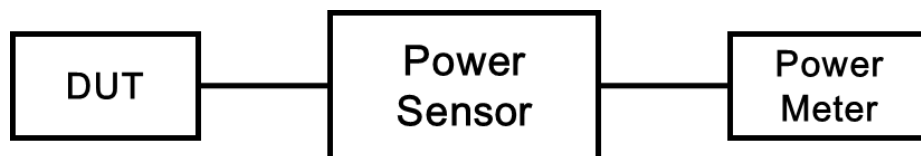


Appendix A - Conducted Power Measurements

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.



Power Measurement Setup

WLAN2.4GHz											
Mode	Channel	Frequency (MHz)	Main			Aux			MIMO		
			Peak Power (dBm)	Average power (dBm)	Tune-Up Limit	Peak Power (dBm)	Average power (dBm)	Tune-Up Limit	Peak Power (dBm)	Average power (dBm)	Tune-Up Limit
802.11b	1	2412	16.15	14.97	15.00	16.41	14.91	15.00	not supported	not supported	not supported
	6	2437	16.12	14.95	15.00	16.52	14.98	15.00	not supported	not supported	not supported
	11	2462	16.11	14.93	15.00	16.47	14.95	15.00	not supported	not supported	not supported
	12	2467	16.20	14.92	15.00	16.48	14.88	15.00	not supported	not supported	not supported
	13	2472	16.07	14.86	15.00	16.42	14.89	15.00	not supported	not supported	not supported
802.11g	1	2412	18.81	14.93	15.00	18.87	14.88	15.00	not supported	not supported	not supported
	6	2437	18.72	14.90	15.00	19.01	14.98	15.00	not supported	not supported	not supported
	11	2462	18.59	14.87	15.00	18.99	14.94	15.00	not supported	not supported	not supported
	12	2467	18.77	14.87	15.00	18.85	14.69	14.75	not supported	not supported	not supported
	13	2472	16.35	11.61	11.75	16.85	11.98	12.00	not supported	not supported	not supported
802.11n HT20	1	2412	18.94	14.98	15.00	18.99	14.92	15.00	21.90	17.87	18.00
	6	2437	18.79	14.95	15.00	19.10	14.98	15.00	21.90	17.88	18.00
	11	2462	18.96	14.90	15.00	19.04	14.97	15.00	22.00	17.85	18.00
	12	2467	18.93	14.93	15.00	18.93	14.73	14.75	21.90	14.05	14.20
	13	2472	16.29	11.51	11.75	16.96	11.93	12.00	19.60	11.34	11.50
802.11n HT40	3	2422	20.05	14.89	15.00	20.56	14.98	15.00	23.30	17.85	18.00
	6	2437	20.12	14.87	15.00	20.41	14.95	15.00	23.20	17.83	18.00
	9	2452	20.54	14.85	15.00	20.23	14.96	15.00	23.30	17.82	18.00
	10	2457	17.52	12.06	12.25	17.93	12.43	12.50	20.70	14.06	14.20
	11	2462	15.34	9.60	9.75	16.58	10.73	10.75	19.00	11.32	11.50
802.11ax HE20	1	2412	18.88	14.91	15.00	19.25	14.92	15.00	22.00	17.33	17.50
	6	2437	18.83	14.97	15.00	19.29	14.98	15.00	22.00	17.89	18.00
	11	2462	18.98	14.93	15.00	19.22	14.96	15.00	22.10	17.36	17.50
	12	2467	18.87	14.88	15.00	19.16	14.71	14.75	22.00	14.01	14.20
	13	2472	16.31	11.57	11.75	17.45	11.91	12.00	19.90	11.36	11.50
802.11ax HE40	3	2422	20.15	14.92	15.00	20.55	14.92	15.00	23.30	16.34	16.50
	6	2437	20.08	14.89	15.00	20.66	14.98	15.00	23.30	16.55	16.70
	9	2452	20.56	14.86	15.00	20.52	14.97	15.00	23.50	15.53	15.70
	10	2457	17.57	12.11	12.25	18.25	12.47	12.50	20.90	14.02	14.20
	11	2462	15.30	9.55	9.75	16.94	10.71	10.75	19.20	11.39	11.50

WLAN5.2GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm) MIMO	Tune-Up Limit
802.11a	36	5180	13.47	13.50	13.43	13.50	not supported	not supported
	40	5200	13.44	13.50	13.40	13.50	not supported	not supported
	44	5220	13.44	13.50	13.39	13.50	not supported	not supported
	48	5240	13.48	13.50	13.45	13.50	not supported	not supported
802.11n HT20	36	5180	13.44	13.50	13.42	13.50	15.70	16.50
	40	5200	13.48	13.50	13.40	13.50	15.71	16.50
	44	5220	13.45	13.50	13.43	13.50	15.71	16.50
	48	5240	13.49	13.50	13.45	13.50	15.74	16.50
802.11n HT40	38	5190	13.47	13.50	13.48	13.50	16.39	16.50
	46	5230	13.43	13.50	13.42	13.50	16.34	16.50
802.11ac VHT20	36	5180	13.48	13.50	13.40	13.50	15.71	16.50
	40	5200	13.42	13.50	13.41	13.50	15.68	16.50
	44	5220	13.44	13.50	13.38	13.50	15.68	16.50
	48	5240	13.46	13.50	13.48	13.50	15.73	16.50
802.11ac VHT40	38	5190	13.48	13.50	13.45	13.50	16.38	16.50
	46	5230	13.46	13.50	13.44	13.50	16.37	16.50
802.11ac VHT80	42	5210	13.44	13.50	13.47	13.50	16.37	16.50
802.11ax HE20	36	5180	13.43	13.50	13.43	13.50	15.70	16.50
	40	5200	13.47	13.50	13.38	13.50	15.69	16.50
	44	5220	13.41	13.50	13.44	13.50	15.69	16.50
	48	5240	13.46	13.50	13.42	13.50	15.71	16.50
802.11ax HE40	38	5190	13.41	13.50	13.45	13.50	16.35	16.50
	46	5230	13.39	13.50	13.38	13.50	16.30	16.50
802.11ax HE80	42	5210	13.48	13.50	13.46	13.50	16.38	16.50

WLAN5.3GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm) MIMO	Tune-Up Limit
802.11a	52	5260	13.45	13.50	13.40	13.50	not supported	not supported
	56	5280	13.47	13.50	13.38	13.50	not supported	not supported
	60	5300	13.43	13.50	13.45	13.50	not supported	not supported
	64	5320	13.48	13.50	13.41	13.50	not supported	not supported
802.11n HT20	52	5260	13.44	13.50	13.42	13.50	16.35	16.50
	56	5280	13.46	13.50	13.48	13.50	16.38	16.50
	60	5300	13.40	13.50	13.44	13.50	16.34	16.50
	64	5320	13.42	13.50	13.43	13.50	16.34	16.50
802.11n HT40	54	5270	13.47	13.50	13.44	13.50	16.37	16.50
	62	5310	13.43	13.50	13.40	13.50	16.33	16.50
802.11ac VHT20	52	5260	13.48	13.50	13.41	13.50	16.36	16.50
	56	5280	13.42	13.50	13.48	13.50	16.37	16.50
	60	5300	13.46	13.50	13.43	13.50	16.36	16.50
	64	5320	13.39	13.50	13.42	13.50	16.32	16.50
802.11ac VHT40	54	5270	13.48	13.50	13.47	13.50	16.39	16.50
	62	5310	13.44	13.50	13.39	13.50	16.33	16.50
802.11ac VHT80	58	5290	13.48	13.50	13.45	13.50	16.38	16.50
802.11ac VHT160	50	5250	13.40	13.50	13.45	13.50	15.34	15.50
802.11ax HE20	52	5260	13.40	13.50	13.45	13.50	16.34	16.50
	56	5280	13.43	13.50	13.39	13.50	16.33	16.50
	60	5300	13.47	13.50	13.47	13.50	16.38	16.50
	64	5320	13.44	13.50	13.42	13.50	16.35	16.50
802.11ax HE40	54	5270	13.40	13.50	13.43	13.50	16.33	16.50
	62	5310	13.38	13.50	13.42	13.50	16.32	16.50
802.11ax HE80	58	5290	13.45	13.50	13.43	13.50	16.36	16.50
802.11ax HE160	50	5250	13.41	13.50	13.44	13.50	15.24	15.50

WLAN5.6GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm) MIMO	Tune-Up Limit
802.11a	100	5500	13.39	13.50	13.44	13.50	not supported	not supported
	116	5580	13.34	13.50	13.41	13.50	not supported	not supported
	124	5620	13.43	13.50	13.40	13.50	not supported	not supported
	132	5660	13.40	13.50	13.39	13.50	not supported	not supported
	140	5700	13.44	13.50	13.45	13.50	not supported	not supported
	144	5720	13.42	13.50	13.42	13.50	not supported	not supported
802.11n HT20	100	5500	13.36	13.50	13.38	13.50	16.29	16.50
	116	5580	13.36	13.50	13.44	13.50	16.32	16.50
	124	5620	13.42	13.50	13.45	13.50	16.35	16.50
	132	5660	13.40	13.50	13.47	13.50	16.35	16.50
	140	5700	13.37	13.50	13.46	13.50	16.33	16.50
	144	5720	13.44	13.50	13.39	13.50	16.33	16.50
802.11n HT40	102	5510	13.42	13.50	13.40	13.50	16.33	16.50
	110	5550	13.37	13.50	13.45	13.50	16.33	16.50
	126	5630	13.36	13.50	13.38	13.50	16.29	16.50
	134	5670	13.41	13.50	13.47	13.50	16.36	16.50
	142	5710	13.39	13.50	13.46	13.50	16.34	16.50
802.11ac VHT20	100	5500	13.36	13.50	13.41	13.50	16.30	16.50
	116	5580	13.34	13.50	13.42	13.50	16.30	16.50
	124	5620	13.35	13.50	13.39	13.50	16.29	16.50
	132	5660	13.37	13.50	13.41	13.50	16.31	16.50
	140	5700	13.39	13.50	13.44	13.50	16.33	16.50
	144	5720	13.36	13.50	13.39	13.50	16.29	16.50
802.11ac VHT40	102	5510	13.35	13.50	13.38	13.50	16.28	16.50
	110	5550	13.34	13.50	13.40	13.50	16.29	16.50
	126	5630	13.38	13.50	13.42	13.50	16.32	16.50
	134	5670	13.37	13.50	13.45	13.50	16.33	16.50
	142	5710	13.35	13.50	13.48	13.50	16.33	16.50
802.11ac VHT80	106	5530	13.46	13.50	13.48	13.50	15.76	16.50
	122	5610	13.45	13.50	13.38	13.50	16.33	16.50
	138	5690	13.40	13.50	13.47	13.50	16.35	16.50
802.11ac VHT160	114	5570	13.41	13.50	13.42	13.50	16.33	16.50
802.11ax HE20	100	5500	13.44	13.50	13.39	13.50	16.33	16.50
	116	5580	13.42	13.50	13.40	13.50	16.33	16.50
	124	5620	13.42	13.50	13.46	13.50	16.36	16.50
	132	5660	13.46	13.50	13.45	13.50	16.37	16.50
	140	5700	13.45	13.50	13.41	13.50	16.35	16.50
	144	5720	13.41	13.50	13.38	13.50	16.31	16.50
802.11ax HE40	102	5510	13.40	13.50	13.43	13.50	16.33	16.50
	110	5550	13.37	13.50	13.40	13.50	16.30	16.50
	126	5630	13.42	13.50	13.39	13.50	16.32	16.50
	134	5670	13.41	13.50	13.44	13.50	16.34	16.50
	142	5710	13.43	13.50	13.45	13.50	16.36	16.50
802.11ax HE80	106	5530	13.44	13.50	13.45	13.50	15.46	16.50
	122	5610	13.43	13.50	13.40	13.50	16.33	16.50
	138	5690	13.47	13.50	13.46	13.50	16.38	16.50
802.11ax HE160	114	5570	13.39	13.50	13.39	13.50	16.31	16.50

WLAN5.8GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm) MIMO	Tune-Up Limit
802.11a	149	5745	13.38	13.50	13.44	13.50	not supported	not supported
	157	5785	13.37	13.50	13.47	13.50	not supported	not supported
	165	5825	13.41	13.50	13.41	13.50	not supported	not supported
802.11n HT20	149	5745	13.43	13.50	13.38	13.50	16.32	16.50
	157	5785	13.37	13.50	13.46	13.50	16.33	16.50
	165	5825	13.36	13.50	13.42	13.50	16.31	16.50
802.11n HT40	151	5755	13.35	13.50	13.40	13.50	16.29	16.50
	159	5795	13.42	13.50	13.42	13.50	16.34	16.50
802.11ac VHT20	149	5745	13.42	13.50	13.38	13.50	16.32	16.50
	157	5785	13.43	13.50	13.48	13.50	16.37	16.50
	165	5825	13.37	13.50	13.40	13.50	16.30	16.50
802.11ac VHT40	151	5755	13.37	13.50	13.38	13.50	16.29	16.50
	159	5795	13.40	13.50	13.44	13.50	16.34	16.50
802.11ac VHT80	155	5775	13.41	13.50	13.43	13.50	16.34	16.50
802.11ax HE20	149	5745	13.43	13.50	13.45	13.50	16.36	16.50
	157	5785	13.41	13.50	13.47	13.50	16.36	16.50
	165	5825	13.35	13.50	13.42	13.50	16.30	16.50
802.11ax HE40	151	5755	13.37	13.50	13.45	13.50	16.33	16.50
	159	5795	13.34	13.50	13.43	13.50	16.30	16.50
802.11ax HE80	155	5775	13.38	13.50	13.40	13.50	16.31	16.50

WLAN6.2 GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm) MIMO	Tune-Up Limit
802.11ax HE20	1	5955	4.39	5.00	4.70	5.00	4.69	5.00
	45	6175	4.43	5.00	4.73	5.00	4.62	5.00
	93	6415	4.39	5.00	4.49	5.00	4.72	5.00
802.11ax HE40	3	5965	7.46	8.25	7.60	8.25	7.54	8.20
	43	6165	7.33	8.25	7.58	8.25	7.40	8.20
	91	6405	7.34	8.25	7.25	8.25	7.46	8.20
802.11ax HE80	7	5985	9.57	10.75	9.77	10.75	10.10	10.70
	39	6145	9.86	10.75	9.83	10.75	9.98	10.70
	87	6385	9.96	10.75	9.65	10.75	10.12	10.70
802.11ax HE160	15	6025	12.68	13.50	12.97	13.50	12.86	13.50
	47	6185	12.65	13.50	12.89	13.50	12.88	13.50
	79	6345	12.93	13.50	12.84	13.50	13.04	13.50

WLAN6.5 GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm) MIMO	Tune-Up Limit
802.11ax HE20	97	6435	4.71	5.00	4.62	5.00	4.72	5.00
	105	6475	4.75	5.00	4.55	5.00	4.66	5.00
	113	6515	4.69	5.00	4.56	5.00	4.75	5.00
802.11ax HE40	99	6445	7.62	8.25	7.66	8.25	7.69	8.20
	107	6485	7.72	8.25	7.63	8.25	7.71	8.20
802.11ax HE80	103	6465	10.26	10.75	10.22	10.75	10.38	10.70
802.11ax HE80	119	6545	10.33	10.75	10.26	10.75	10.26	10.70
802.11ax HE160	111	6505	13.18	13.50	13.09	13.50	13.18	13.50

WLAN6.7 GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm) MIMO	Tune-Up Limit
802.11ax HE20	117	6535	4.16	4.25	4.16	4.25	4.10	4.20
	149	6695	4.13	4.25	4.12	4.25	4.08	4.20
	181	6855	4.09	4.25	4.03	4.25	4.05	4.20
802.11ax HE40	115	6525	7.62	8.25	7.64	8.25	7.68	8.20
	147	6685	7.38	7.50	7.40	7.50	7.36	7.50
	179	6845	7.36	7.50	7.37	7.50	7.44	7.50
802.11ax HE80	135	6625	9.91	10.00	9.94	10.00	9.86	10.00
	151	6705	9.87	10.00	9.87	10.00	9.88	10.00
	167	6785	9.80	10.00	9.94	10.00	9.96	10.00
	183	6865	9.91	10.00	9.90	10.00	9.90	10.00
802.11ax HE160	143	6665	12.40	12.75	12.34	12.75	12.36	12.70
	175	6825	12.42	12.75	12.41	12.75	12.45	12.70

WLAN7.0 GHz								
Mode	Channel	Frequency (MHz)	Main		Aux		MIMO	
			Average power (dBm)	Tune-Up Limit	Average power (dBm)	Tune-Up Limit	Average power (dBm) MIMO	Tune-Up Limit
802.11ax HE20	185	6875	4.14	4.25	4.19	4.25	4.09	4.20
	209	6995	4.11	4.25	4.12	4.25	4.01	4.20
	233	7115	-1.19	-1.00	-1.05	-1.00	-1.10	-1.00
802.11ax HE40	187	6885	7.46	7.50	7.34	7.50	7.43	7.50
	211	7005	7.39	7.50	7.46	7.50	7.36	7.50
	227	7085	7.36	7.50	7.36	7.50	7.42	7.50
802.11ax HE80	199	6945	9.93	10.00	9.95	10.00	9.82	10.00
	215	7025	9.98	10.00	9.98	10.00	9.91	10.00
802.11ax HE160	207	6985	12.63	12.75	12.65	12.75	12.60	12.70

Bluetooth BR / EDR					
Band	Channel	Frequency (MHz)	Aux		
			Peak power (dBm)	Average power (dBm)	Tune-up Limit
Bluetooth BR GFSK	0	2402	9.77	9.59	11.00
	39	2441	9.64	9.45	11.00
	78	2480	9.68	9.50	11.00
Bluetooth EDR $\pi/4$ -DQPSK	0	2402	8.87	6.72	7.00
	39	2441	8.76	6.68	7.00
	78	2480	8.81	6.71	7.00
Bluetooth EDR 8DPSK	0	2402	8.93	6.84	7.00
	39	2441	8.82	6.80	7.00
	78	2480	8.86	6.84	7.00

Bluetooth LE					
Band	Channel	Frequency (MHz)	Aux		
			Peak power (dBm)	Average power (dBm)	Tune-up Limit
Bluetooth LE 1Mbps	0	2402	7.88	6.46	7.00
	19	2440	7.85	6.42	7.00
	39	2480	7.97	6.53	7.00
Bluetooth LE 2Mbps	0	2402	7.92	6.31	7.00
	19	2440	7.86	6.26	7.00
	39	2480	7.99	6.38	7.00