

**** MPE Calculations ****

The MPE calculation for this exposure is shown below.

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

| | |
|-----------------------------|-------------------------------------|
| EIRP = P + G | Where, |
| EIRP = -2.00 dBm + 1.59 dBi | P = Power input to the antenna (mW) |
| EIRP = -0.41 dBm | G = Power gain of the antenna (dBi) |

Power density at the specific separation:

| | |
|--|--|
| $S = PG / (4R^2 \pi)$ | Where, |
| $S = (0.63 * 1.44) / (4 * 20^2 * \pi)$ | S = Maximum power density (mW/cm ²) |
| $S = 0.0002 \text{ mW/cm}^2$ | 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 (20cm = 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:

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|------------------------------------|--|
| $R = \sqrt{PG / 4 \pi}$ | Where, |
| $R = \sqrt{(0.63 * 1.44 / 4 \pi)}$ | P = Power input to the antenna (mW) |
| $R = 0.27 \text{ Cm}$ | G = Numeric power gain of the antenna |
| | R = Distance to the center of the radiation of the antenna (20cm = limit for MPE) |

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

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

$$G = \text{Log}^{-1} (1.59 / 10)$$

$$G = 1.44$$