

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

where: S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Peak Radiated Field Strength: 84.4 (dBuV/m @ 3m)

Peak EIRP: -10.87 (dBm)

Peak EIRP: 0.081846479 (mW)

Antenna gain(assuming isotropic): 0 (dBi)

Maximum antenna gain: 1 (numeric)

Prediction distance: 20 (cm)

Prediction frequency: 305.5 (MHz)

MPE limit for uncontrolled exposure at prediction frequency: 0.2 (mW/cm²)

Power density at prediction frequency: **0.000016** (mW/cm²)

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Maximum peak output power at antenna input terminal: 22.80 (dBm)

Maximum peak output power at antenna input terminal: 190.5461 (mW)

Antenna gain(typical): 7 (dBi)

Maximum antenna gain: 5.011872 (numeric)

Prediction distance: 20 (cm)

Prediction frequency: 2400 (MHz)

MPE limit for uncontrolled exposure at prediction frequency: 1 (mW/cm²)

Power density at prediction frequency: 0.18999 (mW/cm²)

Summation of RF Exposure Calculation:

When all the antennas are at least 20cm away from the user, but individual antennas can not be separated by 20cm from each other.

$$\frac{0.000016 \frac{mW}{cm^2}}{0.2 \frac{mW}{cm^2}} + \frac{0.18999 \frac{mW}{cm^2}}{1.0 \frac{mW}{cm^2}} = 0.19007$$

$$0.19007 < 1$$

Therefore, the device complies with FCC's RF radiation exposure limit for general population for a mobile device.