



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

Main: 303-776-7249
Fax: 303-776-7314

Date: 31 OCTOBER 2017

Customer:
Pro V&V
700 Blvd South
Huntsville, AL 35802

Purchase Order Number: 2017-015

- A. TEST: Thermal/Power Variation
- B. TEST ITEMS: Clear Ballot Voting Systems
See page 2 for Test Item Identification
- C. TEST SPECIFICATIONS: 1. National Certification Test Guidelines
2. ISO 17025:2005
- D. RESULTS:

This is to certify that the Clear Ballot Group was subjected to the Thermal/Power Variation Test according to the above specifications.

See Page 2 for Summary of Test Results. The UUT (unit under test) was returned to the Customer for post tests and final evaluation.

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

A black and white image of a handwritten signature in cursive script, reading "Kellie Barnes".

Kellie Barnes,
Preparer

A black and white image of a handwritten signature in cursive script, reading "Bob Polverari".

Bob Polverari,
Technical Reviewer

A black and white image of a handwritten signature in cursive script, reading "John Radman".

John Radman,
Independent Reviewer



REVISIONS

Revision	Reason for Revision	Date
NR	Initial Release	10/31/2017
Rev 1	Corrections to test items and test description	11/08/2017

TEST ITEM IDENTIFICATION

Quantity	Sample Description	Serial Number
3	Clear Cast Voting Systems	CAST00011 CAST00014 CAST00015

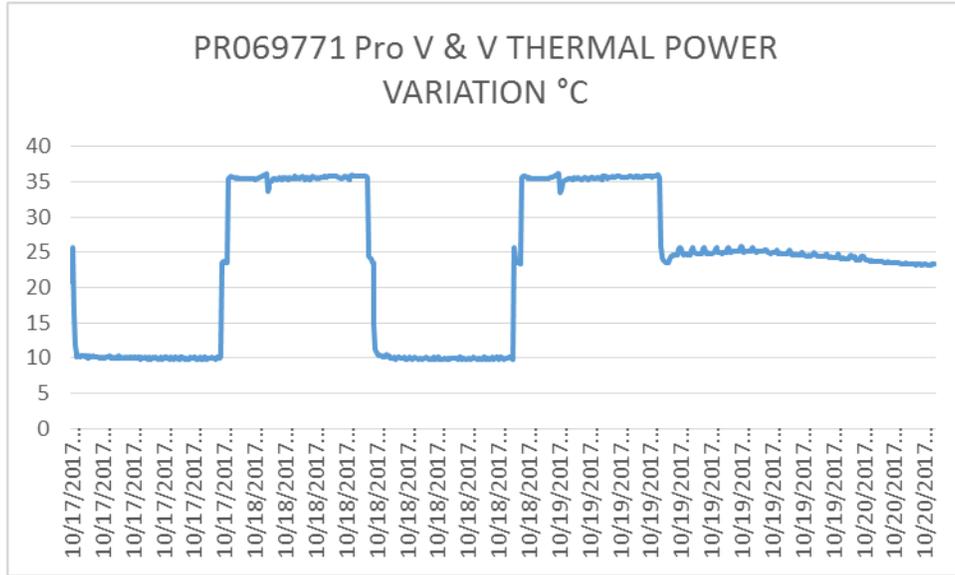
SUMMARY OF TEST RESULTS

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 the customer.

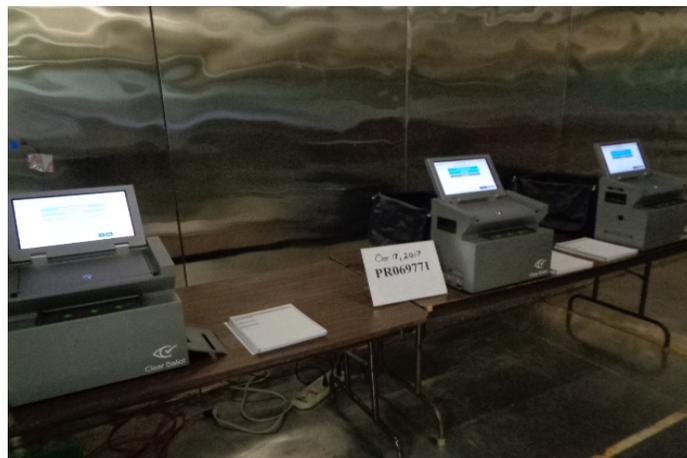
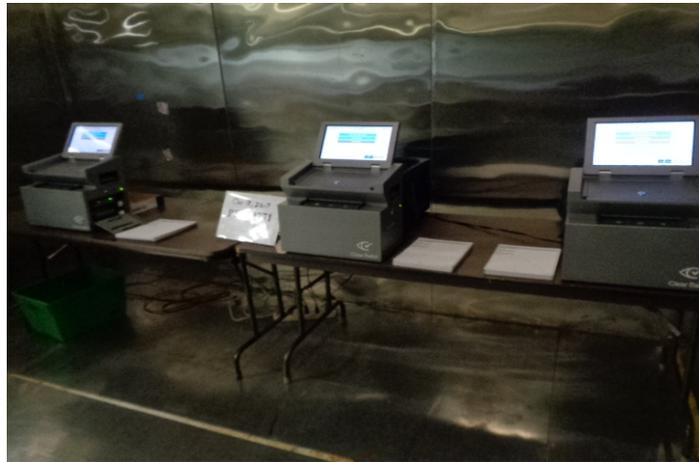
Temperature/Power Variation Testing

Testing was started on 17 October 2017 and completed on 19 October by exposing three (3) test samples, labeled samples CAST00011, CAST00014 and CAST00015 to temperature/power variation testing. The samples were subjected to testing in accordance with MIL-STD 810D.

The test samples were placed in the chamber at 10°C and were exposed to voltage and temperature variances with a 4 hour dwell per sequence noting that the power varies every four (4) hours for two (2) 24 hour cycles. **Sequence:** start at 117 Vac with chamber at 10°C, then lowered to 105 Vac, raised to 129 Vac, lowered to 117 Vac and 23°C temperature, raise to 35°C, dwell four (4) hours, repeat sequence.



Power Variation Graph



Power Variation Test Setup


GENERAL LOG SHEET

TEST <u>Thermal/Power Variation</u>		MJO <u>PR069771</u>	
CUSTOMER <u>PRO V +V</u>		P/N <u>N/A</u> S/N <u>CAST00011,14,15</u>	
TEST ITEM <u>Clear Ballot Group Clear Cast Voting Systems</u>			
SPECIFICATION <u>National Certification Test Guidelines</u> PARA <u>Vol II</u>			
DATE	TIME	LOG ENTRIES	INITIALS
<u>10/17</u>		<u>Systems in thermal chamber operational check performed by Pro V+V</u>	
<u>10/17</u>	<u>9:17</u>	<u>Ramped chamber to 10°C</u>	
	<u>10am</u>	<u>Chamber at 10°C 117 VAC start 4 hr dwell</u>	<u>RSP</u>
	<u>2pm</u>	<u>Lower Volt to 105 VAC</u>	<u>RSP</u>
	<u>6pm</u>	<u>Raise Volt to 129 VAC</u>	<u>JWP</u>
	<u>9:30</u>	<u>Lower Volt to 117 VAC and 23°C</u>	<u>JWP</u>
	<u>10pm</u>	<u>Raise chamber to 35°C</u>	<u>JWP</u>
<u>10/18</u>	<u>2am</u>	<u>Lower Volt to 105 VAC</u>	<u>JWP</u>
	<u>6am</u>	<u>Raise Volt to 129 VAC</u>	<u>Gm</u>
	<u>9:30am</u>	<u>Lower Volt to 117 VAC and 23°C</u>	<u>RSP</u>
	<u>10am</u>	<u>Set chamber to 10°C</u>	<u>RSP</u>
	<u>2pm</u>	<u>Lower Volt to 105 VAC</u>	<u>RSP</u>
	<u>6pm</u>	<u>Raise Volt to 129 VAC</u>	<u>JWP</u>
	<u>9:30</u>	<u>Lower Volt to 117 VAC and 23°C</u>	<u>JWP</u>
	<u>10:pm</u>	<u>Raise chamber to 35°C</u>	<u>JWP</u>
<u>10/19</u>	<u>2am</u>	<u>Lower Volt to 105 VAC</u>	<u>JWP</u>
	<u>6am</u>	<u>Raise Volt to 129 VAC</u>	<u>Gm</u>
	<u>9:30</u>	<u>Lower Volt to 117 VAC and 23°C</u>	<u>RSP</u>
	<u>10am</u>	<u>At Amb continued op Test for 64 hrs total</u>	<u>RSP</u>
	<u>10am</u>	<u>Completed 48 hrs Power Variation/thermal</u>	
TEST BY <u>Polverari</u>		DATE <u>10/20/17</u>	
PAGE <u>1</u> OF <u>1</u>	ENGINEER _____	GOV'T QAR <u>N/A</u>	



Test Title:	Thermal/Power Variation	
Customer:	Pro V & V	Date: 10/20/17
Part Name:	Clear Ballot Voting Systems	MJO No.: PR069771
Part No.:	na	P.O. No.: 2017-015
Serial No.:	CAST00011,14,15	NTS Eng.: Polverari
Test Spec:	National Certification Testing Guidelines	Vol II Revision:

Equipment	Manufacture / Model	NTS I.D. #	Cal. Date	In-Service	Due Date
Chamber Controller	Watlow F4	1653	8/17/17		8/17/18
Data Acquisition	Agilent 34970A	MY44019171	2/27/17		2/27/18
mux card	Agilent 34901A	MY41033833	2/28/17		2/28/18
Volt Meter	HP 34401A	WC041460	12/19/16		12/19/17

Test By: Polverari		Date: 10/20/17
Page 1 of 1	Engr.: Polverari	Govt. QAR:



END OF REPORT