

EMC Technologies (NZ) Ltd

Test Report No **70801.1**

Report date: 22 August 2007

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 as it is to be used in a mobile 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 will be 1.46 mW/cm^2
($f/300 = 440 \text{ MHz}/300$)
- General Population / Uncontrolled exposure limit will be 0.29 mW/cm^2
($f/1500 = 440 \text{ MHz}/1500$)

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:

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

Controlled

$$E = 1.46 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{1.46 * 3770}$$

$$\underline{E = 74.2 \text{ V/m}}$$

Uncontrolled

$$E = 0.29 \text{ mW/cm}^2 = E^2/3770$$

$$E = \sqrt{0.29 * 3770}$$

$$\underline{E = 33.1 \text{ V/m}}$$

The rated maximum transmitter power = 70 microwatts (-11.5 dBm).

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

The transmitter is keyed using a manual keypad and would typically be used with a duty cycle of 50%.

Controlled

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

$$d = \sqrt{(30 * 7e-5 * 1.64 * 0.5) / 74.2}$$

$$\underline{d = 0.0002 \text{ metres or } 0.02 \text{ cm}}$$

Uncontrolled

$$d = \sqrt{(30 * 7e-5 * 1.64 * 0.5) / 33.1}$$

$$\underline{d = 0.001 \text{ metres or } 0.1 \text{ cm}}$$

Result: Complies

EMC Technologies (NZ) Ltd

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