

FCC ID : 2AU2VN1GW03

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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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 20cm

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and 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 3.35dBi

Mode	Channel Freq. (MHz)	Measured power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
802.11b	2412	16.46	18.0	2.16	0.02715	1
802.11b	2437	17.58	19.0	2.16	0.03418	1
802.11b	2462	18.41	20.0	2.16	0.04303	1
802.11g	2412	13.78	15.0	2.16	0.01361	1
802.11g	2437	14.92	16.0	2.16	0.01713	1
802.11g	2462	15.78	17.0	2.16	0.02156	1
802.11n HT20	2412	13.75	15.0	2.16	0.01361	1
802.11n HT20	2437	14.90	16.0	2.16	0.01713	1
802.11n HT20	2462	15.79	17.0	2.16	0.02156	1

Zigbee 3.35dBi

Mode	Channel Freq. (MHz)	Measured power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
O-QPSK	2405	7.033	8.0	2.16	0.00271	1
O-QPSK	2440	7.959	9.0	2.16	0.00342	1
O-QPSK	2480	7.857	9.0	2.16	0.00342	1