

Appendix A

RF Test Data for BT V5.1(BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Speaker

Trade Mark: N/A

Test Model: XY-AU001

Environmental Conditions

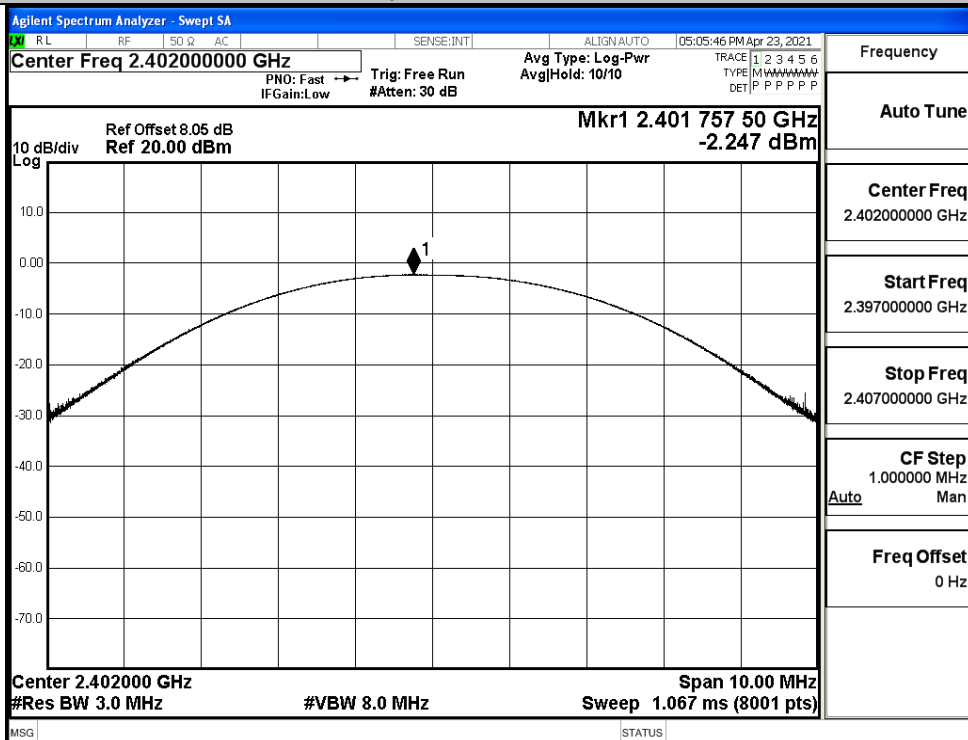
Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

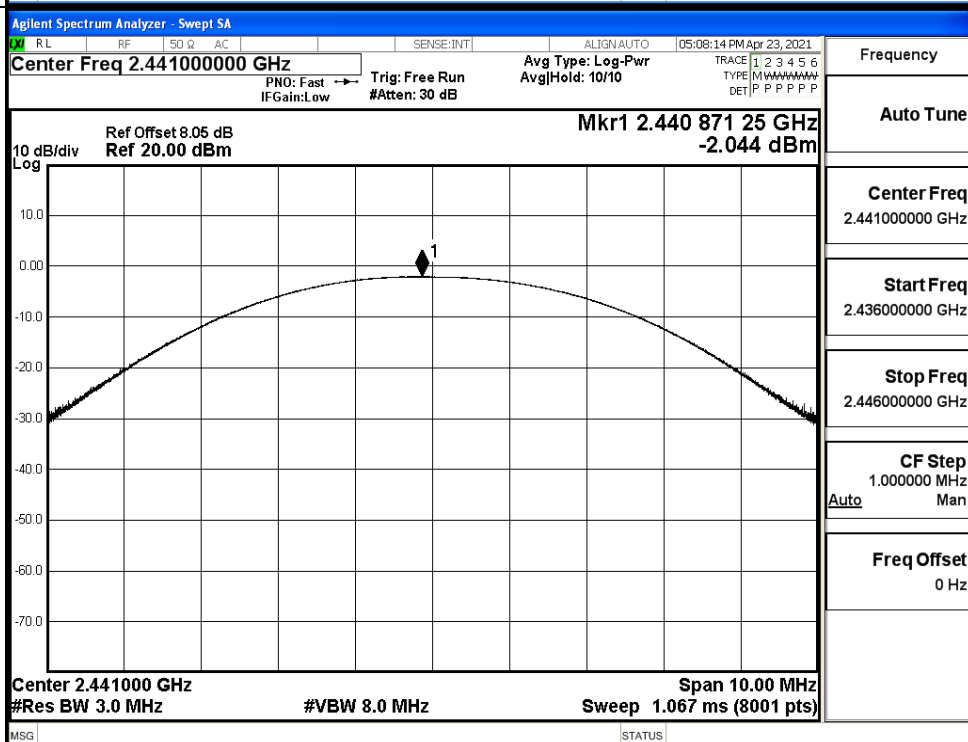
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.247	21	PASS
	MCH	-2.044	21	PASS
	HCH	-2.465	21	PASS
$\pi/4$ DQPSK	LCH	-1.420	21	PASS
	MCH	-1.135	21	PASS
	HCH	-1.508	21	PASS

Test Graphs

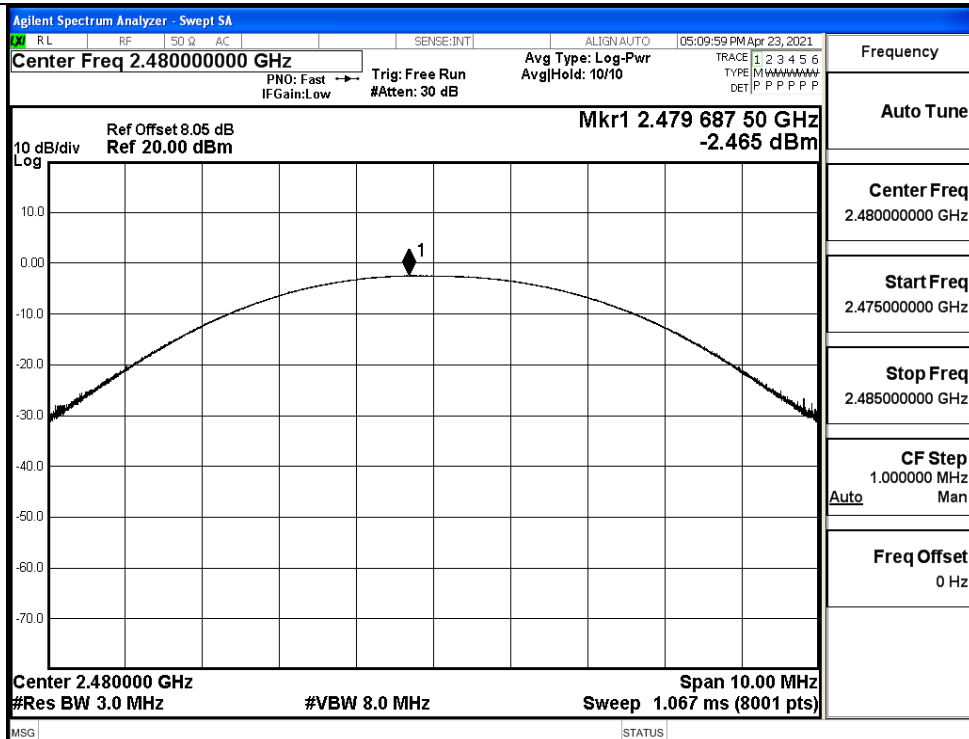
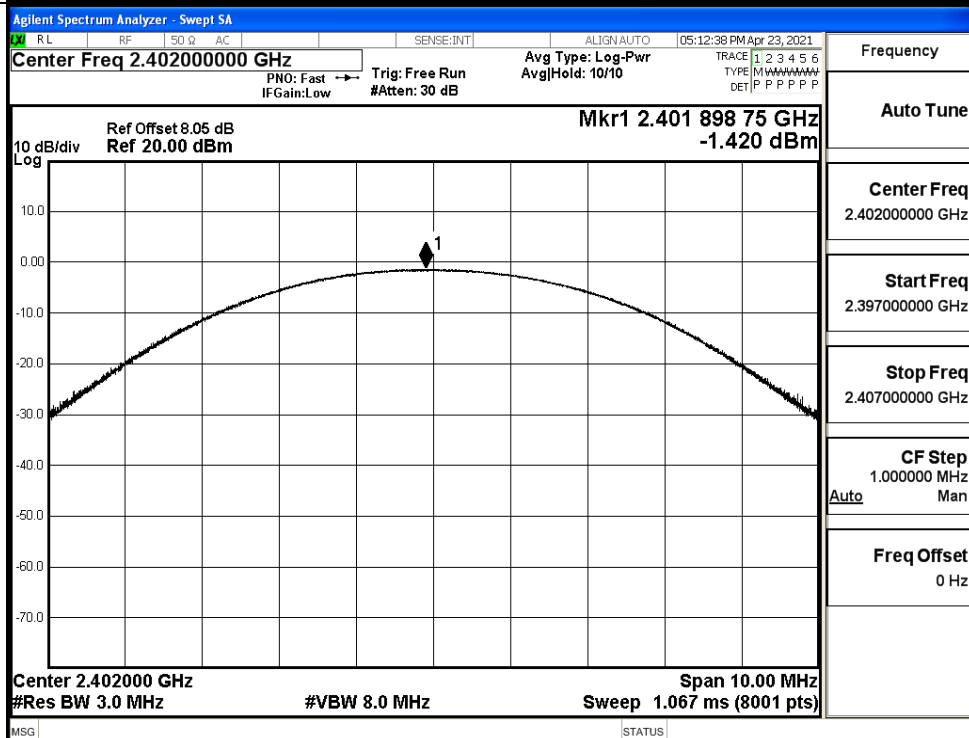
GFSK/LCH

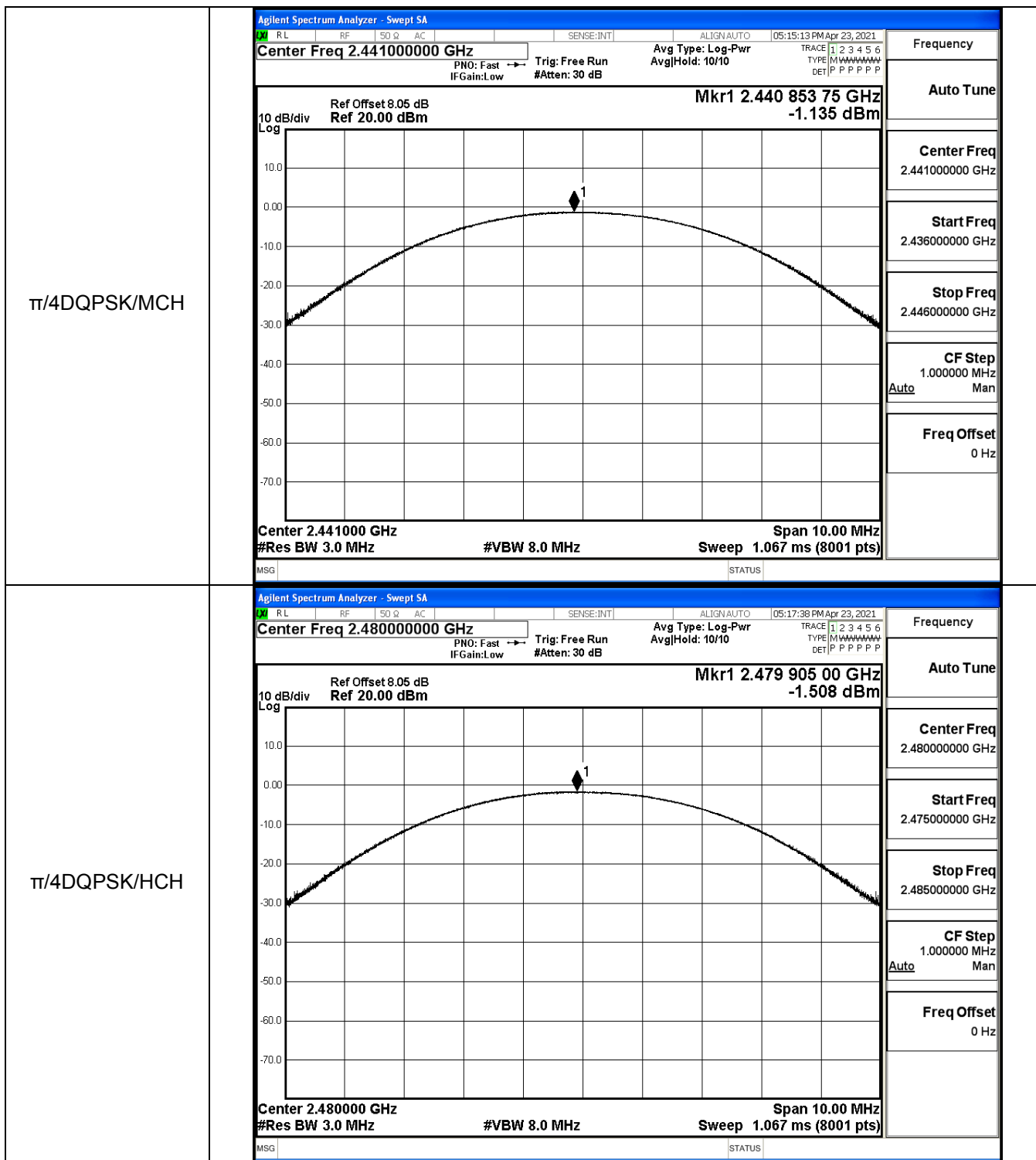


GFSK/MCH



GFSK/HCH

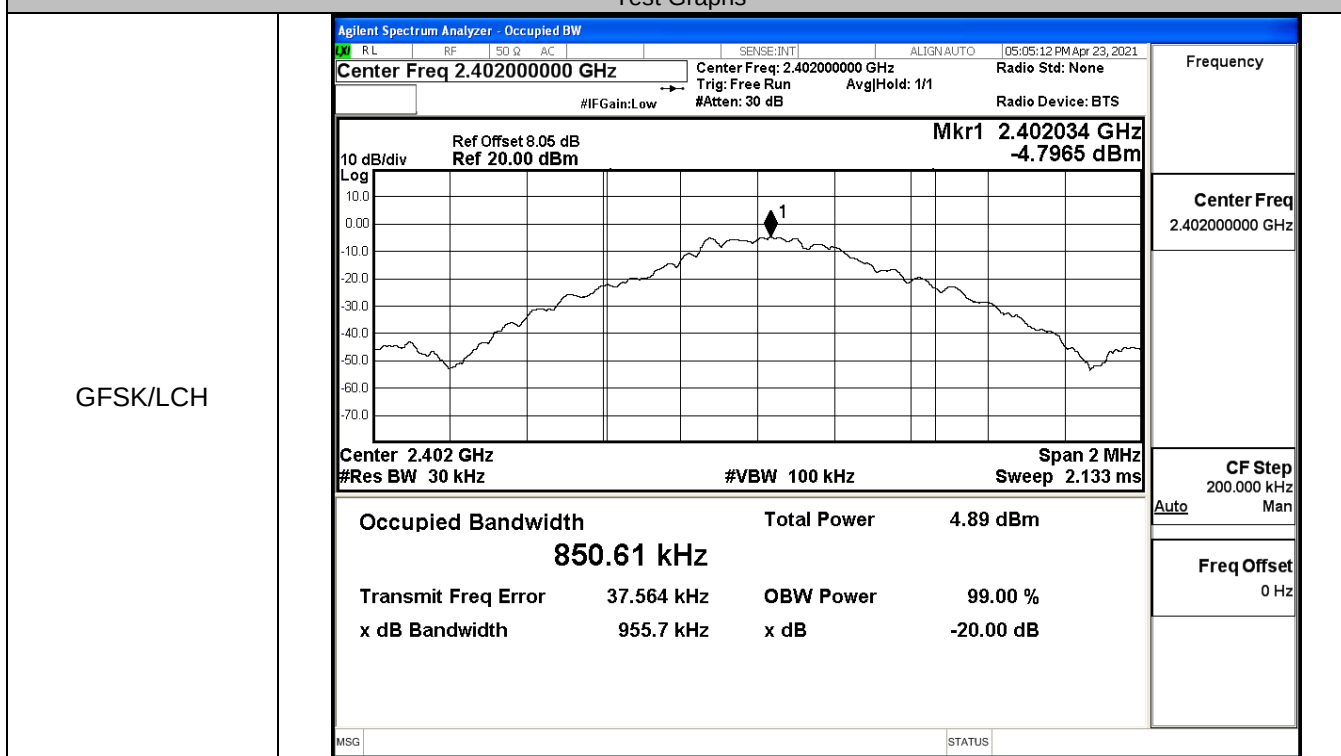
 $\pi/4$ DQPSK/LCH



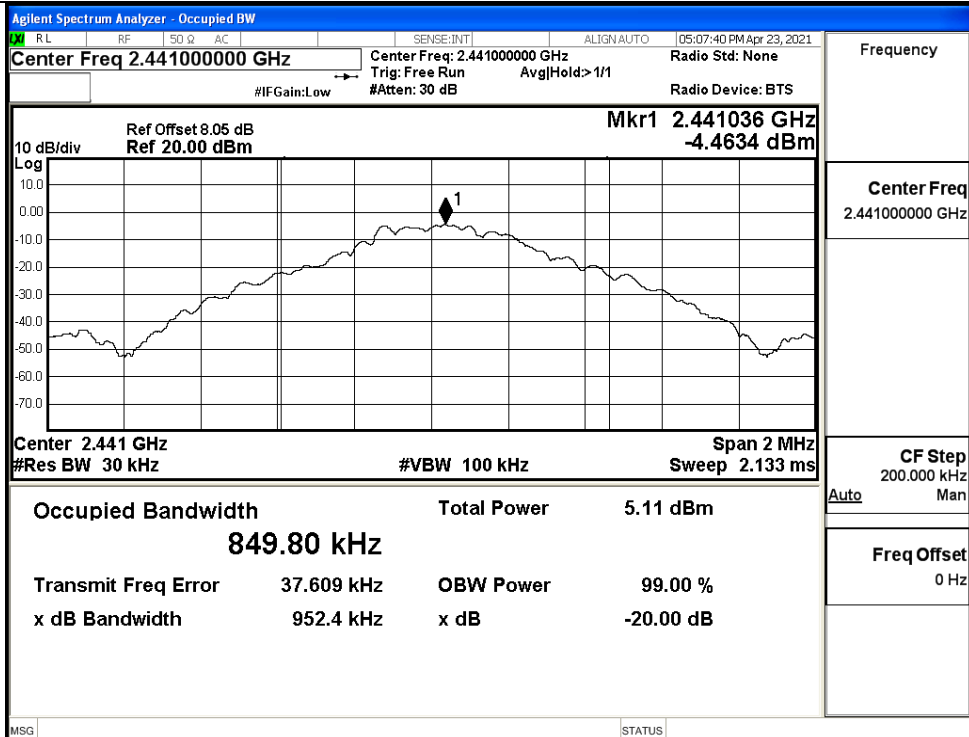
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9557	Not Specified	PASS
	MCH	0.9524	Not Specified	PASS
	HCH	0.9539	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.283	Not Specified	PASS
	MCH	1.283	Not Specified	PASS
	HCH	1.284	Not Specified	PASS

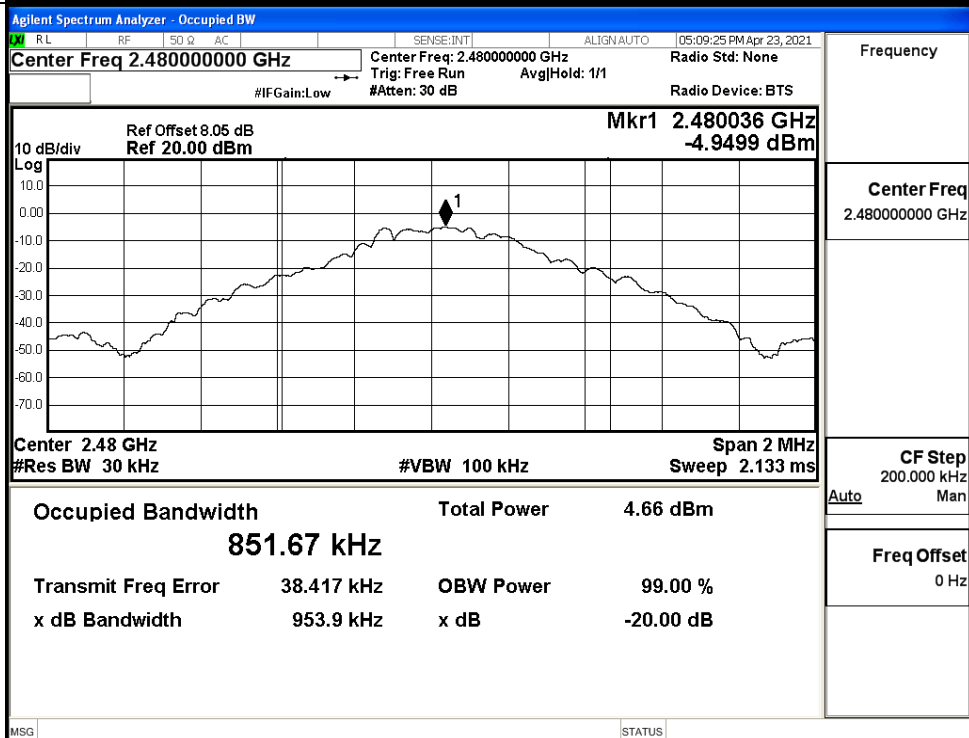
Test Graphs

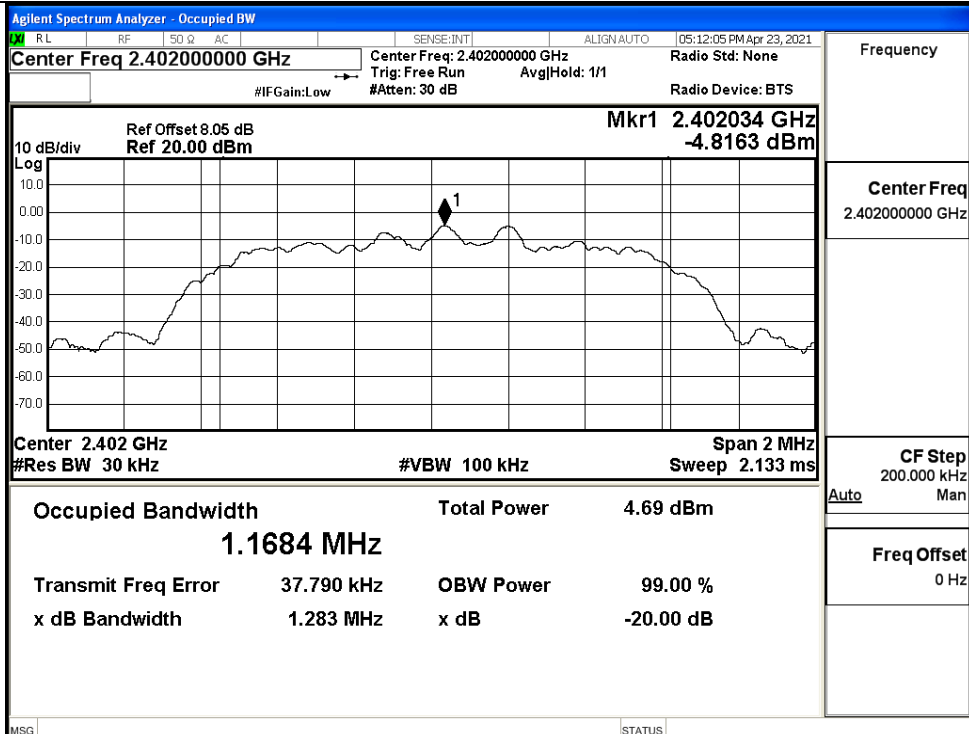


GFSK/MCH



GFSK/HCH

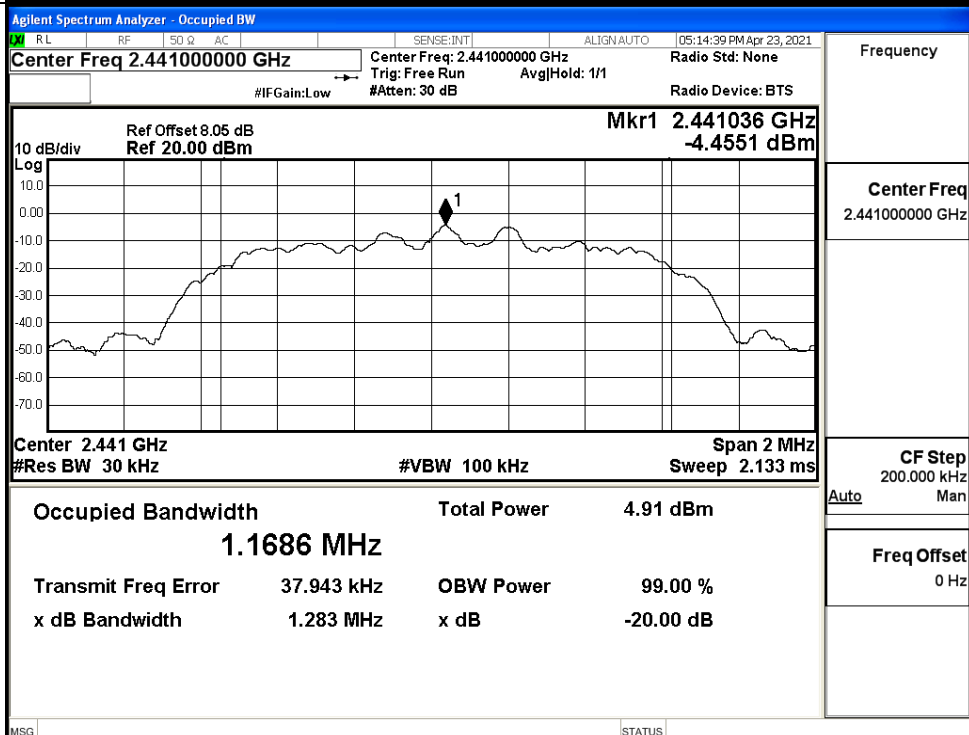


$\pi/4$ DQPSK/LCH

Frequency

Center Freq
2.40200000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz $\pi/4$ DQPSK/MCH

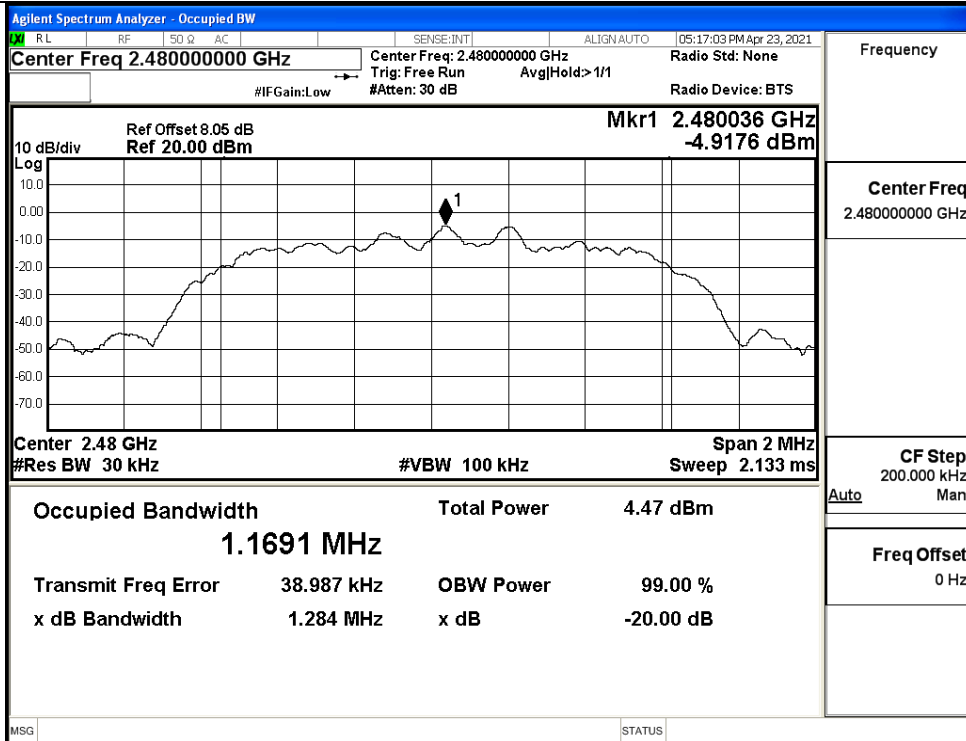
Frequency

Center Freq
2.44100000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

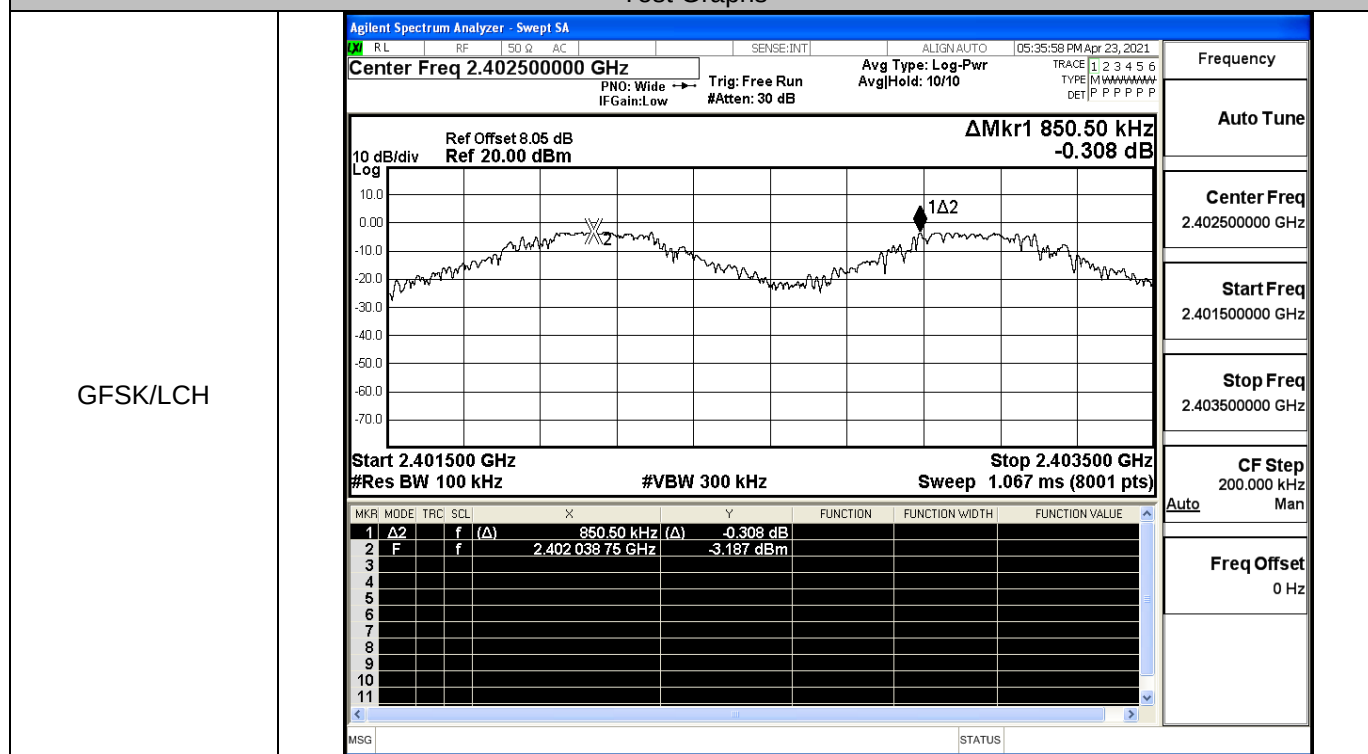
$\pi/4$ DQPSK/HCH



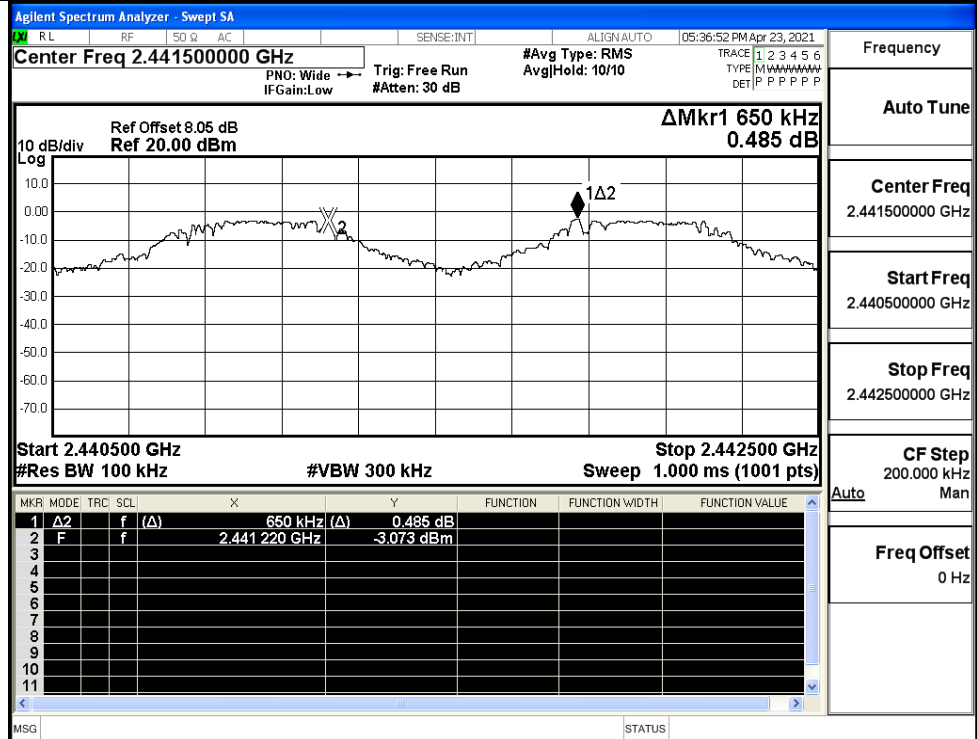
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.851	0.637	PASS
	MCH	0.650	0.637	PASS
	HCH	1.108	0.637	PASS
π /4DQPSK	LCH	0.956	0.856	PASS
	MCH	0.886	0.856	PASS
	HCH	1.336	0.856	PASS

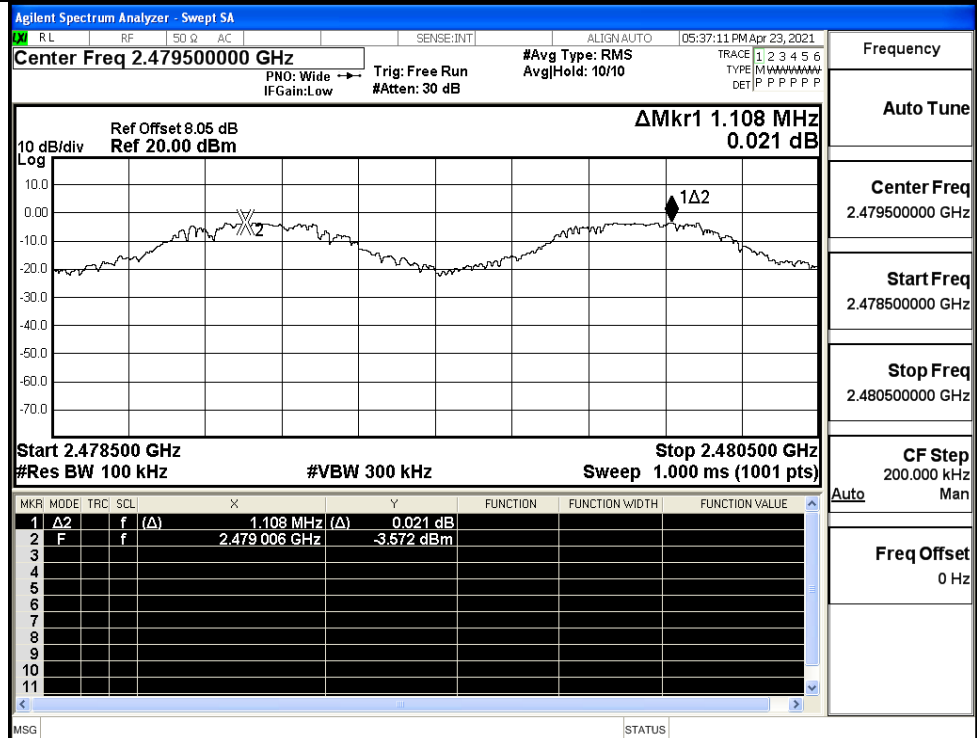
Test Graphs

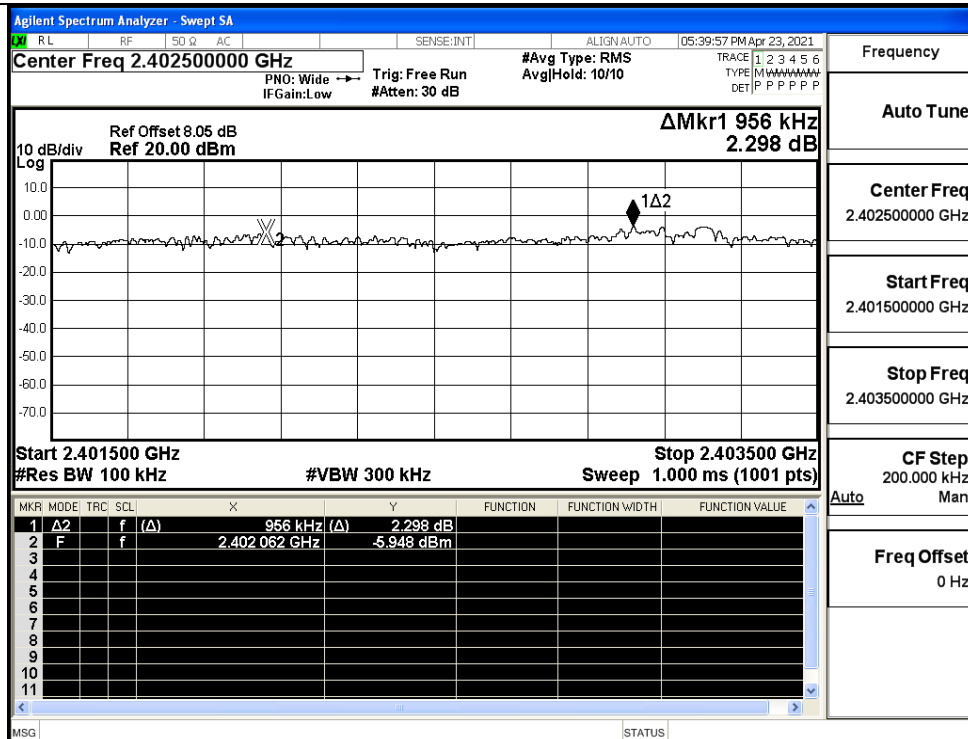


GFSK/MCH



GFSK/HCH



$\pi/4$ DQPSK/LCH

Frequency

Auto Tune

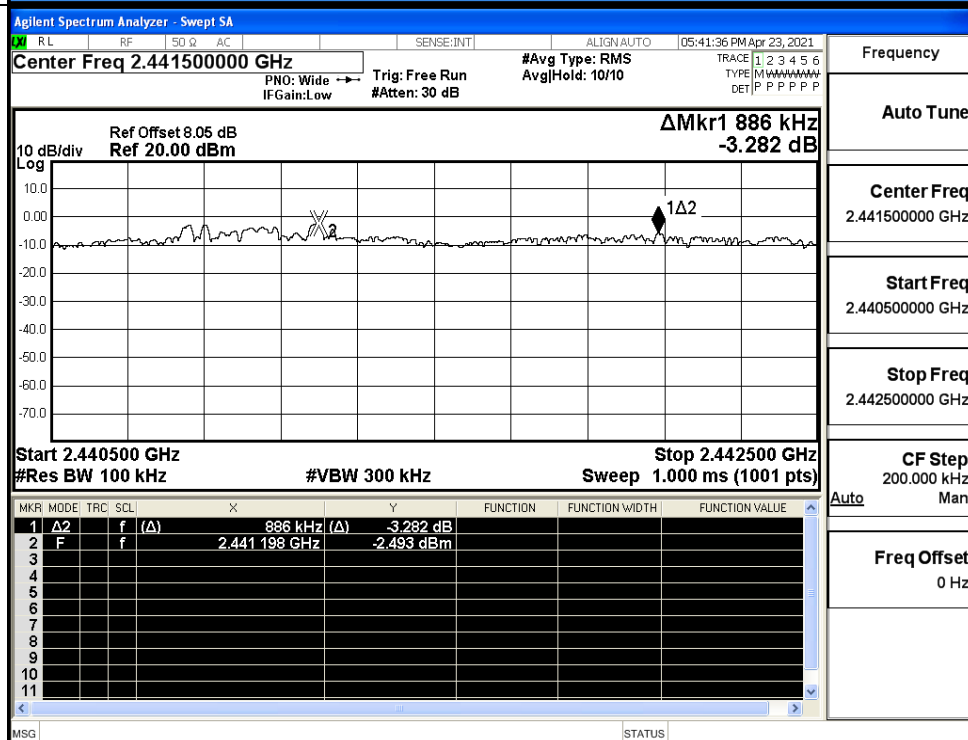
Center Freq
2.402500000 GHz

Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

 $\pi/4$ DQPSK/MCH

Frequency

Auto Tune

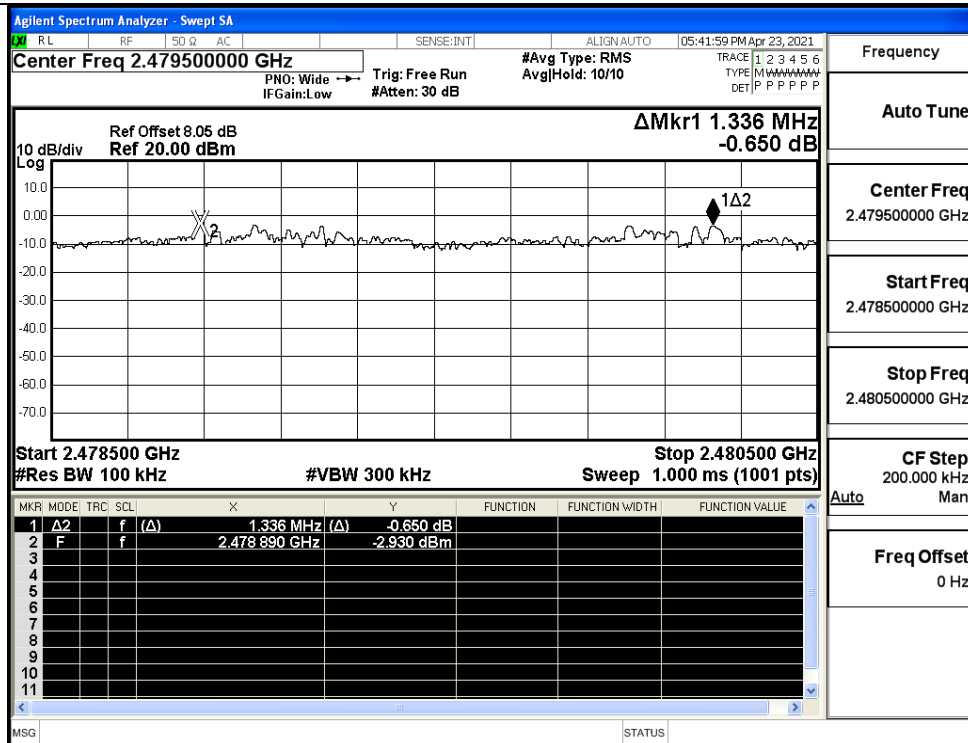
Center Freq
2.441500000 GHz

Start Freq
2.440500000 GHz

Stop Freq
2.442500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

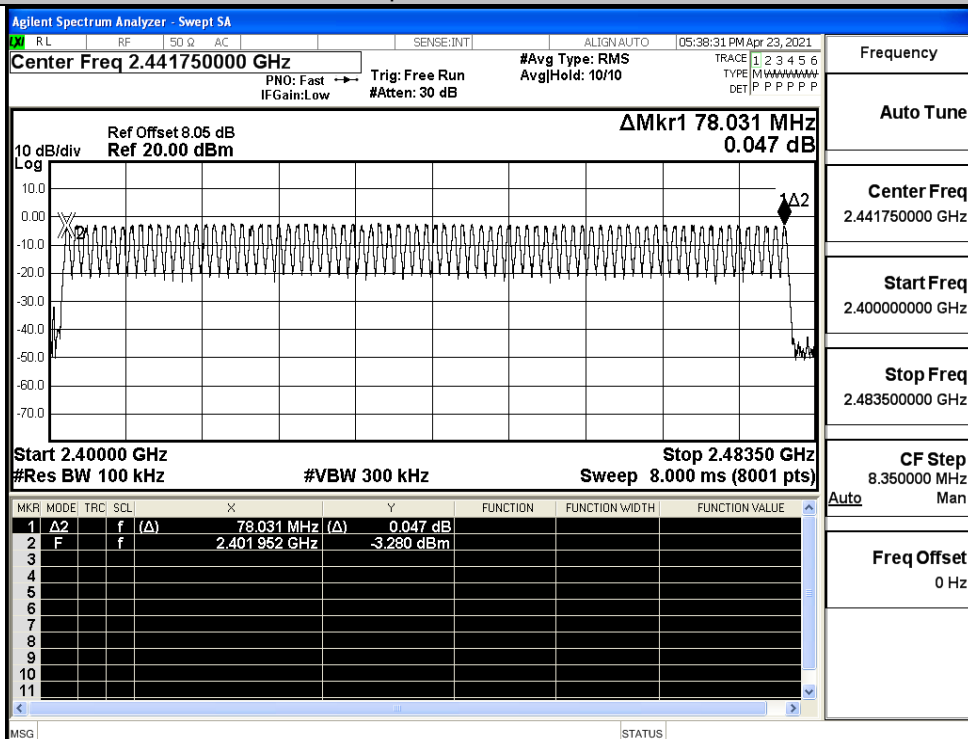
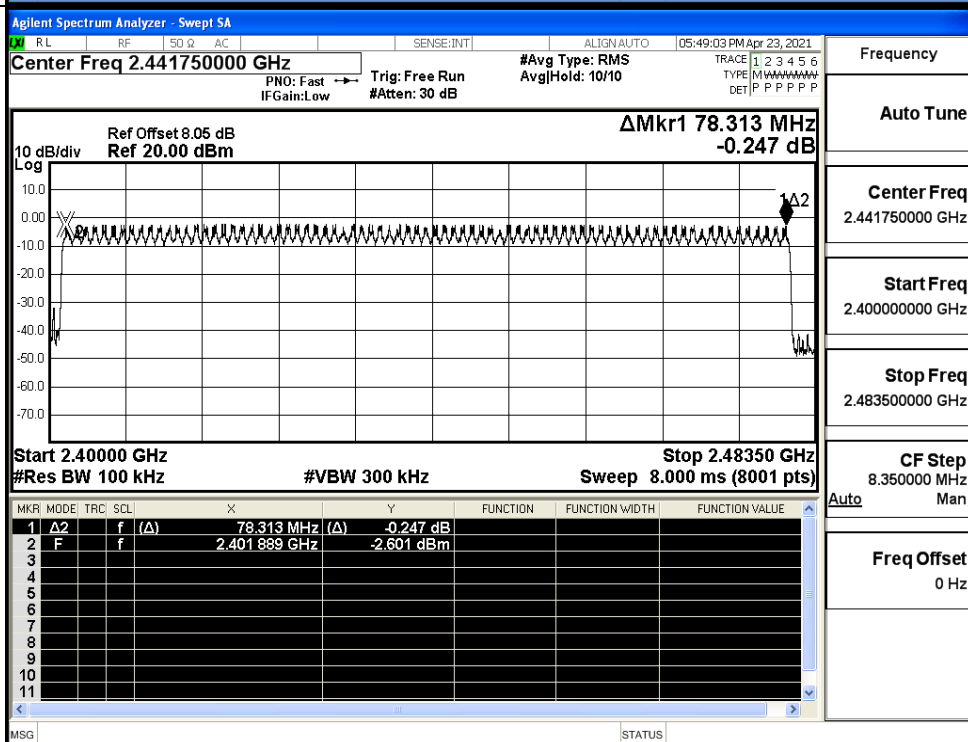
$\pi/4$ DQPSK/HCH

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

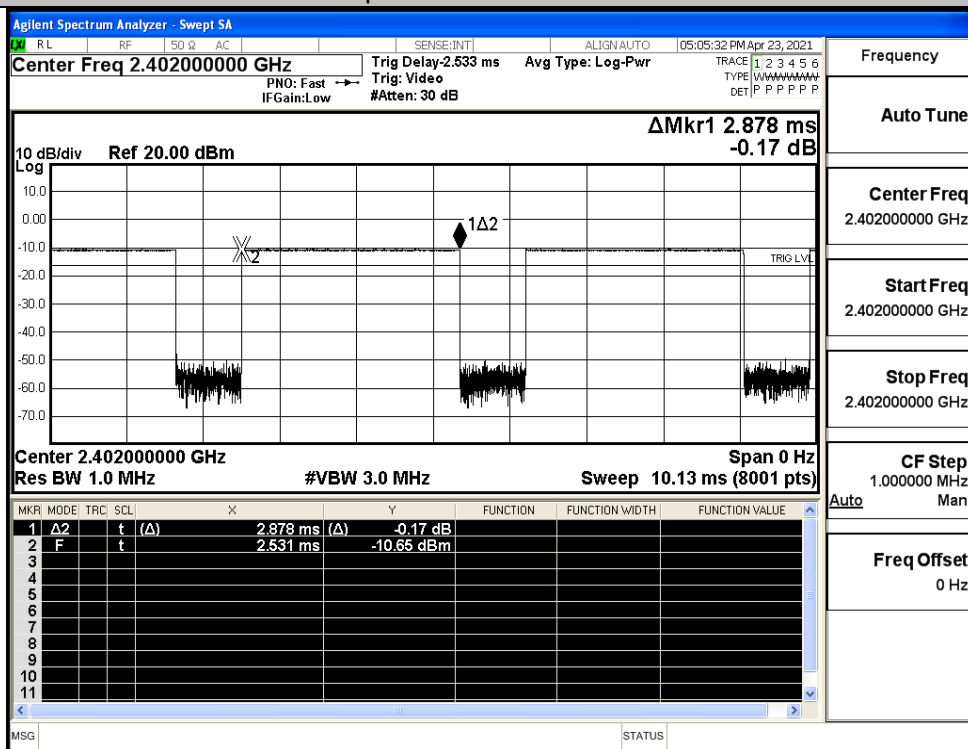
 $\pi/4$ DQPSK/Hop

A.5 Dwell Time

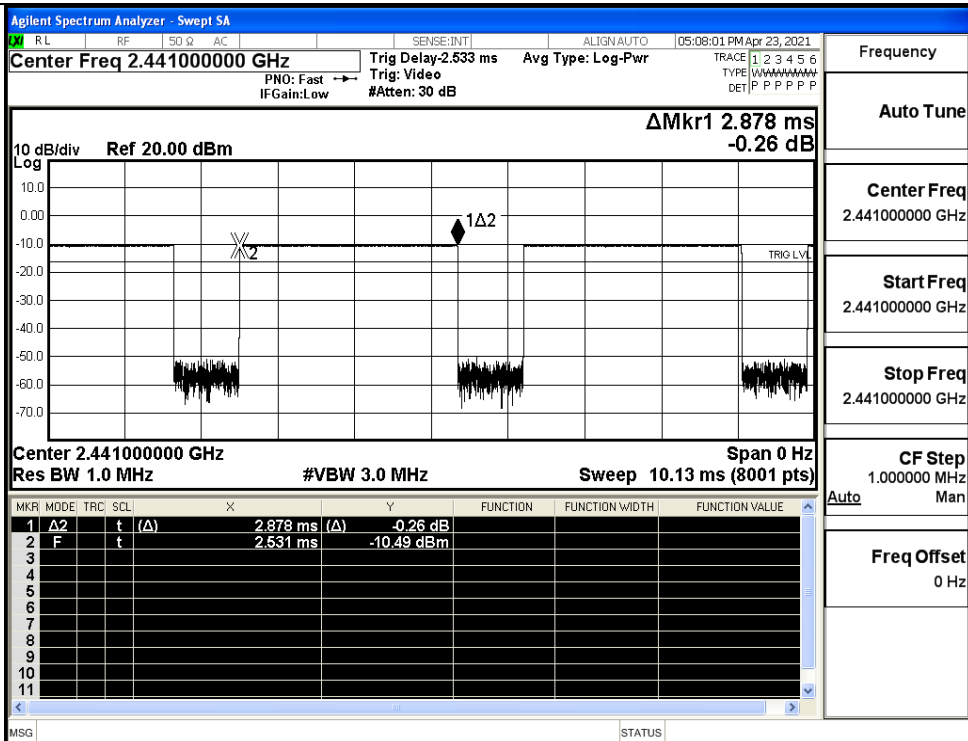
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

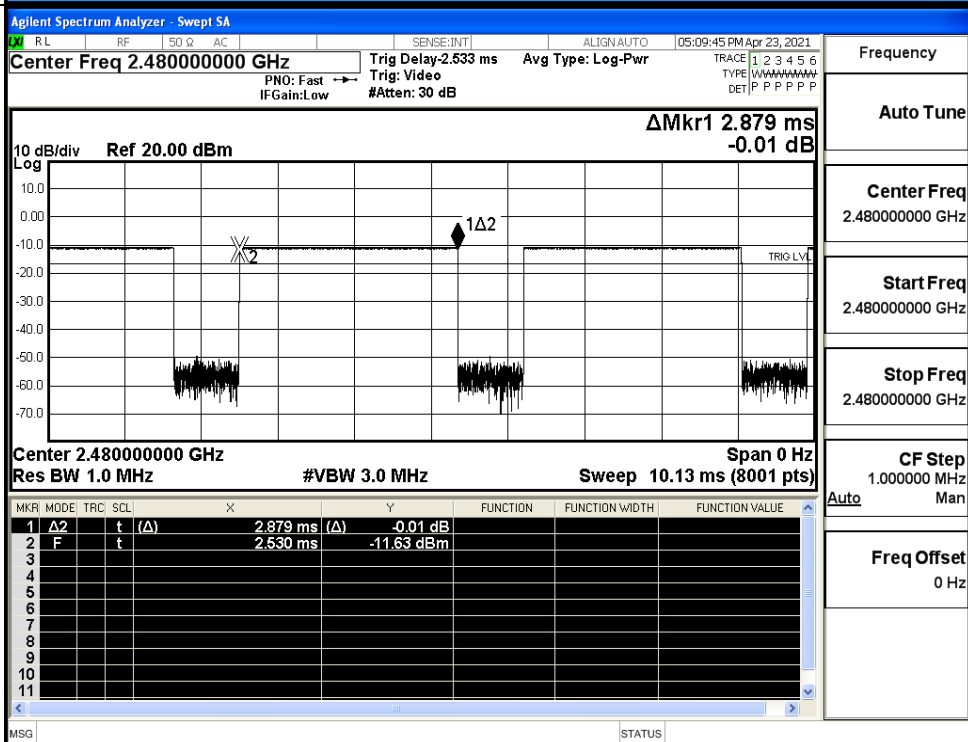
GFSK_DH5/LCH



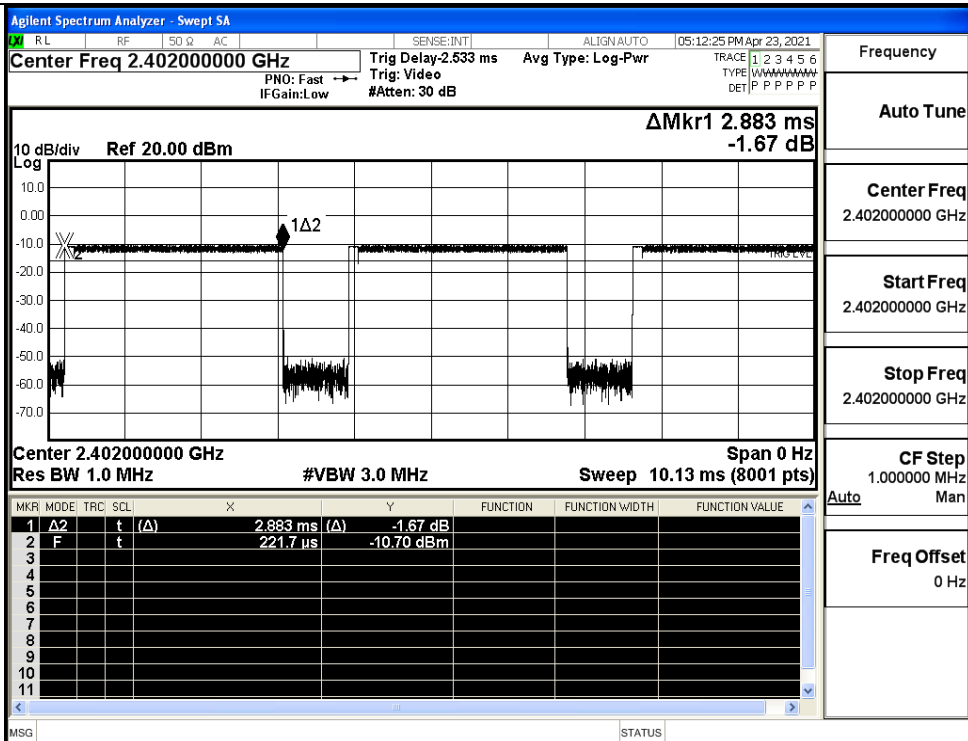
GFSK_DH5/MCH



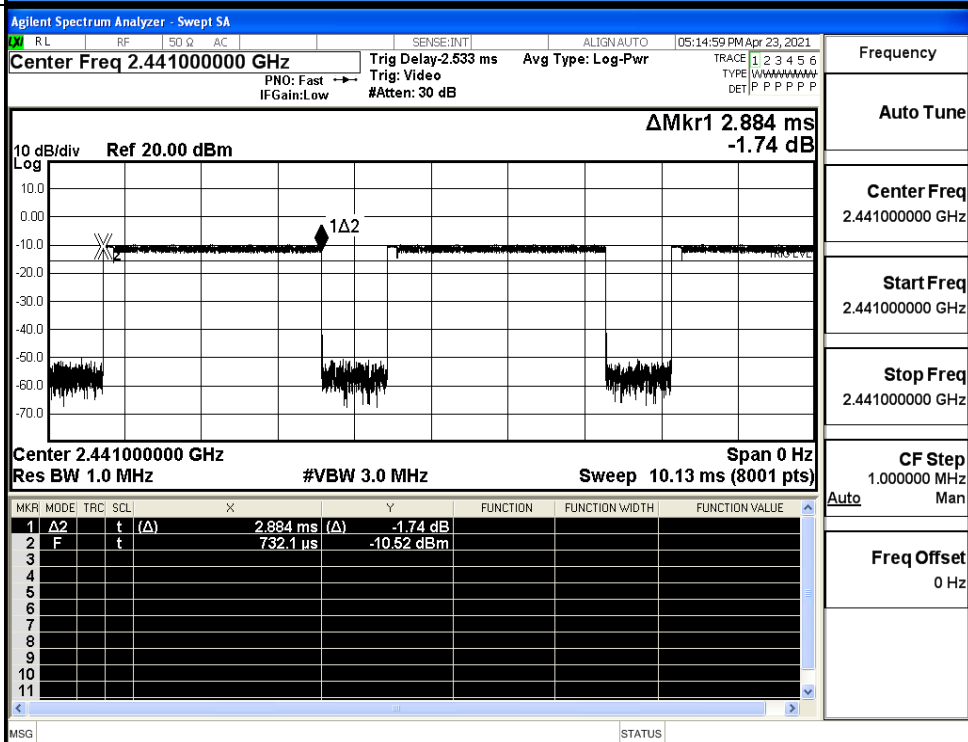
GFSK_DH5/HCH



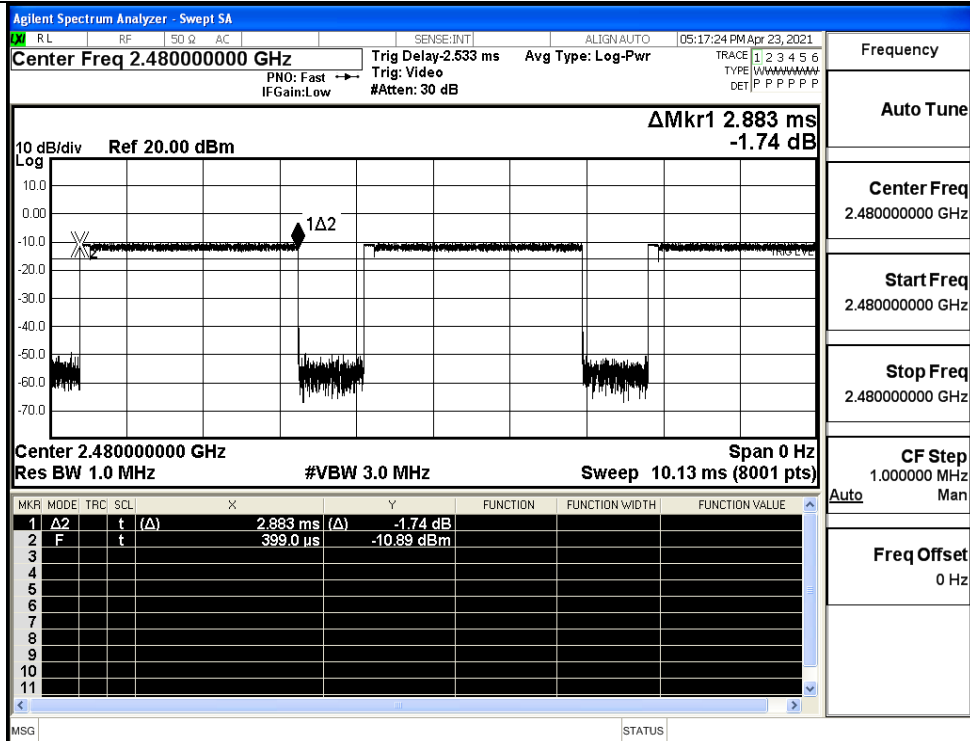
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH



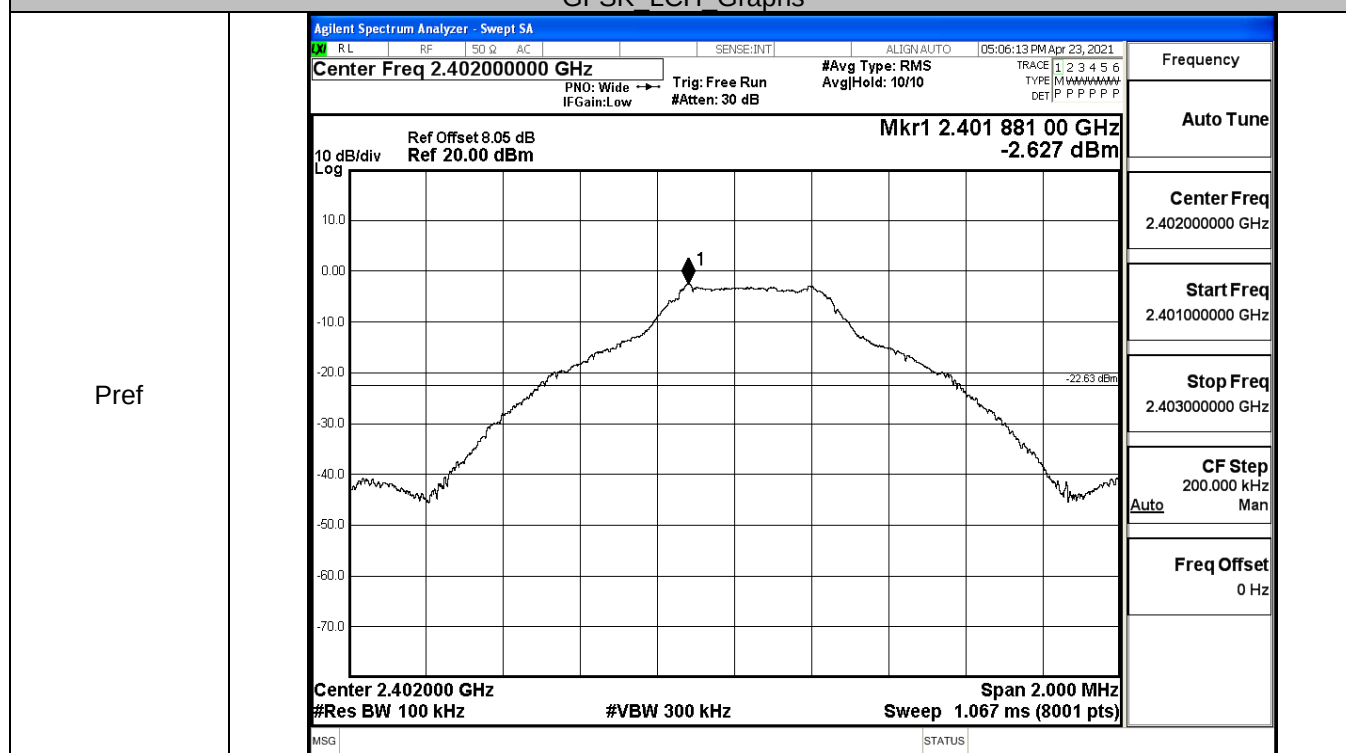
$\pi/4$ DQPSK
_2DH5/HCH



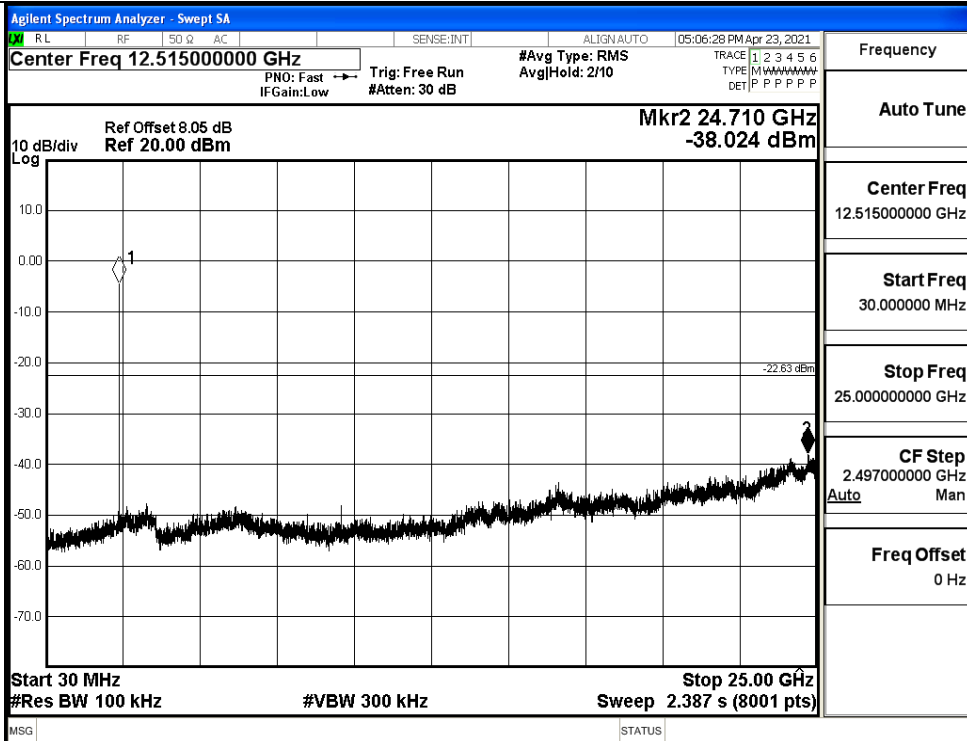
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.627	-38.024	-22.627	PASS
	MCH	-2.723	-37.511	-22.723	PASS
	HCH	-2.851	-38.148	-22.851	PASS
$\pi/4$ DQPSK	LCH	-2.692	-36.595	-22.692	PASS
	MCH	-2.43	-38.174	-22.430	PASS
	HCH	-2.857	-38.009	-22.857	PASS

GFSK LCH Graphs

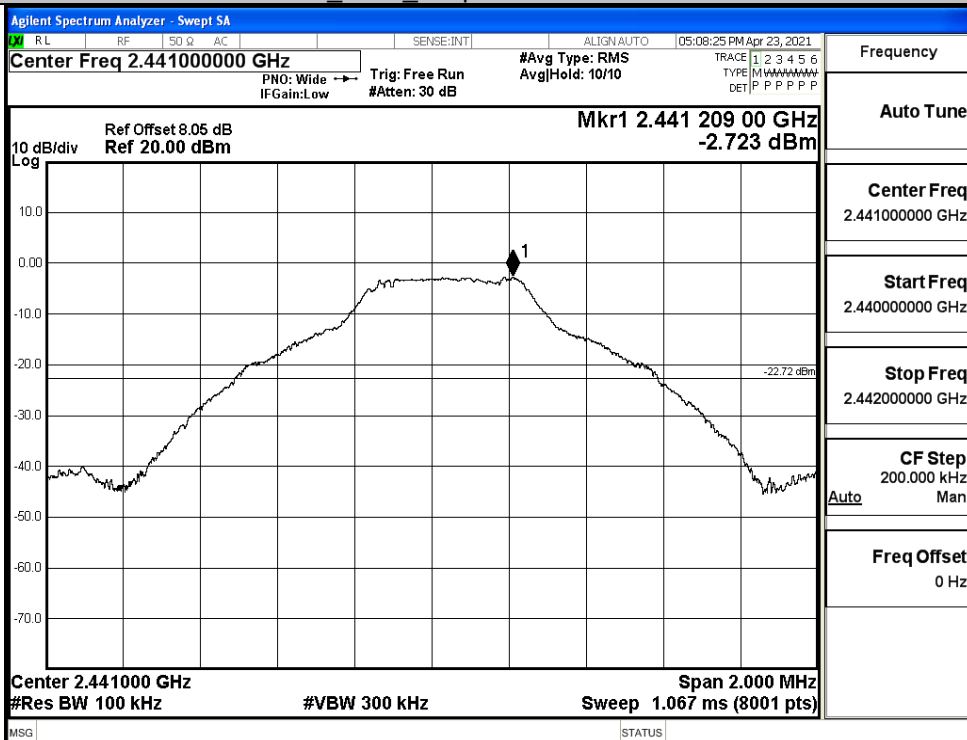


Puw

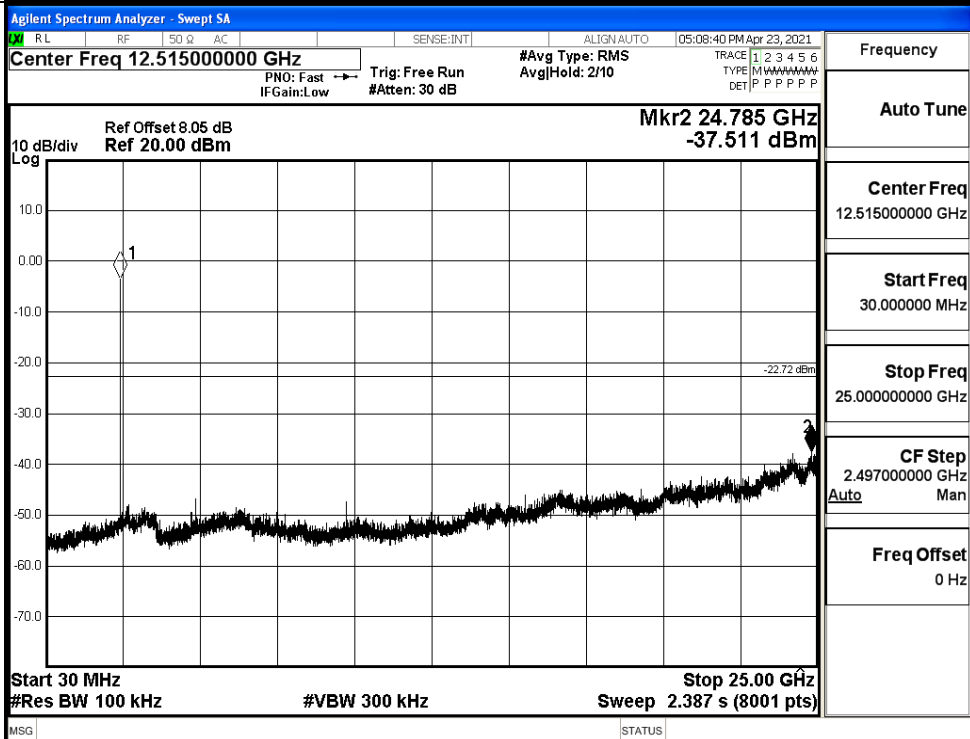


GFSK_MCH_Graphs

Pref

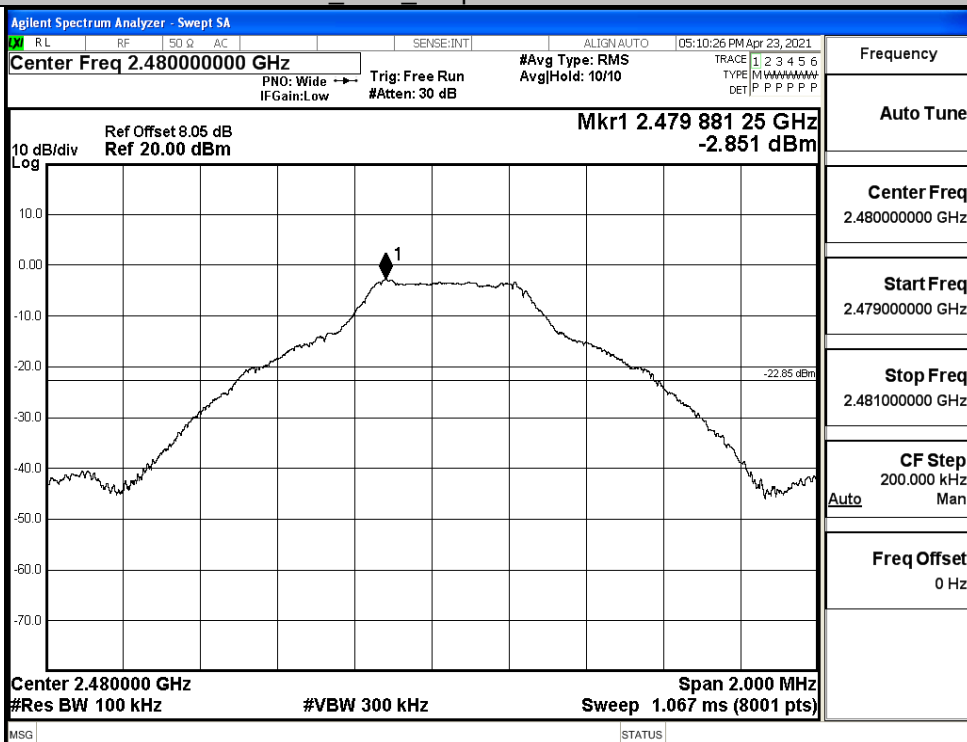


Puw

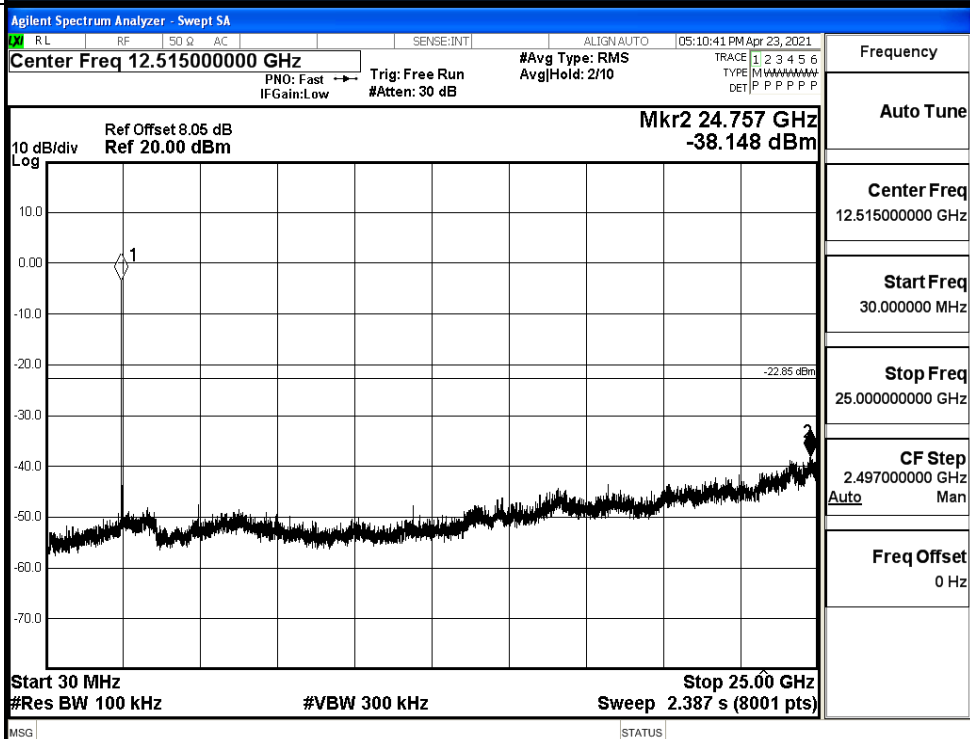


GFSK HCH Graphs

Pref

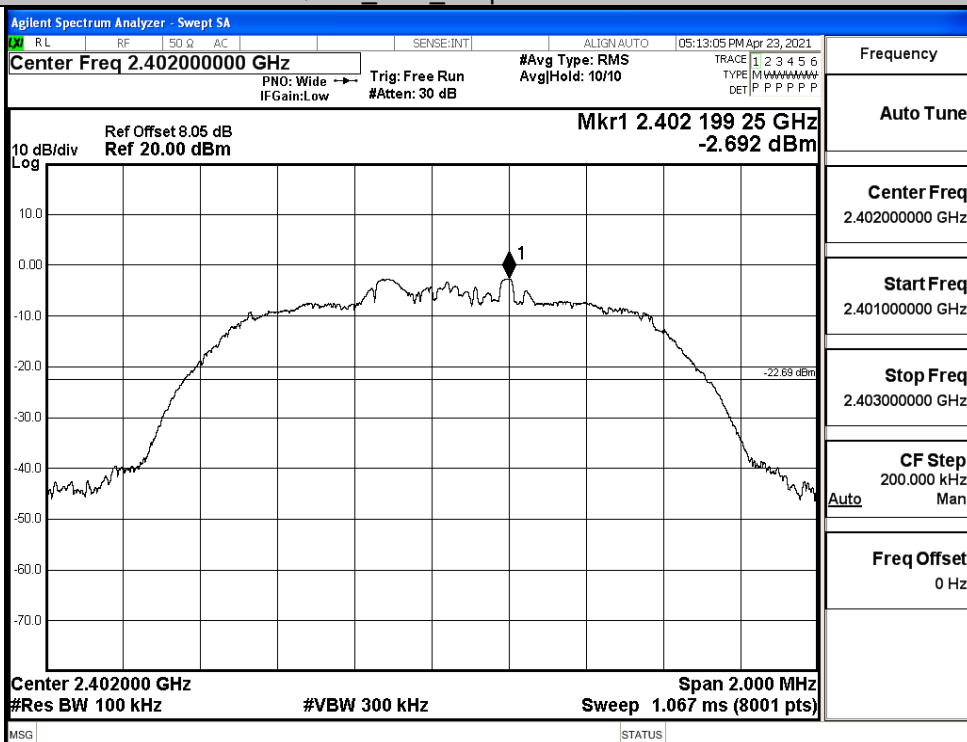


Puw

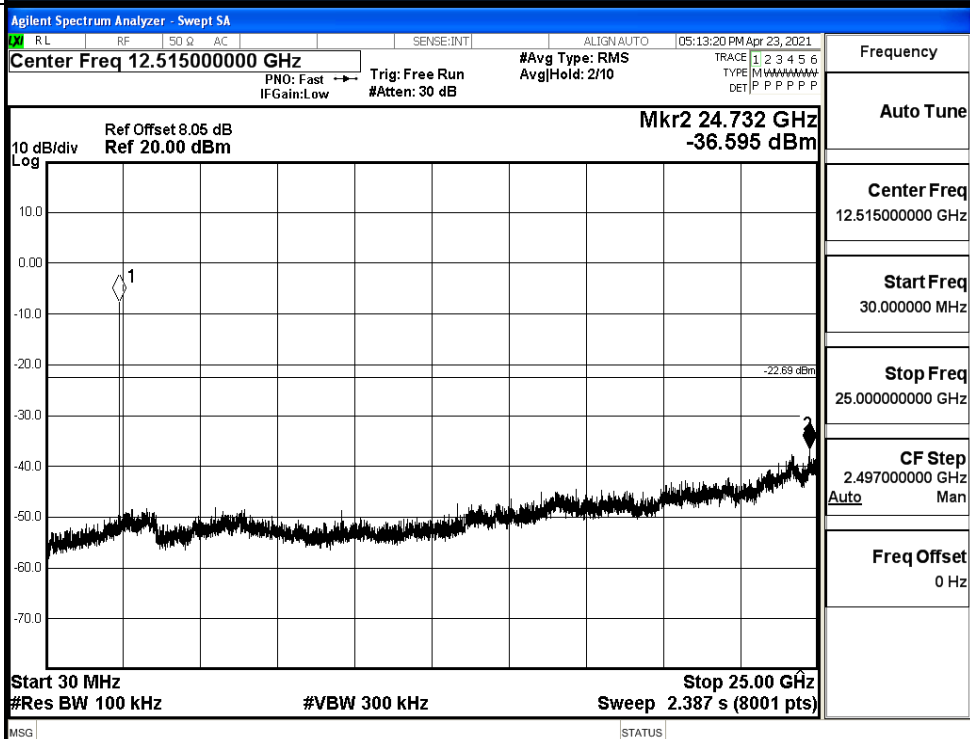


$\pi/4$ DQPSK_LCH_Graphs

Pref

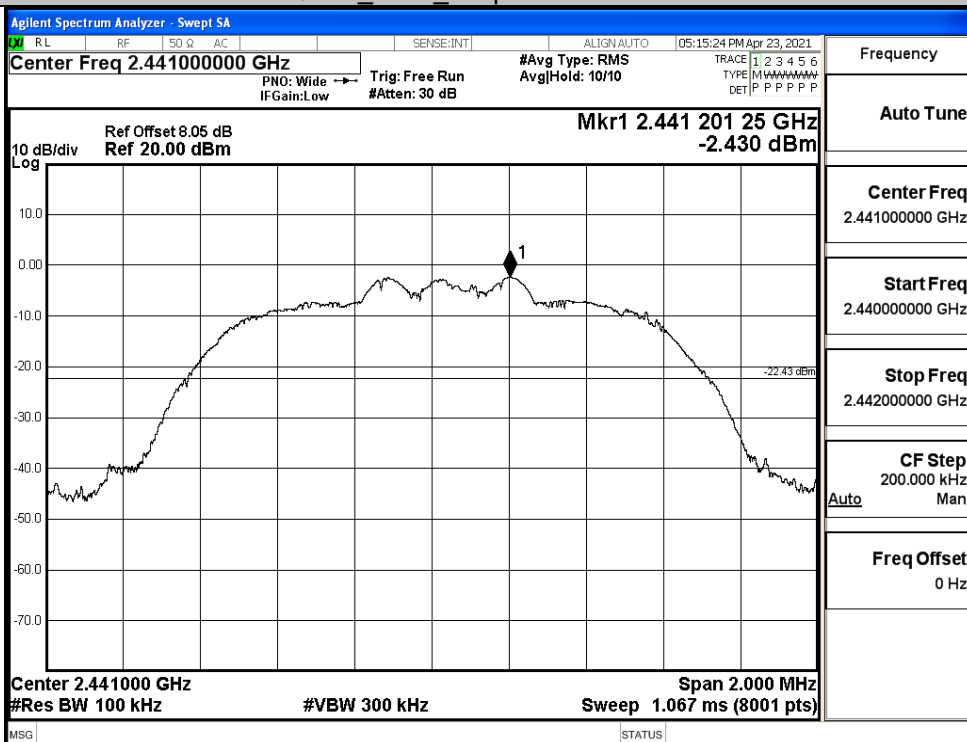


Puw

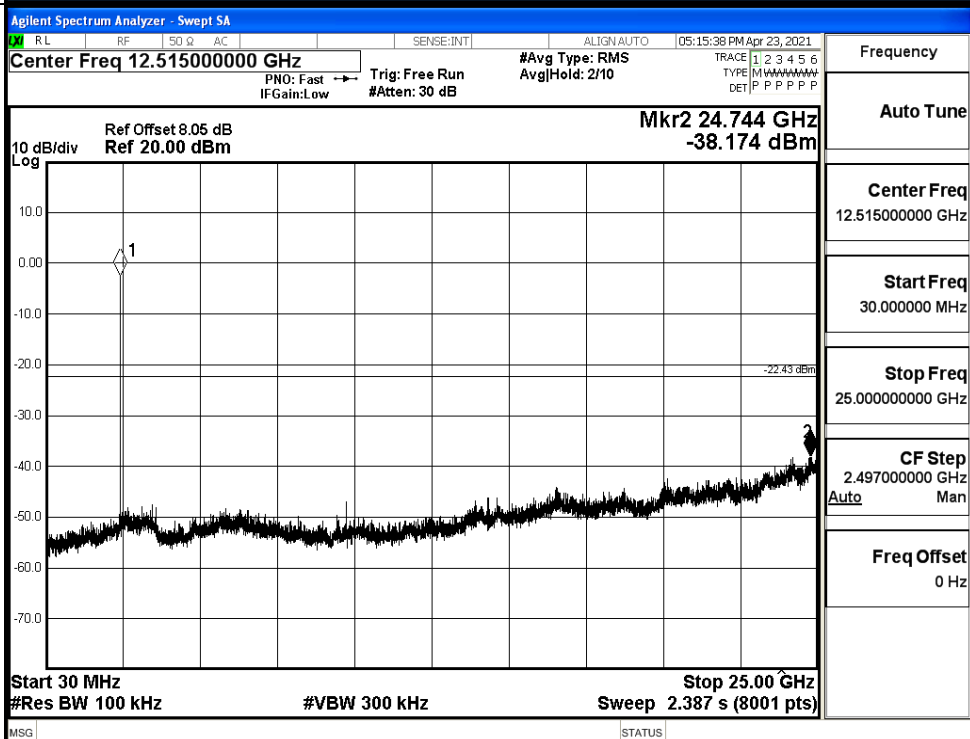


π /4DQPSK_MCH_Graphs

Pref

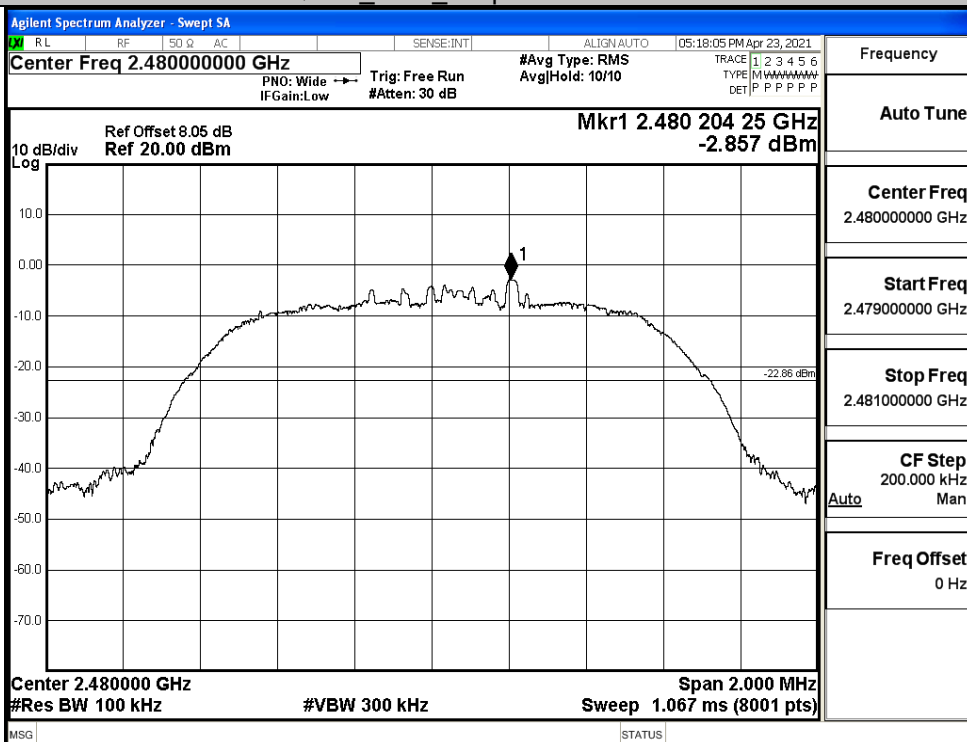


Puw

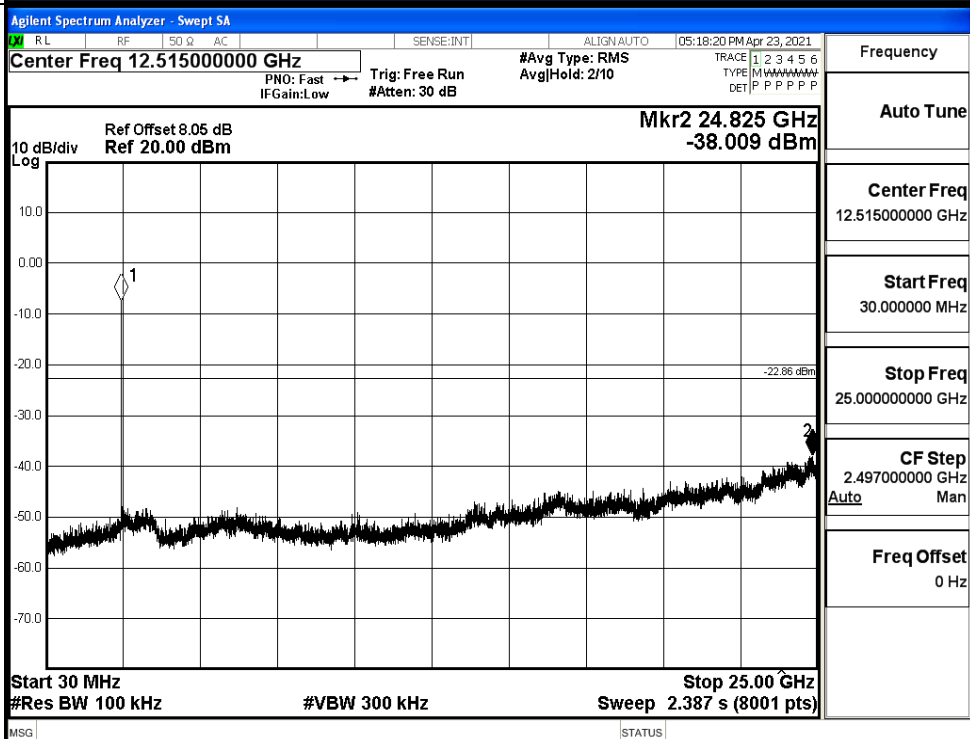


π /4DQPSK_HCH_Graphs

Pref



Puw

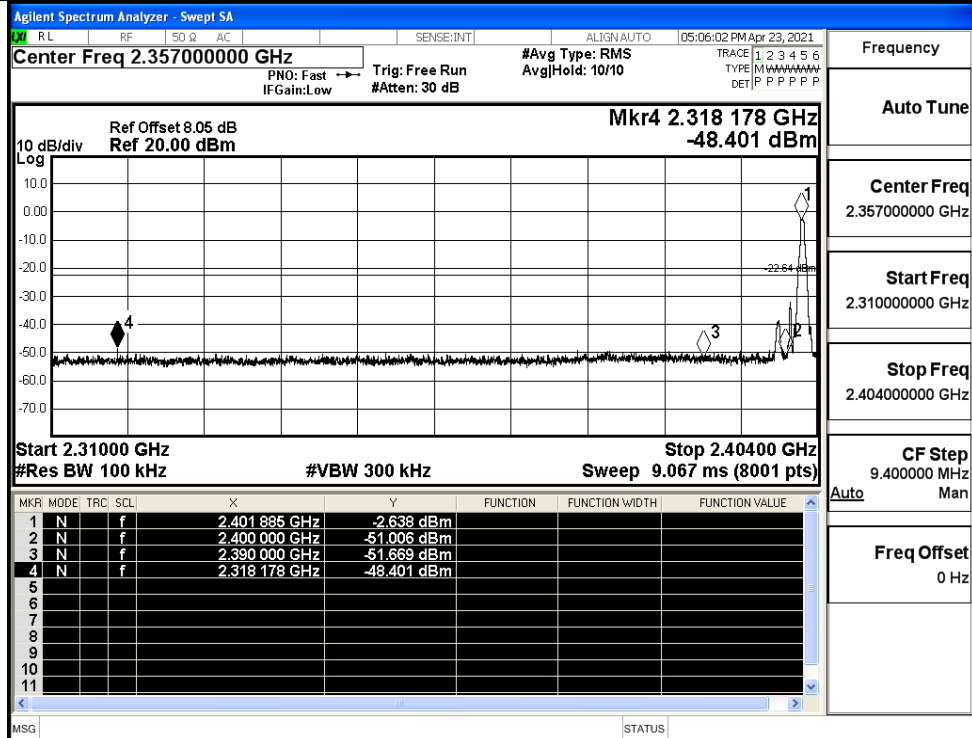


A.7 Band-edge for RF Conducted Emissions

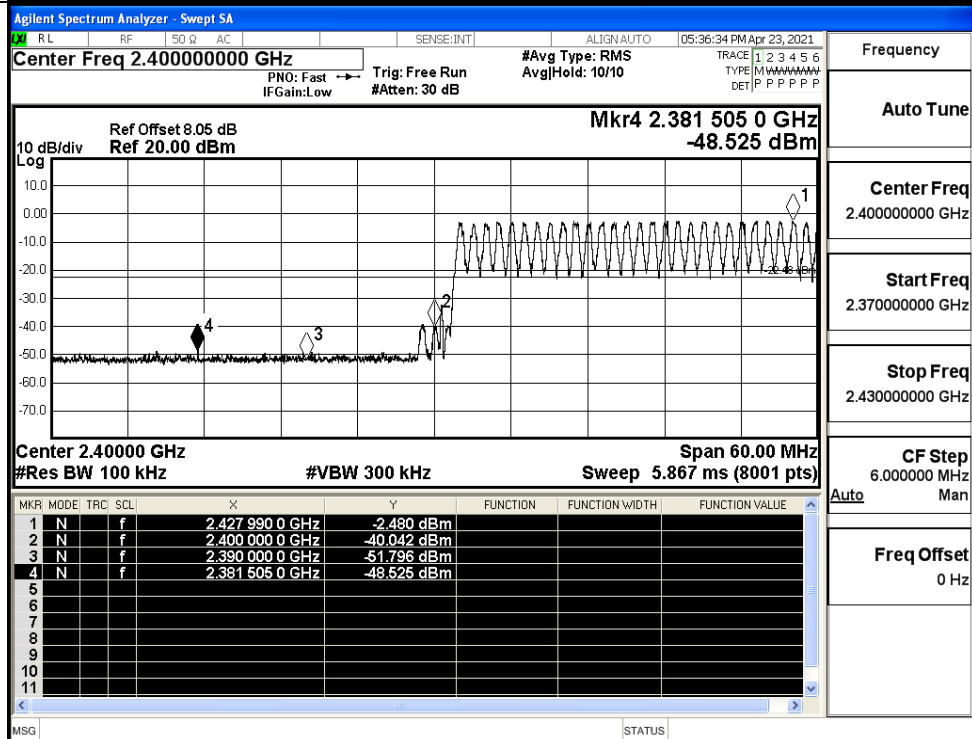
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-2.638	Off	-48.401	-22.64	PASS
			-2.480	On	-48.525	-22.48	PASS
	HCH	2480	-2.881	Off	-43.619	-22.88	PASS
			-2.796	On	-42.717	-22.8	PASS
$\pi/4$ DQPSK	LCH	2402	-2.682	Off	-49.110	-22.68	PASS
			-2.299	On	-47.725	-22.3	PASS
	HCH	2480	-2.845	Off	-42.710	-22.85	PASS
			-2.719	On	-47.730	-22.72	PASS

Test Graphs

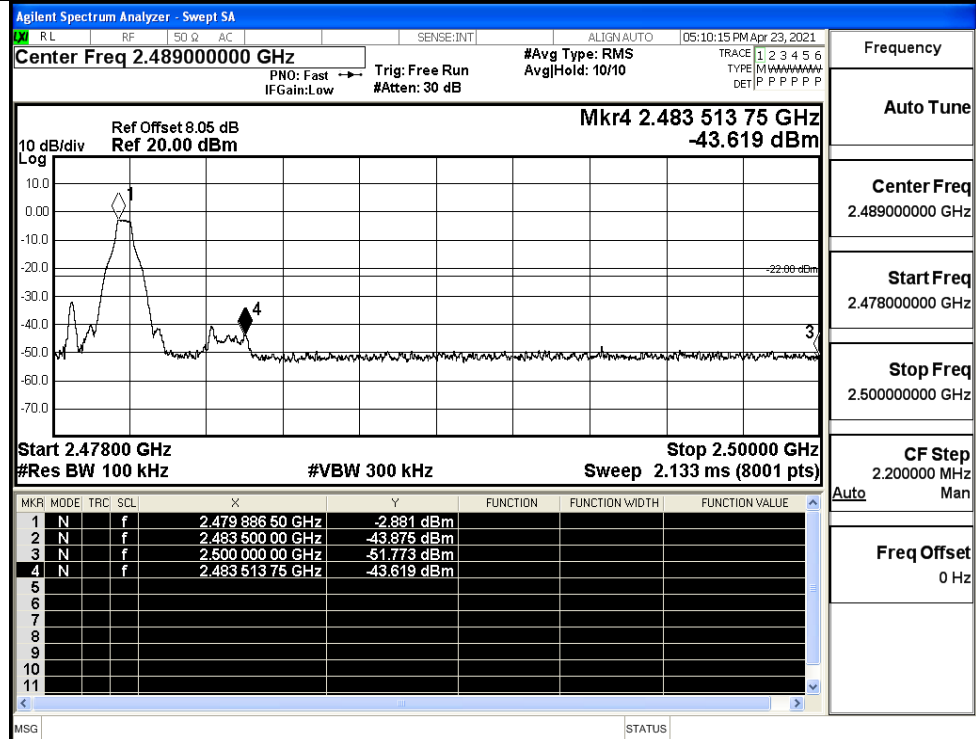
GFSK/LCH/No Hop



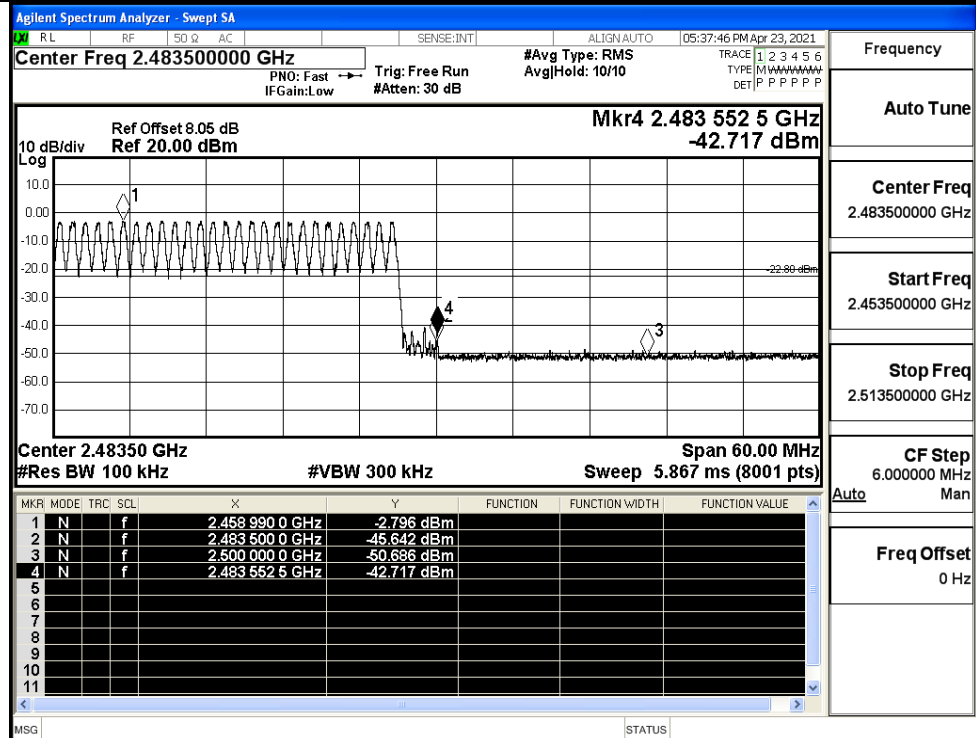
GFSK/LCH/Hop



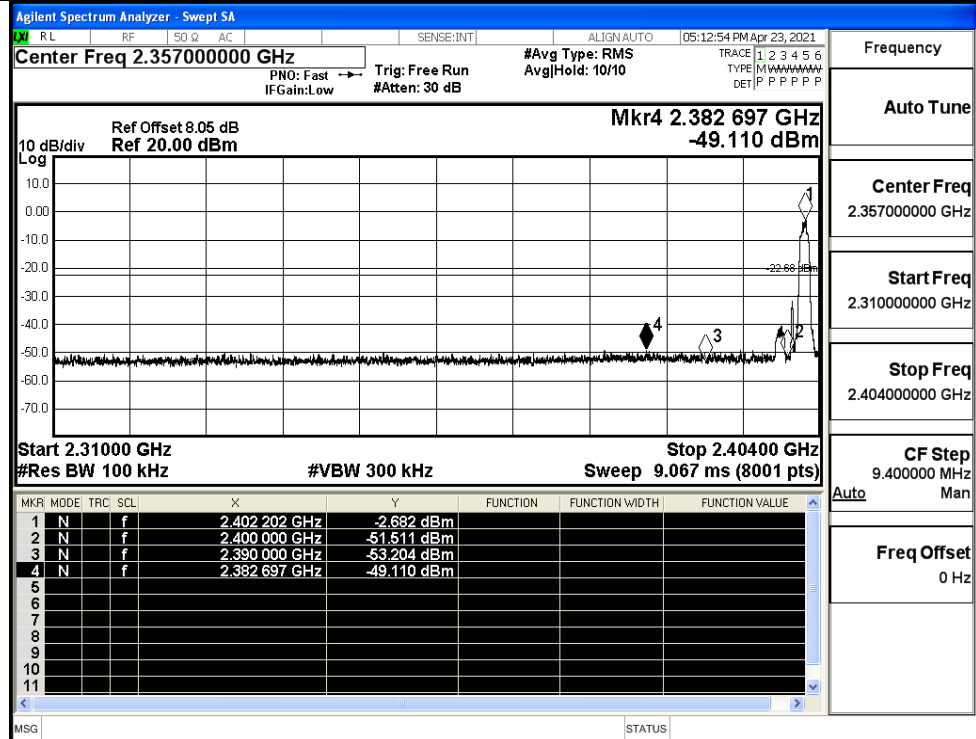
GFSK/HCH/No Hop



GFSK/HCH/Hop



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

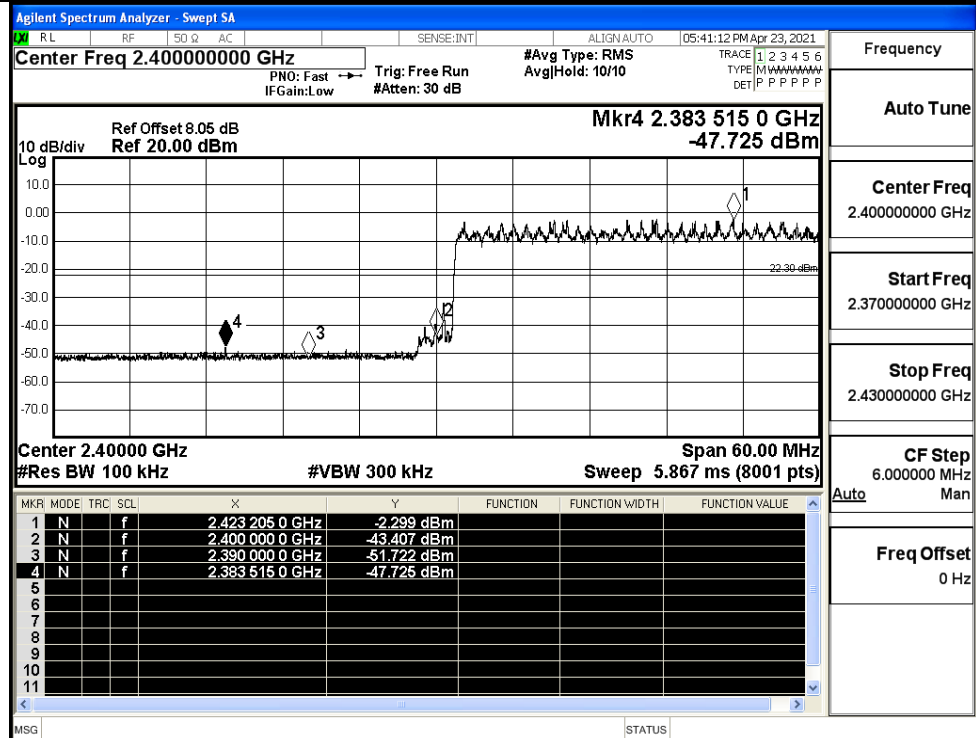


Frequency

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

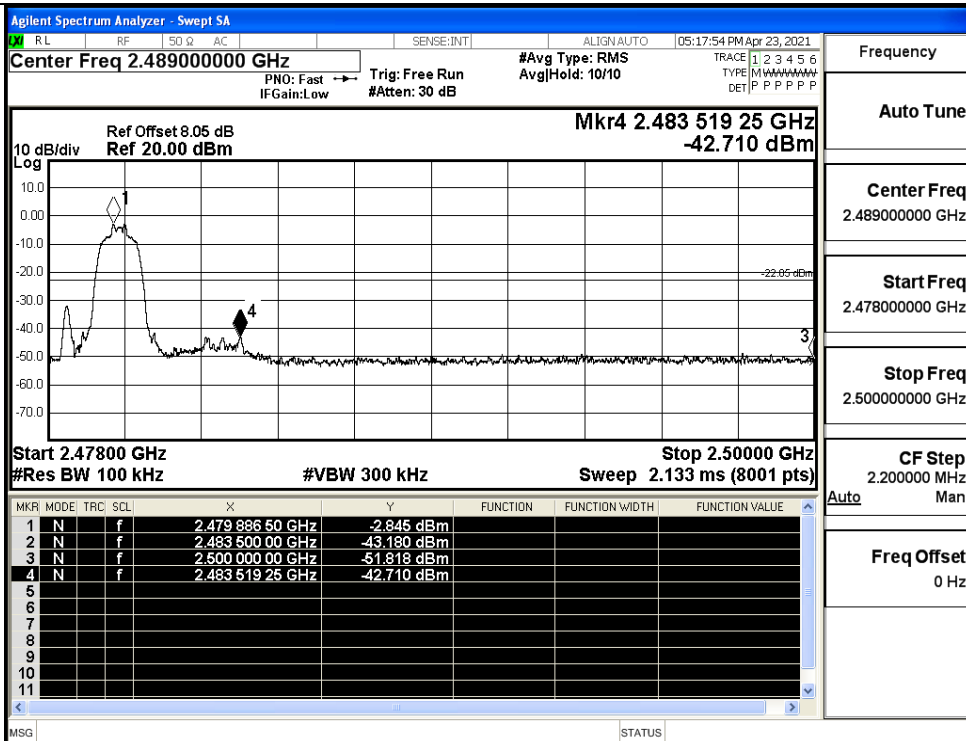


Frequency

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

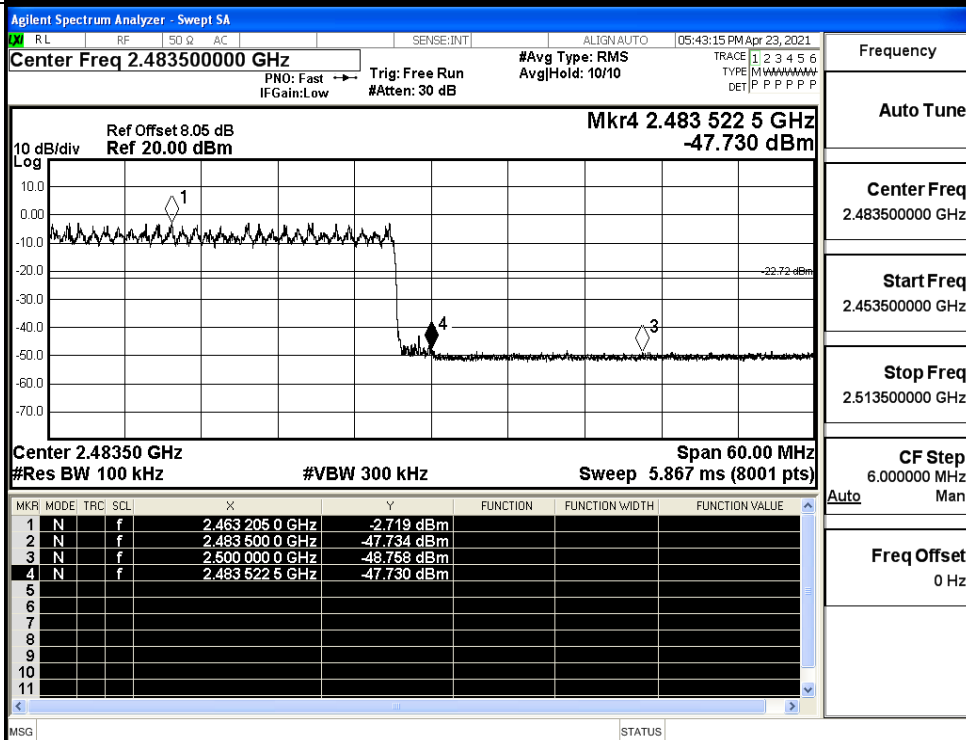


Frequency

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

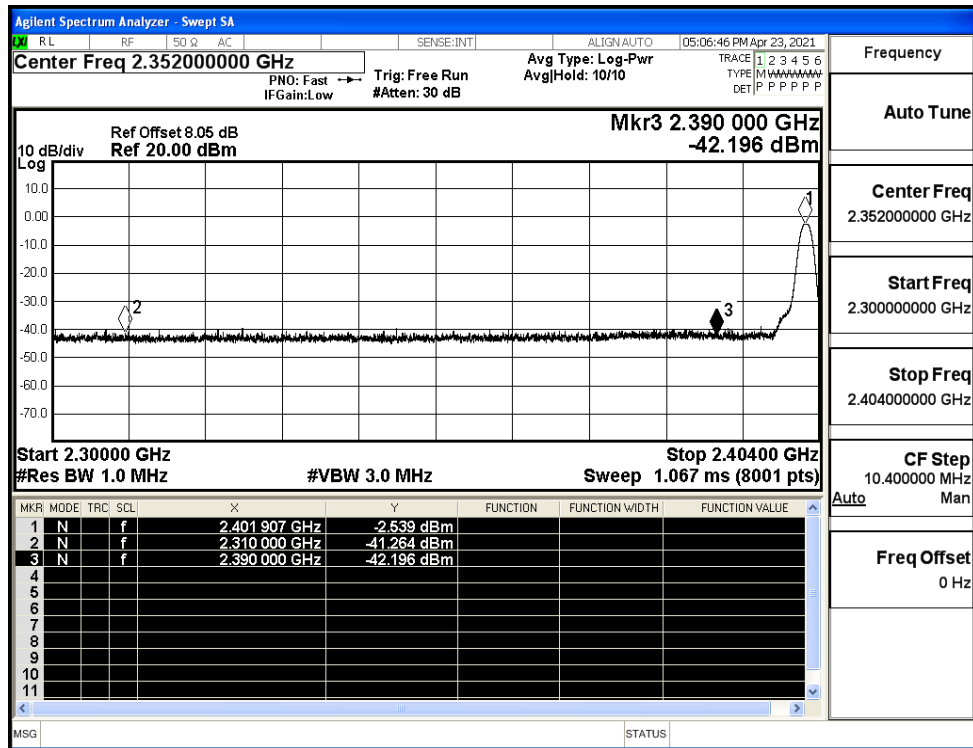
Auto Tune

Center Freq
2.483500000 GHzStart Freq
2.463500000 GHzStop Freq
2.513500000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

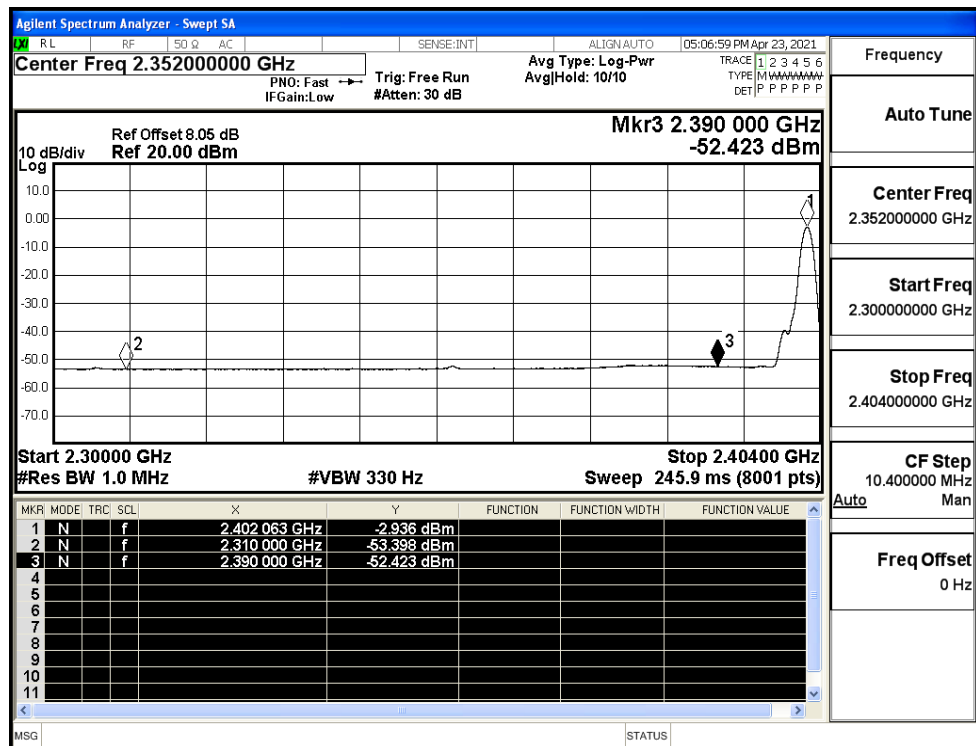
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-41.26	2.0	0	55.97	PEAK	74	PASS
	Off	2310.0	-53.40	2.0	0	43.83	AV	54	PASS
	Off	2390.0	-42.20	2.0	0	55.03	PEAK	74	PASS
	Off	2390.0	-52.42	2.0	0	44.81	AV	54	PASS
	Off	2483.5	-38.14	2.0	0	59.09	PEAK	74	PASS
	Off	2483.5	-45.83	2.0	0	51.40	AV	54	PASS
	Off	2500.0	-40.79	2.0	0	56.44	PEAK	74	PASS
	Off	2500.0	-51.67	2.0	0	45.56	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.50	2.0	0	54.73	PEAK	74	PASS
	Off	2310.0	-53.30	2.0	0	43.93	AV	54	PASS
	Off	2390.0	-42.04	2.0	0	55.19	PEAK	74	PASS
	Off	2390.0	-52.51	2.0	0	44.72	AV	54	PASS
	Off	2483.5	-38.44	2.0	0	58.79	PEAK	74	PASS
	Off	2483.5	-48.38	2.0	0	48.85	AV	54	PASS
	Off	2500.0	-42.62	2.0	0	54.61	PEAK	74	PASS
	Off	2500.0	-51.80	2.0	0	45.43	AV	54	PASS

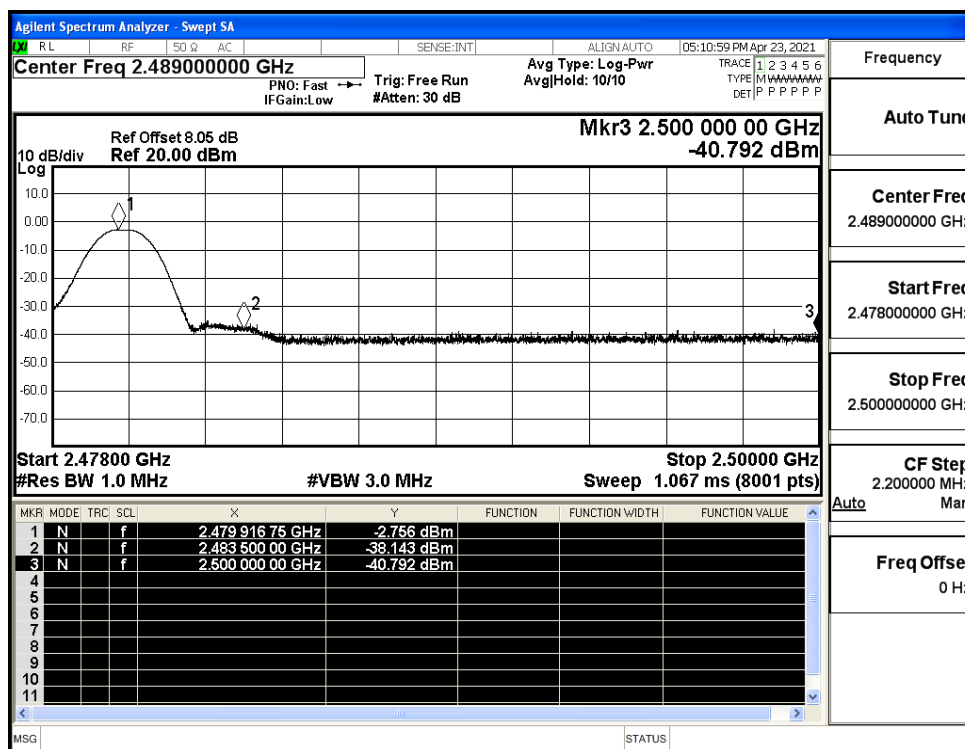
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



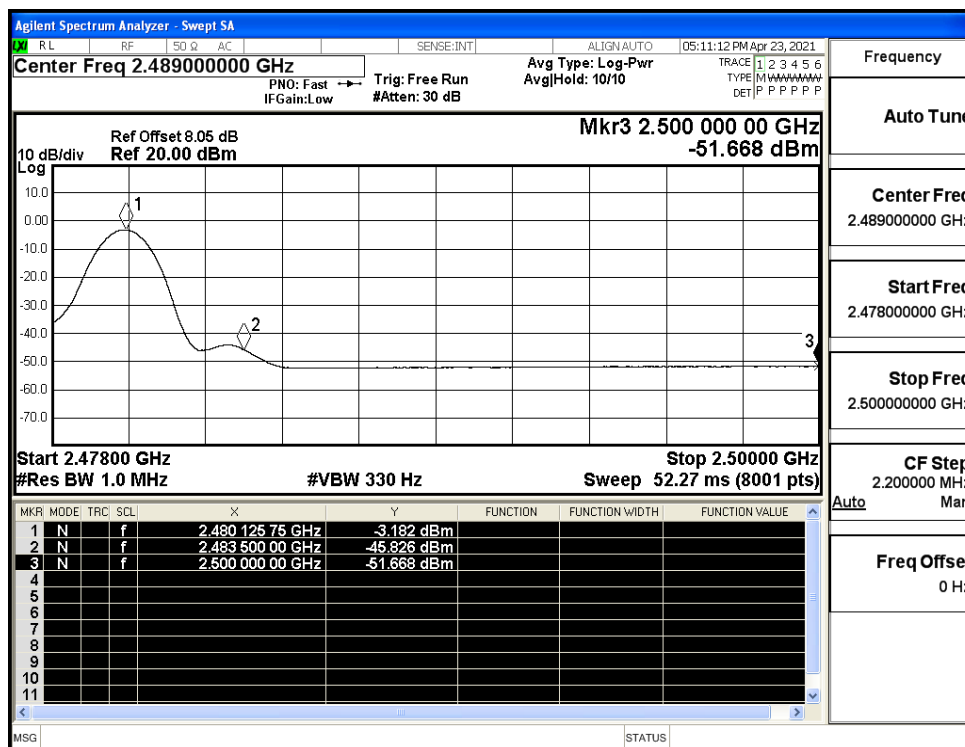
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

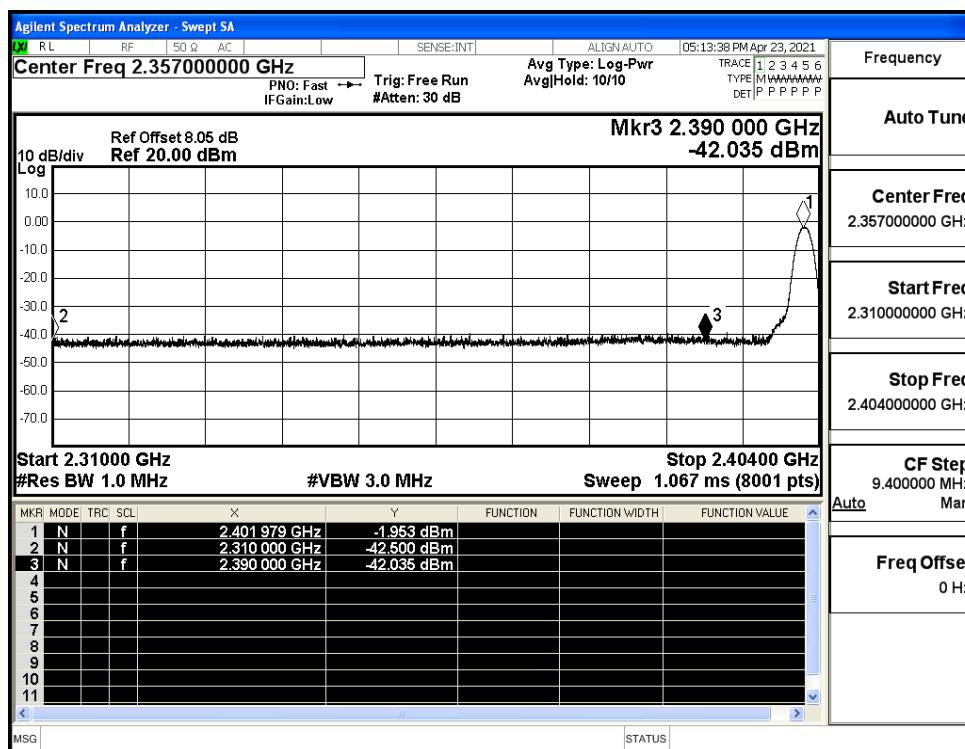
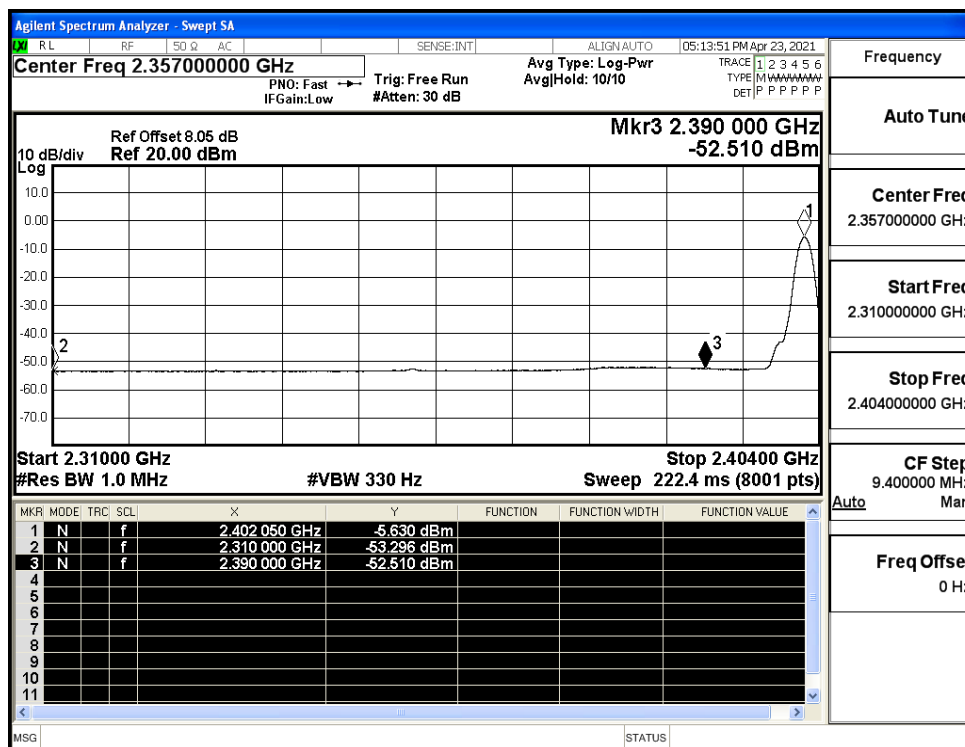


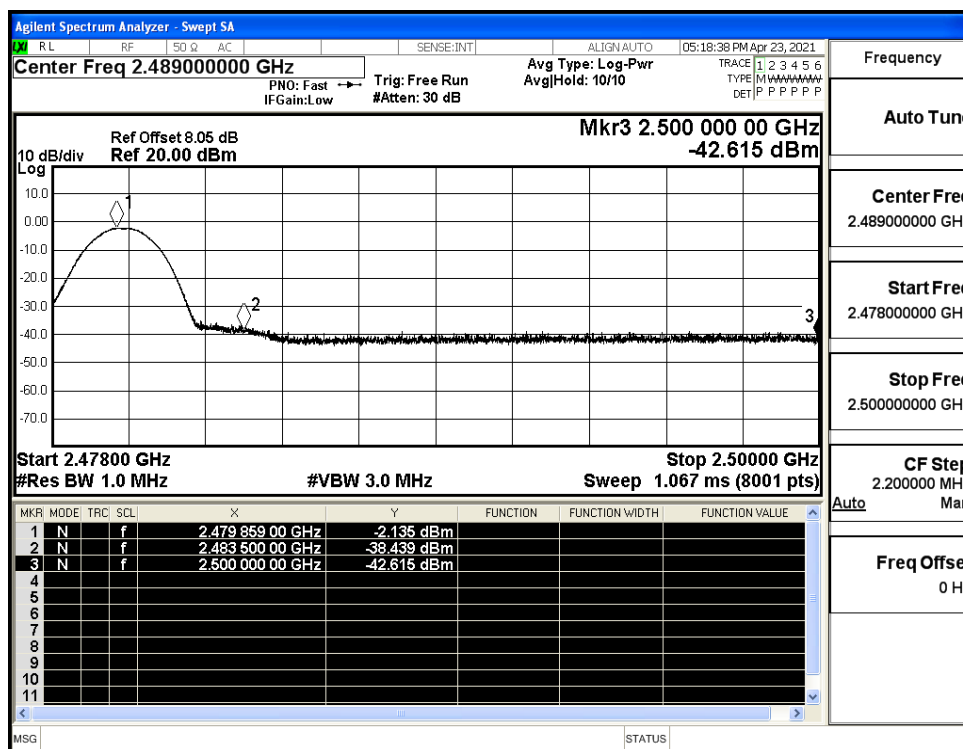
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



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)