§ 15.407(f)   RF Exposure

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 Calculation: EUT's operating frequencies @ 5150-5250 MHz and 5725-5850 MHz;
Limit for Uncontrolled exposure: 1 mW/cm^2 or 10 W/m^2

Equation from page 18 of OET 65, Edition 97-01

$$S = PG / 4\pi R2 \qquad or \qquad R = \sqrt{PG} / 4\pi S$$

where,   S = Power Density
P = Power Input to antenna
G = Antenna Gain
R = Minimum Distance between User and Antenna

Band 5150-5250 MHz

The limit for maximum RF exposure for 5.1GHz device is 1mW/cm^2
The formula for calculating RF exposure is given as $S = \dfrac{PG}{4\pi R^2}$
Output Power = 24.19 dBm

Antenna Gain = 10.47 dBi

Power density is equal to 0.5817 mW/cm^2.
R=20cm

Band 5725-5850 MHz

The limit for maximum RF exposure for 5.8GHz device is 1mW/cm^2
The formula for calculating RF exposure is given as $S = \dfrac{PG}{4\pi R^2}$
Output Power = 28.37 dBm

Antenna Gain = 7.04 dBi

Power density is equal to 0.69140 mW/cm^2.
R=20cm