



TEST REPORT

Report Number: 100687320MIN-001C

Project Number: G100687320

Testing performed on the
Oneprox GS3-LF Panel

FCC ID: OQLGS3LFP
Industry Canada ID: 7309A-OQLGS3LFP

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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Date: June 28, 2013

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Date: June 28, 2013

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1.0 GENERAL DESCRIPTION

Model:	Oneprox GS3-LF Panel
Type of EUT:	Panel LF Card Reader
Intertek Sample ID:	MIN1306100958-006
FCC ID:	OQLGS3LFP
Industry Canada ID:	7309A-OQLGS3LFP
Related Submittal(s) Grants:	None
Company:	Stanley Convergent Security Solutions, Inc.
Customer:	Mr. Christopher Harris
Address:	1707 Orlando Central Parkway, Suite 500 Orlando, FL 32809
Phone:	(407) 206-7415
Fax:	(866) 716-9006
e-mail:	Christopher.Harris@sbdinc.com
Test Standards:	<input checked="" type="checkbox"/> 47 CFR, Part 15:2010, §15.209, §15.215 <input checked="" type="checkbox"/> RSS-210, Issue 8, 2010 <input checked="" type="checkbox"/> RSS-Gen, Issue 3, 2010 <input type="checkbox"/> 47 CFR, Part 15:2010, §15.107 and §15.109, Class B <input type="checkbox"/> ICES-003, Issue 4:2004 <input type="checkbox"/> Other
Type of radio:	<input type="checkbox"/> Stand -alone <input type="checkbox"/> Module <input type="checkbox"/> Hybrid
Date Sample Submitted:	June 10, 2013
Test Work Started:	June 10, 2013
Test Work Completed:	June 28, 2013
Test Sample Conditions:	<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	126kHz
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 <input checked="" type="checkbox"/> 120VAC <input type="checkbox"/> 230VAC <input type="checkbox"/> 400VAC <input type="checkbox"/> VDC <input type="checkbox"/> Other: Amp. <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: Panel LF card reader is transmitter only, and has no receiver portion.

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: ± 4 dB at 10m and ± 5.4 dB at 3m

The expanded uncertainty ($k = 2$) for conducted emissions from 150 kHz to 30 MHz has been determined to be:
 ± 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(μ V/m)

RA = Receiver Amplitude in dB(μ 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(μ 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(μ 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: 28.4dB below the limits

Max. margin of harmonics and spurious emissions: 5.8dB 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 123kHz; Spurious Emissions were tested up to 10th harmonic.
 3. Measurements were taken using Peak detector with RBW=200kHz (below 150kHz), RBW=9kHz (above 150kHz) and RBW=120kHz (above 30MHz).
-

Date:	June 10-25, 2013	Result: Pass
Standard:	FCC 15.209 / RSS-210 A1.1.2	
Tested by:	Uri Spector	
Test Point:	Enclosure with antenna	
Operation mode:	See Page 5	
Note:	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
0.126	Front	63.5	0.1	28.8	21.5	56.3	25.6	59.1	-28.4	Fund
0.126	Side	63.5	0.1	28.8	16.0	50.8	25.6	59.1	-33.9	Fund
0.252	Front	57.7	0.1	28.7	15.3	44.3	19.6	59.1	-34.3	
0.252	Side	57.7	0.1	28.7	10.0	39.0	19.6	59.1	-39.6	
0.378	Front	54.1	0.1	28.7	25.4	50.8	16.1	59.1	-24.3	
0.378	Side	54.1	0.1	28.7	14.6	40.0	16.1	59.1	-35.1	
0.504	Front	51.7	0.1	28.7	18.1	41.2	33.6	19.1	-11.4	
0.504	Side	51.7	0.1	28.7	12.3	35.4	33.6	19.1	-17.2	
0.630	Front	49.7	0.1	28.7	13.7	34.8	31.6	19.1	-15.9	
0.630	Side	49.7	0.1	28.7	8.9	30.0	31.6	19.1	-20.7	
1.134	Front	45.6	0.1	28.7	18.5	35.5	26.5	19.1	-10.1	
1.134	Side	45.6	0.1	28.7	12.6	29.6	26.5	19.1	-16.0	

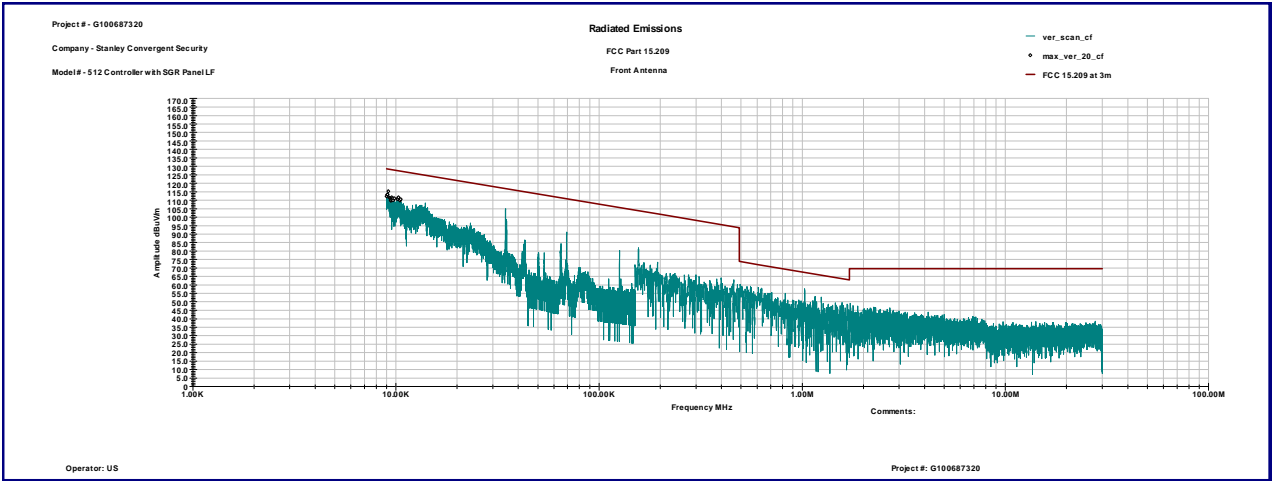
Table 3.1.2

Frequency	Ant. Polarity	Peak Reading dBμV	Total C.F. dB1/m	Total at 3m dBμV/m	Limit dBμV/m	Margin dB
30.44 MHz	V	8.7	20.0	28.7	40.0	-11.4
50.354 MHz	V	24.6	9.6	34.2	40.0	-5.8
57.078 MHz	V	14.8	7.5	22.3	40.0	-17.7
66.935 MHz	V	12.4	7.0	19.4	40.0	-20.6
76.017 MHz	V	12.0	8.1	20.1	40.0	-19.9
94.235 MHz	V	13.0	11.4	24.4	43.5	-19.1
96.025 MHz	V	16.6	11.8	28.4	43.5	-15.2
132.43 MHz	V	13.1	13.8	26.8	43.5	-16.7
186.16 MHz	V	10.9	11.3	22.3	43.5	-21.3
30.077 MHz	H	7.1	20.2	27.3	40.0	-12.7
50.322 MHz	H	18.0	9.6	27.6	40.0	-12.5
93.518 MHz	H	14.1	11.2	25.3	43.5	-18.2
96.045 MHz	H	16.3	11.8	28.1	43.5	-15.4
98.273 MHz	H	15.6	12.1	27.7	43.5	-15.8
98.95 MHz	H	14.4	12.2	26.6	43.5	-16.9
100.36 MHz	H	13.2	12.4	25.6	43.5	-17.9
139.66 MHz	H	11.2	13.3	24.5	43.5	-19.1

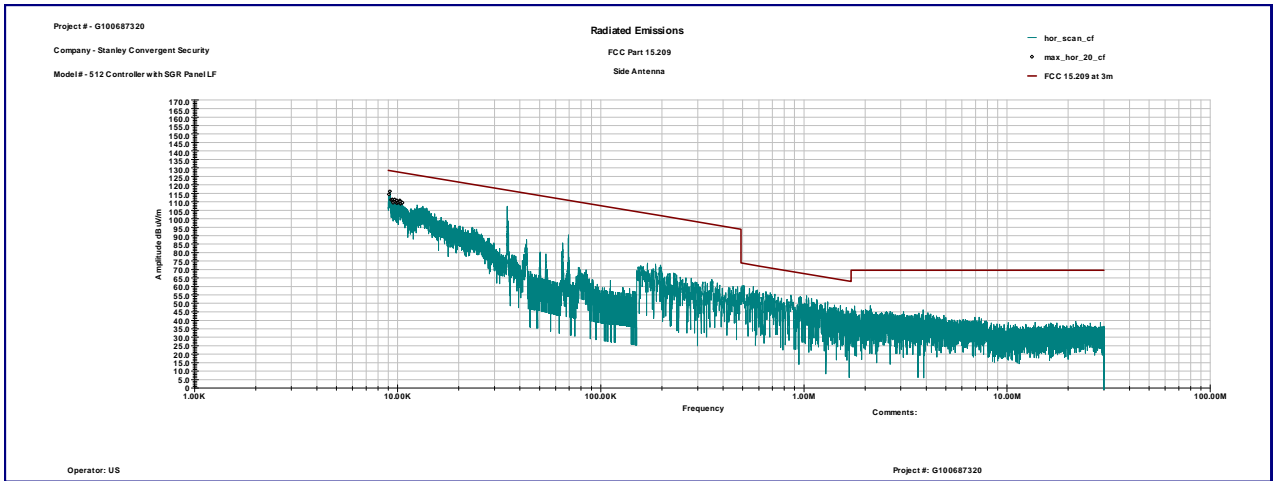


Graph 3.1.1

Front of antenna

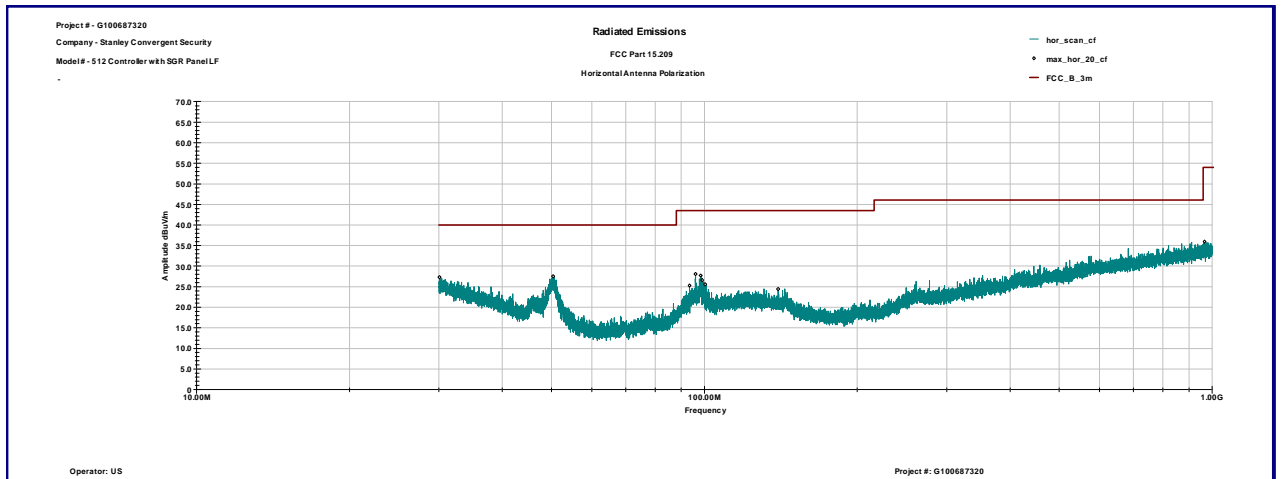
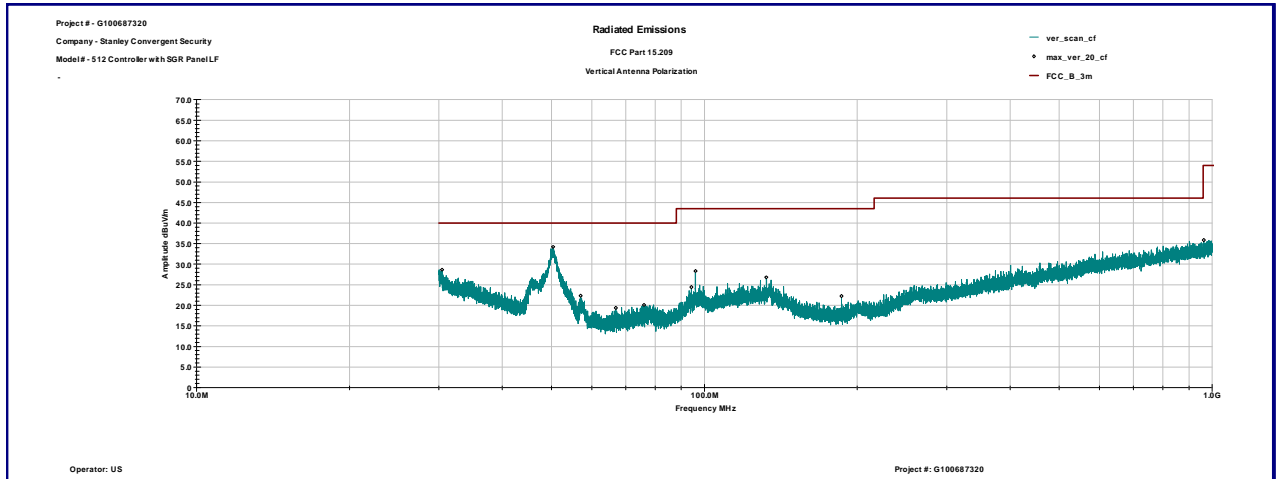


Side of antenna





Graph 3.1.2





3.2 Bandwidth of Emissions

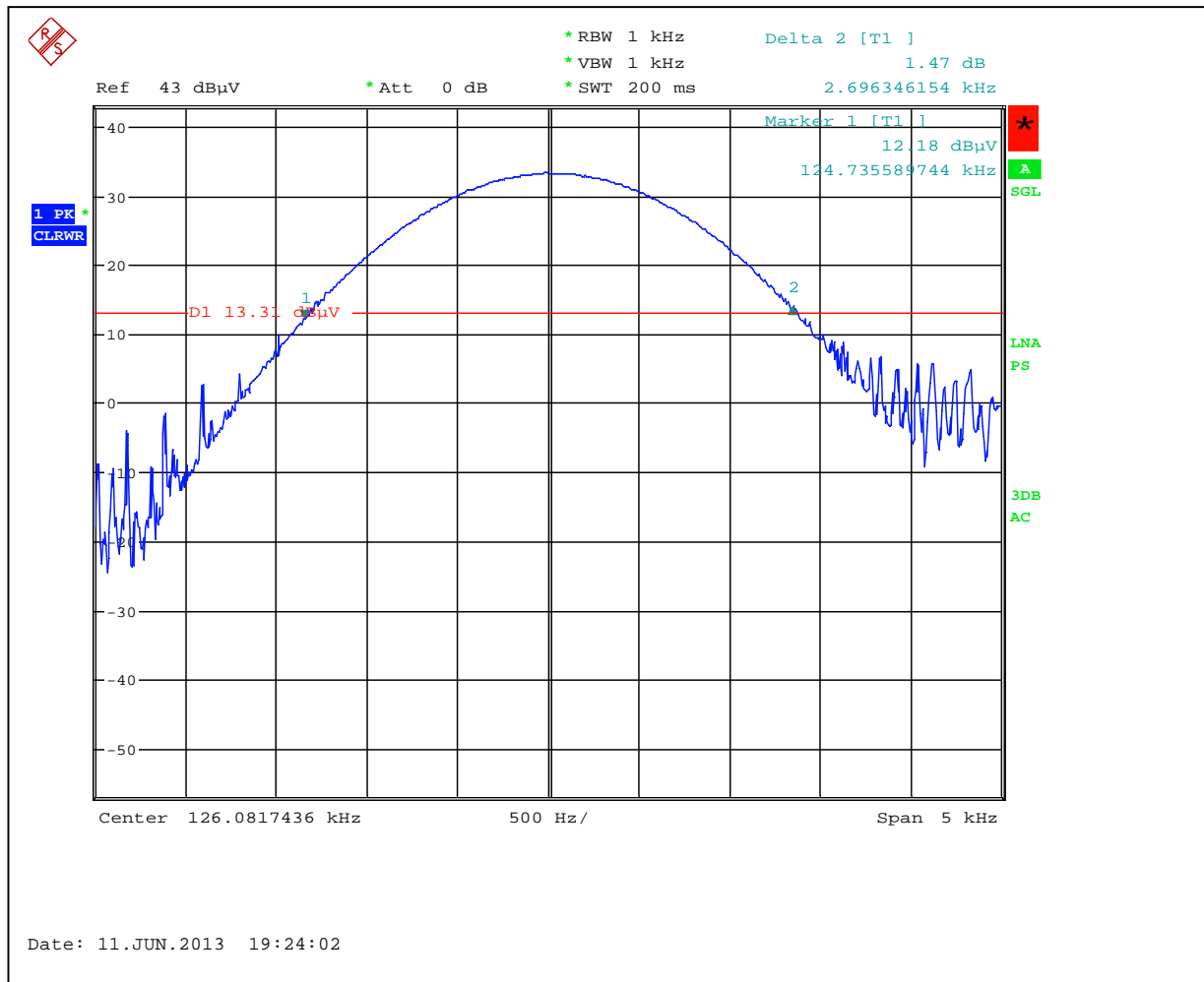
Center Frequency of operation MHz	Measured 20dB bandwidth kHz	Measured 99% bandwidth kHz	Result
0.126	2.69	2.28	Pass
RBW: VBW:	<div><input type="checkbox"/> 10kHz <input type="checkbox"/> 100kHz <input checked="" type="checkbox"/> other 1kHz</div> <div><input type="checkbox"/> 30kHz <input type="checkbox"/> 300kHz <input checked="" type="checkbox"/> other 1kHz</div>		

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

Notes: None

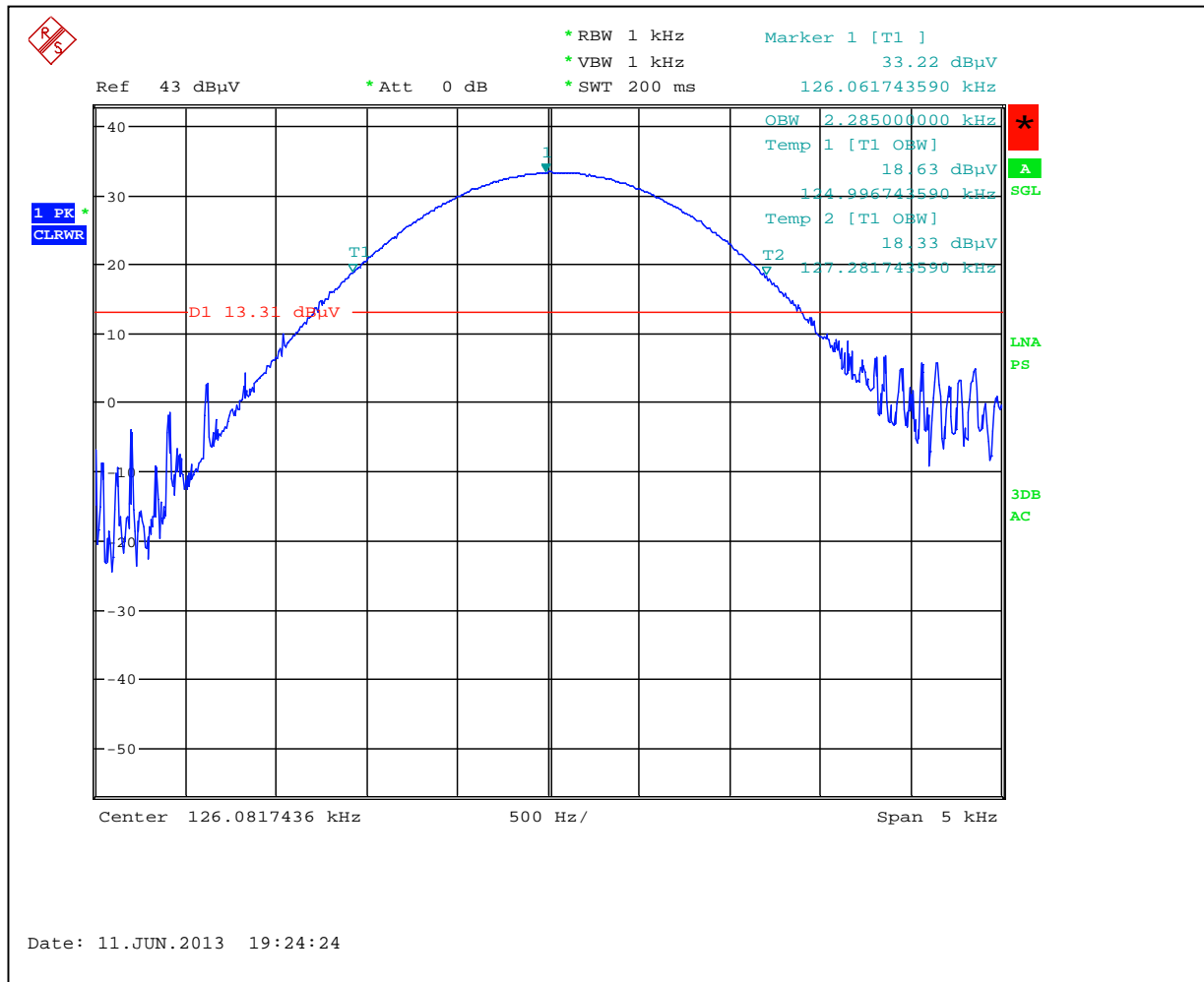


Graph 3.1.1





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: 9.2dB below the limits

Notes: None

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

Table 3.3.1

Line 1

Frequency	Peak dB μ V	QP Limit dB μ V	AVG Limit dB μ V	QP Margin dB	AVG Margin dB
155.94 KHz	44.3	65.7	55.7	-21.4	-11.4
157.77 KHz	46.3	65.6	55.6	-19.3	-9.3
158.54 KHz	46.3	65.5	55.5	-19.2	-9.2
162.35 KHz	42.3	65.3	55.3	-23.0	-13.0
189.33 KHz	43.4	64.1	54.1	-20.6	-10.6
190.35 KHz	43.5	64.0	54.0	-20.5	-10.5

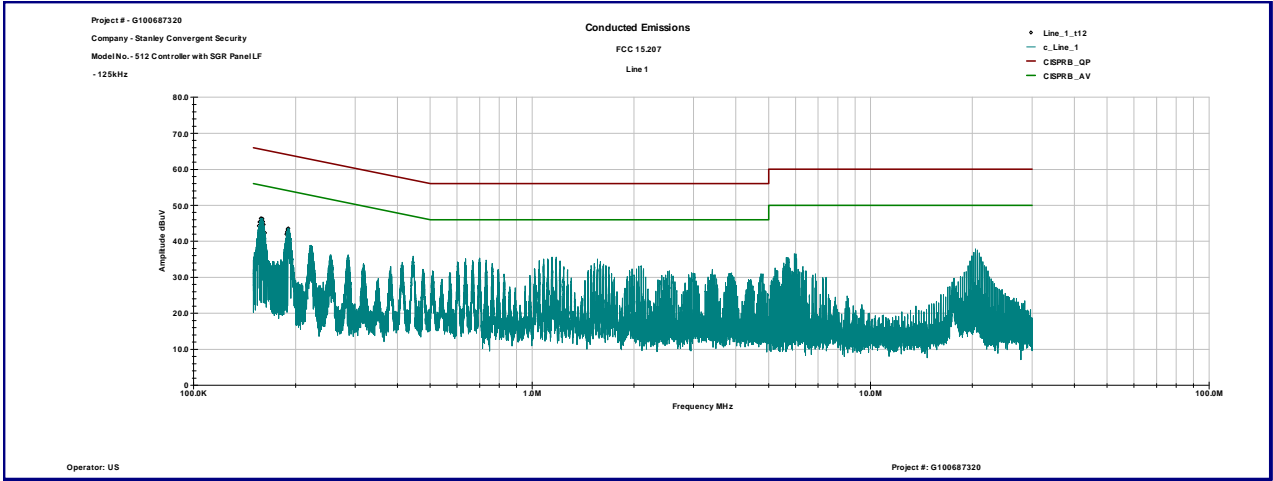
Line 2

Frequency	Peak dB μ V	QP Limit dBmV	AVG Limit dBmV	QP Margin dB	AVG Margin dB
158.47 KHz	45.8	65.5	55.5	-19.8	-9.8
159.05 KHz	45.7	65.5	55.5	-19.8	-9.8
160.29 KHz	45.5	65.5	55.5	-19.9	-9.9
161.07 KHz	45.3	65.4	55.4	-20.1	-10.1
161.61 KHz	44.6	65.4	55.4	-20.8	-10.8
20.93 MHz	36.6	60.0	50.0	-23.4	-13.4

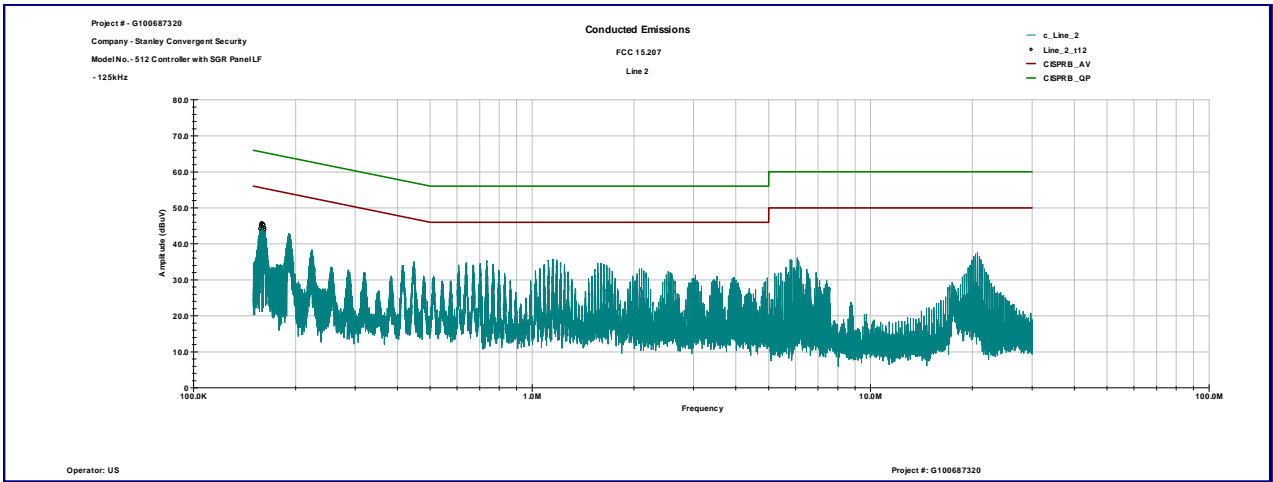


Graph 3.4.1

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: Panel 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: Panel LF reader is transmitter only, and has no receiver portion.



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"/>