

Exposure limit according to §15.247(i)

The actuator is classified as a mobile device.

The FCC limit for power density for general population/uncontrolled exposure is 1 mW/cm² for 2.4 GHz.

The power density $P \text{ (mW/cm}^2\text{)} = P_T / 4\pi r^2$

P_T is the transmitted power, which is equal to the peak transmitter output power 18.09 dBm plus maximum antenna gain 1.5 dBi, the maximum equivalent isotropically radiated power EIRP is

$$P_T = 18.09 \text{ dBm} + 1.5 \text{ dBi} = 19.59 \text{ dBm} = 91 \text{ mW}.$$

The power density at 20 cm (minimum safe distance, required for mobile devices), calculated as follows:

$$91 \text{ mW} / 4\pi (20 \text{ cm})^2 = 0.02 \text{ mW/cm}^2 \ll 1 \text{ mW/cm}^2$$

General public cannot be exposed to dangerous RF level.