

Amended Test Report

Includes Report R101810-01-02B and Amendment

Client: **Stanley Security Solutions, Inc.**
6161 E 75th Street
Indianapolis, IN 46250

EUT: **Model UVC4041 125kHz RF ID Lockset**
FCC ID: **WEF-UVC4041**
IC: **7713A-UVC4041**

Test Report No.: **R101810-01-02C**

Approved By:



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This report applies only to the items tested.



Test Laboratory Certificate 1953.01

Revision Page

Rev. No.	Date	Description
Original	16 January 2012	Original - NJohnson
A	11 June 2012	Repeated measurement of occupied bandwidth and included new plot for test report -NJohnson
B	18 June 2012	Section 3.2 was modified to state that the EUT was tested at 125kHz. -NJohnson
C	22 June 2012	Section 3.2 was modified to state the the EUT was tested at 3m from 100kHz to 30MHz and at 10m from 30MHz to 1GHz. The limits and margins in Table 2 have been modified to reflect the applicable limits from FCC Part 15.209. -NJohnson

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1 Summary of Test Results

1.1 Emissions Test Results

The EUT was tested for compliance to FCC Part 15.209 and RSS-210 issue 8 using ANSI C63.4:2003. Below is a summary of the test results. Complete results of testing can be found in Section 3.

2 EUT Description

The Equipment Under Test (EUT) was an RF ID activated lockset that runs at 125 kHz.

2.1 Equipment under Test (EUT)

Table 1 – Equipment under Test (EUT)

Identification	UVC4041
Manufacturer	Stanley Security Solutions, Inc.
Serial Number	NCEE Test 2
RF ID Module	HID EProx Lock Module (eProxL)
EUT Received Date	2 December 2011
EUT Tested Date	10 January 2012 11 June 2012 (occupied bandwidth)

2.2 Testing Location

All testing was performed at the NCEE Lincoln facility, which is an A2LA accredited EMC test laboratory accredited per scope 1953.01.

2.3 EUT Setup

The EUT was tested while powered by 4 AA batteries with an RF ID card attached to the reader to create continuous activity. It was tested upright while affixed to a wooden test fixture at an 80cm height.

2.4 EUT Antenna

The EUT features an antenna which is integral to the device. The device is not meant to be, and is difficult to disassemble.

3 Test Results

3.1 Radiated Emissions

Test: CFR Title 47 FCC Part 15.209

Test Method: ANSI C63.4:2003

Test Result: Complies Date: 1/16/2012

3.1.1 Test Description

Radiated emissions measurements were made from 100kHz to 30MHz at a distance of 3m and 30MHz to 1GHz at a distance of 10m inside a semi-anechoic chamber. The EUT was rotated 360°, the antenna height varied from 1 – 4 meters and both the vertical and horizontal antenna polarizations examined. The results were compared against the limits. Measurements were made by first using a spectrum analyzer to acquire the signal spectrum; individual frequencies were then measured using a CISPR 16.1 compliant receiver with the following bandwidth setting:

100kHz – 30MHz: 10kHz IF Bandwidth, 5kHz steps*

30MHz – 1GHz: 120kHz IF bandwidth, 60kHz steps

*For measurements from 100kHz to 30MHz, the antenna used was a passive loop antenna with a 1m height.

3.1.2 Test Results

No radiated emissions measurements were found in excess of the limits. Test result data can be seen below.

3.1.3 Test Environment

Testing was performed at the NCEE Labs Lincoln facility in the 10m semi-anechoic chamber. Laboratory environmental conditions varied slightly throughout the test:

Relative humidity of $45 \pm 5\%$

Temperature of $20 \pm 2^\circ \text{C}$

3.1.4 Test Setup

See Section 2.3 for details.

3.1.5 Test Equipment Used

Serial No.	Manufacturer	Model	Description	Last Cal.
1647	EMCO	3142B	Bicon Antenna	6/13/2011
00024936	EMCO	6512	Loop antenna	1/5/2012
100007	Rhode & Schwarz	ESIB7	EMI Test Receiver	9/27/2011
2575	Rohde & Schwarz	ES-K1	Software v.1.60	CNR*

*Calibration not required

3.1.6 Test Pictures and/or Figures

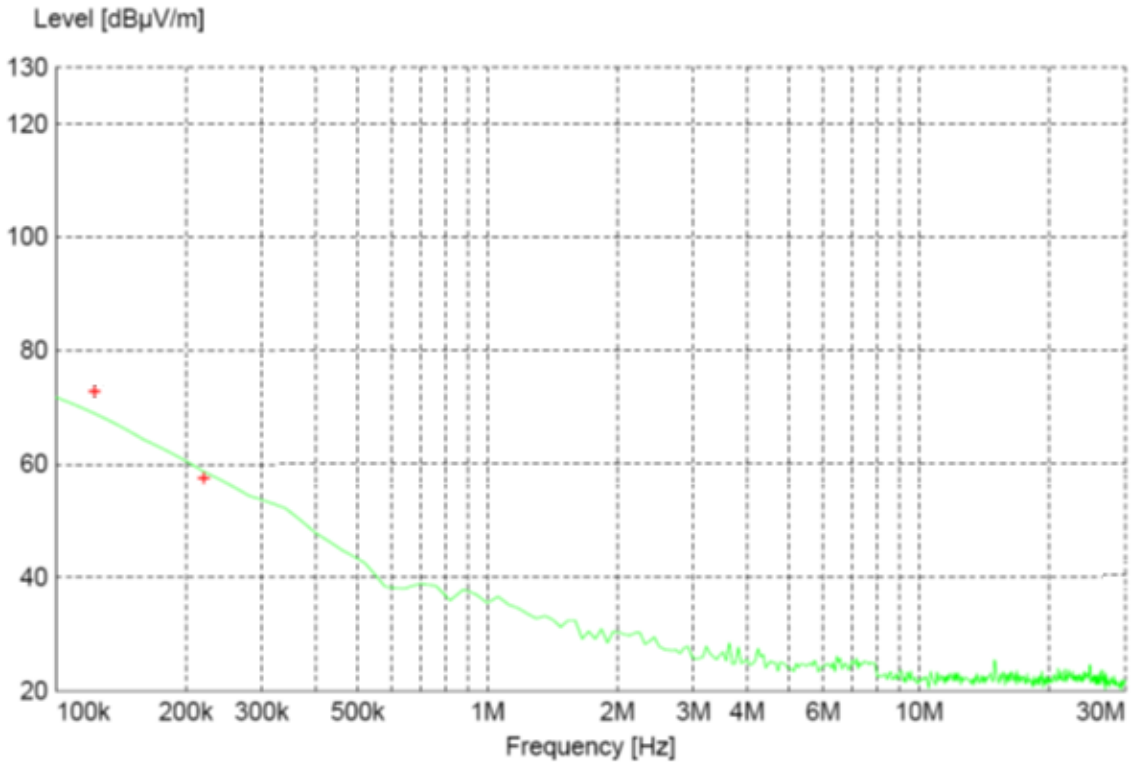


Figure 1 - Radiated Emissions Plot, 100kHz to 30MHz
 Green Line: Peak Preview Measurements
 Red Crosses: Quasi-peak Measurements
 The quasi-peak limits are listed in Table 2

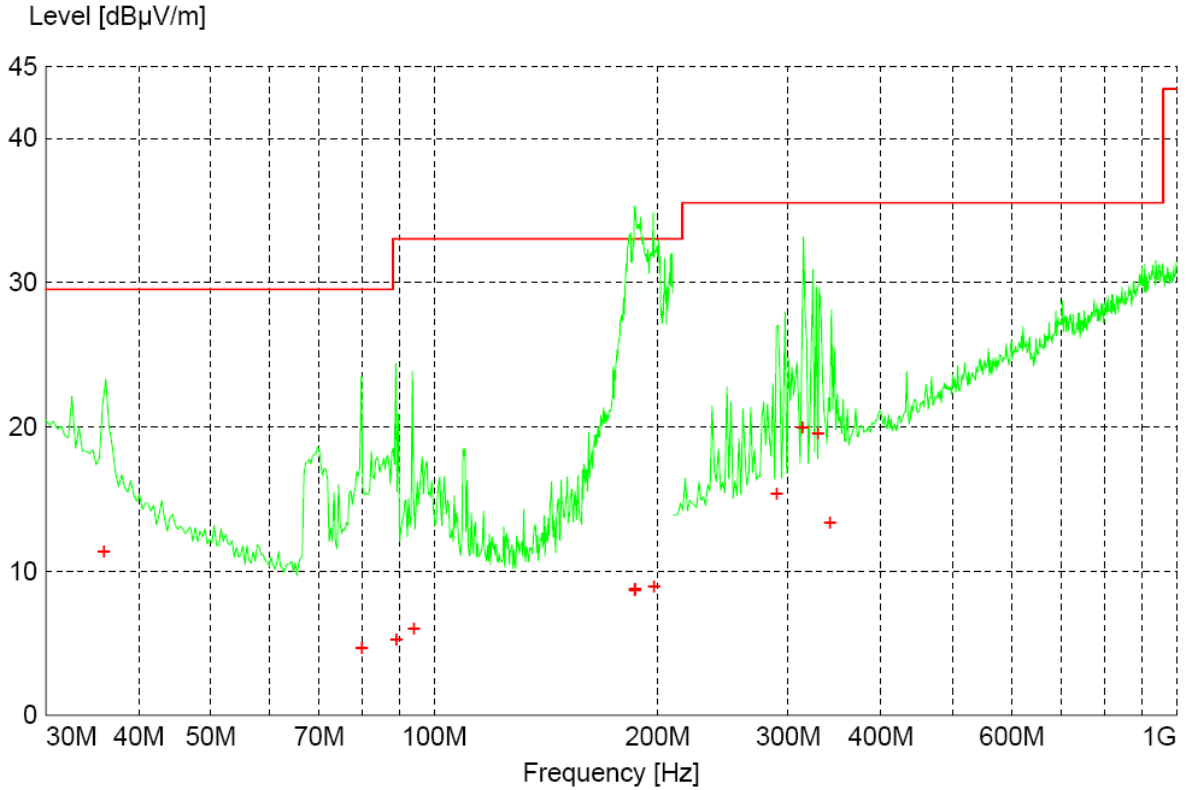


Figure 2 - Radiated Emissions Plot, 30MHz - 1GHz
 Green Line: Peak Preview Measurements Red Line: Quasi-peak Limit
 Red Crosses: Quasi-peak Measurements

Table 2 – Radiated Emissions Quasi-peak Measurements, 100kHz – 1GHz

Frequency	Level	Limit	Margin	Height	Angle	Pol.
MHz	dBµV/m	dBµV/m	dB	cm	deg	
0.1250	75.54	105.67*	30.13	100	359	---
0.2200	57.51	100.76*	43.25	100	30	---
35.8800	11.28	29.54**	18.26	190	246	VERT
79.8600	4.60	29.54**	24.94	190	167	VERT
88.9800	5.20	33.06**	27.86	100	278	HORI
93.8400	5.94	33.06**	27.12	126	80	VERT
186.3600	8.65	33.06**	24.41	296	360	VERT
186.4800	8.68	33.06**	24.38	248	177	VERT
197.7000	8.85	33.06**	24.21	187	196	VERT
289.2600	15.34	35.56**	20.22	101	99	HORI
313.5600	19.87	35.56**	15.69	100	277	HORI
328.9200	19.50	35.56**	16.06	100	281	HORI
341.3400	13.29	35.56**	22.27	132	7	VERT

*Limit for 3m test distance

**Limit for 10m, test distance

3.2 Occupied Bandwidth

Test: Occupied Bandwidth

Test Method: RSS 210 Date: 1/10/2011

3.2.1 Test Description

Radiated emissions measurements were made at 125kHz at a distance of 3m inside a semi-anechoic chamber with a passive loop antenna. The bandwidth was measured 20dB down from the highest peak.

3.2.2 Test Results

No radiated emissions measurements were found in excess of the limits. Test result data can be seen below.

3.2.3 Test Environment

Testing was performed at the NCEE Labs Lincoln facility in the 10m semi-anechoic chamber. Laboratory environmental conditions varied slightly throughout the test:

Relative humidity of $45 \pm 5\%$
Temperature of $20 \pm 2^{\circ} \text{C}$

3.2.4 Test Setup

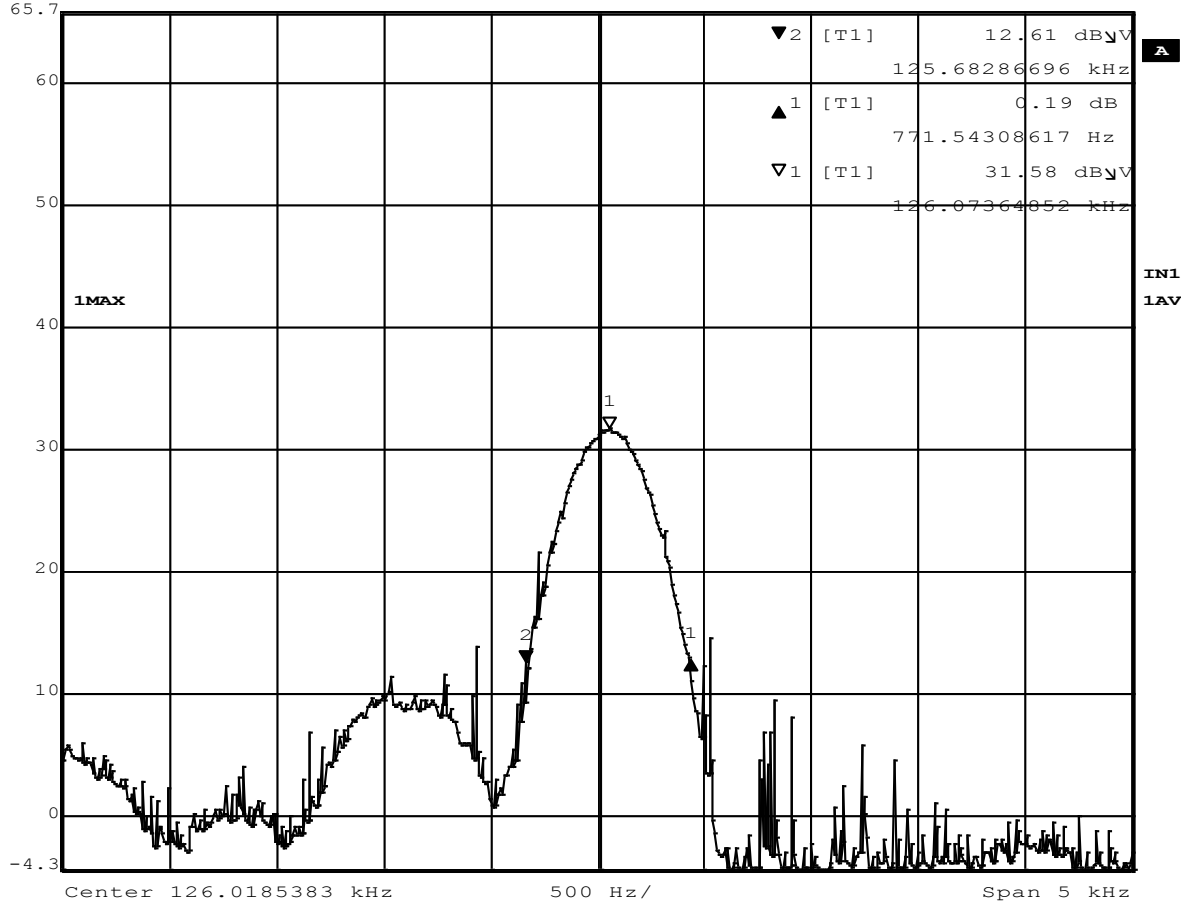
See Section 2.3 for details.

3.2.5 Test Equipment Used

Serial No.	Manufacturer	Model	Description	Last Cal.
00024936	EMCO	6512	Loop antenna	1/5/2012
100007	Rhode & Schwarz	ESIB7	EMI Test Receiver	9/27/2011



Ref Lvl	Delta 1 [T1]	RBW	300 Hz	RF Att	10 dB
65.7 dBμV	0.19 dB	VBW	3 kHz		
	771.54308617 Hz	SWT	920 ms	Unit	dBμV



Date: 11.JUN.2012 18:24:50

Figure 3 - Occupied Bandwidth, 771.54Hz

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF - (-CF + AG) + AV$$

where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

AG = Amplifier Gain

AV = Averaging Factor (if applicable)

Assume a receiver reading of 55 dB μ V is obtained. The Antenna Factor of 12 and a Cable Factor of 1.1 is added. The Amplifier Gain of 20 dB is subtracted, giving a field strength of 48.1 dB μ V/m.

$$FS = 55 + 12 - (-1.1 + 20) + 0 = 48.1 \text{ dB}\mu\text{V/m}$$

The 48.1 dB μ V/m value can be mathematically converted to its corresponding level in μ V/m.

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(48.1 \text{ dB}\mu\text{V/m})/20] = 254.1 \mu\text{V/m}$$

AV is calculated by the taking the $20 \cdot \log(T_{on}/100)$ where T_{on} is the maximum transmission time in any 100ms window.