9. RF Exposure Information:

The duty cycle is calculated over a 100 mSec averaging window as specified in the rules. The longest message contains a total of 213 pulses each 20 uSec in duration, for a total transmitter on time of 4.26 mSec which represents a worst-case duty cycle of 4.26%. The duty cycle correction used is the maximum of 10%.

Calculation for compliance with MPE requirements (Section 2.1091) using a worst case of 0.25 Watt, unity antenna gain, and the f/300 (mW/cm^2) limit for general applications. This device is used in fixed locations and is not carried or worn by the end user. The key factor is duty cycle. Under normal conditions, a 12-packet message is sent a maximum of once every 15 minutes. Worst case, a 12-packet message is sent once per minute or 72 packets in a 6 minute period.

Total On time per packet = 4.26 mSec (for maximum packet length)
Duty Cycle = (4.26 x 72) mSec/(6x60x1000) mSec = 0.0852%
EIRP = (0.25W)(0.000852) = 213 microwatt. Using a distance of 20 cm:
213 microwatt / (4 pi 20^2) = 42.38 nW/cm^2

The Dwell Time is the length of one packet. The worst case dwell time for an extended length packet is 40.1 mSec. The standard packet is about 30 mSec duration. A worst case transmission rate, corresponding to a repeated change of state transmissions would result in a maximum of 12 packets in any 10 second period with each packet on a different frequency. The maximum dwell time is thus the dwell time of an extended packet or 40.1 ms.