

Appendix A

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

Product Name: Solar Bluetooth Speaker

Trade Mark: KEYANG

Test Model: KY8052

Environmental Conditions

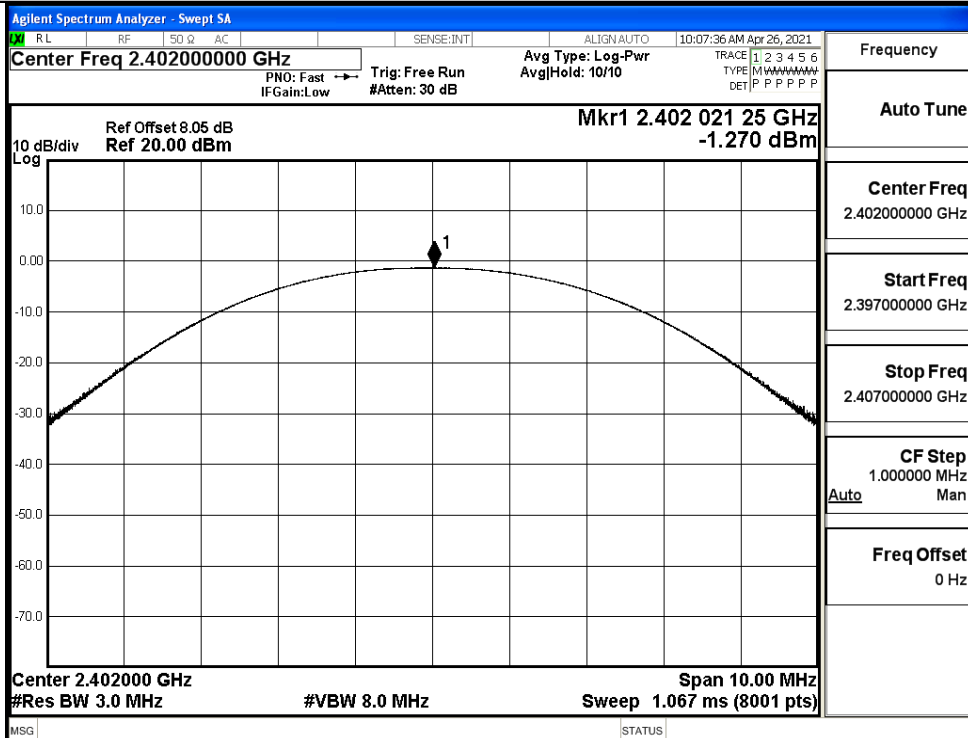
Temperature:	24.9° C
Relative Humidity:	55.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

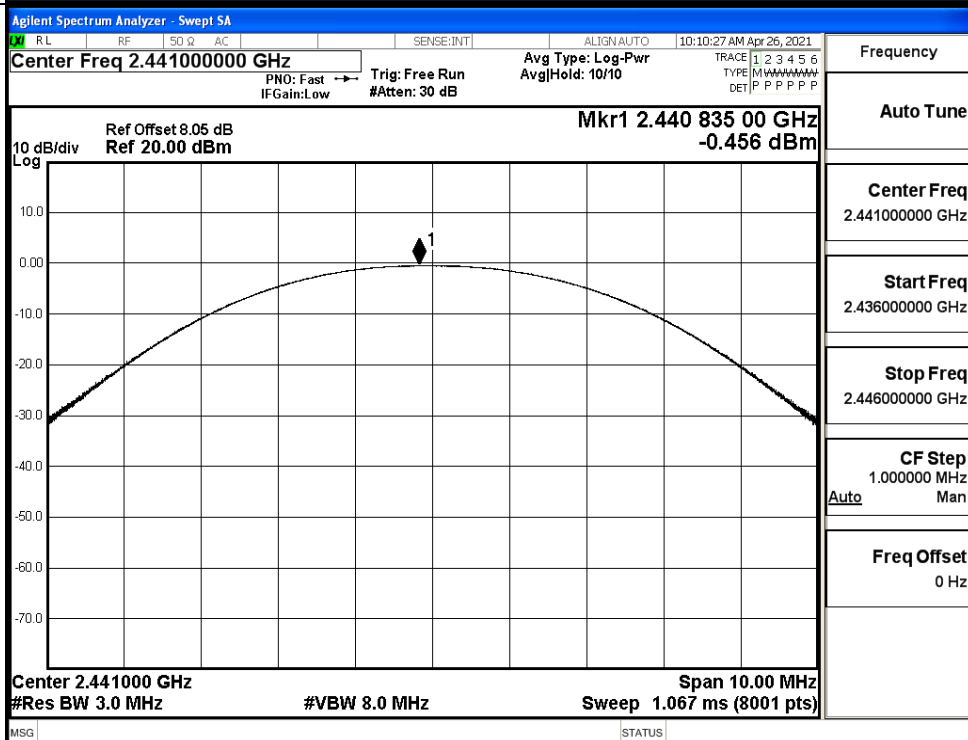
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.270	21	PASS
	MCH	-0.456	21	PASS
	HCH	-0.548	21	PASS
$\pi/4$ DQPSK	LCH	-1.327	21	PASS
	MCH	-0.564	21	PASS
	HCH	-0.623	21	PASS
8DPSK	LCH	-1.371	21	PASS
	MCH	-0.561	21	PASS
	HCH	-0.608	21	PASS

Test Graphs

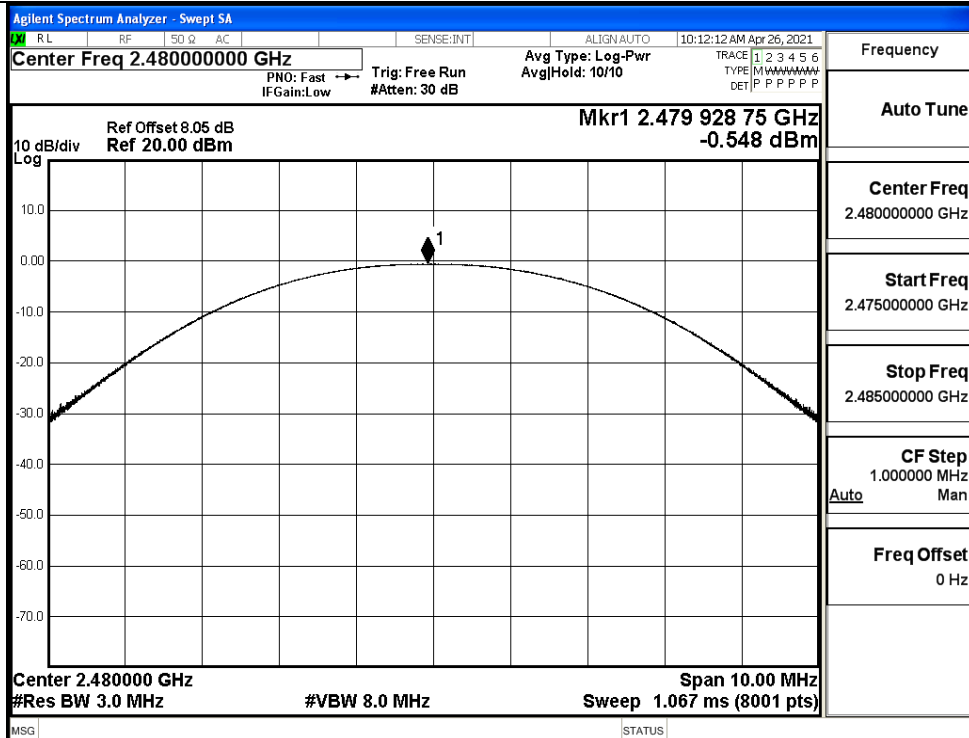
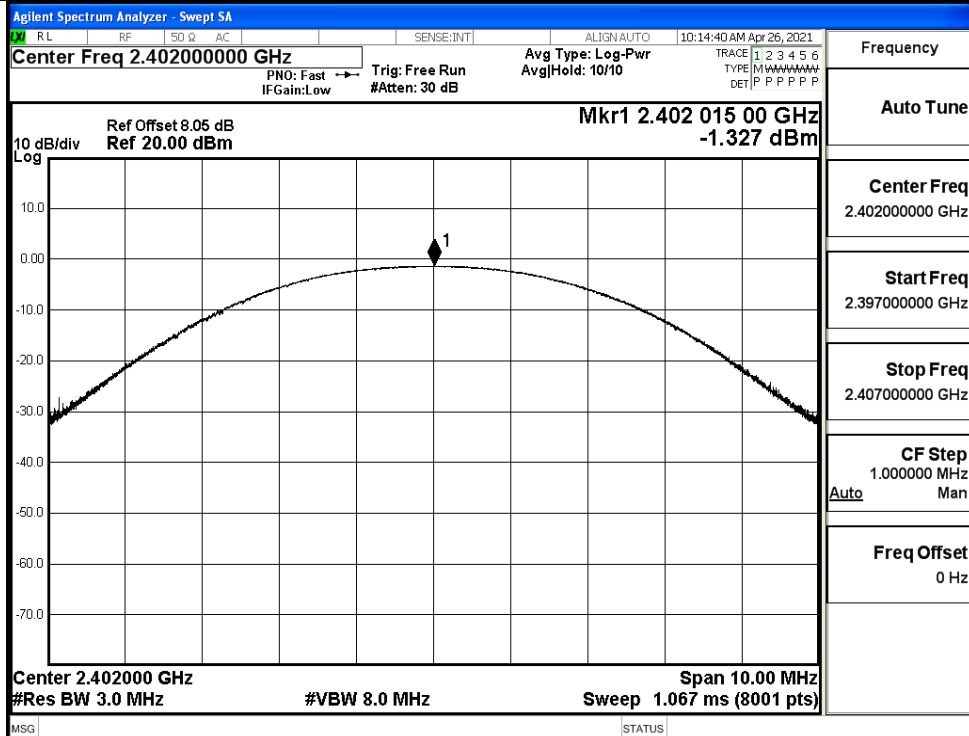
GFSK/LCH

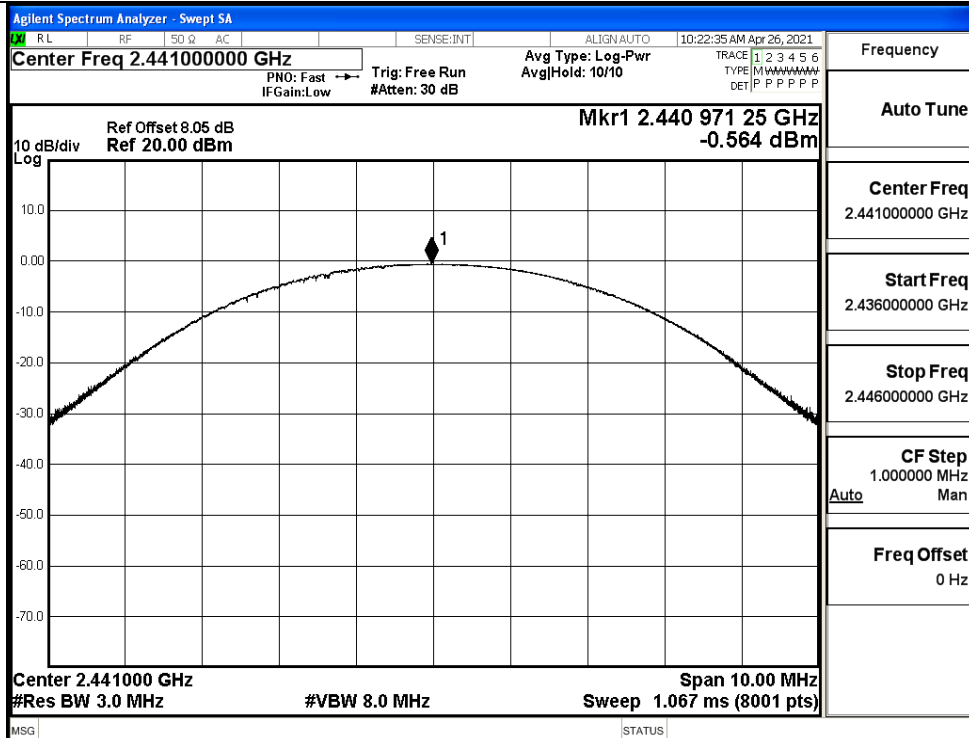
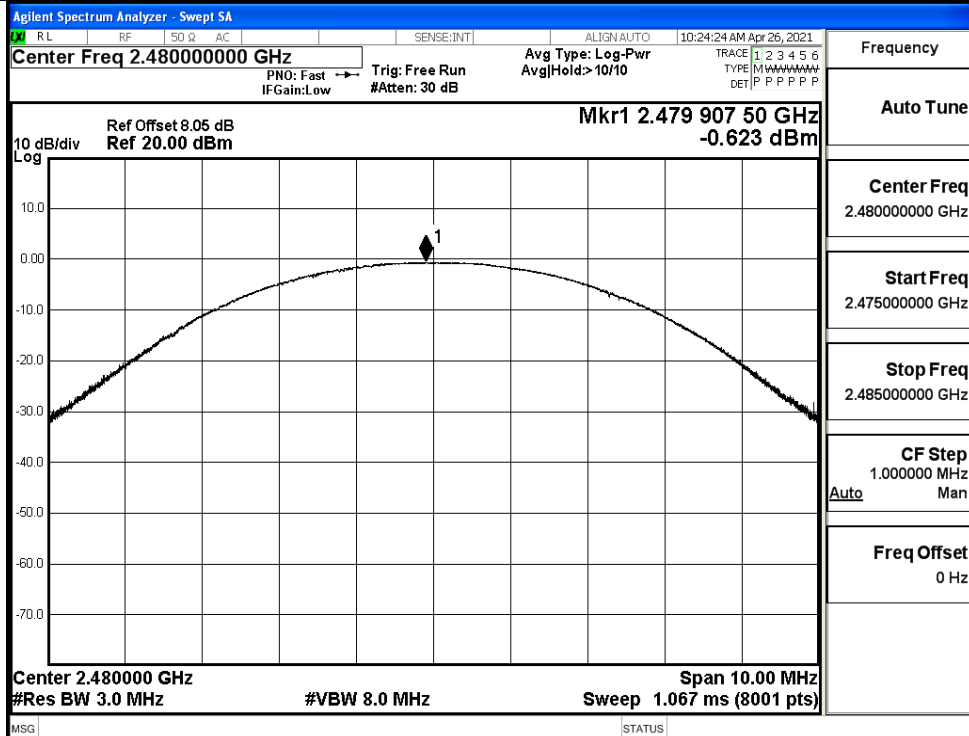


GFSK/MCH

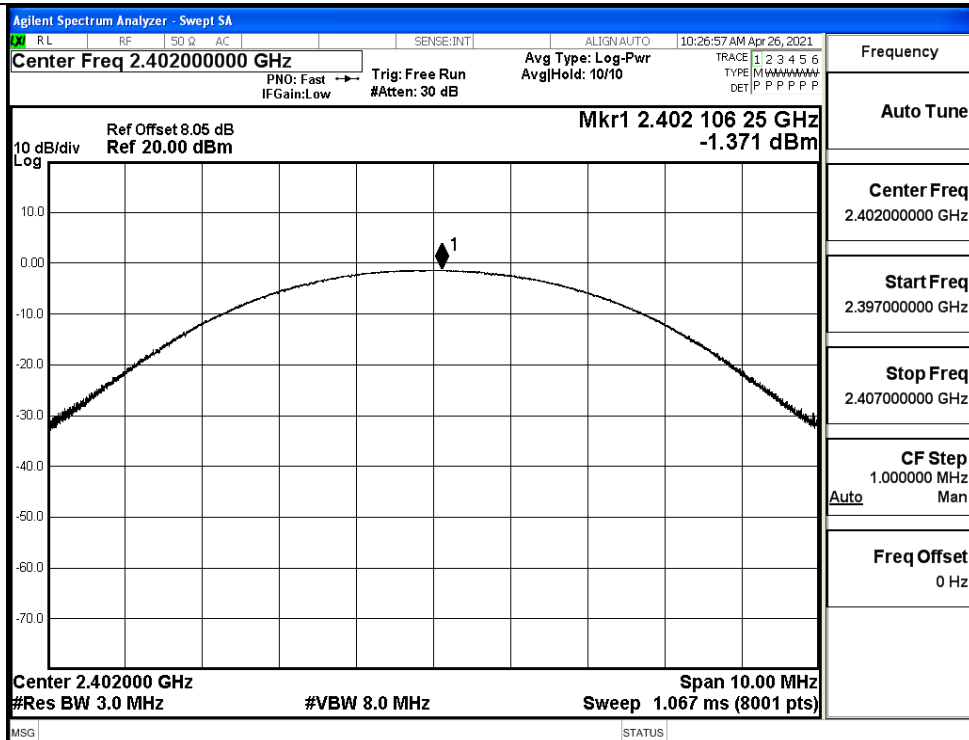


GFSK/HCH

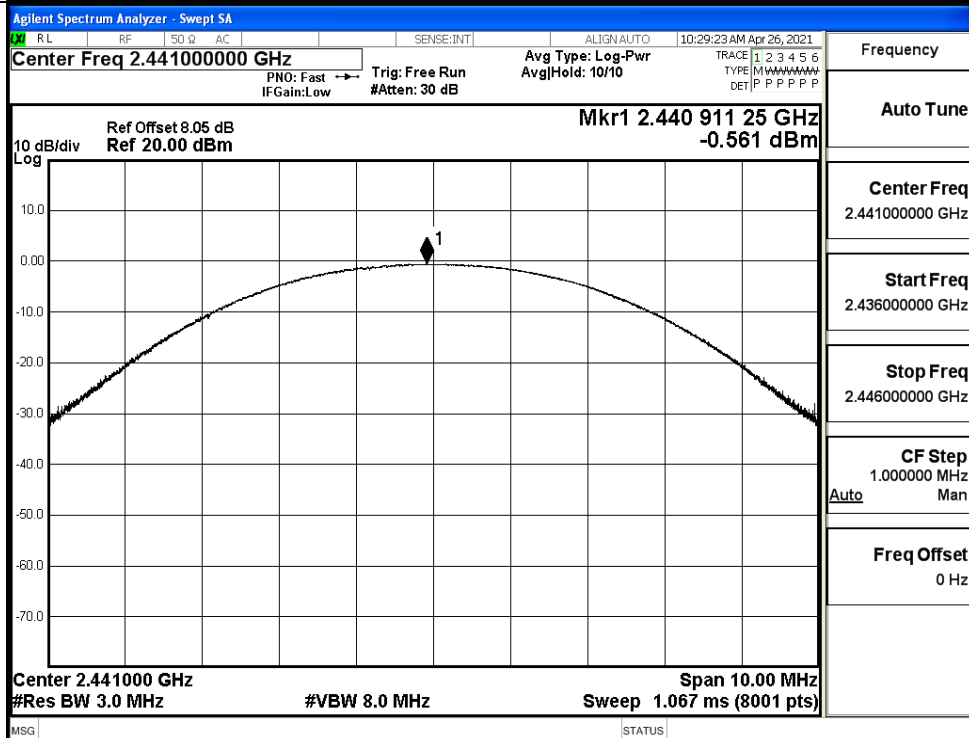
 $\pi/4$ DQPSK/LCH

$\pi/4$ DQPSK/MCH $\pi/4$ DQPSK/HCH

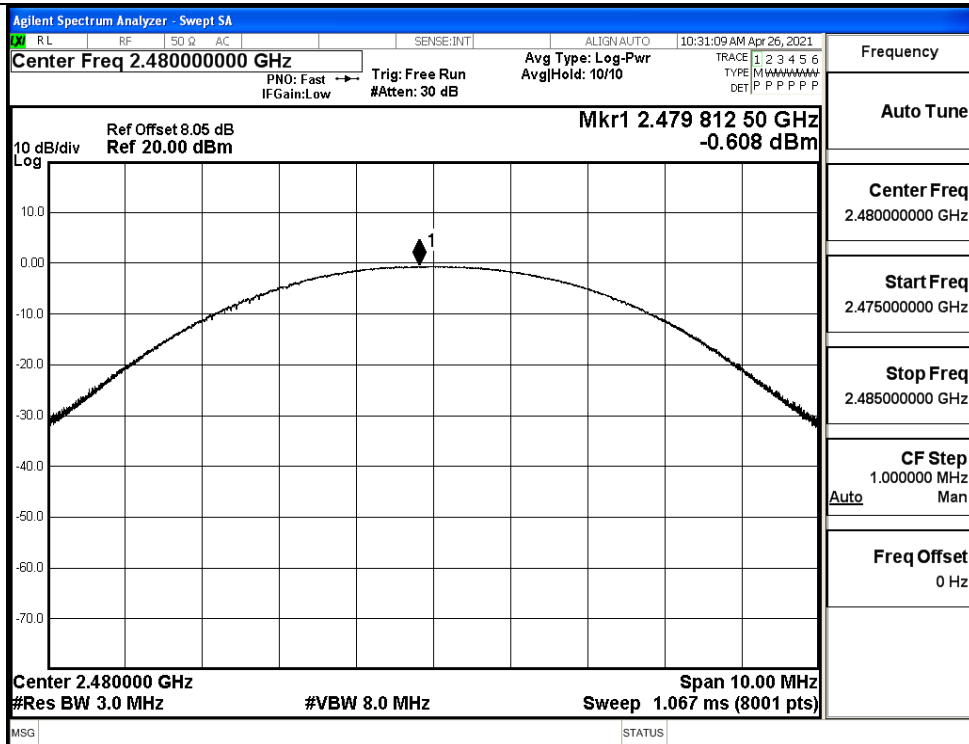
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

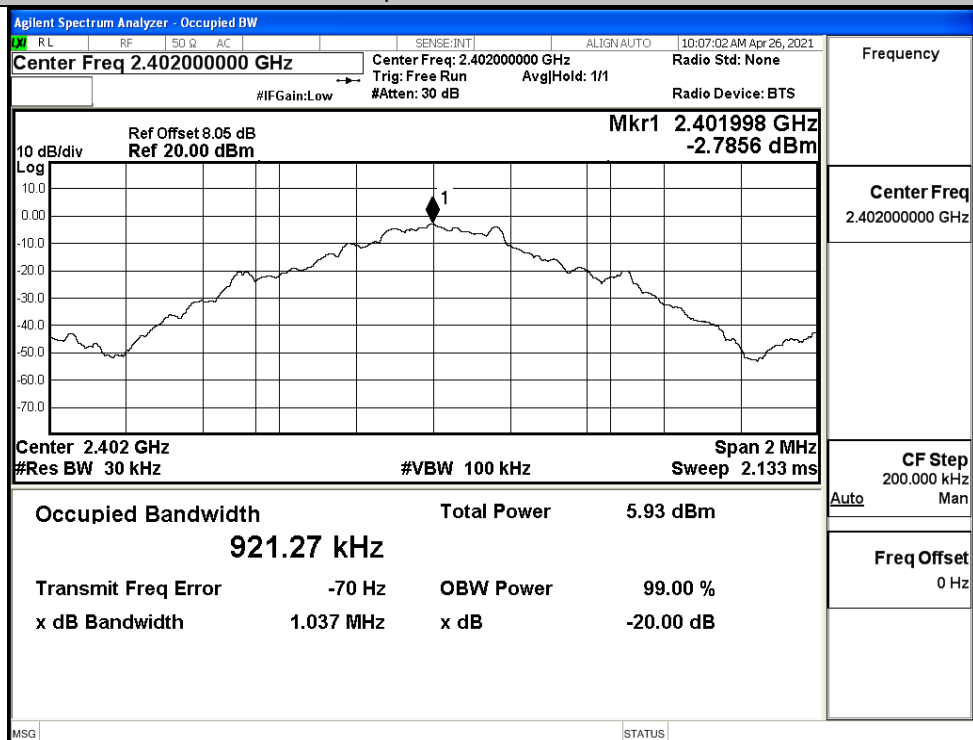


A.2 20dB Bandwidth

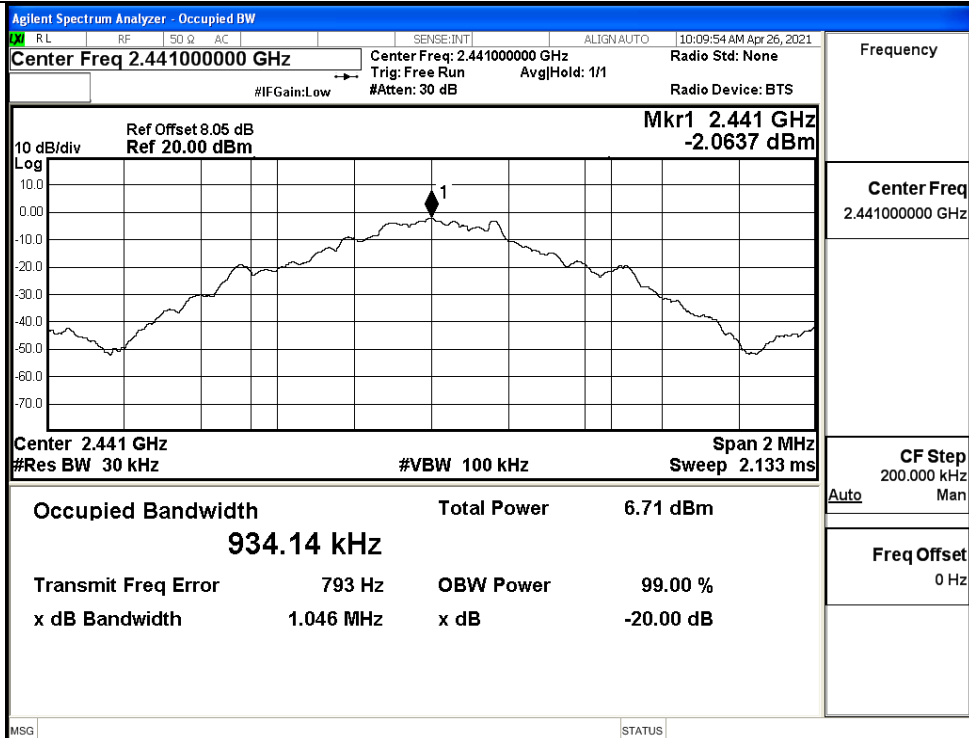
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.037	Not Specified	PASS
	MCH	1.046	Not Specified	PASS
	HCH	1.032	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.190	Not Specified	PASS
	MCH	1.190	Not Specified	PASS
	HCH	1.189	Not Specified	PASS
8DPSK	LCH	1.200	Not Specified	PASS
	MCH	1.200	Not Specified	PASS
	HCH	1.200	Not Specified	PASS

Test Graphs

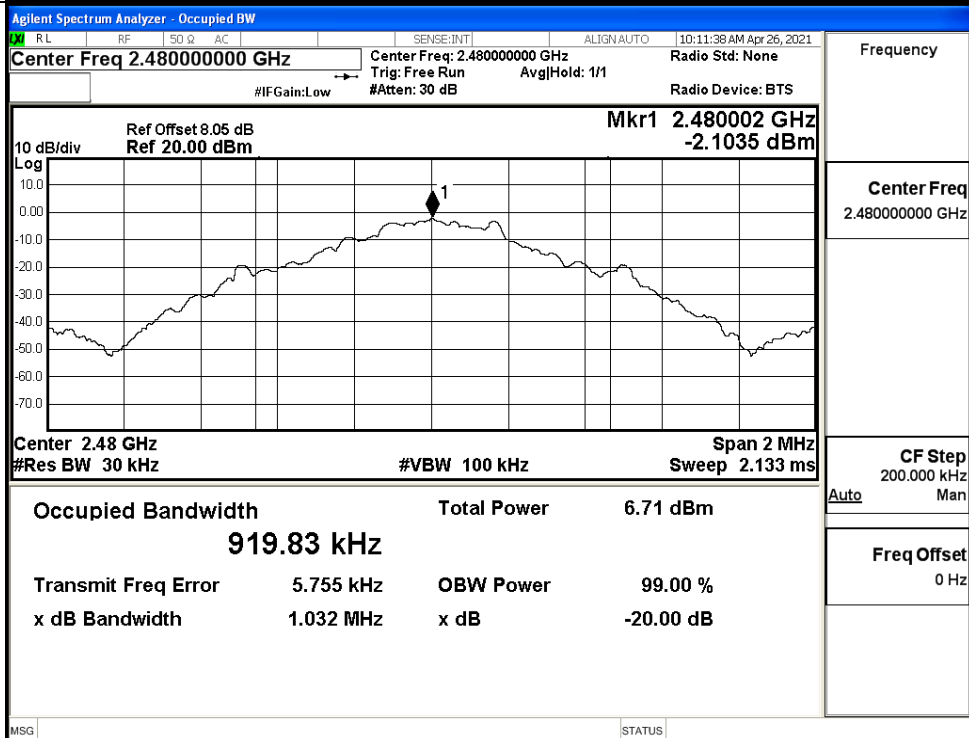
GFSK/LCH

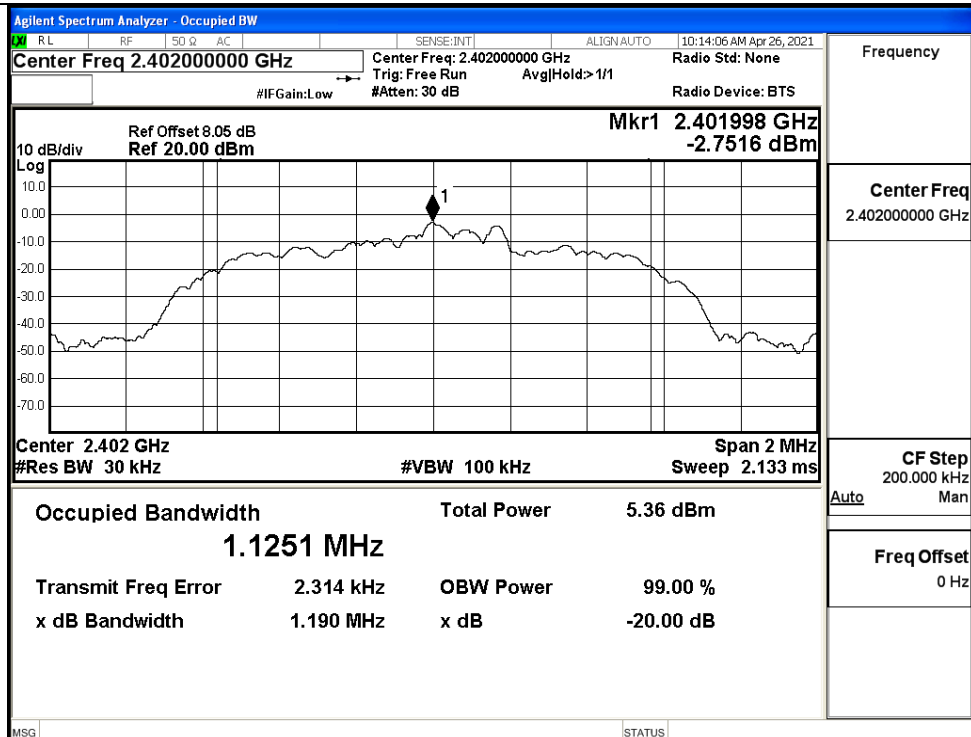
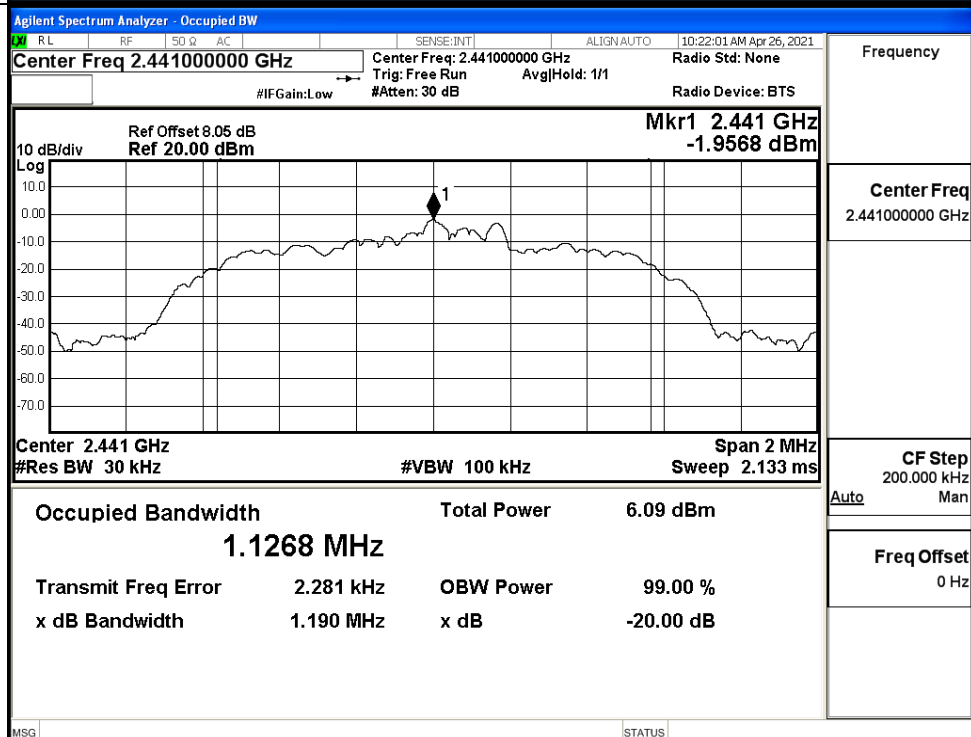


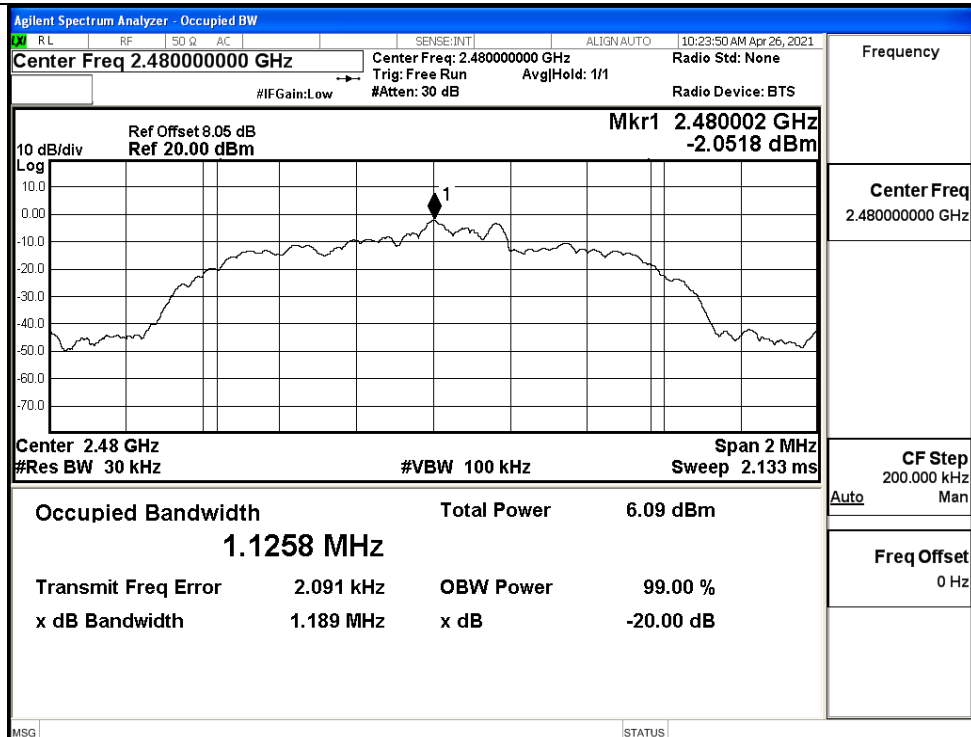
GFSK/MCH



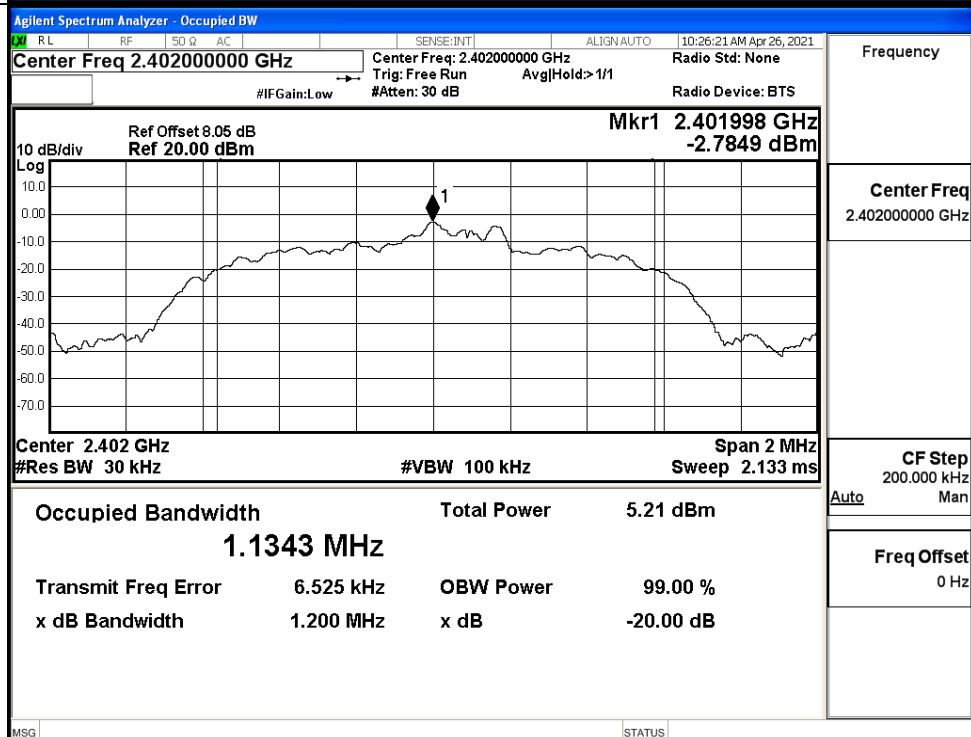
GFSK/HCH



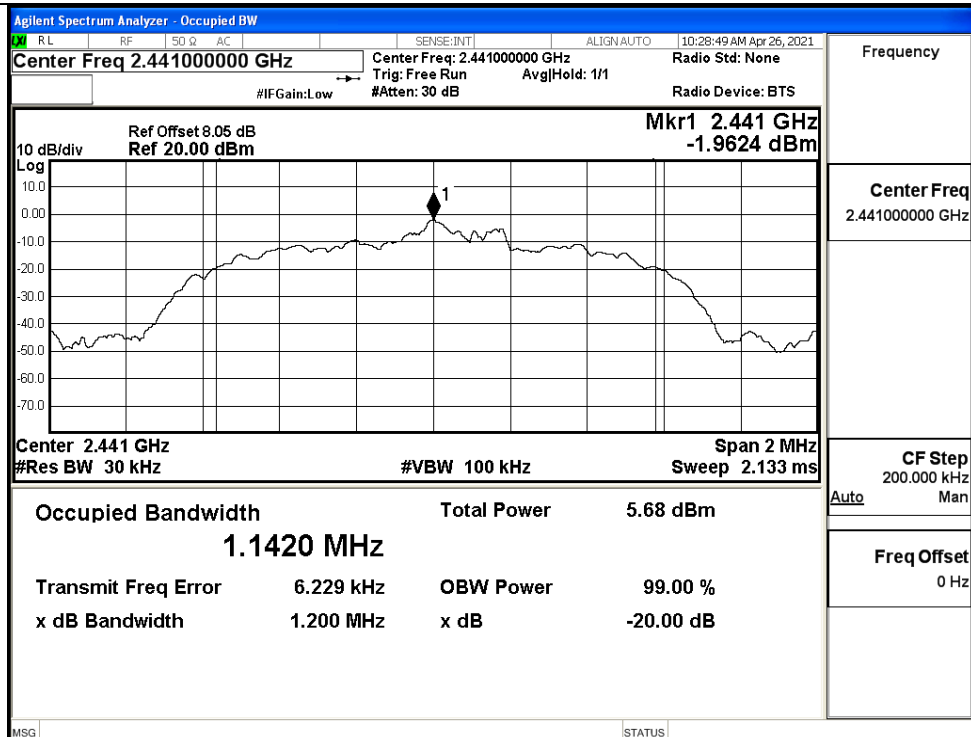
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

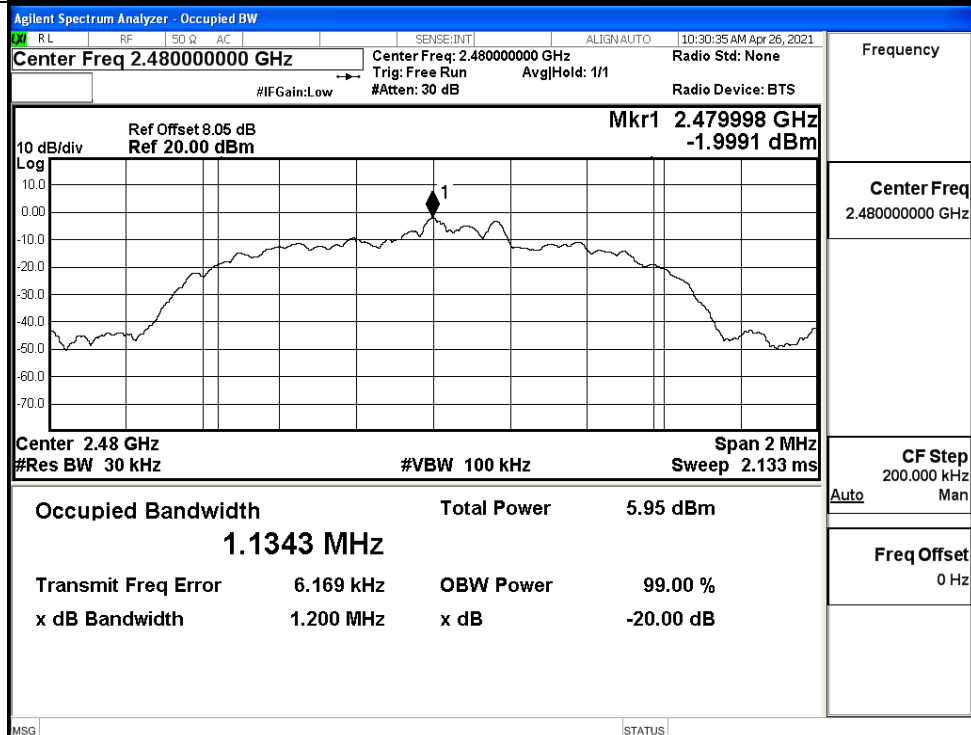
8DPSK/LCH



8DPSK/MCH



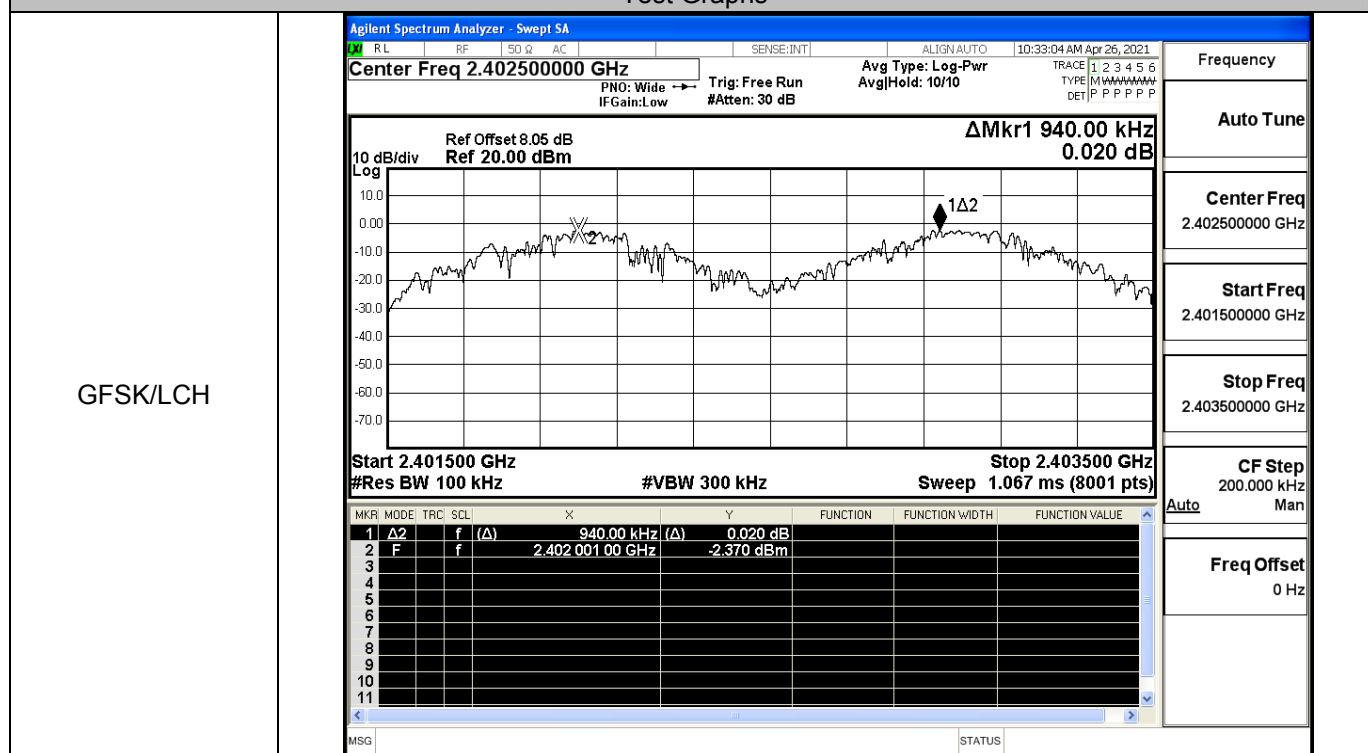
8DPSK/HCH



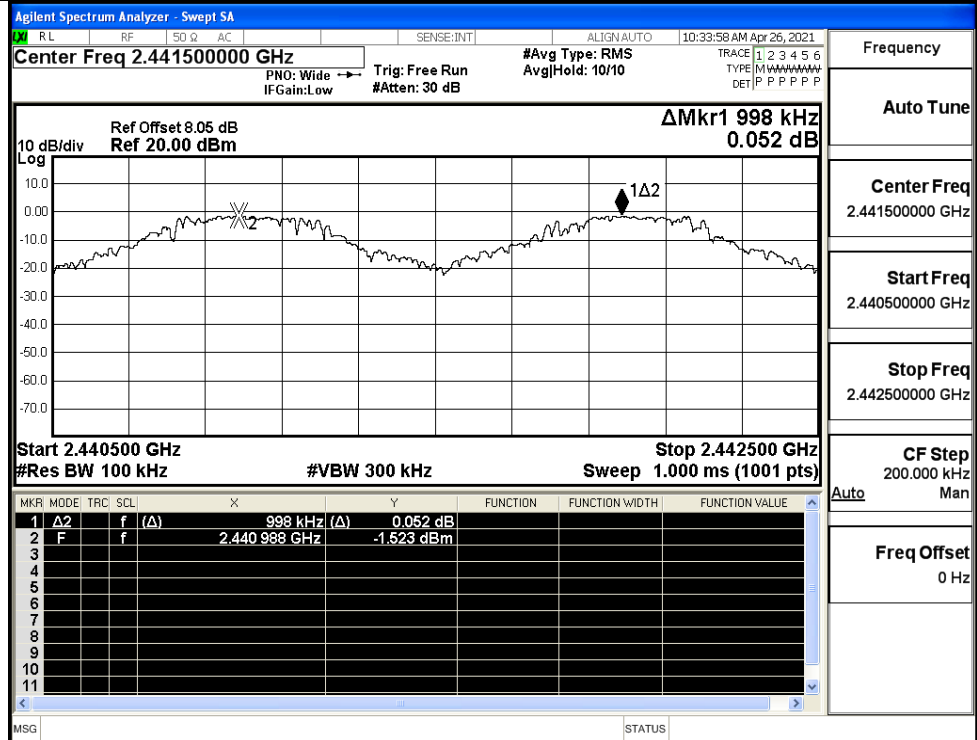
A.3 Carrier Frequency Separation

Mode	Channel	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.940	0.697	PASS
	MCH	0.998	0.697	PASS
	HCH	0.996	0.697	PASS
$\pi/4$ DQPSK	LCH	0.990	0.793	PASS
	MCH	0.964	0.793	PASS
	HCH	0.974	0.793	PASS
8DPSK	LCH	1.096	0.800	PASS
	MCH	1.024	0.800	PASS
	HCH	0.832	0.800	PASS

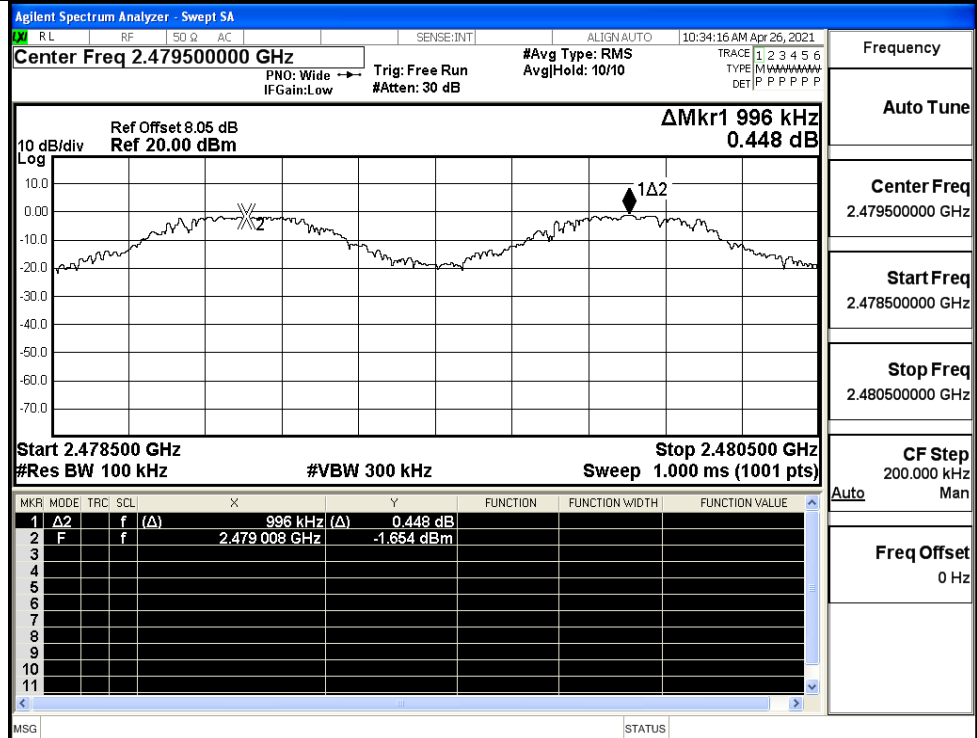
Test Graphs

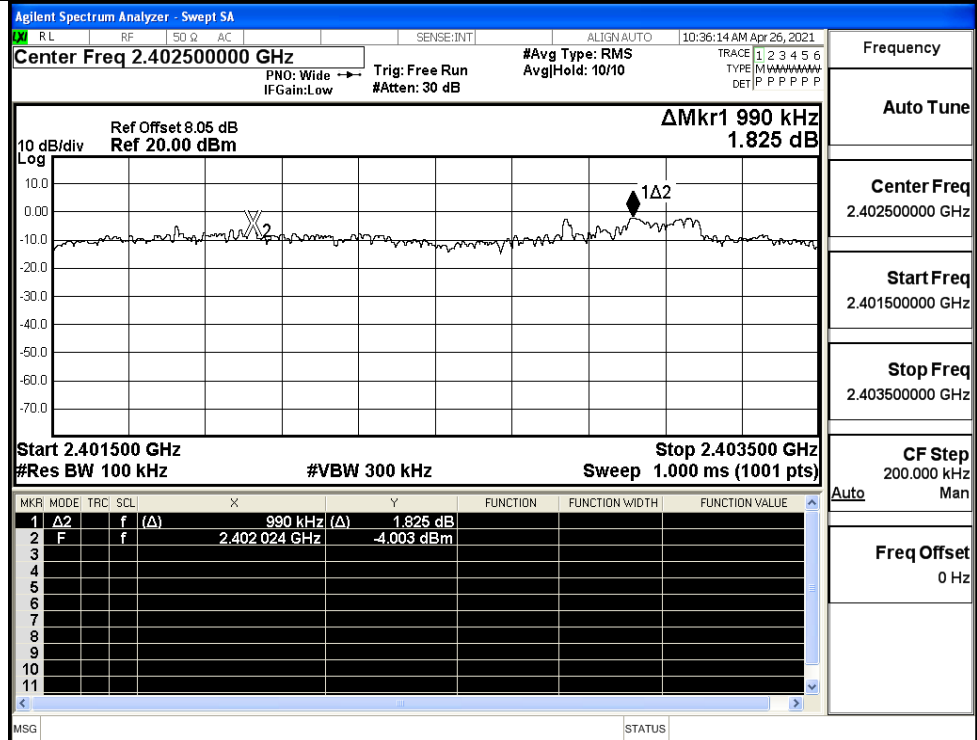
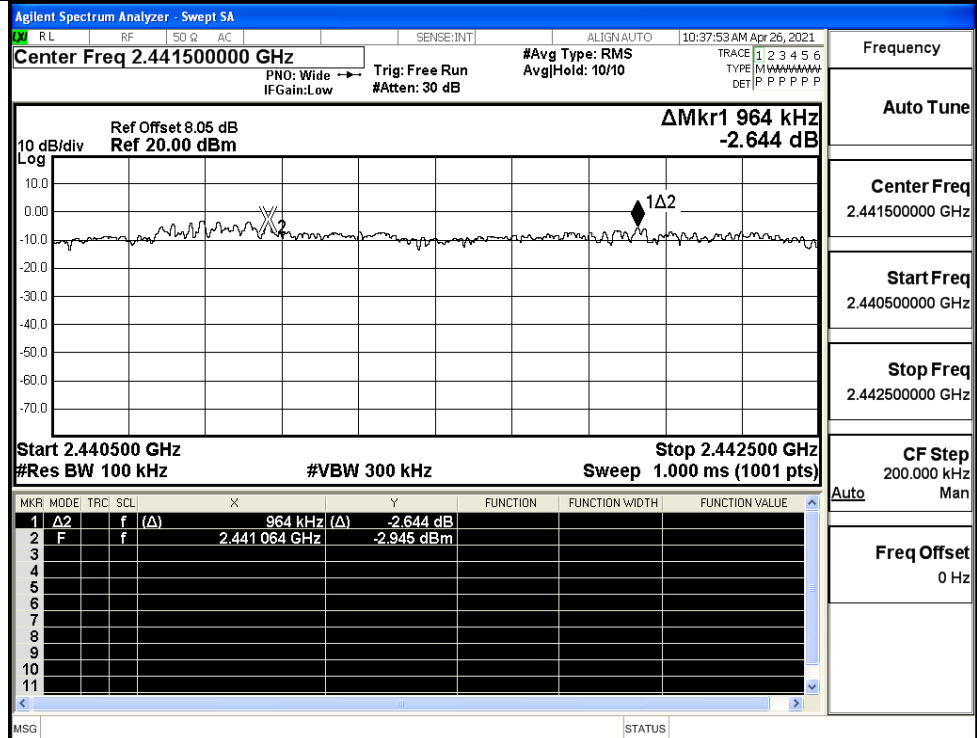


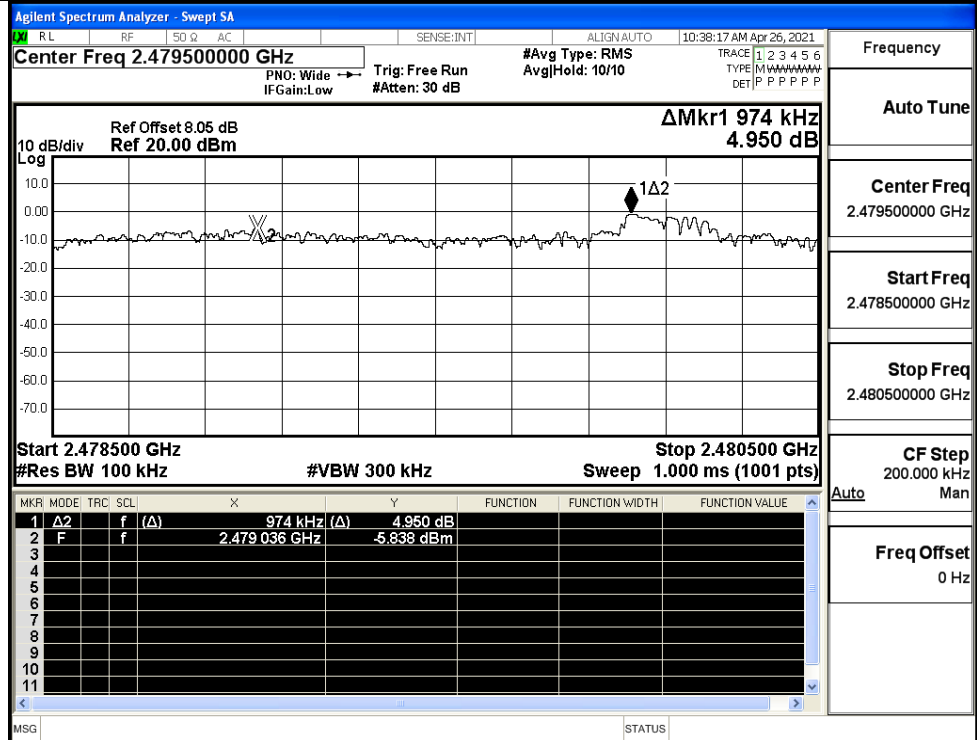
GFSK/MCH



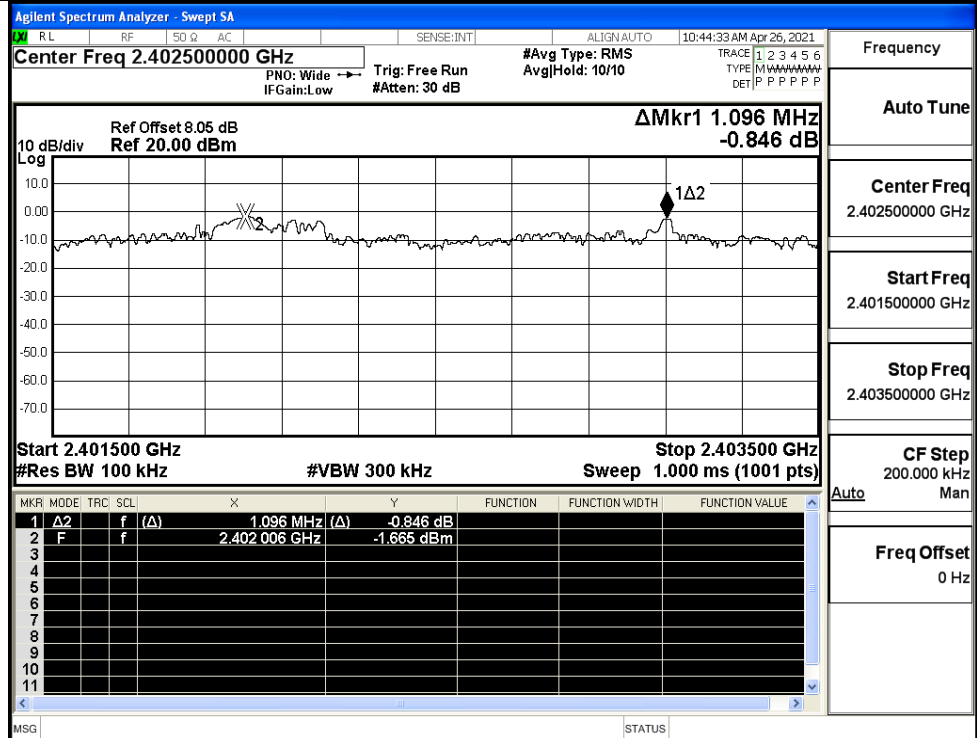
GFSK/HCH

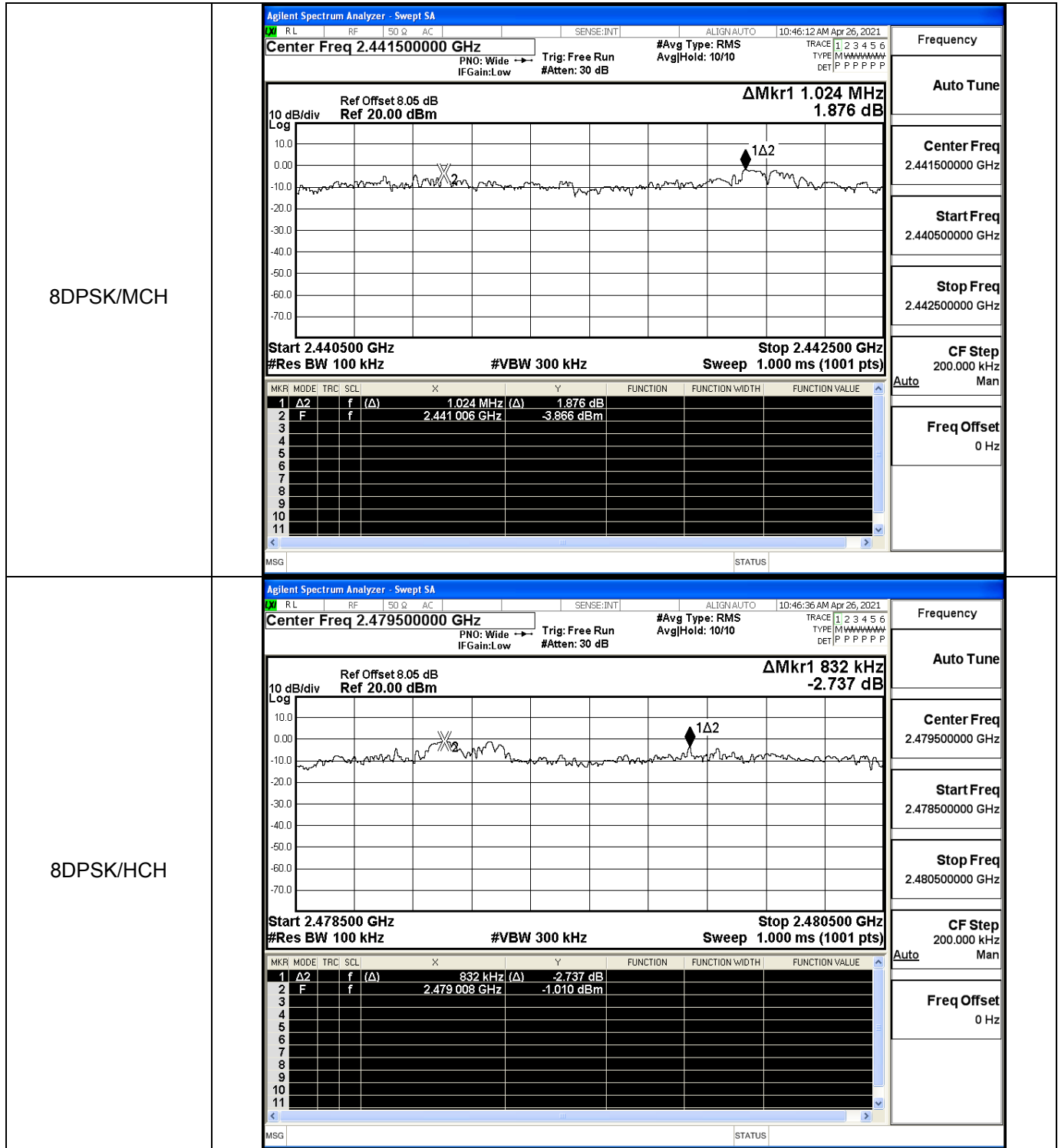


$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

π /4DQPSK/HCH

8DPSK/LCH



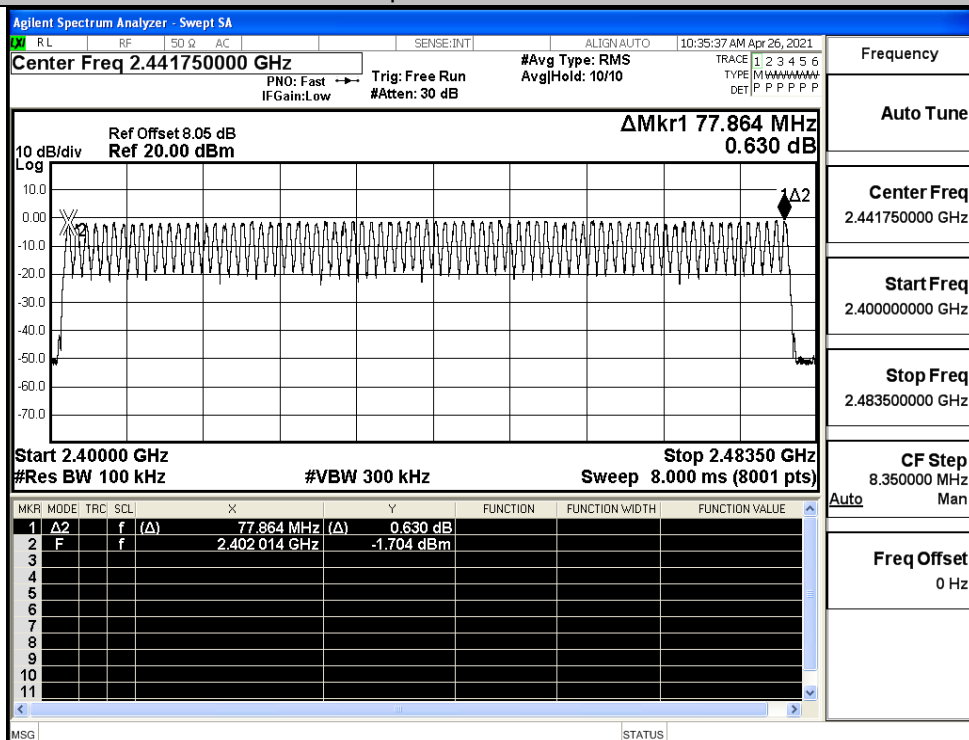
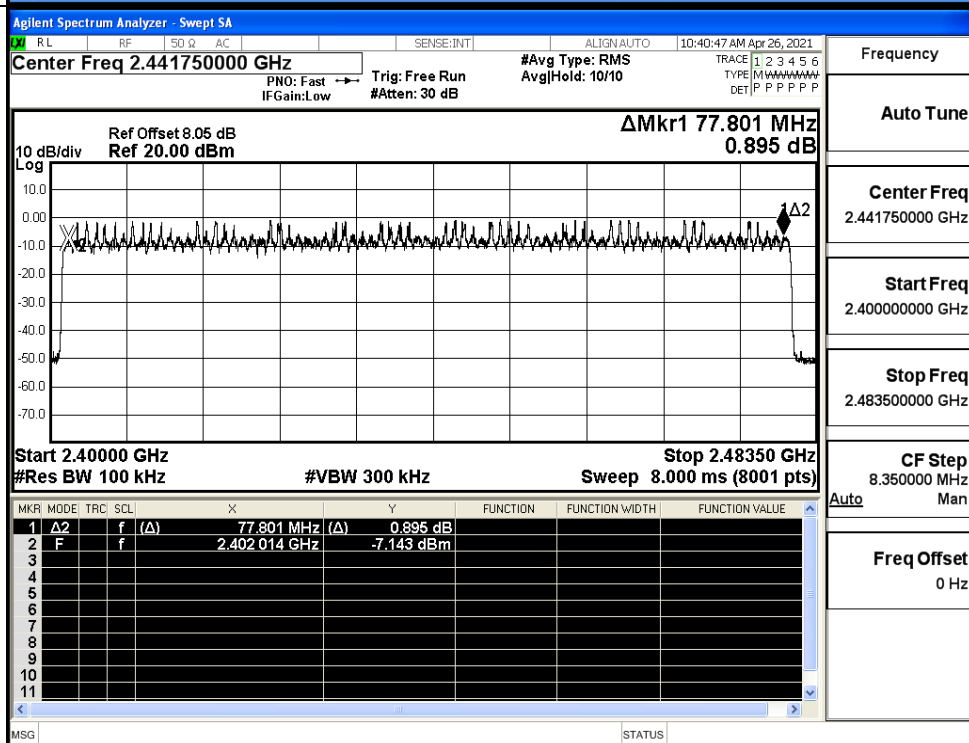


A.4 Hopping Channel Number

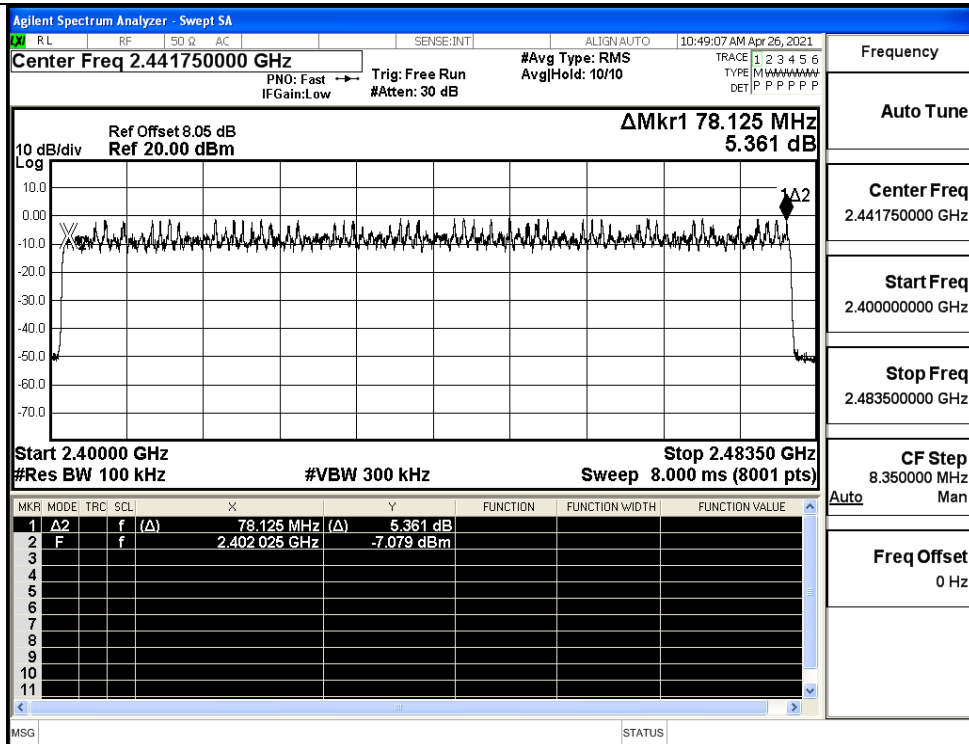
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

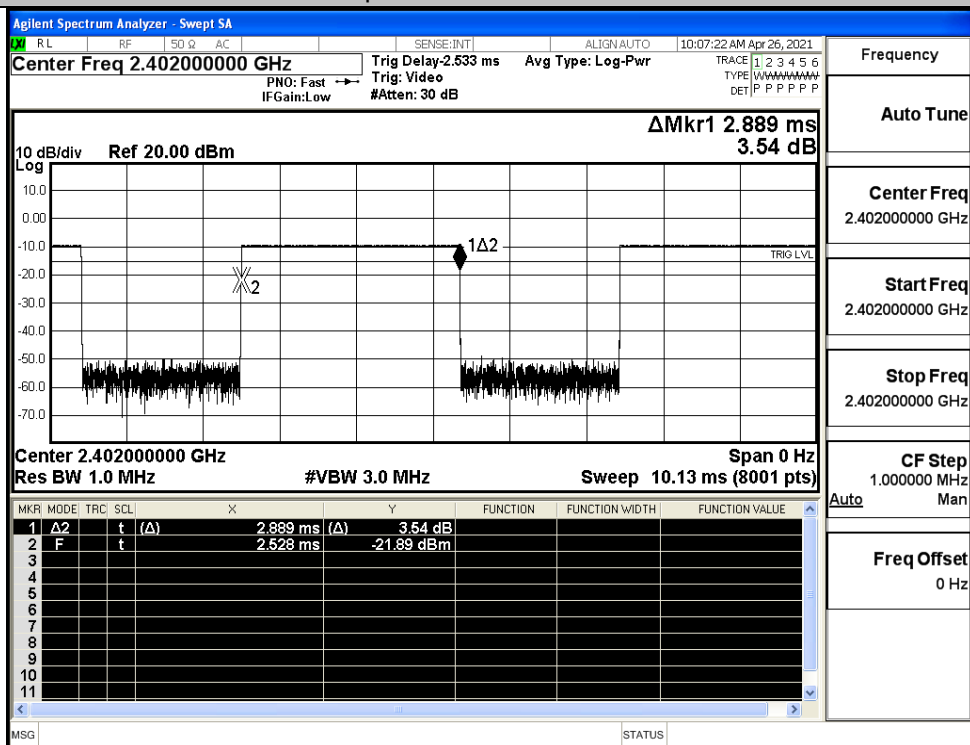


A.5 Dwell Time

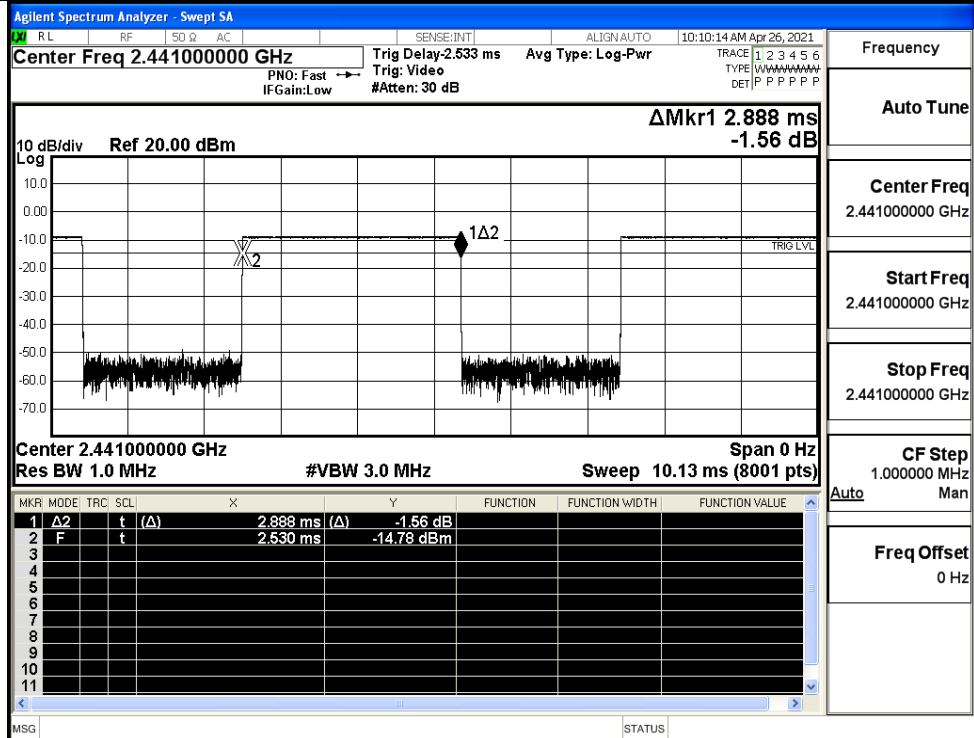
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.89	106.7	0.308	0.4	PASS
	DH5	MCH	2.89	106.7	0.308	0.4	PASS
	DH5	HCH	2.89	106.7	0.308	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.89	106.7	0.308	0.4	PASS
	2DH5	MCH	2.89	106.7	0.308	0.4	PASS
	2DH5	HCH	2.89	106.7	0.308	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.89	106.7	0.309	0.4	PASS
	3DH5	HCH	2.89	106.7	0.309	0.4	PASS

Test Graphs

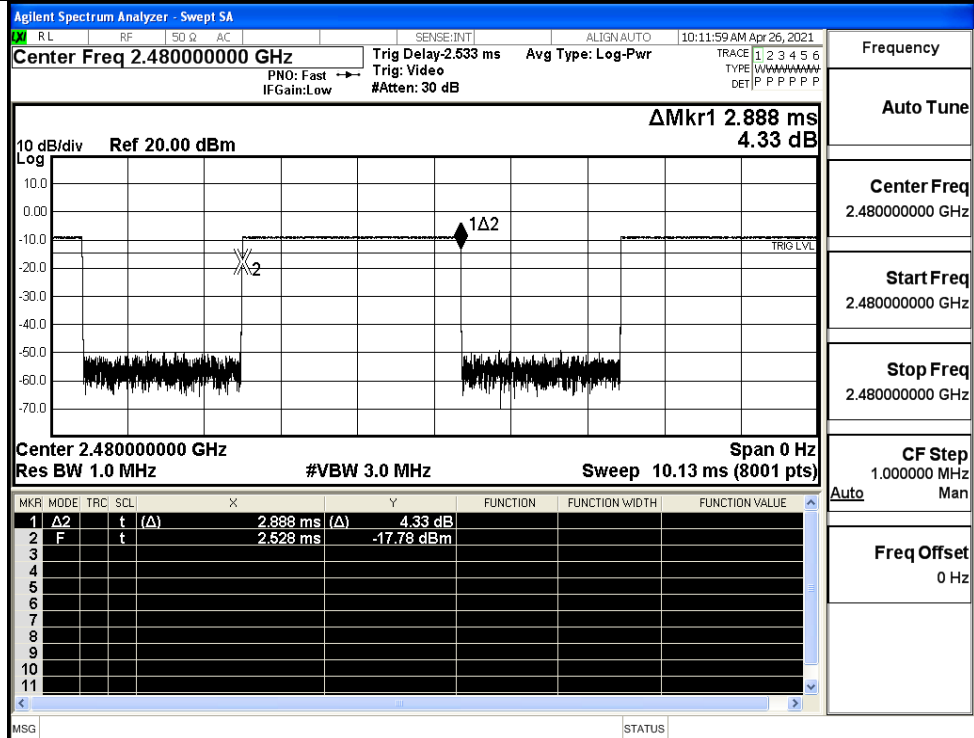
GFSK_DH5/LCH



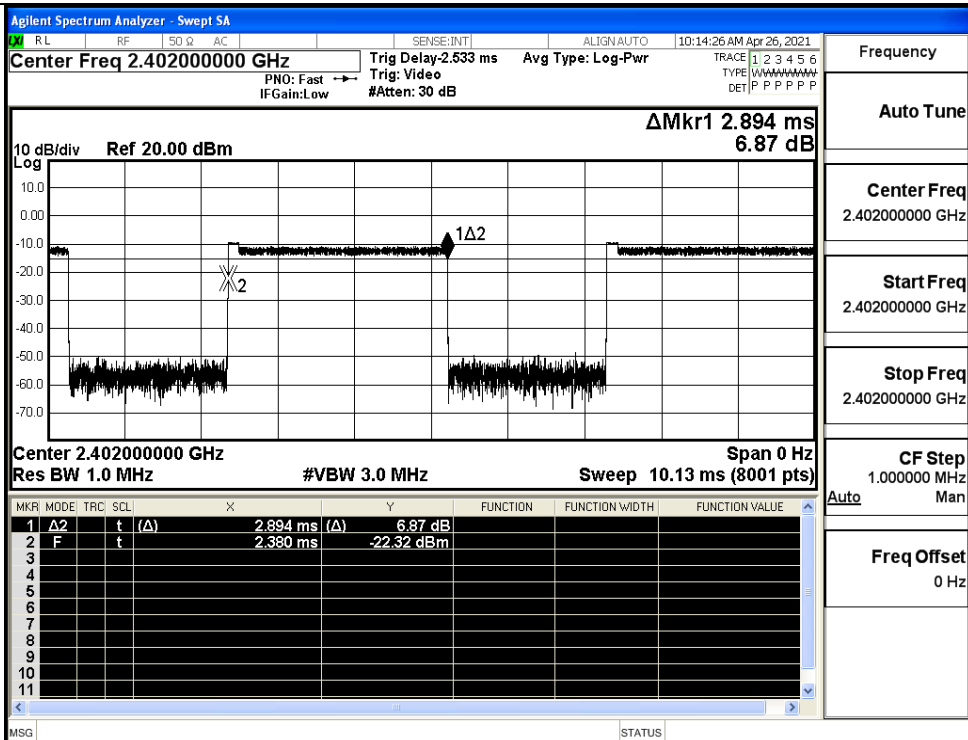
GFSK_DH5/MCH



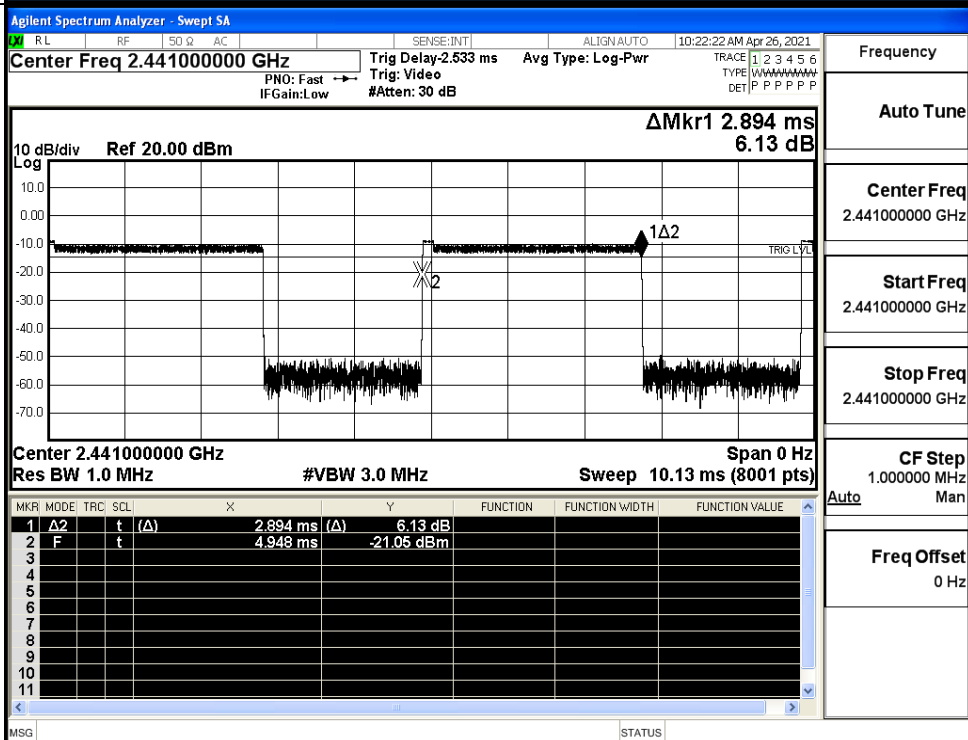
GFSK_DH5/HCH



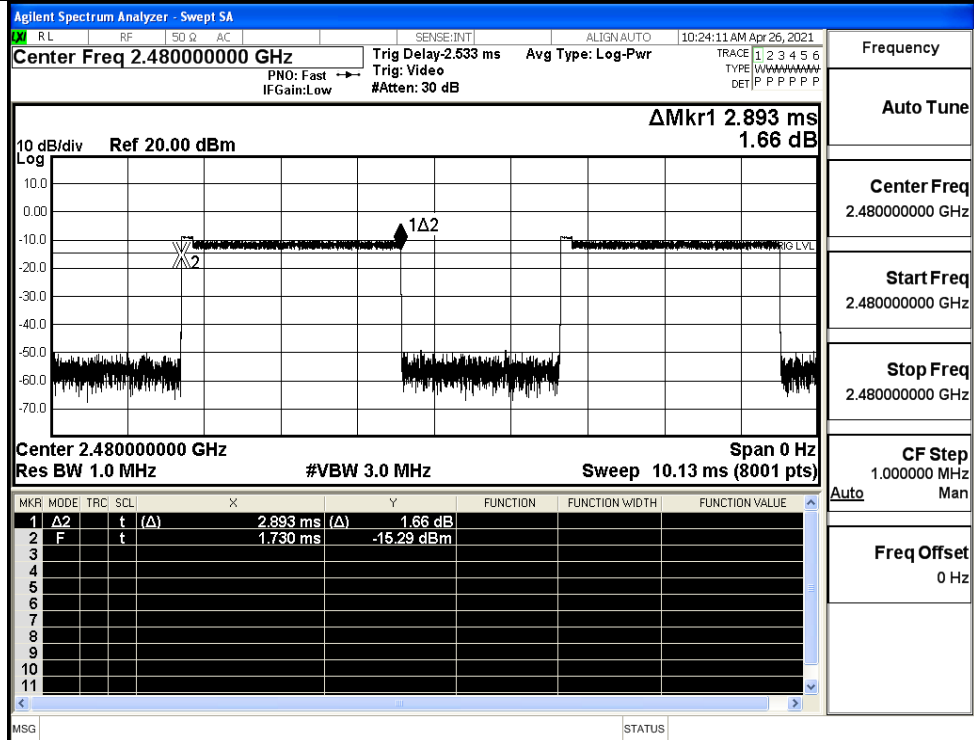
$\pi/4$ DQPSK
_2DH5/LCH



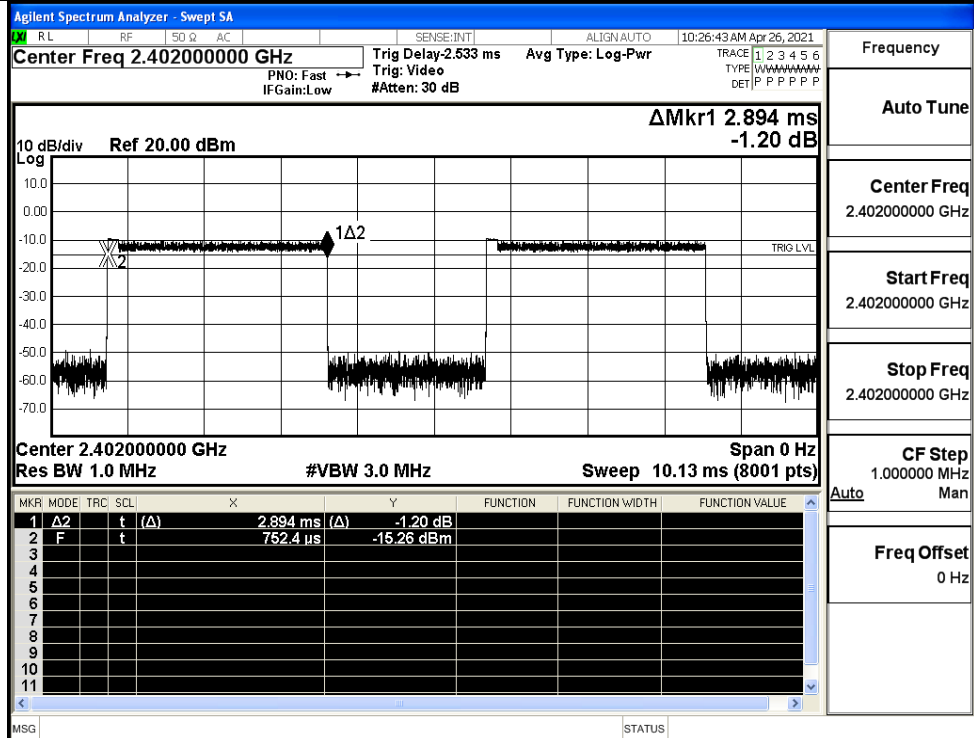
$\pi/4$ DQPSK
_2DH5/MCH



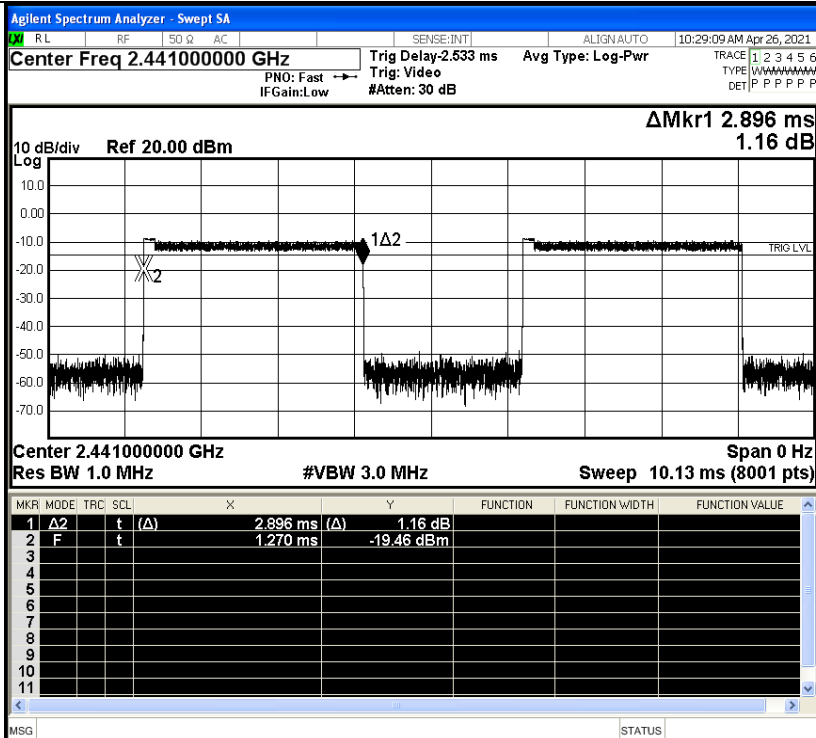
$\pi/4$ DQPSK
_2DH5/HCH



8DPSK _3DH5/LCH



8DPSK_3DH5/MCH

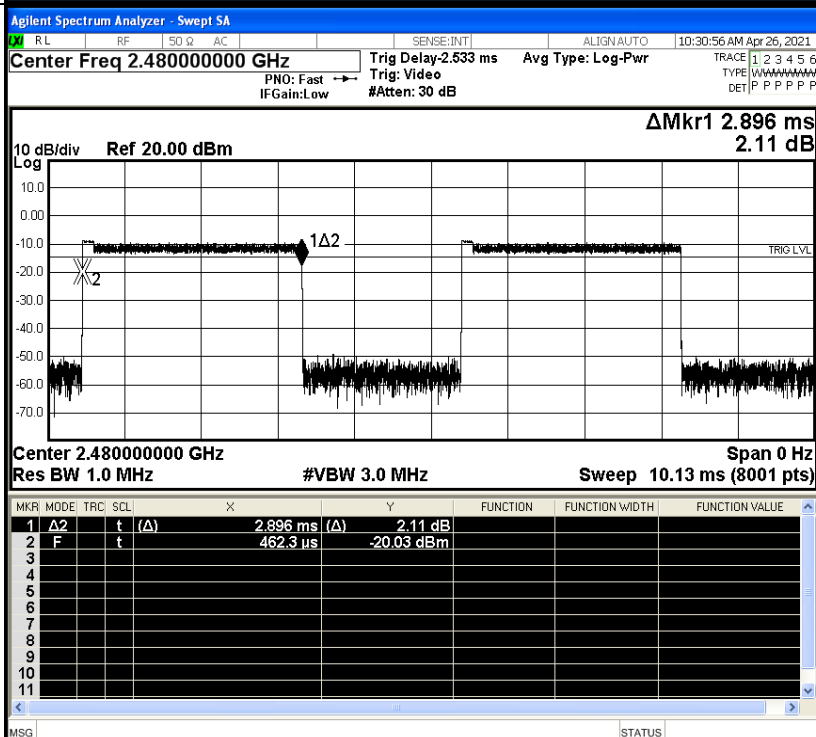


Frequency

Auto Tune

Center Freq
2.441000000 GHzStart Freq
2.441000000 GHzStop Freq
2.441000000 GHzCF Step
1.000000 MHz
Auto ManFreq Offset
0 Hz

8DPSK_3DH5/HCH



Frequency

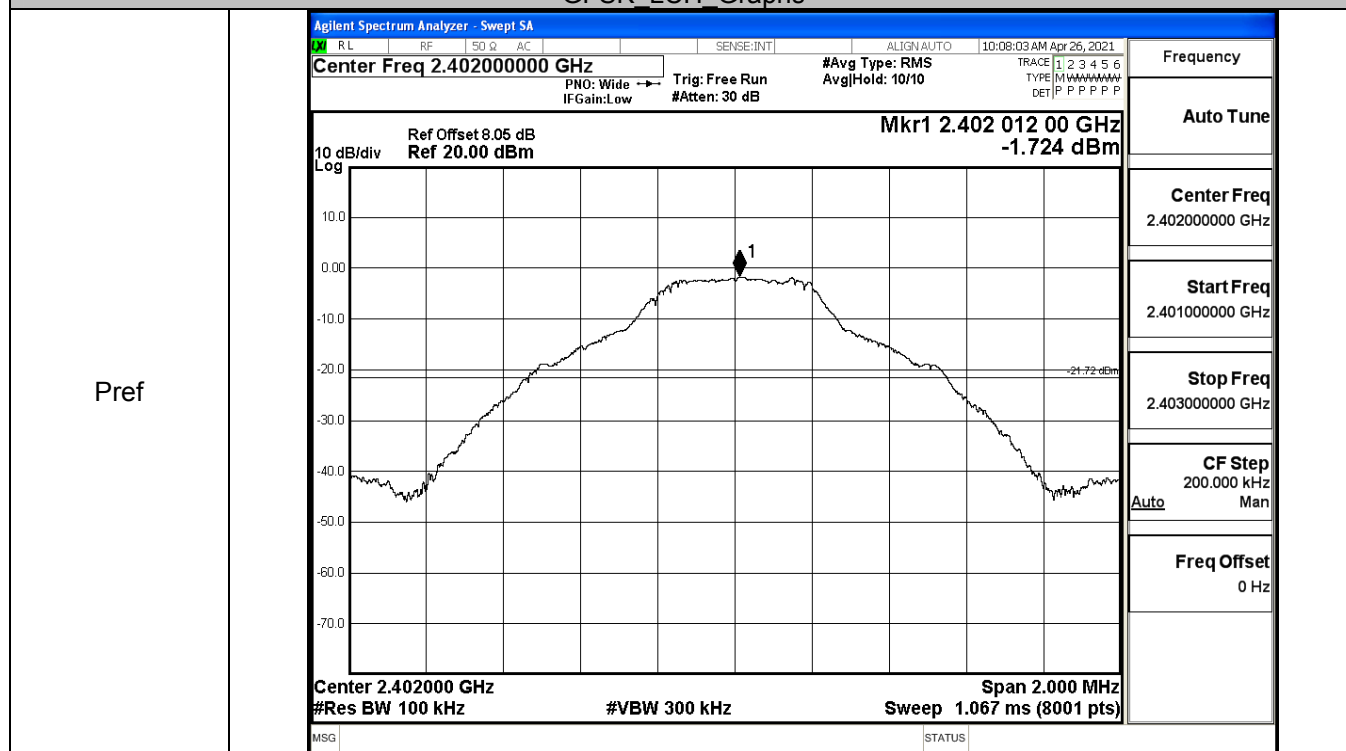
Auto Tune

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

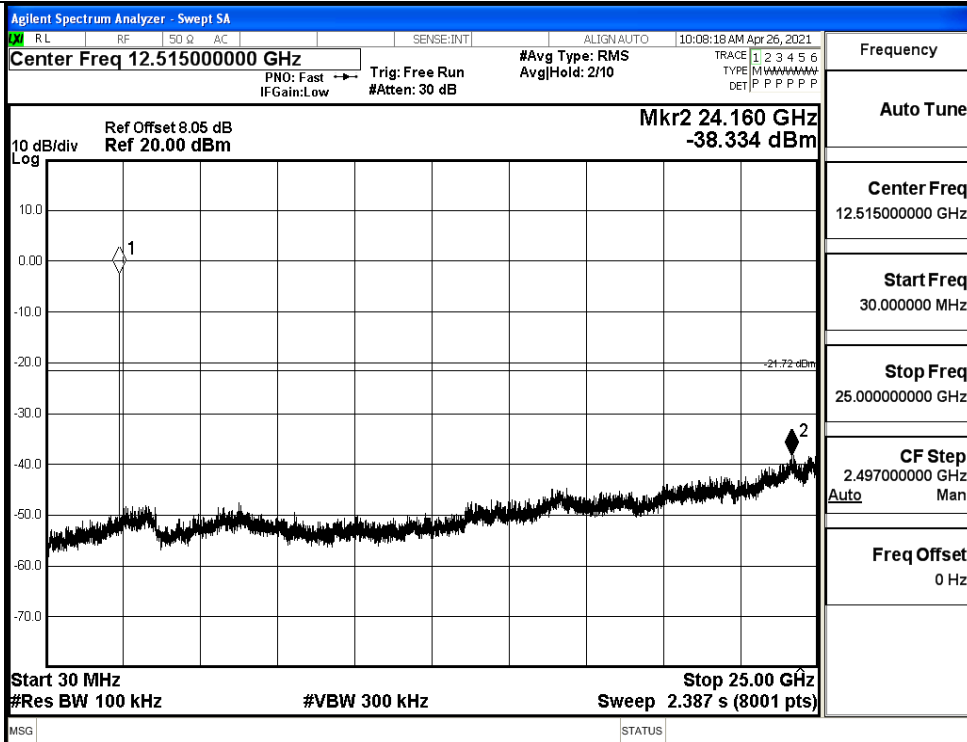
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.724	-38.334	-21.724	PASS
	MCH	-0.687	-37.408	-20.687	PASS
	HCH	-0.846	-37.635	-20.846	PASS
$\pi/4$ DQPSK	LCH	-1.831	-36.557	-21.831	PASS
	MCH	-1.056	-37.390	-21.056	PASS
	HCH	-0.938	-37.889	-20.938	PASS
8DPSK	LCH	-1.541	-37.094	-21.541	PASS
	MCH	-0.773	-37.865	-20.773	PASS
	HCH	-0.96	-36.999	-20.960	PASS

GFSK LCH Graphs

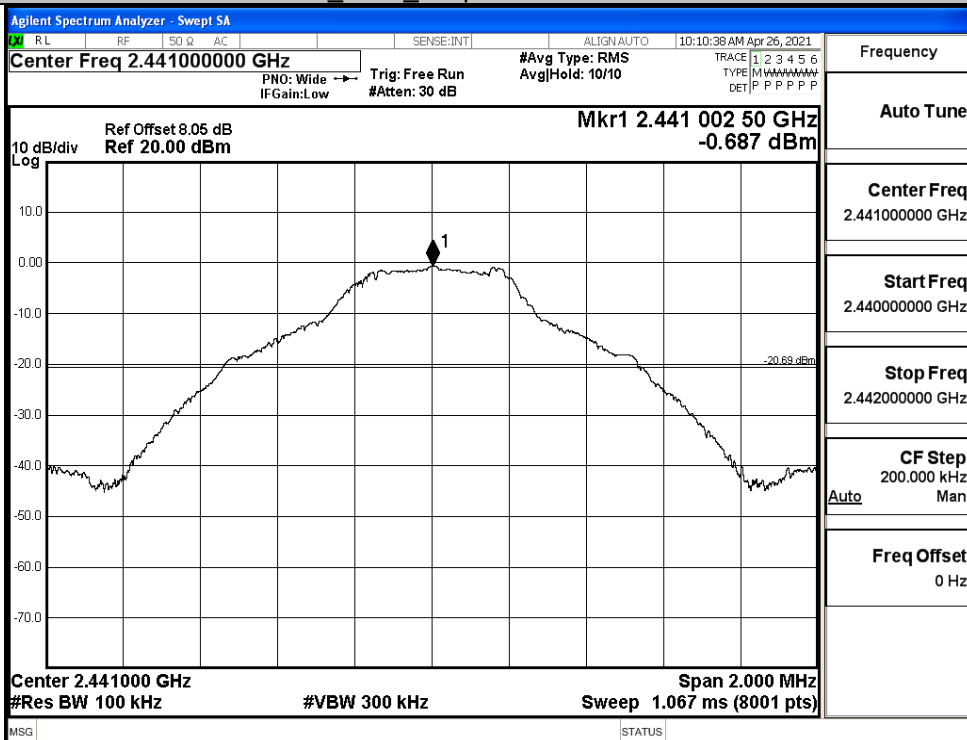


Puw

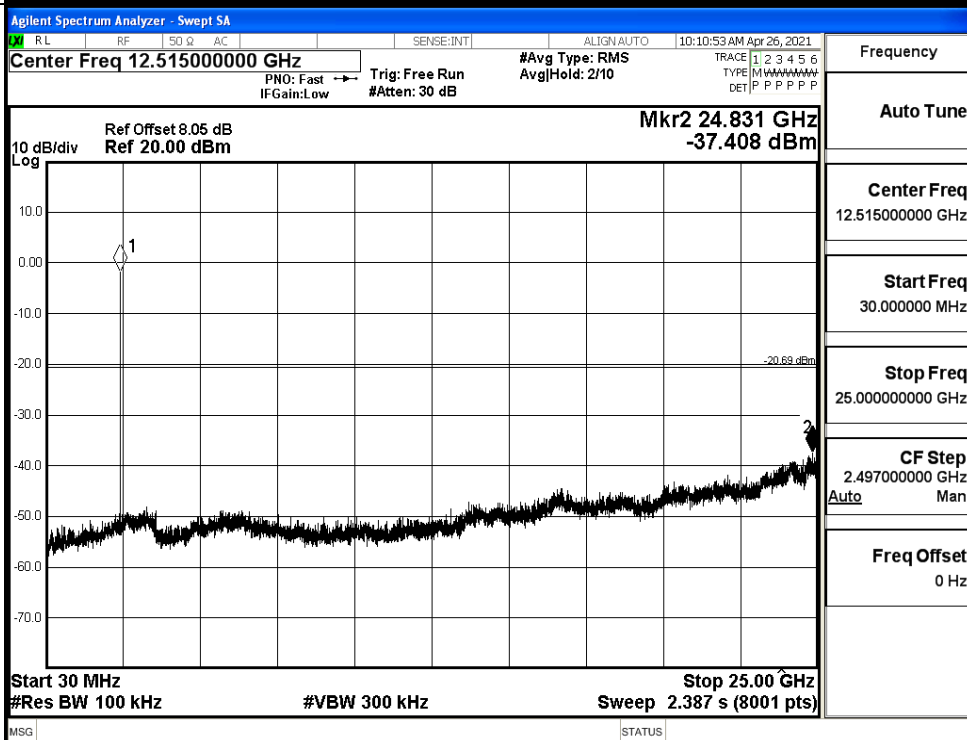


GFSK_MCH_Graphs

Pref

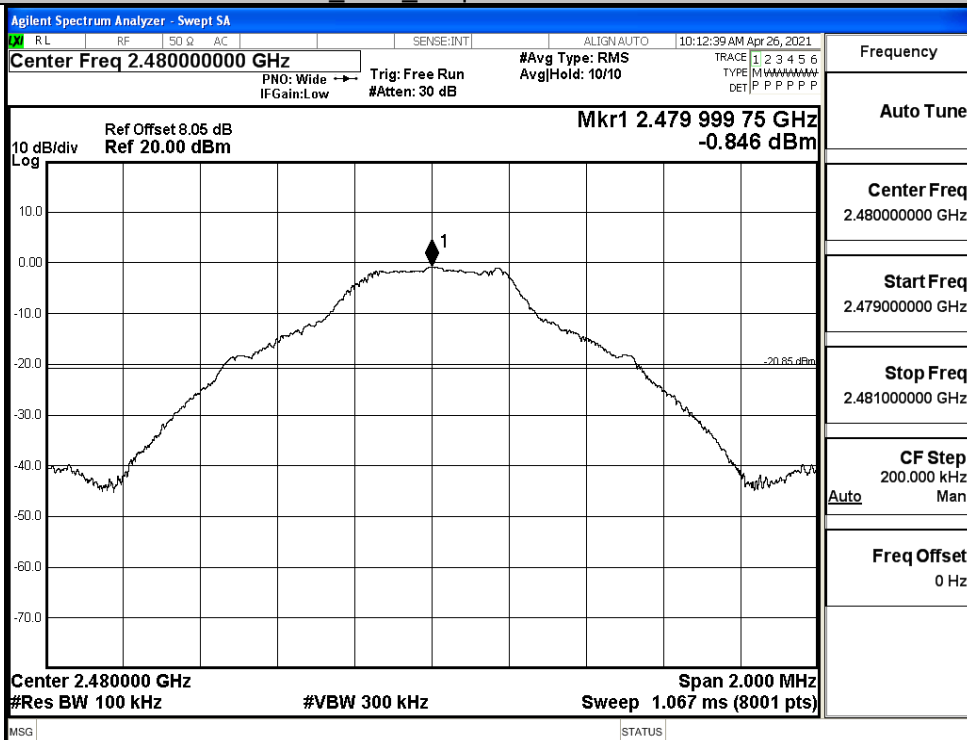


Puw

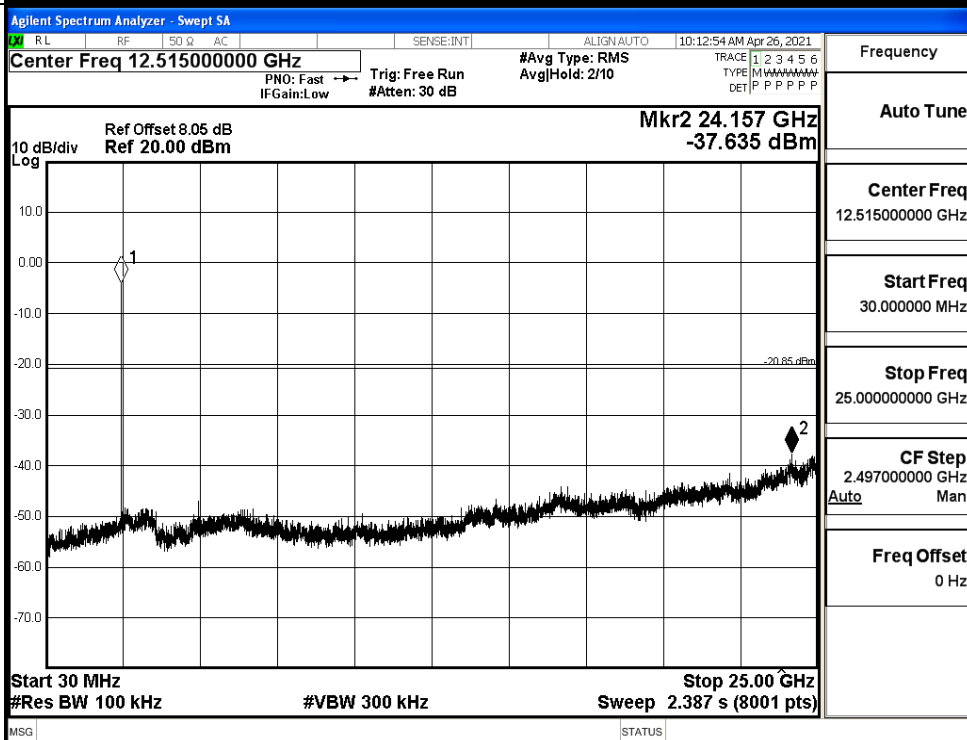


GFSK_HCH_Graphs

Pref

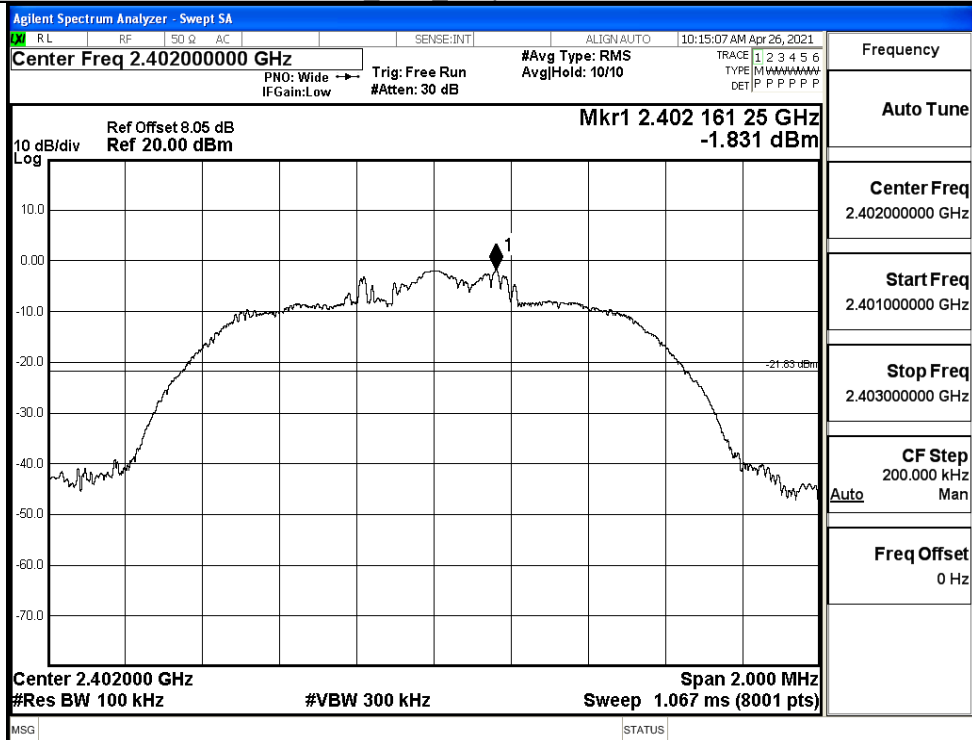


Puw

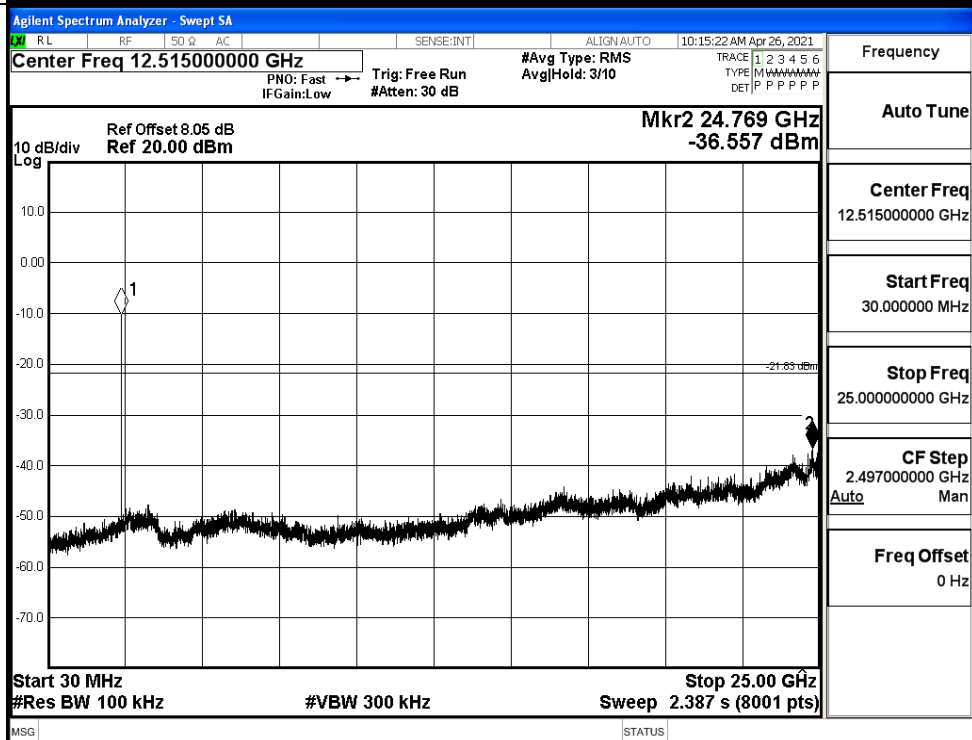


$\pi/4$ DQPSK_LCH_Graphs

Pref

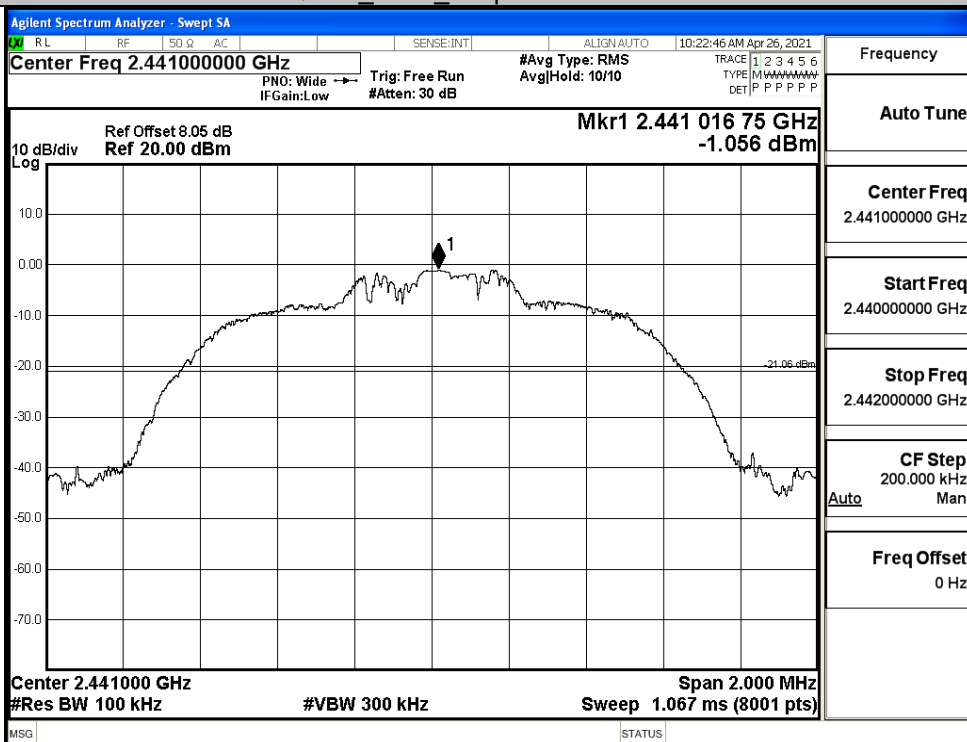


Puw

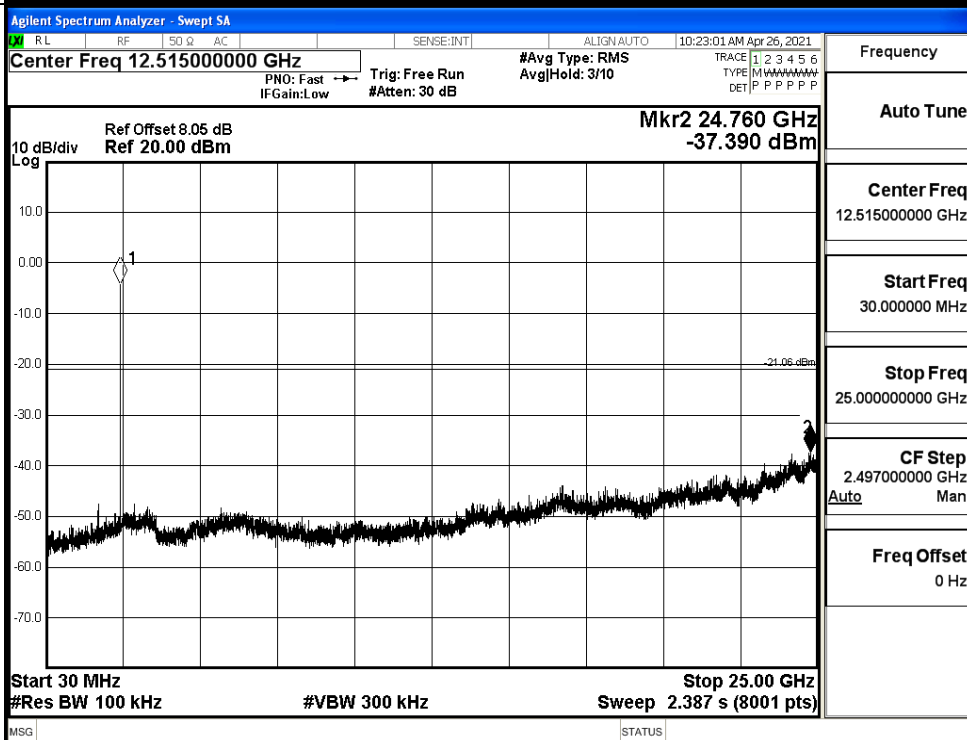


$\pi/4$ DQPSK_MCH_Graphs

Pref

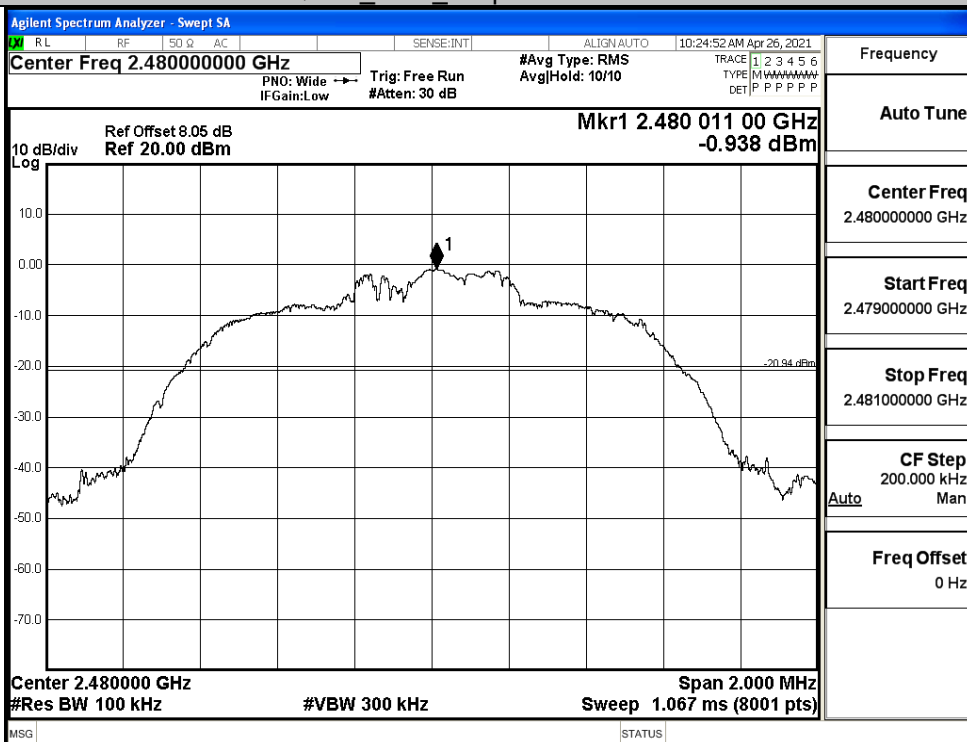


Puw

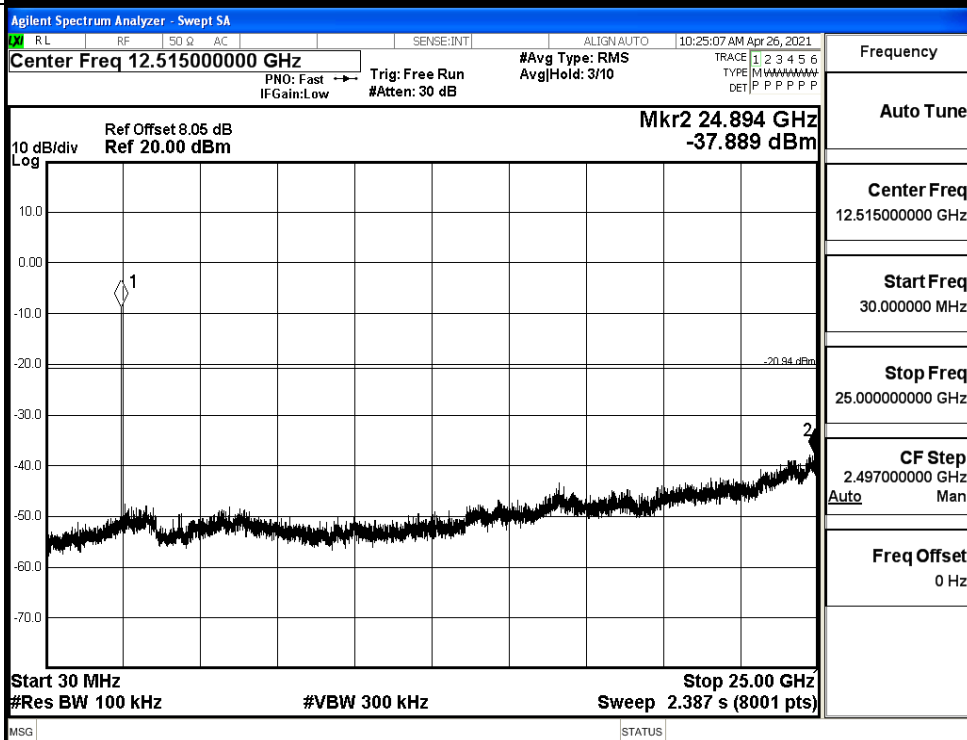


$\pi/4$ DQPSK_HCH_Graphs

Pref

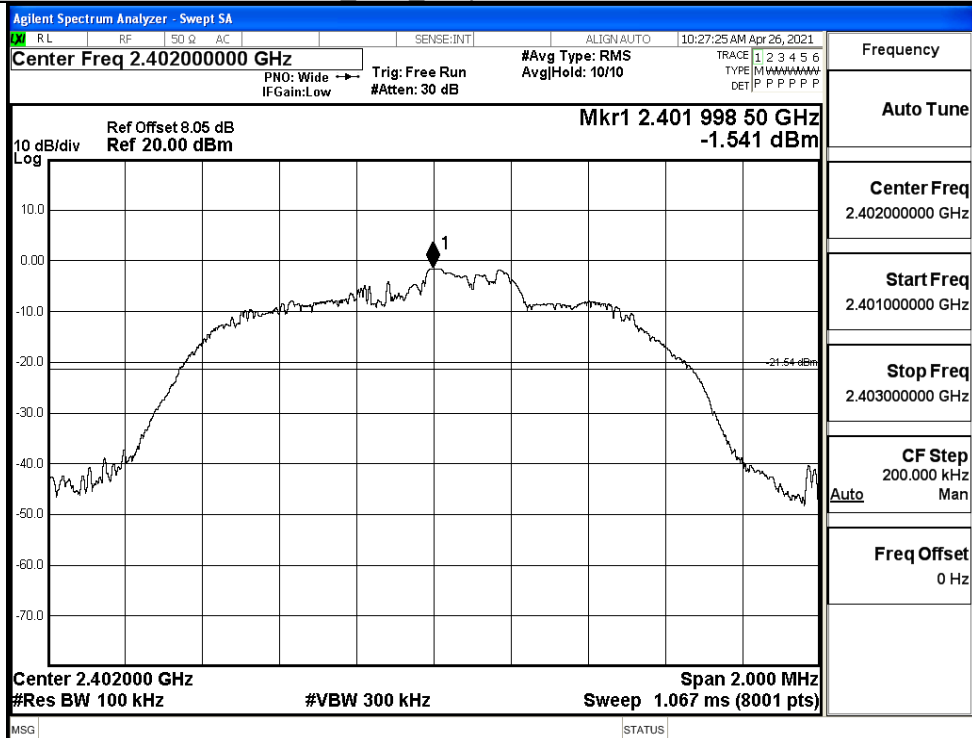


Puw

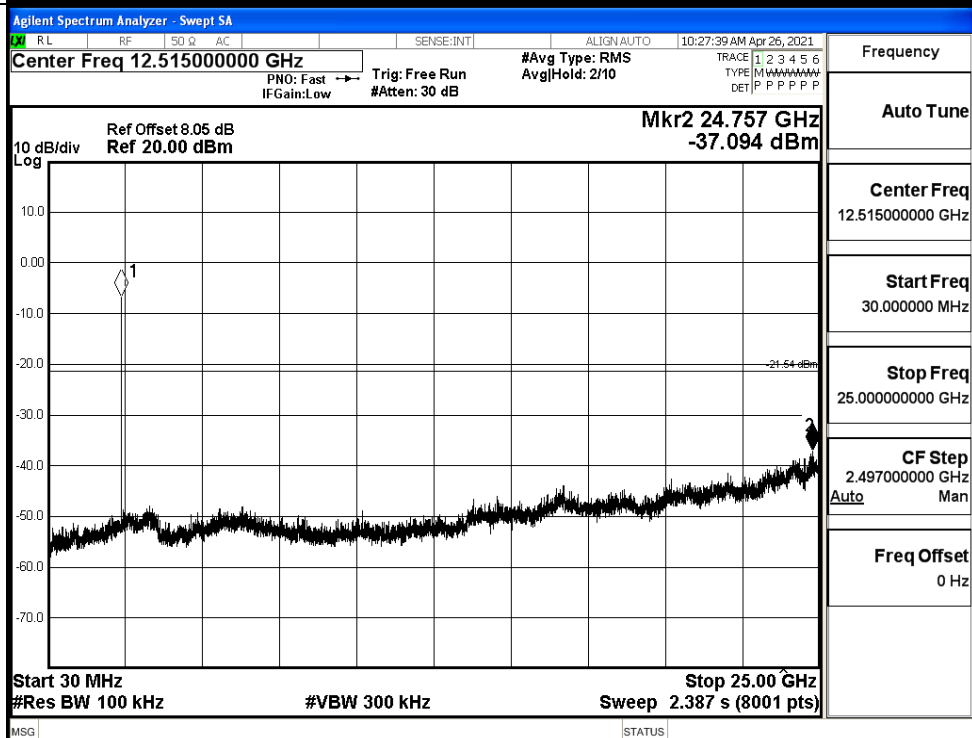


8DPSK_LCH_Graphs

Pref

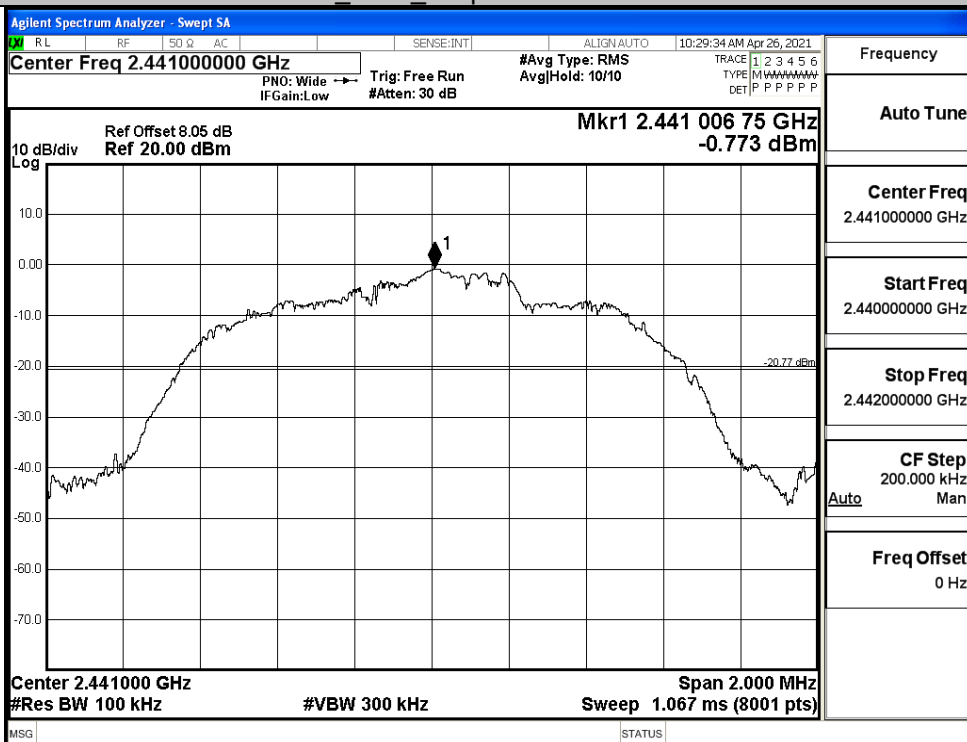


Puw

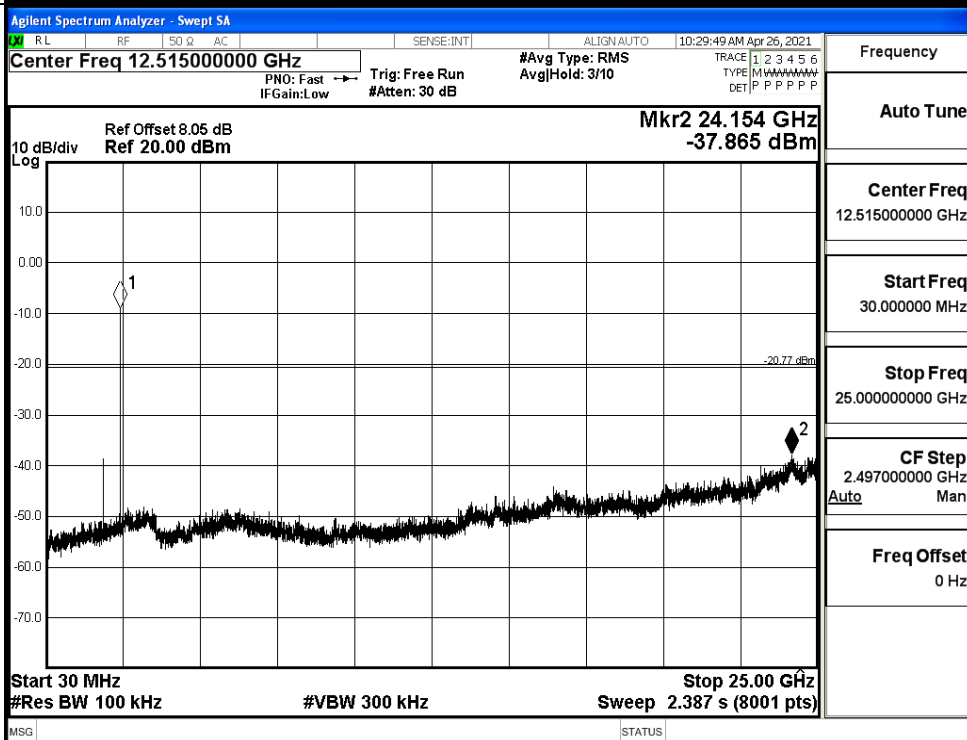


8DPSK_MCH_Graphs

Pref

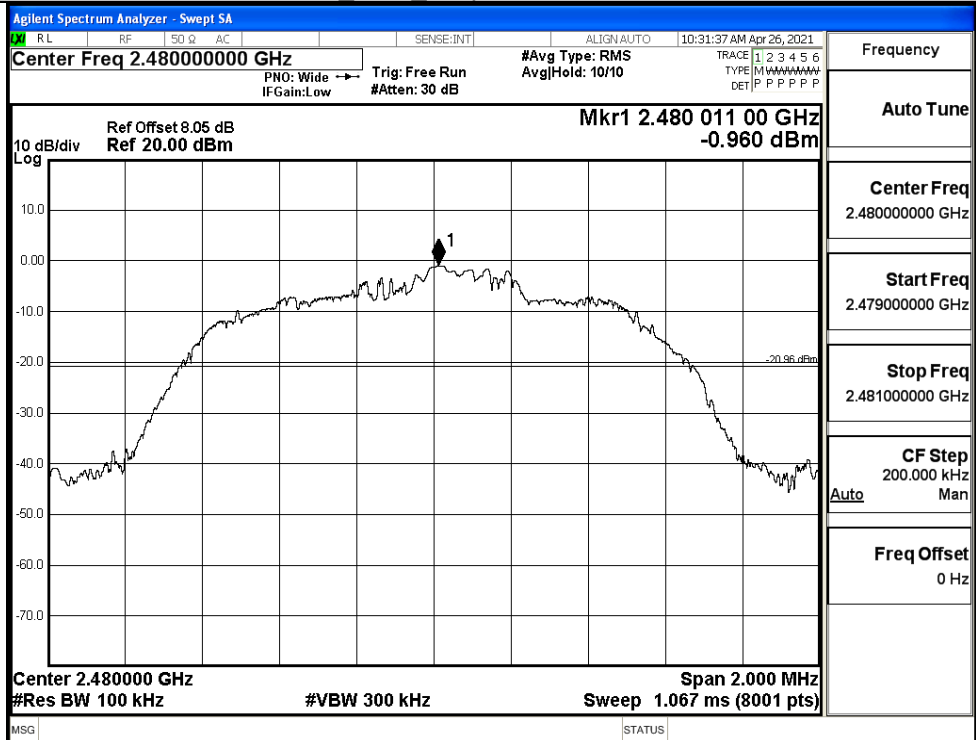


Puw



8DPSK_HCH_Graphs

Pref



Puw

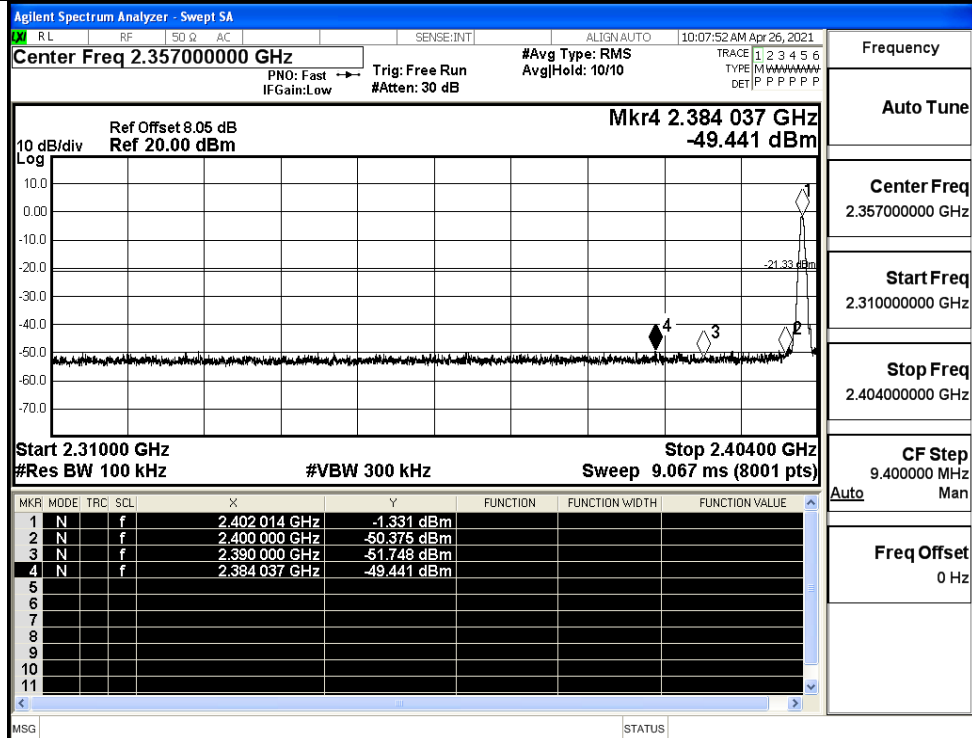


A.7 Band-edge for RF Conducted Emissions

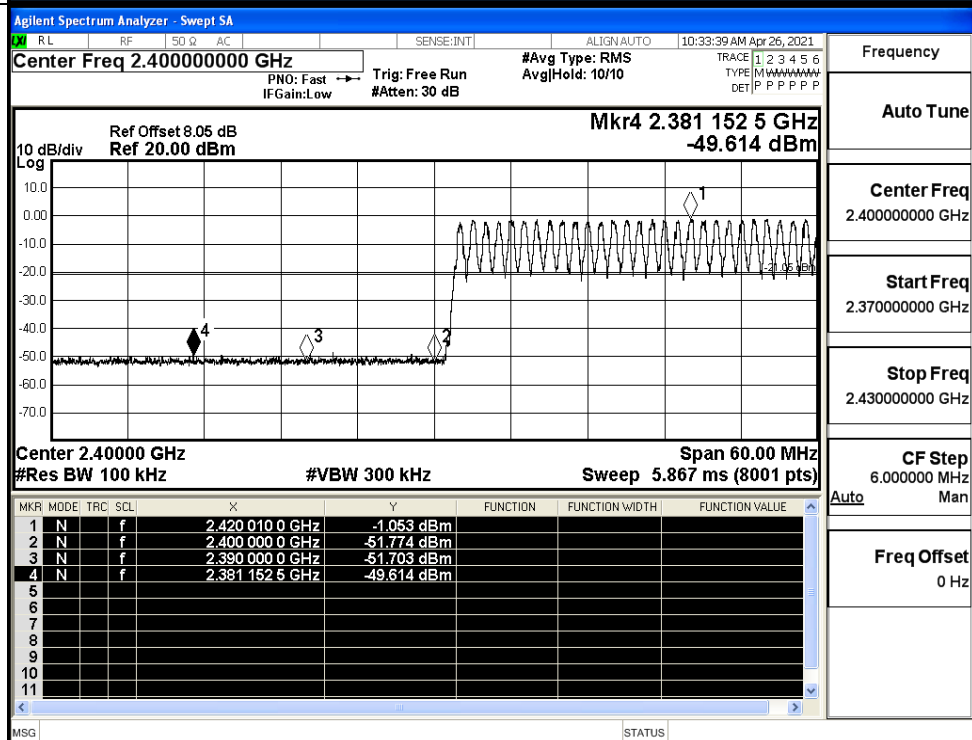
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-1.331	Off	-49.441	-21.33	PASS
			-1.053	On	-49.614	-21.05	PASS
	HCH	2480	-1.010	Off	-48.595	-21.01	PASS
			-0.679	On	-47.950	-20.68	PASS
$\pi/4$ DQPSK	LCH	2402	-1.759	Off	-49.660	-21.76	PASS
			-1.241	On	-48.767	-21.24	PASS
	HCH	2480	-0.823	Off	-49.453	-20.82	PASS
			-0.800	On	-48.637	-20.8	PASS
8DPSK	LCH	2402	-1.473	Off	-49.665	-21.47	PASS
			-1.206	On	-49.003	-21.21	PASS
	HCH	2480	-0.690	Off	-48.186	-20.69	PASS
			-0.970	On	-48.102	-20.97	PASS

Test Graphs

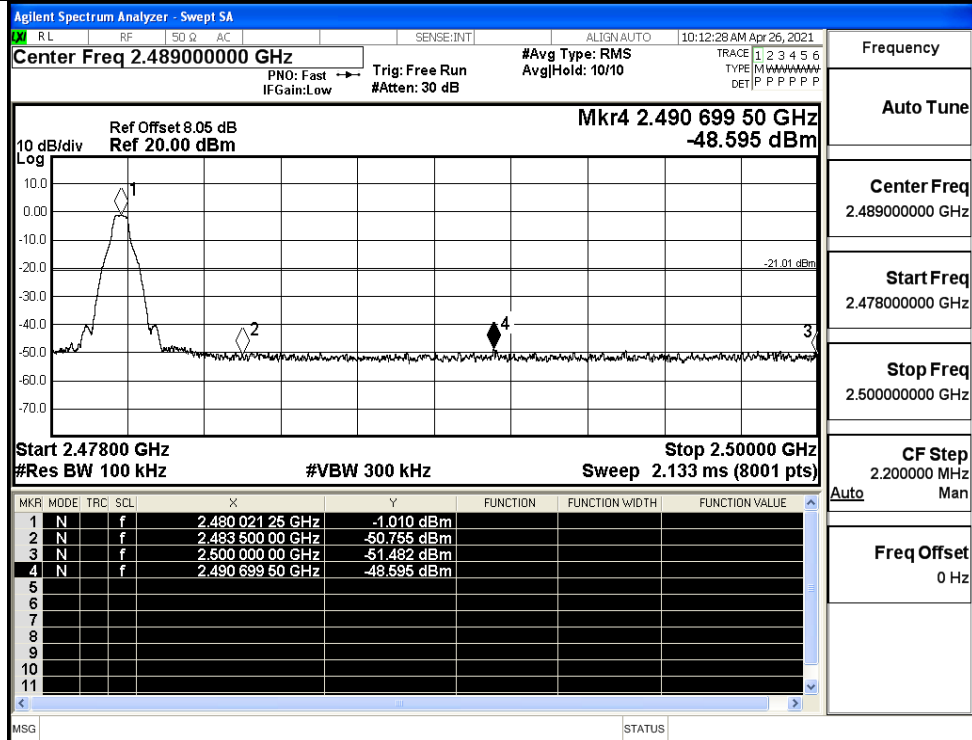
GFSK/LCH/No Hop



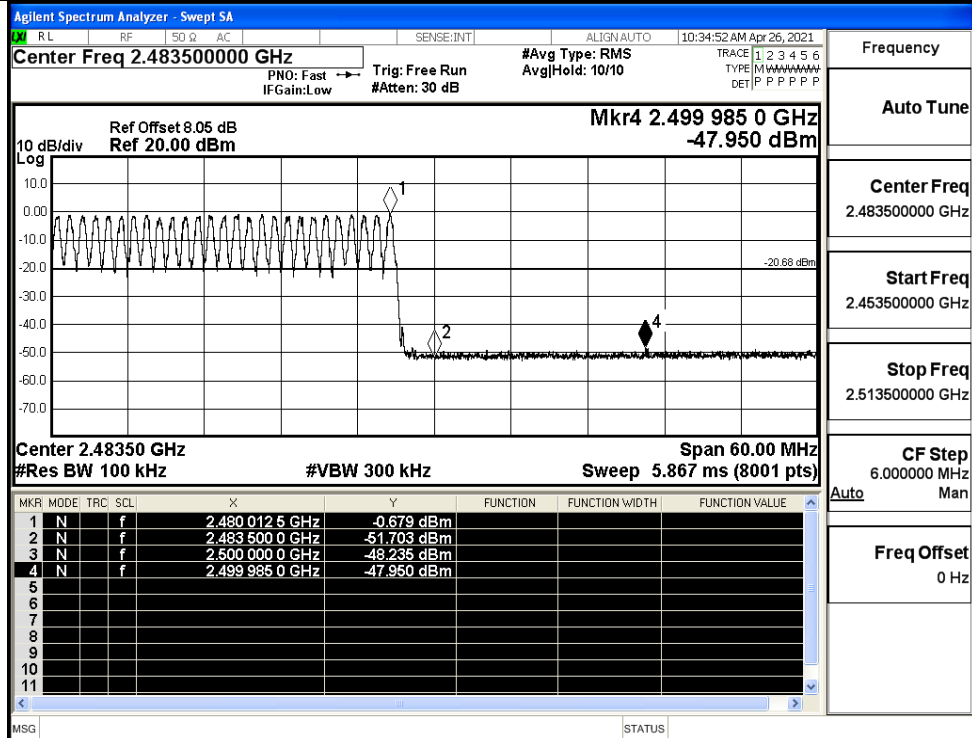
GFSK/LCH/Hop



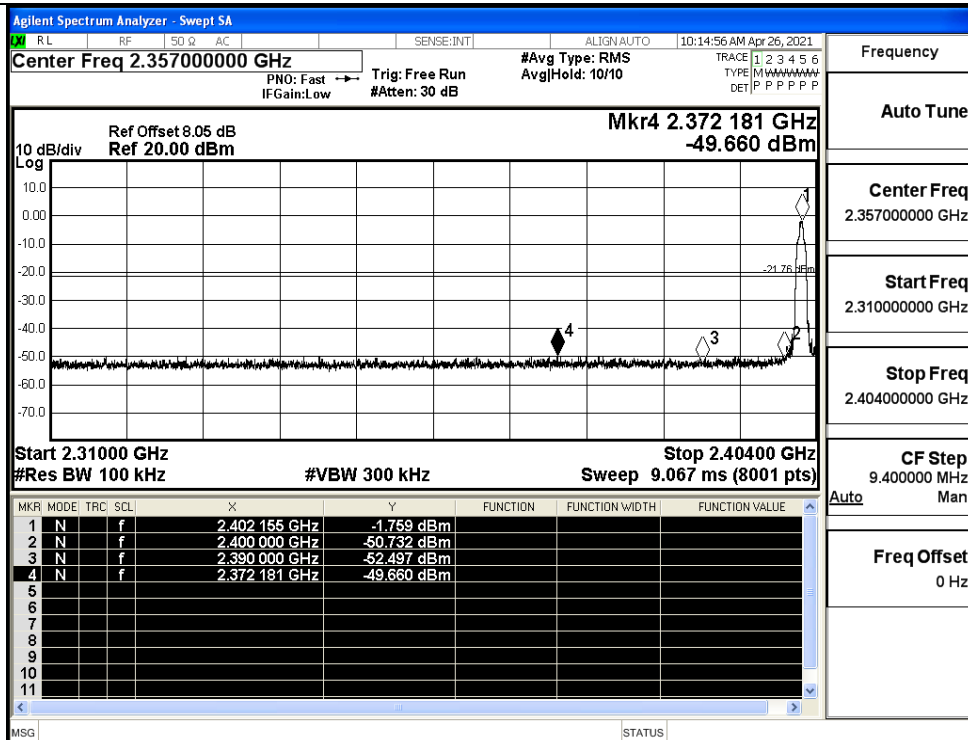
GFSK/HCH/No Hop



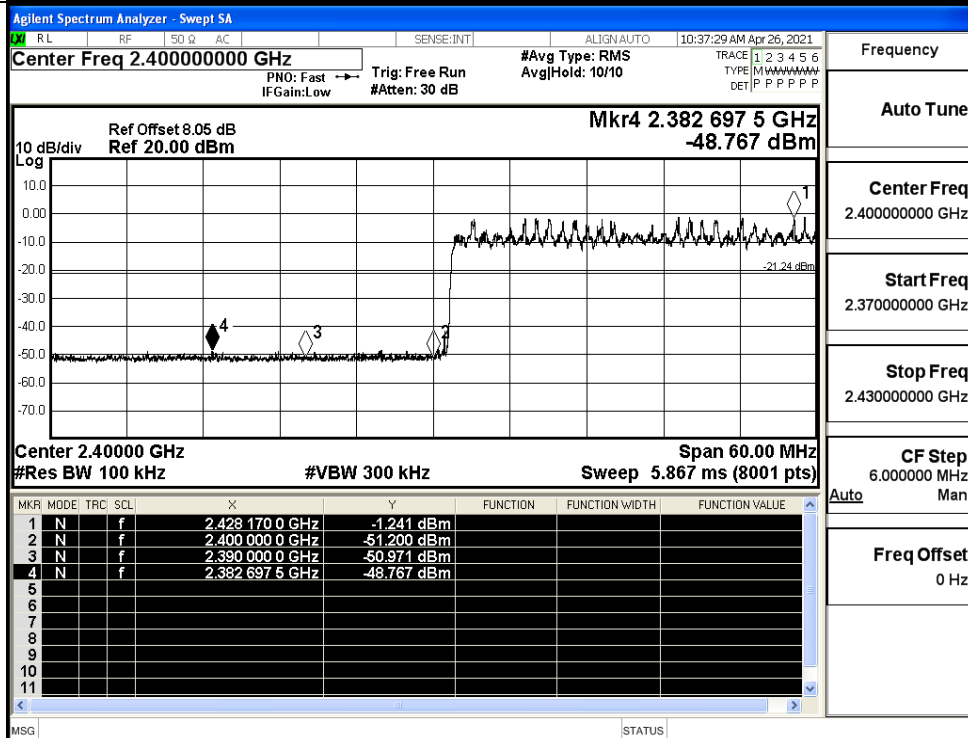
GFSK/HCH/Hop



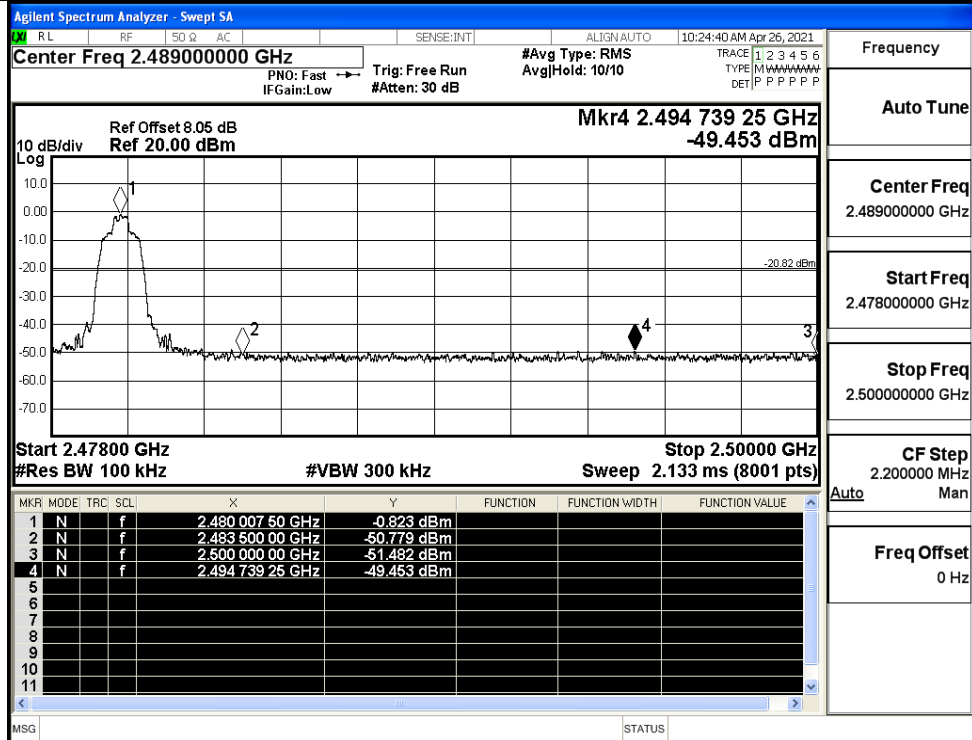
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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

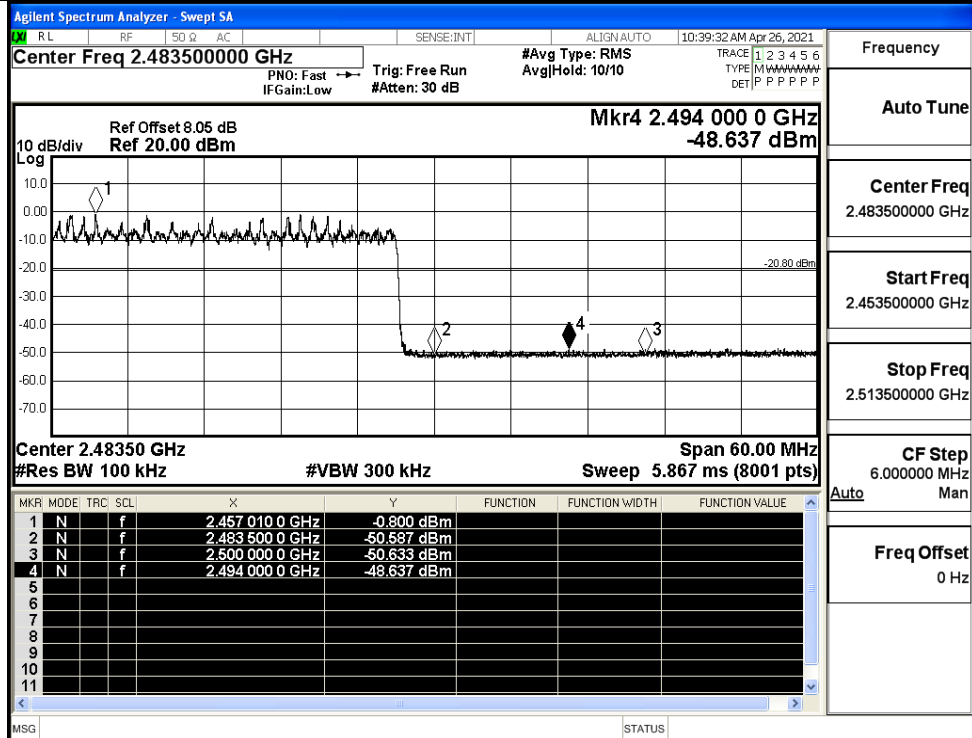


Frequency

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

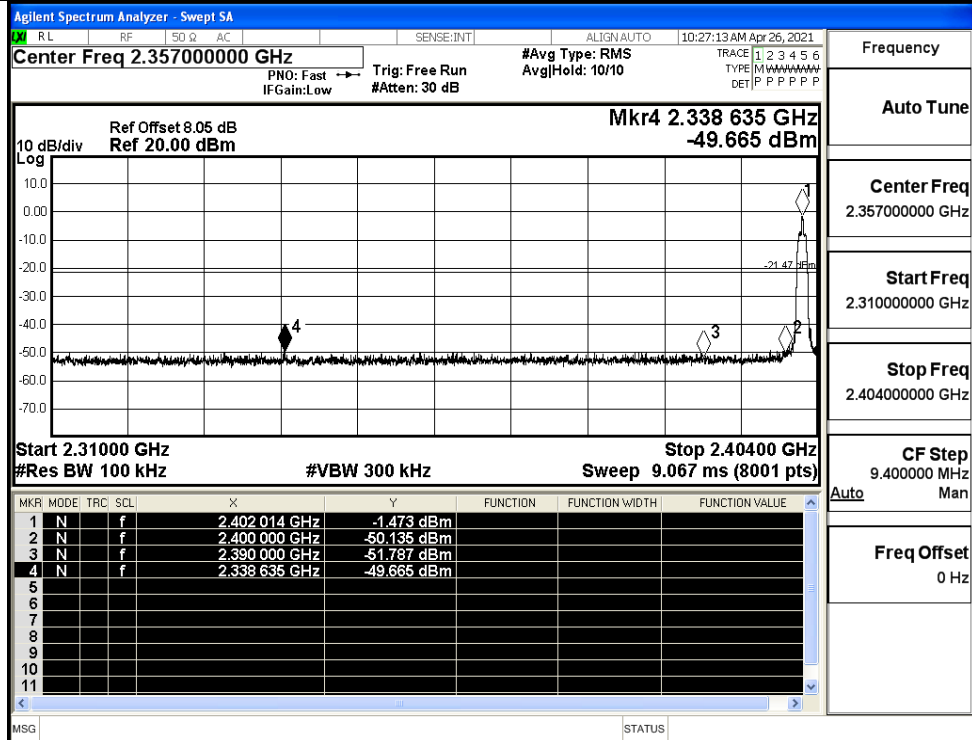


Frequency

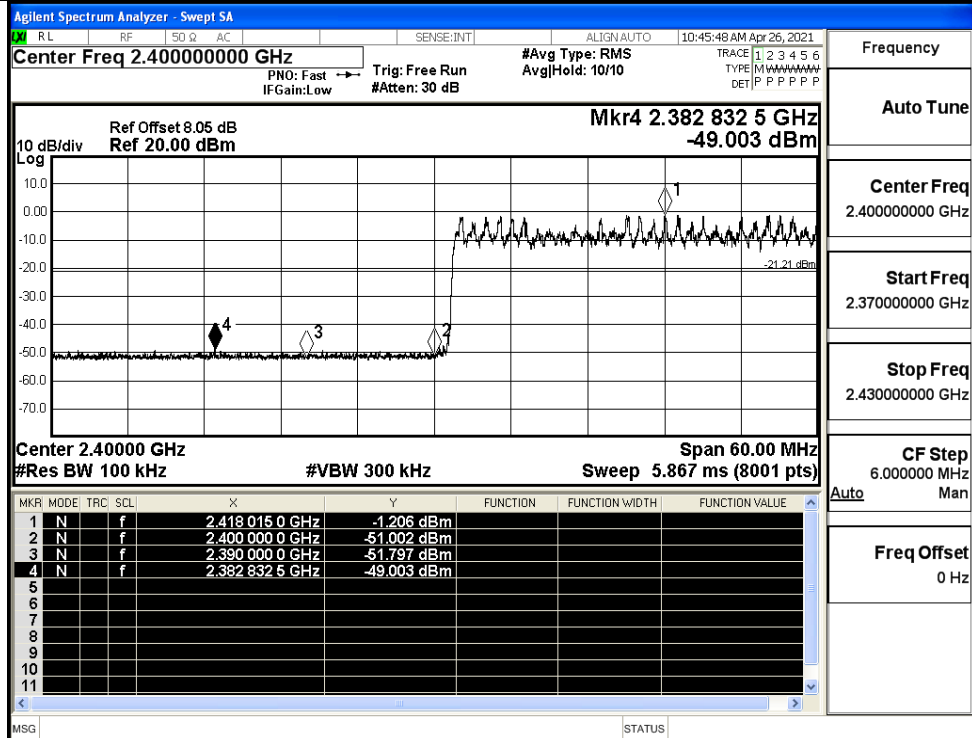
Auto Tune

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

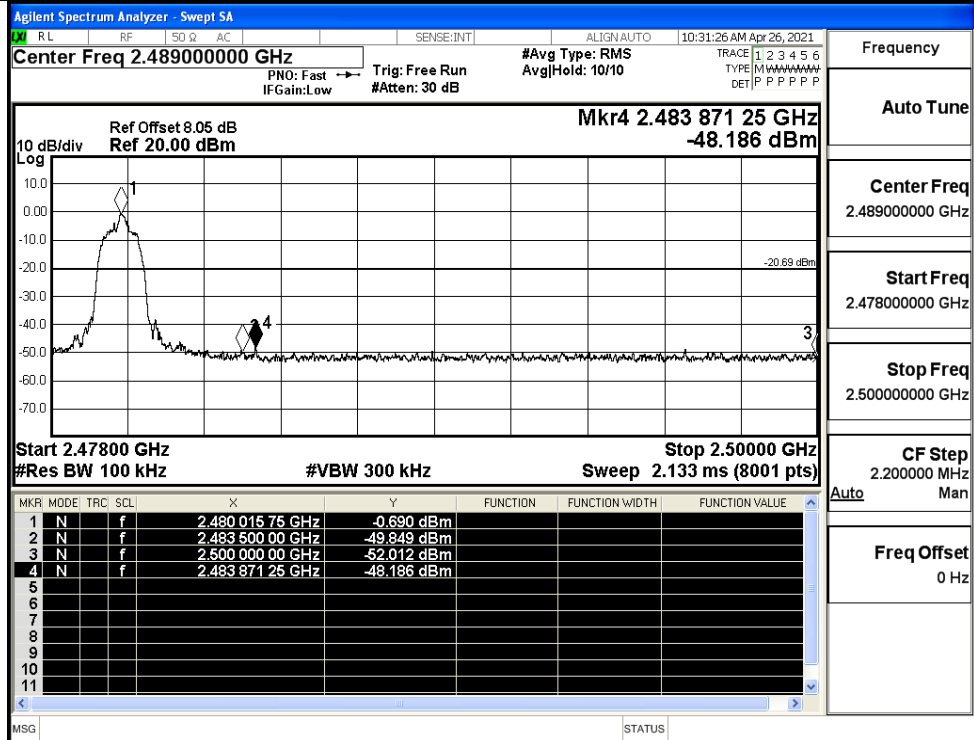
8DPSK/LCH/No Hop



8DPSK/LCH/Hop



8DPSK/HCH/No Hop

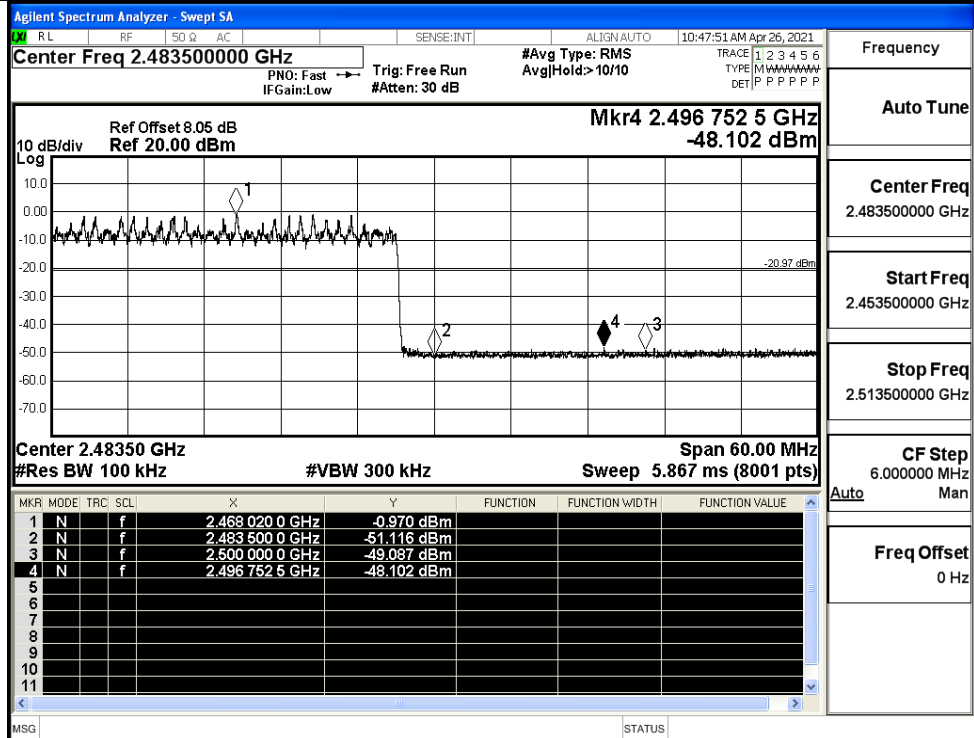


Frequency

Auto Tune

Center Freq
2.489000000 GHzStart Freq
2.478000000 GHzStop Freq
2.500000000 GHzCF Step
2.200000 MHz
Auto ManFreq Offset
0 Hz

8DPSK/HCH/Hop



Frequency

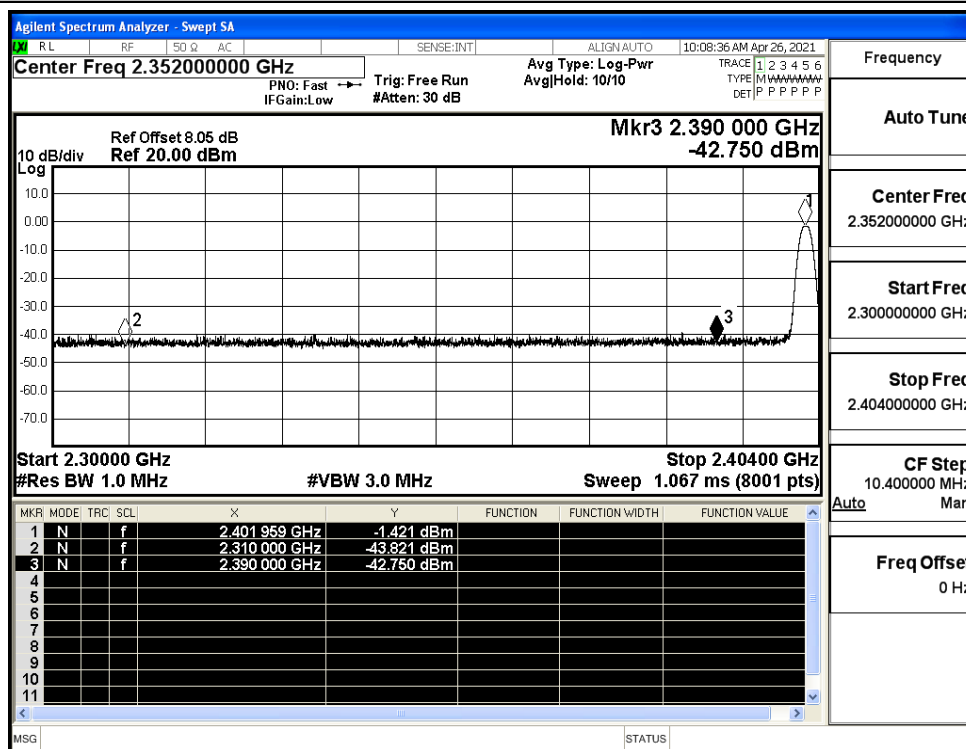
Auto Tune

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

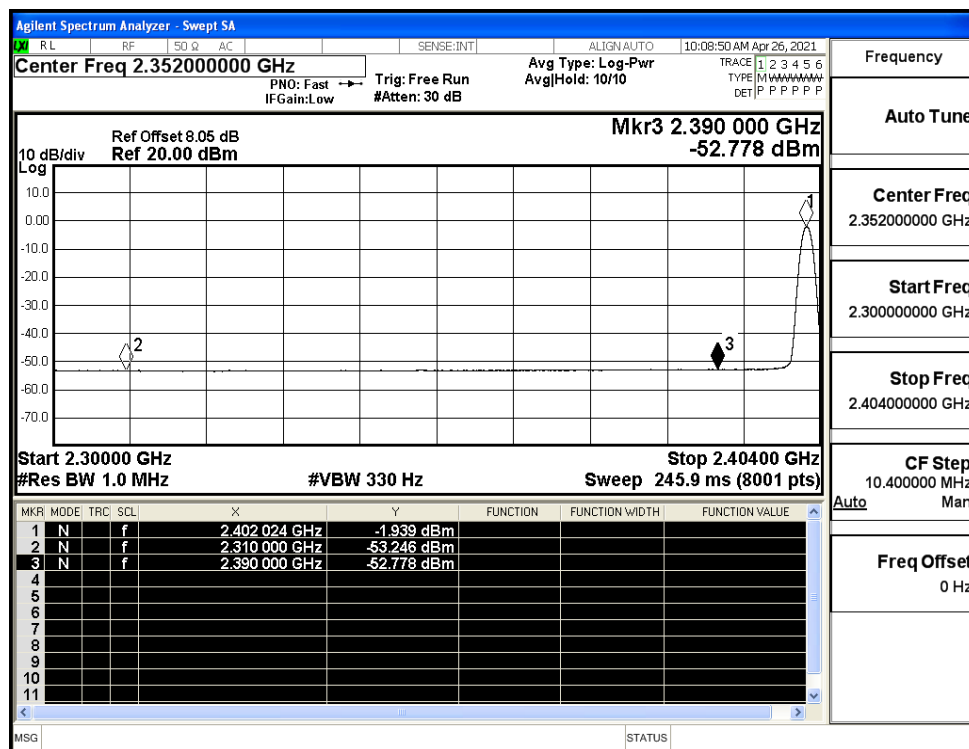
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.82	2.0	0	51.44	PEAK	74	PASS
	Off	2310.0	-53.25	2.0	0	42.01	AV	54	PASS
	Off	2390.0	-42.75	2.0	0	52.51	PEAK	74	PASS
	Off	2390.0	-52.78	2.0	0	42.48	AV	54	PASS
	Off	2483.5	-41.95	2.0	0	53.30	PEAK	74	PASS
	Off	2483.5	-51.86	2.0	0	43.40	AV	54	PASS
	Off	2500.0	-42.99	2.0	0	52.27	PEAK	74	PASS
	Off	2500.0	-52.26	2.0	0	43.00	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.64	2.0	0	52.62	PEAK	74	PASS
	Off	2310.0	-53.45	2.0	0	41.81	AV	54	PASS
	Off	2390.0	-43.77	2.0	0	51.49	PEAK	74	PASS
	Off	2390.0	-52.83	2.0	0	42.43	AV	54	PASS
	Off	2483.5	-41.40	2.0	0	53.86	PEAK	74	PASS
	Off	2483.5	-51.84	2.0	0	43.42	AV	54	PASS
	Off	2500.0	-42.59	2.0	0	52.67	PEAK	74	PASS
	Off	2500.0	-52.34	2.0	0	42.92	AV	54	PASS
8DPSK	Off	2310.0	-43.01	2.0	0	52.25	PEAK	74	PASS
	Off	2310.0	-53.27	2.0	0	41.99	AV	54	PASS
	Off	2390.0	-42.94	2.0	0	52.31	PEAK	74	PASS
	Off	2390.0	-52.97	2.0	0	42.28	AV	54	PASS
	Off	2483.5	-41.65	2.0	0	53.60	PEAK	74	PASS
	Off	2483.5	-52.00	2.0	0	43.26	AV	54	PASS
	Off	2500.0	-42.90	2.0	0	52.36	PEAK	74	PASS
	Off	2500.0	-52.20	2.0	0	43.06	AV	54	PASS

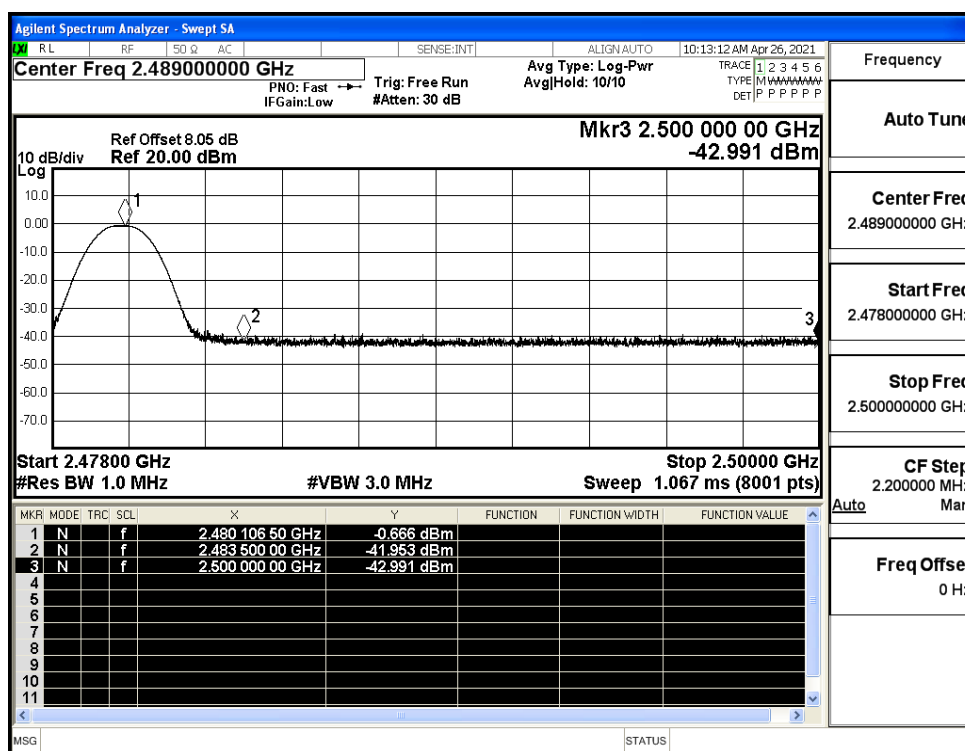
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



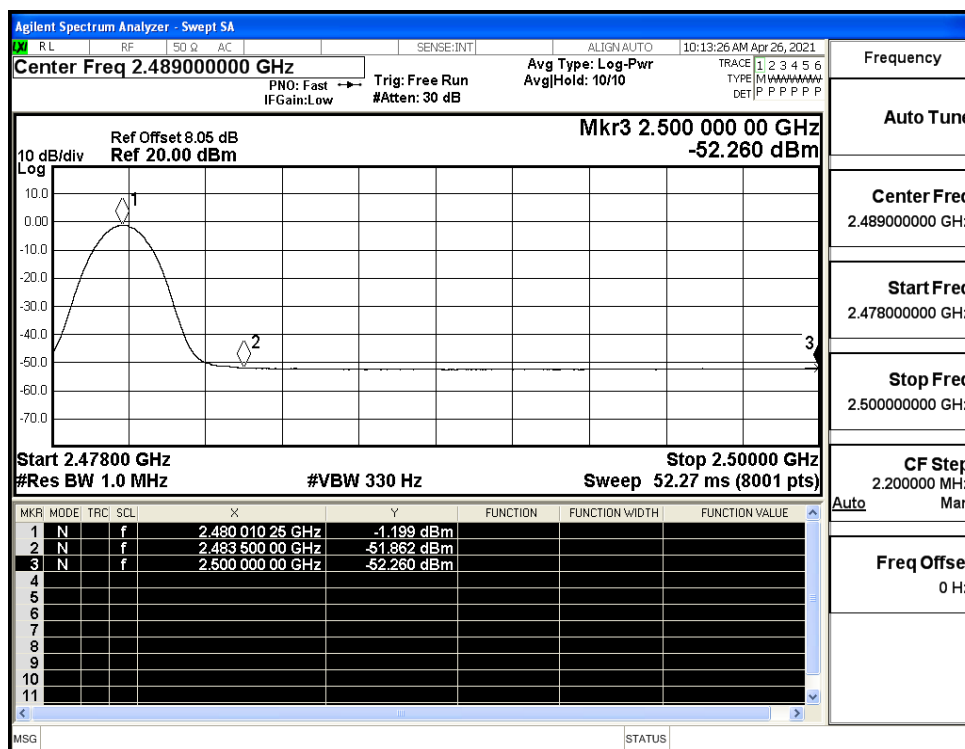
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

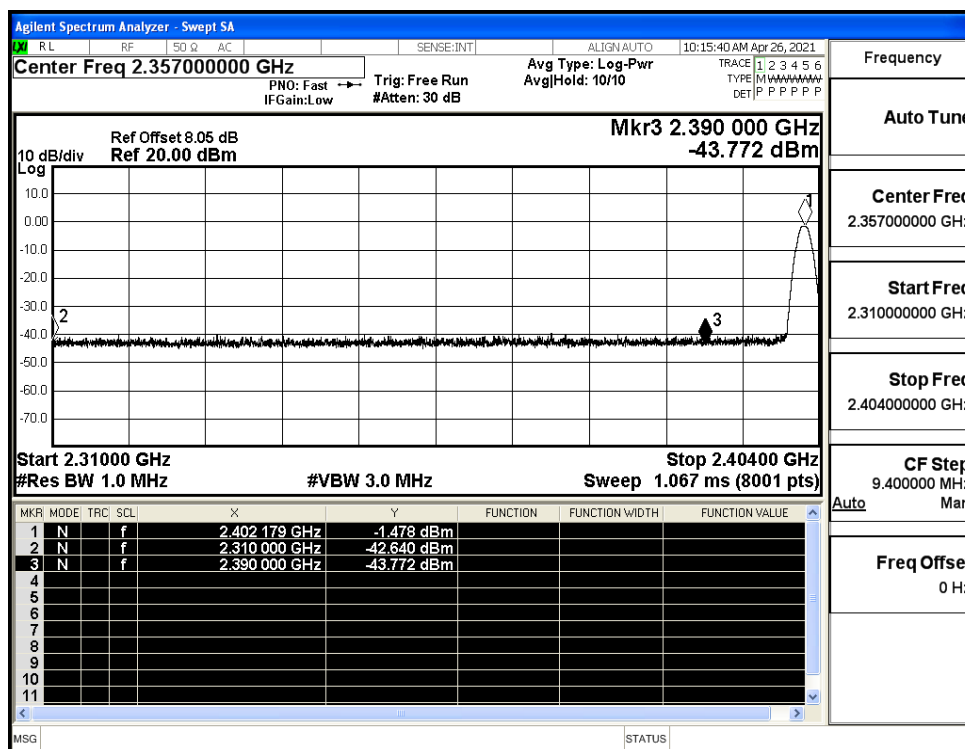
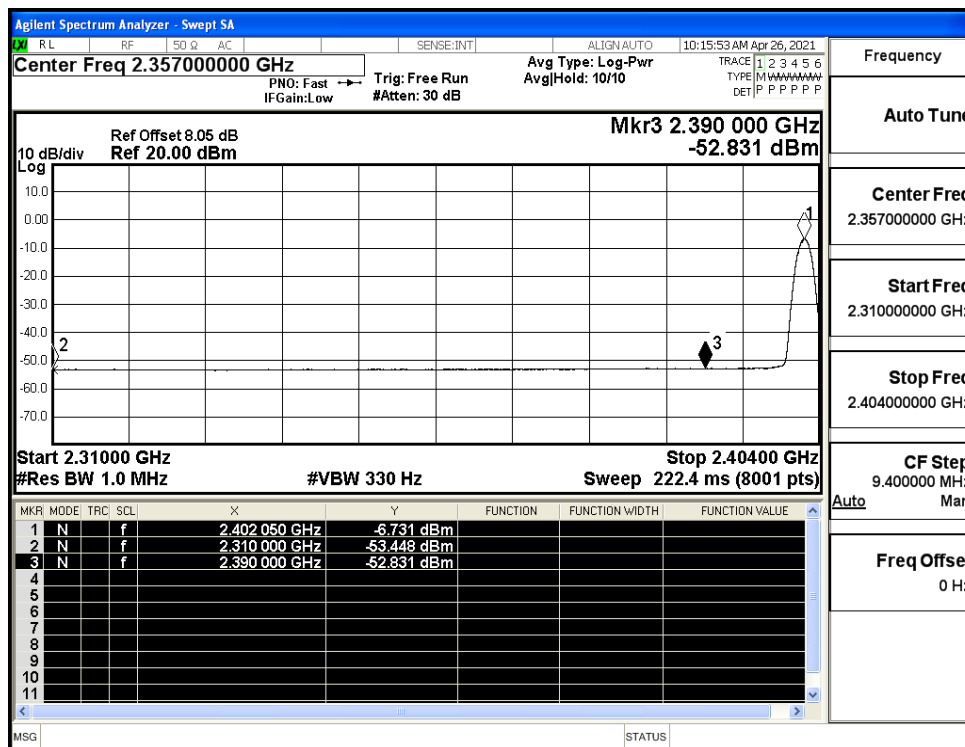


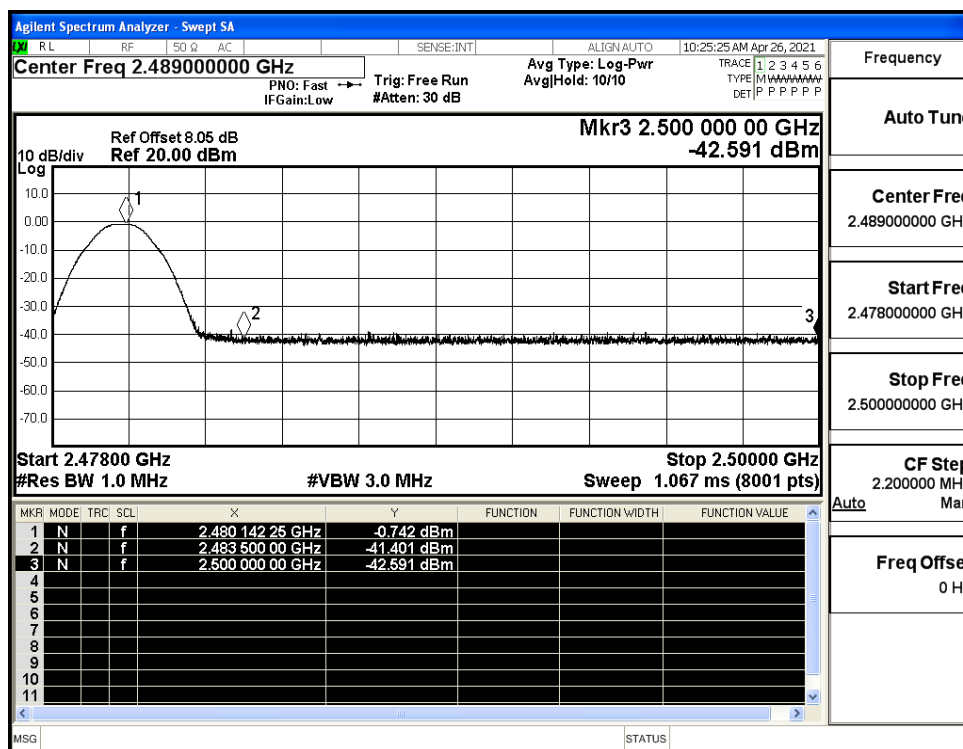
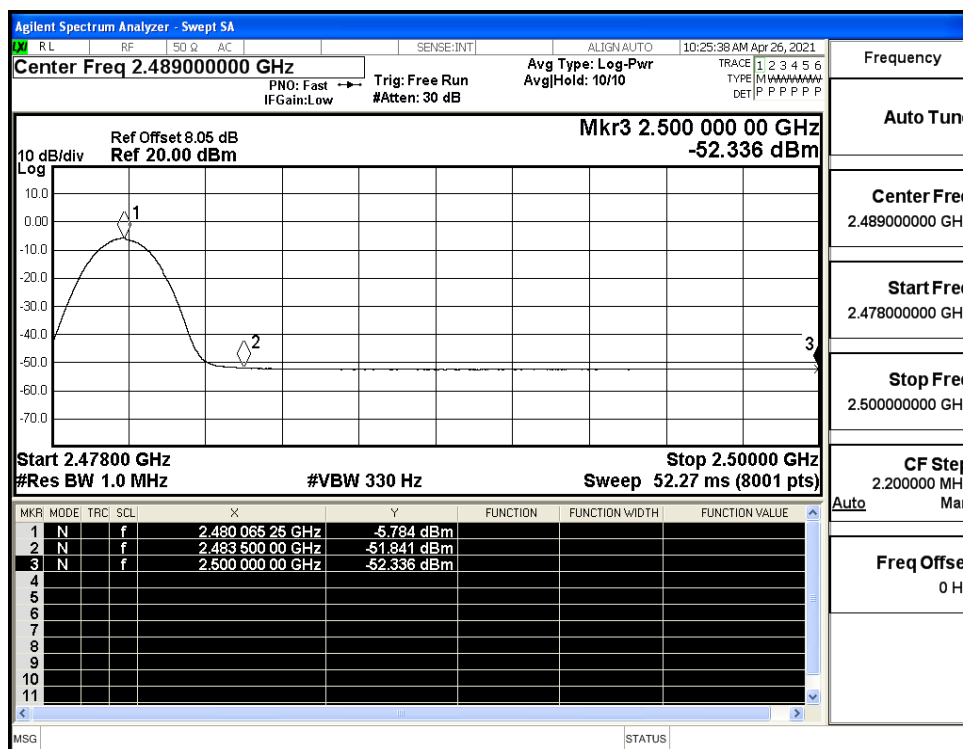
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



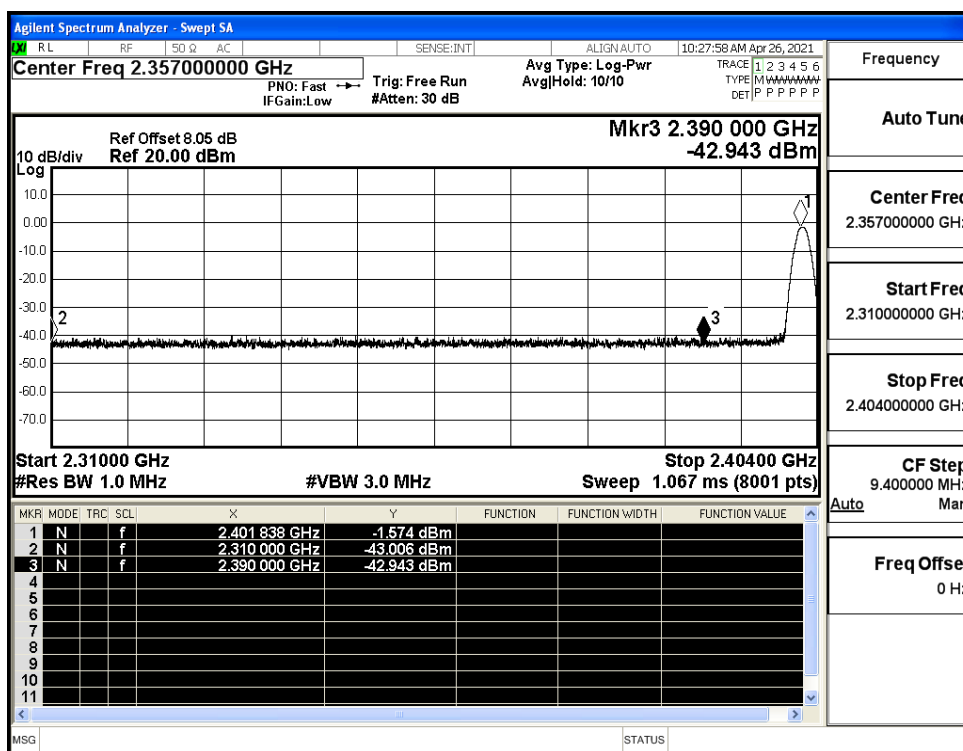
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



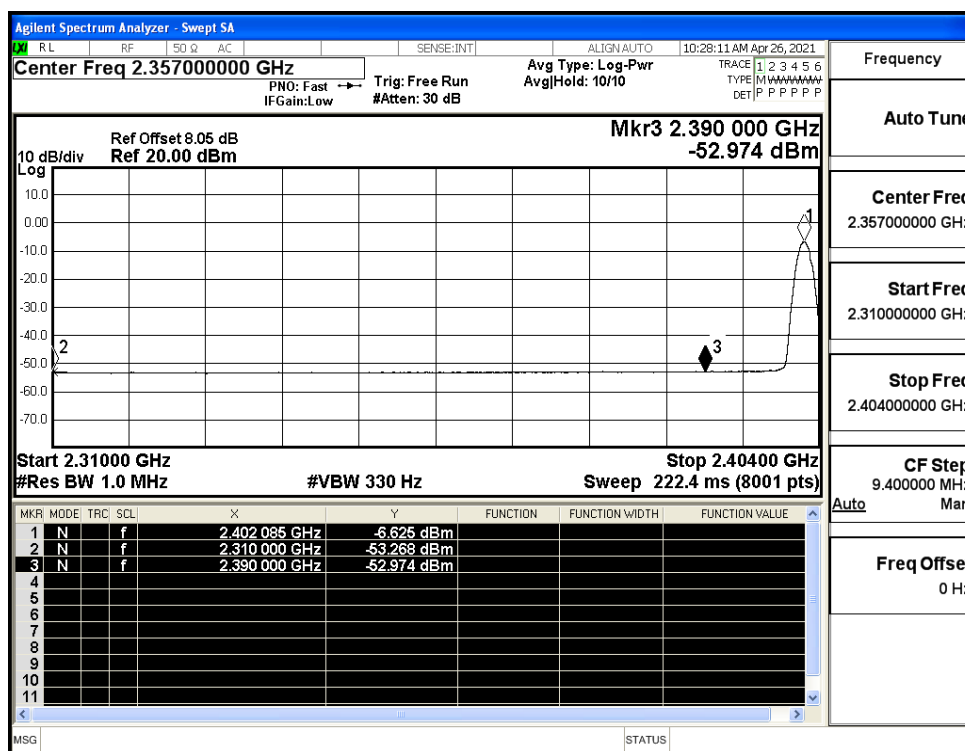
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

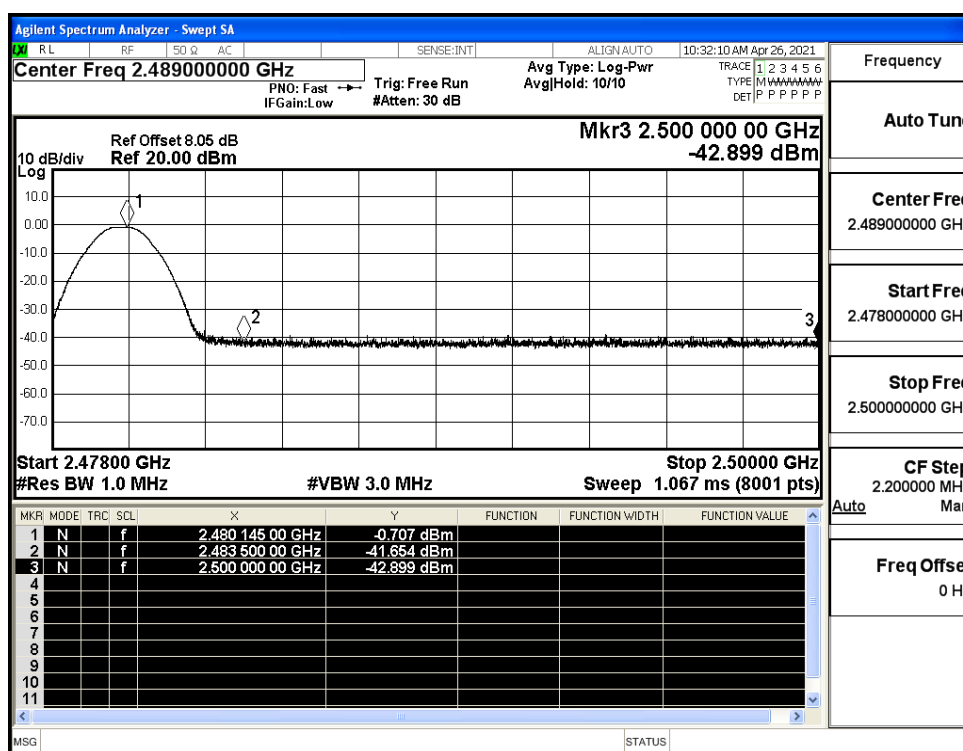
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

