

EMC Technologies (NZ) Ltd

Test Report No 80305.2

Report date: 27th March 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 power of 100 watts is to be used in a base station environment where the use of the transmitter will be employment related.

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

Minimum safe distances have been calculated below.

$$\text{Power density, } W/m^2 = E^2/3770$$

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

General Population / Uncontrolled exposure limit: 0.12 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

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

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

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

Uncontrolled

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

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

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

The rated maximum transmitter power = 100.0 watts.

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

The transmitter is a base station that would typically be used with a duty cycle of 100%

Controlled

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

$$d = \sqrt{(30 * 100 * 1.64 * 1.0) / 46.8} \text{ d} = \sqrt{(30 * 100.0 * 1.64 * 1.0) / 21.3}$$

$$d = \underline{1.5 \text{ metres}}$$

Uncontrolled

$$d = \underline{3.3 \text{ metres}}$$

Result: Complies

EMC Technologies (NZ) Ltd

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