# RF Exposure MPE Exhibit

As per OET Bulleting 65 Maximum permissible exposure limit is derived from Freq. (MHz)/1500 = MPE mW/cm$^2$
406 MHz/1500 = 0.271 mw/cm$^2$

The following calculations determine what the power density is at a distance of 20 cm.

Tx output power conducted = 33 dBm
Antenna Gain = 5 dBi or 3.2 numeric gain
Duty cycle factor = 10 log $\frac{25\text{ ms}}{250\text{ ms}}$ = -10 dB
Corrected EIRP = 28 dBm or 600 mW

**Duty cycle explanation:** The duty cycle factor was applied based on the operating conditions of the transmitter, which is designed to transmit for a maximum of 25 ms every 250 ms- 16 seconds, 5 times in sequence then the the transmitter keys off. This transmission sequence only occurs when there is an alarm condition or and alarm system code is typed in by the user (enter/exit premises). Therefore the overall effect on EIRP of the transmitter output power for RF exposure is a reduction in the EIRP to 28 dBm or 600 mW

**Antenna gain information:** This product uses and integral antenna or alternatively can be used with an external antennal. The maximum allowable gain for the external antenna is 5 dbi, which is the gain for the integral antenna. Therefore the worst case gain is 5 dbi

**MPE Calculation for Power density at 20 cm distance**

$$PowerDensity = Pd(\text{mW/cm}^2) = \frac{EIRP}{4\pi d^2}$$

$$PowerDensity = Pd(\text{mW/cm}^2) = \frac{600}{4\pi.400^2}$$

**Power Density at 20 cm distance = .119 mw/cm$^2$**

*Power Density = Pd(mW/cm$^{2)}$*
*d= distance in cm$^2$*