

Exposure of humans to RF fields

The original P450H results are stated below.

As per Section 1.1310 and Section 2.1091 certification of this transmitter is sought using the General Public / Uncontrolled exposure limits as detailed in OST/OET Bulletin Number 65 as a power of 5 watts is to be used in a base / fixed environment.

In addition calculations have been made using the Occupational / Controlled Exposure limits as it is possible that this transmitter could be used during the course of employment.

In accordance with Section 1.1310 the following Maximum Permissible Exposure (MPE) power density limits have been applied:

Occupational / Controlled Exposure of 1.20 mW/cm^2 ($f/300 = 380 \text{ MHz} / 300$)

General Population / Uncontrolled exposure of 0.25 mW/cm^2 ($f/1500 = 380 \text{ MHz} / 1500$)

The minimum distance from the antenna at which the MPE is met is calculated from the equation relating field strength in V/m, transmit power in watts, transmit antenna gain, transmitter duty cycle and separation distance in metres:

$$E, \text{ V/m} = (\sqrt{30 * P * G}) / d$$

Controlled

$$E = 1.20 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{1.20 * 3770}$$

$$E = \underline{67.2 \text{ V/m}}$$

Uncontrolled

$$E = 0.25 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{0.25 * 3770}$$

$$E = \underline{30.7 \text{ V/m}}$$

The rated maximum transmitter power = 5 watts.

Transmitter operated using a quarter wave whip antenna with a gain of 2.15 dBi (1.64).

The transmitter is a push to talk device that would typically be used with a duty cycle of 50% in a 6 minute period or a 30 minute period.

Controlled

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

$$d = \sqrt{30 * 5.0 * 1.64 * 0.5} / 67.2$$

$$d = \underline{0.165 \text{ metres or } 16.5 \text{ cm}}$$

Uncontrolled

$$d = \sqrt{30 * 5.0 * 1.64 * 0.5} / 30.7$$

$$d = \underline{0.361 \text{ metres or } 36.1 \text{ cm}}$$

Result: Complies