

## Prediction of MPE at a given distance

### 1. Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

| Frequency range<br>(MHz)                                | Electric field strength<br>(V/m) | Magnetic field strength<br>(A/m) | Power density<br>(mW/cm <sup>2</sup> ) | Averaging time<br>(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 <sup>2</sup> )                 | 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 <sup>2</sup> )                 | 30                          |
| 30–300                                                  | 27.5                             | 0.073                            | 0.2                                    | 30                          |
| 300–1500                                                |                                  |                                  | f/1500                                 | 30                          |
| 1500–100,000                                            |                                  |                                  | 1.0                                    | 30                          |

### 2. Test Procedure

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

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

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

R = distance to the centre of radiation of the antenna

## 3. Result

| Frequency<br>(MHz) | Maximum<br>Output<br>power<br>(dBm) | Maximum<br>Output<br>power<br>(mW) | Antenna<br>Gain<br>(dBi) | Antenna<br>Gain<br>(numeric) | Distance<br>(cm) | Result<br>(mW/cm <sup>2</sup> ) | Limits for<br>General<br>Population/<br>Uncontrolled<br>Exposure<br>(mW/cm <sup>2</sup> ) |
|--------------------|-------------------------------------|------------------------------------|--------------------------|------------------------------|------------------|---------------------------------|-------------------------------------------------------------------------------------------|
| 802.11b            |                                     |                                    |                          |                              |                  |                                 |                                                                                           |
| 2437               | 16.15                               | 41.21                              | 2.5                      | 1.78                         | 20.00            | 0.0146                          | 1                                                                                         |

Note: Just the worst case mode was shown in report.