

Prediction of MPE limit at a given distance

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

$$S = \frac{P G}{4 \pi R^2} = \frac{EIRP}{4 \pi R^2} = \frac{E^2 D^2}{120 \pi R^2}$$

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
 EIRP = equivalent isotropically radiated power
 E = field strength of fundamental emission
 D = distance when measured field strength

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|--|--------------------|-----------------------|
| Field strength of fundamental emission: | <u>44.3</u> | [dBμV/m] |
| Field strength of fundamental emission: | <u>164</u> | [μV/m] |
| Measured distance of fundamental emission: | <u>3</u> | [m] |
| Antenna gain(typical): | <u>-63.50</u> | [dBi] |
| Equivalent isotropically radiated power: | <u>0.0000081</u> | [mW] |
| Prediction distance: | <u>20</u> | [cm] |
| Prediction frequency: | <u>13.56</u> | [MHz] |
| MPE limit for uncontrolled exposure at prediction frequency: | <u>0.97</u> | [mW/cm ²] |
| Power density at prediction frequency: | <u>0.000000017</u> | [mW/cm ²] |
| | <u>0.000000017</u> | [W/m ²] |
| Maximum allowable antenna gain: | <u>24.1</u> | [dBi] |
| Margin of Compliance: | <u>87.6</u> | [dB] |