

PROXIM PROJECT: 02U1141-1

MPE CALCULATION for 5 dBi ANTENNA

Formular used in the MPE Calculations:

$$E^2/3770 = S, \text{ mW/cm}^2$$

$$P_{\text{watts}} * G_{\text{gain}} = 10^{(P_{\text{dBm}} - 30 + G_{\text{dBi}})/10}$$

$$E, \text{ V/m} = (P_{\text{watts}} * G_{\text{gain}} * 30)^{.5}/d, \text{ meters}$$

$$d = ((P_{\text{watts}} * G * 30) / (3770 * S))^{.5} \text{ ----- (A)}$$

Since

$$S (\text{mW/cm}^2) = 1.00 \quad \text{from 1.1310 Table 1}$$

$$P (\text{dBm}) = 12.6 \quad \text{EUT output power}$$

$$G (\text{dBi}) = 5.0 \quad \text{EUT antenna gain}$$

Substitute these parameters into the A above, we have

$$\text{MPE safe distance } d (\text{cm}) = 2.1$$

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

MPE CALCULATION for 7 dBi ANTENNA

Formular used in the MPE Calculations:

$$E^2/3770 = S, \text{ mW/cm}^2$$

$$P_{\text{watts}} * G_{\text{gain}} = 10^{(P_{\text{dBm}} - 30 + G_{\text{dBi}})/10}$$

$$E, \text{ V/m} = (P_{\text{watts}} * G_{\text{gain}} * 30)^{.5}/d, \text{ meters}$$

$$d = ((P_{\text{watts}} * G * 30) / (3770 * S))^{.5} \text{ ----- (A)}$$

Since

$$S (\text{mW/cm}^2) = 1.00 \quad \text{from 1.1310 Table 1}$$

$$P (\text{dBm}) = 12.6 \quad \text{EUT output power}$$

$$G (\text{dBi}) = 7.0 \quad \text{EUT antenna gain}$$

Substitute these parameters into the A above, we have

$$\text{MPE safe distance } d (\text{cm}) = 2.7$$

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

MPE CALCULATION for 12 dBi ANTENNA

Formular used in the MPE Calculations:

$$E^2/3770 = S, \text{ mW/cm}^2$$

$$P_{\text{watts}} * G_{\text{gain}} = 10^{(P_{\text{dBm}} - 30 + G_{\text{dBi}})/10}$$

$$E, \text{ V/m} = (P_{\text{watts}} * G_{\text{gain}} * 30)^{.5} / d, \text{ meters}$$

$$d = ((P_{\text{watts}} * G * 30) / 3770 * S)^{.5} \text{ ----- (A)}$$

Since

$$S (\text{mW/cm}^2) = 1.00 \quad \text{from 1.1310 Table 1}$$

$$P (\text{dBm}) = 12.6 \quad \text{EUT output power}$$

$$G (\text{dBi}) = 12.0 \quad \text{EUT antenna gain}$$

Substitute these parameters into the A above, we have

$$\text{MPE safe distance } d (\text{cm}) = 4.8$$

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