RF Exposure Information:

The device is compliant with both MPE requirements (47CFR2.1091) as well as SAR requirements (47CFR2.1093).

Calculation for compliance with MPE requirements (47CFR2.1091) is done using a worst-case transmitter power of 250 mW, assumption of a unity gain antenna, and an exposure limit of 0.6 mW/cm^2 (f/1500 mW/cm^2 at 20 cm per 47CFR1.1310) for general applications. This device is not carried or worn by the user. It has an extremely low duty cycle and a low rate of transmission that dramatically reduces the average power level that could pose an exposure hazard.

The averaging interval specified in Table 1(B) of 47CFR1.1310 is 30 minutes. Every message round transmitted by the EN5000 is 22.4 msec long, including the preamble, and contains system status. Every hour up to 6 pagers may check in. The EN5000 will send a 2 round acknowledgment to each of these messages, 12 rounds in one hour. For the purposes of this calculation, it is assumed that 10 rounds will be sent in a 30-minute period. A round is 22.4 ms in length.

The worst-case average power density at a distance of 20 cm is then,

$$250mW \times \frac{10 rounds}{30\,\text{min}} \times \frac{22.4ms}{rounds} \times \frac{1\,\text{min}}{60 \times 10^3 ms} \times \frac{1}{4\pi(20cm)^2} = 6.189 \frac{nW}{cm^2}$$

This is well below the 0.6 mW/cm^2 MPE limit.

Calculation for compliance with SAR requirements (47CFR2.1093) is done using a worst-case transmitter power of 250 mW time-averaged by the duty cycle of the transmitter, and the assumption that all RF energy could be absorbed in 1 gram of tissue. The peak exposure limit is 1.6 mW/g (equivalent to 1.6 W/kg per 47CFR2.1093) in any 1 gram of tissue for General Population/Uncontrolled applications.

In any 3-minute interval, worst-case 3 pagers could check in causing 2 round acknowledgments for each.

The maximum duty cycle of the device is,

$$\frac{6 rounds}{3\,\text{min}} \times \frac{22.4ms}{rounds} \times \frac{1\,\text{min}}{60 \times 10^3 ms} = 0.00074 = 0.074\%$$

The time-averaged RF transmitted power is then,

$$0.250W \times 0.00074 = .185mW$$

If all of the transmitted power were absorbed in a 1-gram sample of tissue, the resulting power density is .185 mW/gram and is well below the 1.6 mW/gram limit.