

Calculation: RF-Exposure

Worse case calculation (duty cycle = 100%)

Type identification: SR-450 Smart Radio (UHF-version with 6 W output)

In accordance to the **CFR Part 47, §1.1310**

S: Limit for power density according to CFR Part 47, §1.1310:

$$f(\text{MHz}) / 1500 = 410/1500 = 0.273 \text{ mW/cm}^2 = \mathbf{2.73 \text{ W/m}^2}$$

P: maximum conducted rf-power: **6 W**

D: Duty cycle: **100 %**

G: antenna gain: e.g. 10 dBd = 12,15 dBi = 16.41

R: minimum distance to the center of radiation of the antenna (m),

$$S = \frac{P * G}{4 * \pi * R^2} \quad \Rightarrow \quad R_2 = \sqrt{\frac{P * D * G}{4 * \pi * S}} = \sqrt{\frac{6W * 16.41}{4 * \pi * 2.73 \frac{W}{m^2}}} = 1.69m$$

The transceiver is classified as mobile device therefore the distance between the transmitting antenna and human body shall be at least **1.69 m**

The limit for "General Population/Uncontrolled Exposure" of the power density is 2.73 W/m² acc. to CFR Part 47, §1.1310