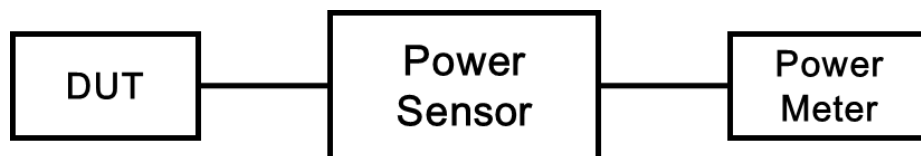


Appendix A - Conducted Power Measurements

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

WLAN 2.4GHz Band											
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) MIMO	Average Power (dBm) MIMO	Tune-Up Limit (dBm)
802.11b	1	2412	19.42	16.88	17.00	19.44	16.82	17.00	22.40	19.77	20.00
	6	2437	19.68	16.99	17.00	19.38	16.71	17.00	22.50	19.77	20.00
	11	2462	19.58	16.93	17.00	19.25	16.79	17.00	22.40	19.78	20.00
	12	2467	18.02	15.47	15.50	17.78	15.32	15.50	20.90	18.31	18.50
	13	2472	11.46	8.94	9.00	11.24	8.72	9.00	14.30	11.75	12.00
802.11g	1	2412	19.82	16.76	17.00	19.48	16.64	17.00	22.60	19.62	20.00
	6	2437	19.84	16.73	17.00	19.83	16.71	17.00	22.80	19.64	20.00
	11	2462	19.97	16.92	17.00	19.64	16.89	17.00	22.80	19.82	20.00
	12	2467	20.79	11.78	12.00	20.64	11.87	12.00	23.70	14.74	15.00
	13	2472	14.92	6.33	7.00	14.98	6.87	7.00	17.90	9.52	10.00
802.11n HT20	1	2412	19.10	16.02	16.50	19.01	15.78	16.50	22.00	18.82	19.50
	6	2437	19.43	16.44	17.00	19.22	16.46	17.00	22.30	19.37	20.00
	11	2462	18.79	16.10	16.50	18.13	15.94	16.50	21.40	18.94	19.50
	12	2467	17.92	8.99	10.00	18.45	9.05	10.00	21.20	11.94	13.00
	13	2472	12.04	5.03	5.50	14.33	4.99	5.50	16.30	7.93	8.50
802.11n HT40	3	2422	19.96	14.47	15.00	20.18	14.36	15.00	23.00	17.33	18.00
	6	2437	20.87	15.11	16.00	21.05	15.28	16.00	23.90	18.11	19.00
	9	2452	20.43	14.48	15.00	20.44	14.39	15.00	23.40	17.35	18.00
	10	2457	16.14	7.88	8.50	16.32	7.96	8.50	19.20	10.84	11.50
	11	2462	15.22	5.92	6.50	14.92	6.04	6.50	18.00	8.90	9.50
802.11ac VHT20	1	2412	19.28	16.41	16.50	19.39	16.42	16.50	22.30	19.33	19.50
	6	2437	19.94	16.78	17.00	19.72	16.33	17.00	22.80	19.48	20.00
	11	2462	18.83	16.14	16.50	18.45	16.41	16.50	21.60	19.19	19.50
	12	2467	18.21	9.63	10.00	18.89	9.87	10.00	21.50	12.67	13.00
	13	2472	12.68	5.42	5.50	14.78	5.35	5.50	16.80	8.30	8.50
802.11ac VHT40	3	2422	20.64	14.76	15.00	20.82	14.89	15.00	23.70	17.74	18.00
	6	2437	21.42	15.87	16.00	21.55	15.78	16.00	24.40	18.74	19.00
	9	2452	20.73	14.73	15.00	20.62	14.78	15.00	23.60	17.67	18.00
	10	2457	16.82	8.36	8.50	16.42	8.42	8.50	19.60	11.30	11.50
	11	2462	15.64	6.42	6.50	15.24	6.44	6.50	18.40	9.35	9.50
802.11ax HE20	1	2412	19.87	16.73	17.00	19.92	16.72	17.00	22.90	19.64	20.00
	6	2437	19.93	16.71	17.00	19.73	16.77	17.00	22.80	19.66	20.00
	11	2462	19.25	16.42	16.50	19.14	16.29	16.50	22.20	19.27	19.50
	12	2467	18.68	10.42	10.50	18.44	10.34	10.50	21.50	13.30	13.50
	13	2472	12.81	5.45	6.00	12.98	5.87	6.00	15.90	8.58	9.00
802.11ax HE40	3	2422	20.34	14.87	15.00	20.45	14.84	15.00	23.40	17.77	18.00
	6	2437	20.48	15.76	16.00	20.42	15.77	16.00	23.40	18.68	19.00
	9	2452	19.89	14.85	15.00	19.87	14.87	15.00	22.80	17.78	18.00
	10	2457	16.34	8.29	8.50	16.31	8.42	8.50	19.30	11.27	11.50
	11	2462	15.45	6.41	6.50	15.25	6.42	6.50	18.30	9.33	9.50

WLAN 5.2 GHz Band								
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	15.42	15.50	14.98	15.50	18.12	18.50
	40	5200	15.79	16.00	15.67	16.00	18.65	19.00
	44	5220	15.59	16.00	15.62	16.00	18.52	19.00
	48	5240	15.58	16.00	15.92	16.00	18.67	19.00
802.11n HT20	36	5180	15.39	15.50	15.42	15.50	18.32	18.50
	40	5200	15.95	16.00	15.79	16.00	18.79	19.00
	44	5220	15.98	16.00	15.62	16.00	18.72	19.00
	48	5240	15.94	16.00	15.82	16.00	18.80	19.00
802.11n HT40	38	5190	14.56	15.00	14.64	15.00	17.52	18.00
	46	5230	15.93	16.00	15.63	16.00	18.70	19.00
802.11ac VHT20	36	5180	15.33	15.50	15.49	15.50	18.33	18.50
	40	5200	15.60	16.00	15.59	16.00	18.51	19.00
	44	5220	15.56	16.00	15.63	16.00	18.51	19.00
	48	5240	15.94	16.00	15.79	16.00	18.78	19.00
802.11ac VHT40	38	5190	14.75	15.00	14.70	15.00	17.64	18.00
	46	5230	15.94	16.00	15.66	16.00	18.72	19.00
802.11ac VHT80	42	5210	13.59	14.00	13.69	14.00	16.56	17.00
802.11ax HE20	36	5180	15.62	16.00	15.72	16.00	18.59	19.00
	40	5200	15.60	16.00	15.69	16.00	18.56	19.00
	44	5220	15.62	16.00	15.72	16.00	18.59	19.00
	48	5240	15.60	16.00	15.56	16.00	18.50	19.00
802.11ax HE40	38	5190	14.98	15.00	14.55	15.00	17.69	18.00
	46	5230	15.87	16.00	15.49	16.00	18.60	19.00
802.11ax HE80	42	5210	13.75	14.00	13.93	14.00	16.76	17.00

WLAN 5.3 GHz Band								
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	15.84	16.00	15.52	16.00	17.60	19.00
	56	5280	15.91	16.00	15.59	16.00	17.67	19.00
	60	5300	15.67	16.00	15.93	16.00	17.72	19.00
	64	5320	15.25	15.50	15.48	15.50	17.28	18.50
802.11n HT20	52	5260	15.78	16.00	15.93	16.00	17.77	19.00
	56	5280	15.82	16.00	15.98	16.00	17.72	19.00
	60	5300	15.66	16.00	15.82	16.00	17.66	19.00
	64	5320	15.22	15.50	15.48	15.50	17.27	18.50
802.11n HT40	54	5270	15.99	16.00	15.74	16.00	17.78	19.00
	62	5310	14.88	15.00	14.60	15.00	17.66	18.00
802.11ac VHT20	52	5260	15.80	16.00	15.68	16.00	17.66	19.00
	56	5280	15.85	16.00	15.74	16.00	17.71	19.00
	60	5300	15.67	16.00	15.98	16.00	17.74	19.00
	64	5320	15.24	15.50	15.47	15.50	17.27	18.50
802.11ac VHT40	54	5270	15.96	16.00	15.72	16.00	18.76	19.00
	62	5310	14.93	15.00	14.56	15.00	17.66	18.00
802.11ac VHT80	58	5290	13.96	14.00	13.63	14.00	16.71	17.00
802.11ax HE20	52	5260	15.91	16.00	15.83	16.00	17.69	19.00
	56	5280	15.98	16.00	15.90	16.00	17.76	19.00
	60	5300	15.78	16.00	15.58	16.00	17.60	19.00
	64	5320	15.23	15.50	15.08	15.50	17.07	18.50
802.11ax HE40	54	5270	15.92	16.00	15.62	16.00	17.69	19.00
	62	5310	14.93	15.00	14.98	15.00	17.87	18.00
802.11ax HE80	58	5290	13.65	14.00	13.82	14.00	16.65	17.00

WLAN 5.6 GHz Band								
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	14.86	15.00	14.98	15.00	17.84	18.00
	116	5580	14.93	15.00	14.86	15.00	17.81	18.00
	124	5620	14.98	15.00	14.48	15.00	17.65	18.00
	132	5660	14.52	15.00	14.92	15.00	17.64	18.00
	140	5700	14.55	15.00	14.62	15.00	17.50	18.00
	144	5720	14.54	15.00	14.59	15.00	17.48	18.00
802.11n HT20	100	5500	14.83	15.00	14.93	15.00	17.80	18.00
	116	5580	14.90	15.00	14.82	15.00	17.78	18.00
	124	5620	14.91	15.00	14.66	15.00	17.70	18.00
	132	5660	14.36	15.00	14.32	15.00	17.26	18.00
	140	5700	14.98	15.00	14.45	15.00	17.64	18.00
	144	5720	14.51	15.00	14.53	15.00	17.44	18.00
802.11n HT40	102	5510	14.98	15.00	14.52	15.00	17.67	18.00
	110	5550	14.66	15.00	14.72	15.00	17.61	18.00
	126	5630	14.82	15.00	14.88	15.00	17.77	18.00
	134	5670	14.92	15.00	14.95	15.00	17.85	18.00
	142	5710	14.08	15.00	14.82	15.00	17.38	18.00
802.11ac VHT20	100	5500	14.78	15.00	14.92	15.00	17.77	18.00
	116	5580	14.88	15.00	14.82	15.00	17.77	18.00
	124	5620	14.47	15.00	14.90	15.00	17.61	18.00
	132	5660	14.33	15.00	14.58	15.00	17.37	18.00
	140	5700	14.99	15.00	14.97	15.00	17.90	18.00
	144	5720	13.40	15.00	14.47	15.00	16.88	18.00
802.11ac VHT40	102	5510	14.90	15.00	14.59	15.00	17.66	18.00
	110	5550	14.62	15.00	14.70	15.00	17.58	18.00
	126	5630	14.54	15.00	14.85	15.00	17.61	18.00
	134	5670	14.41	15.00	14.88	15.00	17.57	18.00
	142	5710	14.07	15.00	14.73	15.00	17.33	18.00
802.11ac VHT80	106	5530	14.49	14.50	14.11	14.50	17.22	17.50
	122	5610	14.54	15.00	14.54	15.00	17.45	18.00
	138	5690	14.85	15.00	14.97	15.00	17.24	18.00
802.11ax HE20	100	5500	14.93	15.00	14.54	15.00	17.65	18.00
	116	5580	14.50	15.00	14.96	15.00	17.65	18.00
	124	5620	14.66	15.00	14.51	15.00	17.50	18.00
	132	5660	14.49	15.00	14.92	15.00	17.63	18.00
	140	5700	14.67	15.00	14.62	15.00	17.56	18.00
	144	5720	13.54	15.00	14.61	15.00	17.02	18.00
802.11ax HE40	102	5510	14.82	15.00	14.93	15.00	17.79	18.00
	110	5550	14.78	15.00	14.93	15.00	17.77	18.00
	126	5630	14.98	15.00	14.48	15.00	17.65	18.00
	134	5670	14.87	15.00	14.81	15.00	17.76	18.00
	142	5710	14.86	15.00	14.64	15.00	17.67	18.00
802.11ax HE80	106	5530	14.20	14.50	14.29	14.50	17.16	17.50
	122	5610	14.78	15.00	14.33	15.00	17.48	18.00
	138	5690	13.58	15.00	14.98	15.00	17.25	18.00

WLAN 5.8 GHz Band								
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	14.64	15.00	14.63	15.00	17.55	18.00
	157	5785	14.72	15.00	14.87	15.00	17.71	18.00
	165	5825	14.82	15.00	14.53	15.00	17.59	18.00
802.11n HT20	149	5745	14.98	15.00	14.56	15.00	17.69	18.00
	157	5785	14.65	15.00	14.83	15.00	17.66	18.00
	165	5825	14.78	15.00	14.54	15.00	17.58	18.00
802.11n HT40	151	5755	14.69	15.00	14.75	15.00	17.63	18.00
	159	5795	14.80	15.00	14.92	15.00	17.78	18.00
802.11ac VHT20	149	5745	14.59	15.00	14.58	15.00	17.50	18.00
	157	5785	14.66	15.00	14.82	15.00	17.66	18.00
	165	5825	14.74	15.00	14.56	15.00	17.57	18.00
802.11ac VHT40	151	5755	14.72	15.00	14.65	15.00	17.60	18.00
	159	5795	14.79	15.00	14.89	15.00	17.76	18.00
802.11ac VHT80	155	5775	14.96	15.00	14.94	15.00	17.87	18.00
802.11ax HE20	149	5745	14.71	15.00	14.71	15.00	17.63	18.00
	157	5785	14.82	15.00	14.88	15.00	17.77	18.00
	165	5825	14.89	15.00	14.65	15.00	17.69	18.00
802.11ax HE40	151	5755	14.89	15.00	14.57	15.00	17.65	18.00
	159	5795	14.78	15.00	14.52	15.00	17.57	18.00
802.11ax HE80	155	5775	14.63	15.00	14.35	15.00	17.41	18.00

Bluetooth BR / EDR						
Mode	Channel	Frequency (MHz)	Modulation	AUX		
				Peak Power (dBm)	Average Power (dBm)	Tune-up Limit (dBm)
Bluetooth BR	0	2402	GFSK	10.46	10.33	11.50
	39	2441		10.73	10.92	
	78	2480		10.55	10.42	
Bluetooth EDR	0	2402	$\pi/4$ -DQPSK	10.45	7.67	8.50
	39	2441		10.72	7.98	
	78	2480		10.59	7.82	
Bluetooth EDR	0	2402	8DPSK	10.62	7.64	8.50
	39	2441		10.75	7.89	
	78	2480		10.66	7.78	

Bluetooth LE						
Mode	Channel	Frequency (MHz)	Data Rate	AUX		
				Peak Power (dBm)	Average Power (dBm)	Tune-up Limit (dBm)
Bluetooth LE	0	2402	1Mbps	10.83	10.62	11.50
	19	2440		10.88	10.89	
	39	2480		10.95	10.68	
	0	2402	2Mbps	10.94	10.71	11.50
	19	2440		11.12	10.87	
	39	2480		11.08	10.78	