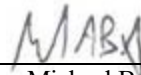


**Element Materials Technology Denver-Longmont
A.K.A. NTS Labs, LLC
Test Report for Environmental/Dynamics Testing of
the VxScan, VxMark, VXCentralScan, VxAdmin
v4.0.0, Smart Cards, Headphones, Sip and Puff,
Ballot Box, RICOH fi-8170, RICOH fi-819PRB,
RICOH fi-7600, RICOH fi-760PRB, and APC**

Prepared For

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Revision History

Rev.	Description	Issue Date
0	Initial Release	04/15/2025
1	Updated test results per customer request	04/28/2025

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1.0 Introduction

This document presents the test procedures used and the results obtained during the performance of an Environmental/Dynamics 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: See Table 5.0-1
- SLI Compliance Purchase Order 20241111 dated 11/08/2024.
- Element Quotation OP0665565 dated 10/22/2024.
- ISO/IEC 17025:2017(E) *General Requirements for the Competence of Testing and Calibration Laboratories*, dated 11/2017.

3.0 Product Selection and Description

SLI Compliance 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	VxScan	N/A	SC-11-005
2	1	VxMark	N/A	Mk-11-005
3	2	VxCentralScan	N/A	CS-11-008, CS-11-006
4	1	VxAdmin v4.0.0	N/A	AD-11-008
5	1	Smart Cards	N/A	No Serial Numbers
6	1	Headphones	N/A	No Serial Numbers
7	1	Sip and Puff	N/A	7855
8	1	Ballot Box	N/A	BB-01-004
9	1	RICOH fi-8170	N/A	CE4AJ33753
10	1	RICOH fi-819PRB	N/A	CFAAH04162
11	1	RICOH fi-7600	N/A	AUKDH01915
12	1	RICOH fi-760PRB	N/A	AVGA000534
13	4	APC	N/A	OB2408L35863, OB2409L07909, OB2408L49020, OB2408L43247

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	Low Temp	VotingWorks EAC Environmental Hardware Test Plan v3.0	Longmont	04/01/2025 - 04/02/2025	N/A	SC-11-005	Customer determined test pass after conducting an operational status check
					N/A	Mk-11-005	
5.2	High Temp	VotingWorks EAC Environmental Hardware Test Plan v3.0	Longmont	03/31/2025 - 04/01/2025	N/A	SC-11-005	Customer determined test pass after conducting an operational status check
					N/A	Mk-11-005	
5.3	Vibration	VotingWorks EAC Environmental Hardware Test Plan v3.0	Longmont	04/02/2025 - 04/03/2025	N/A	SC-11-005	Customer determined test pass after conducting an operational status check
					N/A	Mk-11-005	
5.4	Shock	VotingWorks EAC Environmental Hardware Test Plan v3.0	Longmont	04/03/2025	N/A	SC-11-005	Customer determined test pass after conducting an operational status check
					N/A	Mk-11-005	
5.5	Continuous Operation	VotingWorks EAC Environmental Hardware Test Plan v4.0	Longmont	04/04/2025 - 04/11/2025	N/A	SC-11-005	Customer determined test pass after conducting an operational status check
					N/A	Mk-11-005	
					N/A	CS-11-008, CS-11-006	
					N/A	AD-11-008	
					N/A	No Serial Number	
					N/A	No Serial Number	
					N/A	7855	
					N/A	BB-01-004	
					N/A	CE4AJ33753	
					N/A	CFAAH04162	
					N/A	AUKDH01915	
					N/A	AVGA000534	
					N/A	OB2408L49020, OB2409L07909, OB2408L35863, OB2408L43247	

5.1 Low Temp

5.1.1 Test Procedure

VotingWorks EAC Environmental Hardware Test Plan v3.0

5.1.2 Test Result

Customer determined test pass after conducting an operational status check.

5.1.3 Test Datasheets

Start Date: 4/1/2025		End Date: 4/2/2025		Job No: PR187585	
Customer: SLI Compliance			Test Engineer: Cam Storey		
Customer Witness: Steve Ramage			Lab Temp: 71F		Lab Humidity: 22%
Part Name: VxMark, VxScan			Part Number: N/A		
Test Specification: VotingWorks EAC Environmental Hardware Test Plan v3.0				Serial Number: Mk-11-005, SC-11-005	
Test Performed: Low Temperature					
Date	Time	Remarks			Initials
		The samples will be exposed in accordance to MIL-STD-810H Method 502.7 Low Temperature Procedure I-Storage. The sample will be exposed to -20C with a relative humidity of 25%. The rate of temperature change will not exceed 3C/minute. The samples will dwell in those conditions for a duration of 4 hours. After the exposure the chamber will return to ambient conditions			CS
4/1/2025	845	Samples were placed within the chamber			CS
4/1/2025	915	Chamber was programmed to test specifications			CS
4/1/2025	932	Chamber door was sealed shut. Test has begun			CS
4/2/2025	658	Samples have completed the exposure			CS
4/2/2025	715	Customer arrived on site and performed operational check on the samples			CS
4/2/2025	830	Test complete, customer to make final determination of test results			CS

5.1.4 Test Photographs

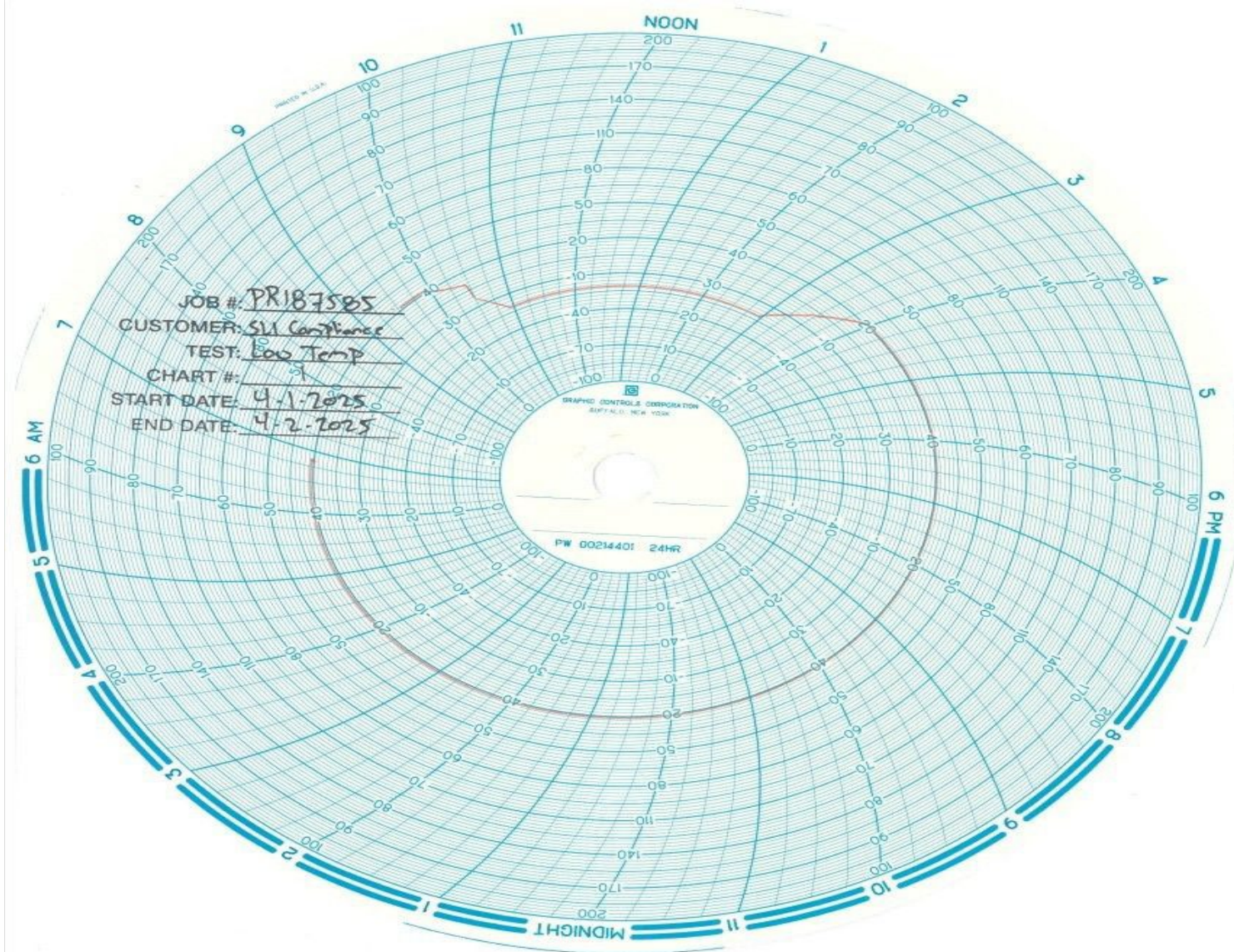


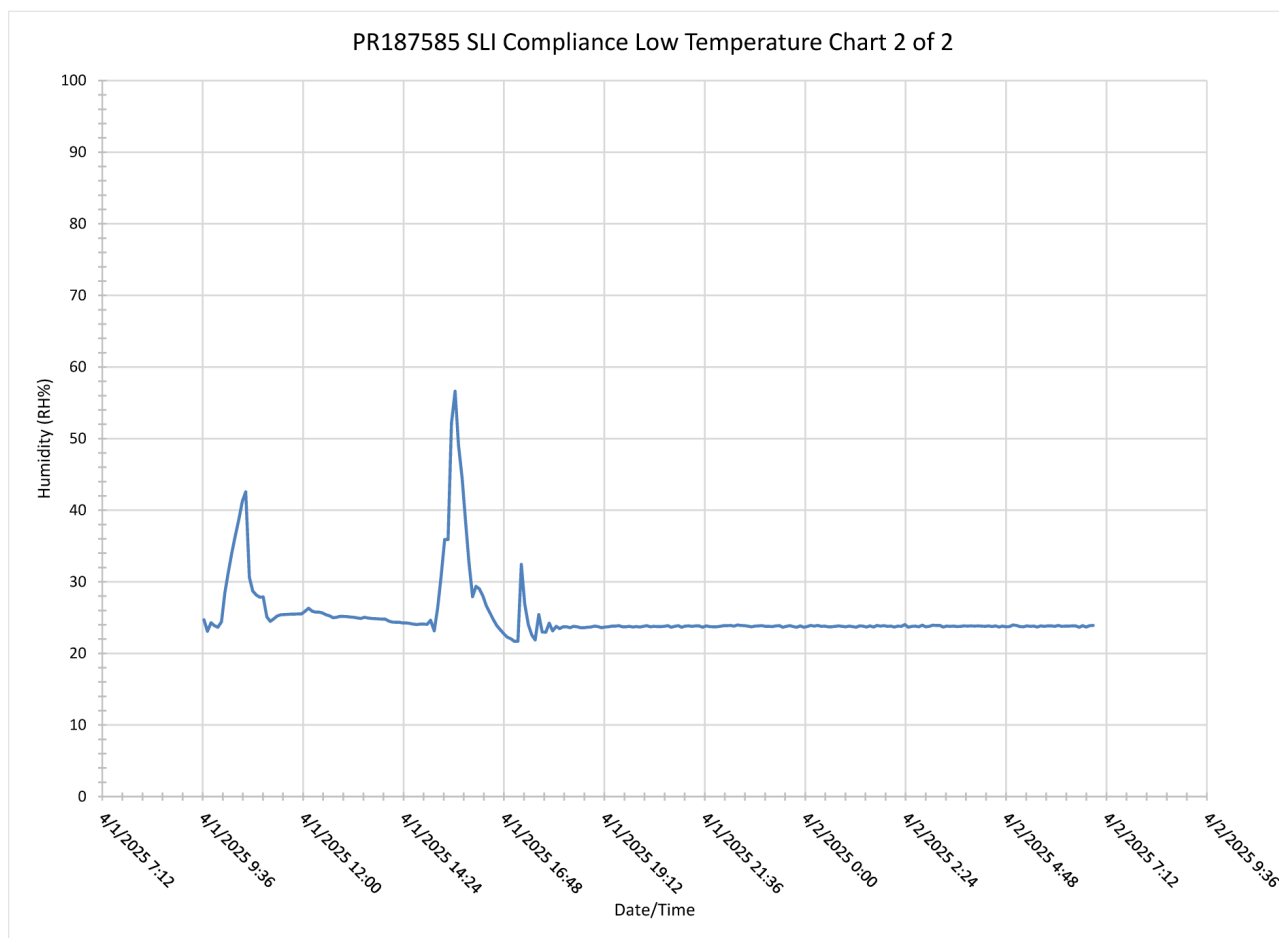
Pre-Exposure



Post Exposure

5.1.5 Test Data





5.1.6 Test Equipment List**Table 5.1-1: Low Temp Test Equipment List**

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC084418	Chamber (Temperature/Humidity)	Espec	EWPX823-30CW	07/12/2024	07/12/2025

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required

5.2 High Temp

5.2.1 Test Procedure

VotingWorks EAC Environmental Hardware Test Plan v3.0

5.2.2 Test Result

Customer determined test pass after conducting an operational status check.

5.2.3 Test Datasheets

Start Date: 3/31/2025		End Date: 4/1/2025		Job No: PR187585	
Customer: SLI Compliance			Test Engineer: Cam Storey		
Customer Witness: Steve Ramage			Lab Temp: 71F		Lab Humidity: 22%
Part Name: VxMark, VxScan			Part Number: N/A		
Test Specification: VotingWorks EAC Environmental Hardware Test Plan v3.0				Serial Number: Mk-11-005, SC-11-005	
Test Performed: High Temperature					
Date	Time	Remarks			Initials
		The samples will be exposed in accordance to MIL-STD-810H Method 501.7 High Temperature Procedure I-Storage. The sample will be exposed to +60C with a relative humidity of 55%. The rate of temperature change will not exceed 3C/minute. The samples will dwell in those conditions for a duration of 4 hours. After the exposure the chamber will return to ambient conditions			CS
3/31/2025	745	Samples were placed within the chamber			CS
3/31/2025	1100	Chamber was programmed to test specifications			CS
3/31/2025	1113	Chamber door was sealed shut. Test has begun			CS
3/31/2025	1640	Samples have completed the exposure			CS
4/1/2025	725	Customer arrived on site and performed operational check on the samples			CS
4/1/2025	800	Test complete, customer to make final determination of test results			CS

5.2.4 Test Photographs

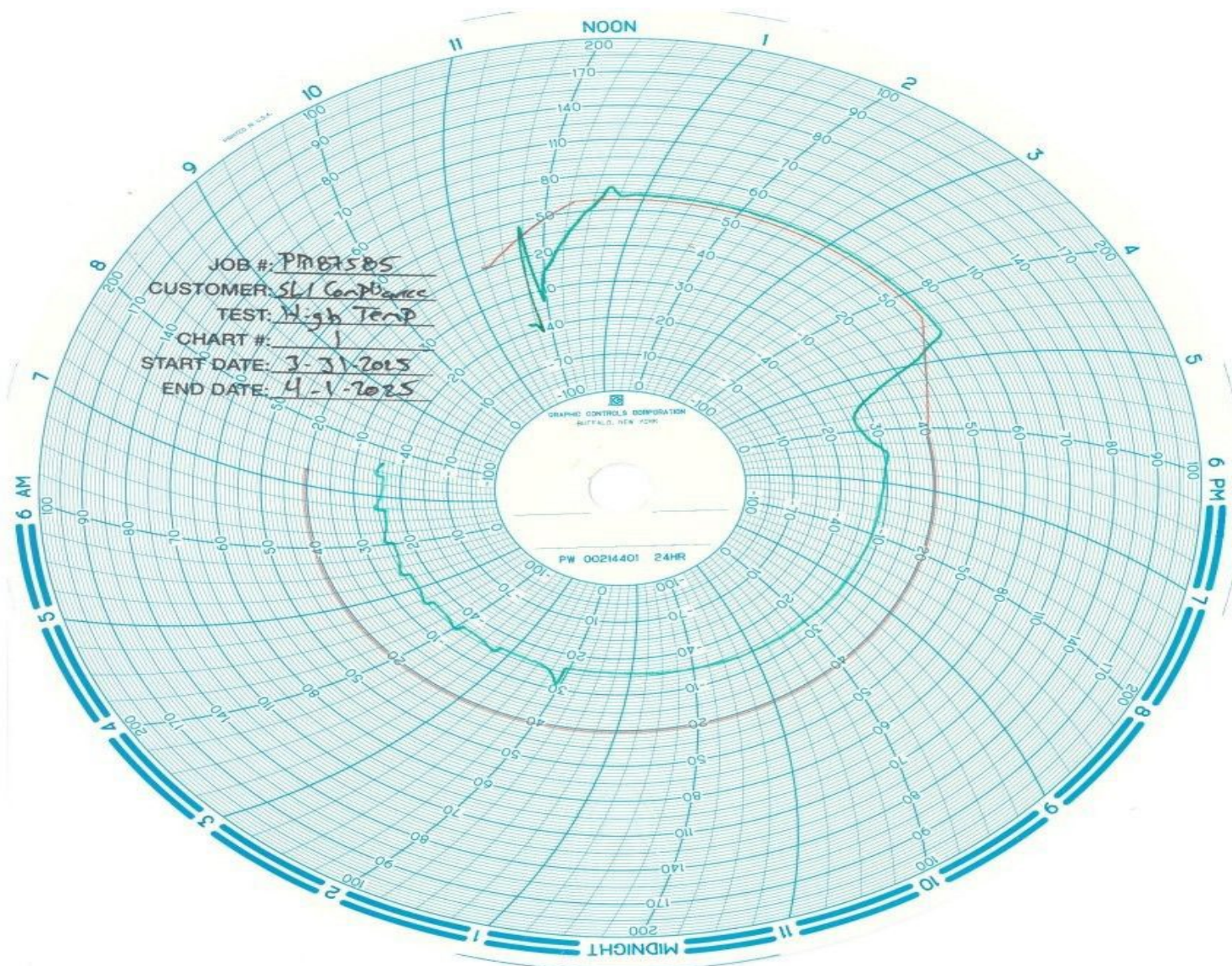


Pre-Exposure



Post Exposure

5.2.5 Test Data



5.2.6 Test Equipment List**Table 5.2-1: High Temp Test Equipment List**

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC084418	Chamber (Temperature/Humidity)	Espec	EWPX823-30CW	07/12/2024	07/12/2025

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required

5.3 Vibration

5.3.1 Test Procedure

VotingWorks EAC Environmental Hardware Test Plan v3.0

5.3.2 Test Result

Customer determined test pass after conducting an operational status check.

5.3.3 Test Datasheets

Start Date: 4/2/2025		End Date: 4/3/2025		Test: Vibration		Project No: PR187585			
Test Engineer: Cam Storey				Customer Witness: Steve Ramage		Temp: 68F		Humidity: 19%	
Part Name: VxMark, VxScan				Part Numbers: N/A		Serial numbers: Mk-11-005, SC-11-005			
Test Specification: VotingWorks EAC Environmental Hardware Test Plan v3.0									
Date	Time	Axis	Plot No.	Serial No.	Remarks	Initials			
4/2/2025	845				Set up VxMark UUT on Shaker HYD06 in the Vertical Axis	CS			
	941	Vertical	Run 1	Mk-11-005	Perform 1.08Grms Common Carrier Random Vibration on the UUT for 01:00:00 duration	CS			
	1045				Set up VxMark UUT on Shaker HYD06 in the Transverse Axis	CS			
	1058	Transverse	Run 2	Mk-11-005	Perform 0.21Grms Common Carrier Random Vibration on the UUT for 01:00:00 duration	CS			
	1201				Set up VxMark UUT on Shaker HYD06 in the Longitudinal Axis	CS			
	1250	Longitudinal	Run 3	Mk-11-005	Perform 0.78Grms Common Carrier Random Vibration on the UUT for 01:00:00 duration	CS			
	1351				Set up VxScan UUT on Shaker HYD06 in the Vertical Axis	CS			
	1412	Vertical	Run 4	SC-11-005	Perform 1.08Grms Common Carrier Random Vibration on the UUT for 01:00:00 duration	CS			
	1513				Set up VxScan UUT on Shaker HYD06 in the Transverse Axis	CS			
	1519	Transverse	Run 5	SC-11-005	Perform 0.21Grms Common Carrier Random Vibration on the UUT for 01:00:00 duration	CS			
4/3/2025	710				Set up VxScan UUT on Shaker HYD06 in the Longitudinal Axis	CS			
	713	Longitudinal	Run 6	SC-11-005	Perform 0.78Grms Common Carrier Random Vibration on the UUT for 01:00:00 duration	CS			
Test complete, customer to make final determination of test results						CS			

5.3.4 Test Photographs



SN-Mk-11-005_VxMark_Vertival Axis



SN-Mk-11-005_VxMark_Transverse Axis (1)



SN-Mk-11-005_VxMark_Transverse Axis



SN-Mk-11-005_VxMark_Transverse Axis



SN-Mk-11-005_VxMark_Longitudinal Axis



SN-Mk-11-005_VxMark_Longitudinal Axis



SN-Mk-11-005_VxMark_Longitudinal Axis



SN-SC-11-005_VxScan_Vertical Axis



SN-SC-11-005_VxScan_Transverse Axis



SN-SC-11-005_VxScan_Longitudinal Axis

5.3.5 Test Data

Element - Longmont

Customer: SLI Compliance

PR187585

Remaining: 0:00:00

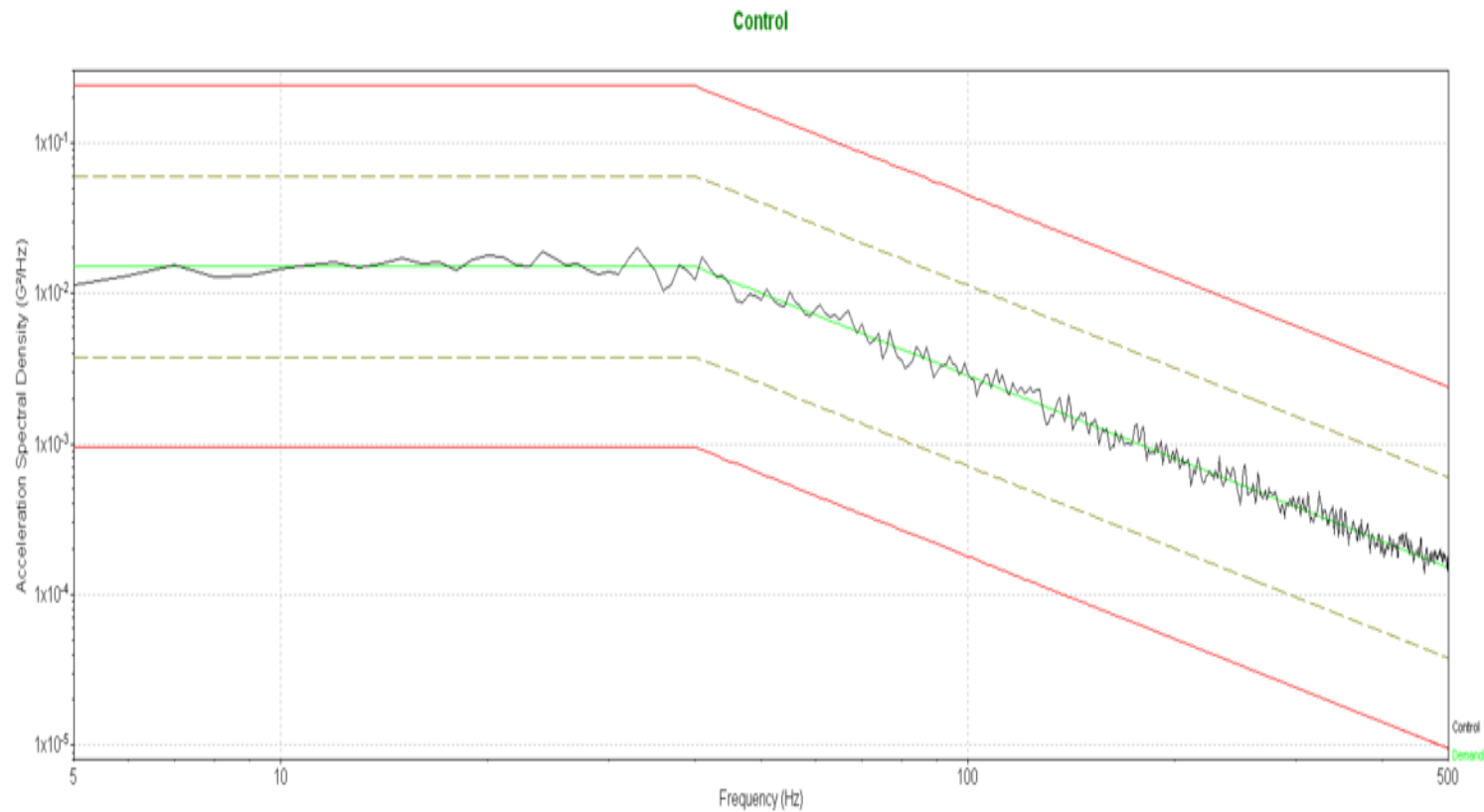
At Level: 1:00:00

Elapsed: 1:00:15

Level: 100 %

Demand: 1.082 G RMS

Control: 1.089 G RMS



Axis: Vertical

Test Item(s): vxMark

S/N(s): Mk-11-005

Start Time: Apr 02, 2025 09:41:09

End Time: Apr 02, 2025 10:41:23

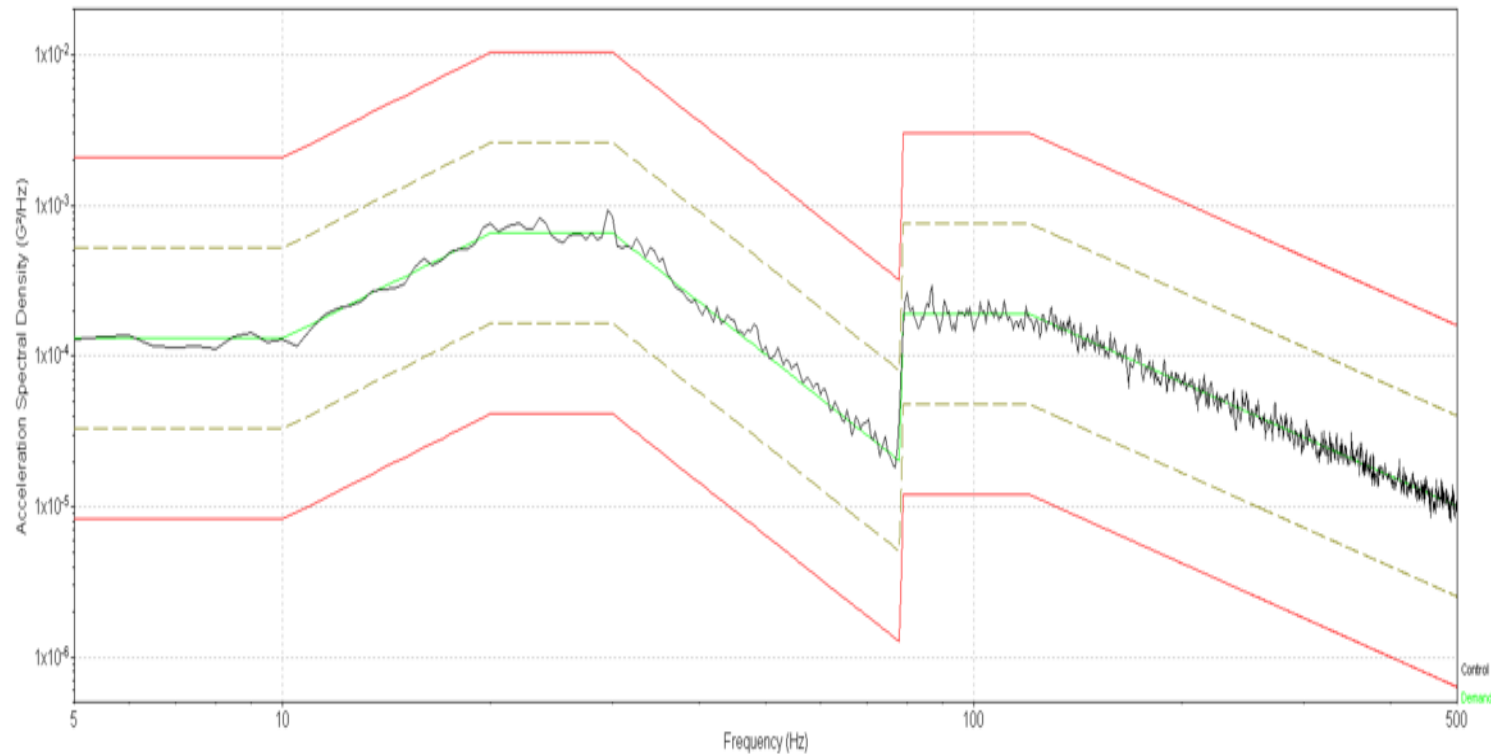
Run 1

Element - Longmont
Customer: SLI Compliance
PR187585

Remaining: 0:00:00
At Level: 1:00:00
Elapsed: 1:00:38

Level: 0 dB
Demand: 0.2052 G RMS
Control: 0.207 G RMS

Control



Axis: Transverse
Test Item(s): vxMark
S/N(s): Mk-11-005

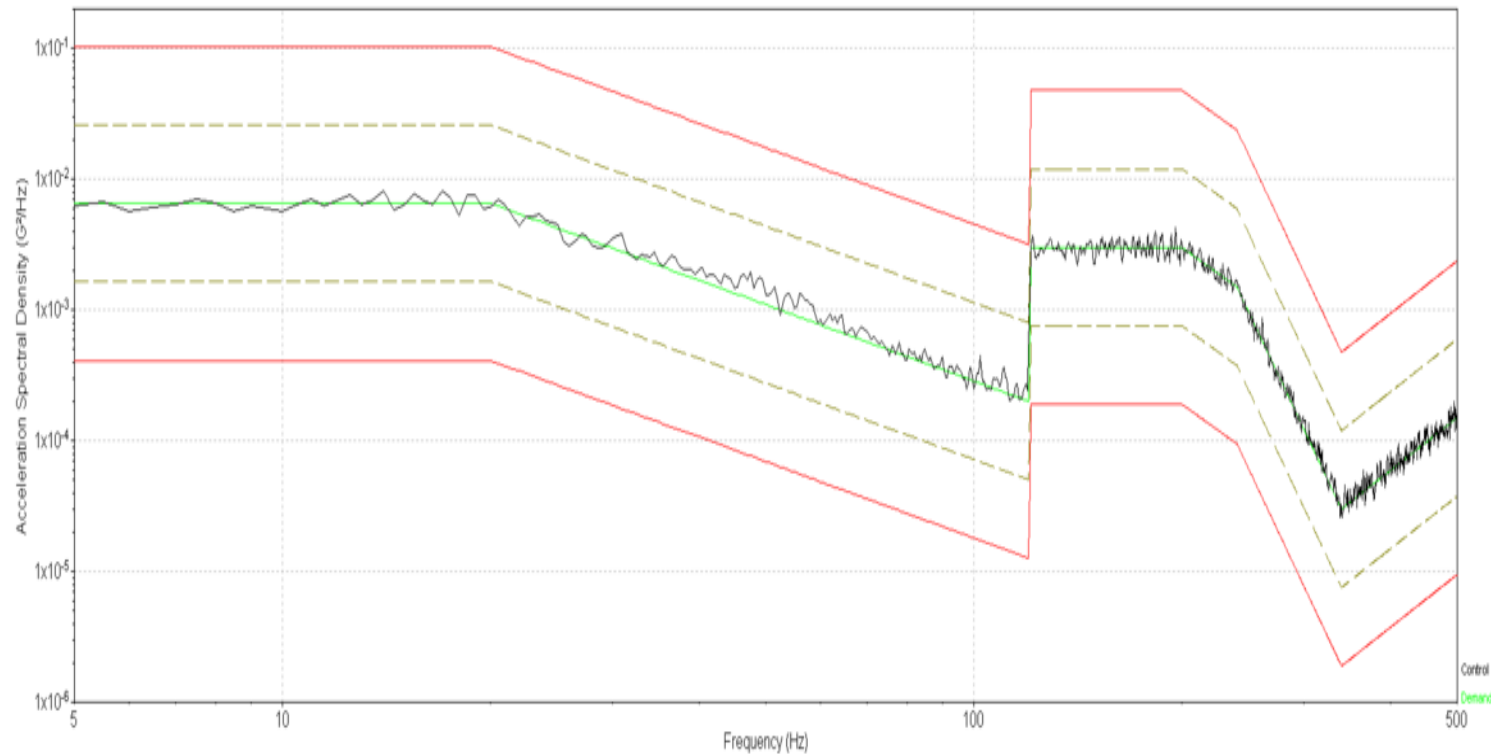
Start Time: Apr 02, 2025 10:58:34
End Time: Apr 02, 2025 11:59:12
Run 2

Element - Longmont
Customer: SLI Compliance
PR187585

Remaining: 0:00:00
At Level: 1:00:00
Elapsed: 1:00:19

Level: 100 %
Demand: 0.763 G RMS
Control: 0.7736 G RMS

Control



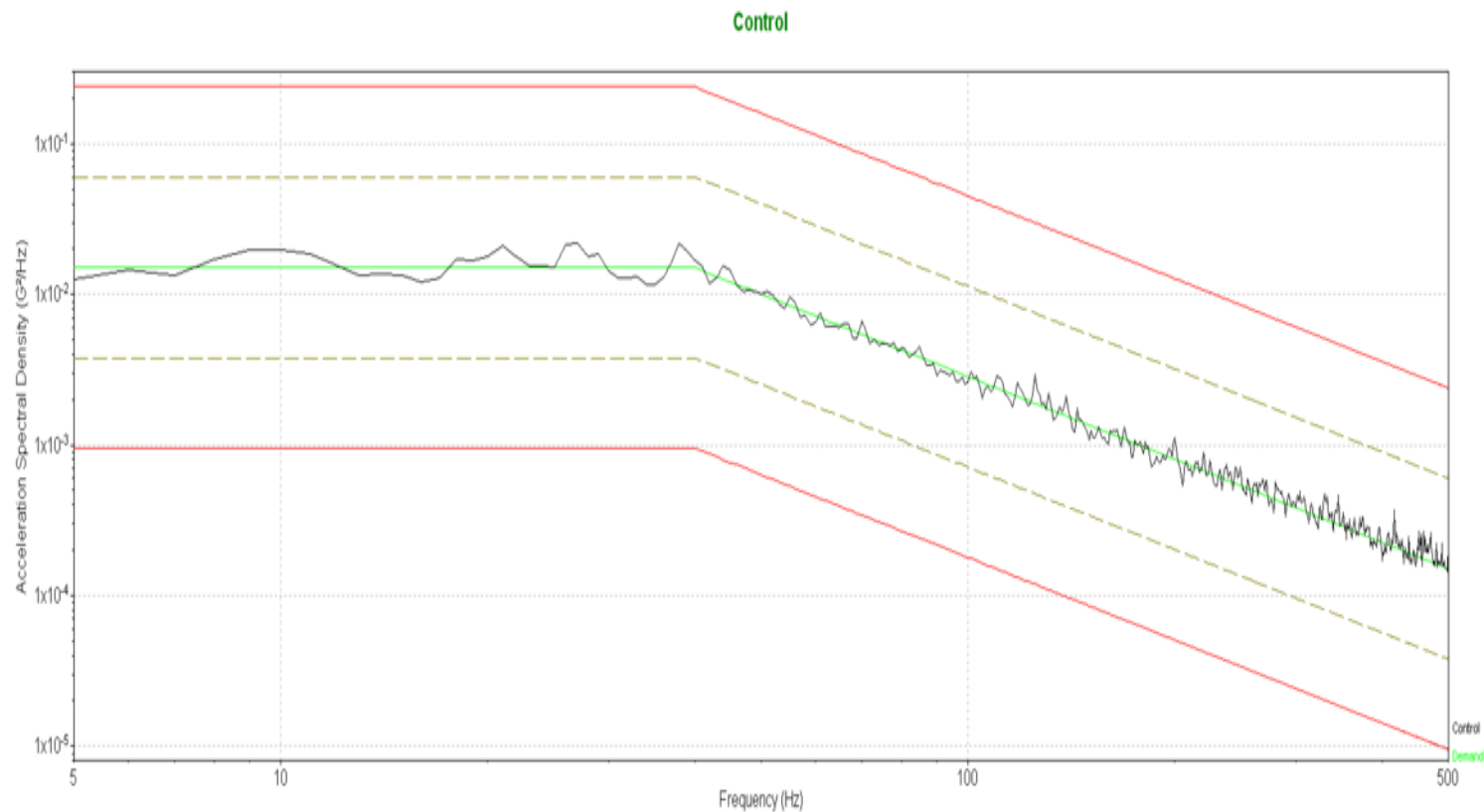
Axis: Longitudinal
Test Item(s): vxMark
S/N(s): Mk-11-005

Start Time: Apr 02, 2025 12:50:59
End Time: Apr 02, 2025 13:51:18
Run 3

Element - Longmont
Customer: SLI Compliance
PR187585

Remaining: 0:00:00
At Level: 1:00:00
Elapsed: 1:00:13

Level: 100 %
Demand: 1.082 G RMS
Control: 1.103 G RMS



Axis: Vertical
Test Item(s): VxScan
S/N(s): SC-11-005

Start Time: Apr 02, 2025 14:12:20
End Time: Apr 02, 2025 15:12:33
Run 4

Element - Longmont
Customer: SLI Compliance
PR187585

Remaining: 0:00:00

At Level: 1:00:00

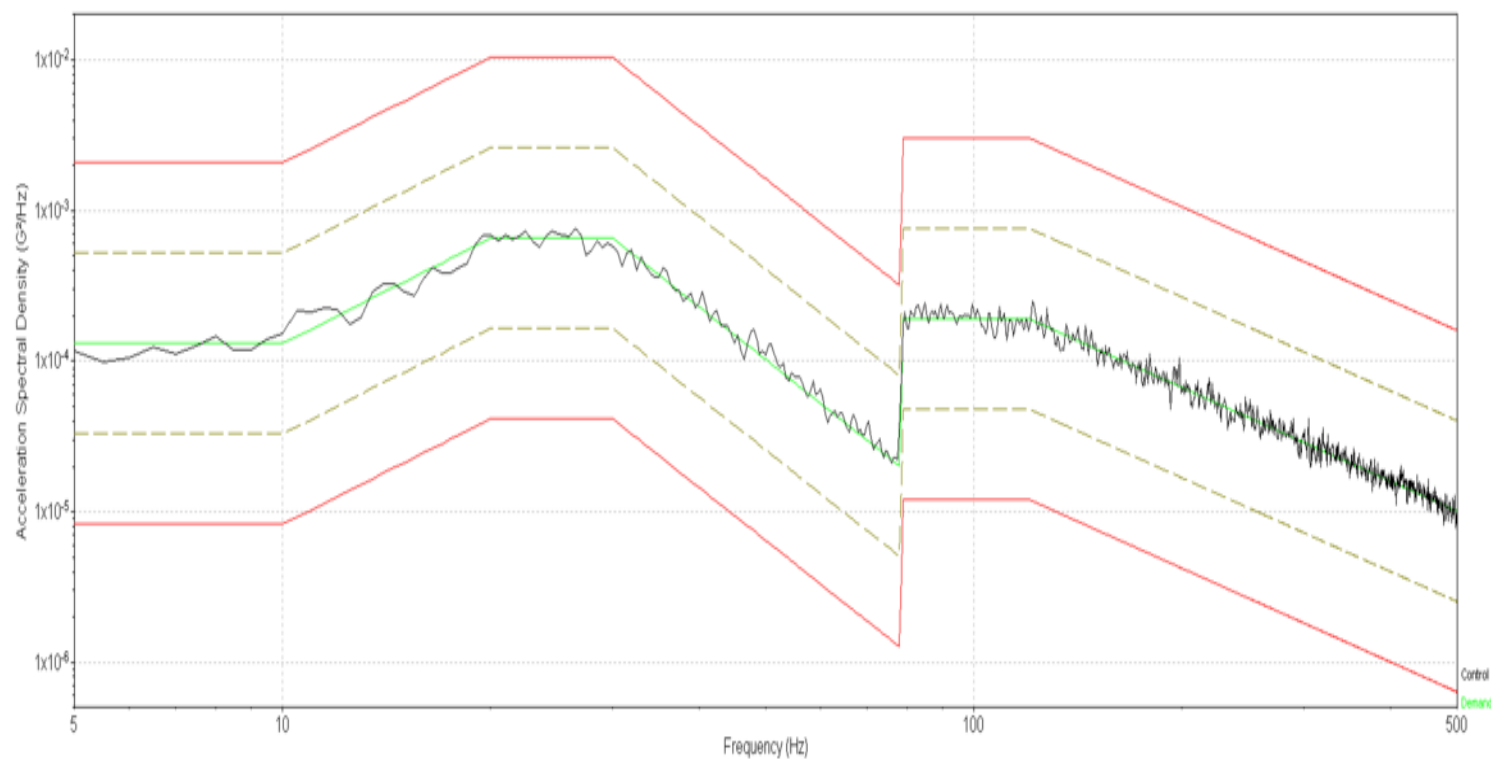
Elapsed: 1:00:35

Level: 0 dB

Demand: 0.2052 G RMS

Control: 0.2054 G RMS

Control



Axis: Transverse
Test Item(s): VxScan
S/N(s): SC-11-005

Start Time: Apr 02, 2025 15:19:25

End Time: Apr 02, 2025 16:20:00

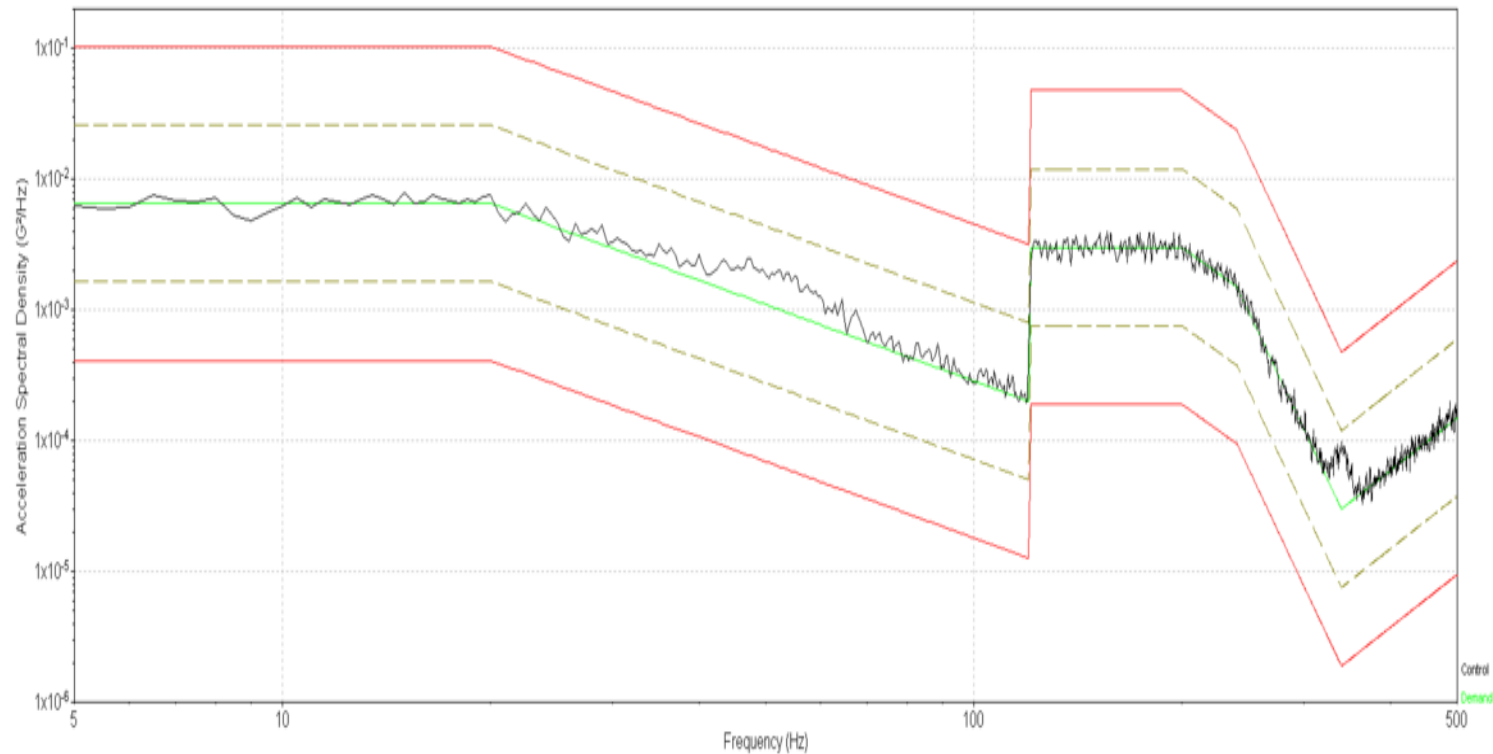
Run 5

Element - Longmont
Customer: SLI Compliance
PR187585

Remaining: 0:00:00
At Level: 1:00:00
Elapsed: 1:00:18

Level: 100 %
Demand: 0.763 G RMS
Control: 0.7898 G RMS

Control



Axis: Longitudinal
Test Item(s): VxScan
S/N(s): SC-11-005

Start Time: Apr 03, 2025 07:13:52
End Time: Apr 03, 2025 08:14:09
Run 6

5.3.6 Test Equipment List

Table 5.3-1: Vibration Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC061429	Shaker (Hydraulic)	Team Corporation	80/10.5	NCR	NCR
WC061504	Accelerometer (Vibration)	PCB Piezotronics	353B34	06/28/2024	06/28/2025
WC070466	Meter (Hygrometer)	Fluke	971	06/28/2024	06/28/2025
WC080847	Controller (Vibration)	Vibration Research	VR9500	08/08/2024	08/08/2025
WC084273	Wrench (Torque)	Snap-on	QD3R150	05/16/2024	05/16/2025
WC084328	Accelerometer (Shock)	PCB Piezotronics	353B33	07/23/2024	07/23/2025

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required

5.4 Shock

5.4.1 Test Procedure

VotingWorks EAC Environmental Hardware Test Plan v3.0

5.4.2 Test Result

Customer determined test pass after conducting an operational status check.

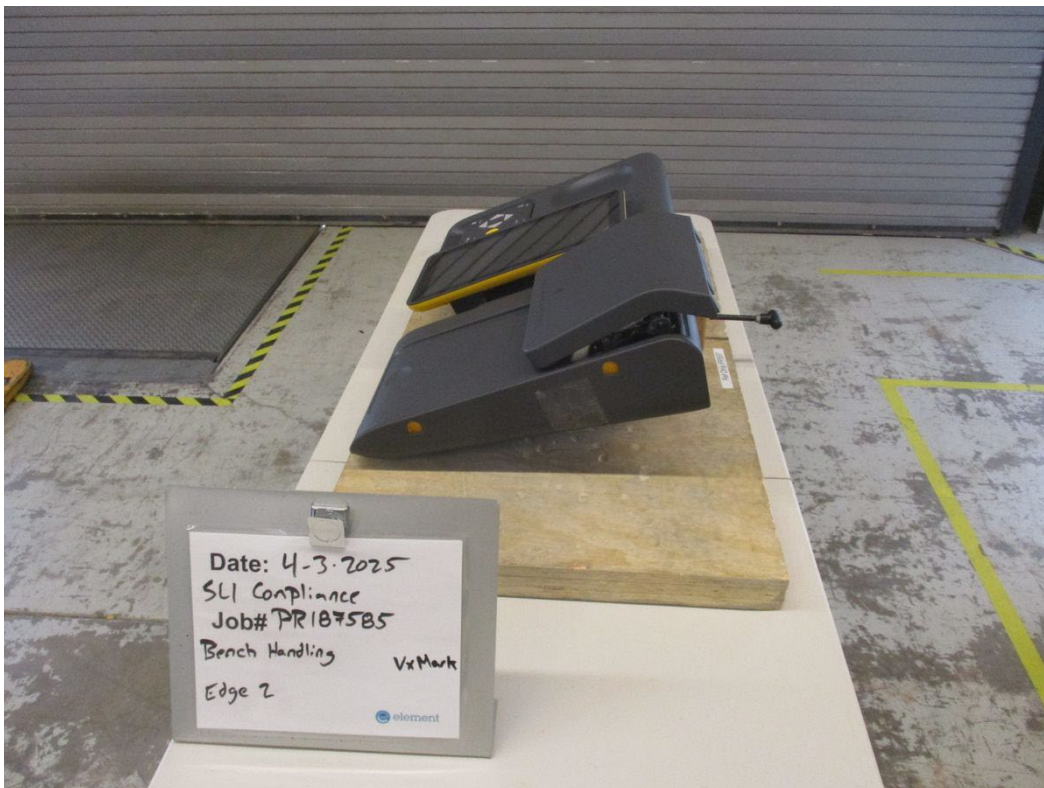
5.4.3 Test Datasheets

Start Date: 4/3/2025		End Date: 4/3/2025		Test: Bench Handling		Project No: PR187585	
Test Engineer: Cam Storey				Customer Witness: Steve Ramage		Temp: 72F	
Part Name: VxMark, VxScan				Part Numbers: N/A		Humidity: 18%	
Test Specification: VotingWorks EAC Environmental Hardware Test Plan v3.0				Serial numbers: Mk-11-005, SC-11-005			
Date	Time	Axis	Plot No.	Serial No.	Remarks		Initials
4/3/2025	850				Setup Bench Handling test on UUT VxMark		CS
	901		Drop 1-4	Mk-11-005	Perform 4 drops on UUT from a height of 4 inches. 1 drop per edge		CS
	908				Setup Bench Handling test on UUT VxScan		CS
	909		Drop 1-4	SC-11-005	Perform 4 drops on UUT from a height of 4 inches. 1 drop per edge		CS
					Test complete, customer to make final determination of test results		CS

5.4.4 Test Photographs



SN-Mk-11-005_VxMark_Edge 1



SN-Mk-11-005_VxMark_Edge 2



SN-Mk-11-005_VxMark_Edge 3



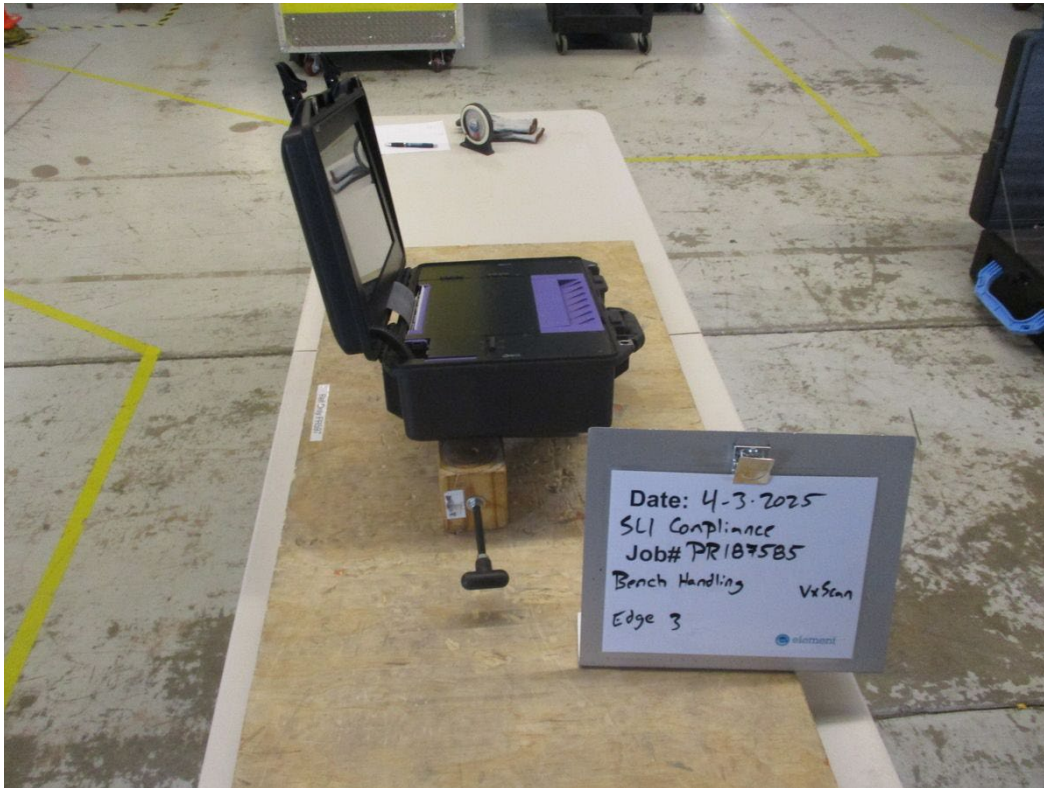
SN-Mk-11-005_VxMark_Edge 4



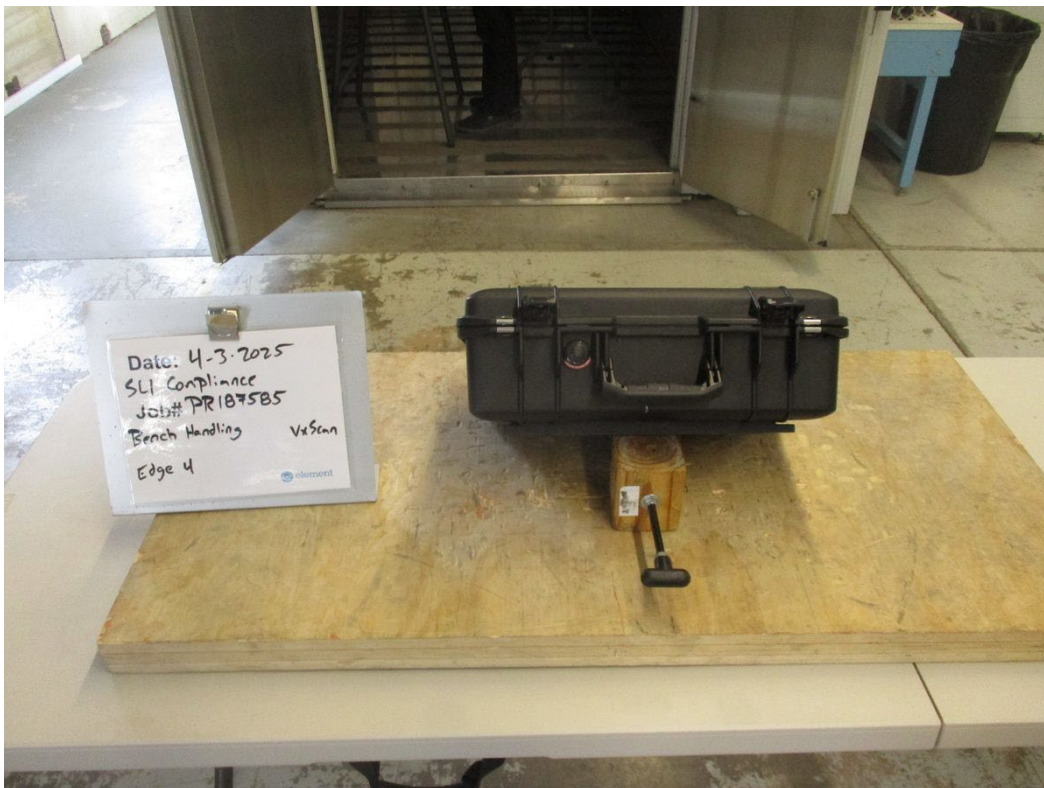
SN-SC-11-005_VxScan_Edge 1



SN-SC-11-005_VxScan_Edge 2



SN-SC-11-005_VxScan_Edge 3



SN-SC-11-005_VxScan_Edge 4

5.4.5 Test Equipment List

Table 5.4-1: Shock Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC070466	Meter (Hygrometer)	Fluke	971	06/28/2024	06/28/2025
WC078513	Measurement Tools (Rule)	StorageTek	4 Inch Block	NCR	NCR
WC084235	Measurement Tools (Protractor)	Empire Devices	36	07/23/2024	07/23/2025
WC084240	Measurement Tools (Tape Measure)	Stanley	33-726	06/26/2024	06/26/2025

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required

5.5 Continuous Operation

5.5.1 Test Procedure

VotingWorks EAC Environmental Hardware Test Plan v4.0

5.5.2 Test Result

Customer determined test pass after conducting an operational status check.

5.5.3 Test Datasheets

Start Date: 4/4/2025		End Date: 4/11/2025		Job No: PR187585	
Customer: SLI Compliance			Test Engineer: Cam Storey, Kerry Martin		
Customer Witness: Steve Ramage			Lab Temp: 73F		Lab Humidity: 19%
Part Name: VxMark, VxScan, VxCentralScan			Part Number: N/A		
Test Specification: VotingWorks EAC Environmental Hardware Test Plan v4.0				Serial Number: MK-11-005, SC-11-007, CS-11-006 and CS-11-008	
Test Performed: Continuous Operation – Varied Environmental Conditions					
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
4/4/2025	730	Customers began setting up samples within the chamber			CS
4/7/2025	745	Chamber door was sealed shut. Test has begun with a ramp to +10C & 25% RH			CS
4/7/2025	800	Begin dwell at +10C & 25% RH for 12 hours			CS
4/7/2025	1000	Customer notified that the VxScan needed a replacement on test run #3. Start time for this sample will be 2 hours later than the other samples			CS
4/7/2025	2000	Ramp chamber to +35C & 55% RH & dwell for 12 hours			KM
4/8/2025	800	Ramp chamber to +10C & 25% RH & dwell for 12 hours			CS
4/8/2025	2000	Ramp chamber to +35C & 55% RH & dwell for 12 hours			KM
4/9/2025	800	Ramp chamber to +10C & 25% RH & dwell for 12 hours			CS
4/9/2025	2000	Customer instructed to extended the last cold cycle by 2 hours so the VxScan can get the 2 hours of cold it missed on the first cold cycle. All other samples will have 2 hours extra of cold			KM
4/9/2025	2200	Ramp chamber to +35C & 55% RH & dwell for 12 hours			KM
4/10/2025	1000	Ramp chamber to +23C ambient temperature and humidity			CS
4/10/2025	1000	Temperature and humidity variation portion of test has completed			CS
4/10/2025	1000	Test will continue to run at ambient temperature and humidity for another 32 hours			CS
4/11/2025	1600	VxMark and VxCentralScan completed at 1600 for a total duration of 104 hours. VxScan will continue to run until 1800			CS
4/11/2025	1800	VxScan completed at 1800 for a total duration of 104 hours			KM
4/11/2025	1800	All samples have completed their exposure for a total duration of 104 hours			KM
4/11/2025	1800	Test complete, customer to make final determination of test results			KM

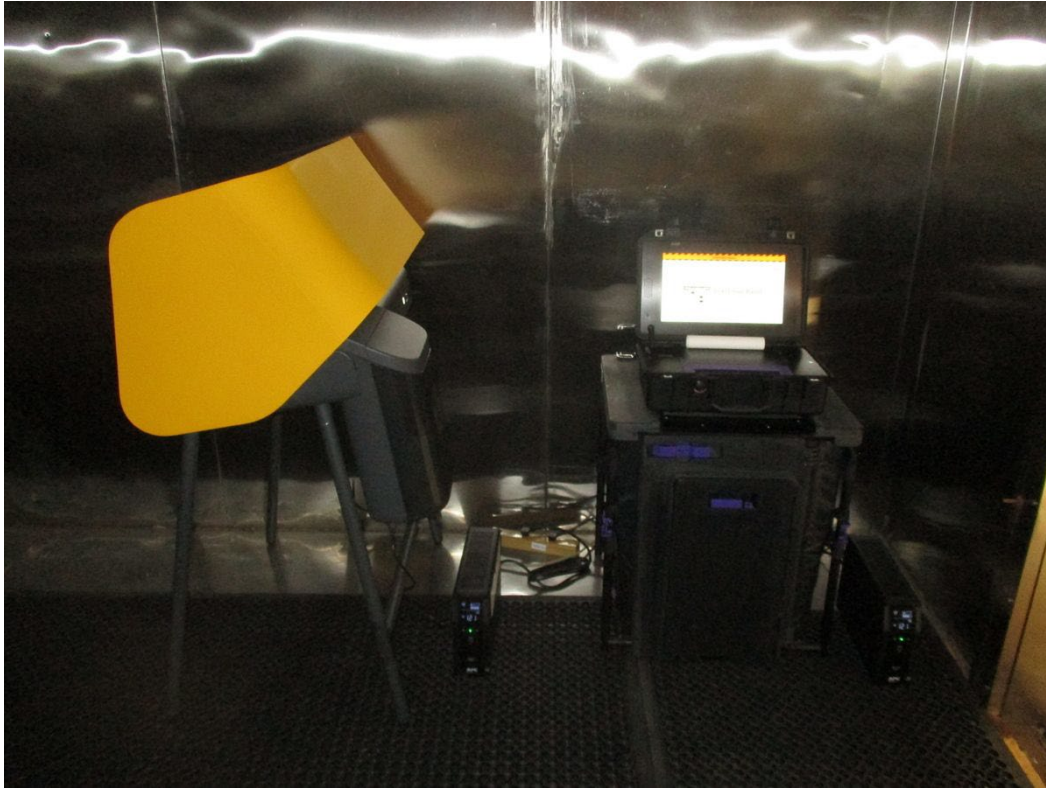
5.5.4 Test Photographs



Pre-Exposure



Pre-Exposure



Pre-Exposure



Pre-Exposure

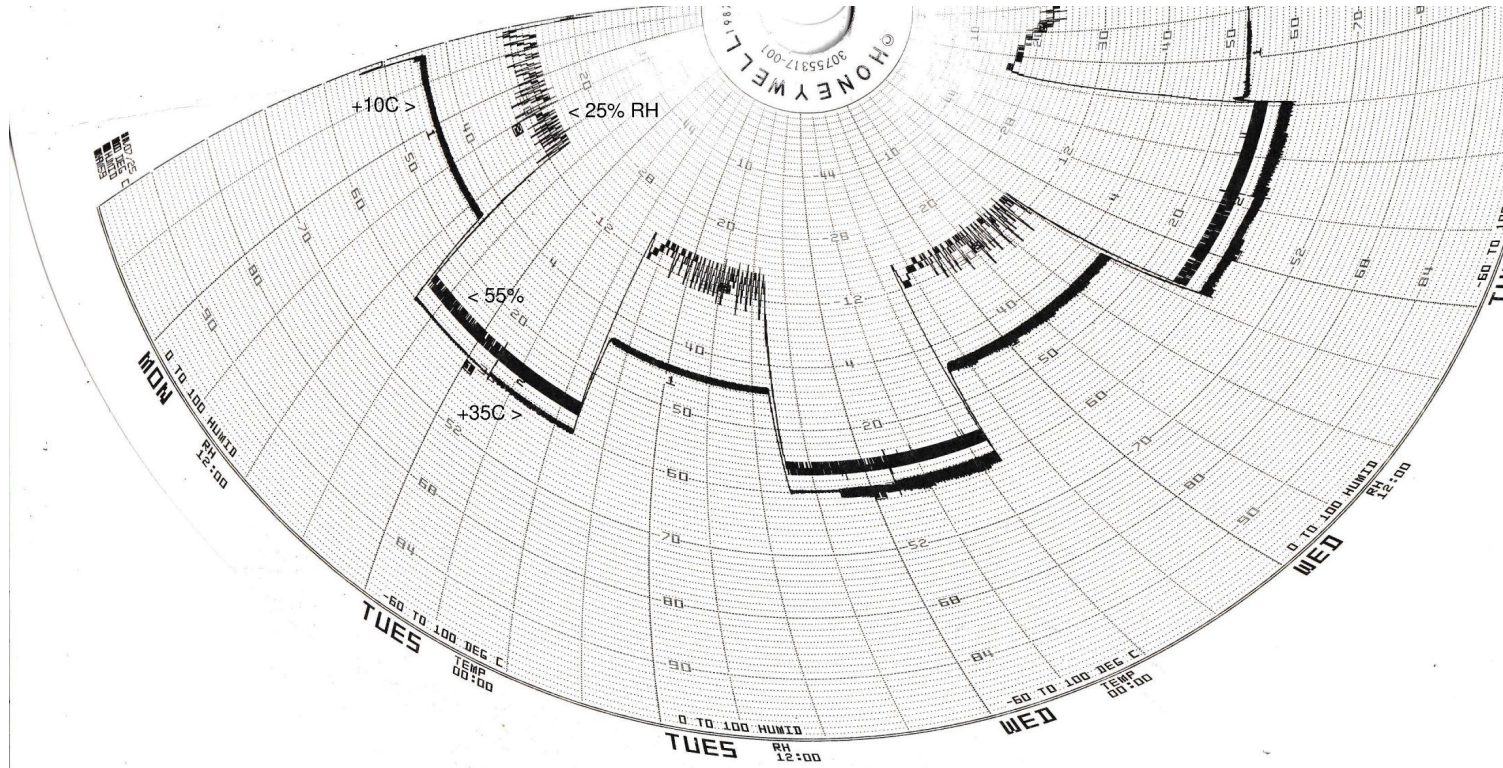


Post Exposure

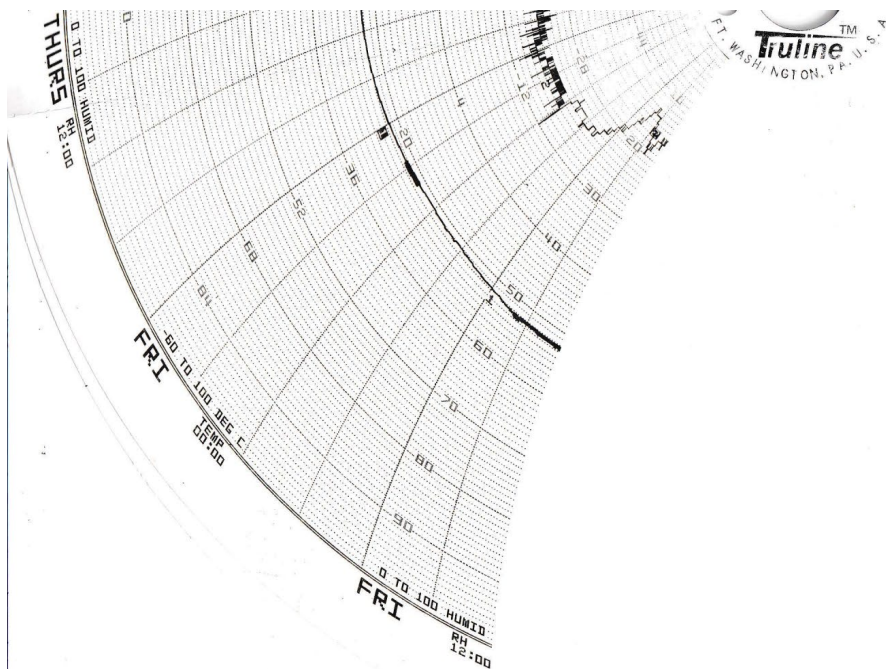


Post Exposure

5.5.5 Test Data



PR187585 SLI Compliance Continuous Operation Chart



PR187585 SLI Compliance Continuous Operation Chart

5.5.6 Test Equipment List

Table 5.5-1: Continuous Operation Test 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

End of Test Report