

8 CONDUCTED RF OUPUT POWER

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8.1 WIFI Output Power

8.1.1 WIFI2.4G Output Power

test Mode	Modulation	Channel number	Fre. (MHz)	Main		AUX		SAR Required
				output power (dBm)	tune up power	output power (dB)	tune up power	
2. 4G	11b	1	2412	19.79	20.50	20.28	20.50	Yes
		2	2417	19.07	20.00	19.20	20.00	No
		6	2437	20.43	20.50	20.14	20.50	Yes
		10	2457	19.05	20.00	18.56	19.00	No
		11	2462	20.44	20.50	20.07	20.50	Yes
		12	2467	15.72	16.00	15.38	16.00	No
		13	2472	11.44	12.00	10.78	11.00	No
	11g	1	2412	15.49	16.00	16.15	17.00	No
		2	2417	16.25	17.00	17.27	18.00	No
		6	2437	19.56	20.00	19.52	20.00	No
		10	2457	17.78	18.00	17.61	18.00	No
		11	2462	15.25	16.00	16.17	17.00	No
		12	2467	15.62	16.00	15.51	16.00	No
		13	2472	11.45	12.00	11.47	12.00	No
	11ac20	1	2412	16.46	17.00	16.70	17.00	No
		2	2417	16.55	17.00	16.24	17.00	No
		6	2437	19.73	20.00	19.60	20.00	No
		10	2457	16.23	17.00	17.30	18.00	No
		11	2462	15.32	16.00	15.75	16.00	No
		12	2467	14.85	15.00	15.46	16.00	No
		13	2472	10.62	11.00	10.59	11.00	No
	11ac40	3	2422	14.21	15.00	14.37	15.00	No
		6	2437	15.69	16.00	16.77	17.00	No
		9	2452	14.30	15.00	14.53	15.00	No
		10	2457	14.75	15.00	14.40	15.00	No
		11	2462	10.55	11.00	10.66	11.00	No
	11ax20	1	2412	16.50	17.00	16.82	17.00	No
		2	2417	16.18	17.00	16.36	17.00	No
		6	2437	19.54	20.00	19.37	20.00	No
		10	2457	17.20	18.00	17.54	18.00	No
		11	2462	16.31	17.00	15.64	16.00	No
		12	2467	15.09	16.00	15.41	16.00	No
		13	2472	10.49	11.00	10.64	11.00	No
	11ax40	3	2422	14.06	15.00	14.37	15.00	No
		6	2437	16.61	17.00	16.51	17.00	No
		9	2452	14.64	15.00	14.26	15.00	No
		10	2457	14.17	15.00	14.32	15.00	No
		11	2462	10.09	11.00	10.45	11.00	No
	RU-26/0	1	2412	15.53	16.00	15.33	16.00	No
	RU-26/4	6	2437	19.36	20.00	19.07	20.00	No
	RU-26/8	11	2462	15.37	16.00	15.22	16.00	No
	RU-26/8	12	2467	12.50	13.00	12.39	13.00	No
	RU-26/8	13	2472	5.40	6.00	4.52	5.00	No
	RU-52/37	1	2412	15.18	16.00	16.59	17.00	No
	RU-52/37	6	2437	19.81	20.00	19.38	20.00	No
	RU-52/40	11	2462	15.19	16.00	15.53	16.00	No
	RU-52/40	12	2467	15.46	16.00	15.63	16.00	No
	RU-52/40	13	2472	6.67	7.00	6.69	7.00	No
	RU-106/53	1	2412	15.48	16.00	15.31	16.00	No
	RU-106/53	6	2437	19.73	20.00	19.40	20.00	No
	RU-106/54	11	2462	15.24	16.00	15.65	16.00	No
	RU-106/54	12	2467	13.81	14.00	13.22	14.00	No
	RU-106/54	13	2472	8.70	9.00	8.44	9.00	No
Note: When multiple channel bandwidth configurations in a frequencyband 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 frequencyband with the same maximum tune-up output power. 2) When multiple transmission modes (802.11b/g/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., 802.11b is chosen over 802.11g, and 802.11g chosen over 802.11ac, and 802.11ac 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 = $1.036 * (100\text{mW}/112.2\text{mW}) = 0.923$ W/Kg, so 2.4G OFDM SAR test is not required.								

8.1.2 WIFI5G Output Power

test Mode	Modulation	Channel number	Fre. (MHz)	Main		AUX		SAR Required
				output power (dBm)	tune up power	output power (dB)	tune up power	
5. 2G	11a	36	5180	10.33	11.00	10.75	11.00	No
		40	5200	10.52	11.00	10.47	11.00	No
		48	5240	10.15	11.00	10.44	11.00	No
	11n20	36	5180	10.68	11.00	10.09	11.00	No
		40	5200	10.48	11.00	10.32	11.00	No
		48	5240	10.16	11.00	10.85	11.00	No
	11n40	38	5190	10.80	11.00	12.72	13.50	No
		46	5230	10.23	11.00	13.24	13.50	No
	11ac20	36	5180	10.28	11.00	10.31	11.00	No
		40	5200	10.61	11.00	10.26	11.00	No
		48	5240	10.52	11.00	10.65	12.00	No
	11ac40	38	5190	10.65	11.00	12.91	13.50	No
		46	5230	10.65	11.00	13.24	13.50	No
	11ac80	42	5210	10.24	11.00	12.63	13.50	No
		36	5180	10.29	11.00	11.09	12.00	No
	11ax20	40	5200	10.26	11.00	11.47	12.00	No
		48	5240	10.14	11.00	11.11	12.00	No
	11ax40	38	5190	10.65	11.00	12.63	13.50	No
		46	5230	10.84	11.00	12.91	13.50	No
	11ax80	42	5210	10.62	11.00	12.84	13.50	No
RU-26/0	36	5180	4.02	5.00	3.17	4.00	No	
RU-52/37	36	5180	7.03	8.00	6.26	7.00	No	
RU-106/53	40	5200	10.12	11.00	9.57	10.00	No	
5. 3G	11a	52	5260	10.43	11.00	13.06	13.50	No
		60	5300	10.21	11.00	12.79	13.50	No
		64	5320	10.76	11.00	12.88	13.50	No
	11n20	52	5260	10.20	11.00	13.33	13.50	No
		60	5300	10.58	11.00	12.87	13.50	No
		64	5320	10.17	11.00	13.28	13.50	No
	11n40	54	5270	10.63	11.00	12.80	13.50	No
		62	5310	10.82	11.00	12.85	13.50	No
	11ac20	52	5260	10.52	11.00	12.93	13.50	No
		60	5300	10.81	11.00	13.20	13.50	No
		64	5320	10.40	11.00	13.07	13.50	No
	11ac40	54	5270	10.38	11.00	13.14	13.50	No
		62	5310	10.61	11.00	12.97	13.50	No
	11ac80	58	5290	10.94	11.00	13.45	13.50	Yes
		52	5260	10.82	11.00	13.03	13.50	No
	11ax20	60	5300	10.52	11.00	12.80	13.50	No
		64	5320	10.47	11.00	13.27	13.50	No
	11ax40	54	5270	10.68	11.00	13.17	13.50	No
		62	5310	10.64	11.00	12.85	13.50	No
	11ax80	58	5290	10.57	11.00	12.90	13.50	No
RU-26/8	64	5320	9.71	10.00	9.07	10.00	No	
RU-52/40	64	5320	10.11	11.00	13.13	13.50	No	
RU-106/54	64	5320	10.79	11.00	13.31	13.50	No	
5. 6G	11a	100	5500	12.71	13.00	12.11	13.00	No
		116	5580	12.78	13.00	12.77	13.00	No
		140	5700	12.25	13.00	12.62	13.00	No
		144	5720	12.73	13.00	12.55	13.00	No
	11n20	100	5500	12.80	13.00	12.73	13.00	No
		116	5580	12.34	13.00	12.63	13.00	No
		140	5700	12.78	13.00	12.22	13.00	No
		144	5720	12.78	13.00	12.71	13.00	No
	11n40	102	5510	12.09	13.00	12.32	13.00	No
		110	5550	12.42	13.00	12.17	13.00	No
		134	5670	12.58	13.00	12.83	13.00	No
		142	5710	12.25	13.00	12.63	13.00	No
	11ac20	100	5500	12.43	13.00	12.54	13.00	No
		116	5580	12.61	13.00	12.16	13.00	No
		140	5700	12.07	13.00	12.46	13.00	No
		144	5720	12.70	13.00	12.82	13.00	No
	11ac40	102	5510	12.50	13.00	12.19	13.00	No
		110	5550	12.84	13.00	12.71	13.00	No
		134	5670	12.37	13.00	12.20	13.00	No
		142	5710	12.27	13.00	12.77	13.00	No
	11ac80	106	5530	12.72	13.00	12.91	13.00	Yes
		122	5610	12.56	13.00	12.67	13.00	Yes
	11ax20	138	5690	12.92	13.00	12.96	13.00	Yes
		100	5500	12.05	13.00	12.85	13.00	No
	11ax40	116	5580	12.17	13.00	12.62	13.00	No
		140	5700	12.84	13.00	12.59	13.00	No
	11ax80	144	5720	12.58	13.00	12.46	13.00	No
		102	5510	12.46	13.00	12.41	13.00	No
	RU-26/0	110	5550	12.78	13.00	12.43	13.00	No
	RU-26/8	134	5670	12.48	13.00	12.63	13.00	No
RU-26/8	142	5710	12.75	13.00	12.60	13.00	No	
RU-52/37	106	5530	12.48	13.00	12.50	13.00	No	
RU-52/40	122	5610	12.55	13.00	12.66	13.00	No	
RU-52/40	138	5690	12.50	13.00	12.40	13.00	No	
RU-106/53	100	5500	9.68	10.00	10.45	11.00	No	
RU-106/53	140	5700	9.10	10.00	10.09	11.00	No	
RU-106/53	144	5720	9.21	10.00	10.03	11.00	No	
RU-106/53	100	5500	12.96	13.00	12.85	13.00	No	
RU-106/53	140	5700	12.82	13.00	12.52	13.00	No	
RU-106/53	144	5720	12.90	13.00	12.09	13.00	No	
RU-106/53	100	5500	12.32	13.00	12.63	13.00	No	

5. 8G	RU-106/54	140	5700	12.11	13.00	12.20	13.00	No
	RU-106/54	144	5720	12.47	13.00	12.22	13.00	No
	11a	149	5745	14.27	14.50	13.58	14.50	No
		157	5785	13.74	14.50	13.75	14.50	No
		165	5825	14.10	14.50	13.97	14.50	No
	11n20	149	5745	14.28	14.50	13.72	14.50	No
		157	5785	13.96	14.50	13.98	14.50	No
		165	5825	13.86	14.50	13.65	14.50	No
	11n40	151	5755	13.75	14.50	14.24	14.50	No
		159	5795	13.92	14.50	13.56	14.50	No
	11ac20	149	5745	14.18	14.50	14.16	14.50	No
		157	5785	14.28	14.50	13.69	14.50	No
		165	5825	13.73	14.50	14.29	14.50	No
	11ac40	151	5755	14.14	14.50	14.15	14.50	No
		159	5795	13.82	14.50	13.98	14.50	No
	11ac80	155	5775	14.48	14.50	14.33	14.50	Yes
	11ax20	149	5745	13.67	14.50	13.59	14.50	No
		157	5785	13.62	14.50	14.24	14.50	No
		165	5825	13.85	14.50	13.72	14.50	No
	11ax40	151	5755	14.24	14.50	13.96	14.50	No
		159	5795	13.95	14.50	13.75	14.50	No
	11ax80	155	5775	14.33	14.50	14.31	14.50	No
	RU-26/0	149	5745	13.59	14.50	13.84	14.50	No
	RU-26/8	165	5825	13.71	14.50	14.17	14.50	No
	RU-52/37	149	5745	13.75	14.50	13.90	14.50	No
	RU-52/40	165	5825	14.05	14.50	14.12	14.50	No
RU-106/53	149	5745	13.55	14.50	13.83	14.50	No	
RU-106/54	165	5825	14.02	14.50	14.13	14.50	No	
5. 9G	11a	169	5845	13.81	14.50	14.19	14.50	No
		173	5865	14.14	14.50	14.24	14.50	No
		177	5885	14.33	14.50	13.99	14.50	No
	11n20	169	5845	13.65	14.50	14.26	14.50	No
		173	5865	13.75	14.50	13.94	14.50	No
		177	5885	13.61	14.50	13.73	14.50	No
	11n40	167	5835	13.88	14.50	13.91	14.50	No
		175	5875	14.34	14.50	14.11	14.50	No
		169	5845	13.66	14.50	13.59	14.50	No
	11ac20	173	5865	14.07	14.50	13.62	14.50	No
		177	5885	13.99	14.50	14.19	14.50	No
		167	5835	14.29	14.50	14.24	14.50	No
	11ac40	175	5875	13.71	14.50	13.96	14.50	No
		171	5855	14.07	14.50	14.22	14.50	Yes
		169	5845	14.35	14.50	14.08	14.50	No
	11ax20	173	5865	14.21	14.50	13.61	14.50	No
		177	5885	13.78	14.50	13.97	14.50	No
		167	5835	14.10	14.50	14.33	14.50	No
	11ax40	175	5875	13.79	14.50	14.17	14.50	No
		171	5855	13.82	14.50	13.74	14.50	No
		169	5845	6.25	7.00	7.01	8.00	No
	RU-26/0	169	5845	6.25	7.00	7.01	8.00	No
	RU-26/4	173	5865	7.03	8.00	7.62	8.00	No
	RU-26/8	177	5885	7.41	8.00	7.51	8.00	No
	RU-52/37	169	5845	9.12	10.00	10.23	11.00	No
	RU-52/39	173	5865	10.32	11.00	10.58	11.00	No
RU-52/40	177	5885	10.12	11.00	10.69	11.00	No	
RU-106/53	169	5845	9.07	10.00	10.05	11.00	No	
RU-106/54	173	5865	13.21	14.00	13.44	14.00	No	
RU-106/54	177	5885	13.20	14.00	13.34	14.00	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., 802.11b is chosen over 802.11g, and 802.11g chosen over 802.11ac, and 802.11ac chosen over 802.11ax.

8.2 Bluetooth

8.2.1 Bluetooth Output Power

test Mode	Modulation	Fre. (MHz)	AV output power (dBm)	Tune up	SAR Required
BT	DH5	2402	12.79	13.00	Yes
		2441	12.82	13.00	Yes
		2480	12.69	13.00	Yes
	2DH5	2402	8.72	9.00	No
		2441	8.44	9.00	No
		2480	8.10	9.00	No
	3DH5	2402	8.41	9.00	No
		2441	8.49	9.00	No
		2480	8.72	9.00	No
	BLE1M	2402	7.24	8.00	No
		2440	7.05	8.00	No
		2480	7.52	8.00	No
	BLE2M	2404	7.17	8.00	No
		2440	7.62	8.00	No
		2478	7.09	8.00	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 77.42% 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

