$W := 0.1$ power in Watts $D := .5$ Duty Factor in decimal % (1=100%)

$E := 30.0$ exposure time in minutes $U := 30$ (use 6 for controlled and 30 for uncontrolled)

$$Wexp := W \cdot D \cdot \left(\frac{E}{U} \right) \qquad\qquad PC := \frac{E}{U}$$

$$PC = 1 \qquad \text{percent on time}$$

$$Wexp = 0.05 \qquad \text{Watts}$$

$Po := 50$ mWatts $dBd := 13$ antenna gain $f := 480$ Frequency in MHz

$$G := dBd + 2.15 \qquad \text{gain in dBi}$$

$$Gn := 10^{\frac{G}{10}} \quad \text{gain numeric} \qquad\qquad S := \frac{f}{1500} \qquad \text{controlled exposure}$$

300 for controlled

1500 for uncontrolled

$$Gn = 32.734 \qquad\qquad S = 0.32$$

$$R := \sqrt{\frac{(Po \cdot Gn)}{(4 \cdot \pi \cdot S)}} \qquad\qquad Rinches := \frac{R}{2.54}$$

$$R = 20.175 \qquad \text{distance in centimeters}$$

required for compliance

$$Rinches = 7.943$$