

**\*\* MPE Calculations \*\***

The MPE calculation for this exposure is shown below.

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

$EIRP = P + G$ $EIRP = 8.25 \text{ dBm} + 0.6 \text{ dBi}$ $EIRP = 8.85 \text{ dBm}$	Where, $P =$ Power input to the antenna (mW) $G =$ Power gain of the antenna (dBi)
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**Power density at the specific separation:**

$S = PG / (4R^2 \pi)$ $S = (6.68 * 1.15) / (4 * 20^2 * \pi)$ $S = 0.0013 \text{ mW/cm}^2$	Where, $S =$ Maximum power density ( $\text{mW/cm}^2$ ) $P =$ 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)
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The Maximum permissible exposure (MPE) for the general population is  $1 \text{ mW/cm}^2$ .

The power density does not exceed the  $1 \text{ mW/cm}^2$  limit.

Therefore, the exposure condition is compliant with FCC rules.

**Estimated safe separation:**

$R = \sqrt{PG / 4 \pi}$ $R = \sqrt{6.68 * 1.15 / 4 \pi}$ $R = 0.78 \text{ cm}$	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)
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The numeric gain(G) of the antenna with a gain specified in dB is determined by:

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

$$G = \text{Log}^{-1} (0.6 / 10)$$

$$G = 1.15$$