

# EMC Technologies (NZ) Ltd

Test Report No **80428.1**

Report date: 7 May 2008

---

## Radio Frequency Hazard Information

As per Section 1.1310 and Section 2.1091 certification of this transmitter is sought using the Controlled / Occupational exposure limits as detailed in OST/OET Bulletin Number 65.

The transmitter has a radiated power of 5 watts and can be used in a base station environment for employment related uses.

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

Minimum safe distances have been calculated below.

Power density,  $\text{mW/cm}^2 = E^2/3770$

Occupational / Controlled Exposure limit:  $0.58 \text{ mW/cm}^2 (f/300 = 174 \text{ MHz}/300)$

General Population / Uncontrolled exposure limit:  $0.12 \text{ mW/cm}^2 (f/1500 = 174 \text{ MHz}/1500)$

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/ Occupational

$$E = 0.58 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{0.58 * 3770}$$

$$E = \underline{46.8 \text{ V/m}}$$

### Uncontrolled/ General Public

$$E = 0.12 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{0.12 * 3770}$$

$$E = \underline{21.3 \text{ V/m}}$$

The rated maximum transmitter power = 5.0 watts.

This transmitter would typically be operated using a quarter wave whip antenna with a gain of 2.15 dBi (1.64).

As a base station the duty cycle would typically be 50%

### Controlled/ Occupational

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

$$d = \sqrt{30 * 5 * 1.64 * 0.5} / 46.8$$

$$d = \underline{0.236 \text{ metres or } 23.6 \text{ cm}}$$

### Uncontrolled/ General Public

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

$$d = \sqrt{30 * 5 * 1.64 * 0.5} / 21.3$$

$$d = \underline{0.521 \text{ metres or } 52.1 \text{ cm}}$$

**Result:** Complies if the user is advised of the above safe distances in the appropriate documentation.

---

#### EMC Technologies (NZ) Ltd

STREET ADDRESS - 47 MacKelvie Street, Grey Lynn, Auckland, NZ  
POSTAL ADDRESS - PO Box 68 307, Newton, Auckland, New Zealand

Phone: +64 9 360 0862 Fax: +64 9 360 0861  
E-mail: aucklab@ihug.co.nz