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National Technical Systems Environmental & Dynamics Lab 1601 Dry Creek Dr. #2000 Longmont, CO 80503

Date: 6 OCTOBER 2017

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

Purchase Order Number: 2017-013

A. <u>TEST:</u> Temperature/Power Variation Testing

B. <u>TEST ITEMS:</u> Dominion Voting System

See page 2 for Test Item Identification

C. <u>SPECIFICATIONS:</u> 1. MIL-STD 810D

2. VVSG 1.0: 2005

3. ISO 17025:2005

D. RESULTS:

This is to certify that the Dominion Voting System was subjected to the Temperature/Power Variation Test according to the above specifications.

See Page 2 for Summary of Test Results. The Dominion Voting System was returned to Pro V&V for post tests and final evaluation.

Test data, an equipment list, and photographs are attached.

Kellie Barnes, Preparer Bob Polverari, Technical Reviewer

John Radman, Independent Reviewer

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REVISIONS

Revision	Reason for Revision	Date
NR	Initial Release	10/06/2017
Rev 1	Corrections to test items and test description	10/06/2017



TEST ITEM IDENTIFICATION

Quantity	Sample Description	Serial Number
3	DEM Suite 5.5 lcx Prime	1707101789 VVPAT-KPR0000078345
		1707101730 VVPAT-KPR0000078339
		1707101887 VVPAT-KPR0000078377

SUMMARY OF TEST RESULTS

Upon completion of testing, the test samples were removed from the test fixture and subjected to a visual inspection. No anomalies were noted. The Test Samples were returned to Pro V&V.

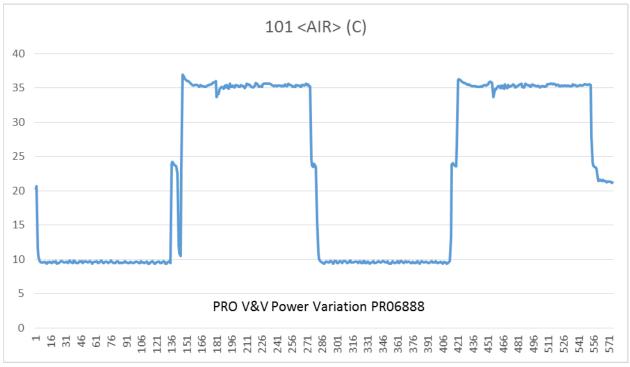
Temperature/Power Variation Testing

Testing was started on 18 September and completed on 21 September by exposing one (1) of each test sample (see Test Item Identification table above), to Power Variation testing. The samples were subjected to this testing in accordance with MIL-STD 810D and VVSG 1.0: 2005.

The test samples were placed in the chamber and exposed to voltage and temperature variances with a 4 hour dwell per sequence, noting that the power varies every 4 hours for two (2) 24 hour cycles, with the temperature varying every 12 hours for two (2) 24 hour cycles

Started at 117 Vac 50 degrees F, then raised to 129 Vac, lowered to 117 Vac and ambient temperature. Raised chamber to 95 degrees F and repeated power sequence. Reduced temp to 50 degrees F and repeated power sequence.





Power Variation Graph



Power Variation Test Setup



TEST Power Variation					MJO	PR06888 see below	
CUSTOMER Pro V & V		P/N	see below	S/N			
TEST ITEM	Dom	ninion Voting systems					
SPECIFICAT	TION	MIL-STD810D and2005 Voluntary	Voting System Gu	idelines (VVSG)	PARA	Method 51 Category 1- Transportatio	Basic on, and
DATE	TIME		LOG EN	TRIES			INITIAL
		items tested were:					
		DEM Suite 5.5					
		S/N's					
		Icx Prime -1707101789					
		VVPAT-KPR0000078345					
		Icx Prime -1707101730					
		VVPAT-KPR0000078339					
		Icx Prime -1707101887					
/18/17 -		VVPAT-KPR0000078377					RP
9/21/17							



PAGE	OF 	ENGINEER Polverari GOV'T QAR N/A				
D4.65	0.5					
		TEST BY Polverari DATE 9/21/17				
		All sysyems were operational for 64 hours				
9/21/17		time.	RP			
9/18/17 -		Step 14: Reconnect the system as in Step 2, and continue testing for the remaining period of operating				
		Step 13: After completing the second 24 hour cycle, disconnect power from the system and remove it from the chamber if needed.				
		Step 12: Repeated the 24 hour cycle as in Steps 5-10, complete at T=48 hrs.				
		Step 11: Set the chamber temperature at 50 degrees Fahrenheit as in Step 4.				
		hrs.				
		Step 9: At T=12:00 hrs, raised the chamber temperature to 95 degrees Fahrenheit. Step 10: Repeated Steps 5 through 8, with temperature at 95 degrees Fahrenheit, complete at T=24				
		lab ambient, observing precautions against thermal shock and condensation.				
		Step 8: At T=11:30 hrs, returned the supply voltage to 117 vac and return the chamber temperature to				
		Step 7: At T=8 hrs, raised the supply voltage to 129 vac.				
		Step 6: At T=4 hrs, lowered the supply voltage to 105 vac.				
ļ		Step 5: Begin 24 hour cycle.				
		Step 4: Set the chamber temperature to 50 degrees F, observing precautions against thermal shock and condensation.				
		Step 3: Powered the equipment, and perform an operational status check as in Section 4.6.1.5.				
		Step 2: Set the supply voltage at 117 voltage alternating current.				
		control, and data service through enclosure wall.				



Test Title:	Temperature/					
Customer:						
	Dominion Voting Systems MJO No.: PR06888					
Part No.:	SEE DATA SHEETS P.O. No.: 2017-013					
Serial No.:	SEE DATA SHEETS NTS Eng.: Polverari					
	MIL-STD810D and2005 Voluntary Voting					
Test Spec:	System Guidelines (VVSG) Revision:					
Equi	pment	Manufacture / Model	NTS I.D. #	Cal. Date	In- Service	Due Date
Chamber Co	ontroller	Watlow F4	1653	8/15/16		9/28/18
Chart Record	der	Honeywell 4500	1654	8/15/16		9/28/18
Data Acquisi	ition	Agilent 34970A	MY44019233	2/27/17		2/27/18
Mux Card		Agilent 34901A	MY41033833	2/28/17		2/28/18
						1
	Test	: By : Polverari	1		Date: 9	9/22/17
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Page	of Er	ngr.: POLVERARI		Govt.	QAR:	NA



END OF REPORT