

The Recon Dynamics Asset Tracker is used beyond 20 cm of the body thereby classifying this product as a mobile device as defined in part 2.1091(b) of the FCC rules. The Maximum Permissible Exposure (MPE) limits are defined in FCC rules 1.1310. For the general population / uncontrolled exposure category, the MPE is defined by the formula;

$$f/1500, f \text{ in MHz}$$

$$\text{for } f = 910 \text{ MHz, the MPE is } 910/1500 = 0.6067 \text{ mW/cm}^2$$

The Asset Tracker device firmware has hard coded limits for the maximum transmitter duty cycle. An Asset Tracker device in an alarm condition can produce two RF bursts of 93 milliseconds each every 10 seconds. This equates to a maximum transmitter duty cycle of $((93+93)*10^{-3})/10 = 0.0186$ or 1.86%.

From the OET Bulletin 65, August 1997, formula (4) is used to calculate the maximum permissible exposure at 20 cm for the Asset Tracker device.

$$S = \frac{EIRP}{4\pi R^2} \quad (4)$$

300-1500 MHz (B) Limits for General Population / Uncontrolled Exposure		
Ptx (dBm)	30	
Ant gain(dBi)	2	
Freq (MHz)	910	
Ptot (dBm)	32	Ptx (dBm) + Ant Gain (dBi)
Ptot (W EIRP)	1.584893	$0.001*10^{(Ptot(dBm)/10)}$
Ptot (mW EIRP)	1584.893	Ptot (W EIRP) * 1000 mW/W
Duty Factor	0.0186	
Ptot (mW EIRP ave)	29.4790	Ptot (mW EIRP) * Duty Factor
R (cm)	20	
S calculated @ 20 cm (mW/cm ²)	0.0059	Pass MPE requirement

The above calculation shows that the Asset Tracker device is below the MPE limits for exposure to the general population.