

FCC ID : 2ACWIWD50UK4550

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/cm²)	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 antenna 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	37.15	15.70	15dBm to 17dBm	17	1.58	0.01584	1
2.437	11b	41.11	16.14	15dBm to 17dBm	17	1.58	0.01584	1
2.462	11b	45.29	16.56	15dBm to 17dBm	17	1.58	0.01584	1
2.412	11g	35.73	15.53	15dBm to 17dBm	17	1.58	0.01584	1
2.437	11g	38.73	15.88	15dBm to 17dBm	17	1.58	0.01584	1
2.462	11g	45.39	16.57	15dBm to 17dBm	17	1.58	0.01584	1
2.412	11n HT20	39.17	15.93	15dBm to 17dBm	17	1.58	0.01584	1
2.437	11n HT20	44.98	16.53	15dBm to 17dBm	17	1.58	0.01584	1
2.462	11n HT20	43.95	16.43	15dBm to 17dBm	17	1.58	0.01584	1
2.422	11n HT40	33.88	15.30	14dBm to 16dBm	16	1.58	0.01258	1
2.437	11n HT40	35.16	15.46	14dBm to 16dBm	16	1.58	0.01258	1
2.452	11n HT40	31.70	15.01	14dBm to 16dBm	16	1.58	0.01258	1

WiFi antenna B:

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	31.26	14.95	14dBm to 16dBm	16	1.58	0.01258	1
2.437	11b	35.40	15.49	14dBm to 16dBm	16	1.58	0.01258	1
2.462	11b	33.04	15.19	14dBm to 16dBm	16	1.58	0.01258	1
2.412	11g	30.20	14.80	14dBm to 16dBm	16	1.58	0.01258	1
2.437	11g	29.44	14.69	14dBm to 16dBm	16	1.58	0.01258	1
2.462	11g	29.85	14.75	14dBm to 16dBm	16	1.58	0.01258	1
2.412	11n HT20	30.20	14.80	14dBm to 16dBm	16	1.58	0.01258	1
2.437	11n HT20	32.14	15.07	14dBm to 16dBm	16	1.58	0.01258	1
2.462	11n HT20	31.41	14.97	14dBm to 16dBm	16	1.58	0.01258	1
2.422	11n HT40	24.55	13.90	13dBm to 15dBm	15	1.58	0.00999	1
2.437	11n HT40	24.15	13.83	13dBm to 15dBm	15	1.58	0.00999	1
2.452	11n HT40	25.59	14.08	13dBm to 15dBm	15	1.58	0.00999	1