

RF Safety Requirements to 2.1091 for Mobile Transmitters

The unit under evaluation has an integral antenna. The ERP of this device was measured to be 32.4 dBm (1.738 W) at 848.8 MHz.

MPE calculations:

The occupational / controlled exposure limits are 2.83 mW/ cm² at 848.8 MHz.

Using the power density equation:

$$P_d = \frac{P_t G_t}{4\pi r^2}$$

Solving for distance r yields the following equation.

$$r = \sqrt{\frac{P_t G_t}{4\pi P_d}}$$

Inserting the values and solving for r yields r = 7.0 cm.

The power density equation shows that the minimum separation distance to be 7.0 cm. Since the EUT is considered to be a mobile unit, which by definition specifies that the antenna distance is greater than 20 cm, the manual incorporates a caution statement that states that the unit should only be used when a separation of 20 cm is maintained between the antenna and users. This ensures compliance with the MPE requirements.