

KTL Test Report: 0R02703.2

Applicant: Casi-Rusco
1155 Broken Sound Parkway
Boca Raton, Florida
33487
USA

Equipment Under Test: 1000/1010 Access Control Reader
(E.U.T.)

FCC ID: JTQ1000-1010

In Accordance With: **FCC Part 15, Subpart C, Paragraph 15.209**
General Limits For Low Power Transmitters

Tested By: KTL Ottawa Inc.
3325 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By:
R. Grant, Wireless Group Manager

Date:

Total Number of Pages: 14

*EQUIPMENT: 1000/1010 Access Control Reader*FCC ID: JTQ1000-1010

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*EQUIPMENT: 1000/1010 Access Control Reader*FCC ID: JTQ1000-1010

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.



New Submission



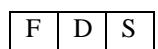
Production Unit



Class II Permissive Change



Pre-Production Unit



Equipment Code

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".



NVLAP LAB CODE: 100351-0

TESTED BY: _____ DATE: _____
Glen Westwell, Technologist

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This report applies only to the items tested.

*EQUIPMENT: 1000/1010 Access Control Reader*FCC ID: JTQ1000-1010

Summary Of Test Data

Name Of Test	Para. No.	Result
Powerline Conducted Emissions	15.207	Not Applicable
Radiated Emissions	15.209	Complies
Occupied Bandwidth	Not Specified	Complies

Footnotes For N/A's:**Test Conditions:****Indoor** Temperature: 22 °C
 Humidity: 42 %**Outdoor** Temperature: 24 °C
 Humidity: 45 %

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Section 2. General Equipment Specification**Manufacturer:** Casi-Rusco**Model No.:** 1000/1010**Serial No.:** None**Date Received In Laboratory:** July 10, 2000**KTL Identification No.:** Item #1**Frequency Range:** 119 - 133 kHz**Operating Frequency(ies) of Sample:** 125 kHz**Modulation:** CW**Emission Designator:** N0N**Integral Antenna****Yes**
No

Note: If antenna is not integral to transmitter explain method of attachment and type of unique connector:

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Section 3. Radiated Emissions

Para. No.: 15.209

Test Performed By: Glen Westwell	Date of Test: July 10, 2000
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Minimum Standard: The field strength of emissions from the device shall not exceed the following limits.

Fundamental (MHz)	Field Strength (μV/m)	Field Strength (dBμV)
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. The worst-case emission level is 16.6 dB μ V/m @ 30m at 0.630 MHz. This is 15.1 dB below the specification limit.

Measurement Data: **(Procedure ANSI C63.4-1992)**

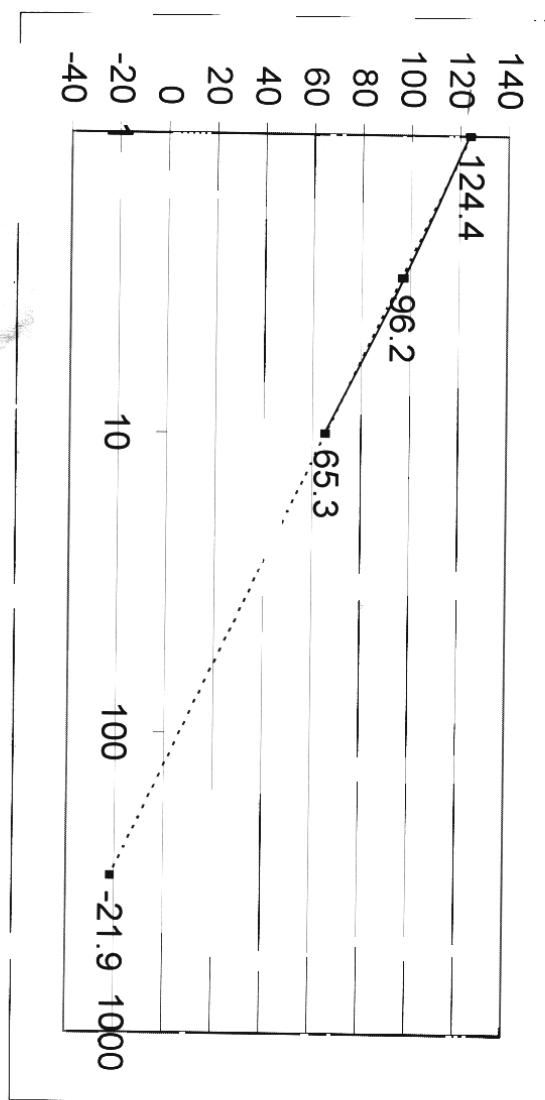
See fundamental extrapolation graph attached.

Fund. Emission (kHz)	Field Strength @ 3m (dBμV/m)	Extrapolated Field Strength @ 300m (dBμV/m)	Limit @ 300 m (dBμV/m)	Margin (dB)
125 kHz	97.3	-21.9	25.7	47.6

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Measurement Data: Fundamental at 125 kHz
Measured at 1,3 and 10 m
and Extrapolated to 300 m

Log Measurement Distance (m)	Field Strength (dBuV/m)	Derived Extrapolation (dBuV/m)
1	123.8	124.4
3	97.3	96.2
10	64.8	65.3
300	-59.1	-21.9
2	0.477121255	124.4
3	0.477121255	96.2
10	1	65.3
300	2.477121255	-21.9



*EQUIPMENT: 1000/1010 Access Control Reader**FCC ID: JTQ1000-1010***Test Data - Radiated Emissions****(9kHz to 490 kHz Extrapolated to 300m)
40dB/Decade Extrapolation Factor 1m-300m**

Test Distance (meters) :		Range:		Receiver: ESVP		RBW(kHz): 10 Extrapolation		Detector: Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dB μ V/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Corr. (dB μ V/m)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
			1m			300m			
0.250	A/LR		76.2			-22.9		19.6	42.5
0.375	A/LR		65.5			-33.6		16.1	49.7

Notes:

B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole
* Re-measured using dipole antenna.
** Includes cable loss when amplifier is not used.
*** Includes cable loss.
() Denotes failing emission level.
N.D. = Not Detected

Test Data - Radiated Emissions**(490 kHz to 1.7 MHz Extrapolated to 30m)
40dB/Decade Extrapolation Factor 1m-30m**

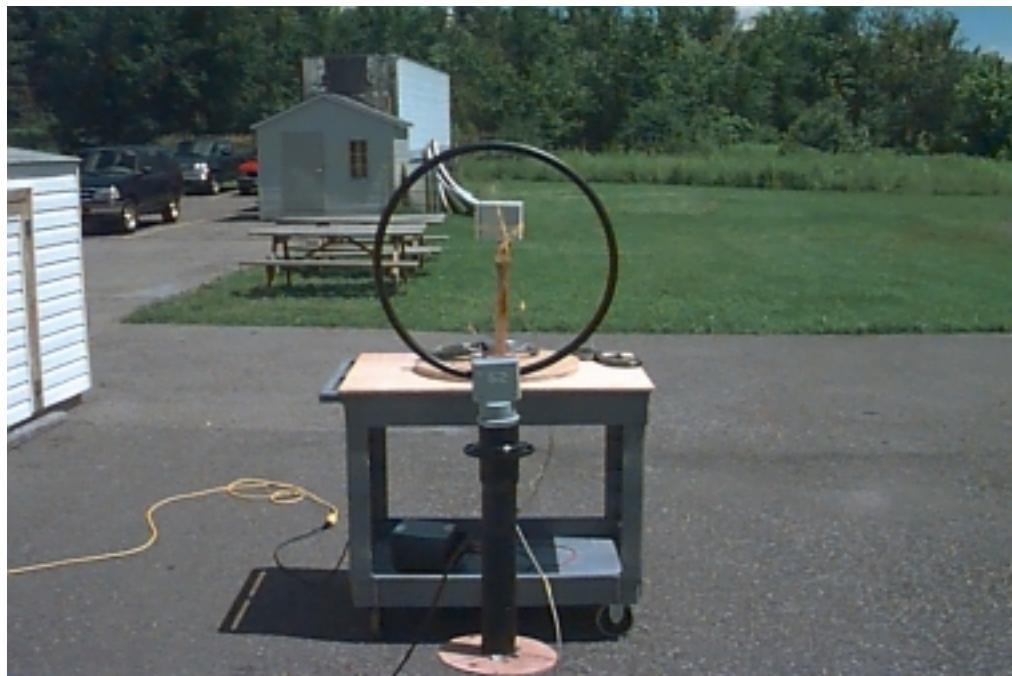
Test Distance (meters) :		Range:		Receiver: ESVP		RBW(kHz): 10 Extrapolation		Detector: Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dB μ V/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Corr. (dB μ V/m)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
			1m			30m			
0.500	A/LR		53.9			-5.2		33.6	38.8
0.630	A/LR		75.7			16.6		31.7	15.1
0.750	A/LR		45.5			-13.5		30.1	43.6
0.875	A/LR		43.8			-15.3		28.8	44.1
1.00	A/LR		33.7			-25.4		27.6	53.0

Notes:

B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole
* Re-measured using dipole antenna.
** Includes cable loss when amplifier is not used.
*** Includes cable loss.
() Denotes failing emission level.
N.D. = Not Detected

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Radiated Photographs (Worst Case Configuration)



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Section 4. Occupied Bandwidth

Para. No.: Not Applicable

Test Performed By: Glen Westwell	Date of Test: July 13, 2000
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Minimum Standard: Not specified.

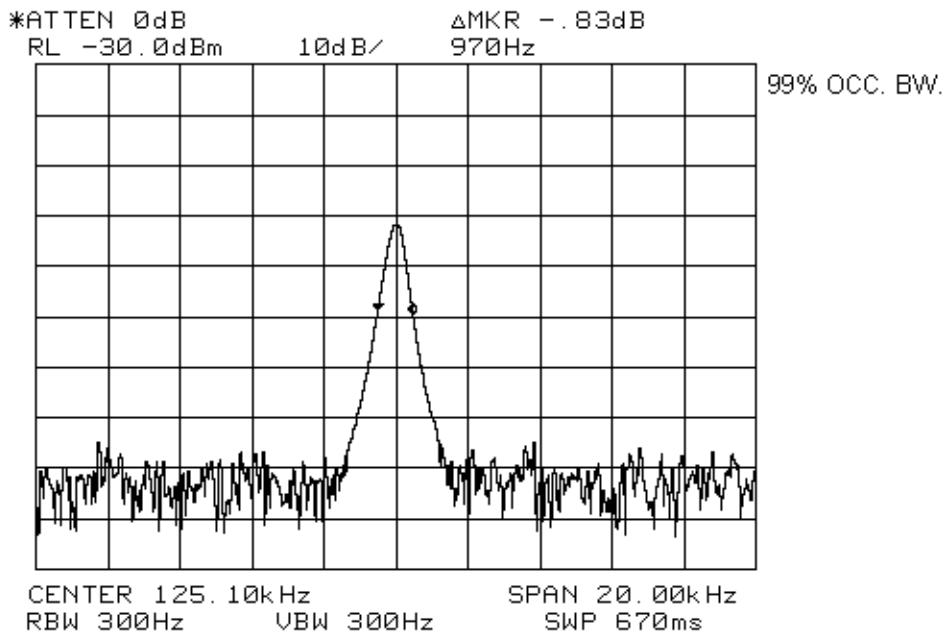
Test Results: The 99% power occupied bandwidth is 970 Hz.

Measurement Data: See attached graph(s).

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FCC PART 15, SUBPART C
PARAGRAPH 15.209
PROJECT NO.: 0R02703.2

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Section 5. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8564E	3846A01407	May 31/99	Nov. 30/00
1 Year	Climate Chamber	Thermotron	SM-16C	15649-S	COU	COU
1 Year	Receiver	Rohde & Schwarz	ESH3	892473/002	Nov. 23/99	Nov. 23/00
1 Year	Loop Antenna	Rohde & Schwarz	HFH2-Z2	FA000631	Feb. 09/00	Feb. 09/01

NA: Not Applicable

NCR: No Cal Required

COU: CAL On Use

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FCC PART 15, SUBPART C
PARAGRAPH 15.209
PROJECT NO.: 0R02703.2
ANNEX A

EQUIPMENT: 1000/1010 Access Control Reader

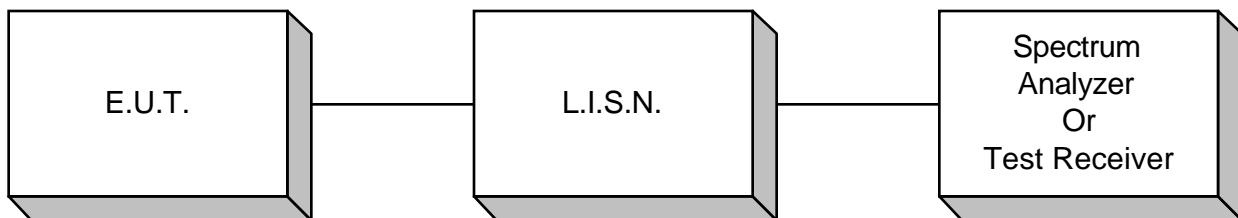
FCC ID: JTQ1000-1010

Annex A

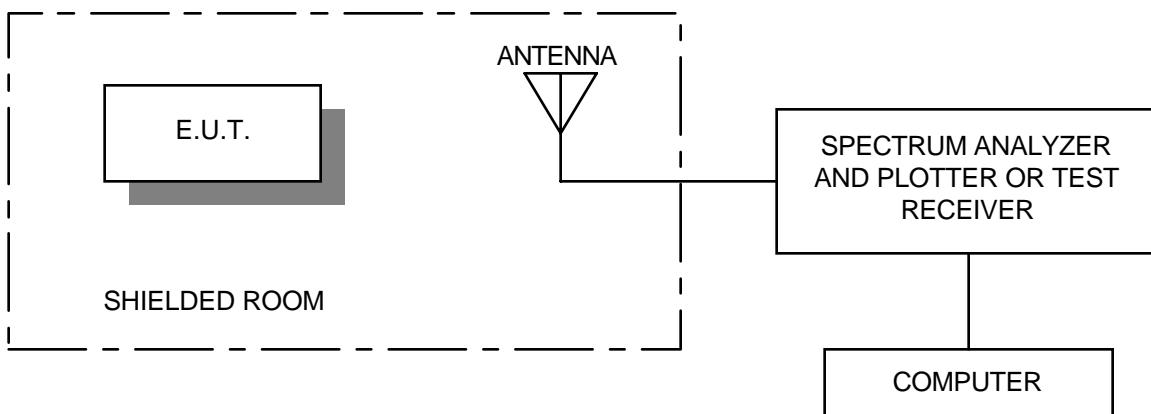
Test Diagrams

*EQUIPMENT: 1000/1010 Access Control Reader
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Conducted Emissions



Radiated Prescan



Test Site For Radiated Emissions

