

Appendix A

RF Test Data for BT V4.1(DSS) (Conducted Measurement)

Product Name: PDMonitor

Trade Mark: PDMonitor

Test Model: PDMonitor

Environmental Conditions

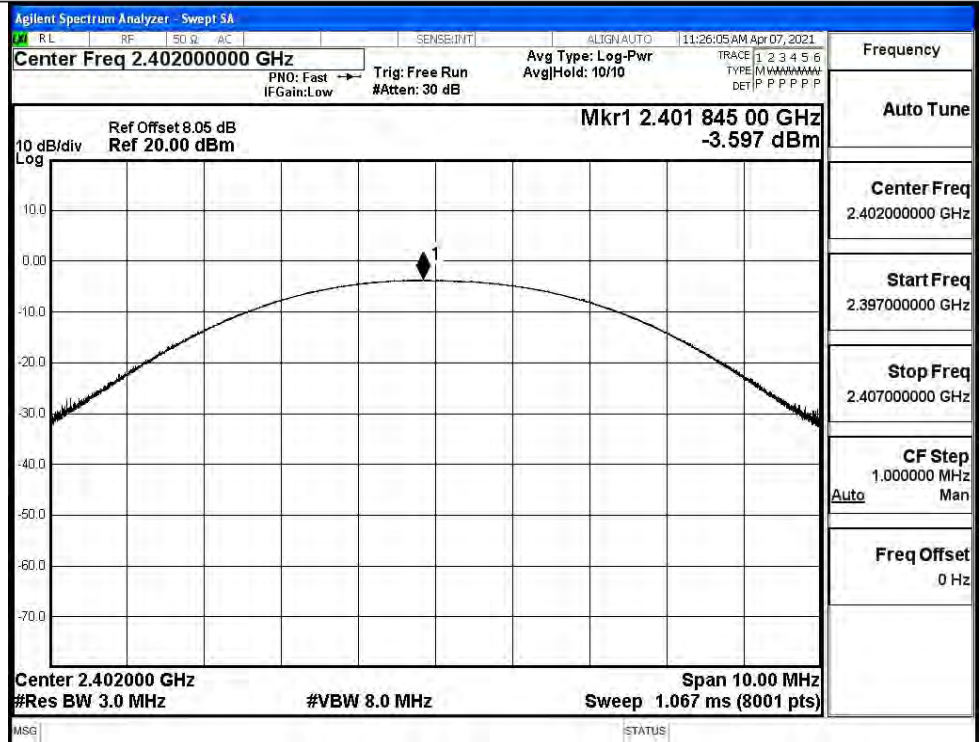
Temperature:	25.9 ° C
Relative Humidity:	54.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Ben Jin
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

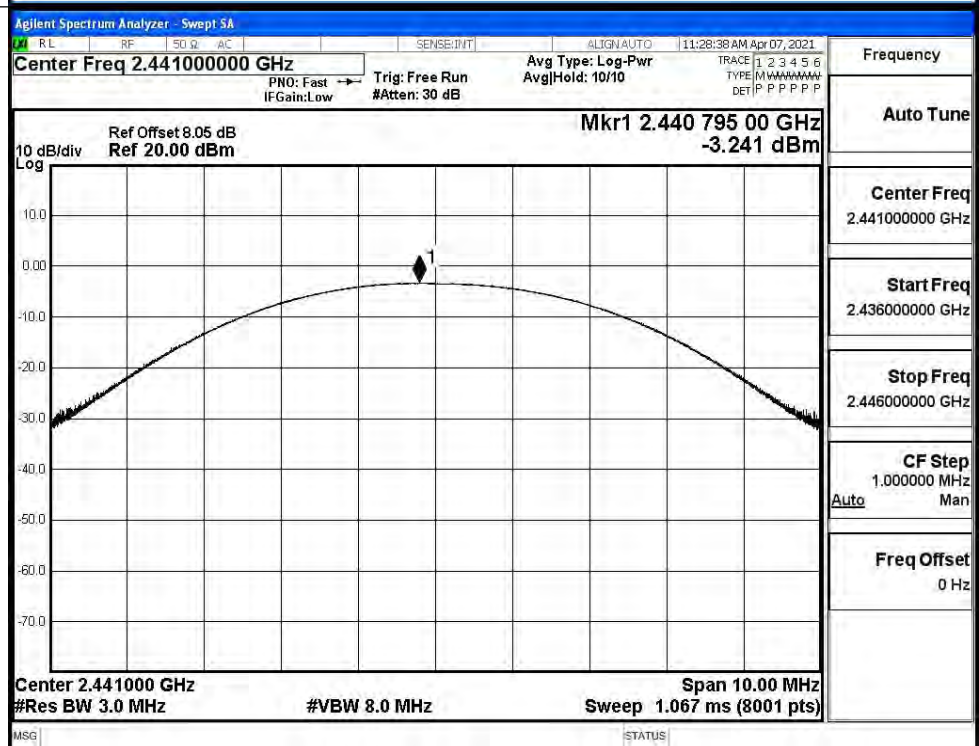
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.597	21	PASS
	MCH	-3.241	21	PASS
	HCH	-3.675	21	PASS
$\pi/4$ DQPSK	LCH	-2.932	21	PASS
	MCH	-2.471	21	PASS
	HCH	-2.918	21	PASS
8DPSK	LCH	-2.873	21	PASS
	MCH	-2.409	21	PASS
	HCH	-2.849	21	PASS

Test Graphs

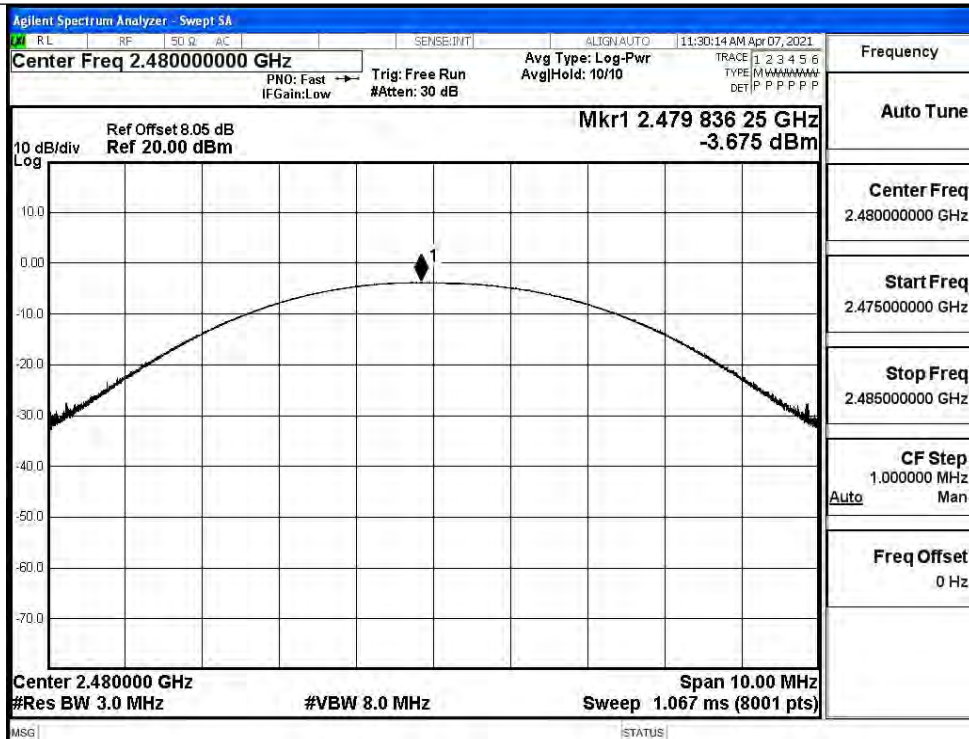
GFSK/LCH



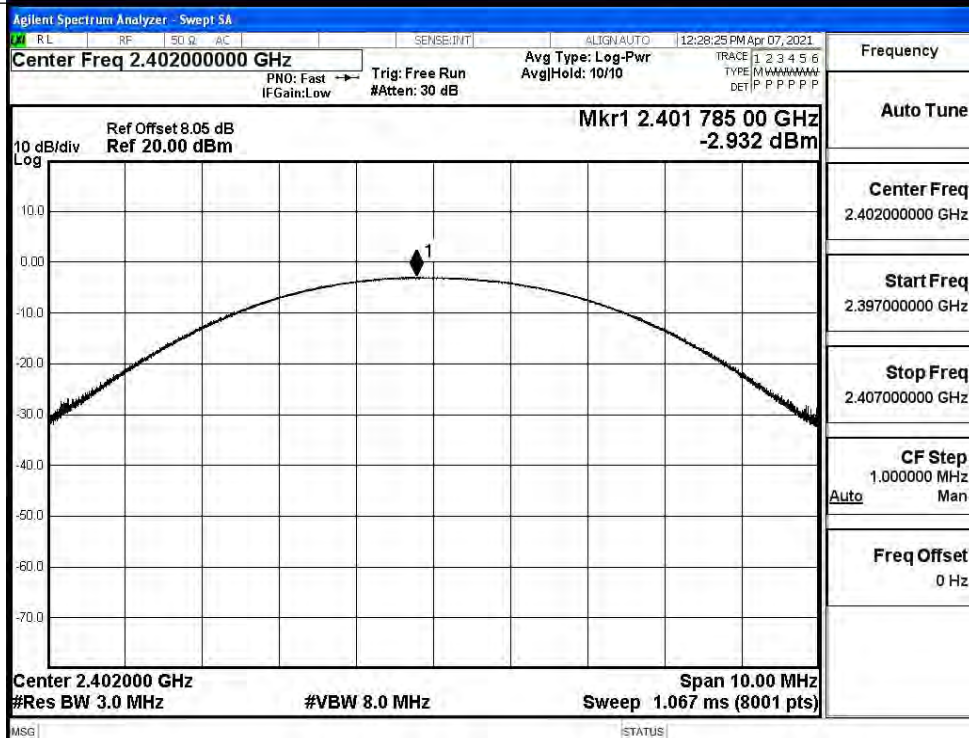
GFSK/MCH

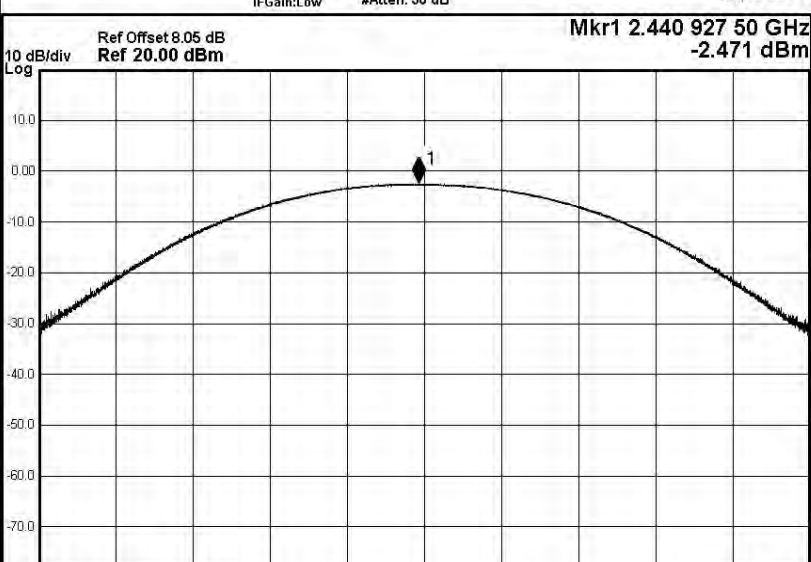


GFSK/HCH

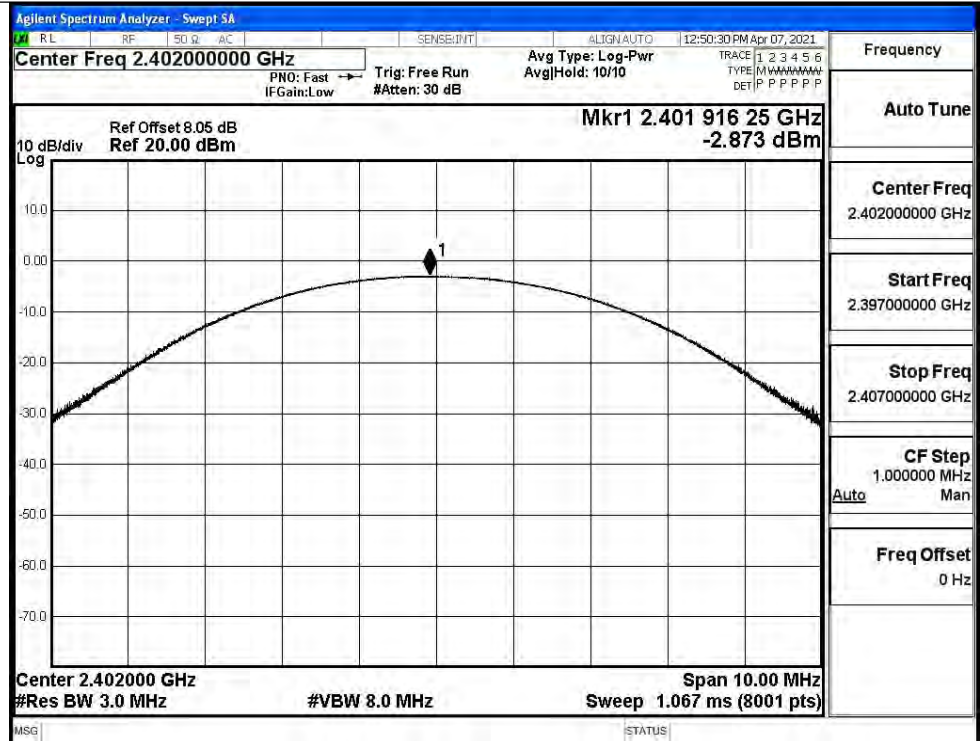


$\pi/4$ DQPSK/LCH

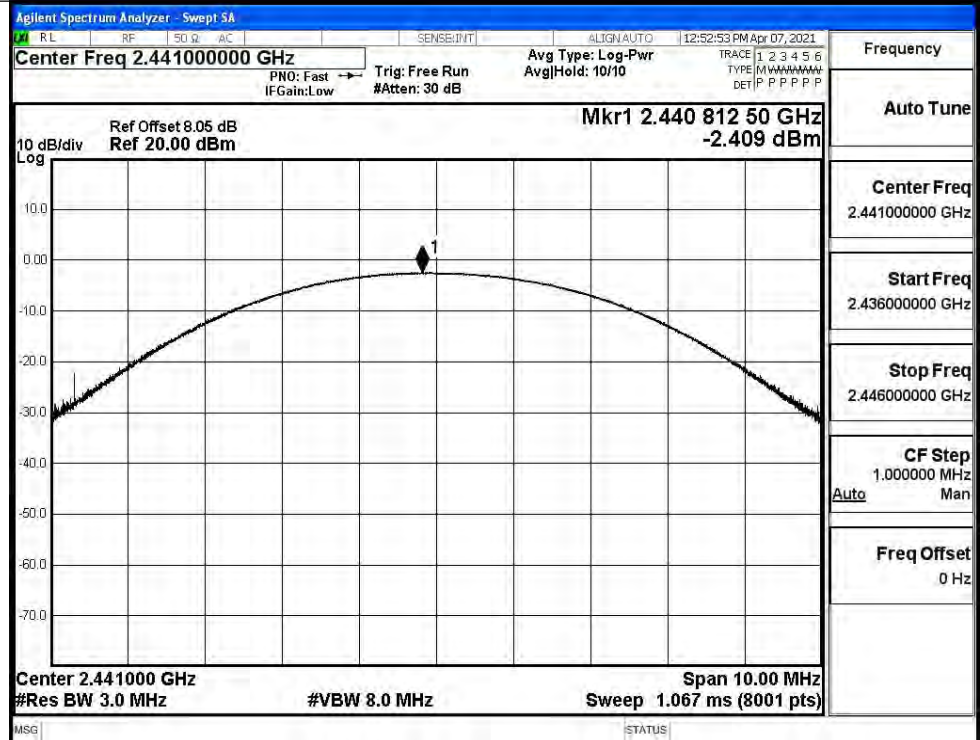


$\pi/4$DQPSK/MCH	Agilent Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.440 927 50 GHz -2.471 dBm  Center 2.441000 GHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts) Frequency Auto Tune Center Freq 2.441000000 GHz Start Freq 2.436000000 GHz Stop Freq 2.446000000 GHz CF Step 1.000000 MHz Auto Freq Offset 0 Hz
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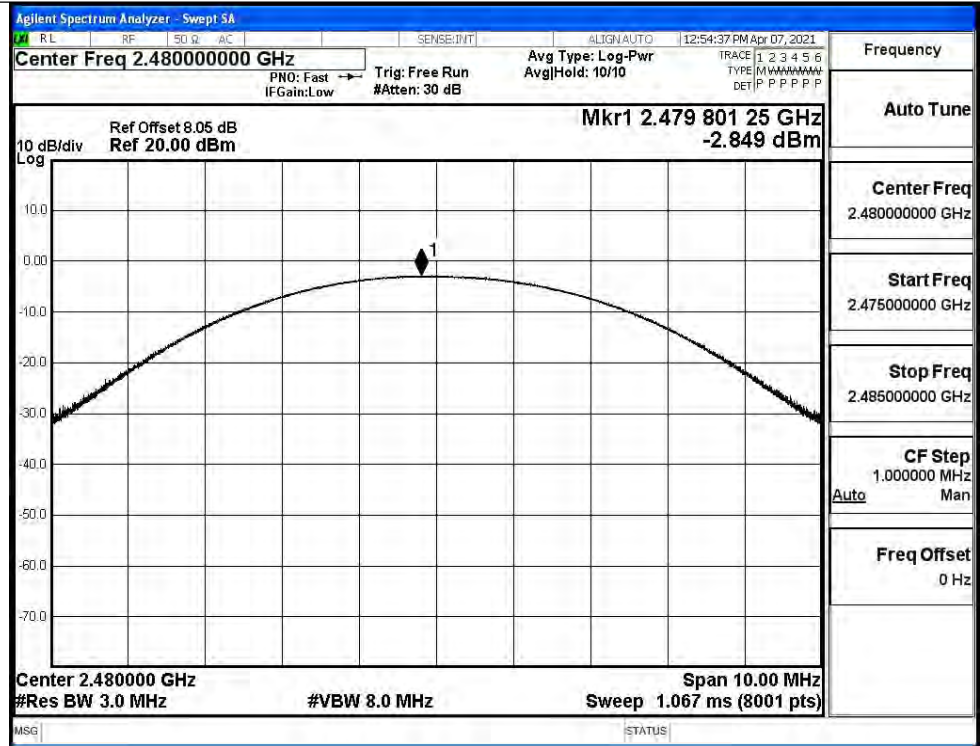
8DPSK/LCH



8DPSK/MCH



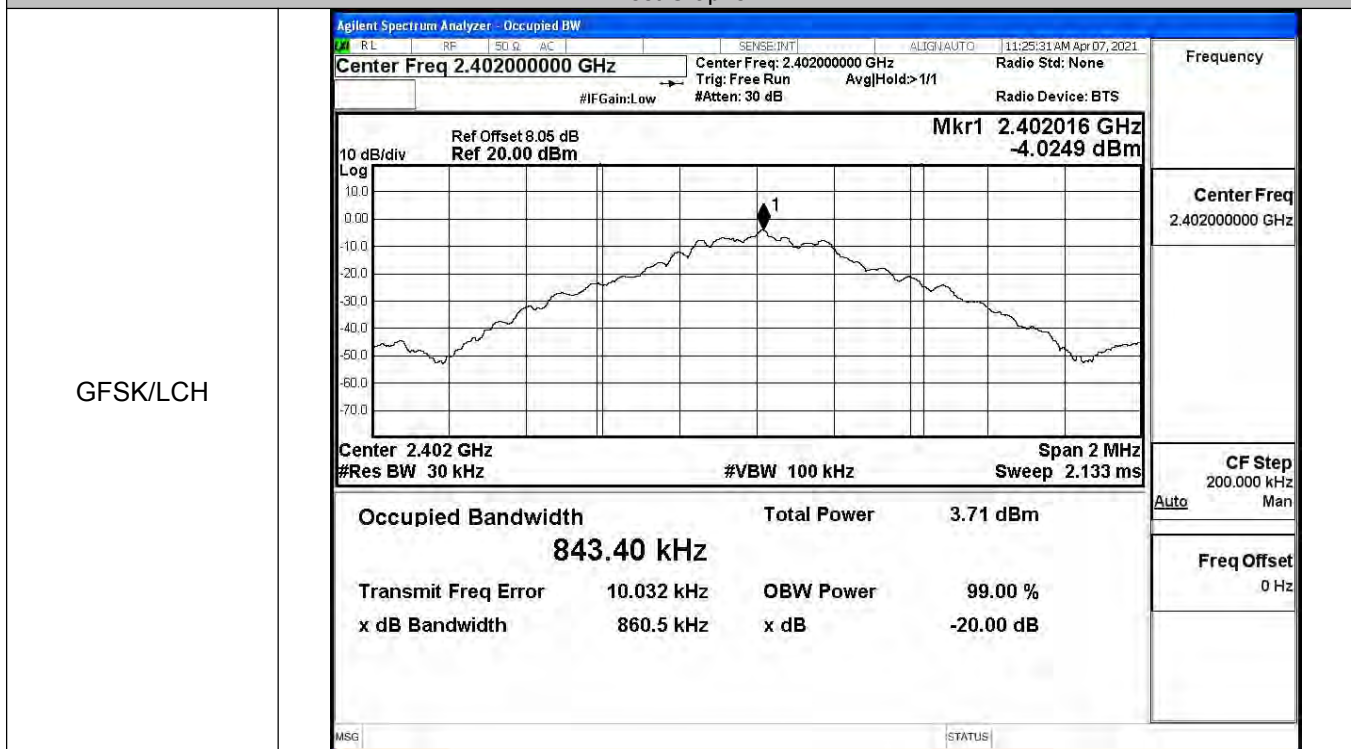
8DPSK/HCH



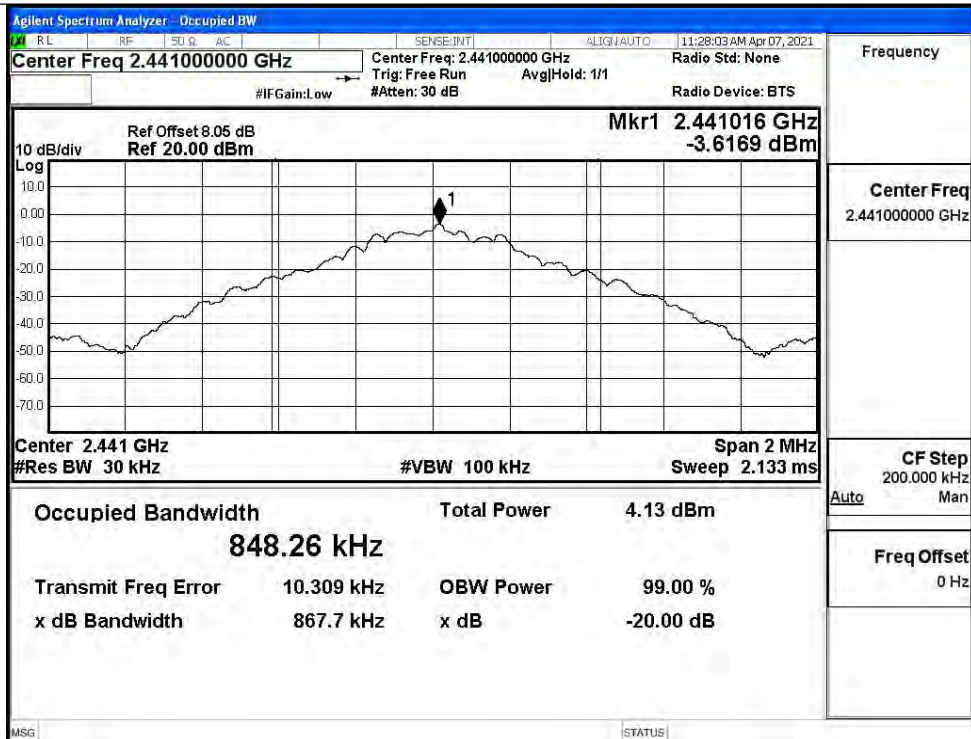
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.8605	Not Specified	PASS
	MCH	0.8677	Not Specified	PASS
	HCH	0.8630	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.239	Not Specified	PASS
	MCH	1.226	Not Specified	PASS
	HCH	1.244	Not Specified	PASS
8DPSK	LCH	1.226	Not Specified	PASS
	MCH	1.226	Not Specified	PASS
	HCH	1.236	Not Specified	PASS

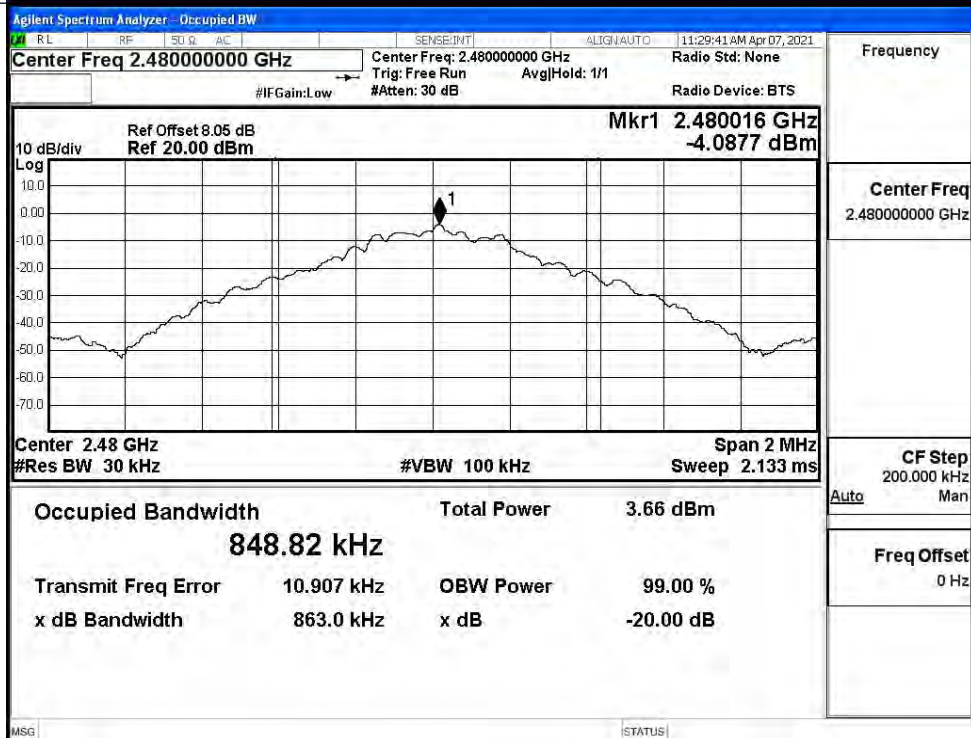
Test Graphs



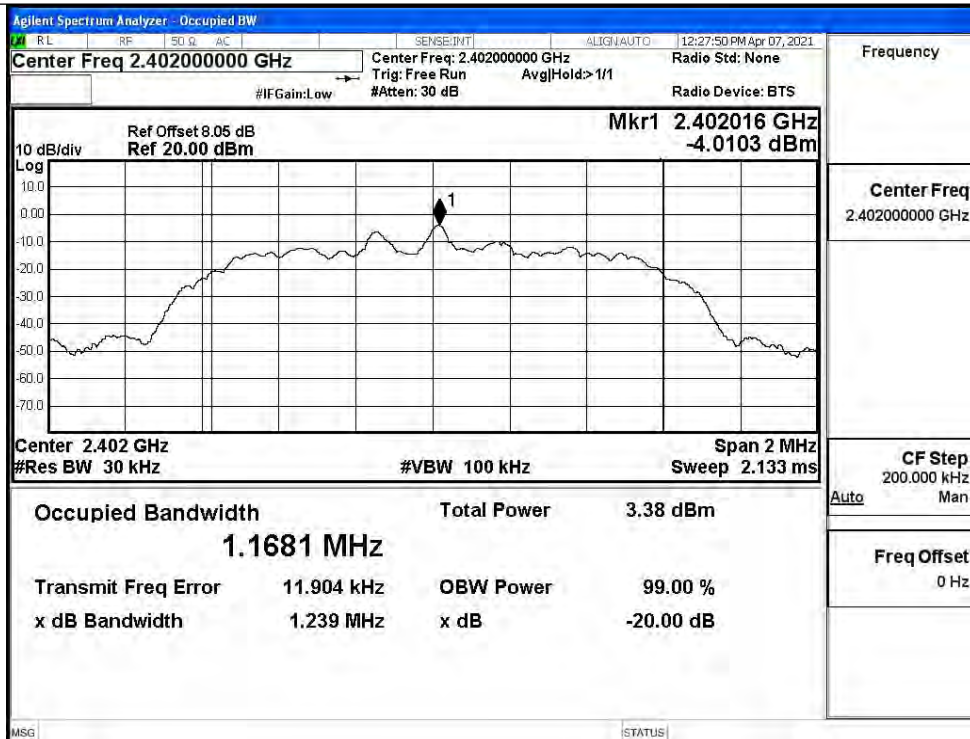
GFSK/MCH



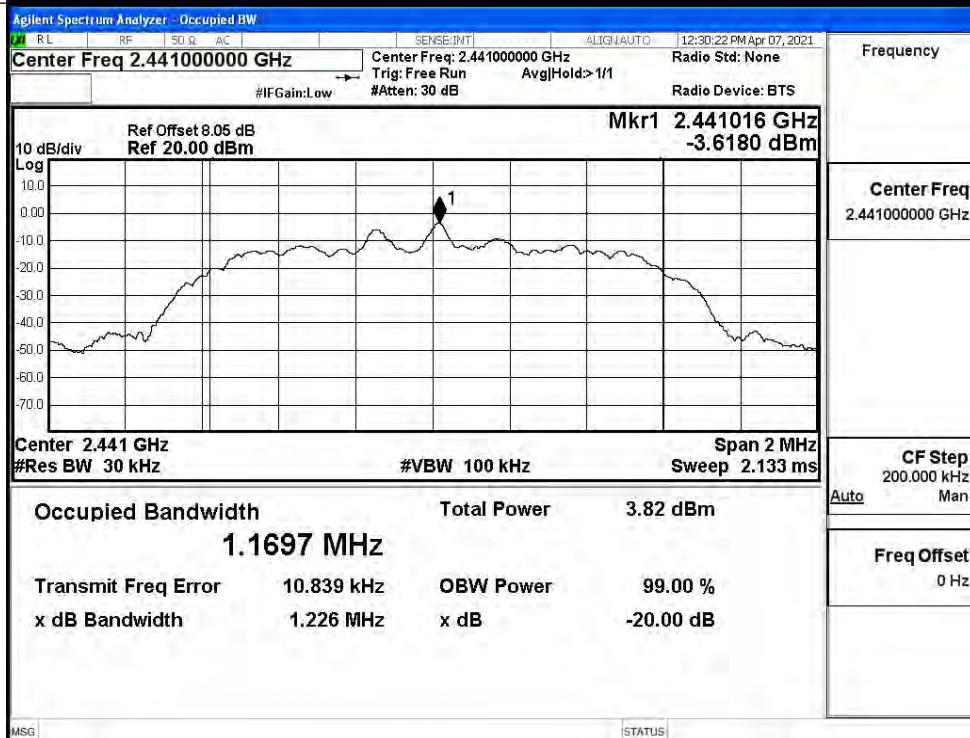
GFSK/HCH



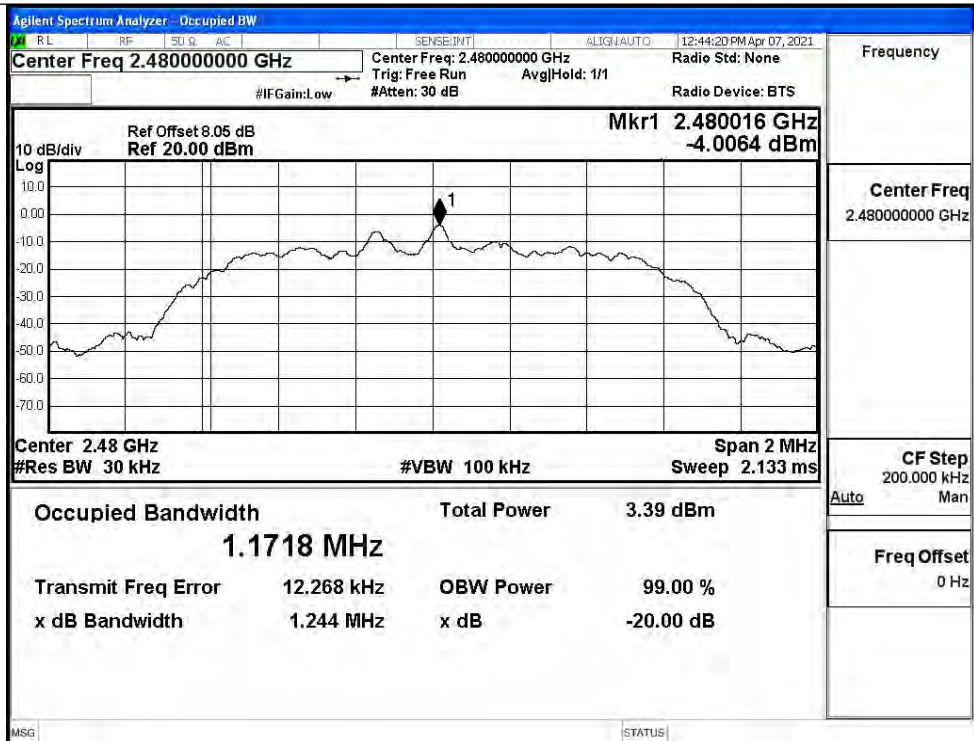
$\pi/4$ DQPSK/LCH



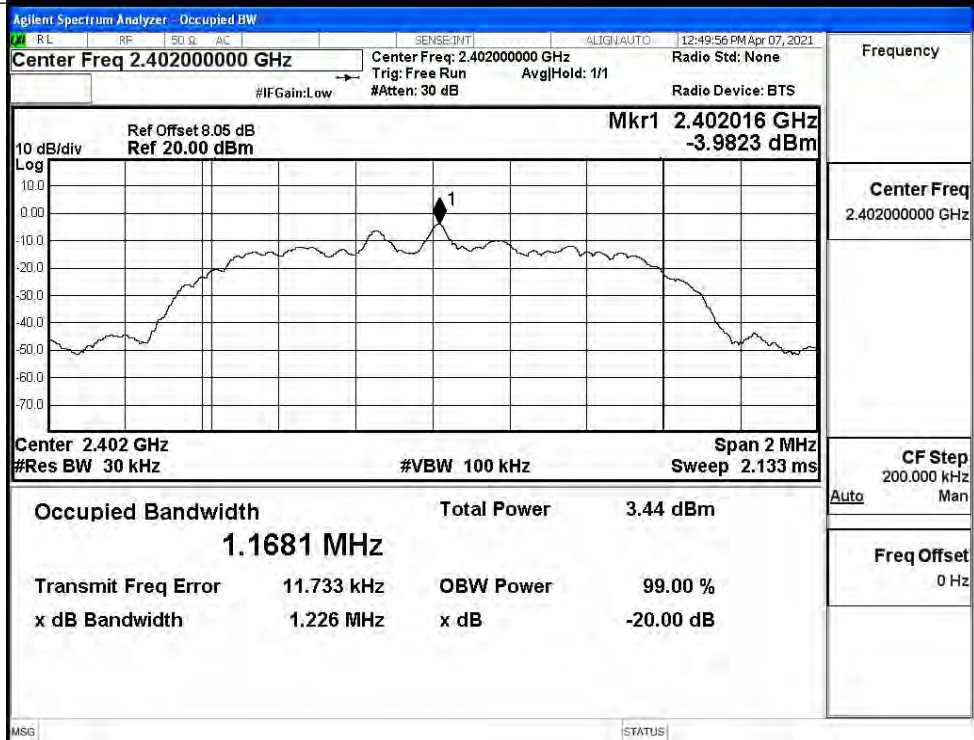
$\pi/4$ DQPSK/MCH



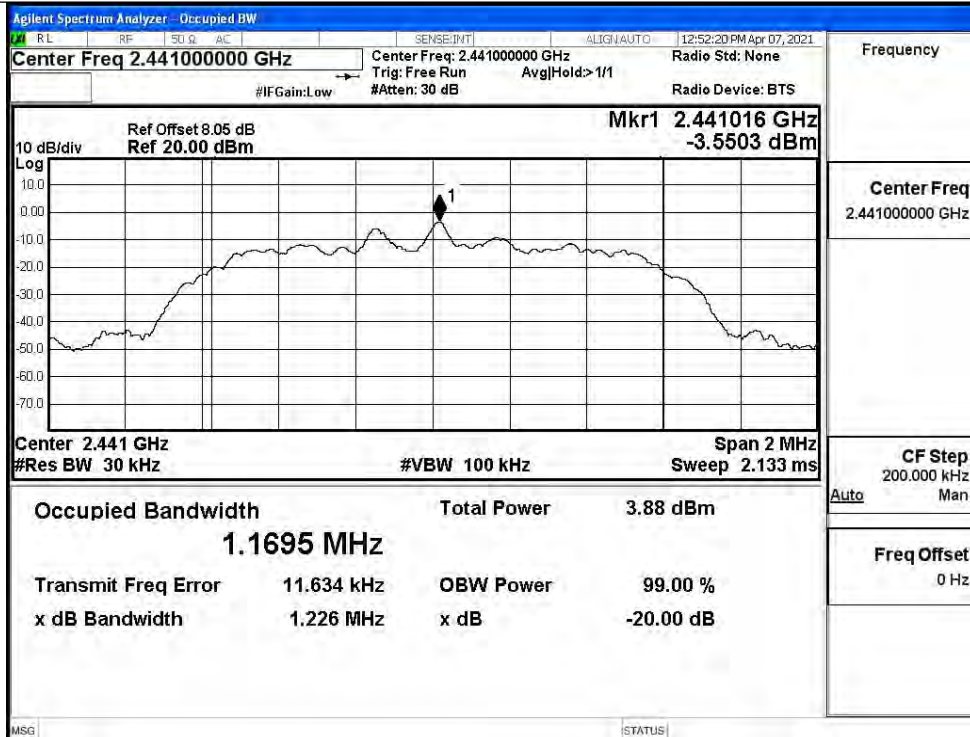
$\pi/4$ DQPSK/HCH



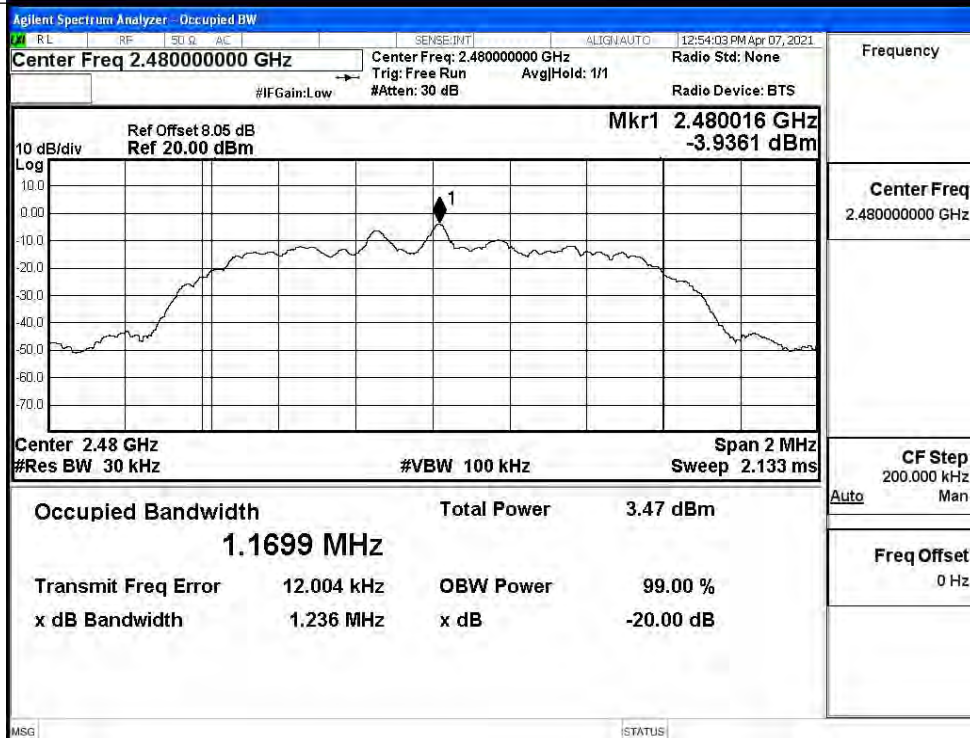
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

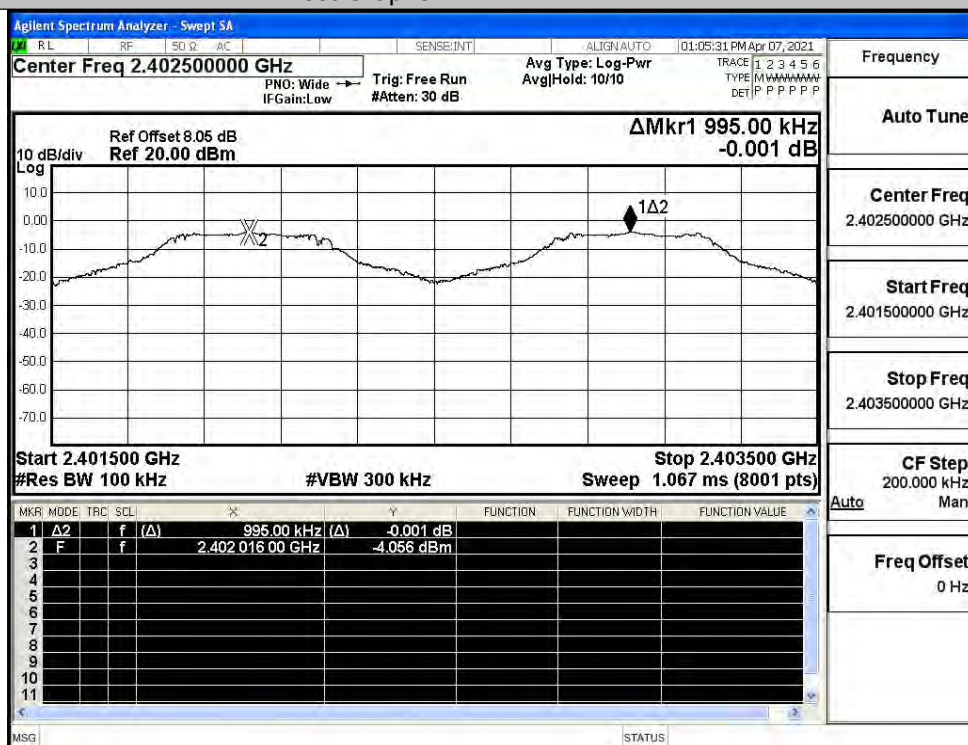


A.3 Carrier Frequency Separation

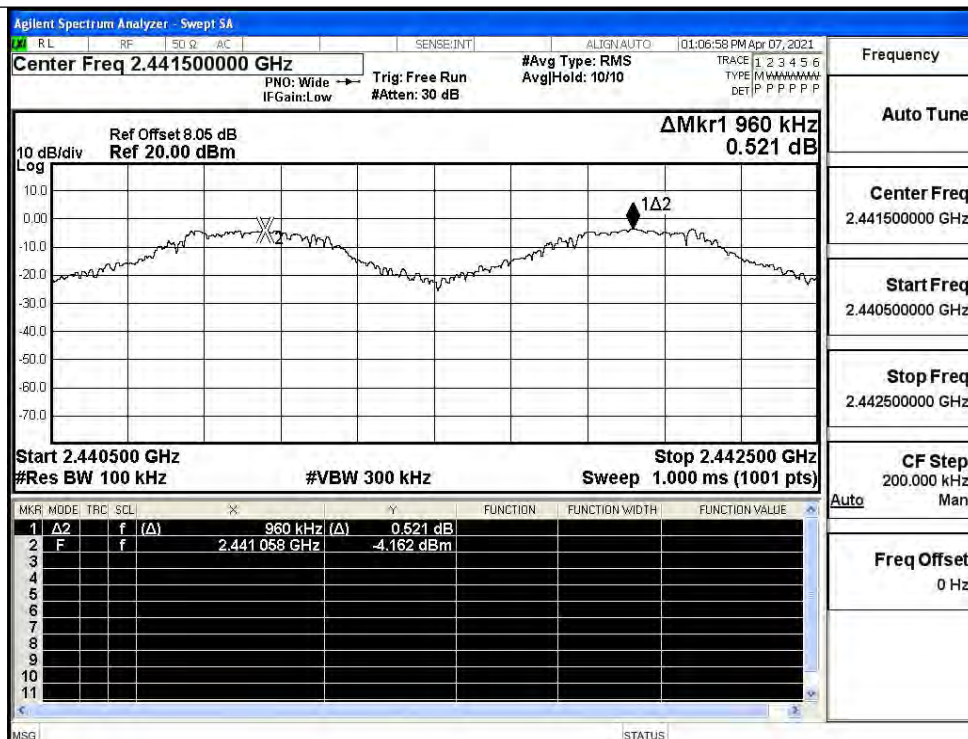
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.995	0.574	PASS
	MCH	0.960	0.578	PASS
	HCH	0.862	0.575	PASS
$\pi/4$ DQPSK	LCH	1.184	0.826	PASS
	MCH	1.034	0.817	PASS
	HCH	1.024	0.829	PASS
8DPSK	LCH	1.022	0.817	PASS
	MCH	0.982	0.817	PASS
	HCH	1.258	0.824	PASS

Test Graphs

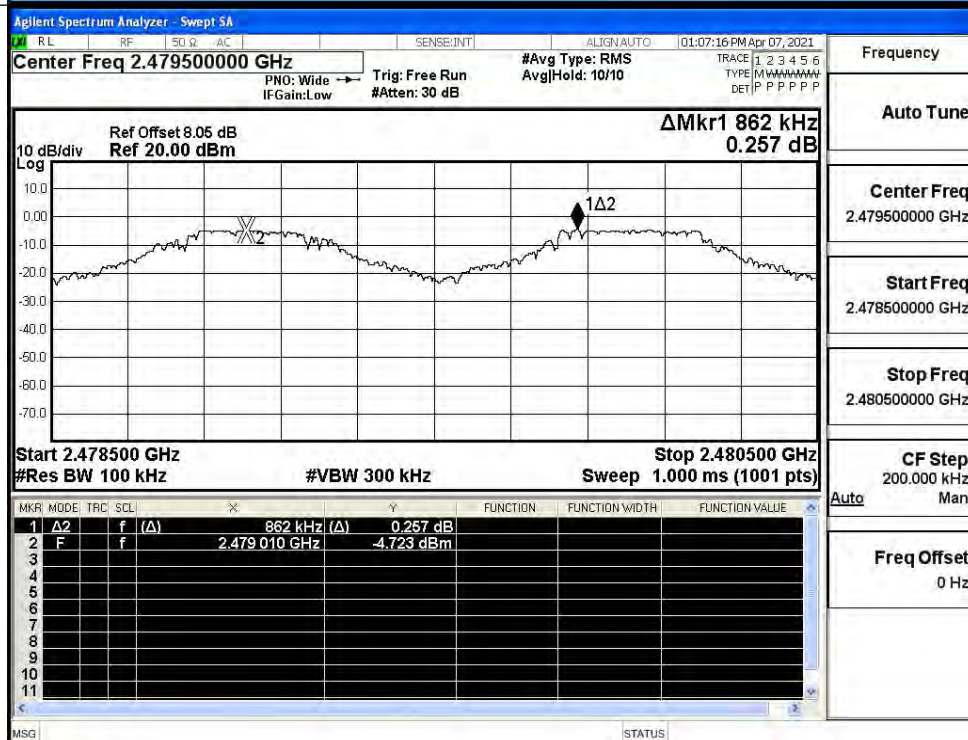
GFSK/LCH



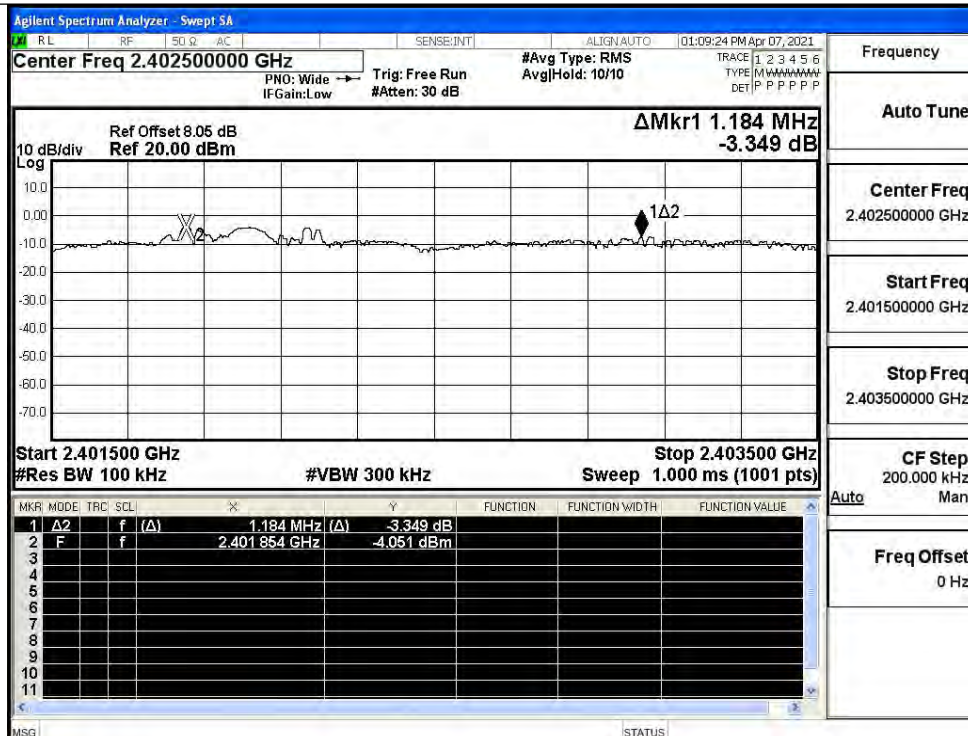
GFSK/MCH



GFSK/HCH



$\pi/4$ DQPSK/LCH



Frequency

Auto Tune

Center Freq
2.402500000 GHz

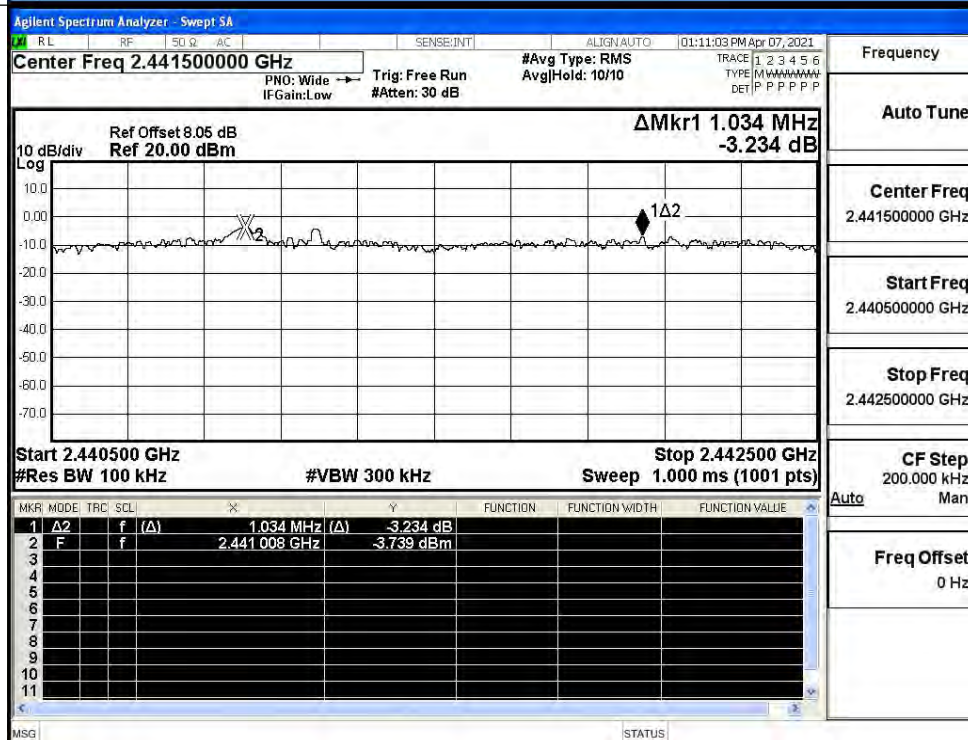
Start Freq
2.401500000 GHz

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

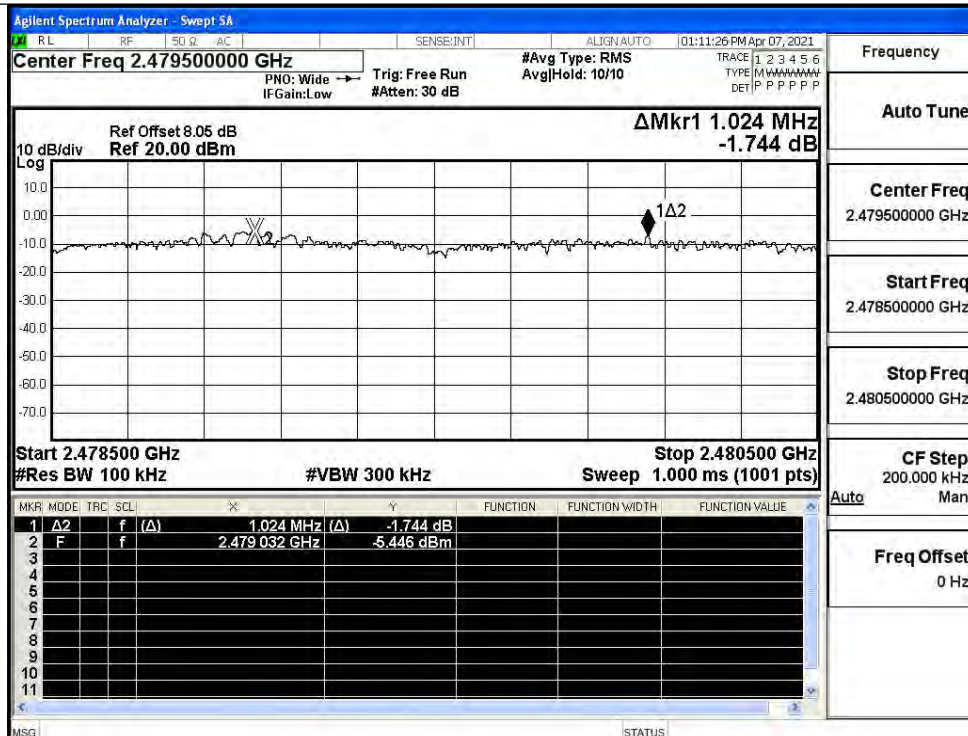
Start Freq
2.440500000 GHz

Stop Freq
2.442500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

$\pi/4$ DQPSK/HCH



Frequency

Auto Tune

Center Freq
2.479500000 GHz

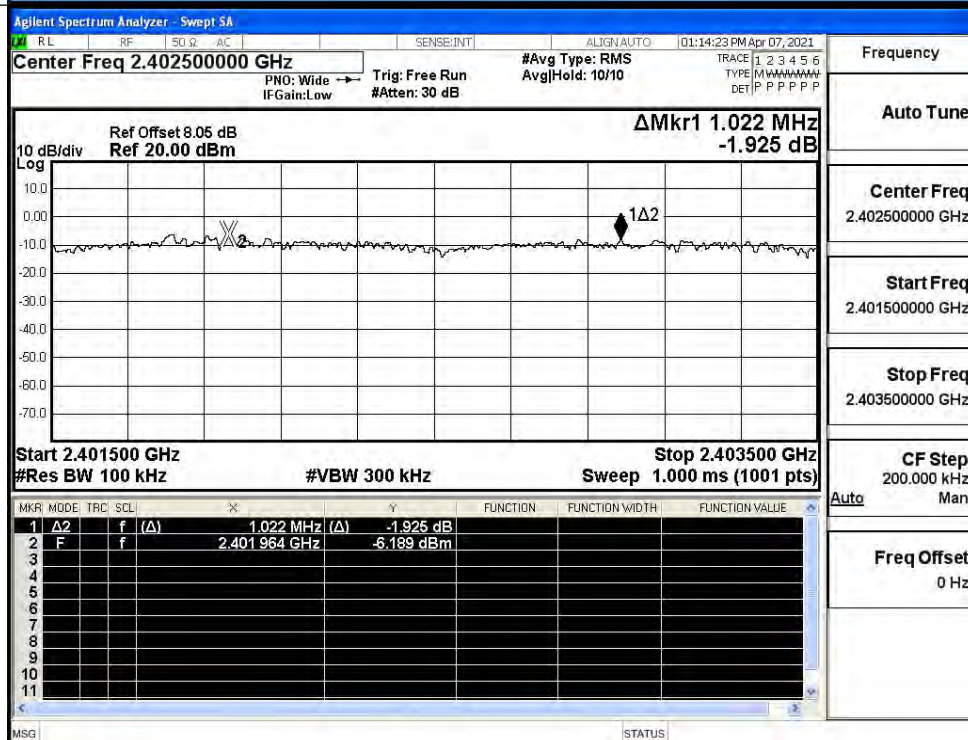
Start Freq
2.478500000 GHz

Stop Freq
2.480500000 GHz

CF Step
200.000 kHz
Man

Freq Offset
0 Hz

8DPSK/LCH



Frequency

Auto Tune

Center Freq
2.402500000 GHz

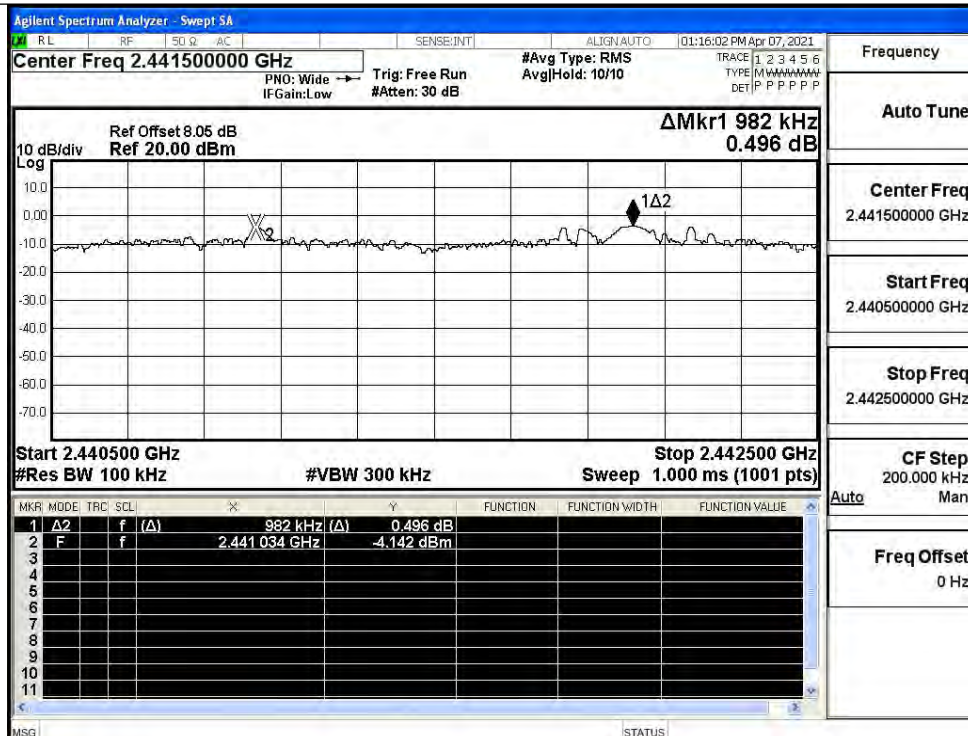
Start Freq
2.401500000 GHz

Stop Freq
2.403500000 GHz

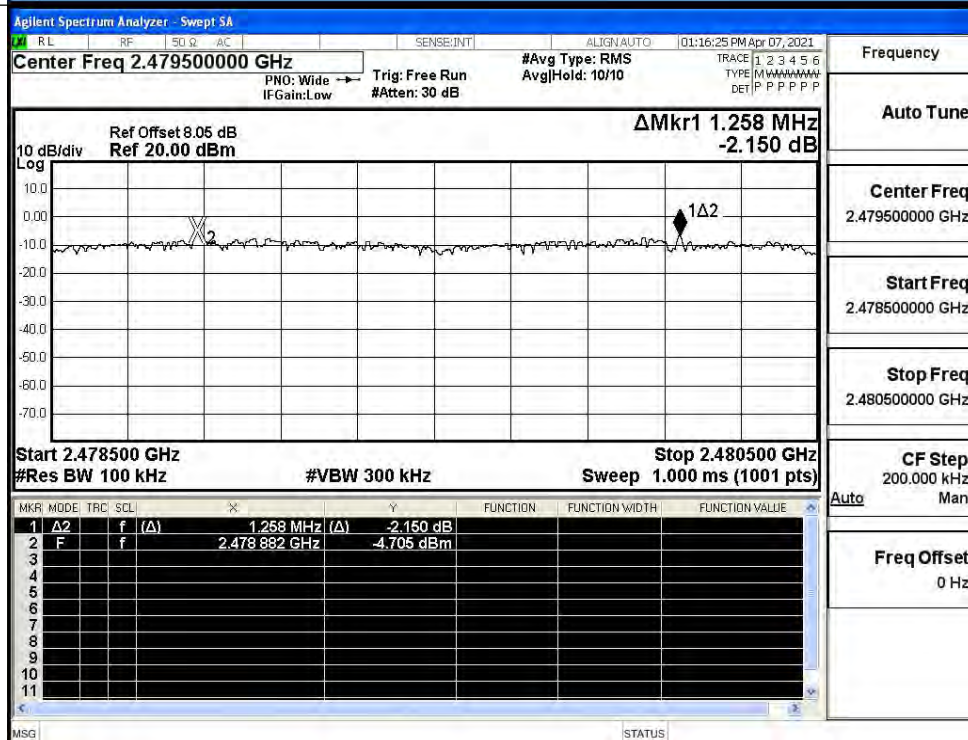
CF Step
200.000 kHz
Man

Freq Offset
0 Hz

8DPSK/MCH



8DPSK/HCH

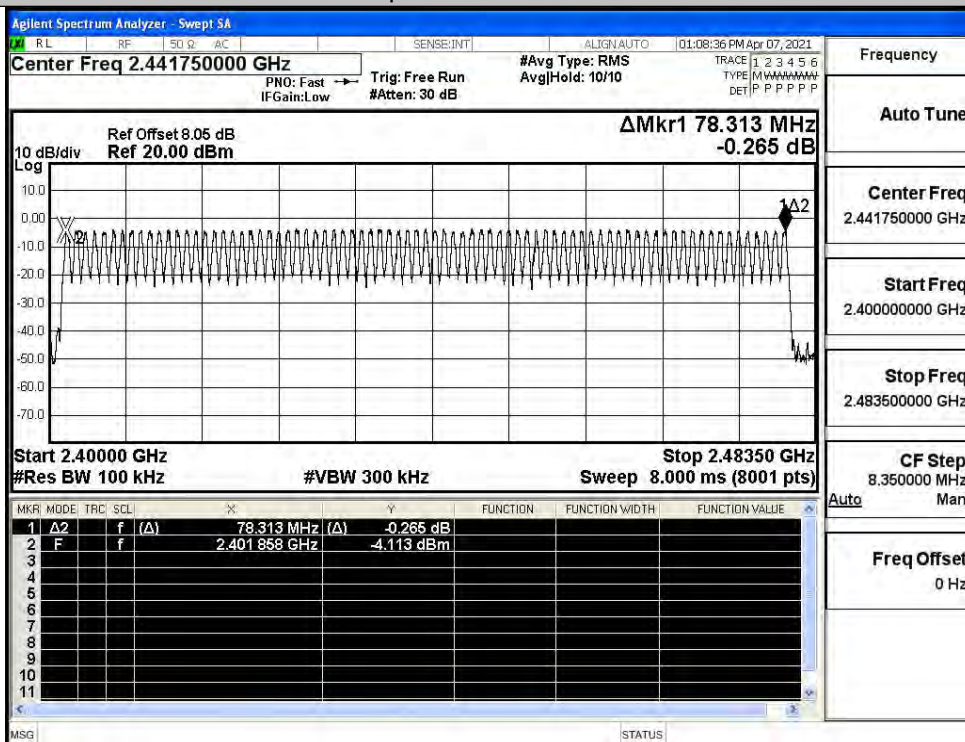
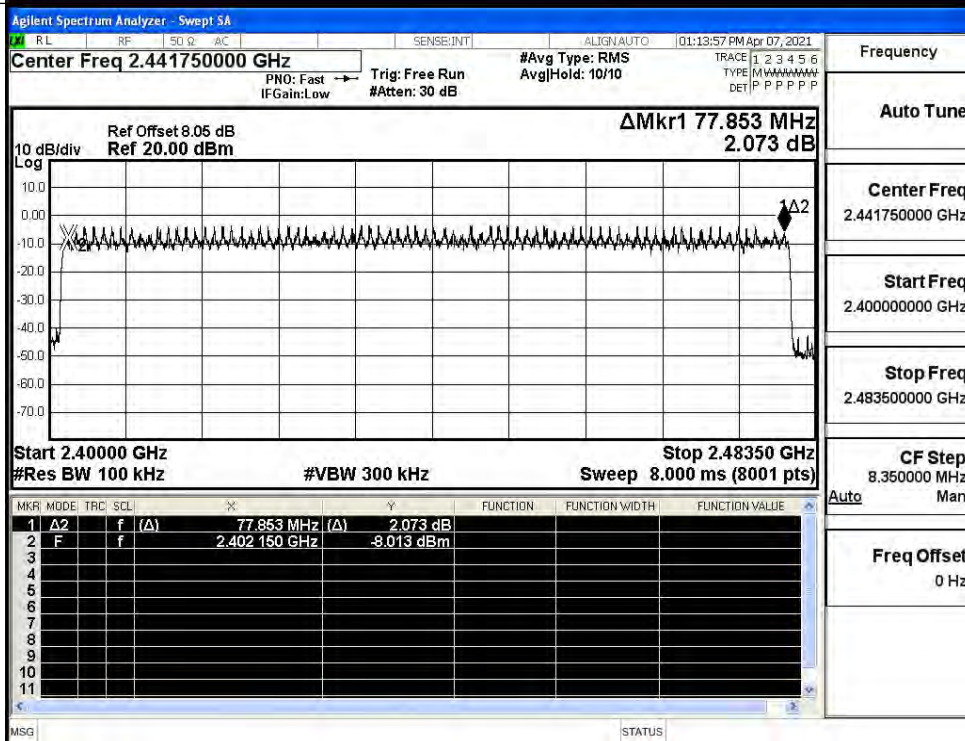


A.4 Hopping Channel Number

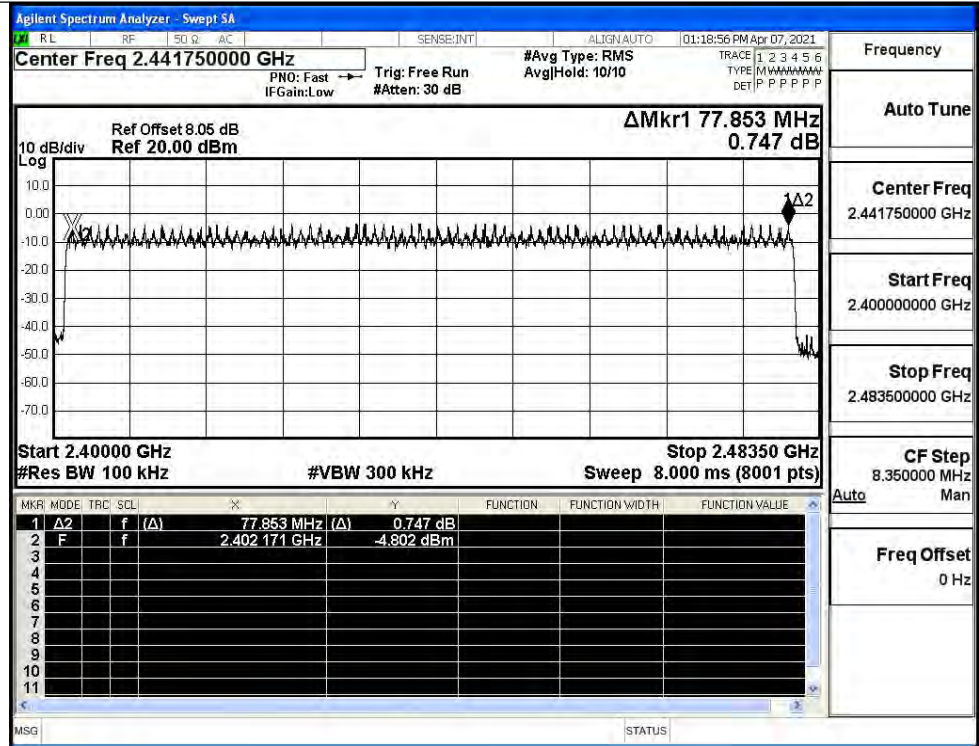
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

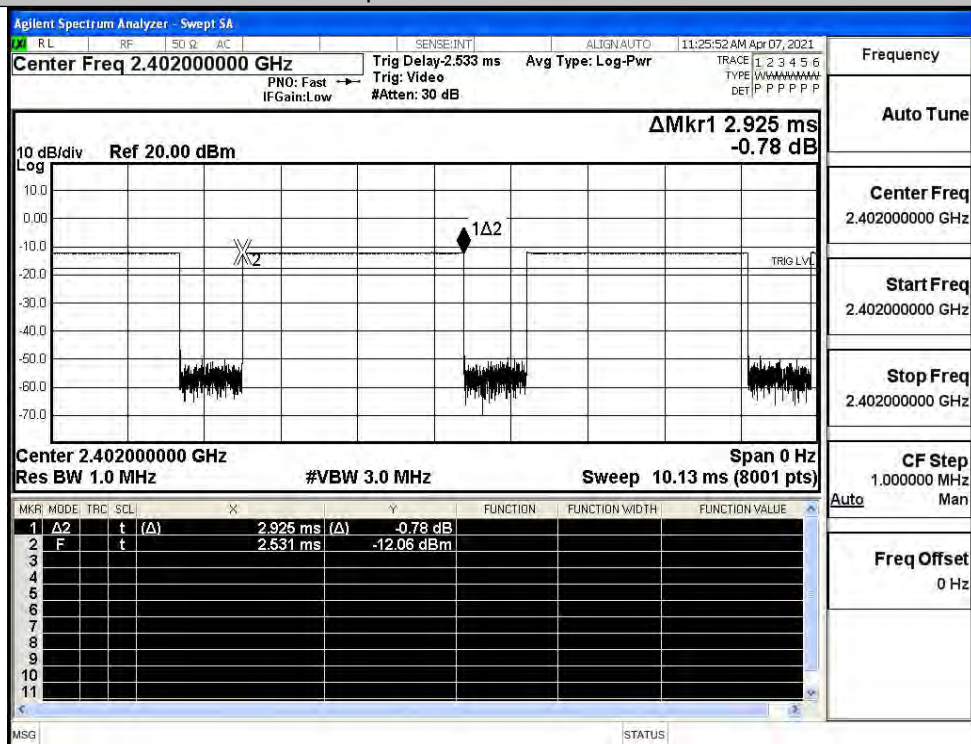


A.5 Dwell Time

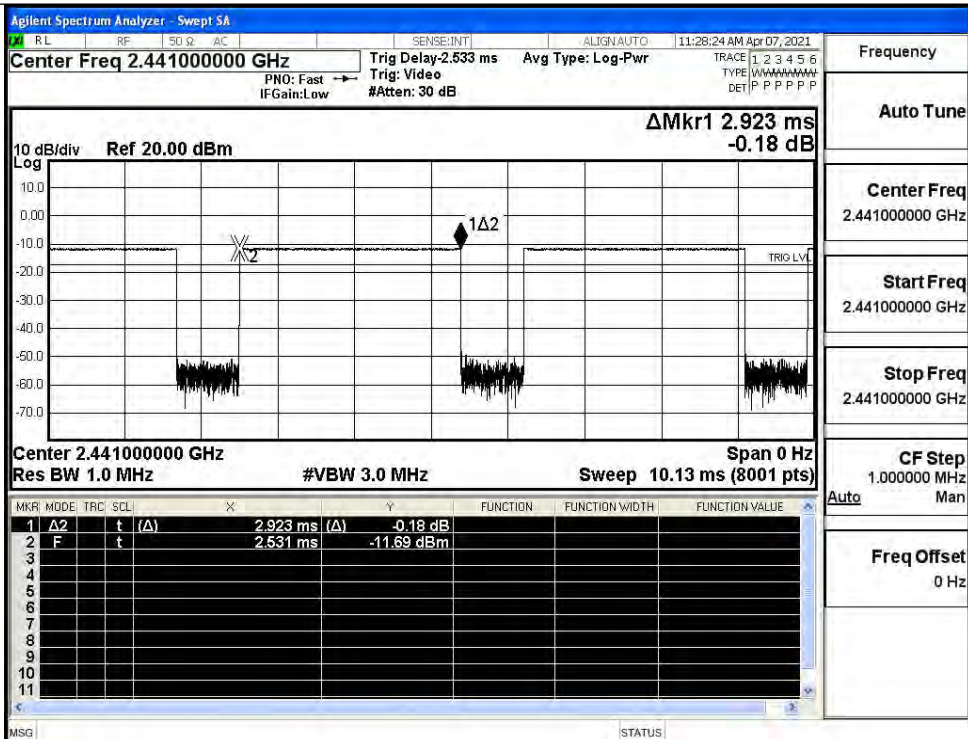
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.93	106.7	0.313	0.4	PASS
	DH5	MCH	2.92	106.7	0.312	0.4	PASS
	DH5	HCH	2.92	106.7	0.312	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.93	106.7	0.313	0.4	PASS
	2DH5	MCH	2.93	106.7	0.313	0.4	PASS
	2DH5	HCH	2.93	106.7	0.313	0.4	PASS
8DPSK	3DH5	LCH	2.93	106.7	0.313	0.4	PASS
	3DH5	MCH	2.93	106.7	0.313	0.4	PASS
	3DH5	HCH	2.93	106.7	0.313	0.4	PASS

Test Graphs

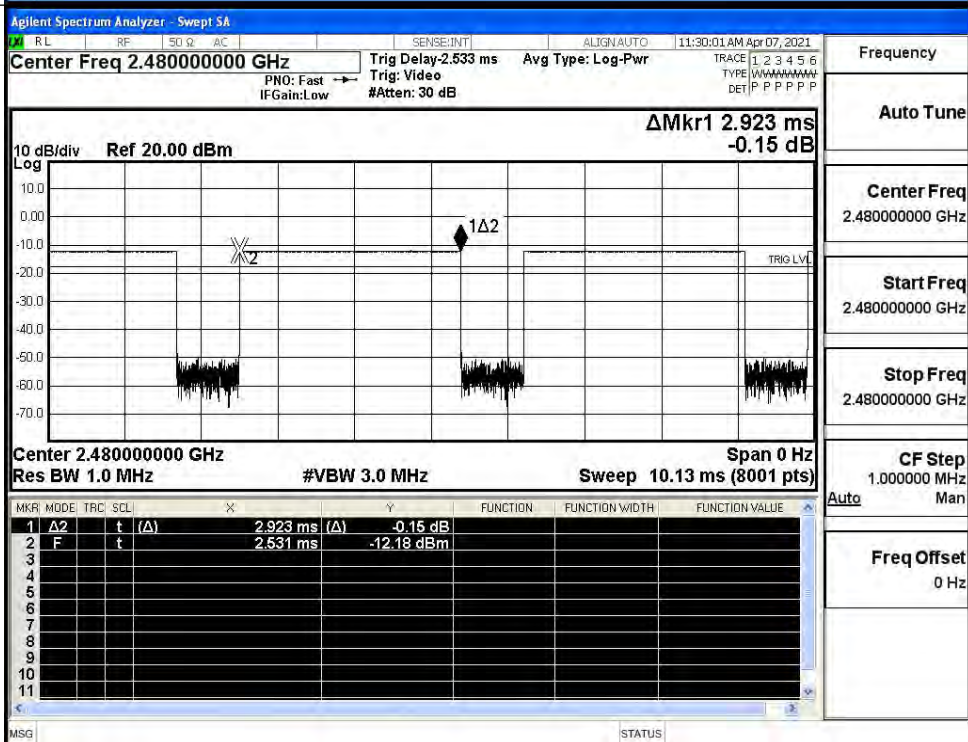
GFSK_DH5/LCH



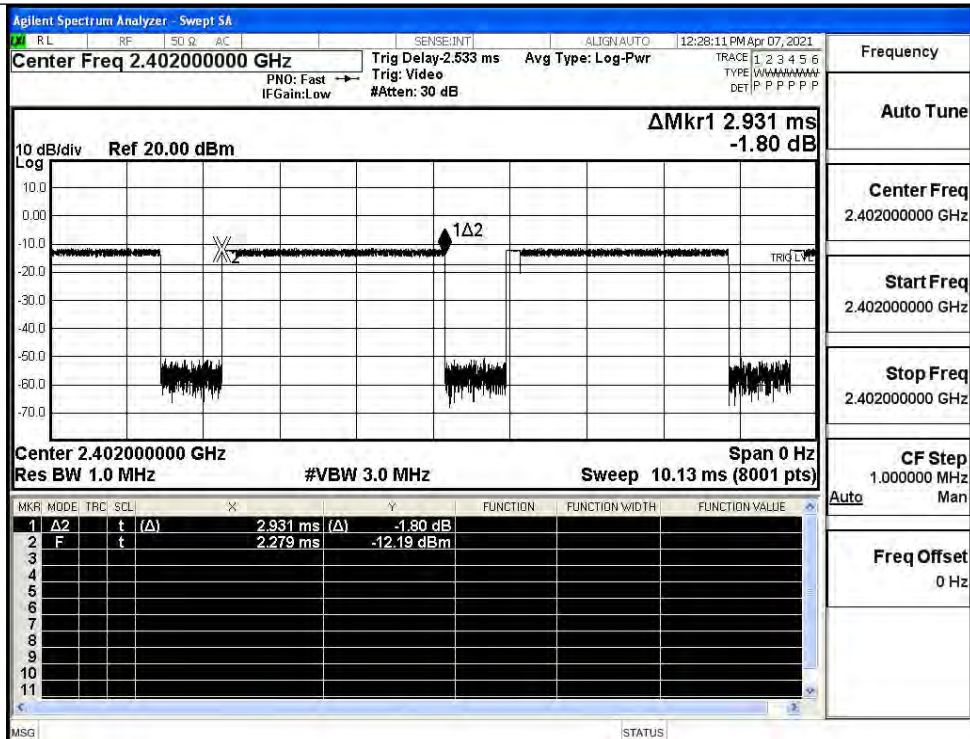
GFSK_DH5/MCH



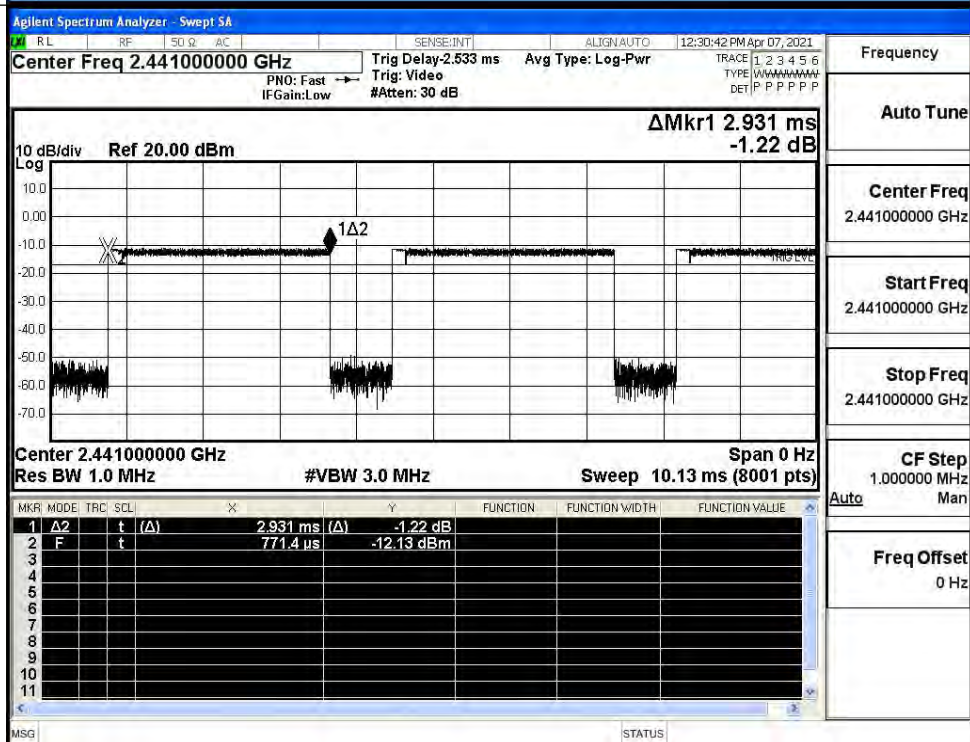
GFSK_DH5/HCH



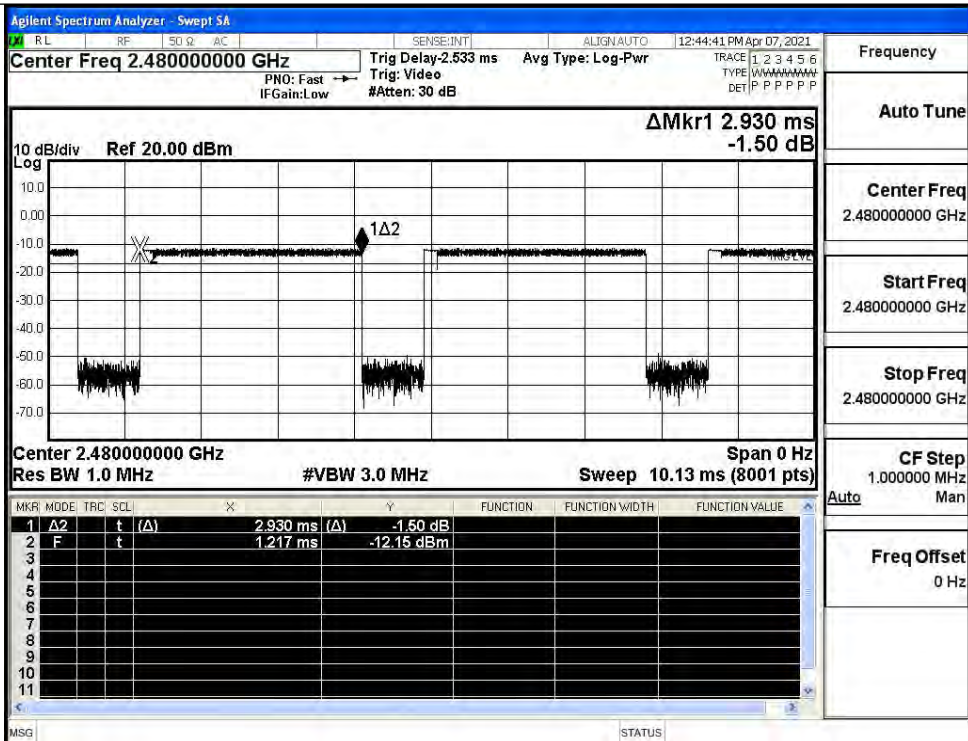
$\pi/4$ DQPSK
_2DH5/LCH



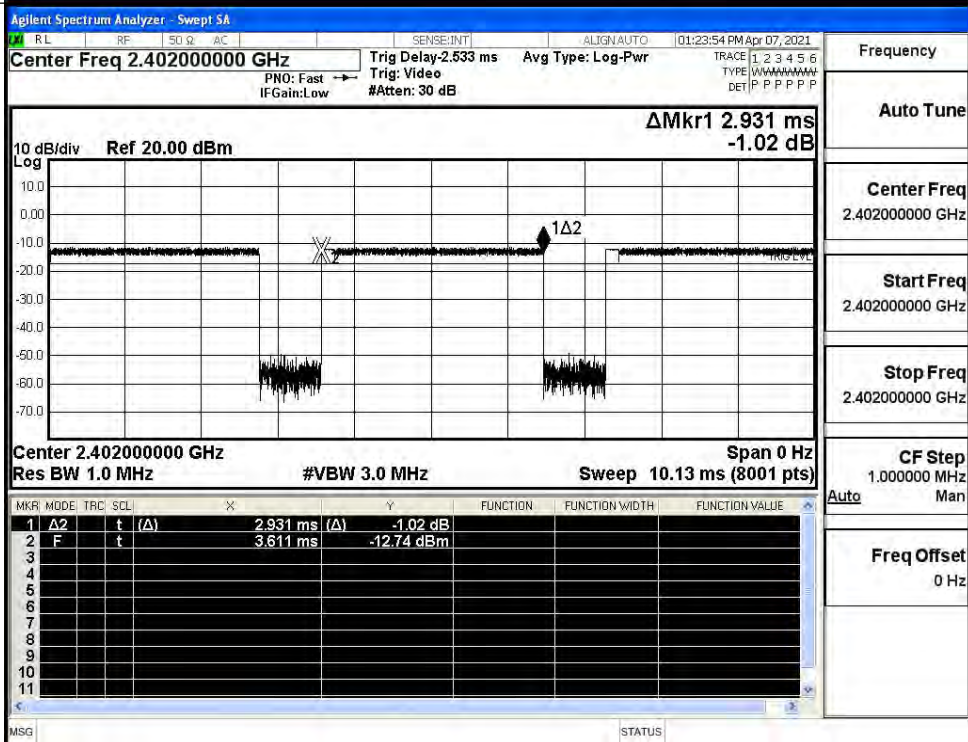
$\pi/4$ DQPSK
_2DH5/MCH



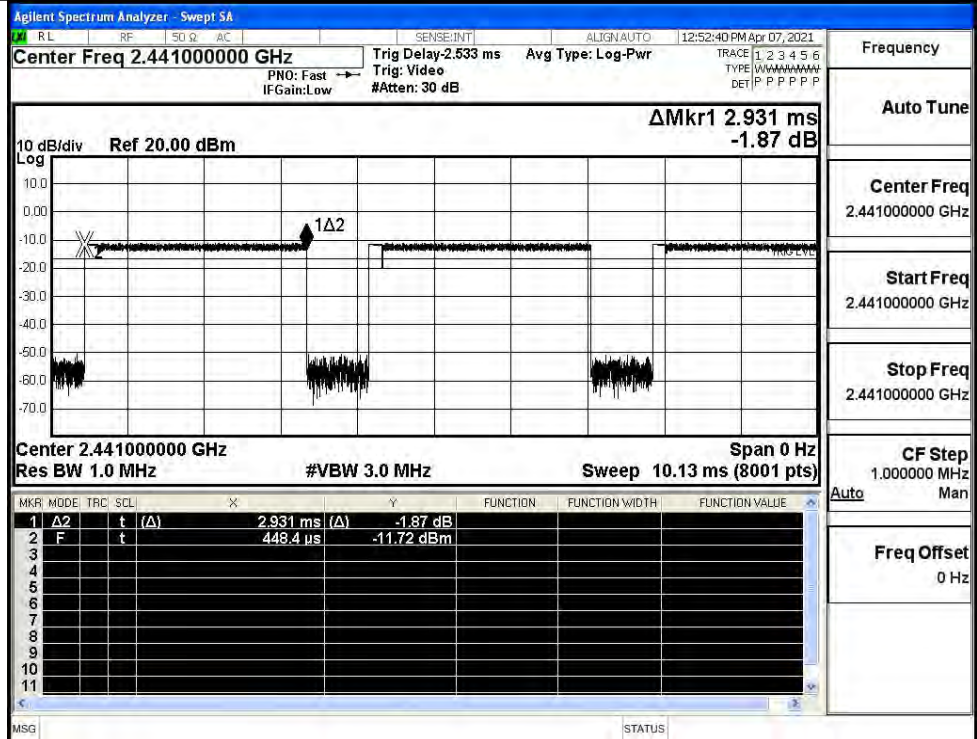
$\pi/4$ DQPSK
_2DH5/HCH



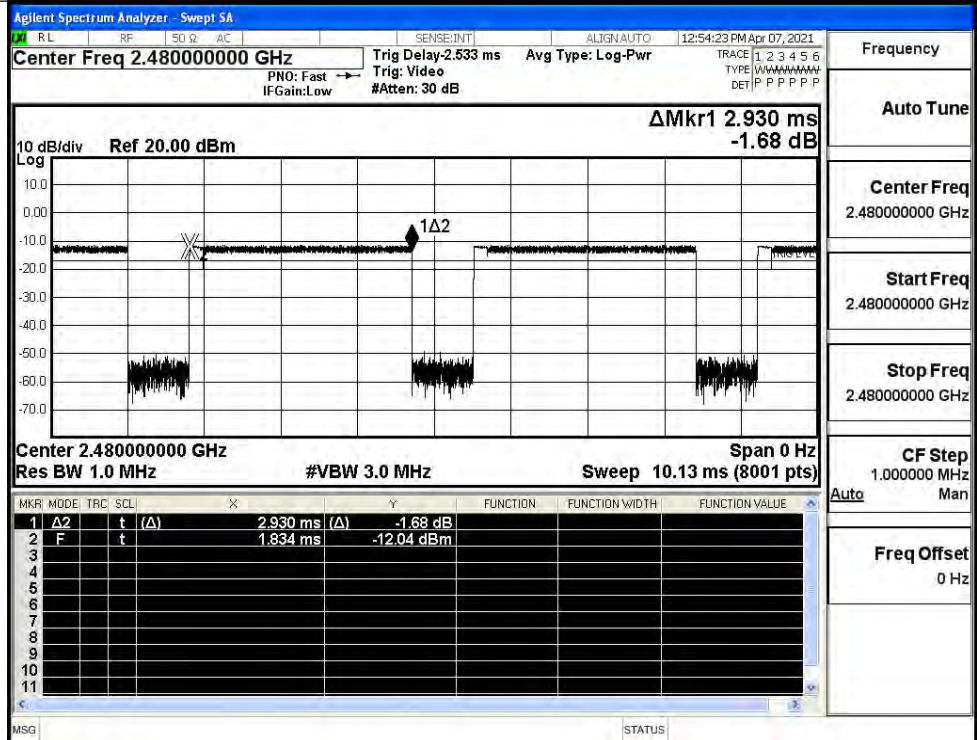
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



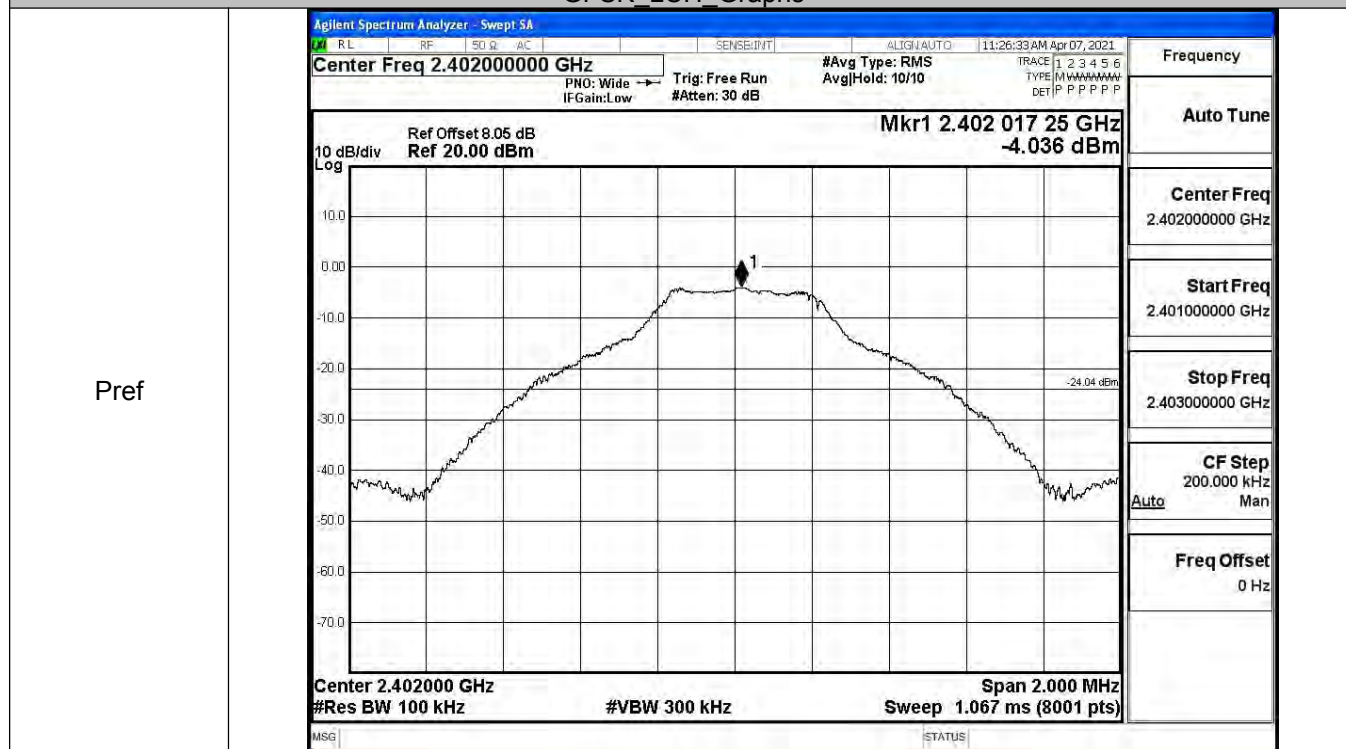
8DPSK_3DH5/HCH



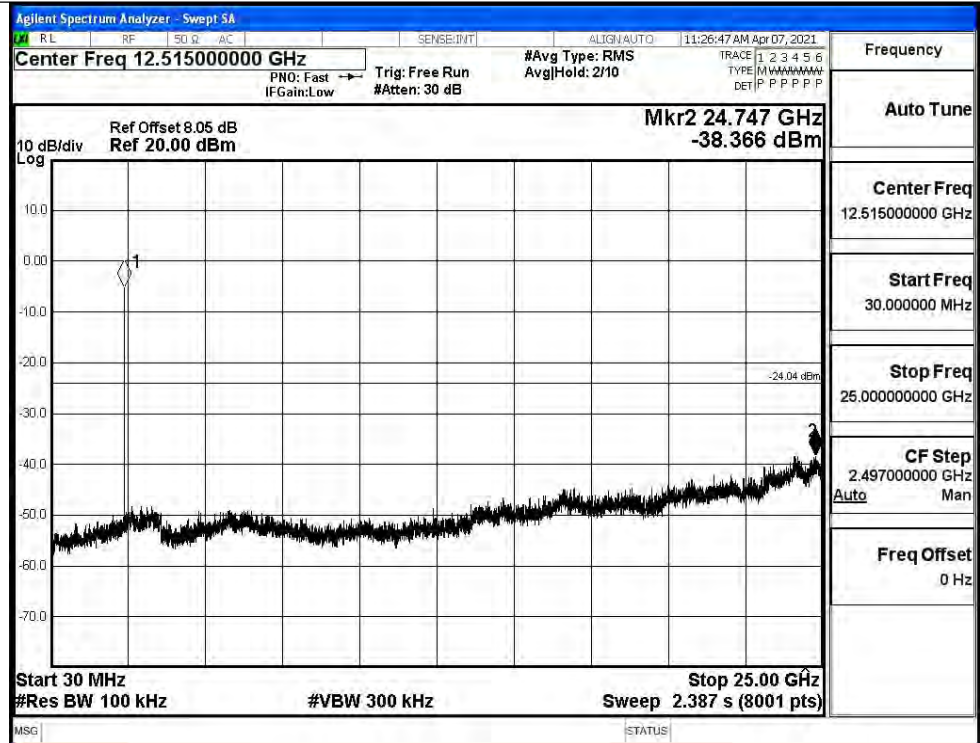
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-4.036	-38.366	-24.036	PASS
	MCH	-3.605	-37.243	-23.605	PASS
	HCH	-4.094	-37.177	-24.094	PASS
$\pi/4$ DQPSK	LCH	-4.058	-37.338	-24.058	PASS
	MCH	-3.587	-37.522	-23.587	PASS
	HCH	-3.984	-38.761	-23.984	PASS
8DPSK	LCH	-3.964	-38.502	-23.964	PASS
	MCH	-3.502	-37.966	-23.502	PASS
	HCH	-3.99	-38.208	-23.990	PASS

GFSK LCH Graphs

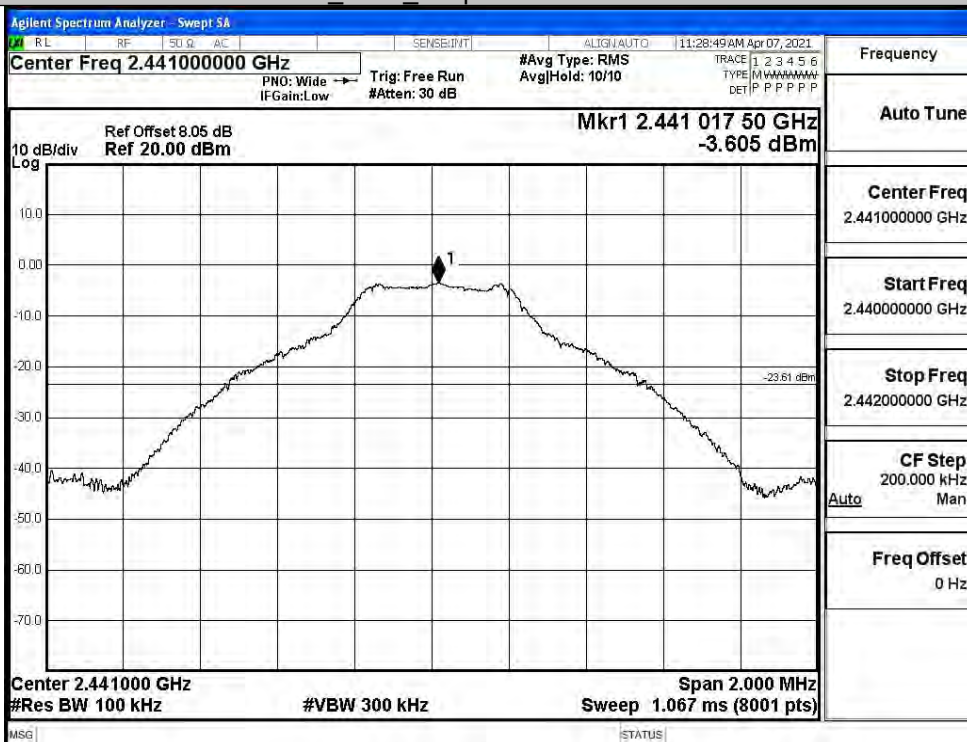


Puw



GFSK_MCH_Graphs

Pref

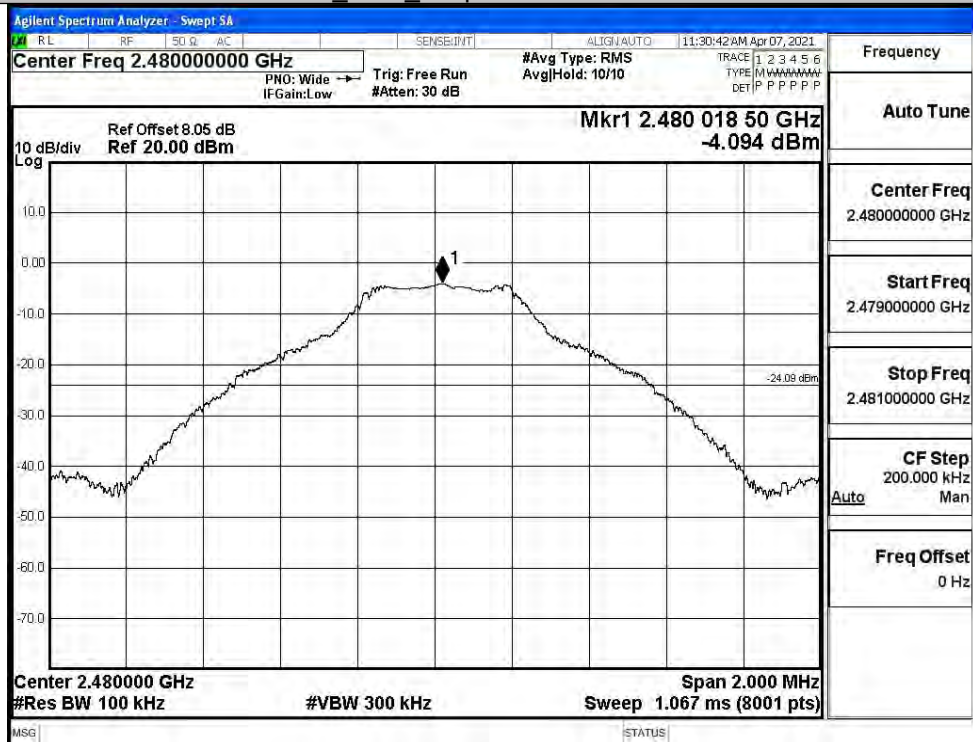


Puw

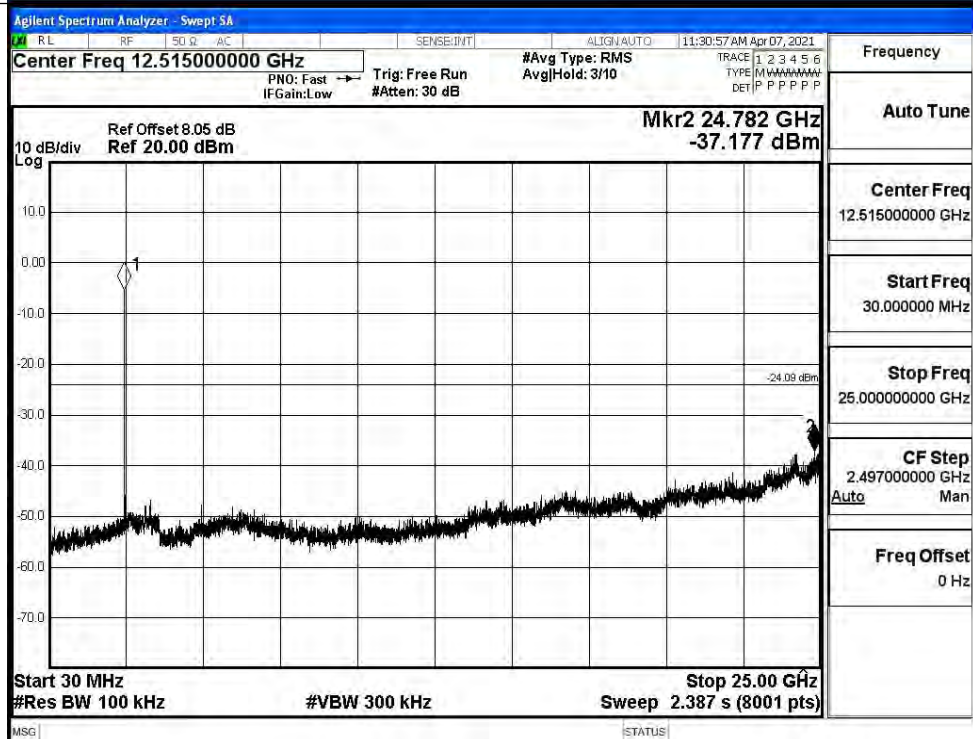


GFSK_HCH_Graphs

Pref

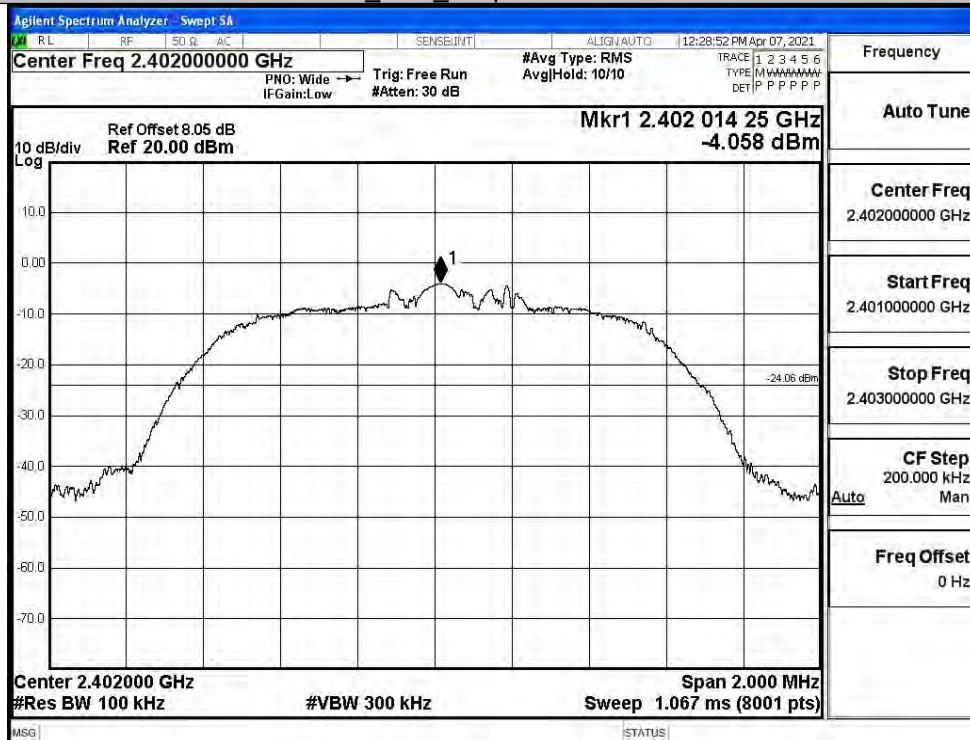


Puw

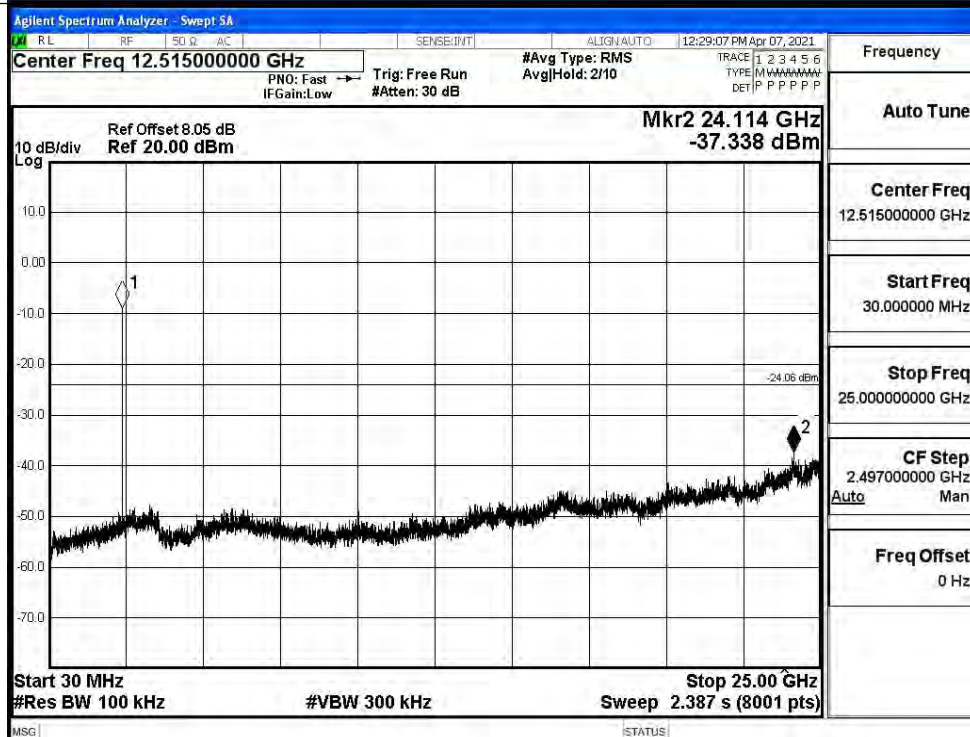


$\pi/4$ DQPSK_LCH_Graphs

Pref

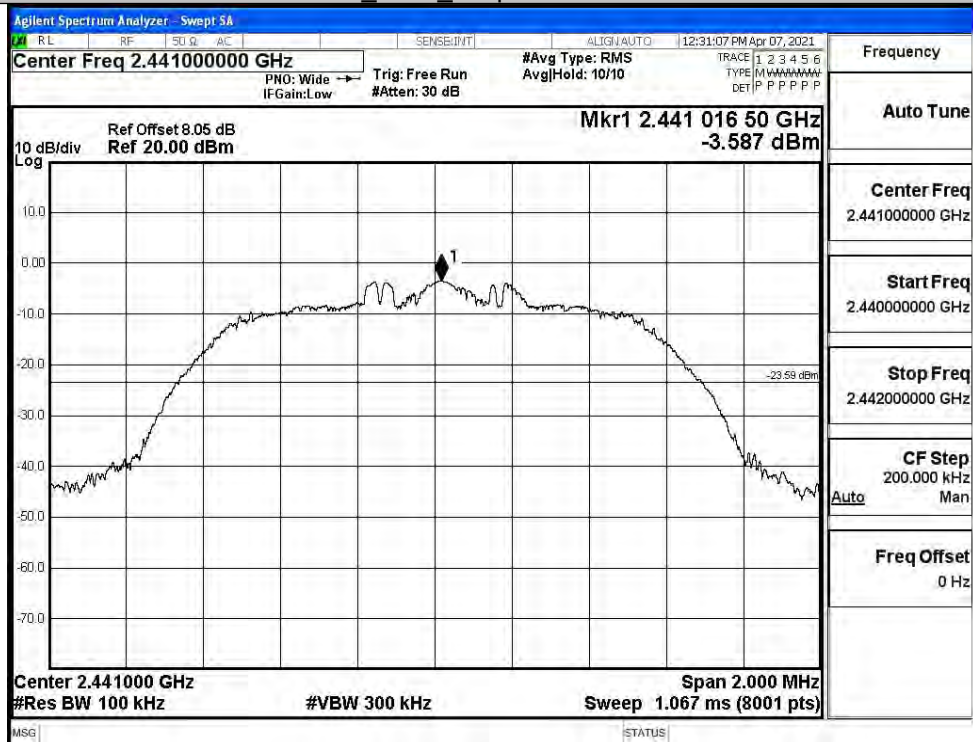


Puw

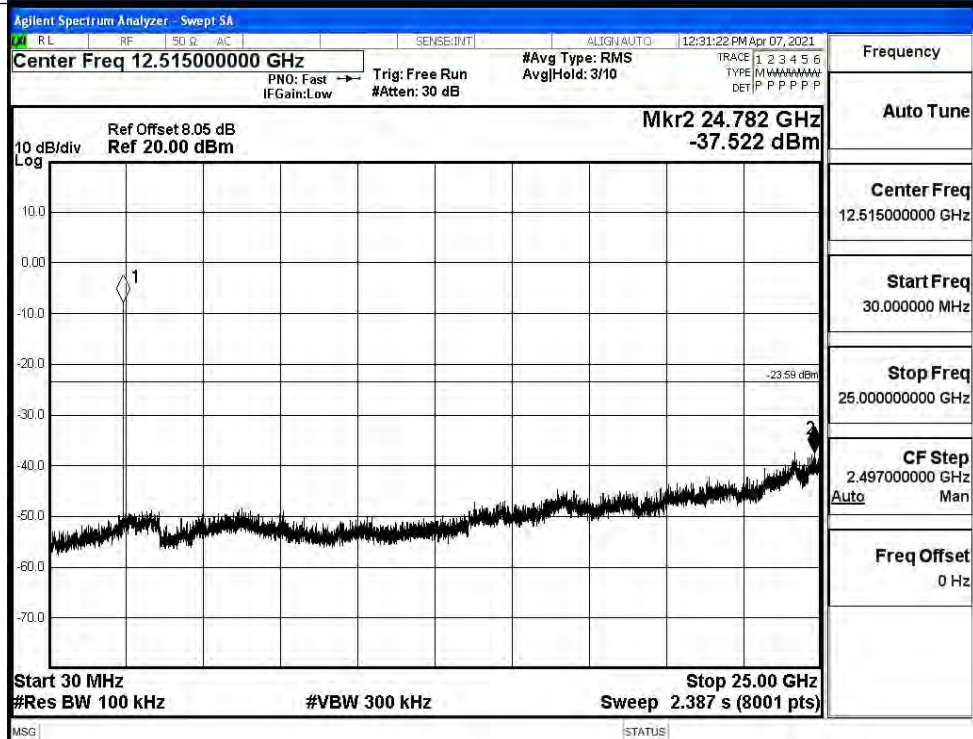


$\pi/4$ DQPSK_MCH_Graphs

Pref

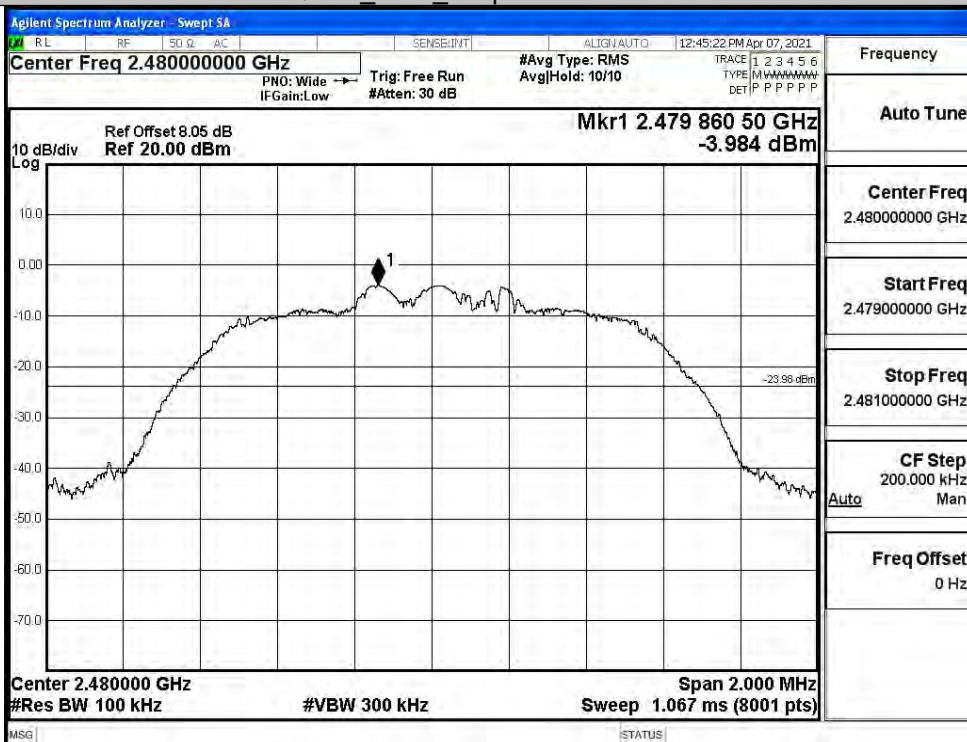


Puw

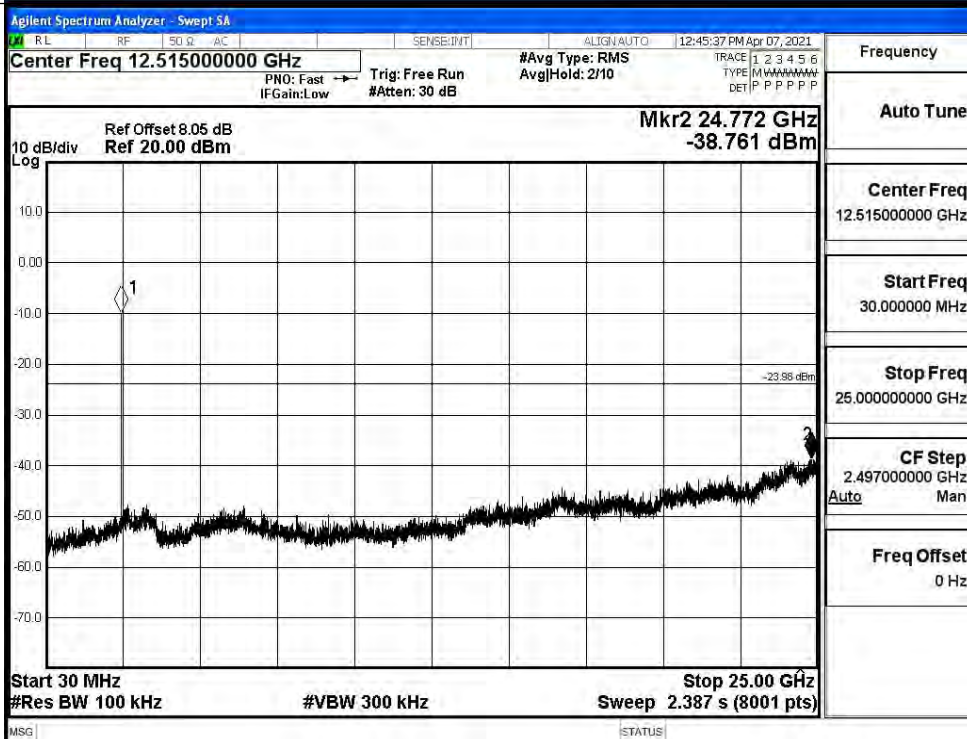


$\pi/4$ DQPSK_HCH_Graphs

Pref

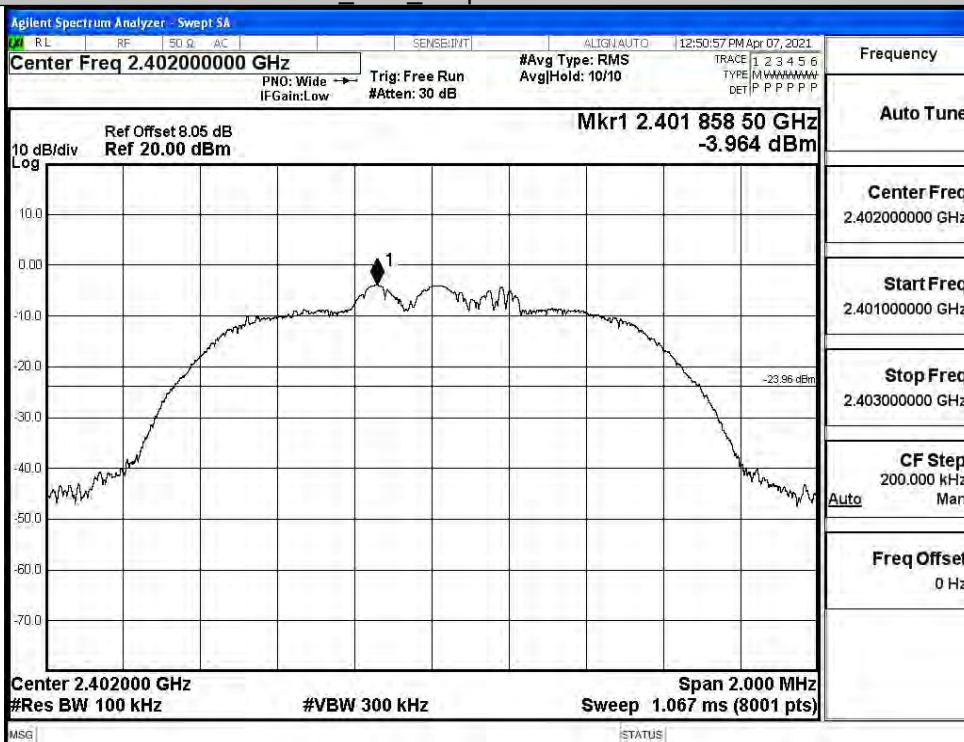


Puw

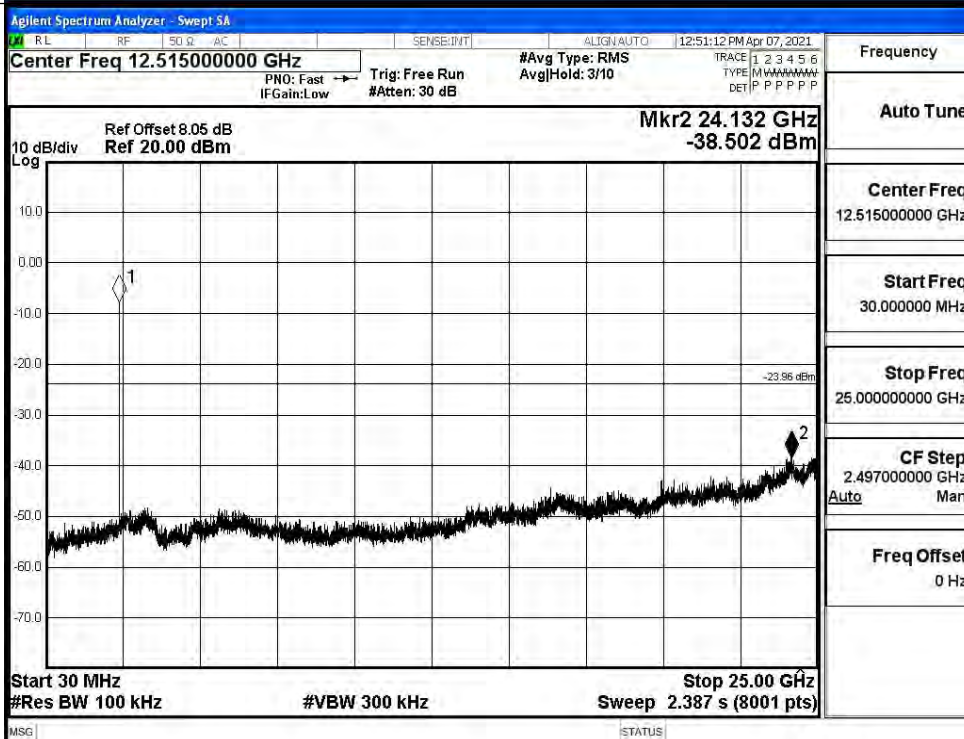


8DPSK_LCH_Graphs

Pref

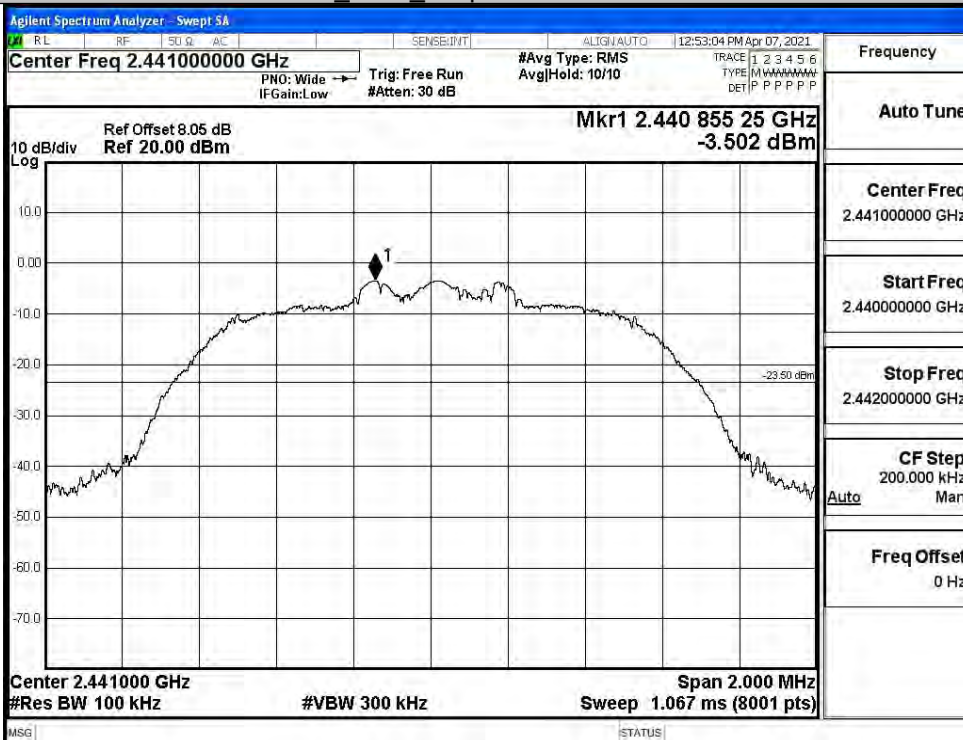


Puw

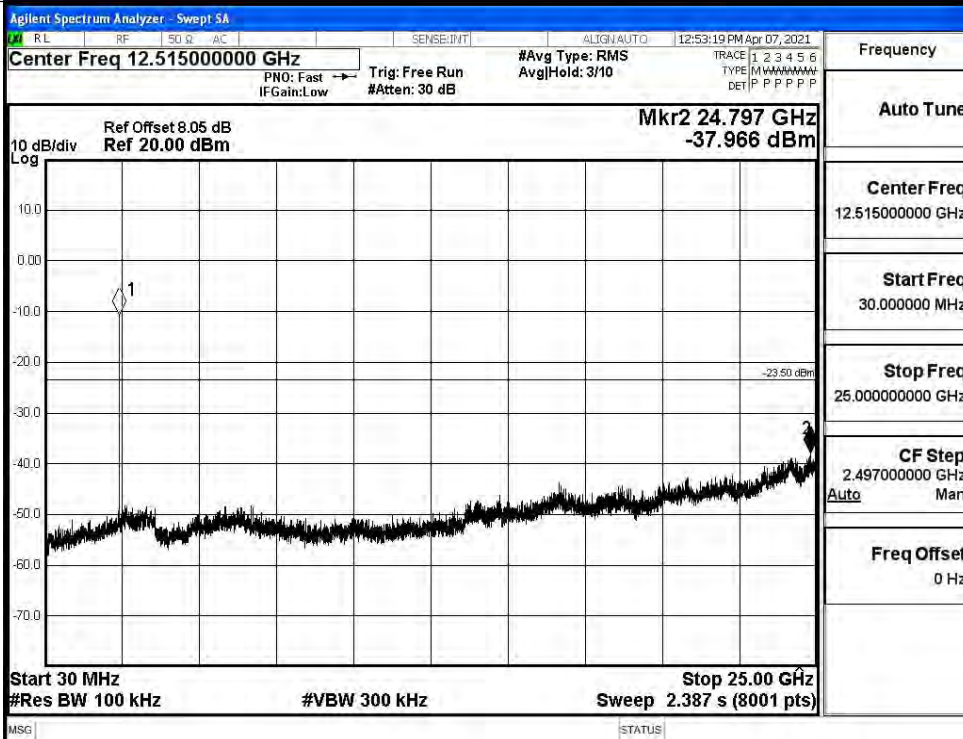


8DPSK_MCH_Graphs

Pref

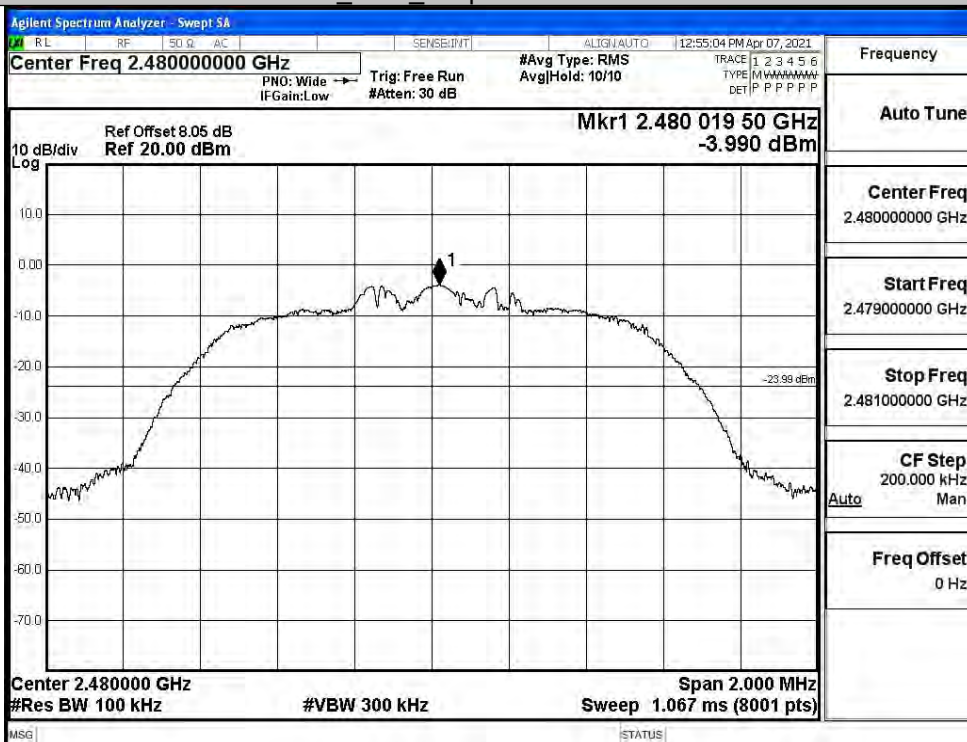


Puw

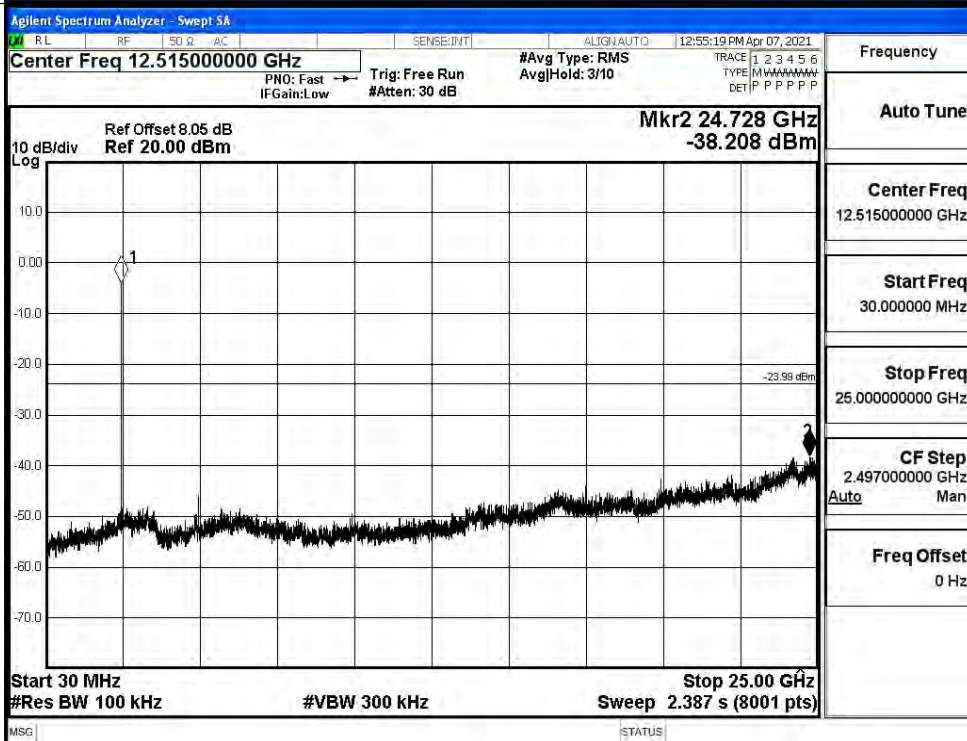


8DPSK_HCH_Graphs

Pref



Puw

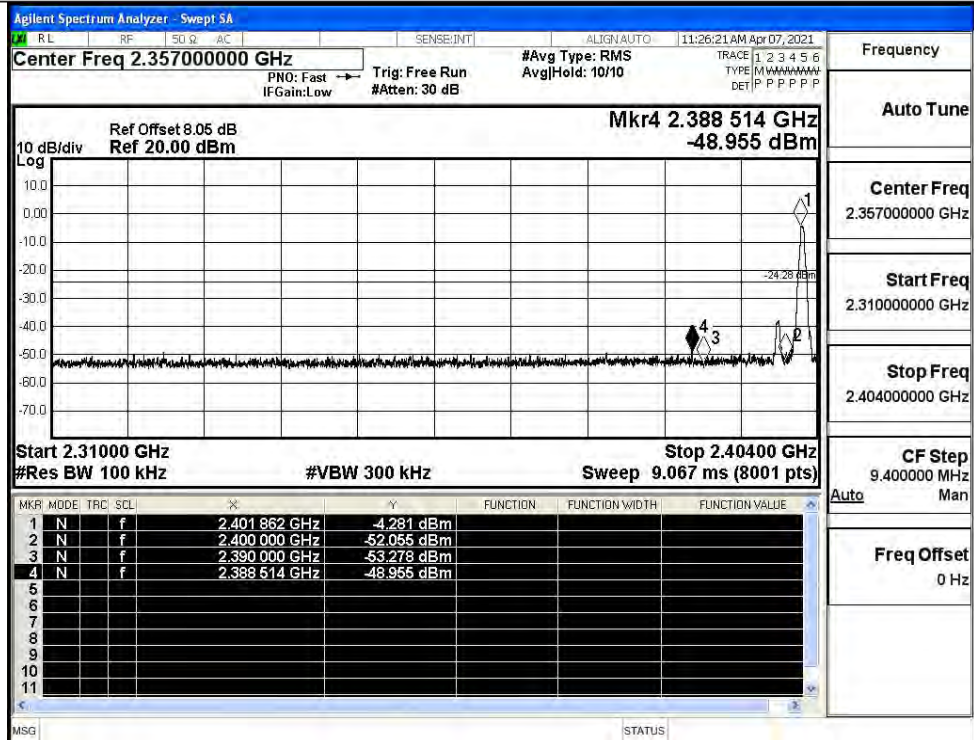


A.7 Band-edge for RF Conducted Emissions

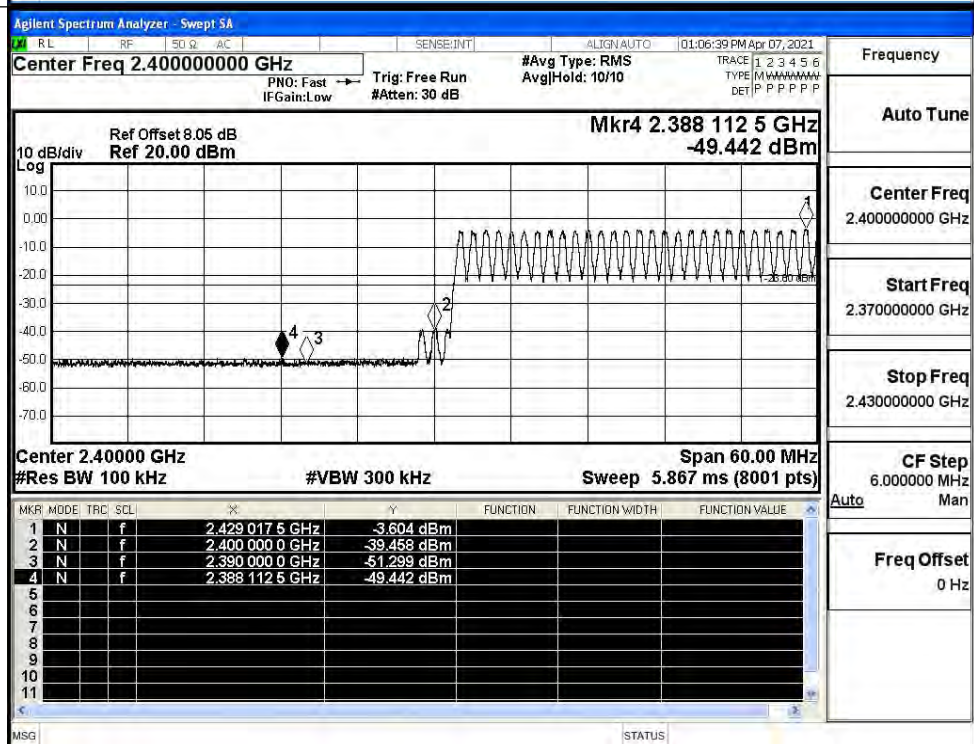
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-4.281	Off	-48.955	-24.28	PASS
			-3.604	On	-49.442	-23.6	PASS
	HCH	2480	-4.058	Off	-43.436	-24.06	PASS
			-3.841	On	-45.546	-23.84	PASS
$\pi/4$ DQPSK	LCH	2402	-4.034	Off	-48.760	-24.03	PASS
			-3.601	On	-49.447	-23.6	PASS
	HCH	2480	-3.955	Off	-46.697	-23.96	PASS
			-3.775	On	-48.185	-23.78	PASS
8DPSK	LCH	2402	-3.879	Off	-49.301	-23.88	PASS
			-3.628	On	-48.557	-23.63	PASS
	HCH	2480	-3.886	Off	-45.225	-23.89	PASS
			-3.822	On	-48.456	-23.82	PASS

Test Graphs

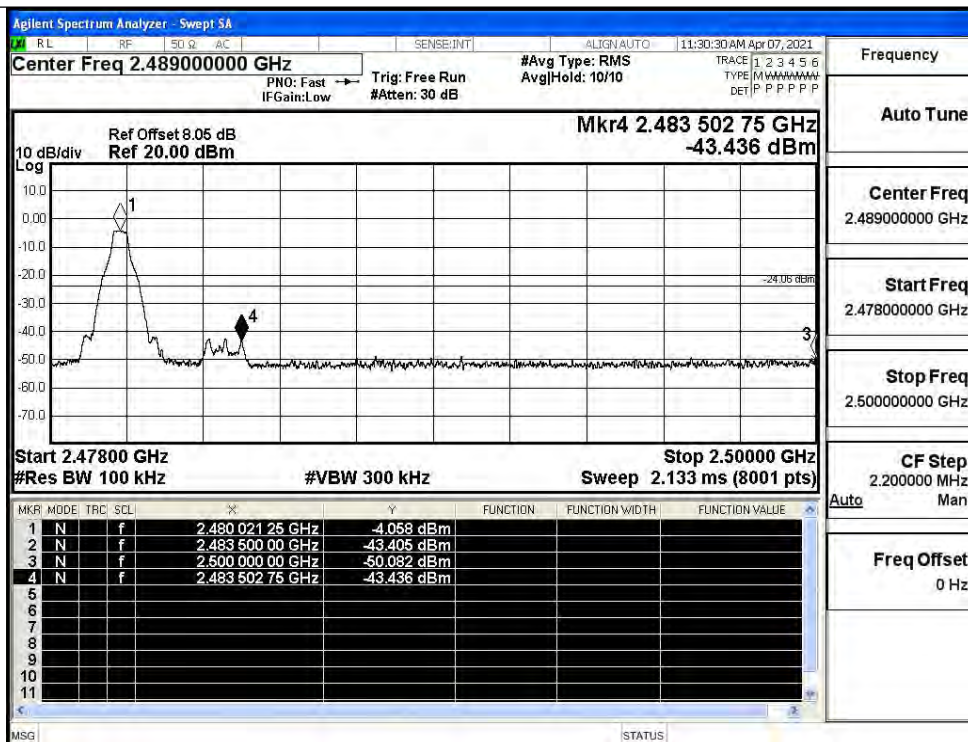
GFSK/LCH/No Hop



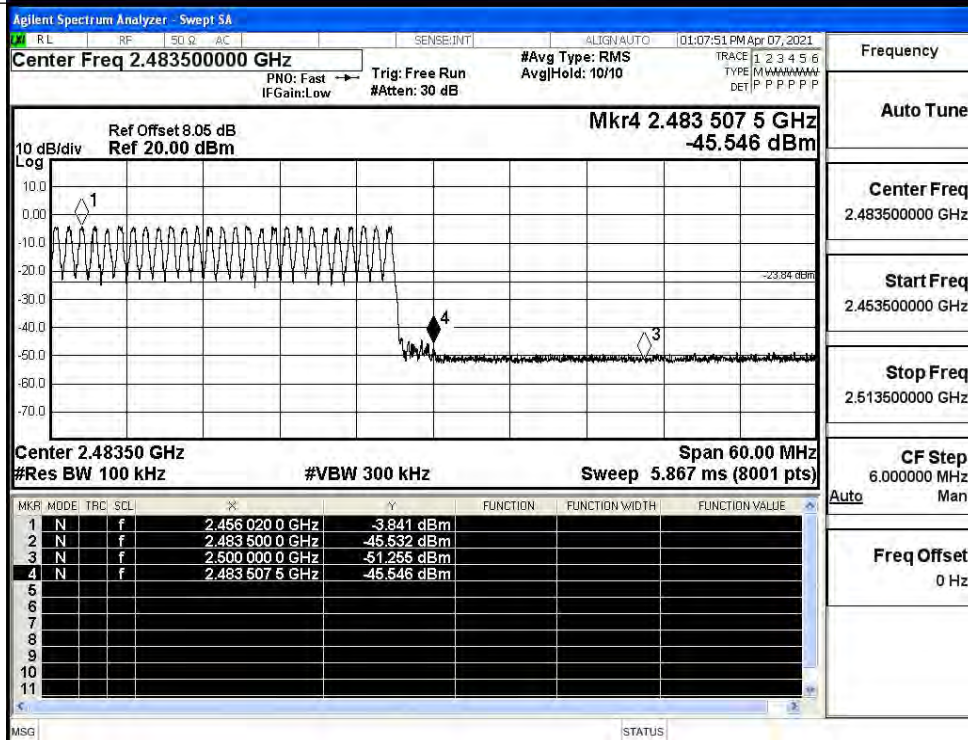
GFSK/LCH/Hop



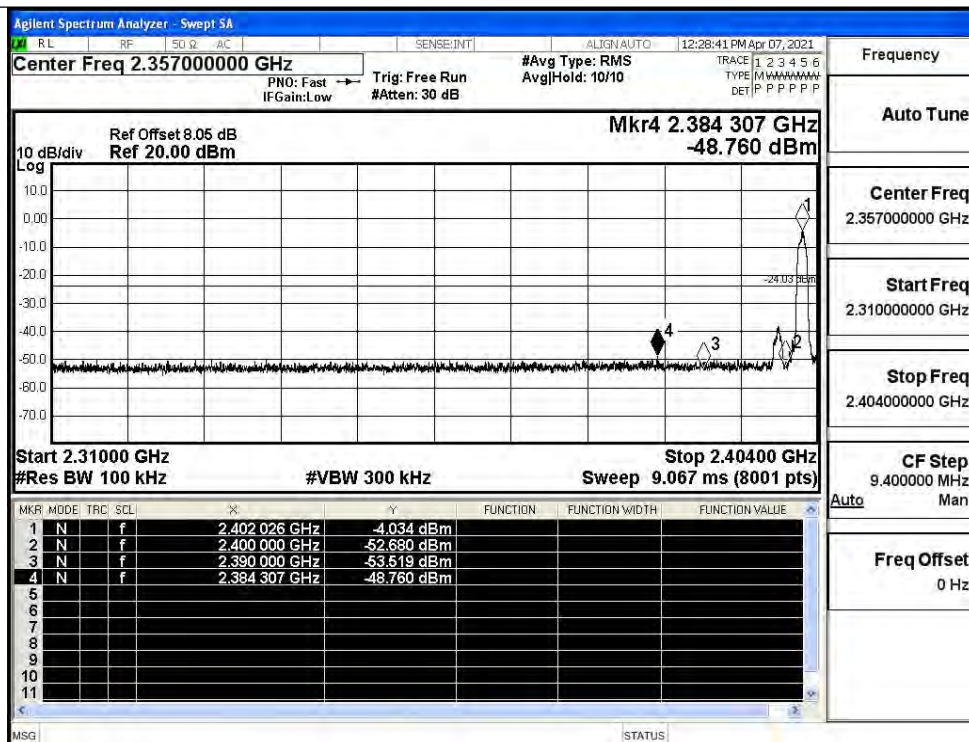
GFSK/HCH/No Hop



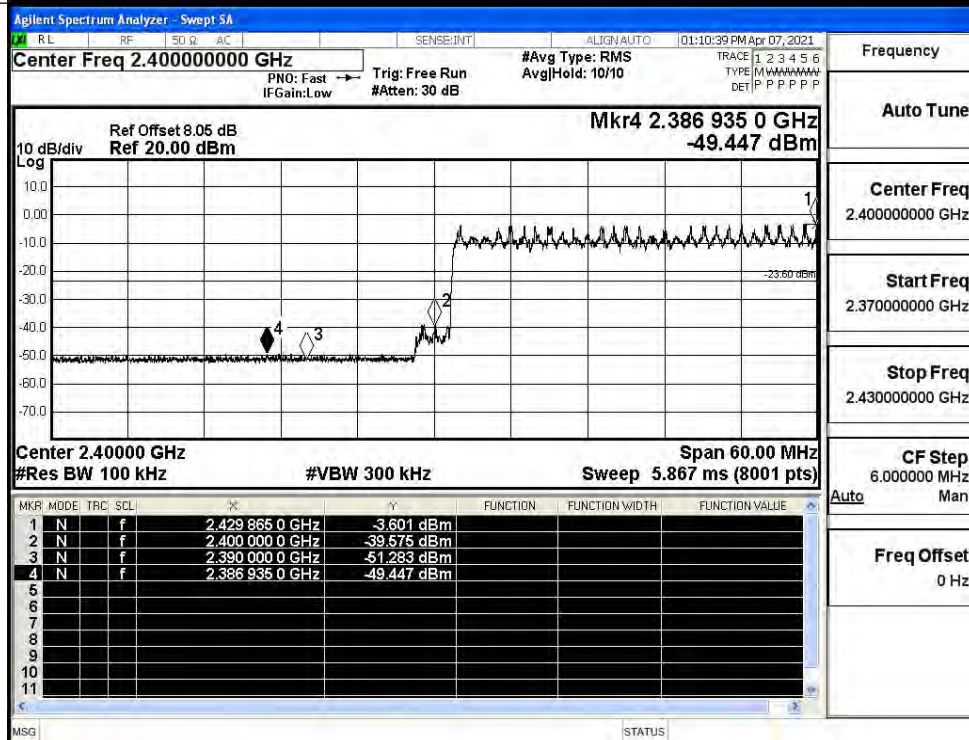
GFSK/HCH/Hop



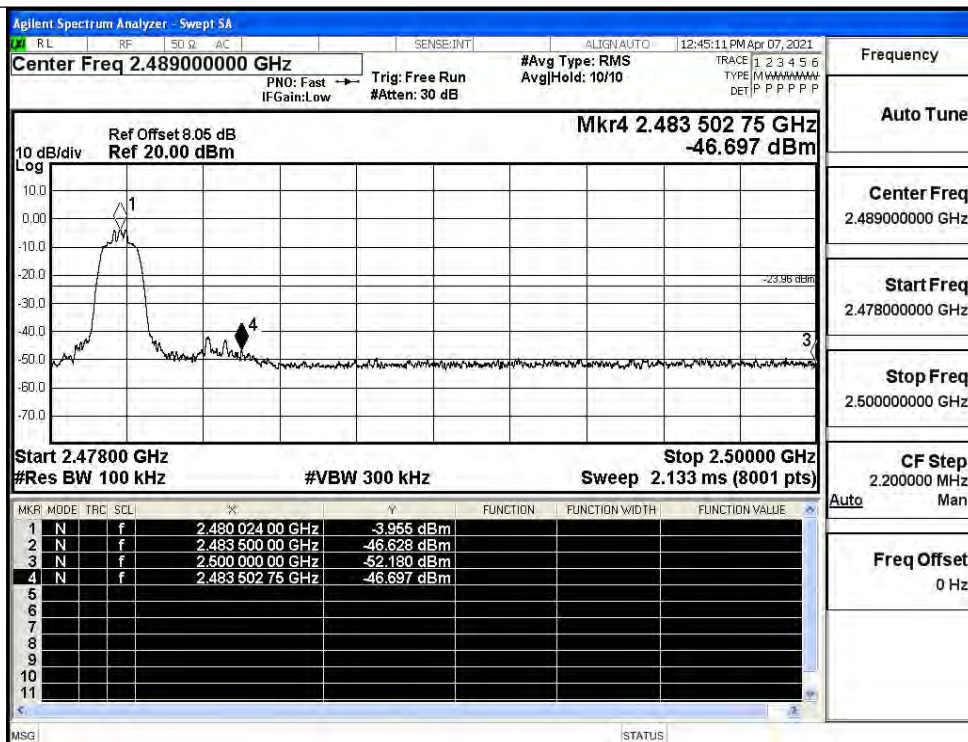
$\pi/4$ DQPSK/LCH/No
Hop



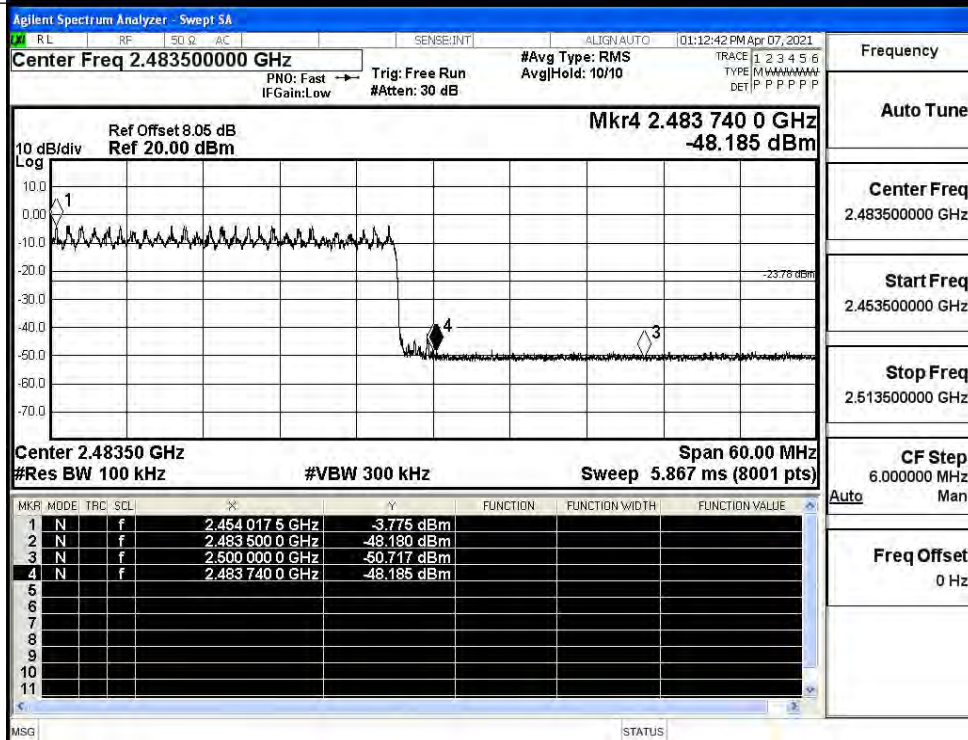
$\pi/4$ DQPSK/LCH/Hop



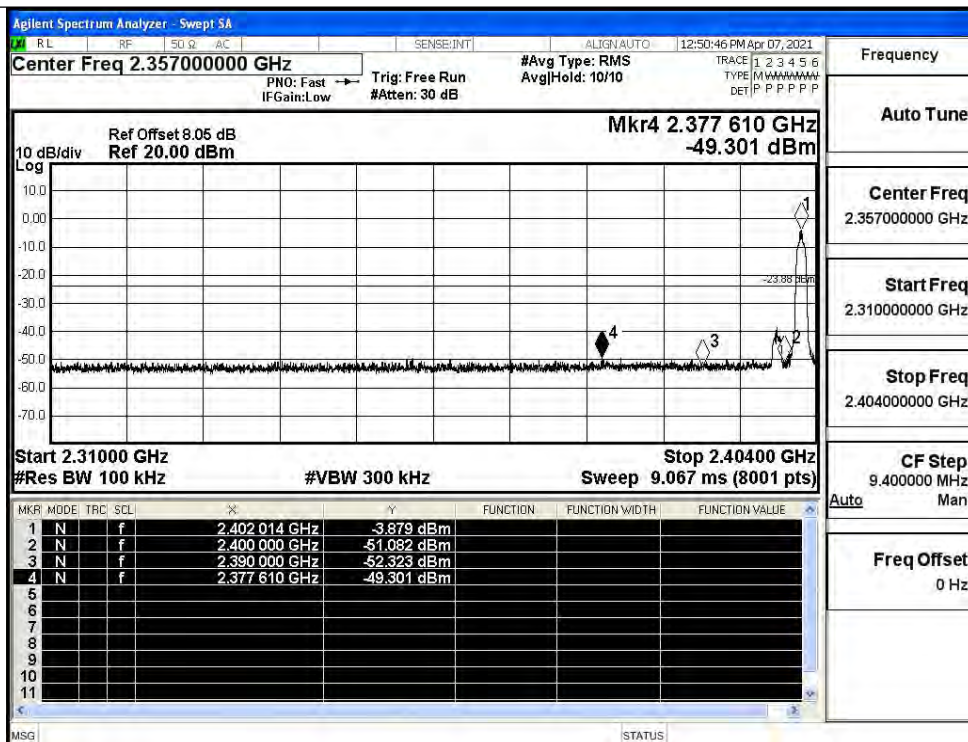
$\pi/4$ DQPSK/HCH/No
Hop



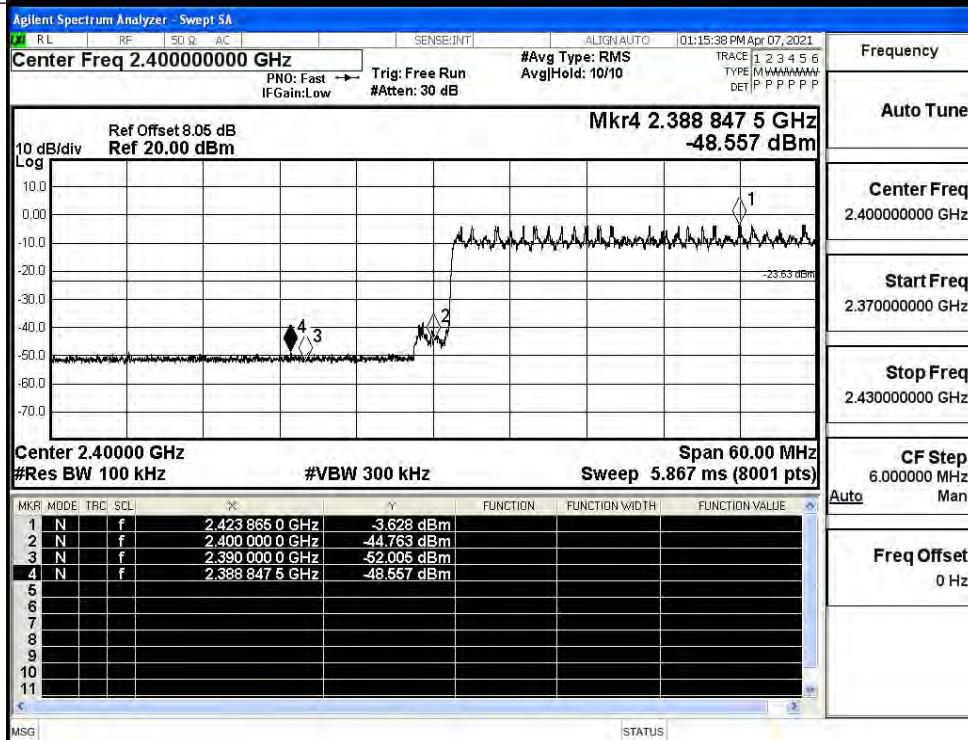
$\pi/4$ DQPSK/HCH/Hop



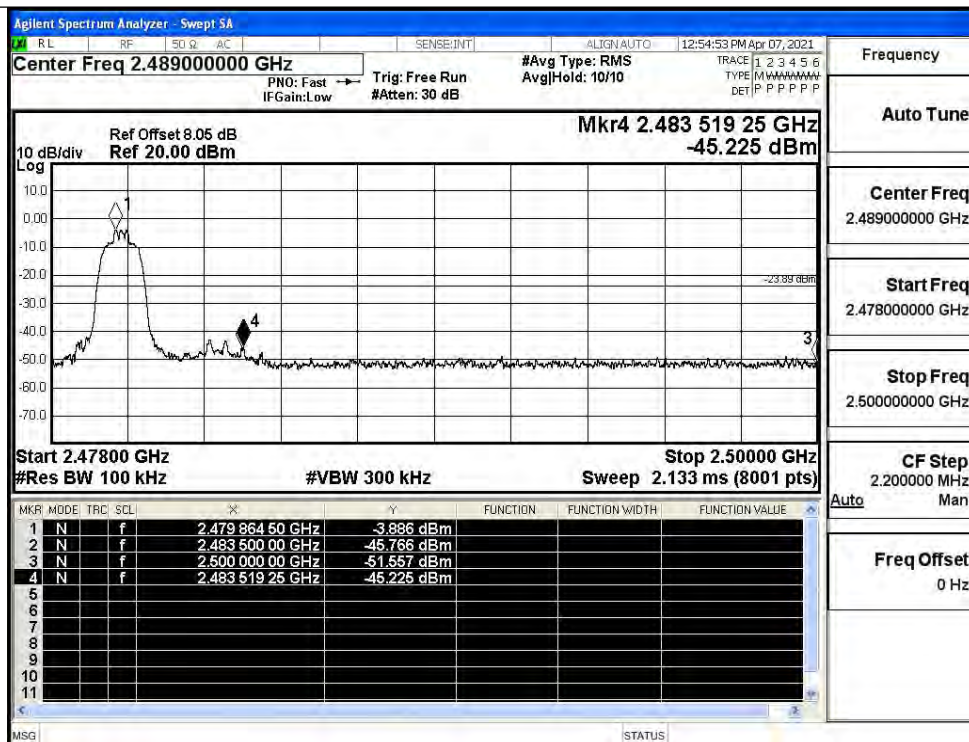
8DPSK/LCH/No Hop



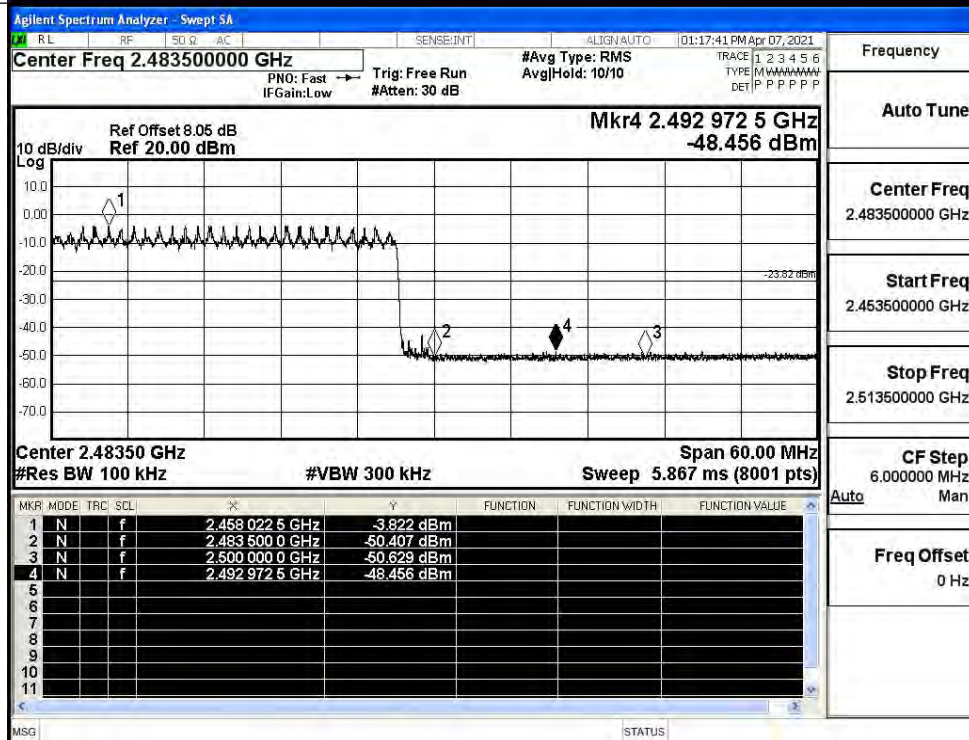
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



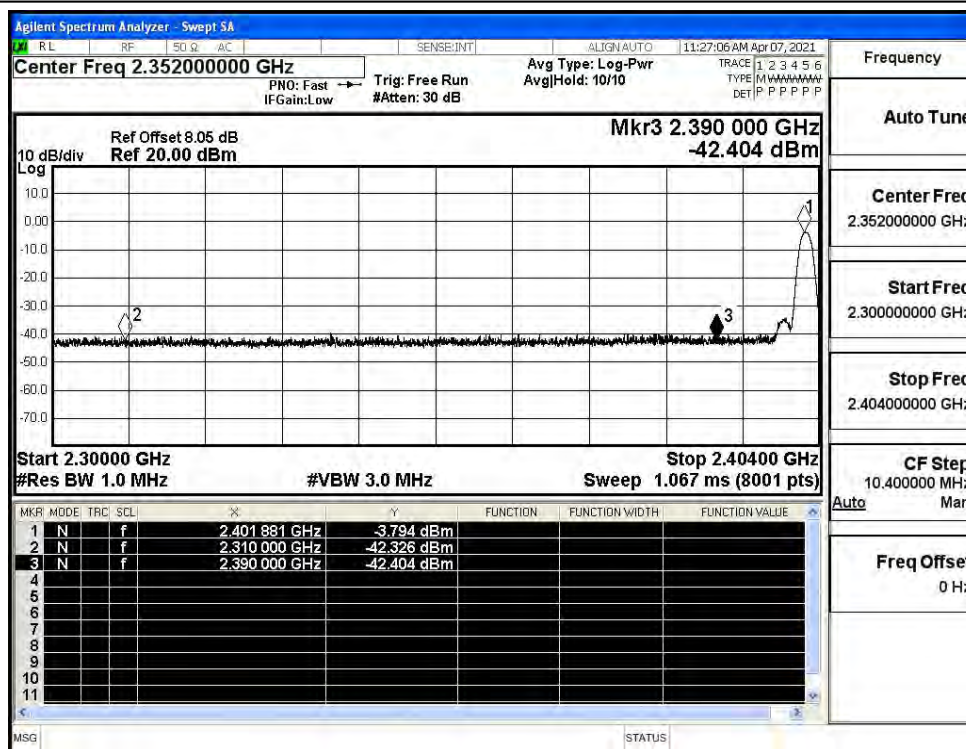
8DPSK/HCH/Hop



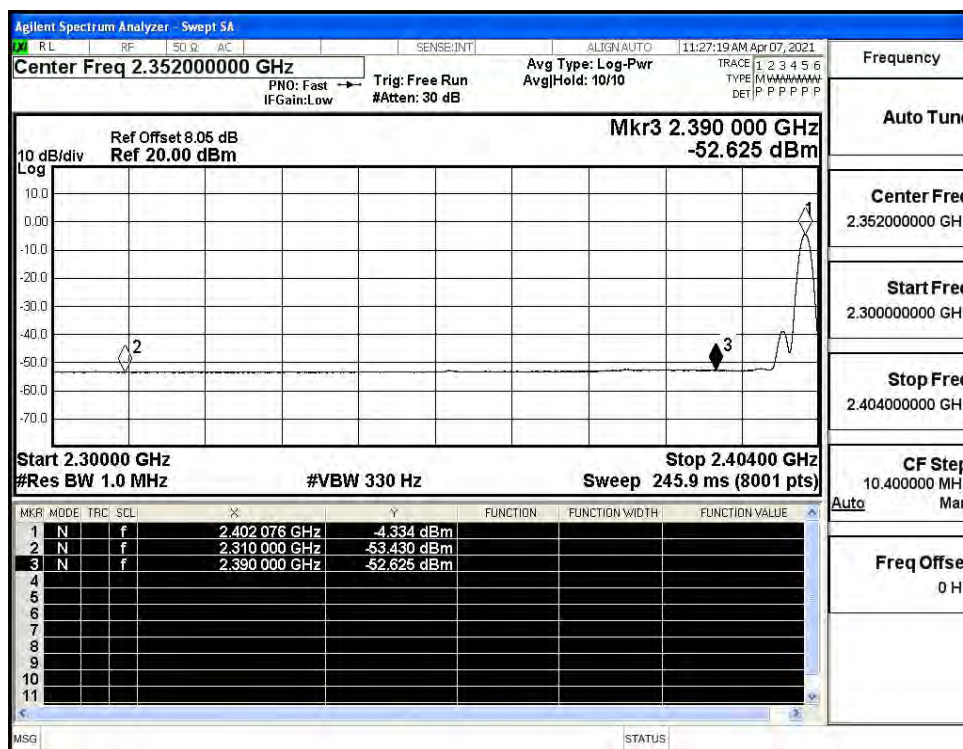
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.33	2.0	0	54.90	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	43.80	AV	54	PASS
	Off	2390.0	-42.40	2.0	0	54.83	PEAK	74	PASS
	Off	2390.0	-52.63	2.0	0	44.60	AV	54	PASS
	Off	2483.5	-38.15	2.0	0	59.08	PEAK	74	PASS
	Off	2483.5	-47.22	2.0	0	50.01	AV	54	PASS
	Off	2500.0	-41.32	2.0	0	55.91	PEAK	74	PASS
	Off	2500.0	-52.10	2.0	0	45.13	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.56	2.0	0	53.67	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	43.80	AV	54	PASS
	Off	2390.0	-42.87	2.0	0	54.36	PEAK	74	PASS
	Off	2390.0	-52.71	2.0	0	44.52	AV	54	PASS
	Off	2483.5	-40.27	2.0	0	56.96	PEAK	74	PASS
	Off	2483.5	-49.33	2.0	0	47.90	AV	54	PASS
	Off	2500.0	-42.21	2.0	0	55.02	PEAK	74	PASS
	Off	2500.0	-52.06	2.0	0	45.17	AV	54	PASS
8DPSK	Off	2310.0	-43.48	2.0	0	53.75	PEAK	74	PASS
	Off	2310.0	-53.35	2.0	0	43.88	AV	54	PASS
	Off	2390.0	-42.67	2.0	0	54.56	PEAK	74	PASS
	Off	2390.0	-52.79	2.0	0	44.44	AV	54	PASS
	Off	2483.5	-39.54	2.0	0	57.69	PEAK	74	PASS
	Off	2483.5	-49.34	2.0	0	47.89	AV	54	PASS
	Off	2500.0	-41.96	2.0	0	55.27	PEAK	74	PASS
	Off	2500.0	-52.13	2.0	0	45.10	AV	54	PASS

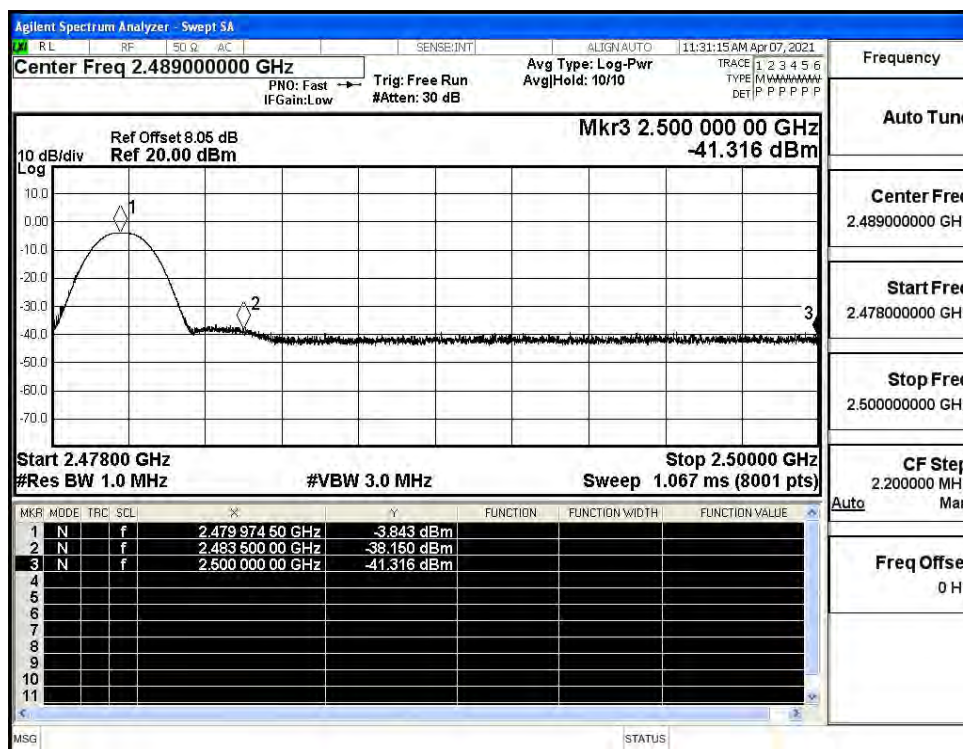
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



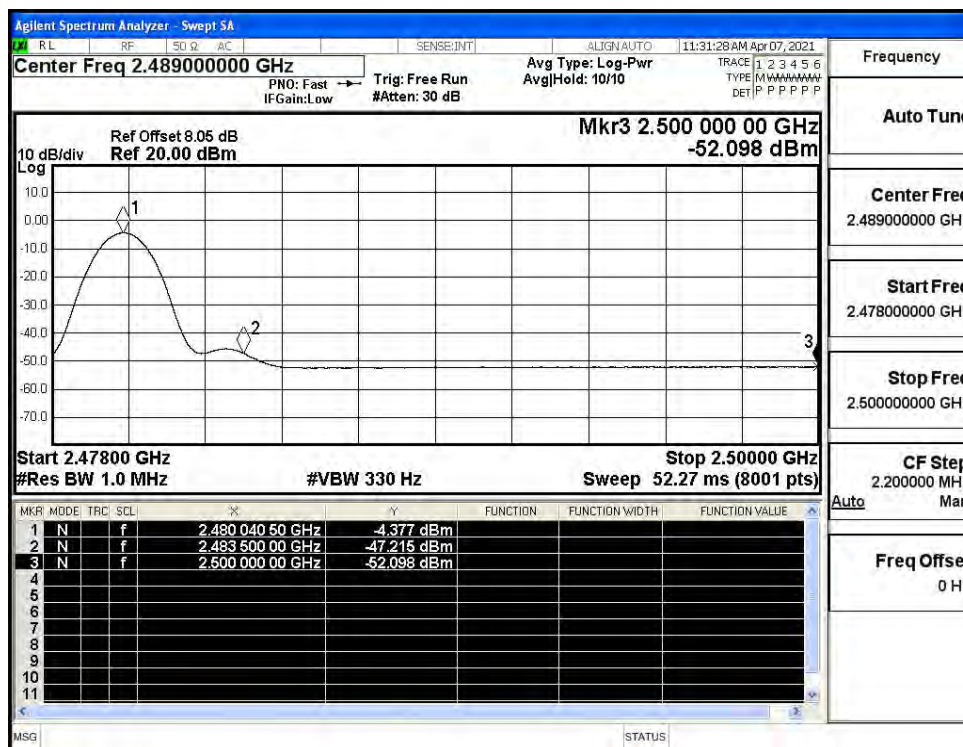
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



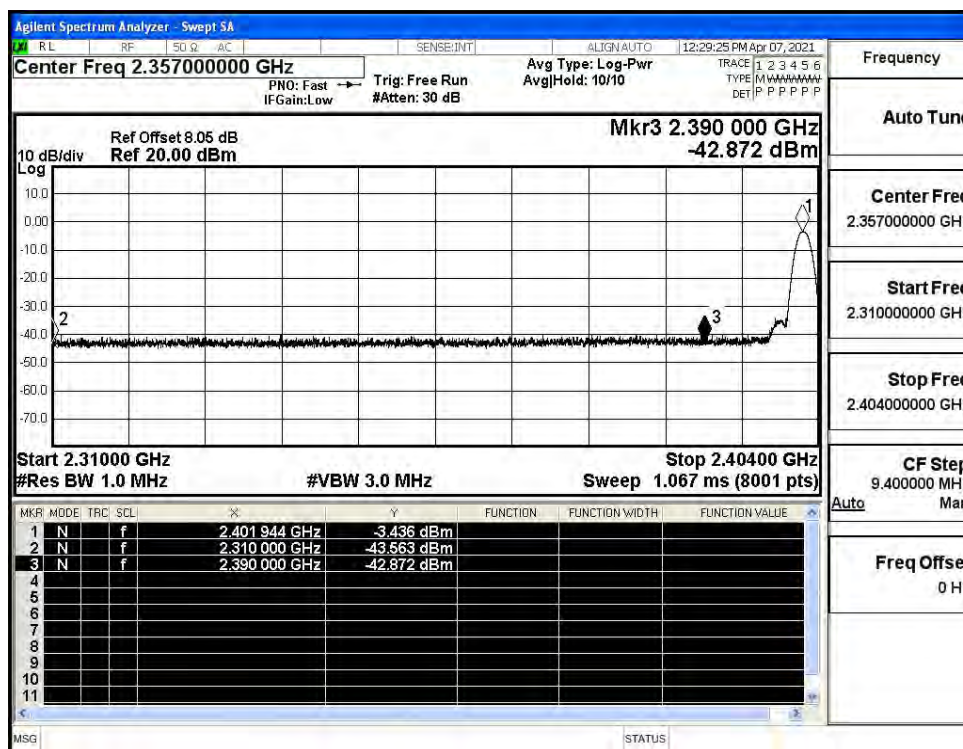
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



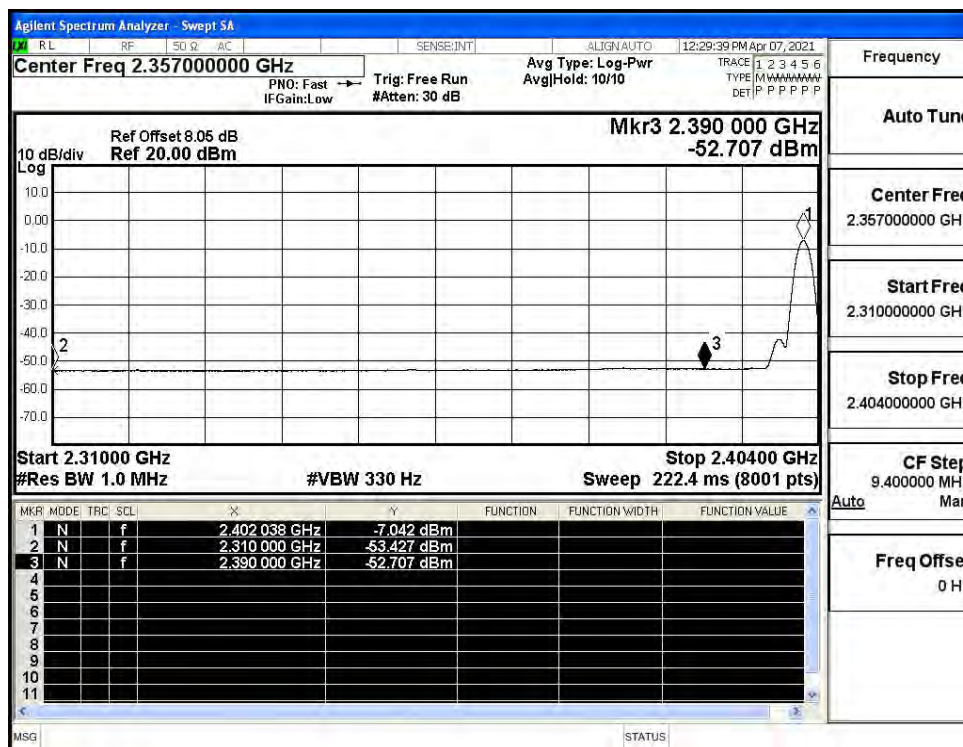
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



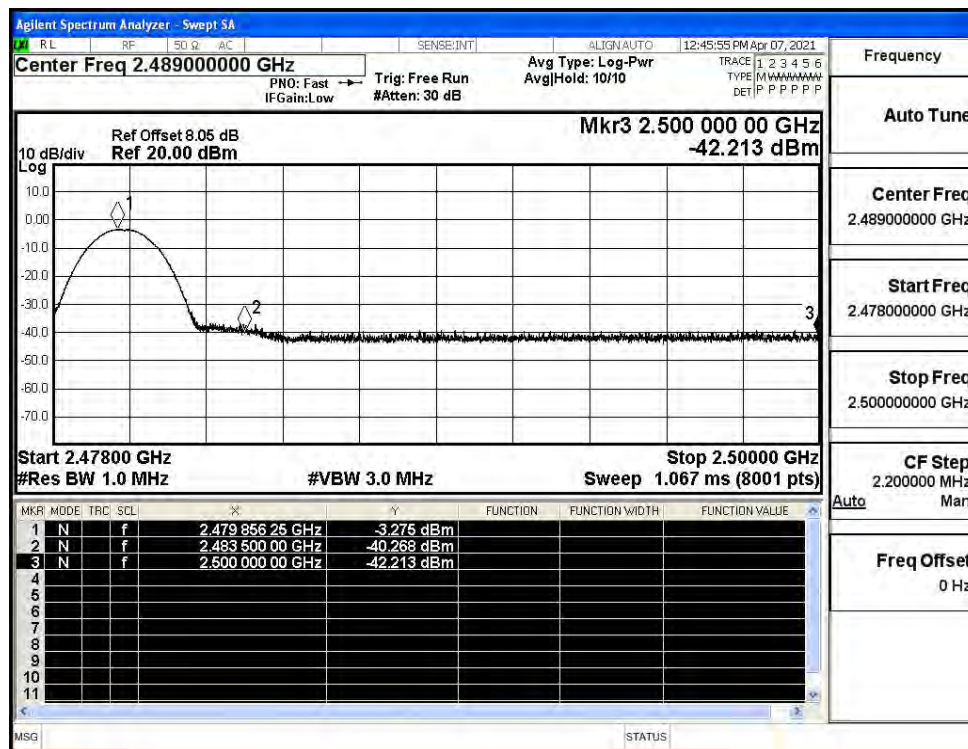
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (Low Channel)



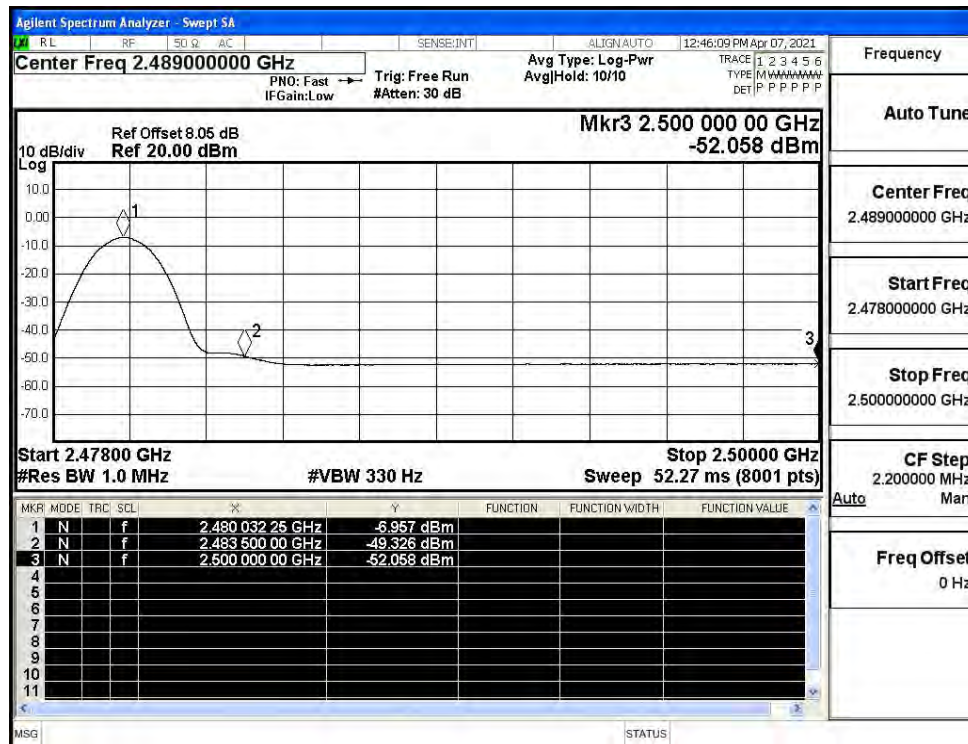
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (Low Channel)



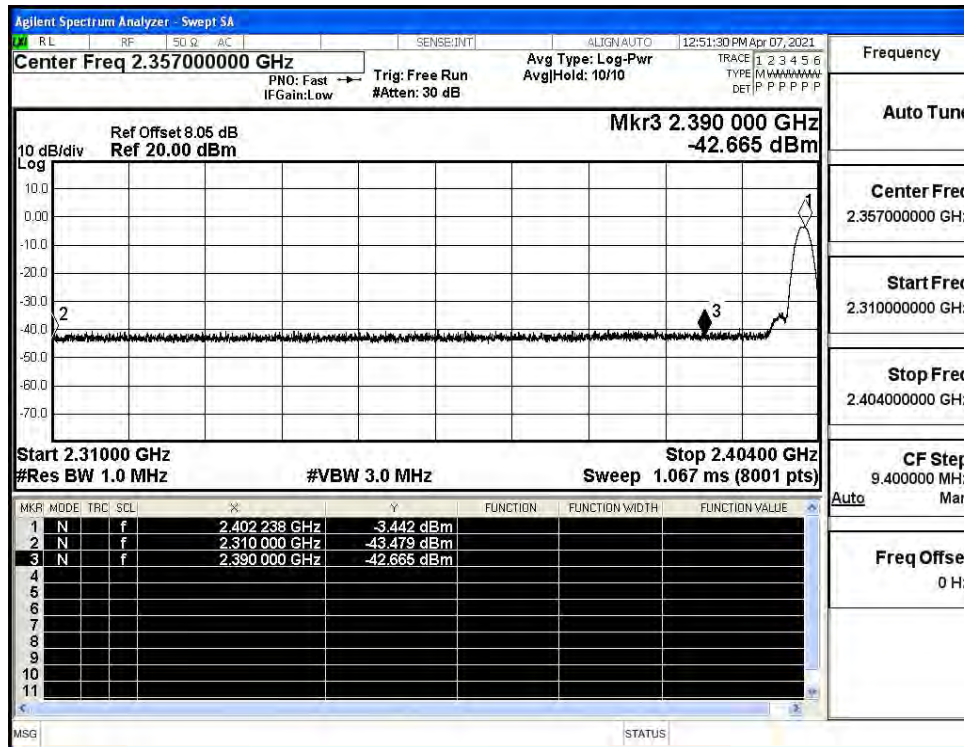
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



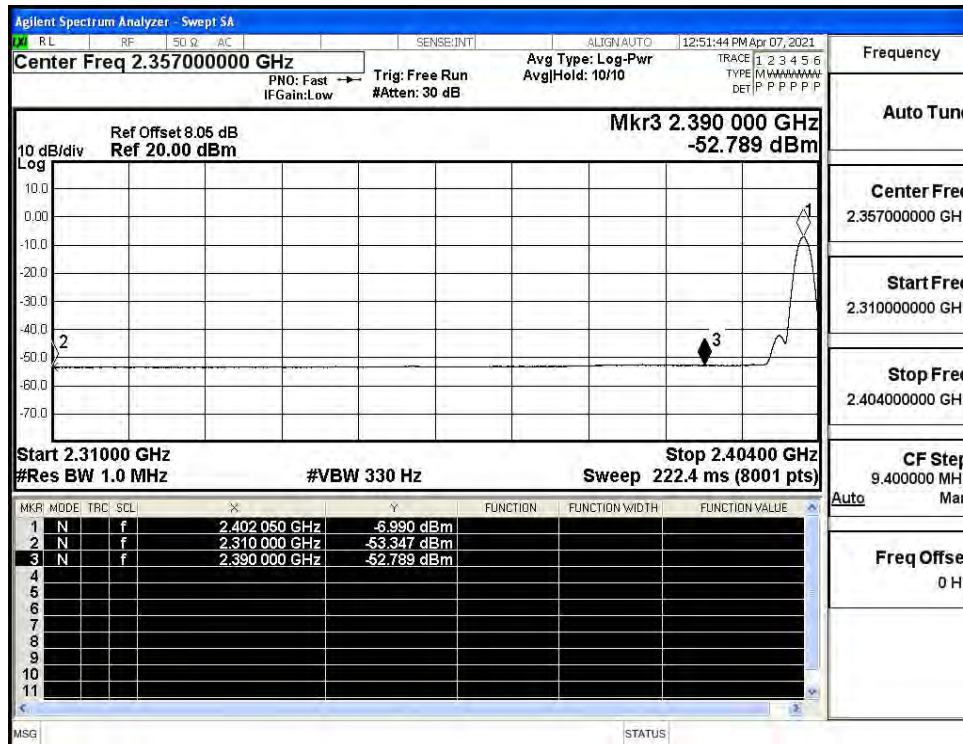
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



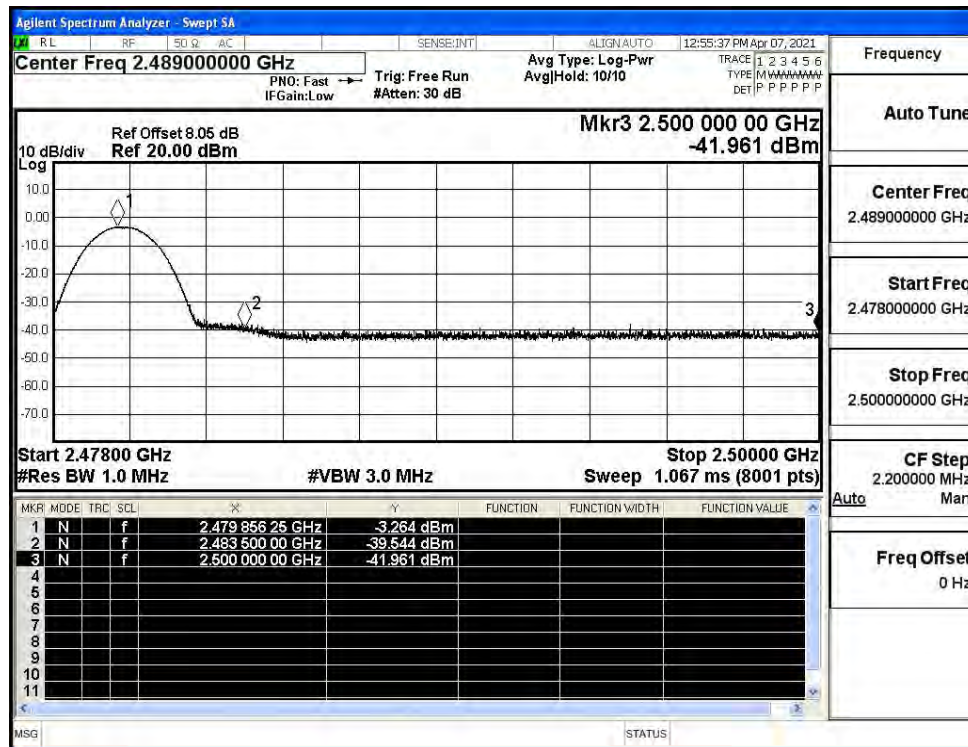
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

