

**MPE Calculation  
for  
FCC ID: OWS-NIC506  
IC: 5975A-NIC506**

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The SilverSpring Networks eBridge is 900MHz FHSS module.

**Operating Environment:**

The operating environment for the for the radio in all cases is a fixed, uncontrolled environment, however, the devices are classified as being “Mobile”, Therefore the exposure at 20 cm is calculated. However the level of exposure at 20 cm is above the limei, therefore the device will be installed at a distance of 23 cm. See the calculations below.

**Fixed, Uncontrolled Environment: (OET65/C Appdx A)**

The FCC limit for the power density for uncontrolled exposure to RF devices operation at 900MHz at a distance of 20 cm is:

$$f \text{ (MHz)}/1500 = 900/1500 = .6\text{mW/cm}^2$$

Power density is calculated from the following equation

$$\text{Exposure (mW/cm}^2\text{)} = \frac{\text{EIRP (mW)} * \text{Duty Cycle}}{4 * \text{PI} * \text{Radius}^2 \text{ (cm)}}$$

Where:

Radius = 20 cm

Duty Cycle = assumed to be 100% to yield a worst case result.

The maximum allowed external antenna gain on 900MHz is 6 dBi

The transmit power is 29.94 dBm, 986.28 mW

**900MHz ISM band MPE distance Calculation at 20cm**

Using the EIRP measured on 900MHz ISM band.

MAX Pout: 29.94dBm

MAX Ant Gain 6 dBi (4 x)

EIRP: 35.94 dBm (3945.12mW EIRP)

Calculating power density at a distance of 20 cm yields:

$$\text{Power Density} = \frac{3945.12 * 1}{4 * \text{Pi} * 20^2} \Rightarrow \frac{3945.12}{5026.54} \Rightarrow .7848 \text{ mw/cm}^2$$

**900MHz ISM band MPE distance Calculation at 23cm**

This is above the allowable power density level for a 20 cm separation distance. Therefore the device will be installed in such a manner as to provide a separation distance of **23** cm between the device and all persons.

$$\text{Power Density} = \frac{3945.12 * 1}{4 * \text{Pi} * 23^2} \Rightarrow \frac{3945.12}{6647.61} \Rightarrow .5934 \text{ mw/cm}^2$$