

APPENDIX D: RF EXPOSURE / MPE CALCULATION

The frequency range for the EUT is 450 – 490 MHz; 470 MHz is used for the MPE calculations below. Per 1.1310 Table 1, the maximum power density allowed for the EUT is $f / 300 = 470 / 300 = 1.57 \text{ mW/cm}^2$ for an occupational/controlled exposure environment and $f / 1500 = 470 / 1500 = 0.31 \text{ mW/cm}^2$ for a general population/uncontrolled exposure environment.

The antenna is a half-wave dipole with gain of 2.15 dBi (1.64 numeric).

The manufacturer's rated power of the EUT is 25 +/- 1 W. The EUT as supplied had a measured conducted power of 25.8 W. The MPE distance is also calculated at 26 W to present the worst case MPE distance. The EUT has a maximum 50% duty cycle; this factor has been applied to the power in the following table.

MPE is calculated per the following equation (solving for d):

$$S = (P \times G) / (4 \times \pi \times d^2)$$

where:

S = power density

P = transmitter conducted power in (W)

G = antenna numeric gain

d = distance to radiation center (m)

Power Notes	Antenna Numeric Gain	Conducted Power (W)	Minimum Separation Distance (cm)
EUT as supplied	1.64	12.9	73.3*
Manufacturer's maximum power rating	1.64	13.0	73.6*

Note: *General Population/Uncontrolled Environment