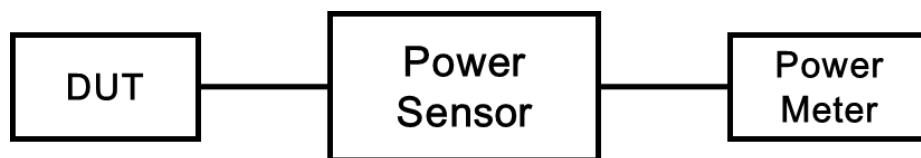


Appendix A - Conducted Power Measurements

WLAN Conducted Power

1. As per FCC OET KDB 248227 D01, conducted output power and SAR testing are not required for 802.11g/n20/n40/ax channels when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is $\leq 1.2\text{W/kg}$.
2. When the reported SAR of the initial test configuration is $> 0.8\text{ W/kg}$, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until reported SAR is $\leq 1.2\text{ W/kg}$ or all required channels are tested.
3. Additional conducted power measurement is required when reported SAR is $> 1.2\text{W/kg}$. In case the subsequent test configuration and the channel bandwidth is smaller than the initial test configuration, all channels that overlap with the larger channel bandwidth in the initial configuration should be tested.
4. The initial test configuration for 2.4 GHz and 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple transmission modes (802.11a/g/n/ac/ax) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, lowest order 802.11 mode is selected (i.e. a, g, n, ac then ax)
5. When the highest reported SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure requirements, is adjusted by the ratio of the subsequent test configuration to the initial test configuration specified maximum output power and the adjusted SAR is $\leq 1.2\text{ W/Kg}$, SAR is not required for that subsequent test configuration.
6. For 802.11ax mode, maximum output powers for each RU size were measured to demonstrate that are no higher than other OFDM 802.11 modes.



Power Measurement Setup

WLAN 2.4 GHz											
Mode	Channel	Frequency (MHz)	Main			Aux			MIMO		
			Peak Power (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)	Peak Power (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)	Peak Power (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)
802.11b	1	2412	17.64	15.15	16.00	18.12	15.66	16.00	20.70	17.77	19.00
	6	2437	17.59	15.13	16.00	17.81	15.33	16.00	20.56	17.84	19.00
	11	2462	17.54	15.12	16.00	18.01	15.61	16.00	20.60	18.17	19.00
	12	2467	17.62	15.12	15.50	17.70	15.23	15.50	20.27	18.04	18.50
	13	2472	11.08	8.62	9.00	11.22	8.74	9.00	13.69	11.58	12.00
802.11g	1	2412	23.92	15.52	16.00	23.83	15.53	16.00	26.44	18.43	19.00
	6	2437	23.98	15.54	16.00	23.82	15.57	16.00	26.70	18.42	19.00
	11	2462	24.10	15.69	16.00	23.96	15.70	16.00	26.65	18.33	19.00
	12	2467	19.98	11.57	12.00	19.87	11.63	12.00	22.68	14.38	15.00
	13	2472	14.77	6.57	7.00	14.92	6.60	7.00	17.53	9.40	10.00
802.11n HT20	1	2412	23.79	15.79	16.00	23.82	15.89	16.00	26.43	18.53	19.00
	6	2437	23.84	15.80	16.00	23.74	15.82	16.00	26.46	18.68	19.00
	11	2462	23.91	15.81	16.00	23.85	15.88	16.00	26.62	18.63	19.00
	12	2467	18.31	9.36	10.00	18.35	9.38	10.00	21.06	11.91	13.00
	13	2472	12.62	5.41	5.50	13.78	5.44	5.50	16.09	8.06	8.50
802.11n HT40	3	2422	22.78	14.53	15.00	22.76	14.54	15.00	25.54	17.37	18.00
	6	2437	23.15	15.44	16.00	23.81	15.53	16.00	26.37	18.38	19.00
	9	2452	22.76	14.55	15.00	22.81	14.59	15.00	25.56	17.47	18.00
	10	2457	16.39	8.39	8.50	16.27	8.42	8.50	19.08	11.27	11.50
	11	2462	14.16	6.38	6.50	14.37	6.45	6.50	16.85	9.29	9.50
VHT20	1	2412	23.82	15.44	16.00	23.79	15.44	16.00	26.40	18.10	19.00
	6	2437	23.88	15.49	16.00	23.80	15.41	16.00	26.46	18.24	19.00
	11	2462	23.88	15.50	16.00	23.87	15.43	16.00	26.60	18.16	19.00
	12	2467	18.39	10.00	10.50	18.35	9.95	10.50	21.17	12.72	13.50
	13	2472	12.63	5.43	6.00	13.87	5.50	6.00	16.19	8.34	9.00
VHT40	3	2422	22.82	14.42	15.00	22.87	14.50	15.00	25.54	17.15	18.00
	6	2437	23.16	15.43	16.00	23.79	15.44	16.00	26.37	18.24	19.00
	9	2452	22.83	14.46	15.00	22.83	14.40	15.00	25.61	17.05	18.00
	10	2457	16.38	7.96	8.50	16.36	8.00	8.50	19.05	10.69	11.50
	11	2462	14.27	5.91	6.50	14.37	5.94	6.50	16.88	8.50	9.50
802.11ax HE20	1	2412	23.99	15.58	16.00	24.08	15.67	16.00	26.68	18.30	19.00
	6	2437	24.01	15.62	16.00	24.02	15.62	16.00	26.83	18.46	19.00
	11	2462	23.89	15.50	16.00	23.94	15.53	16.00	26.47	18.04	19.00
	12	2467	18.69	10.33	10.50	18.83	10.41	10.50	21.49	13.12	13.50
	13	2472	12.71	5.48	6.00	14.02	5.58	6.00	16.13	8.16	9.00
802.11ax HE40	3	2422	22.02	13.64	15.00	22.06	13.71	15.00	24.88	16.58	18.00
	6	2437	23.80	15.68	16.00	24.16	15.72	16.00	26.51	18.46	19.00
	9	2452	22.23	13.67	15.00	22.12	13.77	15.00	24.83	16.62	18.00
	10	2457	16.62	8.20	8.50	16.70	8.30	8.50	19.33	10.86	11.50
	11	2462	14.44	6.04	6.50	14.50	6.13	6.50	17.21	8.62	9.50

WLAN 5.2 GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average Power (dBm)	Tune-Up Limit (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)
802.11a	36	5180	13.81	14.00	13.86	14.00	16.65	17.00
	40	5200	13.77	14.00	13.77	14.00	16.49	17.00
	44	5220	13.63	14.00	13.73	14.00	16.32	17.00
	48	5240	13.65	14.00	13.74	14.00	16.42	17.00
802.11n HT20	36	5180	13.87	14.00	13.88	14.00	16.50	17.00
	40	5200	13.75	14.00	13.75	14.00	16.27	17.00
	44	5220	13.53	14.00	13.60	14.00	16.17	17.00
	48	5240	13.63	14.00	13.67	14.00	16.28	17.00
802.11n HT40	38	5190	13.43	14.00	13.21	14.00	16.01	17.00
	46	5230	13.34	14.00	13.42	14.00	16.27	17.00
802.11ac VHT20	36	5180	13.50	14.00	13.46	14.00	16.21	17.00
	40	5200	13.47	14.00	13.40	14.00	16.33	17.00
	44	5220	13.43	14.00	13.41	14.00	16.14	17.00
	48	5240	13.50	14.00	13.47	14.00	16.33	17.00
802.11ac VHT40	38	5190	13.42	14.00	13.49	14.00	16.48	17.00
	46	5230	13.49	14.00	13.48	14.00	16.29	17.00
802.11ac VHT80	42	5210	13.21	14.00	13.31	14.00	15.82	17.00
802.11ax HE20	36	5180	13.80	14.00	13.92	14.00	16.41	17.00
	40	5200	13.69	14.00	13.95	14.00	16.65	17.00
	44	5220	13.72	14.00	13.72	14.00	16.45	17.00
	48	5240	13.66	14.00	13.63	14.00	16.35	17.00
802.11ax HE40	38	5190	13.85	14.00	13.74	14.00	16.69	17.00
	46	5230	13.65	14.00	13.94	14.00	16.41	17.00
802.11ax HE80	42	5210	13.58	14.00	13.93	14.00	16.54	17.00

WLAN 5.3 GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average Power (dBm)	Tune-Up Limit (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)
802.11a	52	5260	13.60	14.00	13.56	14.00	16.19	17.00
	56	5280	13.56	14.00	13.62	14.00	16.16	17.00
	60	5300	13.65	14.00	13.51	14.00	16.32	17.00
	64	5320	13.80	14.00	13.44	14.00	16.47	17.00
802.11n HT20	52	5260	13.82	14.00	13.65	14.00	16.59	17.00
	56	5280	13.87	14.00	13.67	14.00	16.46	17.00
	60	5300	13.45	14.00	13.28	14.00	16.13	17.00
	64	5320	13.31	14.00	13.52	14.00	16.23	17.00
802.11n HT40	54	5270	13.71	14.00	13.41	14.00	16.10	17.00
	62	5310	13.67	14.00	13.45	14.00	16.24	17.00
802.11ac VHT20	52	5260	13.41	14.00	13.42	14.00	16.26	17.00
	56	5280	13.47	14.00	13.43	14.00	16.34	17.00
	60	5300	13.44	14.00	13.43	14.00	16.24	17.00
	64	5320	13.44	14.00	13.49	14.00	16.28	17.00
802.11ac VHT40	54	5270	13.50	14.00	13.48	14.00	16.36	17.00
	62	5310	13.43	14.00	13.46	14.00	16.26	17.00
802.11ac VHT80	58	5290	13.77	14.00	13.34	14.00	16.28	17.00
802.11ax HE20	52	5260	13.59	14.00	13.68	14.00	16.32	17.00
	56	5280	13.65	14.00	13.66	14.00	16.46	17.00
	60	5300	13.63	14.00	13.72	14.00	16.49	17.00
	64	5320	13.80	14.00	13.80	14.00	16.49	17.00
802.11ax HE40	54	5270	13.88	14.00	13.91	14.00	16.57	17.00
	62	5310	13.84	14.00	13.87	14.00	16.75	17.00
802.11ax HE80	58	5290	13.47	14.00	13.54	14.00	16.14	17.00

WLAN 5.6 GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average Power (dBm)	Tune-Up Limit (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)
802.11a	100	5500	12.89	13.00	12.89	13.00	15.50	16.00
	116	5580	12.56	13.00	12.48	13.00	15.35	16.00
	124	5620	12.48	13.00	12.41	13.00	15.01	16.00
	132	5660	12.81	13.00	12.71	13.00	15.65	16.00
	140	5700	12.57	13.00	12.47	13.00	15.09	16.00
	144	5720	12.44	13.00	12.35	13.00	15.04	16.00
802.11n HT20	100	5500	12.87	13.00	12.78	13.00	15.69	16.00
	116	5580	12.60	13.00	12.54	13.00	15.34	16.00
	124	5620	12.49	13.00	12.40	13.00	15.01	16.00
	132	5660	12.76	13.00	12.75	13.00	15.41	16.00
	140	5700	12.56	13.00	12.48	13.00	15.14	16.00
	144	5720	12.44	13.00	12.43	13.00	15.12	16.00
802.11n HT40	102	5510	12.77	13.00	12.70	13.00	15.54	16.00
	110	5550	12.61	13.00	12.51	13.00	15.35	16.00
	126	5630	12.47	13.00	12.38	13.00	15.09	16.00
	134	5670	12.33	13.00	12.30	13.00	15.18	16.00
	142	5710	12.51	13.00	12.48	13.00	15.11	16.00
802.11ac VHT20	100	5500	12.49	13.00	12.46	13.00	15.13	16.00
	116	5580	12.46	13.00	12.44	13.00	15.34	16.00
	124	5620	12.42	13.00	12.46	13.00	15.19	16.00
	132	5660	12.44	13.00	12.44	13.00	15.26	16.00
	140	5700	12.41	13.00	12.43	13.00	15.28	16.00
	144	5720	12.48	13.00	12.47	13.00	15.29	16.00
802.11ac VHT40	102	5510	12.43	13.00	12.49	13.00	15.45	16.00
	110	5550	12.40	13.00	12.40	13.00	15.32	16.00
	126	5630	12.41	13.00	12.44	13.00	15.19	16.00
	134	5670	12.49	13.00	12.49	13.00	15.25	16.00
	142	5710	12.45	13.00	12.41	13.00	15.31	16.00
802.11ac VHT80	106	5530	12.89	13.00	12.56	13.00	15.41	16.00
	122	5610	12.66	13.00	12.41	13.00	15.32	16.00
	138	5690	12.53	13.00	12.44	13.00	15.30	16.00
802.11ax HE20	100	5500	12.80	13.00	12.88	13.00	15.62	16.00
	116	5580	12.61	13.00	12.52	13.00	15.43	16.00
	124	5620	12.50	13.00	12.43	13.00	15.04	16.00
	132	5660	12.72	13.00	12.71	13.00	15.35	16.00
	140	5700	12.57	13.00	12.51	13.00	15.07	16.00
	144	5720	12.41	13.00	12.19	13.00	15.16	16.00
802.11ax HE40	102	5510	12.85	13.00	12.77	13.00	15.69	16.00
	110	5550	12.59	13.00	12.55	13.00	15.22	16.00
	126	5630	12.88	13.00	12.47	13.00	15.30	16.00
	134	5670	12.57	13.00	12.75	13.00	15.36	16.00
	142	5710	12.53	13.00	12.48	13.00	15.09	16.00
802.11ax HE80	106	5530	12.73	13.00	12.39	13.00	15.23	16.00
	122	5610	12.51	13.00	12.75	13.00	15.27	16.00
	138	5690	12.42	13.00	12.61	13.00	15.41	16.00

WLAN 5.8 GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average Power (dBm)	Tune-Up Limit (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)
802.11a	149	5745	13.19	13.50	13.16	13.50	15.93	16.50
	157	5785	13.16	13.50	13.14	13.50	15.79	16.50
	165	5825	13.21	13.50	13.12	13.50	15.96	16.50
802.11n HT20	149	5745	13.21	13.50	13.12	13.50	15.81	16.50
	157	5785	13.19	13.50	13.13	13.50	15.88	16.50
	165	5825	13.29	13.50	13.19	13.50	15.99	16.50
802.11n HT40	151	5755	13.22	13.50	13.21	13.50	15.89	16.50
	159	5795	13.25	13.50	13.25	13.50	15.95	16.50
802.11ac VHT20	149	5745	12.92	13.50	12.95	13.50	15.81	16.50
	157	5785	12.91	13.50	12.92	13.50	15.74	16.50
	165	5825	12.95	13.50	12.98	13.50	15.86	16.50
802.11ac VHT40	151	5755	12.90	13.50	12.97	13.50	15.82	16.50
	159	5795	12.98	13.50	13.00	13.50	15.90	16.50
802.11ac VHT80	155	5775	13.29	13.50	13.31	13.50	16.02	16.50
802.11ax HE20	149	5745	13.19	13.50	13.11	13.50	16.02	16.50
	157	5785	13.25	13.50	13.06	13.50	15.92	16.50
	165	5825	13.27	13.50	13.18	13.50	15.89	16.50
802.11ax HE40	151	5755	13.17	13.50	13.17	13.50	15.95	16.50
	159	5795	13.16	13.50	13.09	13.50	15.96	16.50
802.11ax HE80	155	5775	13.25	13.50	13.23	13.50	15.87	16.50

Bluetooth BR / EDR					
Band	Channel	Frequency (MHz)	Aux		
			Peak Power (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)
Bluetooth BR GFSK	0	2402	10.21	9.92	11.50
	39	2441	10.65	10.15	11.50
	78	2480	10.84	10.41	11.50
Bluetooth EDR $\pi/4$ -DQPSK	0	2402	10.73	8.13	8.50
	39	2441	10.71	7.82	8.50
	78	2480	10.56	7.79	8.50
Bluetooth EDR 8DPSK	0	2402	10.66	8.05	8.50
	39	2441	10.54	7.92	8.50
	78	2480	10.69	7.82	8.50

Bluetooth LE					
Band	Channel	Frequency (MHz)	Aux		
			Peak Power (dBm)	Average Power (dBm)	Tune-Up Limit (dBm)
Bluetooth LE 1M	0	2402	10.33	10.22	11.50
	19	2440	10.25	10.15	11.50
	39	2480	10.28	10.23	11.50
Bluetooth LE 2M	1	2404	10.51	10.31	11.50
	19	2440	10.29	10.25	11.50
	38	2478	10.42	10.19	11.50