

**RF Hazard Evaluation Report (for General Population/Uncontrolled Environment) &  
RSS-102  
on the  
MDS Module  
Model: TRM-450**

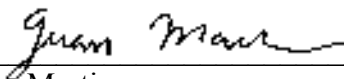
FCC ID: E5MDS-TRM450

GRANTEE: Microwave Data Systems, Inc.  
175 Science Parkway  
Rochester, NY 14620-4261

TEST SITE: Elliott Laboratories, Inc.  
684 W. Maude Ave  
Sunnyvale, CA 94086

REPORT DATE: December 23, 2003

FINAL TEST DATE: December 23, 2003

AUTHORIZED SIGNATORY:   
\_\_\_\_\_  
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## **GENERAL INFORMATION**

Applicant:

Microwave Data Systems, Inc.  
175 Science Parkway  
Rochester, NY 14620-4261

FCC ID: E5MDS-TRM450

## **Technical Description**

The transceiver (Figure 1) is a data telemetry radio designed to operate in a point-to-multipoint environment, such as electric utility Supervisory Control and Data Acquisition (SCADA) and distribution automation, gas field automation, water and wastewater SCADA, and on-line transaction processing applications. The radio employs microprocessor control to provide highly reliable communications, even under adverse conditions.

## **Frequency Range**

Transmitter: 410 – 470 MHz

## **Range of Operation Power**

Maximum power: 2 Watts (33 dBm)

## **SCOPE**

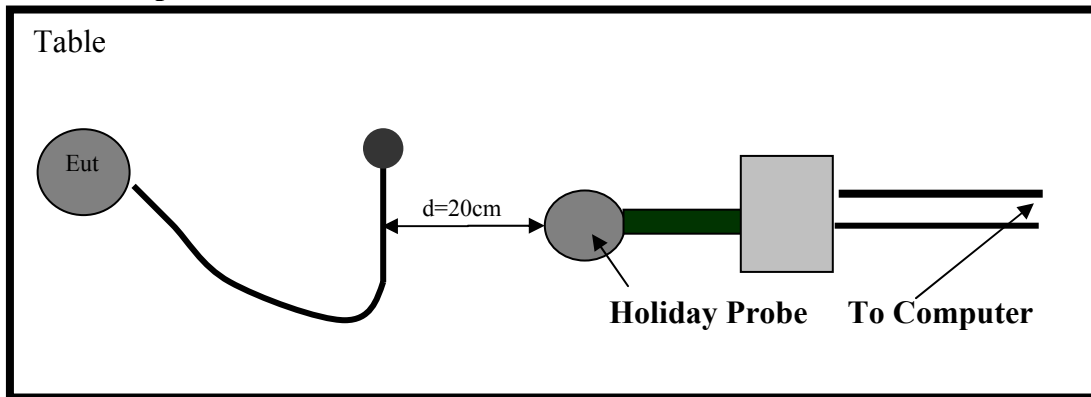
RF Hazard Evaluation testing was performed for the equipment mentioned in this report. OET Bulletin 65 or the ANSI/IEEE C95.3, "IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave" were used as a test procedure guideline to perform the required test. MPE measurements were performed for this product.

The intentional radiator above was tested in a simulated typical installation to demonstrate compliance with the relevant FCC performance and procedural standards.

## **OBJECTIVE**

The primary objective of the manufacturer is compliance with Section 2.1091. Certification of these devices is required as a prerequisite to marketing as defined in Section 2.1033.

Certification is a procedure where the manufacturer or a contracted laboratory makes measurements and submits the test data and technical information to FCC. FCC issues a grant of equipment authorization and a certification number upon successful completion of their review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units subsequently manufactured.

**TEST RESULTS****Section 2.1091: Radiofrequency radiation exposure evaluation: Mobile devices.****Test Setup**

MPE Evaluation was performed using the OET Bulletin 65 or the ANSI/IEEE C95.3, "IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave" test procedure, for mobile devices.

A test fixture was built to test the EUT, with the internal antenna, mounted on a ground plane. The ground plane was grounded by braided wire to a known ground source. This configuration will demonstrate the RF exposure levels of the antenna mounted on a ground plane.

The transmitter was set to 100% duty cycle and to maximum output power. Power was verified with a power meter. The EUT was set to transmit continuously and the fundamental frequency set to the middle of the EUT's frequency range. The EUT and its antenna were placed on top of a table, located in a shielded room. The measuring probe was placed 20-cm away from the EUT antenna(s). The probe was moved around the antenna, while keeping the 20-cm separation. At the same time the probe was incrementing 5 to 10 cm in height to measure the maximum points of the antenna(s), this was done for each measurement. The top of the antenna(s) was also measured, 20-cm away. The probe was connected to a computer, which displayed the measured levels in mW/cm<sup>2</sup>.

**Test Result:**

MPE power spectral density limit: .273 mW/cm<sup>2</sup>

Maximum peak power density measured was:

.253 mW/cm<sup>2</sup> for the 5dBi Collinear Antenna (M/N: MUF4505 Series)

.200 mW/cm<sup>2</sup> for the 0dBi antenna (M/N: MUF4300, MUF4060, MUF4500)

Photos of the antenna can be viewed on the website.

5dBi: [http://www.maxrad.com/cgi/maxrad\\_products\\_ind.cgi?product=10106&catalog=10003](http://www.maxrad.com/cgi/maxrad_products_ind.cgi?product=10106&catalog=10003)

0dBi: [http://www.maxrad.com/cgi/maxrad\\_products\\_ind.cgi?product=10102&catalog=10003](http://www.maxrad.com/cgi/maxrad_products_ind.cgi?product=10102&catalog=10003)

**EXHIBIT 1: Test Equipment Calibration Data**

Manufacture	Description	Model #	Asset #	Cal Interval	Last Calibrated	Cal Due
Holiday Industries	Field probe 200kHz – 40GHz	HI-4455	910	12	4/28/03	4/28/04
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1534	12	3/20/03	3/20/04
Rohde & Schwarz	Power Sensor 100uW – 10 Watts	NRV-Z53	1236	12	9/15/03	9/15/04

**EXHIBIT 2: Test Setup Photo**

