

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	10.000	10.000	100.000	0.000	0.010
802.11n HT20	5180	10.000	10.000	100.000	0.000	0.010
802.11n HT40	5190	10.000	10.000	100.000	0.000	0.010
802.11ac VHT20	5180	10.000	10.000	100.000	0.000	0.010
802.11ac VHT40	5190	10.000	10.000	100.000	0.000	0.010
802.11ac VHT80	5210	10.000	10.000	100.000	0.000	0.010

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	82	82	-	-	RTL8822CU MP/0.0001.1020.2018
	40	5200	87	87	-	-	
	48	5240	75	75	-	-	
	52	5260	67	67	-	-	
	56	5280	66	66	-	-	
	64	5320	66	66	-	-	
	100	5500	68	68	-	-	
	112	5560	69	69	-	-	
	140	5700	60	60	-	-	
	144	5720	81	81	-	-	
	149	5745	72	72	-	-	
	157	5785	71	71	-	-	
	165	5825	67	67	-	-	
802.11n HT20	36	5180	83	83	-	-	RTL8822CU MP/0.0001.1020.2018
	40	5200	80	80	-	-	
	48	5240	77	77	-	-	
	52	5260	66	66	-	-	
	56	5280	65	65	-	-	
	64	5320	67	67	-	-	
	100	5500	68	68	-	-	
	112	5560	69	69	-	-	
	140	5700	64	64	-	-	
	144	5720	82	82	-	-	
	149	5745	71	71	-	-	
	157	5785	70	70	-	-	
	165	5825	67	67	-	-	
802.11n HT40	38	5190	79	79	-	-	RTL8822CU MP/0.0001.1020.2018
	46	5230	75	75	-	-	
	54	5270	65	65	-	-	
	62	5310	63	63	-	-	
	102	5510	65	65	-	-	
	110	5550	65	65	-	-	
	134	5670	60	60	-	-	
	142	5710	67	67	-	-	
	151	5755	75	75	-	-	
	159	5795	76	76	-	-	

802.11ac VHT20	36	5180	70	70	-	-	RTL8822CU MP/0.0001.1020.2018
	40	5200	68	68	-	-	
	48	5240	62	62	-	-	
	52	5260	60	60	-	-	
	56	5280	58	58	-	-	
	64	5320	60	60	-	-	
	100	5500	61	61	-	-	
	112	5560	62	62	-	-	
	140	5700	52	52	-	-	
	144	5720	67	67	-	-	
	149	5745	77	77	-	-	
	157	5785	72	72	-	-	
802.11ac VHT40	165	5825	73	73	-	-	RTL8822CU MP/0.0001.1020.2018
	38	5190	65	65	-	-	
	46	5230	62	62	-	-	
	54	5270	60	60	-	-	
	62	5310	60	60	-	-	
	102	5510	63	63	-	-	
	110	5550	59	59	-	-	
	134	5670	58	58	-	-	
	142	5710	64	64	-	-	
	151	5755	73	73	-	-	
802.11ac VHT80	159	5795	71	71	-	-	RTL8822CU MP/0.0001.1020.2018
	42	5210	65	65	-	-	
	58	5290	60	60	-	-	
	106	5530	62	62	-	-	
	122	5610	63	63	-	-	
	138	5690	61	61	-	-	
	155	5775	75	75	-	-	

Maximum Conducted Output Power Measurement

Mode	CH	Frequency (MHz)	Average power					Limit
			Ant-0	Ant-1	Ant-2	Ant-3	Total	
			dBm	dBm	dBm	dBm	dBm	
802.11a	36	5180	15.28	16.19	-	-	18.77	24.00
	40	5200	15.07	16.52	-	-	18.87	24.00
	48	5240	15.27	16.46	-	-	18.92	24.00
	52	5260	15.13	16.48	-	-	18.87	23.75
	56	5280	15.16	16.25	-	-	18.75	23.75
	64	5320	15.33	16.49	-	-	18.96	23.75
	100	5500	15.41	16.26	-	-	18.87	23.73
	112	5560	15.73	16.15	-	-	18.96	23.73
	140	5700	12.88	13.19	-	-	16.05	23.73
	144	5720	14.28	17.05	-	-	18.89	22.60
	149	5745	15.34	16.14	-	-	18.77	30.00
	157	5785	15.84	16.04	-	-	18.95	30.00
	165	5825	14.39	17.13	-	-	18.98	30.00
802.11n HT20	36	5180	15.45	16.06	-	-	18.78	24.00
	40	5200	15.54	15.97	-	-	18.77	24.00
	48	5240	15.70	16.22	-	-	18.98	24.00
	52	5260	15.21	16.47	-	-	18.90	23.97
	56	5280	15.15	16.44	-	-	18.85	23.97
	64	5320	15.17	16.33	-	-	18.80	23.97
	100	5500	15.64	16.19	-	-	18.93	23.91
	112	5560	15.63	15.92	-	-	18.79	23.91
	140	5700	11.34	14.54	-	-	16.24	23.91
	144	5720	14.44	16.88	-	-	18.84	22.68
	149	5745	14.13	16.82	-	-	18.69	30.00
	157	5785	14.38	16.70	-	-	18.70	30.00
	165	5825	14.16	16.78	-	-	18.67	30.00
802.11n HT40	38	5190	14.37	14.94	-	-	17.67	24.00
	46	5230	14.22	14.96	-	-	17.62	24.00
	54	5270	14.17	15.51	-	-	17.90	24.00
	62	5310	14.15	15.25	-	-	17.75	24.00
	102	5510	14.54	15.22	-	-	17.90	24.00
	110	5550	14.68	14.70	-	-	17.70	24.00
	134	5670	13.41	15.69	-	-	17.71	24.00
	142	5710	13.36	16.07	-	-	17.93	24.00
	151	5755	13.80	15.91	-	-	17.99	30.00
	159	5795	13.70	15.93	-	-	17.97	30.00

Mode	CH	Frequency (MHz)	Average power					Limit
			Ant-0	Ant-1	Ant-2	Ant-3	Total	
			dBm	dBm	dBm	dBm	dBm	
802.11ac VHT20	36	5180	14.53	15.24	-	-	17.91	24.00
	40	5200	14.58	15.16	-	-	17.89	24.00
	48	5240	14.87	14.97	-	-	17.93	24.00
	52	5260	14.72	14.93	-	-	17.84	23.97
	56	5280	14.62	14.77	-	-	17.71	23.97
	64	5320	14.74	14.96	-	-	17.86	23.97
	100	5500	14.71	15.16	-	-	17.95	23.91
	112	5560	14.09	15.37	-	-	17.79	23.91
	140	5700	11.55	14.08	-	-	16.01	23.91
	144	5720	13.33	16.12	-	-	17.96	22.68
	149	5745	13.51	15.98	-	-	17.93	30.00
	157	5785	13.39	15.86	-	-	17.81	30.00
	165	5825	13.45	15.93	-	-	17.87	30.00
802.11ac VHT40	38	5190	13.53	14.13	-	-	16.85	24.00
	46	5230	13.75	13.96	-	-	16.87	24.00
	54	5270	13.74	13.89	-	-	16.83	24.00
	62	5310	13.69	13.84	-	-	16.78	24.00
	102	5510	13.53	13.84	-	-	16.70	24.00
	110	5550	13.35	14.39	-	-	16.91	24.00
	134	5670	12.76	14.58	-	-	16.77	24.00
	142	5710	12.59	14.96	-	-	16.95	24.00
	151	5755	12.61	14.65	-	-	16.76	30.00
	159	5795	12.49	14.96	-	-	16.91	30.00
802.11ac VHT80	42	5210	13.43	13.74	-	-	16.60	24.00
	58	5290	13.64	14.21	-	-	16.94	24.00
	106	5530	13.56	14.28	-	-	16.95	24.00
	122	5610	13.49	14.36	-	-	16.96	24.00
	138	5690	12.51	14.96	-	-	16.92	24.00
	155	5775	12.36	14.73	-	-	16.72	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	16.502	16.638	-	-	20.010	26.220	-	-
	40	5200	16.489	16.664	-	-	18.830	26.300	-	-
	48	5240	16.505	16.753	-	-	18.860	30.740	-	-
	52	5260	16.496	16.734	-	-	19.770	27.810	-	-
	56	5280	16.488	16.563	-	-	18.830	25.140	-	-
	64	5320	16.499	16.676	-	-	18.890	27.200	-	-
	100	5500	16.476	16.531	-	-	18.850	21.290	-	-
	112	5560	16.457	16.478	-	-	18.850	19.430	-	-
	140	5700	16.468	16.442	-	-	18.870	18.740	-	-
	144	5720	13.194	13.209	-	-	14.440	15.660	-	-
802.11n HT20	36	5180	17.633	17.681	-	-	19.830	23.080	-	-
	40	5200	17.619	17.638	-	-	19.880	19.730	-	-
	48	5240	17.636	17.759	-	-	19.850	29.000	-	-
	52	5260	17.642	17.719	-	-	19.860	24.670	-	-
	56	5280	17.625	17.675	-	-	19.800	23.190	-	-
	64	5320	17.637	17.730	-	-	19.840	27.110	-	-
	100	5500	17.617	17.632	-	-	19.840	19.680	-	-
	112	5560	17.622	17.615	-	-	19.930	19.540	-	-
	140	5700	17.641	17.586	-	-	19.820	19.550	-	-
	144	5720	13.759	13.774	-	-	14.850	14.720	-	-
802.11n HT40	38	5190	36.281	36.110	-	-	41.900	41.230	-	-
	46	5230	36.331	36.157	-	-	42.140	42.550	-	-
	54	5270	36.307	36.134	-	-	41.980	42.300	-	-
	62	5310	36.346	36.144	-	-	41.980	41.950	-	-
	102	5510	36.281	36.121	-	-	42.160	41.100	-	-
	110	5550	36.342	36.096	-	-	42.320	41.050	-	-
	134	5670	36.357	36.057	-	-	41.960	40.910	-	-
	142	5710	33.103	32.996	-	-	35.950	35.290	-	-
802.11ac VHT80	42	5210	74.577	74.676	-	-	81.640	82.470	-	-
	58	5290	74.621	74.572	-	-	81.700	81.470	-	-
	106	5530	74.629	74.832	-	-	81.710	81.900	-	-
	122	5610	74.657	74.736	-	-	81.780	81.650	-	-
	138	5690	71.733	71.668	-	-	76.000	76.010	-	-

Band III_6 dB & 99 % RF Bandwidth Measurement

Mode	CH	Freq. (MHz)	99 % Bandwidth				6 dB Bandwidth				6dB Limit
			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	3.339	3.546	-	-	3211	3202	-	-	≥ 500 kHz
	149	5745	16.563	16.573	-	-	16420	16430	-	-	
	157	5785	16.582	16.551	-	-	16470	16420	-	-	
	165	5825	16.593	16.604	-	-	16430	16420	-	-	
802.11n HT20	144	5720	3.926	3.926	-	-	3866	3818	-	-	
	149	5745	17.711	17.664	-	-	17660	17620	-	-	
	157	5785	17.735	17.691	-	-	17660	17630	-	-	
	165	5825	17.735	17.684	-	-	17670	17620	-	-	
802.11n HT40	142	5710	3.839	3.788	-	-	3269	3178	-	-	
	151	5755	36.292	36.101	-	-	36360	36310	-	-	
	159	5795	36.402	36.170	-	-	36380	36330	-	-	
802.11ac VHT80	138	5690	5.974	4.385	-	-	3282	3249	-	-	
	155	5775	74.548	74.466	-	-	74740	74410	-	-	

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		dBm/MHz	
802.11a	36	5180	3.690	4.923	-	-	0.000	7.360	10.440
	40	5200	3.657	5.060	-	-	0.000	7.425	10.440
	48	5240	3.544	4.718	-	-	0.000	7.181	10.440
	52	5260	3.731	4.553	-	-	0.000	7.172	10.440
	56	5280	3.275	3.997	-	-	0.000	6.662	10.440
	64	5320	3.493	4.738	-	-	0.000	7.170	10.440
	100	5500	3.591	5.039	-	-	0.000	7.386	10.790
	112	5560	4.017	4.636	-	-	0.000	7.347	10.790
	140	5700	0.382	0.920	-	-	0.000	3.669	10.790
	144	5720	2.646	5.432	-	-	0.000	7.269	10.790
802.11n HT20	36	5180	3.494	4.392	-	-	0.000	6.976	10.440
	40	5200	3.381	3.865	-	-	0.000	6.640	10.440
	48	5240	4.074	4.554	-	-	0.000	7.331	10.440
	52	5260	3.558	4.464	-	-	0.000	7.045	10.440
	56	5280	3.345	4.611	-	-	0.000	7.034	10.440
	64	5320	2.998	4.533	-	-	0.000	6.843	10.440
	100	5500	3.762	4.267	-	-	0.000	7.032	10.790
	112	5560	3.643	4.291	-	-	0.000	6.989	10.790
	140	5700	-0.717	2.482	-	-	0.000	4.181	10.790
	144	5720	2.653	5.022	-	-	0.000	7.007	10.790
802.11n HT40	38	5190	0.214	0.802	-	-	0.000	3.528	10.440
	46	5230	-0.150	0.655	-	-	0.000	3.281	10.440
	54	5270	-0.485	1.171	-	-	0.000	3.432	10.440
	62	5310	-0.322	0.687	-	-	0.000	3.222	10.440
	102	5510	0.099	0.623	-	-	0.000	3.379	10.790
	110	5550	0.203	0.702	-	-	0.000	3.470	10.790
	134	5670	-1.435	0.738	-	-	0.000	2.797	10.790
	142	5710	-0.894	1.042	-	-	0.000	3.192	10.790
802.11ac VHT80	42	5210	-4.138	-3.595	-	-	0.000	-0.848	10.440
	58	5290	-4.478	-4.117	-	-	0.000	-1.283	10.440
	106	5530	-4.238	-3.347	-	-	0.000	-0.759	10.790
	122	5610	-3.939	-2.964	-	-	0.000	-0.414	10.790
	138	5690	-4.373	-2.471	-	-	0.000	-0.308	10.790

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	dBm/500 kHz	
802.11a	144	5720	-6.786	0.203	-	-	-4.205	2.784	-	-	0.000	4.693	29.79	PASS
	149	5745	-5.352	1.637	-	-	-4.154	2.836	-	-	0.000	5.288	29.79	PASS
	157	5785	-4.642	2.348	-	-	-4.741	2.249	-	-	0.000	5.309	29.79	PASS
	165	5825	-6.461	0.528	-	-	-3.510	3.479	-	-	0.000	5.260	29.79	PASS
802.11n HT20	144	5720	-7.052	-0.062	-	-	-4.458	2.531	-	-	0.000	4.436	29.79	PASS
	149	5745	-7.418	-0.428	-	-	-3.789	3.201	-	-	0.000	4.765	29.79	PASS
	157	5785	-6.880	0.110	-	-	-4.292	2.697	-	-	0.000	4.604	29.79	PASS
	165	5825	-7.302	-0.312	-	-	-4.192	2.798	-	-	0.000	4.526	29.79	PASS
802.11n HT40	142	5710	-11.692	-4.702	-	-	-9.630	-2.640	-	-	0.000	-0.539	29.79	PASS
	151	5755	-9.238	-2.249	-	-	-7.265	-0.276	-	-	0.000	1.859	29.79	PASS
	159	5795	-9.878	-2.888	-	-	-7.273	-0.283	-	-	0.000	1.617	29.79	PASS
802.11ac VHT80	138	5690	-18.460	-11.470	-	-	-15.922	-8.932	-	-	0.000	-7.008	29.79	PASS
	155	5775	-14.524	-7.535	-	-	-12.242	-5.252	-	-	0.000	-3.235	29.79	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)