



Washington Laboratories, Ltd.

7560 LINDBERGH DRIVE
GAITHERSBURG, MD 20879
(301) 417 - 0220 FAX # (301) 417 - 9069

Maximum Permissible Exposure Test Report

for

**Zeus Technology Systems, Inc.
FCC ID: Q5L-ZRC-20**

August 11, 2003
(Revised September 12, 2003)

WLL PROJECT #: 7580RFFCC

This report may not be reproduced, except in full, without the prior written consent of Washington Laboratories, Ltd.

Maximum Permissible Exposure Test Report

for

Zeus Technology Systems, Inc.

FCC ID: Q5L-ZRC-20

1.0 Introduction

This report has been prepared on behalf of Zeus Technology Systems, Inc. to show compliance with the RF exposure requirements of FCC Part 15.247 as defined in FCC Part 1.1307(b)(1) for the Zeus FHSS Transmitter Module.

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 $1\text{mW}/\text{cm}^2$ for General Population/Uncontrolled Access.

The EUT is designed for data transmissions and may use high gain antennas (up to 8 dBi) which are designed for mounting on an antenna mast away from nearby personnel. A unique connector is used on the card to prevent the use of higher gain antennas. Warnings concerning RF exposure are in the installation manual and details are given about the installation and use of antennas. These warnings to the installers insure that the general public is not exposed to RF energy.

The Zeus FHSS Transmitter Module is designed for a transmit power of 26dBm (400mW). Assuming the highest allowable gain antenna is used (8 dBi) the following power density is calculated at a distance of 20cm.

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

Where,

S = Power Density (FCC Limit = $1\text{mW}/\text{cm}^2$)

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:

R = 20cm

P = Output Power = 400mW

G = Worst Case Gain = 8 dBi (6.3 linear gain)

Solving for the minimum safe distance:

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

$$S = (400\text{mW})(6.3) / (12.566)(20\text{cm}^2) = 0.501\text{mW}/\text{cm}^2$$

The calculated 0.501mW/cm² power density is under the FCC limit of 1mW/cm² at a distance of 20cm. Warnings are provided in the user's manual to limit exposure to the direct beam during the installation and maintenance phase and to ensure that the antenna is installed at distances greater than 20cm cm from people. These warnings ensure that the device is installed properly and does not expose the general public to RF energy hazards.