

## 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	0.840	0.888	94.595	0.241	1.190
802.11n HT20	5180	0.856	0.904	94.690	0.237	1.168
802.11n HT40	5190	0.816	0.867	94.118	0.263	1.225
802.11ac VHT20	5180	0.328	0.380	86.274	0.641	3.048
802.11ac VHT40	5190	0.328	0.382	85.935	0.658	3.048
802.11ac VHT80	5210	0.328	0.380	86.274	0.641	3.048
802.11ax HE20	5180	0.795	0.846	93.972	0.270	1.258
802.11ax HE40	5190	0.795	0.846	93.972	0.270	1.258
802.11ax HE80	5210	0.795	0.846	93.972	0.270	1.258

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	20	20	20	-	MT7981 QA 0.0.2.78
	40	5200	20	20	20	-	
	48	5240	20	20	20	-	
	149	5745	25.5	25.5	25.5	-	
	157	5785	26	26	26	-	
	165	5825	25	25	25	-	
802.11n HT20	36	5180	20.5	20.5	20.5	-	MT7981 QA 0.0.2.78
	40	5200	20.5	20.5	20.5	-	
	48	5240	20.5	20.5	20.5	-	
	149	5745	25	25	25	-	
	157	5785	25	25	25	-	
	165	5825	25	25	25	-	
802.11n HT40	38	5190	17	17	17	-	MT7981 QA 0.0.2.78
	46	5230	20	20	20	-	
	151	5755	22.5	22.5	22.5	-	
	159	5795	22.5	22.5	22.5	-	
802.11ac VHT20	36	5180	20.5	20.5	20.5	-	MT7981 QA 0.0.2.78
	40	5200	20.5	20.5	20.5	-	
	48	5240	20.5	20.5	20.5	-	
	149	5745	25	25	25	-	
	157	5785	25	25	25	-	
	165	5825	25	25	25	-	
802.11ac VHT40	38	5190	17	17	17	-	MT7981 QA 0.0.2.78
	46	5230	20	20	20	-	
	151	5755	22.5	22.5	22.5	-	
	159	5795	22.5	22.5	22.5	-	
802.11ac VHT80	42	5210	11.5	11.5	11.5	-	MT7981 QA 0.0.2.78
	155	5775	20	20	20	-	
802.11ax HE20	36	5180	20.5	20.5	20.5	-	MT7981 QA 0.0.2.78
	40	5200	20.5	20.5	20.5	-	
	48	5240	20.5	20.5	20.5	-	
	149	5745	25	25	25	-	
	157	5785	25	25	25	-	
	165	5825	25	25	25	-	
802.11ax HE40	38	5190	16.5	16.5	16.5	-	MT7981 QA 0.0.2.78
	46	5230	18.5	18.5	18.5	-	
	151	5755	23	23	23	-	
	159	5795	23	23	23	-	
802.11ax HE80	42	5210	12	12	12	-	MT7981 QA 0.0.2.78
	155	5775	19	19	19	-	

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	20.50	21.43	21.18	-	25.83	30.00
	40	5200	20.56	21.09	21.18	-	25.72	30.00
	48	5240	20.90	21.51	21.51	-	26.09	30.00
	149	5745	23.96	24.47	24.40	-	29.06	30.00
	157	5785	24.48	25.32	25.16	-	29.77	30.00
	165	5825	23.90	23.89	24.36	-	28.83	30.00
802.11n HT20	36	5180	20.97	21.38	21.50	-	26.06	28.08
	40	5200	20.91	21.38	21.49	-	26.04	28.08
	48	5240	21.11	21.47	21.66	-	26.19	28.08
	149	5745	23.41	23.82	23.69	-	28.41	28.92
	157	5785	23.48	23.87	23.89	-	28.52	28.92
	165	5825	24.05	23.80	24.43	-	28.87	28.92
802.11n HT40	38	5190	17.70	17.93	18.20	-	22.72	28.08
	46	5230	20.66	21.08	21.24	-	25.77	28.08
	151	5755	21.79	22.15	22.16	-	26.81	28.92
	159	5795	21.90	22.18	21.97	-	26.79	28.92
802.11ac VHT20	36	5180	20.98	21.44	21.61	-	26.12	28.08
	40	5200	20.93	21.54	21.64	-	26.15	28.08
	48	5240	21.14	21.56	21.71	-	26.25	28.08
	149	5745	23.64	23.92	23.88	-	28.59	28.92
	157	5785	23.69	24.03	23.97	-	28.67	28.92
	165	5825	24.01	23.98	24.34	-	28.89	28.92
802.11ac VHT40	38	5190	17.71	18.10	18.22	-	22.78	28.08
	46	5230	20.78	21.22	21.40	-	25.91	28.08
	151	5755	21.95	22.30	22.21	-	26.93	28.92
	159	5795	21.95	22.32	22.23	-	26.94	28.92
802.11ac VHT80	42	5210	11.58	11.85	12.09	-	16.62	28.08
	155	5775	19.10	19.42	19.51	-	24.12	28.92
802.11ax HE20	36	5180	21.18	21.64	21.68	-	26.28	28.08
	40	5200	21.18	21.63	21.81	-	26.32	28.08
	48	5240	21.30	21.77	21.85	-	26.42	28.08
	149	5745	23.57	23.94	23.91	-	28.58	28.92
	157	5785	23.66	23.97	23.91	-	28.62	28.92
	165	5825	24.01	24.01	24.27	-	28.87	28.92
802.11ax HE40	38	5190	17.41	17.81	18.06	-	22.54	28.08
	46	5230	19.66	19.94	20.27	-	24.74	28.08
	151	5755	22.50	22.97	22.89	-	27.56	28.92
	159	5795	22.63	23.07	22.93	-	27.65	28.92
802.11ax HE80	42	5210	12.39	12.56	12.89	-	17.39	28.08
	155	5775	18.50	18.74	18.76	-	23.44	28.92

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	17.276	21.988	17.173	-	28.630	41.360	27.200	-
	40	5200	17.297	17.245	17.328	-	31.240	28.310	29.800	-
	48	5240	17.226	18.047	17.187	-	30.770	38.340	26.800	-
802.11ac VHT20	36	5180	18.413	18.267	18.360	-	30.800	28.830	32.870	-
	40	5200	18.349	18.346	18.386	-	31.100	30.260	33.180	-
	48	5240	18.155	18.139	18.240	-	29.920	29.860	32.500	-
802.11ac VHT40	38	5190	36.989	36.678	36.737	-	59.920	54.190	53.660	-
	46	5230	36.830	36.672	36.981	-	68.970	64.980	64.980	-
802.11ac VHT80	42	5210	75.681	75.661	75.635	-	108.630	109.170	113.120	-
802.11ax HE20	36	5180	19.243	19.340	19.261	-	30.720	29.500	29.770	-
	40	5200	19.244	19.308	19.294	-	27.830	29.370	36.010	-
	48	5240	18.973	19.010	19.099	-	27.170	24.710	34.210	-
802.11ax HE40	38	5190	37.842	37.777	37.789	-	48.610	45.780	49.300	-
	46	5230	37.606	37.624	37.724	-	39.970	39.940	41.160	-
802.11ax HE80	42	5210	77.423	77.514	77.315	-	88.660	102.400	90.220	-

Band III_6 dB & 99 % RF Bandwidth Measurement											
Mode	CH	Freq. (MHz)	99 % Bandwidth				6 dB Bandwidth				6dB Limit For FCC
			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	149	5745	27.604	34.662	31.190	-	16310	16320	16350	-	≥ 500 kHz
	157	5785	30.536	42.635	36.524	-	16280	16330	16350	-	
	165	5825	26.330	29.086	30.891	-	16310	16330	16340	-	
802.11ac VHT20	149	5745	24.212	28.846	27.589	-	17300	17290	17570	-	
	157	5785	25.694	30.304	29.027	-	16580	17560	17560	-	
802.11ac VHT40	165	5825	27.450	30.240	33.848	-	17540	17580	17570	-	
	151	5755	38.713	44.017	42.527	-	35130	35120	35120	-	
	159	5795	37.810	44.292	45.511	-	35130	35120	35110	-	
802.11ac VHT80	155	5775	75.272	75.374	75.364	-	75150	75120	75080	-	
802.11ax HE20	149	5745	23.685	30.106	28.393	-	18530	17820	17460	-	
	157	5785	25.566	31.713	29.773	-	17920	18000	17700	-	
	165	5825	26.145	30.303	34.104	-	18650	17740	18450	-	
802.11ax HE40	151	5755	38.959	44.755	43.033	-	35120	35110	35090	-	
	159	5795	38.759	49.467	44.778	-	35110	35110	35100	-	
802.11ax HE80	155	5775	76.897	77.011	77.140	-	75160	75160	75150	-	

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	9.243	10.272	10.176	-	0.241	14.934	15.080
	40	5200	9.148	9.856	10.064	-	0.241	14.719	15.080
	48	5240	9.458	10.002	10.060	-	0.241	14.861	15.080
802.11ac VHT20	36	5180	8.987	9.590	9.921	-	0.641	14.929	15.080
	40	5200	9.171	9.701	9.740	-	0.641	14.957	15.080
	48	5240	8.998	9.741	9.804	-	0.641	14.942	15.080
802.11ac VHT40	38	5190	3.394	3.431	3.923	-	0.658	9.019	15.080
	46	5230	6.596	6.915	7.275	-	0.658	12.367	15.080
802.11ac VHT80	42	5210	-5.860	-5.240	-5.076	-	0.641	0.033	15.080
802.11ax HE20	36	5180	9.675	9.563	9.859	-	0.270	14.742	15.080
	40	5200	9.505	9.978	10.029	-	0.270	14.885	15.080
	48	5240	9.604	9.900	10.000	-	0.270	14.879	15.080
802.11ax HE40	38	5190	3.531	3.597	4.008	-	0.270	8.758	15.080
	46	5230	5.660	5.875	6.448	-	0.270	11.049	15.080
802.11ax HE80	42	5210	-4.562	-4.339	-3.642	-	0.270	0.878	15.080

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	149	5745	4.343	11.574	4.471	11.702	4.521	11.752	-	-	0.241	16.448	28.92	PASS	
	157	5785	4.663	11.894	5.422	12.653	5.148	12.379	-	-	0.241	17.091	28.92	PASS	
	165	5825	4.578	11.809	4.901	12.132	4.546	11.777	-	-	0.241	16.680	28.92	PASS	
802.11ac VHT20	149	5745	3.519	11.150	3.738	11.369	3.604	11.235	-	-	0.641	16.023	28.92	PASS	
	157	5785	4.152	11.783	3.941	11.572	4.357	11.988	-	-	0.641	16.555	28.92	PASS	
	165	5825	4.784	12.415	3.703	11.334	3.789	11.420	-	-	0.641	16.523	28.92	PASS	
802.11ac VHT40	151	5755	-0.222	7.426	-0.232	7.416	-0.893	6.755	-	-	0.658	11.981	28.92	PASS	
	159	5795	-0.833	6.815	0.153	7.801	0.218	7.866	-	-	0.658	12.291	28.92	PASS	
802.11ac VHT80	155	5775	-6.554	1.077	-6.165	1.466	-5.685	1.946	-	-	0.641	6.282	28.92	PASS	
802.11ax HE20	149	5745	2.676	9.936	2.650	9.910	2.649	9.908	-	-	0.270	14.689	28.92	PASS	
	157	5785	2.472	9.732	2.713	9.973	2.599	9.859	-	-	0.270	14.627	28.92	PASS	
	165	5825	3.210	10.470	2.532	9.792	3.873	11.132	-	-	0.270	15.270	28.92	PASS	
802.11ax HE40	151	5755	-1.005	6.255	-0.123	7.137	-0.730	6.530	-	-	0.270	11.428	28.92	PASS	
	159	5795	-0.948	6.312	-0.599	6.661	-0.645	6.615	-	-	0.270	11.303	28.92	PASS	
802.11ax HE80	155	5775	-7.839	-0.580	-7.753	-0.493	-8.034	-0.774	-	-	0.270	4.157	28.92	PASS	

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

Duty cycle (Beamforming on)						
Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n HT20	5180	2.530	2.820	89.716	0.471	0.395
802.11n HT40	5190	2.440	2.720	89.706	0.472	0.410
802.11ac VHT20	5180	2.530	2.810	90.036	0.456	0.395
802.11ac VHT40	5190	2.440	2.720	89.706	0.472	0.410
802.11ac VHT80	5210	1.150	1.440	79.861	0.977	0.870
802.11ax HE20	5180	3.825	4.095	93.407	0.296	0.261
802.11ax HE40	5190	1.936	2.237	86.544	0.628	0.517
802.11ax HE80	5210	0.955	1.245	76.707	1.152	1.047

RF power setting in Test SW (Beamforming on)							
Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11n HT20	36	5180	40	40	40	-	Command
	40	5200	40	40	40	-	
	48	5240	40	40	40	-	
	149	5745	50	50	50	-	
	157	5785	50	50	50	-	
	165	5825	50	50	50	-	
802.11n HT40	38	5190	33	33	33	-	Command
	46	5230	40	40	40	-	
	151	5755	44	44	44	-	
	159	5795	45	45	45	-	
802.11ac VHT20	36	5180	40	40	40	-	Command
	40	5200	40	40	40	-	
	48	5240	40	40	40	-	
	149	5745	50	50	50	-	
	157	5785	50	50	50	-	
	165	5825	50	50	50	-	
802.11ac VHT40	38	5190	33	33	33	-	Command
	46	5230	40	40	40	-	
	151	5755	44	44	44	-	
	159	5795	45	45	45	-	
802.11ac VHT80	42	5210	22	22	22	-	Command
	155	5775	39	39	39	-	
802.11ax HE20	36	5180	40	40	40	-	Command
	40	5200	40	40	40	-	
	48	5240	40	40	40	-	
	149	5745	50	50	50	-	
	157	5785	50	50	50	-	
	165	5825	50	50	50	-	
802.11ax HE40	38	5190	33	33	33	-	Command
	46	5230	38	38	38	-	
	151	5755	46	46	46	-	
	159	5795	47	47	47	-	
802.11ax HE80	42	5210	25	25	25	-	Command
	155	5775	39	39	39	-	



Maximum Conducted Output Power Measurement (Beamforming on)								
Mode	CH	Frequency (MHz)	Average power					Limit
			Ant-0	Ant-1	Ant-2	Ant-3	Total	
			dBm	dBm	dBm	dBm	dBm	dBm
802.11n HT20	36	5180	20.53	20.87	21.01	-	25.58	30.00
	40	5200	20.62	21.09	21.21	-	25.75	30.00
	48	5240	20.46	21.11	21.24	-	25.72	30.00
	149	5745	23.23	23.47	23.67	-	28.23	30.00
	157	5785	23.36	23.46	23.59	-	28.24	30.00
	165	5825	23.58	23.70	23.98	-	28.53	30.00
802.11n HT40	38	5190	17.41	17.64	17.96	-	22.45	30.00
	46	5230	20.33	20.40	21.00	-	25.36	30.00
	151	5755	21.50	21.87	22.01	-	26.57	30.00
	159	5795	21.43	22.00	21.76	-	26.51	30.00

Mode	CH	Frequency (MHz)	Average power					Limit
			Ant-0	Ant-1	Ant-2	Ant-3	Total	
			dBm	dBm	dBm	dBm	dBm	dBm
802.11ac VHT20	36	5180	20.70	21.03	21.22	-	25.76	30.00
	40	5200	20.67	20.99	21.39	-	25.79	30.00
	48	5240	20.50	21.17	21.28	-	25.76	30.00
	149	5745	23.27	23.60	23.65	-	28.28	30.00
	157	5785	23.32	23.56	23.71	-	28.30	30.00
	165	5825	23.57	23.61	24.12	-	28.54	30.00
802.11ac VHT40	38	5190	17.41	17.77	18.02	-	22.51	30.00
	46	5230	20.41	20.48	21.05	-	25.43	30.00
	151	5755	21.56	21.97	22.08	-	26.65	30.00
	159	5795	21.60	22.00	21.87	-	26.60	30.00
802.11ac VHT80	42	5210	11.53	11.72	12.05	-	16.54	30.00
	155	5775	19.08	19.24	19.43	-	24.02	30.00

Mode	CH	Frequency (MHz)	Average power					Limit
			Ant-0	Ant-1	Ant-2	Ant-3	Total	
			dBm	dBm	dBm	dBm	dBm	dBm
802.11ax HE20	36	5180	20.84	21.22	21.40	-	25.93	30.00
	40	5200	20.74	21.17	21.34	-	25.86	30.00
	48	5240	20.81	21.24	21.54	-	25.97	30.00
	149	5745	23.37	23.74	23.81	-	28.41	30.00
	157	5785	23.60	23.72	23.71	-	28.44	30.00
	165	5825	23.52	23.33	24.21	-	28.47	30.00
802.11ax HE40	38	5190	17.23	17.51	18.13	-	22.41	30.00
	46	5230	19.55	19.81	19.90	-	24.52	30.00
	151	5755	22.41	22.85	22.85	-	27.48	30.00
	159	5795	22.49	22.94	23.02	-	27.59	30.00
802.11ax HE80	42	5210	12.23	12.54	12.59	-	17.23	30.00
	155	5775	18.42	18.46	18.58	-	23.26	30.00