

MPE Calculations

FCC part 1.1310, Table 1 limits the power density for uncontrolled exposure to 1mW/cm² for systems operating in the 15.247 DTS. The distance, d(cm) from the antenna at which the power density, P_d (mW/cm²) is below this limit is calculated from the maximum EIRP, P_t (mW) using the equation:

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

Re-arranging for the distance at which the power density is 1mW/cm² gives:

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

The device under test is designed to use an antenna with a gain of 23 dBi at an output power of 25.1 dBm, giving an EIRP of 48.1 dBm (64565.4 mW). Based on the highest EIRP for the system, the distance at which the power density meets the 1mW/cm² limit for uncontrolled exposure is:

$$d = \sqrt{64565.4 / (4 \pi)} = 71.7 \text{ cm}$$

The users guide instructs the user *(in two separate sections) to install the device such that it has a separation of at least 2 meters from persons (see text below) to comply with the FCC's requirements.

At 20 cm from the antenna, the maximum power density for an EIRP of 64565.4mW is:

$$P_d = P_t / (4 \pi d^2) = 12.85 \text{ mW/cm}^2$$

The calculated safe distance the transmitter will meet the RF exposures levels, from the antenna, will be:

$$d = \sqrt{64565.4 / (4 \pi)} = 71.7 \text{ cm}$$

This separation of 71.7 cm is required to meet the FCC's and Industry Canada Rf exposure requirements.

Installation Note:

To ensure compliance with FCC RF exposure requirements, the antenna used for this device must be installed to provide a separation distance of at least 2 meters from all persons.

RF Exposure Requirements

To ensure compliance with FCC RF exposure requirements, the antenna used for this device must be installed to provide a separation distance of 2 meters from all persons and must not be co-located or operating in conjunction with any other antenna or radio transmitter. Installers and end-users must follow the installation instructions provided in this user guide.