

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

The Smart grid sensor is classified as a fixed device. The Smart grid sensor includes transmitter operating according to FCC part 15 subpart C section 15.247 (FHSS)

Limit for power density for general population/uncontrolled exposure is $f/1500$ mW/cm² for 300 – 1500 MHz frequency range:

$$P = 915/1500 = 0.61 \text{ mW/cm}^2$$

The power density **P (mW/cm²)** = $P_T / 4\pi r^2$, where

PT is the transmitted power, which is equal to the peak transmitter output power 28.21 dBm plus maximum antenna gain (-1.3)dBi, the maximum equivalent isotropically radiated power EIRP is

$$PT = 28.21\text{dBm} + (-1.3)\text{dBi} = 26.91\text{dBm} = 490.907\text{mW}$$

28.21 dBm is the EUT maximum output power with the tune up tolerance, -1.3 dBi – antenna gain.

The minimum safe distance “r”, where RF exposure does not exceed FCC permissible limit, is

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{490.907 / 0.61 \times 12.56} = 8.0 \text{ cm} .$$

A warning about a safe distance provided in the user guide.