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:

EUT operating frequency band 2412-2462 MHz; highest conducted power = 30 dBm (peak) .

Maximum antenna gain = 5 dBi.

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 (1000 mW)
G = Numerical Antenna Gain (3.16)
R = Radius (45cm or 18 in, as noted in installation instructions)
$S = 1000*3.16/4\pi 45^2) = (3160/25{,}447) = 0.124$ mW/cm^2 @ 45cm

2412-2462 MHz band: General population MPE limit = 1 mW/cm^2

Therefore, calculated MPE is below applicable limit at the user distance specified.