

Appendix A

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

Product Name: Bluetooth Speaker Alarm Clock

Trade Mark: N/A

Test Model: JS2712

Environmental Conditions

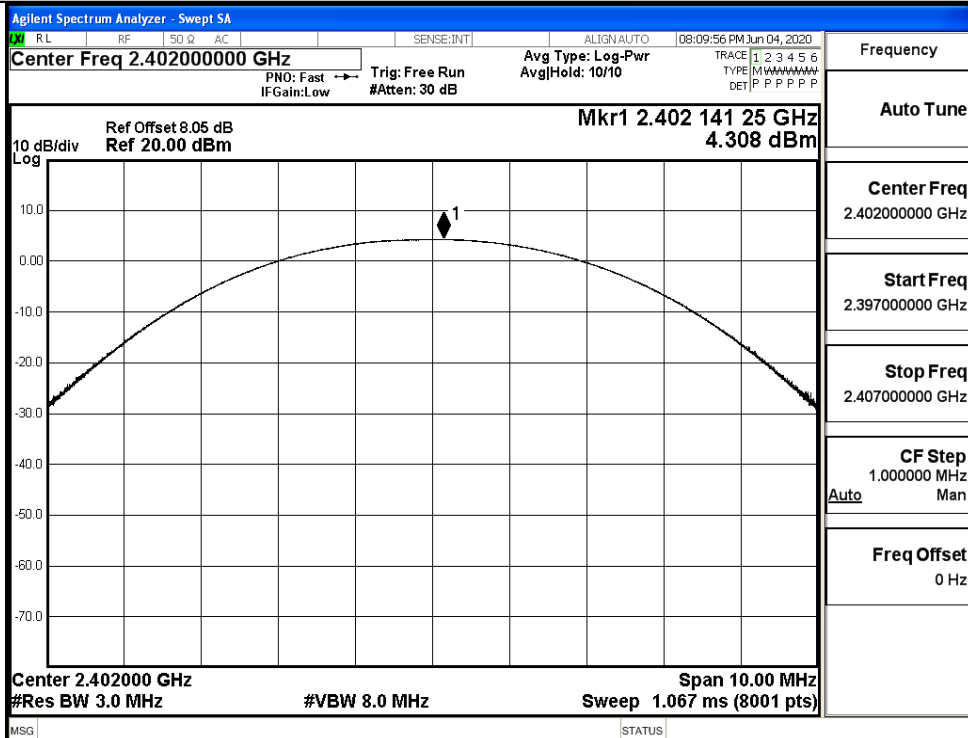
Temperature:	24.5°C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Li Huan
Supervised by:	Tom.Liu

A.1 Maximum Conducted Peak Output Power

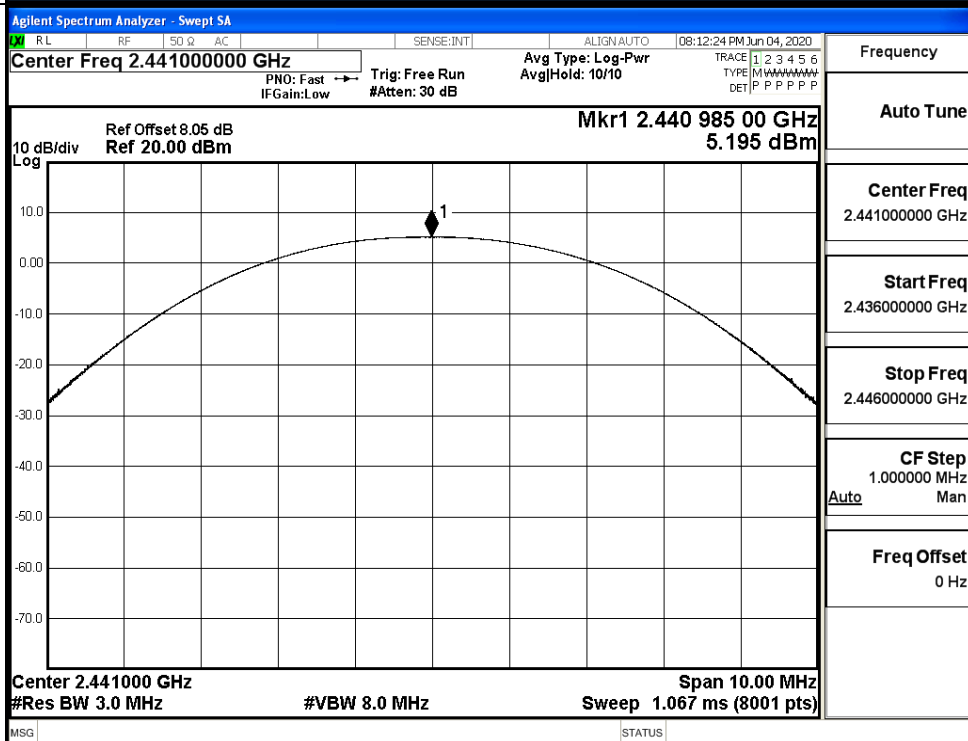
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.308	21	PASS
	MCH	5.195	21	PASS
	HCH	4.442	21	PASS
$\pi/4$ DQPSK	LCH	3.920	21	PASS
	MCH	5.063	21	PASS
	HCH	4.333	21	PASS

Test Graphs

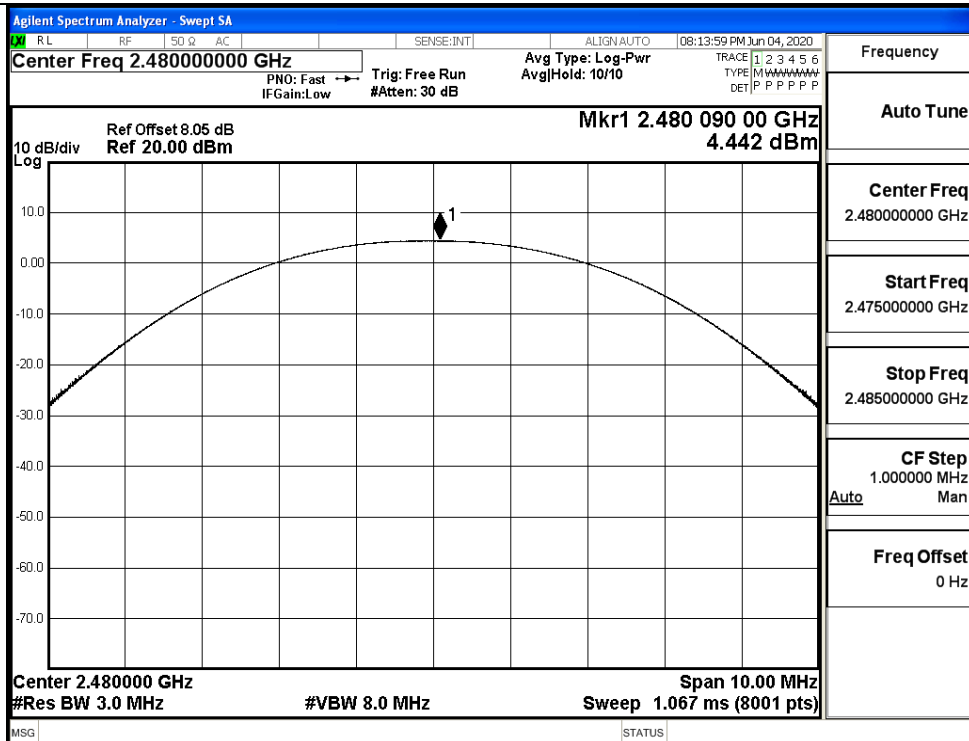
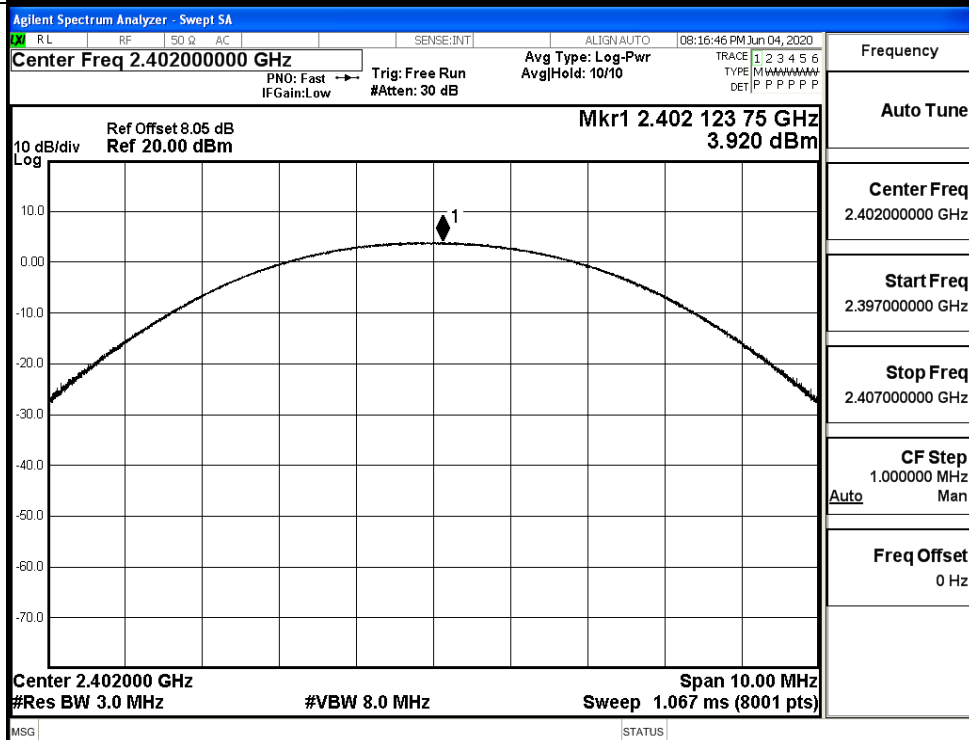
GFSK/LCH

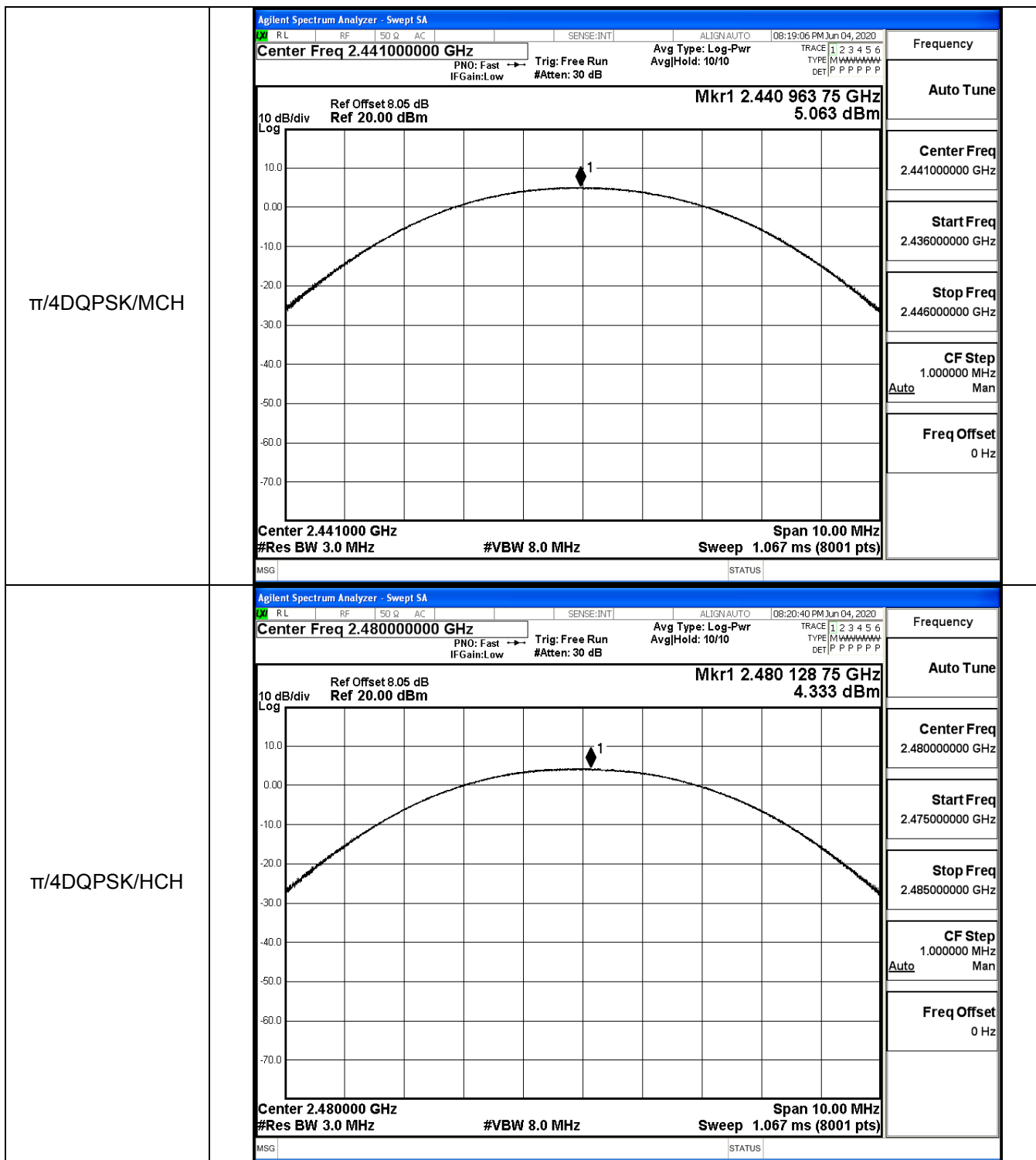


GFSK/MCH



GFSK/HCH

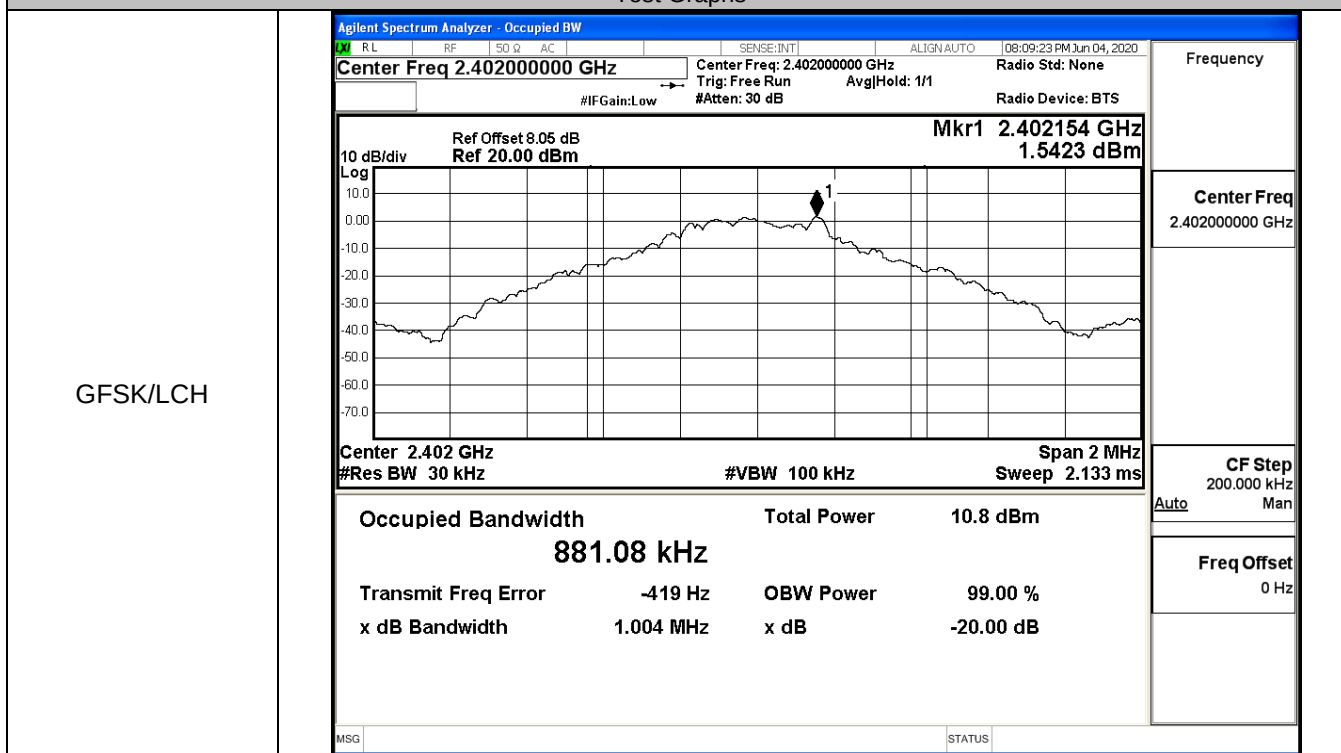
 $\pi/4$ DQPSK/LCH



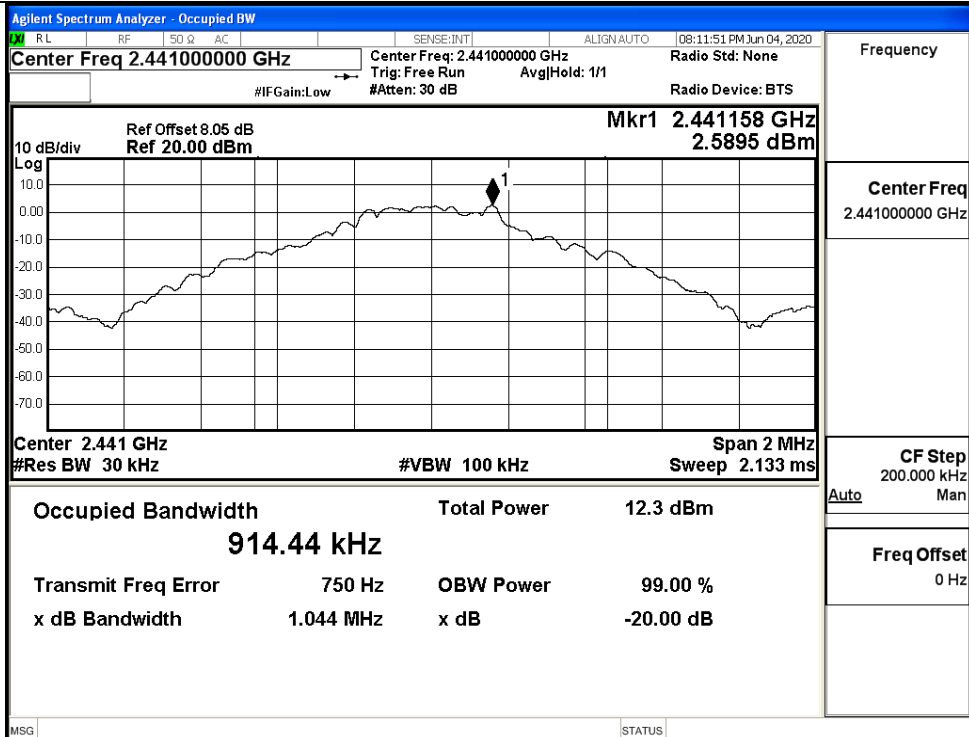
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.004	Not Specified	PASS
	MCH	1.044	Not Specified	PASS
	HCH	1.029	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.290	Not Specified	PASS
	MCH	1.291	Not Specified	PASS
	HCH	1.287	Not Specified	PASS

Test Graphs



GFSK/MCH



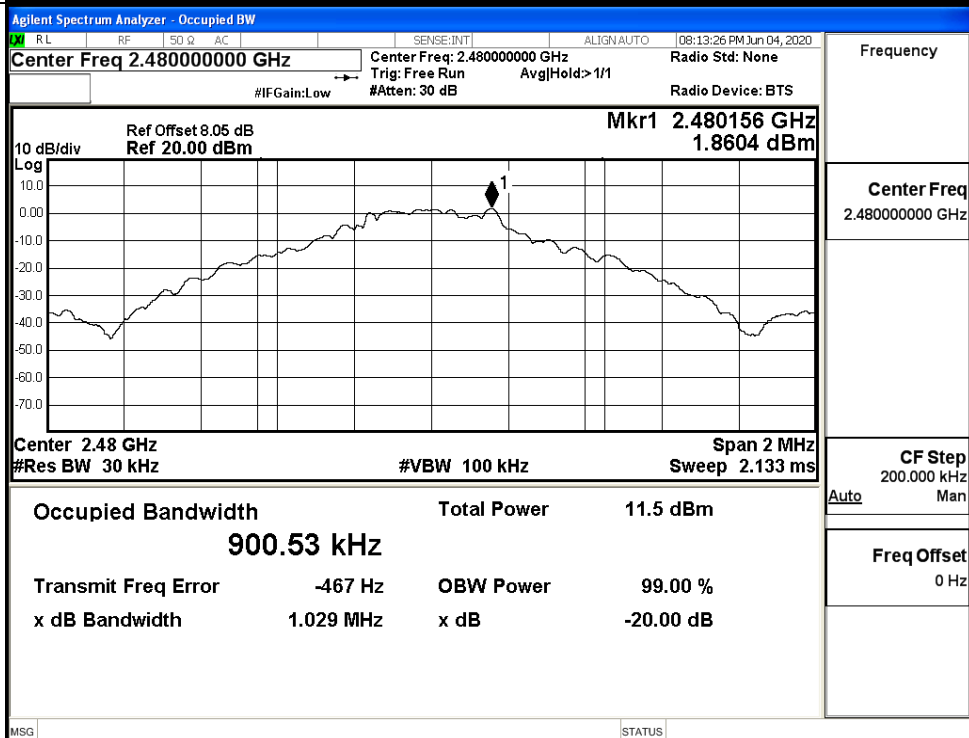
Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

GFSK/HCH

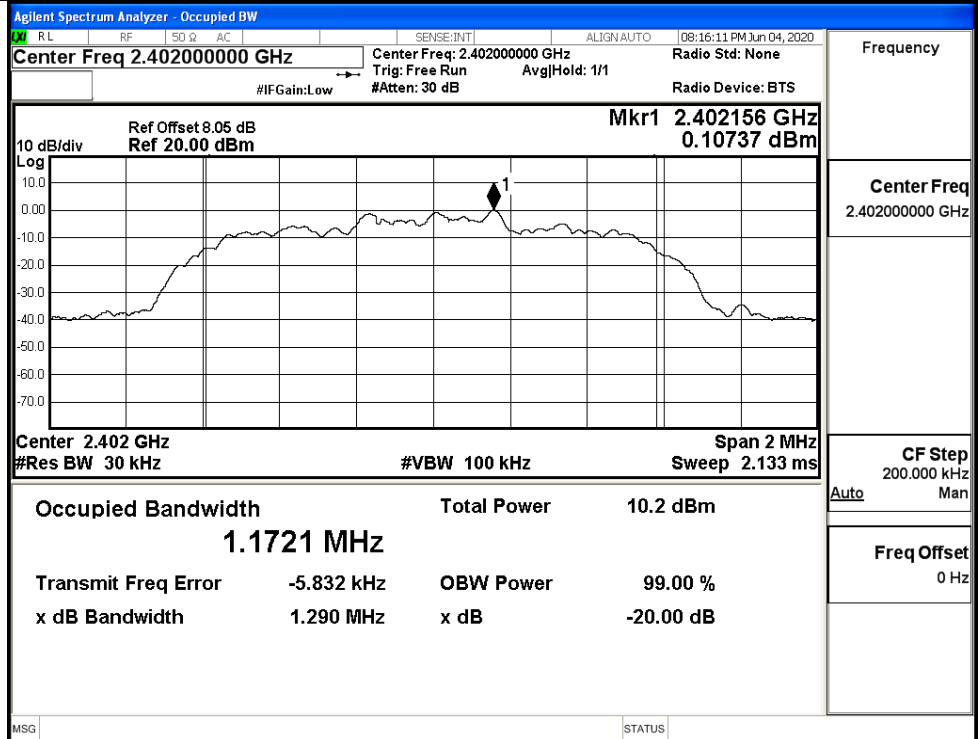
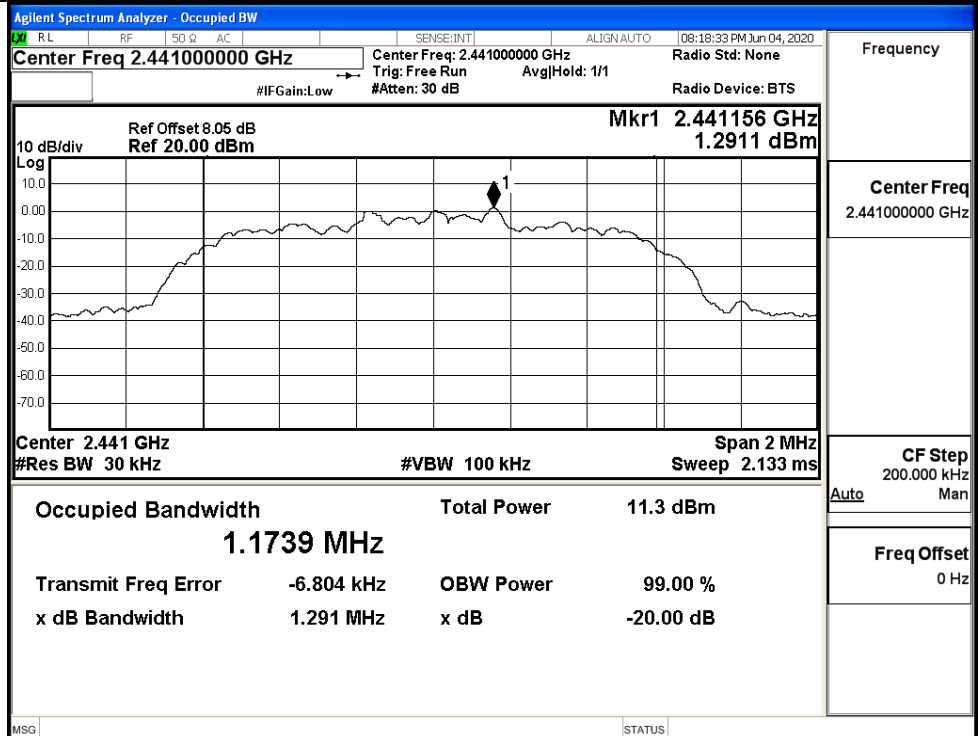


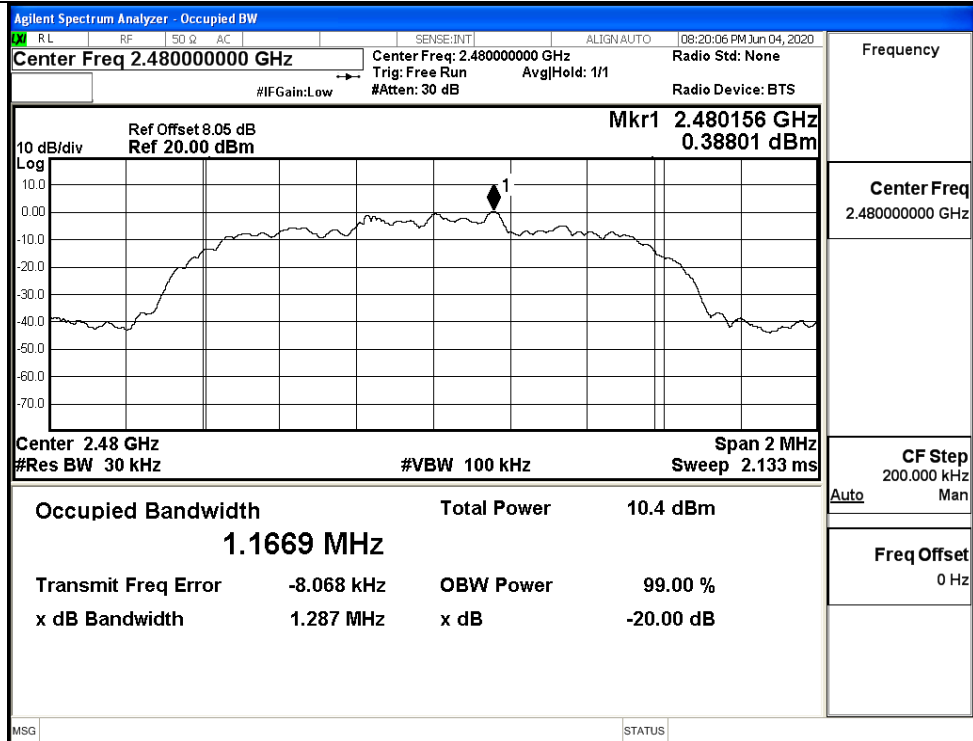
Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

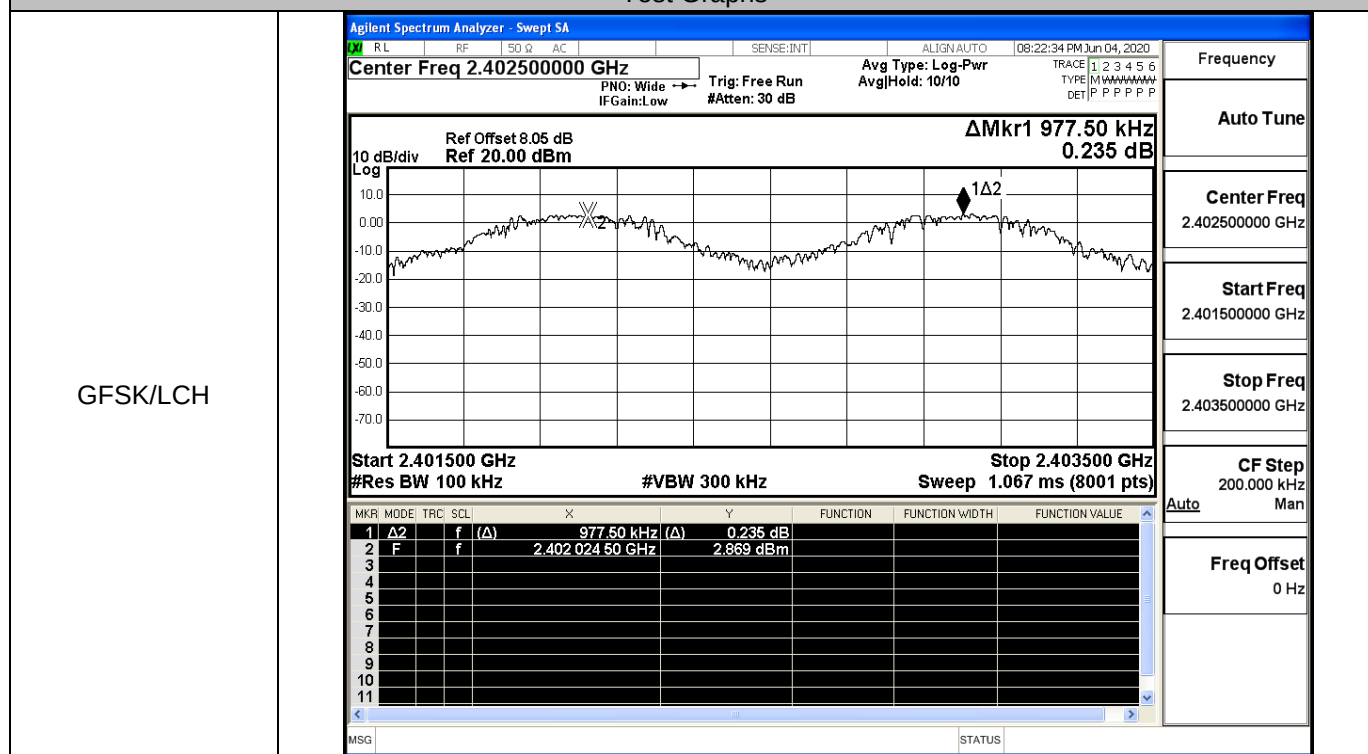
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

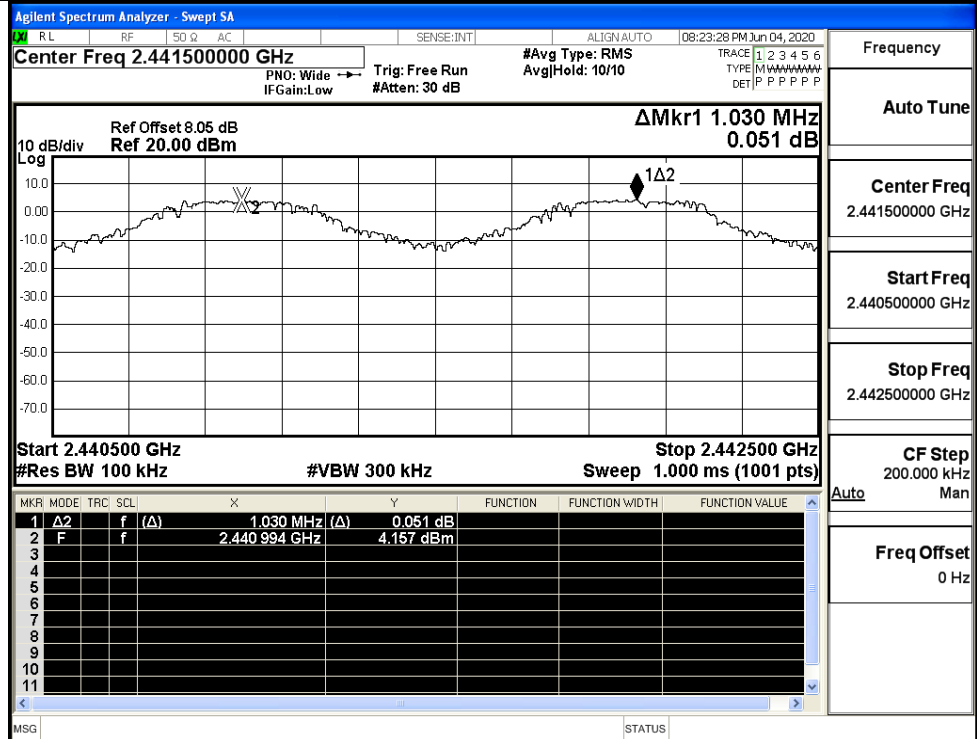
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.977	0.696	PASS
	MCH	1.030	0.696	PASS
	HCH	0.972	0.696	PASS
$\pi/4$ DQPSK	LCH	0.960	0.861	PASS
	MCH	1.144	0.861	PASS
	HCH	1.180	0.861	PASS

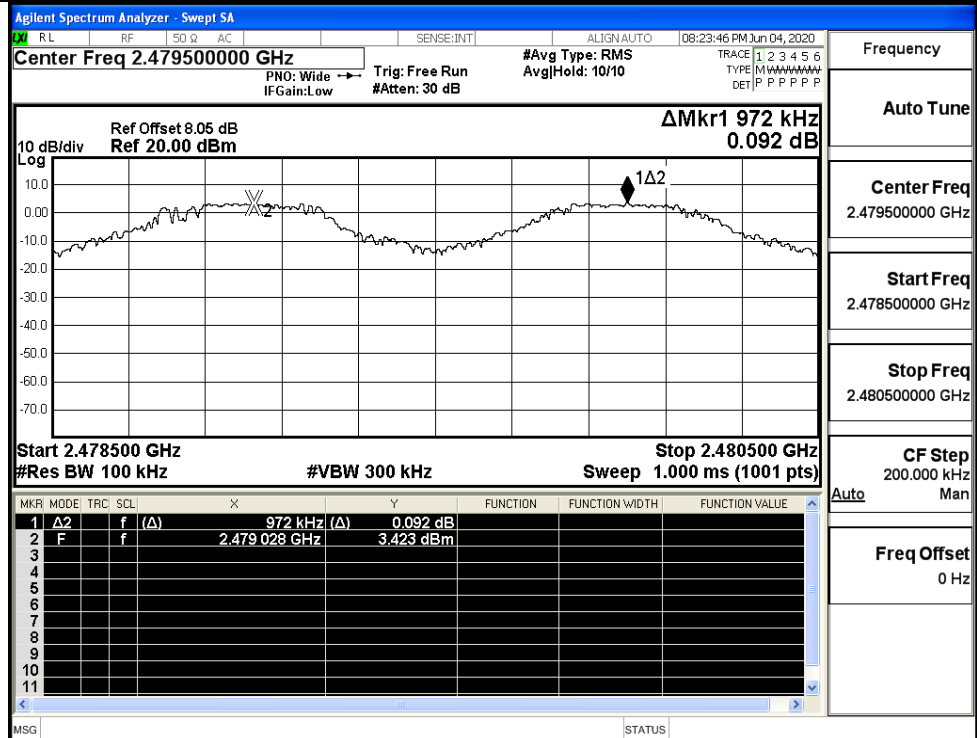
Test Graphs

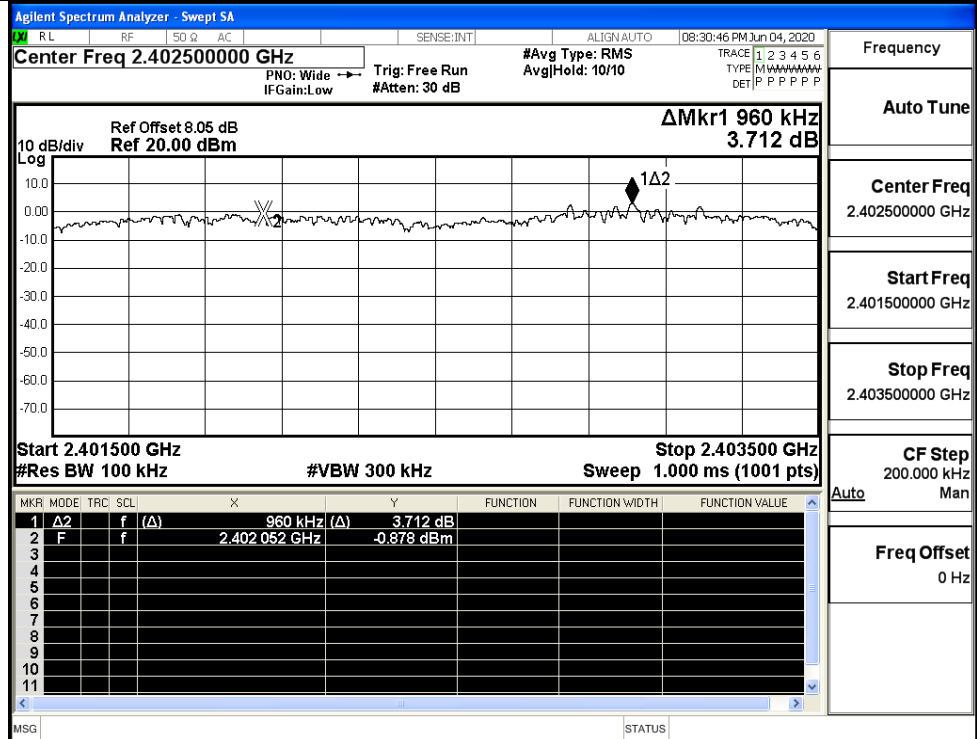
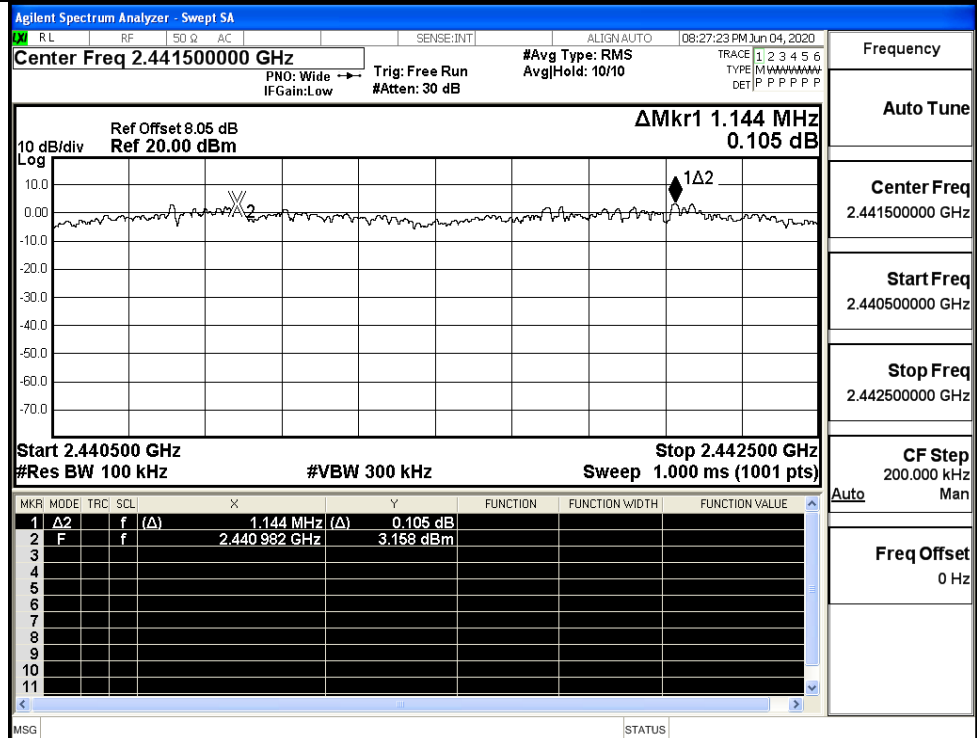


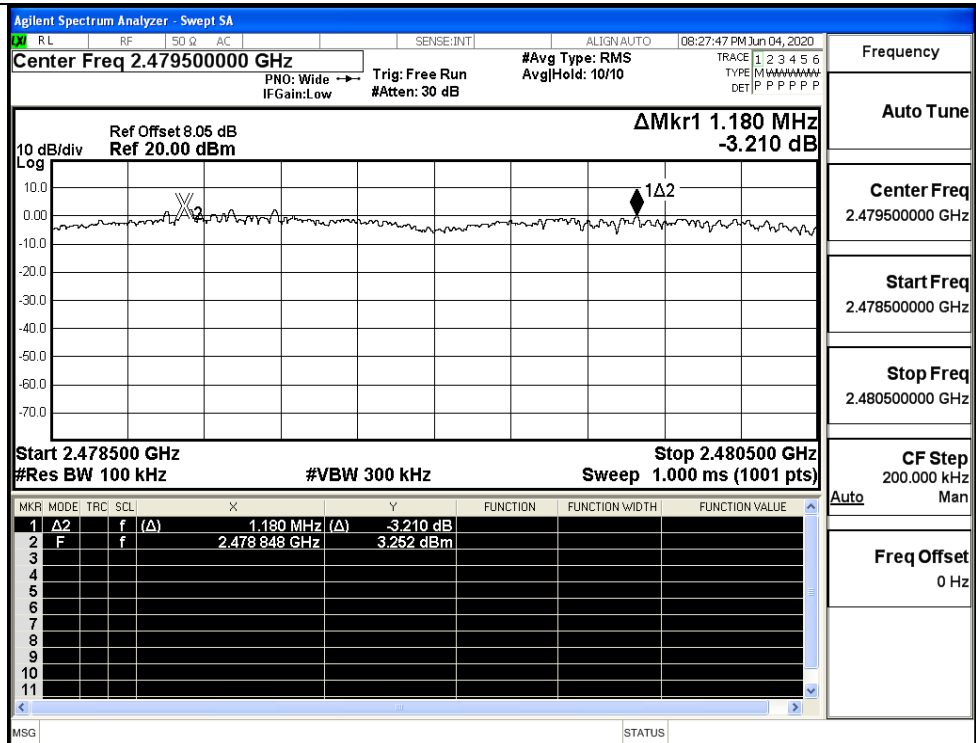
GFSK/MCH



GFSK/HCH



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

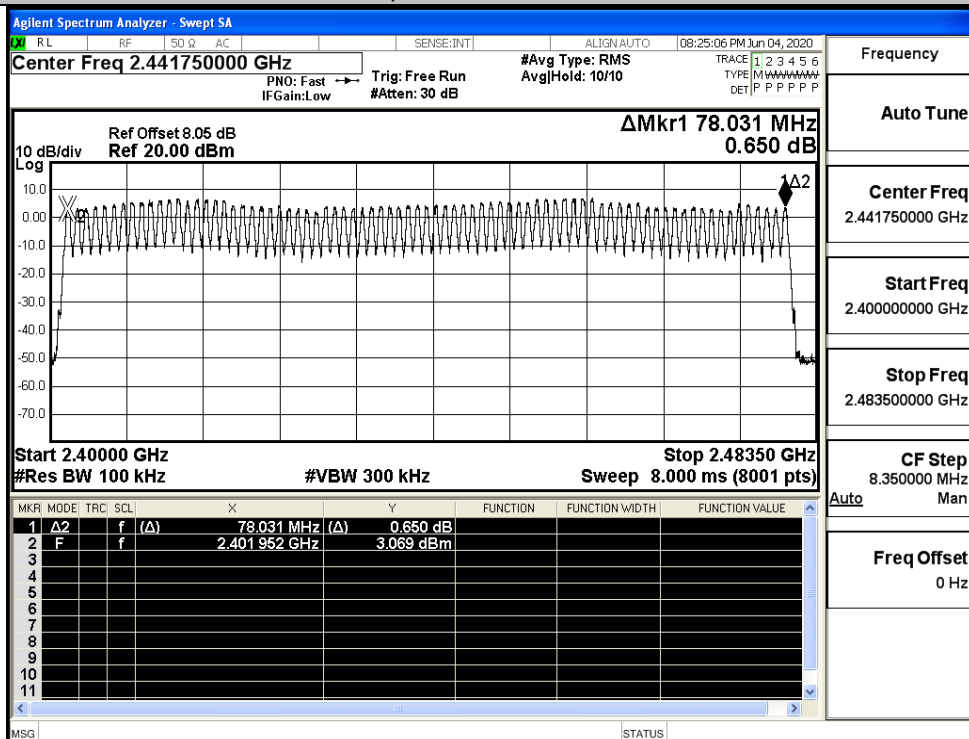
$\pi/4$ DQPSK/HCH

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
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop



Frequency

Auto Tune

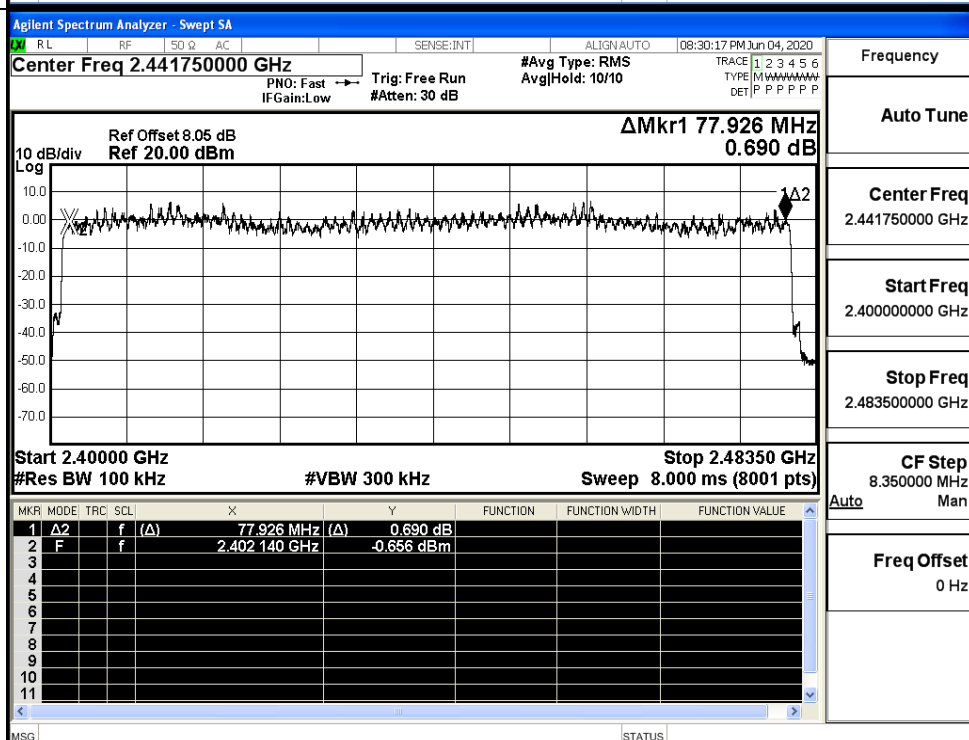
Center Freq
2.441750000 GHz

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

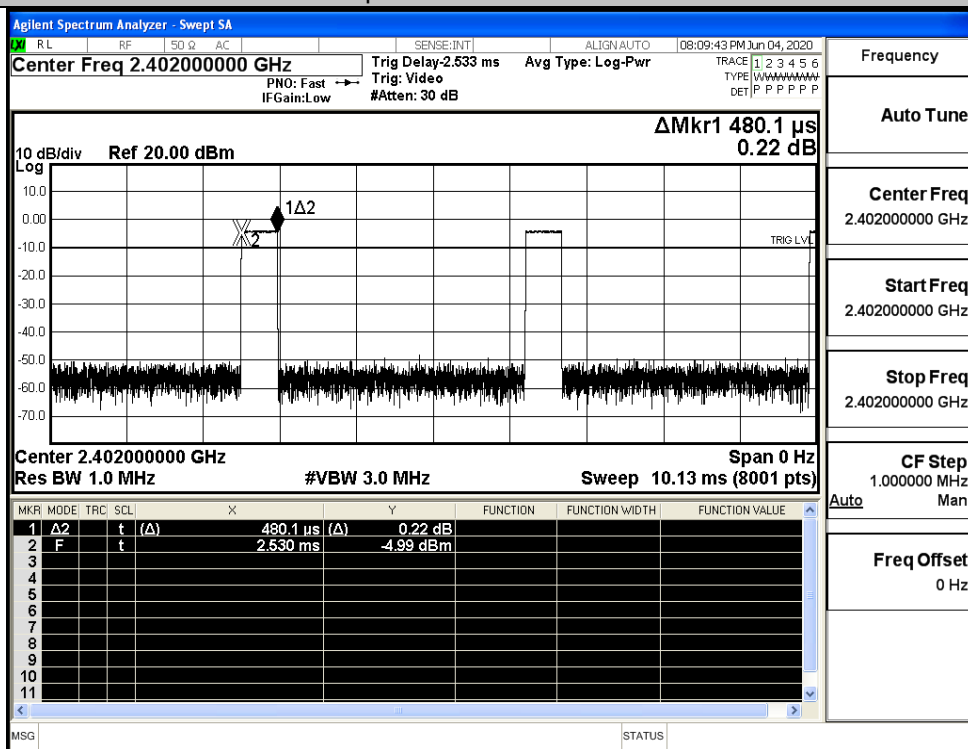
Freq Offset
0 Hz

A.5 Dwell Time

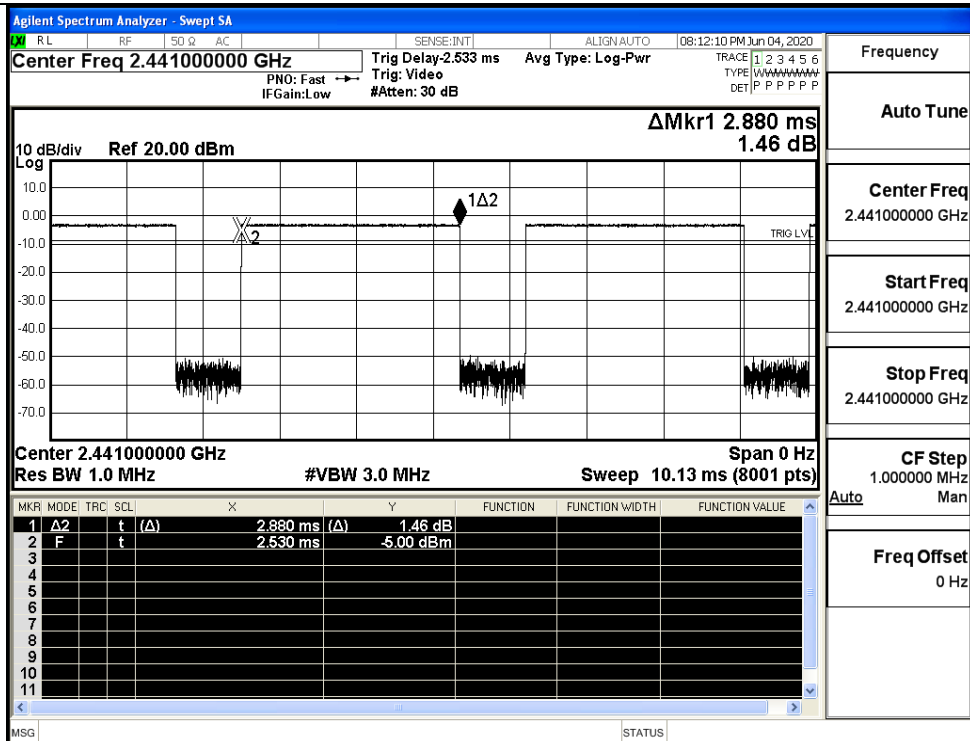
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.48	106.7	0.051	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.48	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS

Test Graphs

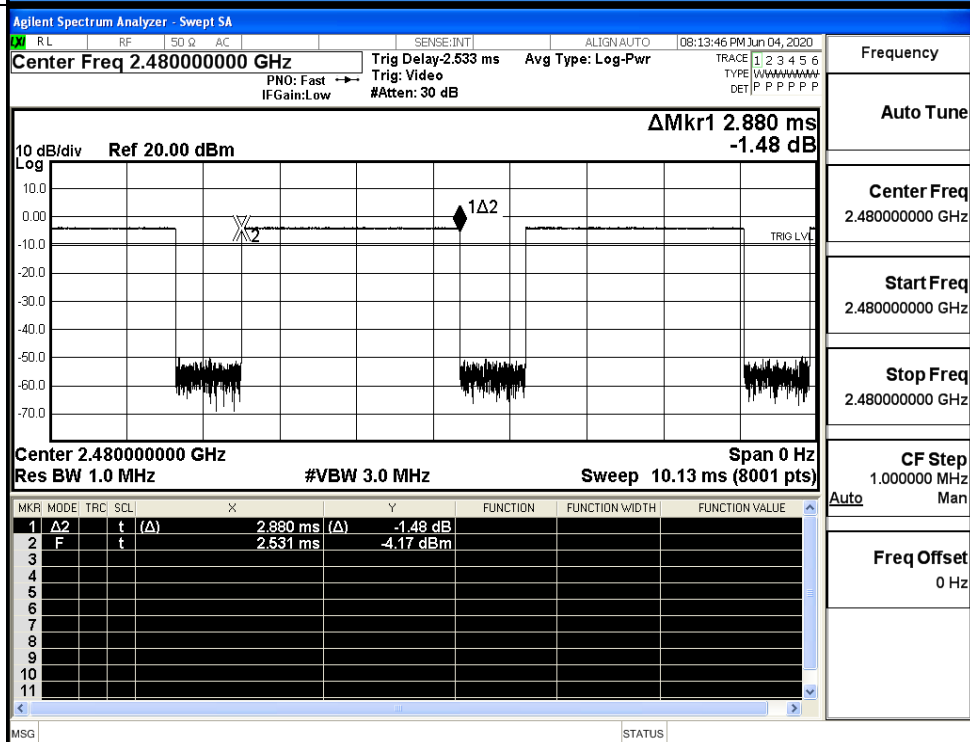
GFSK_DH5/LCH



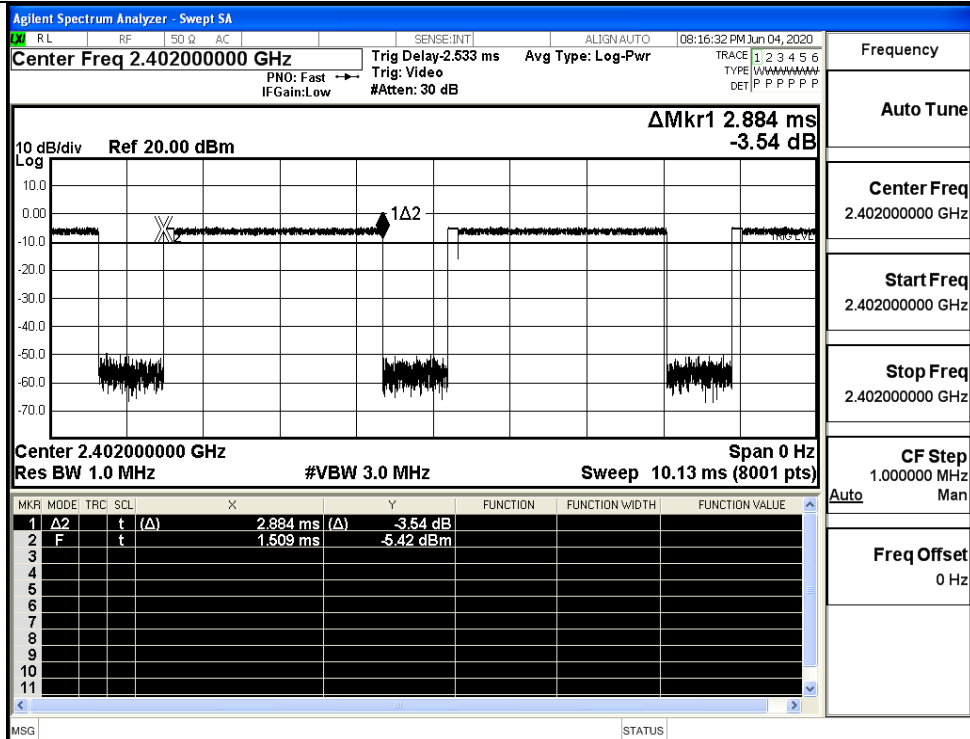
GFSK_DH5/MCH



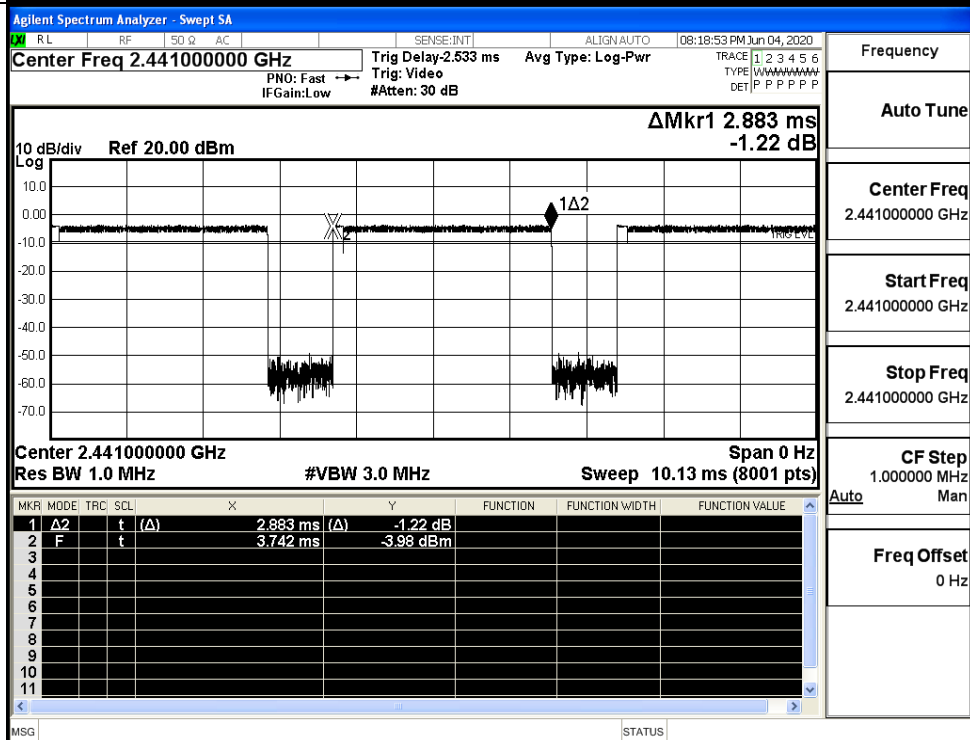
GFSK_DH5/HCH



$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH

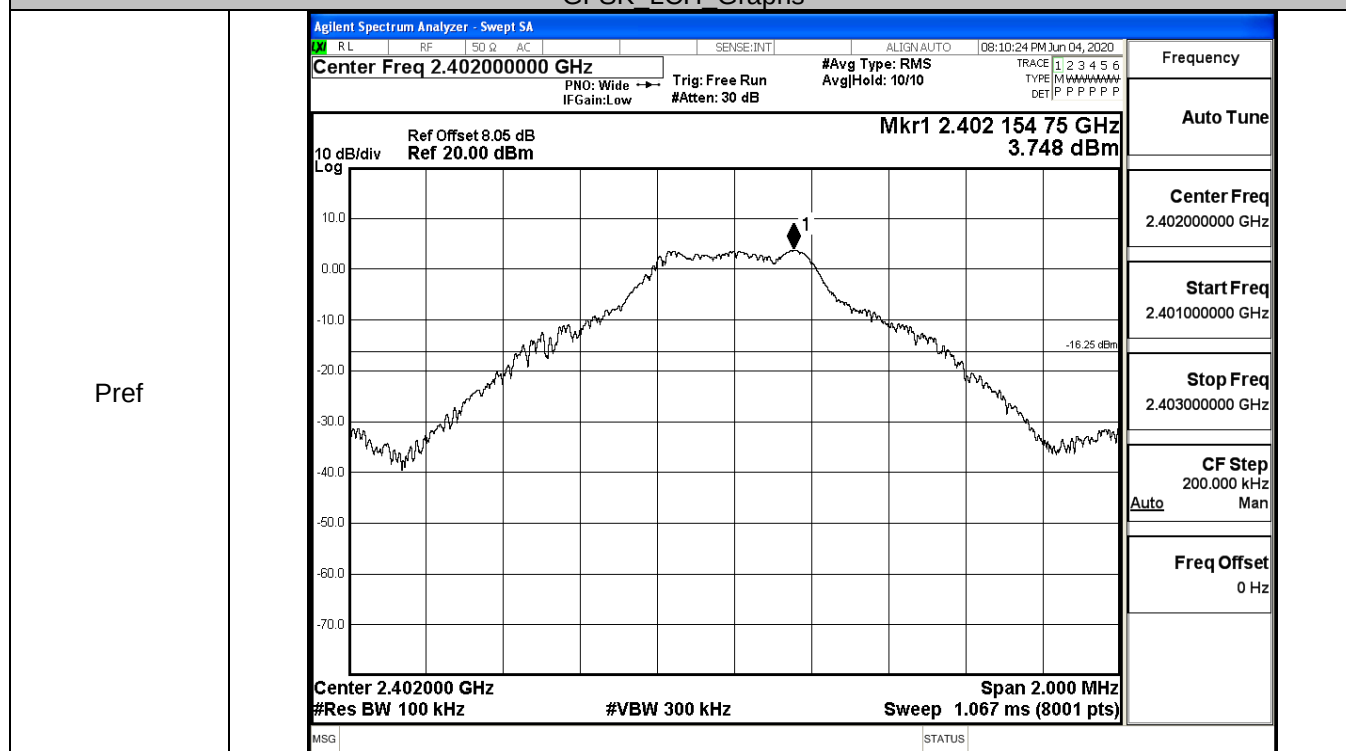


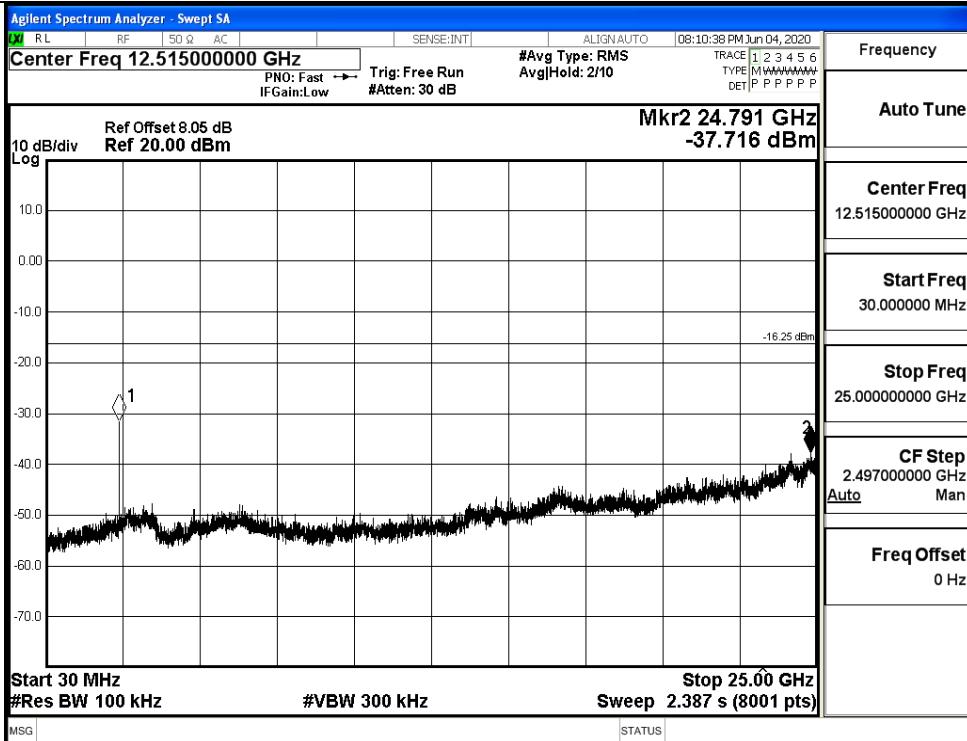
[illegible]

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.748	-37.716	-16.252	PASS
	MCH	4.632	-37.885	-15.368	PASS
	HCH	3.813	-37.872	-16.187	PASS
$\pi/4$ DQPSK	LCH	2.768	-36.856	-17.232	PASS
	MCH	3.933	-37.174	-16.067	PASS
	HCH	2.632	-37.543	-17.368	PASS

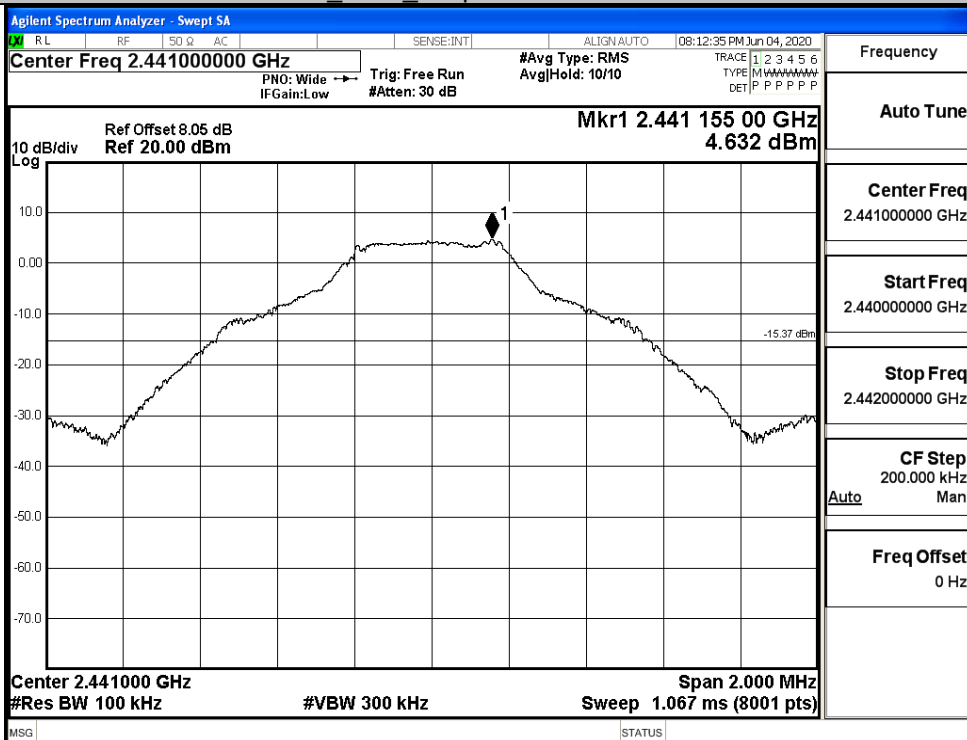
GFSK LCH Graphs



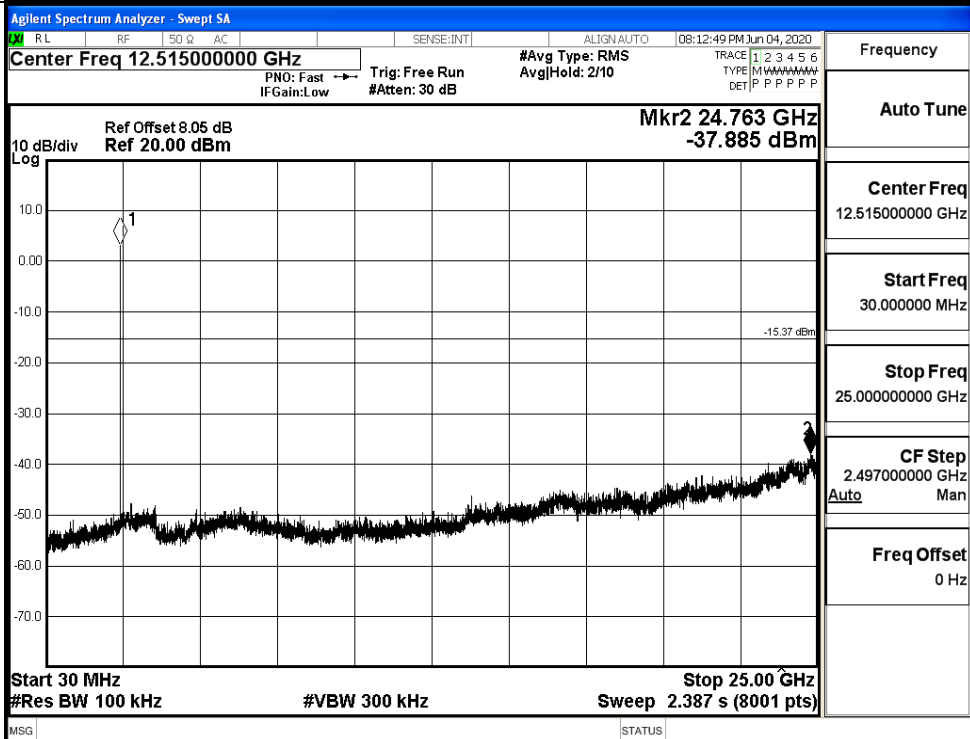
P_{uw}

GFSK_MCH_Graphs

Pref

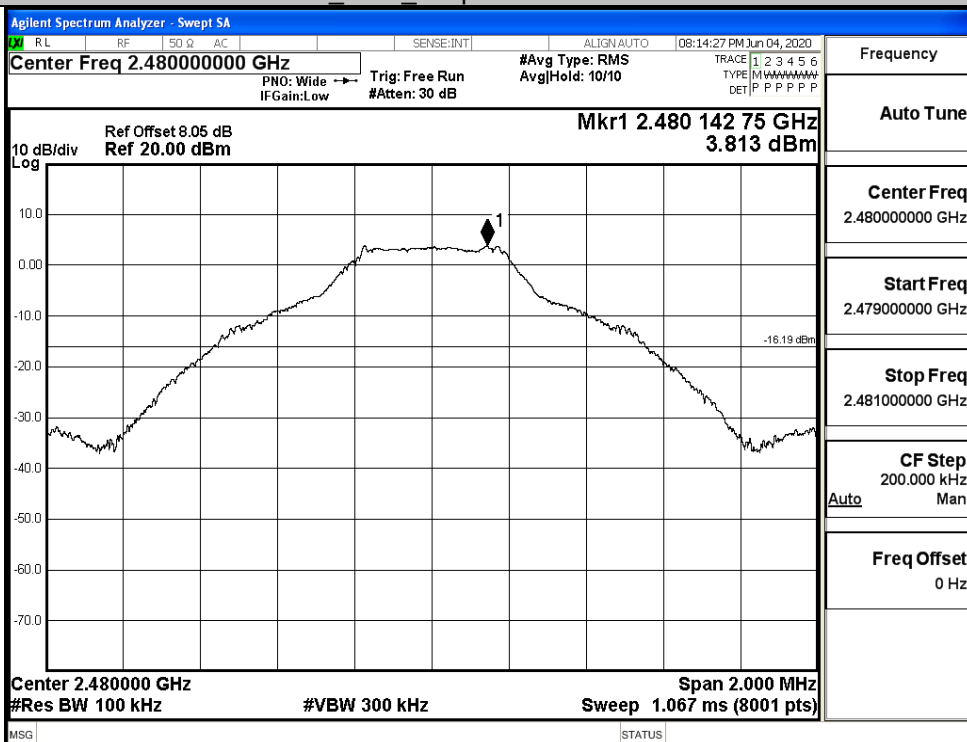


Puw

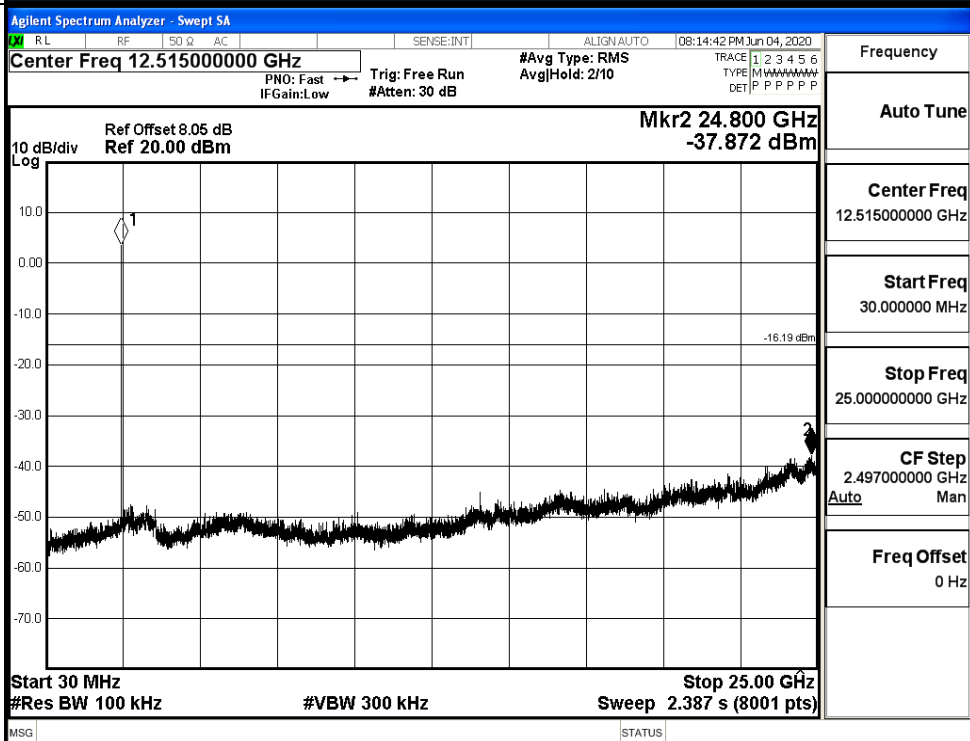


GFSK HCH_Graphs

Pref

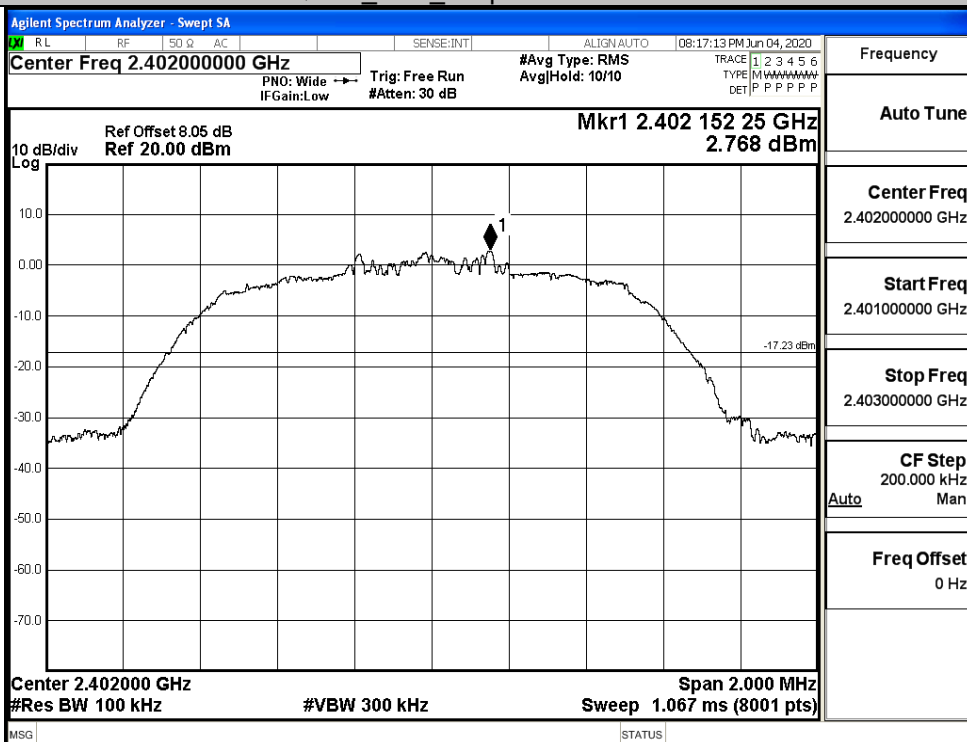


Puw

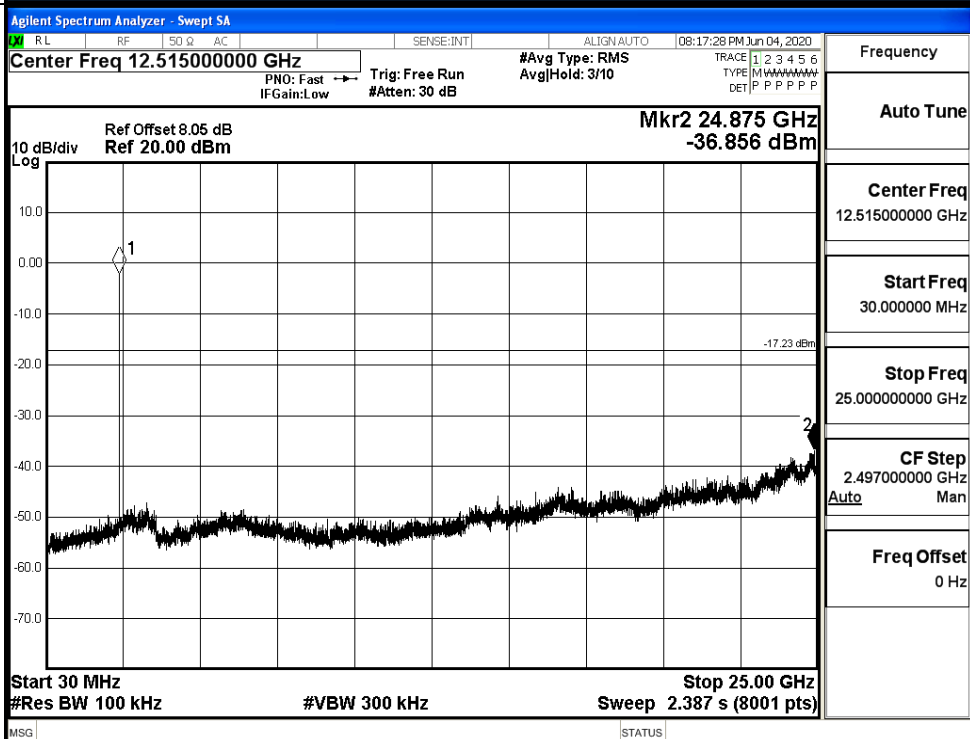


$\pi/4$ DQPSK_LCH_Graphs

Pref

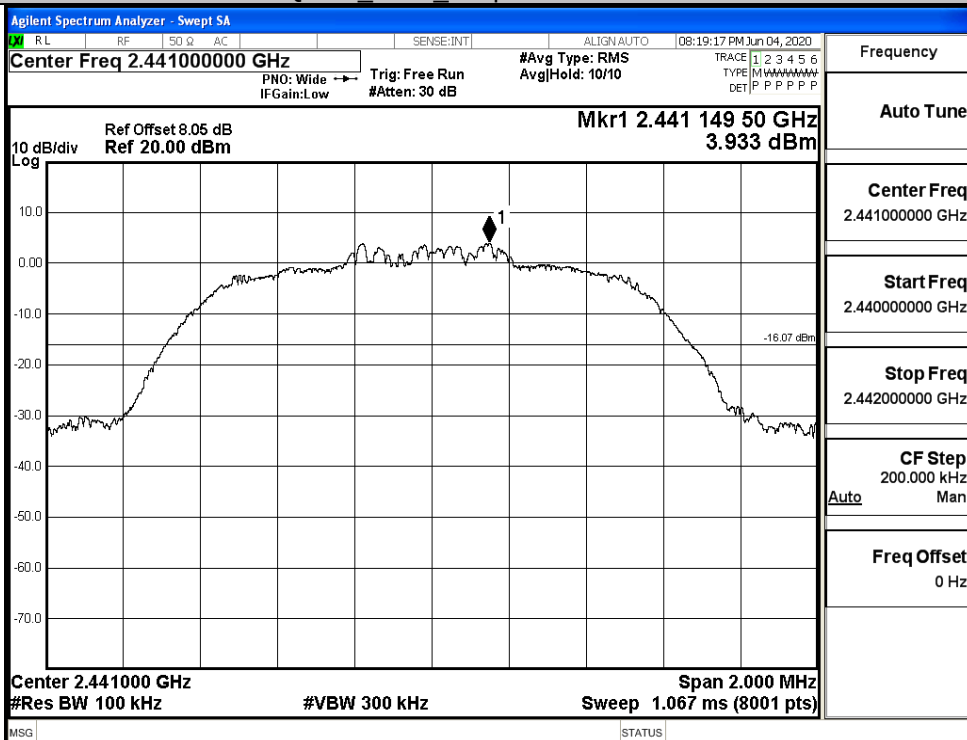


Puw

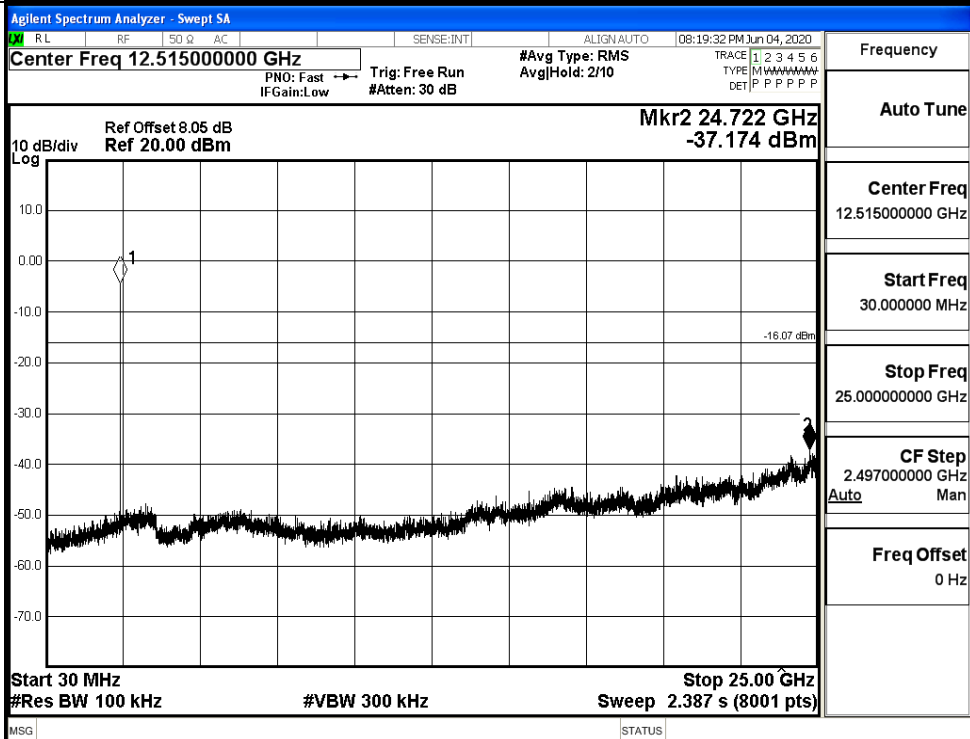


π /4DQPSK_MCH_Graphs

Pref

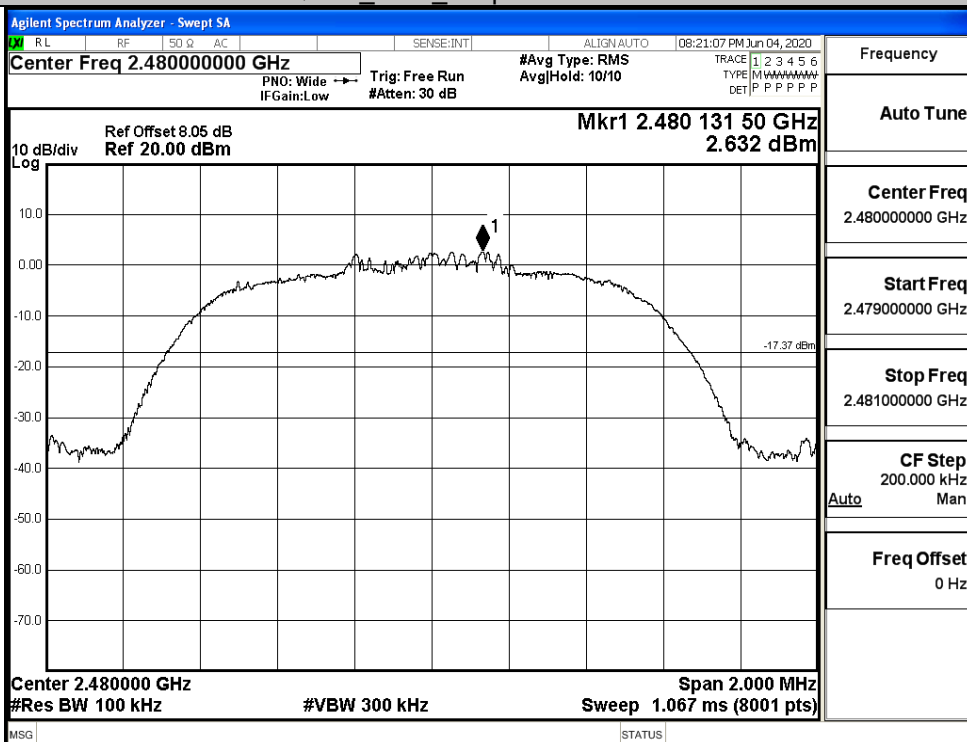


Puw

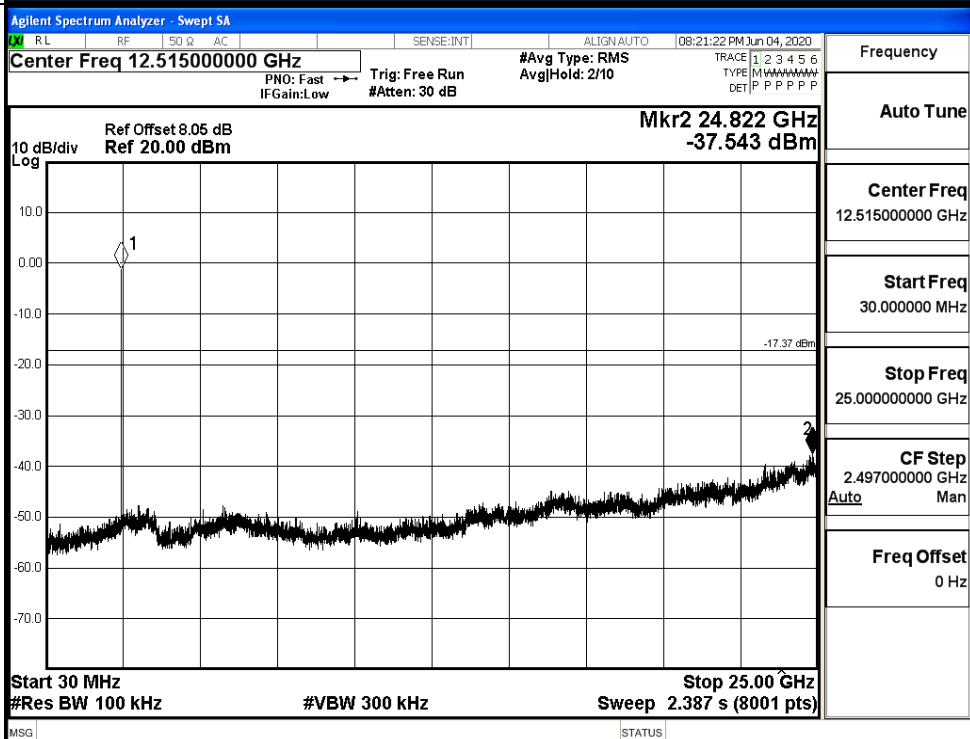


π /4DQPSK_HCH_Graphs

Pref



Puw

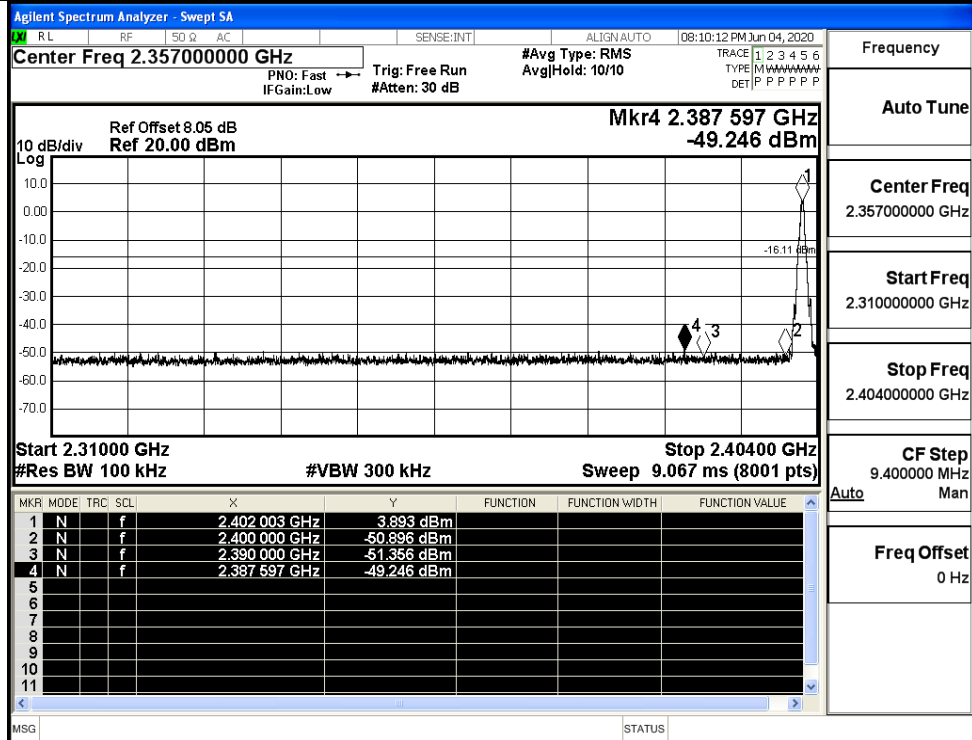


A.7 Band-edge for RF Conducted Emissions

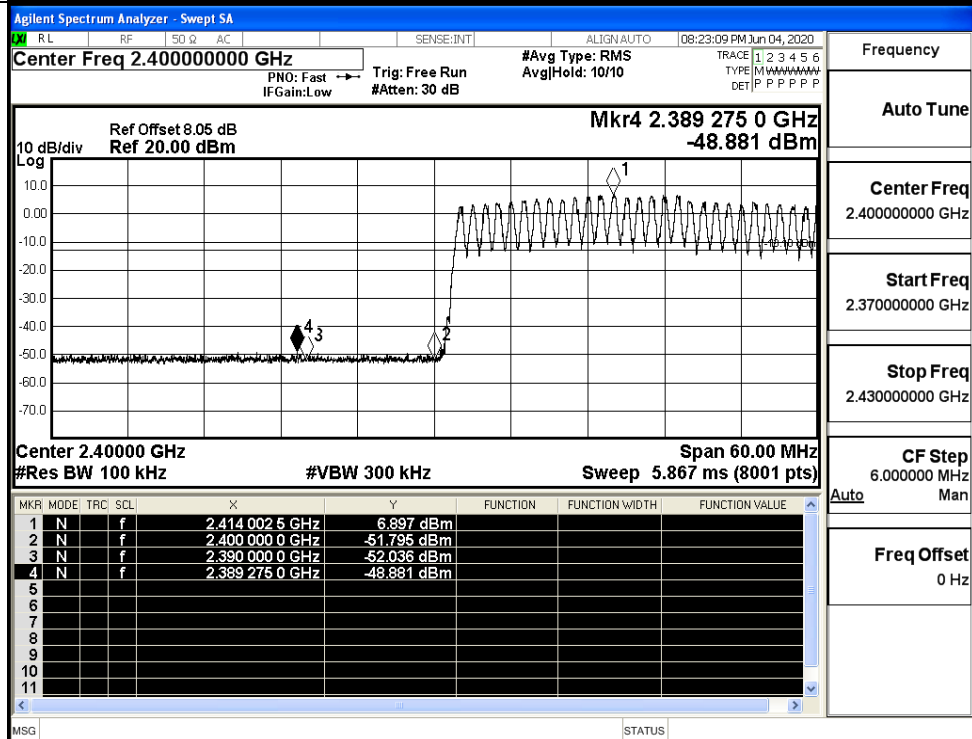
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	3.893	Off	-49.246	-16.11	PASS
			6.897	On	-48.881	-13.1	PASS
	HCH	2480	4.049	Off	-49.202	-15.95	PASS
			7.199	On	-49.085	-12.8	PASS
$\pi/4$ DQPSK	LCH	2402	2.904	Off	-49.470	-17.1	PASS
			5.790	On	-48.705	-14.21	PASS
	HCH	2480	3.443	Off	-48.390	-16.56	PASS
			6.642	On	-48.336	-13.36	PASS

Test Graphs

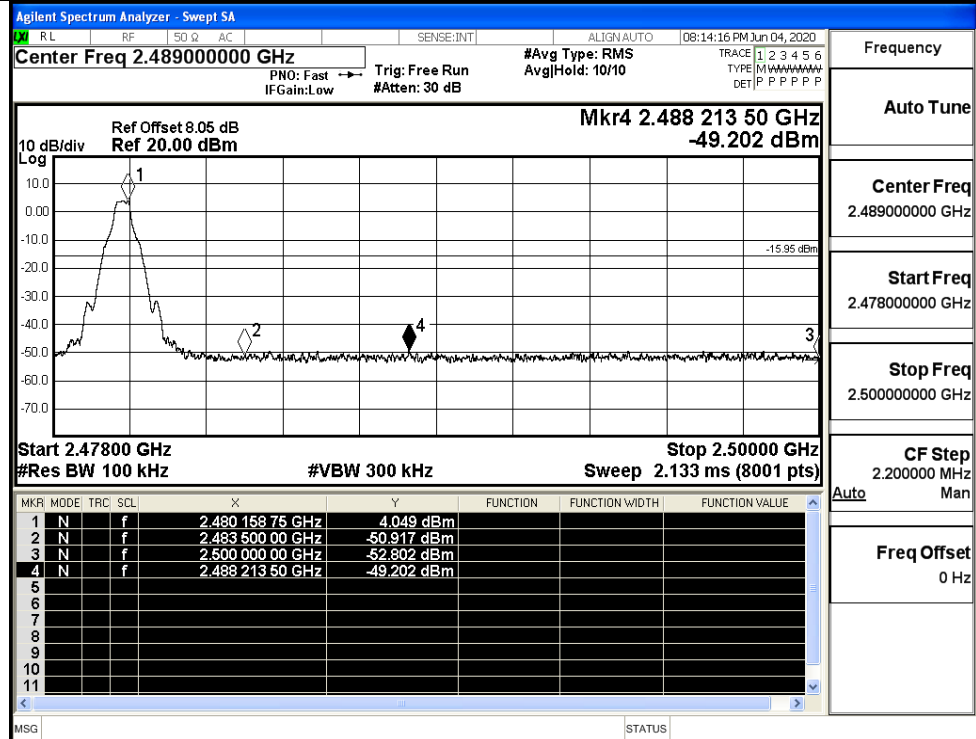
GFSK/LCH/No Hop



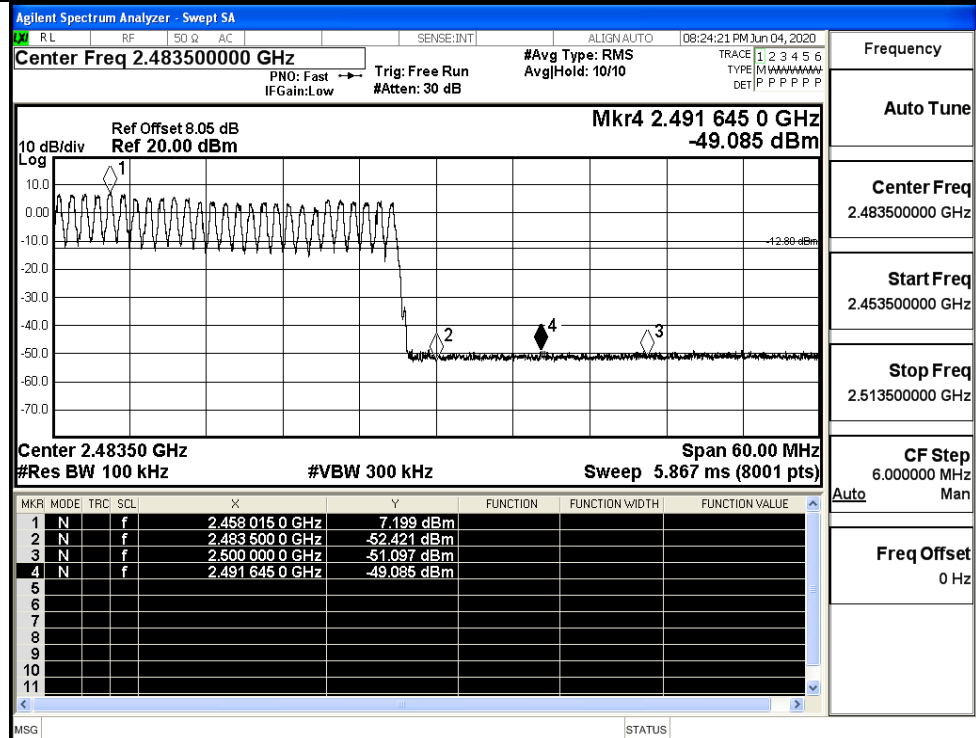
GFSK/LCH/Hop



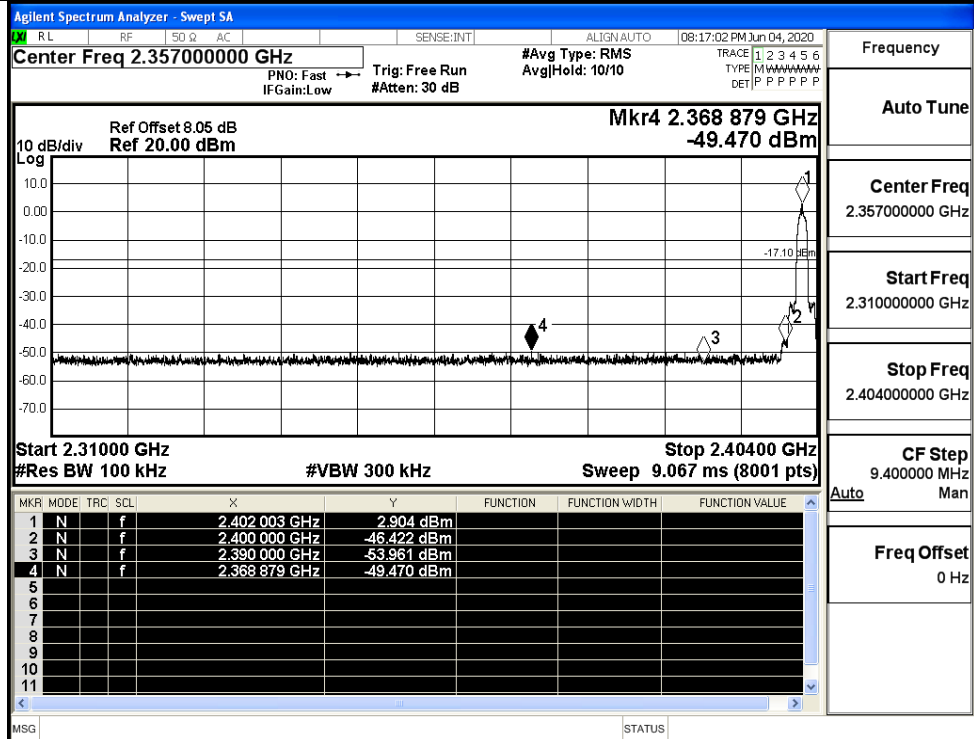
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

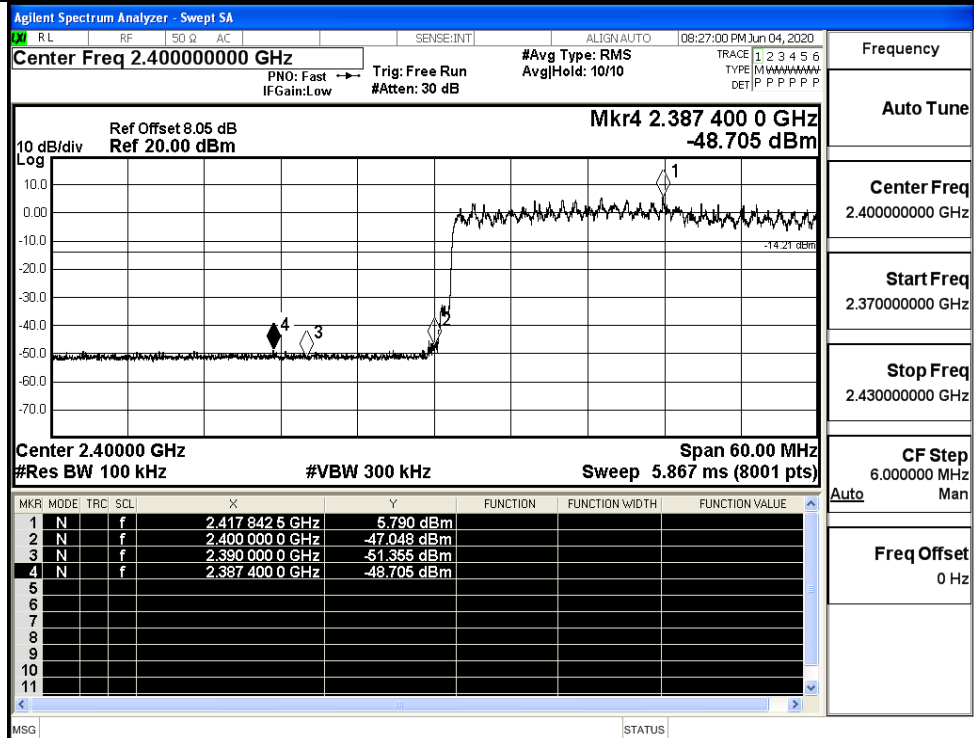
Start Freq
2.310000000 GHz

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

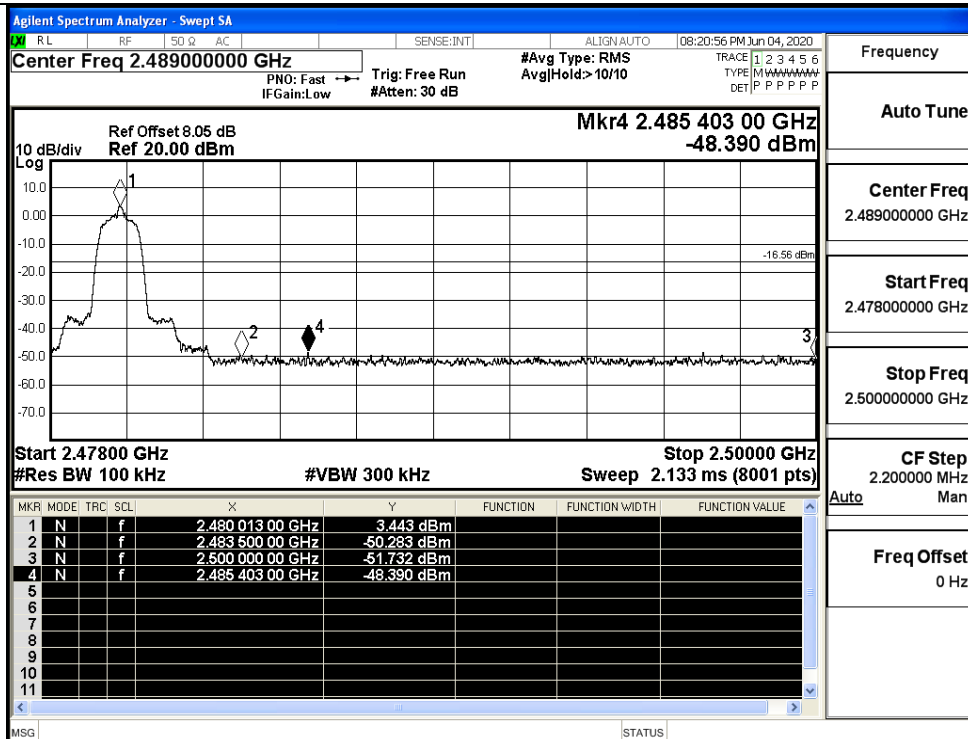
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

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

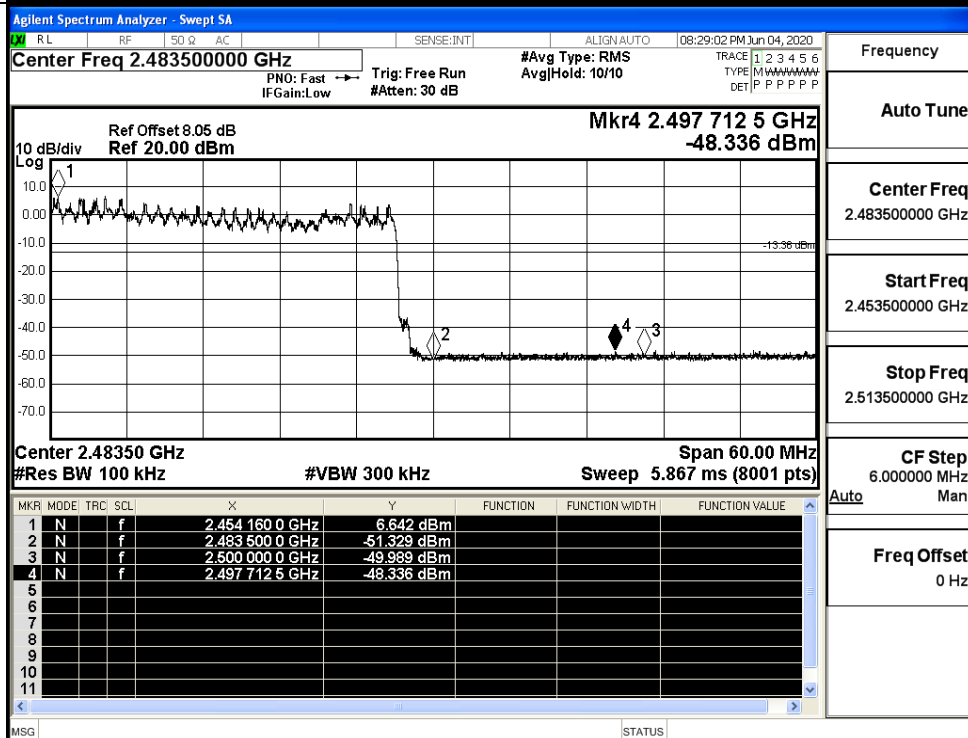


Frequency

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

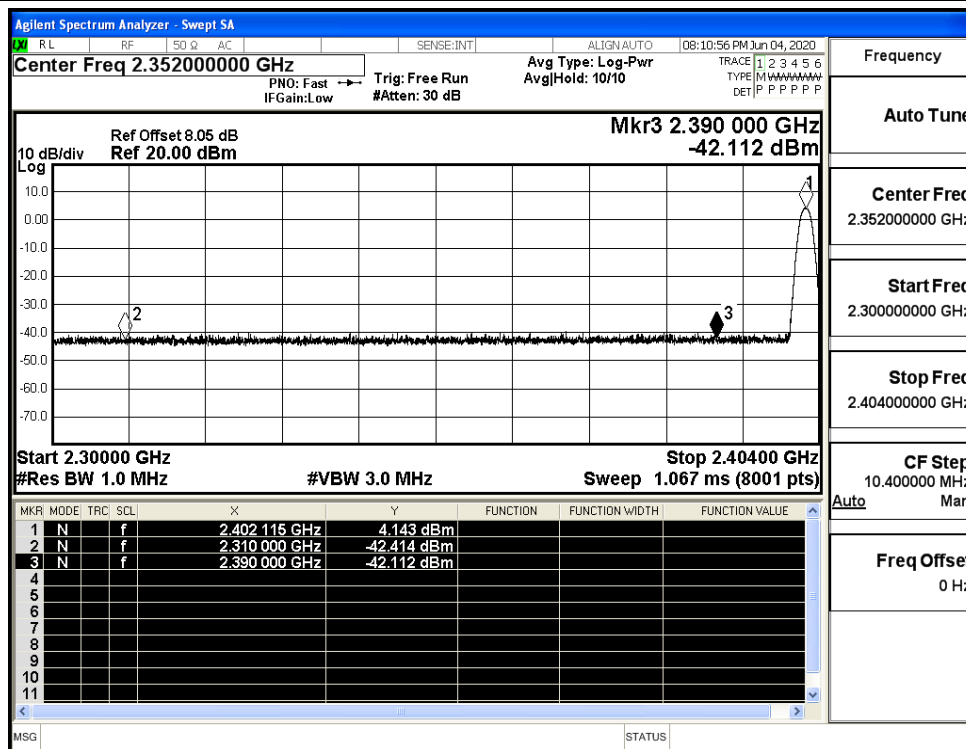
Auto Tune

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

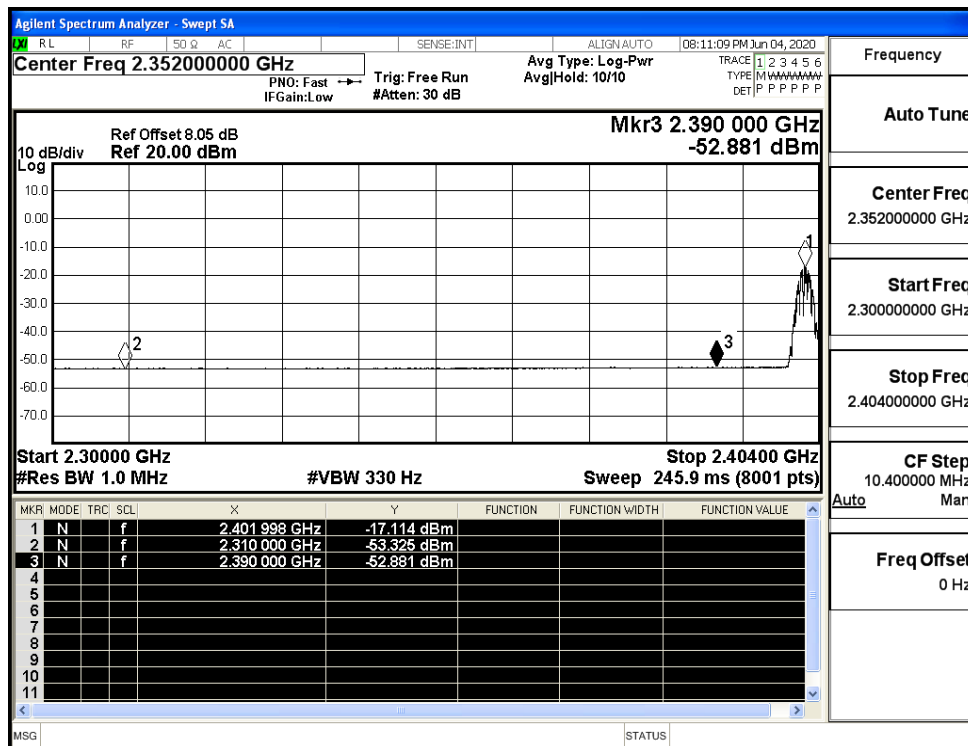
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.41	2.0	0	54.82	PEAK	74	PASS
	Off	2310.0	-53.33	2.0	0	43.90	AV	54	PASS
	Off	2390.0	-42.11	2.0	0	55.12	PEAK	74	PASS
	Off	2390.0	-52.88	2.0	0	44.35	AV	54	PASS
	Off	2483.5	-42.54	2.0	0	54.69	PEAK	74	PASS
	Off	2483.5	-52.34	2.0	0	44.89	AV	54	PASS
	Off	2500.0	-43.18	2.0	0	54.05	PEAK	74	PASS
	Off	2500.0	-52.19	2.0	0	45.04	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.67	2.0	0	54.56	PEAK	74	PASS
	Off	2310.0	-53.29	2.0	0	43.94	AV	54	PASS
	Off	2390.0	-43.63	2.0	0	53.60	PEAK	74	PASS
	Off	2390.0	-52.80	2.0	0	44.43	AV	54	PASS
	Off	2483.5	-42.46	2.0	0	54.77	PEAK	74	PASS
	Off	2483.5	-52.10	2.0	0	45.13	AV	54	PASS
	Off	2500.0	-42.36	2.0	0	54.87	PEAK	74	PASS
	Off	2500.0	-52.24	2.0	0	44.99	AV	54	PASS

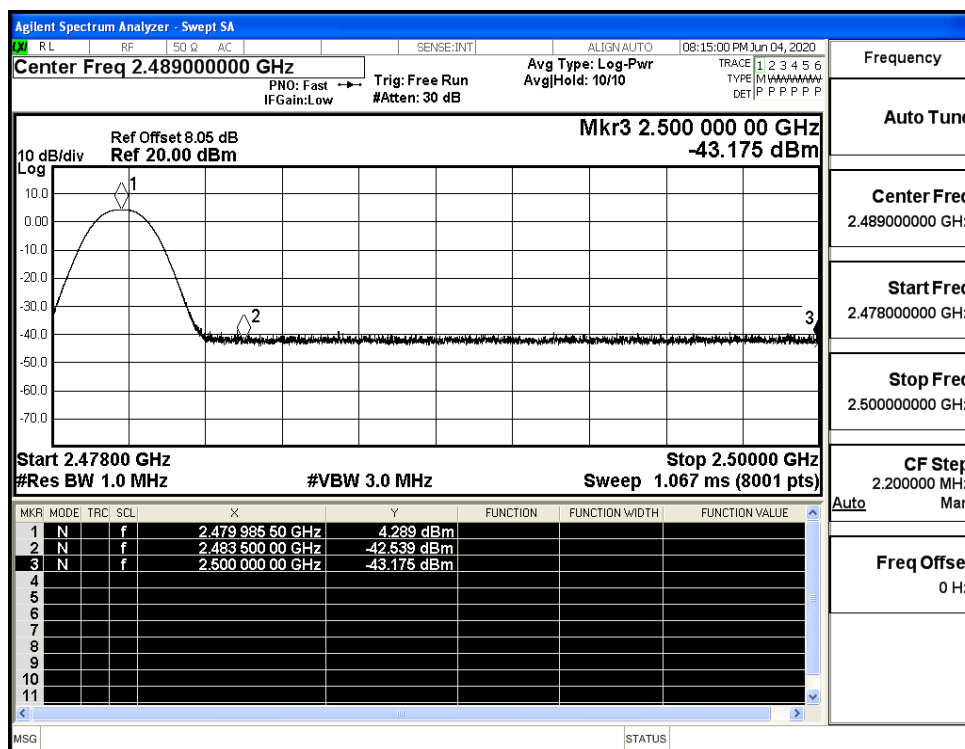
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



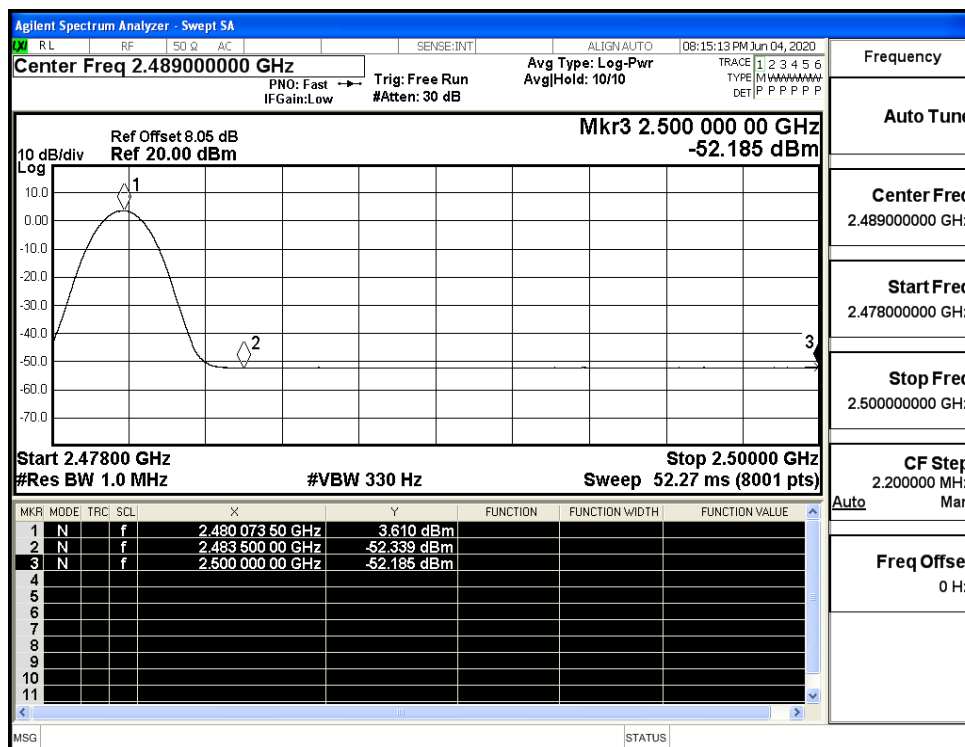
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

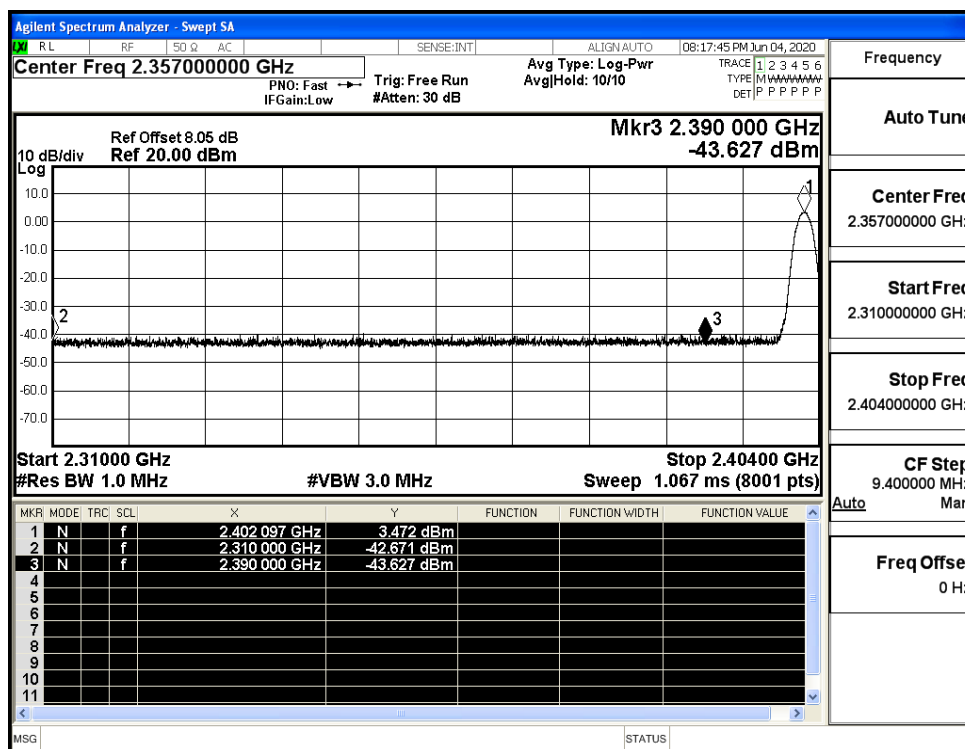
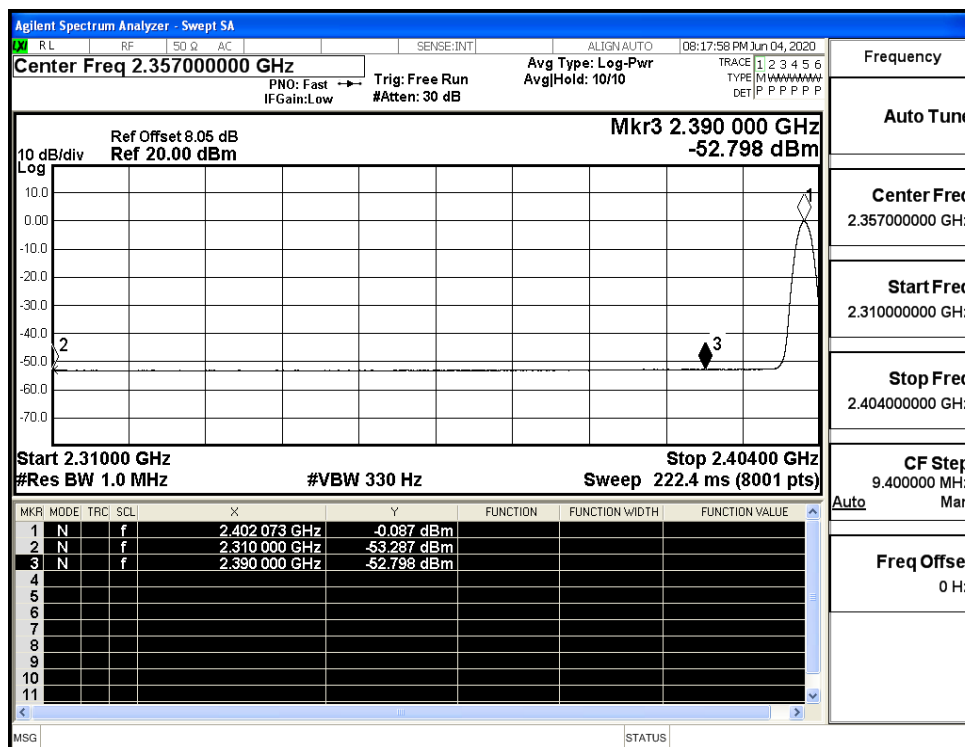


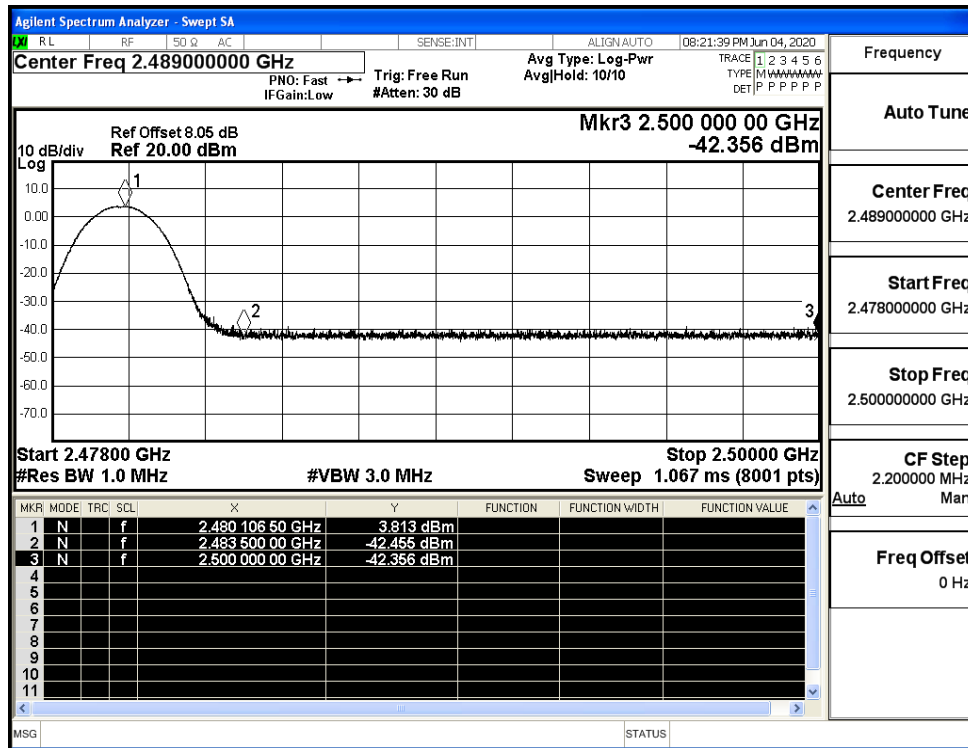
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



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)