Exposure of humans to RF fields

As per Section 1.1310 mobile transmitters are required to be operated in a manner that ensures the public is not exposed to RF energy levels in accordance with OST/OET Bulletin Number 65.

Calculations have been made using the General Public/Uncontrolled Exposure limits.

Minimum safe distances have been calculated below.

Power density, $mW/m^2 = E^2/3770$

- General Population / Uncontrolled exposure limit will be 0.28 mW/m^2
(f/1500 = 421 MHz/1500)

As this radio can operate over the range of 400 - 480 MHz the lowest frequency of operation in the USA, which will give the worst case result, would be 421 MHz.

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

Uncontrolled

E = 0.28 $W/m^2 = E^2/3770$
E= $\sqrt{}$ 0.28*3770
E = 32.5 V/m

The rated maximum transmitter power = 50 watts.

Transmitter is operated using a quarter wave whip antenna with a gain of 2.14 dBi (1.64).

A duty cycle of 100% as the transmitter is a base station could possibly be operated for long periods of time.

Uncontrolled

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

d = $\sqrt{}$ (30 *50 * 1.64 * 1.0) / 32.5

d = 1.52 metres or 152.0 cm

Result: Complies if the safe distances defined for this environment is applied.