

Prediction of MPE and ERP / EIRP

This device is to be used only for fixed and mobile applications.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all the persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

The table below is excerpted from Table 1B of 47 CFR 1.1310 titled Limits for Maximum Permissible Exposure (MPE) and Health Canada Safety Code 6, Limits for General Population/Uncontrolled Exposure:

Frequency Range (MHz)	Power density (mW/cm ²)	Averaging time (minutes)
300 – 1500	f (MHz) /1500	30
1500 – 100.000	1.0	30

Based on the above table the limits are:

For 2400, 5100, 5700 MHz frequency band device: **1.0 mW/cm²**

Using the equation from page 19 of OET Bulletin 65, Edition 97-01:

$$S = \frac{PG}{4\pi R^2}$$

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 an isotropic radiator

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

Compliance with MPE limits can be guaranteed as the calculation below shows:

Maximum output power considerations:

Frequency band/ GHz	EIRP/dBm	EIRP/mW	Antenna gain	Power density@20cm/ mW/cm ²
2.4	26.22	419	--	0.083
5.1	7.85	6.1	--	0.00121
5.7	20.22	105.2	--	0.021