



Compliance Testing, LLC

Previously Flom Test Lab

EMI, EMC, RF Testing Experts Since 1963

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Test Report

Prepared for: Hancett Entry Systems, Inc.

Model: K100-620IA

Description: Electronic Cabinet Lock System

To

FCC Part 15.249

Date of Issue: June 21, 2012

On the behalf of the applicant:

Hancett Entry Systems, Inc.
10027 S. 51st St.
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Phoenix, AZ 85044

Attention of:

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Project No: p1250006

Greg Corbin
Project Test Engineer

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Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	June 21, 2012	Greg Corbin	Original Document
2.0	October 22, 2012	Karen Springer	Updated model information



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ILAC / A2LA

Compliance Testing, LLC, has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009)

The tests results contained within this test report all fall within our scope of accreditation, unless noted below.

Please refer to <http://www.compliancetesting.com/labscope.html> for current scope of accreditation.

Testing Certificate Number: **2152.01**



FCC OATS Reg, #933597

IC Reg. #2044A-1

Non-accredited tests contained in this report:

N/A



The applicant has been cautioned as to the following

15.21: Information to User

The user's manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a): Special Accessories

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator the responsible part may employ other methods of ensuring that the special accessories are provided to the consumer, without an additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.



Standard Test Conditions and Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing

In accordance with ANSI C63.4-2009, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40 ° C (50 ° to 104 ° F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Environmental Conditions		
Temperature (° C)	Humidity (%)	Pressure (mba)r
23.2 – 26.2	26.5 – 47.9	959 – 968.6

EUT Description

Model: K100-620IA

Description: Electronic Cabinet Lock System

Additional Information:

Door mounted keycard entry system with 2 wireless RF transmitters.

One transmitter is operating at 13.56 MHz using ASK modulation.

The 2nd transmitter is a DTS transmitter operating at 2.4 GHz with O-QPSK modulation.

The 13.56 MHz transmitter was not transmitting while testing the 2.4 GHz transmitter.

The EUT is powered by 3.0 v Lithium battery (battery type = CR123A) that is not rechargeable and the EUT never connects to the AC mains.

EUT Operation during Tests

The transmitter was powered on continuously during the test.

Accessories: None

Cables: None

Modifications: None

15.203: Antenna Requirement:

 X The antenna is permanently attached to the EUT



Test Results Summary

Specification	Test Name	Pass, Fail, N/A	Comments
15.249(a)	Fundamental Field Strength	Pass	
15.249(d)	Out of Band Spurious Emissions	Pass	
RSS-210 RSS-GEN	99% Occupied Bandwidth	Pass	



Fundamental Field Strength

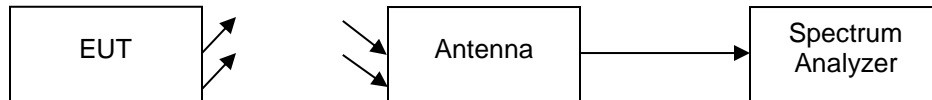
Name of Test: Fundamental Field Strength
Specification: 15.249(a)
Test Equipment Utilized: i00103, i00331

Engineer: Greg Corbin
Test Date: 6/19/2012

Test Procedure

The EUT was tested on an Open Area Test Site (OATS) at a distance of 3 meters from the receiving antenna. A spectrum analyzer was used to verify that the EUT met the requirements for Fundamental Field Strength.

Test Setup



Spectrum Analyzer Settings

Detector Settings	RBW	VBW	Span
Peak	1 MHz	3 MHz	As Necessary
Average	1 MHz	3 MHz	As Necessary

Sample Calculations:

Correction Factors include Antenna and cable insertion loss correction factors.

Measured Level includes correction factors that were input to the spectrum analyzer before recording test data.



Fundamental Field Strength

Tuned Freq. (MHz)	Peak Measured Level (dBuV/m)	Peak Limit (dBuV/m)	Result
2405	78.8	114.0	Pass
2440	78.6	114.0	Pass
2475	76.6	114.0	Pass

Tuned Freq. (MHz)	Avg. Measured Level (dBuV/m)	Avg. Limit (dBuV/m)	Result
2405	79.4	94.0	Pass
2440	77.2	94.0	Pass
2475	75.3	94.0	Pass



Radiated Spurious Emissions

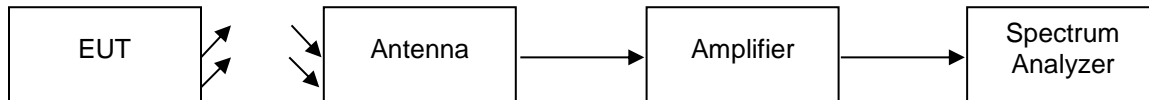
Name of Test: Radiated Spurious Emissions
Specification: 15.249(d)
Test Equipment Utilized: i00267, i00271, i00331

Engineer: Greg Corbin
Test Date: 6/19/2012

Test Procedure

The EUT was tested on an Open Area Test Site (OATS) at a distance of 3 meters from the receiving antenna. A spectrum analyzer was used to verify that the EUT met the requirements for Radiated Spurious Emissions. The spectrum for each tuned frequency was examined to the 10th harmonic. In addition, plots of the radiated spurious emissions at the operating band edges are provided to verify compliance.

Test Setup



Analyzer Settings

Detector Settings	RBW	VBW	Span
Peak	1 MHz	3 MHz	As Necessary
Average	1 MHz	3 MHz	As Necessary

Sample Calculations:

Correction Factors include Antenna and cable insertion loss correction factors.

Measured Level includes correction factors that were input to the spectrum analyzer before recording test data



Radiated Spurious Emissions

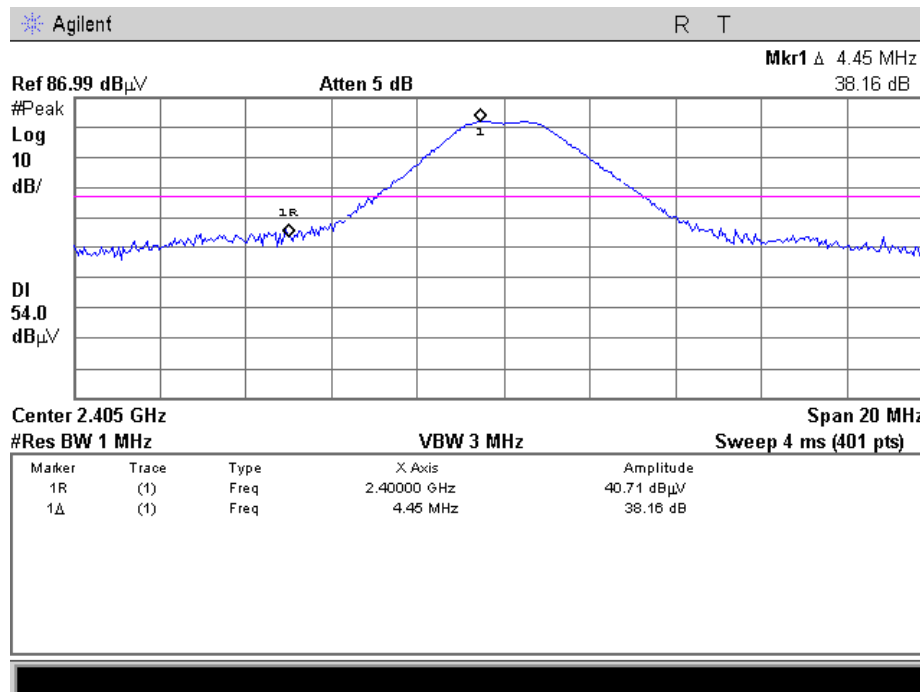
Tuned Freq. (MHz)	Emission Freq. (MHz)	Peak Measured Level (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)
2405	4810	38.4	74.0	-35.6
2405	7215	41.8	74.0	-32.2
2405	9620	49.1	74.0	-24.9
2440	4880	39.2	74.0	-34.8
2440	7320	42.0	74.0	-32
2440	9760	47.8	74.0	-26.2
2475	4950	35.3	74.0	-38.7
2475	7425	41.3	74.0	-32.7
2475	9900	47.9	74.0	-26.1

Tuned Freq. (MHz)	Emission Freq. (MHz)	Avg. Measured Level (dBuV/m)	Avg. Limit (dBuV/m)	Margin (dB)
2405	4810	31.7	54.0	-22.3
2405	7215	32.2	54.0	-21.8
2405	9260	41.6	54.0	-12.4
2440	4880	31.7	54.0	-22.3
2440	7320	34.6	54.0	-19.4
2440	9760	40.5	54.0	-13.5
2475	4950	28.3	54.0	-25.7
2475	7425	33.7	54.0	-20.3
2475	9900	40.5	54.0	-13.5

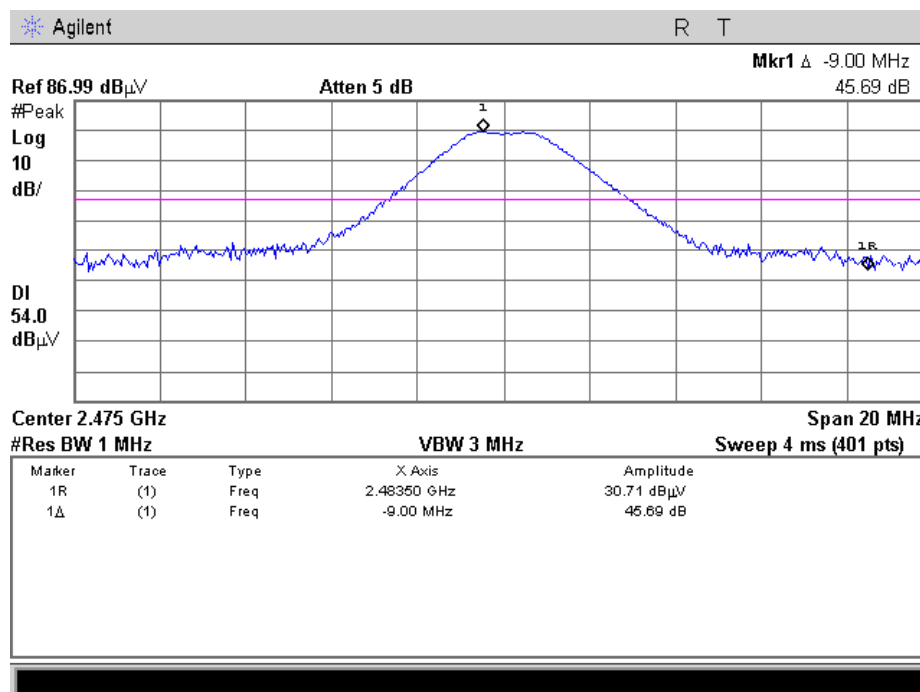
No other emissions were detectable. All emissions were greater than -20 dBc.



Lower Band Edge Plot



Upper Band Edge Plot





99% Occupied Bandwidth

Name of Test:

99% Occupied Bandwidth

Specification:

RSS 210 Industry Canada Only

Engineer: Greg Corbin

Test Equipment Utilized:

i00271, i00331

Test Date: 6/19/2012

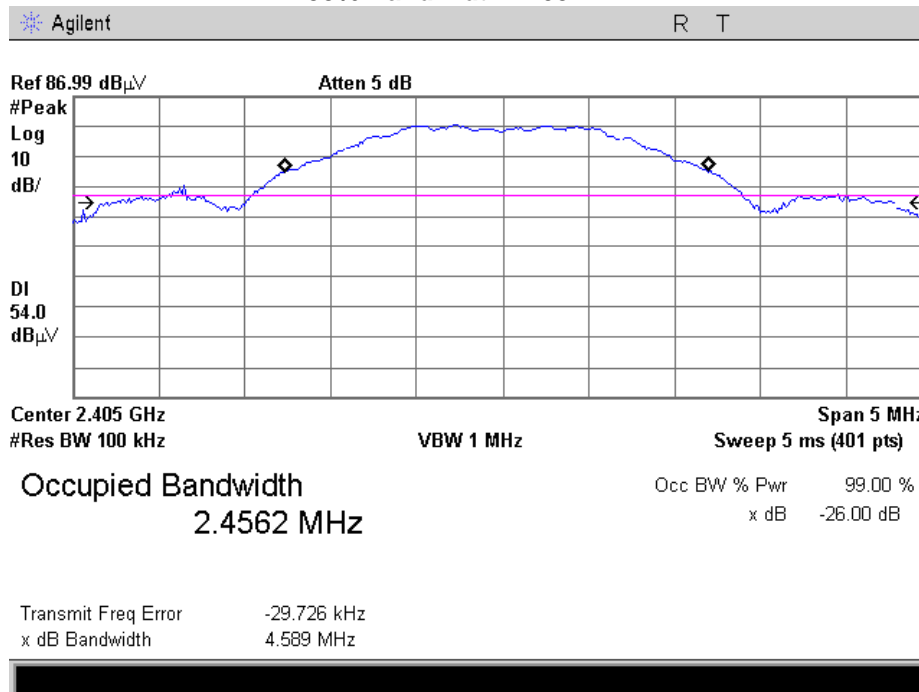
Test Procedure

The EUT was tested on an Open Area Test Site (OATS) at a distance of 3 meter from the receiving antenna. The Span was set wide enough to capture the entire transmit spectrum and the resolution bandwidth was set to at least 1% of the span. The analyzer was set to max hold the 99% bandwidth was measured.

Occupied Bandwidth Summary

Frequency (MHz)	Recorded Measurement (MHz)	Result
2405	2.4562	Pass
2440	2.4547	Pass
2475	2.4273	Pass

99% Bandwidth 2405 MHz

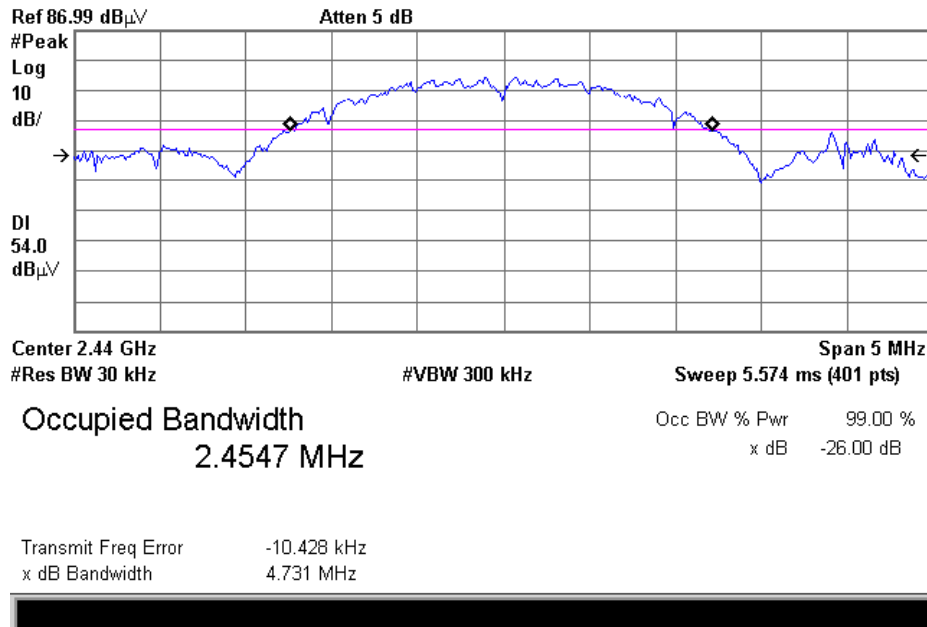




99% Bandwidth 2440 MHz

Agilent

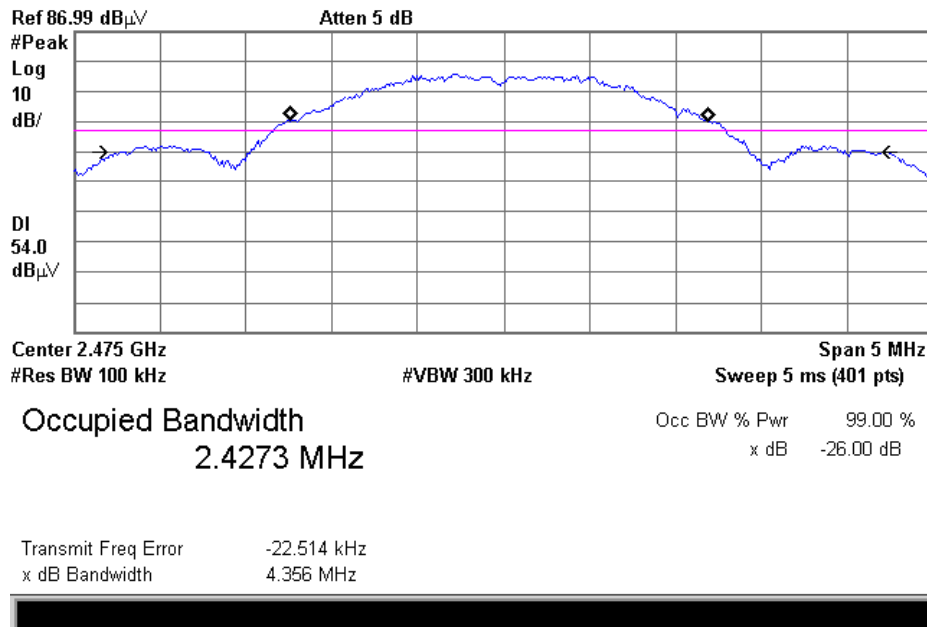
R T



99% Bandwidth 2475 MHz

Agilent

R T





Test Equipment Utilized

Description	Manufacturer	Model Number	CT Asset #	Last Cal Date	Cal Due Date
Horn Antenna	EMCO	3115	i00103	11/5/10	11/5/12
Bi-Log Antenna	Schaffner	CBL611C	i00267	12/19/11	12/19/13
Horn Antenna, Amplified	ARA	DRG-118/A	i00271	4/19/12	4/19/14
Humidity / Temp Meter	Newport	IBTHX-W-5	i00282	11/5/11	11/5/12
Spectrum Analyzer	Agilent	E4407B	i00331	4/20/12	4/20/13
Humidity / Temp Meter	Control Company	4189CC	i00355	1/11/12	1/11/13

In addition to the above listed equipment standard RF connectors and cables were utilized in the testing of the described equipment. Prior to testing these components were tested to verify proper operation.

END OF TEST REPORT