Section 9. Maximum Permissible Exposure

MPE estimate is given per 2.1091 of FCC Rules:

Given

$$E = \sqrt{(30 * P * G)} / d$$

and

$$S = E^2 / 3770$$

where

E = Field Strength in Volts/meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power Density in milliwatts/square centimeter

Combining equations and rearranging the terms to express the distance as a function of the remaining variables yields:

$$d = \sqrt{((30 * P * G) / (3770 * S))}$$

Changing to units of Power to mW and Distance to cm, using:

P (mW) = P (W) / 1000 and
d (cm) = 100 * d (m)

yields

$$d = 100 * \sqrt{((30 * (P / 1000) * G) / (3770 * S))}$$
$$d = 0.282 * \sqrt{(P * G / S)}$$

where

d = distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power Density in mW/cm^2

Substituting the logarithmic form of power and gain using:

P (mW) = 10 ^ (P (dBm) / 10) and
G (numeric) = 10 ^ (G (dBi) / 10)

yields

$$d = 0.282 * 10 ^{((P + G) / 20)} / \sqrt{S} \qquad \text{Equation (1)}$$

$$S = 0.796 * 10 ^{((P + G)/10)} / d^2 \qquad \text{Equation (2)}$$

where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW/cm^2

Equation (1) and the measured peak power is used to calculate the MPE distance.
Equation (2) and the measured peak power is used to calculate the Power density.

Limit:

$S = 1.0$ mW/cm^2

*1mW/ cm^2 is the reference level for general public exposure according to the OET Bulletin 65, Edition 97-01 Table 1.

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Results:

NOT APPLICABLE TO THIS EUT SINCE ALL THE CONDUCTED MEASUREMENTS WERE
TAKEN AT THE ANTANNA PORT. THIS APPLICATION IS FOR TRANSMITTER ONLY.
ANTENNA IS NOT INCLUDED.

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