

**FCC §15.247 (I), §2.1091 – RF EXPOSURE**

FCC ID: 2A5NM-X38

According to KDB 447498 D01 General RF Exposure Guidance v06

Applied procedures / limit

According to 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

**TEST RESULTS****WIFI**

Test Channel	Frequency	Maximum output power			LIMIT	Result
	(MHz)	(dBm)			dBm	
TX 802.11 a Mode						
CH36	5180	16.35	16.11	\	23.98	Pass
CH40	5200	16.13	16.02	\	23.98	Pass
CH48	5240	16.27	15.97	\	23.98	Pass
TX 802.11 n20M Mode						
CH36	5180	14.77	14.52	17.66	23.98	Pass
CH40	5200	14.51	14.16	17.35	23.98	Pass
CH48	5240	14.33	14.17	17.26	23.98	Pass
TX 802.11 n40M Mode						
CH38	5190	14.02	13.92	16.98	23.98	Pass
CH46	5230	13.84	13.77	16.82	23.98	Pass
TX 802.11 ac20M Mode						
CH36	5180	14.55	14.26	17.42	23.98	Pass
CH40	5200	14.21	14.07	17.15	23.98	Pass
CH48	5240	14.05	13.94	17.01	23.98	Pass
TX 802.11 ac40M Mode						
CH38	5190	13.97	13.81	16.90	23.98	Pass
CH46	5230	13.75	13.67	16.72	23.98	Pass
TX 802.11 ac80M Mode						
CH42	5210	13.26	13.12	16.20	23.98	Pass

Mode	Frequency MHz	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
TX 802.11 a Mode	5180	16.35	43.15	2.71(1.87)	0.0161	1	Pass
TX 802.11 n20M Mode	5180	14.77	29.99	2.71(1.87)	0.0112	1	Pass
	5180	14.52	28.31	2.66(1.85)	0.0104	1	Pass

TX 802.11 n20M MIMO Mode

$$0.0112/1+0.0104/1=0.0216\leq 1$$

NOTE: R =20cm

Conclusion: No SAR is required.