

FCC ID : 2ACWIE4SJ5516H

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)	EIRP (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	53.58	17.29	17dBm to 19dBm	19	1.58	0.02510	1
2.437	11b	62.66	17.97	17dBm to 19dBm	19	1.58	0.02510	1
2.462	11b	71.61	18.55	17dBm to 19dBm	19	1.58	0.02510	1
2.412	11g	46.67	16.69	16.5dBm to 18.5dBm	18.5	1.58	0.02237	1
2.437	11g	57.41	17.59	16.5dBm to 18.5dBm	18.5	1.58	0.02237	1
2.462	11g	64.27	18.08	16.5dBm to 18.5dBm	18.5	1.58	0.02237	1
2.412	11n HT20	43.05	16.34	16dBm to 18dBm	18	1.58	0.01994	1
2.437	11n HT20	62.37	17.95	16dBm to 18dBm	18	1.58	0.01994	1
2.462	11n HT20	59.29	17.73	16dBm to 18dBm	18	1.58	0.01994	1
2.422	11n HT40	35.24	15.47	15dBm to 17dBm	17	1.58	0.01584	1
2.437	11n HT40	40.55	16.08	15dBm to 17dBm	17	1.58	0.01584	1
2.452	11n HT40	45.39	16.57	15dBm to 17dBm	17	1.58	0.01584	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	49.32	16.93	16dBm to 18dBm	18	1.58	0.01994	1
2.437	11b	53.70	17.30	16dBm to 18dBm	18	1.58	0.01994	1
2.462	11b	52.00	17.16	16dBm to 18dBm	18	1.58	0.01994	1
2.412	11g	49.43	16.94	16dBm to 18dBm	18	1.58	0.01994	1
2.437	11g	50.12	17.00	16dBm to 18dBm	18	1.58	0.01994	1
2.462	11g	48.19	16.83	16dBm to 18dBm	18	1.58	0.01994	1
2.412	11n HT20	54.08	17.33	16dBm to 18dBm	18	1.58	0.01994	1
2.437	11n HT20	52.12	17.17	16dBm to 18dBm	18	1.58	0.01994	1
2.462	11n HT20	52.24	17.18	16dBm to 18dBm	18	1.58	0.01994	1
2.422	11n HT40	43.25	16.36	15dBm to 17dBm	17	1.58	0.01584	1
2.437	11n HT40	38.02	15.80	15dBm to 17dBm	17	1.58	0.01584	1
2.452	11n HT40	37.93	15.79	15dBm to 17dBm	17	1.58	0.01584	1