

EMC Technologies (NZ) Ltd

Test Report No 80523.3a

Report date: 30 October 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 4 watts and is intended to be used a paging base for employment related uses.

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

Minimum safe distances have been calculated below.

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

Occupational / Controlled Exposure limit: $1.50 \text{ mW/cm}^2 (f/300 = 451 \text{ MHz}/300)$

General Population / Uncontrolled exposure limit: $0.30 \text{ mW/cm}^2 (f/1500 = 451 \text{ MHz}/1500)$

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

$$E = 1.50 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{1.5 * 3770}$$

$$\underline{E = 74.5 \text{ V/m}}$$

Uncontrolled / General Public

$$E = 0.30 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{0.30 * 3770}$$

$$\underline{E = 33.6 \text{ V/m}}$$

The rated maximum transmitter power = 4.0 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 greater than 50% but less than 100%

Controlled / Occupational

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

$$d = \sqrt{(30 * 4 * 1.64 * 1) / 74.5}$$

$$d = \underline{0.188 \text{ metres or } 18.8 \text{ cm}}$$

Uncontrolled / General Public

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

$$d = \sqrt{(30 * 4 * 1.64 * 1) / 33.6}$$

$$d = \underline{0.418 \text{ metres or } 41.8 \text{ cm}}$$

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

EMC Technologies (NZ) Ltd

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