

Appendix A

RF Test Data for BT V4.1(BDR/EDR) (Conducted Measurement)

Product Name: Home Karaoke Party Speaker

Trade Mark: gemini

Test Model: GPK-800

Environmental Conditions

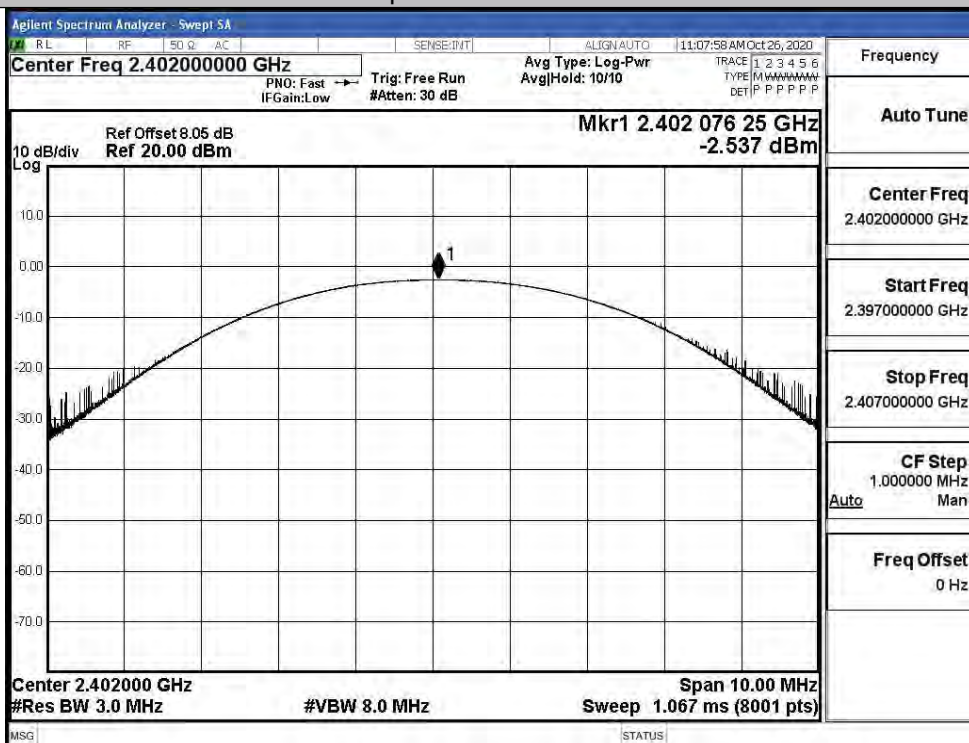
Temperature:	22.3° C
Relative Humidity:	53.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

A.1 Maxmum Conducted Peak Output Power

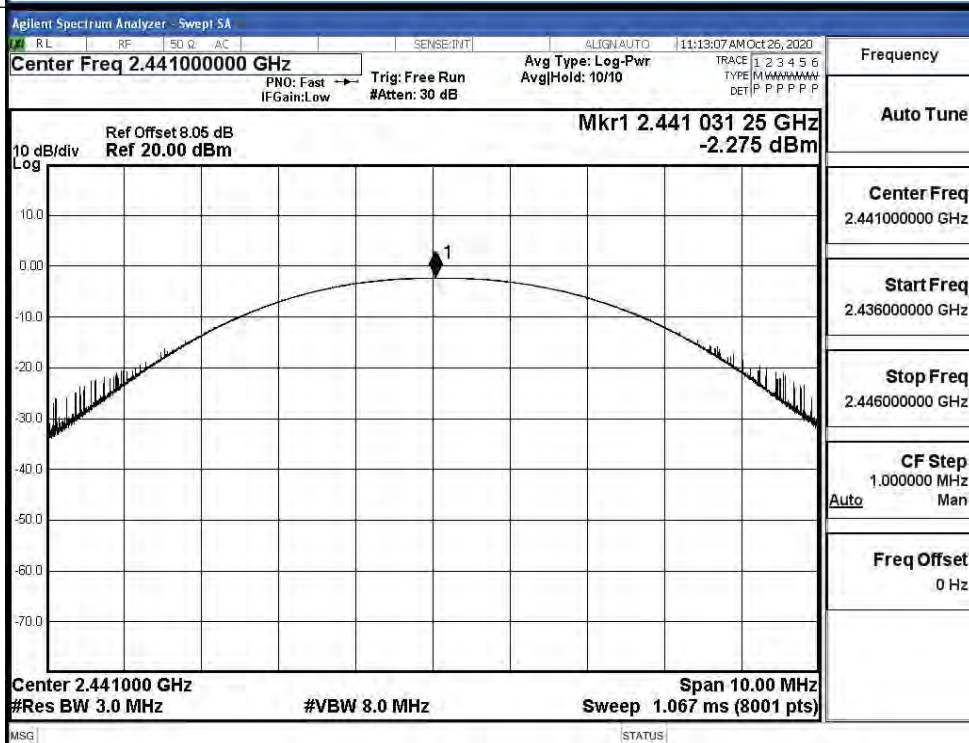
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.537	21	PASS
	MCH	-2.275	21	PASS
	HCH	-2.126	21	PASS
$\pi/4$ DQPSK	LCH	-0.640	21	PASS
	MCH	-1.403	21	PASS
	HCH	-1.305	21	PASS
8DPSK	LCH	-1.202	21	PASS
	MCH	-1.055	21	PASS
	HCH	-0.951	21	PASS

Test Graphs

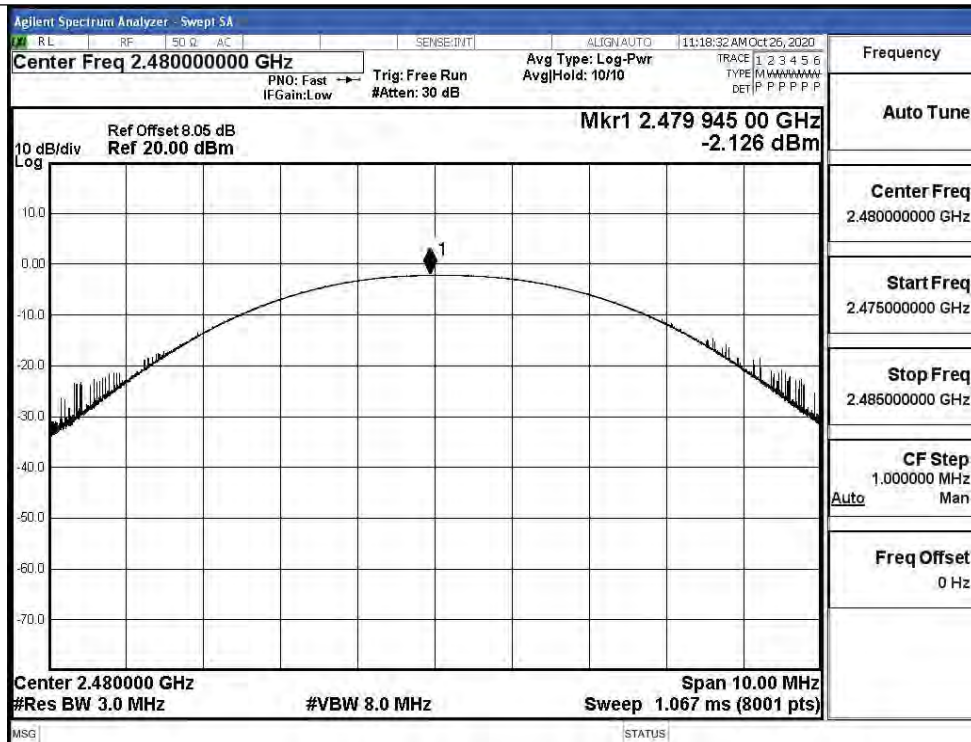
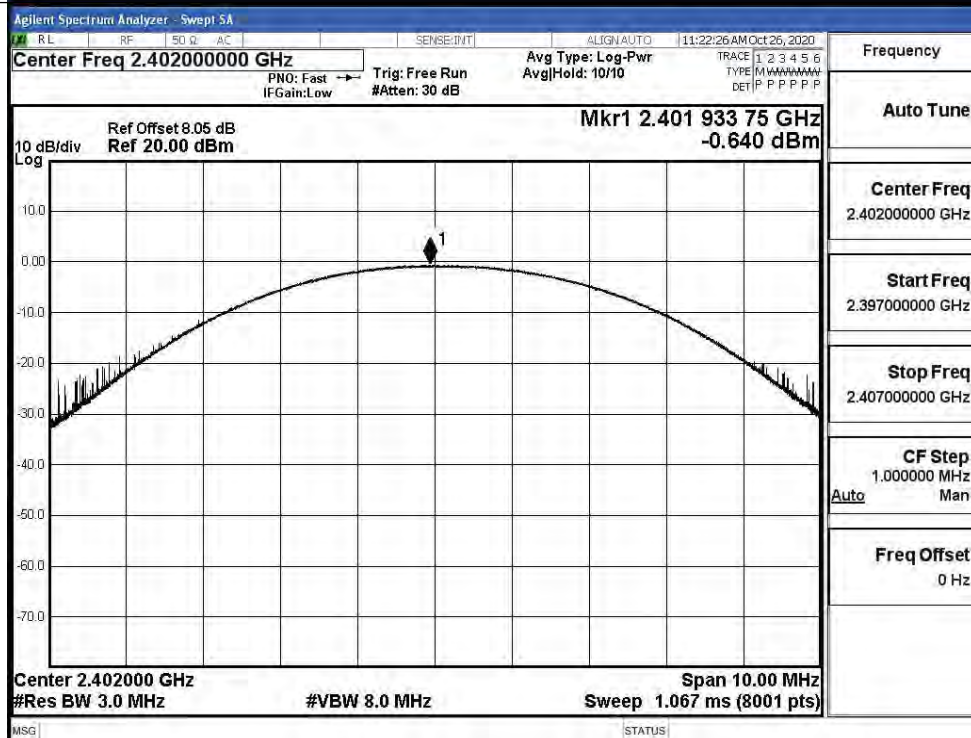
GFSK/LCH

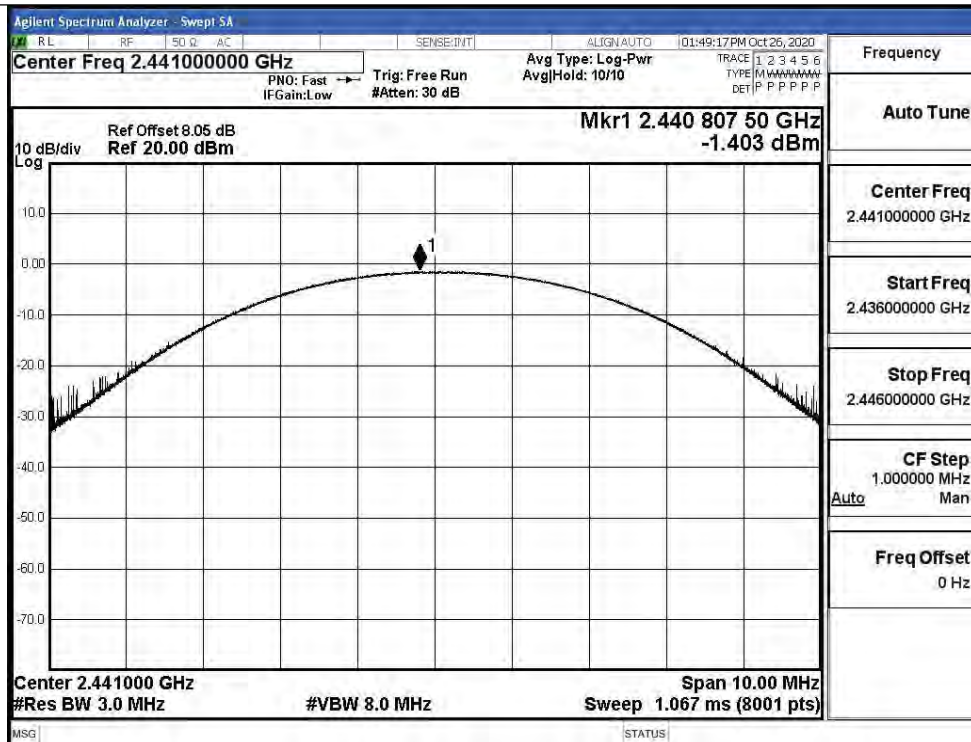
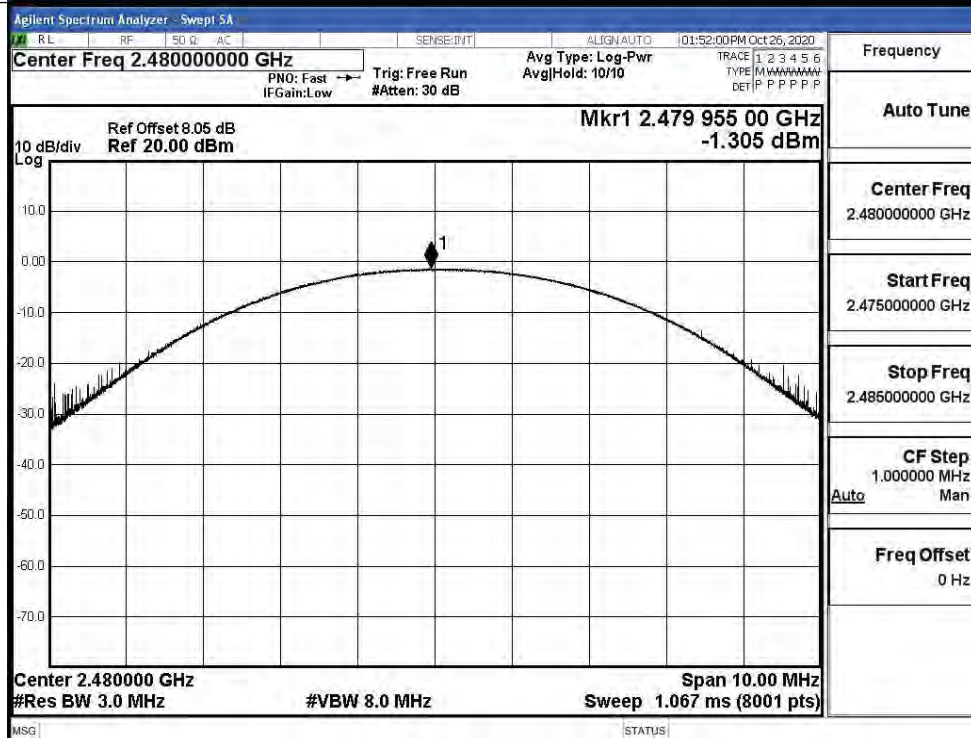


GFSK/MCH

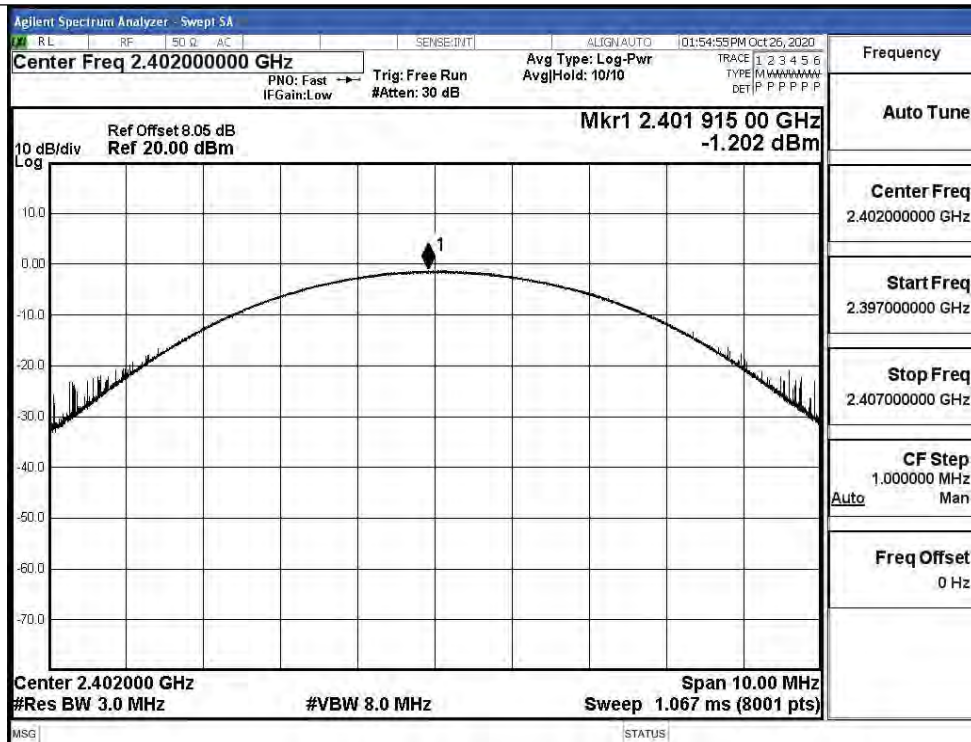


GFSK/HCH

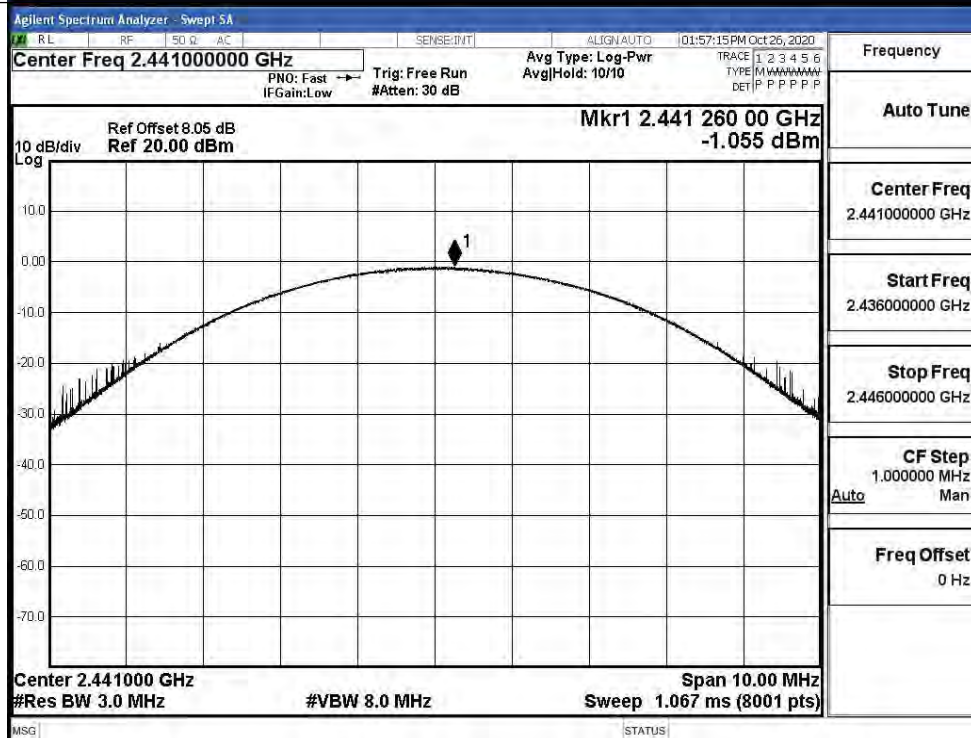
 π /4DQPSK/LCH

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

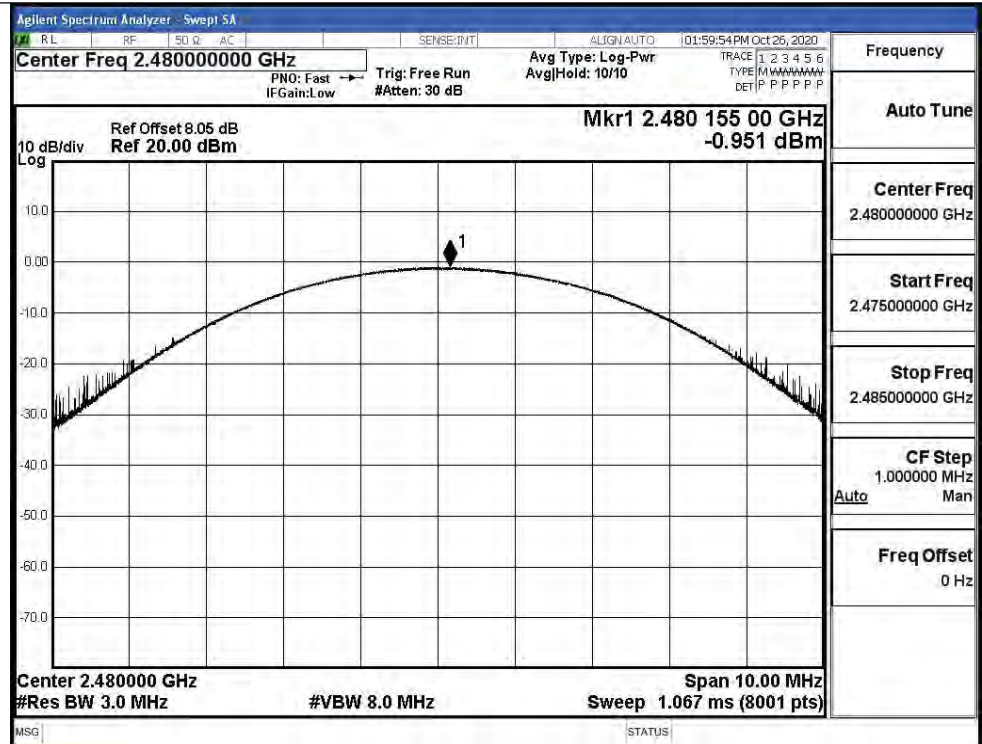
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

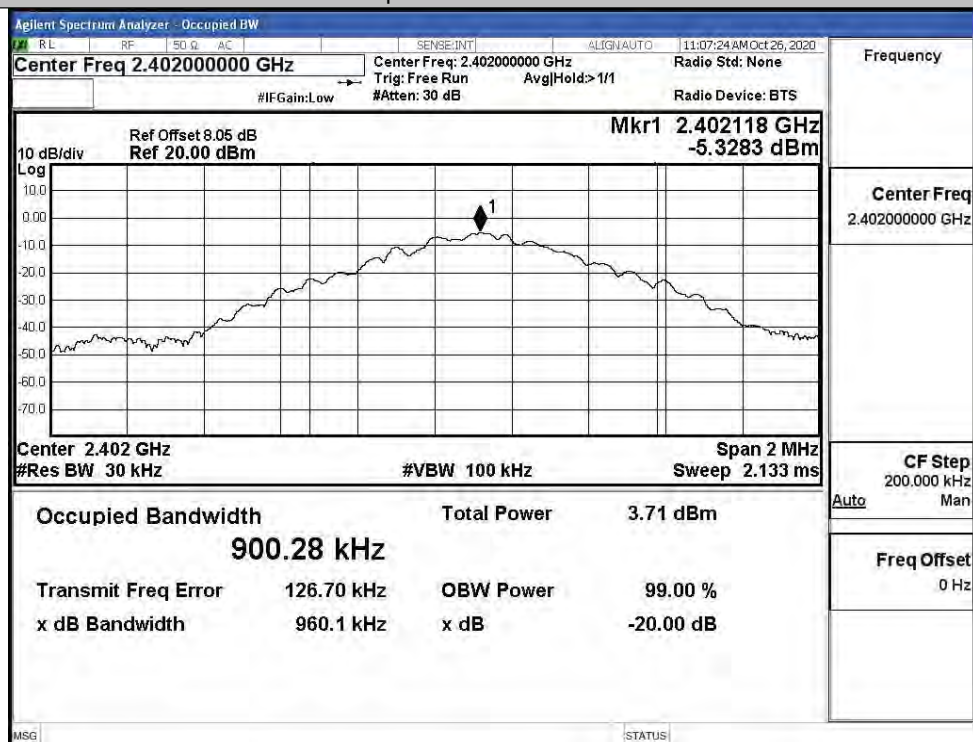


A.2 20dB Bandwidth

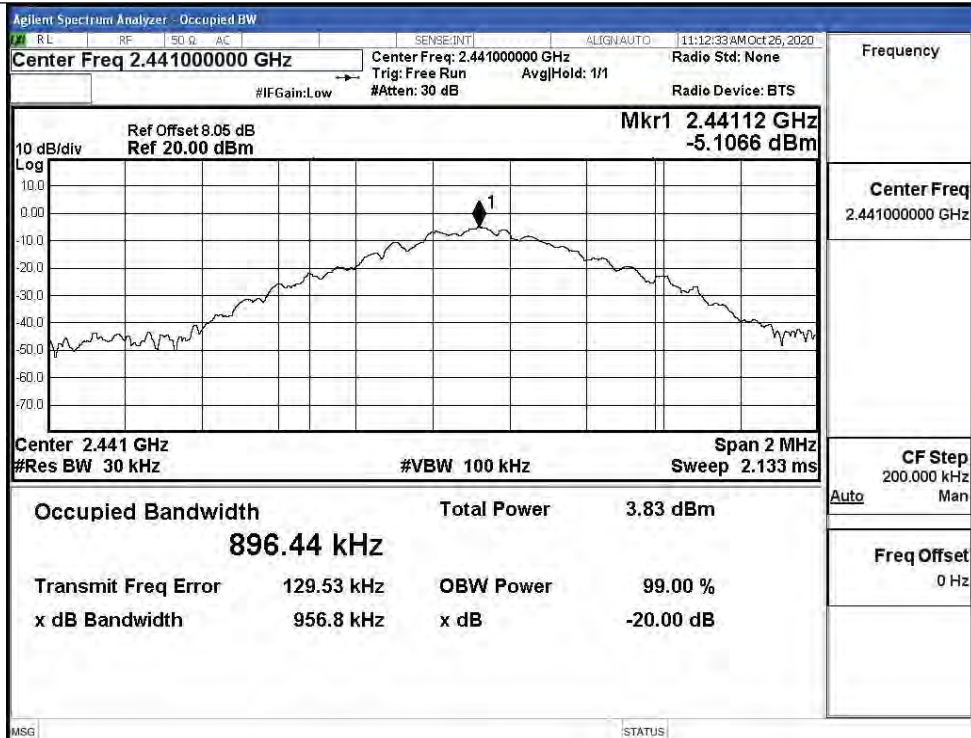
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.9601	Not Specified	PASS
	MCH	0.9568	Not Specified	PASS
	HCH	0.9583	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.361	Not Specified	PASS
	MCH	1.364	Not Specified	PASS
	HCH	1.362	Not Specified	PASS
8DPSK	LCH	1.347	Not Specified	PASS
	MCH	1.345	Not Specified	PASS
	HCH	1.346	Not Specified	PASS

Test Graphs

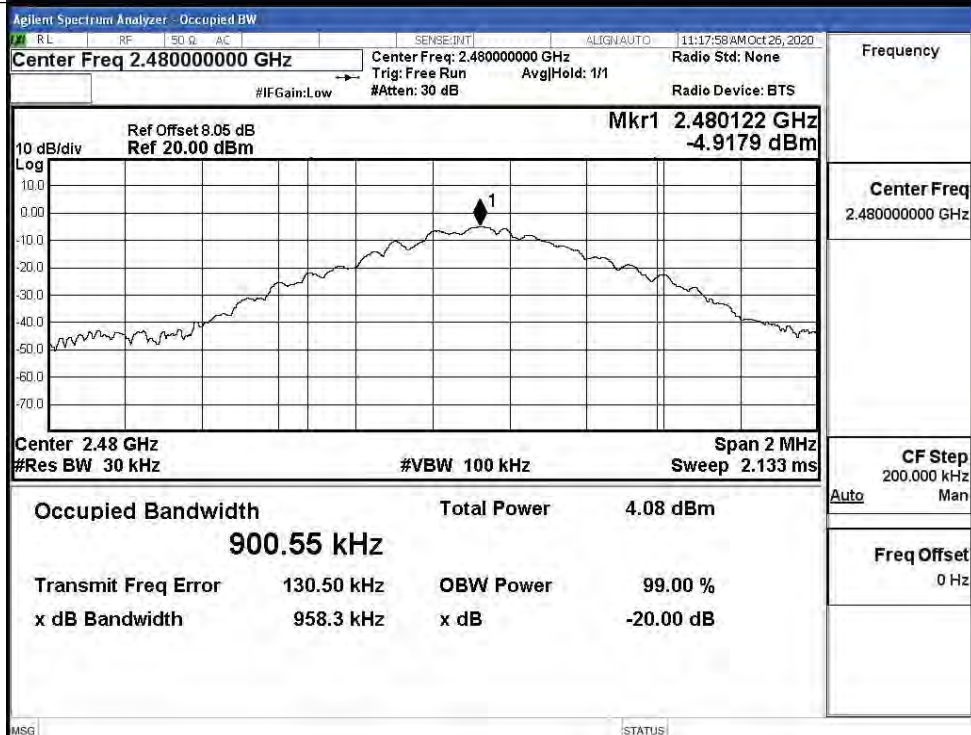
GFSK/LCH

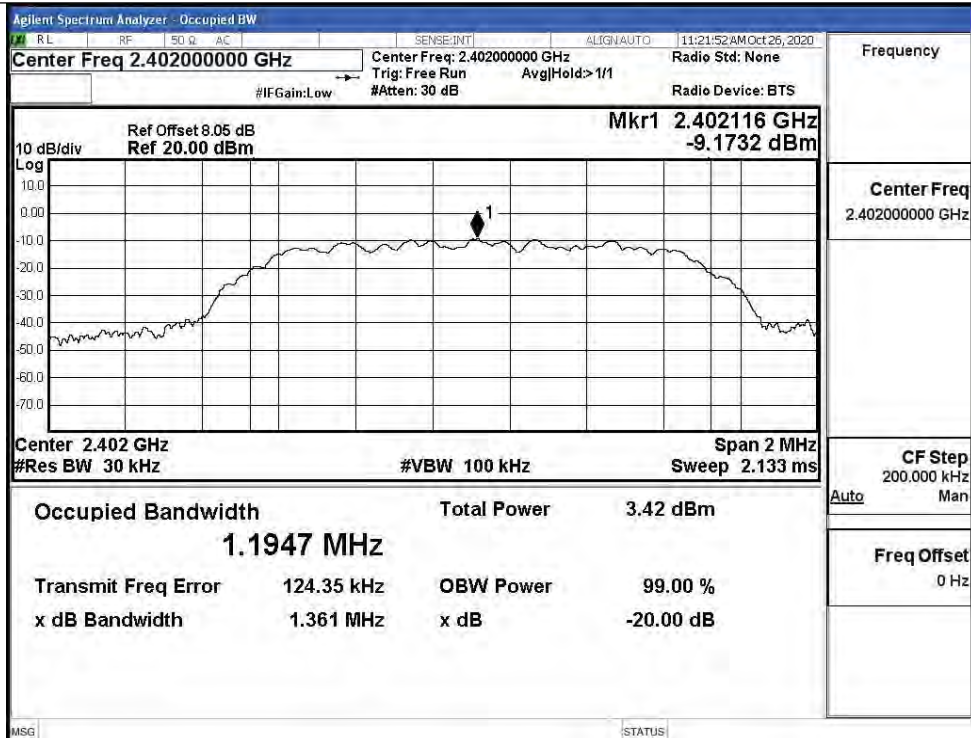
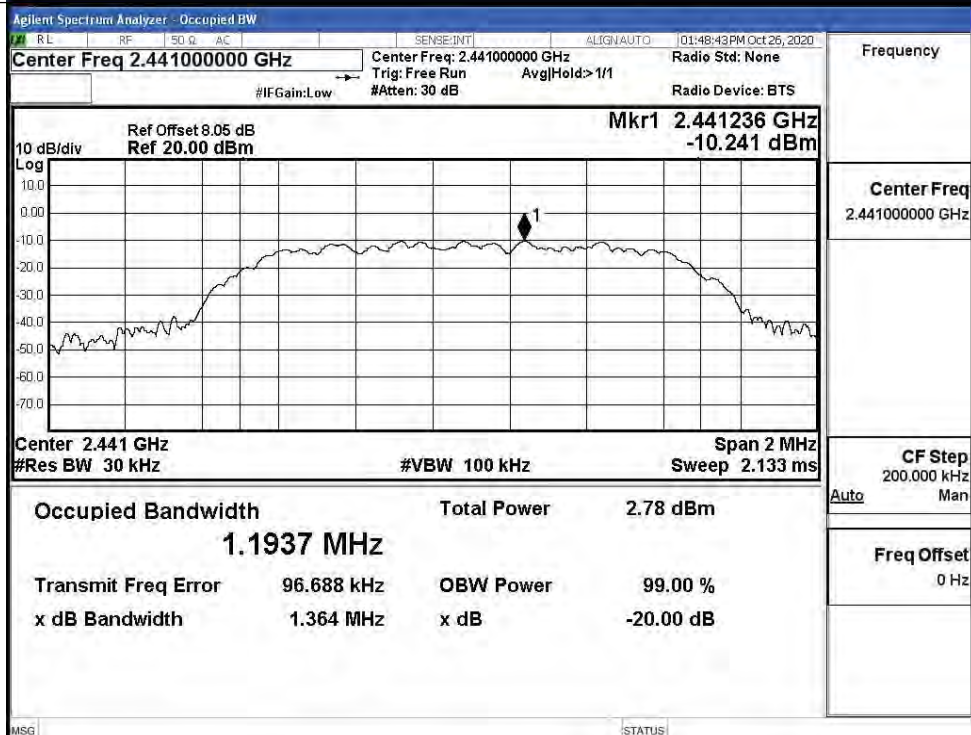


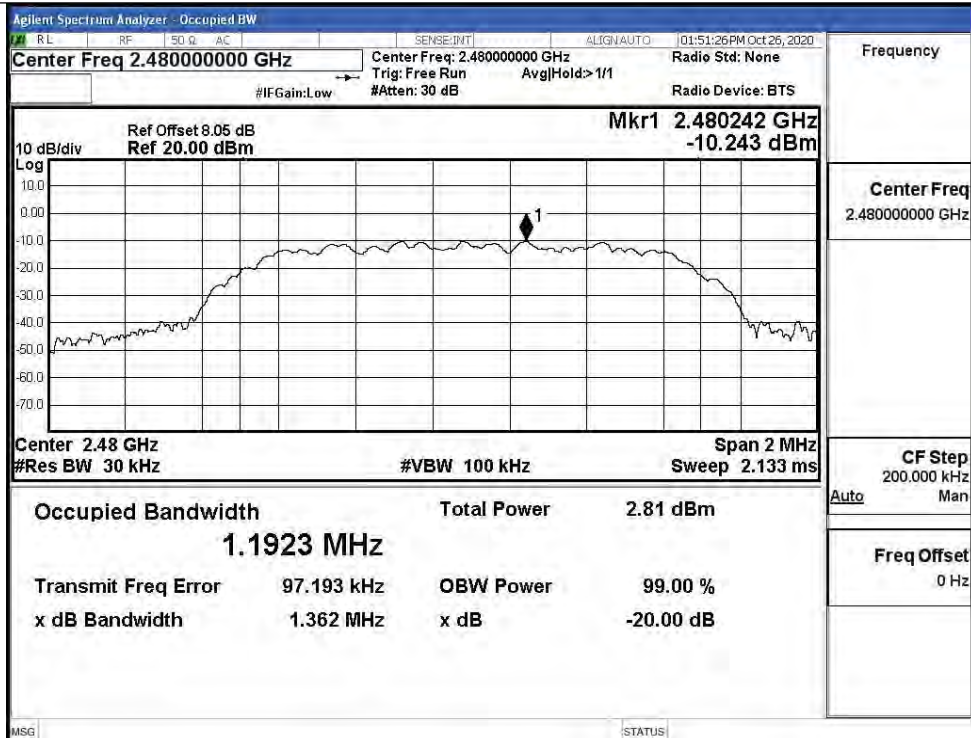
GFSK/MCH



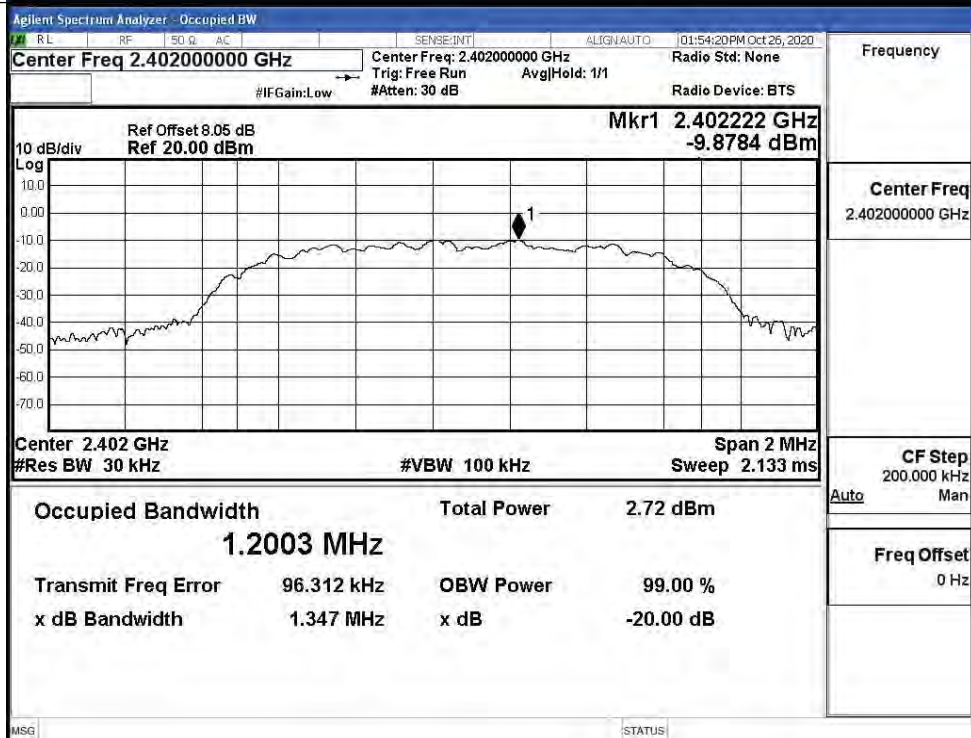
GFSK/HCH



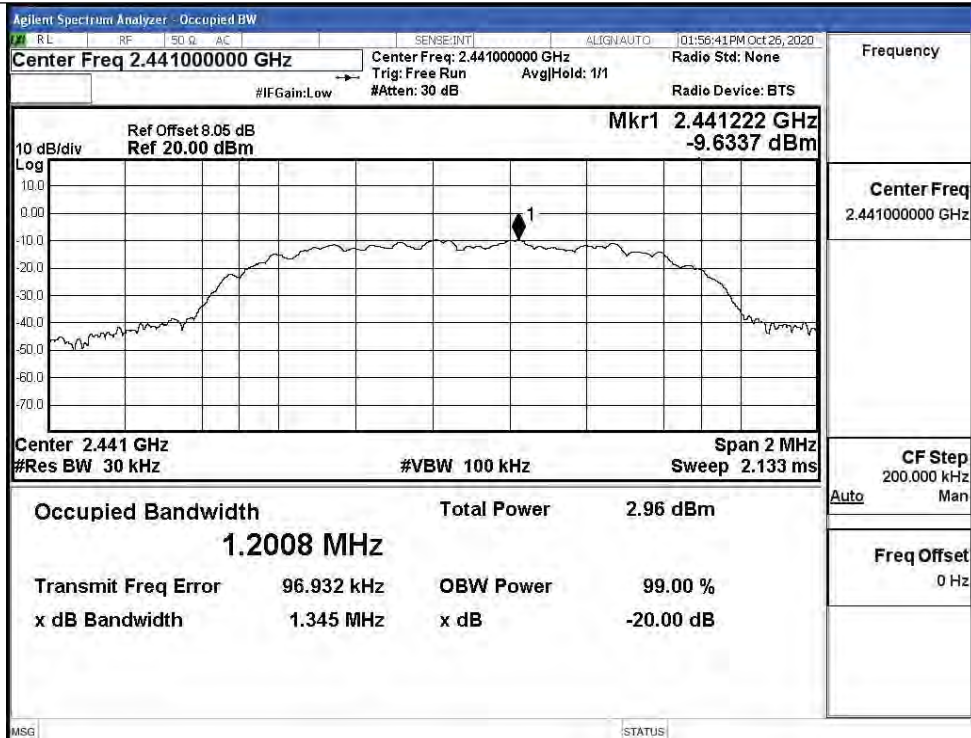
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

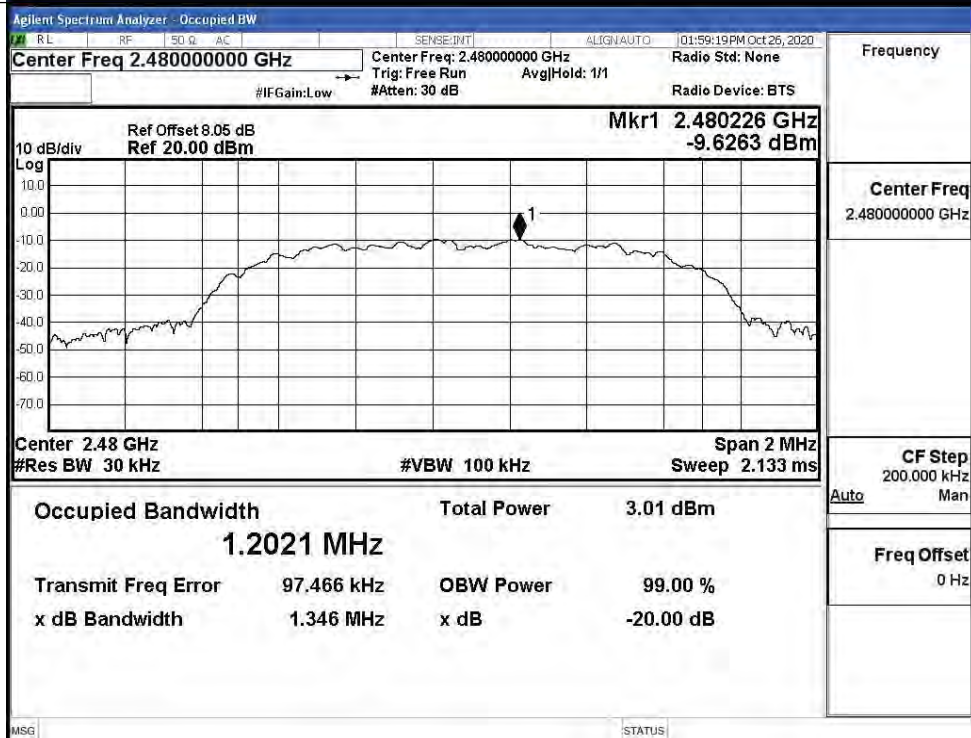
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

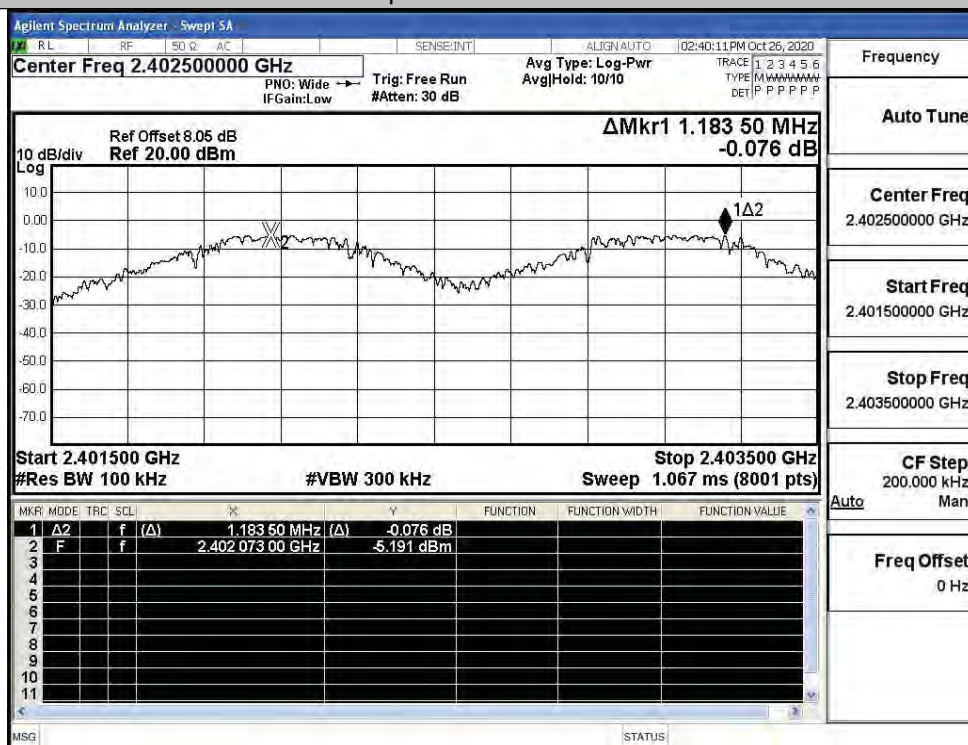


A.3 Carrier Frequency Separation

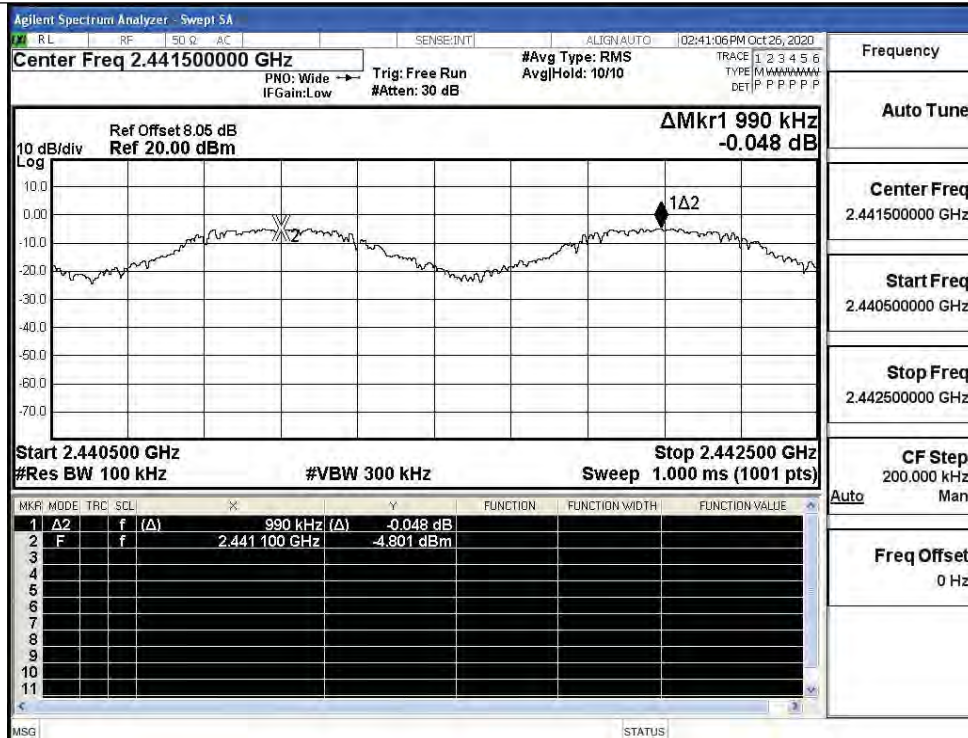
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.184	0.640	PASS
	MCH	0.990	0.638	PASS
	HCH	0.994	0.639	PASS
π /4DQPSK	LCH	1.010	0.907	PASS
	MCH	1.196	0.909	PASS
	HCH	1.028	0.908	PASS
8DPSK	LCH	1.116	0.898	PASS
	MCH	0.988	0.897	PASS
	HCH	1.012	0.897	PASS

Test Graphs

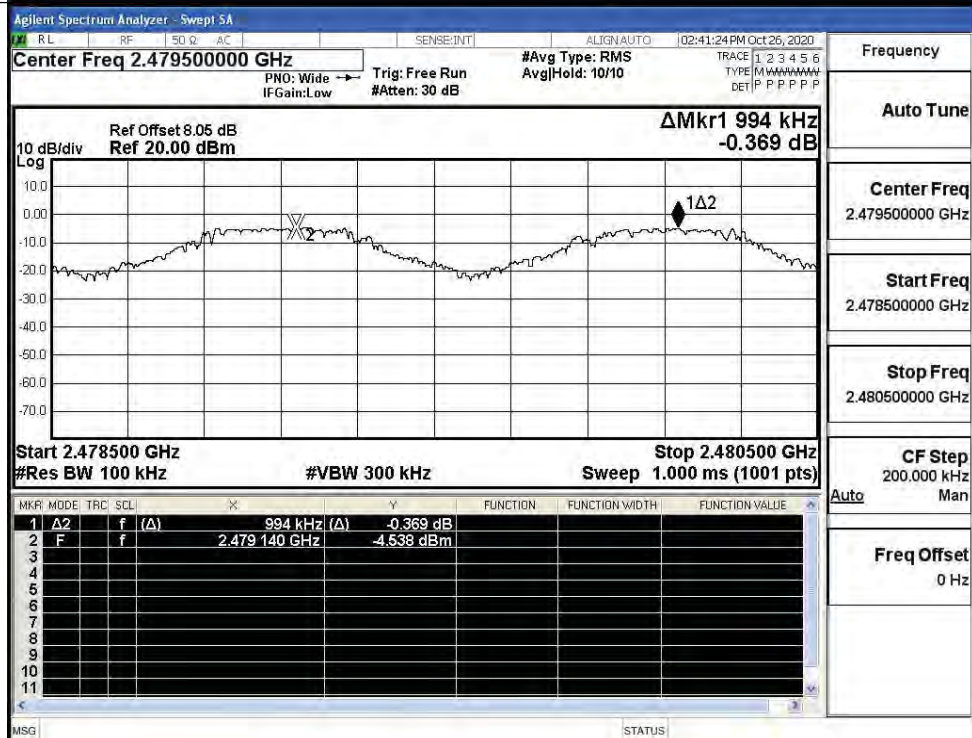
GFSK/LCH

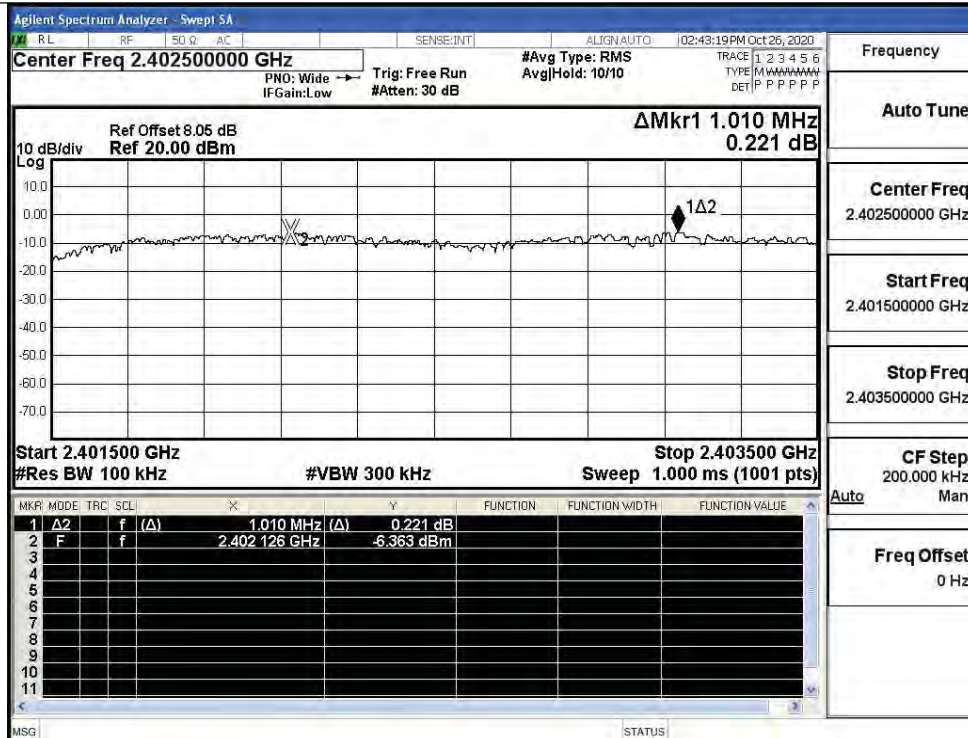
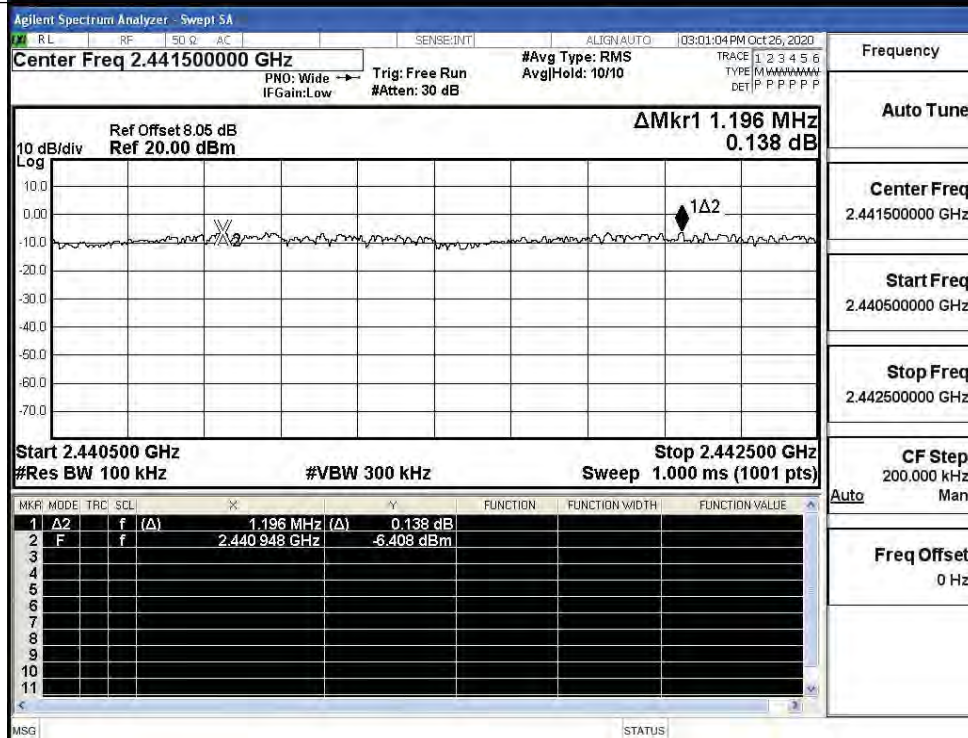


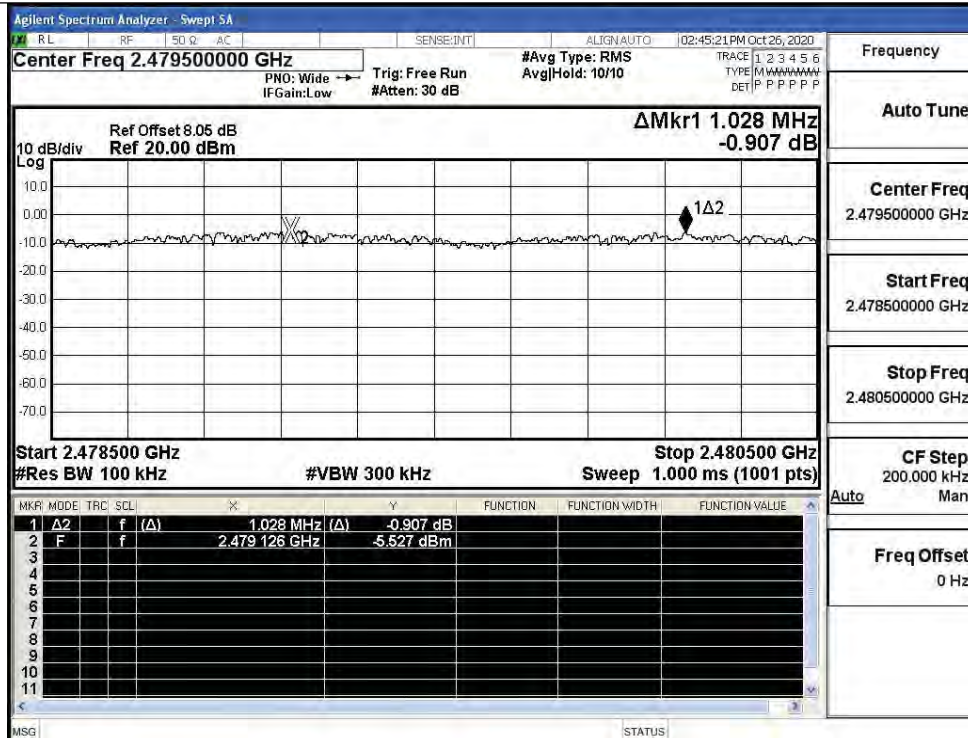
GFSK/MCH



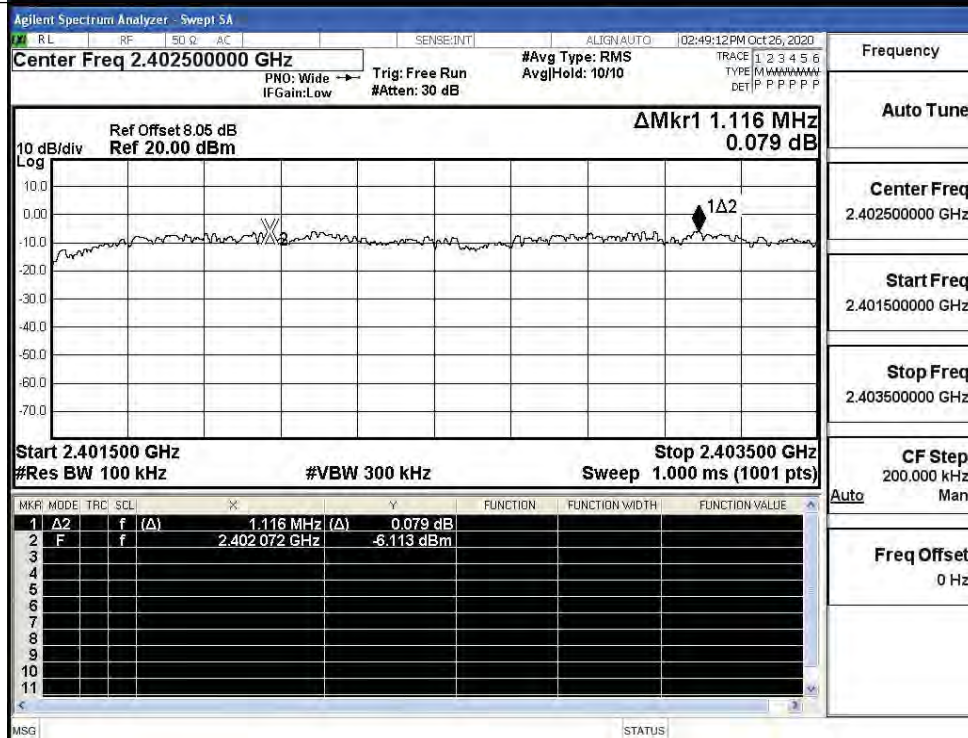
GFSK/HCH



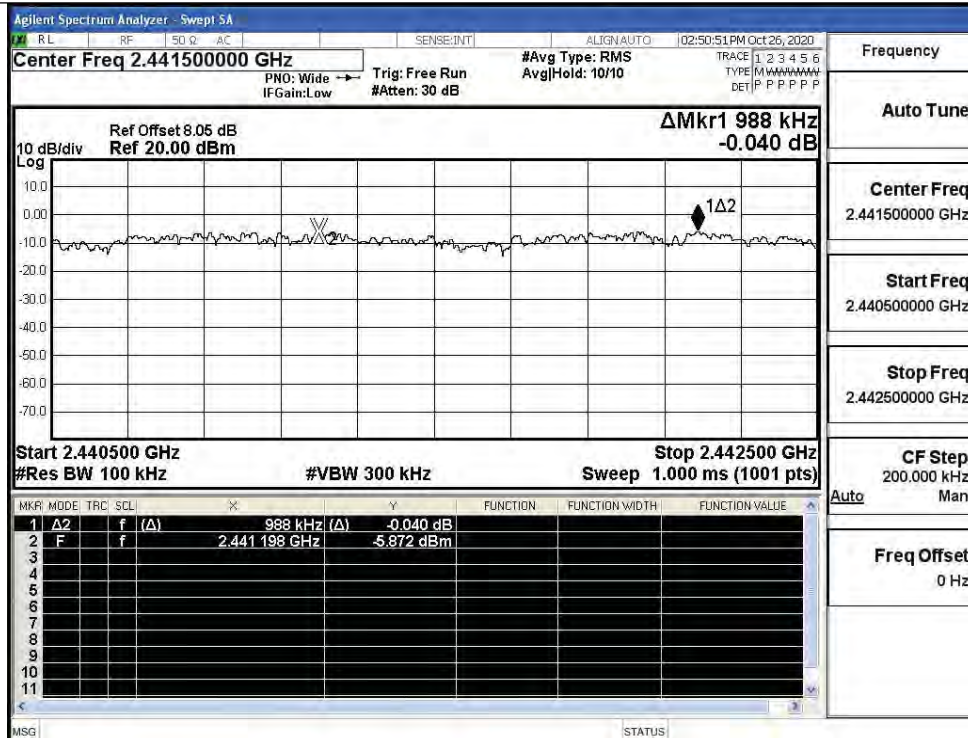
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

π /4DQPSK/HCH

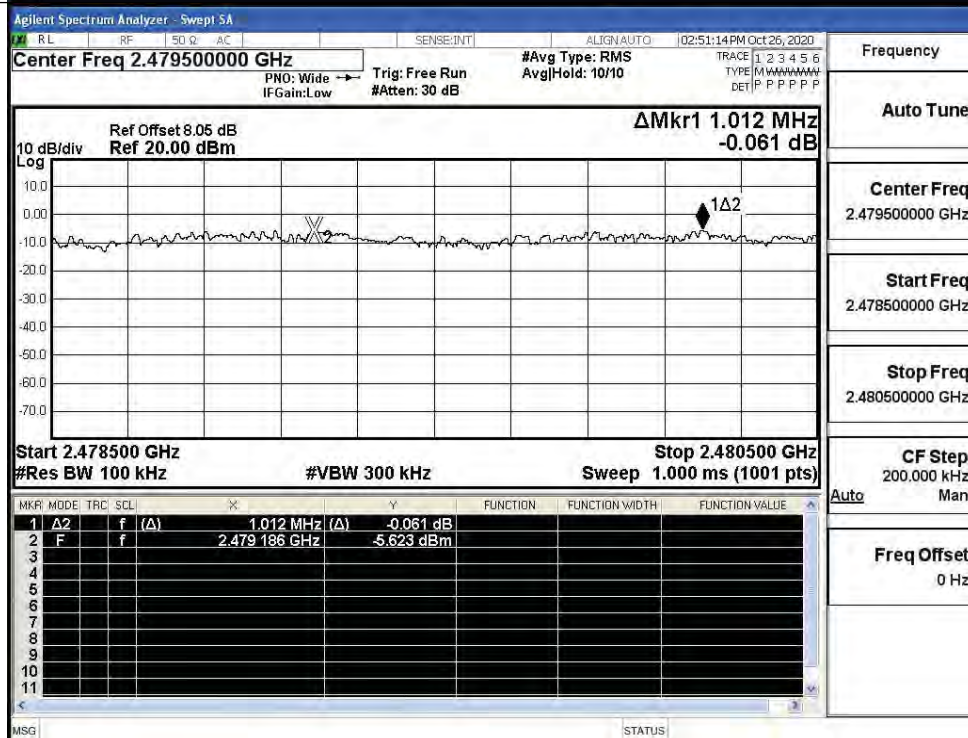
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

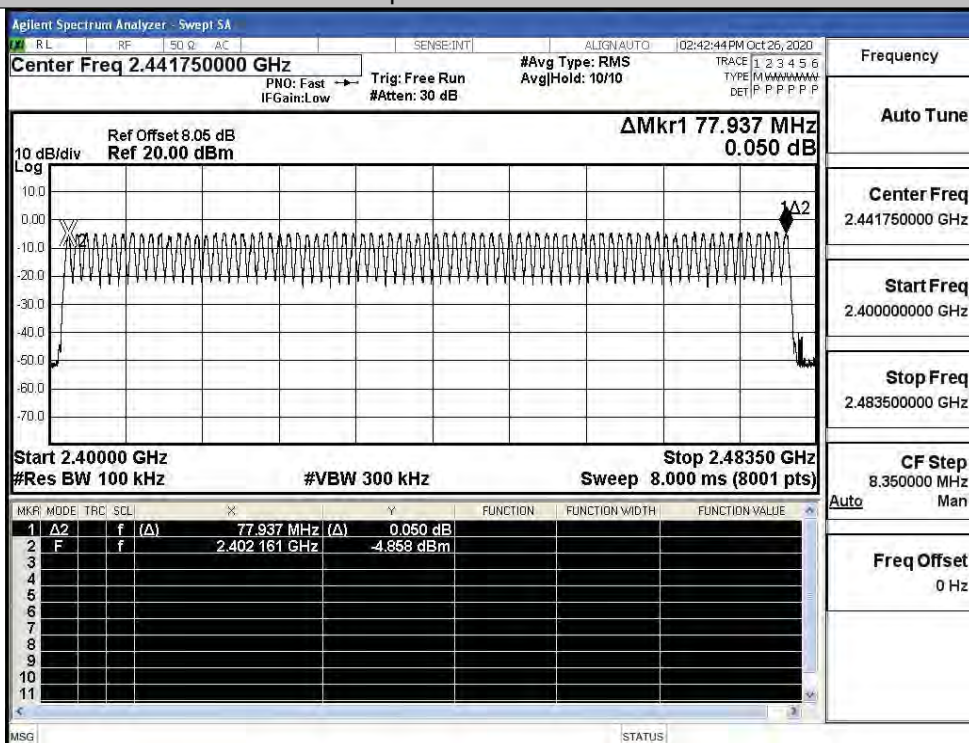
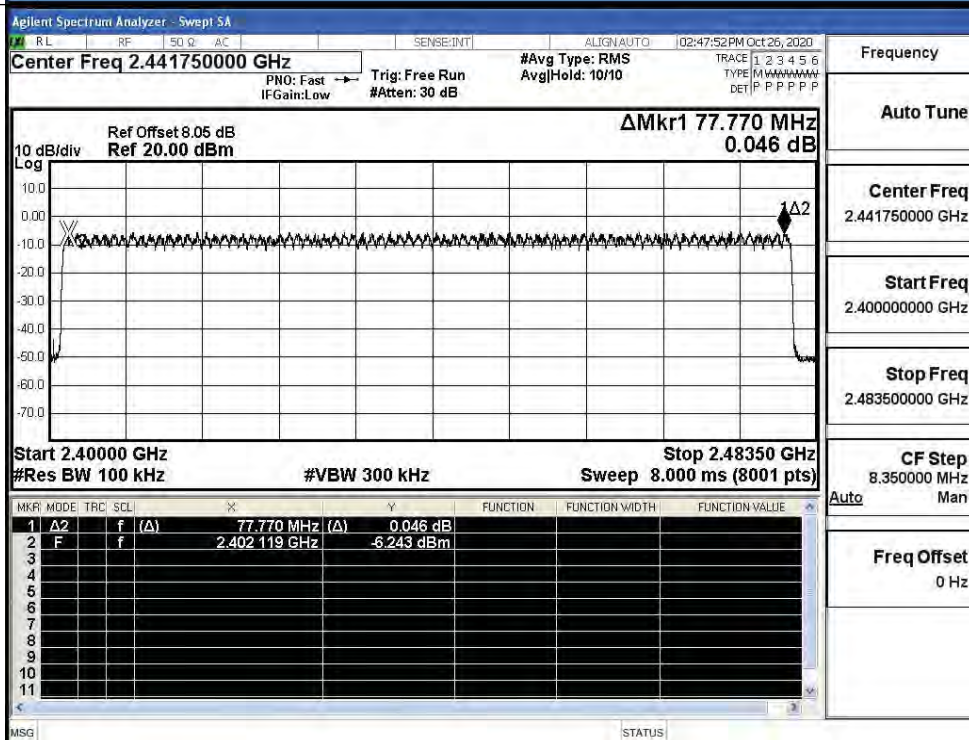


A.4 Hopping Channel Number

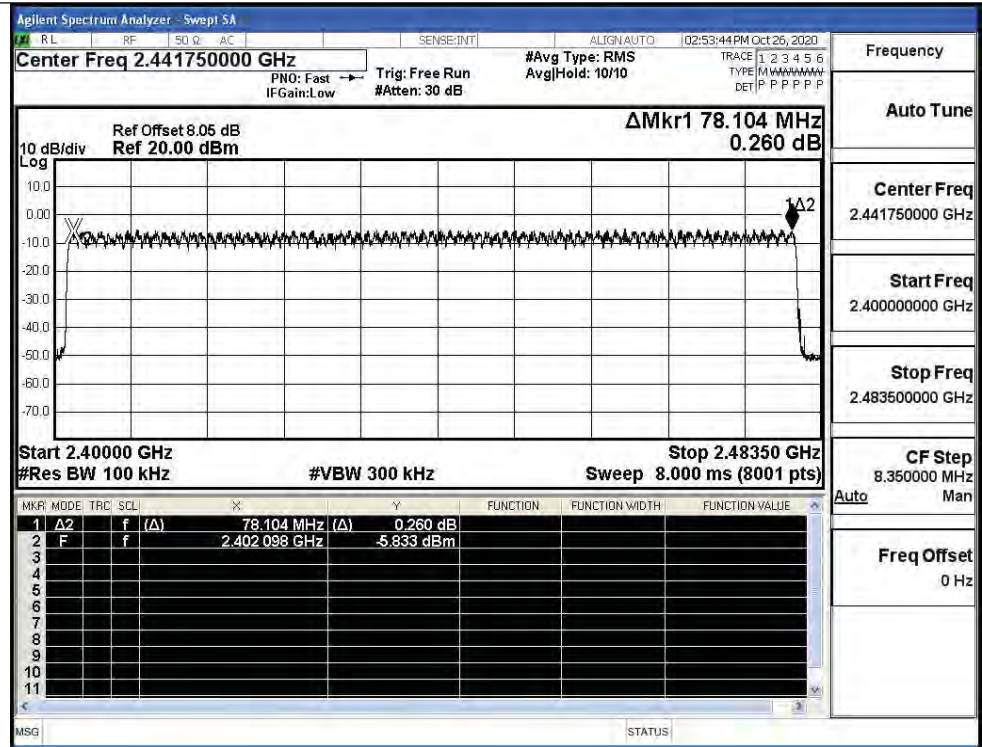
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS
8DPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

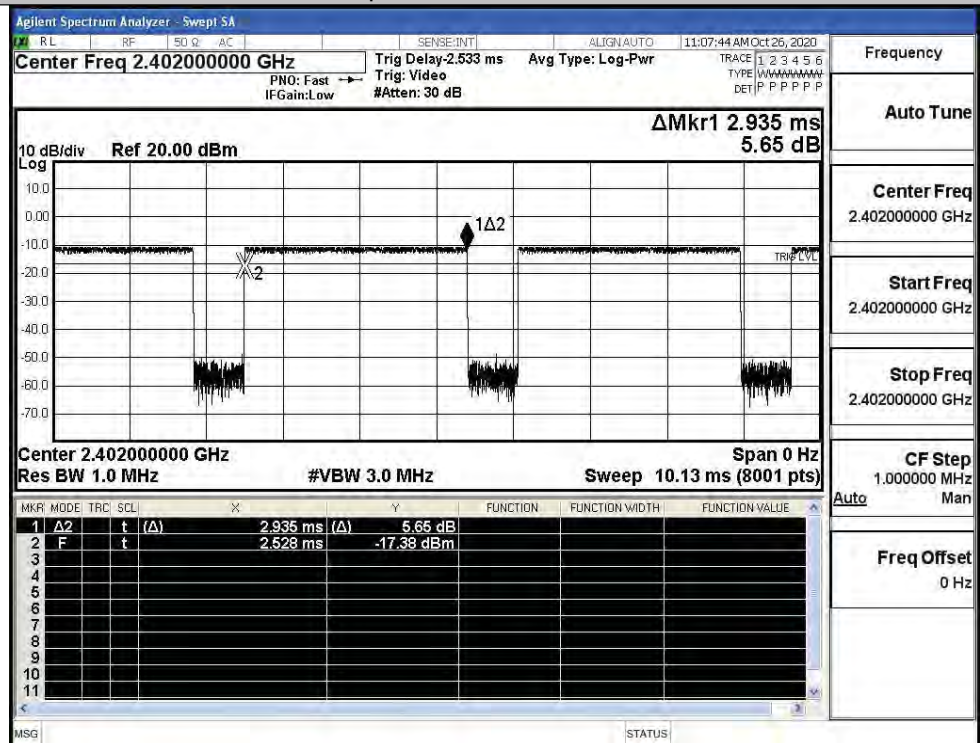


A.5 Dwell Time

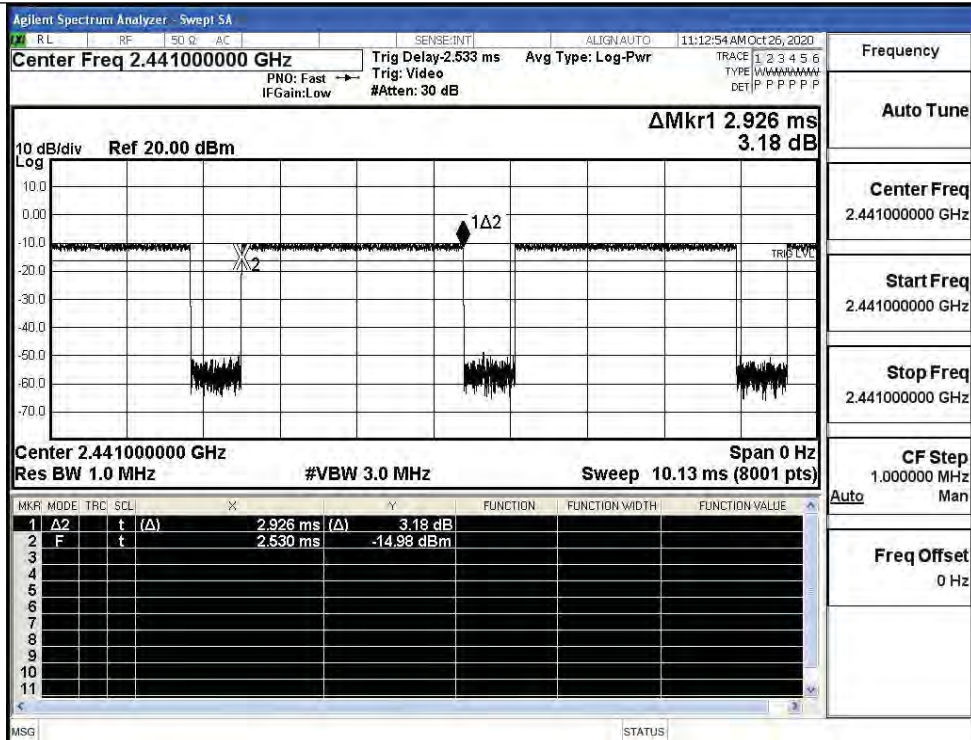
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.93	106.7	0.313	0.4	PASS
	DH5	MCH	2.93	106.7	0.313	0.4	PASS
	DH5	HCH	2.92	106.7	0.312	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.93	106.7	0.313	0.4	PASS
	2DH5	MCH	2.93	106.7	0.312	0.4	PASS
	2DH5	HCH	2.92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

Test Graphs

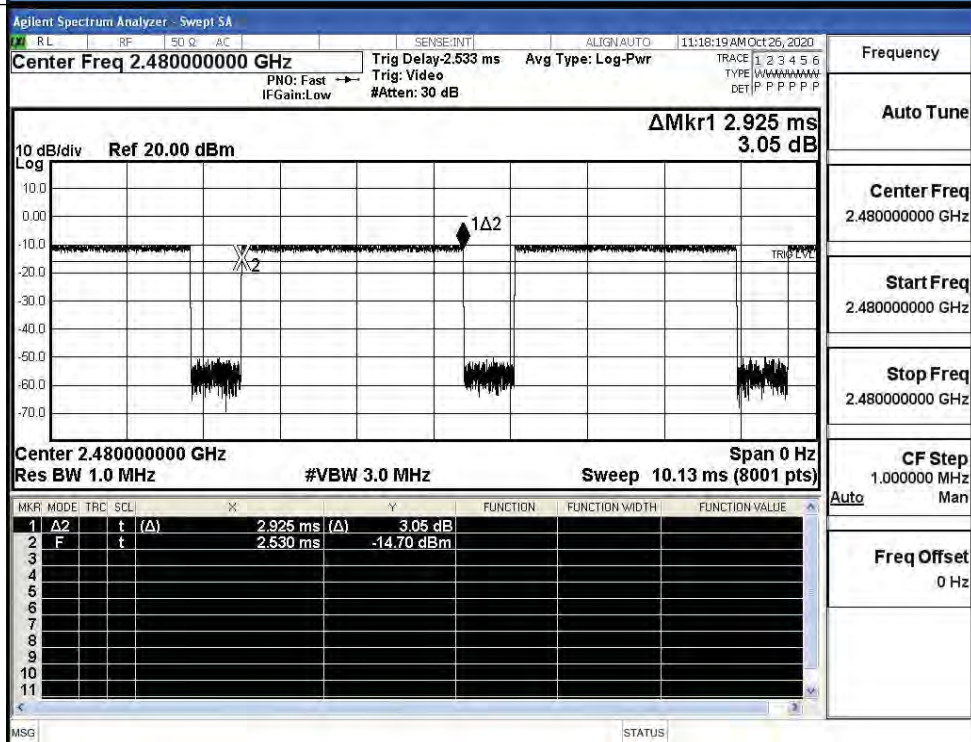
GFSK_DH5/LCH



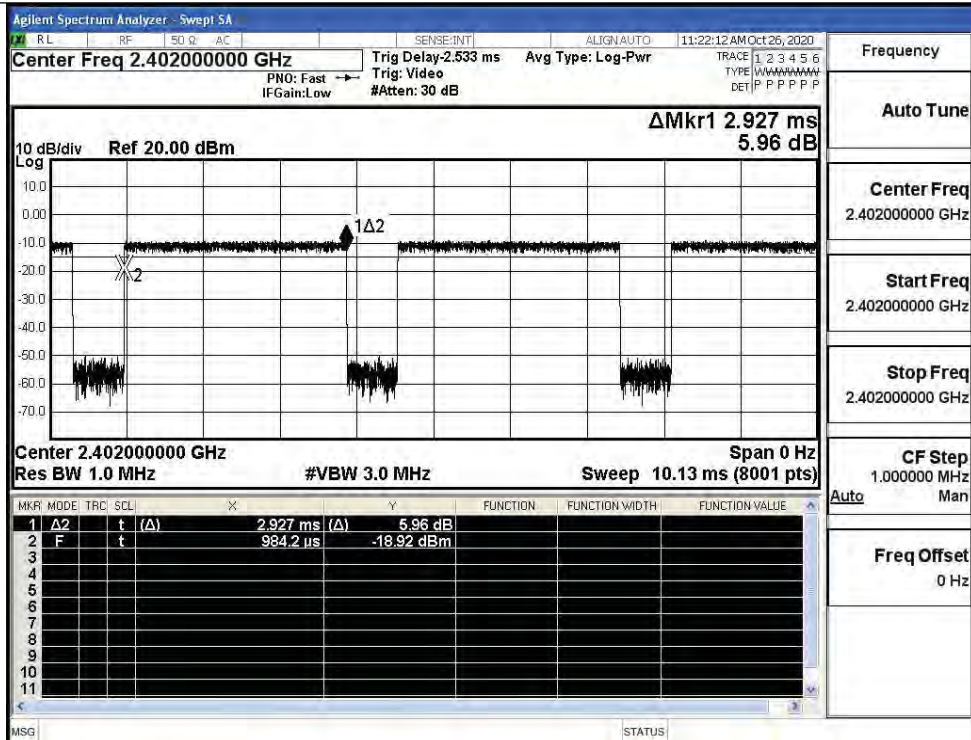
GFSK_DH5/MCH



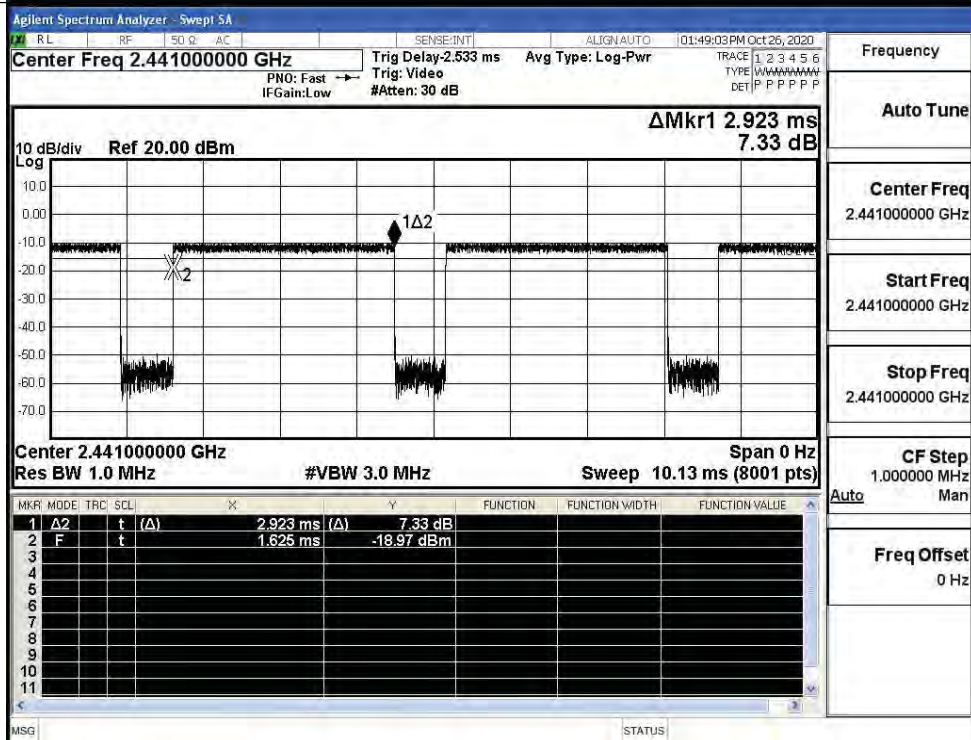
GFSK_DH5/HCH



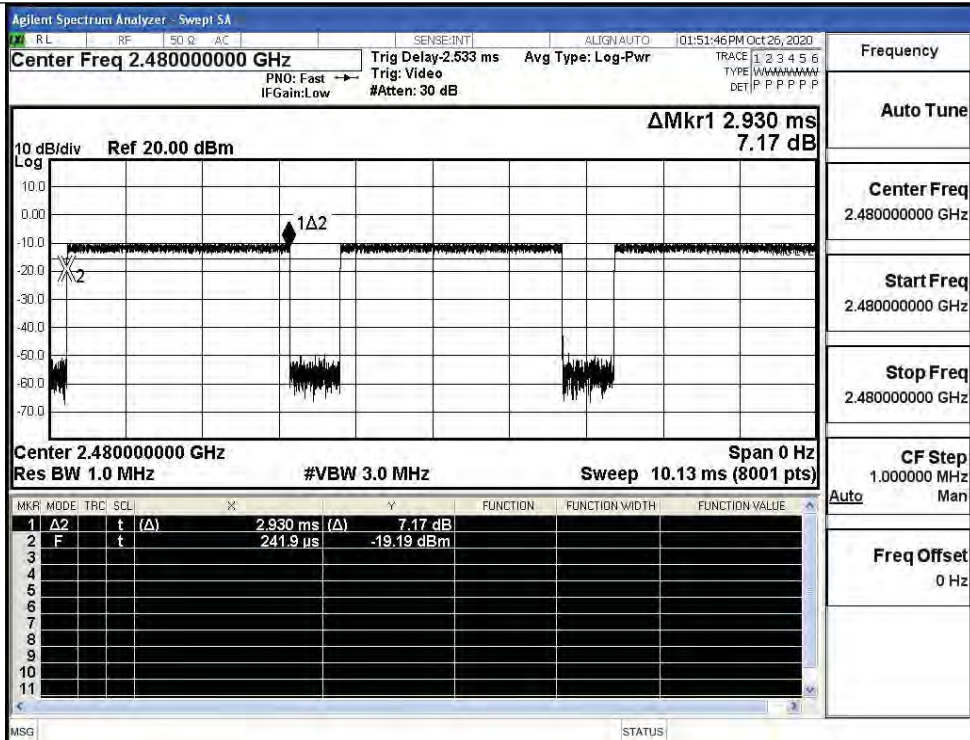
$\pi/4$ DQPSK
_2DH5/LCH



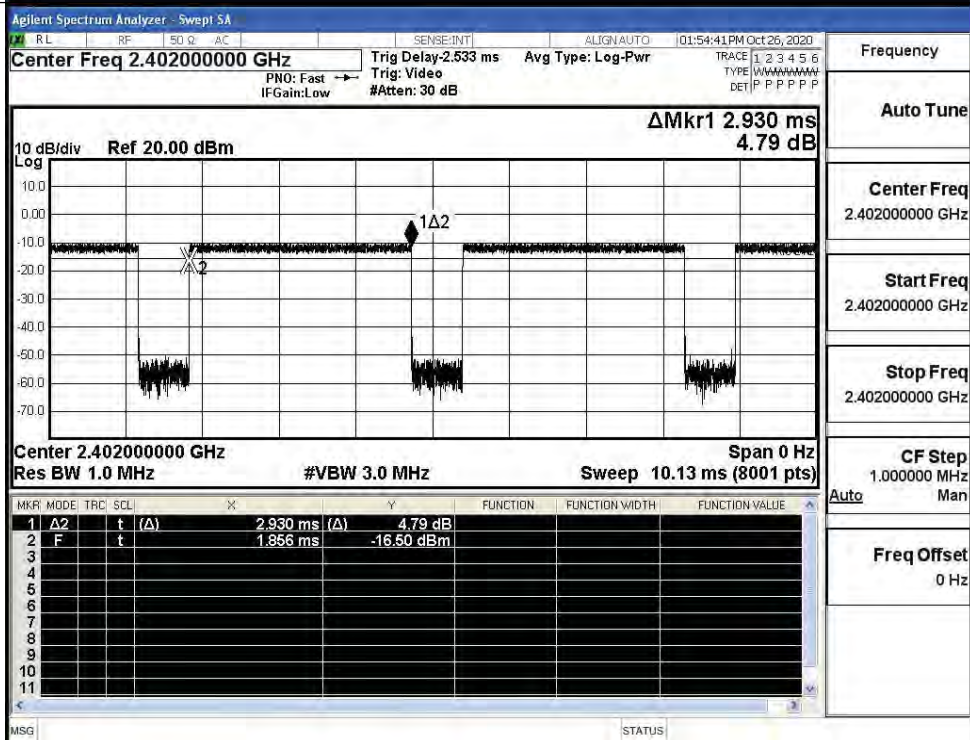
$\pi/4$ DQPSK
_2DH5/MCH



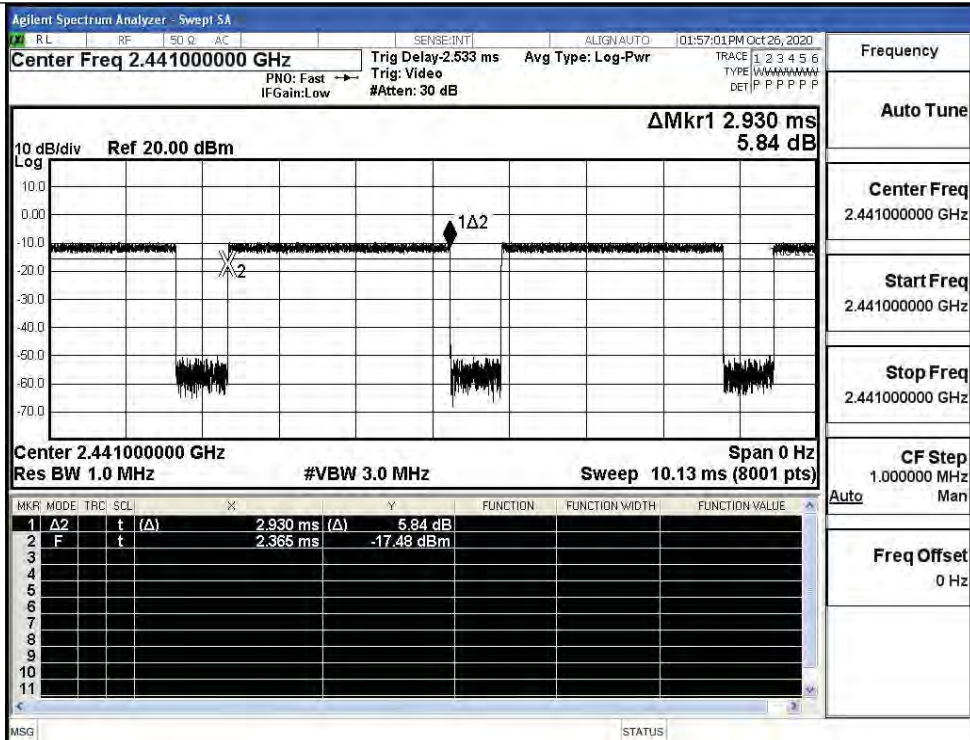
$\pi/4$ DQPSK
_2DH5/HCH



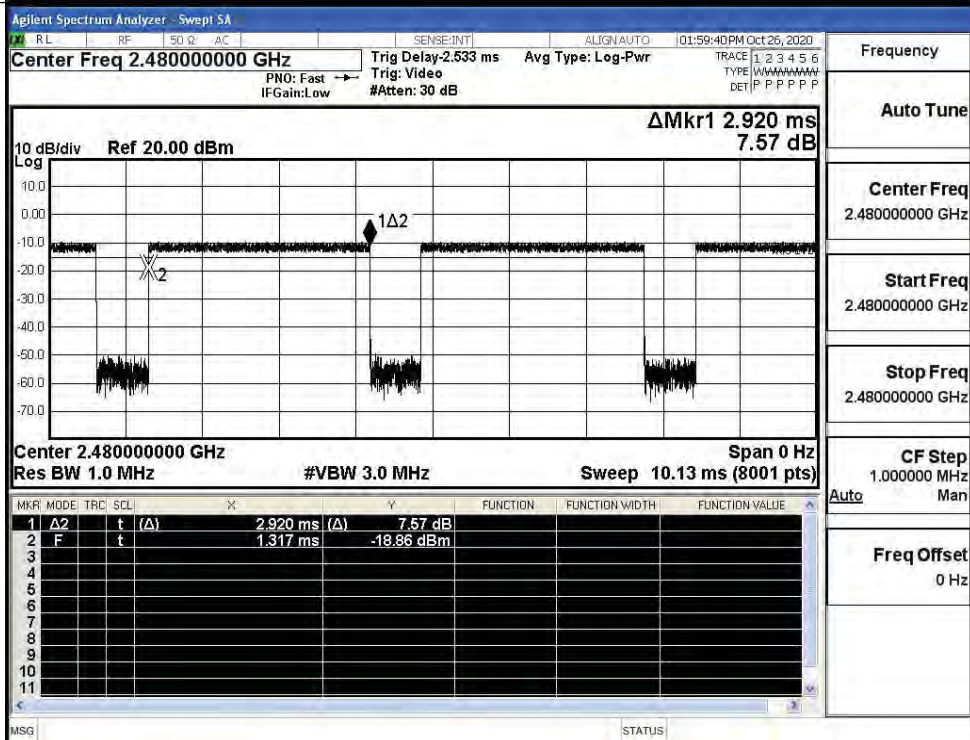
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

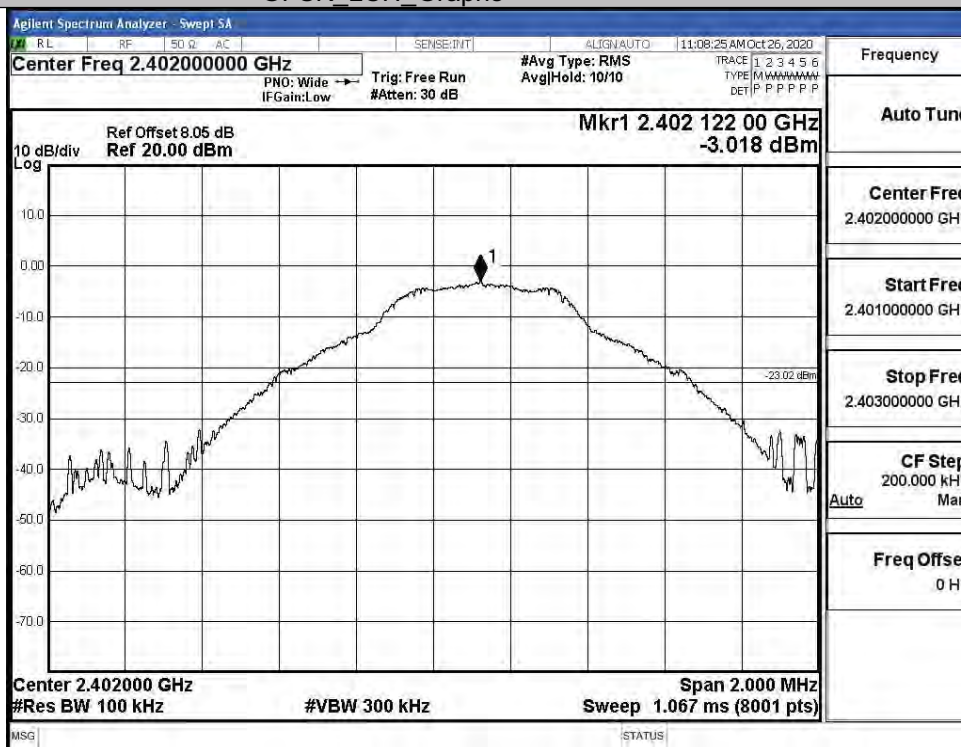


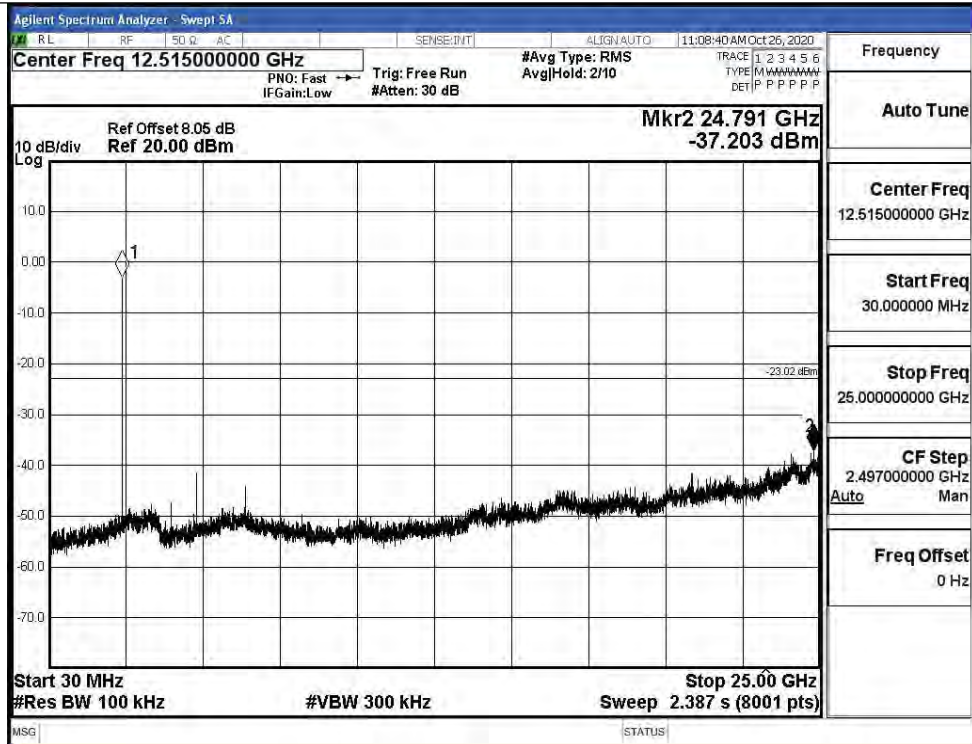
A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-3.018	-37.203	-23.018	PASS
	MCH	-2.776	-35.917	-22.776	PASS
	HCH	-2.573	-38.261	-22.573	PASS
$\pi/4$ DQPSK	LCH	-4.52	-38.127	-24.520	PASS
	MCH	-5.583	-37.973	-25.583	PASS
	HCH	-5.668	-36.654	-25.668	PASS
8DPSK	LCH	-5.946	-37.943	-25.946	PASS
	MCH	-5.7	-37.829	-25.700	PASS
	HCH	-5.627	-36.541	-25.627	PASS

GFSK_LCH_Graphs

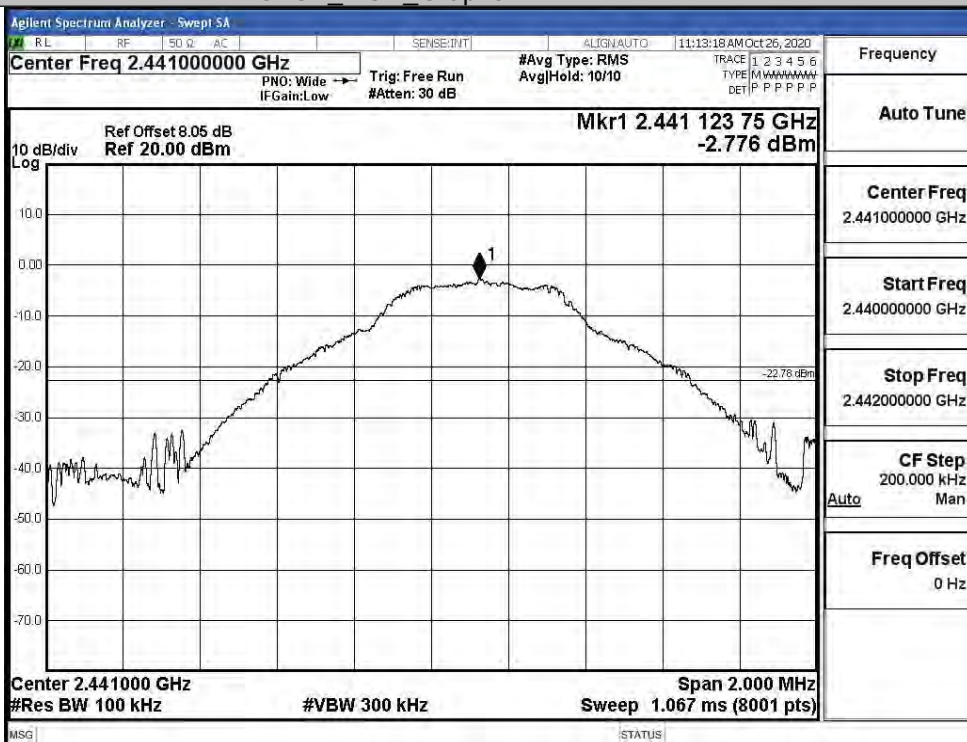
Pref



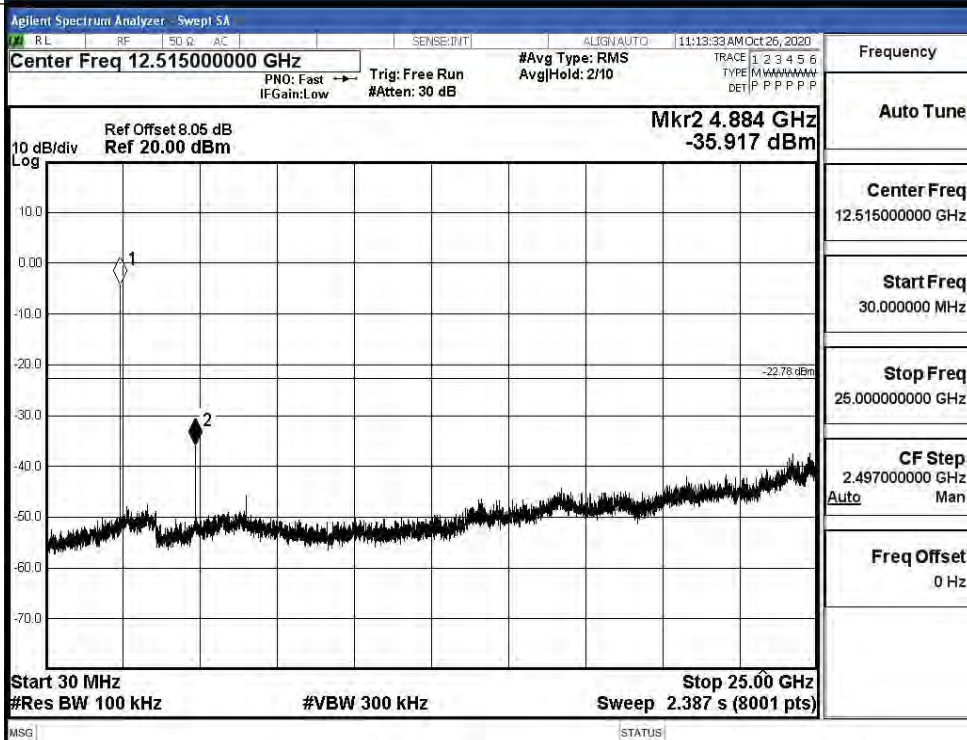
P_{uw}

GFSK_MCH_Graphs

Pref

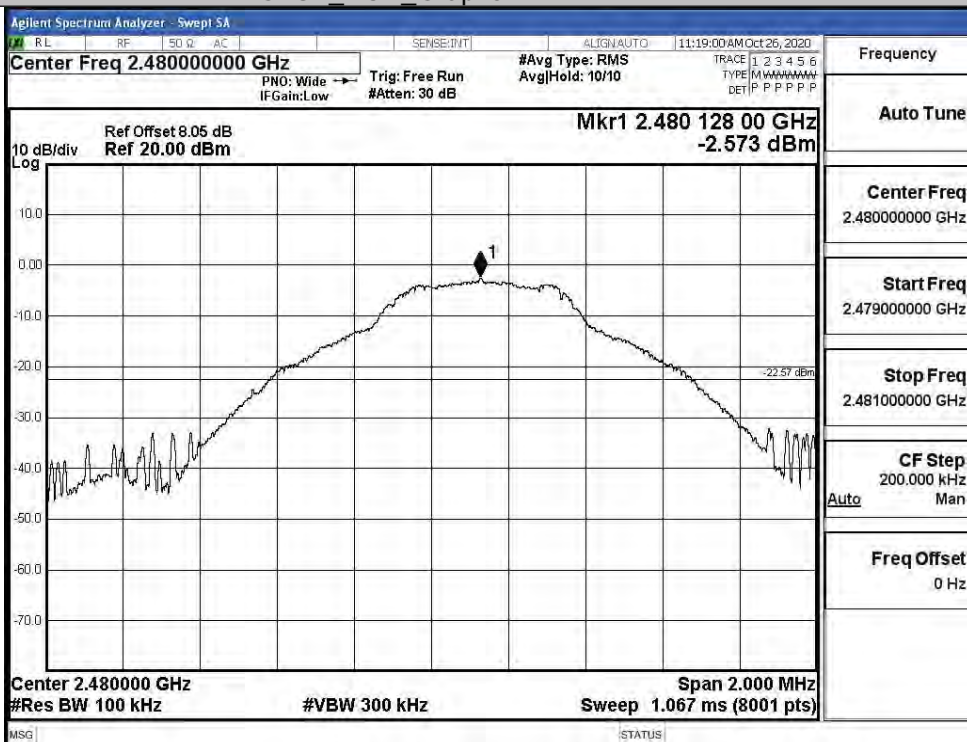


Puw

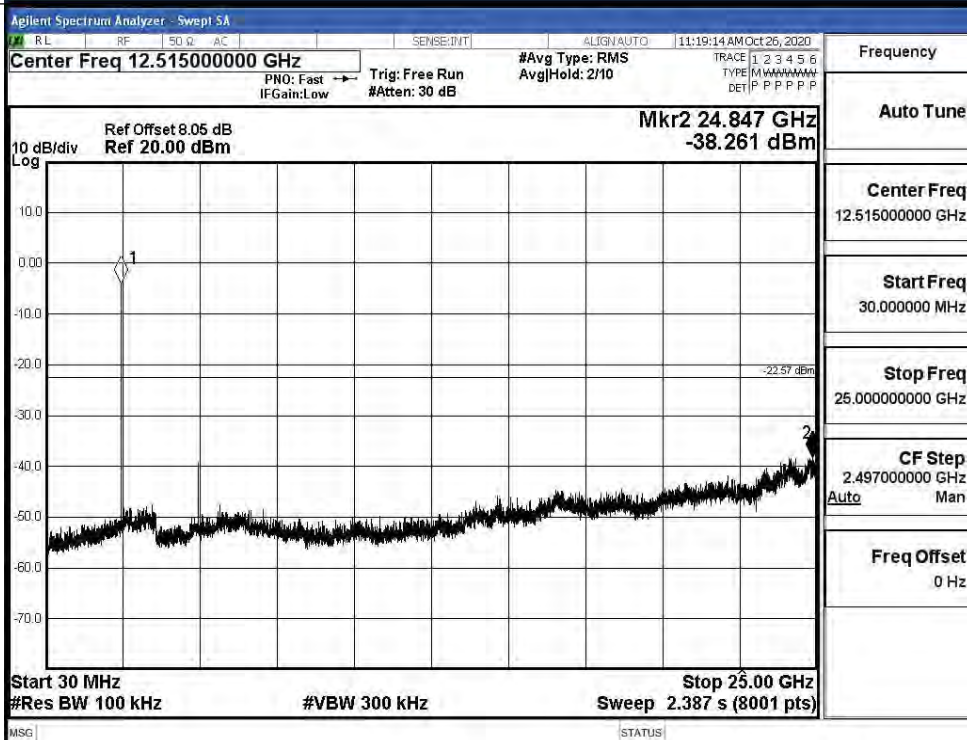


GFSK_HCH_Graphs

Pref

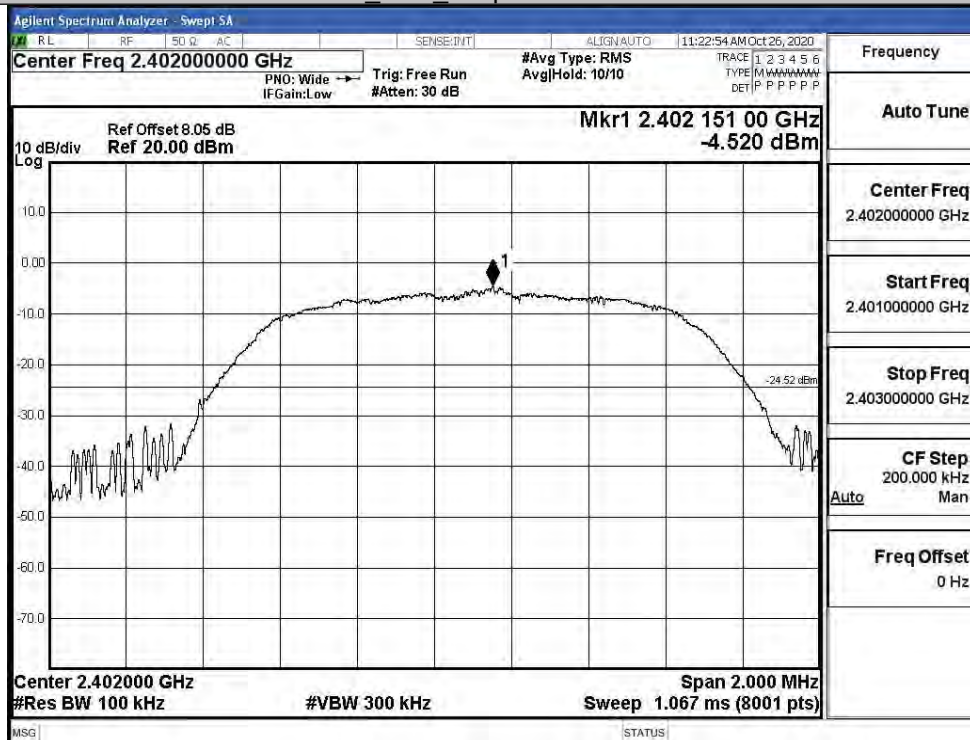


Puw

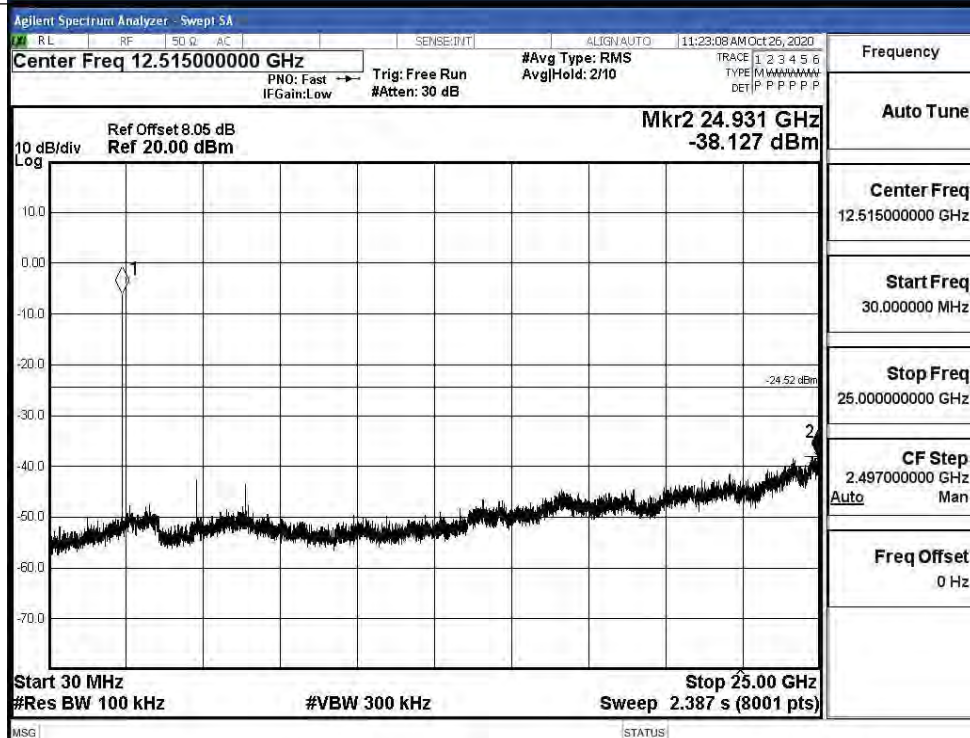


$\pi/4$ DQPSK_LCH_Graphs

Pref

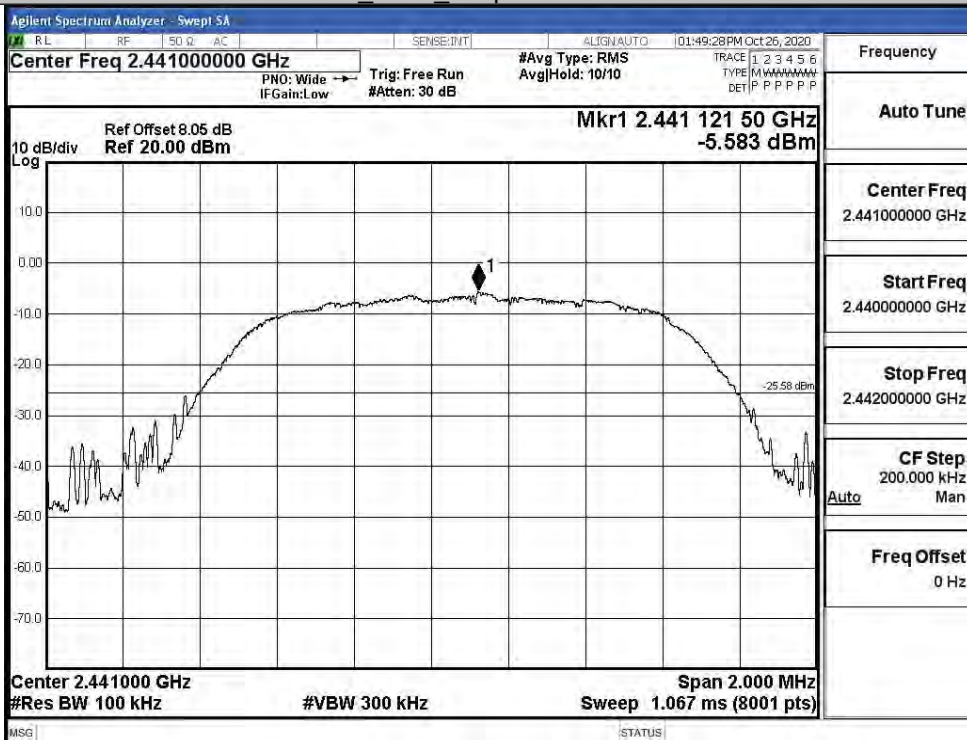


Puw

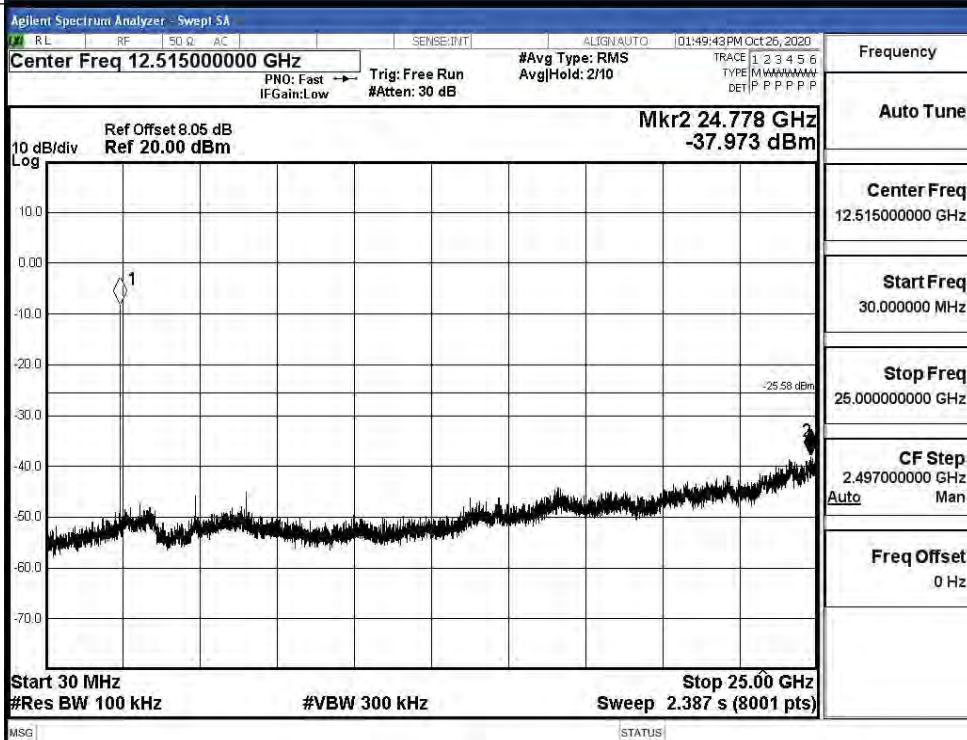


$\pi/4$ DQPSK_MCH_Graphs

Pref

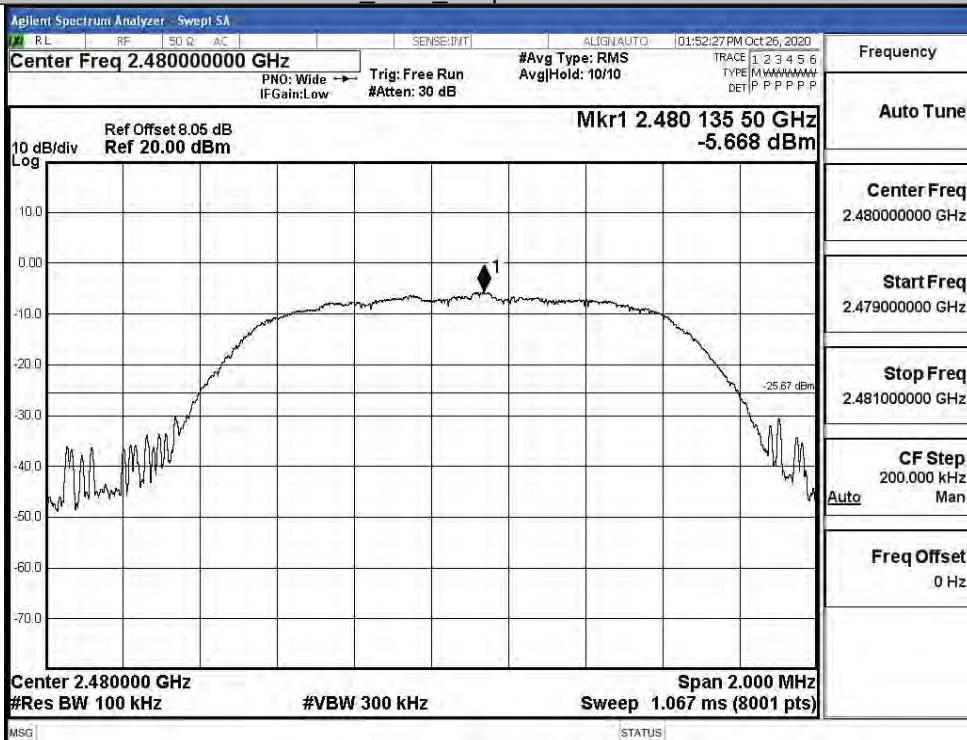


Puw

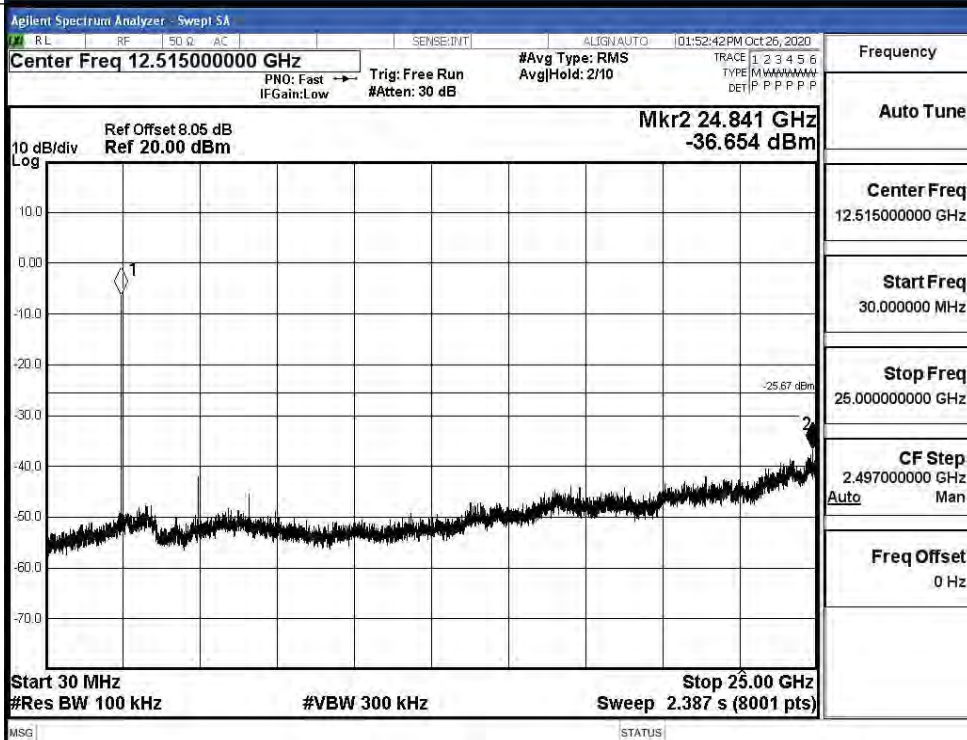


$\pi/4$ DQPSK_HCH_Graphs

Pref

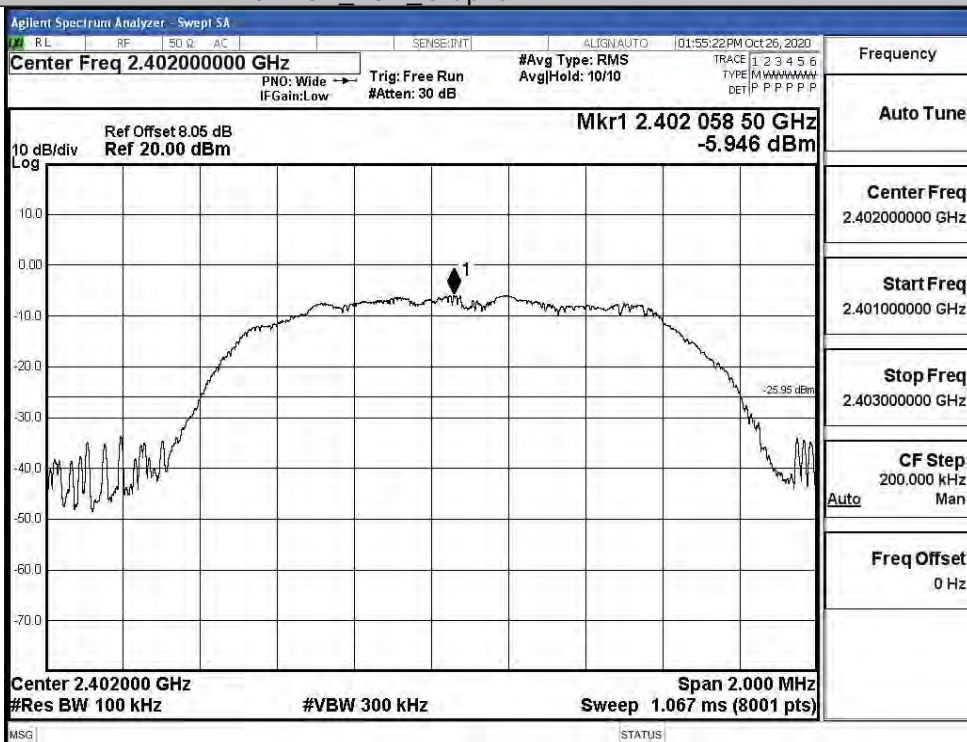


Puw

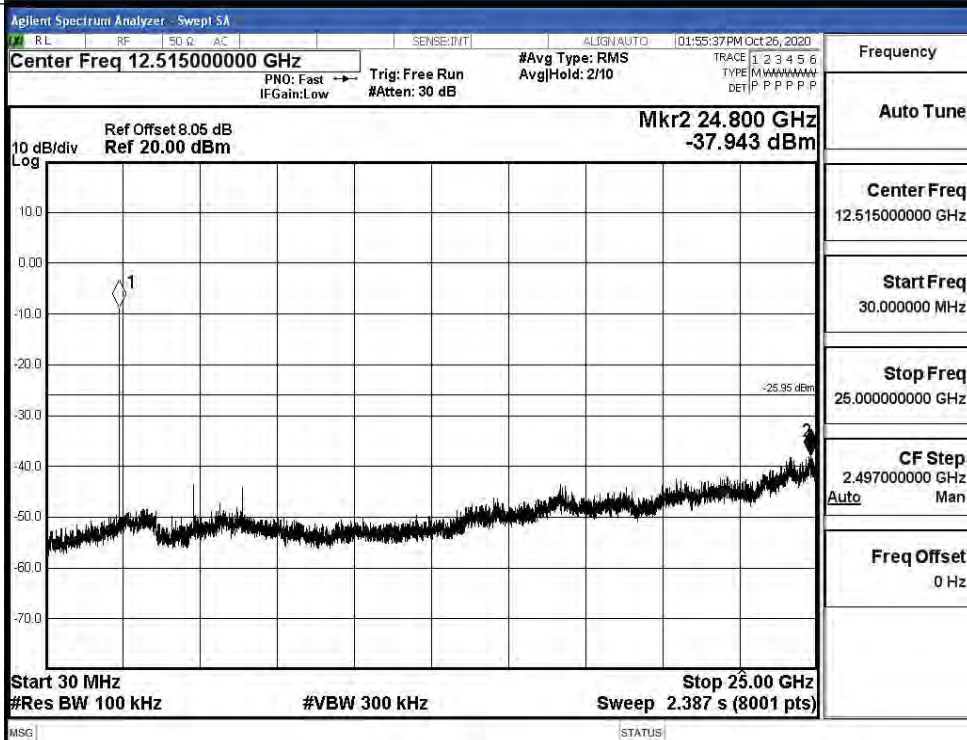


8DPSK_LCH_Graphs

Pref

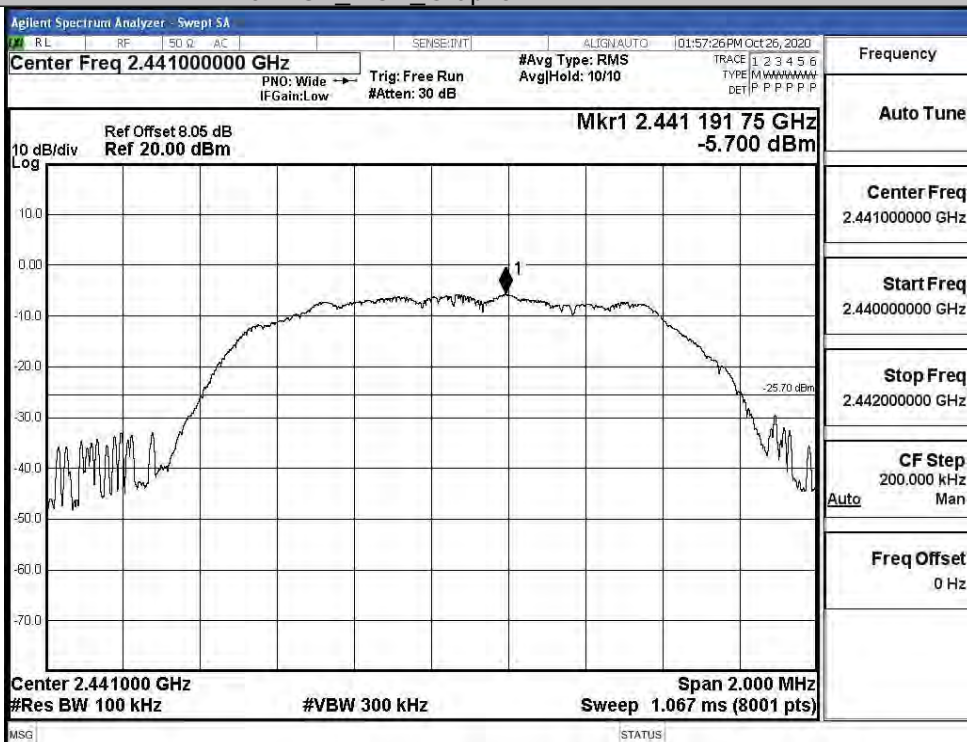


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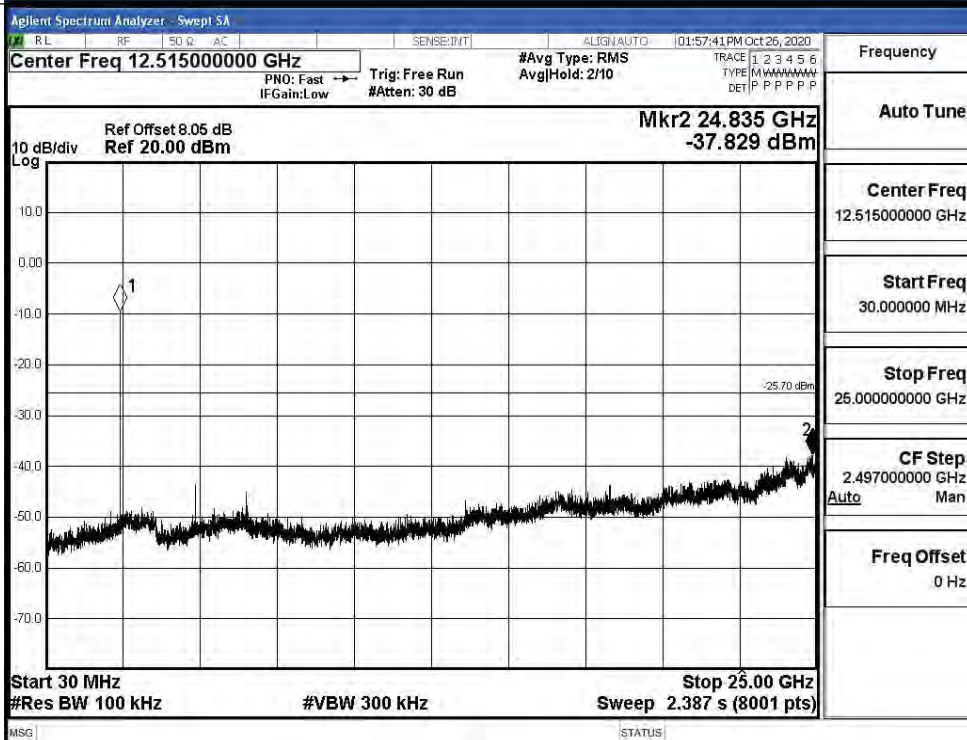


8DPSK_MCH_Graphs

Pref

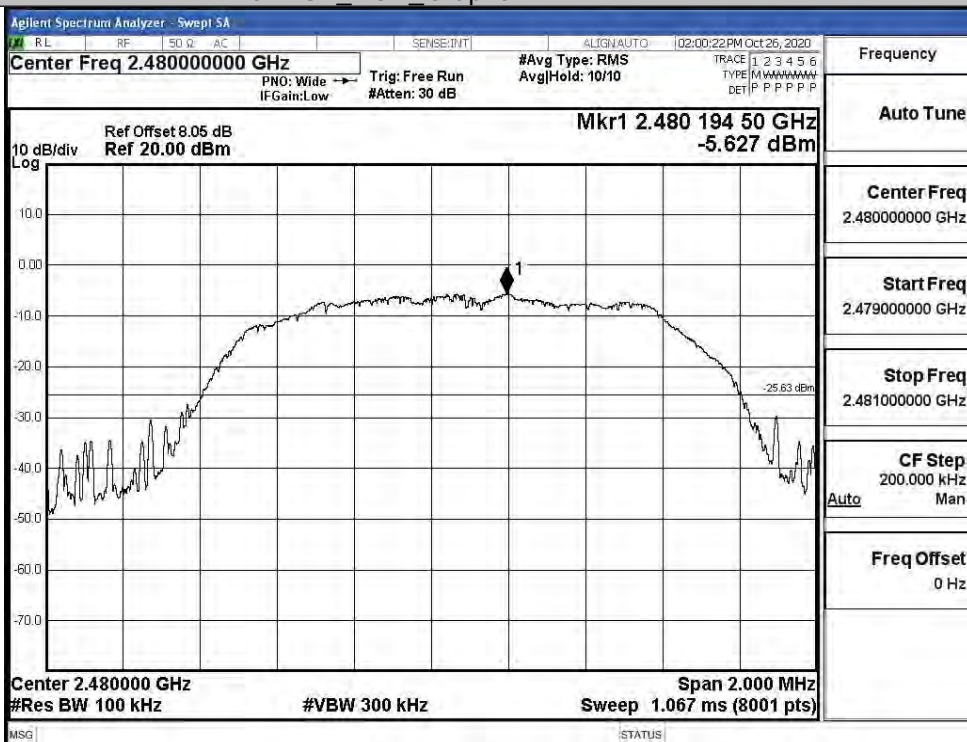


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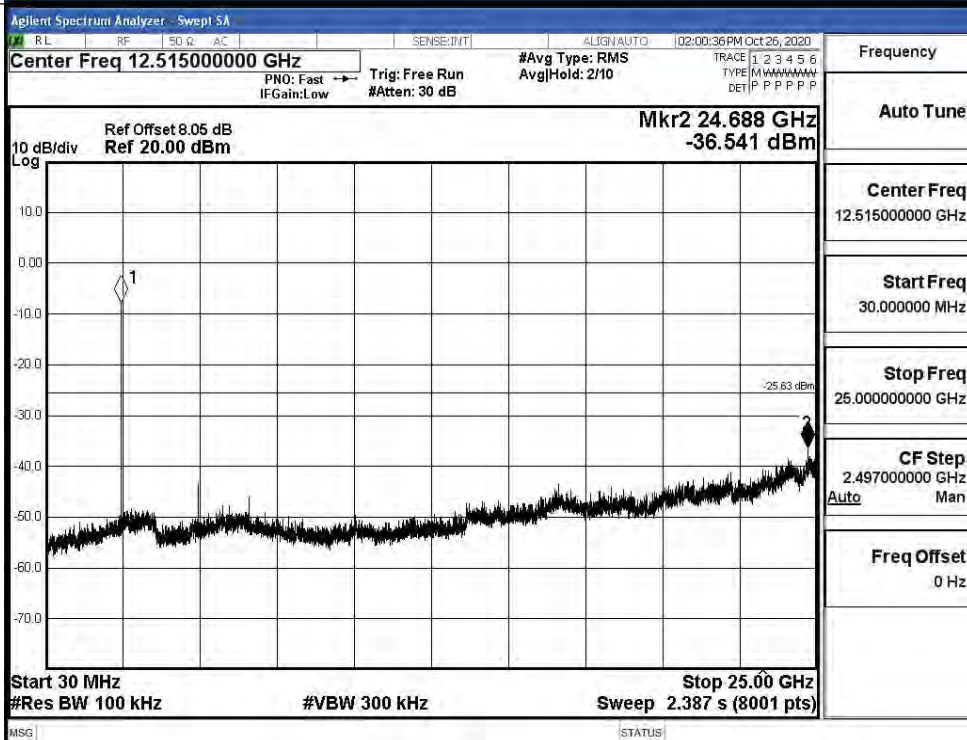


8DPSK_HCH_Graphs

Pref



Puw

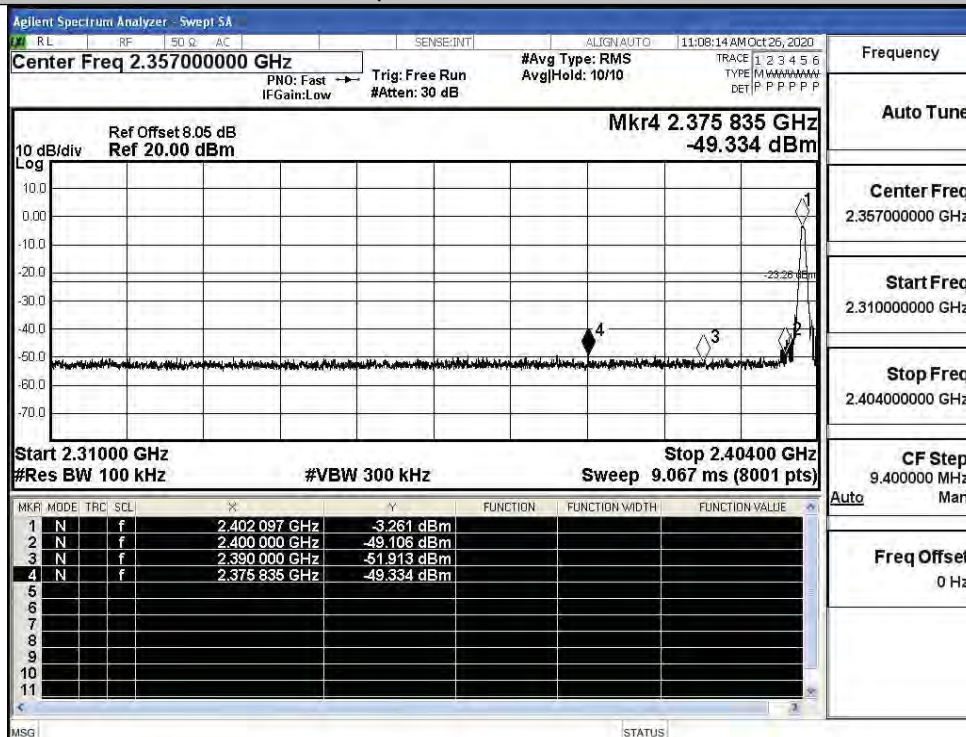


A.7 Band-edge for RF Conducted Emissions

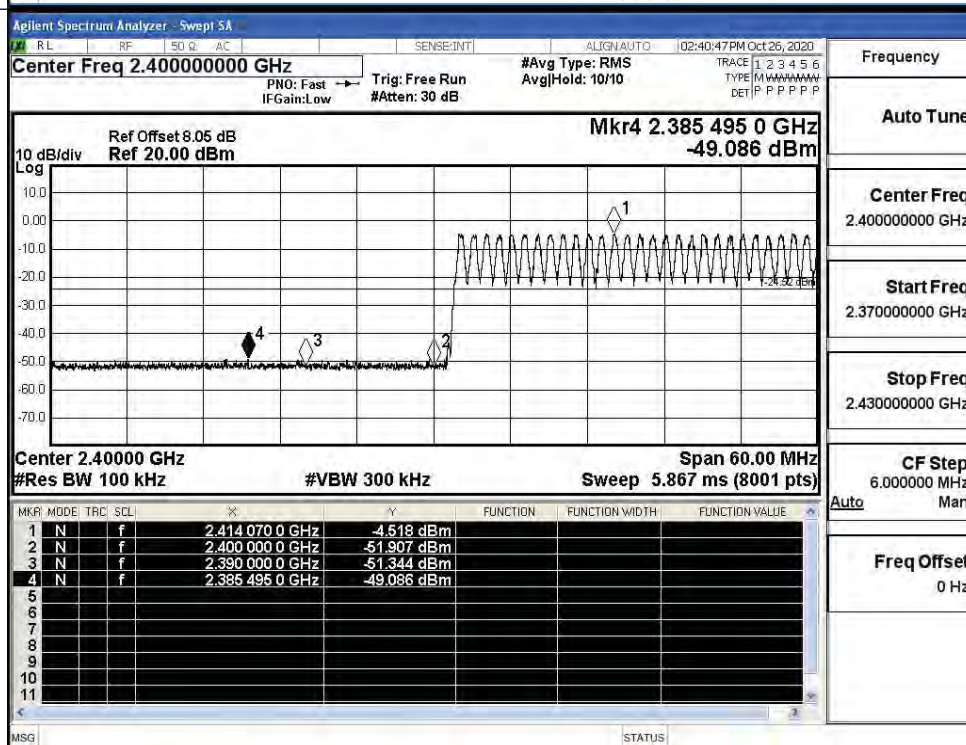
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-3.261	Off	-49.334	-23.26	PASS
			-4.518	On	-49.086	-24.52	PASS
	HCH	2480	-2.567	Off	-49.044	-22.57	PASS
			-4.316	On	-48.777	-24.32	PASS
$\pi/4$ DQPSK	LCH	2402	-5.184	Off	-49.679	-25.18	PASS
			-5.537	On	-49.021	-25.54	PASS
	HCH	2480	-5.528	Off	-48.475	-25.53	PASS
			-5.329	On	-48.468	-25.33	PASS
8DPSK	LCH	2402	-5.358	Off	-48.946	-25.36	PASS
			-5.319	On	-48.933	-25.32	PASS
	HCH	2480	-5.096	Off	-48.964	-25.1	PASS
			-5.026	On	-48.093	-25.03	PASS

Test Graphs

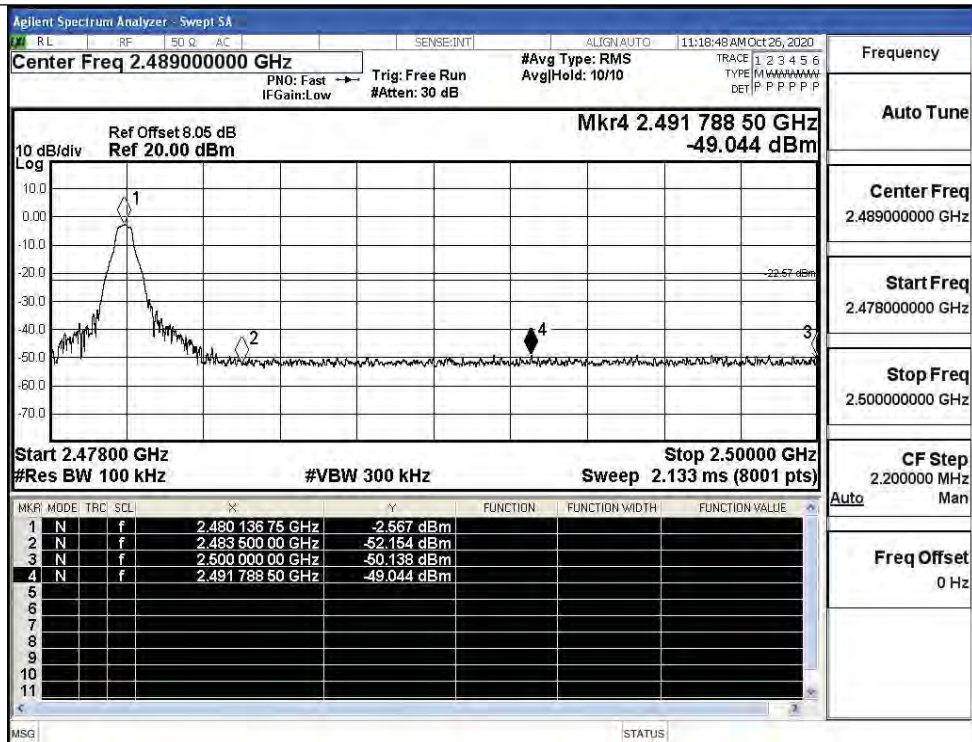
GFSK/LCH/No Hop



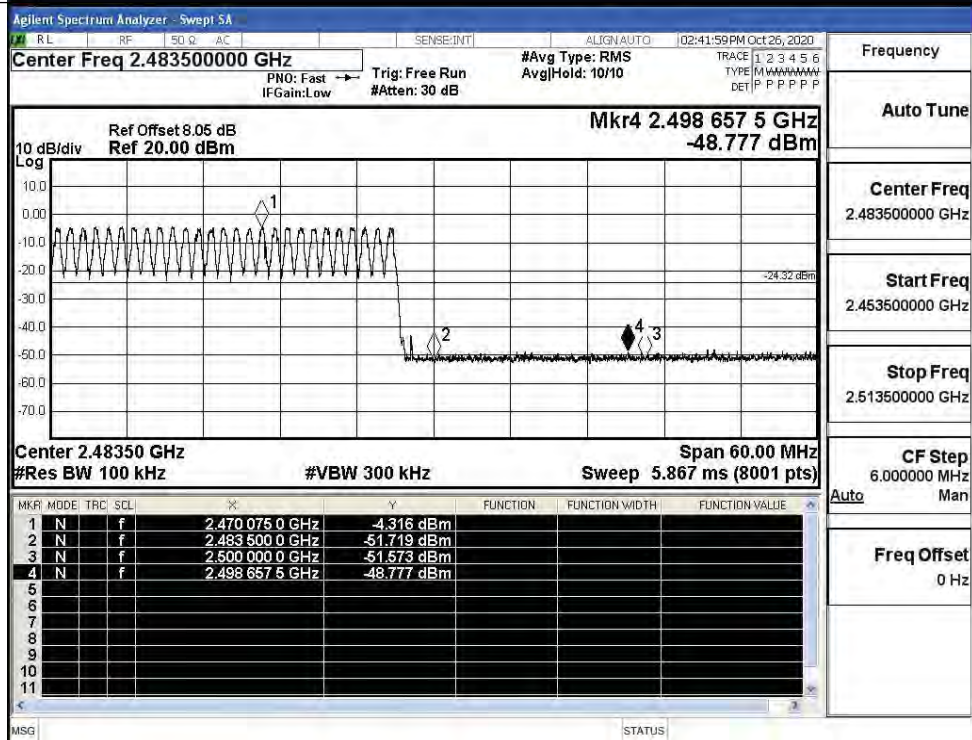
GFSK/LCH/Hop



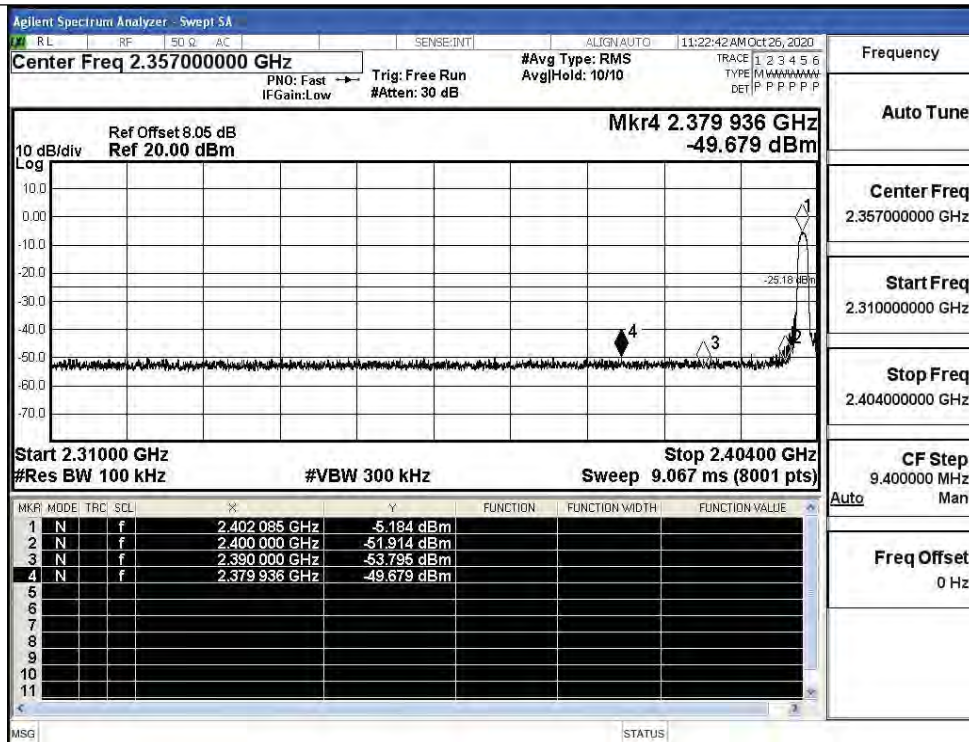
GFSK/HCH/No Hop



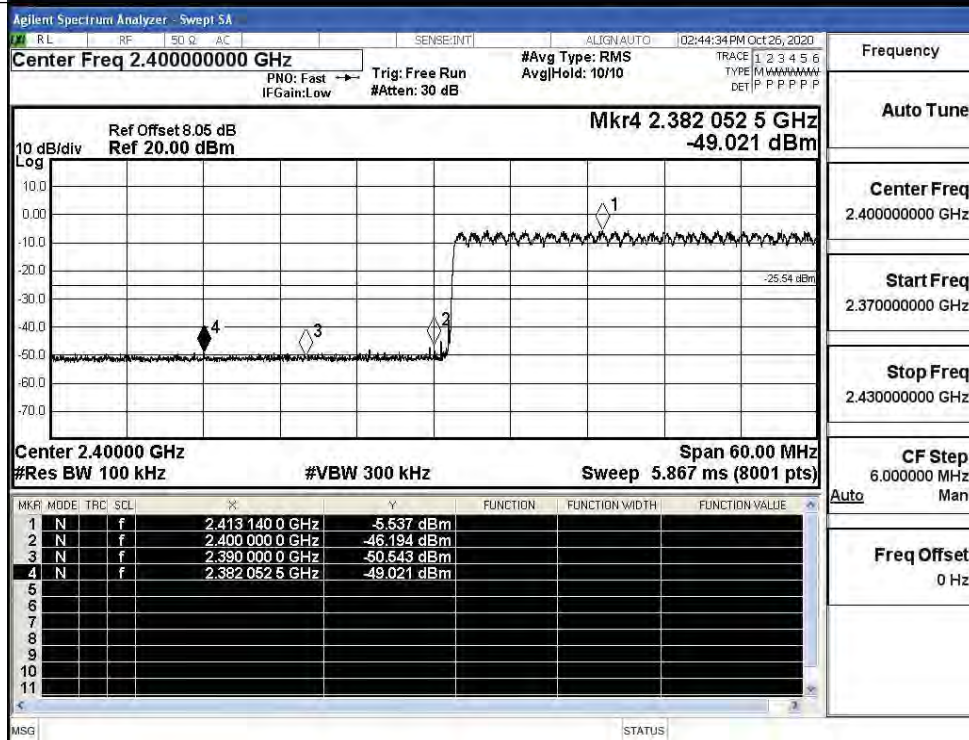
GFSK/HCH/Hop



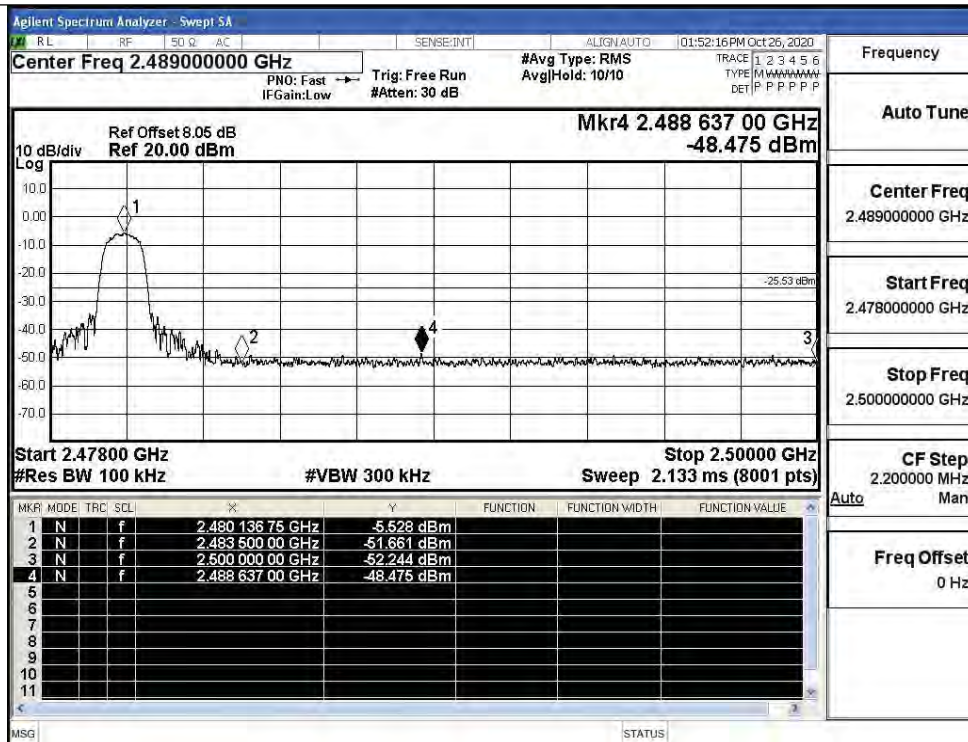
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop



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

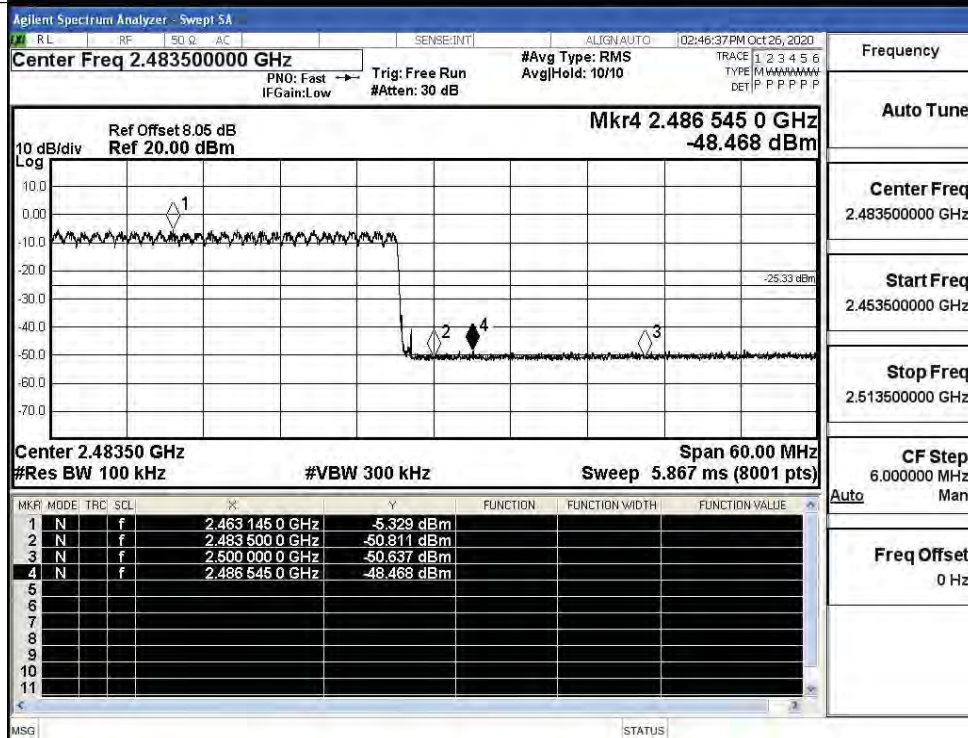


Frequency

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

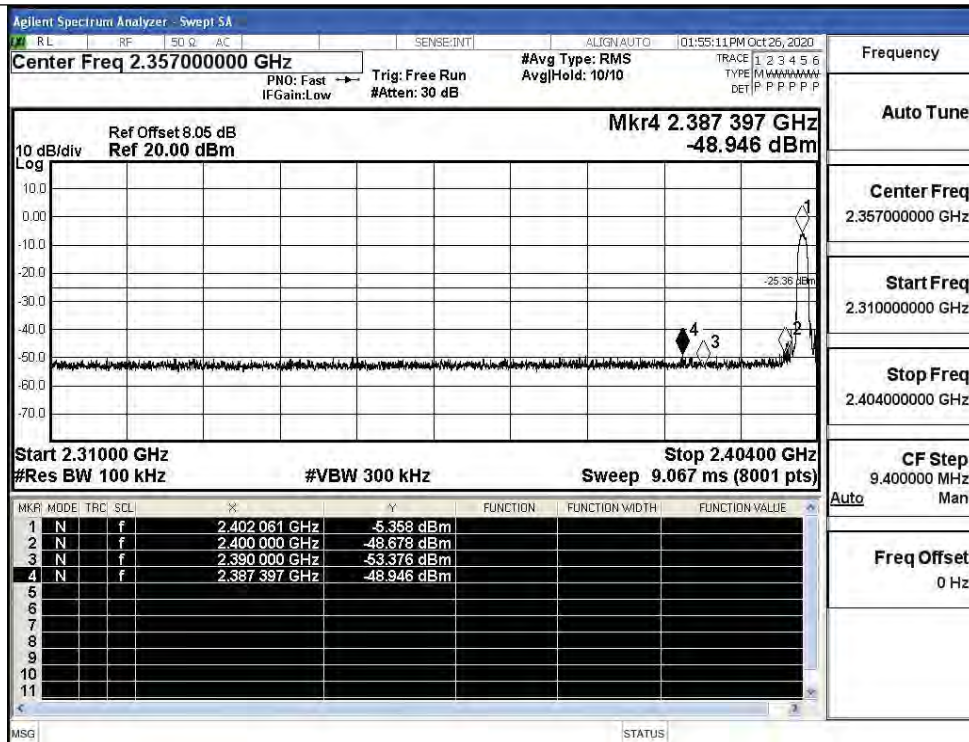


Frequency

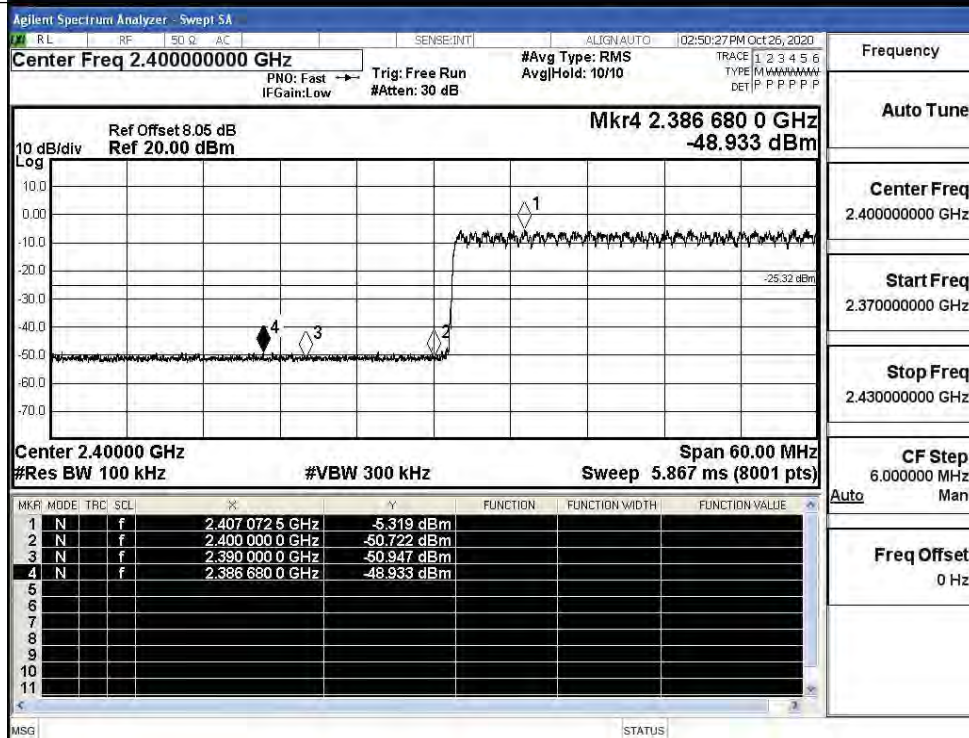
Auto Tune

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

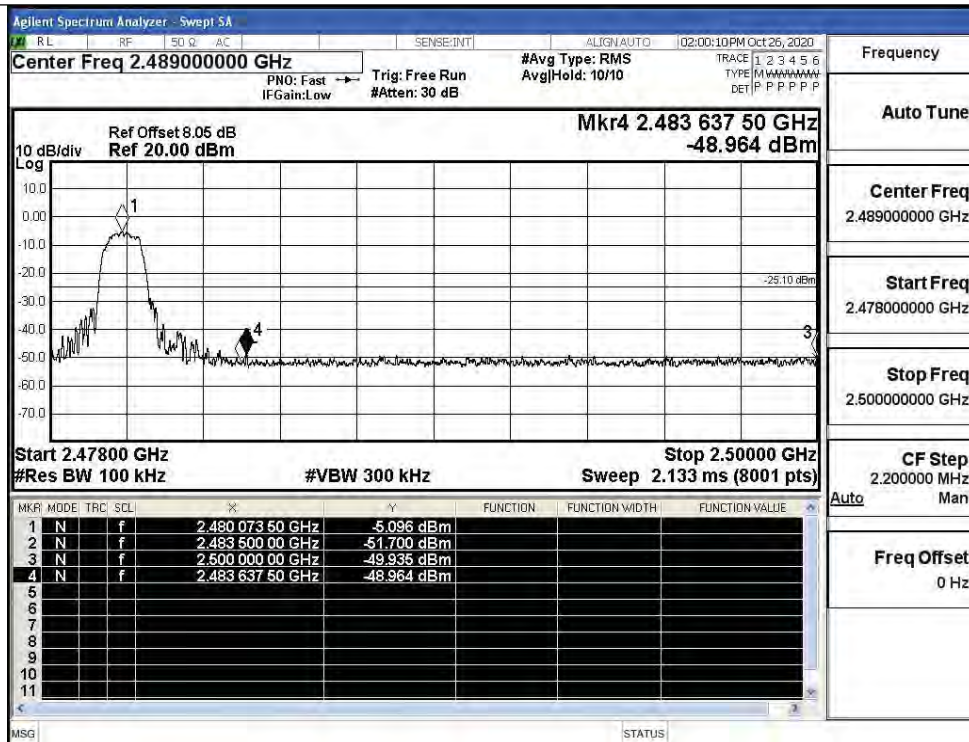
8DPSK/LCH/No Hop



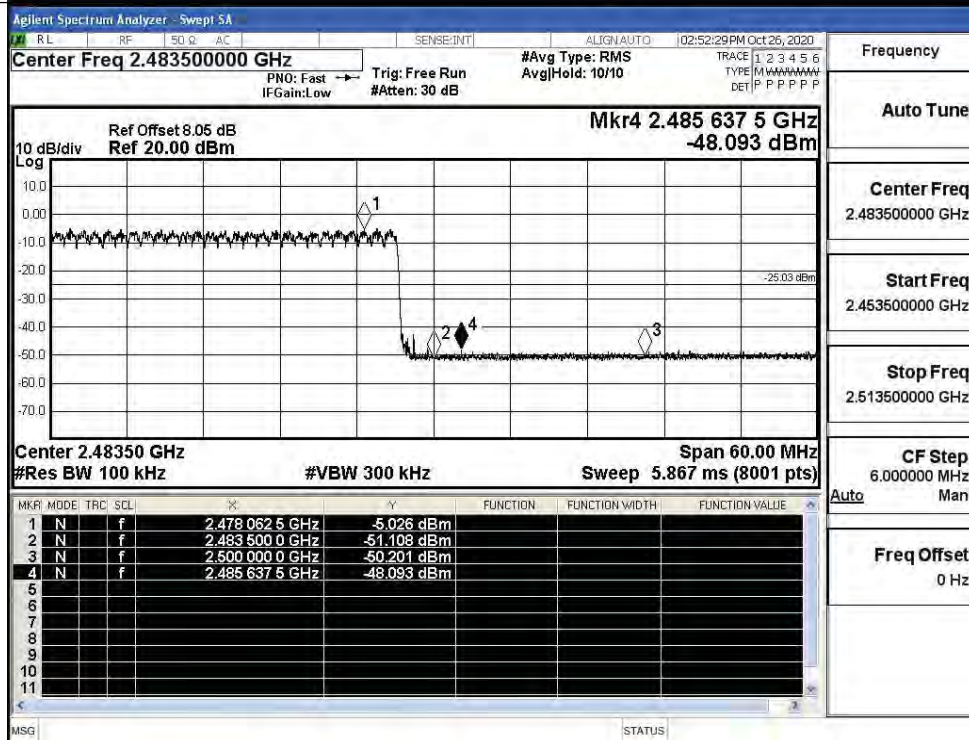
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



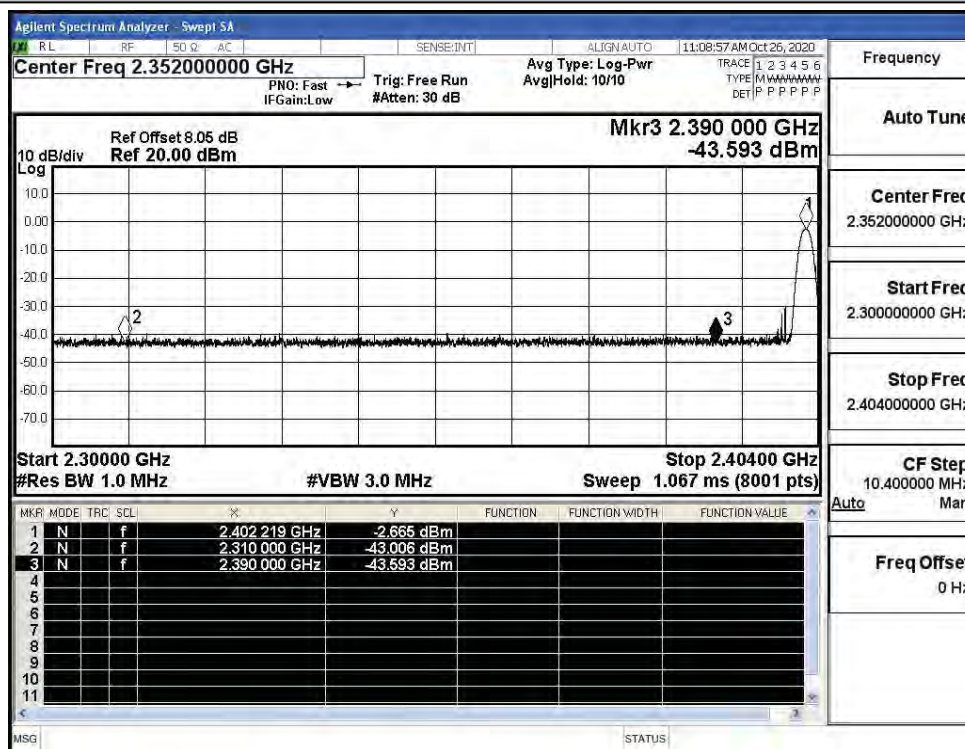
8DPSK/HCH/Hop



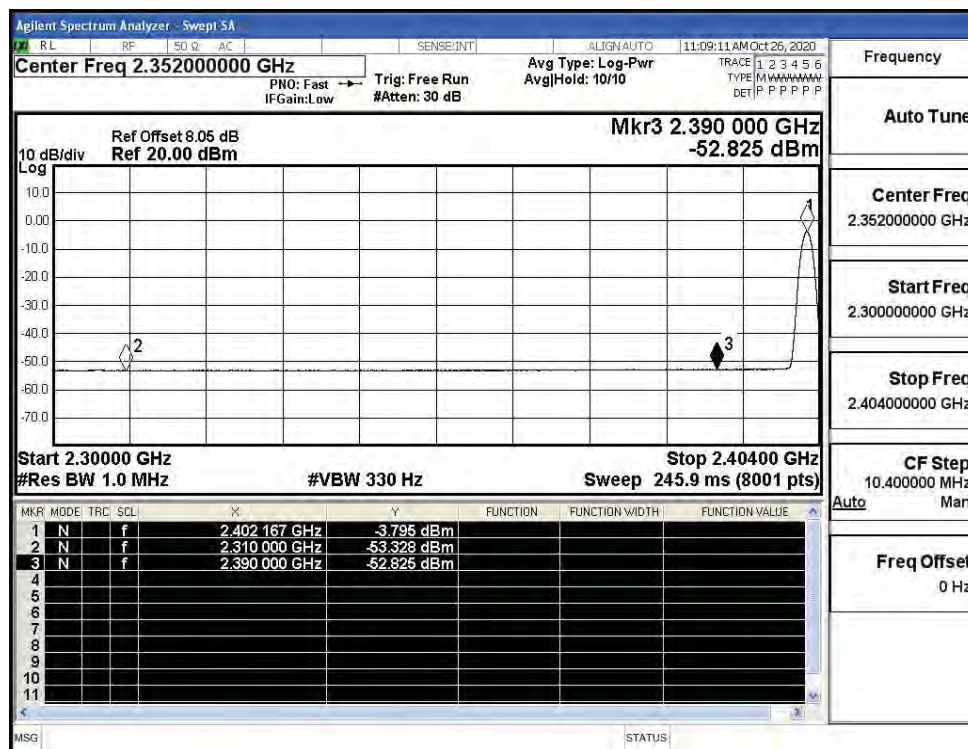
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.01	2.0	0	54.22	PEAK	74	PASS
	Off	2310.0	-53.33	2.0	0	43.90	AV	54	PASS
	Off	2390.0	-43.59	2.0	0	53.64	PEAK	74	PASS
	Off	2390.0	-52.83	2.0	0	44.40	AV	54	PASS
	Off	2483.5	-40.24	2.0	0	56.99	PEAK	74	PASS
	Off	2483.5	-52.25	2.0	0	44.98	AV	54	PASS
	Off	2500.0	-42.84	2.0	0	54.39	PEAK	74	PASS
	Off	2500.0	-52.19	2.0	0	45.04	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.84	2.0	0	54.39	PEAK	74	PASS
	Off	2310.0	-53.21	2.0	0	44.02	AV	54	PASS
	Off	2390.0	-41.54	2.0	0	55.69	PEAK	74	PASS
	Off	2390.0	-52.87	2.0	0	44.36	AV	54	PASS
	Off	2483.5	-40.71	2.0	0	56.52	PEAK	74	PASS
	Off	2483.5	-52.17	2.0	0	45.06	AV	54	PASS
	Off	2500.0	-41.48	2.0	0	55.75	PEAK	74	PASS
	Off	2500.0	-52.26	2.0	0	44.97	AV	54	PASS
8DPSK	Off	2310.0	-43.09	2.0	0	54.14	PEAK	74	PASS
	Off	2310.0	-53.32	2.0	0	43.91	AV	54	PASS
	Off	2390.0	-42.32	2.0	0	54.91	PEAK	74	PASS
	Off	2390.0	-52.85	2.0	0	44.38	AV	54	PASS
	Off	2483.5	-41.15	2.0	0	56.08	PEAK	74	PASS
	Off	2483.5	-52.28	2.0	0	44.95	AV	54	PASS
	Off	2500.0	-42.46	2.0	0	54.77	PEAK	74	PASS
	Off	2500.0	-52.23	2.0	0	45.00	AV	54	PASS

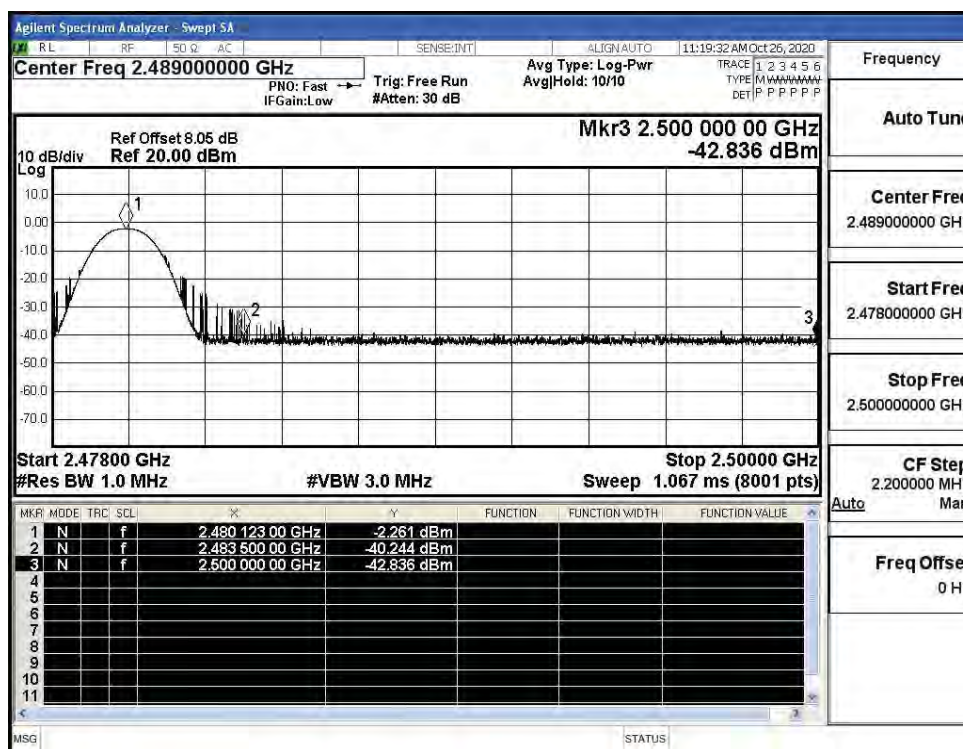
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



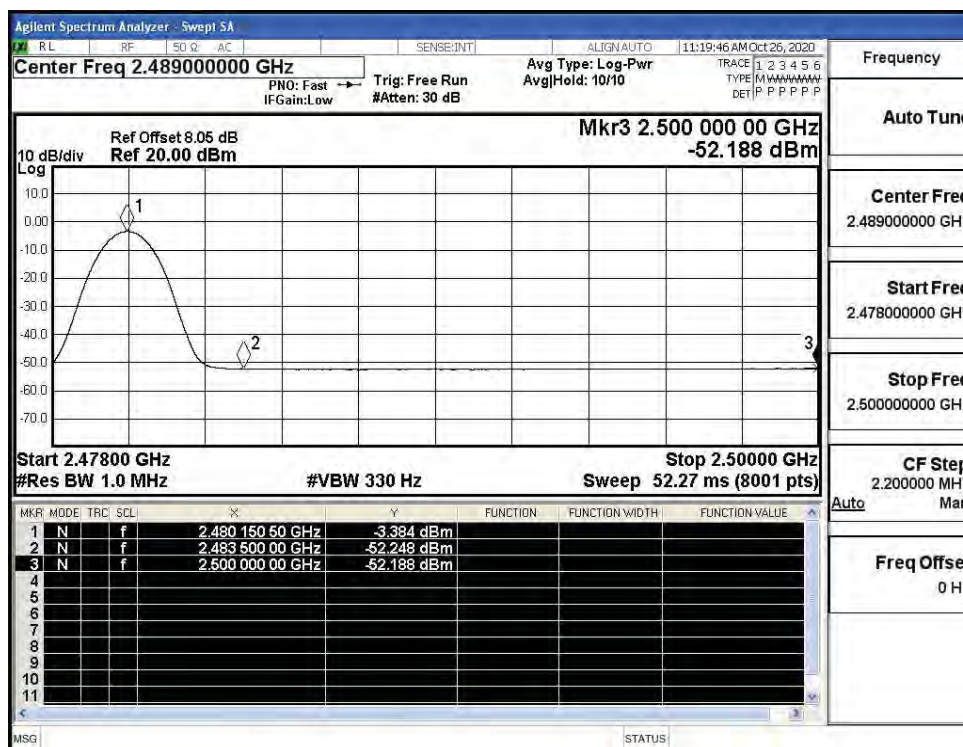
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

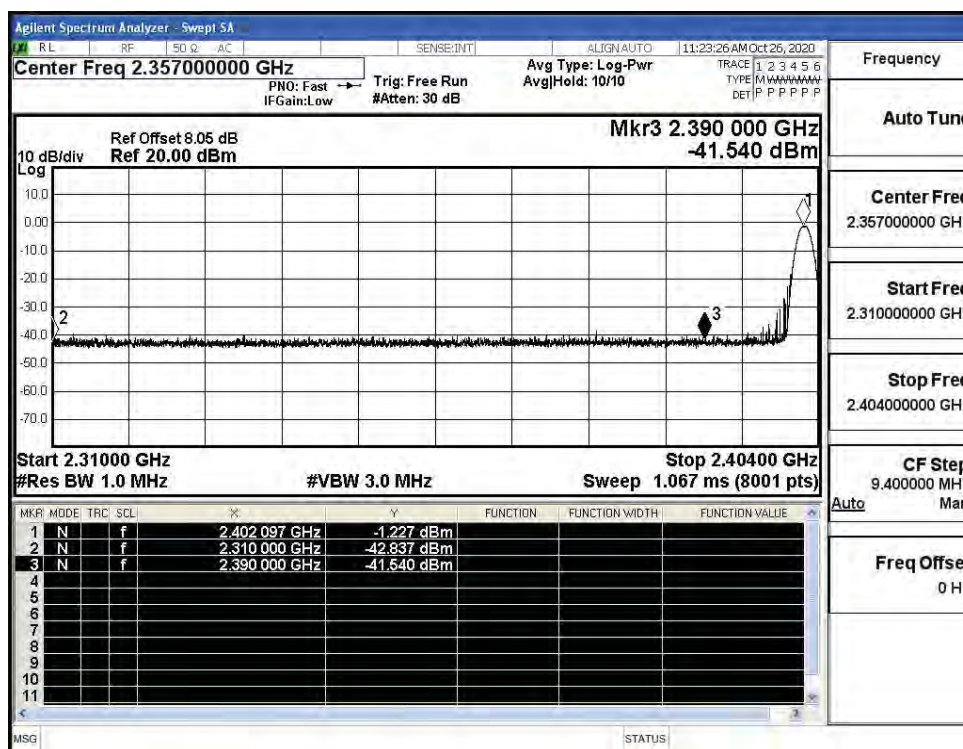
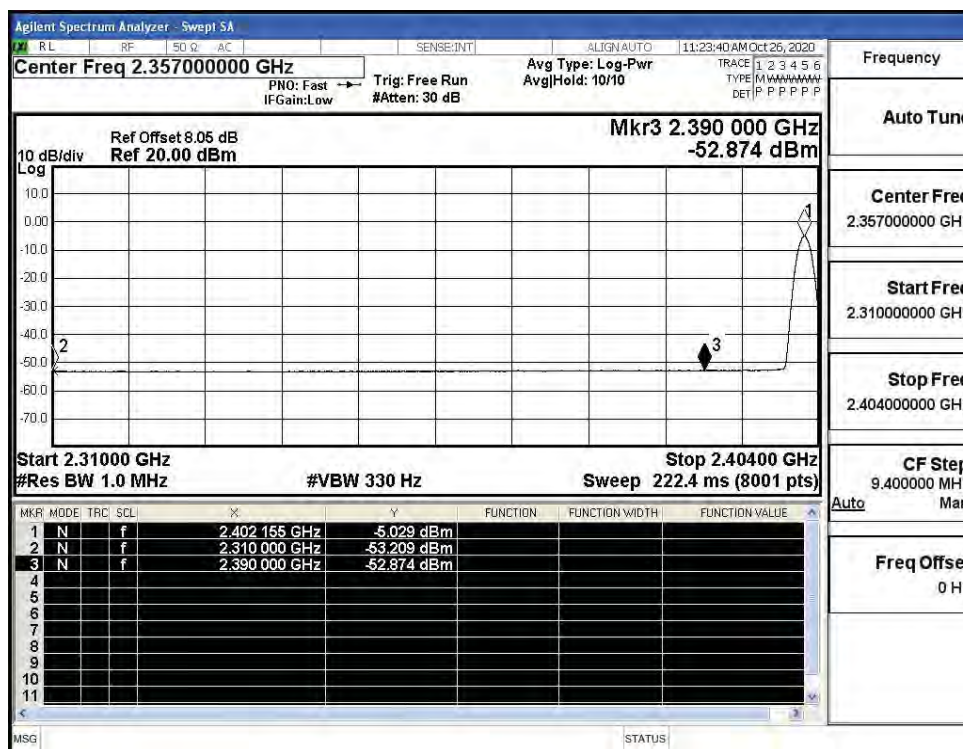


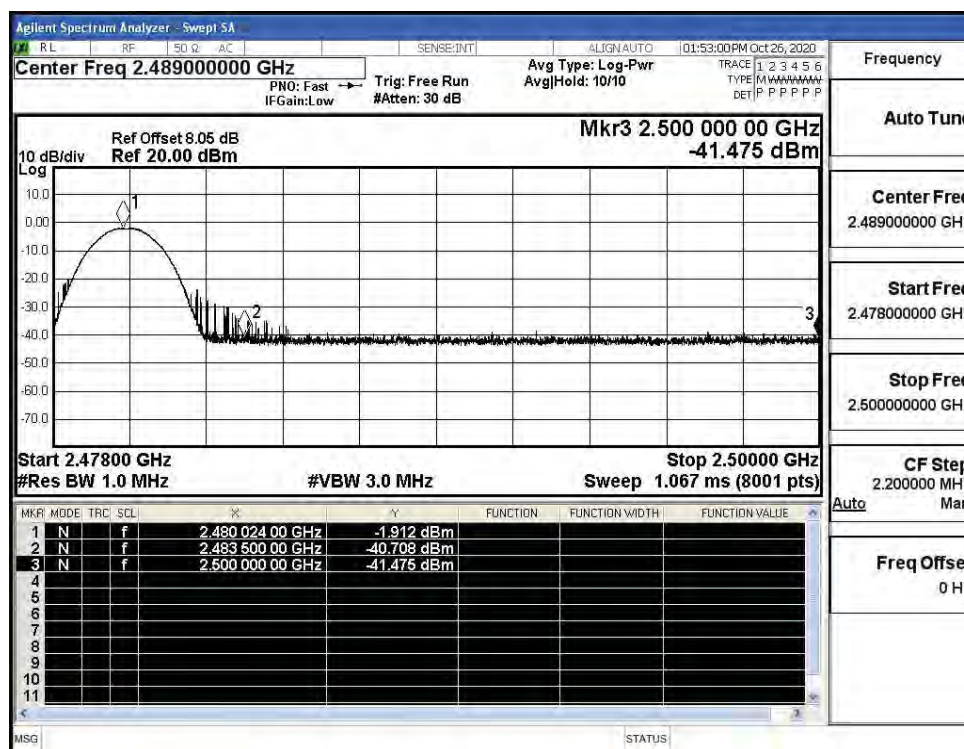
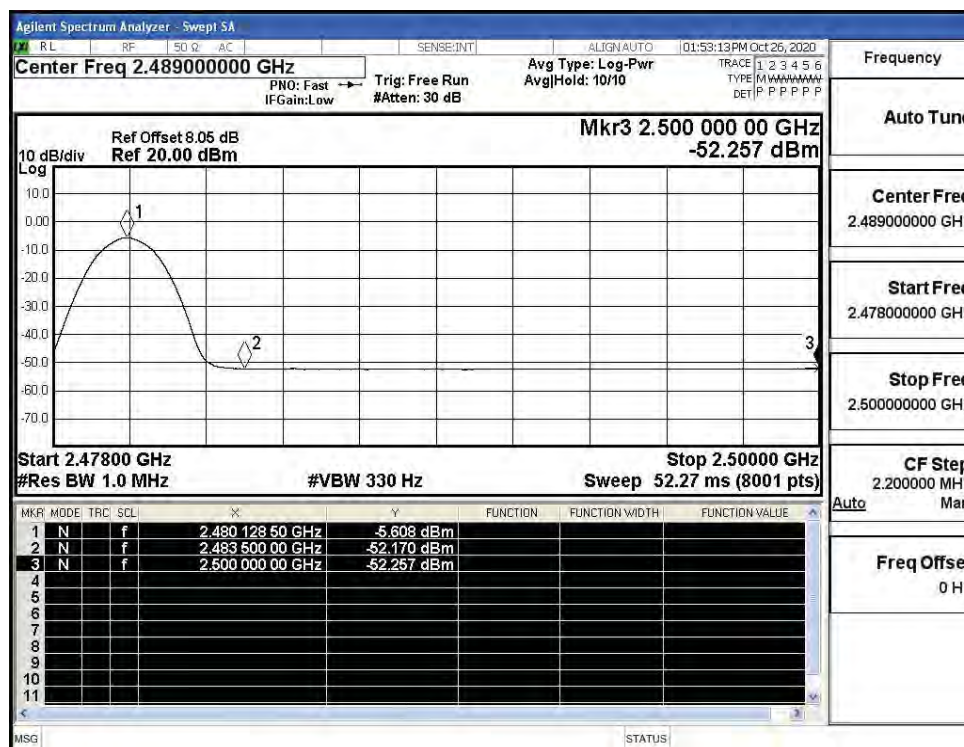
Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



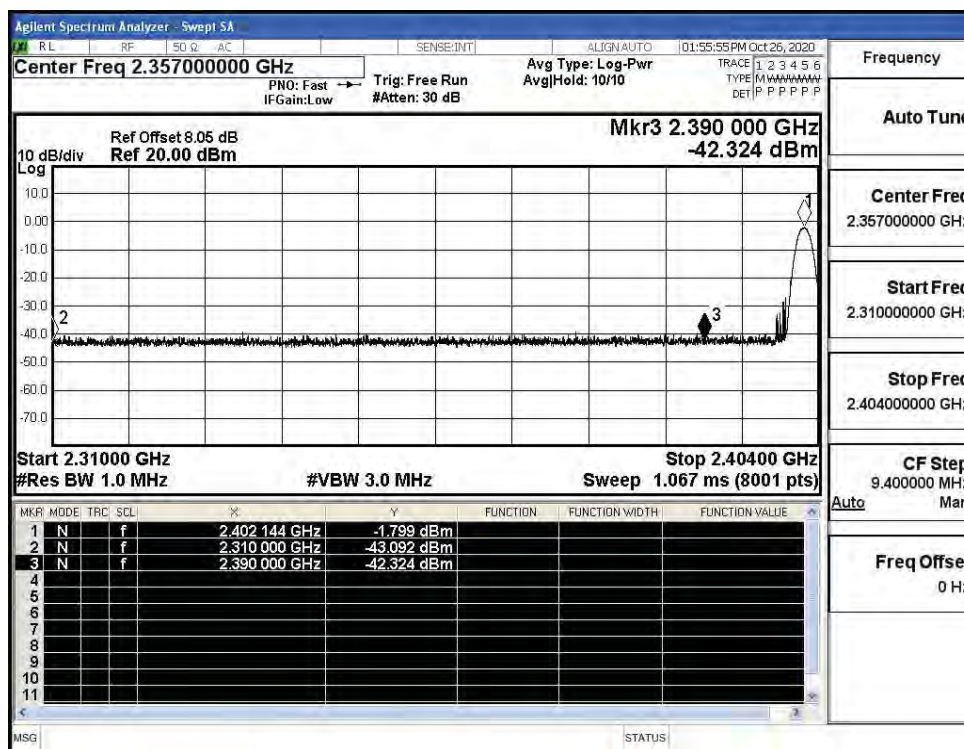
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



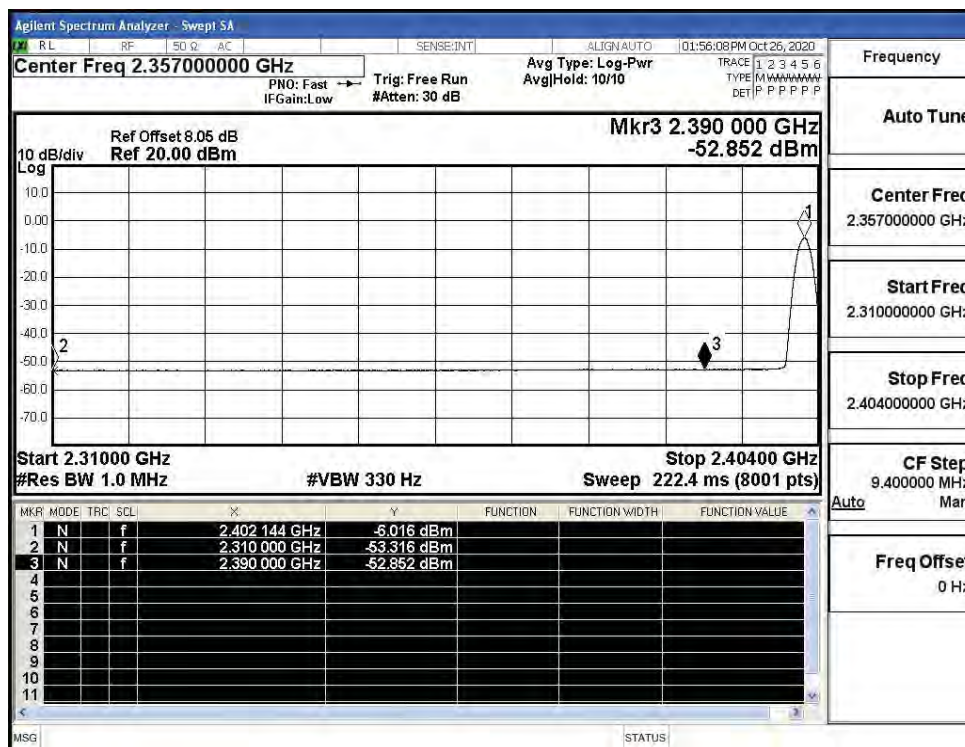
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

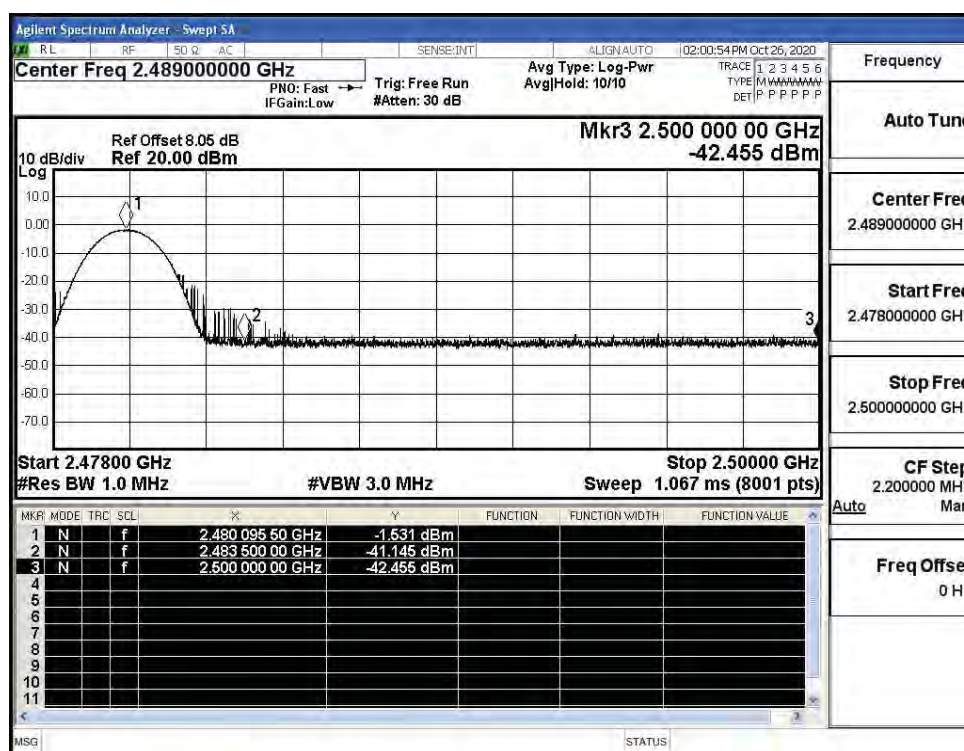
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

