

EMC Technologies (NZ) Ltd

Test Report No 40747.1

Report date: 12th August 2004

Radio Frequency Hazard Information

As per Section 1.1310 and Section 2.1091 transmitters are required to be operated in a manner that ensures that the public is not exposed to RF energy levels in accordance with OST/OET Bulletin Number 65.

A minimum safe distance between the user / general public and the device has been calculated below.

In accordance with Section 1.1310 the Maximum Permissible Exposure (MPE) power density limit for the General Population / Uncontrolled Exposure of 0.32 mW/m² (f/1500 = 485 MHz/1500) has been applied.

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 and separation distance in metres:

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

$$\text{Power density} = 0.32 \text{ mW/m}^2 = E^2/3770$$

$$E = \sqrt{0.32 * 3770}$$

$$E = \underline{34.9 \text{ V/m}}$$

The maximum transmitter power = 5 watts.

This transmitter is sold without an antenna and therefore the manufacturer has no control over the gain of the antenna applied.

If an antenna with a gain of 6 dBi is used (gain = 4.0) the following will apply:

$$\begin{aligned} d &= \sqrt{(30 * P * G) / E} \\ &= \sqrt{(30 * 5.0 * 4.0) / 34.9} \\ &= \underline{0.70 \text{ metres or } 70 \text{ cm}} \end{aligned}$$

The minimum theoretical safe distance is therefore 70 cm.

However as the transmitter can be used in a fixed installation a minimum safe distance of 2.0 m is required and this requirement should be inserted in the manual for the device.

An instruction should also be supplied whereby the manufacturer should be contacted if an antenna gain of greater than 6 dBi is to be utilised in order that an alternative minimum safe distance can be calculated

Result: Complies