

Appendix A. Test Data

QCN5054

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	1.430	1.600	89.375	0.488	0.699
802.11ax HE20	5260	5.480	5.760	95.139	0.216	0.182
802.11ax HE40	5270	5.480	5.780	94.810	0.231	0.182
802.11ax HE80	5290	5.480	5.720	95.804	0.186	0.182

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	10	10	10	10	QSPR 5.0-00188
	56	5280	10	10	10	10	
	60	5300	10	10	10	10	
	64	5320	10	10	10	10	
	100	5500	10.5	10.5	10.5	10.5	
	112	5560	9.5	9.5	9.5	9.5	
	116	5580	9.5	9.5	9.5	9.5	
	132	5660	9.5	9.5	9.5	9.5	
	140	5700	10	10	10	10	
802.11n HT20	52	5260	10.5	10.5	10.5	10.5	QSPR 5.0-00188
	56	5280	10.5	10.5	10.5	10.5	
	60	5300	10.5	10.5	10.5	10.5	
	64	5320	10.5	10.5	10.5	10.5	
	100	5500	11	11	11	11	
	112	5560	10	10	10	10	
	116	5580	10	10	10	10	
	132	5660	10	10	10	10	
	140	5700	10.5	10.5	10.5	10.5	
802.11n HT40	54	5270	13	13	13	13	QSPR 5.0-00188
	62	5310	13	13	13	13	
	102	5510	13	13	13	13	
	110	5550	13	13	13	13	
	134	5670	13	13	13	13	

RF power setting in Test SW

Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ac VHT20	52	5260	10.5	10.5	10.5	10.5	QSPR 5.0-00188
	56	5280	10.5	10.5	10.5	10.5	
	60	5300	10.5	10.5	10.5	10.5	
	64	5320	10.5	10.5	10.5	10.5	
	100	5500	11	11	11	11	
	112	5560	10	10	10	10	
	116	5580	10	10	10	10	
	132	5660	10	10	10	10	
	140	5700	10.5	10.5	10.5	10.5	
802.11ac VHT40	54	5270	13	13	13	13	QSPR 5.0-00188
	62	5310	13	13	13	13	
	102	5510	13	13	13	13	
	110	5550	13	13	13	13	
	134	5670	13	13	13	13	
802.11ac VHT80	58	5290	15	15	15	15	QSPR 5.0-00188
	106	5530	14	14	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	52	5260	Full	10.5	10.5	10.5	10.5	QSPR 5.0-00188
	56	5280	Full	10.5	10.5	10.5	10.5	
	60	5300	Full	10.5	10.5	10.5	10.5	
	64	5320	Full	10.5	10.5	10.5	10.5	
	100	5500	Full	11	11	11	11	
	112	5560	Full	10	10	10	10	
	116	5580	Full	10	10	10	10	
	132	5660	Full	10	10	10	10	
	140	5700	Full	10.5	10.5	10.5	10.5	
802.11ax HE40	54	5270	Full	13	13	13	13	QSPR 5.0-00188
	62	5310	Full	13	13	13	13	
	102	5510	Full	13	13	13	13	
	110	5550	Full	13	13	13	13	
	134	5670	Full	13	13	13	13	
802.11ax HE80	58	5290	Full	15	15	15	15	QSPR 5.0-00188
	106	5530	Full	14	14	14	14	

Maximum Conducted Output Power Measurement

Band	Data 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	52	5260	10.69	11.01	10.97	11.18	16.99	23.85
		56	5280	10.48	10.83	10.79	10.95	16.79	23.85
		60	5300	10.44	10.77	10.74	10.87	16.73	23.85
		64	5320	10.92	10.97	11.09	11.01	17.02	23.85
		100	5500	11.02	10.91	10.92	11.08	17.00	23.88
		112	5560	10.98	10.87	10.97	11.11	17.00	23.88
		116	5580	10.94	10.84	10.94	11.04	16.96	23.88
		132	5660	10.89	10.81	10.89	11.08	16.94	23.88
		140	5700	10.94	11.00	11.08	11.00	17.03	23.88
802.11n HT20	26M	52	5260	11.24	11.56	11.46	11.75	17.53	24.00
		56	5280	10.94	11.37	11.28	11.50	17.30	24.00
		60	5300	10.90	11.27	11.19	11.39	17.21	24.00
		64	5320	11.39	11.47	11.47	11.62	17.51	24.00
		100	5500	11.73	11.41	11.41	11.56	17.55	24.00
		112	5560	11.60	11.51	11.28	11.40	17.47	24.00
		116	5580	11.43	11.42	11.16	11.35	17.36	24.00
		132	5660	11.47	11.49	11.25	11.37	17.42	24.00
		140	5700	11.48	11.56	11.55	11.58	17.56	24.00
802.11n HT40	54M	54	5270	13.74	13.78	14.04	14.15	19.95	24.00
		62	5310	13.80	13.86	14.02	14.02	19.95	24.00
		102	5510	13.78	13.39	13.67	13.65	19.65	24.00
		110	5550	14.45	13.98	14.47	14.26	20.32	24.00
		134	5670	14.64	14.45	14.19	14.22	20.40	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	11.36	11.60	11.54	11.83	17.61	24.00
		56	5280	11.05	11.41	11.33	11.60	17.37	24.00
		60	5300	11.03	11.38	11.21	11.50	17.30	24.00
		64	5320	11.51	11.58	11.52	11.64	17.58	24.00
		100	5500	11.75	11.43	11.44	11.57	17.57	24.00
		112	5560	11.63	11.65	11.30	11.53	17.55	24.00
		116	5580	11.53	11.52	11.23	11.49	17.46	24.00
		132	5660	11.56	11.61	11.29	11.50	17.51	24.00
		140	5700	11.57	11.67	11.67	11.67	17.67	24.00
802.11ac VHT40	54M	54	5270	13.79	13.85	14.09	14.26	20.02	24.00
		62	5310	13.88	13.87	14.06	14.06	19.99	24.00
		102	5510	13.79	13.46	13.79	13.77	19.73	24.00
		110	5550	14.56	14.10	14.52	14.37	20.41	24.00
		134	5670	14.66	14.54	14.32	14.24	20.46	24.00
802.11ac VHT80	117.2M	58	5290	15.32	15.22	15.56	15.55	21.44	24.00
		106	5530	15.16	14.67	15.10	14.79	20.96	24.00

Band	Date Rate or Sub-test	CH	Freq. (MHz)	RU	Average power					Limit
					Ant-0	Ant-1	Ant-2	Ant-3	Total	
					dBm	dBm	dBm	dBm	dBm	
802.11ax HE20	MCS 0	52	5260	Full	11.50	11.63	11.59	11.91	17.68	24.00
		56	5280	Full	11.18	11.47	11.34	11.61	17.42	24.00
		60	5300	Full	11.13	11.40	11.30	11.57	17.37	24.00
		64	5320	Full	11.64	11.67	11.61	11.70	17.68	24.00
		100	5500	Full	11.79	11.50	11.48	11.69	17.64	24.00
		112	5560	Full	11.67	11.67	11.37	11.65	17.61	24.00
		116	5580	Full	11.63	11.61	11.30	11.61	17.56	24.00
		132	5660	Full	11.61	11.63	11.33	11.59	17.56	24.00
		140	5700	Full	11.60	11.69	11.77	11.68	17.71	24.00
802.11ax HE40	MCS0	54	5270	Full	13.90	13.96	14.20	14.31	20.12	24.00
		62	5310	Full	13.98	13.94	14.11	14.15	20.07	24.00
		102	5510	Full	13.83	13.47	13.89	13.89	19.79	24.00
		110	5550	Full	14.61	14.19	14.53	14.43	20.46	24.00
		134	5670	Full	14.68	14.58	14.41	14.25	20.50	24.00
802.11ax HE80	MCS 0	58	5290	Full	15.40	15.31	15.63	15.60	21.51	24.00
		106	5530	Full	15.22	14.74	15.18	14.88	21.03	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	4.69	5.01	4.97	5.18	10.99	-	5.13	16.12	24.00
		56	5280	4.48	4.83	4.79	4.95	10.79	-	5.13	15.92	24.00
		60	5300	4.44	4.77	4.74	4.87	10.73	-	5.13	15.86	24.00
		64	5320	4.92	4.97	5.09	5.01	11.02	-	5.13	16.15	24.00
		100	5500	5.02	4.91	4.92	5.08	11.00	-	5.19	16.19	24.00
		112	5560	4.98	4.87	4.97	5.11	11.00	-	5.19	16.19	24.00
		116	5580	4.94	4.84	4.94	5.04	10.96	-	5.19	16.15	24.00
		132	5660	4.89	4.81	4.89	5.08	10.94	-	5.19	16.13	24.00
802.11n HT20	26M	140	5700	4.94	5.00	5.08	5.00	11.03	-	5.19	16.22	24.00
		52	5260	5.24	5.56	5.46	5.75	11.53	-	5.13	16.66	24.00
		56	5280	4.94	5.37	5.28	5.50	11.30	-	5.13	16.43	24.00
		60	5300	4.90	5.27	5.19	5.39	11.21	-	5.13	16.34	24.00
		64	5320	5.39	5.47	5.47	5.62	11.51	-	5.13	16.64	24.00
		100	5500	5.73	5.41	5.41	5.56	11.55	-	5.19	16.74	24.00
		112	5560	5.60	5.51	5.28	5.40	11.47	-	5.19	16.66	24.00
		116	5580	5.43	5.42	5.16	5.35	11.36	-	5.19	16.55	24.00
802.11n HT40	54M	132	5660	5.47	5.49	5.25	5.37	11.42	-	5.19	16.61	24.00
		140	5700	5.48	5.56	5.55	5.58	11.56	-	5.19	16.75	24.00
		54	5270	7.74	7.78	8.04	8.15	13.95	-	5.13	19.08	24.00
		62	5310	7.80	7.86	8.02	8.02	13.95	-	5.13	19.08	24.00
		102	5510	7.78	7.39	7.67	7.65	13.65	-	5.19	18.84	24.00
		110	5550	8.45	7.98	8.47	8.26	14.32	-	5.19	19.51	24.00
		134	5670	8.64	8.45	8.19	8.22	14.40	-	5.19	19.59	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	5.36	5.60	5.54	5.83	11.61	-	5.13	16.74	24.00
		56	5280	5.05	5.41	5.33	5.60	11.37	-	5.13	16.5	24.00
		60	5300	5.03	5.38	5.21	5.50	11.30	-	5.13	16.43	24.00
		64	5320	5.51	5.58	5.52	5.64	11.58	-	5.13	16.71	24.00
		100	5500	5.75	5.43	5.44	5.57	11.57	-	5.19	16.76	24.00
		112	5560	5.63	5.65	5.30	5.53	11.55	-	5.19	16.74	24.00
		116	5580	5.53	5.52	5.23	5.49	11.46	-	5.19	16.65	24.00
		132	5660	5.56	5.61	5.29	5.50	11.51	-	5.19	16.7	24.00
802.11ac VHT40	MCS 0	140	5700	5.57	5.67	5.67	5.67	11.67	-	5.19	16.86	24.00
		54	5270	7.79	7.85	8.09	8.26	14.02	-	5.13	19.15	24.00
		62	5310	7.88	7.87	8.06	8.06	13.99	-	5.13	19.12	24.00
		102	5510	7.79	7.46	7.79	7.77	13.73	-	5.19	18.92	24.00
		110	5550	8.56	8.10	8.52	8.37	14.41	-	5.19	19.60	24.00
802.11ac VHT80	MCS 0	134	5670	8.66	8.54	8.32	8.24	14.46	-	5.19	19.65	24.00
		58	5290	9.32	9.22	9.56	9.55	15.44	-	5.13	20.57	24.00
		106	5530	9.16	8.67	9.10	8.79	14.96	-	5.19	20.15	24.00

Band	Date Rate or Sub-test	CH	Freq. (MHz)	RU	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	
802.11ax HE20	MCS 0	52	5260	Full	5.50	5.63	5.59	5.91	11.68	-	5.13	16.81	24.00
		56	5280	Full	5.18	5.47	5.34	5.61	11.42	-	5.13	16.55	24.00
		60	5300	Full	5.13	5.40	5.30	5.57	11.37	-	5.13	16.50	24.00
		64	5320	Full	5.64	5.67	5.61	5.70	11.68	-	5.13	16.81	24.00
		100	5500	Full	5.79	5.50	5.48	5.69	11.64	-	5.19	16.83	24.00
		112	5560	Full	5.67	5.67	5.37	5.65	11.61	-	5.19	16.80	24.00
		116	5580	Full	5.63	5.61	5.30	5.61	11.56	-	5.19	16.75	24.00
		132	5660	Full	5.61	5.63	5.33	5.59	11.56	-	5.19	16.75	24.00
802.11ax HE40	MCS0	140	5700	Full	5.60	5.69	5.77	5.68	11.71	-	5.19	16.90	24.00
		54	5270	Full	7.90	7.96	8.20	8.31	14.12	-	5.13	19.25	24.00
		62	5310	Full	7.98	7.94	8.11	8.15	14.07	-	5.13	19.20	24.00
		102	5510	Full	7.83	7.47	7.89	7.89	13.79	-	5.13	18.92	24.00
		110	5550	Full	8.61	8.19	8.53	8.43	14.46	-	5.19	19.65	24.00
802.11ax HE80	MCS 0	134	5670	Full	8.68	8.58	8.41	8.25	14.50	-	5.19	19.69	24.00
		58	5290	Full	9.40	9.31	9.63	9.60	15.51	-	5.13	20.64	24.00
		106	5530	Full	9.22	8.74	9.18	8.88	15.03	-	5.19	20.22	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	16.533	16.542	16.502	16.497	19.740	19.640	19.350	19.440
	56	5280	16.505	16.512	16.523	16.481	19.580	19.440	19.380	19.290
	64	5320	16.581	16.506	16.536	16.469	19.680	19.460	19.590	19.460
	100	5500	16.555	16.466	16.519	16.482	19.890	19.470	19.820	19.580
	112	5560	16.600	16.538	16.516	16.488	19.570	19.740	19.790	19.440
	140	5700	16.544	16.539	16.527	16.493	19.990	19.700	19.420	19.550
802.11ax HE20	52	5260	18.985	19.004	18.976	18.995	20.960	21.480	21.230	21.200
	56	5280	19.018	19.015	18.984	18.945	21.380	21.480	21.200	20.910
	64	5320	19.044	19.067	18.988	18.952	21.250	22.030	21.750	21.060
	100	5500	18.992	19.000	19.027	19.036	21.240	21.440	21.200	20.760
	112	5560	19.046	19.005	18.977	18.943	21.600	21.300	20.960	22.090
	140	5700	19.027	18.936	19.028	18.995	21.510	20.900	21.230	21.020
802.11ax HE40	54	5270	37.803	37.783	37.812	37.806	41.140	40.910	40.930	41.210
	62	5310	37.766	37.936	37.826	37.799	41.720	41.950	41.280	41.220
	102	5510	37.853	37.806	37.782	37.848	41.370	41.820	40.980	41.400
	110	5550	37.868	37.840	37.807	37.742	41.330	41.210	40.770	40.770
	134	5670	37.772	37.857	37.712	37.807	40.790	41.320	40.800	41.140
802.11ax HE80	58	5290	77.109	77.090	77.228	77.216	83.660	82.460	82.790	82.470
	106	5530	77.160	77.404	77.319	77.154	82.930	83.260	83.200	82.730

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	-0.600	-0.604	-0.265	-0.219	0.488	6.090	6.350
	56	5280	-0.642	-0.652	-0.421	-0.305	0.488	6.006	6.350
	64	5320	-0.668	-0.430	-0.588	-0.239	0.488	6.030	6.350
	100	5500	-0.691	-0.679	-0.599	-0.092	0.488	6.000	6.310
	112	5560	-0.662	-0.674	-0.586	-0.188	0.488	5.986	6.310
	140	5700	-0.631	-0.462	-0.600	-0.560	0.488	5.946	6.310
802.11ax HE20	52	5260	-0.227	-0.345	-0.163	-0.055	0.216	6.041	6.350
	56	5280	-0.255	-0.295	-0.206	-0.154	0.216	6.010	6.350
	64	5320	0.000	-0.283	-0.197	-0.238	0.216	6.059	6.350
	100	5500	-0.330	-0.259	-0.460	-0.086	0.216	5.955	6.310
	112	5560	-0.141	-0.370	-0.316	-0.199	0.216	5.981	6.310
	140	5700	-0.305	-0.288	-0.306	-0.036	0.216	6.005	6.310
802.11ax HE40	54	5270	-0.233	-0.339	-0.258	-0.298	0.231	5.970	6.350
	62	5310	-0.223	-0.171	-0.353	-0.337	0.231	5.982	6.350
	102	5510	-0.471	-0.341	-0.532	-0.499	0.231	5.792	6.310
	110	5550	-0.421	-0.423	-0.267	-0.383	0.231	5.879	6.310
	134	5670	-0.416	-0.385	-0.215	-0.231	0.231	5.941	6.310
802.11ax HE80	58	5290	-1.431	-1.721	-1.313	-1.520	0.186	4.713	6.350
	106	5530	-2.272	-2.372	-2.632	-2.443	0.186	3.779	6.310

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

QCN5054_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	4.5	4.5	4.5	4.5	QSPR 5.0-00188
	56	5280	4.5	4.5	4.5	4.5	
	60	5300	4.5	4.5	4.5	4.5	
	64	5320	4.5	4.5	4.5	4.5	
	100	5500	5	5	5	5	
	112	5560	4	4	4	4	
	116	5580	4	4	4	4	
	132	5660	4	4	4	4	
	140	5700	4.5	4.5	4.5	4.5	
802.11n HT40	54	5270	6.5	6.5	6.5	6.5	QSPR 5.0-00188
	62	5310	6.5	6.5	6.5	6.5	
	102	5510	6.5	6.5	6.5	6.5	
	110	5550	6.5	6.5	6.5	6.5	
	134	5670	7	7	7	7	

RF power setting in Test SW

Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ac VHT20	52	5260	4.5	4.5	4.5	4.5	QSPR 5.0-00188
	56	5280	4.5	4.5	4.5	4.5	
	60	5300	4.5	4.5	4.5	4.5	
	64	5320	4.5	4.5	4.5	4.5	
	100	5500	5	5	5	5	
	112	5560	4	4	4	4	
	116	5580	4	4	4	4	
	132	5660	4	4	4	4	
	140	5700	4.5	4.5	4.5	4.5	
802.11ac VHT40	54	5270	6.5	6.5	6.5	6.5	QSPR 5.0-00188
	62	5310	6.5	6.5	6.5	6.5	
	102	5510	6.5	6.5	6.5	6.5	
	110	5550	6.5	6.5	6.5	6.5	
	134	5670	7	7	7	7	
802.11ac VHT80	58	5290	8.5	8.5	8.5	8.5	QSPR 5.0-00188
	106	5530	7.5	7.5	7.5	7.5	

RF power setting in Test SW								
Mode	CH	Frequency (MHz)		Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ax HE20	52	5260	Full	4.5	4.5	4.5	4.5	QSPR 5.0-00188
	56	5280	Full	4.5	4.5	4.5	4.5	
	60	5300	Full	4.5	4.5	4.5	4.5	
	64	5320	Full	4.5	4.5	4.5	4.5	
	100	5500	Full	5	5	5	5	
	112	5560	Full	4	4	4	4	
	116	5580	Full	4	4	4	4	
	132	5660	Full	4	4	4	4	
	140	5700	Full	4.5	4.5	4.5	4.5	
802.11ax HE40	54	5270	Full	6.5	6.5	6.5	6.5	QSPR 5.0-00188
	62	5310	Full	6.5	6.5	6.5	6.5	
	102	5510	Full	6.5	6.5	6.5	6.5	
	110	5550	Full	6.5	6.5	6.5	6.5	
	134	5670	Full	7	7	7	7	
802.11ax HE80	58	5290	Full	8.5	8.5	8.5	8.5	QSPR 5.0-00188
	106	5530	Full	7.5	7.5	7.5	7.5	

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	dBm
802.11n HT20	26M	52	5260	4.57	4.91	5.08	5.26	10.98	19.35
		56	5280	4.55	4.85	4.76	5.00	10.81	19.35
		60	5300	4.49	4.76	4.72	4.98	10.76	19.35
		64	5320	5.22	4.93	4.92	5.08	11.06	19.35
		100	5500	5.09	4.93	5.08	5.16	11.09	19.21
		112	5560	5.14	5.02	4.62	5.16	11.01	19.21
		116	5580	5.05	5.00	4.59	5.08	10.96	19.21
		132	5660	5.07	4.95	4.53	4.92	10.89	19.21
		140	5700	5.14	5.40	5.01	4.98	11.16	19.21
802.11n HT40	54M	54	5270	7.09	7.35	7.24	7.45	13.31	19.35
		62	5310	7.05	7.29	7.34	7.12	13.22	19.35
		102	5510	6.96	6.86	6.81	6.77	12.87	19.21
		110	5550	7.89	7.53	7.44	7.69	13.66	19.21
		134	5670	7.97	7.97	7.98	7.62	13.91	19.21
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	dBm
802.11ac VHT20	26M	52	5260	4.76	5.10	5.23	5.44	11.16	19.35
		56	5280	4.72	4.95	4.91	5.19	10.97	19.35
		60	5300	4.63	4.94	4.89	5.13	10.92	19.35
		64	5320	5.32	5.06	5.10	5.25	11.20	19.35
		100	5500	5.26	5.08	5.19	5.35	11.24	19.21
		112	5560	5.25	5.17	4.76	5.30	11.15	19.21
		116	5580	5.16	5.15	4.75	5.21	11.09	19.21
		132	5660	5.18	5.08	4.70	5.12	11.04	19.21
		140	5700	5.33	5.50	5.19	5.12	11.31	19.21
802.11ac VHT40	54M	54	5270	7.19	7.47	7.41	7.56	13.43	19.35
		62	5310	7.20	7.47	7.49	7.24	13.37	19.35
		102	5510	7.13	6.99	6.99	6.92	13.03	19.21
		110	5550	8.02	7.64	7.64	7.87	13.82	19.21
		134	5670	8.11	8.13	8.14	7.75	14.06	19.21
802.11ac VHT80	117.2M	58	5290	9.06	9.12	9.26	8.74	15.07	19.35
		106	5530	8.72	8.63	8.45	8.65	14.63	19.21

Band	Date Rate or Sub-test	CH	Freq. (MHz)	RU	Average power					Limit
					Ant-0	Ant-1	Ant-2	Ant-3	Total	
					dBm	dBm	dBm	dBm	dBm	
802.11ax HE20	MCS 0	52	5260	Full	5.05	5.34	5.46	5.66	11.40	19.35
		56	5280	Full	5.00	5.25	5.18	5.42	11.24	19.35
		60	5300	Full	4.90	5.18	5.15	5.35	11.17	19.35
		64	5320	Full	5.59	5.33	5.31	5.48	11.45	19.35
		100	5500	Full	5.52	5.35	5.44	5.57	11.49	19.21
		112	5560	Full	5.49	5.45	5.02	5.52	11.40	19.21
		116	5580	Full	5.45	5.40	5.00	5.47	11.35	19.21
		132	5660	Full	5.39	5.37	4.96	5.41	11.31	19.21
		140	5700	Full	5.55	5.71	5.44	5.33	11.53	19.21
802.11ax HE40	MCS0	54	5270	Full	7.47	7.71	7.66	7.82	13.69	19.35
		62	5310	Full	7.43	7.73	7.75	7.53	13.63	19.35
		102	5510	Full	7.42	7.29	7.21	7.18	13.30	19.21
		110	5550	Full	8.27	7.94	7.87	8.16	14.08	19.21
		134	5670	Full	8.36	8.42	8.35	8.01	14.31	19.21
802.11ax HE80	MCS 0	58	5290	Full	9.26	9.39	9.50	9.03	15.32	19.35
		106	5530	Full	9.02	8.88	8.68	8.86	14.88	19.21

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	-1.43	-1.09	-0.92	-0.74	4.98	-	10.65	15.63	24.00
		56	5280	-1.45	-1.15	-1.24	-1.00	4.81	-	10.65	15.46	24.00
		60	5300	-1.51	-1.24	-1.28	-1.02	4.76	-	10.65	15.41	24.00
		64	5320	-0.78	-1.07	-1.08	-0.92	5.06	-	10.65	15.71	24.00
		100	5500	-0.91	-1.07	-0.92	-0.84	5.09	-	10.79	15.88	24.00
		112	5560	-0.86	-0.98	-1.38	-0.84	5.01	-	10.79	15.80	24.00
		116	5580	-0.95	-1.00	-1.41	-0.92	4.96	-	10.79	15.75	24.00
		132	5660	-0.93	-1.05	-1.47	-1.08	4.89	-	10.79	15.68	24.00
802.11n HT40	54M	140	5700	-0.86	-0.60	-0.99	-1.02	5.16	-	10.79	15.95	24.00
		54	5270	1.09	1.35	1.24	1.45	7.31	-	10.65	17.96	24.00
		62	5310	1.05	1.29	1.34	1.12	7.22	-	10.65	17.87	24.00
		102	5510	0.96	0.86	0.81	0.77	6.87	-	10.79	17.66	24.00
		110	5550	1.89	1.53	1.44	1.69	7.66	-	10.79	18.45	24.00
		134	5670	1.97	1.97	1.98	1.62	7.91	-	10.79	18.70	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	-1.24	-0.90	-0.77	-0.56	5.16	-	10.65	15.8087312	24.00
		56	5280	-1.28	-1.05	-1.09	-0.81	4.97	-	10.65	15.6187312	24.00
		60	5300	-1.37	-1.06	-1.11	-0.87	4.92	-	10.65	15.5687312	24.00
		64	5320	-0.68	-0.94	-0.90	-0.75	5.20	-	10.65	15.8487312	24.00
		100	5500	-0.74	-0.92	-0.81	-0.65	5.24	-	10.79	16.0310405	24.00
		112	5560	-0.75	-0.83	-1.24	-0.70	5.15	-	10.79	15.9410405	24.00
		116	5580	-0.84	-0.85	-1.25	-0.79	5.09	-	10.79	15.8810405	24.00
		132	5660	-0.82	-0.92	-1.30	-0.88	5.04	-	10.79	15.8310405	24.00
		140	5700	-0.67	-0.50	-0.81	-0.88	5.31	-	10.79	16.1010405	24.00
802.11ac VHT40	MCS 0	54	5270	1.19	1.47	1.41	1.56	7.43	-	10.65	18.08	24.00
		62	5310	1.20	1.47	1.49	1.24	7.37	-	10.65	18.02	24.00
		102	5510	1.13	0.99	0.99	0.92	7.03	-	10.79	17.82	24.00
		110	5550	2.02	1.64	1.64	1.87	7.82	-	10.79	18.61	24.00
		134	5670	2.11	2.13	2.14	1.75	8.06	-	10.79	18.85	24.00
802.11ac VHT80	MCS 0	58	5290	3.06	3.12	3.26	2.74	9.07	-	10.65	19.72	24.00
		106	5530	2.72	2.63	2.45	2.65	8.63	-	10.79	19.42	24.00

Band	Date Rate or Sub-test	CH	Freq. (MHz)	RU	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	
802.11ax HE20	MCS 0	52	5260	Full	-0.95	-0.66	-0.54	-0.34	5.40	-	10.65	16.05	24.00
		56	5280	Full	-1.00	-0.75	-0.82	-0.58	5.24	-	10.65	15.89	24.00
		60	5300	Full	-1.10	-0.82	-0.85	-0.65	5.17	-	10.65	15.82	24.00
		64	5320	Full	-0.41	-0.67	-0.69	-0.52	5.45	-	10.65	16.10	24.00
		100	5500	Full	-0.48	-0.65	-0.56	-0.43	5.49	-	10.79	16.28	24.00
		112	5560	Full	-0.51	-0.55	-0.98	-0.48	5.40	-	10.79	16.19	24.00
		116	5580	Full	-0.55	-0.60	-1.00	-0.53	5.35	-	10.79	16.14	24.00
		132	5660	Full	-0.61	-0.63	-1.04	-0.59	5.31	-	10.79	16.10	24.00
		140	5700	Full	-0.45	-0.29	-0.56	-0.67	5.53	-	10.79	16.32	24.00
802.11ax HE40	MCS0	54	5270	Full	1.47	1.71	1.66	1.82	7.69	-	10.65	18.34	24.00
		62	5310	Full	1.43	1.73	1.75	1.53	7.63	-	10.65	18.28	24.00
		102	5510	Full	1.42	1.29	1.21	1.18	7.30	-	10.65	17.95	24.00
		110	5550	Full	2.27	1.94	1.87	2.16	8.08	-	10.79	18.87	24.00
		134	5670	Full	2.36	2.42	2.35	2.01	8.31	-	10.79	19.10	24.00
802.11ax HE80	MCS 0	58	5290	Full	3.26	3.39	3.50	3.03	9.32	-	10.65	19.97	24.00
		106	5530	Full	3.02	2.88	2.68	2.86	8.88	-	10.79	19.67	24.00

QCA9889

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	2.042	2.132	95.779	0.187	0.490
802.11ac VHT20	5260	1.906	1.996	95.491	0.200	0.525
802.11ac VHT40	5270	0.948	0.975	97.231	0.122	1.055
802.11ac VHT80	5290	0.462	0.494	93.478	0.293	2.167

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	20.5	-	-	-	QSPR 5.0-00188
	56	5280	20.5	-	-	-	
	60	5300	20.5	-	-	-	
	64	5320	19	-	-	-	
	100	5500	16	-	-	-	
	112	5560	17	-	-	-	
	116	5580	17	-	-	-	
	132	5660	17	-	-	-	
	140	5700	11	-	-	-	
802.11n HT20	52	5260	20	-	-	-	QSPR 5.0-00188
	56	5280	20	-	-	-	
	60	5300	20	-	-	-	
	64	5320	19	-	-	-	
	100	5500	16.5	-	-	-	
	112	5560	17.5	-	-	-	
	116	5580	17.5	-	-	-	
	132	5660	17.5	-	-	-	
	140	5700	11	-	-	-	
802.11n HT40	54	5270	19.5	-	-	-	QSPR 5.0-00188
	62	5310	13.5	-	-	-	
	102	5510	10.5	-	-	-	
	110	5550	18.5	-	-	-	
	134	5670	13	-	-	-	

RF power setting in Test SW							
Mode	CH	Frequency (MHz)	Ant-0	Ant-1	Ant-2	Ant-3	Test SW Version
802.11ac VHT20	52	5260	20	-	-	-	QSPR 5.0-00188
	56	5280	20	-	-	-	
	60	5300	20	-	-	-	
	64	5320	19	-	-	-	
	100	5500	16.5	-	-	-	
	112	5560	17.5	-	-	-	
	116	5580	17.5	-	-	-	
	132	5660	17.5	-	-	-	
	140	5700	11	-	-	-	
802.11ac VHT40	54	5270	19.5	-	-	-	QSPR 5.0-00188
	62	5310	13.5	-	-	-	
	102	5510	10.5	-	-	-	
	110	5550	18.5	-	-	-	
	134	5670	13	-	-	-	
802.11ac VHT80	58	5290	9	-	-	-	QSPR 5.0-00188
	106	5530	8	-	-	-	

Maximum Conducted Output Power Measurement

Band	Data 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	52	5260	19.30	-	-	-	-	23.83
		56	5280	19.27	-	-	-	-	23.83
		60	5300	19.20	-	-	-	-	23.83
		64	5320	17.85	-	-	-	-	23.83
		100	5500	15.68	-	-	-	-	23.83
		112	5560	16.50	-	-	-	-	23.83
		116	5580	16.48	-	-	-	-	23.83
		132	5660	16.42	-	-	-	-	23.83
		140	5700	11.64	-	-	-	-	23.83
802.11n HT20	6.5M	52	5260	19.00	-	-	-	-	23.83
		56	5280	18.93	-	-	-	-	23.83
		60	5300	18.85	-	-	-	-	23.83
		64	5320	17.68	-	-	-	-	23.83
		100	5500	15.85	-	-	-	-	23.83
		112	5560	16.57	-	-	-	-	23.83
		116	5580	16.52	-	-	-	-	23.83
		132	5660	16.46	-	-	-	-	23.83
		140	5700	11.61	-	-	-	-	23.83
802.11n HT40	13.5M	54	5270	18.56	-	-	-	-	23.83
		62	5310	13.09	-	-	-	-	23.83
		102	5510	10.34	-	-	-	-	23.83
		110	5550	16.83	-	-	-	-	23.83
		134	5670	12.65	-	-	-	-	23.83

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	6.5M	52	5260	19.11	-	-	-	-	23.83
		56	5280	19.07	-	-	-	-	23.83
		60	5300	19.00	-	-	-	-	23.83
		64	5320	17.84	-	-	-	-	23.83
		100	5500	16.00	-	-	-	-	23.83
		112	5560	16.77	-	-	-	-	23.83
		116	5580	16.72	-	-	-	-	23.83
		132	5660	16.65	-	-	-	-	23.83
		140	5700	11.81	-	-	-	-	23.83
802.11ac VHT40	13.5M	54	5270	18.72	-	-	-	-	23.83
		62	5310	13.19	-	-	-	-	23.83
		102	5510	10.52	-	-	-	-	23.83
		110	5550	17.02	-	-	-	-	23.83
		134	5670	12.78	-	-	-	-	23.83
802.11ac VHT80	29.3M	58	5290	8.77	-	-	-	-	23.83
		106	5530	8.10	-	-	-	-	23.83

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	13.30	-	-	-	-	-	6.17	19.47	24.00
		56	5280	13.27	-	-	-	-	-	6.17	19.44	24.00
		60	5300	13.20	-	-	-	-	-	6.17	19.37	24.00
		64	5320	11.85	-	-	-	-	-	6.17	18.02	24.00
		100	5500	9.68	-	-	-	-	-	6.17	15.85	24.00
		112	5560	10.50	-	-	-	-	-	6.17	16.67	24.00
		116	5580	10.48	-	-	-	-	-	6.17	16.65	24.00
		132	5660	10.42	-	-	-	-	-	6.17	16.59	24.00
802.11n HT20	6.5M	140	5700	5.64	-	-	-	-	-	6.17	11.81	24.00
		52	5260	13.00	-	-	-	-	-	6.17	19.17	24.00
		56	5280	12.93	-	-	-	-	-	6.17	19.10	24.00
		60	5300	12.85	-	-	-	-	-	6.17	19.02	24.00
		64	5320	11.68	-	-	-	-	-	6.17	17.85	24.00
		100	5500	9.85	-	-	-	-	-	6.17	16.02	24.00
		112	5560	10.57	-	-	-	-	-	6.17	16.74	24.00
		116	5580	10.52	-	-	-	-	-	6.17	16.69	24.00
802.11n HT40	13.5M	132	5660	10.46	-	-	-	-	-	6.17	16.63	24.00
		140	5700	5.61	-	-	-	-	-	6.17	11.78	24.00
		54	5270	12.56	-	-	-	-	-	6.17	18.73	24.00
		62	5310	7.09	-	-	-	-	-	6.17	13.26	24.00
		102	5510	4.34	-	-	-	-	-	6.17	10.51	24.00
		110	5550	10.83	-	-	-	-	-	6.17	17.00	24.00
		134	5670	6.65	-	-	-	-	-	6.17	12.82	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	13.11	-	-	-	-	-	6.17	19.28	24.00
		56	5280	13.07	-	-	-	-	-	6.17	19.24	24.00
		60	5300	13.00	-	-	-	-	-	6.17	19.17	24.00
		64	5320	11.84	-	-	-	-	-	6.17	18.01	24.00
		100	5500	10.00	-	-	-	-	-	6.17	16.17	24.00
		112	5560	10.77	-	-	-	-	-	6.17	16.94	24.00
		116	5580	10.72	-	-	-	-	-	6.17	16.89	24.00
		132	5660	10.65	-	-	-	-	-	6.17	16.82	24.00
802.11ac VHT40	MCS 0	140	5700	5.81	-	-	-	-	-	6.17	11.98	24.00
		54	5270	12.72	-	-	-	-	-	6.17	18.89	24.00
		62	5310	7.19	-	-	-	-	-	6.17	13.36	24.00
		102	5510	4.52	-	-	-	-	-	6.17	10.69	24.00
		110	5550	11.02	-	-	-	-	-	6.17	17.19	24.00
802.11ac VHT80	MCS 0	134	5670	6.78	-	-	-	-	-	6.17	12.95	24.00
		58	5290	2.77	-	-	-	-	-	6.17	8.94	24.00
		106	5530	2.10	-	-	-	-	-	6.17	8.27	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	28.689	-	-	-	45.000	-	-	-
	56	5280	28.931	-	-	-	44.960	-	-	-
	64	5320	23.431	-	-	-	41.500	-	-	-
	100	5500	20.067	-	-	-	35.310	-	-	-
	112	5560	25.428	-	-	-	41.510	-	-	-
	140	5700	29.255	-	-	-	44.600	-	-	-
802.11ac VHT20	52	5260	28.588	-	-	-	47.060	-	-	-
	56	5280	29.086	-	-	-	47.000	-	-	-
	64	5320	23.802	-	-	-	41.580	-	-	-
	100	5500	21.347	-	-	-	36.220	-	-	-
	112	5560	27.782	-	-	-	46.600	-	-	-
	140	5700	19.130	-	-	-	30.660	-	-	-
802.11ac VHT40	54	5270	54.440	-	-	-	94.630	-	-	-
	62	5310	37.169	-	-	-	53.500	-	-	-
	102	5510	36.974	-	-	-	52.640	-	-	-
	110	5550	57.234	-	-	-	98.090	-	-	-
	134	5670	39.396	-	-	-	70.670	-	-	-
802.11ac VHT80	58	5290	76.591	-	-	-	100.200	-	-	-
	106	5530	76.885	-	-	-	104.200	-	-	-

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	8.476	-	-	-	0.187	8.663	10.830
	56	5280	8.117	-	-	-	0.187	8.304	10.830
	64	5320	6.991	-	-	-	0.187	7.178	10.830
	100	5500	4.275	-	-	-	0.187	4.462	10.830
	112	5560	5.150	-	-	-	0.187	5.337	10.830
	140	5700	4.611	-	-	-	0.187	4.798	10.830
802.11ac VHT20	52	5260	7.673	-	-	-	0.200	7.873	10.830
	56	5280	7.634	-	-	-	0.200	7.834	10.830
	64	5320	6.311	-	-	-	0.200	6.511	10.830
	100	5500	4.396	-	-	-	0.200	4.596	10.830
	112	5560	5.512	-	-	-	0.200	5.712	10.830
	140	5700	0.131	-	-	-	0.200	0.331	10.830
802.11ac VHT40	54	5270	4.306	-	-	-	0.122	4.428	10.830
	62	5310	-1.316	-	-	-	0.122	-1.194	10.830
	102	5510	-3.941	-	-	-	0.122	-3.819	10.830
	110	5550	2.629	-	-	-	0.122	2.751	10.830
	134	5670	-1.773	-	-	-	0.122	-1.651	10.830
802.11ac VHT80	58	5290	-8.562	-	-	-	0.293	-8.269	10.830
	106	5530	-9.762	-	-	-	0.293	-9.469	10.830

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