CCIS

# 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 (MHz) | Electric field strength (V/m rms) | Magnetic field strength (A/m rms) | Power density ($mW/cm^2$) | Averaging time (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/f2) | 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* | *($180/f^2$) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300–1500 | | | *f*/1500 | 30 |
| 1500–100,000 | | | 1 | 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

CDMA2000 BC0 Uplink (Worst case)

| MODE | Frequency (MHz) | power (dBm) | Ant Gain (dBi) | EIRP (dBm) | EIRP (mW) |
|---|---|---|---|---|---|
| CDMA2000 BC0 | 836.52 | 26 | 20 | 46 | 39810 |

| Limit for controlled ($mW/cm^2$) | Limit for uncontrolled ($mW/cm^2$) | Safety Distance for controlled exposure (cm) | Safety Distance for uncontrolled exposure (cm) |
|---|---|---|---|
| 2.79 | 0.56 | 34 | 76 |

CDMA2000 BC0 Downlink (Worst case)

| MODE | Frequency (MHz) | power (dBm) | Ant Gain (dBi) | EIRP (dBm) | EIRP (mW) |
|---|---|---|---|---|---|
| CDMA2000 BC0 | 878.49 | 38 | 8 | 46 | 39810 |

| Limit for controlled ($mW/cm^2$) | Limit for uncontrolled ($mW/cm^2$) | Safety Distance for controlled exposure (cm) | Safety Distance for uncontrolled exposure (cm) |
|---|---|---|---|
| 2.93 | 0.59 | 33 | 74 |

CDMA2000 BC1 Uplink (Worst case)

| MODE | Frequency (MHz) | power (dBm) | Ant Gain (dBi) | EIRP (dBm) | EIRP (mW) |
|---|---|---|---|---|---|
| CDMA2000 BC1 | 1851.25 | 26 | 20 | 46 | 39810 |

| Limit for controlled ($mW/cm^2$) | Limit for uncontrolled ($mW/cm^2$) | Safety Distance for controlled exposure (cm) | Safety Distance for uncontrolled exposure (cm) |
|---|---|---|---|
| 5 | 1 | 25 | 57 |

CDMA2000 BC1 Downlink (Worst case)

| MODE | Frequency (MHz) | power(dBm) | Ant Gain (dBi) | EIRP (dBm) | EIRP (mW) |
|---|---|---|---|---|---|
| CDMA2000 BC1 | 1988.75 | 38 | 8 | 46 | 39810 |

| Limit for controlled ($mW/cm^2$) | Limit for uncontrolled ($mW/cm^2$) | Safety Distance for controlled exposure (cm) | Safety Distance for uncontrolled exposure (cm) |
|---|---|---|---|
| 5 | 1 | 25 | 57 |