Environmental evaluation and exposure limit according to FCC CFR 47part 1, §1.1307, §1.1310

The Smoke and heat detector are classified as a mobile device. The Wireless Transceiver includes transmitter operating according to FCC part 15 subpart C section 15.247 (FHSS)

The FCC limit for power density for general population/uncontrolled exposure is f/1500 mW/cm^2 for 300 – 1500 MHz frequency range:

$$P = 912.75/1500 = 0.61\ mW/cm^2$$

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

P_T is the transmitted power, which is equal to the peak transmitter output power 20.30 dBm plus maximum antenna gain -5 dBi, the maximum equivalent isotropically radiated power EIRP is

$$P_T = 20.30\ dBm + (-5)\ dBi = 15.3\ dBm = 33.88\ mW.$$

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

$$\text{Compliance with FCC limit: } 33.88\ mW / 4\pi\ (20\ cm)^2 = 0.007\ mW/cm^2 << 0.61\ mW/cm^2$$

General public cannot be exposed to dangerous RF level.