

**** MPE Calculations ****

The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

$EIRP = P + G$ $EIRP = 7.04 \text{ dBm} + 0 \text{ dBi}$ $EIRP = 7.04 \text{ dBm}$	Where, $P =$ Power input to the antenna (mW) $G =$ Power gain of the antenna (dBi)
--	--

Power density at the specific separation:

$S = PG / (4R^2 \pi)$ $S = (5.06 * 1.00) / (4 * 20^2 * \pi)$ $S = 0.0010 \text{ mW/cm}^2$	Where, $S =$ Maximum power density (mW/cm ²) $P =$ Power input to the antenna (mW) $G =$ 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 does not exceed the 1 mW/cm² limit.

Therefore, the exposure condition is compliant with FCC rules.

Estimated safe separation:

$R = \sqrt{PG / 4 \pi}$ $R = \sqrt{5.06 * 1.00 / 4 \pi}$ $R = 0.63 \text{ cm}$	Where, $P =$ Power input to the antenna (mW) $G =$ Numeric power gain of the antenna $R =$ Distance to the center of the radiation of the antenna (20 cm = limit for MPE)
--	---

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

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

$$G = \text{Log}^{-1} (0 / 10)$$

$$G = 1.00$$