

8 CONDUCTED RF OUPUT POWER

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8.1 WIFI Output Power

WIFI2.4G-Ant.1						
2.4G	Mode	Channel	Frequency (MHz)	AV power (dBm)	Tune up (dBm)	SAR Test
	11b	1	2412	9.54	10.00	No
		6	2437	8.68	10.00	No
		11	2462	14.87	15.00	Yes
	11g	1	2412	12.95	14.50	No
		6	2437	13.37	14.50	No
		11	2462	13.17	14.50	No
	11n20	1	2412	13.19	14.50	No
		6	2437	13.57	14.50	No
		11	2462	13.38	14.50	No
	11n40	3	2422	13.42	14.50	No
		6	2437	14.01	14.50	No
		9	2452	13.60	14.50	No
	11ax20	1	2412	13.11	14.50	No
		6	2437	13.49	14.50	No
		11	2462	13.29	14.50	No
	11ax40	3	2422	13.61	14.50	No
		6	2437	13.94	14.50	No
		9	2452	13.54	14.50	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 = $0.309 * (28.18\text{mW}/31.62\text{mW}) = 0.275$ W/Kg, so 2.4G OFDM SAR test is not required.

WIFI5G-Ant.1						
	Mode	Channel	Frequency (MHz)	AV power (dBm)	Tune up (dBm)	SAR Test
5.2G	11a	36	5180	14.28	15.00	No
		44	5220	14.53	15.00	No
		48	5240	14.28	15.00	No
	11n20	36	5180	14.63	15.00	No
		44	5220	14.47	15.00	No
		48	5240	14.45	15.00	No
	11n40	38	5190	14.04	15.00	No
		46	5230	14.37	15.00	No
	11ac20	36	5180	14.78	15.00	No
		44	5220	14.55	15.00	No
		48	5240	14.44	15.00	No
	11ac40	38	5190	14.57	15.00	No
		46	5230	14.53	15.00	No
	11ac80	42	5210	14.43	15.00	No
		36	5180	14.09	15.00	No
	11ax20	44	5220	14.58	15.00	No
		48	5240	14.28	15.00	No
	11ax40	38	5190	14.62	15.00	No
		46	5230	14.38	15.00	No
	11ax80	42	5210	14.41	15.00	No
5.3G	11a	52	5260	14.02	15.00	No
		60	5300	13.74	15.00	No
		64	5320	13.46	15.00	No
	11n20	52	5260	14.36	15.00	No
		60	5300	13.92	15.00	No
		64	5320	13.58	15.00	No
	11n40	54	5270	14.27	15.00	No
		62	5310	13.61	15.00	No
		52	5260	14.23	15.00	No
	11ac20	60	5300	13.79	15.00	No
		64	5320	13.51	15.00	No
	11ac40	54	5270	14.33	15.00	No
		62	5310	13.57	15.00	No
	11ac80	58	5290	13.81	15.00	Yes
		52	5260	14.21	15.00	No
	11ax20	60	5300	13.81	15.00	No
		64	5320	13.43	15.00	No
	11ax40	54	5270	14.26	15.00	No
		62	5310	13.47	15.00	No
	11ax80	58	5290	13.83	15.00	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) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.

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

3) 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, 802.11n is chosen over 802.11ac then 802.11ax.

WIFI5G-Ant.1						
	Mode	Channel	Frequency (MHz)	AV power (dBm)	Tune up (dBm)	SAR Test
5.6G	11a	100	5500	12.93	13.50	No
		116	5580	11.55	13.00	No
		140	5700	10.24	12.00	No
	11n20	100	5500	13.07	13.50	No
		116	5580	11.95	13.00	No
		140	5700	10.58	12.00	No
	11n40	102	5510	13.05	13.50	No
		118	5590	11.86	13.00	No
		134	5670	10.72	12.00	No
	11ac20	100	5500	13.14	13.50	No
		116	5580	11.58	13.00	No
		140	5700	10.62	12.00	No
	11ac40	102	5510	12.53	13.50	No
		118	5590	11.87	13.00	No
		134	5670	10.34	12.00	No
	11ac80	106	5530	12.35	13.50	Yes
		122	5610	11.66	13.00	Yes
	11ax20	100	5500	12.93	13.50	No
		116	5580	12.02	13.00	No
		140	5700	10.59	12.00	No
	11ax40	102	5510	13.12	13.50	No
		118	5590	11.90	13.00	No
		134	5670	10.37	12.00	No
	11ax80	106	5530	12.89	13.50	No
		122	5610	11.15	13.00	No
		149	5745	9.41	10.00	No
5.8G	11a	157	5785	9.02	10.00	No
		165	5825	9.48	10.00	No
		149	5745	9.22	10.00	No
	11n20	157	5785	9.68	10.00	No
		165	5825	9.65	10.00	No
		151	5755	9.64	10.00	No
	11n40	159	5795	9.62	10.00	No
		149	5745	9.60	10.00	No
		157	5785	9.67	10.00	No
	11ac20	165	5825	9.35	10.00	No
		151	5755	9.58	10.00	No
		159	5795	9.74	10.00	No
	11ac40	155	5775	9.67	10.00	Yes
		149	5745	9.16	10.00	No
	11ax20	157	5785	9.50	10.00	No
		165	5825	9.62	10.00	No
		151	5755	9.64	10.00	No
	11ax40	159	5795	9.70	10.00	No
		155	5775	9.65	10.00	No
	11ax80	155	5775	9.65	10.00	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, 802.11n is chosen over 802.11ac then 802.11ax.

8.2.1 Bluetooth Output Power

Bluetooth-Ant.1						
Test Mode	Modulation	Channel number	Frequency(MHz)	AV power (dBm)	Tune up (dBm))	SAR Test
BT	DH5	0	2402	-1.35	0.00	No
		39	2441	-1.07	0.00	No
		78	2480	-1.00	0.00	Yes
	2DH5	0	2402	-4.96	-4.00	No
		39	2441	-4.66	-4.00	No
		78	2480	-4.56	-4.00	No
	3DH5	0	2402	-5.00	-4.00	No
		39	2441	-4.65	-4.00	No
		78	2480	-4.55	-4.00	No
	BLE-1M	0	2402	-1.35	-0.50	No
		19	2440	-1.09	-0.50	No
		39	2480	-0.97	-0.50	No
	BLE-2M	1	2404	-1.26	-0.50	No
		19	2440	-1.02	-0.50	No
		38	2478	-0.93	-0.50	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 76.61% 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

