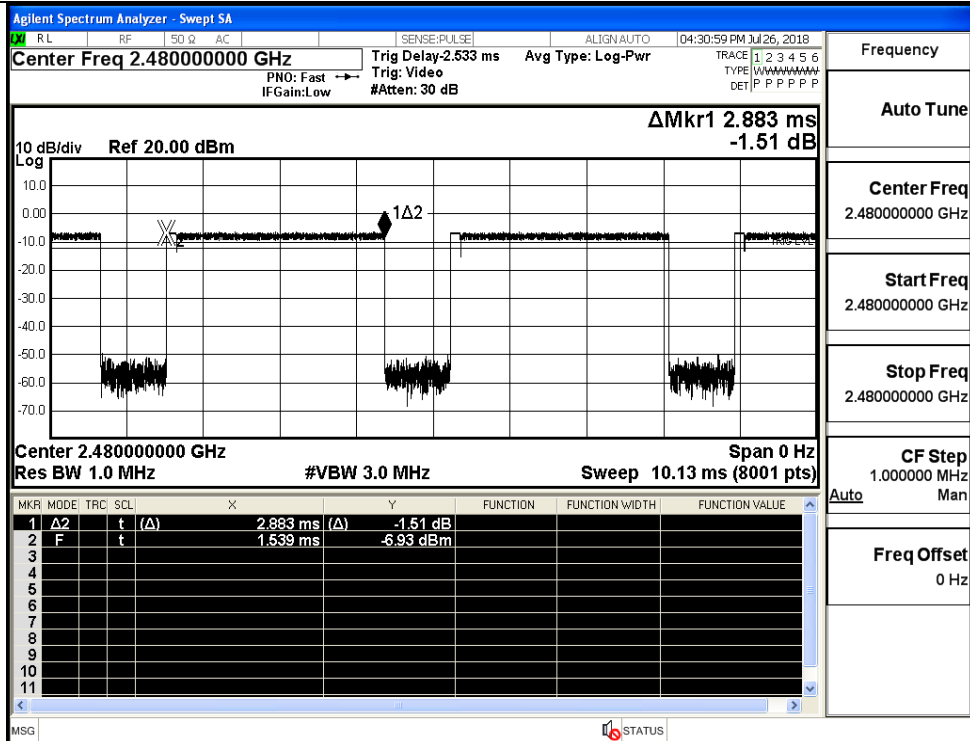
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



$\pi/4$ DQPSK
_2DH5/HCH

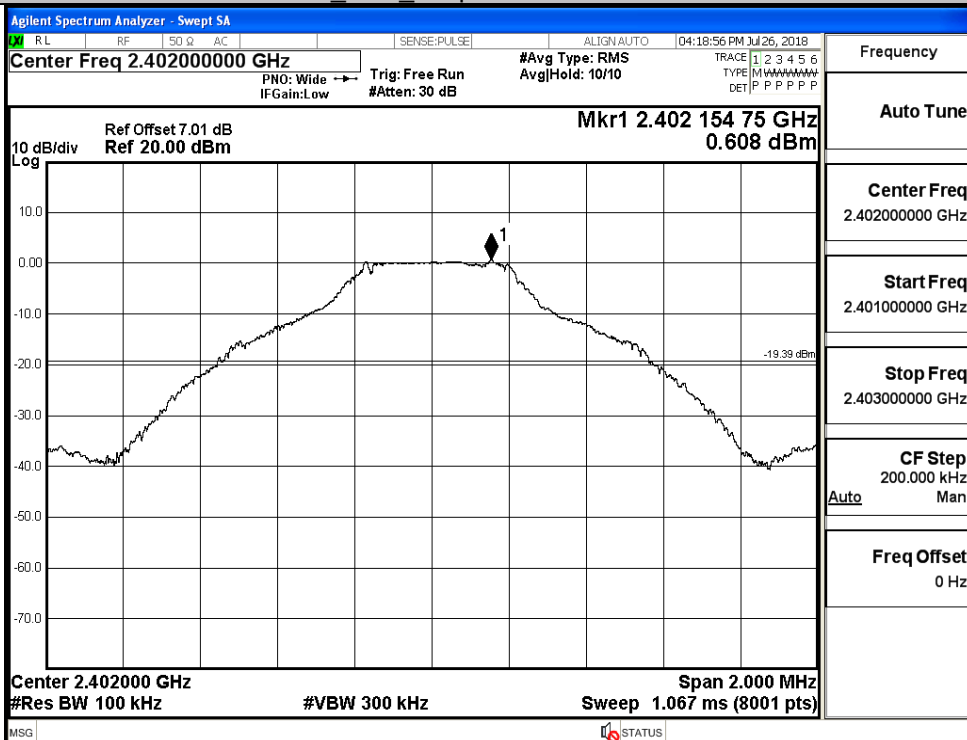


A.6 RF Conducted Spurious Emissions

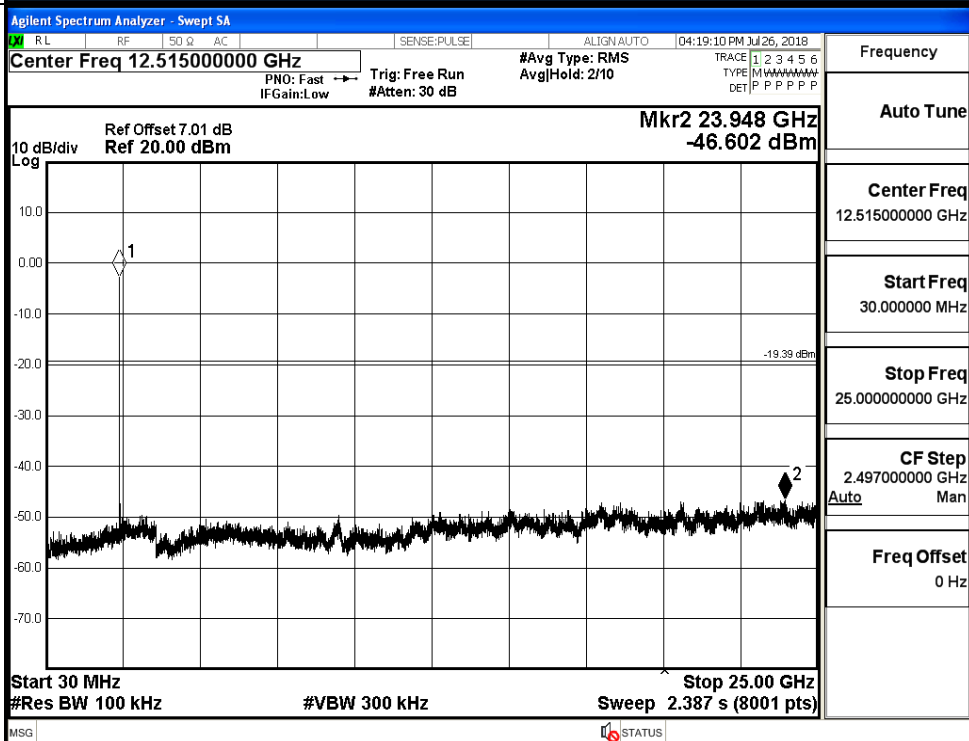
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.608	-46.602	-19.392	PASS
	MCH	1.82	-45.421	-18.180	PASS
	HCH	1.795	-45.663	-18.205	PASS
$\pi/4$ DQPSK	LCH	-0.683	-45.889	-20.683	PASS
	MCH	0.246	-45.637	-19.754	PASS
	HCH	0.057	-43.959	-19.943	PASS

GFSK_LCH_Graphs

Pref

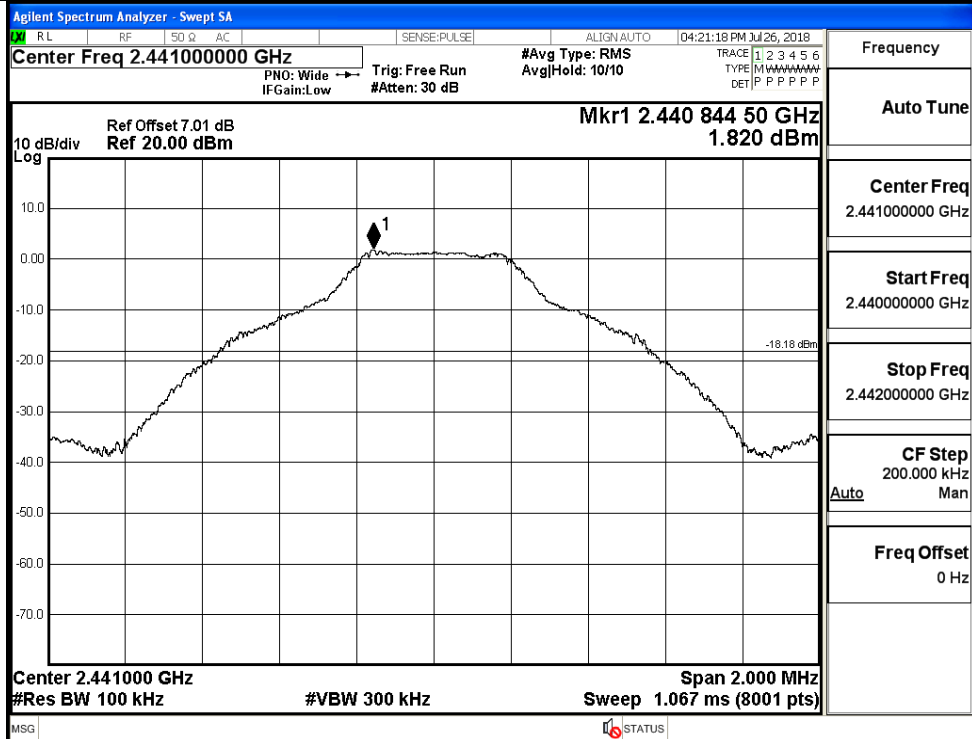


Puw

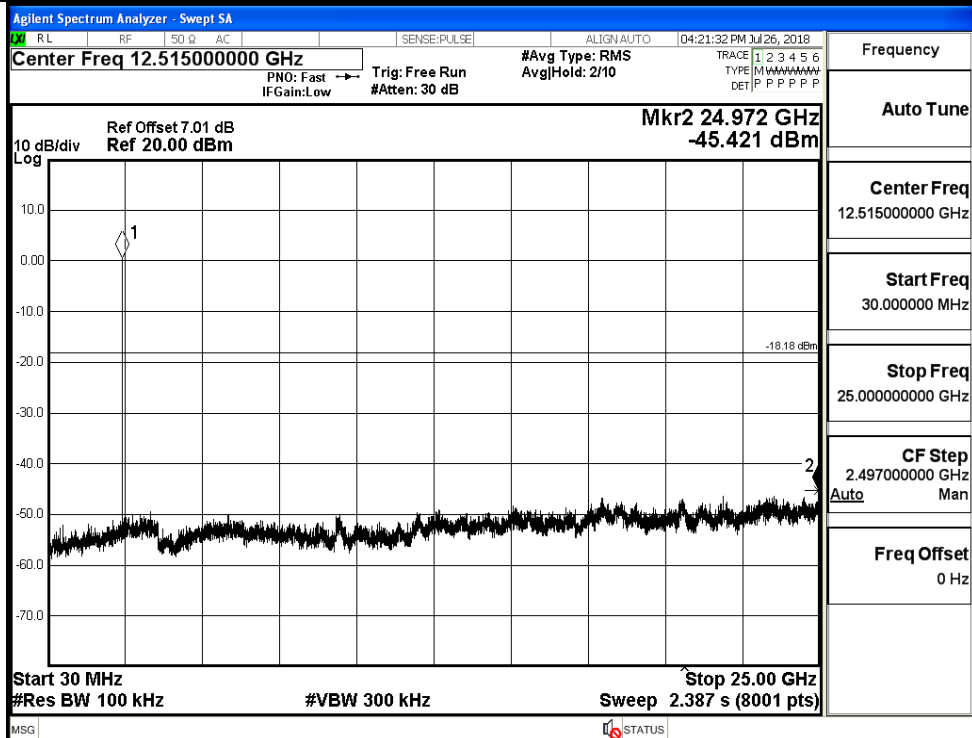


GFSK_MCH_Graphs

Pref

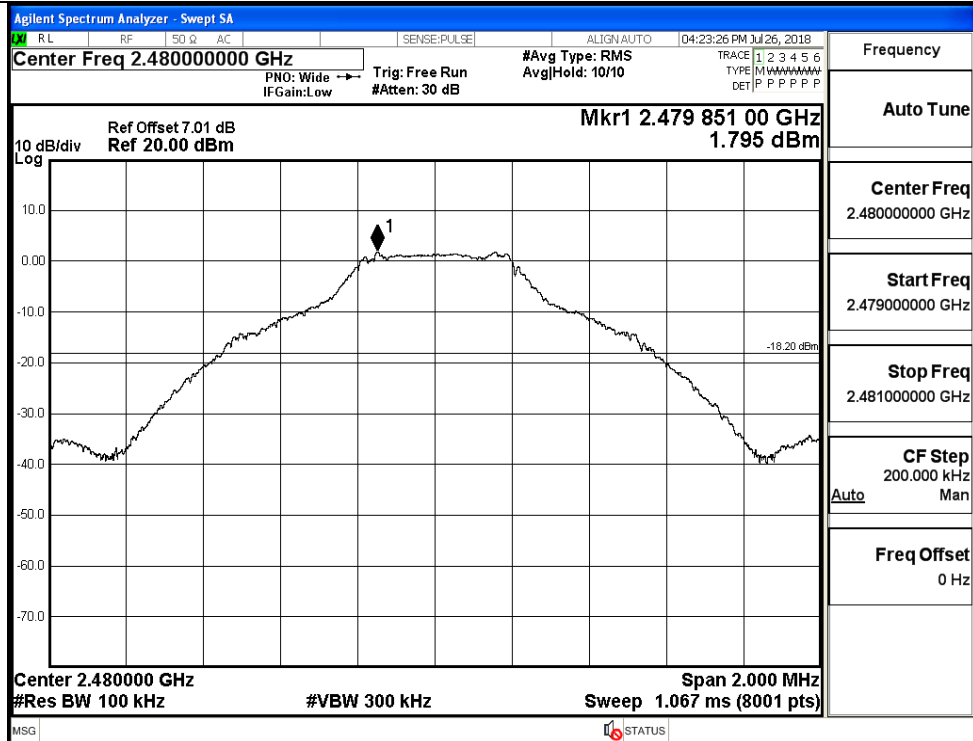


Puw

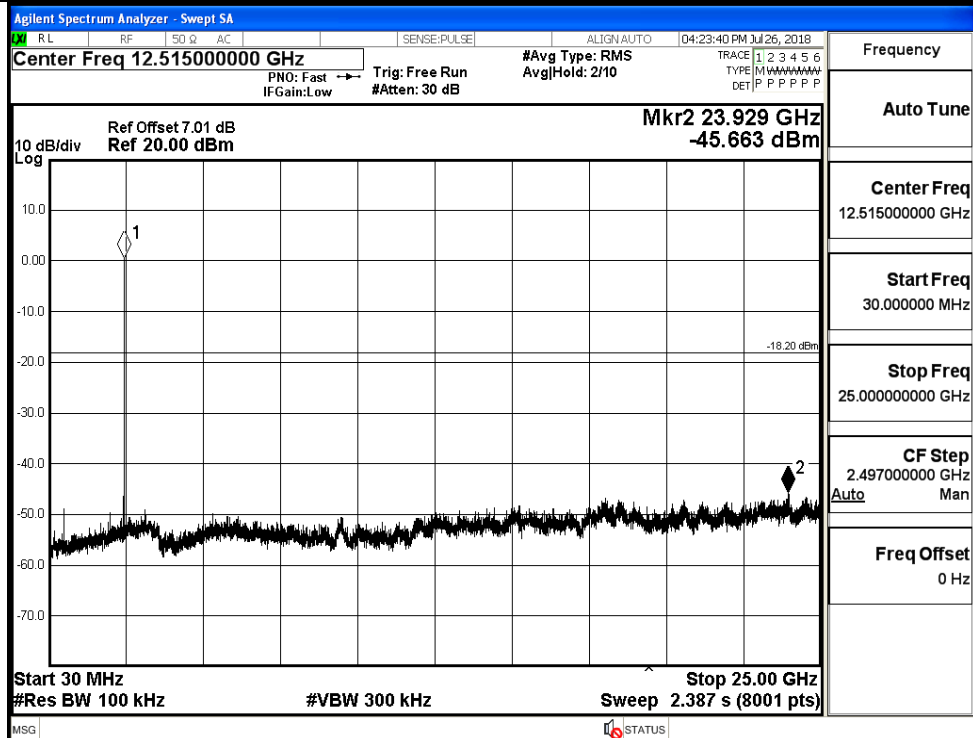


GFSK HCH_Graphs

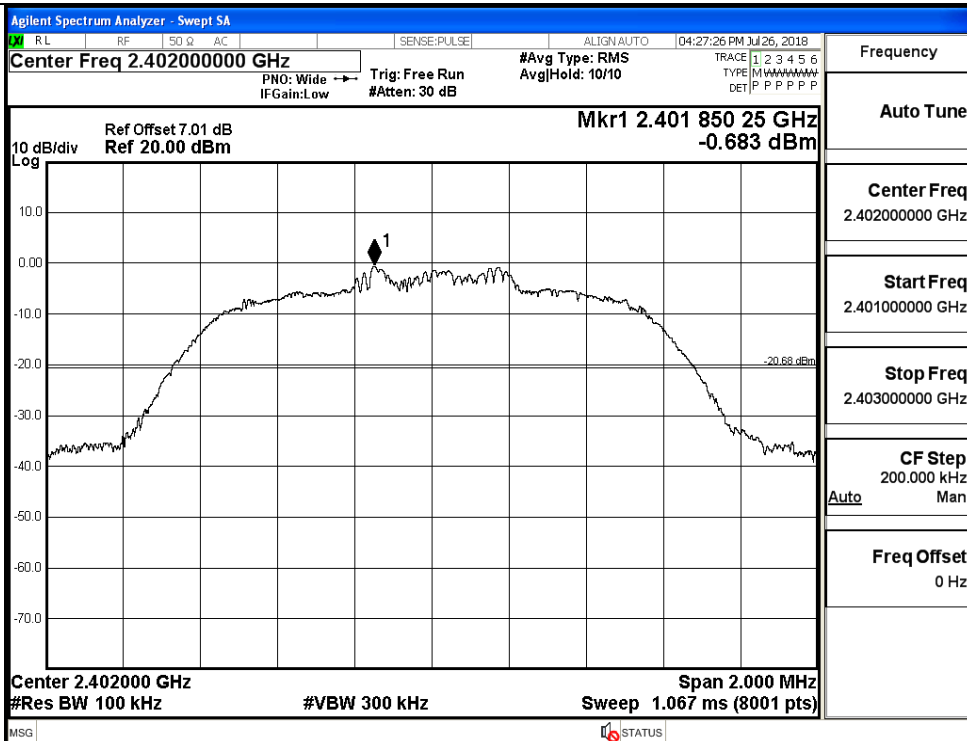
Pref



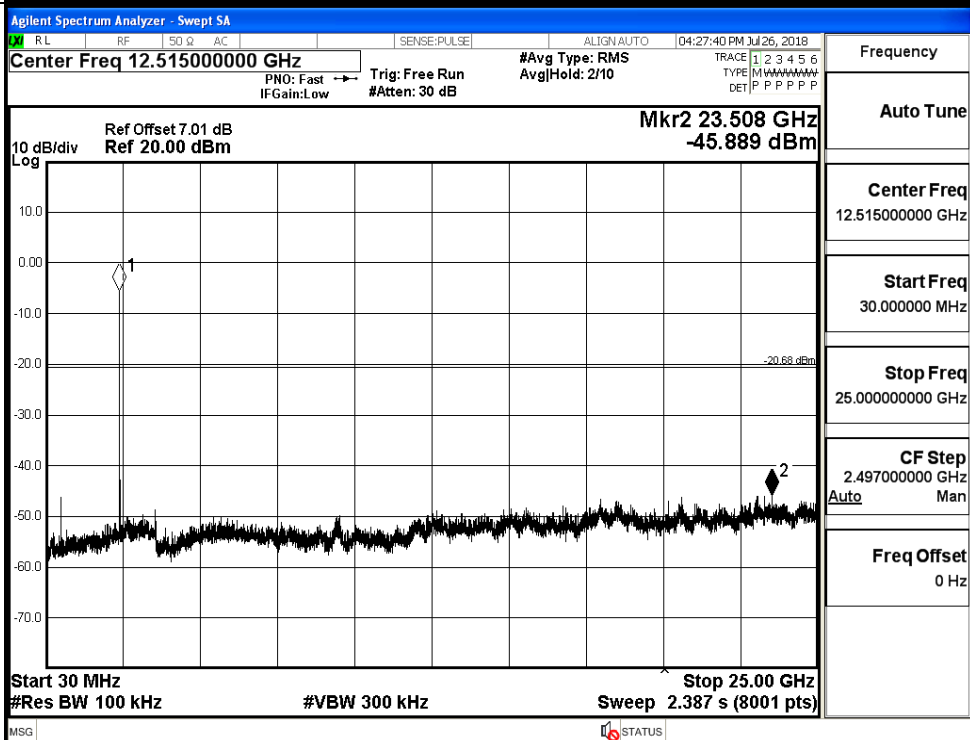
Puw

 $\pi/4$ DQPSK LCH_Graphs

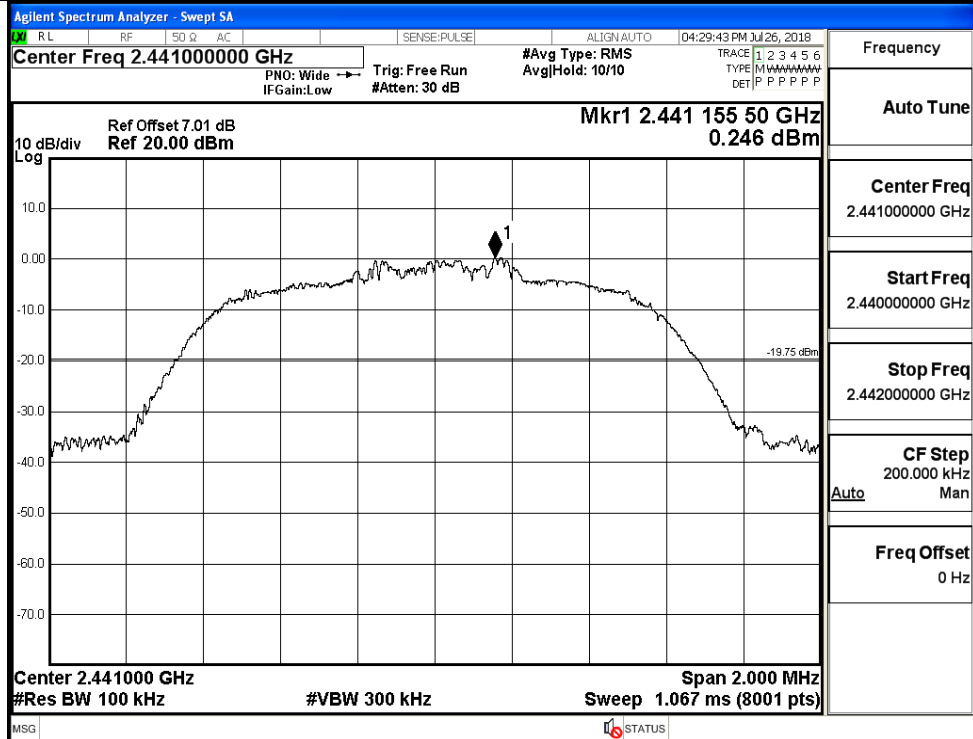
Pref



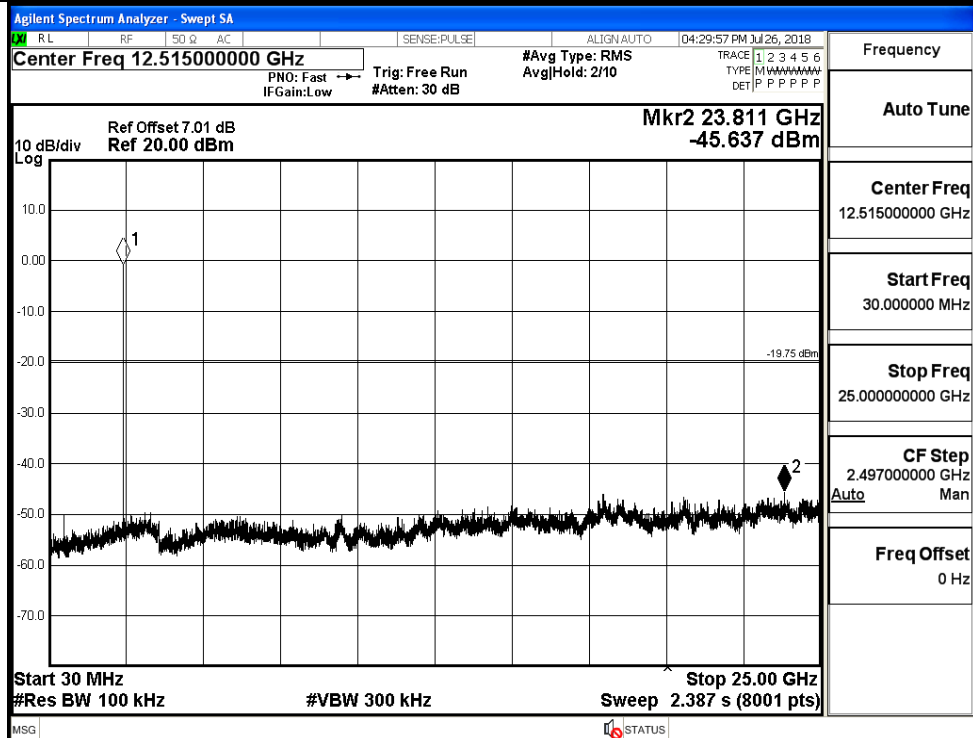
Puw

 $\pi/4$ DQPSK MCH_Graphs

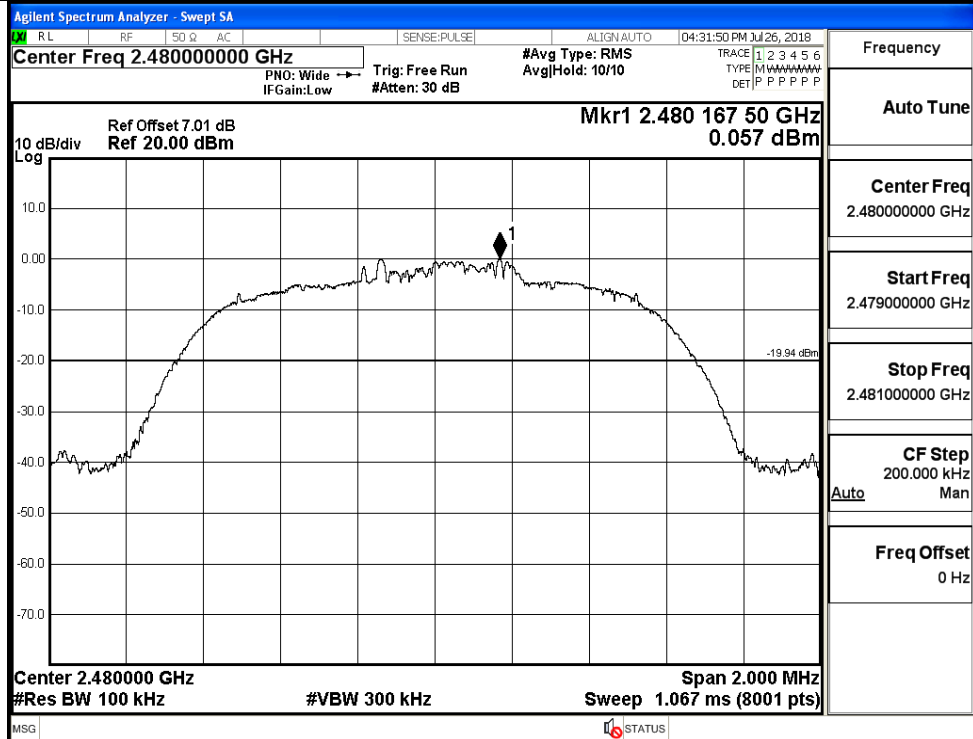
Pref



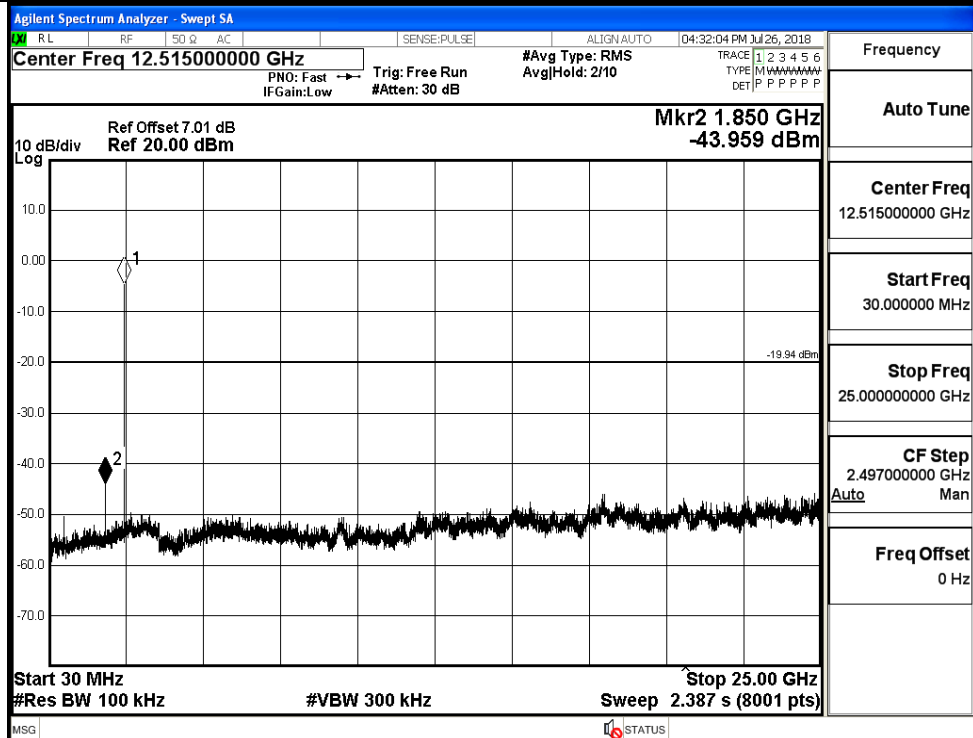
Puw

 $\pi/4$ DQPSK HCH_Graphs

Pref



Puw

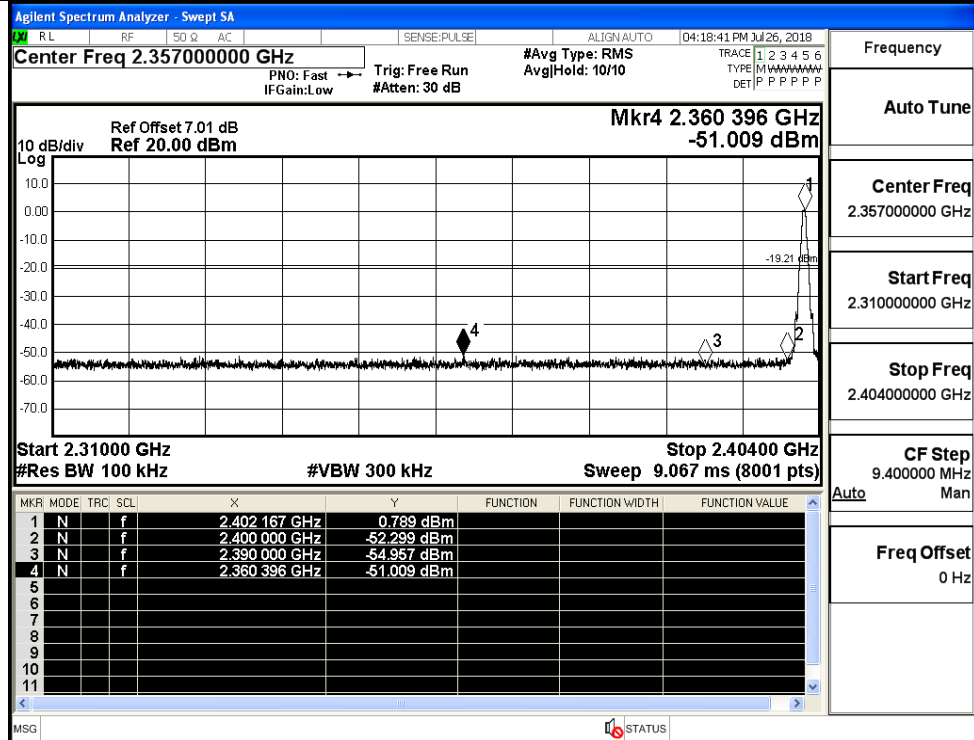


A.7 Band-edge for RF Conducted Emissions

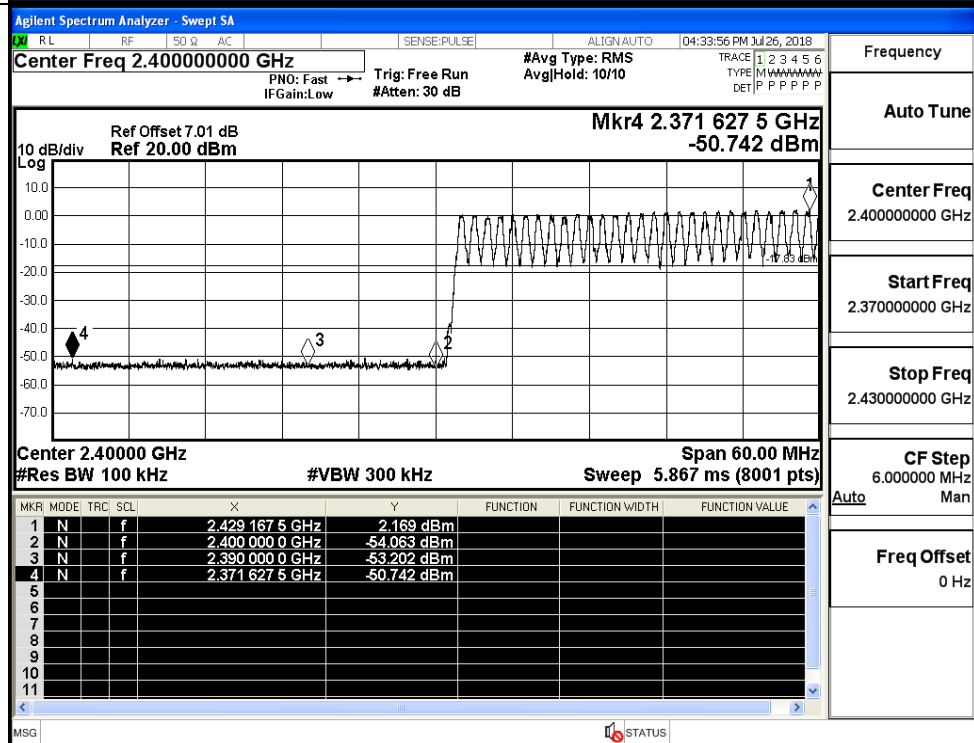
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.789	Off	-51.009	-19.21	PASS
			2.169	On	-50.742	-17.83	PASS
	HCH	2480	1.855	Off	-50.375	-18.15	PASS
			1.652	On	-50.406	-18.35	PASS
$\pi/4$ DQPSK	LCH	2402	-1.090	Off	-51.072	-21.09	PASS
			0.531	On	-50.249	-19.47	PASS
	HCH	2480	0.282	Off	-50.664	-19.72	PASS
			0.128	On	-49.579	-19.87	PASS

Test Graphs

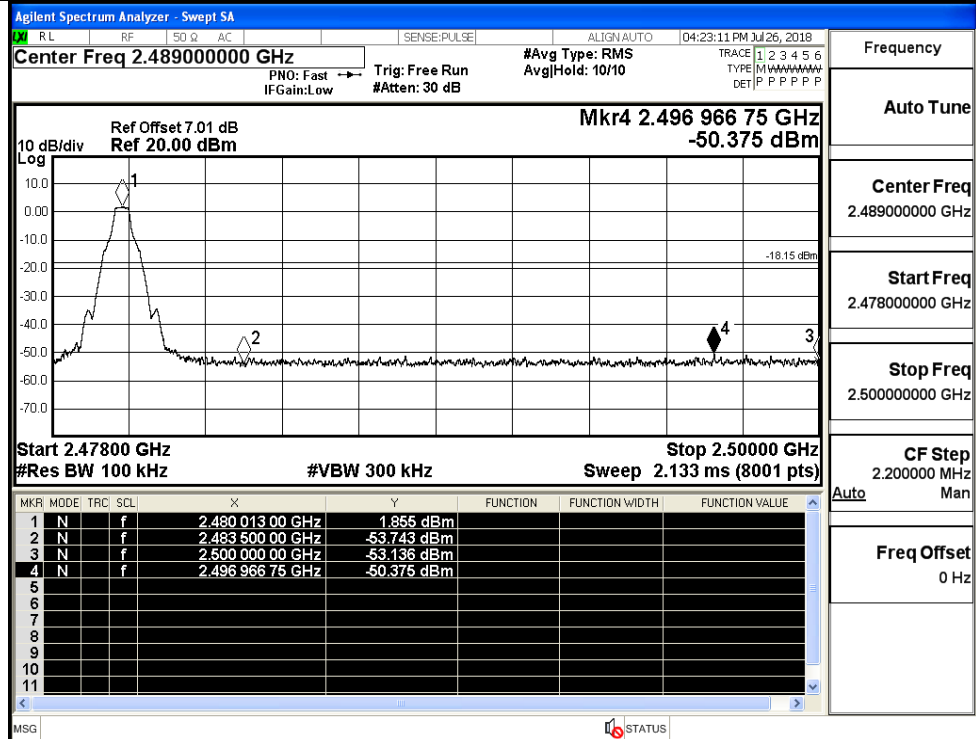
GFSK/LCH/No Hop



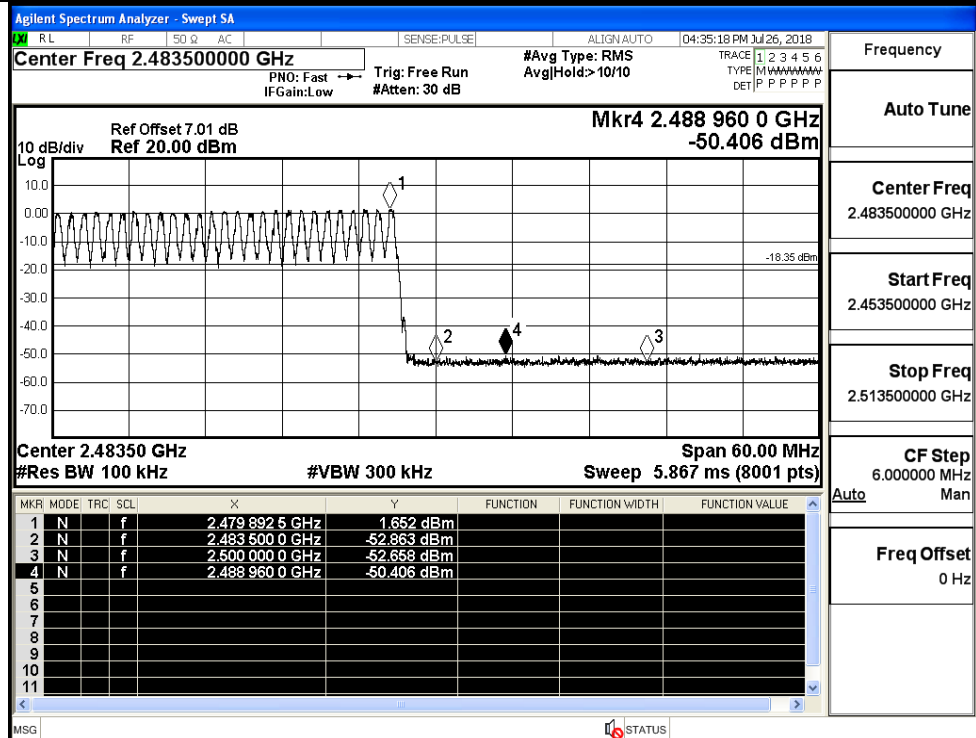
GFSK/LCH/Hop



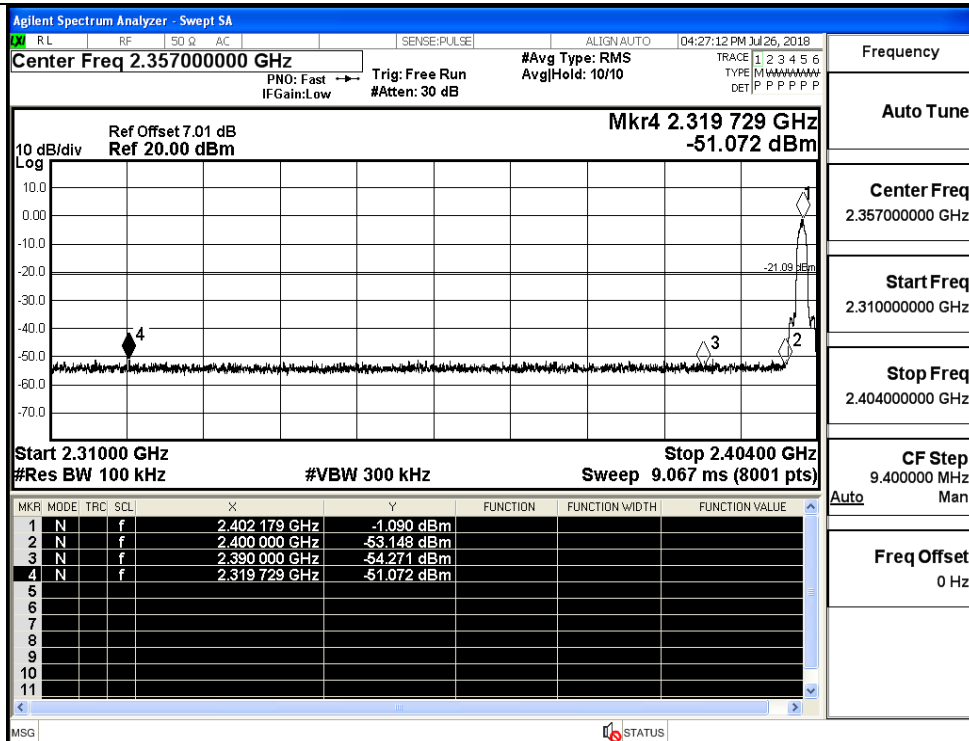
GFSK/HCH/No Hop



GFSK/HCH/Hop



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

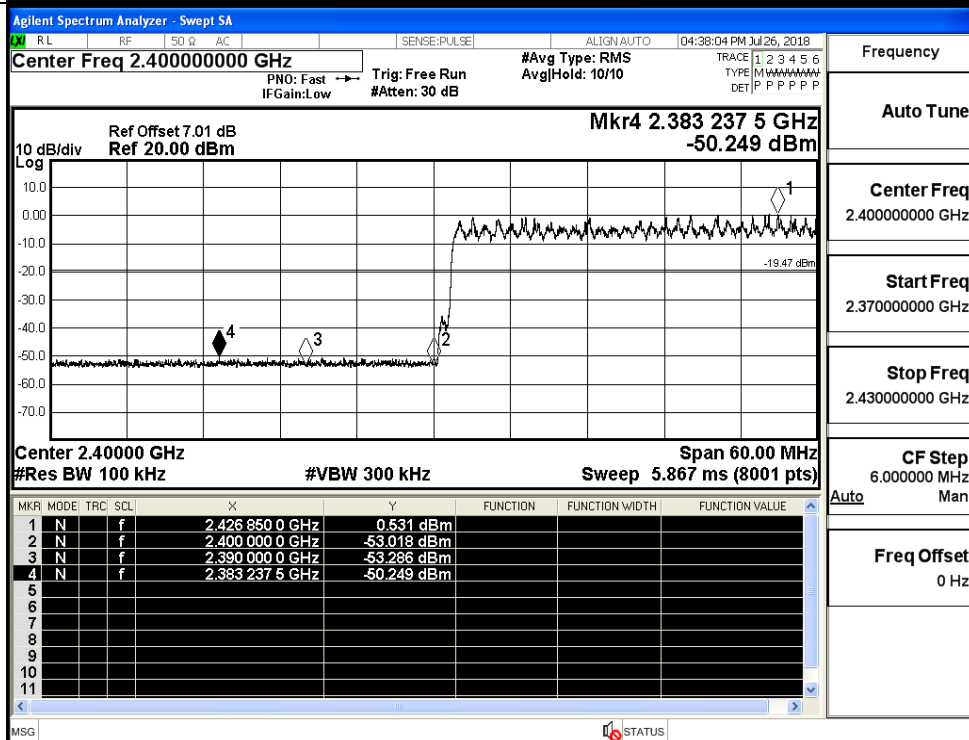


Frequency

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

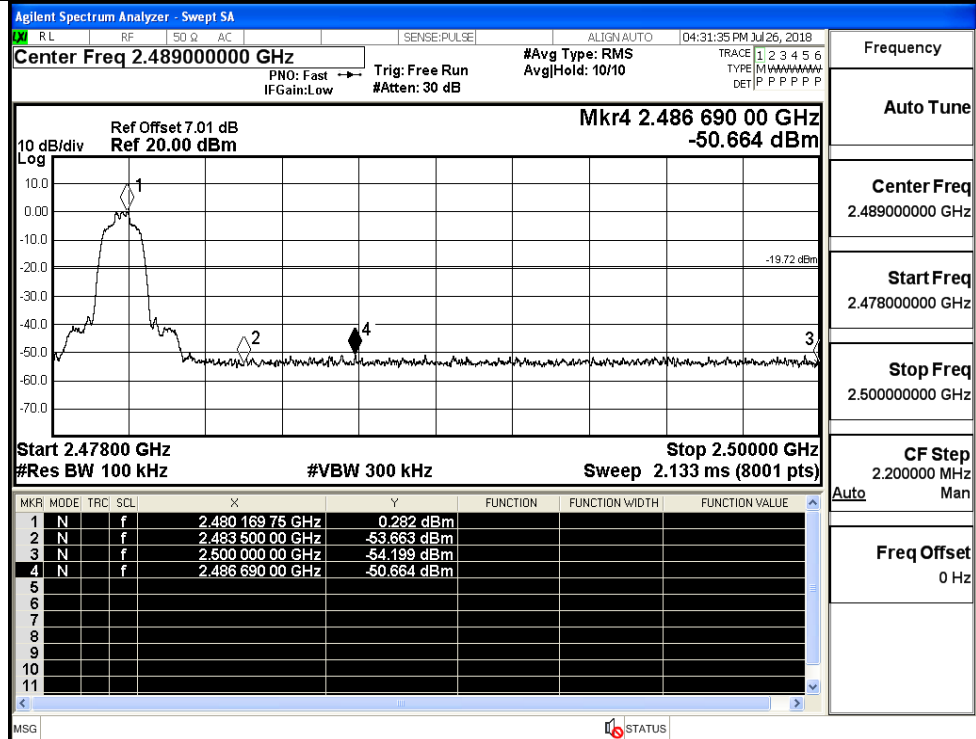


Frequency

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

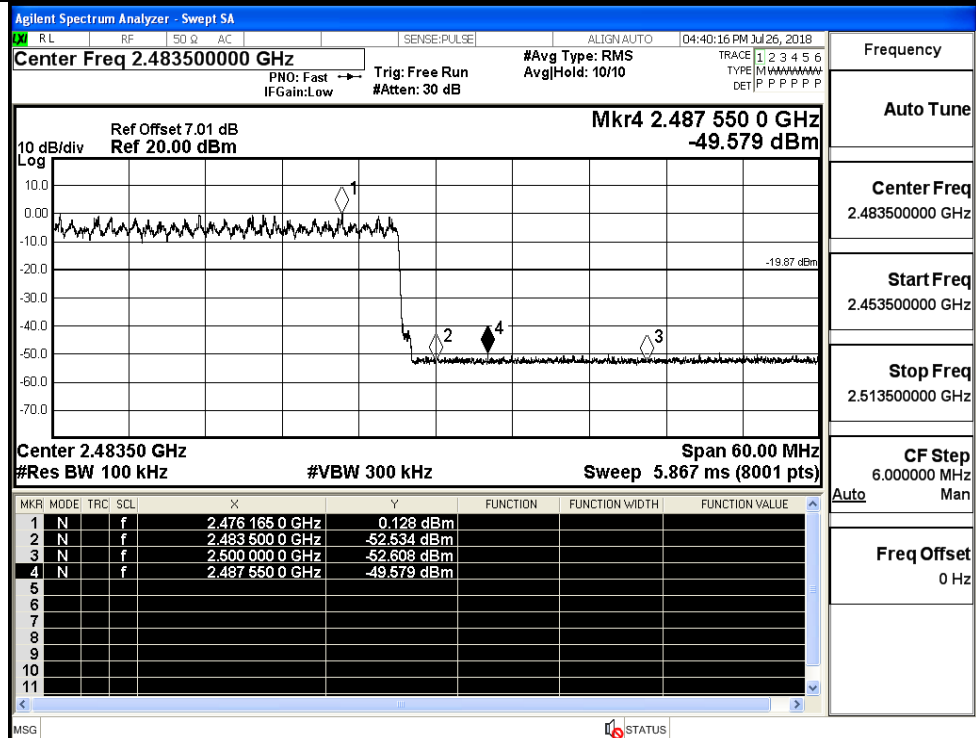


Frequency

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

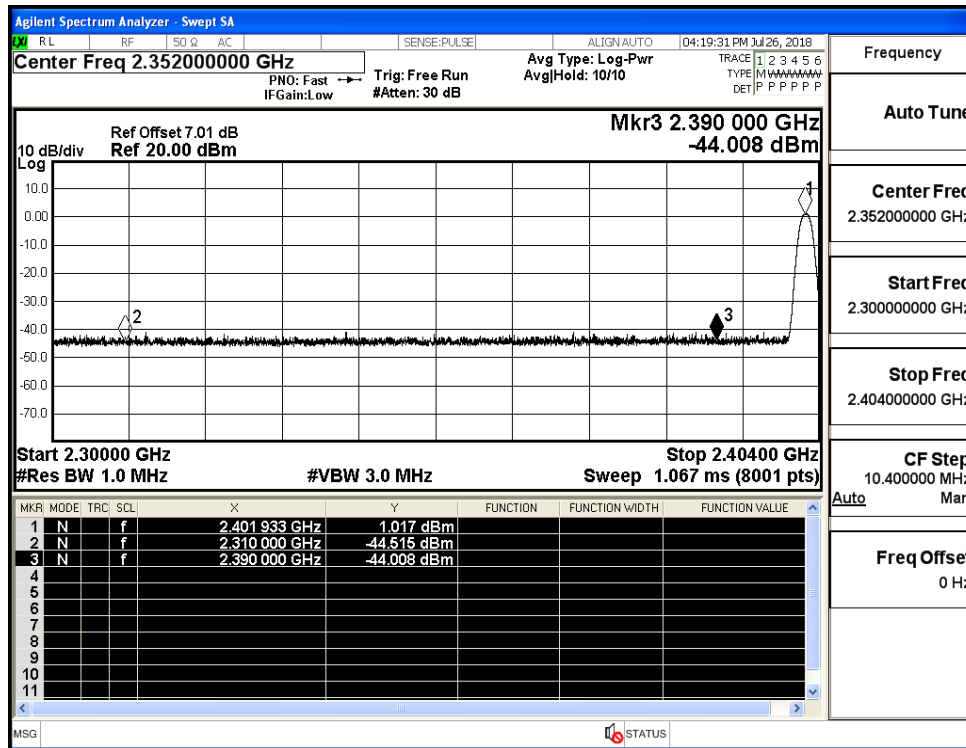
Auto Tune

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

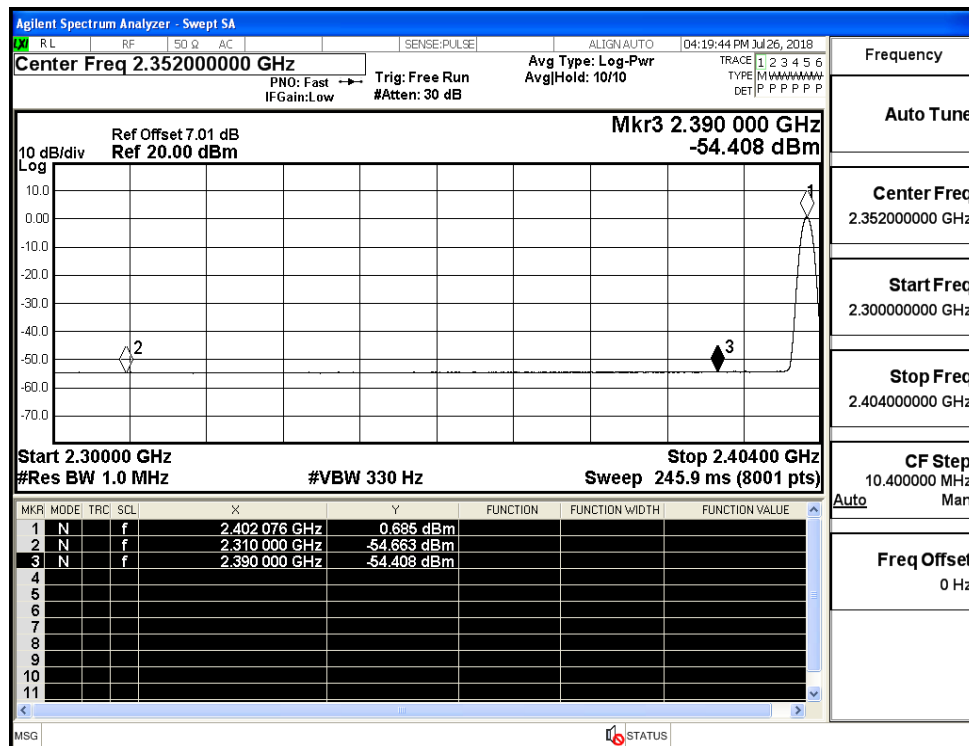
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-44.52	2.0	0	52.74	PEAK	74	PASS
	Off	2310.0	-54.66	2.0	0	42.59	AV	54	PASS
	Off	2390.0	-44.01	2.0	0	53.25	PEAK	74	PASS
	Off	2390.0	-54.41	2.0	0	42.85	AV	54	PASS
	Off	2483.5	-43.39	2.0	0	53.86	PEAK	74	PASS
	Off	2483.5	-54.02	2.0	0	43.24	AV	54	PASS
	Off	2500.0	-44.89	2.0	0	52.36	PEAK	74	PASS
	Off	2500.0	-53.91	2.0	0	43.35	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-44.77	2.0	0	52.49	PEAK	74	PASS
	Off	2310.0	-54.63	2.0	0	42.62	AV	54	PASS
	Off	2390.0	-42.87	2.0	0	54.38	PEAK	74	PASS
	Off	2390.0	-54.32	2.0	0	42.94	AV	54	PASS
	Off	2483.5	-43.31	2.0	0	53.95	PEAK	74	PASS
	Off	2483.5	-53.98	2.0	0	43.28	AV	54	PASS
	Off	2500.0	-42.98	2.0	0	54.28	PEAK	74	PASS
	Off	2500.0	-53.90	2.0	0	43.36	AV	54	PASS

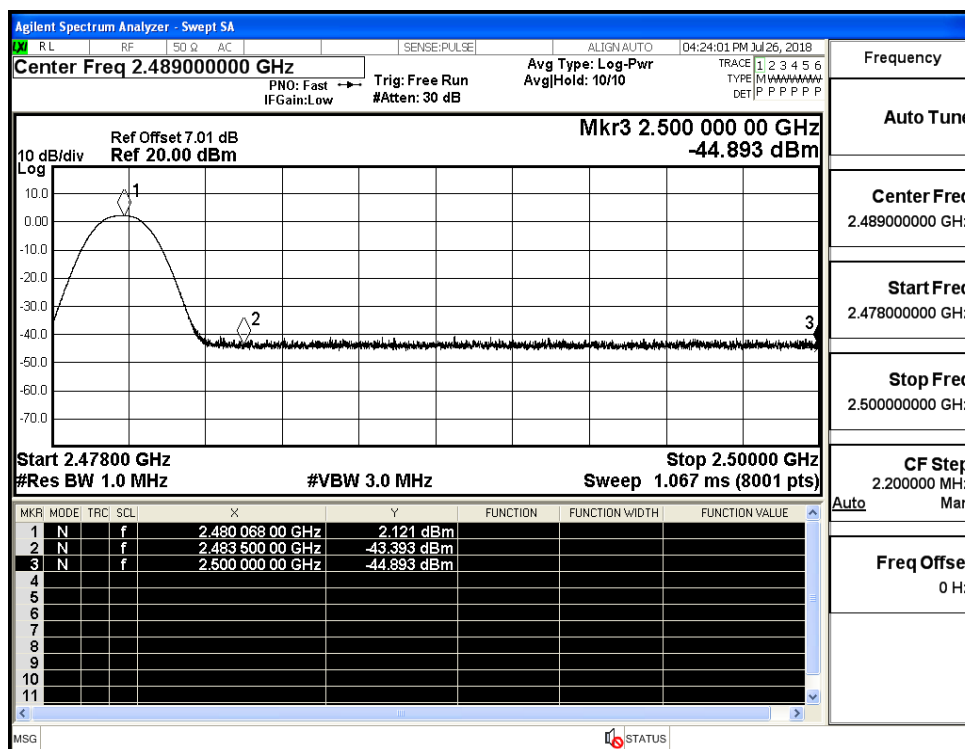
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



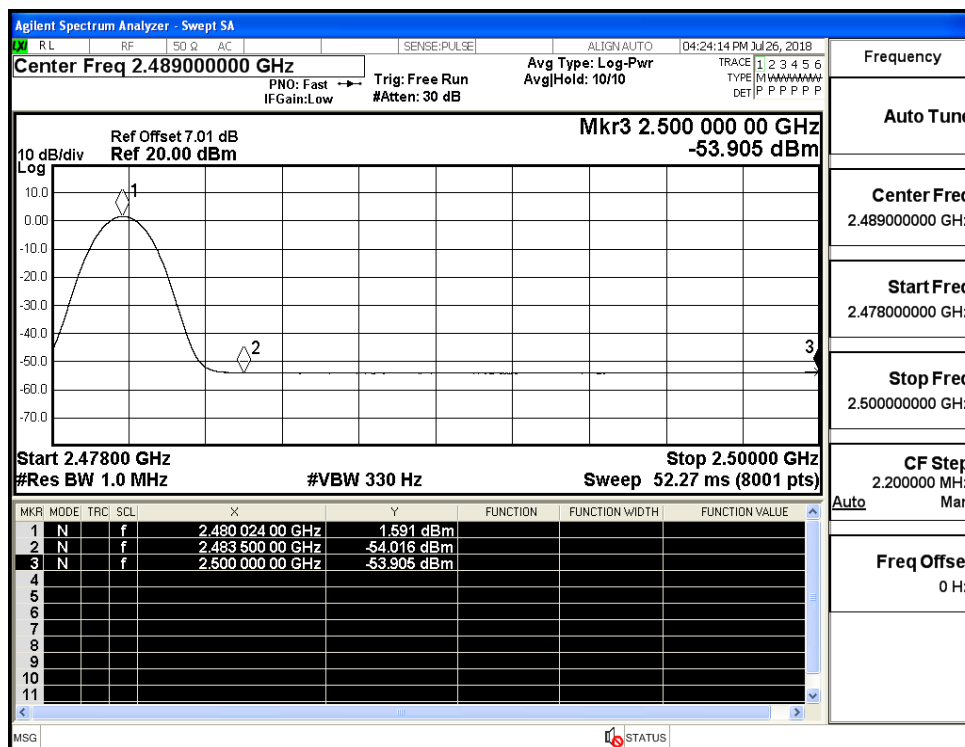
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

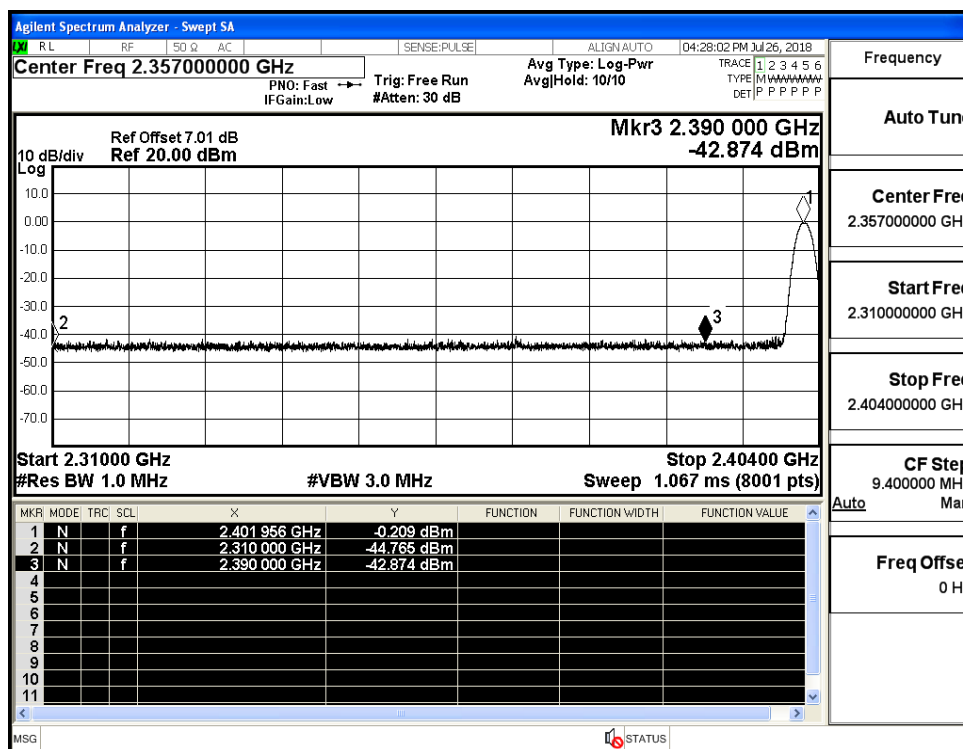
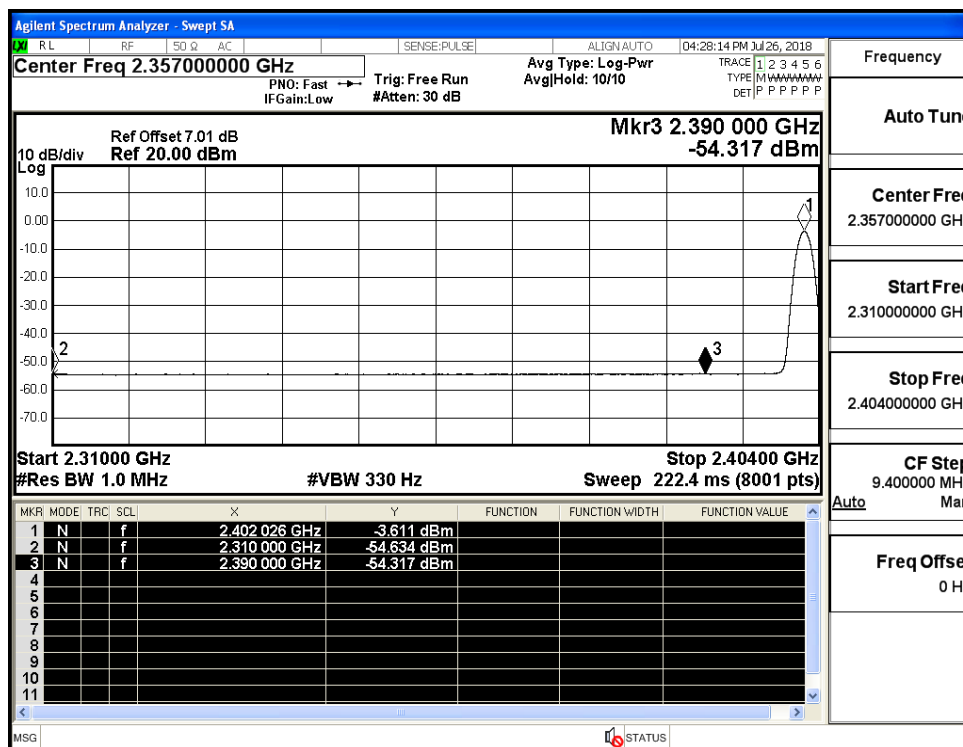


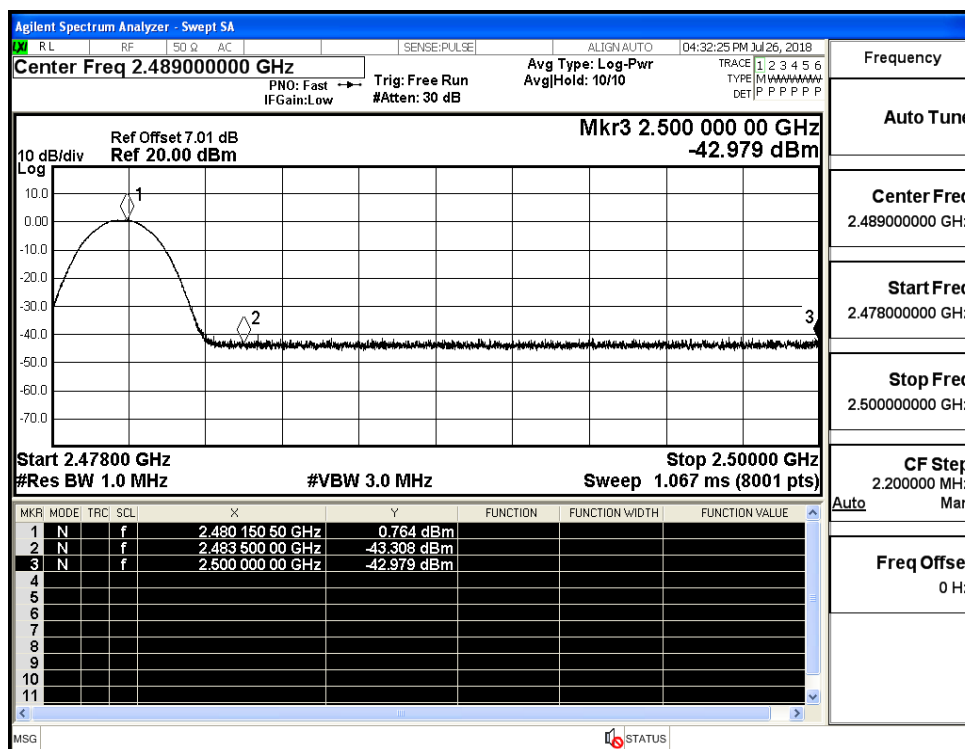
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



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)