

HUMAN EXPOSURE STATEMENT



Application : FCC-ID : HD57850LPE and HD57850LOE

PREDICTION of MPE at given distance

Calculations can be made to predict RF field strength and power density levels around typical RF sources using the general equations (3) and (4) on page 19 of the following FCC document:

"OET Bulletin 65, Edition 97-01 - Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields".

These equations are generally accurate in the far field of an antenna but will over predict power density in the near field, where they could be used for making a "worst case" prediction.

$$S = PG/4\pi R^2 \quad (3)$$

Where S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units e.g. mW)

G = power gain of the antenna in the direction of interest relative to the isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units e.g. cm)

or,

$$S = EIRP/4\pi R^2 \quad (4)$$

Where EIRP = Equivalent Isotropically Radiated Power

Limit:

The table below is excerpted from Table 1B of 47 CFR 1.1310 titled "Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure"

Frequency Range (MHz)	Power Density (mW/cm ²)	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

Part 15 for 2400MHz to 2483.5MHz : 1 mW/cm²

PREDICTION MPE FCC 15 WLAN + BT

Maximum EIRP: EIRP WLAN(23.22 dBm (**209.9mW**)) + EIRP BT(-7.93dBm (0161mW)) = 210.061mW

Calculated at distance of 20 cm

$$\begin{aligned} \text{Power density} &= 210.061 \text{ mW} / (4 \times \pi \times 20^2) \text{ cm}^2 \\ &= 0.0418 \text{ mW/cm}^2 \end{aligned}$$

RESULT : Configuration complies with rules.

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