

Calculation: RF-Exposure for 2.4 GHz transmitter

Type identification:

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

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

$$10 \text{ W/m}^2$$

P: 262 mW *¹ (averaged over 30 min)
*¹ combined transmission power for 2 transmit chains,

G: 6.01 dBi *² = 4
*² Combined antenna gain for 2 antennas with 3 dBi antenna gain for each antenna

D: Duty cycle: 100 % = 1

R: Distance in what the limit of S has to be reached: 0.2 m

$$S = \frac{P \cdot G \cdot D}{4 \cdot \pi \cdot R^2} \Rightarrow \underline{\underline{S}} = \frac{0.262 \text{ W} \cdot 4.0 \cdot 1}{4 \cdot \pi \cdot (0.2 \text{ m})^2} = \underline{\underline{2.09 \frac{\text{W}}{\text{m}^2}}}$$

The value for the “General population / Uncontrolled Exposure” of the power density is below the limit of CFR Part 47, §1.1310.

Calculation: RF-Exposure for 5 GHz transmitter

Type identification:

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

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

$$10 \text{ W/m}^2$$

P: 113 *¹ mW (averaged over 30 min)
*¹ combined transmission power for 2 transmit chains

G: 8.01 dBi *² = 6.3
*² Combined antenna gain for 2 antennas with 5 dBi antenna gain for each antenna

D: Duty cycle: 100 % = 1

R: Distance in what the limit of S has to be reached: 0.2 m

$$S = \frac{P \cdot G \cdot D}{4 \cdot \pi \cdot R^2} \Rightarrow \underline{\underline{S}} = \frac{0.113 \text{ W} \cdot 6.3 \cdot 1}{4 \cdot \pi \cdot (0.2 \text{ m})^2} = \underline{\underline{1.41 \frac{\text{W}}{\text{m}^2}}}$$

The value for the “General population / Uncontrolled Exposure” of the power density is below the limit of CFR Part 47, §1.1310.