

Appendix A: Test results

1 Duty Cycle

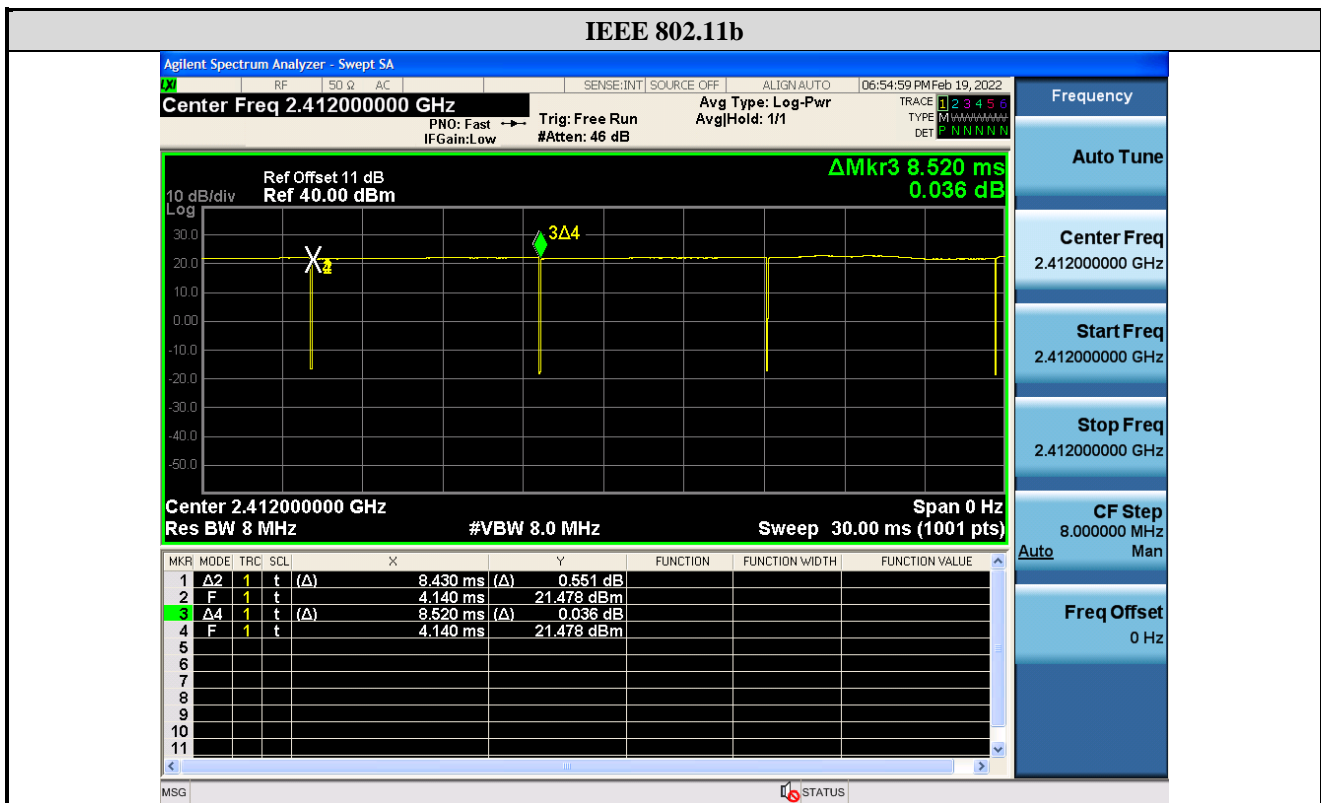
1.1 Test Data

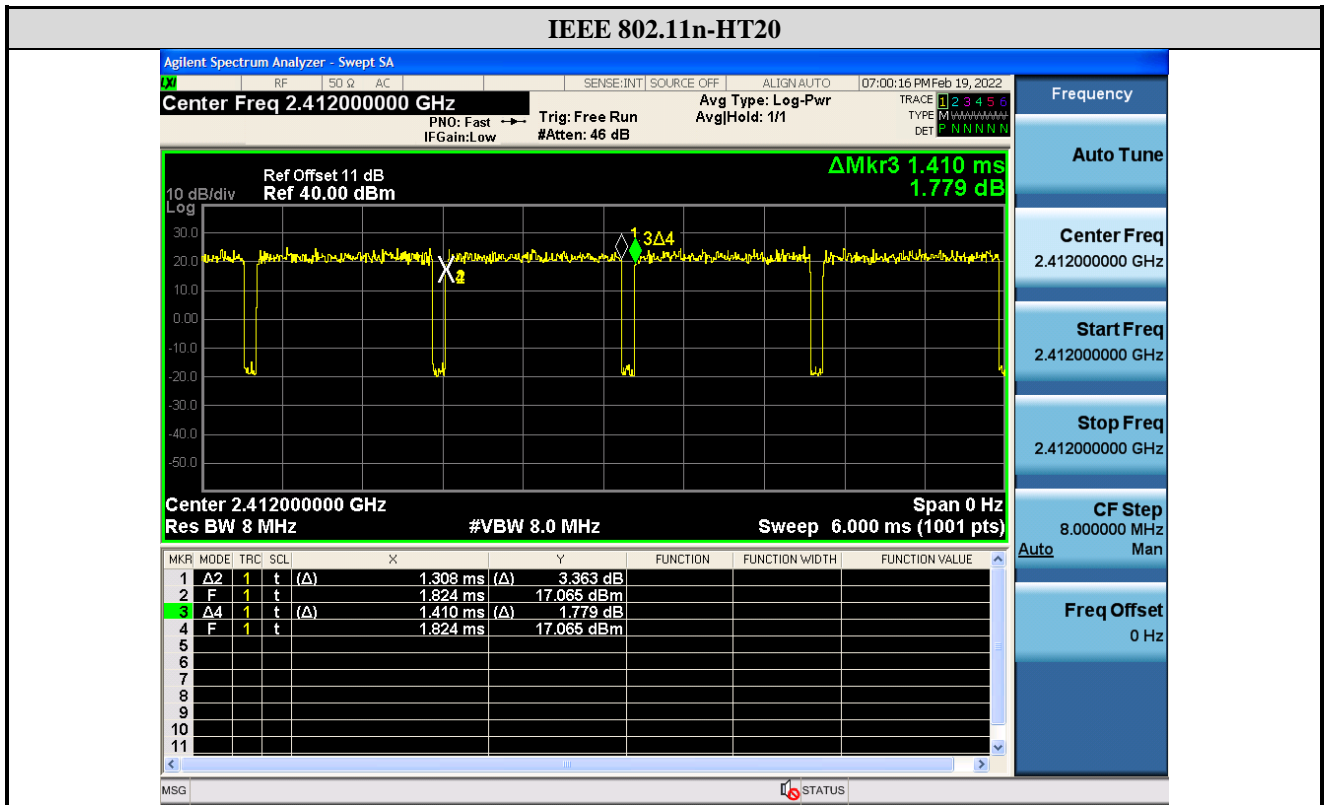
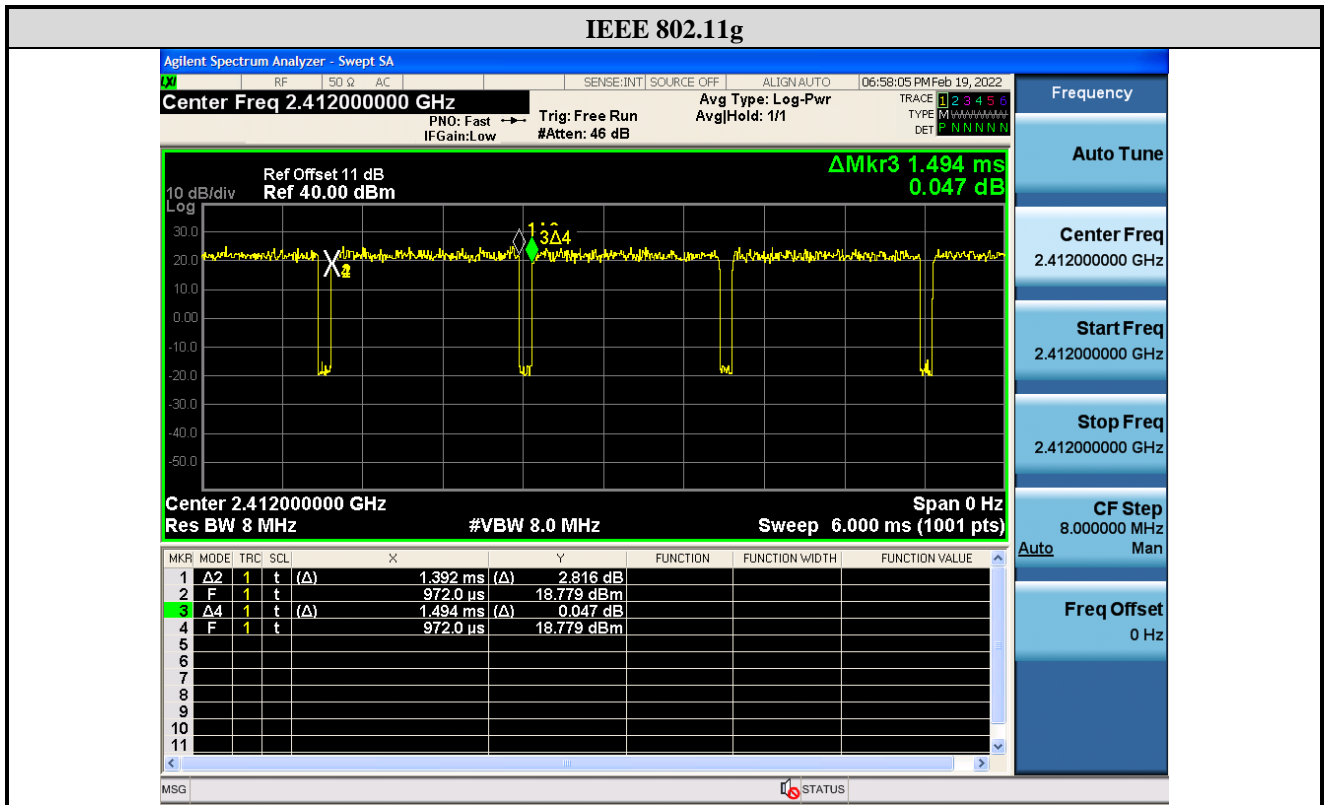
Mode	Data rates (Mbps)	On Time (msec)	Period (msec)	Duty Cycle (linear)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)	Average Factor (dB)
IEEE 802.11b	1	8.4300	8.5200	0.99	98.94	0.00	0.01	-0.09
IEEE 802.11g	6	1.3920	1.4940	0.93	93.17	0.31	0.72	-0.61
IEEE 802.11n-HT20	MCS0	1.3080	1.4100	0.93	92.77	0.33	0.76	-0.65

Remark:

- 1) Duty cycle= On Time/ Period;
- 2) Duty Cycle factor = $10 * \log(1/ \text{Duty cycle})$;
- 3) Average factor = $20 \log_{10} \text{Duty Cycle}$.

1.2 Test Plots



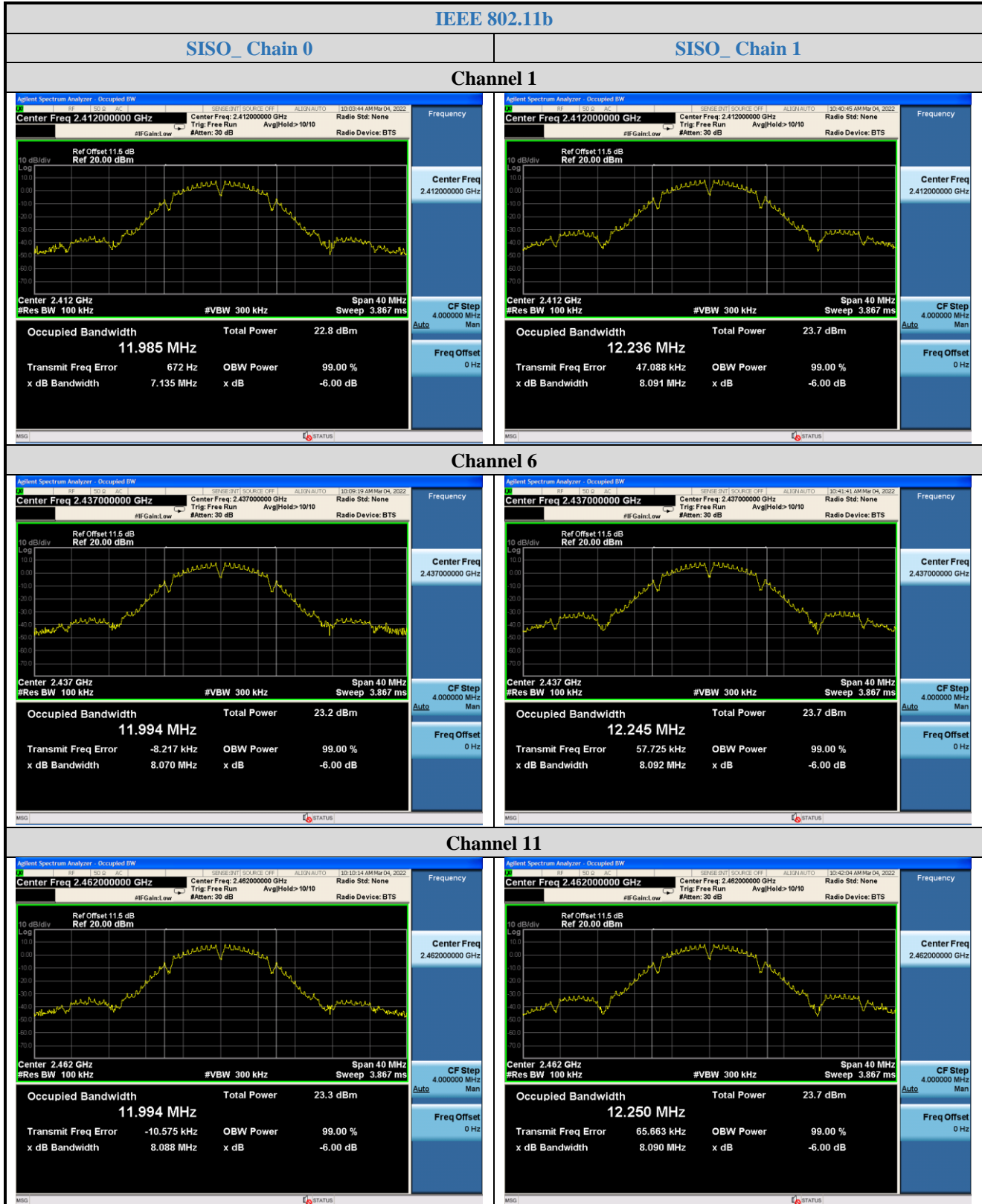


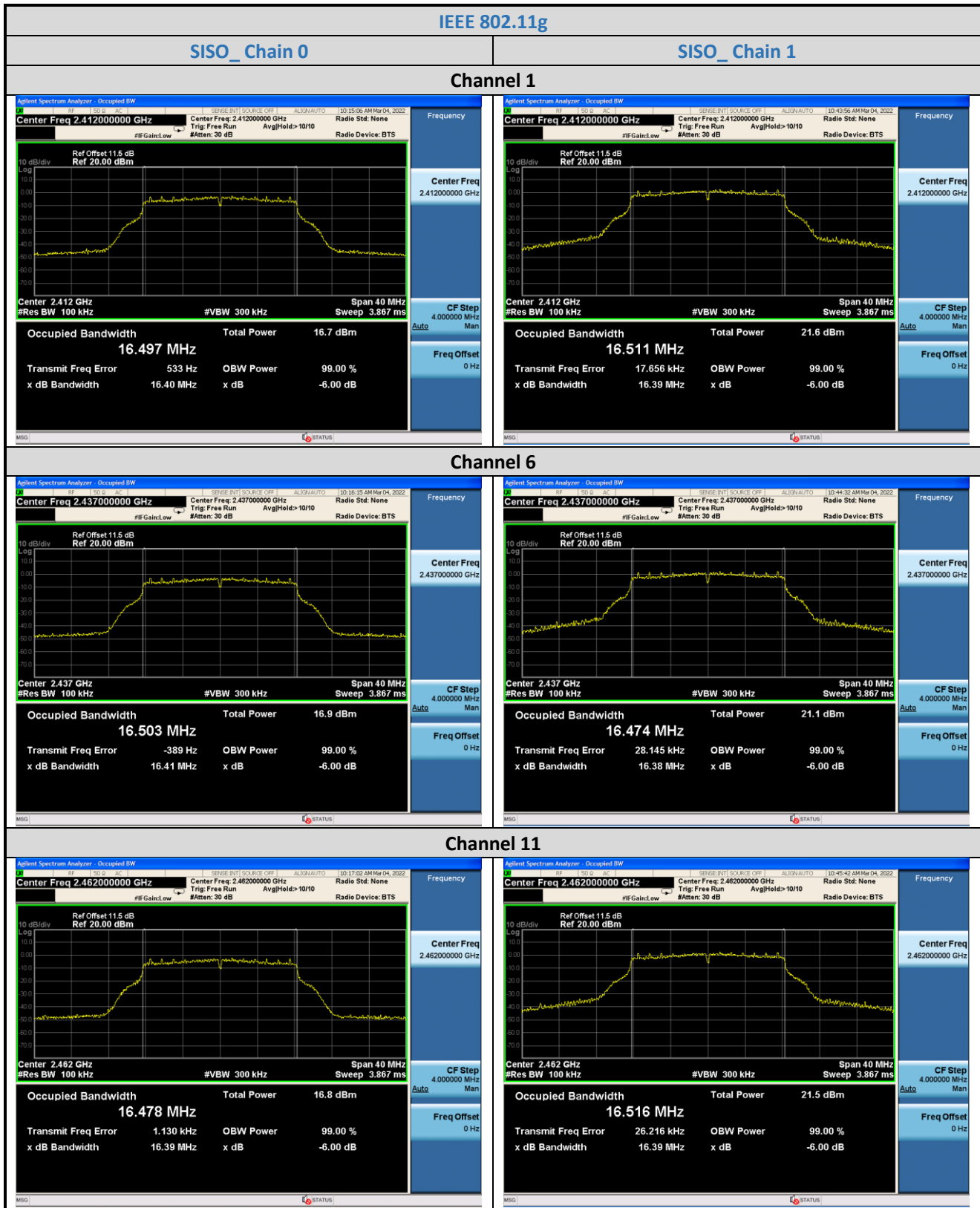
2 Minimum 6dB bandwidth

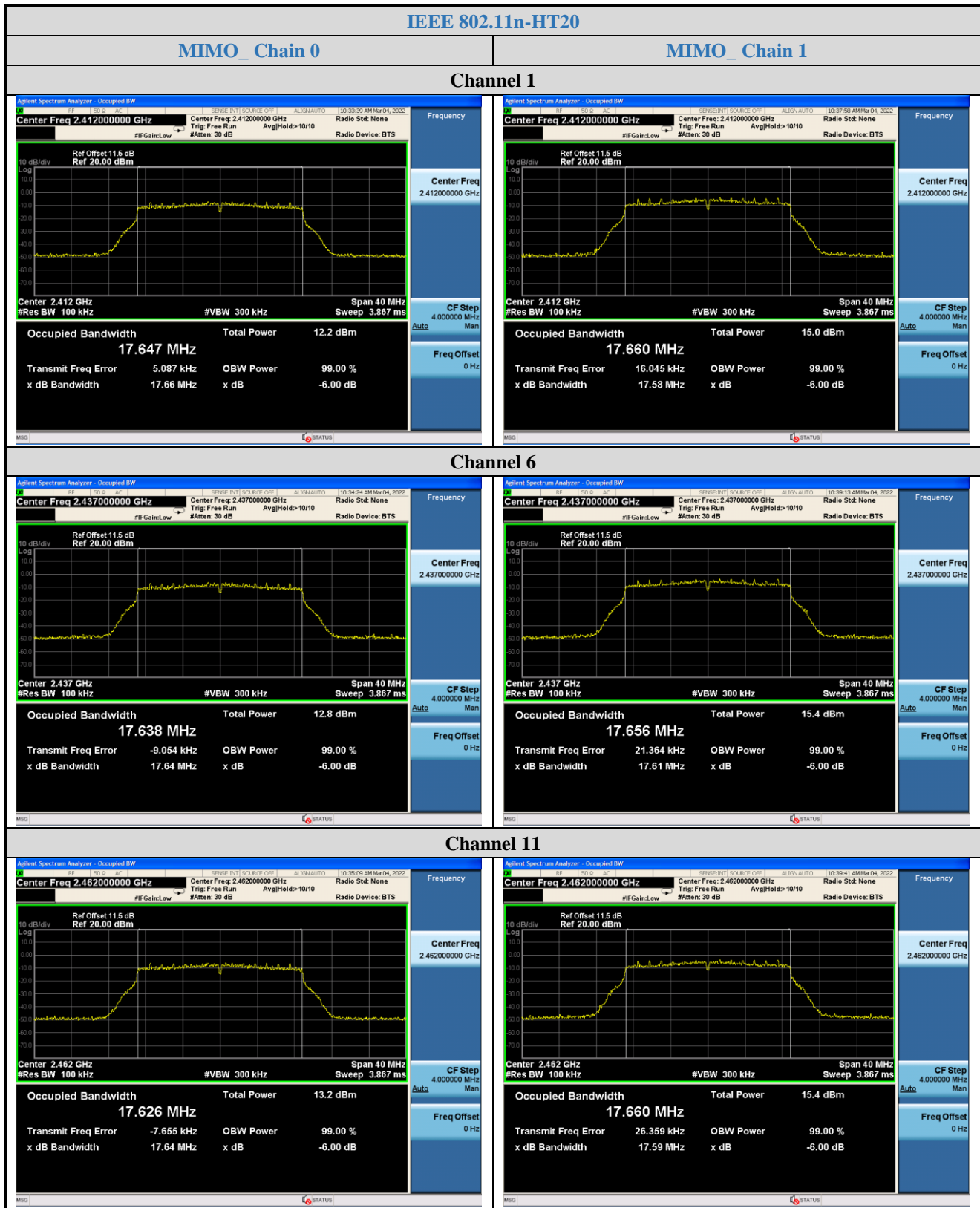
2.1 Test Data

WLAN Occupied 6dB Bandwidth				
Mode	Test Frequency (MHz)	Ant	Occupied Bandwidth (MHz)	Result
802.11b	2412	Ant0	7.135	Pass
	2437	Ant0	8.070	Pass
	2462	Ant0	8.088	Pass
	2412	Ant1	8.091	Pass
	2437	Ant1	8.092	Pass
	2462	Ant1	8.090	Pass
802.11g	2412	Ant0	16.40	Pass
	2437	Ant0	16.41	Pass
	2462	Ant0	16.39	Pass
	2412	Ant1	16.39	Pass
	2437	Ant1	16.38	Pass
	2462	Ant1	16.39	Pass
802.11n-HT 20	2412	Ant0	17.66	Pass
	2437	Ant0	17.64	Pass
	2462	Ant0	17.64	Pass
	2412	Ant1	17.58	Pass
	2437	Ant1	17.61	Pass
	2462	Ant1	17.59	Pass

2.2 Test Plots





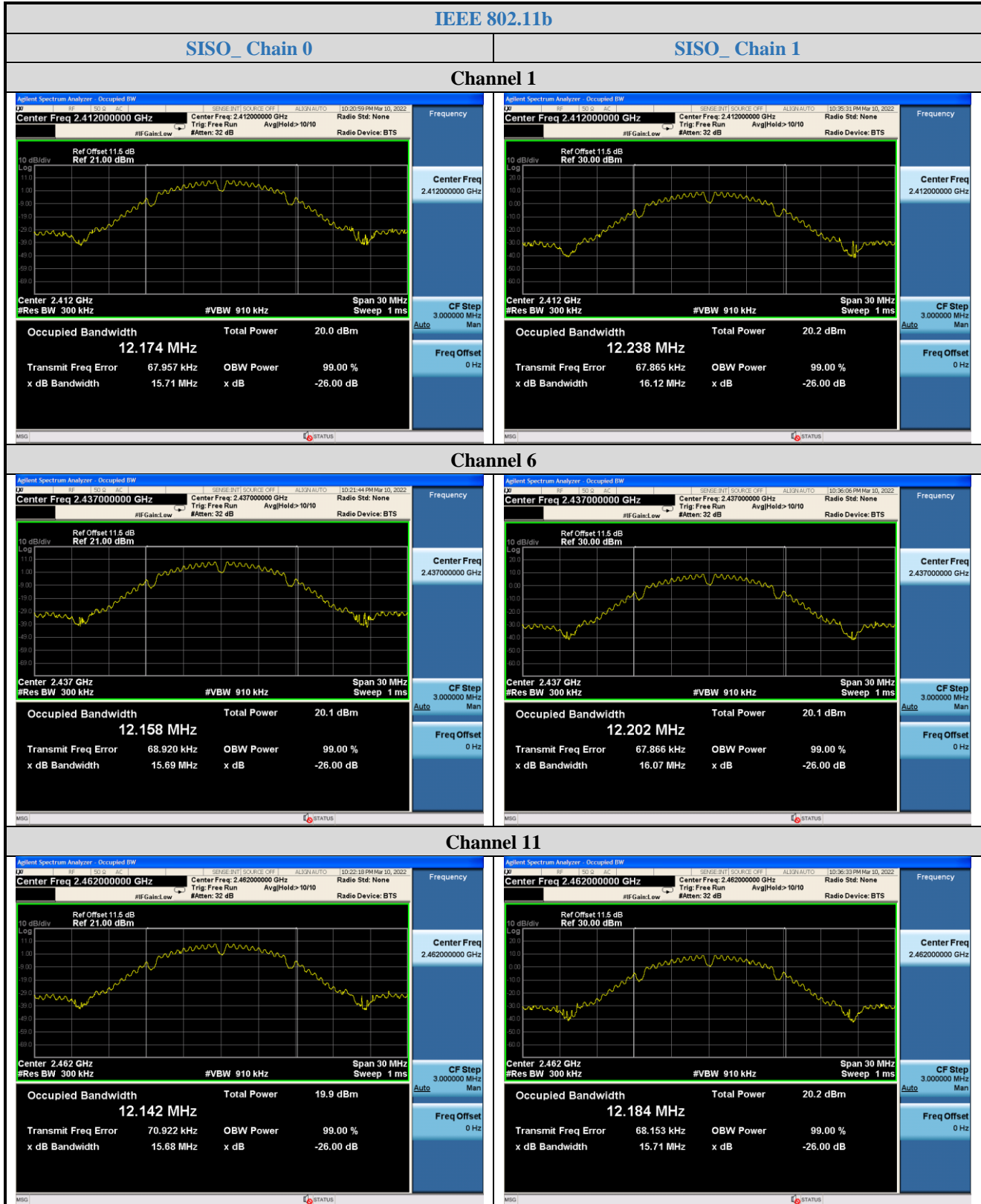


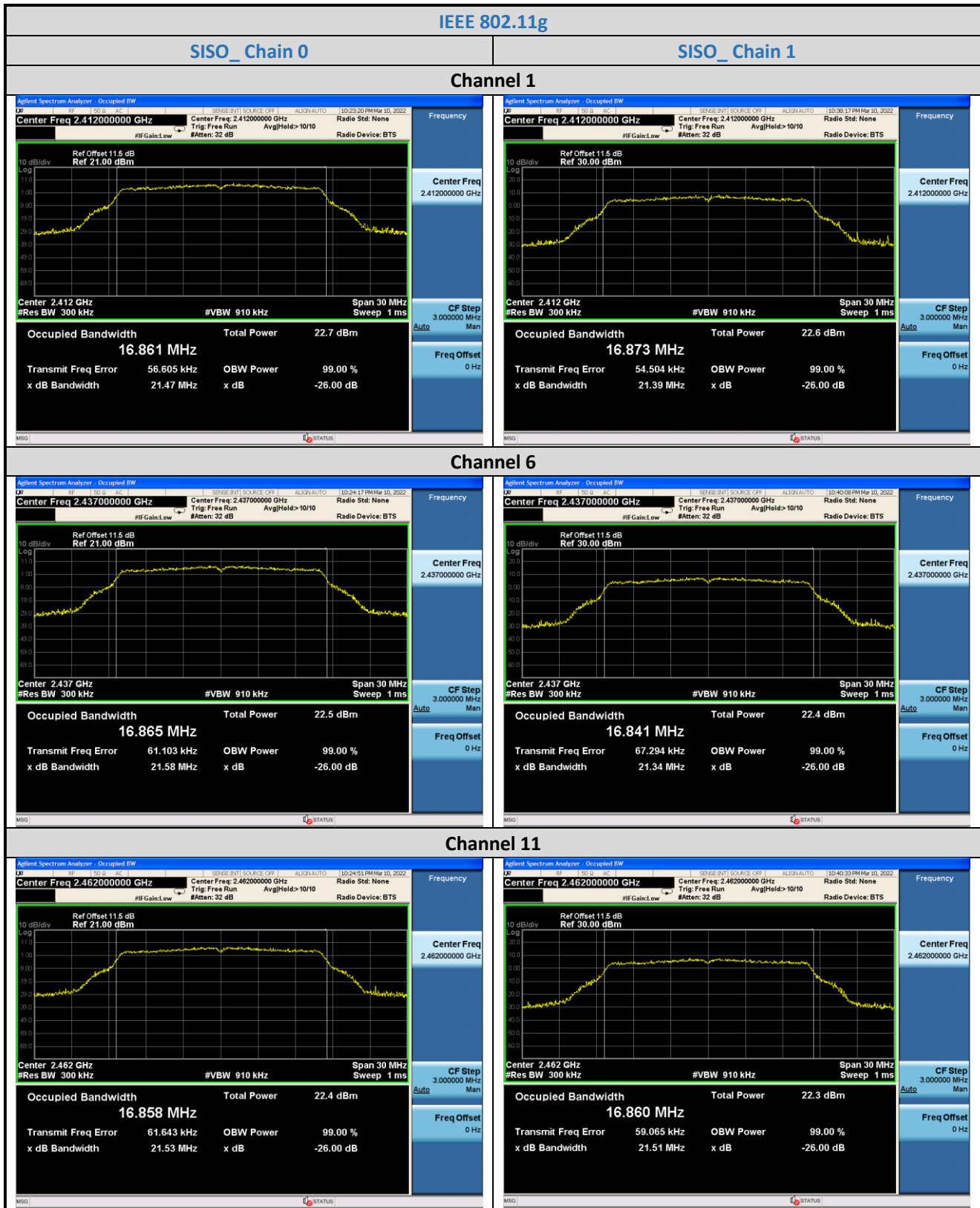
3 99% Occupied Bandwidth

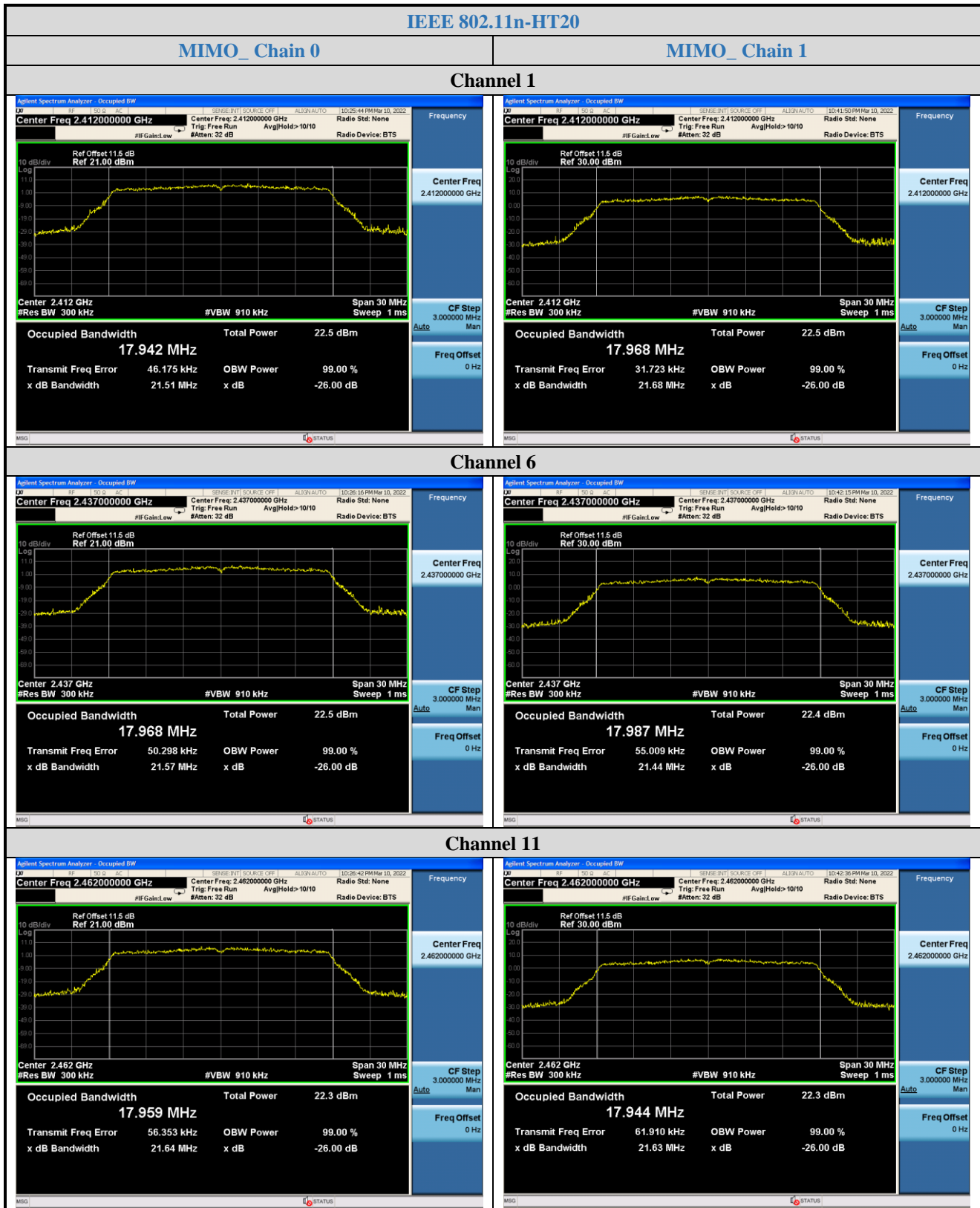
3.1 Test Data

WLAN 99% Occupied Bandwidth				
Mode	Test Frequency (MHz)	Ant	Occupied Bandwidth (MHz)	Result
802.11b	2412	Ant0	12.174	Pass
	2437	Ant0	12.158	Pass
	2462	Ant0	12.142	Pass
	2412	Ant1	12.238	Pass
	2437	Ant1	12.202	Pass
	2462	Ant1	12.184	Pass
802.11g	2412	Ant0	16.861	Pass
	2437	Ant0	16.865	Pass
	2462	Ant0	16.858	Pass
	2412	Ant1	16.873	Pass
	2437	Ant1	16.841	Pass
	2462	Ant1	16.860	Pass
802.11n-HT 20	2412	Ant0	17.942	Pass
	2437	Ant0	17.968	Pass
	2462	Ant0	17.959	Pass
	2412	Ant1	17.968	Pass
	2437	Ant1	17.987	Pass
	2462	Ant1	17.944	Pass

3.2 Test Plots







4 Maximum conducted output power

4.1 Test Data

Mode	Channel/ Frequency (MHz)	Maximum Conducted Avg Output Power (dBm)				
		SISO_ Chain 0	SISO_ Chain 1	Total Power MIMO_ Chain 0+1	FCC Limit (dBm)	Pass / Fail
IEEE 802.11b	1(2412)	14.58	15.28	---	30	Pass
	6(2437)	14.75	15.38	---	30	Pass
	11(2462)	14.69	15.29	---	30	Pass
IEEE 802.11g	1(2412)	8.48	13.27	---	30	Pass
	6(2437)	8.68	13.25	---	30	Pass
	11(2462)	8.75	12.97	---	30	Pass
IEEE 802.11n- HT20	1(2412)	5.61	7.86	9.89	29.80	Pass
	6(2437)	4.37	7.10	8.96	29.80	Pass
	11(2462)	5.43	8.01	9.92	29.80	Pass

Remark:

1. The max E.I.R.P = 15.38dBm + 3.19dBi = 18.57dBm = 0.072W < 4W, which meet the ISED requirement.

Mode	Channel/ Frequency (MHz)	Maximum Conducted Peak Output Power (dBm)				
		SISO_ Chain 0	SISO_ Chain 1	Total Power MIMO_ Chain 0+1	Limit (dBm)	Pass / Fail
IEEE 802.11b	1(2412)	17.28	18.27	---	30	Pass
	6(2437)	17.66	18.25	---	30	Pass
	11(2462)	17.51	18.01	---	30	Pass
IEEE 802.11g	1(2412)	19.10	23.80	---	30	Pass
	6(2437)	18.90	23.04	---	30	Pass
	11(2462)	18.88	23.30	---	30	Pass
IEEE 802.11n- HT20	1(2412)	17.26	18.69	21.04	29.80	Pass
	6(2437)	14.82	17.02	19.07	29.80	Pass
	11(2462)	15.06	16.89	19.08	29.80	Pass

Remark:

1. Total (Chain 0+1) = 10*log [(10^{Chain 0/10}) + (10^{Chain 1/10})]

5 Power spectrum density

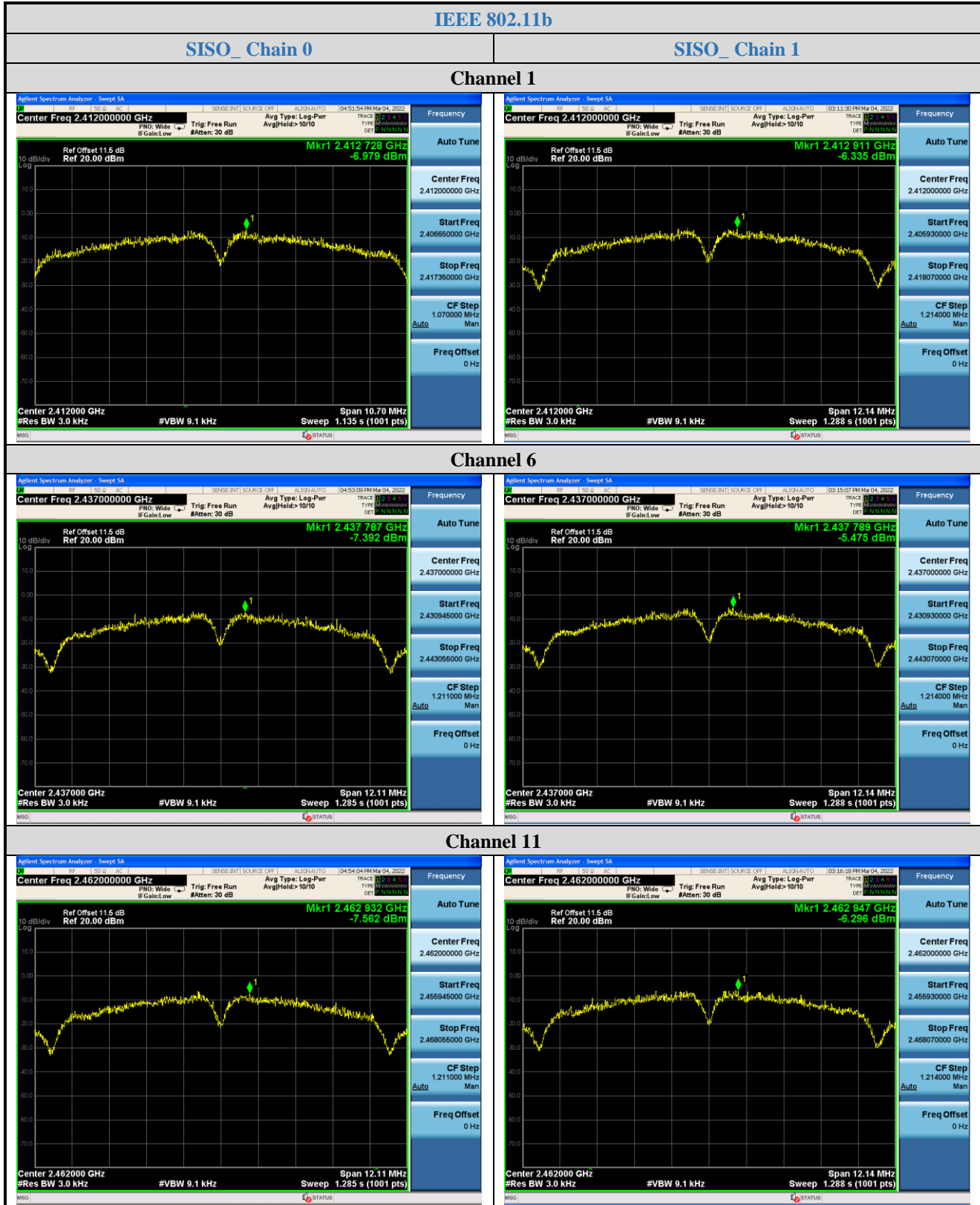
5.1 Test Data

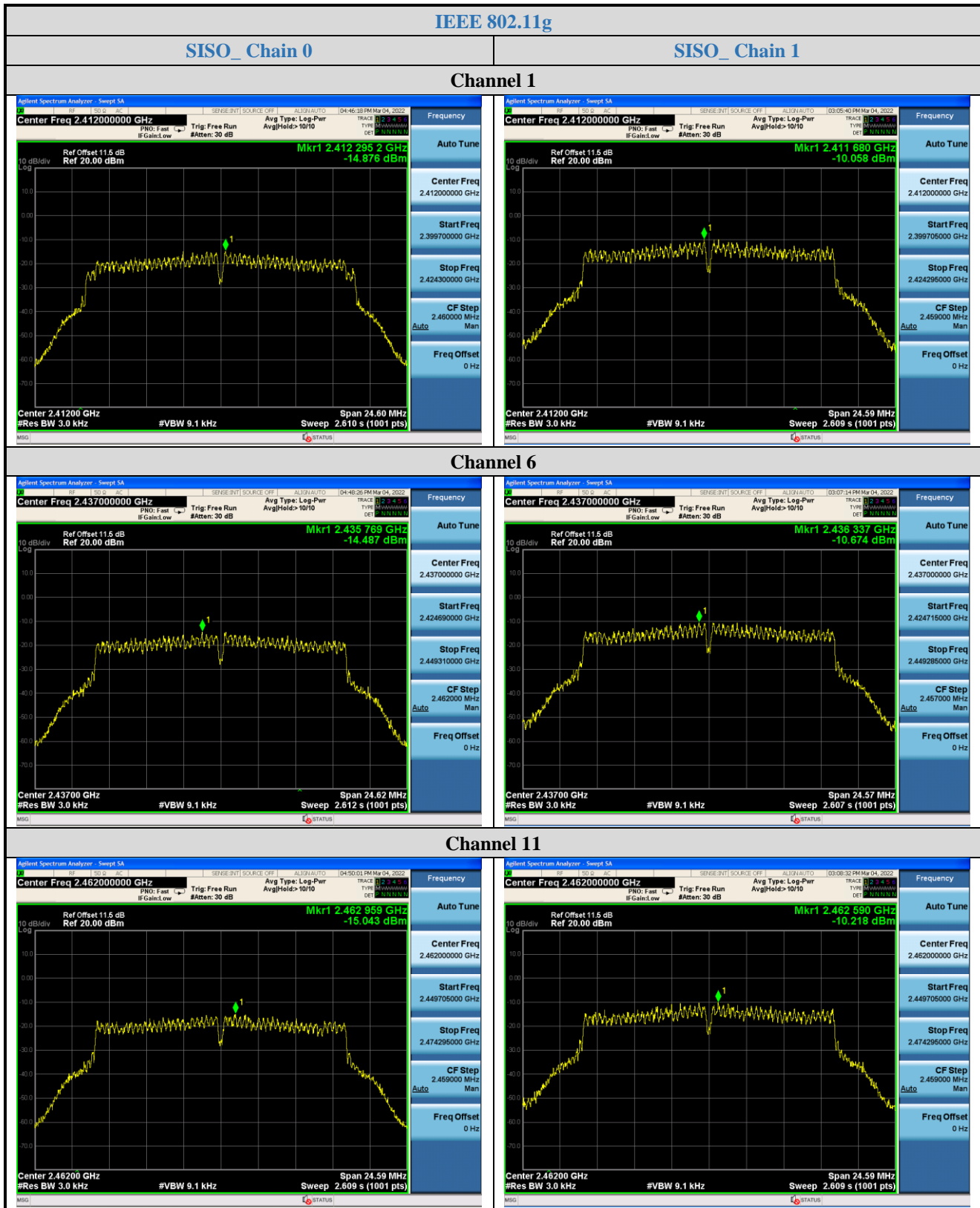
WLAN Power Spectral Density								
Mode	Test Frequency (MHz)	Duty Cycle Factor (dB)	Power spectral density					Pass / Fail
			Chain 0	Chain 1	Total Power Chain 0+1	RBW (kHz)	Limit (dBm/3kHz)	
IEEE 802.11b	2412	0.00	-6.979	-6.335	---	3	8	Pass
	2437	0.00	-7.392	-5.475	---	3	8	Pass
	2462	0.00	-7.562	-6.296	---	3	8	Pass
IEEE 802.11g	2412	0.31	-14.876	-10.058	---	3	8	Pass
	2437	0.31	-14.487	-10.674	---	3	8	Pass
	2462	0.31	-15.043	-10.218	---	3	8	Pass
IEEE 802.11n-HT20	2412	0.35	-19.051	-15.919	-14.198	3	7.8	Pass
	2437	0.35	-19.020	-15.803	-14.110	3	7.8	Pass
	2462	0.35	-18.421	-16.961	-14.620	3	7.8	Pass

Remark:

1. Power with Duty Factor = Measured Power + Duty Cycle Factor
2. Total (Chain 0+1) = $10 \cdot \log [(10^{\text{Chain 0}/10}) + (10^{\text{Chain 1}/10})]$

5.2 Test Plots



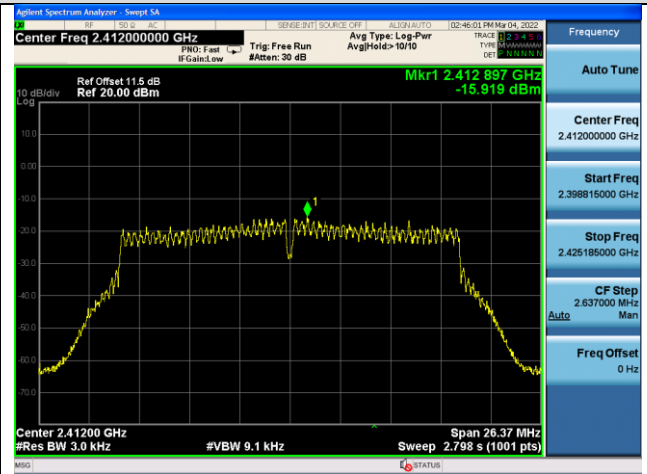
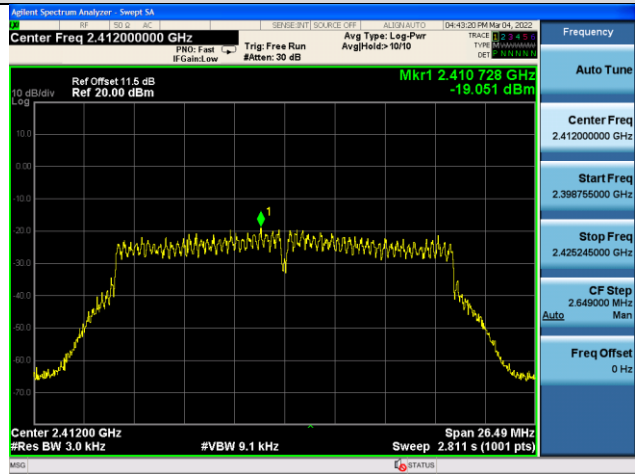


IEEE 802.11n-HT20

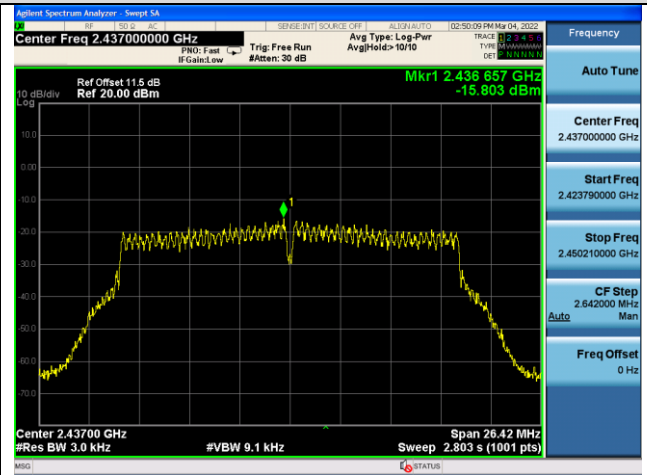
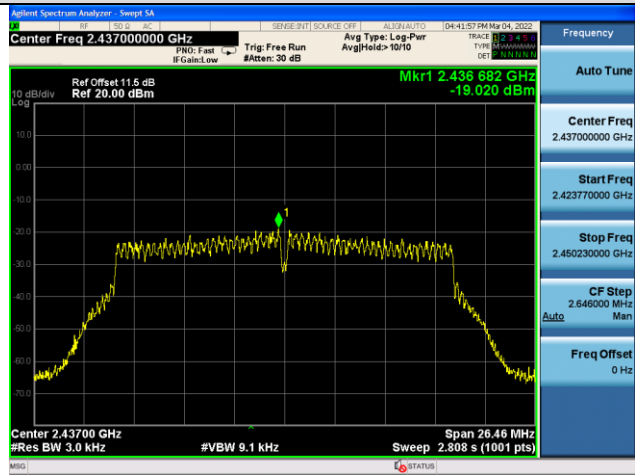
MIMO_Chain 0

MIMO_Chain 1

Channel 1



Channel 6



Channel 11

