

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 transmission formula: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

Where

Pd= Power density in mW/cm²

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1416

R= distance between observation point and center of the radiator in 20cm

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 Result

Wi-Fi 5GHz:

Max. conducted power (dBm)	Max. Tune-up power (dBm)	Auxiliary Antenna Gain (dBi)	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
13.68	14	3.42	0.011	<1

Wi-Fi 2.4GHz:

Max. conducted power (dBm)	Max. Tune-up power (dBm)	Auxiliary Antenna Gain (dBi)	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
19.09	20	3.31	0.043	<1

Bluetooth

Max. conducted power (dBm)	Tune-up power (dBm)	Auxiliary Antenna Gain (dBi)	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
6.18	7.0	3.31	0.002	1