



RF exposure

FCC ID : 2AXRR-IRORO2

According to FCC part 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 – 1 500	--	--	f/300	6
1 500 - 100000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300 – 1 500	--	--	f/1500	6
1 500 – 100 000	--	--	<u>1</u>	<u>30</u>

f= frequency in MHz

Friis transmission formula: $P_d = (P_{out} \times G) / (4 \times \pi \times R^2)$

Where,

P_d = power density in mW/cm^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d the limit of MPE, $1 mW/cm^2$. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Results- Worst Case

-2.4G

Operation mode	Frequency (MHz)	Max Tune-up Average Power (dBm)	Antenna gain (dBi)	Power density at 20 cm(mW/cm²)	Limit (mW/cm²)
BDR 1Mbps	2 402 ~ 2 480	-2.69	1.9	0.000 17	1
LE 1Mbps	2 402 ~ 2 480	-2.66	1.9	0.000 17	1
802.11b					

-5.2G

Operation mode		Max Tune-up Average Power (dBm)	Antenna gain (dBi)	Power density at 20 cm(mW/cm ²)	Limit (mW/cm ²)
802.11a	SISO	-2.69	1.9	0.000 17	1
802.11an_HT20	SISO	-2.66	1.9	0.000 17	1
802.11an_HT40	SISO				
802.11ac_HT80	SISO				

-5.3G

Operation mode		Max Tune-up Average Power (dBm)	Antenna gain (dBi)	Power density at 20 cm(mW/cm ²)	Limit (mW/cm ²)
802.11a	SISO	-2.69	1.9	0.000 17	1
802.11an_HT20	SISO	-2.66	1.9	0.000 17	1
802.11an_HT40	SISO				
802.11ac_HT80	SISO				

-5.5G

Operation mode		Max Tune-up Average Power (dBm)	Antenna gain (dBi)	Power density at 20 cm(mW/cm ²)	Limit (mW/cm ²)
802.11a	SISO	-2.69	1.9	0.000 17	1
802.11an_HT20	SISO	-2.66	1.9	0.000 17	1
802.11an_HT40	SISO				
802.11ac_HT80	SISO				

-5.8G

Operation mode		Max Tune-up Average Power (dBm)	Antenna gain (dBi)	Power density at 20 cm(mW/cm ²)	Limit (mW/cm ²)
802.11a	SISO	-2.69	1.9	0.000 17	1
802.11an_HT20	SISO	-2.66	1.9	0.000 17	1
802.11an_HT40	SISO				
802.11ac_HT80	SISO				