



## TEST REPORT

Report Number: 100687320MIN-001D

Project Number: G100687320

Testing performed on the  
Oneprox GS3-LF Vandal

FCC ID: OQLGS3LV  
Industry Canada ID: 7309A-OQLGS3LV

to  
47 CFR Part 15.209; Part 15.215:2010  
RSS- Gen, Issue 3, 2010

For  
Stanley Convergent Security Solutions, Inc.

Test Performed by:  
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Test Authorized by:  
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Date: July 5, 2013

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## 1.0 GENERAL DESCRIPTION

|                                     |  |
|-------------------------------------|--|
| <b>Model:</b>                       | Oneprox GS3-LF Vandal  |
| <b>Type of EUT:</b>                 | Vandal LF Card Reader  |
| <b>Intertek Sample ID:</b>          | MIN1306100958-006  |
| <b>FCC ID:</b>                      | OQLGS3LV   |
| <b>Industry Canada ID:</b>          | 7309A-OQLGS3LV   |
| <b>Related Submittal(s) Grants:</b> | None   |
| <b>Company:</b>                     | Stanley Convergent Security Solutions, Inc.  |
| <b>Customer:</b>                    | Mr. Christopher Harris   |
| <b>Address:</b>                     | 1707 Orlando Central Parkway, Suite 500<br>Orlando, FL 32809   |
| <b>Phone:</b>                       | (407) 206-7415   |
| <b>Fax:</b>                         | (866) 716-9006   |
| <b>e-mail:</b>                      | <a href="mailto:Christopher.Harris@sbdinc.com">Christopher.Harris@sbdinc.com</a>   |
| <b>Test Standards:</b>              | <input checked="" type="checkbox"/> 47 CFR, Part 15:2010, §15.209, §15.215<br><input checked="" type="checkbox"/> RSS-210, Issue 8, 2010<br><input checked="" type="checkbox"/> RSS-Gen, Issue 3, 2010<br><input type="checkbox"/> 47 CFR, Part 15:2010, §15.107 and §15.109, Class<br><input type="checkbox"/> ICES-003, Issue 4:2004<br><input type="checkbox"/> Other |
| <b>Type of radio:</b>               | <input type="checkbox"/> Stand -alone <input type="checkbox"/> Module <input type="checkbox"/> Hybrid  |
| <b>Date Sample Submitted:</b>       | June 10, 2013  |
| <b>Test Work Started:</b>           | June 10, 2013  |
| <b>Test Work Completed:</b>         | June 28, 2013  |
| <b>Test Sample Conditions:</b>      | <input type="checkbox"/> Damaged <input type="checkbox"/> Poor (Usable) <input checked="" type="checkbox"/> Good   |



## 1.1 Product Description; Test Facility

|                                  |  |
|----------------------------------|--|
| Product Description:             | SGR Panel LF Reader  |
| Operating Frequency              | 133kHz   |
| Modulation:                      | ASK  |
| Emission Designator:             | 2K7A1D   |
| Antenna(s) Info:                 | Integral antenna   |
| Antenna Installation:            | <input type="checkbox"/> User <input type="checkbox"/> Professional <input checked="" type="checkbox"/> Factory  |
| Transmitter power configuration: | <input type="checkbox"/> Internal battery <input checked="" type="checkbox"/> External power source<br><input checked="" type="checkbox"/> 120VAC <input type="checkbox"/> 230VAC <input type="checkbox"/> 400VAC <input type="checkbox"/> VDC <input type="checkbox"/> Other:<br>Amp.<br><input type="checkbox"/> 50Hz <input checked="" type="checkbox"/> 60Hz |
| Special Test Arrangement:        | The transmitter was tested while connected to the SGR 512 Controller and was powered SGR 512 Controller. Conducted Emissions testing was performed at the SGR 512 Controller AC port.  |
| Test Facility Accreditation:     | A2LA (Certificate No. 1427.01)   |
| Test Methodology:                | Measurements performed according to the procedures in ANSI C63.10-2009   |

## 1.2 EUT Configuration

The equipment under test was operated during the measurement under the following conditions:

- ☐ - Standby
- ☒ - Continuous
- ☐ - Continuous un-modulated
- ☐ - Test program (customer specific)
- ☒ - Below

### Operating modes of the EUT:

| No. | Description                                       |
|-----|---|
| 1   | The transmitter was set to transmit continuously. |

### Cables:

| No. | Type                | Length | Designation                | Note |
|-----|---------------------|--------|----------------------------|------|
| 1   | Communication cable | >1m    | Reader cable, not shielded |      |

### Support equipment/Services:

| No. | Item           | Description |
|-----|----------------|-------------|
| 1   | 512 Controller |             |

**General notes:** Vandal LF card reader is transmitter only, and has no receiver portion.

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## 1.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

☒ **Normal**

**Temperature:** 15-35 ° C

**Humidity:** 30-60 %

**Atmospheric pressure:** 86-106 kPa

#### 1.4 Measurement uncertainty

The expanded uncertainty ( $k = 2$ ) for radiated emissions from 30 to 1000 MHz has been determined to be:  $\pm 4$  dB at 10m and  $\pm 5.4$  dB at 3m

The expanded uncertainty ( $k = 2$ ) for conducted emissions from 150 kHz to 30 MHz has been determined to be:  
 $\pm 2.6$  dB

#### 1.5 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 emissions reading on the EMI Receiver.

The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where: FS = Field Strength in dB( $\mu$ V/m)

RA = Receiver Amplitude in dB( $\mu$ V)

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB( $m^{-1}$ )

AG = Amplifier Gain in dB

Assume a receiver reading of 48.1 dB( $\mu$ V) is obtained. The antenna factor of 7.4 dB( $m^{-1}$ ) and cable factor of 1.6 dB is added and amplifier gain of 16.0 dB is subtracted giving field strength of 41.1 dB( $\mu$ V/m).

$$RA = 48.1 \text{ dB}(\mu V)$$

$$AF = 7.4 \text{ dB}(m^{-1})$$

$$CF = 1.6 \text{ dB}$$

$$AG = 16.0 \text{ dB}$$

$$FS = RA + AF + CF - AG$$

$$FS = 48.1 + 7.4 + 1.6 - 16.0$$

$$FS = 41.1 \text{ dB}(\mu V/m)$$



## 2.0 TEST SUMMARY

Referring to the performance criteria and the operating mode during the tests specified in this report, the equipment complies with the requirements according to the following standards.

| TEST SPECIFICATION               | TEST PARAMETERS                                      | RESULT |
|----------------------------------|--|--------|
| 15.209, 15.215(b) / RSS-Gen 4.11 | Field Strength of Fundamental and Spurious Emissions | Pass   |
| 15.215(c) / RSS-Gen 4.6.3        | Bandwidth of the emission                            | Pass   |
| 15.207/RSS-Gen 7.2.4             | Transmitter Power Line conducted emissions           | Pass   |
| 15.109/ICES-003/ RSS-Gen 4.10    | Receiver/digital device radiated emissions           | N/A    |
| 15.107/ ICES-003                 | Digital device conducted emissions                   | N/A    |



### 3.0 TEST CONDITIONS AND RESULTS

#### 3.1 Field Strength of Fundamental and Spurious Emissions

**Test location:** ☒ OATS ☒ Anechoic Chamber ☐ Other

**Test distance:** ☒ 10 meters ☒ 3 meters

**Test result:** **Pass**

**Max. Emissions margin at fundamental:** 29.3dB below the limits

**Max. margin of harmonics and spurious emissions:** 5.0dB below the limits

- Notes:**
1. The Emissions pre-scan was performed in the Anechoic chamber at 3m measurement distance (Graphs 3.1.1, 3.1.2); final measurements were performed in the Open Area Test Site at 10m measurement distance ( see Tables 3.1.1, 3.1.2).
  2. Field Strength of Fundamental and Spurious Emissions measurements were made at Fundamental frequency of 133kHz; Spurious Emissions were tested up to 10<sup>th</sup> harmonic.
  3. Measurements were taken using Peak detector with RBW=200kHz (below 150kHz), RBW=9kHz (above 150kHz) and RBW=120kHz (above 30MHz).
-



|                        |                             |                     |
|------------------------|-----------------------------|---------------------|
| <b>Date:</b>           | June 10-25, 2013            | <b>Result: Pass</b> |
| <b>Standard:</b>       | FCC 15.209 / RSS-210 A1.1.2 |                     |
| <b>Tested by:</b>      | Uri Spector                 |                     |
| <b>Test Point:</b>     | Enclosure with antenna      |                     |
| <b>Operation mode:</b> | See Page 5                  |                     |
| <b>Note:</b>           | None                        |                     |

**Table 3.1.1**

| Frequency MHz | Antenna Orient. | Ant. CF dB1/m | Cable loss dB | Pre-amp Gain (dB) | Peak Reading dBμV | Total @ 10m dBμV/m | 15.209 Limit dBμV/m | Distance Factor (dB) | Margin dB | Comments |
|---------------|-----------------|---------------|---------------|-------------------|-------------------|--------------------|---------------------|----------------------|-----------|----------|
| 0.133         | Front           | 63.1          | 0.1           | 28.8              | 20.5              | 54.9               | 25.1                | 59.1                 | -29.3     | Fund     |
| 0.133         | Side            | 63.1          | 0.1           | 28.8              | 18.2              | 52.6               | 25.1                | 59.1                 | -31.6     | Fund     |
| 0.266         | Front           | 57.1          | 0.1           | 28.7              | 20.6              | 49.1               | 19.1                | 59.1                 | -29.1     |          |
| 0.266         | Side            | 57.1          | 0.1           | 28.7              | 18.1              | 46.6               | 19.1                | 59.1                 | -31.6     |          |
| 0.399         | Front           | 53.6          | 0.1           | 28.7              | 14.3              | 39.3               | 15.6                | 59.1                 | -35.4     |          |
| 0.399         | Side            | 53.6          | 0.1           | 28.7              | 10.1              | 35.1               | 15.6                | 59.1                 | -39.6     |          |
| 0.532         | Front           | 51.3          | 0.1           | 28.7              | 18.7              | 41.3               | 33.1                | 19.1                 | -10.8     |          |
| 0.532         | Side            | 51.3          | 0.1           | 28.7              | 10.4              | 33.0               | 33.1                | 19.1                 | -19.1     |          |
| 0.665         | Front           | 49.3          | 0.1           | 28.7              | 10.3              | 31.0               | 31.1                | 19.1                 | -19.3     |          |
| 0.665         | Side            | 49.3          | 0.1           | 28.7              | 6.5               | 27.2               | 31.1                | 19.1                 | -23.1     |          |
| 1.197         | Front           | 45.2          | 0.1           | 28.7              | 18.1              | 34.8               | 26.0                | 19.1                 | -10.4     |          |
| 1.197         | Side            | 45.2          | 0.1           | 28.7              | 8.8               | 25.5               | 26.0                | 19.1                 | -19.7     |          |

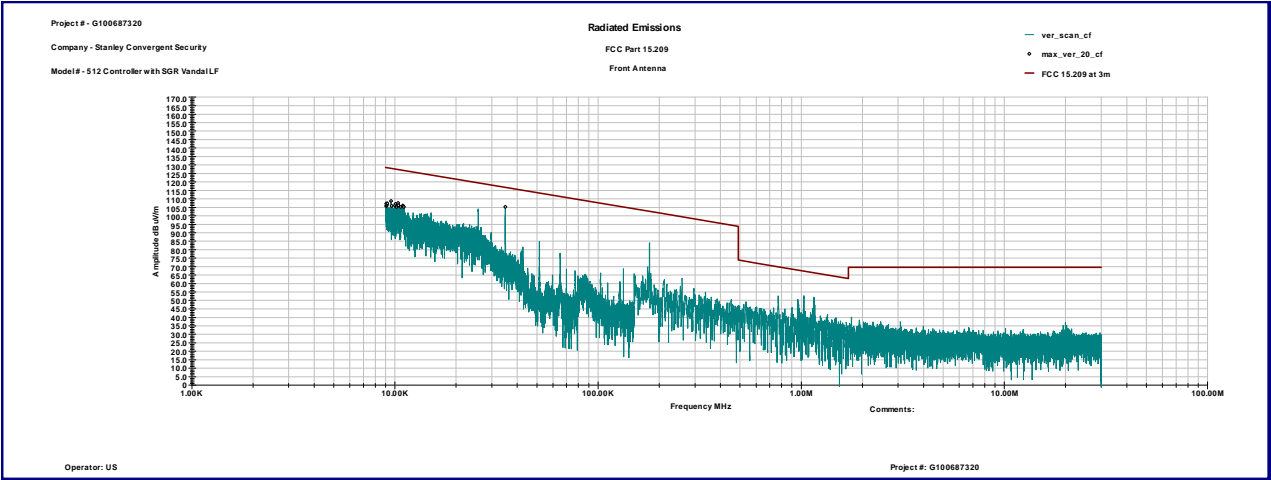
**Table 3.1.2**

| Frequency  | Ant. Polarity | Peak Reading dBμV | Total C.F. dB1/m | Total at 3m dBμV/m | Limit dBμV/m | Margin dB |
|------------|---------------|-------------------|------------------|--------------------|--------------|-----------|
| 30.154 MHz | V             | 10.0              | 20.1             | 30.1               | 40.0         | -9.9      |
| 38.01 MHz  | V             | 19.4              | 15.6             | 35.0               | 40.0         | -5.0      |
| 44.96 MHz  | V             | 14.4              | 12.0             | 26.4               | 40.0         | -13.6     |
| 82.94 MHz  | V             | 15.4              | 9.1              | 24.6               | 40.0         | -15.4     |
| 96.025 MHz | V             | 15.7              | 11.8             | 27.5               | 43.5         | -16.0     |
| 103.59 MHz | V             | 12.7              | 12.9             | 25.6               | 43.5         | -17.9     |
| 115.32 MHz | V             | 16.3              | 13.7             | 30.0               | 43.5         | -13.5     |
| 132.46 MHz | V             | 13.7              | 13.8             | 27.4               | 43.5         | -16.1     |
| 192.01 MHz | V             | 14.9              | 11.5             | 26.4               | 43.5         | -17.2     |
| 32.242 MHz | H             | 10.2              | 18.8             | 29.0               | 40.0         | -11.0     |
| 38.243 MHz | H             | 12.9              | 15.5             | 28.4               | 40.0         | -11.7     |
| 82.085 MHz | H             | 13.6              | 8.9              | 22.5               | 40.0         | -17.5     |
| 96.005 MHz | H             | 15.9              | 11.8             | 27.7               | 43.5         | -15.8     |
| 100.64 MHz | H             | 14.1              | 12.4             | 26.4               | 43.5         | -17.1     |
| 113.65 MHz | H             | 14.2              | 13.8             | 28.0               | 43.5         | -15.6     |
| 200.18 MHz | H             | 10.2              | 12.2             | 22.4               | 43.5         | -21.1     |

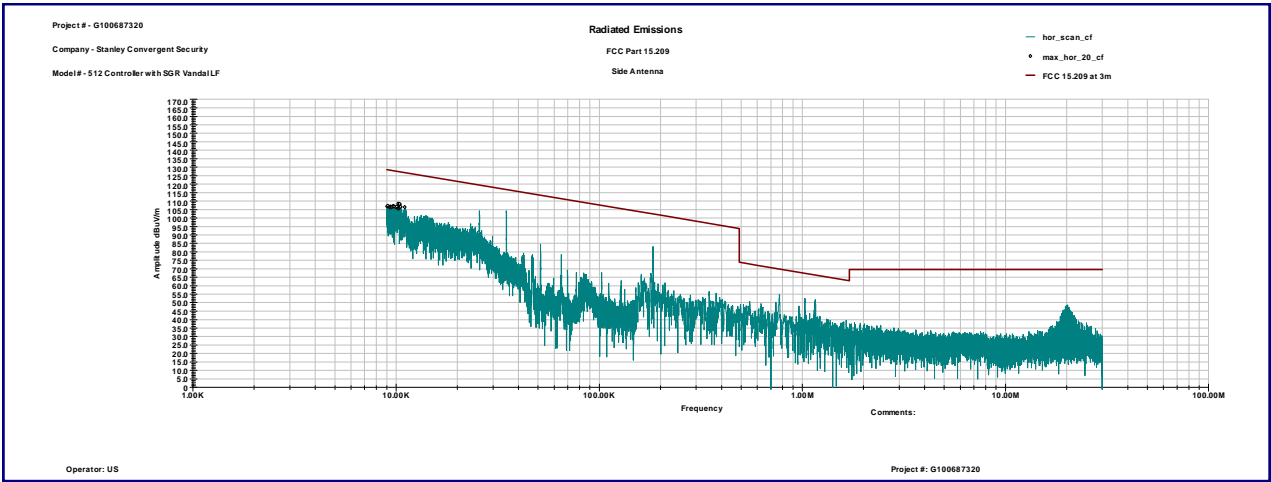


Graph 3.1.1

Front of antenna

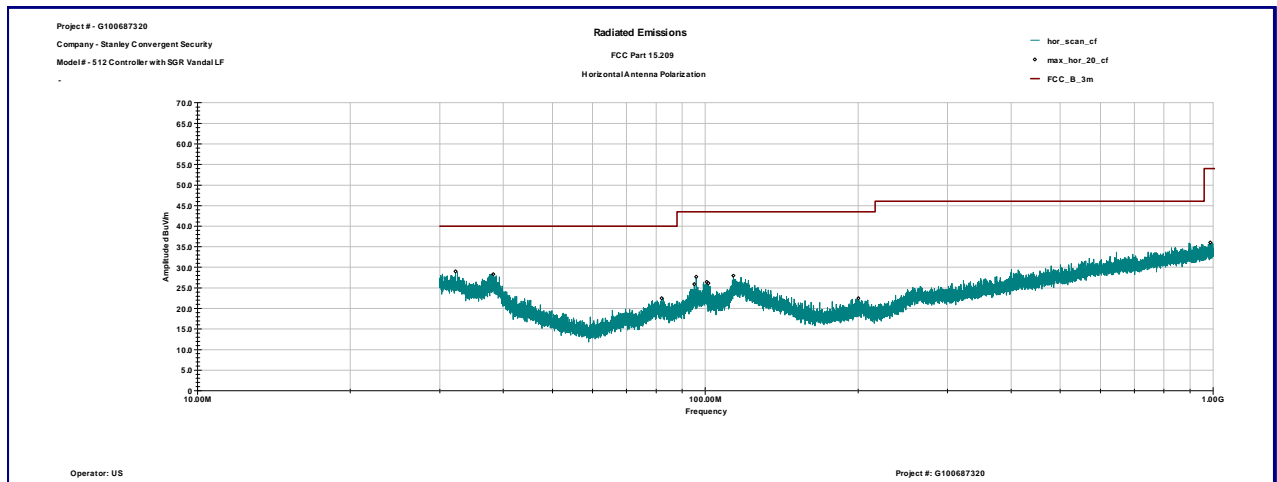
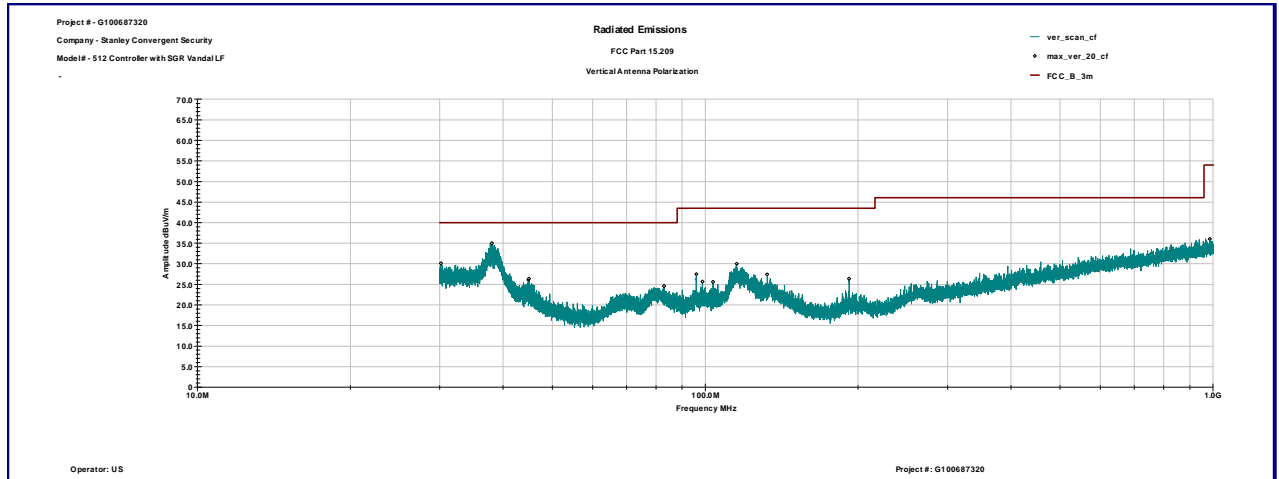


Side of antenna





Graph 3.1.2





### 3.2 Bandwidth of Emissions

| Center Frequency<br>of operation<br>MHz | Measured 20dB<br>bandwidth<br>kHz   | Measured 99%<br>bandwidth<br>kHz | Result |
|---|---|----------------------------------|--------|
| 0.133                                   | 2.70  | 2.26                             | Pass   |
| RBW:<br>VBW:                            | <div><input type="checkbox"/> 10kHz    <input type="checkbox"/> 100kHz    <input checked="" type="checkbox"/> other 1kHz</div> <div><input type="checkbox"/> 30kHz    <input type="checkbox"/> 300kHz    <input checked="" type="checkbox"/> other 1kHz</div> |                                  |        |

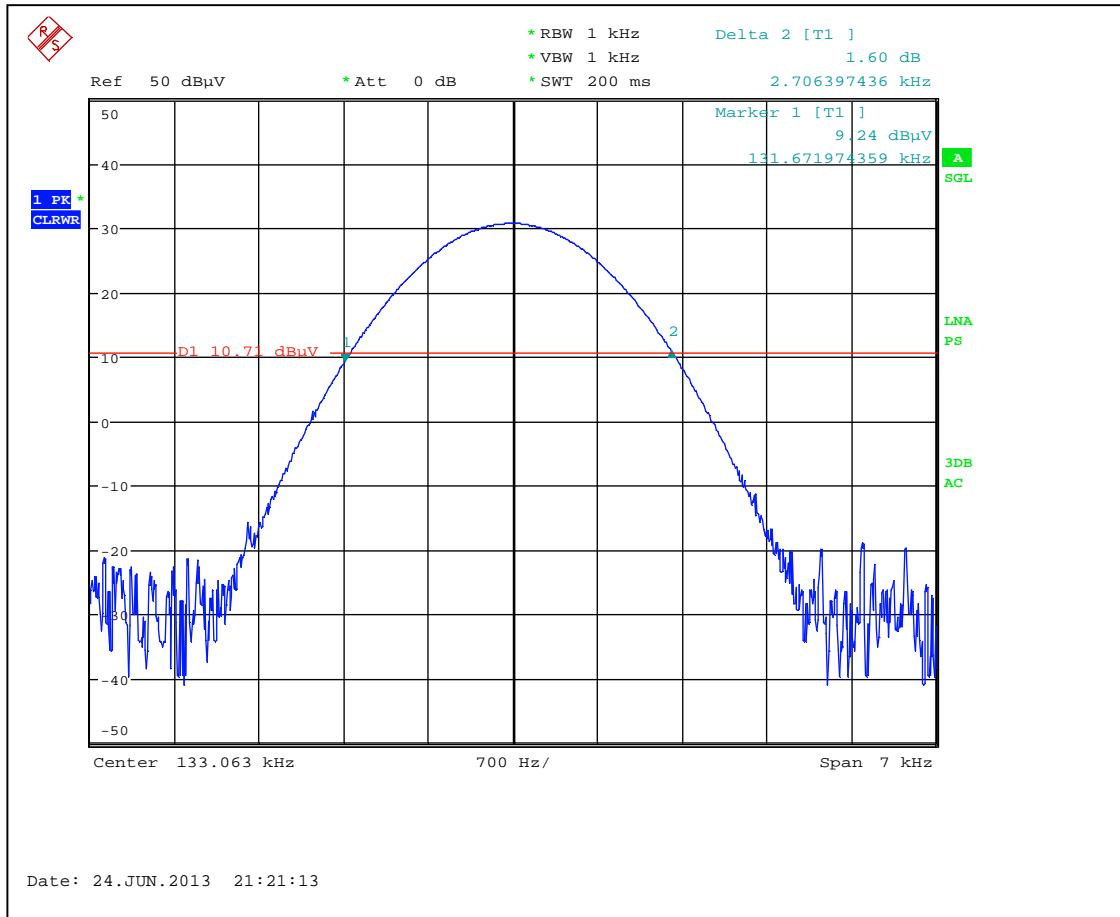
Graphs 3-2-1 and 3-2-2 are show bandwidth of emissions

**Notes:**        None

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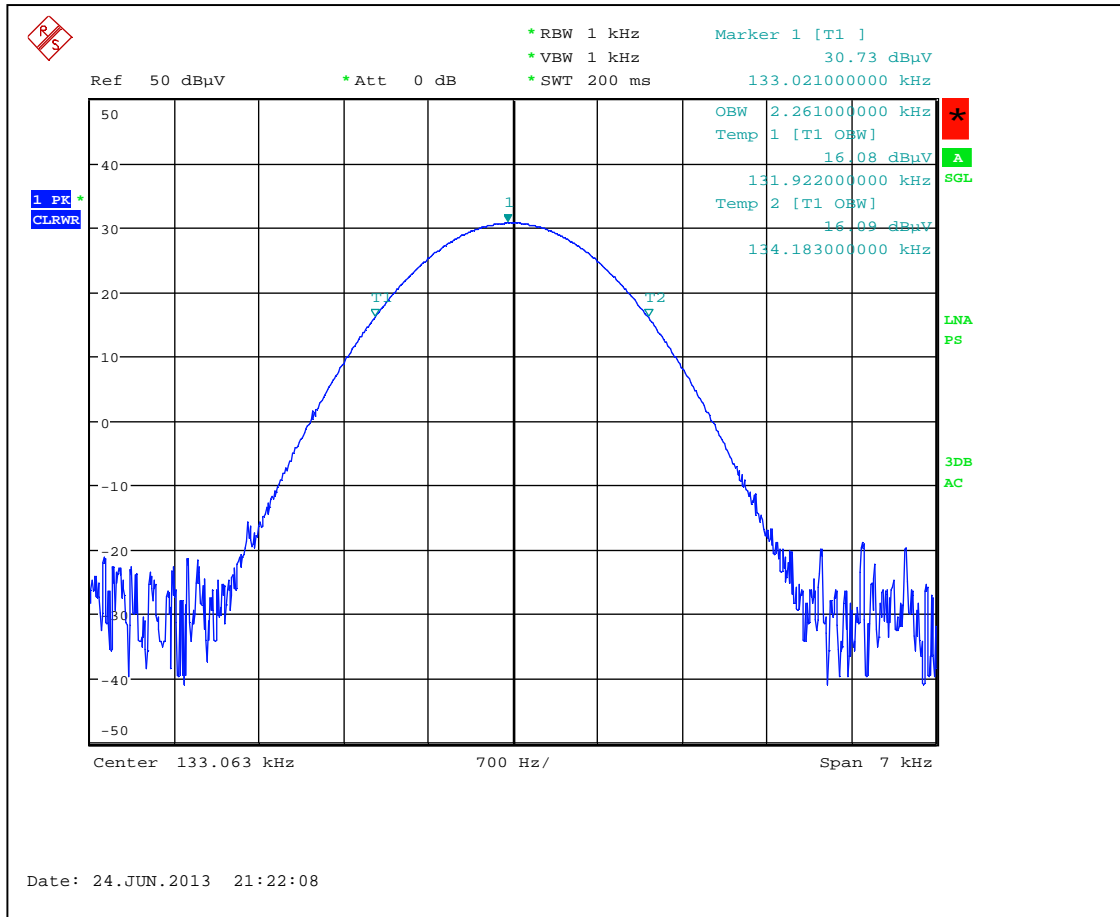


Graph 3.1.1





Graph 3.1.2





### 3.3 Transmitter power line conducted emissions

**Test location:** ☐ OATS ☒ Anechoic Chamber ☐ Other

**Test result:** **Pass**

**Frequency range:** 0.15MHz-30MHz

**Max. Emissions margin:** 8.4dB below the limits

**Notes:** None

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|                        |               |                     |
|------------------------|---------------|---------------------|
| <b>Date:</b>           | June 21, 2013 | <b>Result: Pass</b> |
| <b>Standard:</b>       | FCC 15.207    |                     |
| <b>Tested by:</b>      | Uri Spector   |                     |
| <b>Test Point:</b>     | Power Line    |                     |
| <b>Operation mode:</b> | See Page 5    |                     |
| <b>Note:</b>           | None          |                     |

**Table 3.3.1**

**Line 1**

| Frequency  | Peak<br>dB $\mu$ V | QP Limit<br>dB $\mu$ V | AVG Limit<br>dB $\mu$ V | QP Margin<br>dB | AVG Margin<br>dB |
|------------|--------------------|------------------------|-------------------------|-----------------|------------------|
| 151.9 KHz  | 42.0               | 65.9                   | 55.9                    | -23.9           | -13.9            |
| 155.86 KHz | 47.3               | 65.7                   | 55.7                    | -18.4           | -8.4             |
| 186.31 KHz | 43.5               | 64.2                   | 54.2                    | -20.7           | -10.7            |
| 187.6 KHz  | 43.8               | 64.1                   | 54.1                    | -20.4           | -10.4            |
| 188.3 KHz  | 43.9               | 64.1                   | 54.1                    | -20.2           | -10.2            |
| 191.09 KHz | 41.1               | 64.0                   | 54.0                    | -22.9           | -12.9            |

**Line 2**

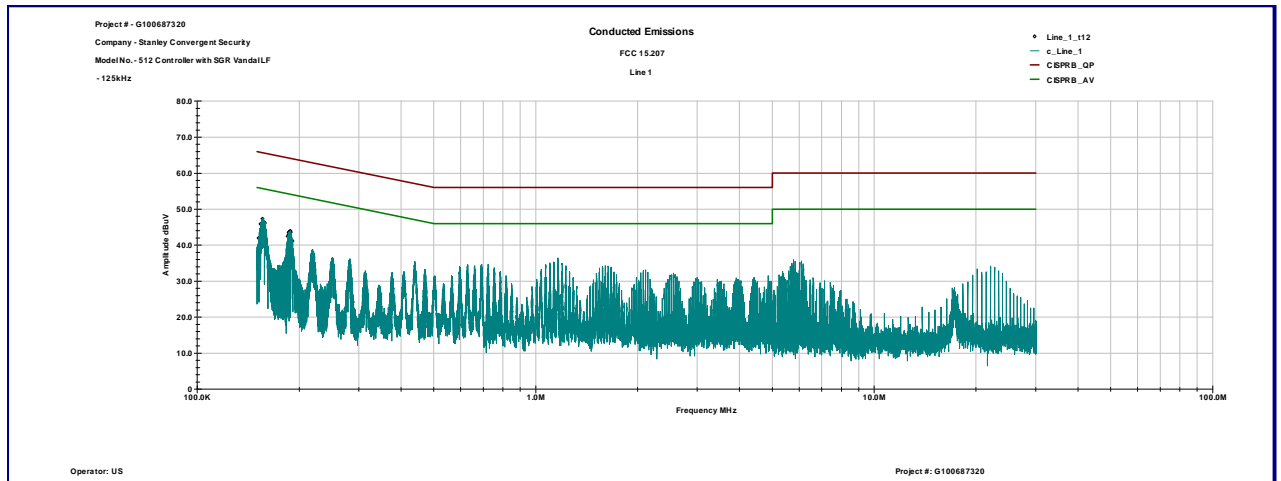
| Frequency  | Peak<br>dB $\mu$ V | QP Limit<br>dBmV | AVG Limit<br>dBmV | QP Margin<br>dB | AVG Margin<br>dB |
|------------|--------------------|------------------|-------------------|-----------------|------------------|
| 156.52 KHz | 44.5               | 65.7             | 55.7              | -21.1           | -11.1            |
| 157.96 KHz | 45.5               | 65.6             | 55.6              | -20.0           | -10.0            |
| 159.32 KHz | 45.5               | 65.5             | 55.5              | -20.0           | -10.0            |
| 161.65 KHz | 42.7               | 65.4             | 55.4              | -22.7           | -12.7            |
| 763.65 KHz | 34.8               | 56.0             | 46.0              | -21.2           | -11.2            |
| 5.883 MHz  | 35.6               | 60.0             | 50.0              | -24.4           | -14.4            |



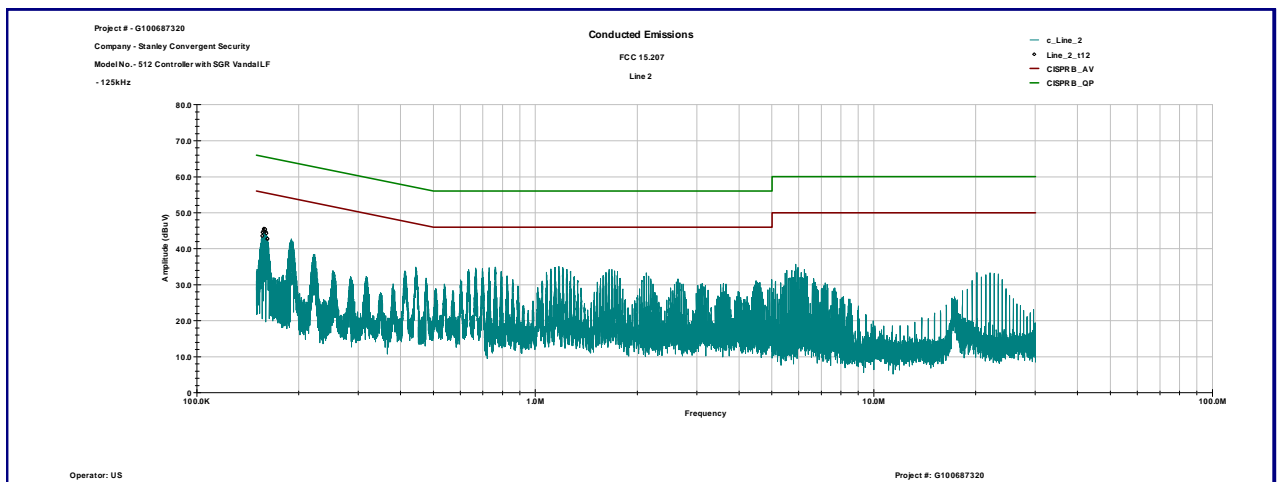


Graph 3.4.1

Line 1



Line 2





### 3.4 Receiver/digital device radiated emissions

**Test location:** ☐ OATS ☐ Anechoic Chamber

**Test distance:** ☐ 10 meters ☐ 3 meters

**Test result:** N/A

**Frequency range:** 30MHz-1000MHz

**Max. Emissions margin:** dB below the limits

**Notes:** Vandal LF reader is transmitter only, and has no receiver portion.



### 3.5 Digital device conducted emissions

**Test location:** ☐ OATS ☐ Anechoic Chamber ☐ Other

**Test result:** N/A

**Frequency range:** 0.15MHz-30MHz

**Max. Emissions margin:** dB below the limits

**Notes:** Vandal LF reader is transmitter only, and has no receiver portion.

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#### 4.0 TEST EQUIPMENT

| DESCRIPTION        | MANUFACTURER      | MODEL                    | SERIAL NO.    | INTERTEK ID | CAL DUE    | USED                                |
|--------------------|-------------------|--------------------------|---------------|-------------|------------|-------------------------------------|
| Spectrum Analyzer  | R & S             | ESU                      | 100398        | 25283       | 12/19/2013 | <input checked="" type="checkbox"/> |
| Spectrum Analyzer  | R & S             | ESCI                     | 100358        | 12909       | 07/02/2013 | <input checked="" type="checkbox"/> |
| Bicono-Log Antenna | Teseq             | CBL6112D                 | 32859         | 25289       | 08/09/2013 | <input checked="" type="checkbox"/> |
| Loop Antenna       | ETS               | 6512                     | 00060486      | 19942       | 12/10/2013 | <input checked="" type="checkbox"/> |
| LISN               | Solar Electronics | 9252-50-R-24-BNC         | 068545        | MIN-0060    | 02/07/2014 | <input checked="" type="checkbox"/> |
| Pre-Amplifier      | HP                | 8447F OPT H64            | 3113A04974    | 9934        | 08/16/2013 | <input checked="" type="checkbox"/> |
| System             | Quantum Change    | TILE! Instrument Control | Ver. 3.4.K.29 | 15259       | VBU        | <input checked="" type="checkbox"/> |