

§ 15.319 (i) - RF RADIATION EXPOSURE

Limit

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	842/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

* = Plane-wave equivalent power density

Test Data

Predication of MPE limit at a given distance

Equation from page 19 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW) .

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Result: Pass

Maximum peak output power at antenna input terminal: 14.35(dBm)

Maximum peak output power at antenna input terminal: 27.227 (mW)

Predication frequency: 1924.992 (MHz)

Antenna Gain (typical): 0 dBi

Limits for Maximum Permissible Exposure Power density: 1 (mW/cm²)

The minimum safety distance: 1.47cm.