

Appendix A

RF Test Data for BT V4.0(BDR/EDR) (Conducted Measurement)

Product Name: Projector

Trade Mark: N/A

Test Model: F-802

Environmental Conditions

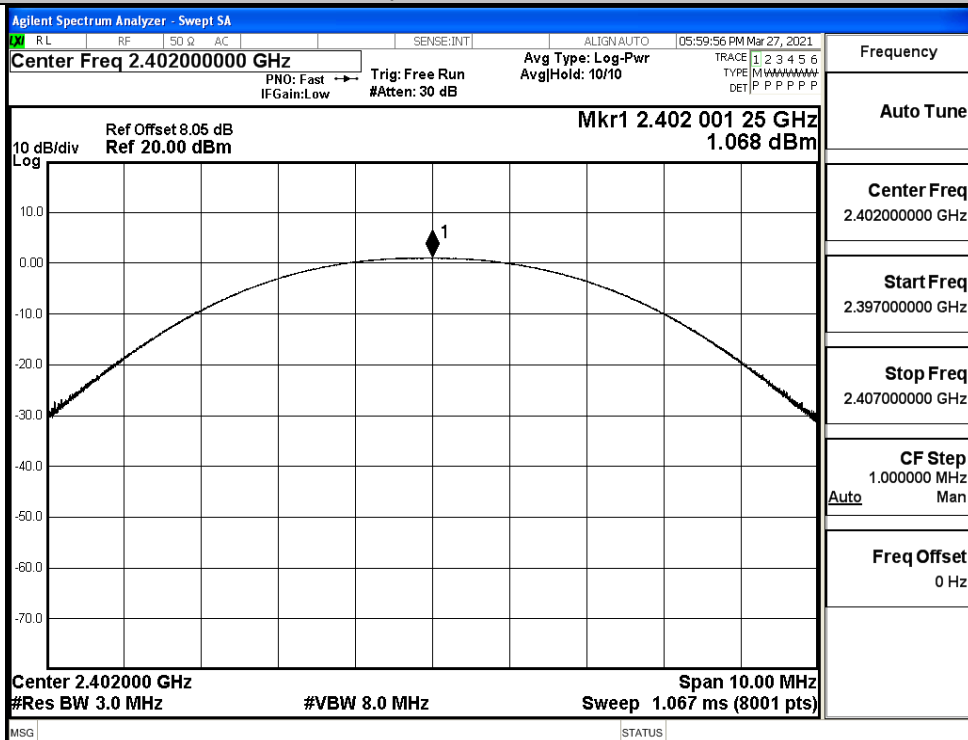
Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

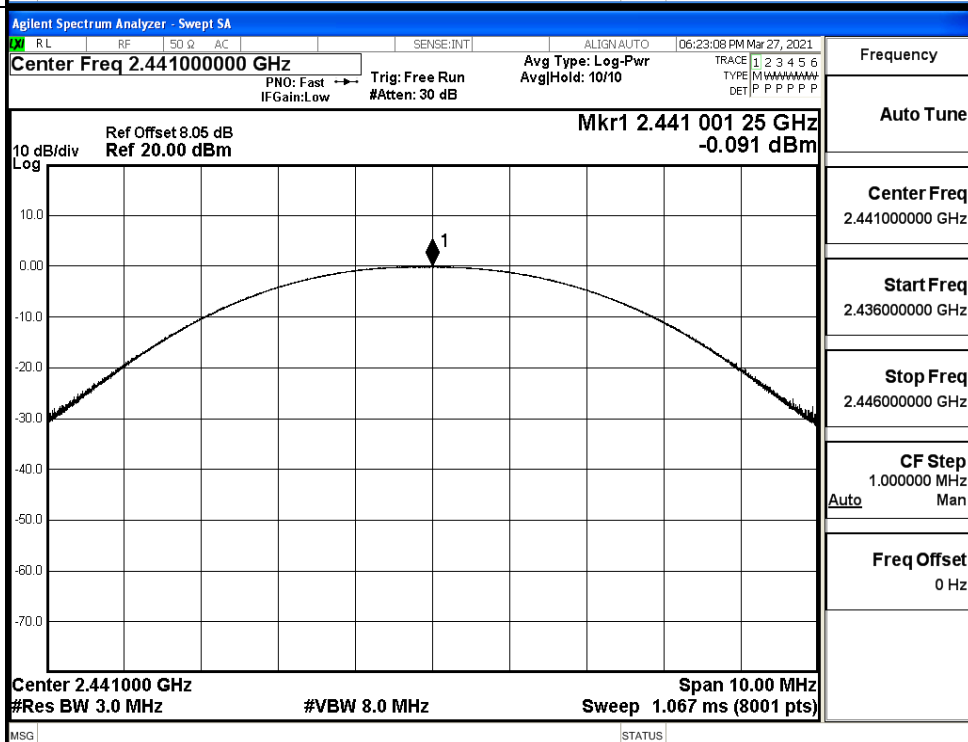
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.068	21	PASS
	MCH	-0.091	21	PASS
	HCH	-0.242	21	PASS
$\pi/4$ DQPSK	LCH	0.141	21	PASS
	MCH	2.107	21	PASS
	HCH	1.872	21	PASS
8DPSK	LCH	0.563	21	PASS
	MCH	2.500	21	PASS
	HCH	2.402	21	PASS

Test Graphs

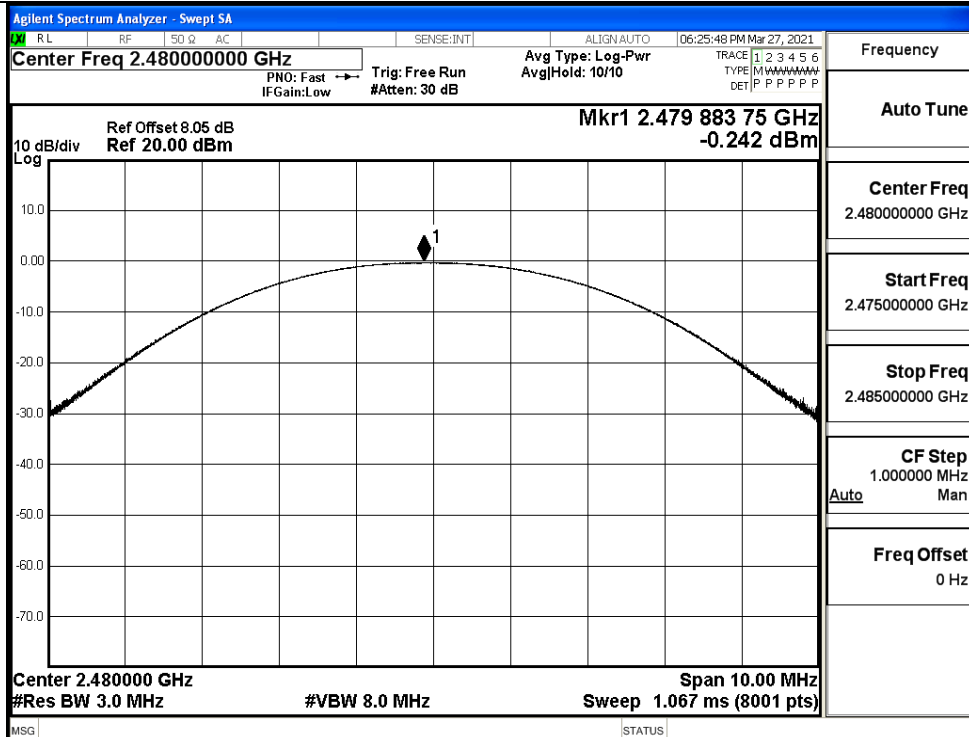
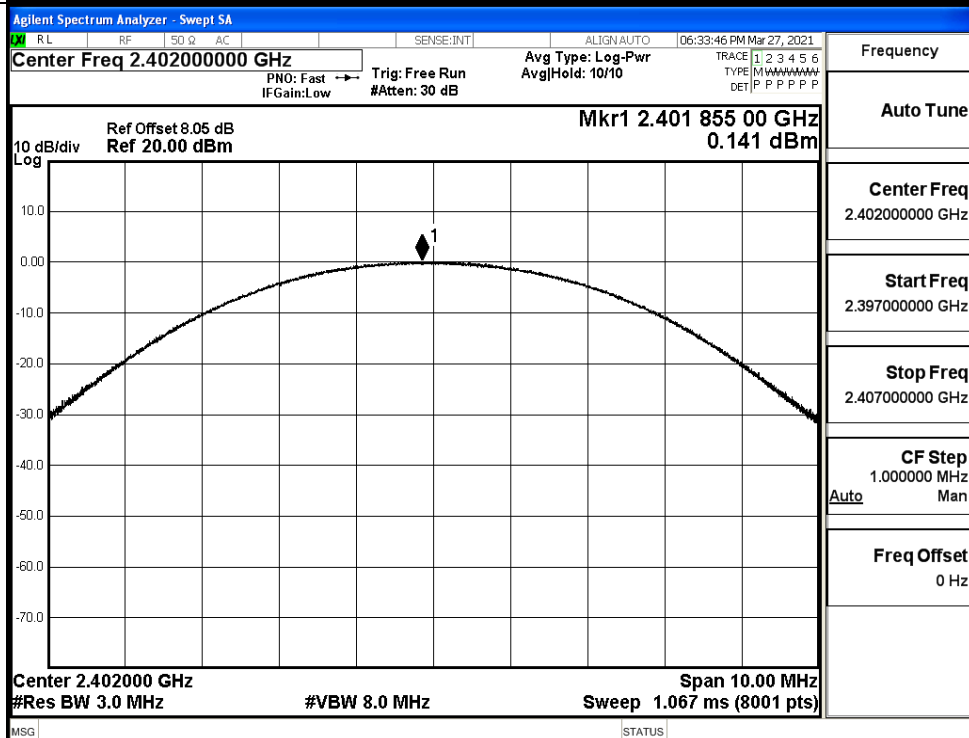
GFSK/LCH

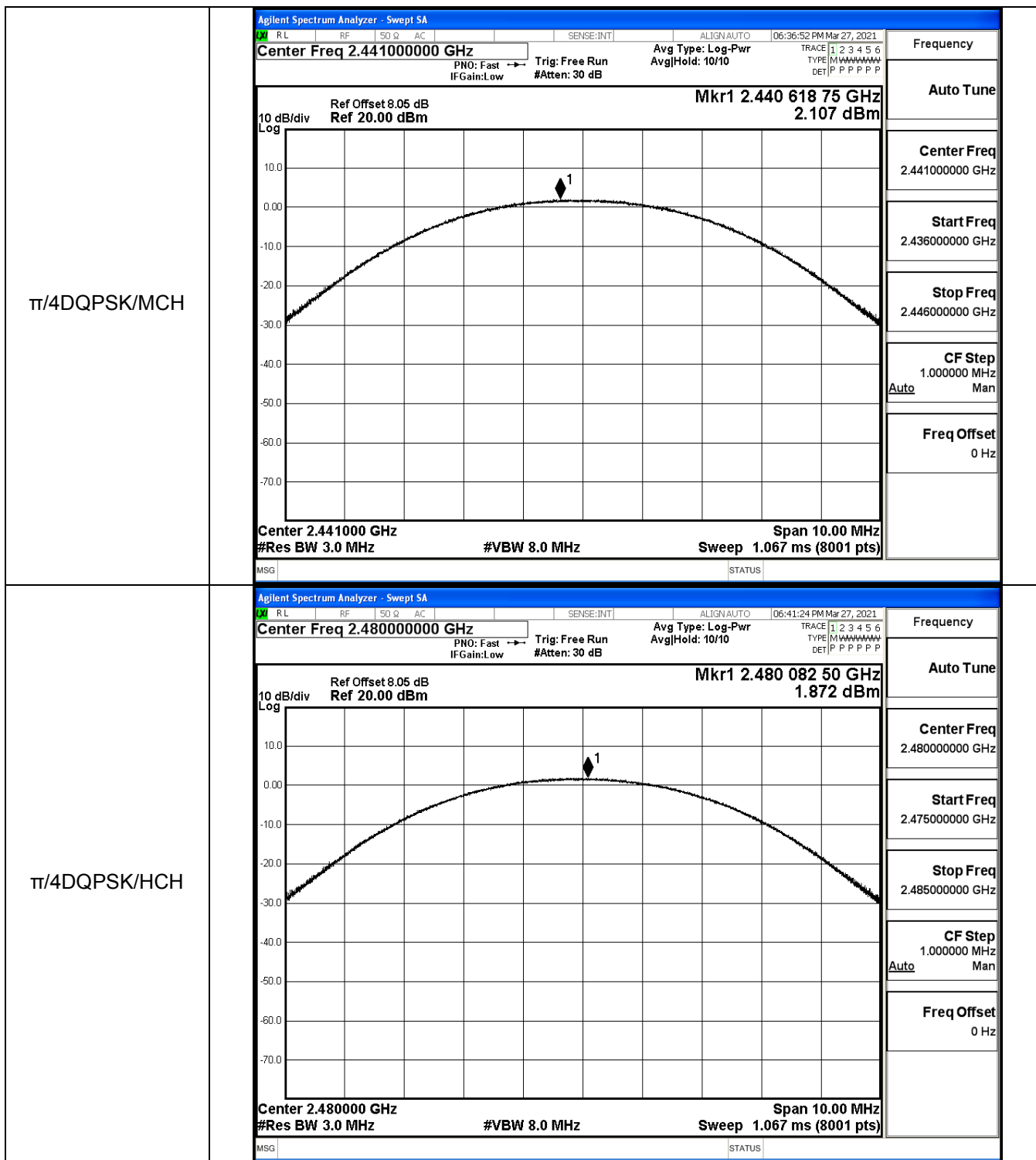


GFSK/MCH

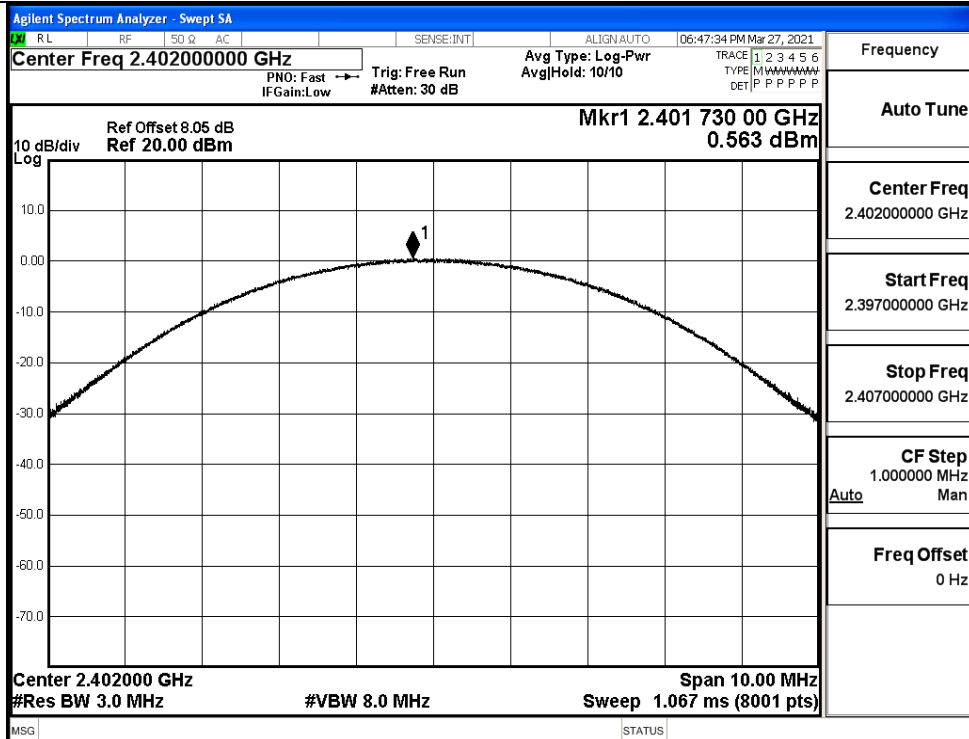


GFSK/HCH

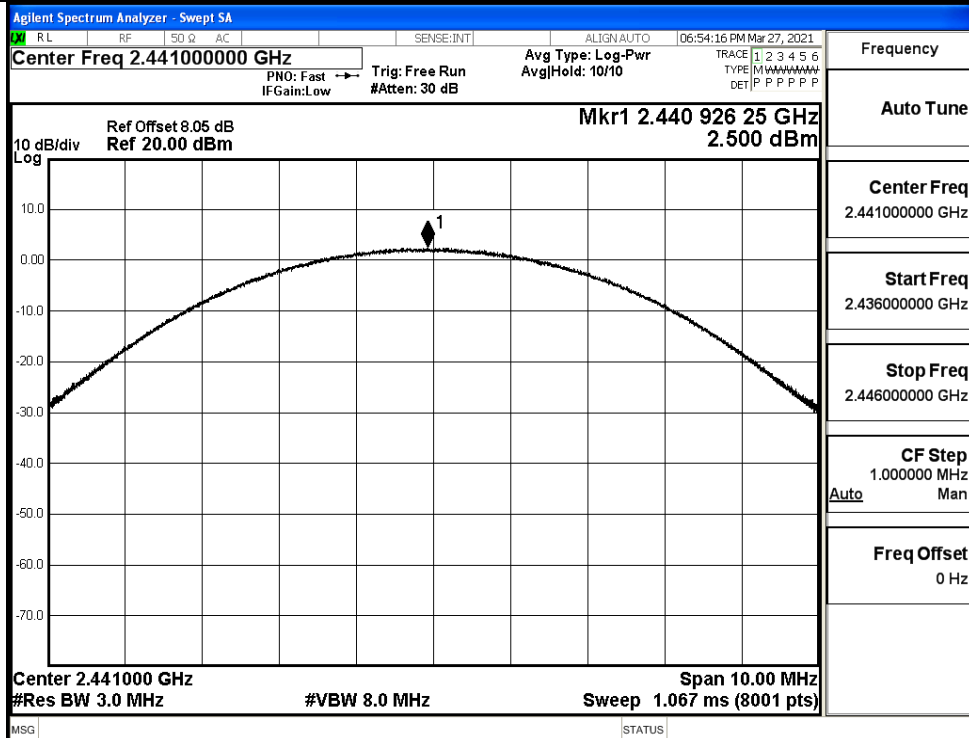
 $\pi/4$ DQPSK/LCH



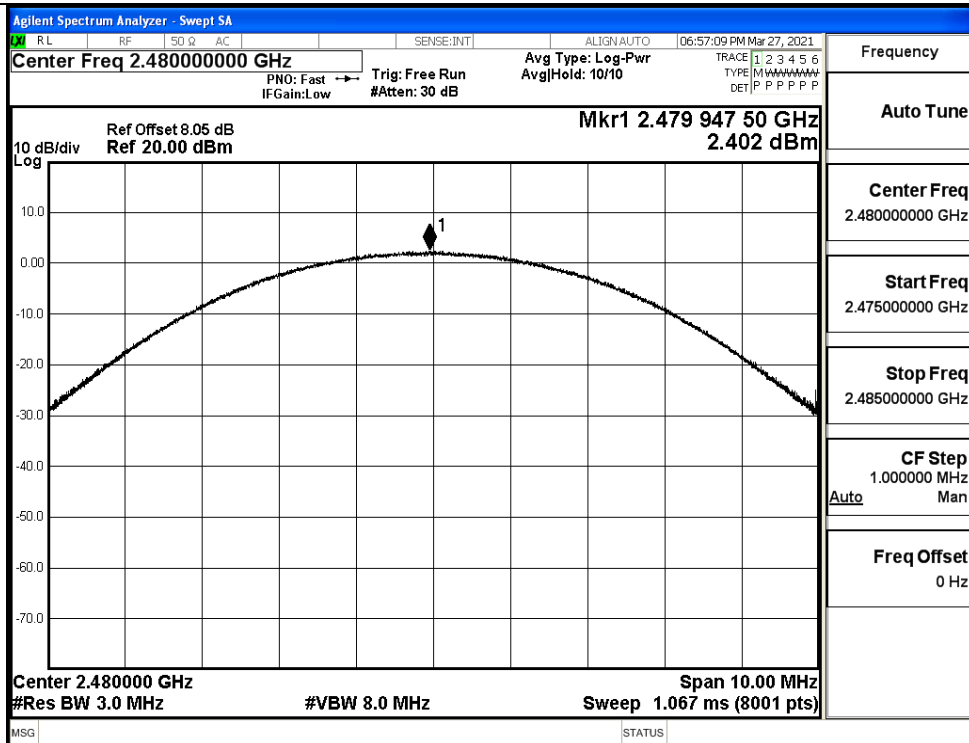
8DPSK/LCH



8DPSK/MCH



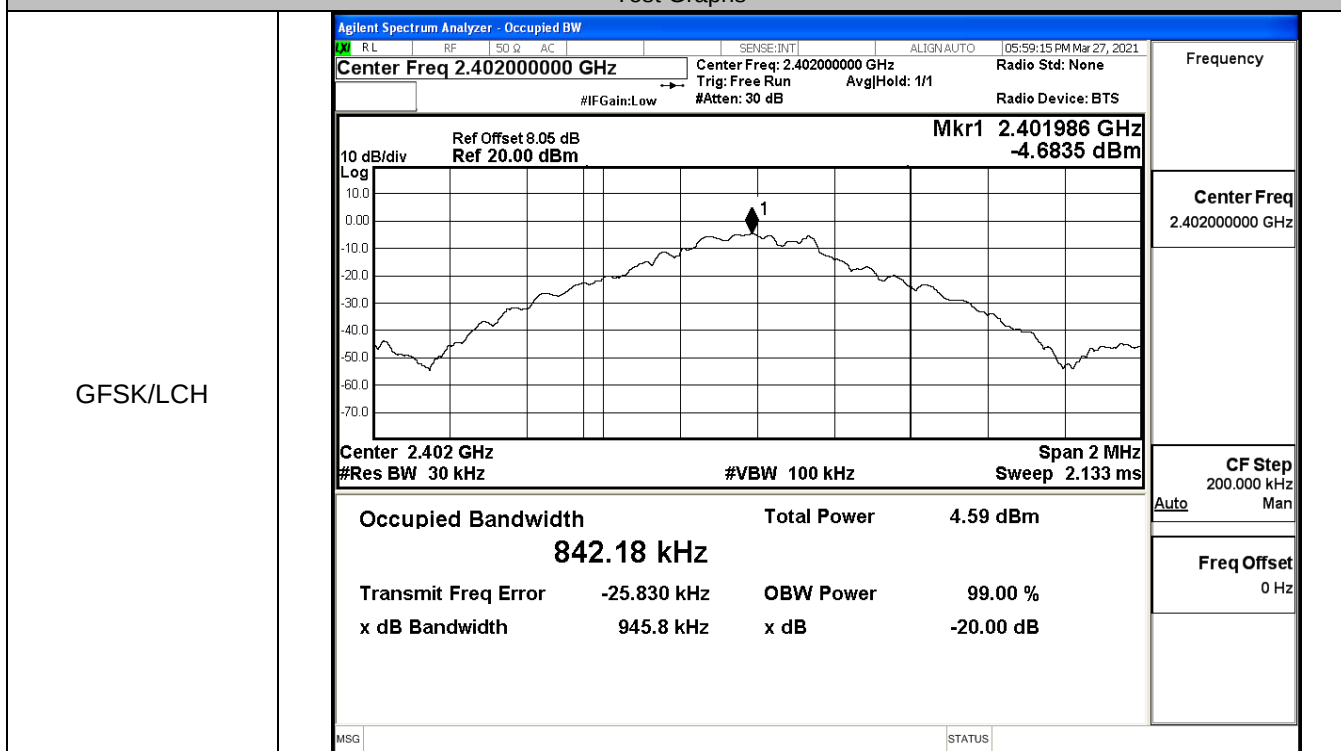
8DPSK/HCH



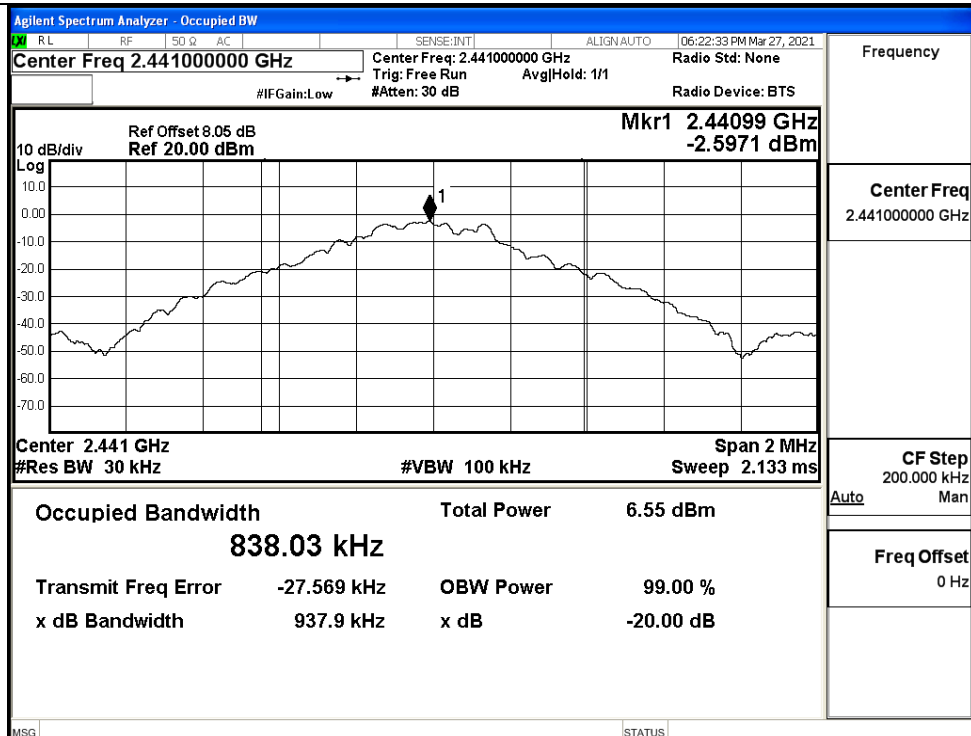
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9458	Not Specified	PASS
	MCH	0.9379	Not Specified	PASS
	HCH	0.9366	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.323	Not Specified	PASS
	MCH	1.321	Not Specified	PASS
	HCH	1.313	Not Specified	PASS
8DPSK	LCH	1.311	Not Specified	PASS
	MCH	1.310	Not Specified	PASS
	HCH	1.310	Not Specified	PASS

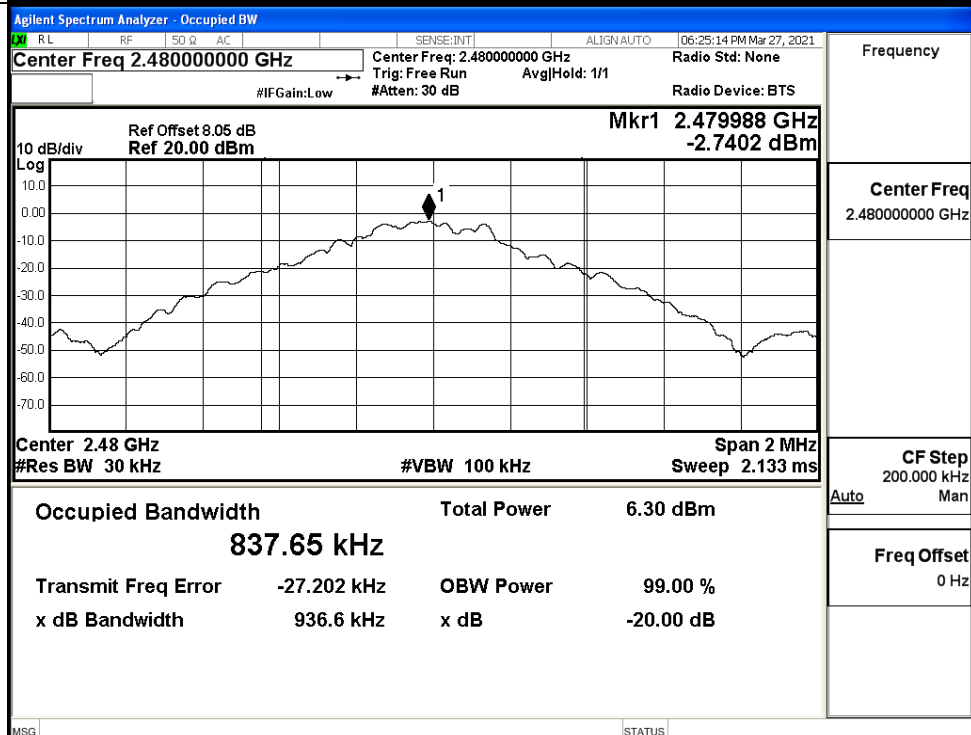
Test Graphs

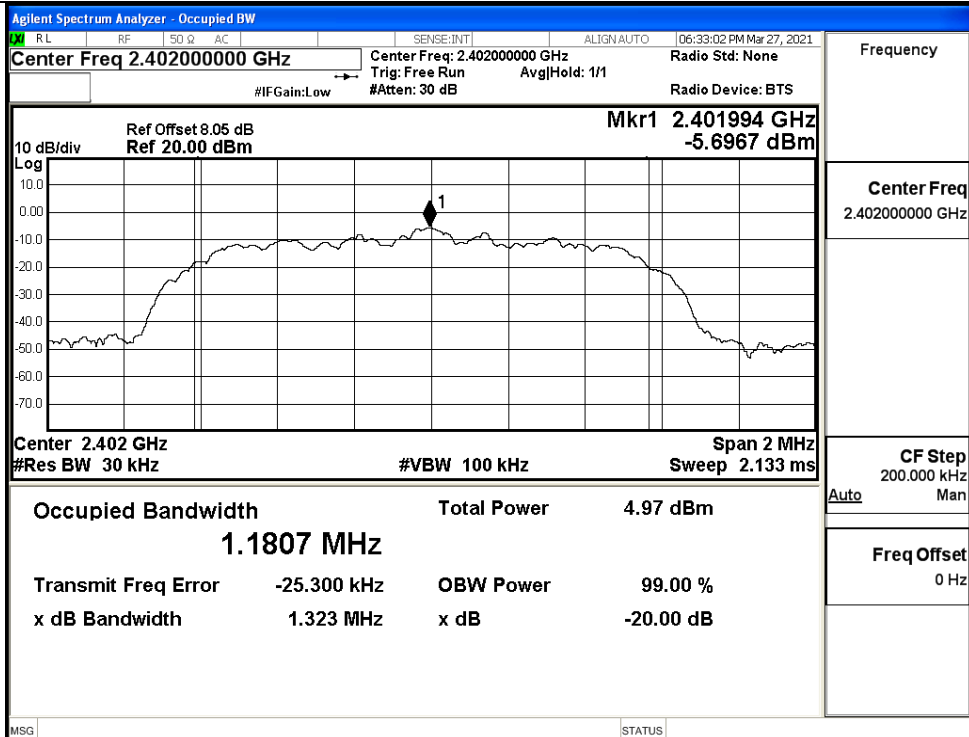
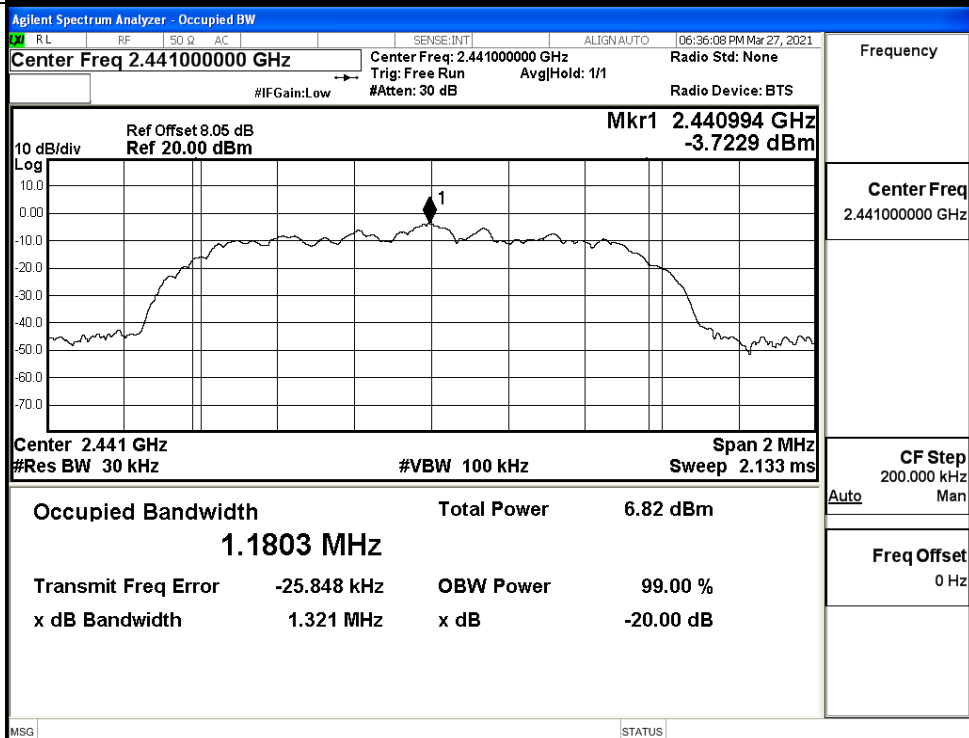


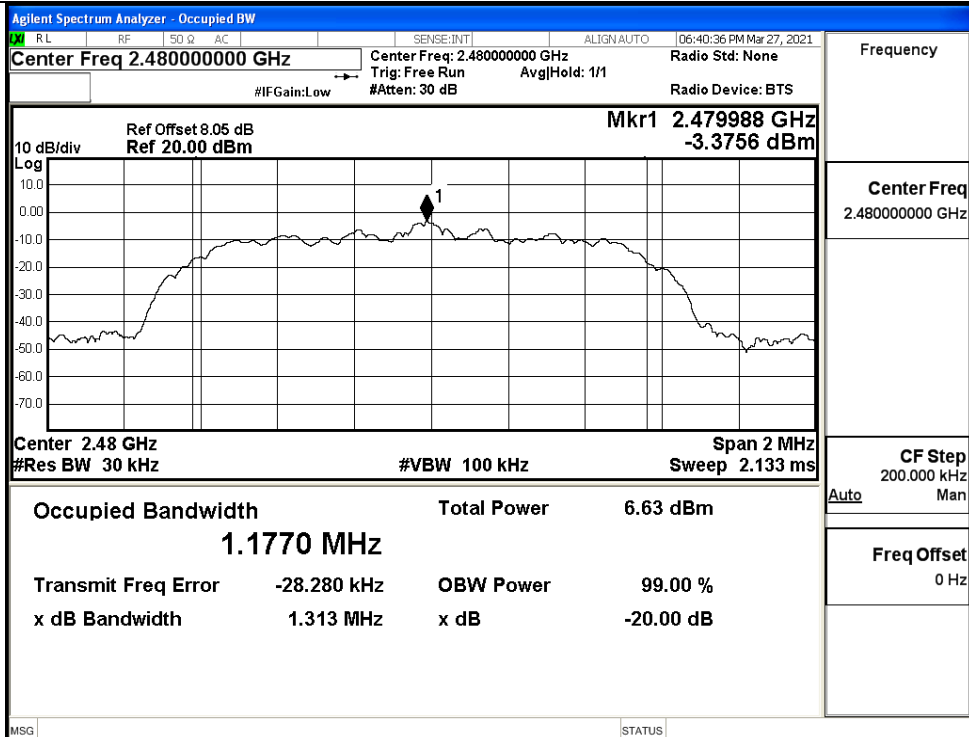
GFSK/MCH



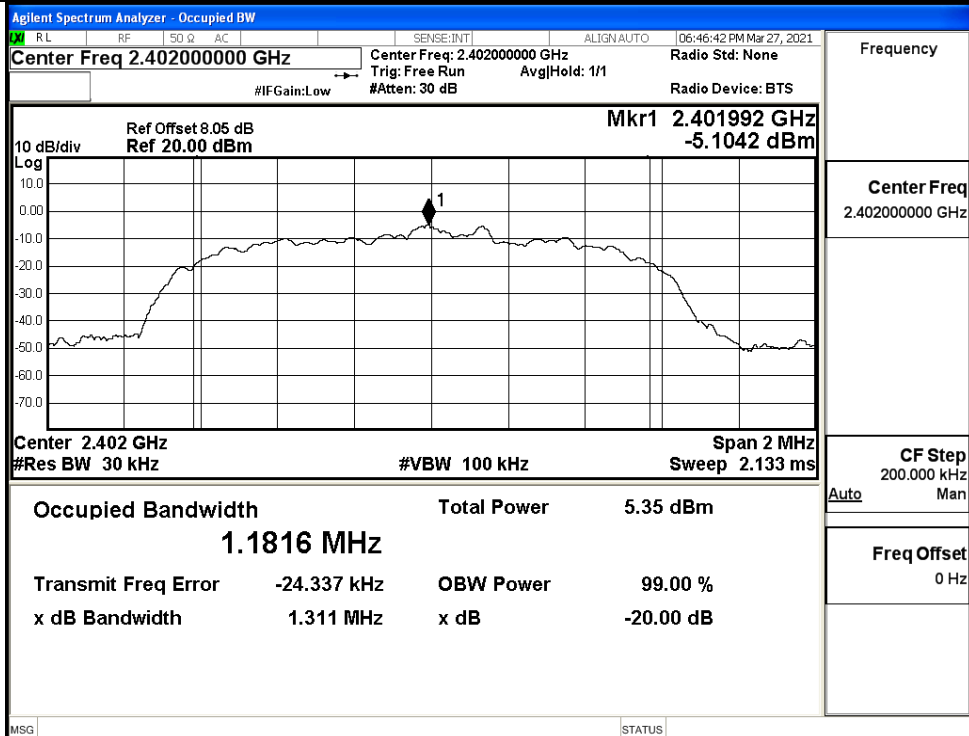
GFSK/HCH



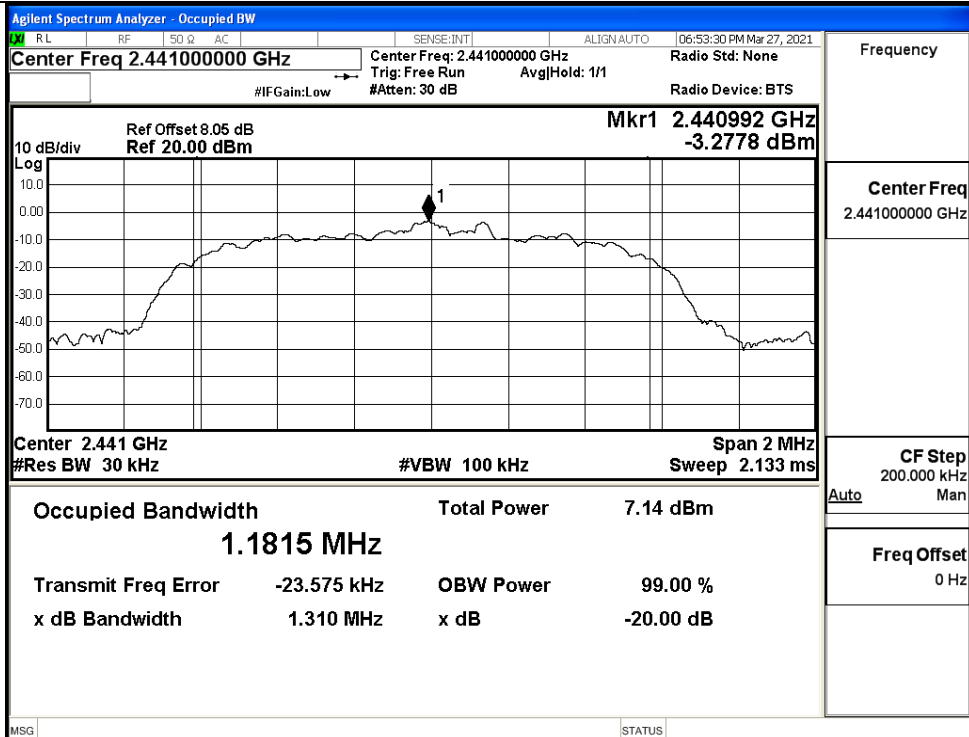
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

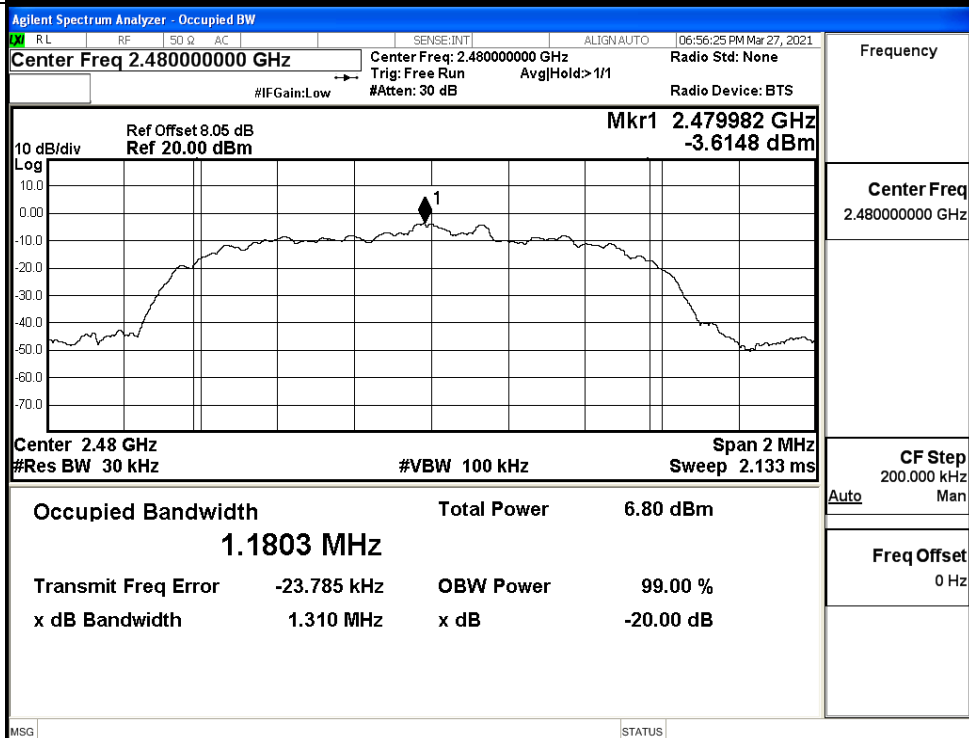
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

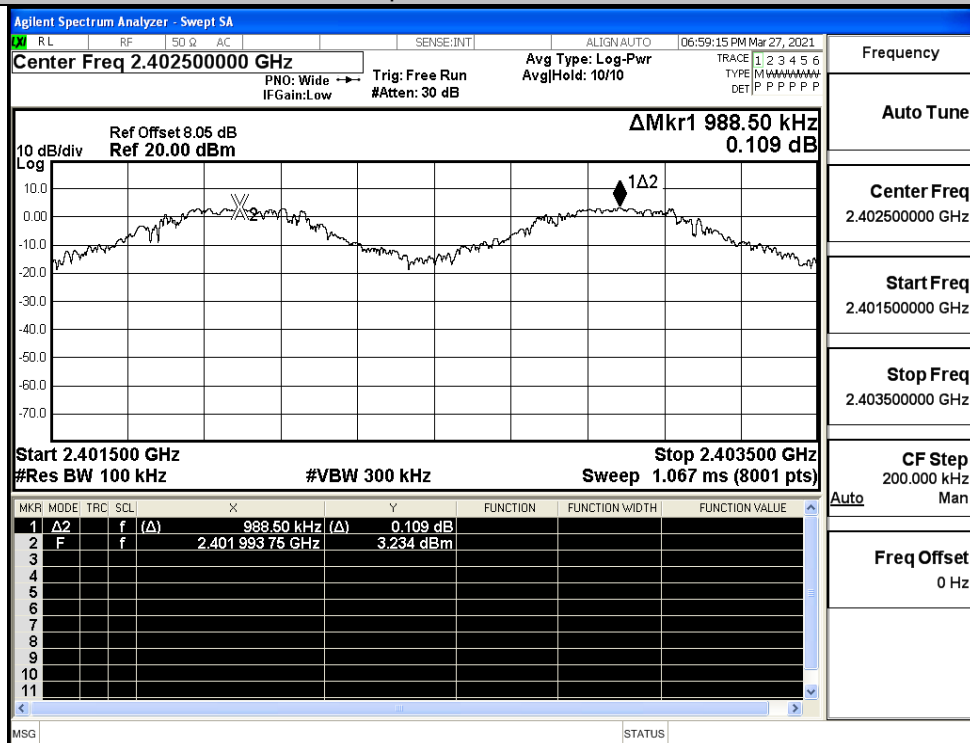


A.3 Carrier Frequency Separation

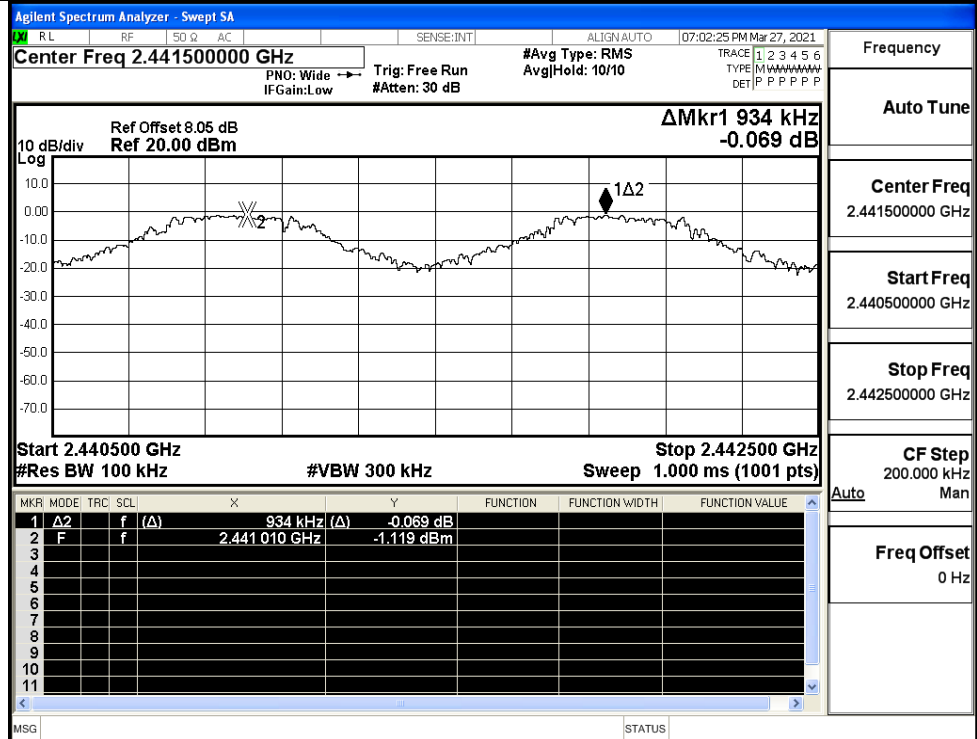
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.988	0.631	PASS
	MCH	0.934	0.631	PASS
	HCH	0.918	0.631	PASS
$\pi/4$ DQPSK	LCH	1.148	0.882	PASS
	MCH	0.968	0.882	PASS
	HCH	0.986	0.882	PASS
8DPSK	LCH	0.952	0.874	PASS
	MCH	1.048	0.874	PASS
	HCH	0.978	0.874	PASS

Test Graphs

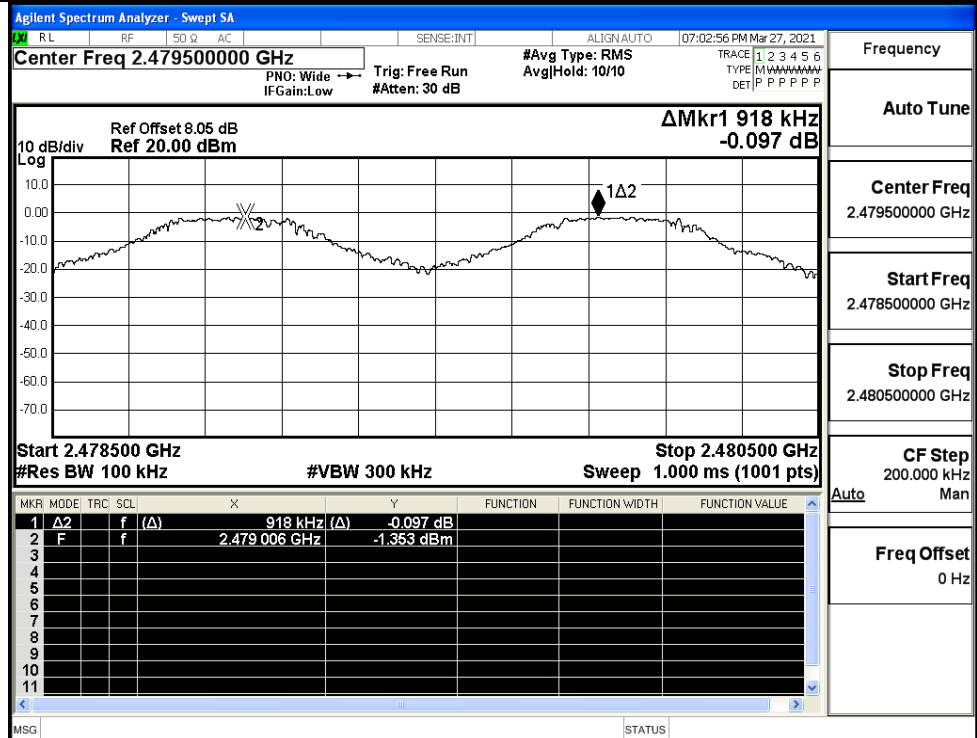
GFSK/LCH

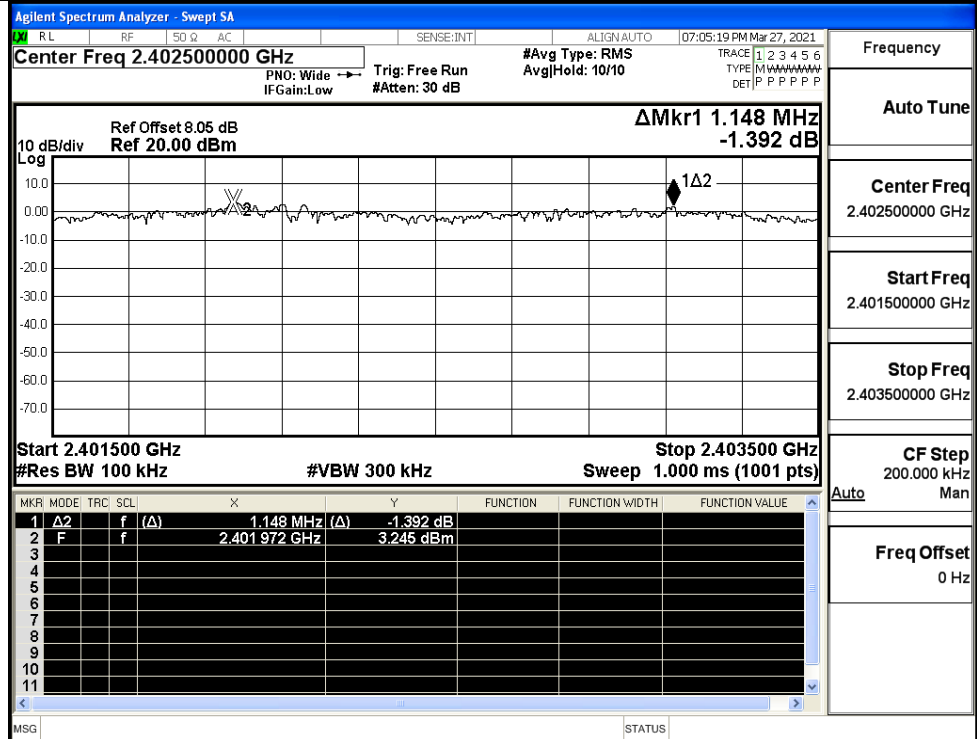
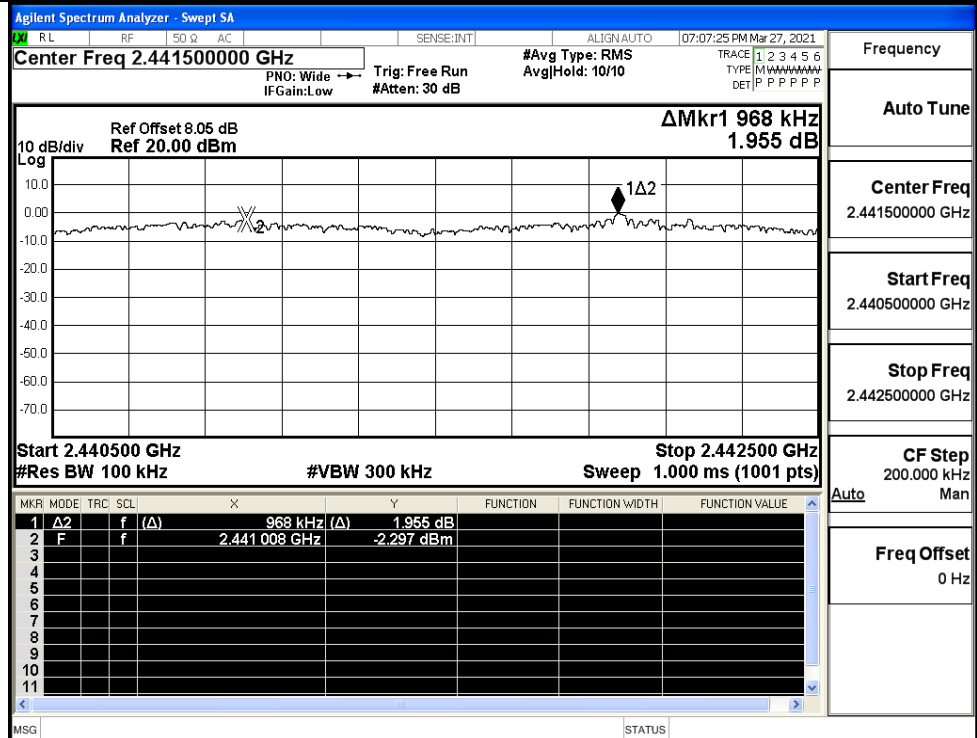


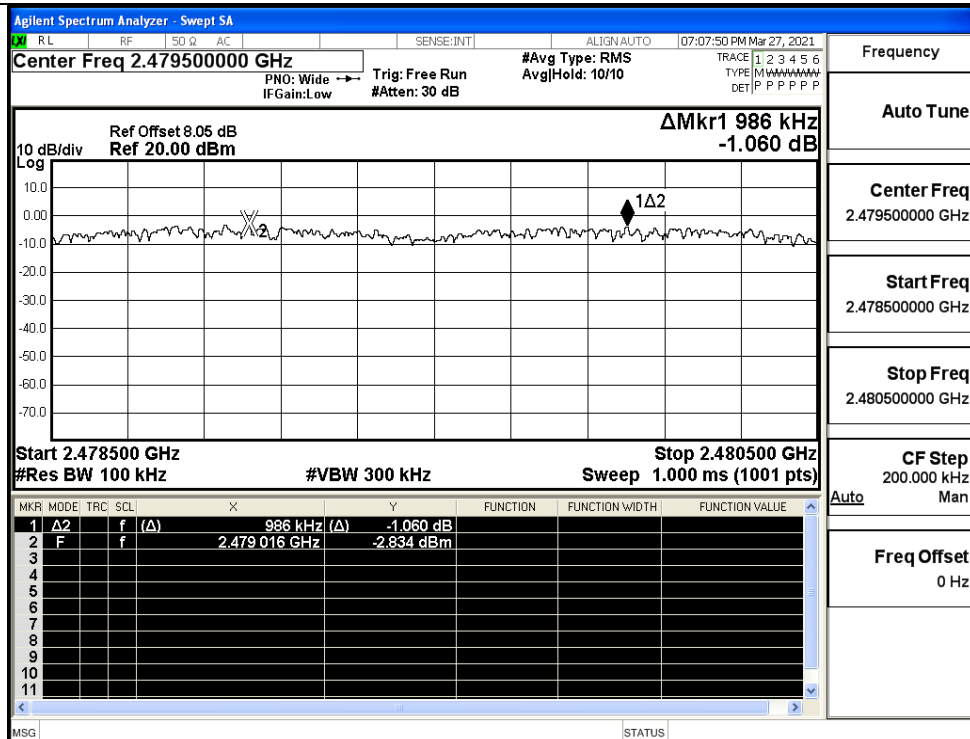
GFSK/MCH



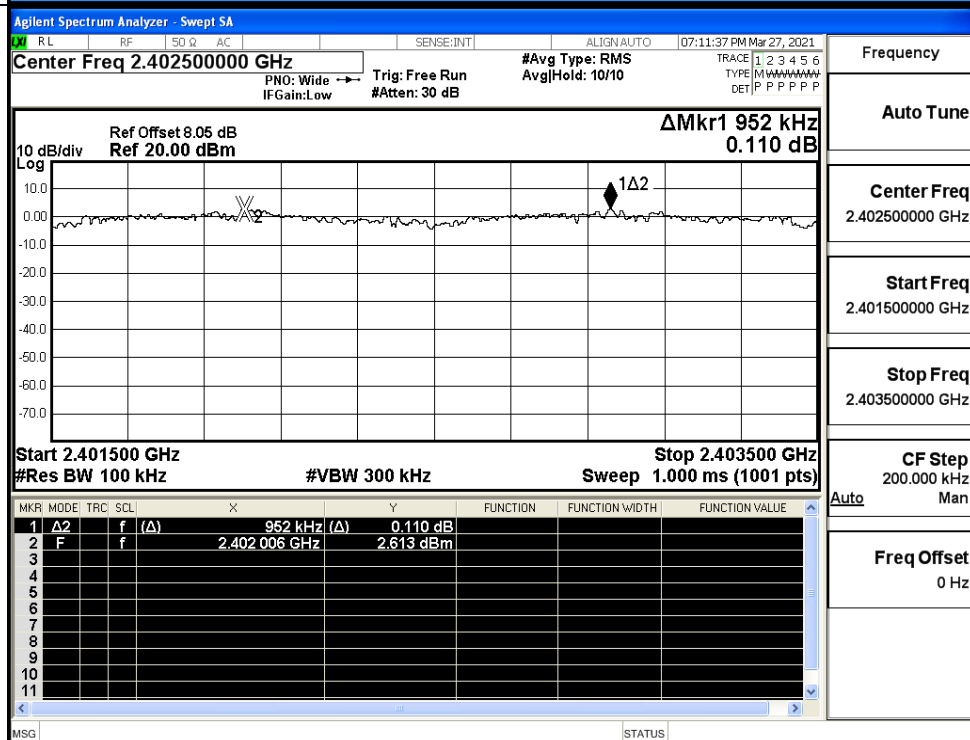
GFSK/HCH



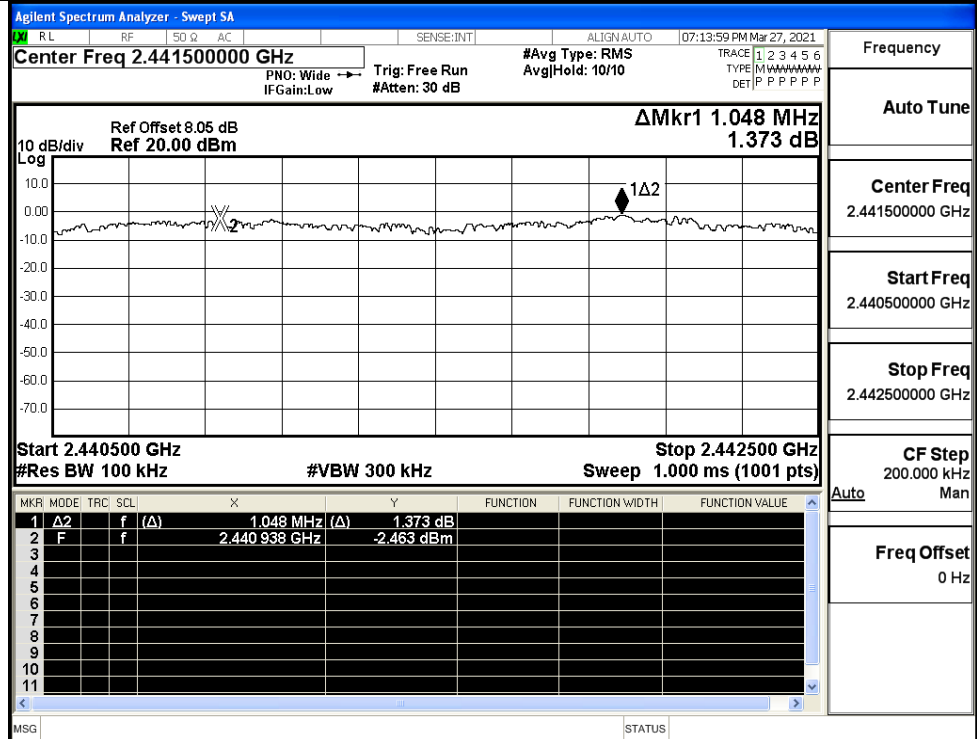
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

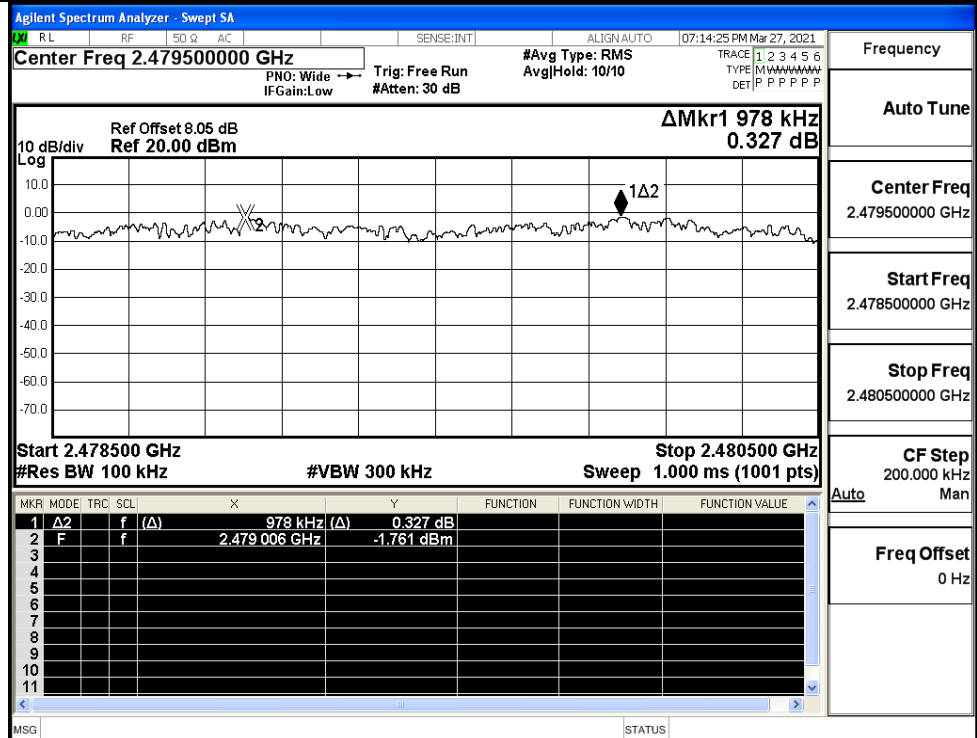
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

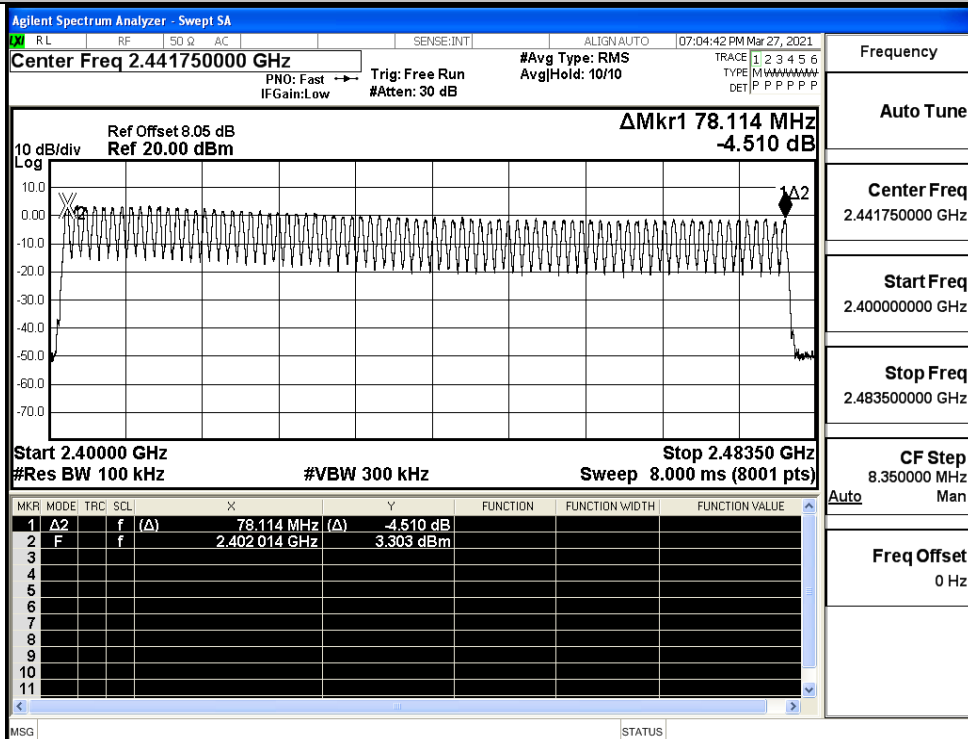
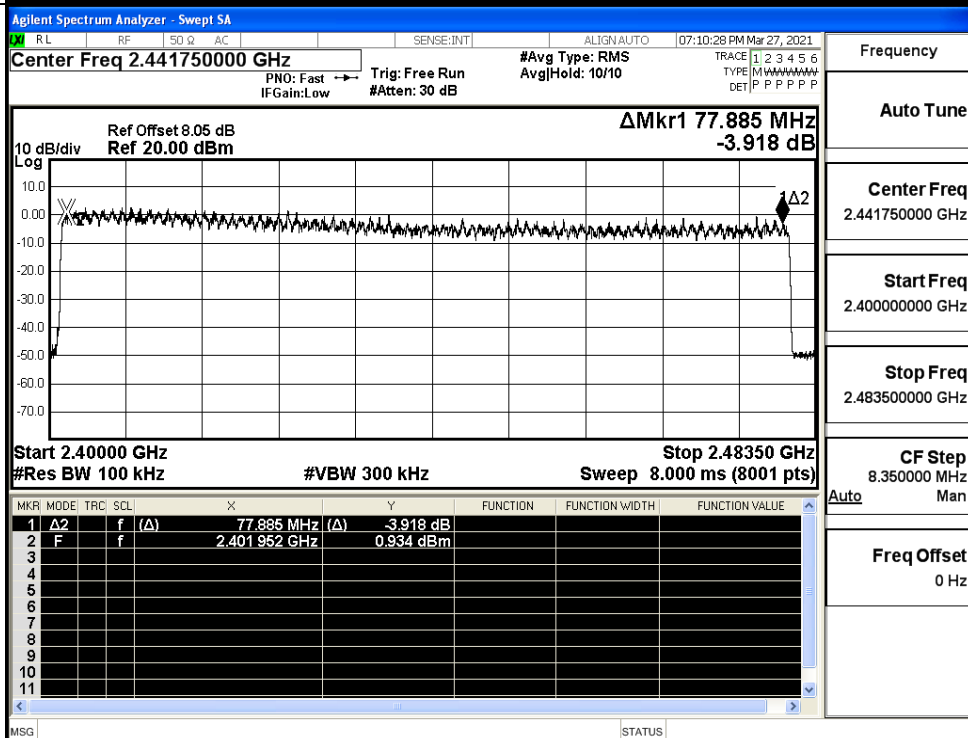


A.4 Hopping Channel Number

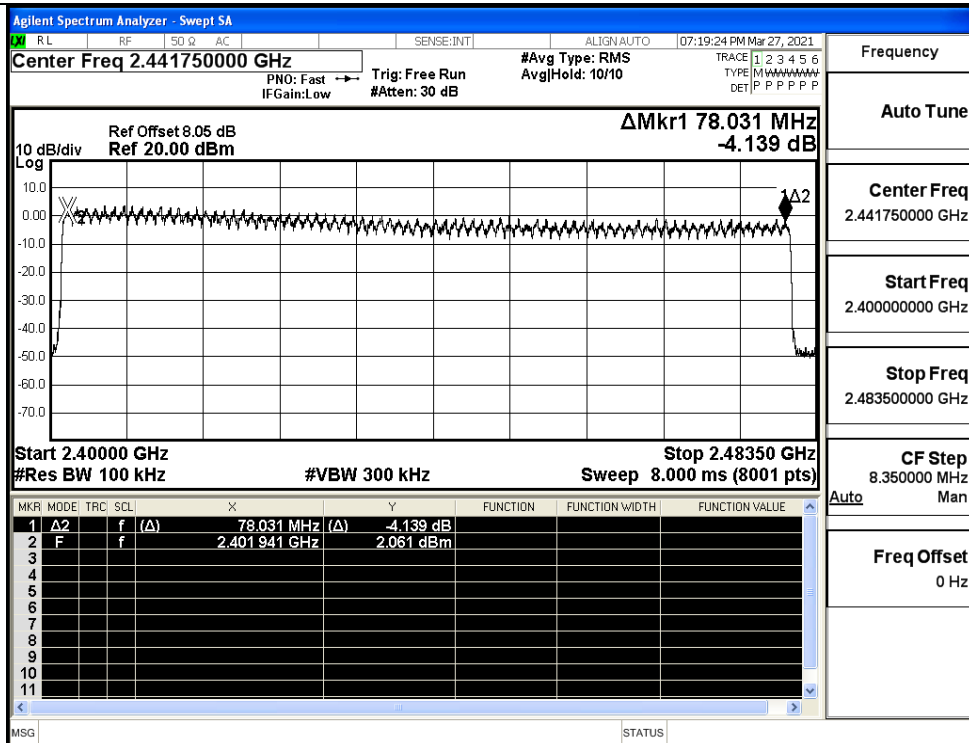
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

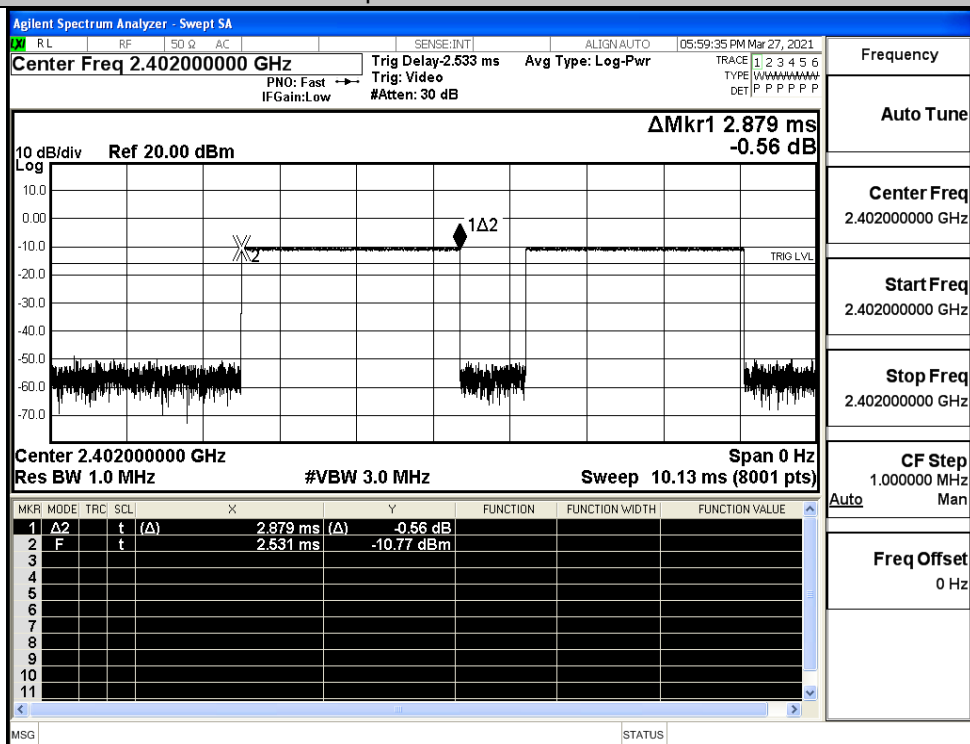


A.5 Dwell Time

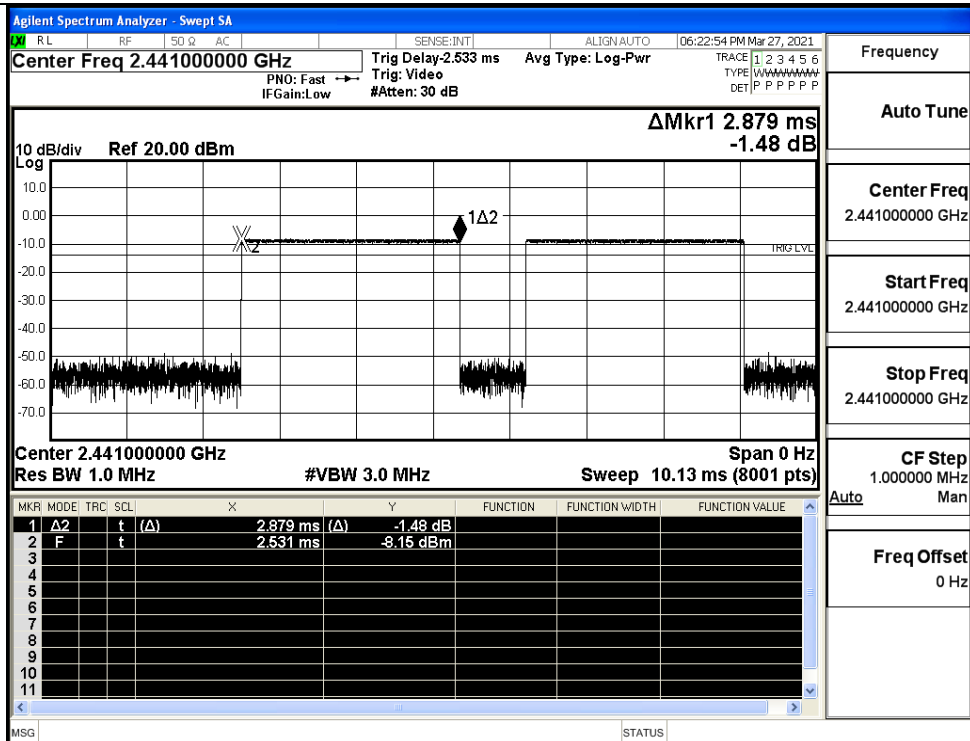
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

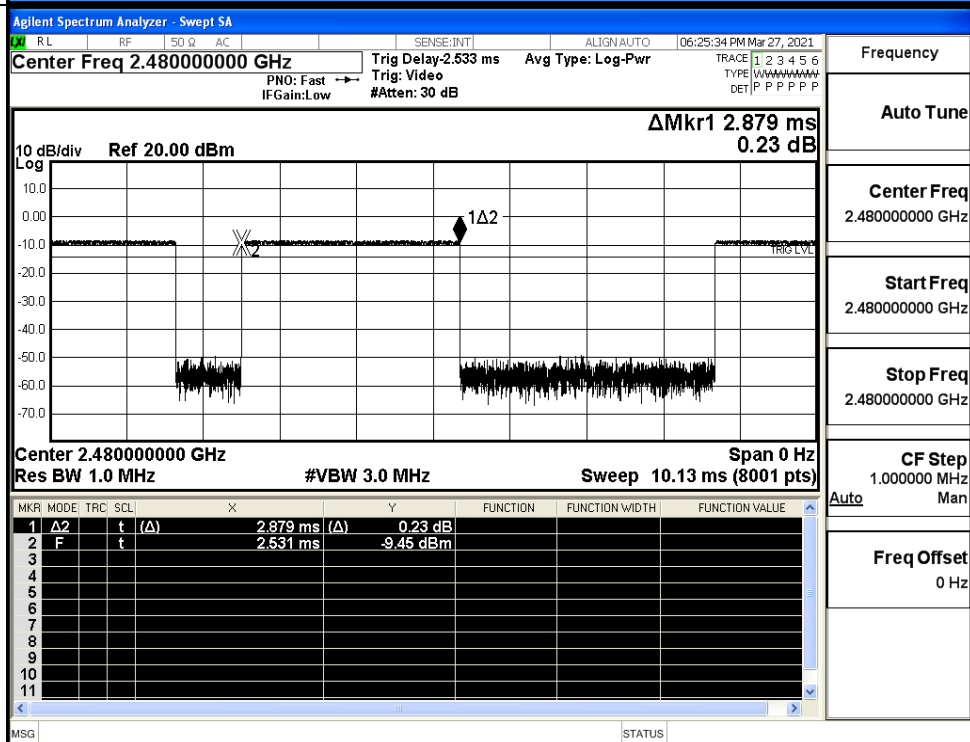
GFSK_DH5/LCH



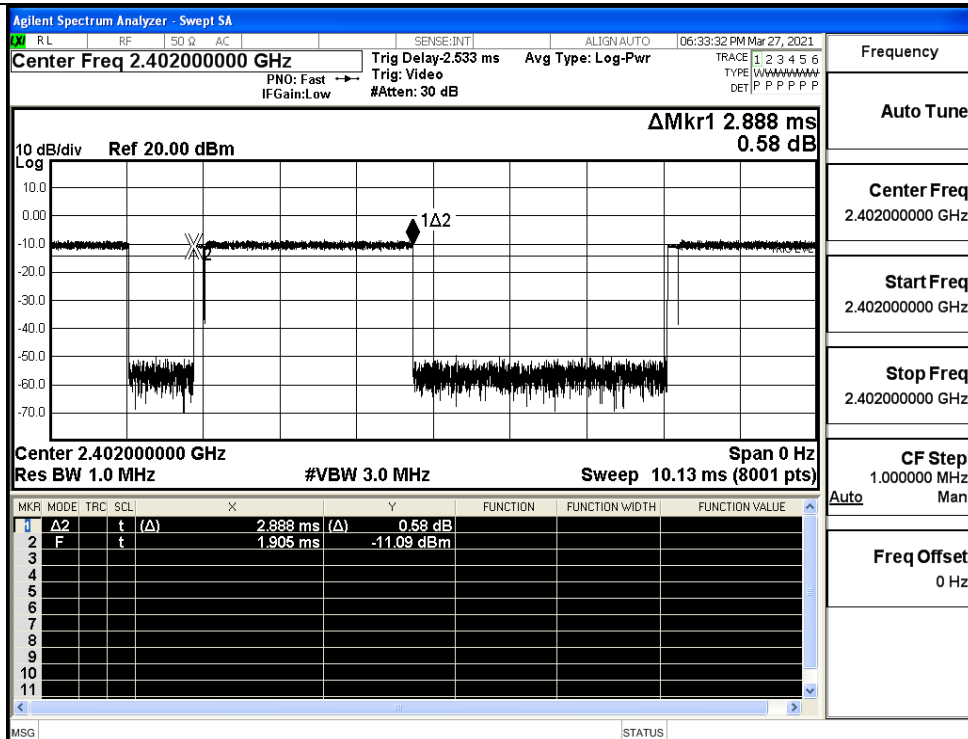
GFSK_DH5/MCH



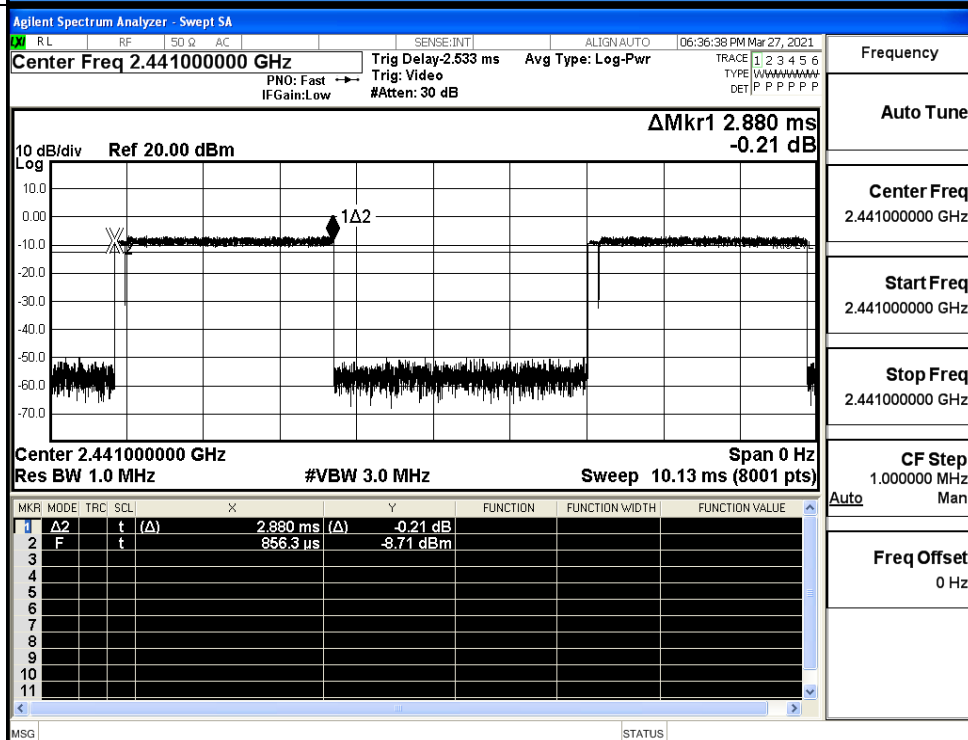
GFSK_DH5/HCH



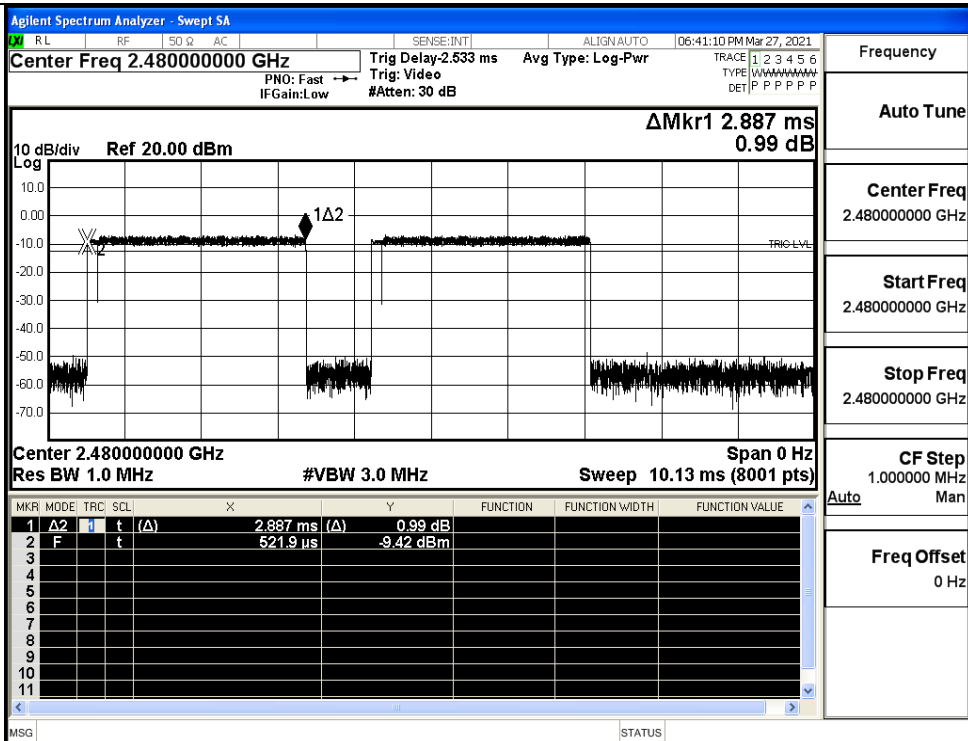
$\pi/4$ DQPSK
_2DH5/LCH



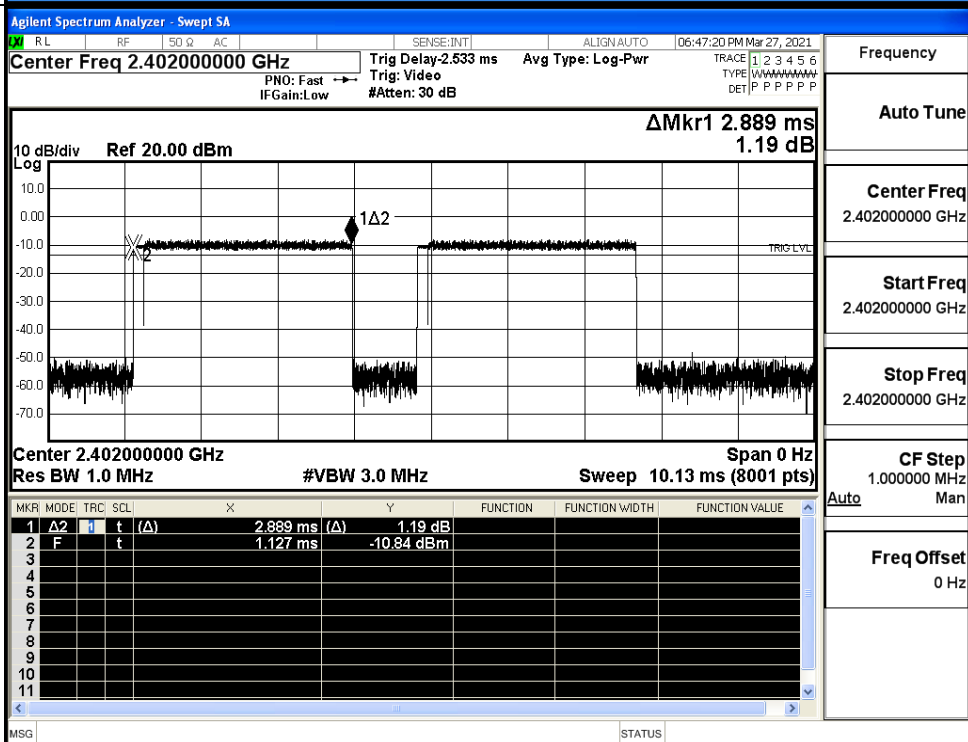
$\pi/4$ DQPSK
_2DH5/MCH



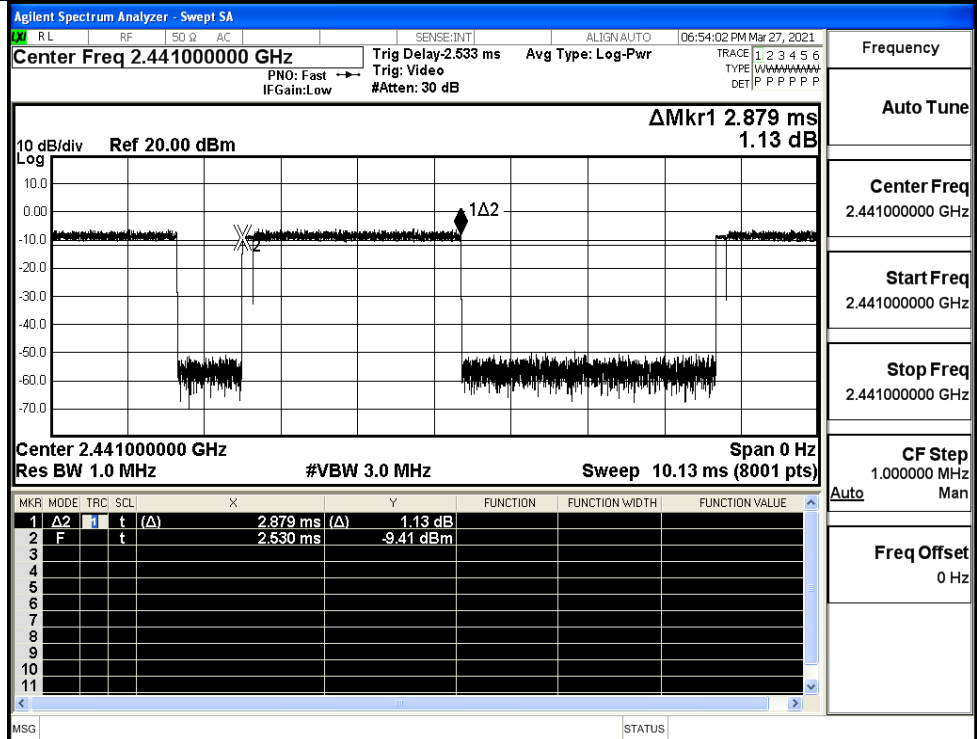
$\pi/4$ DQPSK
_2DH5/HCH



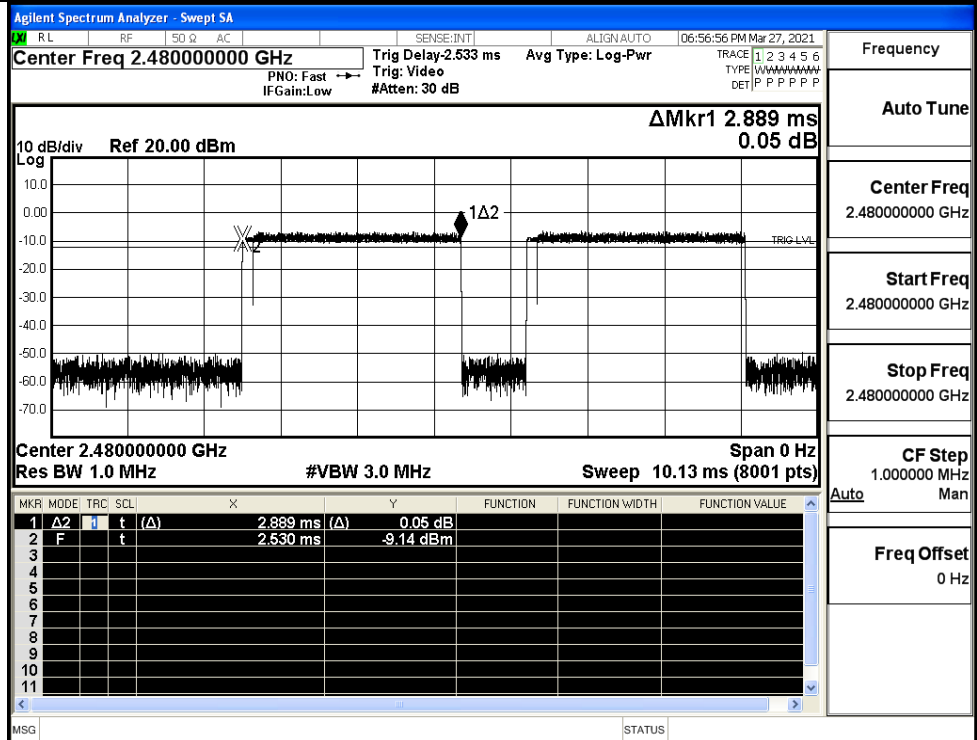
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



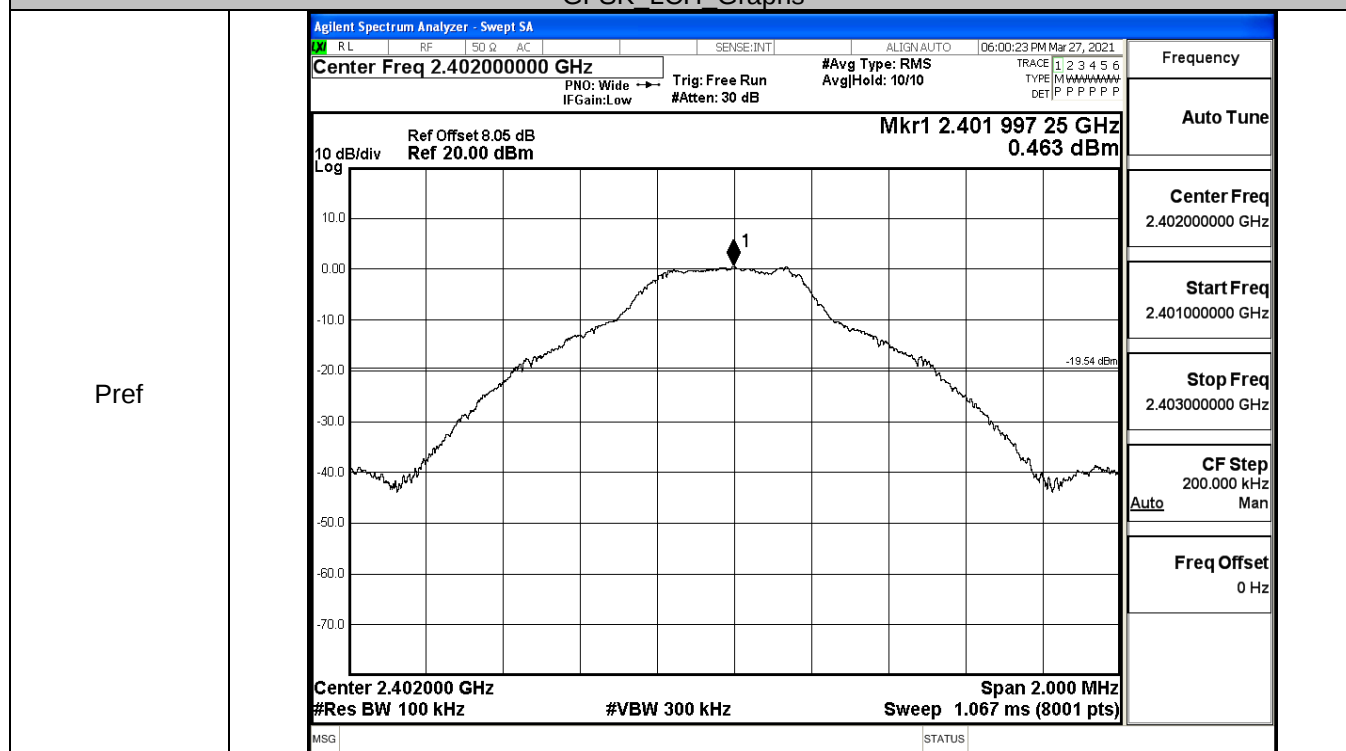
8DPSK_3DH5/HCH



A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.463	-37.174	-19.537	PASS
	MCH	-0.451	-38.457	-20.451	PASS
	HCH	-1.105	-37.372	-21.105	PASS
$\pi/4$ DQPSK	LCH	-2.781	-37.870	-22.781	PASS
	MCH	-1.046	-37.703	-21.046	PASS
	HCH	-1.603	-37.139	-21.603	PASS
8DPSK	LCH	-3.469	-38.071	-23.469	PASS
	MCH	-0.913	-37.843	-20.913	PASS
	HCH	-1.107	-38.022	-21.107	PASS

GFSK LCH Graphs



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 06:00:38 PM Mar 27, 2021

Center Freq 12.51500000 GHz PNO: Fast Trig: Free Run #Avg Type: RMS
IF Gain: Low #Atten: 30 dB Avg Hold: 3/10

TRACE 1 2 3 4 5 6
TYPE M M M M M M M M
DET P P P P P P P P

Ref Offset 8.05 dB Mkr2 24.151 GHz
Ref 20.00 dBm -37.174 dBm

10 dB/div Log

19.54 dBm

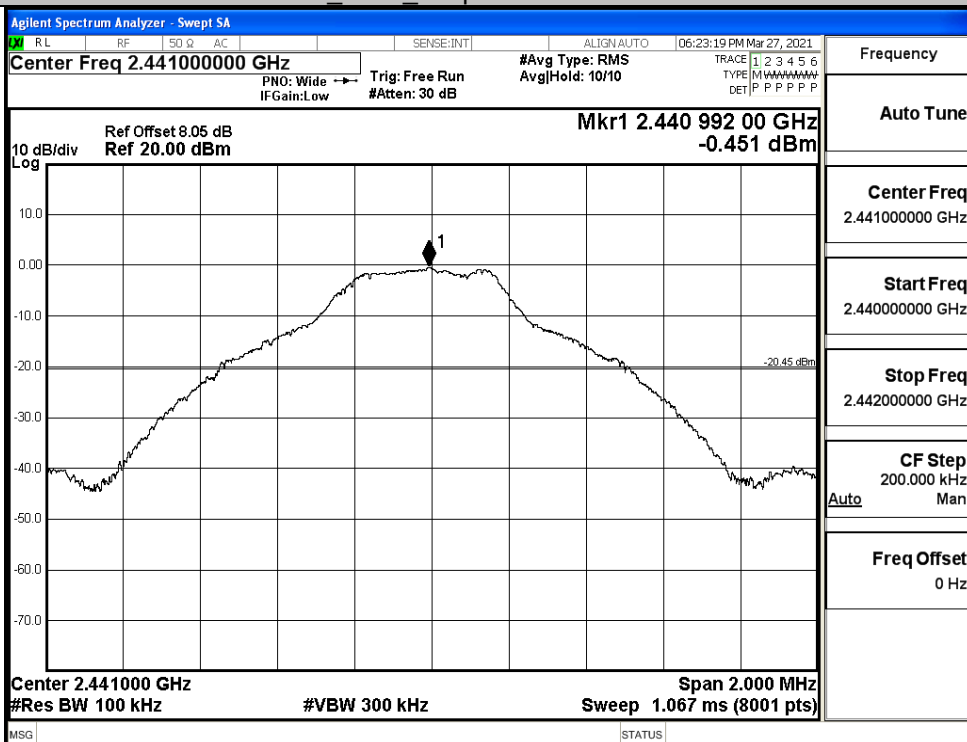
Start 30 MHz Stop 25.00 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 2.387 s (8001 pts)

MSG STATUS

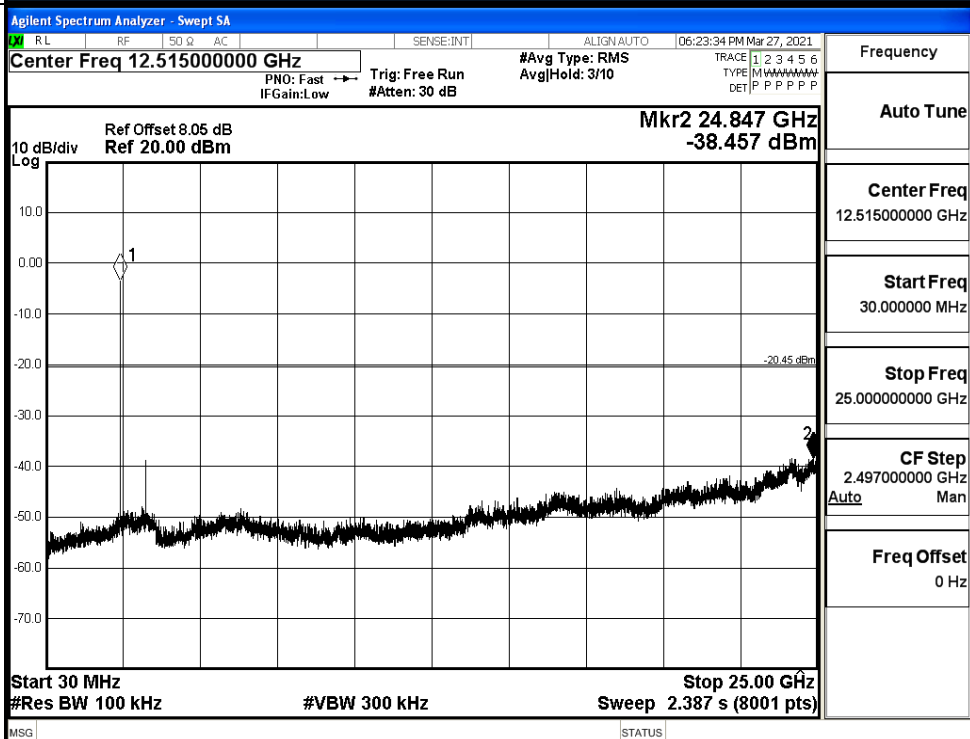
Frequency
Auto Tun
Center Freq
12.51500000 GHz
Start Freq
30.000000 MHz
Stop Freq
25.00000000 GHz
CF Step
2.497000000 GHz
Auto Mar
Freq Offset
0 Hz

GFSK_MCH_Graphs

Pref

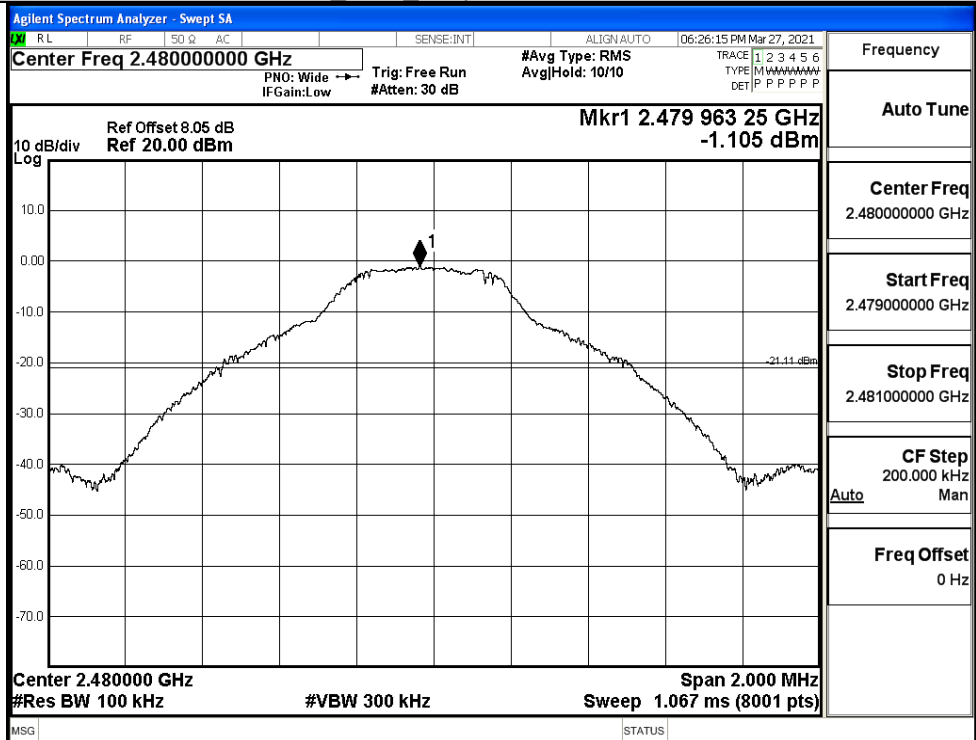


Puw

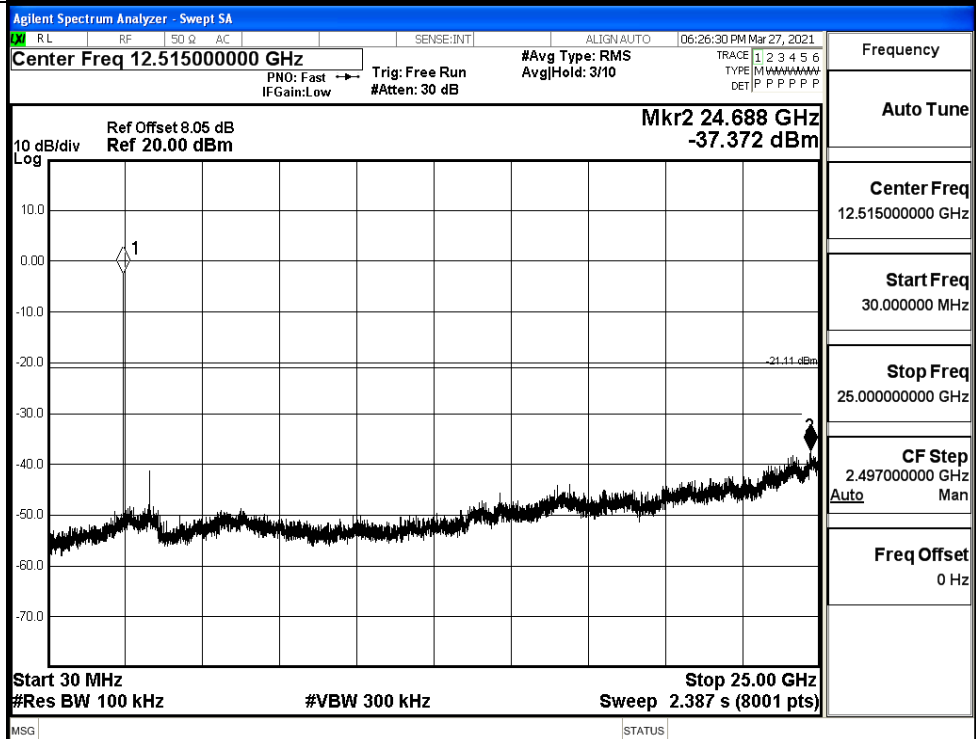


GFSK HCH Graphs

Pref

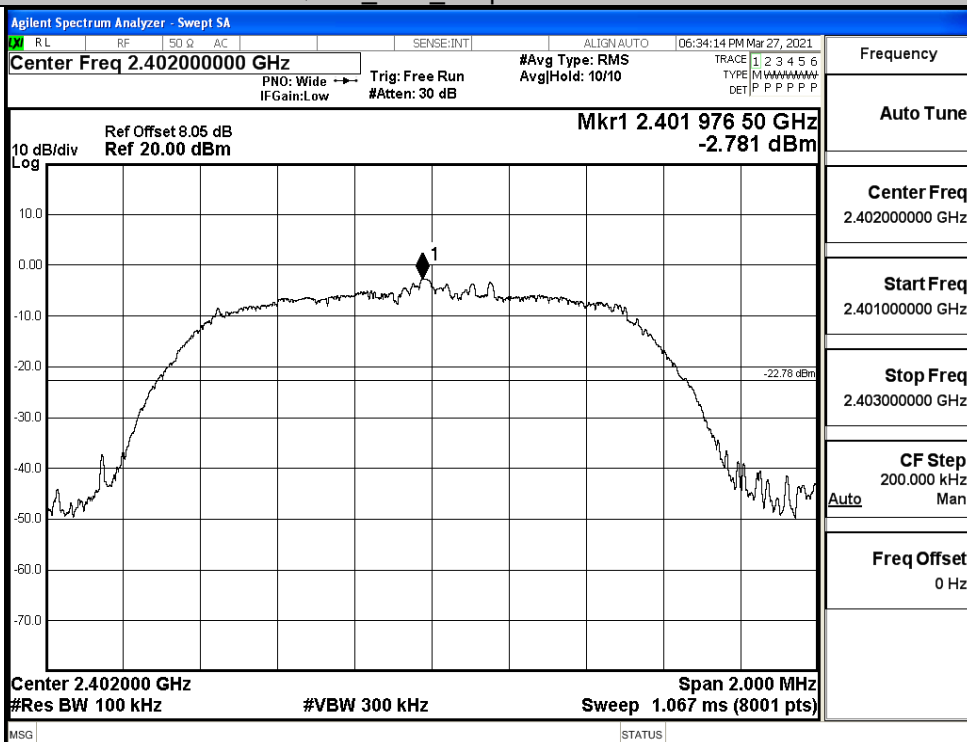


Puw

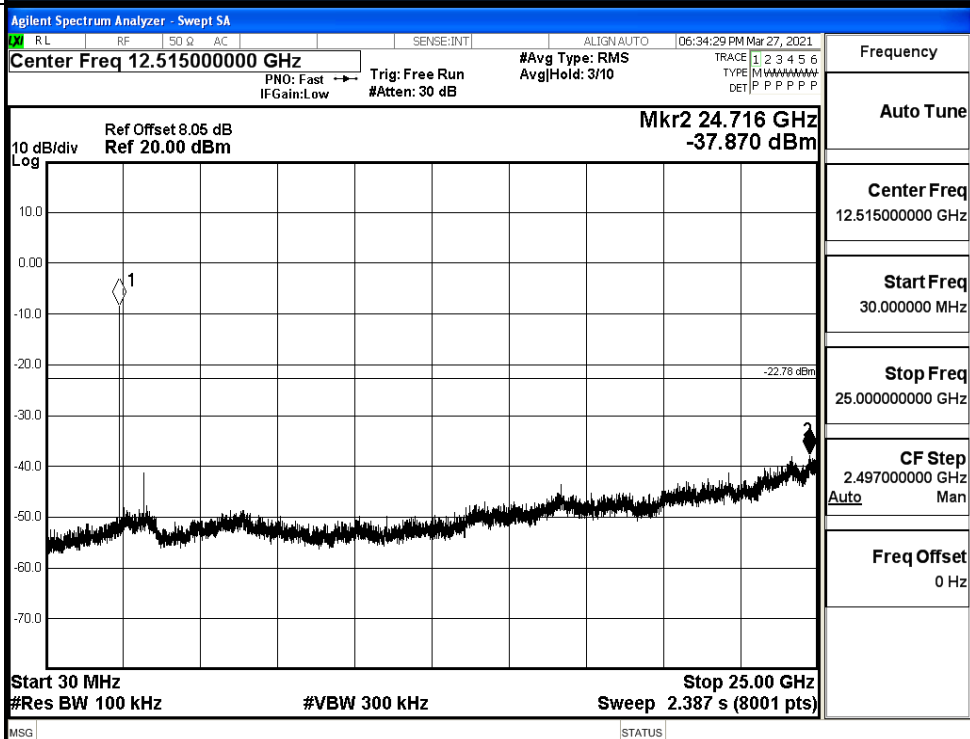


$\pi/4$ DQPSK_LCH_Graphs

Pref

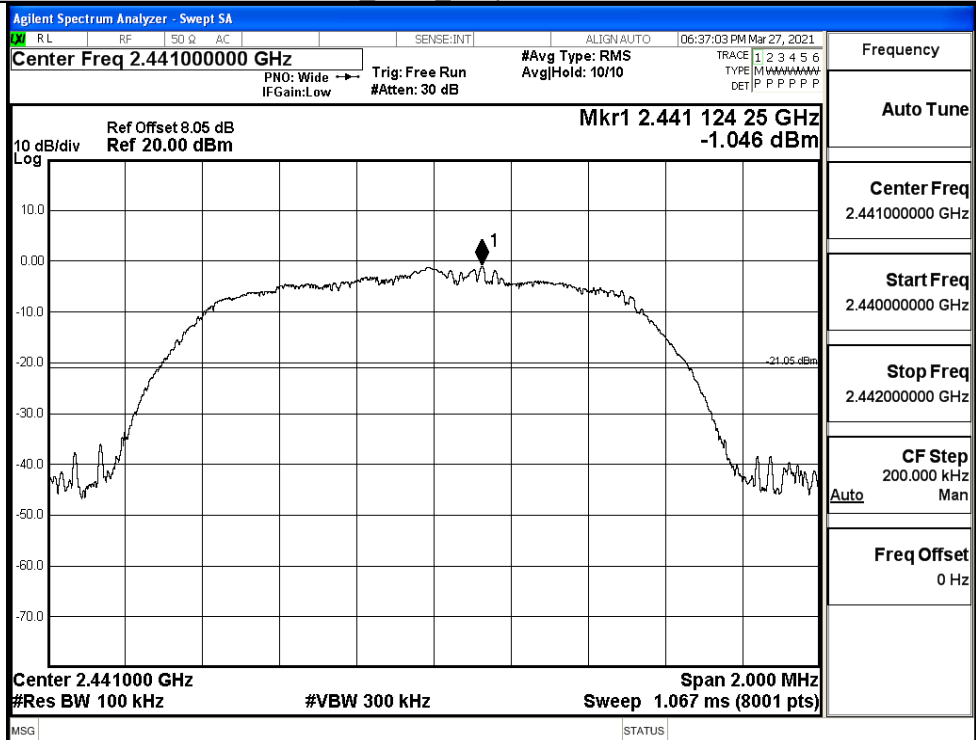


Puw

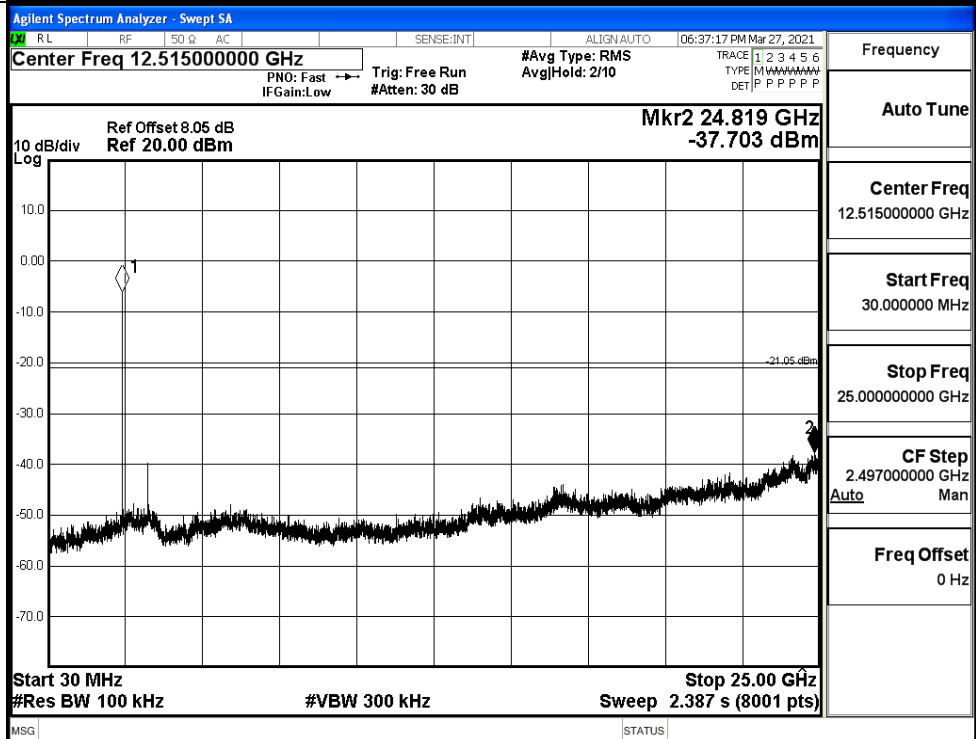


$\pi/4$ DQPSK_MCH_Graphs

Pref

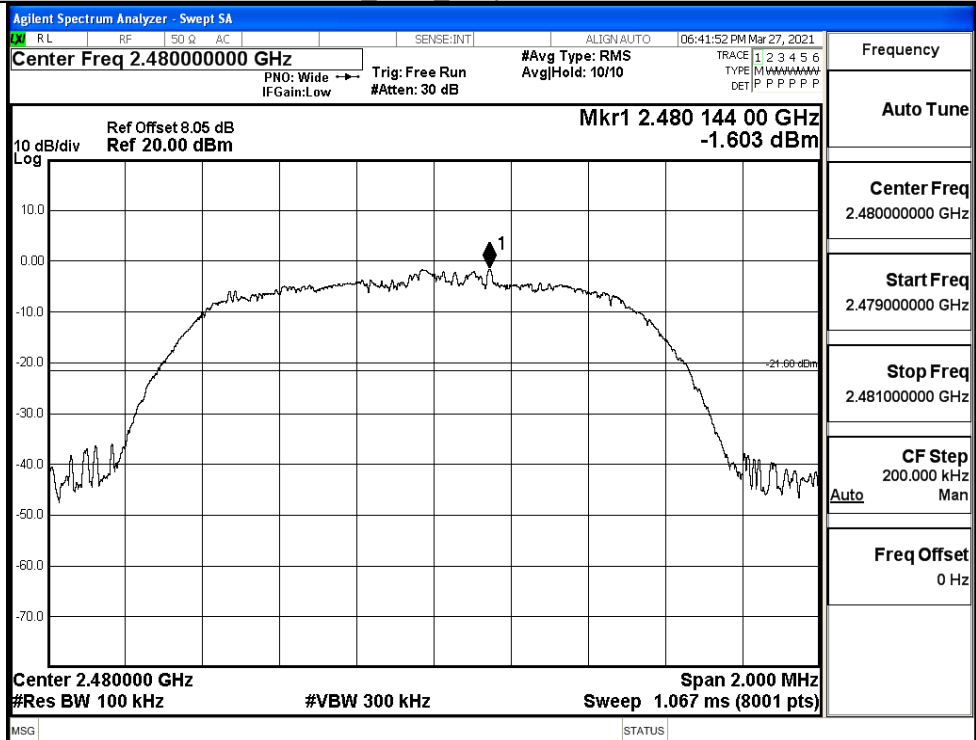


Puw

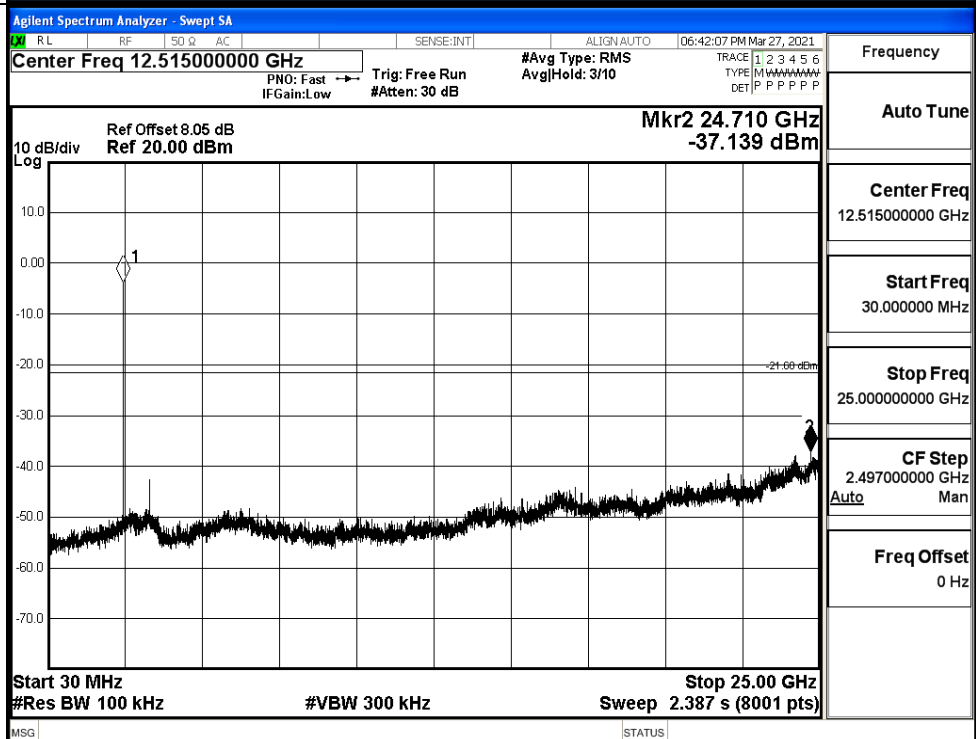


$\pi/4$ DQPSK_HCH_Graphs

Pref

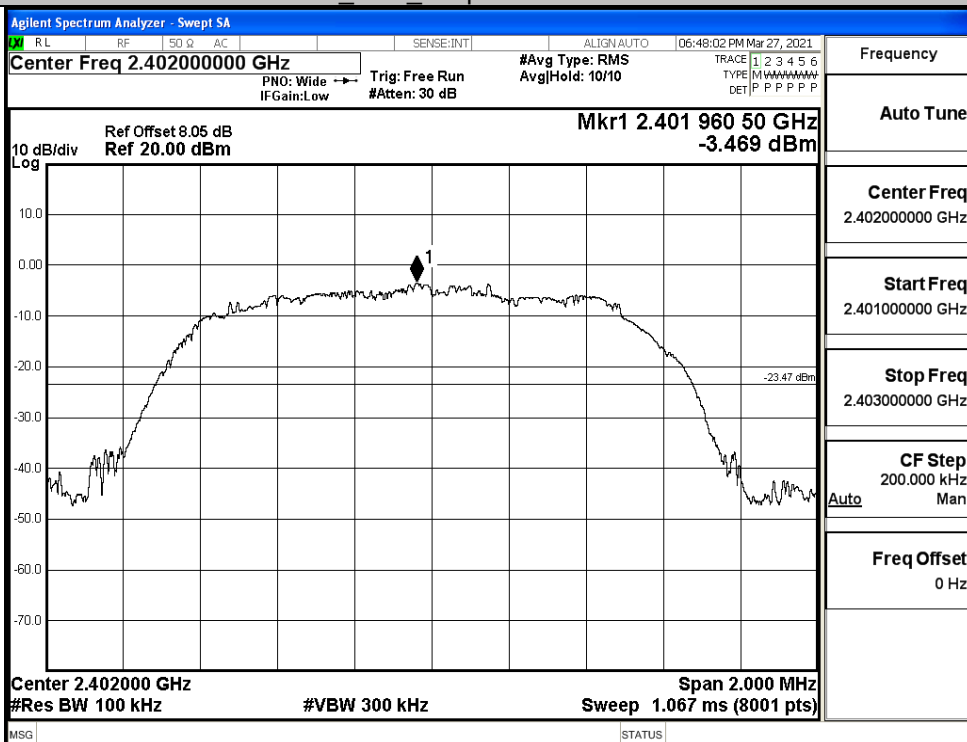


Puw

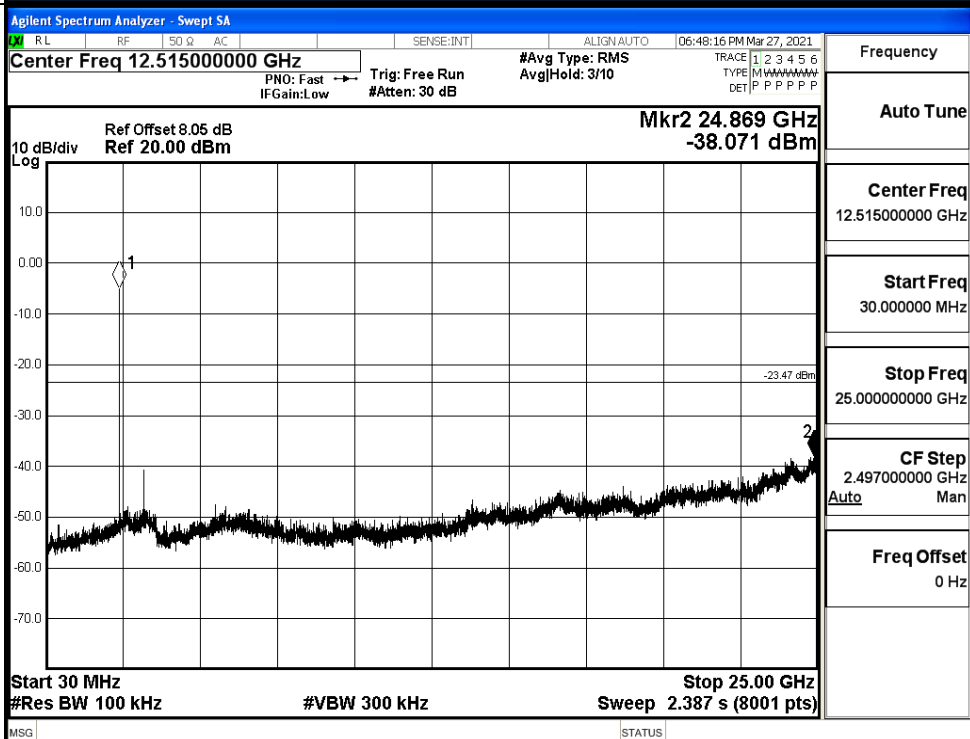


8DPSK_LCH_Graphs

Pref

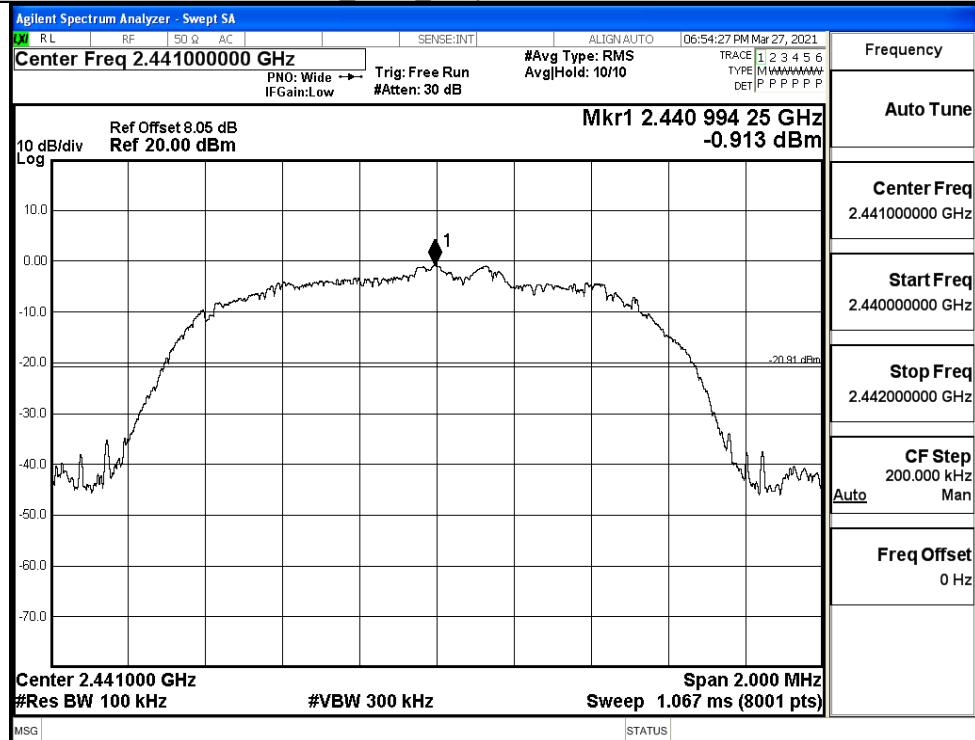


Puw

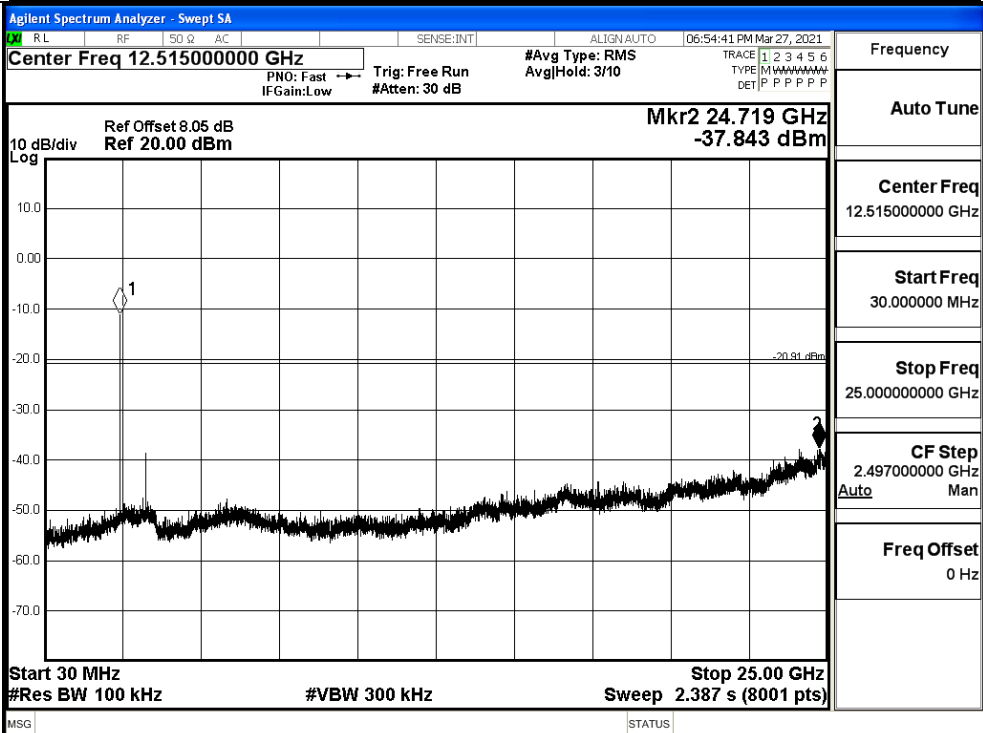


8DPSK_MCH_Graphs

Pref

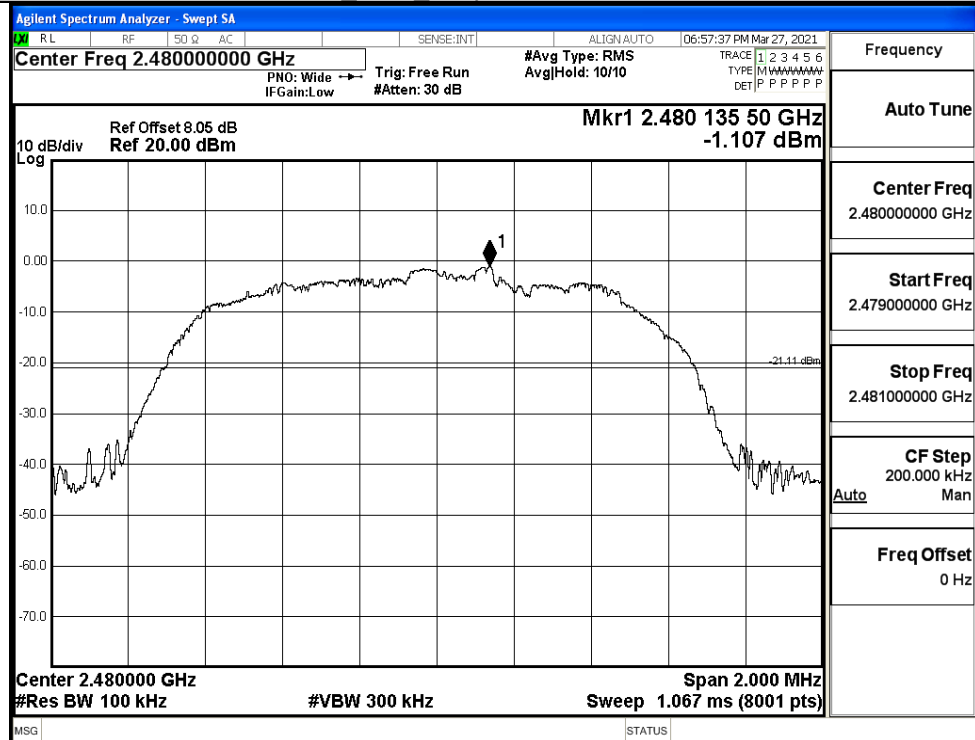


Puw

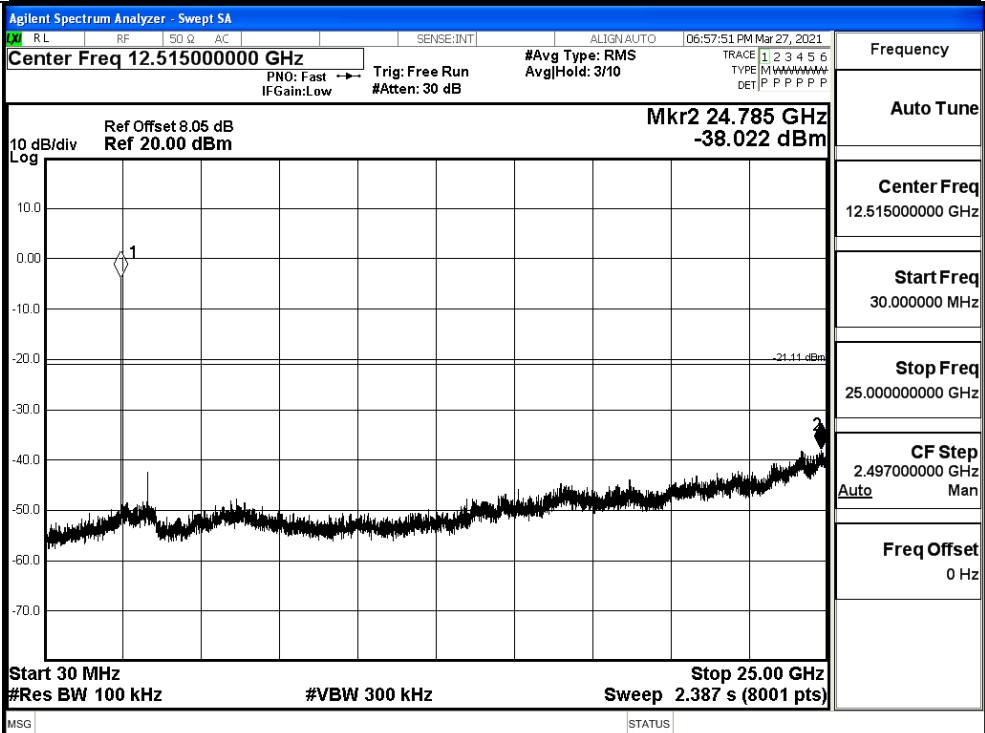


8DPSK_HCH_Graphs

Pref



Puw

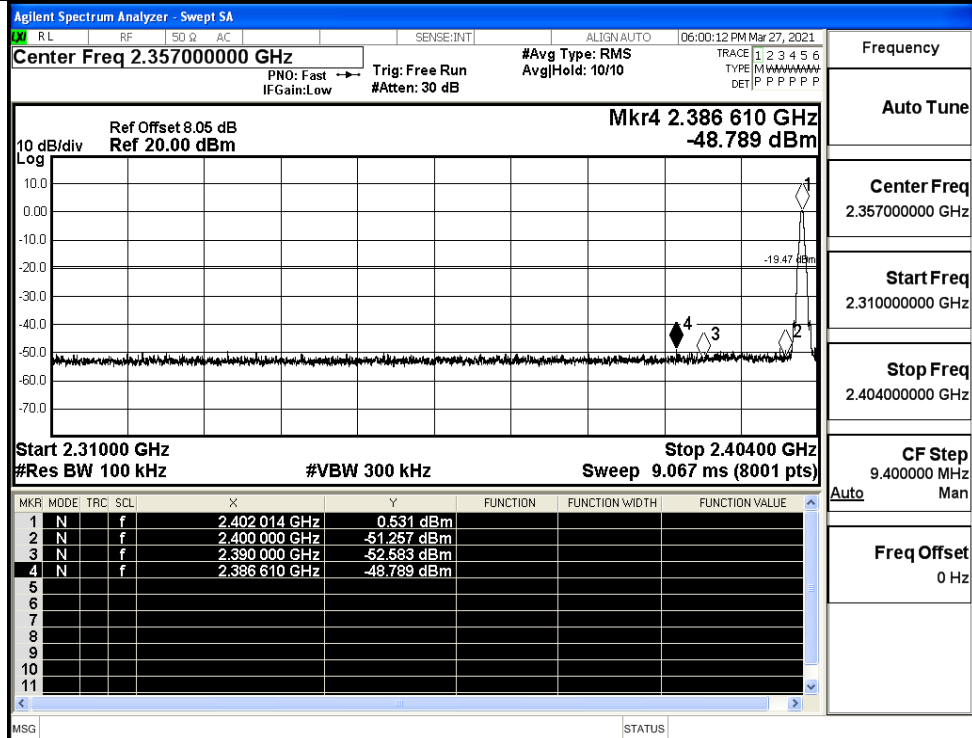


A.7 Band-edge for RF Conducted Emissions

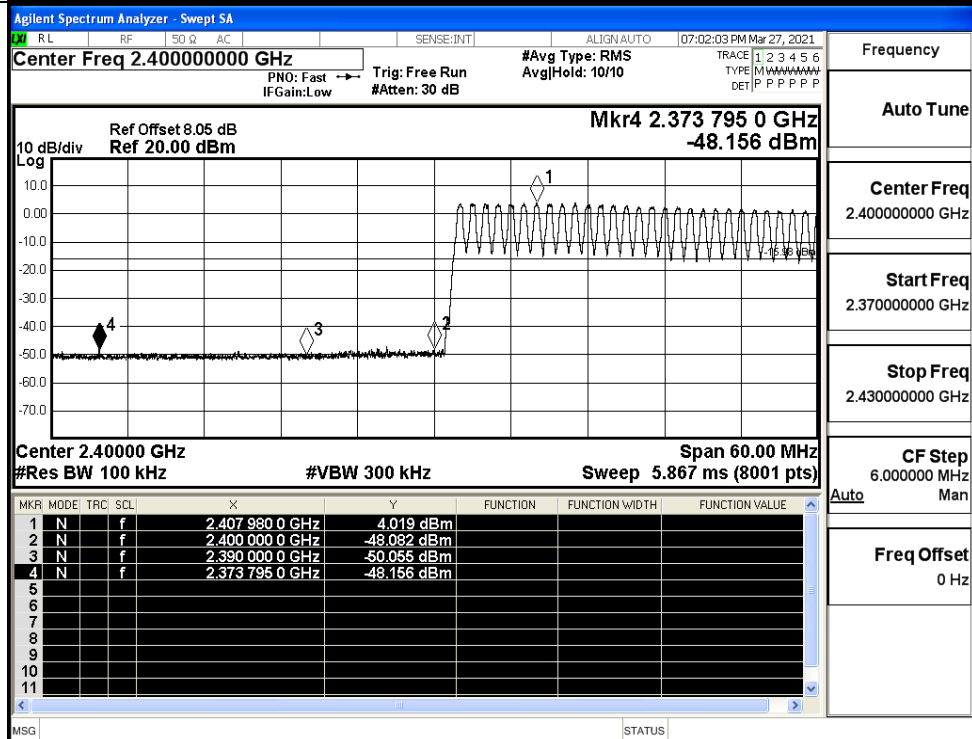
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.531	Off	-48.789	-19.47	PASS
			4.019	On	-48.156	-15.98	PASS
	HCH	2480	-0.501	Off	-46.339	-20.5	PASS
			-1.261	On	-47.061	-21.26	PASS
$\pi/4$ DQPSK	LCH	2402	-3.785	Off	-49.477	-23.79	PASS
			3.971	On	-48.404	-16.03	PASS
	HCH	2480	-0.753	Off	-46.706	-20.75	PASS
			-1.326	On	-47.235	-21.33	PASS
8DPSK	LCH	2402	-3.033	Off	-49.903	-23.03	PASS
			3.780	On	-48.668	-16.22	PASS
	HCH	2480	-0.947	Off	-46.745	-20.95	PASS
			-1.183	On	-47.353	-21.18	PASS

Test Graphs

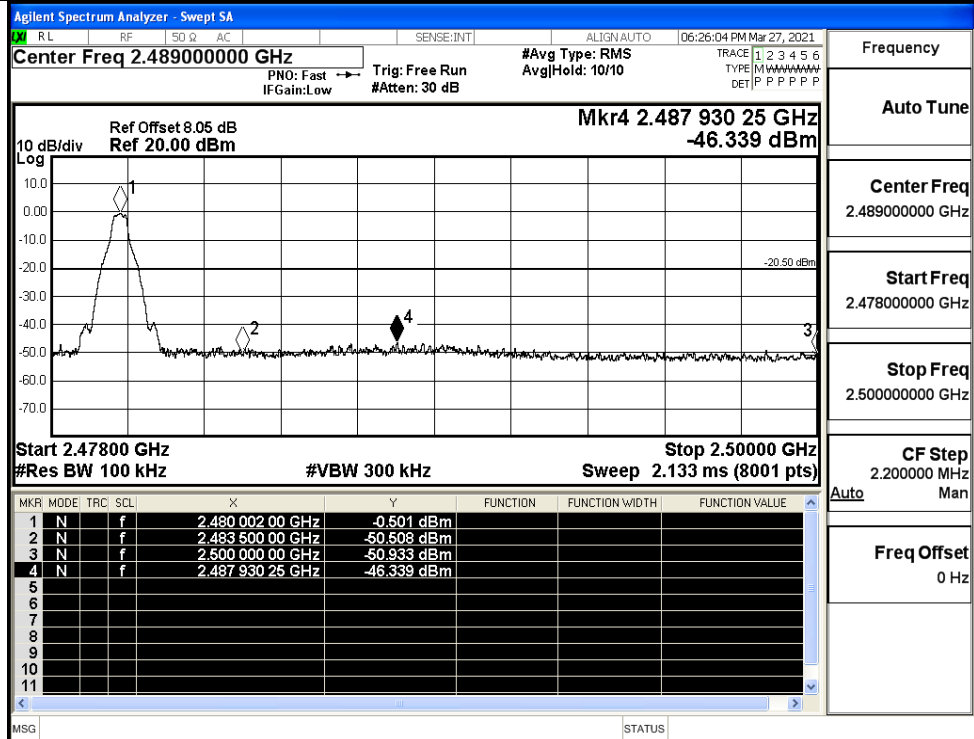
GFSK/LCH/No Hop



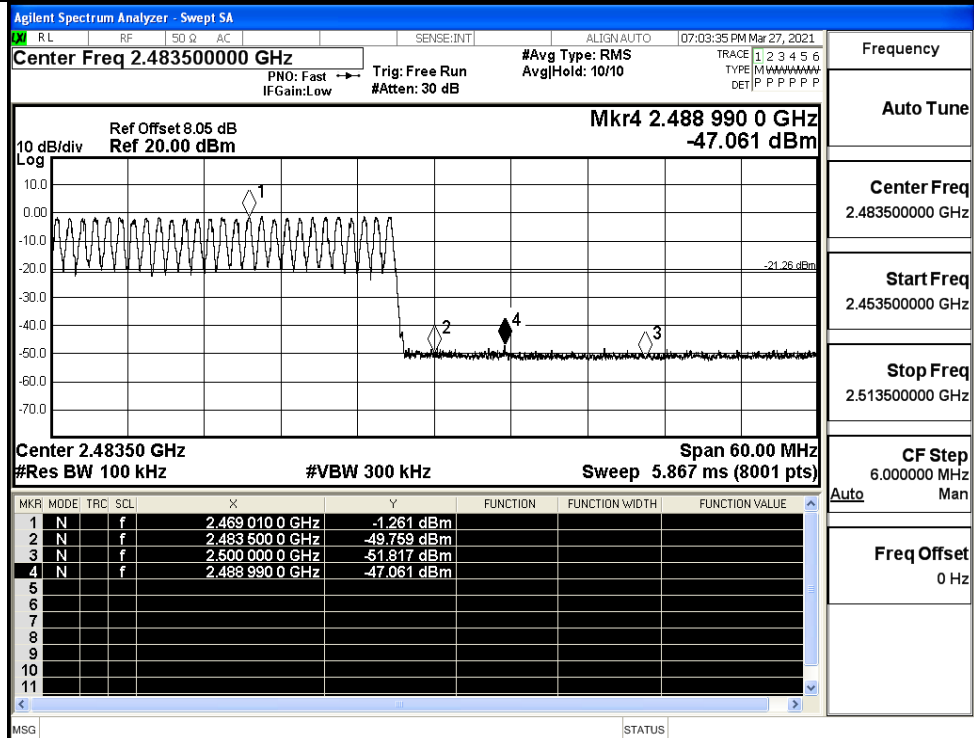
GFSK/LCH/Hop



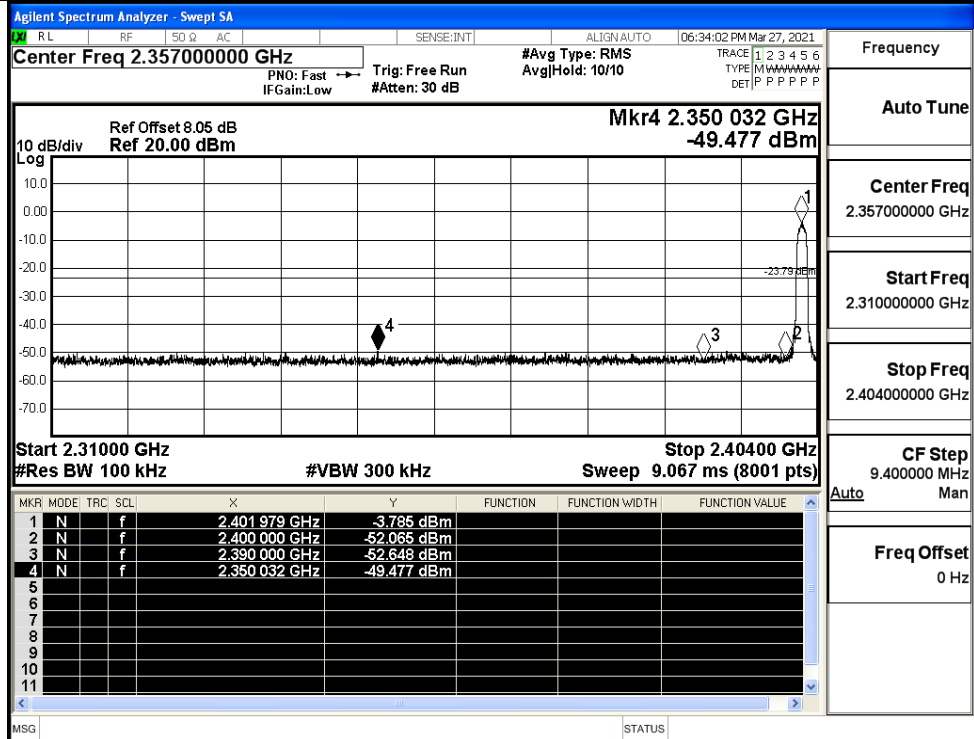
GFSK/HCH/No Hop



GFSK/HCH/Hop



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



Frequency

Auto Tune

Center Freq
2.357000000 GHz

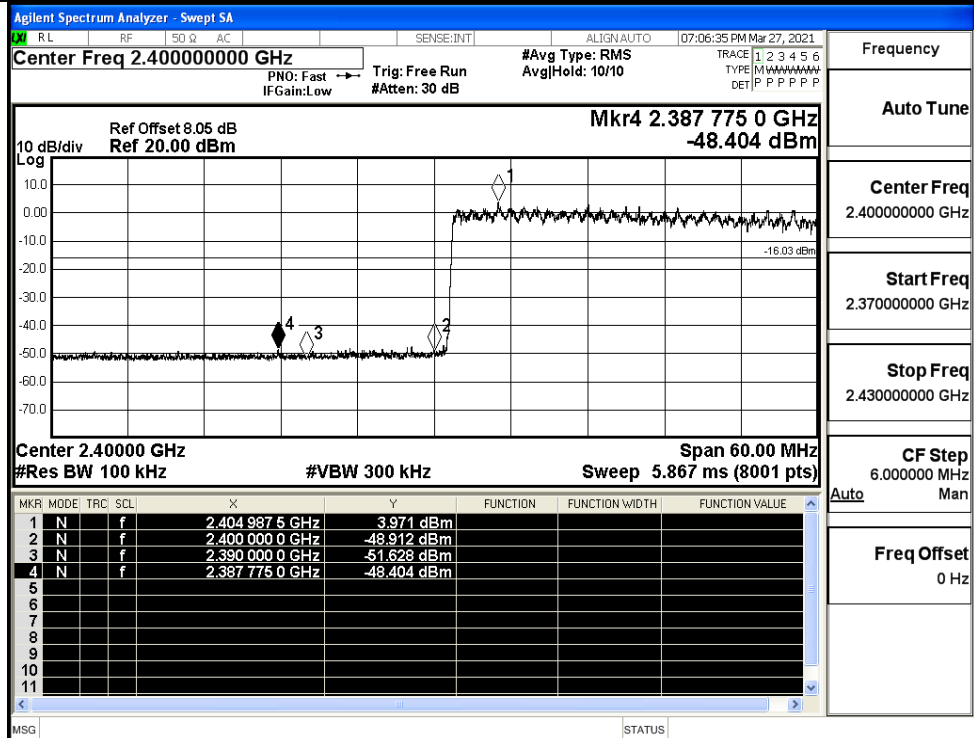
Start Freq
2.310000000 GHz

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

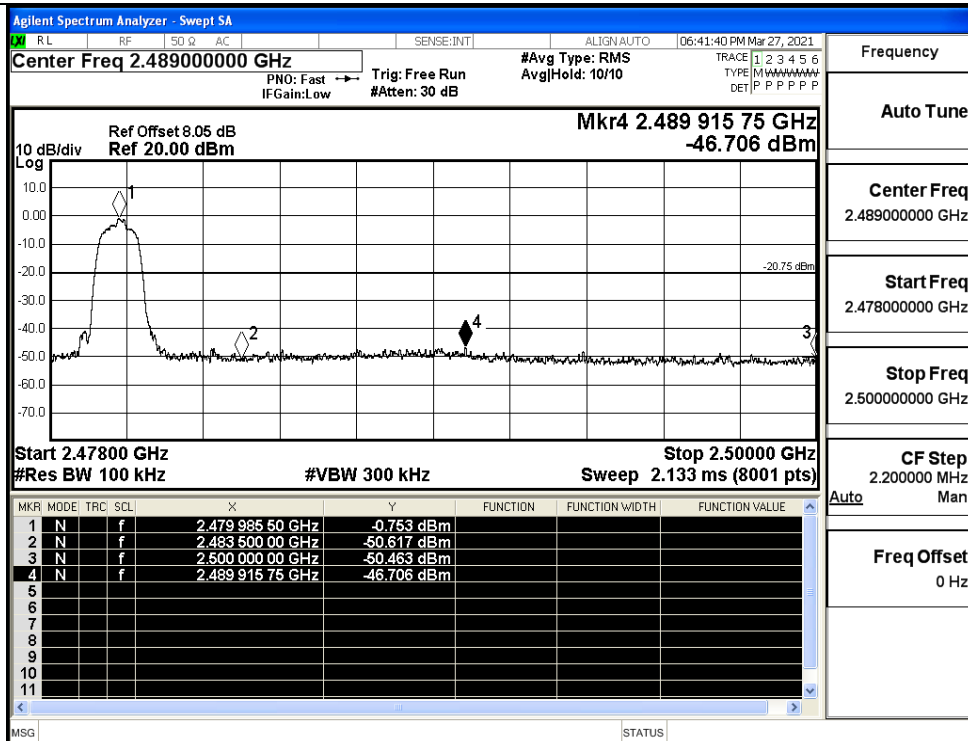
Start Freq
2.370000000 GHz

Stop Freq
2.430000000 GHz

CF Step
6.000000 MHz
Auto Man

Freq Offset
0 Hz

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

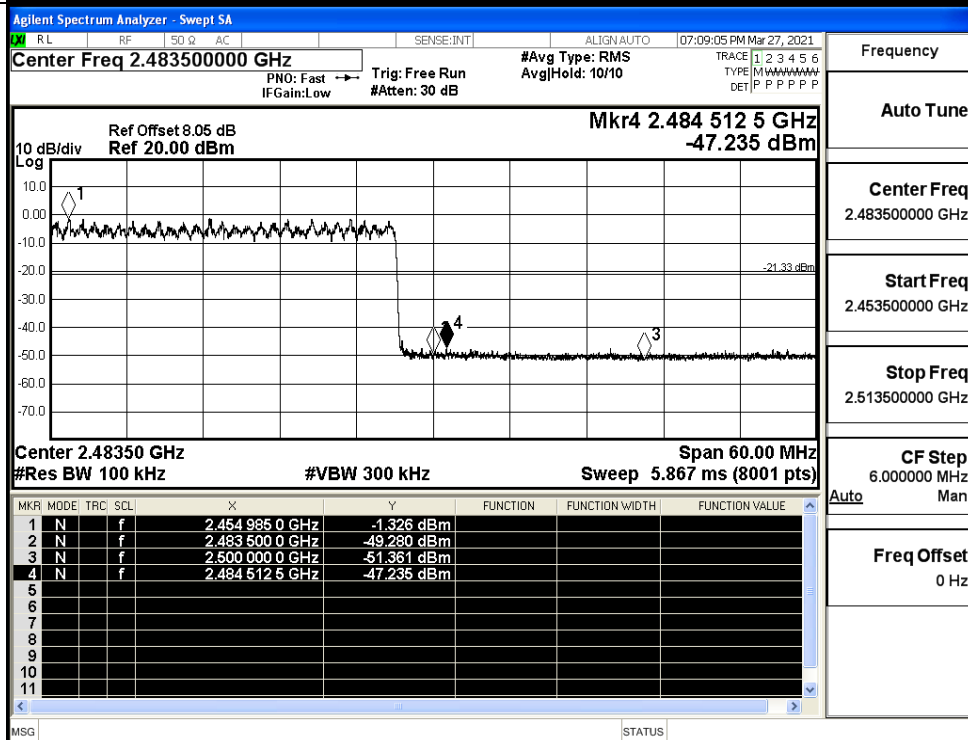


Frequency

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

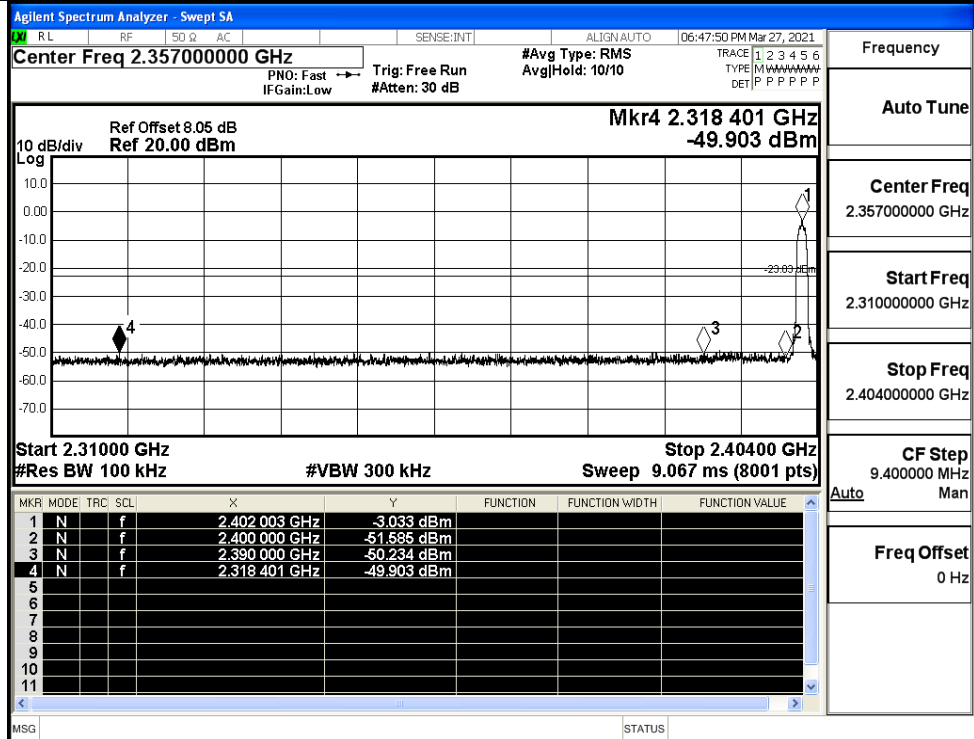


Frequency

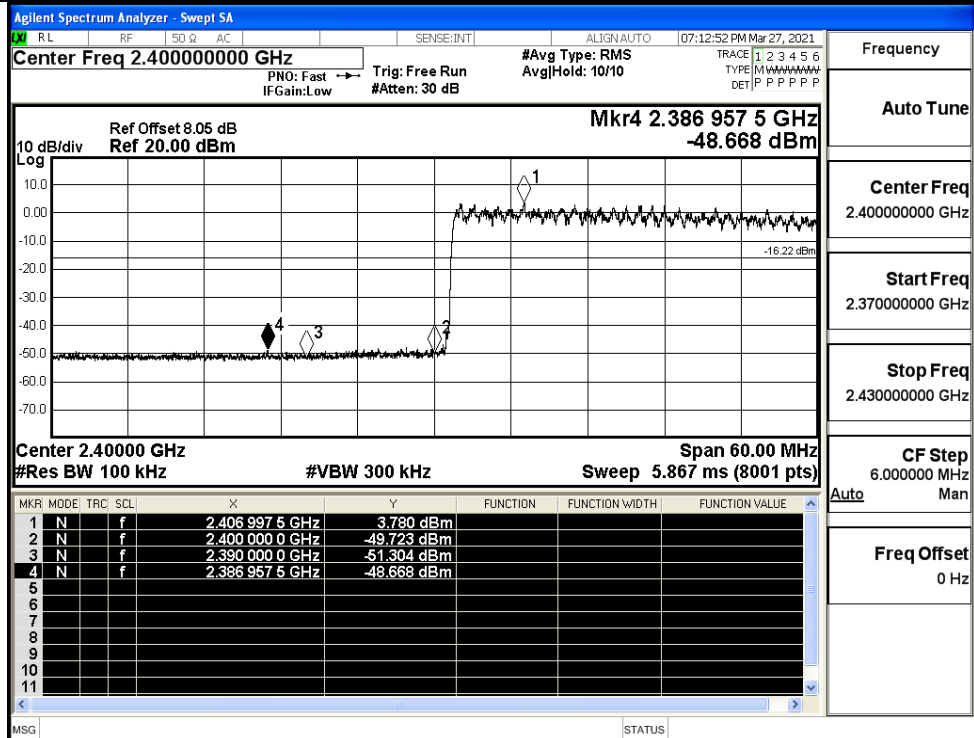
Auto Tune

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

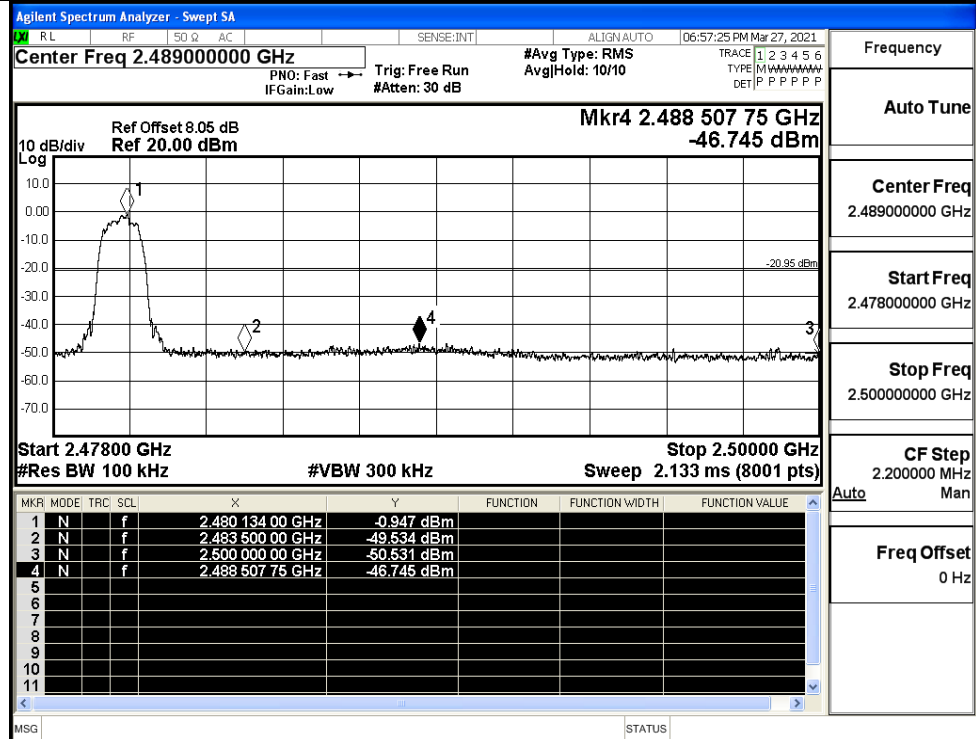
8DPSK/LCH/No Hop



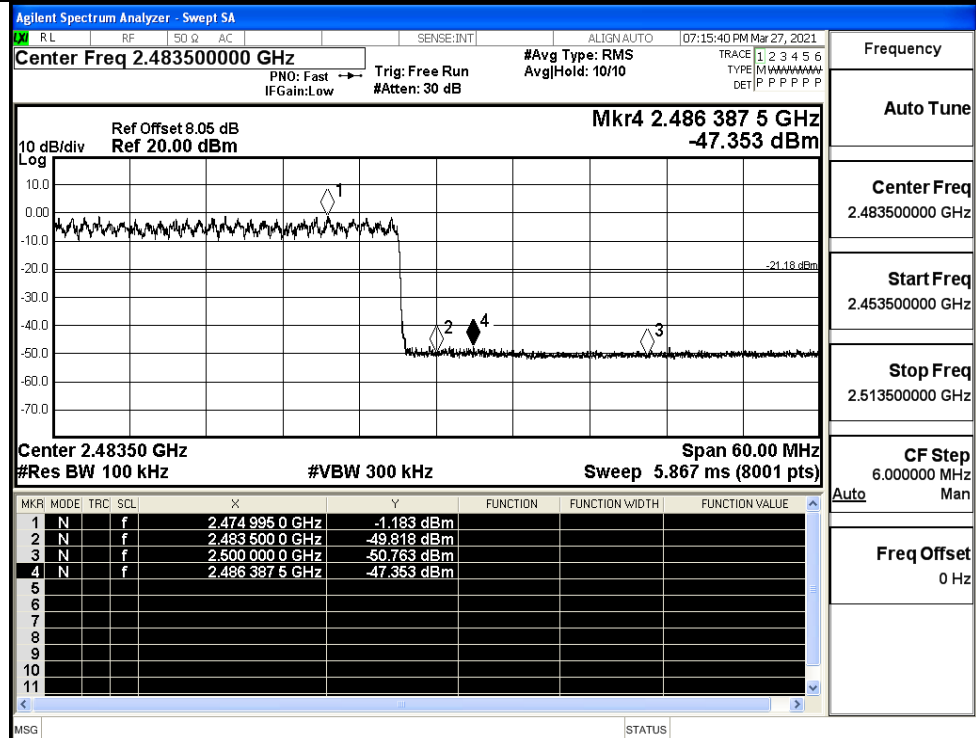
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



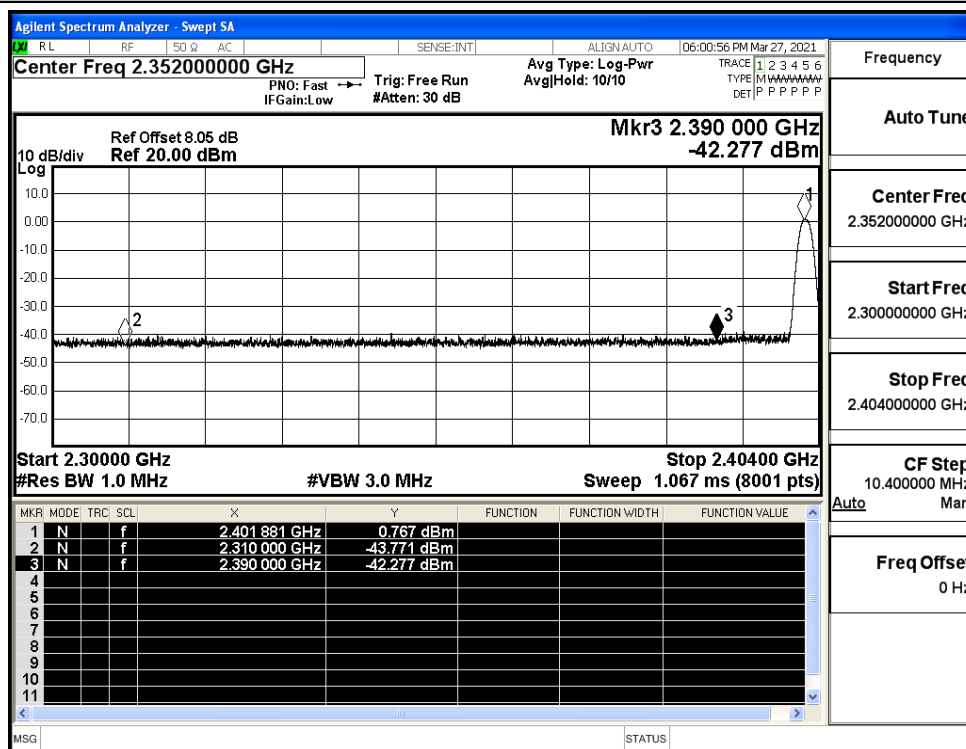
8DPSK/HCH/Hop



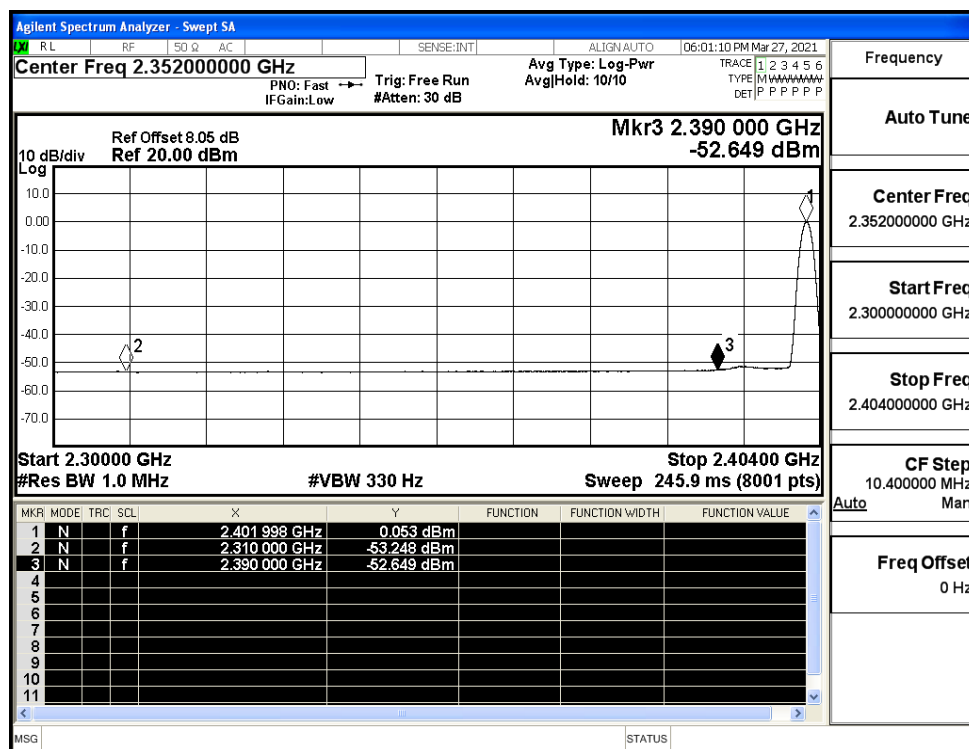
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.77	2.0	0	53.49	PEAK	74	PASS
	Off	2310.0	-53.25	2.0	0	44.01	AV	54	PASS
	Off	2390.0	-42.28	2.0	0	54.98	PEAK	74	PASS
	Off	2390.0	-52.65	2.0	0	44.61	AV	54	PASS
	Off	2483.5	-41.00	2.0	0	56.26	PEAK	74	PASS
	Off	2483.5	-50.68	2.0	0	46.58	AV	54	PASS
	Off	2500.0	-41.04	2.0	0	56.22	PEAK	74	PASS
	Off	2500.0	-52.11	2.0	0	45.15	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.01	2.0	0	55.25	PEAK	74	PASS
	Off	2310.0	-53.33	2.0	0	43.93	AV	54	PASS
	Off	2390.0	-42.88	2.0	0	54.38	PEAK	74	PASS
	Off	2390.0	-52.78	2.0	0	44.48	AV	54	PASS
	Off	2483.5	-39.46	2.0	0	57.8	PEAK	74	PASS
	Off	2483.5	-50.77	2.0	0	46.49	AV	54	PASS
	Off	2500.0	-40.81	2.0	0	56.45	PEAK	74	PASS
	Off	2500.0	-52.03	2.0	0	45.23	AV	54	PASS
8DPSK	Off	2310.0	-42.69	2.0	0	54.57	PEAK	74	PASS
	Off	2310.0	-53.37	2.0	0	43.89	AV	54	PASS
	Off	2390.0	-43.39	2.0	0	53.87	PEAK	74	PASS
	Off	2390.0	-52.70	2.0	0	44.56	AV	54	PASS
	Off	2483.5	-40.41	2.0	0	56.85	PEAK	74	PASS
	Off	2483.5	-50.69	2.0	0	46.57	AV	54	PASS
	Off	2500.0	-42.37	2.0	0	54.89	PEAK	74	PASS
	Off	2500.0	-52.11	2.0	0	45.15	AV	54	PASS

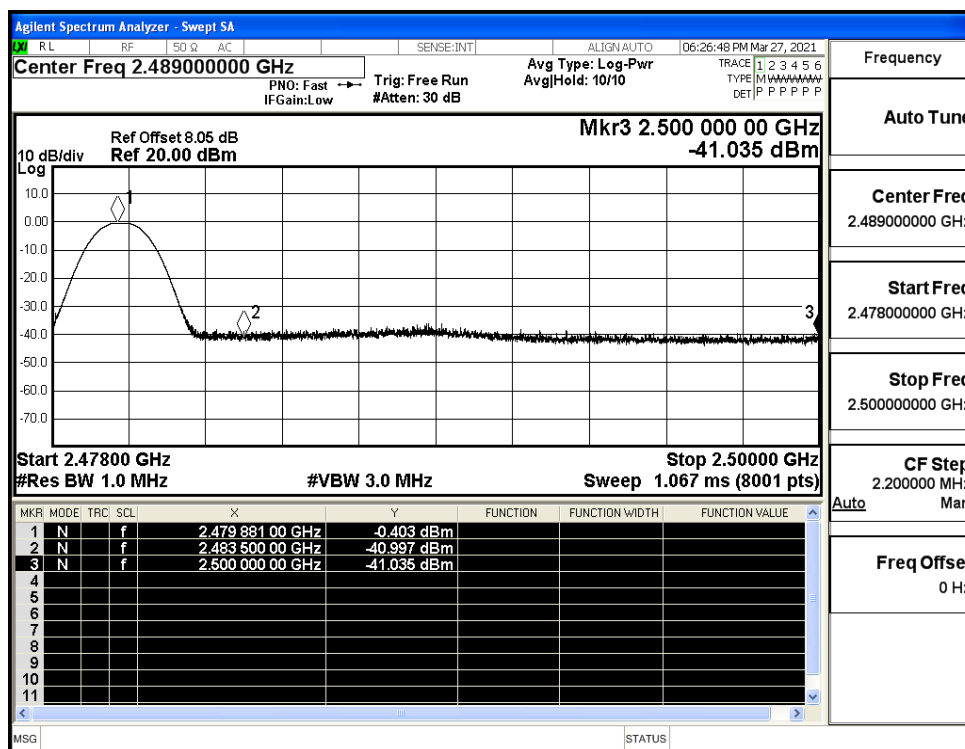
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



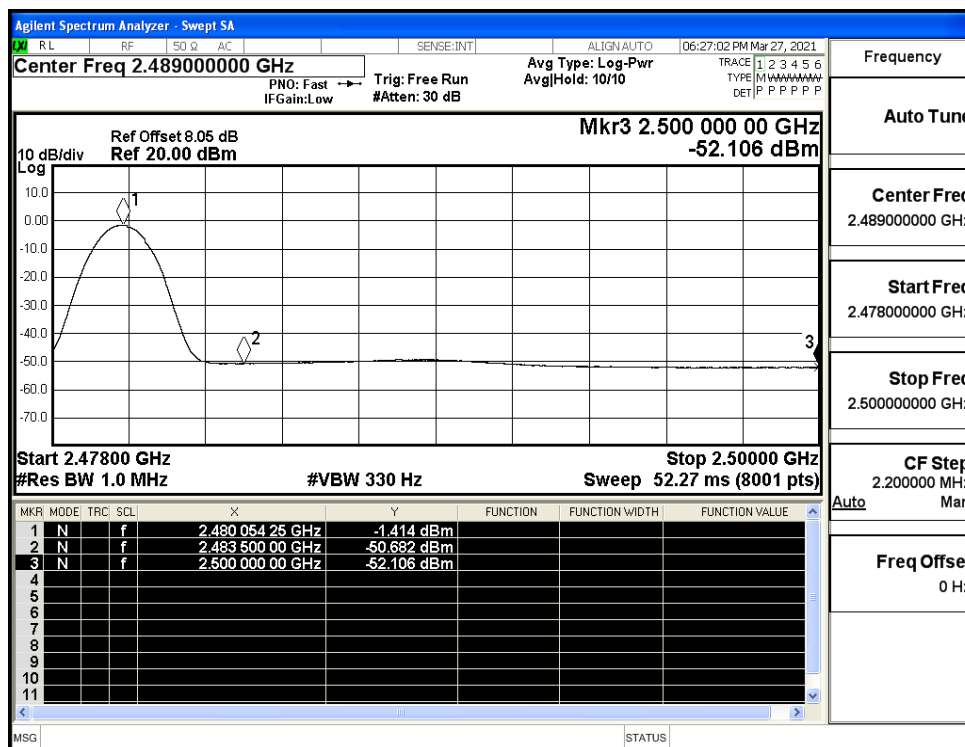
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

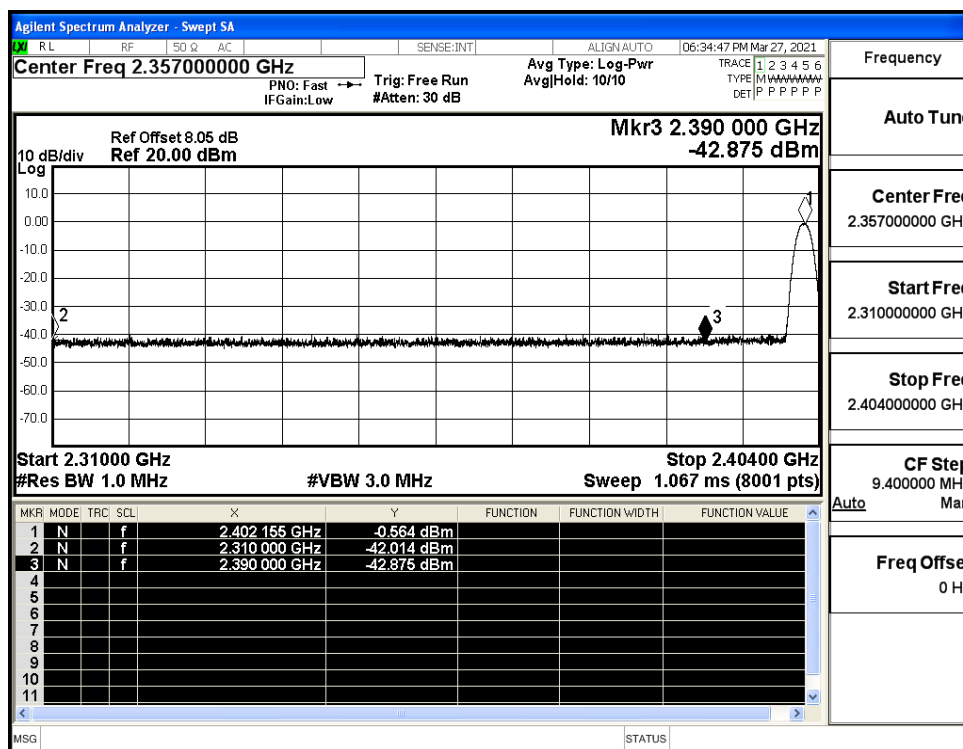
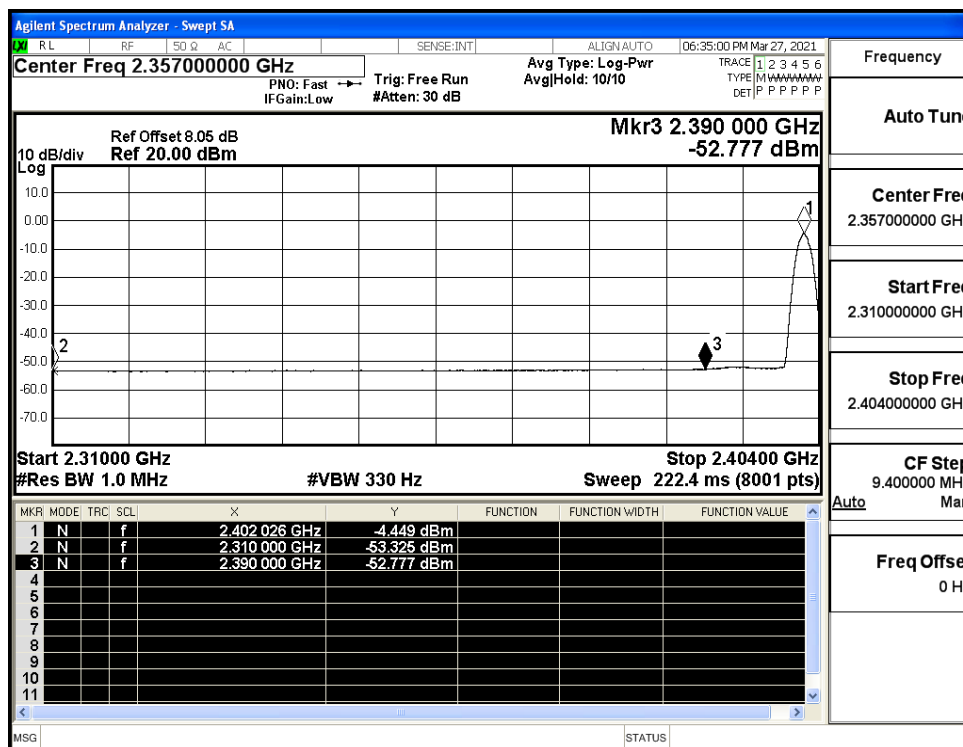


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

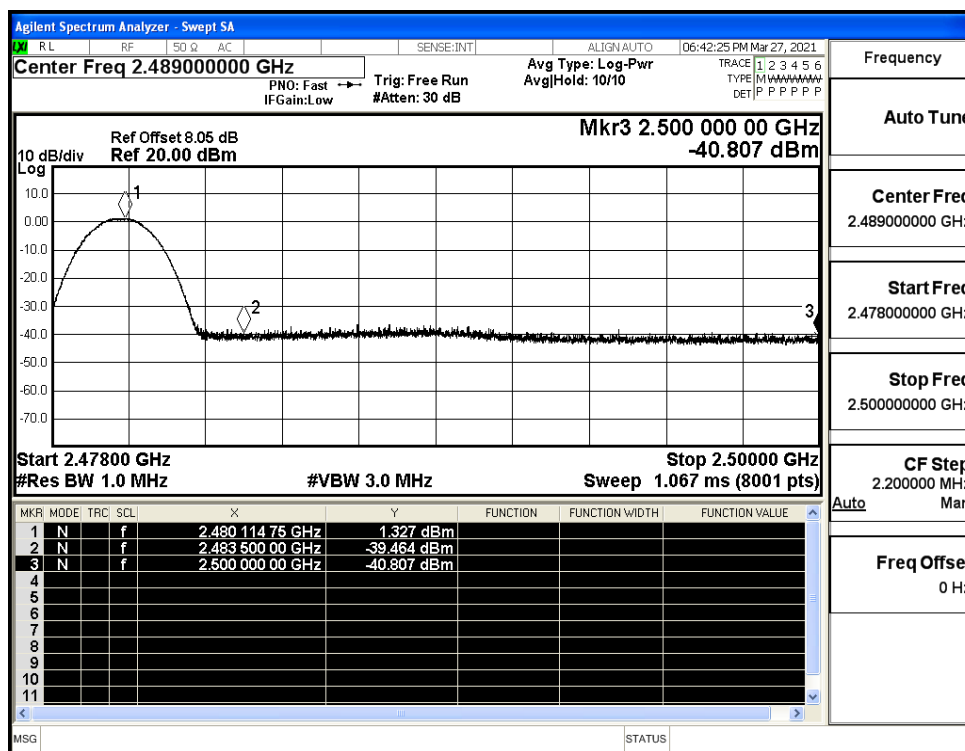


Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)

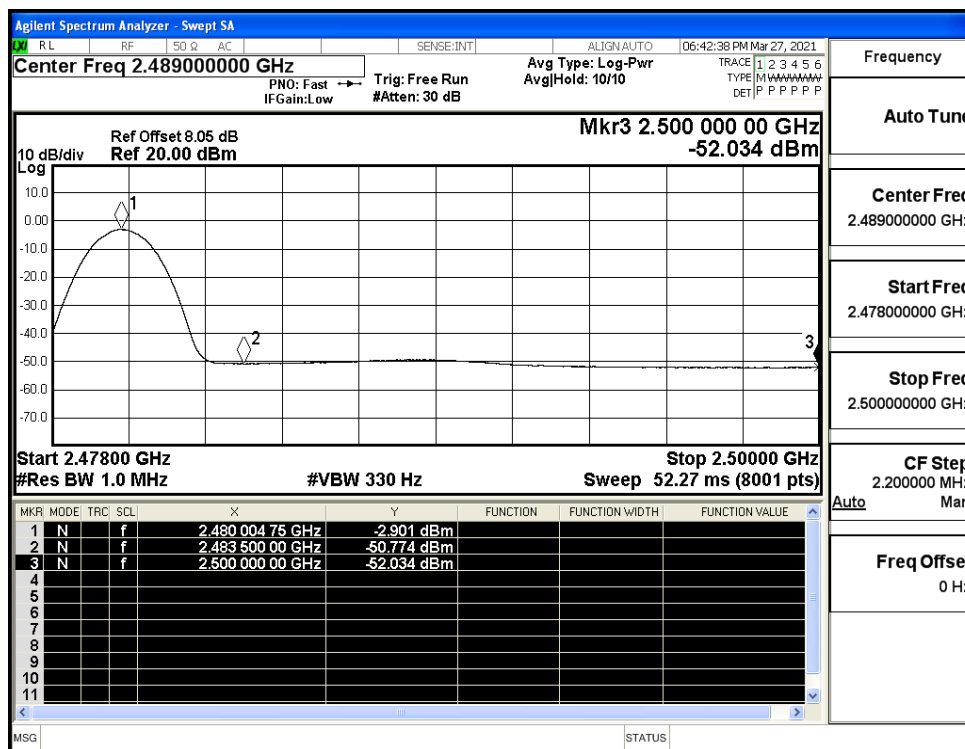


Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

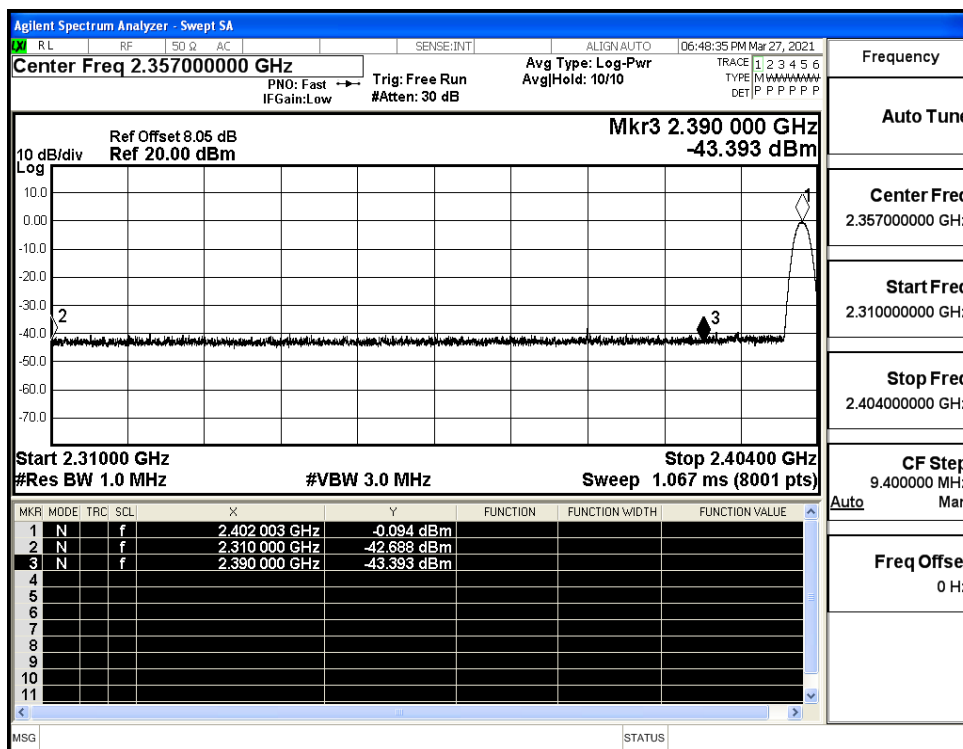
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



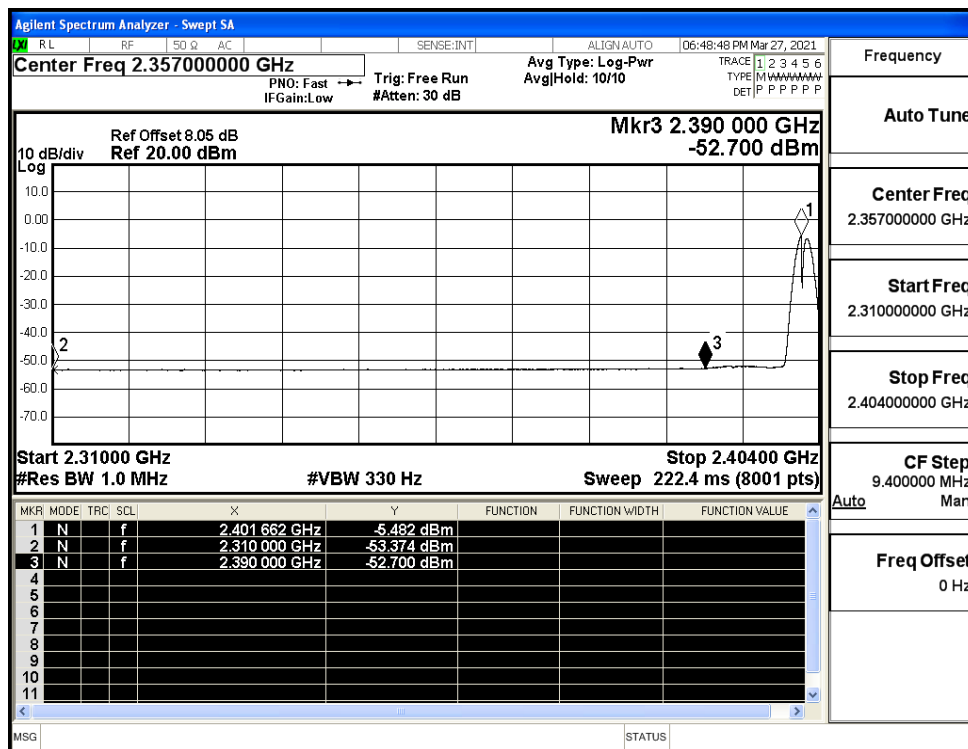
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



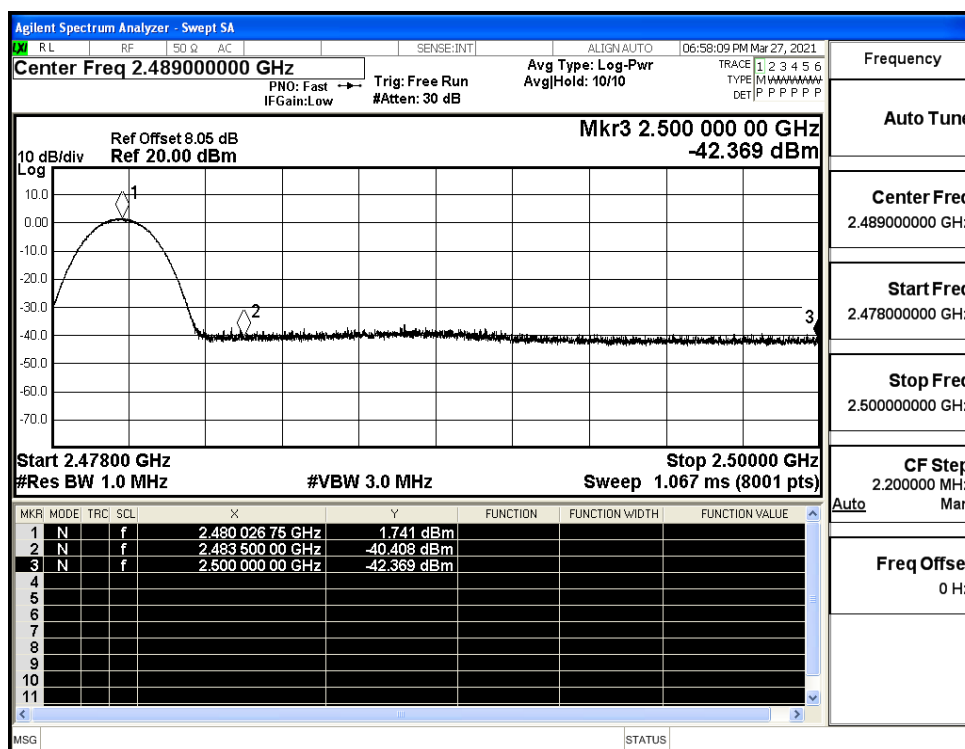
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

