

EMC Technologies (NZ) Ltd

Test Report No 70543.1

Report date: 29th June 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 a power of 25 watts 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

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

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

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

Uncontrolled

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

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

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

The rated maximum transmitter power = 25 watts.

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

The transmitter is a push to talk device that would typically be used with a duty cycle of 50% in a 6 minute period or a 30 minute period.

Controlled

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

$$d = \sqrt{30 * 25.0 * 1.64 * 0.5} / 74.2$$

$$d = \underline{0.3342 \text{ metres or } 34 \text{ cm}}$$

Uncontrolled

$$d = \sqrt{30 * 25.0 * 1.64 * 0.5} / 33.1$$

$$d = \underline{0.7492 \text{ metres or } 75 \text{ cm}}$$

Result: Complies

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