

The following is the RF exposure calculation for the NextNav, LLC Metropolitan Beacon System (MBS). The MBS is a radio device intended to be used in a fixed or mobile locations – at least more than 20 cm from the user or nearby person.

The calculation is based on FCC 47CFR 1.1310 and OET 65.

Per FCC sec 1.1310:

Maximum Permissible Exposure (MPE) **for General Population/Uncontrolled Exposure** in the frequency range 300-1500 MHz is:

$$\text{Freq. (MHz)} / 1500 = \text{MPE mW/cm}^2$$

For the Frequencies from 920.7 MHz to 928.0 MHz, the worst case
 $\text{MPE} = 920.7 / 1500 = 0.614 \text{ mW/cm}^2 = 6.14 \text{ W/m}^2$

The following equations determine the distance from the antenna that the Power Density (S) is: $S \leq 6.14 \text{ W/m}^2$.

The Maximum ERP is 30 W (adjusted for any antenna used), and EIRP is 49.2 W.

Power Density

$$S = (\text{EIRP}) / (4 \times \pi \times D^2) \quad (1)$$

Minimum distance

$$D \geq \sqrt{(\text{EIRP}) / (4 \times \pi \times S)} \quad (2)$$

From (2)

$$D \geq \sqrt{49.2 / (4 \times \pi \times 6.14)} = 0.8 \text{ m}$$

The following statement is added to the installation/operation manual:

To comply with Maximum Permissible Exposure (MPE) requirements the antenna must be permanently installed in a fixed location that provides at least 1 meters of separation from all persons.