



**Test Report:**

2W04607

**Applicant:**

Casi-Rusco  
791 Park of Commerce Blvd., Suite 100  
Boca Raton, FL  
33487  
USA

**Equipment Under Test:  
(EUT)**

840/845 Contactless Smart Card Readers

**In Accordance With:**

**FCC Part 15, Subpart C, 15.225**

**Tested By:**

Nemko Canada Inc.  
3325 River Road, R.R. 5  
Ottawa, Ontario K1V 1H2

**Authorized By:**

G. Westwell, Wireless Technologist

**Date:**

January 15, 2002

**Total Number of Pages:**

11

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## **Table Of Contents**

<b>Section 1.</b>	<b>Summary Of Test Results.....</b>	<b>3</b>
<b>Section 2.</b>	<b>General Equipment Specification .....</b>	<b>6</b>
<b>Section 3.</b>	<b>Radiated Emissions.....</b>	<b>7</b>
<b>Section 4.</b>	<b>Frequency Stability.....</b>	<b>9</b>
<b>Section 5.</b>	<b>Block Diagrams .....</b>	<b>10</b>
<b>Section 6.</b>	<b>Test Equipment List .....</b>	<b>11</b>

*EQUIPMENT: 840/845 Contactless Smart Card Readers*

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## **Section 1. Summary Of Test Results**

### **General**

**All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15, Subpart C for low power devices. All tests were conducted using measurement procedure ANSI C63.4-1992. Radiated Emissions were made on an open area test site. A description of the test facility is on file with the FCC.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE  
TEST SPECIFICATIONS HAVE BEEN MADE.

See "Summary of Test Data".



TESTED BY:

Russell Grant, Wireless Group Manager

DATE: January 11, 2002

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada. The tests included in this report are within the scope of this accreditation. The results apply only to the samples tested.

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This report applies only to the items tested.

*EQUIPMENT: 840/845 Contactless Smart Card Readers*

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**Summary Of Test Data**

<b>Name Of Test</b>	<b>Para. No.</b>	<b>Result</b>
Powerline Conducted Emissions	15.207	N/A
Radiated Emissions	15.225	Complies
Frequency Stability	15.225	Complies

**Footnotes For N/A's:**

12 VDC Primary Power

**Test Conditions:****Indoor**

Temperature: 20 °C

Humidity: 40 %

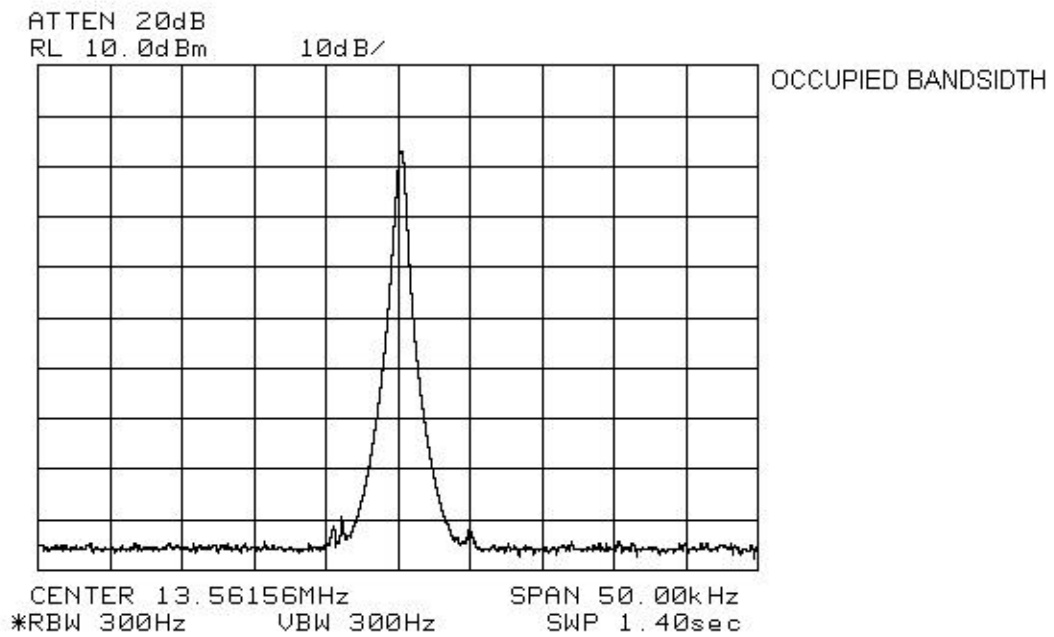
**Outdoor**

Temperature: 21 °C

Humidity: 50 %

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## **Section 2.           General Equipment Specification**

<b>Manufacturer:</b>	Casi-Rusco
<b>Model No.:</b>	840, 845
<b>Serial No.:</b>	H00216 28/01
<b>Date Received In Laboratory:</b>	January 7, 2002
<b>Nemko Identification No.:</b>	Item #1
<b>Tx:</b>	13.56 MHz Fixed
<b>Emission Designator:</b>	NON

**Section 3. Radiated Emissions****Para. No.: 15.225****Test Performed By:** Russell Grant**Date of Test:** January 9, 2002**Minimum Standard:**

Spurious Emissions (MHz)	Field Strength ( $\mu\text{V/m}$ )	Field Strength (dB $\mu\text{V}$ )
0.009 - 0.490	2400/F(kHz) @ 300m	—
0.490 - 1.705	24000/F(kHz) @ 30m	—
1.705 - 30	30 @ 30m	—
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

**Test Results:** Complies.**Measurement Data:** See attached table.

Measured: 13.56 MHz  
65.5 dB $\mu\text{V}$  @ 2m      Peak Detector  
53.0 dB $\mu\text{V}$  @ 4m      10 kHz RBW  
12.5 dB/Octave  
2 to 30, 3.9 Octave

Field Strength:  $65.5 - 3.9 \times 12.5 = 16.8$  dB $\mu\text{V/m}$

The spectrum was searched from 10 kHz to 1 GHz for spurious emissions. No emissions were detected within 20 dB of the limit. The equipment was configured on 3 axis in order to maximize emissions.

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## **Radiated Emissions Photograph**

**Front View:**





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**Section 4. Frequency Stability****Para. No.: 15.225**

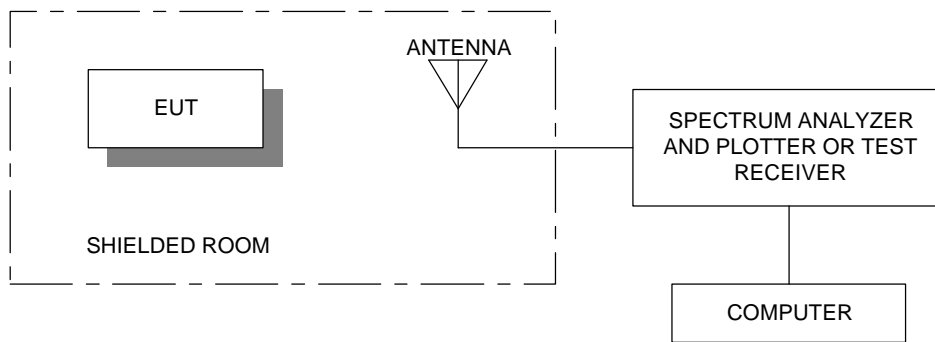
<b>Test Performed By:</b> Russell Grant	<b>Date of Test:</b> January 9, 2002
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**Minimum Standard:** 0.01%, 100 ppm, 1356 Hz**Test Results:** Complies.**Measurement Data:** STV: 12 VDC

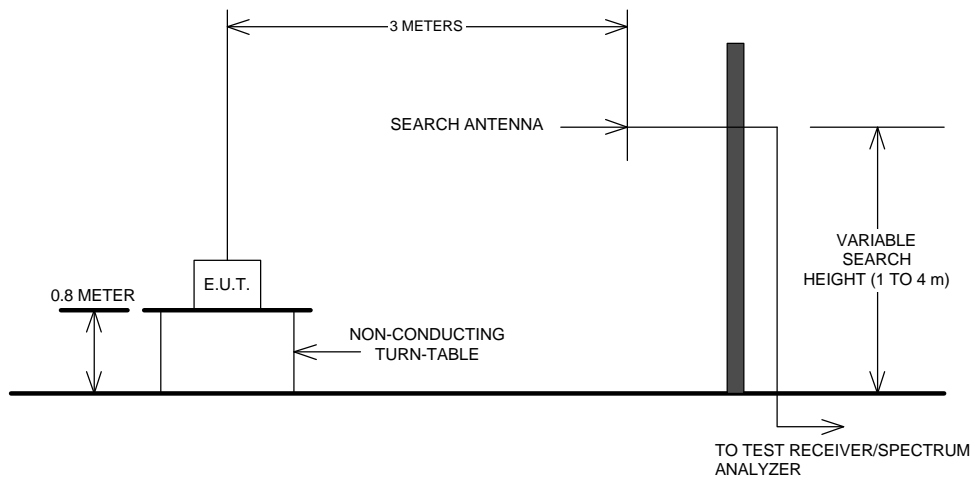
Test Condition	Frequency (Hz)	Frequency Drift (Hz)
20°C, ± STV, STV	13.561 547	0
-20°C, STV	13.561 614	67
-10°C, STV	13.561 614	67
0°C, STV	13.561 614	67
+10°C, STV	13.561 606	59
+30°C, STV	13.561 590	43
+40°C, STV	13.561 576	29
+50°C, STV	13.561 489	-58

## Section 5. Block Diagrams

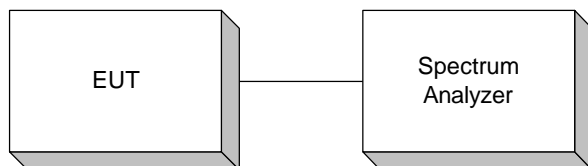
### Radiated Prescan



### Test Site For Radiated Emissions



### Frequency Stability



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**Section 6.            Test Equipment List**

<b>CAL CYCLE</b>	<b>EQUIPMENT</b>	<b>MANUFACTURER</b>	<b>MODEL</b>	<b>SERIAL</b>	<b>LAST CAL.</b>	<b>NEXT CAL.</b>
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 08/01	June 08/02
1 Year	Climate Chamber	Thermotron	SM-16C	15649-S	COU	COU
1 Year	Receiver	Rohde & Schwarz	ESH3	892473/002	Oct. 18/01	Oct. 18/02
1 Year	Active Loop Antenna	Rohde & Schwarz	HFH2-Z2	FA000631	March 20/01	March 20/02

NA: Not Applicable

NCR: No Cal Required

COU: CAL On Use