

Appendix A
RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: X-brain Smart gateway

Trade Mark: Xunison

Test Model: XUS100

FCC ID: 2AP2F-XUS100

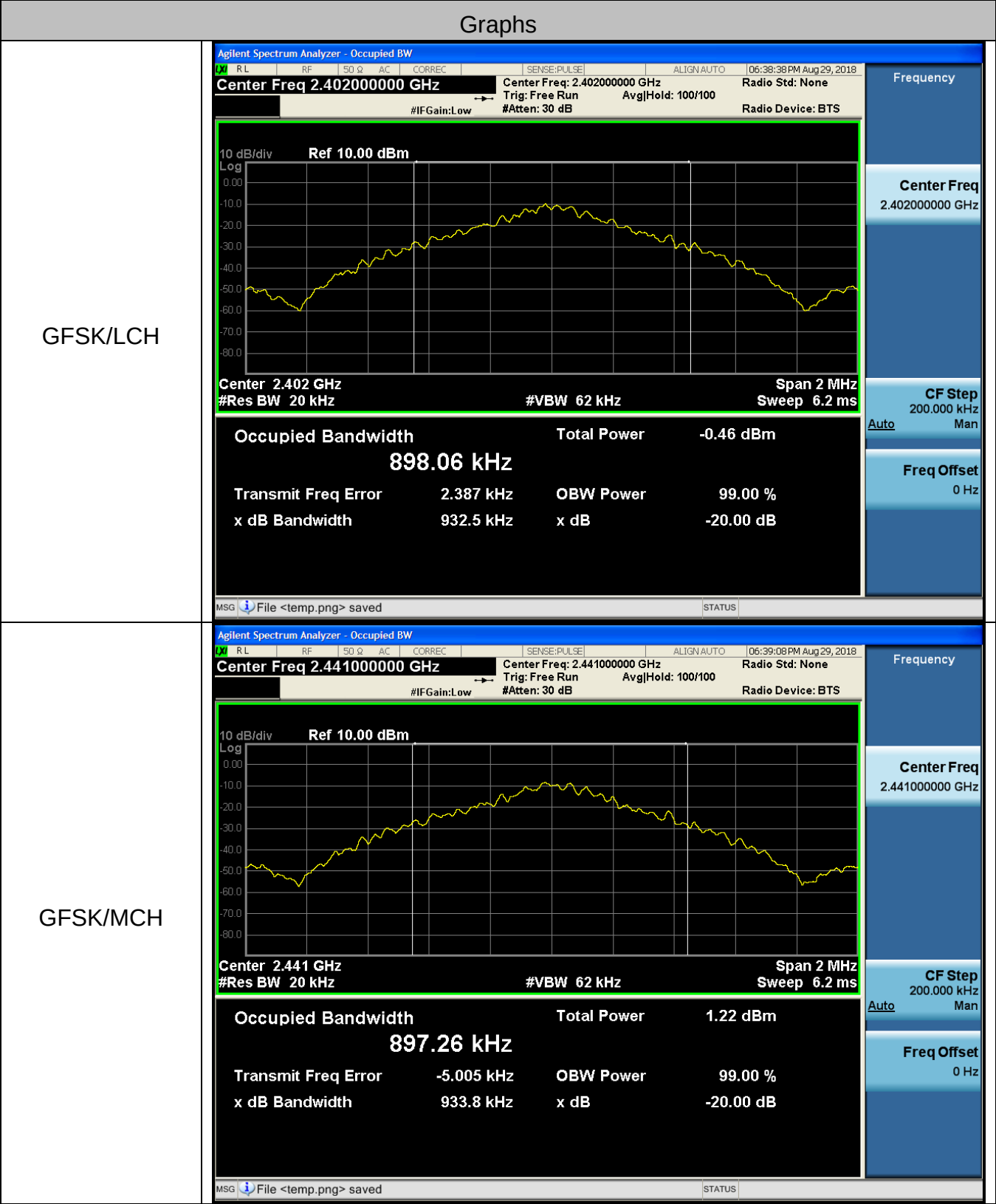
Environmental Conditions

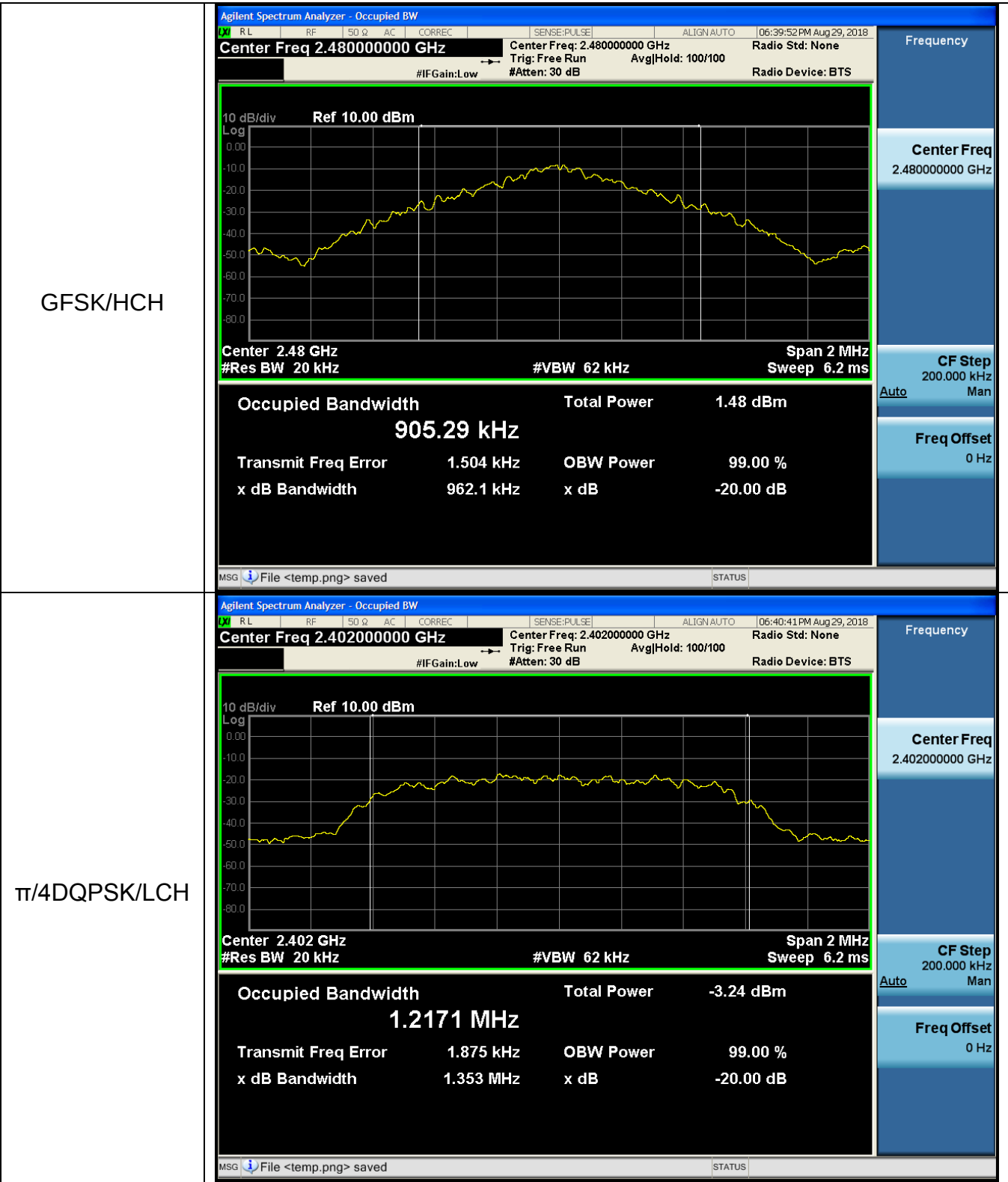
Temperature:	22.9 ° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

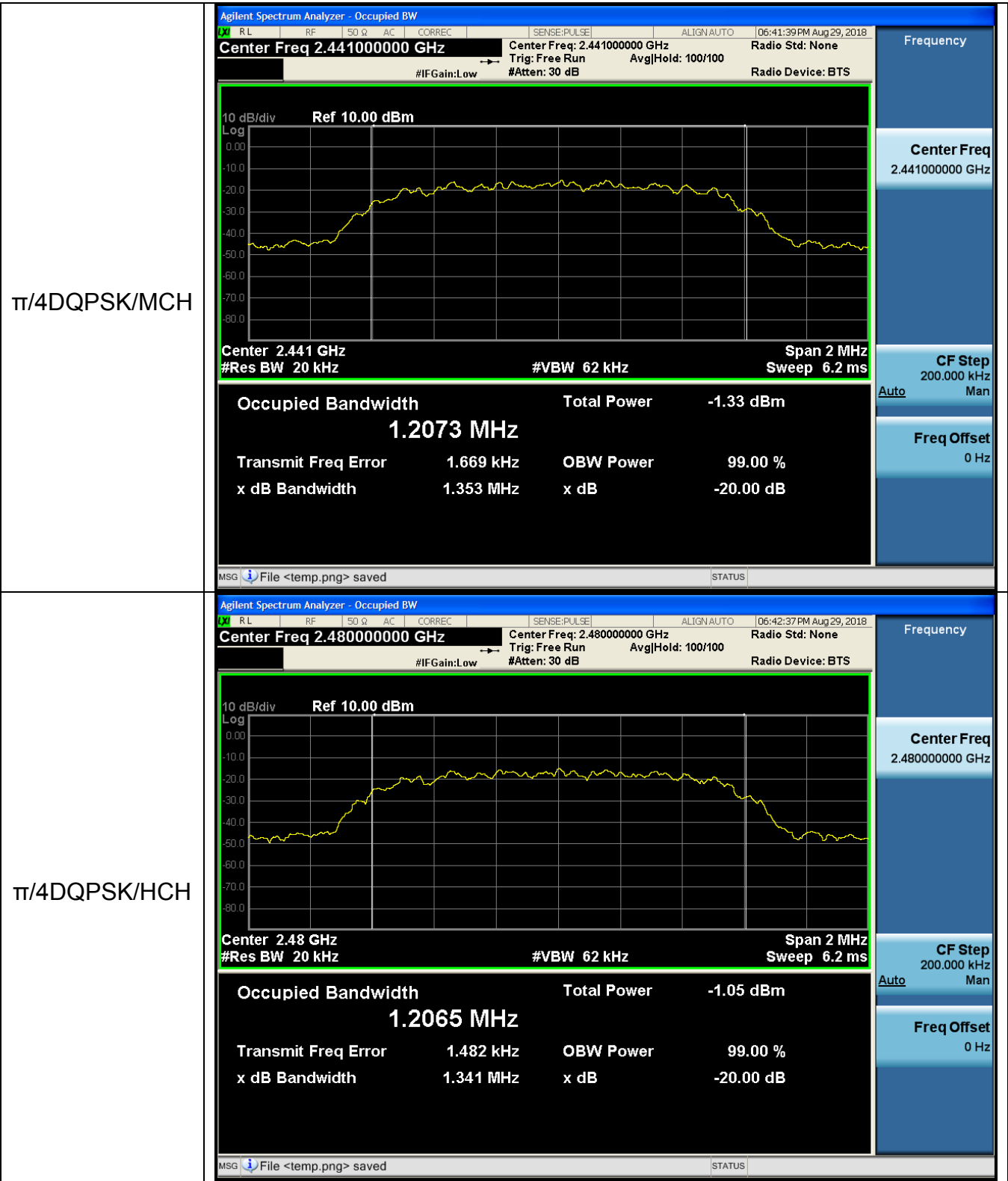
A.1 20 dB Bandwidth

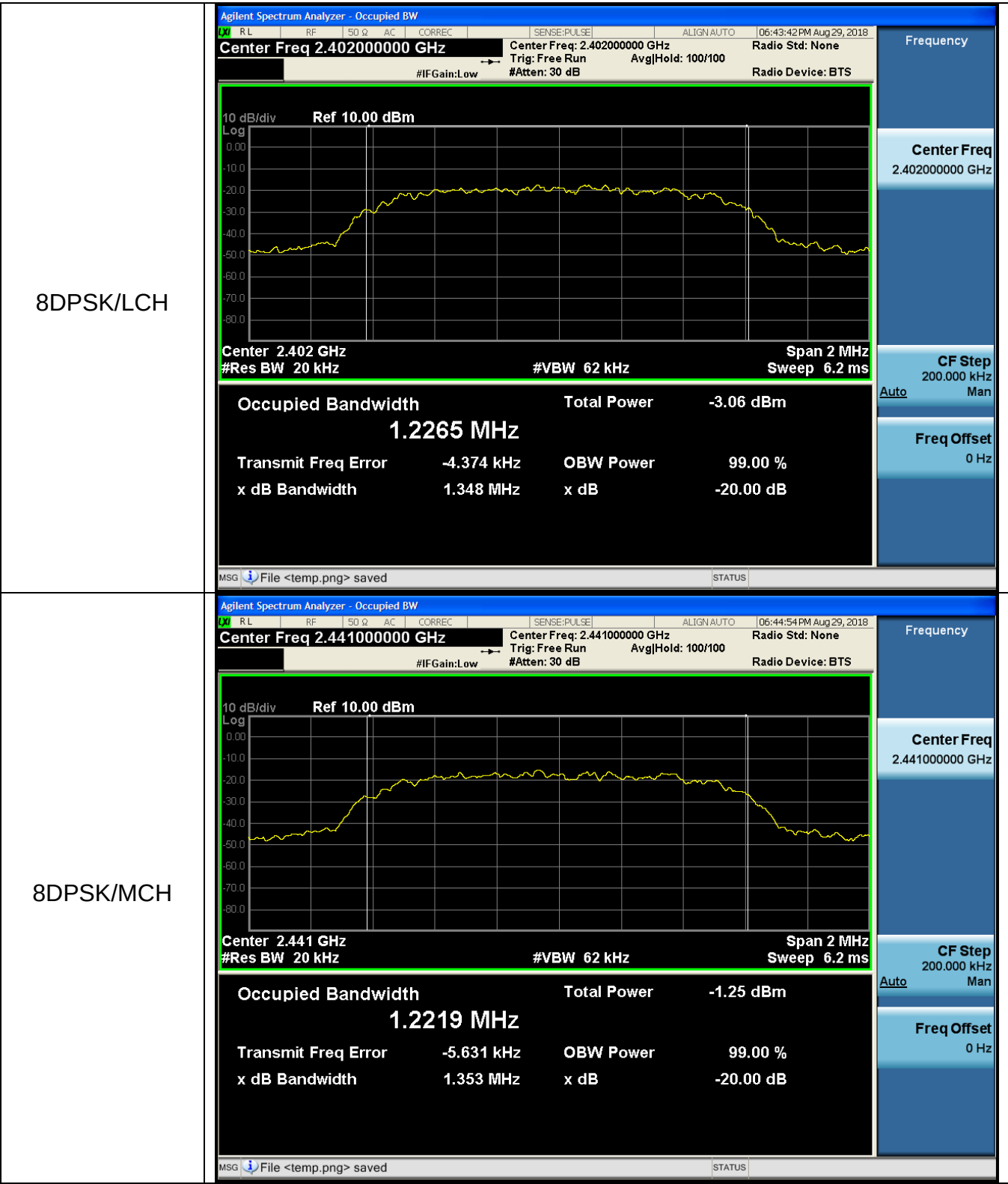
Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.933	Not Specified	PASS
GFSK	MCH	0.934	Not Specified	PASS
GFSK	HCH	0.962	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.353	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.353	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.341	Not Specified	PASS
8DPSK	LCH	1.348	Not Specified	PASS
8DPSK	MCH	1.353	Not Specified	PASS
8DPSK	HCH	1.345	Not Specified	PASS

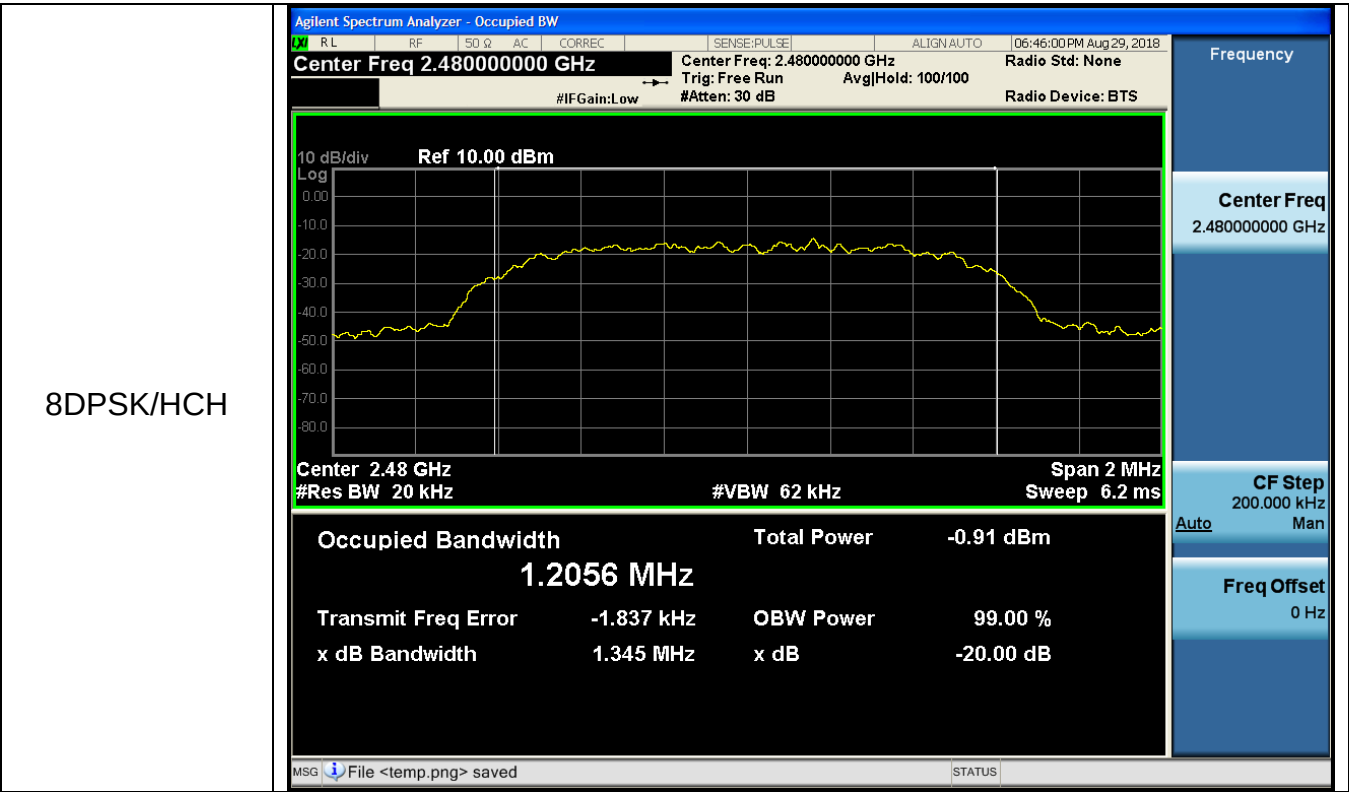
Test Graph







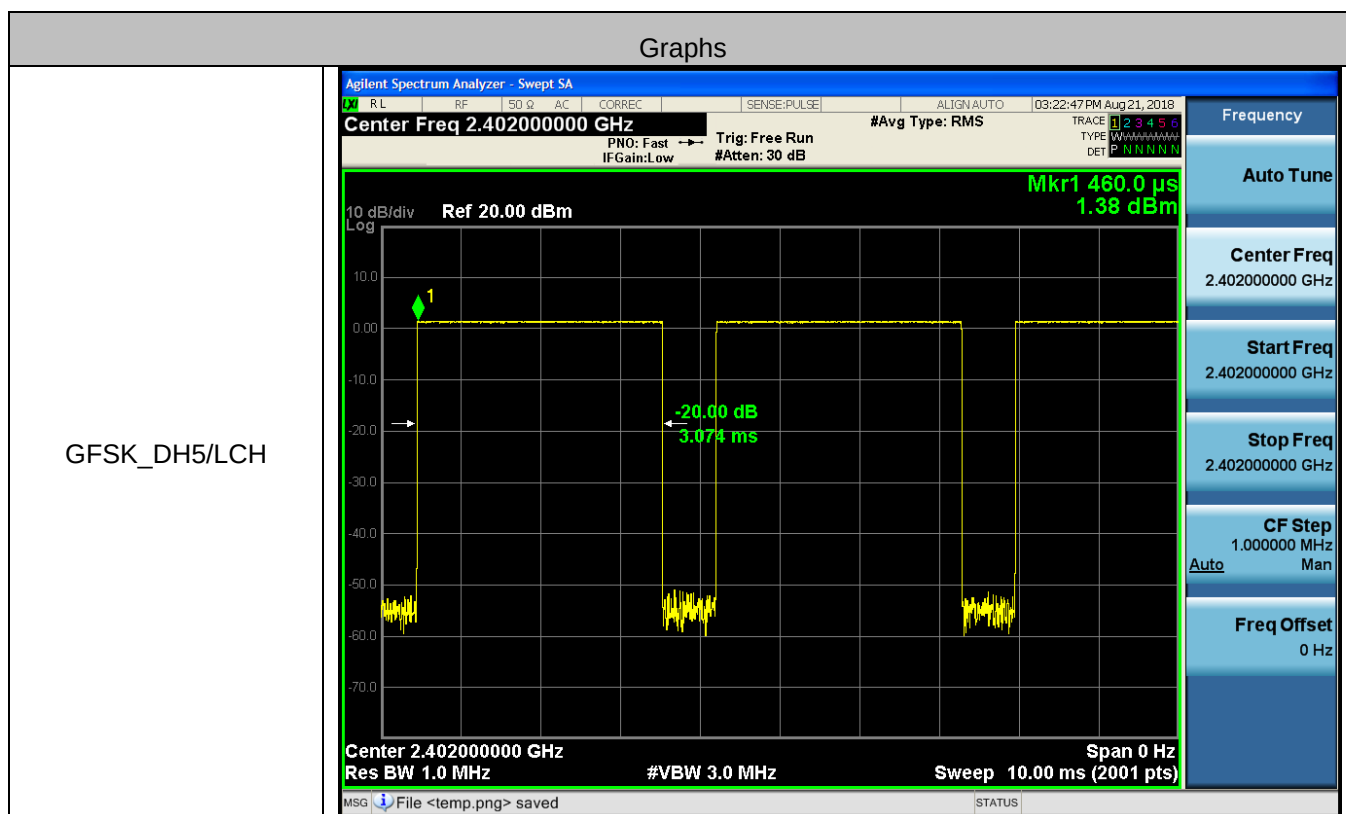


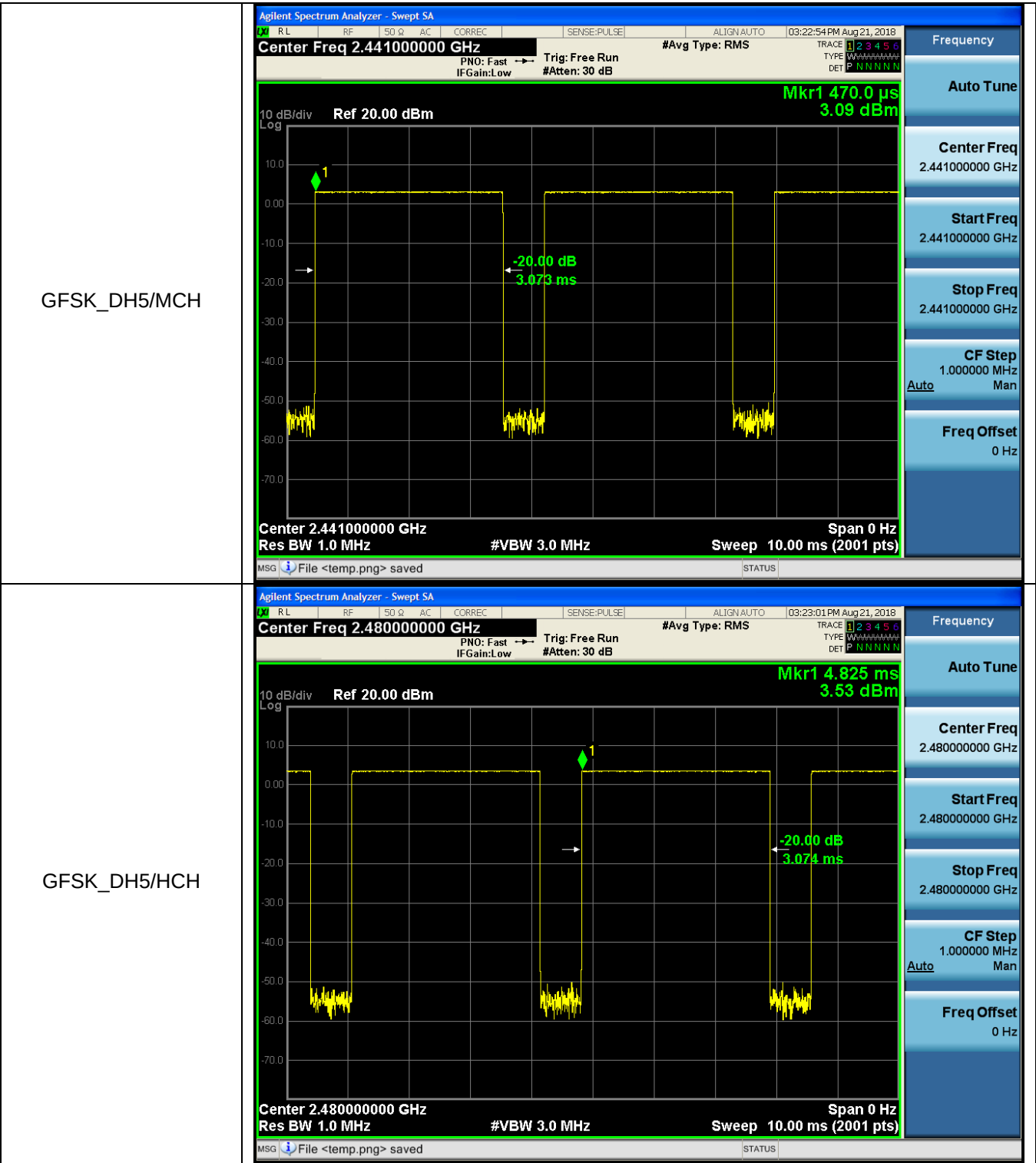


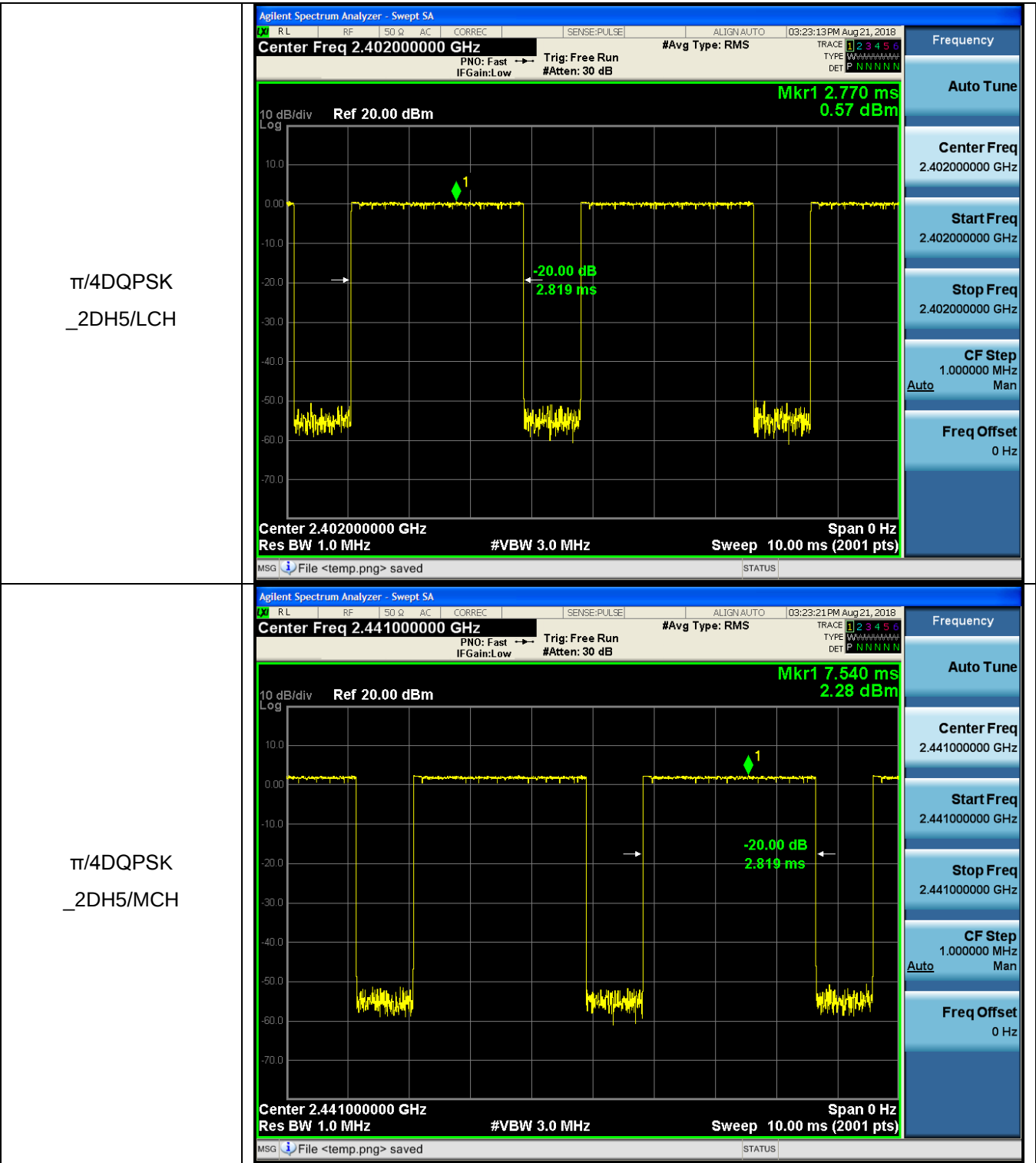
A.2 Dwell Time

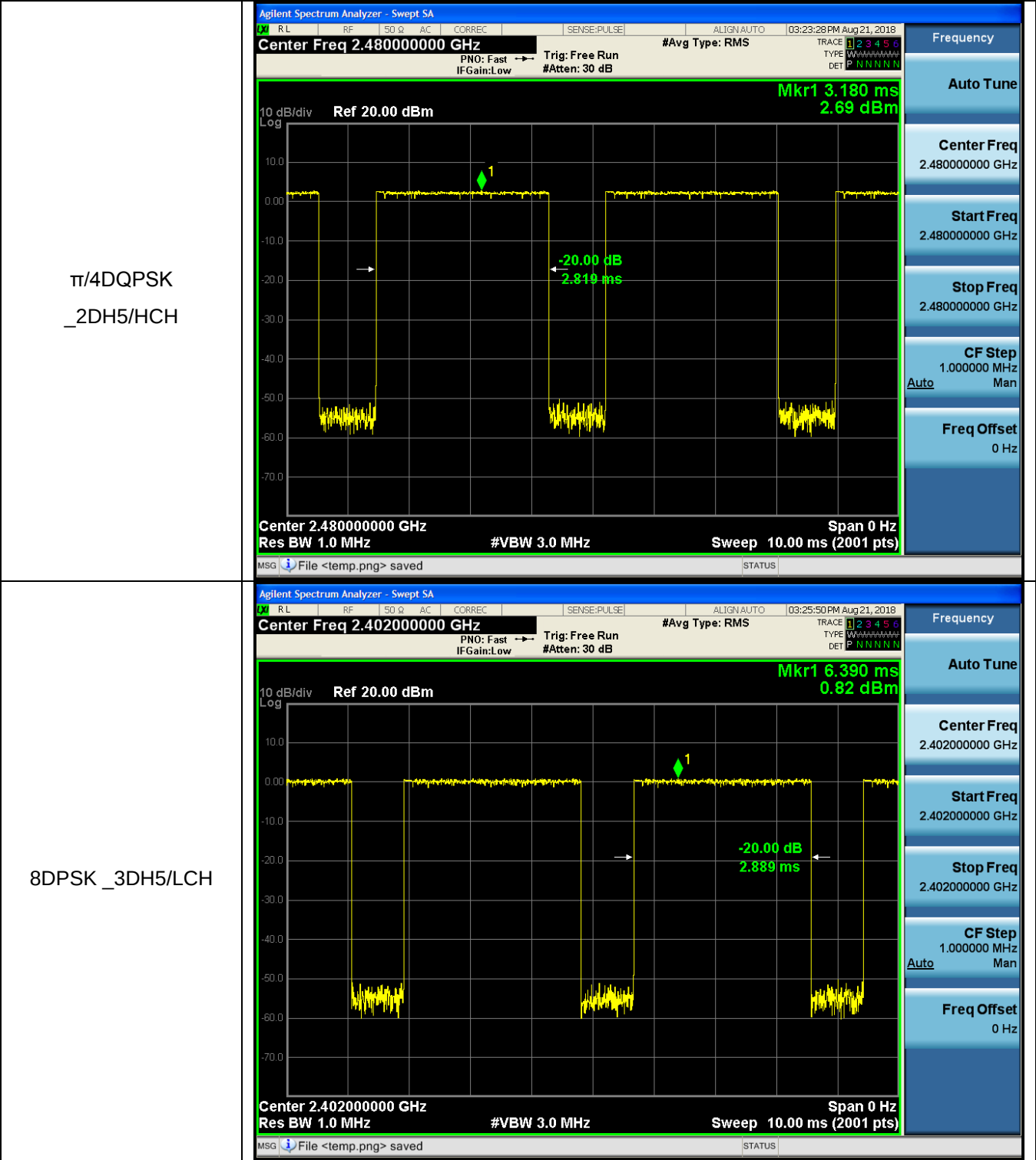
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.003074	106.7	0.327983	0.4	PASS
GFSK	DH5	MCH	0.003073	106.7	0.327941	0.4	PASS
GFSK	DH5	HCH	0.003074	106.7	0.327953	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002819	106.7	0.300768	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.002819	106.7	0.300795	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002819	106.7	0.300758	0.4	PASS
8DPSK	3DH5	LCH	0.002889	106.7	0.308246	0.4	PASS
8DPSK	3DH5	MCH	0.002891	106.7	0.30851	0.4	PASS
8DPSK	3DH5	HCH	0.002889	106.7	0.308248	0.4	PASS

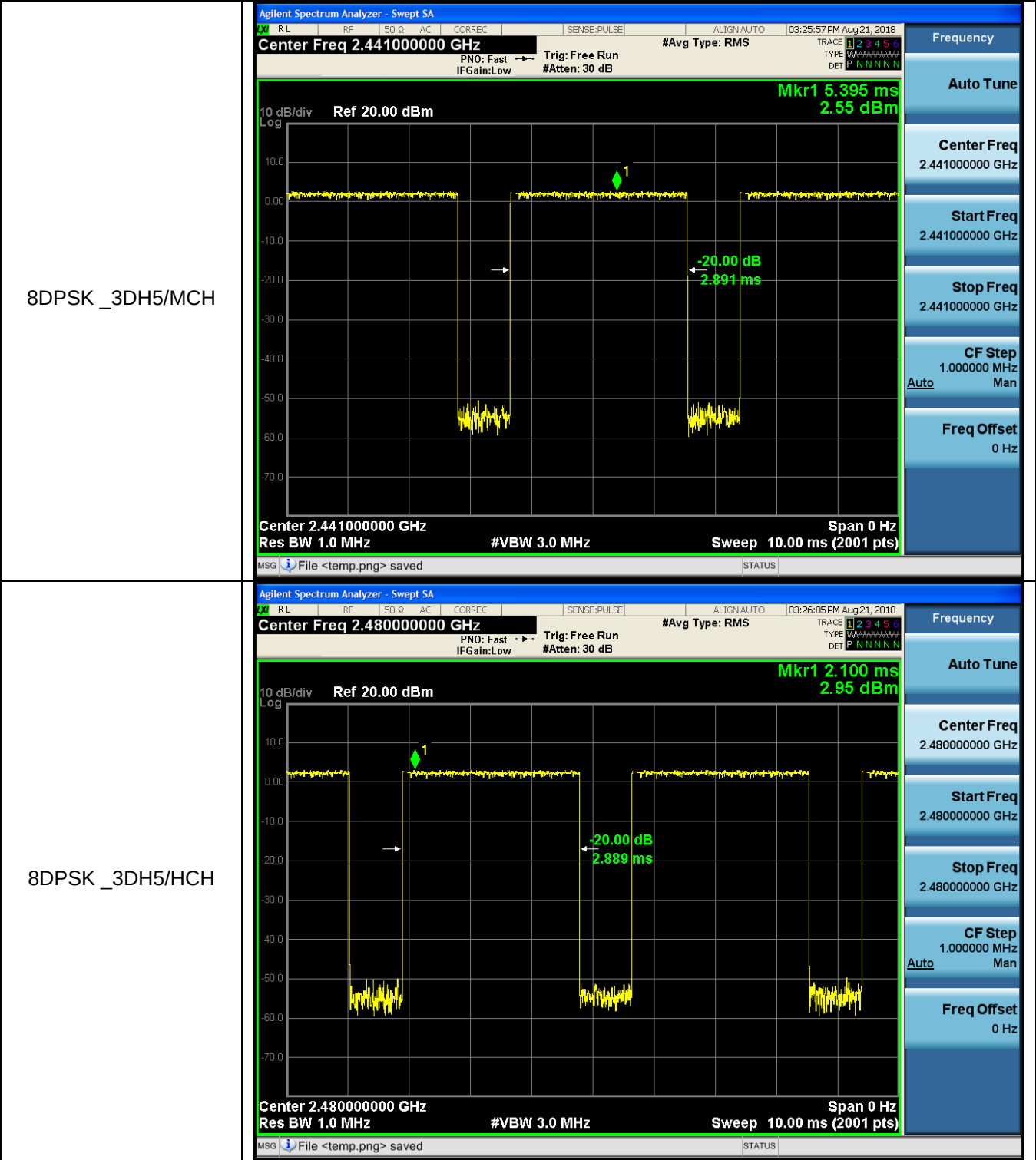
Test Graph







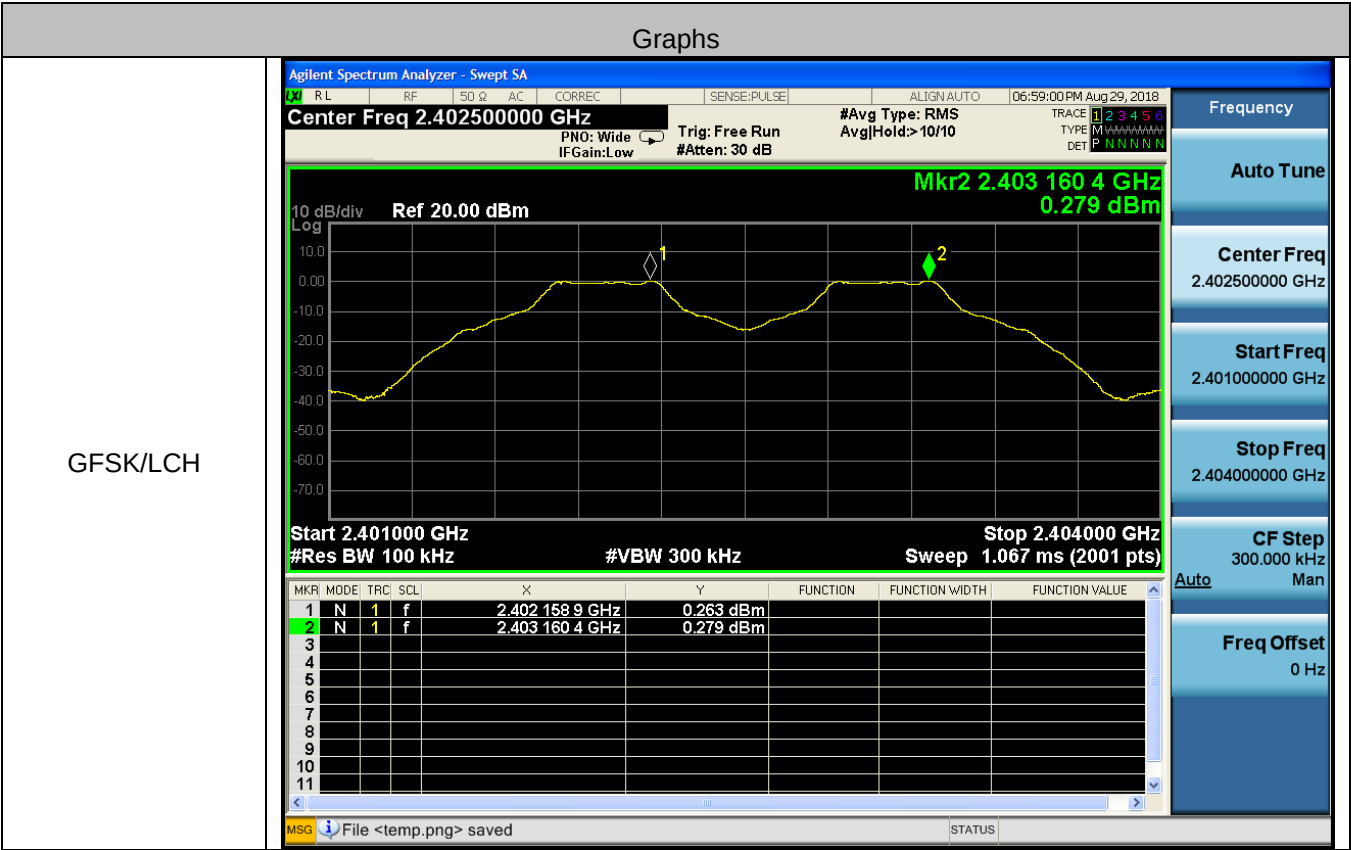


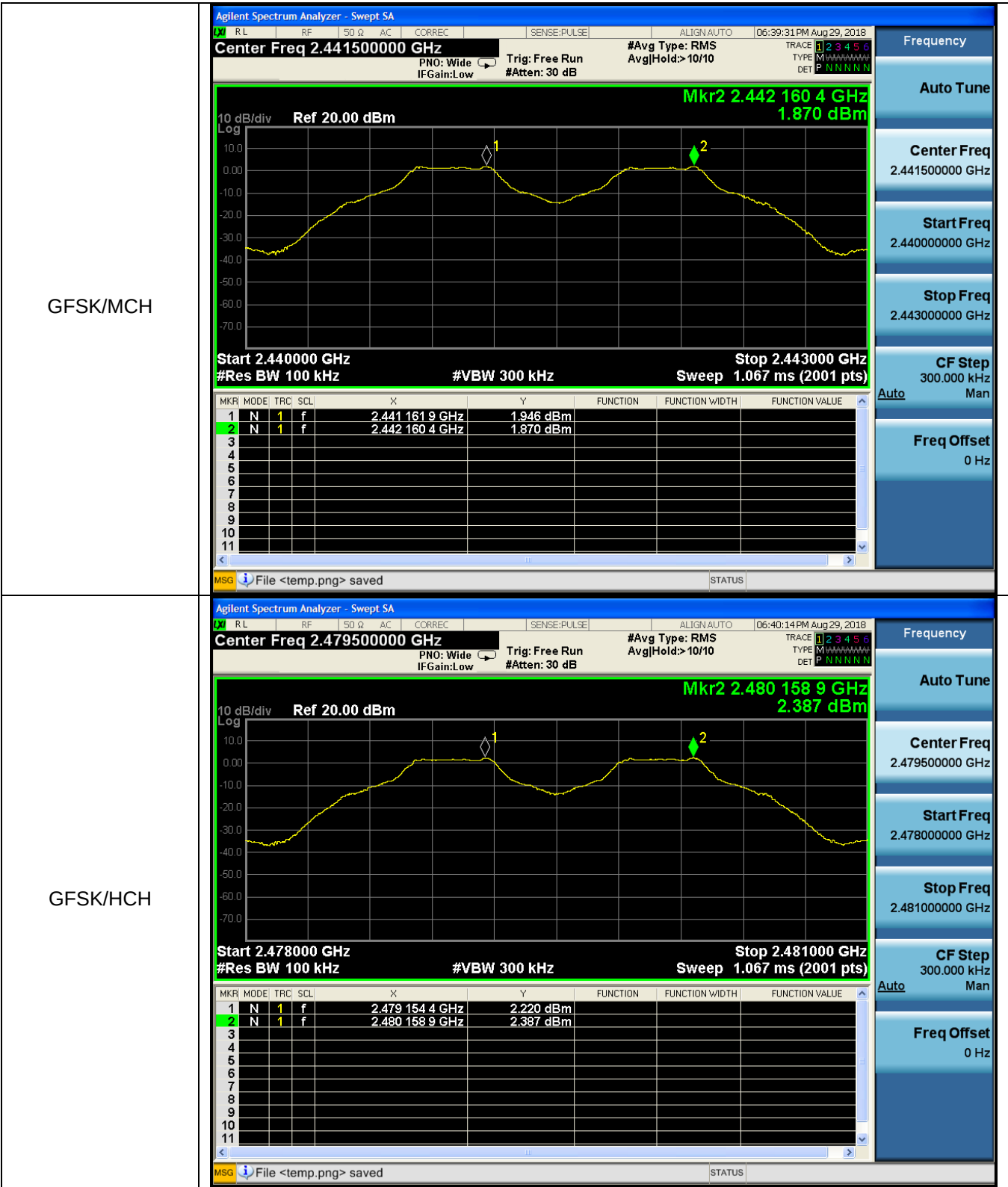


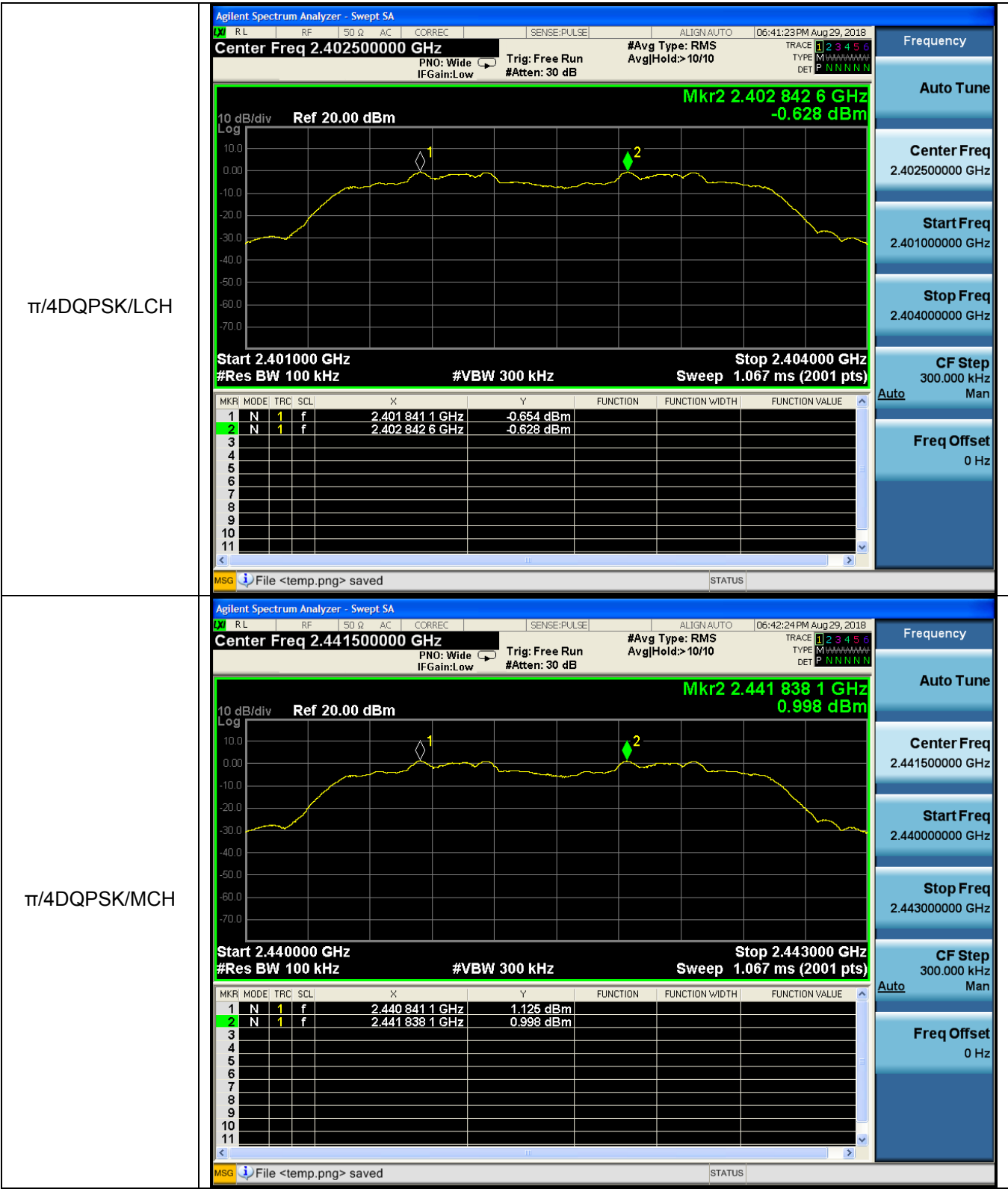
A.3 Carrier Frequency Separation

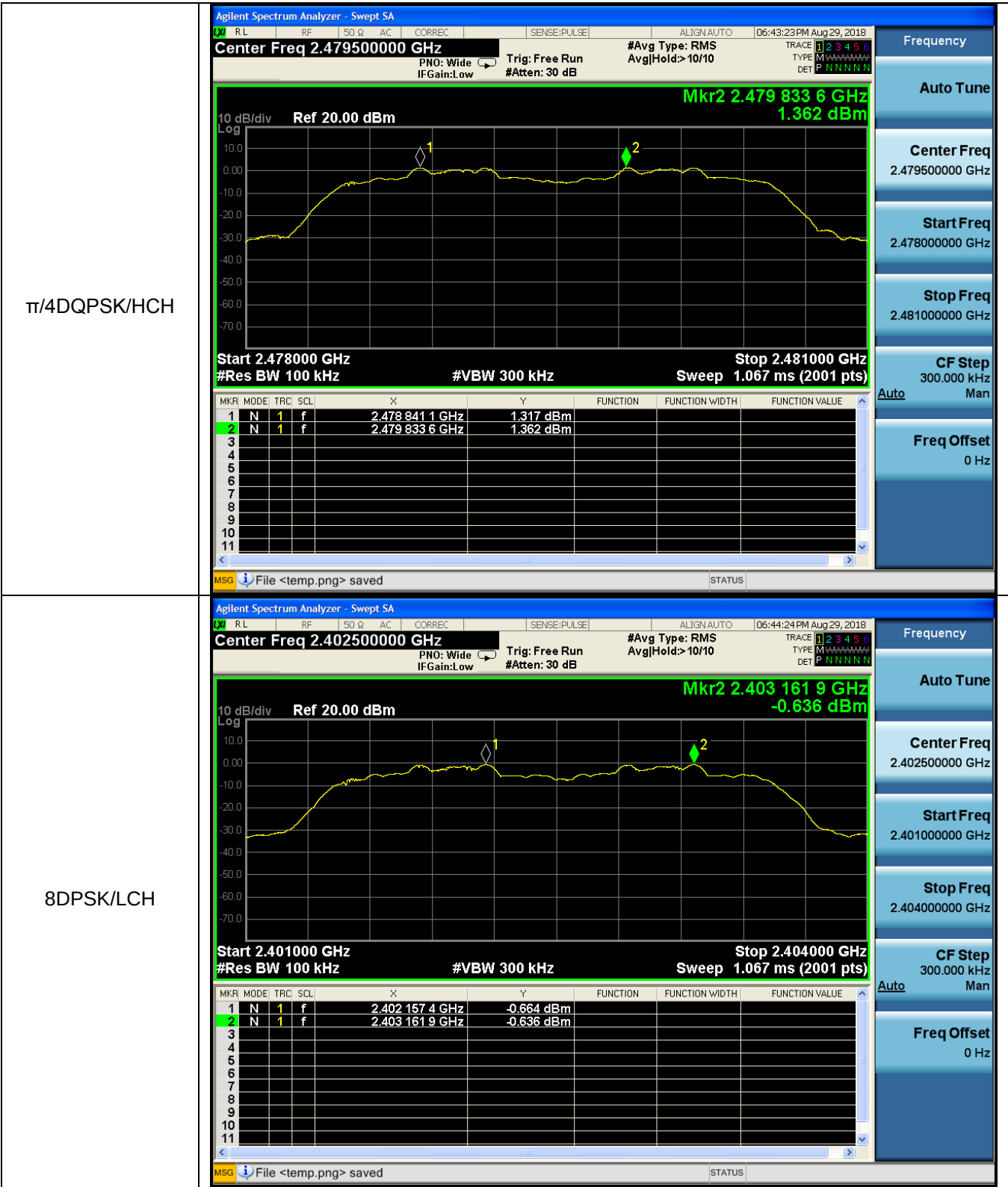
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.010	0.622	PASS
GFSK	MCH	0.999	0.623	PASS
GFSK	HCH	1.004	0.641	PASS
$\pi/4$ DQPSK	LCH	1.001	0.902	PASS
$\pi/4$ DQPSK	MCH	0.997	0.902	PASS
$\pi/4$ DQPSK	HCH	0.993	0.894	PASS
8DPSK	LCH	1.004	0.899	PASS
8DPSK	MCH	0.999	0.902	PASS
8DPSK	HCH	1.000	0.897	PASS

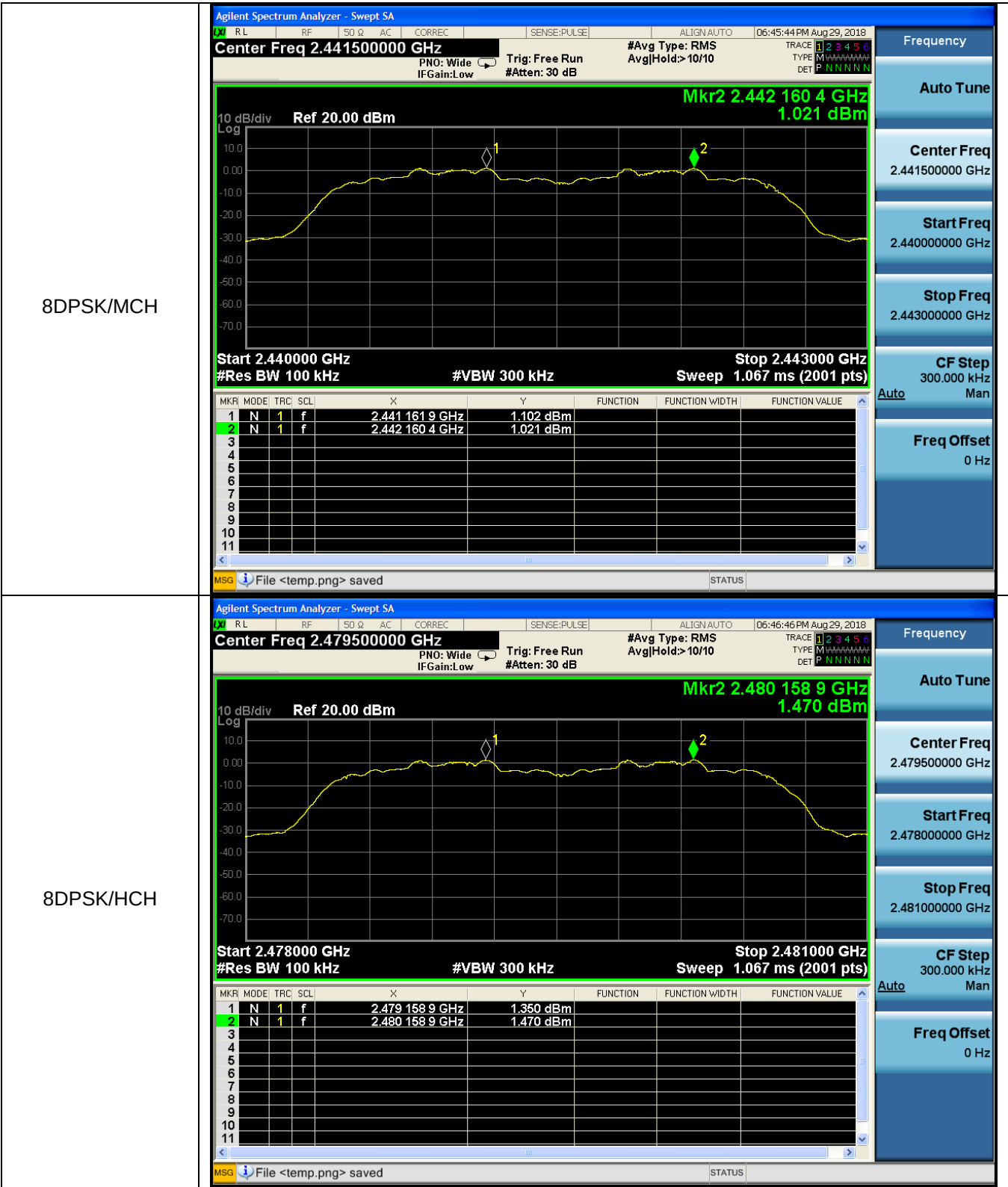
Test Graph







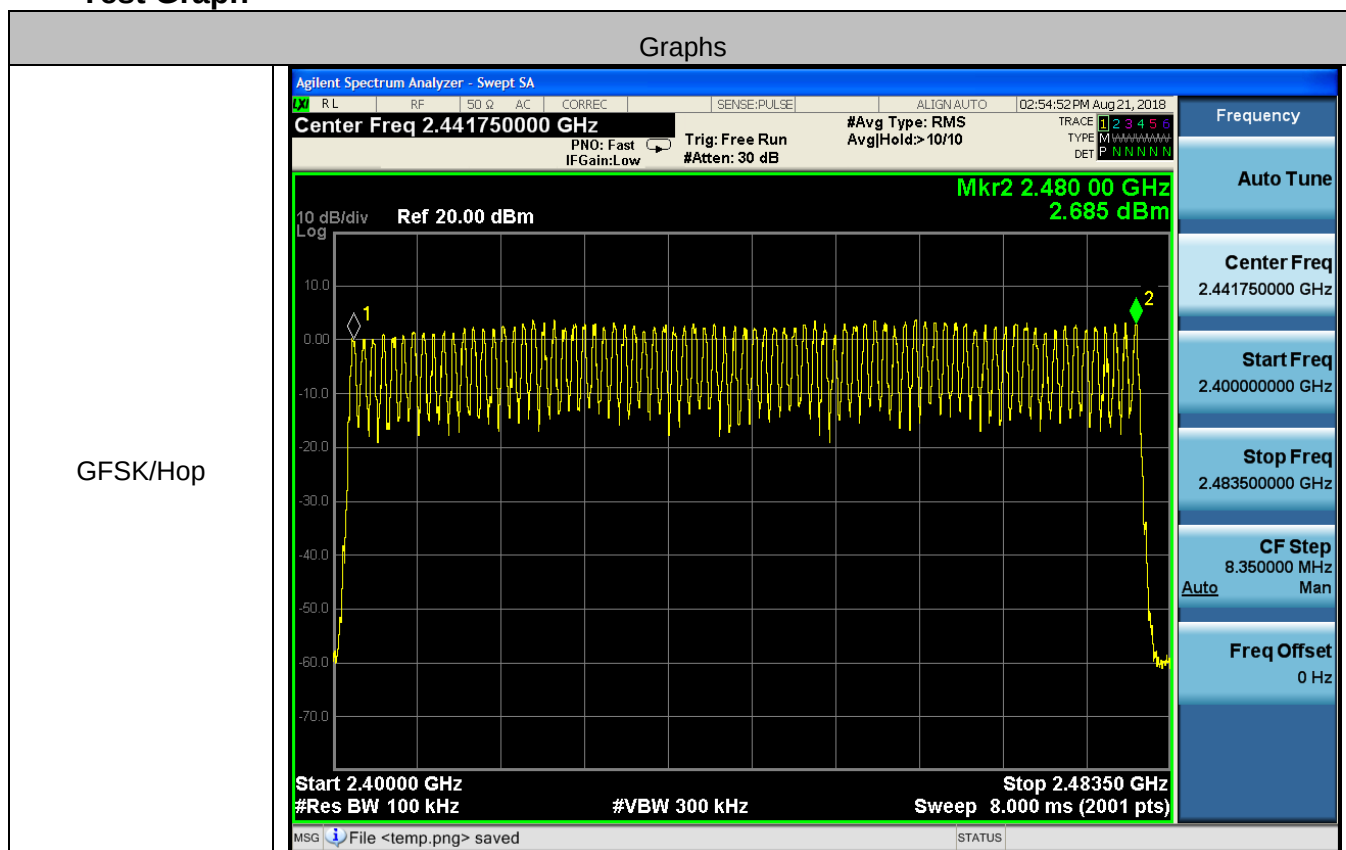


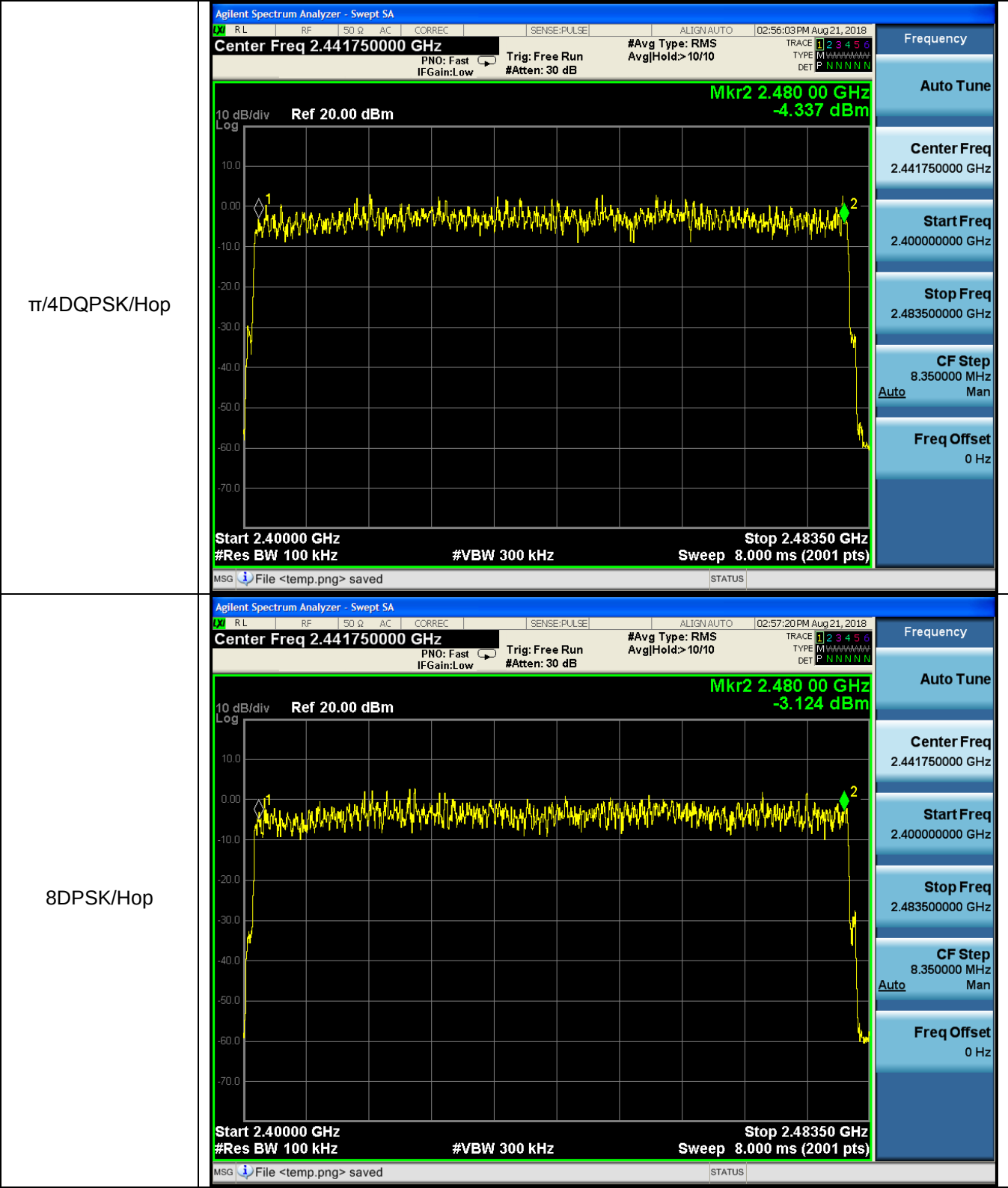


A.4 Hopping Channel Number

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 Graph

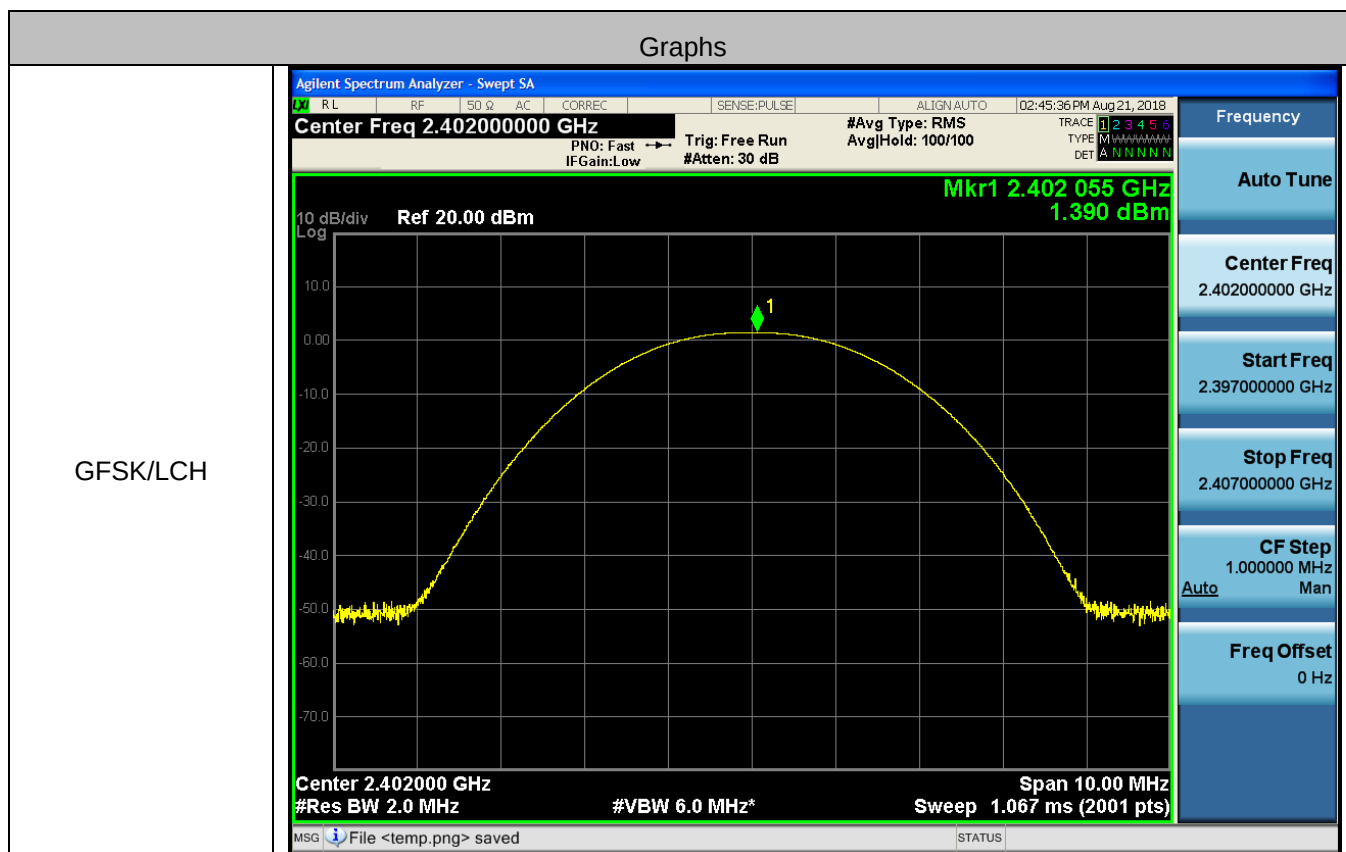


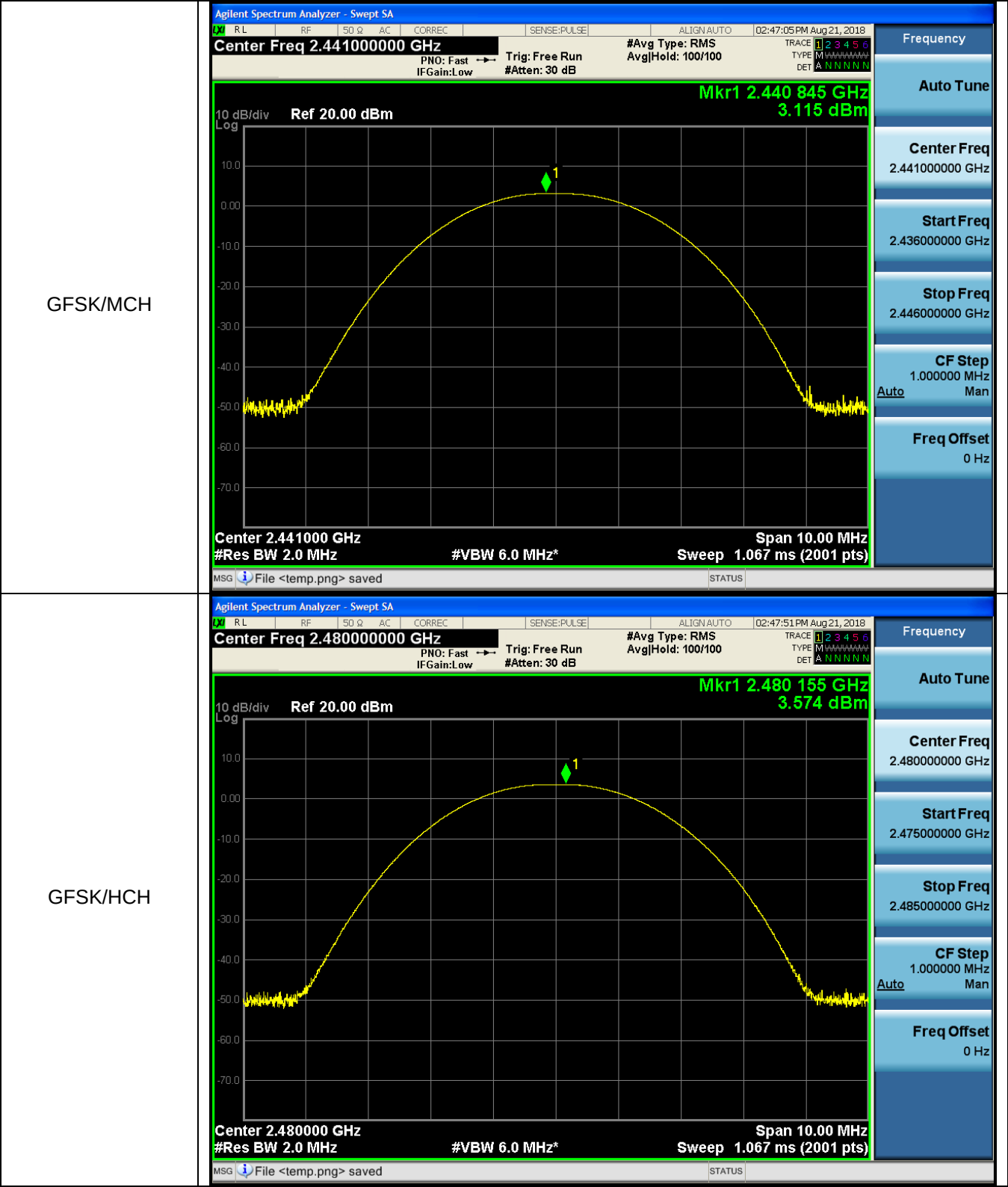


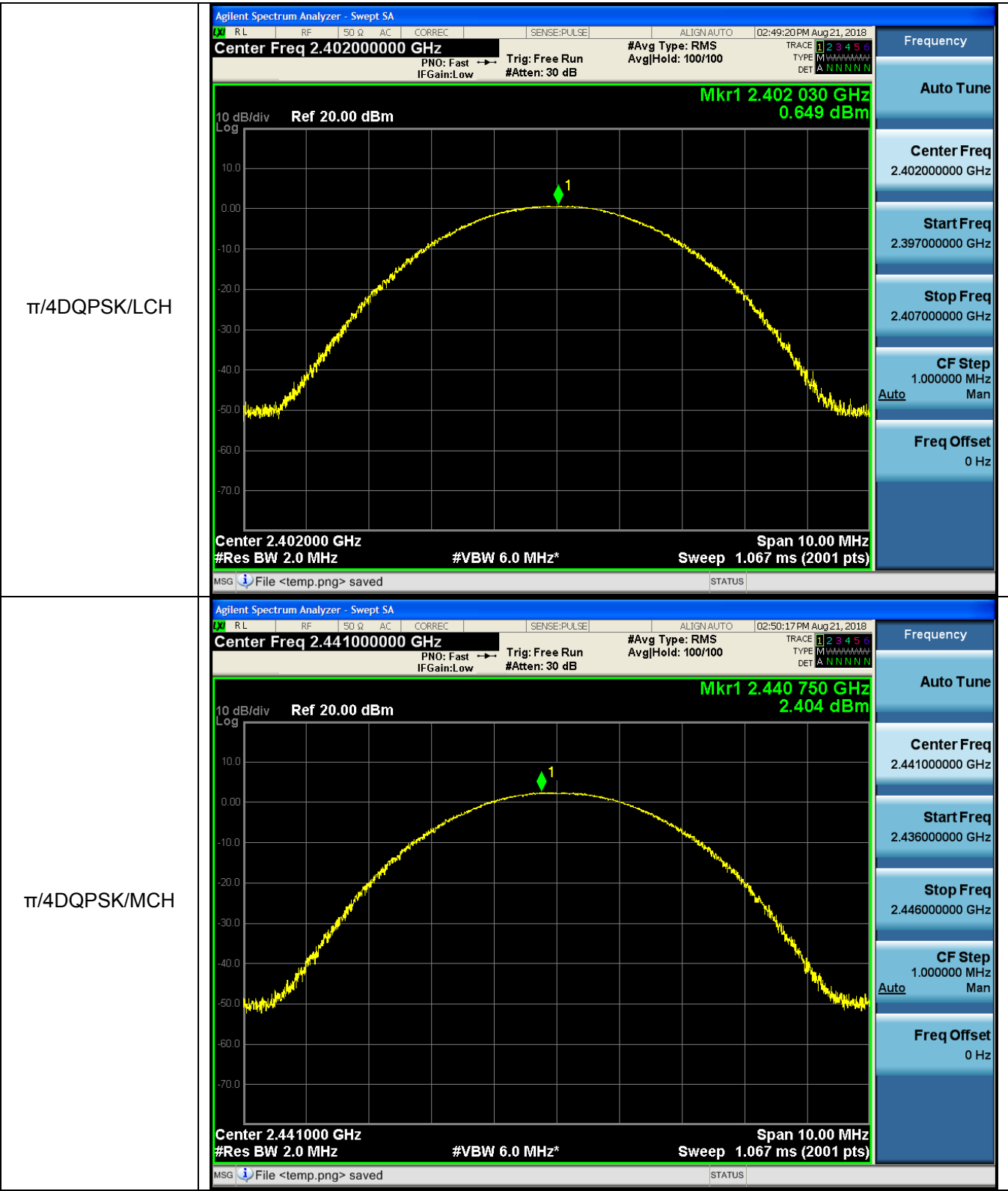
A.5 Conducted Peak Output Power

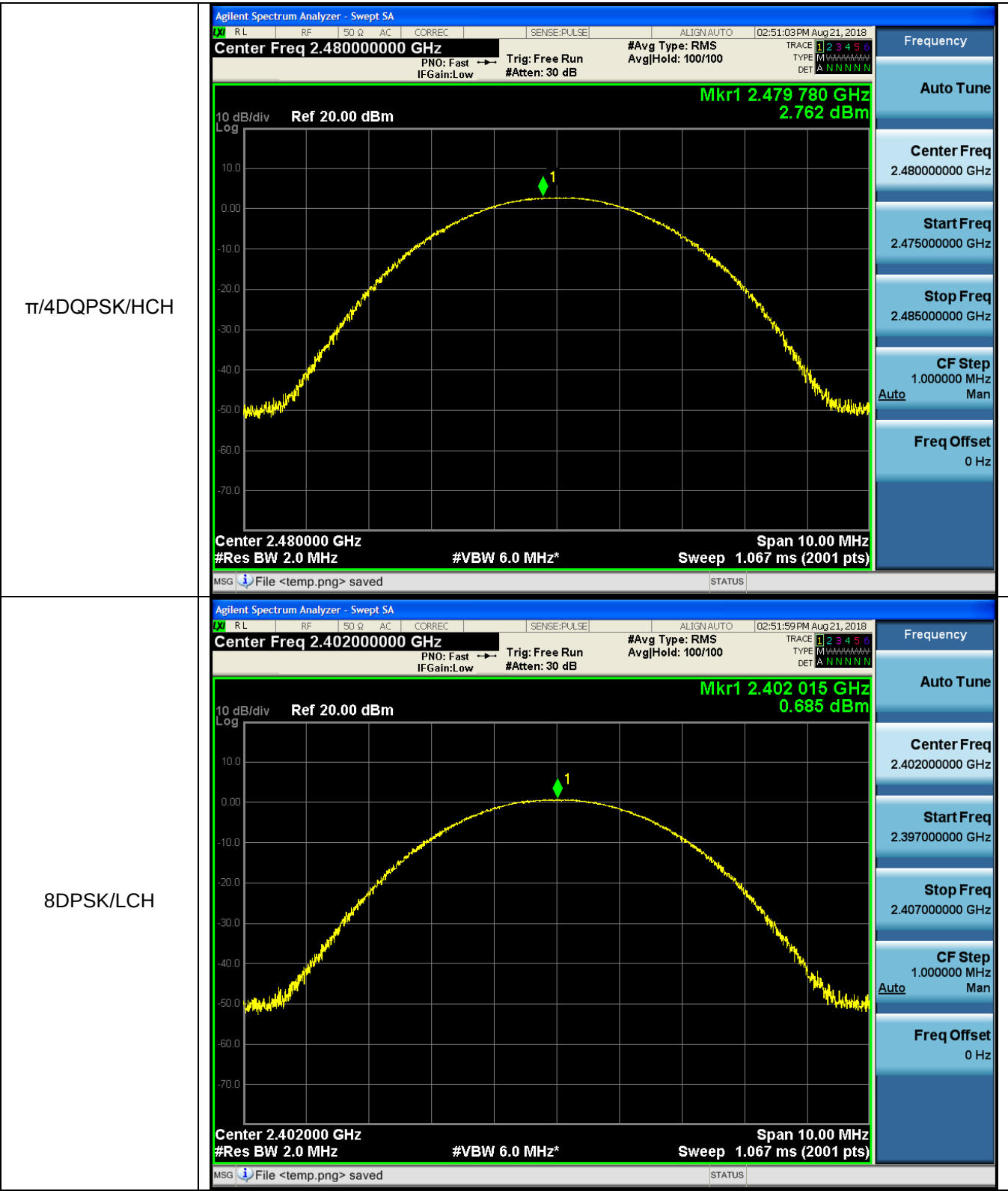
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.39	21	PASS
GFSK	MCH	3.12	21	PASS
GFSK	HCH	3.57	21	PASS
$\pi/4$ DQPSK	LCH	0.65	21	PASS
$\pi/4$ DQPSK	MCH	2.40	21	PASS
$\pi/4$ DQPSK	HCH	2.76	21	PASS
8DPSK	LCH	0.69	21	PASS
8DPSK	MCH	2.46	21	PASS
8DPSK	HCH	2.79	21	PASS

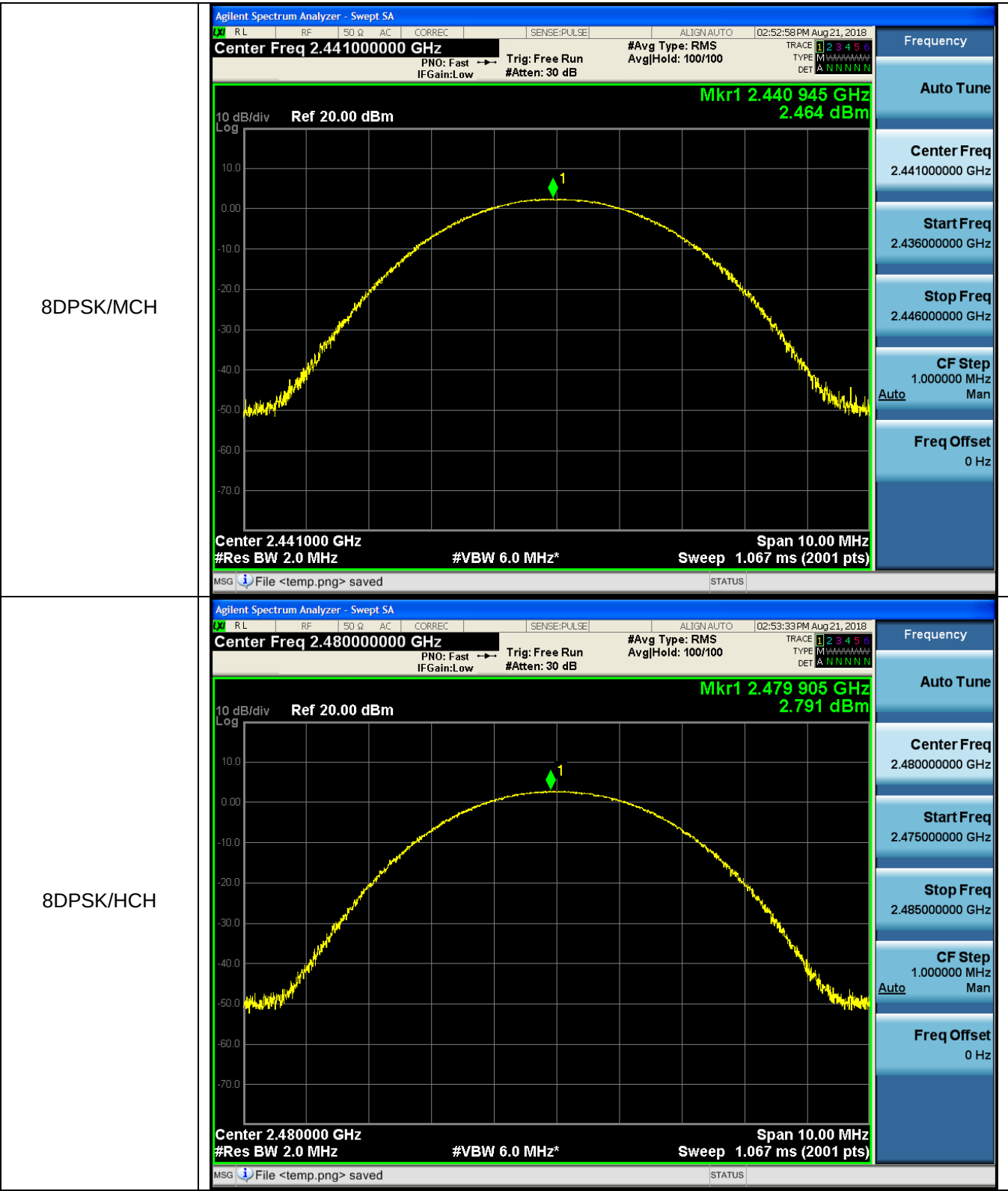
Test Graph







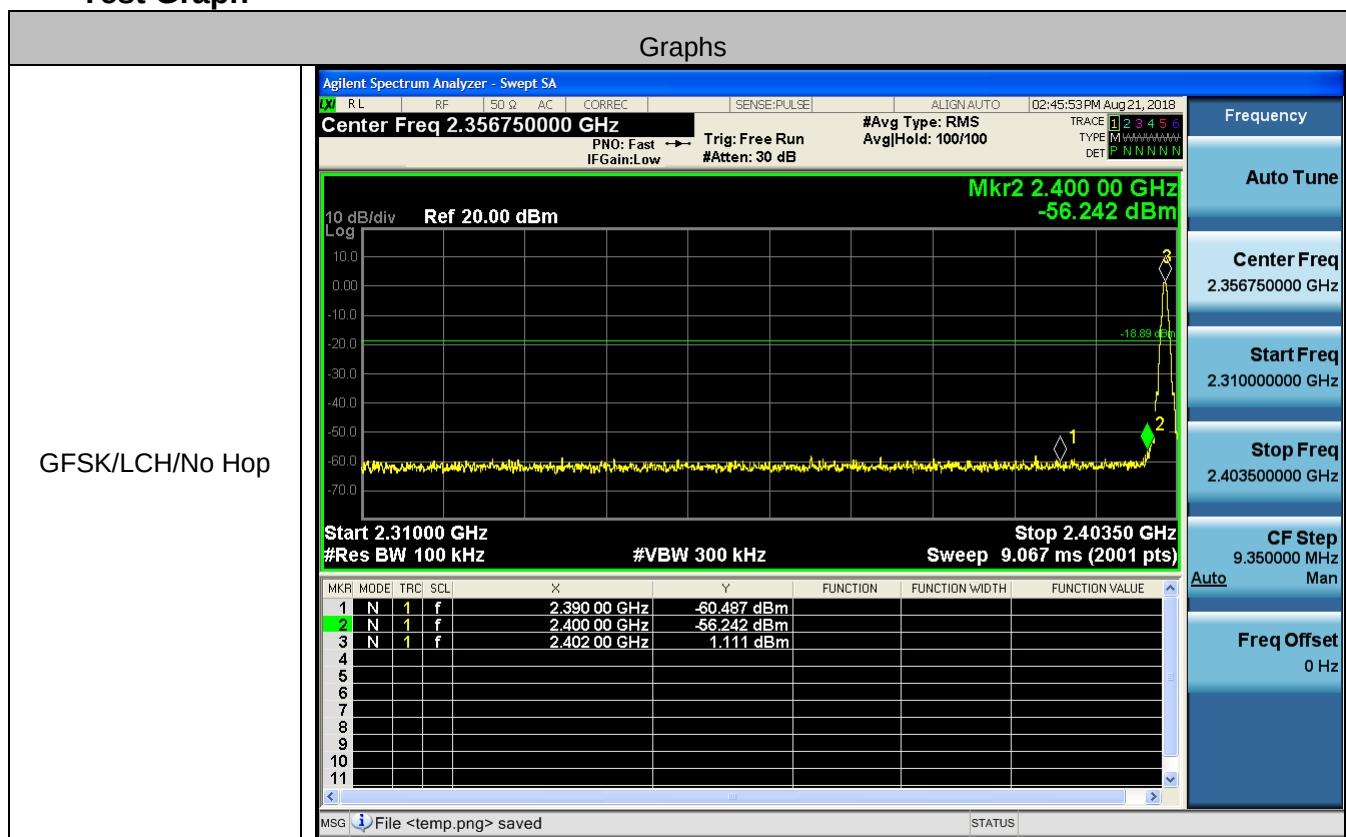


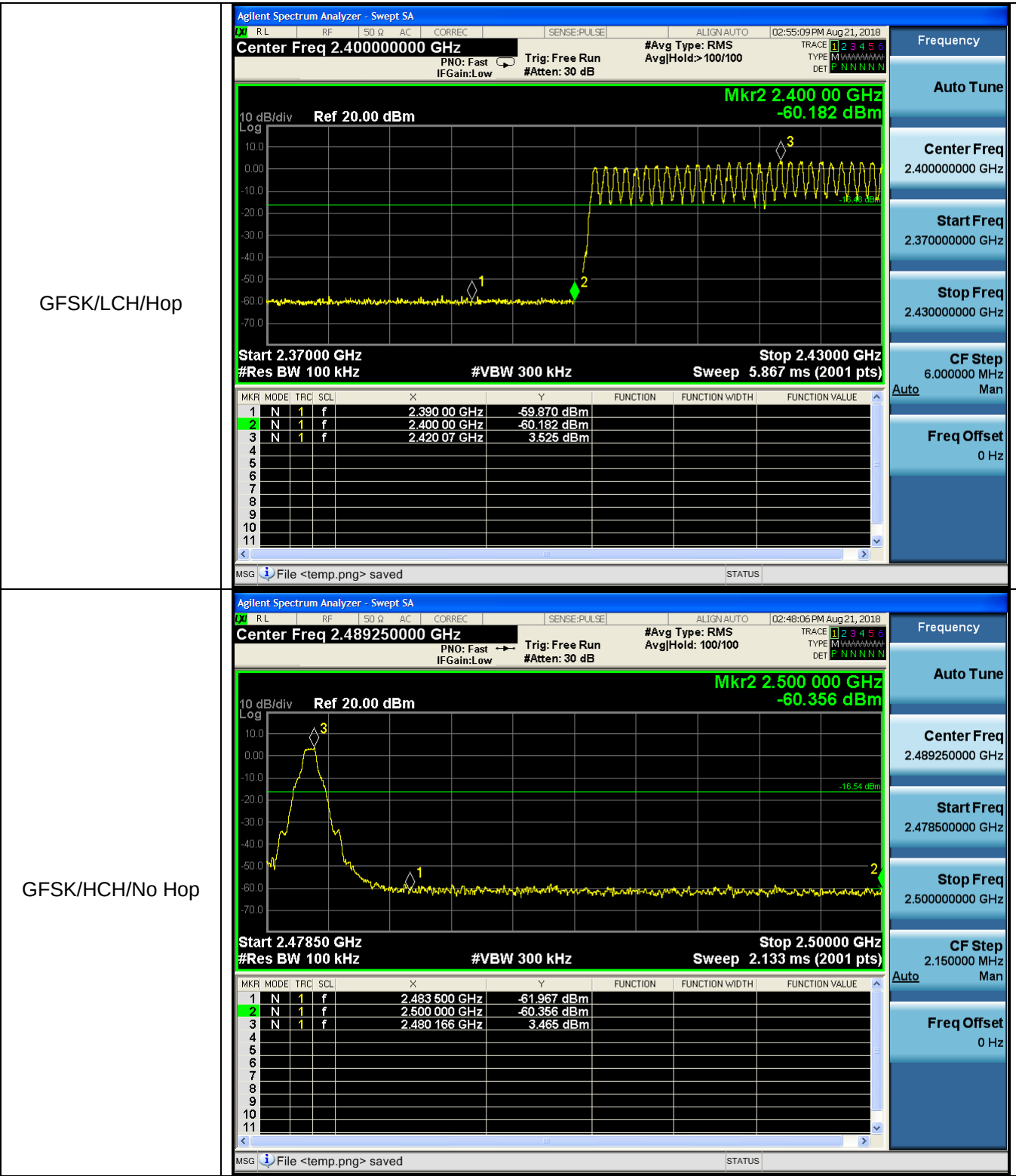


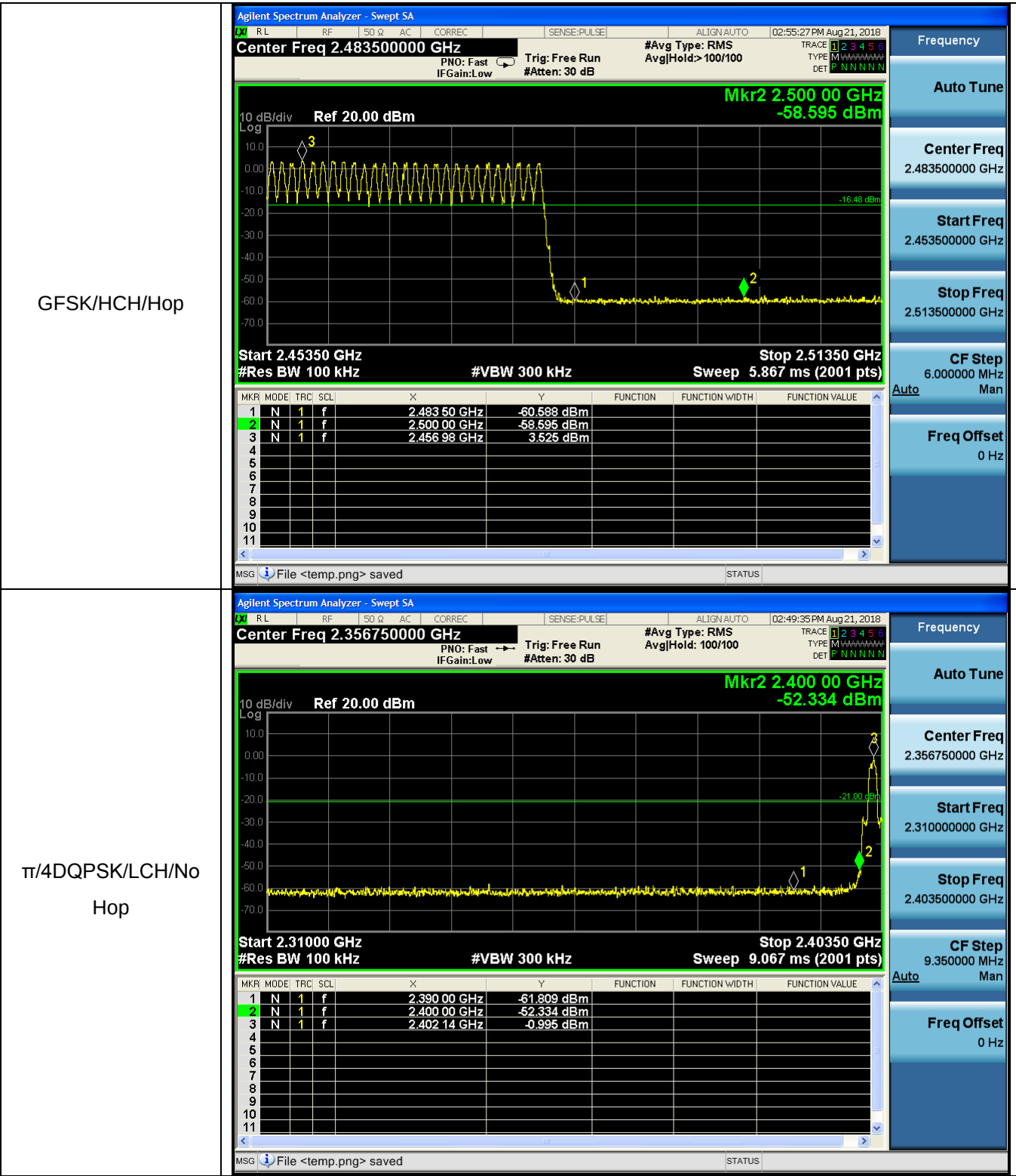
A.6 Band-edge for RF Conducted Emissions

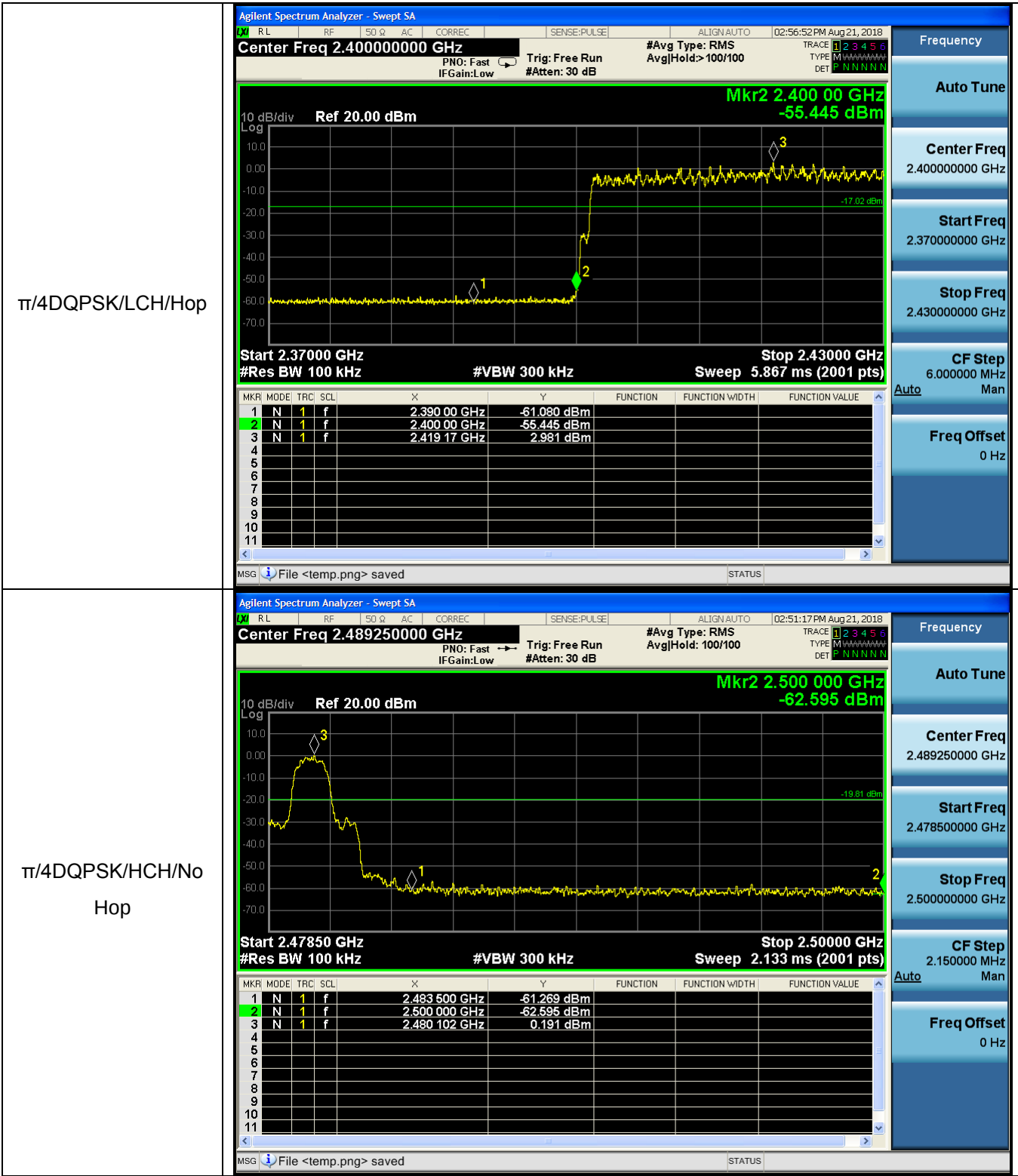
Mode	Channel	Carrier Frequency [MHz]	Frequency Hopping	Carrier Frequency Power [dBm]	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	Off	1.11	-56.24	-18.89	PASS
			On	3.52	-59.87	-16.48	PASS
GFSK	HCH	2480	Off	3.46	-60.36	-16.54	PASS
			On	3.52	-58.60	-16.48	PASS
$\pi/4$ DQPSK	LCH	2402	Off	-1.00	-52.33	-21.00	PASS
			On	2.98	-55.44	-17.02	PASS
$\pi/4$ DQPSK	HCH	2480	Off	2.27	-53.47	-17.73	PASS
			On	0.19	-61.27	-19.81	PASS
8DPSK	LCH	2402	Off	3.06	-59.10	-16.94	PASS
			On	2.55	-53.95	-17.45	PASS
8DPSK	HCH	2480	Off	0.94	-59.24	-19.06	PASS
			On	2.01	-59.21	-17.99	PASS

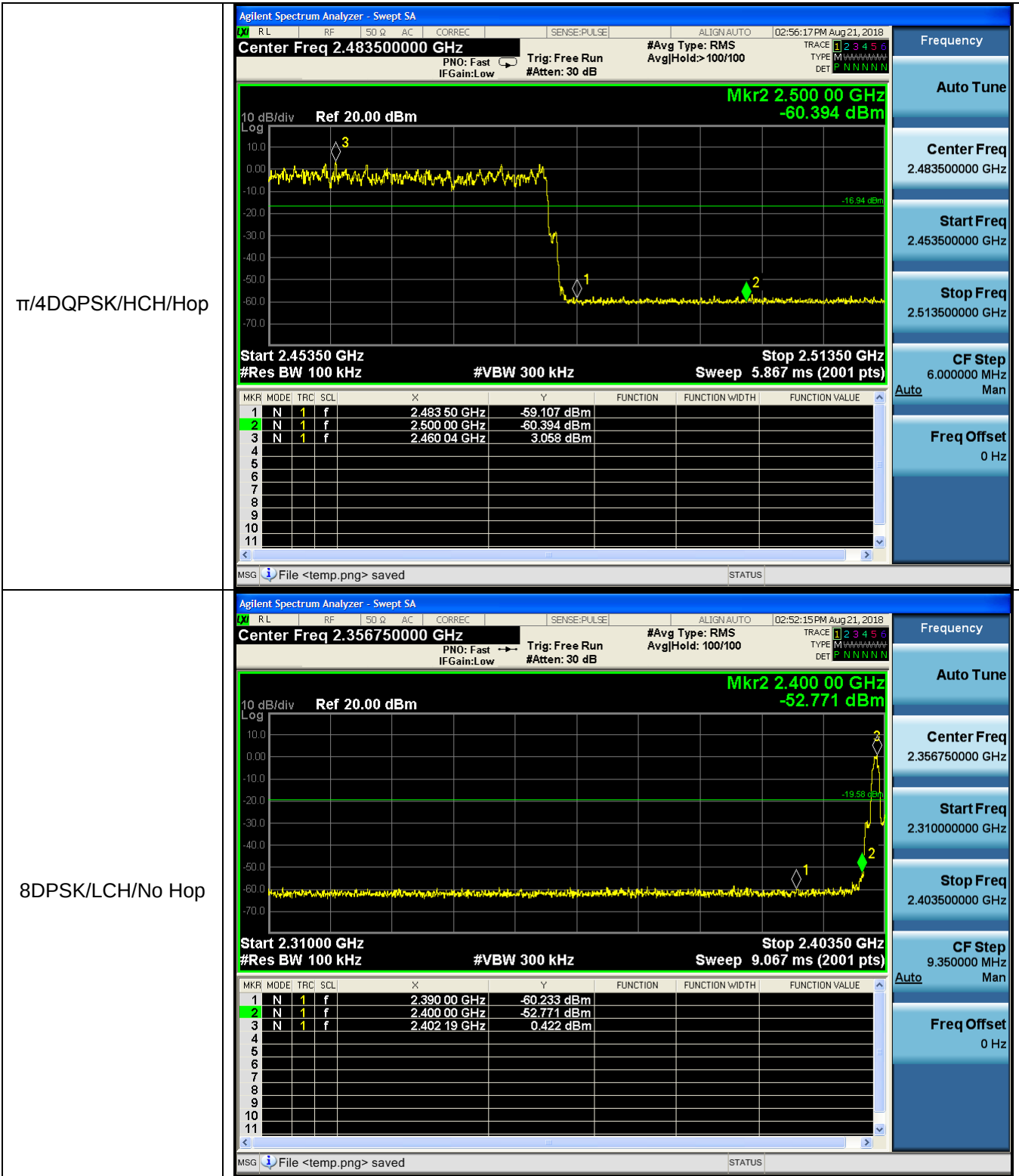
Test Graph

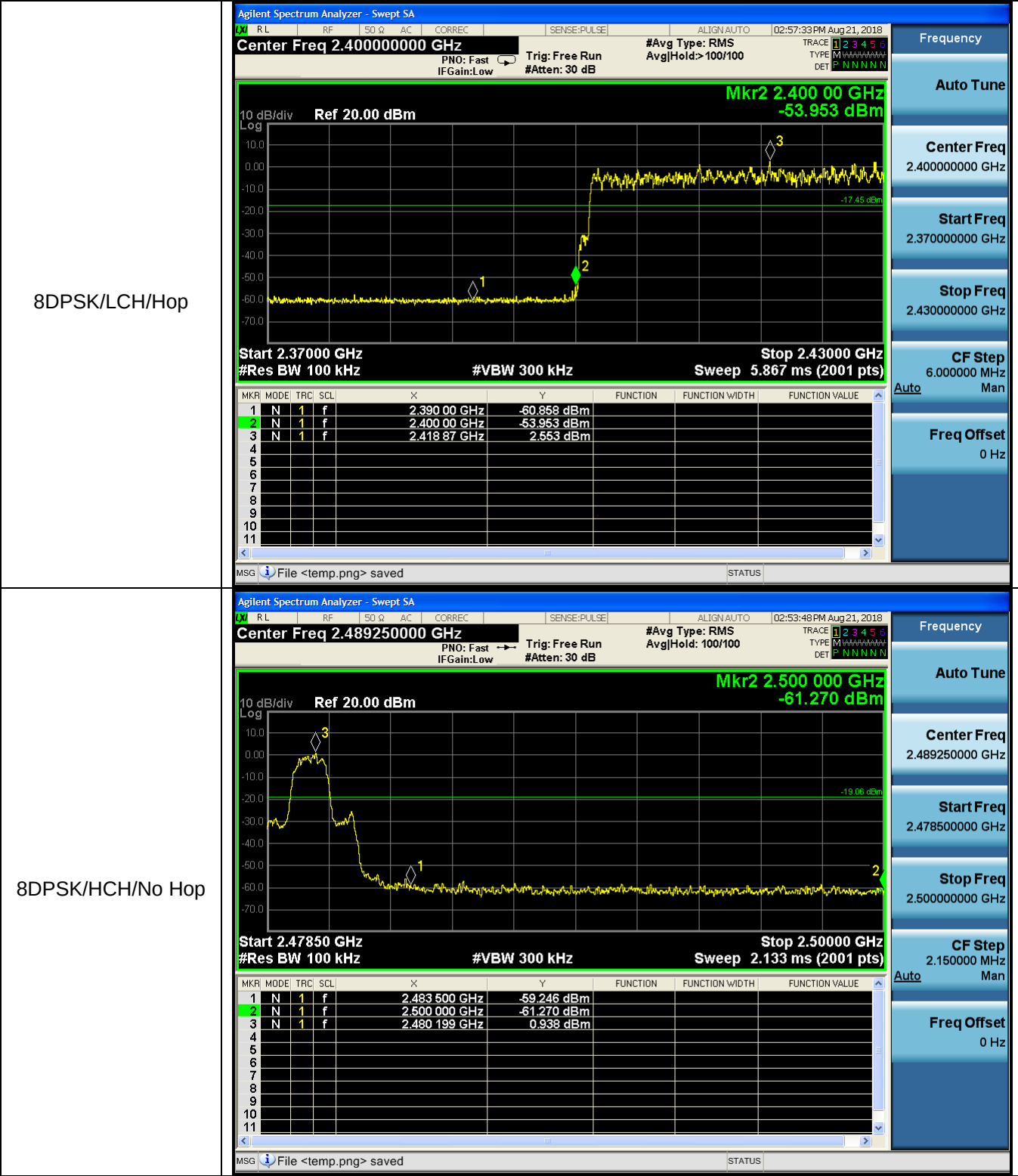


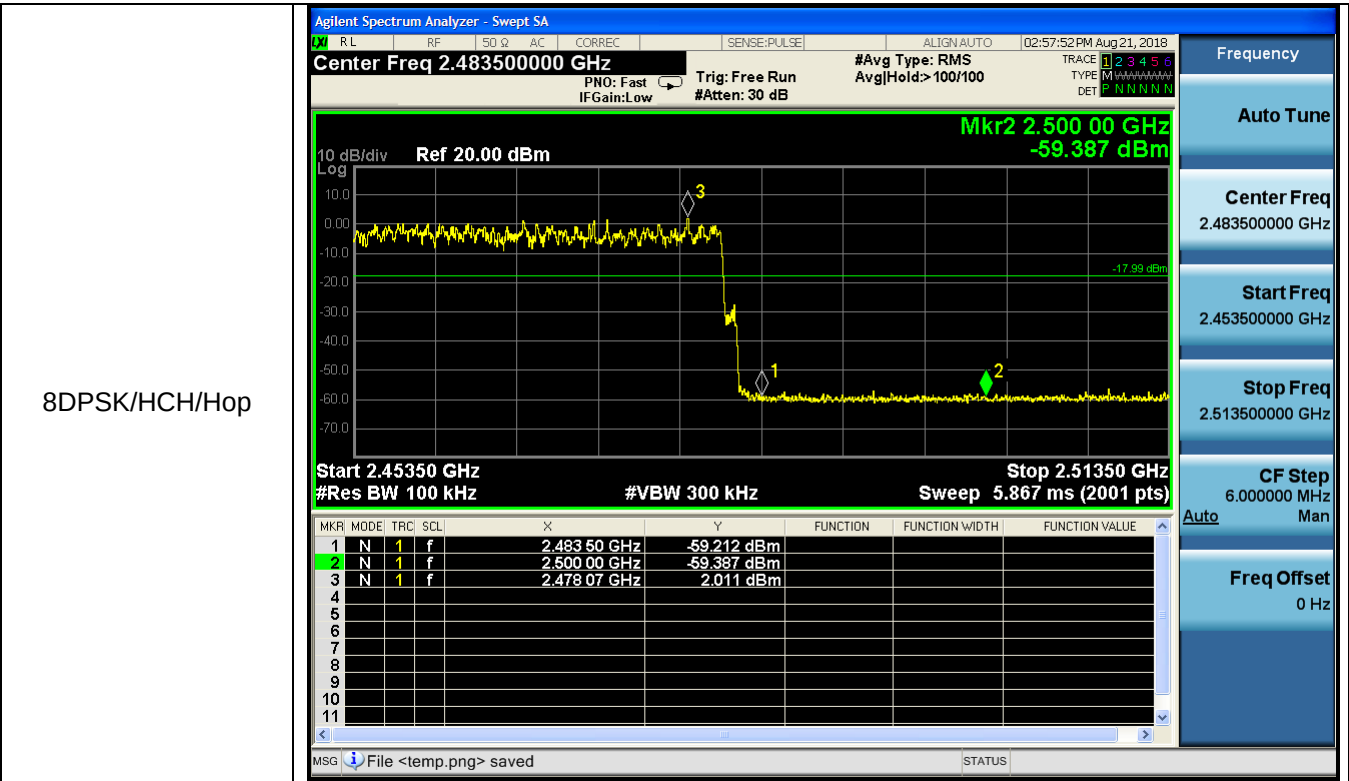




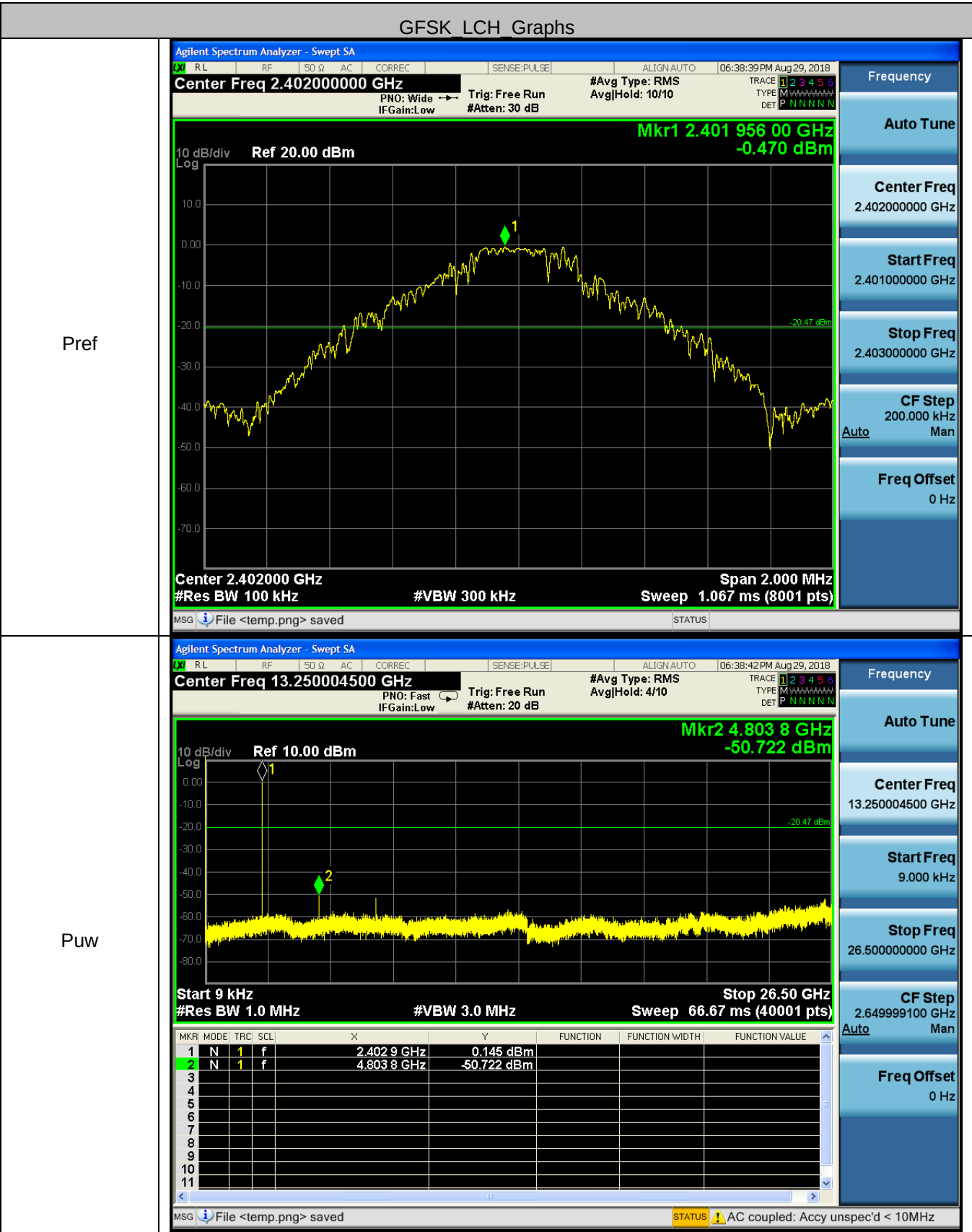








A.7 RF Conducted Spurious Emissions
Test Graph

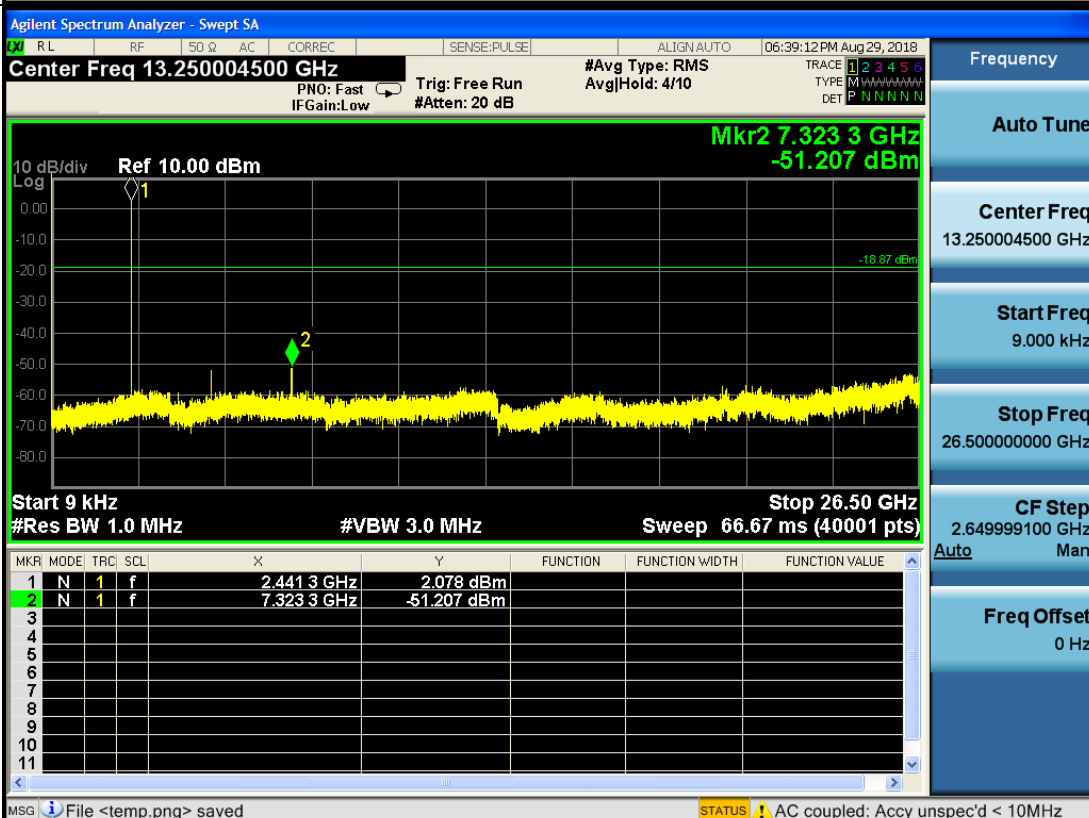


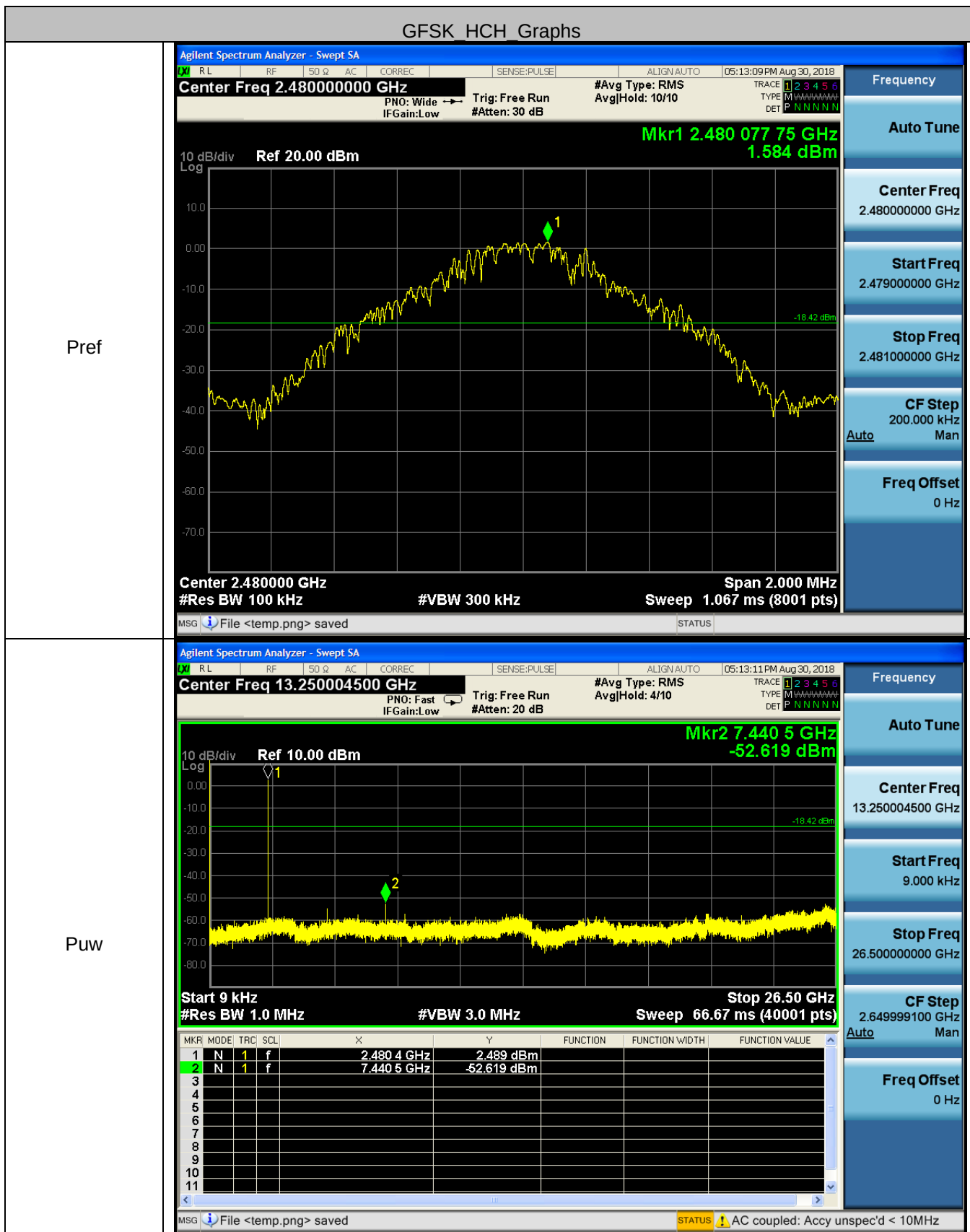
GFSK MCH Graphs

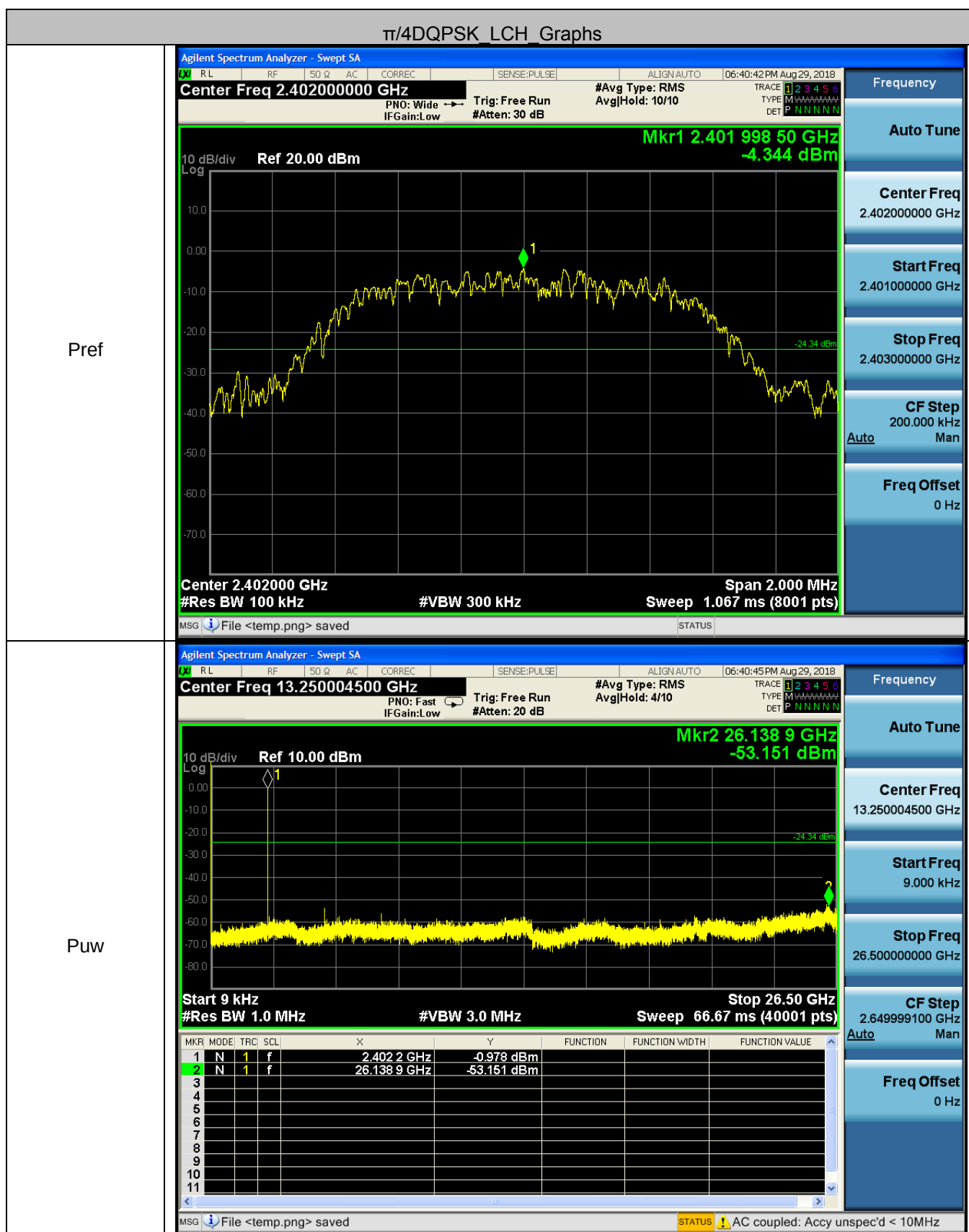
Pref

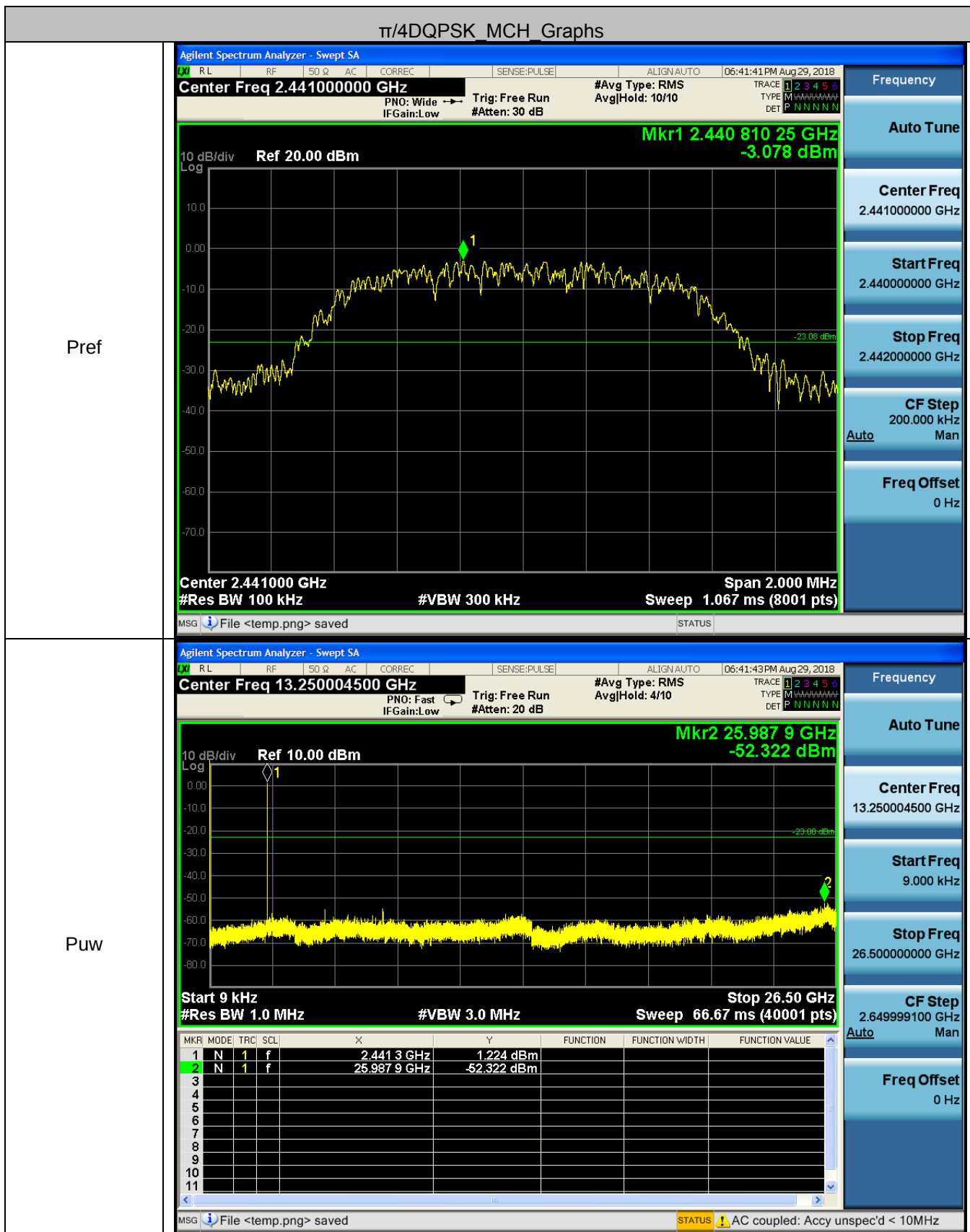


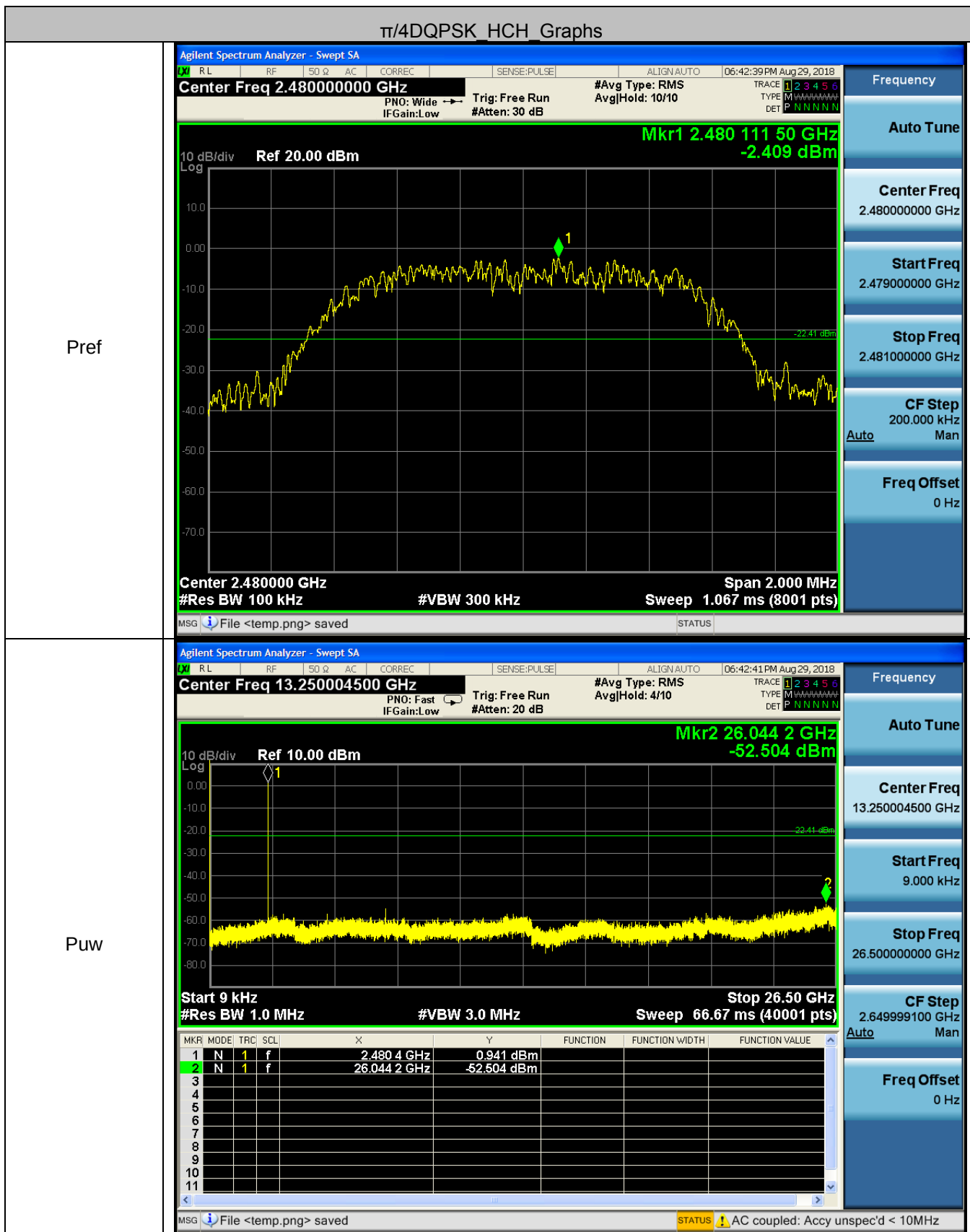
Puw

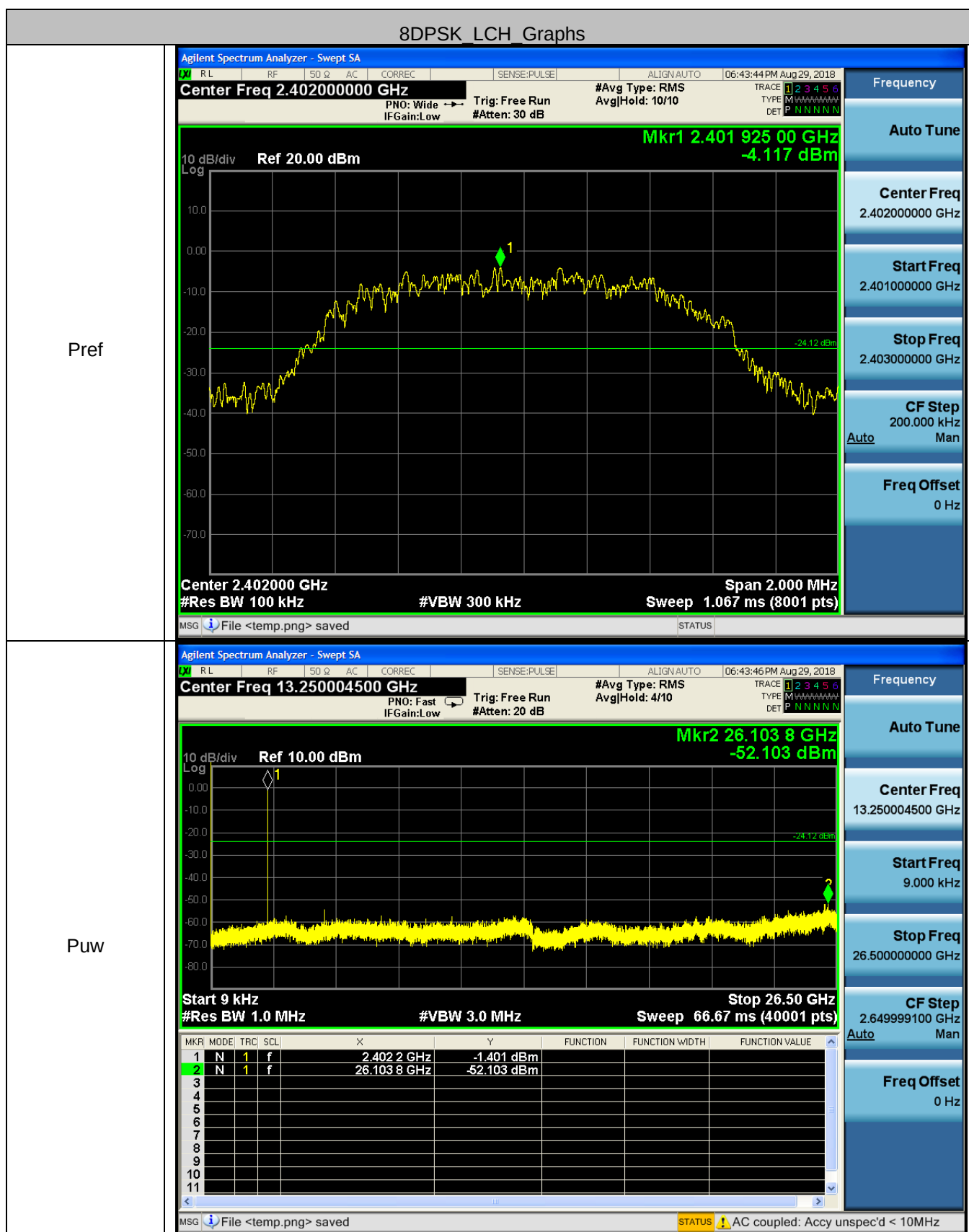


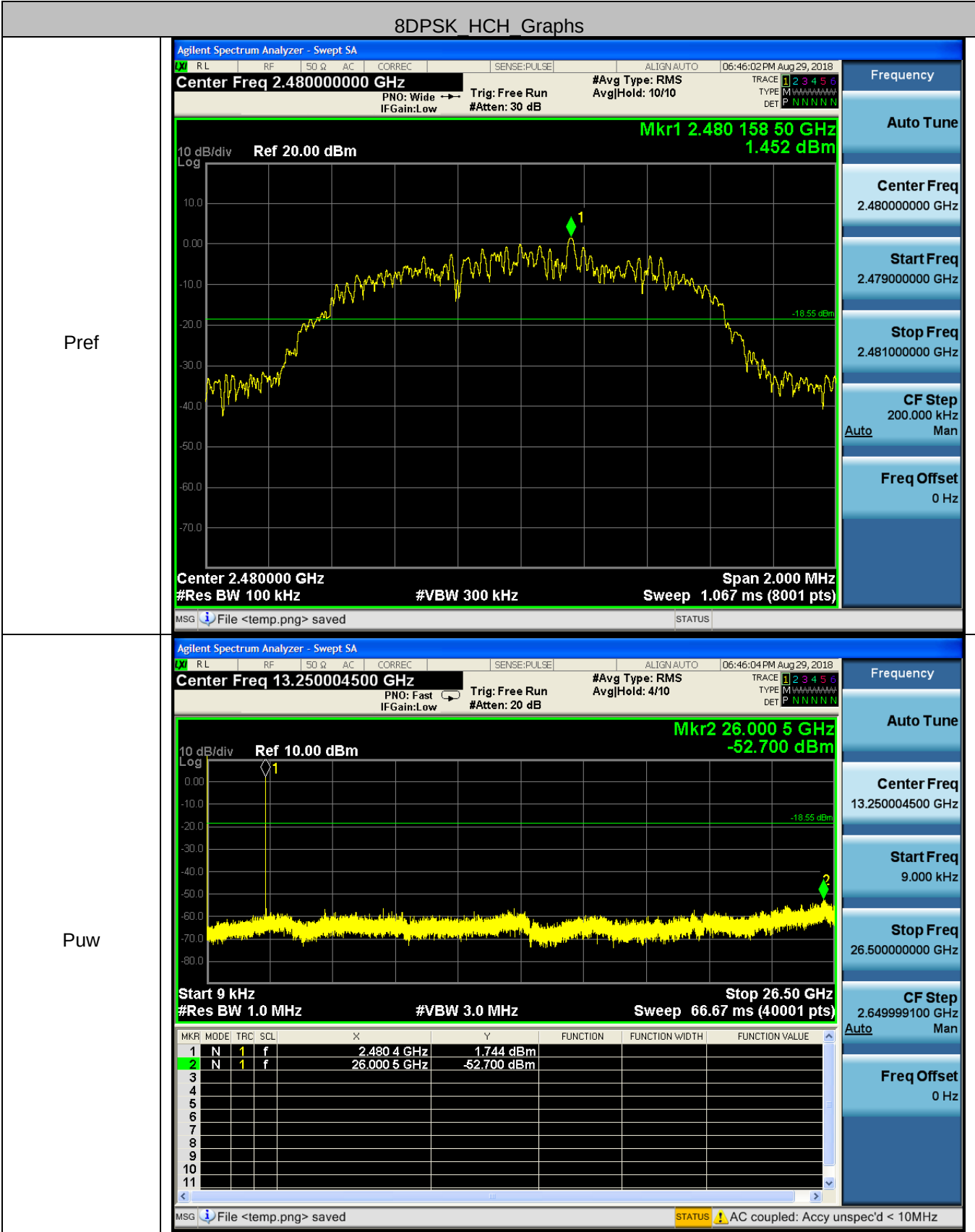








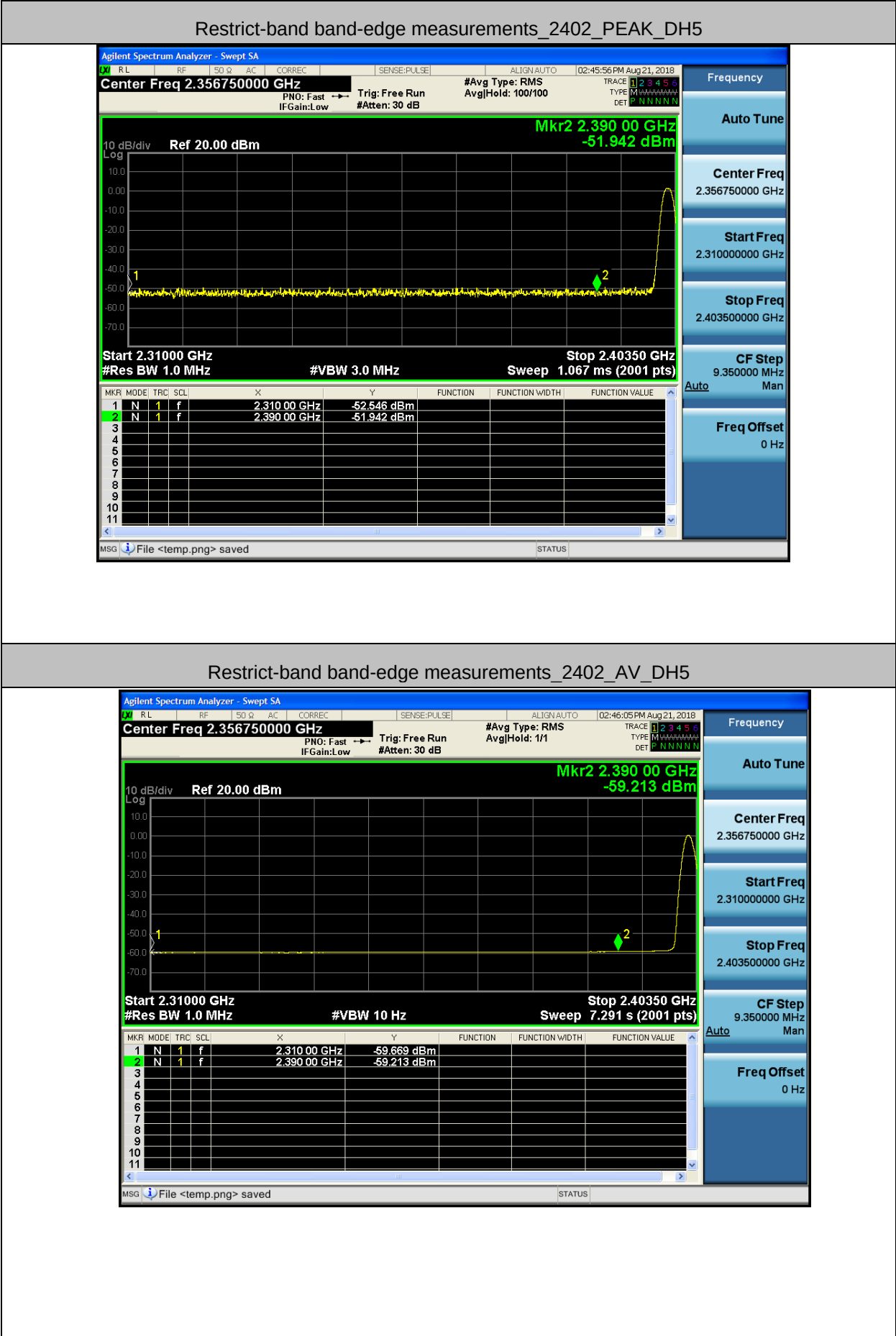




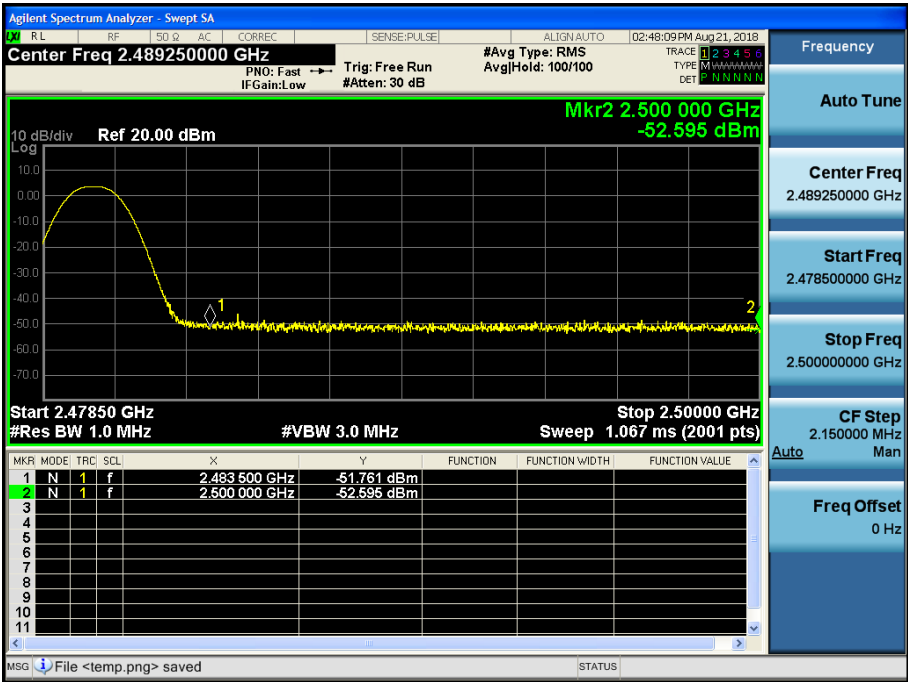
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detect or	Limit [dBuV/m]	Verdi
GFSK	Off	2310.0-2390.0	-51.94	2.00	0	45.26	PEAK	74	PASS
	Off	2310.0-2390.0	-59.21	2.00	0	37.99	AV	54	PASS
	Off	2483.5-2500.0	-51.76	2.00	0	45.44	PEAK	74	PASS
	Off	2483.5-2500.0	-55.34	2.00	0	41.86	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0-2390.0	-51.22	2.00	0	45.98	PEAK	74	PASS
	Off	2310.0-2390.0	-59.16	2.00	0	38.04	AV	54	PASS
	Off	2483.5-2500.0	-49.18	2.00	0	48.02	PEAK	74	PASS
	Off	2483.5-2500.0	-54.4	2.00	0	42.80	AV	54	PASS
8DPSK	Off	2310.0-2390.0	-51.38	2.00	0	45.82	PEAK	74	PASS
	Off	2310.0-2390.0	-59.19	2.00	0	38.01	AV	54	PASS
	Off	2483.5-2500.0	-49.71	2.00	0	47.49	PEAK	74	PASS
	Off	2483.5-2500.0	-54.25	2.00	0	42.95	AV	54	PASS

Test Graph



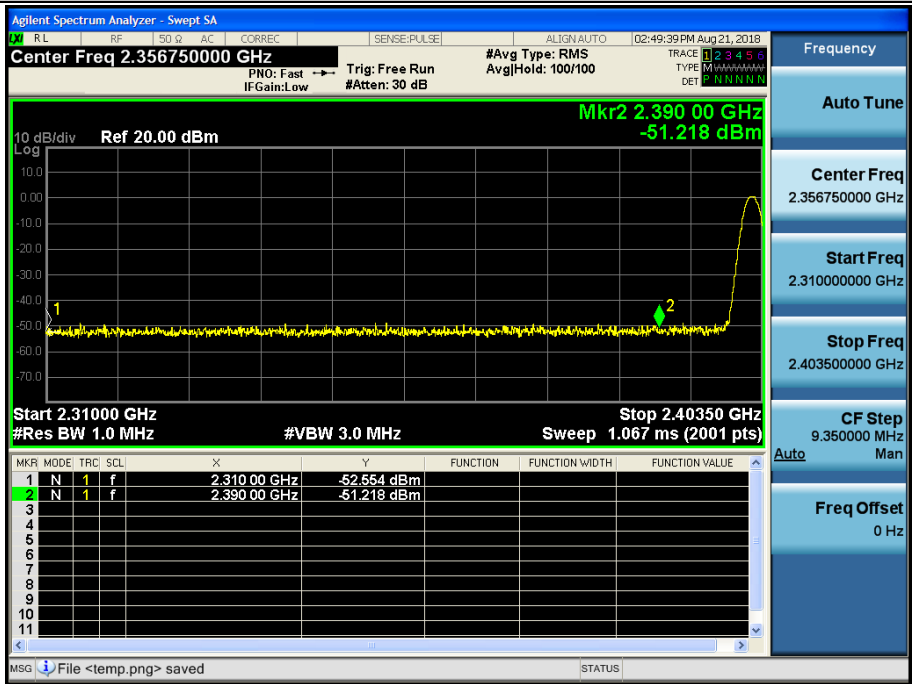
Restrict-band band-edge measurements_2480_PEAK_DH5



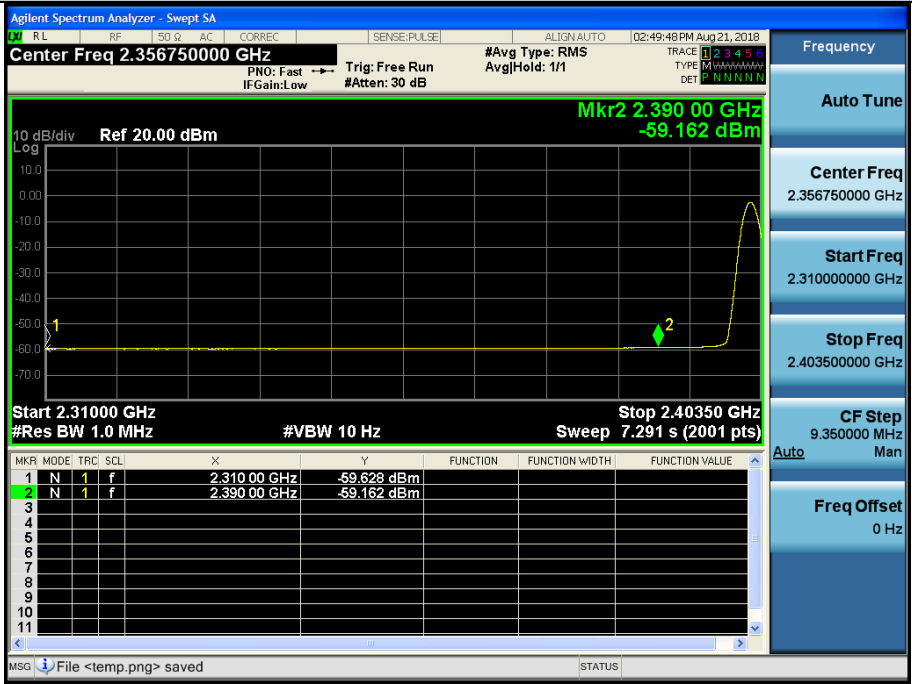
Restrict-band band-edge measurements_2480_AV_DH5



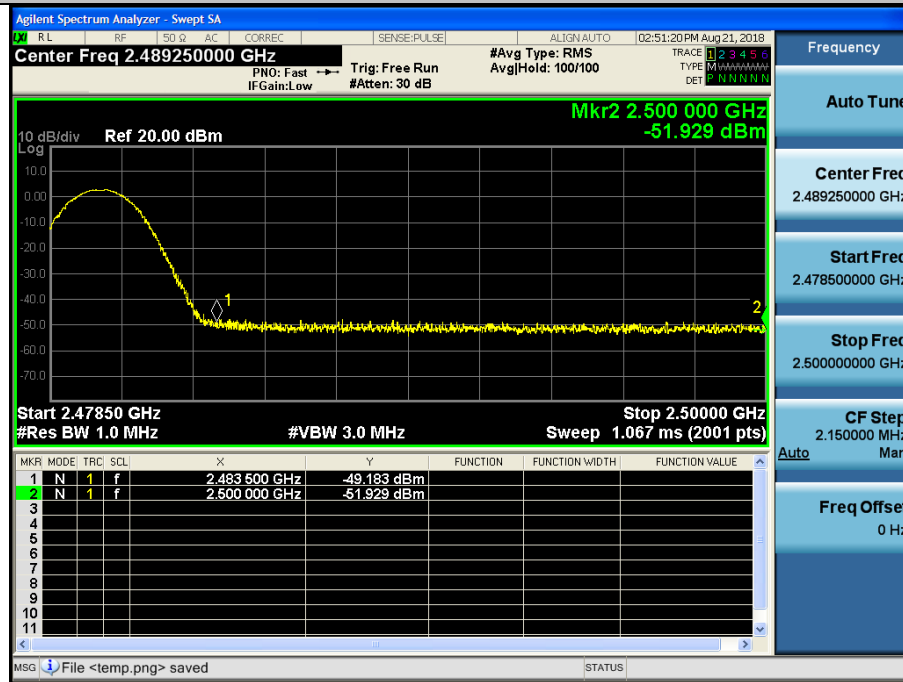
Restrict-band band-edge measurements_2402_PEAK_2DH5



Restrict-band band-edge measurements_2402_AV_2DH5



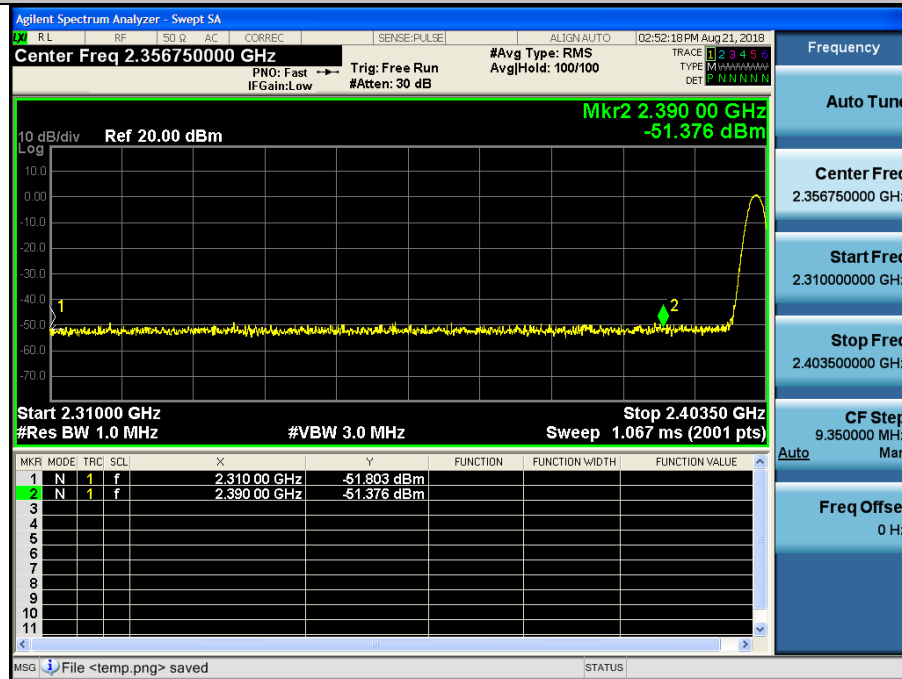
Restrict-band band-edge measurements_2480_PEAK_2DH5



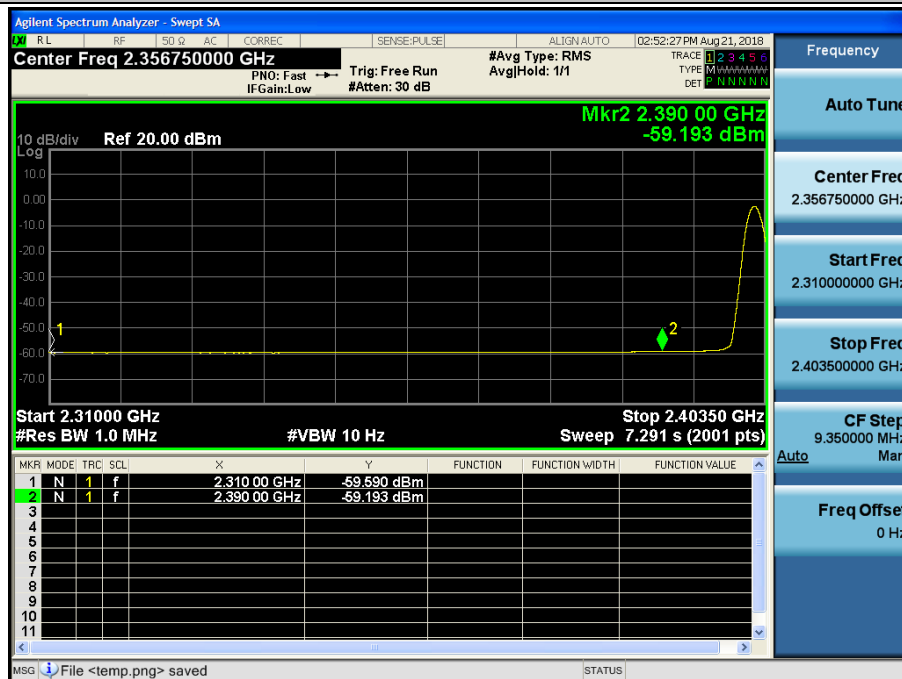
Restrict-band band-edge measurements_2480_AV_2DH5



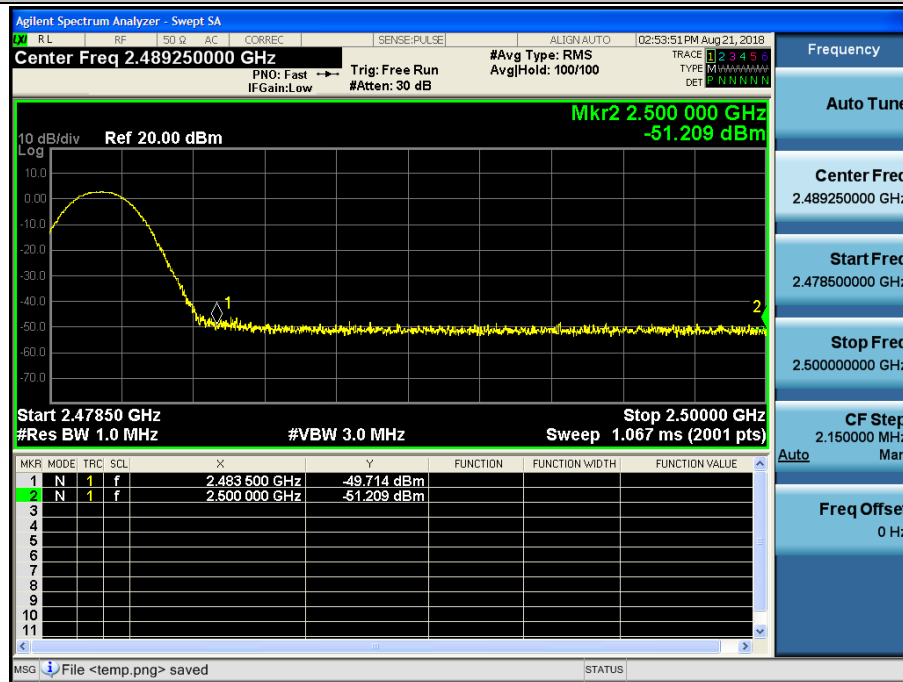
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5

