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

- Occupational / Controlled Exposure limit will be 10 mW/m^2 or 60 V/m

- General Population / Uncontrolled exposure limit will be 2 mW/m^2 or 28 V/m

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:

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

The rated maximum transmitter power = 25 watts.

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

As the transmitter is used on a push to talk basis a duty cycle of 50% has been applied.

Controlled	**Uncontrolled**
$d = \sqrt{(30 * P * G*DC)} / E$	
$d = \sqrt{(30 * 25 * 1.64 * 0.50)} / 60$	$d = \sqrt{(30 * 25 * 1.64 * 0.50)} / 28$
d = 0.41 metres or 41 cm	d = 0.89 metres or 89 cm

Result: Complies if the safe distances defined for each environment are applied.