

Appendix A

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

Product Name: T1 Ture Wireless Stereo Earbuds

Trade Mark: ACEFAST

Test Model: T1

Environmental Conditions

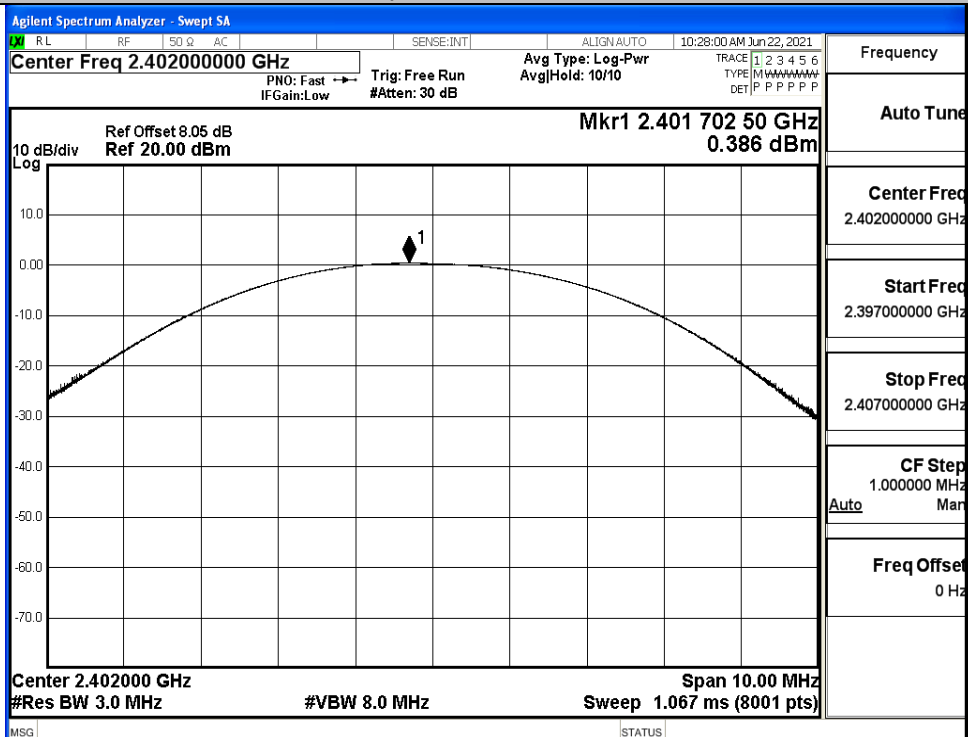
Temperature:	22.4° C
Relative Humidity:	54.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

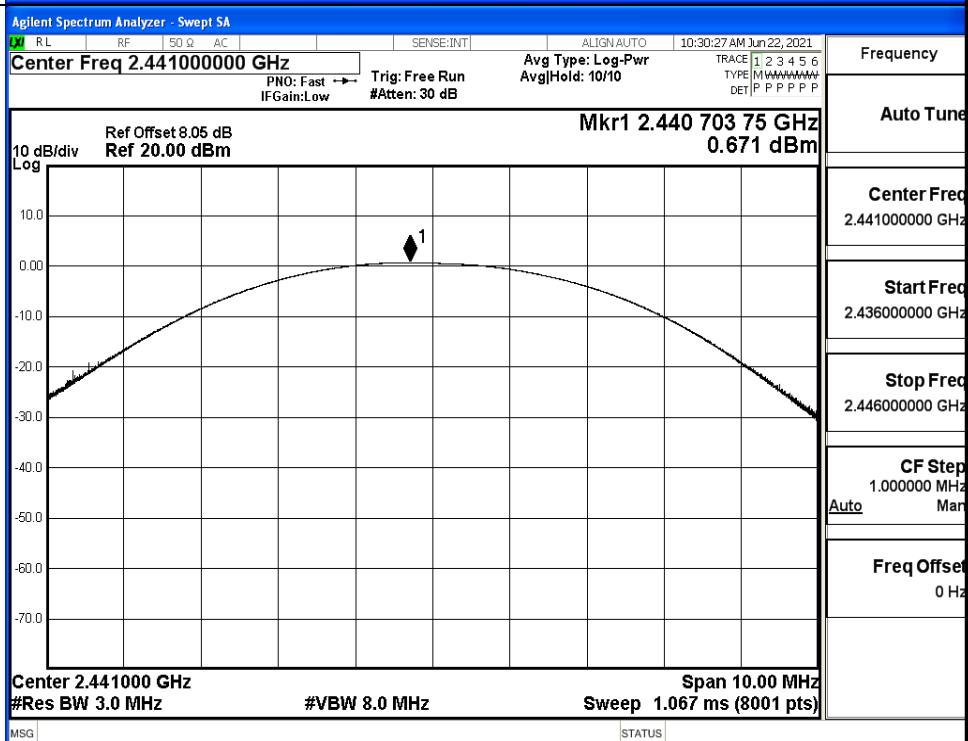
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.386	21	PASS
	MCH	0.671	21	PASS
	HCH	0.394	21	PASS
$\pi/4$ DQPSK	LCH	1.050	21	PASS
	MCH	1.316	21	PASS
	HCH	1.023	21	PASS
8DPSK	LCH	1.072	21	PASS
	MCH	1.375	21	PASS
	HCH	1.046	21	PASS

Test Graphs

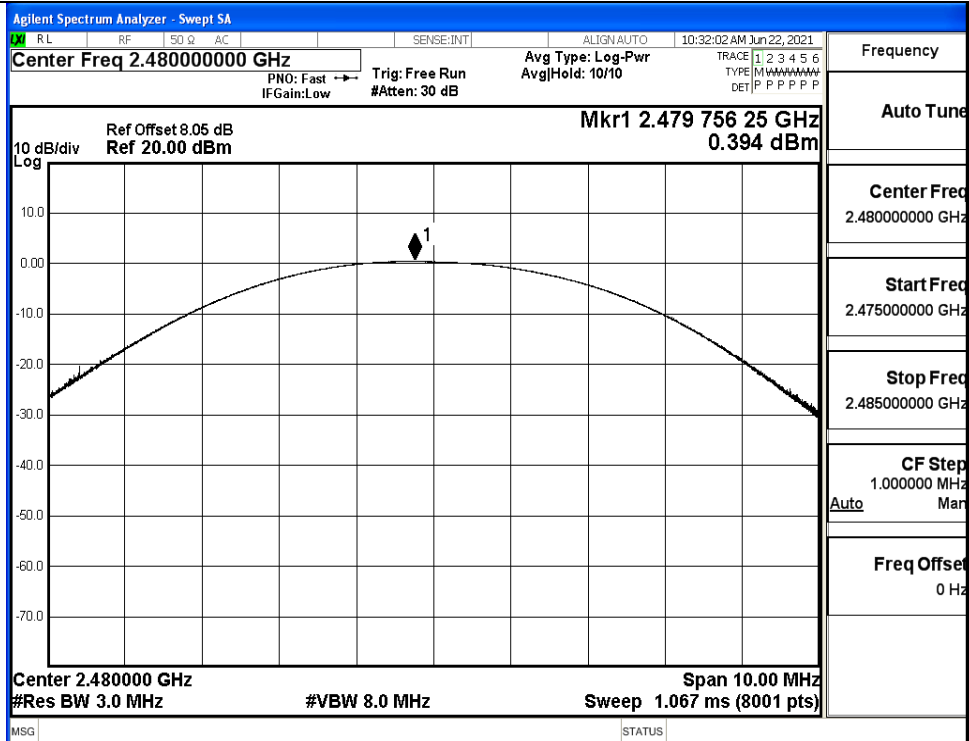
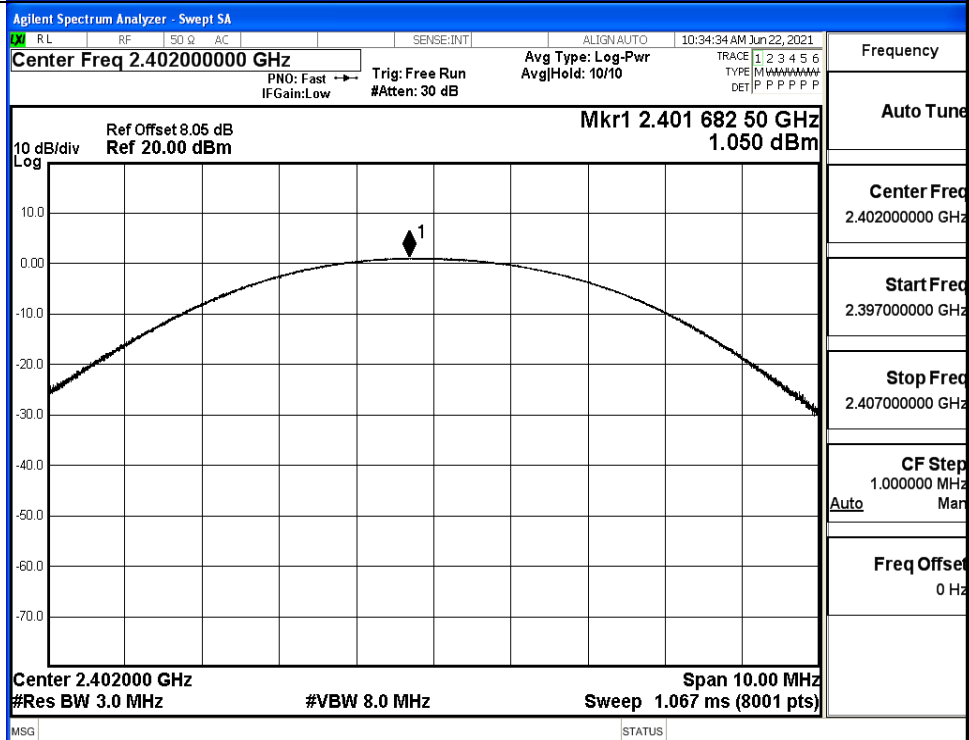
GFSK/LCH

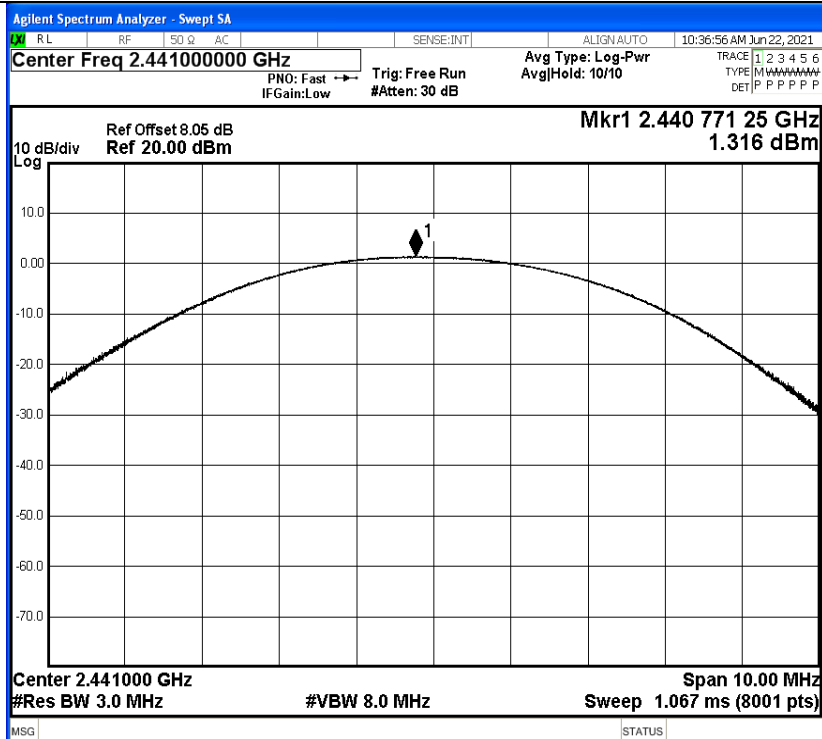


GFSK/MCH



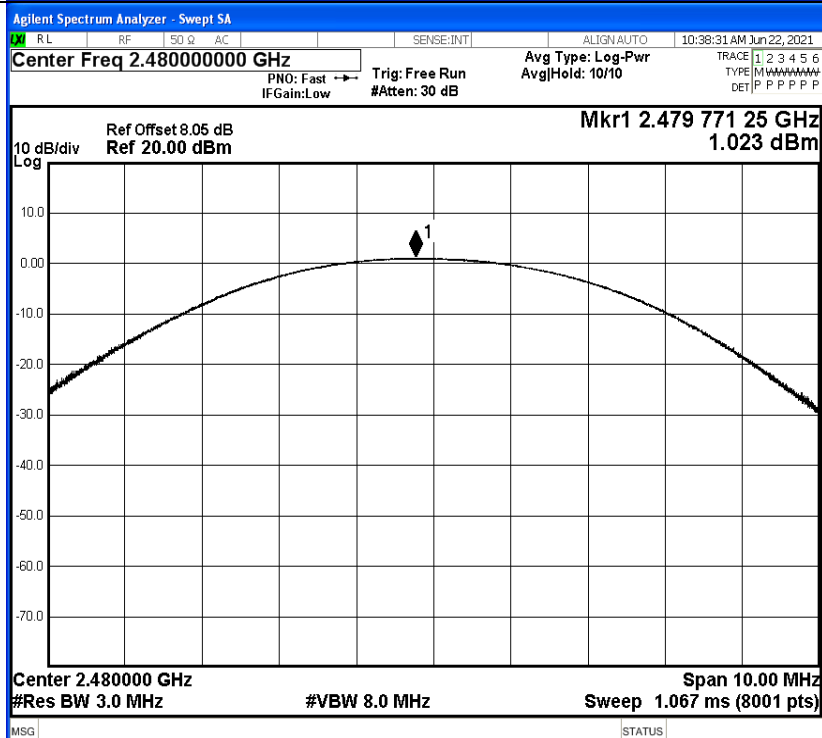
GFSK/HCH

 $\pi/4$ DQPSK/LCH

$\pi/4$ DQPSK/MCH

Frequency

Auto Tune

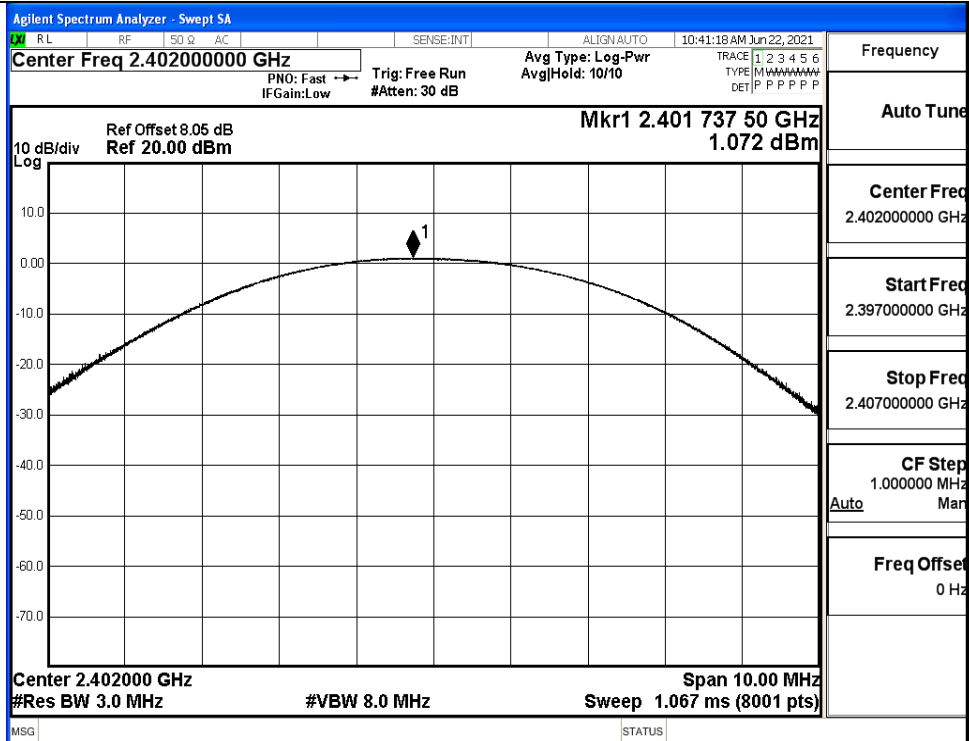
Center Freq
2.441000000 GHzStart Freq
2.436000000 GHzStop Freq
2.446000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz $\pi/4$ DQPSK/HCH

Frequency

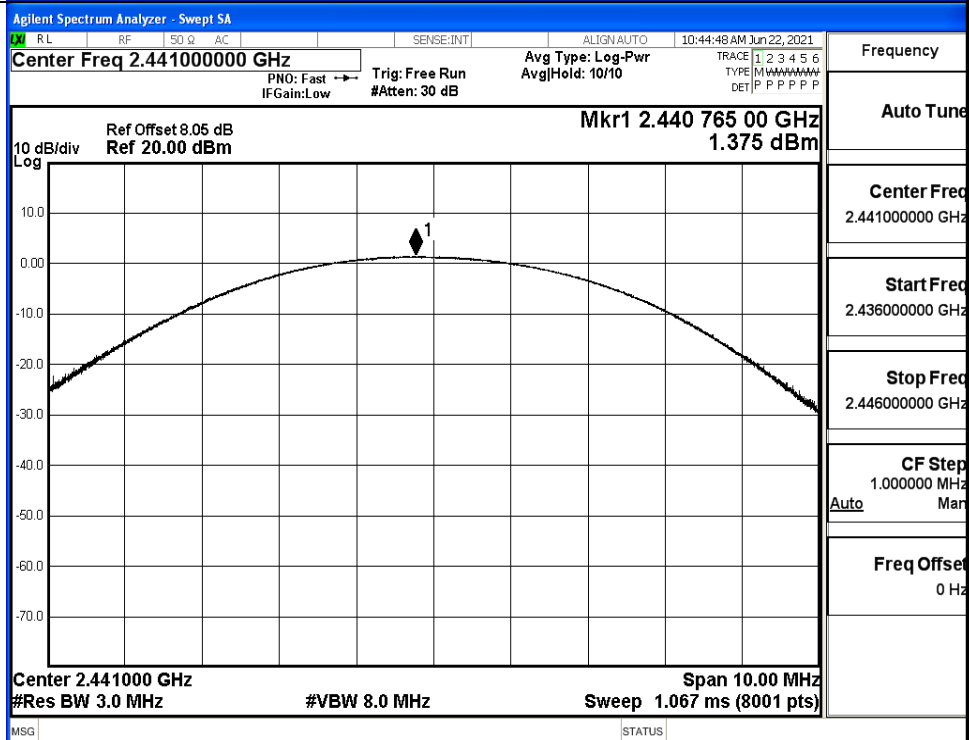
Auto Tune

Center Freq
2.480000000 GHzStart Freq
2.475000000 GHzStop Freq
2.485000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

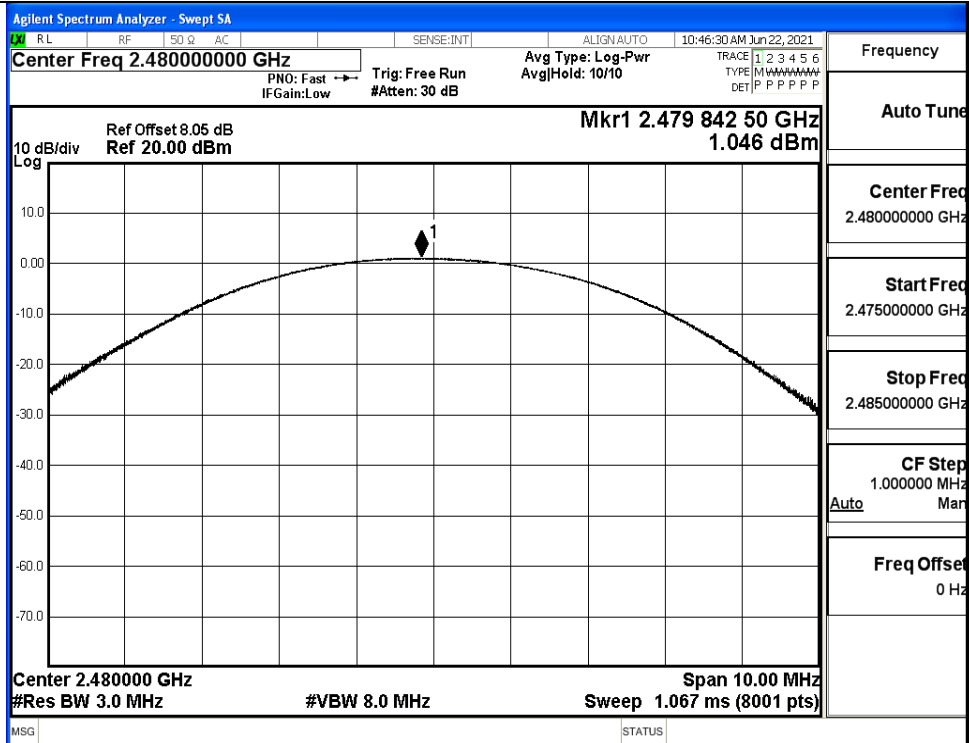
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

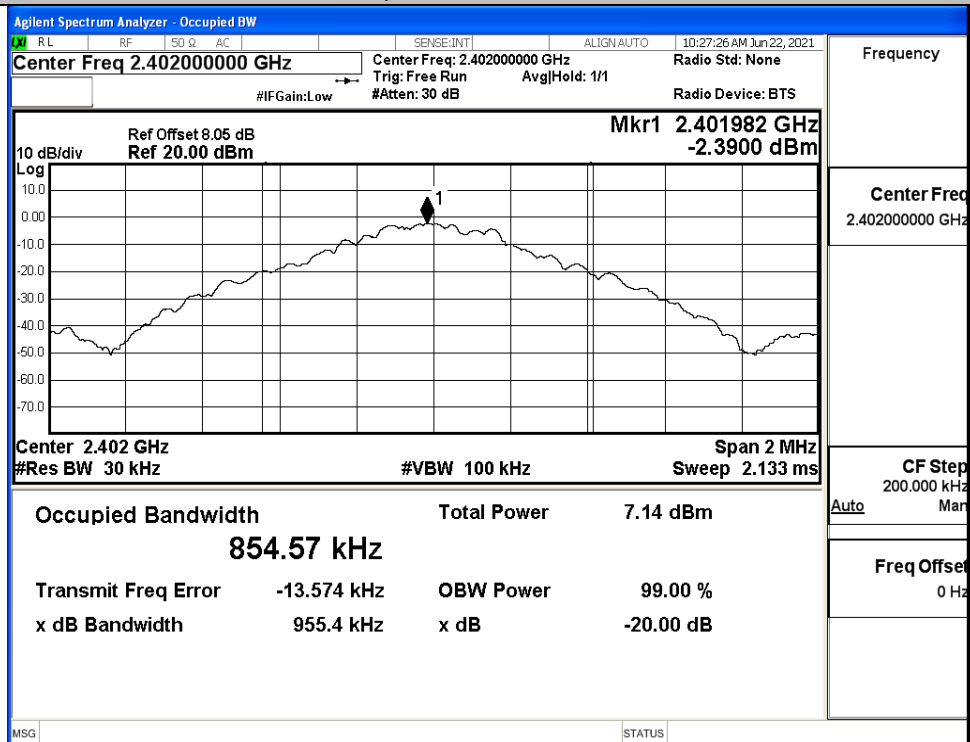


A.2 20dB Bandwidth

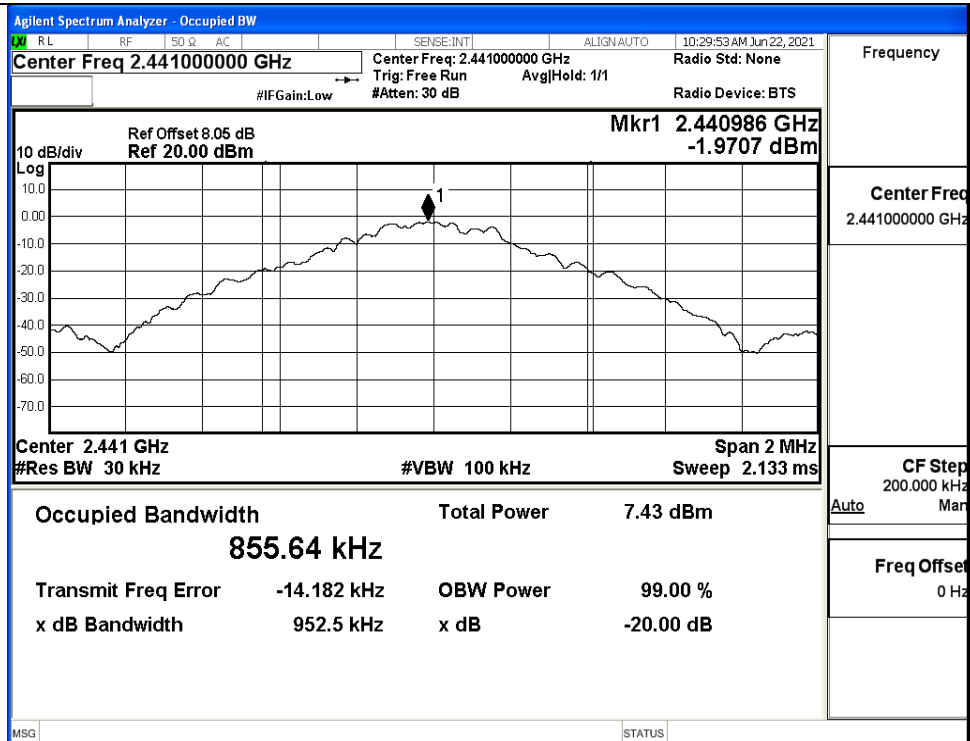
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9554	Not Specified	PASS
	MCH	0.9525	Not Specified	PASS
	HCH	0.9545	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.312	Not Specified	PASS
	MCH	1.314	Not Specified	PASS
	HCH	1.311	Not Specified	PASS
8DPSK	LCH	1.312	Not Specified	PASS
	MCH	1.312	Not Specified	PASS
	HCH	1.316	Not Specified	PASS

Test Graphs

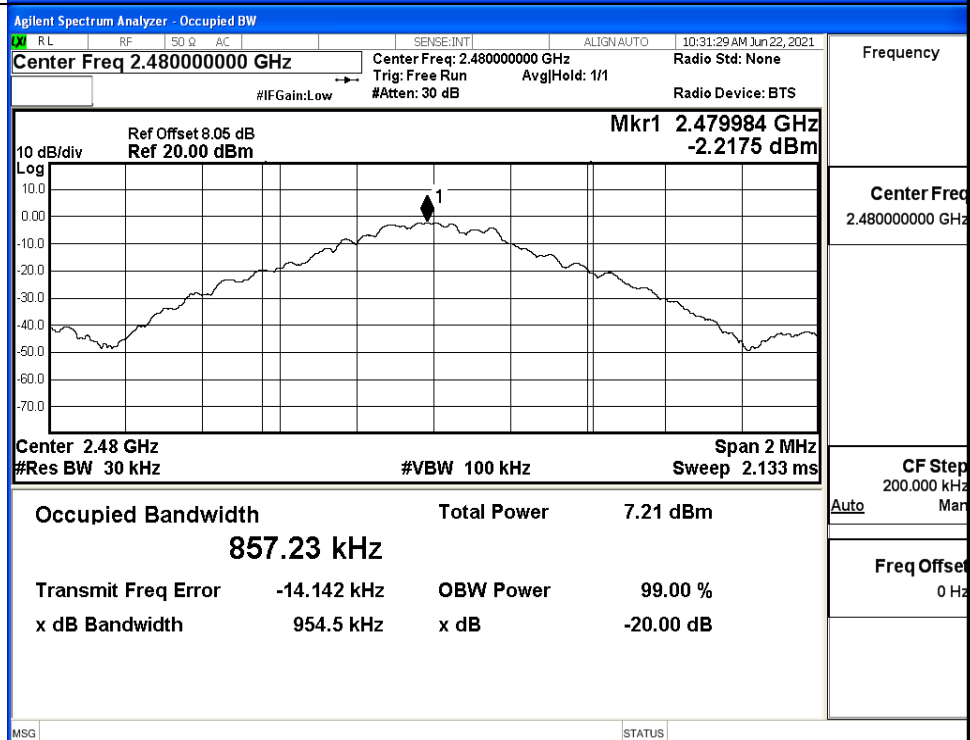
GFSK/LCH

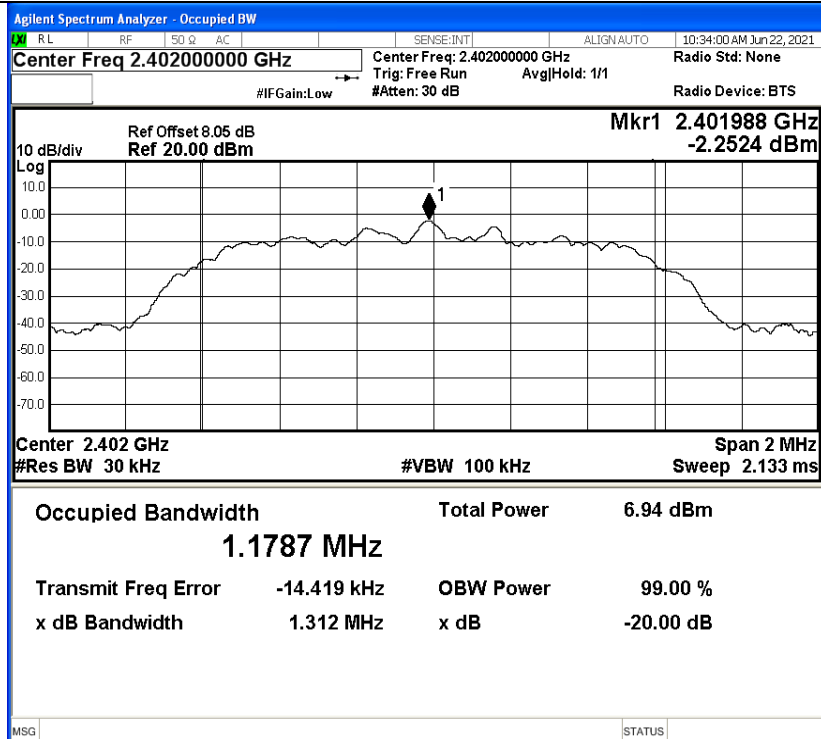


GFSK/MCH



GFSK/HCH

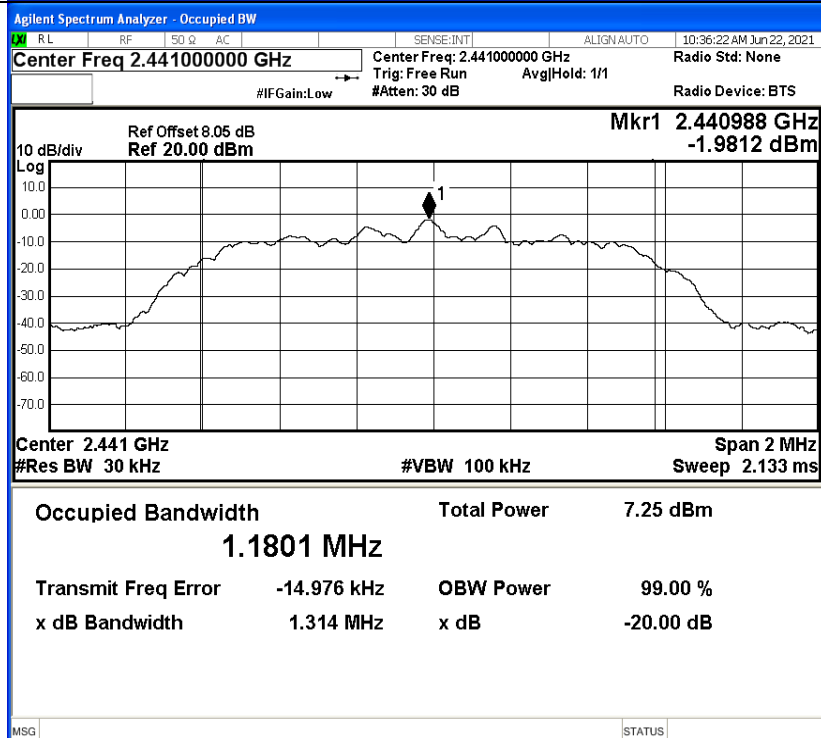


$\pi/4$ DQPSK/LCH

Frequency

Center Freq
2.40200000 GHzCF Step
200.000 kHz

Auto Mar

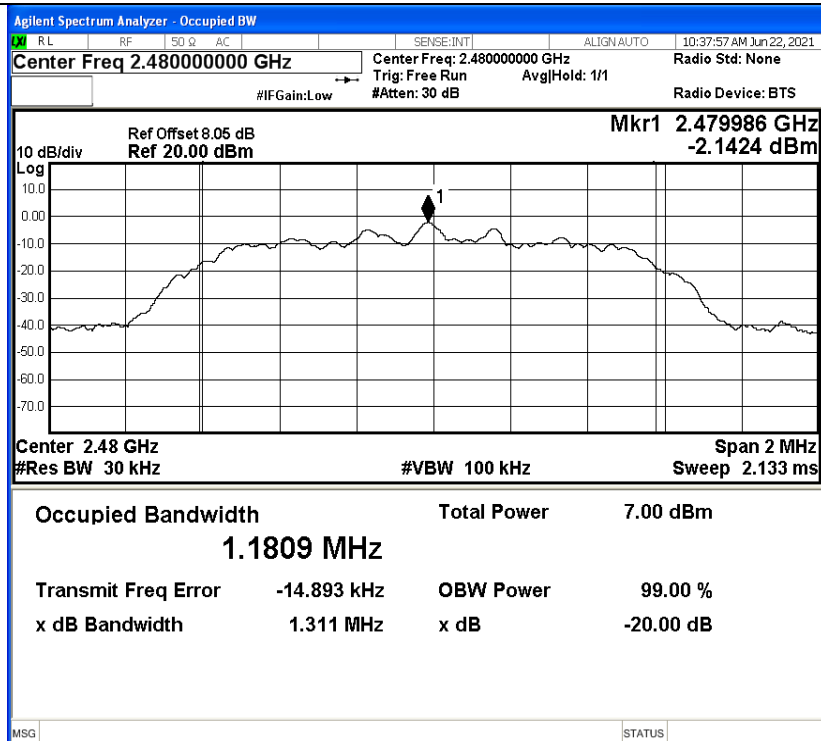
Freq Offset
0 Hz $\pi/4$ DQPSK/MCH

Frequency

Center Freq
2.44100000 GHzCF Step
200.000 kHz

Auto Mar

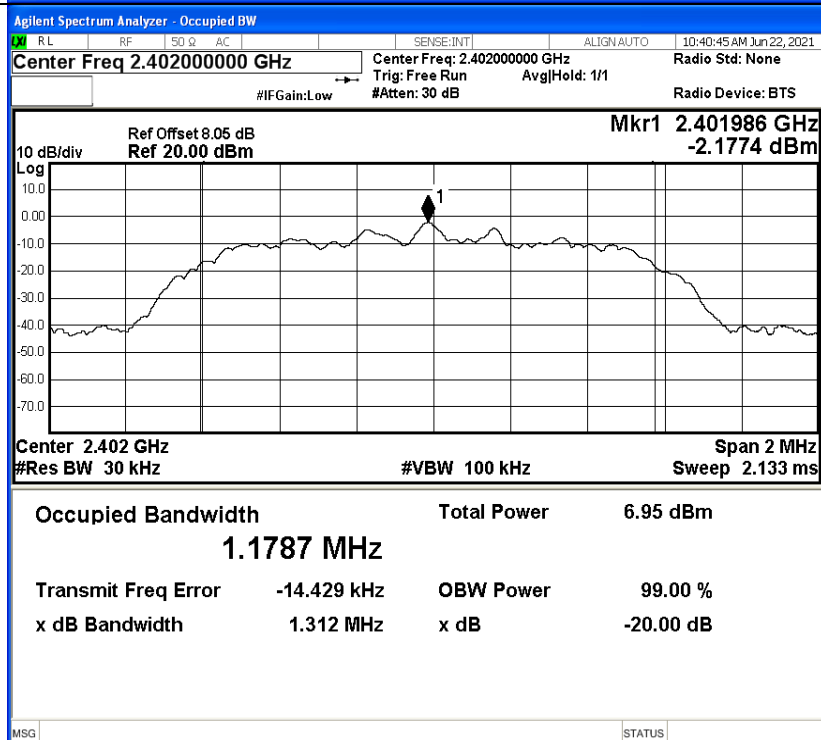
Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH

Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHzFreq Offset
0 Hz

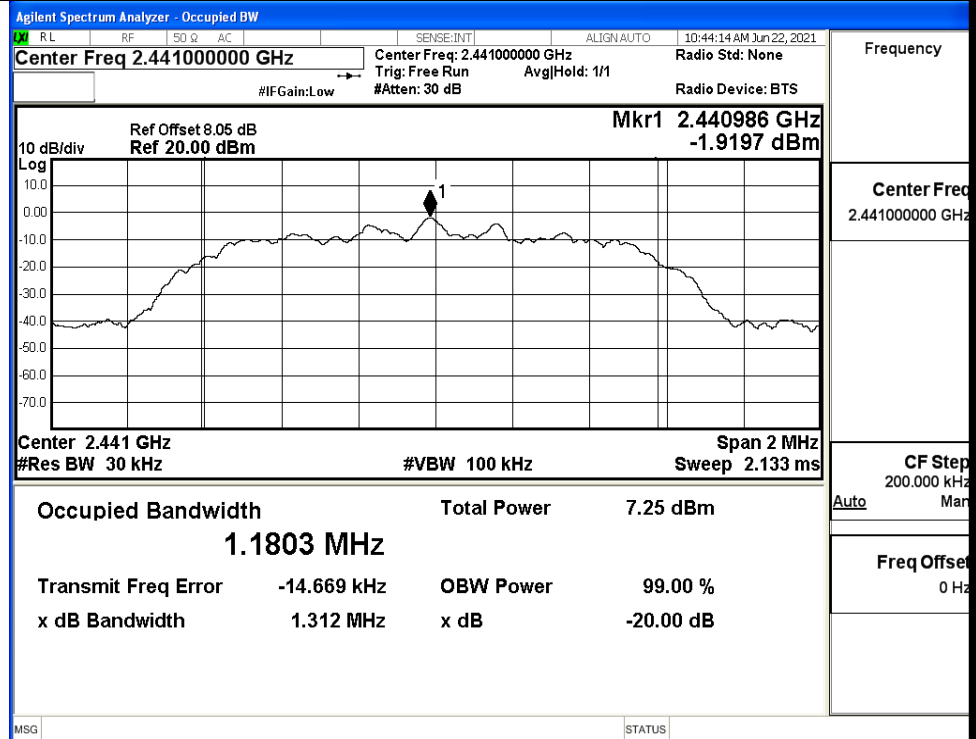
8DPSK/LCH



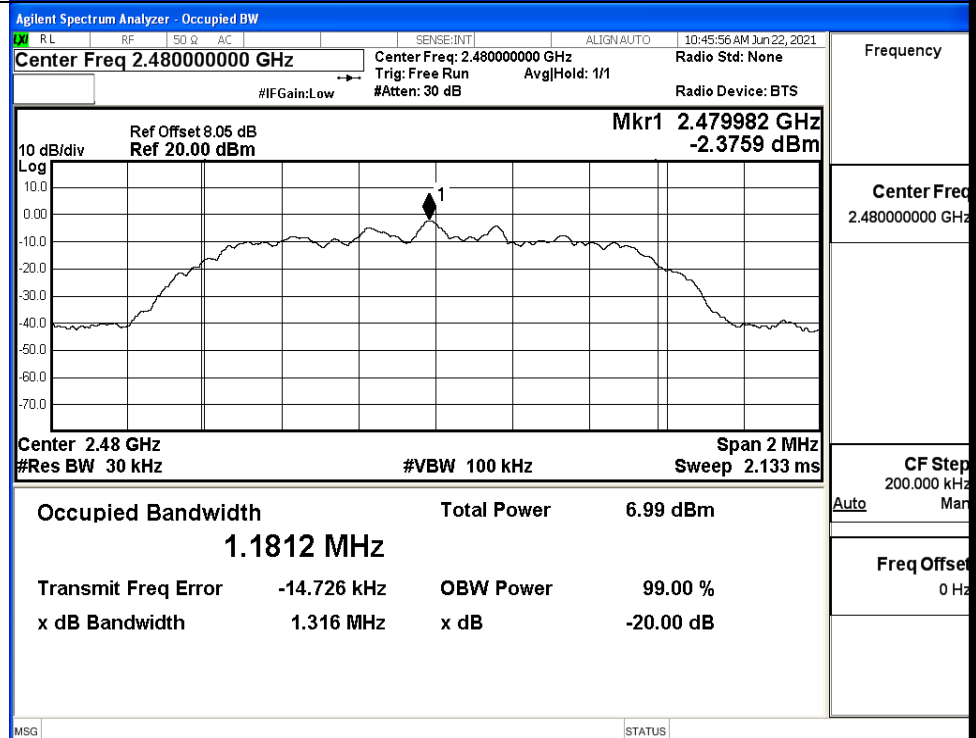
Frequency

Center Freq
2.402000000 GHzCF Step
200.000 kHzFreq Offset
0 Hz

8DPSK/MCH



8DPSK/HCH

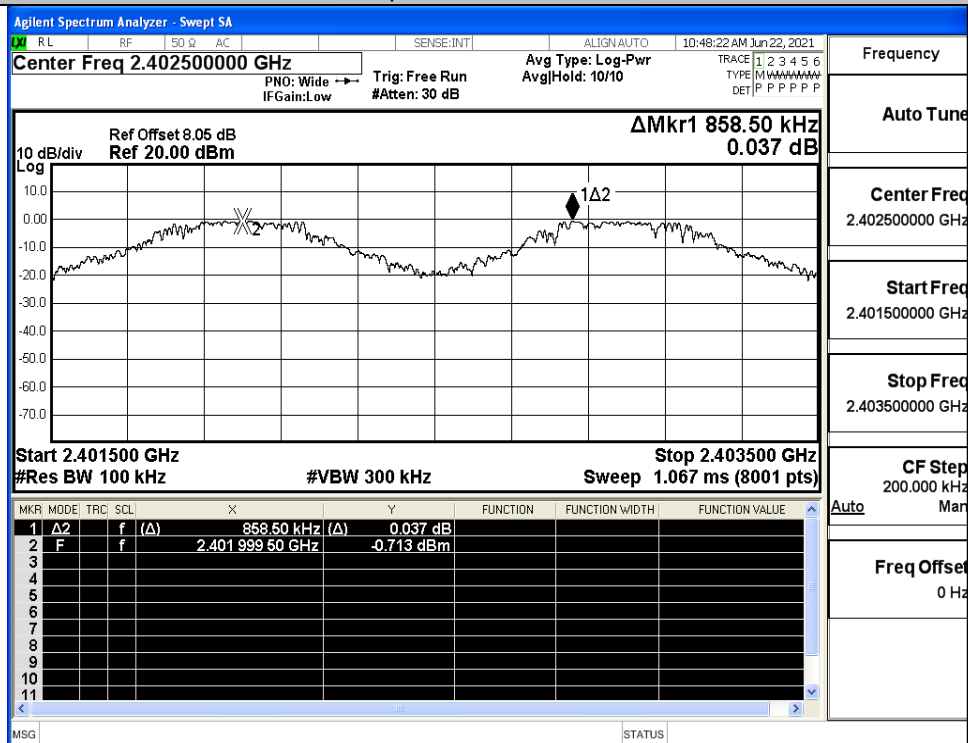


A.3 Carrier Frequency Separation

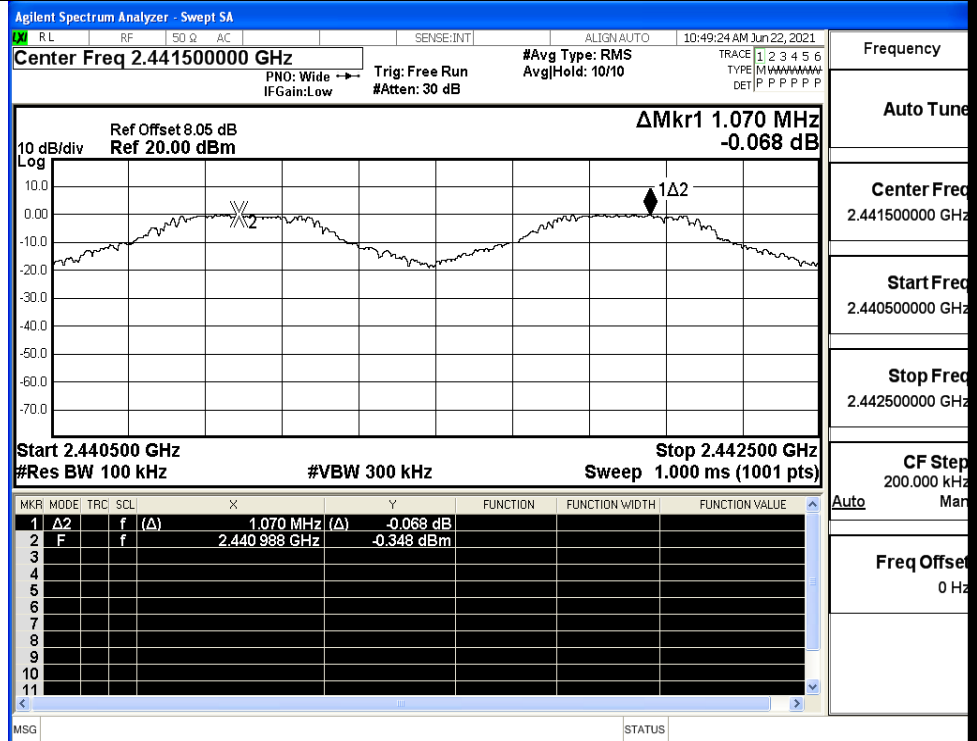
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.859	0.637	PASS
	MCH	1.070	0.637	PASS
	HCH	0.896	0.637	PASS
$\pi/4$ DQPSK	LCH	1.148	0.876	PASS
	MCH	1.024	0.876	PASS
	HCH	1.192	0.876	PASS
8DPSK	LCH	1.122	0.877	PASS
	MCH	1.060	0.877	PASS
	HCH	0.934	0.877	PASS

Test Graphs

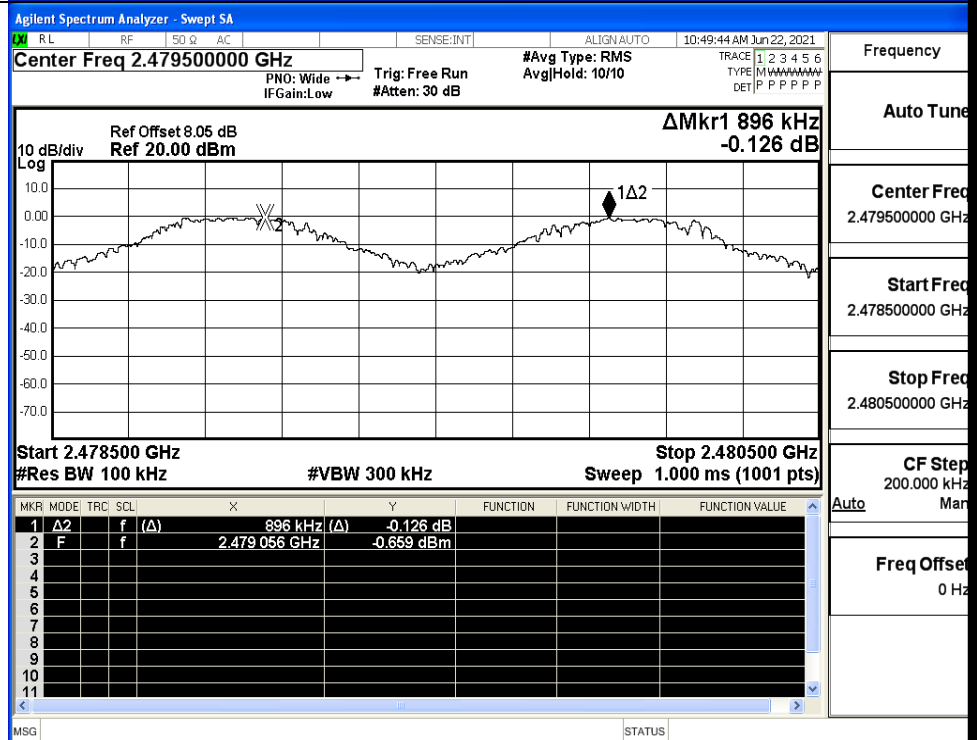
GFSK/LCH

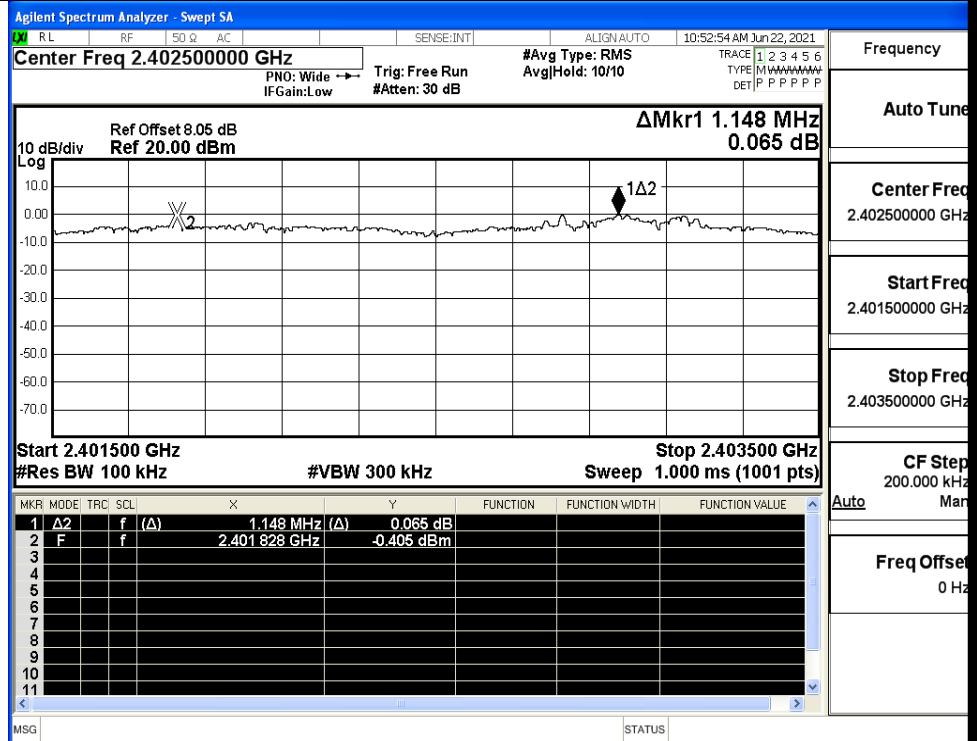
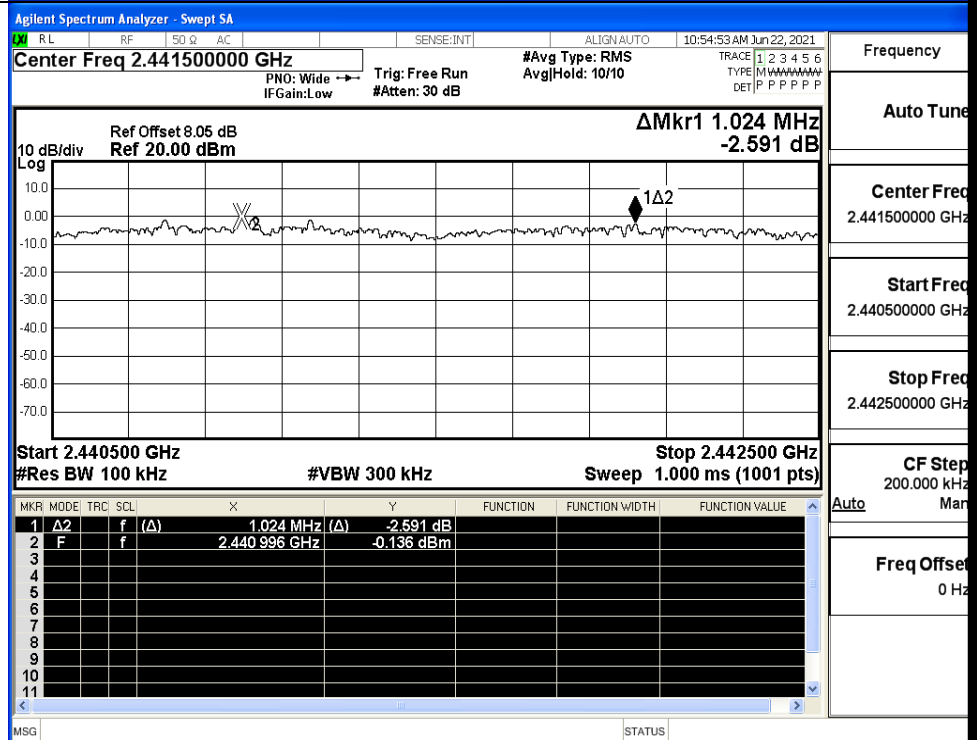


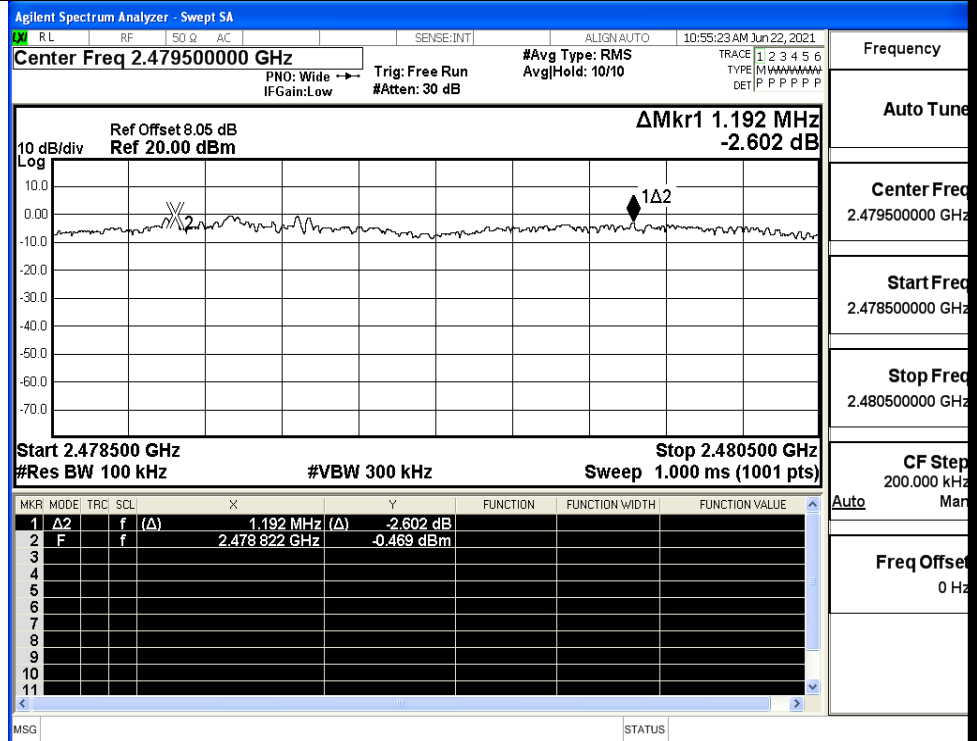
GFSK/MCH



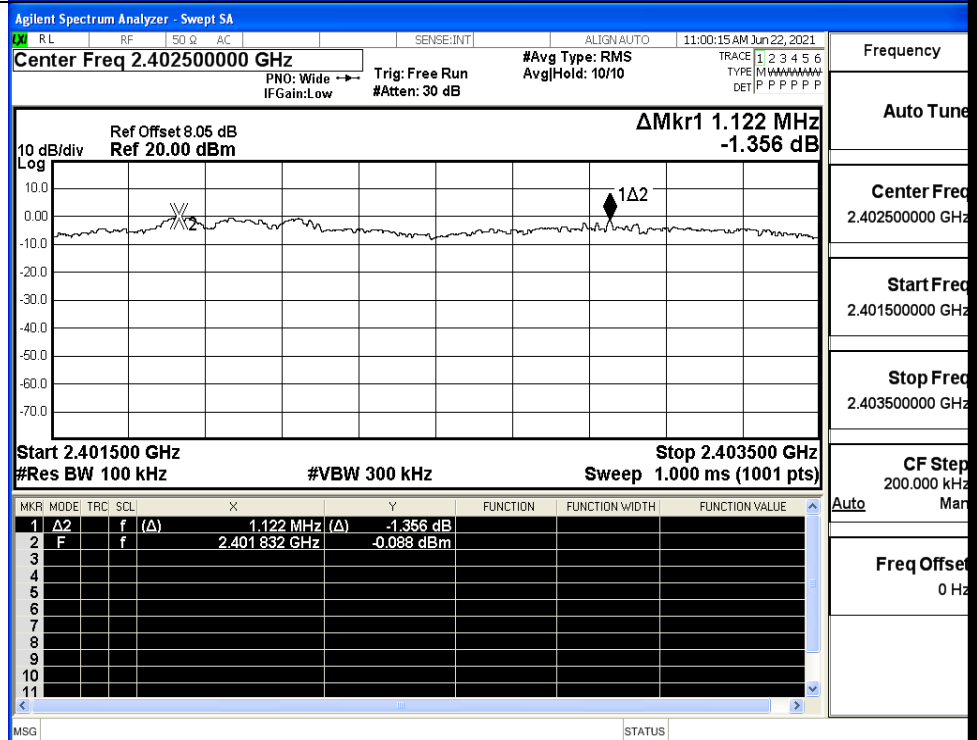
GFSK/HCH



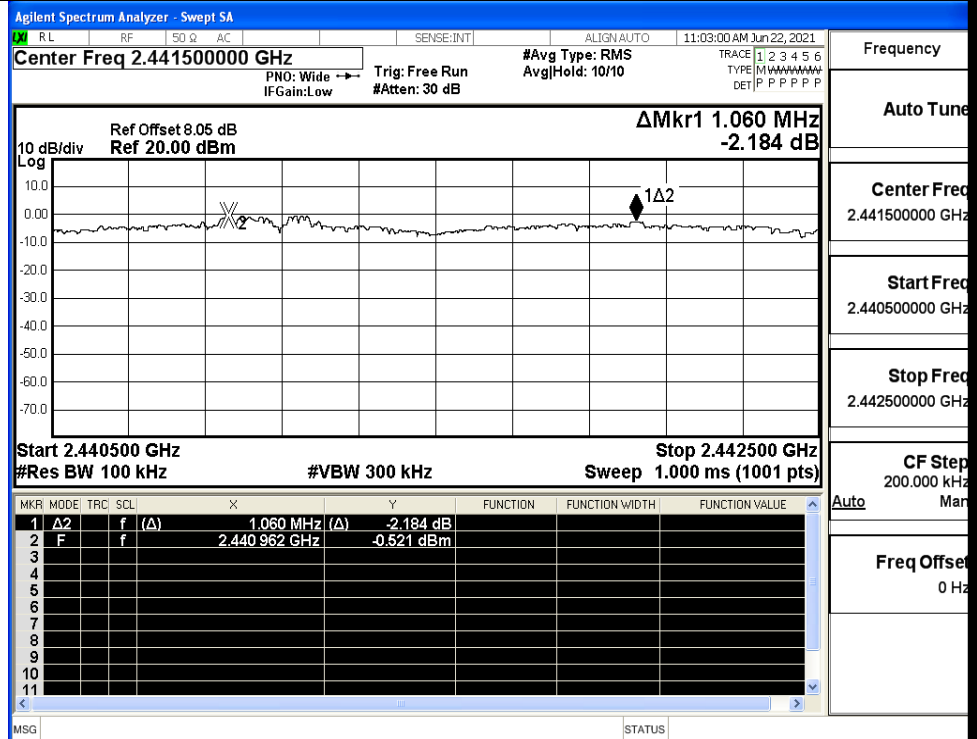
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

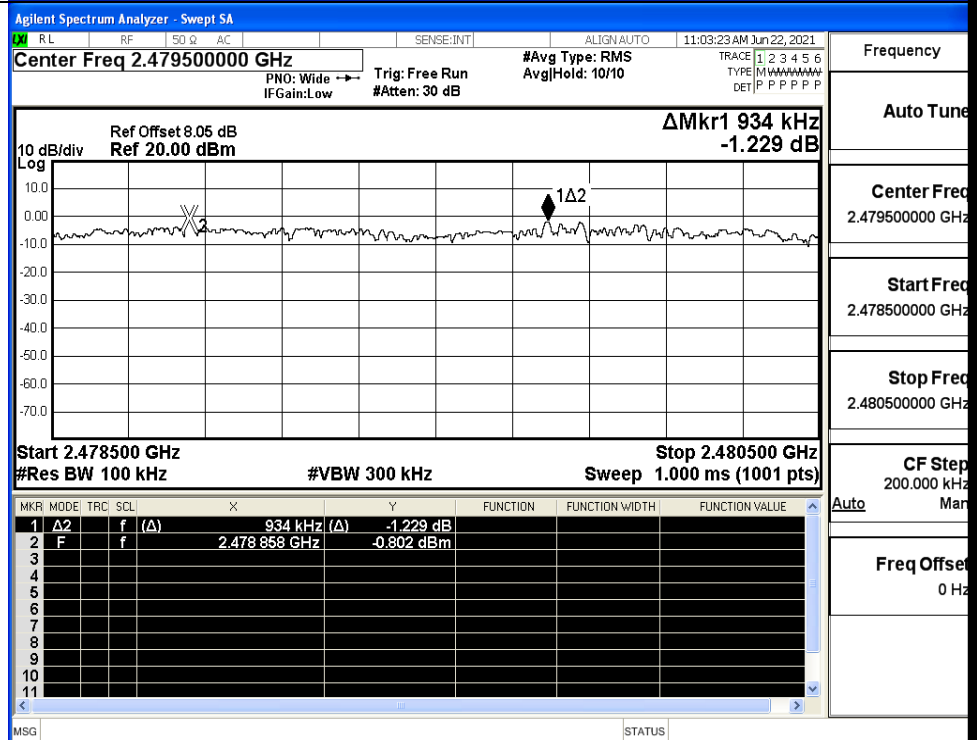
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

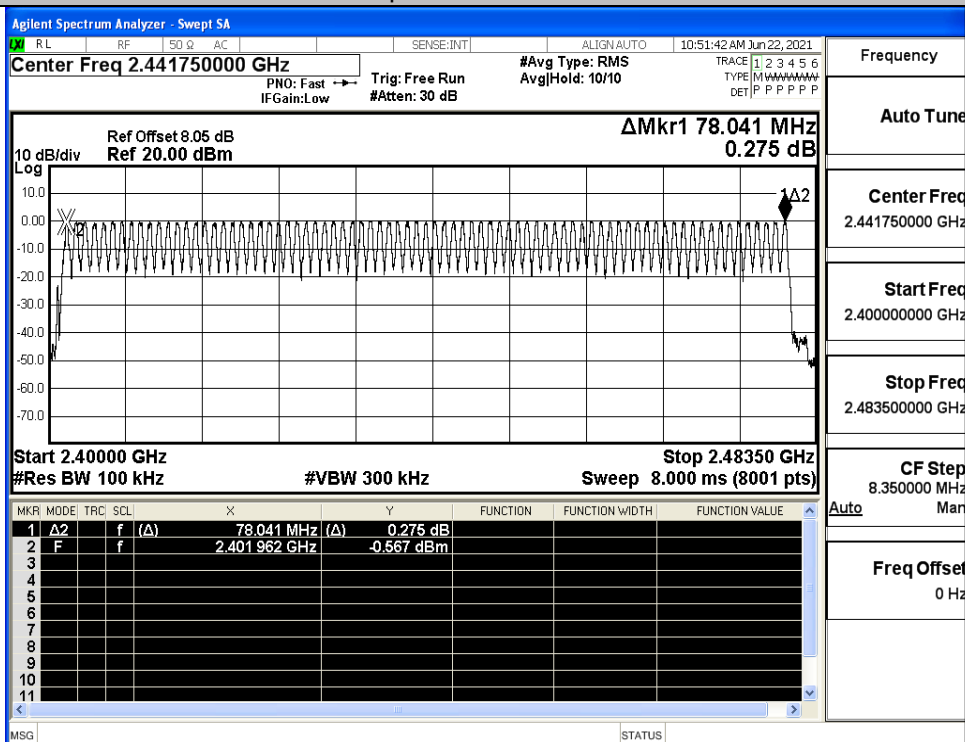
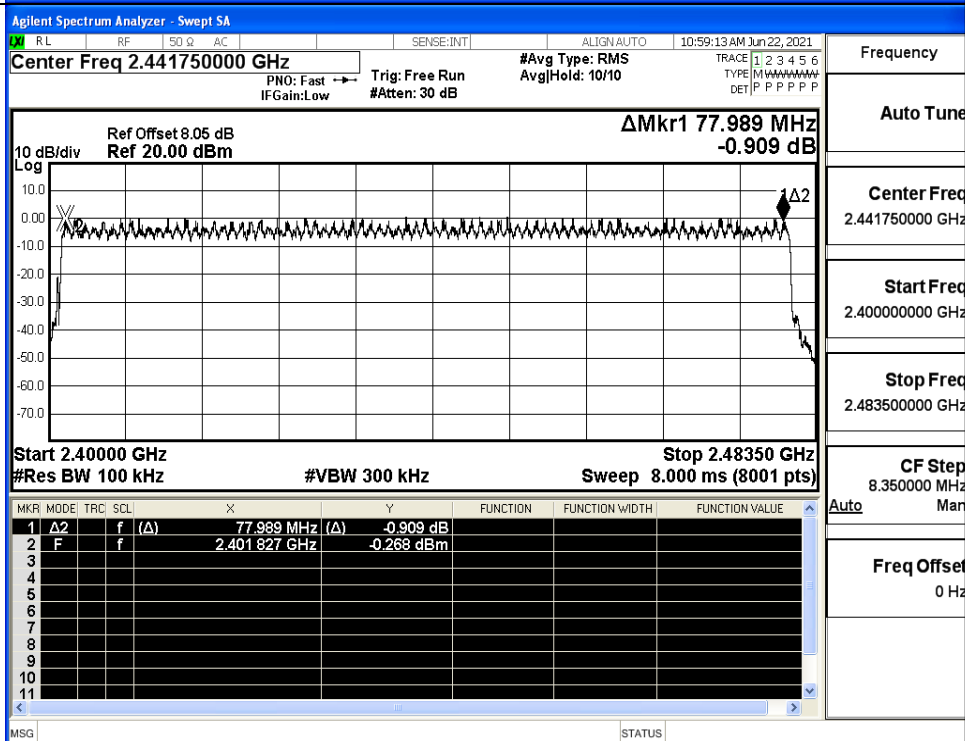


A.4 Hopping Channel Number

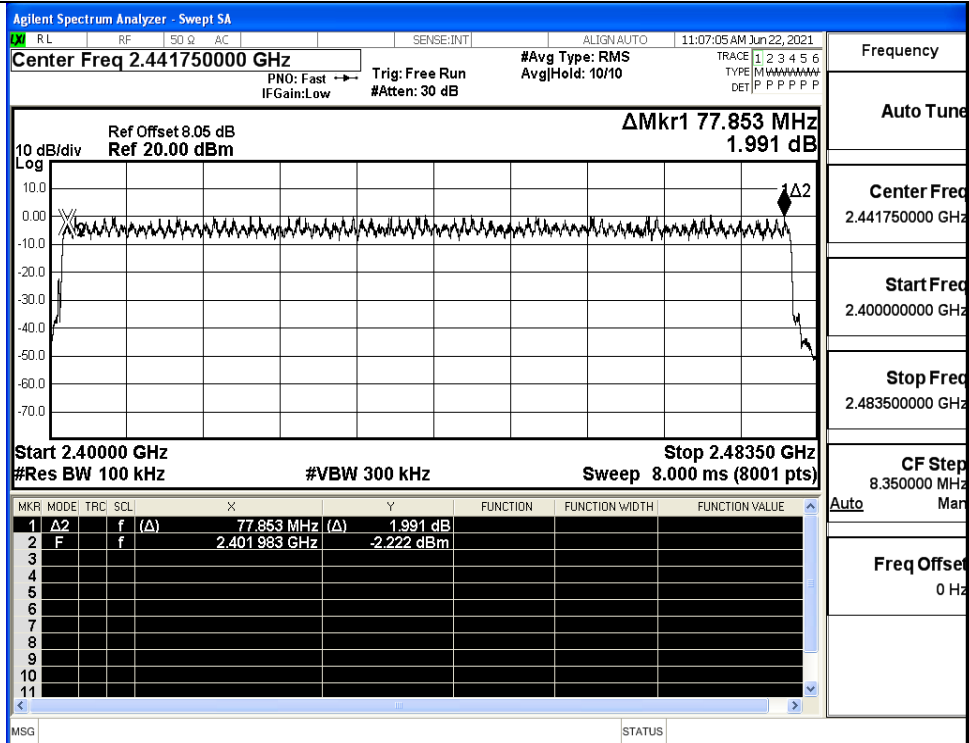
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

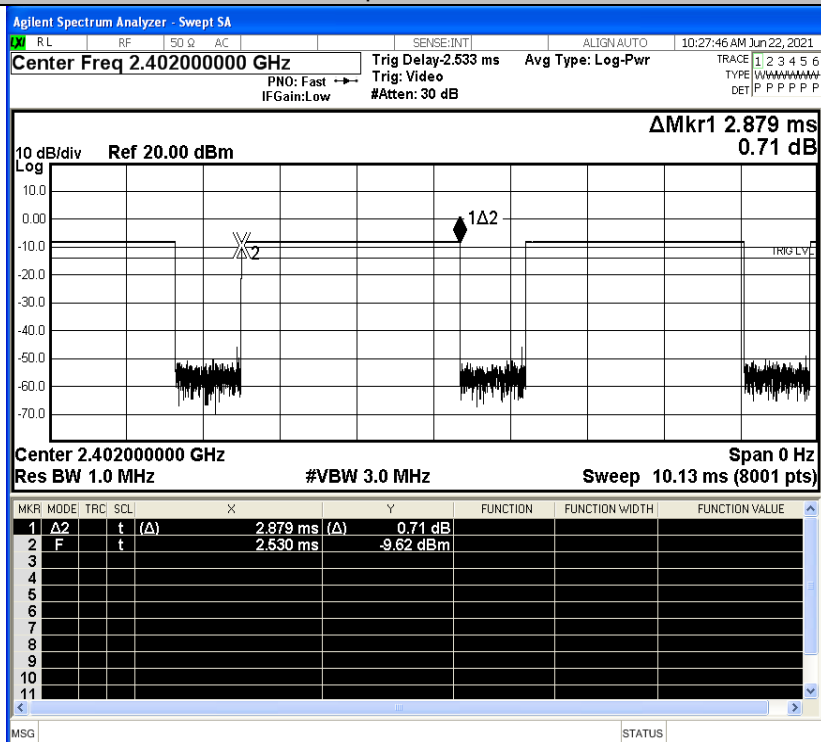


A.5 Dwell Time

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
8DPSK	3DH5	LCH	2.88	106.7	0.307	0.4	PASS
	3DH5	MCH	2.88	106.7	0.307	0.4	PASS
	3DH5	HCH	2.88	106.7	0.307	0.4	PASS

Test Graphs

GFSK_DH5/LCH

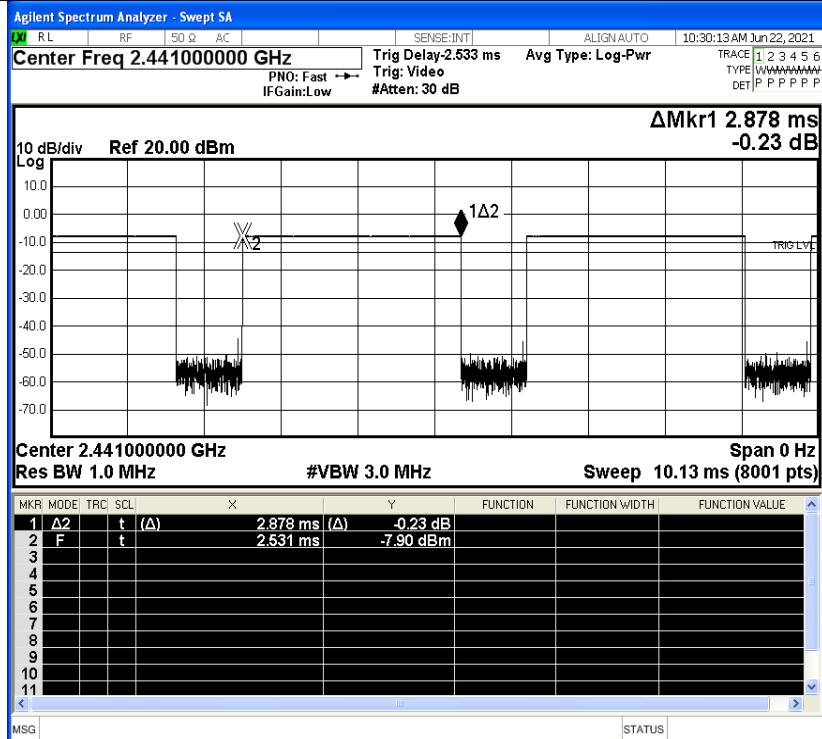


Frequency

Auto Tune

Center Freq
2.402000000 GHzStart Freq
2.402000000 GHzStop Freq
2.402000000 GHzCF Step
1.000000 MHzFreq Offset
0 Hz

GFSK_DH5/MCH



Frequency

Auto Tune

Center Freq
2.441000000 GHz

Start Freq
2.441000000 GHz

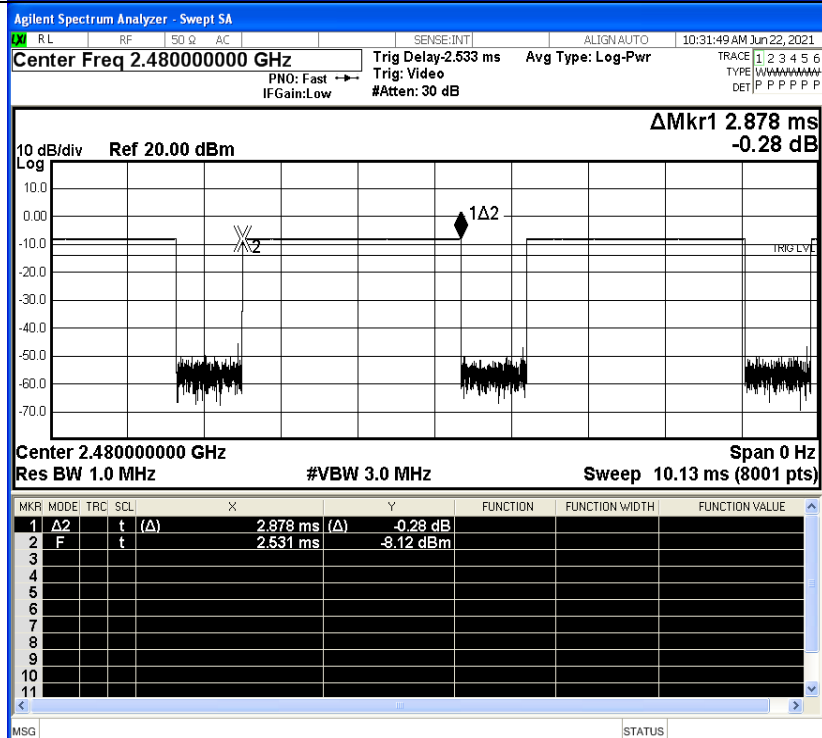
Stop Freq
2.441000000 GHz

CF Step
1.000000 MHz

Auto

Freq Offset
0 Hz

GFSK_DH5/HCH



Frequency

Auto Tune

Center Freq
2.480000000 GHz

Start Freq
2.480000000 GHz

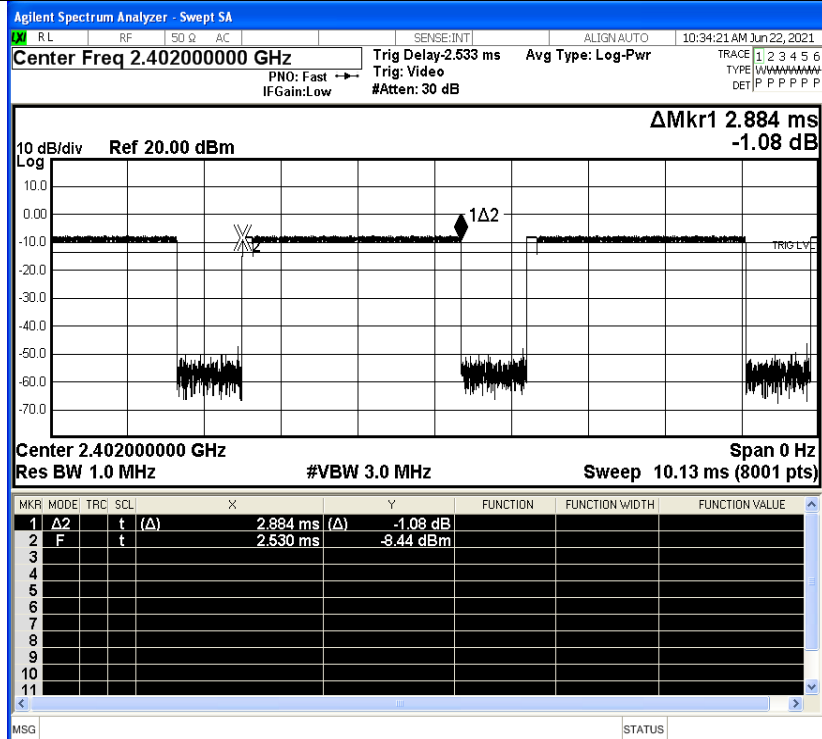
Stop Freq
2.480000000 GHz

CF Step
1.000000 MHz

Auto

Freq Offset
0 Hz

$\pi/4$ DQPSK
_2DH5/LCH



Frequency

Auto Tune

Center Freq
2.402000000 GHz

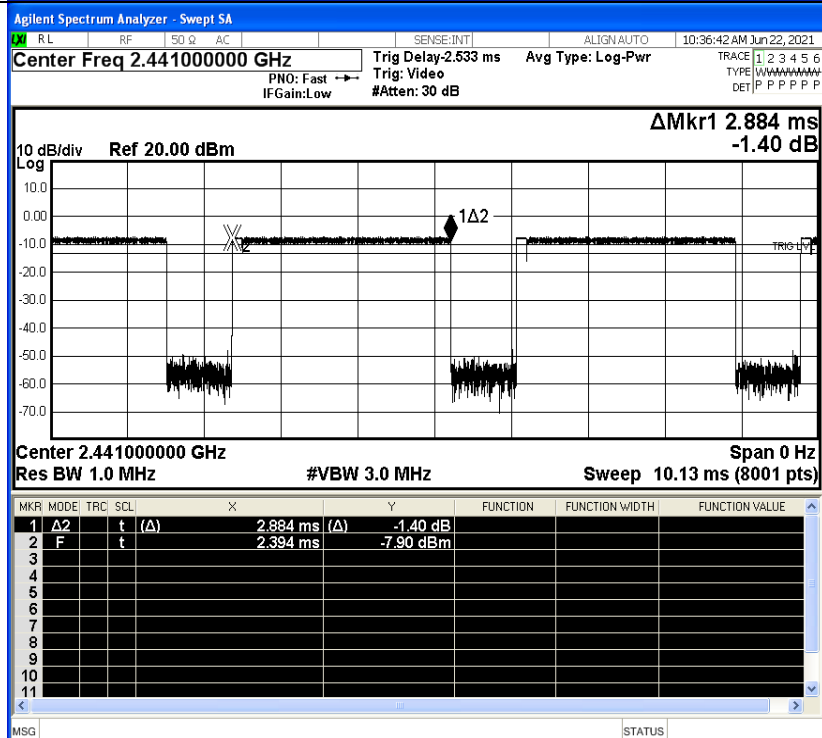
Start Freq
2.402000000 GHz

Stop Freq
2.402000000 GHz

CF Step
1.000000 MHz

Freq Offset
0 Hz

$\pi/4$ DQPSK
_2DH5/MCH



Frequency

Auto Tune

Center Freq
2.441000000 GHz

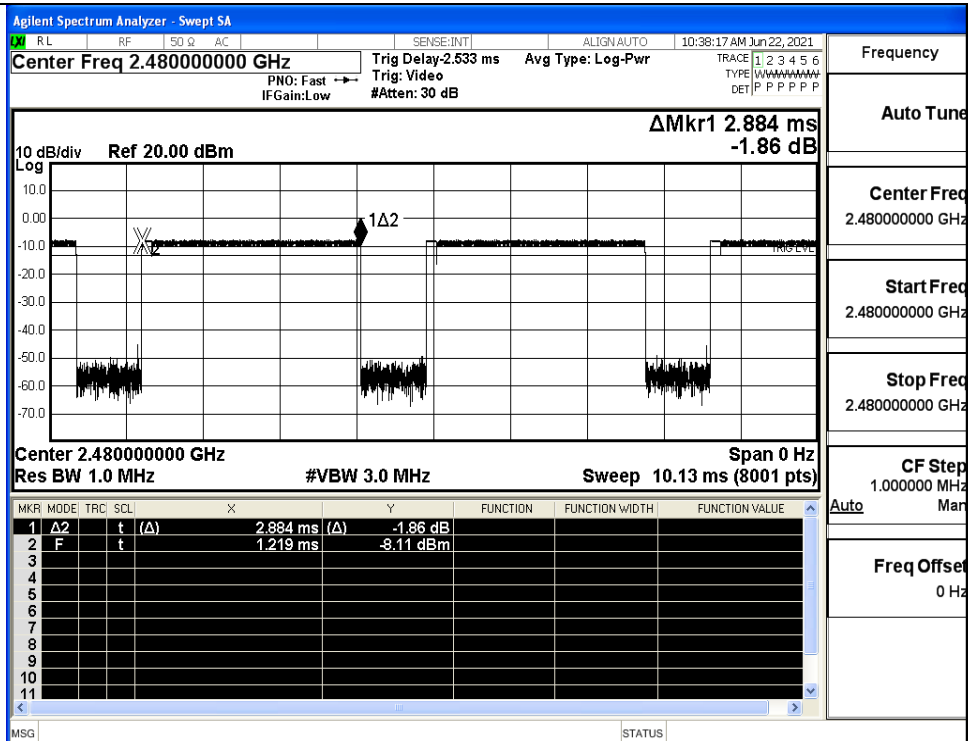
Start Freq
2.441000000 GHz

Stop Freq
2.441000000 GHz

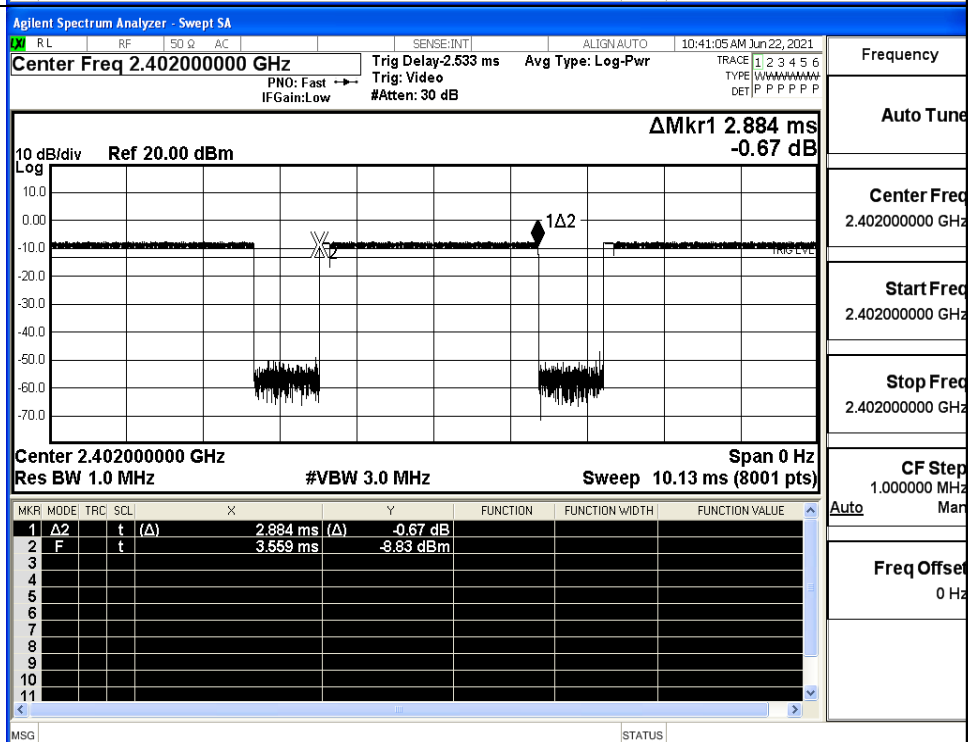
CF Step
1.000000 MHz

Freq Offset
0 Hz

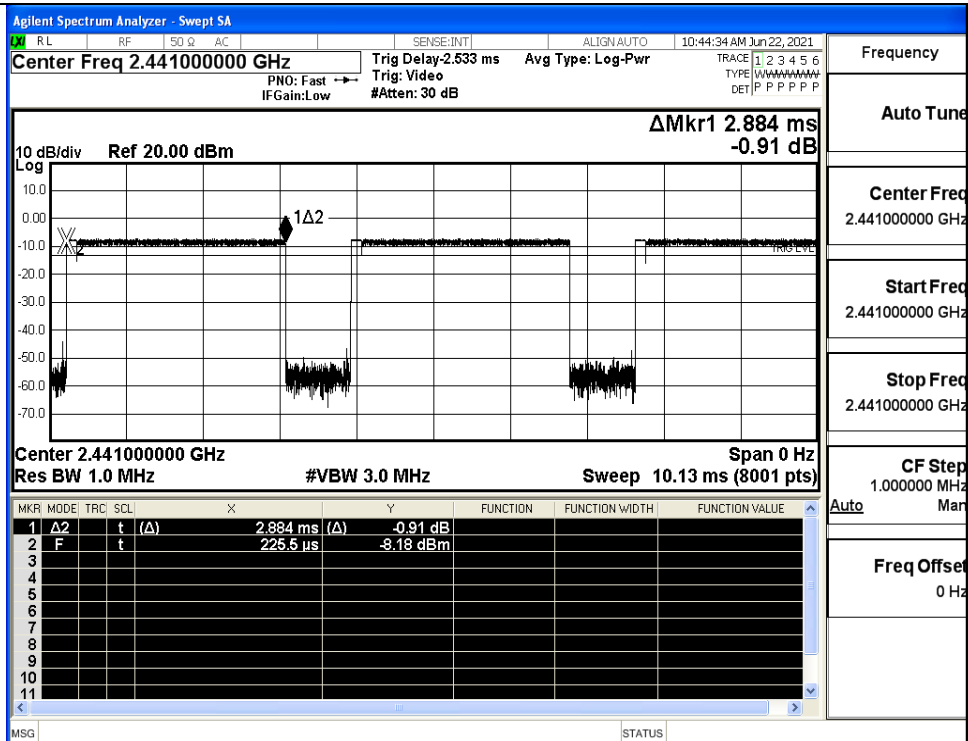
$\pi/4$ DQPSK
_2DH5/HCH



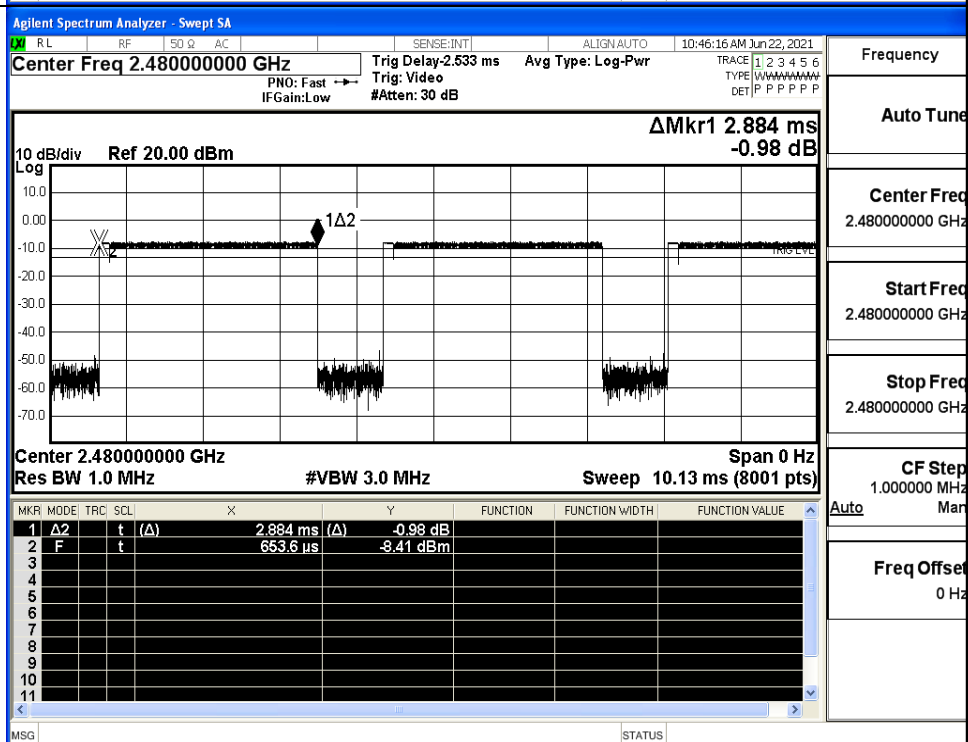
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



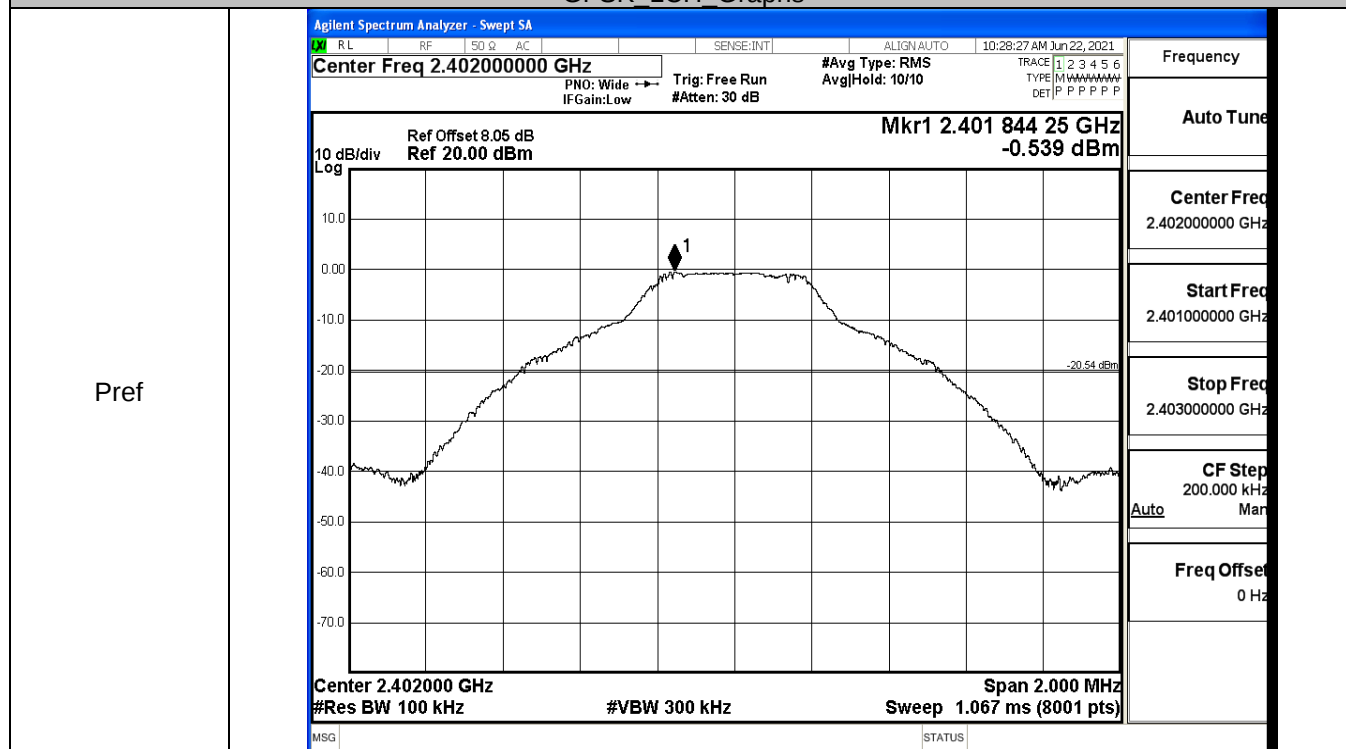
8DPSK_3DH5/HCH



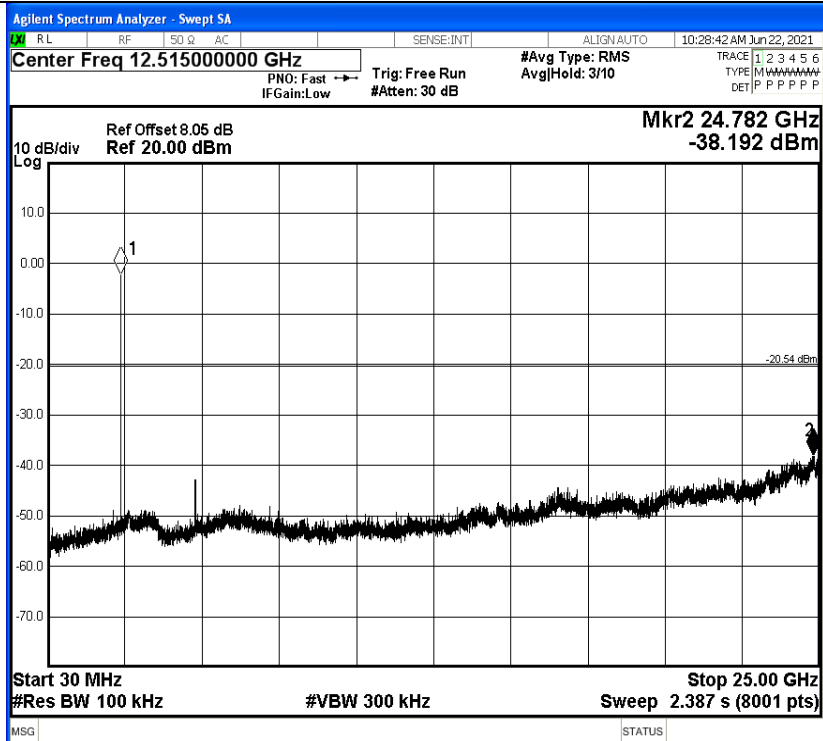
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.539	-38.192	-20.539	PASS
	MCH	-0.303	-38.814	-20.303	PASS
	HCH	-0.464	-39.063	-20.464	PASS
$\pi/4$ DQPSK	LCH	-0.139	-38.176	-20.139	PASS
	MCH	0.181	-36.840	-19.819	PASS
	HCH	-0.107	-38.090	-20.107	PASS
8DPSK	LCH	-0.34	-37.598	-20.340	PASS
	MCH	0.205	-38.057	-19.795	PASS
	HCH	-0.076	-38.212	-20.076	PASS

GFSK LCH Graphs



Puw



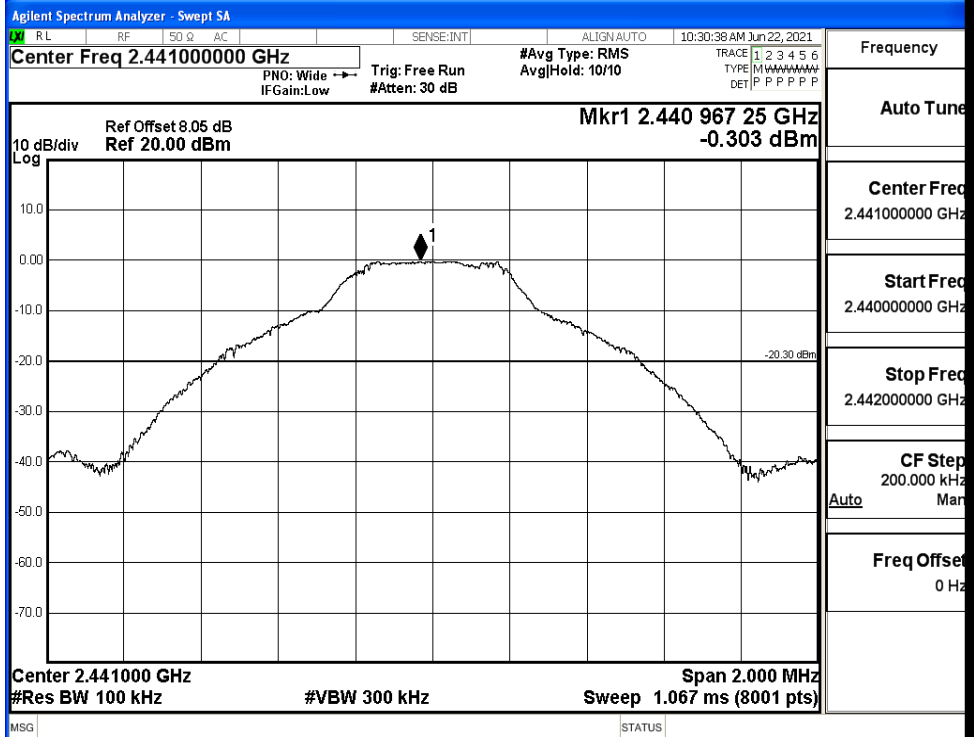
Frequency

Auto Tune

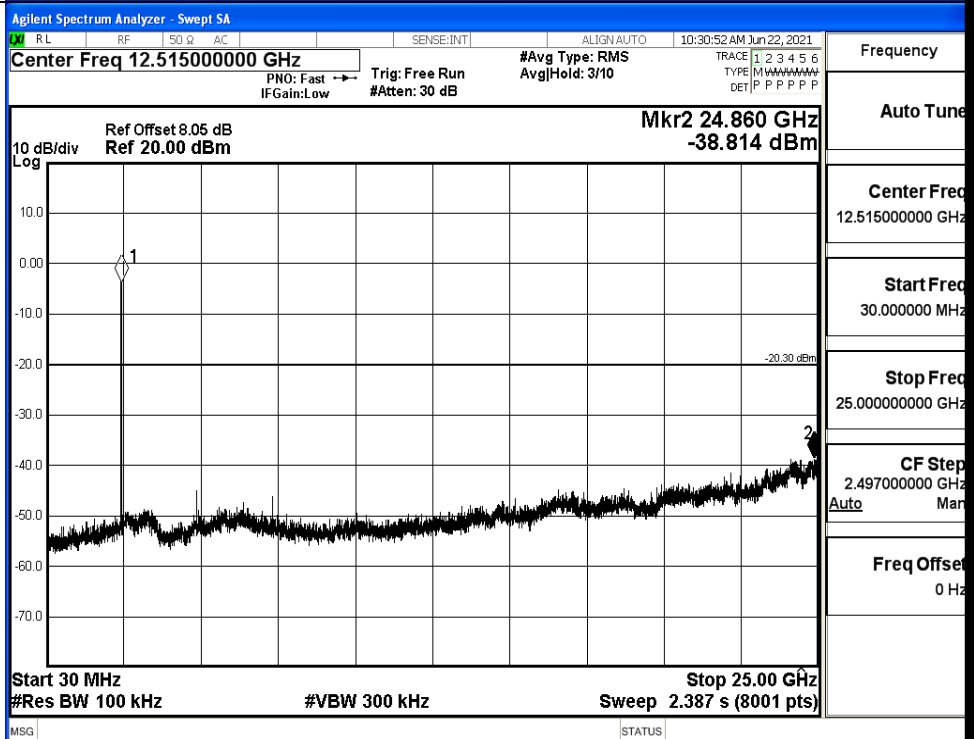
Center Freq
12.51500000 GHzStart Freq
30.000000 MHzStop Freq
25.00000000 GHzCF Step
2.497000000 GHz
Auto ManFreq Offset
0 Hz

GFSK_MCH_Graphs

Pref

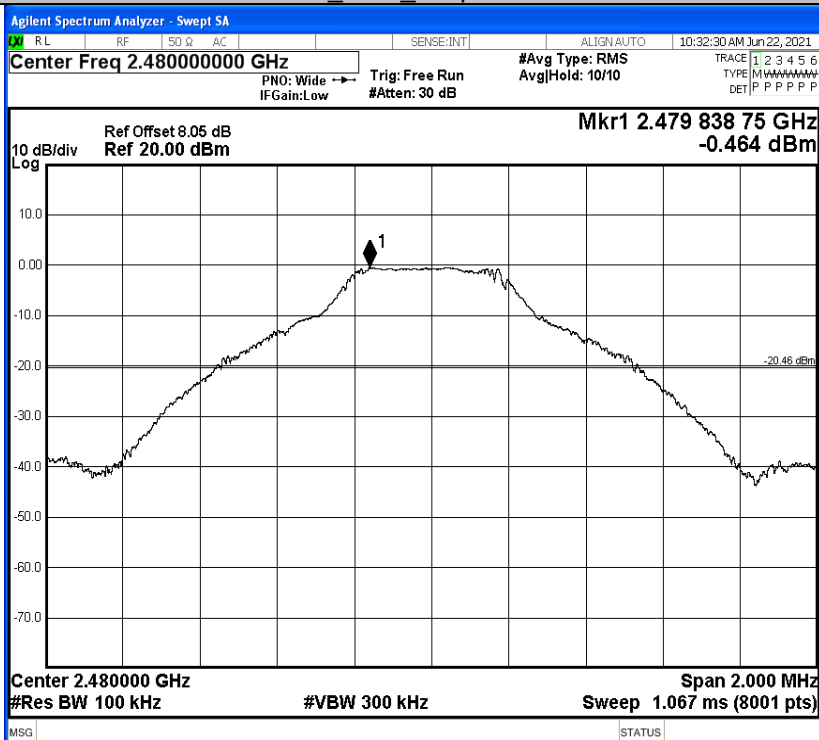


Puw



GFSK_HCH_Graphs

Pref

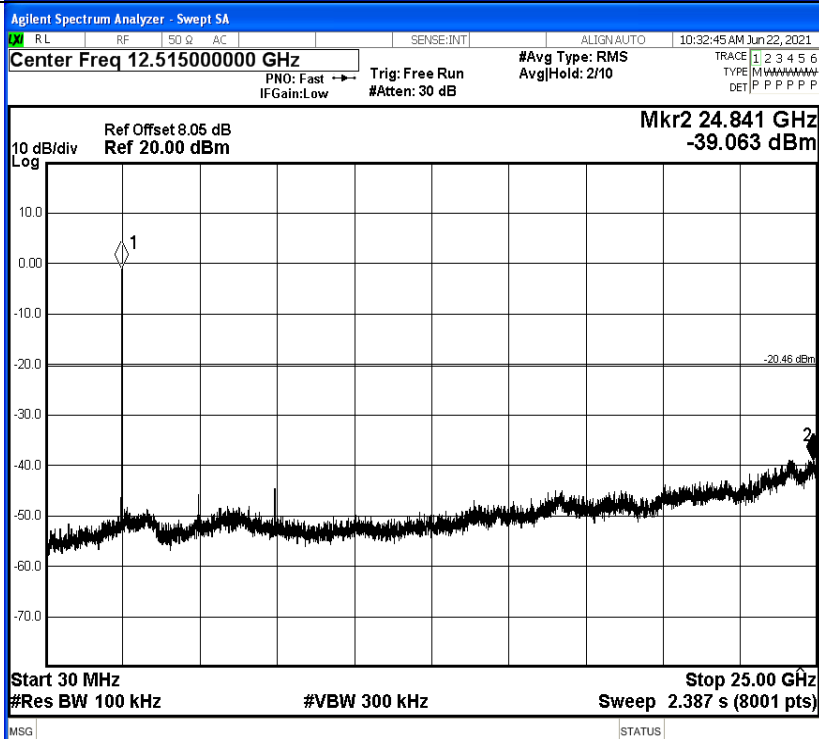


Frequency

Auto Tune

Center Freq
2.480000000 GHzStart Freq
2.479000000 GHzStop Freq
2.481000000 GHzCF Step
200.000 kHz
Auto MarFreq Offset
0 Hz

Puw



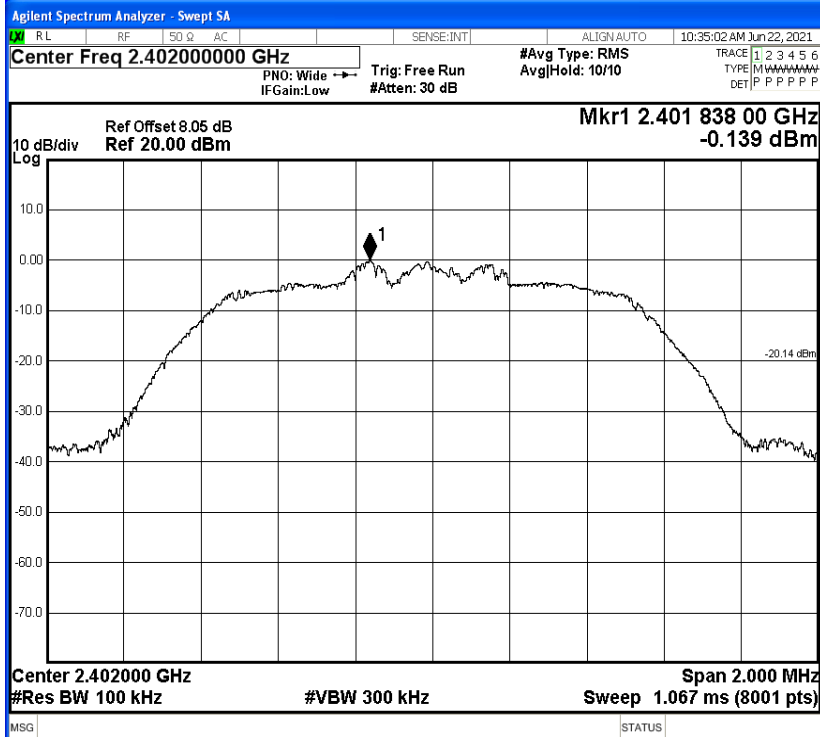
Frequency

Auto Tune

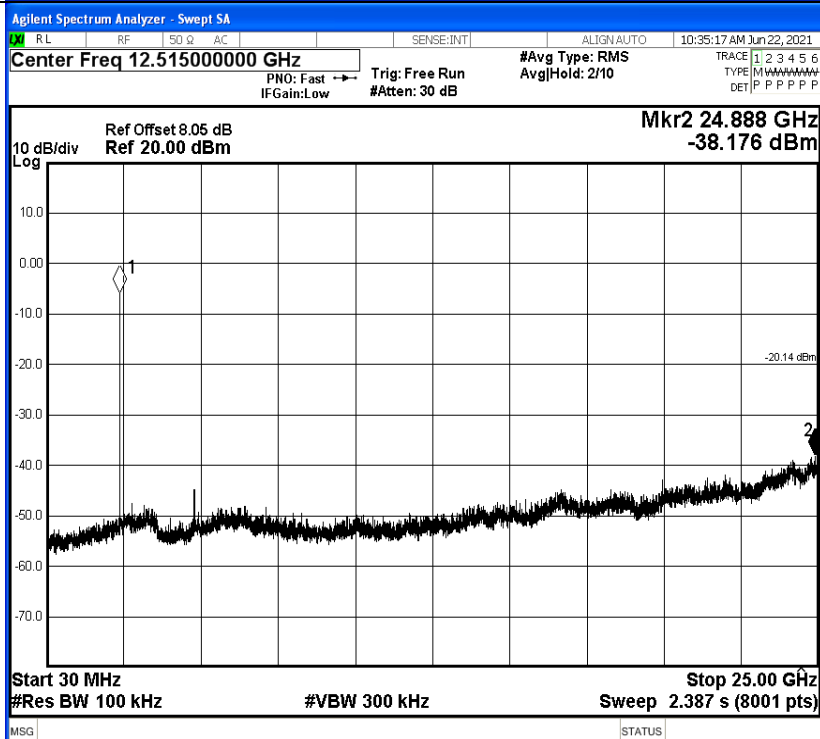
Center Freq
12.515000000 GHzStart Freq
30.000000 MHzStop Freq
25.000000000 GHzCF Step
2.497000000 GHz
Auto MarFreq Offset
0 Hz

$\pi/4$ DQPSK_LCH_Graphs

Pref

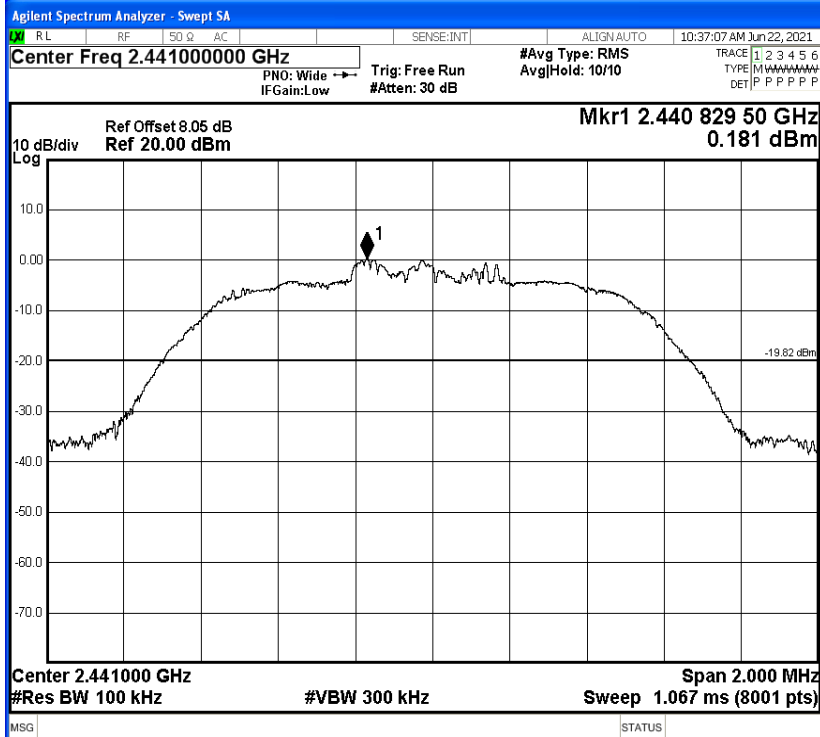


Puw



$\pi/4$ DQPSK_MCH_Graphs

Pref

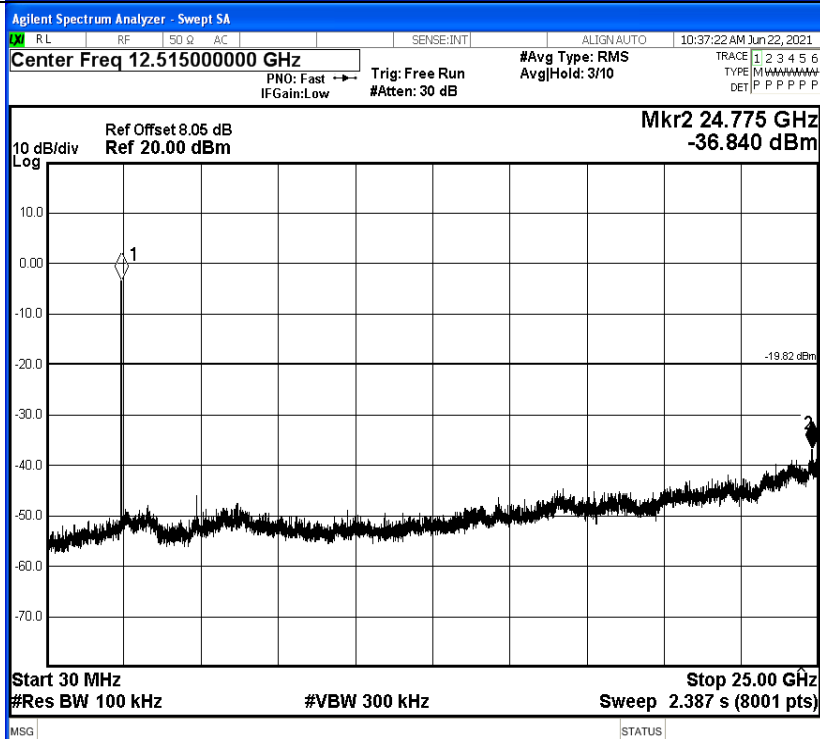


Frequency

Auto Tune

Center Freq
2.441000000 GHzStart Freq
2.440000000 GHzStop Freq
2.442000000 GHzCF Step
200.000 kHz
Auto MarFreq Offset
0 Hz

Puw



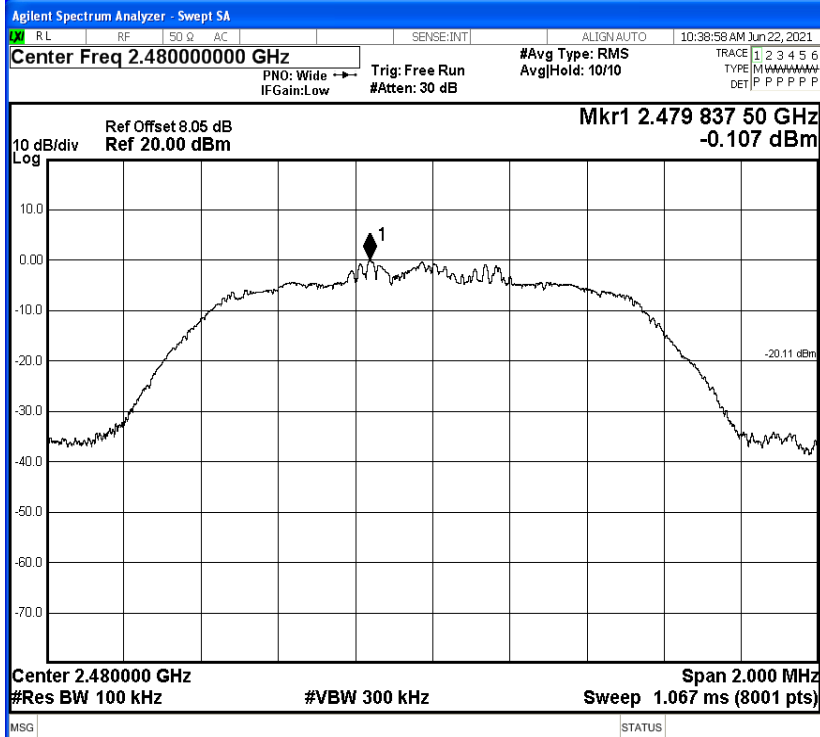
Frequency

Auto Tune

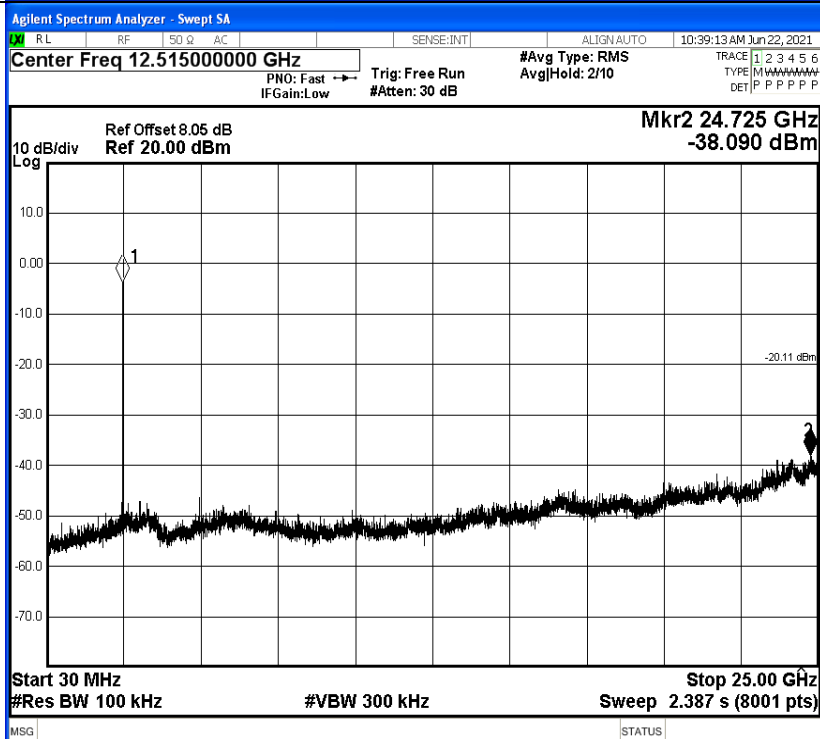
Center Freq
12.515000000 GHzStart Freq
30.0000000 MHzStop Freq
25.000000000 GHzCF Step
2.497000000 GHz
Auto MarFreq Offset
0 Hz

$\pi/4$ DQPSK_HCH_Graphs

Pref

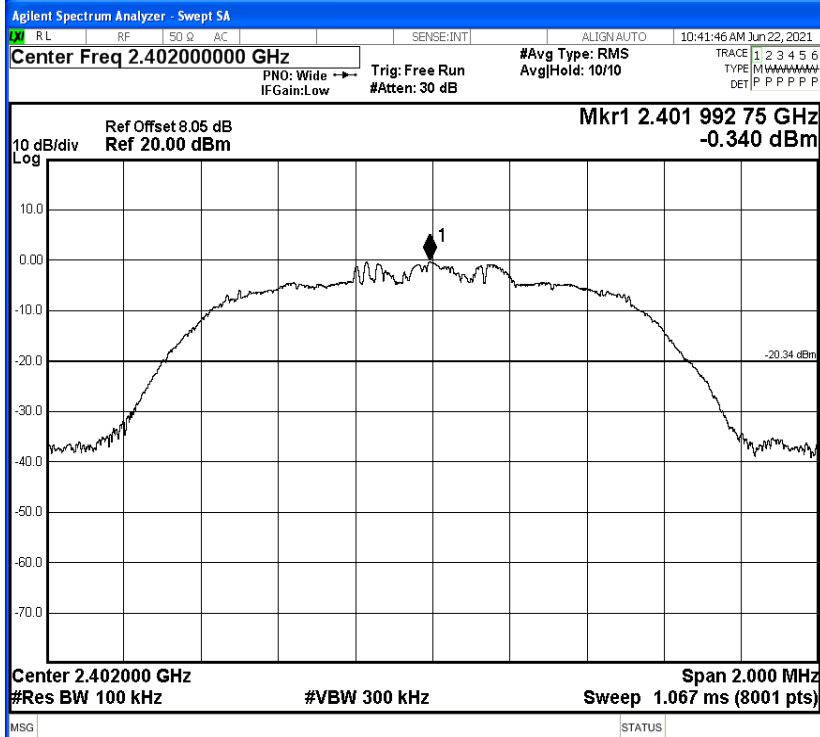


Puw



8DPSK_LCH_Graphs

Pref

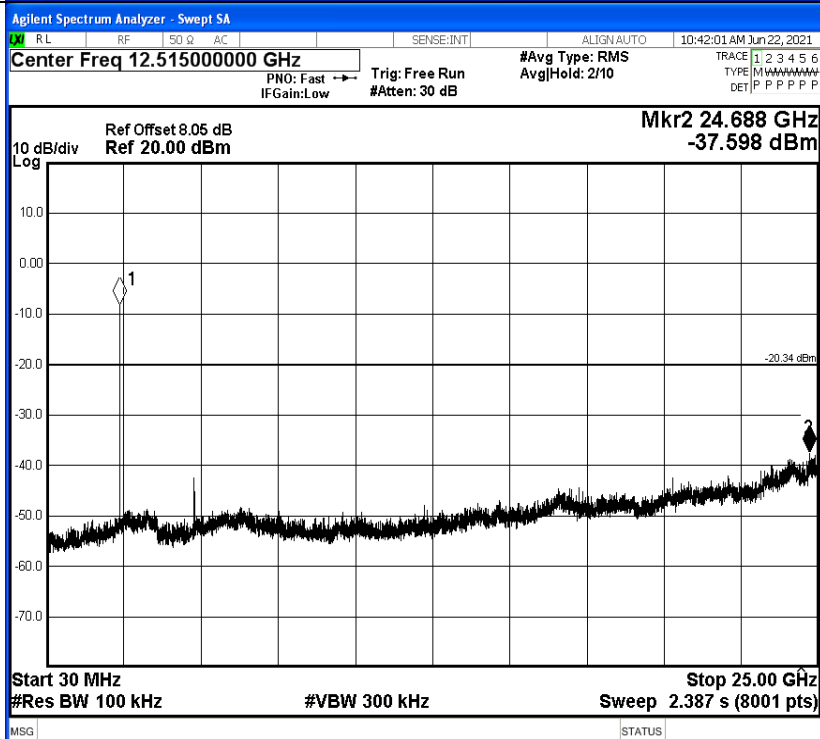


Frequency

Auto Tune

Center Freq
2.402000000 GHzStart Freq
2.401000000 GHzStop Freq
2.403000000 GHzCF Step
200.000 kHz
Auto MarFreq Offset
0 Hz

Puw



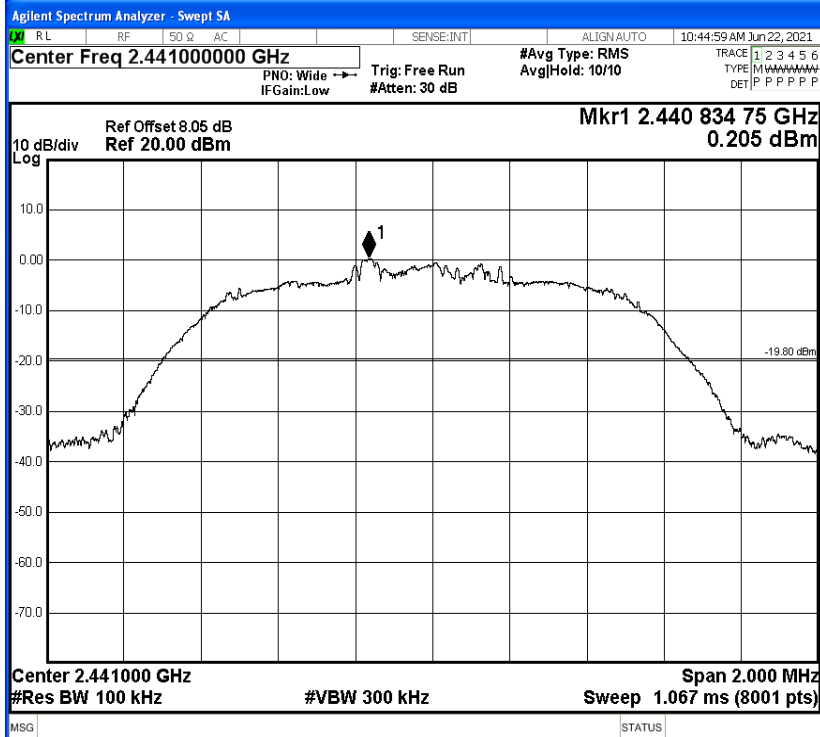
Frequency

Auto Tune

Center Freq
12.515000000 GHzStart Freq
30.000000 MHzStop Freq
25.000000000 GHzCF Step
2.497000000 GHz
Auto MarFreq Offset
0 Hz

8DPSK_MCH_Graphs

Pref

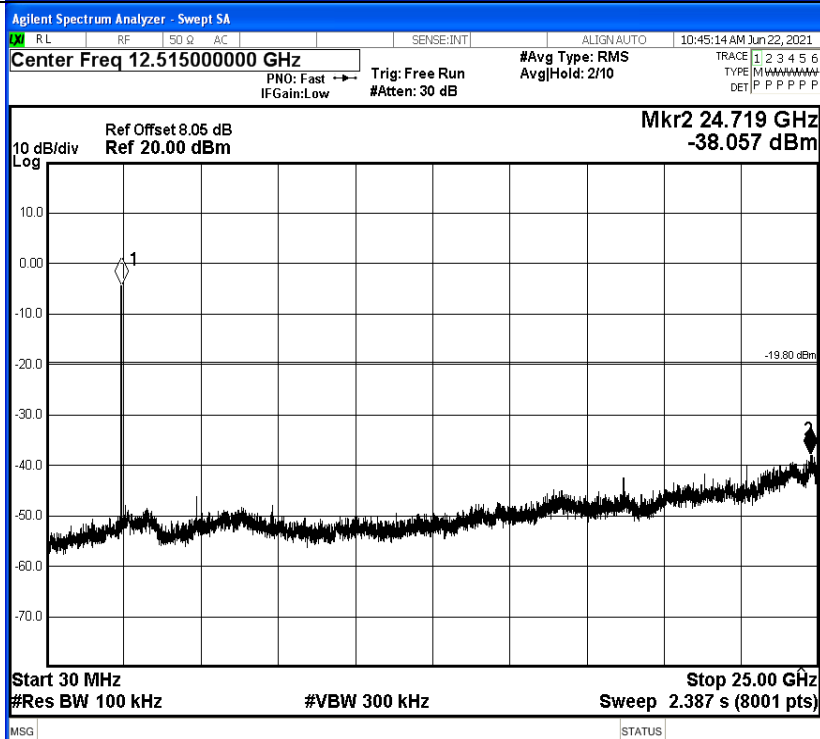


Frequency

Auto Tune

Center Freq
2.441000000 GHzStart Freq
2.440000000 GHzStop Freq
2.442000000 GHzCF Step
200.000 kHz
Auto MarFreq Offset
0 Hz

Puw



Frequency

Auto Tune

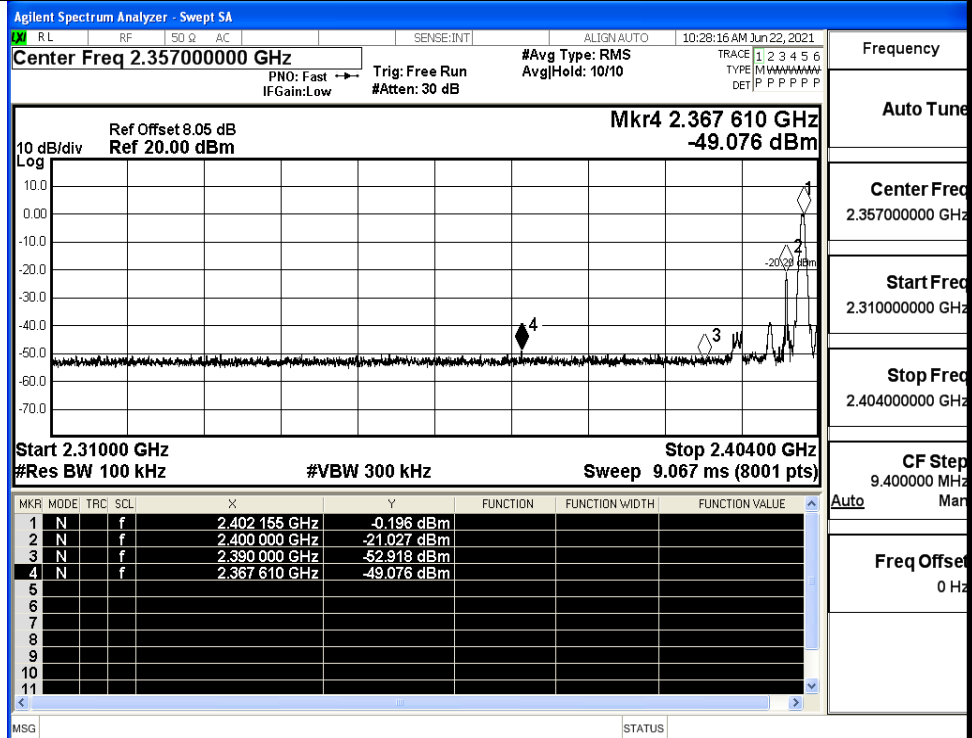
Center Freq
12.515000000 GHzStart Freq
30.000000 MHzStop Freq
25.000000000 GHzCF Step
2.497000000 GHz
Auto MarFreq Offset
0 Hz

A.7 Band-edge for RF Conducted Emissions

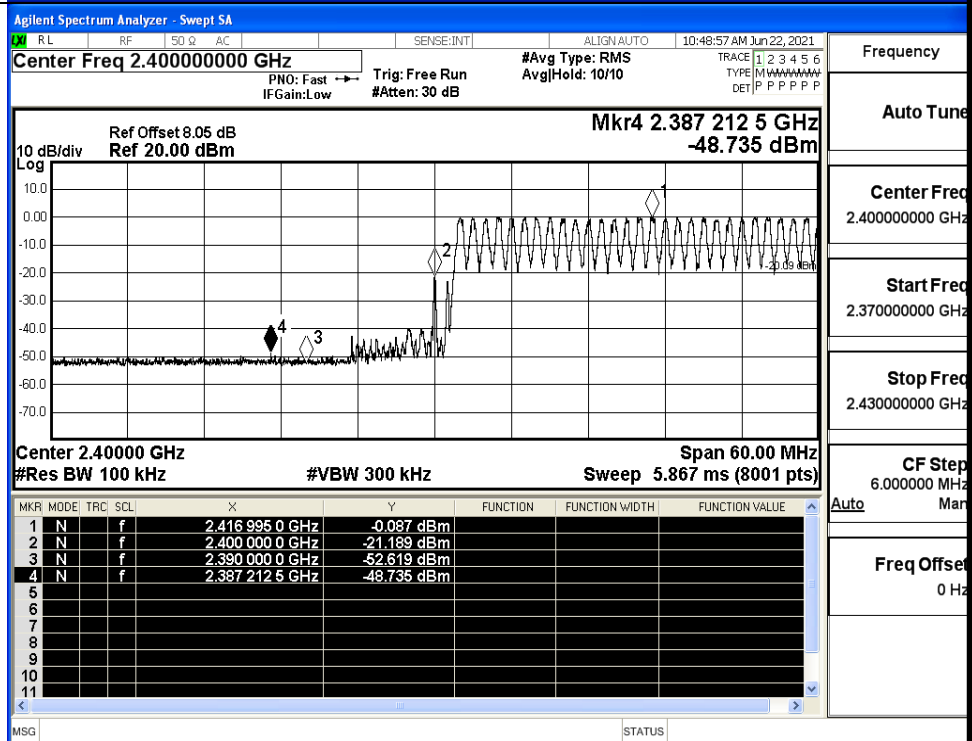
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.196	Off	-49.076	-20.2	PASS
			-0.087	On	-48.735	-20.09	PASS
	HCH	2480	-0.191	Off	-47.646	-20.19	PASS
			0.083	On	-48.283	-19.92	PASS
$\pi/4$ DQPSK	LCH	2402	-0.450	Off	-50.027	-20.45	PASS
			0.193	On	-48.678	-19.81	PASS
	HCH	2480	-0.007	Off	-48.817	-20.01	PASS
			0.273	On	-48.798	-19.73	PASS
8DPSK	LCH	2402	-0.562	Off	-49.374	-20.56	PASS
			0.227	On	-48.932	-19.77	PASS
	HCH	2480	-0.063	Off	-48.408	-20.06	PASS
			0.198	On	-48.346	-19.8	PASS

Test Graphs

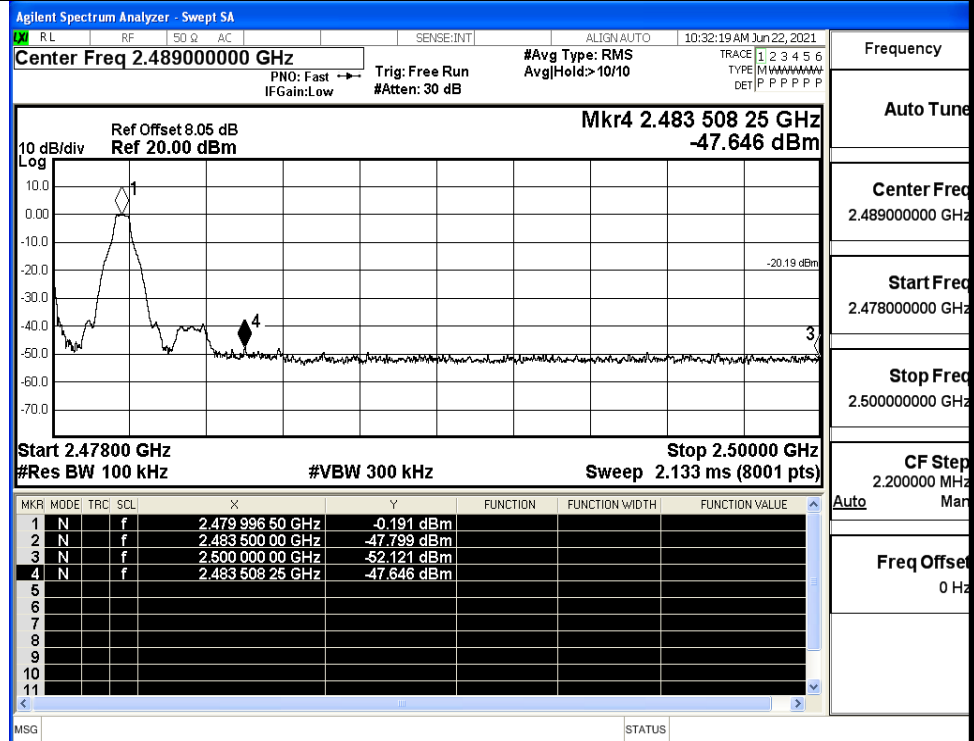
GFSK/LCH/No Hop



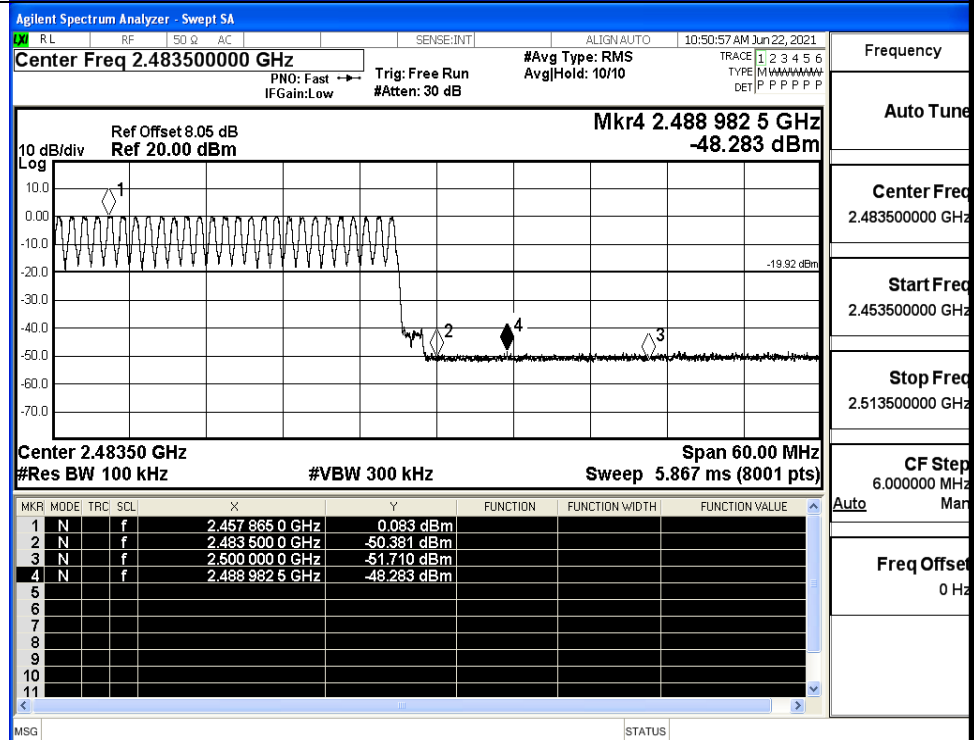
GFSK/LCH/Hop



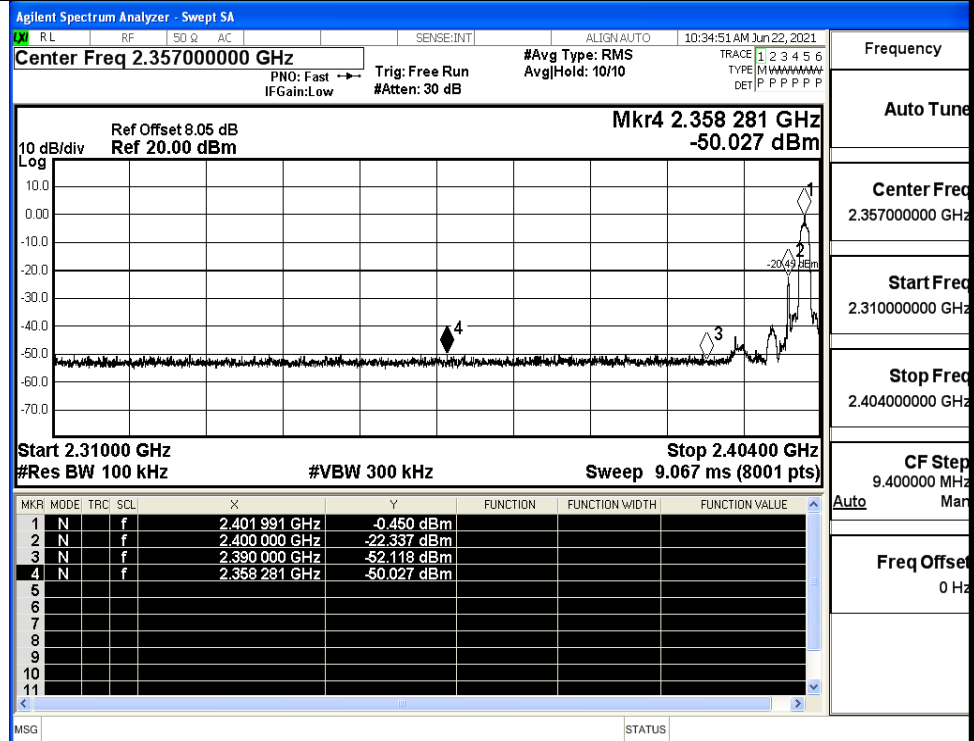
GFSK/HCH/No Hop



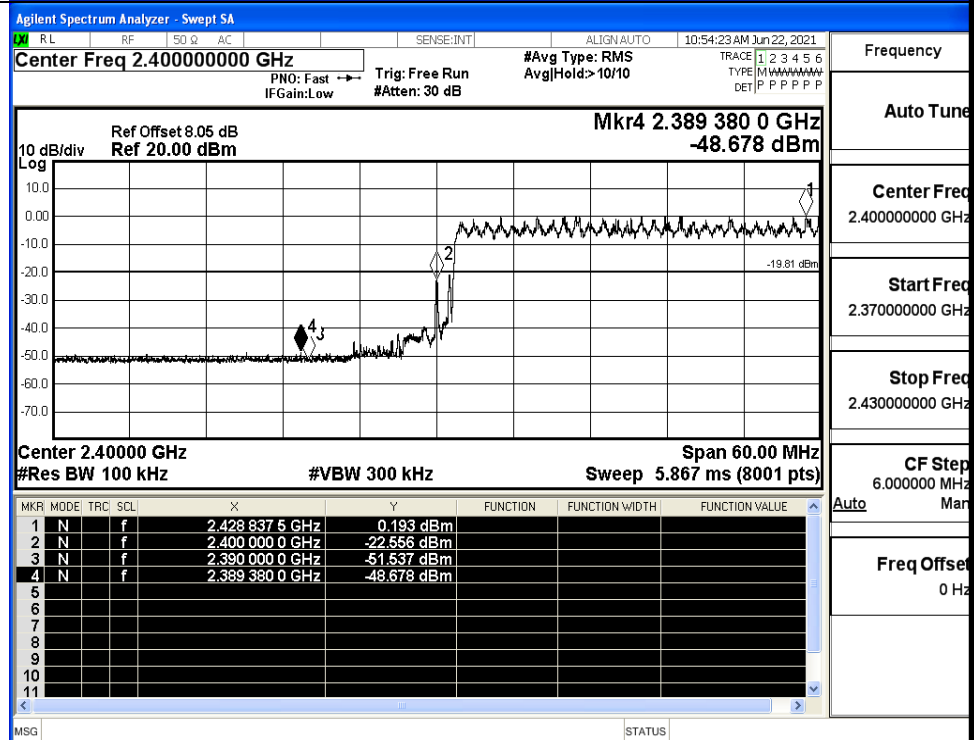
GFSK/HCH/Hop



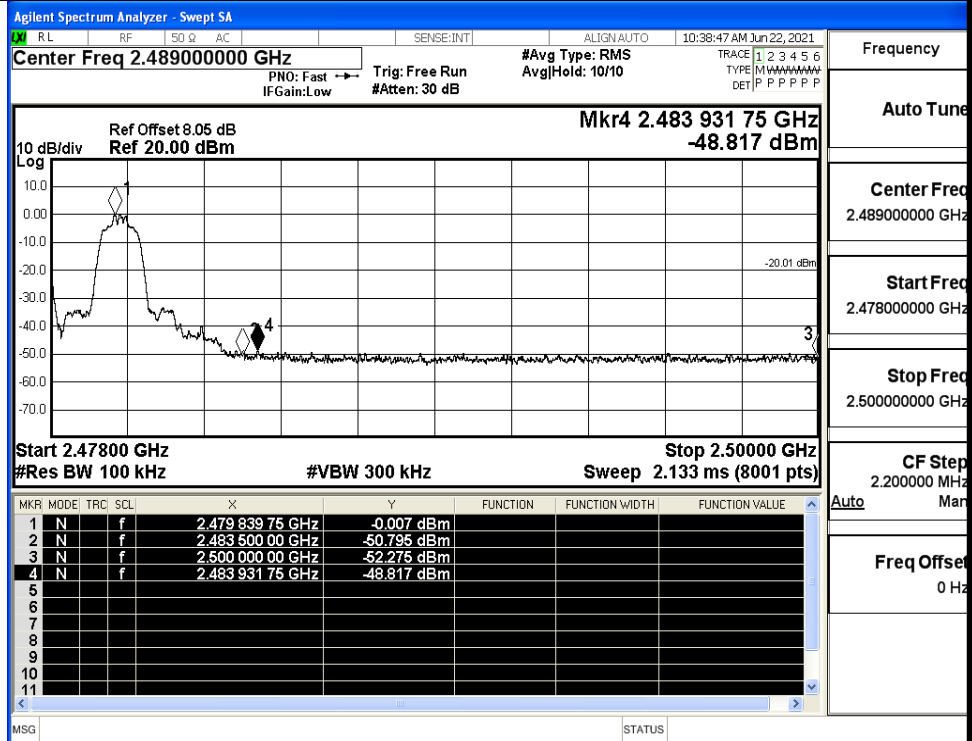
$\pi/4$ DQPSK/LCH/No
Hop



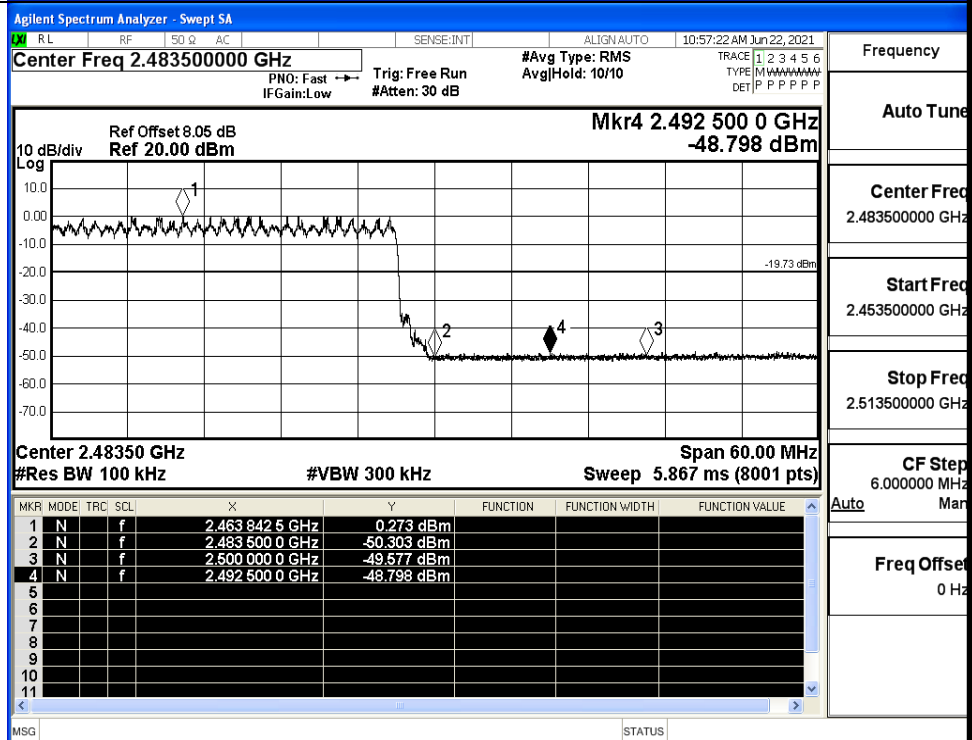
$\pi/4$ DQPSK/LCH/Hop



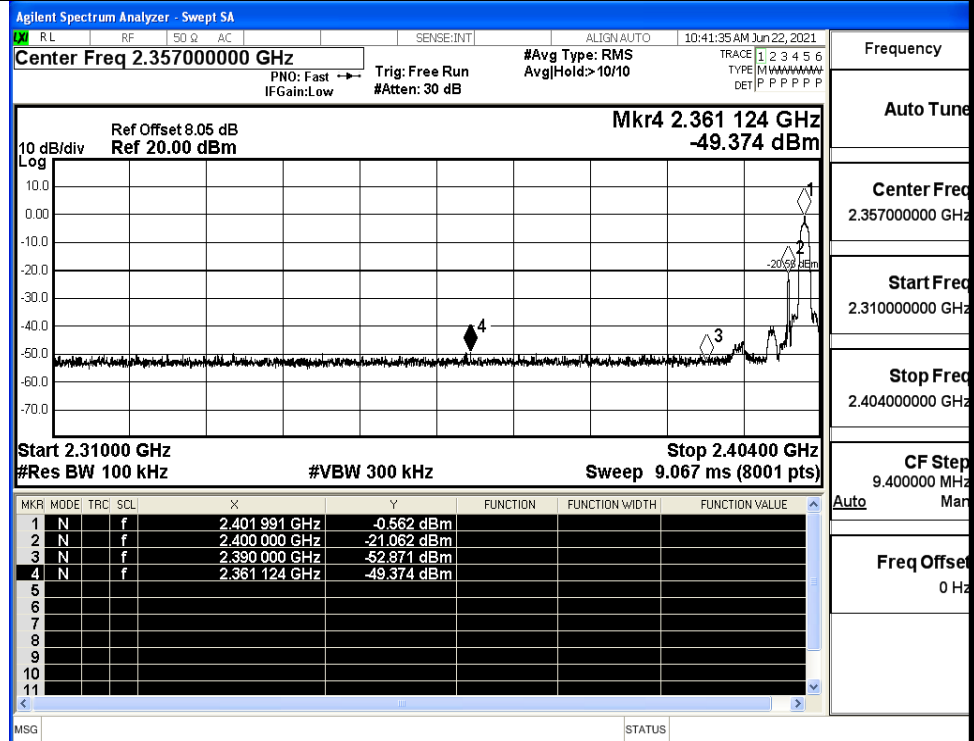
$\pi/4$ DQPSK/HCH/No
Hop



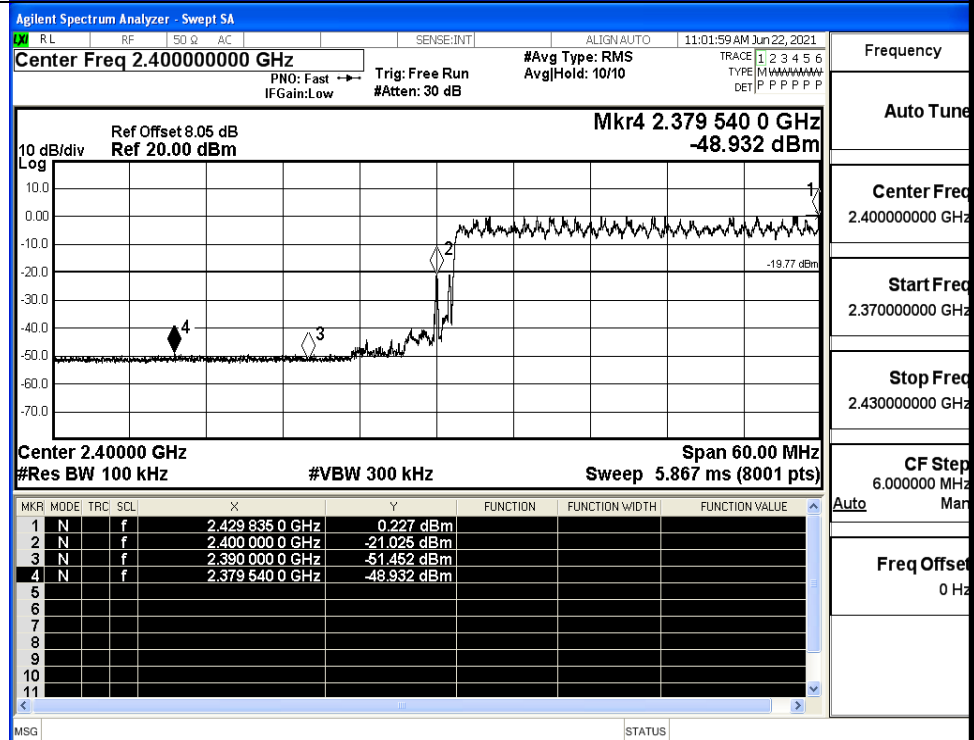
$\pi/4$ DQPSK/HCH/Hop



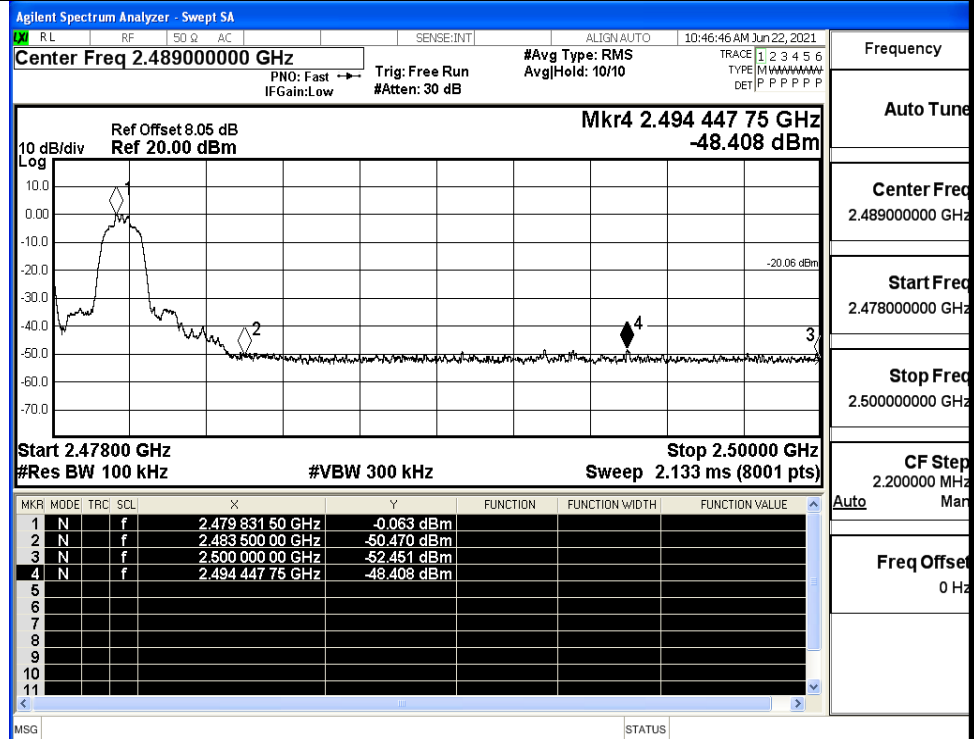
8DPSK/LCH/No Hop



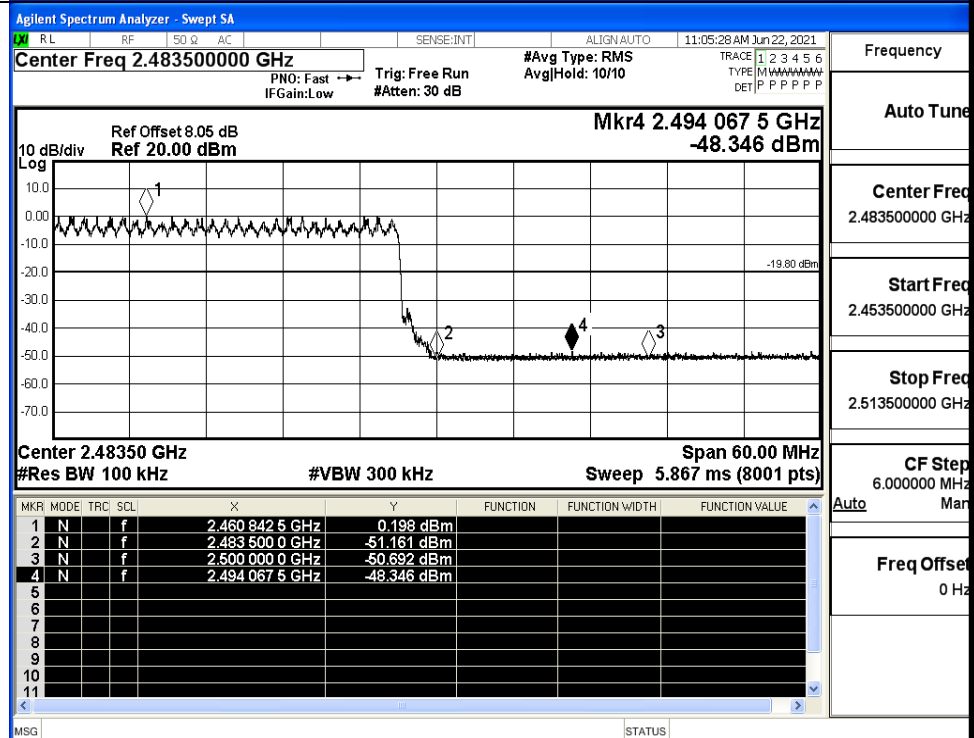
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



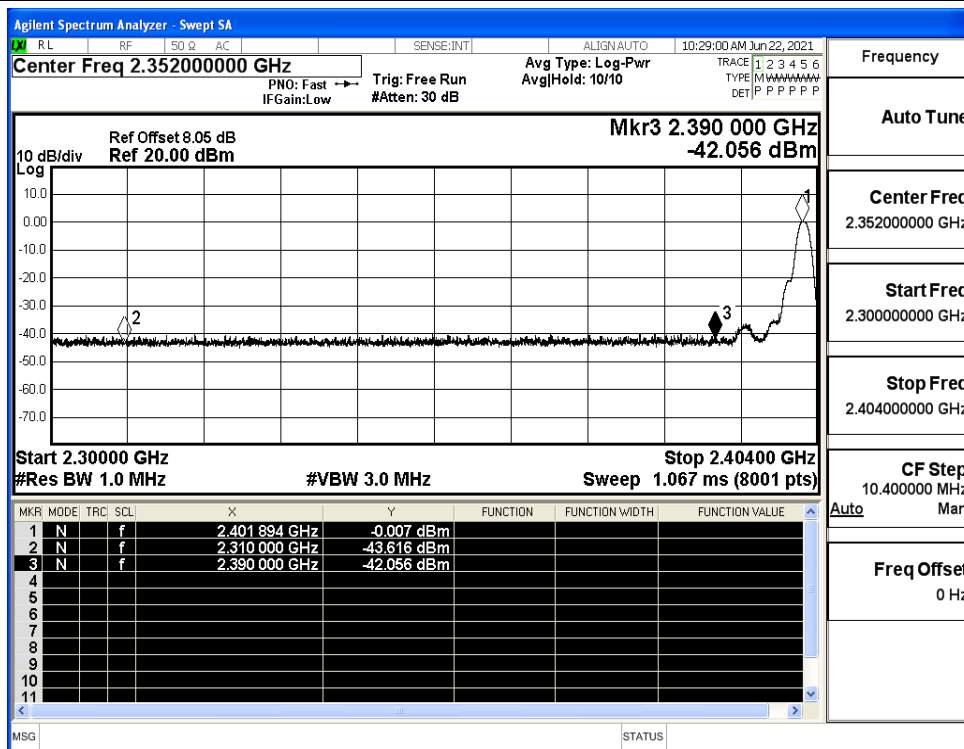
8DPSK/HCH/Hop



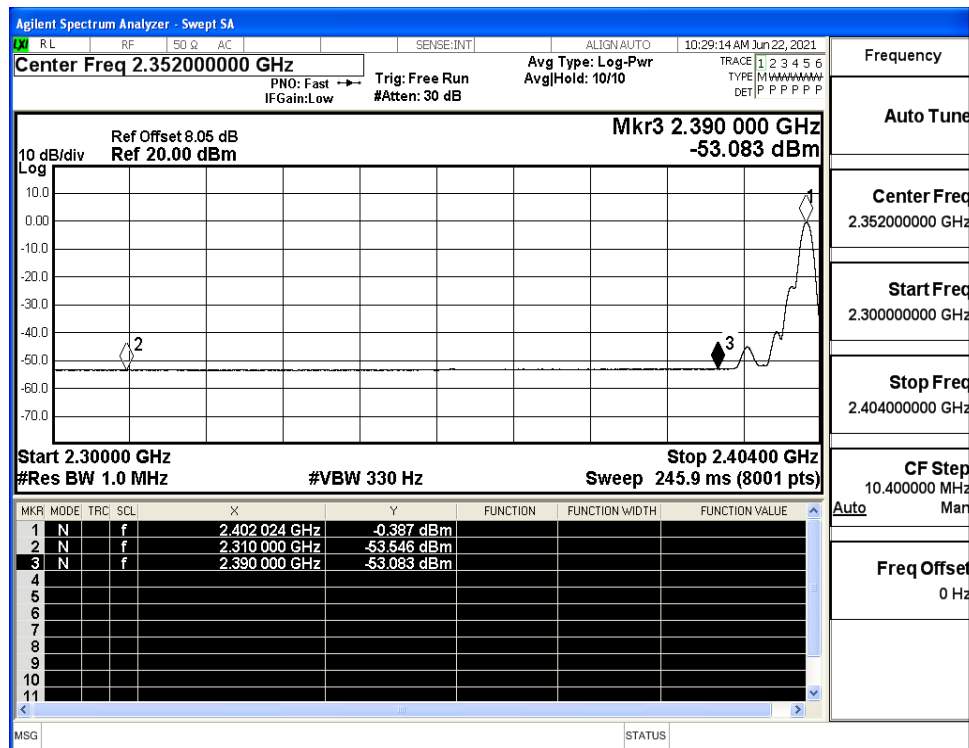
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.62	2.7	0	54.34	PEAK	74	PASS
	Off	2310.0	-53.55	2.7	0	44.41	AV	54	PASS
	Off	2390.0	-42.06	2.7	0	55.90	PEAK	74	PASS
	Off	2390.0	-53.08	2.7	0	44.88	AV	54	PASS
	Off	2483.5	-41.71	2.7	0	56.25	PEAK	74	PASS
	Off	2483.5	-50.40	2.7	0	47.56	AV	54	PASS
	Off	2500.0	-41.90	2.7	0	56.06	PEAK	74	PASS
	Off	2500.0	-52.51	2.7	0	45.45	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-39.97	2.7	0	57.99	PEAK	74	PASS
	Off	2310.0	-53.49	2.7	0	44.47	AV	54	PASS
	Off	2390.0	-42.13	2.7	0	55.83	PEAK	74	PASS
	Off	2390.0	-53.03	2.7	0	44.93	AV	54	PASS
	Off	2483.5	-40.02	2.7	0	57.94	PEAK	74	PASS
	Off	2483.5	-50.46	2.7	0	47.50	AV	54	PASS
	Off	2500.0	-42.66	2.7	0	55.30	PEAK	74	PASS
	Off	2500.0	-52.45	2.7	0	45.51	AV	54	PASS
8DPSK	Off	2310.0	-42.58	2.7	0	55.38	PEAK	74	PASS
	Off	2310.0	-53.45	2.7	0	44.51	AV	54	PASS
	Off	2390.0	-43.15	2.7	0	54.81	PEAK	74	PASS
	Off	2390.0	-53.04	2.7	0	44.92	AV	54	PASS
	Off	2483.5	-41.87	2.7	0	56.09	PEAK	74	PASS
	Off	2483.5	-50.18	2.7	0	47.78	AV	54	PASS
	Off	2500.0	-42.61	2.7	0	55.35	PEAK	74	PASS
	Off	2500.0	-52.39	2.7	0	45.57	AV	54	PASS

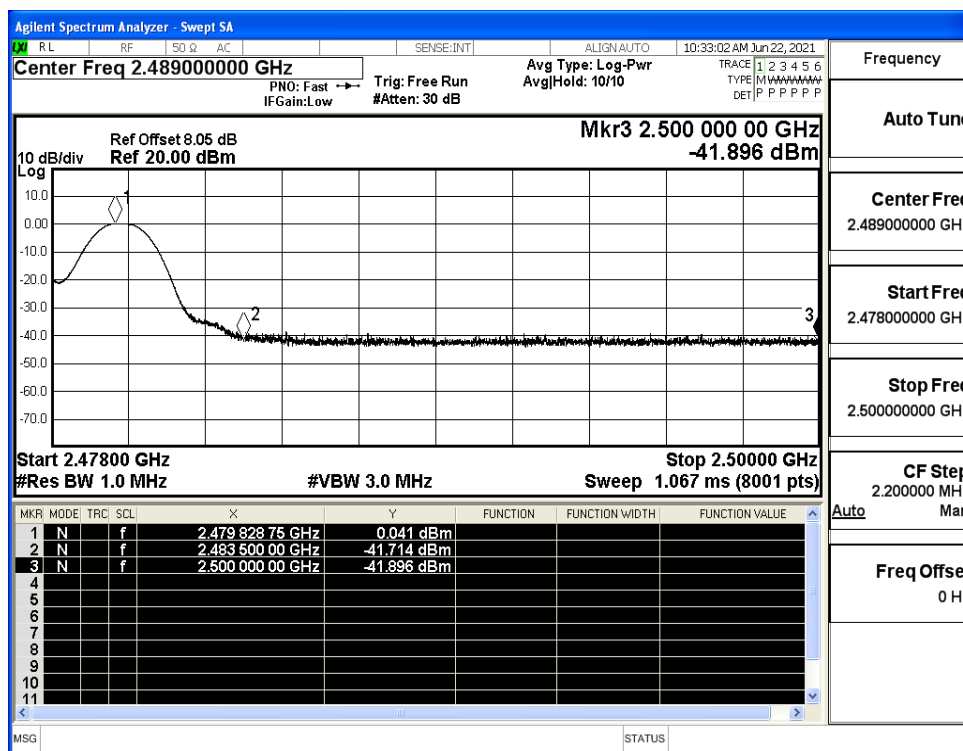
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



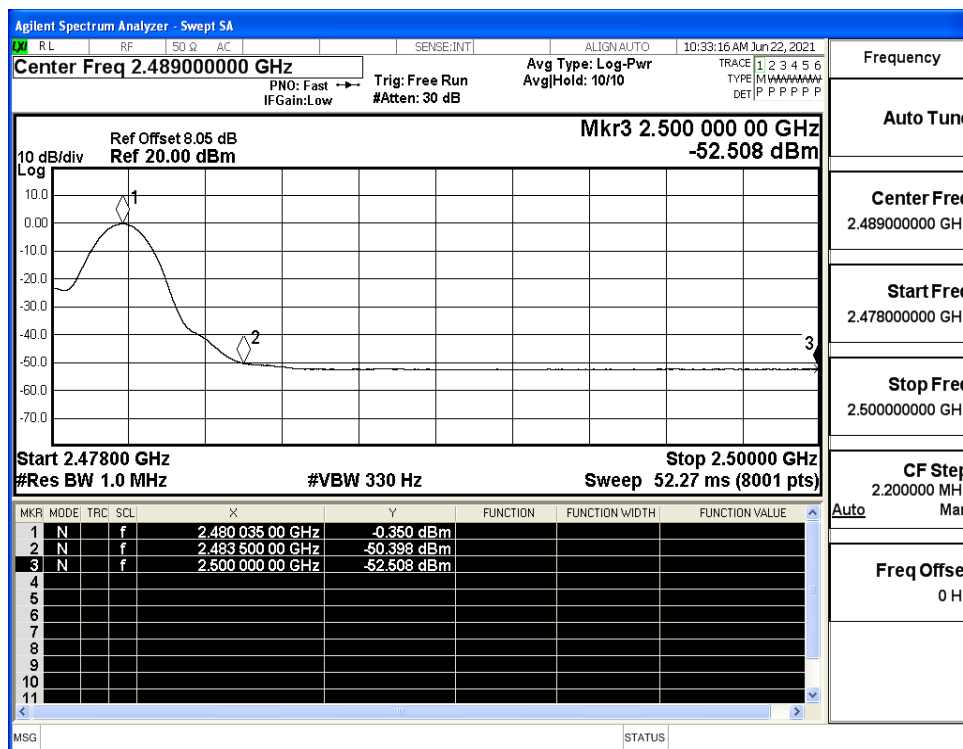
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

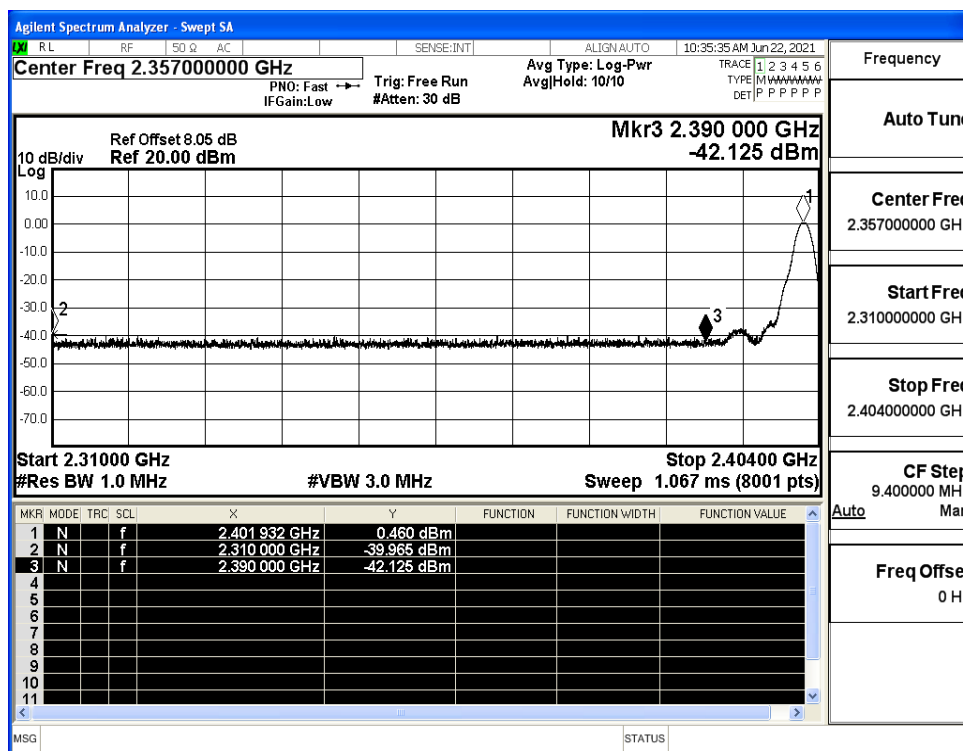
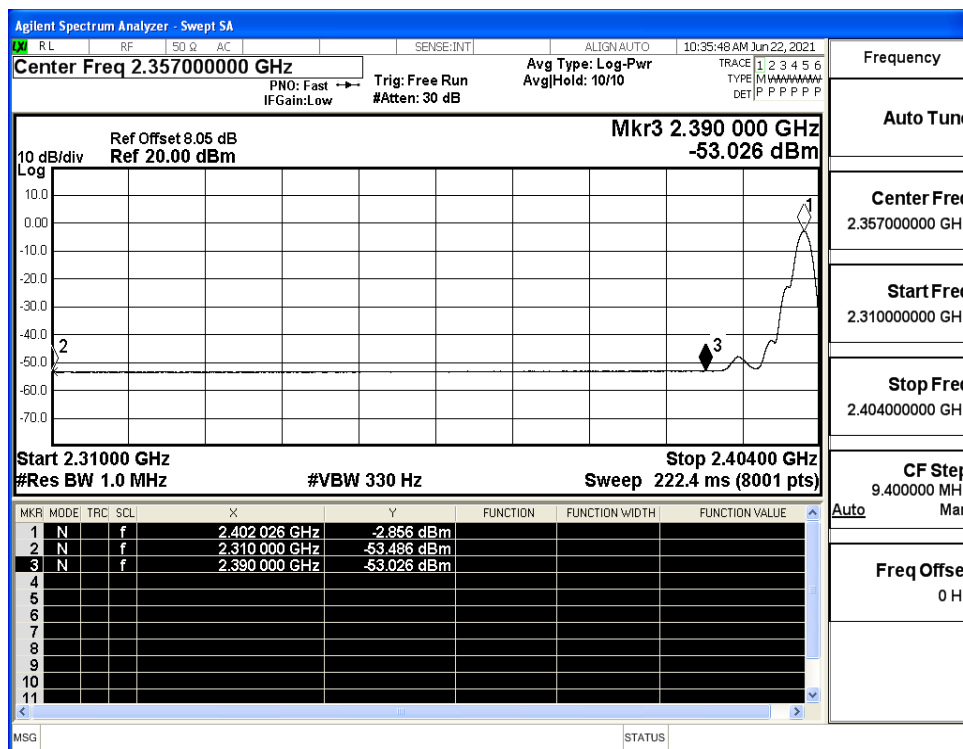


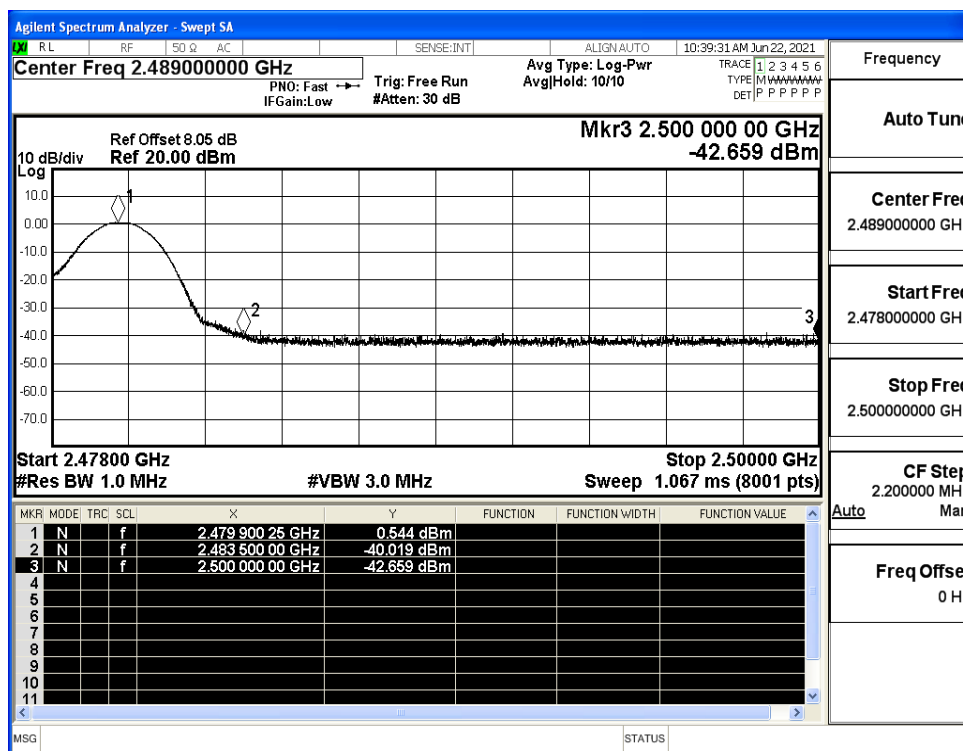
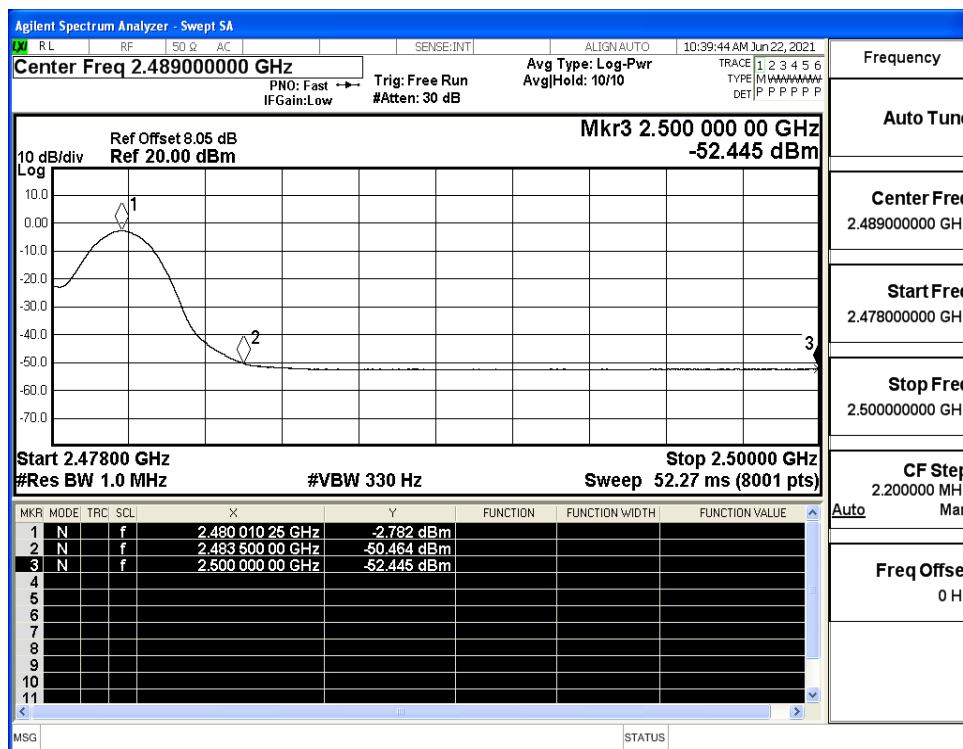
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



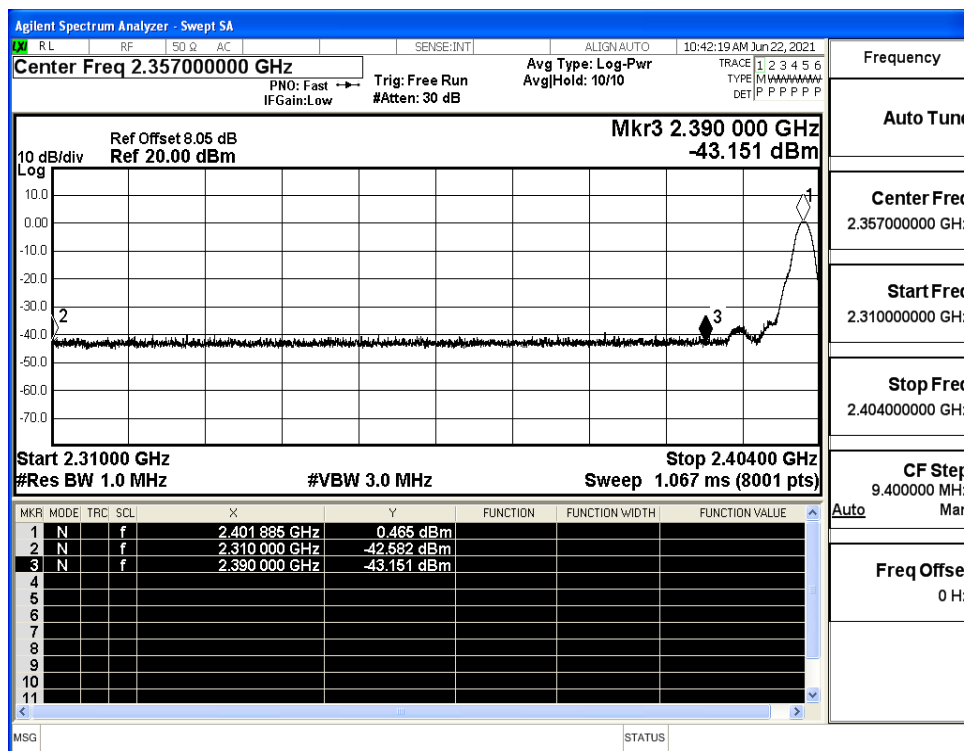
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



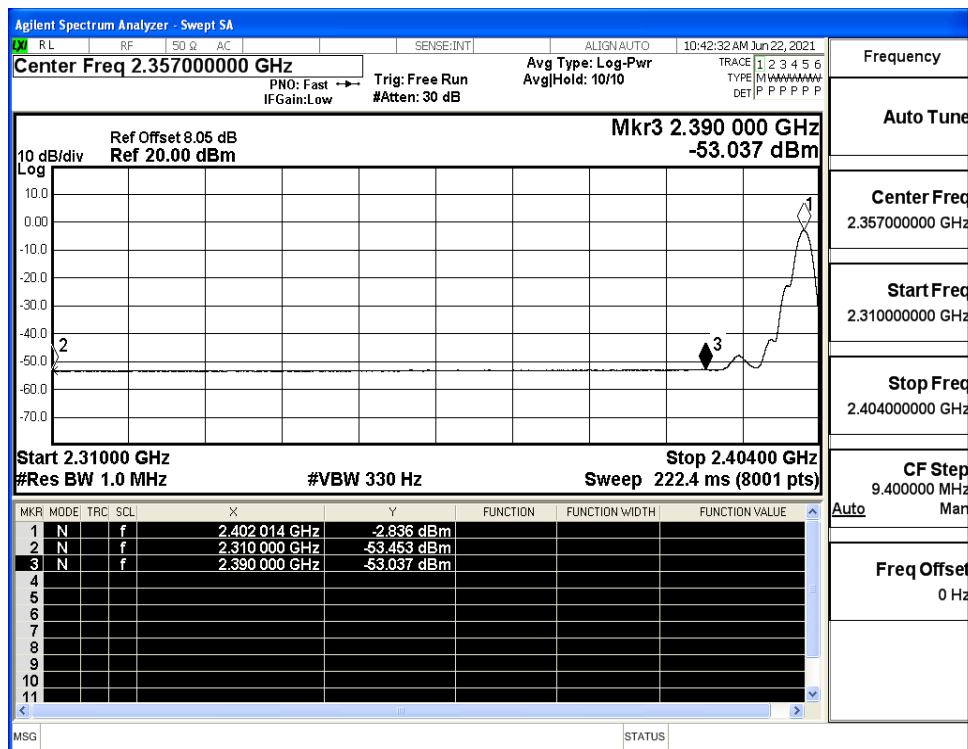
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

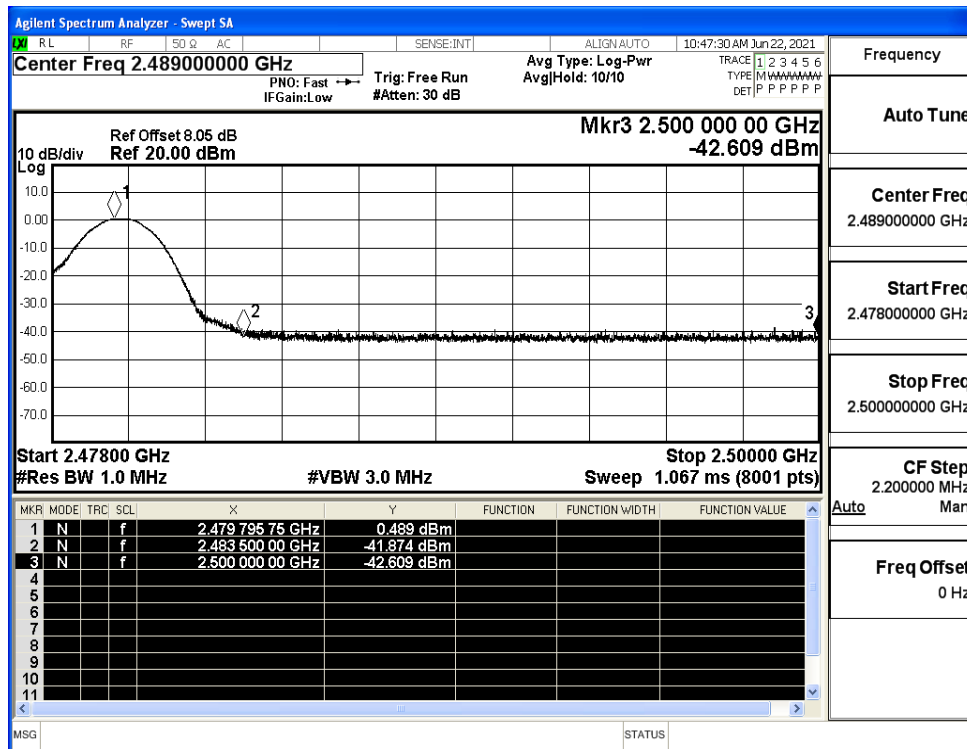
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

