Element Materials Technology Denver-Longmont A.K.A. NTS Labs, LLC Test Report for Environmental Testing of the VSR1 2.1 Voting System

Prepared For
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Revision History

Rev.	Description	Issue Date
0	Initial Release	06/17/2025

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1.0 Introduction

This document presents the test procedures used and the results obtained during the performance of an Environmental test program at Element Materials Technology Denver-Longmont (hereafter referred to as "Element"). The test program was conducted to assess the ability of the specified Equipment Under Test (EUT) to successfully satisfy the requirements defined in the test specification.

2.0 References

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

- Test Specification: MIL-STD-810H, Methods 501.7 and 502.7, Procedure II
- Pro V&V, Inc Purchase Order 2024-007,2025-007,2025-010,2025-011 dated 07/09/2024,03/31/2025,04/17/2025,05/01/2025
- Element Quotation OP0660804 dated 07/01/2024
- ISO/IEC 17025:2017(E) *General Requirements for the Competence of Testing and Calibration Laboratories*, dated 11/2017

3.0 Product Selection and Description

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

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

Item	Qty.	Name/Description	Part Number	Serial Number
1	1	PCOS	PCOS	GESA481A01000168
2	1	BMD	BMD	BDUBMDBRC4000002
3	2	Canon Scanner	DR-G2140	JF306756, JF306760
4	2	ELO	E155645	G22H011023, G22H011038
5	2	HP Printer	4001n	PHBGP04250, PHBGP04251,
6	2	Card Reader	ACR39U	RR582-133889, RR582-133891

3.1 Security Classification

Non-classified

4.0 General Test Requirements

4.1 Test Equipment

The instrumentation used in the performance of these tests is periodically calibrated and standardized within manufacturer's rated accuracies and are traceable to the National Institute of Standards and Technology. The calibration procedures and practices are in accordance with ISO 17025:2017. Certification of calibration is on file subject to inspection by authorized personnel.

5.0 Test Description and Results

Table 5.0-1: Summary of Test Information & Results

Section	Test	Specification	Test Facility	Test Date	Part #	Serial #	Test Result
5.1	Continuous Operation - Test #1	MIL-STD-810H, Methods 501.7 and 502.7, Procedure II	Longmont	03/21/2025 - 03/28/2025	N/A	GESA481A01000168	Passed
5.2	Continuous Operation - Test #2	MIL-STD-810H, Methods 501.7 and 502.7, Procedure II	Longmont	06/09/2025 - 06/13/2025	BMD	BDUBMDBRC4000002	Passed
					DR-G2140	JF306756, JF306760	
					E155645	G22H011023, G22H011038	
					4001n	PHBGP04250, PHBGP04251,	
					ACR39U	RR582-133889, RR582-133891	

The decision rule for Test Results was based on the Test Specification used for testing.

5.1 Continuous Operation - Test #1

5.1.1 Test Procedure

MIL-STD-810H, Methods 501.7 and 502.7, Procedure II

5.1.2 Test Result

The EUT passed the defined requirements.

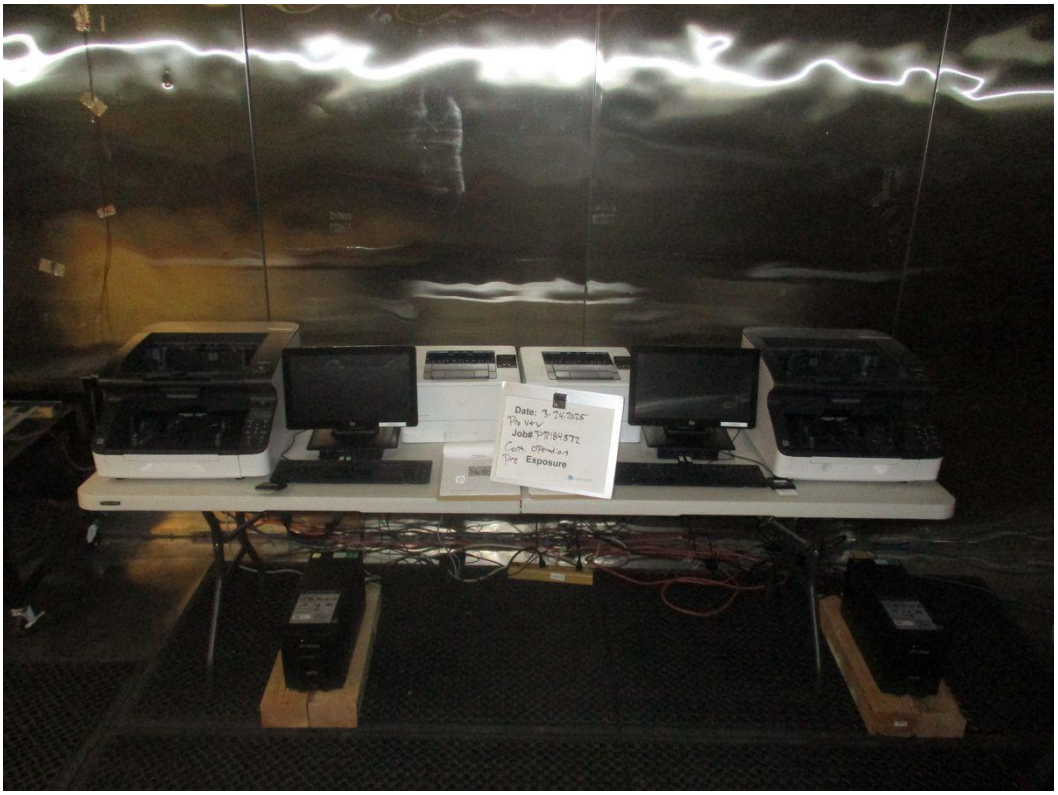
5.1.3 Test Datasheets

CLIMATICS TEST LOG

Start Date:	3/24/2025	**End Date:**	3/28/2025	**Job No:**	PR184532		
Customer:	Pro V&V			**Test Engineer:**	Cam Storey, Kerry Martin		
Customer Witness:	Walker, Bof, Mancy, Hunter			**Lab Temp:**	67F	**Lab Humidity:**	19%
Part Name:	PCOS			**Part Number:**	N/A		
Test Specification:	MIL-STD-810H, Methods 501.7 and 502.7, Procedure II			**Serial number:**	GESA481A01000168		
Test Performed:	Continuous Operation – Varied Environmental Conditions				**Lot:**	N/A	

Date	Time	Remarks	Initials
		Samples will be exposed to Continuous Operation – Varied Environmental Conditions test. The testing will be in accordance with the high and low temperature specifications of MIL-STD-810H, Methods 501.7 and 502.7, Procedure II – Operation, Cyclic Temperature and Humidity exposure. The samples will be exposed to +10C with 25% relative humidity for 12 hours and +35C with 55% RH for 12 hours. 3 cycles of exposure for a duration of 72 hours of operation. After 72 hours of exposure the chamber will return to ambient conditions for 32 hours of operation. Total test duration is 104 consecutive hours	CS
3/21/2025	900	Customers began setting up samples within the chamber	CS
3/24/2025	845	Chamber door was sealed shut. Test has begun with a ramp to +10C & 25% RH	CS
3/24/2025	1000	Begin dwell at +10C & 25% RH for 12 hours	CS
3/24/2025	2200	Ramp chamber to +35C & 55% RH & dwell for 12 hours	KM
3/25/2025	1000	Ramp chamber to +10C & 25% RH & dwell for 12 hours	CS
3/25/2025	2200	Ramp chamber to +35C & 55% RH & dwell for 12 hours	KM
3/26/2025	1000	Ramp chamber to +10C & 25% RH & dwell for 12 hours	CS
3/26/2025	2200	Ramp chamber to +35C & 55% RH & dwell for 12 hours	KM
3/27/2025	1000	Ramp chamber to +23C ambient temperature and humidity	CS
3/27/2025	1000	Temperature and humidity variation portion of test has completed	CS
3/27/2025	1000	Test will continue to run at ambient temperature and humidity for another 32 hours	CS
3/28/2025	1800	All Testing complete for a total duration of 104 hours	KM
		Note: All test pass or fail determinations decided by Pro V&V Inc.	KM
		Test Results = Pass	KM

5.1.4 Test Photographs

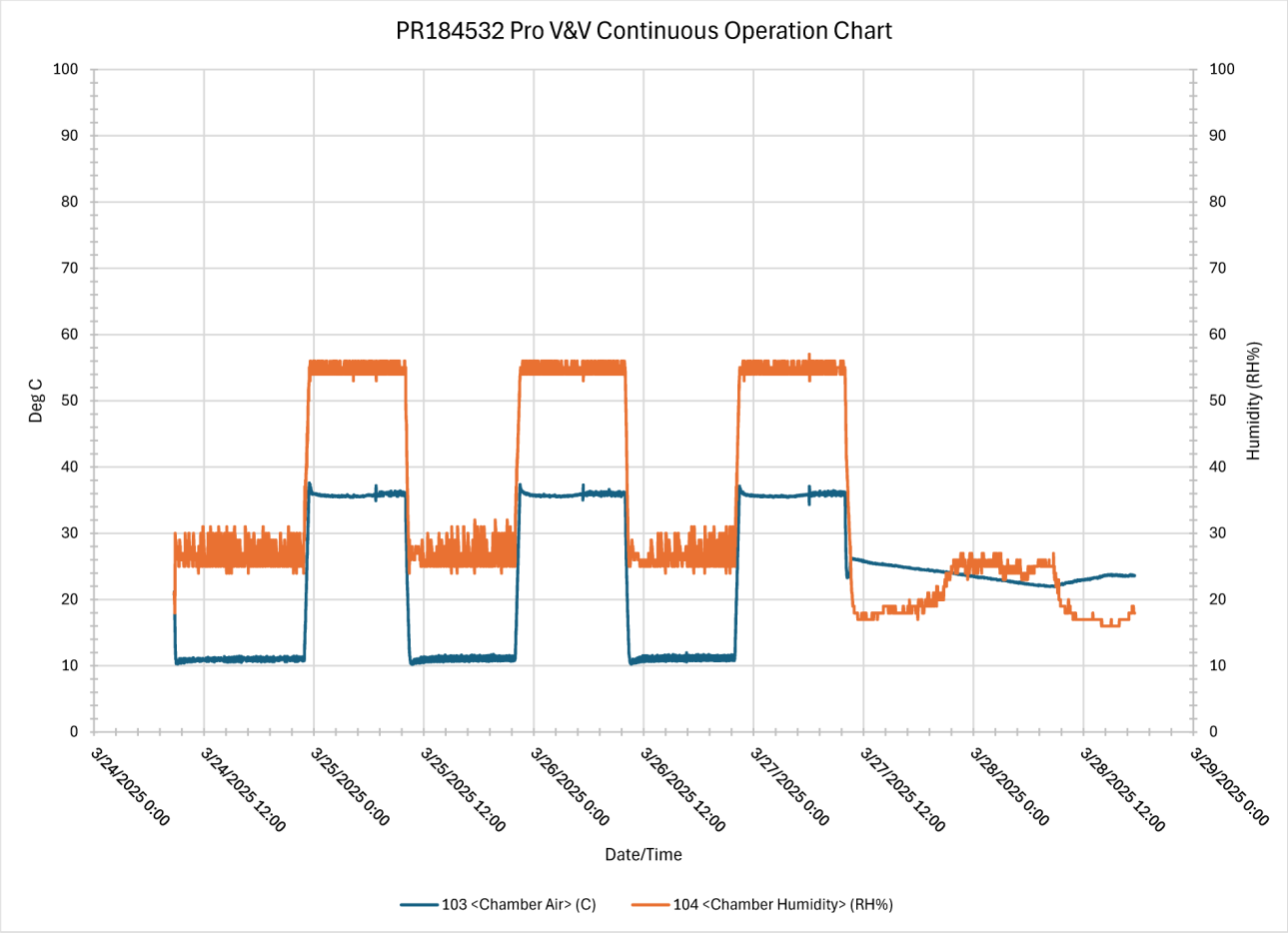


Pre-Exposure

Pre-Exposure

Pre-Exposure

5.1.5 Test Data



5.1.6 Test Equipment List

Table 5.1-1: Continuous Operation - Test #1 Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC061559	Chamber (Temperature/Humidity)	StorageTek	Large Walk In	10/03/2024	10/03/2025
WC059836	Data Acquisition (Board/Card)	Agilent Technologies	34901A	09/10/2024	09/10/2025
WC059855	Data Acquisition (Board/Card)	Agilent Technologies	34901A	08/28/2024	08/28/2025
WC070523	System (Data Acquisition)	Agilent Technologies	34970A	08/23/2024	08/23/2025

Calibration Abbreviations
CAL: Calibration
NCR: No Calibration Required

5.2 Continuous Operation - Test #2

5.2.1 Test Procedure

MIL-STD-810H, Methods 501.7 and 502.7, Procedure II

5.2.2 Test Result

The EUT passed the defined requirements.

5.2.3 Test Datasheets

CLIMATICS TEST LOG						
Start Date:	6/9/2025	**End Date:**	6/13/2025	**Job No:**	PR184532	
Customer:	Pro V&V			**Test Engineer:**	Cam Storey, Kerry Martin	
Customer Witness:	Walker, Stephen, Mancy			**Lab Temp:**	72F	**Lab Humidity:** 43%
Part Name:	VSR1 2.1 Voting System: BMD, BMD, Canon Scanner, Canon Scanner, ELO, ELO, HP Printer, HP Printer, Card Reader, Card Reader			**Part Number:**	BMD, BMD, DR-G2140, DR-G2140, E155645, E155645, 4001n, 4001n, ACR39U, ACR39U	
Test Specification:	MIL-STD-810H, Methods 501.7 and 502.7, Procedure II			**Serial number:**	BDUBMDBRC4000002, JF306760, JF306756, G22H011023, G22H011038, PHBGP04251, PHBGP04250, RR582-133889, RR582-133891	
Test Performed:	Continuous Operation – Varied Environmental Conditions				**Lot:**	N/A
Date	**Time**	**Remarks**				**Initials**
		Samples will be exposed to Continuous Operation – Varied Environmental Conditions test. The testing will be in accordance with the high and low temperature specifications of MIL-STD-810H, Methods 501.7 and 502.7, Procedure II – Operation, Cyclic Temperature and Humidity exposure. The samples will be exposed to +10C with 25% relative humidity for 12 hours and +35C with 55% RH for 12 hours. 3 cycles of exposure for a duration of 72 hours of operation. After 72 hours of exposure the chamber will return to ambient conditions for 32 hours of operation. Total test duration is 104 consecutive hours				CS
6/5/2025	900	Customers began setting up samples within the chamber				CS
6/9/2025	808	Chamber door was sealed shut. Test has begun				CS
6/9/2025	808	Begin dwell at +10C & 25% RH for 12 hours				CS
6/9/2025	2008	Ramp chamber to +35C & 55% RH & dwell for 12 hours				KM
6/10/2025	808	Ramp chamber to +10C & 25% RH & dwell for 12 hours				CS
6/10/2025	2008	Ramp chamber to +35C & 55% RH & dwell for 12 hours				KM
6/11/2025	808	Ramp chamber to +10C & 25% RH & dwell for 12 hours				CS
6/11/2025	2008	Ramp chamber to +35C & 55% RH & dwell for 12 hours				KM
6/12/2025	808	Ramp chamber to ambient temperature and humidity				CS
6/12/2025	808	Temperature and humidity variation portion of test has completed				CS
6/12/2025	808	Test will continue to run at ambient temperature and humidity for another 32 hours				CS
6/13/2025	1608	All Testing complete for a total duration of 104 hours				KM
		Note: All test pass or fail determinations decided by Pro V&V Inc.				KM
		Test Results = Pass				KM

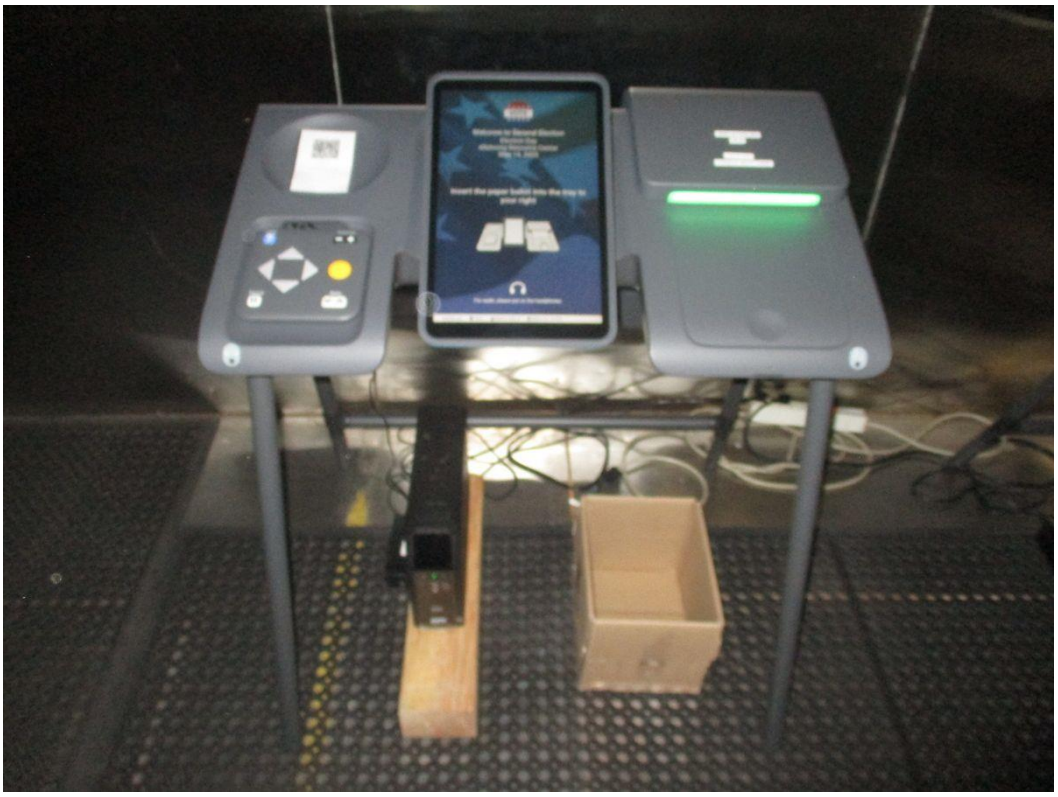
5.2.4 Test Photographs

Pre-Exposure

Pre-Exposure

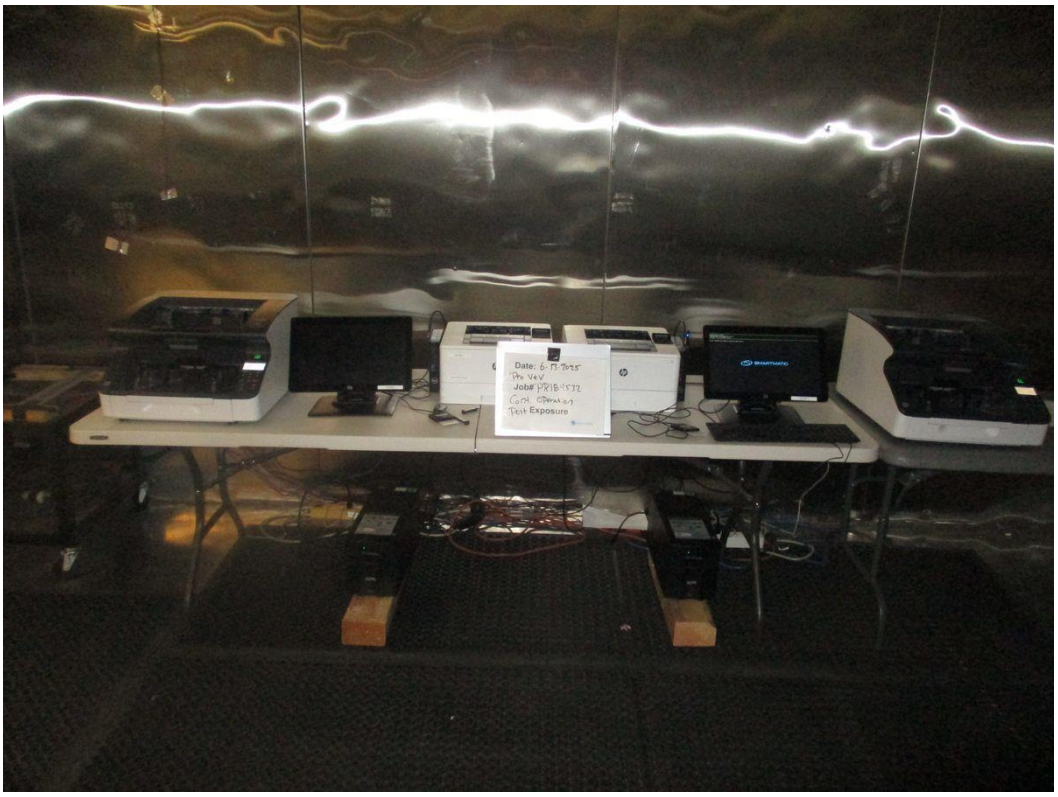
Pre-Exposure

Pre-Exposure



Pre-Exposure

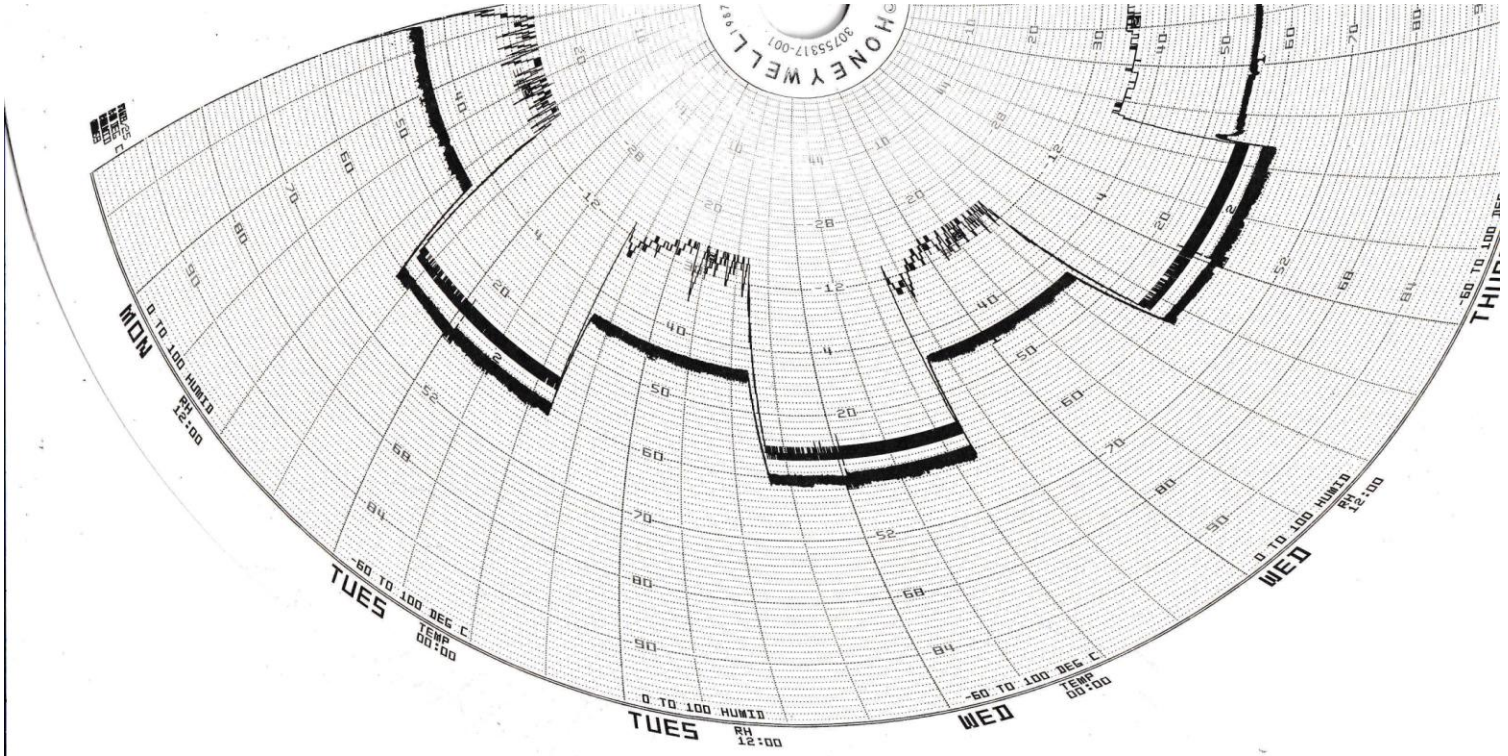
Pre-Exposure



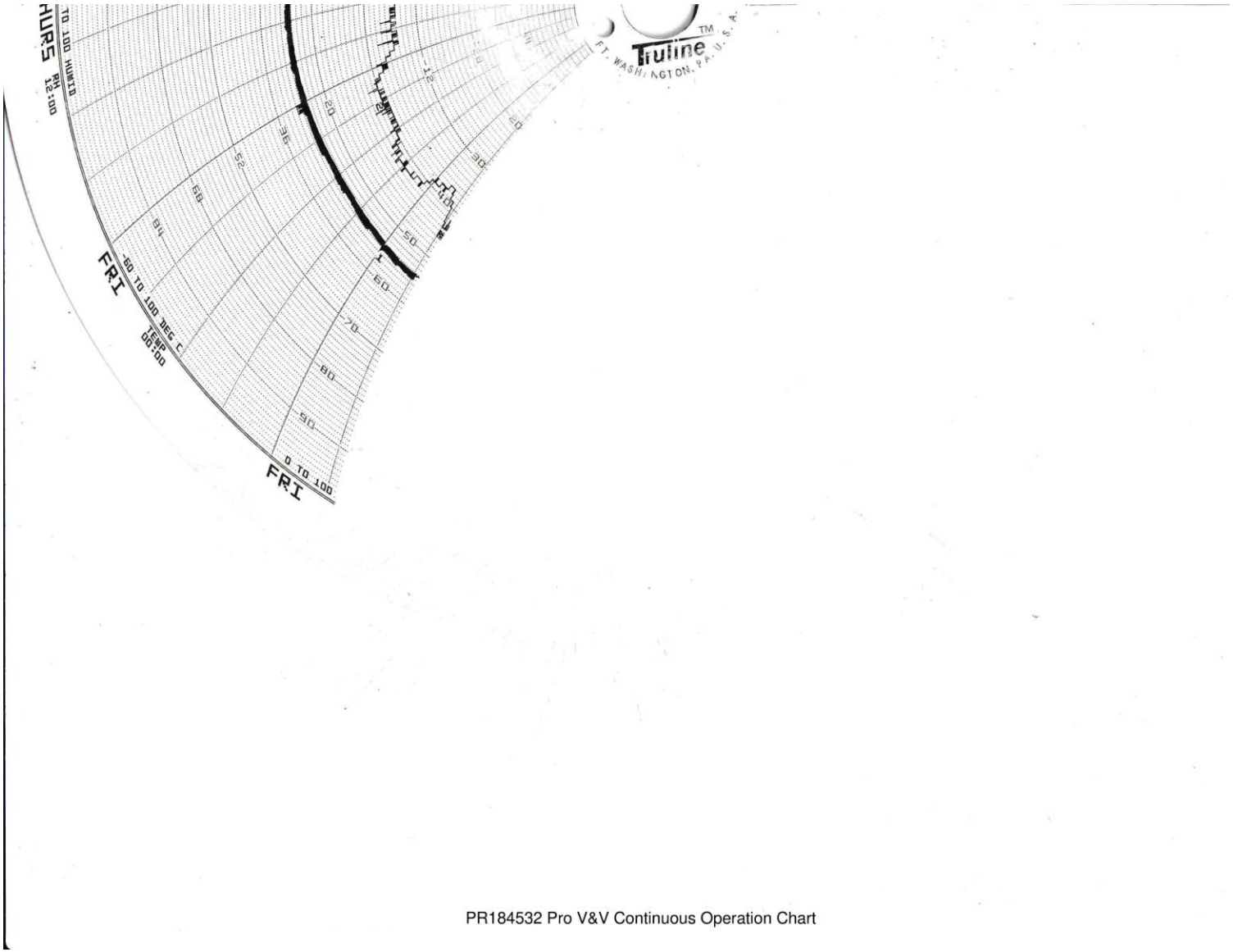
Post Exposure

Post Exposure

5.2.5 Test Data



PR184532 Pro V&V Continuous Operation Chart



PR184532 Pro V&V Continuous Operation Chart

5.2.6 Test Equipment List

Table 5.2-1: Continuous Operation - Test #2 Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC061559	Chamber (Temperature/Humidity)	StorageTek	Large Walk In	10/03/2024	10/03/2025
WC059836	Data Acquisition (Board/Card)	Agilent Technologies	34901A	09/10/2024	09/10/2025
WC059855	Data Acquisition (Board/Card)	Agilent Technologies	34901A	08/28/2024	08/28/2025
WC070523	System (Data Acquisition)	Agilent Technologies	34970A	08/23/2024	08/23/2025
WC084267	Indicator (Temperature)	Digi	90080-03	07/24/2024	07/24/2025

Calibration Abbreviations
CAL: Calibration
NCR: No Calibration Required

End of Test Report