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5.5. EXPOSURE OF HUMANS TO RF FIELD [[§§ 1.1310 & 2.1091]

§ **1.1310:** The criteria listed in the following table shall be used to evaluate the environmental 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)	Averaging time (minutes)						
(A) Limits for Occupational/Controlled Exposures										
0.3-3.0	614	1.63	*(100)	6						
3.0-30	1842/f	4.89/f	*(900/f ²)	6						
30-300	61.4	0.163	1.0	6						
300-1500			f/300	6						
1500-100,000			5	6						
(B) Limits for General Population/Uncontrolled Exposure										
0.3-1.34	614	1.63	*(100)	30						
1.34-30	824/f	2.19/f	*(180/f ²)	30						
30-300	27.5	0.073	0.2	30						
300-1500			f/1500	30						
1500-100,000			1.0	30						

f = frequency in MHz

Note 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

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^{* =} Plane-wave equivalent power density

5.5.1. Method of Measurements

Calculation Method of Power Density/RF Safety Distance:

$$S = \frac{PG}{4\pi \cdot r^2} = \frac{EIRP}{4\pi \cdot r^2} \text{ or } r = \sqrt{\frac{P \cdot G}{4 \cdot \pi \cdot S}} = \sqrt{\frac{EIRP}{4 \cdot \pi \cdot S}}$$

Where, P: power input to the antenna in mW

EIRP: Equivalent (effective) isotropic radiated power.

S: power density mW/cm²

G: numeric gain of antenna relative to isotropic radiator

r: distance to centre of radiation in cm

5.5.2. RF Evaluation

Frequency (MHz)	Max. Conducted Power (dBm)	Max. Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Evaluation Distance, r (cm)	Power Density, S (mW/cm ²)	MPE Limit (mW/cm2)
1616.0	33.29	-0.2	33.09	2037.04	20	0.41	5

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