

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.

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

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

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

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:

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

Controlled

$$E = 0.58 mW/cm^2 = E^2/3770$$

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

$$E = 46.8 V/m$$

Uncontrolled

$$E = 0.12 mW/cm^2 = E^2/3770$$

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

$$E = 21.3 V/m$$

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

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

$$d = \sqrt{30 * 100 * 1.64 * 1.0} / 46.8$$

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

Uncontrolled

$$d = \sqrt{30 * 100.0 * 1.64 * 1.0} / 21.3$$

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

Result: Complies