

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 $1.46 mW/cm^2$
($f/300 = 440 MHz/300$)
- General Population / Uncontrolled exposure limit will be $0.29 mW/cm^2$
($f/1500 = 440 MHz/1500$)

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

$$E = 1.46 mW/cm^2 = E^2/3770$$

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

$$E = 74.2 V/m$$

Uncontrolled

$$E = 0.29 mW/cm^2 = E^2/3770$$

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

$$E = 33.1 V/m$$

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

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

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

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

Uncontrolled

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

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

Result: Complies

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