

MPE Calculation Method

Predication of MPE limit at a given distance

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

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

where:

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

EIRP = equivalent (or effective) isotropically radiated power (in appropriate units, e.g., mW)

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

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, r = 20cm, as well as the gain of the used antenna is 2dBi, the RF power density can be obtained. So, the worst result is below:

Max Output Power = 3.475 dBm, Ant gain 2dBi

EIRP=PG= (3.475+2) dBm=5.475 dBm= $10^{(5.475/10)}$ mW=3.53mW

So, $S = \frac{EIRP}{4\pi R^2} = \frac{3.53}{4\pi \times 20^2} = \underline{7.02 \times 10^{-4}} \text{ mW/cm}^2 < 1.0 \text{ mW/cm}^2$