

8 CONDUCTED RF OUPUT POWER

8.1	WIFI Output Power
8.1.1	WIFI2.4G Output Power
8.1.2	WIFI5G Output Power
8.2	Bluetooth
8.2.1	Bluetooth Output Power
8.2.2	Bluetooth Duty Cycle

8.1 WIFI Output Power

8.1.1 WIFI2.4G Output Power

Test Mode	Modulation	Channel number	Frequency	AV power (dBm)	Tune-up (dBm)	SAR Test
2. 4G	11b	1	2412	18.54	19.00	Yes
		6	2437	18.44	19.00	Yes
		11	2462	18.43	19.00	Yes
	11g	1	2412	16.86	17.00	No
		6	2437	18.84	19.00	No
		11	2462	16.76	17.00	No
	11n-HT20	1	2412	16.44	17.00	No
		6	2437	18.73	19.00	No
		11	2462	15.34	16.00	No
	11n-HT40	3	2422	15.41	16.00	No
		6	2437	16.12	17.00	No
		9	2452	15.50	16.00	No
	11ax-HT20	1	2412	16.62	17.00	No
		6	2437	18.56	19.00	No
		11	2462	15.37	16.00	No
	11ax-HT40	3	2422	15.67	16.00	No
		6	2437	16.19	17.00	No
		9	2452	15.65	16.00	No

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

(1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.

2) When multiple transmission modes (802.11b/g/n/ax) have the same maximum tune-up output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11b is chosen over 802.11g, and 802.11g chosen over 802.11n, and 802.11n chosen over 802.11ax

3) According KDB 247228, 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 ≤ 1.2 W/kg, OFDM SAR test is not required.

Adjusted SAR = $1.09 * (79.43\text{mW}/79.43\text{mW}) = 1.09$ W/Kg, so 2.4G OFDM SAR test is not required.

8.1.2 WIFI5G Output Power

Test Mode	Modulation	Channel	Frequency	AV power (dBm)	Tune-up (dBm)	SAR Test	
WIFI 5G Band1	11a	36	5180	19.37	20.50	Yes	
		44	5220	19.48	20.50	Yes	
		48	5240	19.45	20.50	Yes	
	11n20	36	5180	19.85	20.50	No	
		44	5220	19.60	20.50	No	
		48	5240	19.57	20.50	No	
	11n40	38	5190	17.46	18.00	No	
		46	5230	17.37	18.00	No	
		36	5180	19.78	20.50	No	
	11ac20	44	5220	19.73	20.50	No	
		48	5240	19.63	20.50	No	
		38	5190	17.44	18.00	No	
	11ac40	46	5230	17.40	18.00	No	
		11ac80	42	5210	14.08	15.00	No
		11ac160	50	5250	12.18	13.00	No
	11ax20	36	5180	19.93	20.50	No	
		44	5220	19.57	20.50	No	
		48	5240	19.54	20.50	No	
	11ax40	38	5190	16.90	17.00	No	
		46	5230	16.82	17.00	No	
		11ax80	42	5210	18.27	19.00	No
		11ax160	50	5250	18.58	19.00	No
WIFI 5G Band2	11a	52	5260	19.77	20.50	Yes	
		60	5300	19.61	20.50	Yes	
		64	5320	19.78	20.50	Yes	
	11n20	52	5260	19.60	20.50	No	
		60	5300	19.48	20.50	No	
		64	5320	19.66	20.50	No	
	11n40	54	5270	17.29	18.00	No	
		62	5310	17.36	18.00	No	
		52	5260	19.68	20.50	No	
	11ac20	60	5300	19.52	20.50	No	
		64	5320	19.57	20.50	No	
		54	5270	17.33	18.00	No	
	11ac40	62	5310	17.40	18.00	No	
		11ac80	58	5290	13.95	14.00	No
		52	5260	19.59	20.50	No	
	11ax20	60	5300	19.52	20.50	No	
		64	5320	19.74	20.50	No	
		54	5270	16.70	17.00	No	
	11ax40	62	5310	16.84	17.00	No	
		58	5290	18.17	19.00	No	
		100	5500	20.44	21.00	Yes	
WIFI 5G Band3	11a	116	5580	20.36	21.00	Yes	
		140	5700	20.31	21.00	Yes	
		100	5500	20.21	21.00	No	
	11n20	116	5580	20.22	21.00	No	
		140	5700	20.20	21.00	No	
		102	5510	18.03	19.00	No	
	11n40	118	5590	18.03	19.00	No	
		134	5670	17.98	18.00	No	
		100	5500	20.31	21.00	No	
	11ac20	116	5580	20.25	21.00	No	
		140	5700	20.17	21.00	No	
		102	5510	18.05	19.00	No	
	11ac40	118	5590	18.05	19.00	No	
		134	5670	18.01	19.00	No	
		106	5530	14.69	15.00	No	
	11ac80	122	5610	14.65	15.00	No	
		114	5570	12.40	13.00	No	
		100	5500	20.04	21.00	No	
	11ax20	116	5580	20.03	21.00	No	
		140	5700	18.96	19.00	No	
		102	5510	16.31	17.00	No	
	11ax40	118	5590	17.43	18.00	No	
		134	5670	17.43	18.00	No	
		106	5530	18.83	19.00	No	
	11ax80	122	5610	18.55	19.00	No	
		114	5570	16.61	17.00	No	
		149	5745	18.81	19.00	Yes	
WIFI 5G Band4	11a	157	5785	18.81	19.00	Yes	
		165	5825	18.69	19.00	Yes	
		149	5745	18.55	19.00	No	
	11n20	157	5785	18.72	19.00	No	
		165	5825	18.60	19.00	No	
		151	5755	17.92	18.50	No	
	11n40	159	5795	18.04	18.50	No	
		149	5745	18.47	19.00	No	
		157	5785	18.46	19.00	No	
	11ac20	165	5825	18.35	19.00	No	
		151	5755	17.95	18.50	No	
		159	5795	18.07	18.50	No	
	11ac40	155	5775	14.74	15.00	No	
		149	5745	18.54	19.00	No	
		157	5785	18.28	19.00	No	
	11ax20	165	5825	18.46	19.00	No	
		151	5755	17.37	18.50	No	
		159	5795	17.39	18.50	No	
	11ax40	155	5775	18.68	19.00	No	
		Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.					
	1) The largest channel bandwidth configuration is selected among the multiple configurations in a frequency band with the same maximum tune-up output power.						
	2) When multiple transmission modes (802.11a/n/ac/ax) have the same maximum tune-up output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac.						

8.2 Bluetooth

8.2.1 Bluetooth Output Power

Test Mode	Modulation	Channel	Frequency	AV power (dBm)	Tune-up (dBm)	SAR Test
BT	DH5	0	2402	11.12	12.00	Yes
		39	2441	11.08	12.00	Yes
		78	2480	11.27	12.00	Yes
	2DH5	0	2402	8.06	9.00	No
		39	2441	7.97	8.00	No
		78	2480	8.11	9.00	No
	3DH5	0	2402	8.16	9.00	No
		39	2441	8.03	9.00	No
		78	2480	8.05	9.00	No
	BLE1M	0	2404	7.97	8.00	No
		19	2440	8.12	9.00	No
		39	2478	8.12	9.00	No
	BLE2M	0	2404	7.98	8.00	No
		19	2440	7.91	8.00	No
		39	2478	8.07	9.00	No
Note: Since bluetooth BR mode is the maximum output power mode, SAR measurements were performed with test software using DH5 modulation, and SAR measurement is not required for the EDR and LE. When the secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode.						

8.2.2 Bluetooth Duty Cycle

The Bluetooth duty cycle is 57.55% as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation.
Duty Cycle

