

MPE Calculations – User Installation Concerns

The system will be factory calibrated, such that the intentional emissions remain under the 36 dBm (4000mW) max. EIRP as required by Part 15.247. When the system is configured for end-user installation with the Omni-Directional antenna (gain = 8dBi) the EIRP is 35.5dBm

FCC part 1.1310, Table 1 limits the power density for uncontrolled exposure to $1\text{mW}/\text{cm}^2$. The distance, $d(\text{cm})$ from the antenna at which the power density, $P_d(\text{mW}/\text{cm}^2)$ is below this limit is calculated from the maximum EIRP, $P_t(\text{mW})$ using the equation:

$$P_d = 0.75 P_t / (4 \pi d^2)$$

Re-arranging for the distance at which the power density is $1\text{mW}/\text{cm}^2$ gives:

$$d = \sqrt{0.75 P_t / (4 \pi)}$$

For a single Omni-Directional antenna system (which would be the case for instances where the end-user installs the product themselves), the distance d is based on an EIRP of 35.5 dBm (3548 mW):

$$d = \sqrt{0.75 \times 3548 / (4 \pi)} = \underline{\underline{14.6 \text{ cm } (5.7")}}$$

The end-user's installation guide specifies a safety distance of at least 7 inches as shown on the following pages.

2.3 Regulatory safety requirements

- **RF exposure** - When the Network/Power Unit is plugged in, do not go closer than 7 inches (17 cm) of the antenna on the roof