

FCC ID : 2ACWISE65UPC4T

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	63.53	18.03	17dBm to 19dBm	19	1.58	0.02510	1
2.437	11b	76.21	18.82	17dBm to 19dBm	19	1.58	0.02510	1
2.462	11b	70.15	18.46	17dBm to 19dBm	19	1.58	0.02510	1
2.412	11g	78.89	18.97	18.5dBm to 20.5dBm	20.5	1.58	0.03546	1
2.437	11g	106.91	20.29	18.5dBm to 20.5dBm	20.5	1.58	0.03546	1
2.462	11g	88.51	19.47	18.5dBm to 20.5dBm	20.5	1.58	0.03546	1
2.412	11n HT20	62.52	17.96	17.5dBm to 19.5dBm	19.5	1.58	0.02816	1
2.437	11n HT20	85.70	19.33	17.5dBm to 19.5dBm	19.5	1.58	0.02816	1
2.462	11n HT20	72.11	18.58	17.5dBm to 19.5dBm	19.5	1.58	0.02816	1
2.422	11n HT40	76.74	18.85	17.5dBm to 19.5dBm	19.5	1.58	0.02816	1
2.437	11n HT40	71.78	18.56	17.5dBm to 19.5dBm	19.5	1.58	0.02816	1
2.452	11n HT40	64.42	18.09	17.5dBm to 19.5dBm	19.5	1.58	0.02816	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	59.29	17.73	17dBm to 19dBm	19	1.58	0.02510	1
2.437	11b	68.39	18.35	17dBm to 19dBm	19	1.58	0.02510	1
2.462	11b	72.44	18.6	17dBm to 19dBm	19	1.58	0.02510	1
2.412	11g	83.75	19.23	18dBm to 20dBm	20	1.58	0.03160	1
2.437	11g	91.41	19.61	18dBm to 20dBm	20	1.58	0.03160	1
2.462	11g	98.63	19.94	18dBm to 20dBm	20	1.58	0.03160	1
2.412	11n HT20	61.24	17.87	17.5dBm to 19.5dBm	19.5	1.58	0.02816	1
2.437	11n HT20	75.34	18.77	17.5dBm to 19.5dBm	19.5	1.58	0.02816	1
2.462	11n HT20	81.10	19.09	17.5dBm to 19.5dBm	19.5	1.58	0.02816	1
2.422	11n HT40	53.58	17.29	17dBm to 19dBm	19	1.58	0.02510	1
2.437	11n HT40	74.47	18.72	18dBm to 20dBm	20	1.58	0.03160	1
2.452	11n HT40	90.36	19.56	18dBm to 20dBm	20	1.58	0.03160	1