9. RF Exposure Information:

Calculation for compliance with SAR requirements (47CFR2.1093) is done by applying a maximum transmitter power of 50 mW time averaged by the duty cycle of the transmitter, and the absolute worst case assumption that all of the RF energy is absorbed in the tissue.

The EN3954 operates in two modes, periodic check-in and user initiated pages. The unit would typically be in a holster or on a lanyard during the periodic check-in mode. In this case the peak exposure limit is 1.6 mW/g (equivalent to 1.6 W/kg, 47CFR2.1093). The quickest check-in interval is one minute. During a check-in 3 redundant packets are sent. Each packet has transmission duration of 22ms.

The time-averaged power (over a 30 minute interval) is then:

$$50mW \times \frac{(30 \times 3)\,packets}{30\,\min} \times \frac{22ms}{packet} \times \frac{1\,\min}{60 \times 10^3\,ms} = 0.055mW$$

If all of the transmitted power were absorbed in a 1-gram sample of tissue, the power density is 0.055mW/g and is well below the 1.6W/kg (1.6mW/g) limit.

For user initiated pages the device would be held in the users hand while the pages are initiated by navigating through a menu structure. In this case the peak exposure limit is 4.0 W/kg as averaged of any 10 grams of tissue. For worst case analysis, assume that the user sends 1 page every 10 seconds (about the time it takes to execute a typical page). Each page consists of 3 redundant packets of 22ms duration.

$$50mW \times 30\,\min \times \frac{60s}{1\,\min} \times \frac{1page}{5s} \times \frac{3\,packets}{page} \times \frac{22ms}{packet} \times \frac{1\,\min}{60 \times 10^3\,ms} = 0.66mW$$

If all of the transmitted power is absorbed in the 10 grams of tissue, the power density would be 0.066mW/g (0.66mW/10grams). This is well below the 4.0W/kg (4mW/g) limit.