Maximum Permissible Exposure Test Report

for

Demarc Technologies Group, LLC
FCC ID: QGK-100MW-PCM

October 17, 2002

WLL PROJECT #: 7165RFFCC

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1.0 Introduction

This report has been prepared on behalf of Demarc Technologies Group, LLC. to show compliance with the RF exposure requirements of FCC Part 15.407(f) as defined in FCC Part 1.1307(b)(1) for the Demarc Wireless LAN card.

3.8 Radio Frequency Radiation Exposure

In accordance with Section 1.1310 of the FCC rules, the Maximum Permissible Exposure (MPE) limit for this frequency range is $1mW/cm^2$ for General Population/Uncontrolled Access. The EUT is designed for telecommunications transmissions and may use high gain antennas (up to 18 dBi) and the transmitter section is designed for mounting on an antenna mast. A unique connector is used on the card to prevent the use of higher gain antennas. Warnings are in the installation manual which limit the exposure to the direct beam during installation and maintenance. These warnings to the installers insure that the general public is not exposed to RF energy.

The Demarc Wireless LAN card is designed for a transmit power of 20.3dBm (107mW). Assuming the highest allowable gain antenna is used (18 dBi) the following power density is calculated.

$S = (PG)/(4\pi R^2)$

Where,
S = Power Density
P = Output Power at the Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

For this device, the calculation is as follows:
S = FCC Limit = $1mW/cm^2$
P = Output Power = 107mW
G = Worst Case Gain = 18 dBi (65 linear gain)
R = 25 cm

$$S = \{(107mW)(65\}/\{(12.56)(625\ cm^2)\} = 0.88\ mW/cm^2$$

This power density is the worst case for maximum beam exposure. This level is below the limit of $1mW/cm^2$ MPE for general population/uncontrolled access. This unit is installed in practice to installations at distances greater than 25 cm from humans. Warnings are provided in the installation manual to limit exposure to the direct beam during the installation and maintenance phase. These warnings ensure that the device is installed properly and does not expose the general public to RF energy hazards.