Amedo Smart Tracking Solutions GmbH
MPE / RF exposure analysis for FCC ID: O8M100890-001

Product information:
The medical UHF reader serves the programming and the readout of EPCglobal Class 1 Gen 2 compatible RFID UHF tags. In connection with suitable application software the medical UHF reader is able to locate and identify objects that are fitted with RFID tags.
Type of device: Stationary, fixed installation
Type of use: Programming and readout of UHF RFID transponders via an air interface.
Place of use: The medical UHF reader can be operated inside and outside buildings.
User group: The medical UHF reader must be assembled by trained persons with adequate
                 knowledge in the RFID sector and FCC part 15.
Prerequisites for use in the USA: The system must be professionally integrated and installed to ensure compliance with FCC part 15 rules in the United States. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States.

Calculation:
The following equation is generally accurate in the far field of an antenna but will over predict power density in the near field, where it could be used for making a "worst case" prediction.

$$S = \frac{PG}{4\Pi R^2}$$

Where
S = power density (in appropriate units e.g. mW/cm²)
P = power gain of the antenna in the direction of interest relative to the isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units e.g. cm)

Or

$$S = \frac{EIRP}{4\Pi R^2}$$

Where
EIRP = equivalent isotropically radiated power (PG)

The minimum distance is calculated by:
- Maximum permissible exposure (MPE) limits (IEEE C95.1) for uncontrolled exposure:
  902 MHz/1500 = 0.601 mW/cm² power density
- Calculated for the maximal EIRP of 4W EIRP

$$R = \sqrt{\frac{EIRP}{4\Pi S}} = \sqrt{\frac{4000}{4\Pi 0.601}} = 23.0137 \, cm$$

The minimum distance meets the requirements of FCC rule part 1.1310, Table 1(B):
Limits for general Population / Uncontrolled Exposure, for this device is 24 cm