## RF exposure

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 (Mtz)	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			1	<u>30</u>			

f= frequency in Mb

Friis transmission formula:  $Pd = (Pout \times G)/(4 \times pi \times R^2)$ 

Where,

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

Pd the limit of MPE, f/1500 mW/cm². 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**

Mode	Frequency (Mb)	Peak output power (dBm)	Antenna gain (dBi)	Power density at 20 cm(mW/cm²)	Limit (mW/cm²)
LE	2 402	-4.75	2	0.000 110	1
	2 440	-3.03	2	0.000 160	1
	2 480	-0.98	2	0.000 250	1

Result: The power density does NOT exceed the limit

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