

Exhibit 2A

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

Schlumberger Technologies

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

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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**

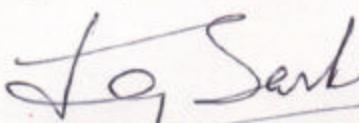
Model: **Magic 9000 with a Research in Motion R902M-2-0 transmitter Mobitex**

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

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

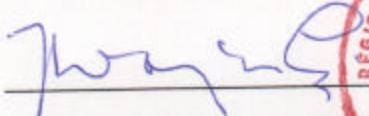
Prepared By: **APREL Laboratories,**
Regulatory Compliance Division

Approved by:

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

Jay Sarkar
Director, Standards & Certification

Released by:

 **Dr. Jack J. Wojcik, 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 Ref. Paragraph 2.1046	8	1	Passed

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

Equipment Type: Point of Sale Device

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

Reference: FCC Rules and Regulations Parts 2 and Part 90

Manufacturer:

Power Source: 4.8 VDC Battery

Development Stage of Unit: Production

GENERAL SPECIFICATIONS

1. Frequency Range: 896 to 902 MHz (Transmitter)
2. Rated Transmitted Output Power: 1.585 W
3. Frequency Tolerance: ± 1.5 PPM
4. Type of Modulation: GMSK, F1D
5. Emission Designators (See 47 CFR § 2.201 and §2.202): 12K8F1D
6. 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 from the power meter.**

The process was repeated for two more channels.

Results: See Table 1

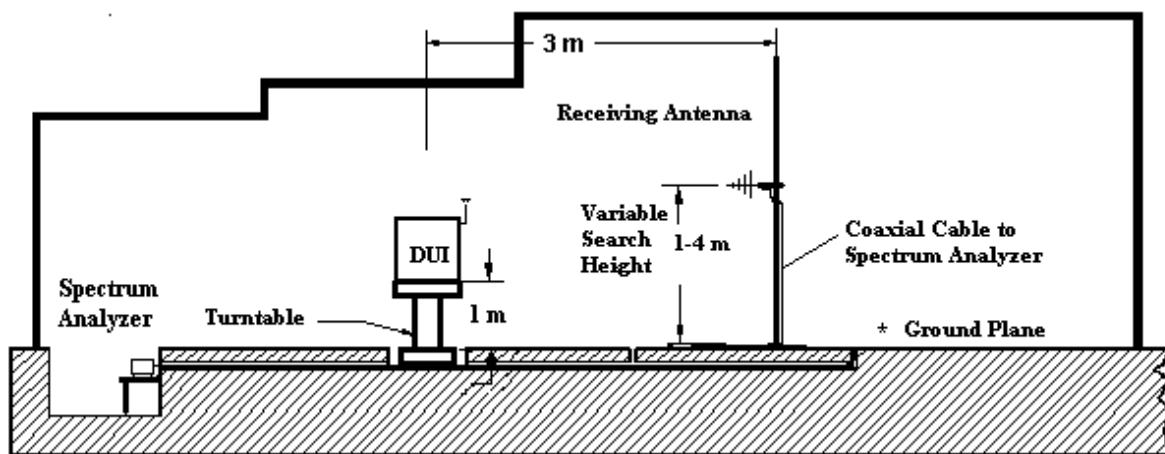


Figure 1.a Test set up for the Radiated Power (ERP) Measurement in OATS (not to scale)



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

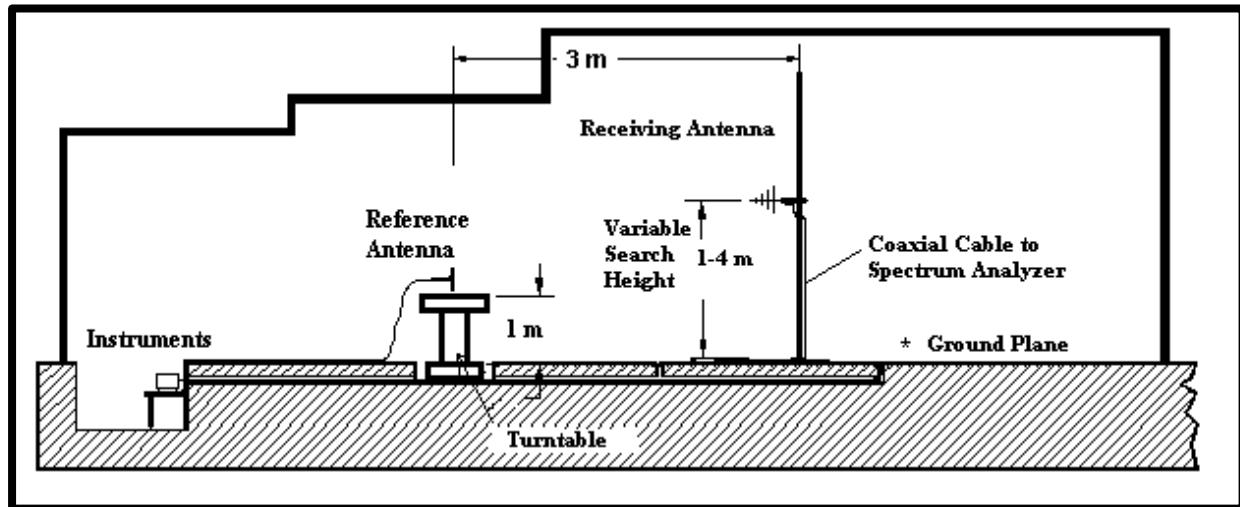


Figure 1.c Test set up for the Radiated Power (ERP) Measurement in OATS (not to scale)
The DUI is replaced by Reference Dipole Antenna.

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

Channel No.	Nominal Transmitting Frequency (MHz)	Manufacturer's Rated Output Power (Power Level: 0) (W)	Measured Output Power ERP (Power Level: 0) (dBm)	ERP
				(Power Level: 0) (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: Kylee PowersDate: June 27, 2000

Table 1.
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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

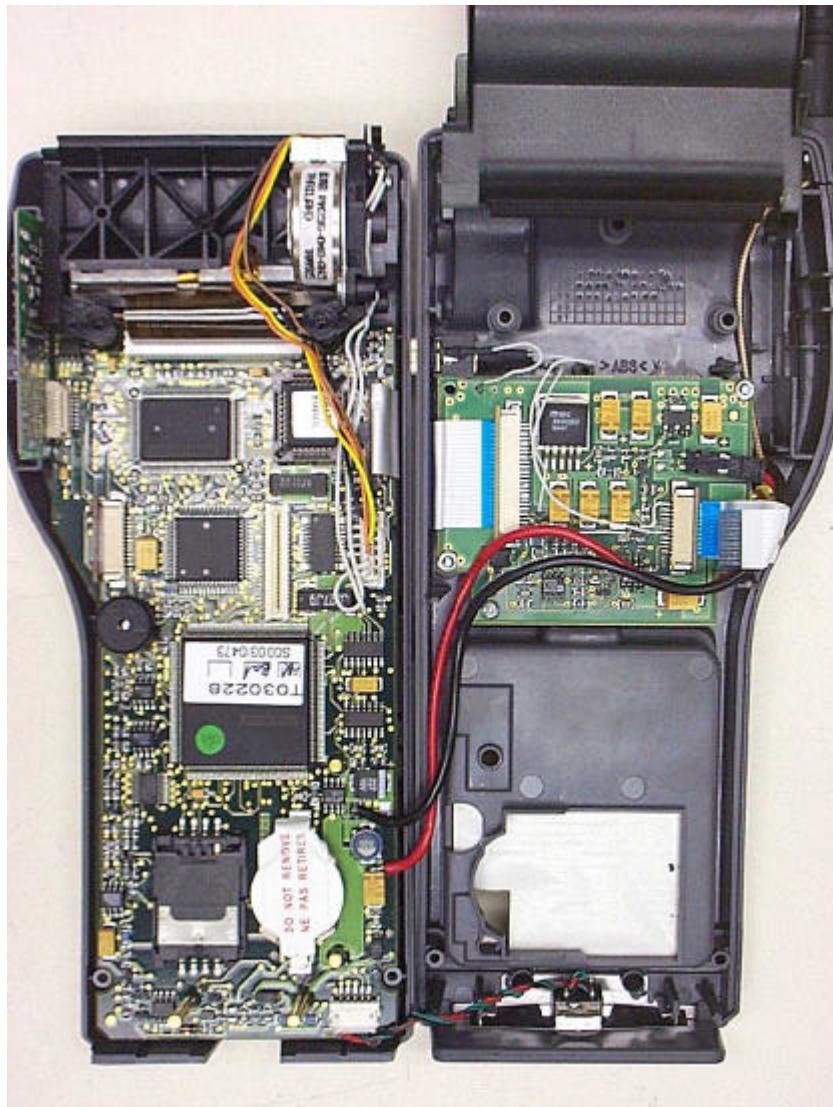
PHOTOGRAPHS



**Point of Sale Device
MagiC 9000**



ERP Measurements in OATS



Inside View



Inside View, Modem



Reference Dipole Antenna Used for ERP Measurement