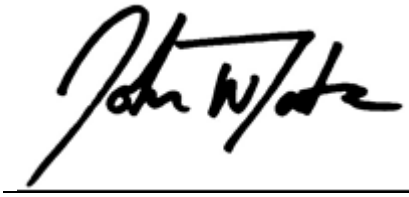
National Technical Systems Test Report for Electromagnetic Interference (EMI) Testing of the Infinity Panel

Prepared For
Pro V&V, Inc. | 6705 Odyssey Dr NW Ste C | Huntsville, AL 35806

Prepared By
National Technical Systems | 1736 Vista View Drive | Longmont, CO. 80504 | (303) 776-7249 |

Greg Gagne
Technical Writer



John Tate
EMI Department Manager

Certificate #214.43 - 214.44

Revision History

Rev.	Description	Issue Date
0	ITR-PR108417	03/26/2020

Table of Contents

List of Tables

1.0 Introduction

This document presents the test procedures used and the results obtained during the performance of an Electromagnetic Interference test program. The test program was conducted to assess the ability of the specified Equipment Under Test (EUT) to successfully satisfy the requirements listed in Section 2.0.

2.0 References

The following references listed below form a part of this document to the extent specified herein.

- Pro V&V, Inc. Purchase Order(s) 2019-013 rev.2, dated 10/30/2019
- National Technical Systems (NTS) Quote(s) OP0534692, dated 10/28/2019
- NTS Corporate Quality Policy Manual, Revision 9, dated 9/20/2018
- ISO/IEC 17025:2017(E) *General Requirements for the Competence of Testing and Calibration Laboratories*, dated 11/1/2017
- Test Specification: EAC 2005 VVSG

3.0 Product Selection and Description

Pro V&V, Inc. selected and provided the test sample(s) to be used as the Equipment Under Test. Details below:

Table 3.0-1: Product Identification - Equipment Under Test (EUT)

Item	Qty.	Name/Description	Part Number	Serial Number
1	1	EMS 4.4	Infinity Panel (Rev E)	14008
2	1	EMS 4.4	Infinity Panel (Rev D)	11752

3.1 Security Classification

Non-classified

4.0 General Test Requirements

4.1 Test Equipment

NTS-provided equipment is calibrated according to ISO/IEC 17025:2017(E) and calibration is traceable to the National Institute of Standards and Technology (NIST). Calibration records are maintained on file at NTS.

4.2 Measurement Uncertainties

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below were calculated using the approach described in CISPR 16-4-2:2003 using a coverage factor of k=2, which gives a level of confidence of approximately 95%. The levels were found to be below levels of CISPR and therefore no adjustment of the data for measurement uncertainty is required.

Measurement Type	Measurement Unit	Frequency Range	Expanded Uncertainty
Radiated Immunity	V/m	80-2,700 MHz	- 26.3%, + 29.97%
ESD	kV	N/A	± 8.6%
EFT	Voltage	N/A	± 5.98%
	Timing	N/A	± 8.60%
Surge	Voltage	N/A	± 4.92%
RF Common Mode (CDN Method)	Vrms	N/A	-12.64%, +13.33%
RF Common Mode (BCI Method)	Vrms	N/A	-13.45%, +15.32%

4.3 Notice of Deviation

In accordance with NTS' quality procedures, when the EUT is observed to exceed or display susceptibility, a Notice of Deviation (NOD) document is generated by the technician performing the test. This NOD documents the requirement, how the EUT deviated from the requirement, and allows room for resolution of the deviation.

This document is reviewed and approved by the NTS Program Manager or Engineer and the NTS Quality Assurance Representative, and then forwarded to the customer contact. Once mitigated (or passed over), the steps taken to correct the deviation (or simply instruction from the customer to continue testing) are recorded in the NOD and a copy of the NOD is integrated into the body of the report, in the appropriate location.

5.0 Test Descriptions and Results

Table 5.0-1: Summary of Test Information & Results

Section	Test	Specification	Test Facility	Test Date	Part #	Serial #	Test Result
5.1	Electrostatic Discharge	EAC 2005 VVSG	Longmont	11/20/2019 - 12/02/2019	Infinity Panel (Rev E), Infinity Panel (Rev D)	14008, 11752	Complies
5.2	Radiated RF Immunity	EAC 2005 VVSG	Longmont	11/11/2019 - 11/19/2019	Infinity Panel (Rev E), Infinity Panel (Rev D)	14008, 11752	Complies
5.3	Electrical Fast Transient/Burst	EAC 2005 VVSG	Longmont	11/13/2019 – 11/21/2019	Infinity Panel (Rev E), Infinity Panel (Rev D)	14008, 11752	Complies
5.4	Surge Immunity	EAC 2005 VVSG	Longmont	11/14/2019 – 11/22/2019	Infinity Panel (Rev E), Infinity Panel (Rev D)	14008, 11752	Complies
5.5	Conducted RF Immunity	EAC 2005 VVSG	Longmont	11/13/2019 – 11/20/2019	Infinity Panel (Rev E), Infinity Panel (Rev D)	14008, 11752	Complies
5.6	Power Frequency H-field Immunity	EAC 2005 VVSG	Longmont	11/20/2019 - 12/02/2019	Infinity Panel (Rev E), Infinity Panel (Rev D)	14008, 11752	Complies
5.7	Voltage Dips and Interrupts	EAC 2005 VVSG	Longmont	11/13/2019	Infinity Panel (Rev E), Infinity Panel (Rev D)	14008, 11752	Complies

*The decision rule used to state compliance is in accordance with the test specification used for testing.

5.1 Electrostatic Discharge

5.1.1 Rev D

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019
Temperature:	23˚C Humidity: 34%	Pressure:	837 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp mode		
Test Engineer:	T. Wittig		

PR108417-4-2.doc FR0100

Test Location	Voltage Level (kV)	Polarity +	Polarity -	Number of Pulses	Pulses Per Second	Comments	Criteria Met	Pass / Fail
Indirect Discharge Points – All pieces of equipment was tested on 4 sides								
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	---	---	No contact discharges found	---	---
Figure A3	8	x	x	---	---	No contact discharges found	---	---
Figure A4	8	x	x	---	---	No contact discharges found	---	---
Figure A5	8	x	x	---	---	No contact discharges found	---	---
Figure A6	8	x	x	---	---	No contact discharges found	---	---
Figure A7	8	x	x	---	---	No contact discharges found	---	---
Figure A8	8	x	x	---	---	No contact discharges found	---	---
Figure A9	8	x	x	---	---	No contact discharges found	---	---
Figure A10	8	x	x	---	---	No contact discharges found	---	---
Figure A11	8	x	x	---	---	No contact discharges found	---	---
Figure A12	8	x	x	---	---	Printer was not tested	---	---
Figure A13	8	x	x	---	---	Printer was not tested	---	---
Air Discharge Points - **BLUE** Arrows.								
Figure A2	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A3	2, 4, 8, 15	x	x	---	---	No air discharges found	---	---
Figure A4	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A5	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A6	2, 4, 8, 15	x	x	10	1		A	Pass
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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019
Temperature:	23˚C Humidity: 34%	Pressure:	837 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp mode		
Test Engineer:	T. Wittig		

PR108417-4-2.doc FR0100

Test Location	Voltage Level (kV)	Polarity +	Polarity -	Number of Pulses	Pulses Per Second	Comments	Criteria Met	Pass / Fail
Figure A10	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A11	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A12	2, 4, 8, 15	x	x	---	---	Printer was not tested – per client	---	---
Figure A13	2, 4, 8, 15	x	x	---	---	Printer was not tested – per client	---	---

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

Figure A1. Electrostatic Discharge Test Setup

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

Figure A2. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

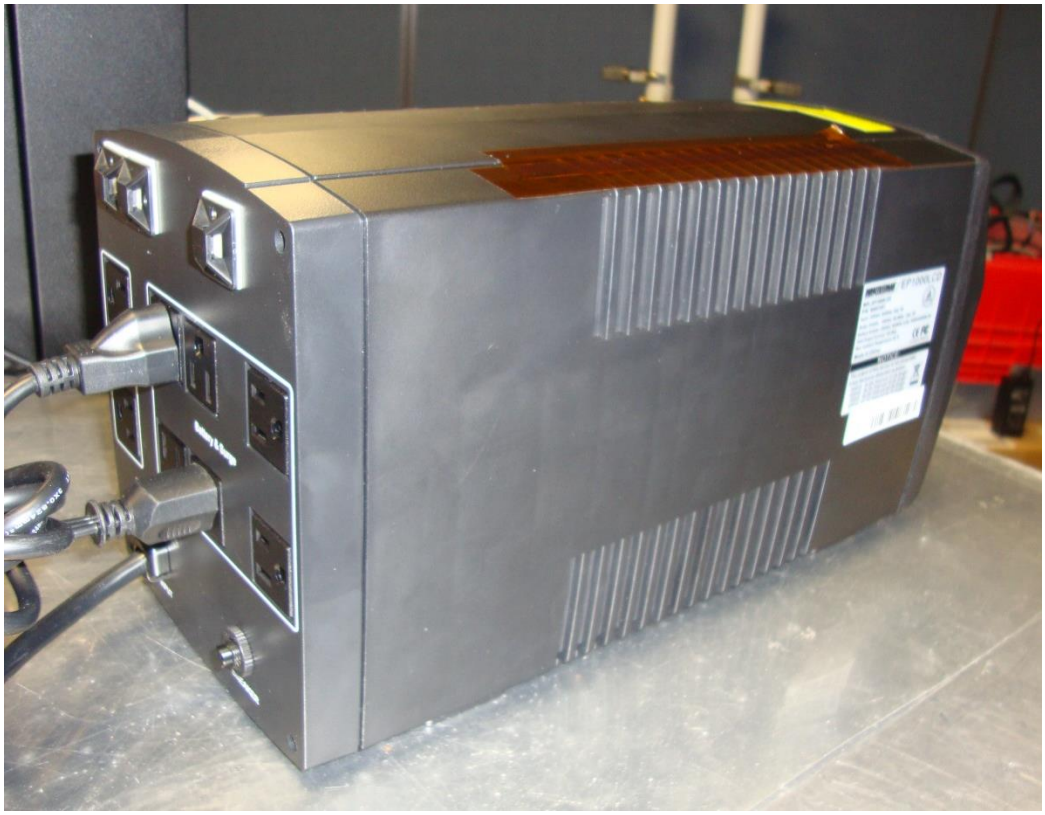


Figure A3. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

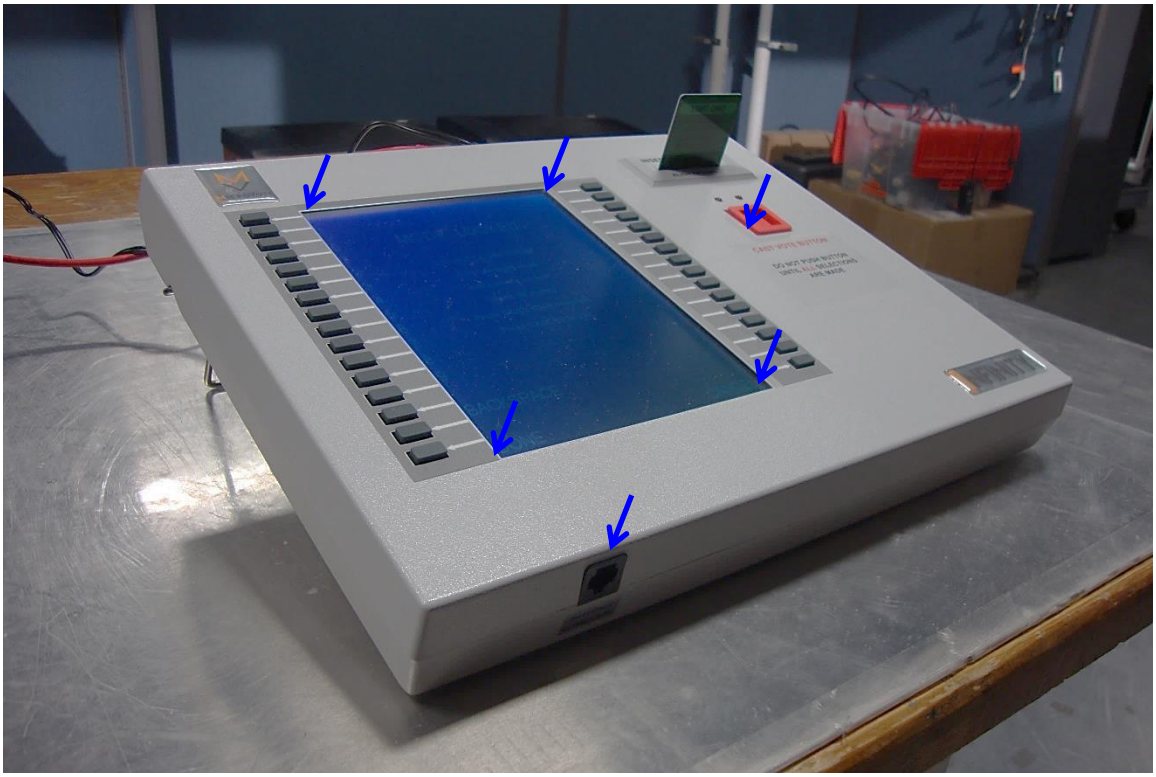


Figure A4. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

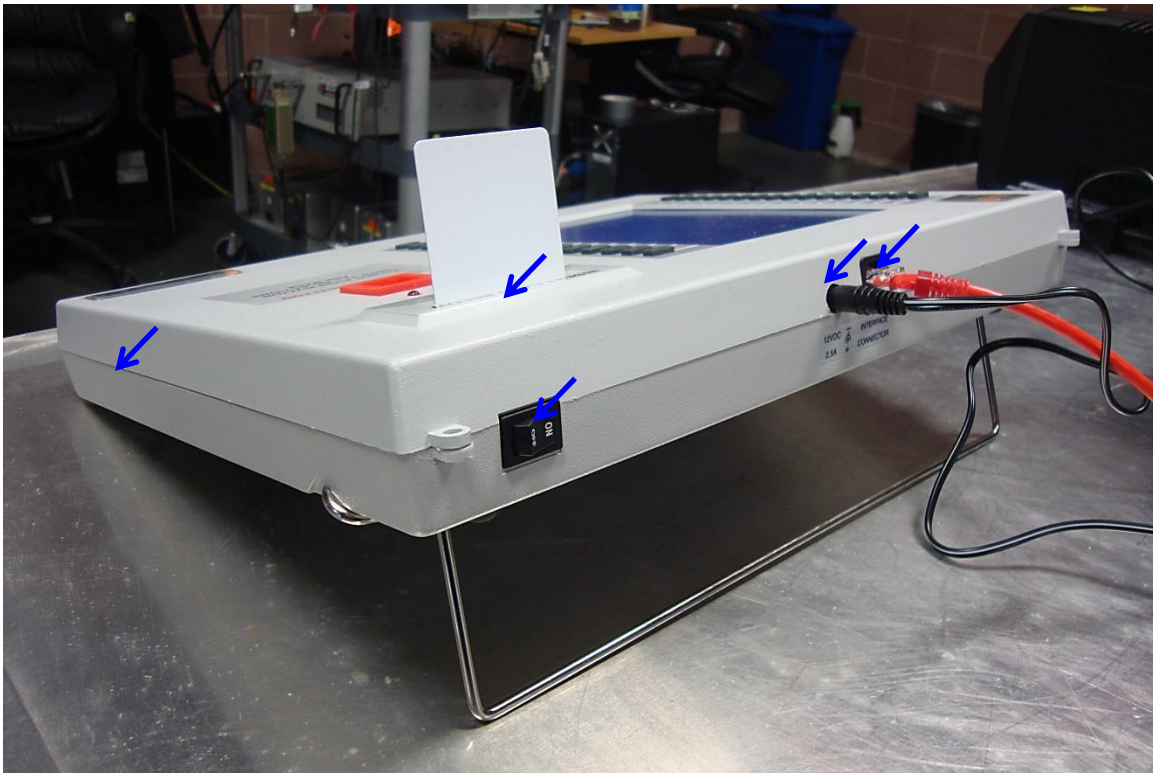


Figure A5. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

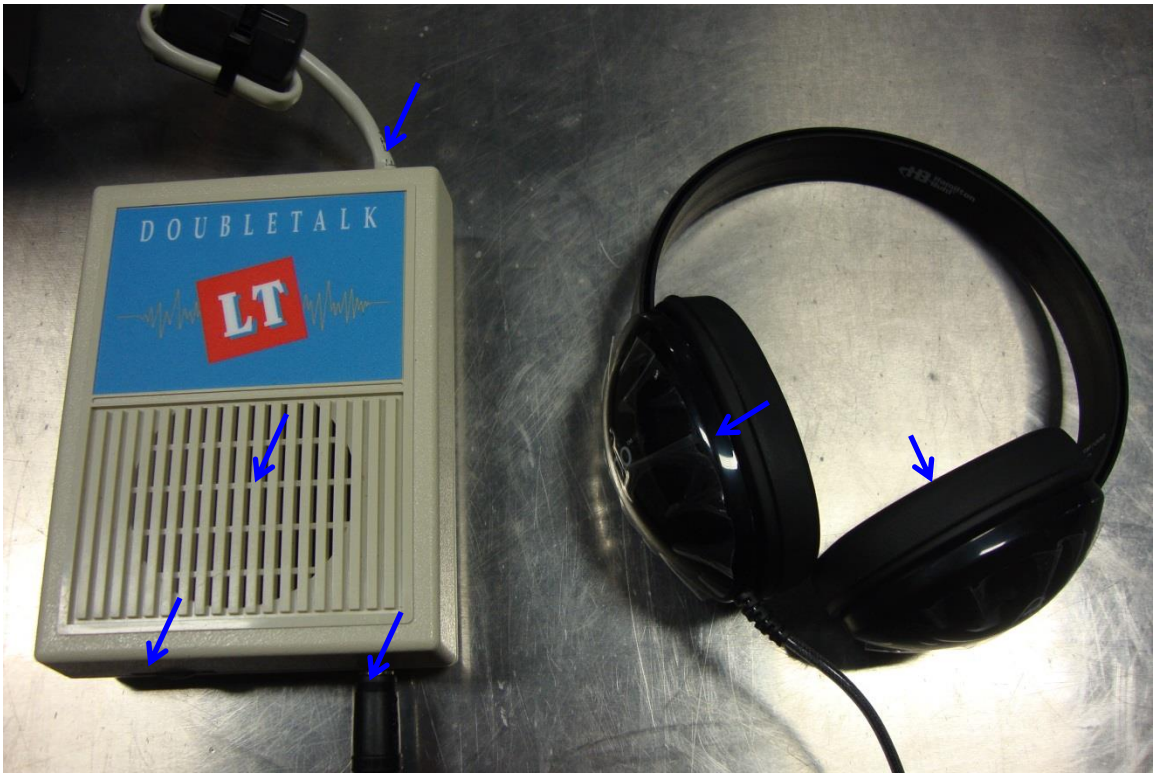


Figure A6. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

Figure A7. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

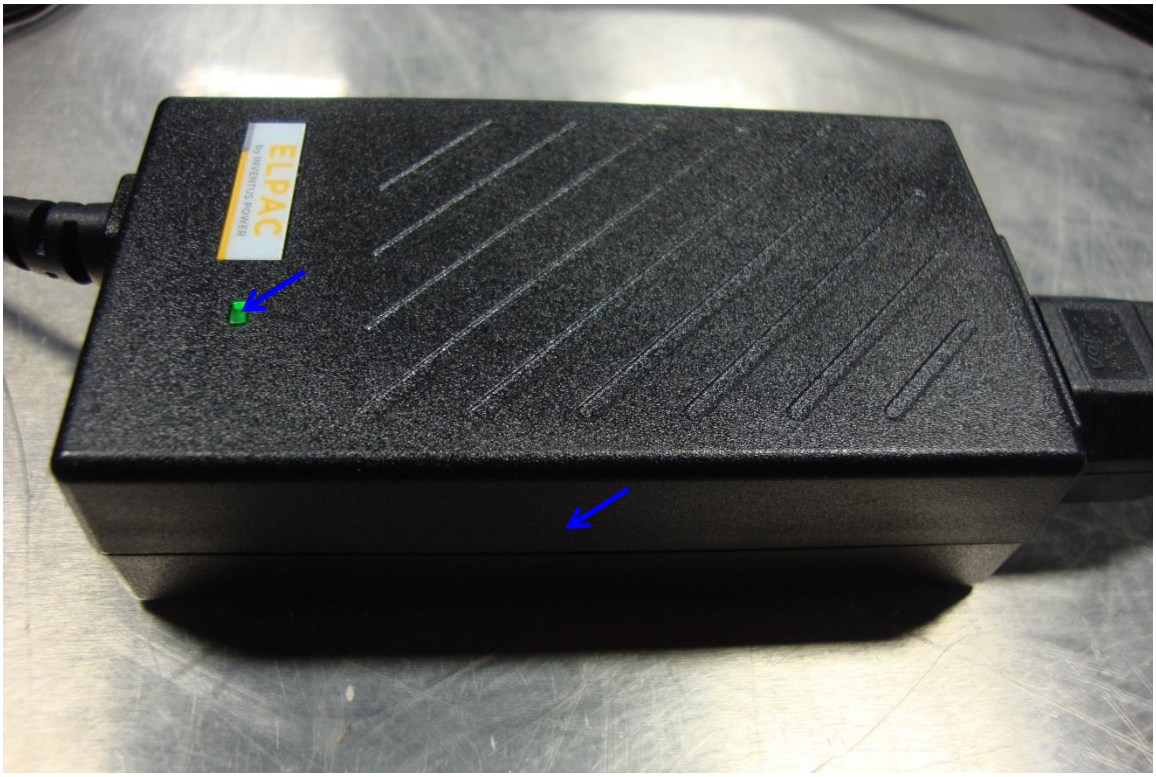


Figure A8. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

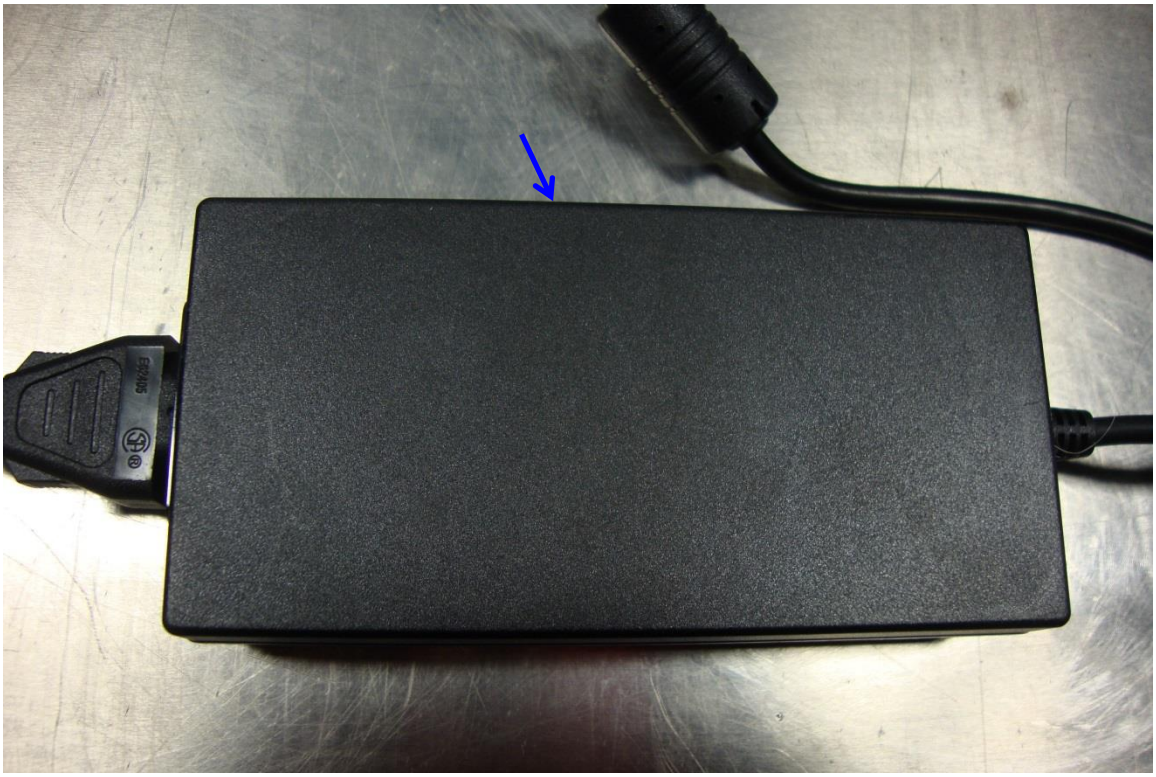


Figure A9. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

Figure A10. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

Figure A11. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

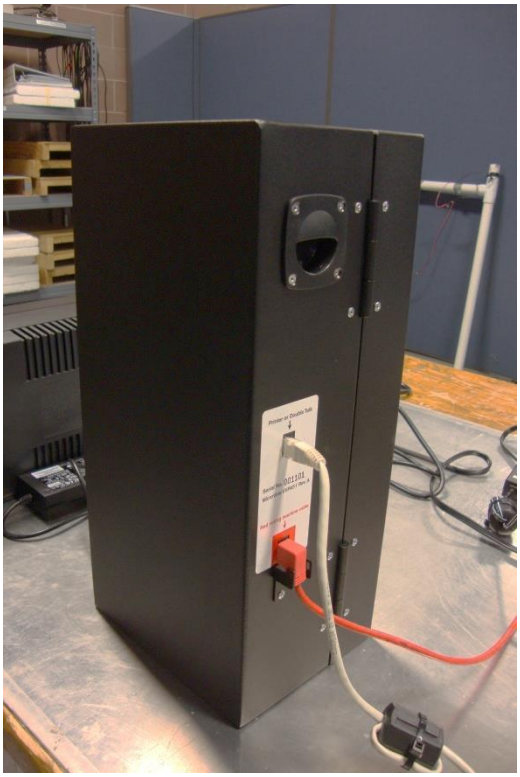


Figure A12. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

Figure A13. Electrostatic Discharge Test Points

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-2.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1281	EMC Partner	ESD3000	284	ESD Test System	01/16/2019	01/16/2020
1038	Fluke	85	66180455	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Programmable Power Supply	08/02/2019	08/02/2020

5.1.2 Rev E

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019
Temperature:	23.6˚C Humidity: 35%	Pressure:	826 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-2.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	10	1		A	Pass
Figure A7	8	x	x	10	1	No discharge points found.	---	---
Figure A8	8	x	x	10	1		A	Pass
Figure A9	8	x	x	10	1	No discharge points found.	---	---
Figure A10	8	x	x	10	1	No discharge points found.	---	---
Figure A11	8	x	x	10	1	No discharge points found.	---	---
Figure A12	8	x	x	10	1	No discharge points found.	---	---
Figure A13	8	x	x	10	1	No discharge points found.	---	---
Figure A14	8	x	x	10	1	No discharge points found.	---	---
Air Discharge Points - **BLUE** Arrows.								
Figure A2	2, 4, 8, 15	x	x	10	1	No discharge points found.	---	---
Figure A3	2, 4, 8, 15	x	x	10	1	No discharge points found.	---	---
Figure A4	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A5	2, 4, 8, 15	x	x	10	1	No discharge points found.	---	---
Figure A6	2, 4, 8, 15	x	x	10	1	No discharge points found.	---	---
Figure A7	2, 4, 8, 15	x	x	10	1	No discharge points found.	---	---
Figure A8	2, 4, 8, 15	x	x	10	1	No discharge points found.	---	---
Figure A9	2, 4, 8, 15	x	x	10	1	No discharge points found.	---	---

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019
Temperature:	23.6˚C Humidity: 35%	Pressure:	826 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-2.doc FR0100

Test Location	Voltage Level (kV)	Polarity +	Polarity -	Number of Pulses	Pulses Per Second	Comments	Criteria Met	Pass / Fail
Figure A10	2, 4, 8, 15	x	x	10	1		A	Pass
Figure A11	2, 4, 8, 15	x	x	10	1	No discharge points found.	---	---
Figure A12	2, 4, 8, 15	x	x	10	1		B	Pass
Figure A13	2, 4, 8, 15	x	x	10	1		A	Pass
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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

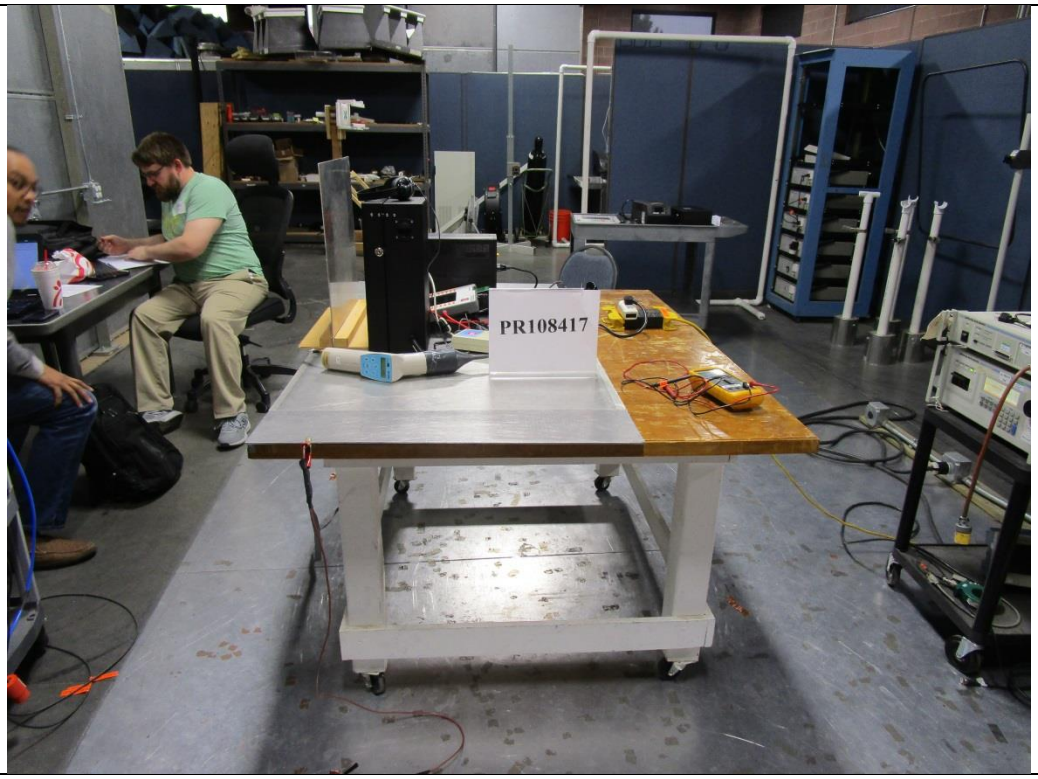


Figure A1. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

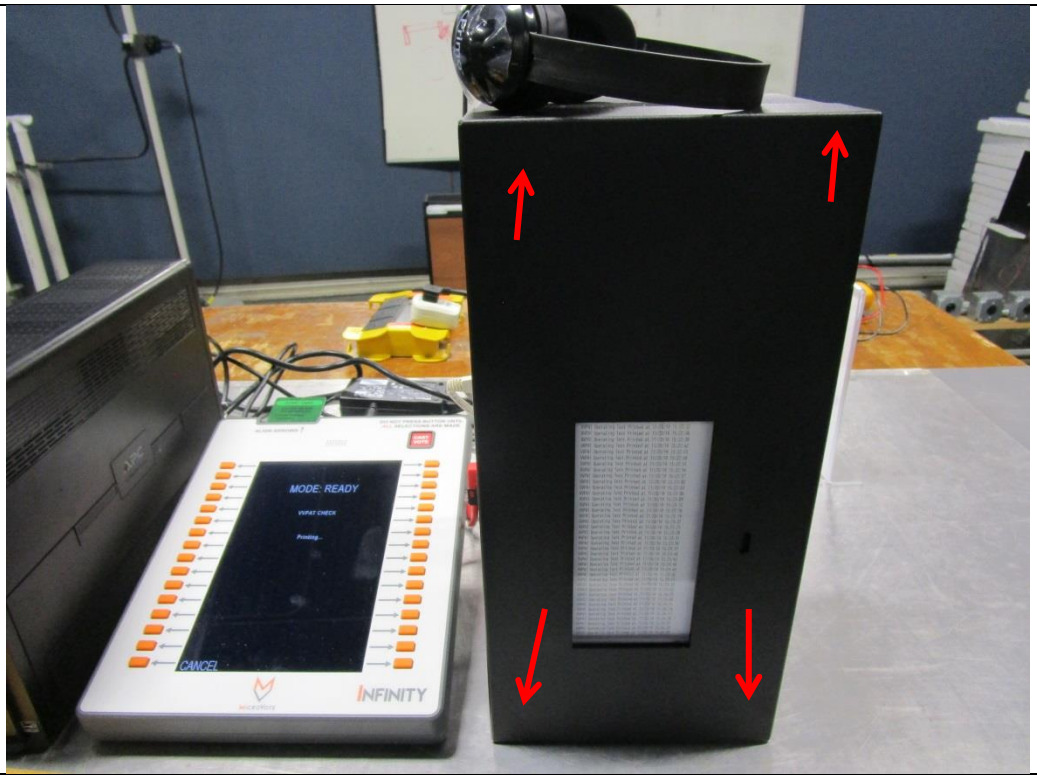


Figure A2. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

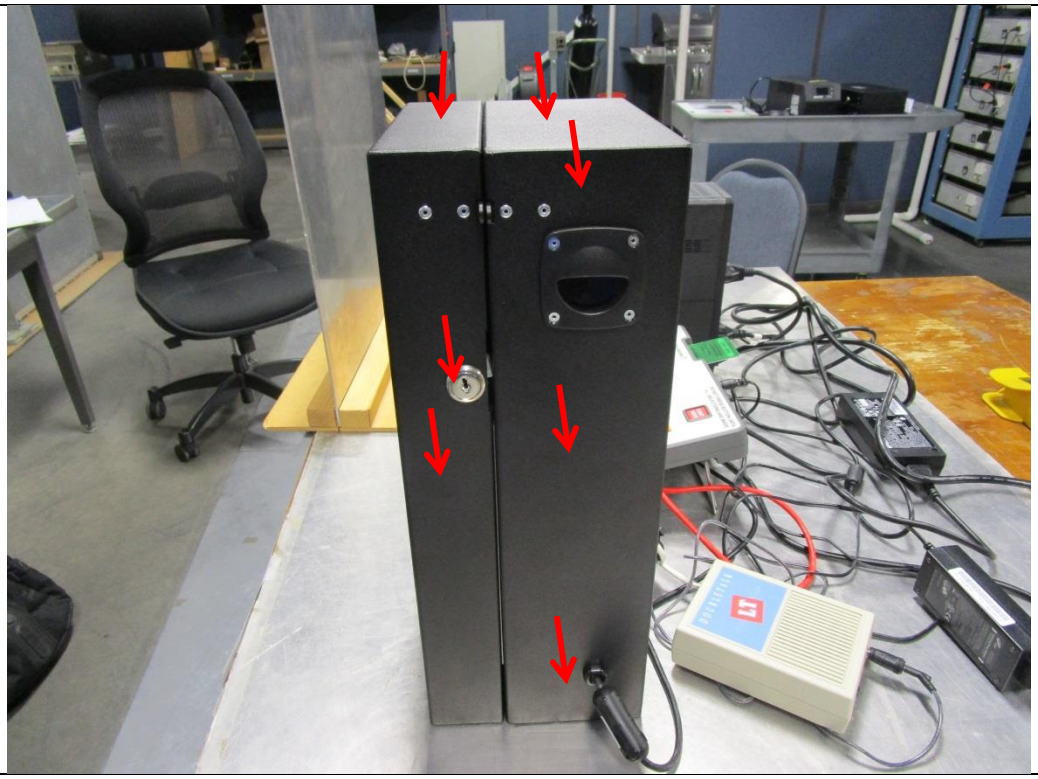


Figure A3. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

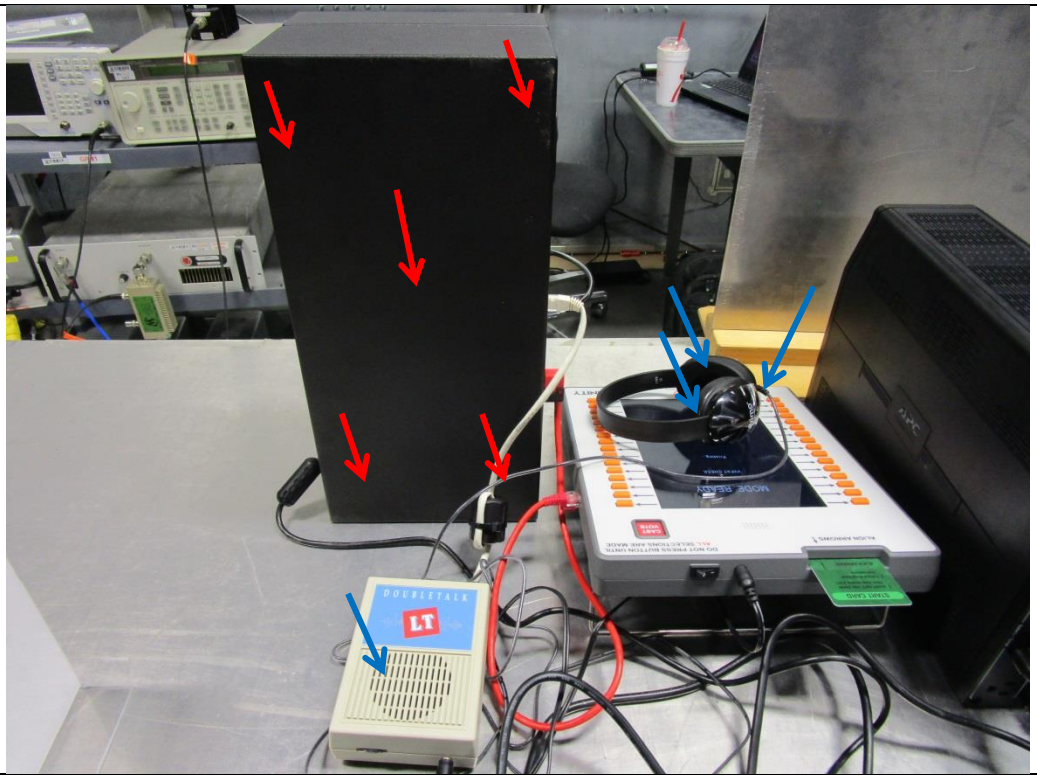


Figure A4. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

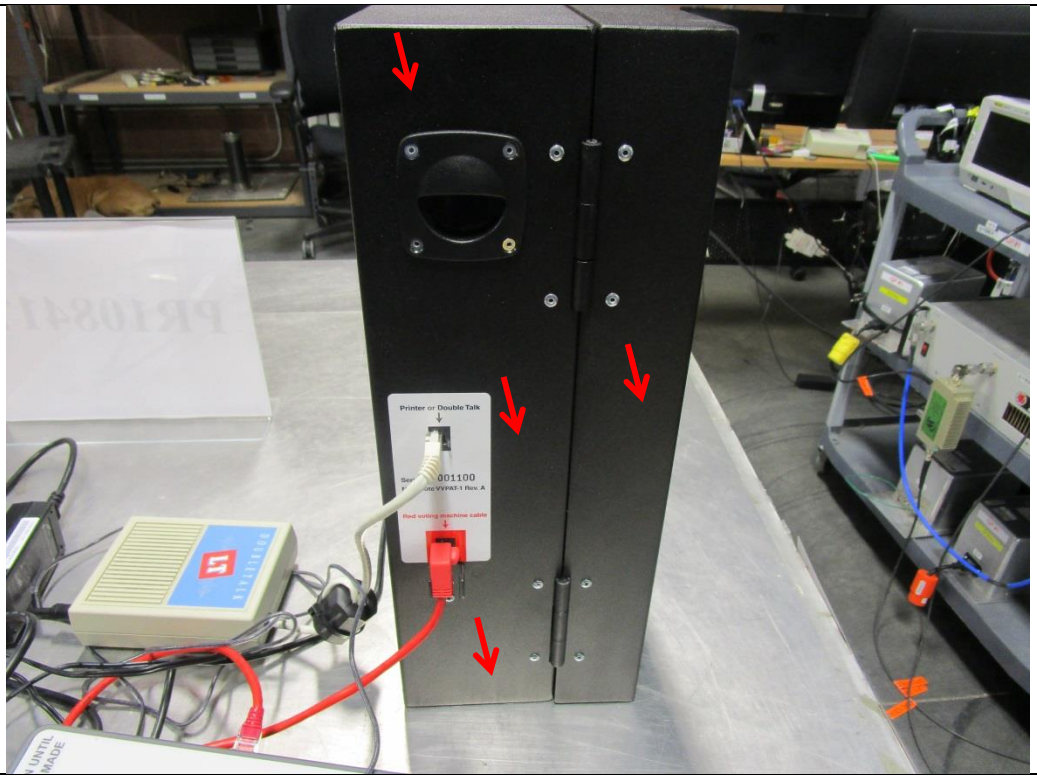


Figure A5. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

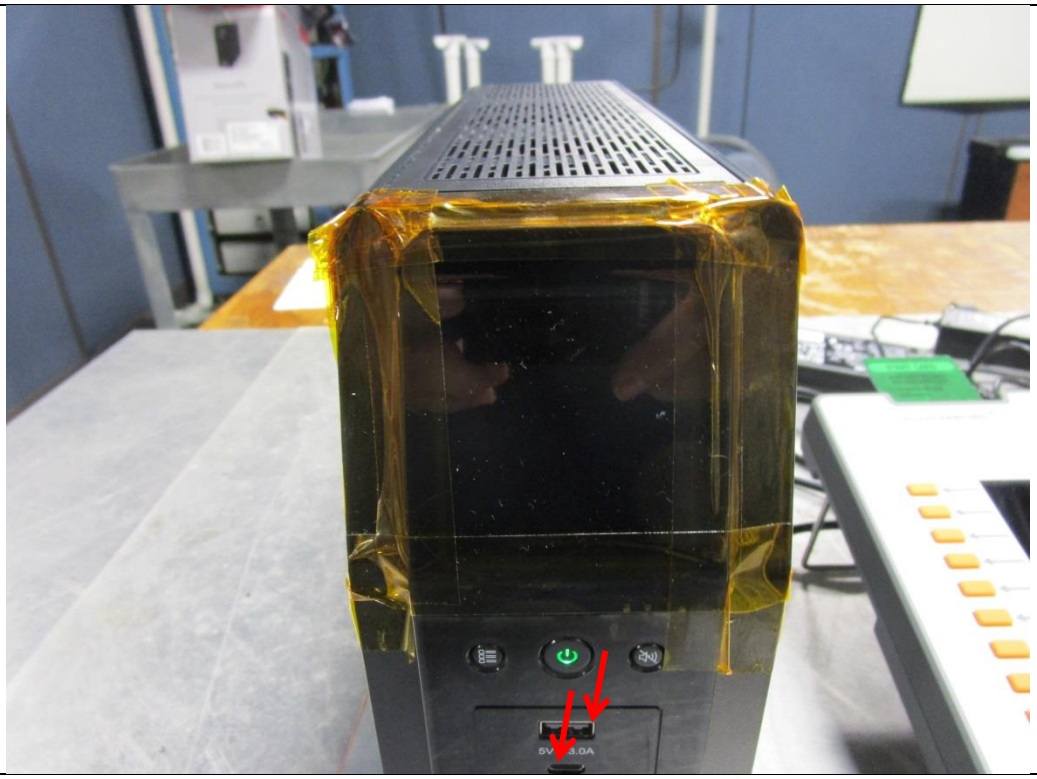


Figure A6. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

Figure A7. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

Figure A8. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

Figure A9. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

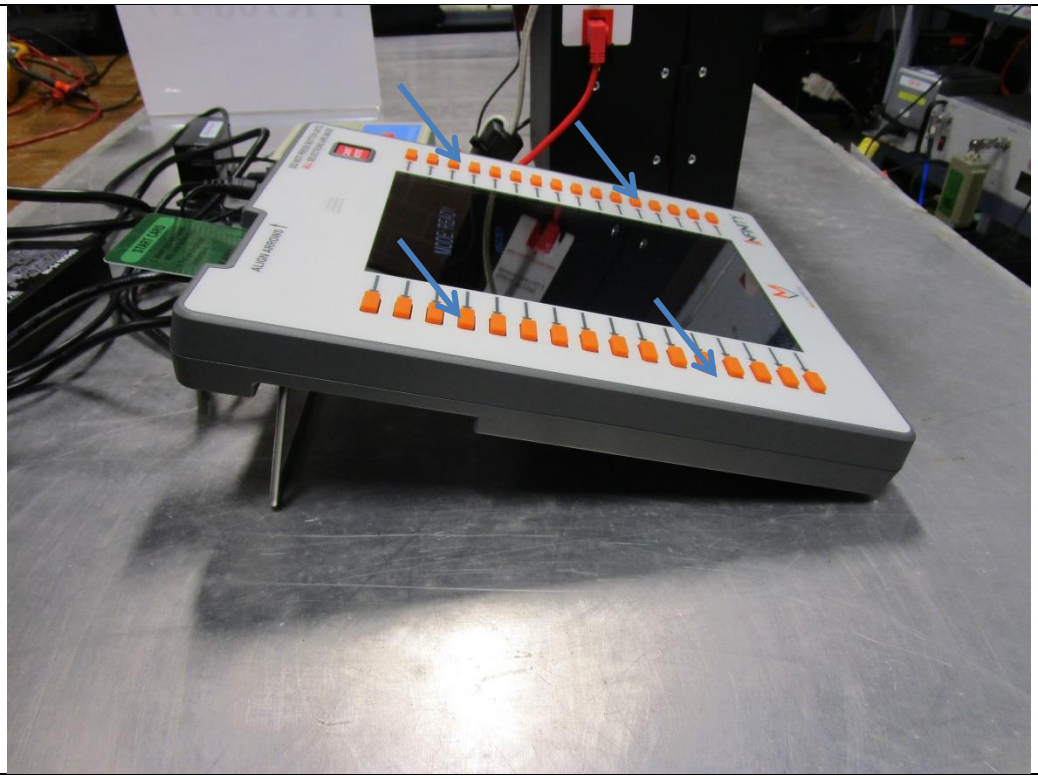


Figure A10. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

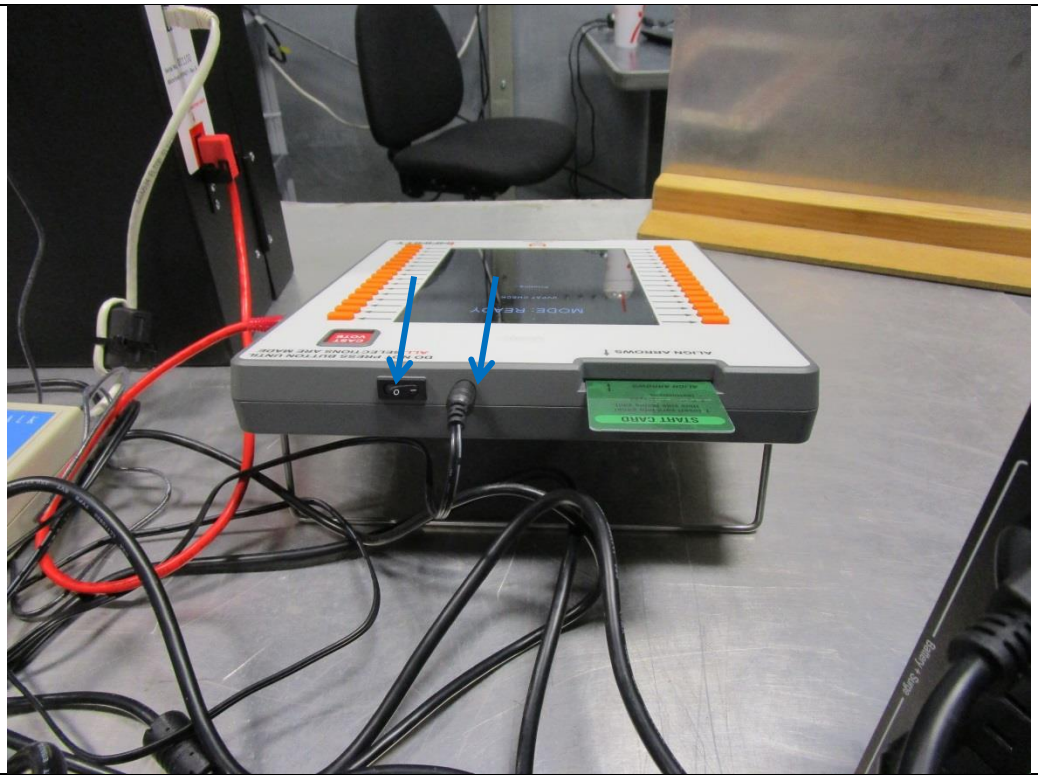


Figure A11. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

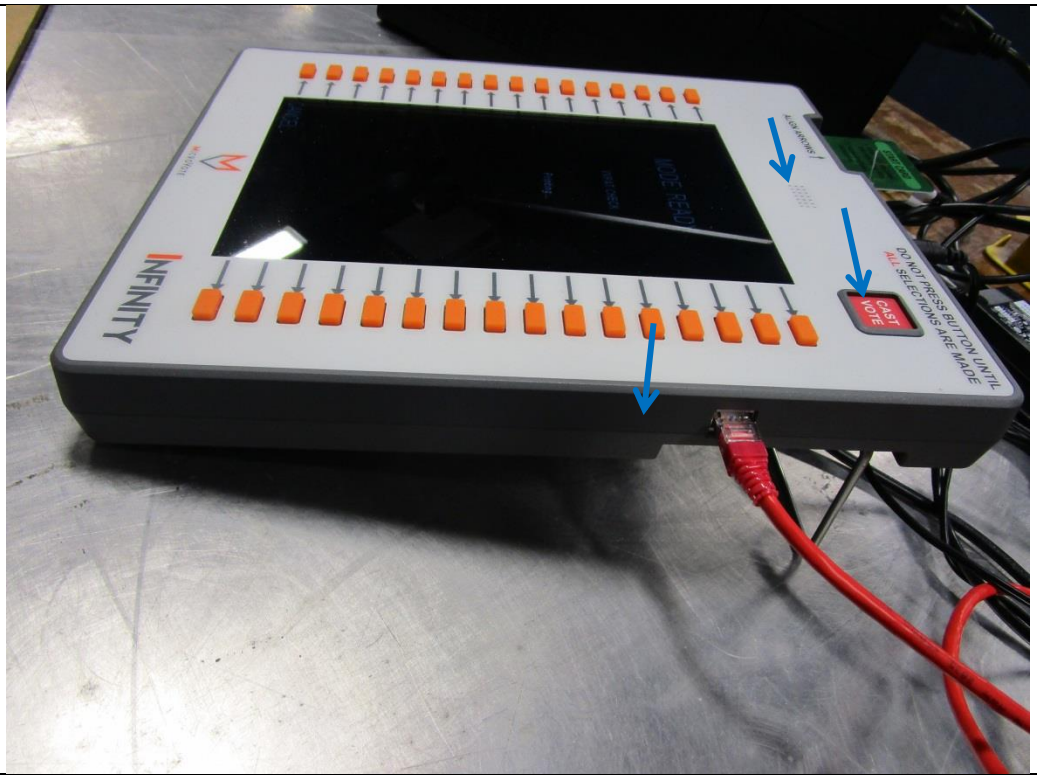


Figure A12. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

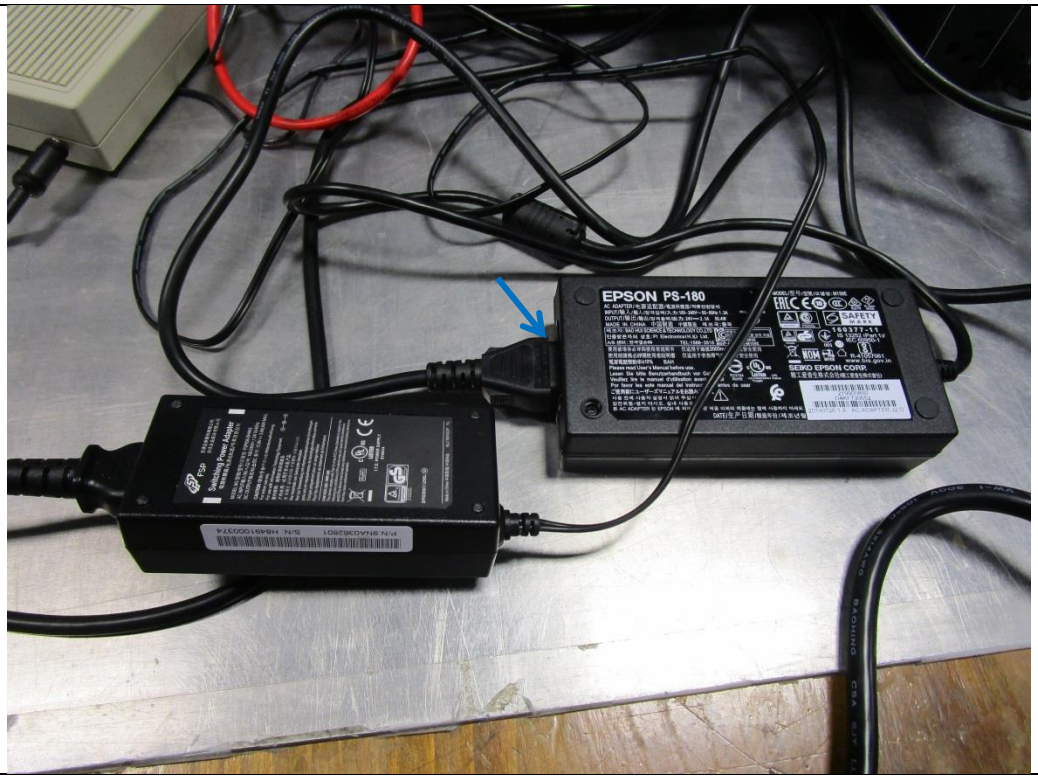


Figure A13. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

Figure A14. Electrostatic Discharge Test Setup.

Electrostatic Discharge per IEC / EN 61000-4-2

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-2.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1281	EMC Partner	ESD3000	284	ESD Test System	01/16/2019	01/16/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.2 Radiated RF Immunity

5.2.1 Rev D

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Mancy Hammond	Test Area:	10m2
Model:	Infinity Panel Rev D.	S/N:	11752
	Microvote		001100
	EP1000LCD UPS		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 18, 2019
Temperature:	25.1˚C Humidity: 22%	Pressure:	830mb
Input Voltage:	120 VAC / 60 Hz		
Configuration of Unit:	Printing time stamp Rev E Panel		
Test Technician:	Kevin Johnson		

PR108417-4-3.doc FR0100

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:	PR108417
Customer Representative:	Mancy Hammond	Test Area:	10m2
Model:	Infinity Panel Rev D.	S/N:	11752
	Microvote		001100
	EP1000LCD UPS		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 18, 2019

PR108417-4-3.doc FR0100

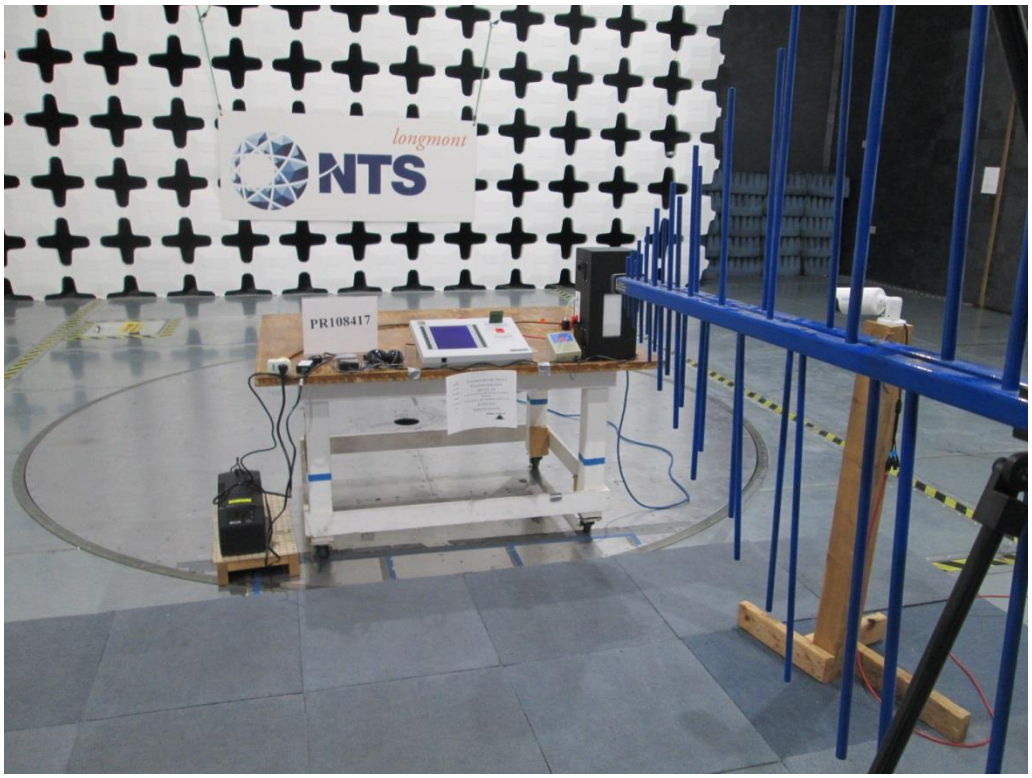


Figure B1. Radiated RF Immunity Test Setup – Front Side.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Mancy Hammond	Test Area:	10m2
Model:	Infinity Panel Rev D.	S/N:	11752
	Microvote		001100
	EP1000LCD UPS		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 18, 2019

PR108417-4-3.doc FR0100

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

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Mancy Hammond	Test Area:	10m2
Model:	Infinity Panel Rev D.	S/N:	11752
	Microvote		001100
	EP1000LCD UPS		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 18, 2019

PR108417-4-3.doc FR0100

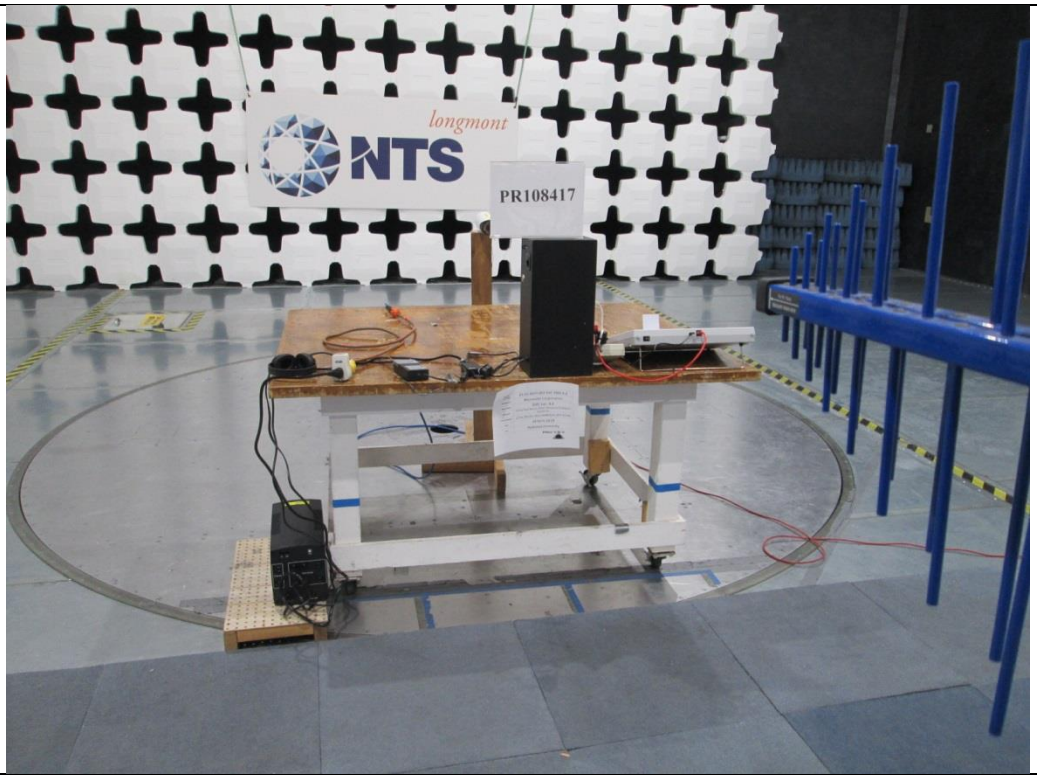


Figure B1. Radiated RF Immunity Test Setup – Back Side.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Mancy Hammond	Test Area:	10m2
Model:	Infinity Panel Rev D.	S/N:	11752
	Microvote		001100
	EP1000LCD UPS		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 18, 2019

PR108417-4-3.doc FR0100

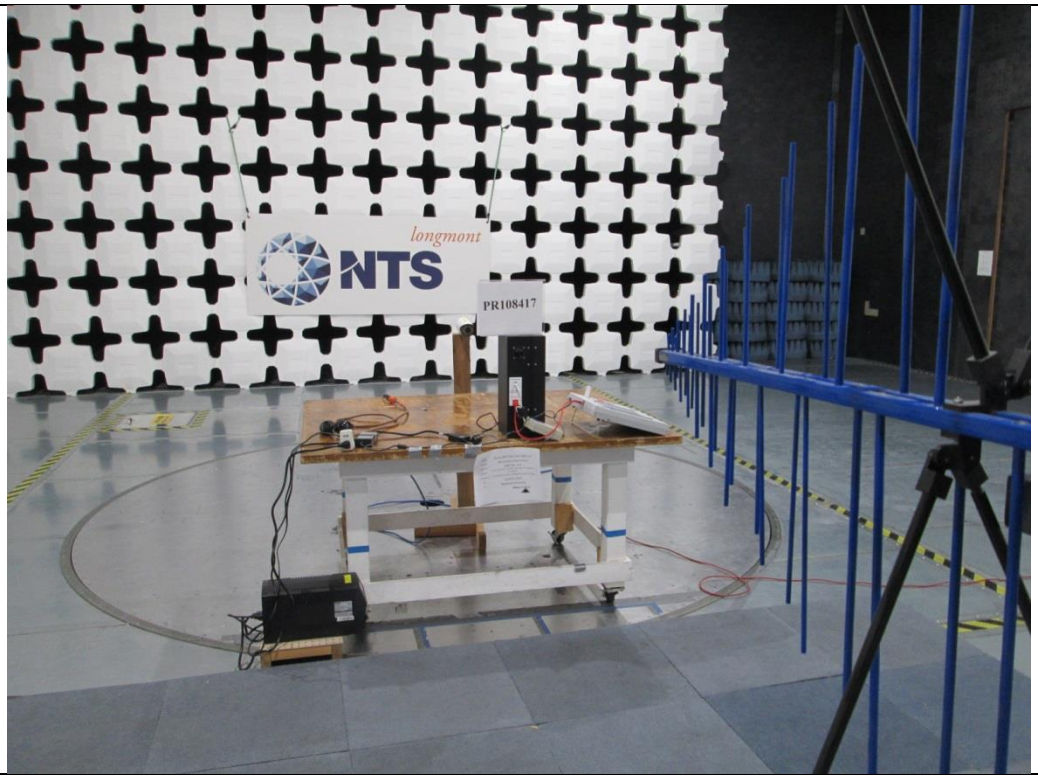


Figure B1. Radiated RF Immunity Test Setup – Left Side.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Mancy Hammond	Test Area:	10m2
Model:	Infinity Panel Rev D.	S/N:	11752
	Microvote		001100
	EP1000LCD UPS		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 18, 2019

PR108417-4-3.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1005	EMCO	3140	1012	Biconilog Antenna	NA	NA
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
1309	Amplifier Research	150W100BM3	303844	Amplifier 150W, 80-1000MHz	NA	NA
1396	CIR Enterprises	10m Chamber #2	002	10m Chamber with 4m turntable	03/29/2018	03/29/2020
1455	Giga-tronics	GT-8888A	8888A03337	10 MHz to 8 GHz, +20 dBm, 25 Vdc Power Meter	04/10/2019	04/10/2020
1578	Werlatone	C3908-10	107952	1500 Watts, 50 dB Dual Directional Coupler (80MHz	08/26/2019	08/26/2020
1584	IFR	2023B	202303/034	Signal Generator 9 kHz - 2.05 GHz	08/27/2019	08/27/2020
1900	EXTECH	445703	1218	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.2.2 Rev E (APC BN1100M2)

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk+Headphone		MVT-DT-001
	APC BN1100M2		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Tuesday, November 19, 2019
Temperature:	21.7˚C Humidity: 27%	Pressure:	832mb
Input Voltage:	120 VAC / 60 Hz		
Configuration of Unit:	Printing time stamp		
Test Technician:	Steve Cristanelli		

PR108417-4-3.doc FR0100

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**	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**	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**	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**	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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk+Headphone		MVT-DT-001
	APC BN1100M2		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Tuesday, November 19, 2019

PR108417-4-3.doc FR0100

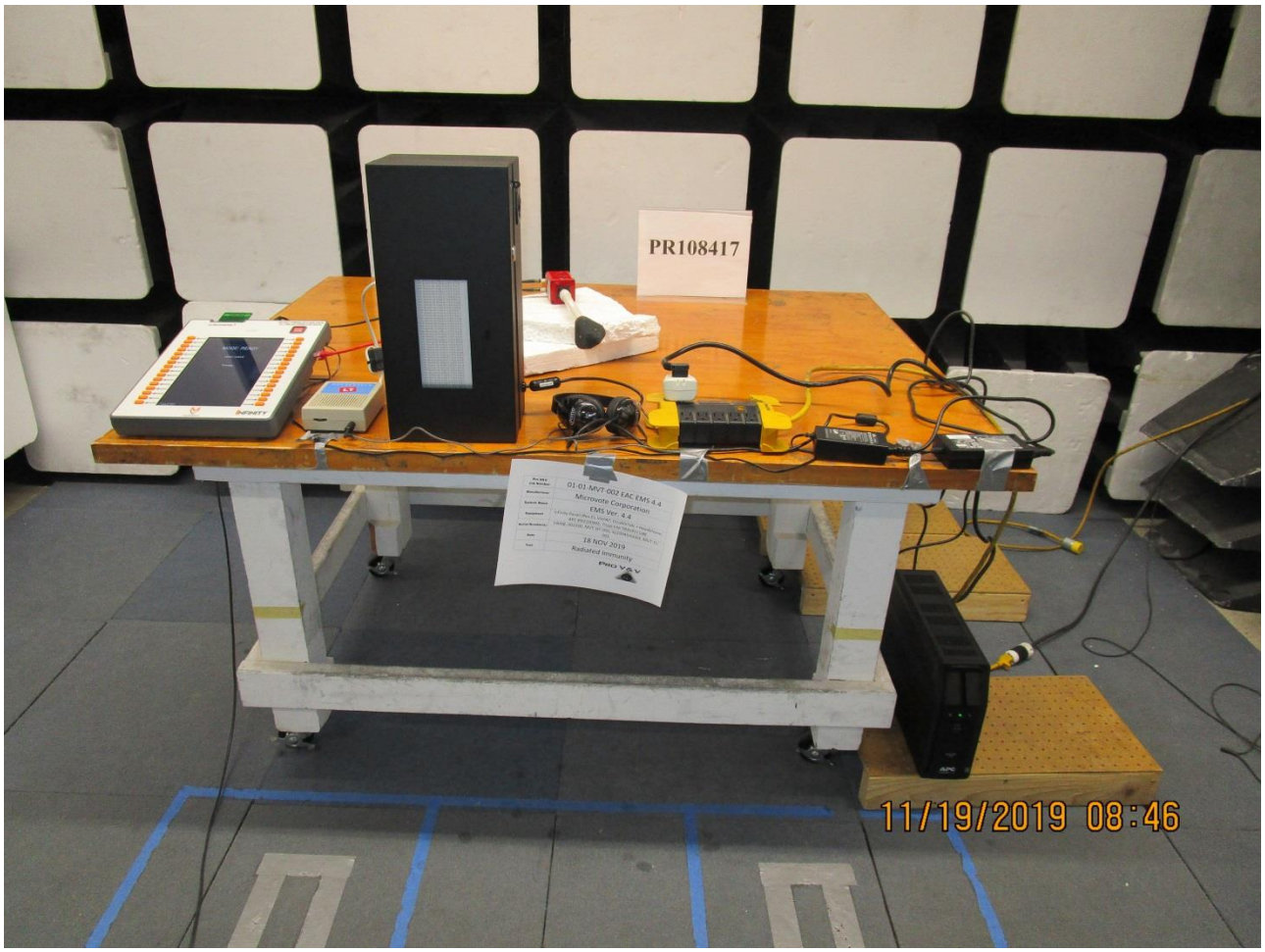


*Figure B1. Radiated RF Immunity Test Setup – Front Side.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk+Headphone		MVT-DT-001
	APC BN1100M2		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Tuesday, November 19, 2019

PR108417-4-3.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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk+Headphone		MVT-DT-001
	APC BN1100M2		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Tuesday, November 19, 2019

PR108417-4-3.doc FR0100

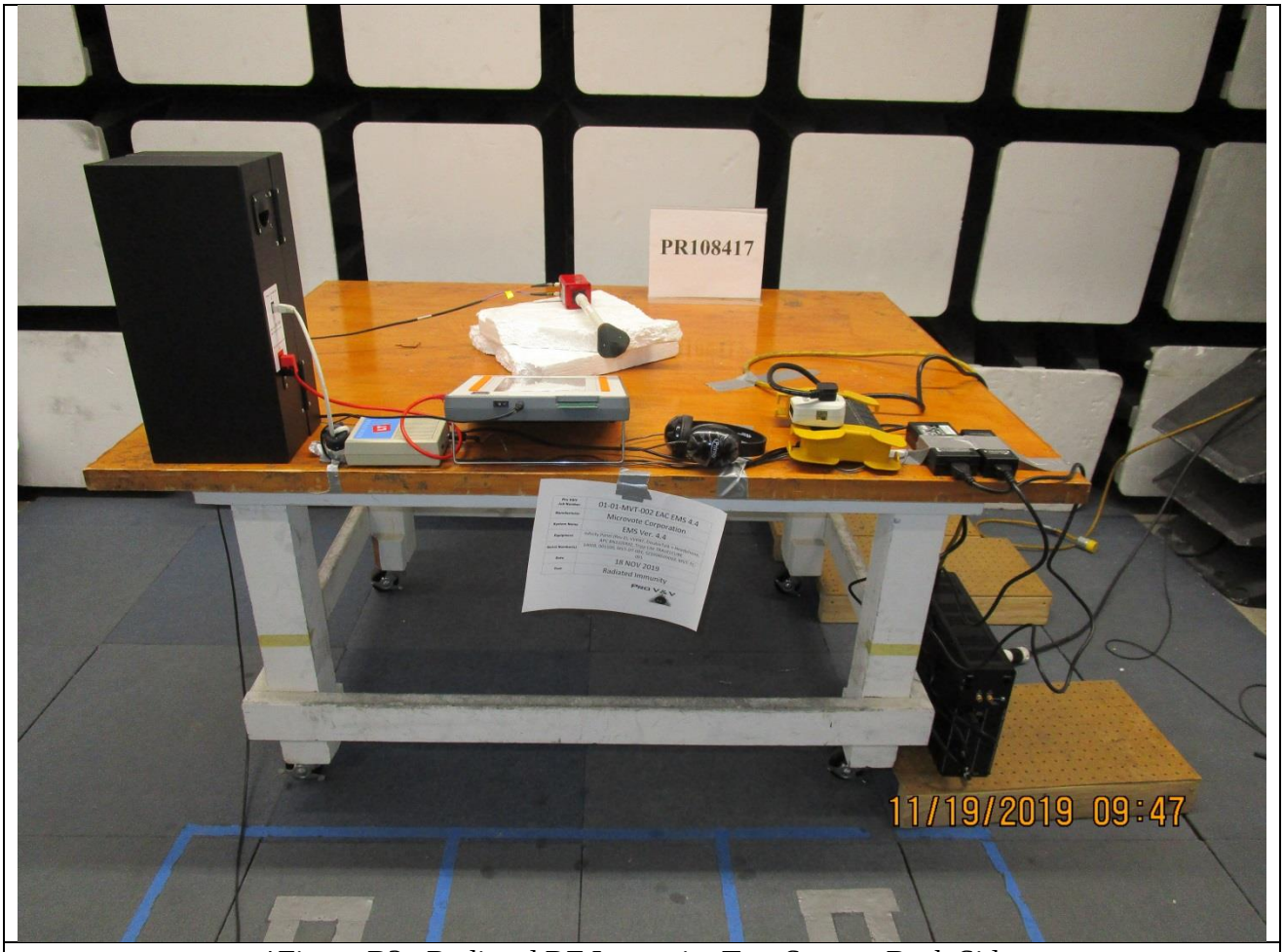


*Figure B3. Radiated RF Immunity Test Setup – Back Side.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk+Headphone		MVT-DT-001
	APC BN1100M2		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Tuesday, November 19, 2019

PR108417-4-3.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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk+Headphone		MVT-DT-001
	APC BN1100M2		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Tuesday, November 19, 2019

PR108417-4-3.doc FR0100

*Figure B5. Radiated RF Immunity Test Setup – Ferrite #1.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk+Headphone		MVT-DT-001
	APC BN1100M2		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Tuesday, November 19, 2019

PR108417-4-3.doc FR0100

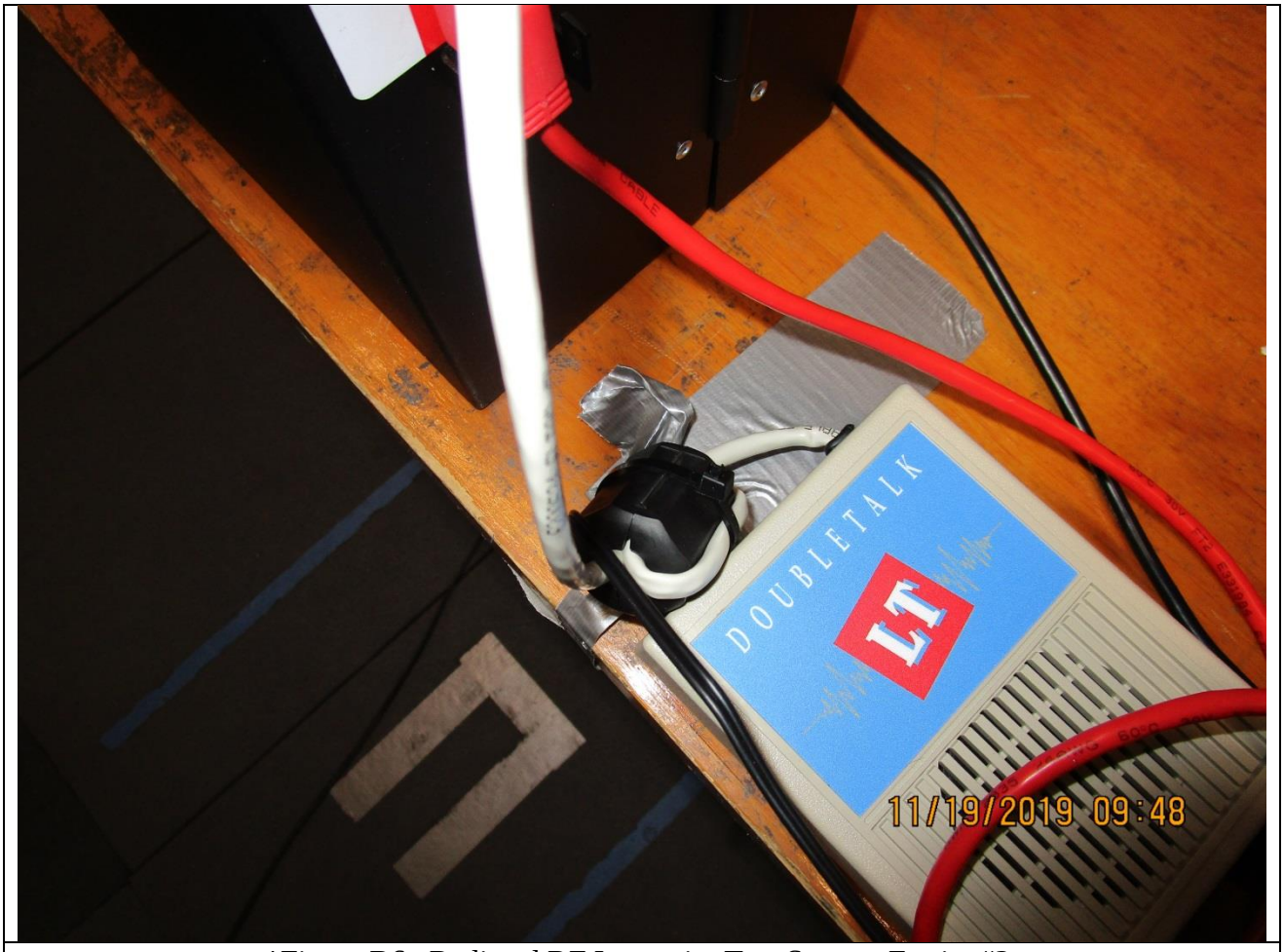


*Figure B6. Radiated RF Immunity Test Setup – Ferrite #2.

* Customer Approved Setup

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk+Headphone		MVT-DT-001
	APC BN1100M2		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Tuesday, November 19, 2019

PR108417-4-3.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1018	Pacific Power	TMX-125	207	2.5 kVA, 50 Hz Power Source	NA	NA
1181	EMCI	RFS	V2.5.8	Initial Release 02 July 2004	NA	NA
1323	Rohde&Schwarz	SMT03	100204	Signal Generator, 5 kHz to 3 GHz	02/07/2019	02/07/2020
1453	Giga-tronics	GT-8888A	8888A0336	10 MHz to 8 GHz, +20 dBm, 25 Vdc Power Meter	03/26/2019	03/26/2020
1456	Werlatone	C3908-10	98095	1500 Watts, 50 dB Dual Directional Coupler	03/26/2019	03/26/2020
1476	ETS Lindgren	HI-6053	00144805	10 MHz to 40 GHz Isotropic Electric Field Probe	03/27/2019	03/27/2020
1478	Ophir	5127F	1100	RF Amplifier, 200 Watt, 20 - 1000 MHz	NA	NA
1722	ETS -Lindgren	3142B	1624	Antenna	NA	NA
1761	Braden Shielding Systems	RF Shield Room	N/A	GP0	04/22/2019	04/22/2020
1902	EXTECH	445703	1218-1	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.2.3 Rev E (MMAVR1500)

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019
Temperature:	18.2˚C Humidity: 28%	Pressure:	850mb
Input Voltage:	120 VAC / 60 Hz		
Configuration of Unit:	Printing time stamp		
Test Technician:	Steve Cristanelli		

PR108417-4-3.doc FR0100

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** Orig UPS Printer skips 199MHz thru 207MHz	A	Pass
199 - 207	AM	80	1kHz	Sine	1	10	V	10	Time stamp stops at 199 – 207MHz	A	Pass
199 - 207	AM	80	1kHz	Sine	1	10	V	10	UPS removed	A	Pass
199 - 207	AM	80	1kHz	Sine	1	10	V	10	Broke config Recreate for client Time stamp stops at 201 – 203MHz	A	Pass
190 - 207	AM	80	1kHz	Sine	1	10	V	10	UPS on floor	A	Pass
190 - 218	AM	80	1kHz	Sine	1	10	V	3	New UPS	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	Repeat testing w/ new UPS	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	UPS on floor	A	Pass*
80 - 1000	AM	80	1kHz	Sine	1	10	H	3	Orig UPS	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3	Repeat testing w/ new UPS Time stamp stops at 243 – 251MHz	A	Pass
239- 251	AM	80	1kHz	Sine	1	10	H	3	Repeat testing w/ new UPS Time stamp stops at 243	A	Pass
239 - 251	AM	80	1kHz	Sine	1	10	H	3	New cable	A	Pass

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019
Temperature:	18.2˚C Humidity: 28%	Pressure:	850mb
Input Voltage:	120 VAC / 60 Hz		
Configuration of Unit:	Printing time stamp		
Test Technician:	Steve Cristanelli		

PR108417-4-3.doc FR0100

Frequency (MHz)	Modulation				Step Size (%)	Field (V/m)	Polarity (V or H)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq	Form							
									Time stamp stops at RF 243		
239 - 251	AM	80	1kHz	Sine	1	10	H	3	Old cable no doubletalk Time stamp stops at 243MHz	A	Pass
239 - 251	AM	80	1kHz	Sine	1	10	H	3	Old cable tin foil on Epson PS 2 Time stamp stops at 243MHz	A	Pass
239 - 251	AM	80	1kHz	Sine	1	10	H	3	UPS Removed	A	Pass
239 - 251	AM	80	1kHz	Sine	1	10	H	3	UPS on floor	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3	UPS on floor	A	Pass*
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Right** Orig UPS	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	UPS on floor	A	Pass*
80 - 199	AM	80	1kHz	Sine	1	10	H	3	UPS on floor Printer skips 199MHz thru 205	A	Pass*
184 - 231	AM	80	1kHz	Sine	1	10	H	3	Removed UPS Printer skips 199MHz thru 205	A	Pass
184 - 231	AM	80	1kHz	Sine	1	10	H	3	Removed UPS Rev D panel Printer skips 199MHz thru 205	A	Pass
184 - 231	AM	80	1kHz	Sine	1	10	H	3	Removed UPS Rev D panel Cable w/ferrite	A	Pass

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019
Temperature:	18.2˚C Humidity: 28%	Pressure:	850mb
Input Voltage:	120 VAC / 60 Hz		
Configuration of Unit:	Printing time stamp		
Test Technician:	Steve Cristanelli		

PR108417-4-3.doc FR0100

Frequency (MHz)	Modulation				Step Size (%)	Field (V/m)	Polarity (V or H)	Dwell (sec)	Comments	Criteria Met	Pass / Fail
	Type	%	Freq	Form							
									Printer skips 195MHz thru 205		
184 - 231	AM	80	1kHz	Sine	1	10	H	3	Added Ferrite near input to VVPAT	A	Pass
190 - 1000	AM	80	1kHz	Sine	1	10	H	3	Continue w/new ferrite	A	Pass*
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Back**	A	Pass*
80 - 1000	AM	80	1kHz	Sine	1	10	H	3	UUT reset at 85MHz	A	Pass
80 - 1000	AM	80	1kHz	Sine	1	10	H	3	Restart from beginning	A	Pass*
80 - 1000	AM	80	1kHz	Sine	1	10	V	3	**Left**	A	Pass*
80 - 1000	AM	80	1kHz	Sine	1	10	H	3		A	Pass*
* Final qualifying pass – UPS on floor											

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

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

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

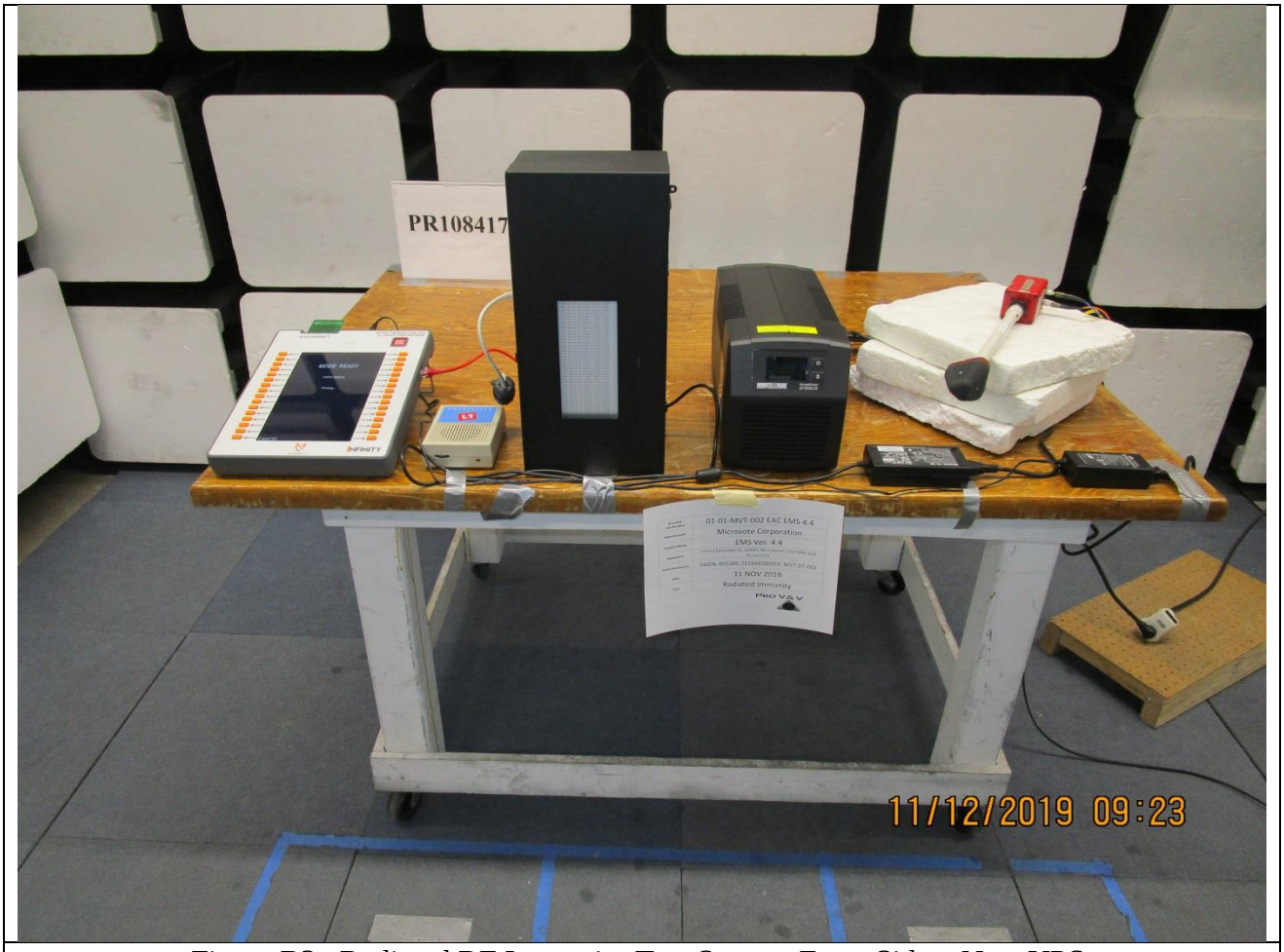


Figure B3. Radiated RF Immunity Test Setup – Front Side – New UPS.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

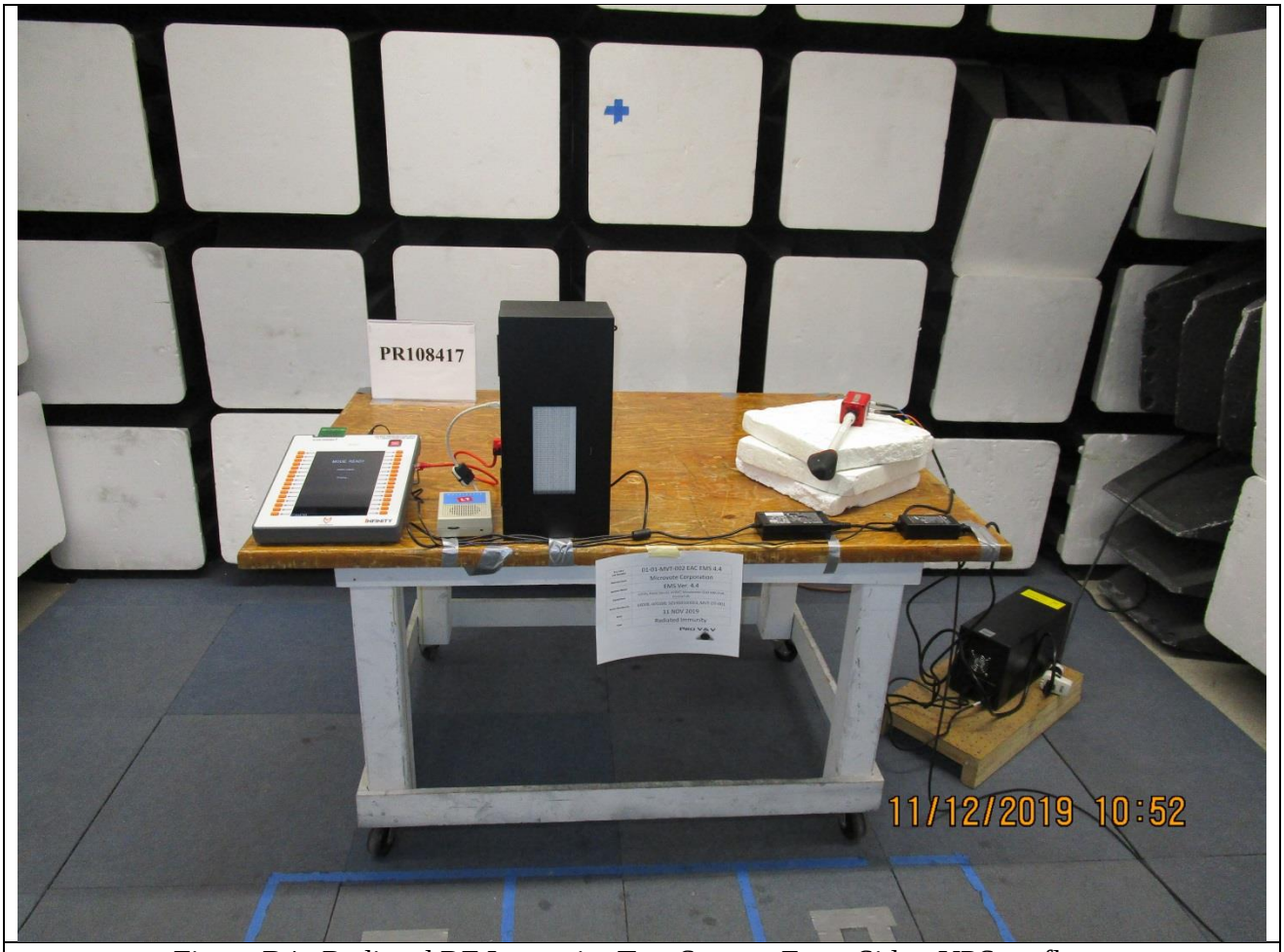


Figure B4. Radiated RF Immunity Test Setup – Front Side - UPS on floor.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

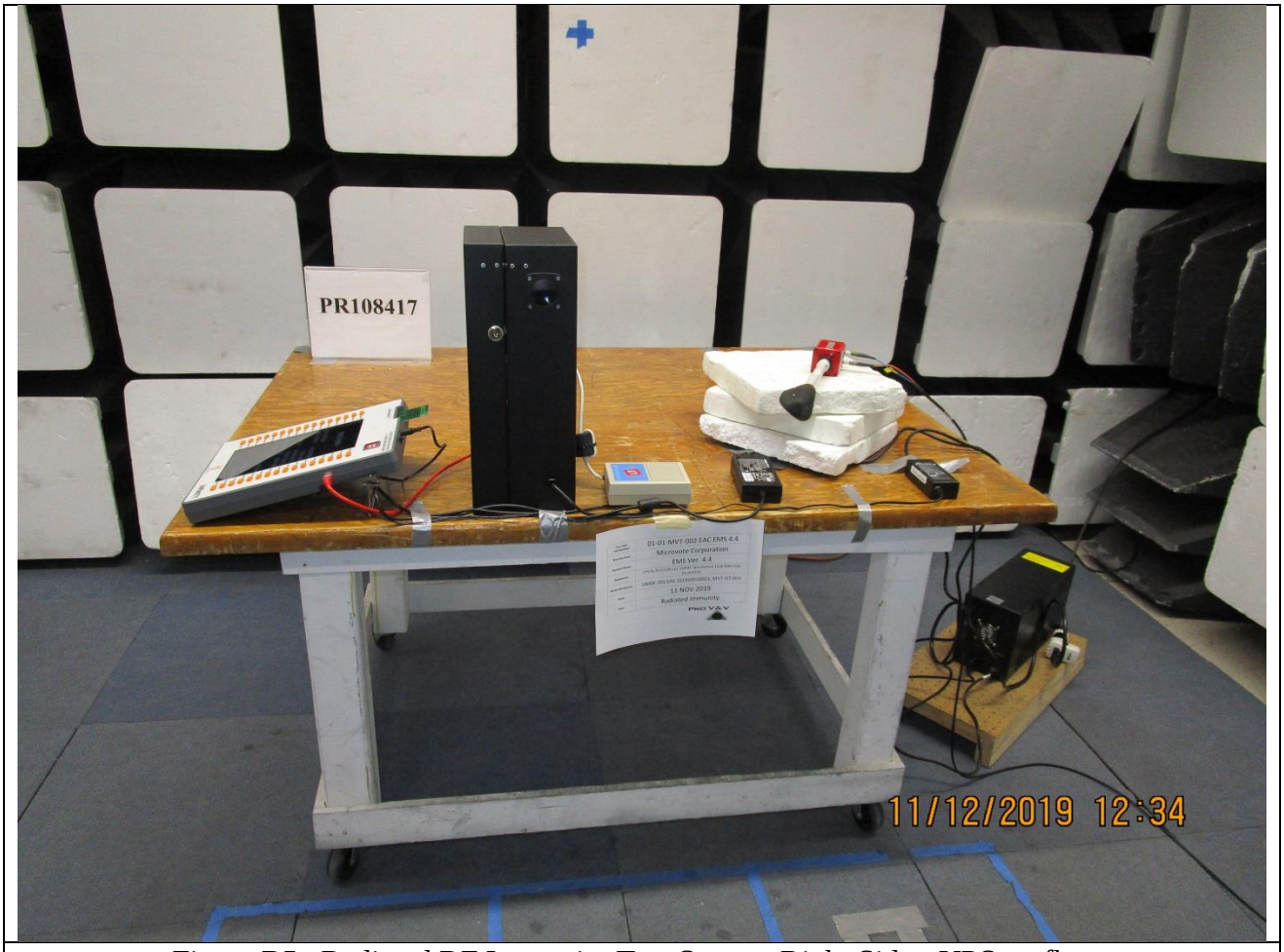


Figure B5. Radiated RF Immunity Test Setup – Right Side - UPS on floor.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

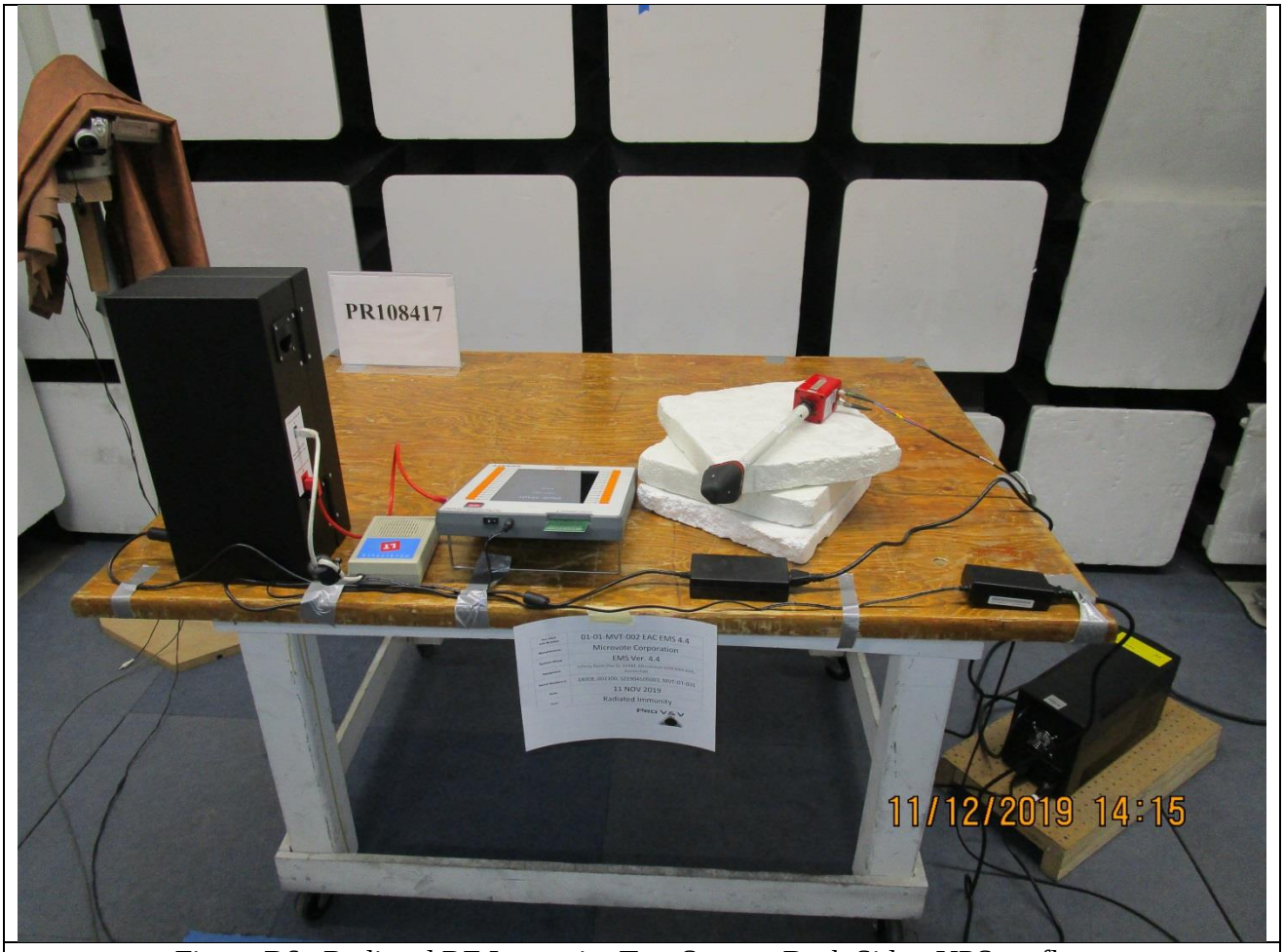


Figure B6. Radiated RF Immunity Test Setup – Back Side - UPS on floor.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

Figure B7. Radiated RF Immunity Test Setup – Left Side - UPS on floor.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

Figure B8. Radiated RF Immunity Test Setup – Ferrite added.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

Figure B9. Radiated RF Immunity Test Setup – Surge protector.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP0
Model:	Infinity Panel Rev E.	S/N:	14008
	VVPAT		001100
	DoubleTalk		MVT-DT-001
	MMAVR1500		SZ1904500003
	Tripp Lite		MVT-TC-001
Standard Referenced:	EAC 2005 VVSG	Date:	Monday, November 11, 2019

PR108417-4-3.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1018	Pacific Power	TMX-125	207	2.5 kVA, 50 Hz Power Source	NA	NA
1181	EMCI	RFS	V2.5.8	Initial Release 02 July 2004	NA	NA
1323	Rohde&Schwarz	SMT03	100204	Signal Generator, 5 kHz to 3 GHz	02/07/2019	02/07/2020
1453	Giga-tronics	GT-8888A	8888A0336	10 MHz to 8 GHz, +20 dBm, 25 Vdc Power Meter	03/26/2019	03/26/2020
1456	Werlatone	C3908-10	98095	1500 Watts, 50 dB Dual Directional Coupler	03/26/2019	03/26/2020
1476	ETS Lindgren	HI-6053	00144805	10 MHz to 40 GHz Isotropic Electric Field Probe	03/27/2019	03/27/2020
1478	Ophir	5127F	1100	RF Amplifier, 200 Watt, 20 - 1000 MHz	NA	NA
1722	ETS -Lindgren	3142B	1624	Antenna	NA	NA
1761	Braden Shielding Systems	RF Shield Room	N/A	GP0	04/22/2019	04/22/2020
1902	EXTECH	445703	1218-1	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.3 Electrical Fast Transient/Burst

5.3.1 Rev D

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 21, 2019
Temperature:	21.3˚C Humidity: 30%	Pressure:	838 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-4.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					100k Hz	AC	A	Pass
2.0		x	60	CDN	x					100k Hz		A	Pass
2.0	x		60	CDN		x				100k Hz		A	Pass
2.0		x	60	CDN		x				100k Hz		A	Pass
2.0	x		60	CDN					x	100k Hz		A	Pass
2.0		x	60	CDN					x	100k Hz		A	Pass
2.0	x		60	CDN	x	x			x	100k Hz		A	Pass
2.0		x	60	CDN	x	x			x	100k Hz		A	Pass

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D.	S/N:	11752
	VVPAT		001101
	Minuteman EP1000LCD		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 21, 2019

PR108417-4-4.doc FR0100

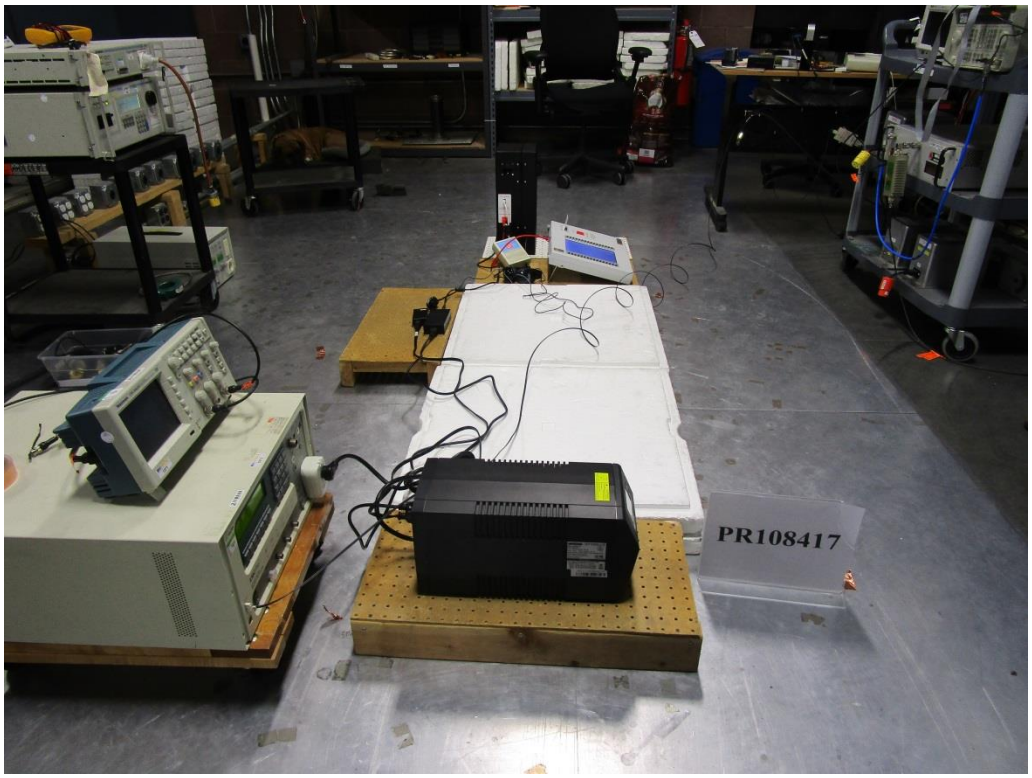


Figure C1. Electrical Fast Transient Test Setup.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 21, 2019

PR108417-4-4.doc FR0100

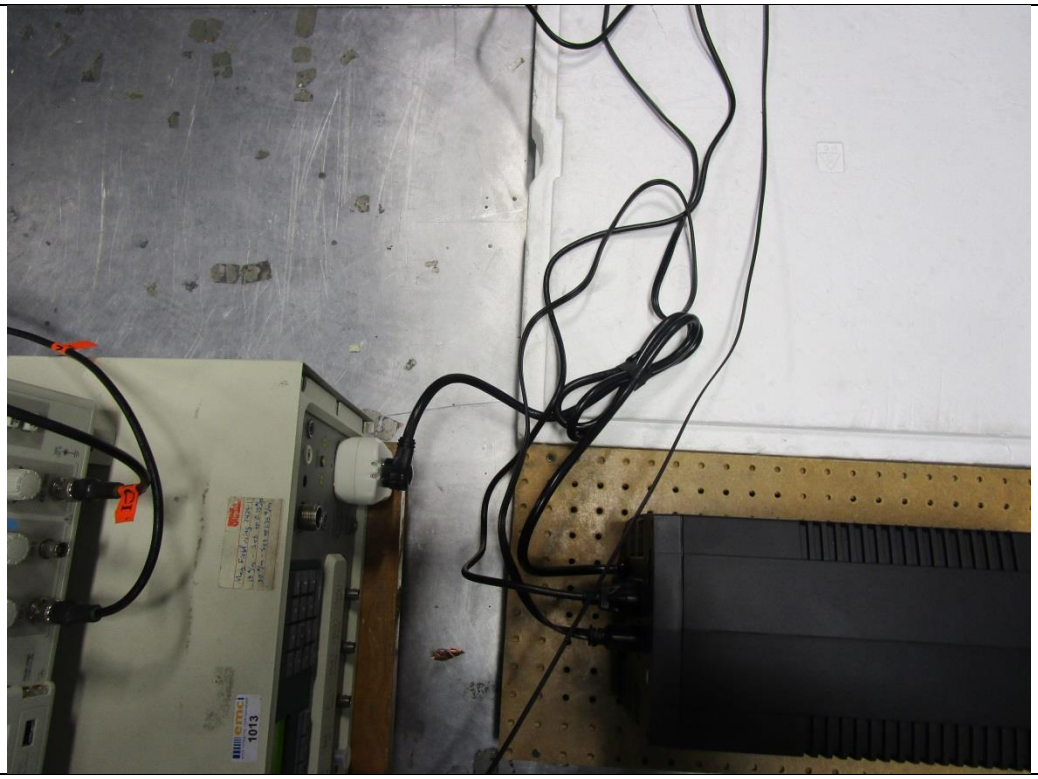


Figure C2. Electrical Fast Transient Test Setup – AC Mains.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 21, 2019

PR108417-4-4.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1013	KeyTek	EMC Pro	0008347	Advanced EMC Immunity Tester	09/22/2019	09/22/2020
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	02/14/2019	02/14/2020
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	02/02/2019	02/02/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.3.2 Rev E

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019
Temperature:	23.6˚C Humidity: 24%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-4.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					100k Hz	AC	A	Pass
2.0		x	60	CDN	x					100k Hz		A	Pass
2.0	x		60	CDN		x				100k Hz		A	Pass
2.0		x	60	CDN		x				100k Hz		A	Pass
2.0	x		60	CDN					x	100k Hz		A	Pass
2.0		x	60	CDN					x	100k Hz		A	Pass
2.0	x		60	CDN	x	x			x	100k Hz		A	Pass
2.0		x	60	CDN	x	x			x	100k Hz		A	Pass

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-4.doc FR0100

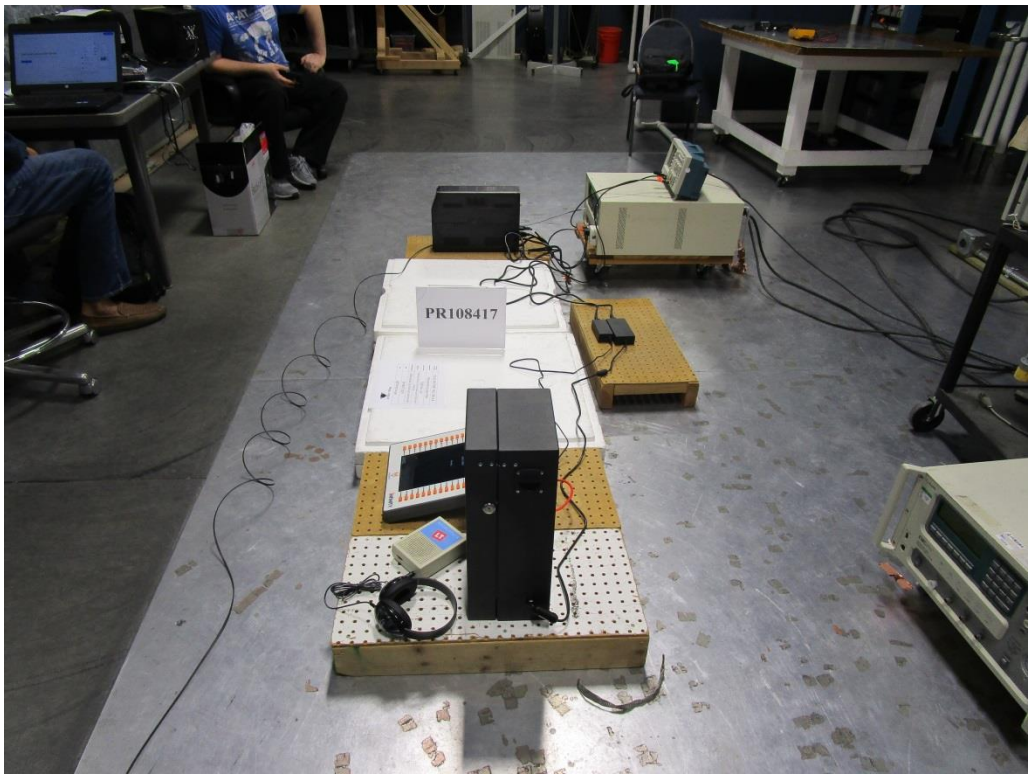


Figure C1. Electrical Fast Transient Test Setup.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-4.doc FR0100

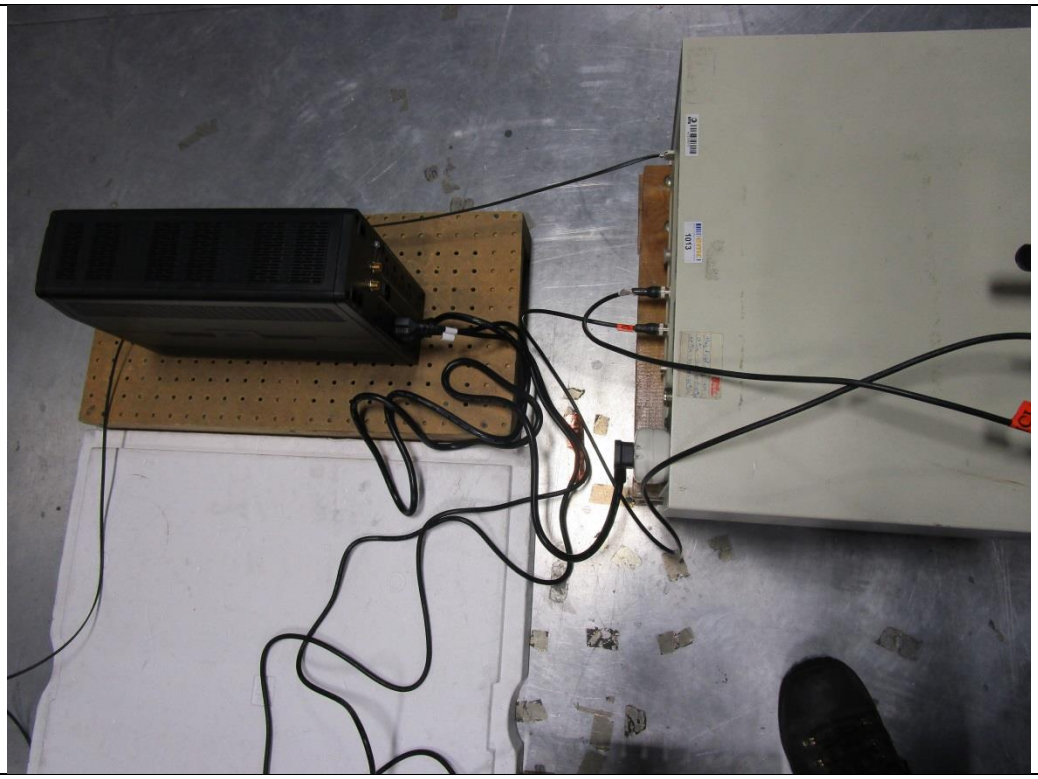


Figure C2. Electrical Fast Transient Test Setup – AC Mains.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-4.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1013	KeyTek	EMC Pro	0008347	Advanced EMC Immunity Tester	09/22/2019	09/22/2020
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1296	California Instruments Corporation	5001IX208-150/300	S59159	5k VA AC Power Source	08/02/2019	08/02/2020
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	02/02/2019	02/02/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.4 Surge Immunity

5.4.1 Rev D

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 22, 2019
Temperature:	23.5˚C Humidity: 29%	Pressure:	836 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-5.doc FR0100

Voltage (kV)	Polarity +	Polarity -	L1	L2	L3	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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D.	S/N:	11752
	VVPAT		001101
	Minuteman EP1000LCD		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 22, 2019
Temperature:	23.5˚C Humidity: 29%	Pressure:	836 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-5.doc FR0100

Voltage (kV)	Polarity +	Polarity -	L1	L2	L3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
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
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	45	Differential Mode	A	Pass
2.0		x	x			x		0	5	45		A	Pass

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D.	S/N:	11752
	VVPAT		001101
	Minuteman EP1000LCD		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 22, 2019
Temperature:	23.5˚C Humidity: 29%	Pressure:	836 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-5.doc FR0100

Voltage (kV)	Polarity +	Polarity -	L1	L2	L3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
2.0	x		x			x		90	5	45		A	Pass
2.0		x	x			x		90	5	45		A	Pass
2.0	x		x			x		180	5	45		A	Pass
2.0		x	x			x		180	5	45		A	Pass
2.0	x		x			x		270	5	45		A	Pass
2.0		x	x			x		270	5	45		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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 22, 2019

PR108417-4-5.doc FR0100

Figure D1. Surge Immunity Test Setup.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 22, 2019

PR108417-4-5.doc FR0100

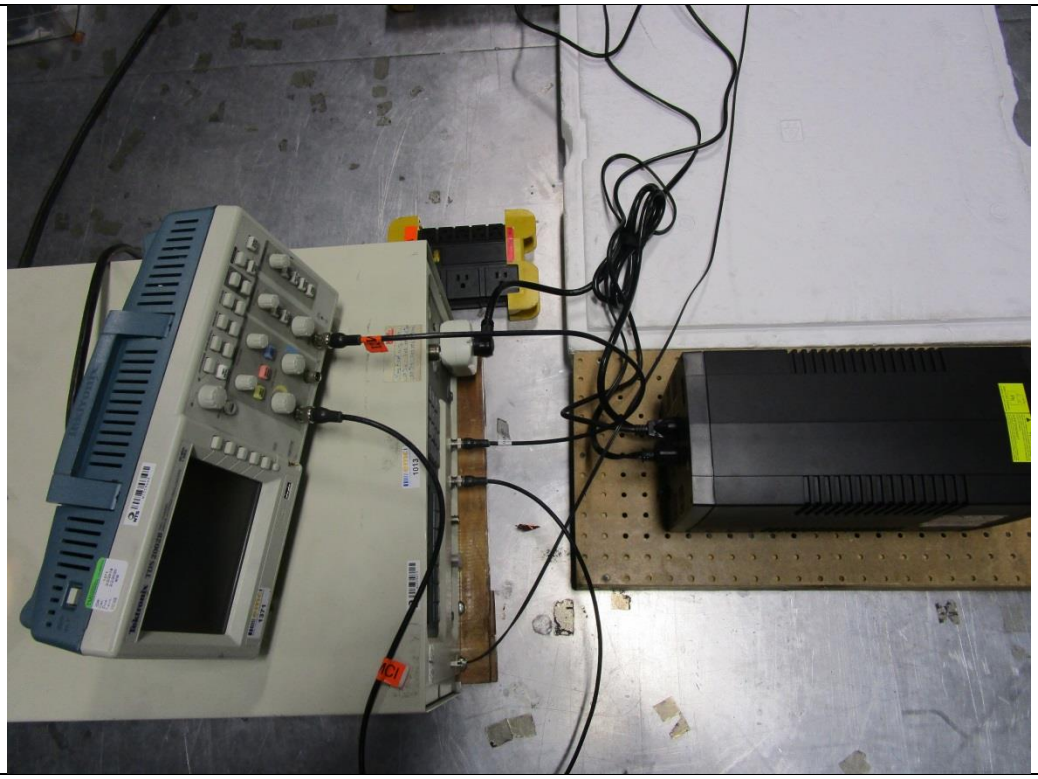


Figure D2. Surge Immunity Test Setup – AC Mains.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 22, 2019

PR108417-4-5.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1013	KeyTek	EMC Pro	0008347	Advanced EMC Immunity Tester	09/22/2019	09/22/2020
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1296	California Instruments Corporation	5001IX208-150/300	S59159	5k VA AC Power Source	08/02/2019	08/02/2020
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	02/02/2019	02/02/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.4.2 Rev E

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 14, 2019
Temperature:	24.5˚C Humidity: 26%	Pressure:	844 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-5.doc FR0100

Voltage (kV)	Polarity +	Polarity -	L1	L2	L3	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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 14, 2019
Temperature:	24.5˚C Humidity: 26%	Pressure:	844 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-5.doc FR0100

Voltage (kV)	Polarity +	Polarity -	L1	L2	L3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
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
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	45	Differential Mode	A	Pass
2.0		x	x			x		0	5	45		A	Pass
2.0	x		x			x		90	5	45		A	Pass

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 14, 2019
Temperature:	24.5˚C Humidity: 26%	Pressure:	844 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-5.doc FR0100

Voltage (kV)	Polarity +	Polarity -	L1	L2	L3	N	PE	Phase (deg)	Number of Pulses	Delay (sec)	Comments	Criteria Met	Pass / Fail
2.0		x	x			x		90	5	45		A	Pass
2.0	x		x			x		180	5	45		A	Pass
2.0		x	x			x		180	5	45		A	Pass
2.0	x		x			x		270	5	45		A	Pass
2.0		x	x			x		270	5	45		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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 14, 2019

PR108417-4-5.doc FR0100

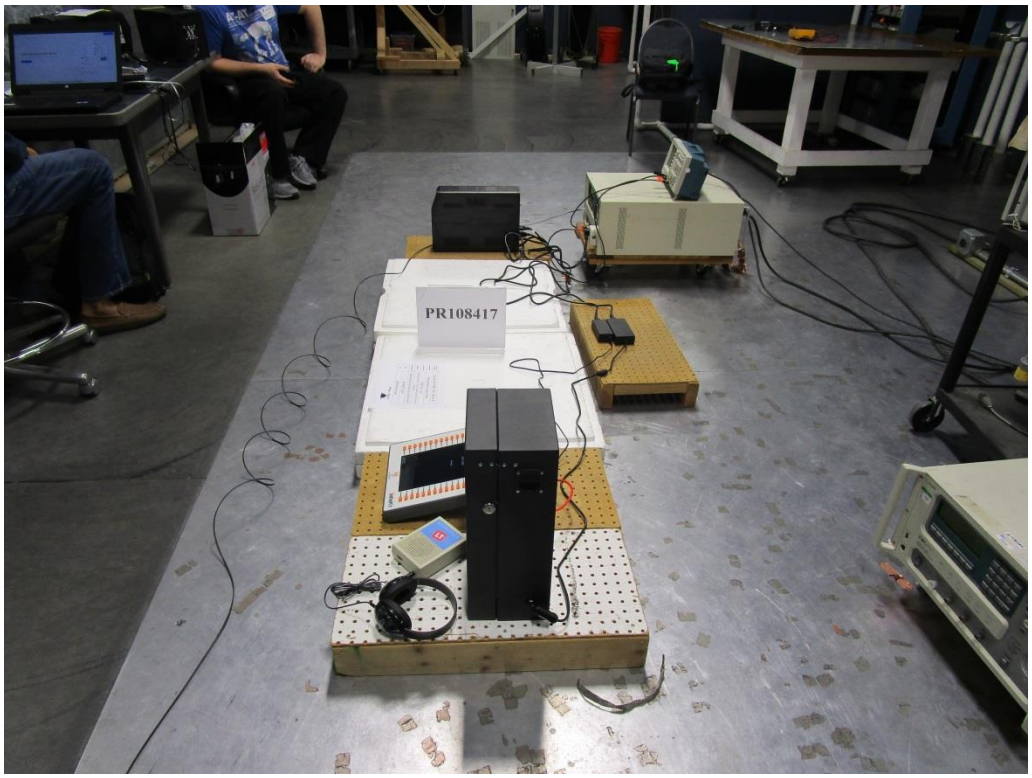


Figure D1. Surge Immunity Test Setup.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 14, 2019

PR108417-4-5.doc FR0100

Figure D2. Surge Immunity Test Setup – AC Mains.

Surge Immunity per IEC / EN 61000-4-5

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 14, 2019

PR108417-4-5.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1013	KeyTek	EMC Pro	0008347	Advanced EMC Immunity Tester	09/22/2019	09/22/2020
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1296	California Instruments Corporation	5001IX208-150/300	S59159	5k VA AC Power Source	08/02/2019	08/02/2020
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	02/02/2019	02/02/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.5 Conducted RF Immunity

5.5.1 Rev D

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019
Temperature:	21.1˚C Humidity: 26%	Pressure:	826 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-6.doc FR0100

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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D.	S/N:	11752
	VVPAT		001101
	Minuteman EP1000LCD		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-6.doc FR0100

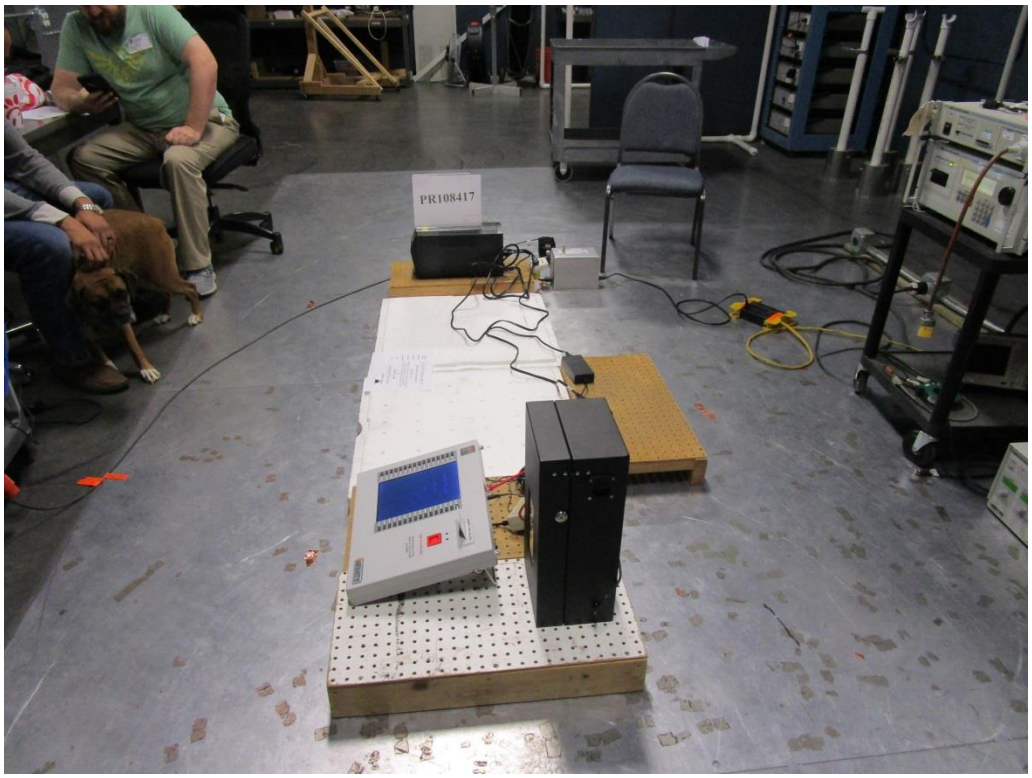


Figure E1. Conducted RF Immunity Test Setup.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D.	S/N:	11752
	VVPAT		001101
	Minuteman EP1000LCD		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-6.doc FR0100

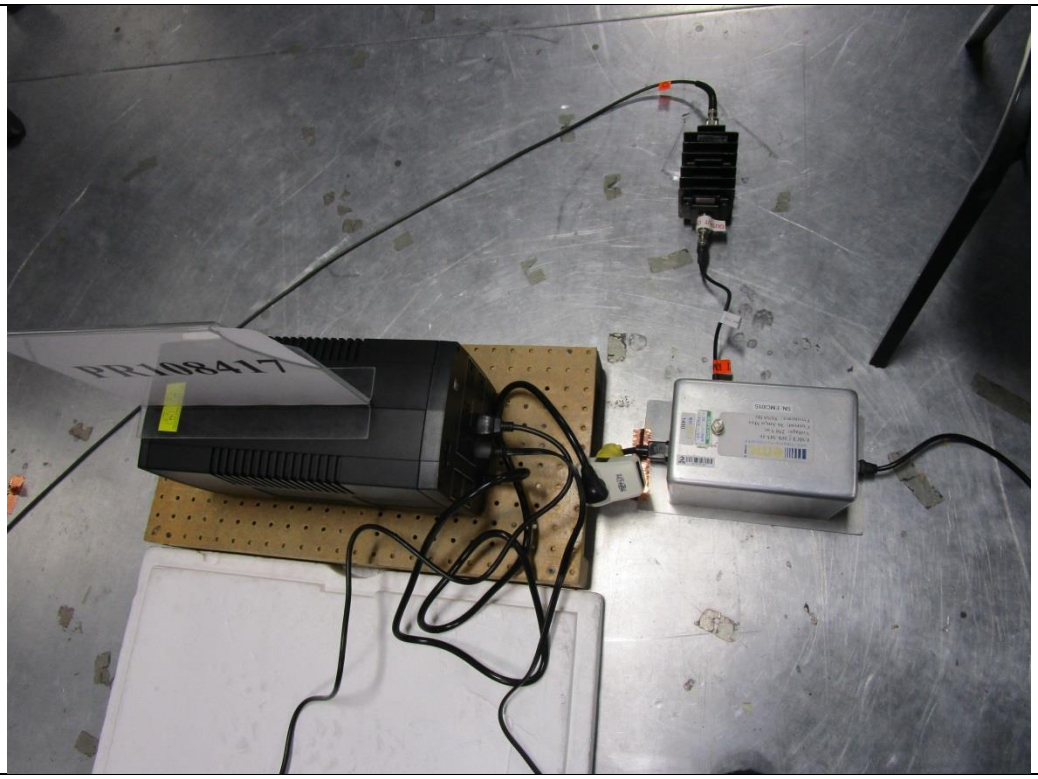


Figure E2. Conducted RF Immunity Test Setup – AC Mains.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D.	S/N:	11752
	VVPAT		001101
	Minuteman EP1000LCD		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-6.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1274	IFI	M100	L594-0108	100W Power Amplifier, 0.01 MHz to 220 MHz	NA	NA
1477	Hewlett Packard	8648A	3636A02899	Signal Generator, 100 kHz to 1 GHz	02/07/2019	02/07/2020
1490	EMCI	EMCI-CDN-M3-16	EMCI019	M3 CDN, 16A, 250 VAC		
1496	Rigol Technologies, Inc.	DSA815	DSA8B150500096	9 kHz to 1.5 GHz Spectrum Analyzer	03/29/2019	03/29/2020
1526	Aeroflex/Weinschel	40-6-34	RX850	Hi power attenuator 6dB	10/24/2019	10/24/2020
1533	Werlatone	C9475	102544	100 Watt Dual Directional Coupler, 10 kHz to 250 M	10/24/2019	10/24/2020
1594	EMCI	CI	V2.5.0	Conducted Immunity Software	NA	NA
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.5.2 Rev E

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019
Temperature:	21.1˚C Humidity: 26%	Pressure:	834 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-6.doc FR0100

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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-6.doc FR0100

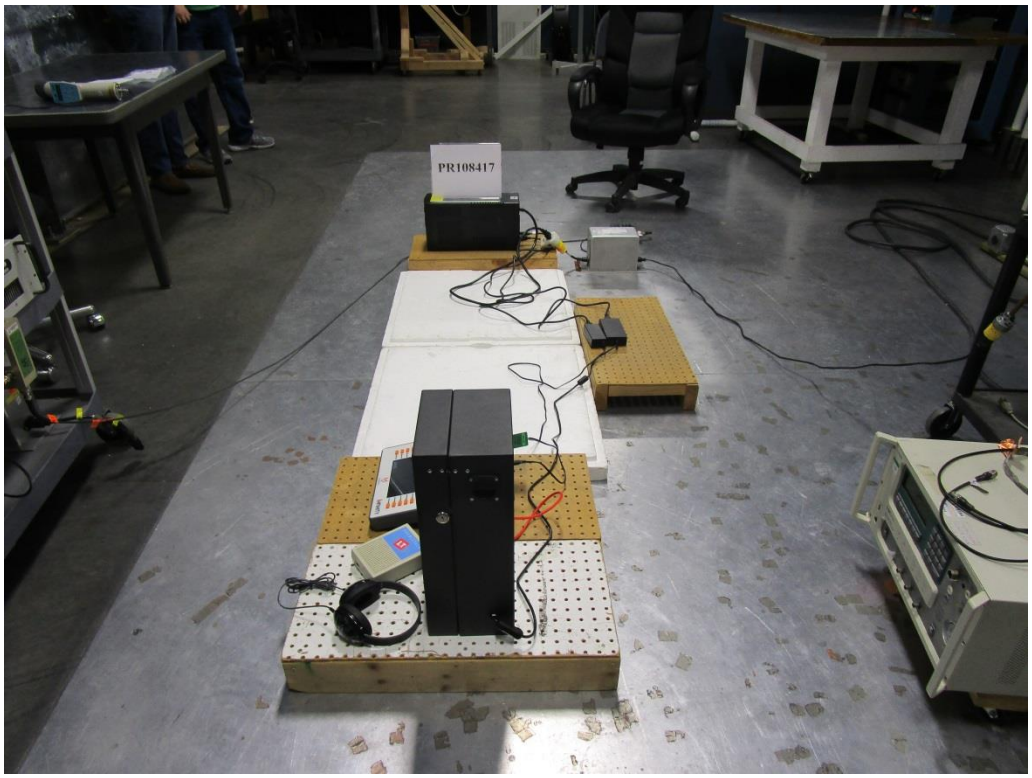


Figure E1. Conducted RF Immunity Test Setup.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-6.doc FR0100

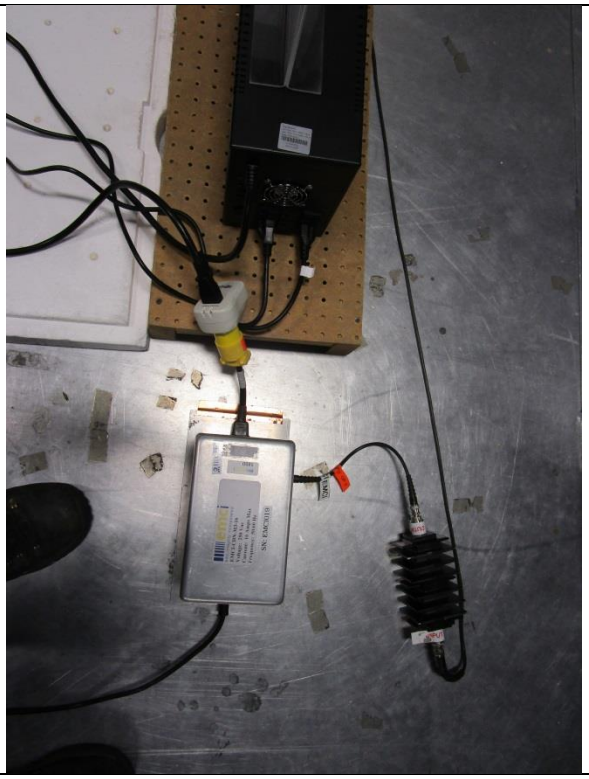


Figure E2. Conducted RF Immunity Test Setup – AC Mains.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-6.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1274	IFI	M100	L594-0108	100W Power Amplifier, 0.01 MHz to 220 MHz	NA	NA
1477	Hewlett Packard	8648A	3636A02899	Signal Generator, 100 kHz to 1 GHz	02/07/2019	02/07/2020
1490	EMCI	EMCI-CDN-M3-16	EMCI019	M3 CDN, 16A, 250 VAC		
1496	Rigol Technologies, Inc.	DSA815	DSA8B150500096	9 kHz to 1.5 GHz Spectrum Analyzer	03/29/2019	03/29/2020
1526	Aeroflex/Weinschel	40-6-34	RX850	Hi power attenuator 6dB	10/24/2019	10/24/2020
1533	Werlatone	C9475	102544	100 Watt Dual Directional Coupler, 10 kHz to 250 M	10/24/2019	10/24/2020
1594	EMCI	CI	V2.5.0	Conducted Immunity Software	NA	NA
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.6 Power Frequency H-field Immunity

5.6.1 Rev D

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019
Temperature:	23˚C Humidity: 34%	Pressure:	837 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp mode		
Test Engineer:	T. Wittig		

PR108417-4-8.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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-8.doc FR0100

Figure F1. Power Frequency H-field Immunity Test Setup

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-8.doc FR0100

Figure F2. Power Frequency H-field Immunity Test Setup

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-8.doc FR0100

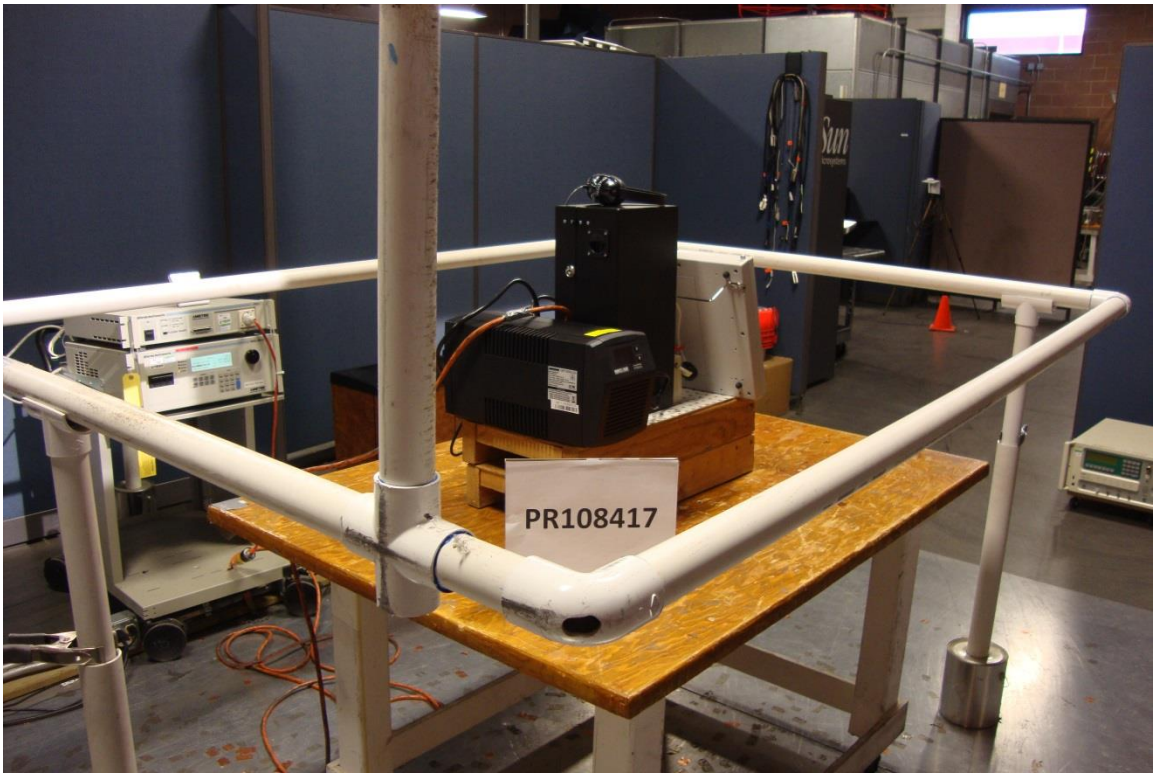


Figure F3. Power Frequency H-field Immunity Test Setup

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP #2
Model:	Infinity Panel Rev D, VVPAT, Minuteman EP1000LCD	S/N:	11752, 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	December 2, 2019

PR108417-4-8.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1038	Fluke	85	66180455	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1262	EMCI	EMCI-4-8-2m-1.5m	0001	HField Loop, 2m x 1.5m	NA	NA
1372	Tektronix	TDS2002B	C103489	Oscilloscope, 60 MHz, 2-channel	05/09/2019	05/09/2020
1485	Pearson Electronics	110A	90561	Current Monitor, 1 Hz to 20 MHz	08/23/2019	08/23/2020
1569	California Instruments by Ametek	5001IX-208-CTS, Series II	1514A02227	5kV Programmable Power Supply	08/02/2019	08/02/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.6.2 Rev E

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019
Temperature:	23.6˚C Humidity: 35%	Pressure:	826 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-8.doc FR0100

Frequency (Hz)		Field Strength (A/m)	EUT Axis Location	Dwell Time (sec)	Comments	Criteria Met	Pass / Fail
50	60						
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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-8.doc FR0100

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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-8.doc FR0100

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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-8.doc FR0100

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:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 20, 2019

PR108417-4-8.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1262	EMCI	EMCI-4-8-2m-1.5m	0001	HField Loop, 2m x 1.5m	NA	NA
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	02/02/2019	02/02/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.7 Voltage Dips and Interrupts

5.7.1 Rev D

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019
Temperature:	23.6˚C Humidity: 25%	Pressure:	843 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-11.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%	0.5				x	10	3		A	Pass
40%	6.0	x				10	3		A	Pass
40%	6.0		x			10	3		A	Pass
40%	6.0			x		10	3		A	Pass
40%	6.0				x	10	3		A	Pass
40%	60.0	x				10	3		A	Pass
40%	60.0		x			10	3		A	Pass
40%	60.0			x		10	3		A	Pass
40%	60.0				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) 2hrs.									A	Pass
105Vac Line Voltage Variations (-12.5% of nominal 120V) 2 Hrs.									A	Pass
Surges of +15% line variations of nominal voltage (138V) 2 Hrs.									A	Pass
Surges of -15% line variations of nominal voltage (102V) 2 Hrs.									A	Pass

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D.	S/N:	11752
	VVPAT		001101
	Minuteman EP1000LCD		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-11.doc FR0100

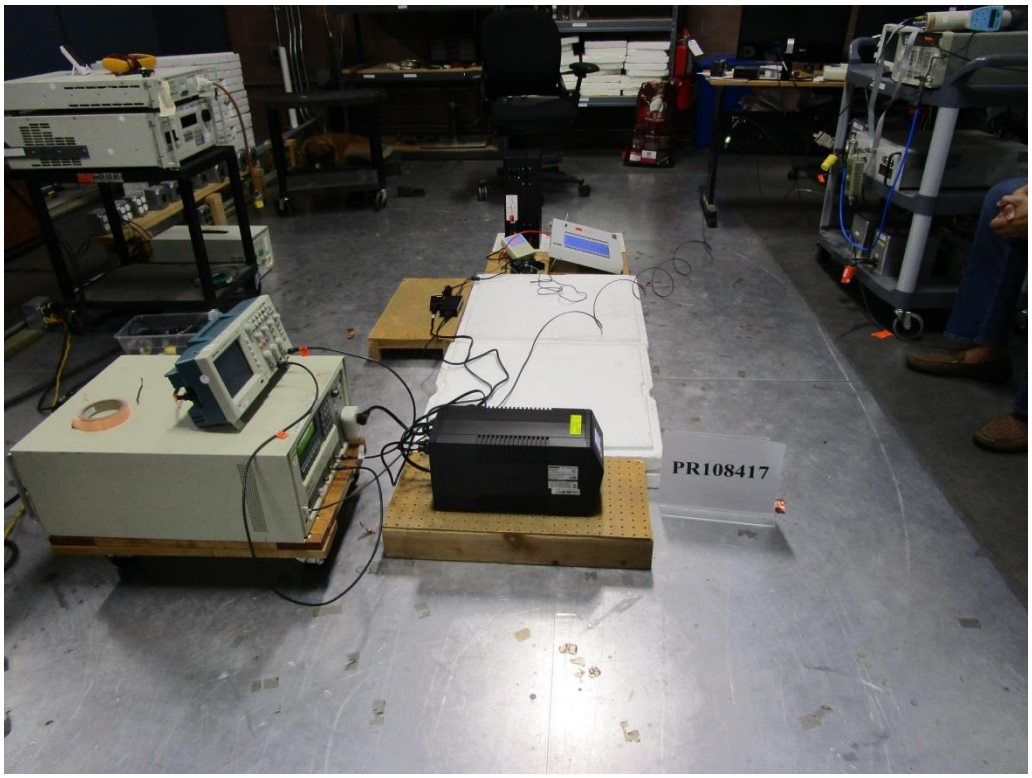


Figure G1. Voltage Dips and Interruptions Test Setup.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D. VVPAT Minuteman EP1000LCD	S/N:	11752 001101 AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-11.doc FR0100

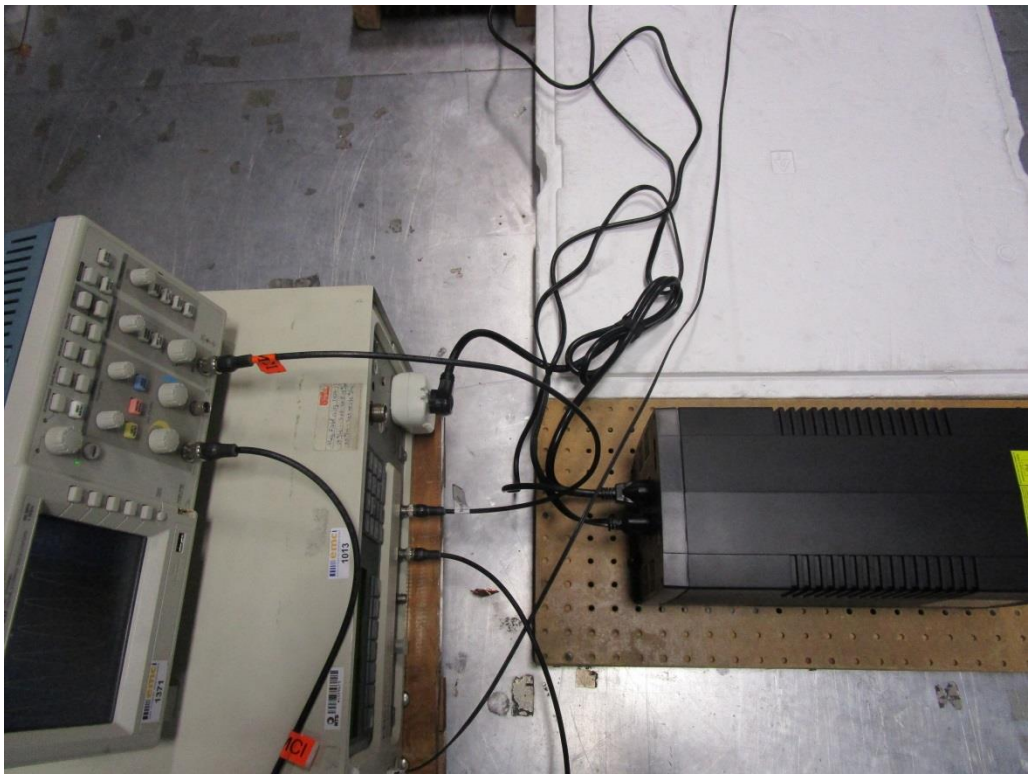


Figure G2. Voltage Dips and Interruptions Test Setup.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev D.	S/N:	11752
	VVPAT		001101
	Minuteman EP1000LCD		AK11190890014
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-11.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1013	KeyTek	EMC Pro	0008347	Advanced EMC Immunity Tester	09/22/2019	09/22/2020
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1296	California Instruments Corporation	5001IX208-150/300	S59159	5k VA AC Power Source	08/02/2019	08/02/2020
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	02/02/2019	02/02/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

5.7.2 Rev E

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019
Temperature:	23.6˚C Humidity: 25%	Pressure:	843 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing time stamp		
Test Engineer:	Casey Lockhart		

PR108417-4-11.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%	0.5				x	10	3		A	Pass
40%	6.0	x				10	3		A	Pass
40%	6.0		x			10	3		A	Pass
40%	6.0			x		10	3		A	Pass
40%	6.0				x	10	3		A	Pass
40%	60.0	x				10	3		A	Pass
40%	60.0		x			10	3		A	Pass
40%	60.0			x		10	3		A	Pass
40%	60.0				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) 2hrs.									A	Pass
105Vac Line Voltage Variations (-12.5% of nominal 120V) 2 Hrs.									A	Pass
Surges of +15% line variations of nominal voltage (138V) 2 Hrs.									A	Pass
Surges of -15% line variations of nominal voltage (102V) 2 Hrs.									A	Pass

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-11.doc FR0100

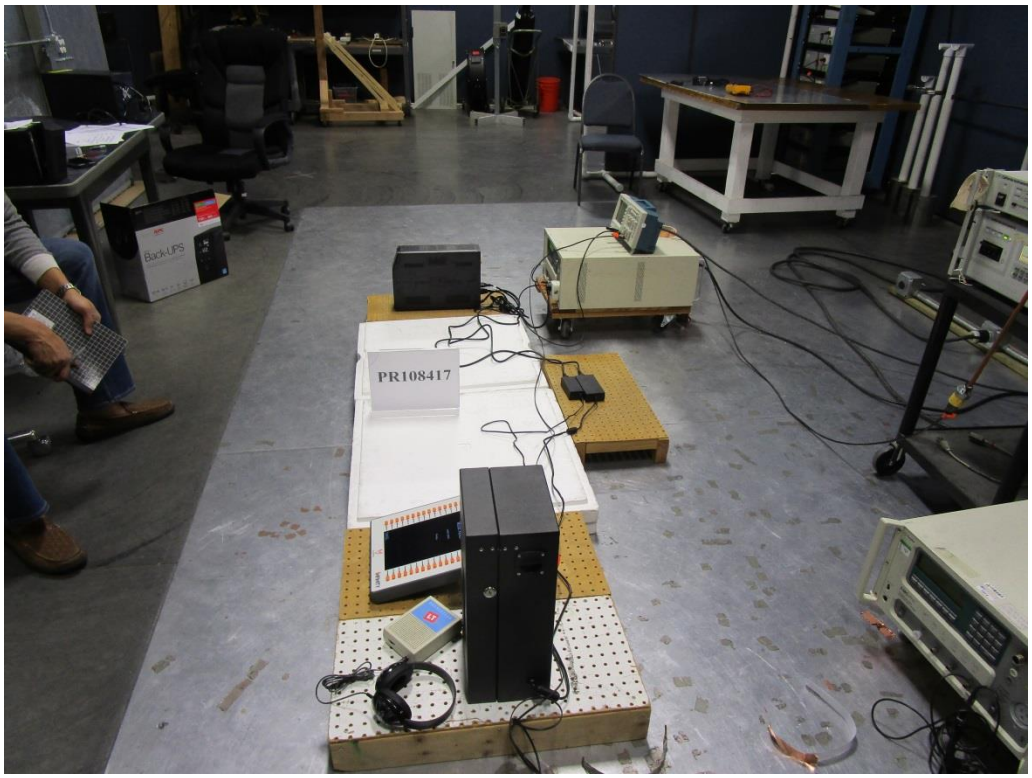


Figure G1. Voltage Dips and Interruptions Test Setup.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-11.doc FR0100

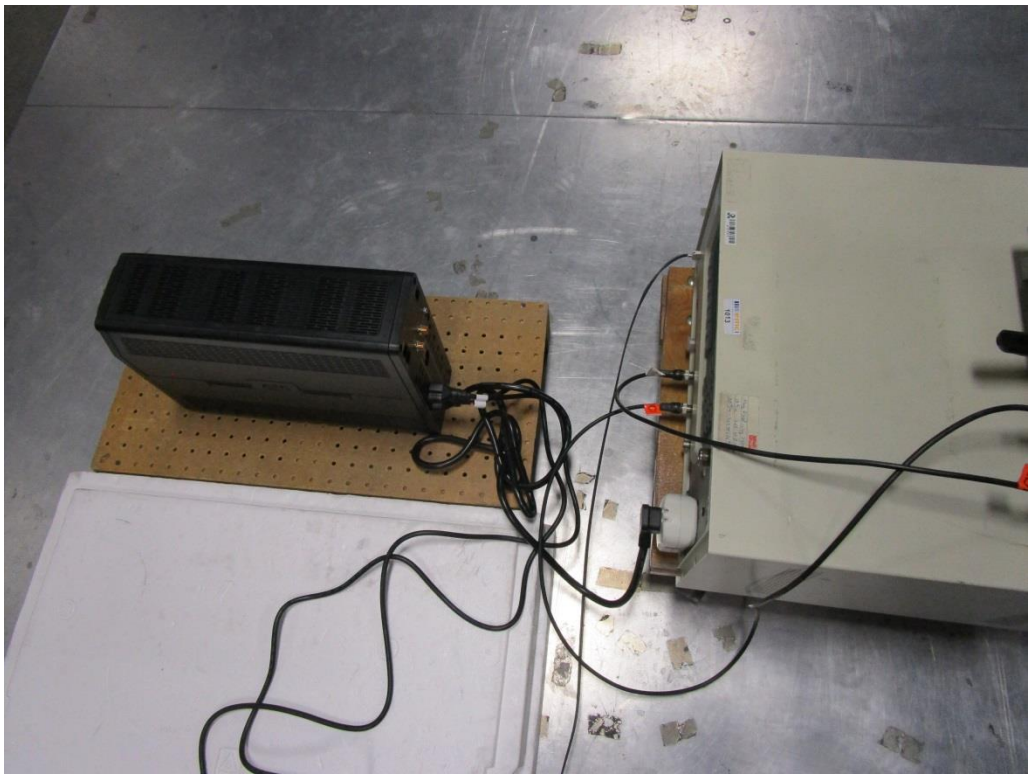


Figure G2. Voltage Dips and Interruptions Test Setup.

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

Manufacturer:	Pro V&V	Project Number:	PR108417
Customer Representative:	Michael Walker	Test Area:	GP1
Model:	Infinity Panel Rev E.	S/N:	14008
	Microvote		001100
	APC Back-ups Pro 1100 VA M2		3B1925X63265
Standard Referenced:	EAC 2005 VVSG	Date:	November 13, 2019

PR108417-4-11.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1013	KeyTek	EMC Pro	0008347	Advanced EMC Immunity Tester	09/22/2019	09/22/2020
1039	Fluke	83-3	69811227	Multimeter/Frequency Meter	02/14/2019	02/14/2020
1184	KeyTek	CEWare	4.0	KeyTek EMCPro Control Software for EFT, Surge, H-F	NA	NA
1296	California Instruments Corporation	5001IX208-150/300	S59159	5k VA AC Power Source	08/02/2019	08/02/2020
1371	Tektronix	TDS2002B	C103483	Oscilloscope, 60 MHz, 2-channel	02/02/2019	02/02/2020
1899	EXTECH	445703	1217	Hygrometer-Thermometer	06/10/2019	06/10/2020

6.0 Test Log

Manufacturer:	Pro V&V/Microvote	Project Number:	PR108417
Model:	Infinity Panel Rev. D Microvote VVPAT Printer UPS Infinity Panel Rev. E Microvote VVPAT Printer UPS	S/N:	Rev. D: 11752 Printer: 001101 UPS: AK11190890014 Rev. E:14008 Printer: 001100 UPS: SZ1904500003
Customer Representative:	Michael Walker		
Standard Referenced:	EAC 2005 VVSG		

FR0105

Ground Planes / CALC

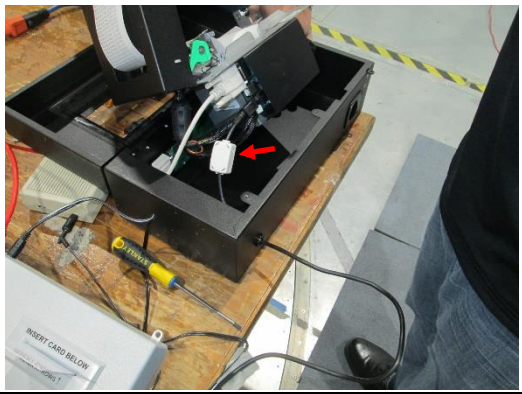
Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
4-3	43916	Monday, November 11, 2019 1500 - 1600	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1	Pass	SC
---	---	Tuesday, November 12, 2019 0800 - 1200	Continue Testing was performed with UPS on 10cm block on floor. Testing performed with Tripp-lite surge surge protector on UPS power cable.		4	---	SC
---	---	1230 - 1630			4	---	SC
4-3		November 18, 2019 0930-1330	Radiated RF Immunity on Rev D Panel (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell Testing was performed with UPS on 10cm block on floor. 120 VAC / 60 Hz Printer stopped scrolling 86.6 Front Side, H-pole, re-tried 3 times with no failure. Printer stopped scrolling at 80.8 and 81.6, right side, H-pole. Re-tried 4 times with UUT failing each time. Client trying different ferrites. Client trying the ferrite on the inside. Printer stopped scrolling 82.4MHz Client trying different ferrites. Client trying the ferrite on the inside (Wurth 742-711-11). Unit still failing at 80.8MHz. Client trying Wurth 742-717-22 on outside with 0 turns- UUT failed at 80.8MHz Client trying Wurth 742-717-22 on outside with 2 turns UUT failed at 80.8MHz **Client adding back Laird 28B1417-200 on the inside as well as the Wurth 742-711-11 on power line**		3.5	Complete	KJ

Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
4-3		1330-1630	Re-starting test with UPS on table. Knocked out panel at 425MHz, H-pole. Retired 3 times but failure did not repeat. Printer stopped scrolling at 930.480, H-pole front side. Failure did repeat. Tried putting the UPS back up on the table but printer stopped scrolling at 930MHz twice and at 940MHz. RI Trouble shooting 930 to 940MHz. **Added Wurth ferrite 742-716-33 s to the data line.**		4.5	Complete	KJ
4-3		November 19, 2019 0800-1100	Continuing 4-3 **UPS back on floor per customer**		3.0	Pass	KJ

Modifications required for Compliance (4-3) for Rev D panel

Wurth ferrite 742-716-33 s to the data line



Wurth 742-711-11 on power line

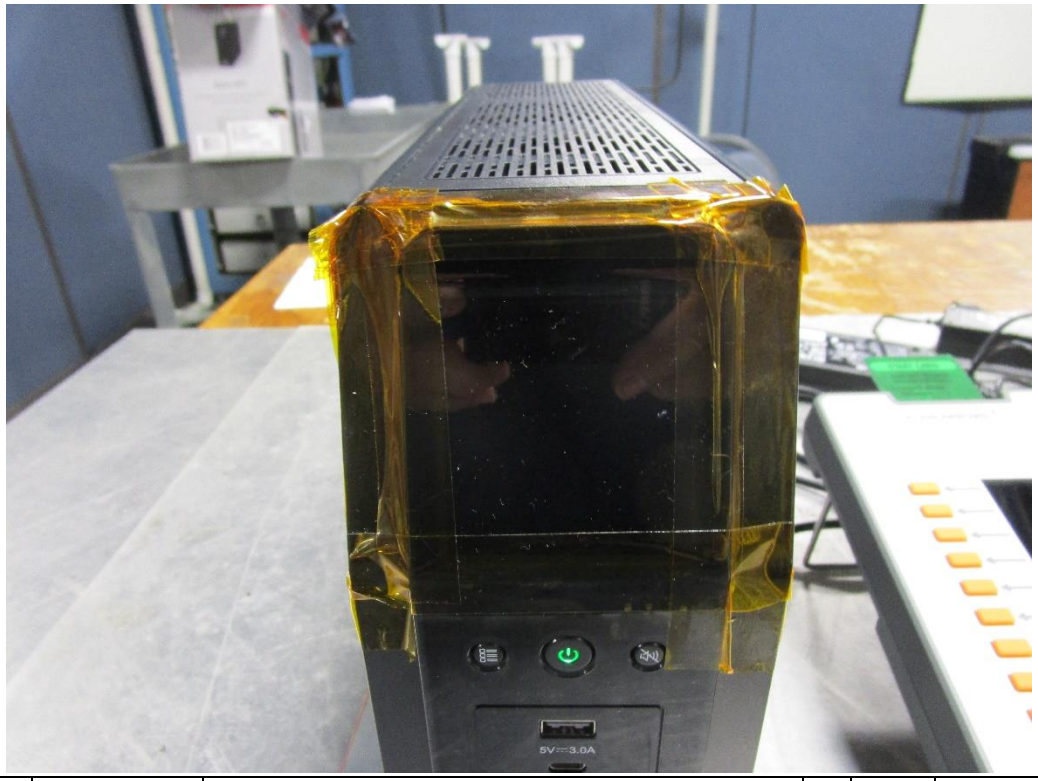
Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
							
Laird 28B1417-200 on the inside on power line							
4-3	---	November 18, 2019 1430 - 1600	Retest – UPS on Table		1.5	Complete	SC
4-3	---	Tuesday, November 19, 2019 0800 - 1200	Retest – UPS on Floor – Customer approved setup		4.0	Pass	SC
4-6	4624	November 13, 2019 0800 - 1030	Conducted RF Immunity Rev E (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		2.5	Pass	CL
4-4	4412	1030 - 1330	Electrical Fast Transient / Burst Rev E. (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz Note: First run lost panel, came back up. Second run, UPS lost power and failed to switch to battery power. 3rd test without surge protector installed. UPS lost power and did not switch to battery power. 4th test, Lost power and didn't go to backup. Correct UPS, house power. L1 +2000. 5th test, new UPS APC Back-UPS 1100. Passed with new UPS Client hadn't down post-test, need to re-run EFT.		3.0	Fail/Pass	CL
		1330 - 1430	Post test, Re-test Electrical Fast Transient / Burst (4.1.2.6) NEW UPS Mains: +/- 2kV, I/O: +/- 1kV		1.0	Pass	CL
	4196	1430 - 1500	Voltage Dips and Interruptions Rev E (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

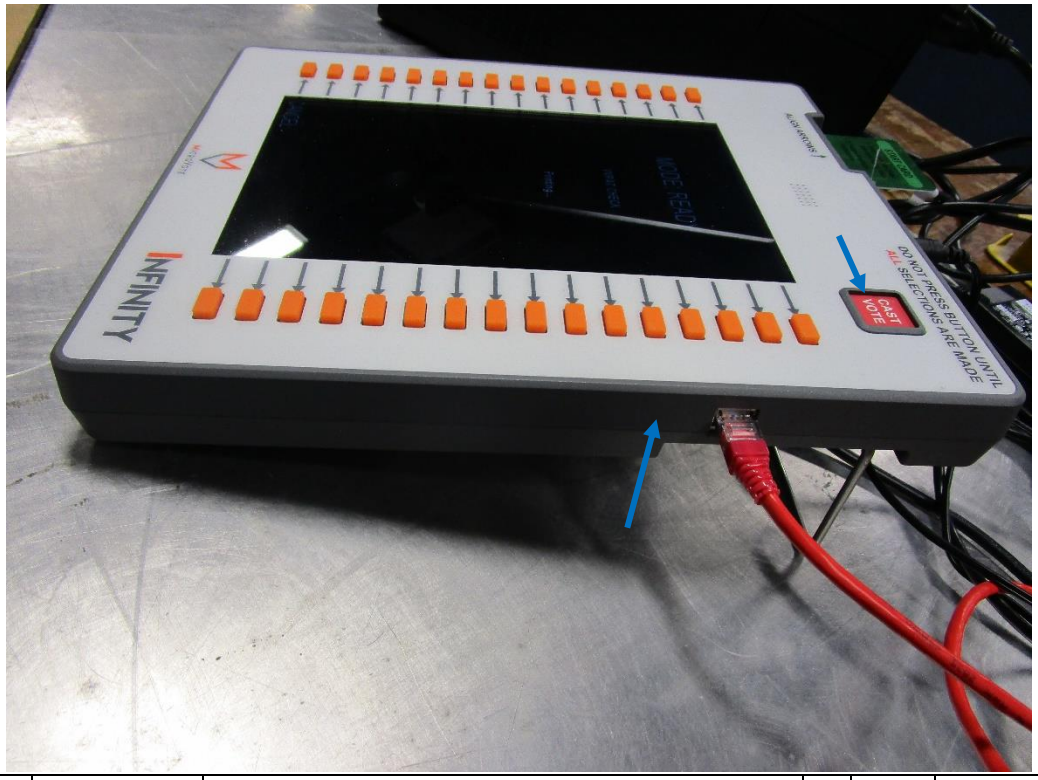
Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
4-6	---	1500 - 1600	Conducted RF Immunity Rev E (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Note: With new UPS.		1.0	Pass	CL
4-11	41912	November 14, 2019 0800 - 1030	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) 120 VAC / 60 Hz 2 Hrs. at 129Vac/60Hz per client.		2.5	---	CL
4-5	45912	1030 - 1630	Surge Immunity (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz Note: Surge protector had light (Ground fault) on. Switched to house power and it went off.		6.0	Pass	CL
4-11	41912	November 15, 2019 0800 - 1000	Voltage Dips and Interruptions Rev E (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) 2 Hrs. @ **105 VAC / 60** Hz per client.			---	CL
4-5	45912	1000 - 1600	Surge Immunity Rev E (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz Note: Previous run of Surge, Surge protector had light (Ground fault) come on. After test, the unit was plugged into house power and it went back off. Re-running, corrected polarity at Variable power supply (CI), surge fault light is not on now. Re-run Surge.		6.0	Pass	CL
4-11	---	November 20, 2019 0800 - 1030	Equipment setup, Voltage Dips and Interruptions Rev E (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage **138 VAC / 60 Hz**		2.5	Pass	CL
---	---	1030 - 1230	Voltage Dips and Interruptions Rev E (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage **102 VAC / 60 Hz**		2.0	Pass	CL
4-8	4834	1230 - 1330	Power Frequency H-Field Immunity Rev E (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		1.0	Pass	CL
4-2	4258	1330 - 1430	Electrostatic Discharge Rev E (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz		1.0	Fail	CL

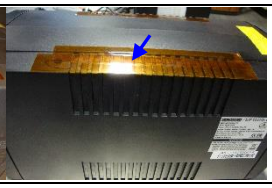
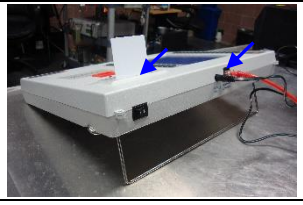
Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
	4624	1430 - 1530	Conducted RF Immunity Rev D (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
4-2	4258	1530 - 1630	Electrostatic Discharge Rev E (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz Note: Kapton tape fix on display of new UPS (Same model) Re-tried +/- 15kV at display area. No discharges were observed.		1.0	---	CL
							
4-2	---	November 21, 2019 0800 -	Electrostatic Discharge Rev E (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz		---	---	CL

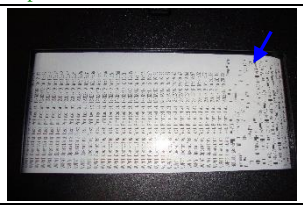
Ground Planes / CALC

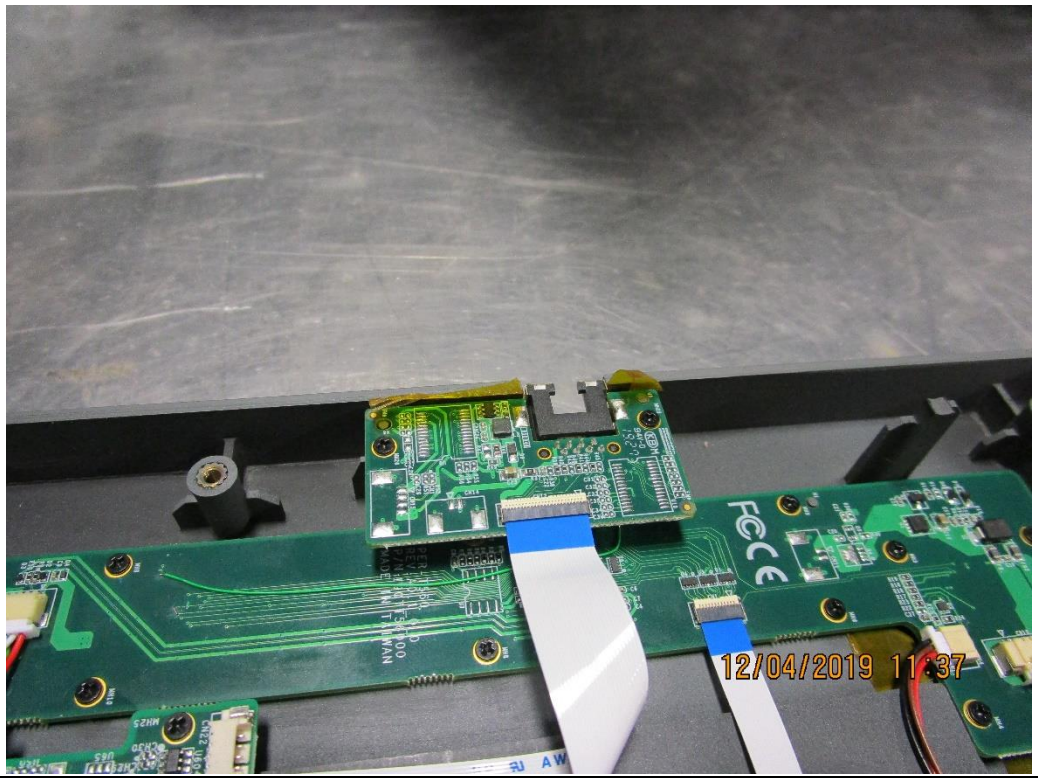
Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
							
4-2	---	1100	Took out printer. Would not come back on re-boot. Install new infinity panel Rev E. New panel locked up printer when "Cast Vote button was hit with -15kV. Client got UUT back up and it repeated on the first hit. Lost printer.		4.0	Fail	CL
4-4	4412	1100 - 1130	Electrical Fast Transient / Burst (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz Note: Line fault popping up on UPS display and appears briefly and goes out. Note: Data output file was labeled "11B91101" by mistake.		.5	Pass	CL
4-11	4196	1130 - 1200	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
---	41912	1200 - 1400	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		2.0	Pass	CL
4-11	---	1400 - 1600	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) 105Vac/60Hz		2.0	Pass	CL

Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
4-5	45912	November 22, 2019 0800 - 1400	Surge Immunity (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz **Note: UPS display is flashing, but readable. "Line fault" message flashed briefly.**		6.0	Pass	CL
4-11		1400 - 1600	Voltage Dips and Interruptions (**Surge of +/- 15%**) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		2.0	Pass	CL
4-11		December 2, 2019 0930	Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 102 VAC / 60 Hz		2.0	Pass	TW
4-8	4834	1130	Power Frequency H-Field Immunity (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz Rev D		1.0	Pass	TW
4-2	4234	1230	Electrostatic Discharge (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air 120 VAC / 60 Hz Rev D		---	---	TW
			At +15kV air discharges to the top vents on both sides of UPS which caused unit to shut down and required re-booting - See photos below		---	---	TW
			 		---	---	TW
			Modification for compliance: Client added tape, 1 inch, 0.15 mm (Lot#080411) over vents to prevent air discharges to effect the unit – see below		---	---	TW
			 		---	---	TW
			At +15kV, air discharges the display to scramble on UPS - display self-recovered		---	---	TW
					---	---	TW

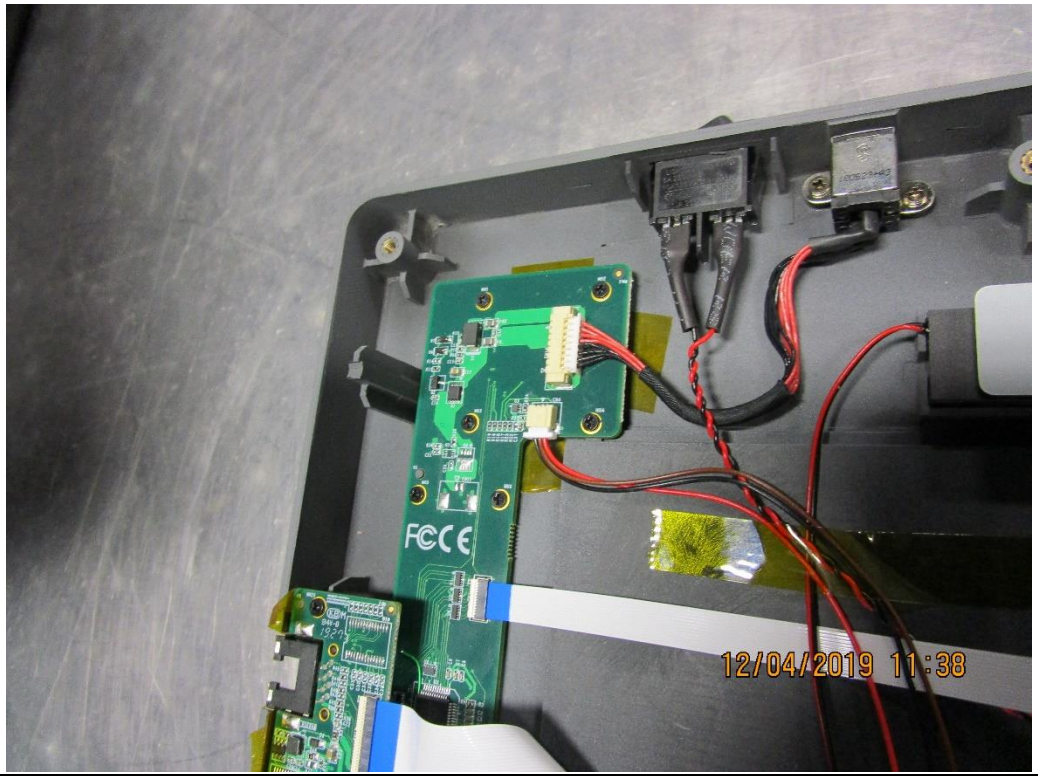
Ground Planes / CALC

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
			At 15 kV to the card port, air discharges caused the card reader to stop reading properly, client swapped out panel with same model Rev D Original SN: 11752, Replacement panel SN: 11755		---	---	TW
			At 15 kV to LAN cable port, air discharges caused printer (VVPAT) to fail, client re-placed printer with same model. Original SN: 001101, replacement SN: 001100		---	---	TW
							
			Note: Client elected the printer (SN: 11755) was not under-test in this configuration		---	---	TW
			Testing complete		4.0	Pass	TW
4-2	---	December 4, 2019 0800 - 1200	Waiting on client.		4.0	Pass	CL



Kapton tape fix on Ethernet board.

Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
							
Kapton tape fix on “Cast Vote” button board.							
Note: Re-tested Infinity panel Rev. E for air discharges, no repeat of failure. Passed.							

End of Report