

Appendix A. Test Data

Duty cycle						
Band	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	5260	2.057	2.102	97.859	0.094	0.486
802.11ac VHT20	5260	4.995	5.040	99.107	0.039	0.010
802.11ac VHT40	5270	2.200	2.660	82.707	0.825	0.455
802.11ac VHT80	5290	4.020	4.470	89.933	0.461	0.249

RF power setting in Test SW

Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11a	52	5260	9	9	9	9	QRCT 3.0.244.0
	56	5280	9	9	9	9	
	60	5300	9	9	9	9	
	64	5320	9.5	9.5	9.5	9.5	
	100	5500	9.5	9.5	9.5	9.5	
	112	5560	9	9	9	9	
	116	5580	9	9	9	9	
	132	5660	9	9	9	9	
	140	5700	8	8	8	8	
802.11n HT20	52	5260	14	14	14	14	QRCT 3.0.244.0
	56	5280	14	14	14	14	
	60	5300	14	14	14	14	
	64	5320	14.5	14.5	14.5	14.5	
	100	5500	15	15	15	15	
	112	5560	15	15	15	15	
	116	5580	15	15	15	15	
	132	5660	15	15	15	15	
	140	5700	14	14	14	14	
802.11n HT40	54	5270	15.5	15.5	15.5	15.5	QRCT 3.0.244.0
	62	5310	11	11	11	11	
	102	5510	12	12	12	12	
	110	5550	16	16	16	16	
	134	5670	15.5	15.5	15.5	15.5	
Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ac VHT20	52	5260	14	14	14	14	QRCT 3.0.244.0
	56	5280	14	14	14	14	
	60	5300	14	14	14	14	
	64	5320	14.5	14.5	14.5	14.5	
	100	5500	15	15	15	15	
	112	5560	15	15	15	15	
	116	5580	15	15	15	15	
	132	5660	15	15	15	15	
	140	5700	14	14	14	14	
802.11ac VHT40	54	5270	15.5	15.5	15.5	15.5	QRCT 3.0.244.0
	62	5310	11	11	11	11	
	102	5510	12	12	12	12	
	110	5550	16	16	16	16	
	134	5670	15.5	15.5	15.5	15.5	
802.11ac VHT80	58	5290	9	9	9	9	QRCT 3.0.244.0
	106	5530	6.5	6.5	6.5	6.5	

Maximum Conducted Output Power Measurement									
Band	Date Rate or Sub-test	CH	Frequency (MHz)	Average power					Limit
				Ant-0	Ant-1	Ant-2	Ant-3	Total	
				dBm	dBm	dBm	dBm	dBm	
802.11a	6M	52	5260	11.60	11.70	11.03	11.87	17.58	23.99
		56	5280	11.53	11.57	10.91	11.79	17.48	23.99
		60	5300	11.46	11.50	10.85	11.70	17.41	23.99
		64	5320	11.61	11.72	10.74	12.20	17.62	23.99
		100	5500	11.16	11.32	10.78	11.74	17.28	23.95
		112	5560	10.96	11.12	10.47	11.85	17.15	23.95
		116	5580	10.90	11.10	10.45	11.82	17.12	23.95
		132	5660	10.85	11.07	10.39	11.76	17.07	23.95
		140	5700	10.72	10.62	10.01	12.49	17.08	23.95
802.11n HT20	26M	52	5260	16.36	16.40	15.75	16.51	22.29	24.00
		56	5280	16.17	16.25	15.69	16.63	22.22	24.00
		60	5300	16.07	16.15	15.65	16.59	22.15	24.00
		64	5320	16.36	16.42	15.84	16.87	22.41	24.00
		100	5500	16.41	16.61	16.18	17.06	22.60	24.00
		112	5560	16.75	16.91	16.31	17.61	22.94	24.00
		116	5580	16.70	16.89	16.23	17.60	22.90	24.00
		132	5660	16.67	16.85	16.18	17.55	22.86	24.00
		140	5700	16.36	16.49	15.78	18.14	22.81	24.00
802.11n HT40	54M	54	5270	17.58	17.47	17.01	17.77	23.49	24.00
		62	5310	12.67	12.64	12.35	13.40	18.80	24.00
		102	5510	13.07	13.21	12.92	14.14	19.38	24.00
		110	5550	17.31	17.50	17.00	18.34	23.59	24.00
		134	5670	17.42	17.28	16.70	18.88	23.67	24.00
Band	Date Rate or Sub-test	CH	Frequency (MHz)	Average power					Limit
				Ant-0	Ant-1	Ant-2	Ant-3	Total	
				dBm	dBm	dBm	dBm	dBm	
802.11ac VHT20	26M	52	5260	16.50	16.61	15.92	16.75	22.48	24.00
		56	5280	16.41	16.42	15.91	16.81	22.42	24.00
		60	5300	16.35	16.37	15.85	16.78	22.37	24.00
		64	5320	16.51	16.53	15.97	17.15	22.58	24.00
		100	5500	16.63	16.80	16.33	17.31	22.80	24.00
		112	5560	16.87	17.04	16.52	17.80	23.10	24.00
		116	5580	16.82	17.00	16.45	17.78	23.06	24.00
		132	5660	16.78	17.02	16.40	17.75	23.04	24.00
		140	5700	16.60	16.70	16.03	18.44	23.06	24.00
802.11ac VHT40	54M	54	5270	17.69	17.73	17.23	17.97	23.68	24.00
		62	5310	12.82	12.88	12.47	13.61	18.99	24.00
		102	5510	13.32	13.47	13.17	14.25	19.59	24.00
		110	5550	17.60	17.67	17.23	18.48	23.79	24.00
		134	5670	17.61	17.49	16.98	19.10	23.89	24.00
802.11ac VHT80	117.2M	58	5290	11.34	11.24	10.93	11.86	17.38	24.00
		106	5530	8.50	8.52	8.28	9.04	14.61	24.00

Maximum Conducted Output Power Measurement_Transmit power control												
Band	Data Rate or Sub-test	CH	Frequency (MHz)	Average power					Limit	E.I.R.P		EIRP Power Limit
				Ant-0	Ant-1	Ant-2	Ant-3	Total		Gain	Calculated Results	
				dBm	dBm	dBm	dBm	dBm		dB	dBm	
802.11a	6M	52	5260	5.60	5.70	5.03	5.87	11.58	-	4.61	16.19	24.00
		56	5280	5.53	5.57	4.91	5.79	11.48	-	4.61	16.09	24.00
		60	5300	5.46	5.50	4.85	5.70	11.41	-	4.61	16.02	24.00
		64	5320	5.61	5.72	4.74	6.20	11.62	-	4.61	16.23	24.00
		100	5500	5.16	5.32	4.78	5.74	11.28	-	5.84	17.12	24.00
		112	5560	4.96	5.12	4.47	5.85	11.15	-	5.84	16.99	24.00
		116	5580	4.90	5.10	4.45	5.82	11.12	-	5.84	16.96	24.00
		132	5660	4.85	5.07	4.39	5.76	11.07	-	5.84	16.91	24.00
802.11n HT20	26M	52	5260	10.36	10.40	9.75	10.51	16.29	-	4.61	20.90	24.00
		56	5280	10.17	10.25	9.69	10.63	16.22	-	4.61	20.83	24.00
		60	5300	10.07	10.15	9.65	10.59	16.15	-	4.61	20.76	24.00
		64	5320	10.36	10.42	9.84	10.87	16.41	-	4.61	21.02	24.00
		100	5500	10.41	10.61	10.18	11.06	16.60	-	5.84	22.44	24.00
		112	5560	10.75	10.91	10.31	11.61	16.94	-	5.84	22.78	24.00
		116	5580	10.70	10.89	10.23	11.60	16.90	-	5.84	22.74	24.00
		132	5660	10.67	10.85	10.18	11.55	16.86	-	5.84	22.70	24.00
802.11n HT40	54M	54	5270	11.58	11.47	11.01	11.77	17.49	-	4.61	22.10	24.00
		62	5310	6.67	6.64	6.35	7.40	12.80	-	4.61	17.41	24.00
		102	5510	7.07	7.21	6.92	8.14	13.38	-	5.84	19.22	24.00
		110	5550	11.31	11.50	11.00	12.34	17.59	-	5.84	23.43	24.00
		134	5670	11.42	11.28	10.70	12.88	17.67	-	5.84	23.51	24.00

Band	Date Rate or Sub-test	CH	Frequency (MHz)	Average power					Limit	E.I.R.P		EIRP Power Limit
				Ant-0	Ant-1	Ant-2	Ant-3	Total		Gain	Calculated Results	
				dBm	dBm	dBm	dBm	dBm		dB	dBm	
802.11ac VHT20	MCS 0	52	5260	10.50	10.61	9.92	10.75	16.48	-	4.61	21.09	24.00
		56	5280	10.41	10.42	9.91	10.81	16.42	-	4.61	21.03	24.00
		60	5300	10.35	10.37	9.85	10.78	16.37	-	4.61	20.98	24.00
		64	5320	10.51	10.53	9.97	11.15	16.58	-	4.61	21.19	24.00
		100	5500	10.63	10.80	10.33	11.31	16.80	-	5.84	22.64	24.00
		112	5560	10.87	11.04	10.52	11.80	17.10	-	5.84	22.94	24.00
		116	5580	10.82	11.00	10.45	11.78	17.06	-	5.84	22.9	24.00
		132	5660	10.78	11.02	10.40	11.75	17.04	-	5.84	22.88	24.00
802.11ac VHT40	MCS 0	140	5700	10.60	10.70	10.03	12.44	17.06	-	5.84	22.9	24.00
		54	5270	11.69	11.73	11.23	11.97	17.68	-	4.61	22.29	24.00
		62	5310	6.82	6.88	6.47	7.61	12.99	-	4.61	17.60	24.00
		102	5510	7.32	7.47	7.17	8.25	13.59	-	5.84	19.43	24.00
		110	5550	11.60	11.67	11.23	12.48	17.79	-	5.84	23.63	24.00
802.11ac VHT80	MCS 0	134	5670	11.61	11.49	10.98	13.10	17.89	-	5.84	23.73	24.00
		58	5290	5.34	5.24	4.93	5.86	11.38	-	4.61	15.99	24.00
		106	5530	2.50	2.52	2.28	3.04	8.61	-	5.84	14.45	24.00

26 dB & 99 % RF Bandwidth Measurement

Band	CH	Freq. (MHz)	99 % Bandwidth				26 dB Bandwidth			
			Ant-0	Ant-1	Ant-2	Ant-3	Ant-0	Ant-1	Ant-2	Ant-3
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz
802.11a	52	5260	16.615	16.591	16.621	16.556	20.310	20.040	20.050	19.890
	56	5280	16.613	16.571	16.602	16.571	20.380	20.020	20.080	20.110
	64	5320	16.608	16.565	16.600	16.580	20.400	20.180	20.030	19.890
	100	5500	16.601	16.585	16.588	16.570	20.450	20.050	19.830	19.840
	112	5560	16.608	16.600	16.579	16.534	20.240	20.210	19.740	19.730
	140	5700	16.604	16.566	16.584	16.556	20.310	19.900	19.890	20.350
802.11ac VHT20	52	5260	17.793	17.763	17.785	17.767	21.610	21.310	21.760	20.900
	56	5280	17.817	17.765	17.772	17.727	21.700	21.480	21.650	20.980
	64	5320	17.815	17.766	17.793	17.783	21.500	21.180	21.200	21.660
	100	5500	17.765	17.773	17.785	17.811	21.560	21.140	21.300	21.060
	112	5560	17.804	17.784	17.810	17.831	21.690	21.500	21.250	21.640
	140	5700	17.787	17.748	17.769	17.806	21.360	21.430	21.030	21.760
802.11ac VHT40	54	5270	36.104	36.082	36.114	36.029	40.380	39.970	39.570	40.190
	62	5310	36.012	36.036	36.005	35.918	40.160	39.660	39.490	39.880
	102	5510	36.012	36.015	36.001	35.959	40.350	39.670	39.410	39.860
	110	5550	36.119	36.138	36.115	36.085	40.600	39.880	39.830	40.500
	134	5670	36.135	36.090	36.110	36.125	40.560	39.670	39.490	40.630
802.11ac VHT80	58	5290	76.182	75.927	75.964	76.027	84.580	83.570	84.150	84.770
	106	5530	76.236	75.972	75.955	76.084	84.690	83.450	84.140	84.350

Power Spectral Density Measurement									
Band	CH	Frequency (MHz)	Measurement				Duty Factor	Calculated	Limit
			Ant-0	Ant-1	Ant-2	Ant-3		Total	
			dBm/MHz	dBm/MHz	dBm/MHz	dBm/MHz		dBm/MHz	
802.11a	52	5260	0.199	0.208	-0.192	0.747	0.094	6.368	6.590
	56	5280	0.144	0.180	-0.493	0.806	0.094	6.298	6.590
	64	5320	0.187	0.219	-0.780	0.711	0.094	6.232	6.590
	100	5500	-0.628	-0.640	-0.786	-0.101	0.094	5.584	5.700
	112	5560	-0.662	-0.653	-0.783	0.139	0.094	5.641	5.700
	140	5700	-1.089	-1.074	-1.595	0.869	0.094	5.501	5.700
802.11ac VHT20	52	5260	4.552	4.492	4.131	5.327	0.039	10.707	11.000
	56	5280	4.558	4.552	3.906	5.166	0.039	10.628	11.000
	64	5320	4.493	4.438	3.942	5.398	0.039	10.660	11.000
	100	5500	4.464	4.514	4.263	5.192	0.039	10.682	11.000
	112	5560	4.526	4.683	4.367	5.435	0.039	10.832	11.000
	140	5700	4.516	4.400	3.901	6.037	0.039	10.850	11.000
802.11ac VHT40	54	5270	3.524	2.901	2.565	3.217	0.825	9.912	11.000
	62	5310	-1.858	-2.272	-2.301	-1.578	0.825	4.853	11.000
	102	5510	-1.569	-1.371	-1.605	-1.062	0.825	5.449	11.000
	110	5550	3.073	2.871	2.271	3.605	0.825	9.826	11.000
	134	5670	2.861	2.613	2.446	4.351	0.825	9.982	11.000
802.11ac VHT80	58	5290	-6.198	-6.676	-6.996	-6.132	0.461	-0.005	11.000
	106	5530	-9.270	-9.592	-10.206	-9.228	0.461	-3.075	11.000

Note: Power Density = measured result + 10 log (1/duty cycle) + Conversion ratio = measured result + duty factory.

Beamforming on

RF power setting in Test SW

Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11n HT20	52	5260	8	8	8	8	QRCT 3.0.244.0
	56	5280	8	8	8	8	
	60	5300	8	8	8	8	
	64	5320	8.5	8.5	8.5	8.5	
	100	5500	9	9	9	9	
	112	5560	9	9	9	9	
	116	5580	9	9	9	9	
	132	5660	9	9	9	9	
	140	5700	8	8	8	8	
802.11n HT40	54	5270	9.5	9.5	9.5	9.5	QRCT 3.0.244.0
	62	5310	5	5	5	5	
	102	5510	6	6	6	6	
	110	5550	10	10	10	10	
	134	5670	9.5	9.5	9.5	9.5	
Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ac VHT20	52	5260	8	8	8	8	QRCT 3.0.244.0
	56	5280	8	8	8	8	
	60	5300	8	8	8	8	
	64	5320	8.5	8.5	8.5	8.5	
	100	5500	9	9	9	9	
	112	5560	9	9	9	9	
	116	5580	9	9	9	9	
	132	5660	9	9	9	9	
	140	5700	8	8	8	8	
802.11ac VHT40	54	5270	9.5	9.5	9.5	9.5	QRCT 3.0.244.0
	62	5310	5	5	5	5	
	102	5510	6	6	6	6	
	110	5550	10	10	10	10	
	134	5670	9.5	9.5	9.5	9.5	
802.11ac VHT80	58	5290	3	3	3	3	QRCT 3.0.244.0
	106	5530	0.5	0.5	0.5	0.5	

Maximum Conducted Output Power Measurement

Band	Date Rate or Sub-test	CH	Frequency (MHz)	Average power					Limit
				Ant-0	Ant-1	Ant-2	Ant-3	Total	
				dBm	dBm	dBm	dBm	dBm	
802.11n HT20	26M	52	5260	10.09	10.12	9.71	10.41	16.11	19.59
		56	5280	9.96	10.20	9.58	10.40	16.07	19.59
		60	5300	9.83	10.03	9.55	10.35	15.97	19.59
		64	5320	10.22	10.17	9.65	10.75	16.24	19.59
		100	5500	10.37	10.54	9.91	10.74	16.42	18.70
		112	5560	10.44	10.67	10.10	11.25	16.66	18.70
		116	5580	10.56	10.64	9.97	11.27	16.66	18.70
		132	5660	10.46	10.67	10.01	11.30	16.66	18.70
		140	5700	10.13	10.27	9.58	12.10	16.65	18.70
802.11n HT40	54M	54	5270	11.33	11.27	10.88	11.62	17.30	19.59
		62	5310	6.38	6.44	5.81	6.91	12.42	19.59
		102	5510	7.04	7.27	6.44	7.67	13.15	18.70
		110	5550	11.12	11.44	10.83	11.97	17.38	18.70
		134	5670	11.26	11.18	10.61	12.57	17.49	18.70
Band	Date Rate or Sub-test	CH	Frequency (MHz)	Average power					Limit
				Ant-0	Ant-1	Ant-2	Ant-3	Total	
				dBm	dBm	dBm	dBm	dBm	
802.11ac VHT20	26M	52	5260	10.26	10.35	9.85	10.66	16.31	19.59
		56	5280	10.14	10.31	9.79	10.63	16.25	19.59
		60	5300	10.10	10.28	9.76	10.57	16.21	19.59
		64	5320	10.41	10.46	9.75	10.92	16.43	19.59
		100	5500	10.49	10.67	10.04	10.96	16.57	18.70
		112	5560	10.72	10.95	10.24	11.50	16.90	18.70
		116	5580	10.69	10.92	10.20	11.46	16.86	18.70
		132	5660	10.65	10.87	10.17	11.41	16.82	18.70
		140	5700	10.39	10.43	9.81	12.22	16.83	18.70
802.11ac VHT40	54M	54	5270	11.54	11.52	11.08	11.86	17.53	19.59
		62	5310	6.66	6.70	6.04	7.05	12.65	19.59
		102	5510	7.21	7.48	6.72	7.78	13.34	18.70
		110	5550	11.38	11.61	10.96	12.12	17.56	18.70
		134	5670	11.41	11.42	10.81	12.81	17.70	18.70
802.11ac VHT80	117.2M	58	5290	5.28	5.10	4.65	5.65	11.21	19.59
		106	5530	2.38	2.41	1.73	2.85	8.38	18.70

Maximum Conducted Output Power Measurement_Transmit power control												
Band	Data Rate or Sub-test	CH	Frequency (MHz)	Average power					Limit	E.I.R.P		EIRP Power Limit
				Ant-0	Ant-1	Ant-2	Ant-3	Total		Gain	Calculated Results	
				dBm	dBm	dBm	dBm	dBm		dB	dBm	
802.11n HT20	26M	52	5260	4.09	4.12	3.71	4.41	10.11	-	10.41	20.52	24.00
		56	5280	3.96	4.20	3.58	4.40	10.07	-	10.41	20.48	24.00
		60	5300	3.83	4.03	3.55	4.35	9.97	-	10.41	20.38	24.00
		64	5320	4.22	4.17	3.65	4.75	10.24	-	10.41	20.65	24.00
		100	5500	4.37	4.54	3.91	4.74	10.42	-	11.30	21.72	24.00
		112	5560	4.44	4.67	4.10	5.25	10.66	-	11.30	21.96	24.00
		116	5580	4.56	4.64	3.97	5.27	10.66	-	11.30	21.96	24.00
		132	5660	4.46	4.67	4.01	5.30	10.66	-	11.30	21.96	24.00
		140	5700	4.13	4.27	3.58	6.10	10.65	-	11.30	21.95	24.00
802.11n HT40	54M	54	5270	5.33	5.27	4.88	5.62	11.30	-	10.41	21.71	24.00
		62	5310	0.38	0.44	-0.19	0.91	6.42	-	10.41	16.83	24.00
		102	5510	1.04	1.27	0.44	1.67	7.15	-	11.30	18.45	24.00
		110	5550	5.12	5.44	4.83	5.97	11.38	-	11.30	22.68	24.00
		134	5670	5.26	5.18	4.61	6.57	11.49	-	11.30	22.79	24.00

Band	Data Rate or Sub-test	CH	Frequency (MHz)	Average power					Limit	E.I.R.P		EIRP Power Limit
				Ant-0	Ant-1	Ant-2	Ant-3	Total		Gain	Calculated Results	
				dBm	dBm	dBm	dBm	dBm		dB	dBm	
802.11ac VHT20	MCS 0	52	5260	4.26	4.35	3.85	4.66	10.31	-	10.41	20.72	24.00
		56	5280	4.14	4.31	3.79	4.63	10.25	-	10.41	20.66	24.00
		60	5300	4.10	4.28	3.76	4.57	10.21	-	10.41	20.62	24.00
		64	5320	4.41	4.46	3.75	4.92	10.43	-	10.41	20.84	24.00
		100	5500	4.49	4.67	4.04	4.96	10.57	-	11.30	21.87	24.00
		112	5560	4.72	4.95	4.24	5.50	10.90	-	11.30	22.20	24.00
		116	5580	4.69	4.92	4.20	5.46	10.86	-	11.30	22.16	24.00
		132	5660	4.65	4.87	4.17	5.41	10.82	-	11.30	22.12	24.00
802.11ac VHT40	MCS 0	140	5700	4.39	4.43	3.81	6.22	10.83	-	11.30	22.13	24.00
		54	5270	5.54	5.52	5.08	5.86	11.53	-	10.41	21.94	24.00
		62	5310	0.66	0.70	0.04	1.05	6.65	-	10.41	17.06	24.00
		102	5510	1.21	1.48	0.72	1.78	7.34	-	11.30	18.64	24.00
		110	5550	5.38	5.61	4.96	6.12	11.56	-	11.30	22.86	24.00
802.11ac VHT80	MCS 0	134	5670	5.41	5.42	4.81	6.81	11.70	-	11.30	23.00	24.00
		58	5290	-0.72	-0.90	-1.35	-0.35	5.21	-	10.41	15.62	24.00
		106	5530	-3.62	-3.59	-4.27	-3.15	2.38	-	11.30	13.68	24.00