

Appendix A

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

Product Name: Bluetooth Speaker

Trade Mark: Cyber Acoustics

Test Model: CA-2885BT

Environmental Conditions

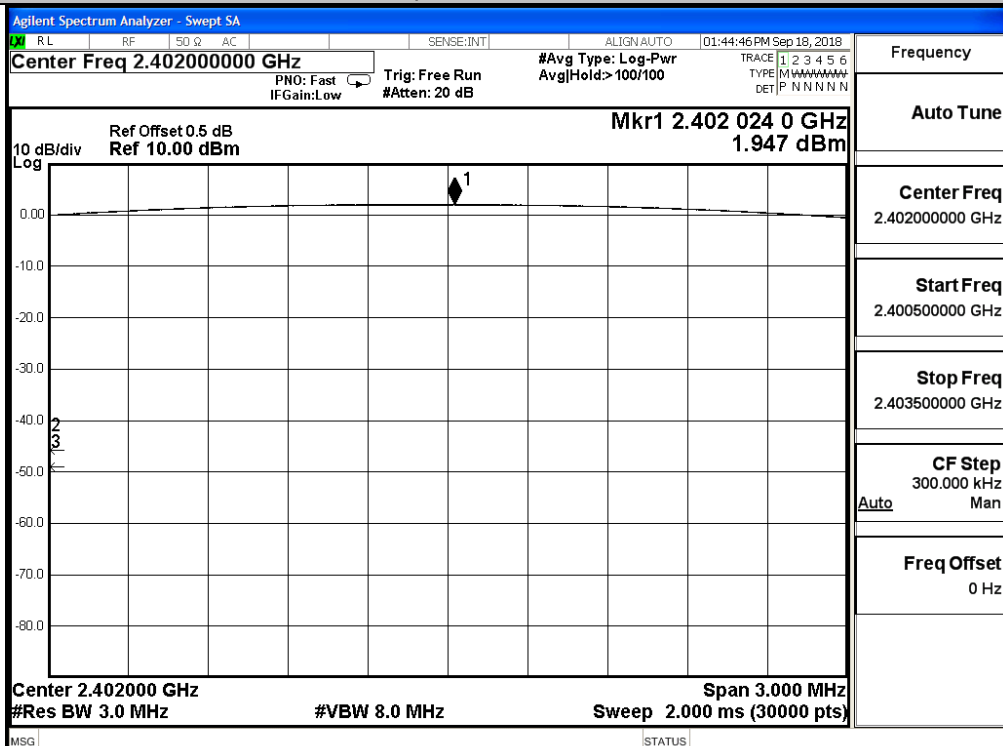
Temperature:	23.8 ° C
Relative Humidity:	51.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Tom.Liu
Supervised by:	Jayden.Zhuo

A.1 Maximum Conducted Peak Output Power

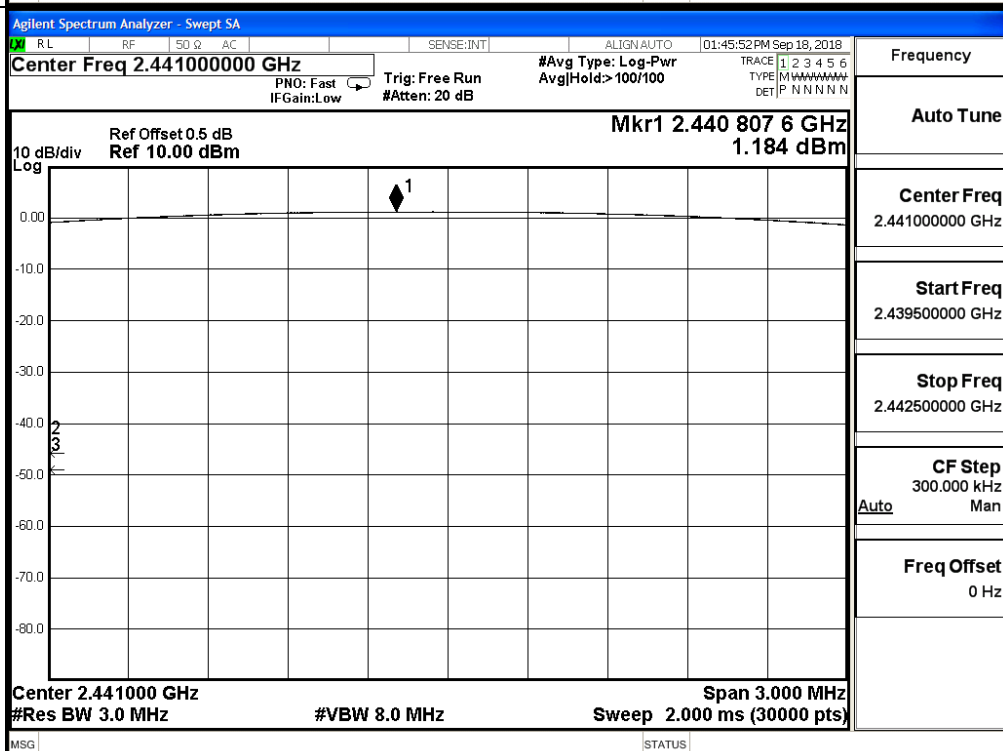
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.947	21	PASS
	MCH	1.184	21	PASS
	HCH	-0.472	21	PASS
$\pi/4$ DQPSK	LCH	0.921	21	PASS
	MCH	0.281	21	PASS
	HCH	-1.184	21	PASS
8DPSK	LCH	1.239	21	PASS
	MCH	0.489	21	PASS
	HCH	-0.939	21	PASS

Test Graphs

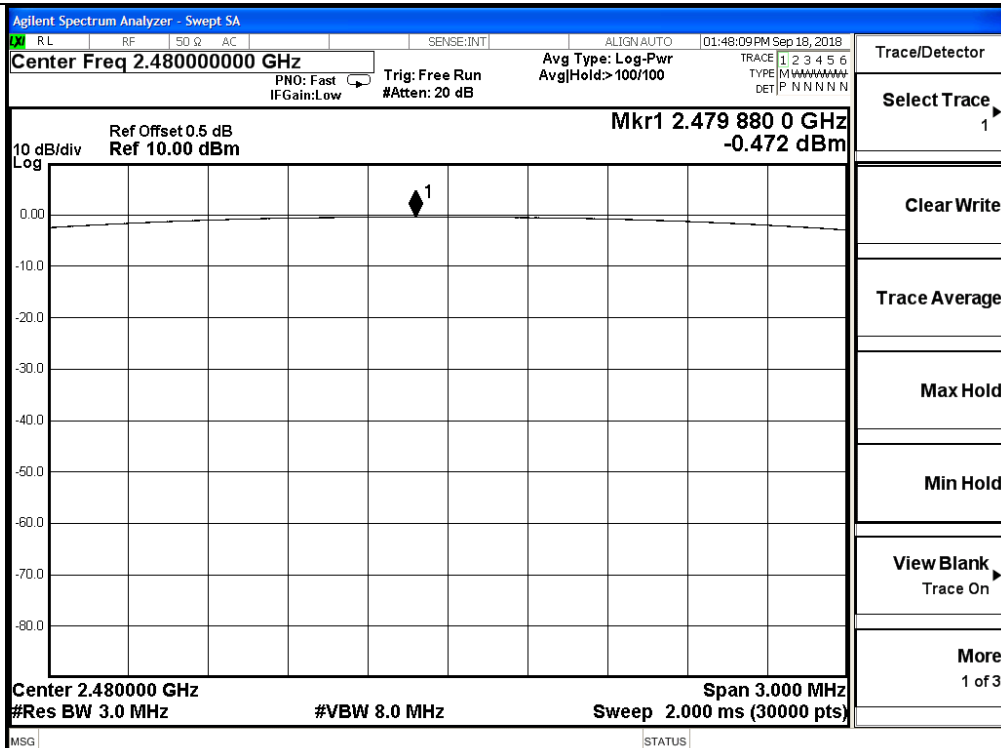
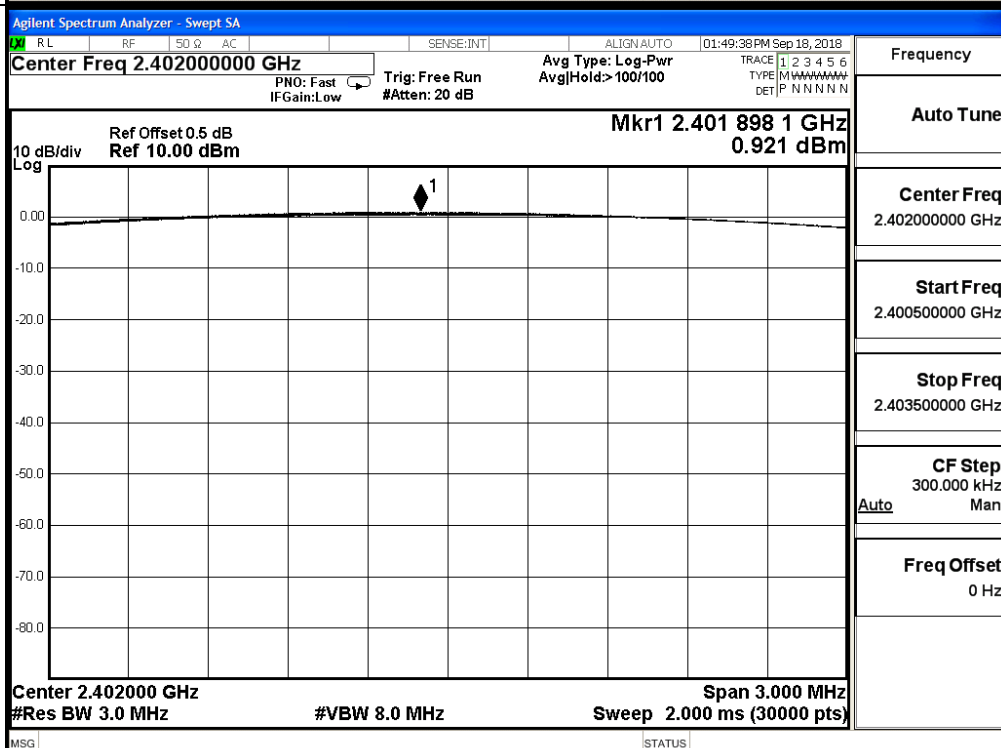
GFSK/LCH

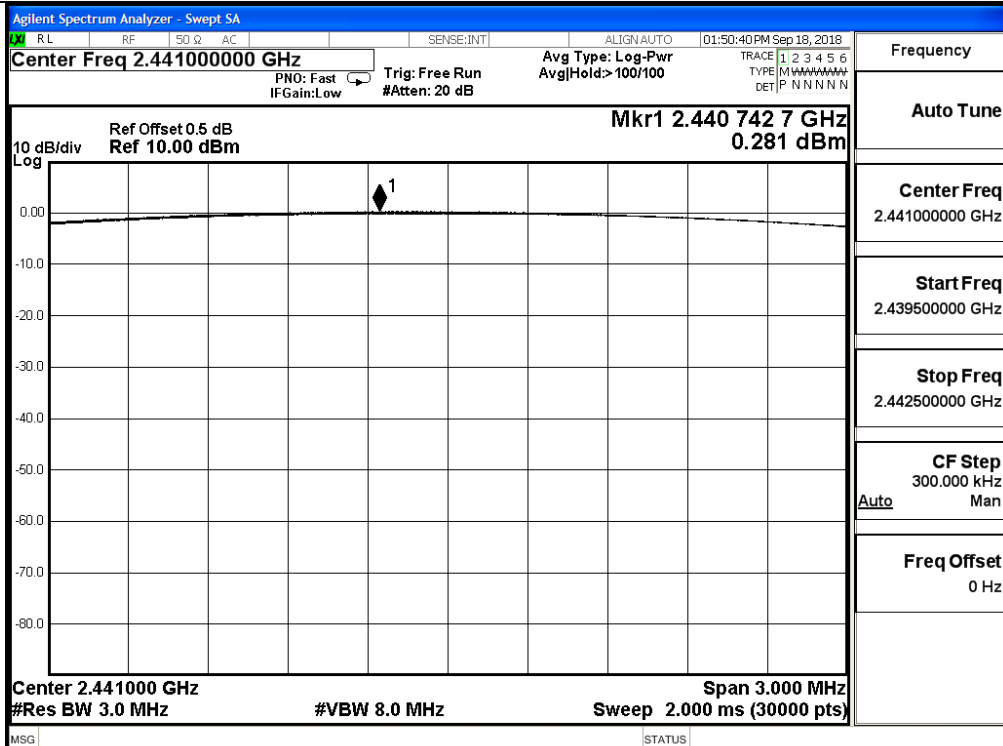
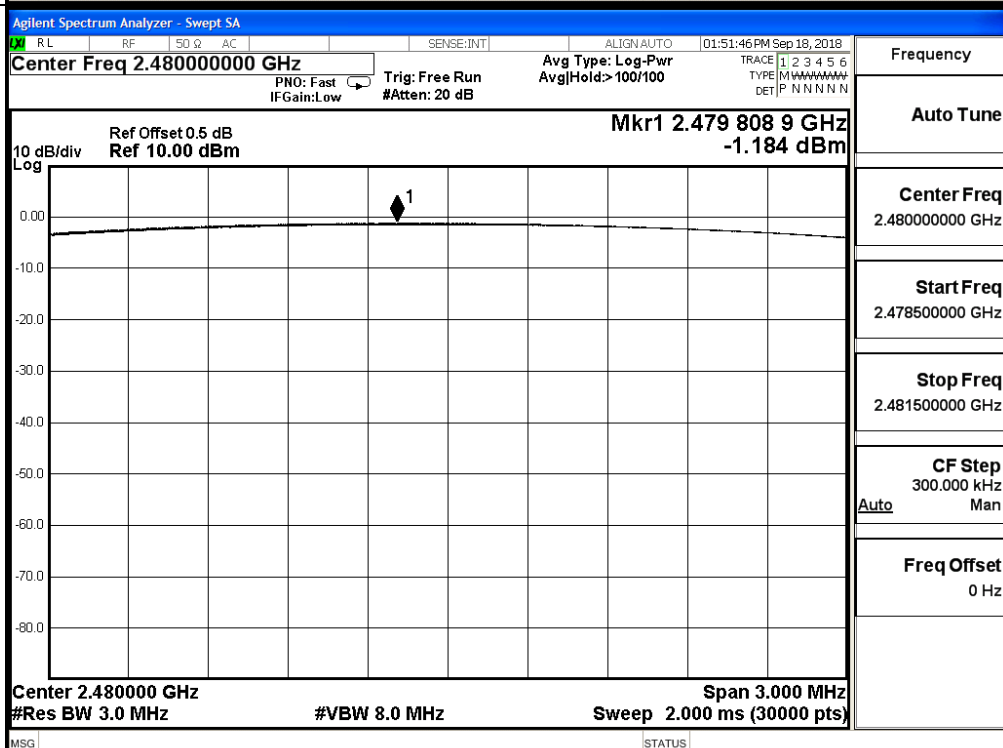


GFSK/MCH

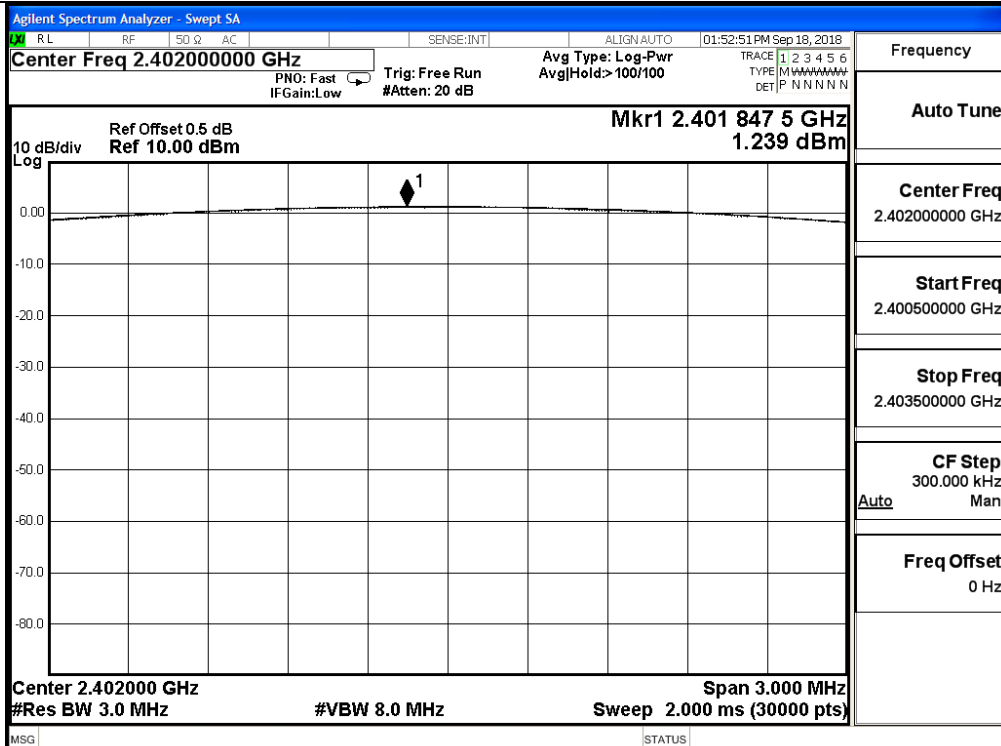


GFSK/HCH

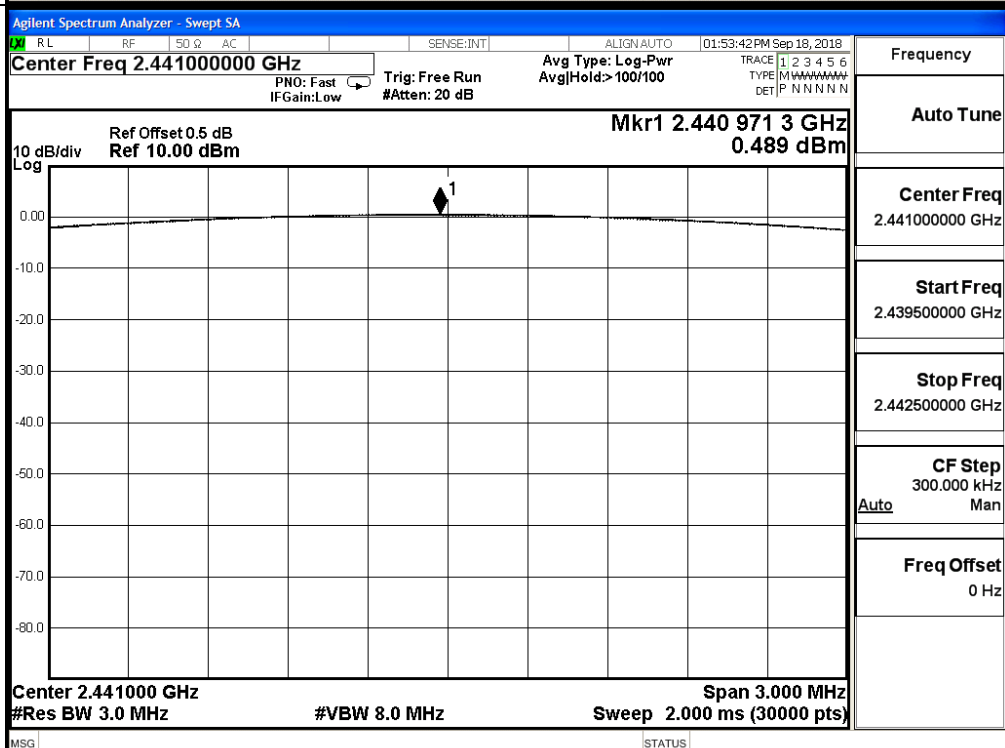
 π /4DQPSK/LCH

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

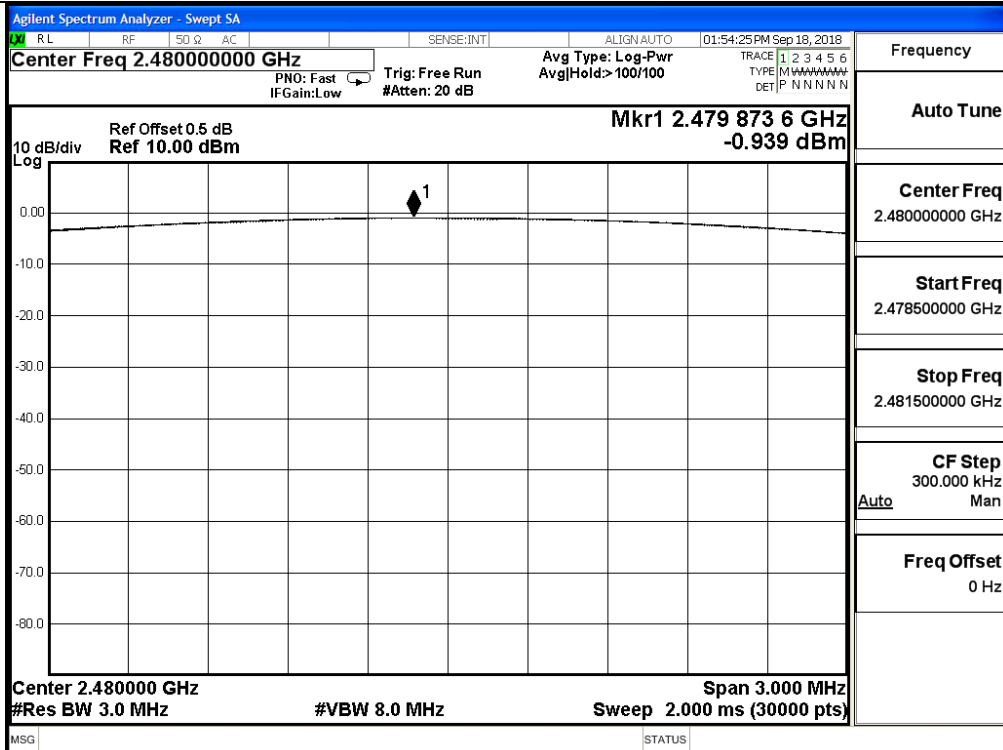
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

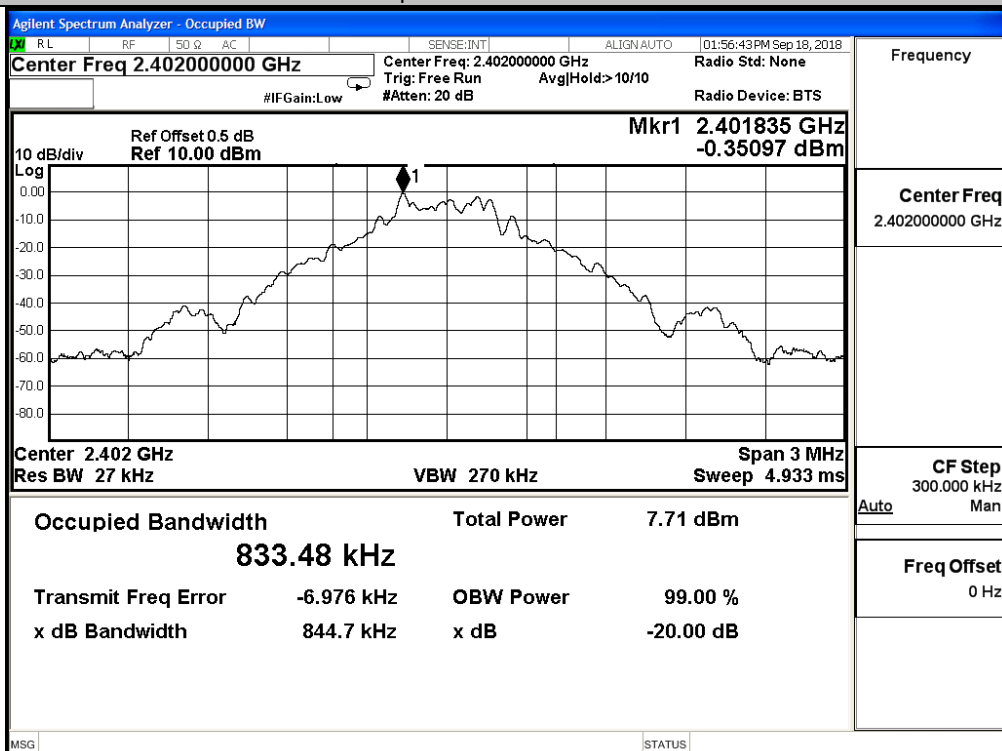


A.2 20dB Bandwidth

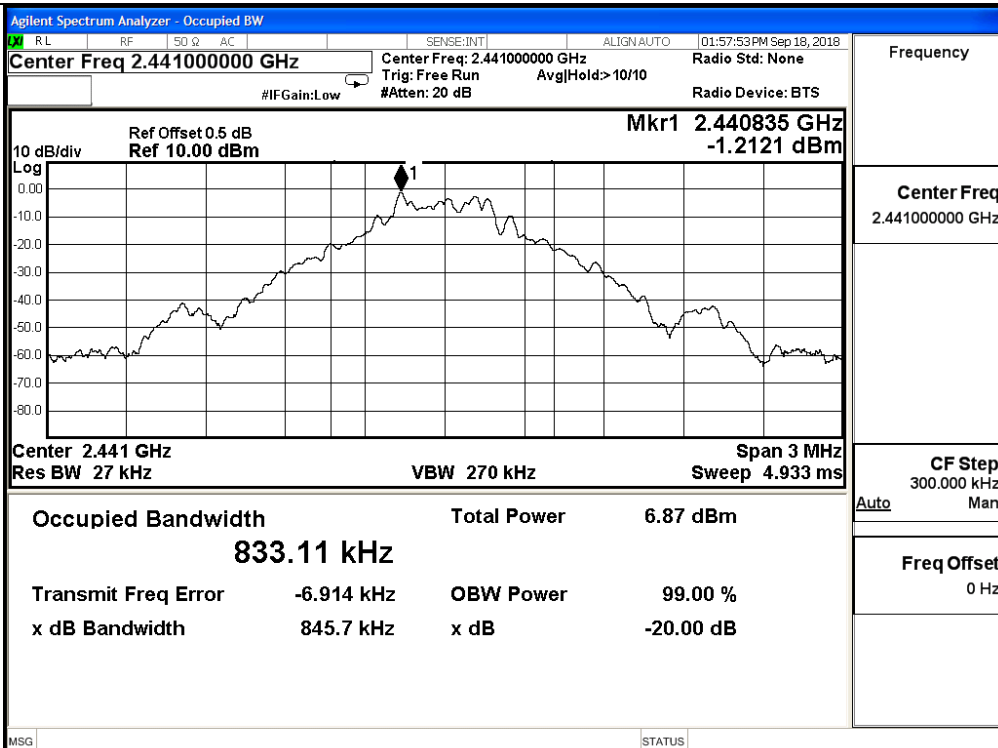
Mode	Channel.	99% Bandwidth [MHz]	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.83349	0.8447	Not Specified	PASS
	MCH	0.83311	0.8457	Not Specified	PASS
	HCH	0.83418	0.8448	Not Specified	PASS
π /4DQPSK	LCH	1.1756	1.285	Not Specified	PASS
	MCH	1.1909	1.285	Not Specified	PASS
	HCH	1.2008	1.287	Not Specified	PASS
8DPSK	LCH	1.1239	1.273	Not Specified	PASS
	MCH	1.1291	1.275	Not Specified	PASS
	HCH	1.1334	1.276	Not Specified	PASS

Test Graphs

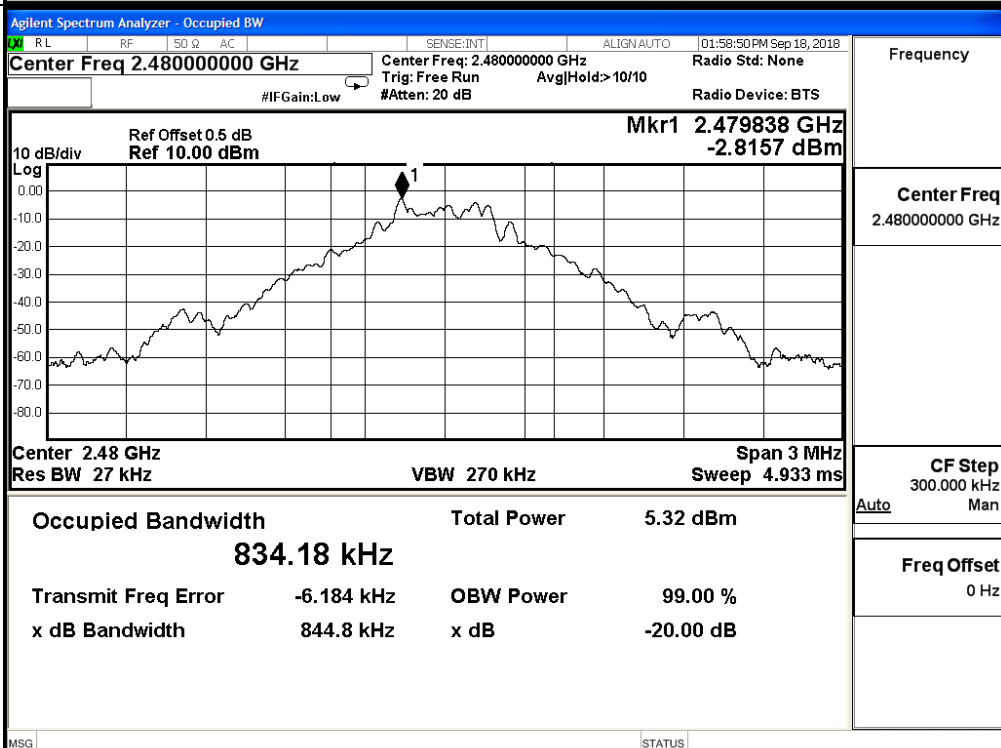
GFSK/LCH

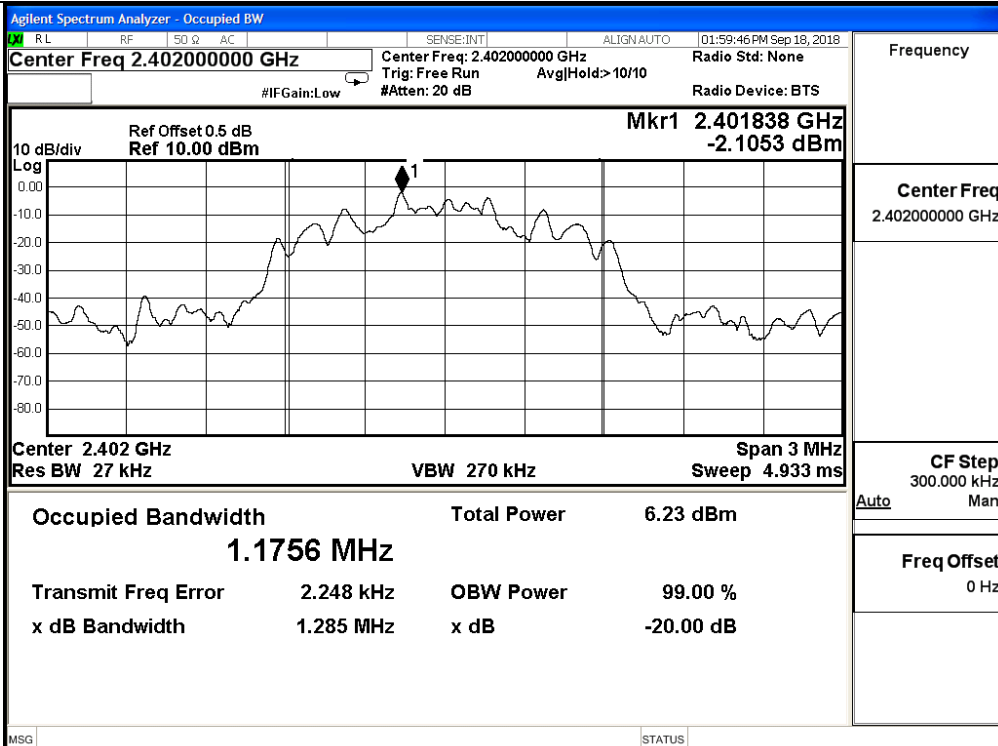
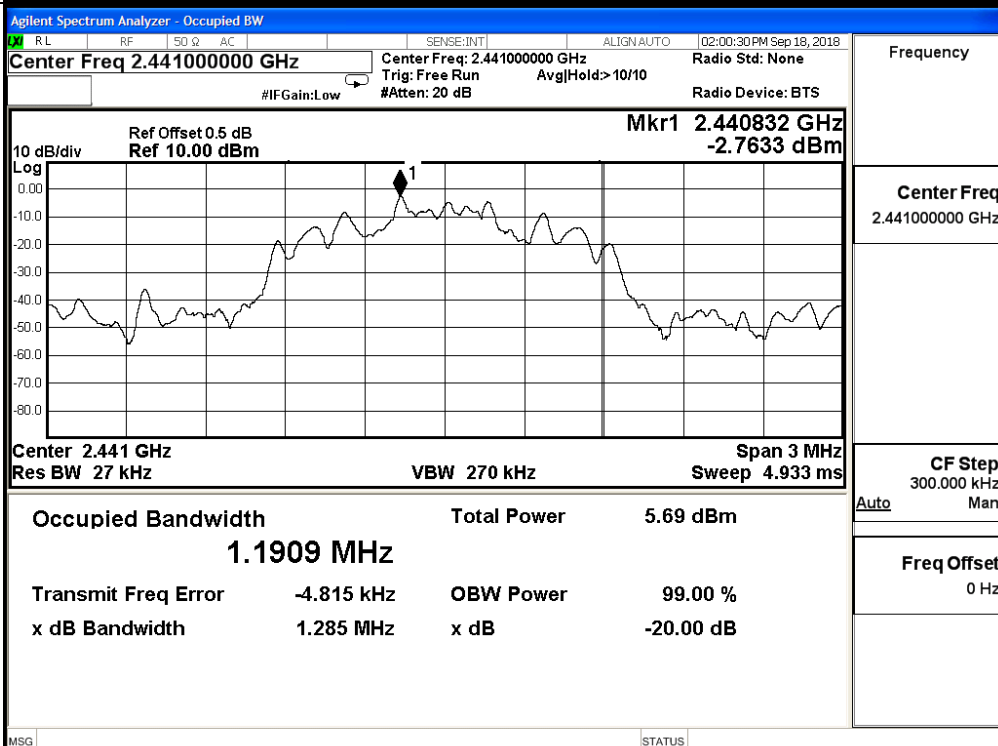


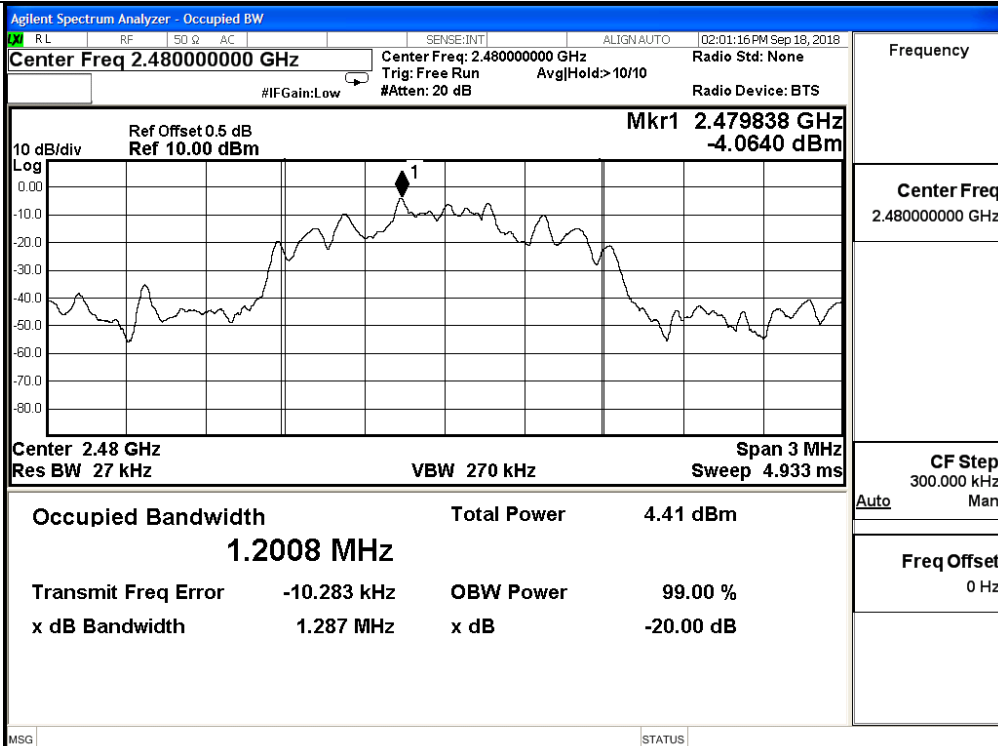
GFSK/MCH



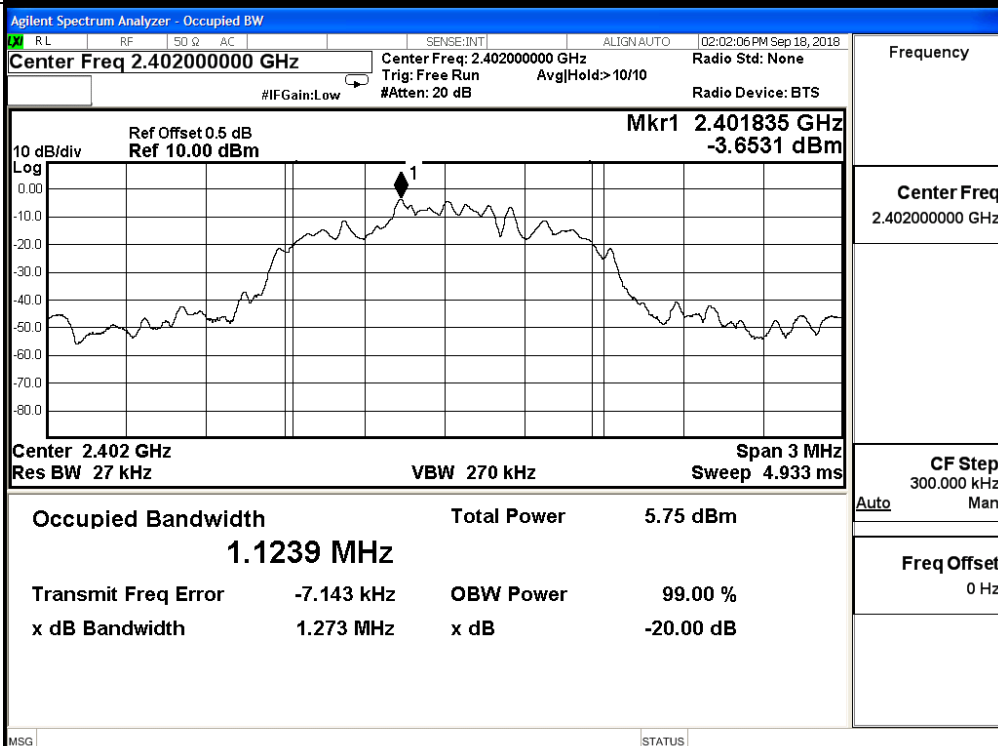
GFSK/HCH



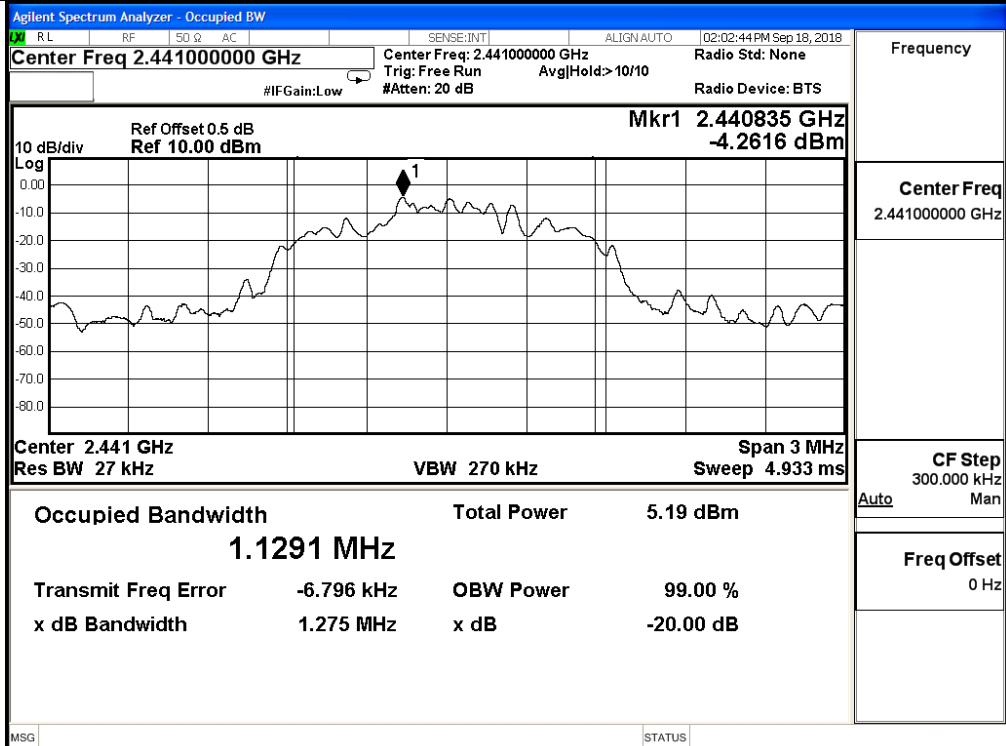
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

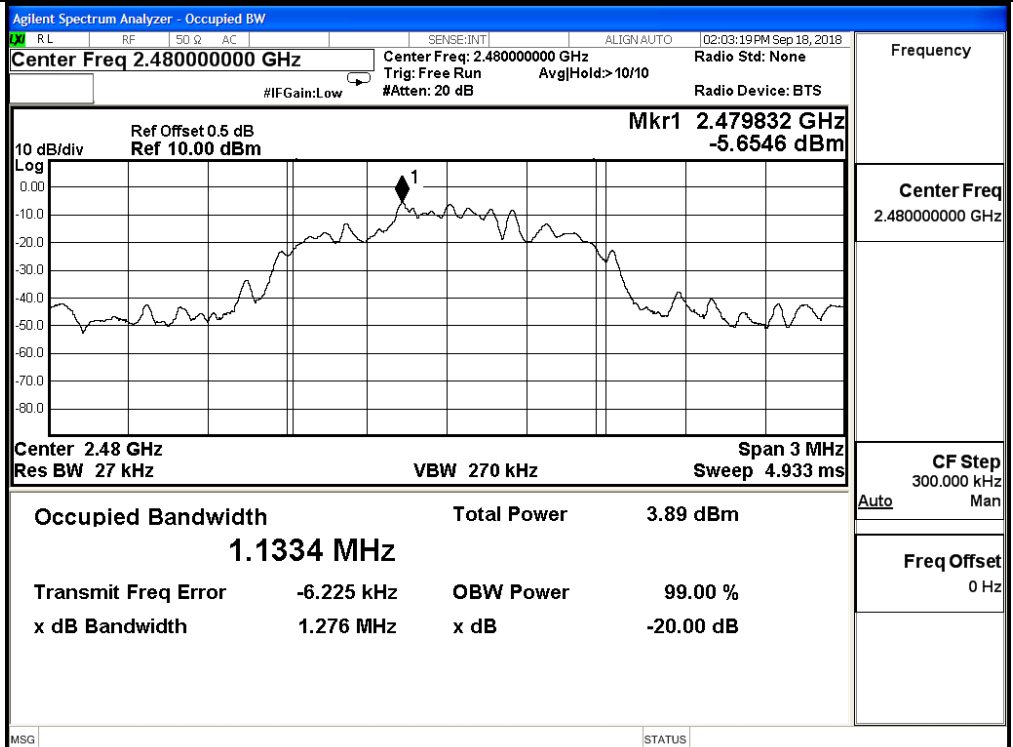
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

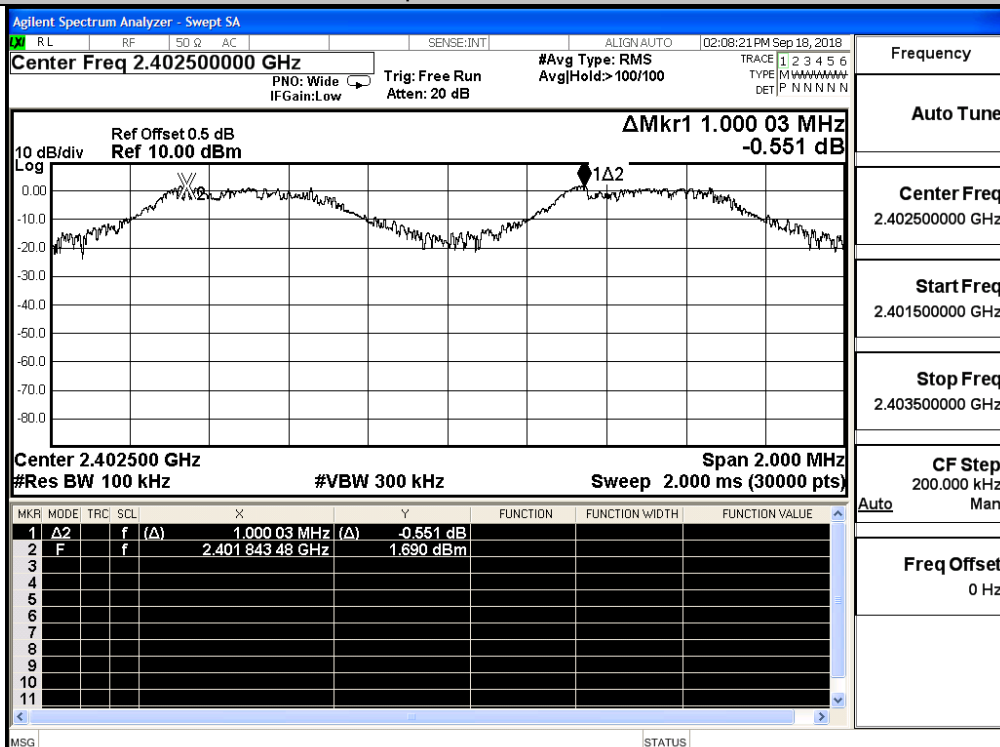


A.3 Carrier Frequency Separation

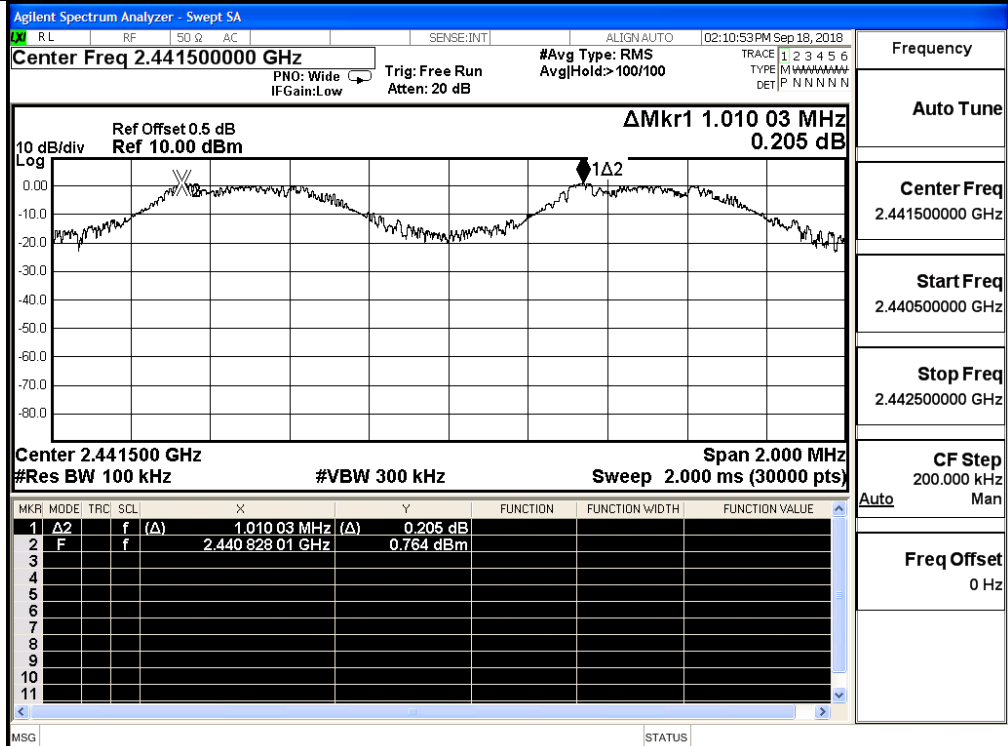
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.000	0.5638	PASS
	MCH	1.010	0.5638	PASS
	HCH	0.999	0.5638	PASS
$\pi/4$ DQPSK	LCH	0.995	0.858	PASS
	MCH	1.006	0.858	PASS
	HCH	0.998	0.858	PASS
8DPSK	LCH	0.994	0.851	PASS
	MCH	1.003	0.851	PASS
	HCH	1.018	0.851	PASS

Test Graphs

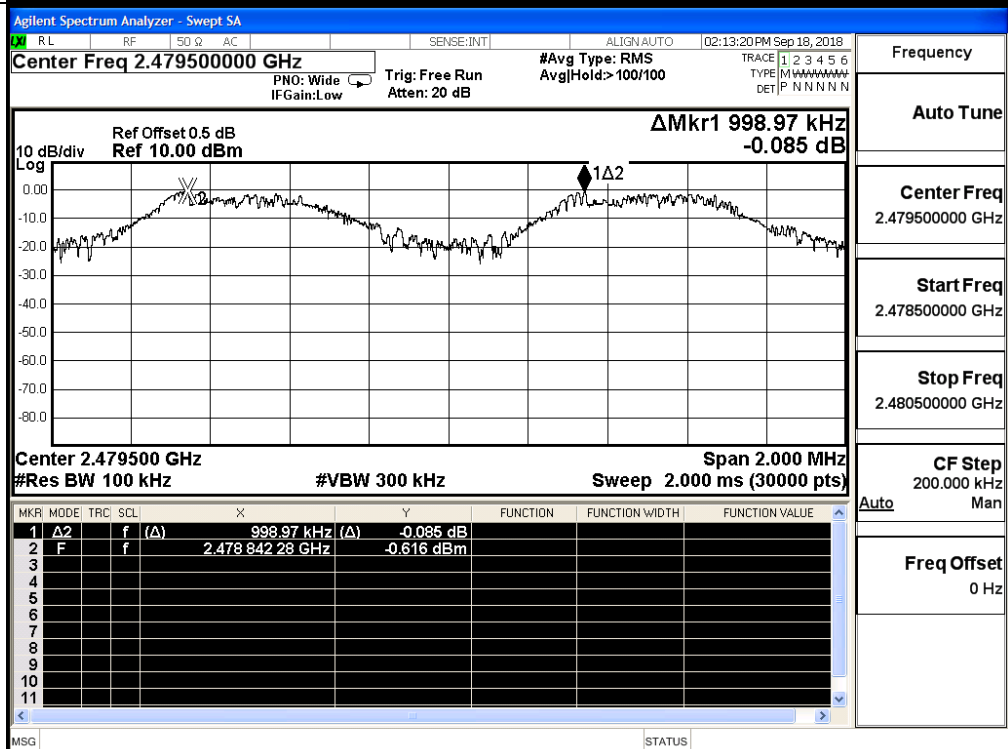
GFSK/LCH

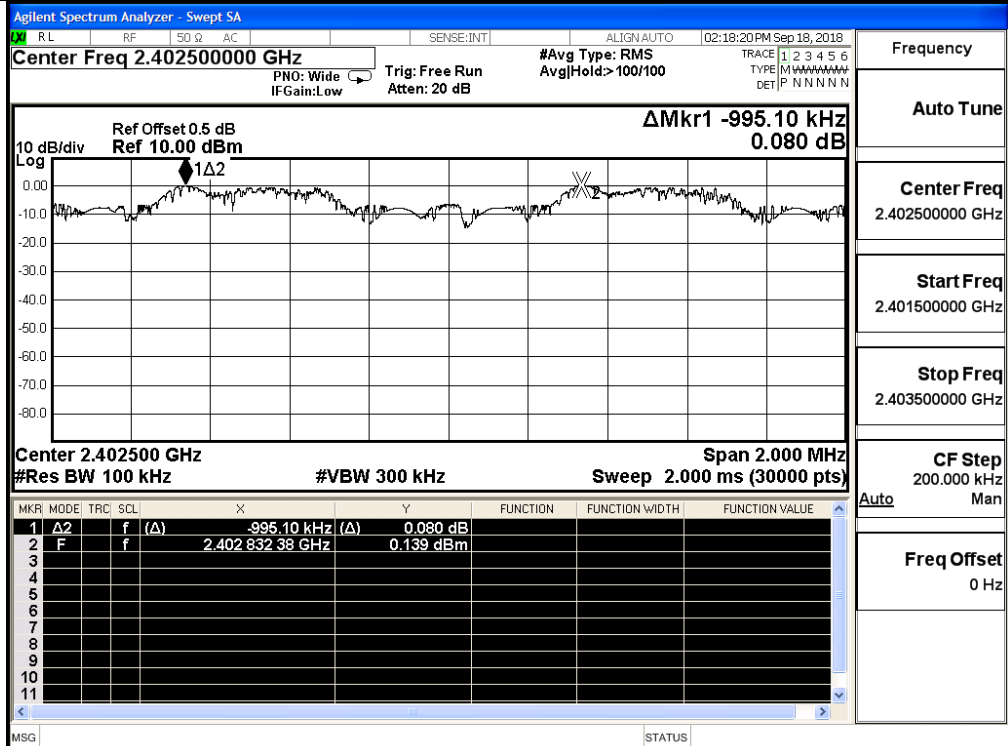


GFSK/MCH



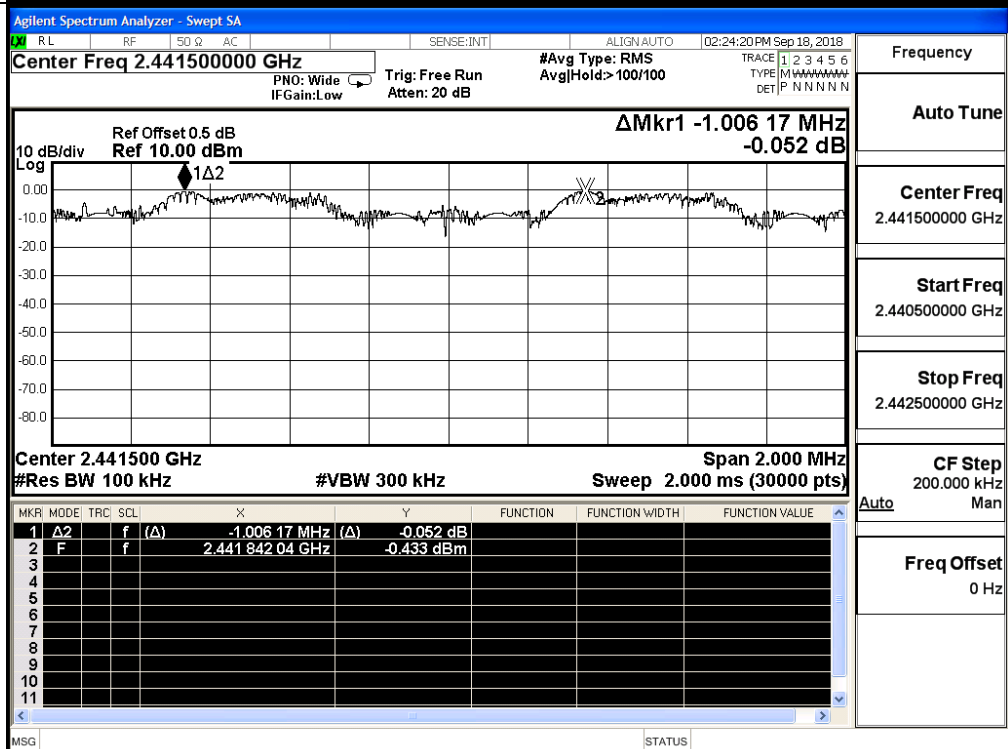
GFSK/HCH



$\pi/4$ DQPSK/LCH

Frequency

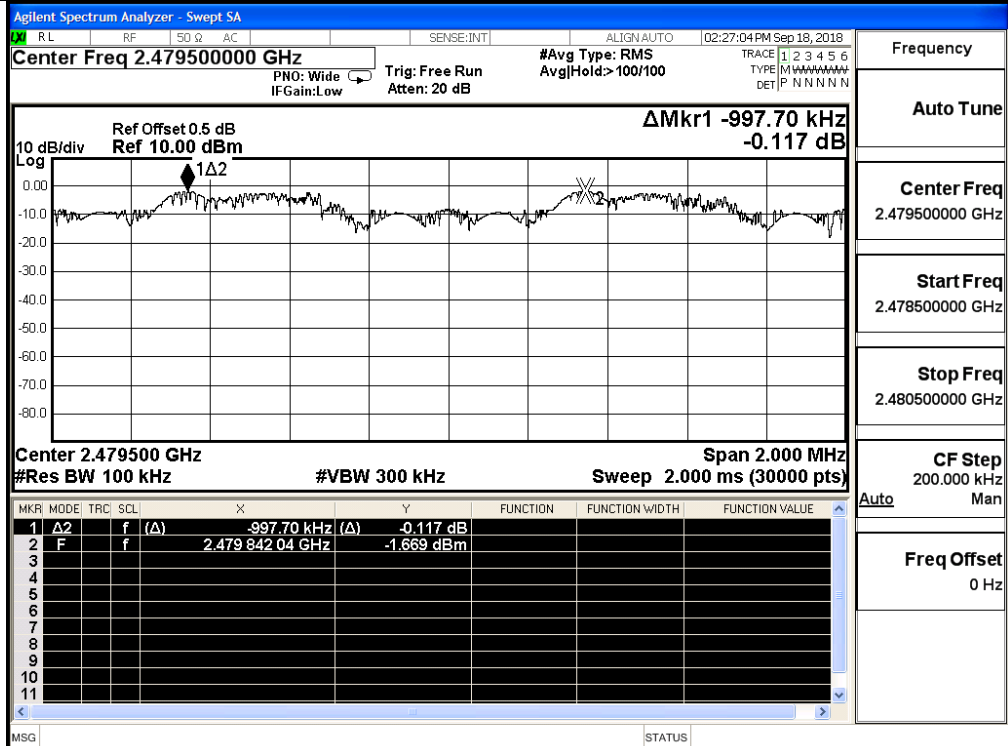
Auto Tune

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

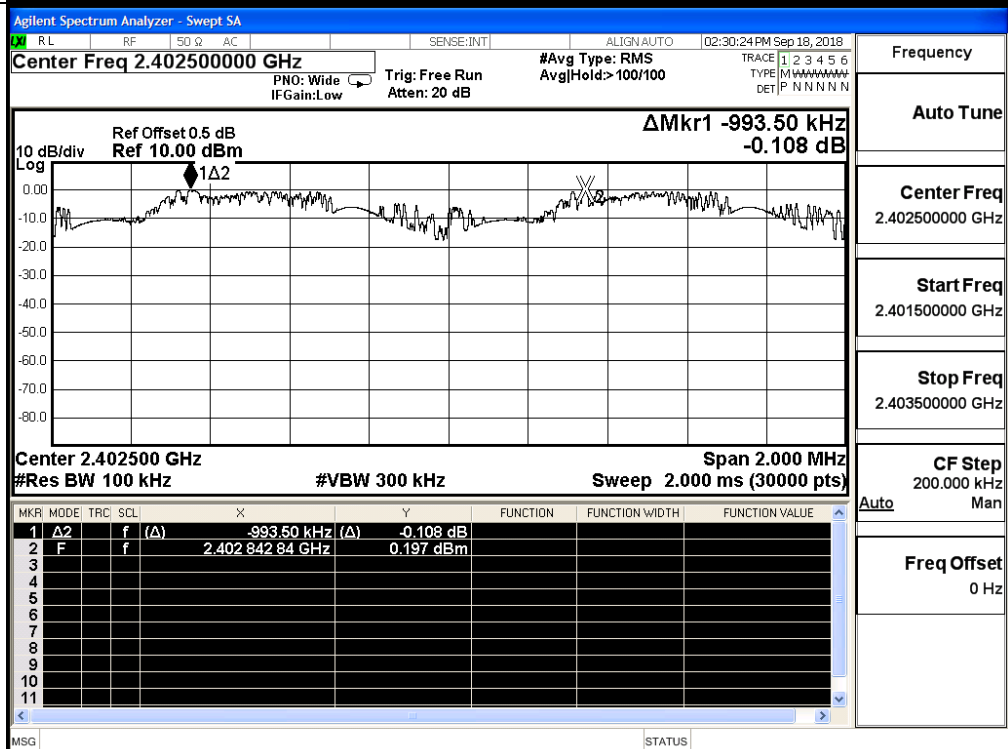
Frequency

Auto Tune

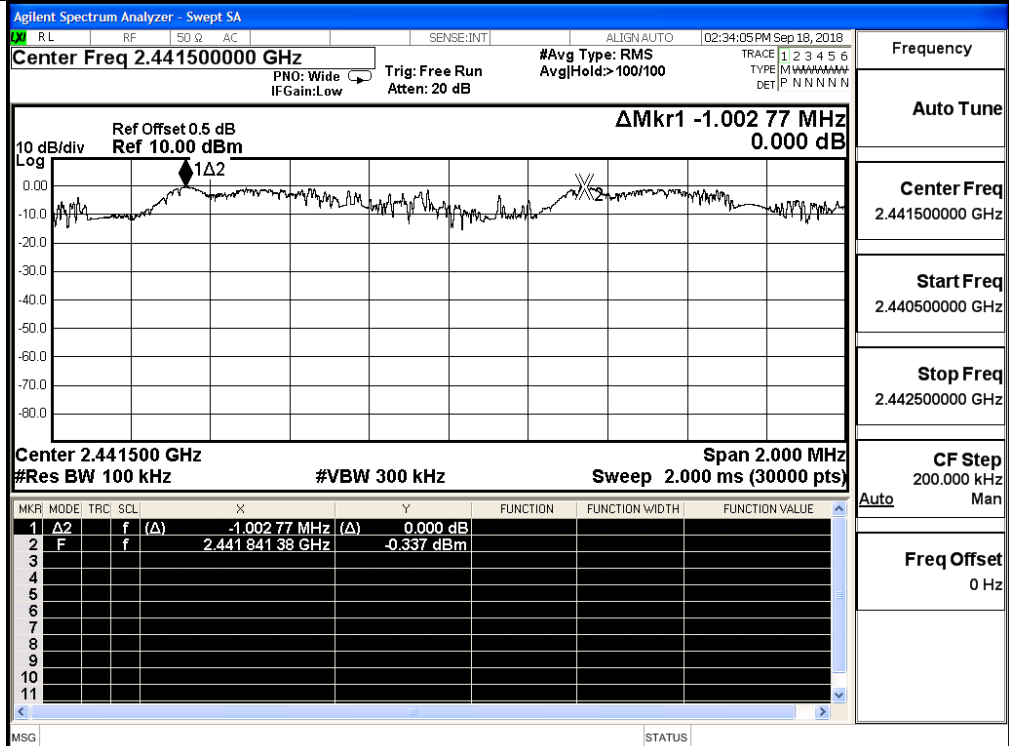
Center Freq
2.441500000 GHzStart Freq
2.440500000 GHzStop Freq
2.442500000 GHzCF Step
200.000 kHz
Auto ManFreq Offset
0 Hz

$\pi/4$ DQPSK/HCH

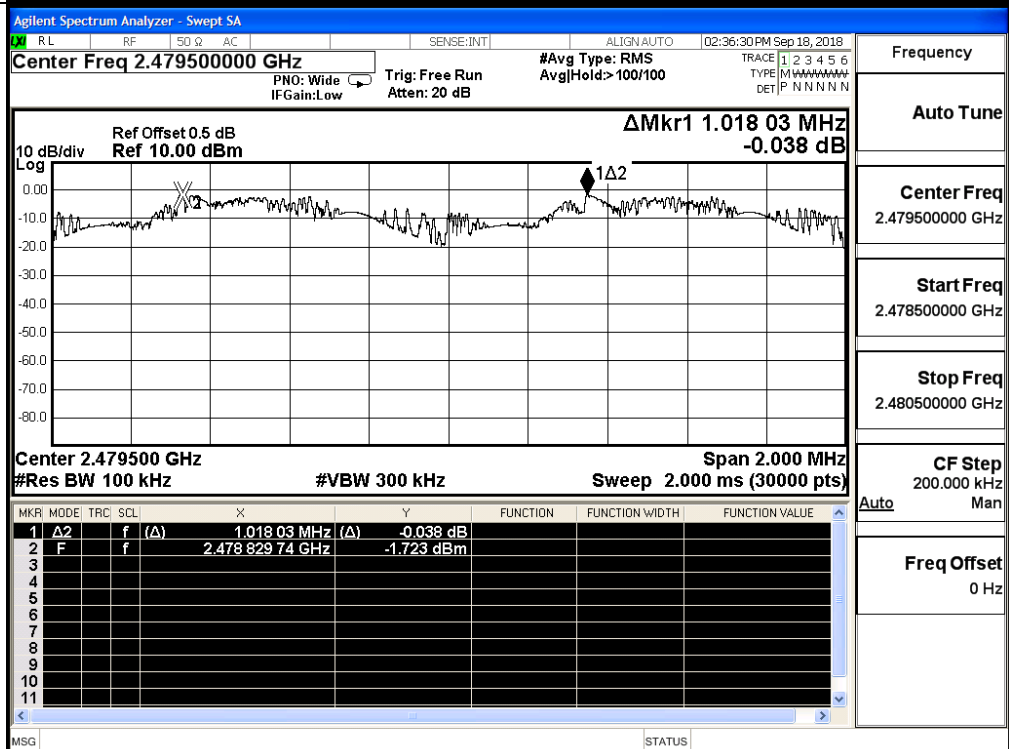
8DPSK/LCH



8DPSK/MCH

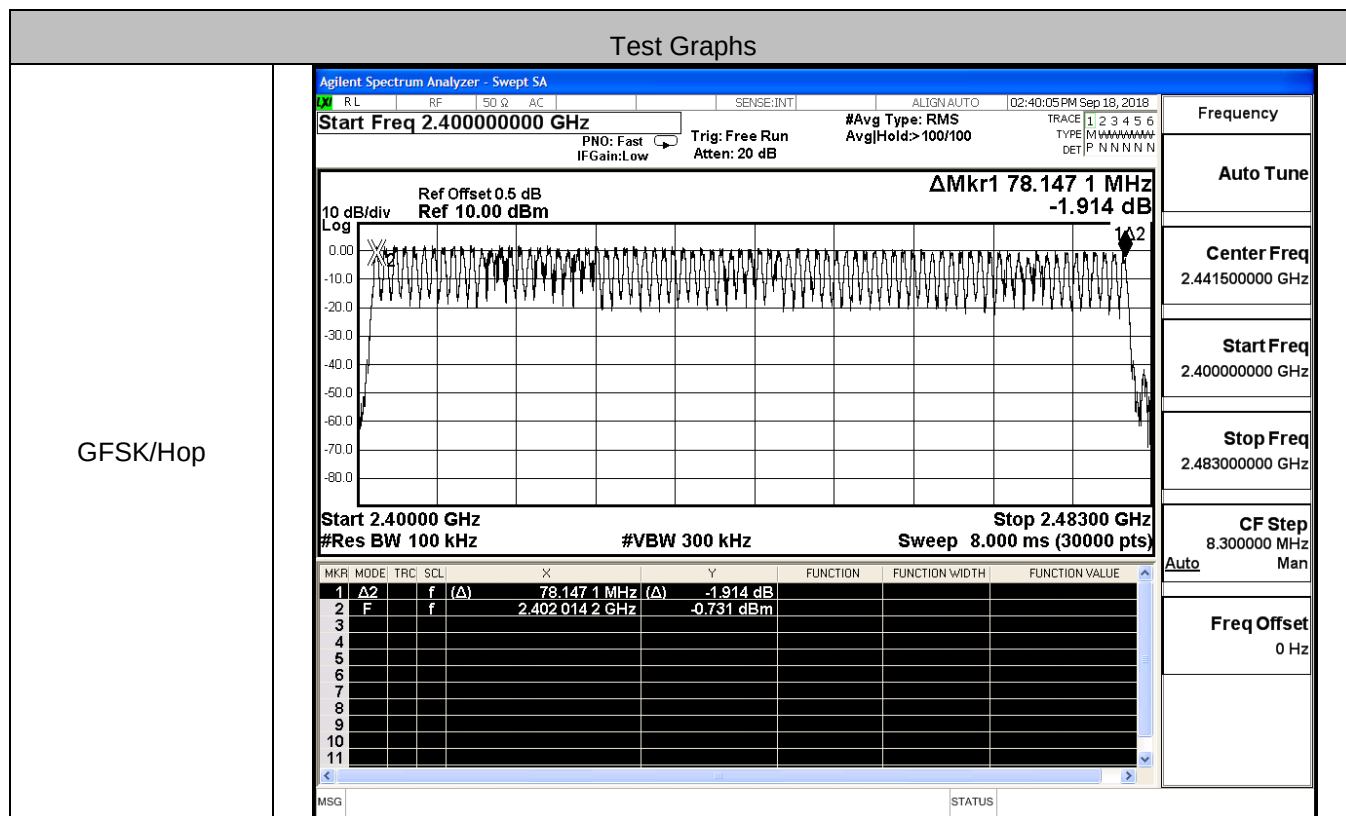


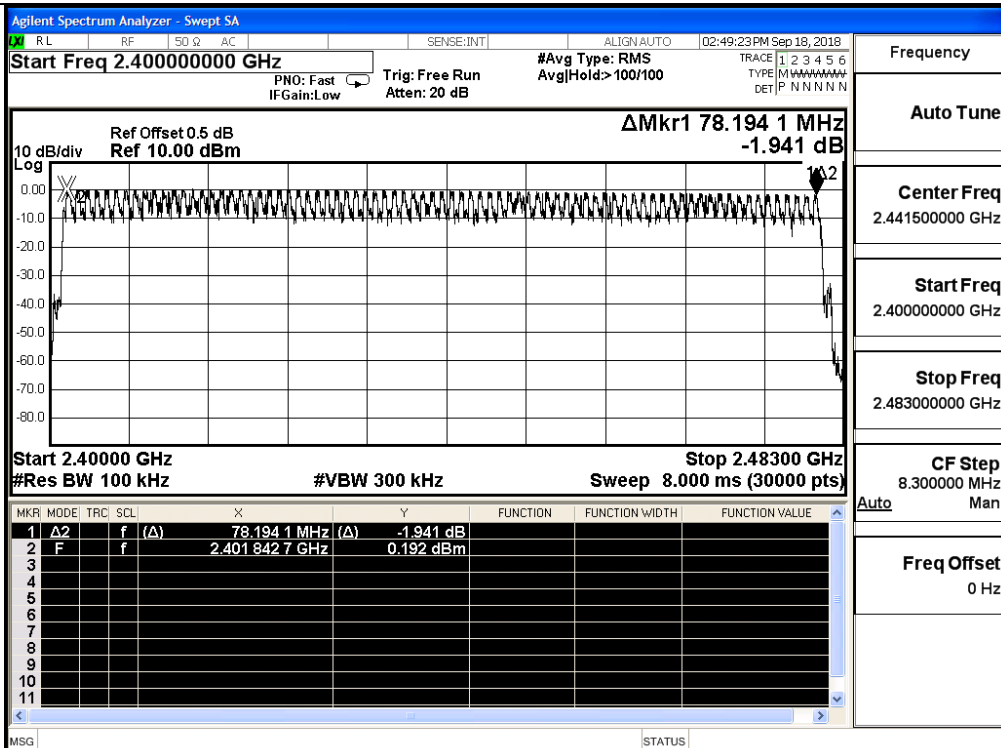
8DPSK/HCH



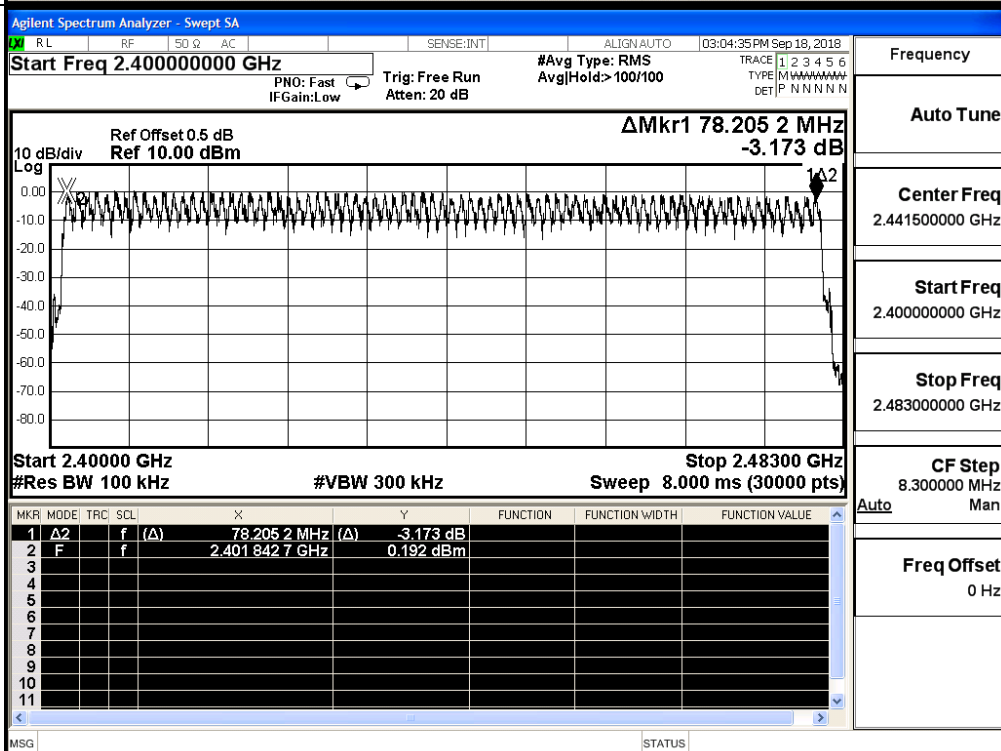
A.4 Hopping Channel Number

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



$\pi/4$ DQPSK/Hop

8DPSK/Hop

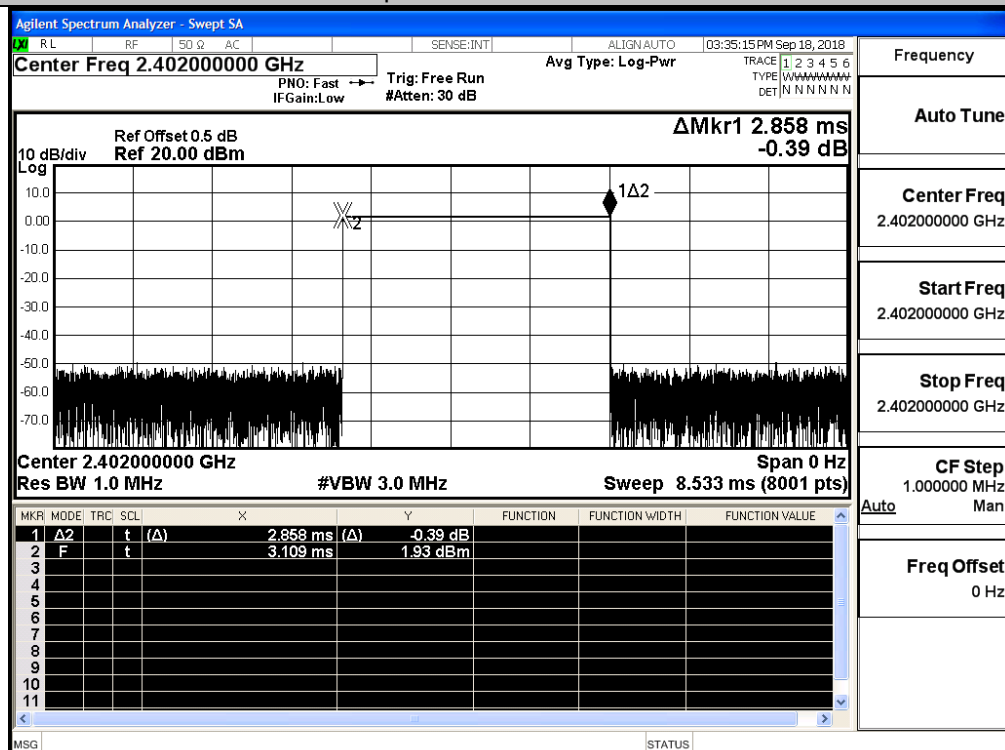


A.5 Dwell Time

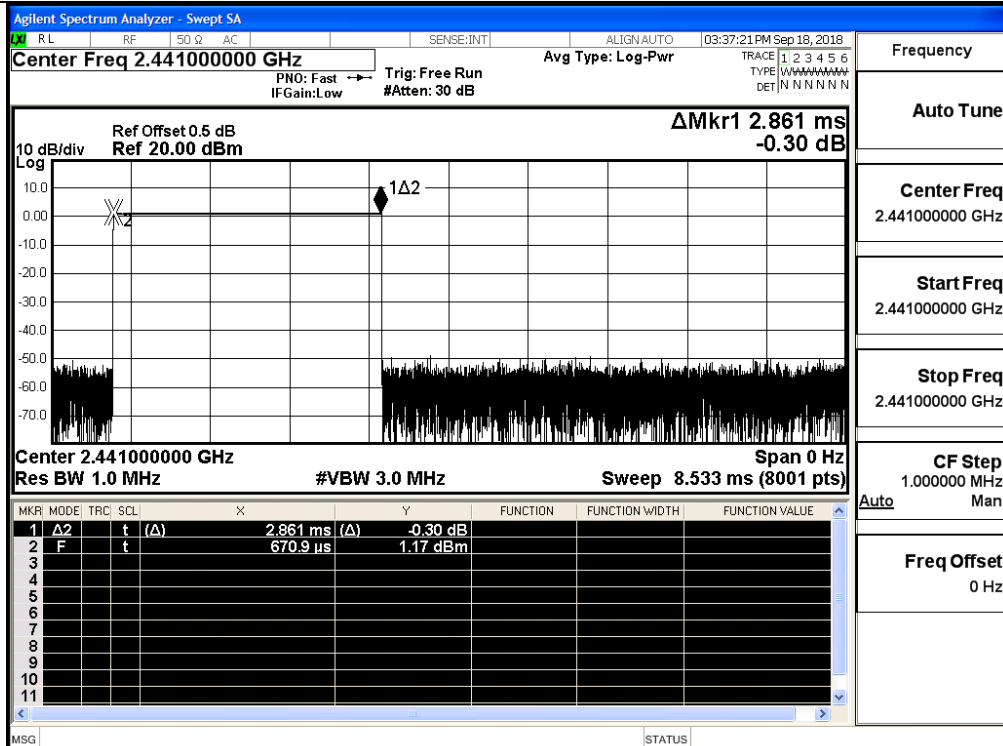
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.9	106.7	0.309	0.4	PASS
	DH5	MCH	2.9	106.7	0.309	0.4	PASS
	DH5	HCH	2.9	106.7	0.309	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.9	106.7	0.309	0.4	PASS
	2DH5	MCH	2.9	106.7	0.309	0.4	PASS
	2DH5	HCH	2.9	106.7	0.309	0.4	PASS
8DPSK	3DH5	LCH	2.9	106.7	0.309	0.4	PASS
	3DH5	MCH	2.9	106.7	0.309	0.4	PASS
	3DH5	HCH	2.9	106.7	0.309	0.4	PASS

Test Graphs

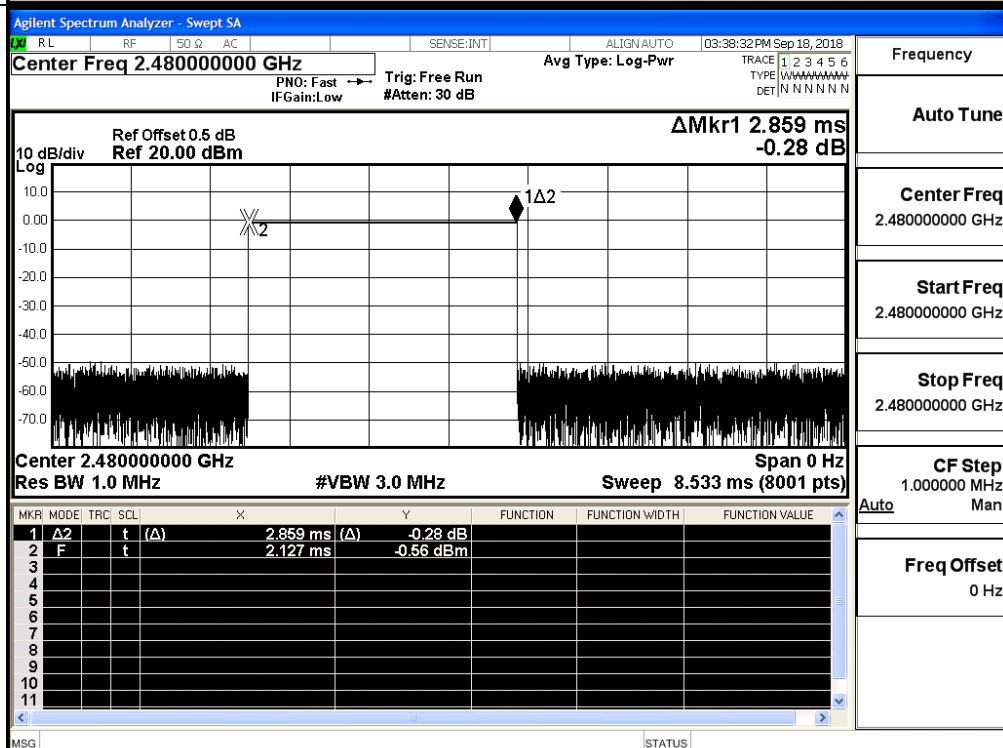
GFSK_DH5/LCH



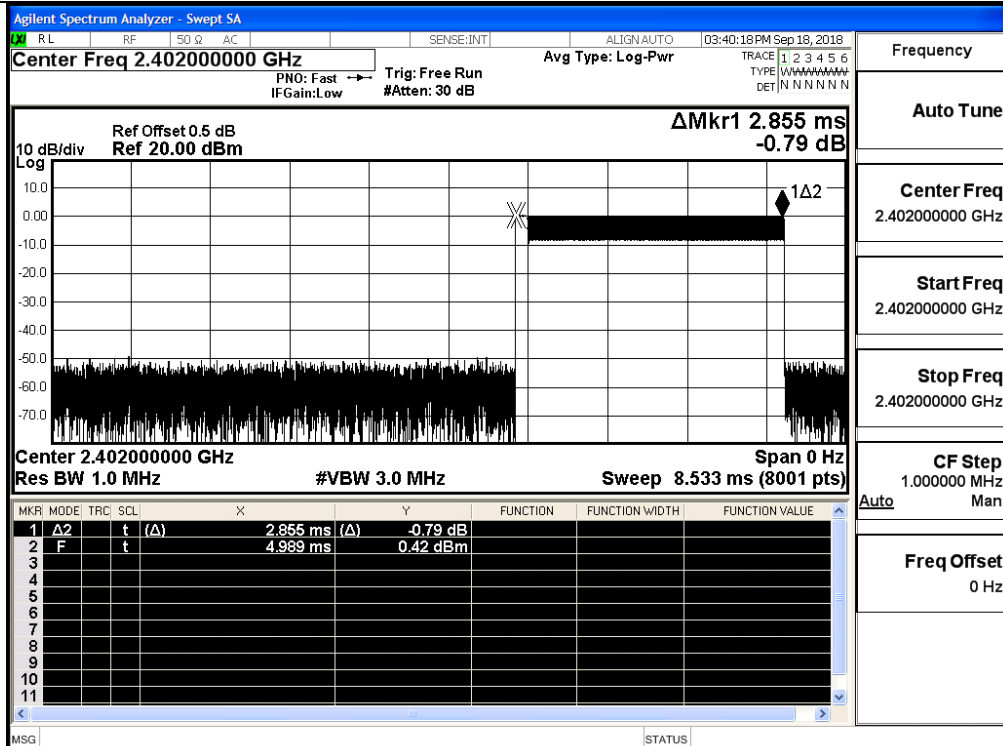
GFSK_DH5/MCH



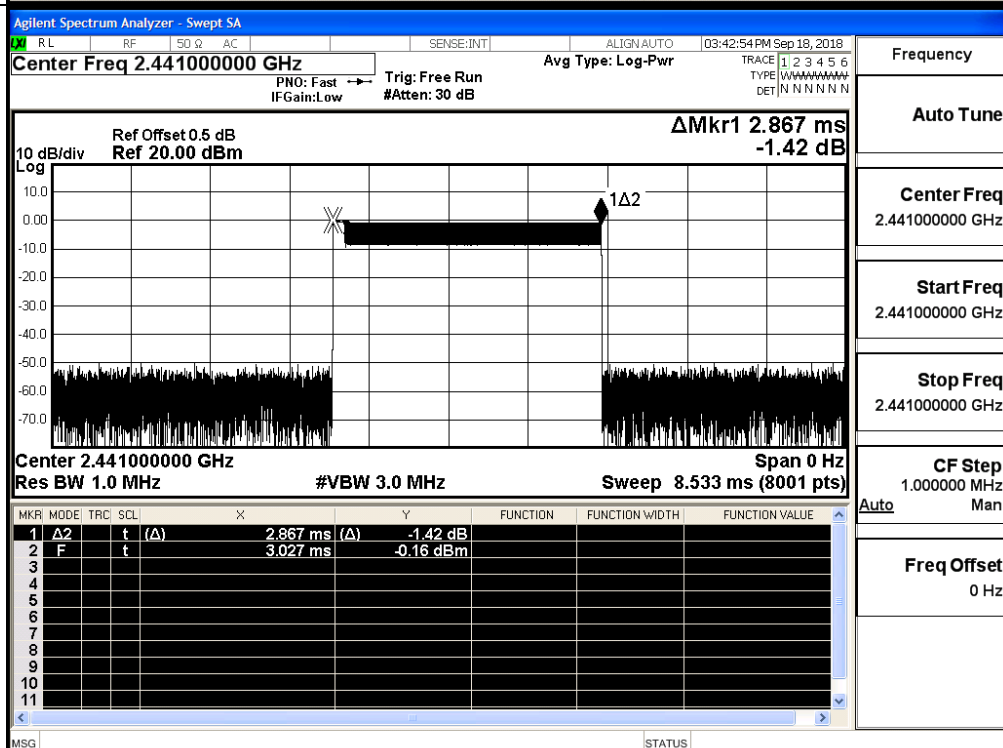
GFSK_DH5/HCH



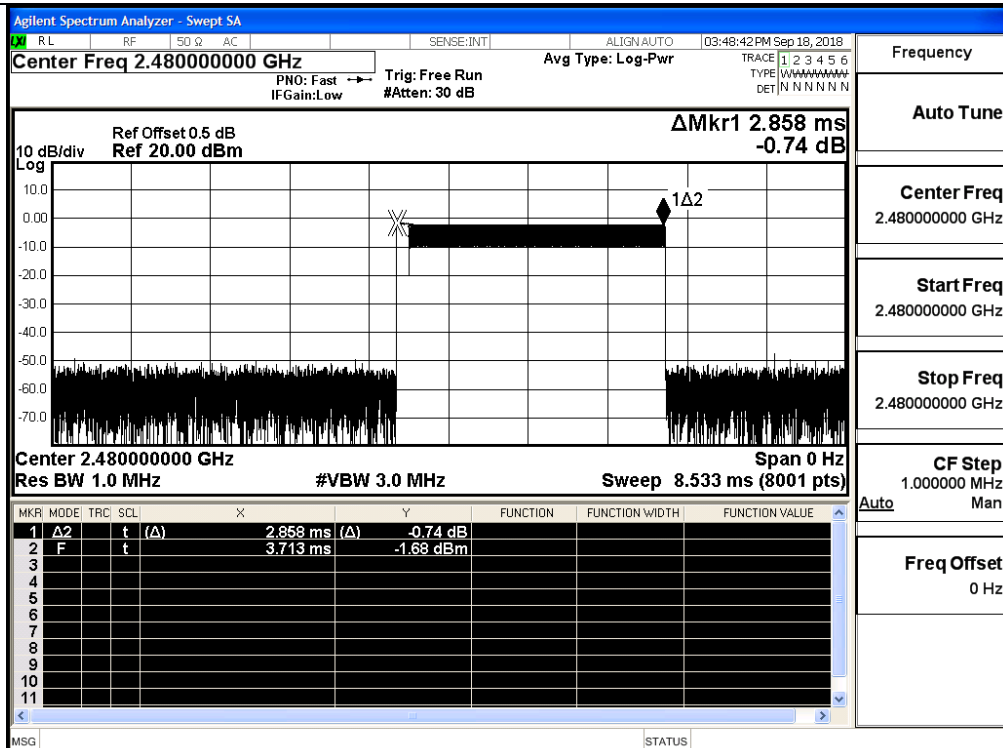
$\pi/4$ DQPSK
_2DH5/LCH



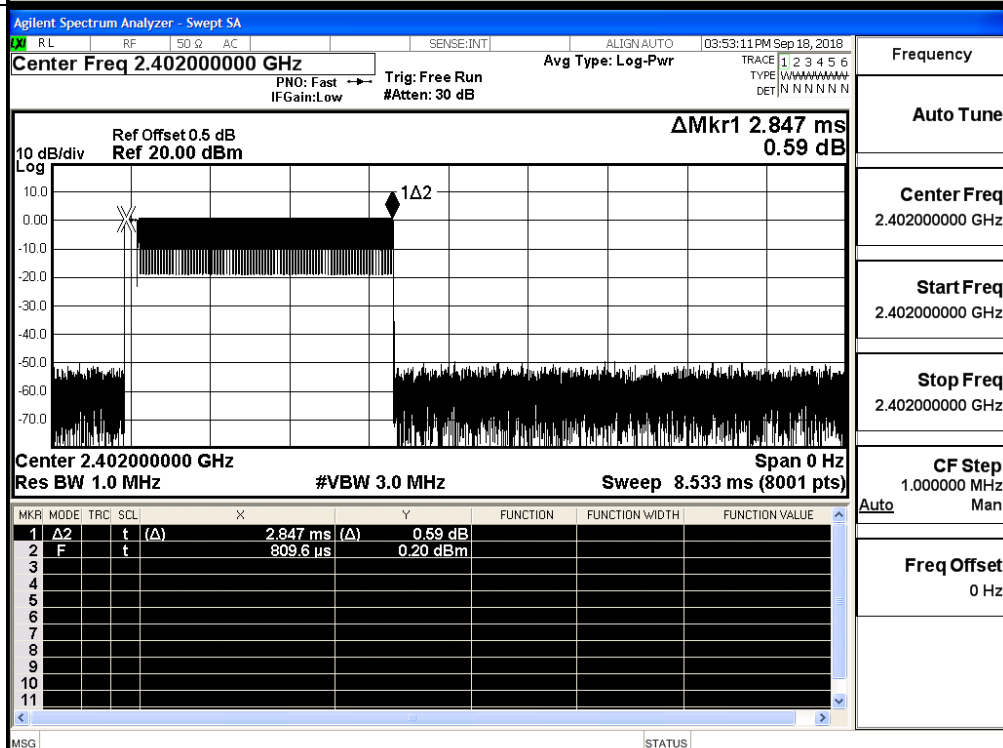
$\pi/4$ DQPSK
_2DH5/MCH



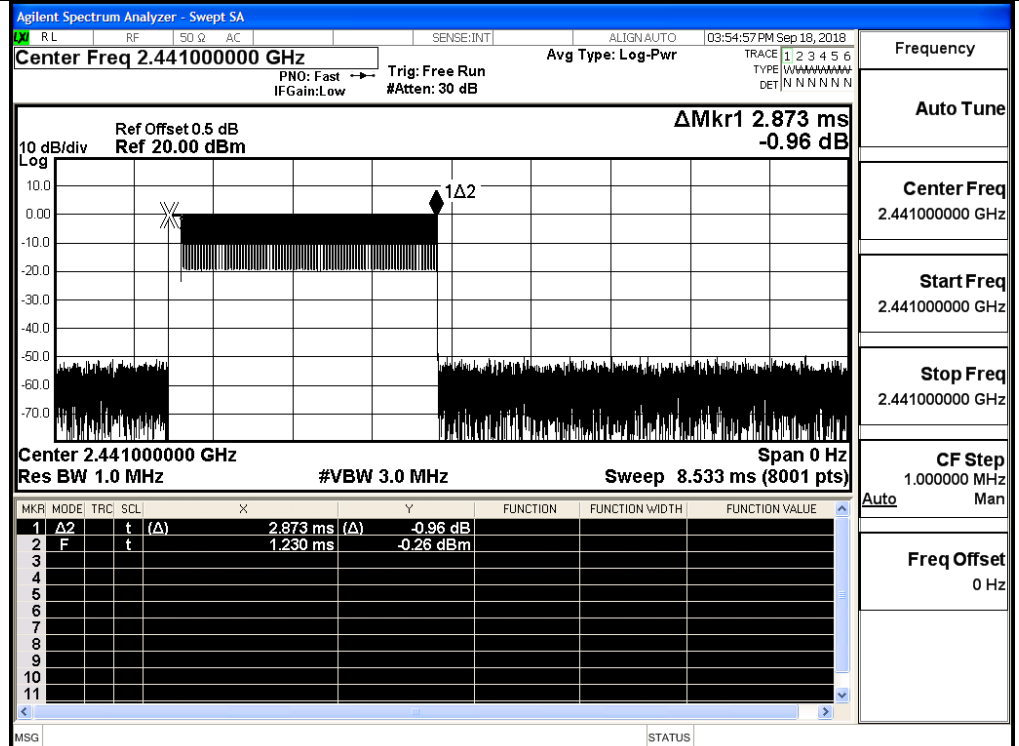
$\pi/4$ DQPSK
_2DH5/HCH



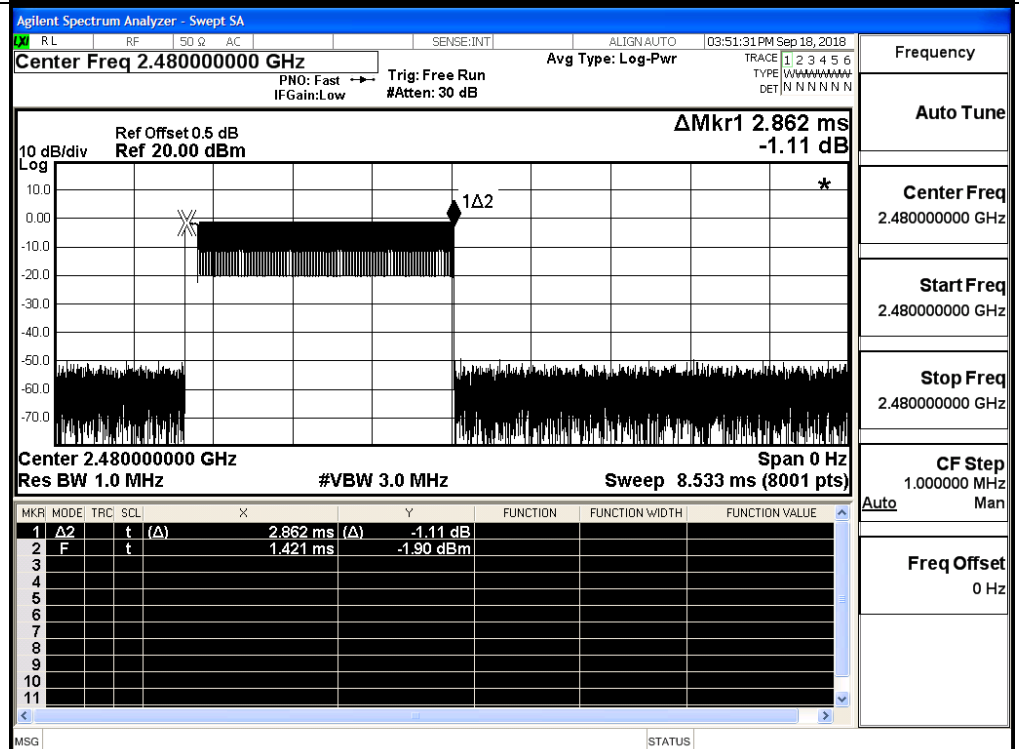
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



8DPSK_3DH5/HCH

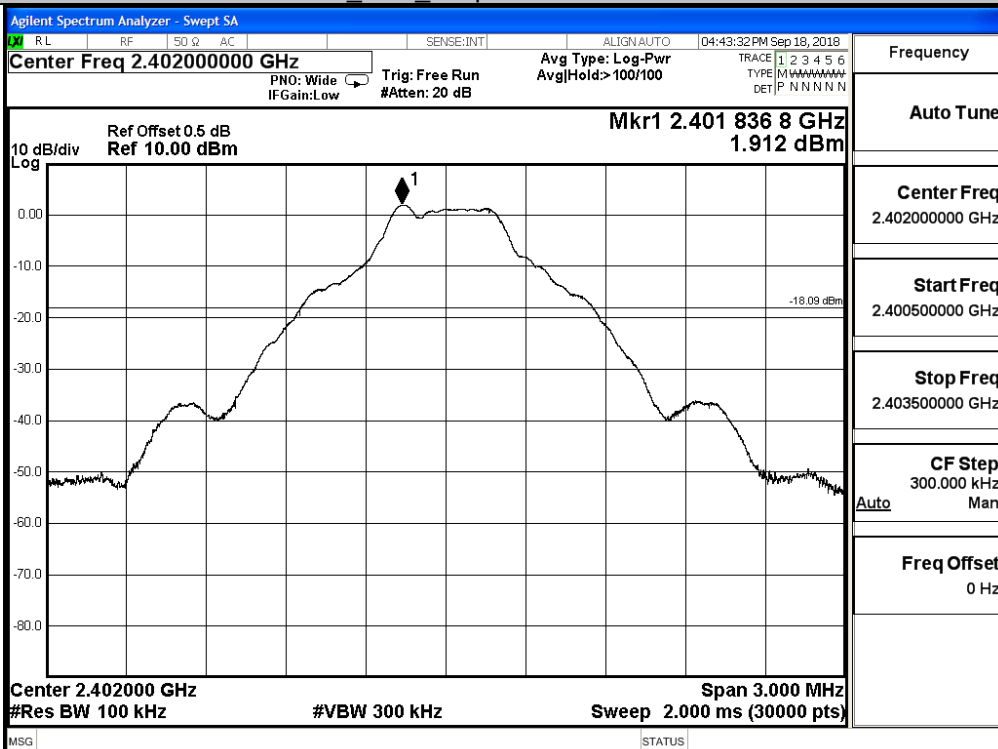


A.6 RF Conducted Spurious Emissions

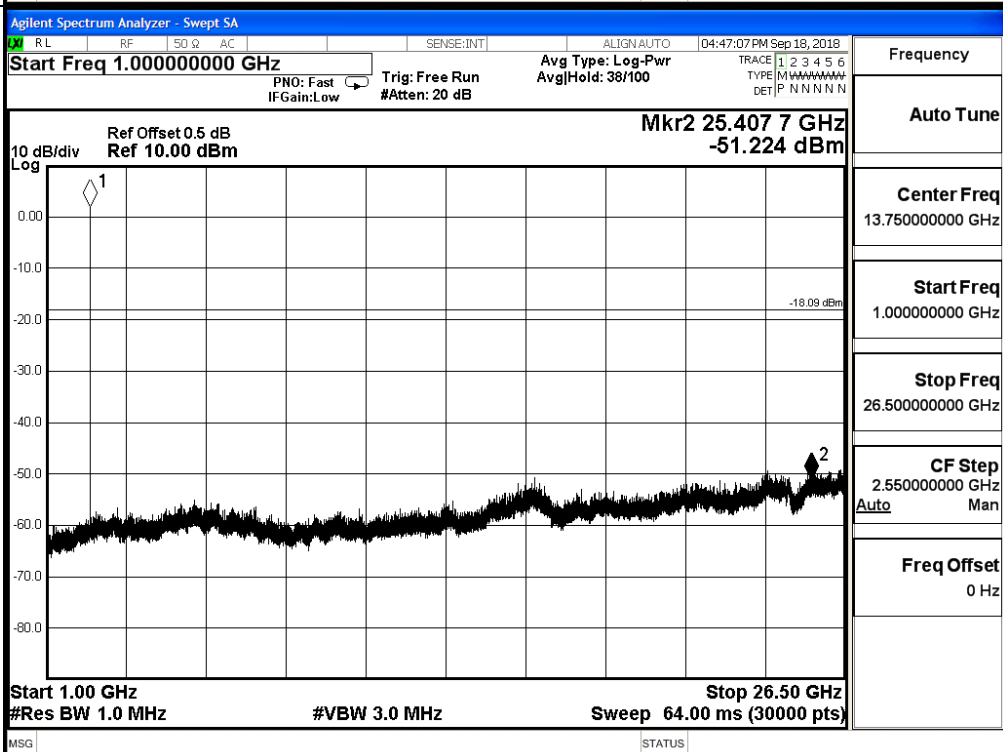
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.912	-51.224	-18.09	PASS
	MCH	1.038	-49.748	-18.96	PASS
	HCH	-0.458	-49.922	-20.46	PASS
$\pi/4$ DQPSK	LCH	0.324	-48.984	-19.68	PASS
	MCH	-0.374	-49.417	-20.37	PASS
	HCH	-1.708	-52.378	-21.71	PASS
8DPSK	LCH	0.209	-50.122	-19.79	PASS
	MCH	-0.281	-47.686	-20.28	PASS
	HCH	-1.599	-47.449	-21.60	PASS

GFSK_LCH_Graphs

Pref

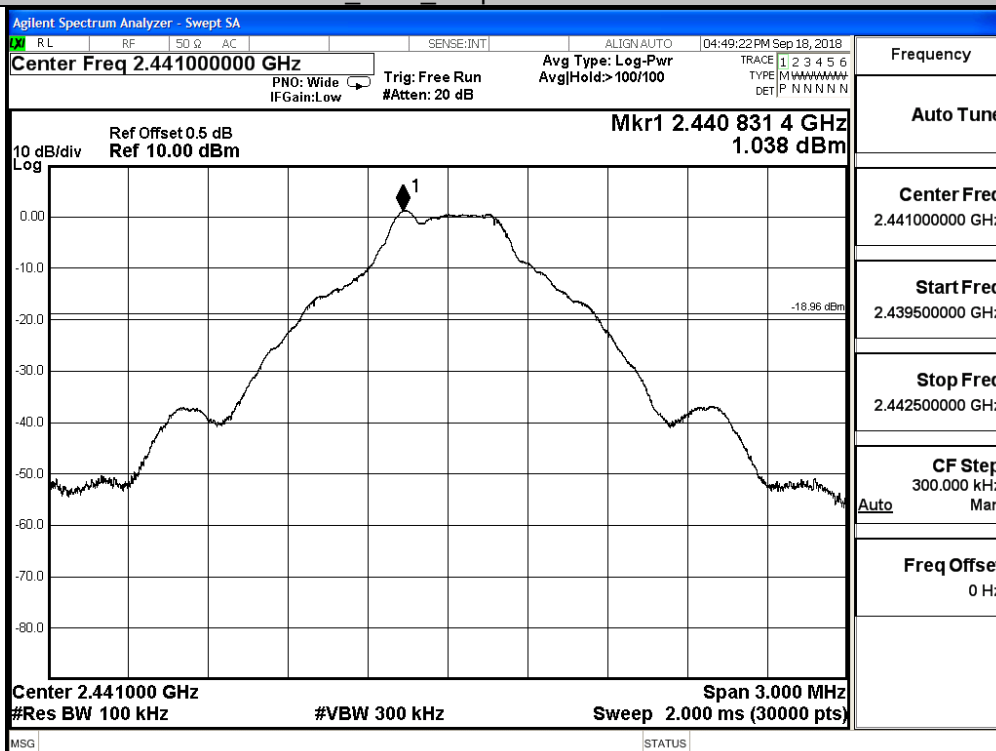


Puw

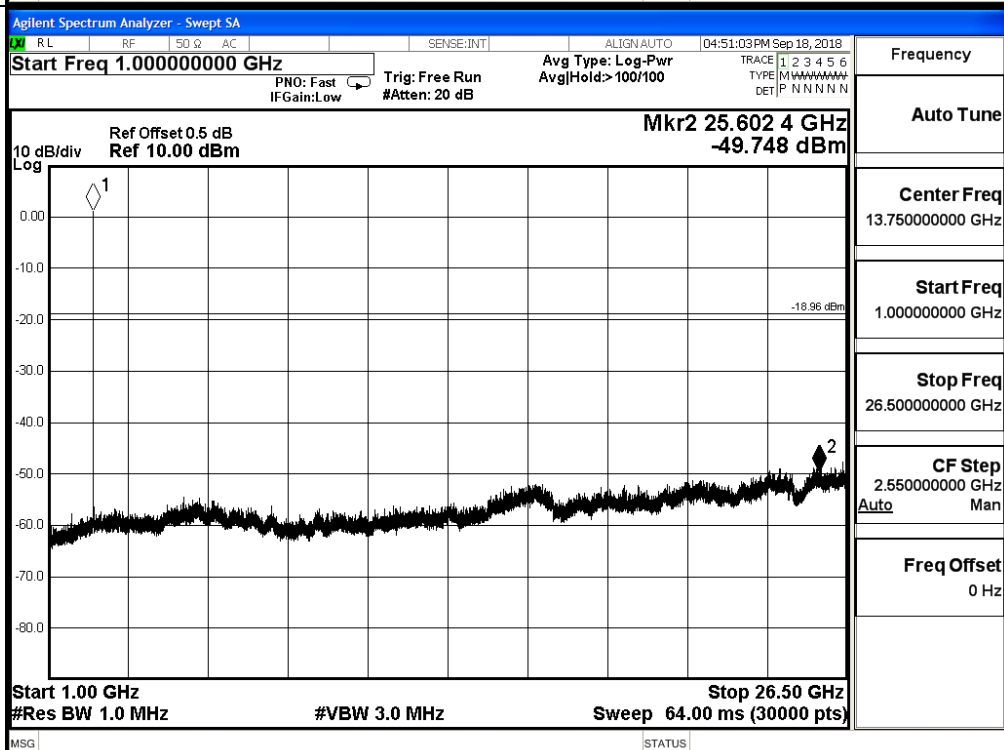


GFSK_MCH_Graphs

Pref

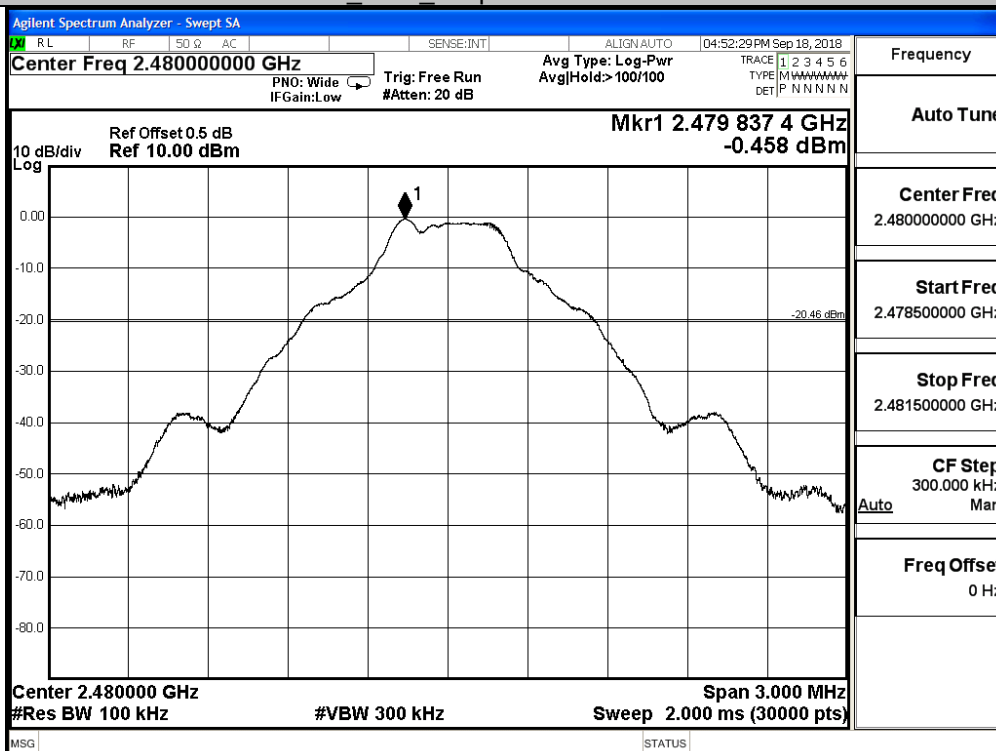


Puw

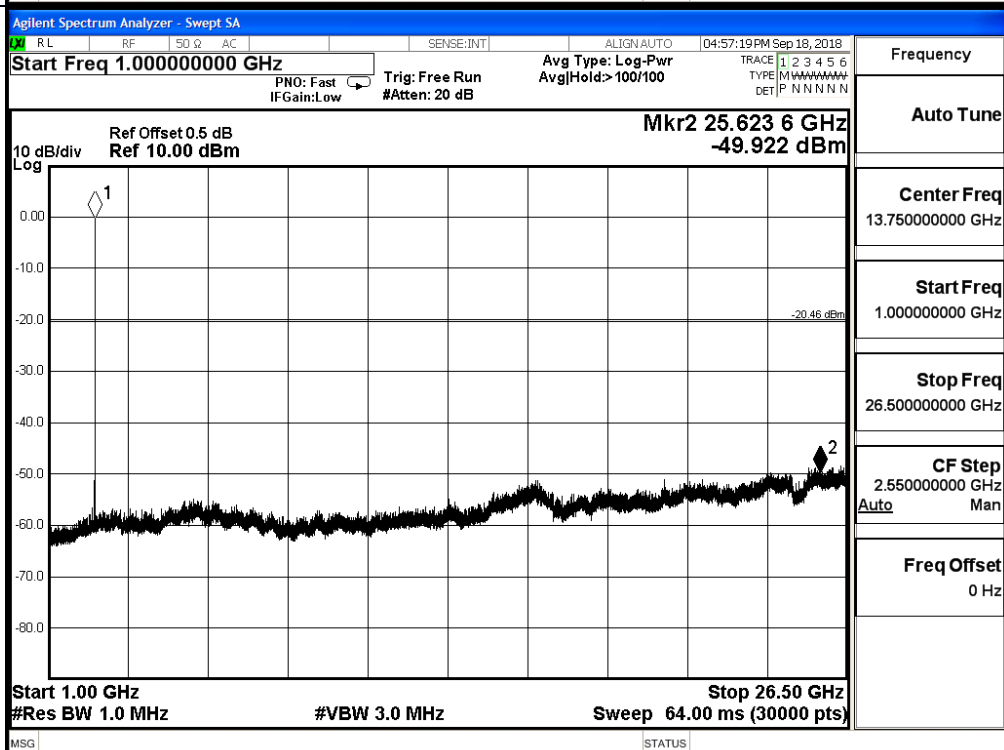


GFSK_HCH_Graphs

Pref

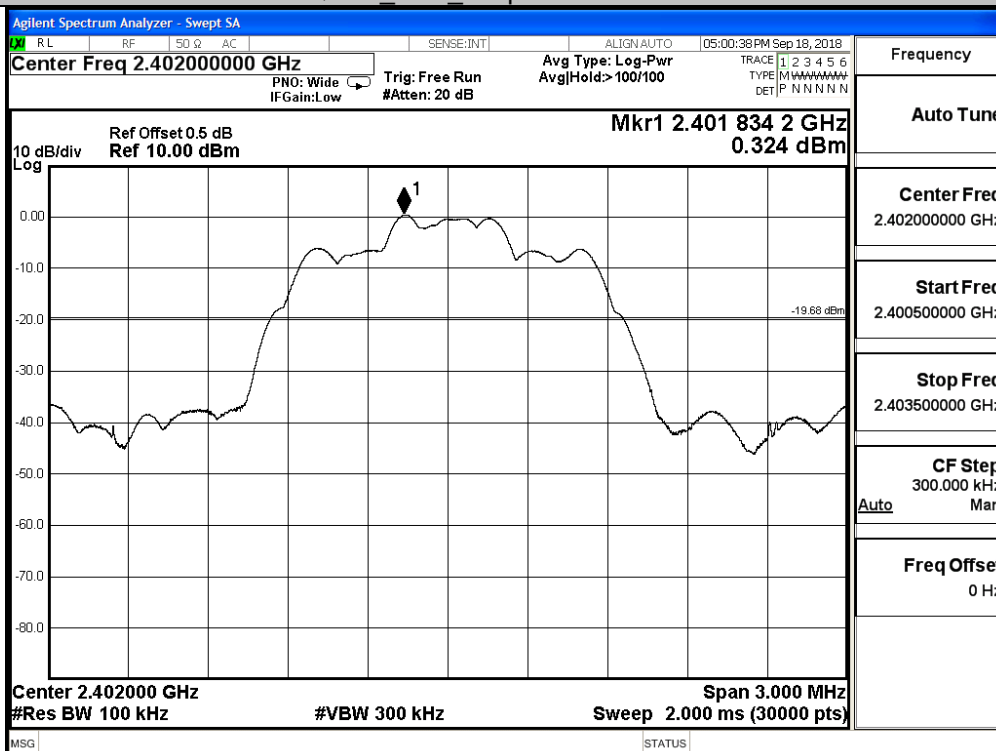


Puw

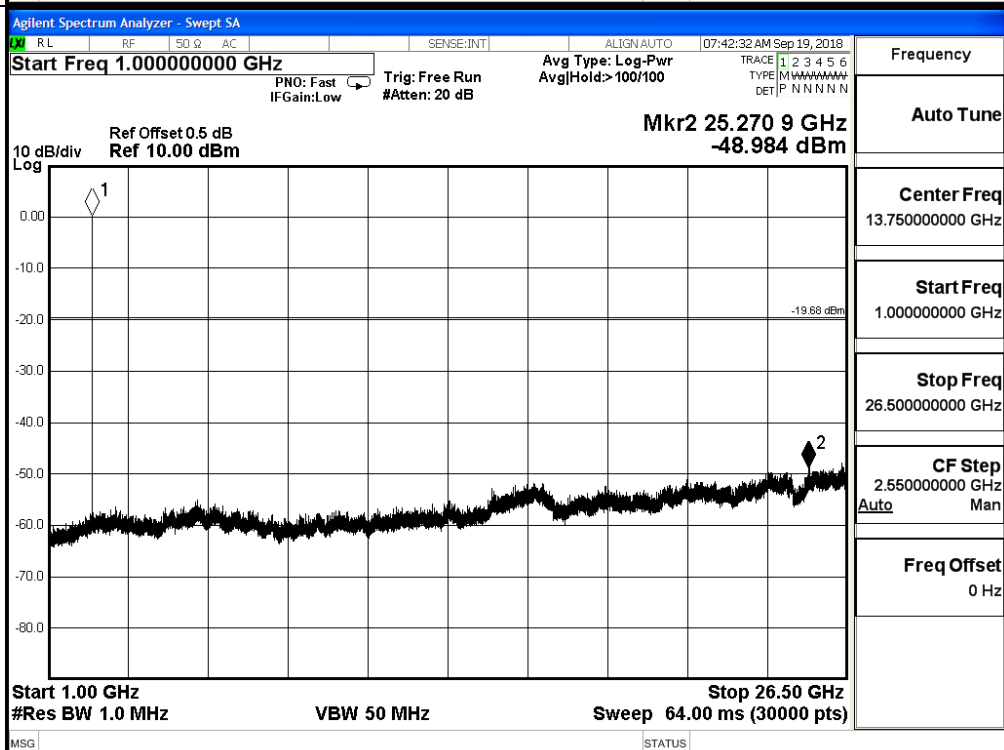


$\pi/4$ DQPSK LCH_Graphs

Pref

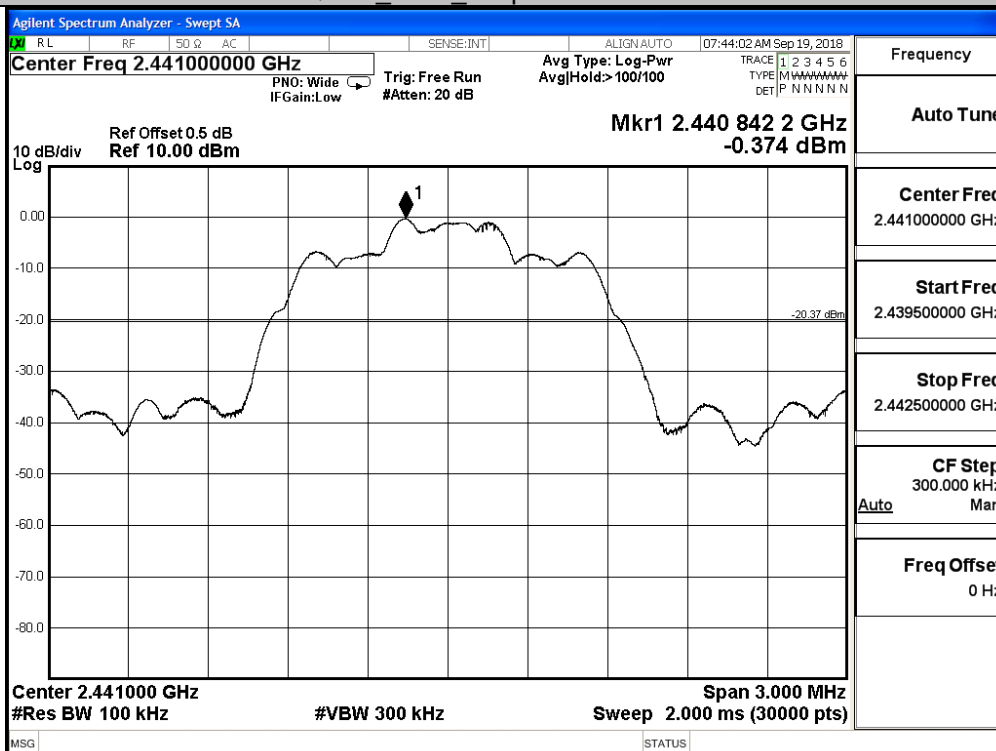


Puw

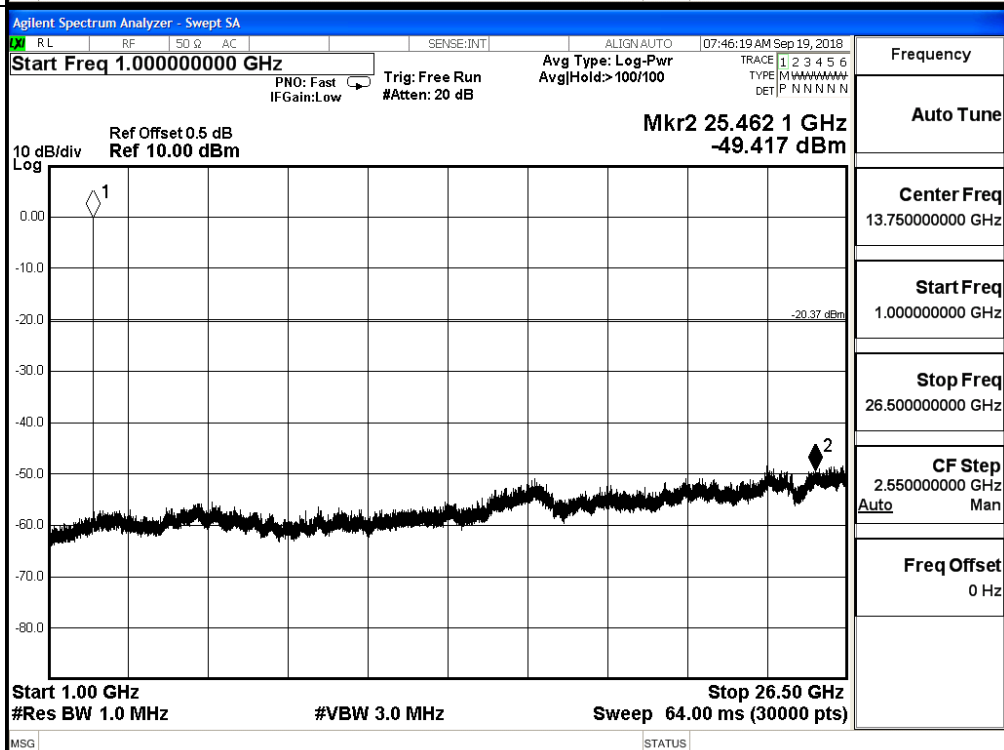


π /4DQPSK_MCH_Graphs

Pref

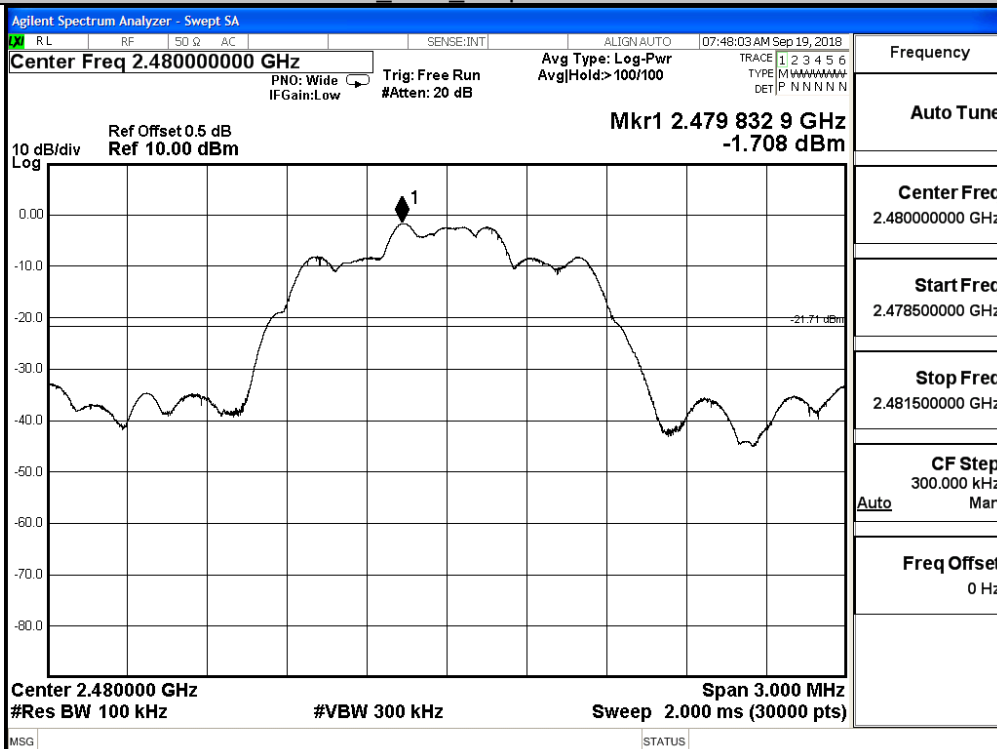


Puw

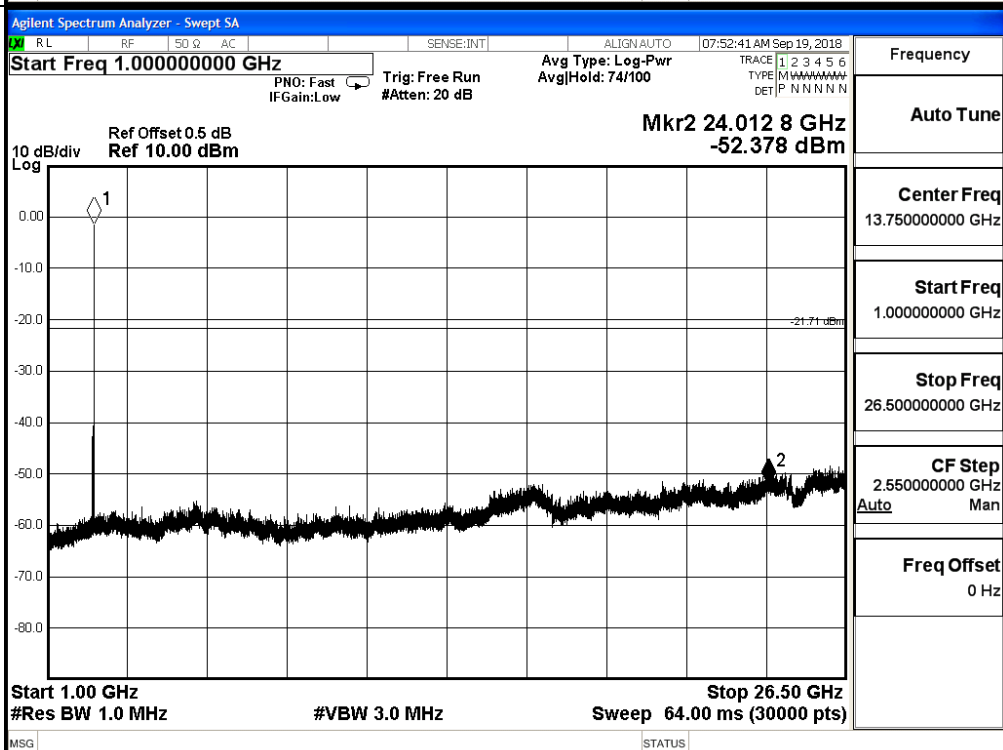


π /4DQPSK_HCH_Graphs

Pref

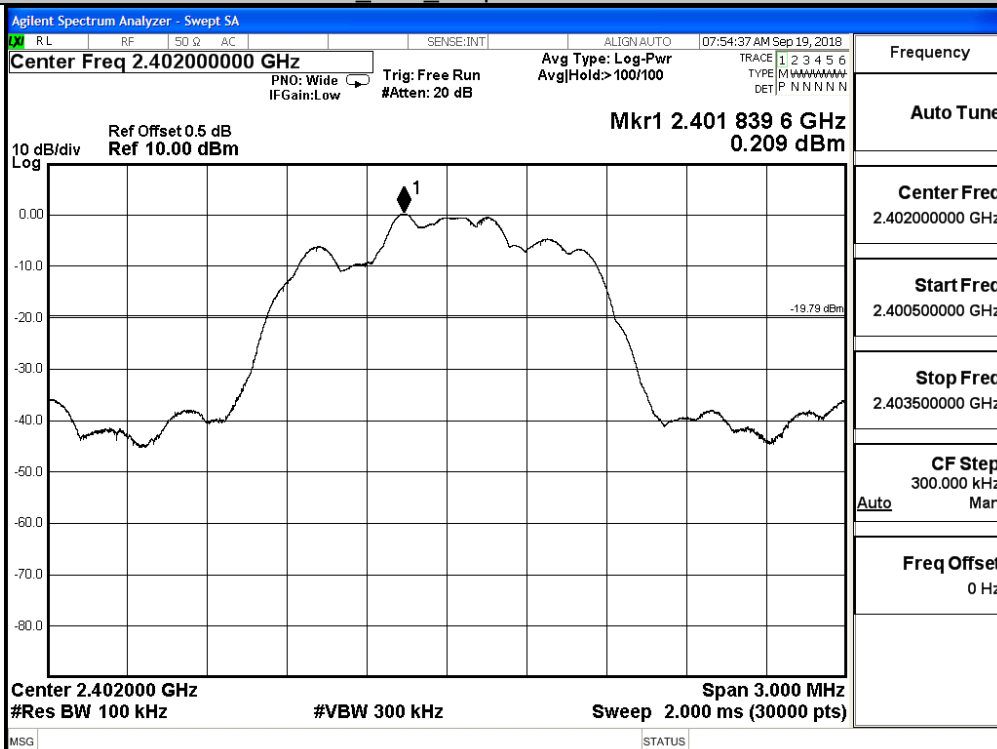


Puw

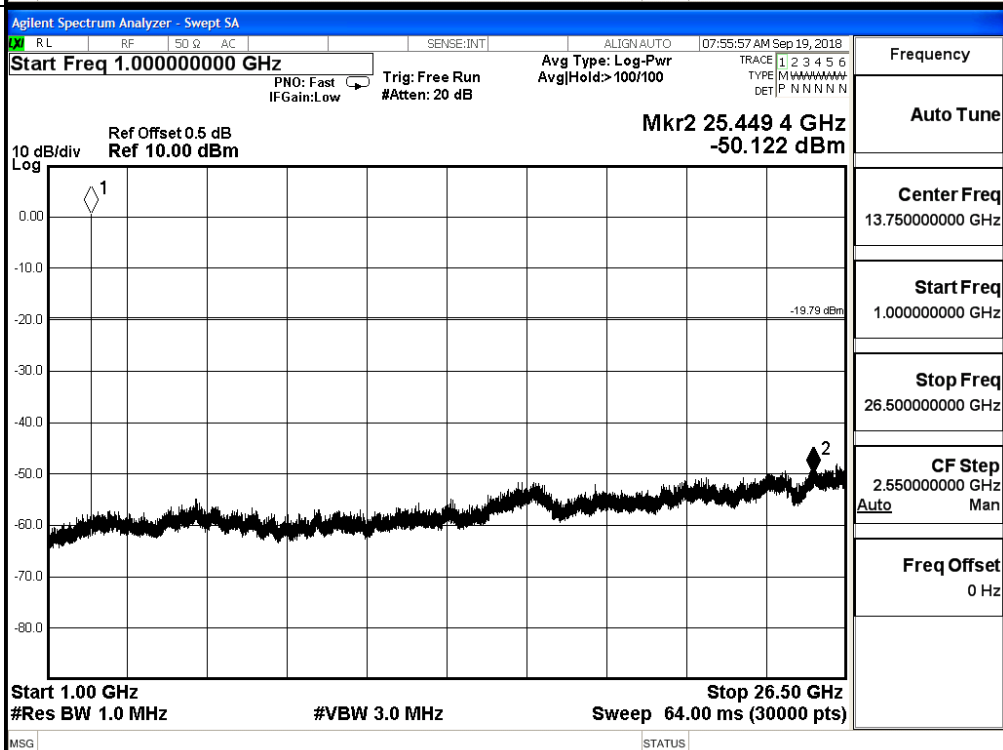


8DPSK_LCH_Graphs

Pref

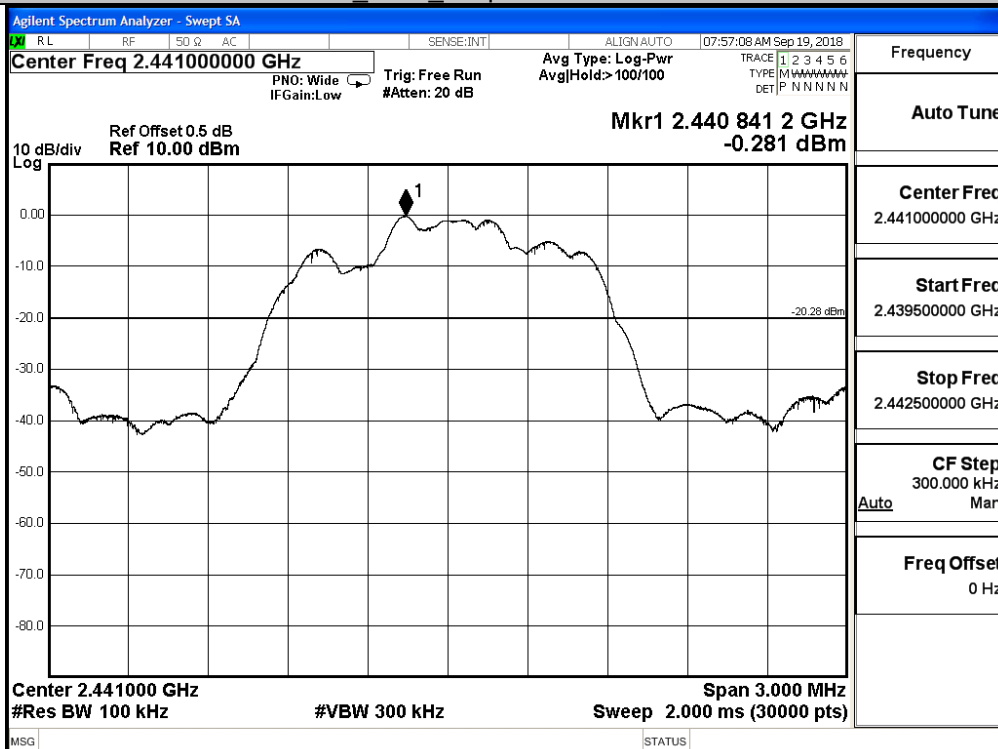


Puw

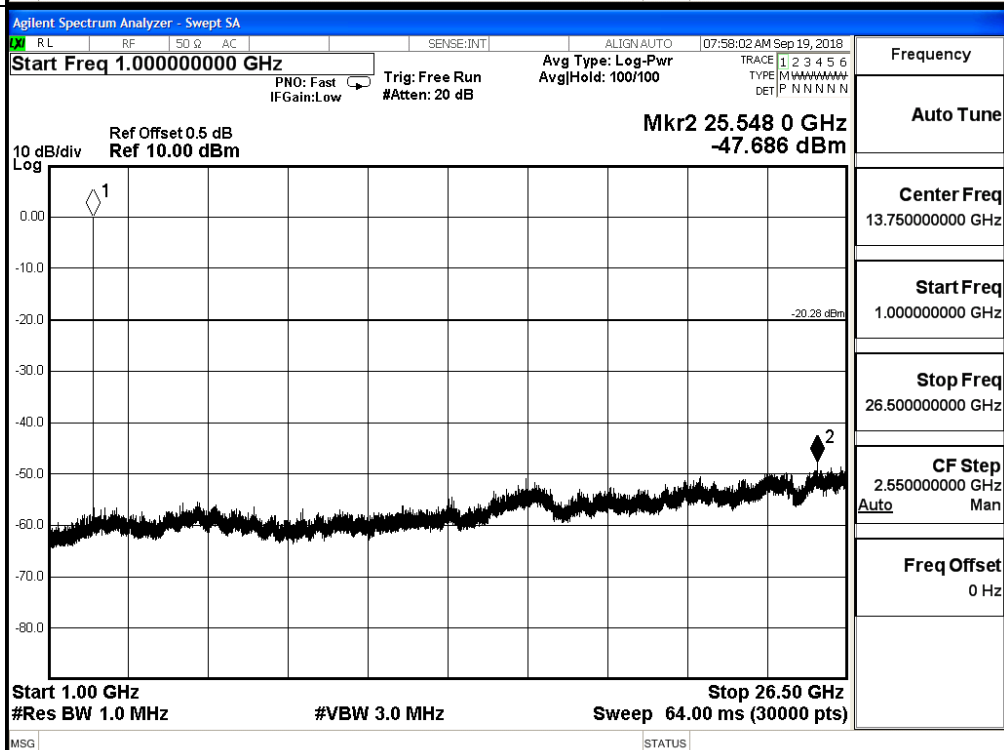


8DPSK_MCH_Graphs

Pref

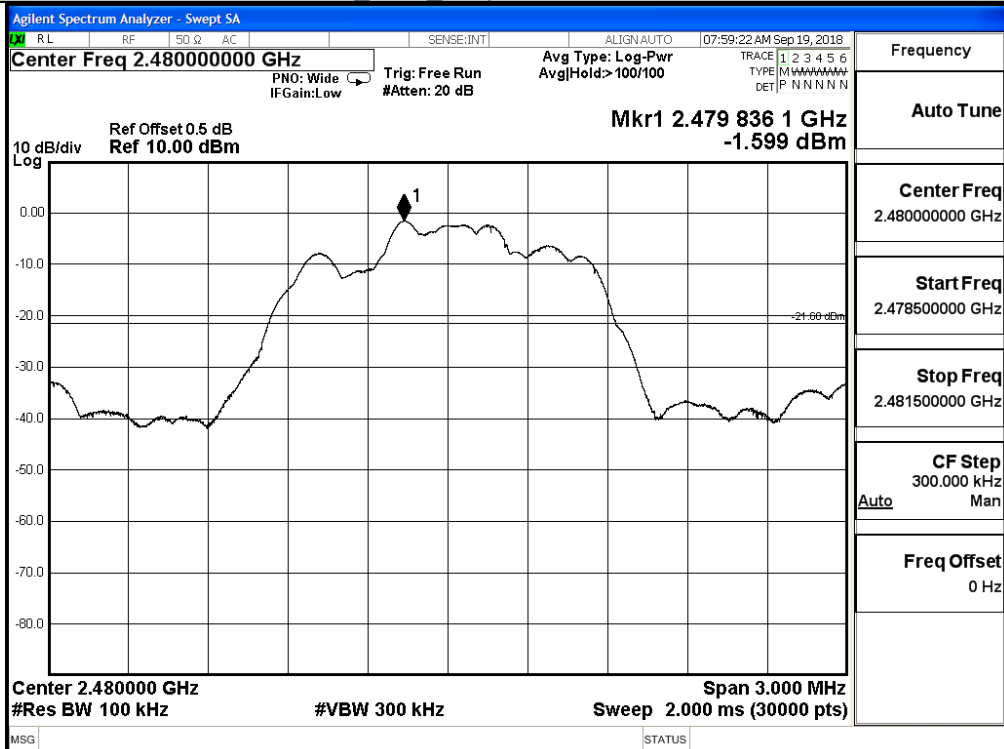


Puw

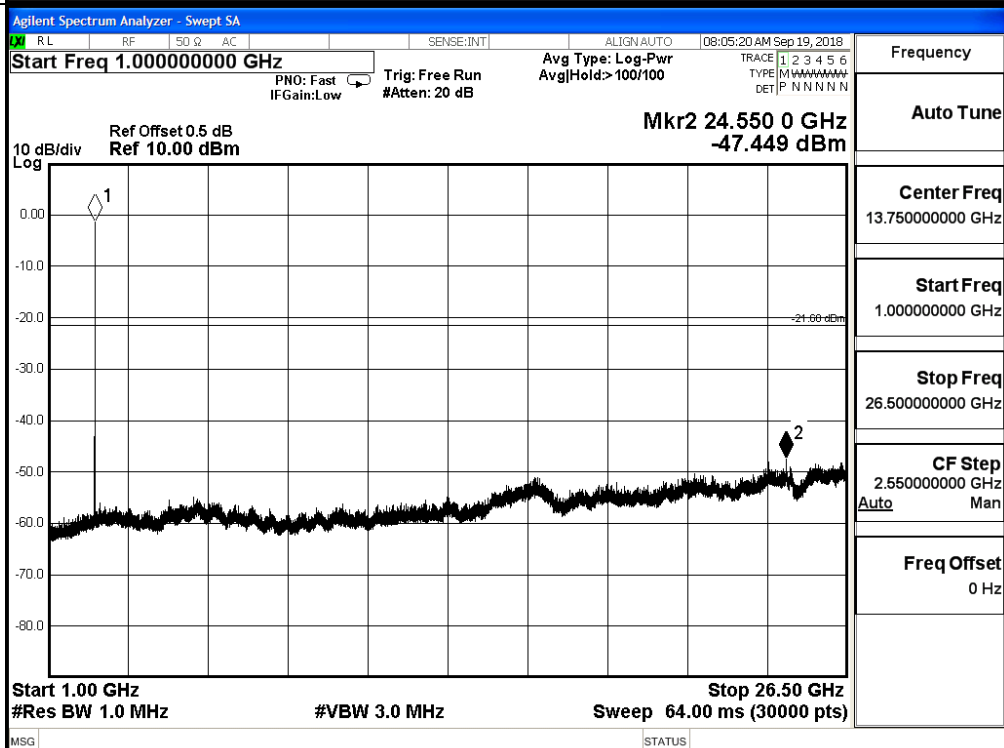


8DPSK_HCH_Graphs

Pref



Puw

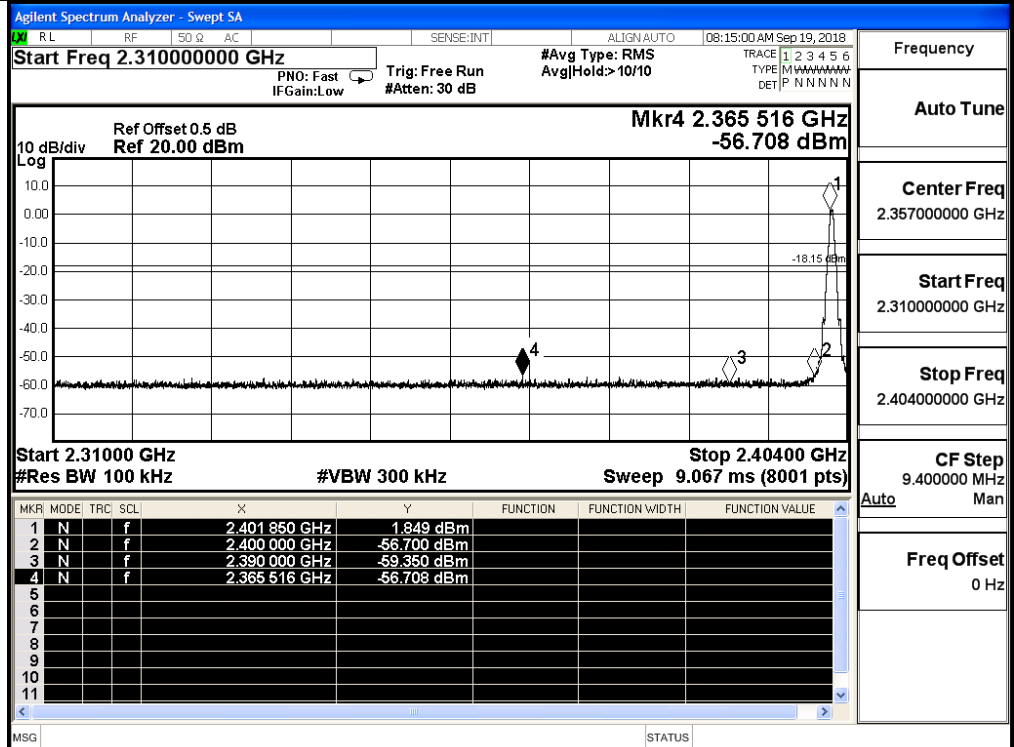


A.7 Band-edge for RF Conducted Emissions

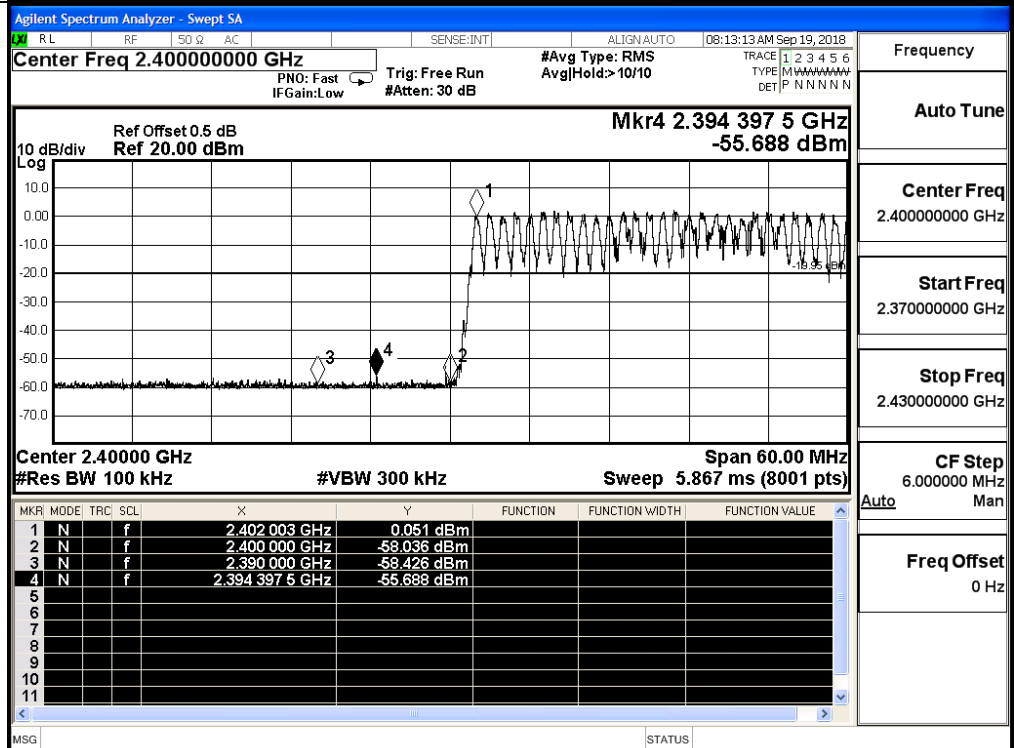
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.849	Off	-56.708	-18.15	PASS
			0.051	On	-55.688	-19.95	PASS
	HCH	2480	-0.490	Off	-58.522	-20.49	PASS
			-1.453	On	-58.021	-21.45	PASS
$\pi/4$ DQPSK	LCH	2402	0.280	Off	-57.816	-19.72	PASS
			-1.006	On	-56.122	-21.01	PASS
	HCH	2480	-1.561	Off	-56.277	-21.56	PASS
			-1.748	On	-57.787	-21.75	PASS
8DPSK	LCH	2402	0.218	Off	-60.342	-19.78	PASS
			-0.004	On	-57.108	-20.00	PASS
	HCH	2480	-1.692	Off	-57.914	-21.69	PASS
			-1.686	On	-59.219	-21.69	PASS

Test Graphs

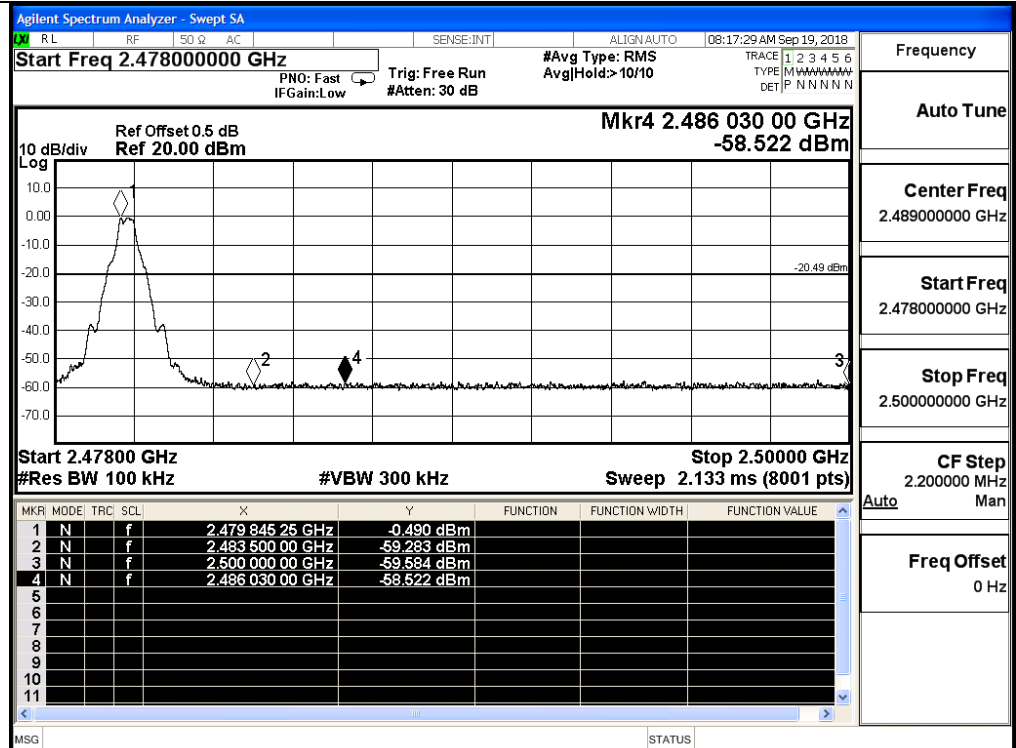
GFSK/LCH/No Hop



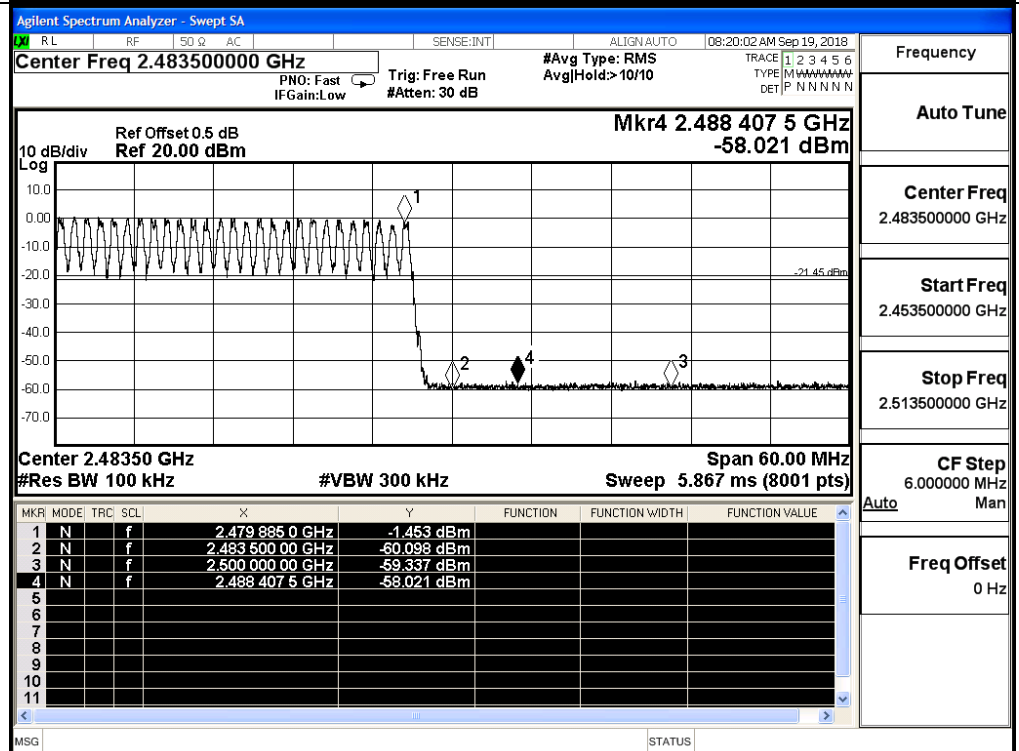
GFSK/LCH/Hop



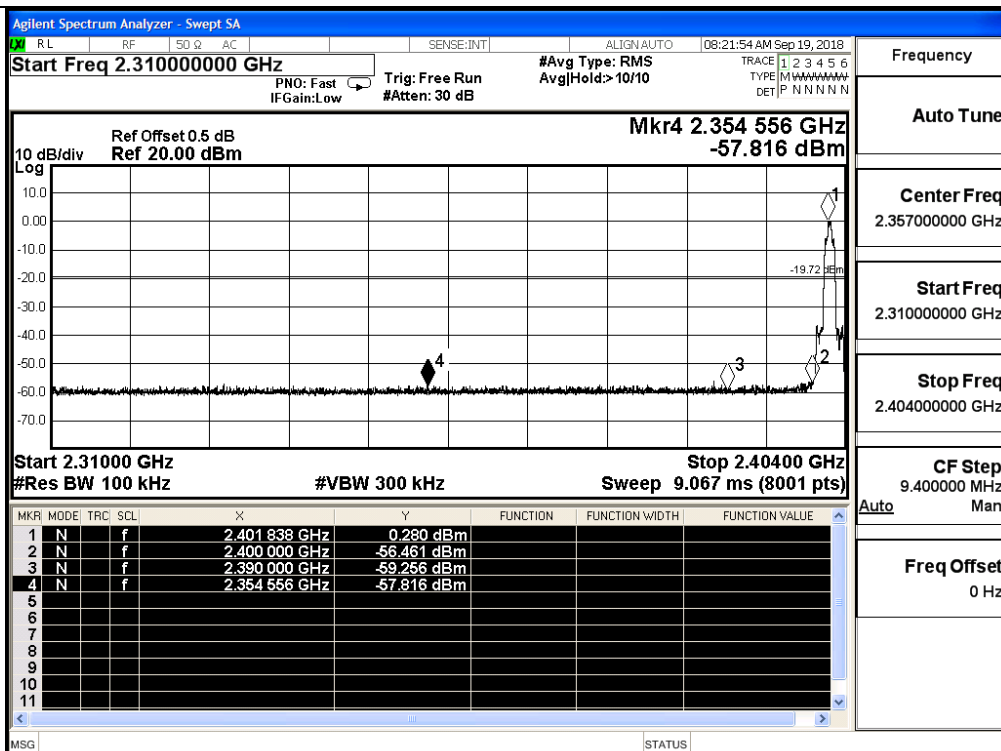
GFSK/HCH/No Hop



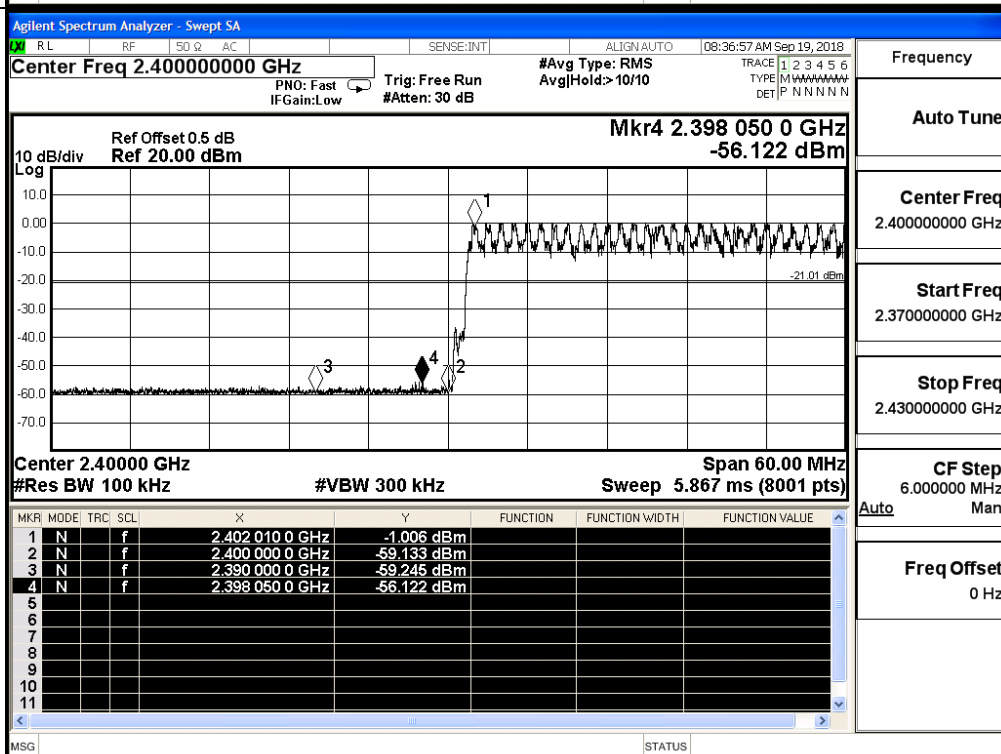
GFSK/HCH/Hop



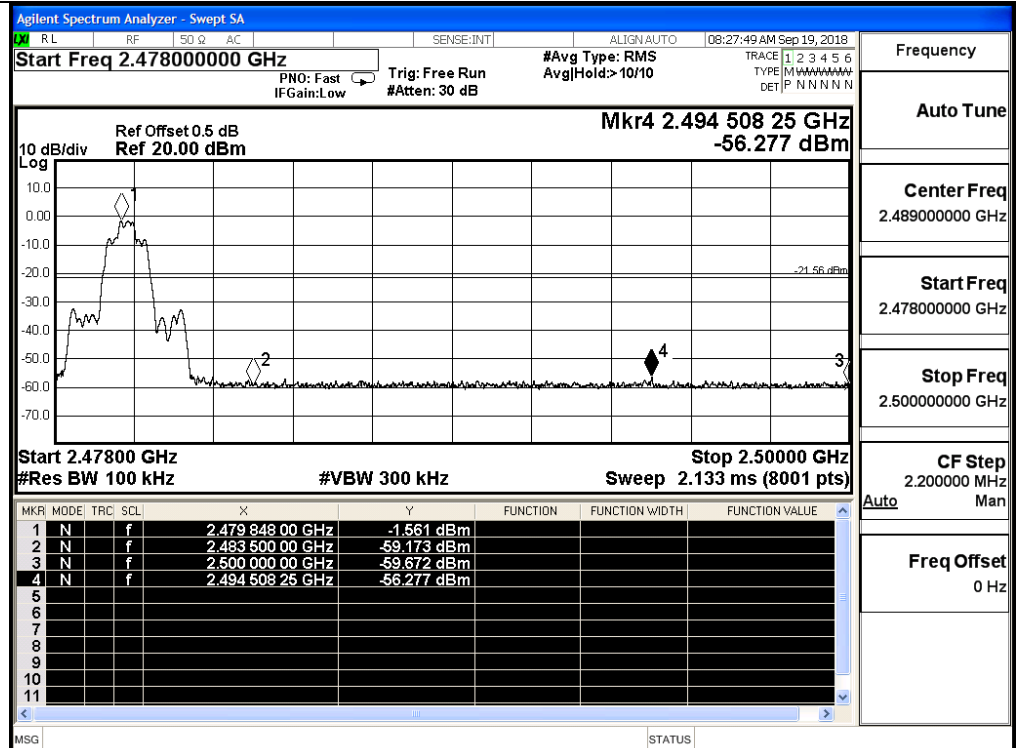
$\pi/4$ DQPSK/LCH/No
Hop



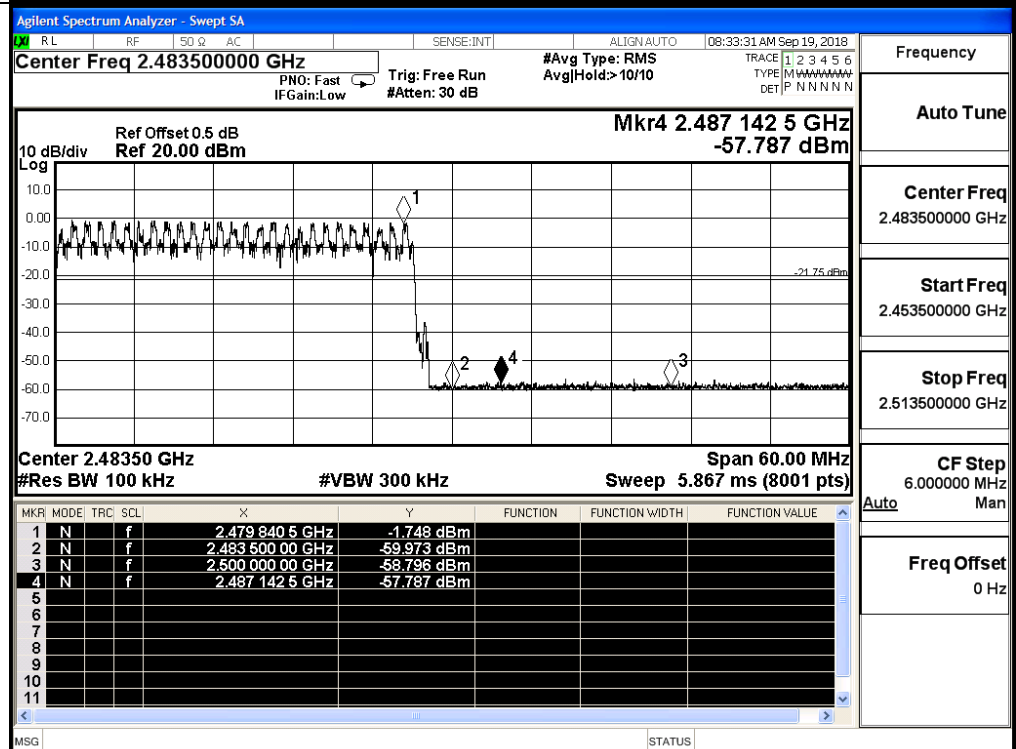
$\pi/4$ DQPSK/LCH/Hop



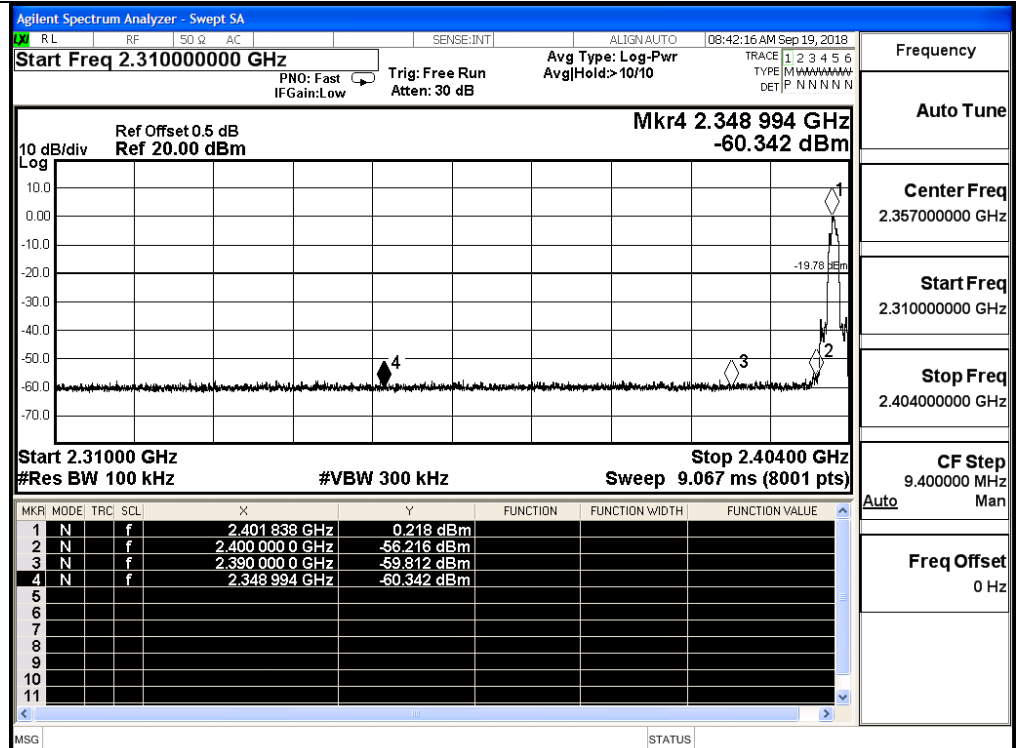
$\pi/4$ DQPSK/HCH/No
Hop



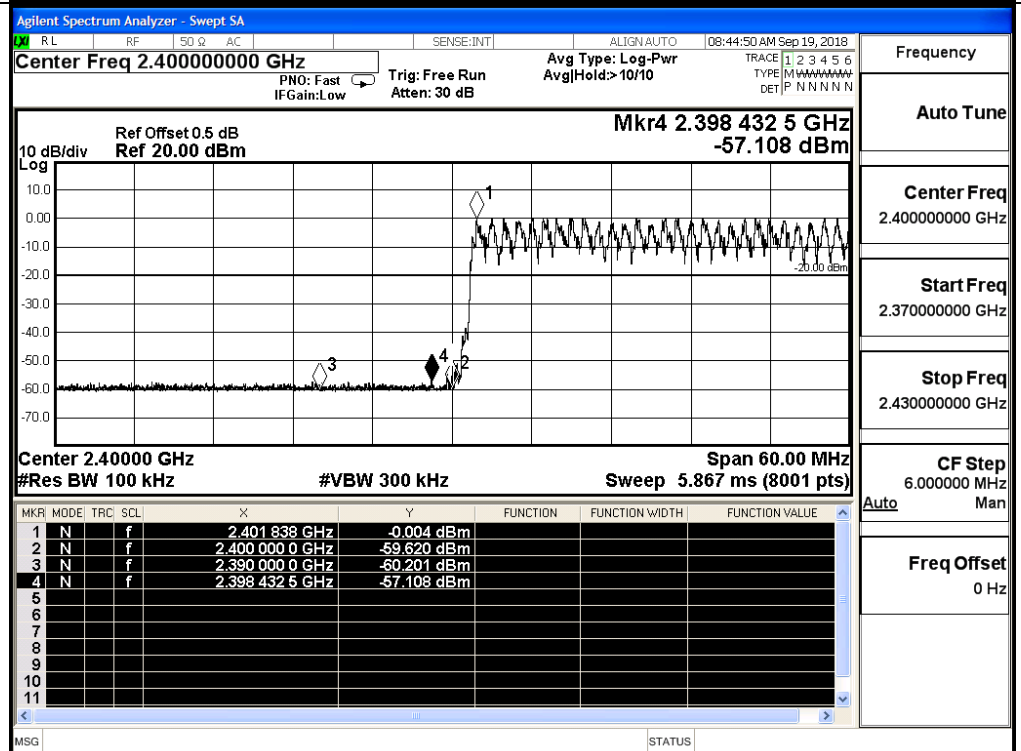
$\pi/4$ DQPSK/HCH/Hop



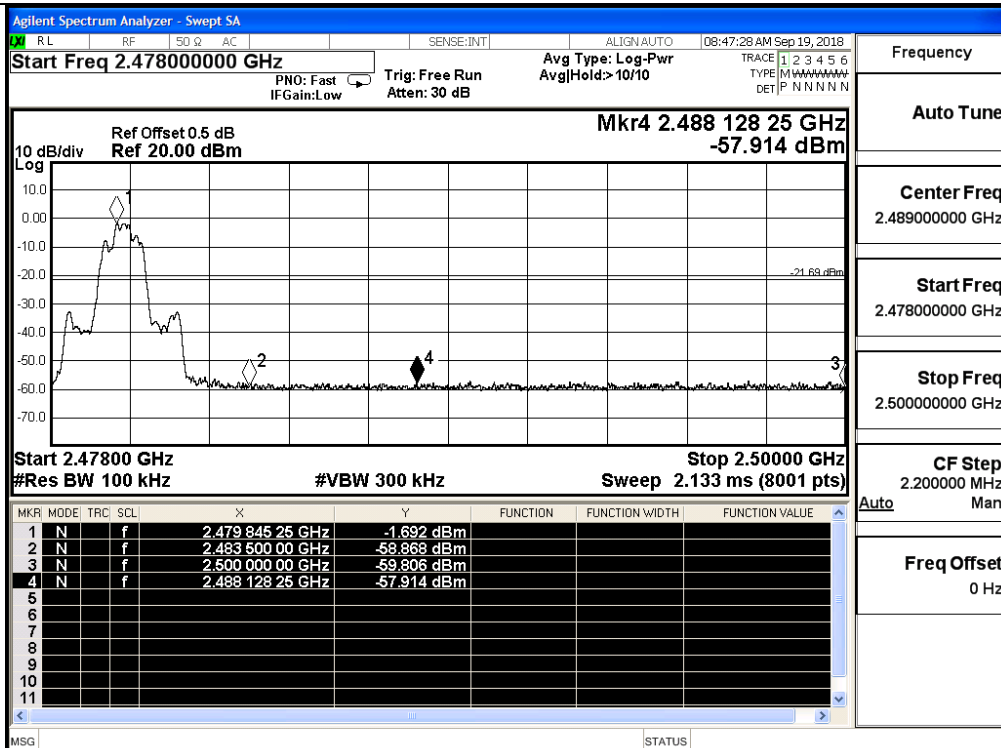
8DPSK/LCH/No Hop



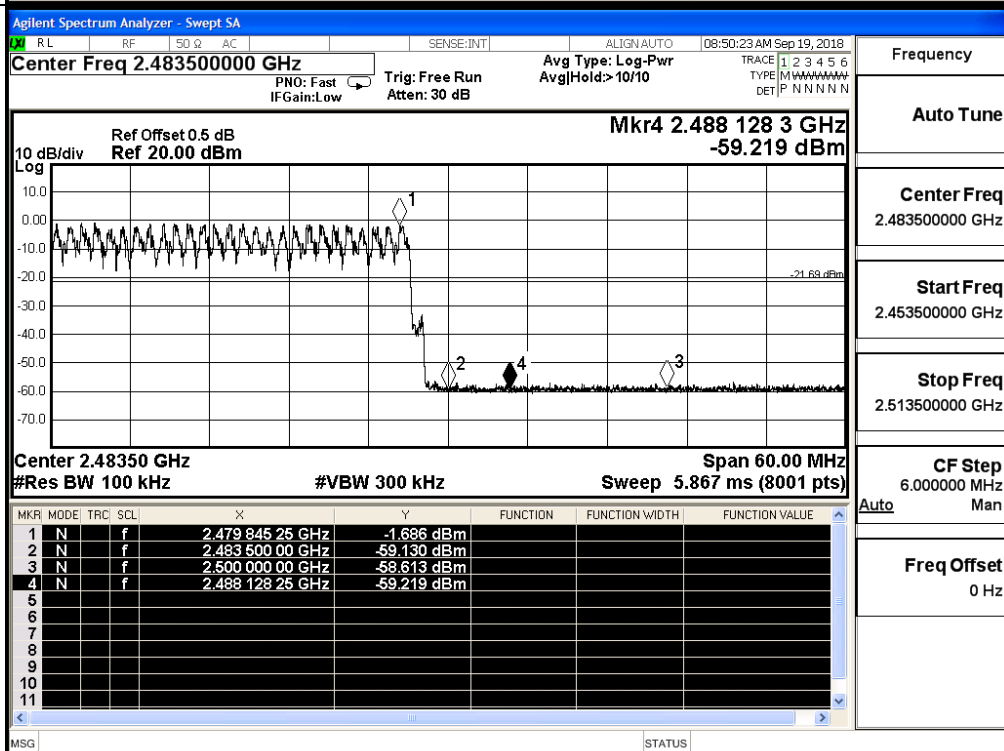
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



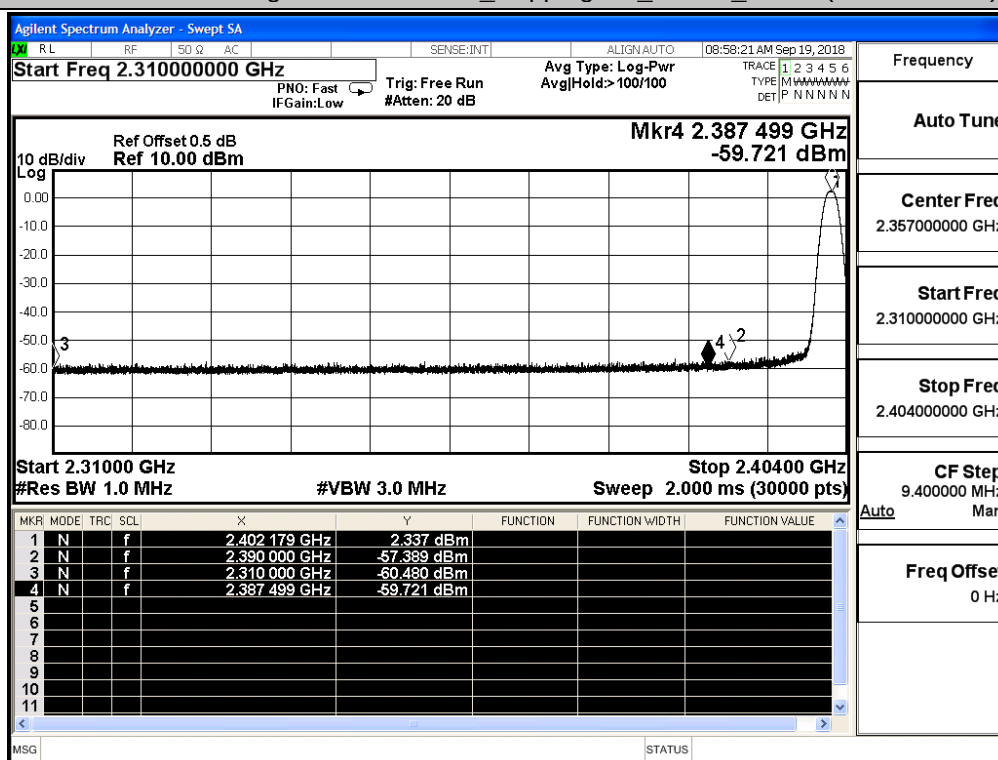
8DPSK/HCH/Hop



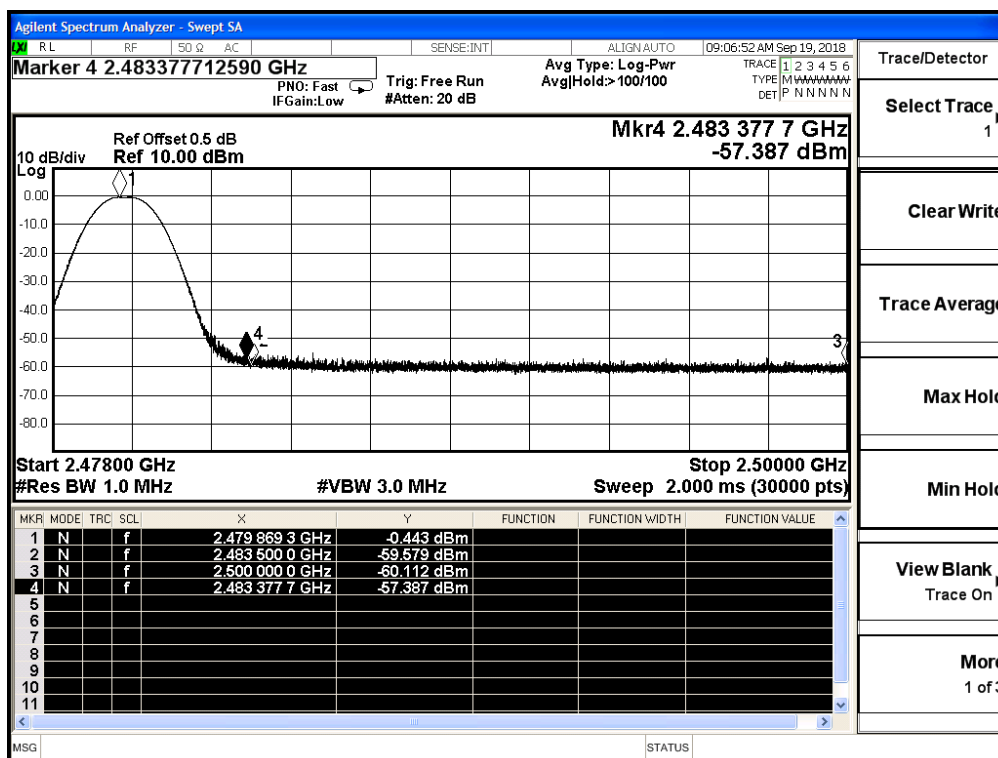
A.8 Restrict-band band-edge measurements

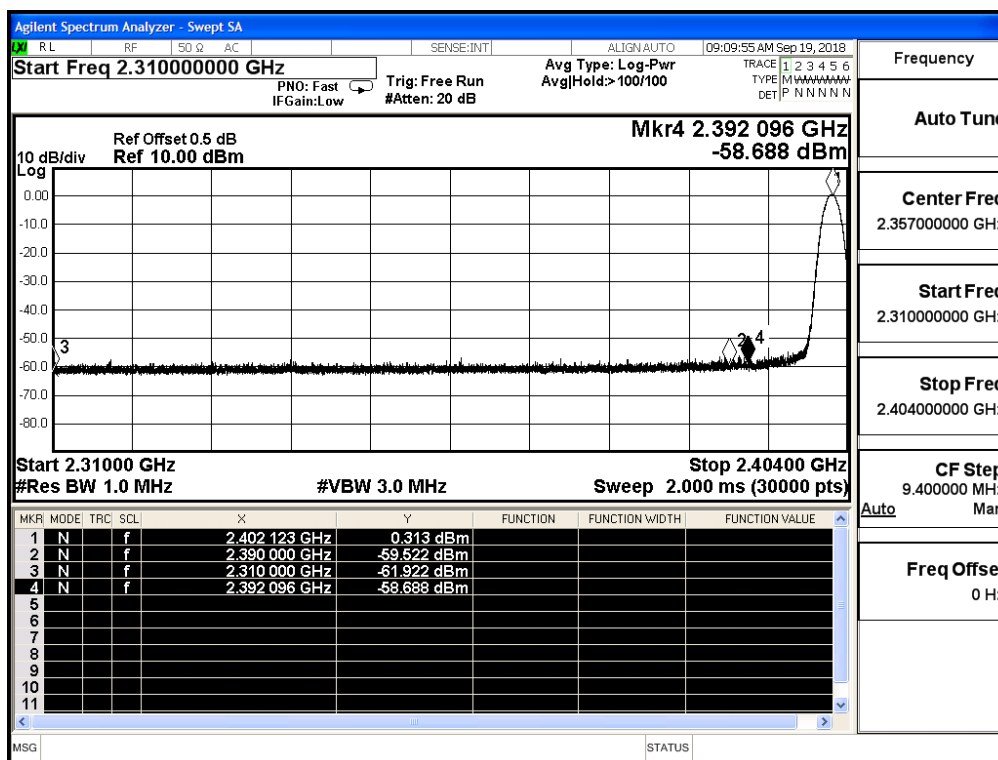
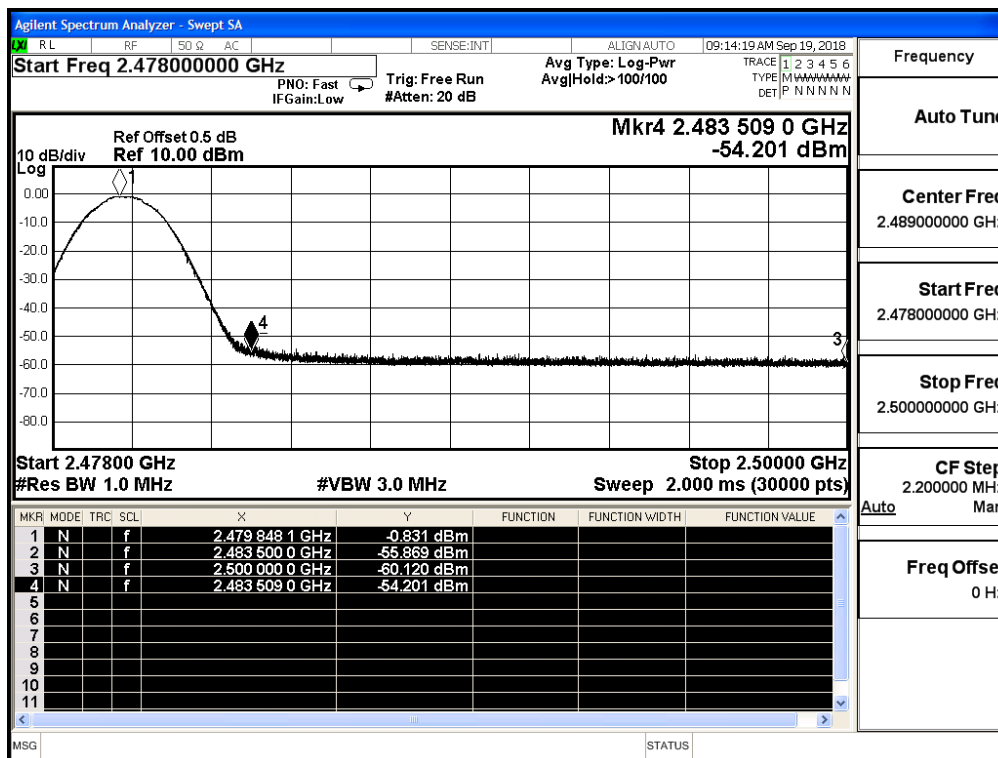
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-60.480	2.0	0	36.78	PEAK	74	PASS
	Off	2390.0	-57.389	2.0	0	39.87	PEAK	74	PASS
	Off	2483.5	-59.579	2.0	0	37.68	PEAK	74	PASS
	Off	2500.0	-60.112	2.0	0	37.15	PEAK	74	PASS
$\pi/4$ DQPSK	Off	2310.0	-61.922	2.0	0	35.34	PEAK	74	PASS
	Off	2390.0	-59.522	2.0	0	37.74	PEAK	74	PASS
	Off	2483.5	-55.869	2.0	0	41.39	PEAK	74	PASS
	Off	2500.0	-60.120	2.0	0	37.14	PEAK	74	PASS
8DPSK	Off	2310.0	-60.740	2.0	0	36.52	PEAK	74	PASS
	Off	2390.0	-59.578	2.0	0	37.68	PEAK	74	PASS
	Off	2483.5	-55.205	2.0	0	42.06	PEAK	74	PASS
	Off	2500.0	-60.062	2.0	0	37.20	PEAK	74	PASS

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

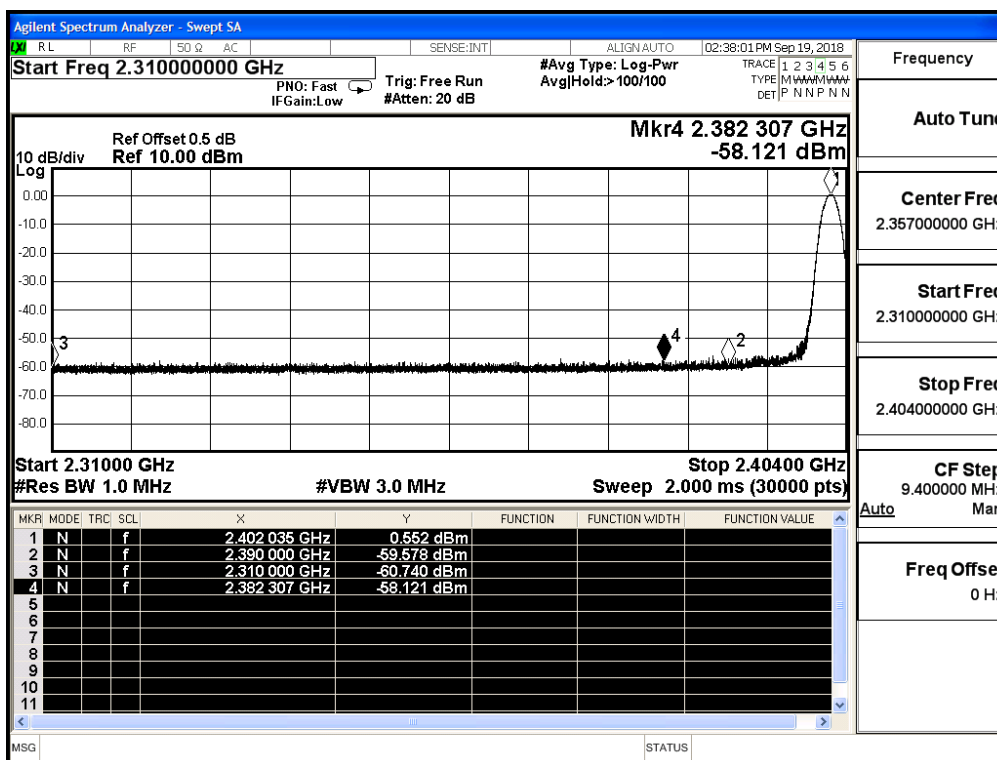


Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



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

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



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

