Test Report of

Full Compliance Immunity Testing Performed on Clear Access Ballot Marking Device

Issue Date: 11 June 2018

Prepared for: **Pro V&V**
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ADMINISTRATIVE DATA

A. PURPOSE OF TESTS

This report documents the test efforts performed on the Clear Access ballot marking device to verify compliance to the EAC 2005 VVSG. This was a formal qualification test and was conducted on selected dates from May 9 through May 29, 2018.

Table 1. Standartds Table

Requirements	Specification	Test Method	VVSG Reference
VVSG 1.0 2005 Voluntary Voting System Guidelines	Electrostatic Discharge	IEC 61000-4-2, (2008-12) Ed.2.0	V1, 4.1.2.8 V1, 4.1.7.1 V1, 2.1.4 (b) V2, 4.8
	Radiated RF Immunity	IEC 61000-4-3:, (1996)	V1, 4.1.2.10 V1, 4.1.7.1 V1, 2.1.4 (b) V2, 4.8
	Electrical Fast Transient/Burst	IEC 61000-4-4, (2004-07) Ed. 2.0,	V1, 4.1.2.6 V1, 4.1.7.1 V1, 2.1.4 (b) V2, 4.8
	Surge Immunity	IEC 61000-4-5, (1995-02)	V1, 4.1.2.7 V1, 4.1.7.1 V1, 2.1.4 (b) V2, 4.8
	Conducted RF Immunity	IEC 61000-4-6,(1996-04)	V1, 4.1.2.11 V1, 4.1.7.1 V1, 2.1.4 (b) V2, 4.8
	Power Frequency H-field Immunity	IEC 61000-4-8, (1993-06)	V1,4.1.2.12 V1, 4.1.7.1 V1, 2.1.4 (b) V2, 4.8
	Voltage Dips, Interrupts	IEC 61000-4-11, (1994-06)	V1, 4.1.2.5 V1, 4.1.7.1 V1, 2.1.4 (b) V2, 4.8

The UUTs complied with all the generic immunity requirements defined by VVSG 1.0 2005. Test results are summarized in Table 2

Table 2. Generic Immunity Requirements

Specification	Test Method	Test Conditions	Result
Electrostatic Discharge	IEC 61000-4-2	Vote scanning and counting equipment for paper-based systems, and all DRE equipment, shall be able to withstand ±15 kV air discharge and ±8 kV contact discharge without damage or loss of data. The test levels stated in IEC 61000-4-2, Edition 2.0, contact discharge, are the test method and shall be applied at the specified test level only, 8 kV. Air discharge shall be used where contact discharge cannot be applied and all test levels shall be used (2, 4, 8, 15 kV). (RFI 2010-01).	Compliant
Radiated RF Immunity	IEC 61000-4-3	A field of 10 V/m modulated by a 1 kHz 80% AM modulation over the frequency range of 80 MHz to 1000 MHz, without disruption of normal operation or loss of data.	Compliant
EFT/Burst	IEC 61000-4-4	±2kV AC & DC external power lines. ±1kV on Input / Output lines (signal, data, control lines) longer than 3 meters(signal, data, control lines) longer than 3 meters Repetition Rate for all transient pulses will be 100 kHz	Compliant
Surge Immunity	IEC 61000-4-5	±2 kV AC line to line ±2 kV AC line to earth + or - 0.5 kV DC line to line >10m + or - 0.5 kV DC line to earth >10m ±1 kV I/O sig/control >30m	Compliant
Conducted RF Immunity	IEC 61000-4-6	10V rms over the frequency range 150 KHz to 80 MHz with an 80% amplitude modulation with a 1 KHz sine wave AC & DC power 10V sig/control >3 m over the frequency range 150 KHz to 80 MHz with an 80% amplitude modulation with a 1 KHz sine wave	Compliant

Power Frequency H-field Immunity	IEC 61000-4-8	AC magnetic 30 A/m at 60 Hz	Compliant
Voltage Dips and Interrupts	IEC 61000-4-11	Voltage dip of 30% of nominal @10 ms; Voltage dip of 60% of nominal @100 ms & 1 sec Voltage dip of >95% interrupt @5 sec Surges of ±15% line variations of nominal line voltage Electric power increases of 7.5% and reductions of 12.5% of nominal specified power for a period of up to four hours at each level.	Compliant

B. DESCRIPTION OF TEST ITEM

These products are a Clear Access ballot marking device designed for use in commercial and office environments. The products were continually exercised during testing, as documented in the "configuration" field of the test data sheets.

C. MANUFACTURER

Clear Ballot Group
Boston, MA

D. REFERENCES

1. Pro V&V's Product Data Sheet – 15 May 2018
2. ISO 17025:2005

ADMINISTRATIVE DATA

E. QUANTITY OF ITEMS TESTED

Quantity	Test Item Description	Model Numbers	Serial Numbers
Configuration 1			
1	AIO Touchscreen	ESY15E2	A18C004079
1	Printer	HL-L2350DW	U64964AN263525
1	UPS	SMT-2200	AS1638230963
Configuration 2			
1	AIO Touchscreen	ESY15E2	D18Q000334
1	Printer	B432dn	AK7A044093A0
1	UPS	SMT-2200	AS1721132721
Configuration 3			
1	AIO Touchscreen	ESY20X2	D18Q000335
1	Printer	HL-L2350DW	U64964A8N263531
1	UPS	SMT-2200	AS1721142050
Configuration 4			
1	AIO Touchscreen	ESY20X2	A18C004071
1	Printer	B432dn	AK7A044083A0
1	UPS	SMT-2200	AS1808141143

F. SECURITY CLASSIFICATION

Unclassified

G. TESTS CONDUCTED BY

National Technical Systems
NTS Longmont
1736 Vista View Drive
Longmont, Colorado 80504

H. DISPOSITION OF TEST ITEMS

Returned to:

Pro V&V
700 Boulevard South, Suite 102
Huntsville, AL 35802

I. TEST ENVIRONMENT

The radiated field immunity testing was performed in a ferrite lined, shielded enclosure. The enclosure is 20' high x 40' wide x 70' long in size and meets the field uniformity requirements of IEC 61000-4-3. The size of the chamber allows 2-meter separation between the antenna and the UUT.

From 80 MHz to 1 GHz, field uniformity deviation for NTS's ferrite lined, shielded chamber is a maximum of 7.4 dB for three frequencies for vertical polarization (1.1% of all test frequencies) and 7.3 dB for two frequencies for horizontal polarization (0.8% of all test frequencies). This is allowed by IEC 61000-4-3, as follows:

"**In the frequency range up to 1 GHz, a tolerance greater than+ 6 dB, up to +10 dB, but not less than -0 dB is allowed for a maximum of 3% of the test frequencies, provided that the actual tolerance is stated in the test report**." (*Ref. IEC 61000-4-3, Ed. 3.2 (2010), Section 6.2*)

All other immunity testing was performed on a ground plane measuring 3 meters by 4.5 meters (13.5 square meters) and made of 0.125" thick aluminum. The ground plane was connected to facility ground via the safety ground of the AC wire and extended beyond the UUT by greater than 0.5 meters, as required by the test standards.

Measurement Uncertainty

The measurement uncertainty for NTS Longmont's emissions test facility complies with the requirements defined in CISPR 16. The complete calculations of NTS's measurement uncertainty are contained in an NTS memo, which is available upon request. However, a summary of NTS's measurement uncertainty is given in Table 3.

Table 3. Measurement Uncertainty		
Test	**Measurement Uncertainty**	**Reference**
Electrostatic Discharge	Contact Voltage: 1.9% Risetime: 60 ps Peak Current: 2.8% 30 ns Current: 3.8% 60 ns Current: 9% Indicated Voltage: 1.9%	Accredited Calibration Data Sheet
Radiated RF Immunity	V-pole: 1.2 dB H-pole: 0.7 dB	Worksheets located at **H:\Calibration\Measurement Uncertainty**
Electrical Fast Transient	Voltage: 0.01 kV Risetime: 0.45 nsec Pulse Width: 1.08 nsec	
Surge Immunity	O.C. Voltage: 0.01 kV Risetime: 0.1 usec Pulse Width: 1.76 usec S. C. Current: 0.91 A Risetime: 0.08 usec Pulse Width: 0.15 usec	
Conducted RF Immunity	0.24 dB	
Power Frequency H-field Immunity	0.87 dB	
Voltage Dips & Interruptions	Voltage: 10.38 Volts Duration: 0.23 msec	

ADMINISTRATIVE DATA

J. TEST APPARATUS

The instrumentation used in the performance of these tests is periodically calibrated and standardized within manufacturer's rated accuracies and are traceable to the National Institute of Standards and Technology. The calibration procedures and practices are in accordance with ISO 17025:2005. Certification of calibration is on file subject to inspection by authorized personnel.

K. SOURCE INSPECTION

NTS QA

L. PURCHASE ORDER NUMBER
PO# 2018-008

TEST SUMMARY

The test program may be chronologically summarized as follows:

Paragraph	Test Title	Specification	Test Dates	Results
1.0	Electrostatic Discharge	IEC 61000-4-2	09 May thru 29 May, 2018	Pass
2.0	Radiated RF Immunity	IEC 61000-4-3	09 May thru 29 May, 2018	Pass
3.0	Electrical Fast Transient/Burst	IEC 61000-4-4	09 May thru 29 May, 2018	Pass
4.0	Surge Immunity	IEC 61000-4-5	09 May thru 29 May, 2018	Pass
5.0	Conducted RF Immunity	IEC 61000-4-6	09 May thru 29 May, 2018	Pass
6.0	Power Frequency H-field Immunity	IEC 61000-4-8	09 May thru 29 May, 2018	Pass
7.0	Voltage Dips and Interrupts	IEC 61000-4-11	09 May thru 29 May, 2018	Pass

FACTUAL DATA

1.0 ELETROSTATIC DISCHARGE TEST – IEC 61000-4-2

References and Requirements

IEC 61000-4-2
VVSG 1.0 2005

1.1 Test Requirements

1.1.1 The UUTs shall be subjected to Electrostatic Discharge Test in accordance with the referenced documents.

1.2 Test Procedure

The UUTs were set up per IEC 61000-4-2 and tested to the levels specified by VVSG 1.0 2005.

1.2.1 **Special Configurations:** Four different equipment array configurations were tested.

1.2.3 **Performance Criteria:** Level B

The UUTs shall continue to operate as intended after the test.

1.3 Test Results

1.3.1 Electrostatic discharge (ESD) testing was performed in accordance with the test methods specified by IEC 61000-4-2. Contact discharge was performed at levels of ± 8 kV at applicable (conductive) test points. Air discharge was performed for non-conductive surfaces of the product at levels of ±2 kV, ± 4 kV, ± 8 kV and ± 15 kV. Indirect discharge testing to the horizontal coupling plane (HCP) and vertical coupling plane (VCP) was also performed to levels of ± 8 kV.

Note: In the event that no discharge occurs when ESD testing is performed on a product, the data sheet will state “no [contact or air] discharge points found”.

The UUTs exhibited no malfunctions and operated within specified tolerances and therefore, complies with the requirements of this test.

1.3.1 The Electrostatic Discharge Test Data is presented in Appendix A.

2.0 RADIATED RF IMMUNITY IEC 61000-4-3

References and Requirements

IEC 61000-4-3
VVSG 1.0 2005

2.1 Test Requirements

2.1.1 The UUTs shall be subjected to the Radiated RF Immunity Test accordance with the referenced document.

2.2 Test Procedure

The UUTs were set up per IEC 61000-4-3 and tested to the levels specified by VVSG 1.0 2005.

2.2.1 **Special Configurations**: Four different equipment array configurations were tested.

2.2.2 **Performance Criteria:** Level A

The UUTs shall continue to operate as intended (i.e., within specified limits) during and after the test.

2.3 Test Results

Radiated RF immunity testing was performed on the UUTs in accordance with IEC 61000-4-3. The UUTs were placed on the floor of the completely anechoic-lined chamber (CALC). The UUTs were at a distance of 2 meters from the radiating antenna, which was 1.5 meters above the floor of the chamber. Testing was performed in both horizontal and vertical antenna polarizations over the frequency range from 80 MHz to 1 GHz at 10 V/m. The UUTs were rotated so that all four sides were illuminated in the field. The frequency was stepped in 1% increments and a dwell time of 3 seconds was used at each test frequency. The radiated field was amplitude modulated with a 1 kHz sine wave to a depth of 80%. Performance of the unit was monitored remotely (via Video Camera)

During all testing, the UUTs exhibited no malfunctions and operated within specified tolerances and therefore, complies with the requirements of this test.

2.3.1 The visual inspections, pre-test/post-tests revealed no anomalies.

2.3.2 The Radiated RF Immunity Test Data is presented in Appendix B.

3.0 ELECTRICAL FAST TRANSIENT/BURST TEST IEC 61000-4-4

References and Requirements

IEC 61000-4-4
VVSG 1.0 2005

3.1 Test Requirements

3.1.1 The UUTs shall be subjected to the Electrical Fast Transient/Burst Test in accordance with the referenced document.

3.2 Test Procedure

The UUTs were set up per IEC 61000-4-4 and tested to the levels specified by VVSG 1.0 2005.

3.2.1 **Special Configurations:** Four different equipment array configurations were tested.

3.2.2 **Performance Criteria:** Level B

The UUTs shall continue to operate as intended after the test.

3.3 Test Results

Electrical fast transient/burst testing was performed on the UUTs in accordance with IEC 61000-4-4. The AC power was tested via direct injection to ± 2 kV. During all testing, the UUTs exhibited no malfunctions and operated within specified tolerances and therefore, complies with the requirements of this test. Note that testing was performed for single phase power.

3.3.1 The visual inspections, pre-test/post tests revealed no anomalies.

3.3.2 The Electrical Fast Transient/Burst Test Data is presented in Appendix C.

4.0 SURGE IMMUNITY TEST

References and Requirements

IEC 61000-4-5
VVSG 1.0 2005

4.1 Test Requirements

4.1.1 The UUTs shall be subjected to the Surge Immunity Test in accordance with the referenced document.

4.2 Test Procedure

The UUTs were set up per IEC 61000-4-5 and tested to the levels specified by VVSG 1.0 2005.

4.2.1 **Special Configurations:** Four different equipment array configurations were tested.

4.2.2 **Performance Criteria:** Level B

The UUTs shall continue to operate as intended after the test.

4.3 Test Results

Surge immunity testing was performed on the UUTs in accordance with IEC 61000-4-5. The AC power of the UUTs was tested via direct injection at levels of ±0.5 kV and ±1.0 kV for differential mode and at levels of ±0.5 kV, ±1.0 kV and ±2.0 kV for common mode. Surges were injected at 0 degrees, 90 degrees, 180 degrees and 270 degrees of the input ac waveform at a rate of one pulse per minute. Five pulses were injected for each test configuration.

The UUTs exhibited no malfunctions or degradations in performance and therefore, passed all requirements of the test.

4.3.1 The visual inspections, pre-test/post-tests revealed no anomalies.

4.3.2 The Surge Immunity Test Data is presented in Appendix D.

5.0 CONDUCTED RF IMMUNITY TEST

References and Requirements

IEC 61000-4-6
VVSG 1.0 2005

5.1 Test Requirements

5.1.1 The UUTs shall be subjected to the Conducted RF Immunity Test in accordance with the referenced document.

5.2 Test Procedure

The UUTs were set up per IEC 61000-4-6 and tested to the levels specified by VVSG 1.0 2005.

5.2.1 **Special Configurations:** Four different equipment array configurations were tested.

5.2.2 **Performance Criteria: Level A**

The UUTs shall continue to operate as intended (i.e., within specified limits) during and after the test.

5.3 Test Results

Conducted RF immunity testing was performed on the UUTs in accordance with IEC 61000-4-6. The UUTs were subjected to injected RF signals on its input AC power cable. Injection on the AC leads was performed via a coupling/decoupling network (CDN). All I/O cabling greater than 3 meters in length was tested via EM clamp. The test frequency was stepped in 1% increments with a 3 second dwell time for each injection frequency. The injection level for all testing was 10 Vrms with 1 kHz sine wave AM to a depth of 80%.

At no time did the UUTs exhibit any malfunctions or degradations in performance; thus, the UUTs passed all portions of this test.

5.3.1 The visual inspections revealed no anomalies.

5.3.2 The Conducted RF Immunity Test Data is presented in Appendix E.

6.0 POWER FREQUENCY H-FIELD IMMUNITY TEST

References and Requirements

IEC 61000-4-8
VVSG 1.0 2005

6.1 Test Requirements

6.1.1 The UUTs shall be subjected to the Power Frequency H-Field Immunity Test in accordance with the referenced document.

6.2 Test Procedure

The UUTs were set up per IEC 61000-4-11 and tested to the levels specified by VVSG 1.0 2005.

6.2.1 **Special Configurations:** Four different equipment array configurations were tested.

6.2.2 **Performance Criteria**

The UUTs shall continue to operate as intended (i.e., within specified limits) during and after the test.

6.3 Test Results

Power frequency H-field immunity testing was performed on the UUTs in accordance with the test methods specified by IEC 61000-4-8. The UUTs were exposed to a 30 A/m field at both 50 and 60 Hz. All three axes (x, y, and z) were immersed in the field for a period of 60 seconds for each configuration. An H-Field Loop, 2m x 1.5m was used for this test and the proximity method was used.

These magnetic fields had no effect on the UUTs, which passed the requirements of this test.

6.3.1 The visual inspections, pre-test/post tests revealed no anomalies.

6.3.2 The Power Frequency H-Field Immunity Test Data is presented in Appendix F.

7.0 VOLTAGE DIPS AND INTERRUPTS TEST

References and Requirements

IEC 61000-4-11

7.1 Test Requirements

7.1.1 The UUTs shall be subjected to the Voltage Dips and Interrupts Test in accordance with the referenced document.

7.2 Test Procedure

The UUTs were set up per IEC 61000-4-11 and tested to the levels specified by VVSG 1.0 2005.

7.2.1 **Special Configurations:** Four different equipment array configurations were tested.

7.2.2 **Performance Criteria: Level B/C**

Level B: The UUTs shall continue to operate as intended after the test.
Level C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by operation of the controls.

7.3 Test Results

Voltage dip and interrupt testing was performed on the UUTs, in accordance with IEC 61000-4-11. The UUTs were subjected to the following voltage fluctuations on its AC power input:

Voltage dip of 30% of nominal @10 ms;
Voltage dip of 60% of nominal @100 ms & 1 sec
Voltage dip of >95% interrupt @5 sec
Surges of ±15% line variations of nominal line voltage

Electric power increases of 7.5% and reductions of 12.5% of nominal specified power for a period of up to four hours at each level.

These variations in AC line voltage had no effect on the UUT, which passed the requirements of this test.

7.3.1 The visual inspections, pre-test/post tests revealed no anomalies.

7.3.2 The Voltage Dips and Interrupts Test Data are presented in Appendix G.

APPENDIX A - ELECTROSTATIC DISCHARGE TEST DATA

CONFIGURATION 1

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018
Temperature:	22.3˚C Humidity: 42%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config 1		
Test Engineer:	Casey Lockhart		

PR079580-4-2.doc FR0100

Test Location	Voltage Level (kV)	Polarity +	Polarity -	Number of Pulses	Pulses Per Second	Comments	Criteria Met	Pass / Fail
Indirect Discharge Points								
VCP	8	x	x	10	1	Front Side	A	Pass
VCP	8	x	x	10	1	Left Side	A	Pass
VCP	8	x	x	10	1	Right Side	A	Pass
VCP	8	x	x	10	1	Back Side	A	Pass
HCP	8	x	x	10	1	Edge of HCP at Front of UUT	A	Pass
Contact Discharge Points - **RED** Arrows.								
Figure A2	8	x	x	10	1		A	Pass
Figure A3	8	x	x	10	1		A	Pass
Figure A4	8	x	x	10	1		A	Pass
Figure A5	8	x	x	10	1		A	Pass
Figure A6	8	x	x	---	---	No discharge points found.	---	---
Figure A7	8	x	x	---	---	No discharge points found.	---	---
Figure A8	8	x	x	---	---	No discharge points found.	---	---
Figure A9	8	x	x	10	1		A	Pass
Figure A10	8	x	x	---	---	No discharge points found.	---	---
Figure A11	8	x	x	---	---	No discharge points found.	---	---
Figure A12	8	x	x	---	---	No discharge points found.	---	---
Figure A13	8	x	x	---	---	No discharge points found.	---	---
Figure A14	8	x	x	10	1		A	Pass
Figure A15	8	x	x	---	---	No discharge points found.	---	---
Figure A16	8	x	x	10	1			
Air Discharge Points - **BLUE** Arrows.								
Figure A2	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A3	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A4	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A5	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A6	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A7	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A8	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A9	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A10	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A11	2, 4, 8, 15	x	x	10	1	Flicker on screen.	B	Pass
Figure A12	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A13	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A14	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A15	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A16	2, 4, 8, 15	x	x	10	1		A	Pass

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

PR079580-4-2.doc FR0100

Figure A1. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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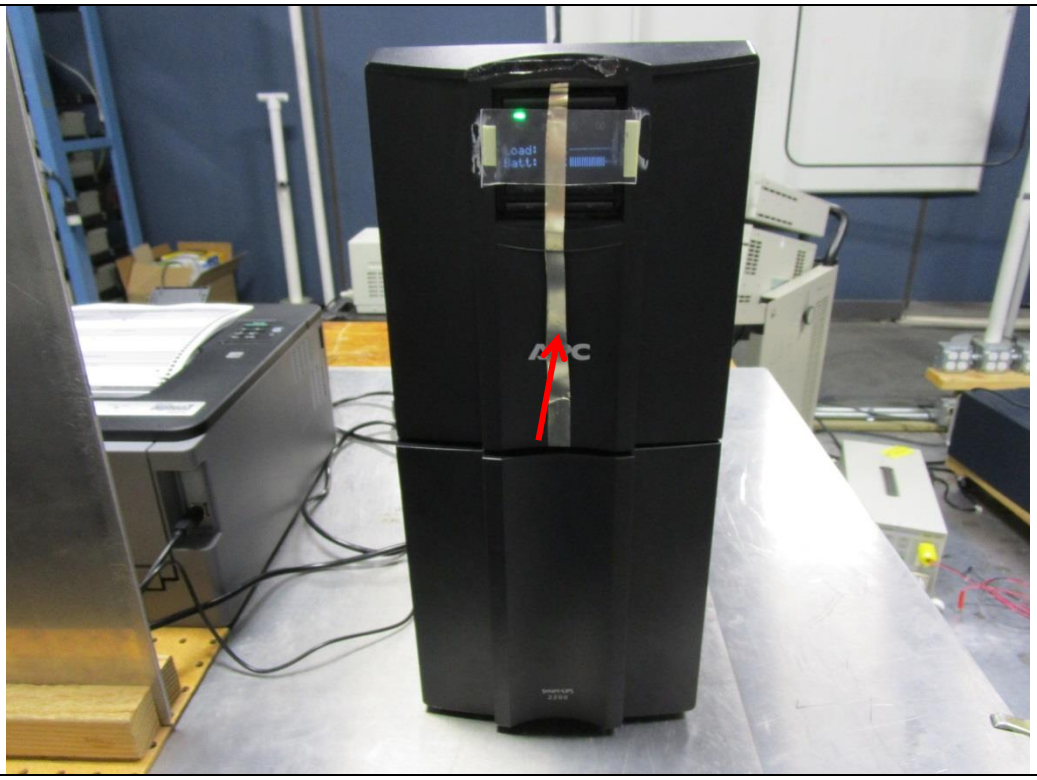

Figure A2. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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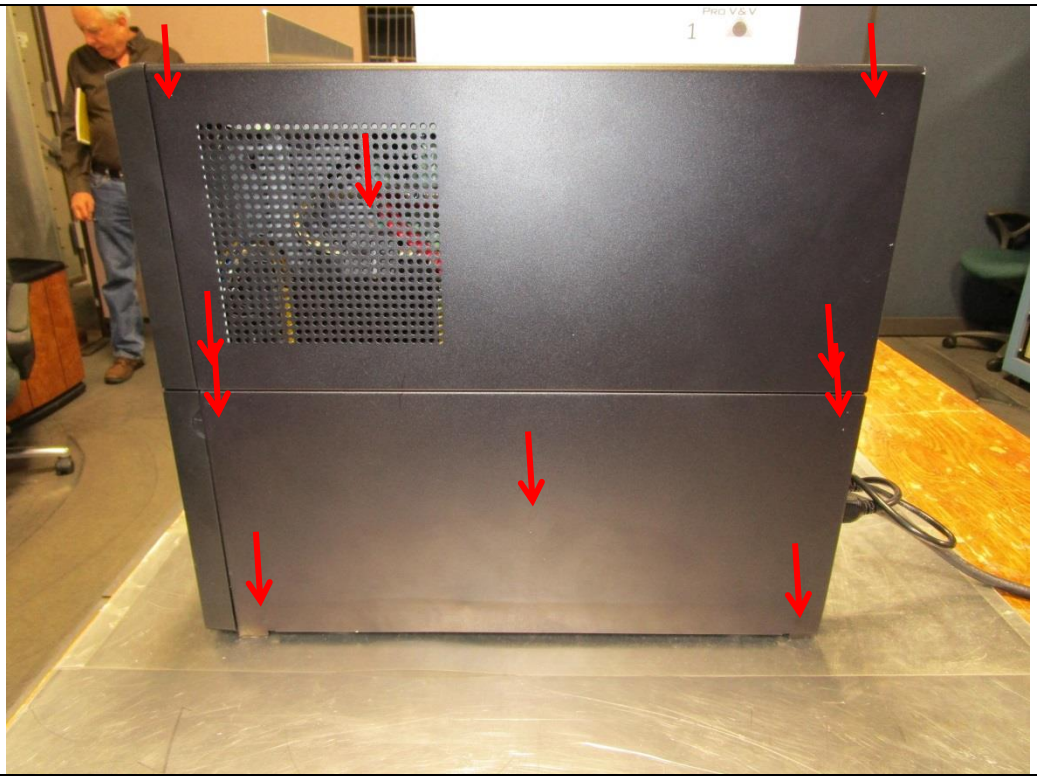

Figure A3. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

PR079580-4-2.doc FR0100

Figure A4. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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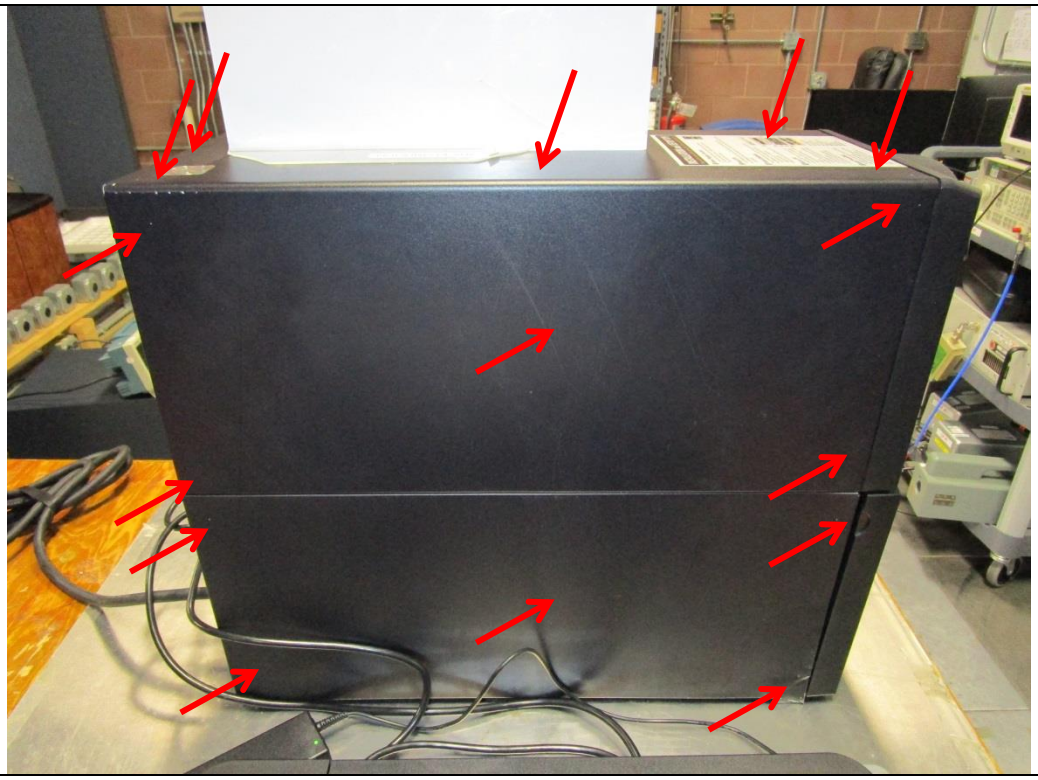

Figure A5. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A6. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A7. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A8. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A9. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

PR079580-4-2.doc FR0100

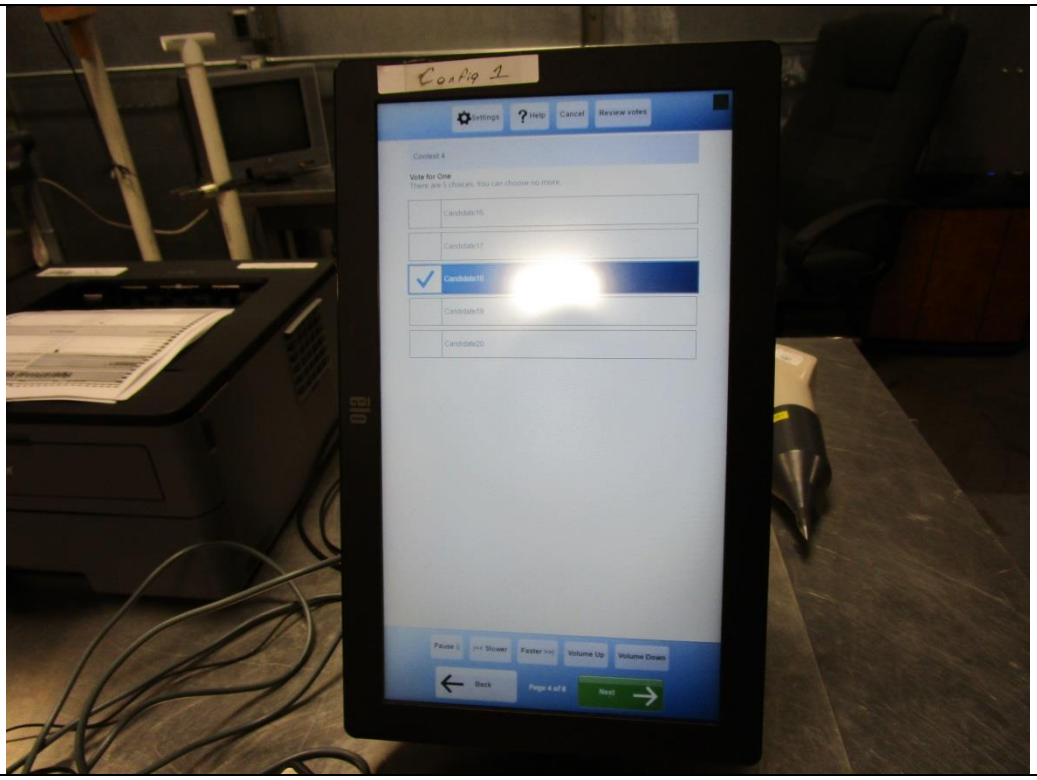

Figure A10. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A11. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

PR079580-4-2.doc FR0100

Figure A12. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A13. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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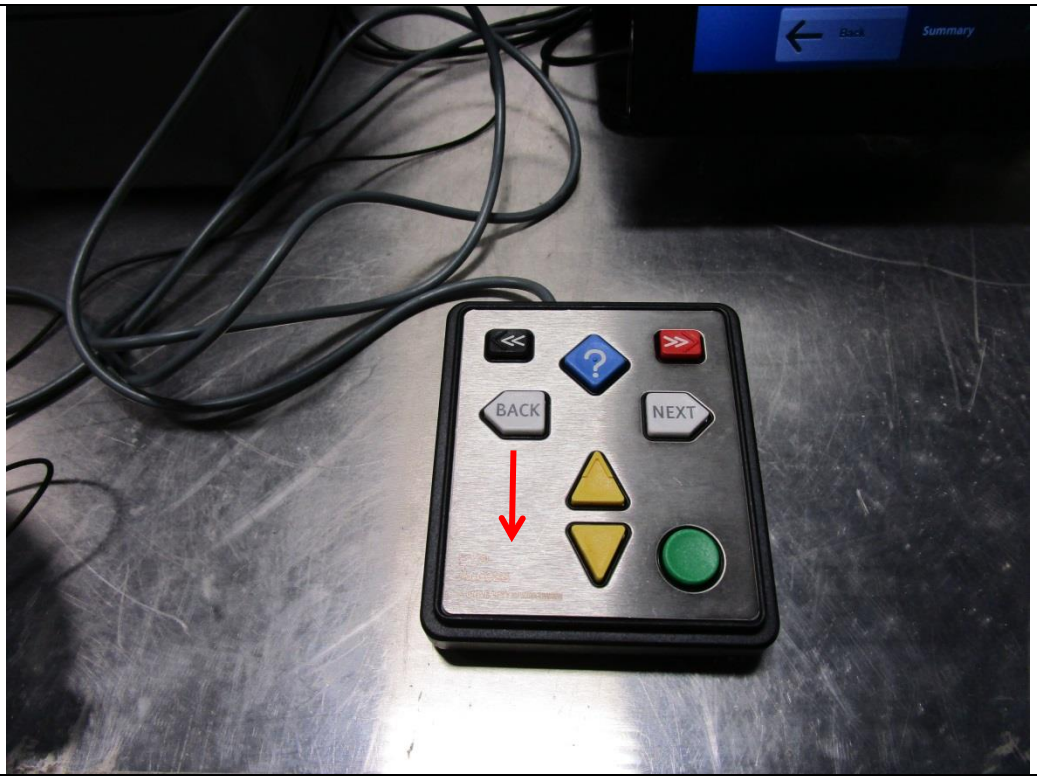

Figure A14. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

PR079580-4-2.doc FR0100

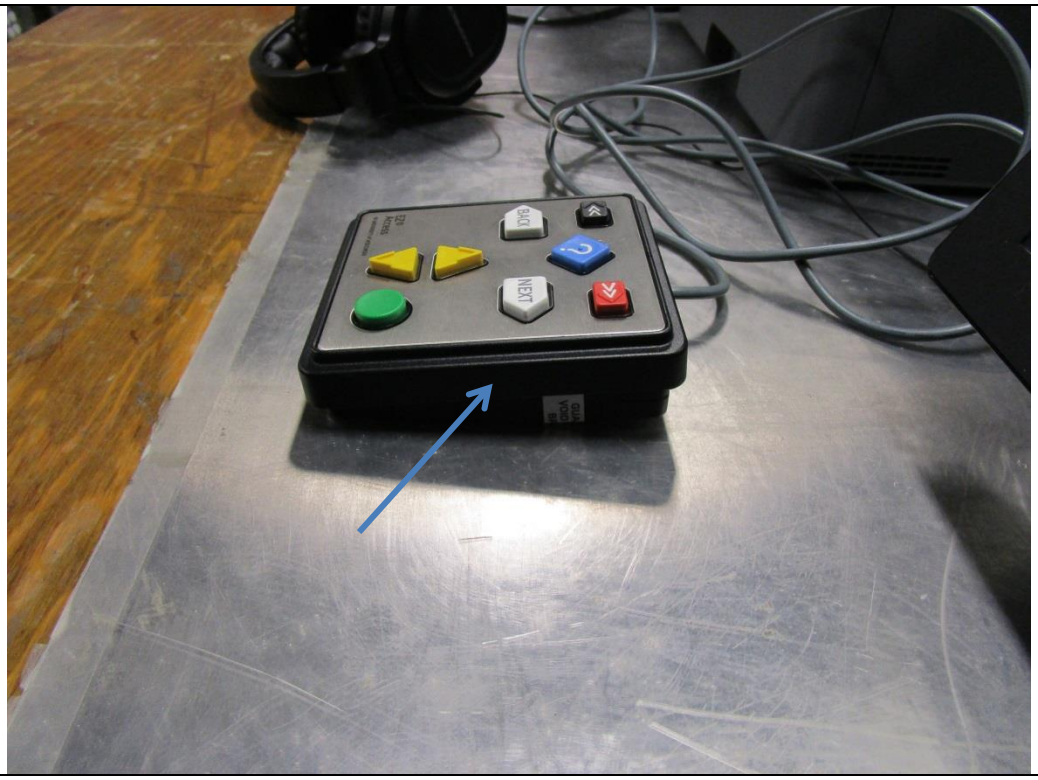

Figure A15. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A16. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1281	EMC Partner	ESD3000	284	ESD Test System	12/20/2017	12/20/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

ELECTROSTATIC DISCHARGE TEST DATA

CONFIGURATION 2

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018
Temperature:	19.6˚C Humidity: 38%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config 2 (Mitigated)		
Test Engineer:	Casey Lockhart		

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Test Location	Voltage Level (kV)	Polarity +	Polarity -	Number of Pulses	Pulses Per Second	Comments	Criteria Met	Pass / Fail
Indirect Discharge Points								
VCP	8	x	x	10	1	Front Side	A	Pass
VCP	8	x	x	10	1	Left Side	A	Pass
VCP	8	x	x	10	1	Right Side	A	Pass
VCP	8	x	x	10	1	Back Side	A	Pass
HCP	8	x	x	10	1	Edge of HCP at Front of UUT	A	Pass
Contact Discharge Points - **RED** Arrows.								
Figure A2	8	x	x	10	1		A	Pass
Figure A3	8	x	x	10	1		A	Pass
Figure A4	8	x	x	10	1		A	Pass
Figure A5	8	x	x	10	1		A	Pass
Figure A6	8	x	x	10	1	Goes away and comes back on.	B	Pass
Figure A7	8	x	x	10	1		A	Pass
Figure A8	8	x	x	---	---	No discharge points found.	---	---
Figure A9	8	x	x	10	1		A	Pass
Figure A10	8	x	x	---	---	No discharge points found.	---	---
Figure A11	8	x	x	---	---	No discharge points found.	---	---
Figure A12	8	x	x	---	---	No discharge points found.	---	---
Figure A13	8	x	x	---	---	No discharge points found.	---	---
Figure A14	8	x	x	10	1		A	Pass
Figure A15	8	x	x	---	---	No discharge points found.	---	---
Air Discharge Points - **BLUE** Arrows.								
Figure A2	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A3	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A4	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A5	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A6	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A7	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A8	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A9	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A10	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A11	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A12	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A13	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A14	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A15	2, 4, 8, 15	x	x	10	1		A	Pass

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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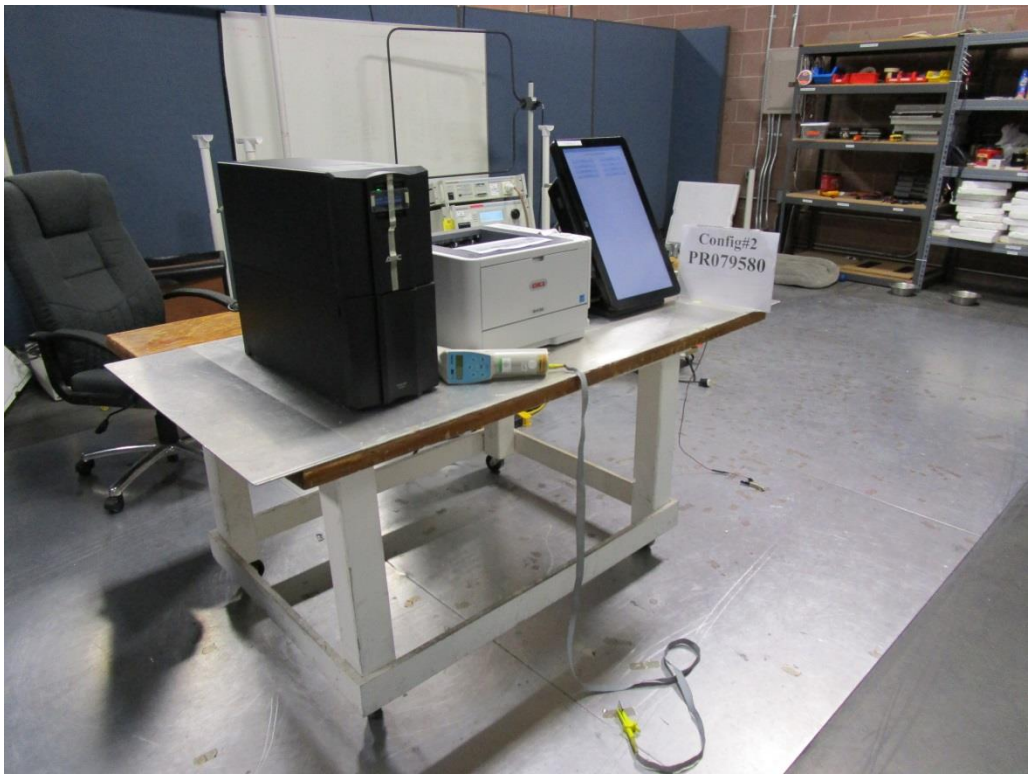

Figure A1. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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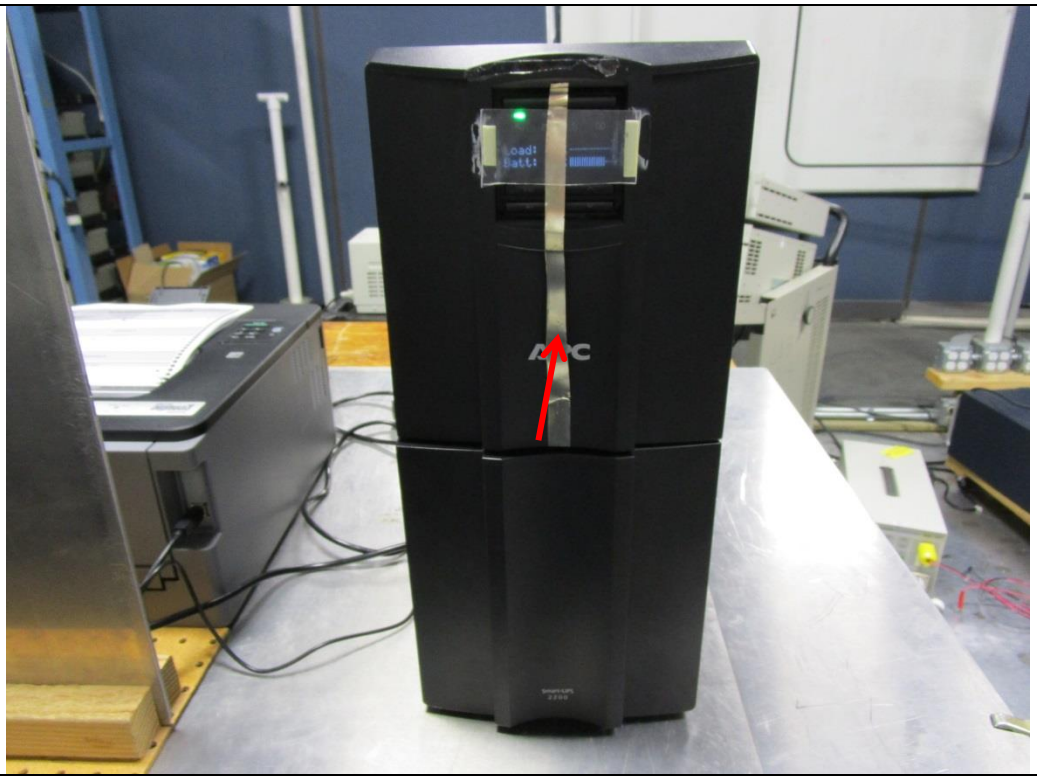

Figure A2. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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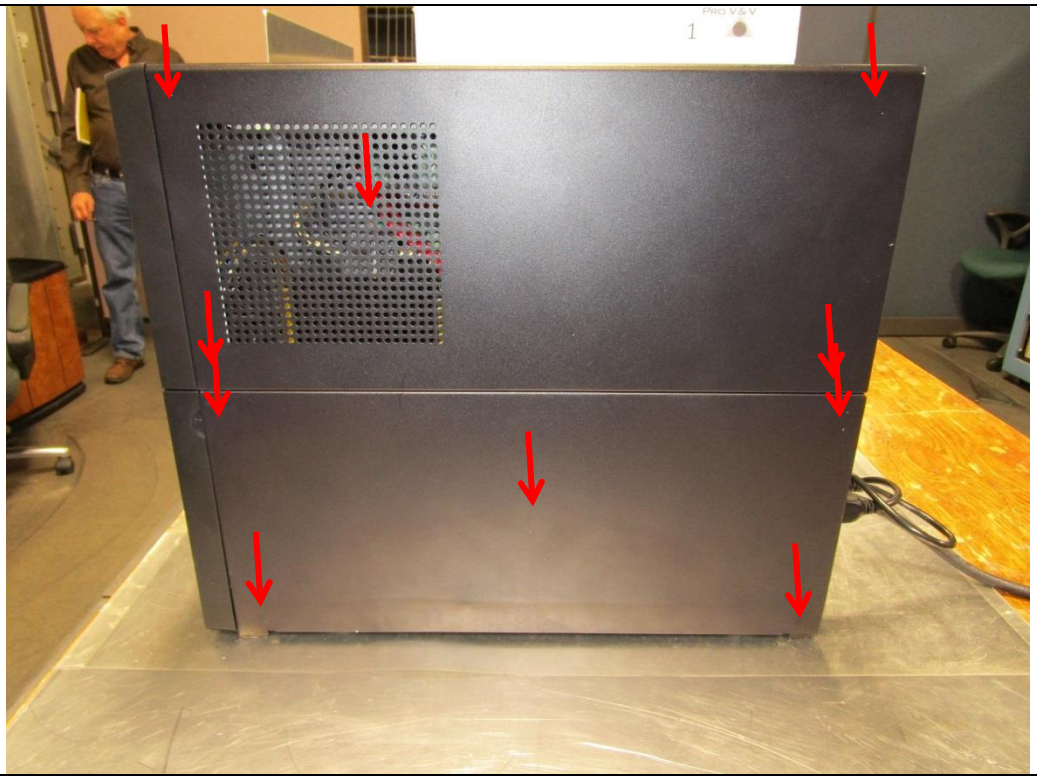

Figure A3. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A4. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

PR079580-4-2.doc FR0100

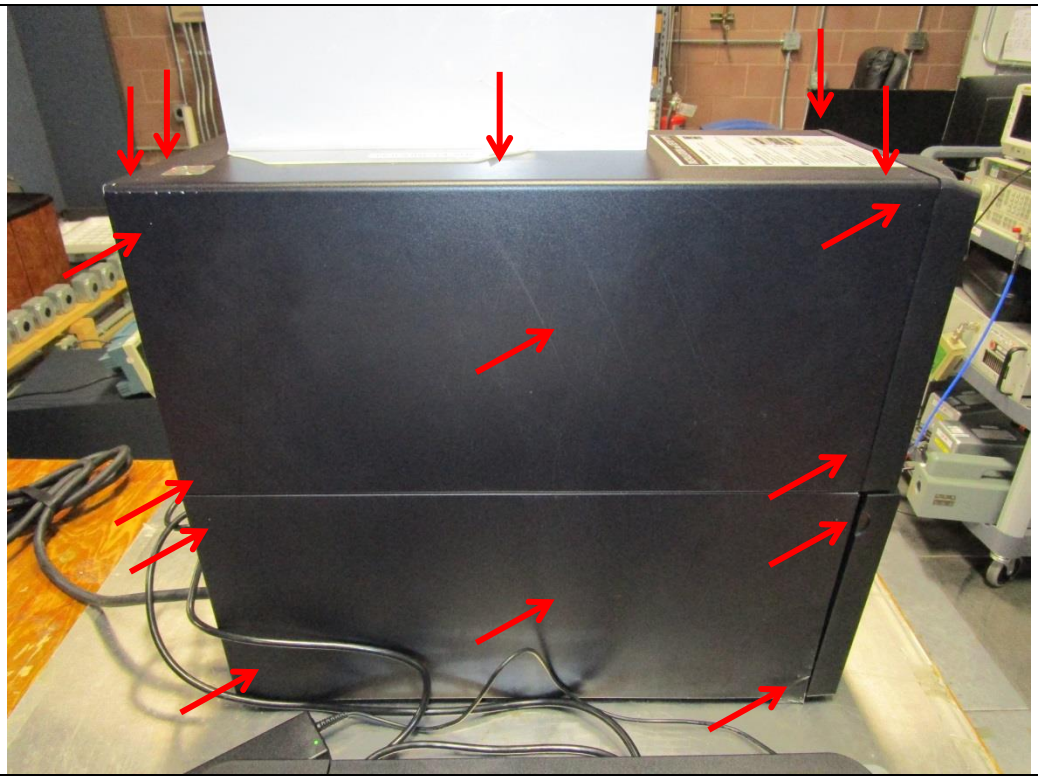

Figure A5. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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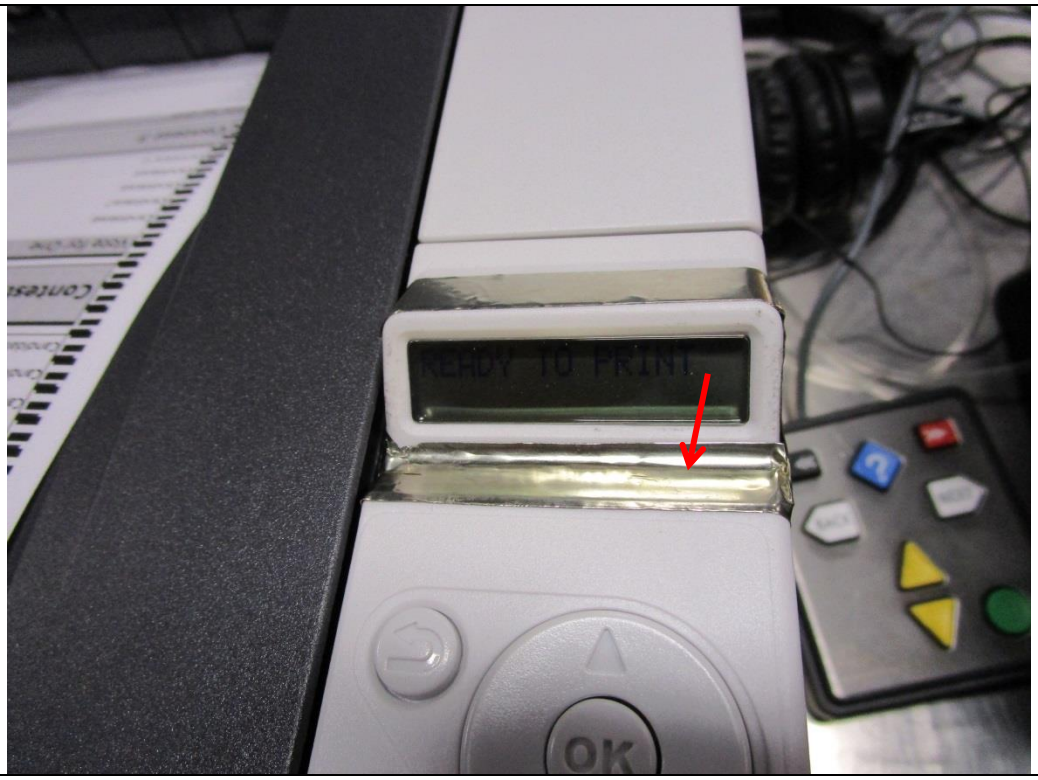

Figure A6. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A7. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A8. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A9. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A10. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A11. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A12. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A13. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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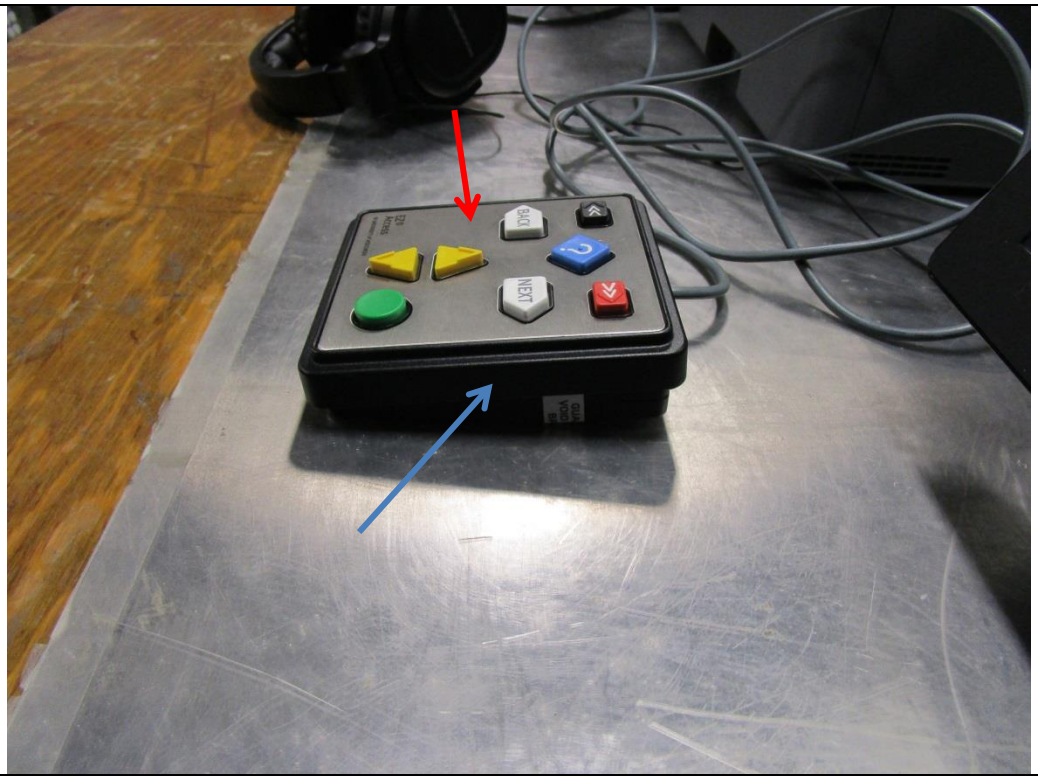

Figure A14. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A15. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 252018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1281	EMC Partner	ESD3000	284	ESD Test System	12/20/2017	12/20/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

ELECTROSTATIC DISCHARGE TEST DATA

CONFIGURATION 3

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018
Temperature:	22.3˚C Humidity: 42%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config 3 (Mitigation)		
Test Engineer:	Casey Lockhart		

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Test Location	Voltage Level (kV)	Polarity +	Polarity -	Number of Pulses	Pulses Per Second	Comments	Criteria Met	Pass / Fail
Indirect Discharge Points								
VCP	8	x	x	10	1	Front Side	A	Pass
VCP	8	x	x	10	1	Left Side	A	Pass
VCP	8	x	x	10	1	Right Side	A	Pass
VCP	8	x	x	10	1	Back Side	A	Pass
HCP	8	x	x	10	1	Edge of HCP at Front of UUT	A	Pass
Contact Discharge Points - **RED** Arrows.								
Figure A2	8	x	x	10	1		A	Pass
Figure A3	8	x	x	10	1		A	Pass
Figure A4	8	x	x	10	1		A	Pass
Figure A5	8	x	x	10	1		A	Pass
Figure A6	8	x	x	---	---	No discharge points found.	---	---
Figure A7	8	x	x	---	---	No discharge points found.	---	---
Figure A8	8	x	x	---	---	No discharge points found.	---	---
Figure A9	8	x	x	10	1		A	Pass
Figure A10	8	x	x	---	---	No discharge points found.	---	---
Figure A11	8	x	x	---	---	No discharge points found.	---	---
Figure A12	8	x	x	---	---	No discharge points found.	---	---
Figure A13	8	x	x	10	1		A	Pass
Figure A14	8	x	x	---	---	No discharge points found.	---	---
Figure A15	8	x	x	---	---	No discharge points found.	---	---
Figure A16	8	x	x	---	---	No discharge points found.	---	---
Figure A17	8	x	x	---	---	No discharge points found.	---	---
Figure A18	8	x	x	---	---	No discharge points found.	---	---
Air Discharge Points - **BLUE** Arrows.								
Figure A2	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A3	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A4	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A5	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A6	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A7	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A8	2, 4, 8, 15	x	x	10	1	.	B	Pass
Figure A9	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A10	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A11	2, 4, 8, 15	x	x	10	1		B	Pass
Figure A12	2, 4, 8, 15	x	x	10	1		B	Pass
Figure A13	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A14	2, 4, 8, 15	x	x	10	1		B	Pass

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018
Temperature:	22.3˚C Humidity: 42%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config 3 (Mitigation)		
Test Engineer:	Casey Lockhart		

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Test Location	Voltage Level (kV)	Polarity +	Polarity -	Number of Pulses	Pulses Per Second	Comments	Criteria Met	Pass / Fail
Figure A15	2, 4, 8, 15	x	x	10	1		B	Pass
Figure A16	2, 4, 8, 15	x	x	10	1		B	Pass

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A1. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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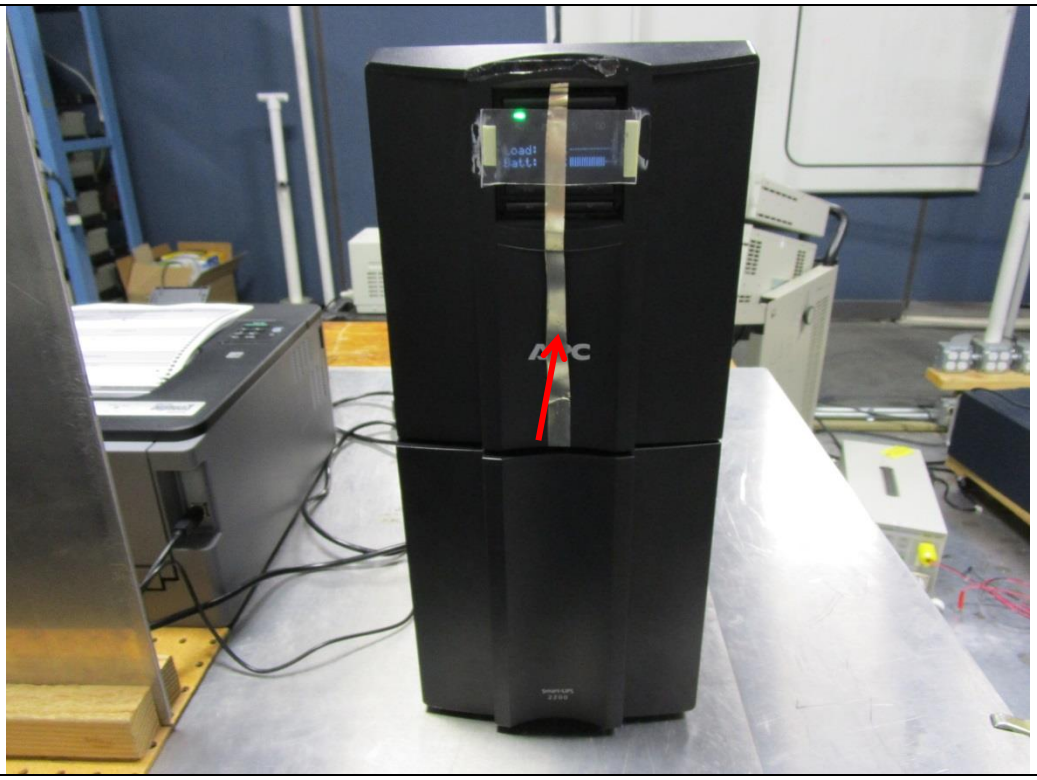

Figure A2. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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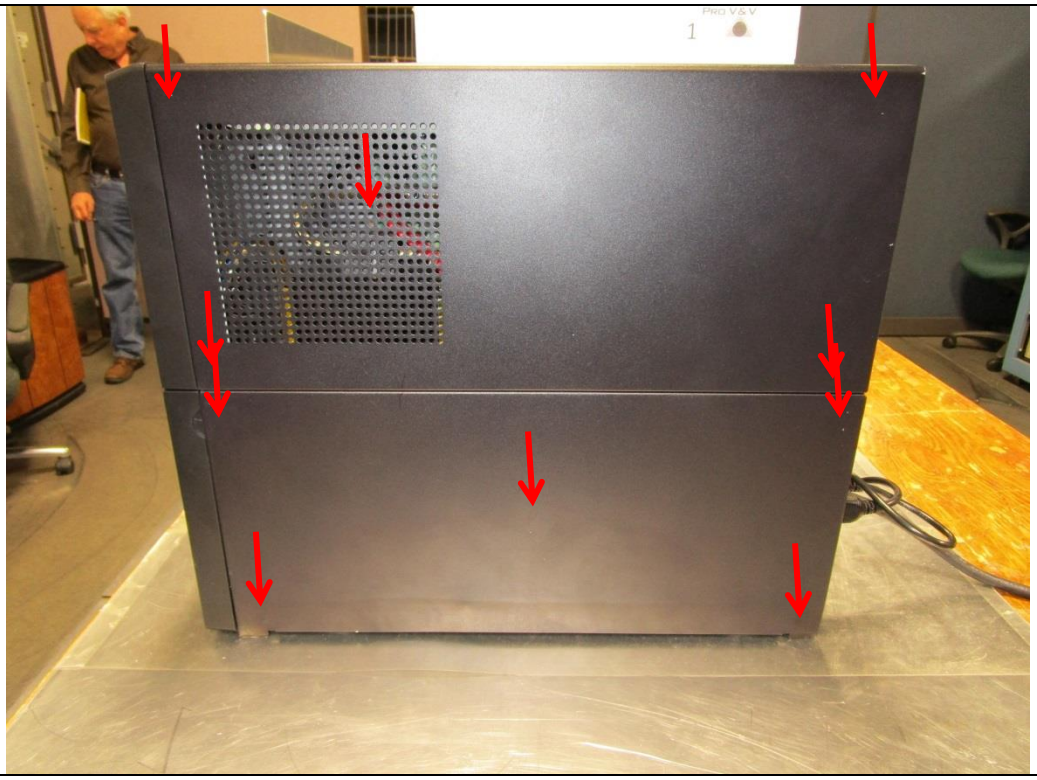

Figure A3. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

PR079580-4-2.doc FR0100

Figure A4. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

PR079580-4-2.doc FR0100

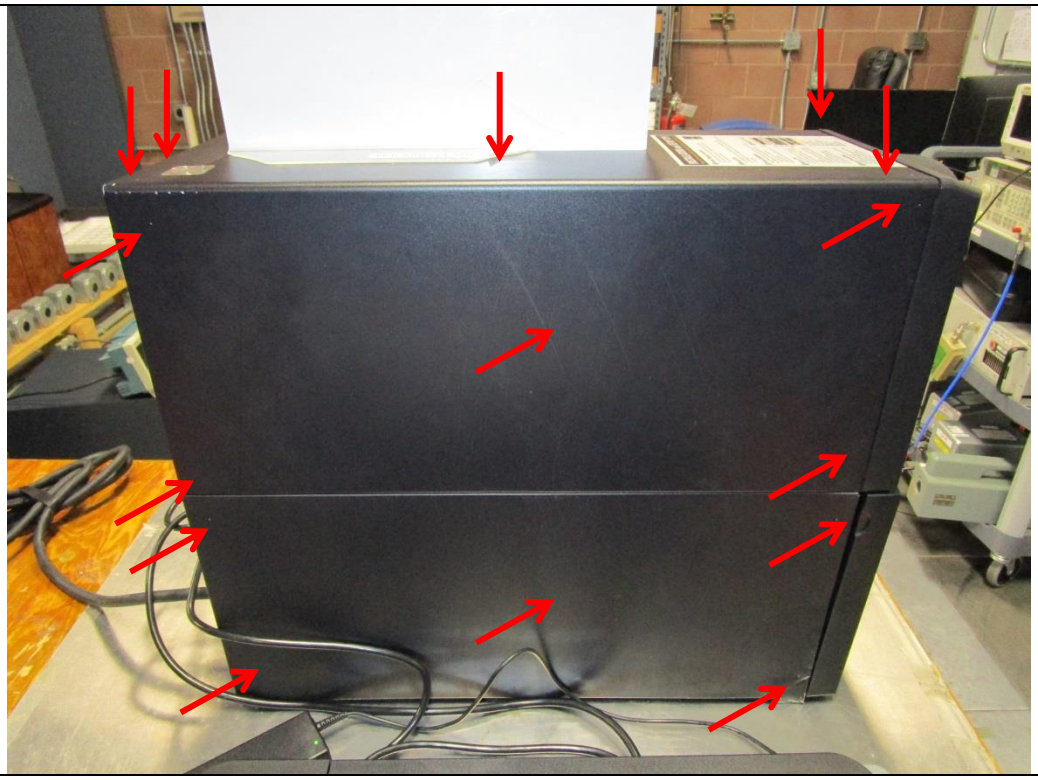

Figure A5. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A6. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A7. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A8. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A9. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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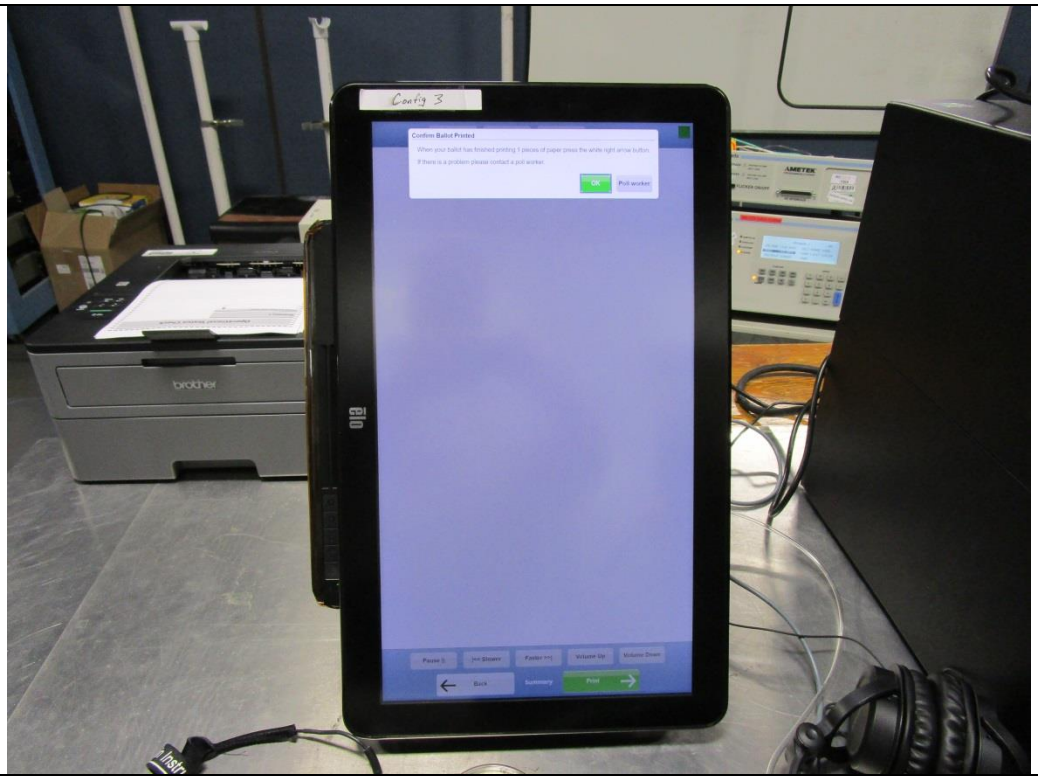

Figure A10. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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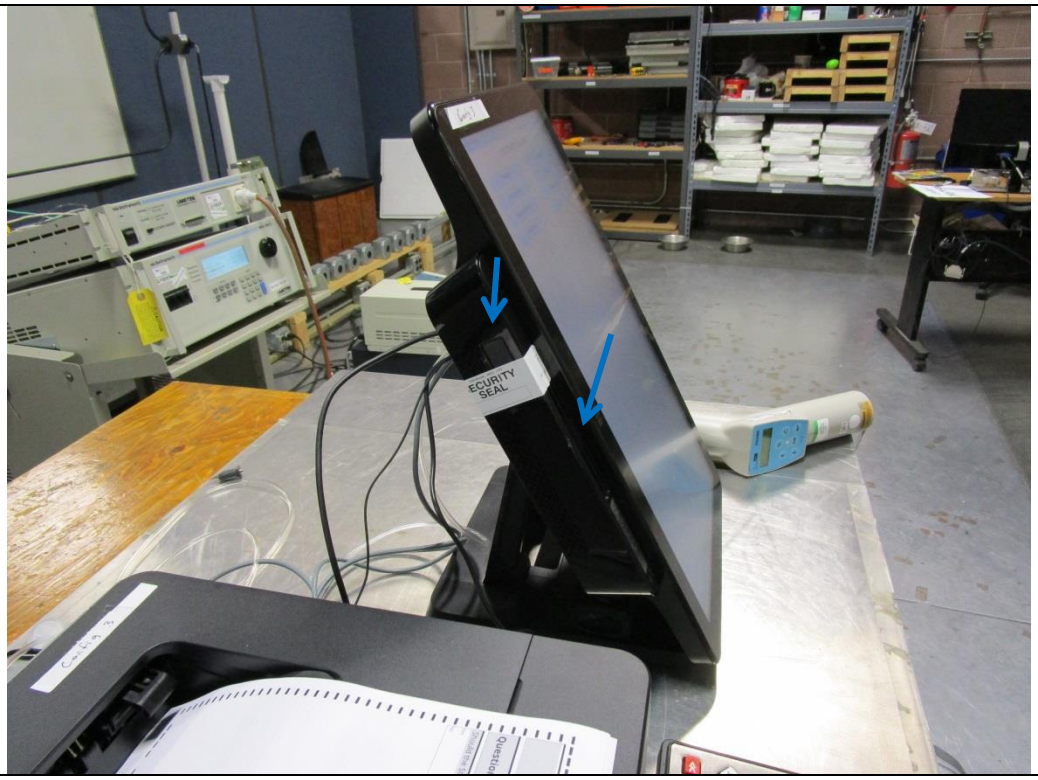

Figure A11. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A12. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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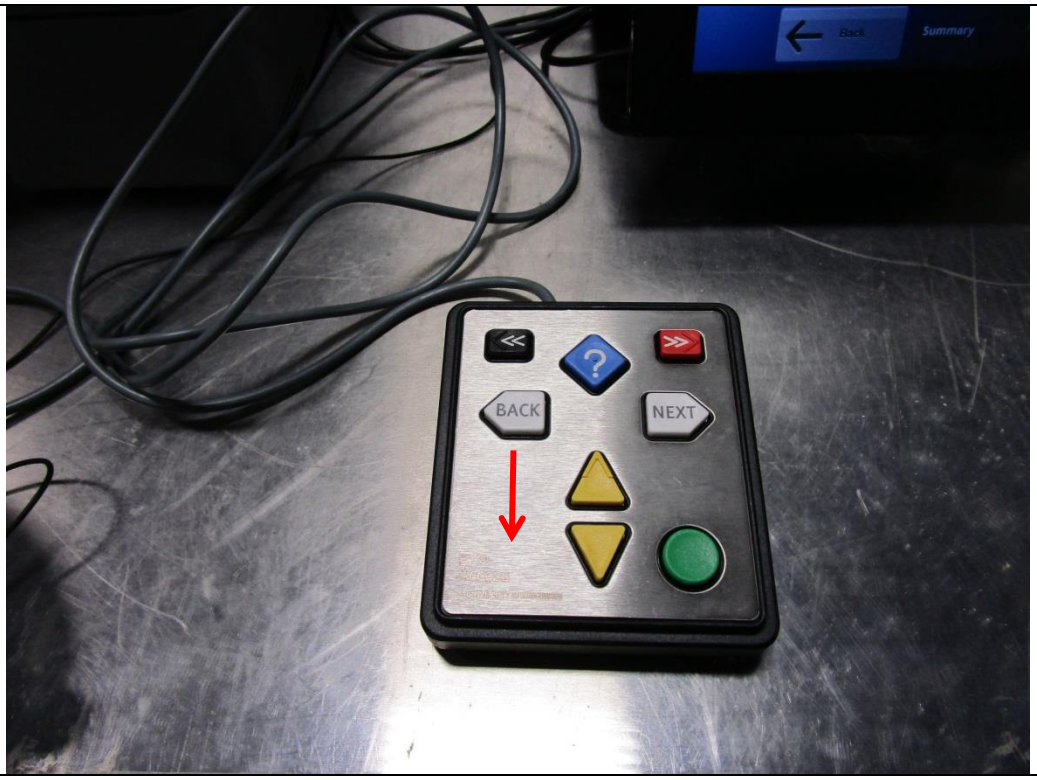

Figure A13. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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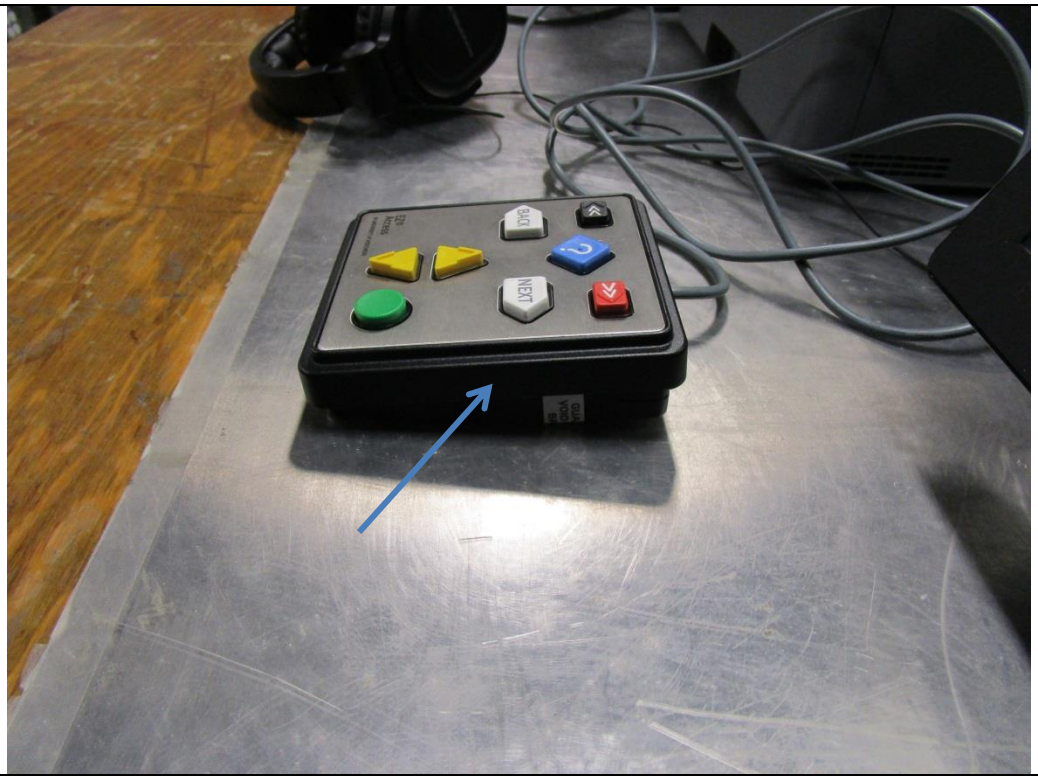

Figure A14. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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Figure A15. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25, 2018

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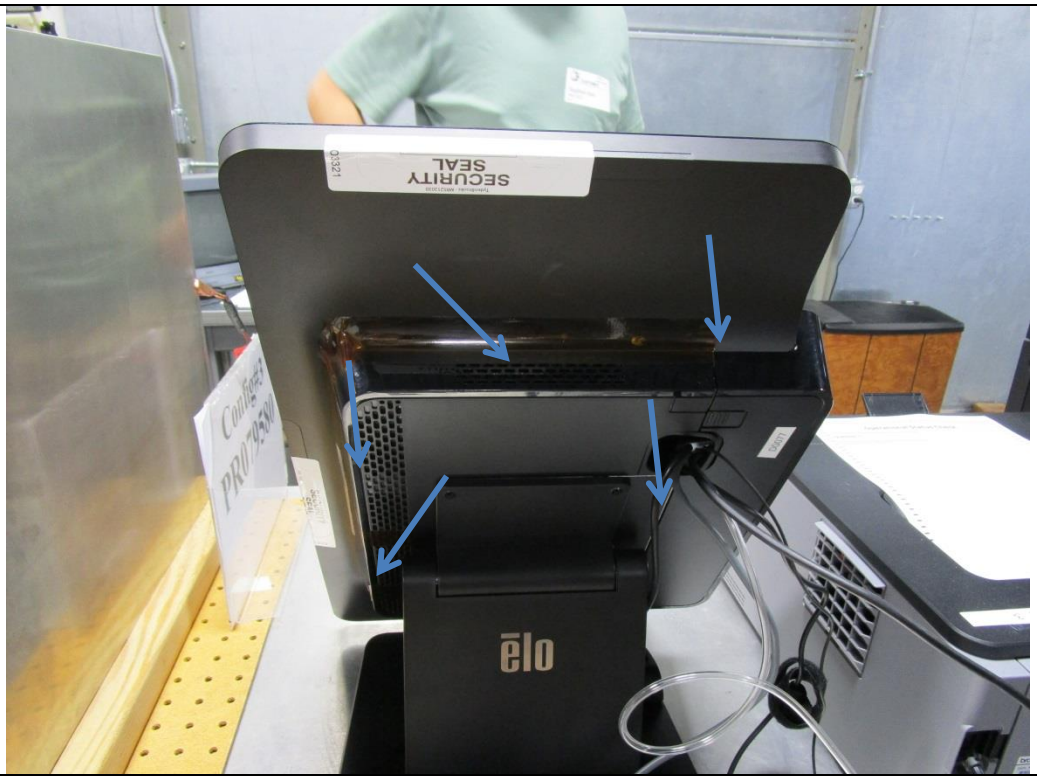

Figure A16. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 25 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1281	EMC Partner	ESD3000	284	ESD Test System	12/20/2017	12/20/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

ELECTROSTATIC DISCHARGE TEST DATA

CONFIGURATION 4

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018
Temperature:	24.8˚C Humidity: 33%	Pressure:	840 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config 4		
Test Engineer:	Casey Lockhart		

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Test Location	Voltage Level (kV)	Polarity +	Polarity -	Number of Pulses	Pulses Per Second	Comments	Criteria Met	Pass / Fail
Indirect Discharge Points								
VCP	8	x	x	10	1	Front Side	A	Pass
VCP	8	x	x	10	1	Left Side	A	Pass
VCP	8	x	x	10	1	Right Side	A	Pass
VCP	8	x	x	10	1	Back Side	A	Pass
HCP	8	x	x	10	1	Edge of HCP at Front of UUT	A	Pass
Contact Discharge Points - **RED** Arrows.								
Figure A2	8	x	x	10	1		A	Pass
Figure A3	8	x	x	10	1		A	Pass
Figure A4	8	x	x	10	1		A	Pass
Figure A5	8	x	x	10	1		A	Pass
Figure A6	8	x	x	---	---	No discharge points found.	---	---
Figure A7	8	x	x	---	---	No discharge points found.	---	---
Figure A8	8	x	x	---	---	No discharge points found.	---	---
Figure A9	8	x	x	10	1		A	Pass
Figure A10	8	x	x	---	---	No discharge points found.	---	---
Figure A11	8	x	x	10	1	Display went blank, came back fine.	B	Pass
Figure A12	8	x	x	10	1		A	Pass
Figure A13	8	x	x	---	---	No discharge points found.	---	---
Figure A14	8	x	x	---	---	No discharge points found.	---	---
Air Discharge Points - **BLUE** Arrows.								
Figure A2	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A3	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A4	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A5	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A6	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A7	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A8	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A9	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A10	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A11	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A12	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A13	2, 4, 8, 15	x	x	---	---	No discharge points found.	---	---
Figure A14	2, 4, 8, 15	x	x	10	1		A	Pass

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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Figure A1. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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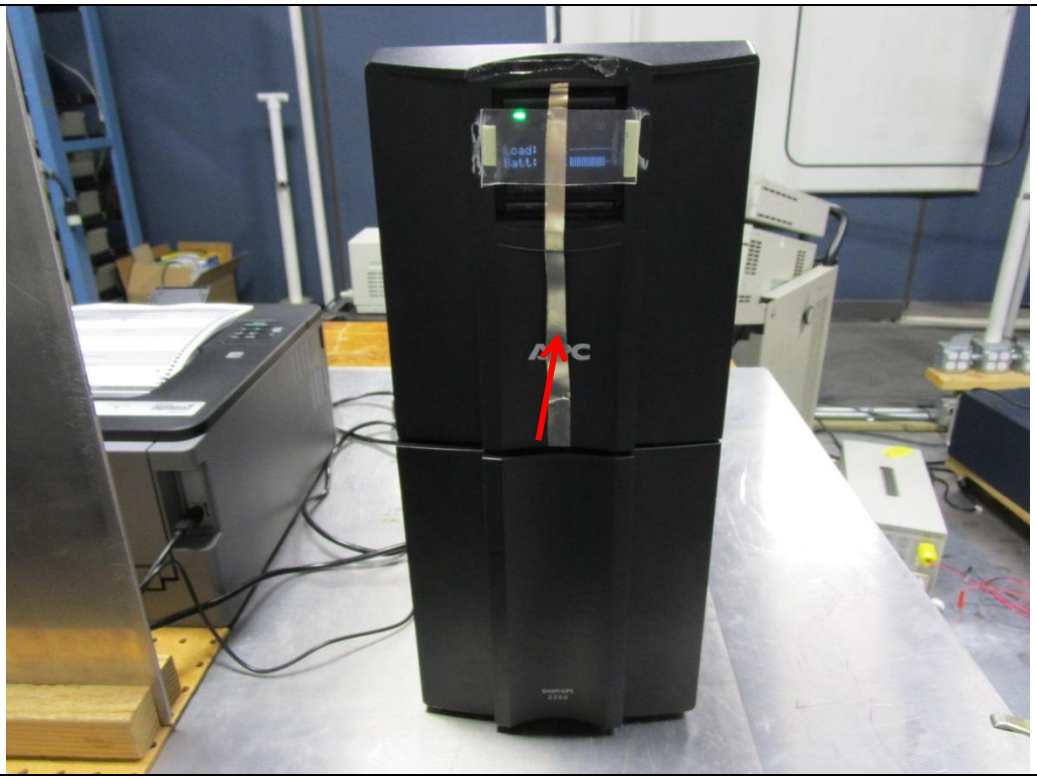

Figure A2. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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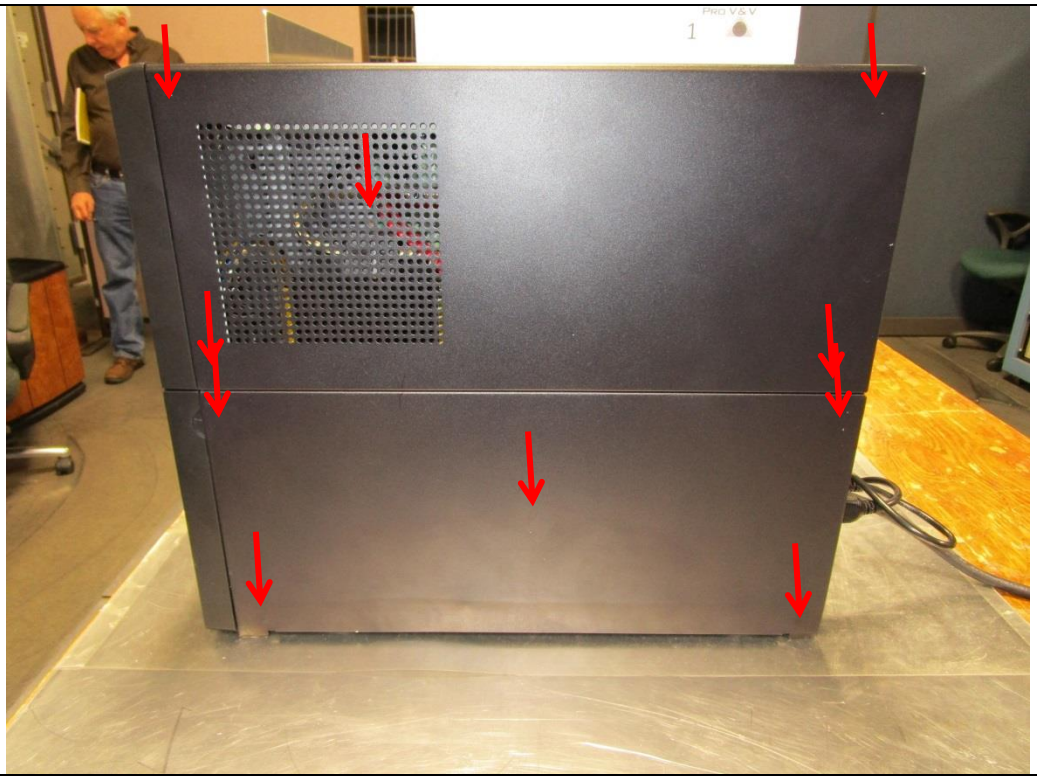

Figure A3. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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Figure A4. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

PR079580-4-2.doc FR0100

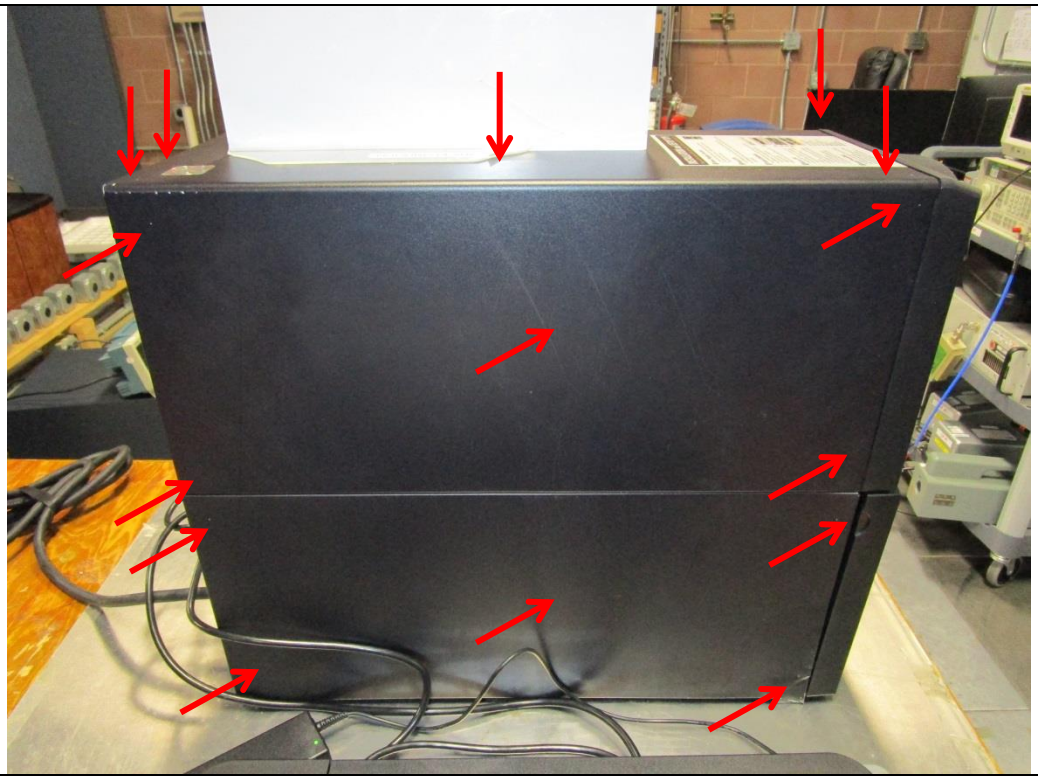

Figure A5. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

PR079580-4-2.doc FR0100

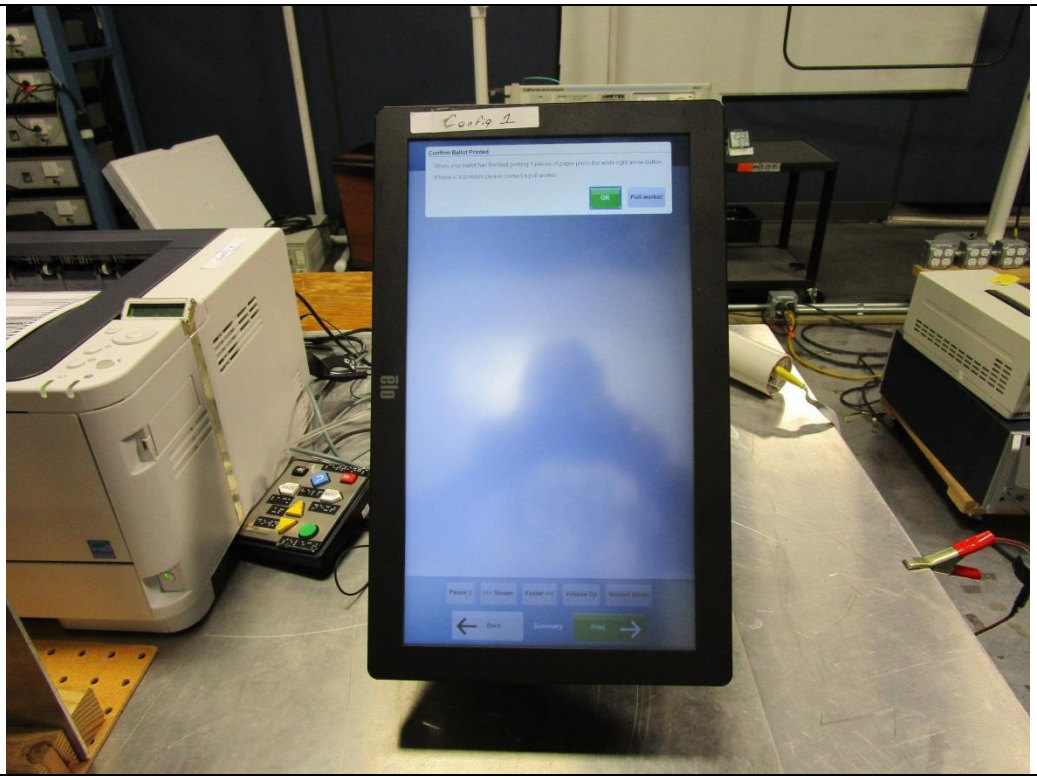

Figure A6. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

PR079580-4-2.doc FR0100

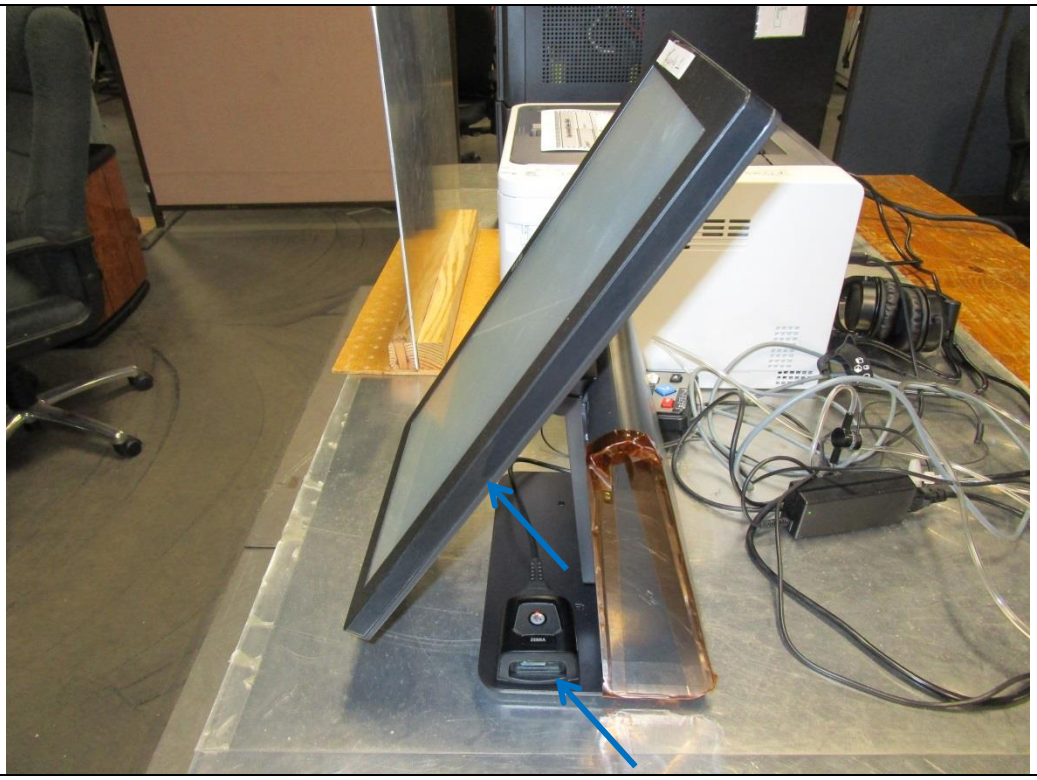

Figure A7. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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Figure A8. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

PR079580-4-2.doc FR0100

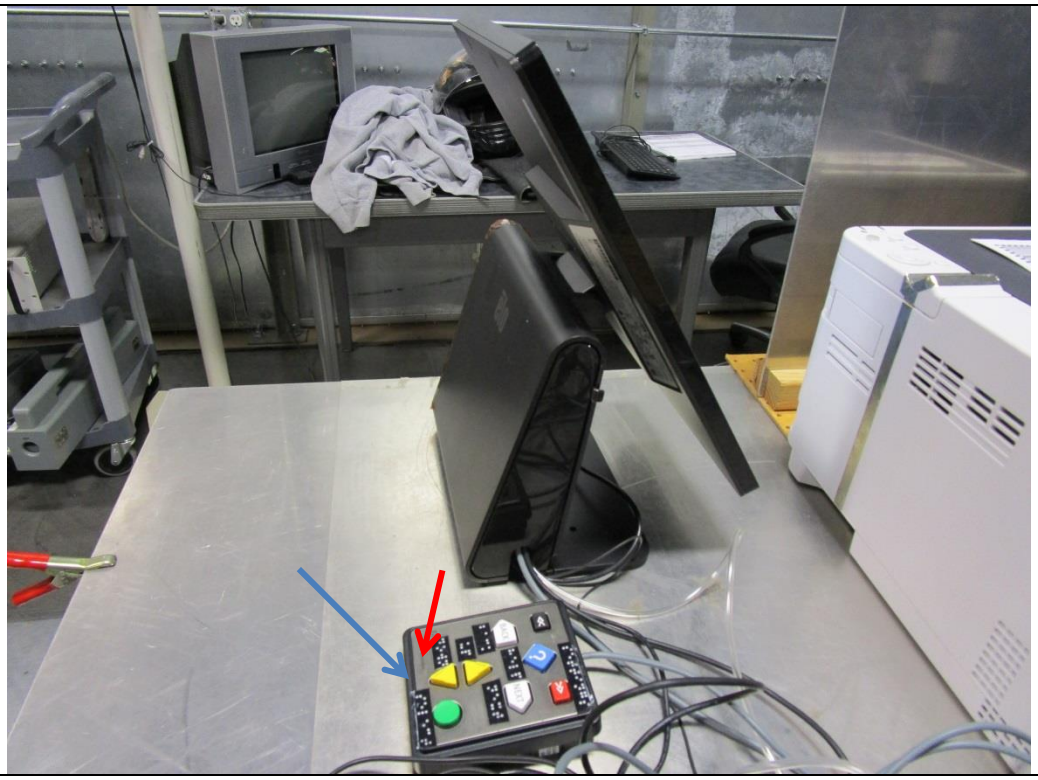

Figure A9. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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Figure A10. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

PR079580-4-2.doc FR0100

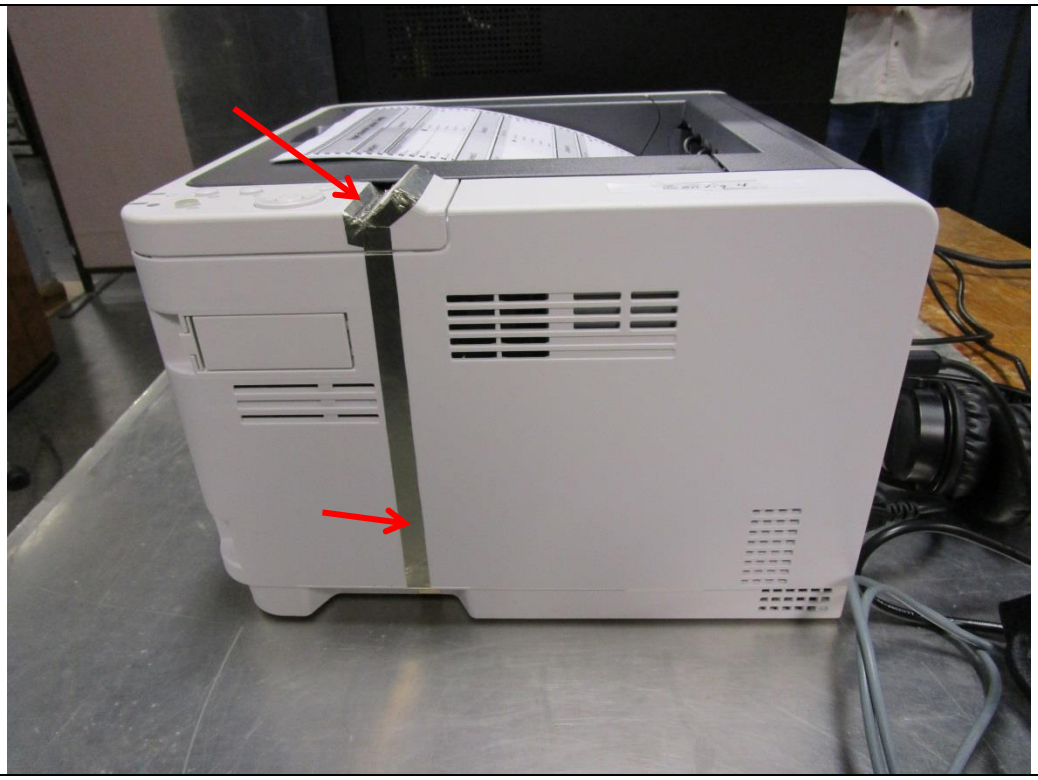

Figure A11. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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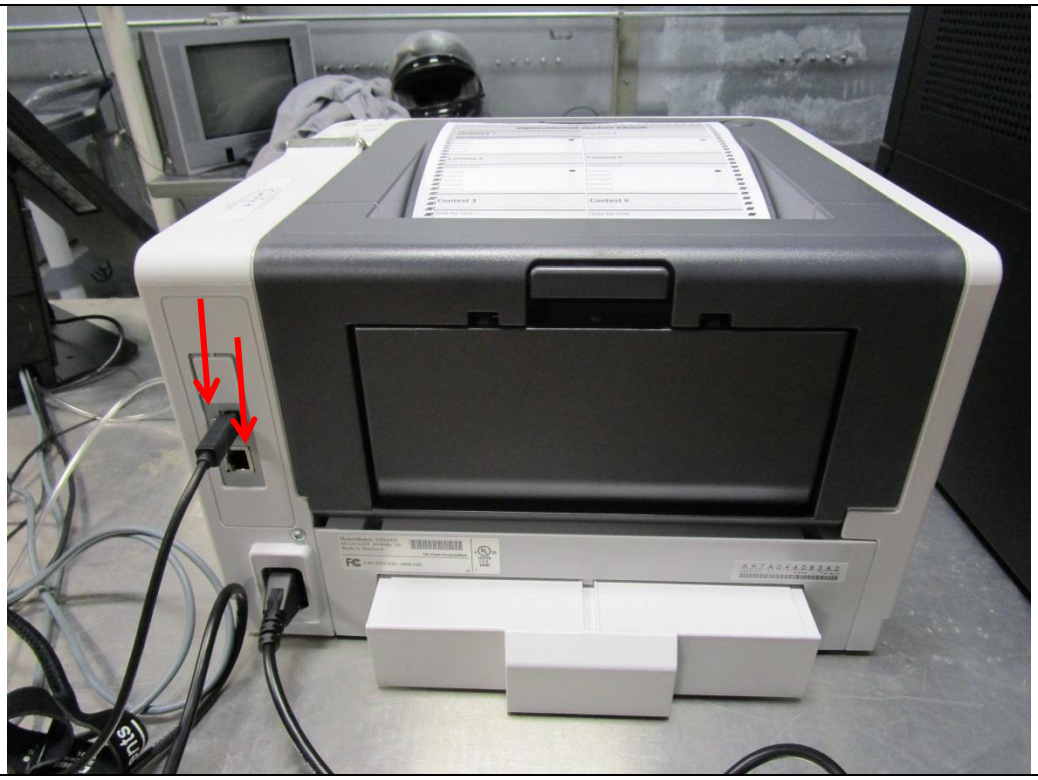

Figure A12. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

PR079580-4-2.doc FR0100

Figure A13. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

PR079580-4-2.doc FR0100

Figure A14. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 24 2018

PR079580-4-2.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1281	EMC Partner	ESD3000	284	ESD Test System	12/20/2017	12/20/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

APPENDIX B - RADIATED RF IMMUNITY TEST DATA

CONFIGURATION 1

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess, ELO ESY15E2 Brother HL-L2350DW APC SMT-2200	S/N:	 A18C004079, U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 9, 2018
Temperature:	22˚C Humidity: 30%	Pressure:	838mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots, Config#1		
Test Engineer:	Kevin Johnson		

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Frequency (MHz)	Modulation				Step Size (%)	Field (V/m)	Polarity (V or H)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq	Form							
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Front Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Right Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Back Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Left Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess, ELO ESY15E2 Brother HL-L2350DW APC SMT-2200	S/N:	 A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 9, 2018

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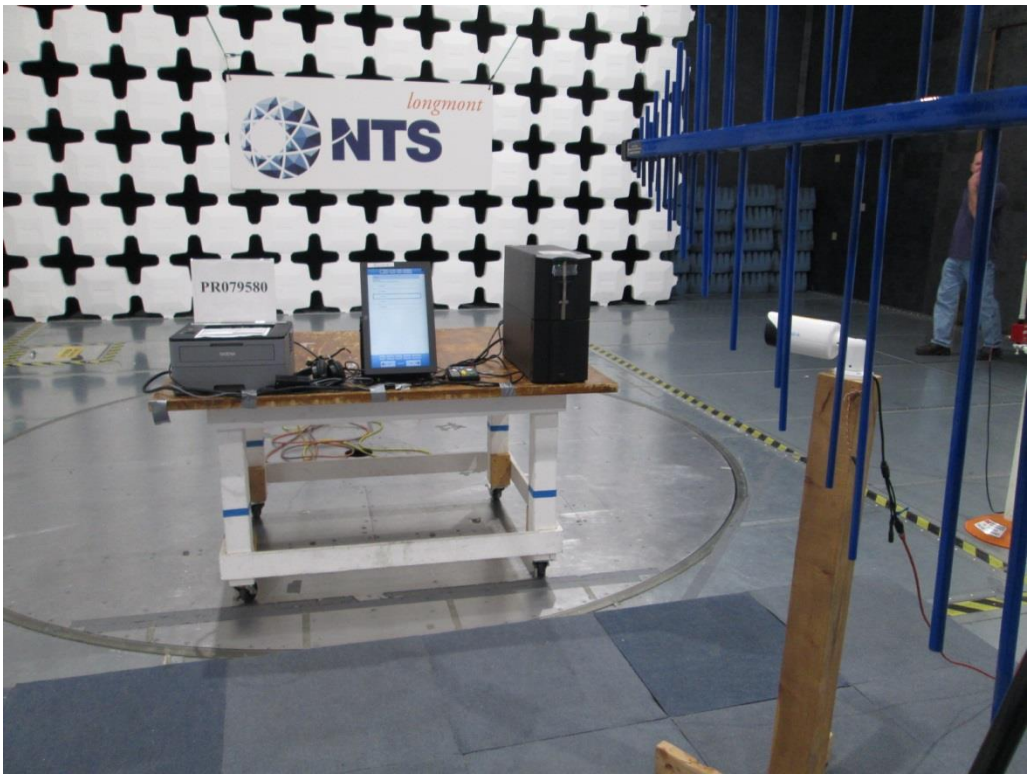

Figure B1. Radiated RF Immunity Test Setup – Front Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess, ELO ESY15E2 Brother HL-L2350DW APC SMT-2200	S/N:	 A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 9, 2018

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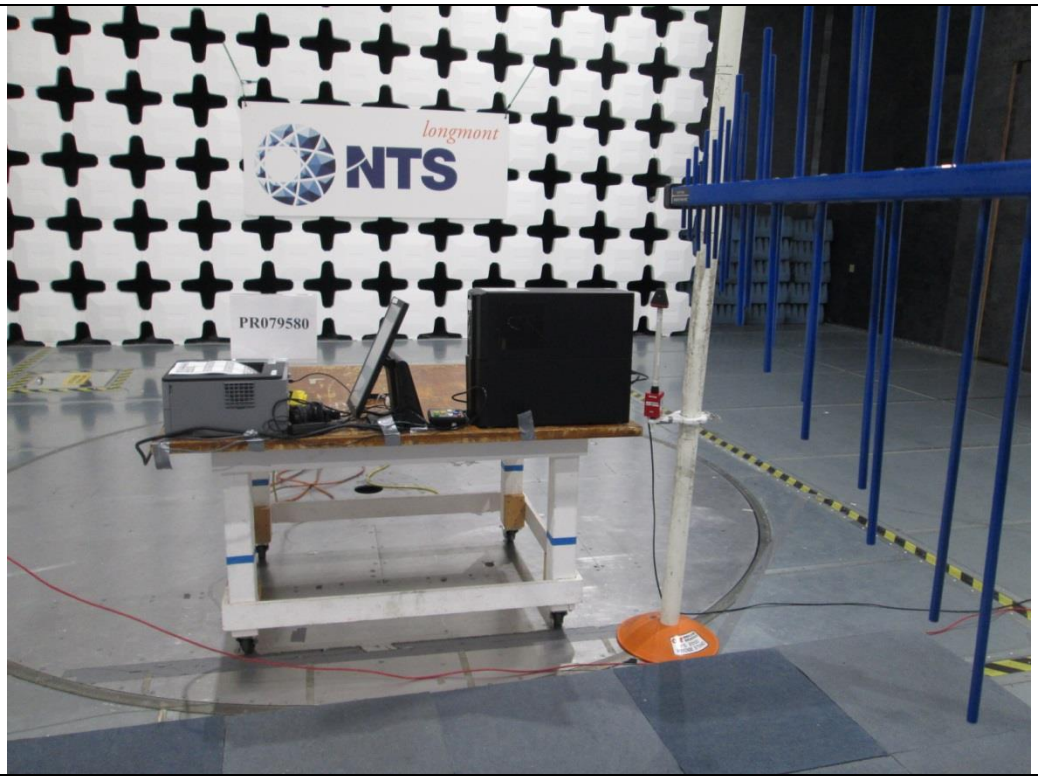

Figure B2. Radiated RF Immunity Test Setup – Right Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess, ELO ESY15E2 Brother HL-L2350DW APC SMT-2200	S/N:	 A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 9, 2018

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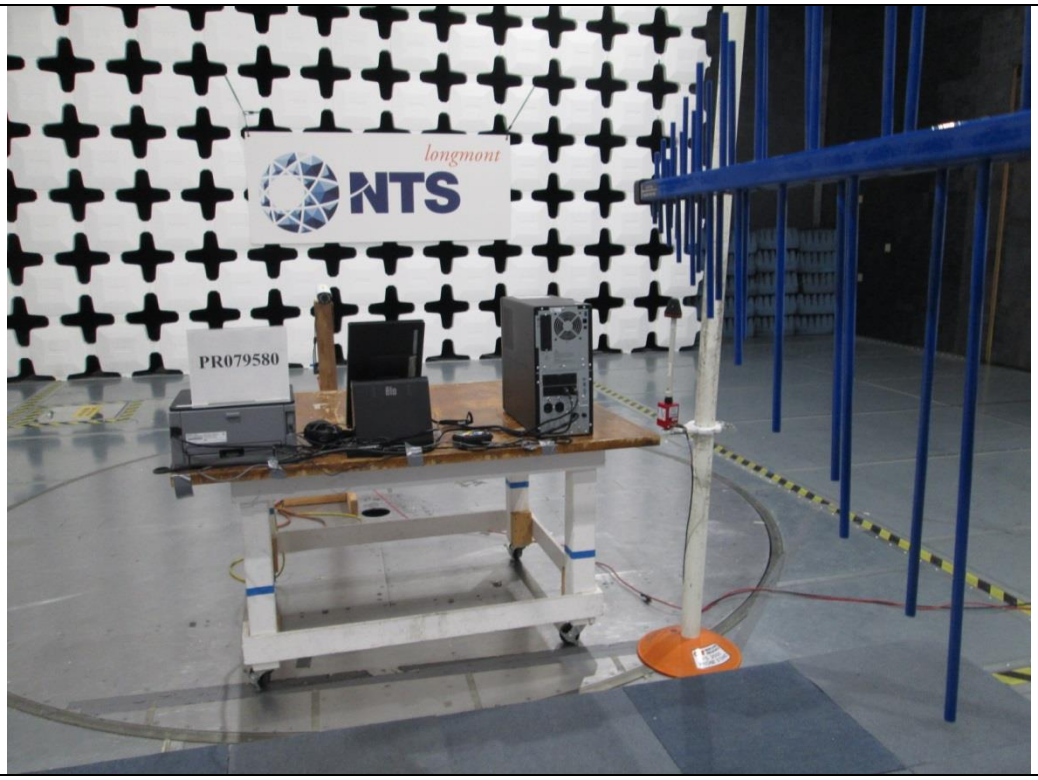

Figure B3. Radiated RF Immunity Test Setup – Back Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess, ELO ESY15E2 Brother HL-L2350DW APC SMT-2200	S/N:	 A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 9, 2018

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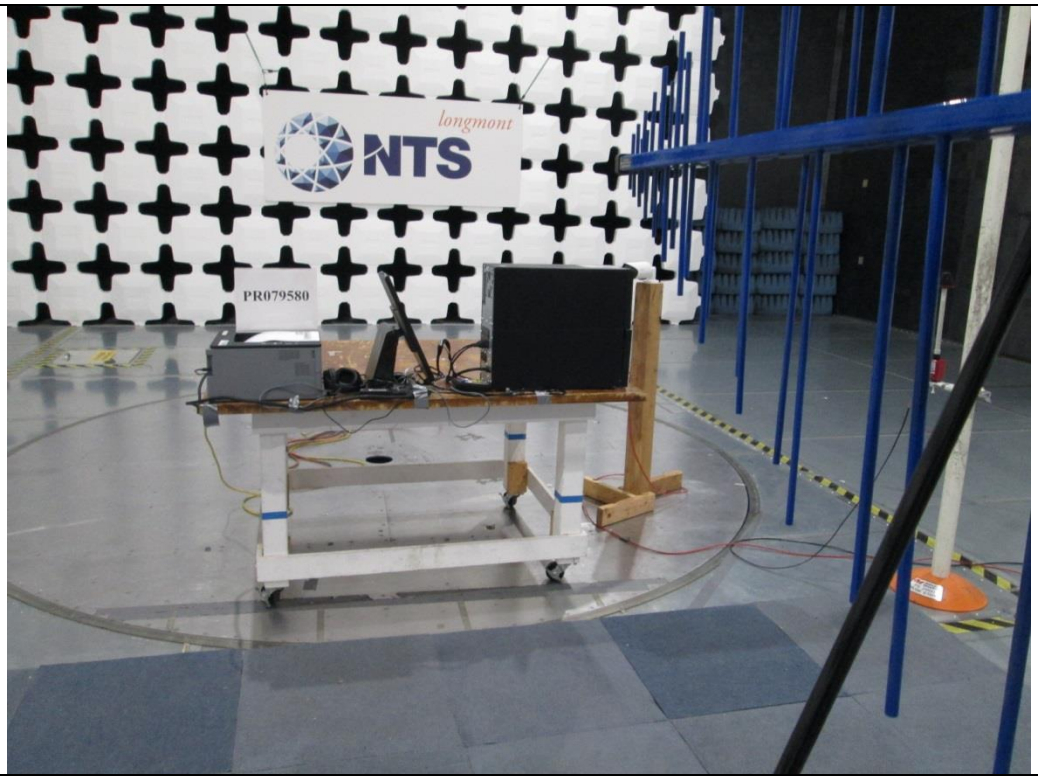

Figure B4. Radiated RF Immunity Test Setup – Left Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess, ELO ESY15E2 Brother HL-L2350DW APC SMT-2200	S/N:	 A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 9, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1005	EMCO	3140	1012	Biconilog Antenna	NA	NA
1038	Fluke	85	66180455	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1181	EMCI	RFS	V2.5.8	Initial Release 02 July 2004	NA	NA
1250	OPHIR	5127F	1034	RF Power Amplifier 20-1000MHz, 200 Watts	NA	NA
1297	Agilent	E4418B	MY40513063	EPM Series Power Meter	03/26/2018	03/26/2019
1298	Hewlett Packard	E4421A	US38484980	E Series CW Power Sensor	03/26/2018	03/26/2019
1396	CIR Enterprises	10m Chamber #2	002	10m Chamber with 4m turntable	03/29/2018	03/29/2019
1544	IFR	2023A	202305/809	9 kHz - 1.2 GHz Signal Generator	08/09/2017	08/09/2018
1565	ETS-Lindgren	HI-6053	00166681	Electric Field Probe, 10 MHz - 40 GHz	07/07/2017	07/07/2018
1578	Werlatone	C3908-10	107952	1500 Watts, 50 dB Dual Directional Coupler (80MHz	06/21/2017	06/21/2018

RADIATED RF IMMUNITY TEST DATA

CONFIGURATION 2

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY15E2		D18Q000334
	OKI B432dn		AK7A044093A0
	APC SMT-2200		AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 11, 2018
Temperature:	23˚C Humidity: 40%	Pressure:	831mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots, Config#2		
Test Engineer:	Kevin Johnson		

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Frequency (MHz)	Modulation				Step Size (%)	Field (V/m)	Polarity (V or H)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq	Form							
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Front Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Right Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Back Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Left Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY15E2		D18Q000334
	OKI B432dn		AK7A044093A0
	APC SMT-2200		AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 11, 2018

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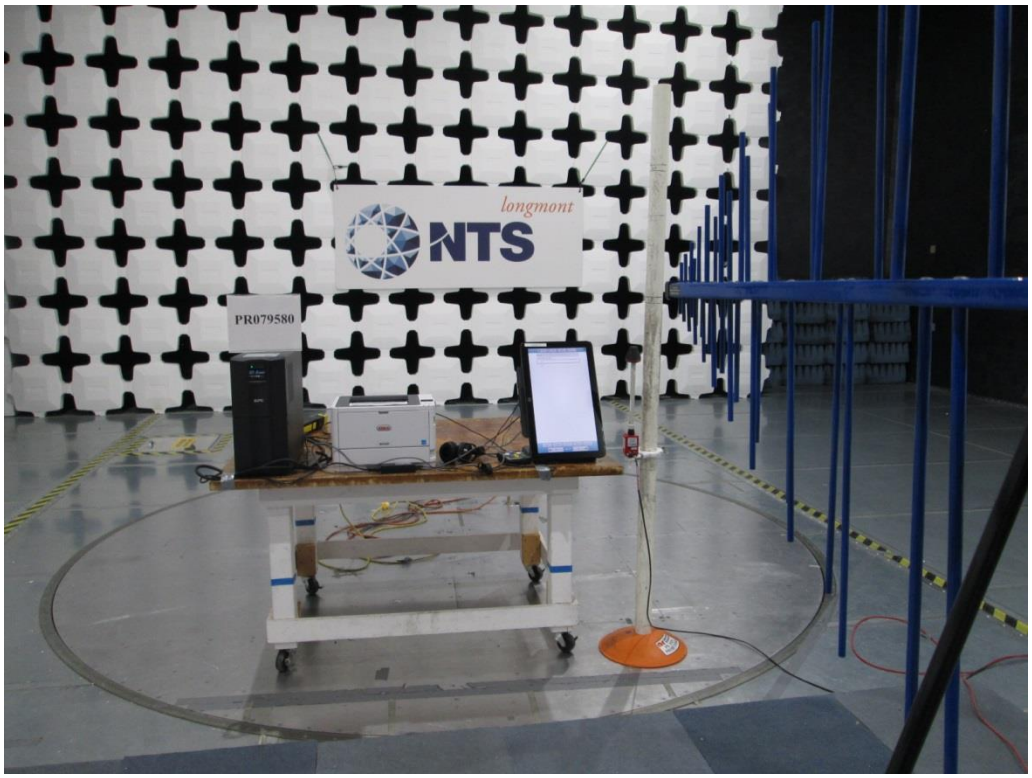

Figure B1. Radiated RF Immunity Test Setup – Front Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY15E2		D18Q000334
	OKI B432dn		AK7A044093A0
	APC SMT-2200		AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 11, 2018

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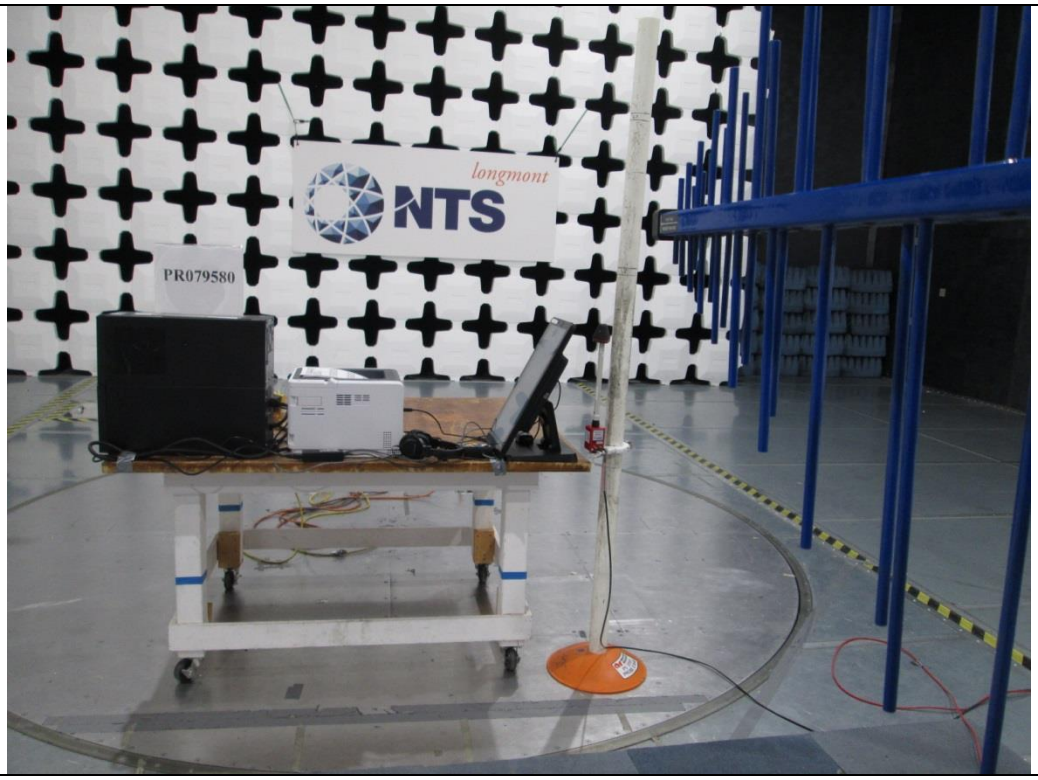

Figure B2. Radiated RF Immunity Test Setup – Right Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY15E2		D18Q000334
	OKI B432dn		AK7A044093A0
	APC SMT-2200		AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 11, 2018

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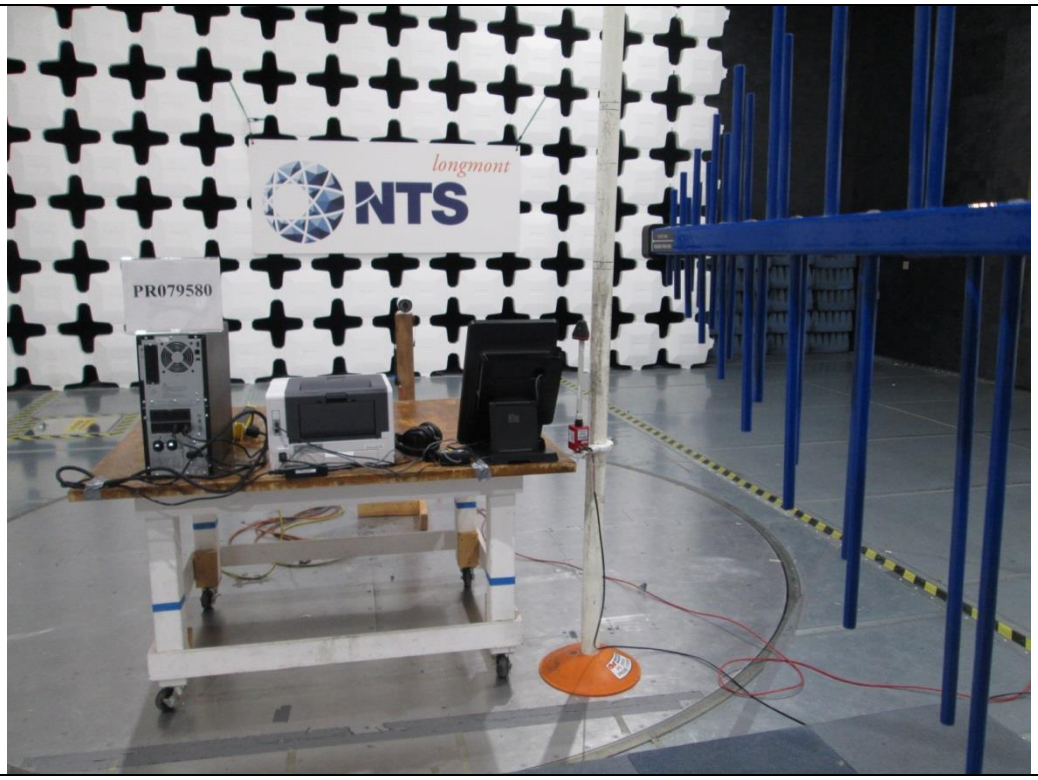

Figure B3. Radiated RF Immunity Test Setup – Back Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY15E2		D18Q000334
	OKI B432dn		AK7A044093A0
	APC SMT-2200		AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 11, 2018

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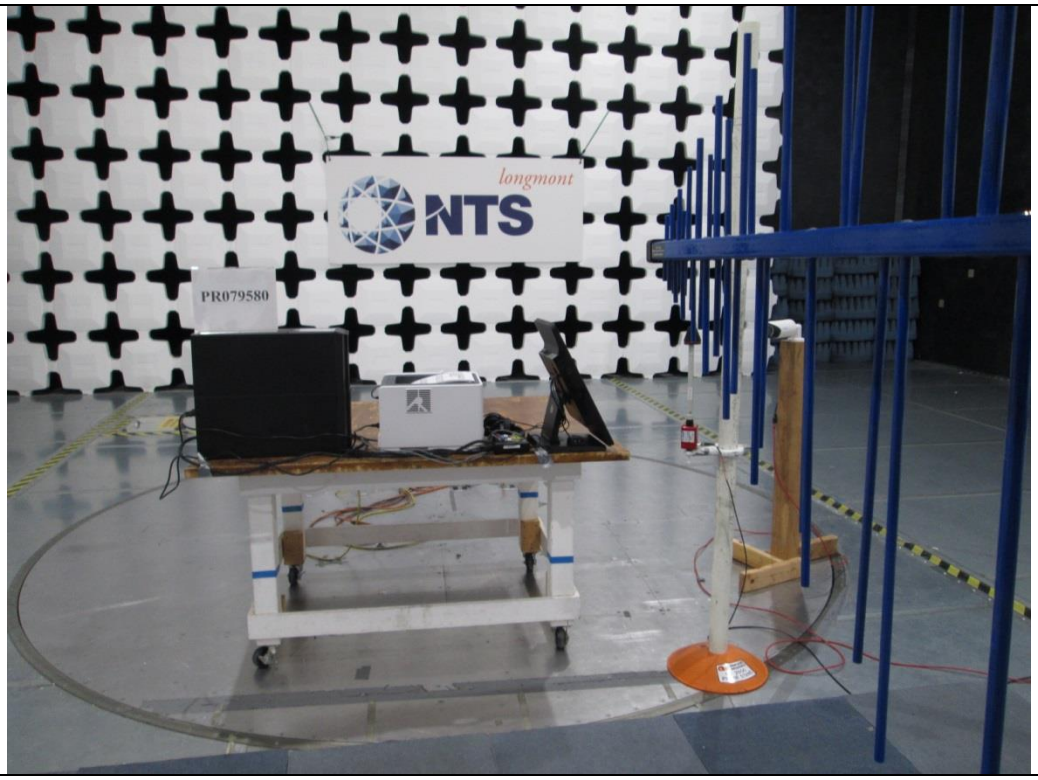

Figure B4. Radiated RF Immunity Test Setup – Left Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY15E2		D18Q000334
	OKI B432dn		AK7A044093A0
	APC SMT-2200		AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 11, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1005	EMCO	3140	1012	Biconilog Antenna	NA	NA
1038	Fluke	85	66180455	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1181	EMCI	RFS	V2.5.8	Initial Release 02 July 2004	NA	NA
1250	OPHIR	5127F	1034	RF Power Amplifier 20-1000MHz, 200 Watts	NA	NA
1297	Agilent	E4418B	MY40513063	EPM Series Power Meter	03/26/2018	03/26/2019
1298	Hewlett Packard	E4421A	US38484980	E Series CW Power Sensor	03/26/2018	03/26/2019
1396	CIR Enterprises	10m Chamber #2	002	10m Chamber with 4m turntable	03/29/2018	03/29/2019
1544	IFR	2023A	202305/809	9 kHz - 1.2 GHz Signal Generator	08/09/2017	08/09/2018
1565	ETS-Lindgren	HI-6053	00166681	Electric Field Probe, 10 MHz - 40 GHz	07/07/2017	07/07/2018
1578	Werlatone	C3908-10	107952	1500 Watts, 50 dB Dual Directional Coupler (80MHz	06/21/2017	06/21/2018

RADIATED RF IMMUNITY TEST DATA

CONFIGURATION 3

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		D18Q000335
	Brother HL-L2350DW		U64964A8N263531
	APC SMT-2200		AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018
Temperature:	20˚C Humidity: 48%	Pressure:	839mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots, Config#3		
Test Engineer:	Kevin Johnson		

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Frequency (MHz)	Modulation				Step Size (%)	Field (V/m)	Polarity (V or H)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq	Form							
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Front Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Right Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Back Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Left Side**	A	Pass
80 – 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		D18Q000335
	Brother HL-L2350DW		U64964A8N263531
	APC SMT-2200		AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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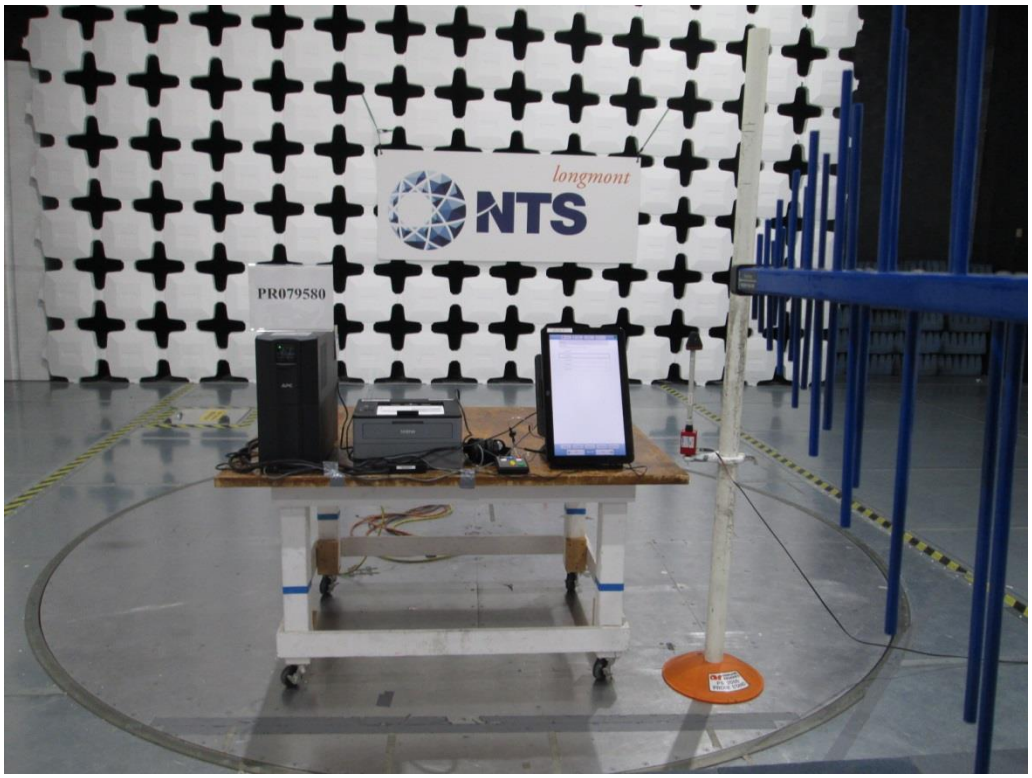

Figure B1. Radiated RF Immunity Test Setup – Front Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		D18Q000335
	Brother HL-L2350DW		U64964A8N263531
	APC SMT-2200		AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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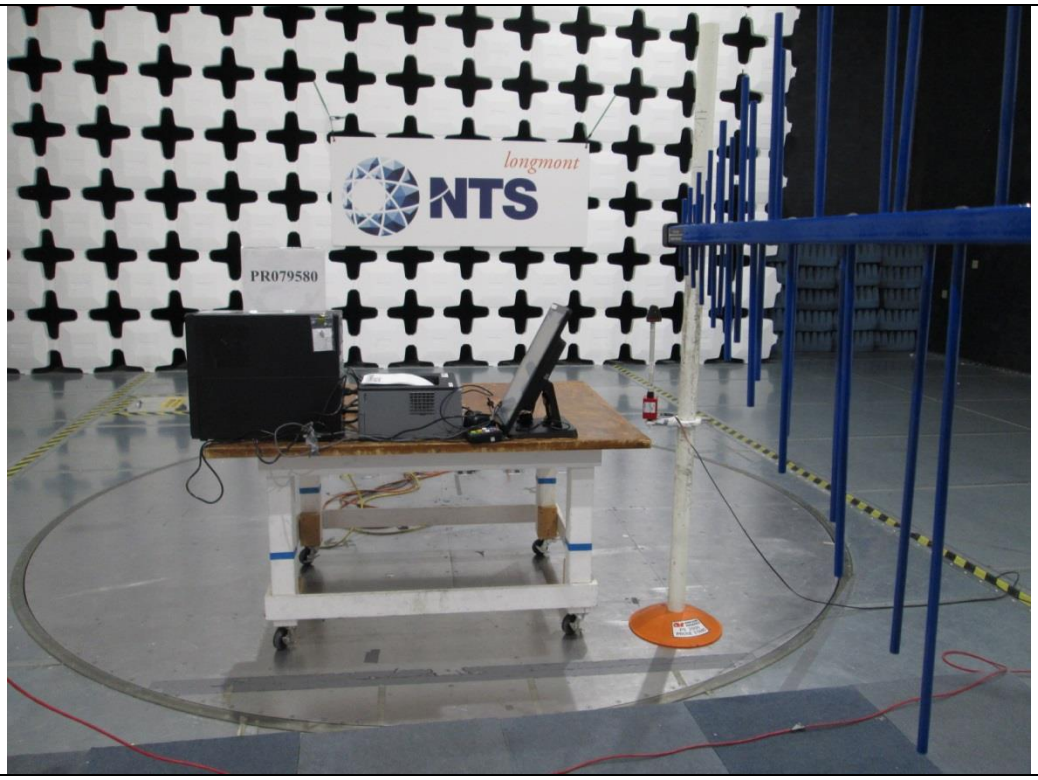

Figure B2. Radiated RF Immunity Test Setup – Right Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		D18Q000335
	Brother HL-L2350DW		U64964A8N263531
	APC SMT-2200		AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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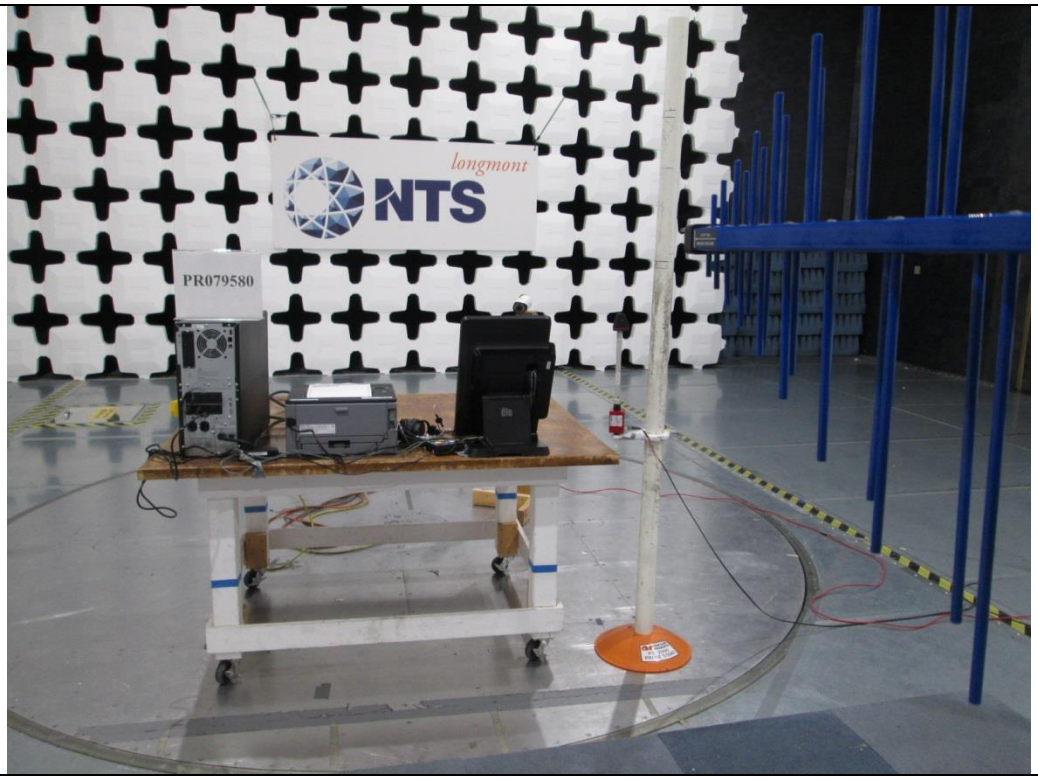

Figure B3. Radiated RF Immunity Test Setup – Back Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		D18Q000335
	Brother HL-L2350DW		U64964A8N263531
	APC SMT-2200		AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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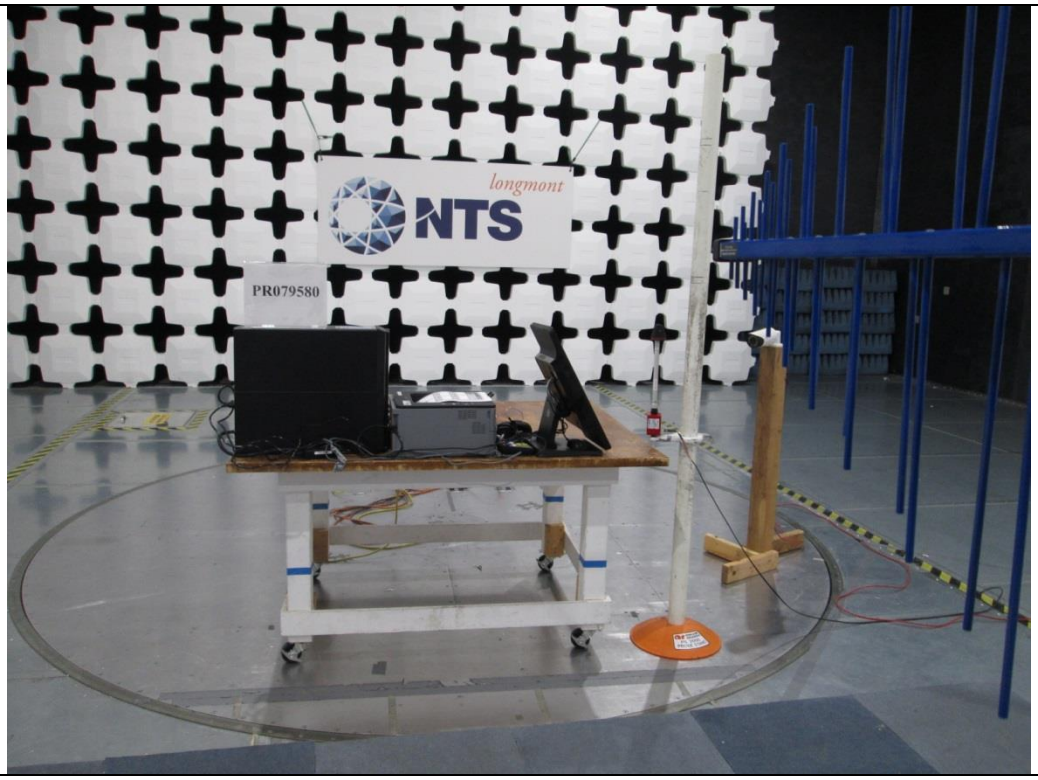

Figure B4. Radiated RF Immunity Test Setup – Left Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		D18Q000335
	Brother HL-L2350DW		U64964A8N263531
	APC SMT-2200		AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1005	EMCO	3140	1012	Biconilog Antenna	NA	NA
1038	Fluke	85	66180455	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1181	EMCI	RFS	V2.5.8	Initial Release 02 July 2004	NA	NA
1250	OPHIR	5127F	1034	RF Power Amplifier 20-1000MHz, 200 Watts	NA	NA
1297	Agilent	E4418B	MY40513063	EPM Series Power Meter	03/26/2018	03/26/2019
1298	Hewlett Packard	E4421A	US38484980	E Series CW Power Sensor	03/26/2018	03/26/2019
1396	CIR Enterprises	10m Chamber #2	002	10m Chamber with 4m turntable	03/29/2018	03/29/2019
1544	IFR	2023A	202305/809	9 kHz - 1.2 GHz Signal Generator	08/09/2017	08/09/2018
1565	ETS-Lindgren	HI-6053	00166681	Electric Field Probe, 10 MHz - 40 GHz	07/07/2017	07/07/2018
1578	Werlatone	C3908-10	107952	1500 Watts, 50 dB Dual Directional Coupler (80MHz	06/21/2017	06/21/2018

RADIATED RF IMMUNITY TEST DATA

CONFIGURATION 4

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		A18C004071
	OKI B432dn		AK7A044083A0
	APC SMT-2200		AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018
Temperature:	20 ˚C Humidity: 44%	Pressure:	841mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots, Config#4		
Test Engineer:	Kevin Johnson		

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Frequency (MHz)	Modulation				Step Size (%)	Field (V/m)	Polarity (V or H)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq	Form							
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Front Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Right side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Back Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Left Side**	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		A18C004071
	OKI B432dn		AK7A044083A0
	APC SMT-2200		AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

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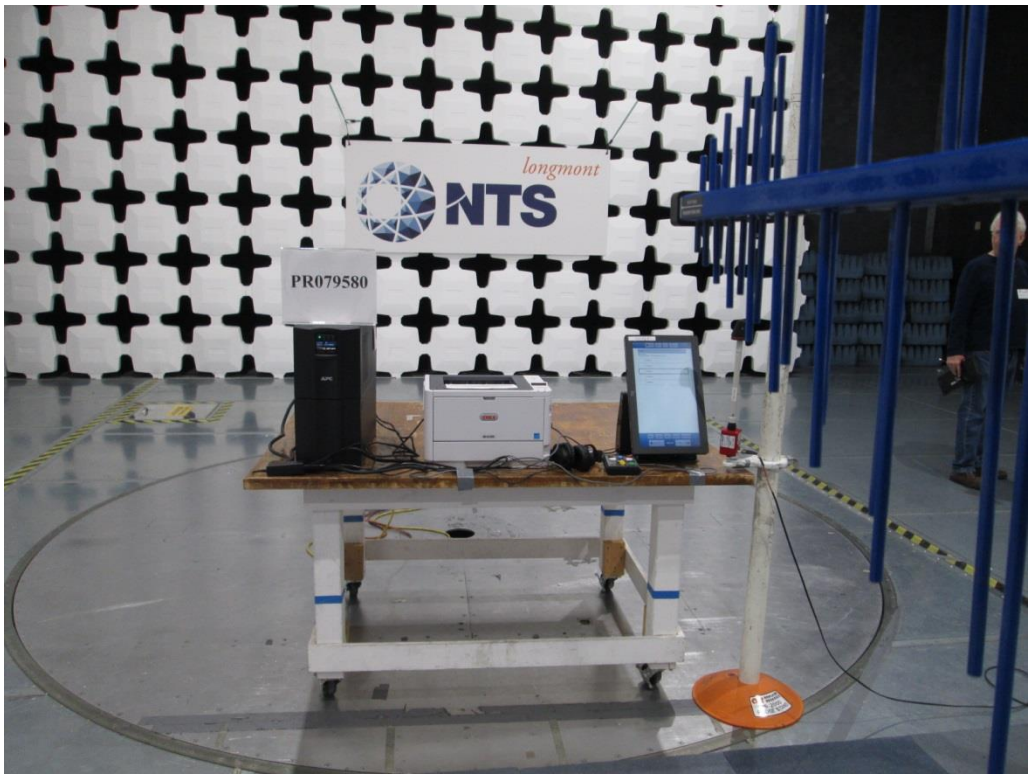

Figure B1. Radiated RF Immunity Test Setup – Front Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		A18C004071
	OKI B432dn		AK7A044083A0
	APC SMT-2200		AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

PR079580-4-3.doc FR0100

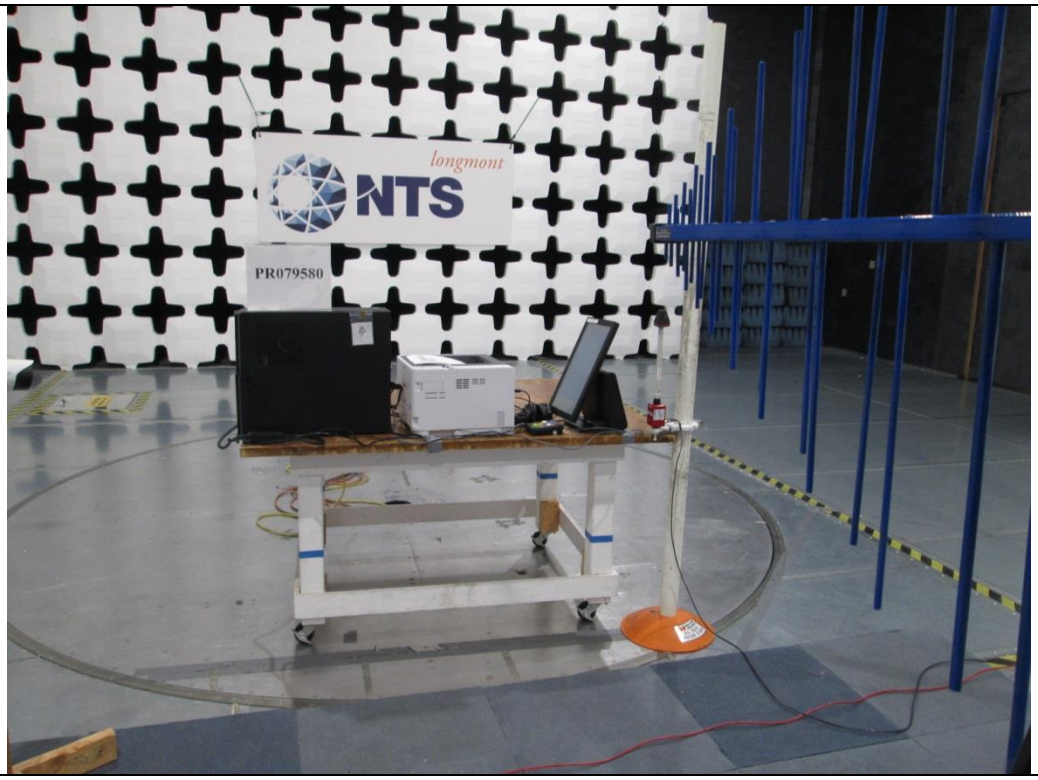

Figure B2. Radiated RF Immunity Test Setup – Right Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		A18C004071
	OKI B432dn		AK7A044083A0
	APC SMT-2200		AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

PR079580-4-3.doc FR0100

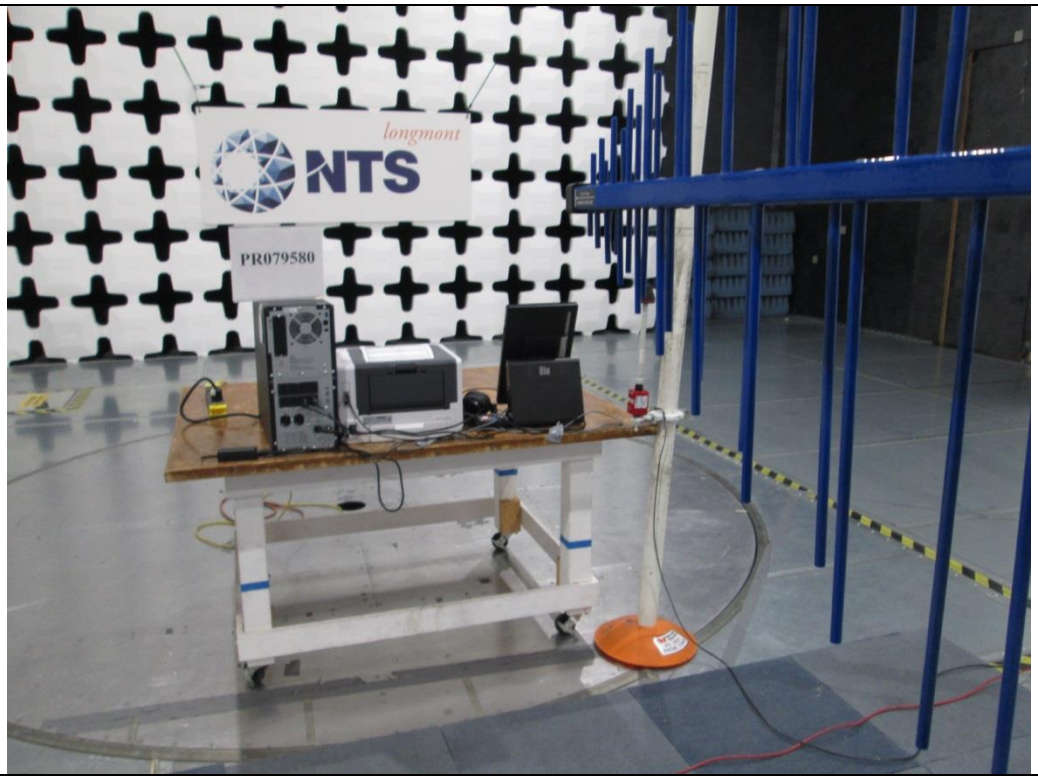

Figure B3. Radiated RF Immunity Test Setup – Back Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		A18C004071
	OKI B432dn		AK7A044083A0
	APC SMT-2200		AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

PR079580-4-3.doc FR0100

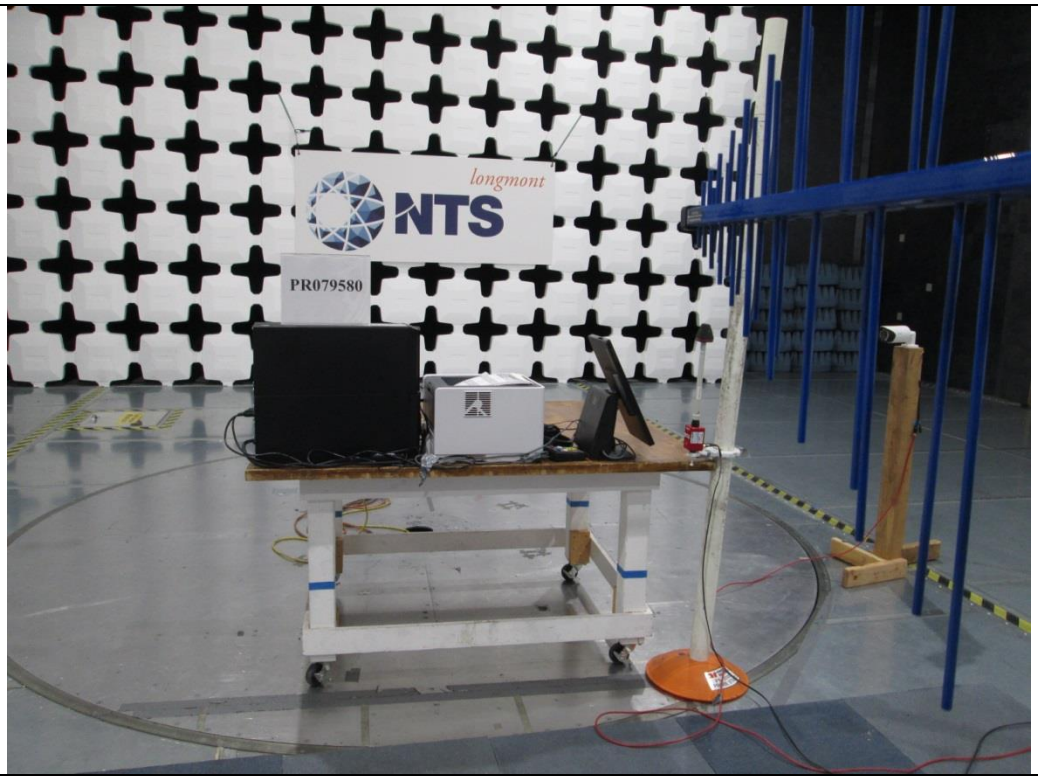

Figure B4. Radiated RF Immunity Test Setup – Left Side.

Radiated RF Immunity per IEC / EN 61000-4-3

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10m2
Model:	ClearAccess	S/N:	
	ELO ESY20X2		A18C004071
	OKI B432dn		AK7A044083A0
	APC SMT-2200		AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

PR079580-4-3.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1005	EMCO	3140	1012	Biconilog Antenna	NA	NA
1038	Fluke	85	66180455	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1181	EMCI	RFS	V2.5.8	Initial Release 02 July 2004	NA	NA
1250	OPHIR	5127F	1034	RF Power Amplifier 20-1000MHz, 200 Watts	NA	NA
1297	Agilent	E4418B	MY40513063	EPM Series Power Meter	03/26/2018	03/26/2019
1298	Hewlett Packard	E4421A	US38484980	E Series CW Power Sensor	03/26/2018	03/26/2019
1396	CIR Enterprises	10m Chamber #2	002	10m Chamber with 4m turntable	03/29/2018	03/29/2019
1544	IFR	2023A	202305/809	9 kHz - 1.2 GHz Signal Generator	08/09/2017	08/09/2018
1565	ETS-Lindgren	HI-6053	00166681	Electric Field Probe, 10 MHz - 40 GHz	07/07/2017	07/07/2018
1578	Werlatone	C3908-10	107952	1500 Watts, 50 dB Dual Directional Coupler (80MHz	06/21/2017	06/21/2018

APPENDIX C – ELE FAST TRANSIENT/BURST TEST DATA

CONFIGURATION 1

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018
Temperature:	23.4˚C Humidity: 19%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config #1		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	Time (sec)	Injection Type	L 1	L 2	L 3	N	P E	Rep Freq.	Comments	Criteria Met	Pass / Fail
2.0	x		60	CDN	x					5 kHz	AC	A	Pass
2.0		x	60	CDN	x					5 kHz		A	Pass
2.0	x		60	CDN		x				5 kHz		A	Pass
2.0		x	60	CDN		x				5 kHz		A	Pass
2.0	x		60	CDN					x	5 kHz		A	Pass
2.0		x	60	CDN					x	5 kHz		A	Pass
2.0	x		60	CDN	x	x			x	5 kHz		A	Pass
2.0		x	60	CDN	x	x			x	5 kHz		A	Pass

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

PR079580-4-4.doc FR0100

Figure C1. Electrical Fast Transient Test Setup.

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

PR079580-4-4.doc FR0100

Figure C2. Electrical Fast Transient Test Setup – AC Mains.

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	05/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

ELECTRICAL FAST TRANSIENT/BURST TEST DATA

CONFIGURATION 2

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 17, 2018
Temperature:	23.5C Humidity: 33%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config #2		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	Time (sec)	Injection Type	L 1	L 2	L 3	N	P E	Rep Freq.	Comments	Criteria Met	Pass / Fail
2.0	x		60	CDN	x					5 kHz	AC	A	Pass
2.0		x	60	CDN	x					5 kHz		A	Pass
2.0	x		60	CDN		x				5 kHz		A	Pass
2.0		x	60	CDN		x				5 kHz		A	Pass
2.0	x		60	CDN					x	5 kHz		A	Pass
2.0		x	60	CDN					x	5 kHz		A	Pass
2.0	x		60	CDN	x	x			x	5 kHz		A	Pass
2.0		x	60	CDN	x	x			x	5 kHz		A	Pass

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 17, 2018

PR079580-4-4.doc FR0100

Figure C1. Electrical Fast Transient Test Setup.

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 17, 2018

PR079580-4-4.doc FR0100

Figure C2. Electrical Fast Transient Test Setup – AC Mains.

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 17, 2018

PR079580-4-4.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	05/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

ELECTRICAL FAST TRANSIENT/BURST TEST DATA

CONFIGURATION 3

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018
Temperature:	19.8C Humidity: 39%	Pressure:	841 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config #3		
Test Engineer:	Casey Lockhart		

PR079580-4-4.doc FR0100

Voltage (kV)	Polarity +	Polarity -	Time (sec)	Injection Type	L 1	L 2	L 3	N	P E	Rep Freq.	Comments	Criteria Met	Pass / Fail
2.0	x		60	CDN	x					5 kHz	AC	A	Pass
2.0		x	60	CDN	x					5 kHz		A	Pass
2.0	x		60	CDN		x				5 kHz		A	Pass
2.0		x	60	CDN		x				5 kHz		A	Pass
2.0	x		60	CDN					x	5 kHz		A	Pass
2.0		x	60	CDN					x	5 kHz		A	Pass
2.0	x		60	CDN	x	x			x	5 kHz		A	Pass
2.0		x	60	CDN	x	x			x	5 kHz		A	Pass

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

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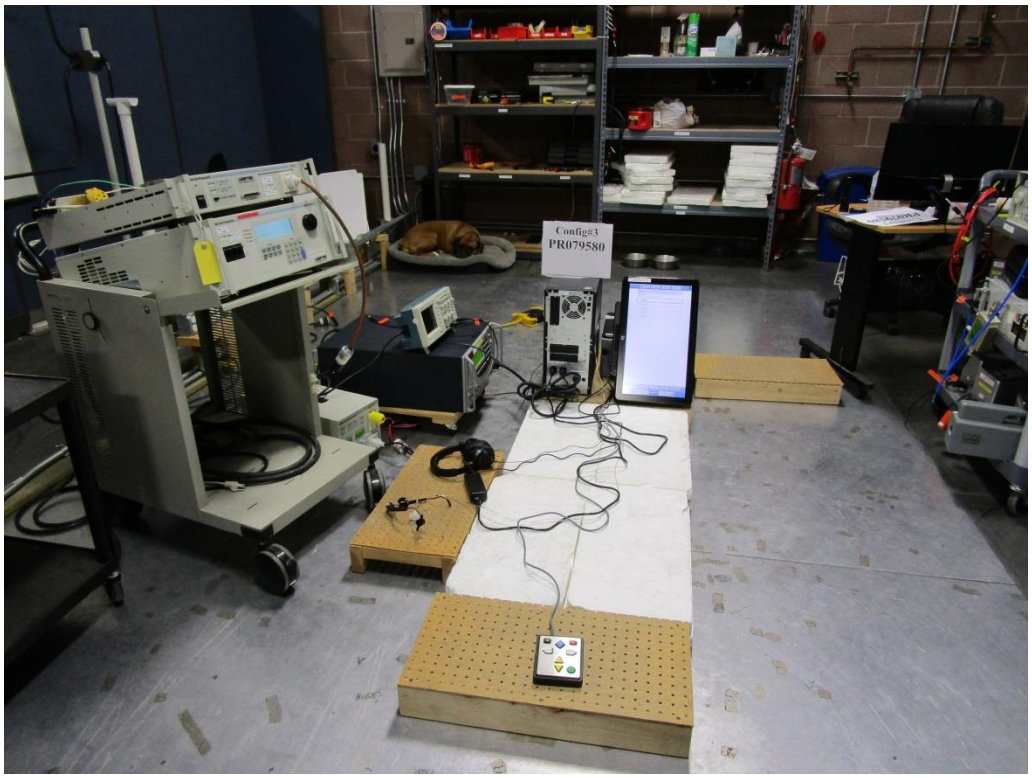

Figure C1. Electrical Fast Transient Test Setup.

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

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Figure C2. Electrical Fast Transient Test Setup – AC Mains.

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

PR079580-4-4.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	05/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

ELECTRICAL FAST TRANSIENT/BURST TEST DATA

CONFIGURATION 4

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018
Temperature:	19.8C Humidity: 39%	Pressure:	841 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config #4		
Test Engineer:	Casey Lockhart		

PR079580-4-4.doc FR0100

Voltage (kV)	Polarity +	Polarity -	Time (sec)	Injection Type	L 1	L 2	L 3	N	P E	Rep Freq.	Comments	Criteria Met	Pass / Fail
2.0	x		60	CDN	x					5 kHz	AC	A	Pass
2.0		x	60	CDN	x					5 kHz		A	Pass
2.0	x		60	CDN		x				5 kHz		A	Pass
2.0		x	60	CDN		x				5 kHz		A	Pass
2.0	x		60	CDN					x	5 kHz		A	Pass
2.0		x	60	CDN					x	5 kHz		A	Pass
2.0	x		60	CDN	x	x			x	5 kHz		A	Pass
2.0		x	60	CDN	x	x			x	5 kHz		A	Pass

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

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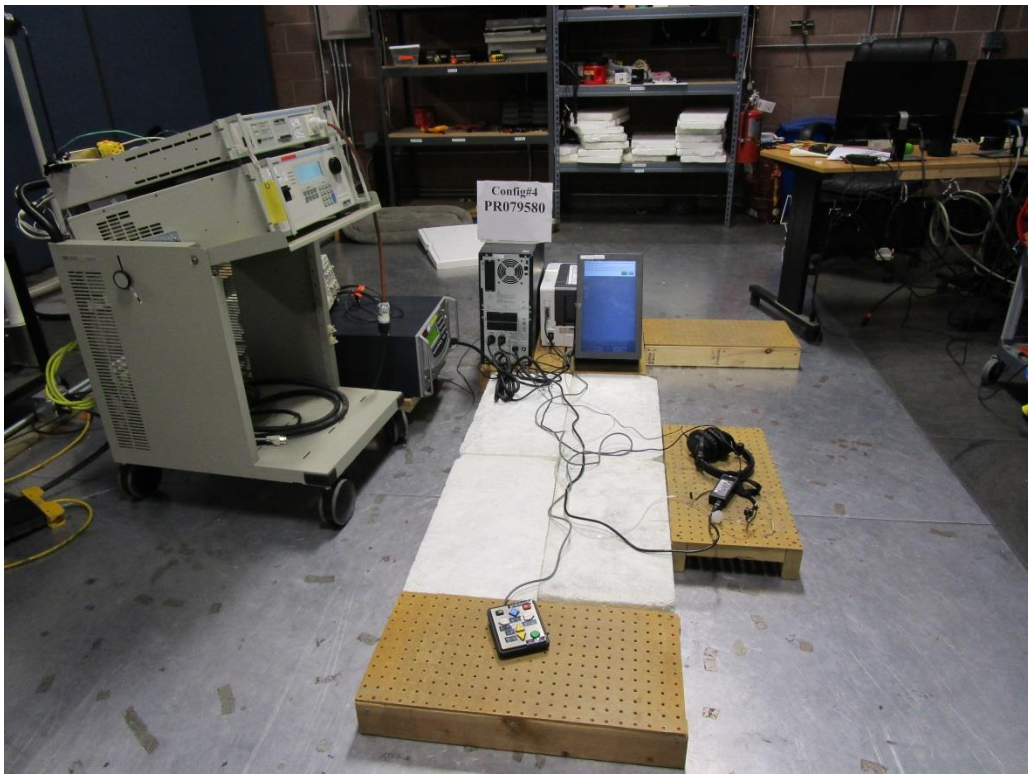

Figure C1. Electrical Fast Transient Test Setup.

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

PR079580-4-4.doc FR0100

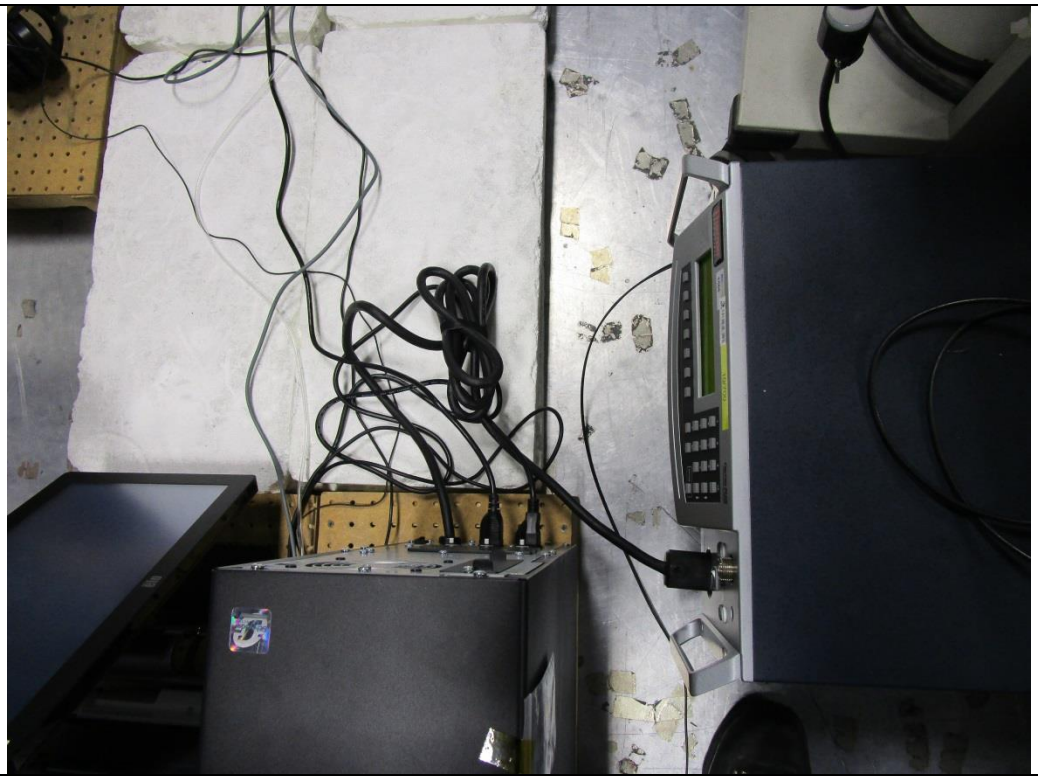

Figure C2. Electrical Fast Transient Test Setup – AC Mains.

Electrical Fast Transient/Burst per IEC / EN 61000-4-4

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

PR079580-4-4.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	05/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

APPENDIX D – SURGE IMMUNITY TEST DATA

CONFIGURATION 1

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 29, 2018
Temperature:	22.3˚C Humidity: 35%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#1		
Test Engineer:	Casey Lockhart		

PR079580-4-5.doc FR0100

Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	P E	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
0.5	x		x			x		0	5	30	Differential Mode	A	Pass
0.5		x	x			x		0	5	30		A	Pass
0.5	x		x			x		90	5	30		A	Pass
0.5		x	x			x		90	5	30		A	Pass
0.5	x		x			x		180	5	30		A	Pass
0.5		x	x			x		180	5	30		A	Pass
0.5	x		x			x		270	5	30		A	Pass
0.5		x	x			x		270	5	30		A	Pass
0.5	x		x				x	0	5	30	Common Mode Line	A	Pass
0.5		x	x				x	0	5	30		A	Pass
0.5	x		x				x	90	5	30		A	Pass
0.5		x	x				x	90	5	30		A	Pass
0.5	x		x				x	180	5	30		A	Pass
0.5		x	x				x	180	5	30		A	Pass
0.5	x		x				x	270	5	30		A	Pass
0.5		x	x				x	270	5	30		A	Pass
0.5	x					x	x	0	5	30	Common Mode Neutral	A	Pass
0.5		x				x	x	0	5	30		A	Pass
0.5	x					x	x	90	5	30		A	Pass
0.5		x				x	x	90	5	30		A	Pass
0.5	x					x	x	180	5	30		A	Pass
0.5		x				x	x	180	5	30		A	Pass
0.5	x					x	x	270	5	30		A	Pass
0.5		x				x	x	270	5	30		A	Pass
1.0	x		x			x		0	5	45	Differential Mode	A	Pass
1.0		x	x			x		0	5	45		A	Pass
1.0	x		x			x		90	5	45		A	Pass
1.0		x	x			x		90	5	45		A	Pass
1.0	x		x			x		180	5	45		A	Pass
1.0		x	x			x		180	5	45		A	Pass
1.0	x		x			x		270	5	45		A	Pass
1.0		x	x			x		270	5	45		A	Pass
1.0	x		x				x	0	5	45	Common Mode Line	A	Pass
1.0		x	x				x	0	5	45		A	Pass
1.0	x		x				x	90	5	45		A	Pass
1.0		x	x				x	90	5	45		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 29, 2018
Temperature:	22.3˚C Humidity: 35%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#1		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
1.0	x		x				x	180	5	45		A	Pass
1.0		x	x				x	180	5	45		A	Pass
1.0	x		x				x	270	5	45		A	Pass
1.0		x	x				x	270	5	45		A	Pass
1.0	x					x	x	0	5	45	Common Mode Neutral	A	Pass
1.0		x				x	x	0	5	45		A	Pass
1.0	x					x	x	90	5	45		A	Pass
1.0		x				x	x	90	5	45		A	Pass
1.0	x					x	x	180	5	45		A	Pass
1.0		x				x	x	180	5	45		A	Pass
1.0	x					x	x	270	5	45		A	Pass
1.0		x				x	x	270	5	45		A	Pass
2.0	x		x			x		0	5	60	Differential Mode	A	Pass
2.0		x	x			x		0	5	60		A	Pass
2.0	x		x			x		90	5	60		A	Pass
2.0		x	x			x		90	5	60		A	Pass
2.0	x		x			x		180	5	60		A	Pass
2.0		x	x			x		180	5	60		A	Pass
2.0	x		x			x		270	5	60		A	Pass
2.0		x	x			x		270	5	60		A	Pass
2.0	x		x				x	0	5	60	Common Mode Line	A	Pass
2.0		x	x				x	0	5	60		A	Pass
2.0	x		x				x	90	5	60		A	Pass
2.0		x	x				x	90	5	60		A	Pass
2.0	x		x				x	180	5	60		A	Pass
2.0		x	x				x	180	5	60		A	Pass
2.0	x		x				x	270	5	60		A	Pass
2.0		x	x				x	270	5	60		A	Pass
2.0	x					x	x	0	5	60	Common Mode Neutral	A	Pass
2.0		x				x	x	0	5	60		A	Pass
2.0	x					x	x	90	5	60		A	Pass
2.0		x				x	x	90	5	60		A	Pass
2.0	x					x	x	180	5	60		A	Pass
2.0		x				x	x	180	5	60		A	Pass
2.0	x					x	x	270	5	60		A	Pass
2.0		x				x	x	270	5	60		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 29, 2018

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Figure D1. Surge Immunity Test Setup.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 29, 2018

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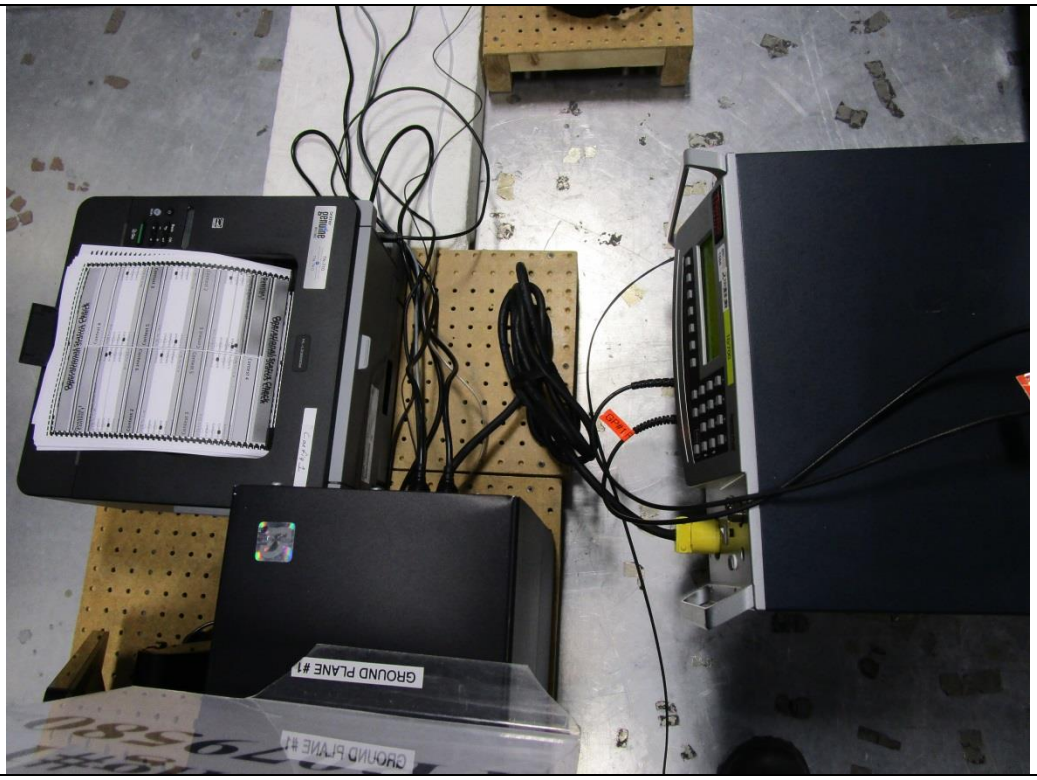

Figure D2. Surge Immunity Test Setup – AC Mains.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 29, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	06/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

SURGE IMMUNITY TEST DATA

CONFIGURATION 2

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018
Temperature:	20.6˚C Humidity: 37%	Pressure:	836 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#2		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
0.5	x		x			x		0	5	30	Differential Mode	A	Pass
0.5		x	x			x		0	5	30		A	Pass
0.5	x		x			x		90	5	30		A	Pass
0.5		x	x			x		90	5	30		A	Pass
0.5	x		x			x		180	5	30		A	Pass
0.5		x	x			x		180	5	30		A	Pass
0.5	x		x			x		270	5	30		A	Pass
0.5		x	x			x		270	5	30		A	Pass
0.5	x		x				x	0	5	30	Common Mode Line	A	Pass
0.5		x	x				x	0	5	30		A	Pass
0.5	x		x				x	90	5	30		A	Pass
0.5		x	x				x	90	5	30		A	Pass
0.5	x		x				x	180	5	30		A	Pass
0.5		x	x				x	180	5	30		A	Pass
0.5	x		x				x	270	5	30		A	Pass
0.5		x	x				x	270	5	30		A	Pass
0.5	x					x	x	0	5	30	Common Mode Neutral	A	Pass
0.5		x				x	x	0	5	30		A	Pass
0.5	x					x	x	90	5	30		A	Pass
0.5		x				x	x	90	5	30		A	Pass
0.5	x					x	x	180	5	30		A	Pass
0.5		x				x	x	180	5	30		A	Pass
0.5	x					x	x	270	5	30		A	Pass
0.5		x				x	x	270	5	30		A	Pass
1.0	x		x			x		0	5	45	Differential Mode	A	Pass
1.0		x	x			x		0	5	45		A	Pass
1.0	x		x			x		90	5	45		A	Pass
1.0		x	x			x		90	5	45		A	Pass
1.0	x		x			x		180	5	45		A	Pass
1.0		x	x			x		180	5	45		A	Pass
1.0	x		x			x		270	5	45		A	Pass
1.0		x	x			x		270	5	45		A	Pass
1.0	x		x				x	0	5	45	Common Mode Line	A	Pass
1.0		x	x				x	0	5	45		A	Pass
1.0	x		x				x	90	5	45		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018
Temperature:	20.6˚C Humidity: 37%	Pressure:	836 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#2		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
1.0		x	x				x	90	5	45		A	Pass
1.0	x		x				x	180	5	45		A	Pass
1.0		x	x				x	180	5	45		A	Pass
1.0	x		x				x	270	5	45		A	Pass
1.0		x	x				x	270	5	45		A	Pass
1.0	x					x	x	0	5	45	Common Mode Neutral	A	Pass
1.0		x				x	x	0	5	45		A	Pass
1.0	x					x	x	90	5	45		A	Pass
1.0		x				x	x	90	5	45		A	Pass
1.0	x					x	x	180	5	45		A	Pass
1.0		x				x	x	180	5	45		A	Pass
1.0	x					x	x	270	5	45		A	Pass
1.0		x				x	x	270	5	45		A	Pass
2.0	x		x			x		0	5	60	Differential Mode	A	Pass
2.0		x	x			x		0	5	60		A	Pass
2.0	x		x			x		90	5	60		A	Pass
2.0		x	x			x		90	5	60		A	Pass
2.0	x		x			x		180	5	60		A	Pass
2.0		x	x			x		180	5	60		A	Pass
2.0	x		x			x		270	5	60		A	Pass
2.0		x	x			x		270	5	60		A	Pass
2.0	x		x				x	0	5	60	Common Mode Line	A	Pass
2.0		x	x				x	0	5	60		A	Pass
2.0	x		x				x	90	5	60		A	Pass
2.0		x	x				x	90	5	60		A	Pass
2.0	x		x				x	180	5	60		A	Pass
2.0		x	x				x	180	5	60		A	Pass
2.0	x		x				x	270	5	60		A	Pass
2.0		x	x				x	270	5	60		A	Pass
2.0	x					x	x	0	5	60	Common Mode Neutral	A	Pass
2.0		x				x	x	0	5	60		A	Pass
2.0	x					x	x	90	5	60		A	Pass
2.0		x				x	x	90	5	60		A	Pass
2.0	x					x	x	180	5	60		A	Pass
2.0		x				x	x	180	5	60		A	Pass
2.0	x					x	x	270	5	60		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018
Temperature:	20.6˚C Humidity: 37%	Pressure:	836 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#2		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
2.0		x				x	x	270	5	60		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018

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Figure D1. Surge Immunity Test Setup.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018

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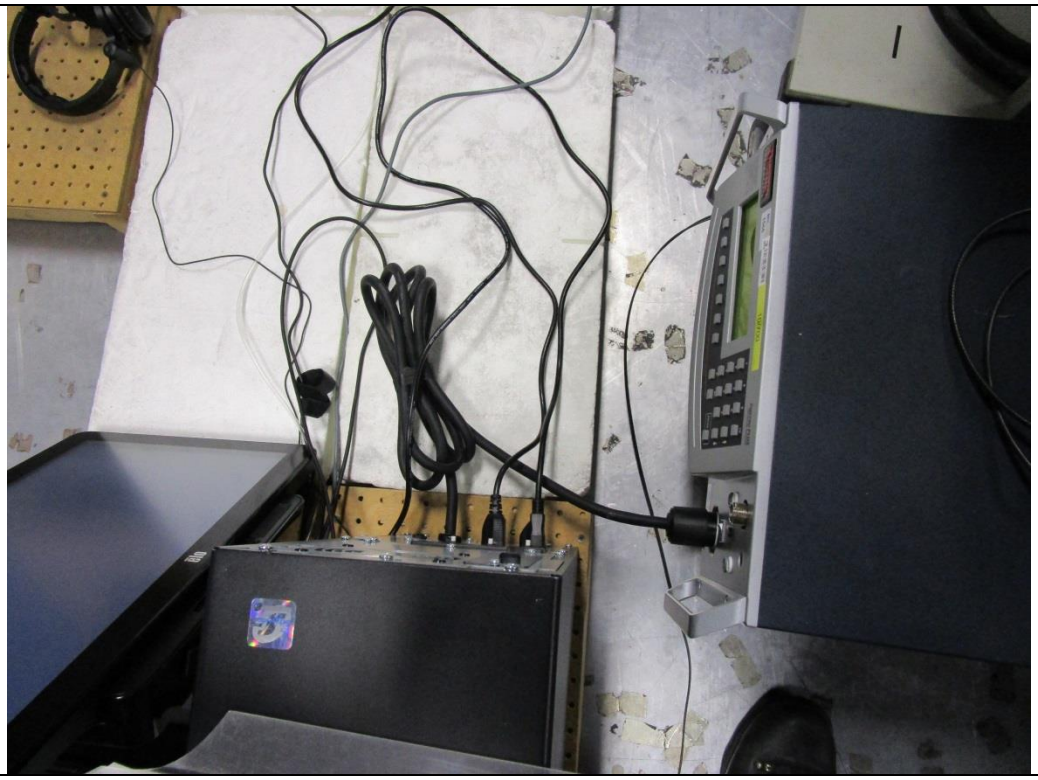

Figure D2. Surge Immunity Test Setup – AC Mains.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	06/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

SURGE IMMUNITY TEST DATA

CONFIGURATION 3

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16, 2018
Temperature:	24.2˚C Humidity: 22%	Pressure:	838 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#3		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
0.5	x		x			x		0	5	30	Differential Mode	A	Pass
0.5		x	x			x		0	5	30		A	Pass
0.5	x		x			x		90	5	30		A	Pass
0.5		x	x			x		90	5	30		A	Pass
0.5	x		x			x		180	5	30		A	Pass
0.5		x	x			x		180	5	30		A	Pass
0.5	x		x			x		270	5	30		A	Pass
0.5		x	x			x		270	5	30		A	Pass
0.5	x		x				x	0	5	30	Common Mode Line	A	Pass
0.5		x	x				x	0	5	30		A	Pass
0.5	x		x				x	90	5	30		A	Pass
0.5		x	x				x	90	5	30		A	Pass
0.5	x		x				x	180	5	30		A	Pass
0.5		x	x				x	180	5	30		A	Pass
0.5	x		x				x	270	5	30		A	Pass
0.5		x	x				x	270	5	30		A	Pass
0.5	x					x	x	0	5	30	Common Mode Neutral	A	Pass
0.5		x				x	x	0	5	30		A	Pass
0.5	x					x	x	90	5	30		A	Pass
0.5		x				x	x	90	5	30		A	Pass
0.5	x					x	x	180	5	30		A	Pass
0.5		x				x	x	180	5	30		A	Pass
0.5	x					x	x	270	5	30		A	Pass
0.5		x				x	x	270	5	30		A	Pass
1.0	x		x			x		0	5	45	Differential Mode	A	Pass
1.0		x	x			x		0	5	45		A	Pass
1.0	x		x			x		90	5	45		A	Pass
1.0		x	x			x		90	5	45		A	Pass
1.0	x		x			x		180	5	45		A	Pass
1.0		x	x			x		180	5	45		A	Pass
1.0	x		x			x		270	5	45		A	Pass
1.0		x	x			x		270	5	45		A	Pass
1.0	x		x				x	0	5	45	Common Mode Line	A	Pass
1.0		x	x				x	0	5	45		A	Pass
1.0	x		x				x	90	5	45		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16, 2018
Temperature:	24.2˚C Humidity: 22%	Pressure:	838 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#3		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
1.0		x	x				x	90	5	45		A	Pass
1.0	x		x				x	180	5	45		A	Pass
1.0		x	x				x	180	5	45		A	Pass
1.0	x		x				x	270	5	45		A	Pass
1.0		x	x				x	270	5	45		A	Pass
1.0	x					x	x	0	5	45	Common Mode Neutral	A	Pass
1.0		x				x	x	0	5	45		A	Pass
1.0	x					x	x	90	5	45		A	Pass
1.0		x				x	x	90	5	45		A	Pass
1.0	x					x	x	180	5	45		A	Pass
1.0		x				x	x	180	5	45		A	Pass
1.0	x					x	x	270	5	45		A	Pass
1.0		x				x	x	270	5	45		A	Pass
2.0	x		x			x		0	5	60	Differential Mode	A	Pass
2.0		x	x			x		0	5	60		A	Pass
2.0	x		x			x		90	5	60		A	Pass
2.0		x	x			x		90	5	60		A	Pass
2.0	x		x			x		180	5	60		A	Pass
2.0		x	x			x		180	5	60		A	Pass
2.0	x		x			x		270	5	60		A	Pass
2.0		x	x			x		270	5	60		A	Pass
2.0	x		x				x	0	5	60	Common Mode Line	A	Pass
2.0		x	x				x	0	5	60		A	Pass
2.0	x		x				x	90	5	60		A	Pass
2.0		x	x				x	90	5	60		A	Pass
2.0	x		x				x	180	5	60		A	Pass
2.0		x	x				x	180	5	60		A	Pass
2.0	x		x				x	270	5	60		A	Pass
2.0		x	x				x	270	5	60		A	Pass
2.0	x					x	x	0	5	60	Common Mode Neutral	A	Pass
2.0		x				x	x	0	5	60		A	Pass
2.0	x					x	x	90	5	60		A	Pass
2.0		x				x	x	90	5	60		A	Pass
2.0	x					x	x	180	5	60		A	Pass
2.0		x				x	x	180	5	60		A	Pass
2.0	x					x	x	270	5	60		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16, 2018
Temperature:	24.2˚C Humidity: 22%	Pressure:	838 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#3		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
2.0		x				x	x	270	5	60		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16, 2018

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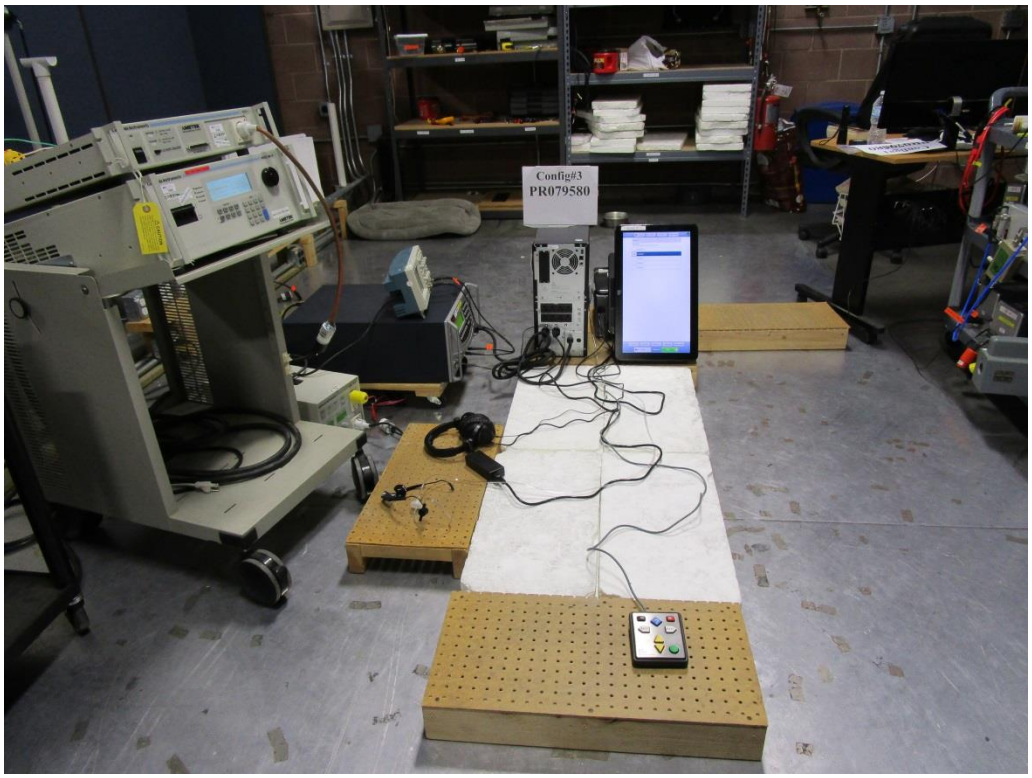

Figure D1. Surge Immunity Test Setup.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16, 2018

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Figure D2. Surge Immunity Test Setup – AC Mains.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	05/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

SURGE IMMUNITY TEST DATA

CONFIGURATION 4

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018
Temperature:	20,3˚C Humidity: 51%	Pressure:	840 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#4		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
0.5	x		x			x		0	5	30	Differential Mode	A	Pass
0.5		x	x			x		0	5	30		A	Pass
0.5	x		x			x		90	5	30		A	Pass
0.5		x	x			x		90	5	30		A	Pass
0.5	x		x			x		180	5	30		A	Pass
0.5		x	x			x		180	5	30		A	Pass
0.5	x		x			x		270	5	30		A	Pass
0.5		x	x			x		270	5	30		A	Pass
0.5	x		x				x	0	5	30	Common Mode Line	A	Pass
0.5		x	x				x	0	5	30		A	Pass
0.5	x		x				x	90	5	30		A	Pass
0.5		x	x				x	90	5	30		A	Pass
0.5	x		x				x	180	5	30		A	Pass
0.5		x	x				x	180	5	30		A	Pass
0.5	x		x				x	270	5	30		A	Pass
0.5		x	x				x	270	5	30		A	Pass
0.5	x					x	x	0	5	30	Common Mode Neutral	A	Pass
0.5		x				x	x	0	5	30		A	Pass
0.5	x					x	x	90	5	30		A	Pass
0.5		x				x	x	90	5	30		A	Pass
0.5	x					x	x	180	5	30		A	Pass
0.5		x				x	x	180	5	30		A	Pass
0.5	x					x	x	270	5	30		A	Pass
0.5		x				x	x	270	5	30		A	Pass
1.0	x		x			x		0	5	45	Differential Mode	A	Pass
1.0		x	x			x		0	5	45		A	Pass
1.0	x		x			x		90	5	45		A	Pass
1.0		x	x			x		90	5	45		A	Pass
1.0	x		x			x		180	5	45		A	Pass
1.0		x	x			x		180	5	45		A	Pass
1.0	x		x			x		270	5	45		A	Pass
1.0		x	x			x		270	5	45		A	Pass
1.0	x		x				x	0	5	45	Common Mode Line	A	Pass
1.0		x	x				x	0	5	45		A	Pass
1.0	x		x				x	90	5	45		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018
Temperature:	20,3˚C Humidity: 51%	Pressure:	840 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#4		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
1.0		x	x				x	90	5	45		A	Pass
1.0	x		x				x	180	5	45		A	Pass
1.0		x	x				x	180	5	45		A	Pass
1.0	x		x				x	270	5	45		A	Pass
1.0		x	x				x	270	5	45		A	Pass
1.0	x					x	x	0	5	45	Common Mode Neutral	A	Pass
1.0		x				x	x	0	5	45		A	Pass
1.0	x					x	x	90	5	45		A	Pass
1.0		x				x	x	90	5	45		A	Pass
1.0	x					x	x	180	5	45		A	Pass
1.0		x				x	x	180	5	45		A	Pass
1.0	x					x	x	270	5	45		A	Pass
1.0		x				x	x	270	5	45		A	Pass
2.0	x		x			x		0	5	60	Differential Mode	A	Pass
2.0		x	x			x		0	5	60		A	Pass
2.0	x		x			x		90	5	60		A	Pass
2.0		x	x			x		90	5	60		A	Pass
2.0	x		x			x		180	5	60		A	Pass
2.0		x	x			x		180	5	60		A	Pass
2.0	x		x			x		270	5	60		A	Pass
2.0		x	x			x		270	5	60		A	Pass
2.0	x		x				x	0	5	60	Common Mode Line	A	Pass
2.0		x	x				x	0	5	60		A	Pass
2.0	x		x				x	90	5	60		A	Pass
2.0		x	x				x	90	5	60		A	Pass
2.0	x		x				x	180	5	60		A	Pass
2.0		x	x				x	180	5	60		A	Pass
2.0	x		x				x	270	5	60		A	Pass
2.0		x	x				x	270	5	60		A	Pass
2.0	x					x	x	0	5	60	Common Mode Neutral	A	Pass
2.0		x				x	x	0	5	60		A	Pass
2.0	x					x	x	90	5	60		A	Pass
2.0		x				x	x	90	5	60		A	Pass
2.0	x					x	x	180	5	60		A	Pass
2.0		x				x	x	180	5	60		A	Pass
2.0	x					x	x	270	5	60		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018
Temperature:	20,3˚C Humidity: 51%	Pressure:	840 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#4		
Test Engineer:	Casey Lockhart		

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Voltage (kV)	Polarity +	Polarity -	L 1	L 2	L 3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
2.0		x				x	x	270	5	60		A	Pass

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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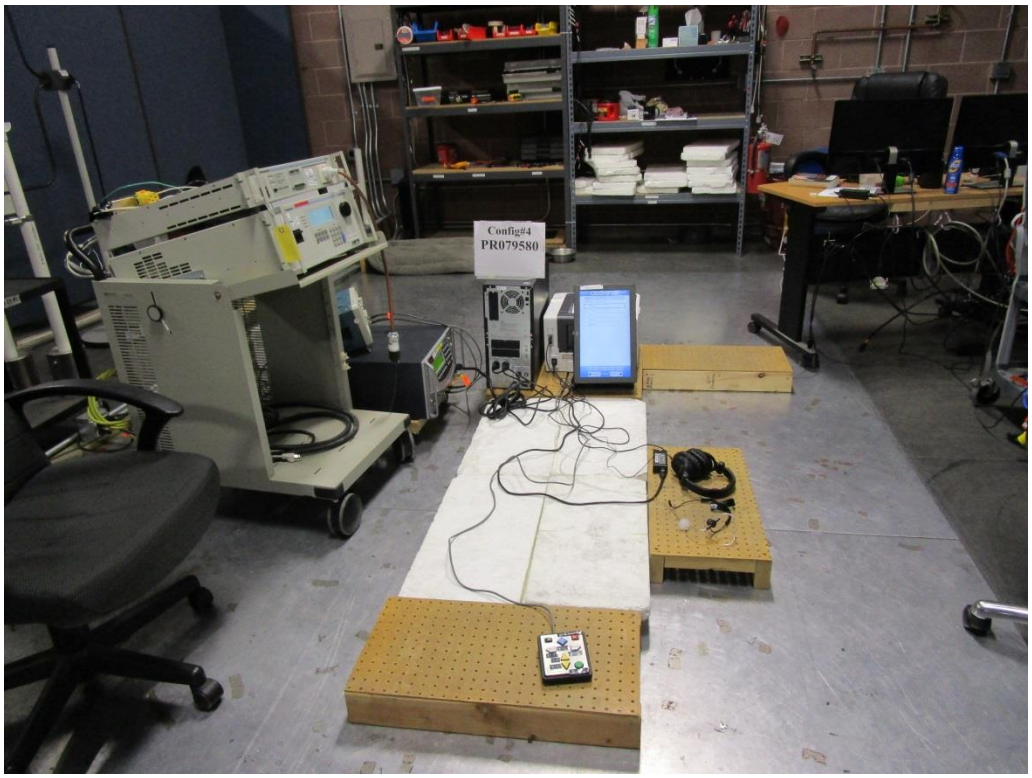

Figure D1. Surge Immunity Test Setup.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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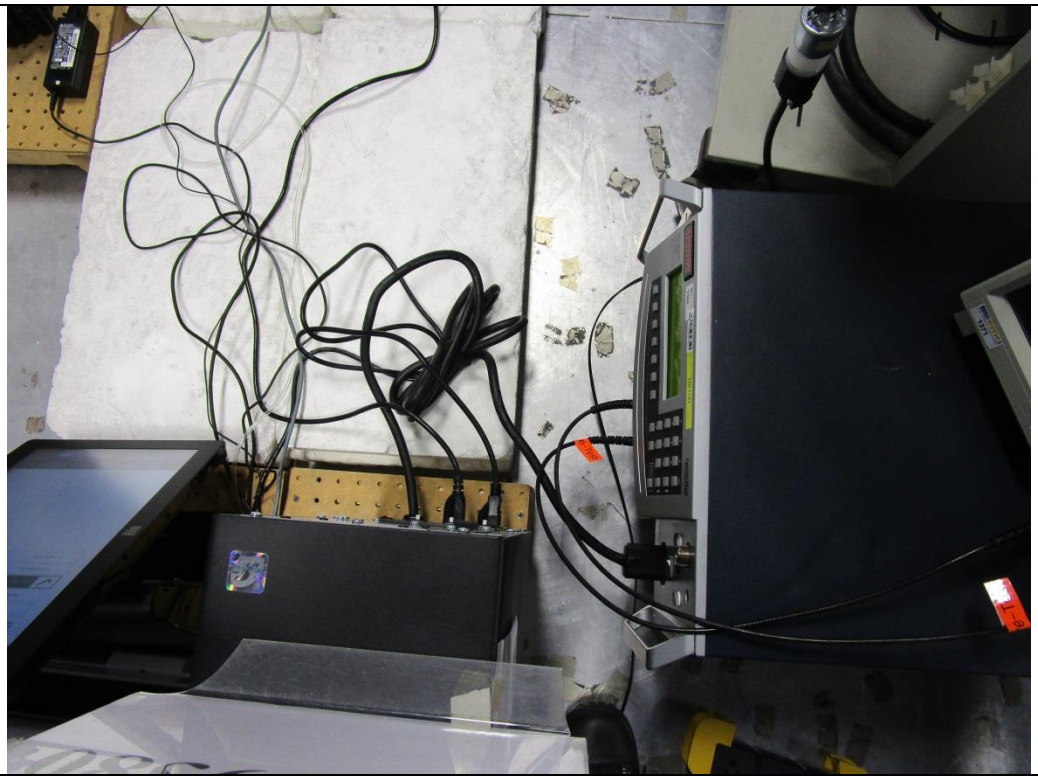

Figure D2. Surge Immunity Test Setup – AC Mains.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	06/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

APPENDIX E – CONDUCTED RF IMMUNITY TEST DATA

CONFIGURATION 1

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018
Temperature:	22.1˚C Humidity: 20%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots (Config#1)		
Test Engineer:	Casey Lockhart		

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Frequency (MHz)	Modulation			Level (Vrms)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq					
0.150 – 80.0	AM	80	1 kHz	10	3	AC using M3 CDN	A	Pass

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

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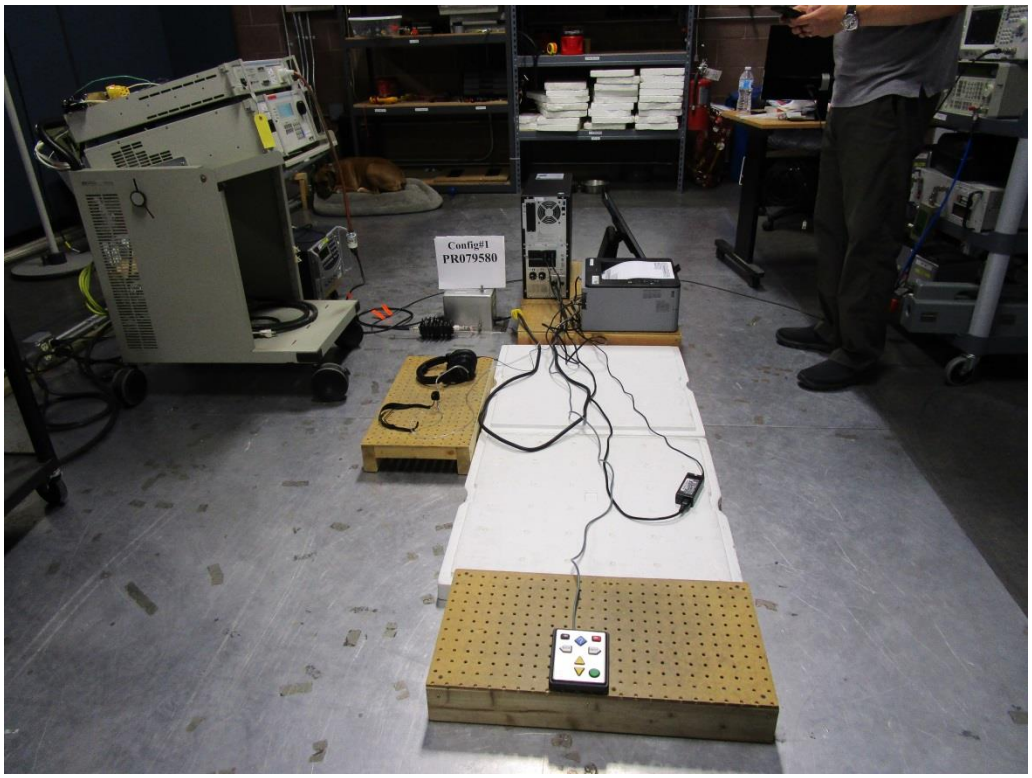

Figure E1. Conducted RF Immunity Test Setup.

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

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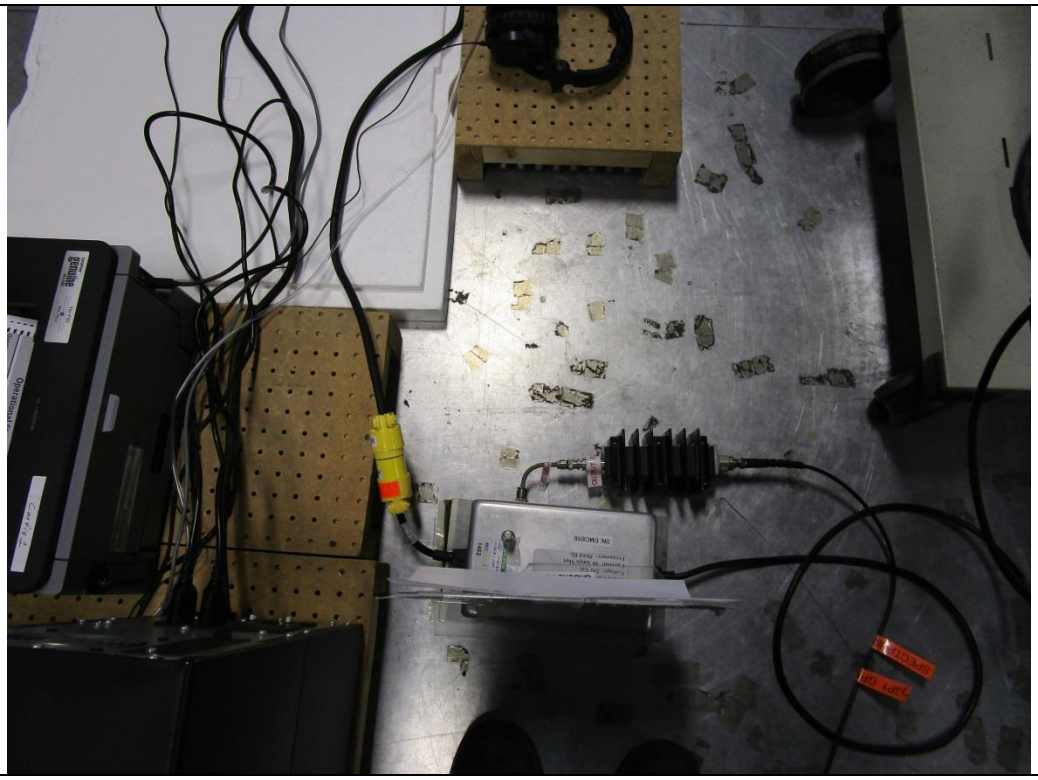

Figure E2. Conducted RF Immunity Test Setup – AC Mains.

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1261	Hewlett Packard	8648C	3619U00779	Signal Generator, 100kHz to 3.2GHz	10/24/2017	10/24/2018
1482	EMCI	EMCI-CDN-M3-16	EMCI016	M3 CDN, 16A, 250 VAC	11/13/2017	11/13/2018
1496	Rigol Technologies, Inc.	DSA815	DSA8B150500096	9 kHz to 1.5 GHz Spectrum Analyzer	03/26/2018	03/26/2019
1528	Aeroflex/Weinschel	40-6-34	SB031	Hi power atten 6 dB	10/12/2017	10/12/2018
1532	Werlatone	C9475-13	102545	100 Watt Dual Directional Coupler, 10 kHz to 250 M	10/12/2017	10/12/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA
1594	EMCI	CI	V2.5.0	Conducted Immunity Software	NA	NA

CONDUCTED RF IMMUNITY TEST DATA

CONFIGURATION 2

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432 APC SMT-2200	S/N:	D18Q000334 AK7A044093A0 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 17, 2018
Temperature:	23.1˚C Humidity: 43%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots (Config#2)		
Test Engineer:	Casey Lockhart		

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Frequency (MHz)	Modulation			Level (Vrms)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq					
0.150 – 80.0	AM	80	1 kHz	10	3	AC using M3 CDN	A	Pass

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 17, 2018

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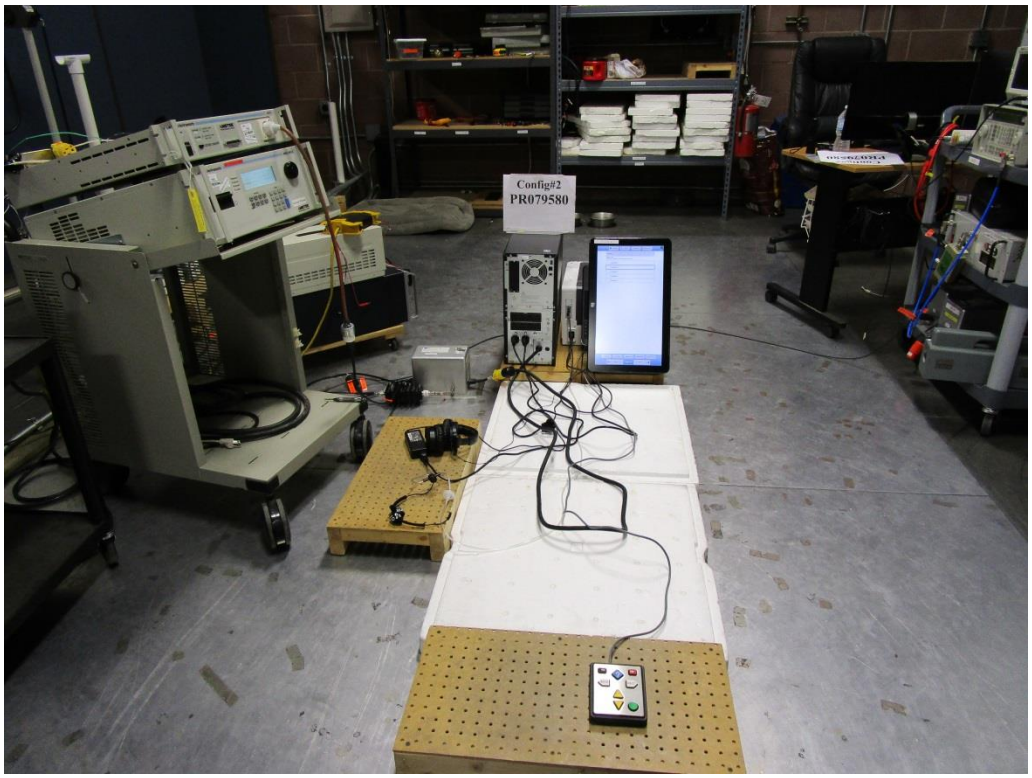

Figure E1. Conducted RF Immunity Test Setup.

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 17, 2018

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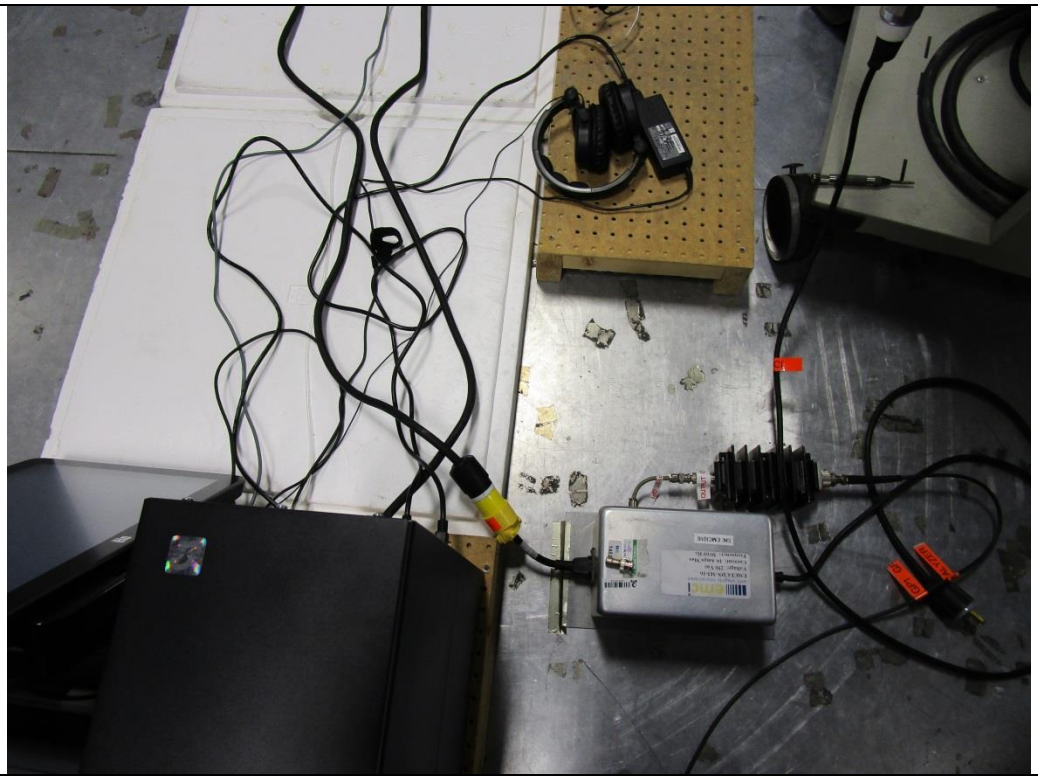

Figure E2. Conducted RF Immunity Test Setup – AC Mains.

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 17, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1261	Hewlett Packard	8648C	3619U00779	Signal Generator, 100kHz to 3.2GHz	10/24/2017	10/24/2018
1482	EMCI	EMCI-CDN-M3-16	EMCI016	M3 CDN, 16A, 250 VAC	11/13/2017	11/13/2018
1496	Rigol Technologies, Inc.	DSA815	DSA8B150500096	9 kHz to 1.5 GHz Spectrum Analyzer	03/26/2018	03/26/2019
1528	Aeroflex/Weinschel	40-6-34	SB031	Hi power atten 6 dB	10/12/2017	10/12/2018
1532	Werlatone	C9475-13	102545	100 Watt Dual Directional Coupler, 10 kHz to 250 M	10/12/2017	10/12/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA
1594	EMCI	CI	V2.5.0	Conducted Immunity Software	NA	NA

CONDUCTED RF IMMUNITY TEST DATA

CONFIGURATION 3

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335. U64964A8N263531, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018
Temperature:	21.41˚C Humidity: 43%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots (Config#3)		
Test Engineer:	Casey Lockhart		

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Frequency (MHz)	Modulation			Level (Vrms)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq					
0.150 – 80.0	AM	80	1 kHz	10	3	AC using M3 CDN	A	Pass

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335. U64964A8N263531, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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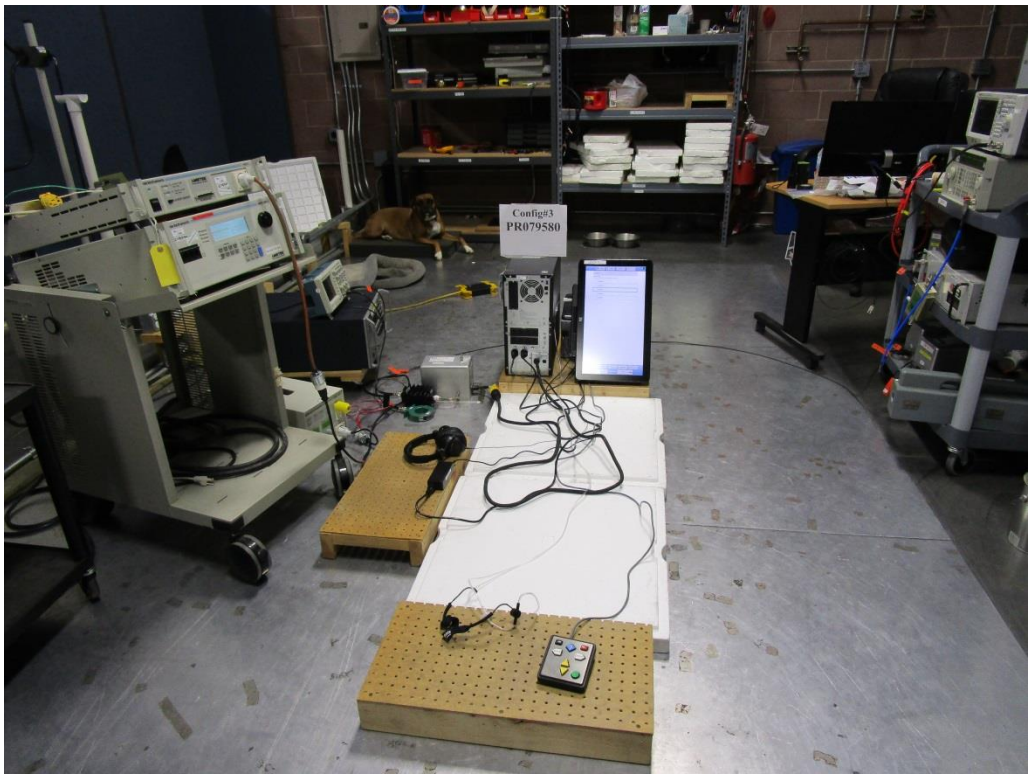

Figure E1. Conducted RF Immunity Test Setup.

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335. U64964A8N263531, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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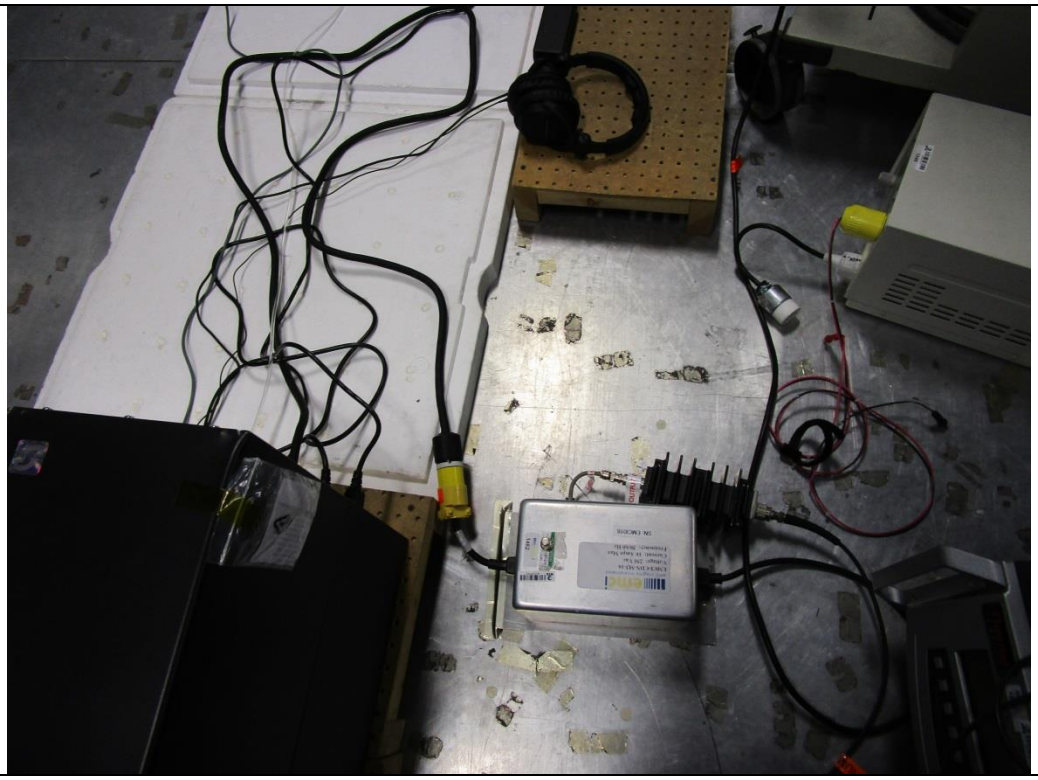

Figure E2. Conducted RF Immunity Test Setup – AC Mains.

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335. U64964A8N263531, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1261	Hewlett Packard	8648C	3619U00779	Signal Generator, 100kHz to 3.2GHz	10/24/2017	10/24/2018
1482	EMCI	EMCI-CDN-M3-16	EMCI016	M3 CDN, 16A, 250 VAC	11/13/2017	11/13/2018
1496	Rigol Technologies, Inc.	DSA815	DSA8B150500096	9 kHz to 1.5 GHz Spectrum Analyzer	03/26/2018	03/26/2019
1528	Aeroflex/Weinschel	40-6-34	SB031	Hi power atten 6 dB	10/12/2017	10/12/2018
1532	Werlatone	C9475-13	102545	100 Watt Dual Directional Coupler, 10 kHz to 250 M	10/12/2017	10/12/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA
1594	EMCI	CI	V2.5.0	Conducted Immunity Software	NA	NA

CONDUCTED RF IMMUNITY TEST DATA

CONFIGURATION 4

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004071 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018
Temperature:	24.91˚C Humidity: 33%	Pressure:	836 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots (Config#4)		
Test Engineer:	Casey Lockhart		

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Frequency (MHz)	Modulation			Level (Vrms)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq					
0.150 – 80.0	AM	80	1 kHz	10	3	AC using M3 CDN	A	Pass

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004071 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018

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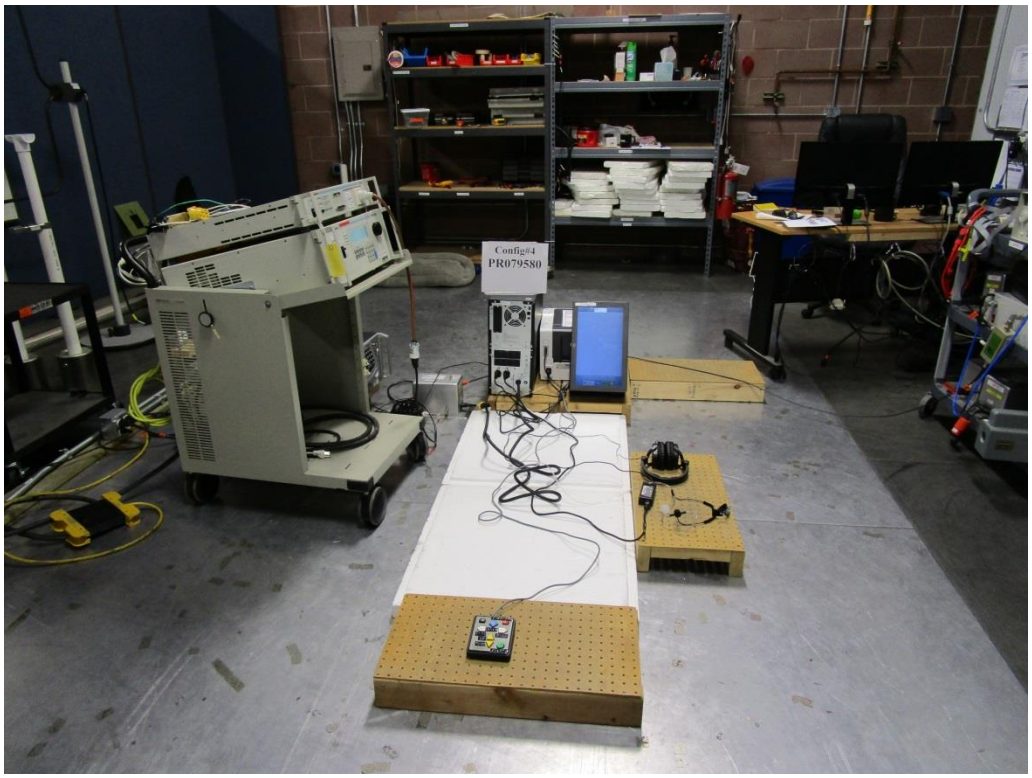

Figure E1. Conducted RF Immunity Test Setup.

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004071 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018

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Figure E2. Conducted RF Immunity Test Setup – AC Mains.

Conducted RF Immunity per IEC / EN 61000-4-6

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004071 AK7A044083A0, AS1808141143
Standard Referenced:	EAC 2005 VVSG	Date:	May 22, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1261	Hewlett Packard	8648C	3619U00779	Signal Generator, 100kHz to 3.2GHz	10/24/2017	10/24/2018
1482	EMCI	EMCI-CDN-M3-16	EMCI016	M3 CDN, 16A, 250 VAC	11/13/2017	11/13/2018
1496	Rigol Technologies, Inc.	DSA815	DSA8B150500096	9 kHz to 1.5 GHz Spectrum Analyzer	03/26/2018	03/26/2019
1528	Aeroflex/Weinschel	40-6-34	SB031	Hi power atten 6 dB	10/12/2017	10/12/2018
1532	Werlatone	C9475-13	102545	100 Watt Dual Directional Coupler, 10 kHz to 250 M	10/12/2017	10/12/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA
1594	EMCI	CI	V2.5.0	Conducted Immunity Software	NA	NA

APPENDIX F – POWER FREQUENCY IMMUNITY TEST DATA

CONFIGURATION 1

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018
Temperature:	20.6˚C Humidity: 44%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#1		
Test Engineer:	Casey Lockhart		

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Frequency (Hz) 50	Frequency (Hz) 60	Field Strength (A/m)	EUT Axis Location	Dwell Time (sec)	Comments	Criteria Met	Pass / Fail
x		30	X	60		A	Pass
	x	30	X	60		A	Pass
x		30	Y	60		A	Pass
	x	30	Y	60		A	Pass
x		30	Z	60		A	Pass
	x	30	Z	60		A	Pass

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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Figure F1. Power Frequency H-field Immunity Test Setup X axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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Figure F2. Power Frequency H-field Immunity Test Setup Y axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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Figure F3. Power Frequency H-field Immunity Test Setup Z axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 14, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1484	Pearson Electronics	110A	88593	Current Monitor, 1 Hz to 20 MHz	11/28/2017	11/28/2018
1505	EMCI	EMCI-4-8-2m-1.5m	0002	HField Loop, 2m x 1.5m	08/28/2017	08/28/2018
1548	California Instruments/Ametek	1251P	1423A06347	AC Power supply	NA	NA
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

POWER FREQUENCY H-FIELD IMMUNITY TEST DATA

CONFIGURATION 2

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 21, 2018
Temperature:	23.2˚C Humidity: 26%	Pressure:	837 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#2		
Test Engineer:	Casey Lockhart		

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Frequency (Hz) 50	Frequency (Hz) 60	Field Strength (A/m)	EUT Axis Location	Dwell Time (sec)	Comments	Criteria Met	Pass / Fail
x		30	X	60		A	Pass
	x	30	X	60		A	Pass
x		30	Y	60		A	Pass
	x	30	Y	60		A	Pass
x		30	Z	60		A	Pass
	x	30	Z	60		A	Pass

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 21 2018

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Figure F1. Power Frequency H-field Immunity Test Setup X axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 21 2018

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Figure F2. Power Frequency H-field Immunity Test Setup Y axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 21 2018

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Figure F3. Power Frequency H-field Immunity Test Setup Z axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 21, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1484	Pearson Electronics	110A	88593	Current Monitor, 1 Hz to 20 MHz	11/28/2017	11/28/2018
1505	EMCI	EMCI-4-8-2m-1.5m	0002	HField Loop, 2m x 1.5m	08/28/2017	08/28/2018
1548	California Instruments/Ametek	1251P	1423A06347	AC Power supply	NA	NA
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

POWER FREQUENCY H-FIELD IMMUNITY TEST DATA

CONFIGURATION 3

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16, 2018
Temperature:	24.2˚C Humidity: 18%	Pressure:	838 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#3		
Test Engineer:	Casey Lockhart		

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Frequency (Hz) 50	Frequency (Hz) 60	Field Strength (A/m)	EUT Axis Location	Dwell Time (sec)	Comments	Criteria Met	Pass / Fail
x		30	X	60		A	Pass
	x	30	X	60		A	Pass
x		30	Y	60		A	Pass
	x	30	Y	60		A	Pass
x		30	Z	60		A	Pass
	x	30	Z	60		A	Pass

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16 2018

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Figure F1. Power Frequency H-field Immunity Test Setup X axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16 2018

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Figure F2. Power Frequency H-field Immunity Test Setup Y axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16 2018

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Figure F3. Power Frequency H-field Immunity Test Setup Z axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	D18Q000335 U64964A8N263531 AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 16, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1484	Pearson Electronics	110A	88593	Current Monitor, 1 Hz to 20 MHz	11/28/2017	11/28/2018
1505	EMCI	EMCI-4-8-2m-1.5m	0002	HField Loop, 2m x 1.5m	08/28/2017	08/28/2018
1548	California Instruments/Ametek	1251P	1423A06347	AC Power supply	NA	NA
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

POWER FREQUENCY H-FIELD IMMUNITY TEST DATA

CONFIGURATION 4

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018
Temperature:	24.8˚C Humidity: 28%	Pressure:	840 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#4		
Test Engineer:	Casey Lockhart		

PR079580-4-8.doc FR0100

Frequency (Hz) 50	Frequency (Hz) 60	Field Strength (A/m)	EUT Axis Location	Dwell Time (sec)	Comments	Criteria Met	Pass / Fail
x		30	X	60		A	Pass
	x	30	X	60		A	Pass
x		30	Y	60		A	Pass
	x	30	Y	60		A	Pass
x		30	Z	60		A	Pass
	x	30	Z	60		A	Pass

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24 2018

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Figure F1. Power Frequency H-field Immunity Test Setup X axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24 2018

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Figure F2. Power Frequency H-field Immunity Test Setup Y axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24 2018

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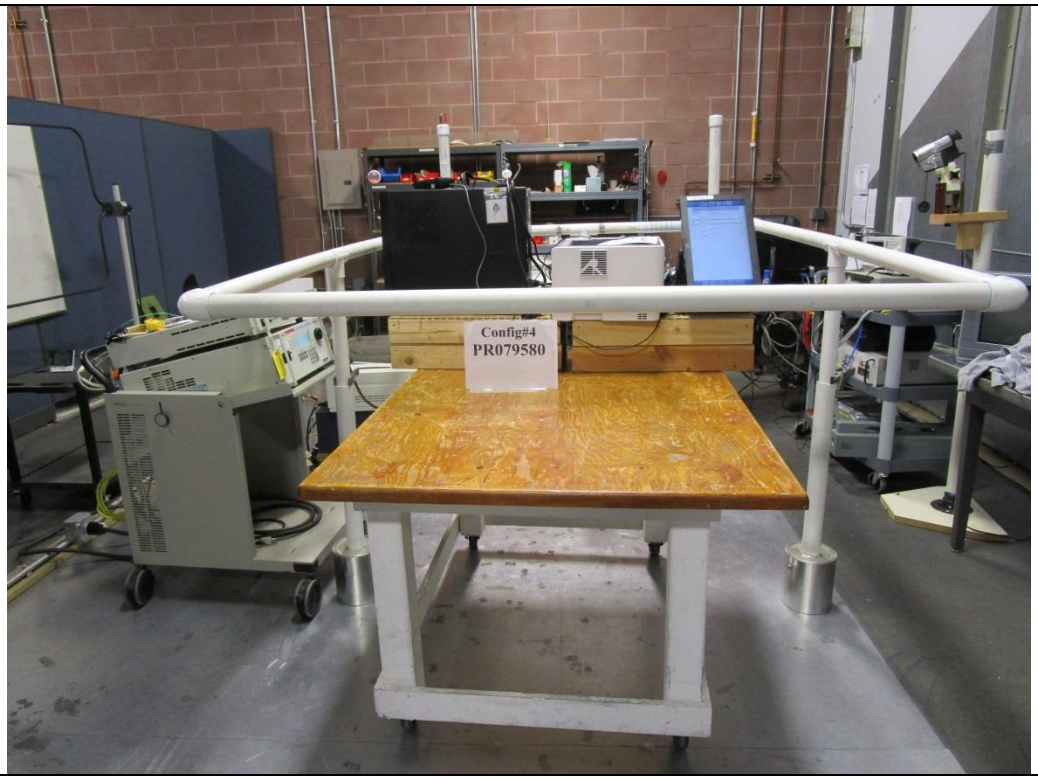

Figure F3. Power Frequency H-field Immunity Test Setup Z axis.

Power Frequency H-field Immunity per IEC / EN 61000-4-8

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 24, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1484	Pearson Electronics	110A	88593	Current Monitor, 1 Hz to 20 MHz	11/28/2017	11/28/2018
1505	EMCI	EMCI-4-8-2m-1.5m	0002	HField Loop, 2m x 1.5m	08/28/2017	08/28/2018
1548	California Instruments/Ametek	1251P	1423A06347	AC Power supply	NA	NA
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

APPENDIX G – VOLTAGE DIPS & INTERRUPTS TEST DATA

CONFIGURATION 1

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018
Temperature:	23.4˚C Humidity: 19%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#1		
Test Engineer:	Casey Lockhart		

PR079580-4-11.doc FR0100

% Nominal	No. of Cycles	Phase Angle (deg) 0	90	180	270	Time between dropouts (sec)	Number of tests	Comments	Criteria Met	Pass / Fail
70%	0.6	x				10	3		A	Pass
70%	0.6		x			10	3		A	Pass
70%	0.6			x		10	3		A	Pass
70%	0.6				x	10	3		A	Pass
40%	6	x				10	3		A	Pass
40%	6		x			10	3		A	Pass
40%	6			x		10	3		A	Pass
40%	6				x	10	3		A	Pass
40%	60	x				10	3		A	Pass
40%	60		x			10	3		A	Pass
40%	60			x		10	3		A	Pass
40%	60				x	10	3		A	Pass
0%	300	x				10	3		A	Pass
0%	300			x		10	3		A	Pass
Line Voltage Variation tests										
129Vac Line Voltage Variations (+7.5% of nominal 120V) 3hrs.									A	Pass
105Vac Line Voltage Variations (-12.5% of nominal 120V) 3 Hrs.									A	Pass
Surges of -15% line variations of nominal voltage (102V) 1 Hrs.									A	Pass
Surges of +15% line variations of nominal voltage (138V) 1 Hrs.									A	Pass

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

PR079580-4-11.doc FR0100

Figure G1. Voltage Dips and Interruptions Test Setup.

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U6496 4AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

PR079580-4-11.doc FR0100

Figure G2. Voltage Dips and Interruptions Test Setup.

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Brother HL-L2350DW, APC SMT-2200	S/N:	A18C004079,U64964AN263525, AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	May 10, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	05/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

VOLTAGE DIPS & INTERRUPTS TEST DATA

CONFIGURATION 2

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018
Temperature:	23.9˚C Humidity: 38%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#2		
Test Engineer:	Casey Lockhart		

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% Nominal	No. of Cycles	Phase Angle (deg) 0	90	180	270	Time between dropouts (sec)	Number of tests	Comments	Criteria Met	Pass / Fail
70%	0.6	x				10	3		A	Pass
70%	0.6		x			10	3		A	Pass
70%	0.6			x		10	3		A	Pass
70%	0.6				x	10	3		A	Pass
40%	6	x				10	3		A	Pass
40%	6		x			10	3		A	Pass
40%	6			x		10	3		A	Pass
40%	6				x	10	3		A	Pass
40%	60	x				10	3		A	Pass
40%	60		x			10	3		A	Pass
40%	60			x		10	3		A	Pass
40%	60				x	10	3		A	Pass
0%	300	x				10	3		A	Pass
0%	300			x		10	3		A	Pass
Line Voltage Variation tests										
129Vac Line Voltage Variations (+7.5% of nominal 120V) 3hrs.									A	Pass
105Vac Line Voltage Variations (-12.5% of nominal 120V) 3 Hrs.									A	Pass
Surges of -15% line variations of nominal voltage (102V) 1 Hrs.									A	Pass
Surges of +15% line variations of nominal voltage (138V) 1 Hrs.									A	Pass

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1

Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

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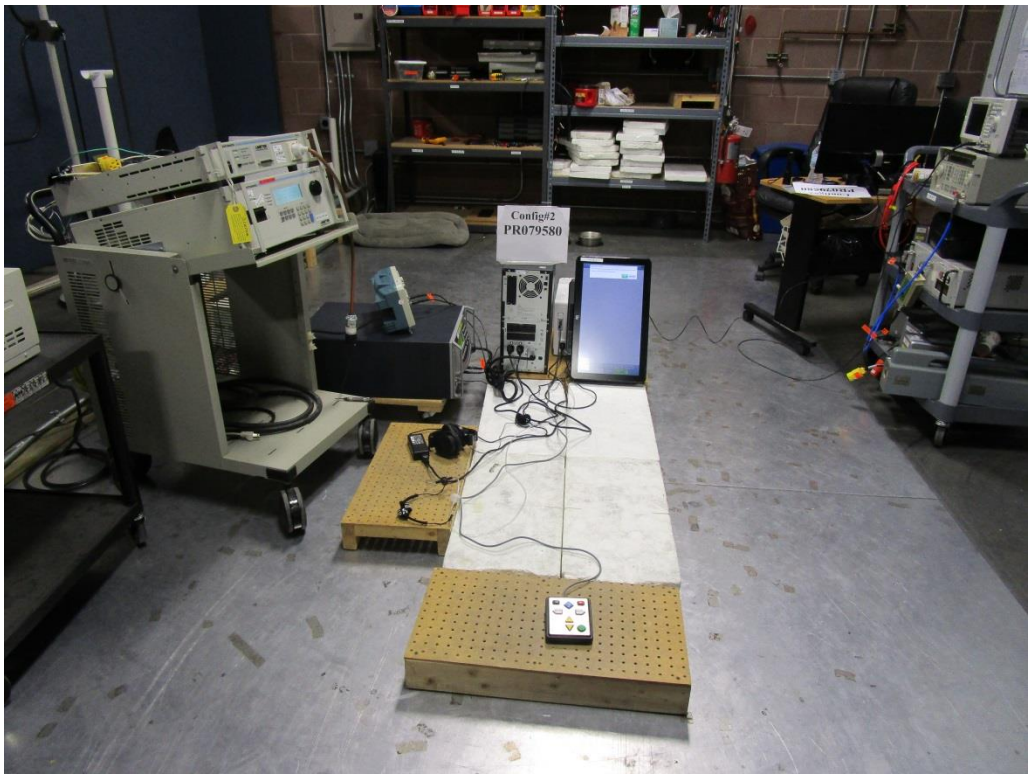

Figure G1. Voltage Dips and Interruptions Test Setup.

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

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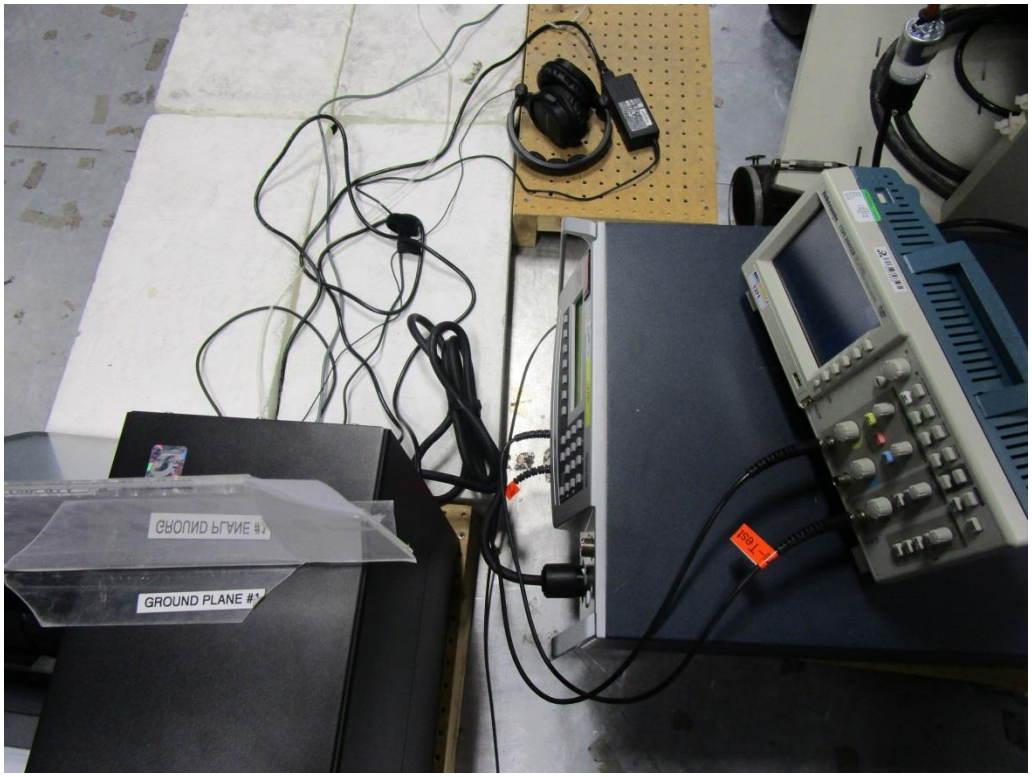

Figure G2. Voltage Dips and Interruptions Test Setup.

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	D18Q000334 AK7A044093A0AS1 AS1721132721
Standard Referenced:	EAC 2005 VVSG	Date:	May 15, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	05/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

VOLTAGE DIPS & INTERRUPTS TEST DATA

CONFIGURATION 3

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 23, 2018
Temperature:	20.6˚C Humidity: 42%	Pressure:	837 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots Config#4		
Test Engineer:	Casey Lockhart		

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% Nominal	No. of Cycles	Phase Angle (deg) 0	90	180	270	Time between dropouts (sec)	Number of tests	Comments	Criteria Met	Pass / Fail
70%	0.6	x				10	3		A	Pass
70%	0.6		x			10	3		A	Pass
70%	0.6			x		10	3		A	Pass
70%	0.6				x	10	3		A	Pass
40%	6	x				10	3		A	Pass
40%	6		x			10	3		A	Pass
40%	6			x		10	3		A	Pass
40%	6				x	10	3		A	Pass
40%	60	x				10	3		A	Pass
40%	60		x			10	3		A	Pass
40%	60			x		10	3		A	Pass
40%	60				x	10	3		A	Pass
0%	300	x				10	3		A	Pass
0%	300			x		10	3		A	Pass
Line Voltage Variation tests										
129Vac Line Voltage Variations (+7.5% of nominal 120V) 3hrs.									A	Pass
105Vac Line Voltage Variations (-12.5% of nominal 120V) 3 Hrs.									A	Pass
Surges of -15% line variations of nominal voltage (102V) 1 Hrs.									A	Pass
Surges of +15% line variations of nominal voltage (138V) 1 Hrs.									A	Pass

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1

Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 23 2018

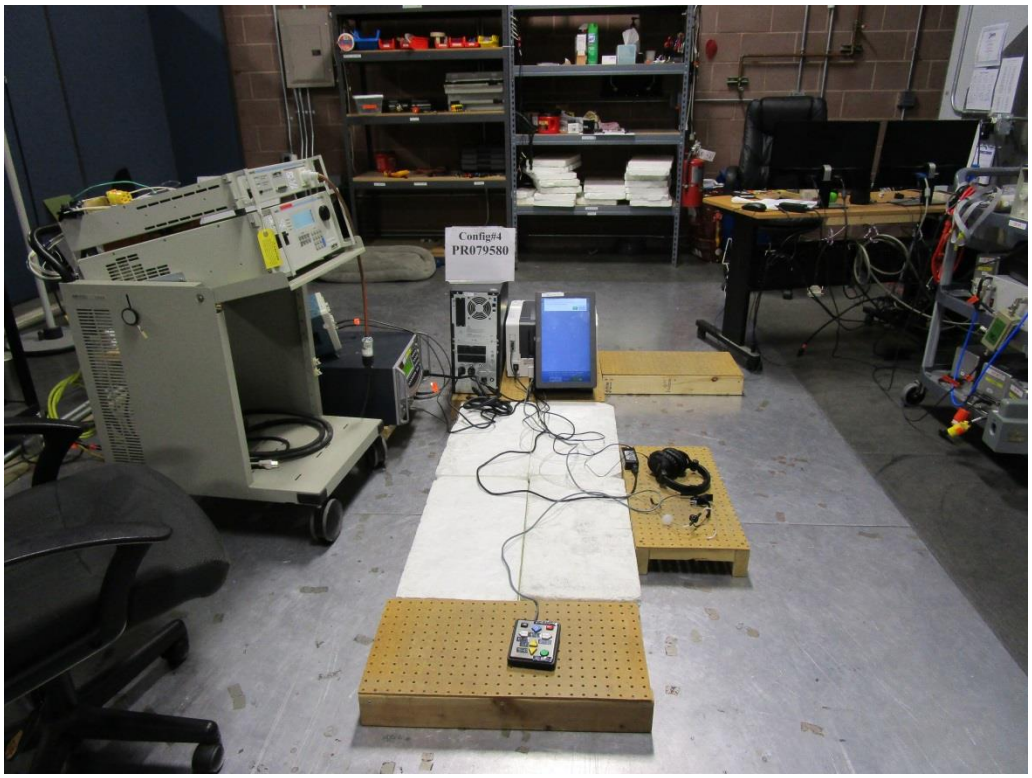

Figure G1. Voltage Dips and Interruptions Test Setup.

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 23 2018

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Figure G2. Voltage Dips and Interruptions Test Setup.

Voltage Dips and Interrupts per IEC / EN 61000-4-11

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	GP1
Model:	ClearAccess, ELO ESY15E2, Oki B432, APC SMT-2200	S/N:	A18C004079 AK7A044083A0, AS1721142050
Standard Referenced:	EAC 2005 VVSG	Date:	May 23, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	10/24/2017	10/24/2018
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	01/26/2018	01/26/2019
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1566	Thermo Fisher Scientific	EMC Pro Plus	1502199	Advanced EMC Immunity Tester	05/17/2017	06/17/2018
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Progammable Power Supply	NA	NA

APPENDIX H – PRODUCT DATA SHEET

1.0 Client Information

Client Information	
Manufacturer Name	Clear Ballot Group (manufacturer) Pro V&V (client)
Address	700 Boulevard South Suite 102
City	Huntsville
State	AL
Zip Code	35802
Client Representative	Stephen Han
Title	Sr. Project Engineer
Phone	256-713-1111
Fax	256-713-1112
Email	stephen.han@provandv.com

2.0 Product Information - General

Product Information	
Product Name (**as it should appear on test report**)	ClearAccess
Model Number (of UUT to be tested)	ClearAccess
Functional description of product (what is it, what does it do, etc.)	ballot marking device
List all modes of operation	Regular and audio
Can modes be operated simultaneously? If so, explain.	Yes
What mode(s) will be used for testing?	Both
Product type (IT, Medical, Scientific, Industrial, etc.)	IT
Is the product an intentional radiator	no
Product Dimensions	Multiple
Product Weight	Multiple
Will fork lift be required	No
Applicable Standards, if known	EAC 2005 VVSG Volumes I and II
Describe all environment(s) where product will be used (residential, commercial, industrial, etc.)	Used for voting during elections
Does product consist of multiple components? (If yes, please describe each system component)	PC, Printer, UPS
Cycle time > 3 seconds? (If yes, how long?)	Yes.
Highest internally generated frequency	

Product Set-up Time	15 minutes
Boot up time in the event of an unintentional power down	2 minutes but UUT will be on UPS

Identify **ALL** I/O connections on the unit(s) under test, as well as **MAXIMUM** associated cable lengths below

Model No.	Description	I/O Type		Length (m)	Patient Connect? (See Note)	QTY
		UUT-UUT	UUT - SE			
generic	USB			6 ft		
generic	power			6 ft		

Note: "Patient Connect" column applies only to medical devices.

3.0 Power

Power Requirements	
Does/can product connect to AC mains? (If so, can the UUT function when connected to AC?)	Yes.
Input Voltage Rating as it appears on unit, power supply, or power brick	n/a
Input Current (specify @ 230 Vac/50 Hz)	
Single or Multi-Phase (If multi-phase, specify delta or wye)	single
Is input power connector two-prong (Hot & Neutral) or 3-prong (H, N, Ground)	3 prong
Does UUT have more than 1 power cord? (If yes, explain.)	No

4.0 Unit Under Test (UUT) – Detailed Information

UUT Hardware	
Condition	New
Configuration During Test	Printing Ballots
Input Power	Normal AC power 120Vac/60Hz

UUT Components			
Name	**Model No.**	**Serial No.**	**Description**
Configuration 1			
ELO	ESY15E2	A18C004079	AIO Touchscreen
Brother	HL-L2350DW	U64964AN263525	Printer
APC	SMT-2200	AS1638230963	UPS
Configuration 2			
ELO	ESY15E2	D18Q000334	AIO Touchscreen
OKI	B432dn	AK7A044093A0	Printer
APC	SMT-2200	AS1721132721	UPS
Configuration 3			
ELO	ESY20X2	D18Q000335	AIO Touchscreen
Brother	HL-L2350DW	U64964A8N263531	Printer
APC	SMT-2200	AS1721142050	UPS
Configuration 4			
ELO	ESY20X2	A18C004071	AIO Touchscreen
OKI	B432dn	AK7A044083A0	Printer

APC	SMT-2200	AS1721132721	UPS (Emissions only)
APC	SMT-2200	AS1808141143	UPS (Immunity)

I/O Cabling
See Section 2.0 for details

UUT Software/Firmware		
Name	**Version/Revision**	**Functionality**
ClearAccess	1.5.0e	Voting systems software

UUT Operating Conditions	
List all frequencies generated/used by the product.	n/a
How will product be exercised during test?	Printing ballots
How will product be monitored during test?	Visually
What are the product's critical parameters?	Unit keeps printing
Specify tolerance of all critical parameters.	Unit keeps printing

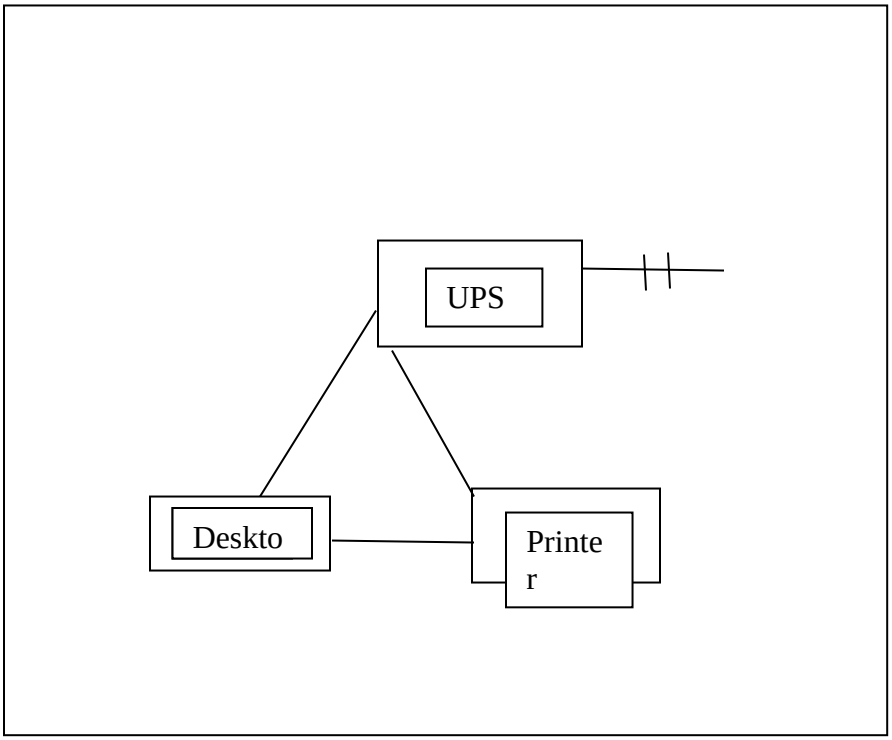
5.0 Support Equipment (SE) – Detailed Information

Support Equipment (SE)			
Name	**Model No.**	**Serial No.**	**Description**
Monoprice	108323	CBG-HP-010	Headphones
Storm	EZ08-222013	15000005	ATI
Sip & Puff	AC-0313-H2	CBG-SP-010	Sip and Puff
Zebra	DS457	CBG-Zeb-010	Bar Code Scanner

SE I/O Cabling				
Model No.	**Description**	**Shielded?**	**Length**	**Quantity**
Generic	USB	N	>3M	1
Generic	3.5mm Headphone jack	N	>3M	1

SE Software/Firmware		
Name	**Version/Revision**	**Functionality**
		n/a

6.0 Block Diagram



Important note: The product data sheet is a critical piece of documentation which is used as the basis

for any test reports that EMCI will generate; it must be completed *prior* to testing. It should be reviewed carefully by the client. If incorrect information is provided resulting in revisions to test reports, the client will be subject to report revision fees.

APPENDIX I – EMI TEST LOG

EMI\ENV Test Log

Manufacturer:	Pro V&V	Project Number:	PR079580
Model:	ClearAccess Config 1: ELO ESY15E2 Brother HL-L2350DW APC SMT-2200 Config 2: ELO ESY15E2 OKI B432dn APC SMT-2200 Config 3: ELO ESY20X2 Brother HL-L2350DW APC SMT-2200 Config 4: ELO ESY20X2 OKI B432dn APC SMT-2200	S/N:	Config 1: A18C004079 U64964AN263525 AS1638230963 Config 2: D18Q000334 AK7A044093A0 AS1721132721 Config 3: D18Q000335 U64964A8N263531 AS1721142050 Config 4: A18C004071 AK7A044083A0 AS1721132721(Emissions) AS1808141143(Immunity)
Customer Representative:	Michael Walker		
Standard Referenced:	EAC 2005 VVSG (FCC Class B)		

FR0105

Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
4-3	43935	May 9, 2018 0800-1500	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Client arrived at 9:00 Unit got a "print error" around 600MHz. Unit locked up and required user intervention (power cycle) to get running again. V-pole front side. Re-testing front side. Error did not repeat. **Config#1**		7.0	Pass	KJ
4-3		May 10, 2018 0800-1630	Client did not have the right UPS. No testing performed		8.0	Complete	KJ
4-3		May 11, 2018 0800-1200	Still waiting on UPS's		4.0	Complete	KJ
4-3		1230-1630	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz **Config#2**		4.0	Pass	KJ
4-3		May 14, 0800-1630	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz **Config#3**		8.0	Pass	KJ
4-3		May 15, 2018 0800-1630	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz **Config#4**		4.0	Pass	KJ
4-6	46210	May 10, 2018 0800 - 0900	Equipment Setup.		1.0	---	CL
---	---	0900 – 1000	Config#1 Conducted RF Immunity (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4415	1000 - 1030	Config#1 Electrical Fast Transient / Burst (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz Note: some slight flicker on display screen.		.5	Pass	CL
4-11	41915	1030 - 1100	Config#1 Voltage Dips and Interruptions (4.1.2.5) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 1 sec. / 0% nom, 300 cycles 120 VAC / 60 Hz		.5	Pass	CL

Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
4-11	41920	1100 - 1400	Config#1 Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and **reductions of 12.5%** of nominal specified power. (See Protocol) 105 VAC / 60 Hz		3.0	Pass	CL
4-11	---	May 11, 2018 0800 - 1100	Config#1 Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power **increases of 7.5%** and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		3.0	Pass	CL
4-5	45930	1100 - 1600	Config#1 Surge Immunity (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.0	Pass	CL
4-11	41920	May 14, 2018 0900 - 1000	Config #1 Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 102 VAC / 60 Hz		1.0	Pass	CL
---	---	1000 - 1100	Config#1 Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		1.0	Pass	CL
4-8	4835	1100 - 1200	Config #1 Power Frequency H-Field Immunity (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		1.0	Pass	CL
---	---	1200 – 1230	Lunch		---	---	CL
4-2	42520	1230 - 1500	Config #1 Electrostatic Discharge (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz Note: 15kV Air takes out monitor, power cycle to get it back.		2.5	Fail	CL
4-6	46210	1500 - 1600	Config#3 Conducted RF Immunity (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4415	May 15, 2018 0800 - 0830	Config#3 Electrical Fast Transient / Burst (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Pass	CL
4-11	41915	0830 - 0900	Config#3 Voltage Dips and Interruptions (4.1.2.5) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 1 sec. / 0% nom, 300 cycles 120 VAC / 60 Hz		.5	Pass	CL

Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
---	---	0900 - 1200	Config#3 Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power **increases of 7.5%** and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		3.0	Pass	CL
---	---	1200 - 1500	Config#3 Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and **reductions of 12.5%** of nominal specified power. (See Protocol) 105 VAC / 60 Hz		3.0	Pass	CL
---	---	1500 - 1600	Config #3Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 102 VAC / 60 Hz		1.0	Pass	CL
4-11	---	May 16, 2018 0800 - 0900	Config #3Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		1.0	Pass	CL
4-5	45930	0900 - 1430	Config#3 Surge Immunity (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.5	Pass	CL
4-8	4835	1430 - 1530	Config#3 Power Frequency H-Field Immunity (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		1.0	Pass	CL
4-2	42520	May 17, 2018 0800 - 1100	Config #3 Electrostatic Discharge (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz Note: +15kV at back of monitor, takes display out. Tried kapton tape, still fails.		4.0	Fail	CL
4-6	46210	1100 - 1200	Config #2 Conducted RF Immunity (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4415	1200 - 1230	Config #2Electrical Fast Transient / Burst (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Pass	CL
4-11	41915	1230 - 1300	Config #2Voltage Dips and Interruptions (4.1.2.5) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 1 sec. / 0% nom, 300 cycles 120 VAC / 60 Hz		.5	Pass	CL
---	---	1300 - 1600	Config#2 Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power **increases of 7.5%** and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		3.0	Pass	CL

Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
4-11	---	May 18, 2018 0800 - 1100	Config#2 Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and **reductions of 12.5%** of nominal specified power. (See Protocol) 105 VAC / 60 Hz		3.0	Pass	CL
---	---	1100 - 1200	Config #2Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 102 VAC / 60 Hz		1.0	Pass	CL
---	---	1230 - 1630	Client had to leave for the day. Flying out of town.		4.0	---	CL
4-11	---	May 21, 2018 1230 - 1330	Config #2 Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		1.0	Pass	CL
4-8	4835	1330 - 1430	Config#2 Power Frequency H-Field Immunity (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		1.0	Pass	CL
4-2	42520	1430 - 1630	Config#2 Electrostatic Discharge (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz Note: Air discharge at -8kV on metal tape around LED display for printer, takes out display. Re-peats twice.		2.0	Fail	CL
4-5	45930	May 22, 2018 0900 - 1400	Config#2 Surge Immunity (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.0	Pass	CL
4-6	46210	1400 - 1500	Config#4 Conducted RF Immunity (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4415	1500 - 1530	Config#4 Electrical Fast Transient / Burst (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz Note: Monitor flickered during the test, then locked up and had to be re-booted. Re-test.		.5	Fail	CL
---	---	1530 – 1600	Config#4 Electrical Fast Transient / Burst (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Fail	CL
---	---	1600 - 1630	Config#4 Electrical Fast Transient / Burst (4.1.2.6)**W/New PC S/N(A18C004079)** Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Pass	CL
4-11	41915	May 23, 2018 0800 - 0830	Config#4 Voltage Dips and Interruptions (4.1.2.5) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 1 sec. / 0% nom, 300 cycles 120 VAC / 60 Hz		.5	Pass	CL

Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
---	---	0830 - 1130	Config#4 Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power **increases of 7.5%** and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		3.0	Pass	CL
---	---	1200 - 1500	Config#4 Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and **reductions of 12.5%** of nominal specified power. (See Protocol) 105 VAC / 60 Hz		3.0	Pass	CL
---	---	1500 - 1600	Config #4Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 102 VAC / 60 Hz		1.0	Pass	CL
---	---	May 24, 2018 0800 - 0900	Config #4 Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		1.0	Pass	CL
4-5	45930	0900 - 1400	Config#4 Surge Immunity (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.0	Pass	CL
4-8	4835	1400 - 1500	Config#4 Power Frequency H-Field Immunity (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		1.0	Pass	CL
4-2	42520	1500 - 1630	Config#4 Electrostatic Discharge (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz		1.5	Pass	CL
---	---	May 25, 2018 0800 - 0900	Config#4 Electrostatic Discharge (Paperwork) (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz		1.0	Pass	CL
4-2	---	0900 -1000	Config#2 Electrostatic Discharge Mitigation (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz New copper tape around display. New security tape around monitor.		1.0	Pass	CL
---	---	1000 - 1130	Config #3 Electrostatic Discharge Mitigation (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz New security tape around monitor.		1.5	Pass	CL
---	---	1130 - 1230	Config #1 Electrostatic Discharge Mitigation (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz New Kapton tape around monitor base.		1.0	Pass	CL

Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
4-5	45930	May 29, 2018 0800 - 1000	Config#1 Surge Immunity (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		2.0	---	CL
---	---	1000 - 1500	UPS failed at +-1000 Common , Neutral Restart 1000. New UPS from Config#3 (AS1721142050) Config#1 Surge Immunity (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270)		5.0	Pass	CL

APPENDIX J – LABORATORY ACCREDITATIONS

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

NATIONAL TECHNICAL SYSTEMS (NTS) - LONGMONT
1736 Vista View Drive
Longmont, CO 80504-5242
Mr. Eric Loucks Phone: 303 776 7249

ELECTRICAL

Valid To: February 28, 2018 Certificate Number: 0214.43

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following Electromagnetic Compatibility/Interference (EMC/EMI), Lightning, Transient, Surge, and Product Safety tests:

Test Technology:	Test Method(s)[1,2]:
Emissions	
Radiated and Conducted	CFR 47 FCC, Parts 15B (using ANSI C63.4: 2014), 15C (using ANSI C63.10:2013), and 18 (using MP-5:1986); CISPR 32, Ed. 1 (2012-01); EN 55032:2012/AC:2013; AS/NZS CISPR 22 (2002); AS/NZS 3548 (1997); AS/NZS CISPR 14-1 (2003); IEC/CISPR 14-1, Ed. 4 (2003); IEC 61000-3-12, Ed. 2.0 (2011); EN 61000-3-12 (2011); IEC 61000-6-1, Ed. 2 (2005-03); IEC 61000-6-2, Ed. 2.0 (2005-01); IEC 61000-6-3 (1996); EN 61000-6-3 (2001) + A1 (2004); EN 61000-6-4 (2007); KN 32:2015 (Annex 11); KN 22; KN 11
Harmonics	IEC 61000-3-2, Ed. 2.2 (2004-11); IEC 61000-3-2, Ed. 3.0 (2005) + A1 (2008) + A2 (2009); IEC 61000-3-2, Ed. 4.0 (2014-05)
Flicker	IEC 61000-3-3, Ed. 1.1 (2002-03); EN 61000-3-3 + Al (2001); IEC 61000-3-3, Ed. 1.1 (2003) + A2 (2005); IEC 61000-3-3, Ed. 3.0 (2013-05)
Immunity	
Electrostatic Discharge (ESD)	IEC 61000-4-2 (2001); EN 61000-4-2 (2001) + A2 (2001); EN 61000-4-2 + Al (1998) + A2 (2001); IEC 61000-4-2, Ed. 2.0 (2008-12); EN 61000-4-2 (2009-05); KN 61000-4-2; KN 61000-4-2 (2008-5); KN 61000-4-2 (Annex 1-1)
Radiated	IEC/EN 61000-4-3, Ed. 2.1 (2002) + A1 (2002); EN 61000-4-3; IEC 61000-4-3 (1995) + Al (1998) + A2 (2000); EN 61000-4-3 (2002) + Al (2002); IEC 61000-4-3, Ed. 3.0 (2006-02) + Al (2007) + A2 (2010); EN 61000-4-3 (2006) + Al (2008) + A2 (2010); KN 61000-4-3; KN 61000-4-3 (2008-5); KN 61000-4-3 (Annex 1-2)

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Test Technology:	Test Method(s)[1,2]:
Immunity (cont'd)	
Electrical Fast Transient/Burst	IEC 61000-4-4, Ed. 2.0 (2004-07); EN 61000-4-4 (2004); EN 61000-4-4:2012; IEC 61000-4-4 (2012-04); KN 61000-4-4; KN 61000-4-4 (2008-5); KN 61000-4-4 (Annex 1-3)
Surge	IEC 61000-4-5, Ed. 2.0 (2005-11); EN 61000-4-5; IEC 61000-4-5, Ed. 3.0 (May 2014); BS EN 61000-4-5 (2006); EN 61000-4-5: 2014; KN 61000-4-5; KN 61000-4-5 (2008-5); KN 61000-4-5 (Annex 1-4); IEEE C62.41.1 (2002); IEEE C62.41.2 (2002); IEEE C62.25 (2002)
Conducted	IEC 61000-4-6, Ed. 2.1 (2004); EN 61000-4-6; EN 61000-4-6 (1996) + A1 (2001); IEC 61000-4-6, Ed. 2.2 (2006-05); IEC 61000-4-6, Ed. 3.0 (2008); IEC 61000-4-6, Ed. 4. 0 (2013); EN 61000-4-6 (2009); EN 61000-4-6 (2014); KN 61000-4-6; KN 61000-4-6 (2008-5); KN 61000-4-6 (Annex 1-5)
Power Frequency Magnetic Field	IEC 61000-4-8 (2001) + A1 (2000); EN 61000-4-8 (2001) + A1 (2000); EN 61000-4-8 (1993) + A1 (2001); IEC 61000-4-8 (2009); EN 61000-4-8:2010; KN 61000-4-8; KN 61000-4-8 (2008-5); KN 61000-4-8 (Annex 1-6)
Voltage Dips, Short Interruptions, and Voltage Variations	IEC 61000-4-11, Ed. 2 (2004-03); EN 61000-4-11; EN 61000-4-11 (1994) + Al (2001); EN 61000-4-11 (2004); KN 61000-4-11; KN 61000-4-11 (2008-5); KN 61000-4-11 (Annex 1-7)
Product Safety	
Medical Electrical Equipment	IEC 60601-1-2, Ed. 3.0 (2007); KN 60601-1-2 (2008-5); IEC 60601-1-2, Ed. 4, (2014-02); EN 60601-1-2 (2007); EN 60601-1-2 (2015)
Generic/Product Family Standards and Industry Standards	
Generic Standards	EN 61326-1: 2013; KN 35: 2015
Information Technology Equipment	IEC/CISPR 22 (1997); EN 55022 (1998) + A1 (2000); IEC/CISPR 22 (1993); EN 55022 (1994); IEC/CISPR 22 (1993); EN 55022 (1994) + A1 (1995) + A2 (1997); CNS 13438 (1997); IEC/CISPR 22, Ed. 4 (2003-04); EN 55022 (1998); IEC/CISPR 22, Ed. 5 (2005); EN 55022 (1998); IEC/CISPR 22, Ed. 5 (2005) + A1 (2005); EN 55022 (1998) + A1 (2000) + A2 (2003);

Test Technology:	Test Method(s)[1,2]:
Generic/Product Family Standards and Industry Standards (cont'd)	
Information Technology Equipment (cont'd)	CNS 13438 (2006) (up to 6GHz); IEC/CISPR 22, Edition 5.2 (2006-03); EN 55022 (2006); EN 55022 (2006) + A1 (2007); EN 55022:2010; IEC/CISPR 22 (2008-09); AS/NZS CISPR 22 (2009); TCVN 7189:2009 (CISPR 22:2006); VCCI V-3 (2009.04, 2011.04, 2013.04, 2014.04, 2015.04) (up to 6 GHz); VCCI-CISPR 32:2016; CISPR 24 Ed 2.0 (2010-08); EN 55024 (2010); KN 24
Industrial, Scientific, and Medical (ISM) Equipment	AS/NZS CISPR 11 (2002); IEC/CISPR 11, Ed. 4.1 (2004-06); AS/NZS CISPR 11 (2004); IEC/CISPR 11, Ed. 4.1 (2004-06) + A1 (2004); EN 55011 (1998) + A1 (1999) + A2 (2002); IEC/CISPR 11 (2003); EN 55011 (1998) + A2(2002); EN 55011 (2009) + A1 (2010); IEC/CISPR 11 Ed. 5 (2009-05); CISPR 11 Ed. 5.1 (2010)
Measure	IEC 61326-1 Ed. 2.0 (2012)
Military/Defense	MIL-STD-461F Method CE101 (30 Hz to 10 kHz); MIL-STD-461F Method CE102 (10 kHz to 10 MHz); MIL-STD-461F Method CE106 (10 kHz to 40 GHz); MIL-STD-461F Method CS101 (30 Hz to 150 kHz); MIL-STD-461F Method CS106; MIL-STD-461F Method CS114 (10 kHz to 200 MHz); MIL-STD-461F Method CS116 (10 kHz to 100 MHz); MIL-STD-461F Method RE101 (30 Hz to 100 kHz); MIL-STD-461F Method RE102 (10 kHz to 18 GHz); MIL-STD-461F Method RE103 (10 kHz to 40 GHz); MIL-STD-461F Method RS101 (30 Hz to 100 kHz); MIL-STD-461F Method RS103 (2 MHz to 40 GHz)

[1] When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is required to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA *R101 - General Requirements- Accreditation of ISO-IEC 17025 Laboratories*. If a specifier/regulator imposes a different transition period, this will supersede the A2LA one-year implementation period.

[2] The laboratory is only accredited for testing activities outlined within the test methods listed above. Reference to any other activity within these standards, such as risk management or risk assessment, does not fall within the laboratory's accredited capabilities.

On the following types of products:

Telecommunication Equipment, Network Equipment, Industrial and Commercial Equipment, Electronic (Digital) Equipment, Medical, Aerospace, Military. Information Technology Equipment, Multimedia Equipment, Scientific Equipment

Testing Activities Performed in Support of FCC Declaration of Conformity and Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1[3]

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
Unintentional Radiators		
Part 15B	ANSI C63.4:2014	40000
Industrial, Scientific, and Medical Equipment		
Part 18	FCC MP-5 (February 1986)	40000
Intentional Radiators		
Part 15C	ANSI C63.10:2013	40000

[3]Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (https://apps.fcc.gov/oetcf/eas/) for a listing of FCC approved laboratories.

Accredited Laboratory

A2LA has accredited

NATIONAL TECHNICAL SYSTEMS (NTS) - LONGMONT

Longmont, CO

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 28th day of October 2016.

President and CEO
For the Accreditation Council
Certificate Number 0214.43
Valid to February 28, 2018
Revised June 5, 2017

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

END OF REPORT