

Appendix A

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

Product Name: LED Tape with Smart Controller

Trade Mark: GleamBeam

Test Model: 30618

Environmental Conditions

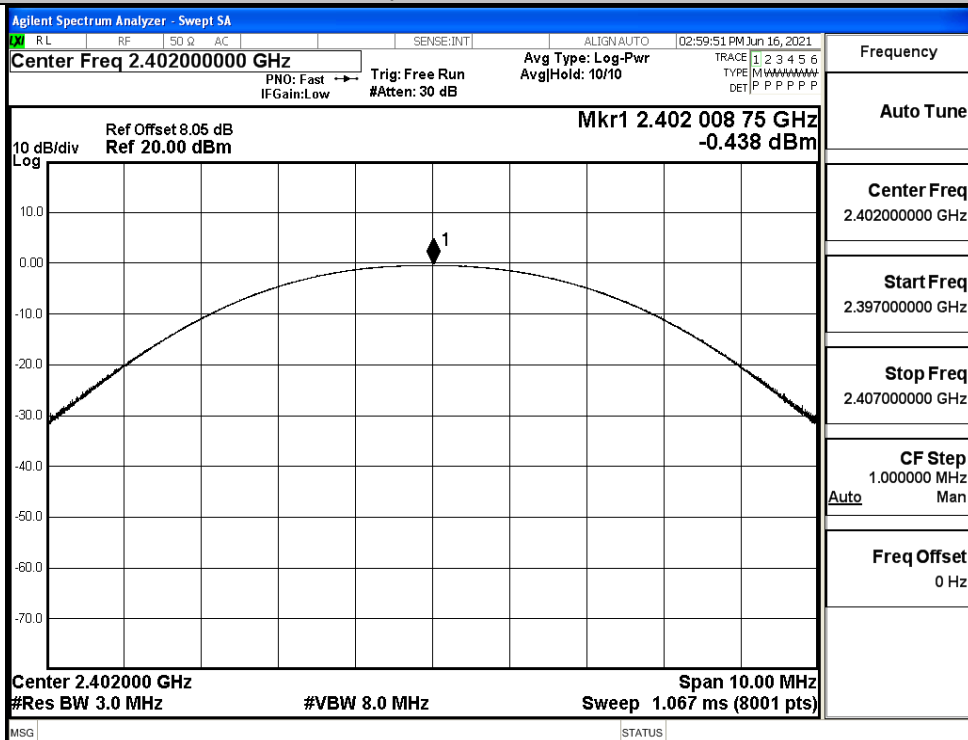
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Ken He
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

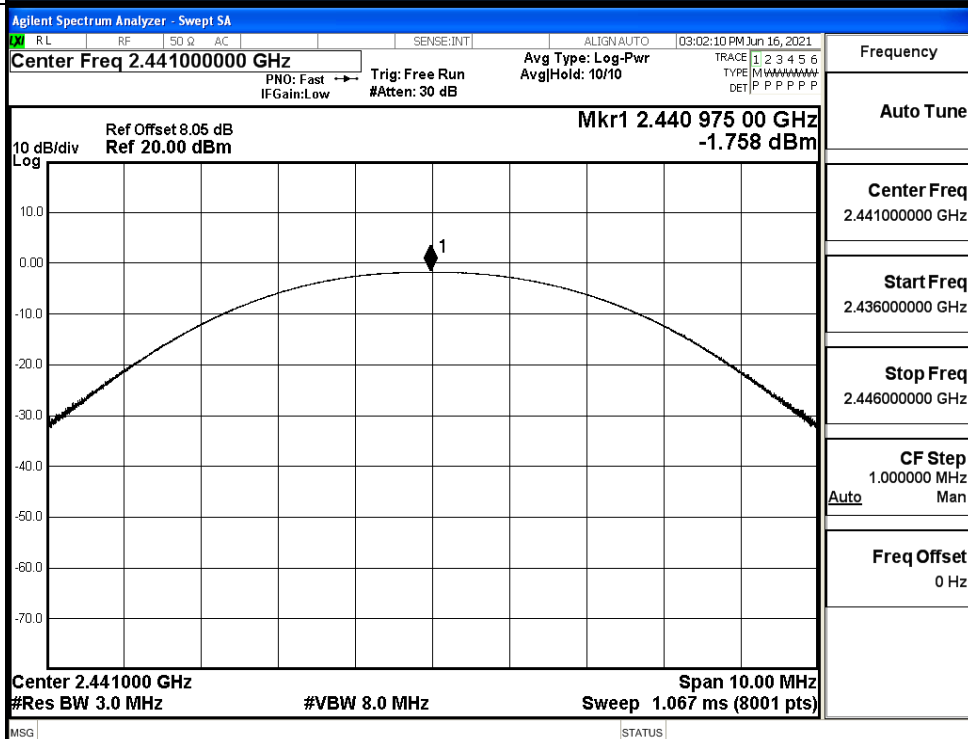
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.438	21	PASS
	MCH	-1.758	21	PASS
	HCH	-0.868	21	PASS
$\pi/4$ DQPSK	LCH	-1.421	21	PASS
	MCH	-2.416	21	PASS
	HCH	-1.739	21	PASS
8DPSK	LCH	-1.230	21	PASS
	MCH	-2.348	21	PASS
	HCH	-1.525	21	PASS

Test Graphs

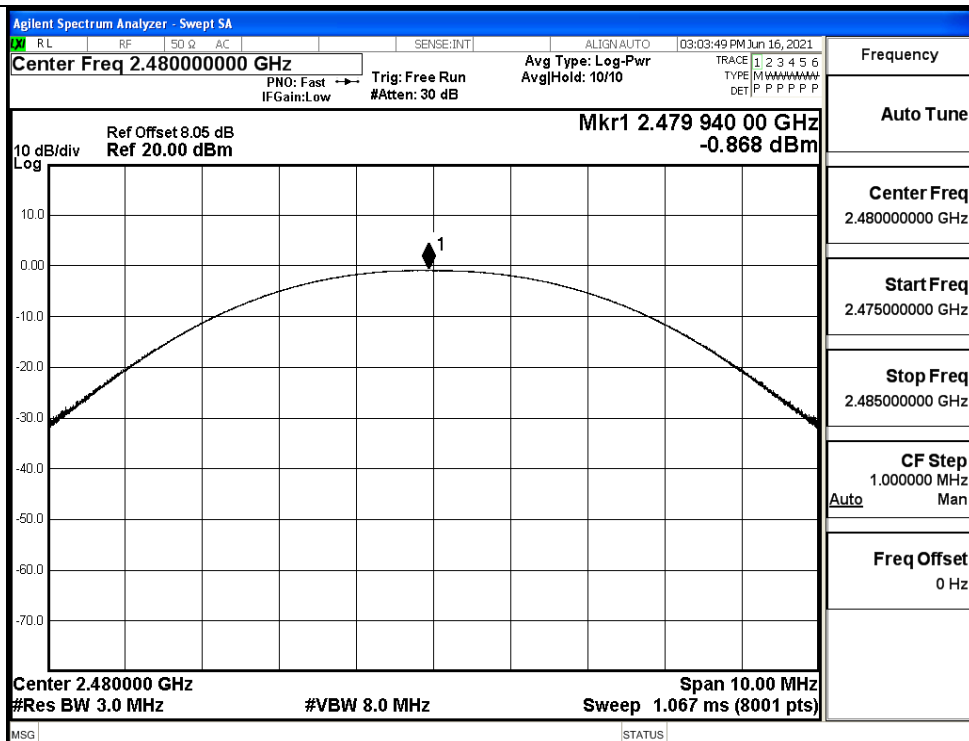
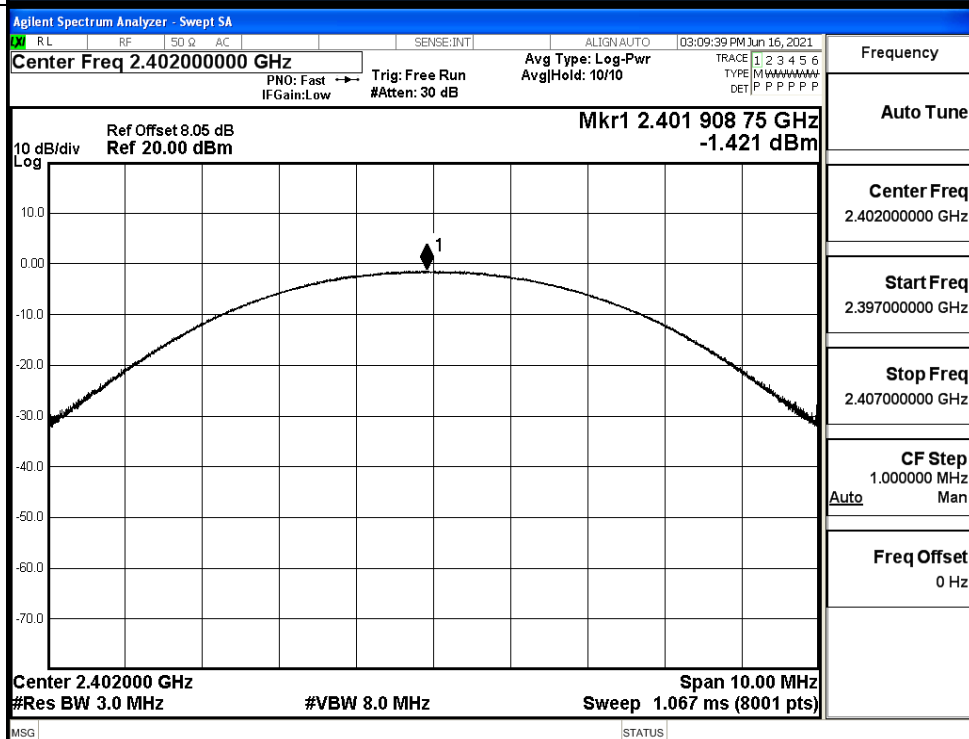
GFSK/LCH

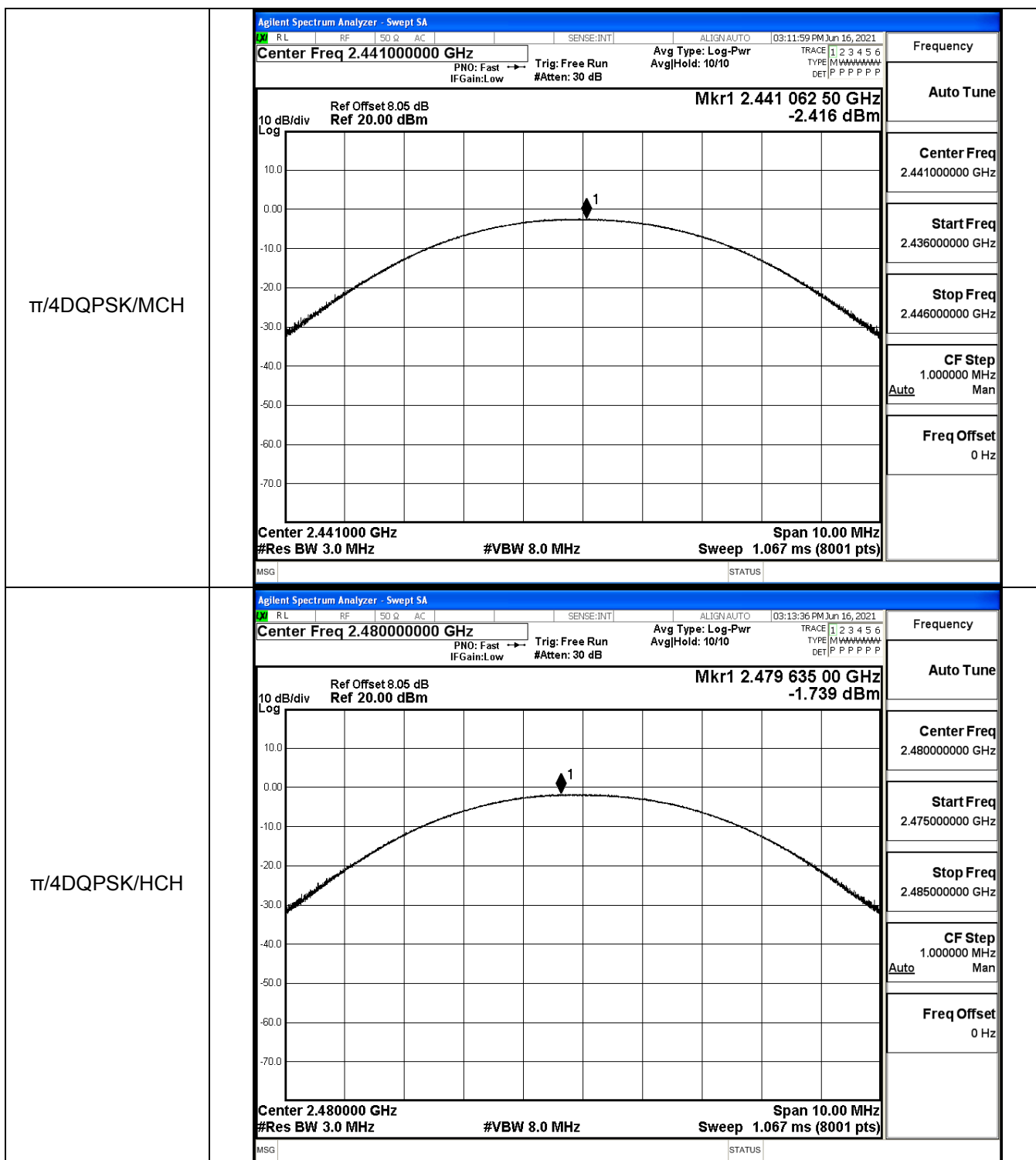


GFSK/MCH

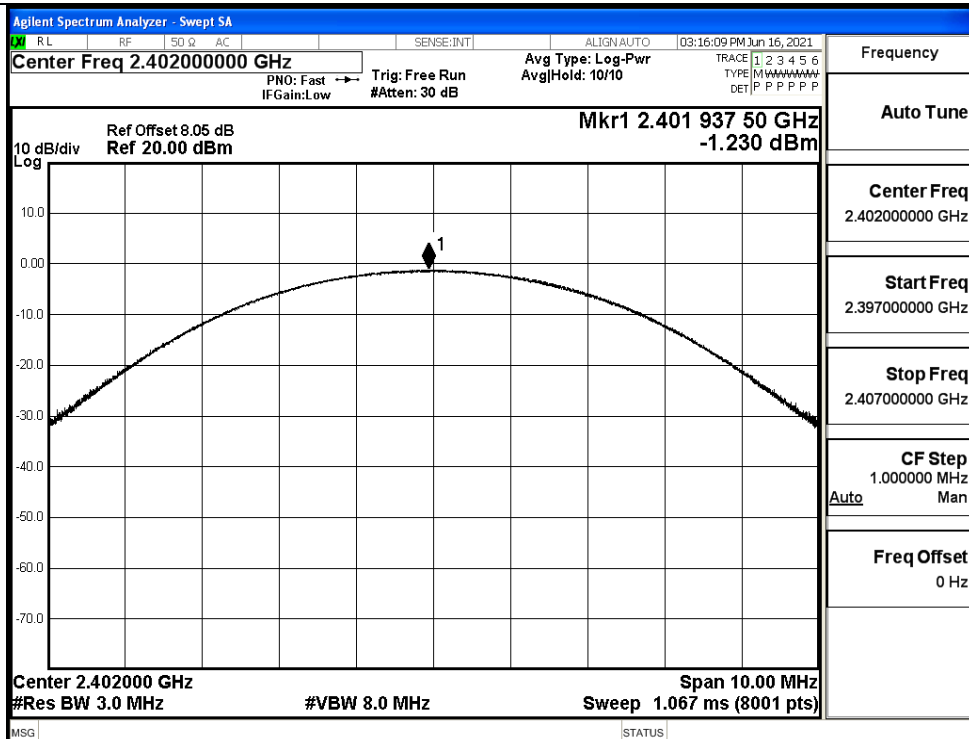


GFSK/HCH

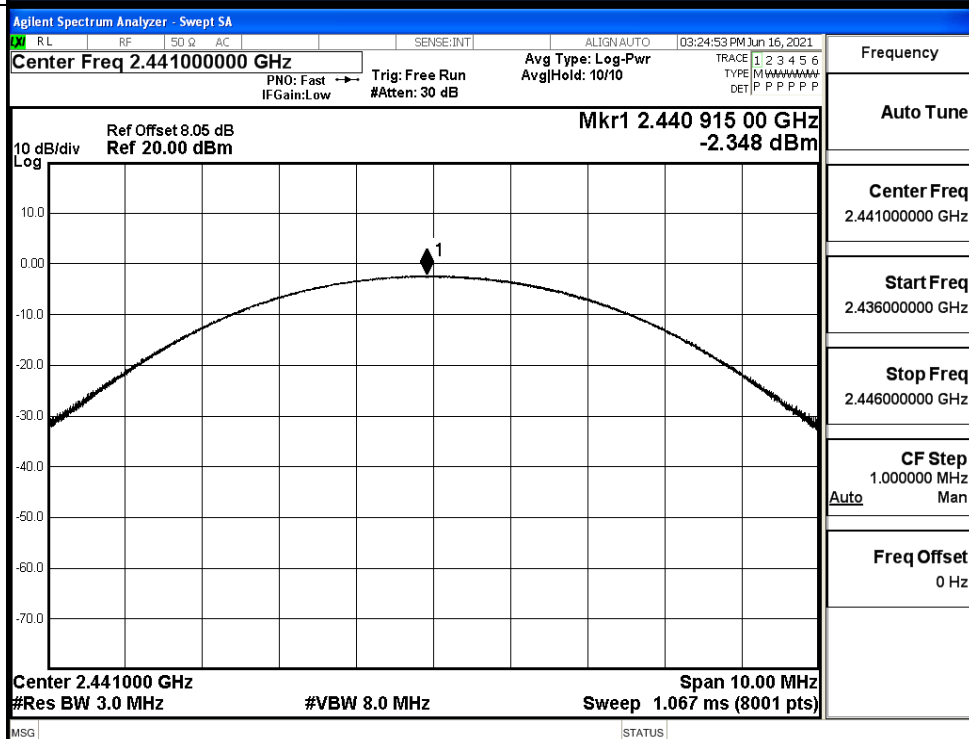
 π /4DQPSK/LCH



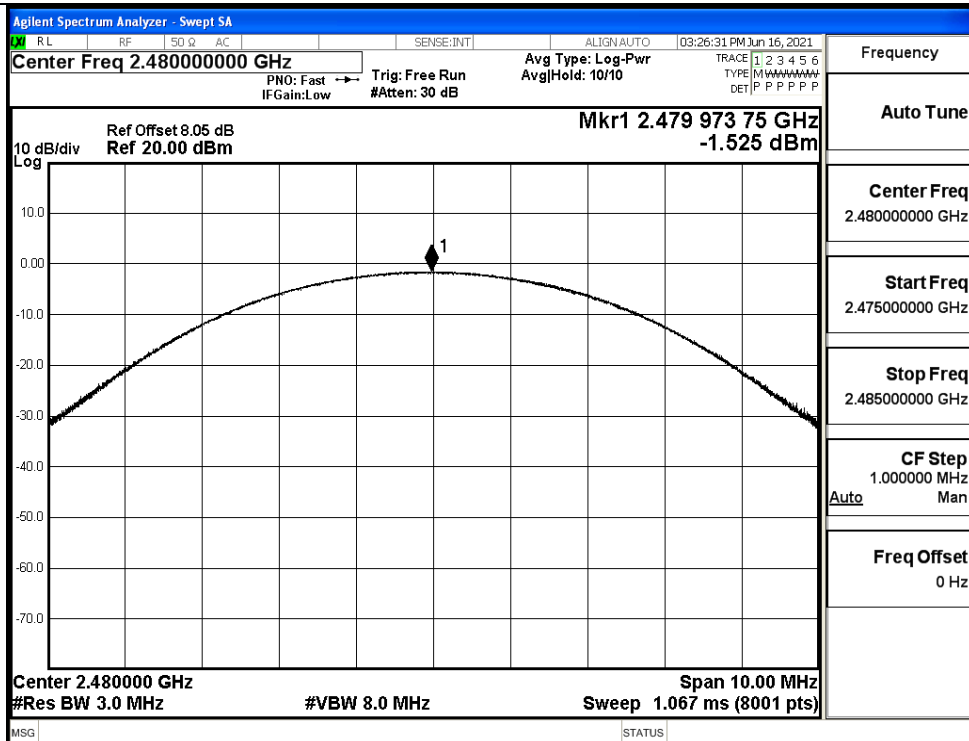
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

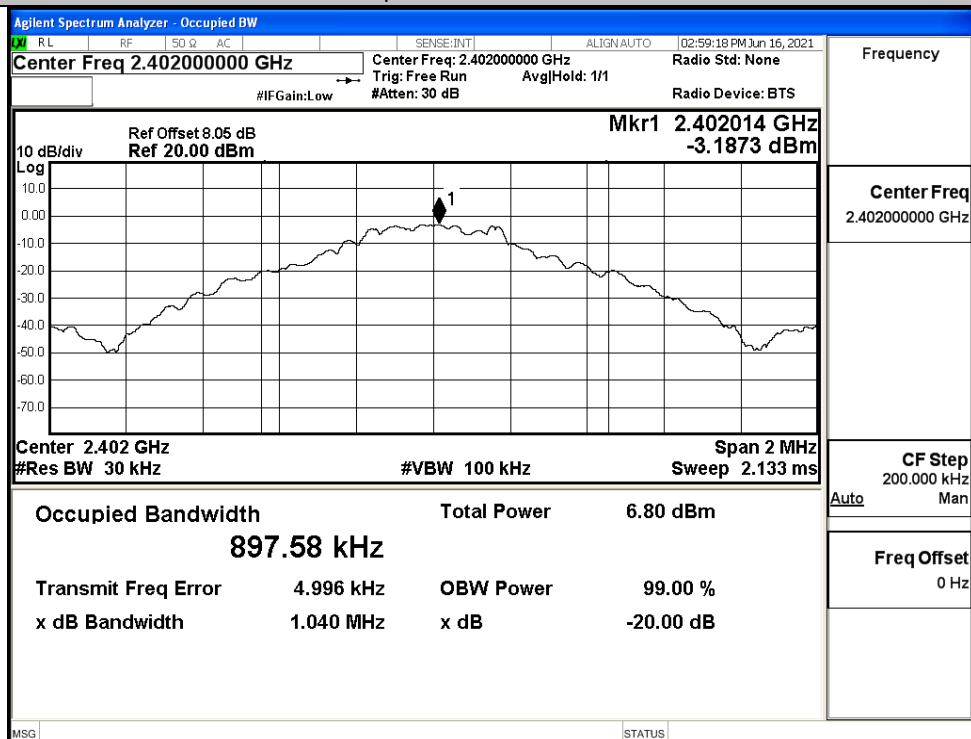


A.2 20dB Bandwidth

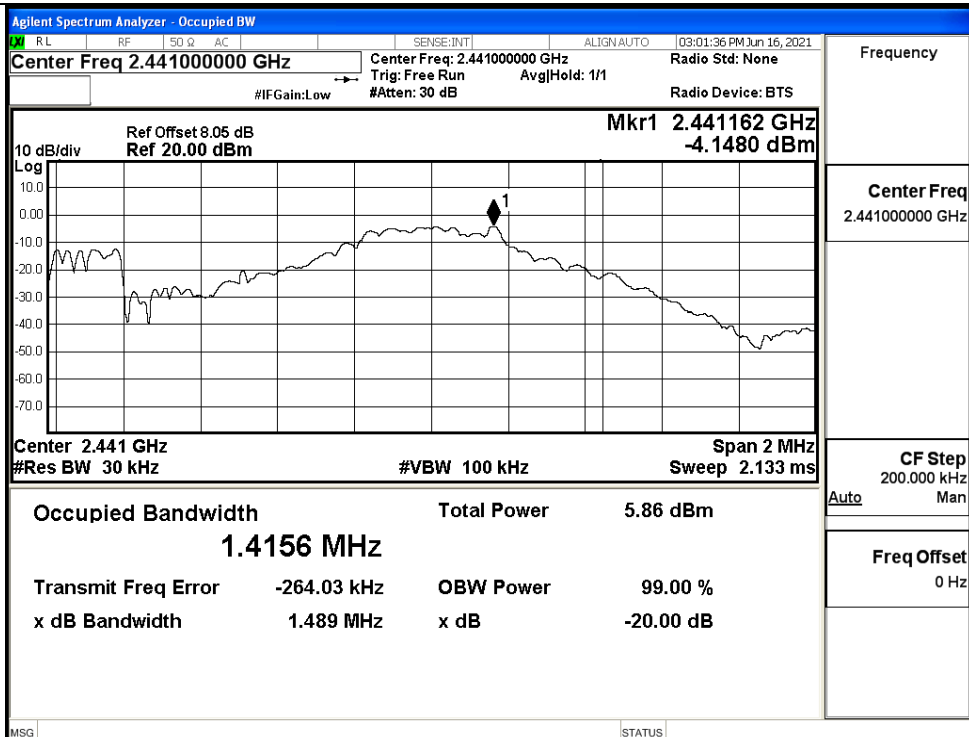
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.040	Not Specified	PASS
	MCH	1.489	Not Specified	PASS
	HCH	1.035	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.286	Not Specified	PASS
	MCH	1.290	Not Specified	PASS
	HCH	1.289	Not Specified	PASS
8DPSK	LCH	1.293	Not Specified	PASS
	MCH	1.299	Not Specified	PASS
	HCH	1.295	Not Specified	PASS

Test Graphs

GFSK/LCH



GFSK/MCH



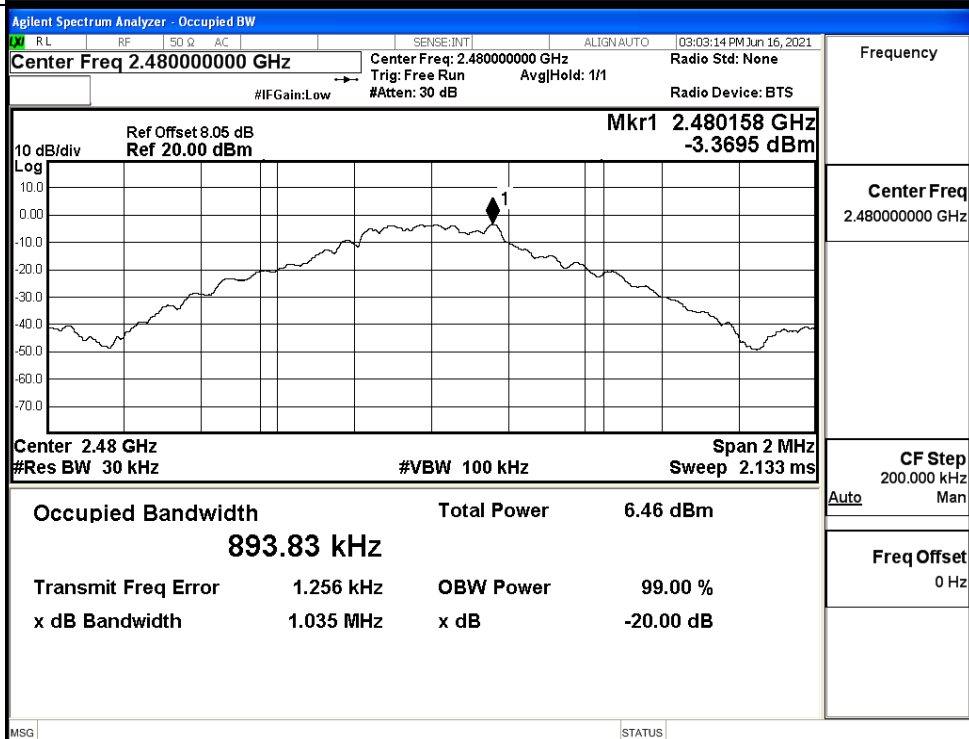
Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

GFSK/HCH

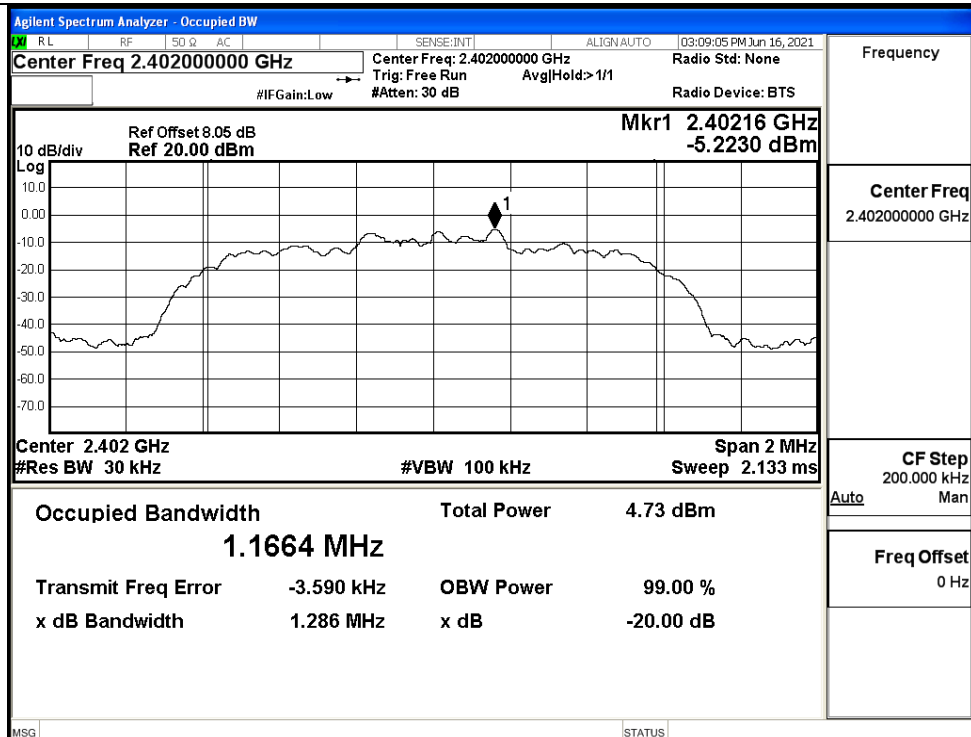


Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
Man

Auto

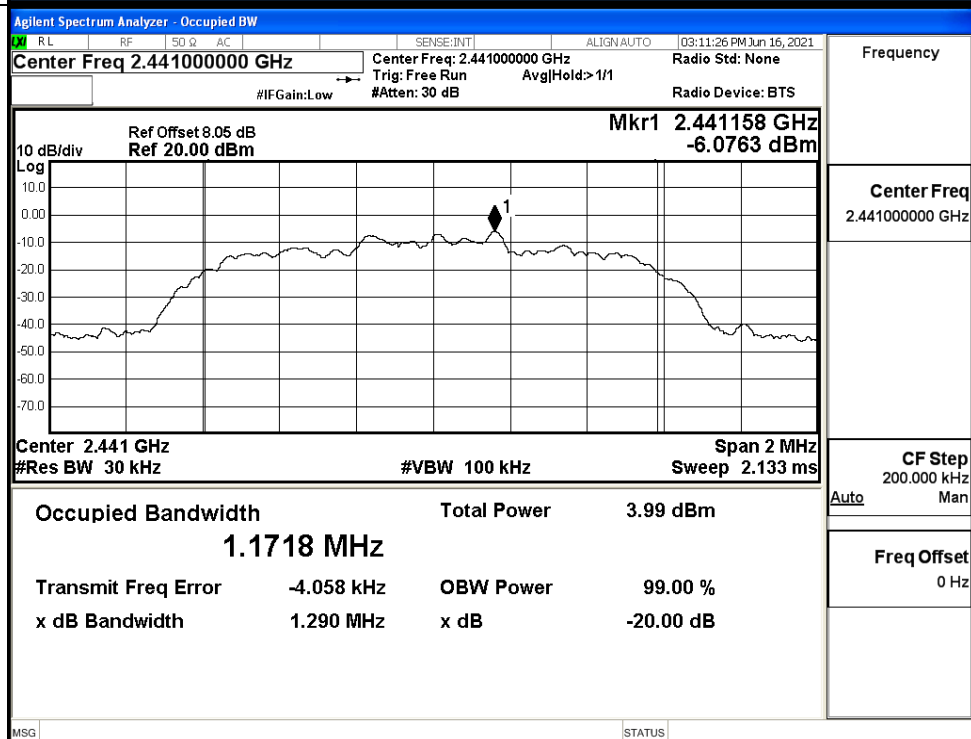
Freq Offset
0 Hz

$\pi/4$ DQPSK/LCH

Frequency

Center Freq
2.402000000 GHzCF Step
200.000 kHz
Man

Auto

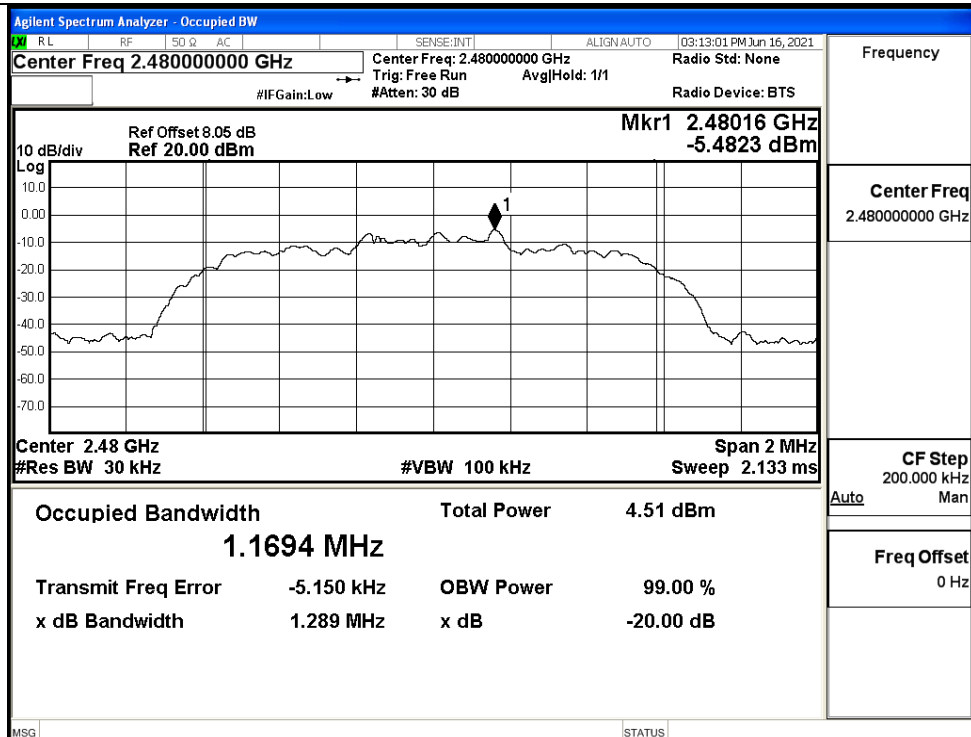
Freq Offset
0 Hz $\pi/4$ DQPSK/MCH

Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH

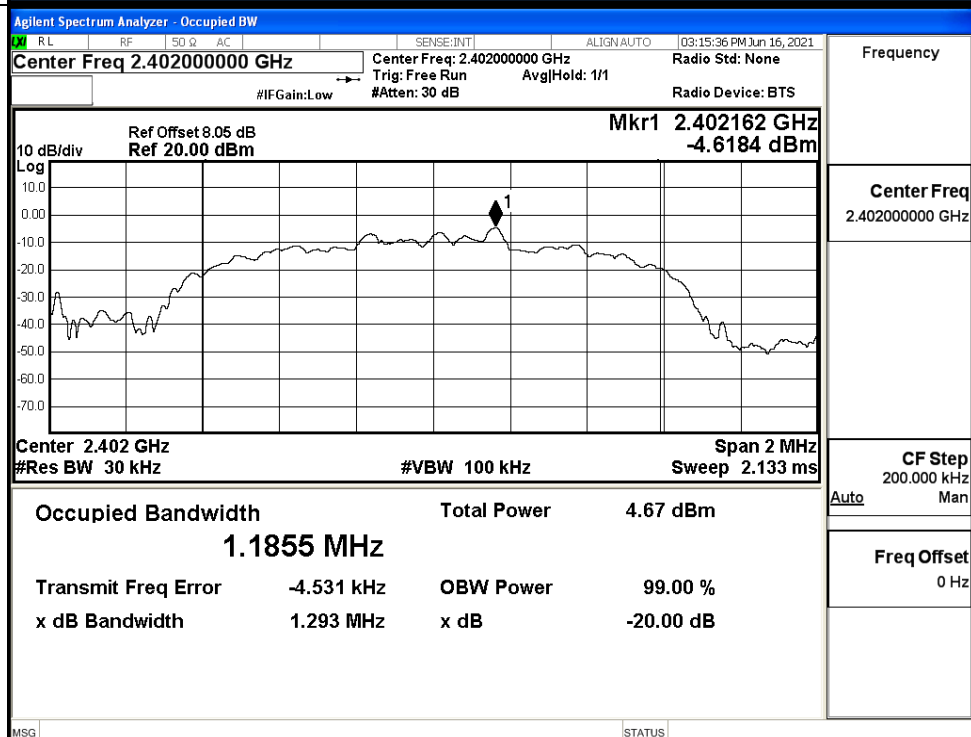
Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

8DPSK/LCH



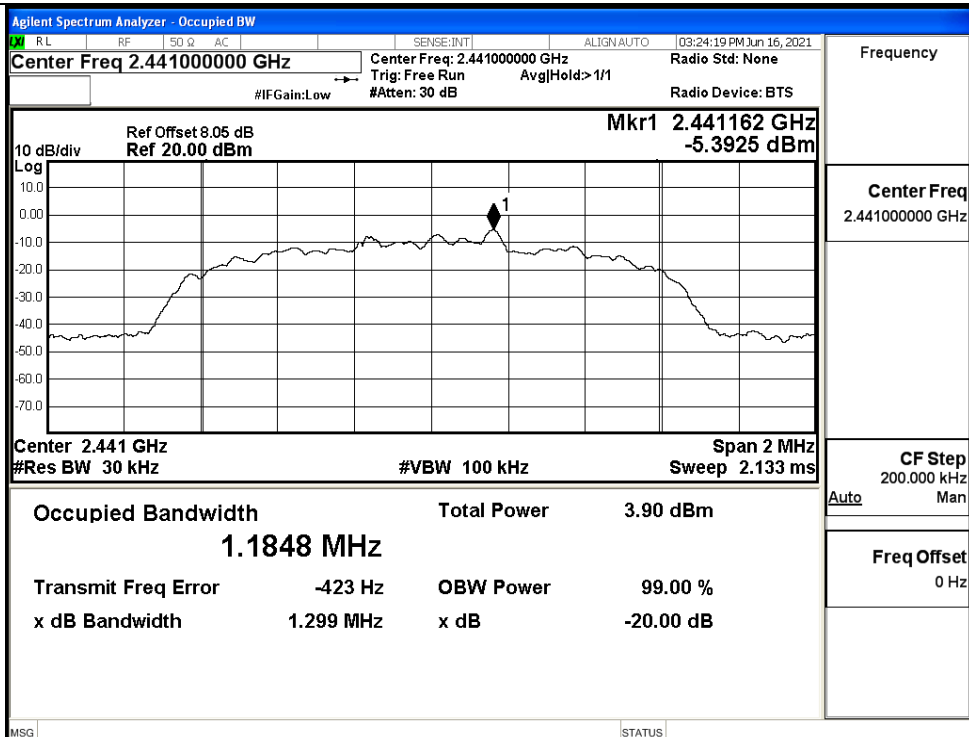
Frequency

Center Freq
2.402000000 GHz

Auto

CF Step
200.000 kHz
ManFreq Offset
0 Hz

8DPSK/MCH



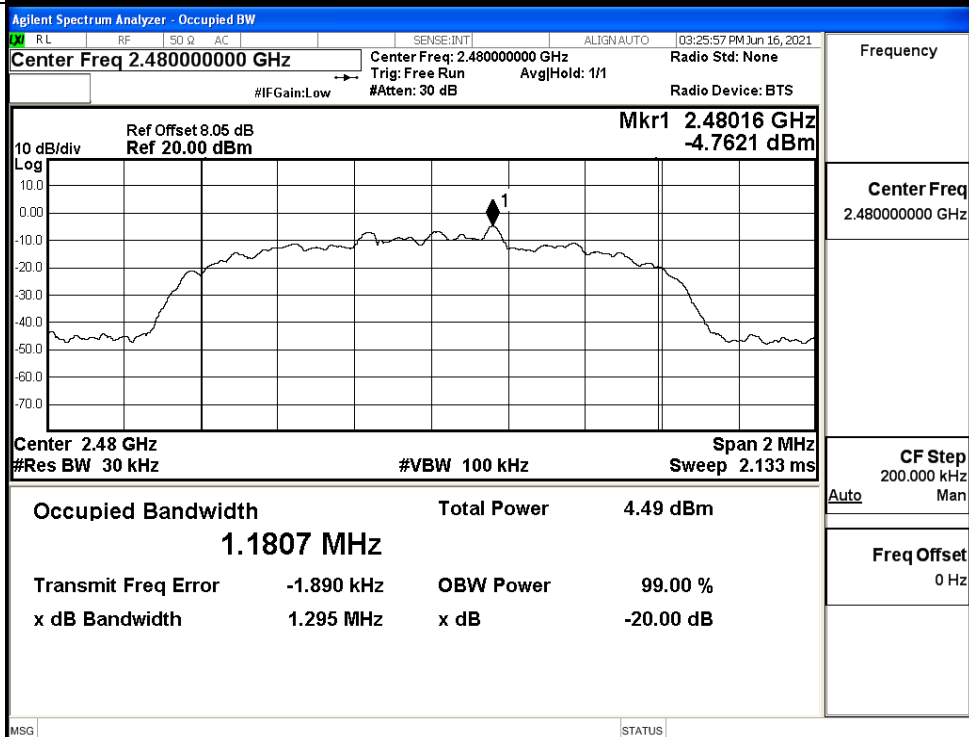
Frequency

Center Freq
2.441000000 GHzCF Step
200.000 kHz
Man

Auto

Freq Offset
0 Hz

8DPSK/HCH



Frequency

Center Freq
2.480000000 GHzCF Step
200.000 kHz
Man

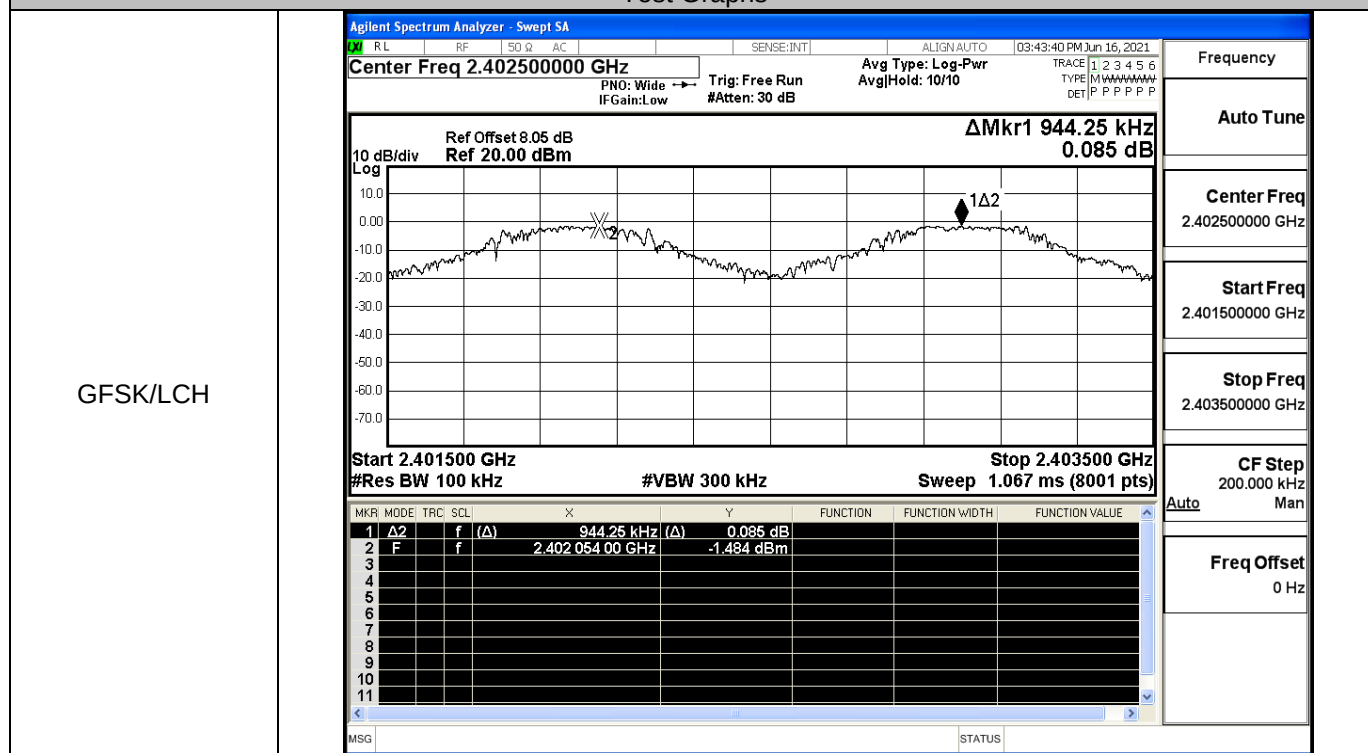
Auto

Freq Offset
0 Hz

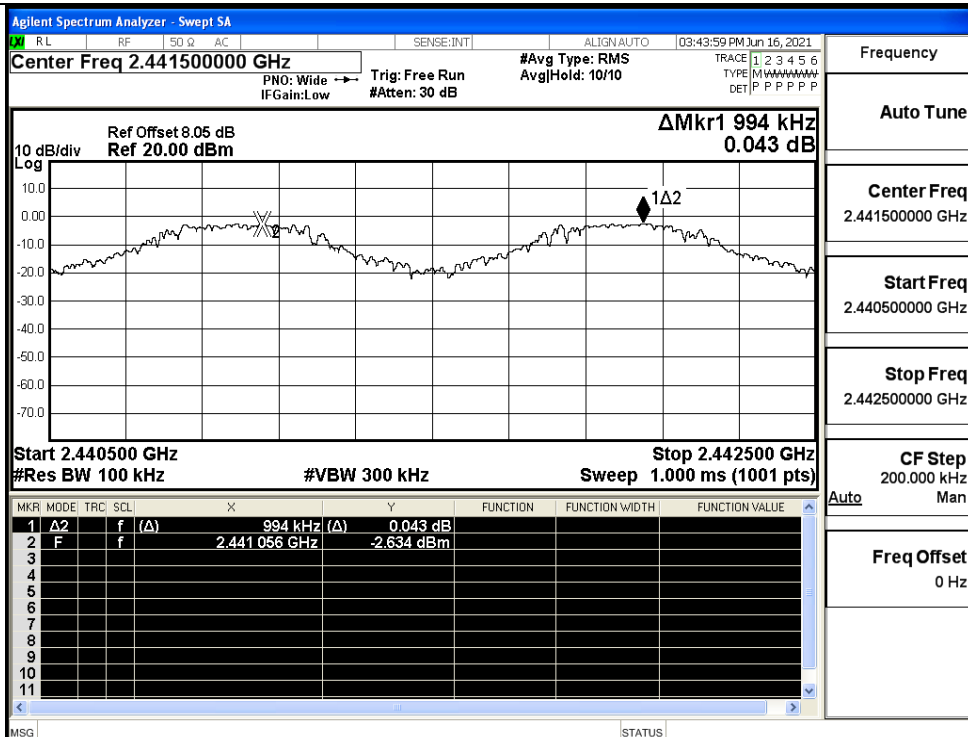
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.944	0.993	PASS
	MCH	0.994	0.993	PASS
	HCH	1.084	0.993	PASS
$\pi/4$ DQPSK	LCH	1.092	0.860	PASS
	MCH	0.996	0.860	PASS
	HCH	1.188	0.860	PASS
8DPSK	LCH	0.904	0.866	PASS
	MCH	1.012	0.866	PASS
	HCH	1.264	0.866	PASS

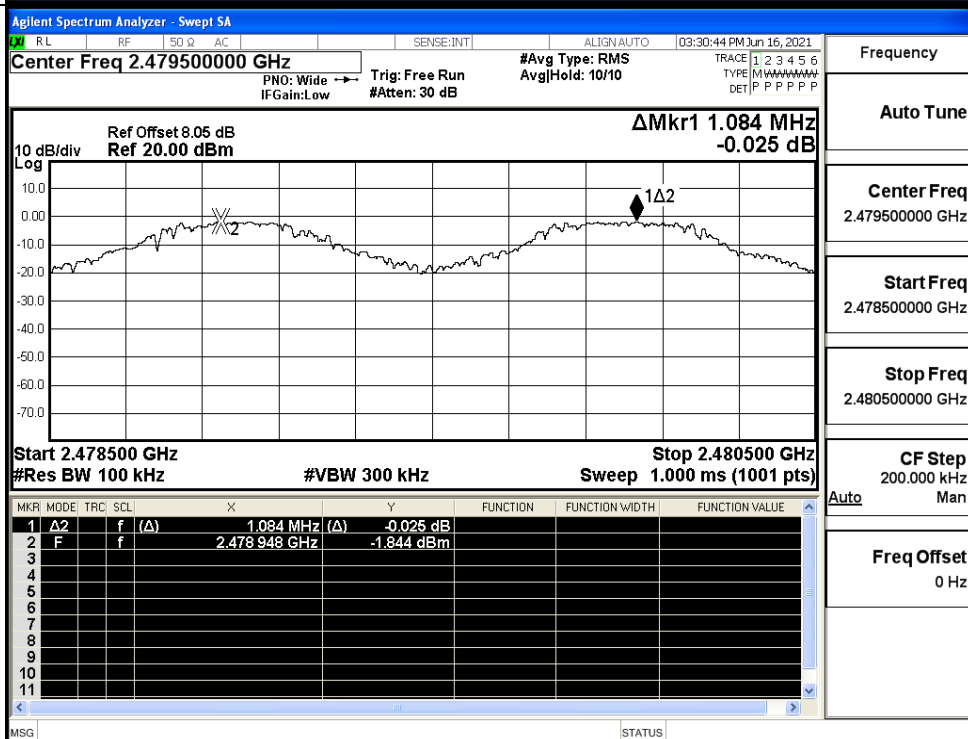
Test Graphs

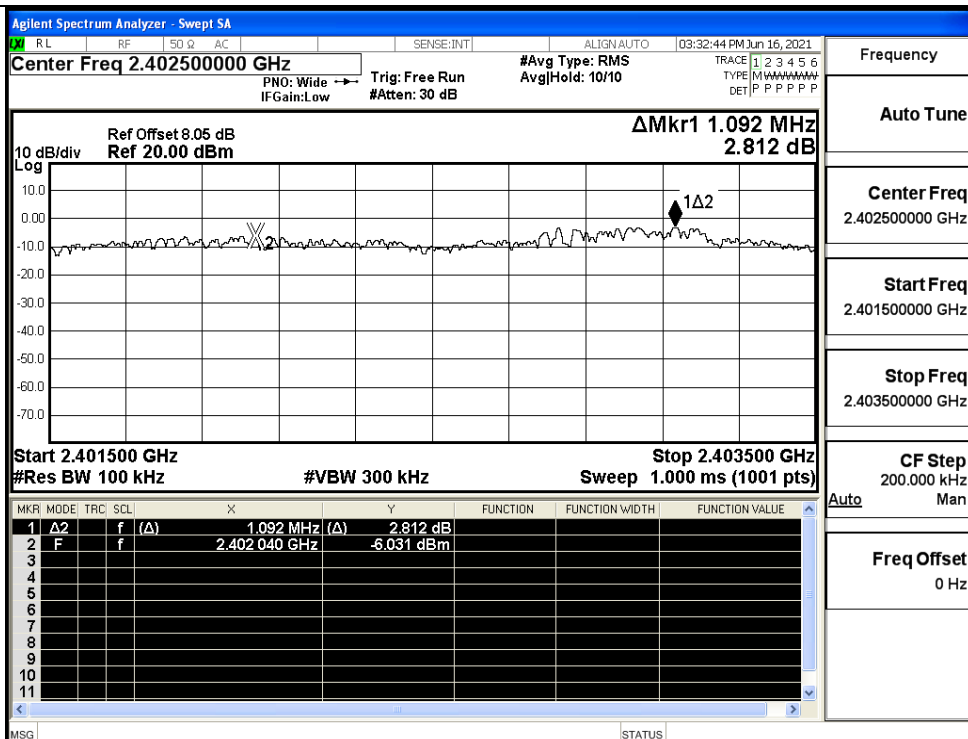


GFSK/MCH



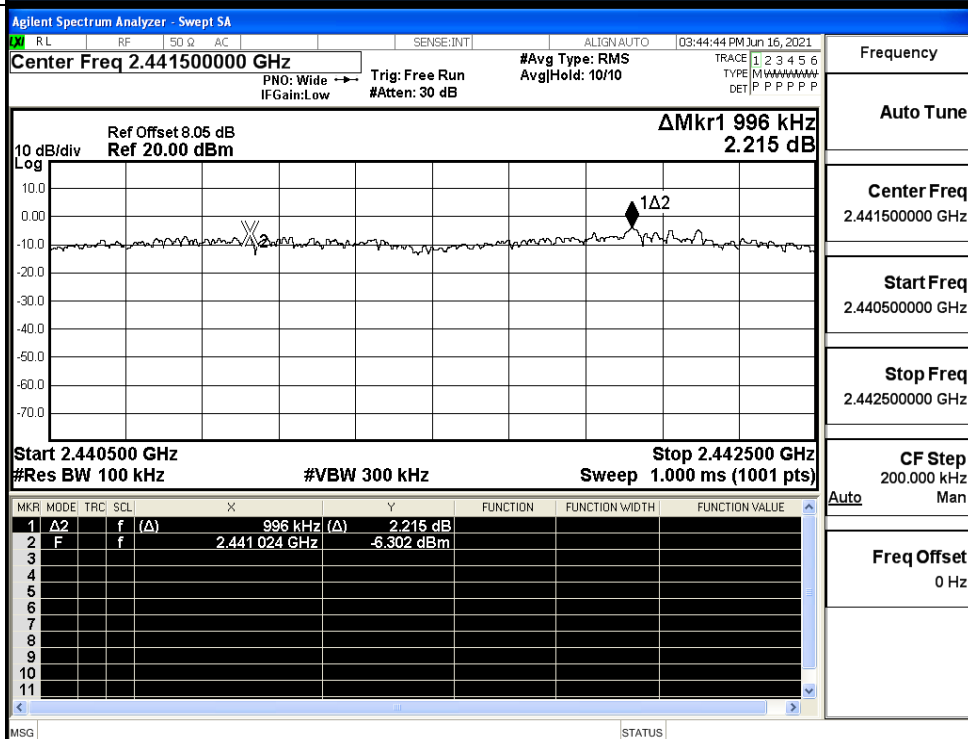
GFSK/HCH



$\pi/4$ DQPSK/LCH

Frequency

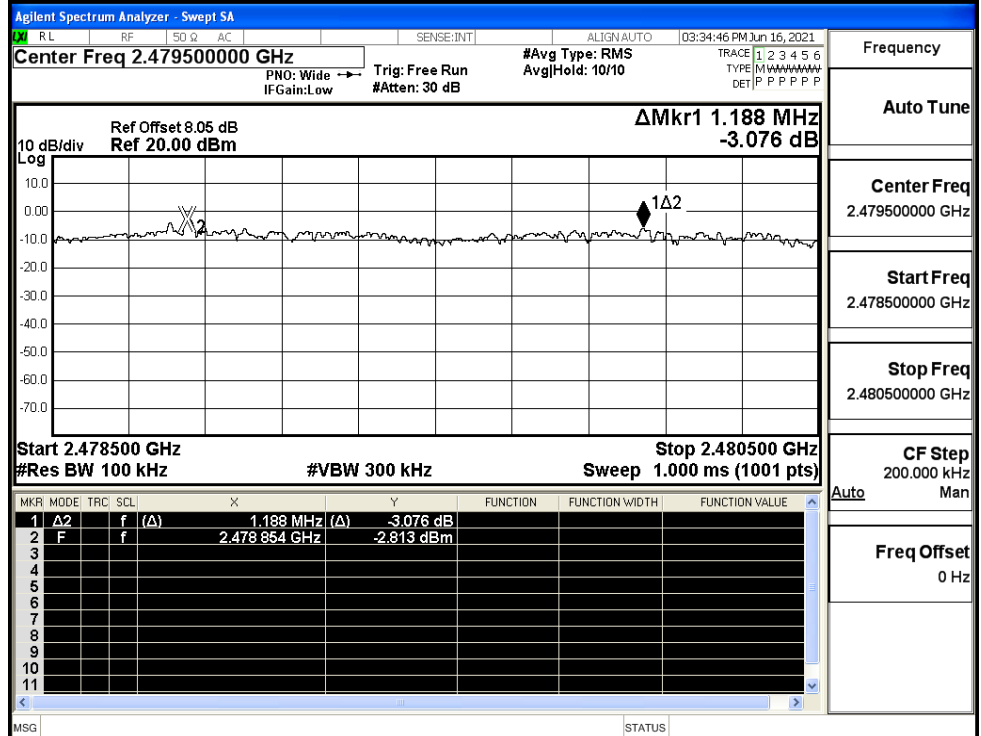
Auto Tune

Center Freq
2.402500000 GHzStart Freq
2.401500000 GHzStop Freq
2.403500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz $\pi/4$ DQPSK/MCH

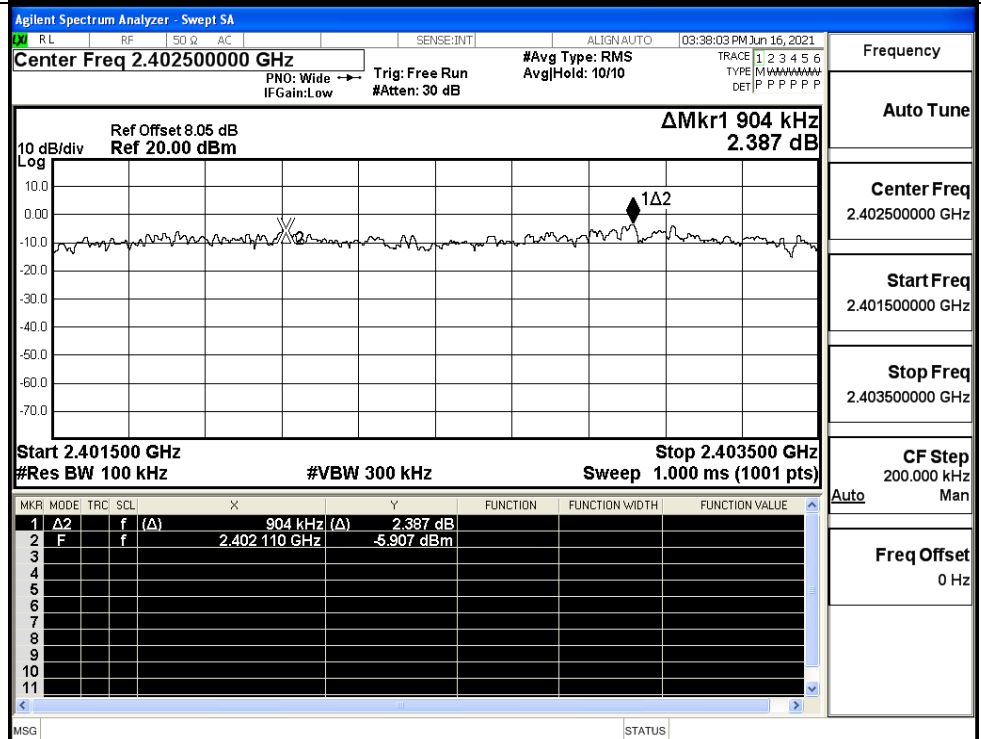
Frequency

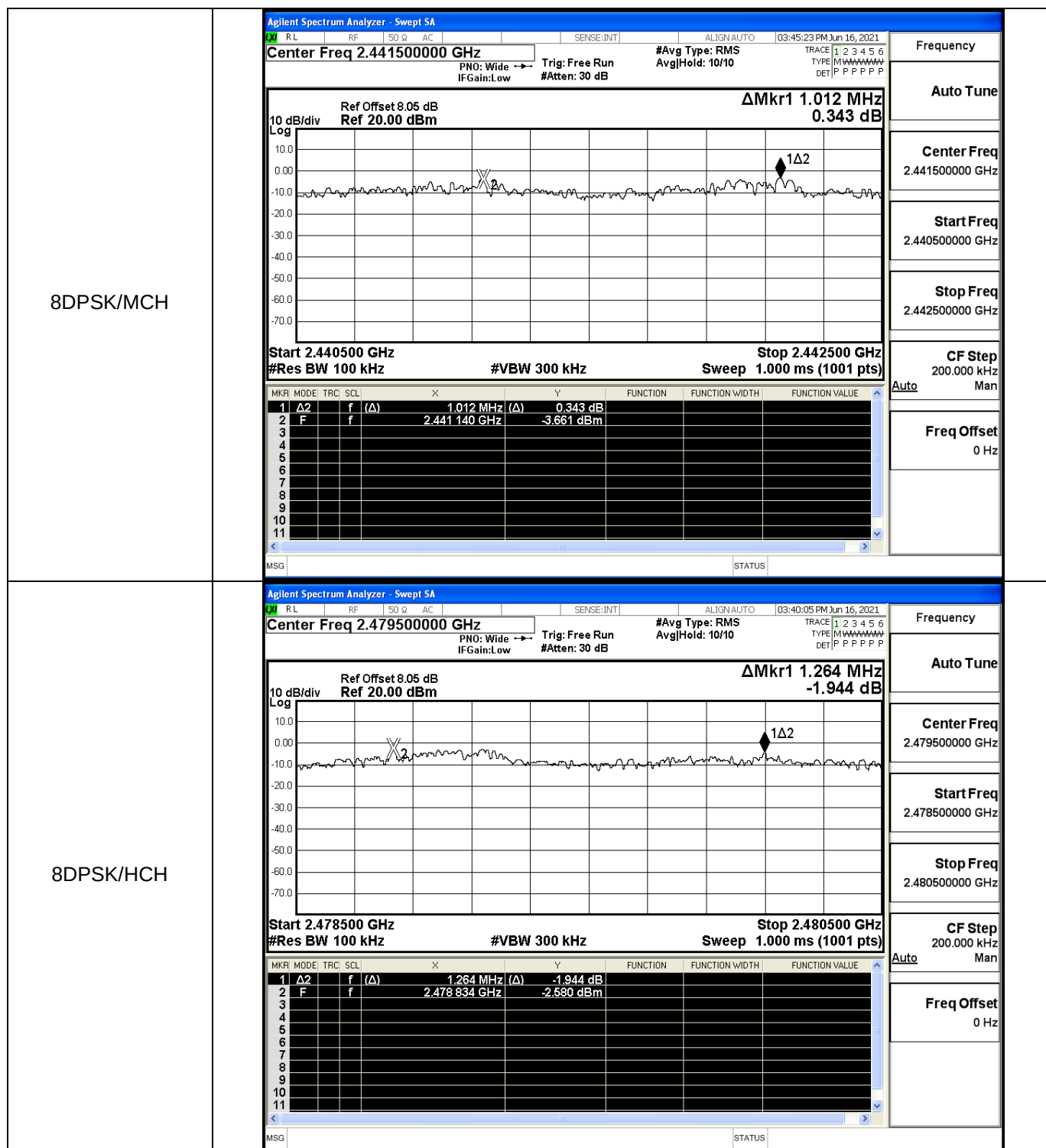
Auto Tune

Center Freq
2.441500000 GHzStart Freq
2.440500000 GHzStop Freq
2.442500000 GHzCF Step
200.000 kHz
ManFreq Offset
0 Hz

π /4DQPSK/HCH

8DPSK/LCH



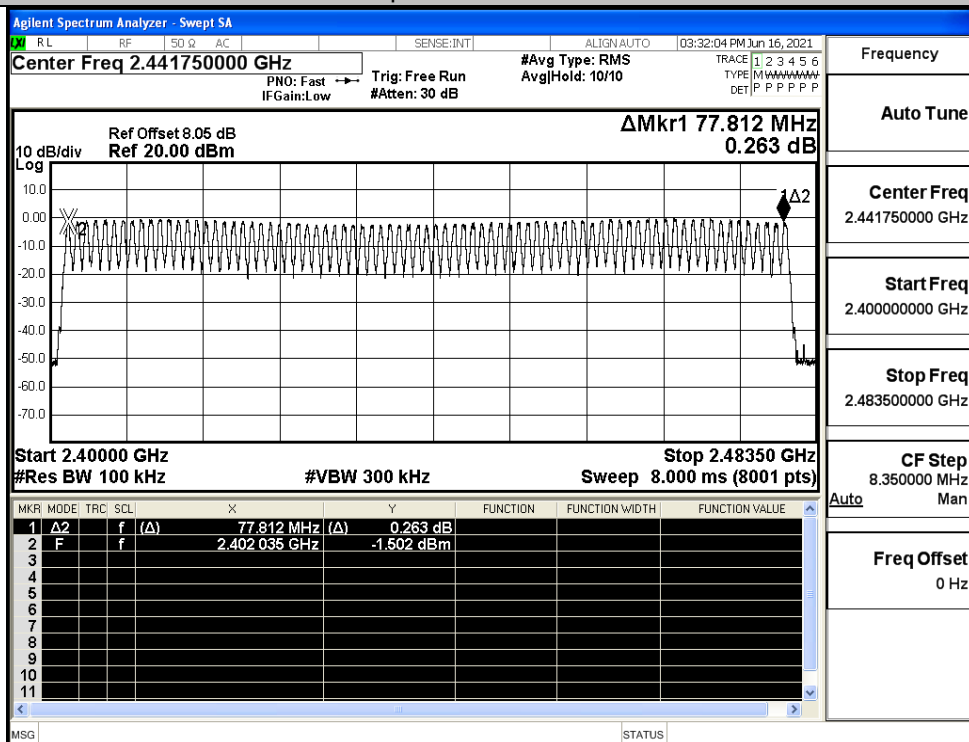


A.4 Hopping Channel Number

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

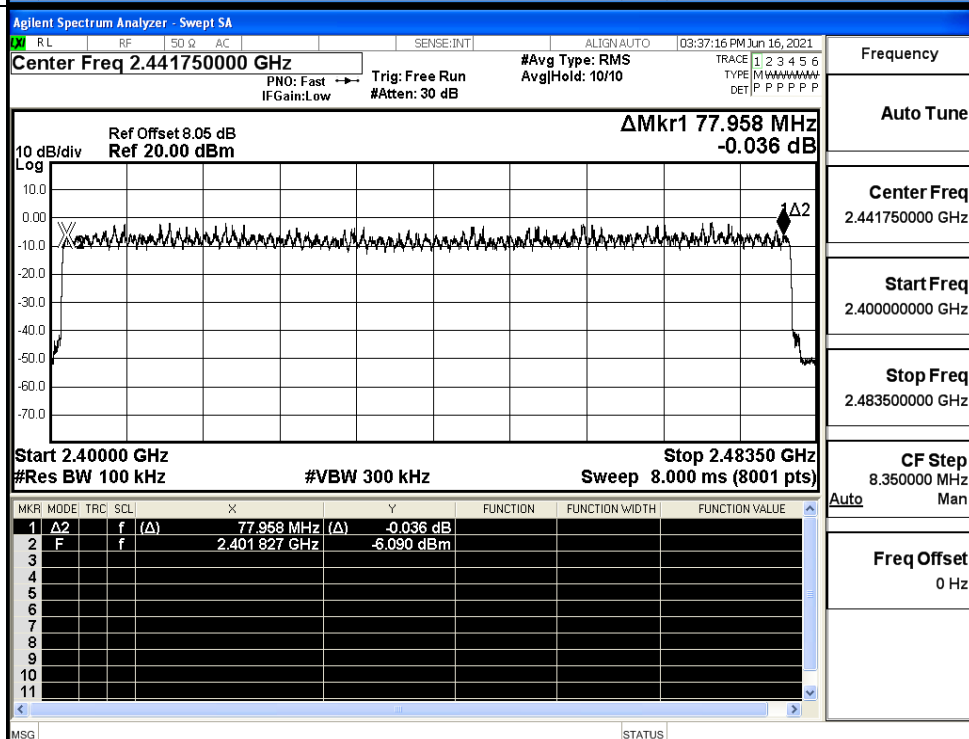


Frequency

Auto Tune

Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
Auto ManFreq Offset
0 Hz

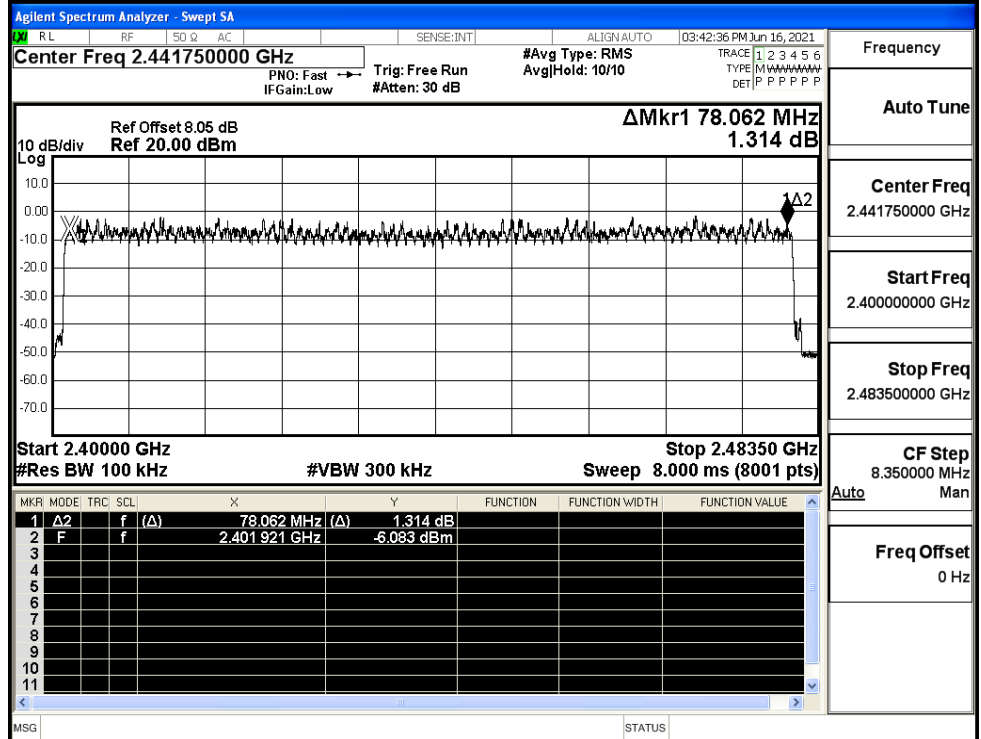
π/4DQPSK/Hop



Frequency

Auto Tune

Center Freq
2.441750000 GHzStart Freq
2.400000000 GHzStop Freq
2.483500000 GHzCF Step
8.350000 MHz
Auto ManFreq Offset
0 Hz

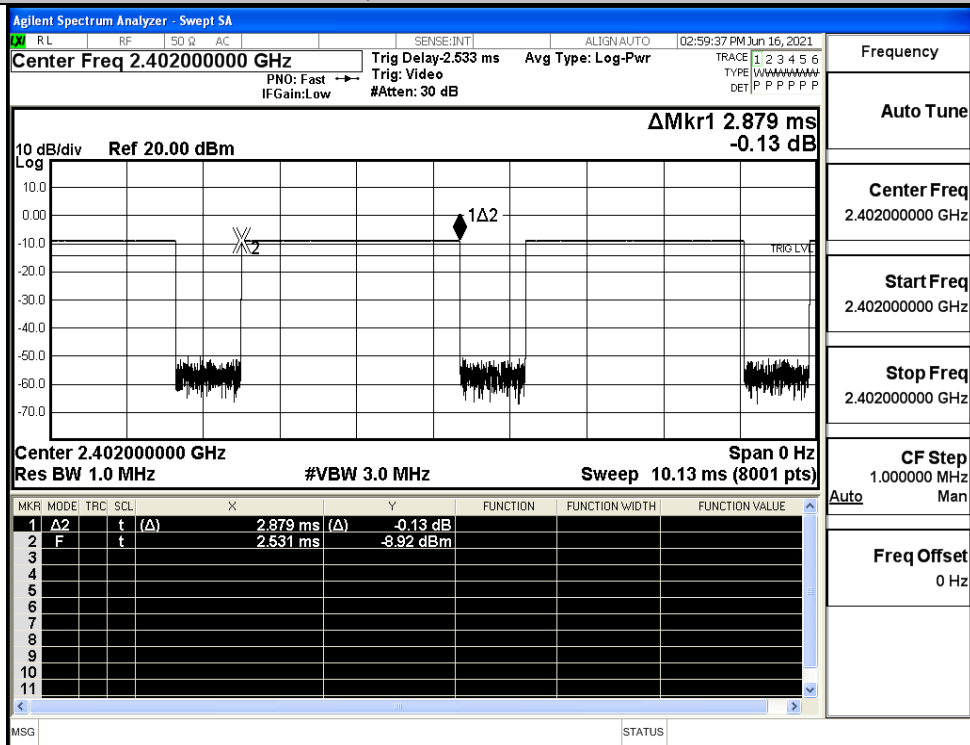


A.5 Dwell Time

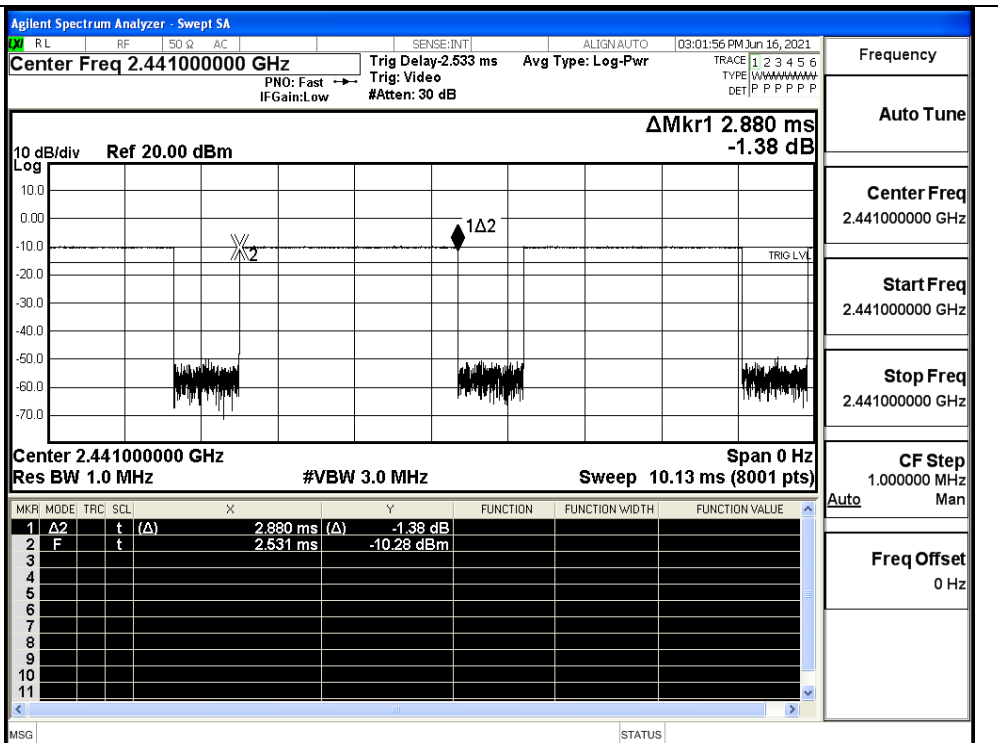
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

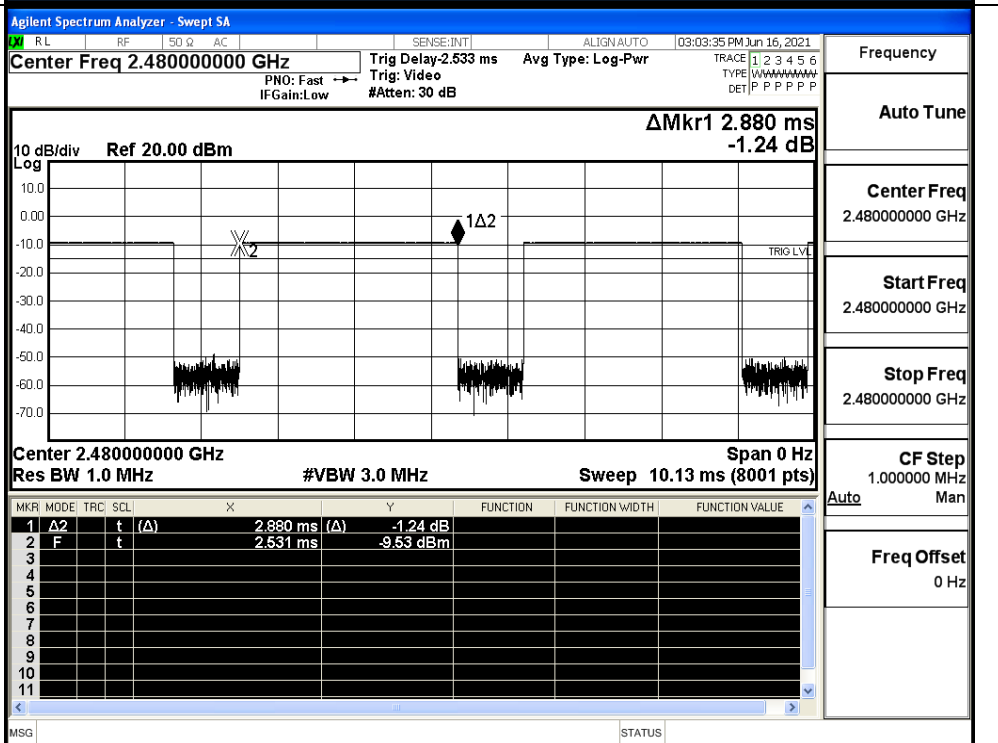
GFSK_DH5/LCH

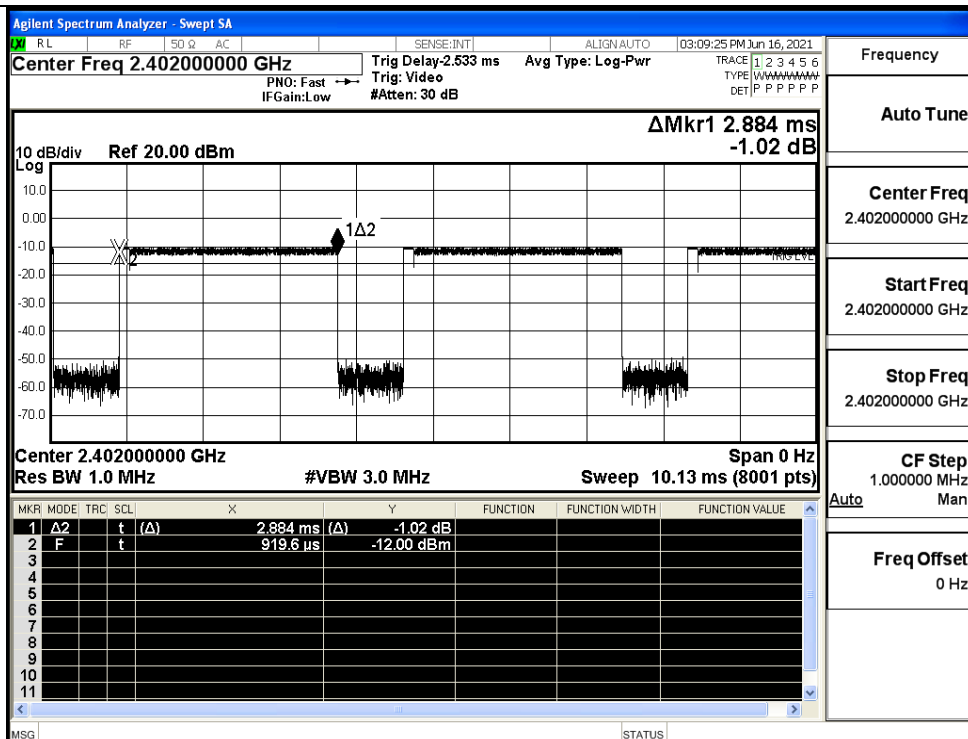
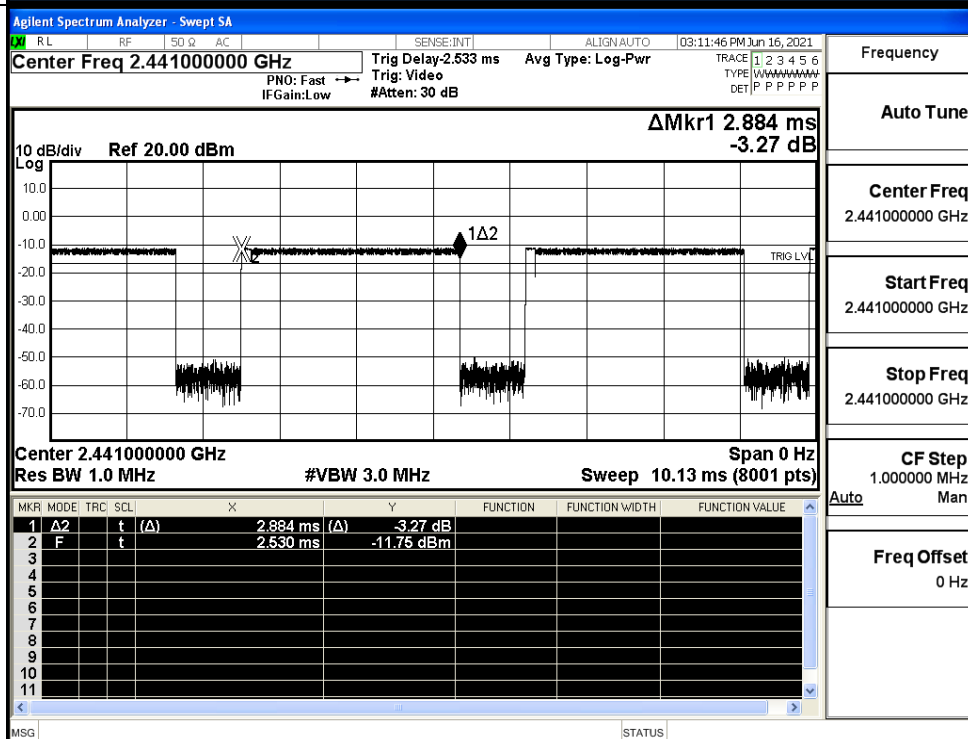


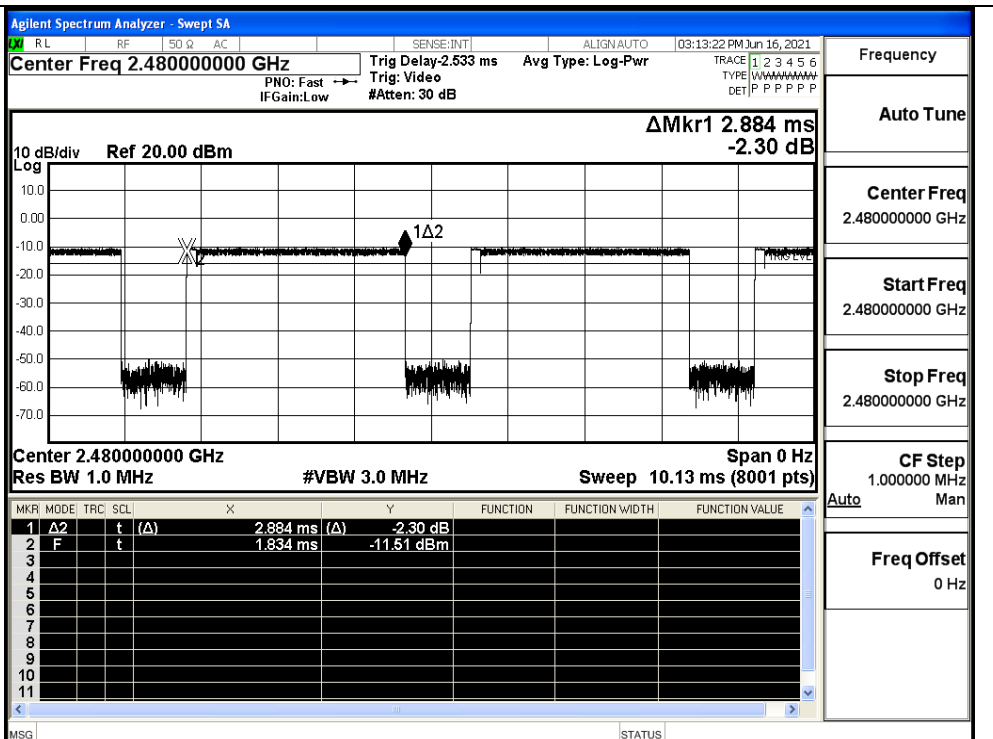
GFSK_DH5/MCH



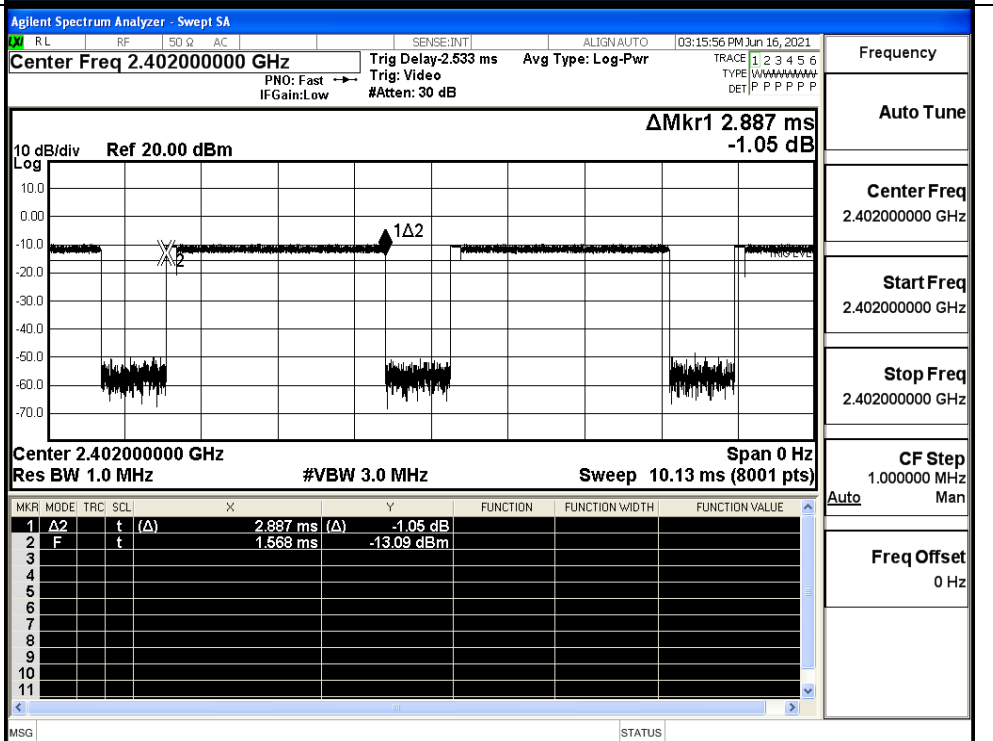
GFSK_DH5/HCH



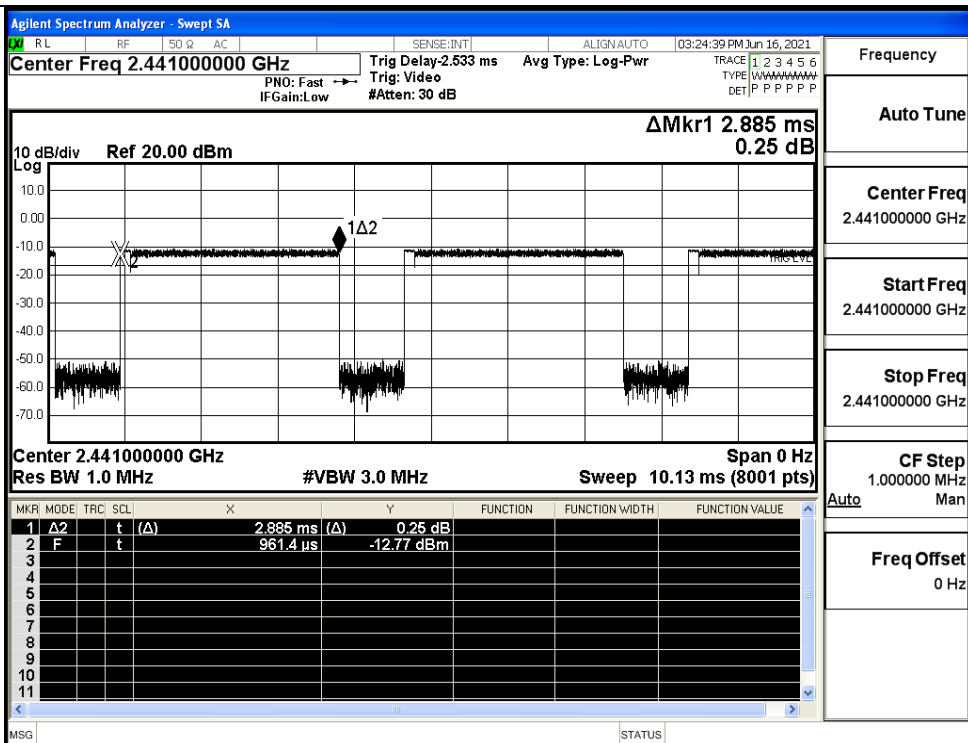
$\pi/4$ DQPSK
_2DH5/LCH $\pi/4$ DQPSK
_2DH5/MCH

$\pi/4$ DQPSK
_2DH5/HCH

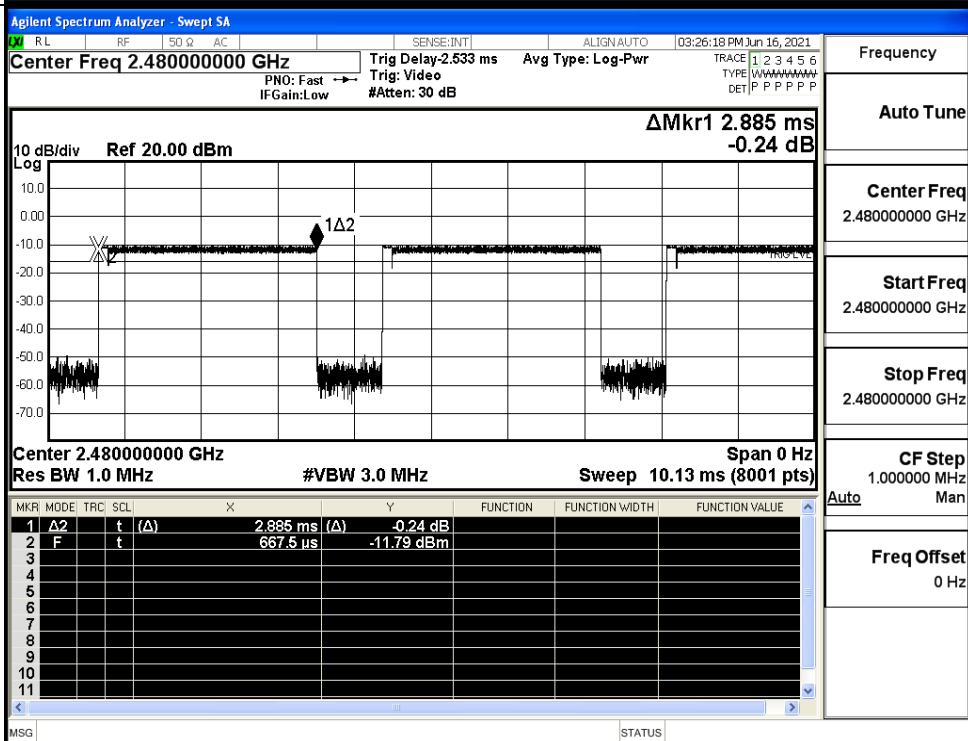
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



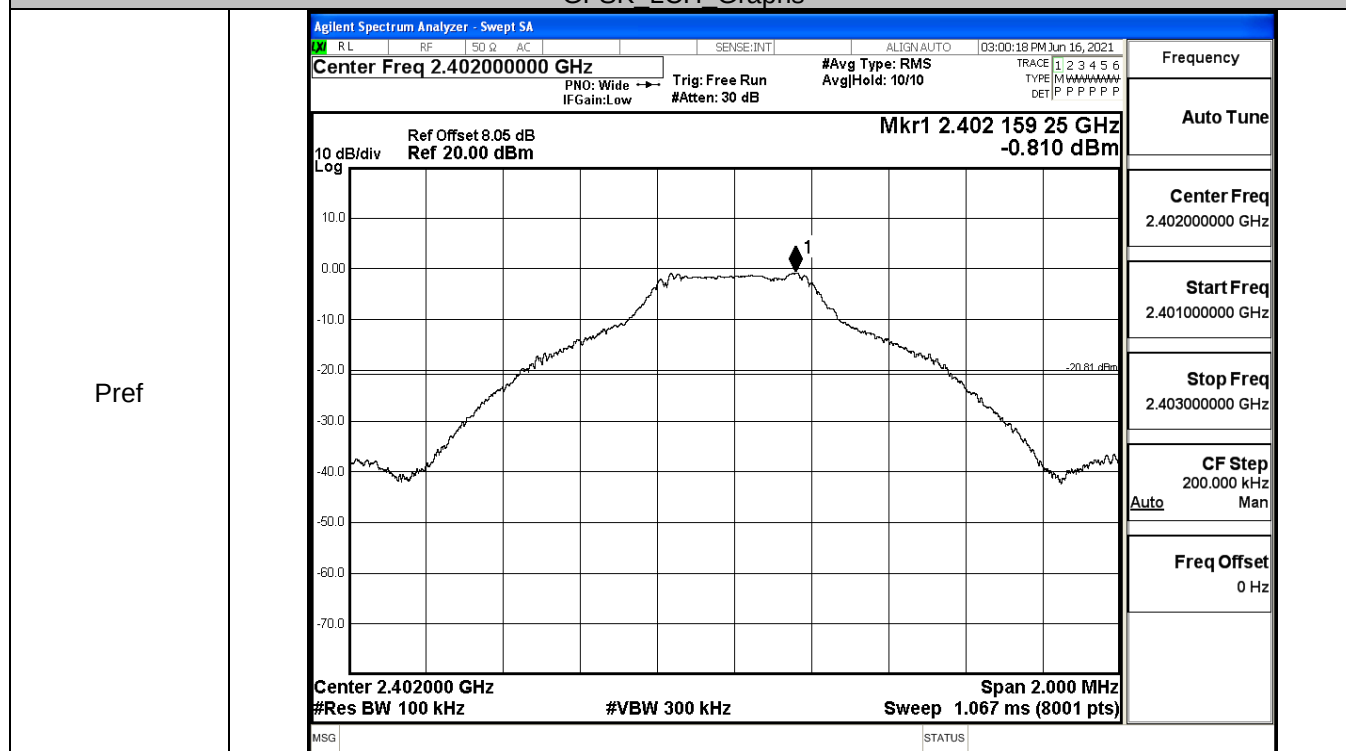
8DPSK_3DH5/HCH



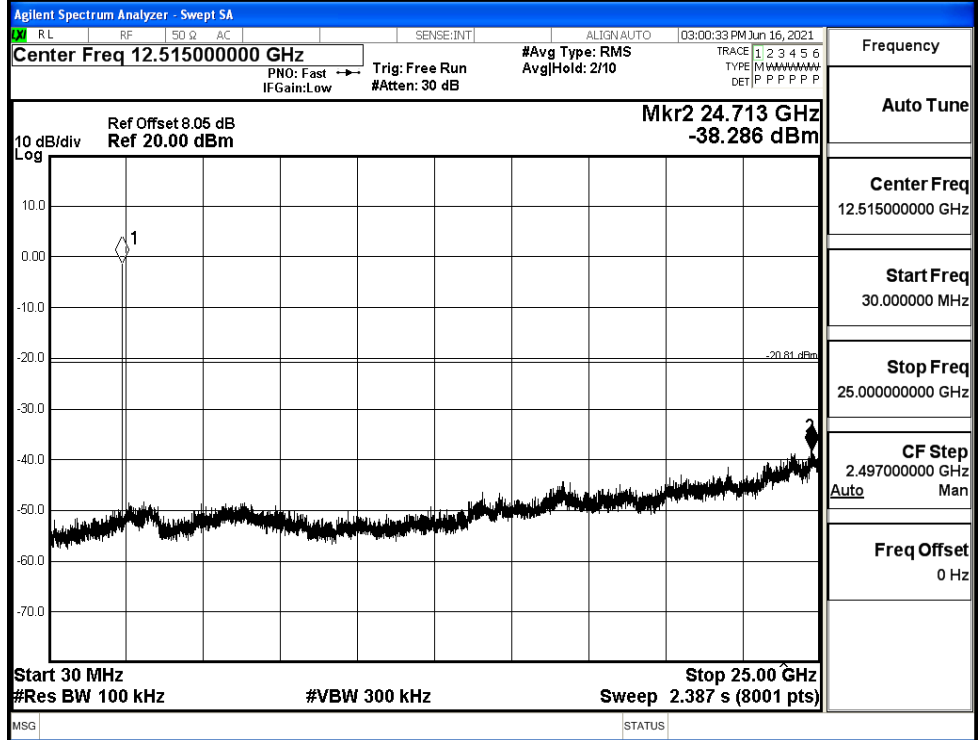
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.81	-38.286	-20.810	PASS
	MCH	-2.161	-37.618	-22.161	PASS
	HCH	-1.556	-38.335	-21.556	PASS
$\pi/4$ DQPSK	LCH	-2.519	-38.072	-22.519	PASS
	MCH	-3.419	-38.287	-23.419	PASS
	HCH	-2.677	-38.289	-22.677	PASS
8DPSK	LCH	-2.907	-38.027	-22.907	PASS
	MCH	-3.514	-37.635	-23.514	PASS
	HCH	-3.467	-37.624	-23.467	PASS

GFSK LCH Graphs

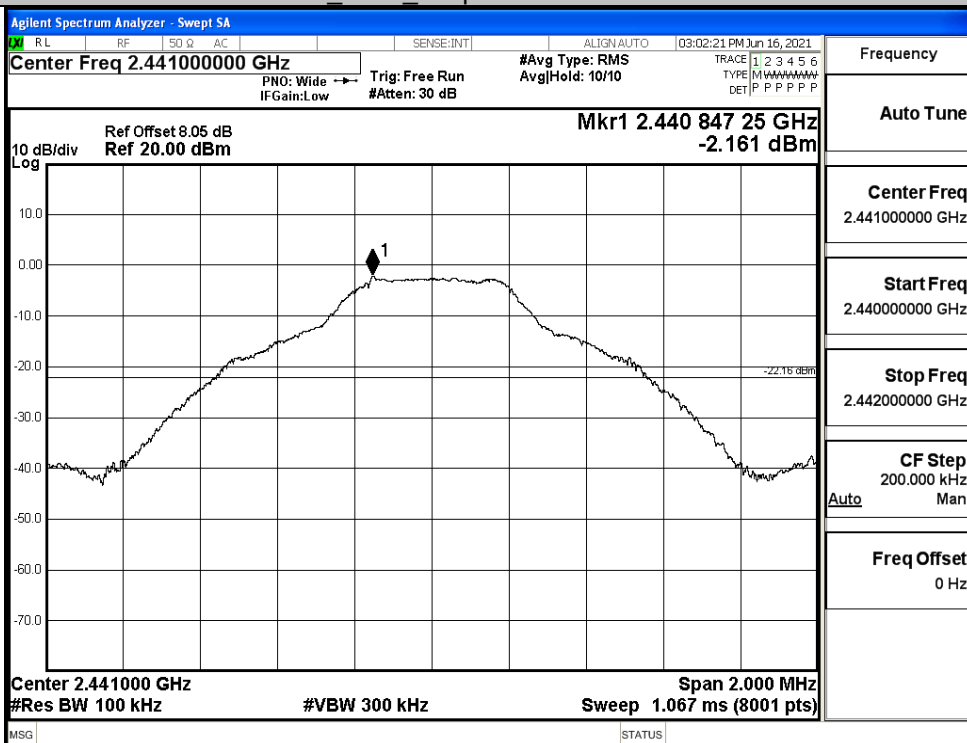


Puw

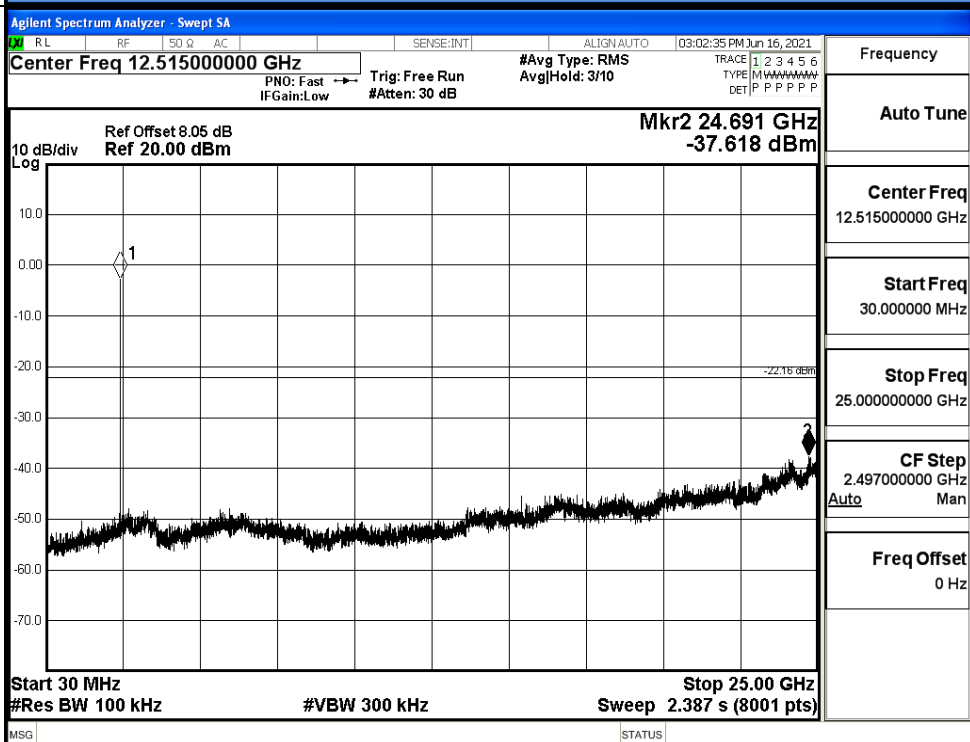


GFSK MCH_Graphs

Pref

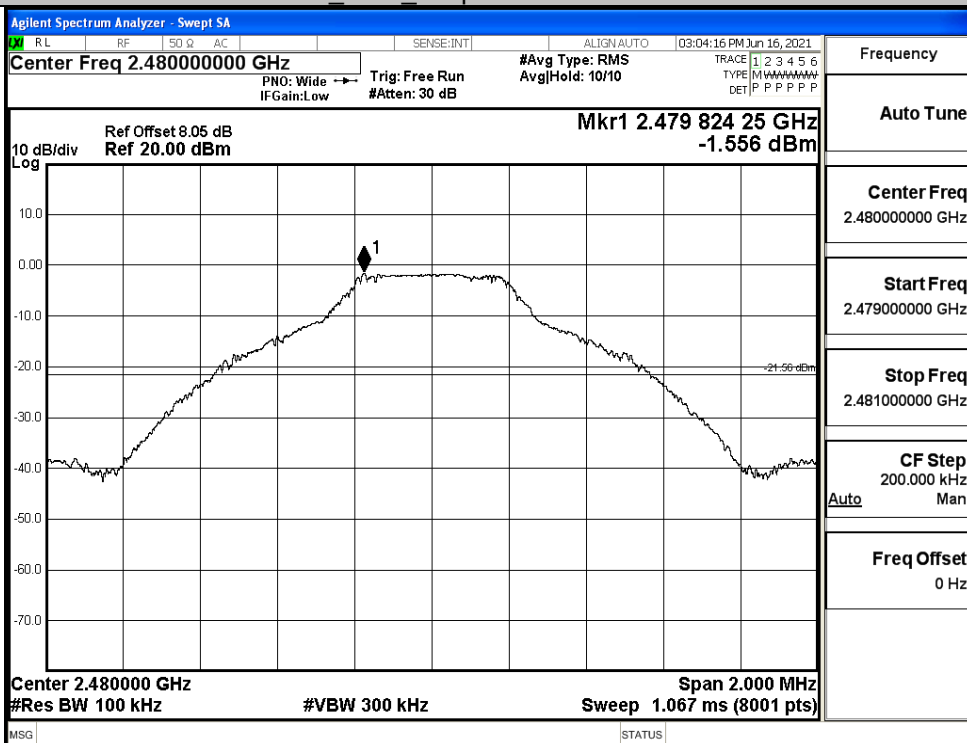


Puw

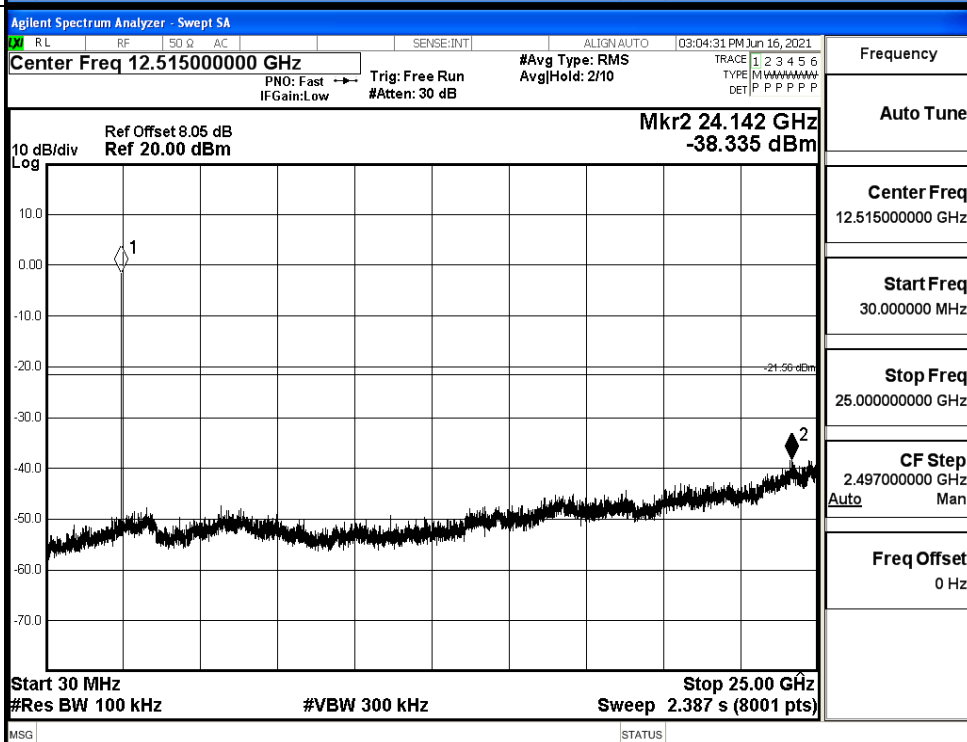


GFSK HCH Graphs

Pref

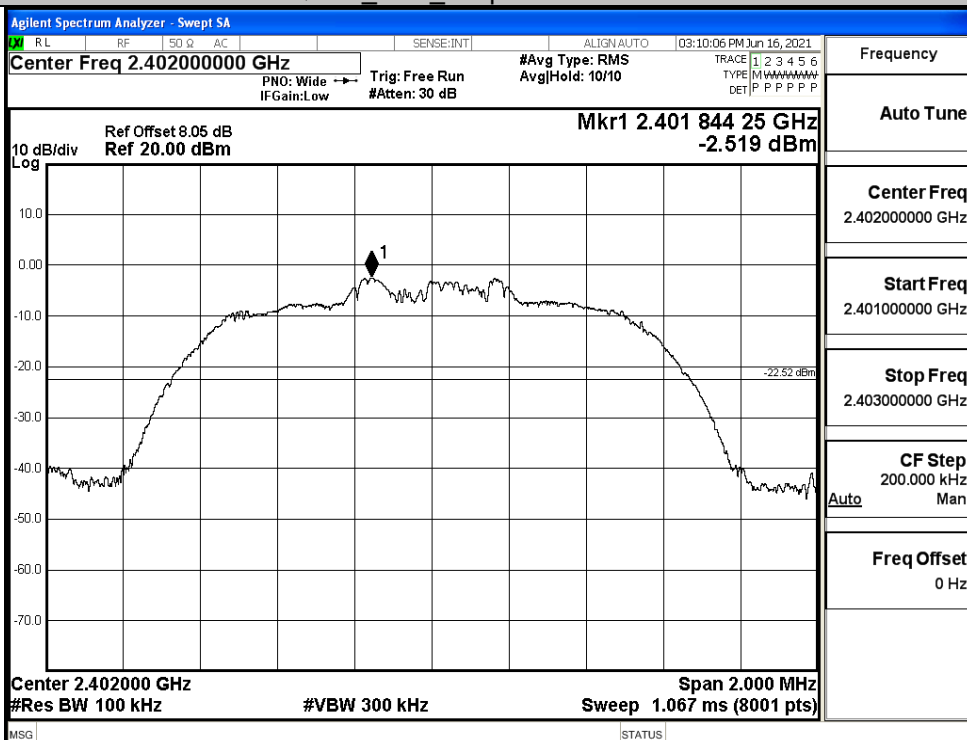


Puw

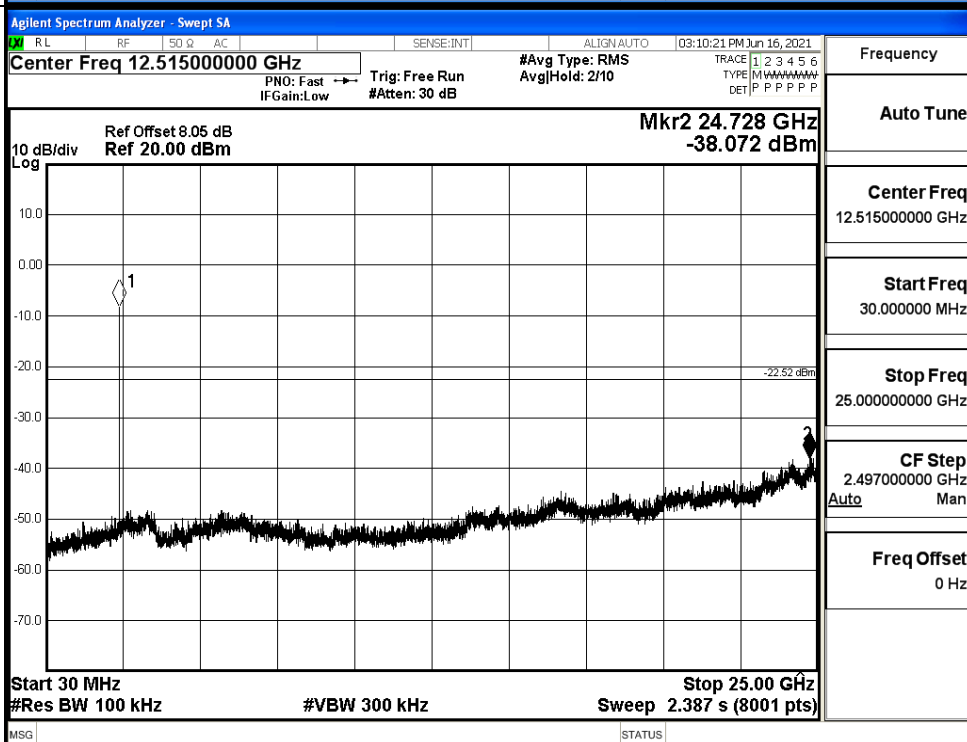


$\pi/4$ DQPSK LCH_Graphs

Pref

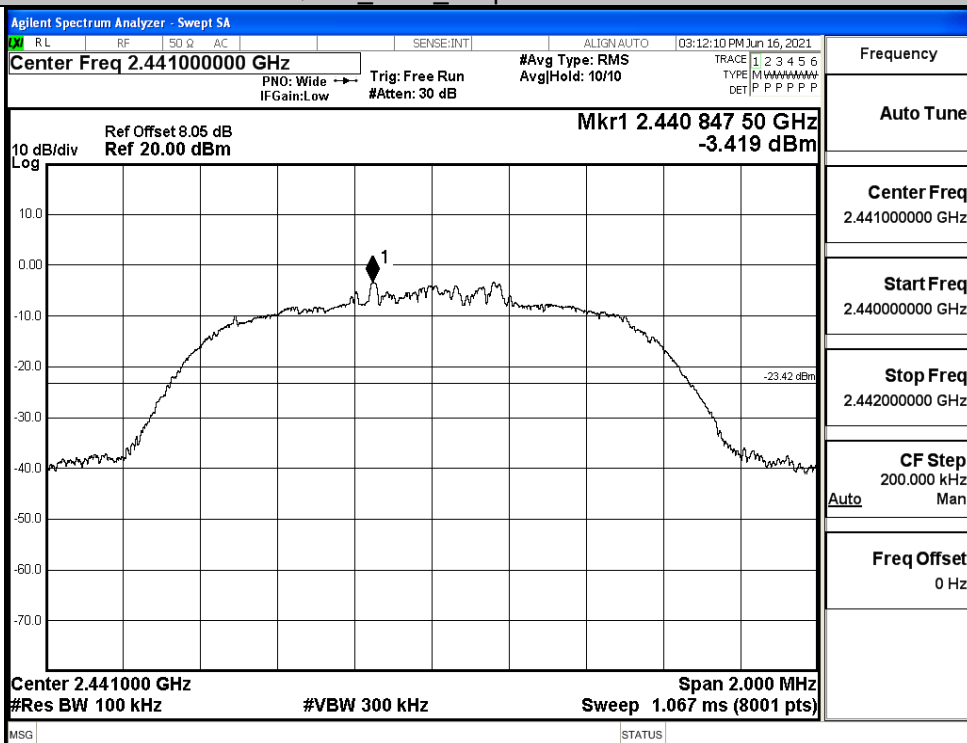


Puw

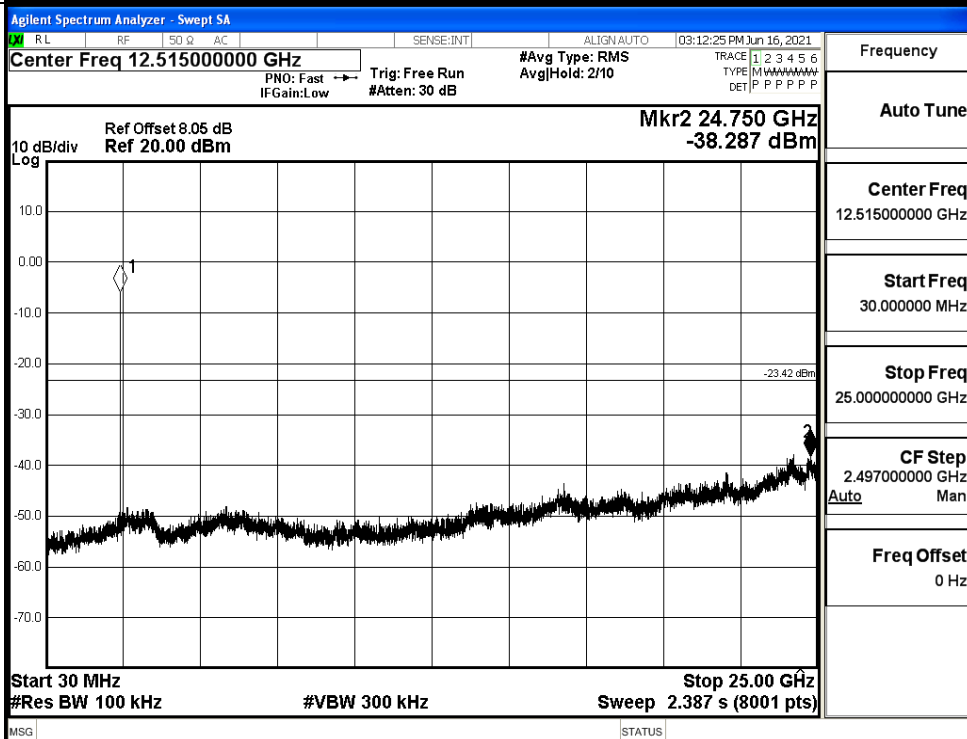


π /4DQPSK_MCH_Graphs

Pref

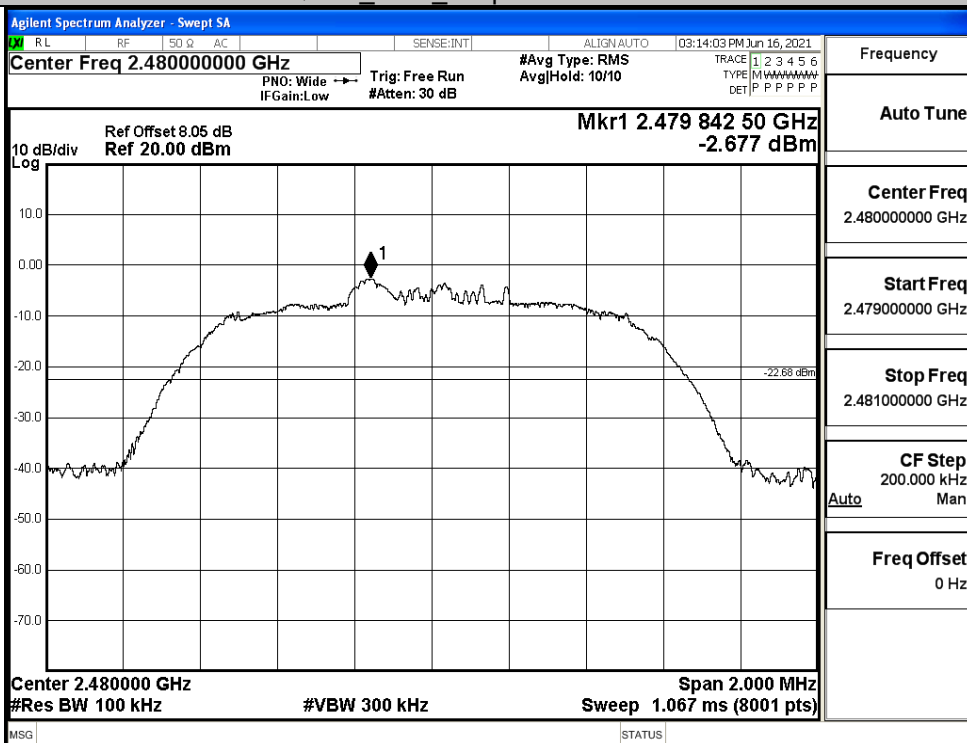


Puw

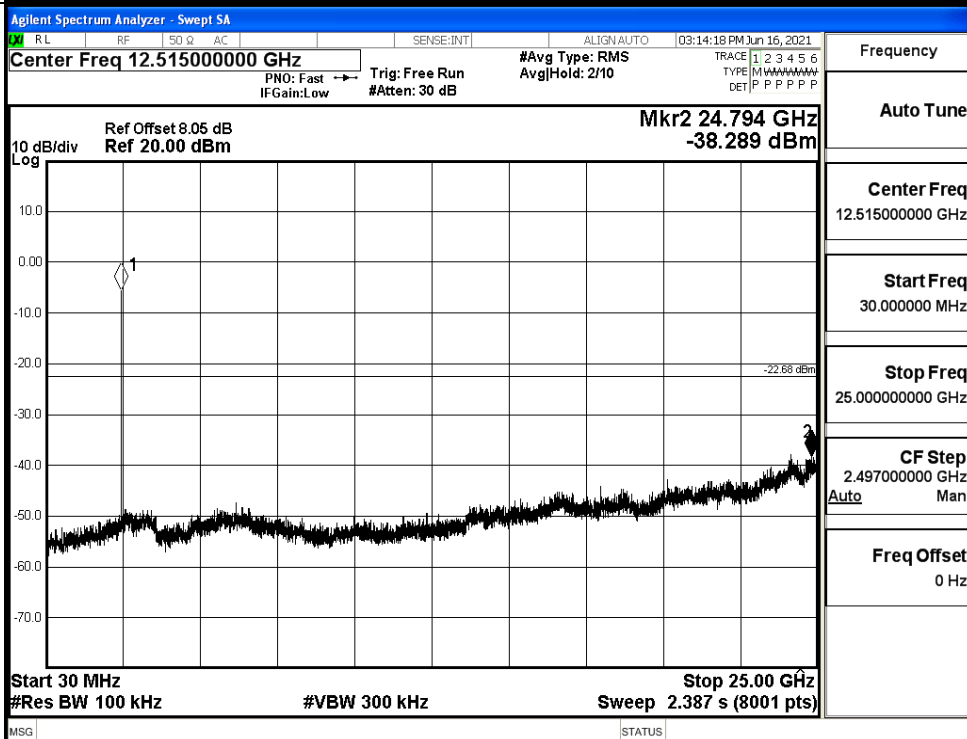


$\pi/4$ DQPSK_HCH_Graphs

Pref

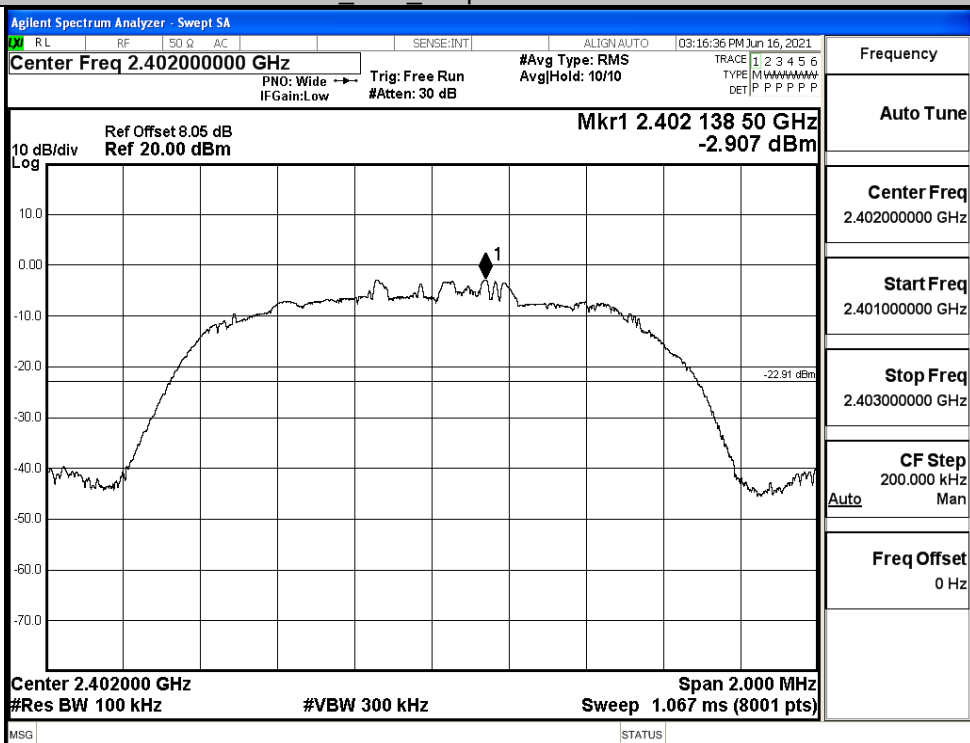


Puw

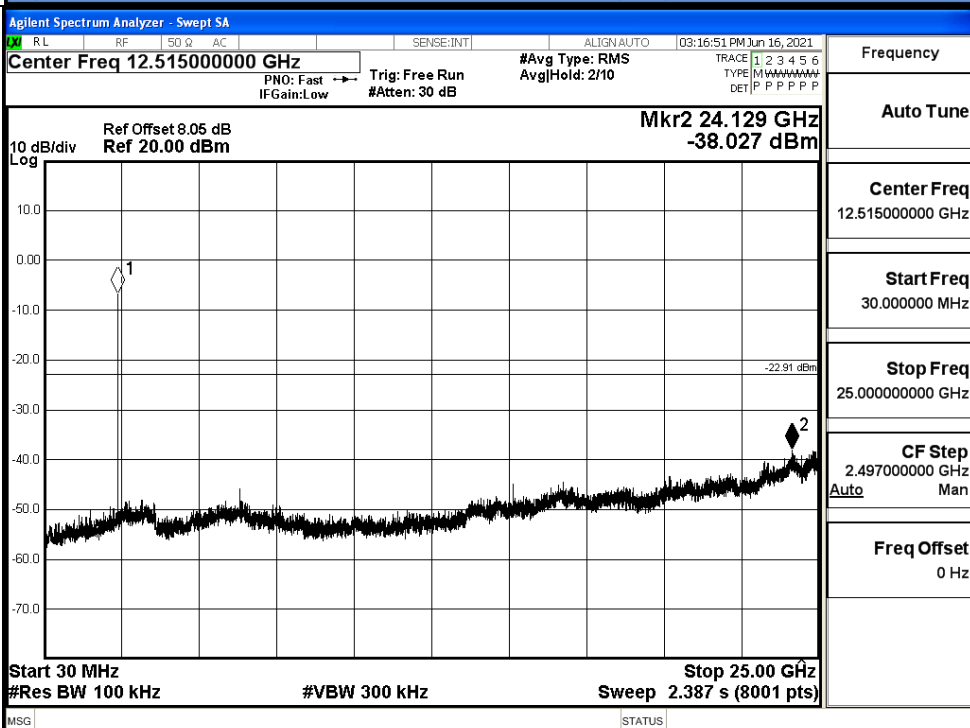


8DPSK_LCH_Graphs

Pref

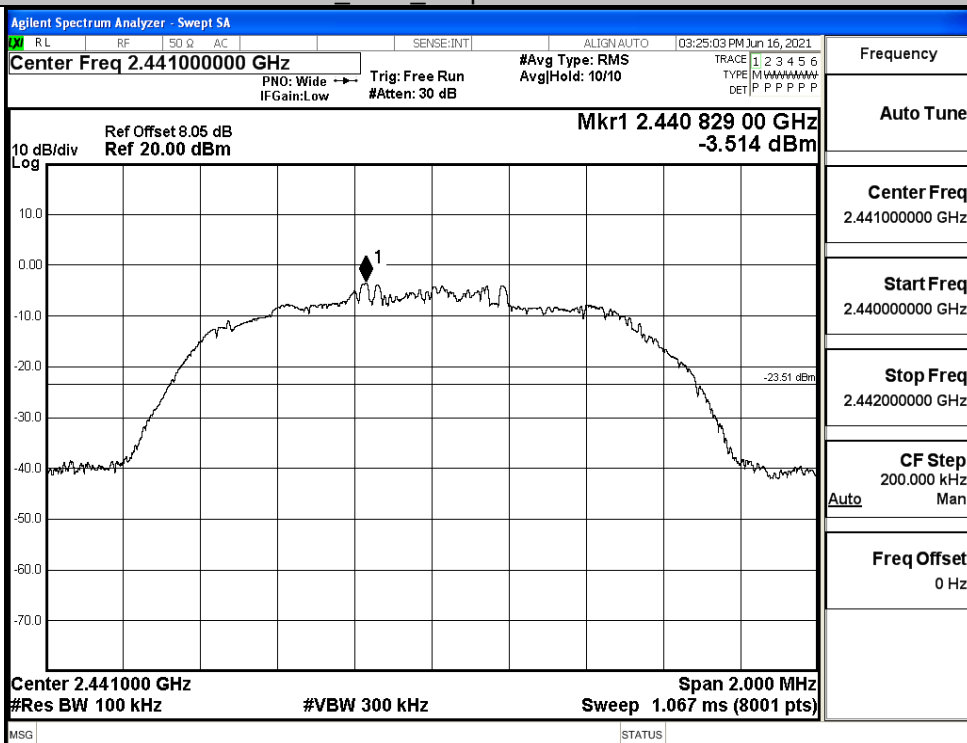


Puw

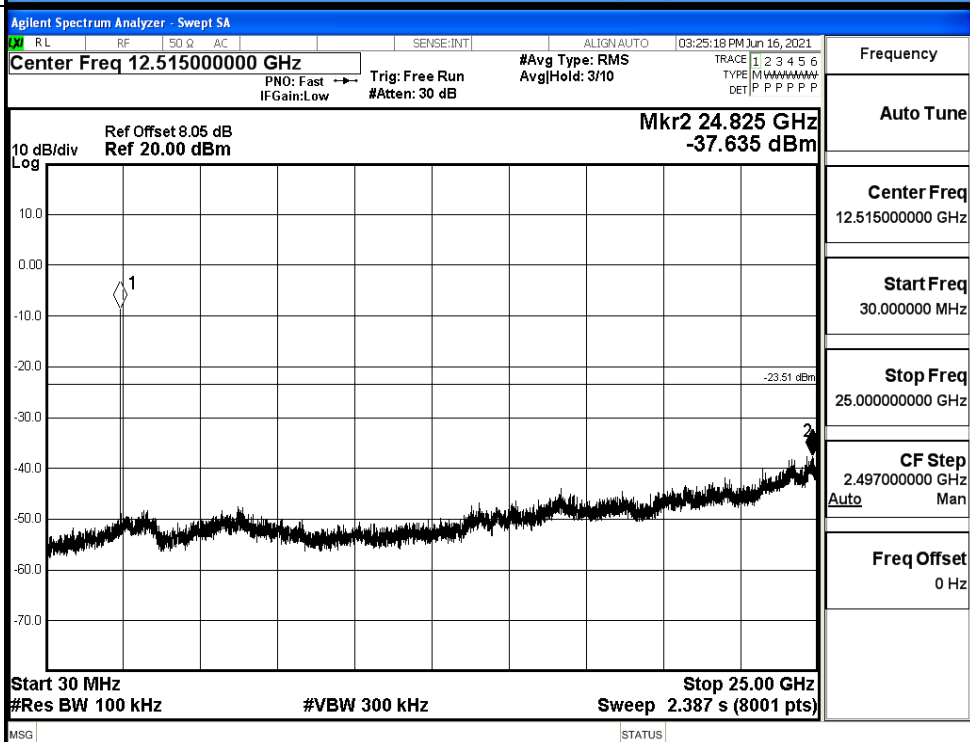


8DPSK MCH_Graphs

Pref

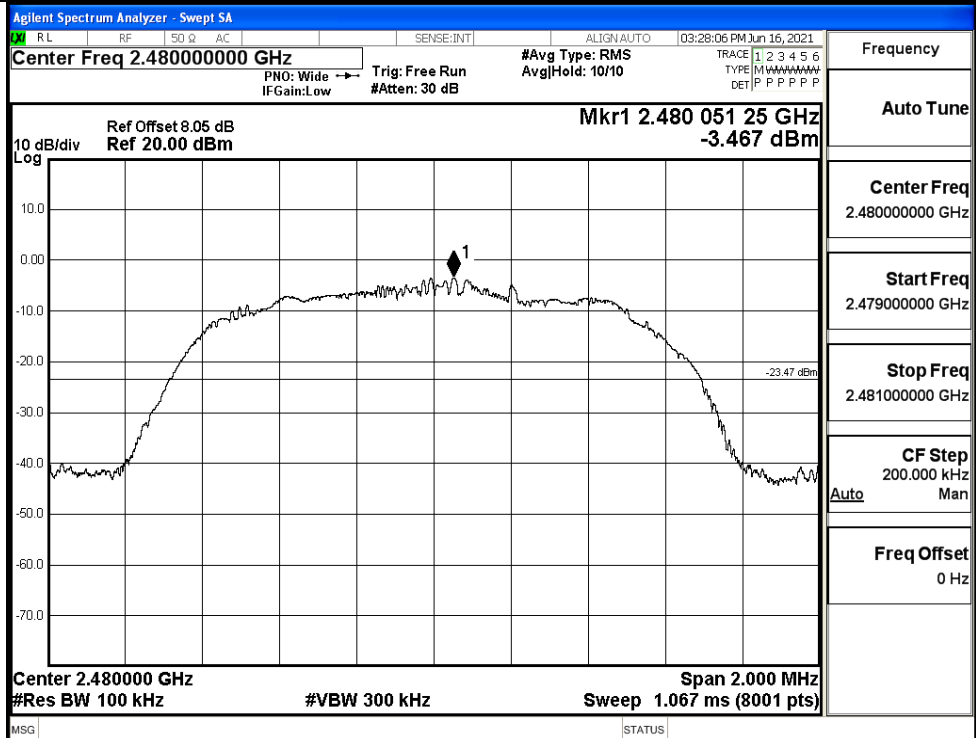


Puw

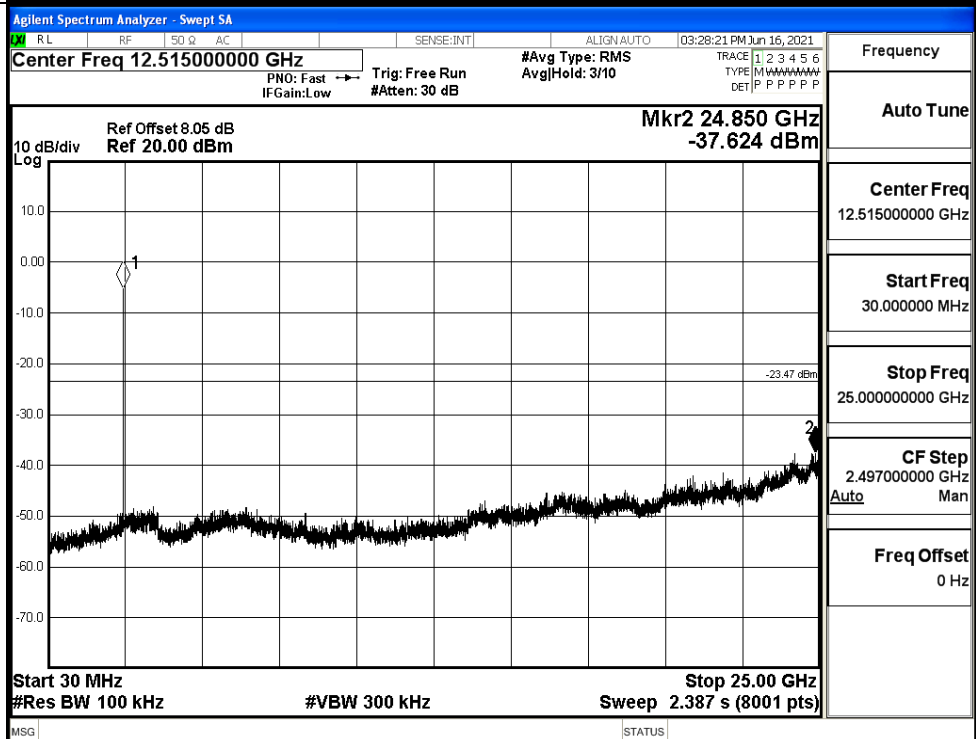


8DPSK_HCH_Graphs

Pref



Puw

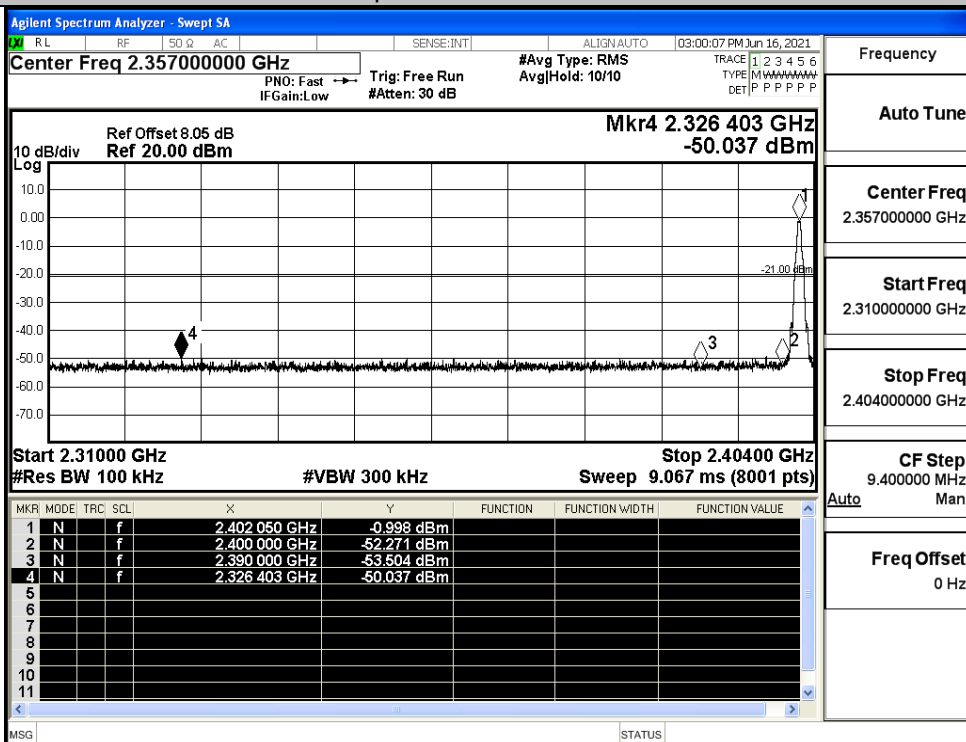


A.7 Band-edge for RF Conducted Emissions

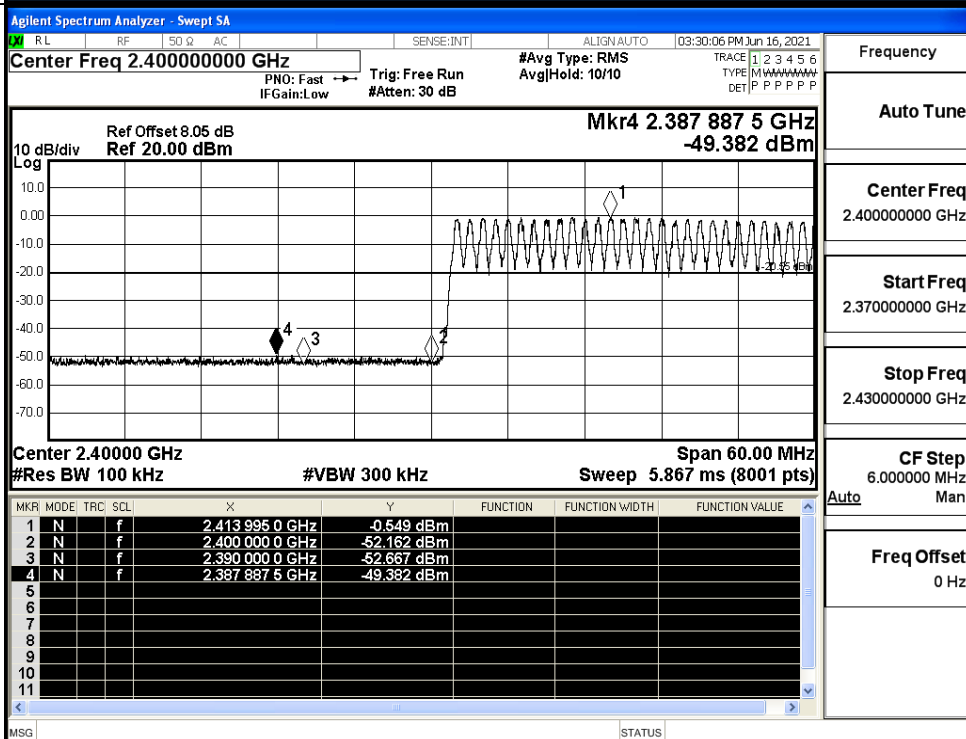
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-0.998	Off	-50.037	-21	PASS
			-0.549	On	-49.382	-20.55	PASS
	HCH	2480	-1.270	Off	-49.629	-21.27	PASS
			-0.142	On	-49.255	-20.14	PASS
$\pi/4$ DQPSK	LCH	2402	-4.604	Off	-49.747	-24.6	PASS
			-2.027	On	-49.086	-22.03	PASS
	HCH	2480	-2.595	Off	-48.592	-22.6	PASS
			-0.169	On	-43.273	-20.17	PASS
8DPSK	LCH	2402	-3.305	Off	-49.441	-23.31	PASS
			-2.036	On	-49.040	-22.04	PASS
	HCH	2480	-3.909	Off	-49.602	-23.91	PASS
			0.273	On	-45.041	-19.73	PASS

Test Graphs

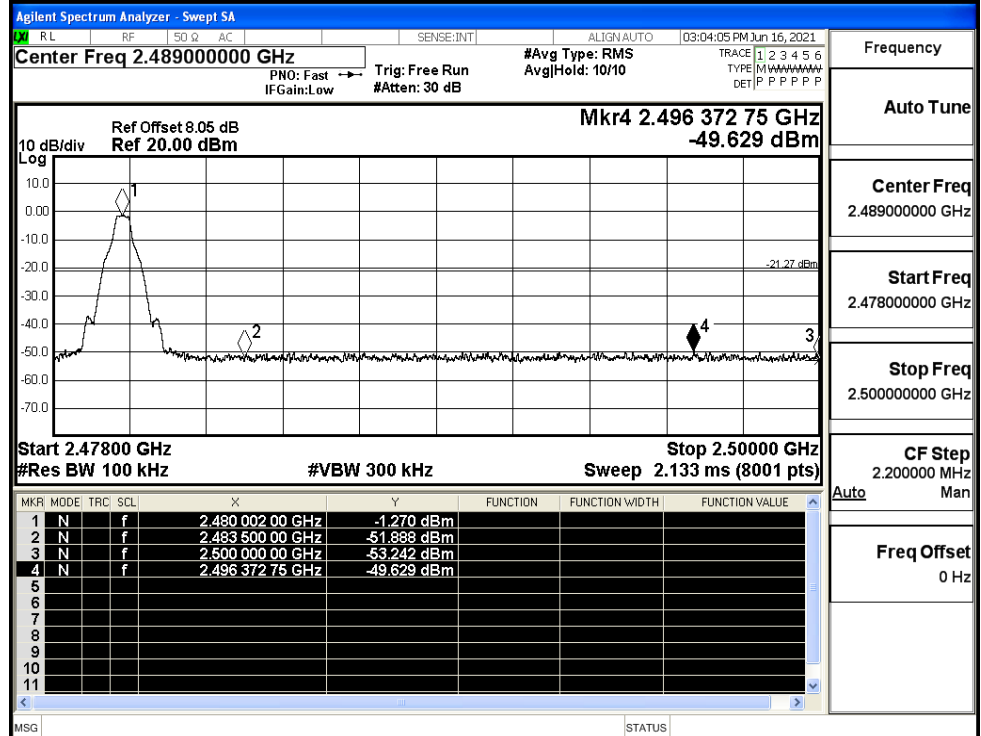
GFSK/LCH/No Hop



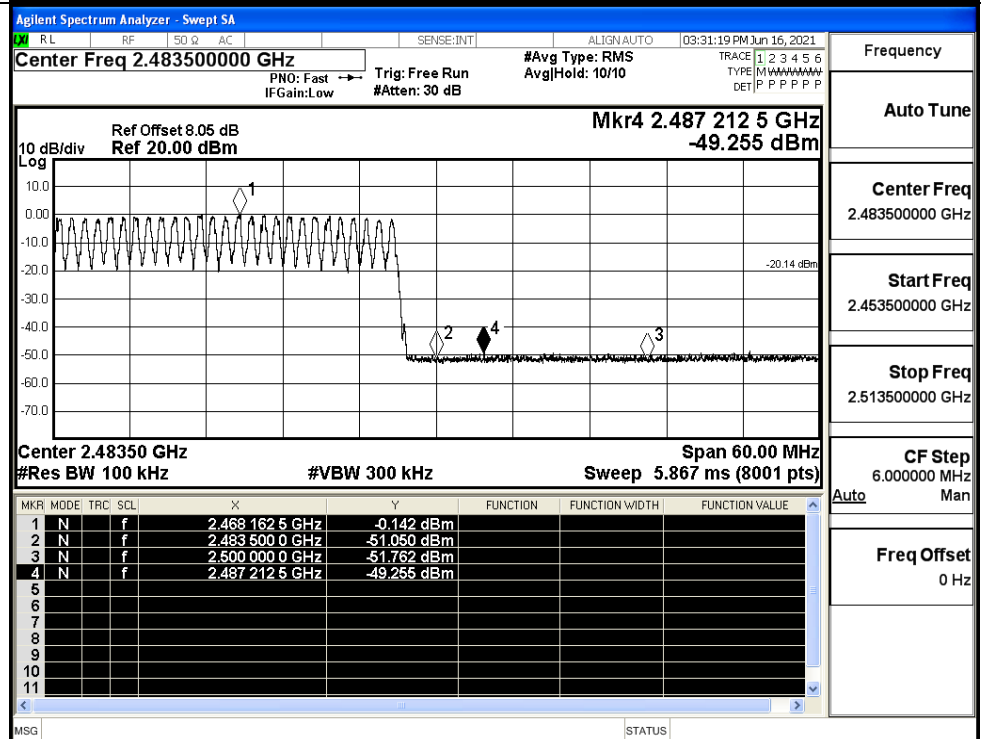
GFSK/LCH/Hop



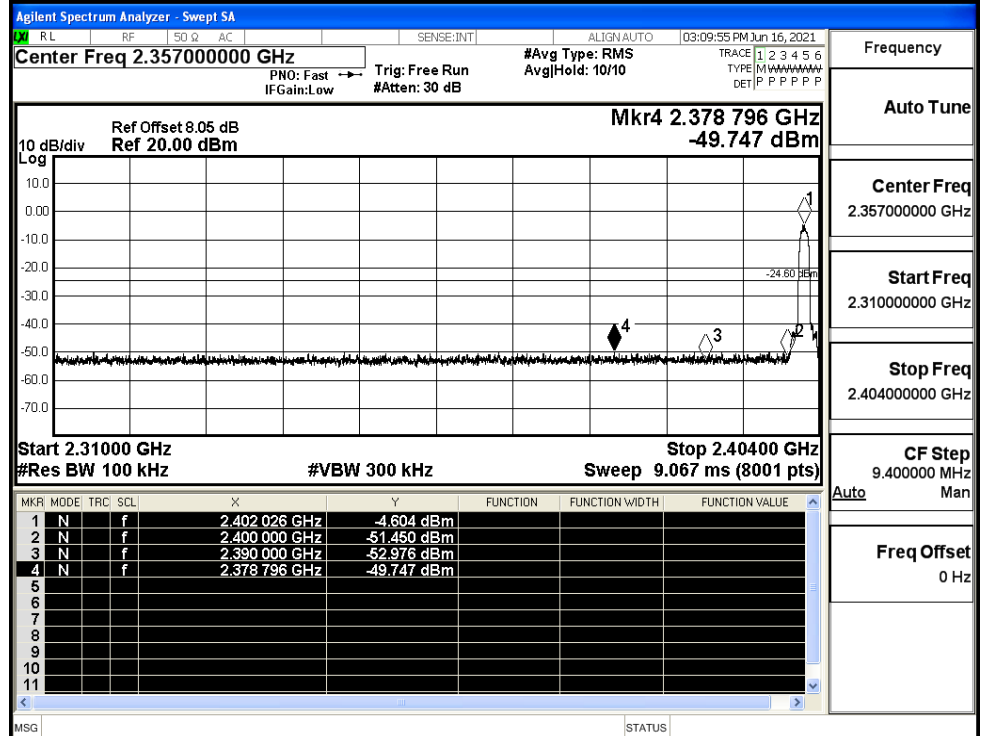
GFSK/HCH/No Hop



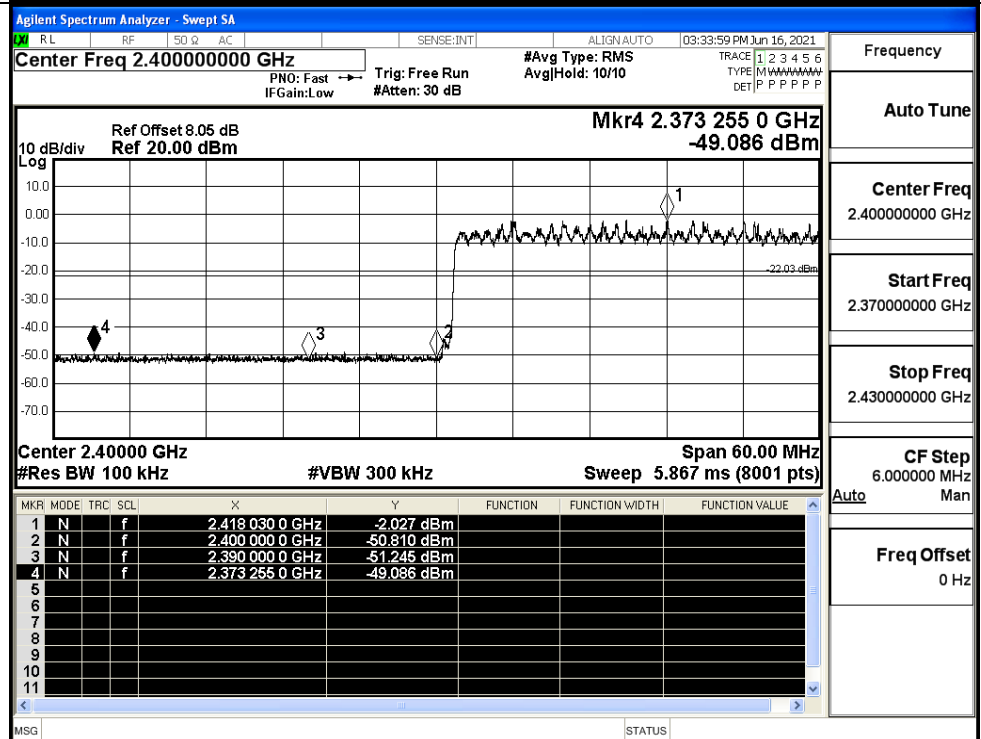
GFSK/HCH/Hop



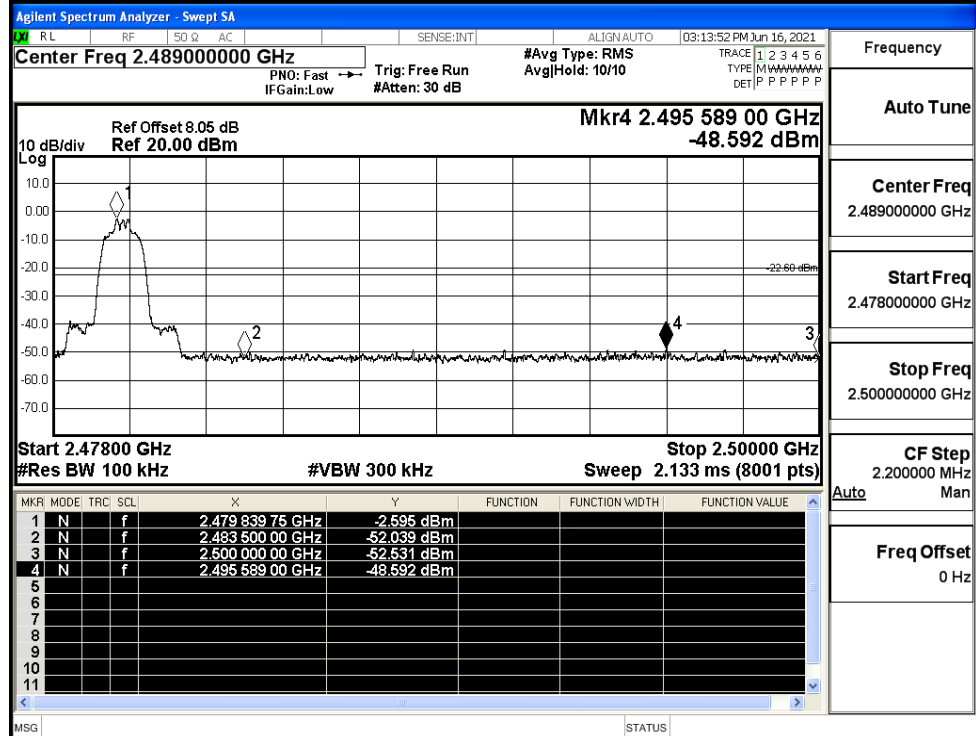
$\pi/4$ DQPSK/LCH/No
Hop



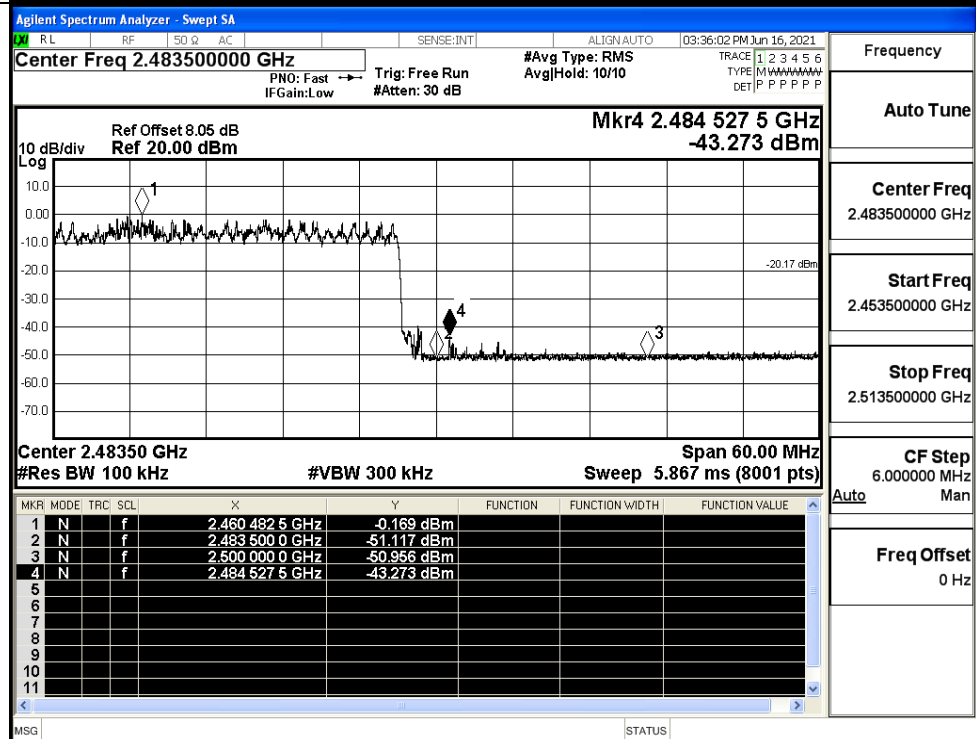
$\pi/4$ DQPSK/LCH/Hop



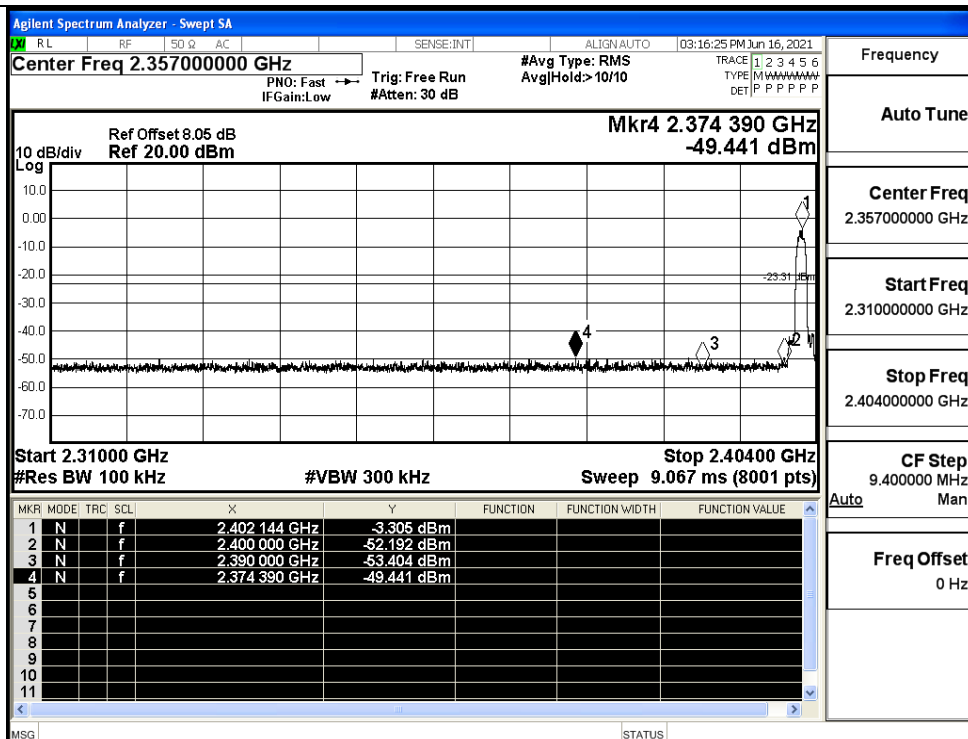
$\pi/4$ DQPSK/HCH/No
Hop



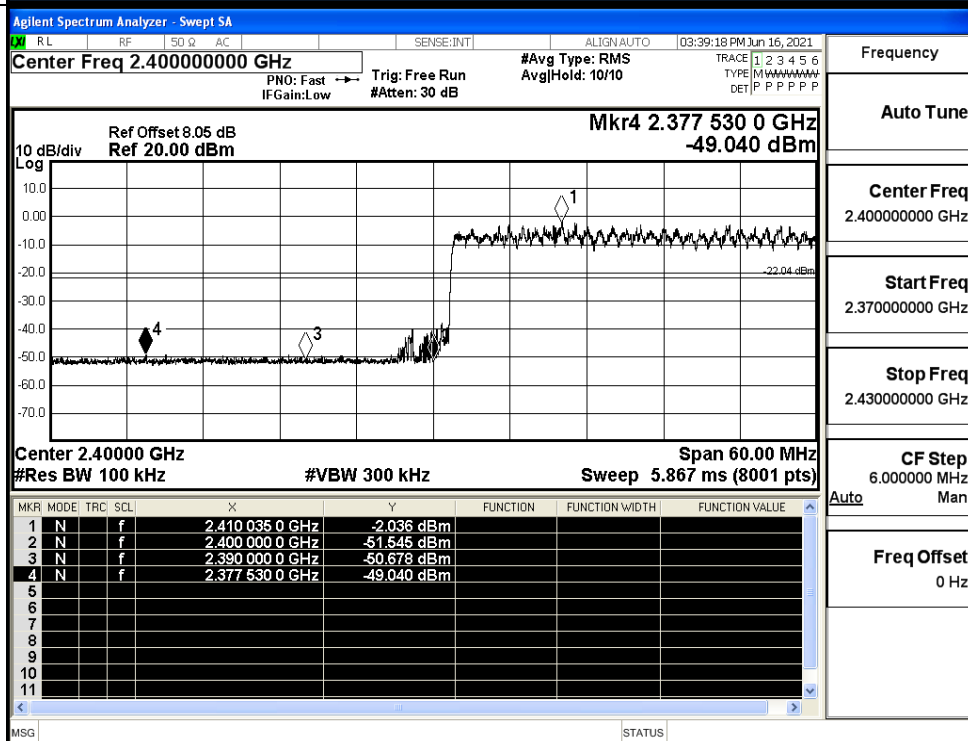
$\pi/4$ DQPSK/HCH/Hop



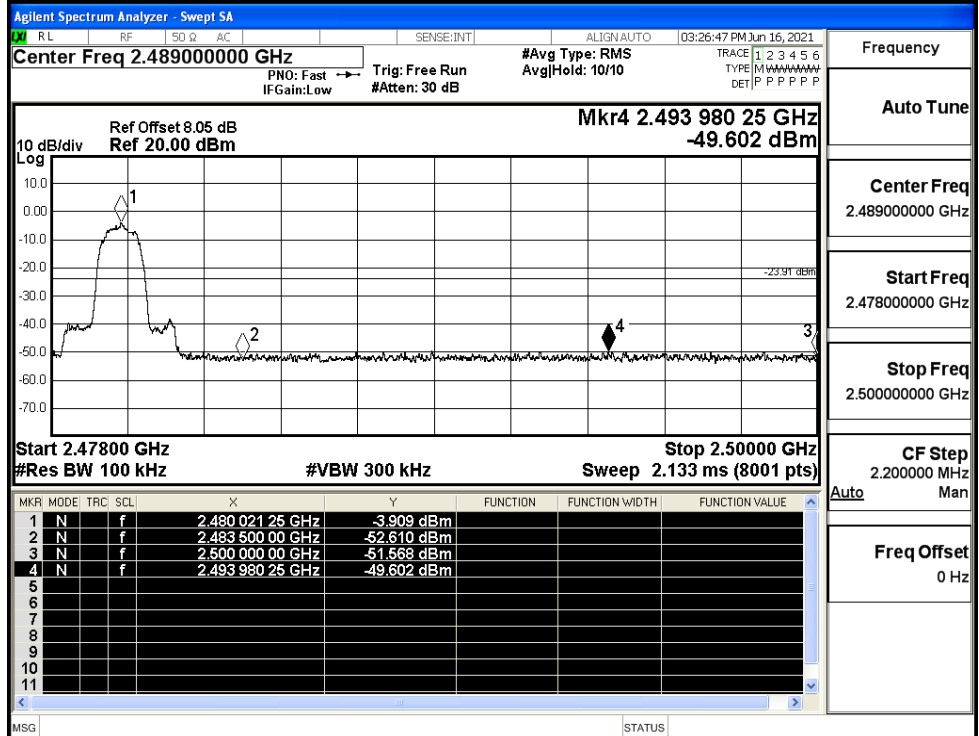
8DPSK/LCH/No Hop



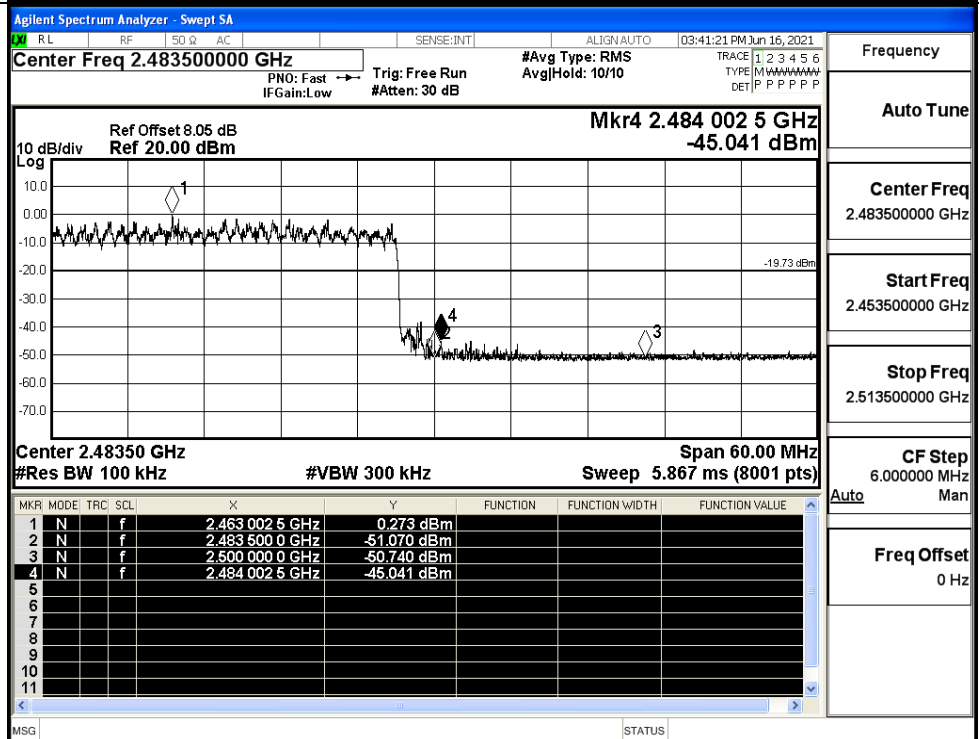
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



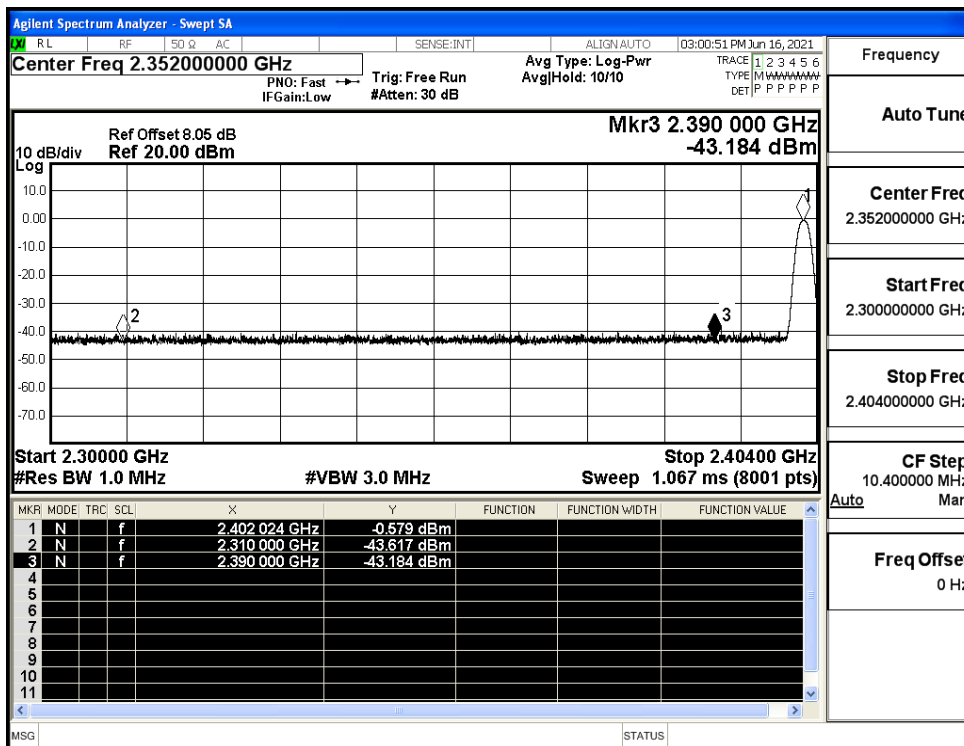
8DPSK/HCH/Hop



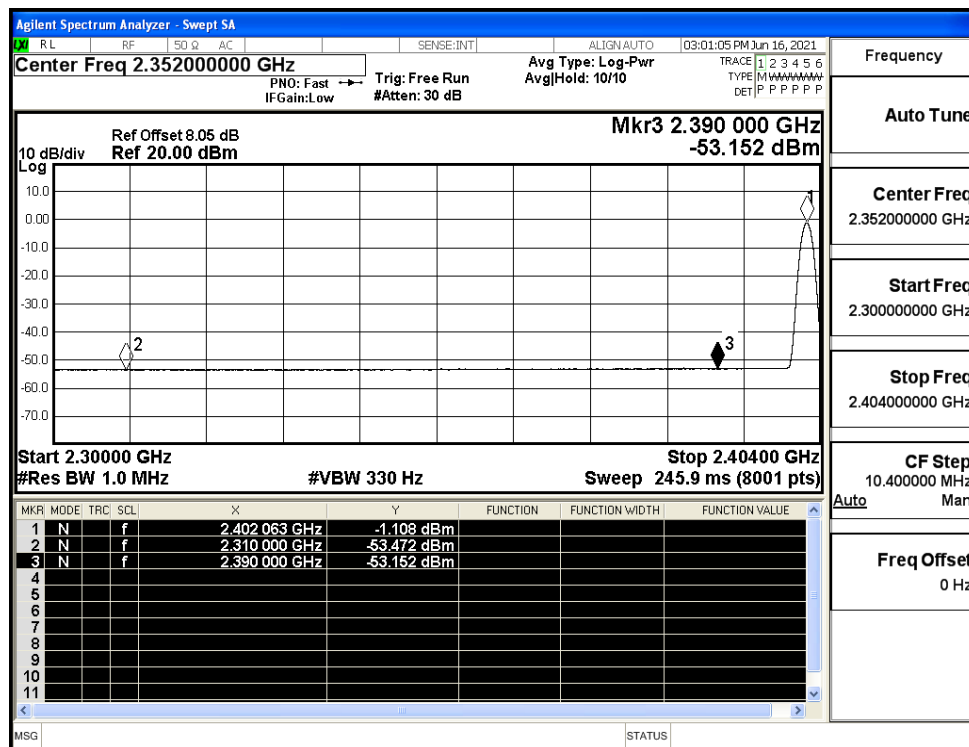
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.62	2.0	0	53.64	PEAK	74	PASS
	Off	2310.0	-53.47	2.0	0	43.79	AV	54	PASS
	Off	2390.0	-43.18	2.0	0	54.08	PEAK	74	PASS
	Off	2390.0	-53.15	2.0	0	44.11	AV	54	PASS
	Off	2483.5	-42.89	2.0	0	54.37	PEAK	74	PASS
	Off	2483.5	-52.59	2.0	0	44.67	AV	54	PASS
	Off	2500.0	-41.85	2.0	0	55.41	PEAK	74	PASS
	Off	2500.0	-52.37	2.0	0	44.89	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.26	2.0	0	54	PEAK	74	PASS
	Off	2310.0	-53.41	2.0	0	43.85	AV	54	PASS
	Off	2390.0	-42.62	2.0	0	54.64	PEAK	74	PASS
	Off	2390.0	-53.03	2.0	0	44.23	AV	54	PASS
	Off	2483.5	-43.53	2.0	0	53.73	PEAK	74	PASS
	Off	2483.5	-52.48	2.0	0	44.78	AV	54	PASS
	Off	2500.0	-42.96	2.0	0	54.3	PEAK	74	PASS
	Off	2500.0	-52.41	2.0	0	44.85	AV	54	PASS
8DPSK	Off	2310.0	-42.41	2.0	0	54.85	PEAK	74	PASS
	Off	2310.0	-53.36	2.0	0	43.9	AV	54	PASS
	Off	2390.0	-43.05	2.0	0	54.21	PEAK	74	PASS
	Off	2390.0	-53.02	2.0	0	44.24	AV	54	PASS
	Off	2483.5	-41.25	2.0	0	56.01	PEAK	74	PASS
	Off	2483.5	-52.61	2.0	0	44.65	AV	54	PASS
	Off	2500.0	-42.64	2.0	0	54.62	PEAK	74	PASS
	Off	2500.0	-52.34	2.0	0	44.92	AV	54	PASS

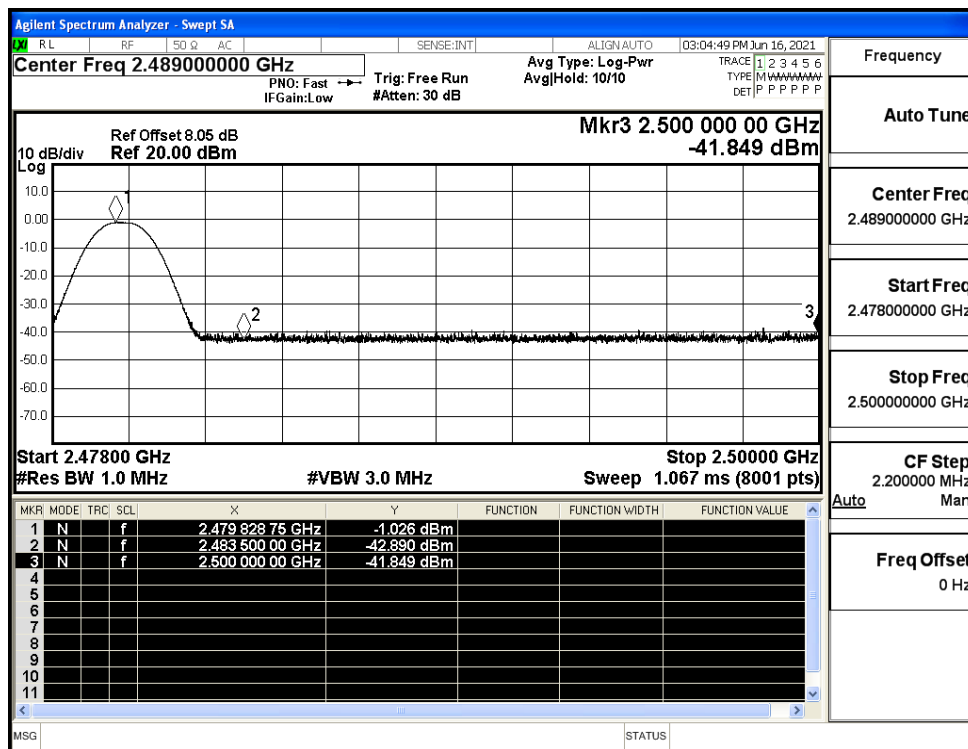
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



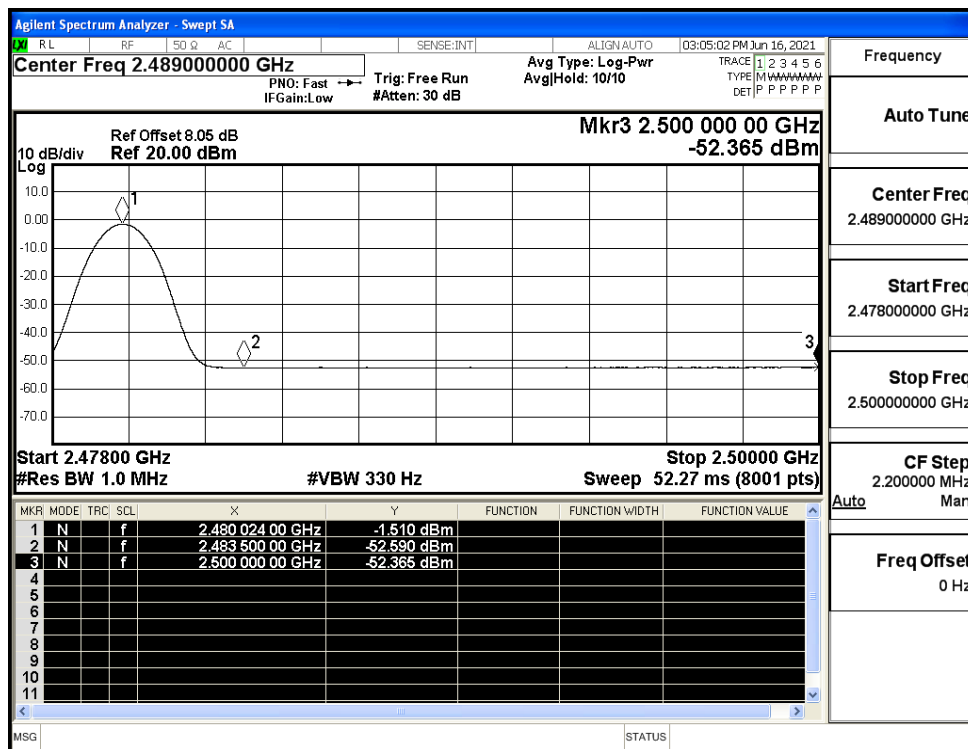
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

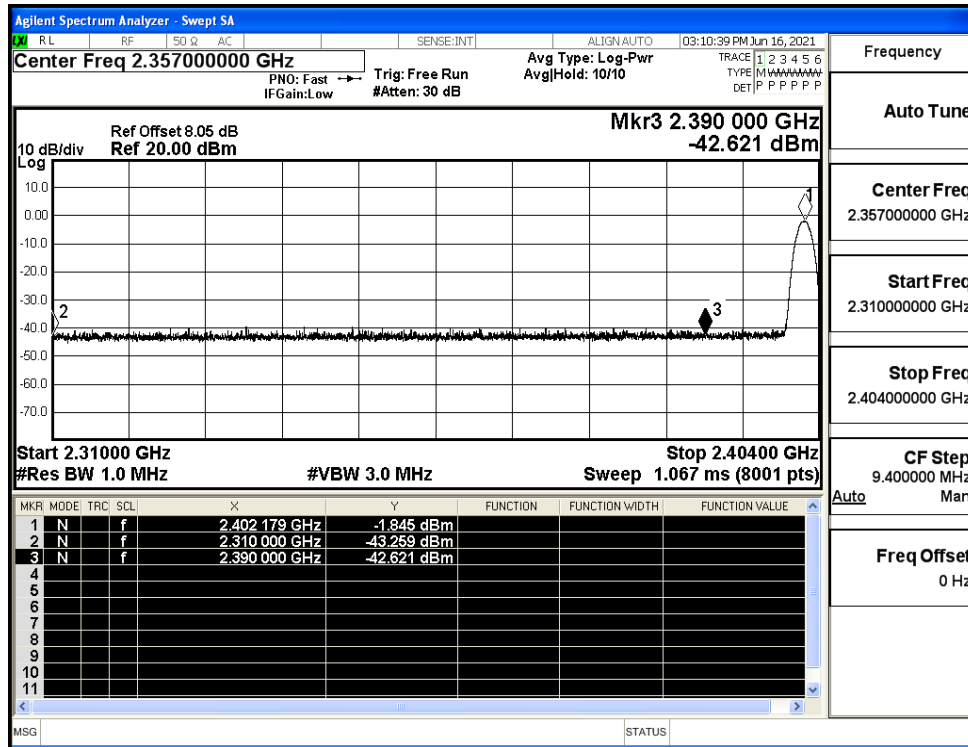
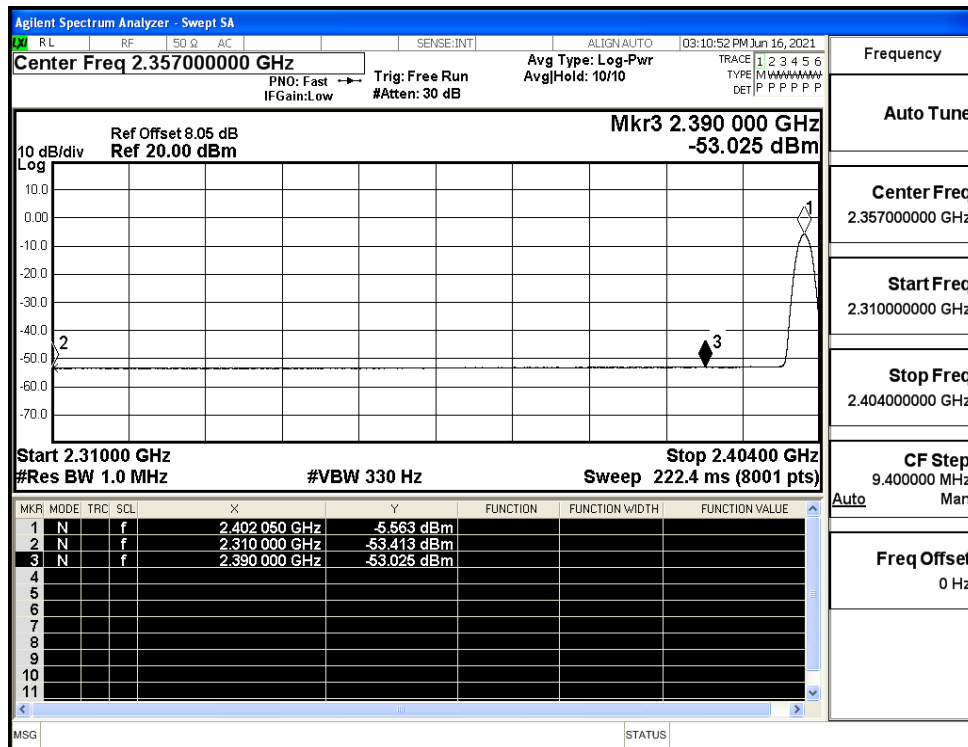


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

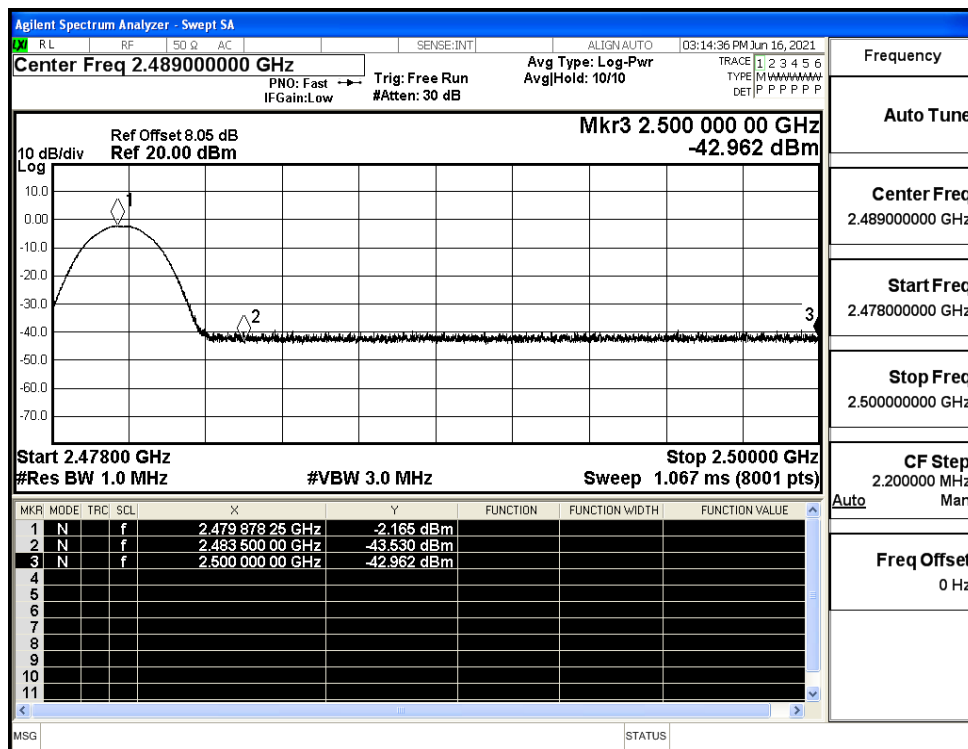


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

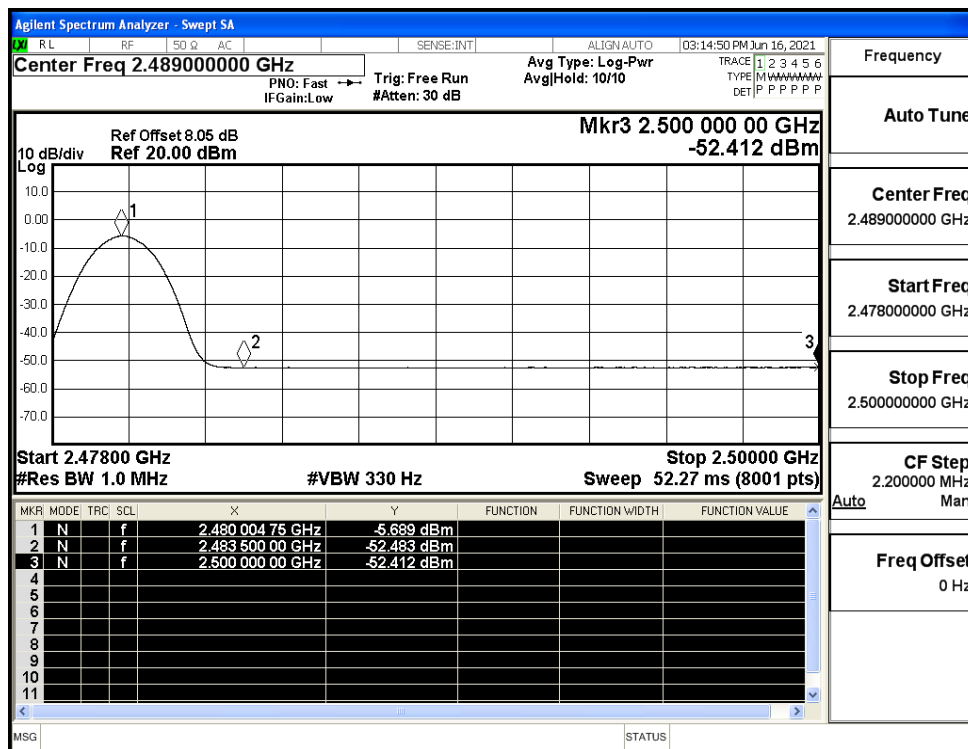


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

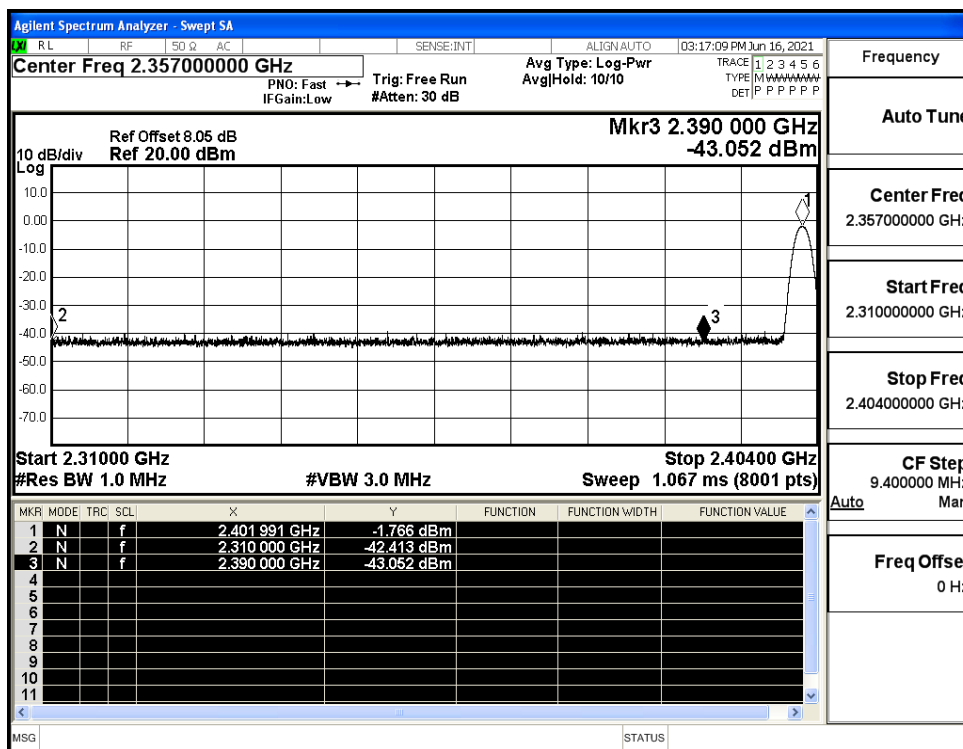
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



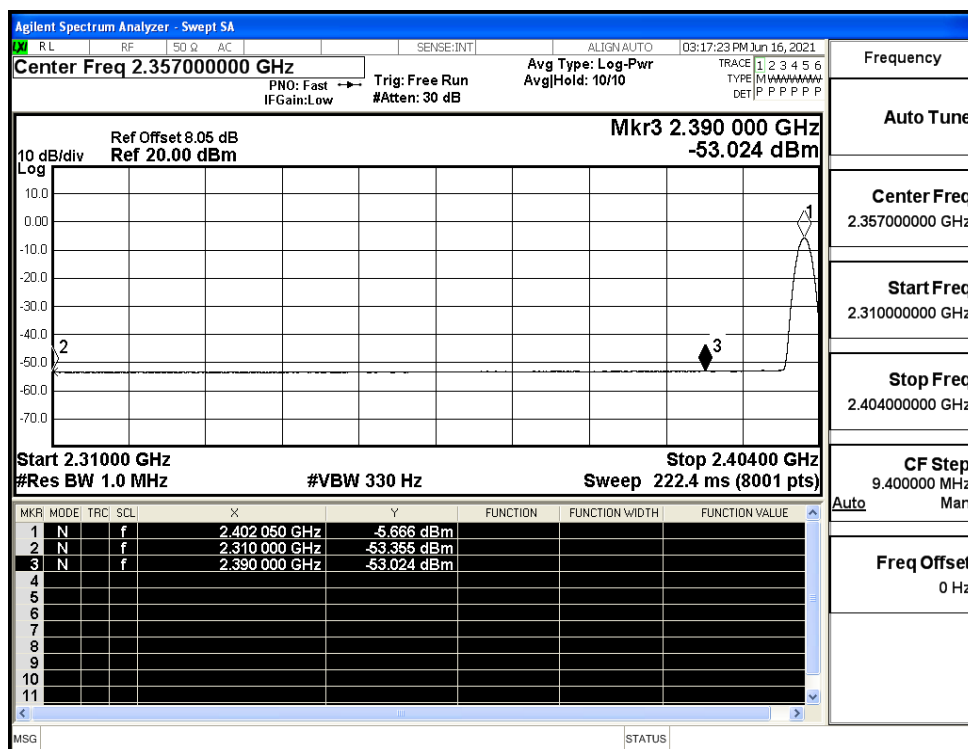
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



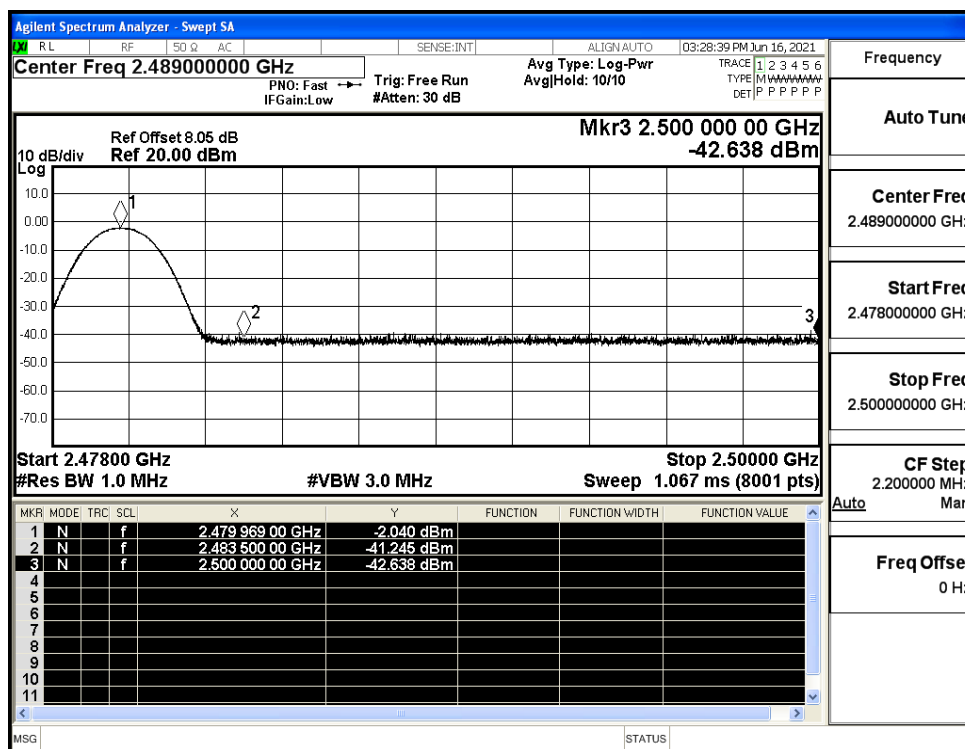
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

