

FCC ID : 2ACWISE48UXC4T

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

11.1 Friis transmission formula: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1416

R= distance between observation point and center of the radiator in cm

Pd the limit of MPE, 1mW/cm². If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

WIFI ANT A:

Channel Freq. (MHz)	modulation	conducted power (mW)	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
2.412	11b	86.50	19.37	19dBm to 21dBm	21	1.58	0.03978	1
2.437	11b	82.60	19.17	19dBm to 21dBm	21	1.58	0.03978	1
2.462	11b	82.99	19.19	19dBm to 21dBm	21	1.58	0.03978	1
2.412	11g	112.20	20.50	19dBm to 21dBm	21	1.58	0.03978	1
2.437	11g	107.15	20.30	19dBm to 21dBm	21	1.58	0.03978	1
2.462	11g	105.93	20.25	19dBm to 21dBm	21	1.58	0.03978	1
2.412	11n HT20	113.76	20.56	19dBm to 21dBm	21	1.58	0.03978	1
2.437	11n HT20	108.64	20.36	19dBm to 21dBm	21	1.58	0.03978	1
2.462	11n HT20	107.15	20.30	19dBm to 21dBm	21	1.58	0.03978	1
2.422	11n HT40	86.50	19.50	19dBm to 21dBm	21	1.58	0.03978	1
2.437	11n HT40	82.60	19.40	19dBm to 21dBm	21	1.58	0.03978	1
2.452	11n HT40	82.99	19.32	19dBm to 21dBm	21	1.58	0.03978	1

WIFI ANT B:

Channel Freq. (MHz)	modulation	conducted power (mW)	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
2.412	11b	88.10	19.45	19dBm to 21dBm	21	1.58	0.03978	1
2.437	11b	90.78	19.58	19dBm to 21dBm	21	1.58	0.03978	1
2.462	11b	97.95	19.91	19dBm to 21dBm	21	1.58	0.03978	1
2.412	11g	110.92	20.45	20dBm to 22dBm	22	1.58	0.05008	1
2.437	11g	140.28	21.47	20dBm to 22dBm	22	1.58	0.05008	1
2.462	11g	146.22	21.65	20dBm to 22dBm	22	1.58	0.05008	1
2.412	11n HT20	114.29	20.58	20dBm to 22dBm	22	1.58	0.05008	1
2.437	11n HT20	138.36	21.41	20dBm to 22dBm	22	1.58	0.05008	1
2.462	11n HT20	144.88	21.61	20dBm to 22dBm	22	1.58	0.05008	1
2.422	11n HT40	88.10	20.13	20dBm to 22dBm	22	1.58	0.05008	1
2.437	11n HT40	90.78	20.45	20dBm to 22dBm	22	1.58	0.05008	1
2.452	11n HT40	97.95	20.63	20dBm to 22dBm	22	1.58	0.05008	1