

## \*\* 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 = 7.71 dBm + 1.12 dBi	P = Power input to the antenna (mW)
EIRP = 8.83 dBm	G = Power gain of the antenna (dBi)

### Power density at the specific separation:

S = PG/(4R <sup>2</sup> π )	Where,
S = (5.90 * 1.29) / (4 * 20 <sup>2</sup> * π )	S = Maximum power density (mW/cm <sup>2</sup> )
S = 0.0015 mW/cm <sup>2</sup>	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/cm<sup>2</sup> .

The power density does not exceed the 1 mW/cm<sup>2</sup> limit.

Therefore, the exposure condition is compliant with FCC rules.

### Estimated safe separation:

R = √(PG / 4 π )	Where,
R = √(7.71*1.15 / 4 π )	P = Power input to the antenna (mW)
R = 0.78 cm	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:

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

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

$$G = 1.29$$