

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).

And according to 865664 D02 RF Exposure Reporting v01r02, compliance for simultaneous transmission from multiple antennas must also be evaluated to confirm that MPE limits are not exceeded due to higher aggregated exposures in overlapping regions of adjacent antennas.

d) 1)The sum of the ratios of the peak or spatially averaged results to the applicable frequency dependent MPE limits must be ≤ 1 at all locations where users and bystanders can be exposed.

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 – 1 500	--	--	f/300	6
1 500 - 100000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300 – 1 500	--	--	f/1500	30
1 500 – 100 000	--	--	1	30

f= frequency in MHz

$$Pd = EIRP/(4 \times \pi \times R^2)$$

$$EIRP = \text{Field strength} + 20 \log(D) - 104.8$$

Where,

Pd = power density in mW/cm²

EIRP = Equivalent Isotropic Radiated Power

$\pi = 3.1416$

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

D = Measured distance in m

Results

- For 2.4G Band

Frequency (MHz)	Field strength (dBuV/m)	EIRP (dBm)	Pd cm(mW/cm ²)	Limit (mW/cm ²)
2 410	81.56	-13.70	0.000 009	1
2 435	79.10	-16.16	0.000 005	1
2 465	77.91	-17.35	0.000 004	1

- For 5.8G Band

Frequency (MHz)	Field strength (dBuV/m)	EIRP (dBm)	Pd cm(mW/cm ²)	Limit (mW/cm ²)
5 735	98.17	2.91	0.000 389	1
5 775	98.11	2.85	0.000 384	1
5 815	96.59	1.33	0.000 270	1

- For simultaneous transmission (worst case)

The sum of the ratios 2.4G and 5.8G is $0.000\ 397 \leq 1$

Result: The power density does NOT exceed the limit