

**** 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 = 10.41 dBm + 3.423dBi EIRP = 13.833 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 π) S = (10.99 * 2.2) / (4 * 20 ² * π) S = 0.0048 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 (20cm = limit for MPE)
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The Maximum permissible exposure (MPE) for the general population is 1 mW/cm² .

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

Estimated safe separation:

R = √(PG / 4 π) R = √(10.99 * 2.2 / 4 π) R = 1.39 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 (20cm = limit for MPE)
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The numeric gain(G) of the antenna with a gain specified in dB is determined by:

G = Log⁻¹ (dB antenna gain / 10)

G = Log-1 (3.423 / 10)

G = 2.2