

## Exhibit 2A

### Magic 9000 with a Research in Motion R902M-2-0 Transmitter Mobitex Modem

**SchlumbergerTechnologies**

**FCC ID: NIQM9KMOBITEX**

**Engineering Report**  
(With Test Set-up Photographs)



# **Assessment of Compliance**

for

**Measurement of Effective Radiated Power (ERP) in  
accordance with the FCC Rules & Regulations Part 2.1046**

## **Magic 9000 Wireless Point of Sale Device**

**Schlumberger Technologies**



**JUNE 2000**

SLBB-Magic 9000-3459

51 Spectrum Way Nepean ON K2R 1E6  
Tel: (613) 820-2730 Fax: (613) 820-4161  
email: [info@aprel.com](mailto:info@aprel.com)

## Engineering Report

**Subject:** Measurement of Field Strength of Spurious Radiation in accordance with the FCC Rules & Regulations Part 2.1053

**FCC ID:** NIQM9KMOBITEX

**Equipment:** Point of Sale Device

**Model:** Magic 9000 with a Research in Motion R902M-2-0 Mobitex Transmitter

**Client:** Schlumberger Technologies  
1601 Schlumberger Drive  
Moorestown, NJ  
08057, U.S.A.

**Project #:** SLBB-MAGIC9000-3460

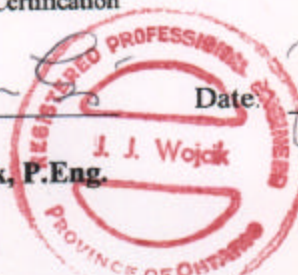
**Prepared By:** APREL Laboratories,  
Regulatory Compliance Division

**Approved by:** Jay Sarkar **Date:** June 27, 2000

**Jay Sarkar**  
Director, Standards & Certification

**Released by:** J. J. Wojcik **Date:** June 27/2000

**Dr. Jack J. Wojcik, P.Eng.**



"SOLUTIONS FOR THE WIRELESS FUTURE"

## Engineering Report

**Subject:** Measurement of Effective Radiated Power (ERP) in accordance with the FCC Rules & Regulations Part 2.1046

**FCC ID:** NIQM9KMOBITEX

**Equipment:** Point of Sale Device

**Model:** Magic 9000 with a Research in Motion R902M-2-0 transmitter Mobitex

**Client:** Schlumberger Technologies  
1601 Schlumberger Drive  
Moorestown, N. J.  
08057, USA

**Project #:** SLBB-Magic 9000-3459

**Prepared By:** APREL Laboratories,  
Regulatory Compliance Division

**Approved by:** Jay Sarkar **Date:** June 27, 2000  
Jay Sarkar  
Director, Standards & Certification

**Released by:** Dr. Jack J. Wojcik **Date:** June 27, 2000  
Dr. Jack J. Wojcik, P.Eng.



"SOLUTIONS FOR THE WIRELESS FUTURE"

**FCC ID:** NIQM9KMOBITEX  
**Applicant:** Schlumberger Technologies  
**Equipment:** Point of Sale Device  
**Model:** Magic 9000 with a Research in Motion R902M-2-0 transmitter, Mobitex  
**Standard:** FCC Rules and Regulations Part 2.1046

## ENGINEERING SUMMARY

This report contains the results of the effective radiated power (ERP) measurement performed on a Schlumberger Point of Sale Device operating with a built-in Research in Motion R902M-2-0 radio transmitter. The measurements were carried out in accordance with the FCC Rules and Regulations Part 2.1046. The product was evaluated for ERP when it was set at the maximum power level.

The Magic 9000 was tested for ERP at high, middle, and low frequencies with the maximum ERP obtained at channel number 720 with the frequency being 899.00 MHz. The test data is presented in this report under the section: Test Results.

## Summary of the Results

| Test Description                                     | Page No. | Test Set-up Figure No. | Results Summary |
|------------------------------------------------------|----------|------------------------|-----------------|
| RF Power Output as Radiated<br>Ref. Paragraph 2.1046 | 8        | 1                      | <b>Passed</b>   |

## INTRODUCTION

### General

This report describes the results of the effective radiated power (ERP) measurement conducted on a Schlumberger Technologies Point of Sale Device model Magic 9000 operating with a built-in Research in Motion R902M-2-0 radio transmitter.

### Test Facility

The tests were performed for Schlumberger Technologies by APREL Laboratories at APREL's EMI facility located in Nepean, Ontario, Canada. The laboratory operates an (3m and 10m) Open Area Test Site (OATS). The measurement facility is calibrated in accordance with ANSI C63.4-1992.

A description of the measurement facility in accordance with the radiated and AC line conducted test site criteria per ANSI C63.4-1992 is on file with the Federal Communications Commission and is in compliance with the requirements of Section 2.948 of the Commissions rules and regulations.

***APREL's registration number is: 90416***

APREL is accredited by Standard Council of Canada, under PALCAN program (ISO Guide 25). APREL is also accredited by Industry Canada (formerly DOC) and recognised by the Federal Communications Commissions (FCC).

### Standard

The evaluation and analysis were conducted in accordance with FCC Rules and Regulations Parts 2.1046 and the appropriate limits.

### Test Equipment

The test equipment used during the evaluation is listed in Appendix A with calibration due dates.

### Environmental Conditions

Measurements were conducted in open area test site.

- Temperature:           18 °C ± 2
- Relative Humidity:       30 - 50 %

- Air Pressure: 101 kPa ± 3

## FCC SUBMISSION INFORMATION

**FCC ID:** NIQM9KMOBITEX

**Equipment:** Point of Sale Device

**Model:** Magic 9000 with a Research in Motion R902M-2-0 transmitter Mobitex

**For:** Certification

**Applicant:** **Schlumberger Technologies**  
1601 Schlumberger Drive  
Moorestown, NJ  
08057, U.S.A.

**Manufacturer:** **Schlumberger Technologies**  
1601 Schlumberger Drive  
Moorestown, NJ  
08057, U.S.A.

**Evaluated by:** **APREL Laboratories**  
51 Spectrum Way  
Nepean, Ontario  
Canada K2R 1E6

## MANUFACTURER'S DATA

|                                       |                                                                       |
|---------------------------------------|-----------------------------------------------------------------------|
| <b>Equipment Type:</b>                | Point of Sale Device                                                  |
| <b>Model:</b>                         | Magic 9000 with a Research in Motion R902M-2-0 transmitter<br>Mobitex |
| <b>Reference:</b>                     | FCC Rules and Regulations Parts 2 and Part 90                         |
| <b>Manufacturer:</b>                  |                                                                       |
| <b>Power Source:</b>                  | 4.8 VDC Battery                                                       |
| <b>Development<br/>Stage of Unit:</b> | Production                                                            |

## GENERAL SPECIFICATIONS

- Frequency Range: 896 to 902 MHz (Transmitter)
- Rated Transmitted  
Output Power: 1.585 W
- Frequency Tolerance:  $\pm 1.5$  PPM
- Type of Modulation: GMSK, F1D
- Emission Designators (See 47 CFR § 2.201 and §2.202): 28K8FXW
- Antenna Impedance: 50 Ohms

## CHANNELS TESTED

|         |     |                       |
|---------|-----|-----------------------|
| Channel | 480 | Frequency: 896.00 MHz |
| Channel | 720 | Frequency: 899.00 MHz |

Channel

880

Frequency: 901.00 MHz

**TEST RESULTS**

**FOR**

**Effective Radiated Power (ERP)**

**Of**

**Point of Sale Device**

**Magic 9000 with a Research in Motion**

**R902M-2-0**

**Radio transmitter, Mobitex**

***Schlumberger Technologies***

**Test:** RF Power Output as Radiated (ERP)

**Ref.:** FCC Part 2 paragraph 2.1046

**Criteria:** N/A

**Set-up:** See Figure No. 1.

**Equipment:** See Appendix A.

**Methodology:** RF Power Measurement by Radiated Method (ERP):

Test site: The radiated RF power measurement was taken at APREL Laboratory's open area test site (OATS). This open area test site is calibrated to ANSI C63.4 document and a description of the measurement facility is on file with the Federal Communications Commission and is in compliance with the requirement of Section 2.948 of the Commissions rules and regulations. (FCC File No.90416: )

The test was set-up as illustrated in Fig.1. The Point of Sale Device was configured to operate at maximum power. The equipment under test was placed on a turntable positioned 3 m away from the calibrated receiving antenna, which in turn was connected to the spectrum analyzer.

For each transmitter frequency, the received signal was **maximised** by rotating the turntable and adjusting the height of the receiving antenna. To obtain the actual ERP, the Point of Sale Device was replaced by a vertically polarised half-wave dipole antenna resonant to that frequency and fed by a RF power amplifier and signal generator. The center of the dipole antenna was placed precisely in the same location as the Point of Sale Device. It was ensured that the orientation of the rotating table and the height of the receiving antenna were unmoved. The signal generator level was adjusted until the peak reading on the spectrum analyzer was identical to that obtained when the Point of Sale Device was on the turntable. The two signals were matched by superimposing one signal to the other on the spectrum analyzer screen. The output of power amplifier was disconnected from the substitute dipole antenna and connected to a RF power meter. **The effective radiated power was read directly form the power meter.**

**The process was repeated for two more channels.**

**Results:** See Table 1

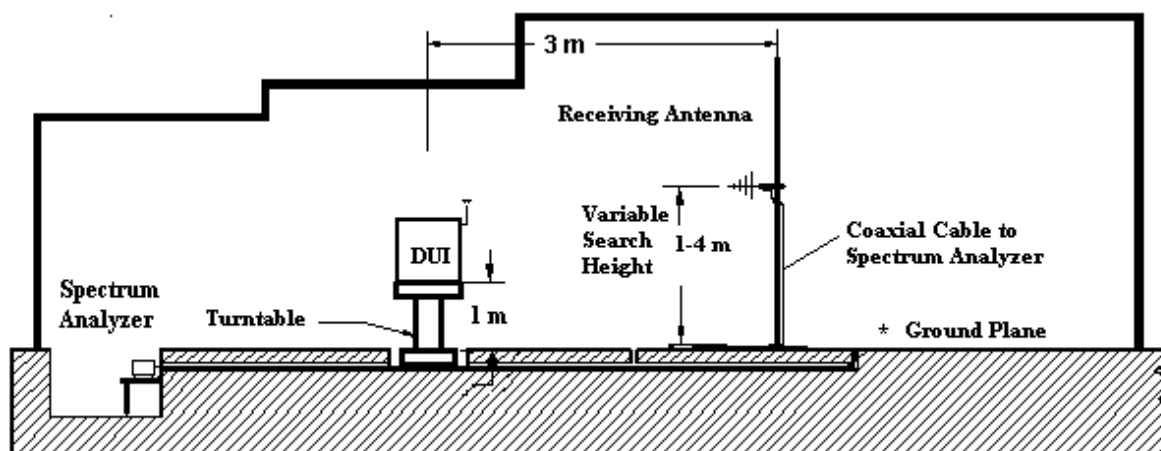


Figure 1.a Test set up for the Radiated Power (ERP) Measurement in OATS (not to scale)



Fig. 1.b APREL's OATS (Open Area Test Site)

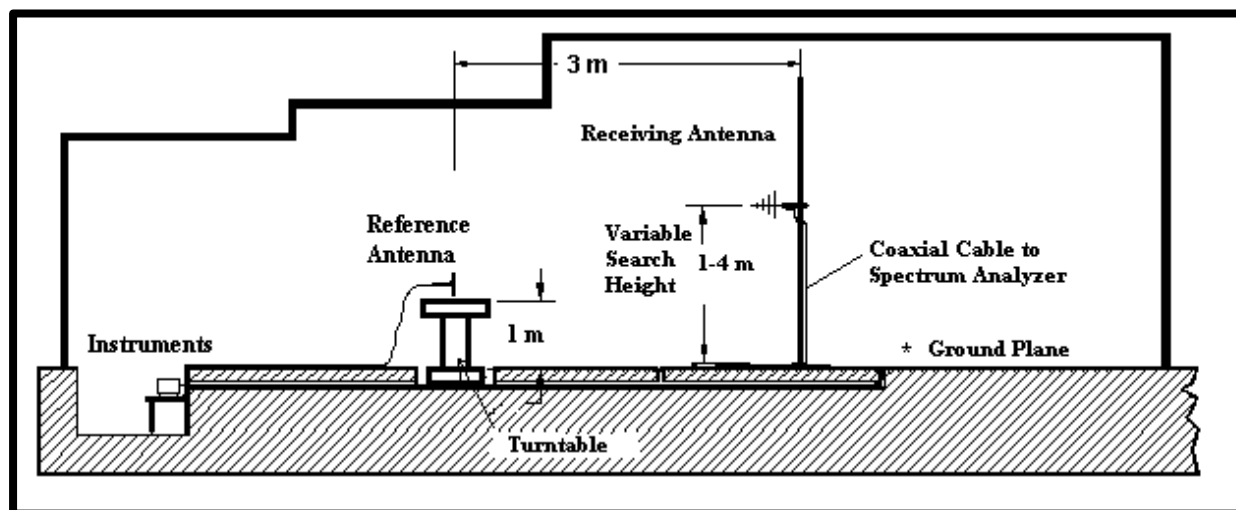


Figure 1.c Test set up for the Radiated Power (ERP) Measurement in OATS (not to scale)  
The DUI is replaced by Reference Dipole Antenna.

**Table 1.**  
**RF Output Power Measurement**  
**ERP**  
**Power Level: 0**

| Channel No. | Nominal Transmitting Frequency | Manufacturer's Rated Output Power (Power Level: 0) | Measured Output Power ERP (Power Level: 0) | ERP (Power Level: 0) |
|-------------|--------------------------------|----------------------------------------------------|--------------------------------------------|----------------------|
|             | (MHz)                          | (W)                                                | (dBm)                                      | (W)                  |
| 480         | 896.00                         | 2.0                                                | 30.4                                       | 1.096                |
| 720         | 899.00                         | 2.0                                                | 32.0                                       | 1.585                |
| 880         | 901.00                         | 2.0                                                | 30.2                                       | 1.047                |

Test Engineer: KuElse RomanDate: June 27, 2000

**Table 1.**  
**RF Output Power Measurement**  
**ERP**  
**Power Level: 0**

| Channel No. | Nominal Transmitting Frequency | Manufacturer's Rated Output Power (Power Level: 0) | Measured Output Power ERP (Power Level: 0) | ERP (Power Level: 0) |
|-------------|--------------------------------|----------------------------------------------------|--------------------------------------------|----------------------|
|             | (MHz)                          | (W)                                                | (dBm)                                      | (W)                  |
| 480         | 896.00                         | 2.0                                                | 30.4                                       | 1.096                |
| 720         | 899.00                         | 2.0                                                | 32.0                                       | 1.585                |
| 880         | 901.00                         | 2.0                                                | 30.2                                       | 1.047                |

Test Engineer:.....

Date:.....

### List of Equipment used

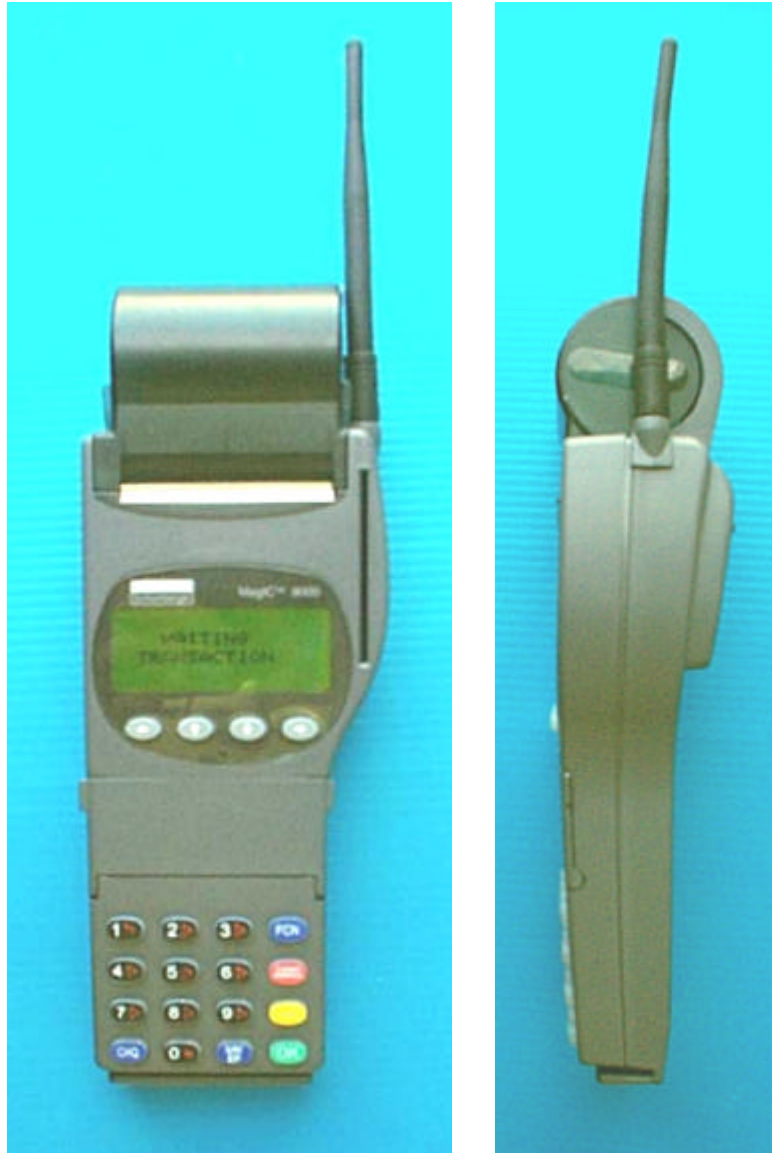
| Description                               | Manufacturer       | Model #    | Asset # | Calibration Due Data |
|-------------------------------------------|--------------------|------------|---------|----------------------|
| Spectrum Analyzer                         | Anritsu            | MS2661C    | 301330  | Dec 10, 2000         |
| Power Meter                               | Rhode & Schwarz    | NRVS       | 00851   | July 21, 2000        |
| 20 dB Attenuator                          | Narda              | 4779-20    | 301370  | May 18, 2001         |
| Signal Generator                          | Hewlett-Packard    | HP 8662A   | 100456  | Nov 1, 2000          |
| RF Power Amplifier                        | Amplifier Research | 25W100M    | 100735  | Sep 16, 2000         |
| 835MHz Dipole                             | APREL Inc.         | D-8355     | N/A     | June 16, 2001        |
| Log - Periodic Antenna                    | Eaton              | ALP-1      | 100761  | July 21, 2000        |
| Turntable with Controller                 | EMCO               | 1060-1.241 | 100506  | CNR                  |
| Computer Controlled Antenna Position Mast | EMCO               | 1051-12    | 100507  | CNR                  |
| OATS                                      | APREL Inc.         | 3m & 10m   | N/A     | N/A                  |

# APPENDIX A

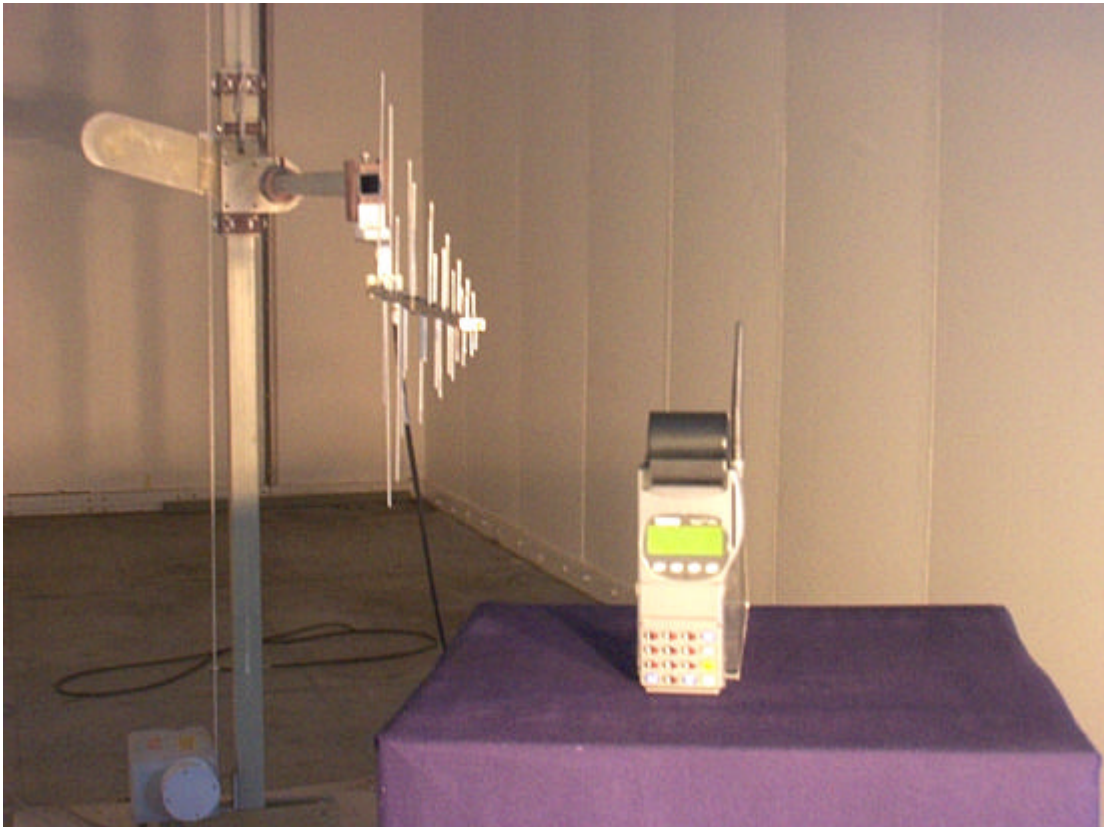
## List of Test Equipment

# APPENDIX B

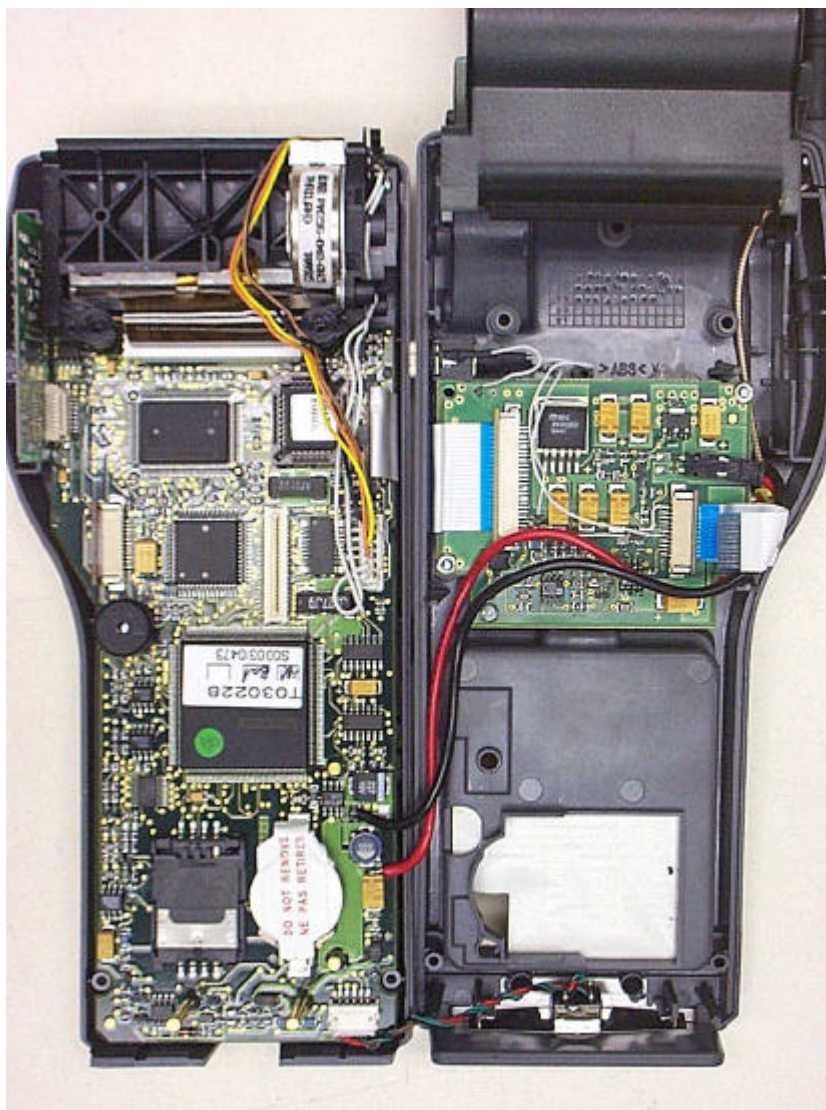
## PHOTOGRAPHS



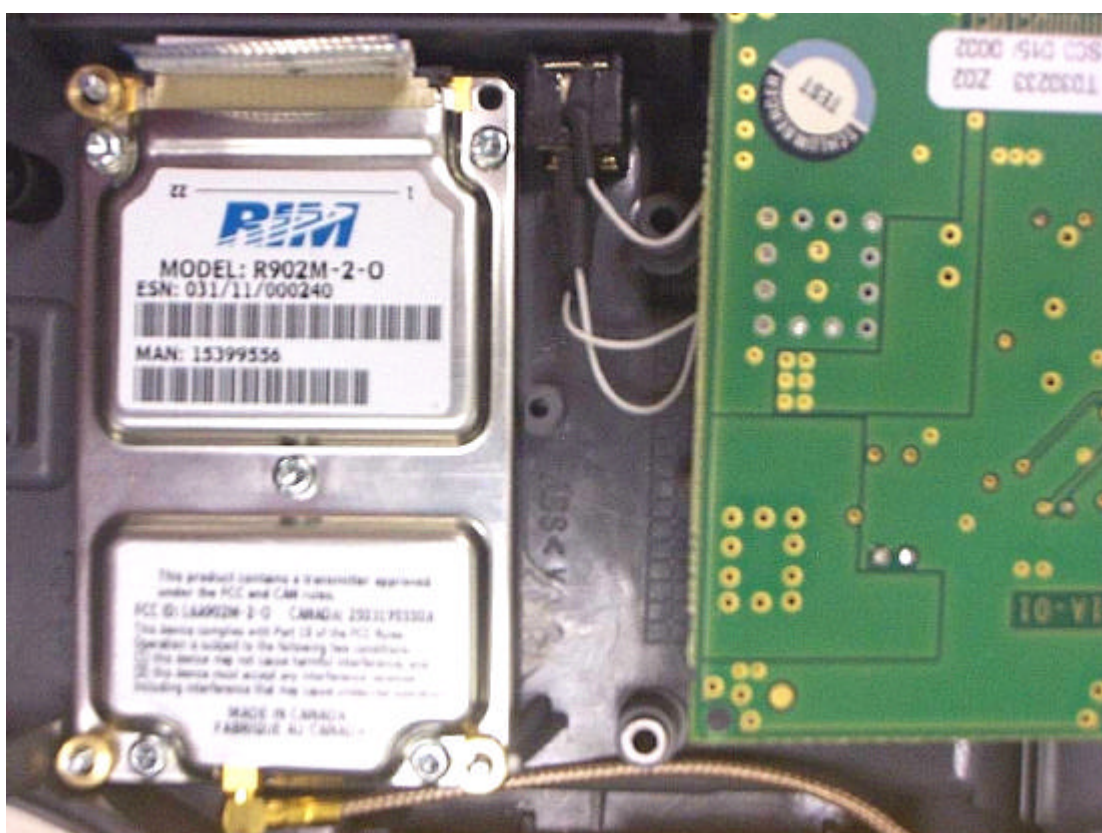
**Point of Sale Device  
Magic 9000**



**ERP Measurements in OATS**



***Inside View***



***Inside View, Modem***



***Reference Dipole Antenna Used for ERP Measurement***