# MPE Calculations

**RF Exposure Requirements:**

**§1.1307(b)(1) and §1.1307(b)(2):** Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

**RF Radiation Exposure Limit: §1.1310:**

As specified in this section, the Maximum Permissible Exposure (MPE) Limit shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Sec. 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of Sec. 2.1093 of this chapter.

**MPE Limit Calculations:**

1) EUT operating frequency bands 2400 and 5500 MHz. Highest conducted power is 24.3 dBm in 2400 MHz band. Maximum 5 dBi antenna gain.

Power Density Determination:
$S = PG / 4\pi R^2$ or $R = \sqrt{(PG / 4\pi S)}$
where, S = Power Density ($mW/cm^2$)
P = Linear Power Input to antenna in mW (269 mW peak)
G = Numerical Antenna Gain (3.16)
R = Radius (20cm , as noted in installation instructions)
$S = (269*3.16/4\pi 20^2) = (850/5026.5) = 0.169$ $mW/cm^2$ @ 20cm

General population/uncontrolled exposure MPE limit > 1500 MHz is 1.0 $mW/cm^2$ per §1.1310. Therefore, device complies with MPE limit when it is installed in accordance with installation instructions.