



FCC ID: 2ACK6-CD68T2
IC: 29050-8A1C6D

RF Exposure

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Applied procedures / limit

According to RSS 102/ FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

Note: f is frequency in MHz

* = Power density limit is applicable at frequencies greater than 100 MHz

Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz

* = Plane-wave equivalent power density

MPE PREDICTION

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna



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TEST RESULTS

2.4G wifi:

EUT Set Mode	CH	Conducted Power (dBm)		Total Power (dBm)	Limit	Conclusion
		ANT 1	ANT 2			
IEEE 802.11B	CH 1	17.58	17.15	--	30dBm	PASS
	CH 6	17.69	17.23	--	30dBm	PASS
	CH 11	17.77	17.41	--	30dBm	PASS
IEEE 802.11G	CH 1	16.63	16.24	--	30dBm	PASS
	CH 6	16.48	16.18	--	30dBm	PASS
	CH 11	16.29	16.05	--	30dBm	PASS
IEEE 802.11N20	CH 1	15.71	15.27	18.51	30dBm	PASS
	CH 6	15.88	15.42	18.67	30dBm	PASS
	CH 11	15.62	15.23	18.44	30dBm	PASS
IEEE 802.11N40	CH 3	15.27	15.26	18.28	30dBm	PASS
	CH 6	15.69	15.37	18.54	30dBm	PASS
	CH 9	15.84	15.49	18.68	30dBm	PASS

Mode	Range	Maximum peak output power (dBm)	Output power (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm ²)	Limit of Power Density (S) (mW/ cm ²)	Result
802.11b	16~18	18	63.10	0.41(1.1)	0.0138	1	Pass
802.11g	16~18	18	63.10	0.41(1.1)	0.0138	1	Pass
802.11n-HT20	14~16	16	39.81	0.41(1.1)	0.0087	1	Pass
802.11n-HT40	14~16	16	39.81	0.41(1.1)	0.0087	1	Pass



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5 G wifi:

CH. No.	Frequency	Conducted Average Power(dBm)		total power (dBm)	Limit (dBm/MHz)	Result
		ANT A	ANT B			
TX 802.11a Mode						
CH36	5180	21.53	20.81	--	24	Pass
CH40	5200	21.24	20.64	--	24	Pass
CH48	5240	21.69	20.43	--	24	Pass
CH 52	5260	21.14	20.92	--	24	Pass
CH 56	5280	21.25	20.33	--	24	Pass
CH 64	5320	21.72	20.31	--	24	Pass
CH 100	5500	21.78	20.10	--	24	Pass
CH 120	5600	22.20	20.53	--	24	Pass
CH 140	5700	22.18	20.30	--	24	Pass
CH 149	5745	22.55	20.20	--	30	Pass
CH 157	5785	22.37	21.71	--	30	Pass
CH 165	5825	22.44	21.24	--	30	Pass
TX 802.11n20 Mode						
CH36	5180	18.58	17.36	21.02	24	Pass
CH40	5200	18.71	17.37	21.10	24	Pass
CH48	5240	18.64	18.20	21.44	24	Pass
CH 52	5260	19.15	18.02	21.63	24	Pass
CH 56	5280	19.55	17.63	21.71	24	Pass
CH 64	5320	19.42	18.71	22.09	24	Pass
CH 100	5500	19.20	17.79	21.56	24	Pass
CH 120	5600	19.33	17.67	21.59	24	Pass
CH 140	5700	18.67	17.99	21.35	24	Pass
CH 149	5745	18.58	17.89	21.26	30	Pass
CH 157	5785	18.28	17.68	21.00	30	Pass
CH 165	5825	18.68	17.19	21.01	30	Pass
TX 802.11n40 Mode						
CH38	5190	18.13	16.59	20.44	24	Pass
CH46	5230	18.81	16.84	20.95	24	Pass
CH 54	5270	19.65	18.11	21.96	24	Pass
CH 62	5310	18.84	17.23	21.12	24	Pass
CH 102	5510	18.81	17.82	21.35	24	Pass
CH 110	5550	19.38	16.90	21.32	24	Pass
CH 134	5670	19.21	17.92	21.62	24	Pass
CH151	5755	18.85	16.83	20.38	30	Pass
CH159	5795	18.05	16.41	20.32	30	Pass



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CH. No.	Frequency	Conducted Average Power(dBm)		total power (dBm)	Limit (dBm)	Result
		ANT A	ANT B			
TX 802.11 ac(VHT20) Mode						
CH 36	5180	19.12	16.45	21.00	24	Pass
CH 40	5200	18.96	17.70	21.39	24	Pass
CH 48	5240	18.91	17.70	21.36	24	Pass
CH 52	5260	19.05	18.07	21.60	24	Pass
CH 56	5280	18.76	16.97	20.97	24	Pass
CH 64	5320	19.43	17.57	21.61	24	Pass
CH 100	5500	19.46	17.44	21.58	24	Pass
CH 120	5600	18.81	17.90	21.39	24	Pass
CH 140	5700	19.07	17.62	21.42	24	Pass
CH 149	5745	18.88	17.84	21.40	30	Pass
CH 157	5785	18.82	17.16	20.51	30	Pass
CH 165	5825	18.57	16.78	20.20	30	Pass
TX 802.11 ac(VHT40) Mode						
CH38	5190	17.20	16.07	19.68	24	Pass
CH46	5230	17.77	16.85	20.34	24	Pass
CH 54	5270	16.57	16.56	19.58	24	Pass
CH 62	5310	16.13	16.76	19.47	24	Pass
CH 102	5510	17.47	16.70	20.11	24	Pass
CH 110	5550	17.38	16.25	19.86	24	Pass
CH 134	5670	17.23	16.38	19.84	24	Pass
CH 151	5755	17.04	16.95	20.01	30	Pass
CH 159	5795	17.03	16.26	19.67	30	Pass
TX 802.11 ac(VHT80) Mode						
CH42	5210	14.19	13.58	16.91	24	Pass
CH 58	5290	14.99	13.40	17.28	24	Pass
CH 106	5530	14.90	13.17	17.13	24	Pass
CH 138	5690	14.72	13.34	17.09	24	Pass
CH155	5775	14.36	13.90	17.15	30	Pass



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802.11a(ANT1)	21~23	23	199.53	2.33(1.71)	0.0679	1	Pass
802.11a(ANT2)	20~22	22	158.49	2.33(1.71)	0.0539	1	Pass
802.11n (20)	21~23	23	199.53	2.33(1.71)	0.0679	1	Pass
802.11n(40)	20~22	22	158.49	2.33(1.71)	0.0539	1	Pass
802.11ac 20M	20~22	22	158.49	2.33(1.71)	0.0539	1	Pass
802.11ac 40M	19~21	21	125.89	2.33(1.71)	0.0428	1	Pass
802.11ac 80M	16~18	18	63.10	2.33(1.71)	0.0215	1	Pass

BLE:

Test Channe	Frequency	Maximum Conducted Output Power (PK)	LIMIT
	(MHz)	(dBm)	dBm
CH00	2402	2.953	30
CH19	2440	2.765	30
CH39	2480	1.888	30

Mode	Range	Maximum peak output power (dBm)	Output power (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm ²)	Limit of Power Density (S) (mW/ cm ²)	Result
BLE	1~3	3	2.0	0.41(1.1)	0.0004	1	Pass



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BT:

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Result
TX Mode_1Mbps				
CH00	2402	3.335	0.0022	PASS
CH39	2441	3.625	0.0023	PASS
CH78	2480	3.623	0.0023	PASS
TX Mode_2Mbps				
CH00	2402	2.890	0.0019	PASS
CH39	2441	3.268	0.0021	PASS
CH78	2480	3.318	0.0021	PASS
TX Mode_3Mbps				
CH00	2402	3.481	0.0022	PASS
CH39	2441	3.889	0.0024	PASS
CH78	2480	3.886	0.0024	PASS
Limit	21dBm /0.125W			

Mode	Range	Maximum peak output power (dBm)	Output power (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm ²)	Limit of Power Density (S) (mW/ cm ²)	Result
1Mbps	2~4	4	2.51	0.41(1.1)	0.0005	1	Pass
2Mbps	2~4	4	2.51	0.41(1.1)	0.0005	1	Pass
3Mbps	2~4	4	2.51	0.41(1.1)	0.0005	1	Pass

This device 5GHz wifi and 2.4GHz wifi can not teansmit simultaneously on the same wifi module;
This device wifi and bluetooth can not teansmit simultaneously on the same wifi module.

Conclusion: No SAR is required.