

6.1 RF Safety Requirements to 2.1091 for Mobile Transmitters

The EUT is being submitted for modular approval. However, due to the design of the transmitter and low duty cycle the manufacturer only expects the EUT to be used in mobile environment. The unit under evaluation has an integral antenna of +2.5 dBi gain with a measured output power output of 0.135 Watts at the antenna terminals. Taking into consideration the gain of the antenna, the corrected EIRP is 240 mW.

The MPE calculations are shown as follows:

The limits for this unit (uncontrolled exposure) are 0.62 mW/cm² (928 MHz/1500).

Taking the RF Density Field Equation:

$$S = \text{EIRP (mW)} / (4\pi R^2) \text{ and solving for Distance R}$$

$$R = \text{SQRT}(\text{EIRP (mW)} / (S4\pi))$$

Plugging in data yields

$$R (\text{cm}) = \text{SQRT} (135 (\text{mw}) / (0.6 (\text{mW/cm}^2) * 4 * \pi)) = 5.6 \text{ cm}$$

The RF Density equation shows that the minimum separation distance to be 5.6 cm. Since the EUT is considered by the manufacturer to be a mobile unit, which by definition specifies that the antenna distance is greater than 20 cm, the manual therefore 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.