Maximum Permissible Exposure Test Report

for

Scope Marketing, Ltd.
Wills Road, Totnes Industrial Estate
Totnes Devon TQ95XN England

FCC ID: JRNMOBILINK

November 19, 2001

WLL PROJECT #: 6670X

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1.0 Introduction

This report has been prepared on behalf of Scope Marketing, Ltd. Model: HHTXU1 transmitter to show compliance with the RF exposure requirements as defined in FCC Part 1.1307.

1.1 Radio Frequency Radiation Exposure

The highest RF output power of the unit was measured at 26.2 dBm at 458.7 MHz. According to §1.1310 of the FCC rules, the limit for occupational/controlled RF exposure is defined as S= f/300. For the frequency of 458.7 MHz, the Power Density limit is calculated to be 1.529 mW/cm^2. The gain of the antenna is –6 dBi. To comply with the exposure limits for this section, humans must maintain a safe distance from the transmit antenna. The following formula was used to calculate the minimum distance:

$$S = \frac{PG}{4pR^2}$$

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 = 1.529 mW/cm^2
P = Output Power = 426.6 mW
G = Worst Case Gain = -6 dBi = INVLOG(-6/10) = 0.251
$\quad\quad$ 1.529mW/ cm^2 = (426.6mW)(0.251)/(4π R^2)
Solving for the required minimum safe distance using the following formula:

$$\boxed{R = \sqrt{\frac{PG}{4pS}}}$$

$$R = \sqrt{\frac{426.6 \times 0.251}{4 \times p \times 1.529}} \quad = 2.36 \text{ cm (Based on continuous transmission)}$$

However, based on the usage of the device, and taking the duty cycle into account, the EUT will transmit a maximum of 600mS in a 6 minute period. Therefore, averaging the power over a 6 minute period gives:
426.6mW x 0.00167 = 0.711mW

$$R = \sqrt{\frac{0.711 \times 0.251}{4 \times p \times 1.529}} \quad = 0.096 \text{ cm (Averaging over 6 minutes)}$$

Based on the calculation above, the device complies with the minimal permissible exposure requirements using the current antenna-housing configuration.