8 CONDUCTED RF OUPUT POWER

8.1	WIFI Output Power
8.2	Bluetooth
8.2.1	Bluetooth Output Power
8.2.2	Bluetooth Duty Cycle

WIFI2.4G Output Power-Ant.0						
test Mode	Modulation	Channel number	Fre.(MHz)	AV output power(dBm)	tune up power(dBm)	SAR Test
WIFI 2.4G	11b	1	2412	**17.61**	18.00	Yes
		6	2437	17.22	18.00	Yes
		11	2462	17.12	18.00	Yes
	11g	1	2412	15.23	16.00	No
		6	2437	17.71	18.00	No
		11	2462	11.00	12.00	No
	11n20	1	2412	14.30	15.00	No
		6	2437	17.69	18.00	No
		11	2462	11.00	12.00	No
	11ax20	1	2412	12.87	13.00	No
		6	2437	17.82	18.00	No
		11	2462	11.22	12.00	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 = 0.941 * (63.10mW/63.10mW) = 0.941 W/Kg, so 2.4G OFDM SAR test is not required.

WIFI2.4G Output Power-Ant.1						
test Mode	Modulation	Channel number	Fre.(MHz)	AV output power (dBm)	tune up power(dBm)	SAR Test
WIFI 2.4G	11b	1	2412	**20.62**	21.00	Yes
		6	2437	19.98	21.00	No
		11	2462	17.01	18.00	No
	11g	1	2412	14.80	15.00	No
		6	2437	20.66	21.00	No
		11	2462	11.87	13.00	No
	11n20	1	2412	13.92	15.00	No
		6	2437	20.63	21.00	No
		11	2462	11.64	13.00	No
	11ax20	1	2412	12.56	13.00	No
		6	2437	20.62	21.00	No
		11	2462	11.85	13.00	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 = 0.742 * (125.89mW/125.89mW) = 0.742 W/Kg, so 2.4G OFDM SAR test is not required.

WIFI2.4G Output Power-Ant.MIMO						
test Mode	Modulation	Channel number	Fre.(MHz)	AV output power (dBm)	tune up power(dBm)	SAR Test
WIFI 2.4G	11b	1	2412	/	/	No
		6	2437	/	/	No
		11	2462	/	/	No
	11g	1	2412	/	/	No
		6	2437	/	/	No
		11	2462	/	/	No
	11n20	1	2412	17.00	17.50	No
		6	2437	22.26	22.50	No
		11	2462	14.31	15.00	No
	11ax20	1	2412	15.76	16.00	No
		6	2437	22.44	22.50	No
		11	2462	14.57	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) 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.

WIFI5G Output Power-Ant.0						
Mode		Channel number	Fre.(MHz)	output power(dBm)	tune up power(dBm)	SAR Test
5.2 WIFI	11a	36	5180	14.45	15.50	No
		44	5220	14.58	15.50	No
		48	5240	14.74	15.50	No
	11n20	36	5180	14.67	15.50	No
		44	5220	14.74	15.50	No
		48	5240	14.87	15.50	No
	11n40	38	5190	13.00	13.50	No
		46	5230	14.87	15.50	No
	11ac20	36	5180	15.25	15.50	No
		44	5220	14.65	15.50	No
		48	5240	15.04	15.50	No
	11ac40	38	5190	13.04	13.50	No
		46	5230	15.21	15.50	No
	11ac80	42	5210	14.35	15.50	Yes
	11ax20	36	5180	15.21	15.50	No
		44	5220	15.34	15.50	No
		48	5240	15.21	15.50	No
	11ax40	38	5190	13.64	14.00	No
		46	5230	15.32	15.50	No
	11ax80	42	5210	14.17	15.50	No
5.8G WIFI	11a	149	5745	19.05	19.50	No
		157	5785	18.77	19.50	No
		165	5825	18.37	19.50	No
	11n20	149	5745	18.77	19.50	No
		157	5785	18.40	19.50	No
		165	5825	19.31	19.50	No
	11n40	151	5755	18.41	19.50	No
		159	5795	19.50	19.50	No
	11ac20	149	5745	18.70	19.50	No
		157	5785	18.42	19.50	No
		165	5825	19.25	19.50	No
	11ac40	151	5755	18.45	19.50	No
		159	5795	19.45	19.50	No
	11ac80	155	5775	19.01	19.50	Yes
	11ax20	149	5745	18.79	19.50	No
		157	5785	18.47	19.50	No
		165	5825	19.44	19.50	No
	11ax40	151	5755	18.52	19.50	No
		159	5795	18.41	19.50	No
	11ax80	155	5775	18.12	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,802.11n is chosen over 802.11ac then 802.11ax.

WIFI5G Output Power-Ant.1						
Mode		Channel number	Fre.(MHz)	output power(dBm)	tune up power(dBm)	SAR Test
5.2 WIFI	11a	36	5180	15.65	16.00	No
		44	5220	15.67	16.00	No
		48	5240	15.66	16.00	No
	11n20	36	5180	15.63	16.00	No
		44	5220	15.32	16.00	No
		48	5240	15.66	16.00	No
	11n40	38	5190	12.17	13.00	No
		46	5230	15.77	16.00	Yes
	11ac20	36	5180	14.05	16.00	No
		44	5220	15.34	16.00	No
		48	5240	15.53	16.00	No
	11ac40	38	5190	13.14	13.50	No
		46	5230	15.38	16.00	No
	11ac80	42	5210	13.18	13.50	No
	11ax20	36	5180	15.34	16.00	No
		44	5220	15.35	16.00	No
		48	5240	15.50	16.00	No
	11ax40	38	5190	12.33	14.00	No
		46	5230	15.61	16.00	No
	11ax80	42	5210	13.32	13.50	No
5.8G WIFI	11a	149	5745	15.25	15.50	No
		157	5785	14.98	15.50	No
		165	5825	14.55	15.50	No
	11n20	149	5745	15.06	15.50	No
		157	5785	14.72	15.50	No
		165	5825	14.45	15.50	No
	11n40	151	5755	15.11	15.50	No
		159	5795	14.94	15.50	No
	11ac20	149	5745	15.07	15.50	No
		157	5785	14.74	15.50	No
		165	5825	14.46	15.50	No
	11ac40	151	5755	15.11	15.50	No
		159	5795	14.97	15.50	No
	11ac80	155	5775	14.50	15.50	Yes
	11ax20	149	5745	15.22	15.50	No
		157	5785	14.98	15.50	No
		165	5825	14.57	15.50	No
	11ax40	151	5755	15.32	15.50	No
		159	5795	14.92	15.50	No
	11ax80	155	5775	14.54	15.50	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 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.

WIFI5G Output Power-Ant.MIMO						
Mode		Channel number	Fre.(MHz)	output power(dBm)	tune up power(dBm)	SAR Test
5.2 WIFI	11a	36	5180	/	/	No
		44	5220	/	/	No
		48	5240	/	/	No
	11n20	36	5180	18.30	18.50	No
		44	5220	17.99	18.50	No
		48	5240	18.29	18.50	No
	11n40	38	5190	15.52	16.00	No
		46	5230	18.34	18.50	No
	11ac20	36	5180	17.75	18.50	No
		44	5220	18.02	18.50	No
		48	5240	18.30	18.50	No
	11ac40	38	5190	16.22	16.50	No
		46	5230	18.31	18.50	No
	11ac80	42	5210	16.89	17.50	No
	11ax20	36	5180	18.32	18.50	No
		44	5220	18.37	18.50	No
		48	5240	18.19	18.50	No
	11ax40	38	5190	16.02	16.50	No
		46	5230	18.56	19.00	No
	11ax80	42	5210	18.10	18.50	No
5.8G WIFI	11a	149	5745	/	/	No
		157	5785	/	/	No
		165	5825	/	/	No
	11n20	149	5745	20.29	21.00	No
		157	5785	20.02	21.00	No
		165	5825	20.55	21.00	No
	11n40	151	5755	19.93	21.00	No
		159	5795	20.68	21.00	No
	11ac20	149	5745	20.23	21.00	No
		157	5785	19.90	21.00	No
		165	5825	20.47	21.00	No
	11ac40	151	5755	20.10	21.00	No
		159	5795	20.78	21.00	No
	11ac80	155	5775	20.20	21.00	No
	11ax20	149	5745	20.37	21.00	No
		157	5785	20.19	21.00	No
		165	5825	20.71	21.00	No
	11ax40	151	5755	20.05	21.00	No
		159	5795	19.93	21.00	No
	11ax80	155	5775	19.77	21.00	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 Bluetooth

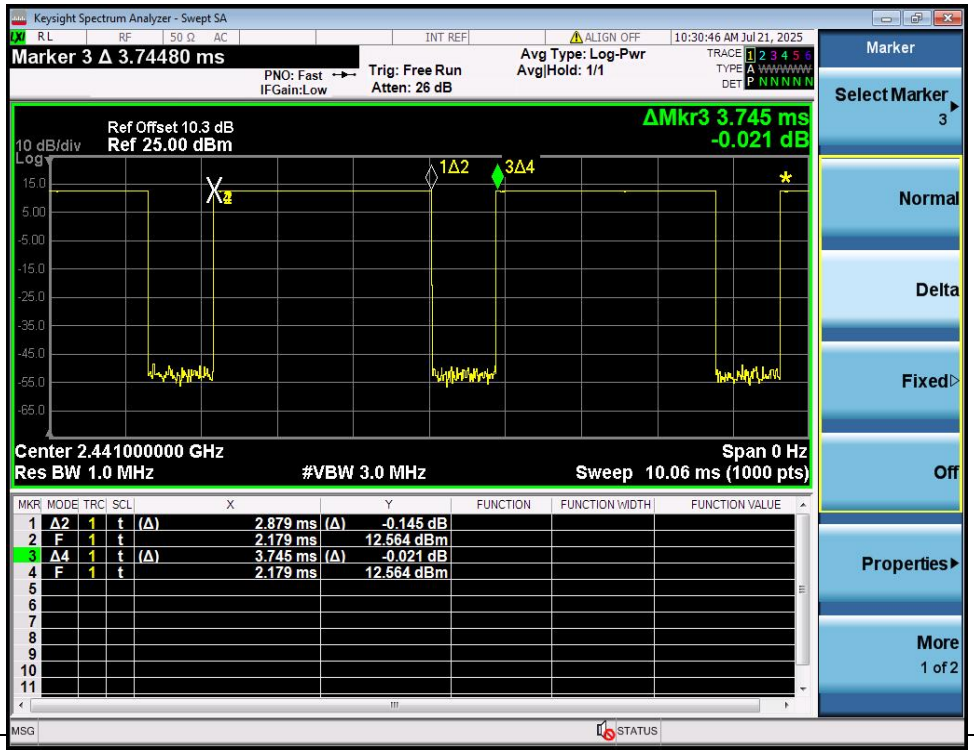
8.2.1 Bluetooth Output Power

Bluetooth-Ant.0						
Test Mode	Modulation	Channel number	Frequency(MHz)	AV power (dBm)	Tune up (dBm))	SAR Test
BT	DH5	0	2402	12.17	13.00	No
		39	2441	12.27	13.00	No
		78	2480	12.46	13.00	Yes
	2DH5	0	2402	8.58	9.00	No
		39	2441	8.73	9.00	No
		78	2480	8.64	9.00	No
	3DH5	0	2402	8.58	9.00	No
		39	2441	8.71	9.00	No
		78	2480	8.64	9.00	No
	BLE-1M	0	2402	13.41	14.00	Yes
		19	2440	13.05	14.00	No
		39	2480	12.72	14.00	No
	BLE-2M	1	2404	13.47	14.00	No
		19	2440	13.40	14.00	No
		38	2478	13.06	14.00	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 ≤ ¼ dB higher than the primary mode.

8.2.2 Bluetooth Duty Cycle

The Bluetooth DH5 duty cycle is 76.88% 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



The Bluetooth BLE-1M duty cycle is 13.00% 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