

Appendix A

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

Product Name: Wireless Earbuds

Trade Mark: OFUSHO

Test Model: F16

Environmental Conditions

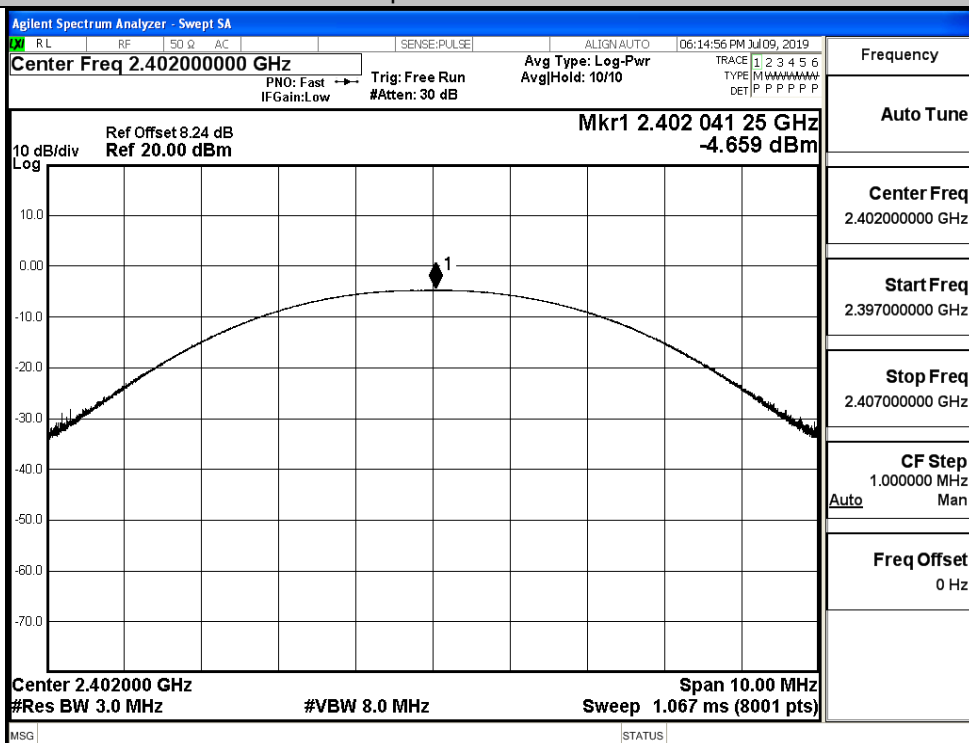
Temperature:	24.6 ° C
Relative Humidity:	53.7%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY ZENG
Supervised by:	Wang.Chuang

A.1 Maximum Conducted Peak Output Power

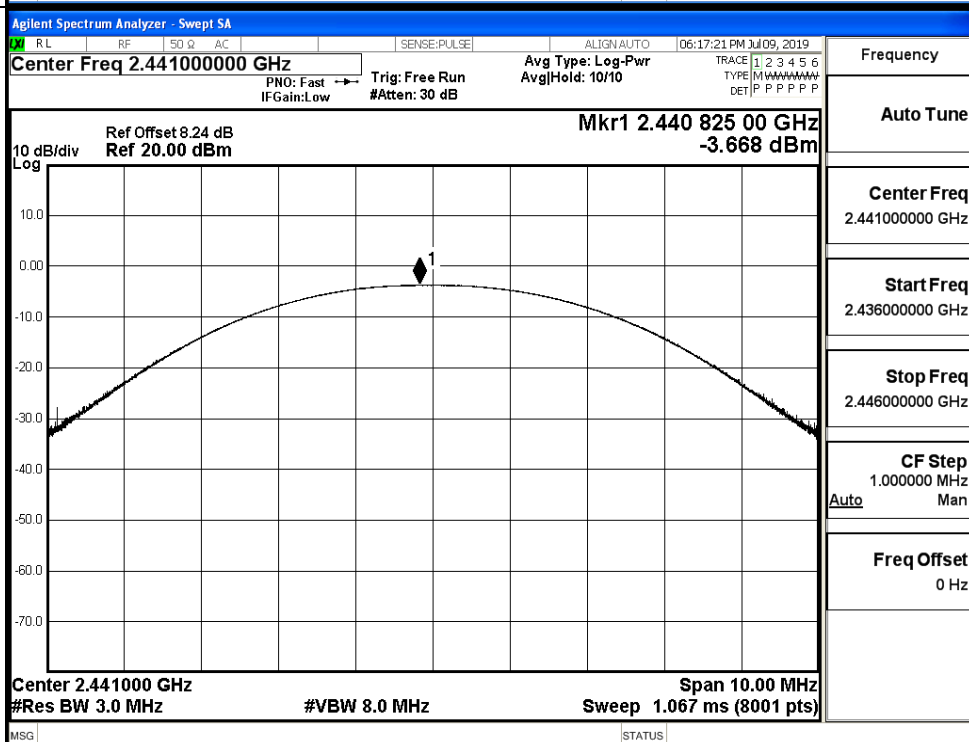
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-4.659	30	PASS
	MCH	-3.668	30	PASS
	HCH	-4.457	30	PASS
$\pi/4$ DQPSK	LCH	-5.343	21	PASS
	MCH	-4.172	21	PASS
	HCH	-5.049	21	PASS
8DPSK	LCH	-5.062	21	PASS
	MCH	-4.057	21	PASS
	HCH	-4.857	21	PASS

Test Graphs

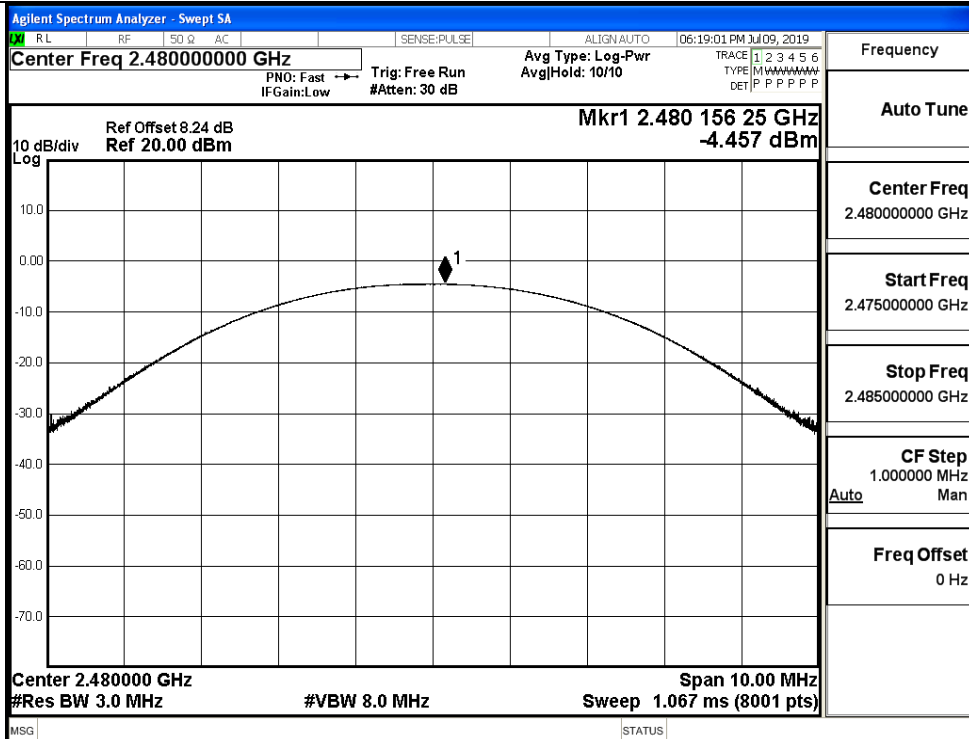
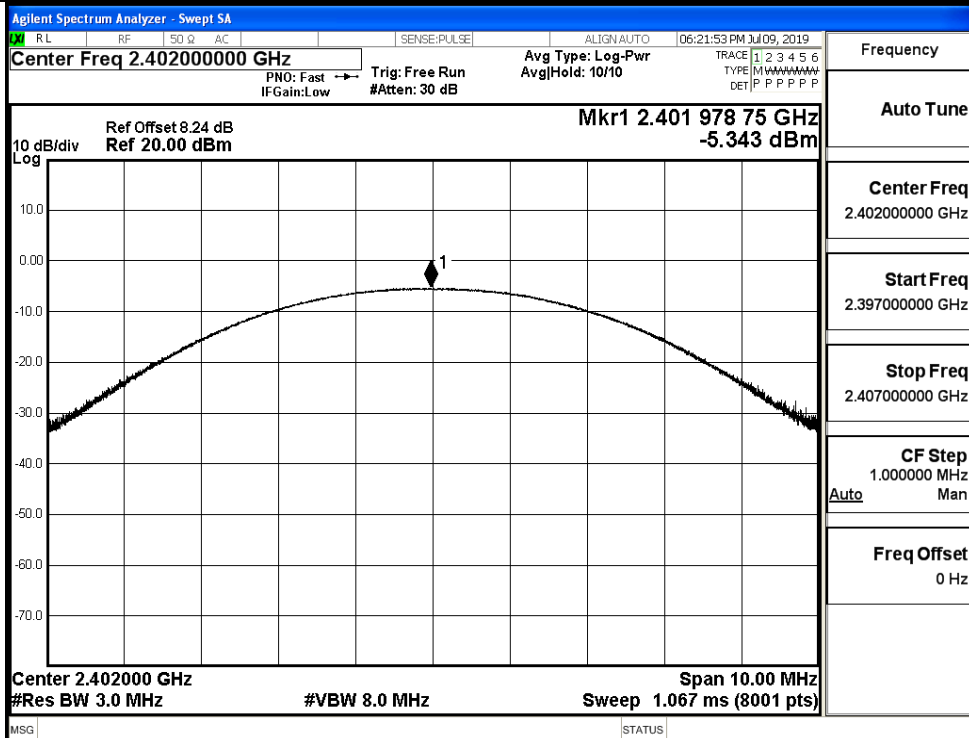
GFSK/LCH

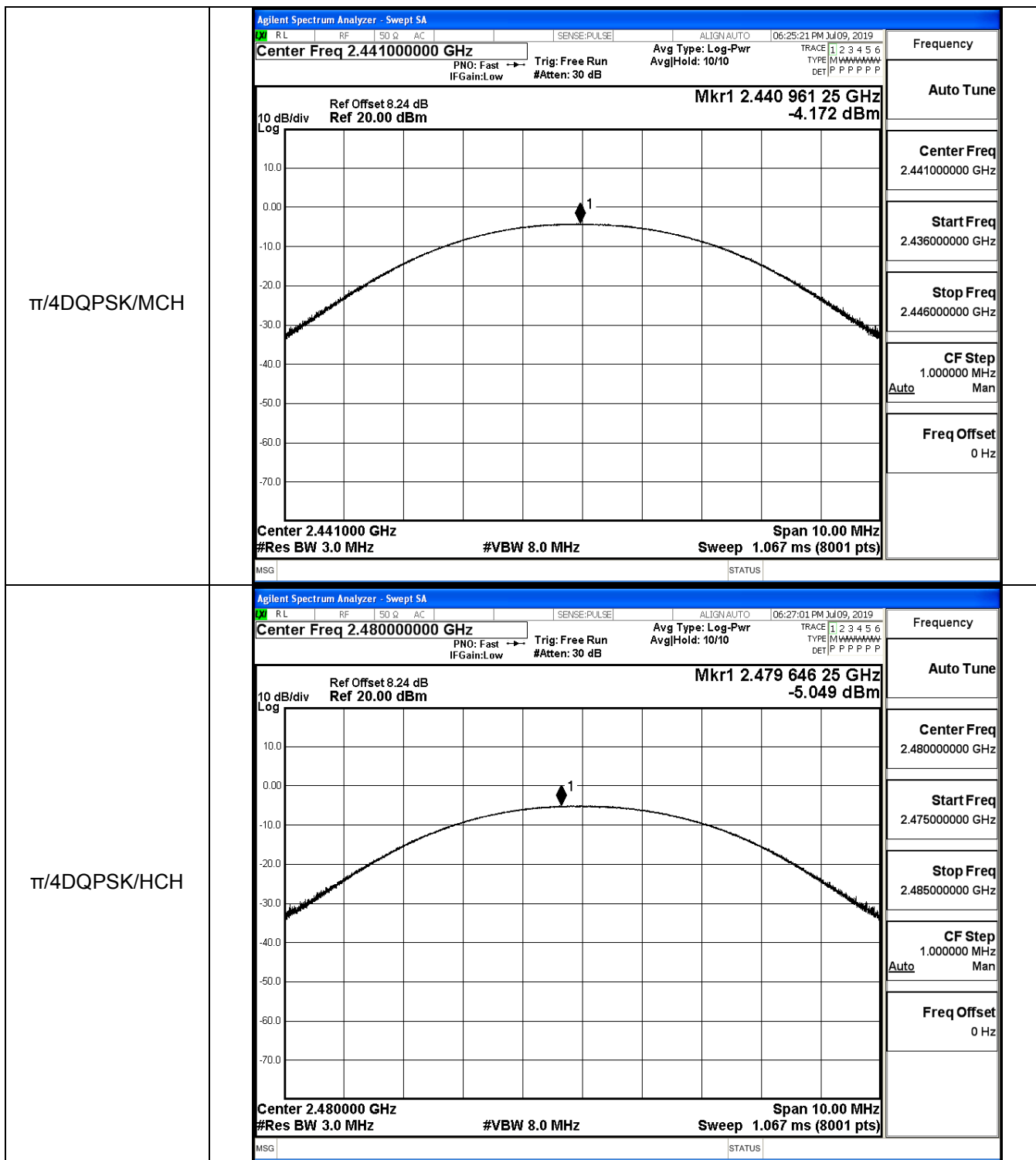


GFSK/MCH

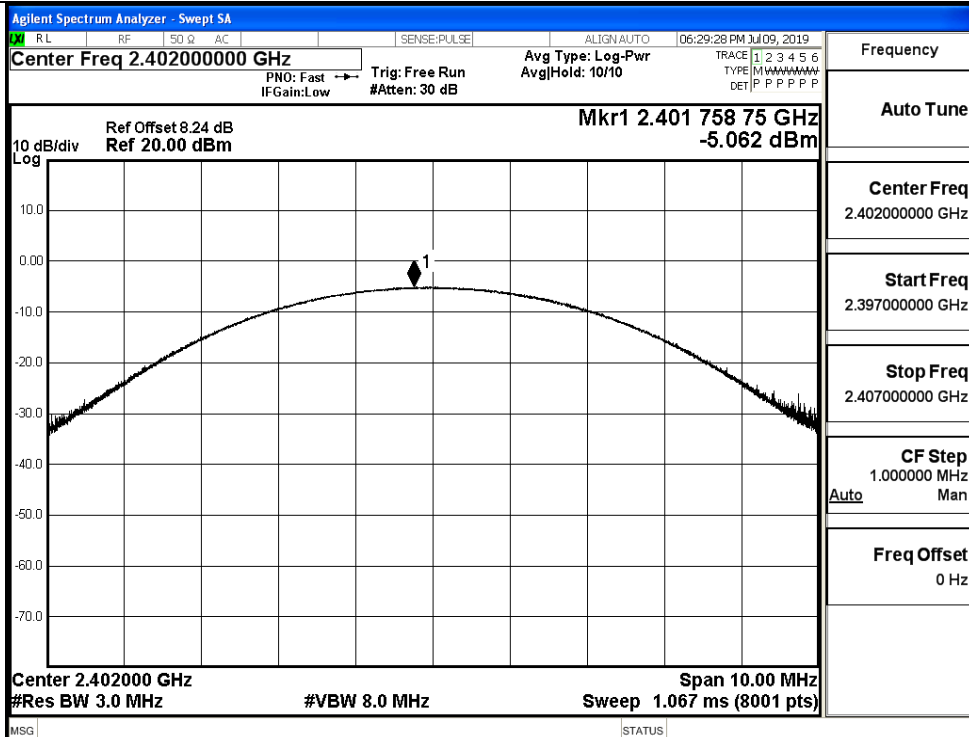


GFSK/HCH

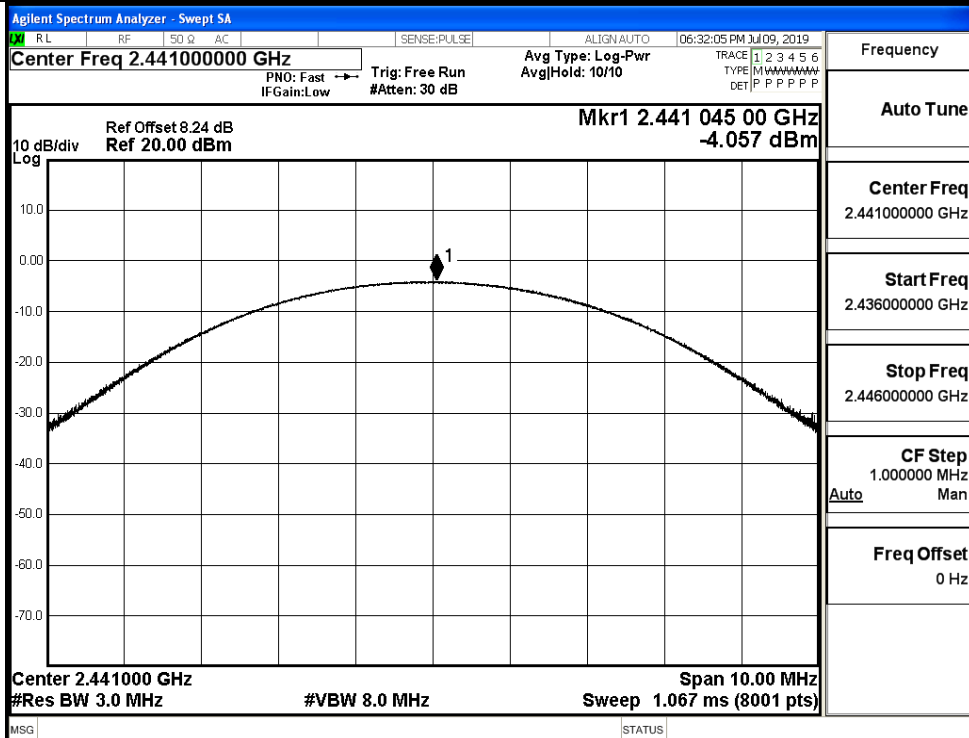
 $\pi/4$ DQPSK/LCH



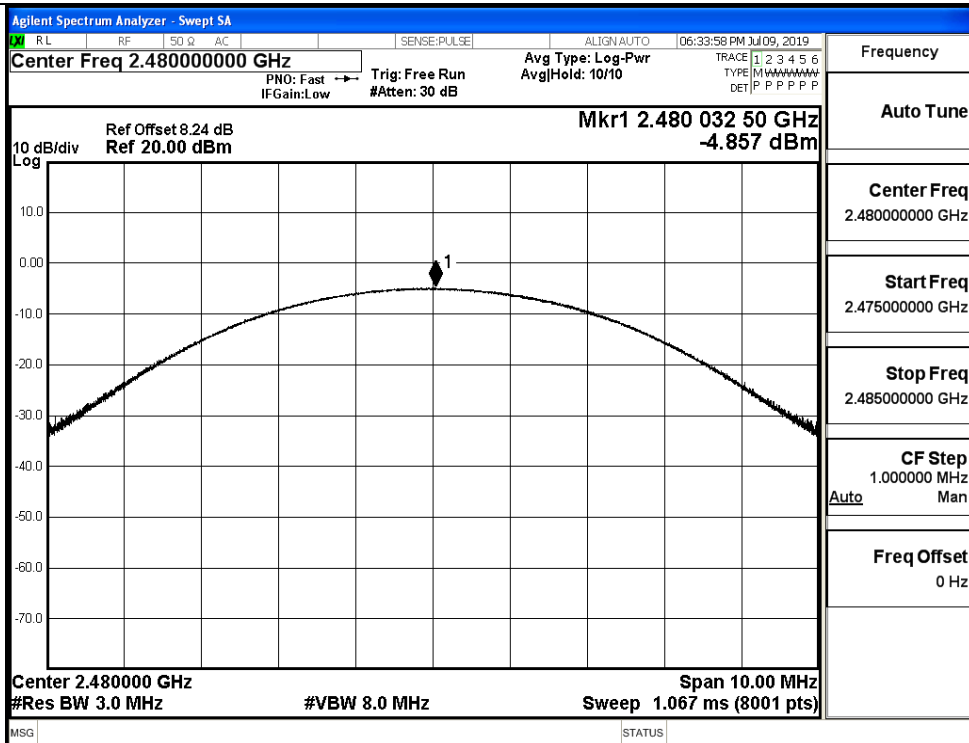
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

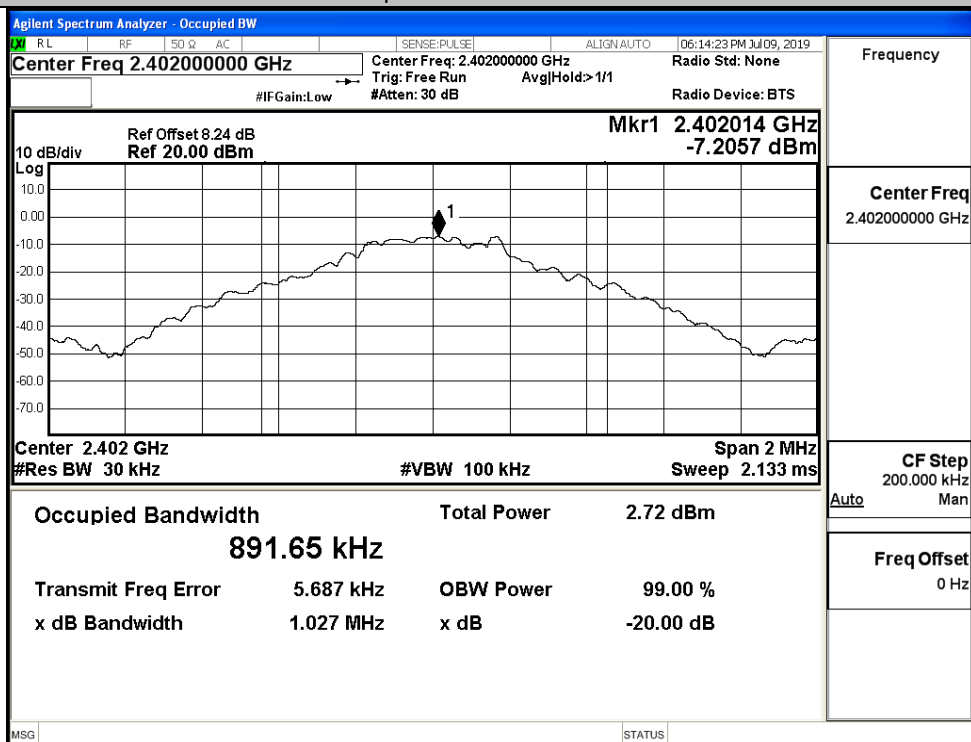


A.2 20dB Bandwidth

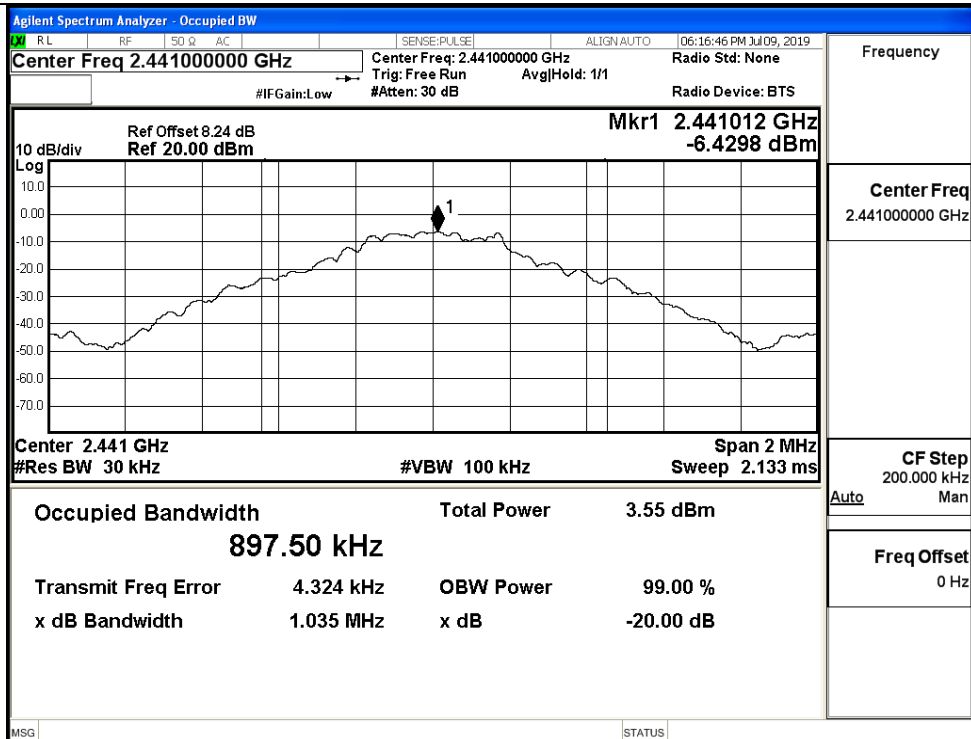
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.027	Not Specified	PASS
	MCH	1.035	Not Specified	PASS
	HCH	1.028	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.292	Not Specified	PASS
	MCH	1.313	Not Specified	PASS
	HCH	1.291	Not Specified	PASS
8DPSK	LCH	1.299	Not Specified	PASS
	MCH	1.296	Not Specified	PASS
	HCH	1.296	Not Specified	PASS

Test Graphs

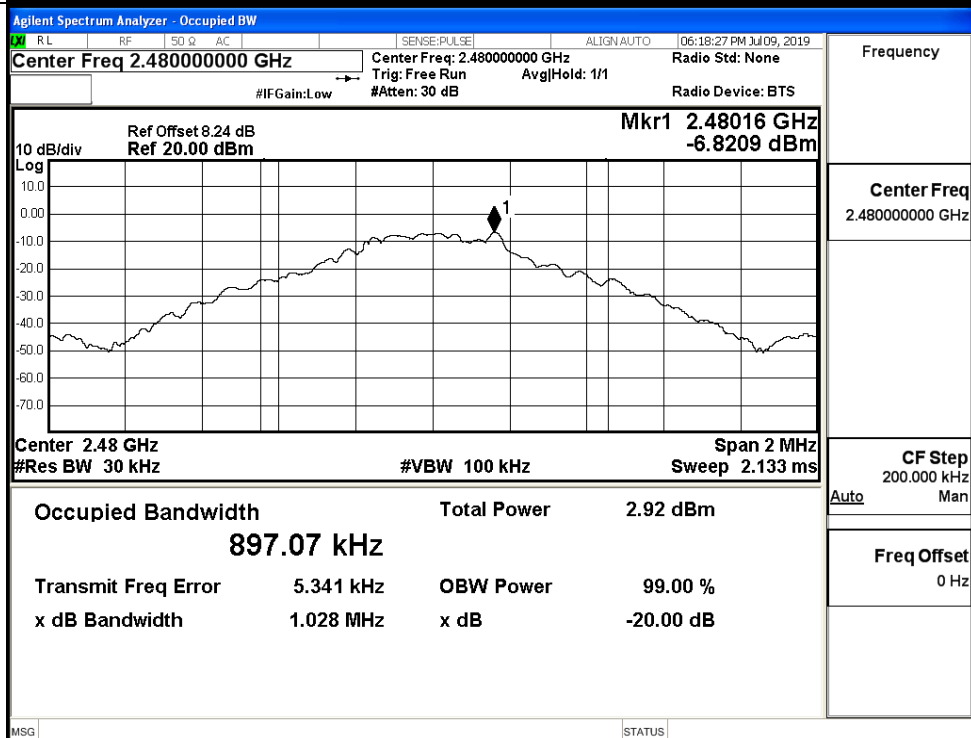
GFSK/LCH

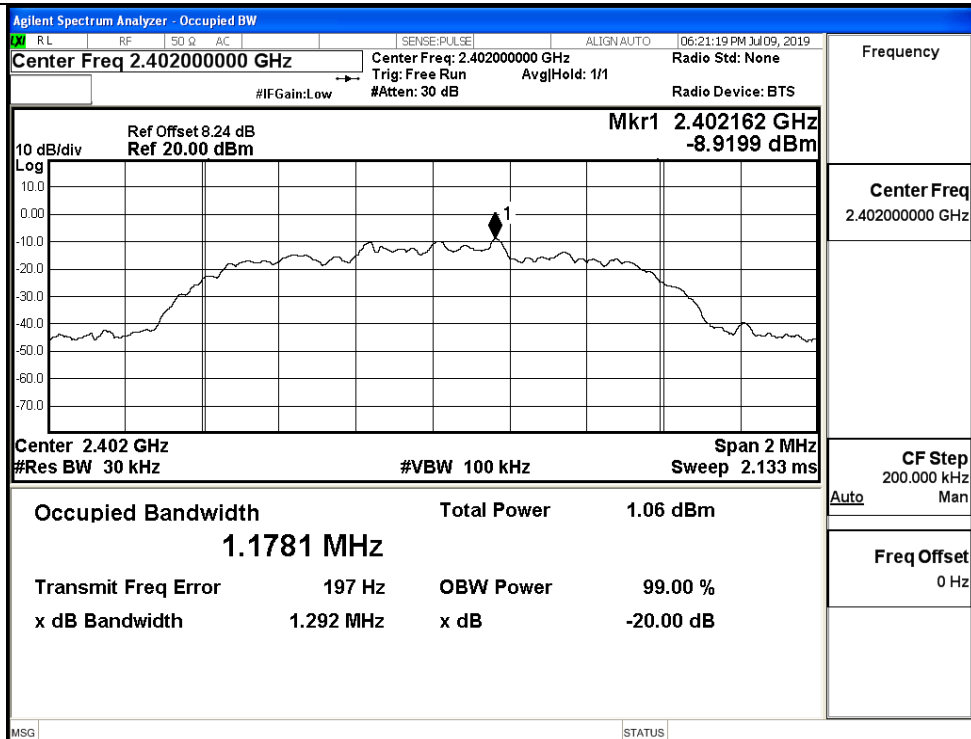
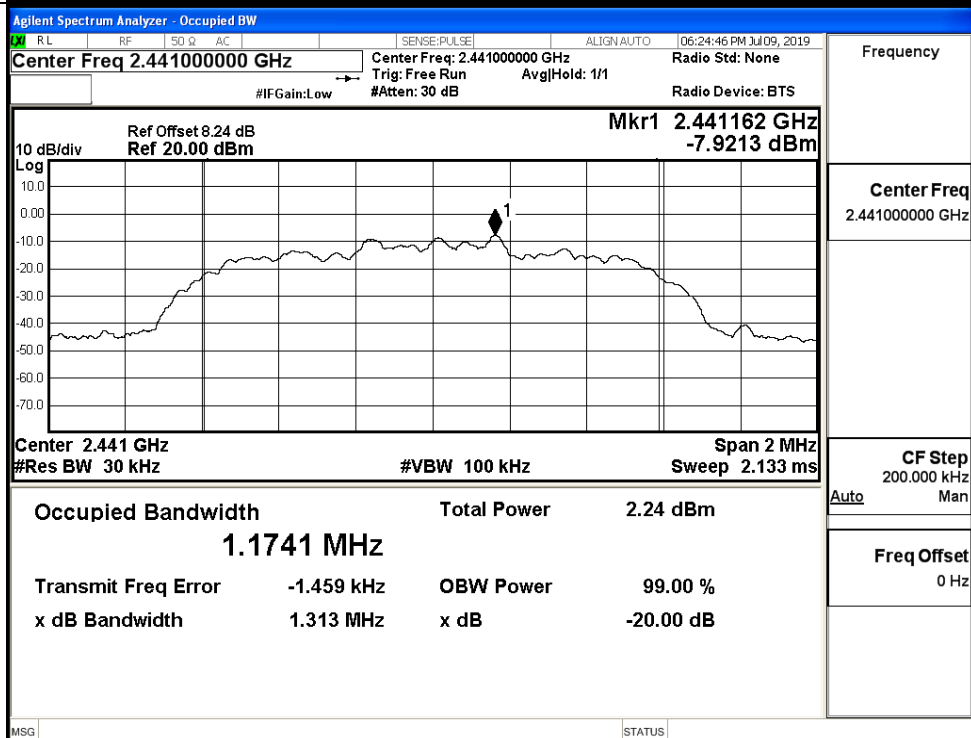


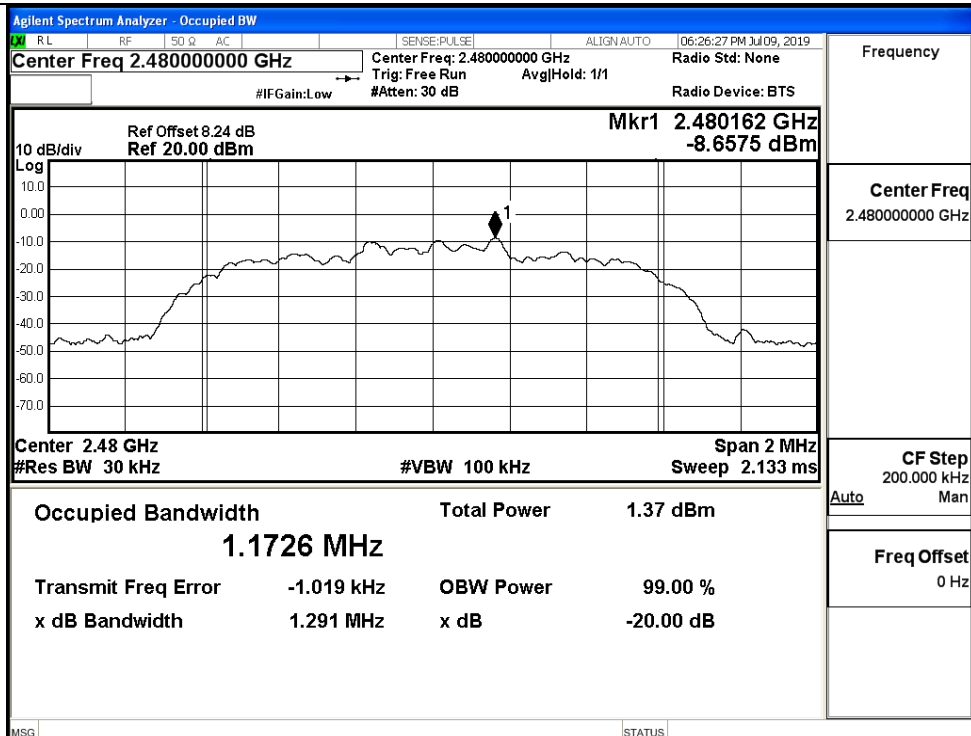
GFSK/MCH



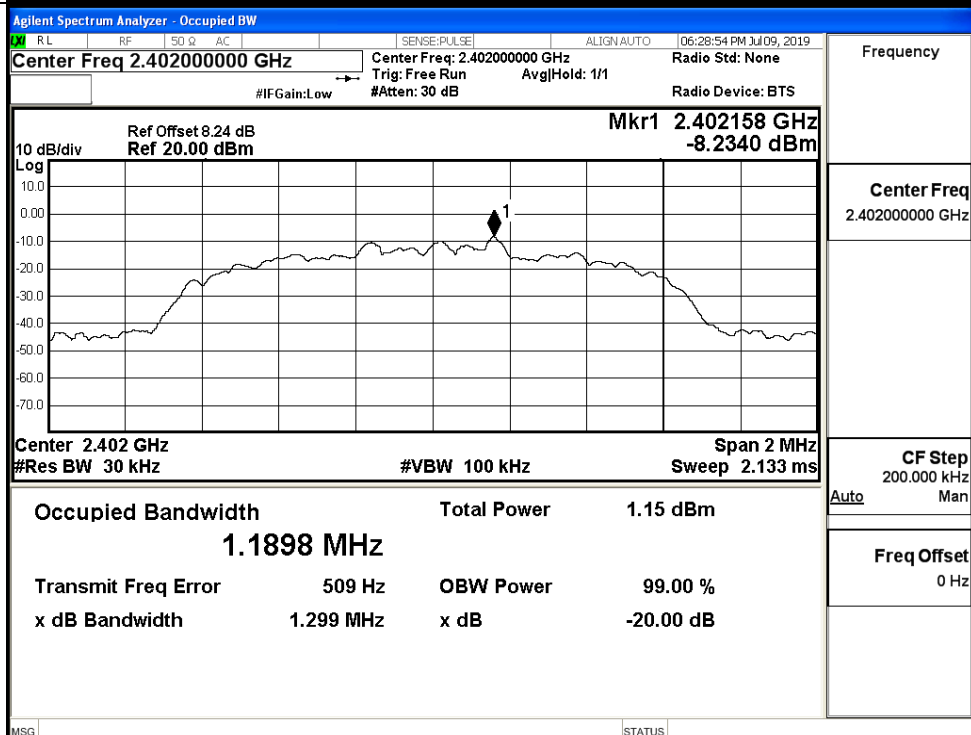
GFSK/HCH



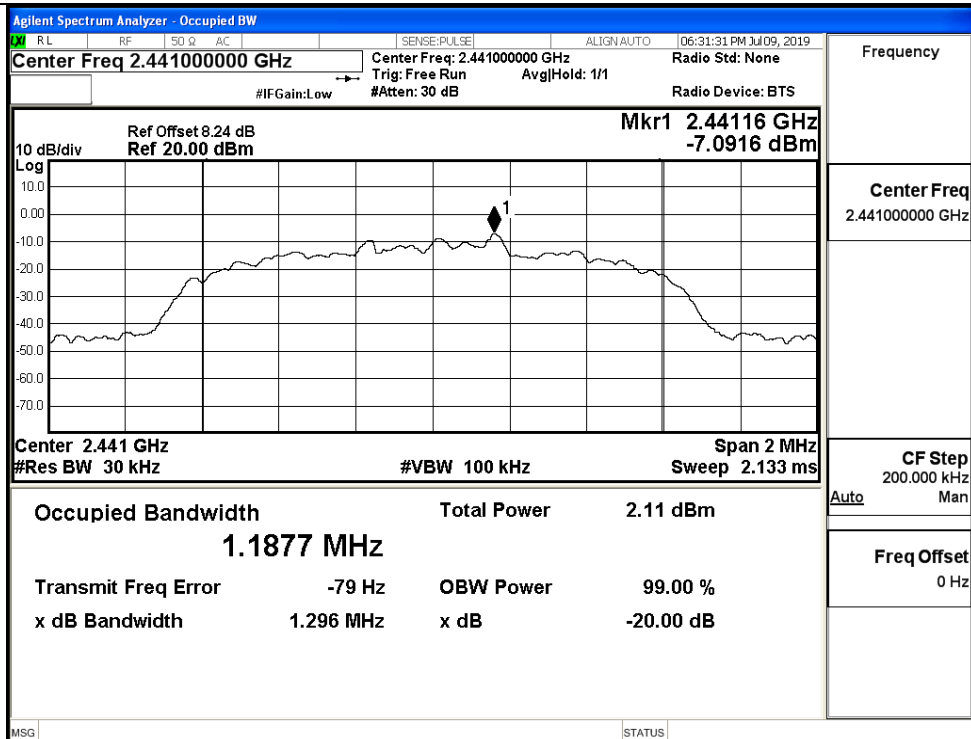
$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

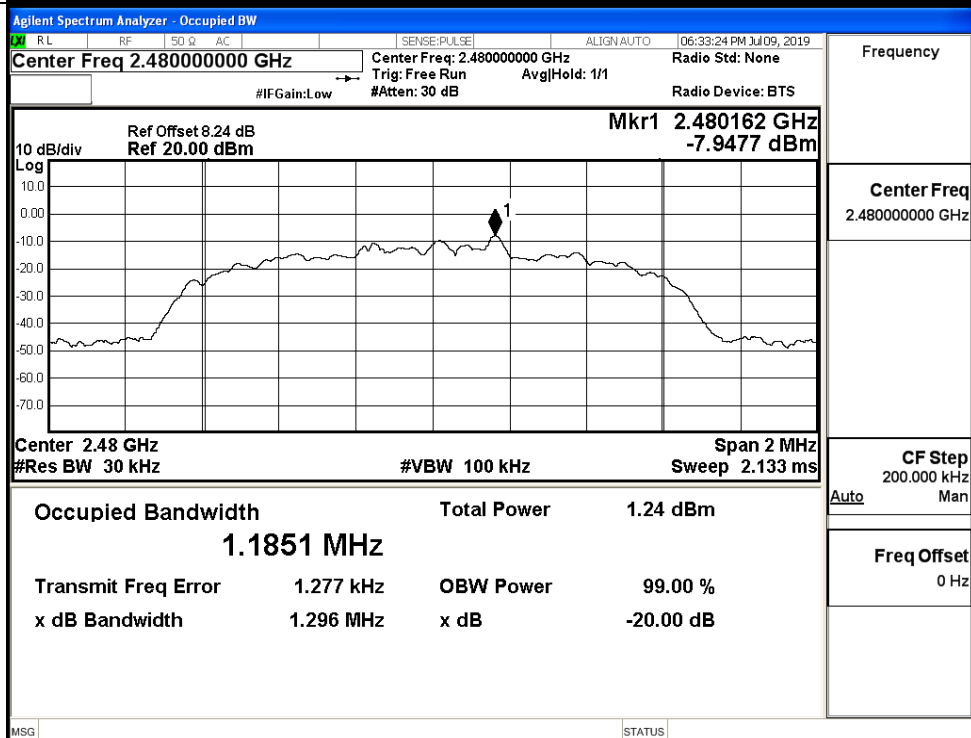
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

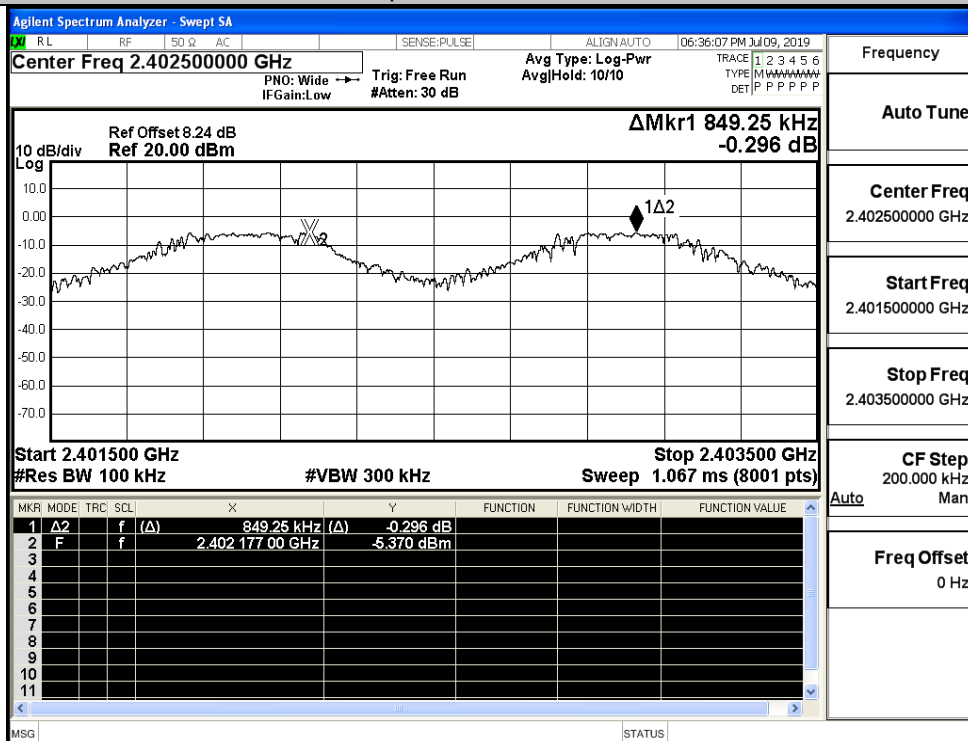


A.3 Carrier Frequency Separation

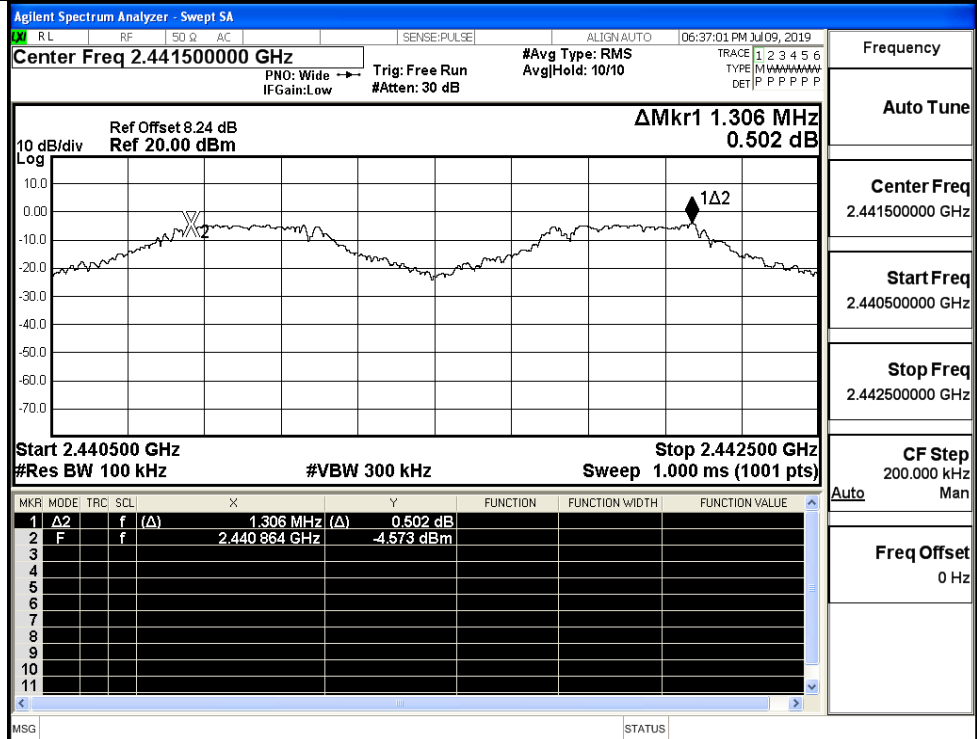
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.849	0.690	PASS
	MCH	1.306	0.690	PASS
	HCH	0.974	0.690	PASS
$\pi/4$ DQPSK	LCH	1.218	0.875	PASS
	MCH	0.992	0.875	PASS
	HCH	0.882	0.875	PASS
8DPSK	LCH	1.358	0.866	PASS
	MCH	1.180	0.866	PASS
	HCH	1.026	0.866	PASS

Test Graphs

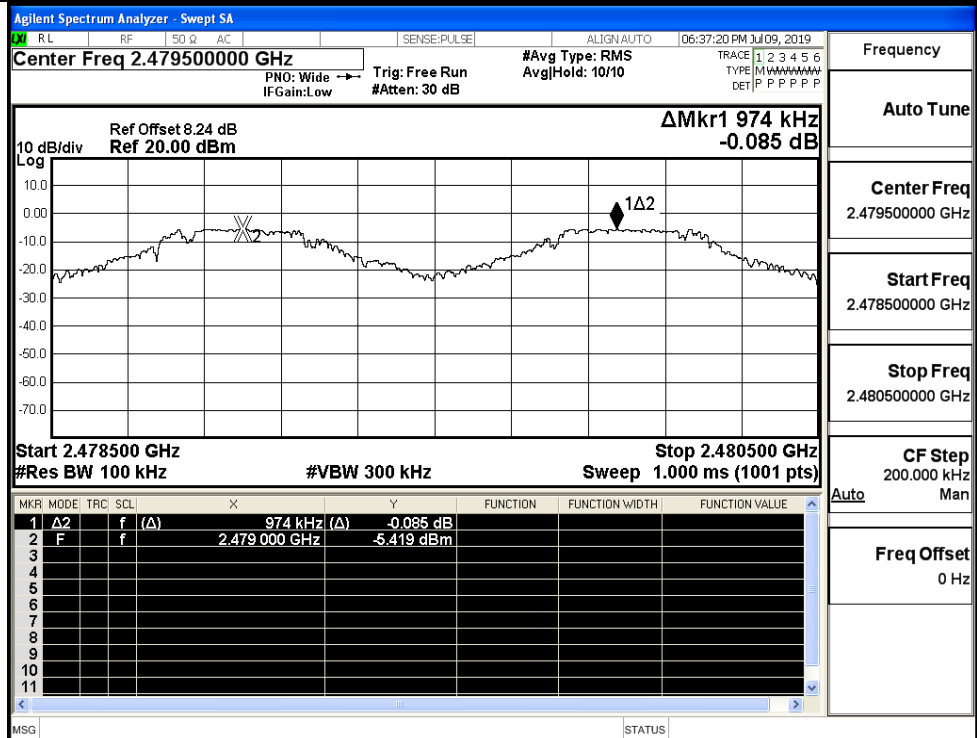
GFSK/LCH

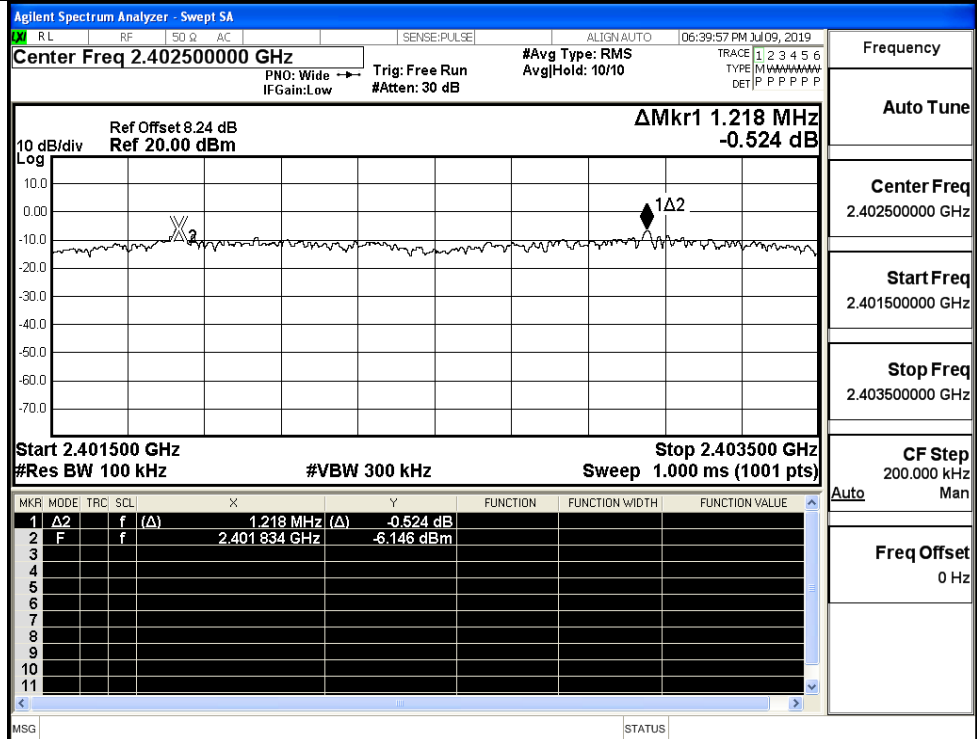
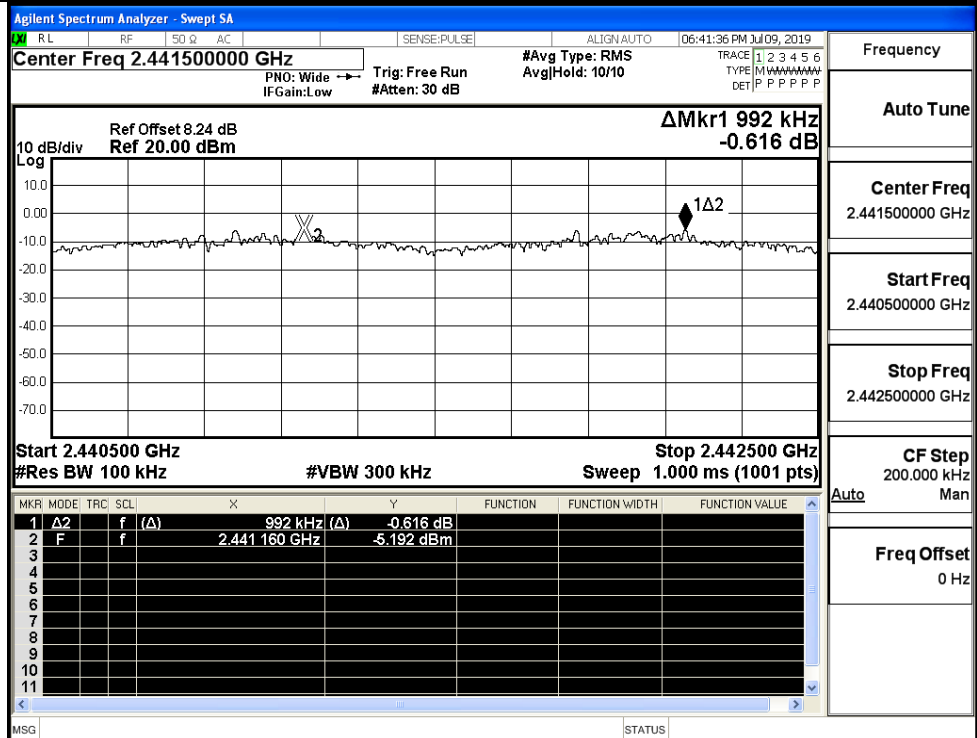


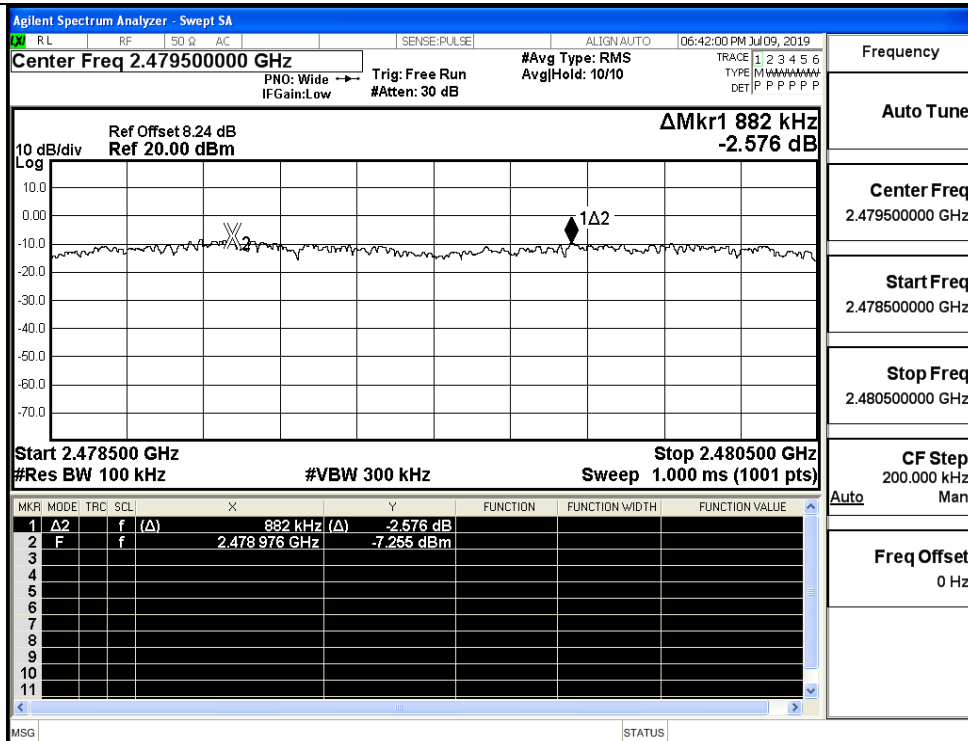
GFSK/MCH



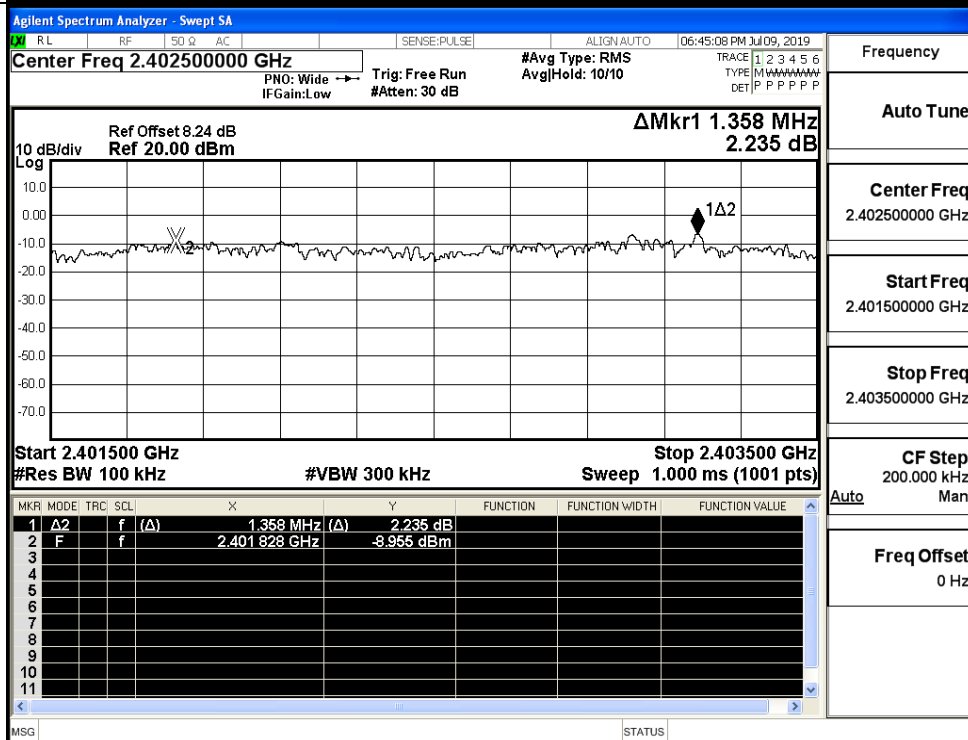
GFSK/HCH



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

$\pi/4$ DQPSK/HCH

8DPSK/LCH

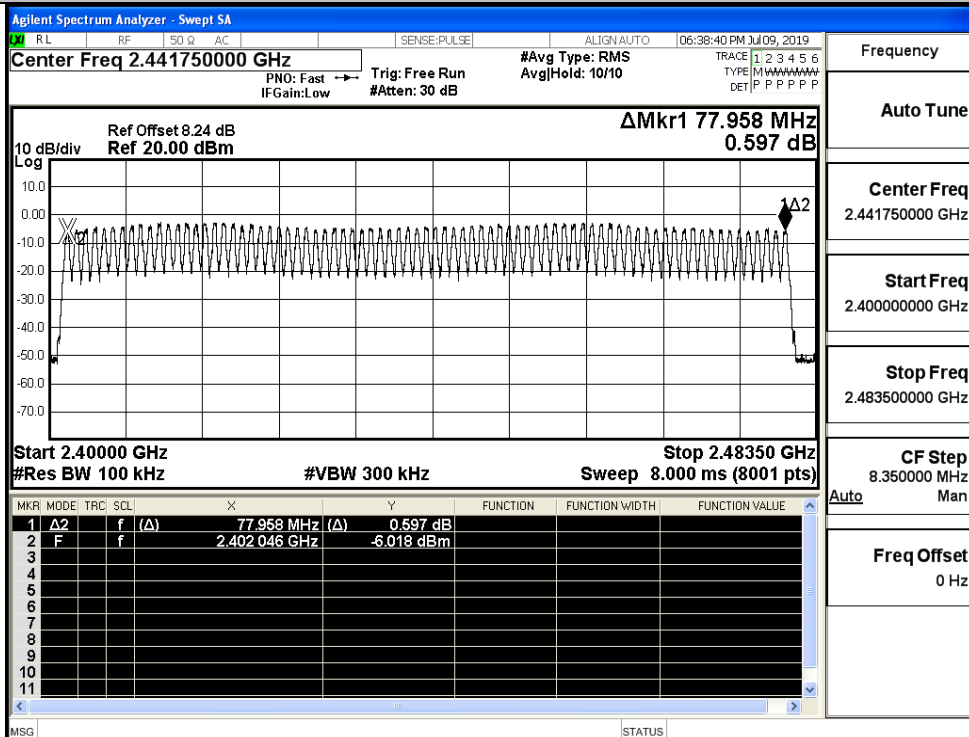
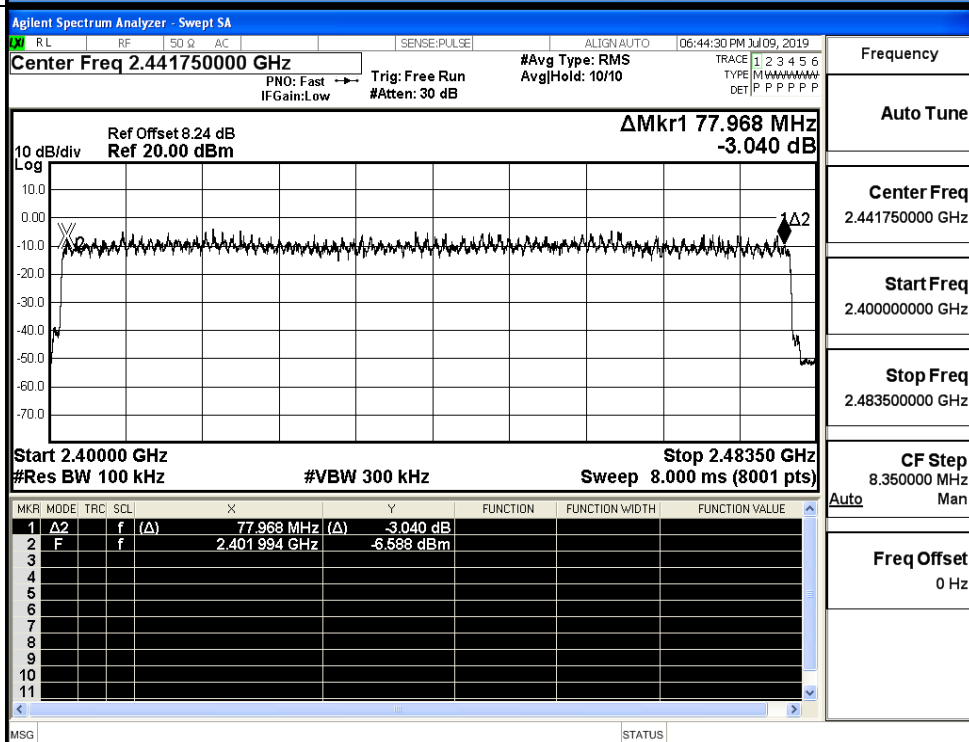




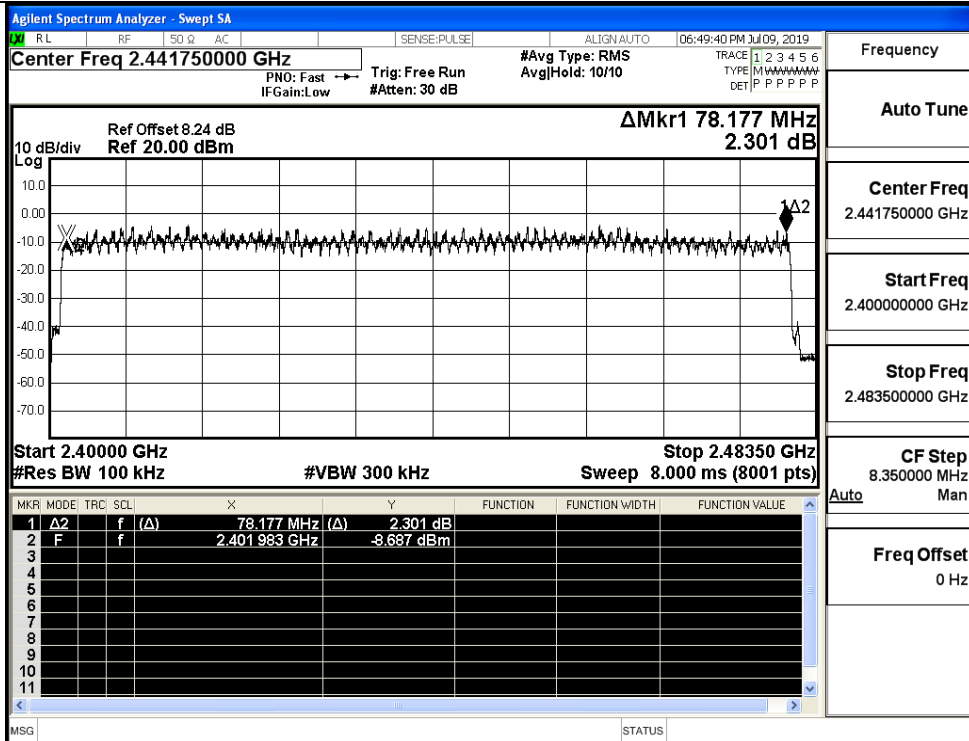
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

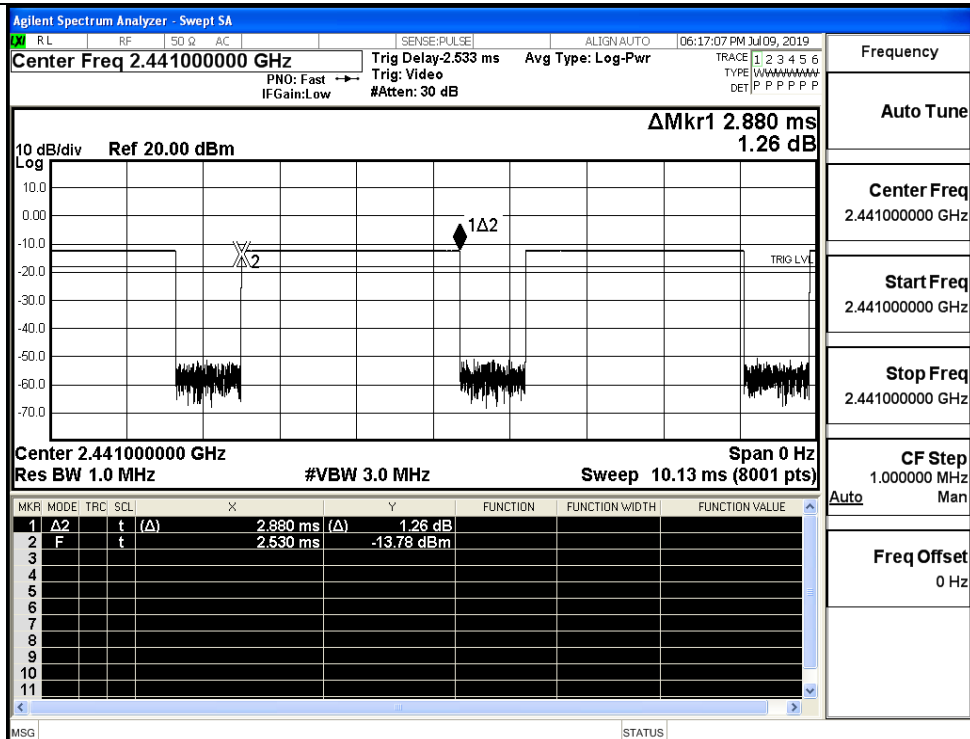
8DPSK/Hop



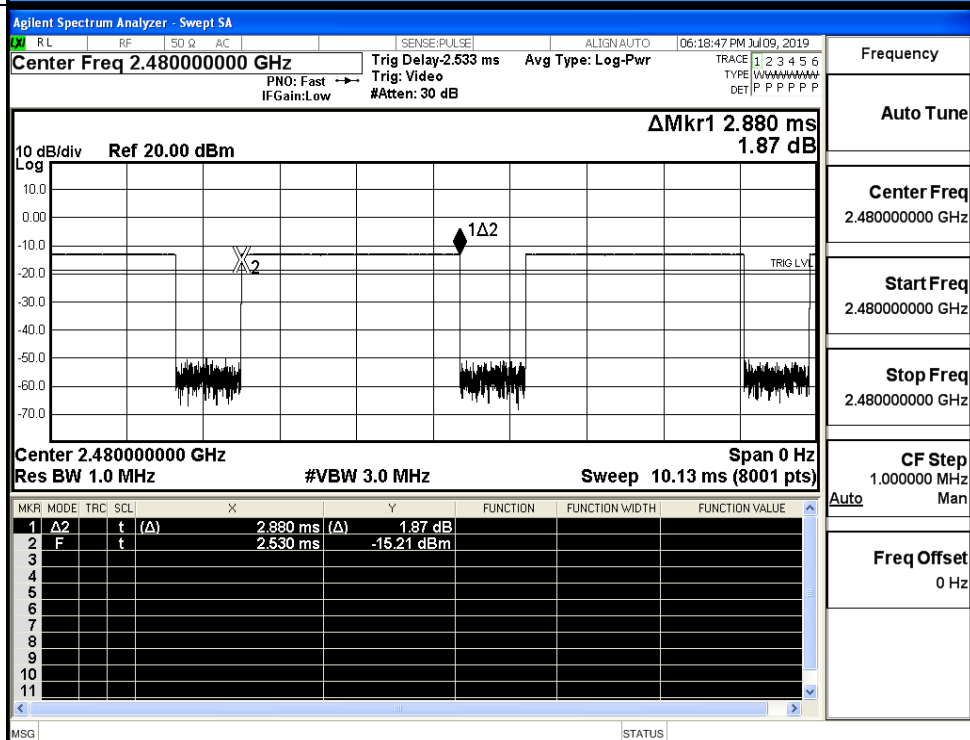
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.308	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.308	0.4	PASS



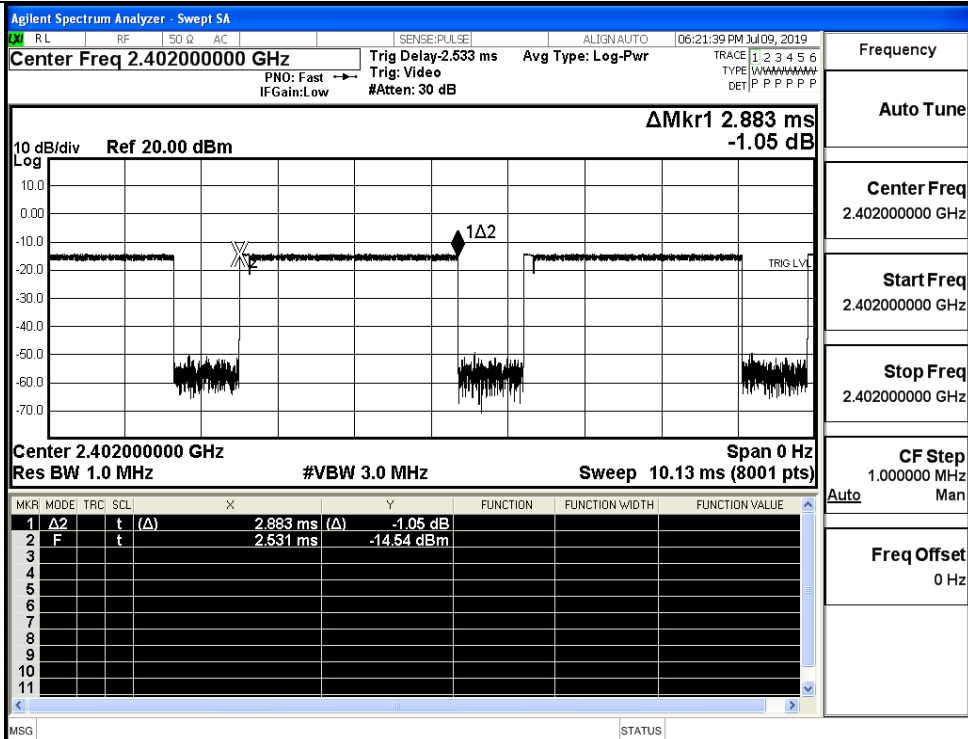
GFSK_DH5/MCH



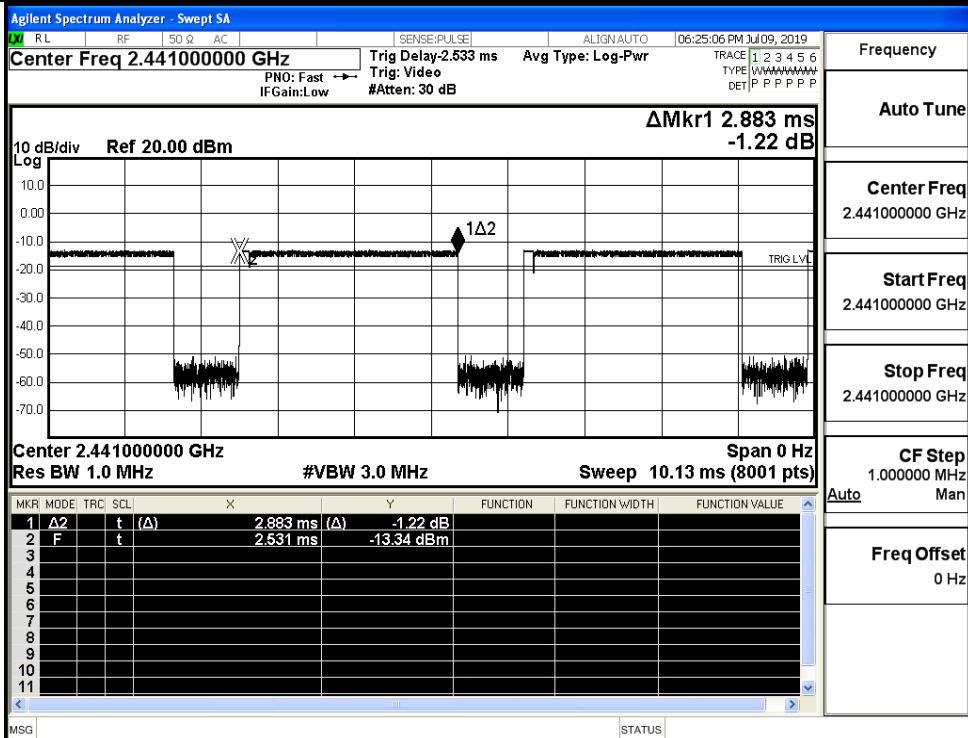
GFSK_DH5/HCH



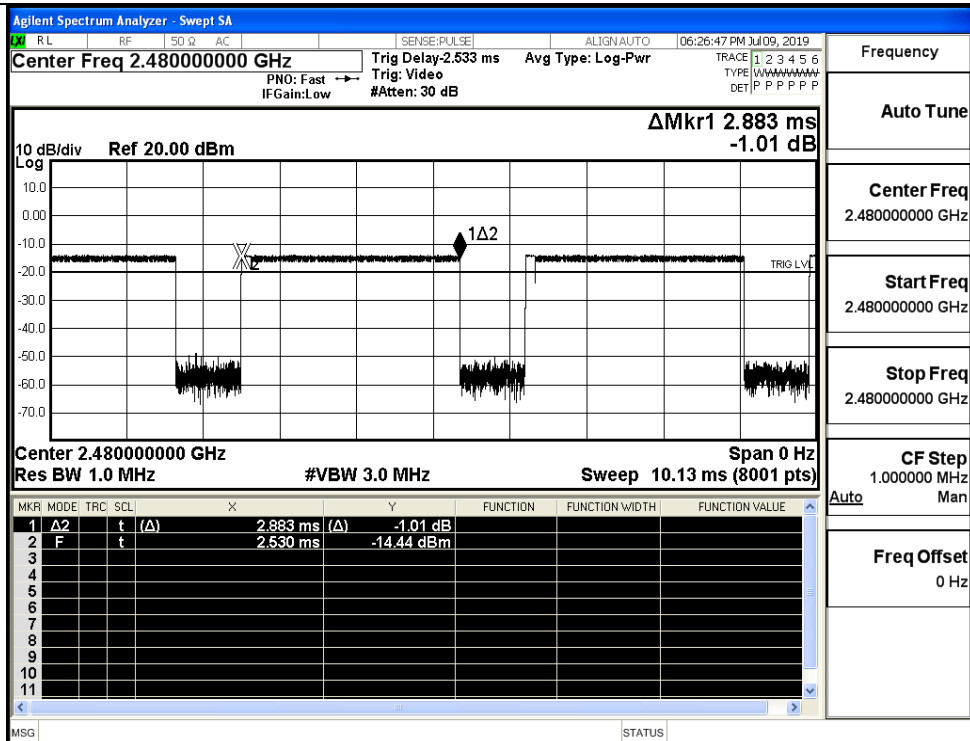
$\pi/4$ DQPSK
_2DH5/LCH



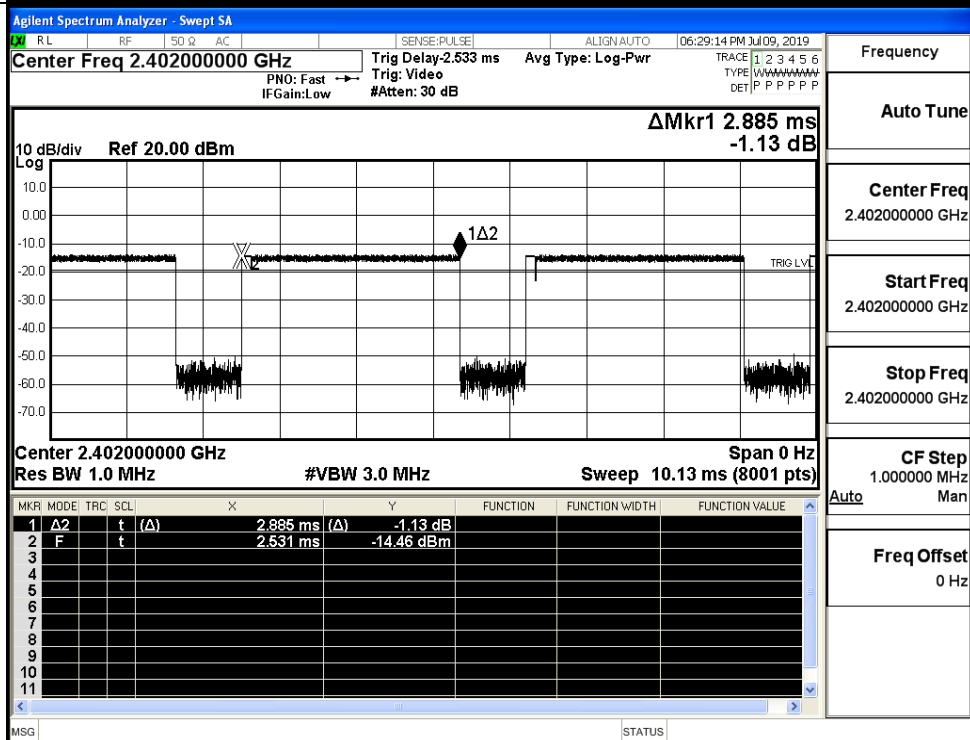
$\pi/4$ DQPSK
_2DH5/MCH



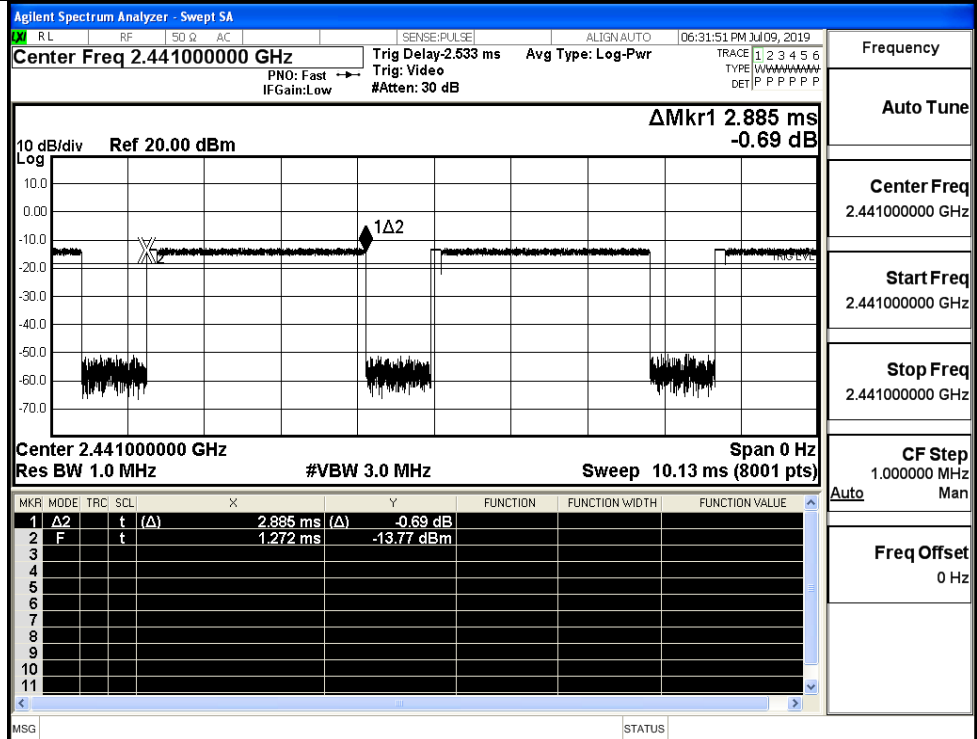
$\pi/4$ DQPSK
_2DH5/HCH



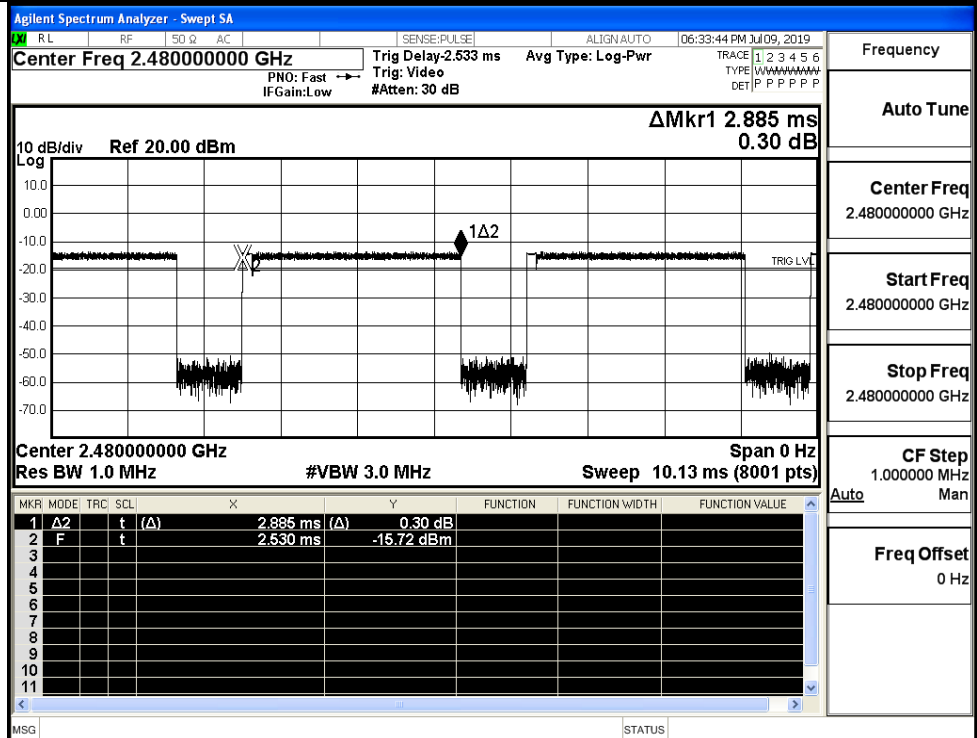
8DPSK _3DH5/LCH



8DPSK_3DH5/MCH



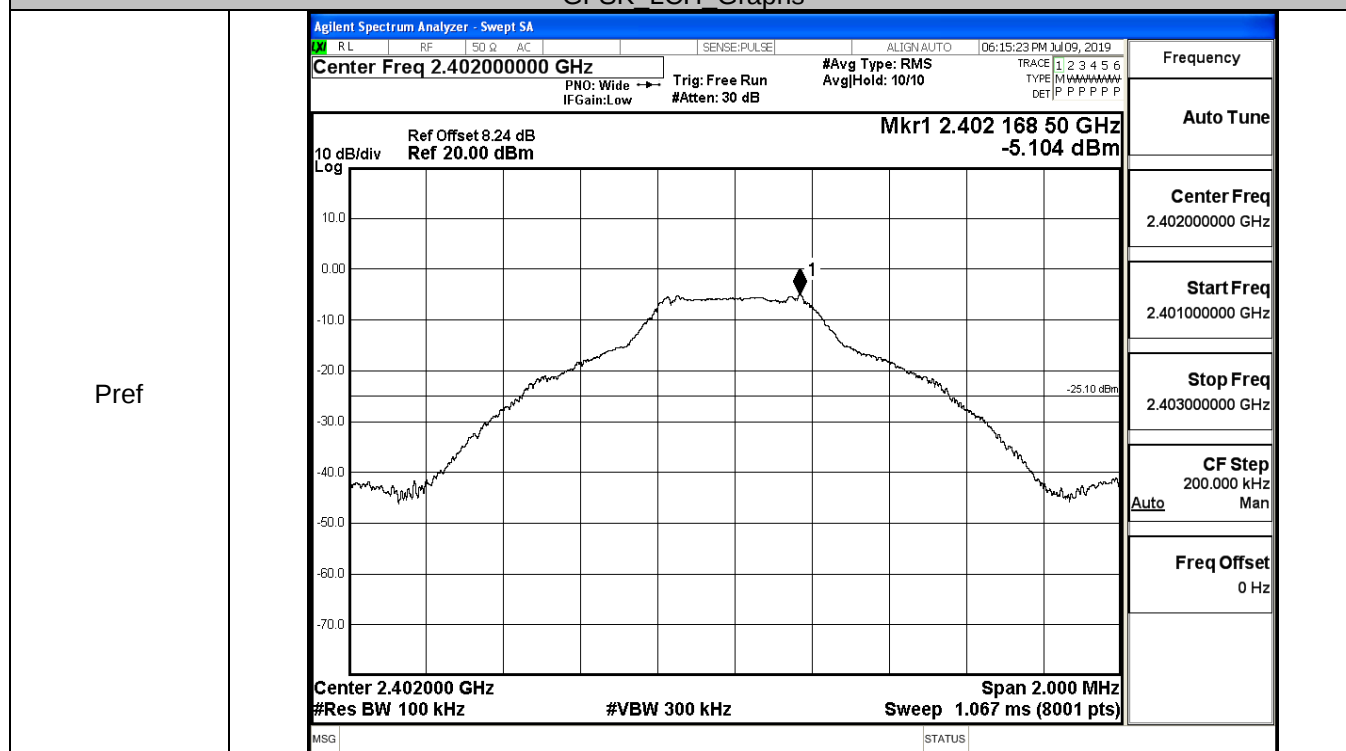
8DPSK_3DH5/HCH



A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-5.104	-44.893	-25.104	PASS
	MCH	-4.212	-44.801	-24.212	PASS
	HCH	-4.771	-44.872	-24.771	PASS
$\pi/4$ DQPSK	LCH	-6.275	-44.728	-26.275	PASS
	MCH	-5.171	-43.876	-25.171	PASS
	HCH	-6.045	-40.068	-26.045	PASS
8DPSK	LCH	-6.299	-38.328	-26.299	PASS
	MCH	-5.107	-44.824	-25.107	PASS
	HCH	-5.917	-44.158	-25.917	PASS

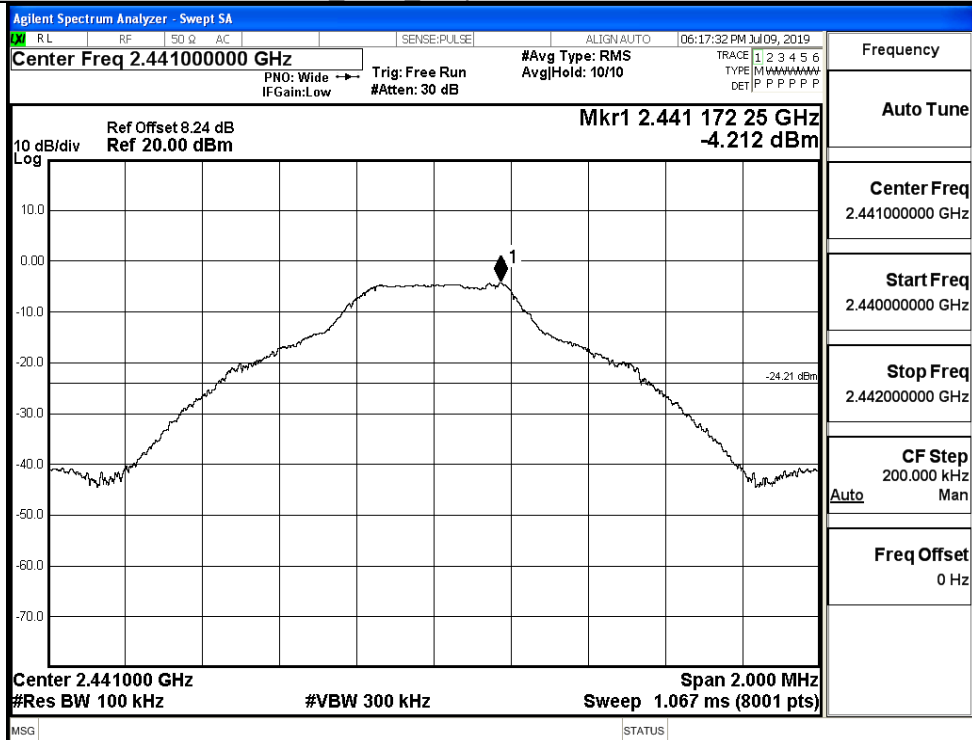
GFSK LCH Graphs



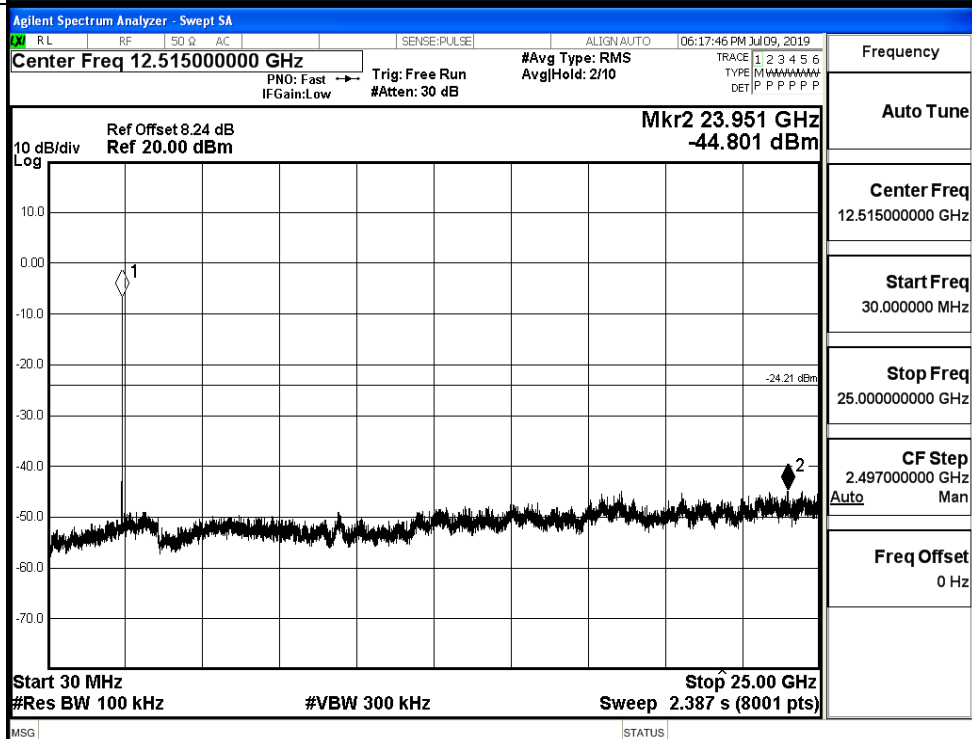


GFSK_MCH_Graphs

Pref

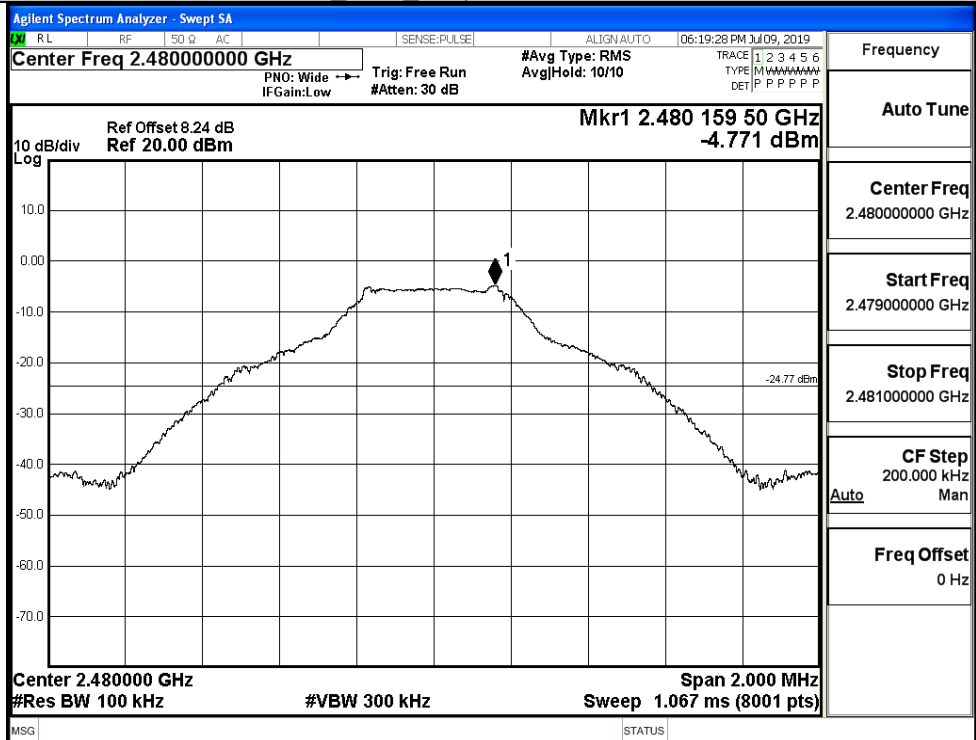


Puw

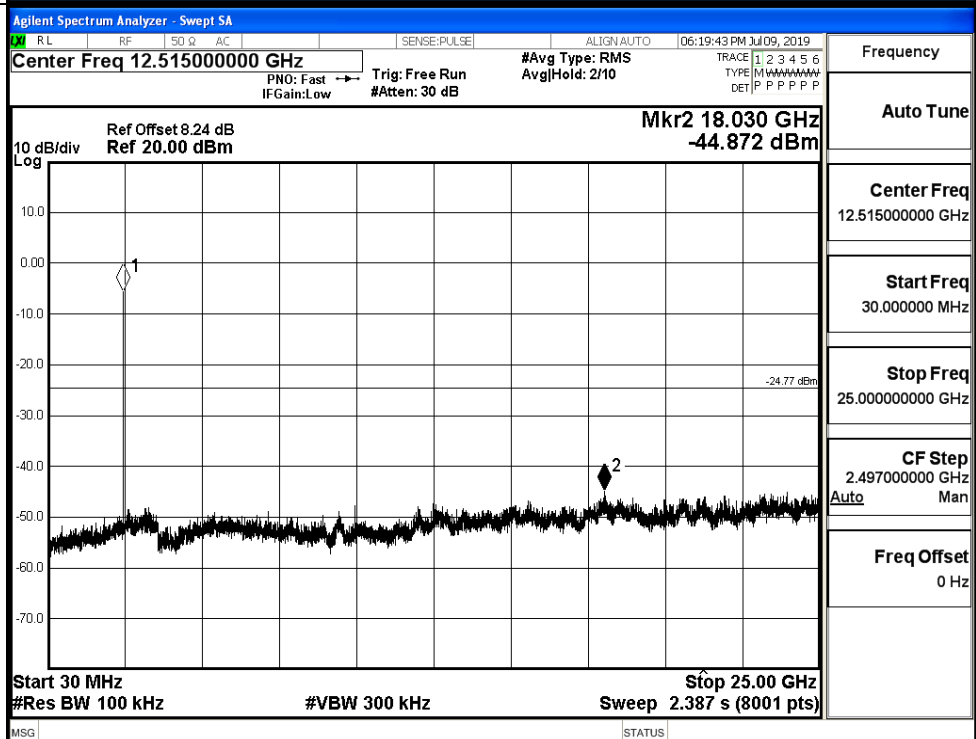


GFSK_HCH_Graphs

Pref

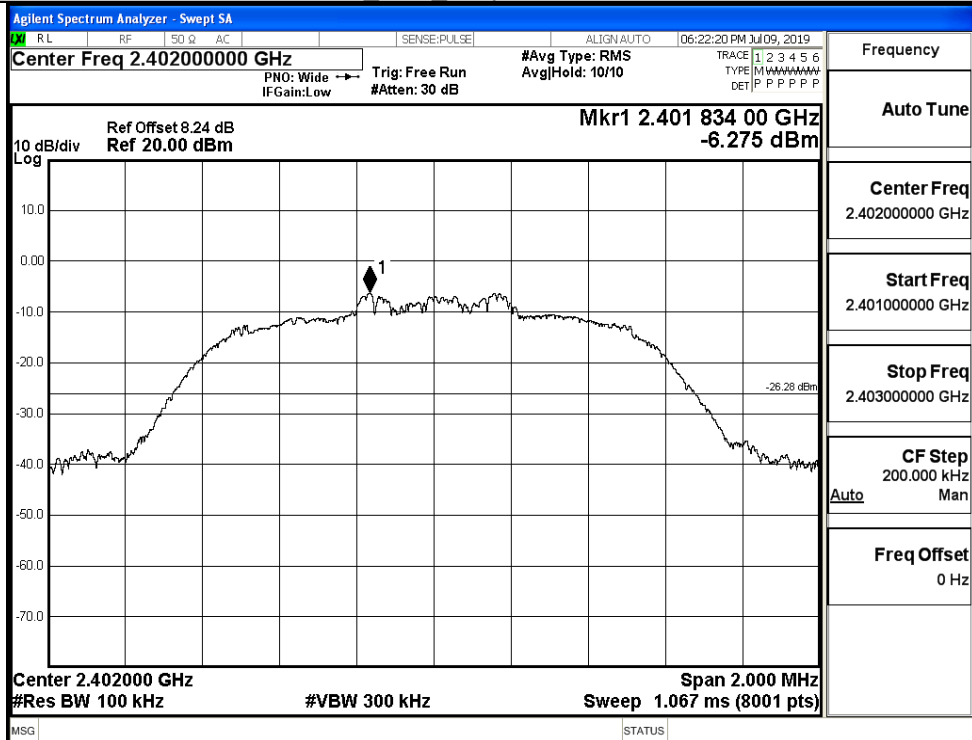


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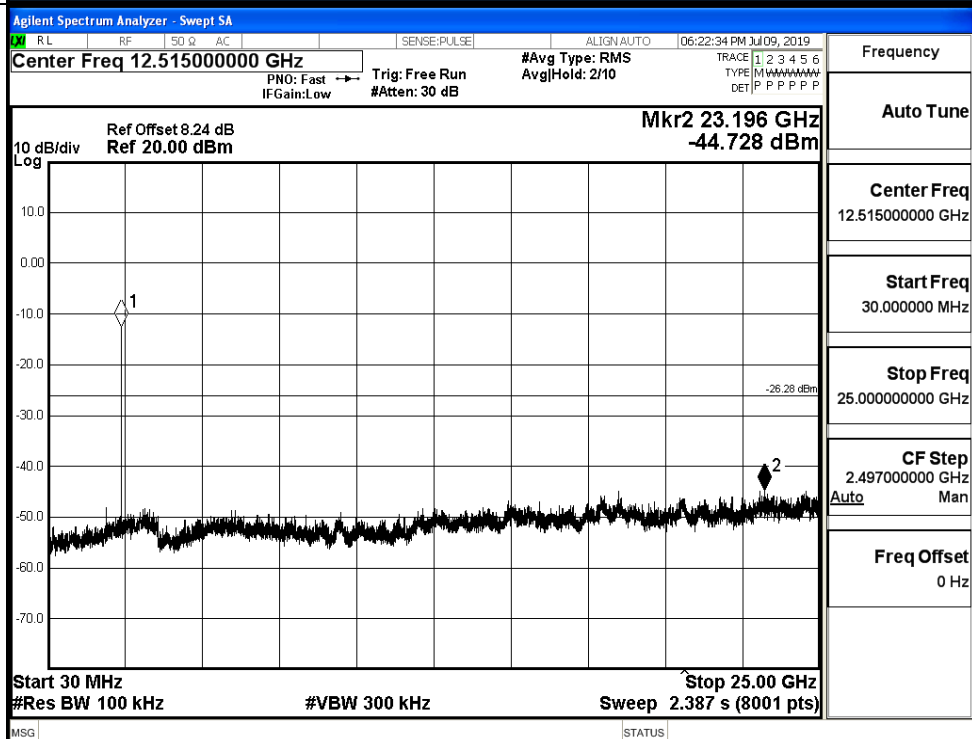


$\pi/4$ DQPSK_LCH_Graphs

Pref

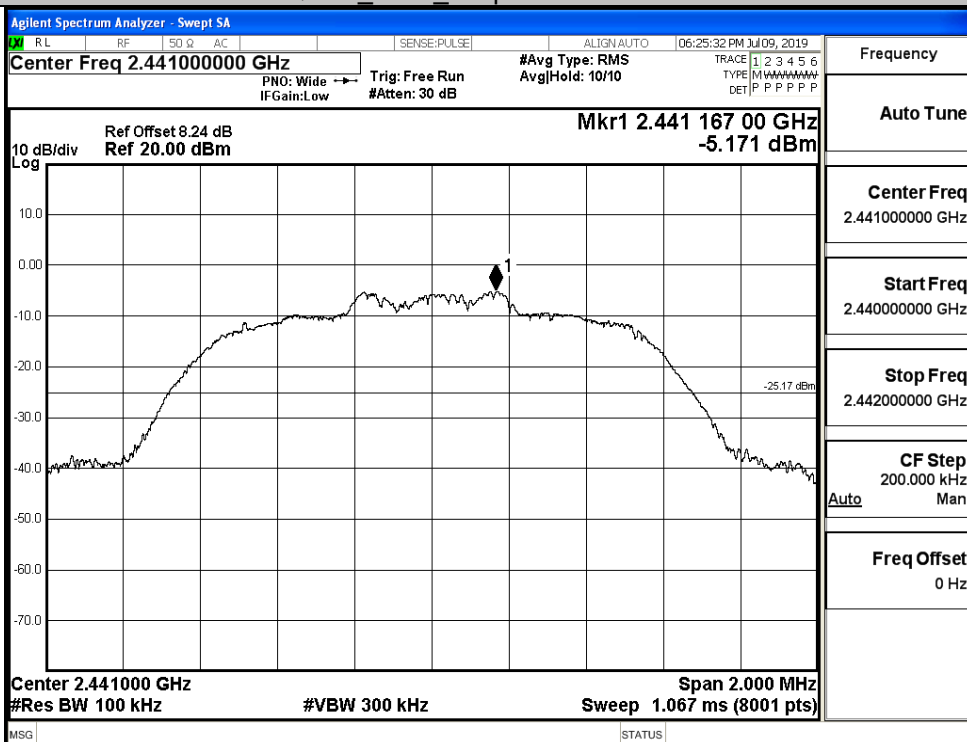


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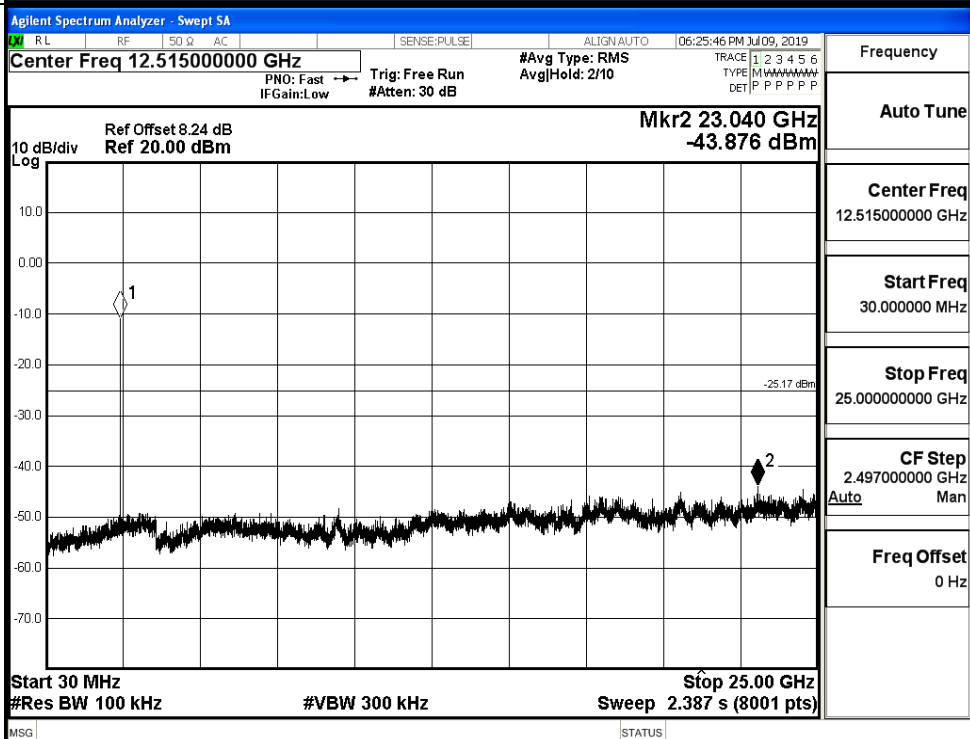


π /4DQPSK_MCH_Graphs

Pref

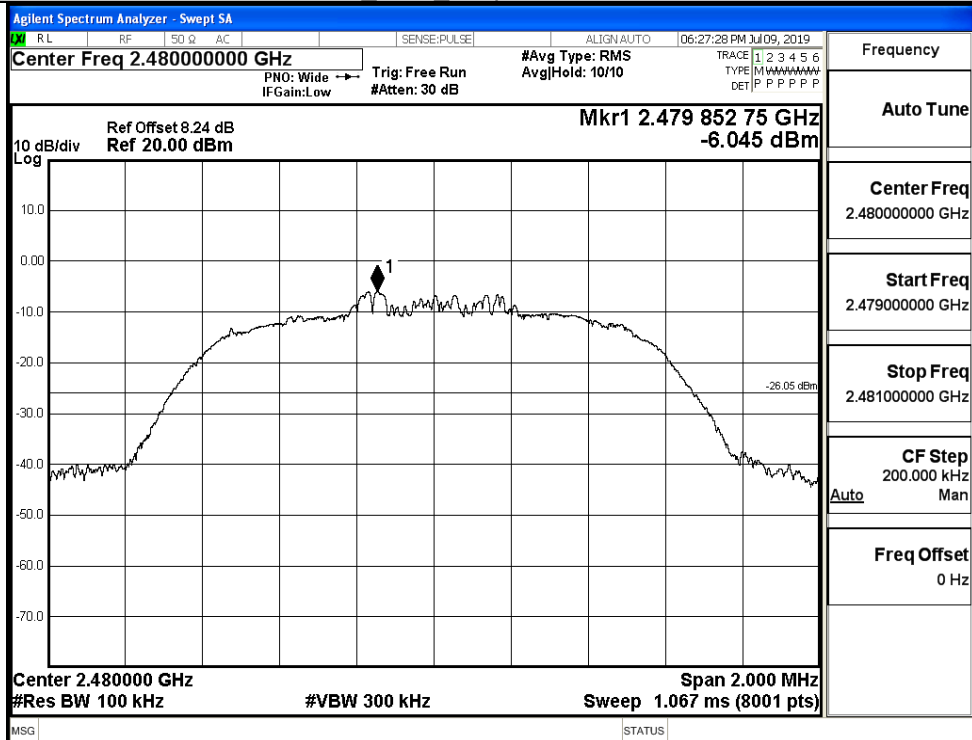


Puw

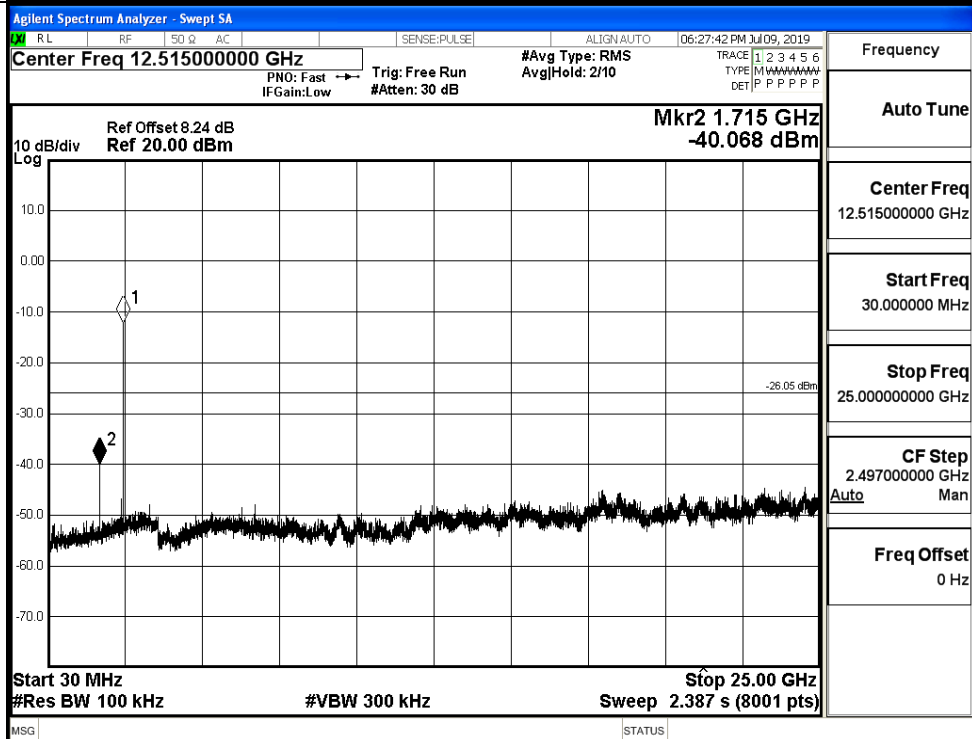


π /4DQPSK_HCH_Graphs

Pref

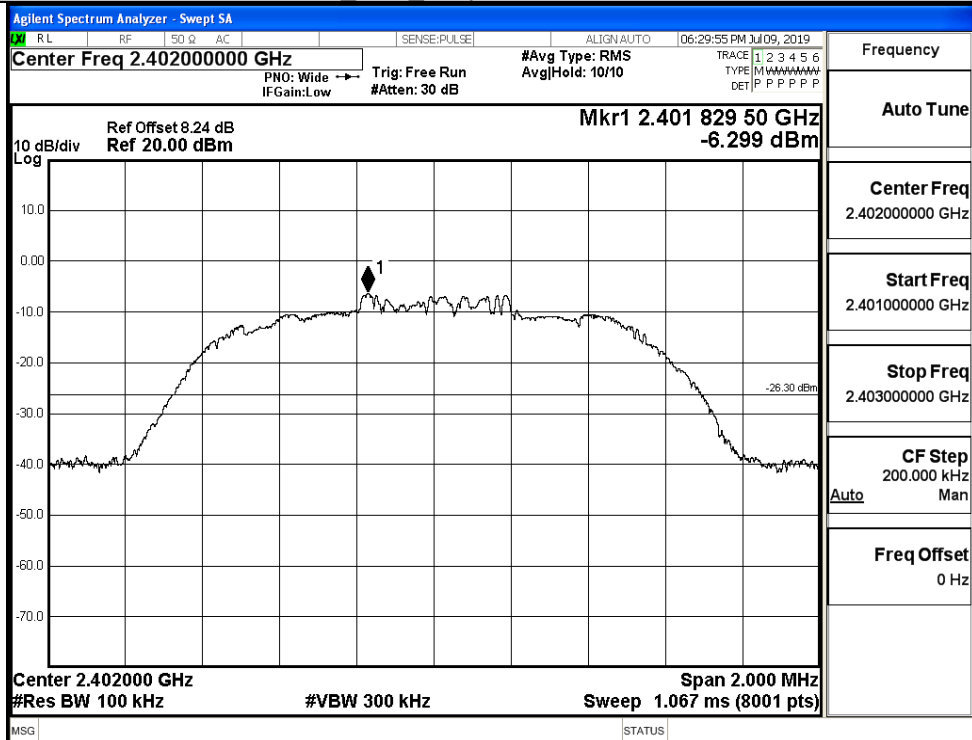


Puw

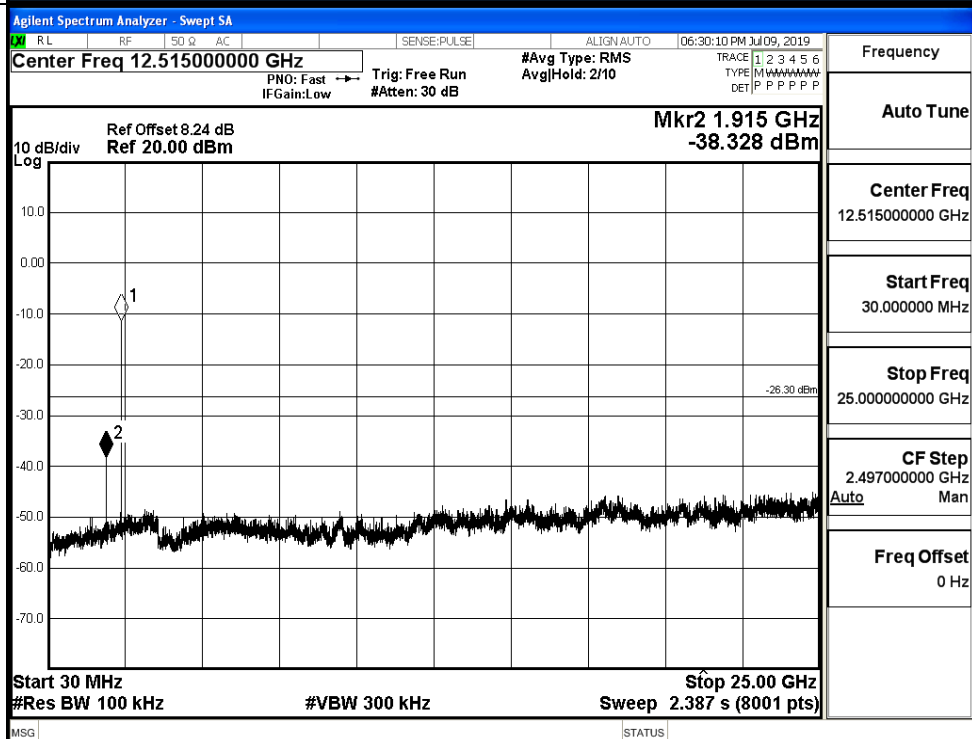


8DPSK_LCH_Graphs

Pref

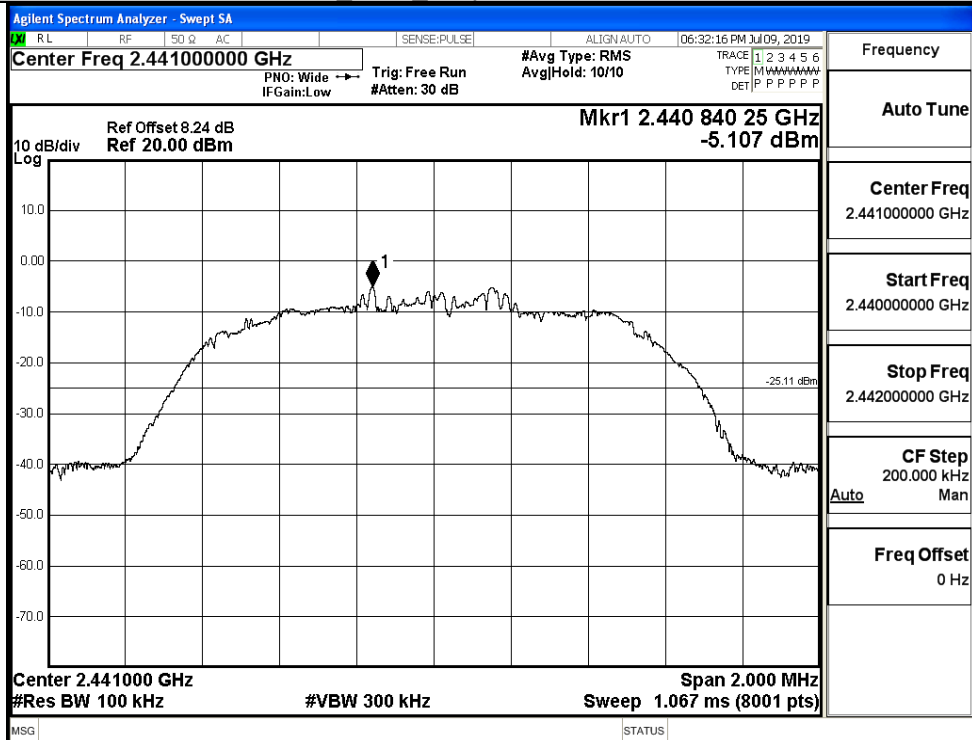


Puw

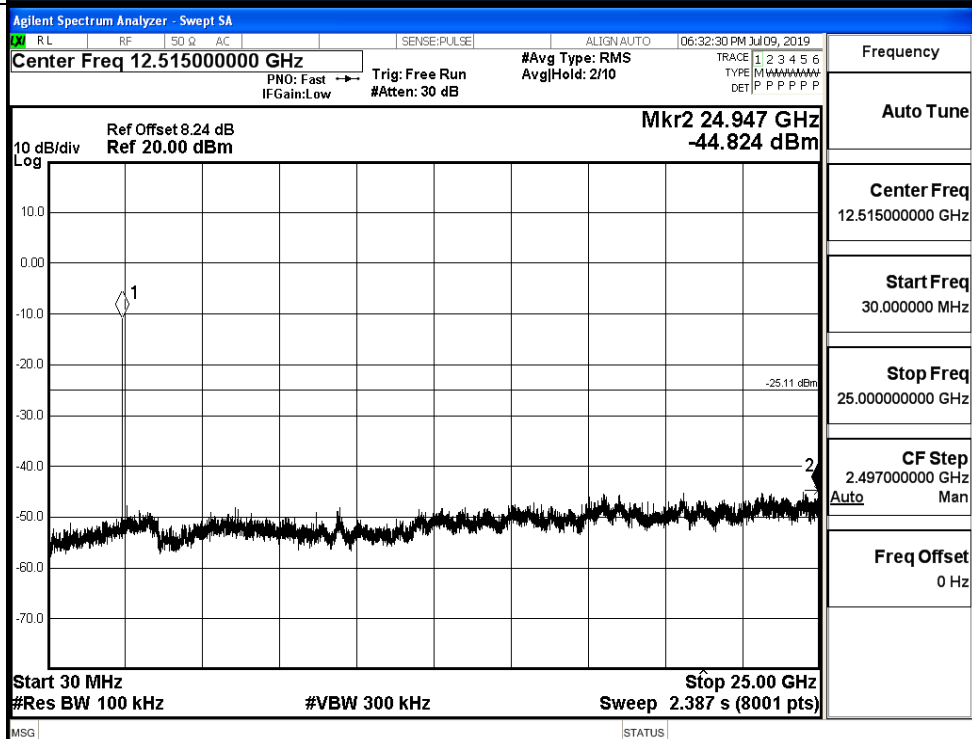


8DPSK_MCH_Graphs

Pref

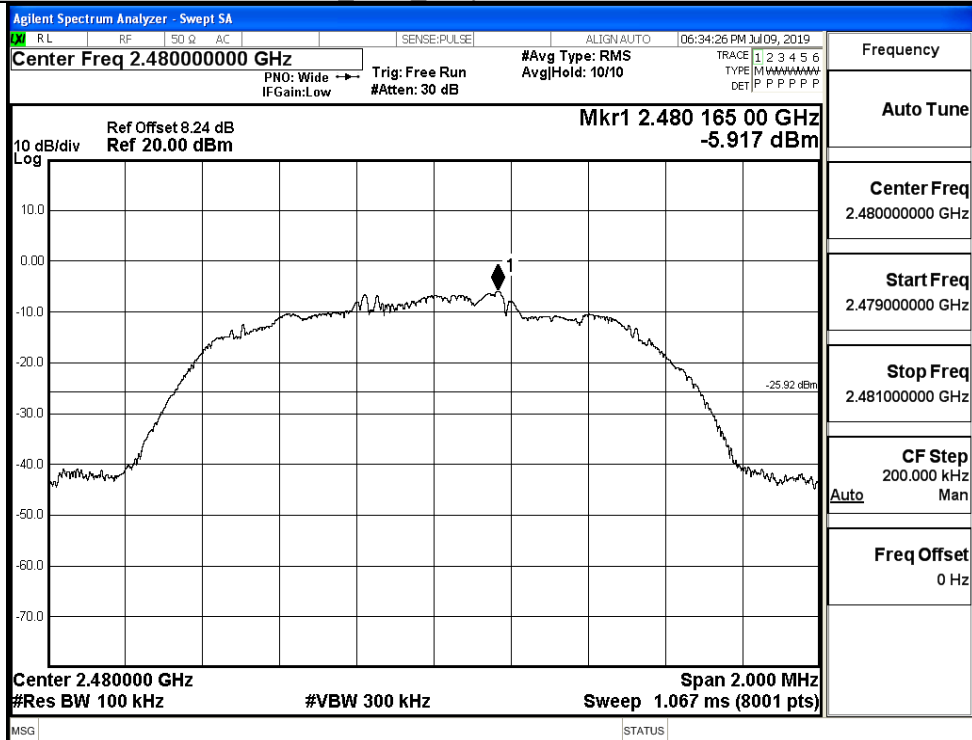


Puw

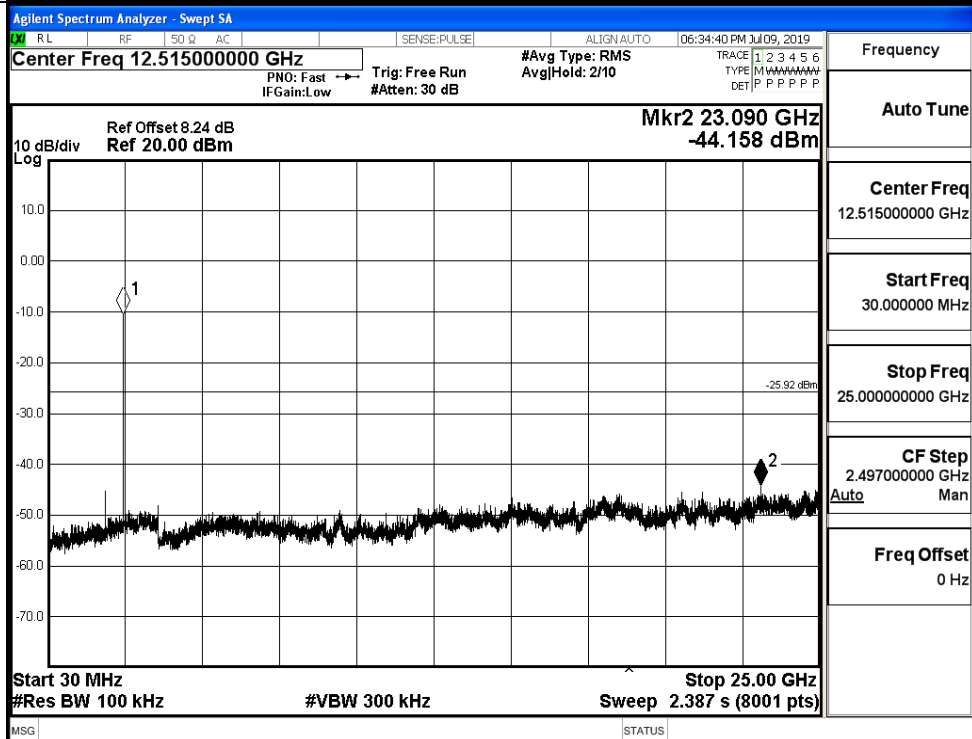


8DPSK_HCH_Graphs

Pref



Puw

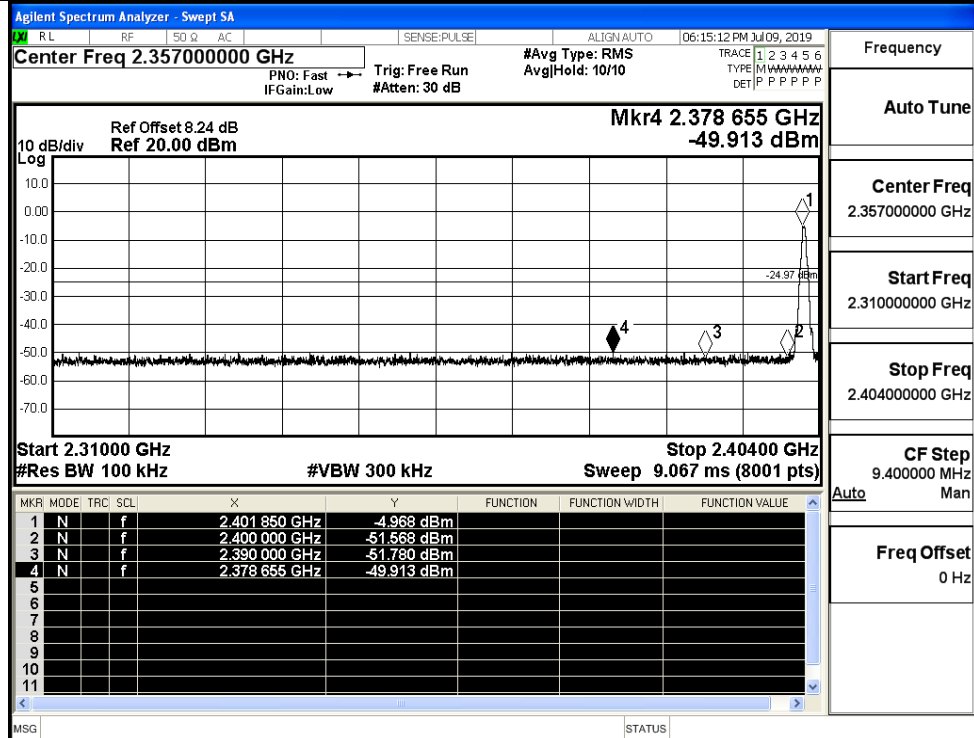


A.7 Band-edge for RF Conducted Emissions

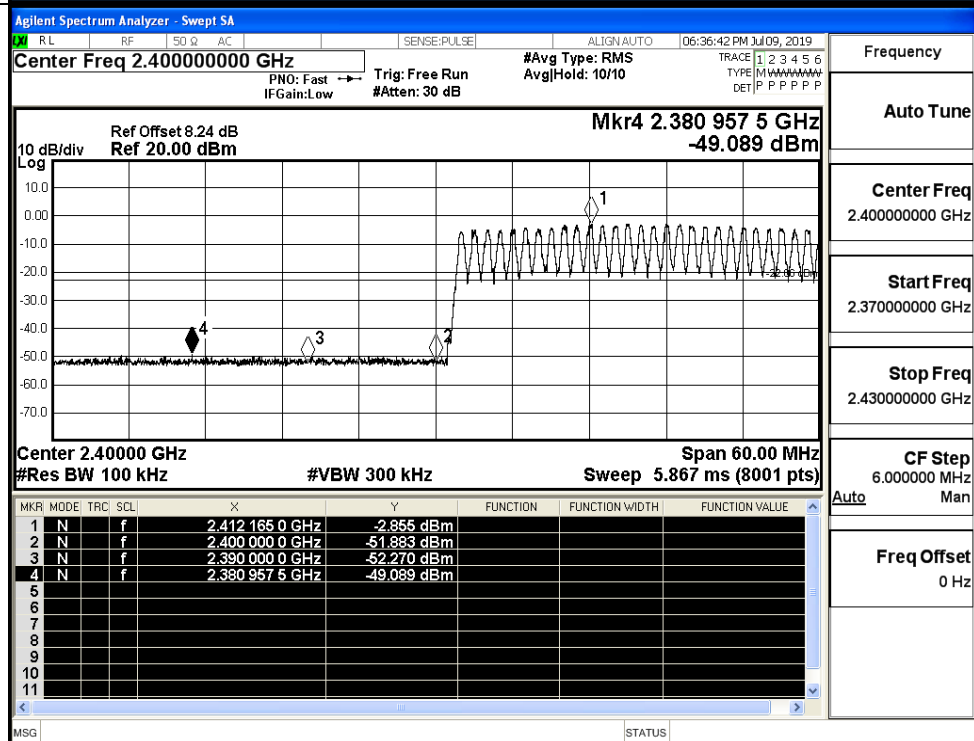
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	-4.968	Off	-49.913	-24.97	PASS
			-2.855	On	-49.089	-22.86	PASS
	HCH	2480	-4.765	Off	-49.611	-24.77	PASS
			-2.693	On	-49.152	-22.69	PASS
$\pi/4$ DQPSK	LCH	2402	-6.566	Off	-49.547	-26.57	PASS
			-3.983	On	-48.638	-23.98	PASS
	HCH	2480	-6.028	Off	-49.713	-26.03	PASS
			-4.241	On	-48.494	-24.24	PASS
8DPSK	LCH	2402	-6.056	Off	-49.195	-26.06	PASS
			-4.132	On	-49.255	-24.13	PASS
	HCH	2480	-5.838	Off	-49.120	-25.84	PASS
			-4.689	On	-48.625	-24.69	PASS

Test Graphs

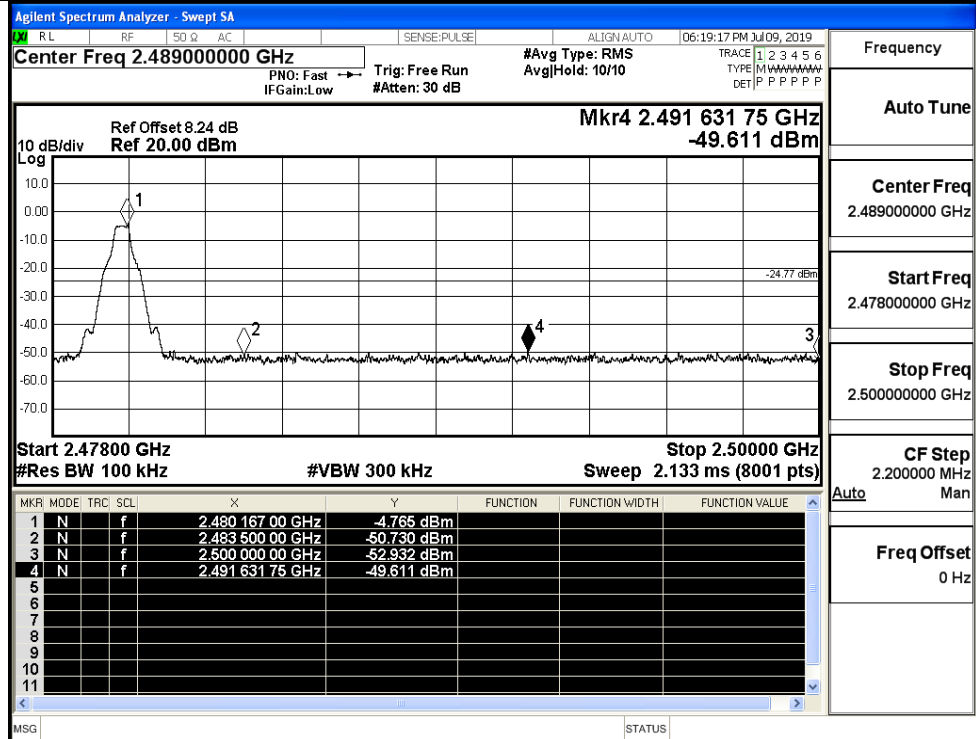
GFSK/LCH/No Hop



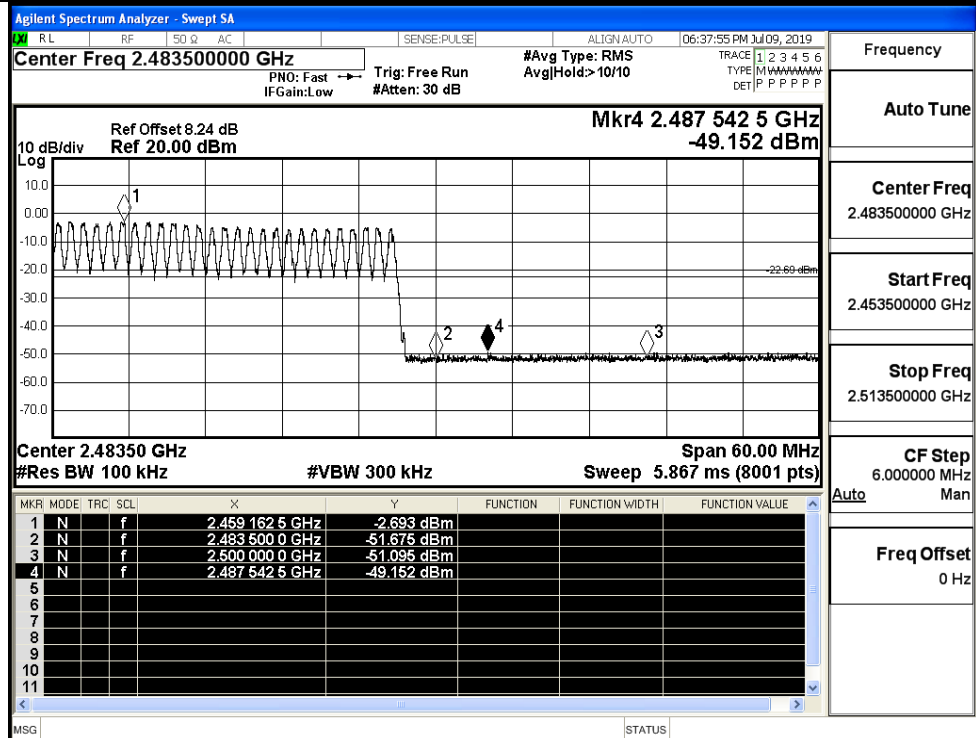
GFSK/LCH/Hop



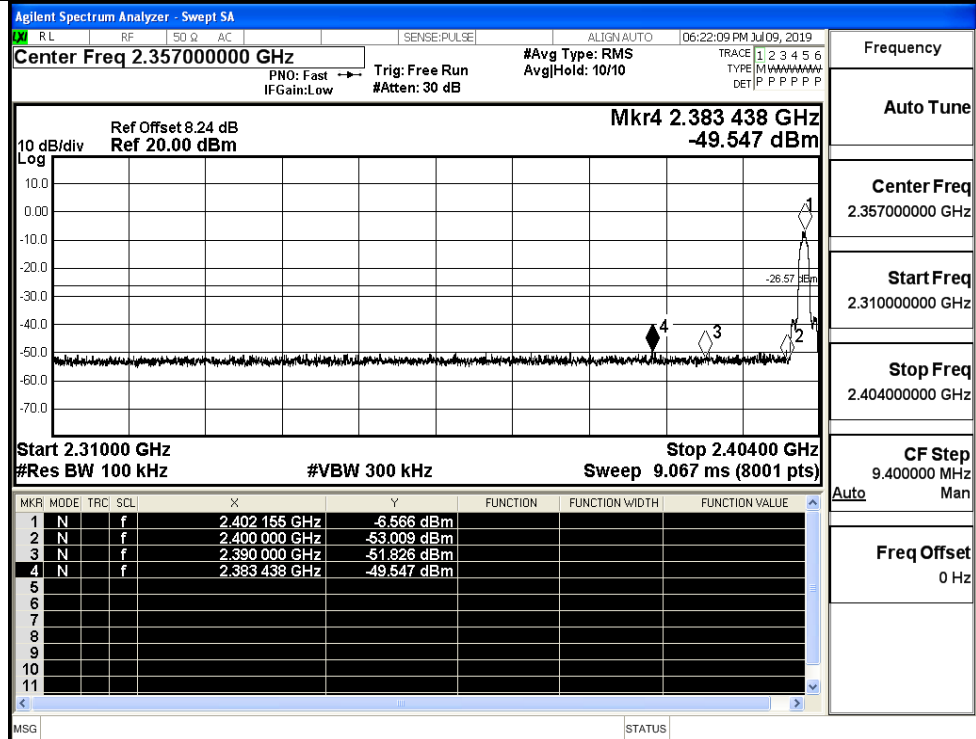
GFSK/HCH/No Hop



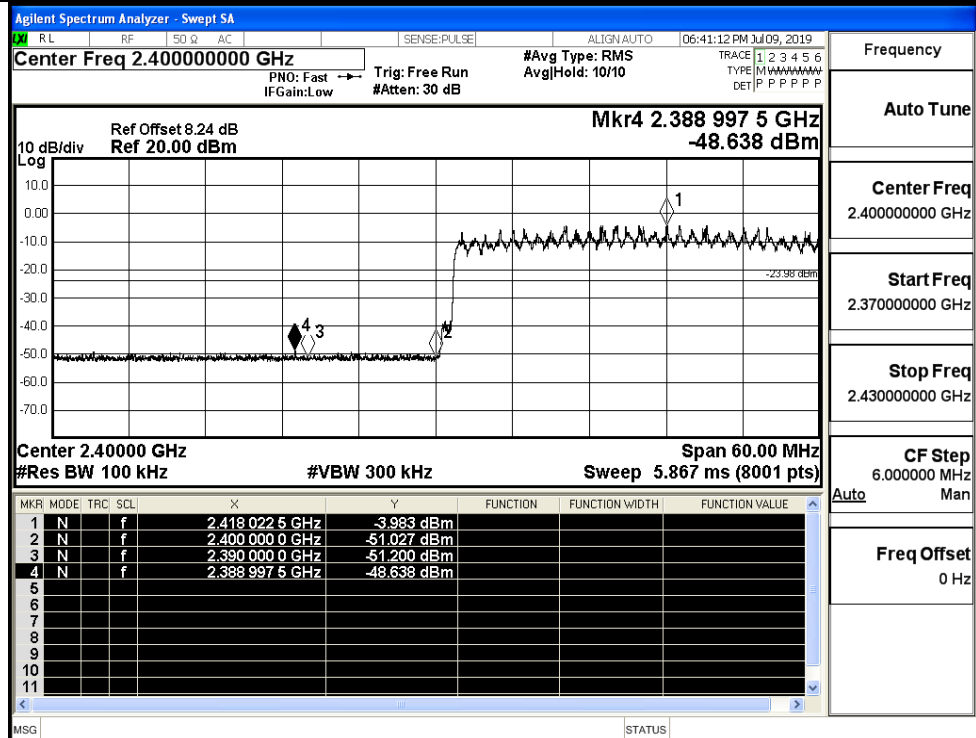
GFSK/HCH/Hop



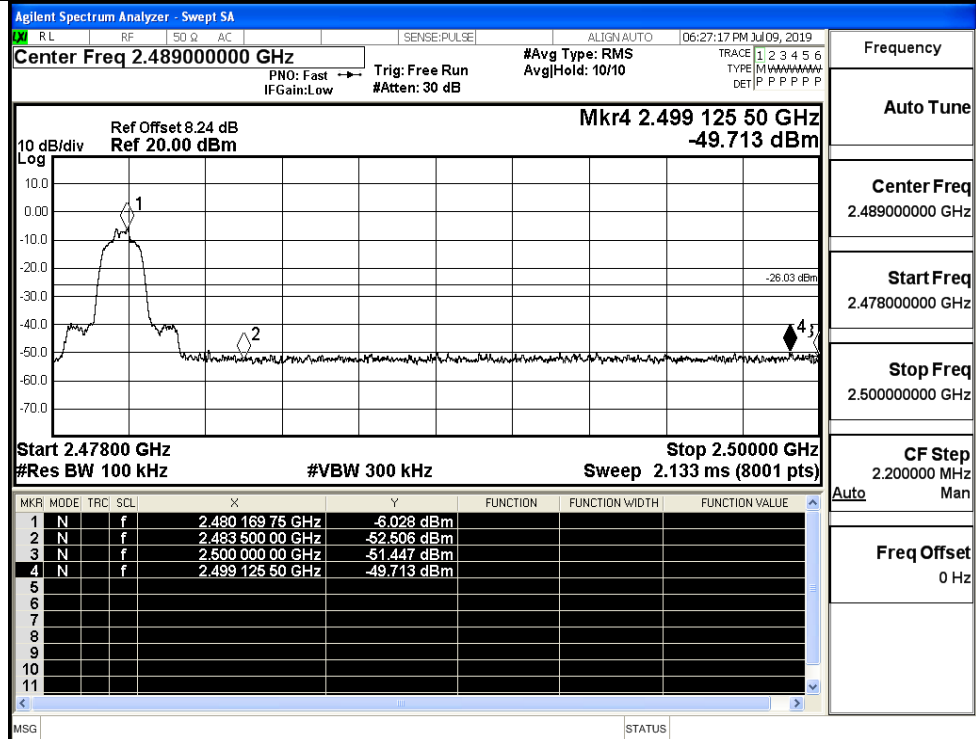
$\pi/4$ DQPSK/LCH/No
Hop



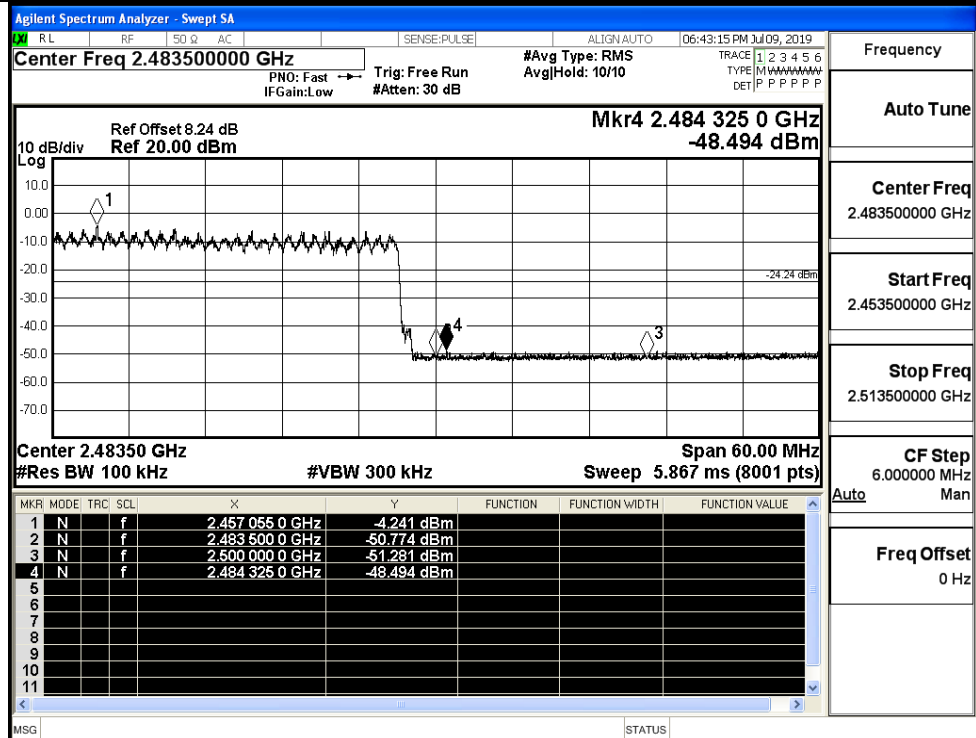
$\pi/4$ DQPSK/LCH/Hop



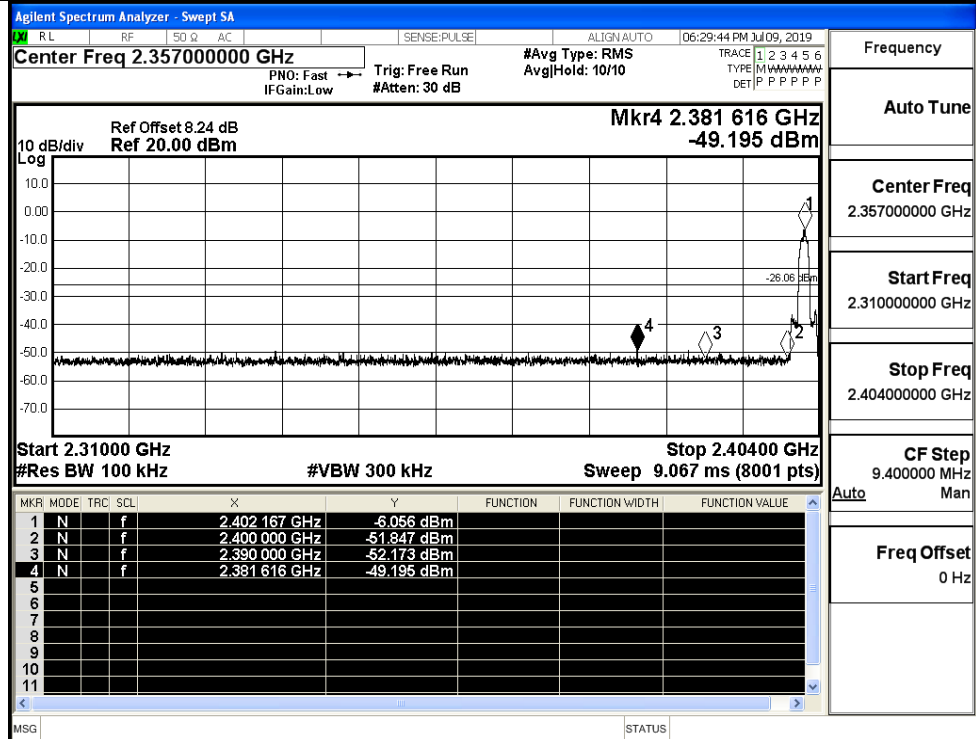
$\pi/4$ DQPSK/HCH/No
Hop



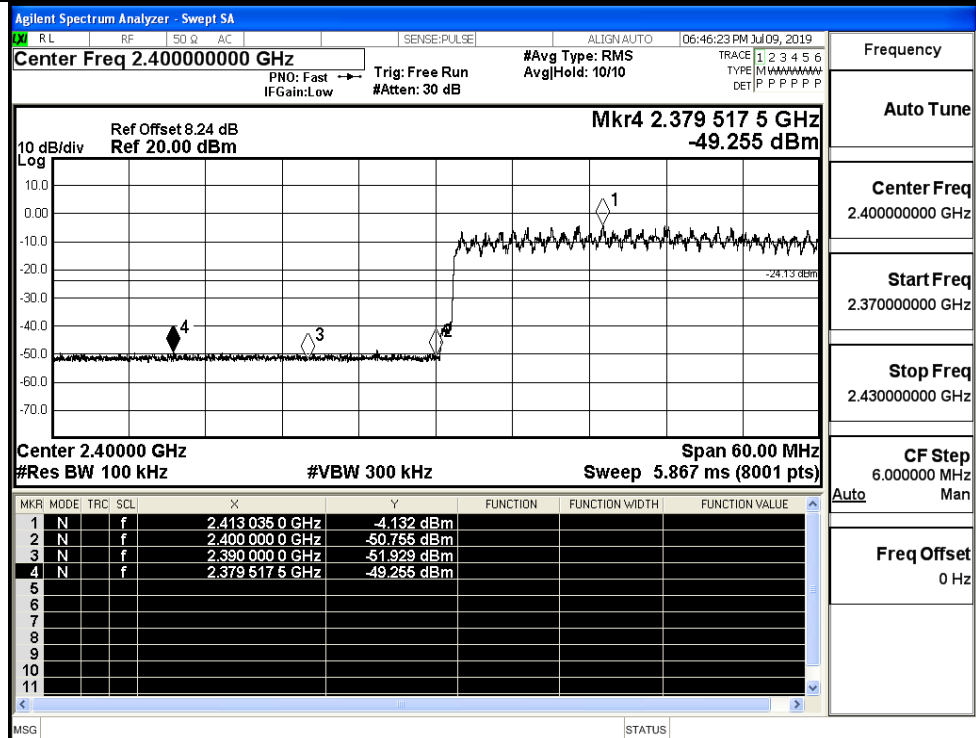
$\pi/4$ DQPSK/HCH/Hop



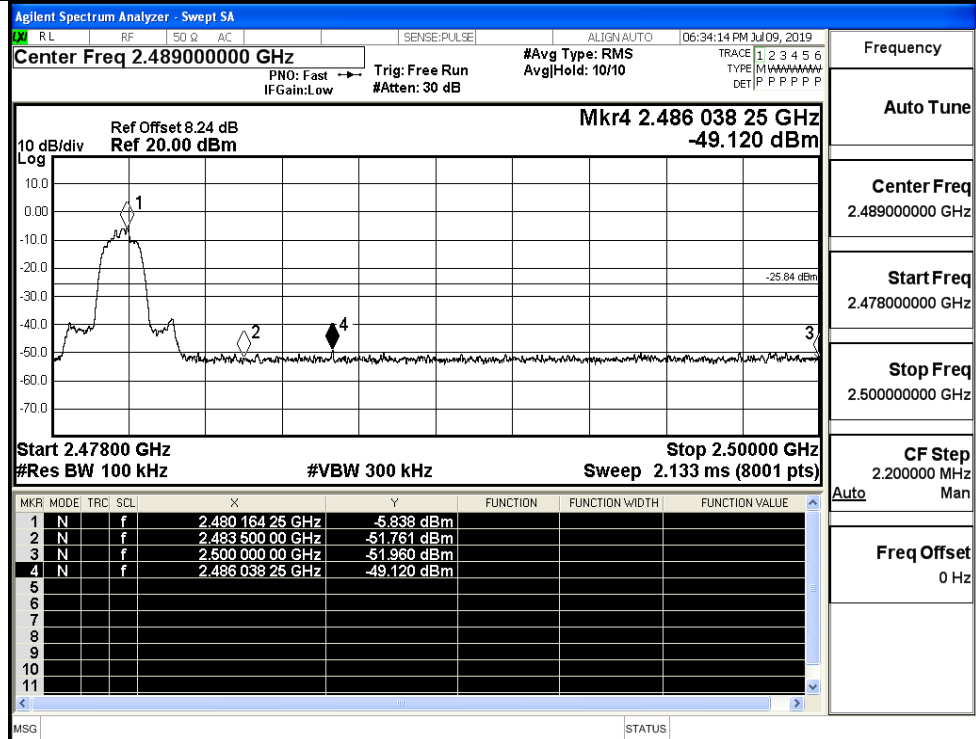
8DPSK/LCH/No Hop



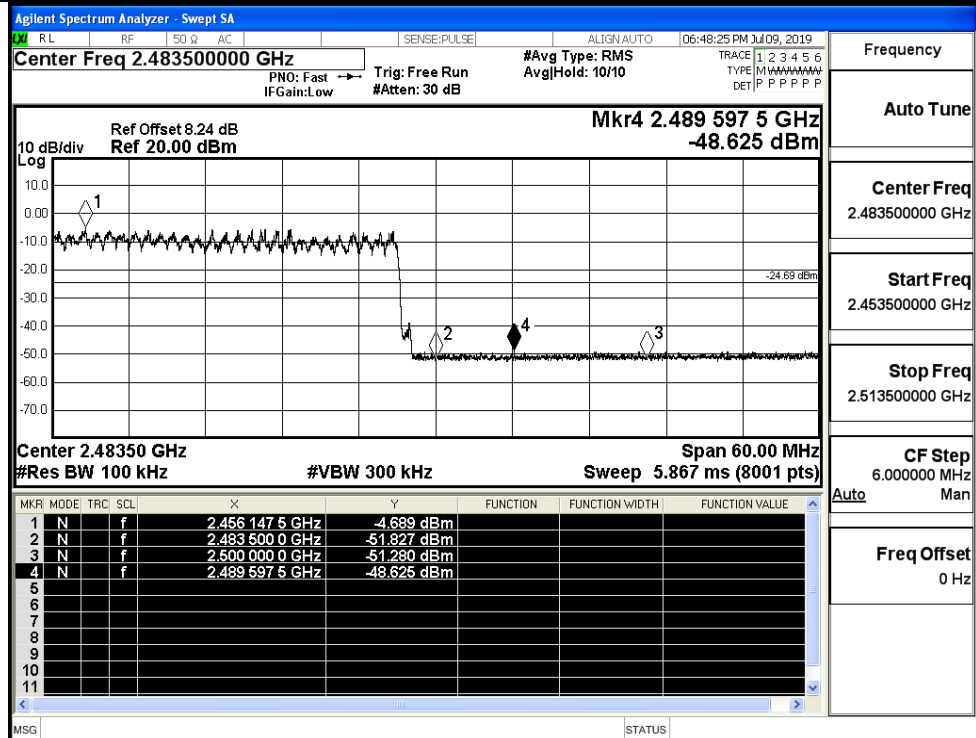
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



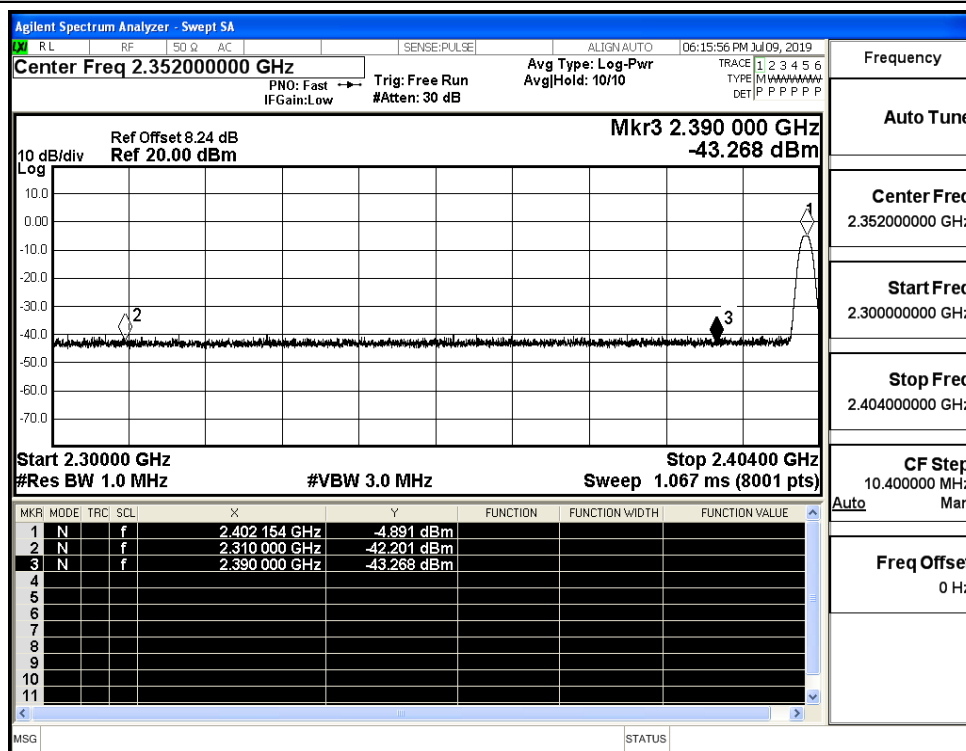
8DPSK/HCH/Hop



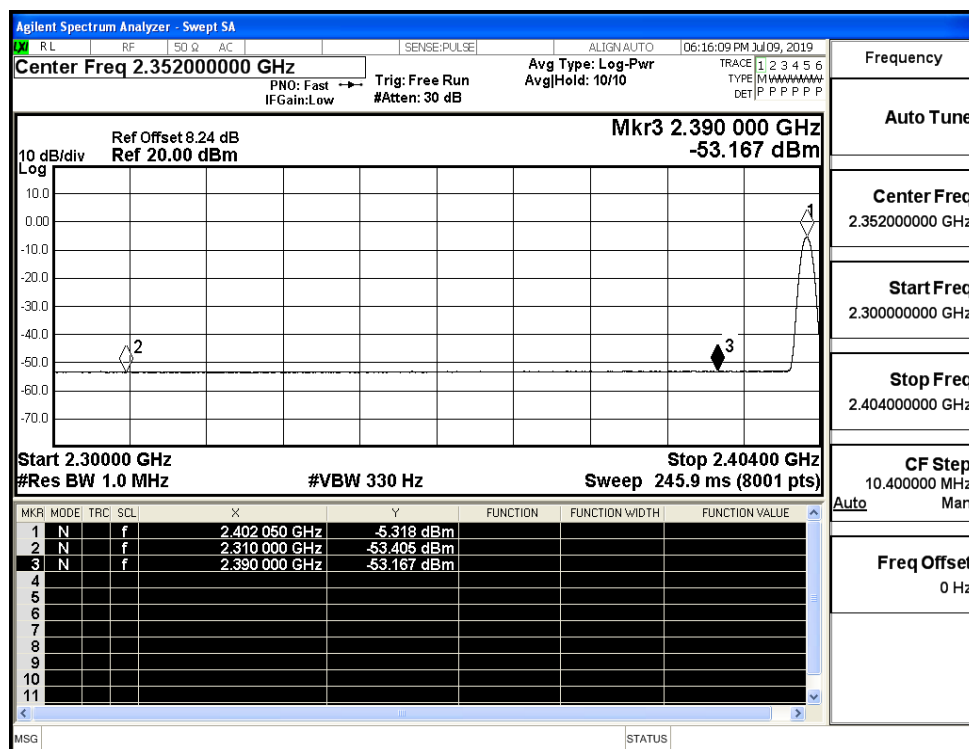
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.20	2.0	0	53.06	PEAK	74	PASS
	Off	2310.0	-53.41	2.0	0	41.85	AV	54	PASS
	Off	2390.0	-43.27	2.0	0	51.99	PEAK	74	PASS
	Off	2390.0	-53.17	2.0	0	42.09	AV	54	PASS
	Off	2483.5	-43.22	2.0	0	52.04	PEAK	74	PASS
	Off	2483.5	-52.89	2.0	0	42.36	AV	54	PASS
	Off	2500.0	-43.35	2.0	0	51.91	PEAK	74	PASS
	Off	2500.0	-52.78	2.0	0	42.48	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-43.98	2.0	0	51.28	PEAK	74	PASS
	Off	2310.0	-53.43	2.0	0	41.83	AV	54	PASS
	Off	2390.0	-43.54	2.0	0	51.71	PEAK	74	PASS
	Off	2390.0	-52.97	2.0	0	42.29	AV	54	PASS
	Off	2483.5	-41.35	2.0	0	53.91	PEAK	74	PASS
	Off	2483.5	-52.80	2.0	0	42.46	AV	54	PASS
	Off	2500.0	-42.16	2.0	0	53.10	PEAK	74	PASS
	Off	2500.0	-52.63	2.0	0	42.63	AV	54	PASS
8DPSK	Off	2310.0	-43.43	2.0	0	51.83	PEAK	74	PASS
	Off	2310.0	-53.41	2.0	0	41.84	AV	54	PASS
	Off	2390.0	-42.82	2.0	0	52.44	PEAK	74	PASS
	Off	2390.0	-53.18	2.0	0	42.08	AV	54	PASS
	Off	2483.5	-43.16	2.0	0	52.10	PEAK	74	PASS
	Off	2483.5	-52.90	2.0	0	42.36	AV	54	PASS
	Off	2500.0	-42.98	2.0	0	52.28	PEAK	74	PASS
	Off	2500.0	-52.75	2.0	0	42.51	AV	54	PASS

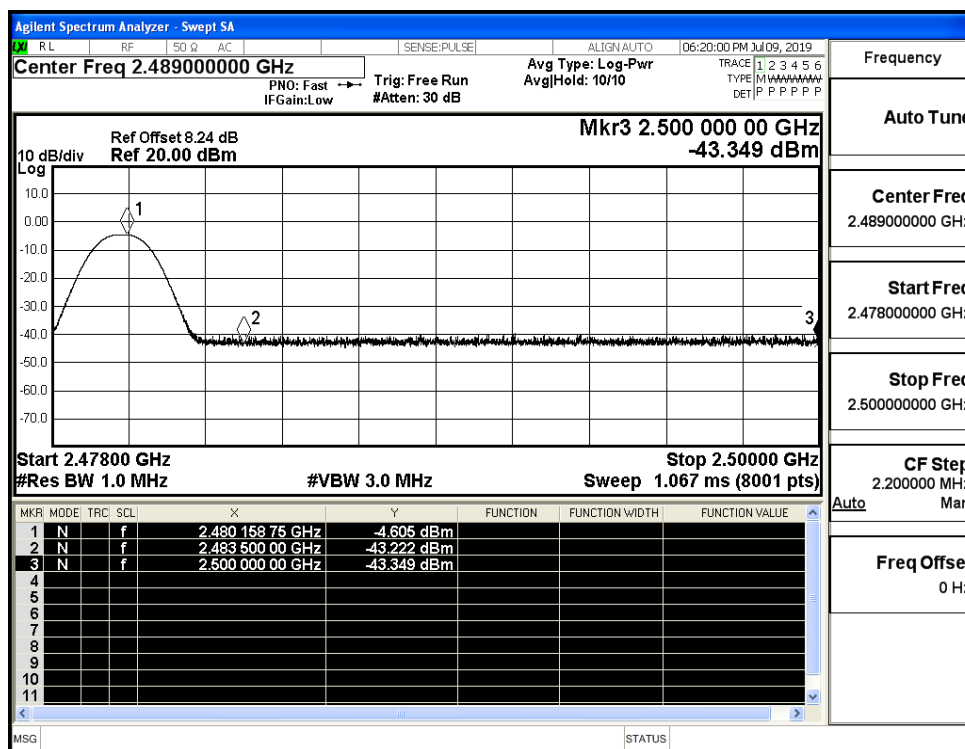
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



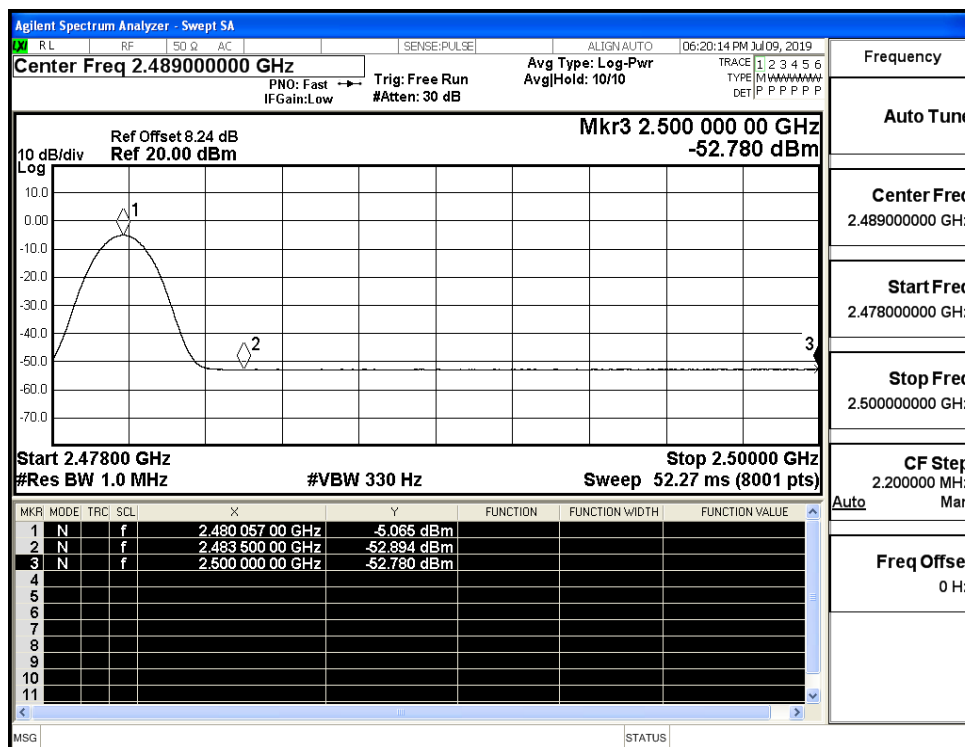
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)

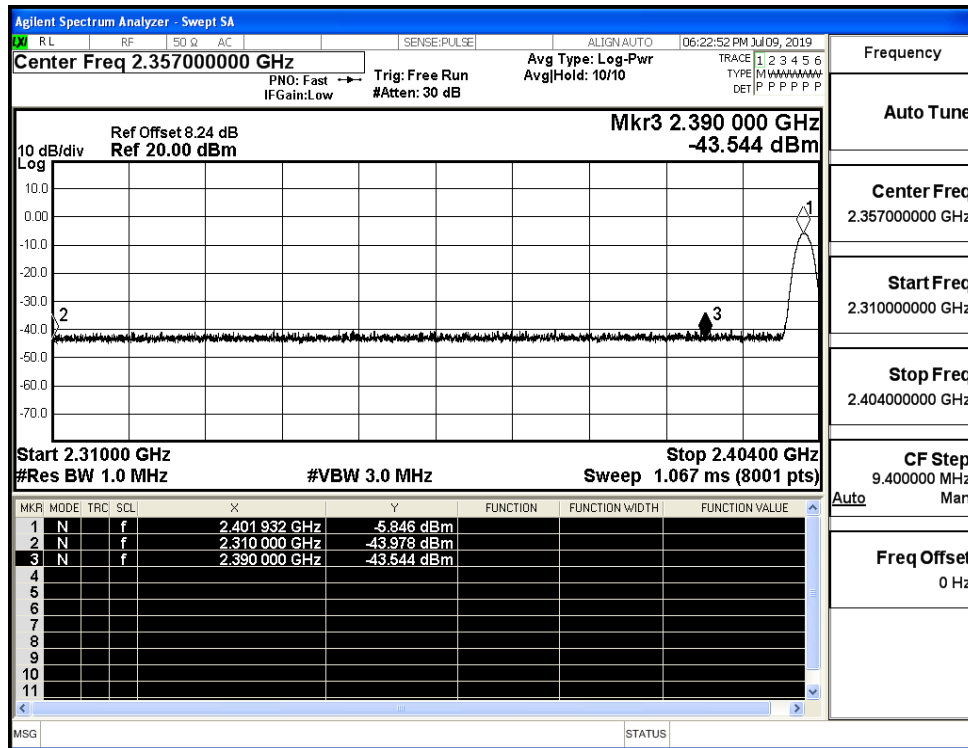
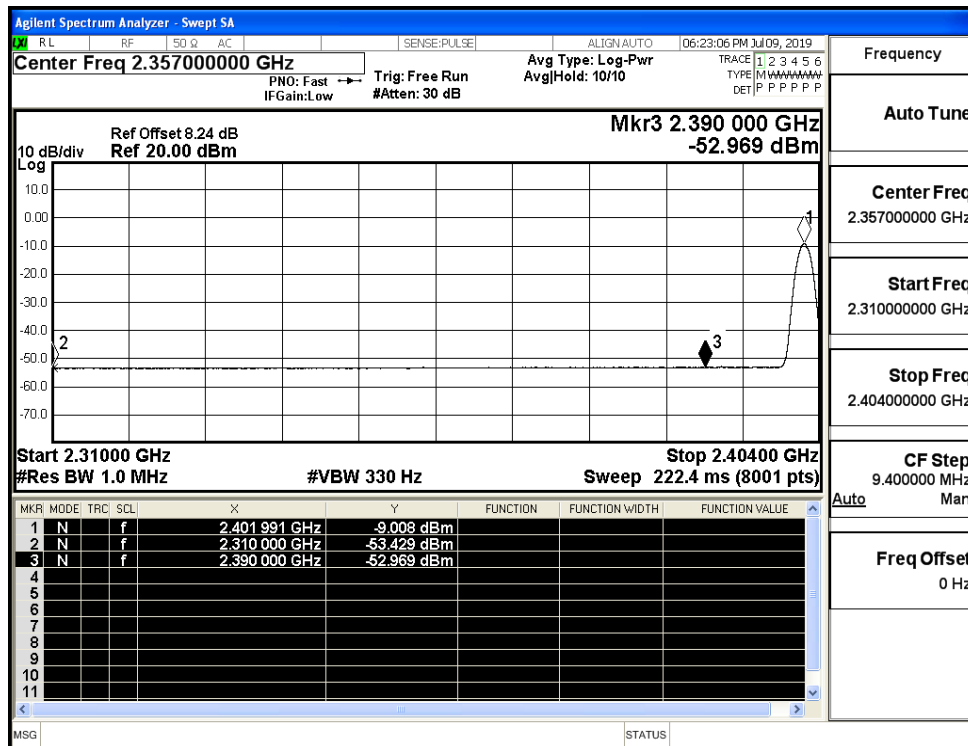


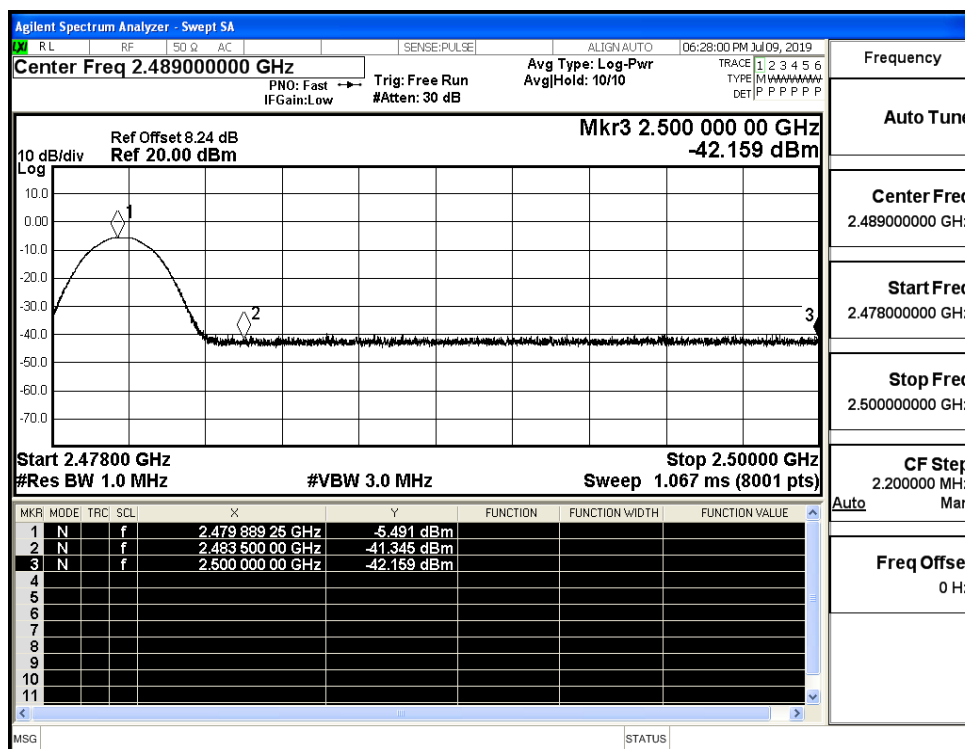
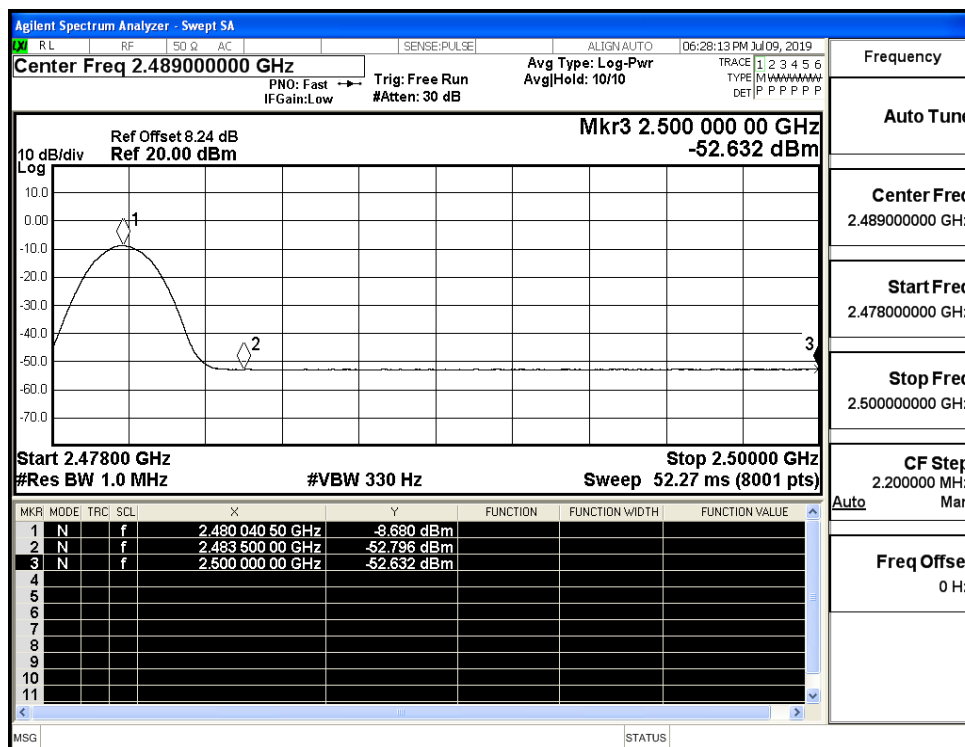
Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)



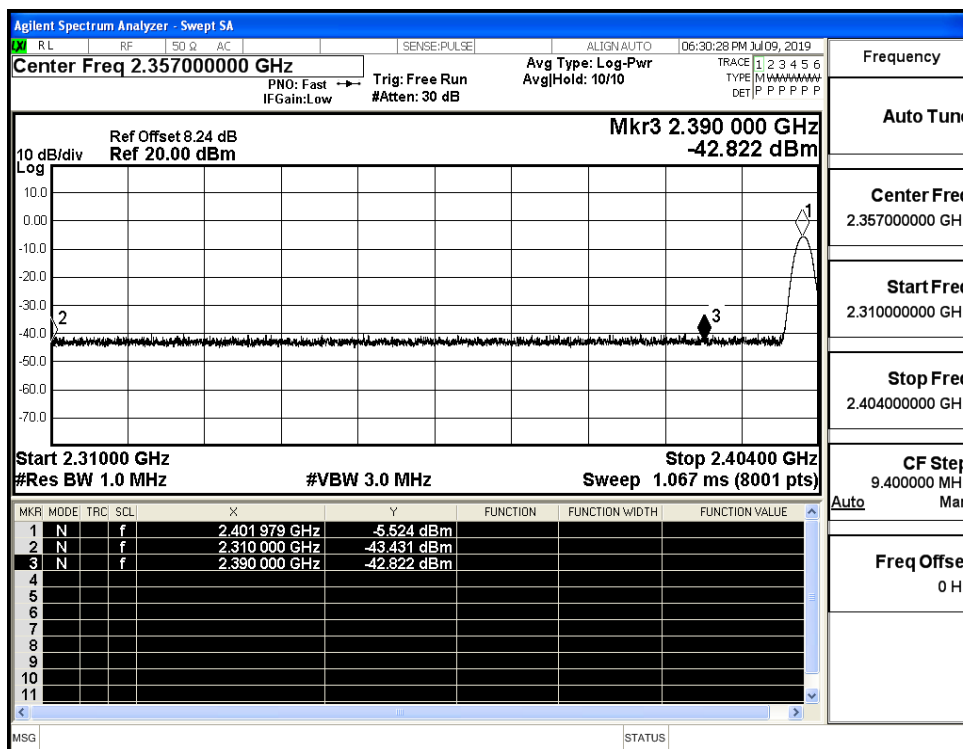
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



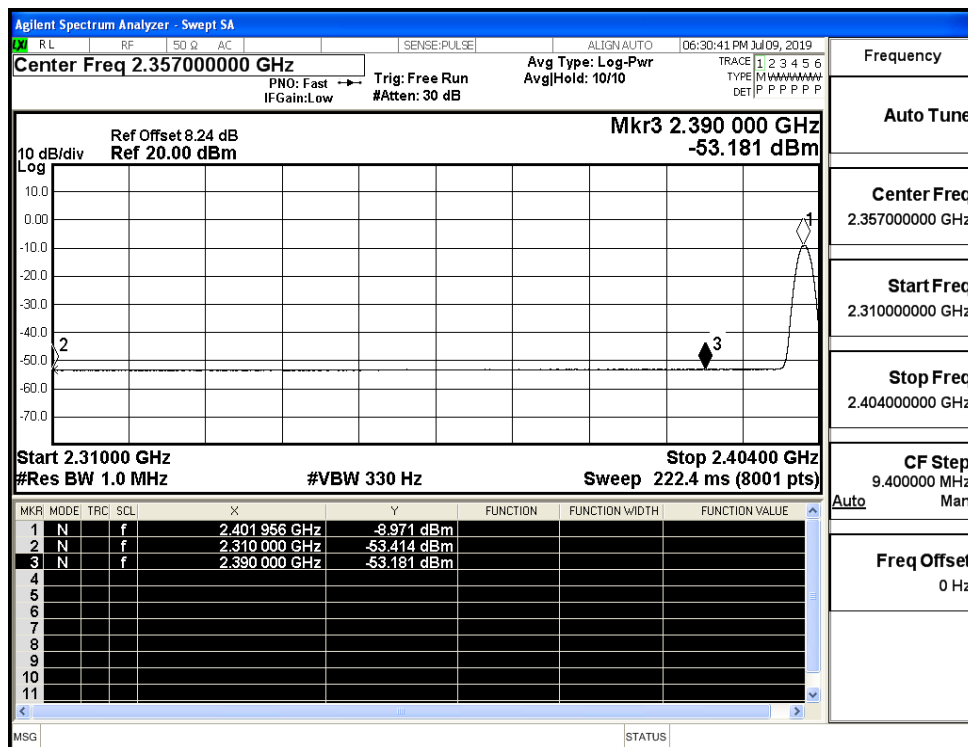
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

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)

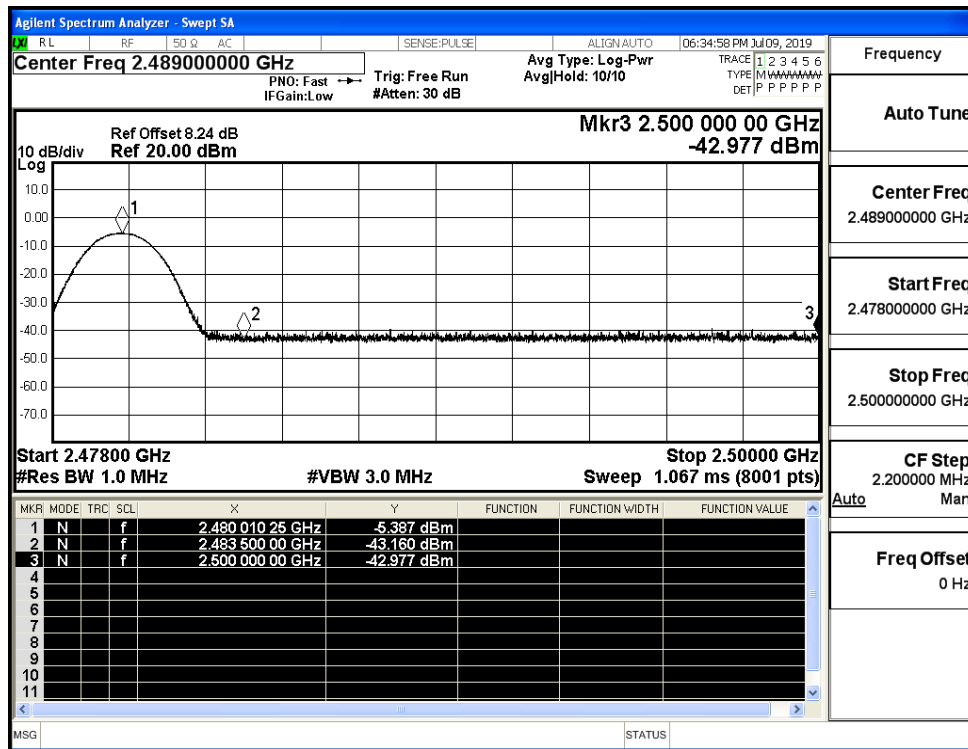
Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



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)

