

Appendix A

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

Product Name: Wireless Speaker

Trade Mark: billboard

Test Model: MEN-894

Environmental Conditions

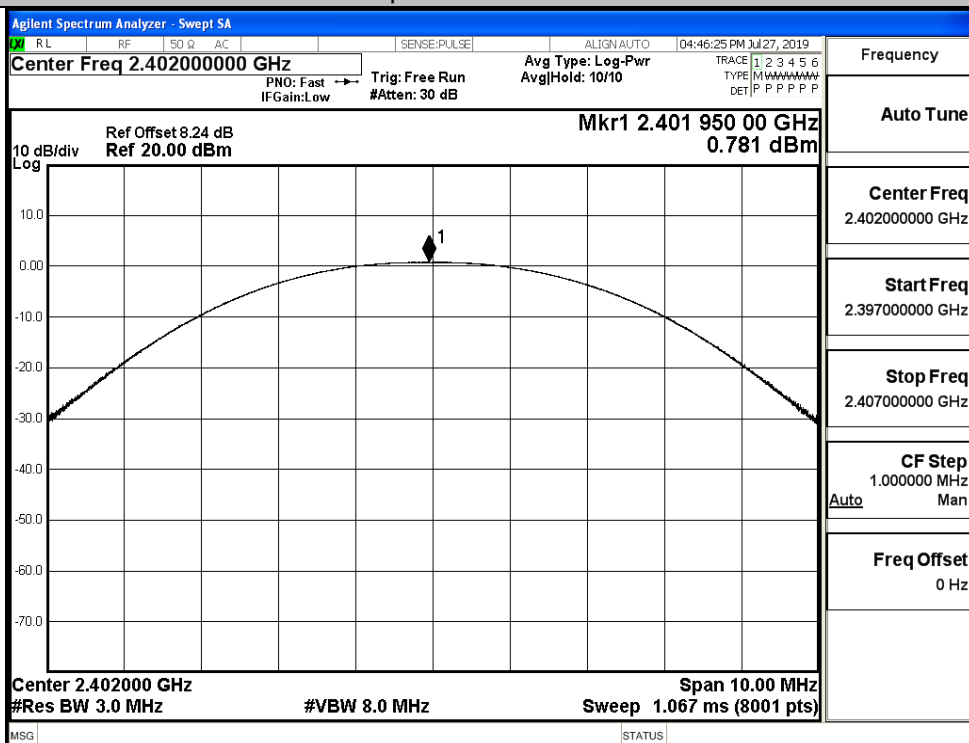
Temperature:	24.5 ° C
Relative Humidity:	53.6 %
ATM Pressure:	100.0 kPa
Test Engineer:	SCENT HU
Supervised by:	Wang.Chuang

A.1 Maximum Conducted Peak Output Power

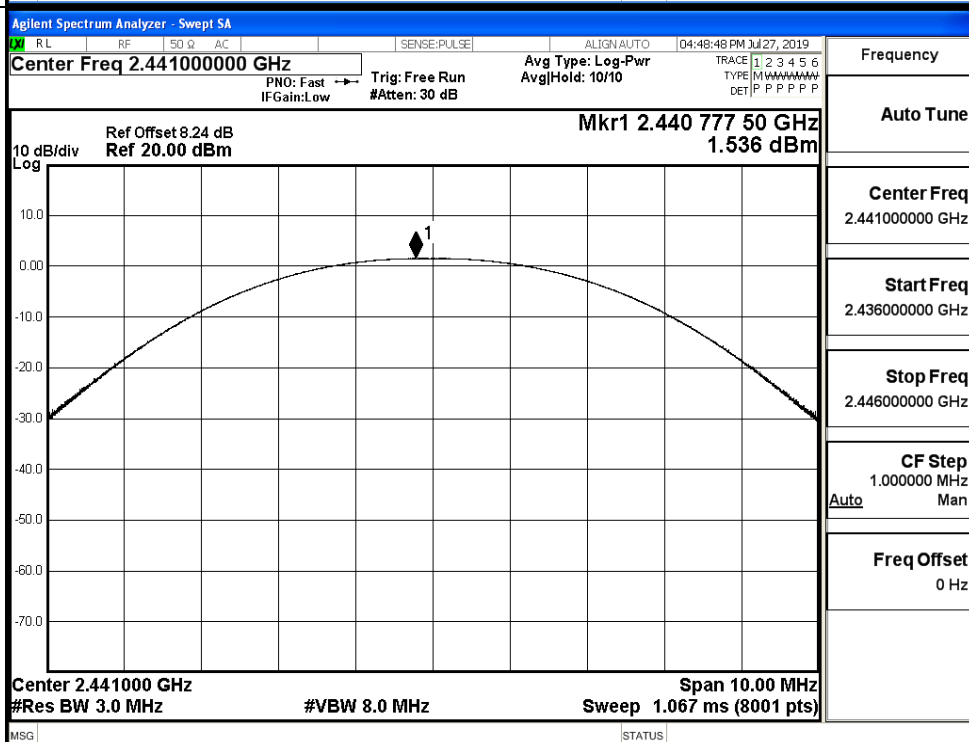
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.781	21	PASS
	MCH	1.536	21	PASS
	HCH	0.206	21	PASS
$\pi/4$ DQPSK	LCH	0.013	21	PASS
	MCH	0.781	21	PASS
	HCH	-0.635	21	PASS

Test Graphs

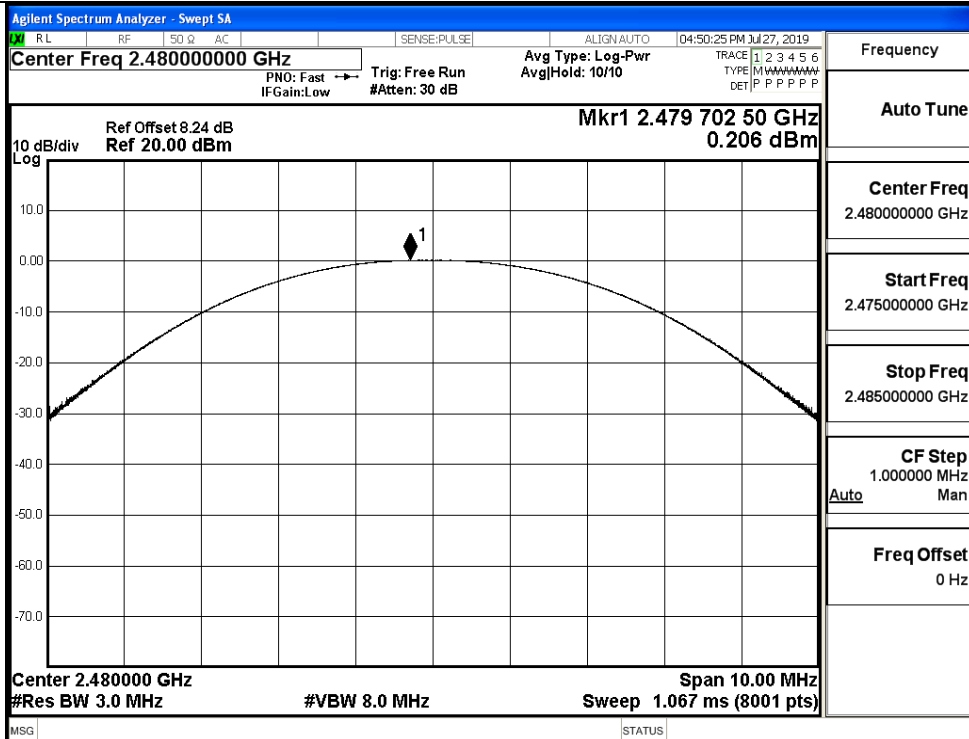
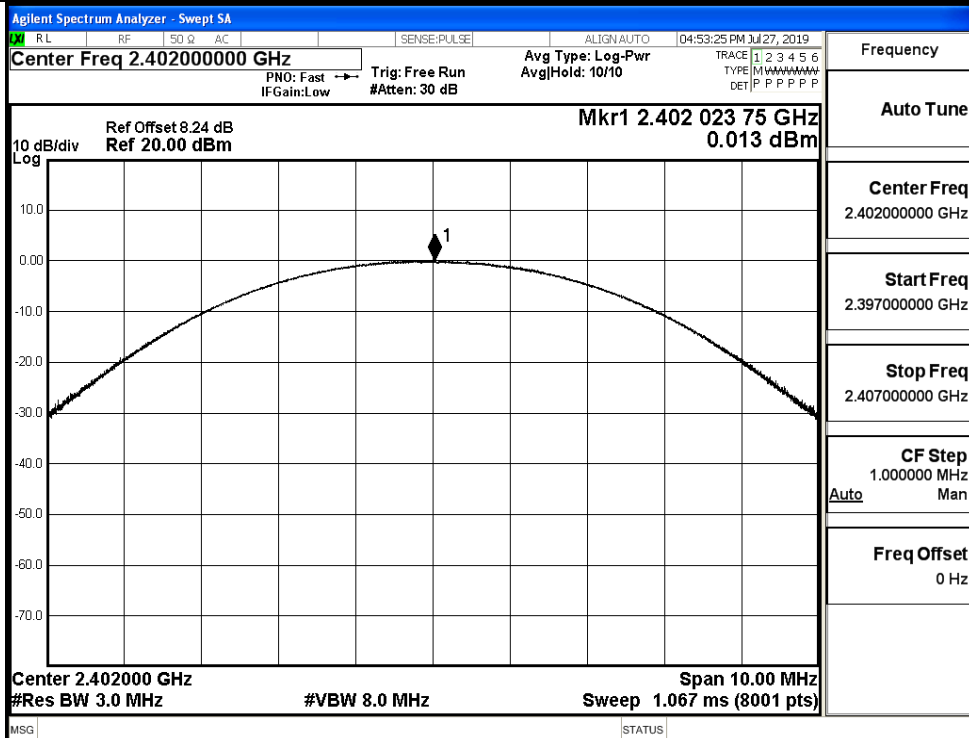
GFSK/LCH

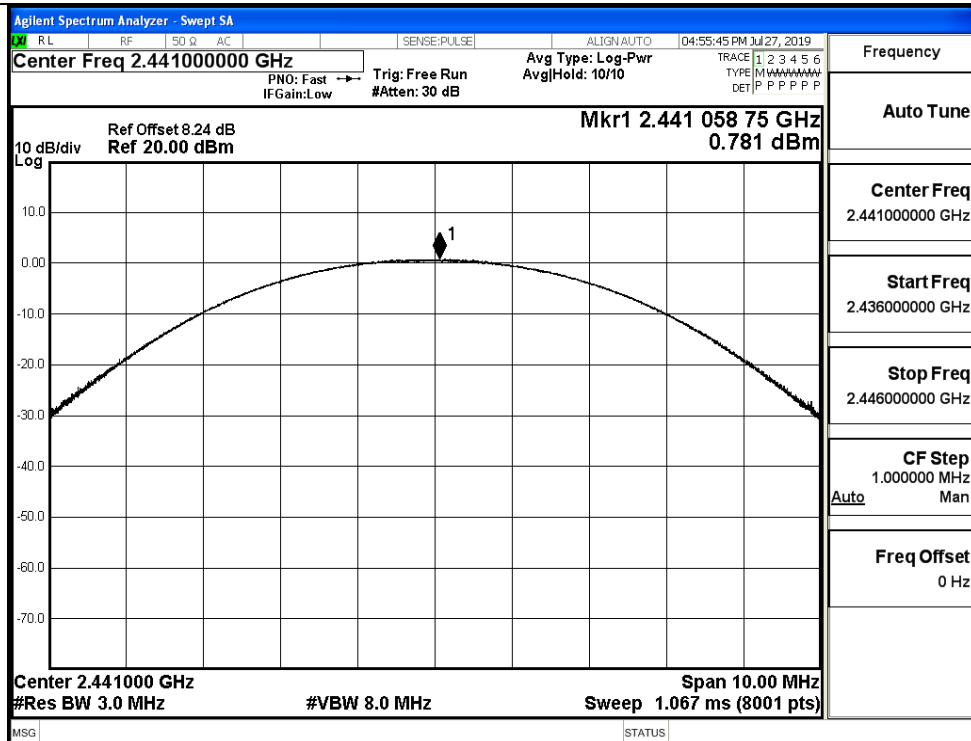
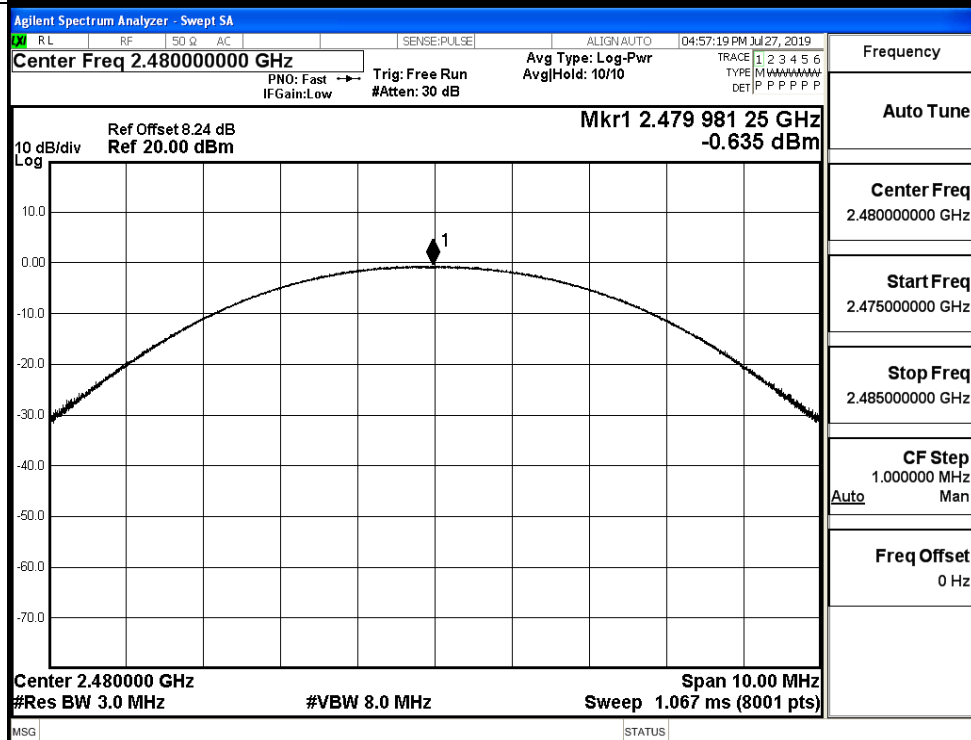


GFSK/MCH



GFSK/HCH

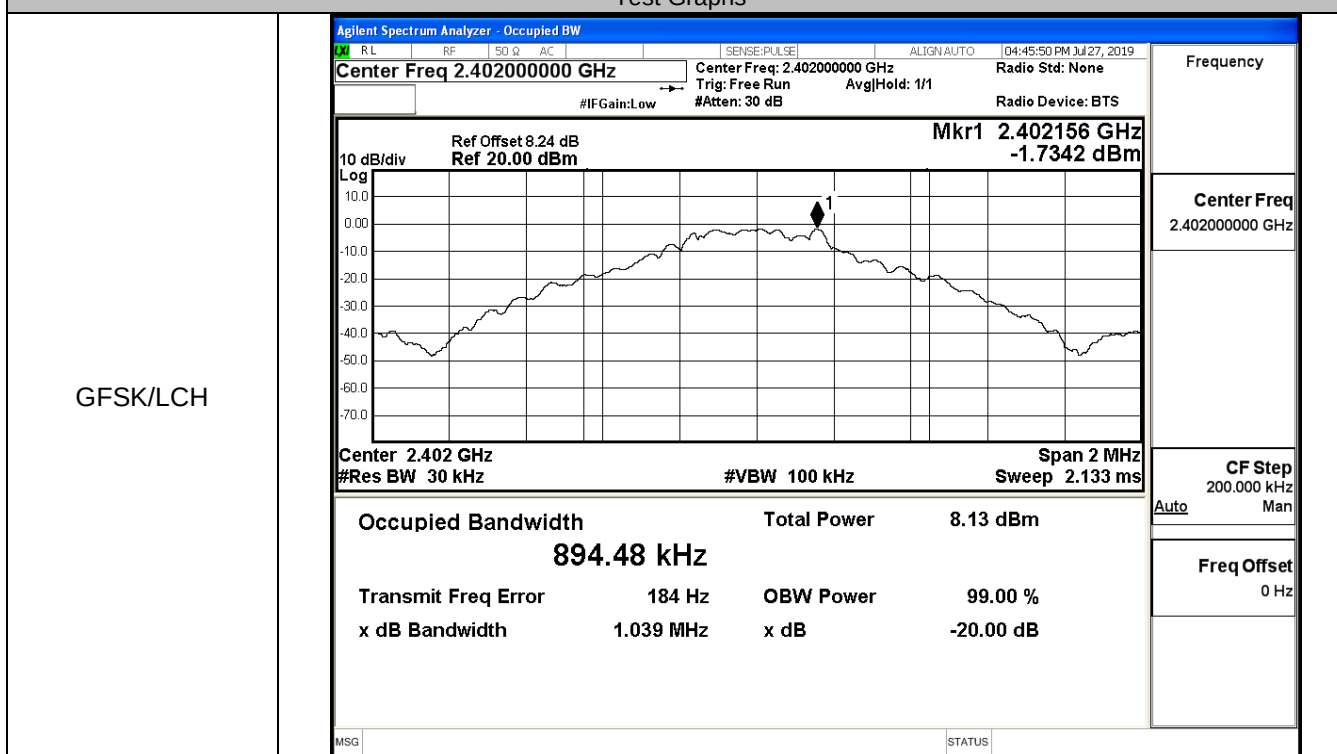
 π /4DQPSK/LCH

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

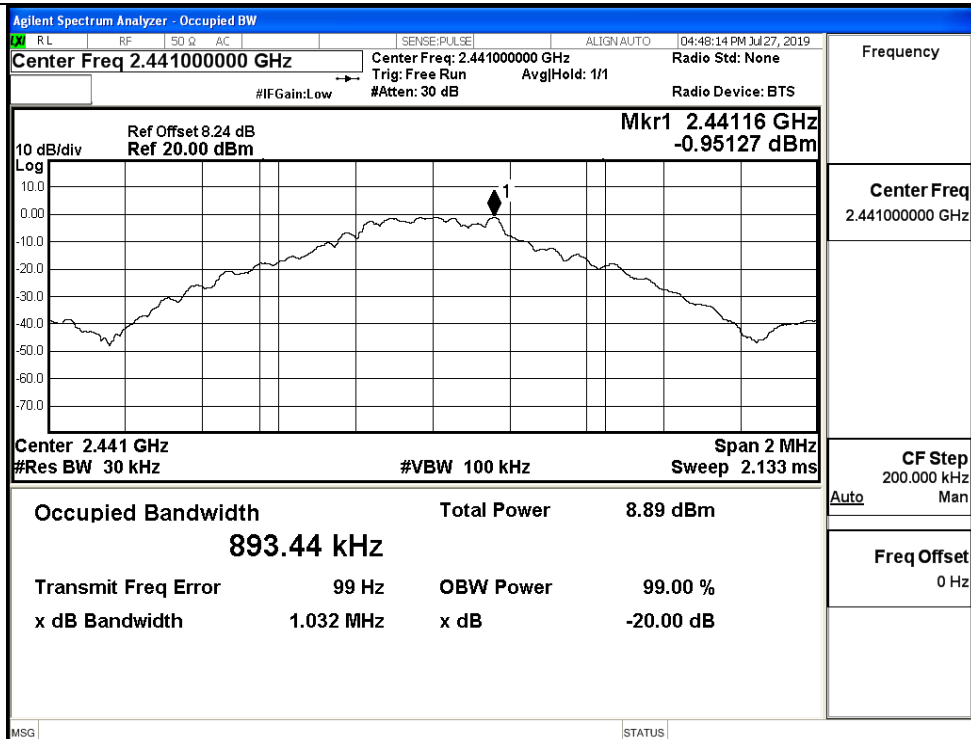
A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.039	Not Specified	PASS
	MCH	1.032	Not Specified	PASS
	HCH	1.035	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.318	Not Specified	PASS
	MCH	1.289	Not Specified	PASS
	HCH	1.288	Not Specified	PASS

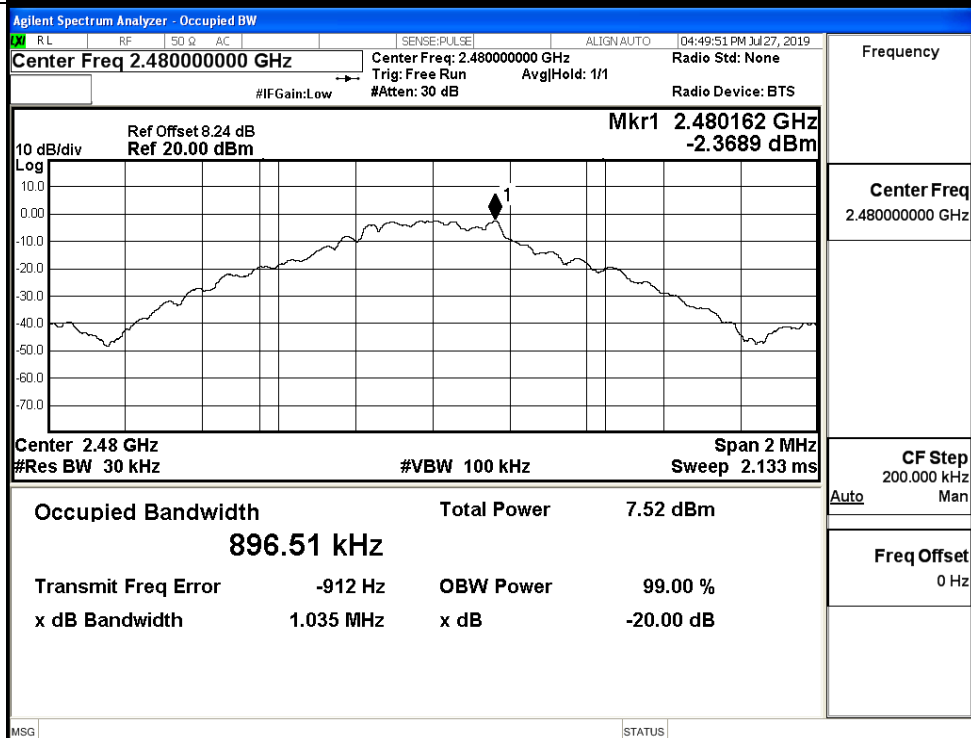
Test Graphs

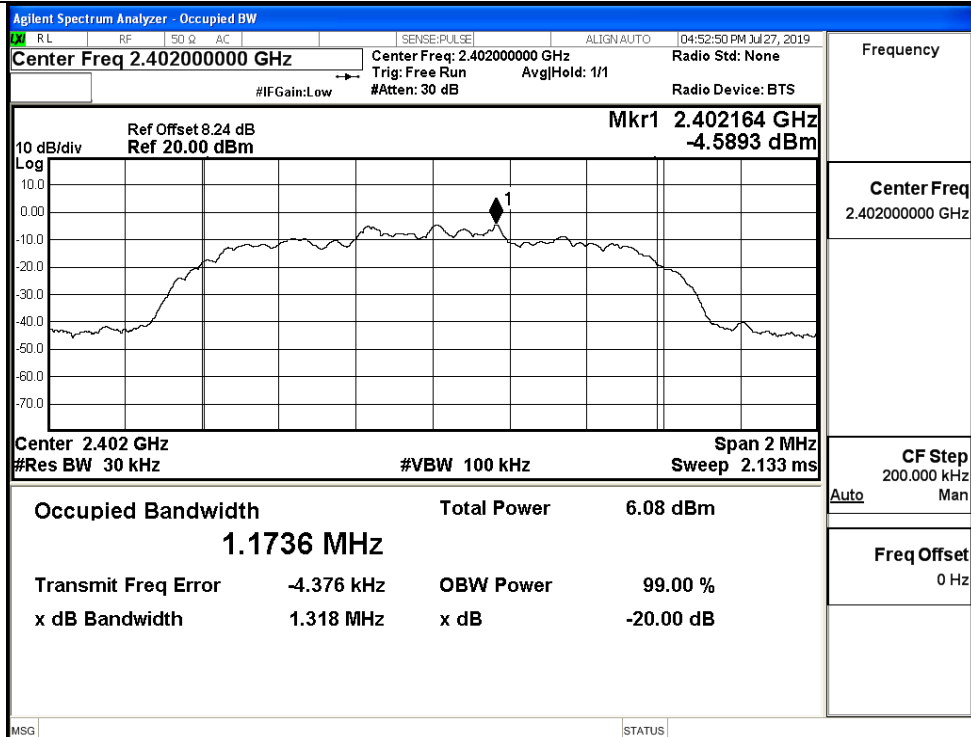
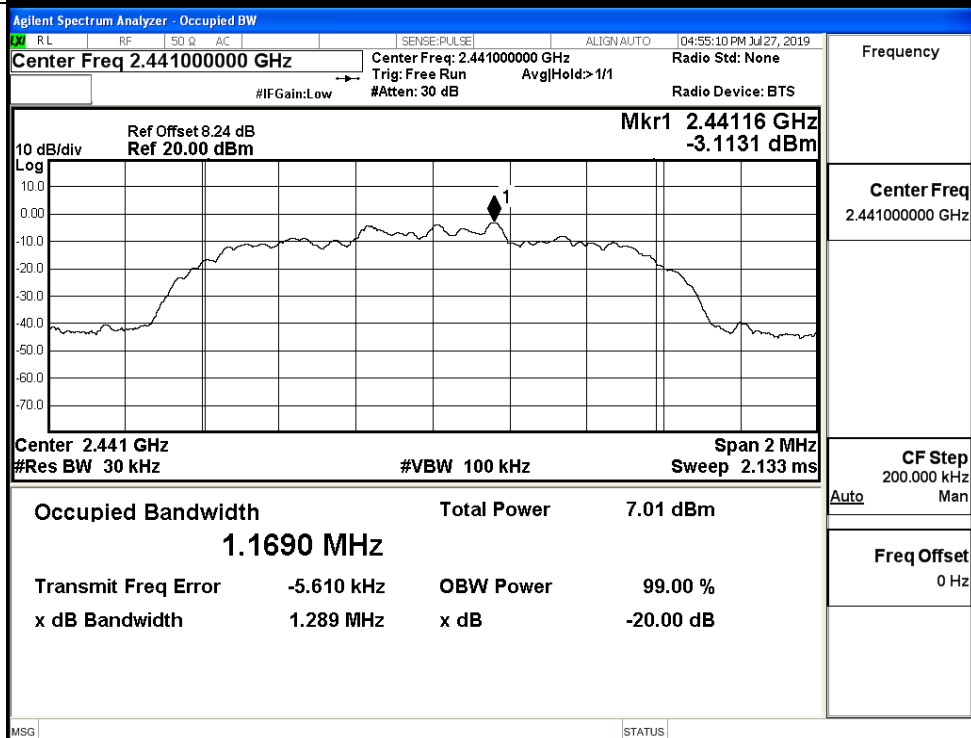


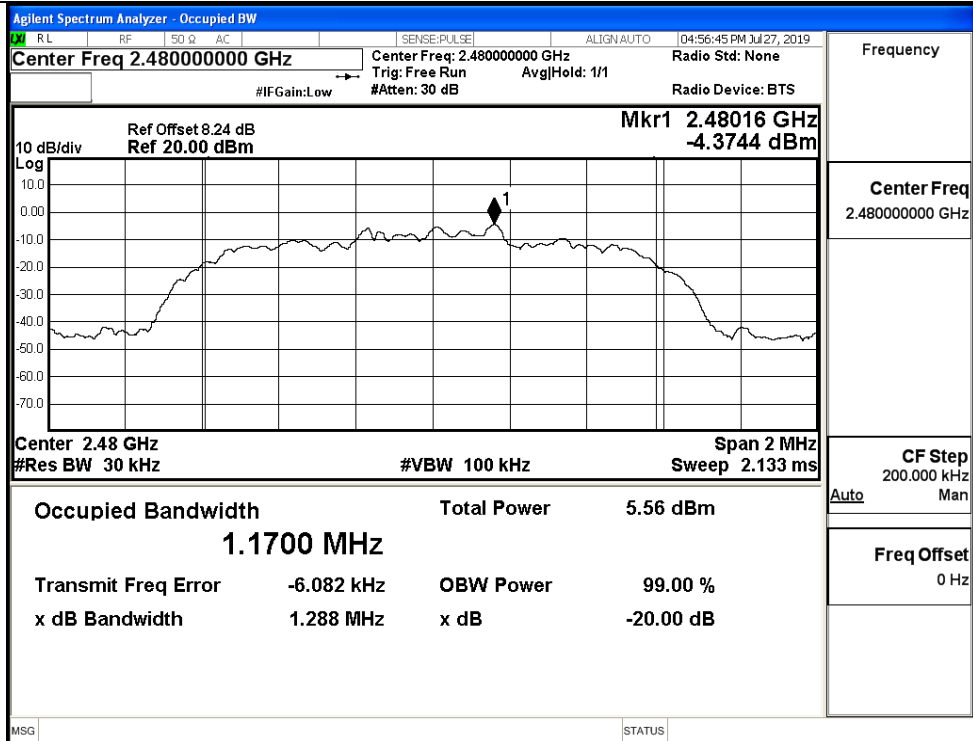
GFSK/MCH



GFSK/HCH



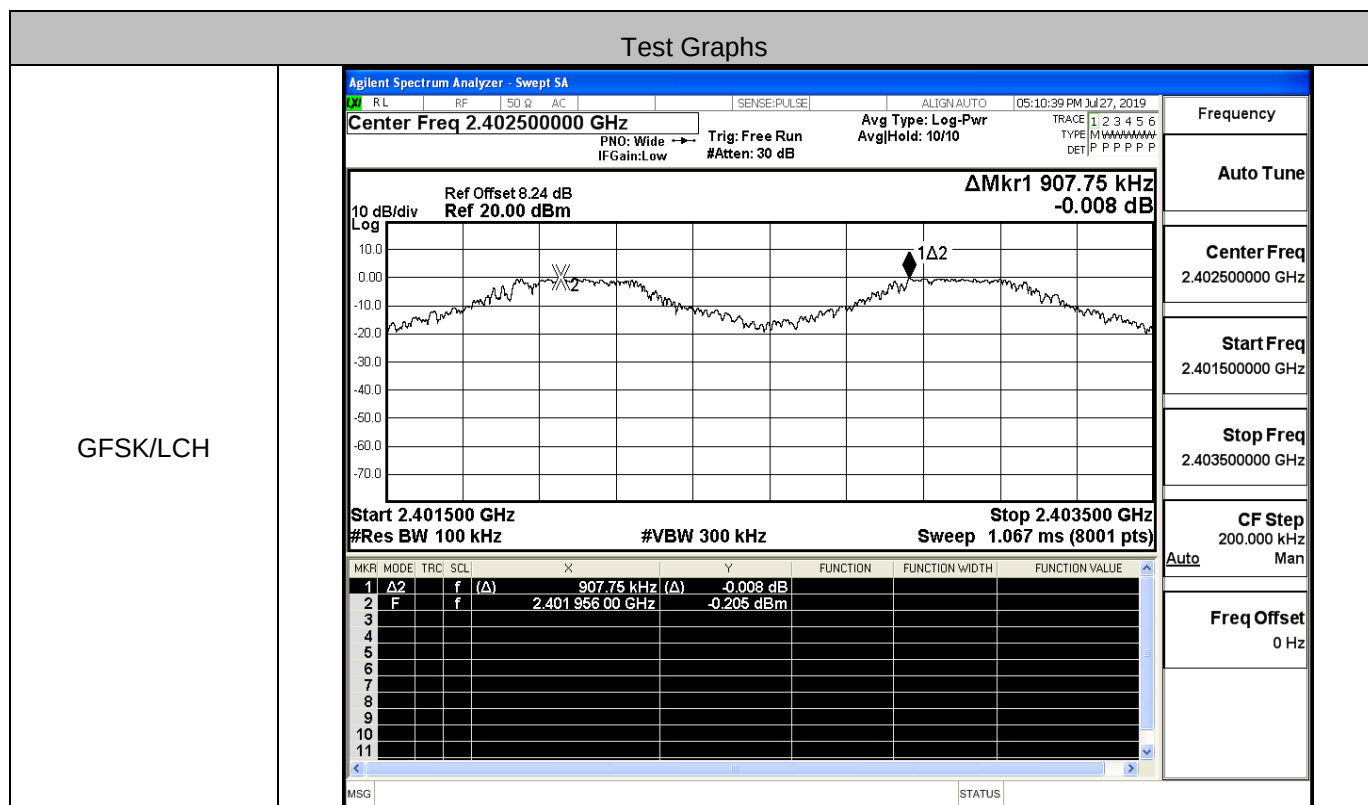
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

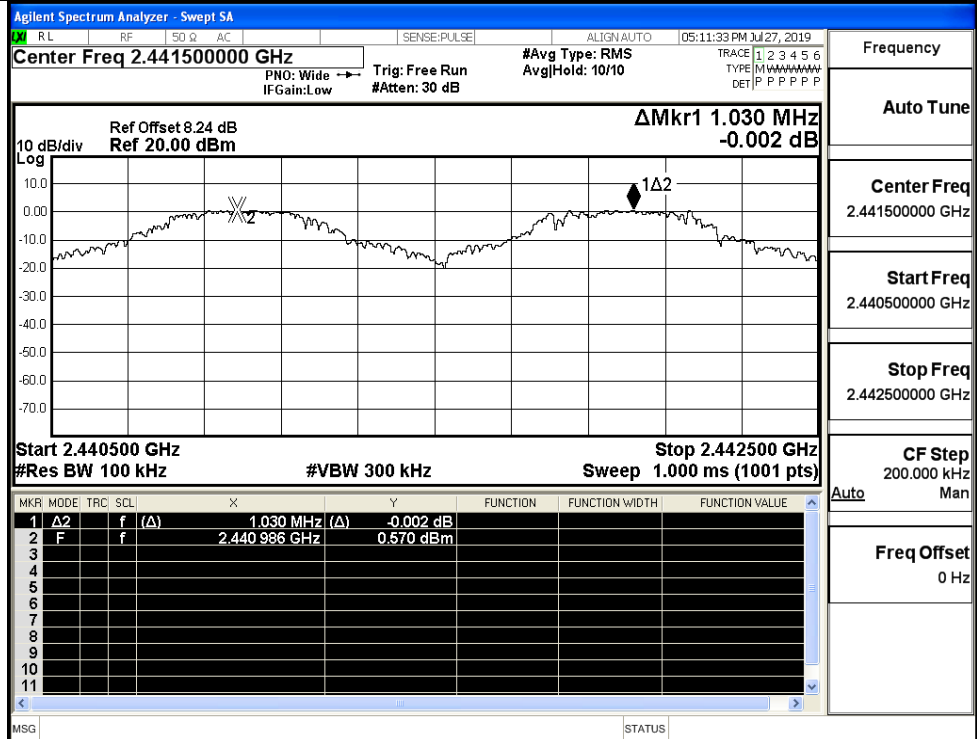
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.908	0.693	PASS
	MCH	1.030	0.693	PASS
	HCH	1.140	0.693	PASS
π /4DQPSK	LCH	1.318	0.879	PASS
	MCH	0.684	0.879	PASS
	HCH	1.320	0.879	PASS

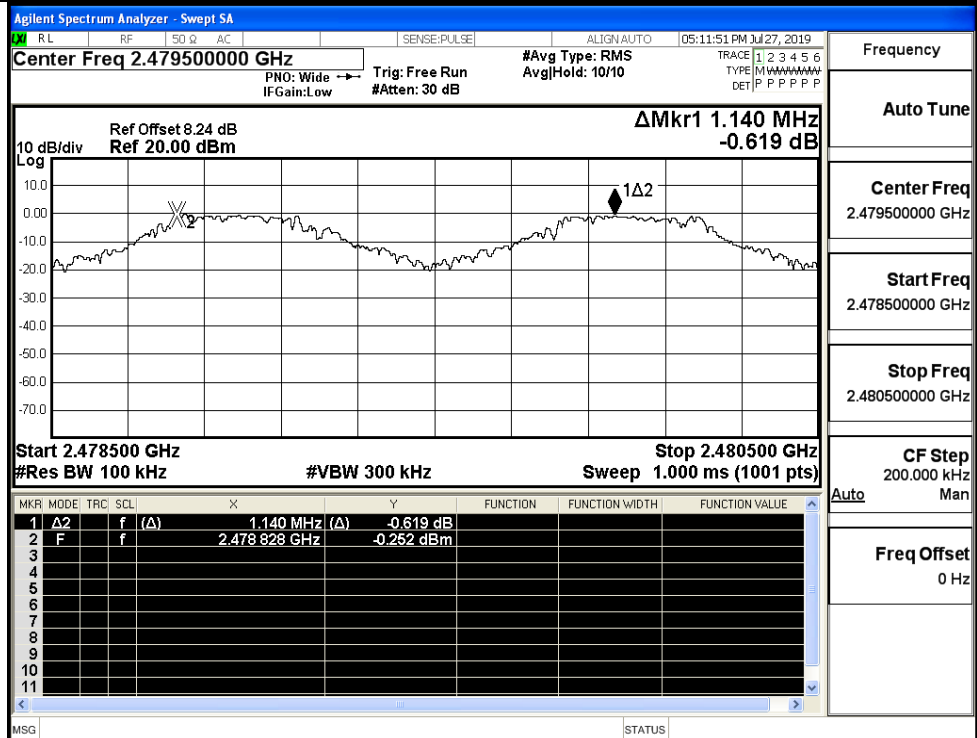
Test Graphs

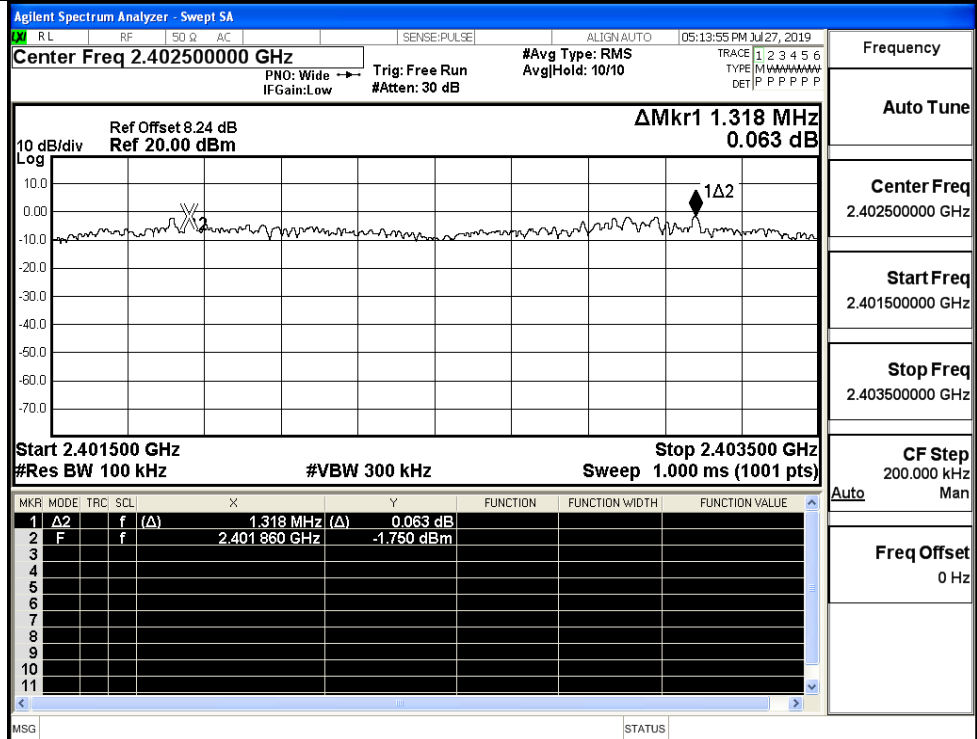
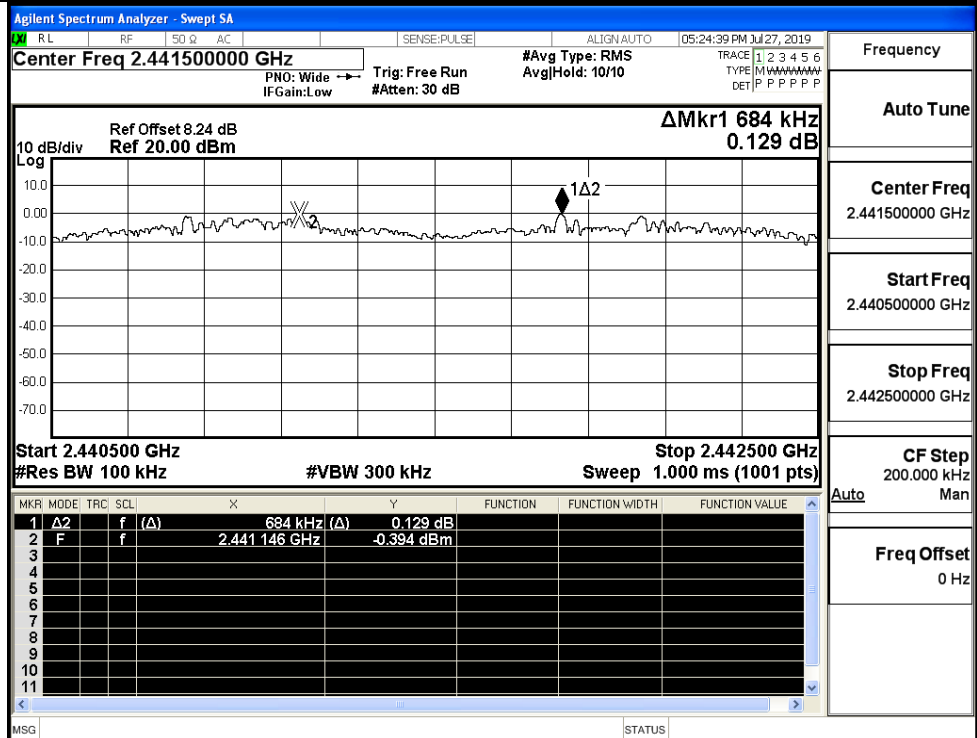


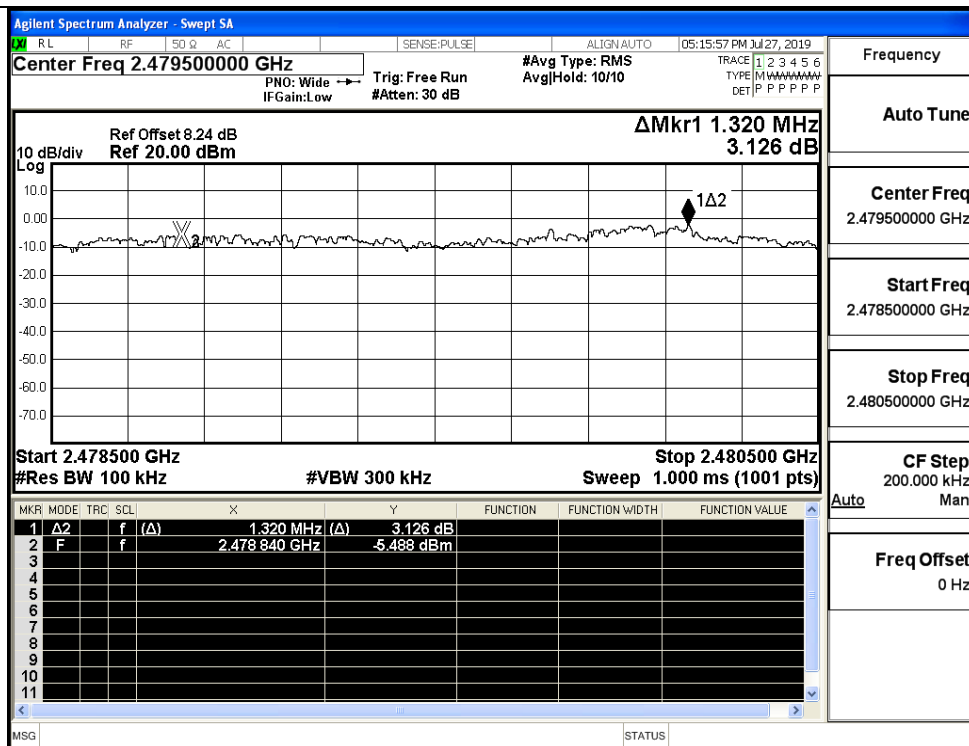
GFSK/MCH



GFSK/HCH



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

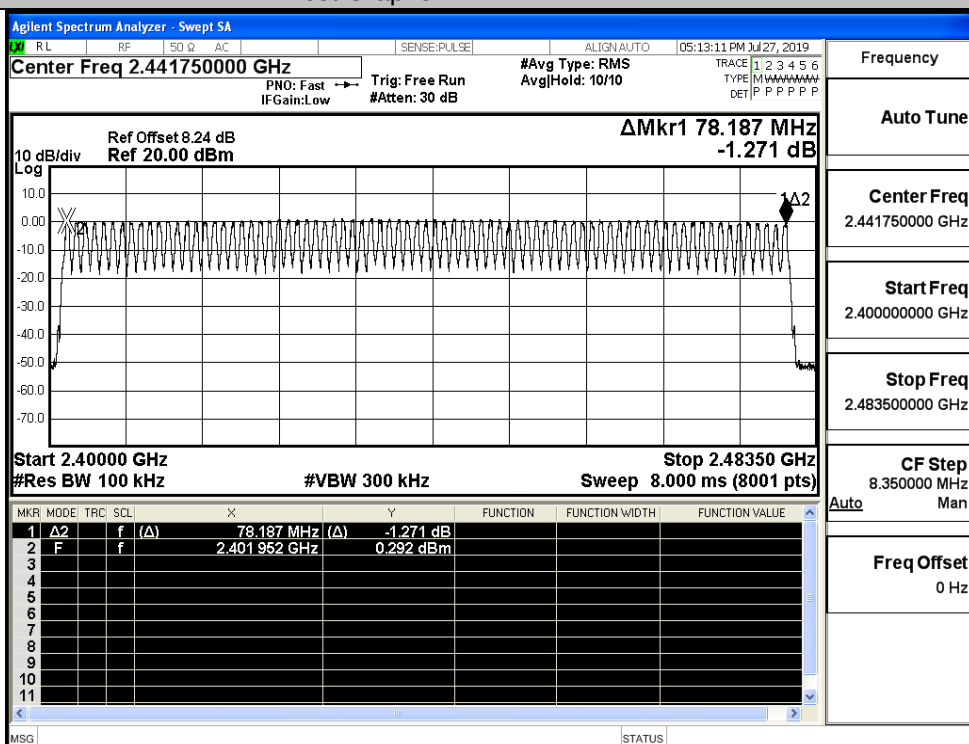
$\pi/4$ DQPSK/HCH

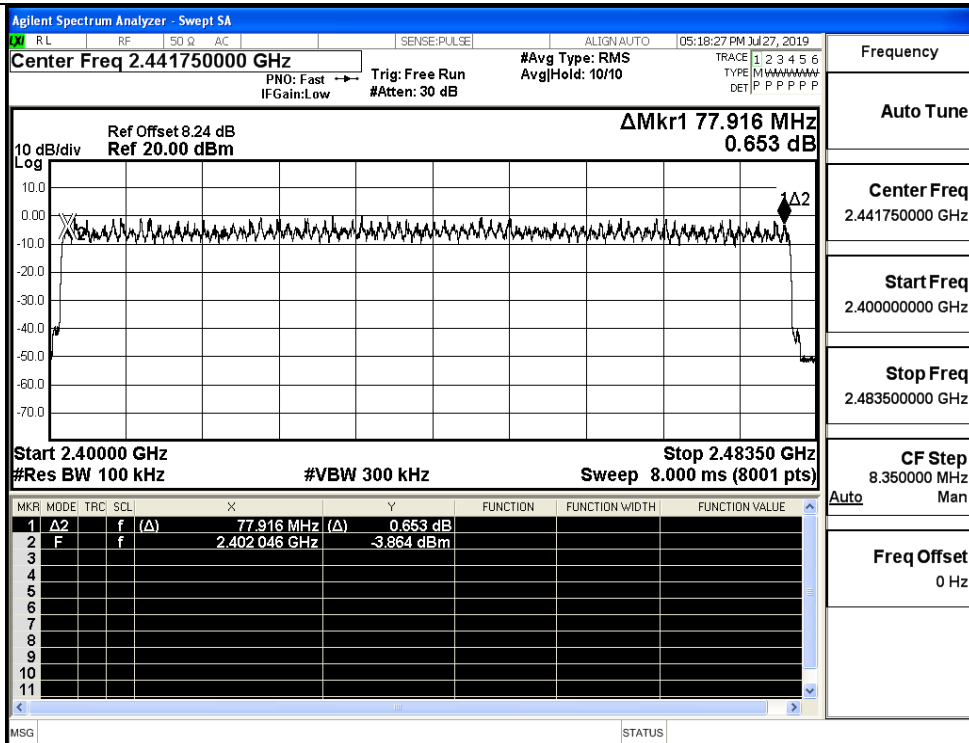
A.4 Hopping Channel Number

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

Test Graphs

GFSK/Hop



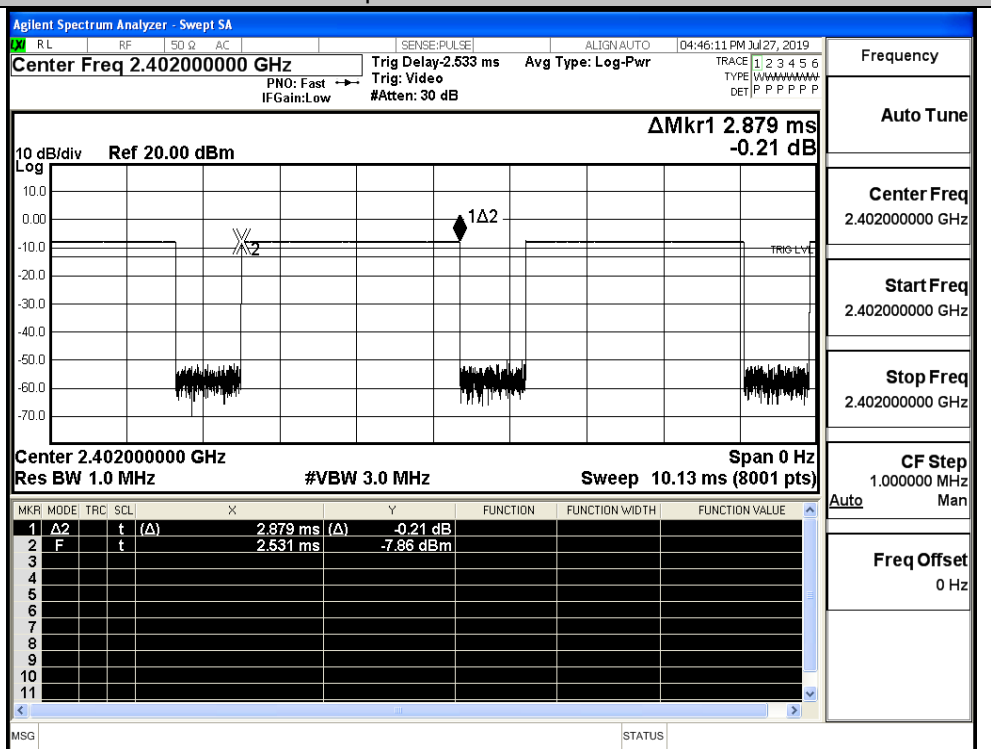
$\pi/4$ DQPSK/Hop

A.5 Dwell Time

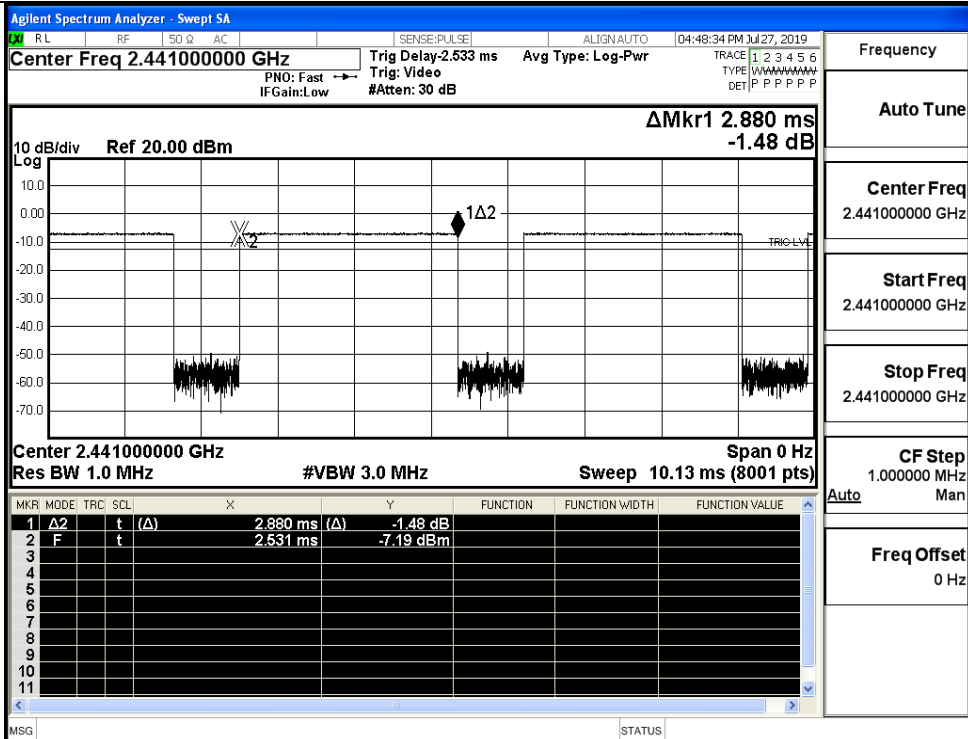
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88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

Test Graphs

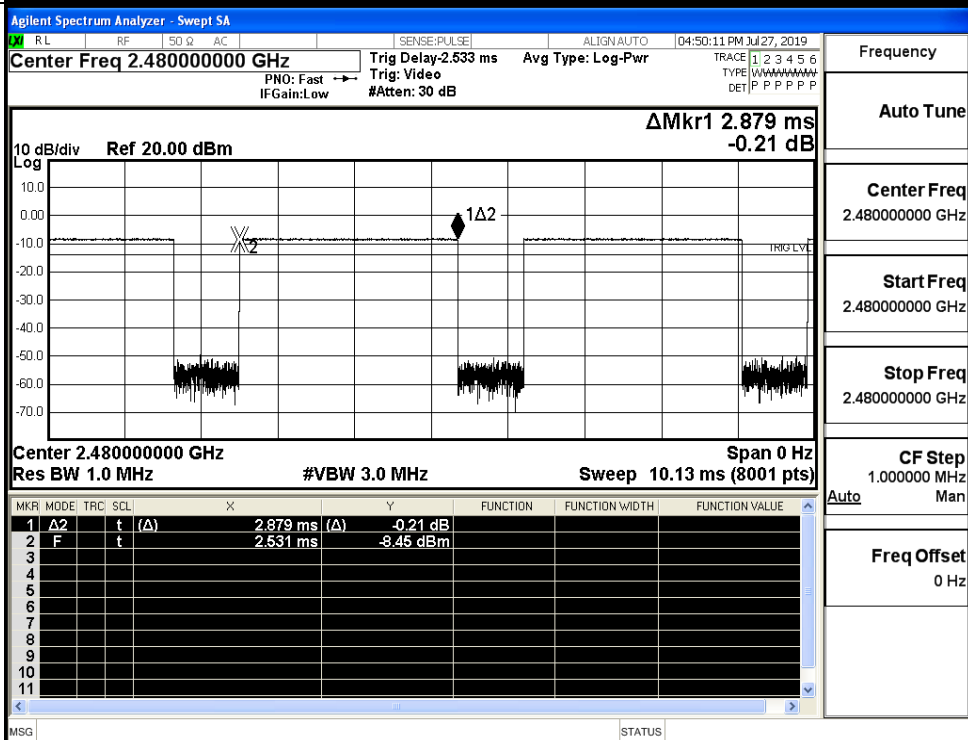
GFSK_DH5/LCH



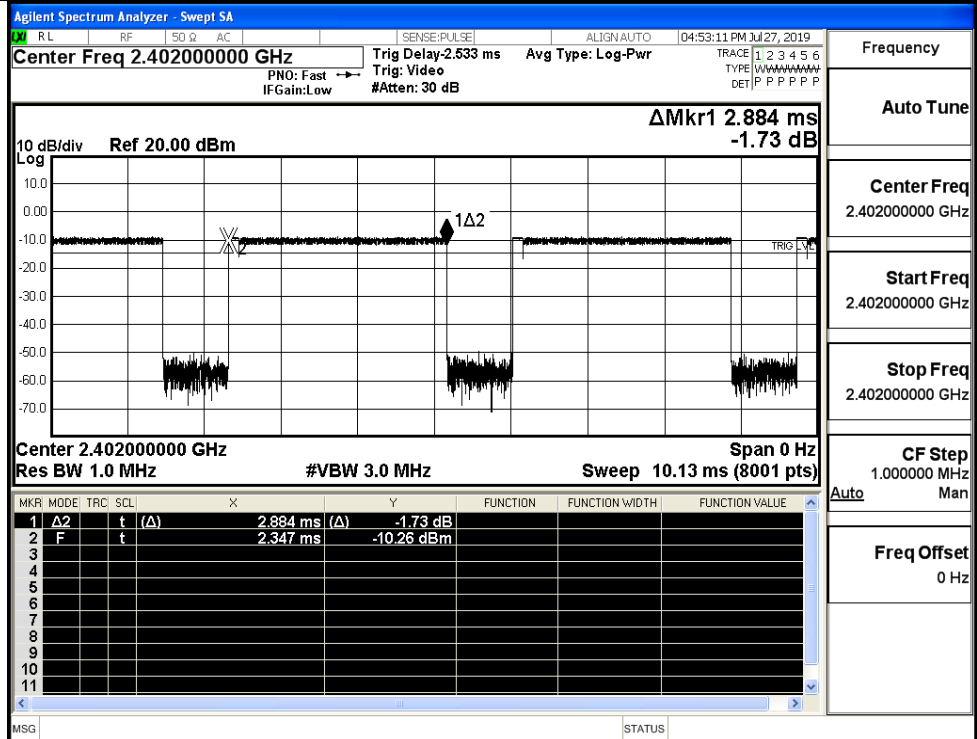
GFSK_DH5/MCH



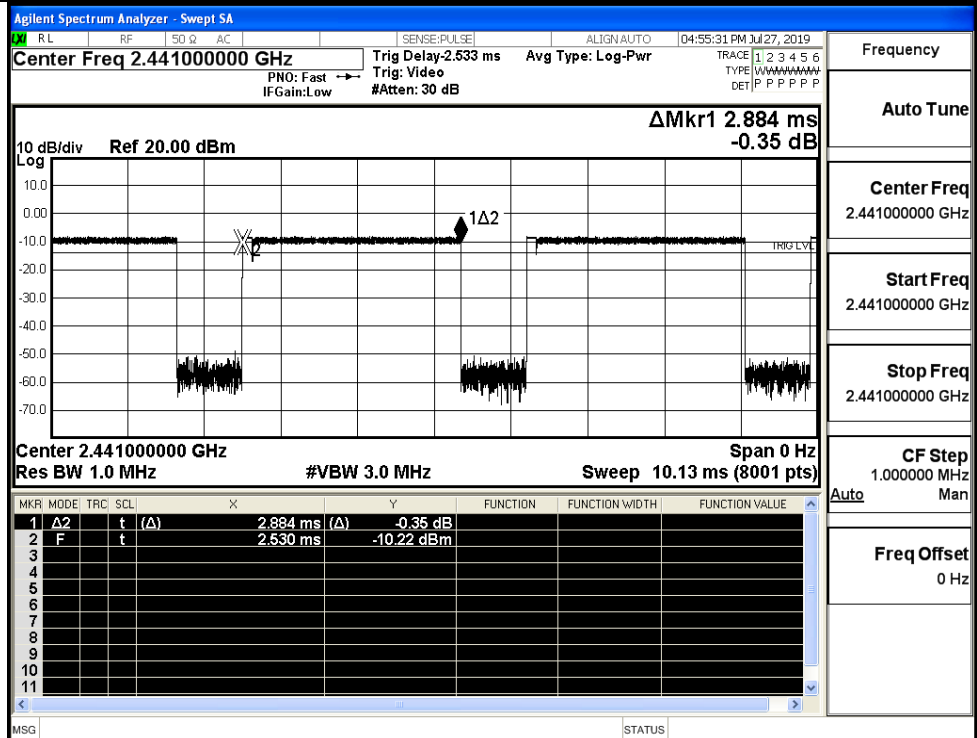
GFSK_DH5/HCH



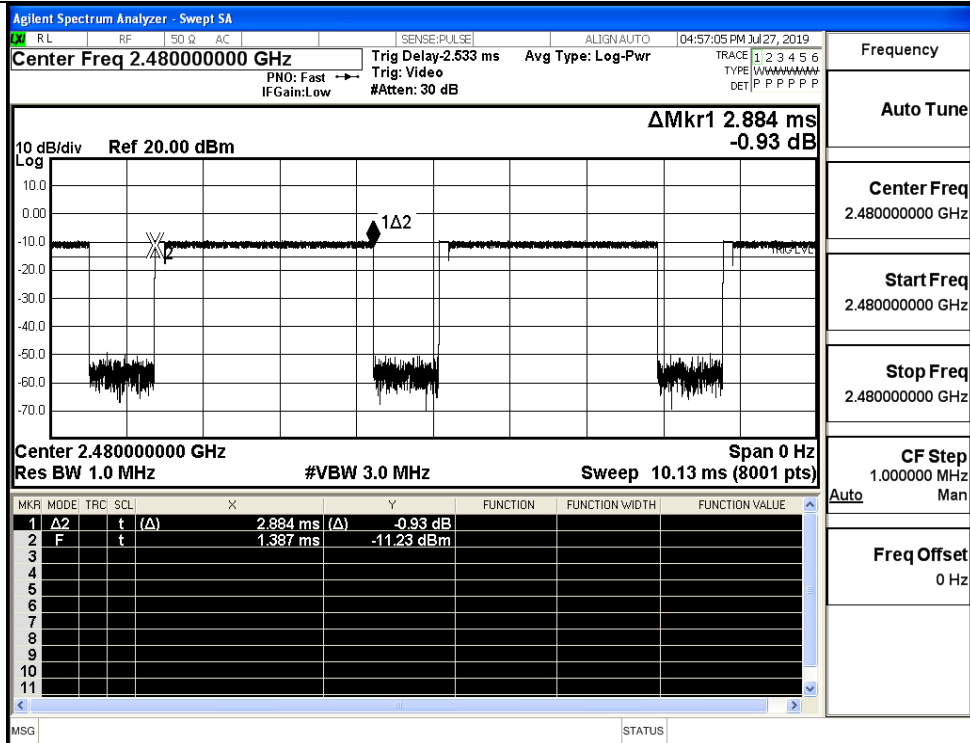
$\pi/4$ DQPSK
_2DH5/LCH



$\pi/4$ DQPSK
_2DH5/MCH

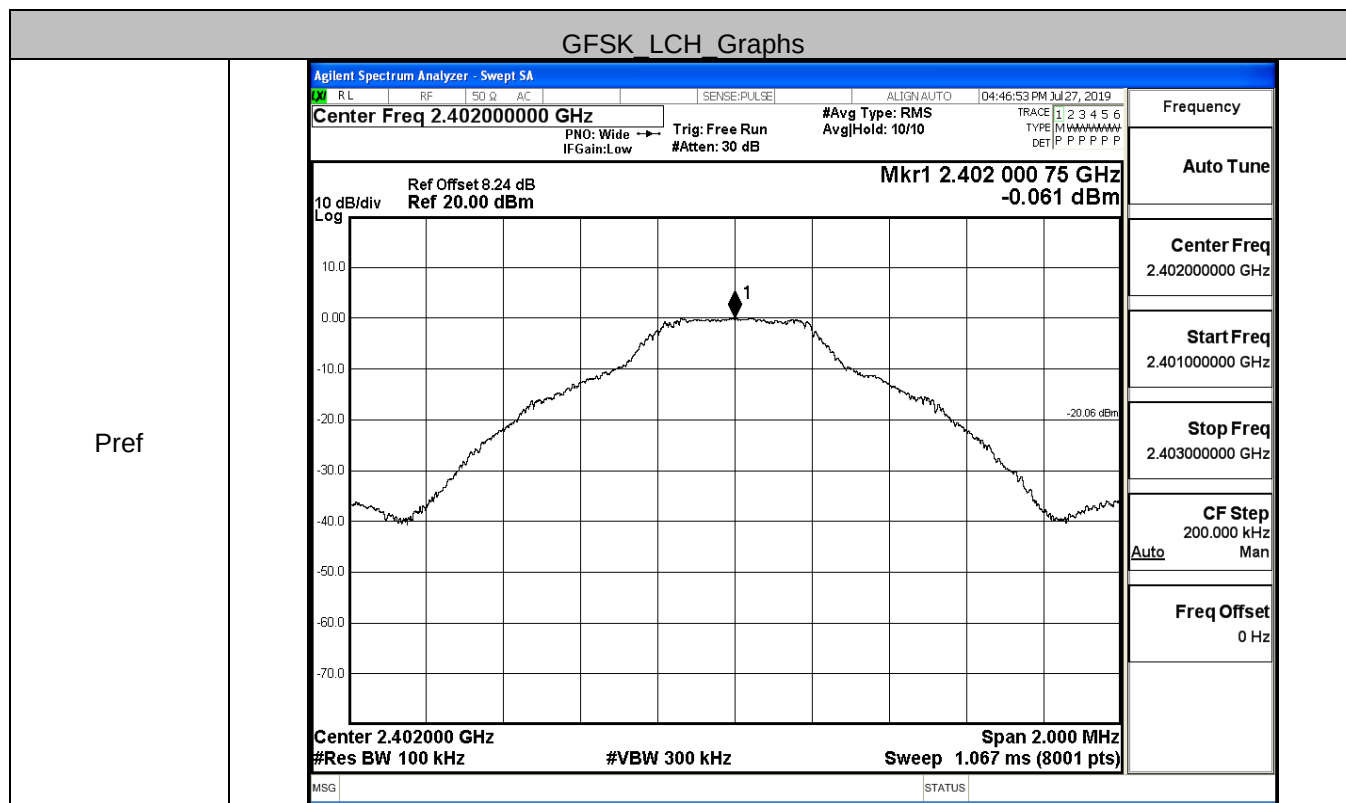


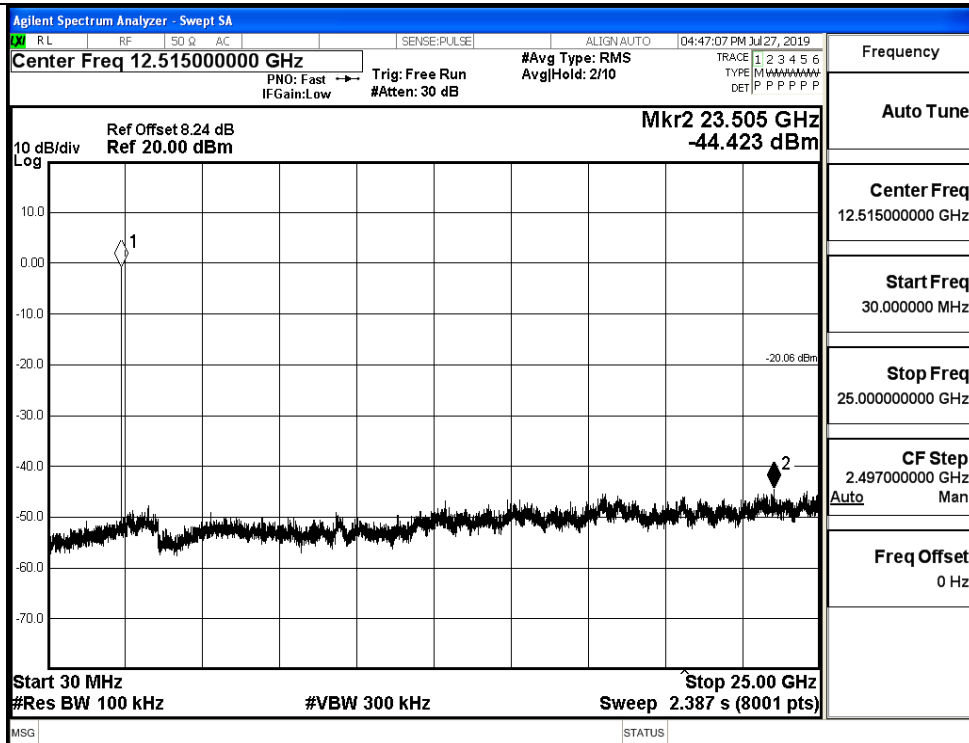
$\pi/4$ DQPSK
_2DH5/HCH



A.6 RF Conducted Spurious Emissions

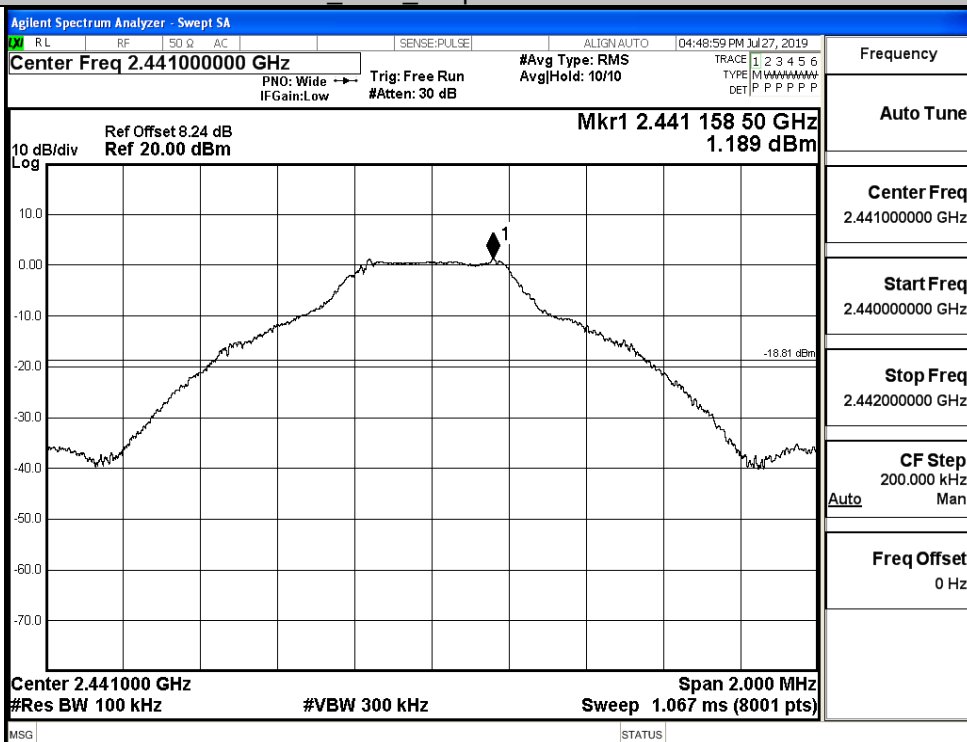
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.061	-44.423	-20.061	PASS
	MCH	1.189	-44.954	-18.811	PASS
	HCH	-0.164	-44.468	-20.164	PASS
$\pi/4$ DQPSK	LCH	-0.969	-44.297	-20.969	PASS
	MCH	-0.334	-44.861	-20.334	PASS
	HCH	-1.713	-43.696	-21.713	PASS



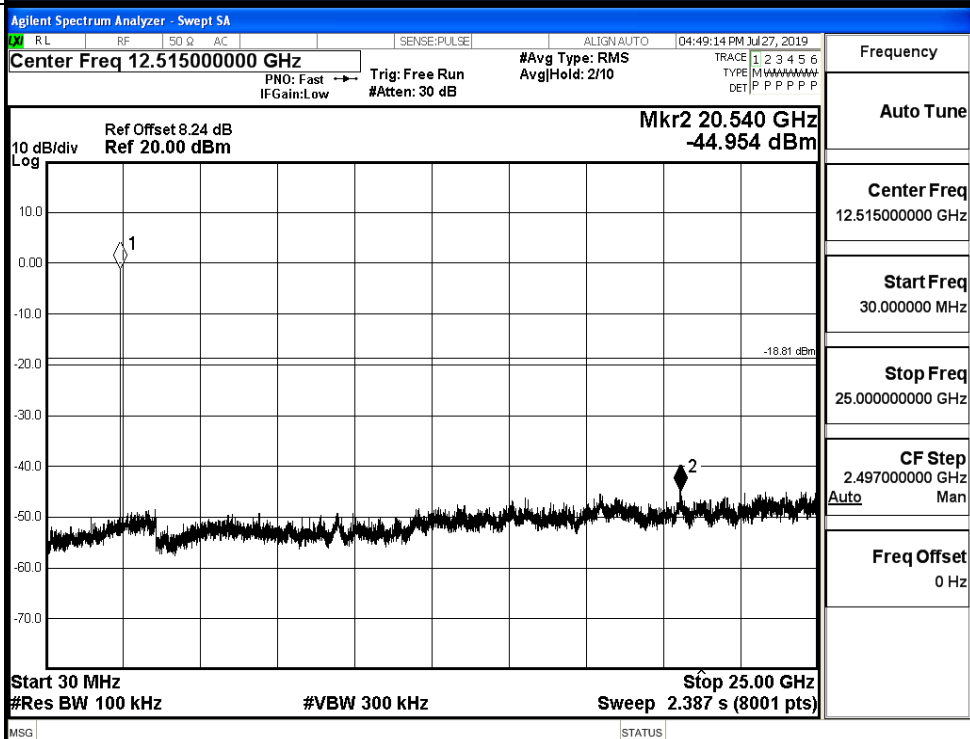


GFSK_MCH_Graphs

Pref

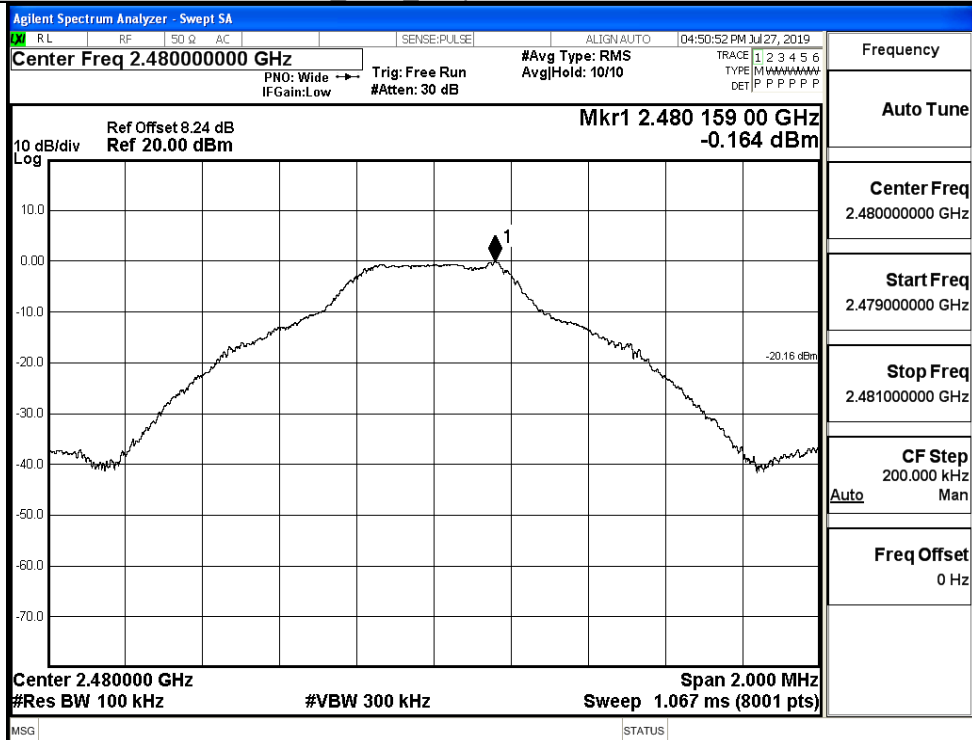


Puw

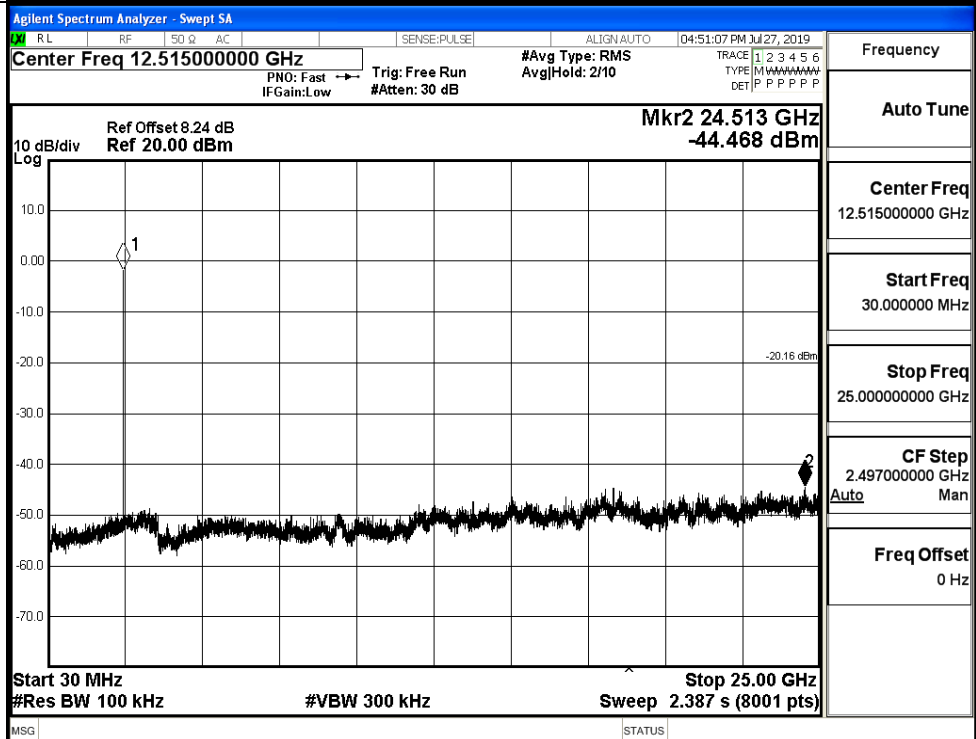


GFSK_HCH_Graphs

Pref

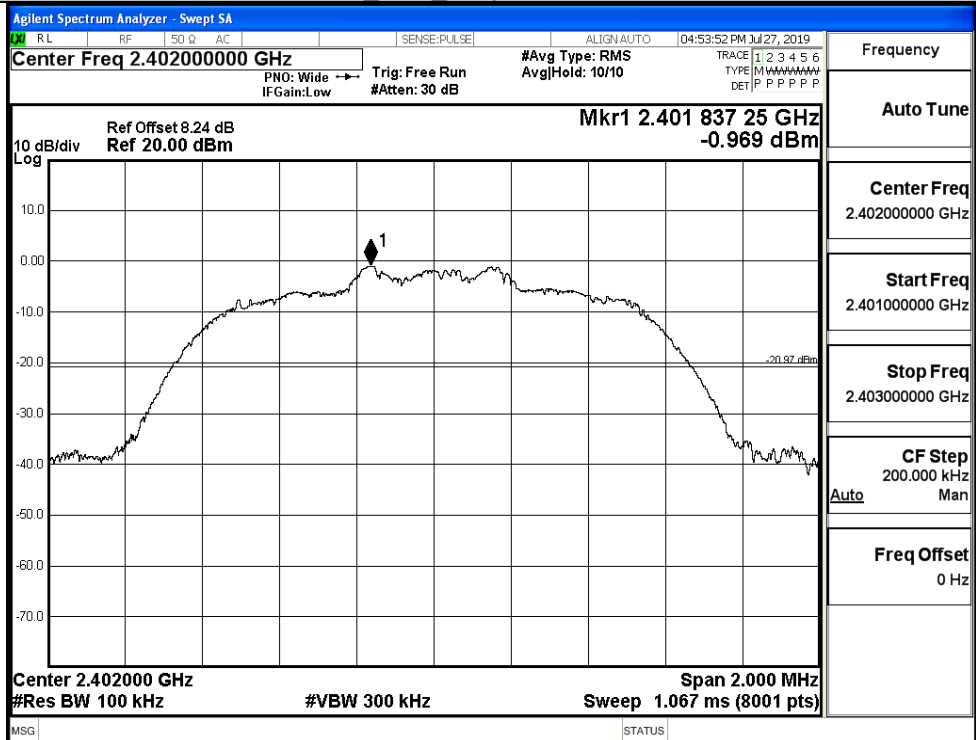


Puw

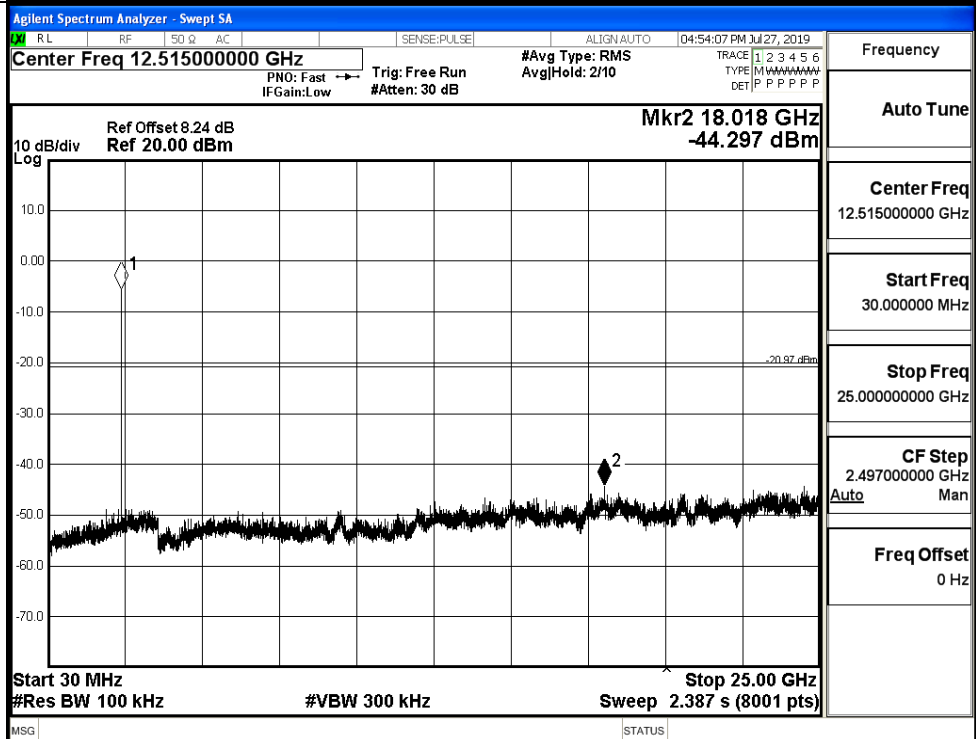


$\pi/4$ DQPSK_LCH_Graphs

Pref

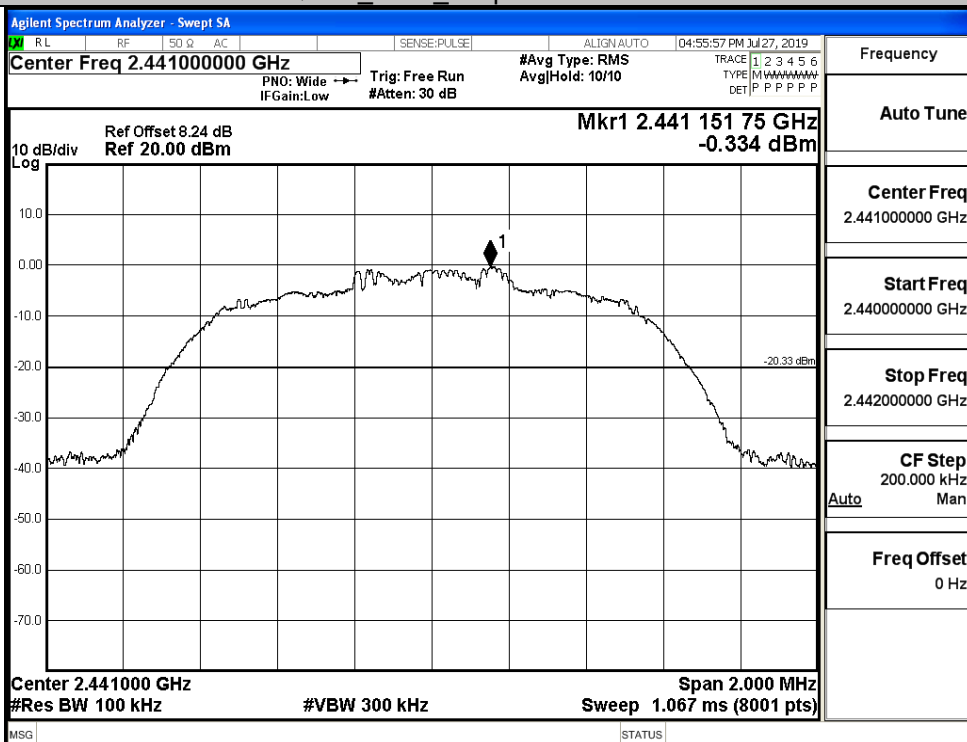


Puw

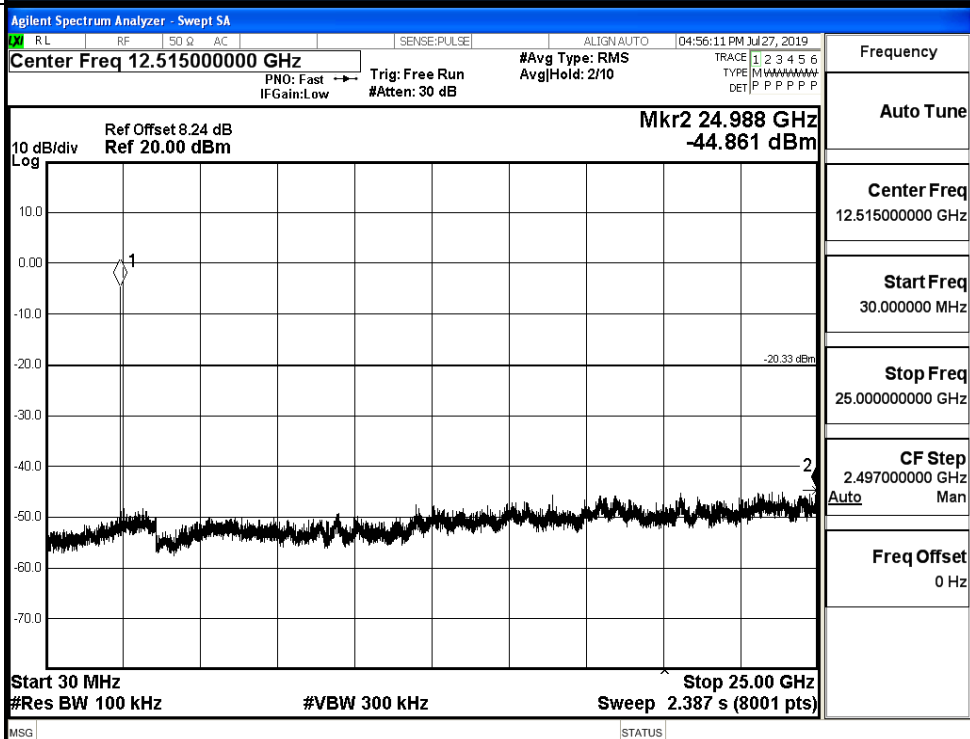


π /4DQPSK_MCH_Graphs

Pref

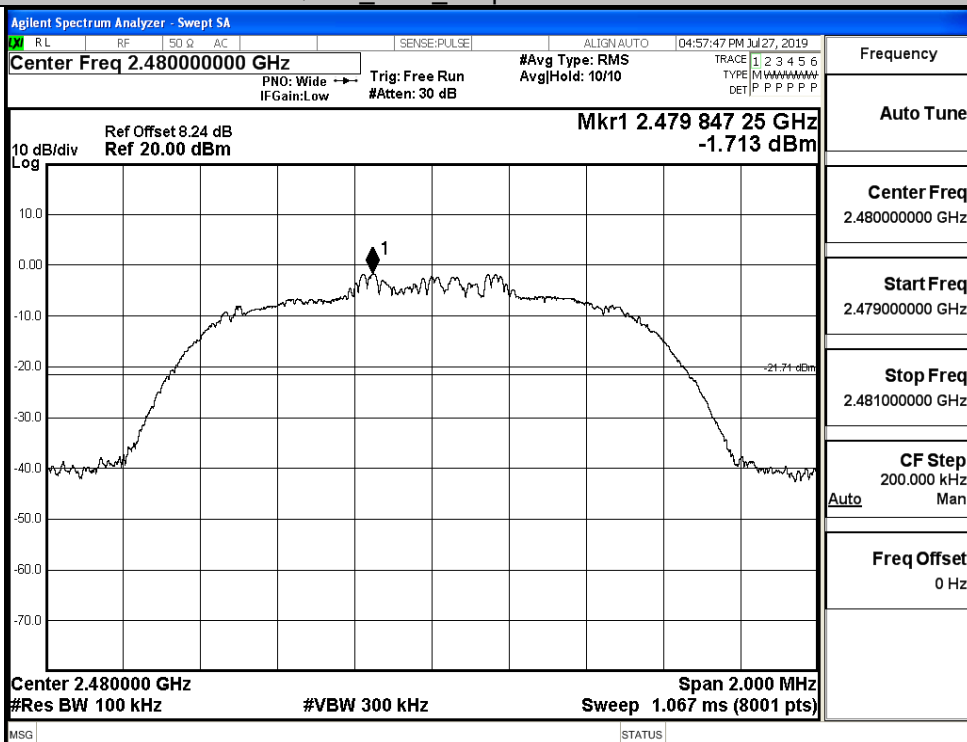


Puw

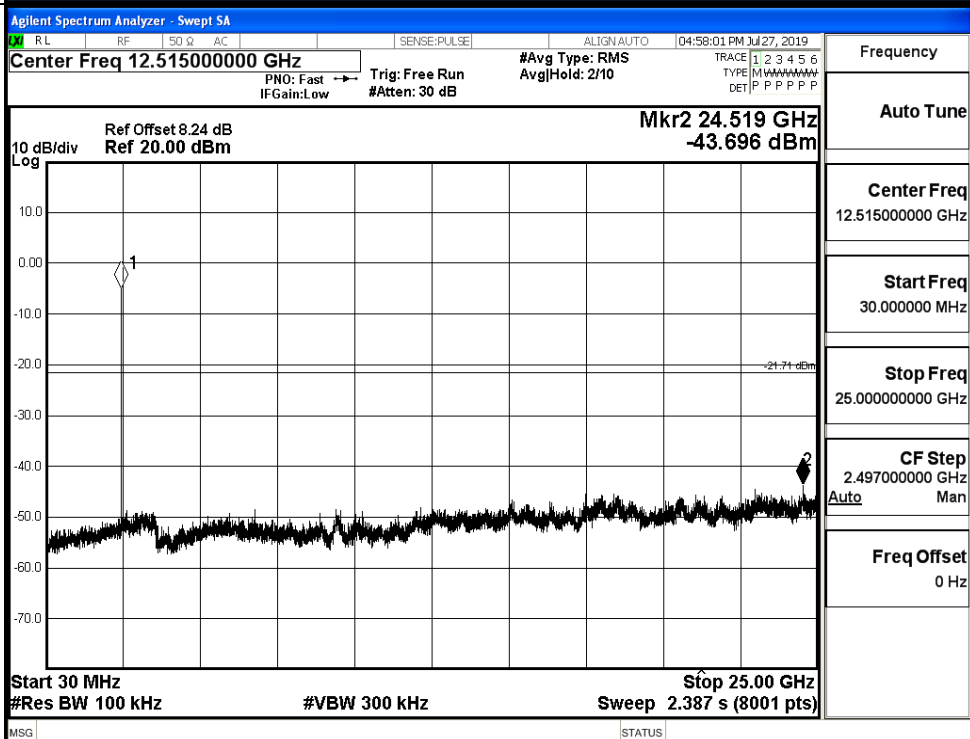


π /4DQPSK_HCH_Graphs

Pref



Puw

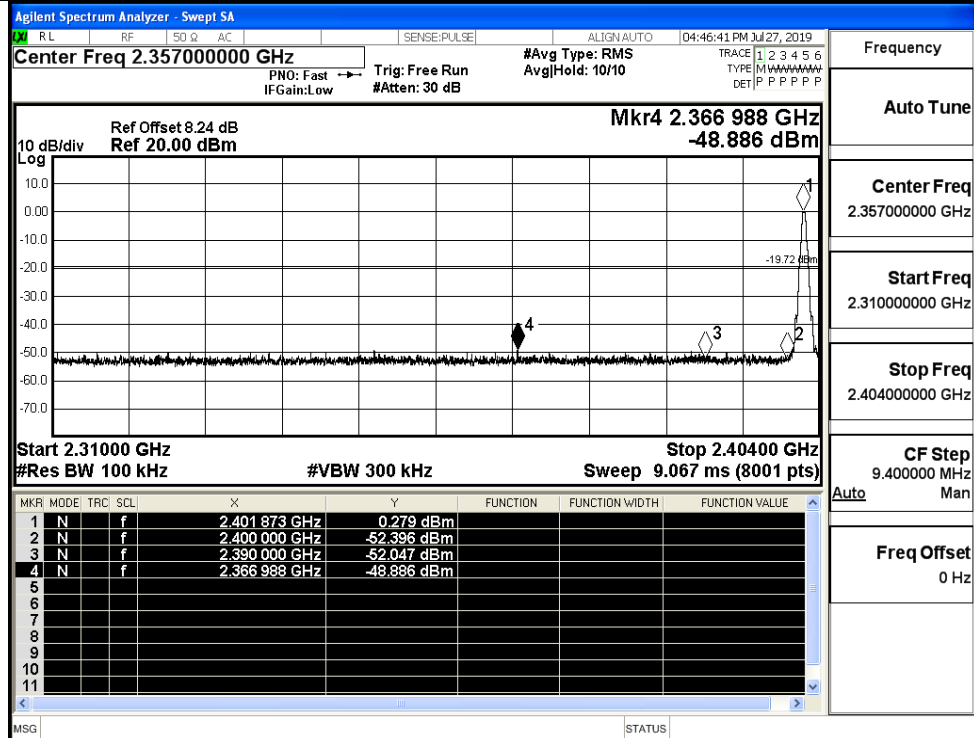


A.7 Band-edge for RF Conducted Emissions

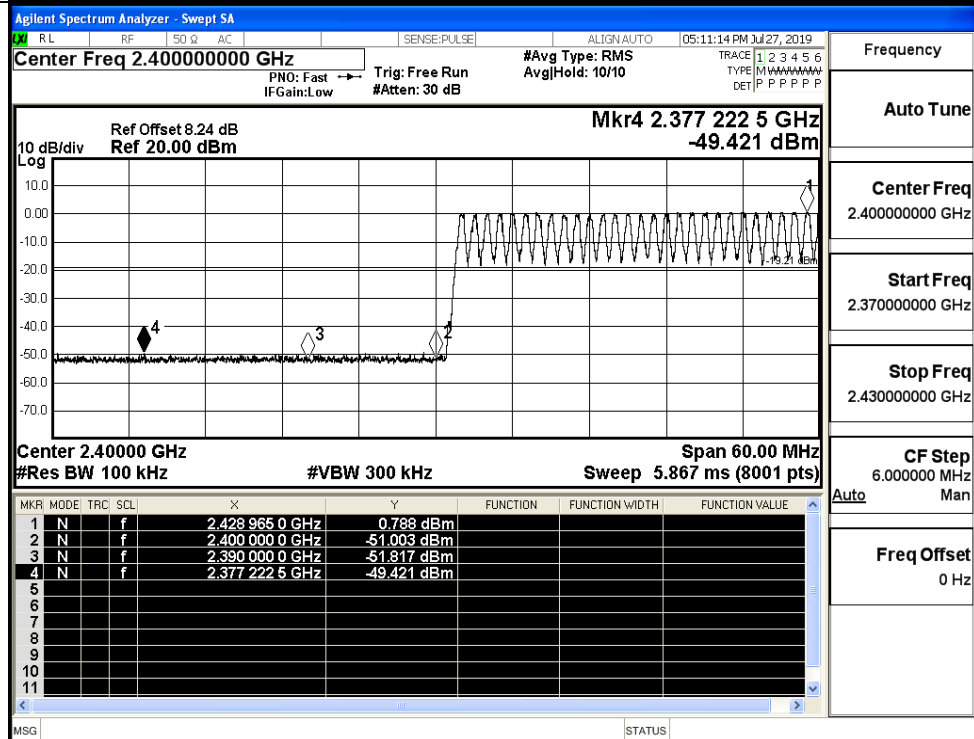
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.279	Off	-48.886	-19.72	PASS
			0.788	On	-49.421	-19.21	PASS
	HCH	2480	-0.226	Off	-49.011	-20.23	PASS
			0.777	On	-48.670	-19.22	PASS
$\pi/4$ DQPSK	LCH	2402	-1.553	Off	-49.559	-21.55	PASS
			-0.705	On	-48.060	-20.71	PASS
	HCH	2480	-1.568	Off	-49.555	-21.57	PASS
			-0.374	On	-48.835	-20.37	PASS

Test Graphs

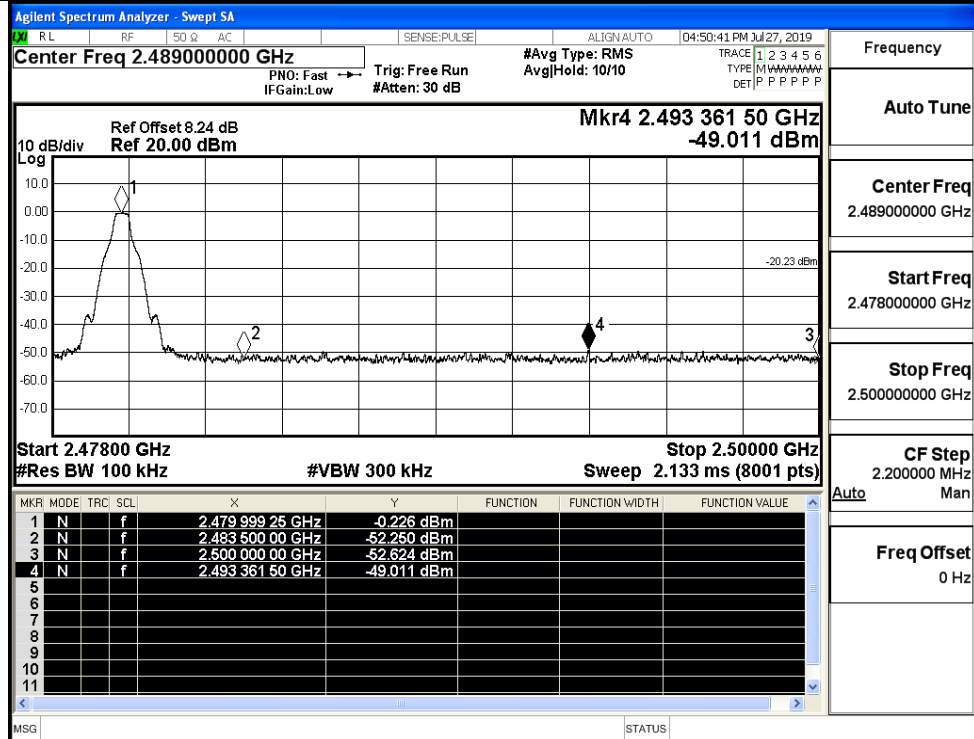
GFSK/LCH/No Hop



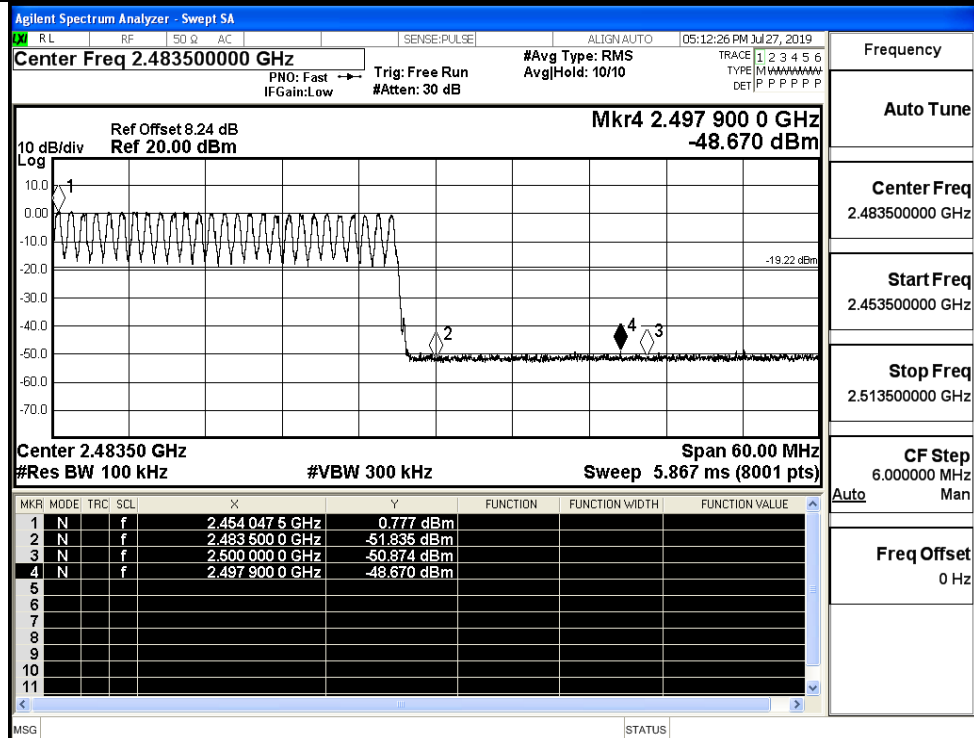
GFSK/LCH/Hop



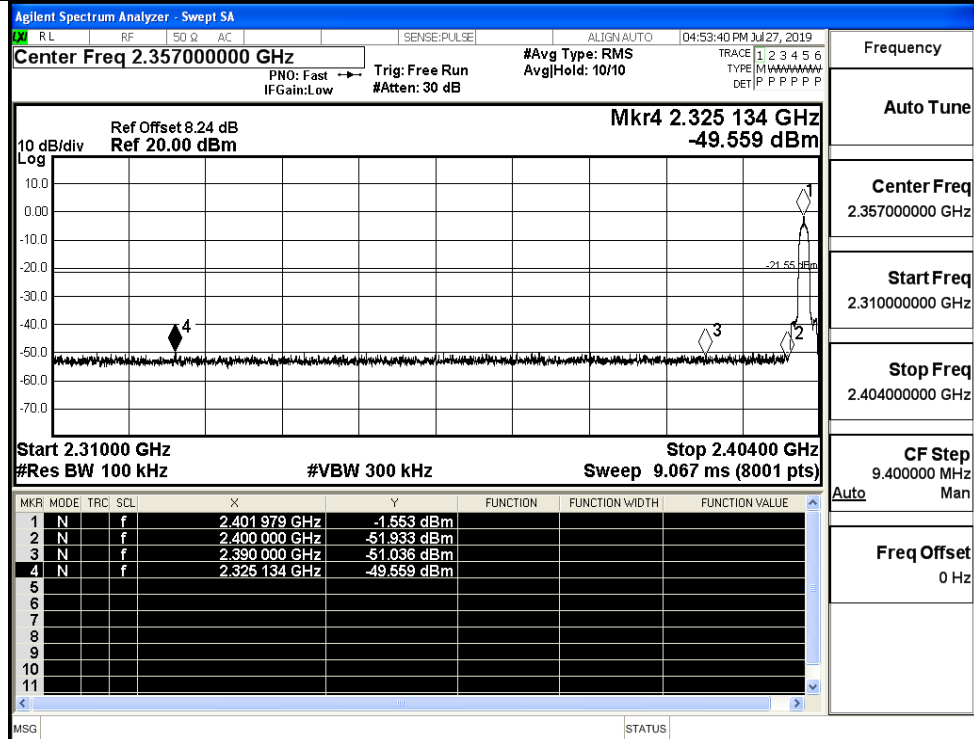
GFSK/HCH/No Hop



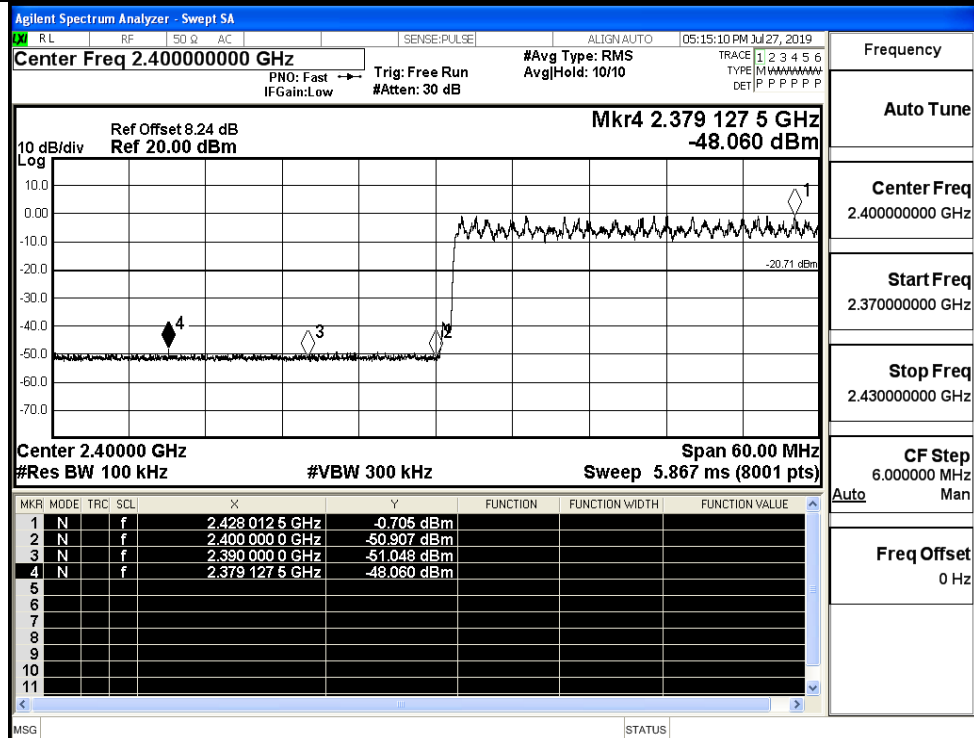
GFSK/HCH/Hop



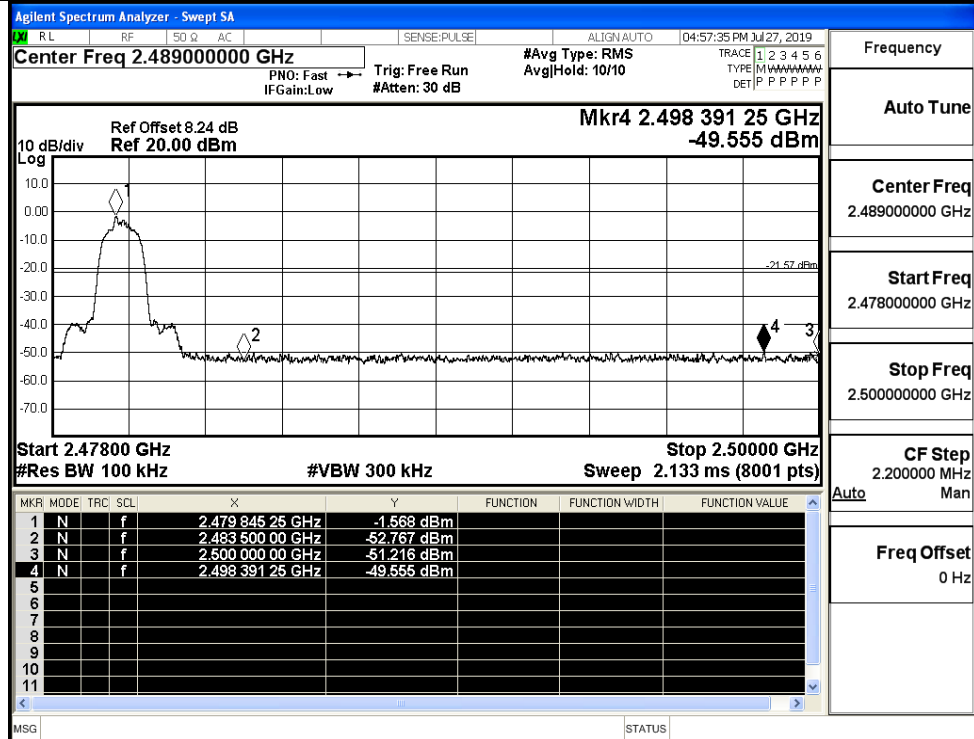
$\pi/4$ DQPSK/LCH/No
Hop



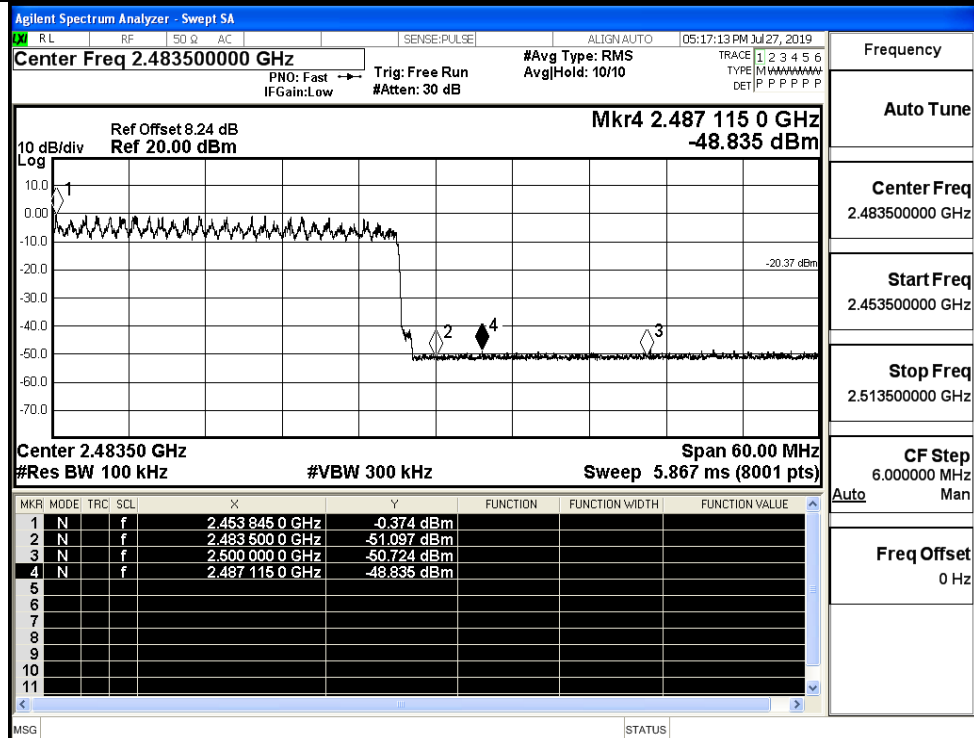
$\pi/4$ DQPSK/LCH/Hop



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



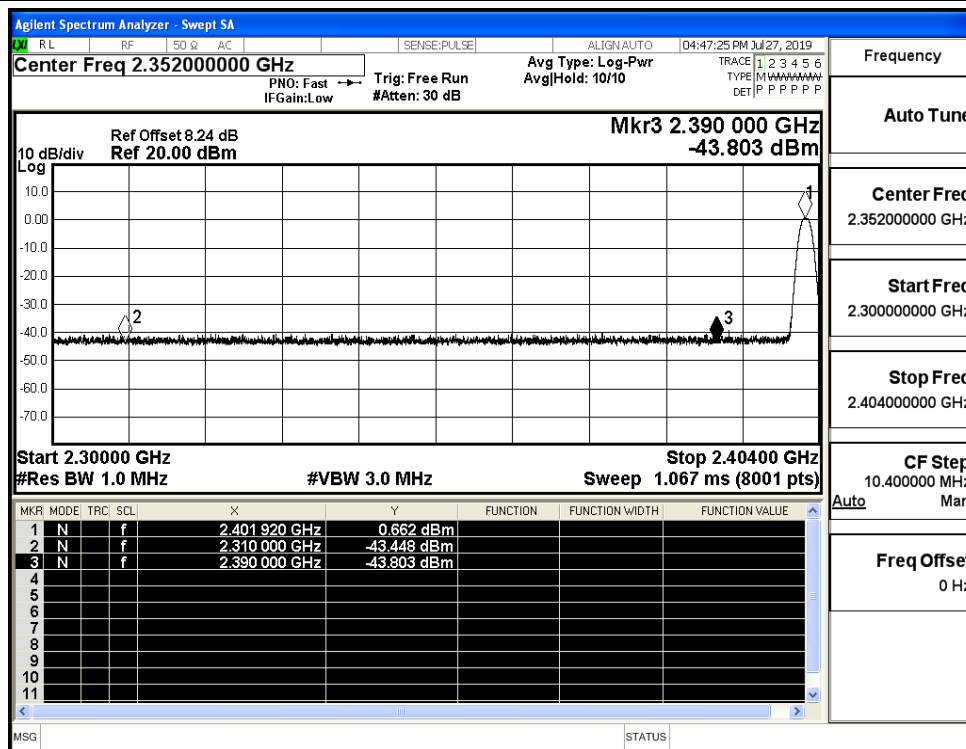
$\pi/4$ DQPSK/HCH/Hop



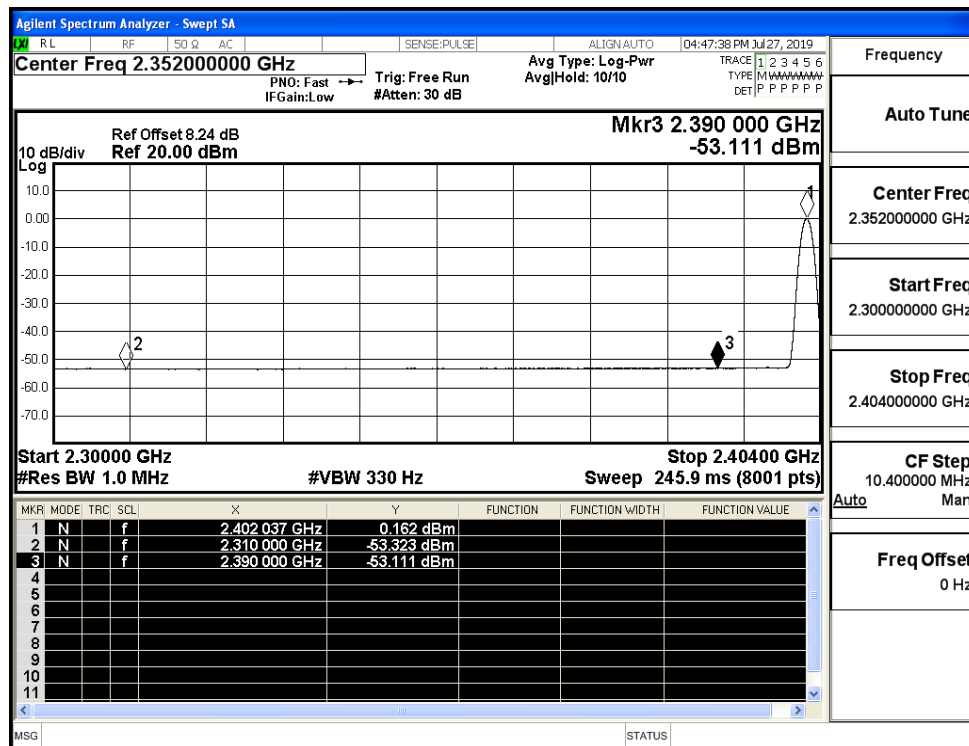
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-43.45	2.0	0	51.81	PEAK	74	PASS
	Off	2310.0	-53.32	2.0	0	41.93	AV	54	PASS
	Off	2390.0	-43.80	2.0	0	51.45	PEAK	74	PASS
	Off	2390.0	-53.11	2.0	0	42.15	AV	54	PASS
	Off	2483.5	-42.05	2.0	0	53.20	PEAK	74	PASS
	Off	2483.5	-52.70	2.0	0	42.55	AV	54	PASS
	Off	2500.0	-42.38	2.0	0	52.87	PEAK	74	PASS
	Off	2500.0	-52.68	2.0	0	42.58	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-42.52	2.0	0	52.74	PEAK	74	PASS
	Off	2310.0	-53.40	2.0	0	41.86	AV	54	PASS
	Off	2390.0	-43.84	2.0	0	51.41	PEAK	74	PASS
	Off	2390.0	-53.11	2.0	0	42.15	AV	54	PASS
	Off	2483.5	-43.42	2.0	0	51.84	PEAK	74	PASS
	Off	2483.5	-52.66	2.0	0	42.59	AV	54	PASS
	Off	2500.0	-43.19	2.0	0	52.07	PEAK	74	PASS
	Off	2500.0	-52.73	2.0	0	42.53	AV	54	PASS

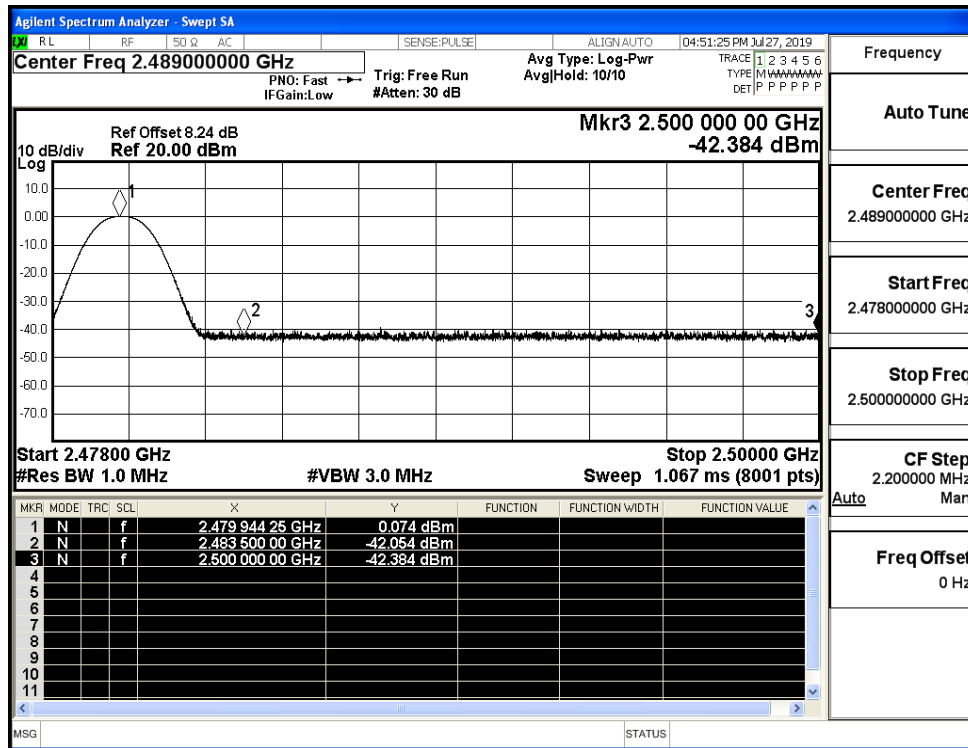
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



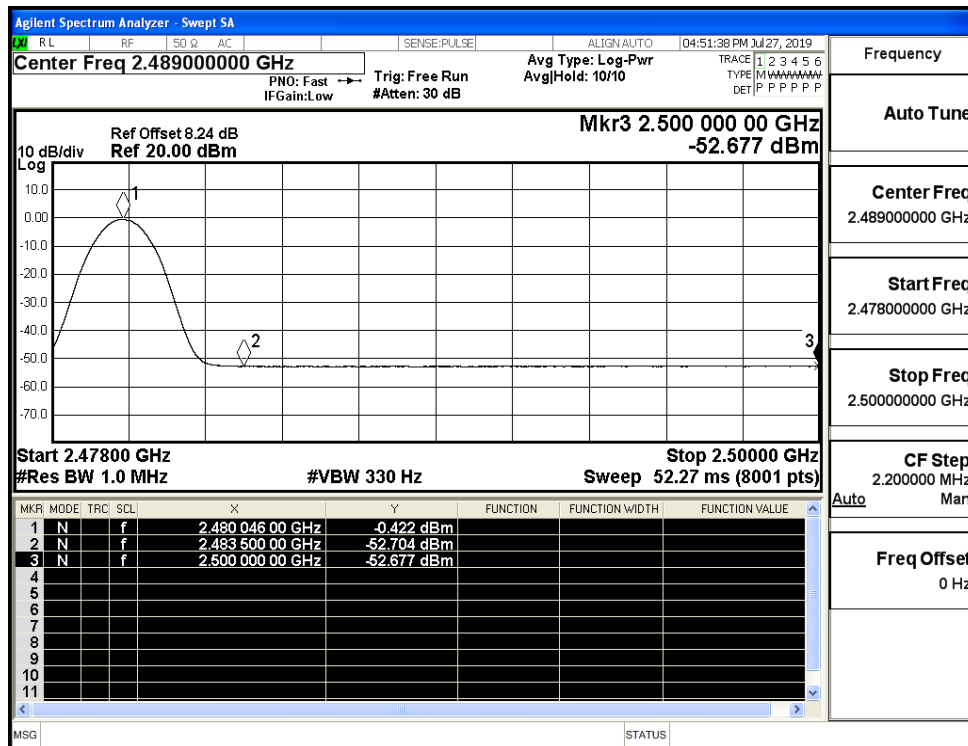
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

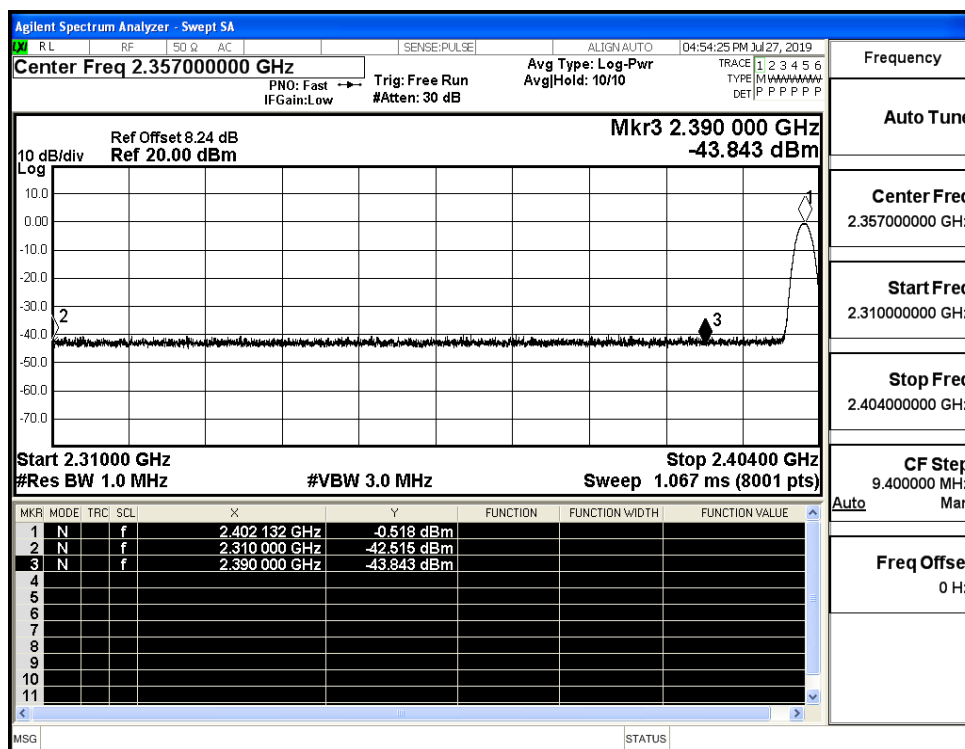
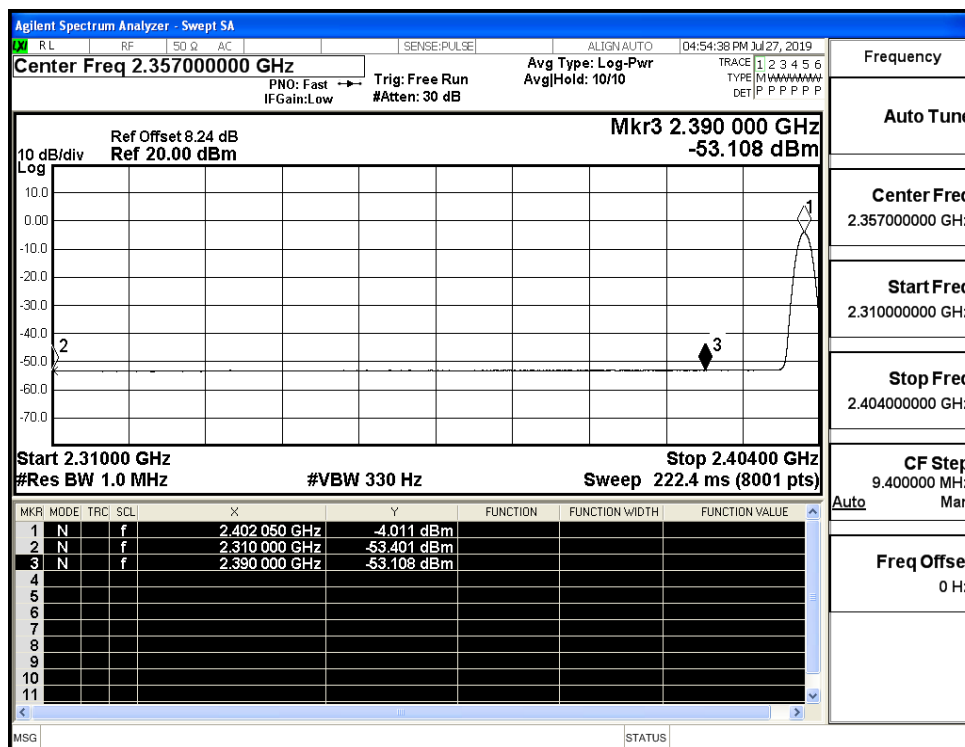


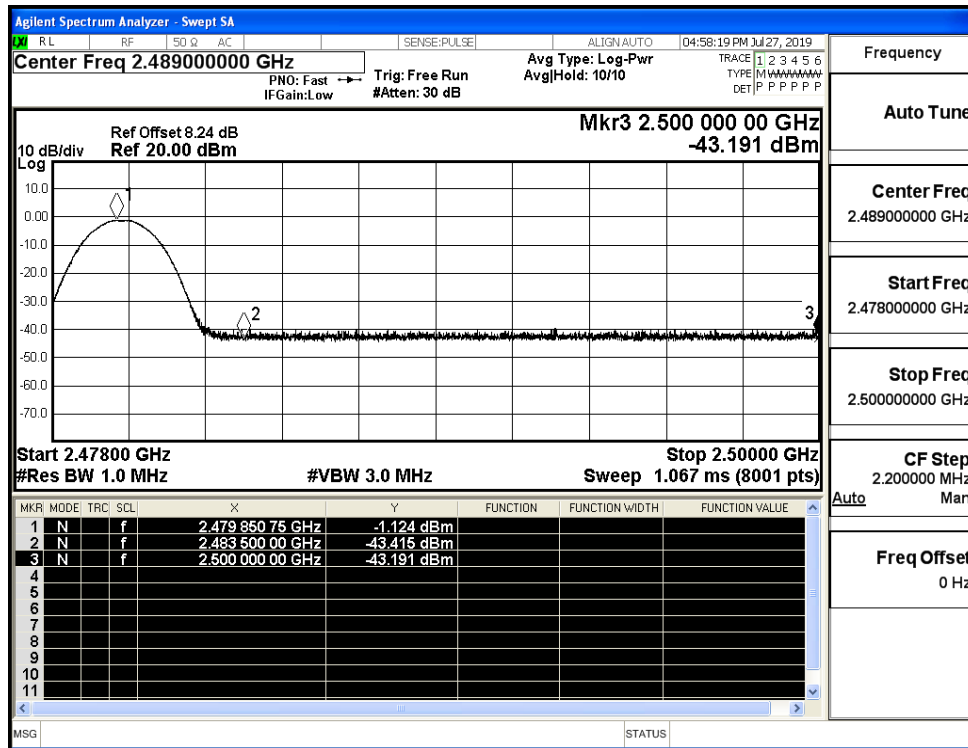
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



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)