

MPE Calculation for the MKRS512-C Transceiver

SCS Corporation
FCC ID: MKRS512-C
InstaScan Scanner

Table 1 of CFR47 1.1310 sets the MPE for Uncontrolled Exposure at $1\text{mw}/\text{cm}^2$ for the 2.45 GHz frequency range emitted by this device.

$$\begin{aligned}\text{MPE} &= 1\text{ mw}/\text{cm}^2 \\ &= 10\text{ W}/\text{m}^2\end{aligned}$$

Using the equation $P_d = P_t G_t / 4\pi R^2$, where

$$\begin{aligned}P_d &= \text{power density in Watts per square meter} = 10\text{ W}/\text{m}^2 \\ P_t &= \text{transmitted power in Watts} = .7\text{ W} \\ G_t &= \text{numerical gain of transmitting antenna} = 5.6 \\ R &= \text{distance from antenna in meters}\end{aligned}$$

Solving for R,

$$R = \sqrt{.7 * 5.6 / 4\pi * 10}$$

$$\begin{aligned}R &= .177\text{ m} \\ R &= 7.0\text{ inches}\end{aligned}$$

The range at which the power density of the MKRS512-C InstaScan Scanner falls below $1\text{ mw}/\text{cm}^2$ is 7 inches. This information will be included in the MKRS512-C Operation Manual.