

**APPLICANT: FHP**  
**FCC ID: P9JWMR530-01-00BC**  
**MPE CALCULATION for 7.4 dBi ANTENNA**

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Formula used in the MPE Calculations:

$$\begin{aligned} E^2/3770 &= S, \text{ mW/cm}^2 \\ P_{\text{watts}} * G_{\text{gain}} &= 10^{(P_{\text{dBm}} - 30 + G_{\text{dBi}})/10} \\ E, \text{ V/m} &= (P_{\text{watts}} * G_{\text{gain}} * 30)^{0.5} / d, \text{ meters} \\ d &= ((P_{\text{watts}} * G * 30) / 3770 * S)^{0.5} \quad \text{----- (A)} \end{aligned}$$

Since

$$\begin{aligned} S (\text{mW/cm}^2) &= 1.00 \quad \text{from 1.1310 Table 1} \\ P (\text{dBm}) &= 19.02 \quad \text{EUT output power} \\ G (\text{dBi}) &= 7.40 \quad \text{EUT antenna gain} \end{aligned}$$

Substitute these parameters into the A above, we have

$$\text{MPE safe distance } d (\text{cm}) = 5.91$$

NOTE: For mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less

**MPE CALCULATION for 1.5 dBi ANTENNA**

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Formula used in the MPE Calculations:

$$\begin{aligned} E^2/3770 &= S, \text{ mW/cm}^2 \\ P_{\text{watts}} * G_{\text{gain}} &= 10^{(P_{\text{dBm}} - 30 + G_{\text{dBi}})/10} \\ E, \text{ V/m} &= (P_{\text{watts}} * G_{\text{gain}} * 30)^{0.5} / d, \text{ meters} \\ d &= ((P_{\text{watts}} * G * 30) / 3770 * S)^{0.5} \quad \text{----- (A)} \end{aligned}$$

Since

$$\begin{aligned} S (\text{mW/cm}^2) &= 1.00 \quad \text{from 1.1310 Table 1} \\ P (\text{dBm}) &= 19.02 \quad \text{EUT output power} \\ G (\text{dBi}) &= 1.50 \quad \text{EUT antenna gain} \end{aligned}$$

Substitute these parameters into the A above, we have

$$\text{MPE safe distance } d (\text{cm}) = 2.99$$

NOTE: For mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less