

Appendix A. Test Data

Duty cycle						
Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	5180	1.397	1.445	96.678	0.147	0.716
802.11n HT20	5180	1.306	1.355	96.340	0.162	0.766
802.11n HT20	5500	1.306	1.355	96.340	0.162	0.766
802.11n HT40	5510	0.650	0.701	92.808	0.324	1.538
802.11ac VHT20	5180	1.318	1.366	96.487	0.155	0.758
802.11ac VHT40	5190	0.655	0.705	92.963	0.317	1.526
802.11ac VHT80	5210	1.140	1.189	95.863	0.184	0.877

RF power setting in Test SW							
Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11a	36	5180	12	12	-	-	Command
	40	5200	12	12	-	-	
	48	5240	12	12	-	-	
	52	5260	11.5	11.5	-	-	
	56	5280	11.5	11.5	-	-	
	64	5320	11.5	11.5	-	-	
	100	5500	12	12	-	-	
	112	5560	12	12	-	-	
	140	5700	12	12	-	-	
	144	5720	13	13	-	-	
	144	5720	13	13	-	-	
	149	5745	12	12	-	-	
	157	5785	12	12	-	-	
	165	5825	12	12	-	-	
802.11n HT20	36	5180	13	13	-	-	Command
	40	5200	13	13	-	-	
	48	5240	13	13	-	-	
	52	5260	13	13	-	-	
	56	5280	13	13	-	-	
	64	5320	13	13	-	-	
	100	5500	13	13	-	-	
	112	5560	13	13	-	-	
	140	5700	13	13	-	-	
	144	5720	14	14	-	-	
	144	5720	14	14	-	-	
	149	5745	13	13	-	-	
	157	5785	13	13	-	-	
	165	5825	13	13	-	-	
802.11n HT40	38	5190	13	13	-	-	Command
	46	5230	13	13	-	-	
	54	5270	12.5	12.5	-	-	
	62	5310	12.5	12.5	-	-	
	102	5510	13	13	-	-	
	110	5550	13	13	-	-	
	134	5670	13	13	-	-	
	142	5710	14	14	-	-	
	142	5710	14	14	-	-	
	151	5755	13	13	-	-	
159	5795	13	13	-	-		

Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ac VHT20	36	5180	13	13	-	-	Command
	40	5200	13	13	-	-	
	48	5240	13	13	-	-	
	52	5260	13	13	-	-	
	56	5280	13	13	-	-	
	64	5320	13	13	-	-	
	100	5500	13	13	-	-	
	112	5560	13	13	-	-	
	140	5700	13	13	-	-	
	144	5720	14	14	-	-	
	144	5720	14	14	-	-	
	149	5745	13	13	-	-	
	157	5785	13	13	-	-	
	165	5825	13	13	-	-	
802.11ac VHT40	38	5190	13	13	-	-	Command
	46	5230	13	13	-	-	
	54	5270	12.5	12.5	-	-	
	62	5310	12.5	12.5	-	-	
	102	5510	13	13	-	-	
	110	5550	13	13	-	-	
	134	5670	13	13	-	-	
	142	5710	14	14	-	-	
	142	5710	14	14	-	-	
	151	5755	13	13	-	-	
159	5795	13	13	-	-		
802.11ac VHT80	42	5210	13	13	-	-	Command
	58	5290	13	13	-	-	
	106	5530	13	13	-	-	
	122	5610	13	13	-	-	
	138	5690	13	13	-	-	
	138	5690	13	13	-	-	
	155	5775	13	13	-	-	

Maximum Conducted Output Power Measurement									
Mode	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	dBm
802.11a	6M	36	5180	14.46	13.37	-	-	16.96	24.00
		40	5200	14.04	13.55	-	-	16.81	24.00
		48	5240	14.06	13.86	-	-	16.97	24.00
		52	5260	13.87	13.46	-	-	16.68	24.00
		56	5280	13.90	13.23	-	-	16.58	24.00
		64	5320	14.00	13.20	-	-	16.63	24.00
		100	5500	14.06	13.86	-	-	16.97	24.00
		112	5560	14.45	13.17	-	-	16.86	24.00
		140	5700	14.36	13.55	-	-	16.98	24.00
		144	5720	13.46	12.81	-	-	16.16	22.82
		144	5720	5.84	5.27	-	-	8.58	30.00
		149	5745	14.56	13.30	-	-	16.98	30.00
		157	5785	14.00	13.91	-	-	16.96	30.00
165	5825	13.76	14.10	-	-	16.94	30.00		
802.11n HT20	13M	36	5180	14.16	13.37	-	-	16.80	24.00
		40	5200	13.85	13.59	-	-	16.73	24.00
		48	5240	14.02	13.86	-	-	16.95	24.00
		52	5260	14.09	13.75	-	-	16.94	24.00
		56	5280	14.14	13.62	-	-	16.90	24.00
		64	5320	14.21	13.67	-	-	16.96	24.00
		100	5500	13.84	13.81	-	-	16.84	24.00
		112	5560	14.16	13.13	-	-	16.69	24.00
		140	5700	14.23	13.63	-	-	16.95	24.00
		144	5720	13.31	12.57	-	-	15.97	24.00
		144	5720	6.06	5.45	-	-	8.78	30.00
		149	5745	14.36	13.28	-	-	16.87	30.00
		157	5785	13.89	13.87	-	-	16.89	30.00
165	5825	13.67	14.11	-	-	16.91	30.00		
802.11n HT40	27M	38	5190	14.22	13.51	-	-	16.89	24.00
		46	5230	13.99	13.88	-	-	16.95	24.00
		54	5270	13.87	13.42	-	-	16.67	24.00
		62	5310	13.89	13.21	-	-	16.58	24.00
		102	5510	14.00	13.80	-	-	16.92	24.00
		110	5550	14.13	13.36	-	-	16.78	24.00
		134	5670	13.90	13.98	-	-	16.95	24.00
		142	5710	14.01	13.24	-	-	16.66	24.00
		142	5710	1.64	1.05	-	-	4.37	30.00
		151	5755	14.40	13.37	-	-	16.93	30.00
		159	5795	13.79	13.93	-	-	16.87	30.00

Mode	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	13M	36	5180	14.19	13.41	-	-	16.82	24.00
		40	5200	13.89	13.61	-	-	16.76	24.00
		48	5240	14.05	13.90	-	-	16.98	24.00
		52	5260	14.14	13.79	-	-	16.97	24.00
		56	5280	14.21	13.67	-	-	16.95	24.00
		64	5320	14.25	13.69	-	-	16.98	24.00
		100	5500	13.89	13.84	-	-	16.87	24.00
		112	5560	14.20	13.19	-	-	16.73	24.00
		140	5700	14.27	13.67	-	-	16.99	24.00
		144	5720	13.37	12.62	-	-	16.02	22.81
		144	5720	6.12	5.50	-	-	8.83	30.00
		149	5745	14.41	13.32	-	-	16.90	30.00
		157	5785	13.95	13.92	-	-	16.94	30.00
165	5825	13.72	14.18	-	-	16.96	30.00		
802.11ac VHT40	27M	38	5190	14.25	13.55	-	-	16.92	24.00
		46	5230	14.03	13.93	-	-	16.99	24.00
		54	5270	13.92	13.47	-	-	16.71	24.00
		62	5310	13.95	13.25	-	-	16.62	24.00
		102	5510	14.07	13.84	-	-	16.96	24.00
		110	5550	14.20	13.42	-	-	16.83	24.00
		134	5670	13.94	14.03	-	-	16.99	24.00
		142	5710	14.07	13.30	-	-	16.71	24.00
		142	5710	1.71	1.11	-	-	4.43	30.00
		151	5755	14.45	13.43	-	-	16.98	30.00
		159	5795	13.85	13.97	-	-	16.92	30.00
802.11ac VHT80	58.6M	42	5210	13.99	13.64	-	-	16.83	24.00
		58	5290	14.21	13.54	-	-	16.90	24.00
		106	5530	14.01	13.45	-	-	16.75	24.00
		122	5610	14.07	12.97	-	-	16.57	24.00
		138	5690	13.96	13.25	-	-	16.63	24.00
		138	5690	-1.48	-1.76	-	-	1.39	30.00
		155	5775	13.96	13.53	-	-	16.76	30.00

26 dB & 99 % RF Bandwidth Measurement										
Mode	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	36	5180	16.857	16.598	-	-	20.260	20.080	-	-
	40	5200	16.878	16.612	-	-	20.140	20.210	-	-
	48	5240	16.843	16.606	-	-	20.530	20.210	-	-
	52	5260	16.865	16.637	-	-	20.250	20.160	-	-
	56	5280	16.911	16.605	-	-	20.240	20.170	-	-
	64	5320	16.884	16.625	-	-	20.250	20.240	-	-
	100	5500	16.885	16.602	-	-	20.150	20.100	-	-
	112	5560	16.862	16.646	-	-	20.180	20.120	-	-
	140	5700	16.930	16.627	-	-	20.390	20.110	-	-
144	5720	13.471	13.368	-	-	15.200	15.250	-	-	
802.11ac VHT20	36	5180	17.800	17.601	-	-	20.620	20.200	-	-
	40	5200	17.767	17.648	-	-	20.590	20.140	-	-
	48	5240	17.809	17.643	-	-	20.600	20.260	-	-
	52	5260	17.813	17.625	-	-	20.620	20.360	-	-
	56	5280	17.816	17.628	-	-	20.670	20.120	-	-
	64	5320	17.783	17.591	-	-	20.600	20.200	-	-
	100	5500	17.803	17.615	-	-	20.570	20.110	-	-
	112	5560	17.775	17.619	-	-	20.600	20.370	-	-
	140	5700	17.790	17.613	-	-	20.600	20.120	-	-
144	5720	13.933	13.880	-	-	15.330	15.180	-	-	
802.11ac VHT40	38	5190	36.171	36.237	-	-	41.310	40.470	-	-
	46	5230	36.164	36.238	-	-	41.390	40.630	-	-
	54	5270	36.202	36.285	-	-	41.300	40.540	-	-
	62	5310	36.173	36.232	-	-	41.210	40.450	-	-
	102	5510	36.151	36.202	-	-	41.140	40.510	-	-
	110	5550	36.119	36.313	-	-	41.090	40.750	-	-
	134	5670	36.164	36.301	-	-	41.320	40.710	-	-
	142	5710	32.954	32.960	-	-	35.700	35.350	-	-
802.11ac VHT80	42	5210	75.684	75.298	-	-	82.090	80.690	-	-
	58	5290	75.653	75.271	-	-	81.790	80.770	-	-
	106	5530	75.600	75.304	-	-	82.040	80.430	-	-
	122	5610	75.598	75.332	-	-	81.810	80.810	-	-
	138	5690	72.346	72.151	-	-	75.960	75.410	-	-

Band III_6 dB & 99 % RF Bandwidth Measurement

Mode	CH	Freq. (MHz)	99 % Bandwidth				6 dB Bandwidth			
			Ant-0	Ant-1	Ant-2	Ant-3	Ant-0	Ant-1	Ant-2	Ant-3
			MHz	MHz	MHz	MHz	kHz	kHz	kHz	kHz
802.11a	144	5720	4.004	4.029	-	-	3099	3101	-	-
	149	5745	17.156	16.753	-	-	15130	15060	-	-
	157	5785	17.094	16.831	-	-	15130	15130	-	-
	165	5825	17.146	16.799	-	-	15140	15110	-	-
802.11ac VHT20	144	5720	4.174	4.229	-	-	3714	3720	-	-
	149	5745	17.987	17.710	-	-	15130	15700	-	-
	157	5785	17.934	17.729	-	-	15140	15700	-	-
	165	5825	17.955	17.680	-	-	15140	15710	-	-
802.11ac VHT40	142	5710	4.189	4.233	-	-	3095	3097	-	-
	151	5755	36.195	36.413	-	-	35130	35110	-	-
	159	5795	36.165	36.389	-	-	35120	35120	-	-
802.11ac VHT80	138	5690	4.671	5.269	-	-	3095	3092	-	-
	155	5775	75.455	75.283	-	-	75160	75120	-	-

Power Spectral Density Measurement									
Mode	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	dB	dBm/MHz	dBm/MHz
802.11a	36	5180	3.126	2.345	-	-	0.147	5.910	11.000
	40	5200	2.990	2.170	-	-	0.147	5.756	11.000
	48	5240	3.011	2.359	-	-	0.147	5.854	11.000
	52	5260	2.610	1.906	-	-	0.147	5.429	11.000
	56	5280	2.676	2.001	-	-	0.147	5.509	11.000
	64	5320	2.900	2.011	-	-	0.147	5.635	11.000
	100	5500	3.743	2.898	-	-	0.147	6.498	11.000
	112	5560	3.383	2.171	-	-	0.147	5.976	11.000
	140	5700	3.330	2.213	-	-	0.147	5.964	11.000
	144	5720	3.997	3.256	-	-	0.147	6.799	11.000
802.11ac VHT20	36	5180	2.485	2.275	-	-	0.155	5.547	-
	40	5200	2.789	1.832	-	-	0.155	5.502	-
	48	5240	2.725	2.095	-	-	0.155	5.587	-
	52	5260	3.022	2.296	-	-	0.155	5.840	-
	56	5280	2.976	2.592	-	-	0.155	5.953	-
	64	5320	2.638	2.356	-	-	0.155	5.665	-
	100	5500	2.911	2.516	-	-	0.155	5.883	-
	112	5560	2.579	1.728	-	-	0.155	5.340	-
	140	5700	2.762	1.989	-	-	0.155	5.558	-
	144	5720	3.490	2.566	-	-	0.155	6.218	-
802.11ac VHT40	38	5190	-0.471	-0.982	-	-	0.317	2.608	-
	46	5230	-0.127	-1.053	-	-	0.317	2.762	-
	54	5270	-0.442	-1.094	-	-	0.317	2.571	-
	62	5310	-0.547	-1.509	-	-	0.317	2.326	-
	102	5510	0.148	-0.695	-	-	0.317	3.074	-
	110	5550	0.271	-1.327	-	-	0.317	2.872	-
	134	5670	-0.311	-1.099	-	-	0.317	2.640	-
	142	5710	0.690	-0.099	-	-	0.317	3.641	-
802.11ac VHT80	42	5210	-3.596	-4.015	-	-	0.184	-0.607	-
	58	5290	-3.269	-3.828	-	-	0.184	-0.345	-
	106	5530	-3.228	-4.149	-	-	0.184	-0.471	-
	122	5610	-3.237	-4.225	-	-	0.184	-0.509	-
	138	5690	-2.655	-3.794	-	-	0.184	0.006	-

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

Band III_ Power Spectral Density Measurement														
Mode	CH	Frequency (MHz)	Measurement								Duty Factor	Calculated	Limit	PASS/FAIL
			Ant-0		Ant-1		Ant-2		Ant-3			Total		
			dBm/100 kHz	dBm/500 kHz	dBm/100 kHz	dBm/500 kHz	dBm/100 kHz	dBm/500 kHz	dBm/100 kHz	dBm/500 kHz		dB	dBm/500 kHz	
802.11a	144	5720	-6.388	0.748	-7.635	-0.498	-	-	-	-	0.147	3.180	30.00	PASS
	149	5745	-6.069	1.078	-6.392	0.744	-	-	-	-	0.147	3.925	30.00	PASS
	157	5785	-6.013	1.124	-7.091	0.046	-	-	-	-	0.147	3.628	30.00	PASS
	165	5825	-6.427	0.709	-6.146	0.991	-	-	-	-	0.147	3.862	30.00	PASS
802.11ac VHT20	144	5720	-7.419	-0.274	-8.007	-0.862	-	-	-	-	0.155	2.452	30.00	PASS
	149	5745	-6.409	0.736	-6.736	0.409	-	-	-	-	0.155	3.586	30.00	PASS
	157	5785	-6.568	0.587	-6.769	0.376	-	-	-	-	0.155	3.493	30.00	PASS
	165	5825	-6.174	0.971	-6.685	0.460	-	-	-	-	0.155	3.733	30.00	PASS
802.11ac VHT40	142	5710	-11.791	-4.485	-12.462	-5.155	-	-	-	-	0.317	-1.797	30.00	PASS
	151	5755	-9.475	-2.169	-9.952	-2.645	-	-	-	-	0.317	0.610	30.00	PASS
	159	5795	-9.538	-2.231	-10.072	-2.766	-	-	-	-	0.317	0.520	30.00	PASS
802.11ac VHT80	138	5690	-15.414	-8.241	-16.252	-9.079	-	-	-	-	0.184	-5.630	30.00	PASS
	155	5775	-12.573	-5.400	-13.126	-5.953	-	-	-	-	0.184	-2.658	30.00	PASS

Note: Power Density = measured result + 10 log (1/duty cycle) + Conversion ratio = measured result + duty factory.
 Conversion ration = 10*Log(500 k/100 k)