

MAXIMUM PERMISSIBLE EXPOSURE FOR SUBPART C 2.4 GHz BAND**Calculations**

Power density at the specific separation:

$$S = PG/(4R^2\pi)$$
$$S = (142.89 * 3.162) / (4 * 20^2 * \pi)$$
$$S = 0.08988637 \text{ mW/cm}^2$$

where

S = Maximum power density (mW/cm²)
P = Power input to the antenna (mW) – 21.55 dBm
G = Numeric power gain of the antenna
R = distance to the center of the radiation of the antenna (20 cm = limit for MPE)

The maximum permissible exposure (MPE) for the general population is 1 mW/cm².

The power density at 20 cm does not exceed the 1 mW/cm². Therefore, the exposure condition is compliant with FCC rules.

The numeric gain (G) of the antenna with a gain specified in dB is determined by:

$$G = \text{Log}^{-1} (\text{dBi antenna gain}/10)$$
$$G = \text{Log}^{-1} (5 \text{ dBi}/10)$$
$$G = 3.162$$