

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	1.400	2.020	69.307	1.592	0.714
802.11n HT20	5180	1.300	1.930	67.358	1.716	0.769
802.11n HT40	5190	0.645	1.280	50.391	2.977	1.550
802.11ac VHT20	5180	1.300	1.920	67.708	1.694	0.769
802.11ac VHT40	5190	0.655	1.280	51.172	2.910	1.527
802.11ac VHT80	5210	0.324	0.952	34.034	4.681	3.086
802.11ax HE20	5180	1.010	1.650	61.212	2.132	0.990
802.11ax HE40	5190	0.530	1.160	45.690	3.402	1.887
802.11ax HE80	5210	0.288	0.916	31.441	5.025	3.472

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	14	14	-	-	adb
	40	5200	14	14	-	-	
	48	5240	14	14	-	-	
	52	5260	14	14	-	-	
	56	5280	14	14	-	-	
	64	5320	11.5	11.5	-	-	
	100	5500	12	12	-	-	
	112	5560	12.5	12.5	-	-	
	140	5700	12.5	12.5	-	-	
	144	5720	12.5	12.5	-	-	
	149	5745	13.5	13.5	-	-	
	157	5785	13.5	13.5	-	-	
	165	5825	14	14	-	-	
802.11n HT20	36	5180	14	14	-	-	adb
	40	5200	14	14	-	-	
	48	5240	14	14	-	-	
	52	5260	14	14	-	-	
	56	5280	14	14	-	-	
	64	5320	12	12	-	-	
	100	5500	12.5	12.5	-	-	
	112	5560	13.5	13.5	-	-	
	140	5700	13.5	13.5	-	-	
	144	5720	14	14	-	-	
	149	5745	14	14	-	-	
	157	5785	14	14	-	-	
	165	5825	14	14	-	-	
802.11n HT40	38	5190	14	14	-	-	adb
	46	5230	14	14	-	-	
	54	5270	14	14	-	-	
	62	5310	14	14	-	-	
	102	5510	14	14	-	-	
	110	5550	14	14	-	-	
	134	5670	14	14	-	-	
	142	5710	14	14	-	-	
	151	5755	14	14	-	-	
	159	5795	14	14	-	-	

RF power setting in Test SW

Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ac VHT20	36	5180	14	14	-	-	adb
	40	5200	14	14	-	-	
	48	5240	14	14	-	-	
	52	5260	14	14	-	-	
	56	5280	14	14	-	-	
	64	5320	12	12	-	-	
	100	5500	12.5	12.5	-	-	
	112	5560	13.5	13.5	-	-	
	140	5700	13.5	13.5	-	-	
	144	5720	14	14	-	-	
	149	5745	14	14	-	-	
	157	5785	14	14	-	-	
	165	5825	14	14	-	-	
802.11ac VHT40	38	5190	14	14	-	-	adb
	46	5230	14	14	-	-	
	54	5270	14	14	-	-	
	62	5310	14	14	-	-	
	102	5510	14	14	-	-	
	110	5550	14	14	-	-	
	134	5670	14	14	-	-	
	142	5710	14	14	-	-	
	151	5755	14	14	-	-	
	159	5795	14	14	-	-	
802.11ac VHT80	42	5210	14	14	-	-	adb
	58	5290	14	14	-	-	
	106	5530	14	14	-	-	
	122	5610	14	14	-	-	
	138	5690	14	14	-	-	
	155	5775	14	14	-	-	

RF power setting in Test SW

Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ax HE20	36	5180	14	14	-	-	adb
	40	5200	14	14	-	-	
	48	5240	14	14	-	-	
	52	5260	14	14	-	-	
	56	5280	14	14	-	-	
	64	5320	12	12	-	-	
	100	5500	12.5	12.5	-	-	
	112	5560	13.5	13.5	-	-	
	140	5700	13.5	13.5	-	-	
	144	5720	14	14	-	-	
	149	5745	14	14	-	-	
	157	5785	14	14	-	-	
	165	5825	14	14	-	-	
802.11ax HE40	38	5190	14	14	-	-	adb
	46	5230	14	14	-	-	
	54	5270	14	14	-	-	
	62	5310	14	14	-	-	
	102	5510	14	14	-	-	
	110	5550	14	14	-	-	
	134	5670	14	14	-	-	
	142	5710	14	14	-	-	
	151	5755	14	14	-	-	
	159	5795	14	14	-	-	
802.11ax HE80	42	5210	14	14	-	-	adb
	58	5290	14	14	-	-	
	106	5530	14	14	-	-	
	122	5610	14	14	-	-	
	138	5690	14	14	-	-	
	155	5775	14	14	-	-	

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	16.54	16.48	-	-	19.52	30.00
	40	5200	16.78	16.50	-	-	19.65	30.00
	48	5240	15.73	15.08	-	-	18.43	30.00
	52	5260	15.16	14.21	-	-	17.72	24.00
	56	5280	15.25	13.65	-	-	17.54	24.00
	64	5320	13.34	13.10	-	-	16.23	24.00
	100	5500	12.17	12.71	-	-	15.46	24.00
	112	5560	12.01	13.14	-	-	15.62	24.00
	140	5700	13.78	12.80	-	-	16.33	24.00
	144	5720	13.66	12.78	-	-	16.25	23.40
	149	5745	14.32	13.88	-	-	17.12	30.00
	157	5785	14.44	15.01	-	-	17.75	30.00
	165	5825	14.50	13.68	-	-	17.12	30.00
802.11n HT20	36	5180	15.42	15.47	-	-	18.45	29.68
	40	5200	15.73	15.62	-	-	18.68	29.68
	48	5240	14.13	13.80	-	-	16.97	29.68
	52	5260	13.92	13.02	-	-	16.50	23.75
	56	5280	14.10	12.57	-	-	16.41	23.75
	64	5320	12.70	12.42	-	-	15.57	23.75
	100	5500	11.49	12.06	-	-	14.79	23.26
	112	5560	11.75	12.86	-	-	15.35	23.26
	140	5700	13.52	12.67	-	-	16.12	23.26
	144	5720	13.65	13.10	-	-	16.39	22.31
	149	5745	15.58	15.52	-	-	18.56	29.26
	157	5785	13.60	14.04	-	-	16.83	29.26
	165	5825	13.51	12.36	-	-	15.98	29.26
802.11n HT40	38	5190	15.64	15.37	-	-	18.51	29.68
	46	5230	14.51	13.63	-	-	17.10	29.68
	54	5270	14.21	12.55	-	-	16.47	23.75
	62	5310	14.99	14.14	-	-	17.59	23.75
	102	5510	13.24	14.09	-	-	16.69	23.26
	110	5550	12.47	13.23	-	-	15.87	23.26
	134	5670	14.02	12.67	-	-	16.40	23.26
	142	5710	14.31	12.68	-	-	16.58	23.26
	151	5755	14.01	13.41	-	-	16.73	29.26
	159	5795	14.20	13.59	-	-	16.91	29.26

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	
802.11ac VHT20	36	5180	15.51	15.58	-	-	18.56	29.68
	40	5200	15.82	15.72	-	-	18.78	29.68
	48	5240	14.24	13.97	-	-	17.12	29.68
	52	5260	14.02	13.19	-	-	16.64	23.75
	56	5280	14.20	12.71	-	-	16.53	23.75
	64	5320	12.84	12.60	-	-	15.74	23.75
	100	5500	11.63	12.21	-	-	14.94	23.26
	112	5560	11.88	13.04	-	-	15.51	23.26
	140	5700	13.71	12.83	-	-	16.31	23.26
	144	5720	13.77	13.23	-	-	16.52	22.31
	149	5745	15.74	15.65	-	-	18.71	29.26
	157	5785	13.77	14.14	-	-	16.97	29.26
	165	5825	13.61	12.46	-	-	16.09	29.26
802.11ac VHT40	38	5190	15.76	15.41	-	-	18.60	29.68
	46	5230	14.62	13.68	-	-	17.19	29.68
	54	5270	14.31	12.65	-	-	16.57	23.75
	62	5310	15.07	14.22	-	-	17.68	23.75
	102	5510	13.34	14.19	-	-	16.80	23.26
	110	5550	12.59	13.35	-	-	16.00	23.26
	134	5670	14.08	12.71	-	-	16.46	23.26
	142	5710	14.35	12.83	-	-	16.67	23.26
	151	5755	14.08	13.46	-	-	16.79	29.26
	159	5795	14.27	13.67	-	-	16.99	29.26
802.11ac VHT80	42	5210	15.62	15.19	-	-	18.42	29.68
	58	5290	14.54	13.80	-	-	17.20	23.75
	106	5530	12.65	14.52	-	-	16.70	23.26
	122	5610	12.94	13.98	-	-	16.50	23.26
	138	5690	13.85	12.65	-	-	16.30	23.26
	155	5775	13.71	13.65	-	-	16.69	29.26

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	
802.11ax HE20	36	5180	15.64	15.70	-	-	18.68	29.68
	40	5200	15.88	15.86	-	-	18.88	29.68
	48	5240	14.29	14.04	-	-	17.18	29.68
	52	5260	14.14	13.27	-	-	16.74	23.75
	56	5280	14.26	12.79	-	-	16.60	23.75
	64	5320	12.97	12.70	-	-	15.85	23.75
	100	5500	11.74	12.35	-	-	15.07	23.26
	112	5560	12.04	13.20	-	-	15.67	23.26
	140	5700	13.82	12.94	-	-	16.41	23.26
	144	5720	13.91	13.29	-	-	16.62	22.31
	149	5745	15.87	15.76	-	-	18.83	29.26
	157	5785	13.89	14.27	-	-	17.10	29.26
	165	5825	13.68	12.60	-	-	16.19	29.26
802.11ax HE40	38	5190	15.93	15.59	-	-	18.78	29.68
	46	5230	14.75	13.87	-	-	17.34	29.68
	54	5270	14.41	12.84	-	-	16.71	23.75
	62	5310	15.23	14.36	-	-	17.83	23.75
	102	5510	13.44	14.32	-	-	16.91	23.26
	110	5550	12.71	13.45	-	-	16.11	23.26
	134	5670	14.27	12.88	-	-	16.64	23.26
	142	5710	14.49	12.96	-	-	16.80	23.26
	151	5755	14.23	13.61	-	-	16.94	29.26
	159	5795	14.43	13.83	-	-	17.15	29.26
802.11ax HE80	42	5210	15.74	15.25	-	-	18.51	29.68
	58	5290	14.66	13.89	-	-	17.30	23.75
	106	5530	12.76	14.65	-	-	16.81	23.26
	122	5610	13.07	14.12	-	-	16.63	23.26
	138	5690	13.91	12.77	-	-	16.38	23.26
	155	5775	13.77	13.72	-	-	16.75	29.26

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	17.323	18.284	-	-	24.810	27.240	-	-
	40	5200	17.382	18.342	-	-	26.290	27.780	-	-
	48	5240	16.523	16.817	-	-	19.860	20.230	-	-
	52	5260	17.243	18.277	-	-	25.370	27.650	-	-
	56	5280	17.238	18.247	-	-	24.660	27.670	-	-
	64	5320	17.251	18.249	-	-	24.870	27.230	-	-
	100	5500	17.245	18.332	-	-	24.860	28.420	-	-
	112	5560	17.237	18.355	-	-	24.900	28.260	-	-
	140	5700	17.300	18.330	-	-	24.990	28.270	-	-
	144	5720	13.520	14.096	-	-	17.390	18.830	-	-
802.11ax HE20	36	5180	19.157	19.116	-	-	25.730	22.620	-	-
	40	5200	19.107	19.101	-	-	23.150	25.830	-	-
	48	5240	18.894	18.900	-	-	20.150	20.130	-	-
	52	5260	19.110	19.103	-	-	27.410	23.010	-	-
	56	5280	19.109	19.137	-	-	21.930	28.620	-	-
	64	5320	19.101	19.159	-	-	28.040	26.780	-	-
	100	5500	19.149	19.245	-	-	30.140	32.560	-	-
	112	5560	19.081	19.135	-	-	25.230	24.230	-	-
	140	5700	19.174	19.172	-	-	25.780	23.940	-	-
	144	5720	14.459	14.519	-	-	16.040	19.670	-	-
802.11ax HE40	38	5190	37.453	37.483	-	-	39.830	39.830	-	-
	46	5230	37.519	37.498	-	-	39.800	39.800	-	-
	54	5270	37.496	37.576	-	-	39.840	39.770	-	-
	62	5310	37.462	37.548	-	-	39.860	39.740	-	-
	102	5510	37.621	37.521	-	-	39.960	39.840	-	-
	110	5550	37.477	37.588	-	-	39.810	39.800	-	-
	134	5670	37.563	37.543	-	-	39.840	39.870	-	-
	142	5710	33.552	33.480	-	-	34.790	34.810	-	-
802.11ax HE80	42	5210	76.817	76.731	-	-	80.960	81.080	-	-
	58	5290	76.932	77.025	-	-	81.000	81.180	-	-
	106	5530	76.988	76.792	-	-	80.940	80.800	-	-
	122	5610	76.952	76.854	-	-	80.890	81.280	-	-
	138	5690	72.793	73.071	-	-	75.600	75.580	-	-

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	kHz
802.11a	144	5720	4.809	5.114	-	-	3191	3189.000	-	-	≥ 500 kHz
	149	5745	17.605	19.016	-	-	16330	16050.000	-	-	
	157	5785	17.627	18.908	-	-	16330	15800.000	-	-	
	165	5825	17.658	19.066	-	-	16330	15830.000	-	-	
802.11ax HE20	144	5720	4.731	4.831	-	-	4540	4334	-	-	
	149	5745	19.178	19.392	-	-	18790	18470	-	-	
	157	5785	19.217	19.216	-	-	18870	18660	-	-	
	165	5825	19.234	19.286	-	-	18850	18510	-	-	
802.11ax HE40	142	5710	4.169	4.172	-	-	3827	4021	-	-	
	151	5755	37.688	37.521	-	-	35090	35120	-	-	
	159	5795	37.571	37.544	-	-	35100	35080	-	-	
802.11ax HE80	138	5690	4.287	4.315	-	-	4047	3813	-	-	
	155	5775	76.903	76.559	-	-	75090	75100	-	-	

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	4.485	4.757	-	-	1.592	9.225	16.680
	40	5200	4.468	4.674	-	-	1.592	9.175	16.680
	48	5240	2.892	2.458	-	-	1.592	7.283	16.680
	52	5260	2.076	2.005	-	-	1.592	6.643	10.750
	56	5280	3.747	1.513	-	-	1.592	7.375	10.750
	64	5320	1.314	0.652	-	-	1.592	5.598	10.750
	100	5500	0.806	0.734	-	-	1.592	5.373	10.260
	112	5560	-0.280	1.450	-	-	1.592	5.273	10.260
	140	5700	1.611	0.668	-	-	1.592	5.767	10.260
	144	5720	1.583	0.597	-	-	1.592	5.721	10.260
802.11ax HE20	36	5180	2.760	2.318	-	-	2.132	7.686	16.680
	40	5200	2.654	2.261	-	-	2.132	7.604	16.680
	48	5240	2.106	0.935	-	-	2.132	6.702	16.680
	52	5260	0.939	0.255	-	-	2.132	5.752	10.750
	56	5280	0.828	-0.347	-	-	2.132	5.422	10.750
	64	5320	-0.401	-0.517	-	-	2.132	4.683	10.750
	100	5500	-1.462	-0.657	-	-	2.132	4.101	10.260
	112	5560	-0.794	-0.889	-	-	2.132	4.301	10.260
	140	5700	-0.073	-0.264	-	-	2.132	4.974	10.260
	144	5720	0.967	0.465	-	-	2.132	5.865	10.260
802.11ax HE40	38	5190	-1.067	-0.492	-	-	3.402	5.642	16.680
	46	5230	-1.705	-2.759	-	-	3.402	4.212	16.680
	54	5270	-1.658	-4.030	-	-	3.402	3.728	10.750
	62	5310	-1.433	-1.924	-	-	3.402	4.740	10.750
	102	5510	-2.860	-2.071	-	-	3.402	3.964	10.260
	110	5550	-3.886	-3.230	-	-	3.402	2.866	10.260
	134	5670	-2.497	-3.678	-	-	3.402	3.364	10.260
	142	5710	-1.878	-3.540	-	-	3.402	3.782	10.260
802.11ax HE80	42	5210	-5.306	-5.688	-	-	5.025	2.542	16.680
	58	5290	-5.672	-7.412	-	-	5.025	1.580	10.750
	106	5530	-8.727	-5.639	-	-	5.025	1.121	10.260
	122	5610	-7.291	-7.068	-	-	5.025	0.857	10.260
	138	5690	-7.195	-7.563	-	-	5.025	0.660	10.260

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	-8.401	0.181	-10.061	-1.479	-	-	-	-	1.592	2.440	29.26	PASS
	149	5745	-6.324	2.258	-7.019	1.563	-	-	-	-	1.592	4.935	29.26	PASS
	157	5785	-5.892	2.690	-6.964	1.618	-	-	-	-	1.592	5.197	29.26	PASS
	165	5825	-6.065	2.517	-7.840	0.742	-	-	-	-	1.592	4.730	29.26	PASS
802.11ax HE20	144	5720	-10.099	-0.978	-9.595	-0.474	-	-	-	-	2.132	2.292	29.26	PASS
	149	5745	-8.411	0.710	-9.317	-0.196	-	-	-	-	2.132	3.291	29.26	PASS
	157	5785	-9.333	-0.212	-8.887	0.235	-	-	-	-	2.132	3.028	29.26	PASS
	165	5825	-8.980	0.142	-10.768	-1.646	-	-	-	-	2.132	2.349	29.26	PASS
802.11ax HE40	142	5710	-14.294	-3.902	-16.179	-5.787	-	-	-	-	3.402	-1.733	29.26	PASS
	151	5755	-11.602	-1.210	-13.026	-2.634	-	-	-	-	3.402	1.146	29.26	PASS
	159	5795	-10.676	-0.284	-12.319	-1.928	-	-	-	-	3.402	1.982	29.26	PASS
802.11ax HE80	138	5690	-19.149	-7.134	-20.167	-8.152	-	-	-	-	5.025	-4.603	29.26	PASS
	155	5775	-16.511	-4.496	-16.416	-4.402	-	-	-	-	5.025	-1.438	29.26	PASS

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

Conversion ratio = 10*Log(500 k/100 k)

電波暴露量之評估									
Band	Frequency (MHz)	Limit mW/cm ²	Distance	Power	ANT Gain	Numeric Gain	Duty Cycle	Power with Duty cycle	Power Density
			cm	(dBm)				(mW)	mW/cm ²
			[R]	[P]				[P]x[G]	[S]
WLAN 5GHz	5150-5850	1	20	18.83	6.74	4.72	1.00	360.53	0.0717