

Appendix A RF Test Data for BT(BLE) (Conducted Measurement)

Product Name: Shenzhen SEI Robotics Co., Ltd.

Trade Mark: eSTREAM4K

Test Model: SN8BABB

FCC ID: 2AOVU-SN8BAXX

Environmental Conditions

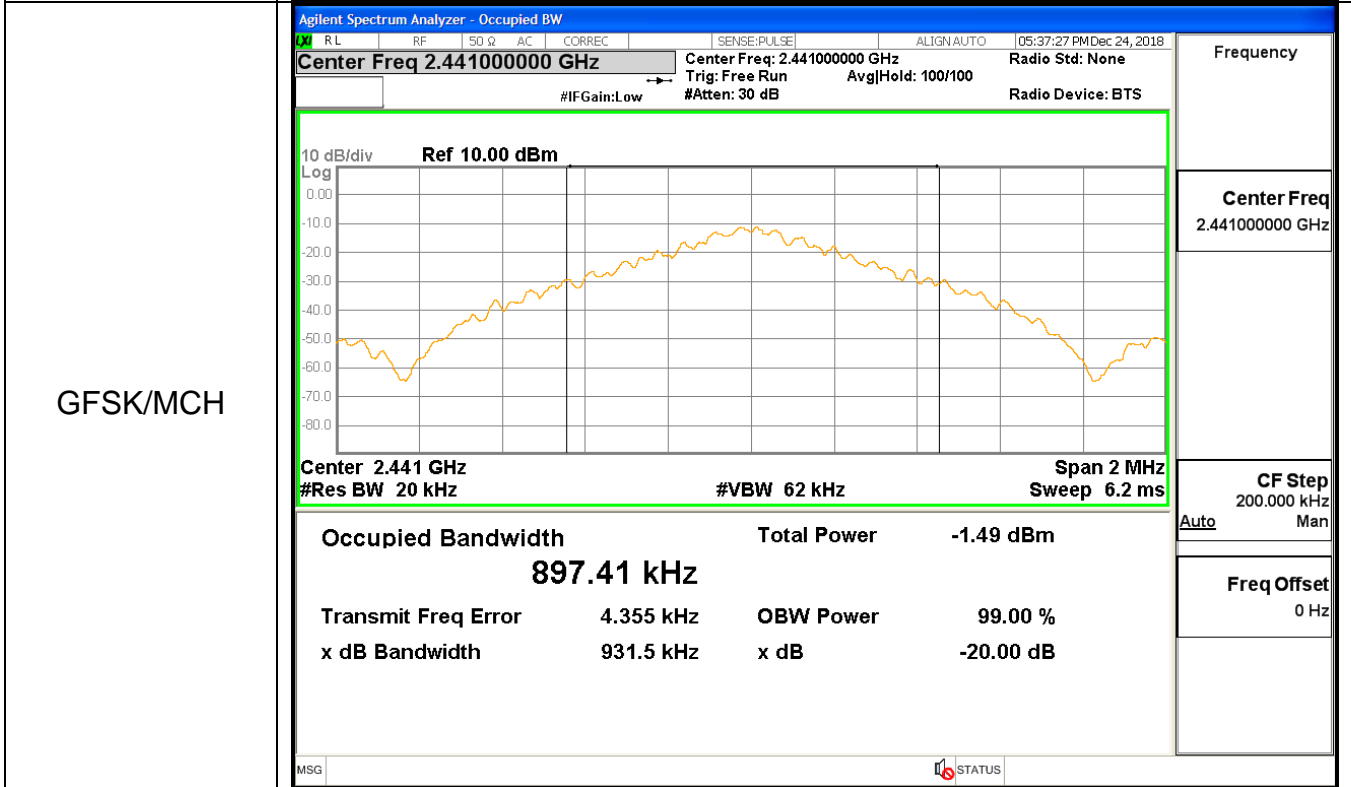
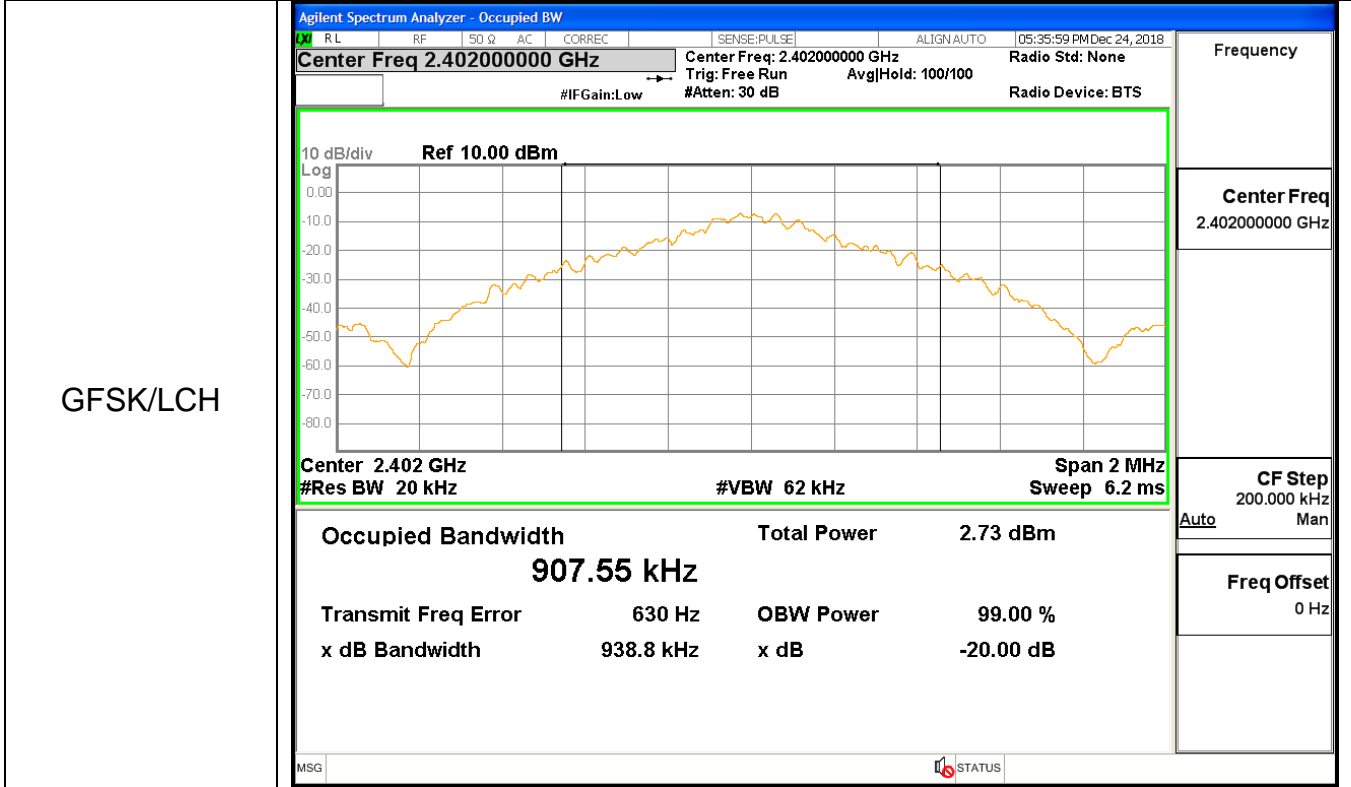
Temperature:	23.7° C
Relative Humidity:	52%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

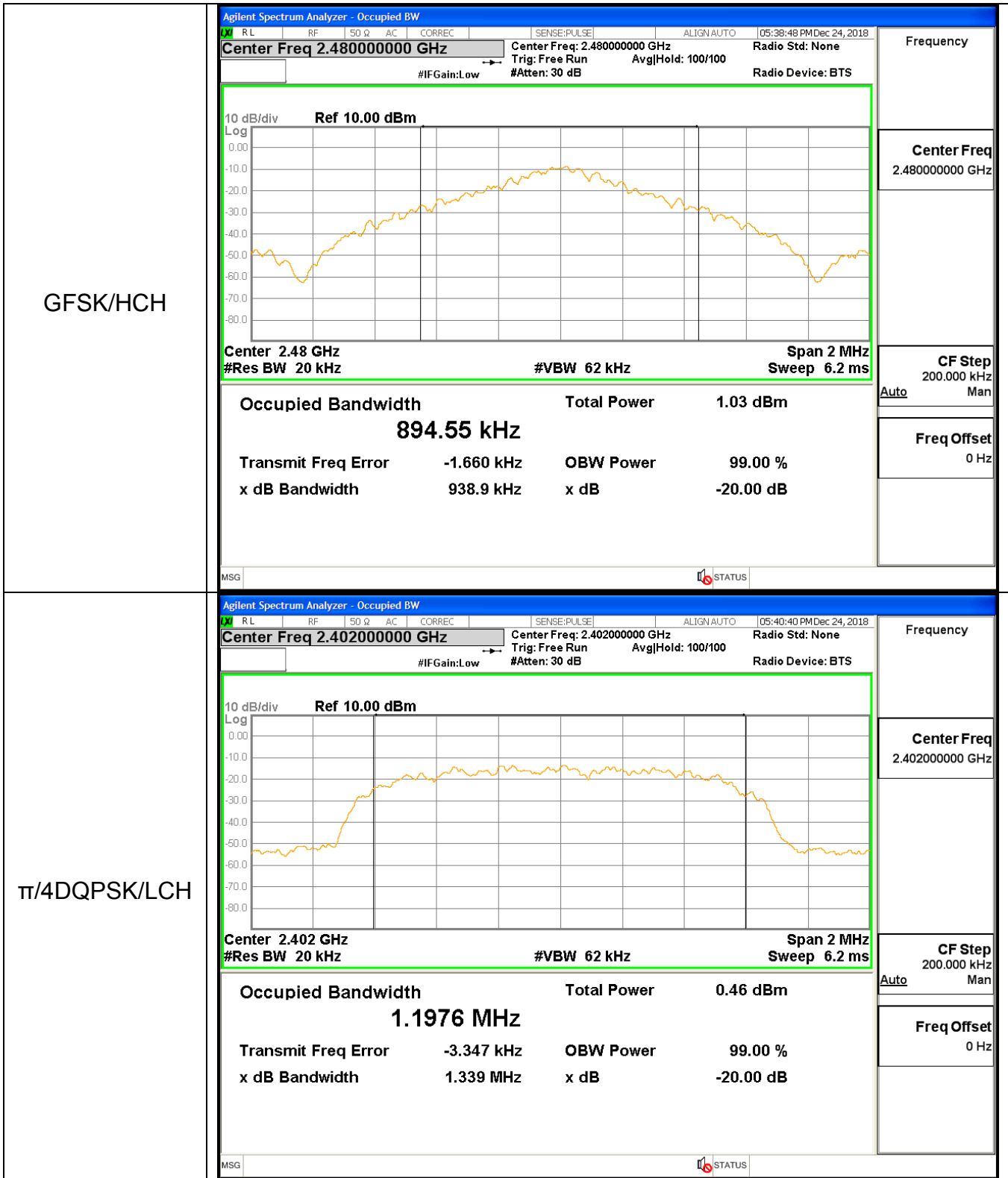
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	0.939	Not Specified	PASS
GFSK	MCH	0.932	Not Specified	PASS
GFSK	HCH	0.939	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.339	Not Specified	PASS
$\pi/4$ DQPSK	MCH	1.340	Not Specified	PASS
$\pi/4$ DQPSK	HCH	1.347	Not Specified	PASS
8DPSK	LCH	1.330	Not Specified	PASS
8DPSK	MCH	1.341	Not Specified	PASS
8DPSK	HCH	1.336	Not Specified	PASS

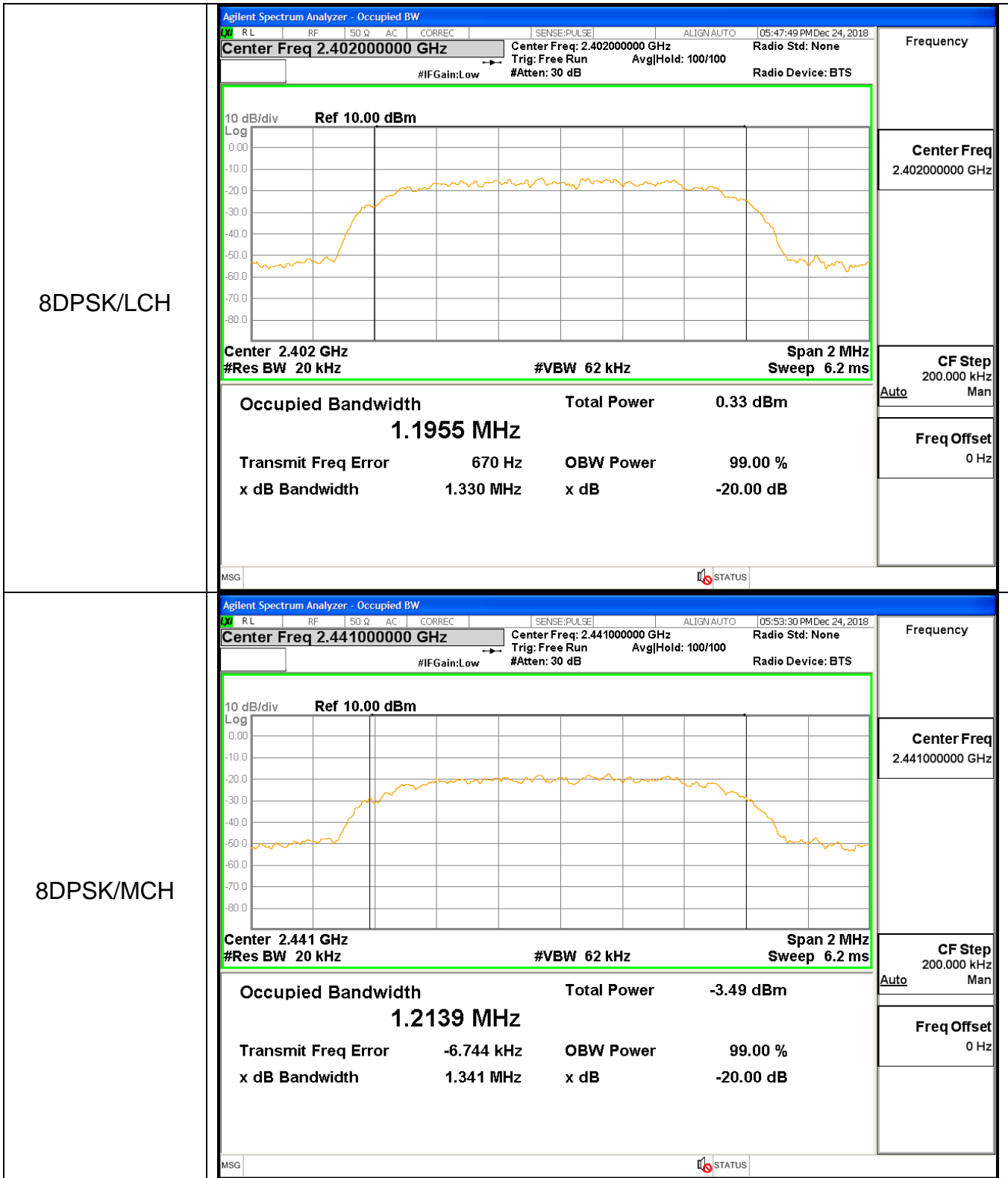
Test Graph

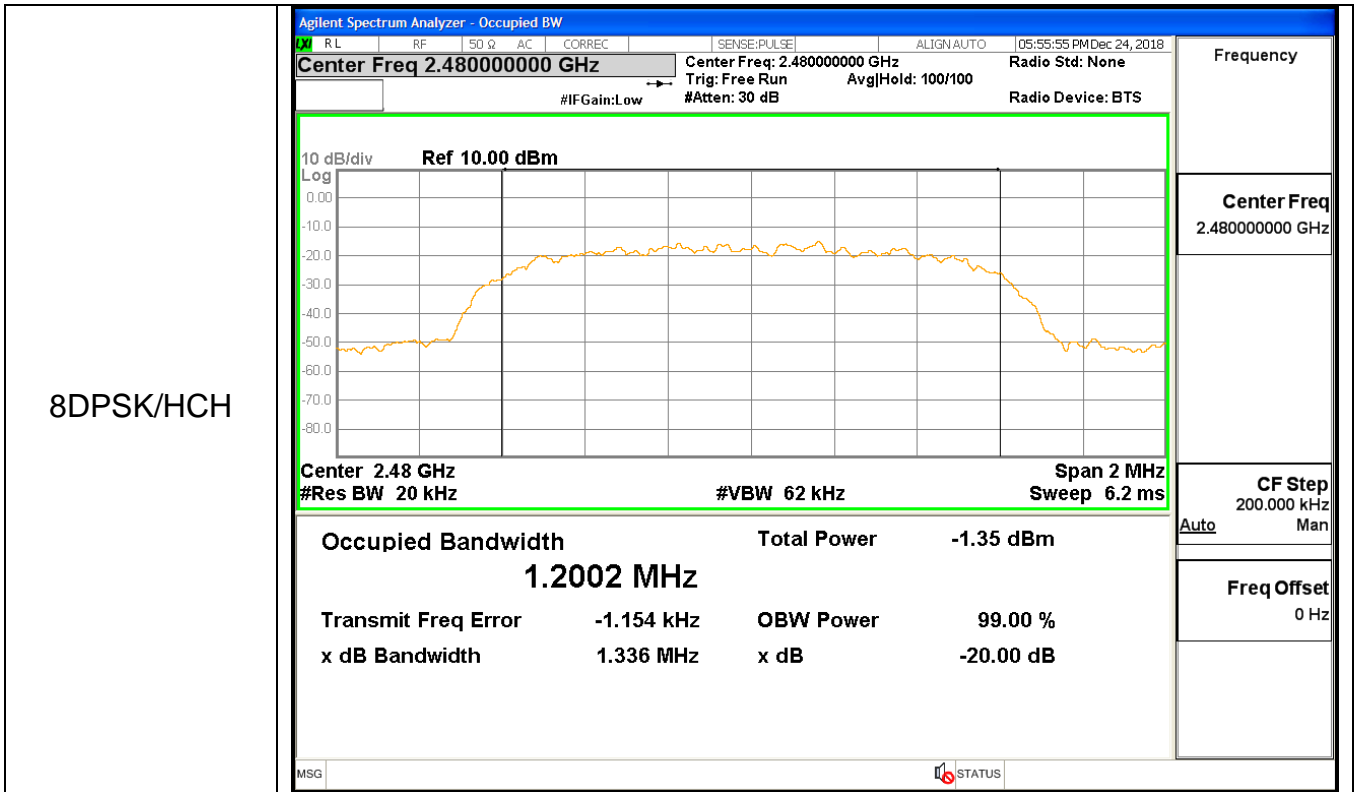
Graphs







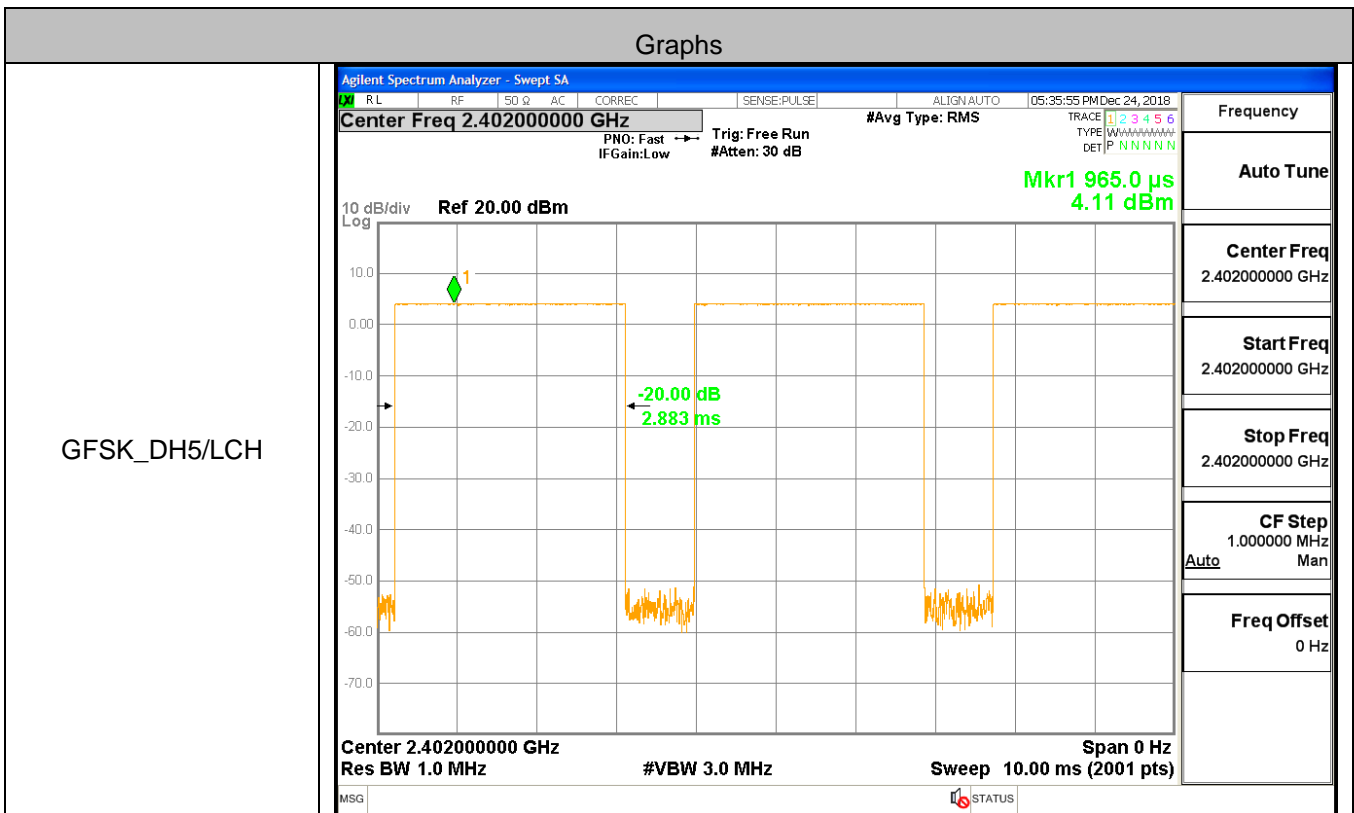


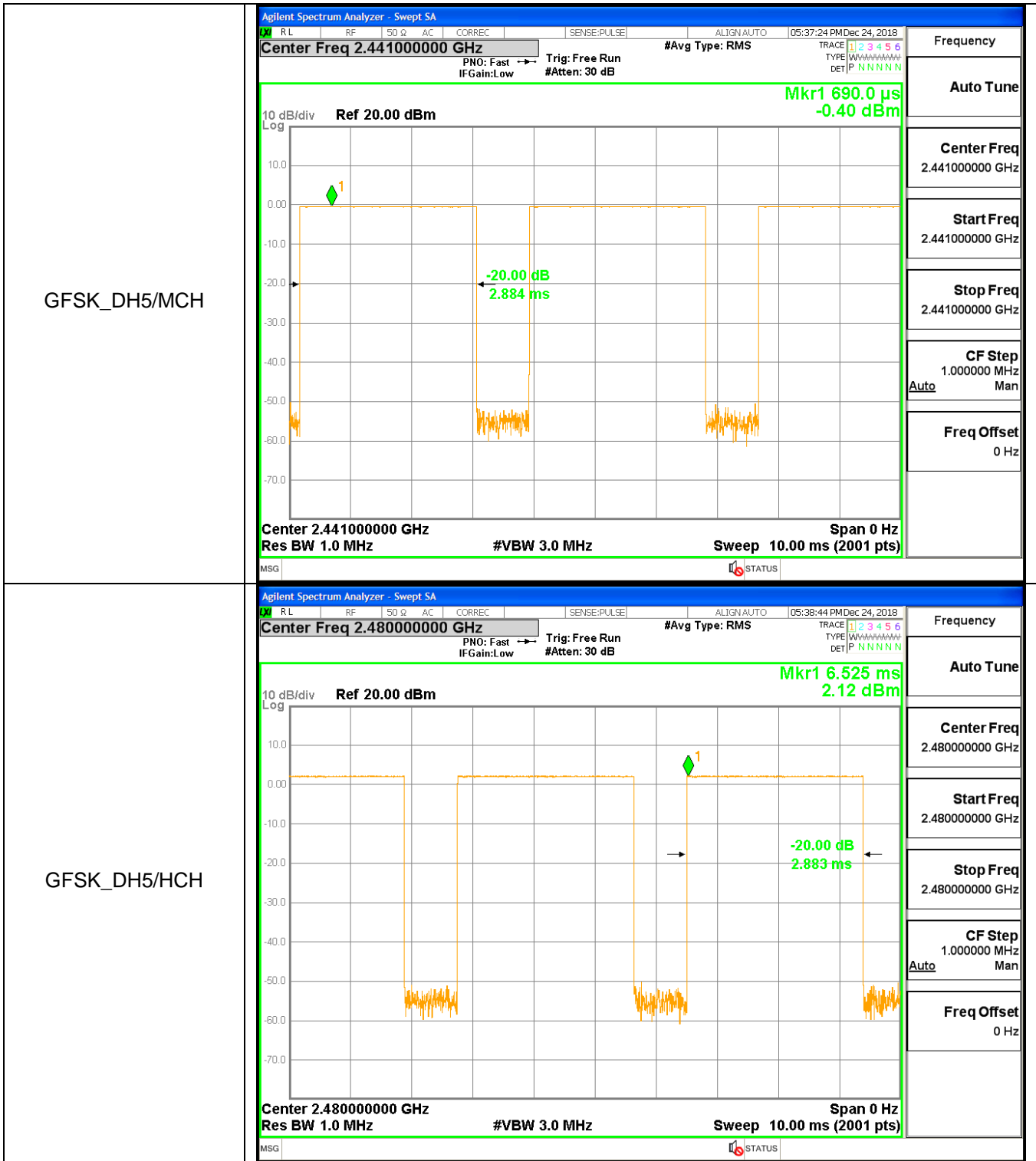


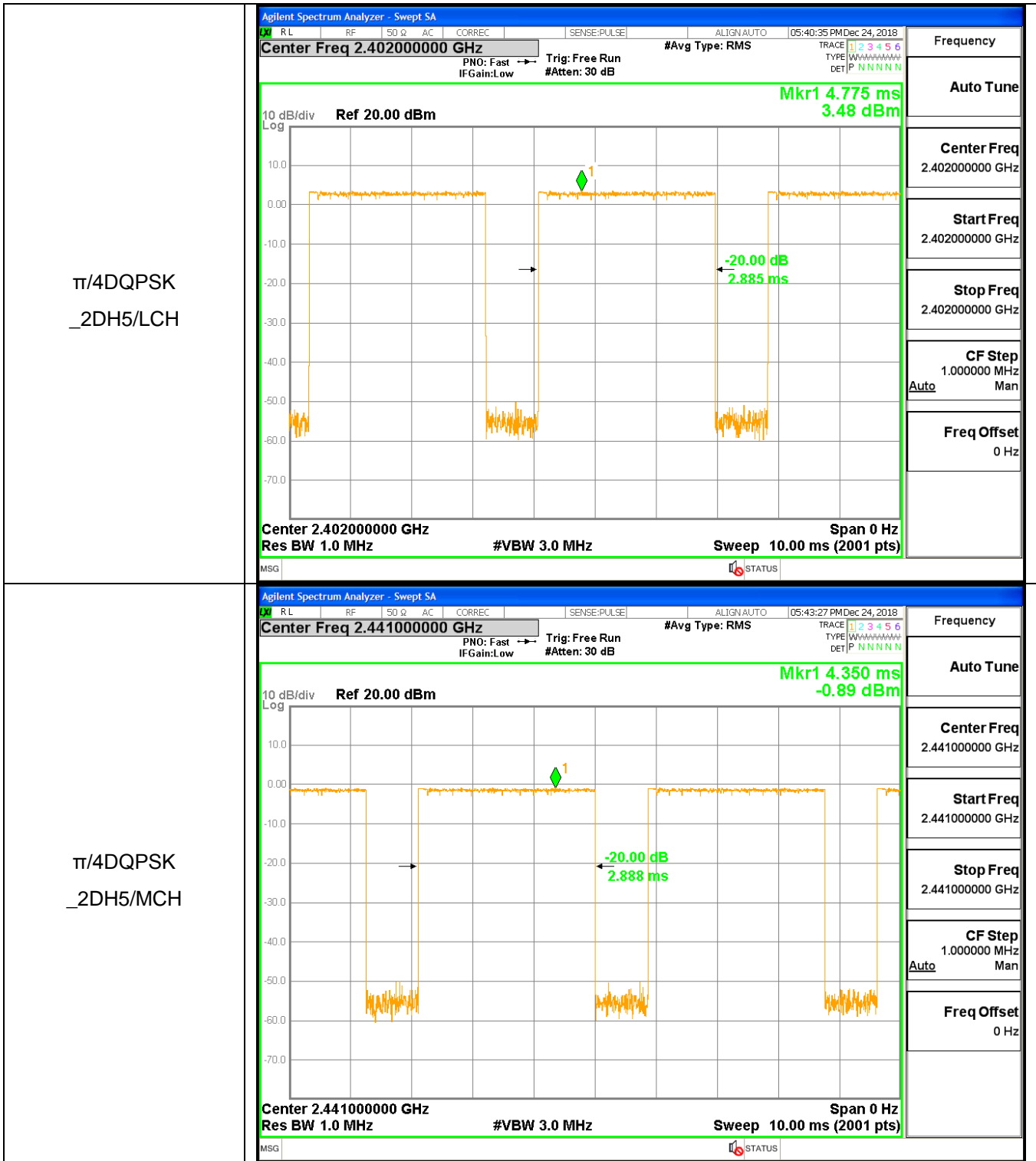
A.2 Dwell Time

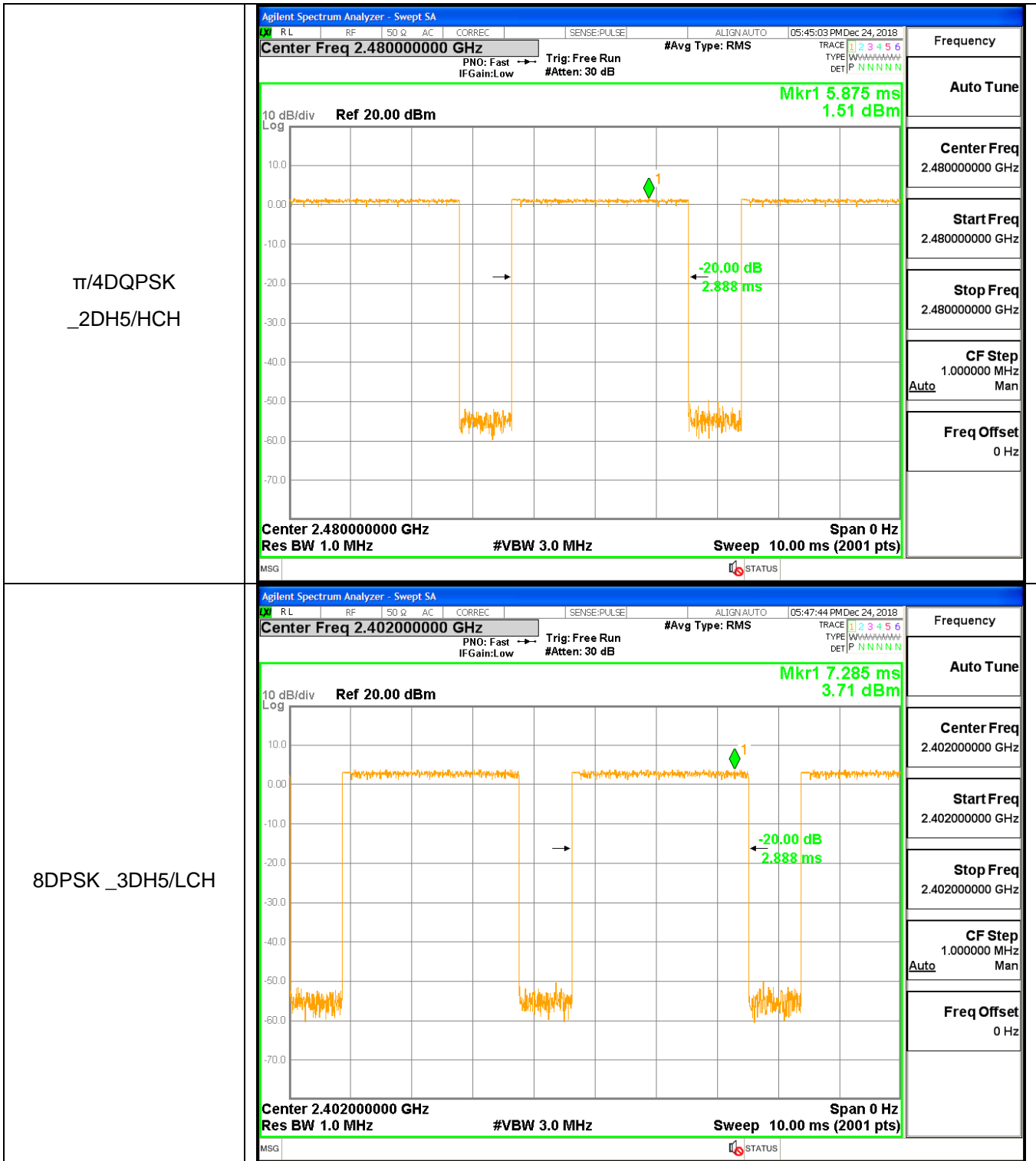
Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002883363	106.7	0.307654823	0.4	PASS
GFSK	DH5	MCH	0.002884027	106.7	0.307725689	0.4	PASS
GFSK	DH5	HCH	0.002883436	106.7	0.307662592	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.002884961	106.7	0.307825351	0.4	PASS
$\pi/4$ DQPSK	2DH5	MCH	0.00288794	106.7	0.308143229	0.4	PASS
$\pi/4$ DQPSK	2DH5	HCH	0.002887972	106.7	0.308146618	0.4	PASS
8DPSK	3DH5	LCH	0.002888328	106.7	0.308184608	0.4	PASS
8DPSK	3DH5	MCH	0.002888368	106.7	0.308188886	0.4	PASS
8DPSK	3DH5	HCH	0.002888952	106.7	0.308251144	0.4	PASS

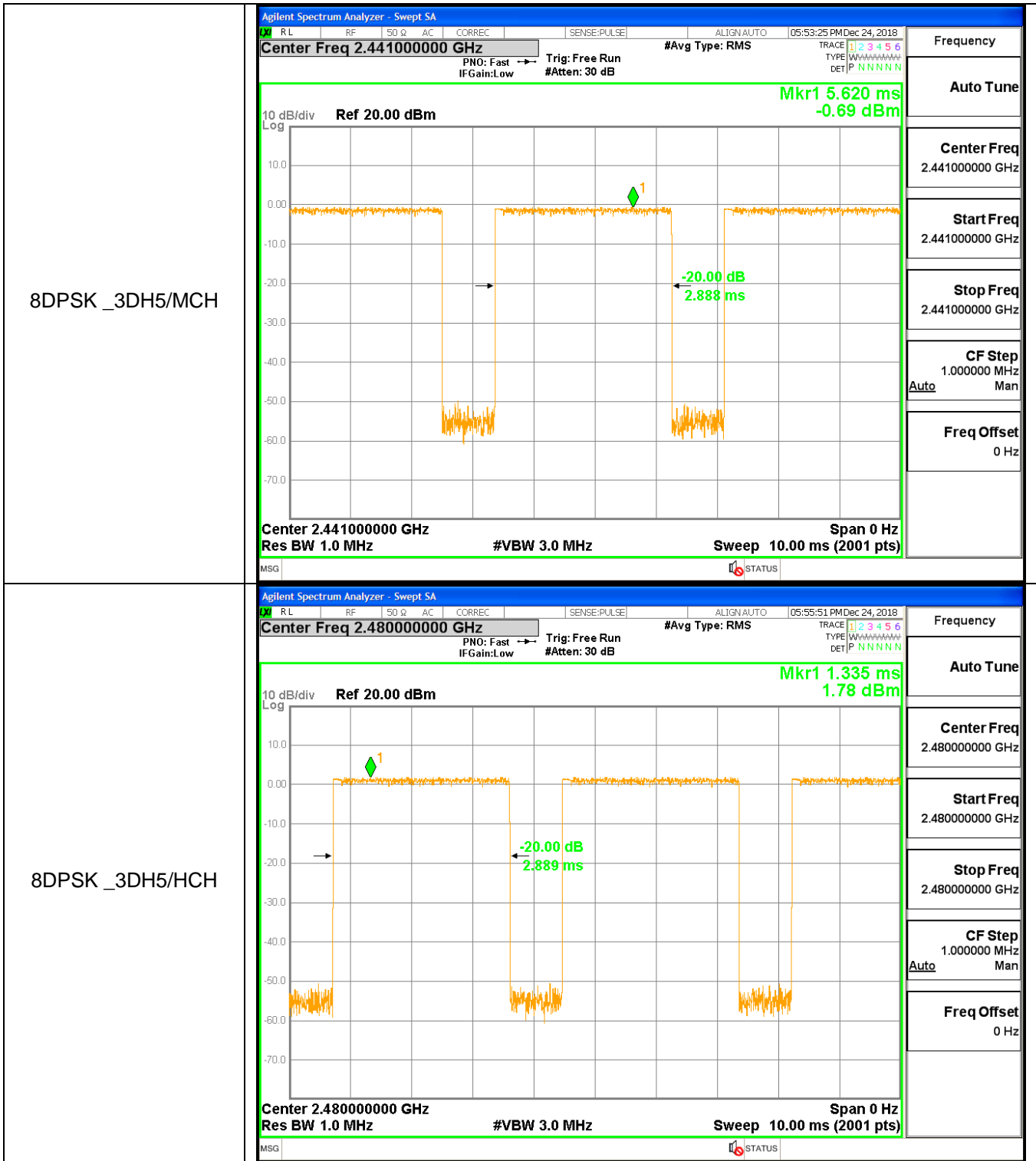
Test Graph







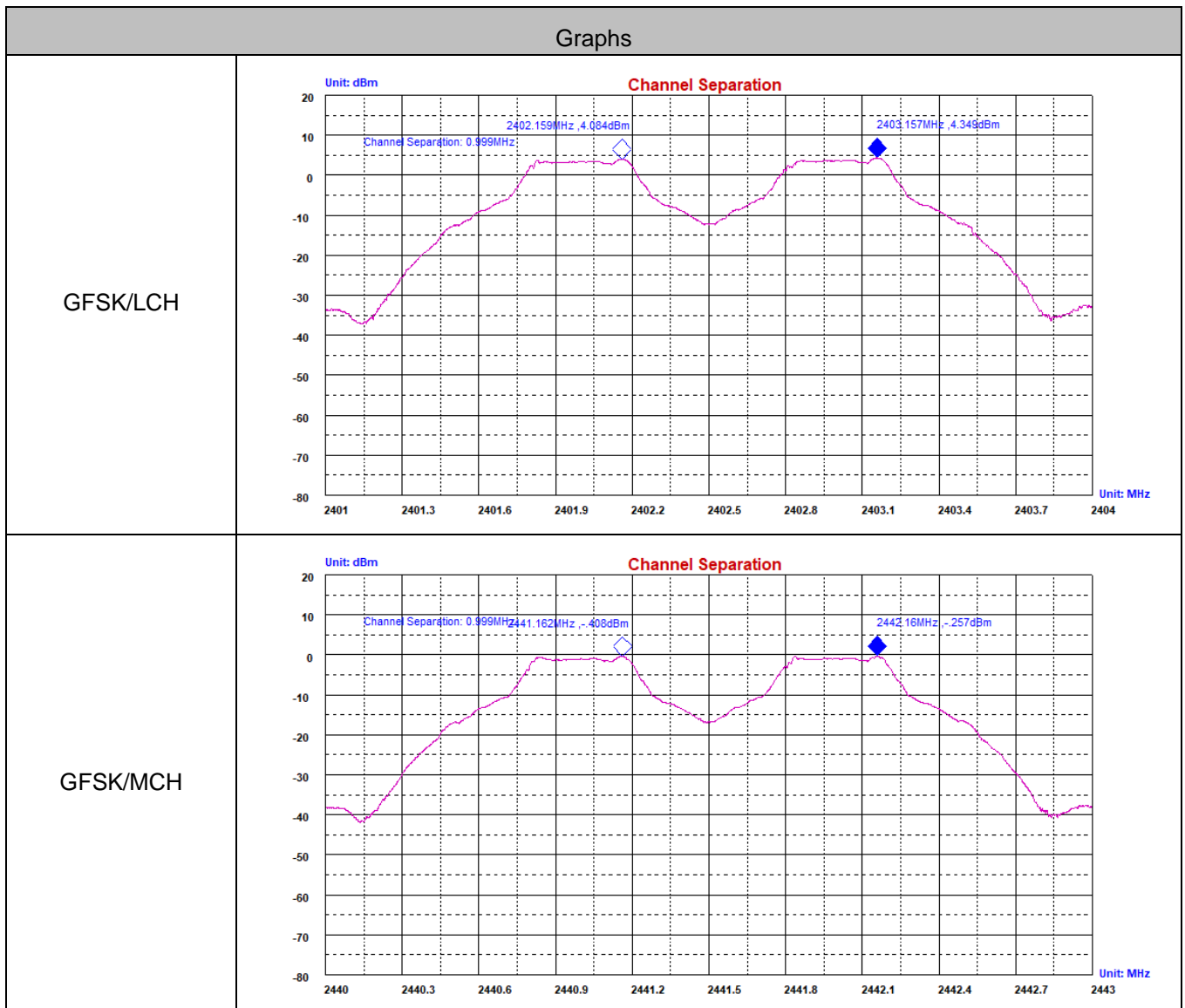


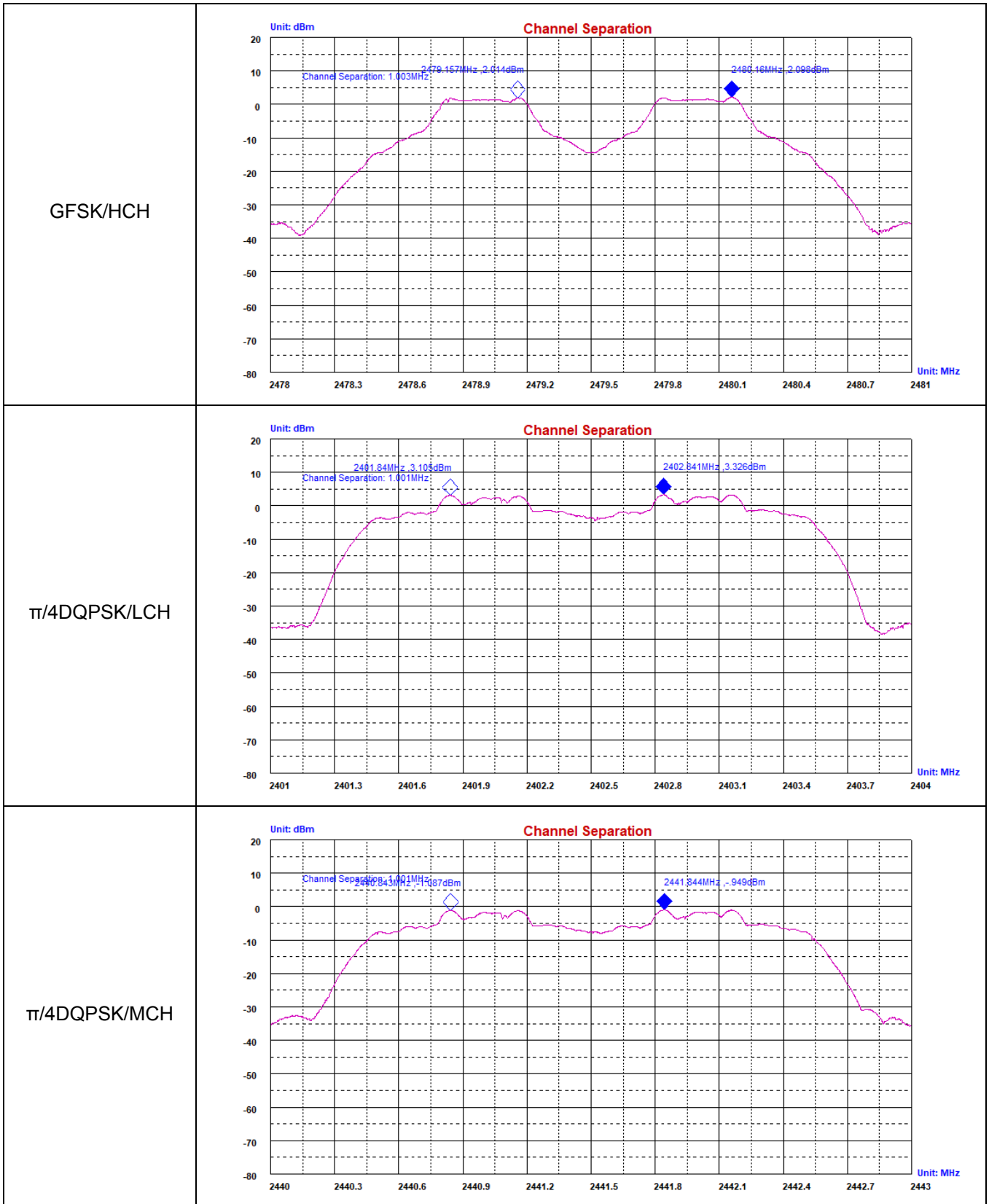


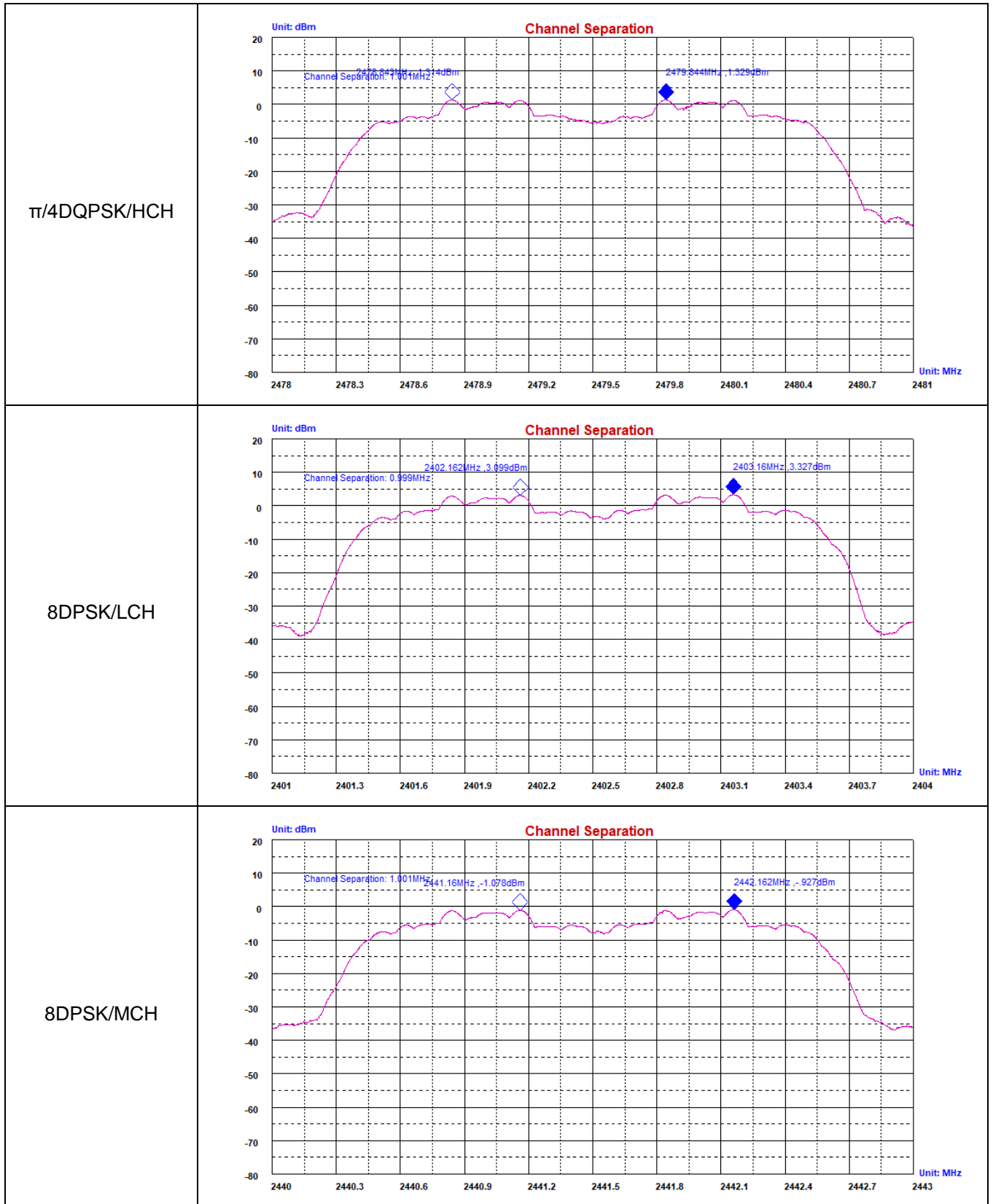
A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.625	PASS
GFSK	MCH	0.999	0.621	PASS
GFSK	HCH	1.003	0.626	PASS
$\pi/4$ DQPSK	LCH	1.001	0.893	PASS
$\pi/4$ DQPSK	MCH	1.001	0.892	PASS
$\pi/4$ DQPSK	HCH	1.001	0.898	PASS
8DPSK	LCH	0.999	0.887	PASS
8DPSK	MCH	1.001	0.893	PASS
8DPSK	HCH	0.994	0.891	PASS

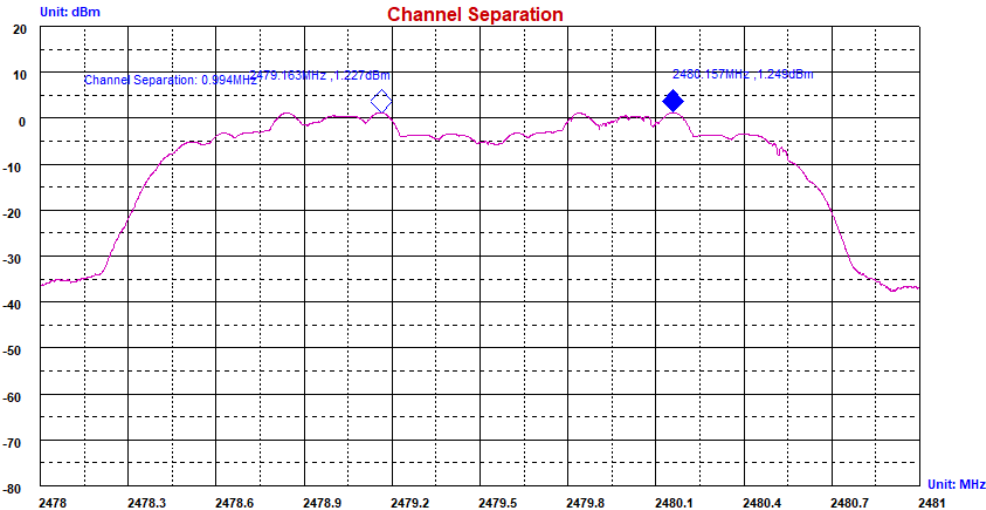
Test Graph







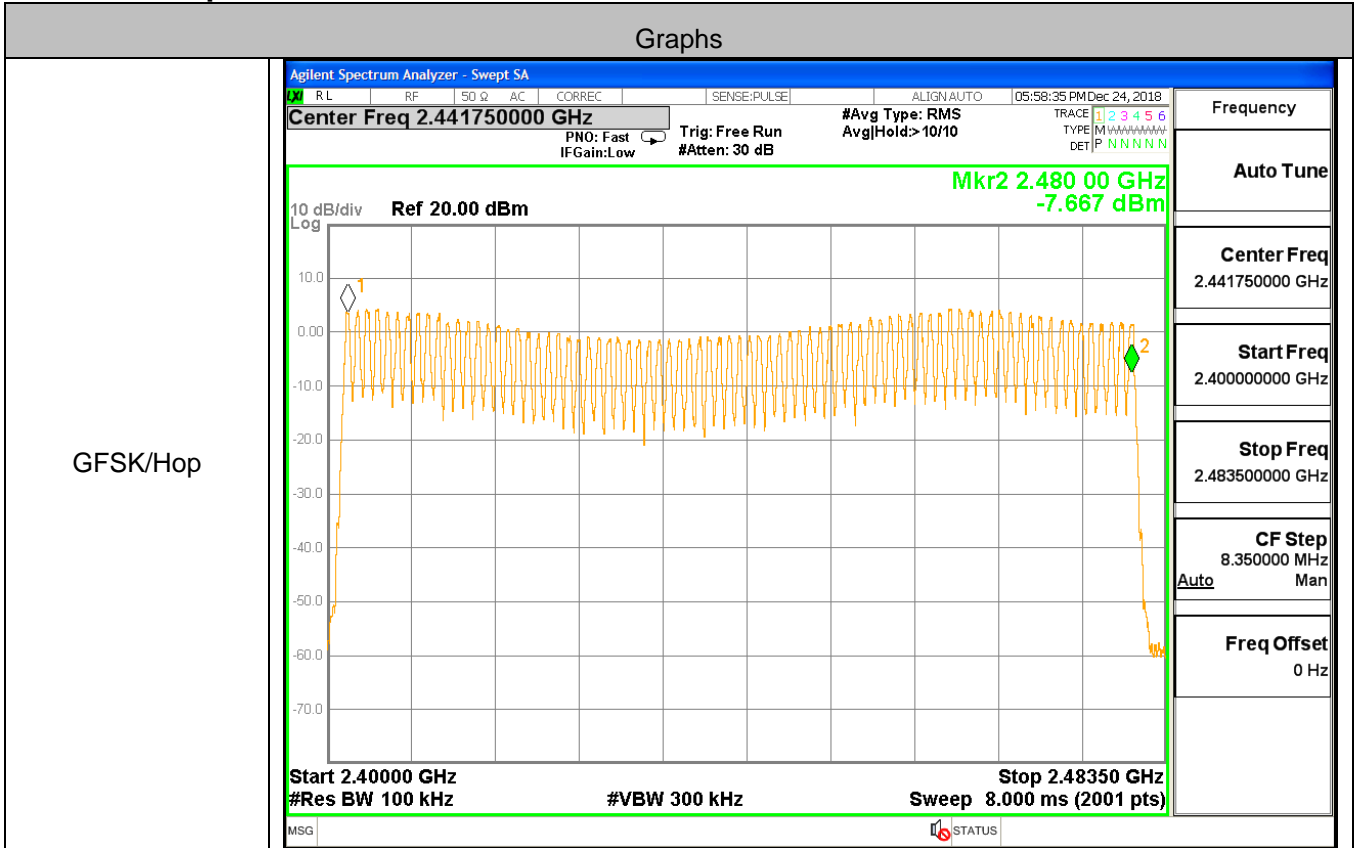
8DPSK/HCH



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 Graph

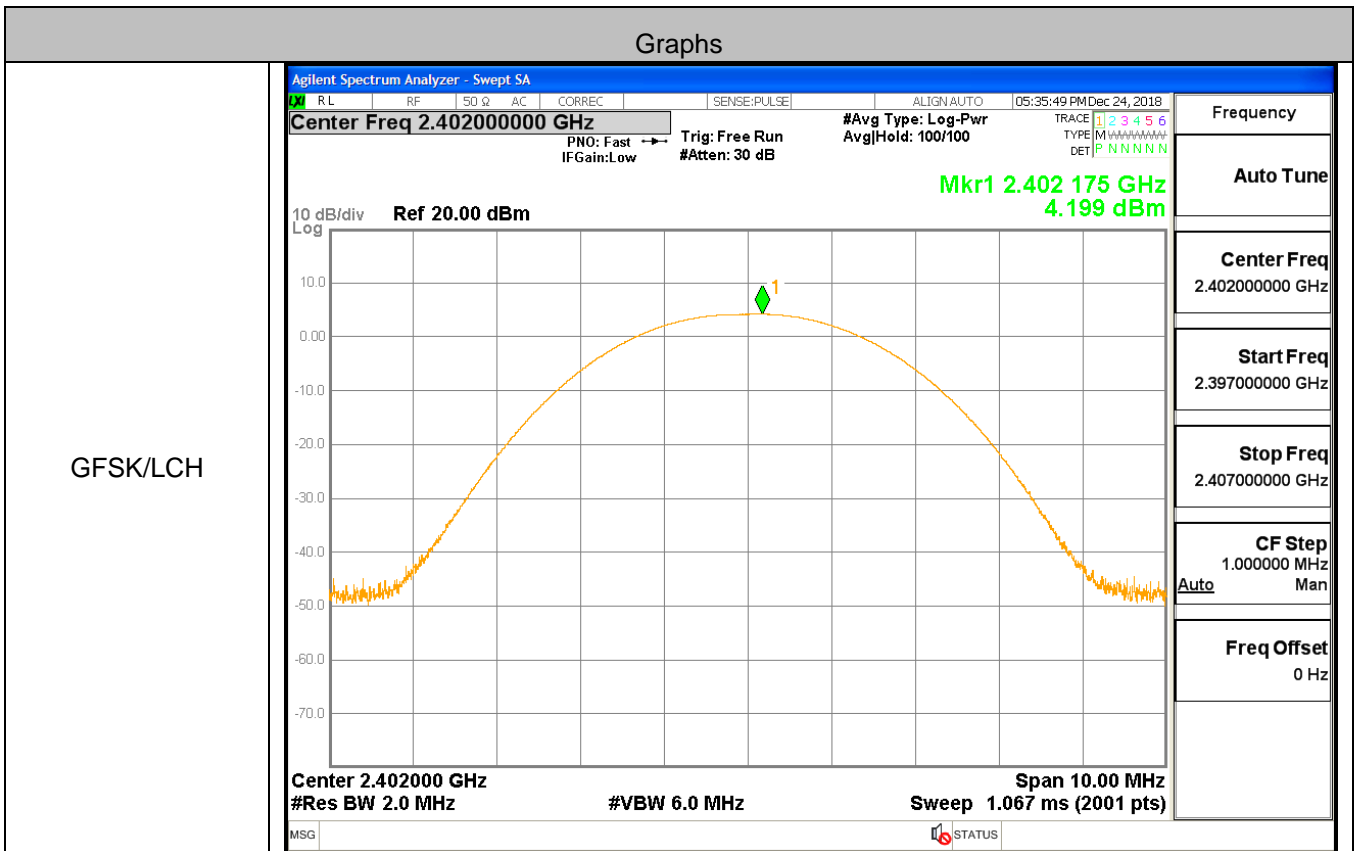


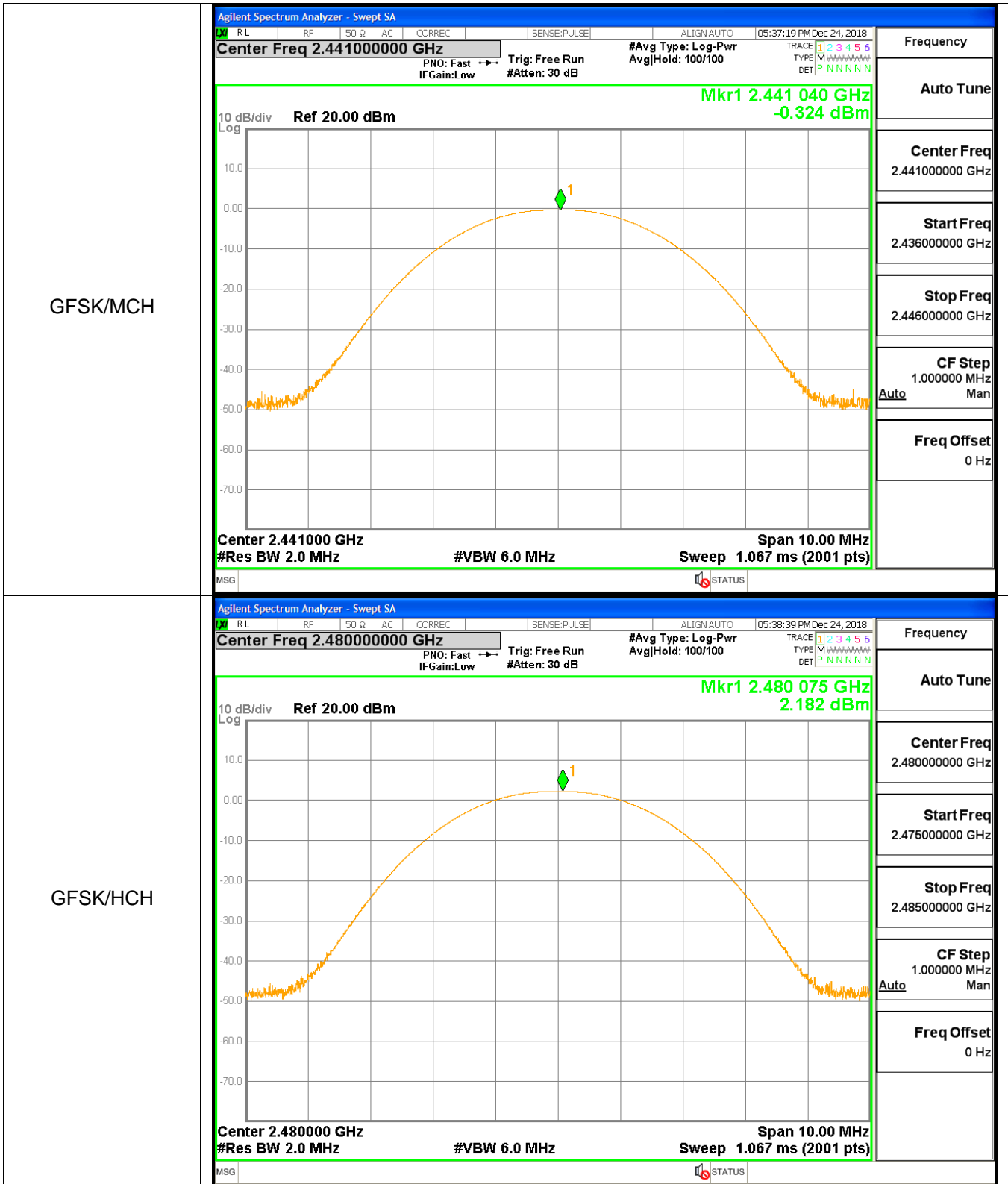


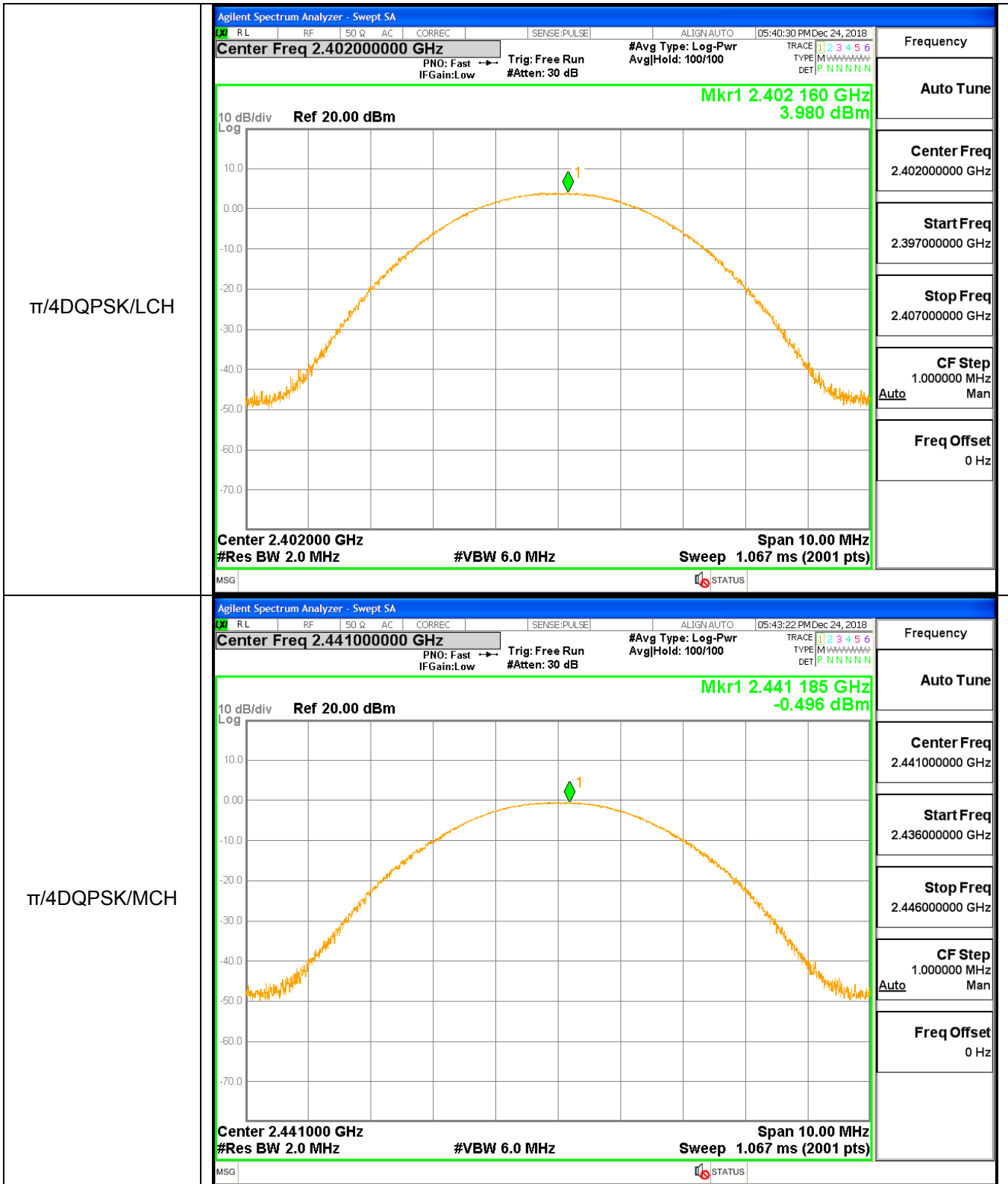
A.5 Conducted Peak Output Power

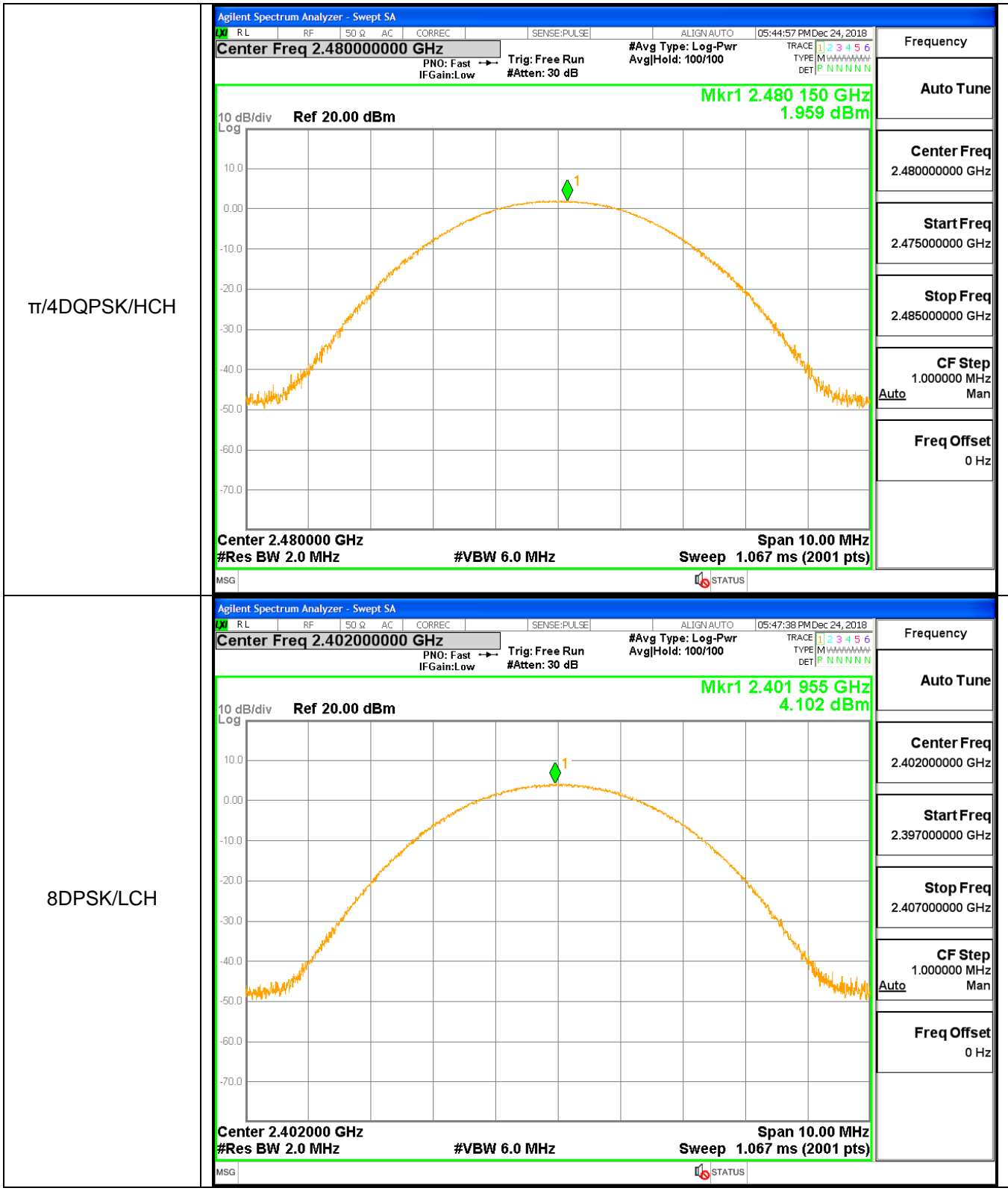
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	4.199	21	PASS
GFSK	MCH	-0.324	21	PASS
GFSK	HCH	2.182	21	PASS
$\pi/4$ DQPSK	LCH	3.98	21	PASS
$\pi/4$ DQPSK	MCH	-0.496	21	PASS
$\pi/4$ DQPSK	HCH	1.959	21	PASS
8DPSK	LCH	4.102	21	PASS
8DPSK	MCH	-0.371	21	PASS
8DPSK	HCH	2.115	21	PASS

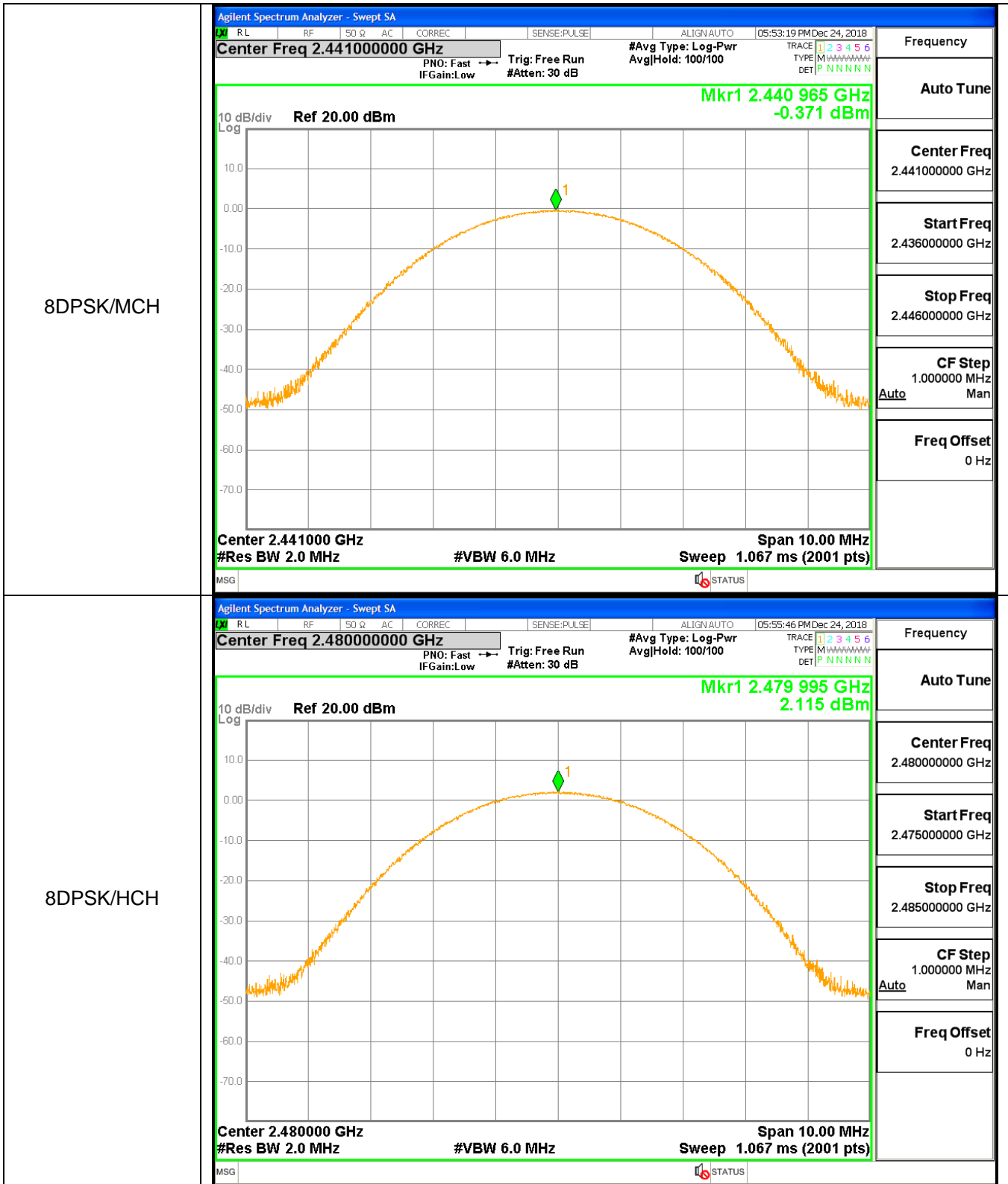
Test Graph









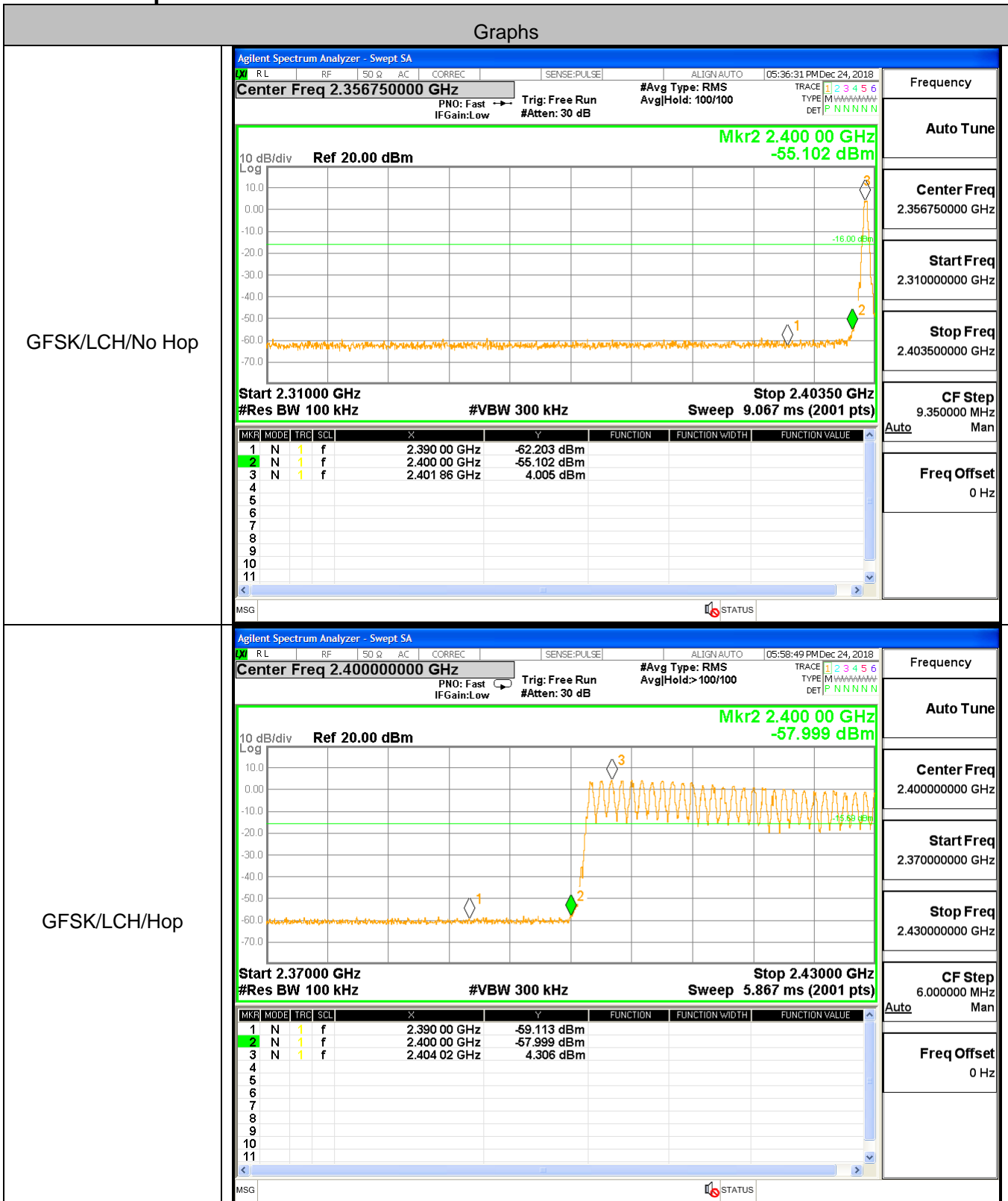


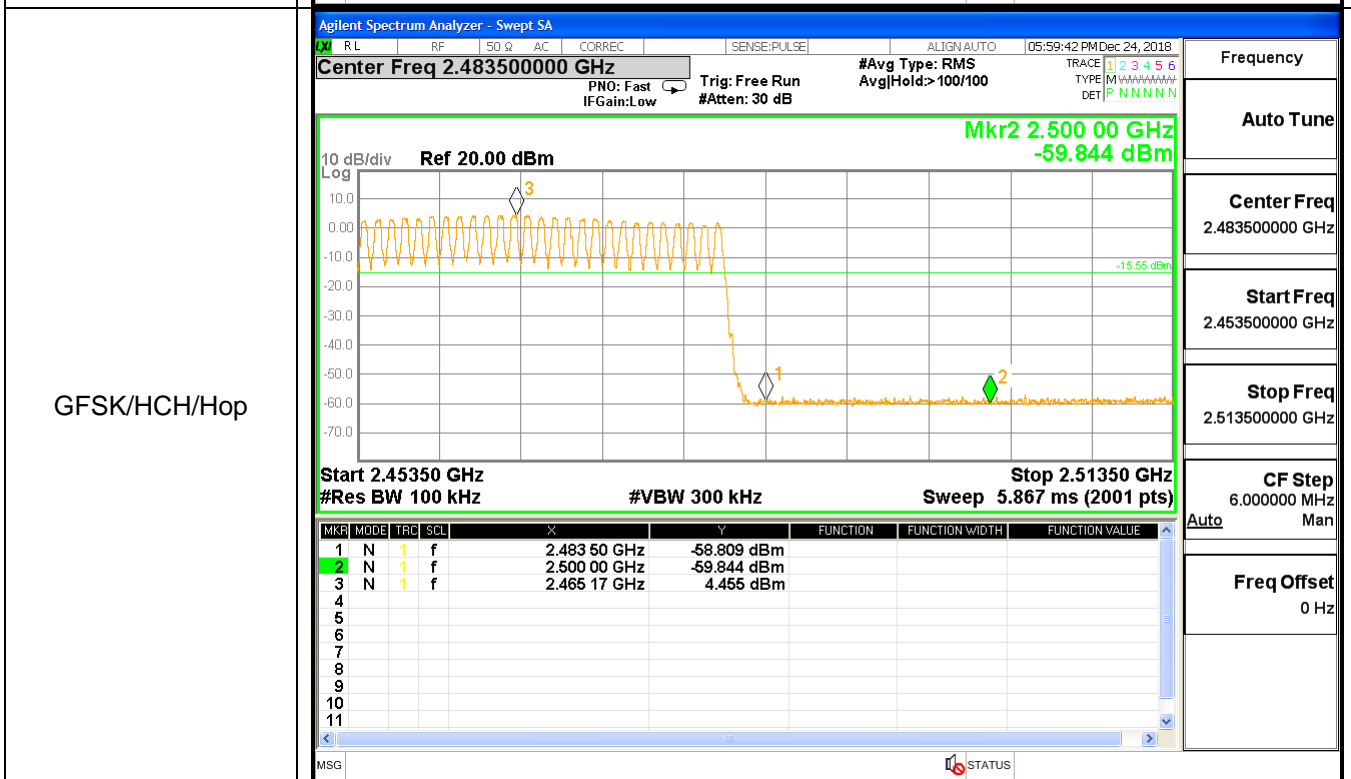
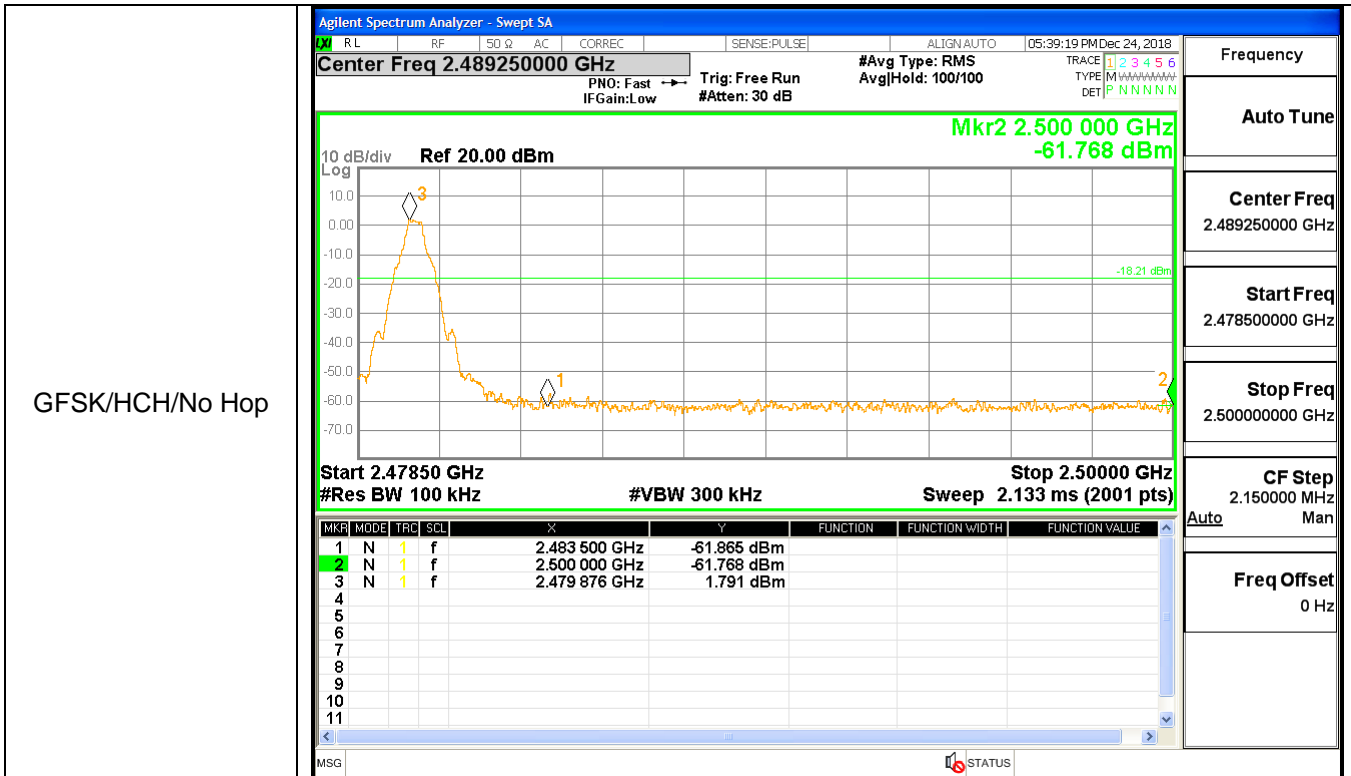
A.6 Band-edge for RF Conducted Emissions

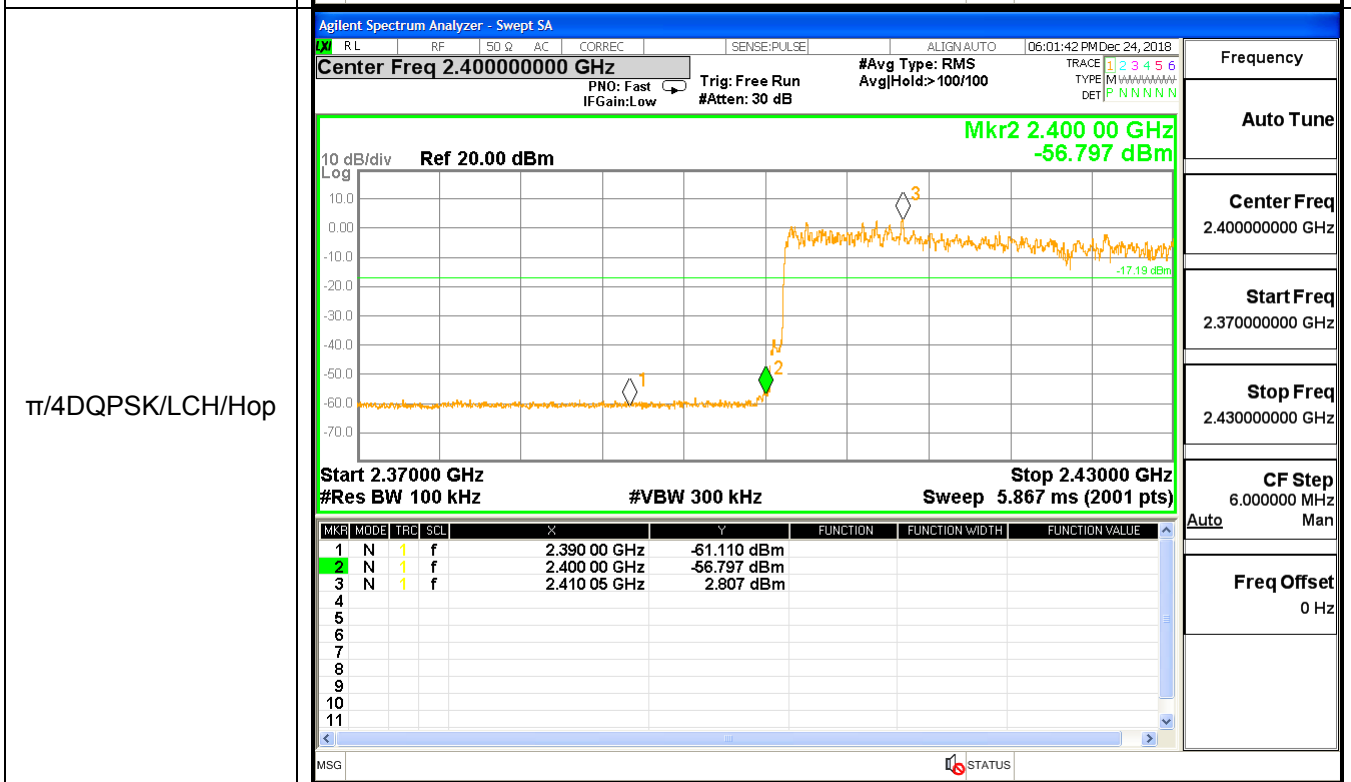
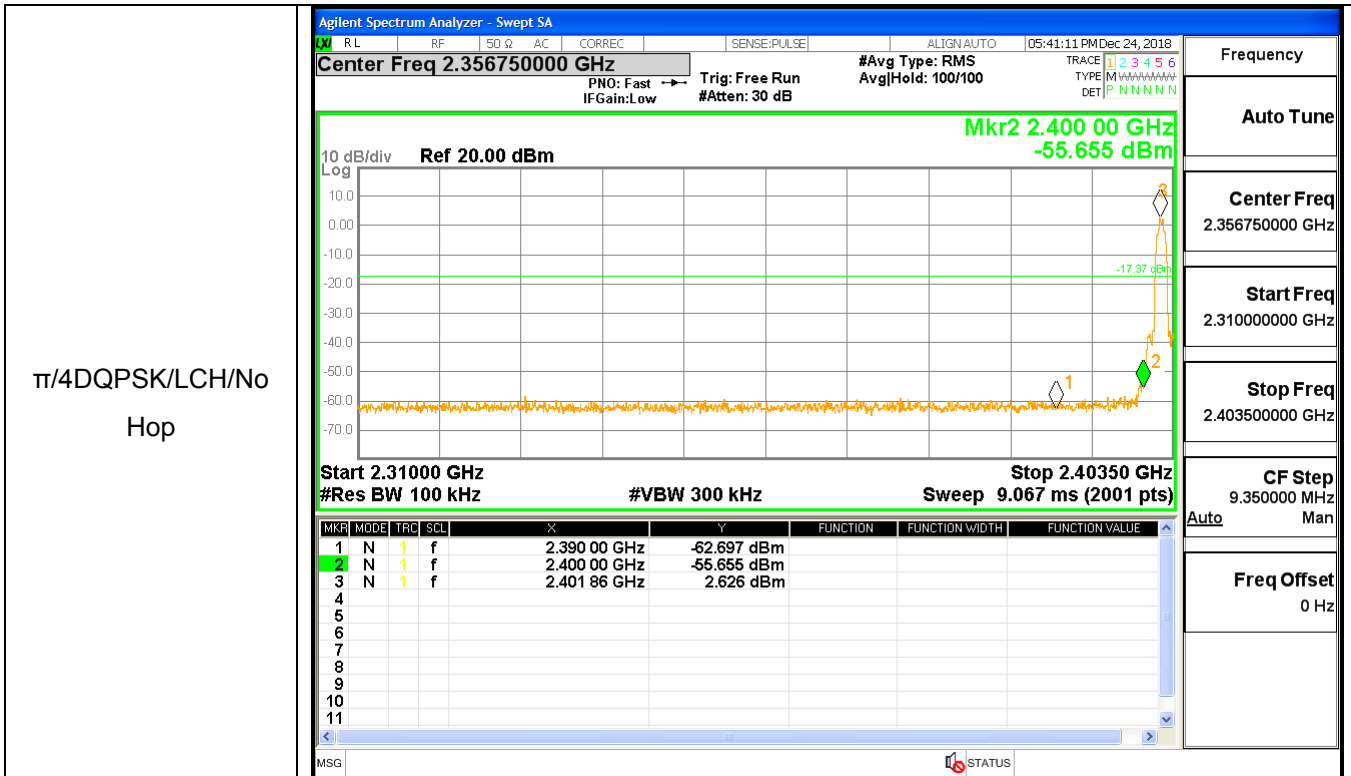
Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2390	4.005	-62.2	-15.995	Pass
1DH5	2402	2400	4.005	-55.1	-15.995	Pass
1DH5-Hopping	2402	2390	4.306	-59.11	-15.694	Pass
1DH5-Hopping	2402	2400	4.306	-58	-15.694	Pass
1DH5	2480	2483.5	1.791	-61.86	-18.209	Pass
1DH5	2480	2500	1.791	-61.77	-18.209	Pass
1DH5-Hopping	2480	2483.5	4.455	-58.81	-15.545	Pass
1DH5-Hopping	2480	2500	4.455	-59.84	-15.545	Pass
2DH5	2402	2390	2.626	-62.7	-17.374	Pass
2DH5	2402	2400	2.626	-55.66	-17.374	Pass
2DH5-Hopping	2480	2483.5	2.39	-60.07	-17.61	Pass
2DH5-Hopping	2480	2500	2.39	-59.75	-17.61	Pass
2DH5	2480	2483.5	-0.039	-60.08	-20.039	Pass
2DH5	2480	2500	-0.039	-62.02	-20.039	Pass
2DH5-Hopping	2402	2390	2.807	-61.11	-17.193	Pass
2DH5-Hopping	2402	2400	2.807	-56.8	-17.193	Pass
3DH5	2402	2390	1.812	-61.94	-18.188	Pass
3DH5	2402	2400	1.812	-54.2	-18.188	Pass
3DH5-Hopping	2402	2390	3.095	-60.52	-16.905	Pass
3DH5-Hopping	2402	2400	3.095	-55.44	-16.905	Pass
3DH5	2480	2483.5	-1.133	-60.43	-21.133	Pass
3DH5	2480	2500	-1.133	-62.3	-21.133	Pass
3DH5-Hopping	2480	2483.5	3.519	-58.74	-16.481	Pass
3DH5-Hopping	2480	2500	3.519	-58.53	-16.481	Pass

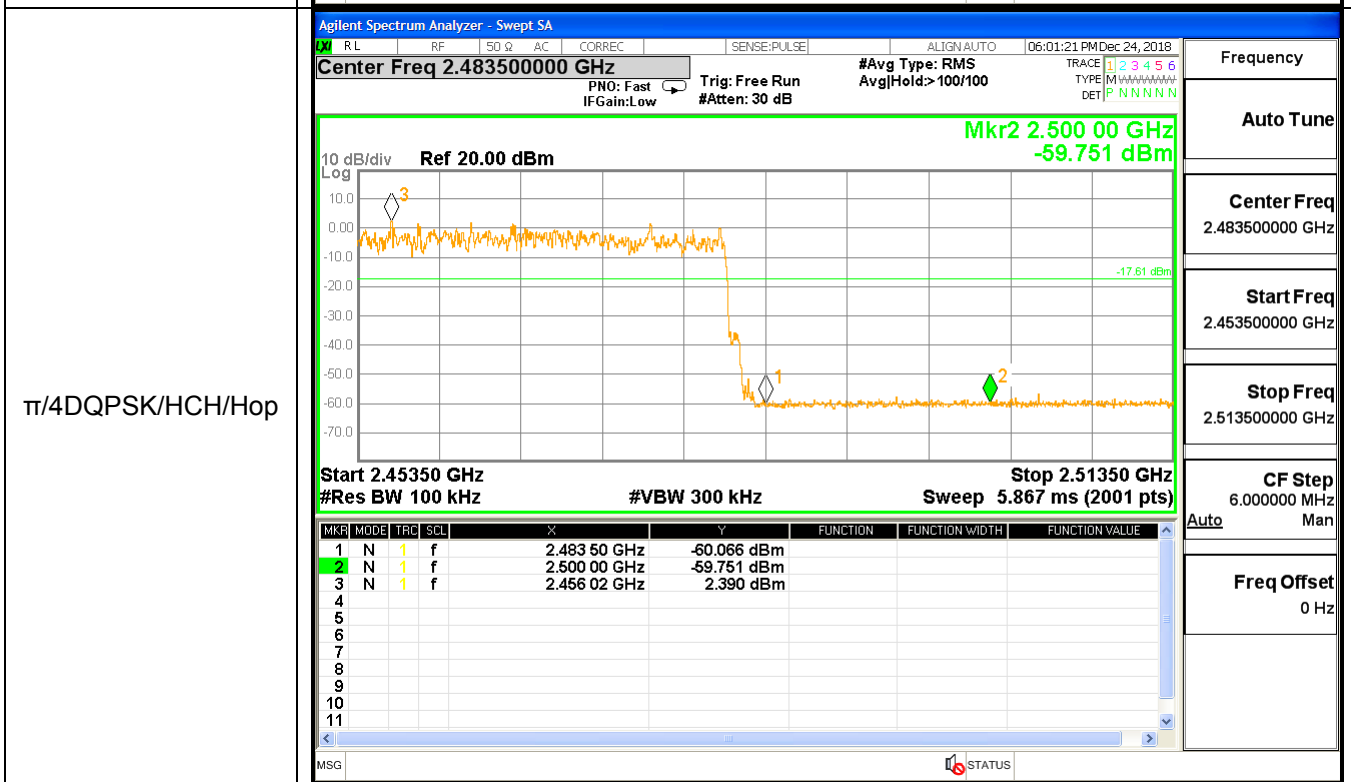
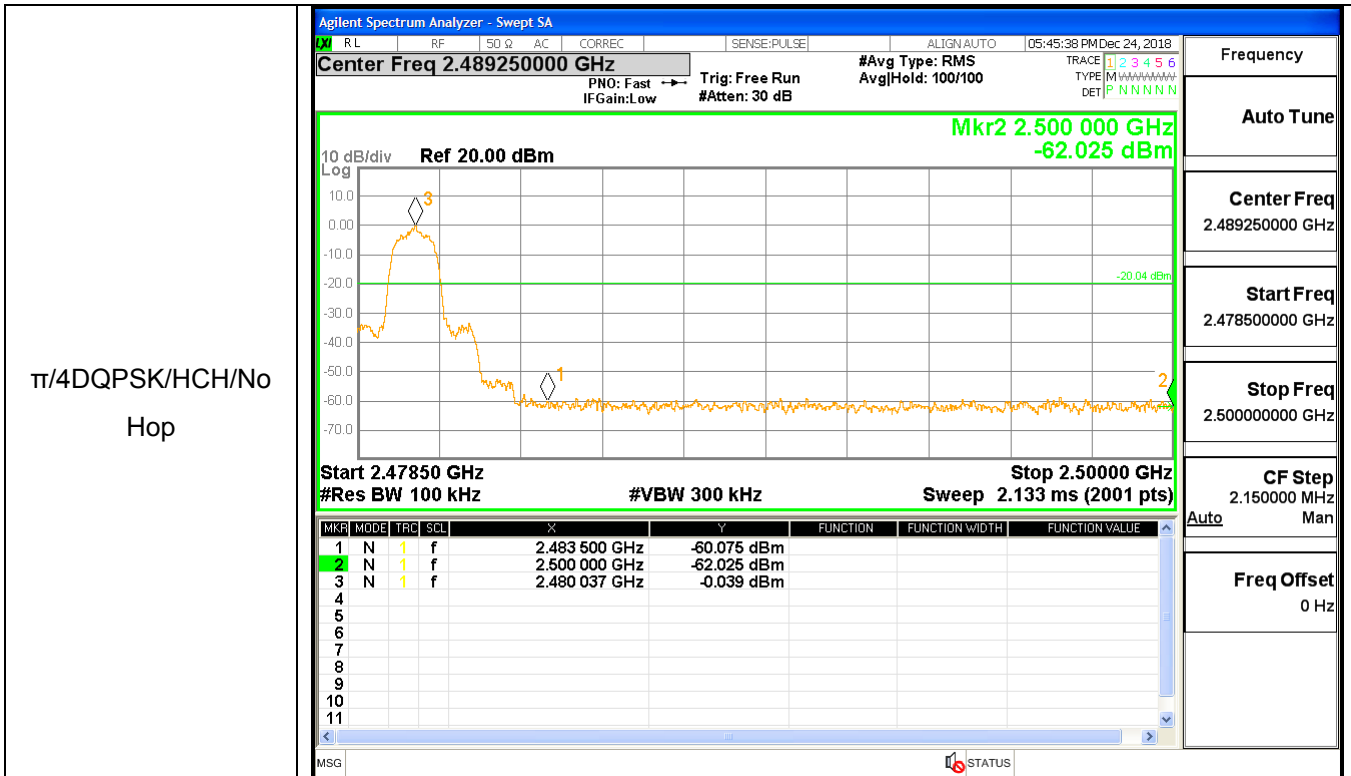
Test Graph

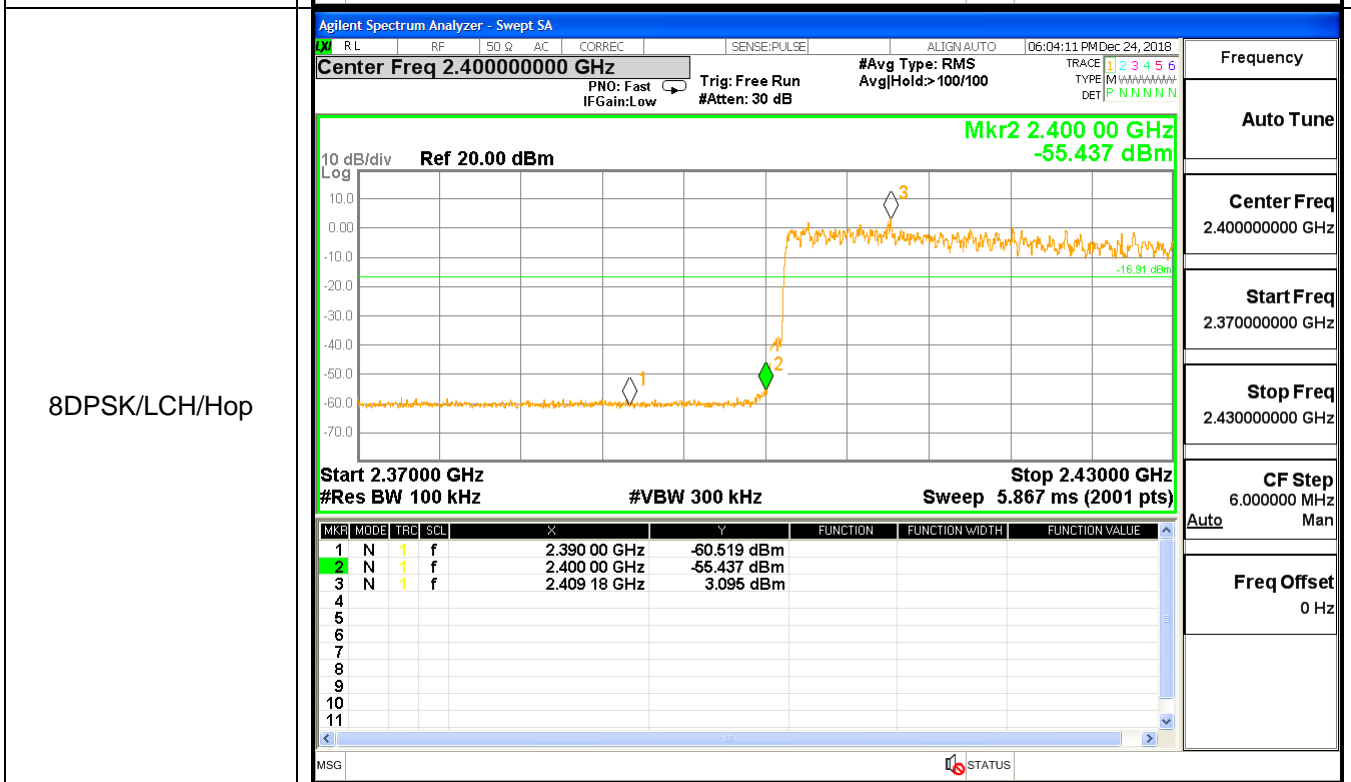
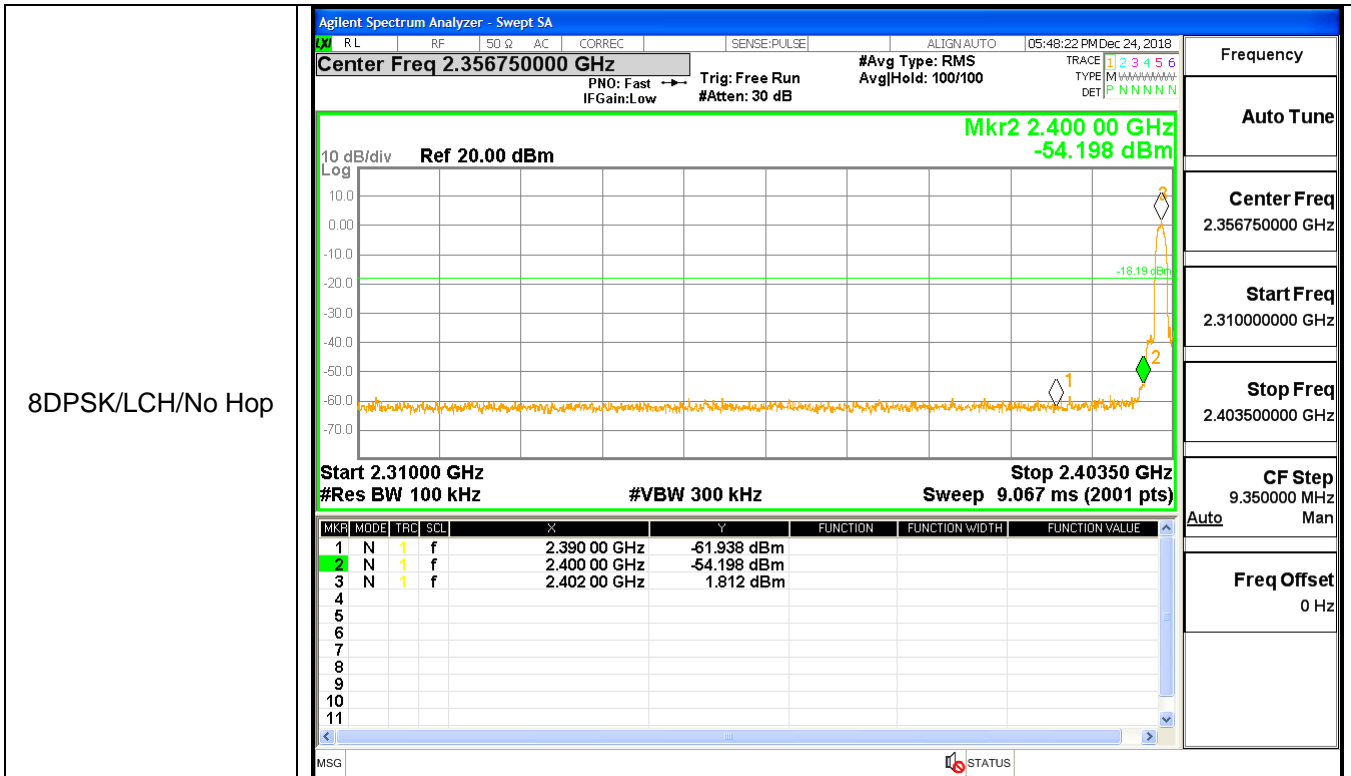
Graphs

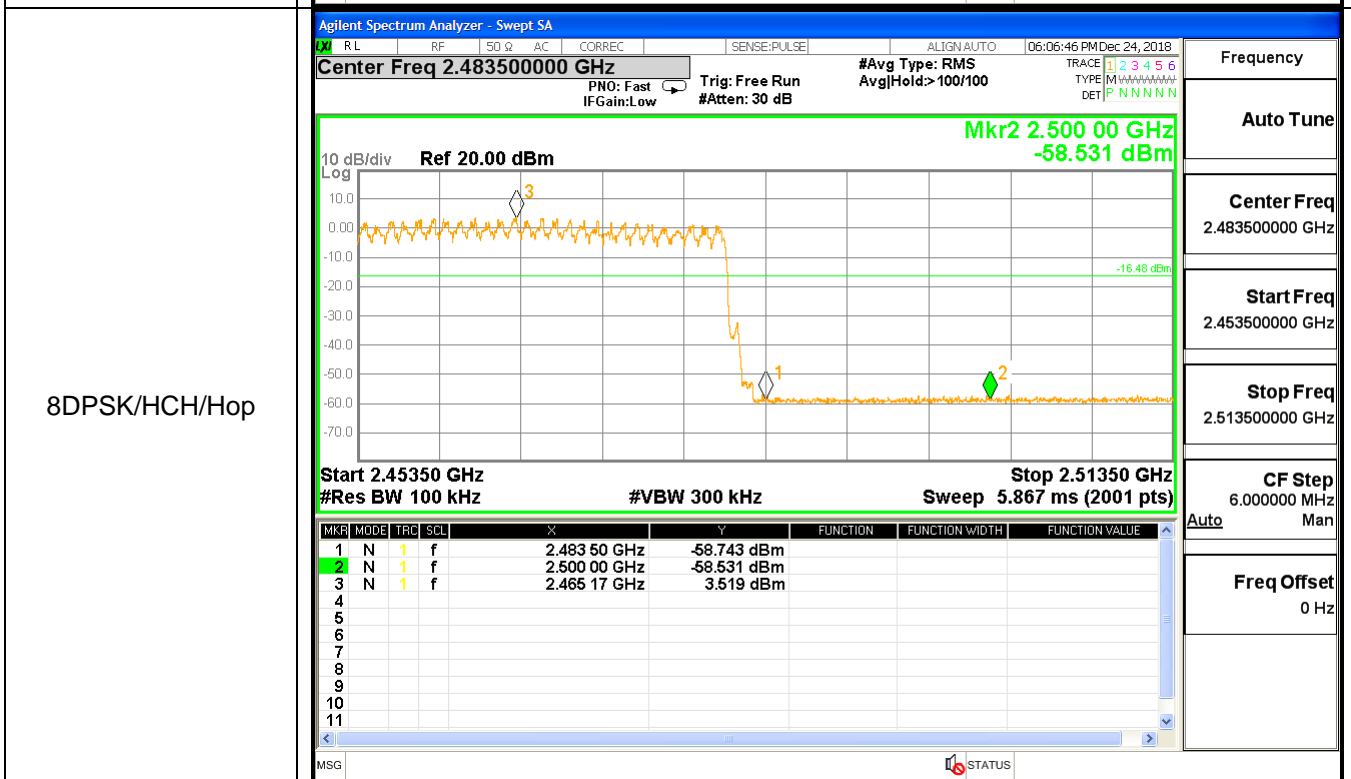
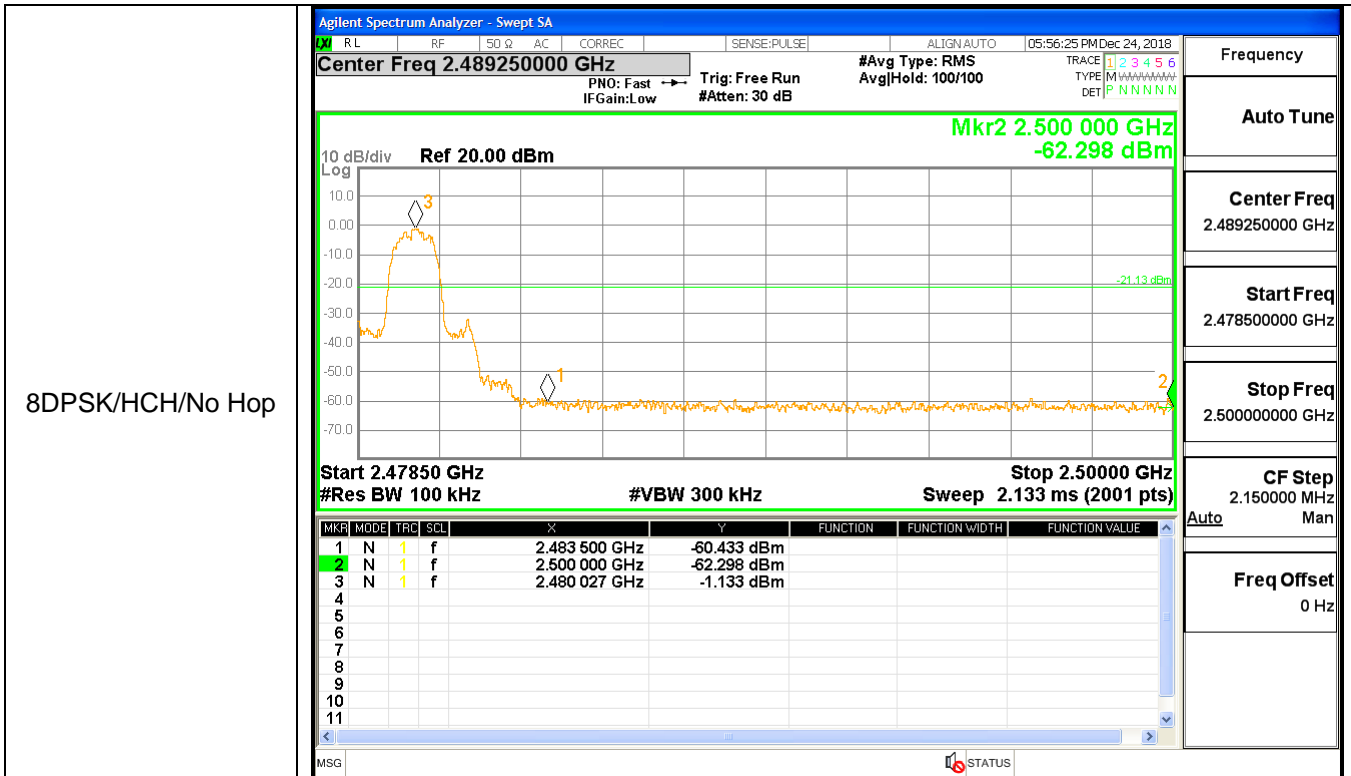




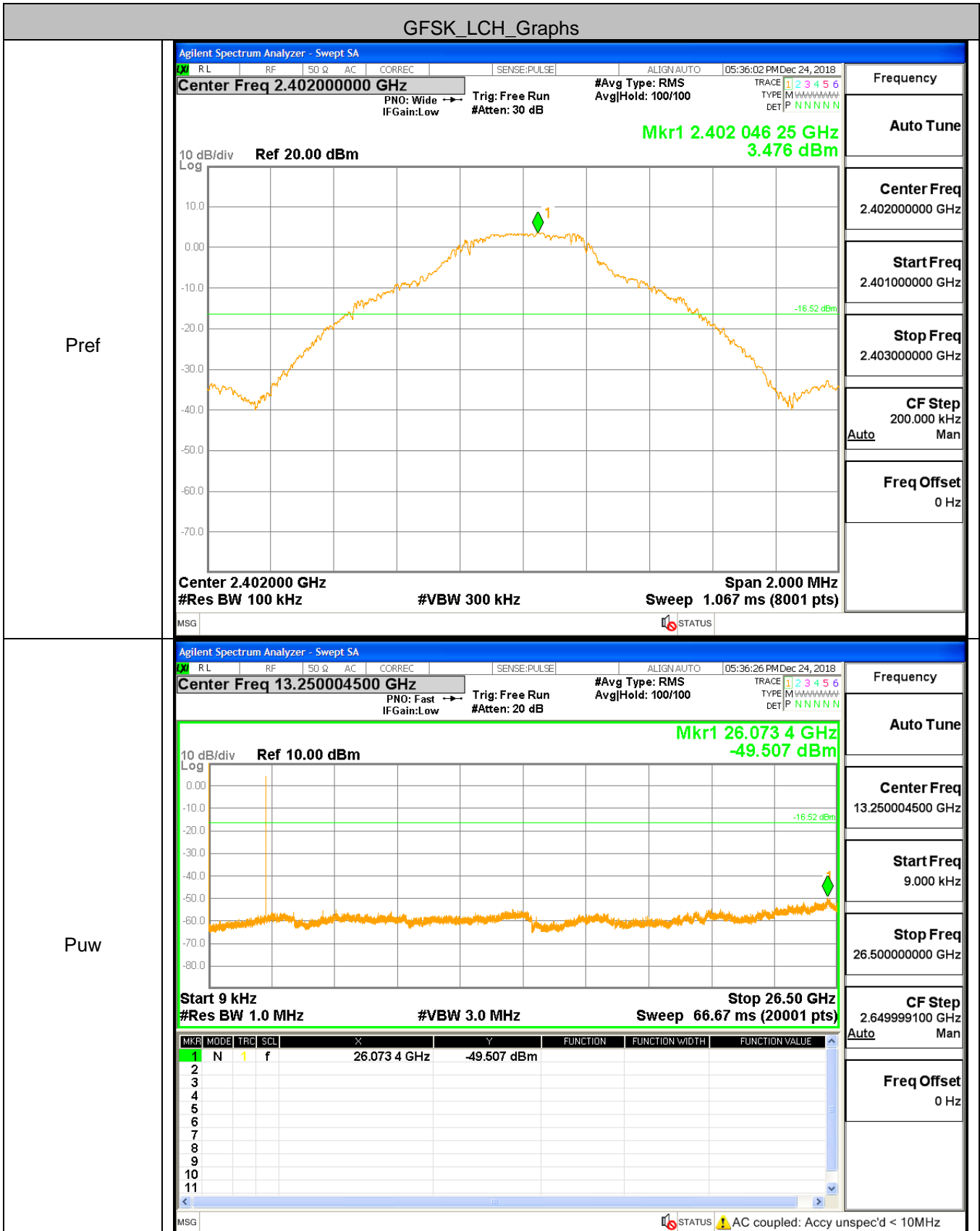


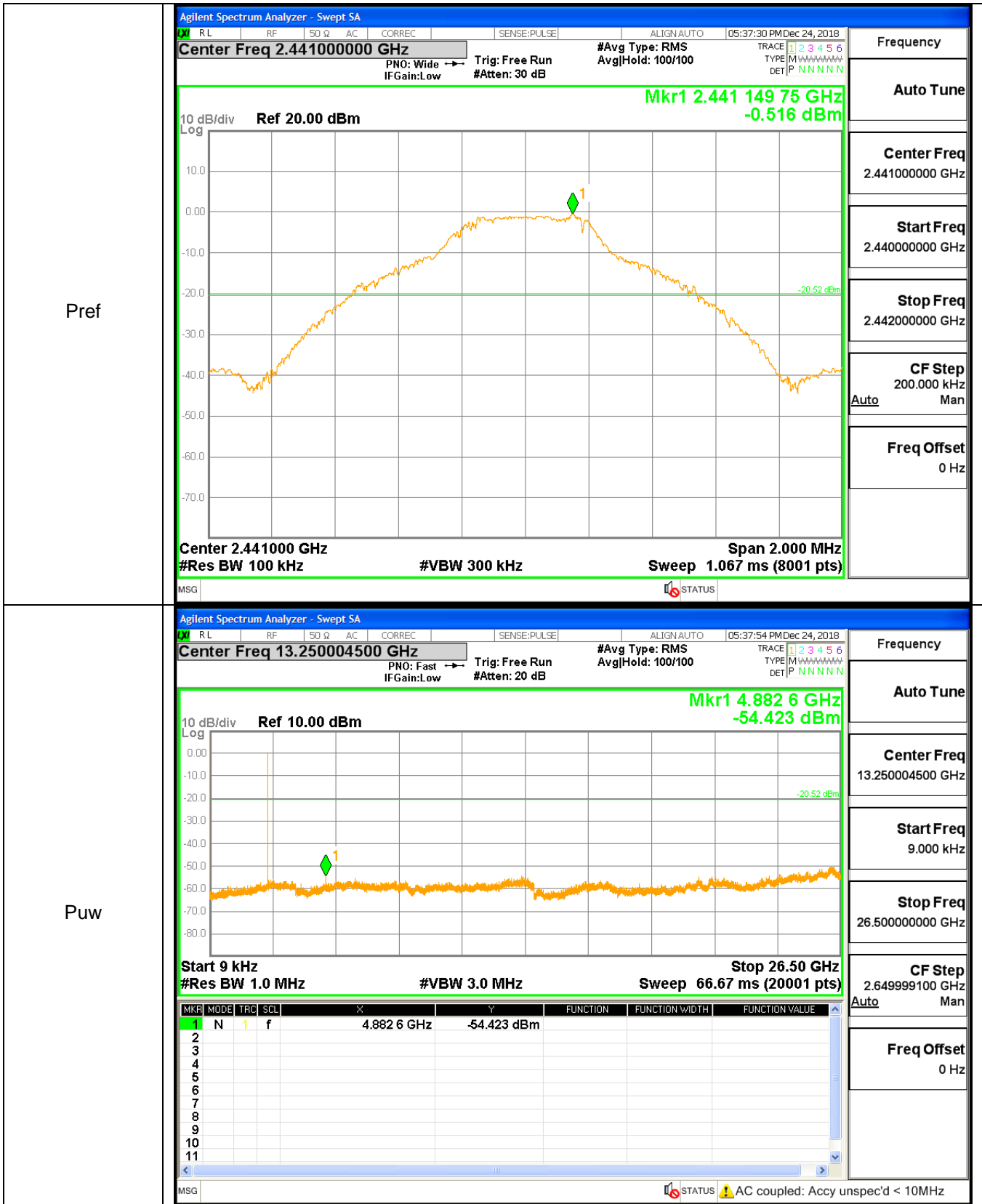




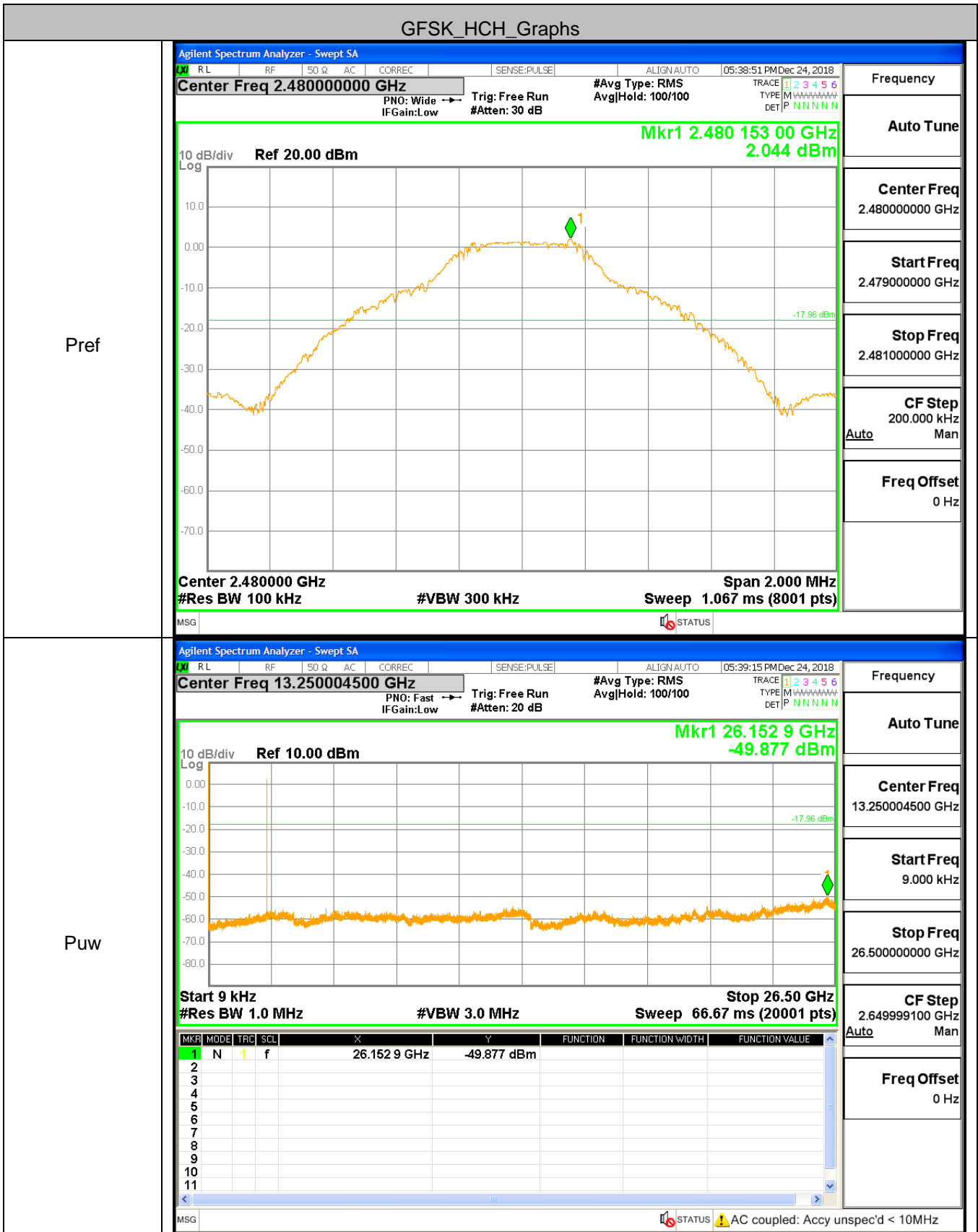


A.7 RF Conducted Spurious Emissions Test Graph

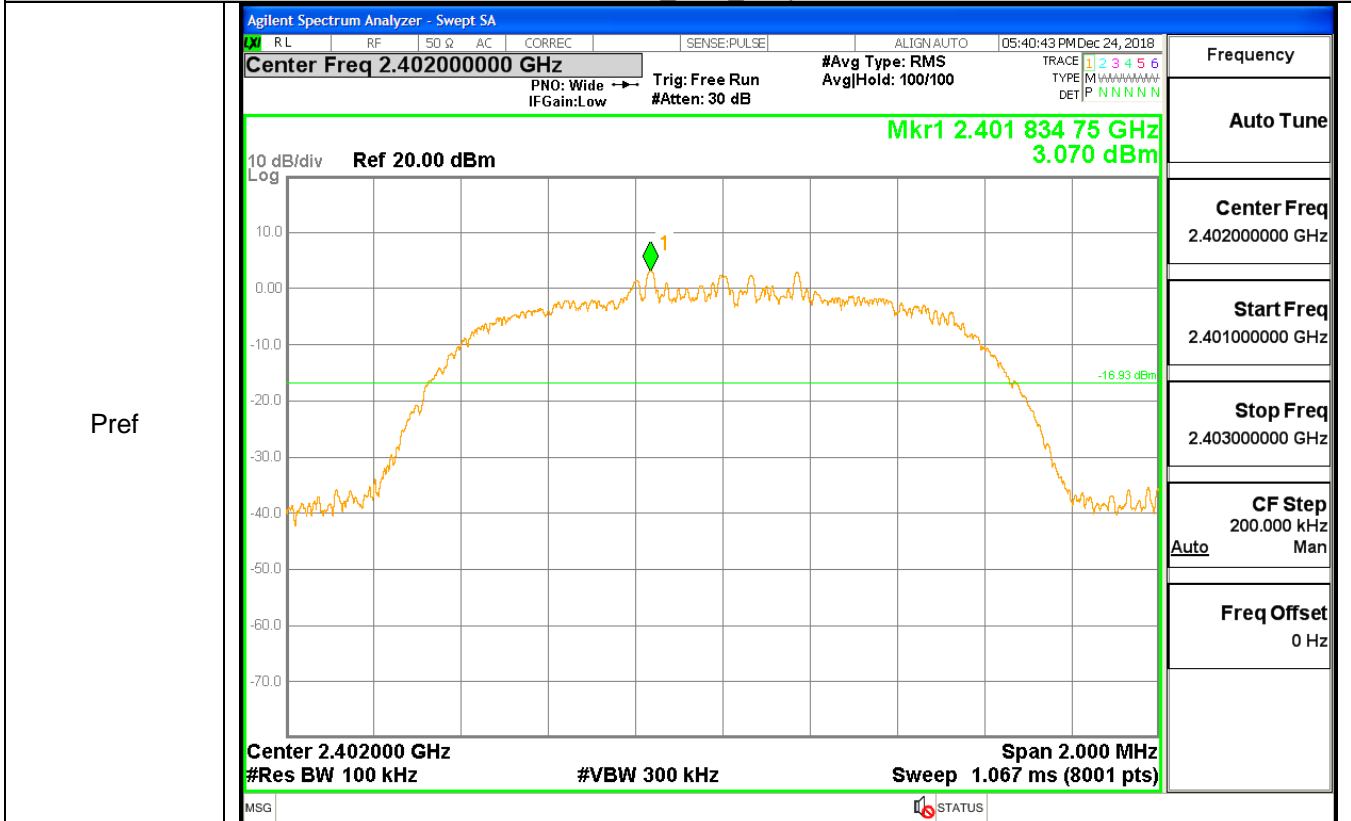




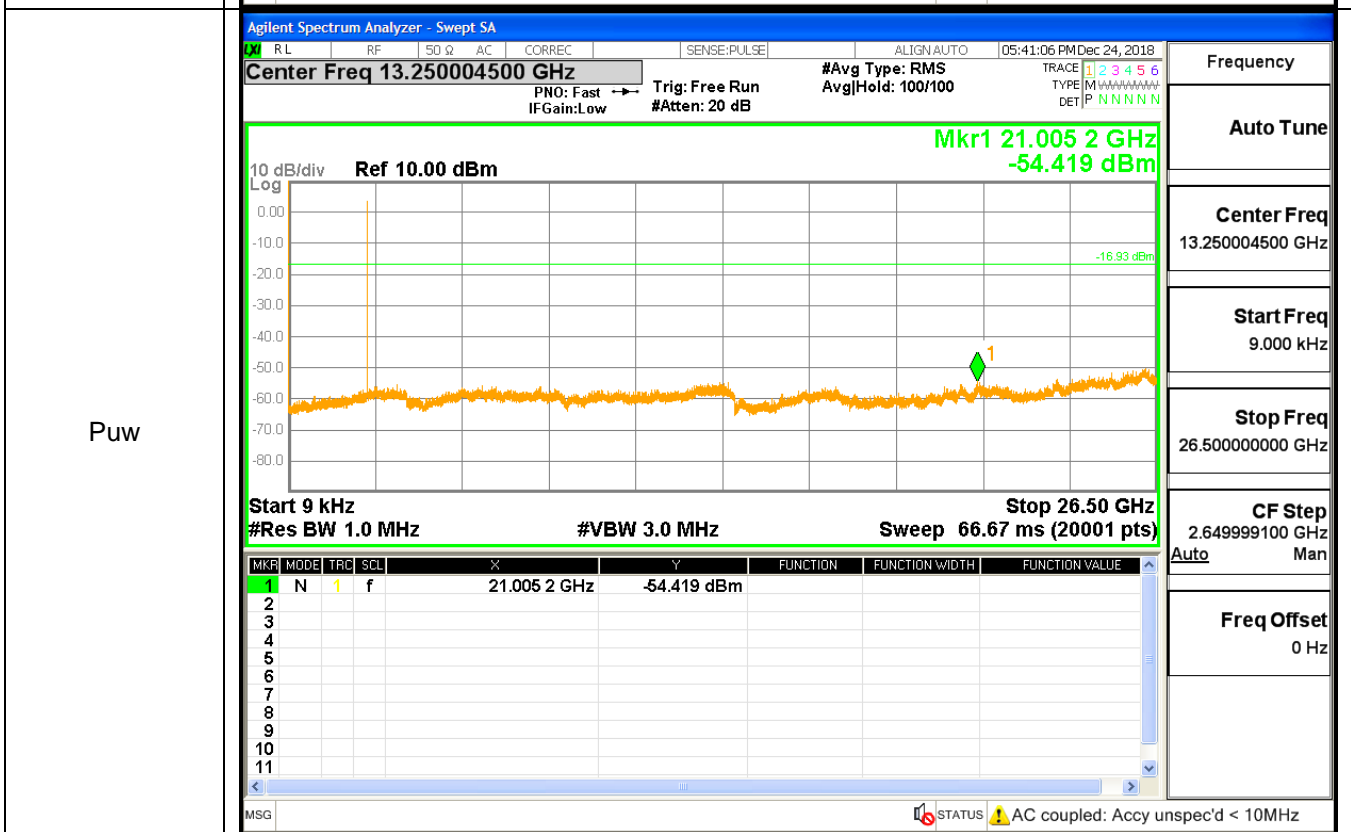
GFSK_HCH_Graphs



$\pi/4$ DQPSK_LCH_Graphs

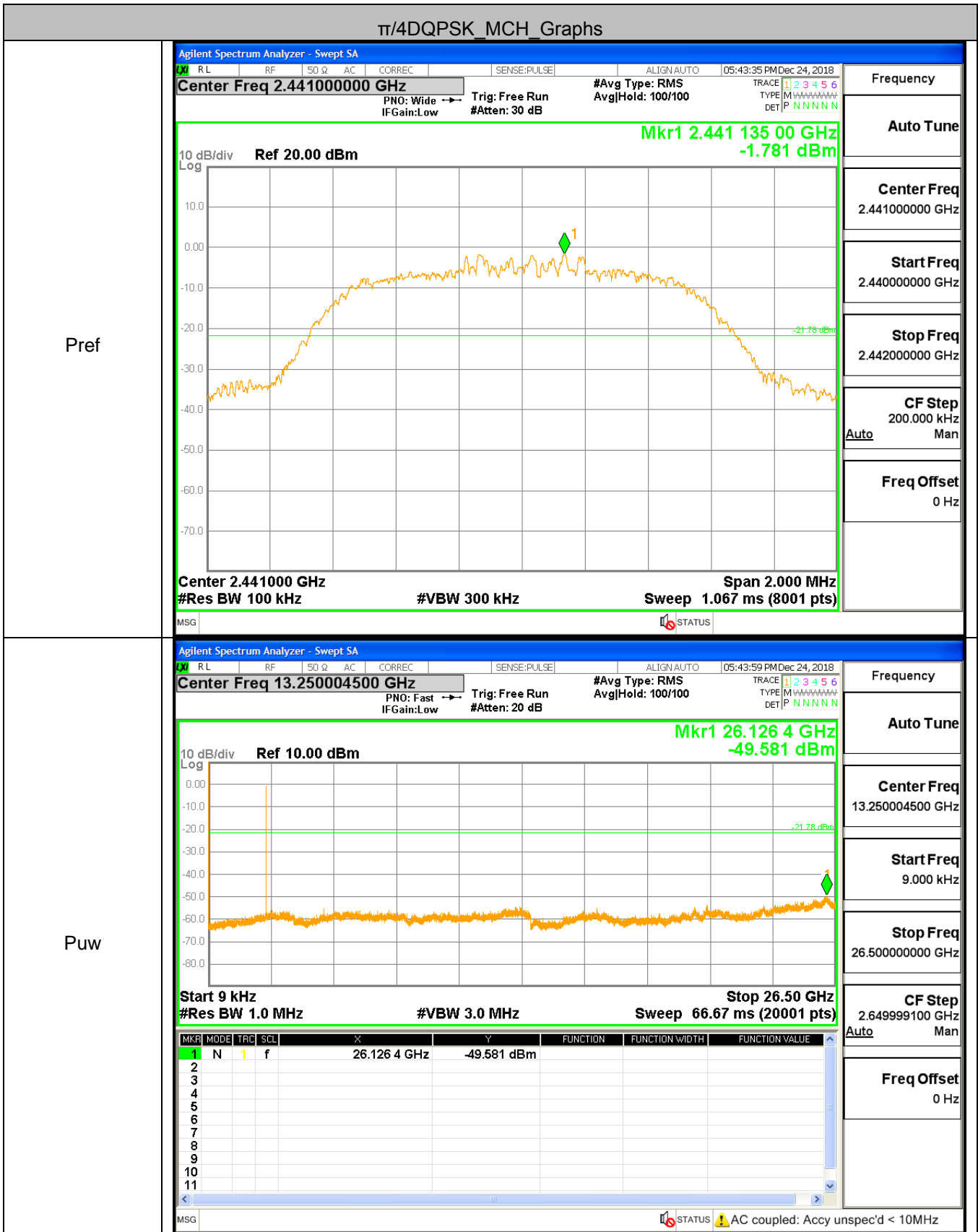


Pref

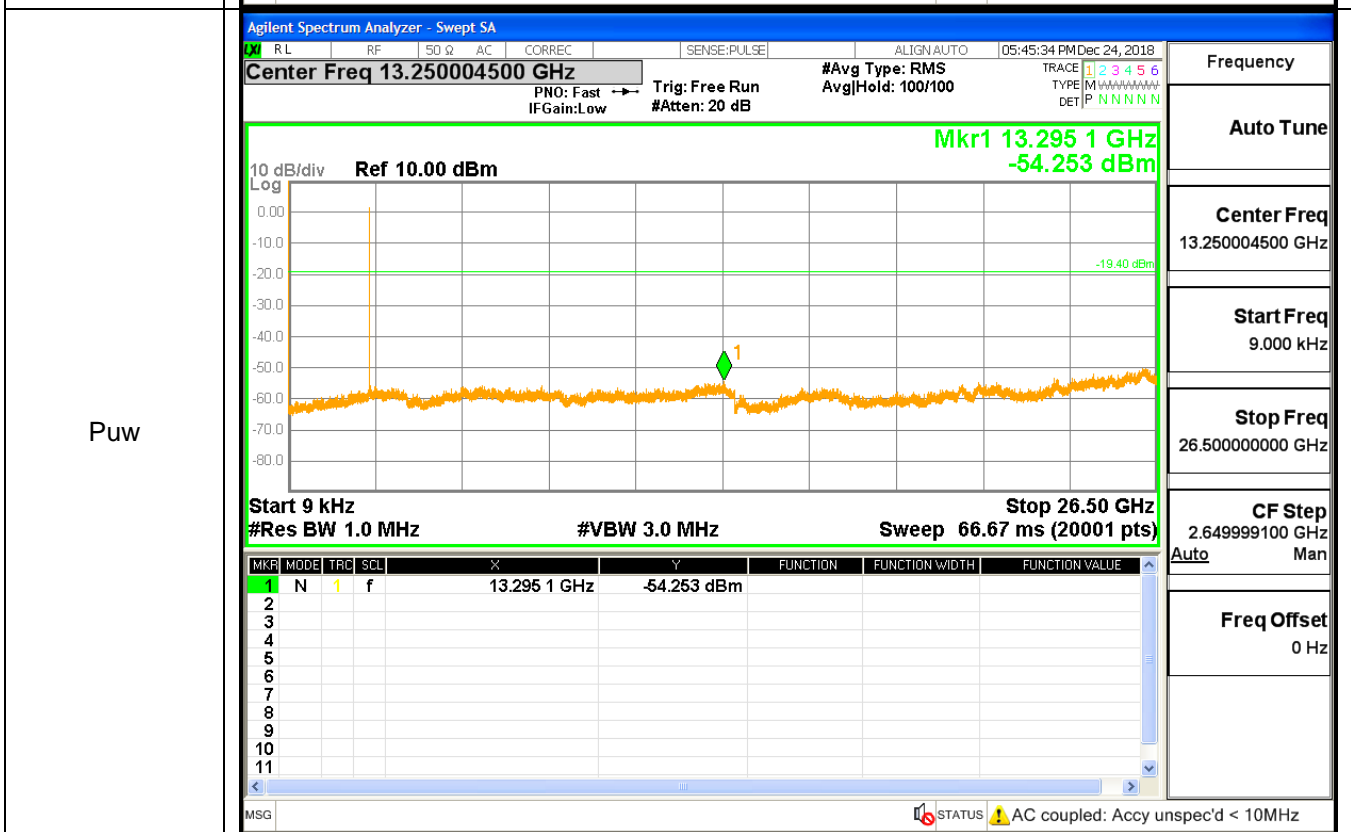
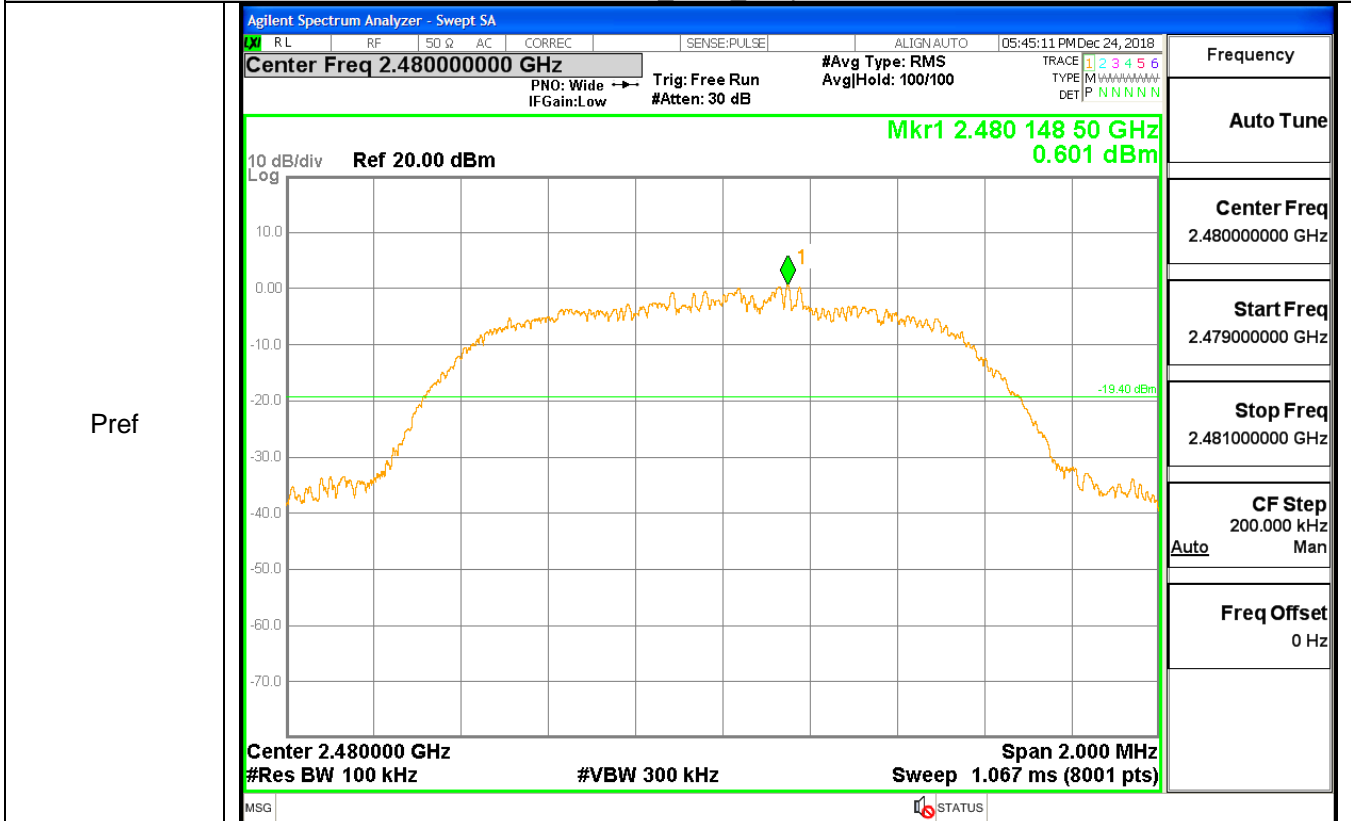


Puw

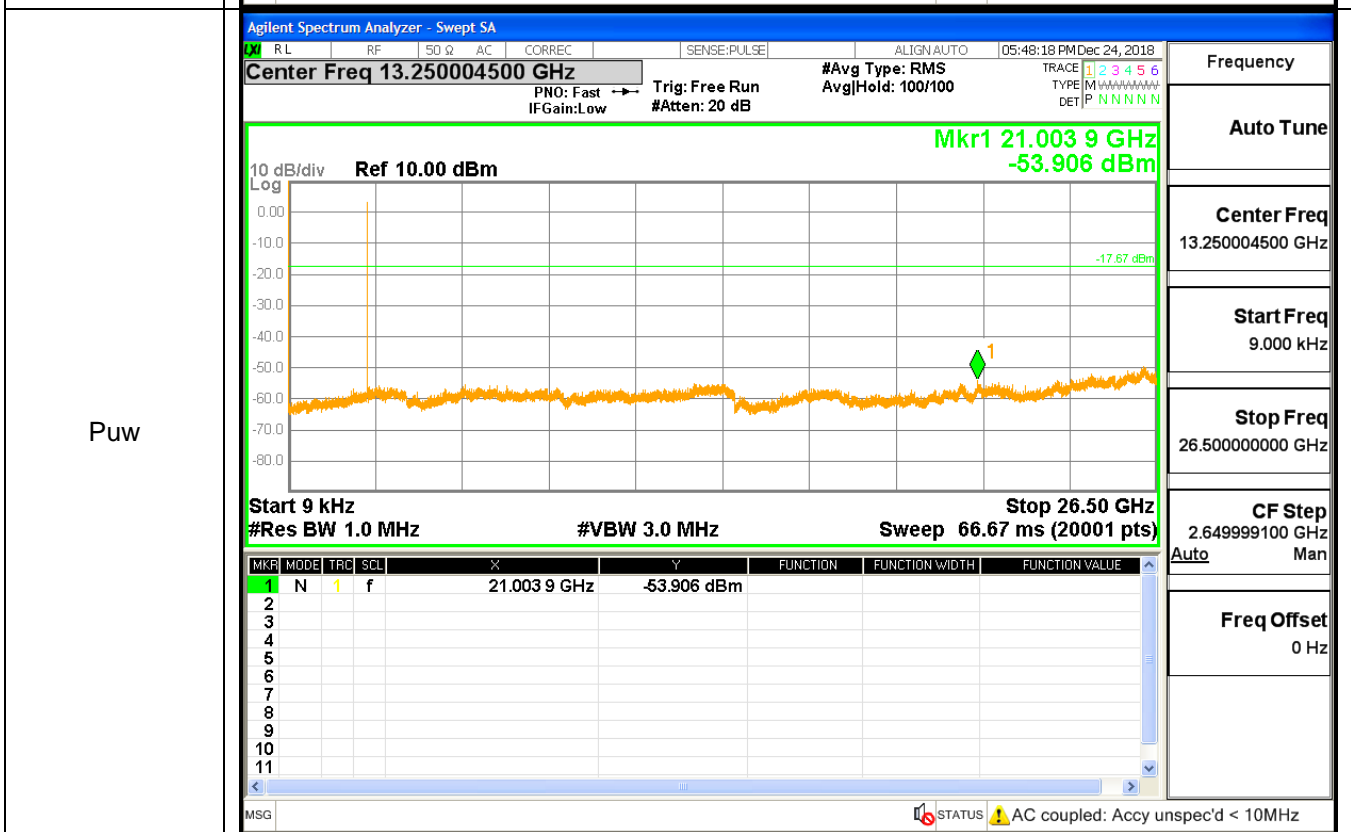
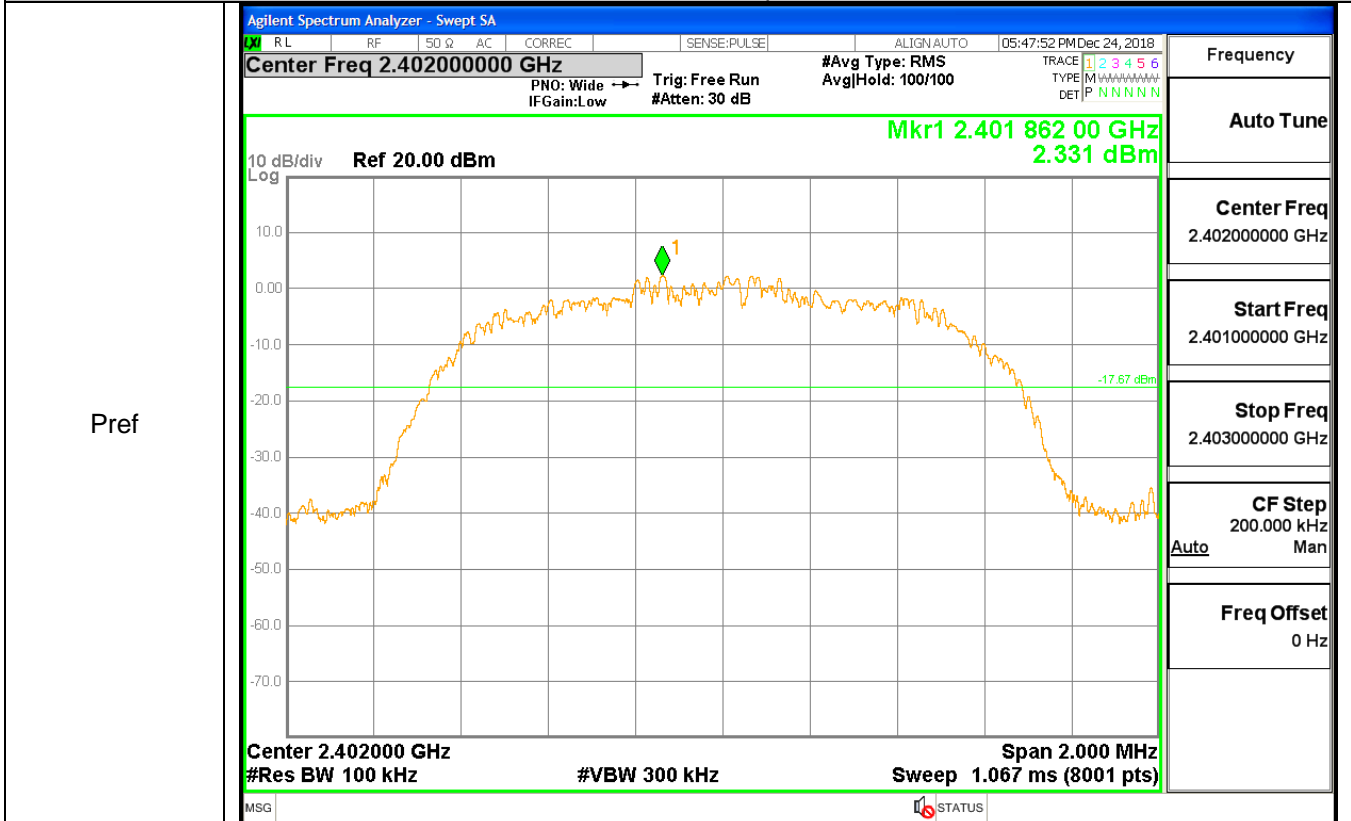
$\pi/4$ DQPSK_MCH_Graphs



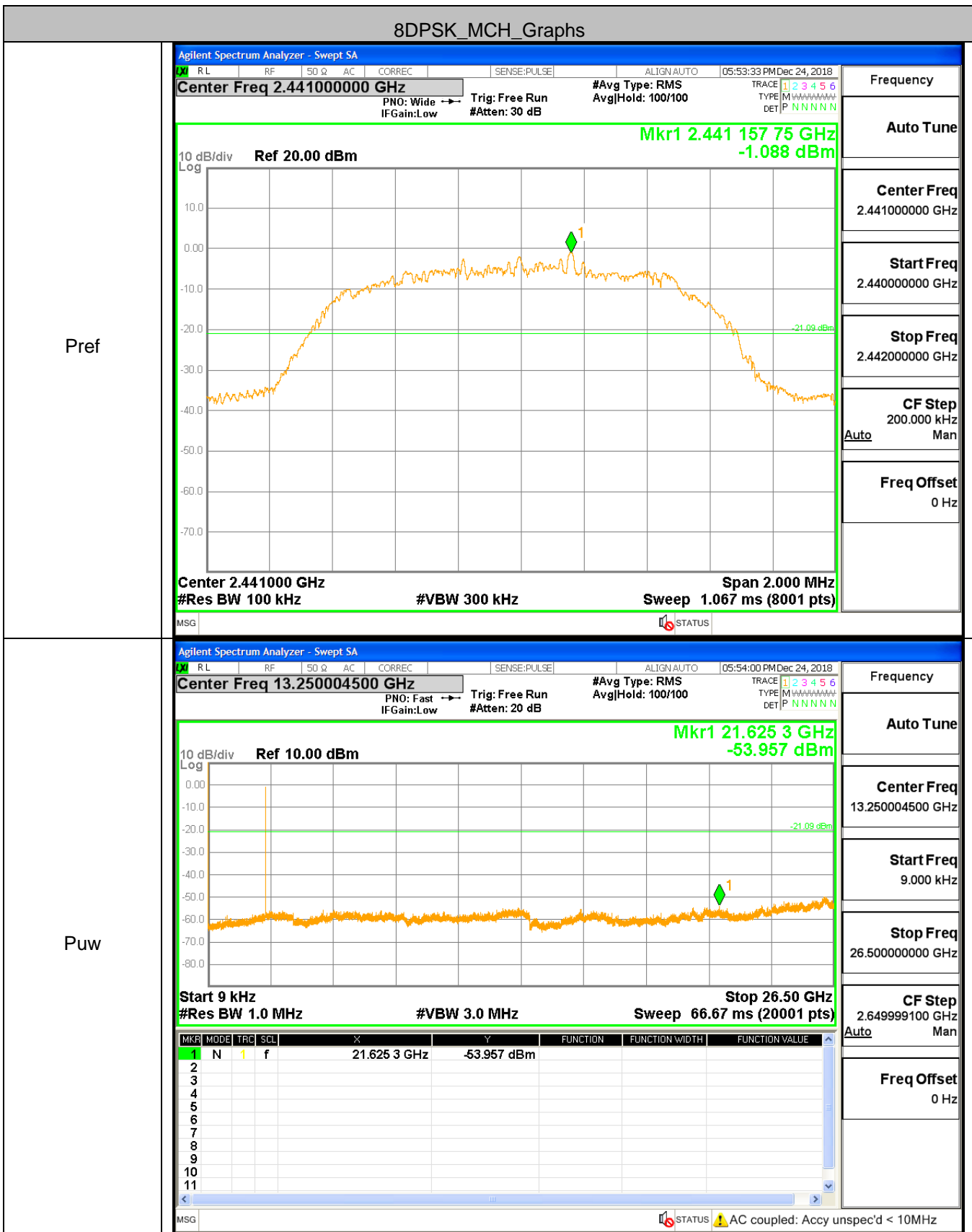
$\pi/4$ DQPSK_HCH_Graphs



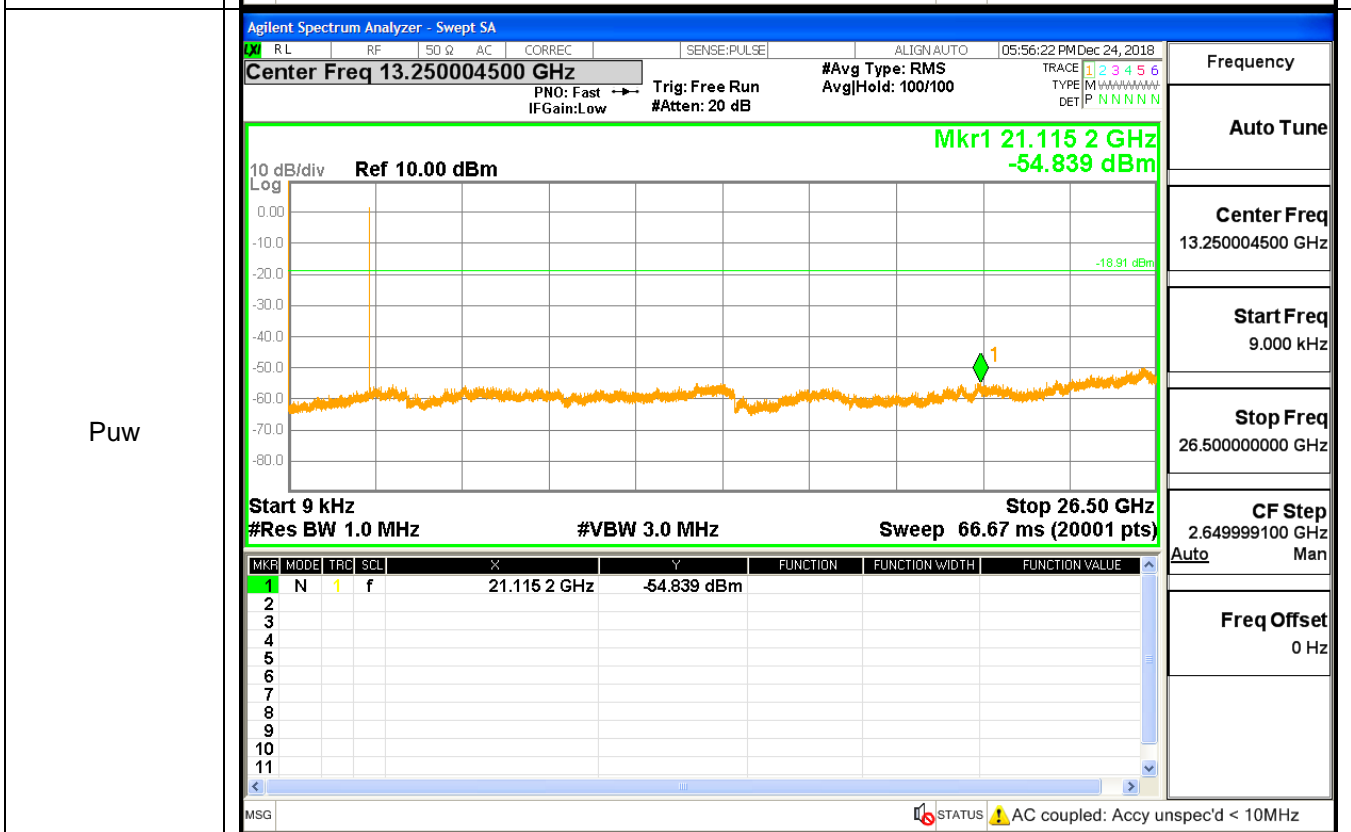
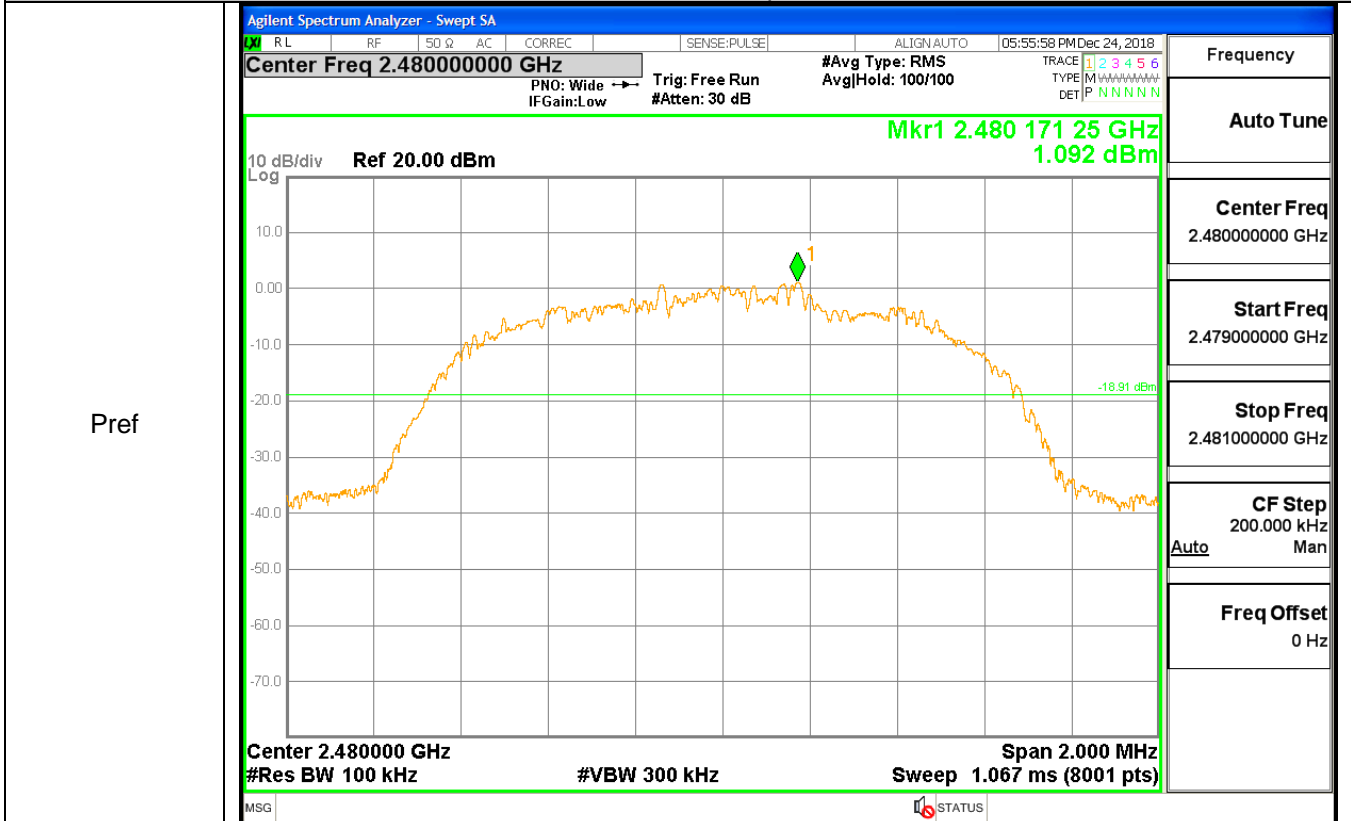
8DPSK_LCH_Graphs



8DPSK_MCH_Graphs



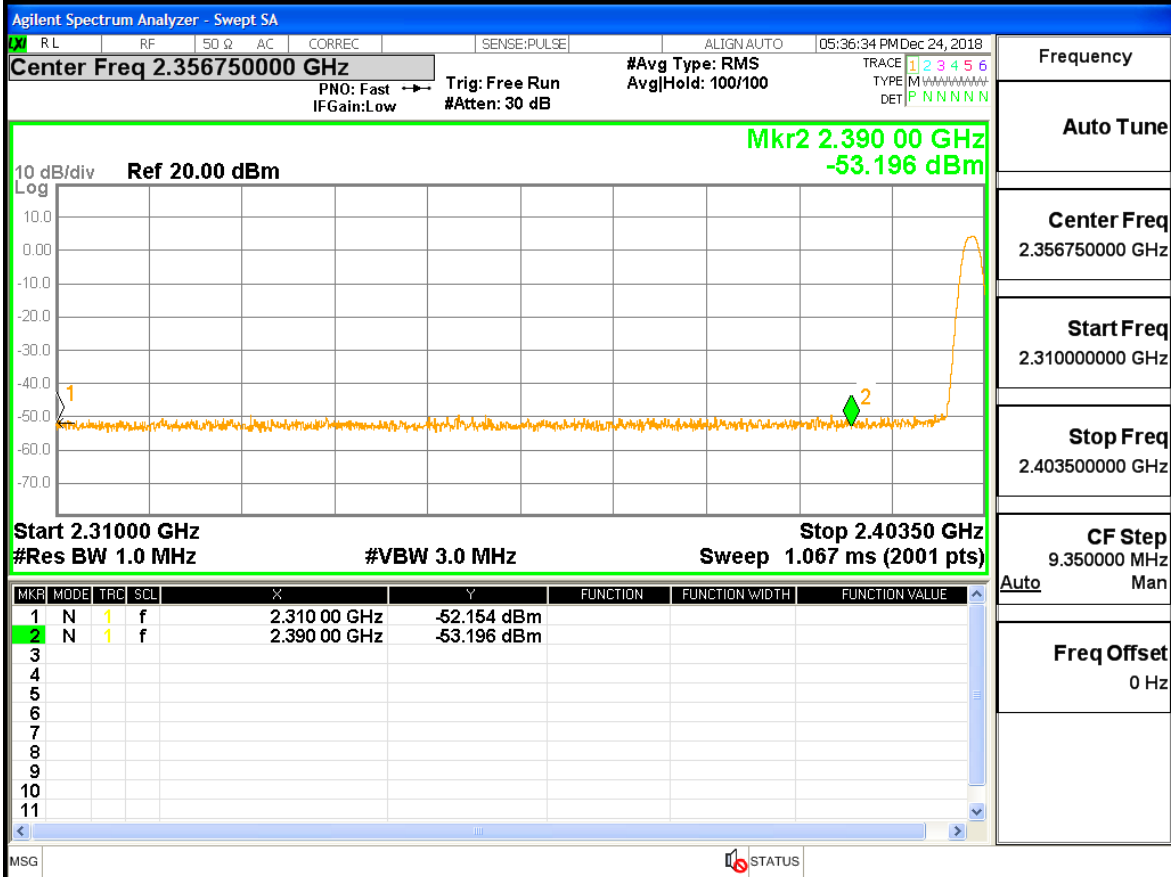
8DPSK_HCH_Graphs



A.8 Restrict-band band-edge measurements

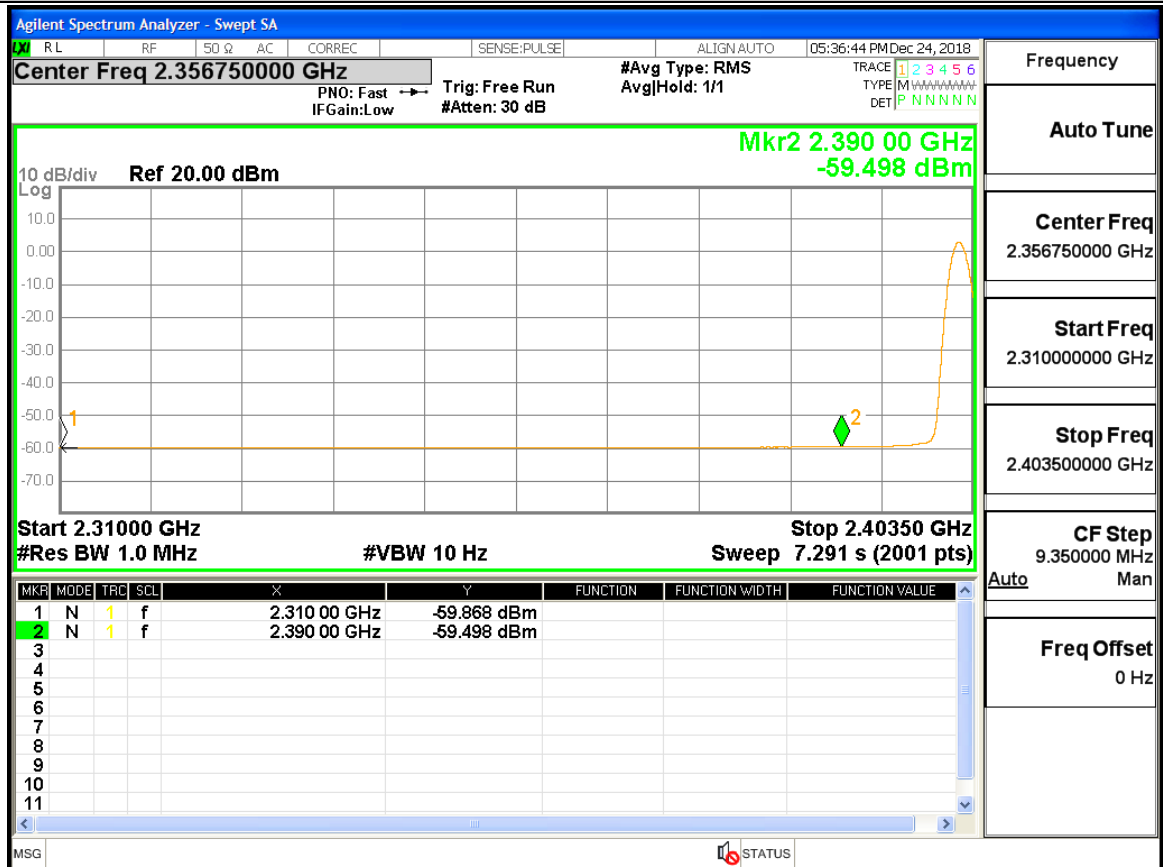
Type	Carrier Frequency (MHz)	Frequency(MHz)	Gain	Ground Factor	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2310	2	0	-52.15	45.05	74	-59.87	37.33	54	Pass
1DH5	2402	2390	2	0	-53.2	44	74	-59.5	37.7	54	Pass
1DH5	2480	2483.5	2	0	-50.36	46.84	74	-56.37	40.83	54	Pass
1DH5	2480	2500	2	0	-53.26	43.94	74	-59.05	38.15	54	Pass
2DH5	2402	2310	2	0	-51.21	45.99	74	-59.89	37.31	54	Pass
2DH5	2402	2390	2	0	-50.82	46.38	74	-59.48	37.72	54	Pass
2DH5	2480	2483.5	2	0	-51.36	45.84	74	-55.64	41.56	54	Pass
2DH5	2480	2500	2	0	-53.54	43.66	74	-59.1	38.1	54	Pass
3DH5	2402	2310	2	0	-53.26	43.94	74	-59.88	37.32	54	Pass
3DH5	2402	2390	2	0	-52.56	44.64	74	-59.45	37.75	54	Pass
3DH5	2480	2483.5	2	0	-49.6	47.6	74	-55.73	41.47	54	Pass
3DH5	2480	2500	2	0	-51.32	45.88	74	-59.02	38.18	54	Pass

Restrict-band band-edge measurements_2402_PEAK_DH5



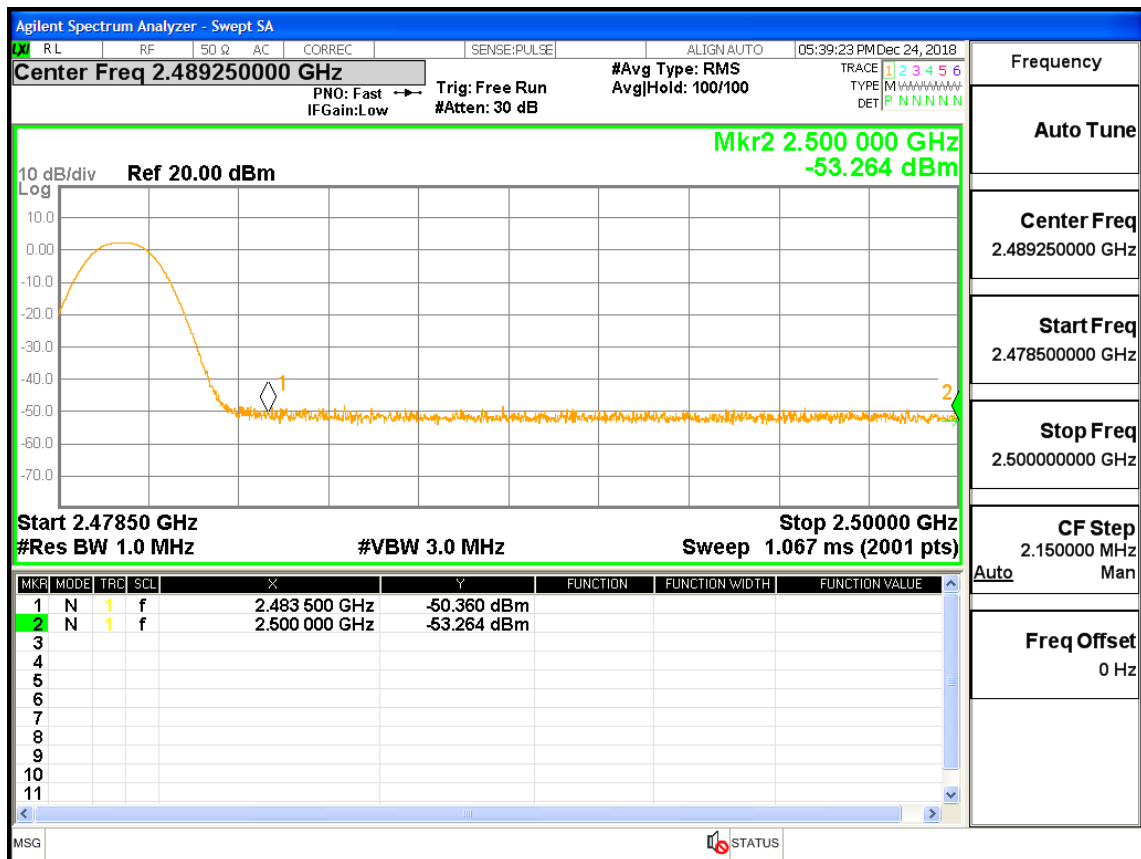
Frequency
Auto Tune
Center Freq 2.356750000 GHz
Start Freq 2.310000000 GHz
Stop Freq 2.403500000 GHz
CF Step 9.350000 MHz
Auto Man
Freq Offset 0 Hz

Restrict-band band-edge measurements_2402_AV_DH5



Frequency
Auto Tune
Center Freq 2.356750000 GHz
Start Freq 2.310000000 GHz
Stop Freq 2.403500000 GHz
CF Step 9.350000 MHz
Auto Man
Freq Offset 0 Hz

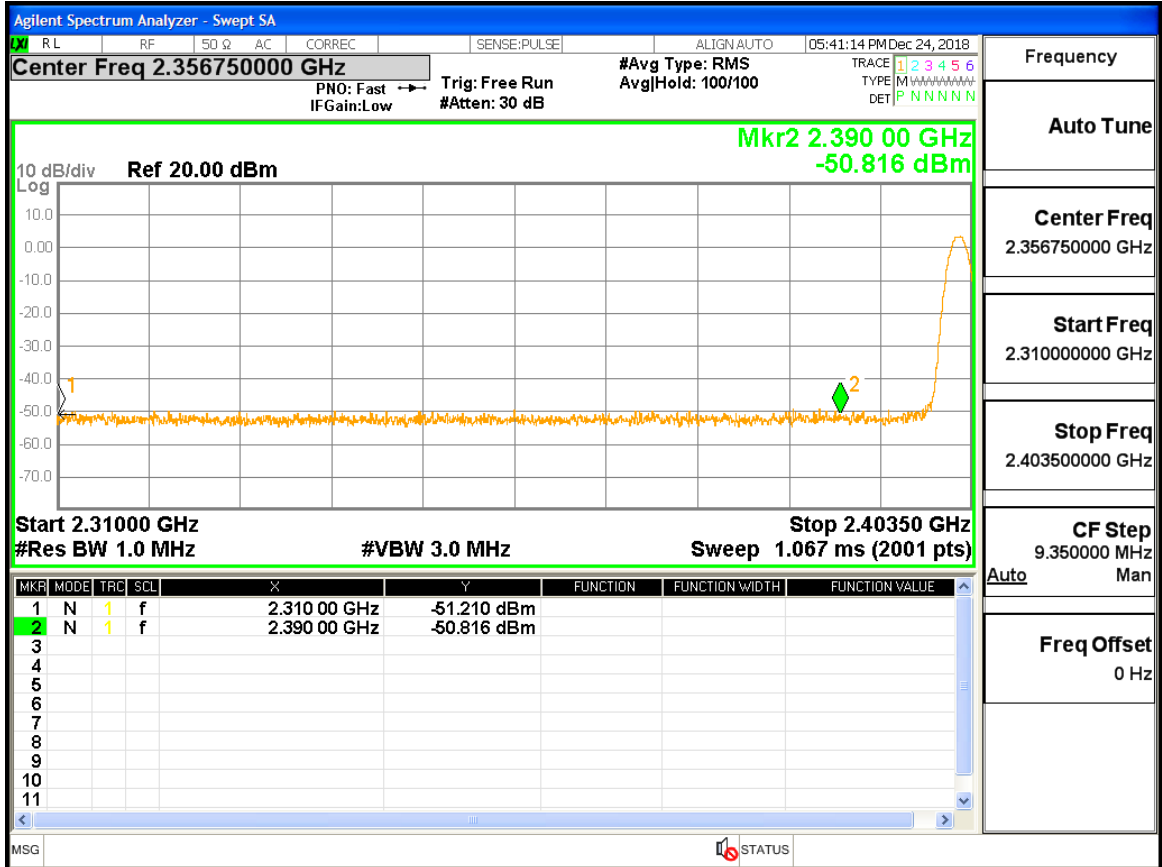
Restrict-band band-edge measurements_2480_PEAK_DH5



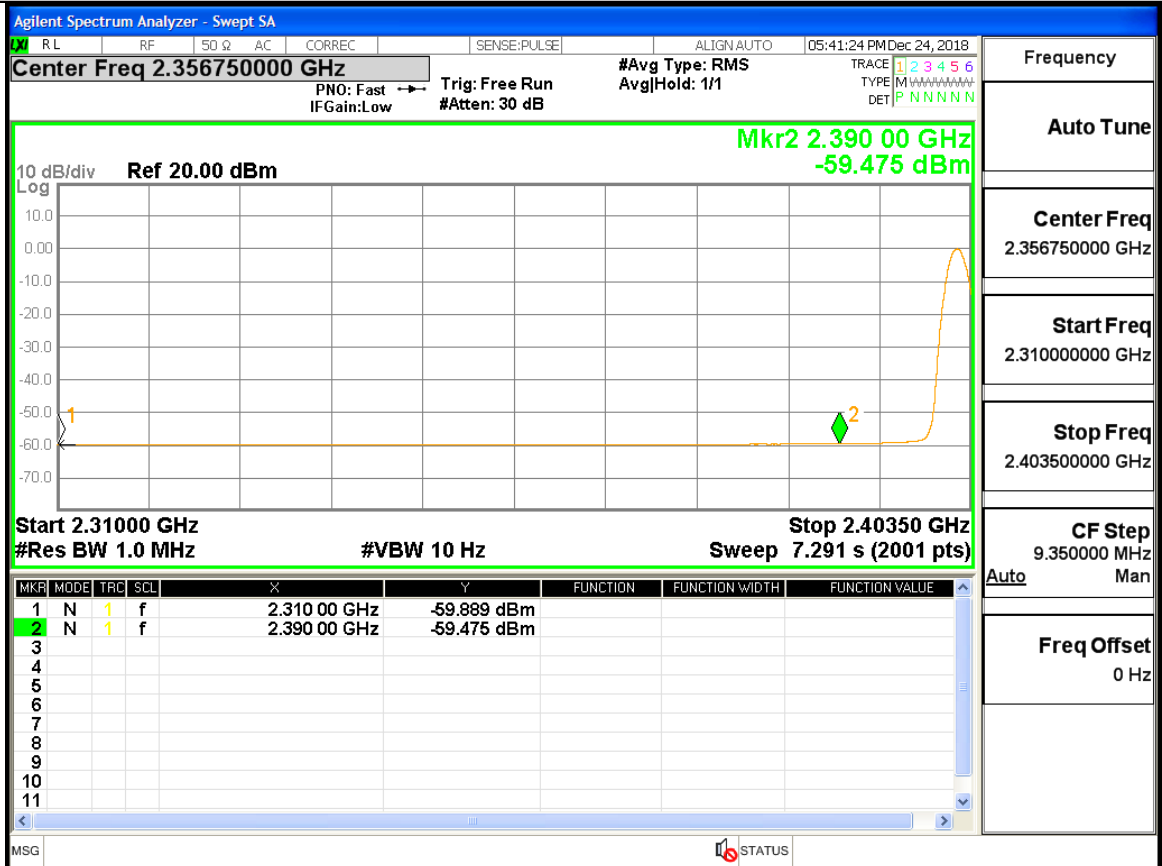
Restrict-band band-edge measurements_2480_AV_DH5



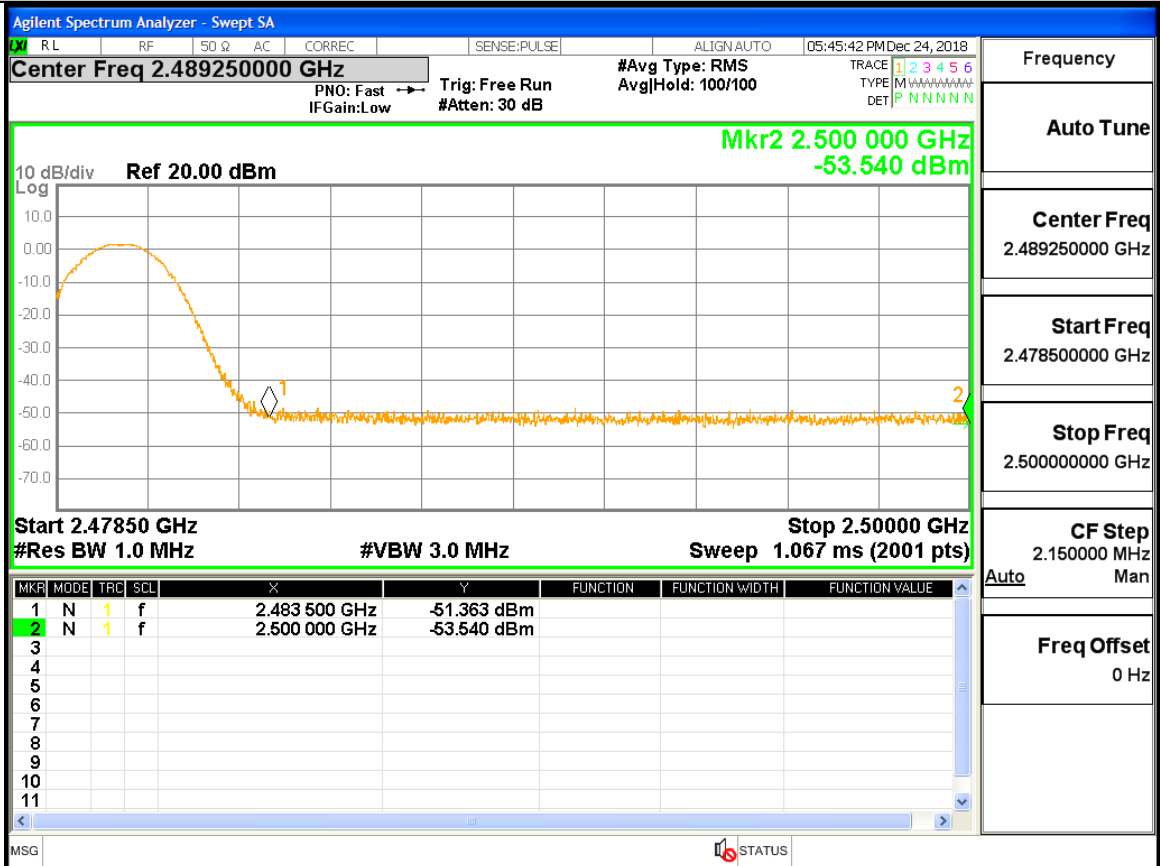
Restrict-band band-edge measurements_2402_PEAK_2DH5



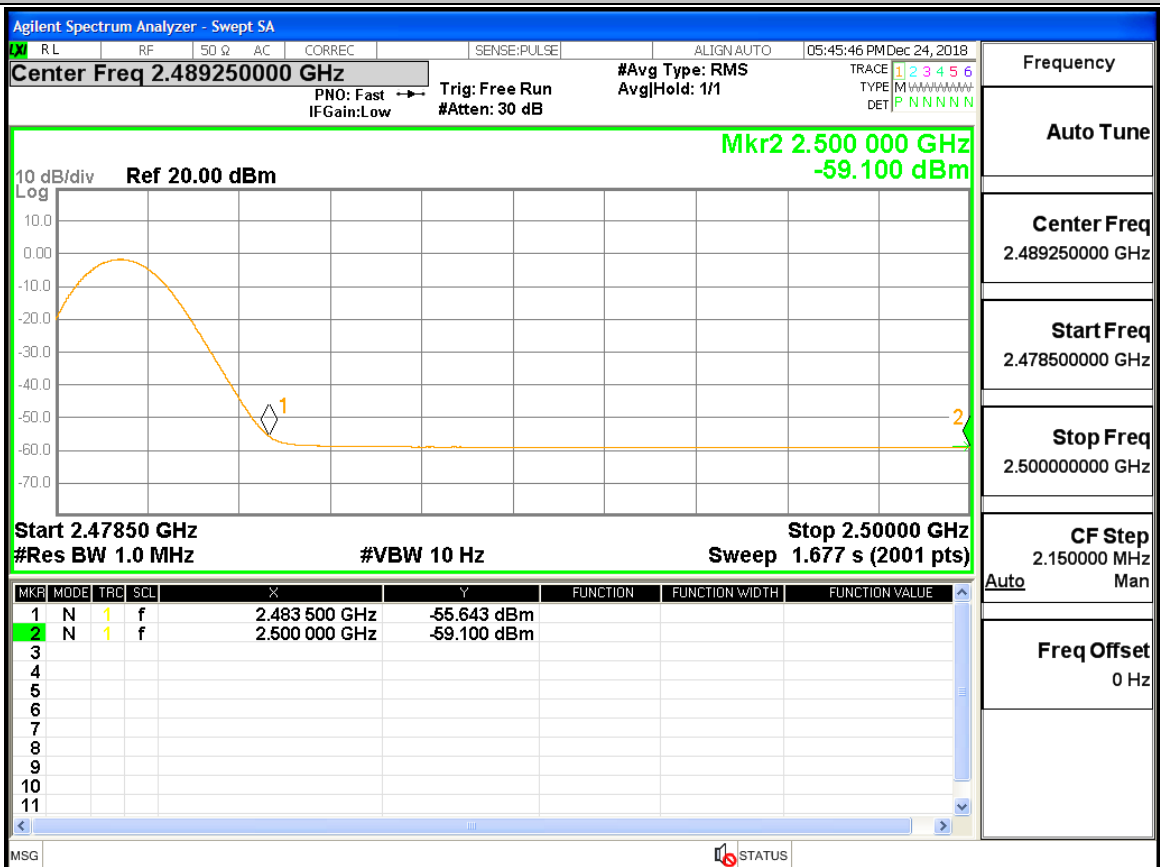
Restrict-band band-edge measurements_2402_AV_2DH5



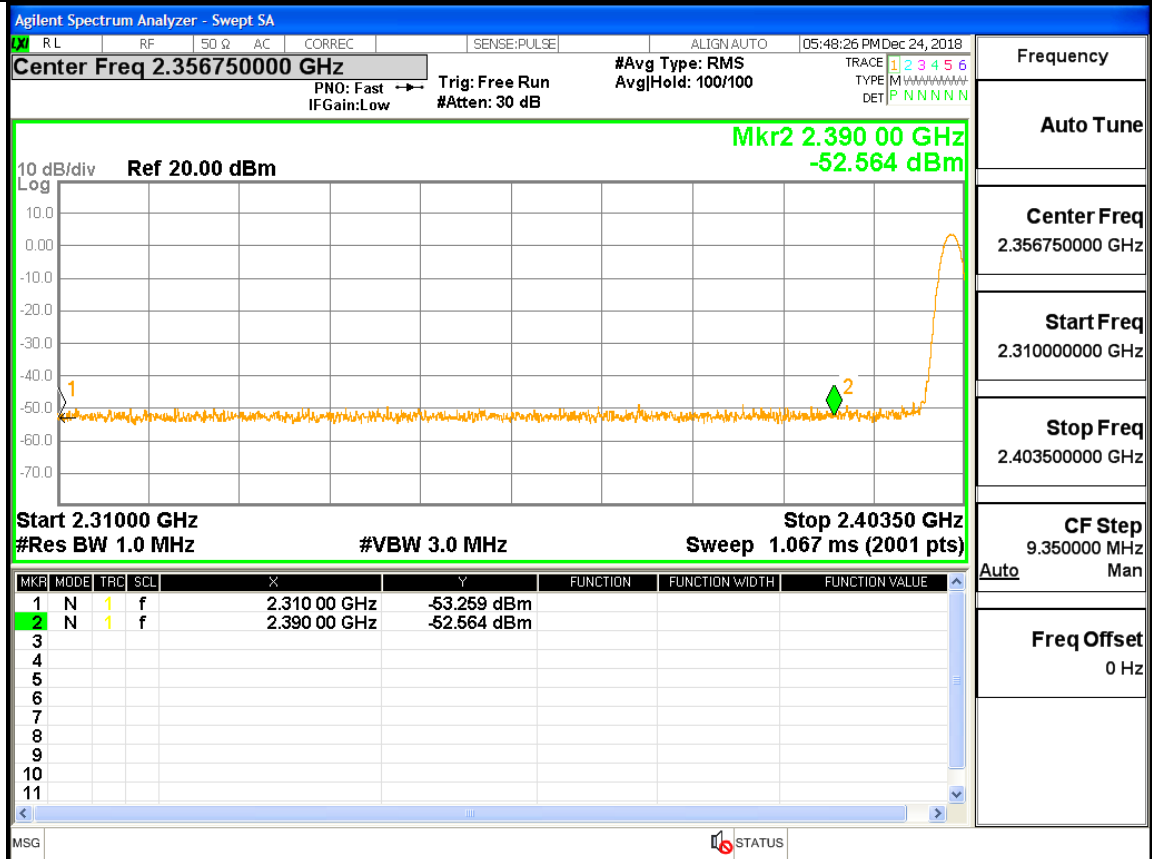
Restrict-band band-edge measurements_2480_PEAK_2DH5



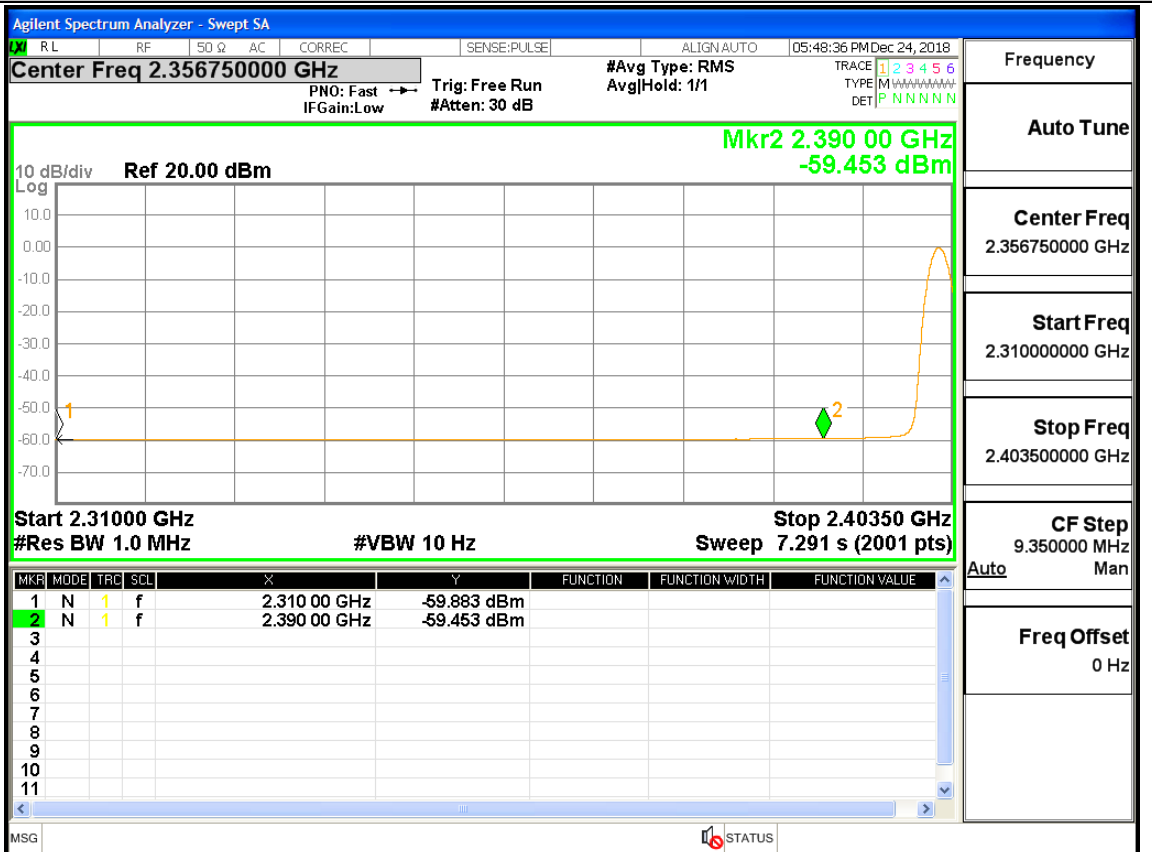
Restrict-band band-edge measurements_2480_AV_2DH5



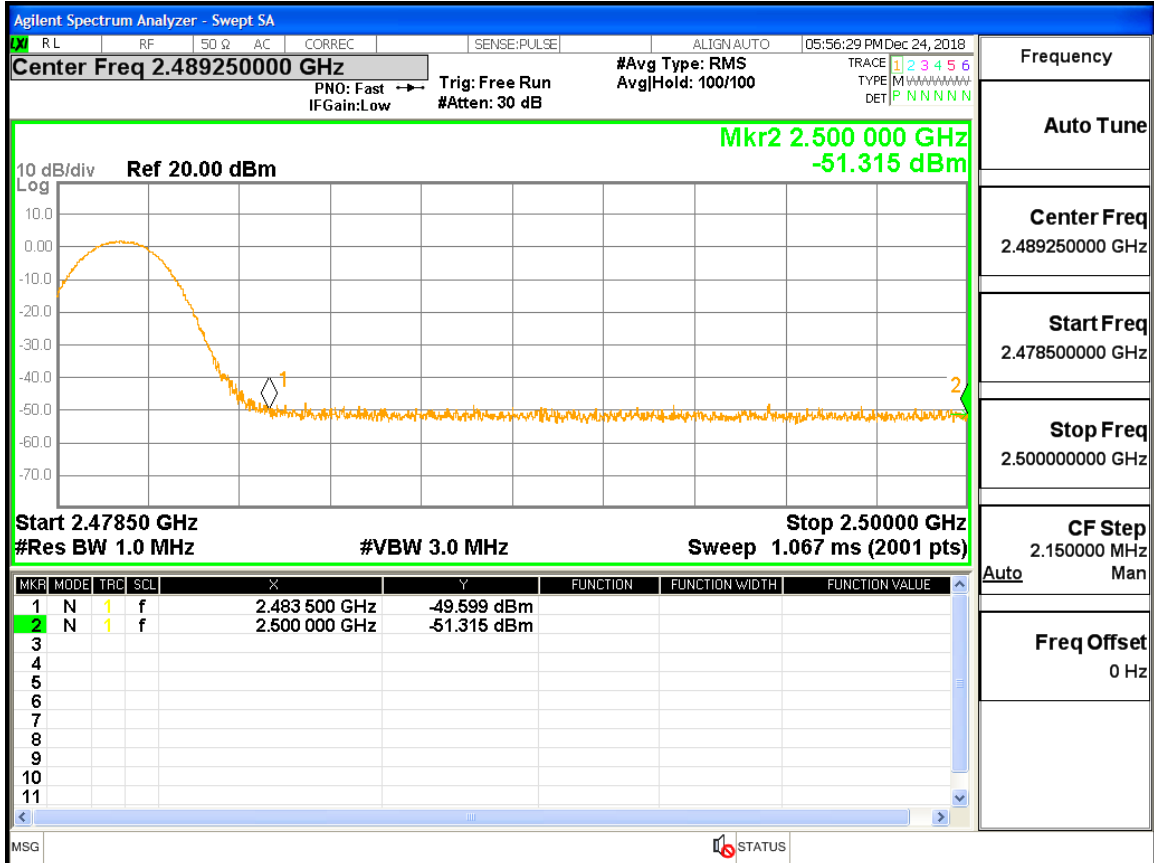
Restrict-band band-edge measurements_2402_PEAK_3DH5



Restrict-band band-edge measurements_2402_AV_3DH5



Restrict-band band-edge measurements_2480_PEAK_3DH5



Restrict-band band-edge measurements_2480_AV_3DH5

