

## APPENDIX B – MPE CALCULATION

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

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

$EIRP = P + G$ $EIRP = 12.40 \text{ dBm}$	Where, $P$ = Power input to the antenna (mW) $G$ = Power gain of the antenna (dBi)
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The numeric gain( $G$ ) of the antenna with a gain specified in dB is determined by:

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

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

$$G = 0.79$$

### Power density at the specific separation:

$S = PG / (4R^2 \pi)$  $S = (17.38 * 0.79) / (4 * 20^2 * \pi)$  $S = 0.0027 \text{ mW/cm}^2$	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 (20cm = 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 at 20cm does not exceed the  $1 \text{ mW/cm}^2$  limit.

### Estimated safe separation:

$R = \sqrt{(PG / 4 \pi)}$  $R = \sqrt{(17.38 * 0.79 / 4 \pi)}$  $R = 1.05 \text{ cm}$	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 (20cm = limit for MPE)
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