


FCC PART 15C MEASUREMENT AND TEST REPORT FOR

Controlled Entry Distributor, Inc.

2500 South 3850 West, Suite A, Salt Lake City, Utah 84120 USA

FCC ID: SU7CRW26EM

Report Concerns: Original Report	Equipment Type: RFID reader
Model:	<u>CRW-26EM</u>
Report No.:	<u>STR08018059I</u>
Test/Witness Engineer:	<i>Susan Su</i>
Test Date:	<u>2008-01-18 to 2008-01-24</u>
Prepared By:	<p>Shenzhen SEM.Test Compliance Service Co., Ltd. 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101)</p>
Approved & Authorized By:	<div style="text-align: right;">  <hr style="width: 20%; margin: 0 auto;"/> <p>Jandy So / PSQ Manager</p> </div>

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Controlled Entry Distributor, Inc.
 Address of applicant: 2500 South 3850 West, Suite A, Salt Lake City, Utah 84120 USA

Manufacturer: Sebury Technology Co., Ltd.
 Address of manufacturer: Zhuangda Industrial park, Fuguang Village, Xili Town, Nanshan District, Shenzhen City, Guangdong Province, China

General Description of E.U.T

Items	Description
EUT Description:	RFID reader
Trade Name:	/
Model No.:	CRW-26EM
Rated Voltage:	DC 12V Battery
Rated Current:	60mA
Operation Frequency:	125kHz
Packaging Size:	12.1X4.6X2.4 cm
For more information refer to the circuit diagram form and the user’s manual.	

The test data is gathered from a production sample, provided by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of Controlled Entry Distributor, Inc. in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205 and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission/immunity, should be checked to ensure compliance has been maintained.

1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in

the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible susceptibility against the tested phenomena. The test modes were adapted accordingly in reference to the Operating Instructions.

1.5 Test Facility

The Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files which the Registration No.: **759397**. Measurement required was performed at laboratory of Solid Industrial Co., Ltd. at 333 Bulong Highway Buji Longgang, Shenzhen, Guangdong, China.

1.6 EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the system components. The test software, provided by the customer, is started while the EUT is on to simulate the normal work.

1.7 Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

1.8 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Power Cable	0.90	Shielded	Without Core

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.107 (a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

3. §15.107 (a)- CONDUCTED EMISSION

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 1.5 dB.

3.2 Test Equipment List and Details

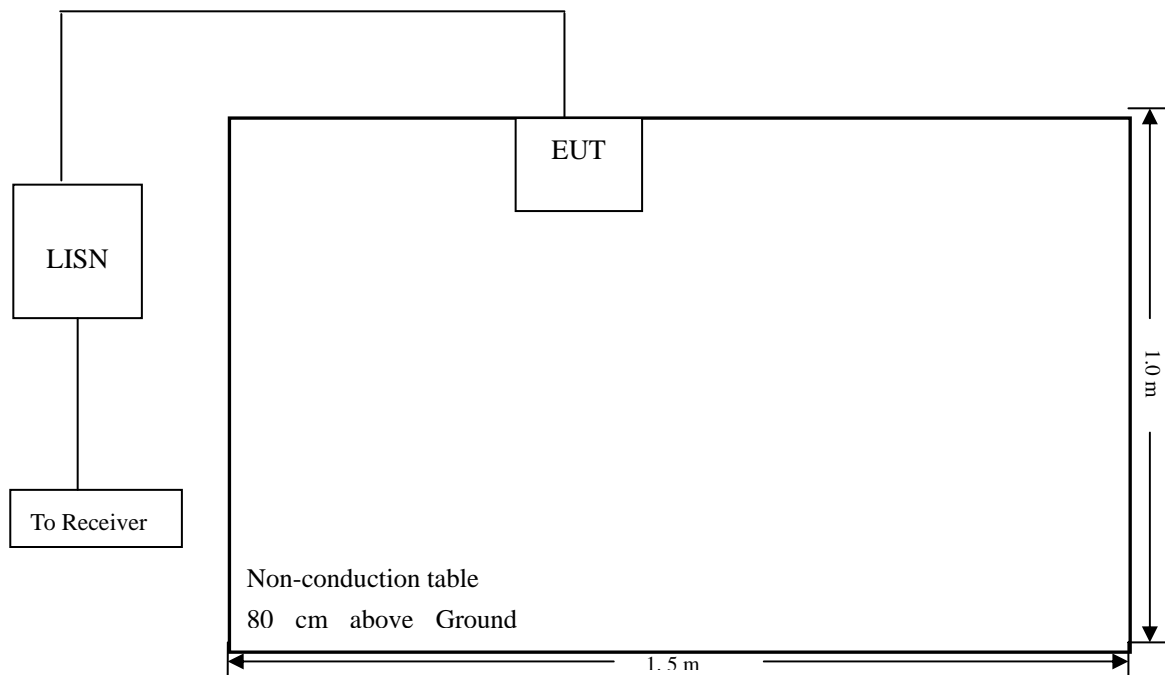
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESCS30	830245/009	2007-06-30	2008-06-29
AMN	Rohde & Schwarz	ESH2-Z5	100002	2007-06-30	2008-06-29
Limiter	Rohde & Schwarz	ESH3-Z2	357.8810.52	2007-06-30	2008-06-29
AMN	Rohde & Schwarz	ESH3-Z5	828304/014	2007-06-30	2008-06-29
Spectrum Analyzer	Aglient	E4402B-ESA	US41192821	2007-06-30	2008-06-29

3.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.107 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	18° C
Relative Humidity:	55%
ATM Pressure:	1012 mbar

3.6 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency 150 kHz
 Stop Frequency..... 30 MHz
 Sweep Speed Auto
 IF Bandwidth..... 10 kHz
 Quasi-Peak Adapter Bandwidth 9 kHz
 Quasi-Peak Adapter Mode Normal

3.7 Summary of Test Results/Plots

According to the data in section 3.8, the EUT complied with the FCC 15B Conducted margin for a Class B device, with the *worst* margin reading of:

-12.3 dBµV at 0.85 MHz in the Line mode, 0.15-30MHz

3.8 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC 15 CLASS B	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBµV	QP/Ave/Pk	Line/Neutral	dBµV	dB
0.85	43.7	PK	Line	56	-12.3
0.86	42.0	PK	Neutral	56	-14.0
0.41	43.3	PK	Neutral	57.65	-14.3
0.41	42.0	PK	Line	57.65	-15.6
0.15	48.9	PK	Line	66	-17.1
0.15	48.1	PK	Neutral	66	-17.9

Since the peak reading is below the AV limit, the AV reading can be omitted.

Plot of Conducted Emissions Test Data

Conducted Disturbance

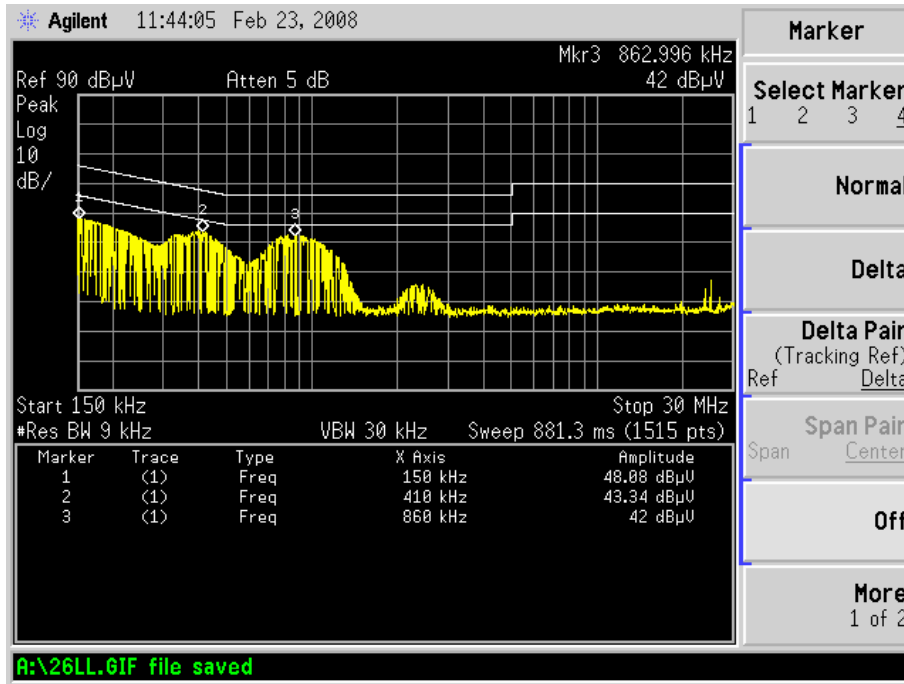
EUT: RFID reader

M/N: CRW-26EM

Operating Condition: Running

Test Specification: N

Comment: AC120V/60Hz; DC12V



Plot of Conducted Emissions Test Data

Conducted Disturbance

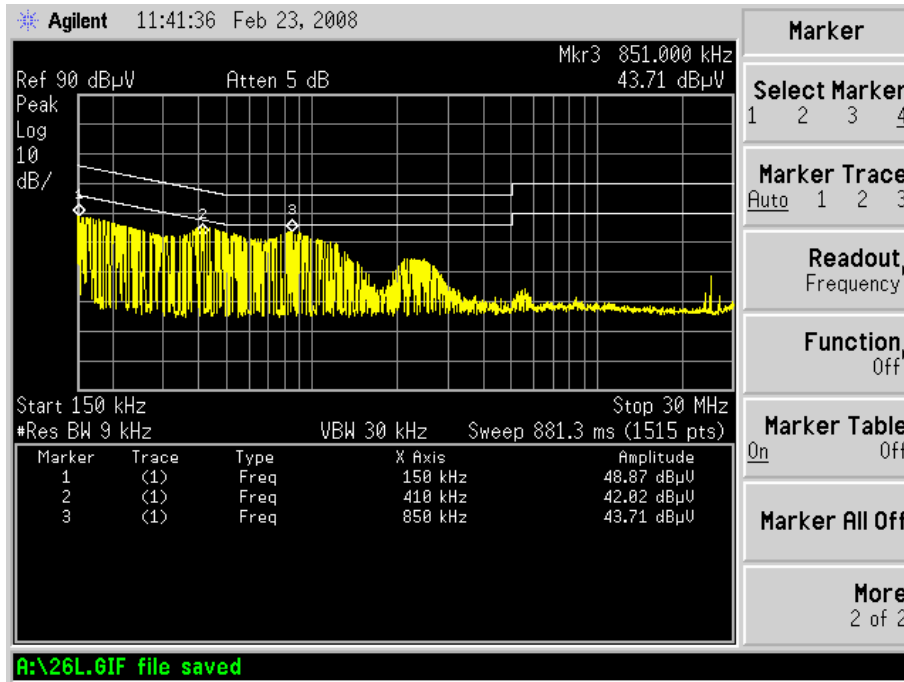
EUT: RFID reader

M/N: CRW-26EM

Operating Condition: Running

Test Specification: L

Comment: AC120V/60Hz; DC12V



4. §15.109(a)- RADIATED EMISSION

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 3.0 dB.

4.2 Test Equipment List and Details

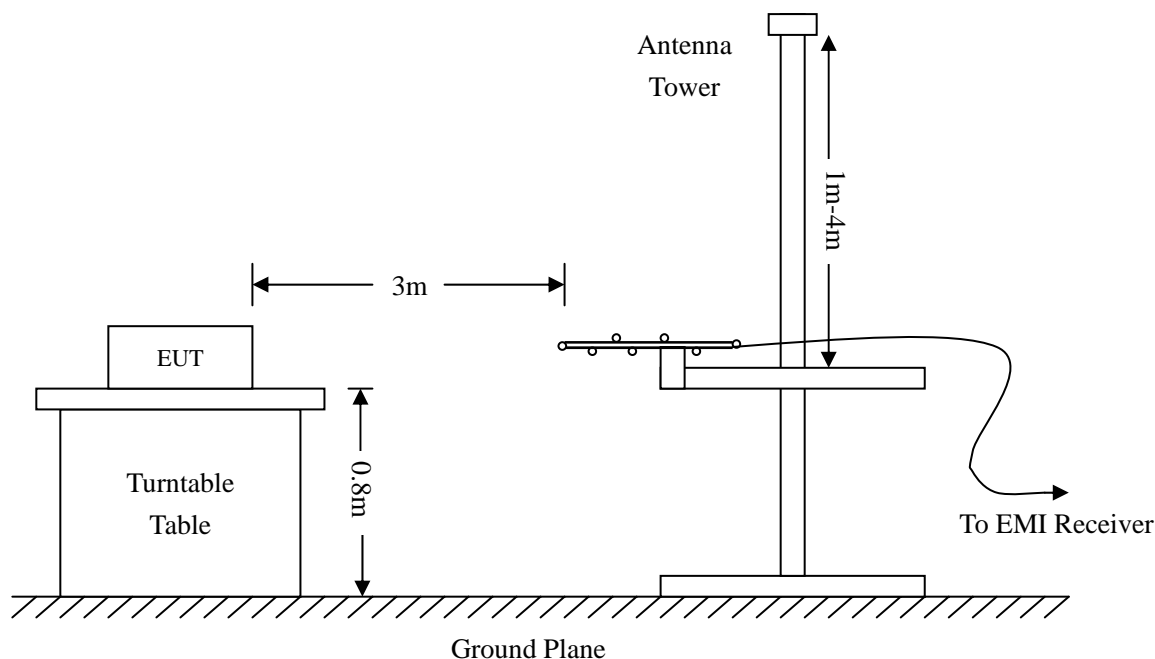
Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Rohde & Schwarz	EMI Test Receiver	ESIB26	830245/009	2007-06-30	2008-06-29
ETS	Multi Controller	2090	57230	2007-06-30	2008-06-29
Schwarz beck	Horn Antenna	VULB 9163	9163-333	2007-06-30	2008-06-29
Schwarz beck	Loop Antenna	HFRAE5150	5150230	2007-06-30	2008-06-29

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 and FCC Part 15.109 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency 30 MHz
 Stop Frequency..... 1000 MHz
 Sweep Speed Auto
 IF Bandwidth..... 10 kHz
 Quasi-Peak Adapter Bandwidth 120 kHz
 Quasi-Peak Adapter Mode Normal

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15B Limit}$$

4.6 Environmental Conditions

Temperature:	22° C
Relative Humidity:	50%
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC 15C Class B standards, and had the worst margin of:

-3.5 dB μ V at 44.62 MHz in the Vertical polarization, 30 MHz to 1 GHz, 3Meters

INDICATED		TABLE	ANTENNA		CORRECTED FACTOR	CORRECTED AMPLITUDE	FCC 15 CLASS B		DETECTOR
Freq. MHz	Ampl. dB μ V/m	Angle Degree	Height Meter	Polar H/V	dB	dB μ V/m	Limit dB μ V/m	Margin dB	PK/QP
44.62	47.9	45	1.2	V	11.40	36.5	40	-3.5	QP
68.10	48.9	98	1.2	V	16.82	32.1	40	-7.9	QP
512.42	42.6	60	1.3	H	5.41	37.2	46	-8.8	QP
499.88	41.3	185	1.2	V	5.16	36.1	46	-9.9	QP
172.85	39.9	56	1.4	V	11.83	28.1	43.5	-15.4	PK
230.26	40.5	60	2	V	12.05	28.4	46	-17.6	PK
292.60	37.4	266	1	V	9.19	28.2	46	-17.8	PK
368.86	32.2	45	1	H	7.89	24.3	46	-21.7	PK
158.62	27.6	135	1.2	H	11.61	16.0	43.5	-27.5	PK
126.44	25.4	66	1	H	10.29	15.1	43.5	-28.4	PK

Plot of Radiation Emissions Test Data

Radiated Disturbance

EUT: RFID reader

M/N: CRW-26EM

Operating Condition: Running

Test Specification: Vertical & Horizontal

Comment: DC 12V

