



NTS Labs LLC Test Report for Environmental Testing of the Atom 2

Prepared For

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Performed By

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A handwritten signature in black ink, appearing to read "Lori Hartman", written over a horizontal line.

Lori Hartman
Preparer

A handwritten signature in black ink, appearing to read "John Hill", written over a horizontal line.

John Hill
Program Manager

This report and the information contained herein represents the results of testing of only those articles/products identified in this document and selected by the client. The tests were performed to specifications and/or procedures approved by the client. NTS Labs LLC makes no representations expressed or implied that such testing fully demonstrates efficiency, performance, reliability, or any other characteristic of the articles being tested, or similar products. This report should not be relied upon as an endorsement or certification by NTS Labs LLC of the equipment tested, nor does it present any statement whatsoever as to the merchantability or fitness of the test article or similar products for a particular purpose. This document shall not be reproduced except in full without written approval from NTS Labs LLC.

Revision History

Rev.	Description	Issue Date
0	Initial Release	02/02/2023
1	Added Appendix A	03/13/2023
2	Corrected Categories and added Part Number	04/03/2023
3	Corrected test categories in Table 5.0	04/17/2023

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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. 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.

- Test Specification: See Table 5.0-1
- SHOTOVER Systems Purchase Order(s) 1064, dated 07/25/2022
- NTS Labs LLC Quote(s) , dated 04/11/2022
- ISO/IEC 17025:2017(E) *General Requirements for the Competence of Testing and Calibration Laboratories*, dated 11/1/2017

3.0 Product Selection and Description

SHOTOVER Systems selected and provided the 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	Atom 2	US007-0001	180001

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 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	Altitude	DO-160G Section 4, Category B2	Longmont	01/19/2023	US007-0001	180001	No visual damage noted
5.2	Temperature	DO-160G Section 4, Category B2	Longmont	01/20/2023	US007-0001	180001	No visual damage noted
5.3	Temperature Variation	DO-160G Section 5, Category B	Longmont	01/24/2023 - 01/25/2023	US007-0001	180001	No visual damage noted
5.4	Operational Shock	RTCA DO-160G Section 7, Category B	Longmont	01/26/2023 - 01/28/2023	US007-0001	180001	No visual damage noted
5.5	Crash Safety (Impulse)	RTCA DO-160G Section 7, Category B	Longmont	01/26/2023 - 01/28/2023	US007-0001	180001	No visual damage noted
5.6	Vibration	RTCA DO-160G Section 8, Categories S, U2, and R	Longmont	01/26/2023 - 01/30/2023	US007-0001	180001	No visual damage noted
5.7	Humidity	DO-160G Section 6, Category A	Longmont	01/30/2023 - 02/01/2023	US007-0001	180001	No visual damage noted
Appendix A ¹	Explosive Atmosphere	DO-160G Section 9, Category E	Huntsville	02/22/2023	US007-0001	180001	No visual damage or anomalies noted

¹Note: Appendix A testing was performed by NTS Labs LLC 7800 Highway 20 West, Huntsville, Alabama 35806.
The decision rule for Test Results was based on the Test Information provided by the customer.



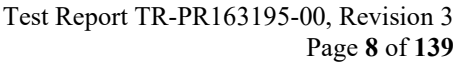
5.1 Altitude

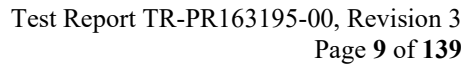
5.1.1 Test Procedure

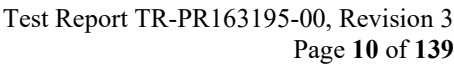
The ATOM 2 was tested in accordance with DO-160G Section 4, Category B2.

5.1.2 Test Result

The EUT showed no visual damage after the test was completed.

[illegible]

[illegible]



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5.1.4 Test Photographs



Overpressure _Test



_Overpressure _Test



_Overpressure _Test

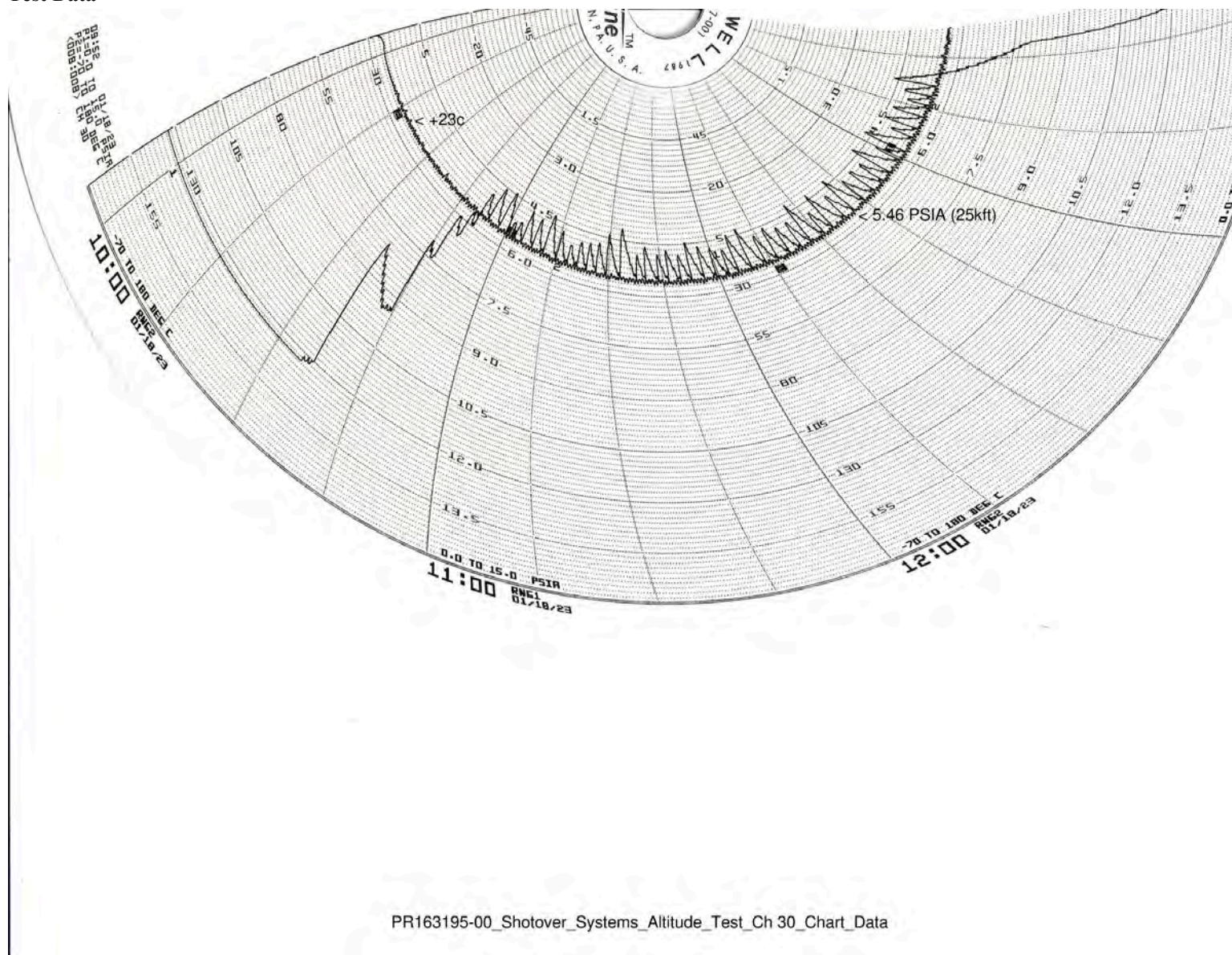


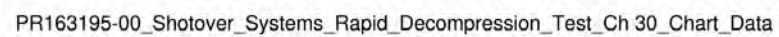
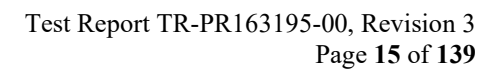
_Altitude _Test _Ch 30

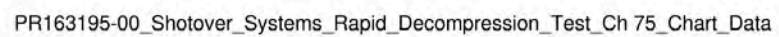


Rapid_ Decompression_ Test _Ch 75

5.1.5 Test Data









5.1.6 Test Equipment List

Table 5.1-1: Altitude Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC059893	Chamber (Temperature/Altitude)	StorageTek	Altitude	05/02/2022	05/02/2023
WC061549	Chamber (Rapid Decompression)	StorageTek	Rapid Decompression	05/02/2022	05/02/2023
WC078509	Chamber (Overpressure)	StorageTek	8363H	NCR	NCR
WC059863	Gauge (Pressure)	Dwyer Instruments	DPGA-08	08/08/2022	08/08/2023
WC061547	Controller (Temperature)	Watlow	F4	05/02/2022	05/02/2023
WC061548	Recorder (Chart)	Honeywell	DR4500	05/02/2022	05/02/2023
WC061687	Recorder (Chart)	Honeywell	DR4500	05/02/2022	05/02/2023
WC070518	Stopwatch (Digital)	Cole-Parmer	94460-06	06/14/2022	06/14/2023
WC070529	Transducer (Pressure)	Omegadyne	PX41T0-030AI	04/04/2022	04/04/2023

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required



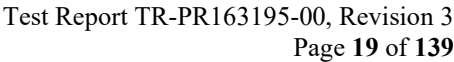
5.2 Temperature

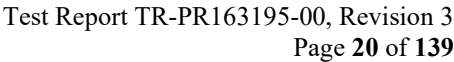
5.2.1 Test Procedure

The ATOM 2 was tested to the Temperature Test in accordance with DO-160G Section 4, Category B2.

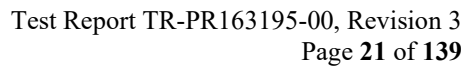
5.2.2 Test Result

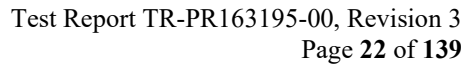
The EUT showed no visual damage after the test was completed.

[illegible]



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[illegible]

[illegible]

5.2.4 Test Photographs



Ground_Survival_High_Temperature_Test_Ch 30



_Ground_Survival_Low_Temperature_Test_Ch 33



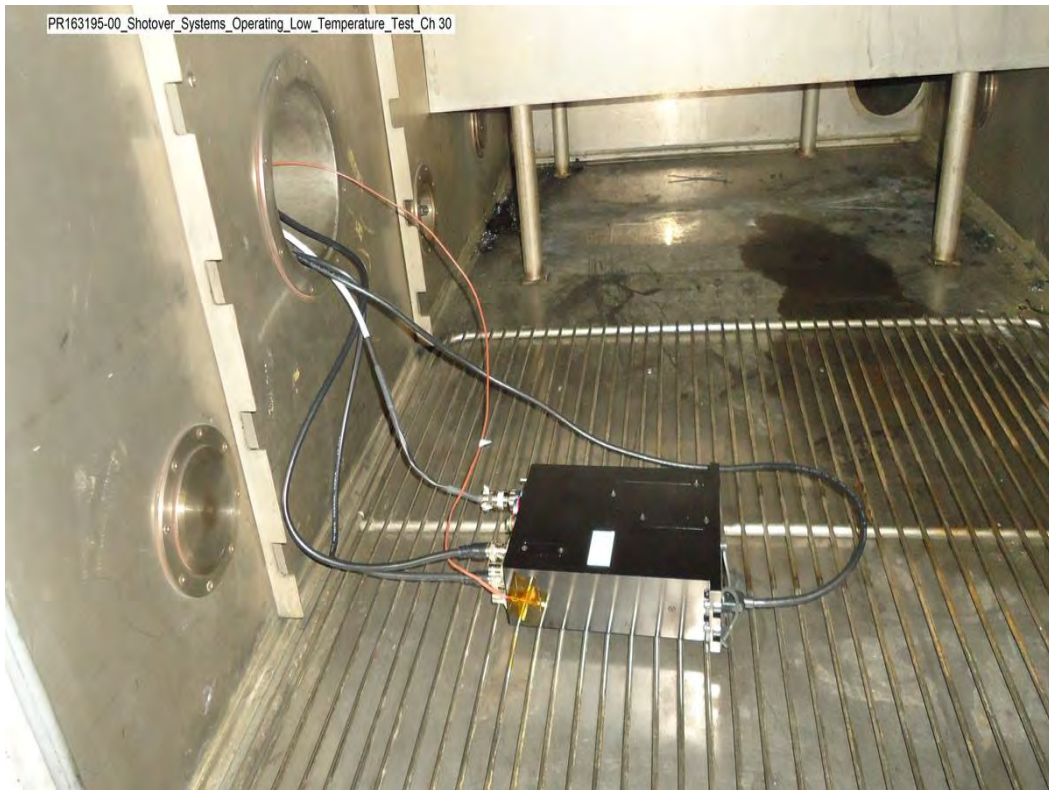
_Ground _Survival _Low _Temperature _Test _Ch 33



_Operating _High _Temperature _Test _Ch 30

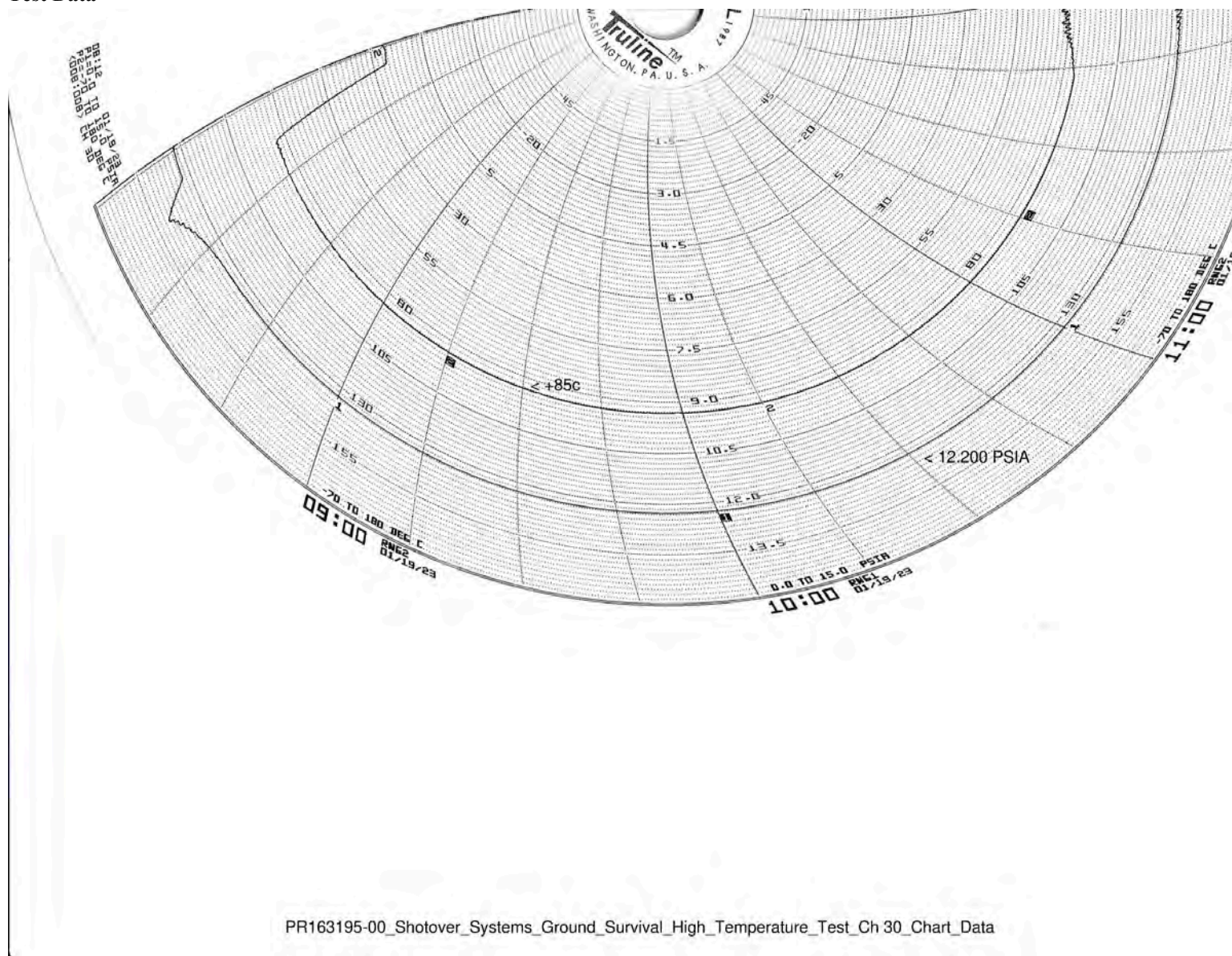


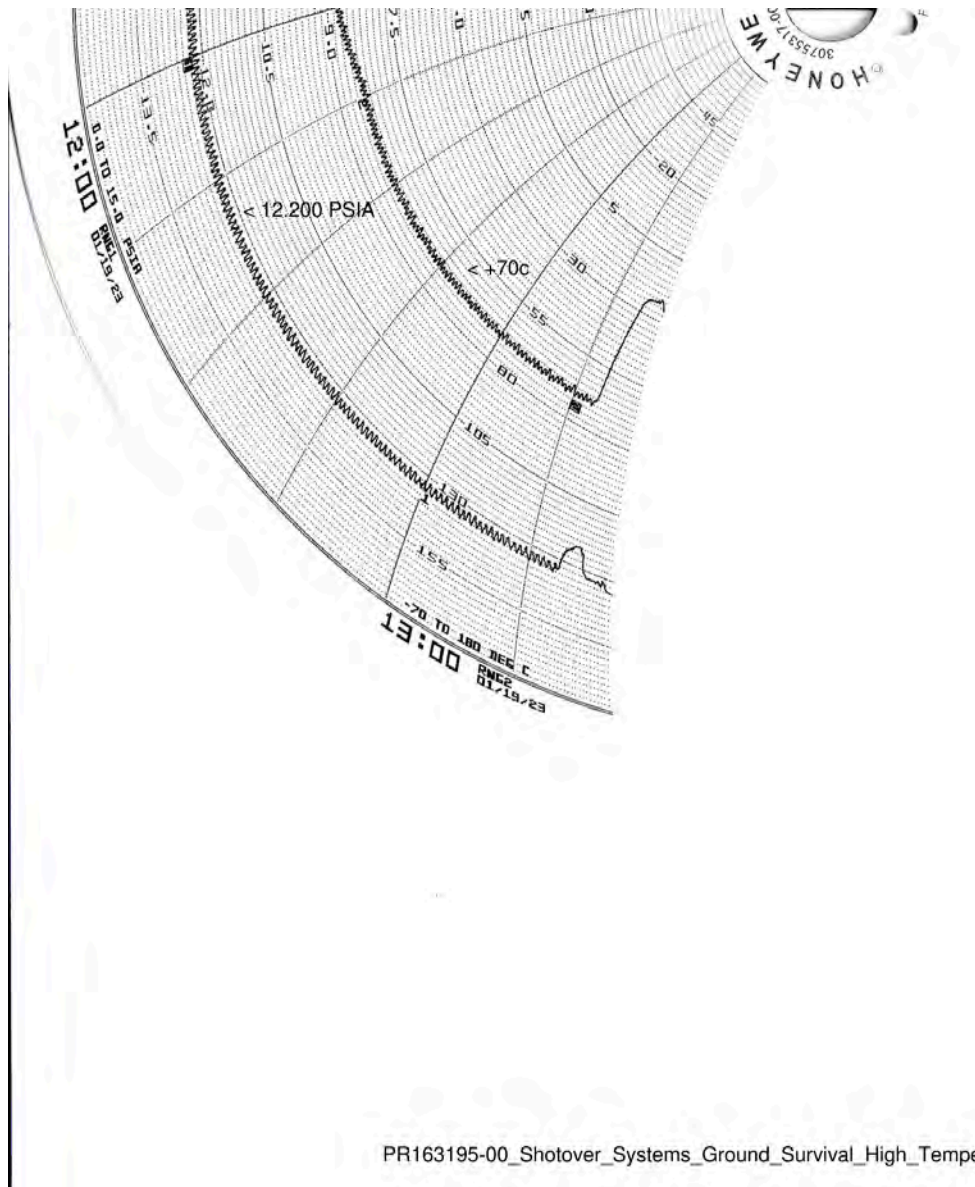
_Operating_High_Temperature_Test_Ch 30

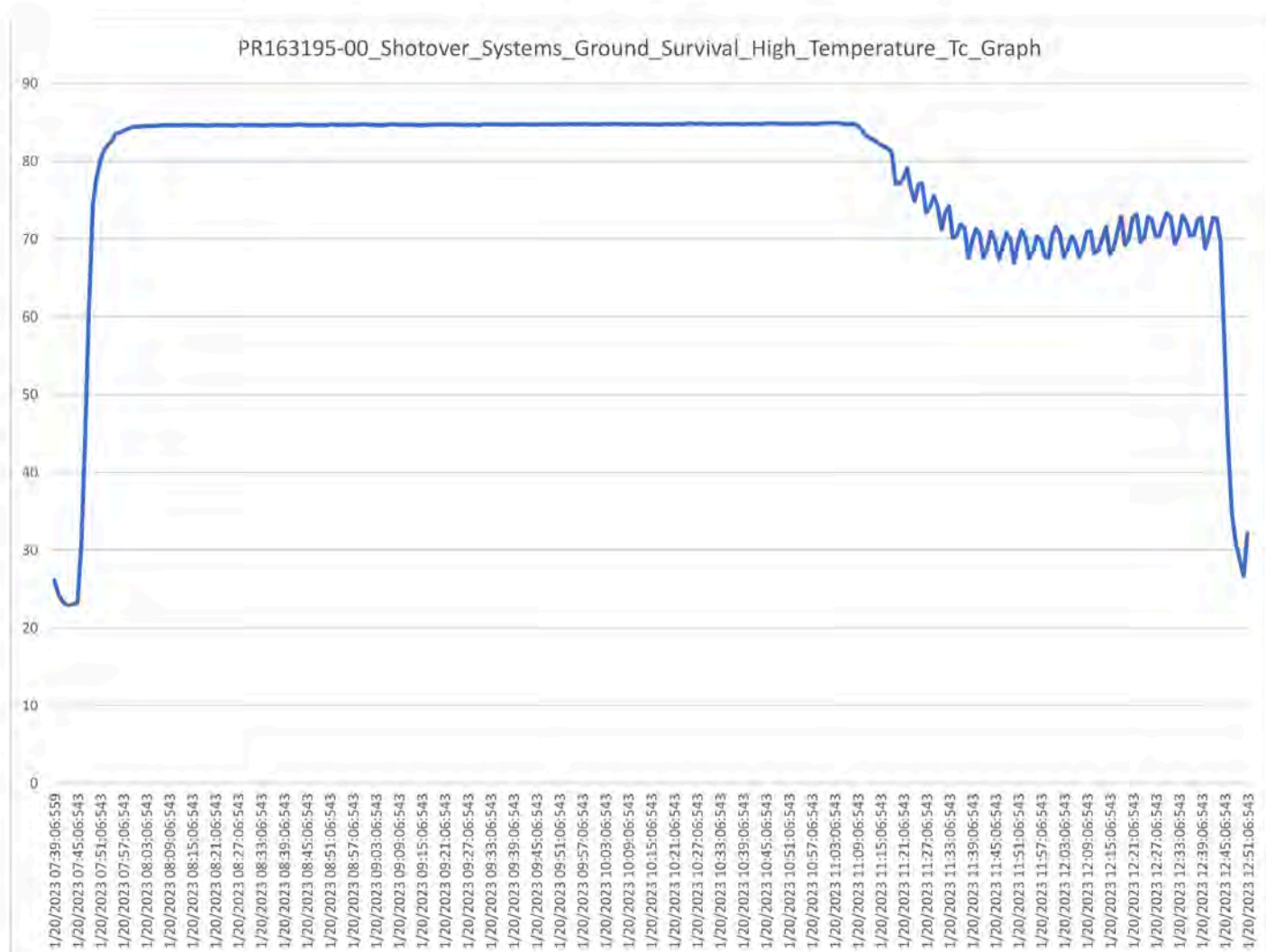


_Operating_Low_Temperature_Test_Ch 30

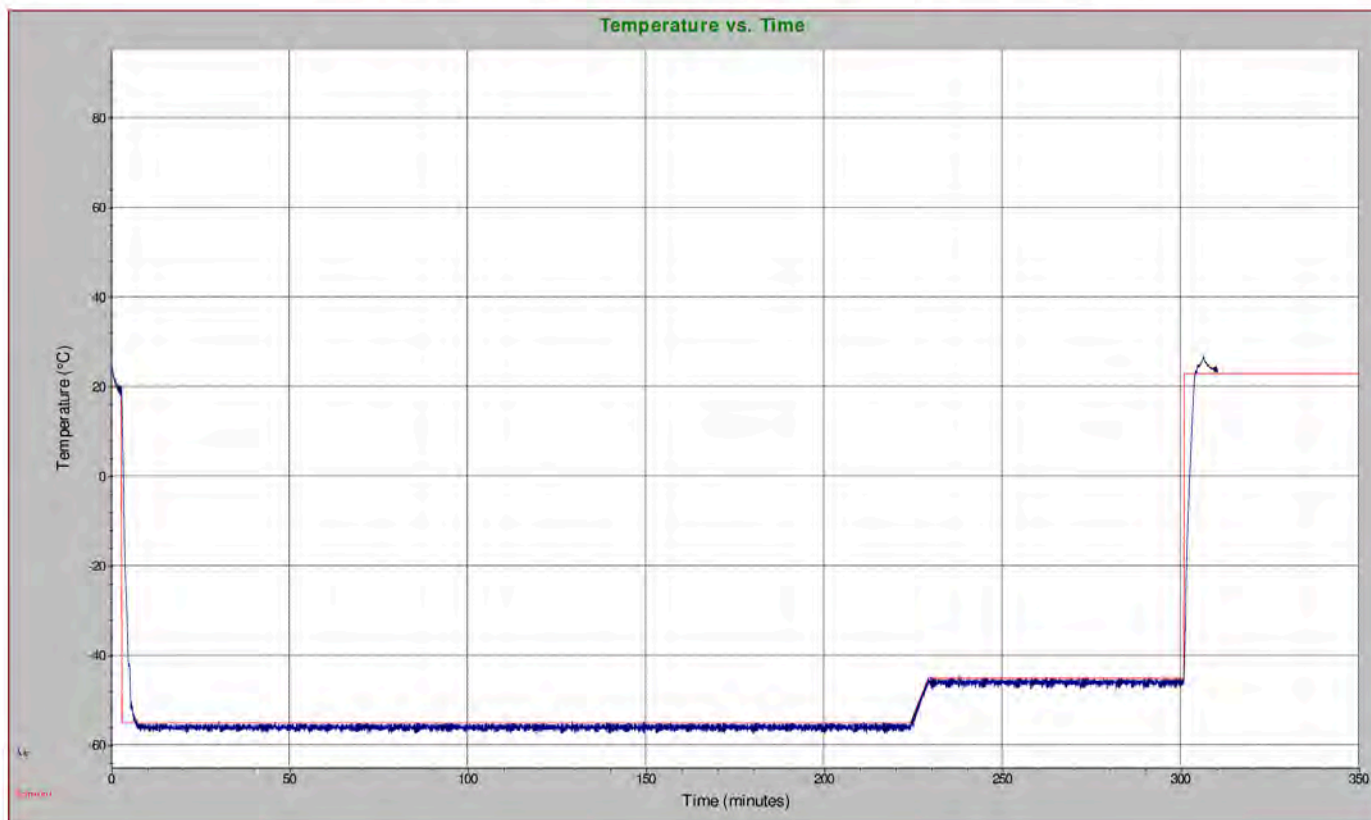
5.2.5 Test Data



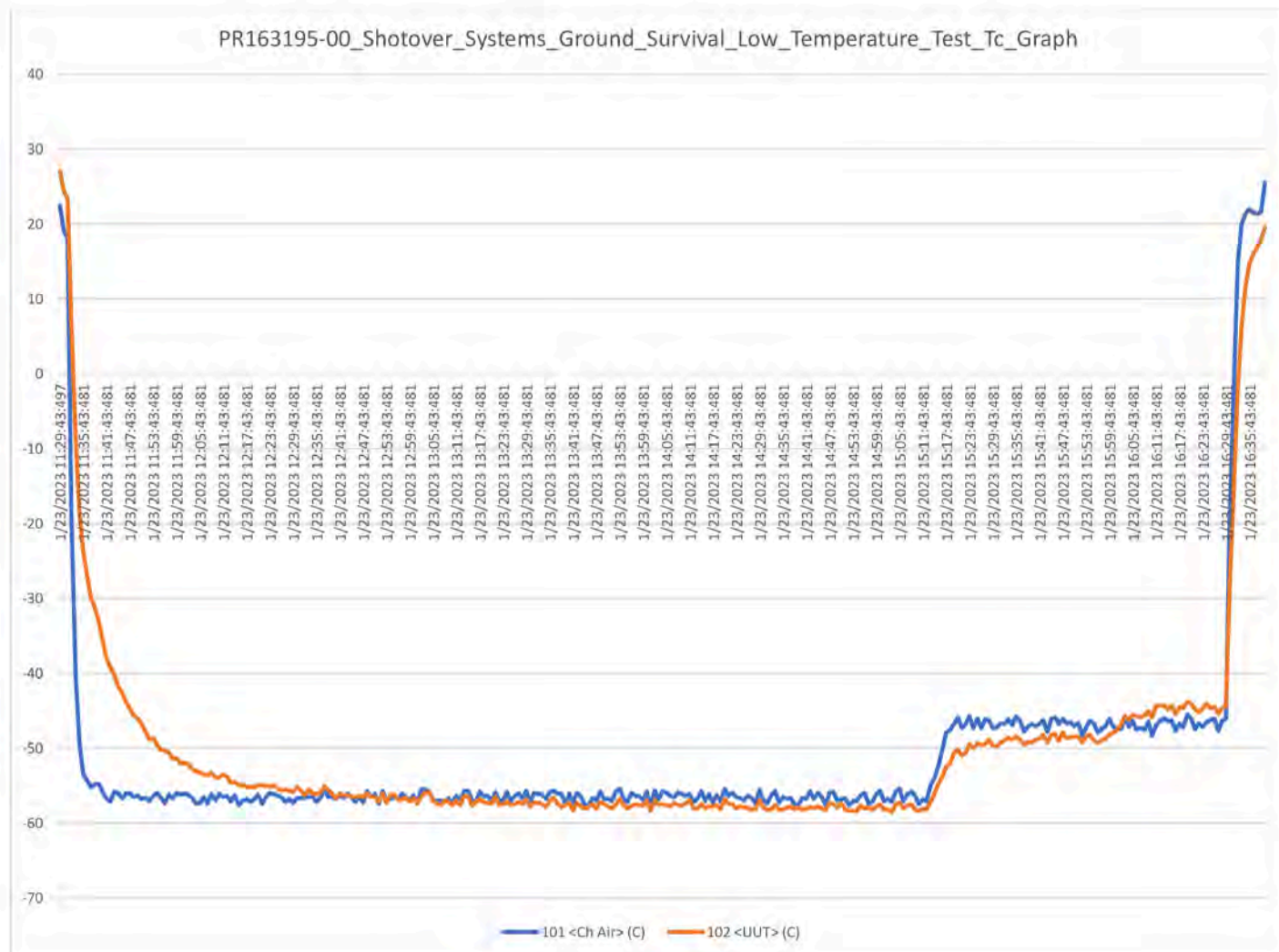


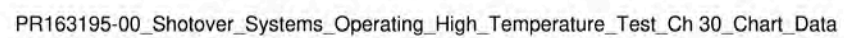


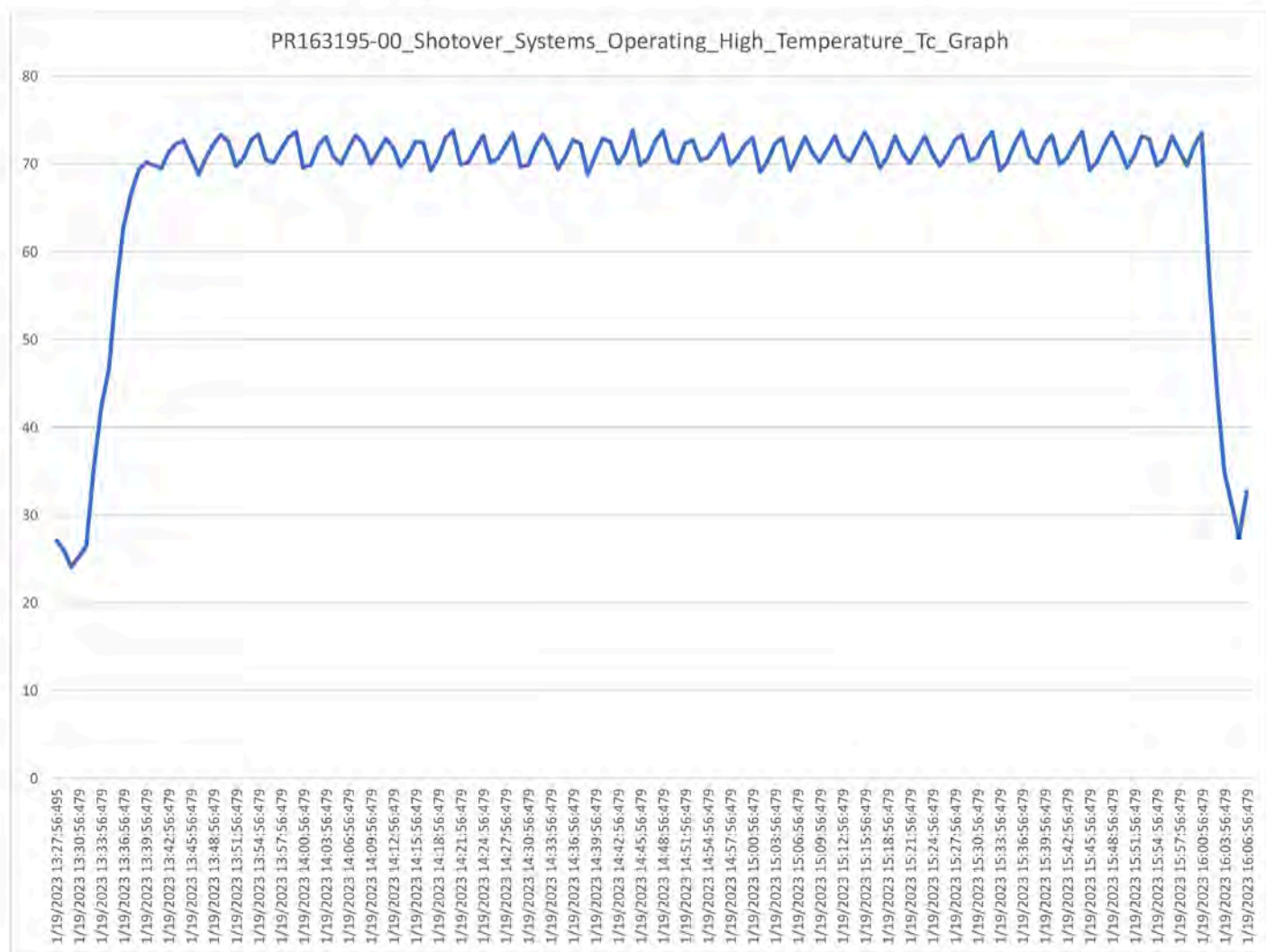
PR163195-00_Shotover_Systems_Ground_Survival_Low_Temperature_Test_Ch 33_Graph

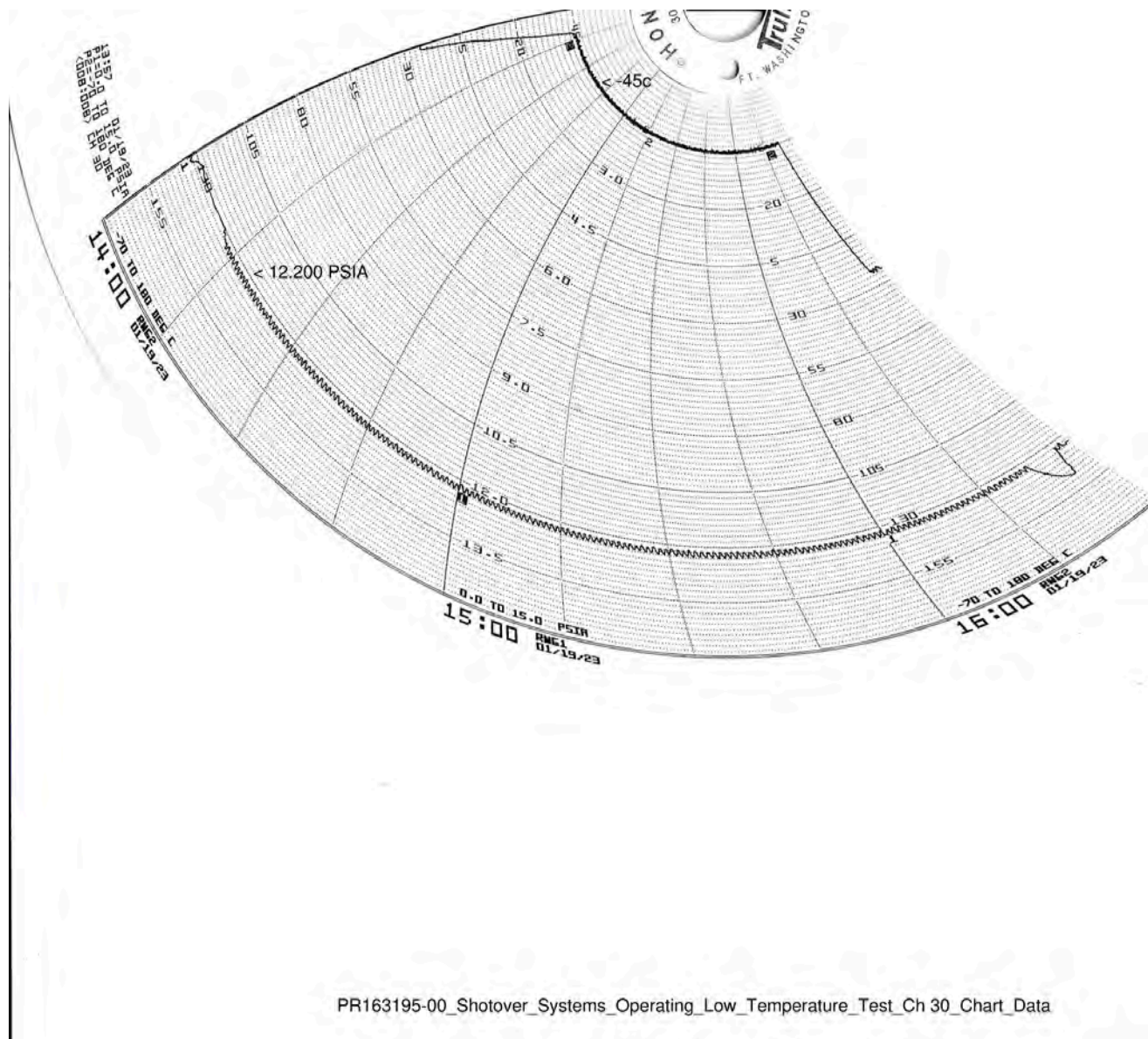


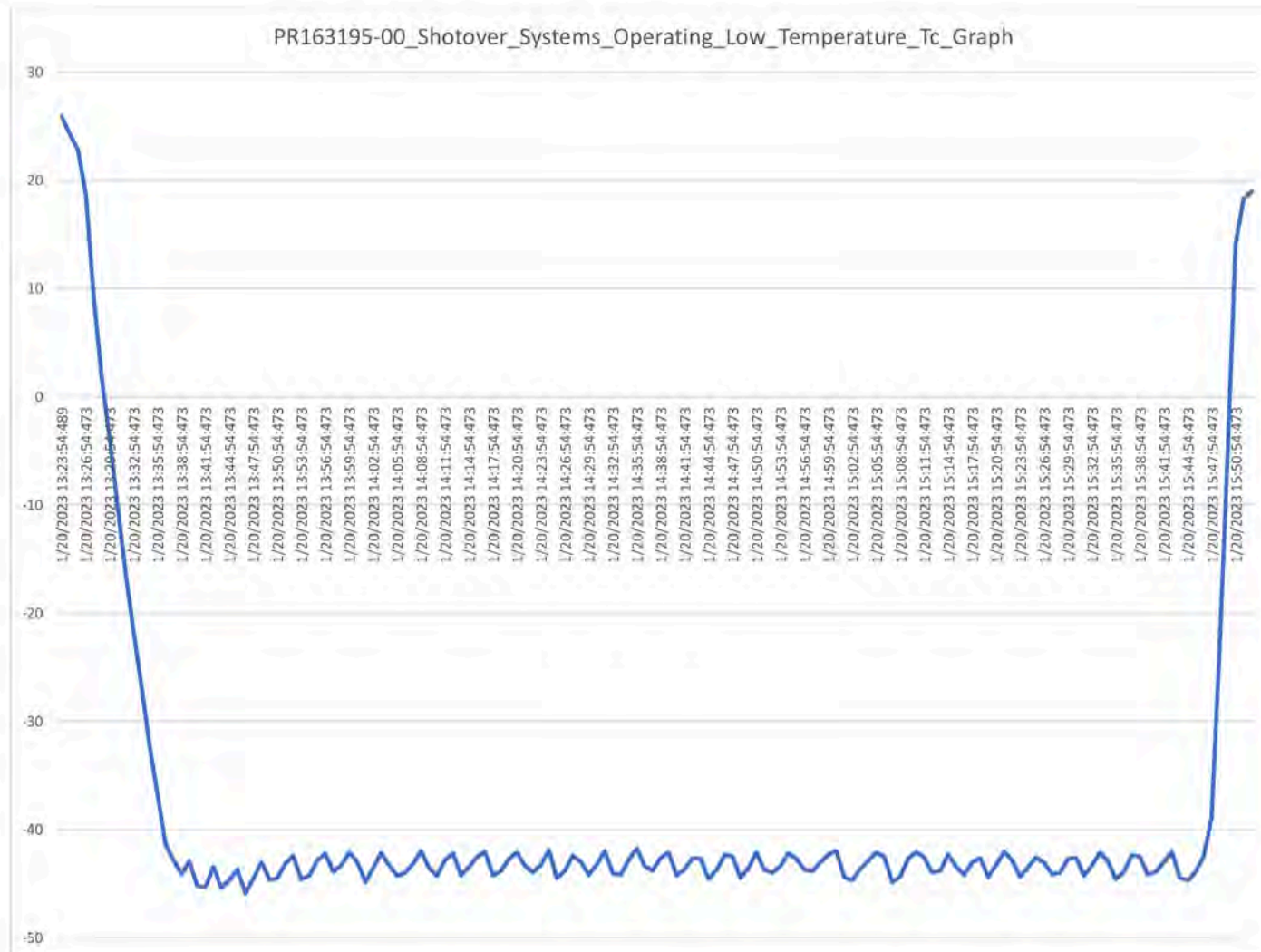
Temp SP: 23.0°C	Test.vcp
Product: 15.4°C	Test.vcp Jan 23, 2023 16:39:23
Air: 23.8°C	Jan 23, 2023 16:39:23













5.2.6 Test Equipment List

Table 5.2-1: Temperature Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC059893	Chamber (Temperature/Altitude)	StorageTek	Altitude	05/02/2022	05/02/2023
WC061568	Chamber (Halt/Hass)	Envirotronics	EVH82-LN2-1-3	03/18/2022	03/18/2023
WC061547	Controller (Temperature)	Watlow	F4	05/02/2022	05/02/2023
WC061548	Recorder (Chart)	Honeywell	DR4500	05/02/2022	05/02/2023
WC061569	Controller (Temperature)	Watlow	F4	03/18/2022	03/18/2023
WC070358	Data Acquisition (Board/Card)	Agilent Technologies	34901A	04/07/2022	04/07/2023
WC070519	System (Data Acquisition)	Agilent Technologies	34970A	04/07/2022	04/07/2023

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required



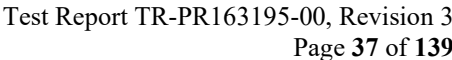
5.3 Temperature Variation

5.3.1 Test Procedure

The ATOM2 was tested in accordance with DO-160G Section 5, Category B.

5.3.2 Test Result

The EUT showed no visual damage after the test was completed.

[illegible]

5.3.4 Test Photographs



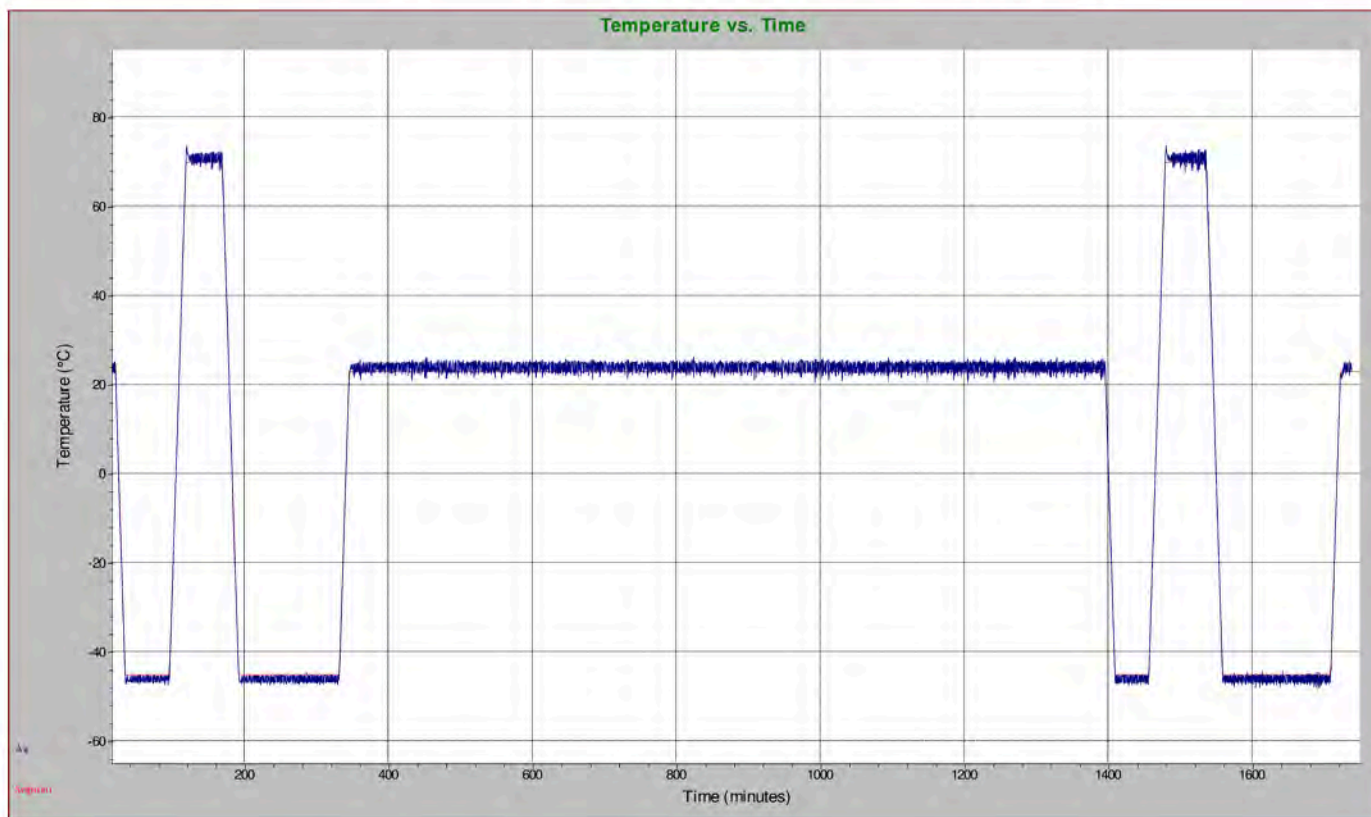
Temperature _Variation _Test _Ch 33



_Temperature _Variation _Test _Ch 33

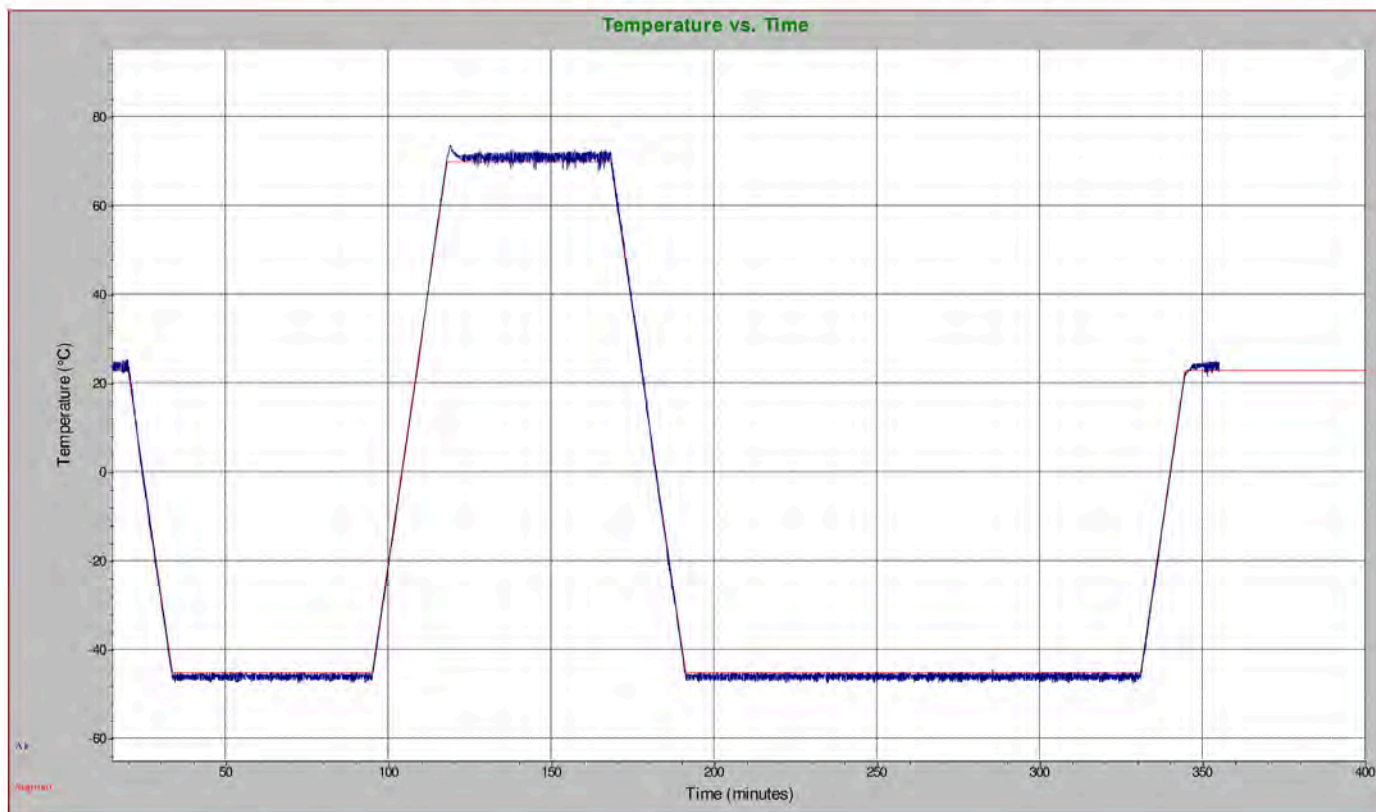
5.3.5 Test Data

PR163195-00_Shotover_Systems_Temperature_Variation_Test_Ch 33_2 Cycles_Graph



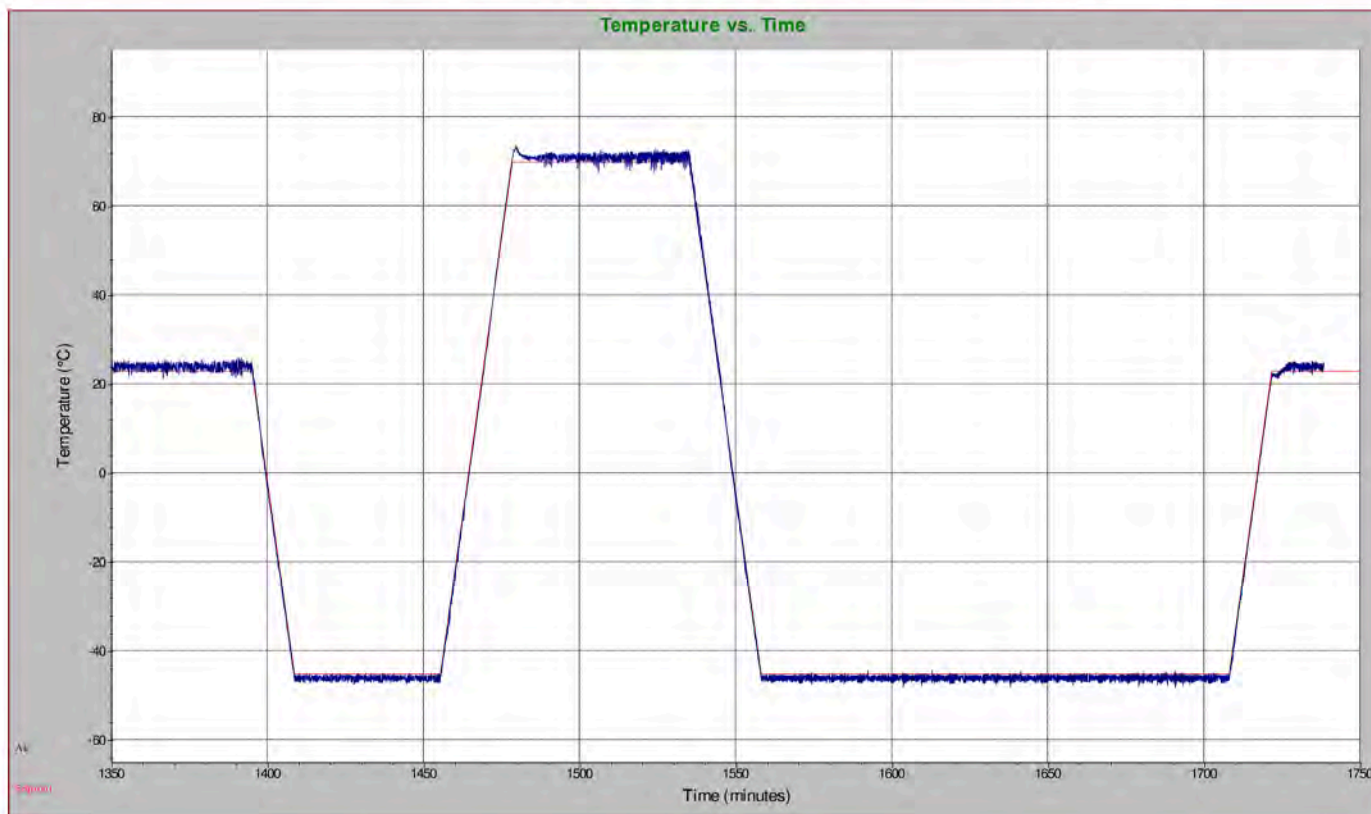
	Temp SP: 23.0°C	Test.vcp
Product: 18.5°C	Test.vcp	Jan 25, 2023 12:42:28
Air: 24.3°C	Jan 25, 2023 12:42:28	

PR163195-00_Shotover_Systems_Temperature_Variation_Test_Ch 33_Cycle 1_Graph

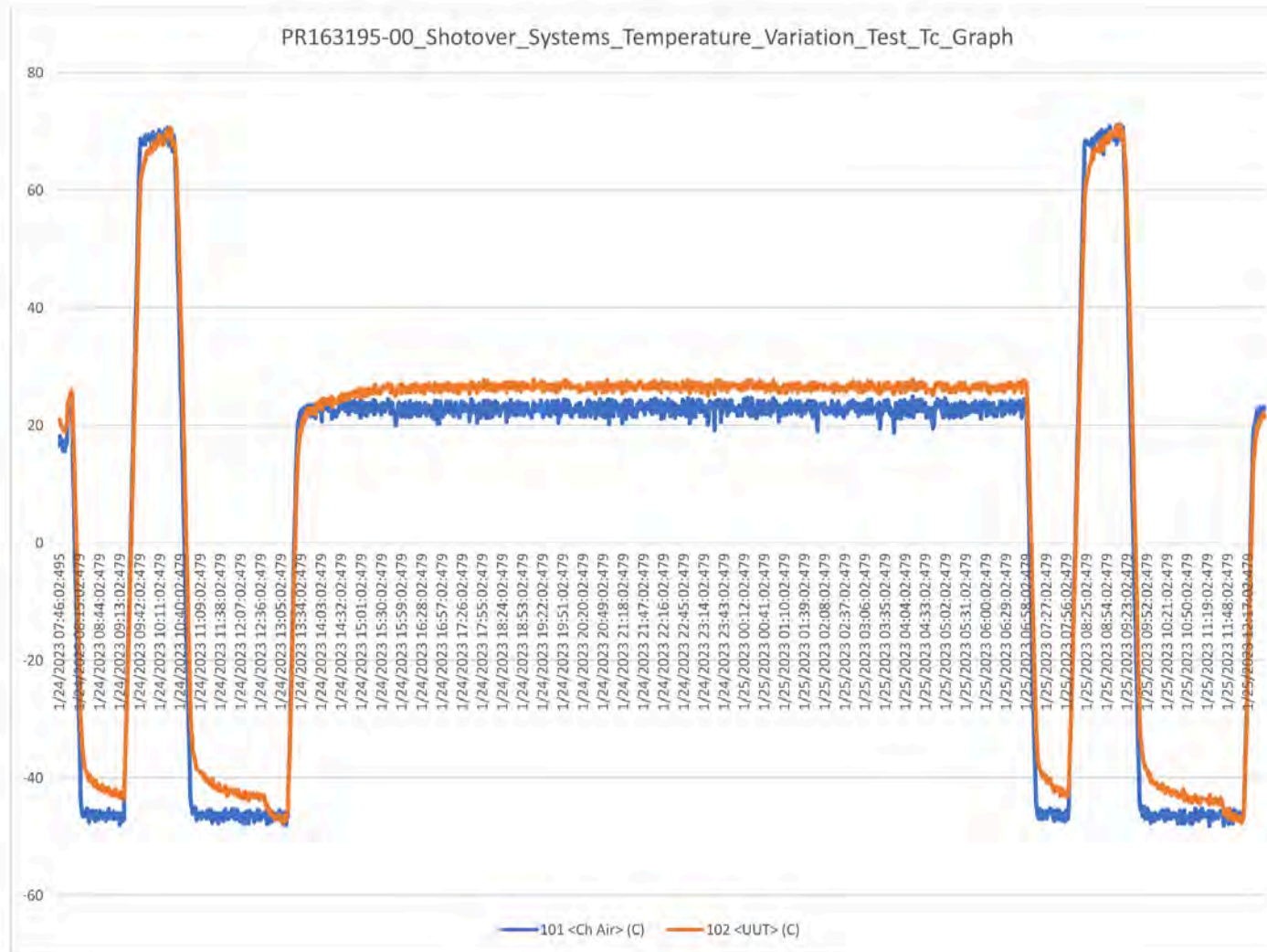


Temp SP: 23.0°C	Test.vcp
Product: 14.8°C	Test.vcp Jan 24, 2023 13:40:13
Air: 23.9°C	Jan 24, 2023 13:40:13

PR163195-00_Shotover_Systems_Temperature_Variation_Test_Ch 33_Cycle 2_Graph



	Temp SP: 23.0°C	Test.vcp
Product: 18.0°C	Test.vcp	Jan 25, 2023 12:43:18
Air: 24.8°C	Jan 25, 2023 12:43:18	





5.3.6 Test Equipment List

Table 5.3-1: Temperature Variation Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC061568	Chamber (Halt/Hass)	Envirotronics	EVH82-LN2-1-3	03/18/2022	03/18/2023
WC061569	Controller (Temperature)	Watlow	F4	03/18/2022	03/18/2023
WC070359	Data Acquisition (Board/Card)	Agilent Technologies	34901A	04/07/2022	04/07/2023
WC070519	System (Data Acquisition)	Agilent Technologies	34970A	04/07/2022	04/07/2023

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required



5.4 Operational Shock

5.4.1 Test Procedure

The ATOM2 was tested in accordance with RTCA DO-160G Section 7, Category B.

5.4.2 Test Result

The EUT showed no visual damage after the test was completed.

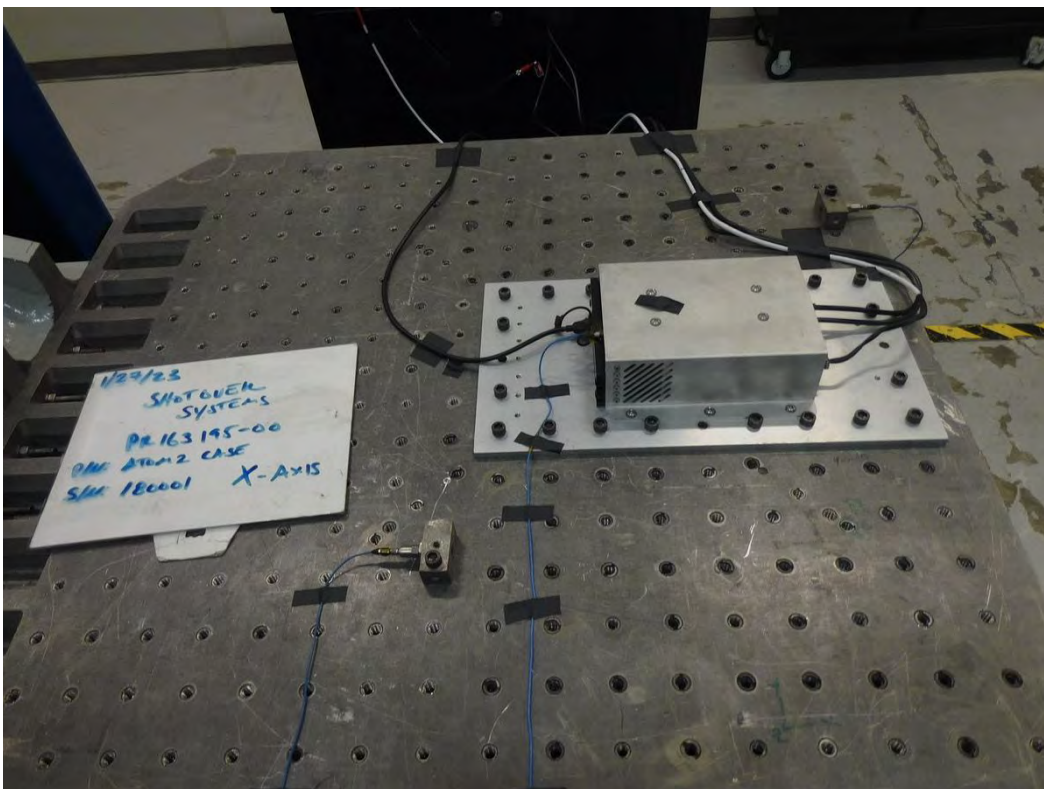
5.4.3 Test Datasheets

Start Date: 1/26/23		End Date: 1/30/23		Project No: PR163195-00		
Test Engineer		Colton Prince		Customer Witness: Ken		Temp: 68°F Humidity: 15%
Date	Time	Axis	Plot No.	Serial No.	Remarks	Initials
1/26/2023	930	Z		180001	Mounted DUT to ED02 in Z-Axis	CP
	1008	Z	Run 5	180001	Perform 6G 20ms Terminal peak shock Positive, 3 Pulses, Operational	CP
	1009	Z	Run 6	180001	Perform 6G 20ms Terminal peak shock Negative, 3 Pulses, Operational	CP
1/27/2023	1230	X		180001	Mounted DUT to ED02 in X-Axis	CP
	1309	X	Run 26	180001	Perform 6G 20ms Terminal peak shock Positive, 3 Pulses, Operational	CP
	1310	X	Run 27	180001	Perform 6G 20ms Terminal peak shock Negative, 3 Pulses, Operational	CP
1/28/2023	1010	Y		180001	Mounted DUT to ED02 in Y-Axis	CP
	1042	Y	Run 47	180001	Perform 6G 20ms Terminal peak shock Positive, 3 Pulses, Operational	CP
	1044	Y	Run 48	180001	Perform 6G 20ms Terminal peak shock Negative, 3 Pulses, Operational	CP
					Test Complete, No Visual Damage	CP

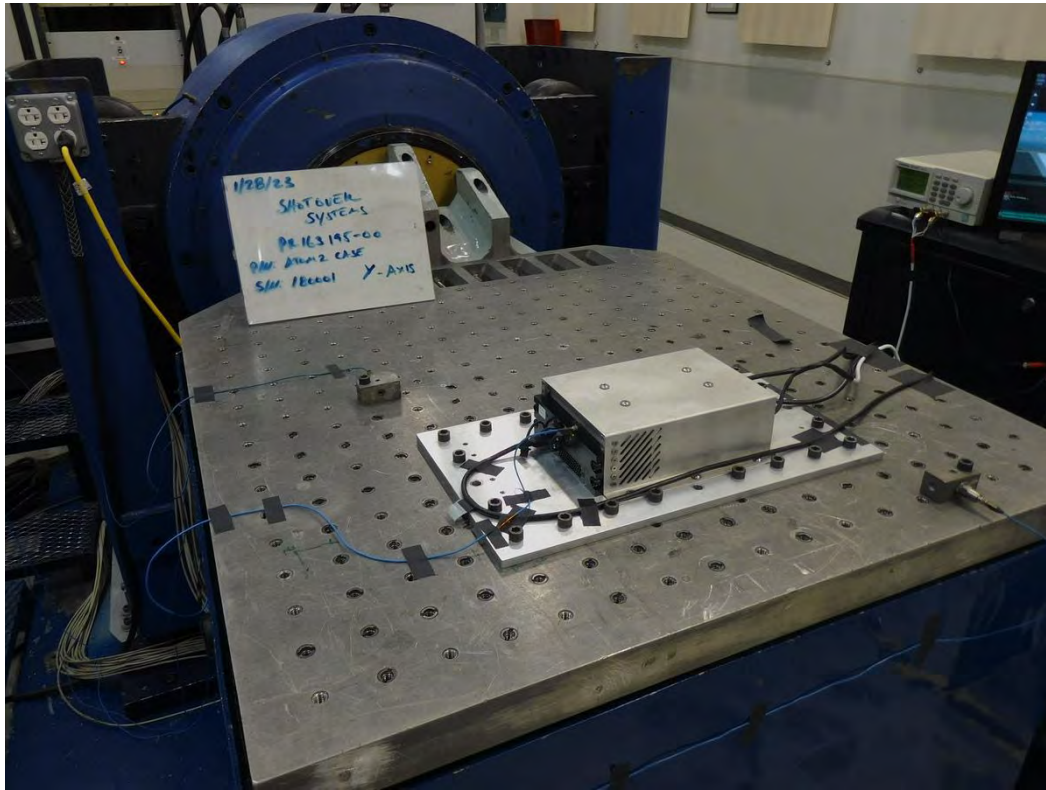
5.4.4 Test Photographs



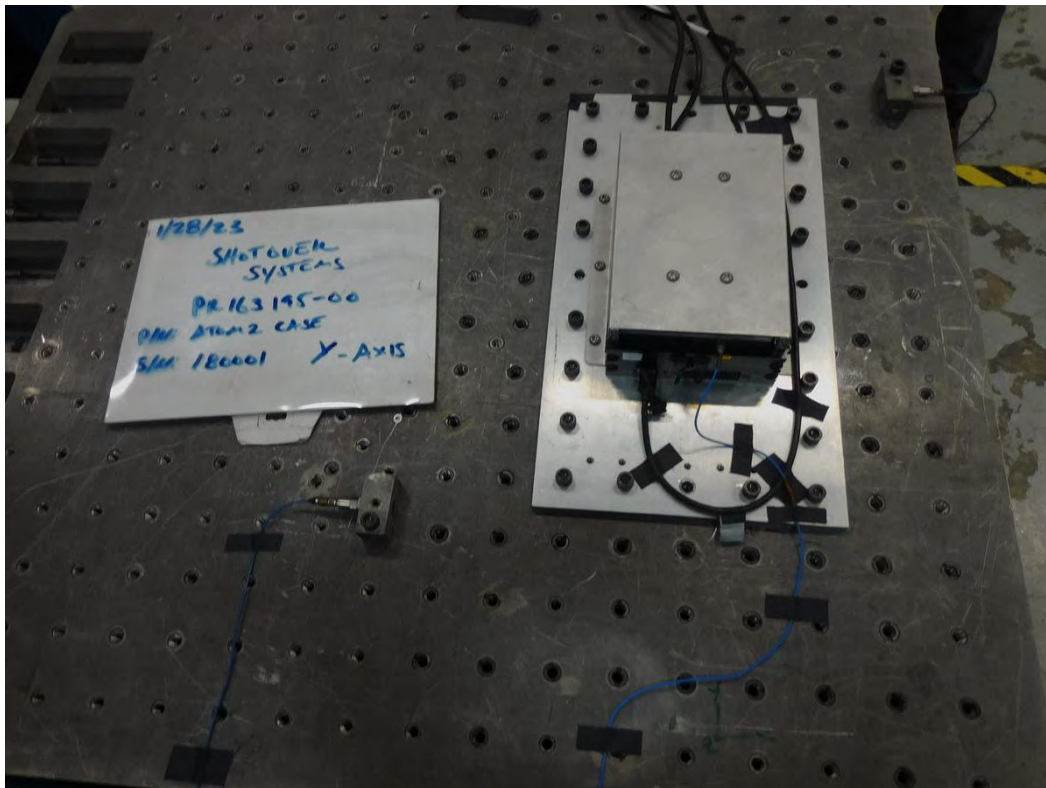
SN-180001_X-Axis



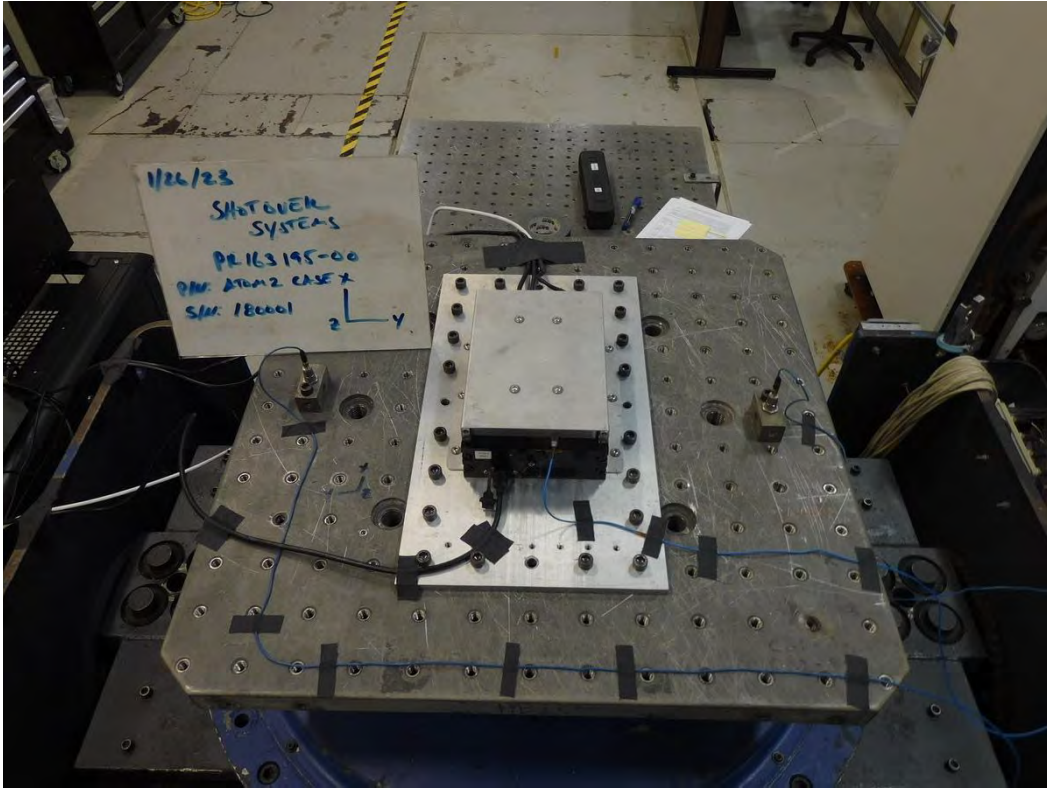
SN-180001_X-Axis



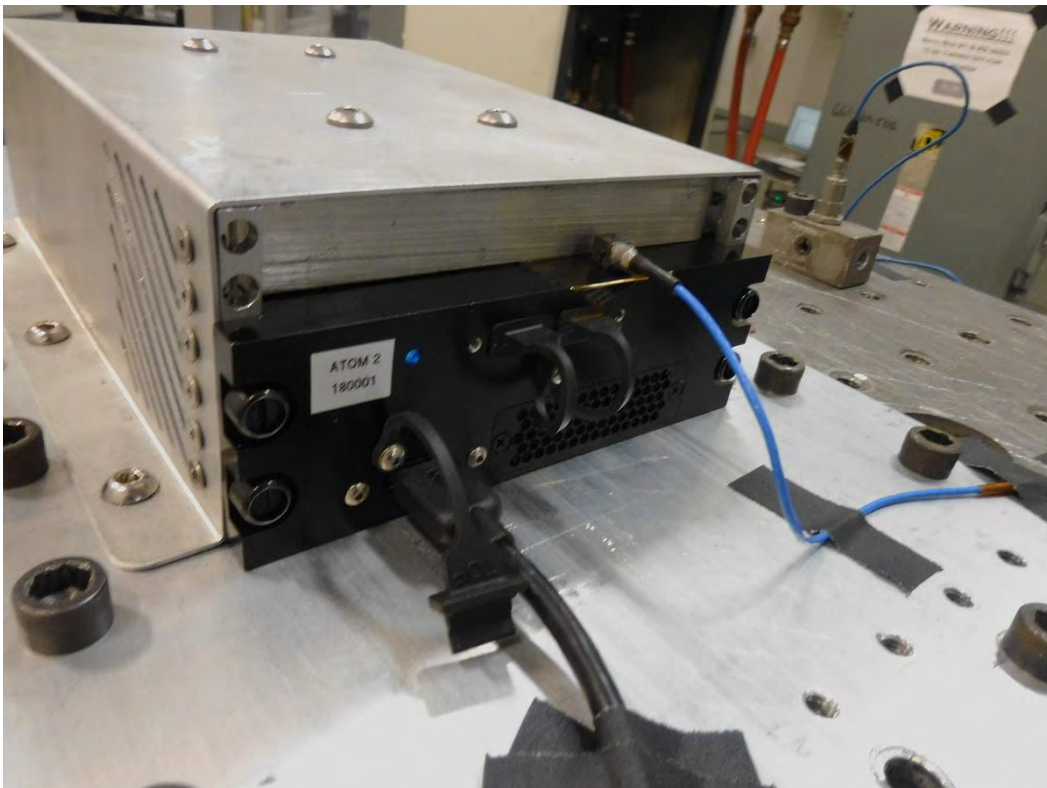
SN-180001_Y-Axis



SN-180001_Y-Axis



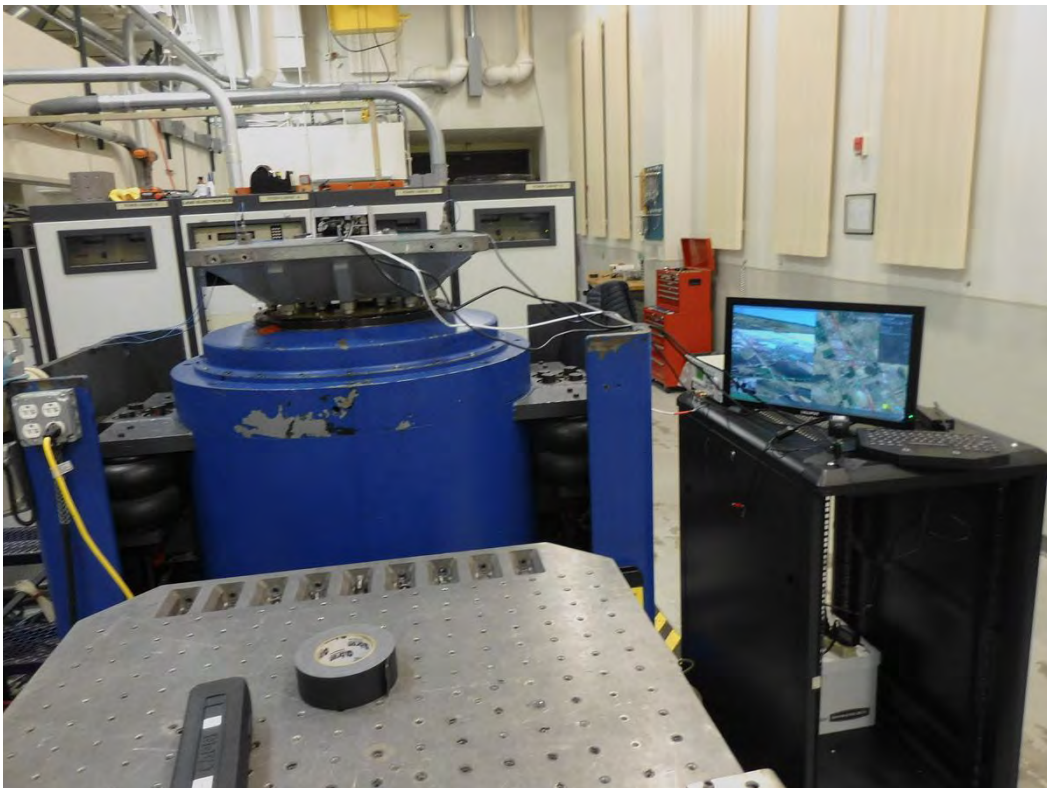
SN-180001_Z-Axis



SN-180001_Z-Axis

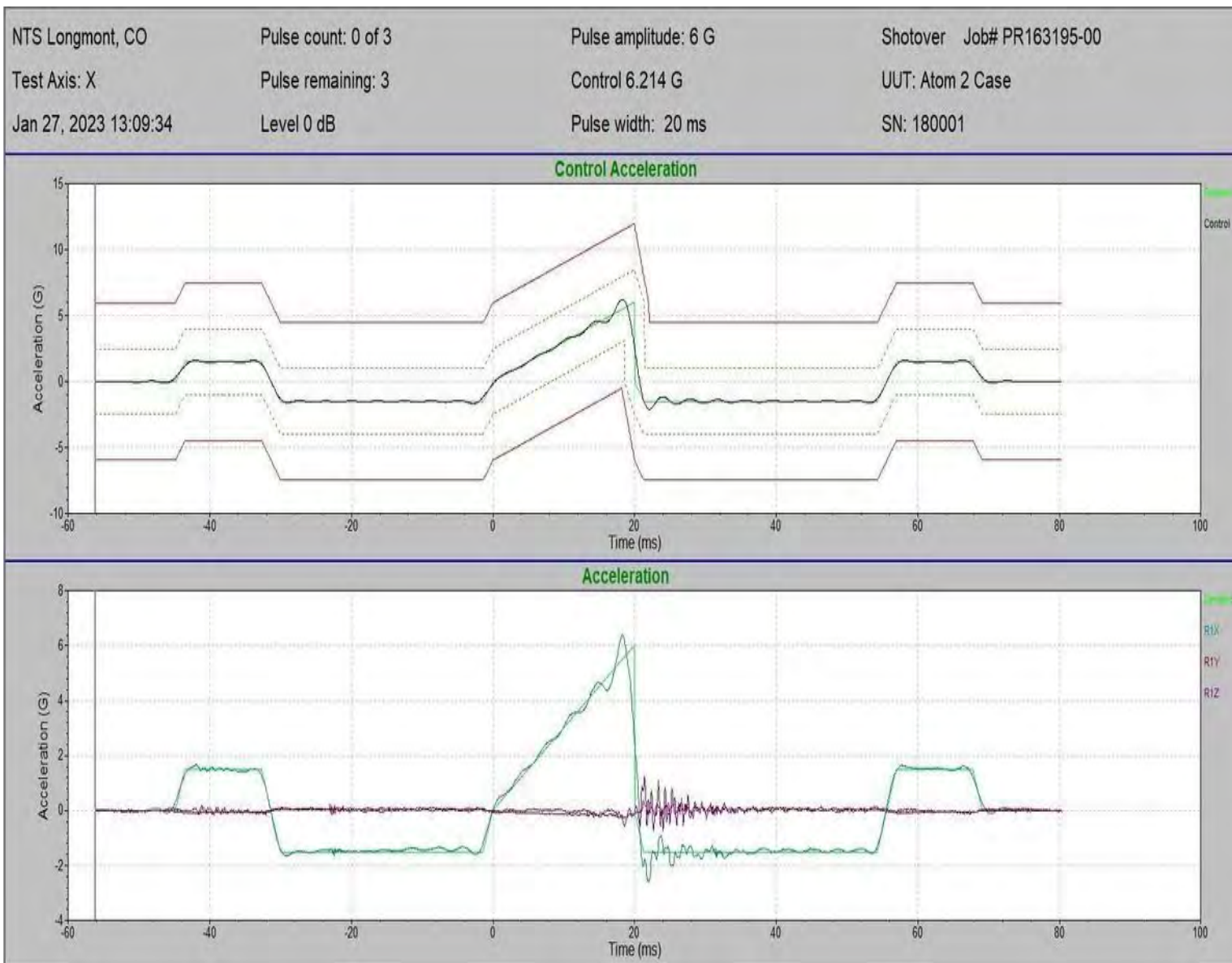


SN-180001_Z-Axis



SN-180001_Z-Axis

5.4.5 Test Data



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 6 G

Shotover Job# PR163195-00

Test Axis: X

Pulse remaining: 3

Control 6.226 G

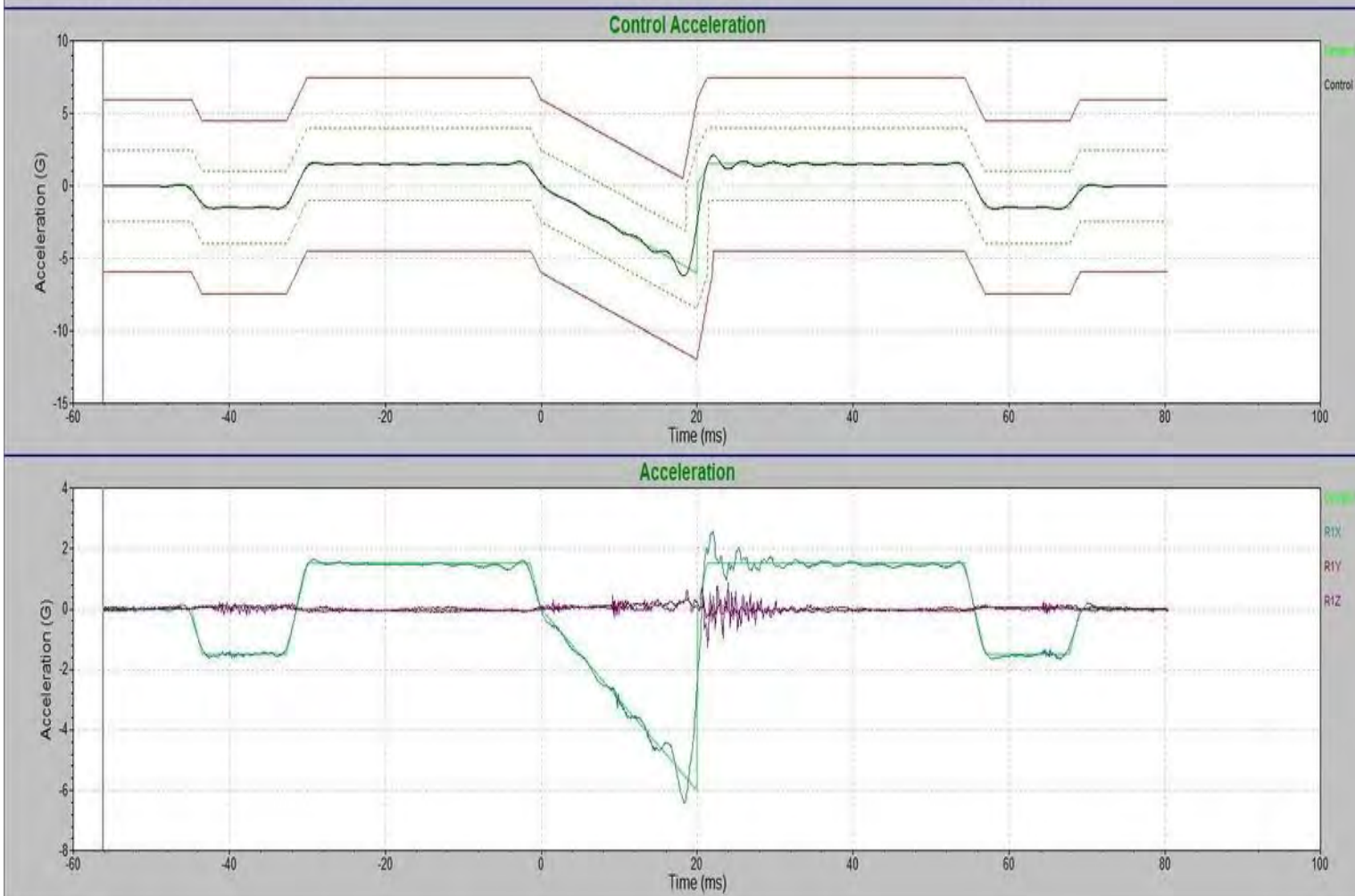
UUT: Atom 2 Case

Jan 27, 2023 13:10:48

Level 0 dB

Pulse width: 20 ms

SN: 180001



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 6 G

Shotover Job# PR163195-00

Test Axis: Y

Pulse remaining: 3

Control 6.248 G

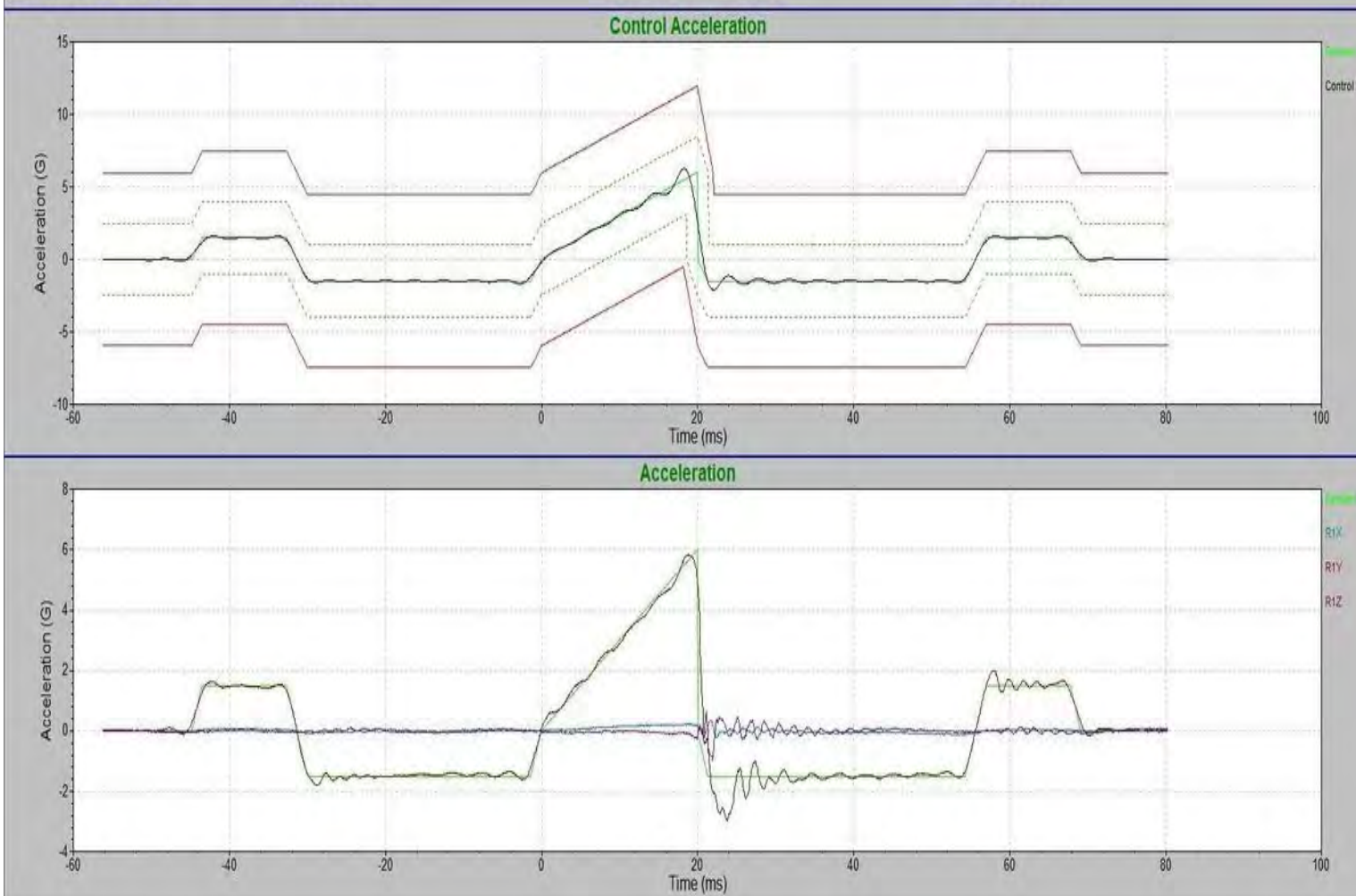
UUT: Atom 2 Case

Jan 28, 2023 10:42:46

Level 0 dB

Pulse width: 20 ms

SN: 180001



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 6 G

Shotover Job# PR163195-00

Test Axis: Y

Pulse remaining: 3

Control 6.194 G

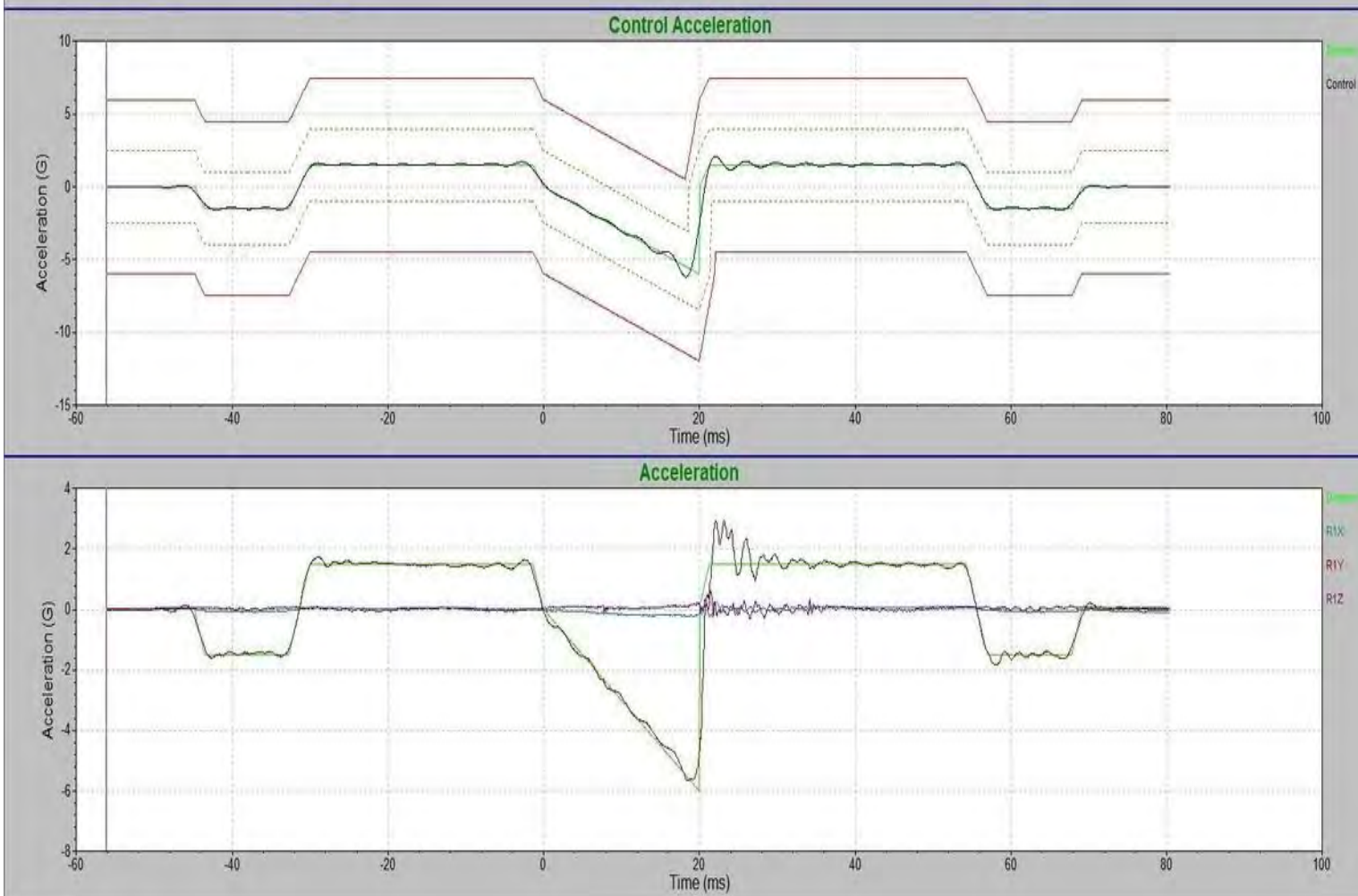
UUT: Atom 2 Case

Jan 28, 2023 10:44:19

Level 0 dB

Pulse width: 20 ms

SN: 180001



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 6 G

Shotover Job# PR163195-00

Test Axis: Z

Pulse remaining: 3

Control 6.266 G

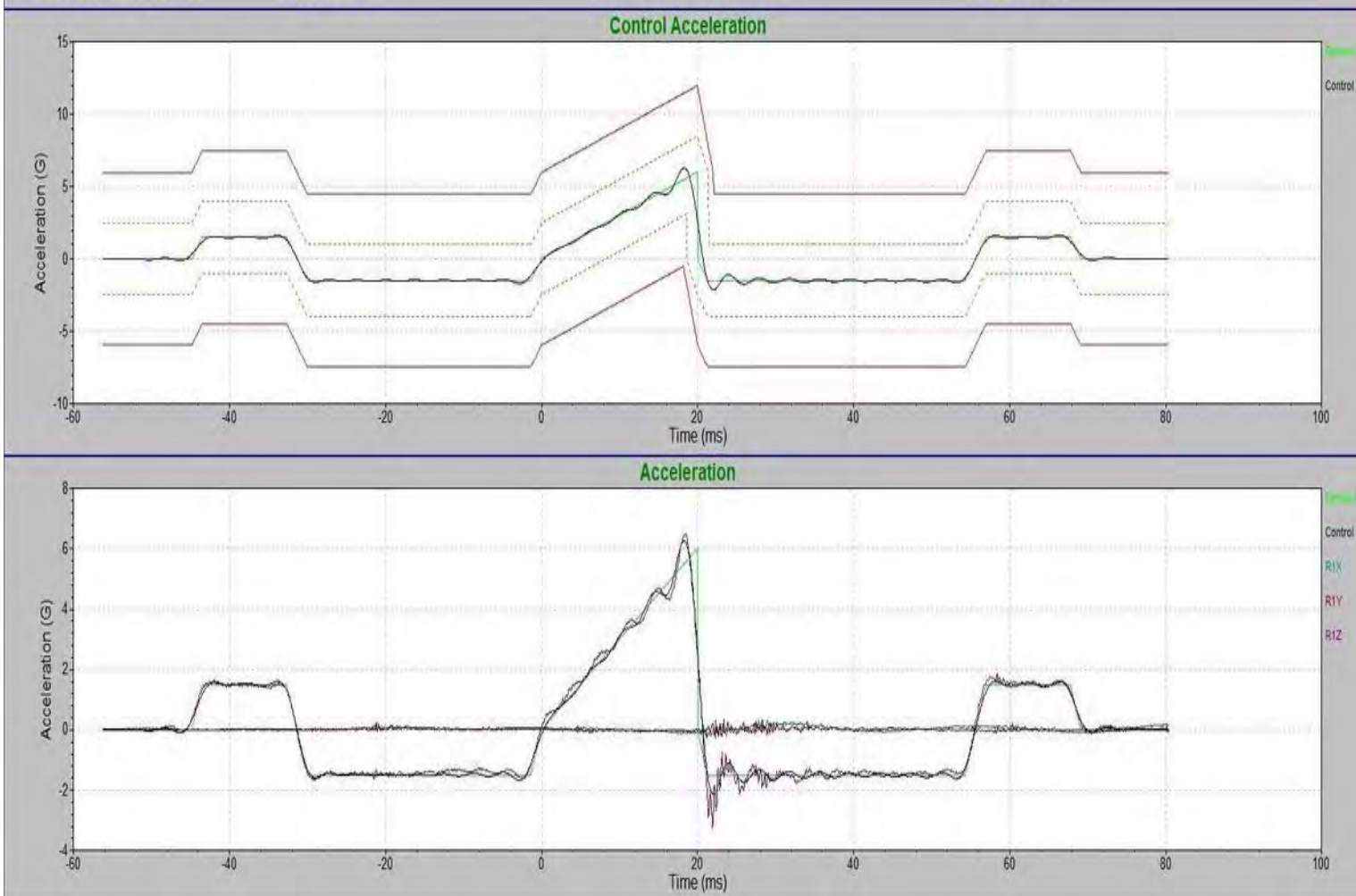
UUT: Atom 2 Case

Jan 26, 2023 10:08:14

Level 0 dB

Pulse width: 20 ms

SN: 180001



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 6 G

Shotover Job# PR163195-00

Test Axis: Z

Pulse remaining: 3

Control 6.245 G

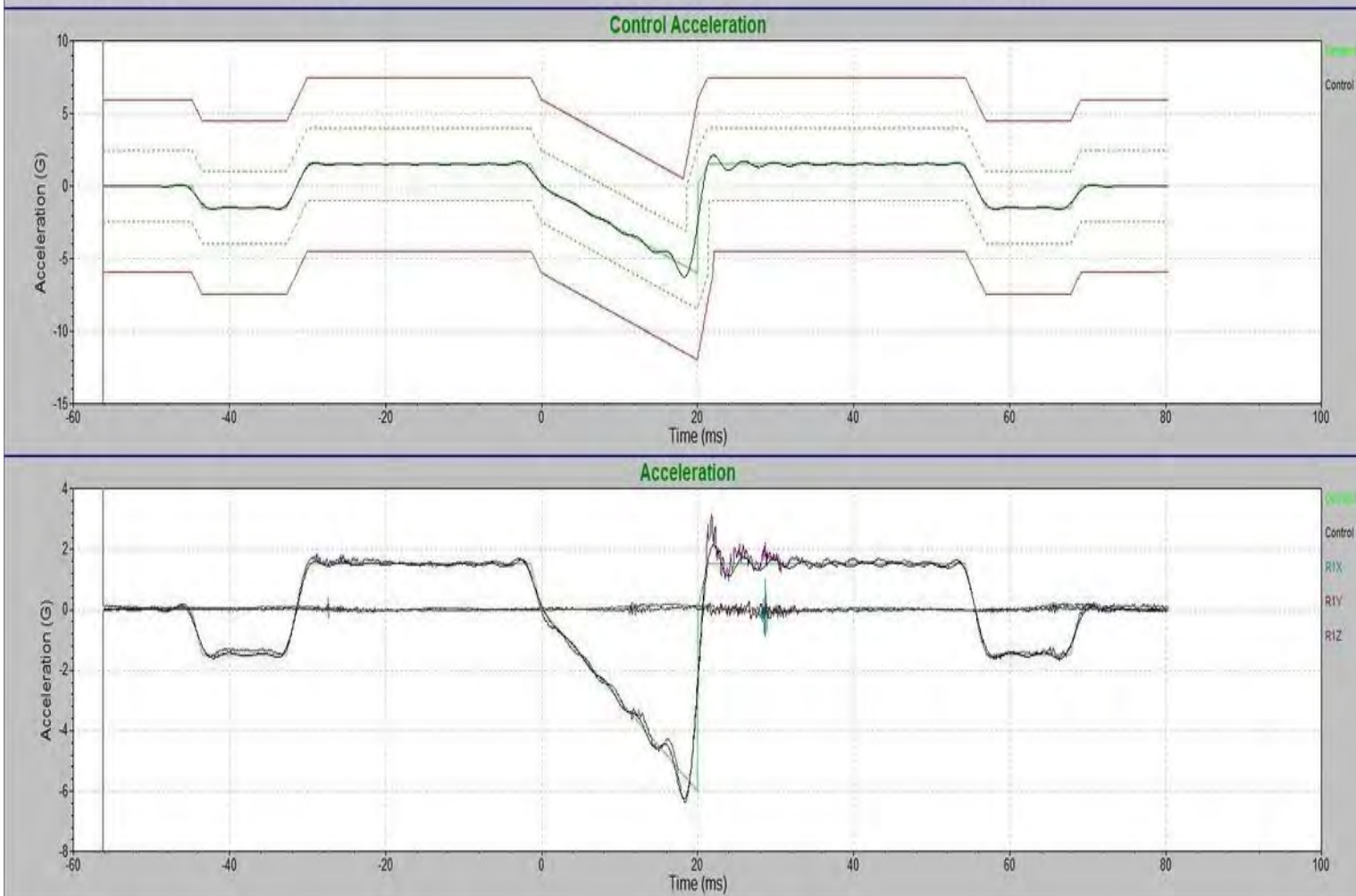
UUT: Atom 2 Case

Jan 26, 2023 10:09:27

Level 0 dB

Pulse width: 20 ms

SN: 180001





5.4.6 Test Equipment List

Table 5.4-1: Operational Shock Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC043856 (ED2)	Shaker (Electro-Dynamic)	Ling Electronics	335	NCR	NCR
WC059830	Wrench (Torque)	CDI Torque Products	1002MFRMH	11/08/2022	11/08/2023
WC061701	Computer (Vibration Controller)	Vibration Research	VR9500	05/03/2022	05/03/2023
WC061708	Computer (Vibration Controller)	Vibration Research	VR9500	05/03/2022	05/03/2023
WC061717	Accelerometer (Tri-Axial)	PCB Piezotronics	356A01	03/07/2022	03/07/2023
WC070238	Accelerometer (Vibration)	PCB Piezotronics	352C04	11/08/2022	11/08/2023
WC070240	Accelerometer (Vibration)	PCB Piezotronics	352C04	11/08/2022	11/08/2023
WC070466	Meter (Hygrometer)	Fluke	971	05/23/2022	05/23/2023

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required



5.5 Crash Safety (Impulse)

5.5.1 Test Procedure

The ATOM2 was tested in accordance with RTCA DO-160G Section 7, Category B.

5.5.2 Test Result

The EUT showed no visual damage after the test was completed.

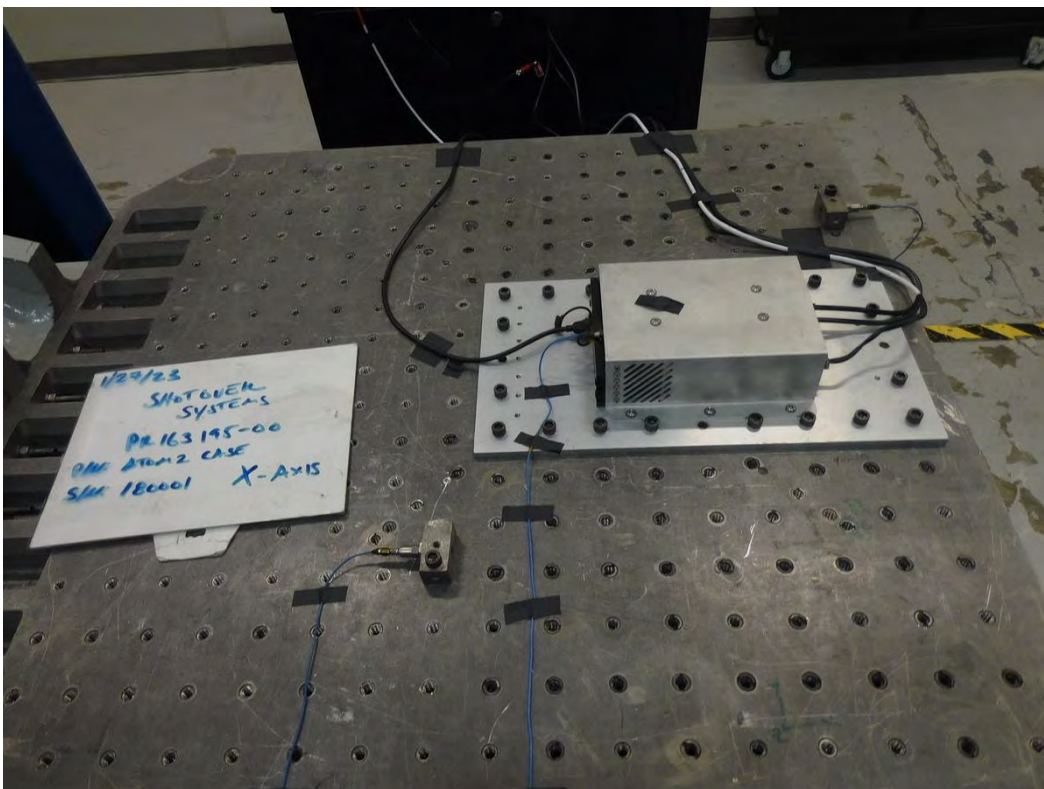
5.5.3 Test Datasheets

Start Date: 1/26/23		End Date: 1/30/23		Project No: PR163195-00	
Test Engineer		Colton Prince		Customer Witness: Ken	
				Temp: 68°F Humidity: 15%	
Date	Time	Axis	Plot No.	Serial No.	Remarks
1/26/2023	930	Z		180001	Mounted DUT to ED02 in Z-Axis
	953	Z	Run 2	180001	Perform 20G 20ms Terminal peak shock Positive, 3 Pulses, Crash Safety
	955	Z	Run 3	180001	Perform 20G 20ms Terminal peak shock Negative, 3 Pulses, Crash Safety
1/27/2023	1230	X		180001	Mounted DUT to ED02 in X-Axis
	1256	X	Run 23	180001	Perform 20G 20ms Terminal peak shock Positive, 3 Pulses, Crash Safety
	1258	X	Run 24	180001	Perform 20G 20ms Terminal peak shock Negative, 3 Pulses, Crash Safety
1/28/2023	1010	Y		180001	Mounted DUT to ED02 in Y-Axis
	1028	Y	Run 44	180001	Perform 20G 20ms Terminal peak shock Positive, 3 Pulses, Crash Safety
	1029	Y	Run 45	180001	Perform 20G 20ms Terminal peak shock Negative, 3 Pulses, Crash Safety
					Test Complete, No Visual Damage

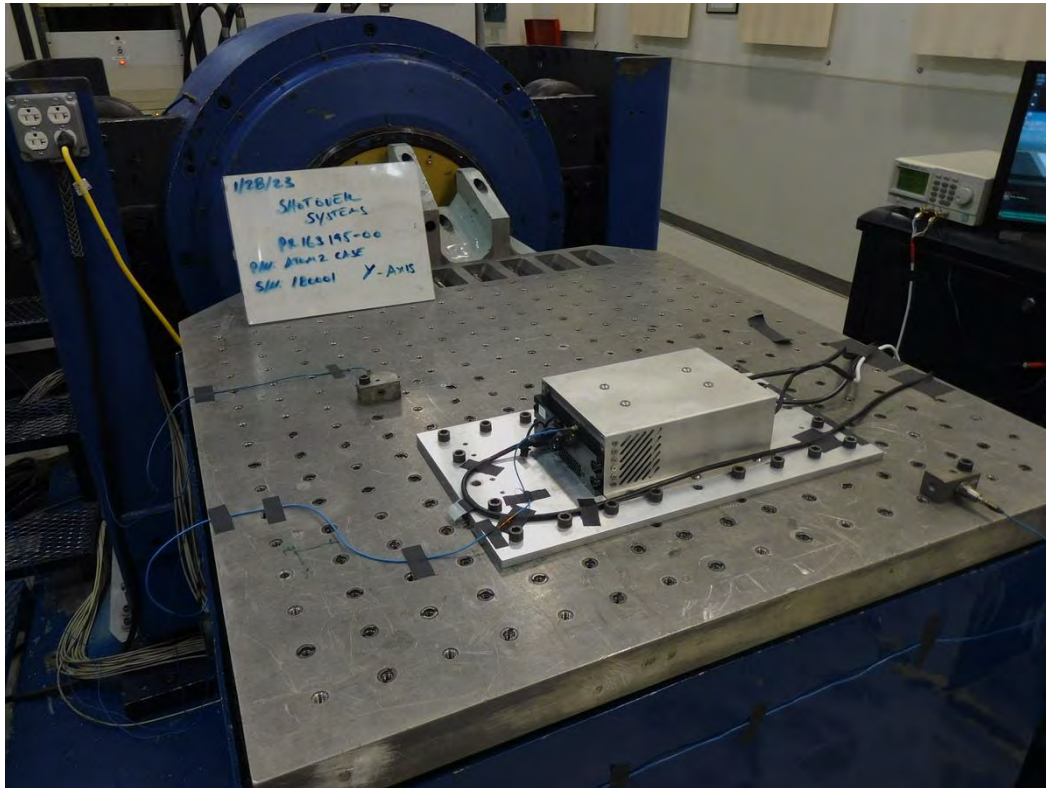
5.5.4 Test Photographs



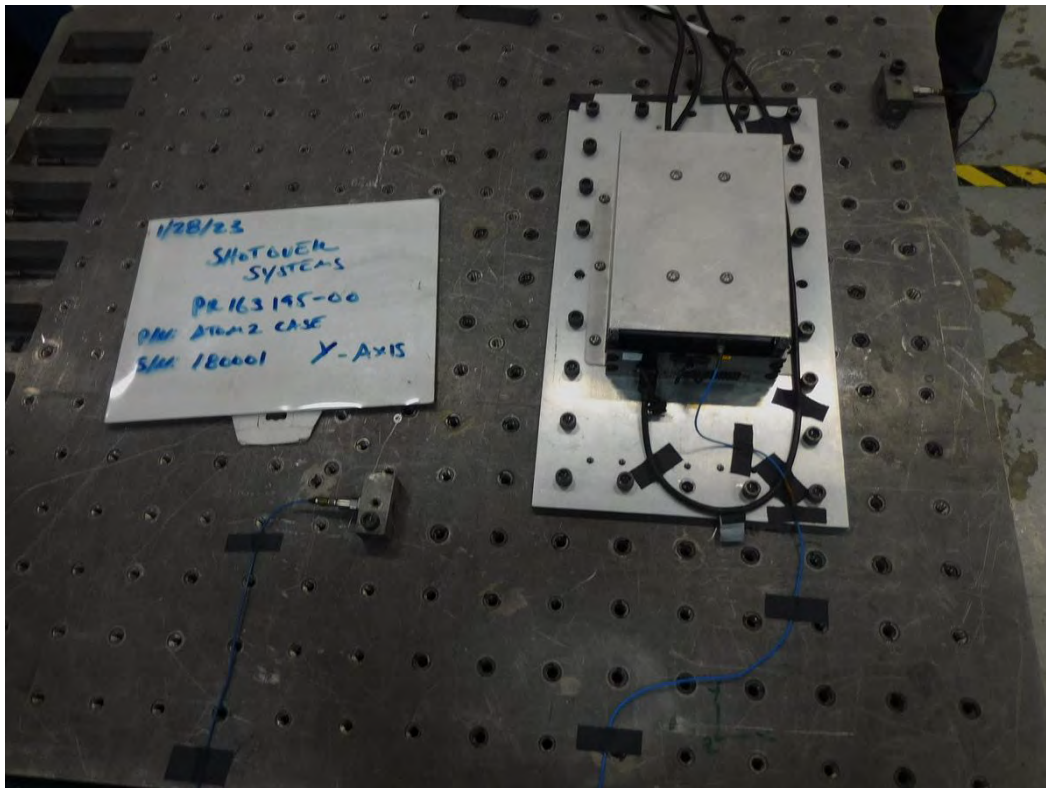
SN-180001_X-Axis



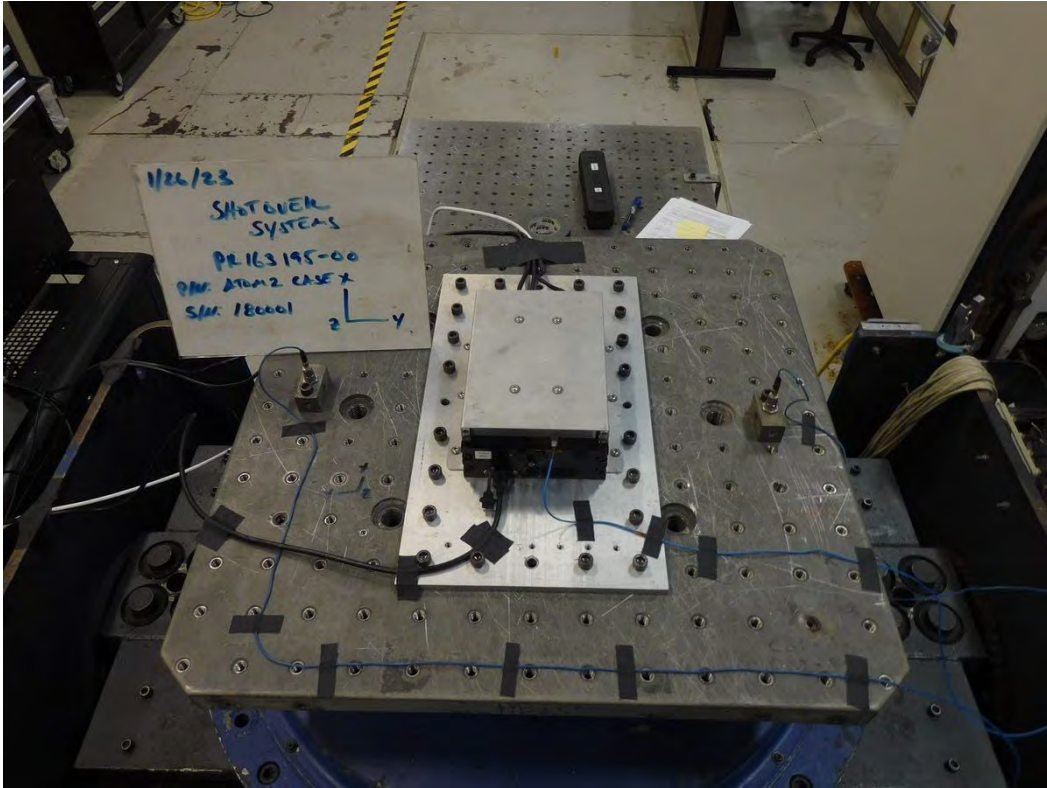
SN-180001_X-Axis



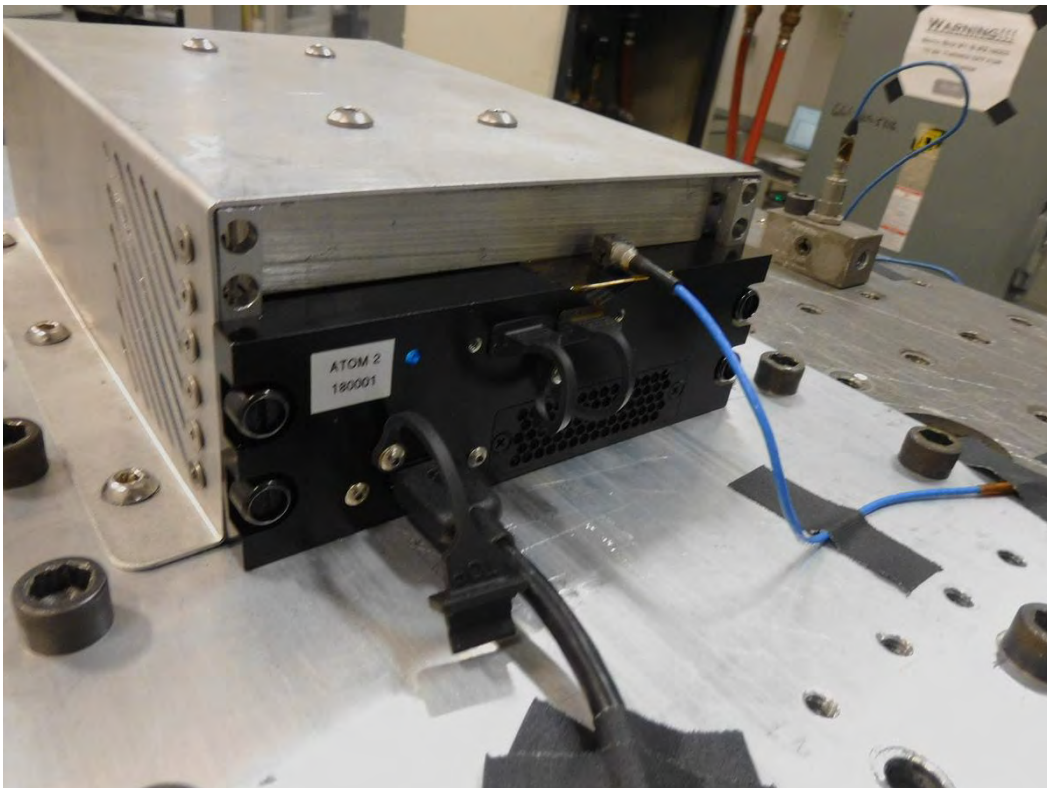
SN-180001_Y-Axis



SN-180001_Y-Axis



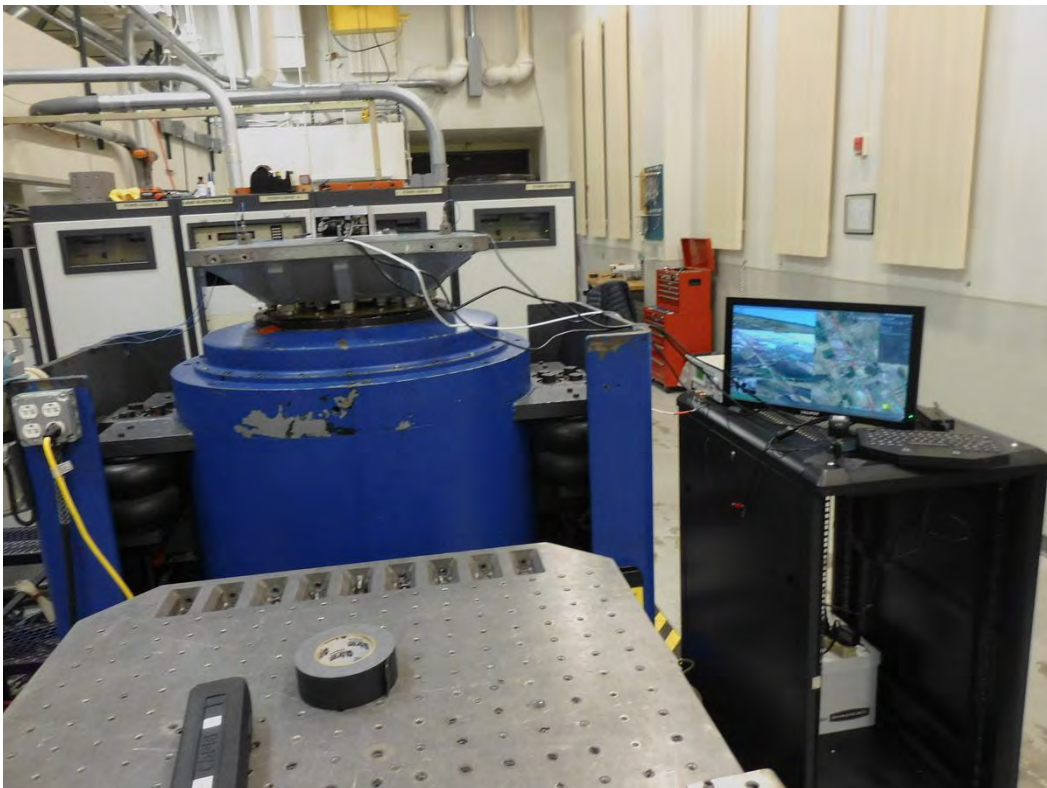
SN-180001_Z-Axis



SN-180001_Z-Axis

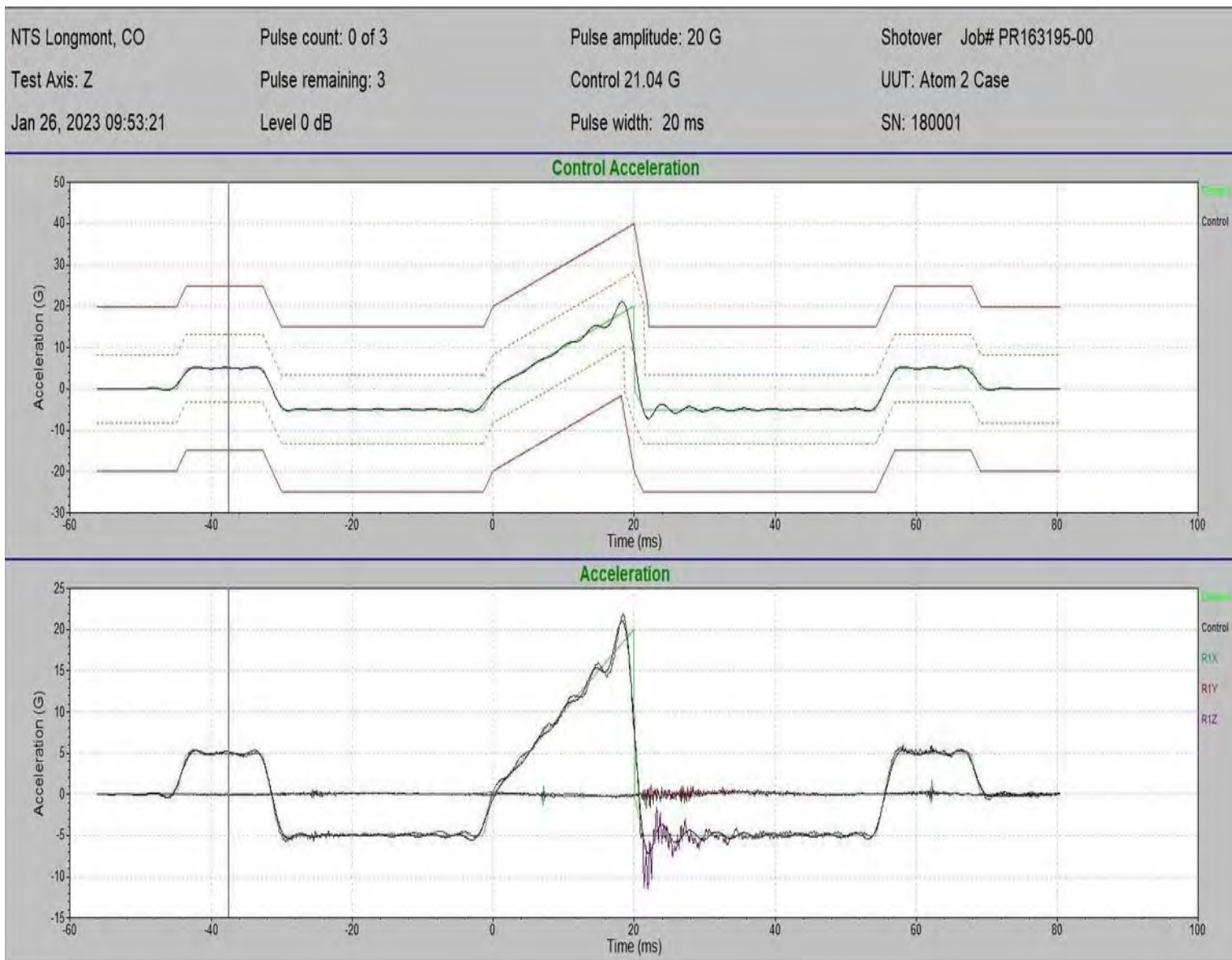


SN-180001_Z-Axis



SN-180001_Z-Axis

5.5.5 Test Data



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 20 G

Shotover Job# PR163195-00

Test Axis: X

Pulse remaining: 3

Control 20.82 G

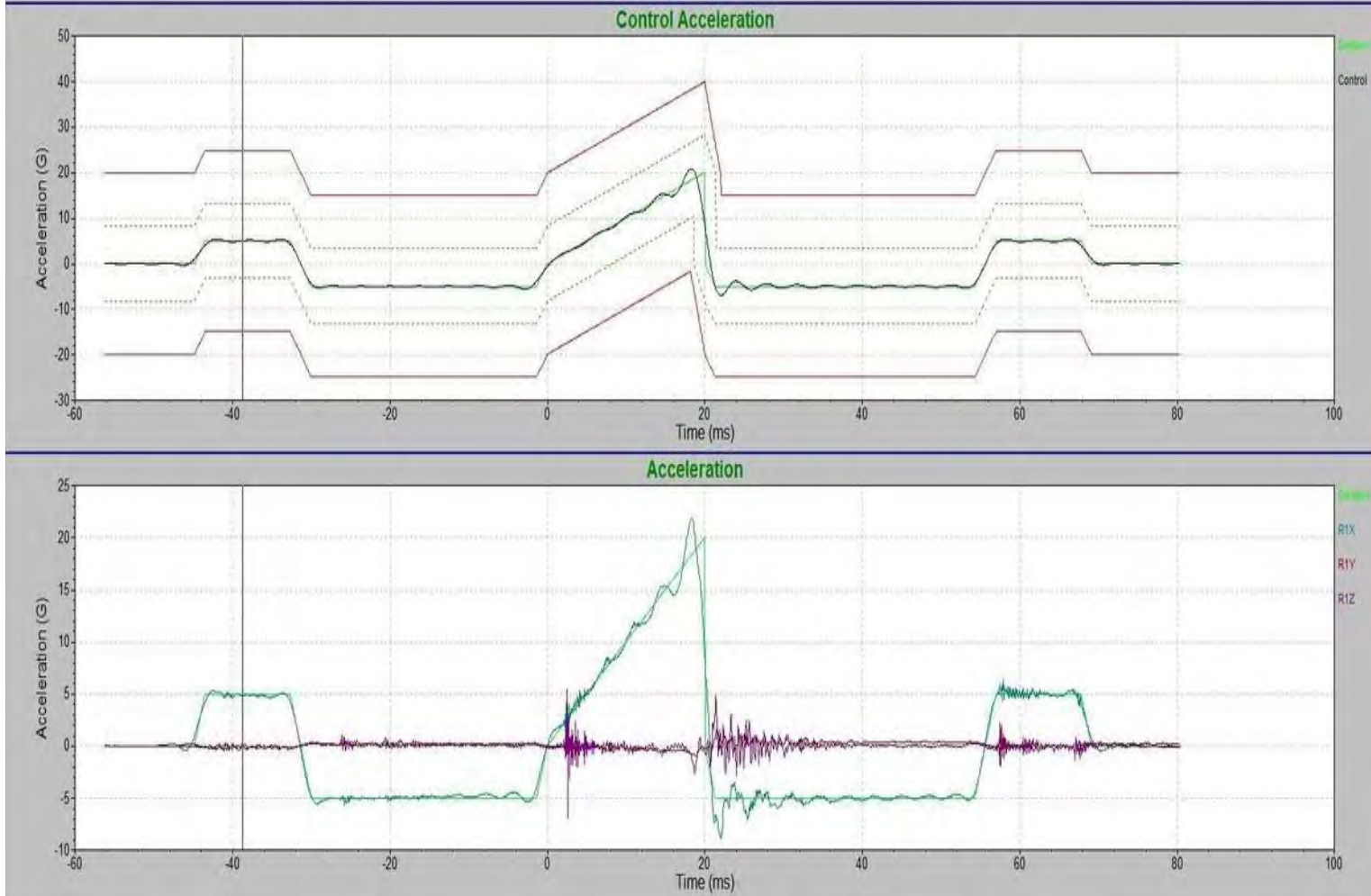
UUT: Atom 2 Case

Jan 27, 2023 12:56:19

Level 0 dB

Pulse width: 20 ms

SN: 180001



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 20 G

Shotover Job# PR163195-00

Test Axis: X

Pulse remaining: 3

Control 20.8 G

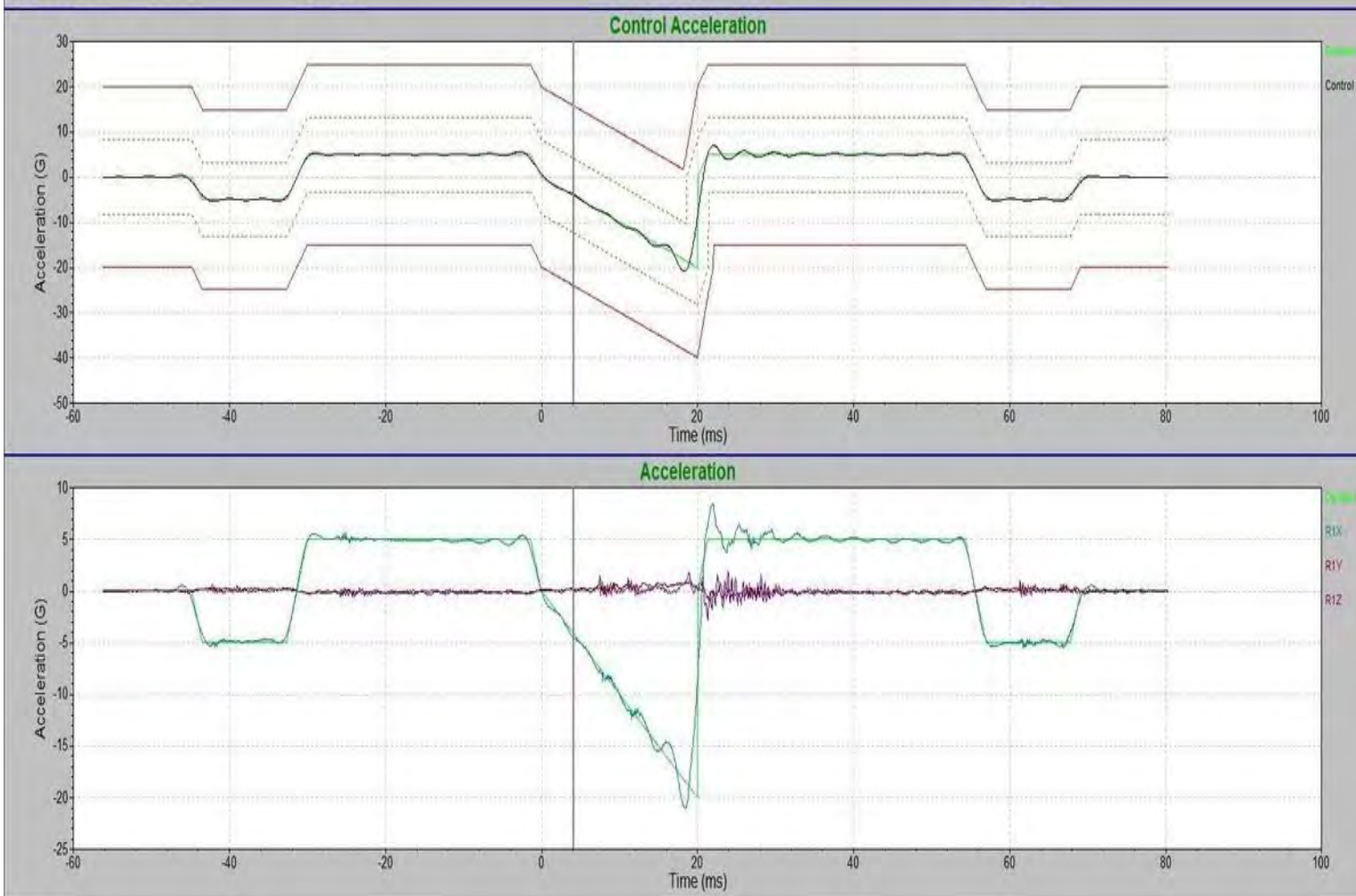
UUT: Atom 2 Case

Jan 27, 2023 12:58:16

Level 0 dB

Pulse width: 20 ms

SN: 180001



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 20 G

Shotover Job# PR163195-00

Test Axis: Z

Pulse remaining: 3

Control 20.48 G

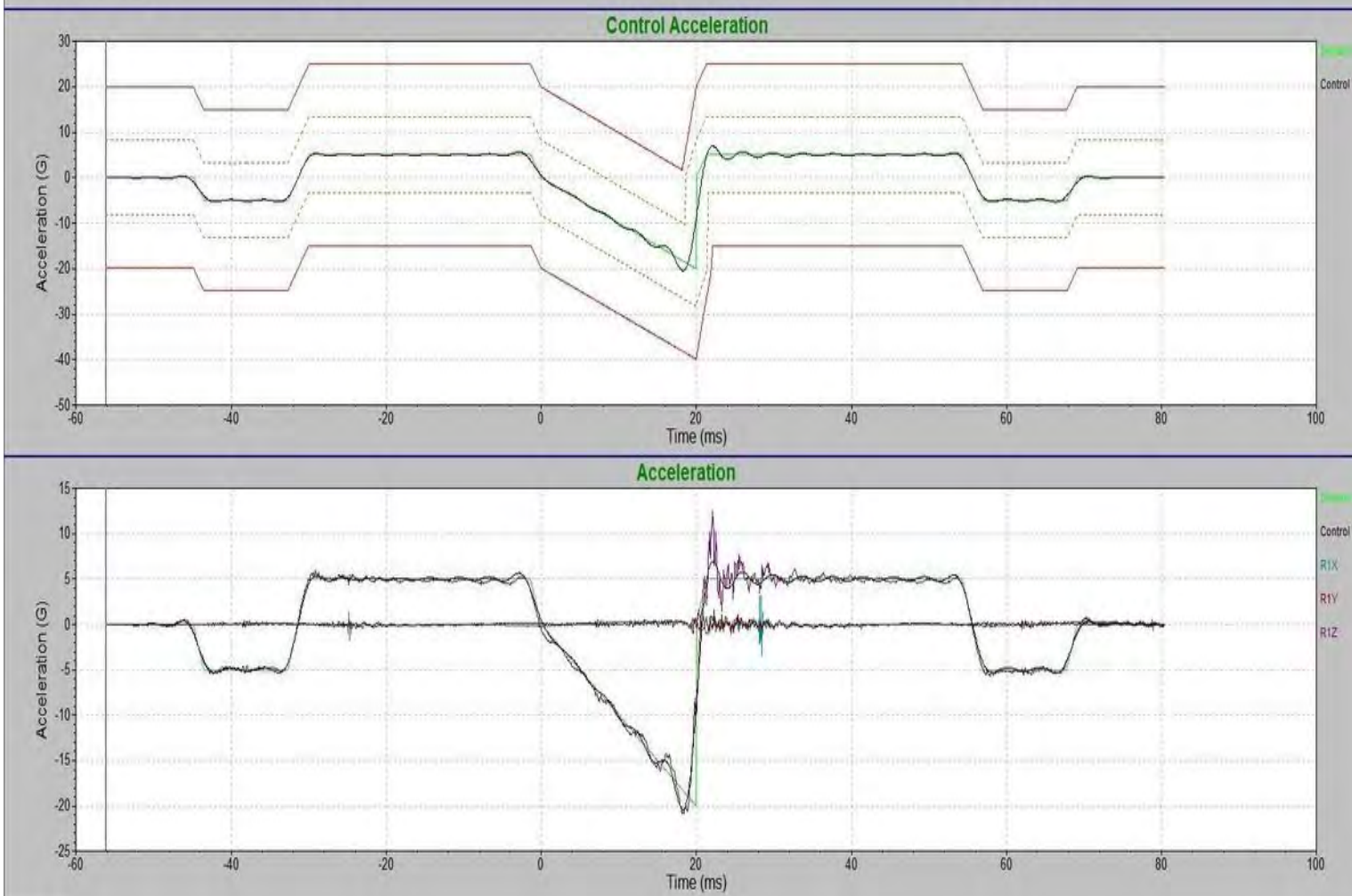
UUT: Atom 2 Case

Jan 26, 2023 09:55:00

Level 0 dB

Pulse width: 20 ms

SN: 180001



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 20 G

Shotover Job# PR163195-00

Test Axis: Y

Pulse remaining: 3

Control 20.84 G

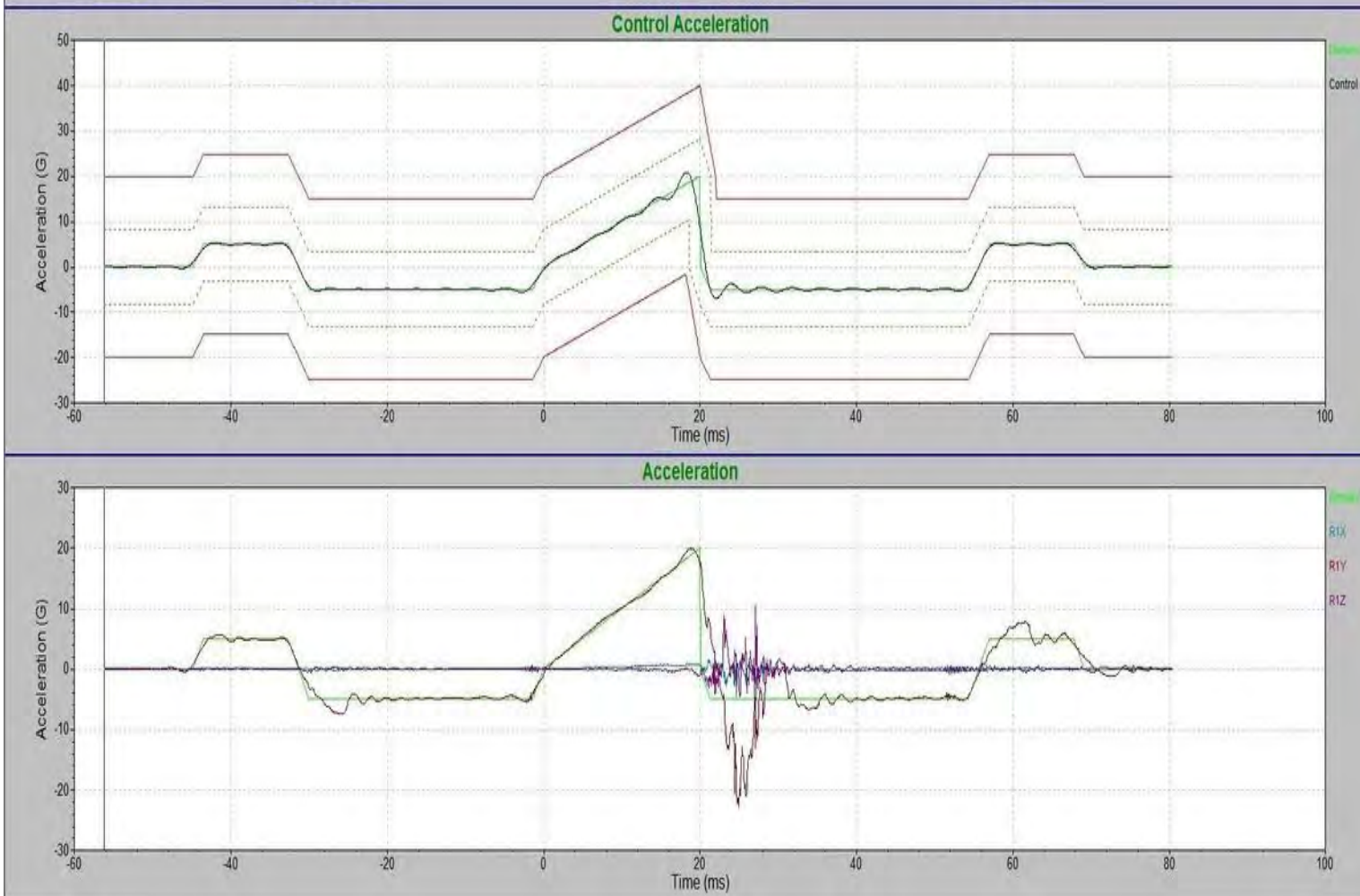
UUT: Atom 2 Case

Jan 28, 2023 10:28:08

Level 0 dB

Pulse width: 20 ms

SN: 180001



NTS Longmont, CO

Pulse count: 0 of 3

Pulse amplitude: 20 G

Shotover Job# PR163195-00

Test Axis: Y

Pulse remaining: 3

Control 20.84 G

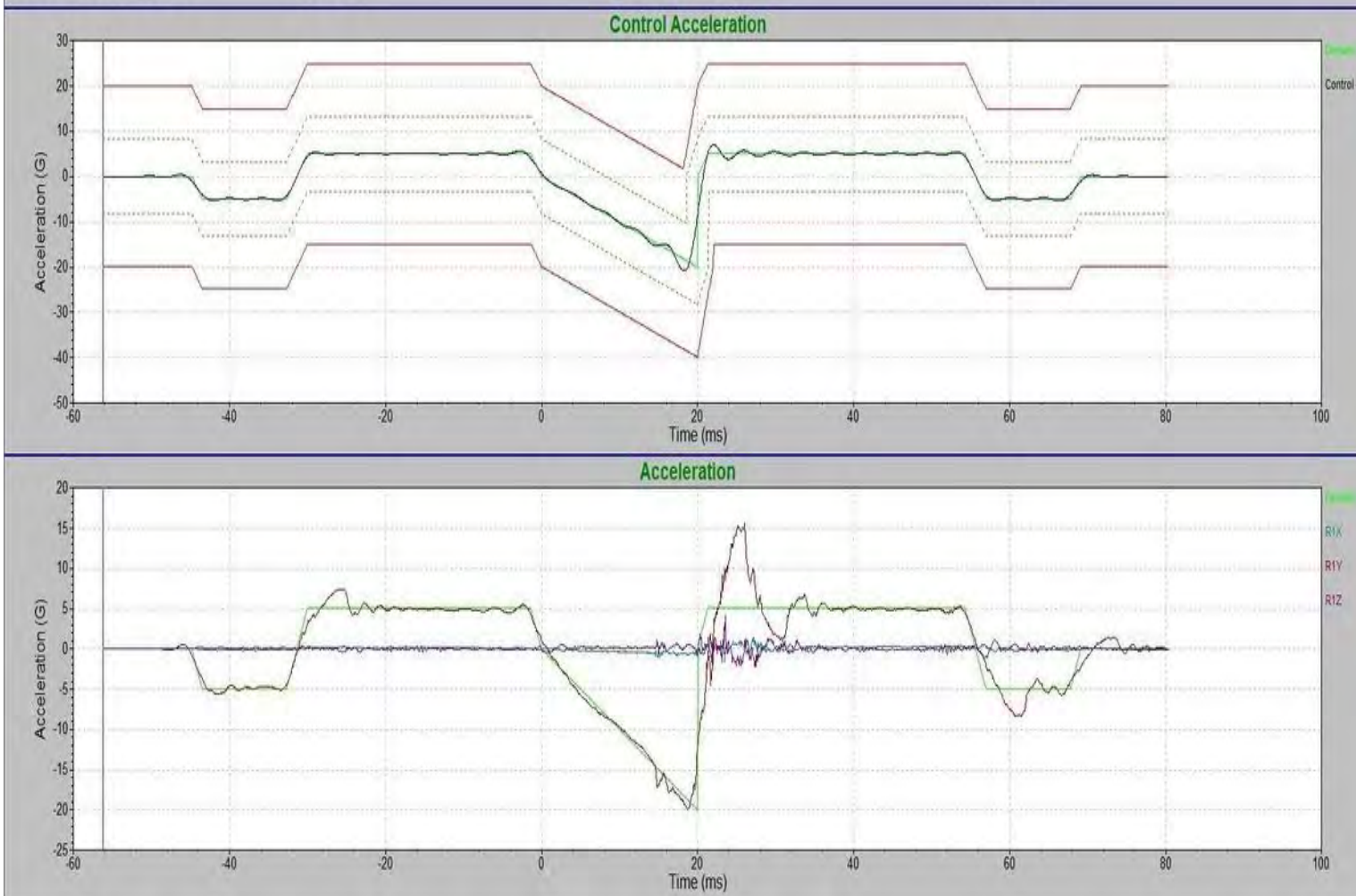
UUT: Atom 2 Case

Jan 28, 2023 10:29:04

Level 0 dB

Pulse width: 20 ms

SN: 180001





5.5.6 Test Equipment List

Table 5.5-1: Crash Safety (Impulse) Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC043856 (ED2)	Shaker (Electro-Dynamic)	Ling Electronics	335	NCR	NCR
WC059830	Wrench (Torque)	CDI Torque Products	1002MFRMH	11/08/2022	11/08/2023
WC061701	Computer (Vibration Controller)	Vibration Research	VR9500	05/03/2022	05/03/2023
WC061708	Computer (Vibration Controller)	Vibration Research	VR9500	05/03/2022	05/03/2023
WC061717	Accelerometer (Tri-Axial)	PCB Piezotronics	356A01	03/07/2022	03/07/2023
WC070238	Accelerometer (Vibration)	PCB Piezotronics	352C04	11/08/2022	11/08/2023
WC070240	Accelerometer (Vibration)	PCB Piezotronics	352C04	11/08/2022	11/08/2023
WC070466	Meter (Hygrometer)	Fluke	971	05/23/2022	05/23/2023

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required



5.6 Vibration

5.6.1 Test Procedure

The ATOM2 was tested in accordance with RTCA DO-160G Section 8, Categories S, U2, and R.

5.6.2 Test Result

The EUT showed no visual damage after the test was completed.

5.6.3 Test Datasheets

Start Date: 1/26/23		End Date: 1/30/23		Project No: PR163195-00		
Test Engineer		Colton Prince		Customer Witness: Ken		Temp: 68°F Humidity: 15%
Date	Time	Axis	Plot No.	Serial No.	Remarks	Initials
1/26/2023	930	Z		180001	Mounted DUT to ED02 in Z-Axis	CP
	943	Z	Run 1	180001	Perform 0.5G Pre-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	956	Z	Run 4	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1010	Z	Run 7	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1020				Customer Performing Functional test on DUT	CP
	1023	Z	Run 8	180001	Perform Cat-R Curve-B, 1.48GrmsRandom Vibration for 0:10:00 Duration	CP
	1036	Z	Run 9	180001	Perform Cat-R Curve-B1, 2.10GrmsRandom Vibration for 3:00:00 Duration	CP
	1342	Z	Run 10	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1355	Z	Run 11	180001	Perform Cat-S Curve-B, 1.48GrmsRandom Vibration for 1:00:00 Duration	CP
	1457	Z	Run 12	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1506	Z	Run 13	180001	Perform Cat-S Curve-C, 4.12GrmsRandom Vibration for 1:00:00 Duration	CP
	1614	Z	Run 14	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1624	Z	Run 15	180001	Perform Cat-S Curve-M, Sinusoidal 1.5g-pk for 1:00:00 Duration	CP
	1725	Z	Run 16	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1734	Z	Run 17	180001	Perform Cat-S Curve-L, Sinusoidal 3g-pk for 1:00:00 Duration	CP
1/26/2023	1837	Z	Run 18	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
1/27/2023	841	Z	Run 19	180001	Perform Cat-U2 Curve-F, 3.37GrmsRandom Vibration for 0:10:00 Duration	CP
	853	Z	Run 20	180001	Perform Cat-U2 Curve-F1, 4.76GrmsRandom Vibration for 3:00:00 Duration	CP
	1156	Z	Run 21	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1205	Z			Customer Performing Functional test on DUT	CP
	1230	X		180001	Mounted DUT to ED02 in X-Axis	CP
	1245	X	Run 22	180001	Perform 0.5G Pre-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1259	X	Run 25	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1311	X	Run 28	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1334	X			Customer Performing Functional test on DUT	CP
	1335	X	Run 29	180001	Perform Cat-R Curve-B, 1.48GrmsRandom Vibration for 0:10:00 Duration	CP
	1348	X	Run 30	180001	Perform Cat-R Curve-B1, 2.10GrmsRandom Vibration for 3:00:00 Duration	CP
	1650	X	Run 31	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1659	X	Run 32	180001	Perform Cat-S Curve-B, 1.48GrmsRandom Vibration for 1:00:00 Duration	CP
	1805	X	Run 33	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz.	CP
	1814	X	Run 34	180001	Perform Cat-S Curve-C, 4.12GrmsRandom Vibration for 1:00:00 Duration	CP

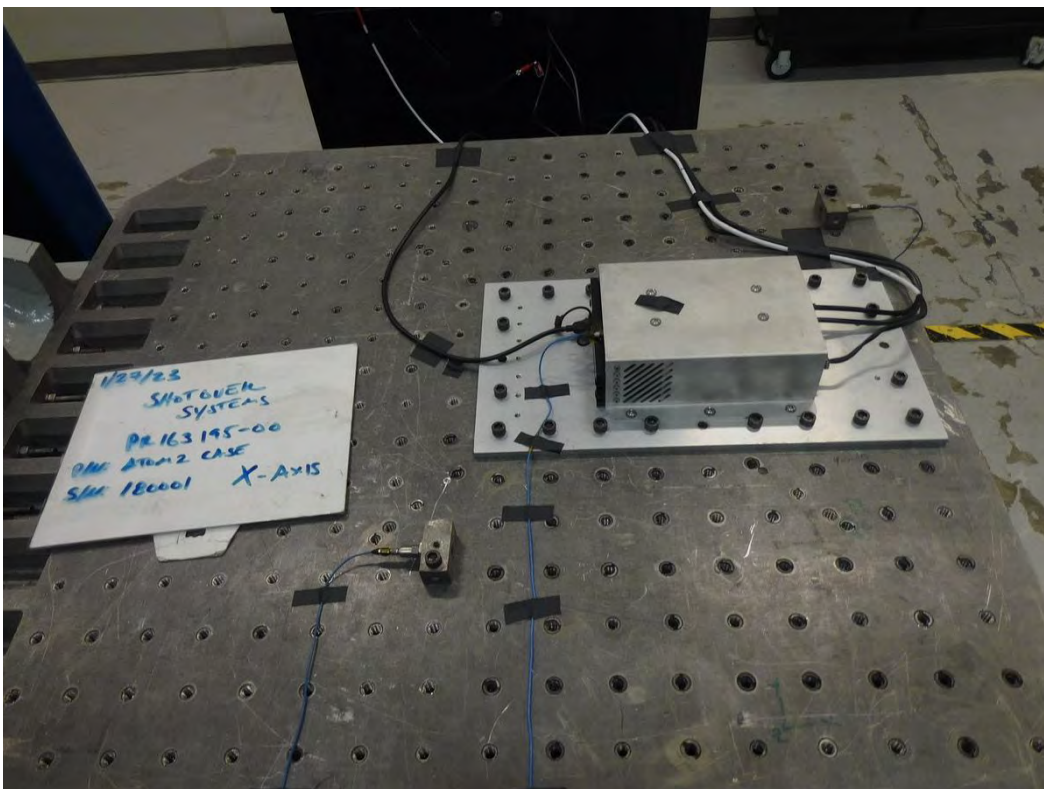


	1916	X	Run 35	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1925	X	Run 36	180001	Perform Cat-S Curve-M, Sinusoidal 1.5g-pk for 1:00:00 Duration	CP
	2027	X	Run 37	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	2035	X	Run 38	180001	Perform Cat-S Curve-L, Sinusoidal 3g-pk for 1:00:00 Duration	CP
1/27/2023	2136	X	Run 39	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
1/28/2023	628	X	Run 40	180001	Perform Cat-U2 Curve-F, 3.37GrmsRandom Vibration for 0:10:00 Duration	CP
	641	X	Run 41	180001	Perform Cat-U2 Curve-F1, 4.76GrmsRandom Vibration for 3:00:00 Duration	CP
	943	X	Run 42	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1000	X			Customer Performing Functional test on DUT	CP
	1010	Y		180001	Mounted DUT to ED02 in Y-Axis	CP
	1018	Y	Run 43	180001	Perform 0.5G Pre-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1030	Y	Run 46	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1046	Y	Run 49	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1050	Y			Customer Performing Functional test on DUT	CP
	1055	Y	Run 50	180001	Perform Cat-R Curve-B, 1.48GrmsRandom Vibration for 0:10:00 Duration	CP
	1107	Y	Run 51	180001	Perform Cat-R Curve-B1, 2.10GrmsRandom Vibration for 3:00:00 Duration	CP
	1410	Y	Run 52	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1420	Y	Run 53	180001	Perform Cat-S Curve-B, 1.48GrmsRandom Vibration for 1:00:00 Duration	CP
	1522	Y	Run 54	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1531	Y	Run 55	180001	Perform Cat-S Curve-C, 4.12GrmsRandom Vibration for 1:00:00 Duration	CP
	1633	Y	Run 56	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1642	Y	Run 57	180001	Perform Cat-S Curve-M, Sinusoidal 1.5g-pk for 1:00:00 Duration	CP
	1743	Y	Run 58	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1752	Y	Run 59	180001	Perform Cat-S Curve-L, Sinusoidal 3g-pk for 1:00:00 Duration	CP
	1852	Y	Run 60	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
	1901	Y	Run 61	180001	Perform Cat-U2 Curve-F, 3.37GrmsRandom Vibration for 0:10:00 Duration	CP
	1913	Y	Run 62	180001	Perform Cat-U2 Curve-F1, 4.76GrmsRandom Vibration for 3:00:00 Duration	CP
	2218	Y	Run 63	180001	Perform 0.5G Post-Sinusoidal sweep at 1/oct per min 10-2000 Hz	CP
1/30/2023	730	Y			Customer Performing Functional test on DUT	CP
					Test Complete, No Visual Damage	CP

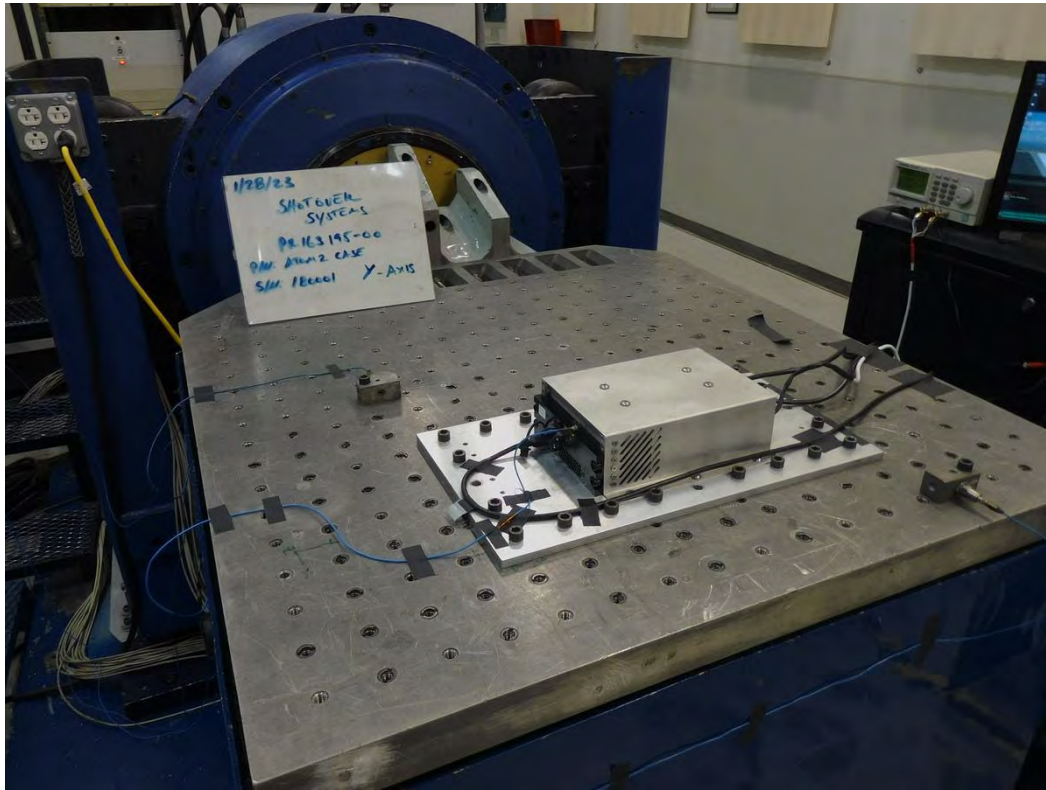
5.6.4 Test Photographs



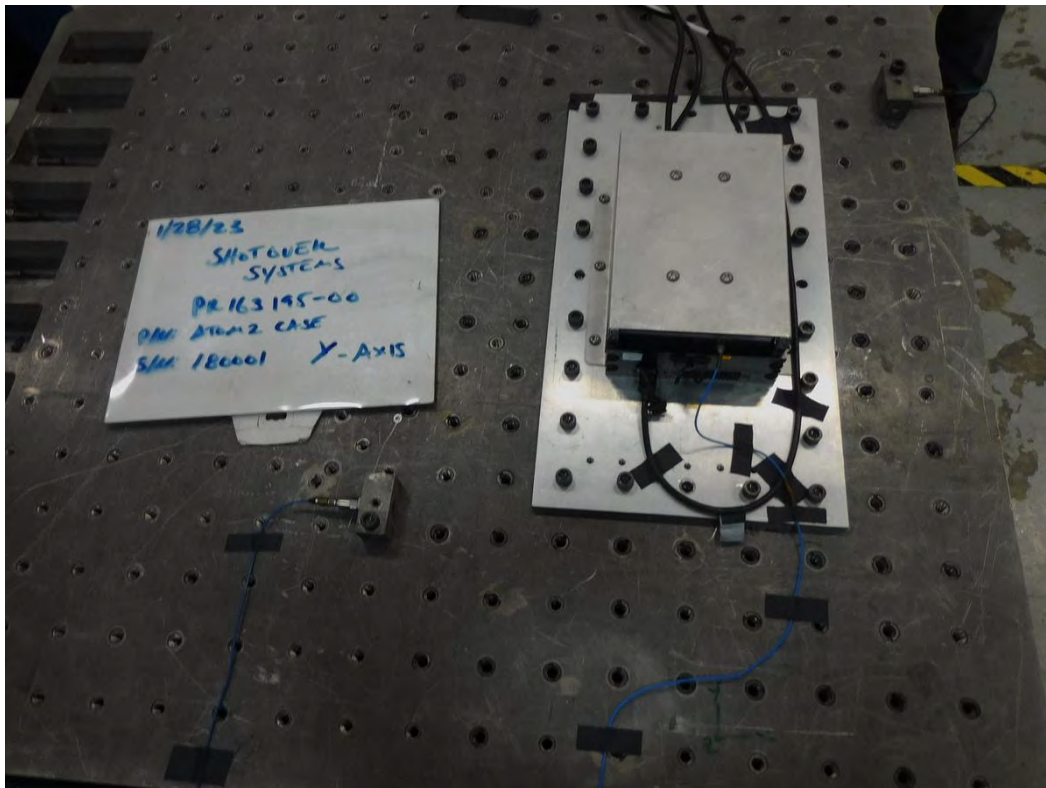
SN-180001_X-Axis



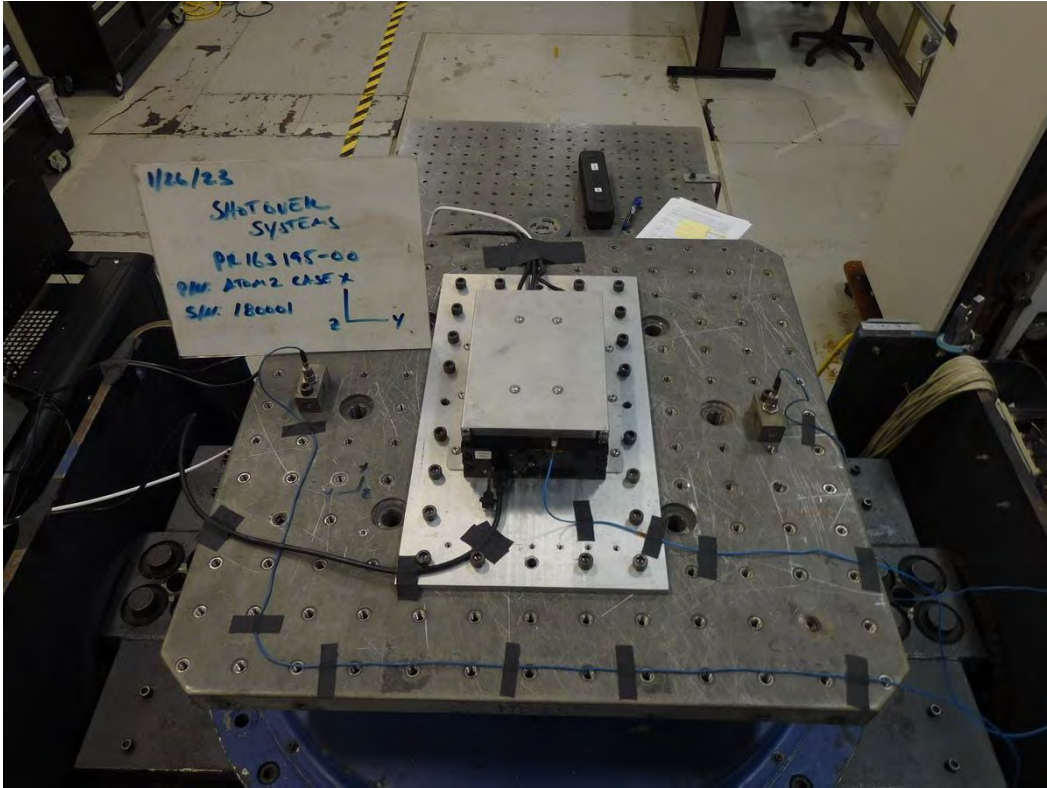
SN-180001_X-Axis



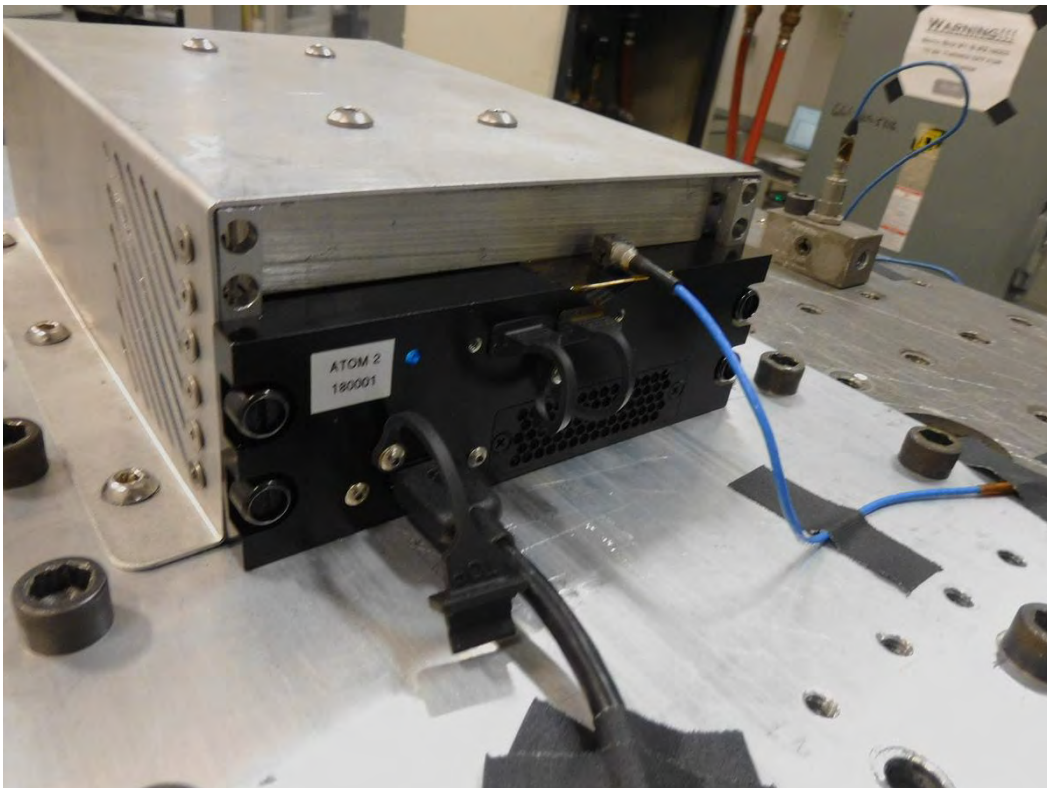
SN-180001_Y-Axis



SN-180001_Y-Axis



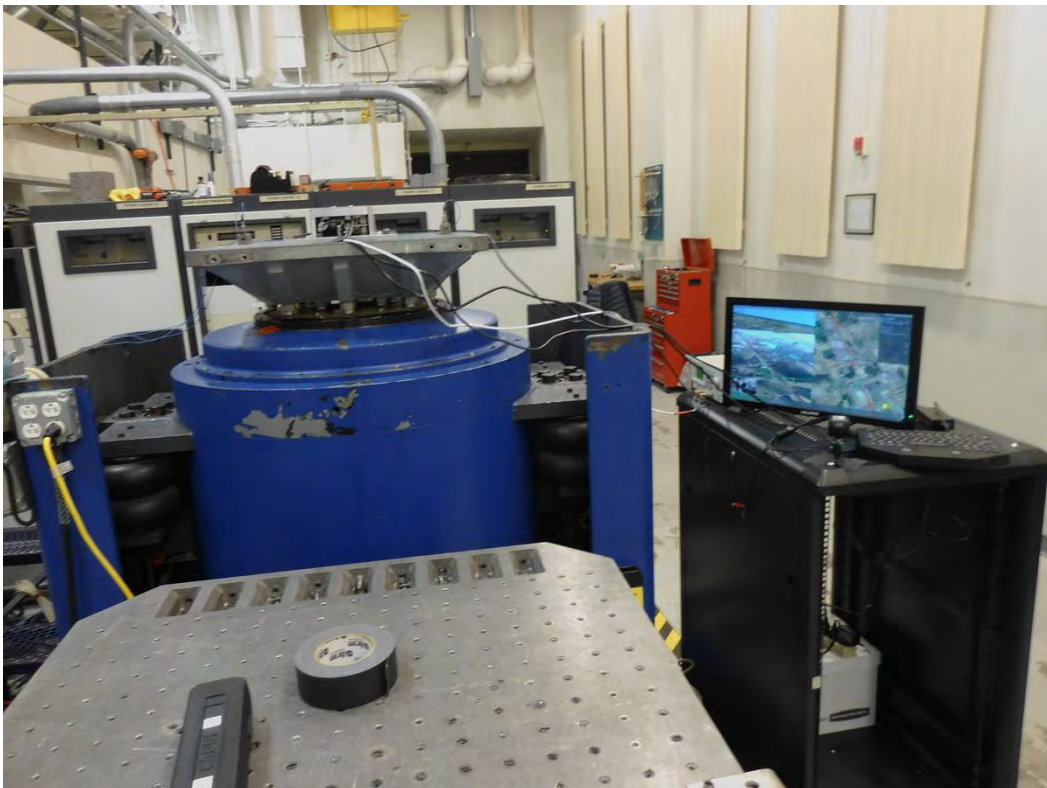
SN-180001_Z-Axis



SN-180001_Z-Axis



SN-180001_Z-Axis



SN-180001_Z-Axis

5.6.5 Test Data



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 10

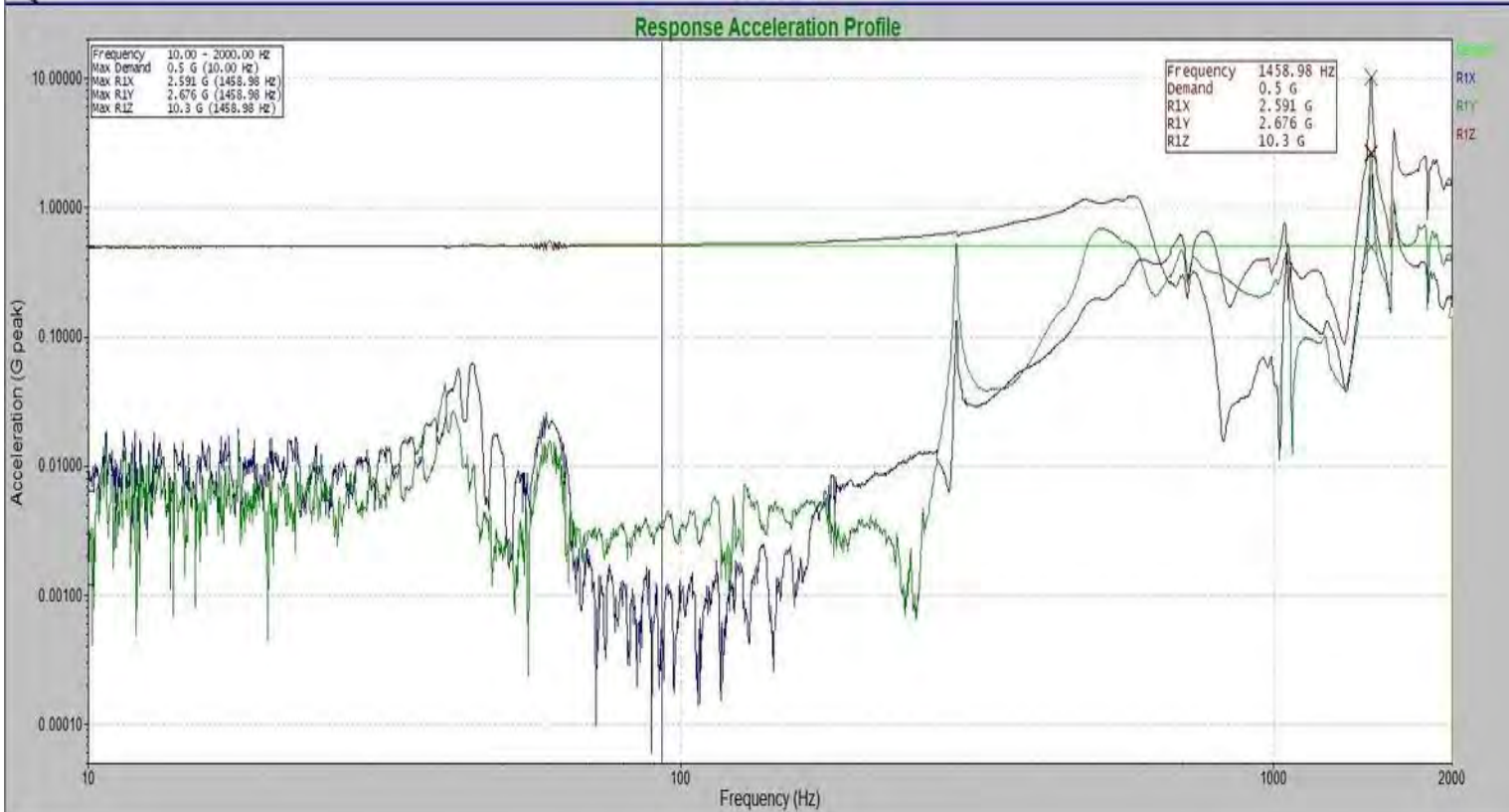
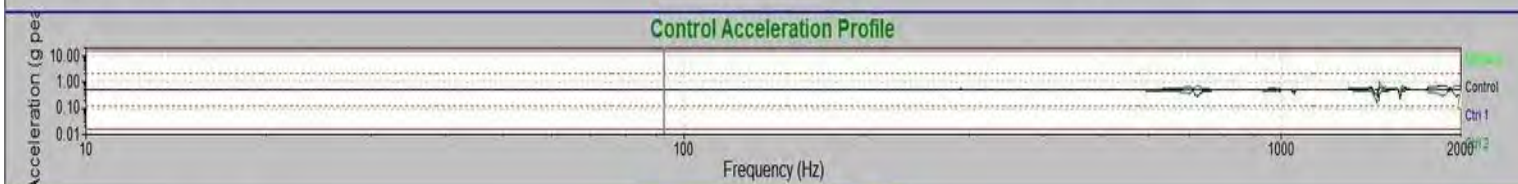
Control: 0.5026 G

UUT: Atom 2 Case

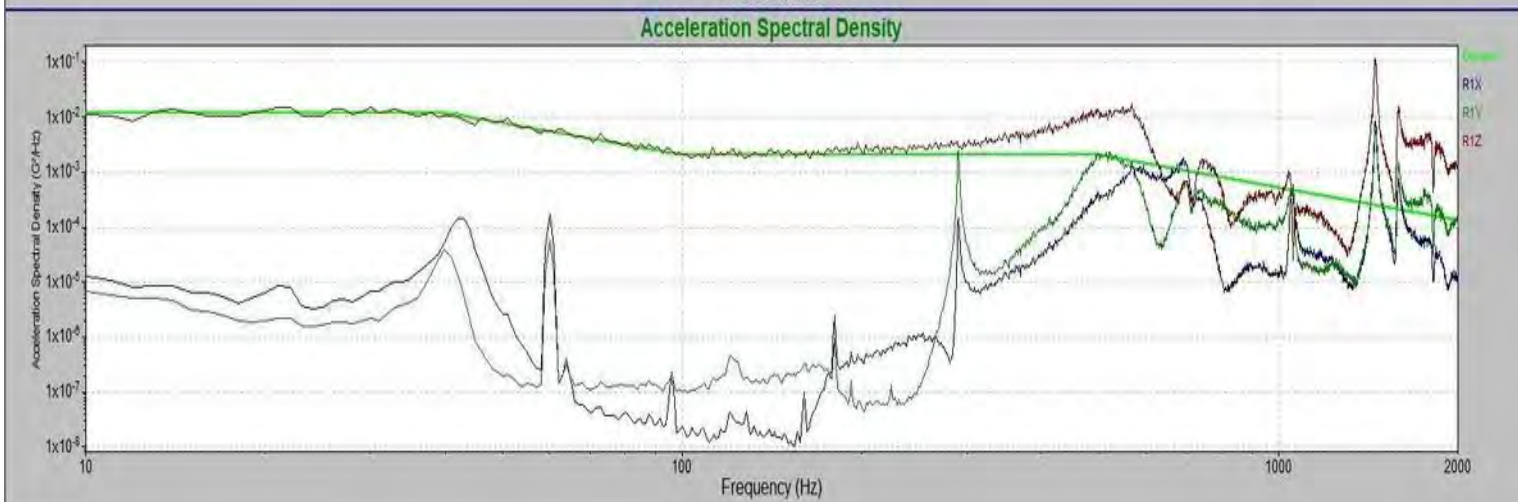
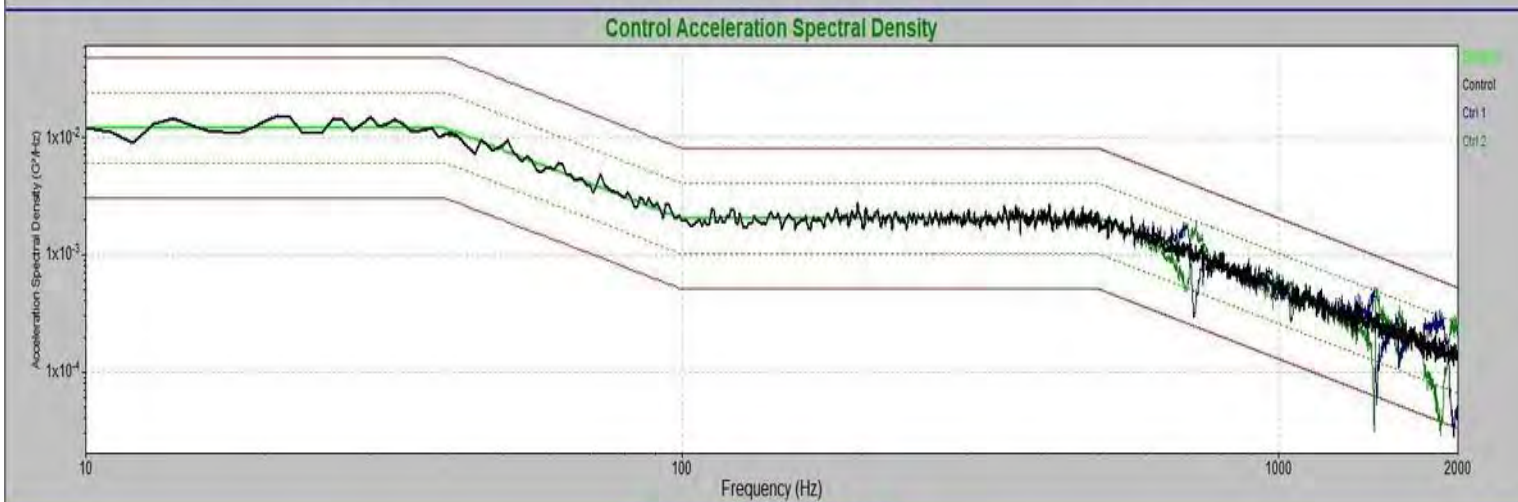
Jan 26, 2023 13:42:01

Test axis: Z

S/N: 180001



NTS Longmont, CO	Level Time: 1:00:00	Demand: 1.49 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 1:01:24	Control: 1.496 G RMS	UUT: Atom2 Case	
Jan 26, 2023 13:55:16	Run 11	Test axis: Z	S/N: 180001	



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 12

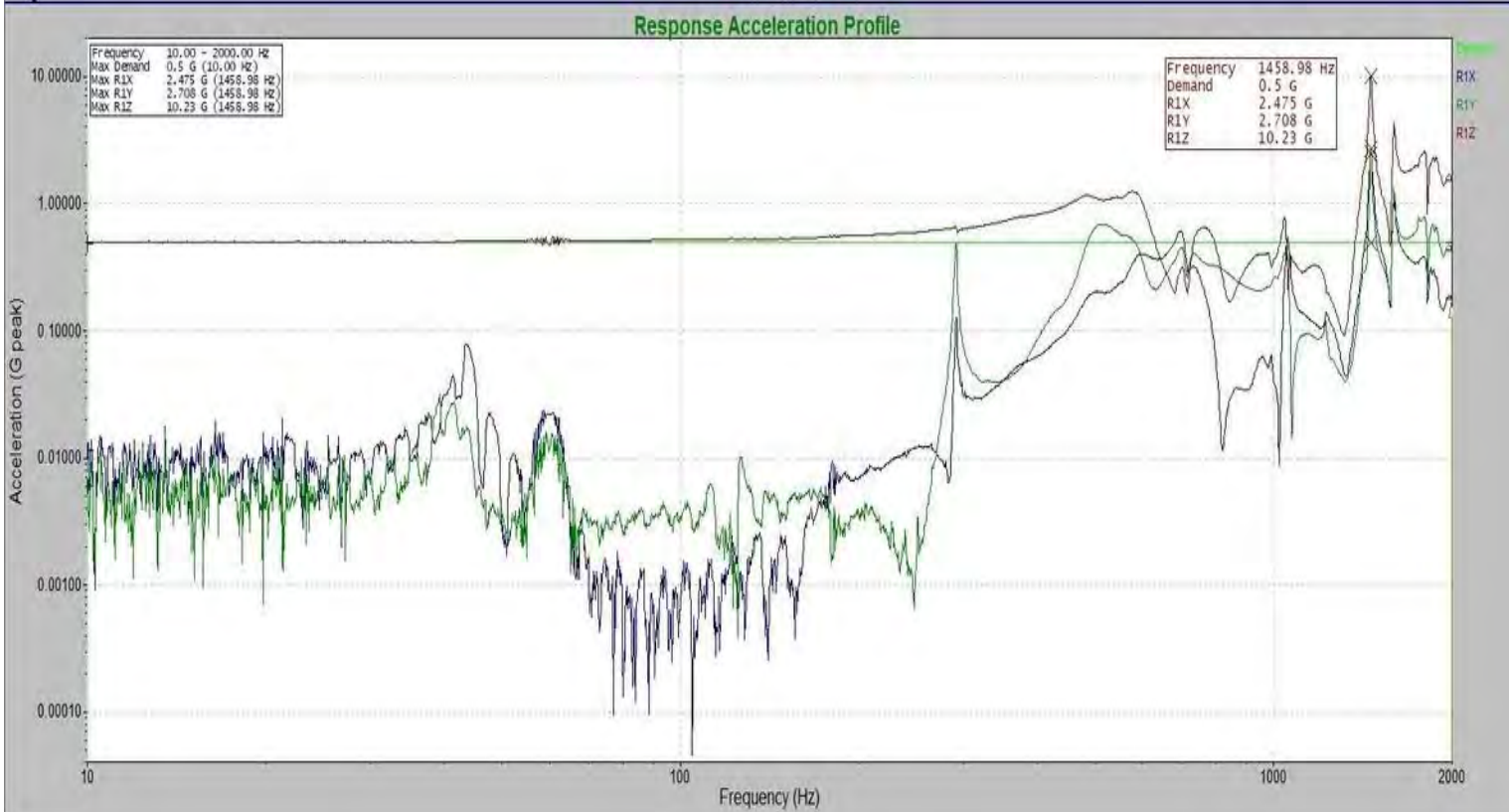
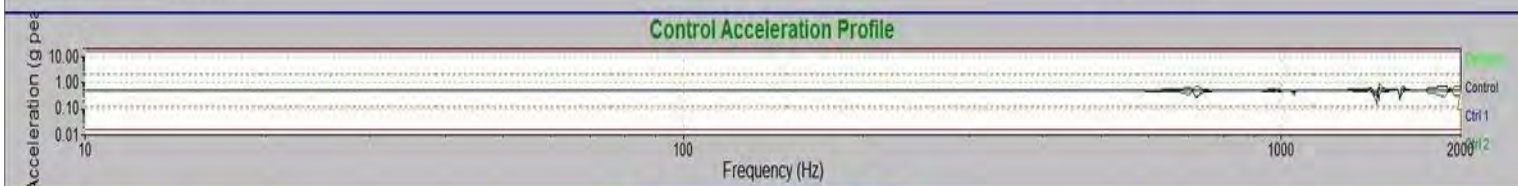
Control: 0.5056 G

UUT: Atom 2 Case

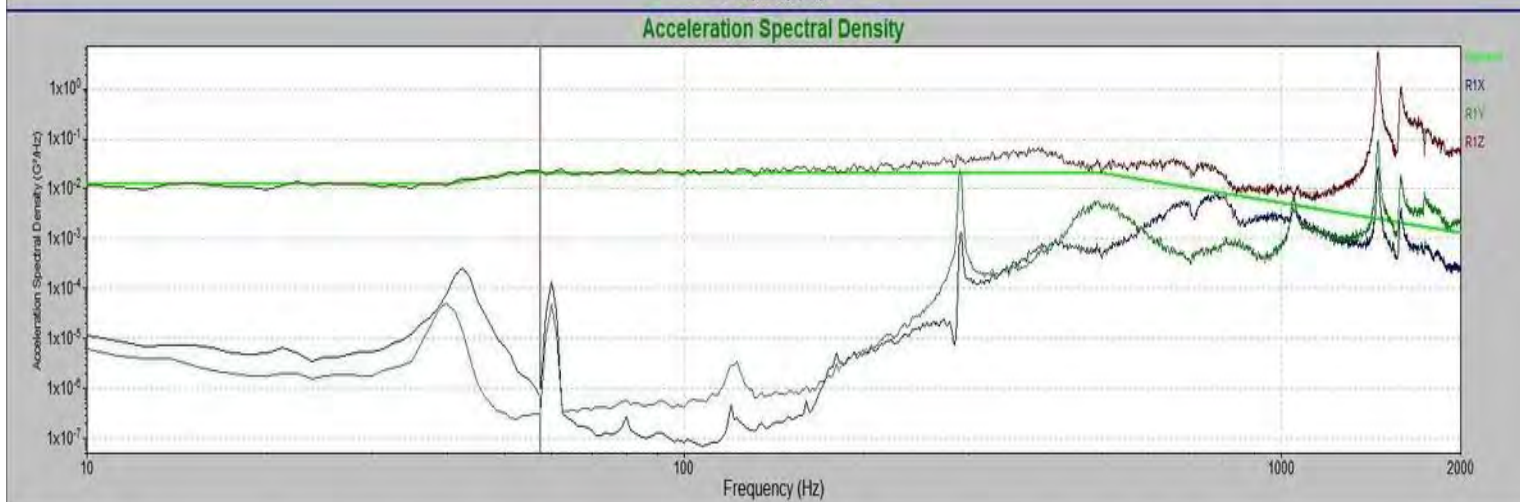
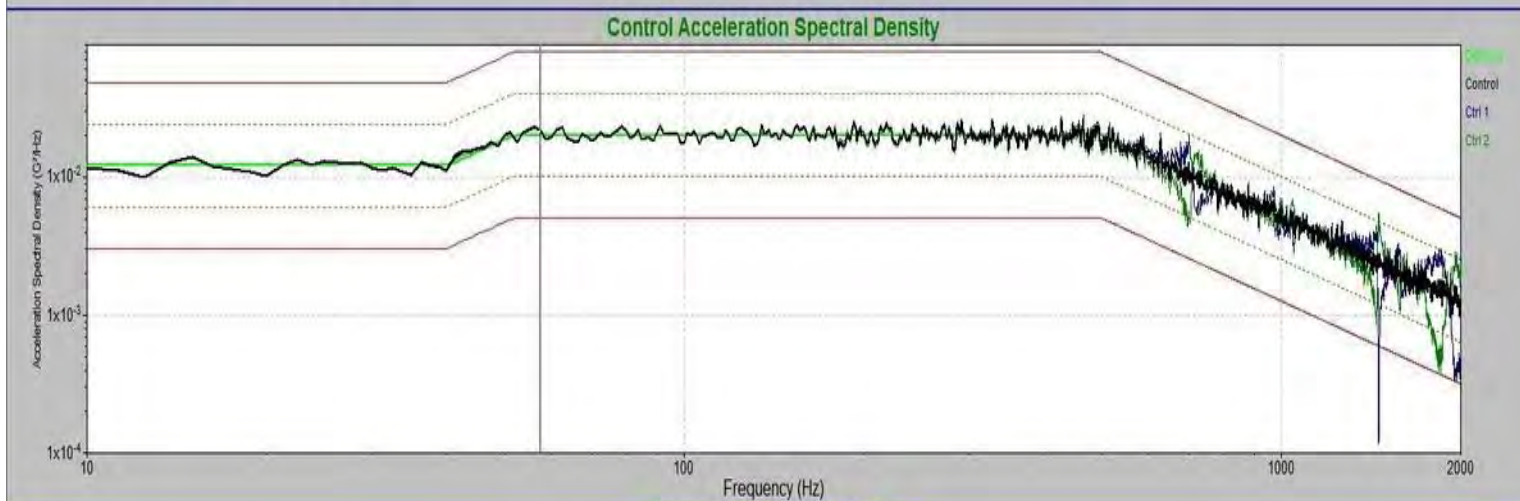
Jan 26, 2023 14:57:42

Test axis: Z

S/N: 180001



NTS Longmont, CO	Level Time: 1:00:00	Demand: 4.128 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 1:01:21	Control: 4.138 G RMS	UUT: Atom2 Case	
Jan 26, 2023 15:06:47	Run 13	Test axis: Z	S/N: 180001	



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 14

Control: 0.5024 G

UUT: Atom 2 Case

Jan 26, 2023 16:14:22

Test axis: Z

S/N: 180001



NTS Longmont, CO

Level Time: 1:00:00

Demand: 0.1572 G

Job# PR163195-00

Shotover Systems

Run 15

Control: 0.1575 G

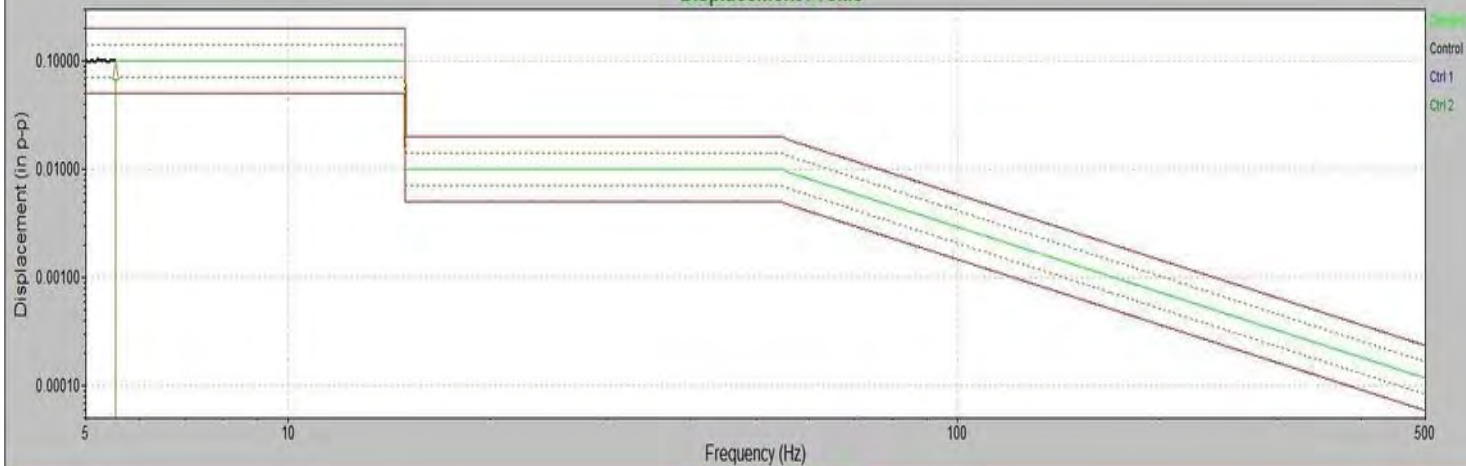
UUT: Atom2 Case

Jan 26, 2023 16:24:54

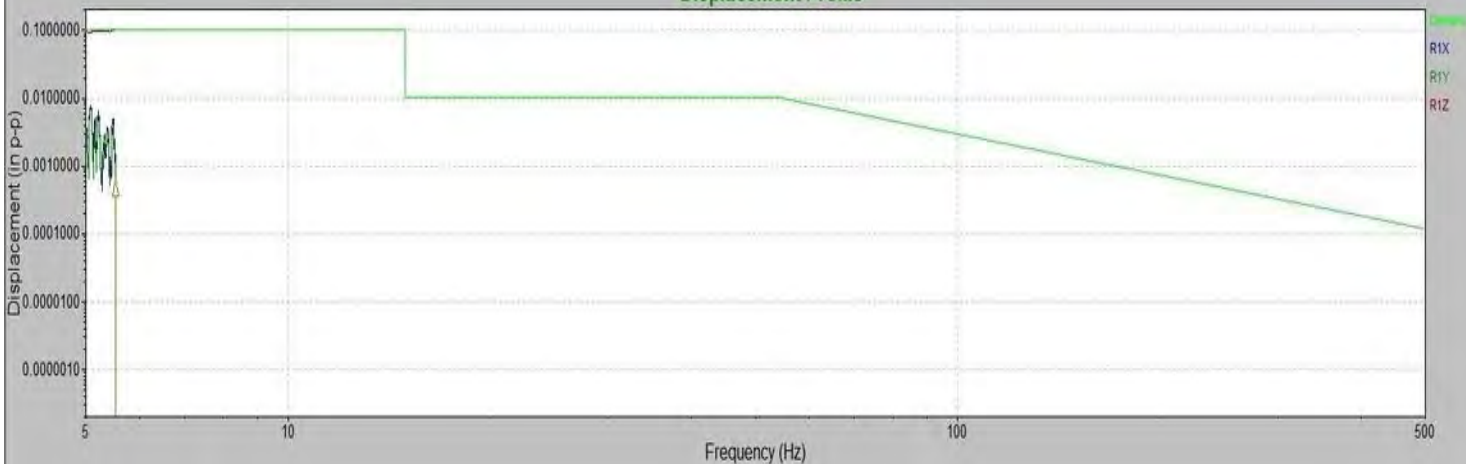
Test Axis: Z

SN: 180001

Displacement Profile



Displacement Profile



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 16

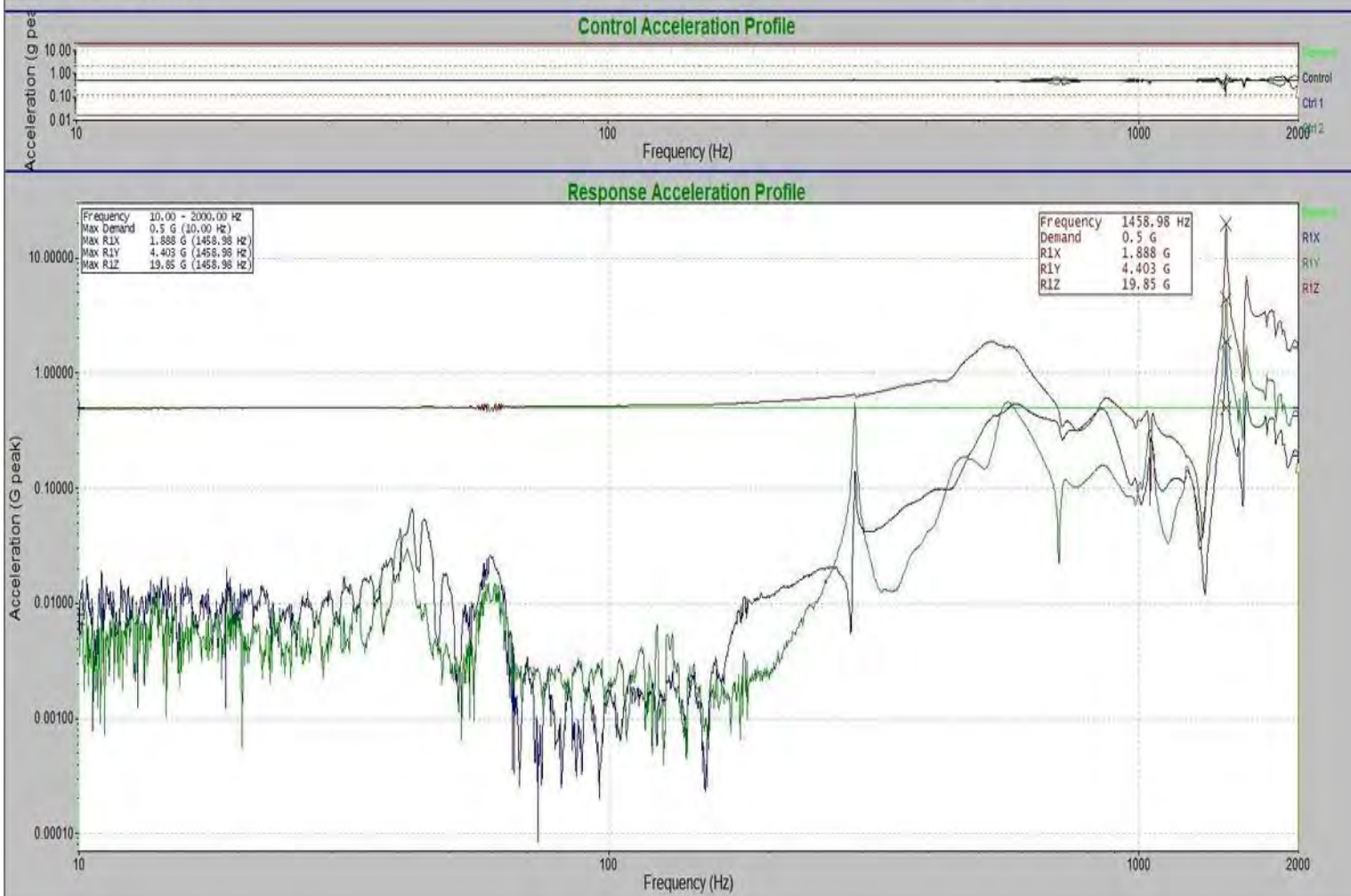
Control: 0.5066 G

UUT: Atom 2 Case

Jan 26, 2023 17:25:43

Test axis: Z

S/N: 180001



NTS Longmont, CO

Level Time: 1:00:00

Demand: 0.7994 G

Job# PR163195-00

Shotover Systems

Run 17

Control: 0.7997 G

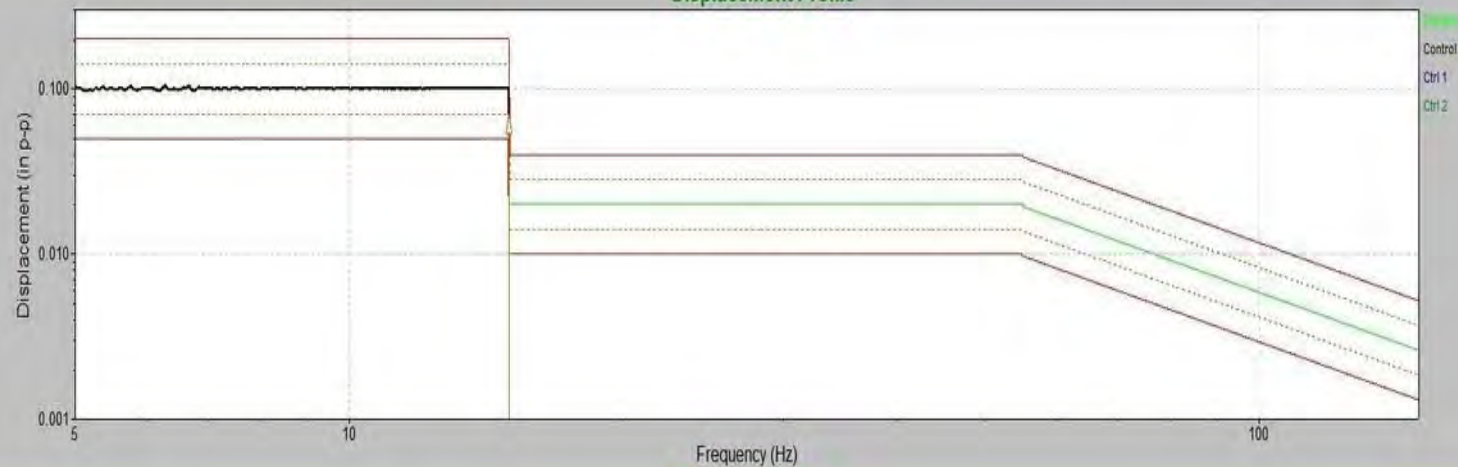
UUT: Atom2 Case

Jan 26, 2023 17:34:37

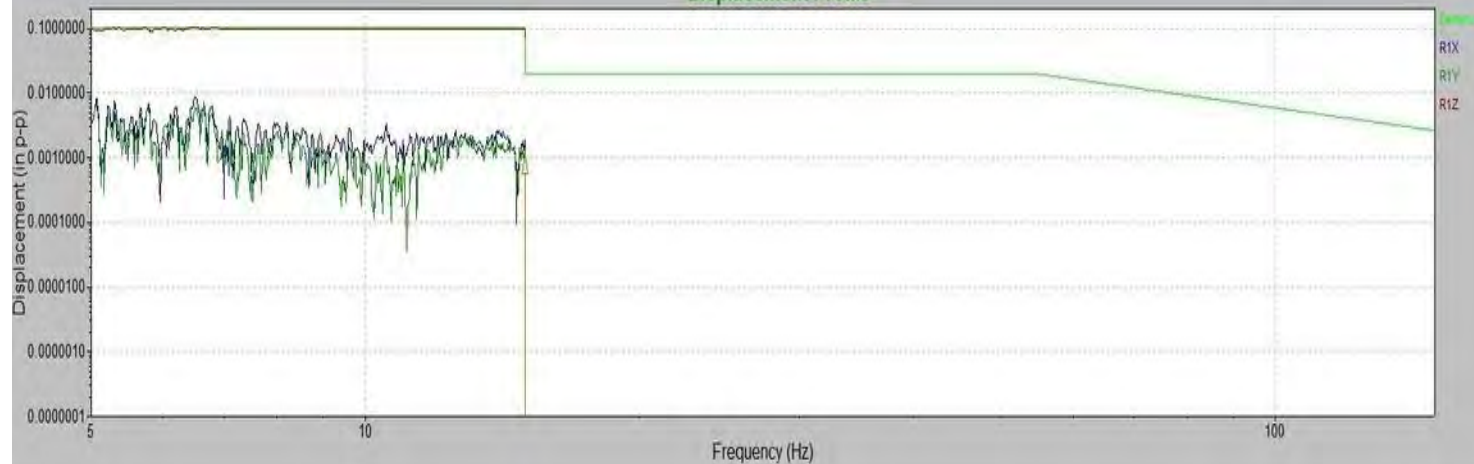
Test Axis: Z

SN: 180001

Displacement Profile



Displacement Profile



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 18

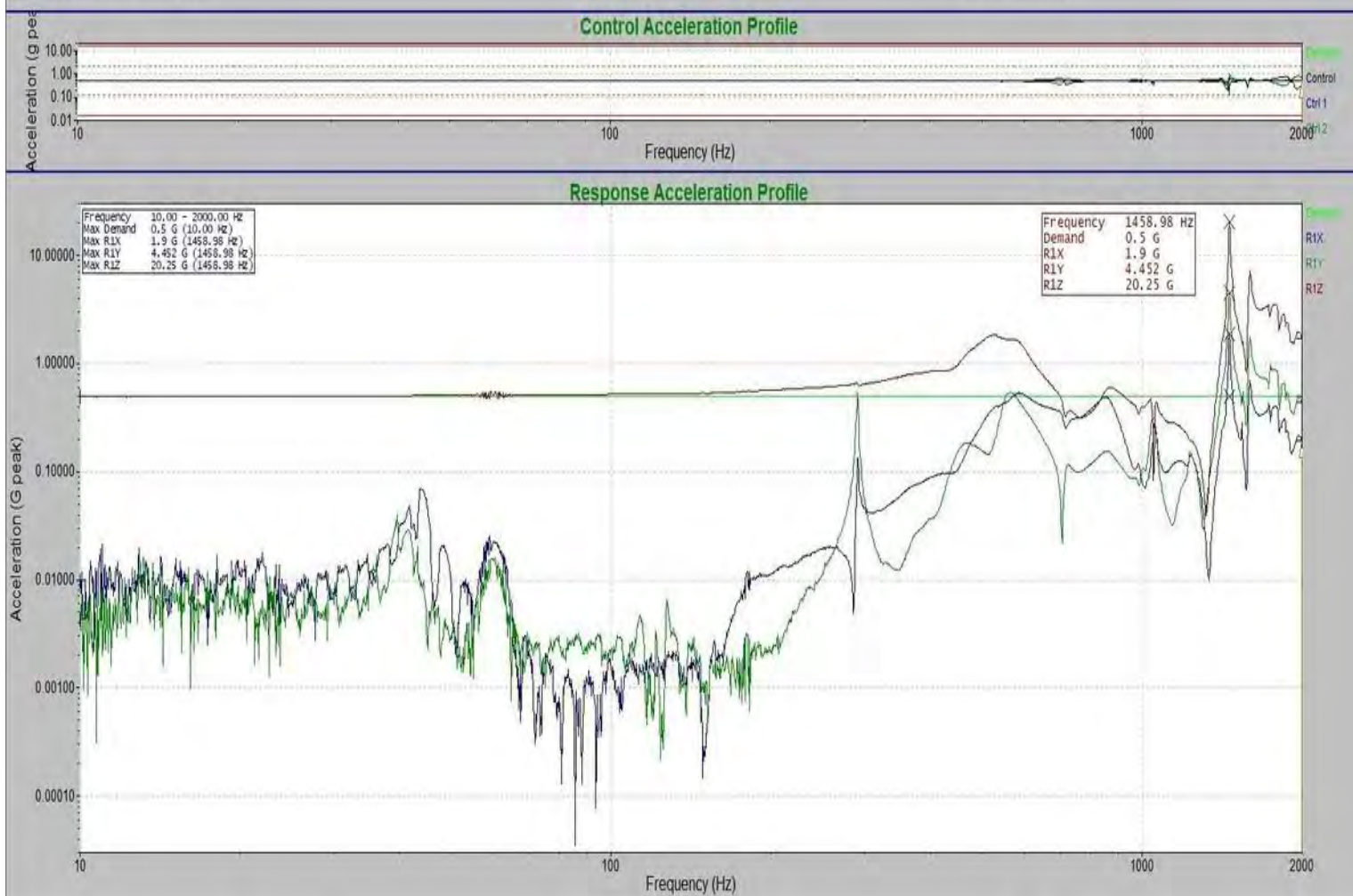
Control: 0.5118 G

UUT: Atom 2 Case

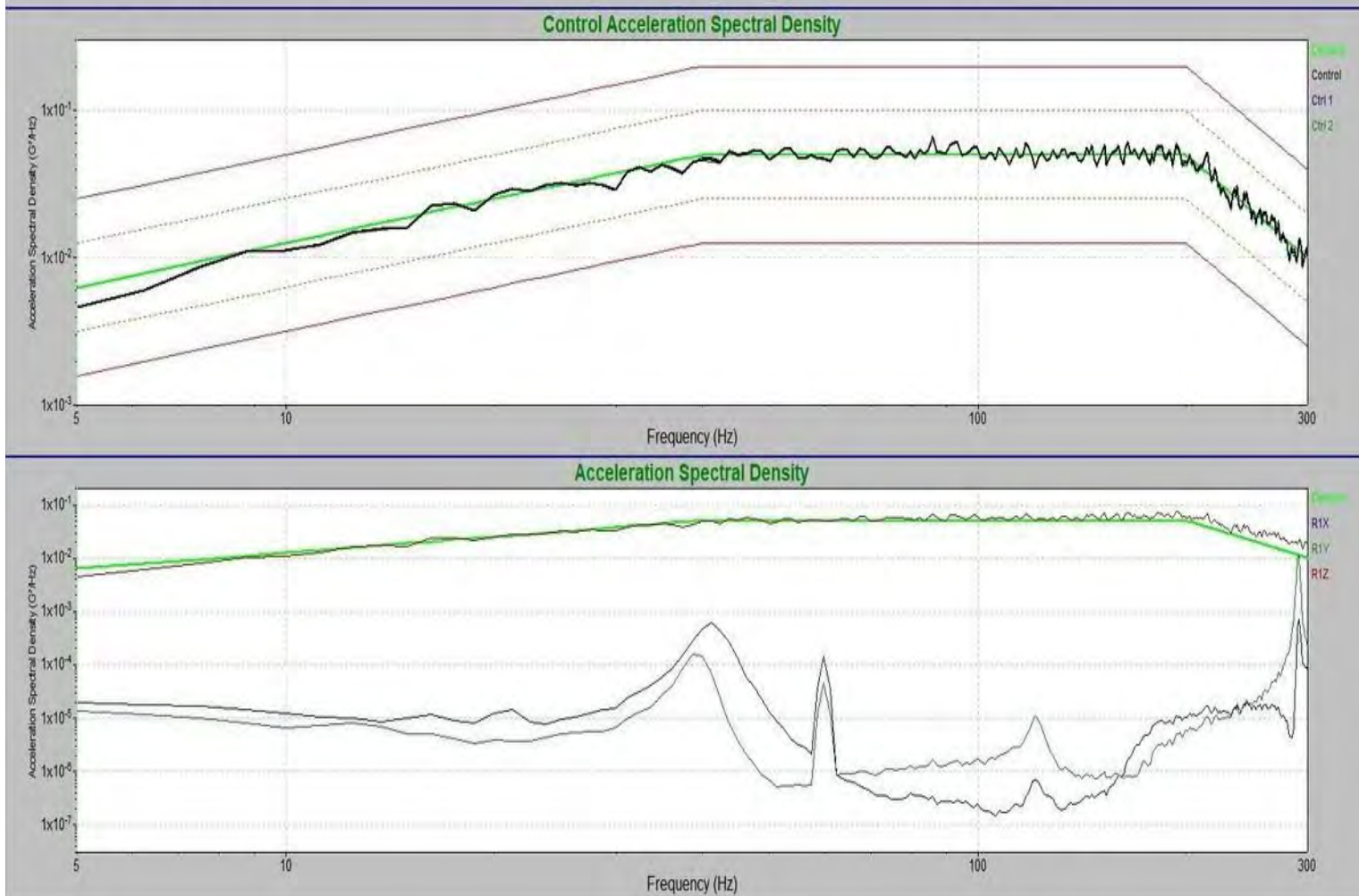
Jan 26, 2023 18:37:24

Test axis: Z

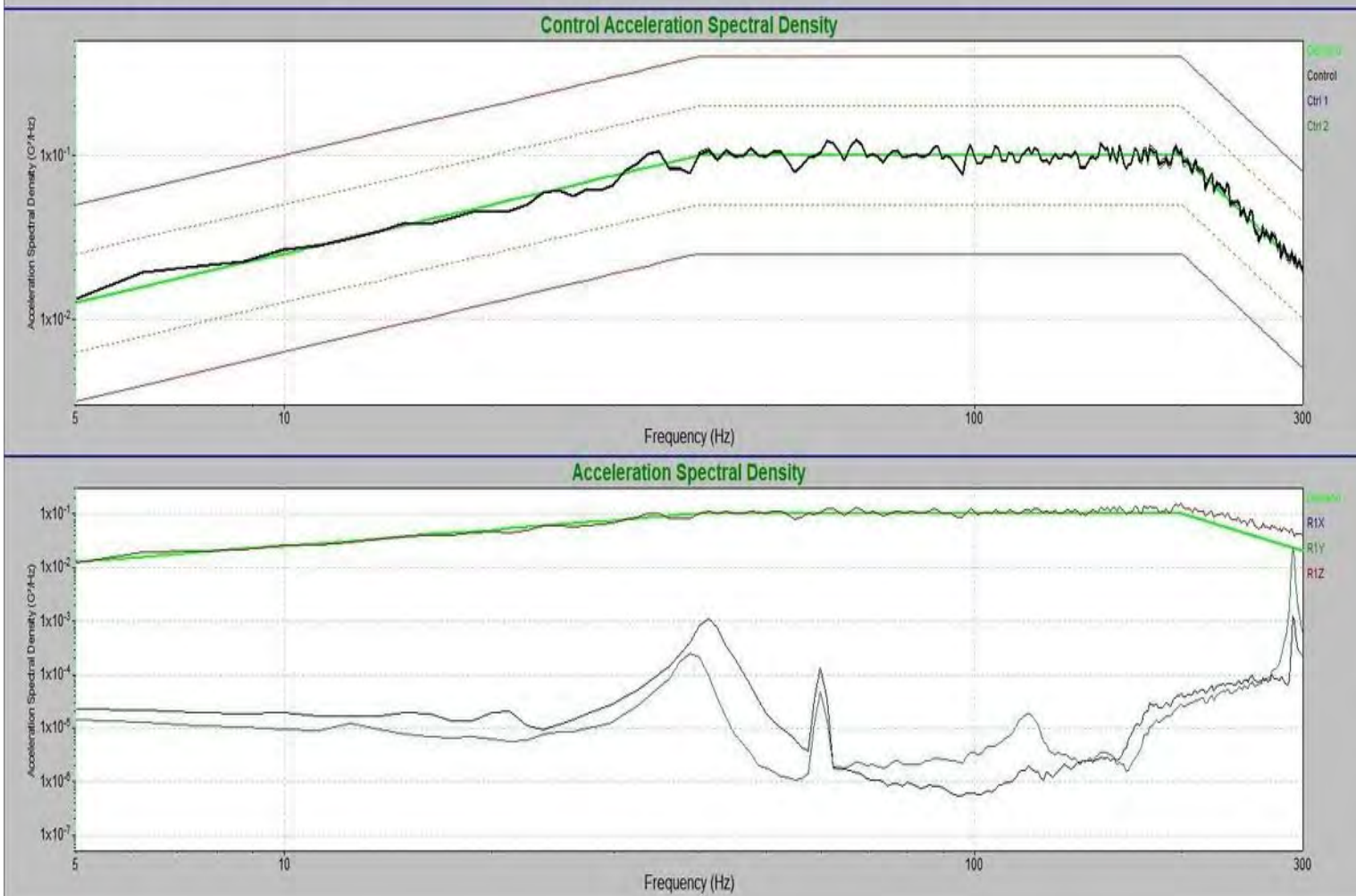
S/N: 180001



NTS Longmont, CO	Level Time: 0:10:00	Demand: 3.369 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 0:11:22	Control: 3.384 G RMS	UUT: Atom2 Case	
Jan 27, 2023 08:41:40	Run 19	Test axis: Z	S/N: 180001	



NTS Longmont, CO	Level Time: 3:00:00	Demand: 4.764 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 3:01:21	Control: 4.762 G RMS	UUT: Atom2 Case	
Jan 27, 2023 08:53:52	Run 20	Test axis: Z	S/N: 180001	



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 21

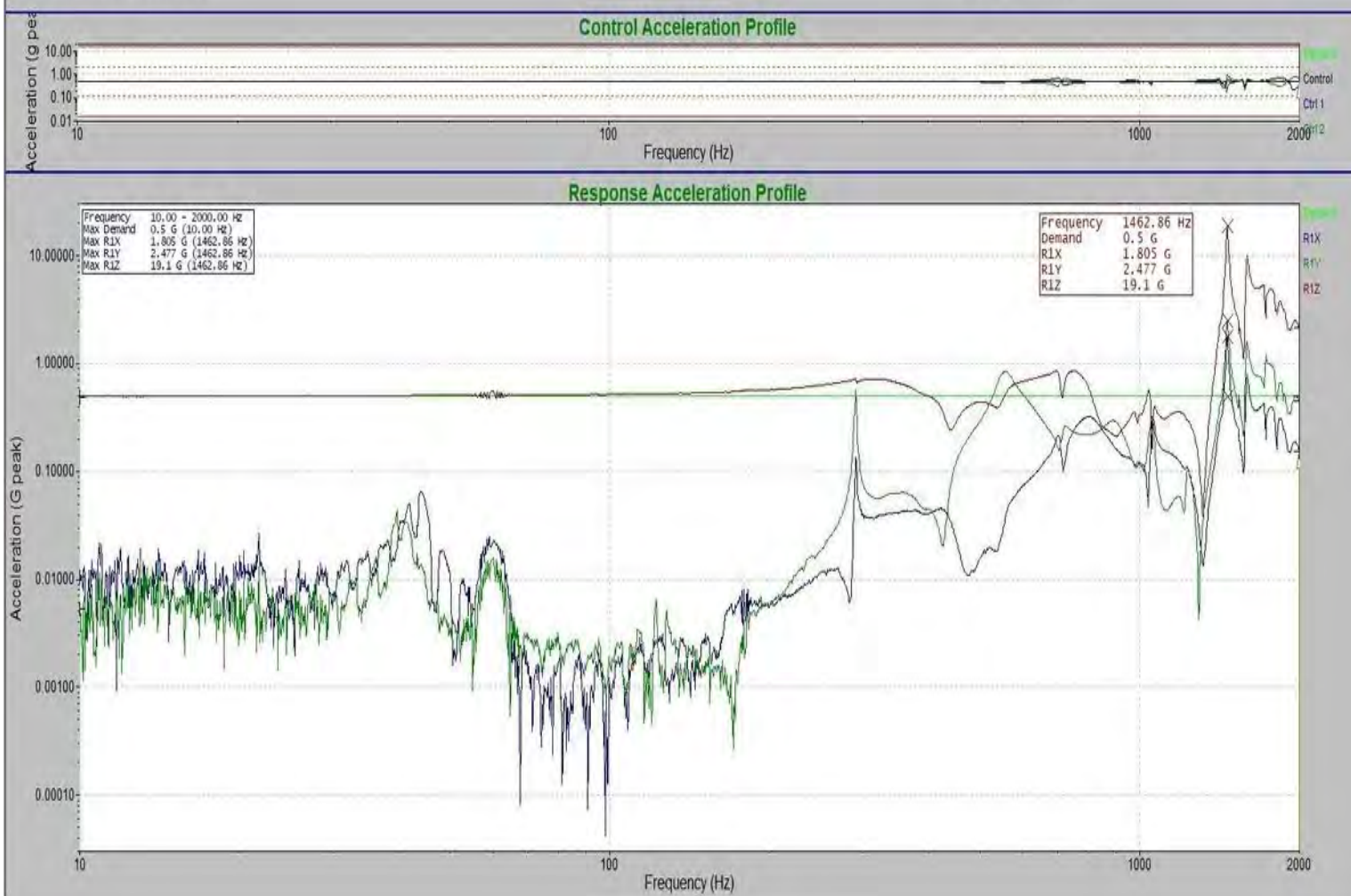
Control: 0.5066 G

UUT: Atom 2 Case

Jan 27, 2023 11:56:58

Test axis: Z

S/N: 180001



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 22

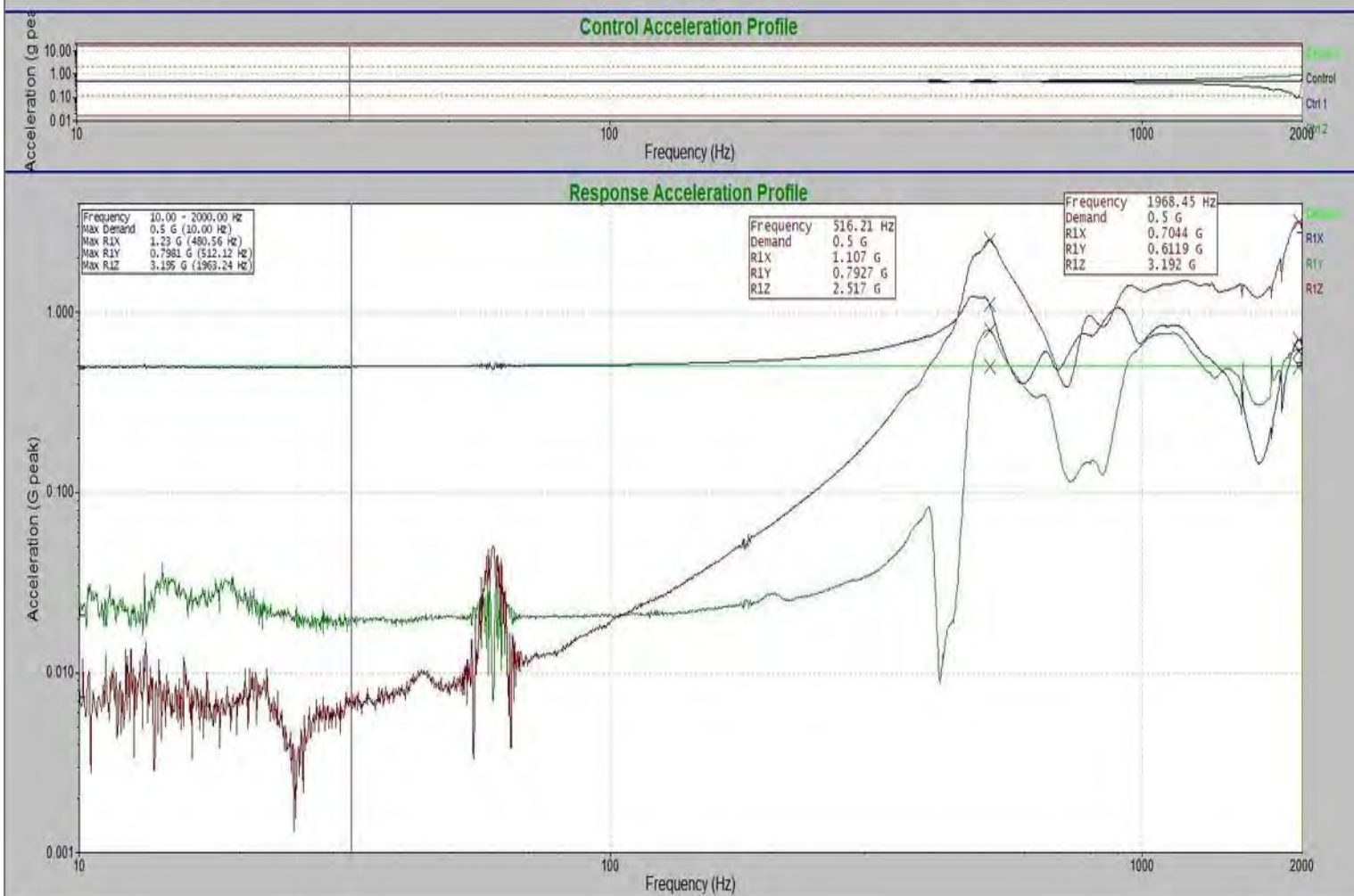
Control: 0.5195 G

UUT: Atom 2 Case

Jan 27, 2023 12:45:26

Test axis: X

S/N: 180001



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 25

Control: 0.5227 G

UUT: Atom 2 Case

Jan 27, 2023 12:59:47

Test axis: X

S/N: 180001



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 28

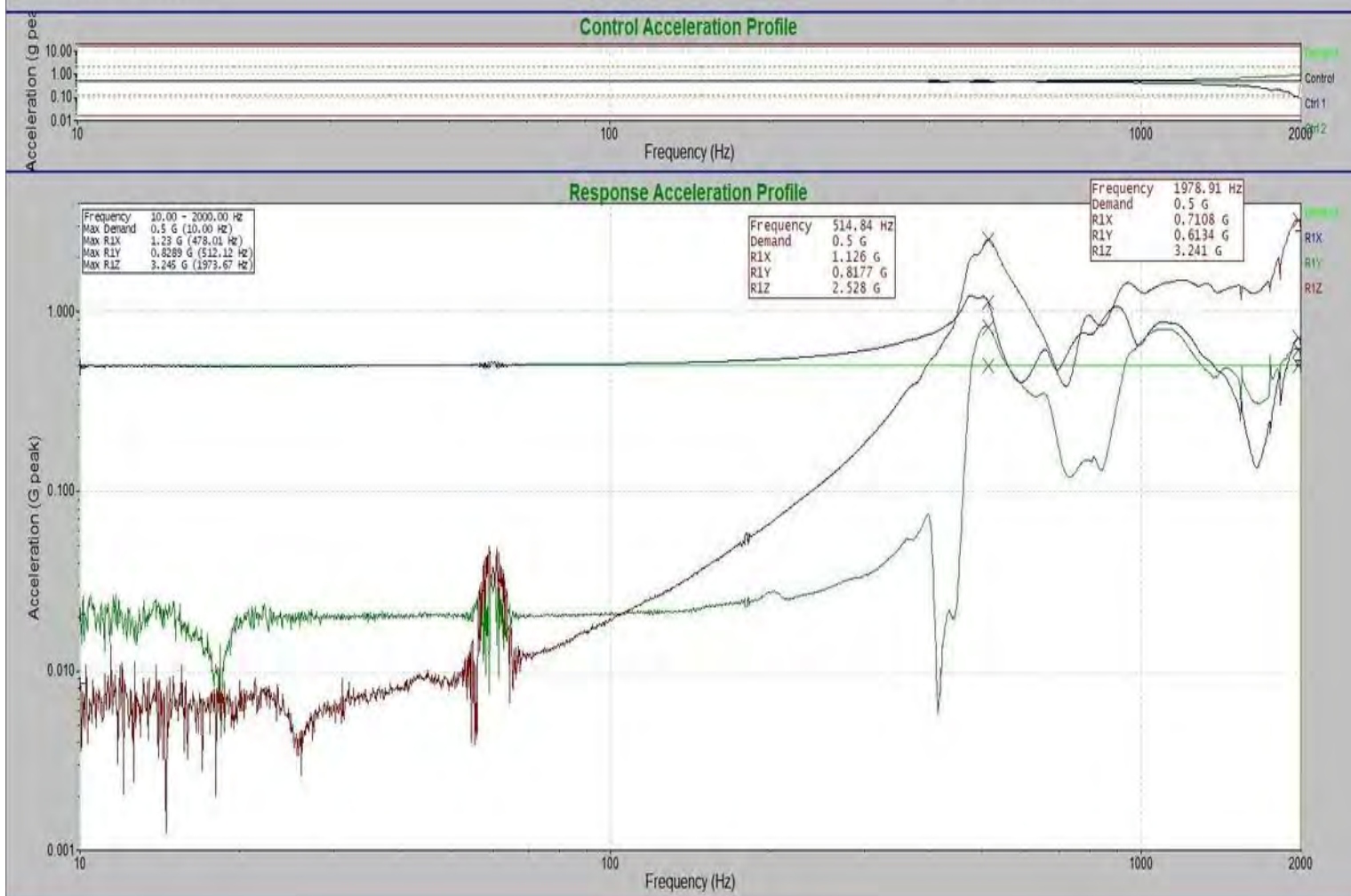
Control: 0.5231 G

UUT: Atom 2 Case

Jan 27, 2023 13:11:55

Test axis: X

S/N: 180001



NTS Longmont, CO

Level Time: 0:10:00

Demand: 1.49 G RMS

Shotover Systems

Level 0 dB

Job# PR163195-00

Total Time: 0:11:24

Control: 1.503 G RMS

UUT: Atom2 Case

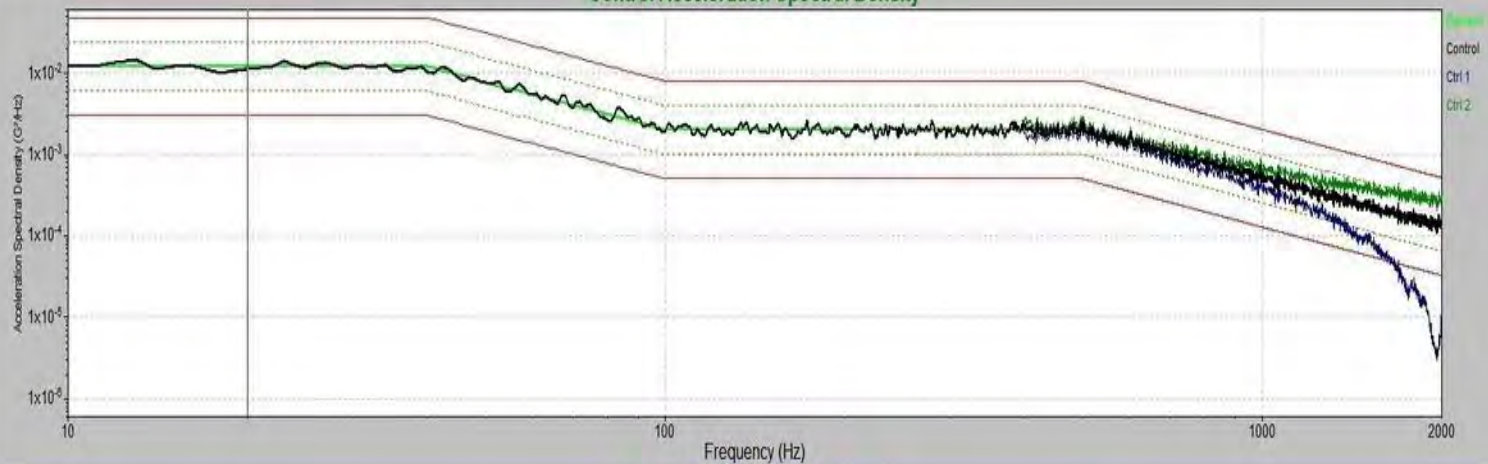
Jan 27, 2023 13:35:49

Run 29

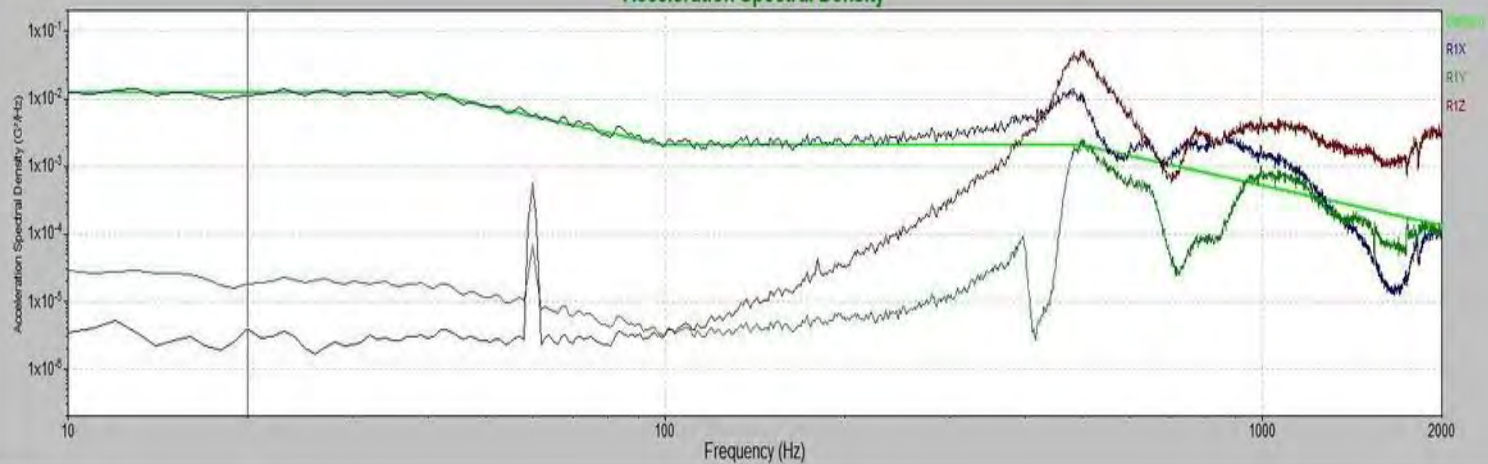
Test axis: X

S/N: 180001

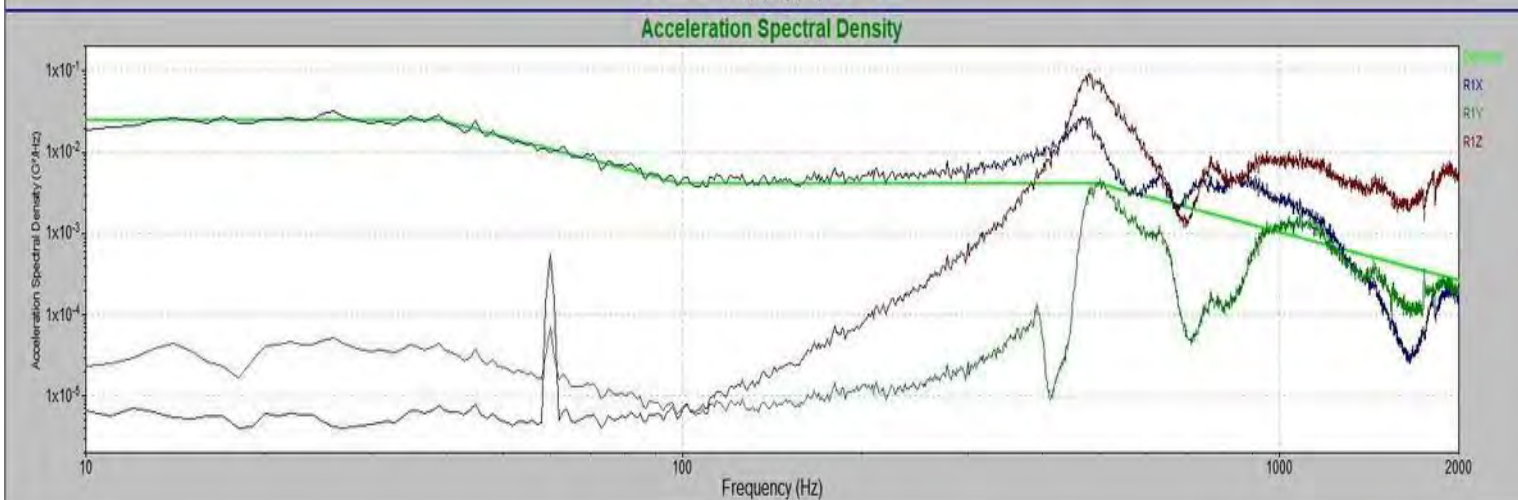
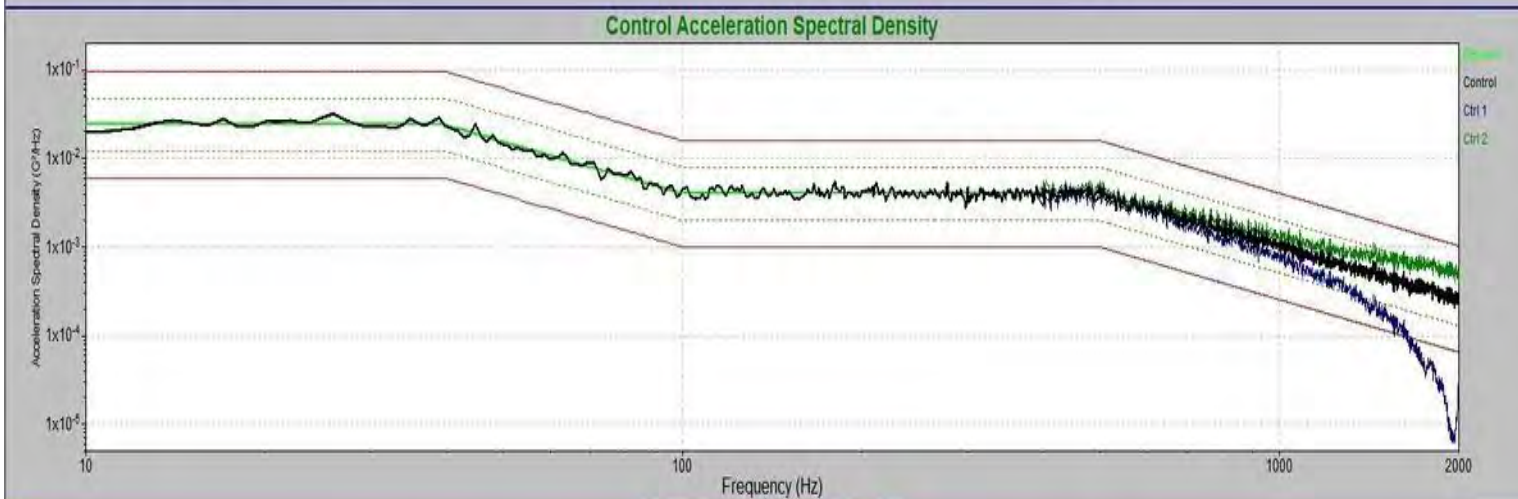
Control Acceleration Spectral Density



Acceleration Spectral Density



NTS Longmont, CO	Level Time: 3:00:00	Demand: 2.107 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 3:01:25	Control: 2.127 G RMS	UUT: Atom2 Case	
Jan 27, 2023 13:48:24	Run 30	Test axis: X	S/N: 180001	



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 31

Control: 0.5527 G

UUT: Atom 2 Case

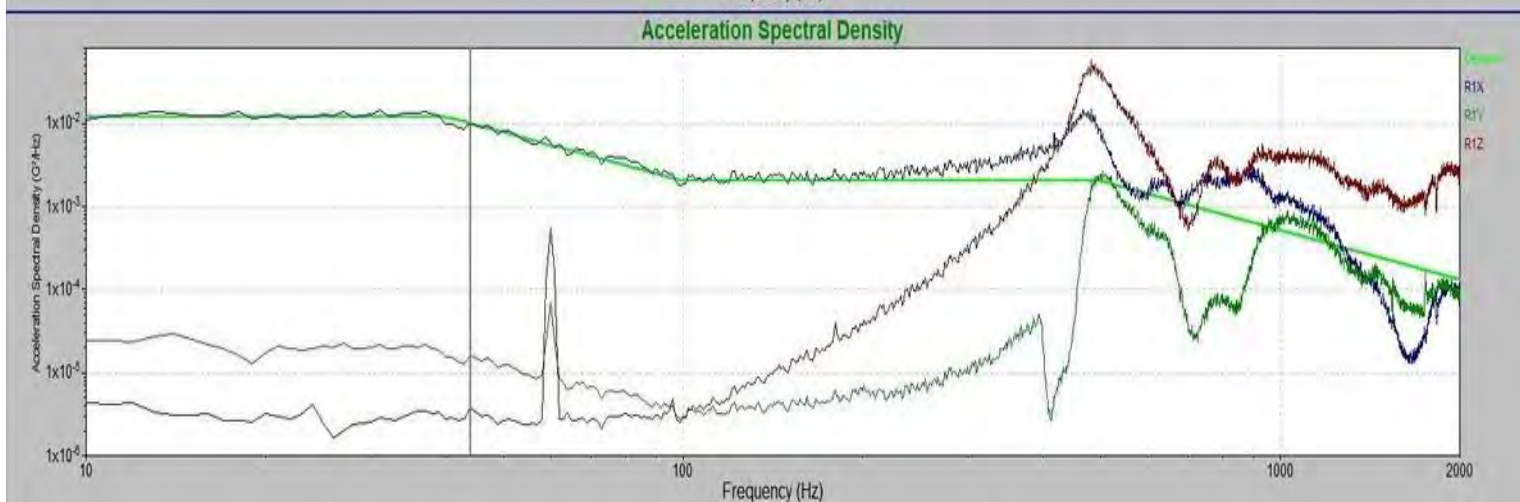
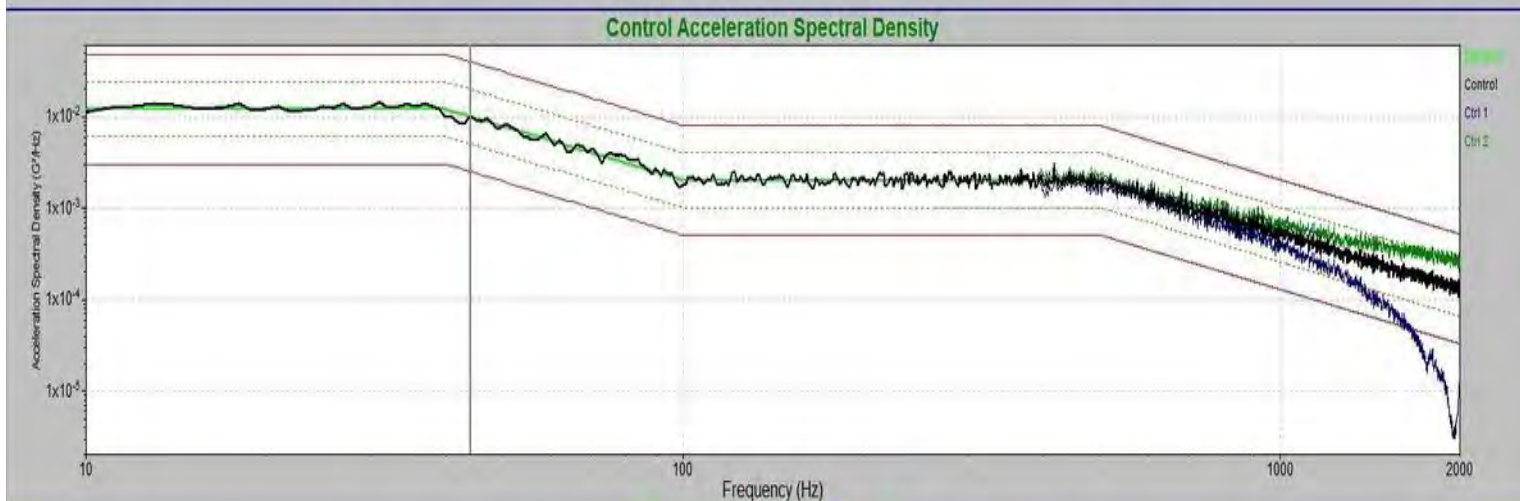
Jan 27, 2023 16:50:27

Test axis: X

S/N: 180001



NTS Longmont, CO	Level Time: 1:00:00	Demand: 1.49 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 1:01:25	Control: 1.502 G RMS	UUT: Atom2 Case	
Jan 27, 2023 16:59:19	Run 32	Test axis: X	S/N: 180001	



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 33

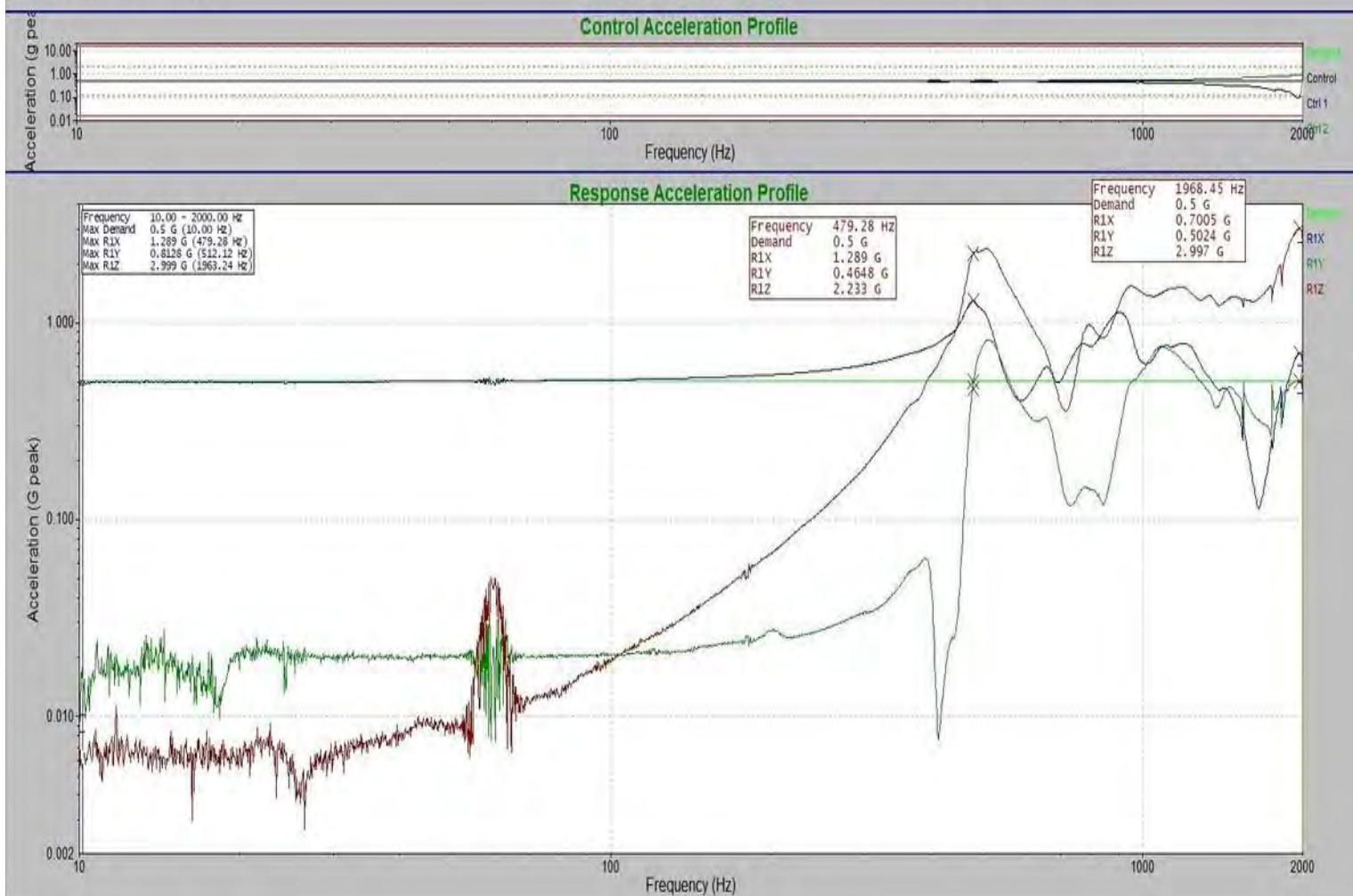
Control: 0.5404 G

UUT: Atom 2 Case

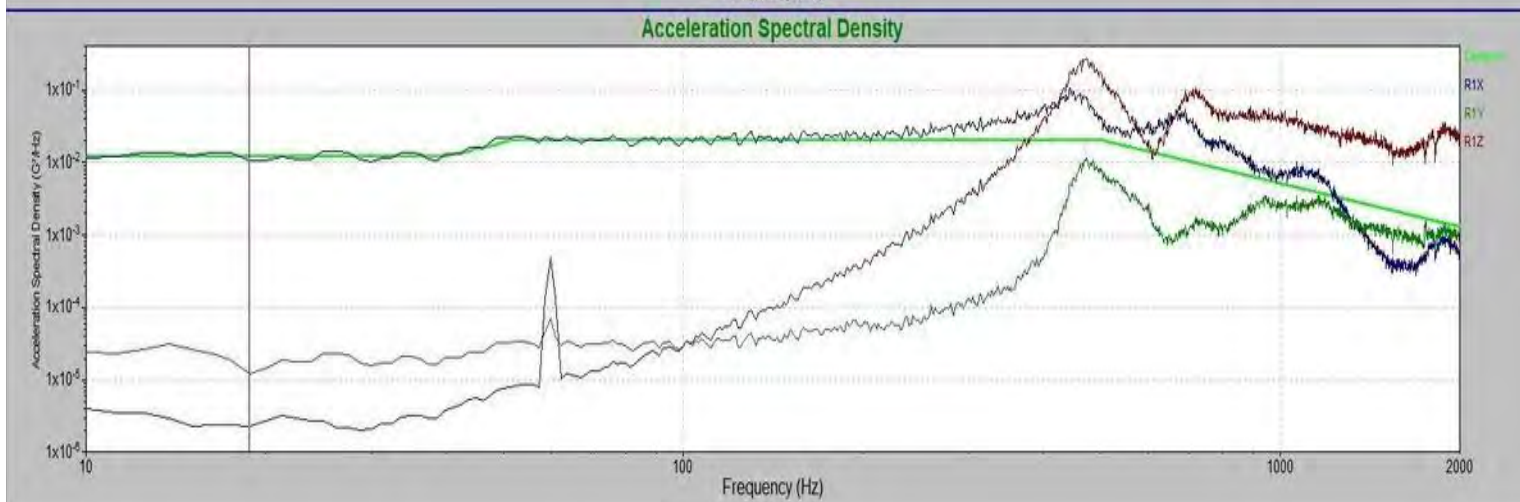
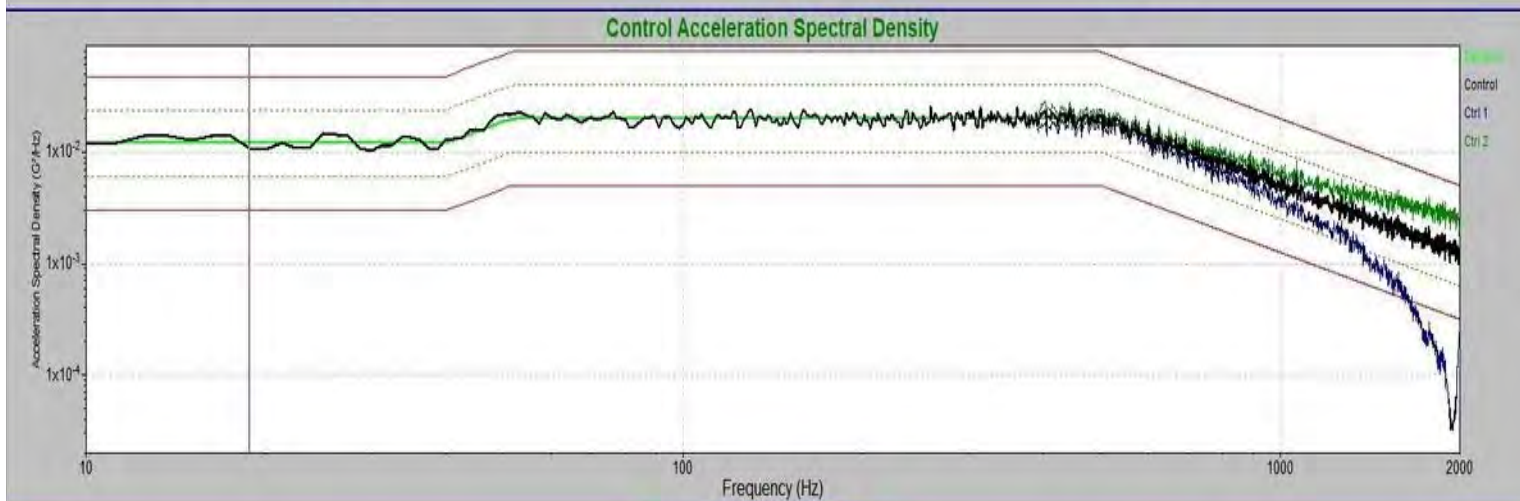
Jan 27, 2023 18:05:14

Test axis: X

S/N: 180001



NTS Longmont, CO	Level Time: 1:00:00	Demand: 4.128 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 1:01:21	Control: 4.137 G RMS	UUT: Atom2 Case	
Jan 27, 2023 18:14:08	Run 34	Test axis: X	S/N: 180001	



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 35

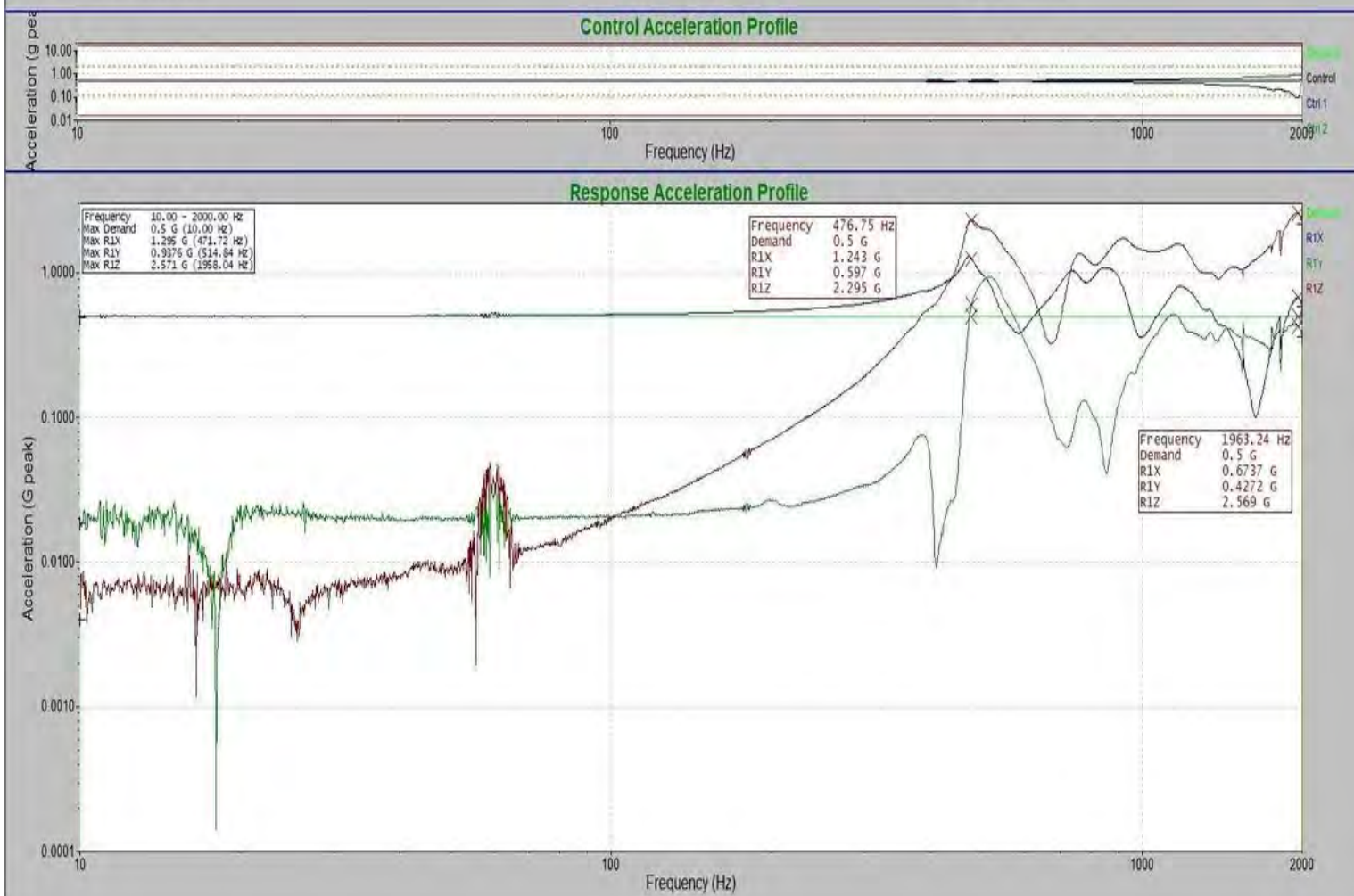
Control: 0.5534 G

UUT: Atom 2 Case

Jan 27, 2023 19:16:20

Test axis: X

S/N: 180001



NTS Longmont, CO

Level Time: 1:00:00

Demand: 0.1593 G

Job# PR163195-00

Shotover Systems

Run 36

Control: 0.1594 G

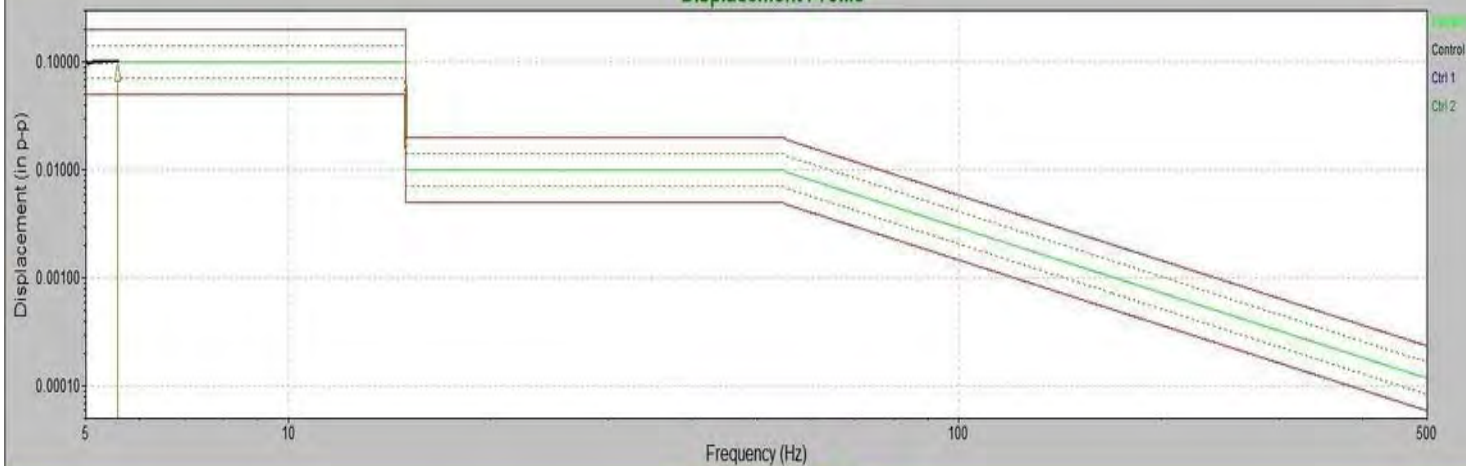
UUT: Atom2 Case

Jan 27, 2023 19:25:39

Test Axis: X

SN: 180001

Displacement Profile



Displacement Profile



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 37

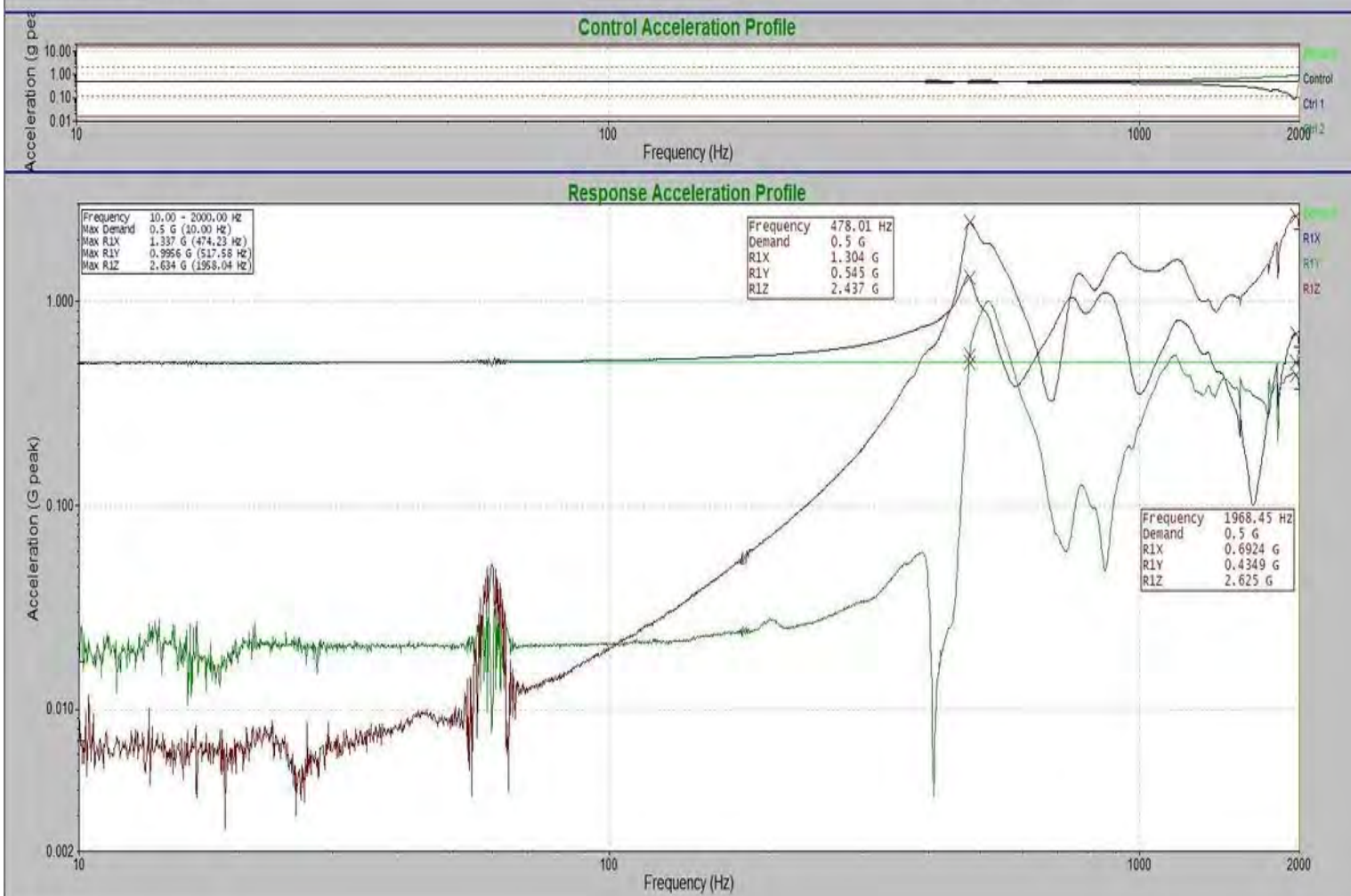
Control: 0.5538 G

UUT: Atom 2 Case

Jan 27, 2023 20:27:00

Test axis: X

S/N: 180001



NTS Longmont, CO

Level Time: 1:00:00

Demand: 0.7989 G

Job# PR163195-00

Shotover Systems

Run 38

Control: 0.8006 G

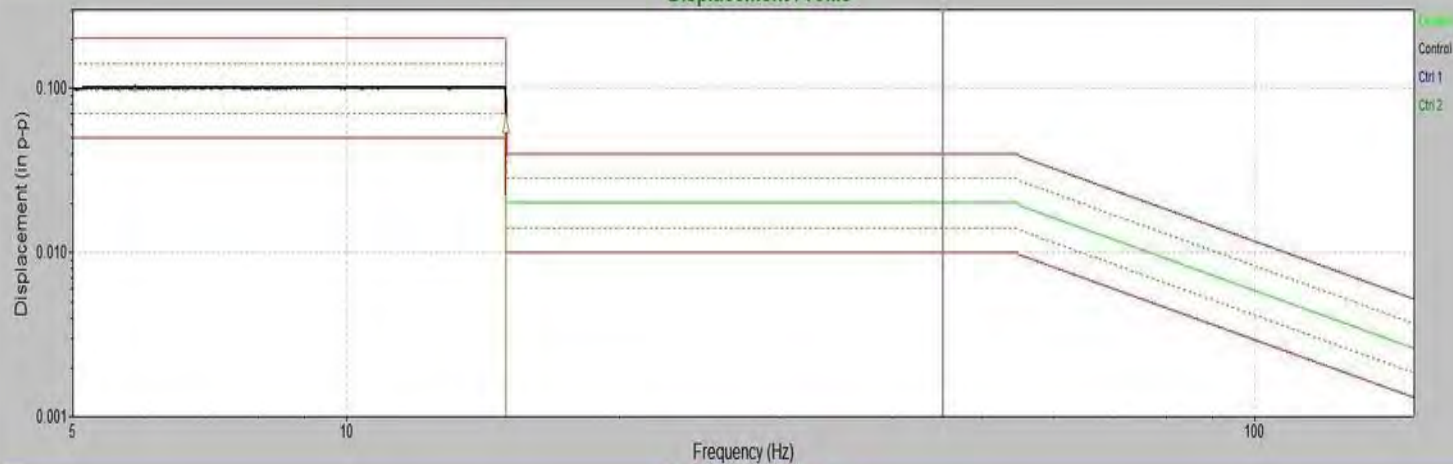
UUT: Atom2 Case

Jan 27, 2023 20:35:55

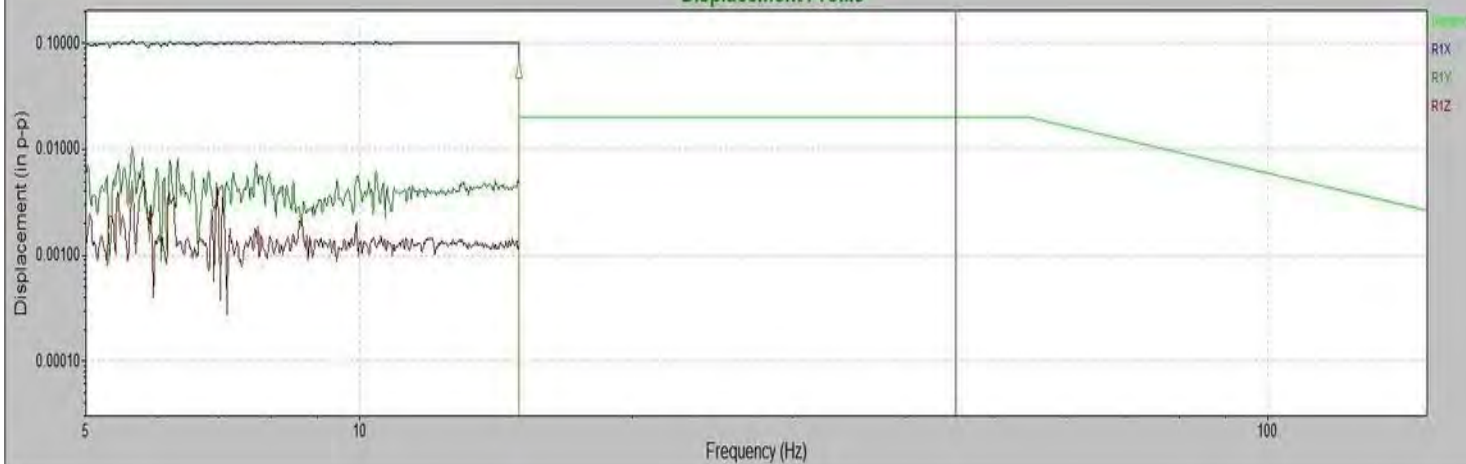
Test Axis: X

SN: 180001

Displacement Profile



Displacement Profile



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 39

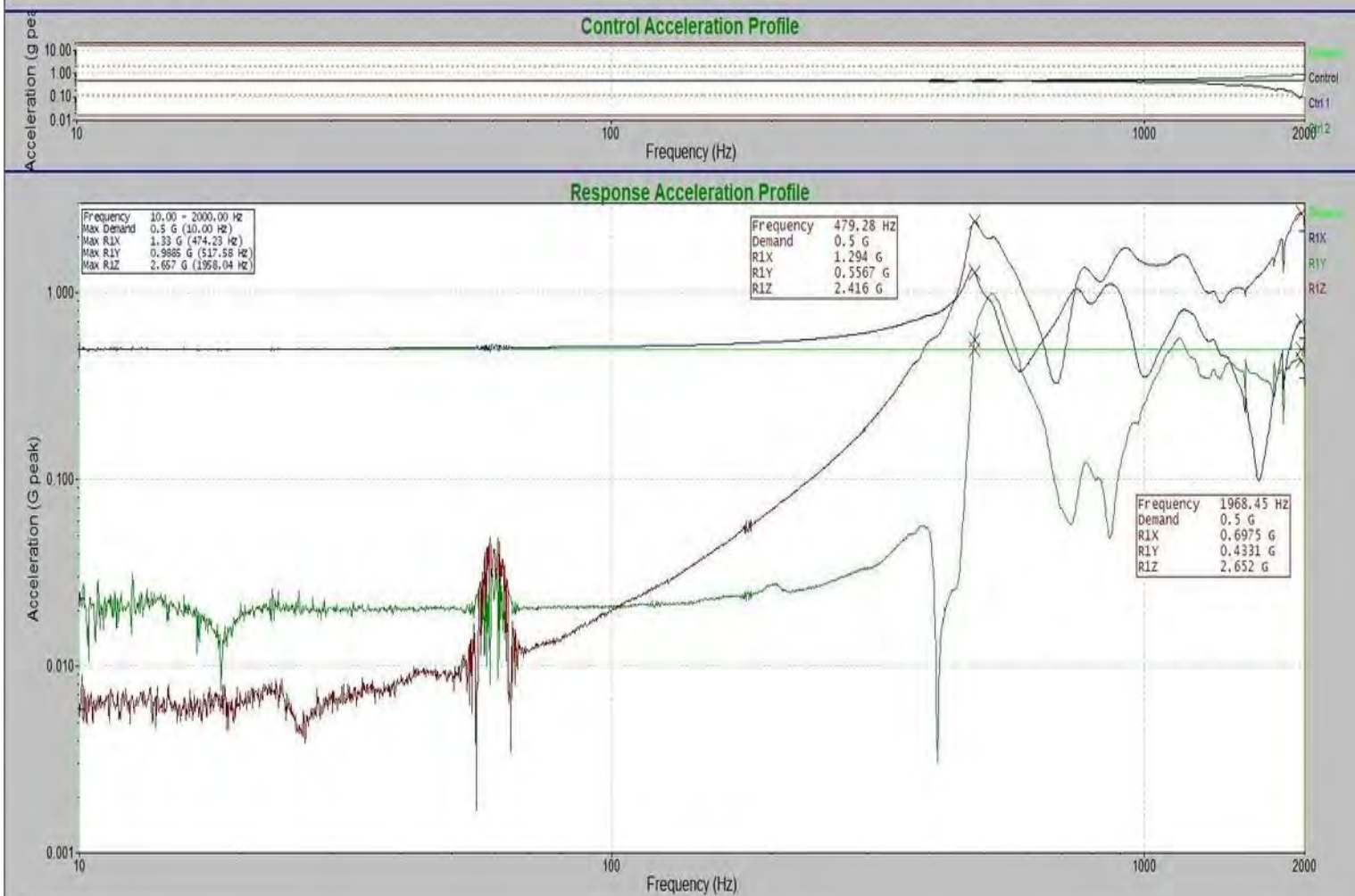
Control: 0.525 G

UUT: Atom 2 Case

Jan 27, 2023 21:36:46

Test axis: X

S/N: 180001



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 4

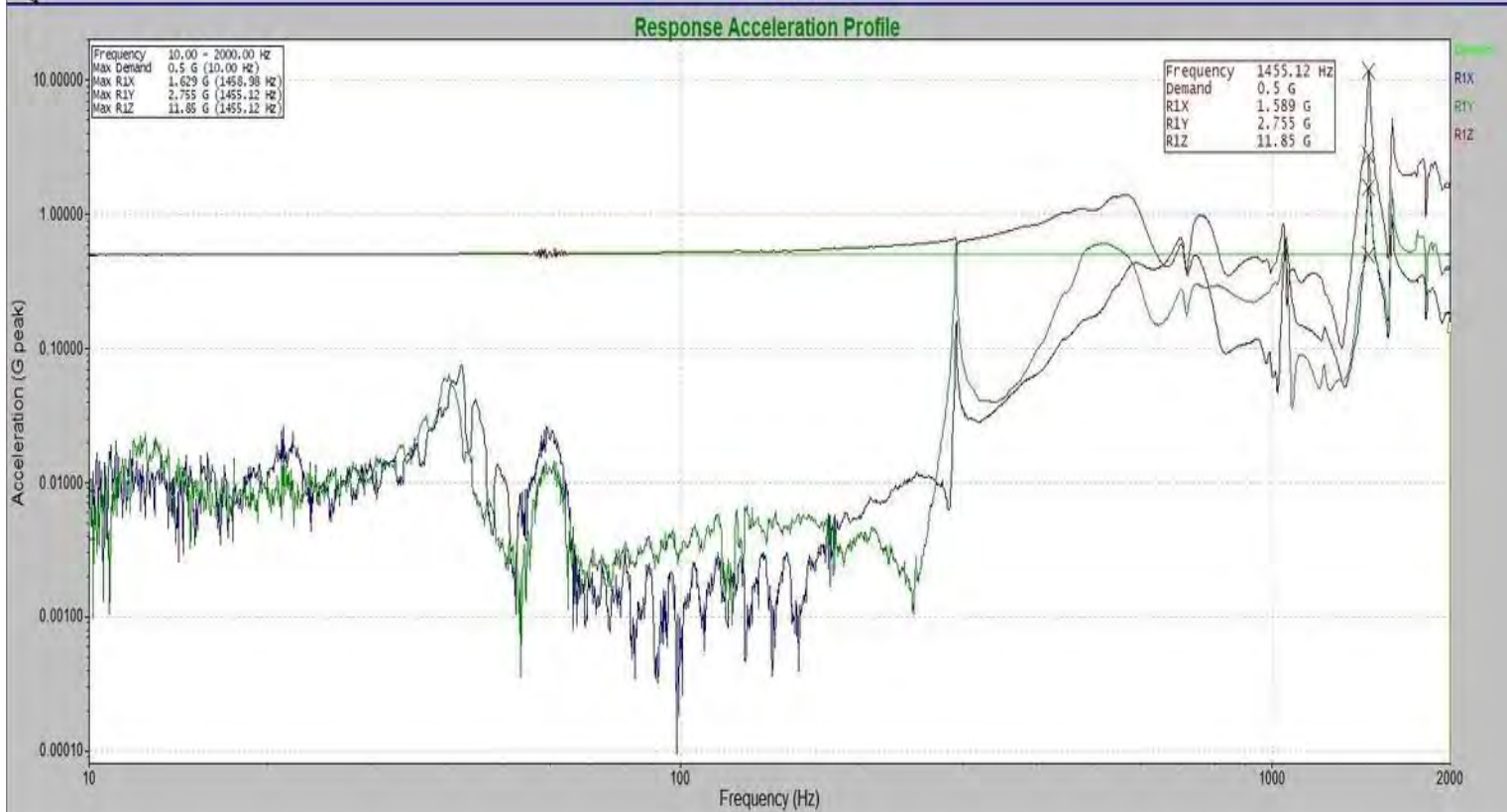
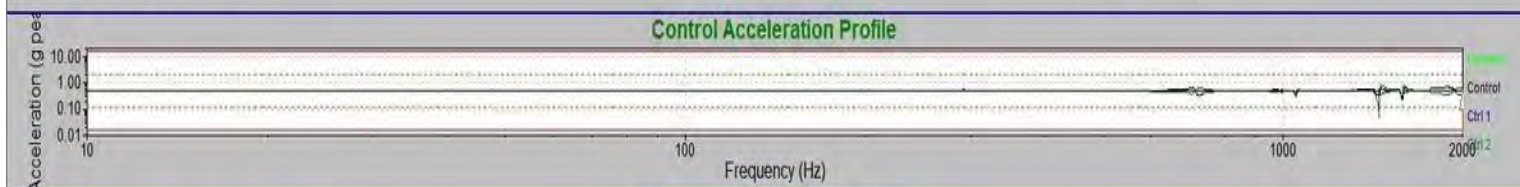
Control: 0.5056 G

UUT: Atom 2 Case

Jan 26, 2023 09:56:29

Test axis: Z

S/N: 180001



NTS Longmont, CO

Level Time: 0:10:00

Demand: 3.369 G RMS

Shotover Systems

Level 0 dB

Job# PR163195-00

Total Time: 0:11:22

Control: 3.378 G RMS

UUT: Atom2 Case

Jan 28, 2023 06:28:51

Run 40

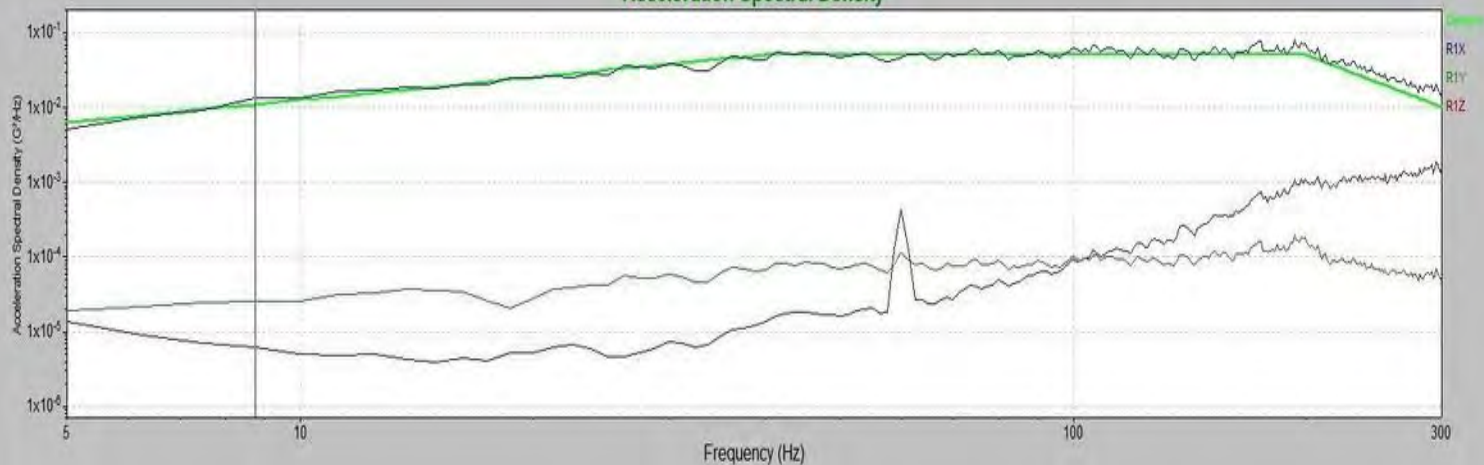
Test axis: X

S/N: 180001

Control Acceleration Spectral Density



Acceleration Spectral Density



NTS Longmont, CO

Level Time: 3:00:00

Demand: 4.764 G RMS

Shotover Systems

Level 0 dB

Job# PR163195-00

Total Time: 3:01:21

Control: 4.825 G RMS

UUT: Atom2 Case

Jan 28, 2023 06:41:16

Run 41

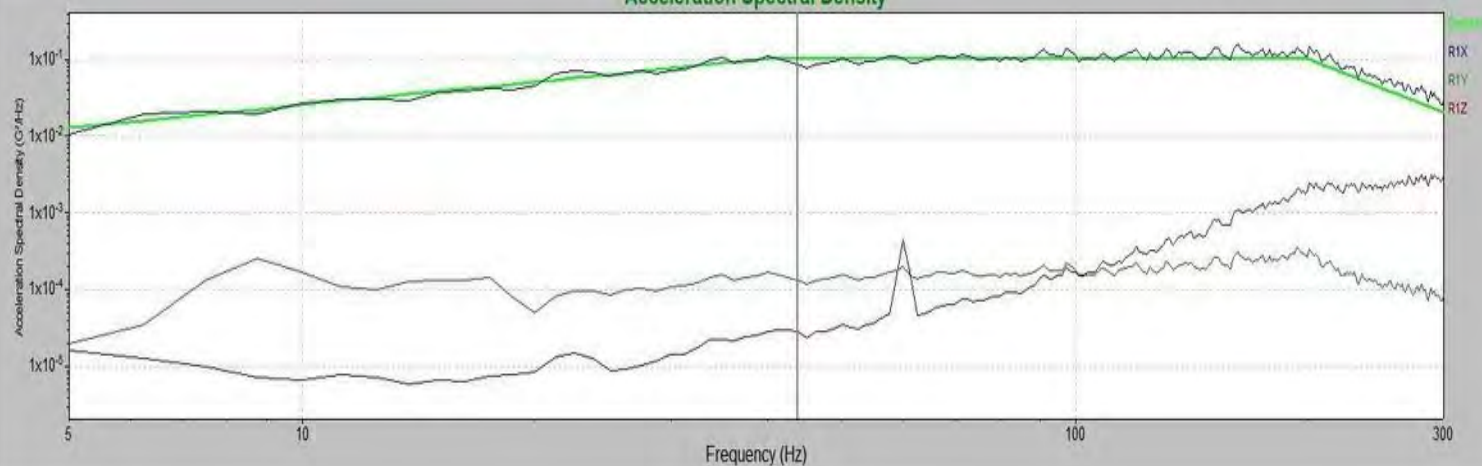
Test axis: X

S/N: 180001

Control Acceleration Spectral Density



Acceleration Spectral Density



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 42

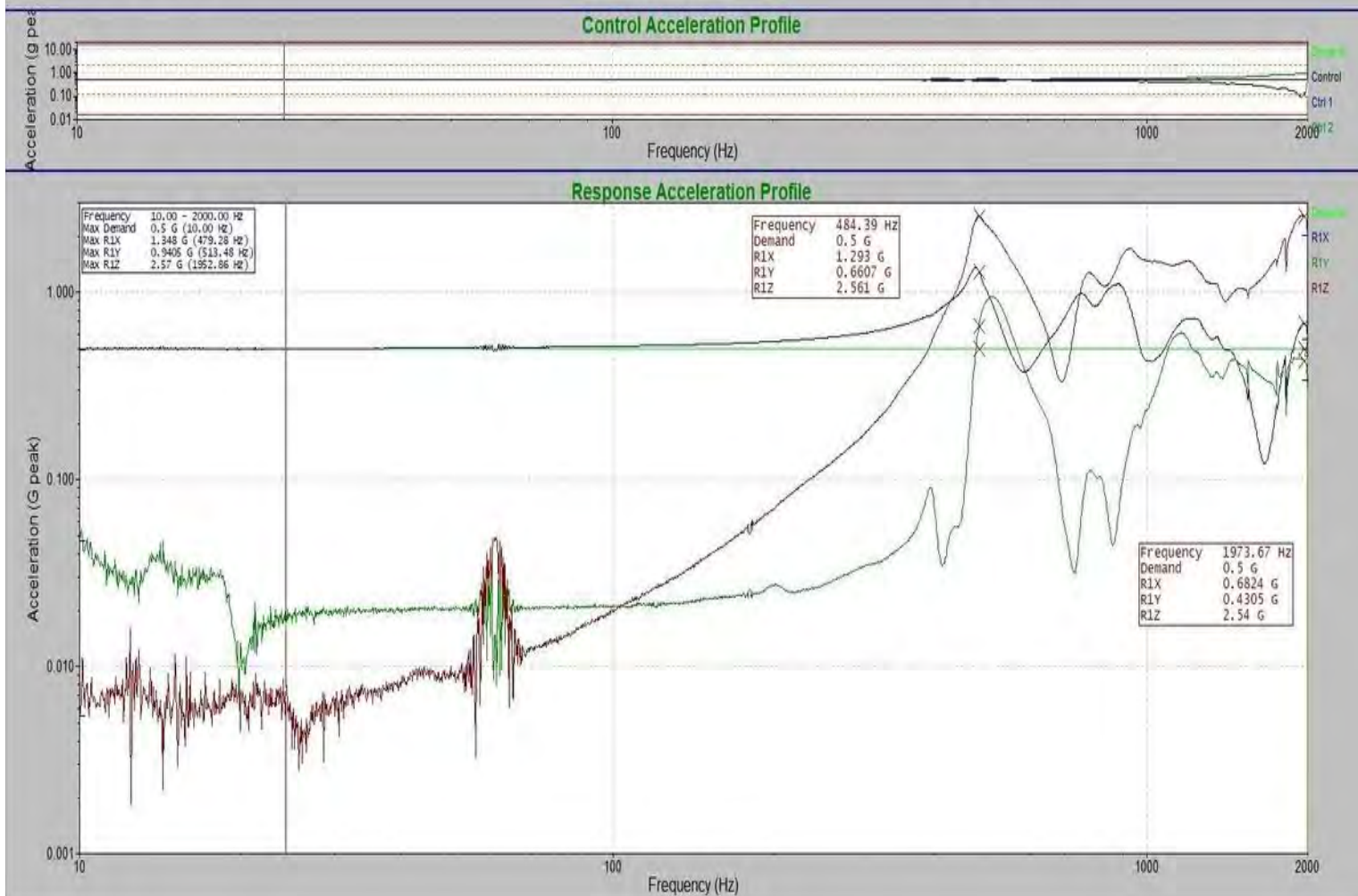
Control: 0.5241 G

UUT: Atom 2 Case

Jan 28, 2023 09:43:34

Test axis: X

S/N: 180001



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 43

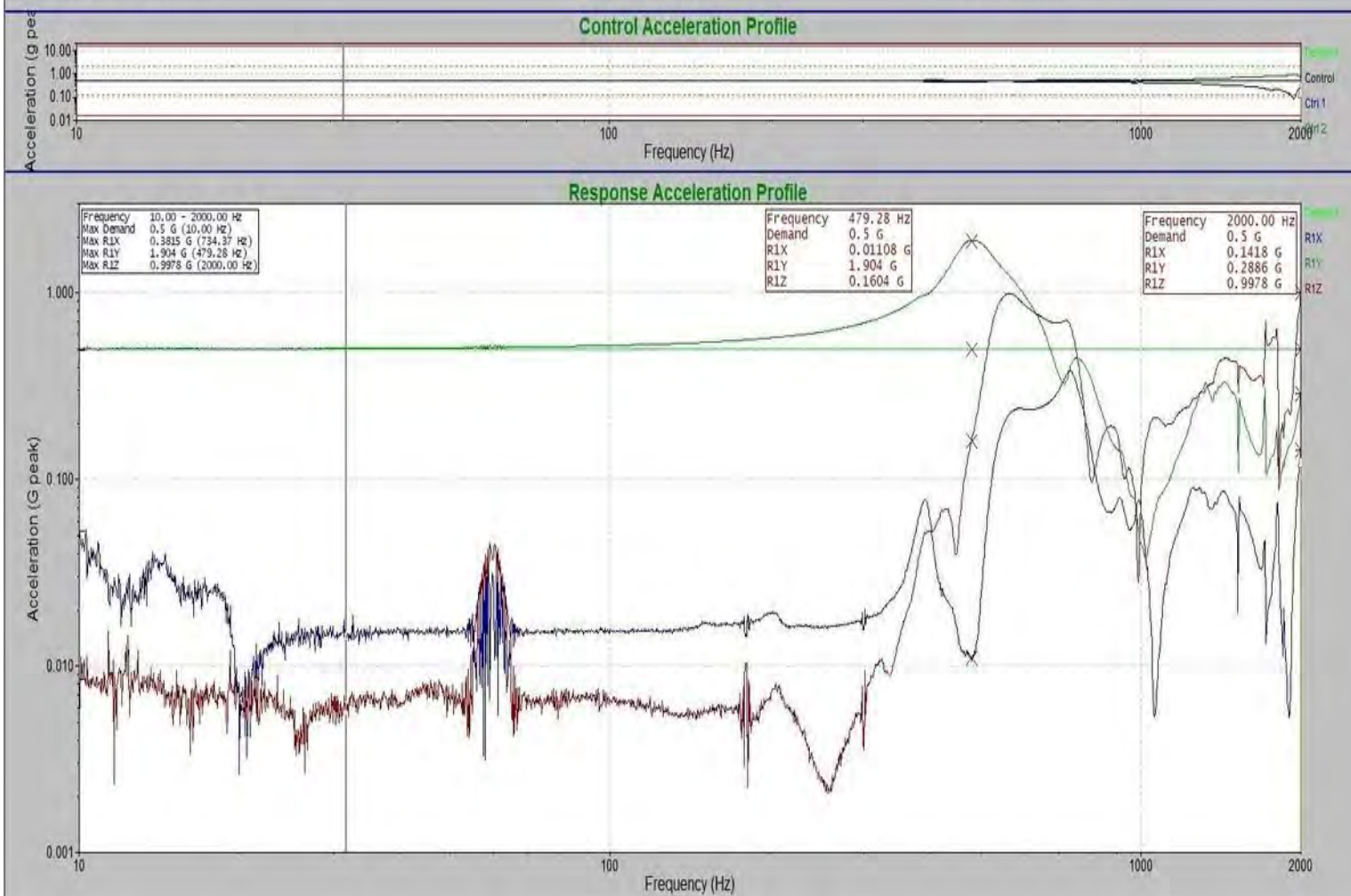
Control: 0.504 G

UUT: Atom 2 Case

Jan 28, 2023 10:18:51

Test axis: Y

S/N: 180001



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 46

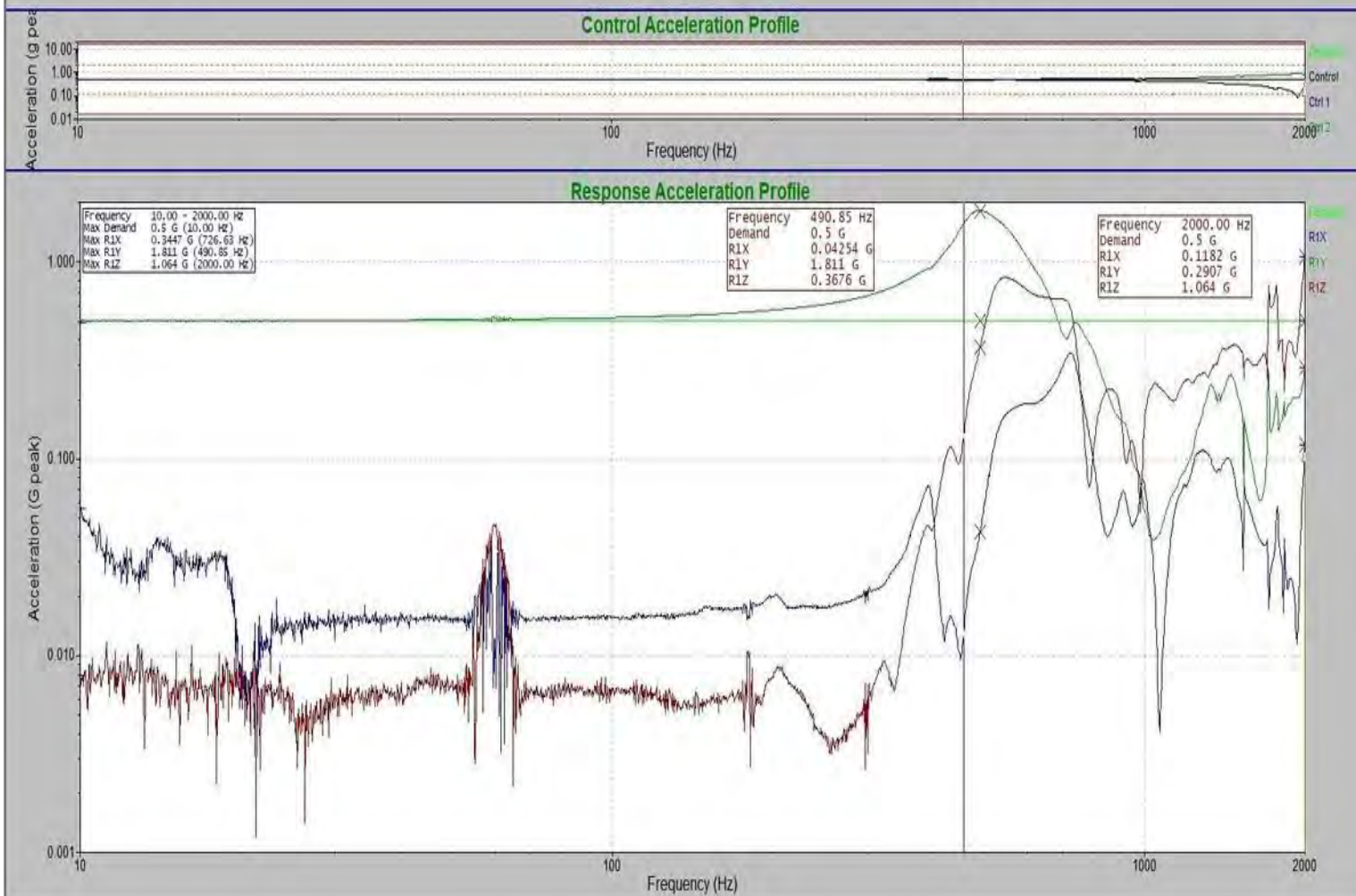
Control: 0.509 G

UUT: Atom 2 Case

Jan 28, 2023 10:30:01

Test axis: Y

S/N: 180001



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 49

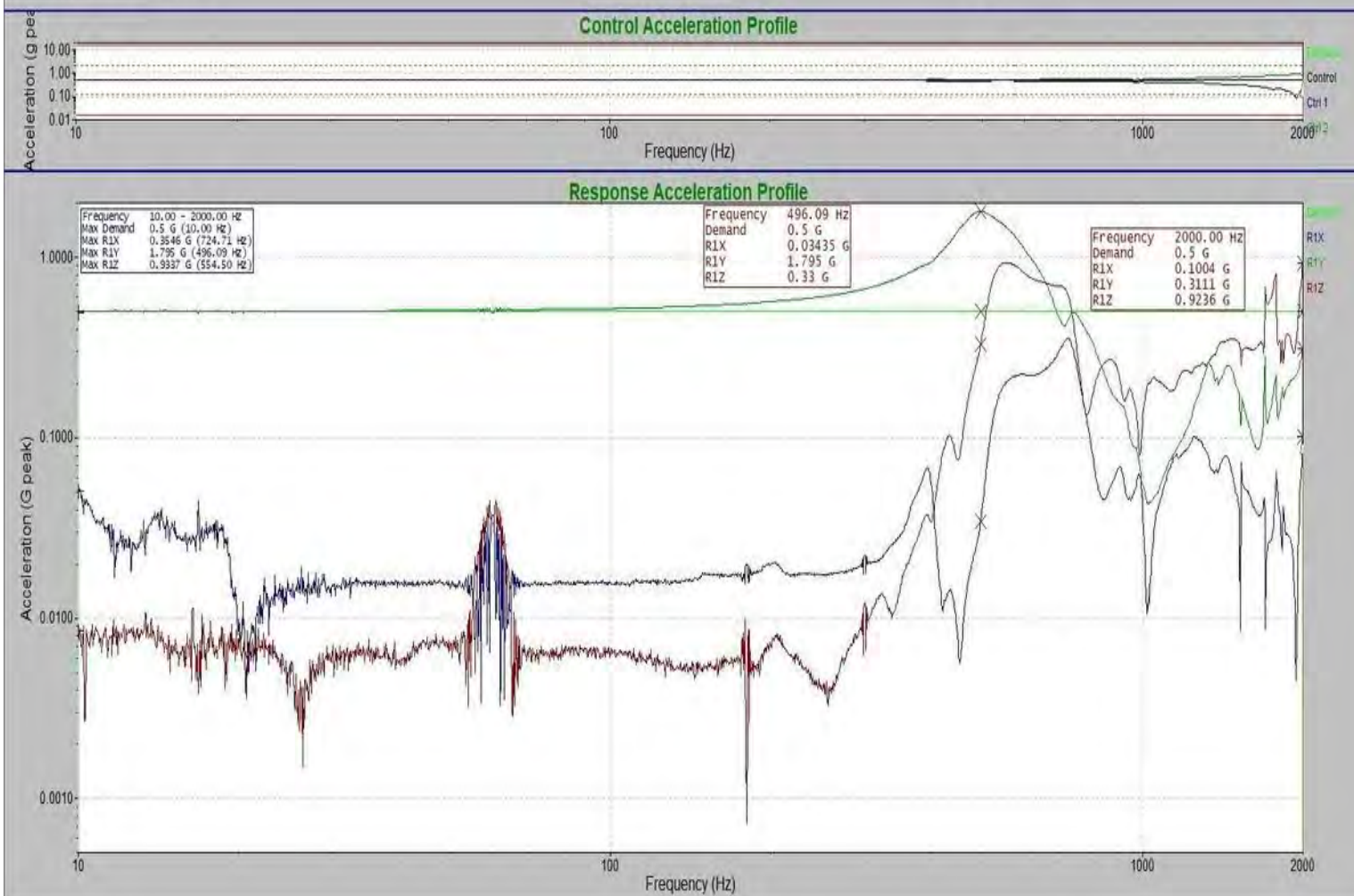
Control: 0.5073 G

UUT: Atom 2 Case

Jan 28, 2023 10:46:06

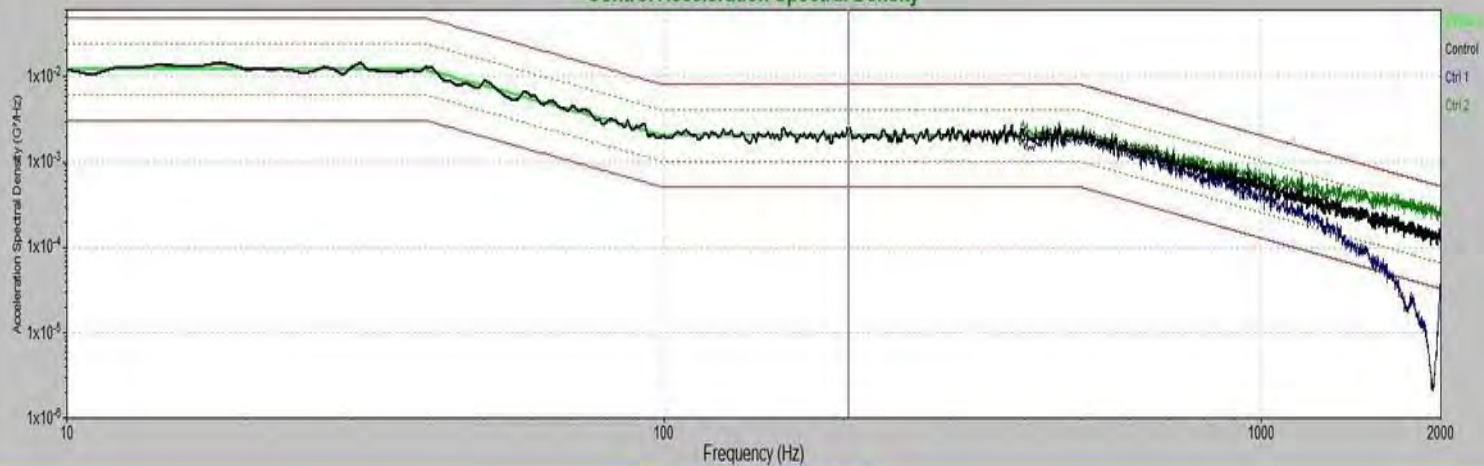
Test axis: Y

S/N: 180001

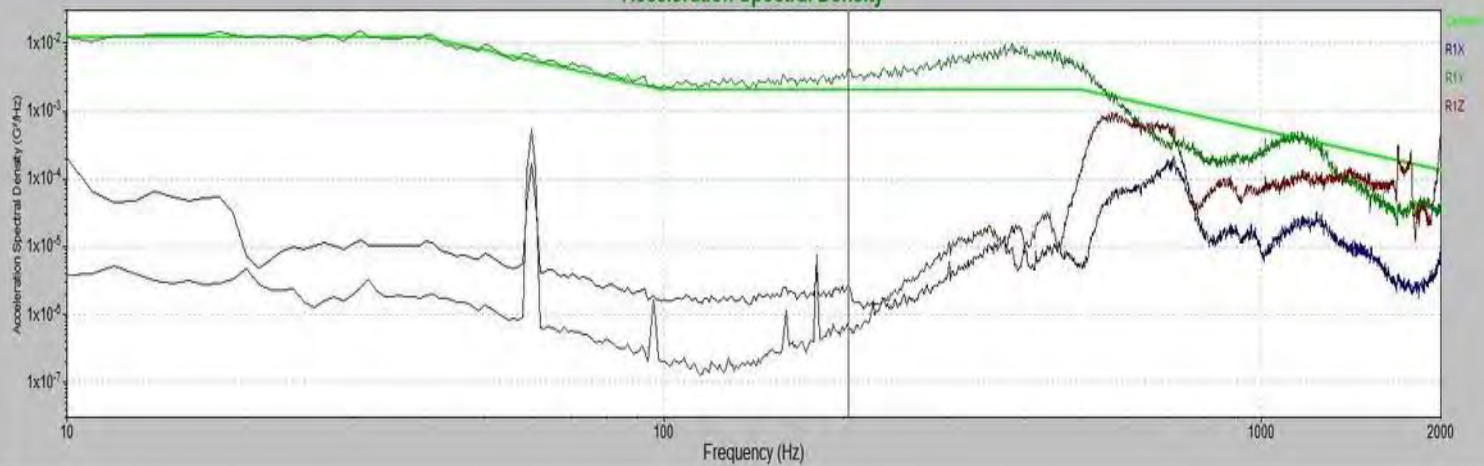


NTS Longmont, CO	Level Time: 0:10:00	Demand: 1.49 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 0:11:24	Control: 1.499 G RMS	UUT: Atom2 Case	
Jan 28, 2023 10:55:30	Run 50	Test axis: Y	S/N: 180001	

Control Acceleration Spectral Density



Acceleration Spectral Density

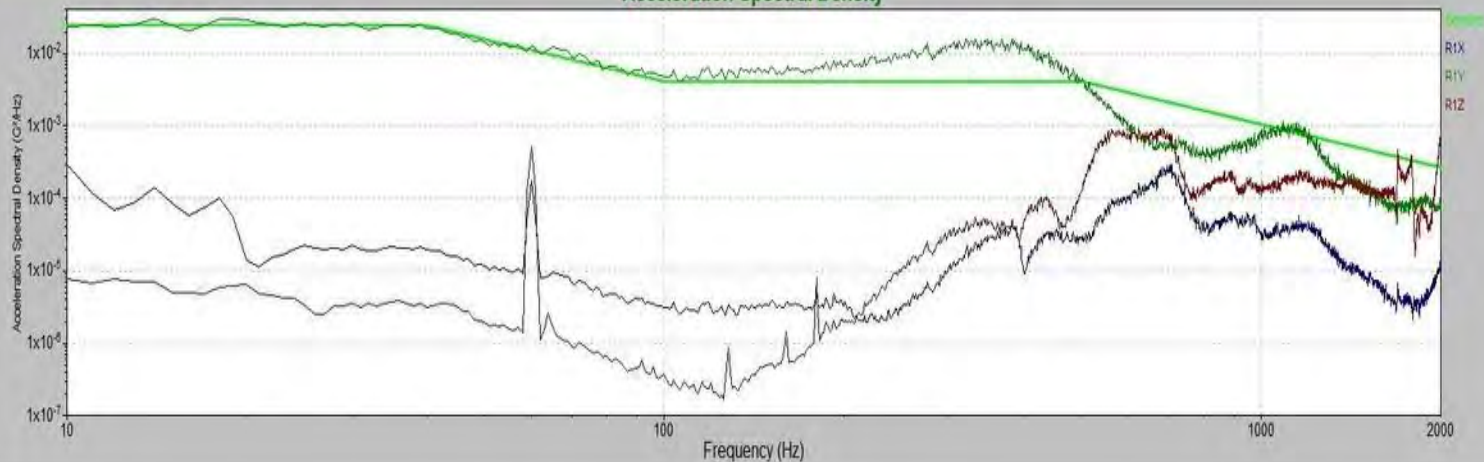


NTS Longmont, CO	Level Time: 3:00:00	Demand: 2.107 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 3:01:27	Control: 2.117 G RMS	UUT: Atom2 Case	
Jan 28, 2023 11:07:50	Run 51	Test axis: Y	S/N: 180001	

Control Acceleration Spectral Density



Acceleration Spectral Density



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 52

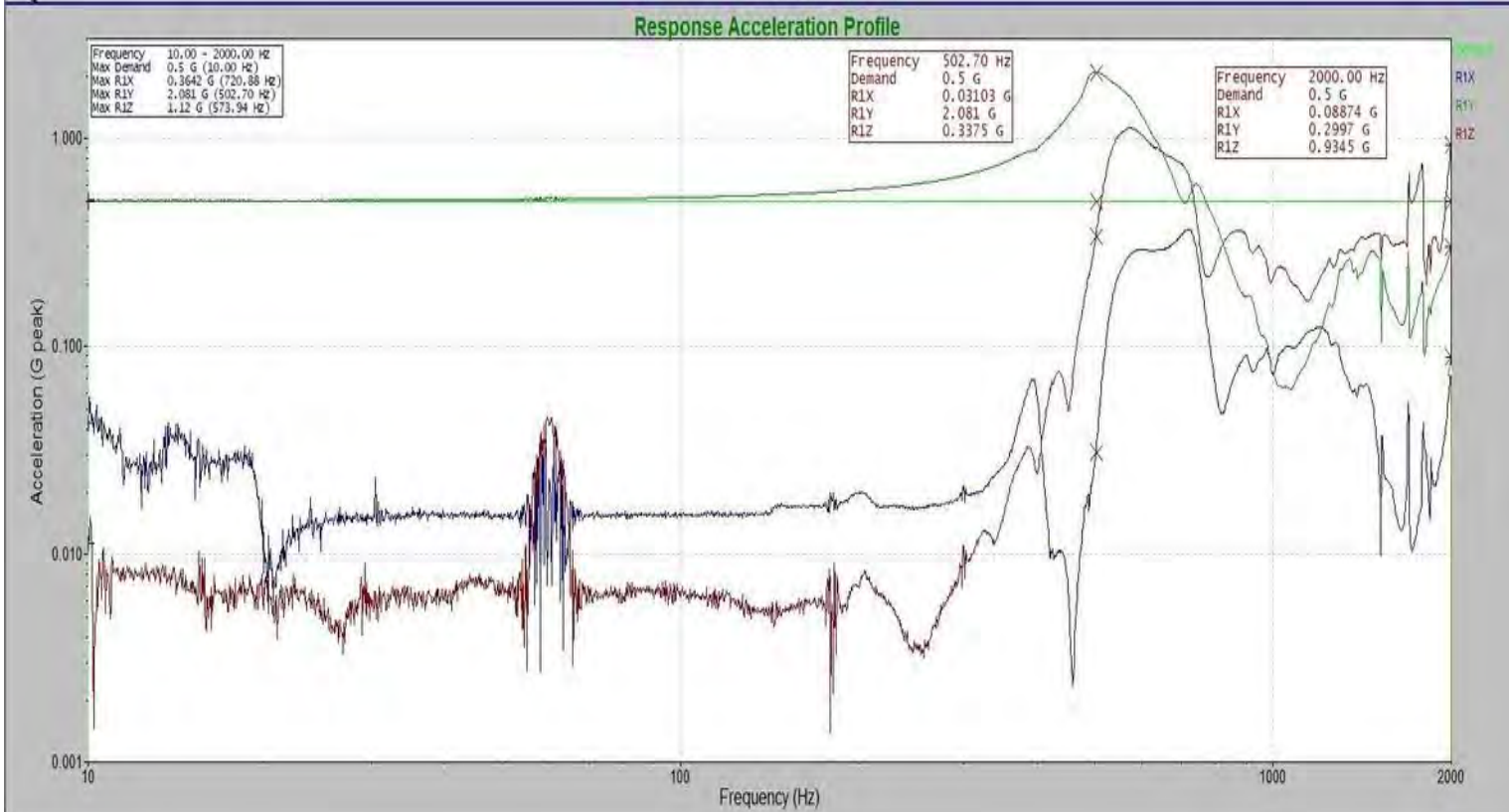
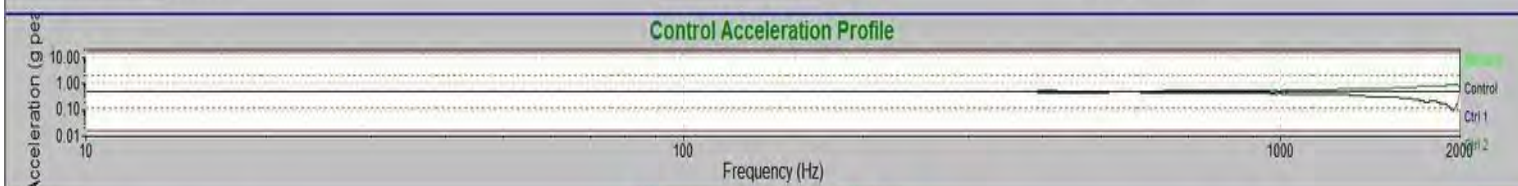
Control: 0.5067 G

UUT: Atom 2 Case

Jan 28, 2023 14:10:25

Test axis: Y

S/N: 180001



NTS Longmont, CO

Level Time: 1:00:00

Demand: 1.49 G RMS

Shotover Systems

Level 0 dB

Job# PR163195-00

Total Time: 1:01:25

Control: 1.503 G RMS

UUT: Atom2 Case

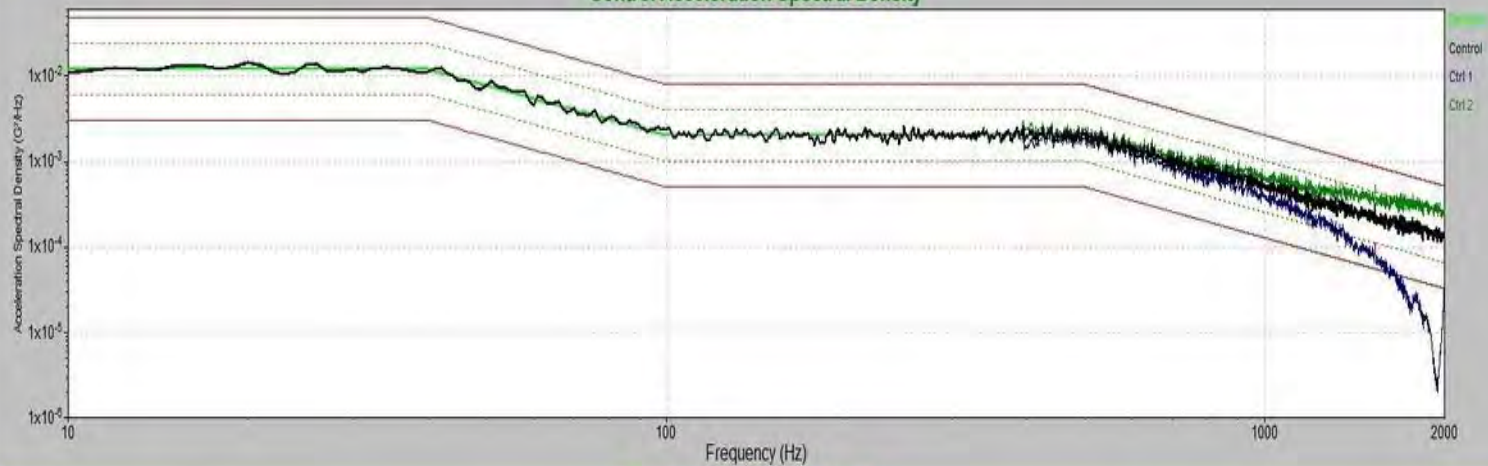
Jan 28, 2023 14:20:08

Run 53

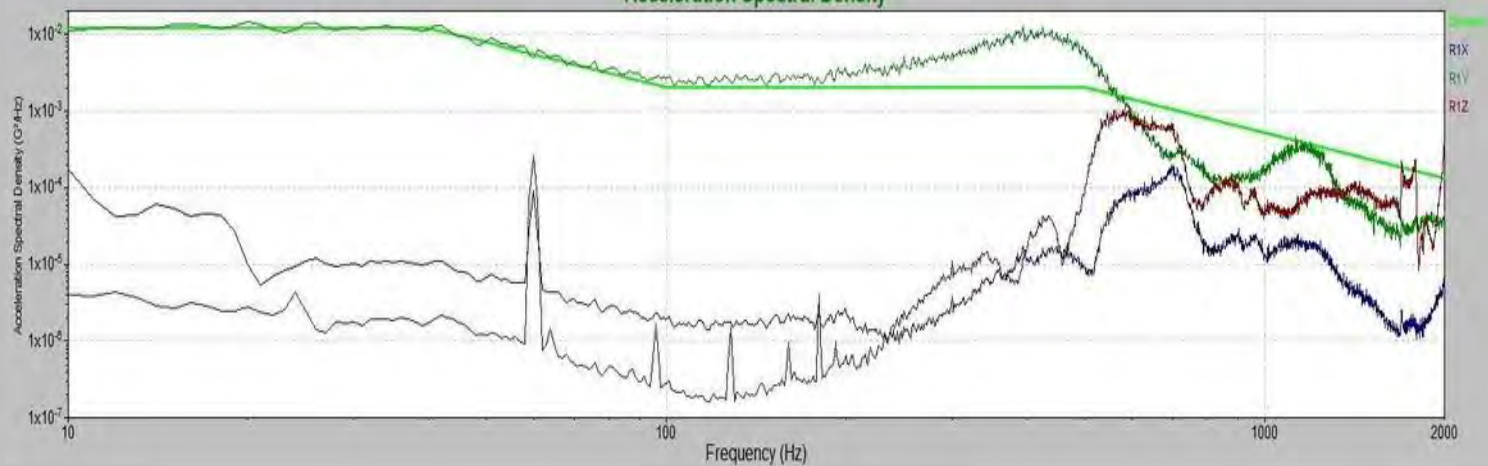
Test axis: Y

S/N: 180001

Control Acceleration Spectral Density



Acceleration Spectral Density



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 54

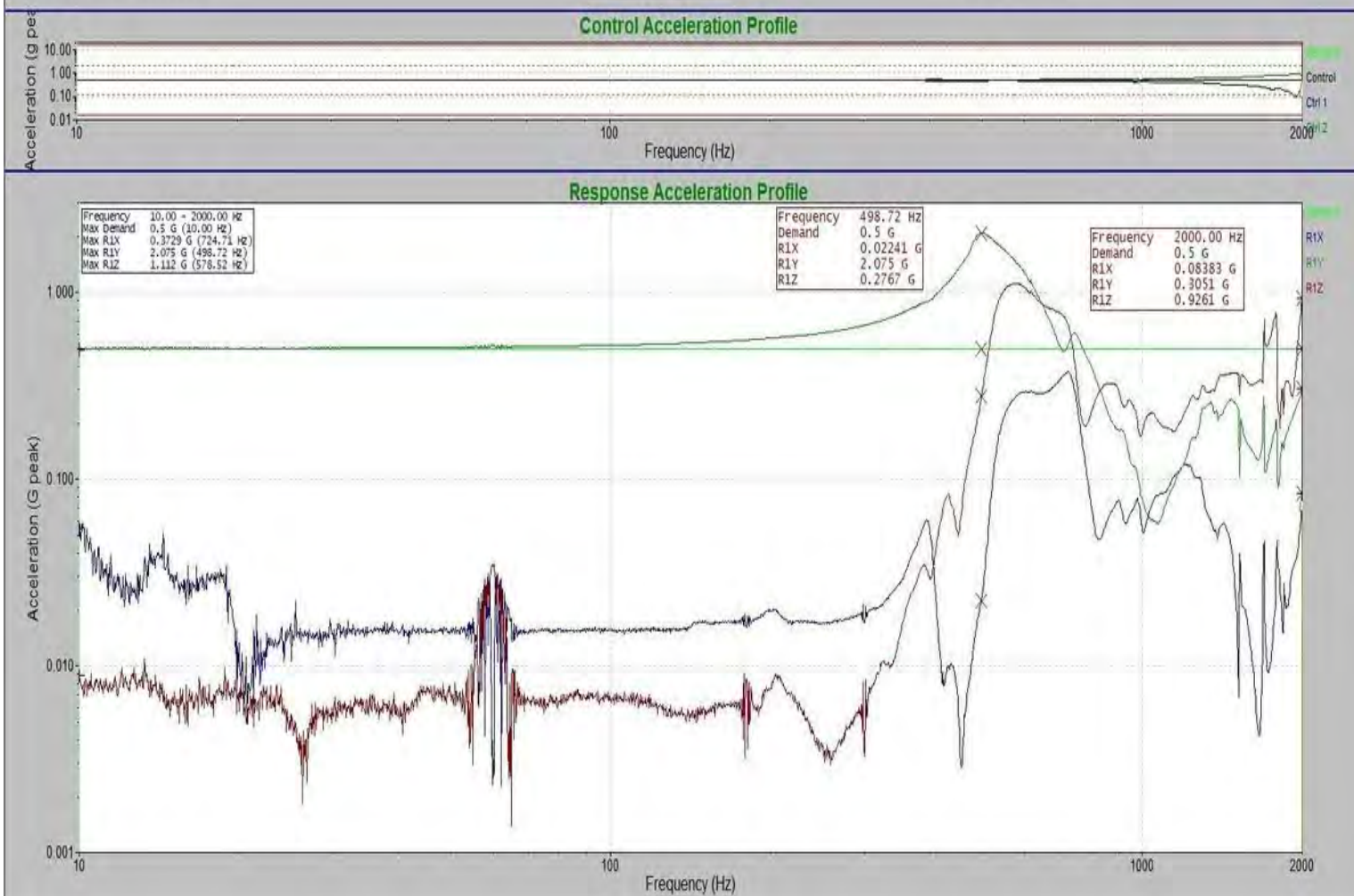
Control: 0.5184 G

UUT: Atom 2 Case

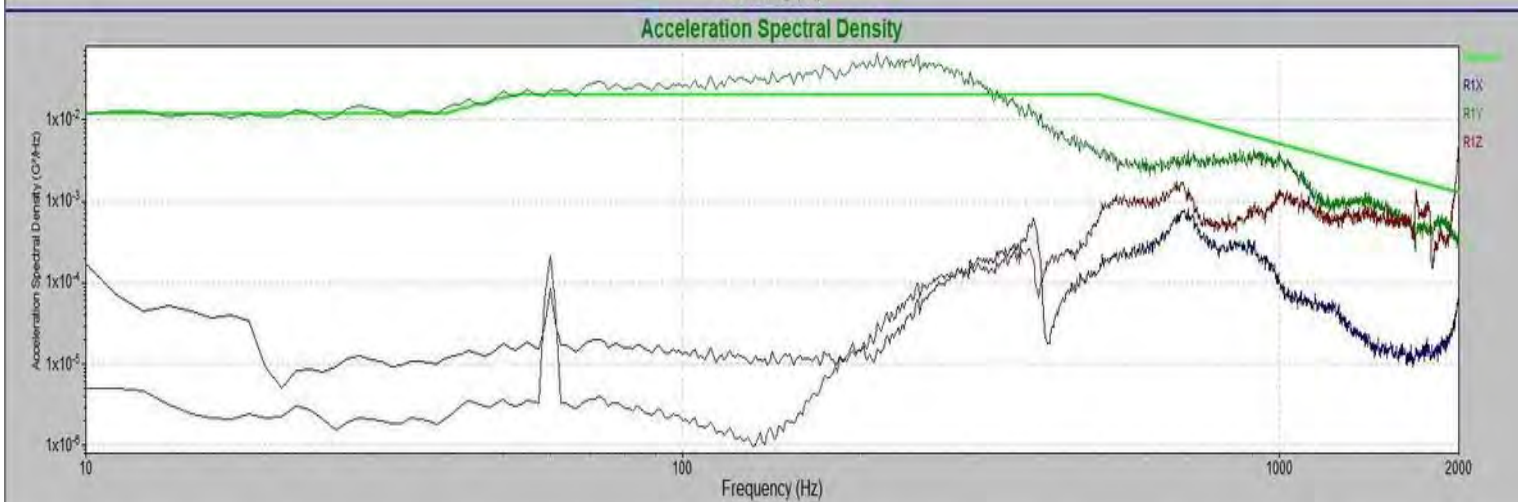
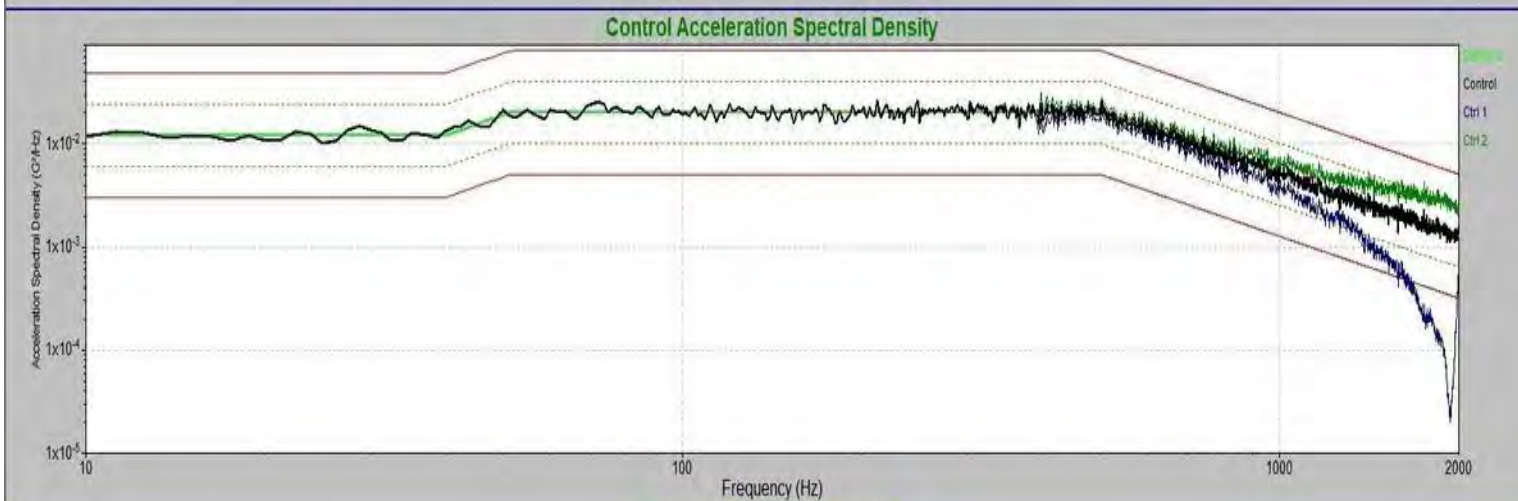
Jan 28, 2023 15:22:35

Test axis: Y

S/N: 180001



NTS Longmont, CO	Level Time: 1:00:00	Demand: 4.128 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 1:01:21	Control: 4.15 G RMS	UUT: Atom2 Case	
Jan 28, 2023 15:31:19	Run 55	Test axis: Y	S/N: 180001	



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 56

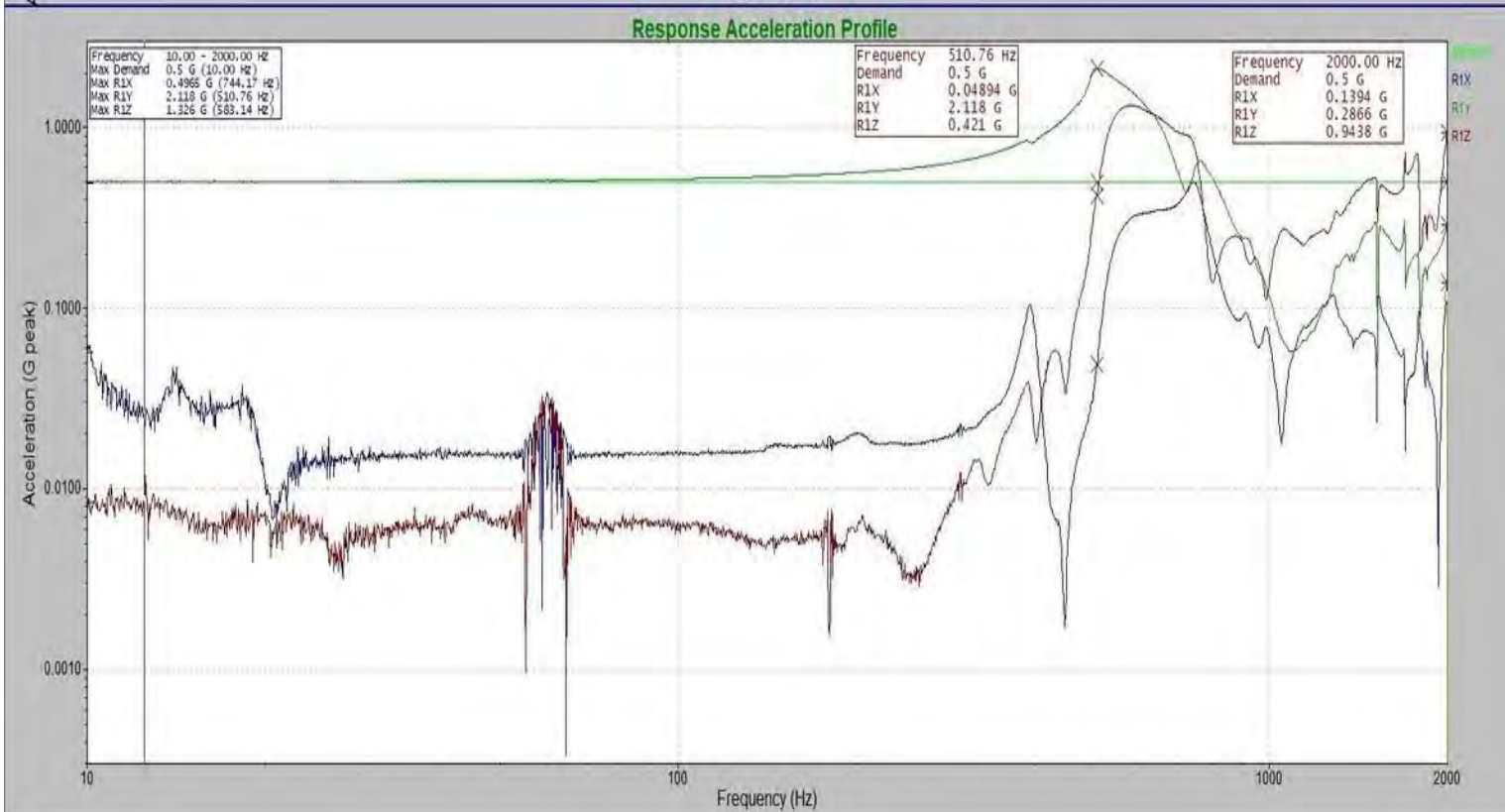
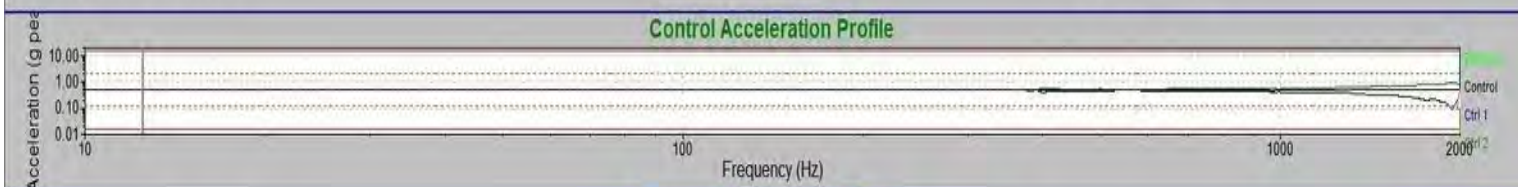
Control: 0.5127 G

UUT: Atom 2 Case

Jan 28, 2023 16:33:31

Test axis: Y

S/N: 180001



NTS Longmont, CO

Level Time: 1:00:00

Demand: 0.1595 G

Job# PR163195-00

Shotover Systems

Run 57

Control: 0.1596 G

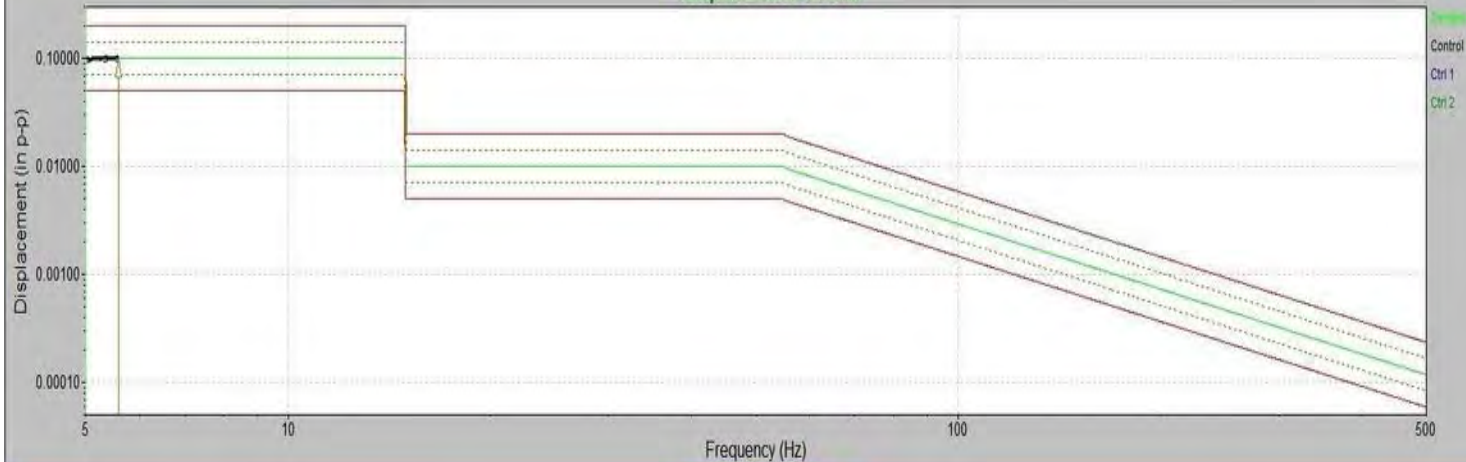
UUT: Atom2 Case

Jan 28, 2023 16:42:31

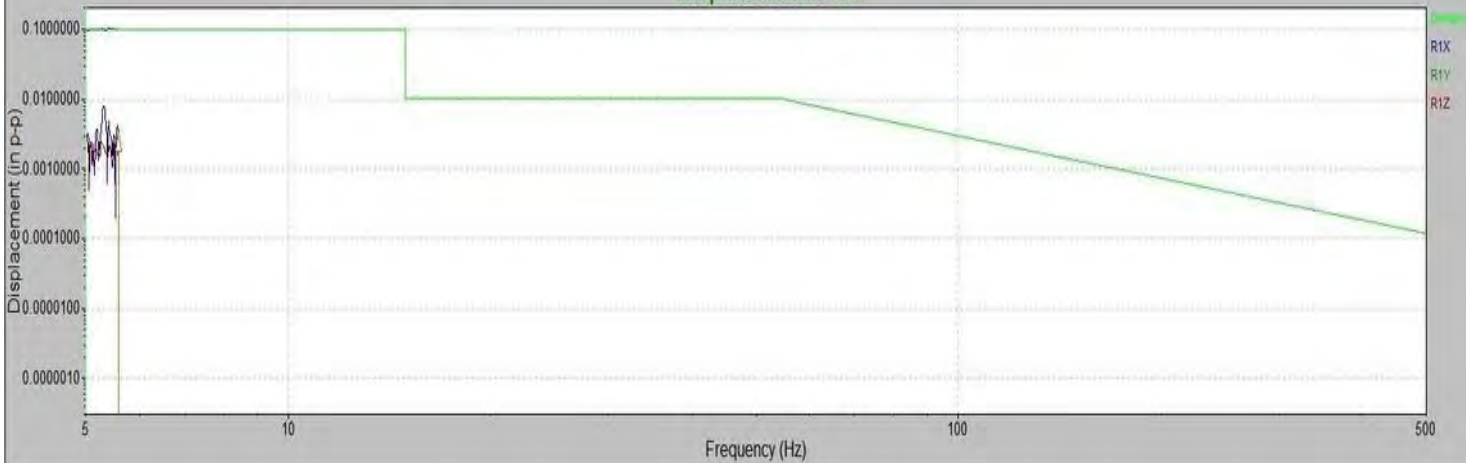
Test Axis: Y

SN: 180001

Displacement Profile



Displacement Profile



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 58

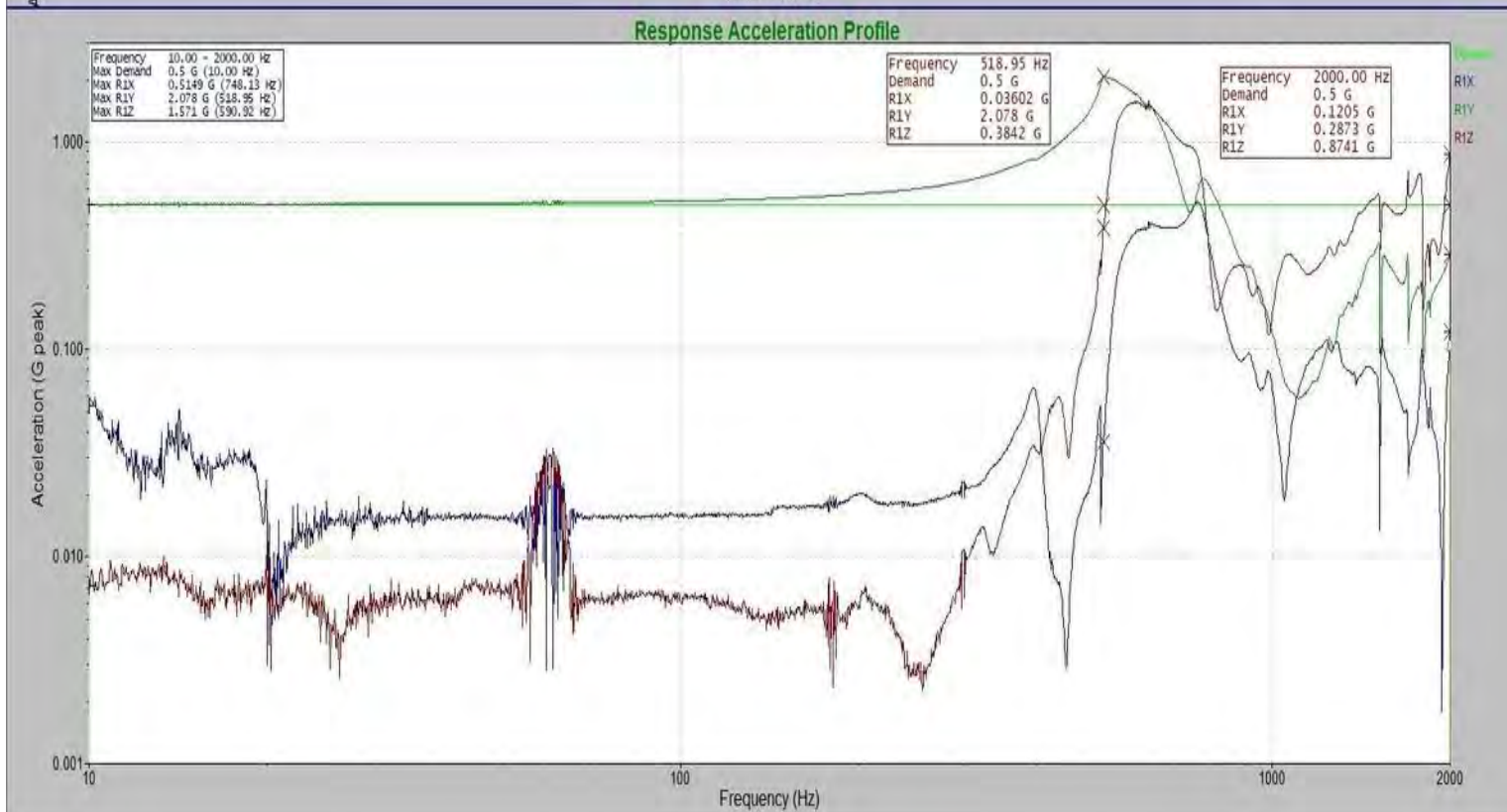
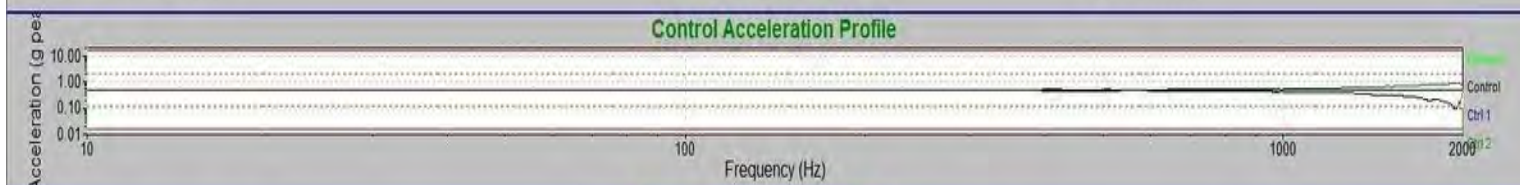
Control: 0.5061 G

UUT: Atom 2 Case

Jan 28, 2023 17:43:32

Test axis: Y

S/N: 180001



NTS Longmont, CO

Level Time: 1:00:00

Demand: 0.8 G

Job# PR163195-00

Shotover Systems

Run 59

Control: 0.8017 G

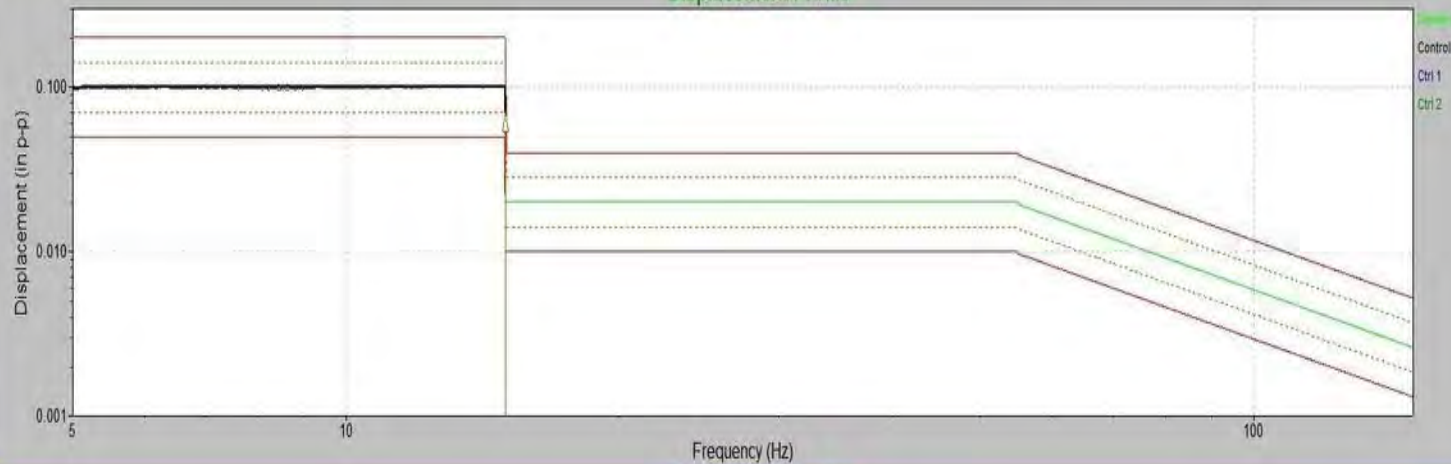
UUT: Atom2 Case

Jan 28, 2023 17:52:10

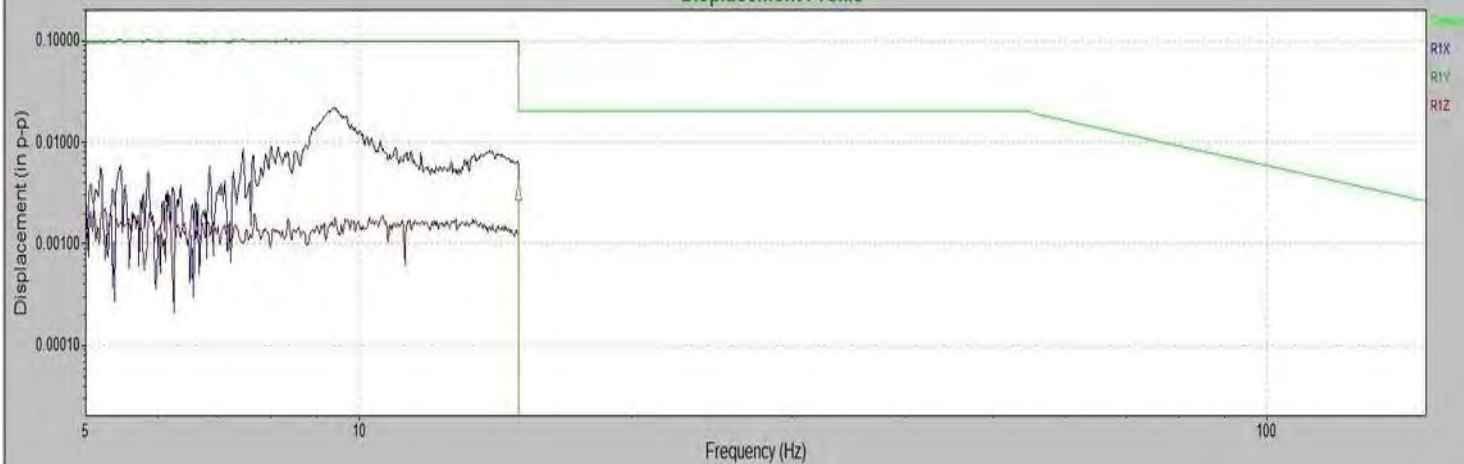
Test Axis: Y

SN: 180001

Displacement Profile



Displacement Profile



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 60

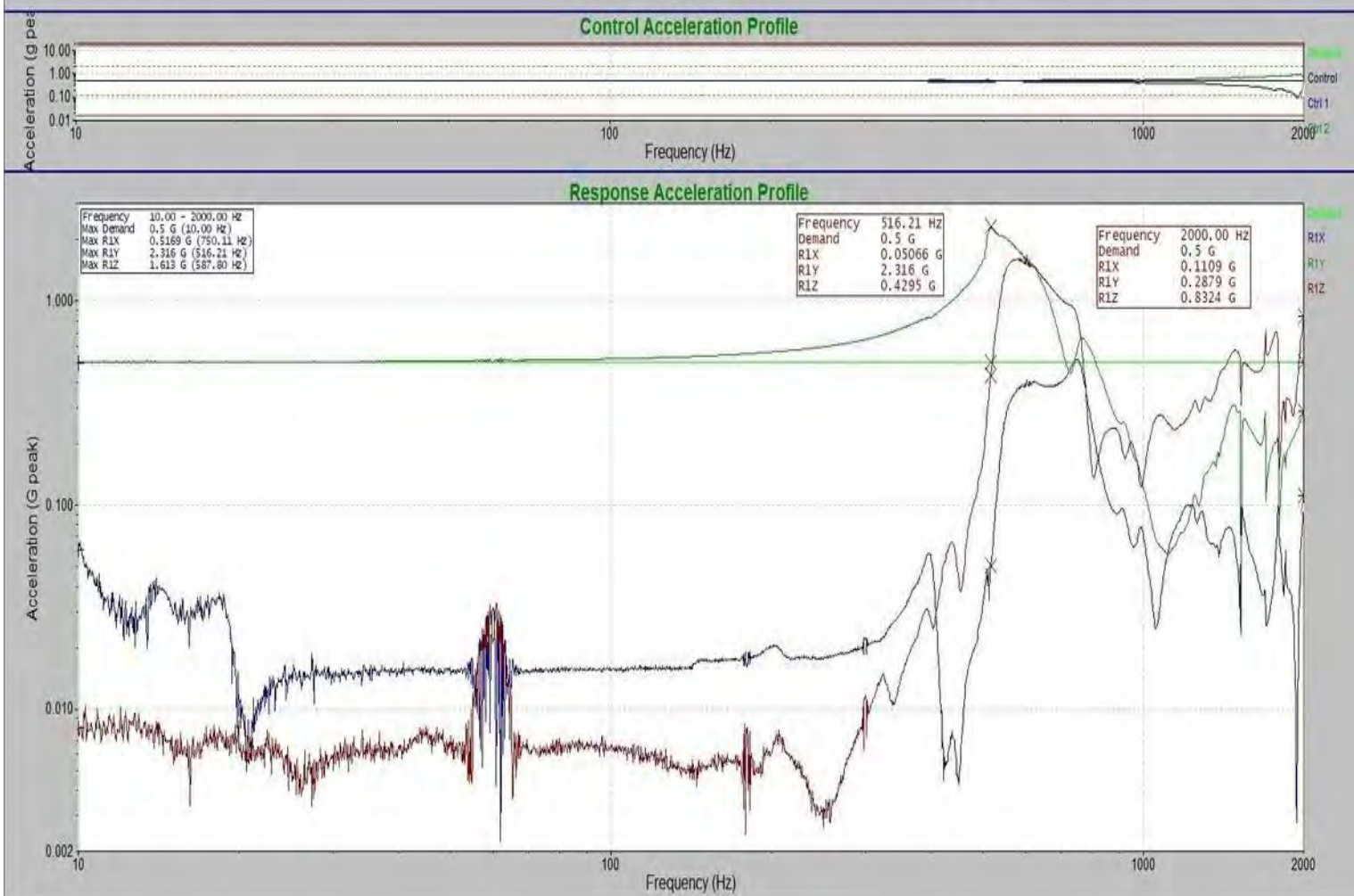
Control: 0.5067 G

UUT: Atom 2 Case

Jan 28, 2023 18:52:57

Test axis: Y

S/N: 180001



NTS Longmont, CO

Level Time: 0:10:00

Demand: 3.369 G RMS

Shotover Systems

Level 0 dB

Job# PR163195-00

Total Time: 0:11:20

Control: 3.396 G RMS

UUT: Atom2 Case

Jan 28, 2023 19:01:51

Run 61

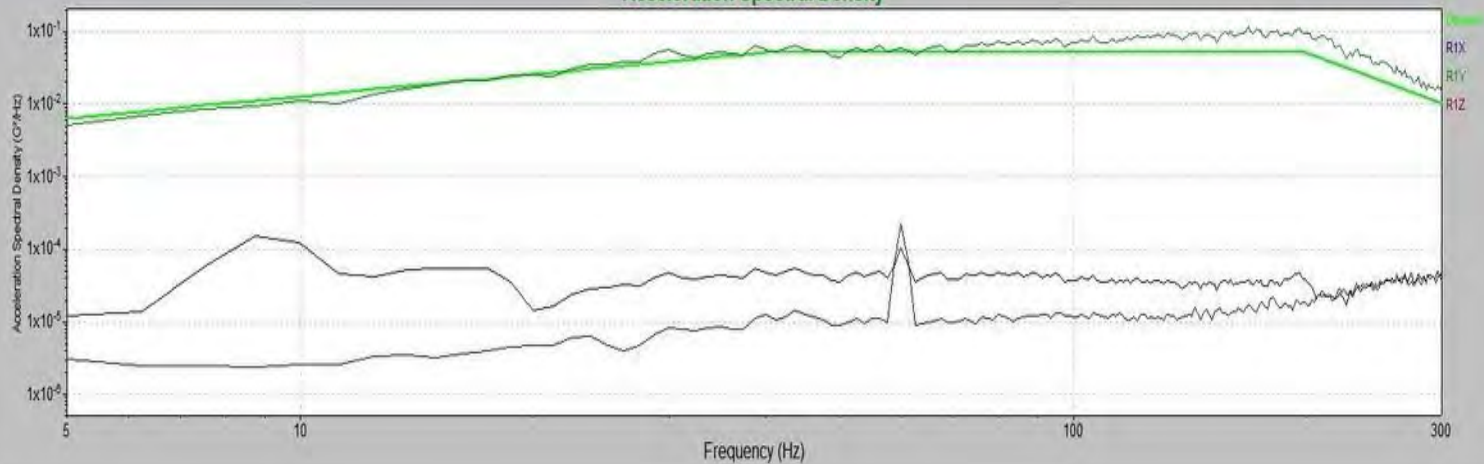
Test axis: Y

S/N: 180001

Control Acceleration Spectral Density



Acceleration Spectral Density



NTS Longmont, CO

Level Time: 3:00:00

Demand: 4.764 G RMS

Shotover Systems

Level 0 dB

Job# PR163195-00

Total Time: 3:01:47

Control: 4.786 G RMS

UUT: Atom2 Case

Jan 28, 2023 19:13:58

Run 62

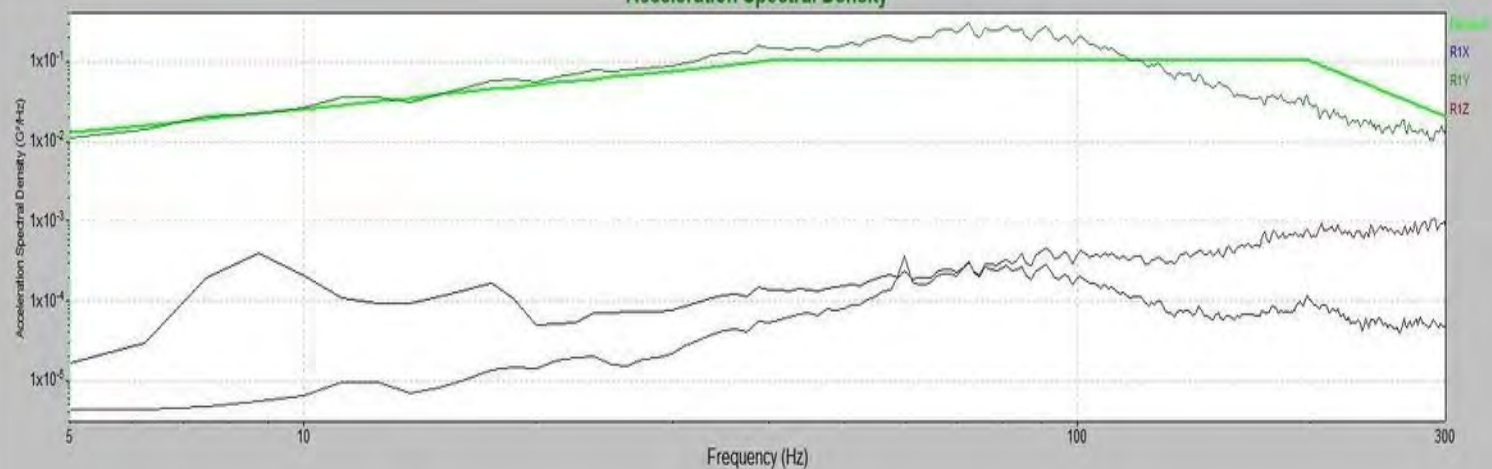
Test axis: Y

S/N: 180001

Control Acceleration Spectral Density



Acceleration Spectral Density



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 63

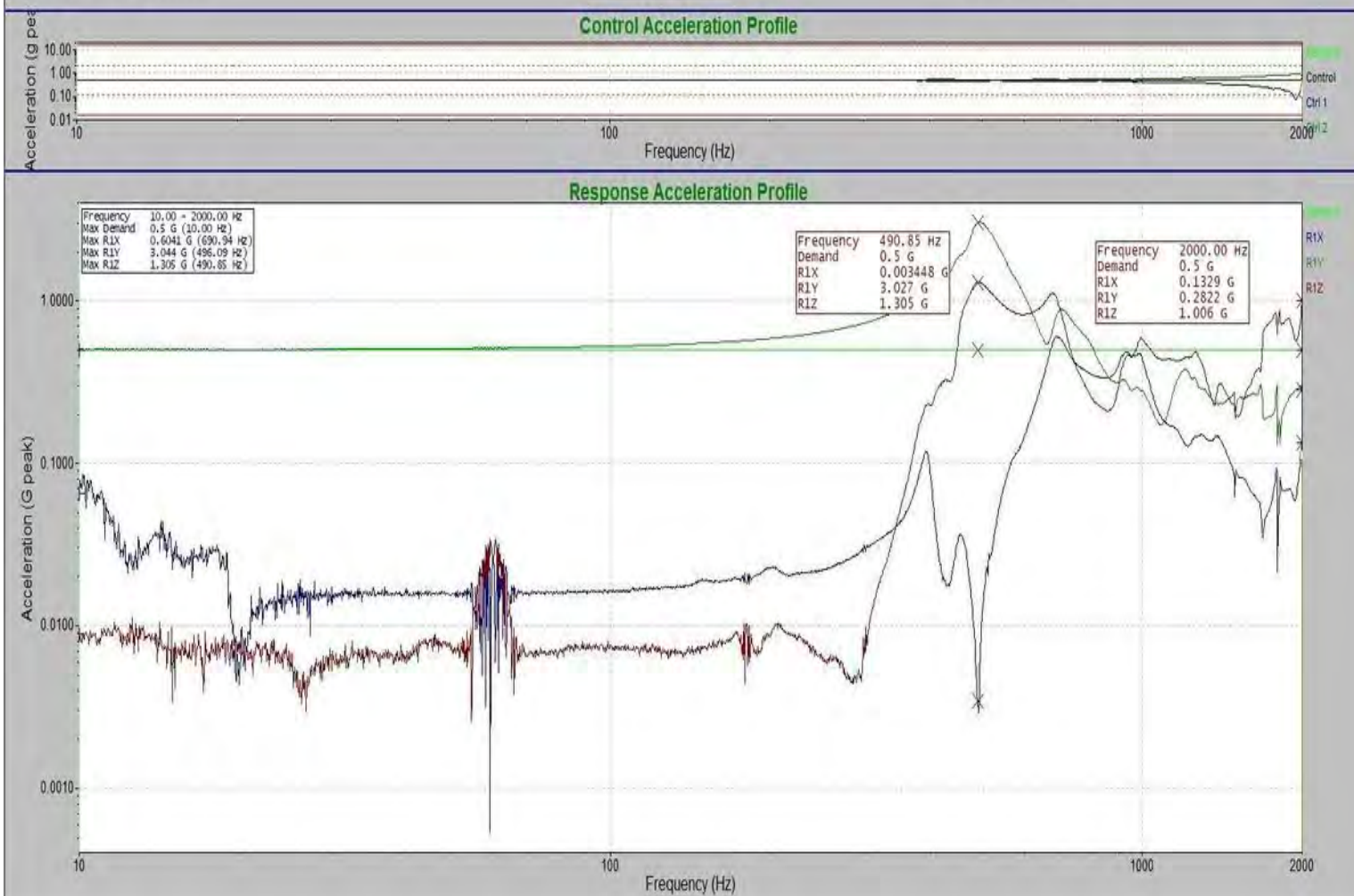
Control: 0.5087 G

UUT: Atom 2 Case

Jan 28, 2023 22:18:25

Test axis: Y

S/N: 180001



NTS Longmont, CO

Level Time: 0:07:39

Demand: 0.5 G

Job: PR163195-00

Shotover Systems

Run 7

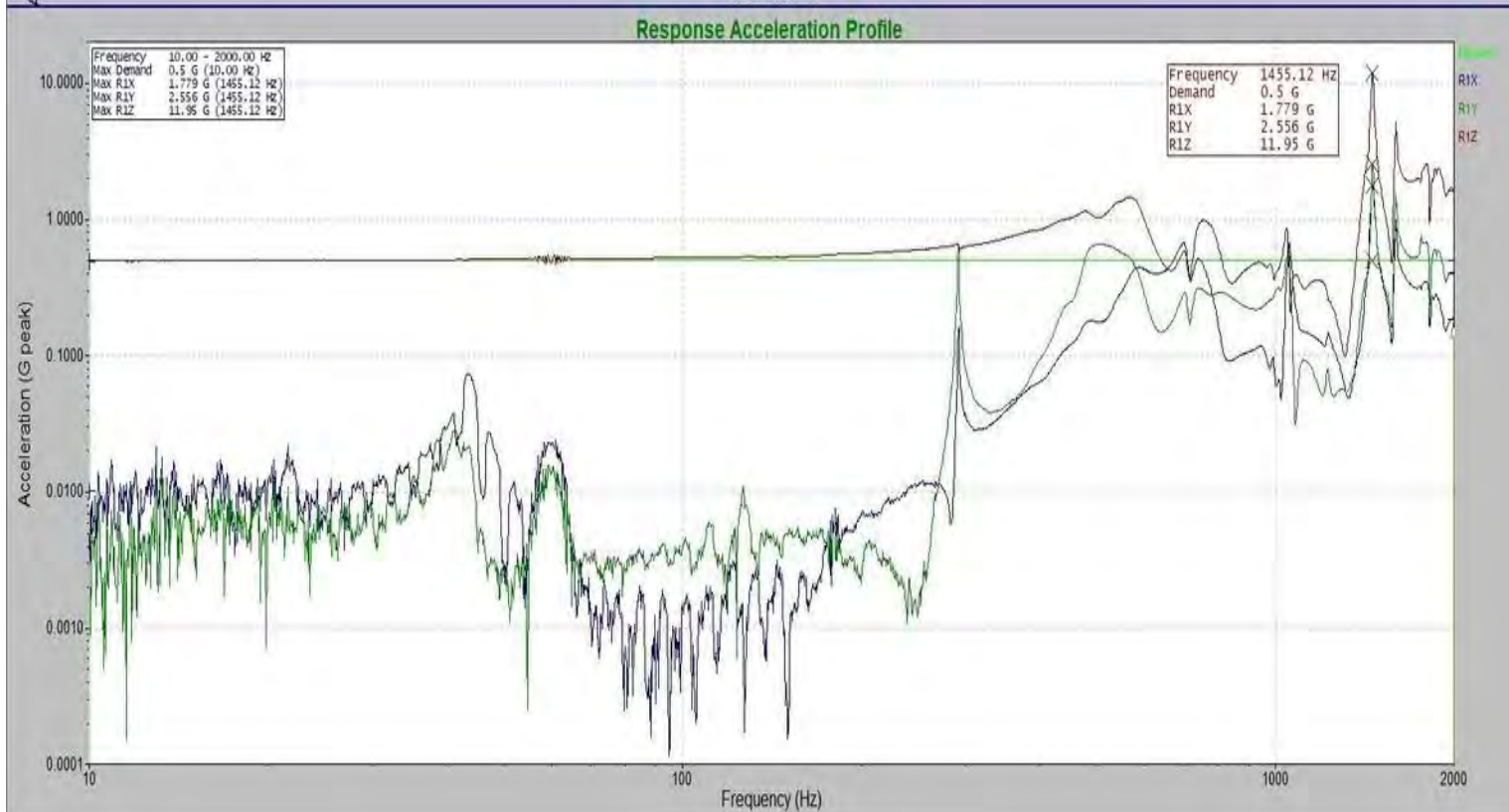
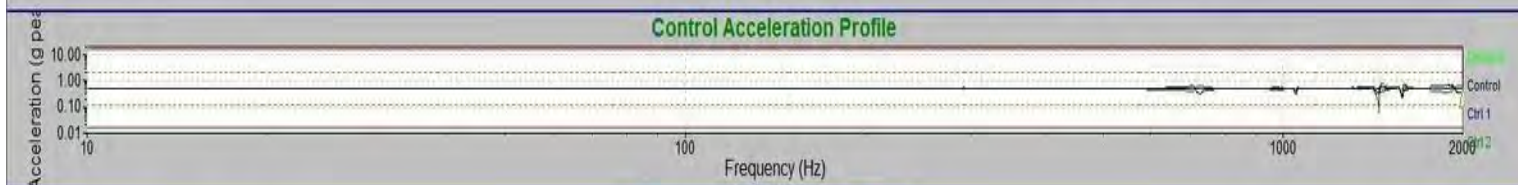
Control: 0.515 G

UUT: Atom 2 Case

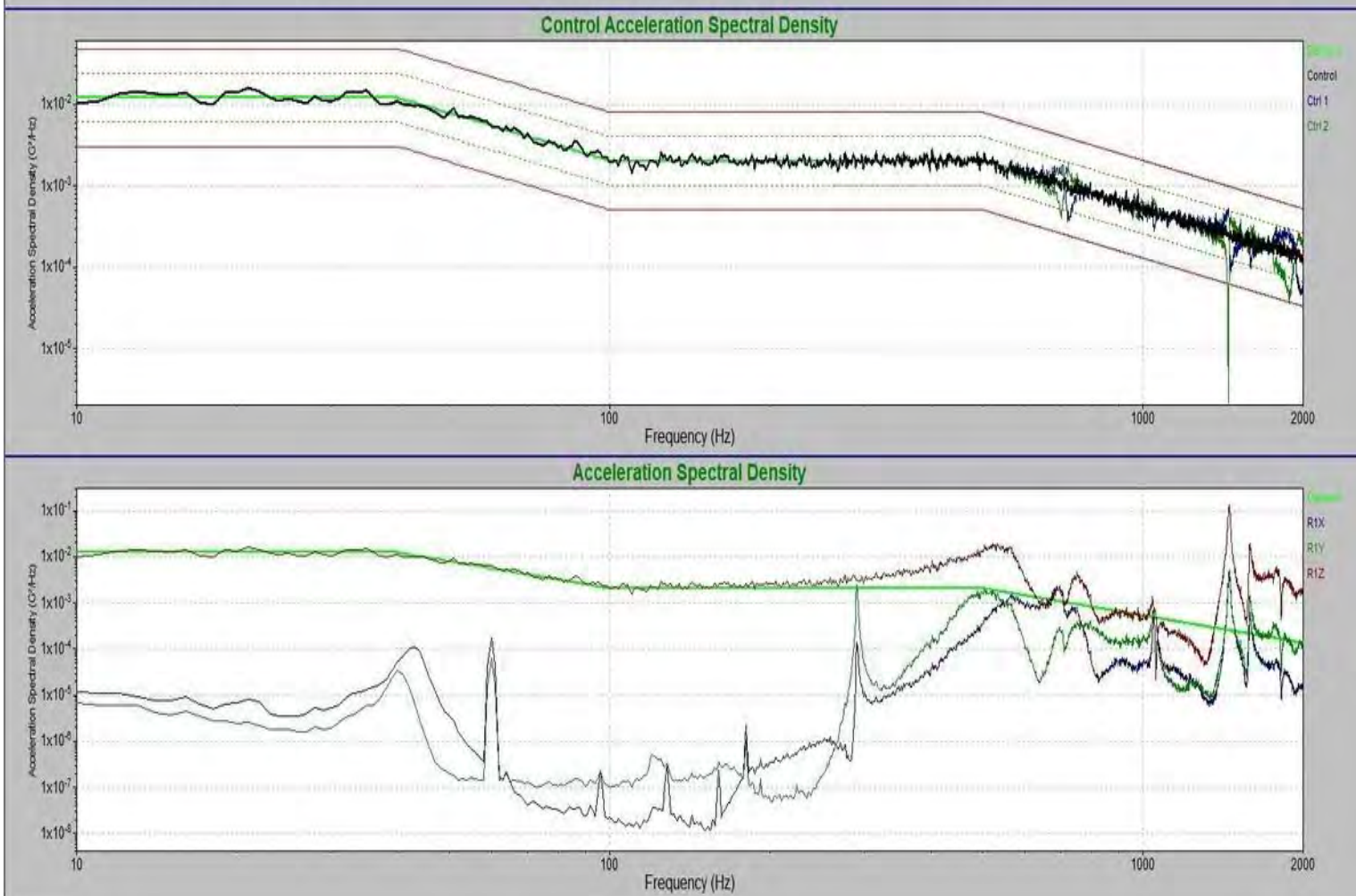
Jan 26, 2023 10:10:22

Test axis: Z

S/N: 180001



NTS Longmont, CO	Level Time: 0:10:00	Demand: 1.49 G RMS	Shotover Systems	Level 0 dB
Job# PR163195-00	Total Time: 0:11:24	Control: 1.499 G RMS	UUT: Atom2 Case	
Jan 26, 2023 10:23:50	Run 8	Test axis: Z	S/N: 180001	



NTS Longmont, CO

Level Time: 3:00:00

Demand: 2.107 G RMS

Shotover Systems

Level 0 dB

Job# PR163195-00

Total Time: 3:01:38

Control: 2.113 G RMS

UUT: Atom2 Case

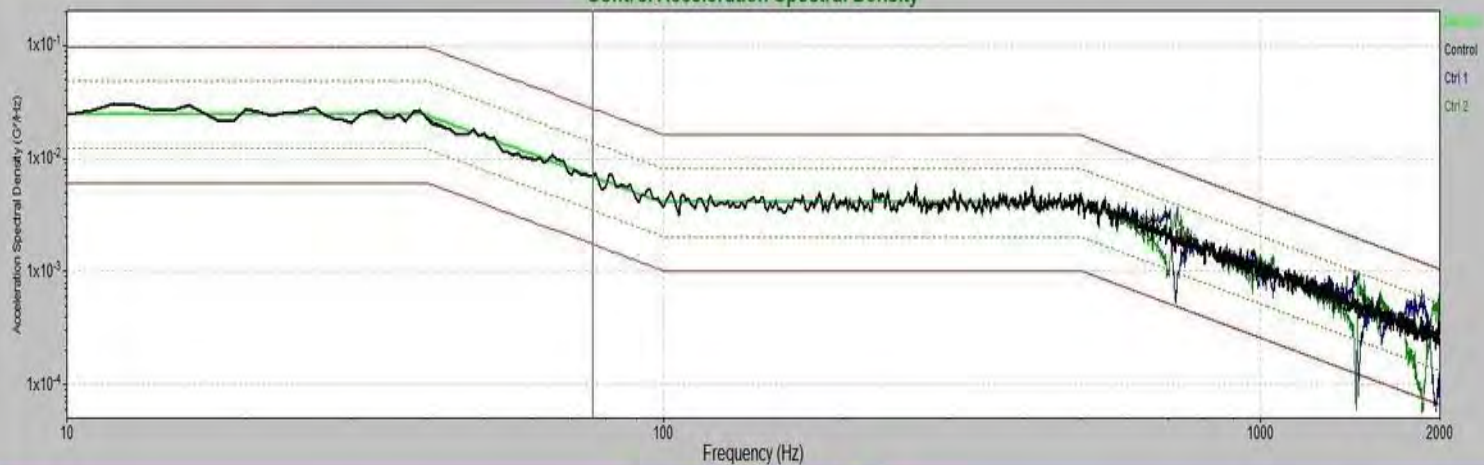
Jan 26, 2023 10:36:32

Run 9

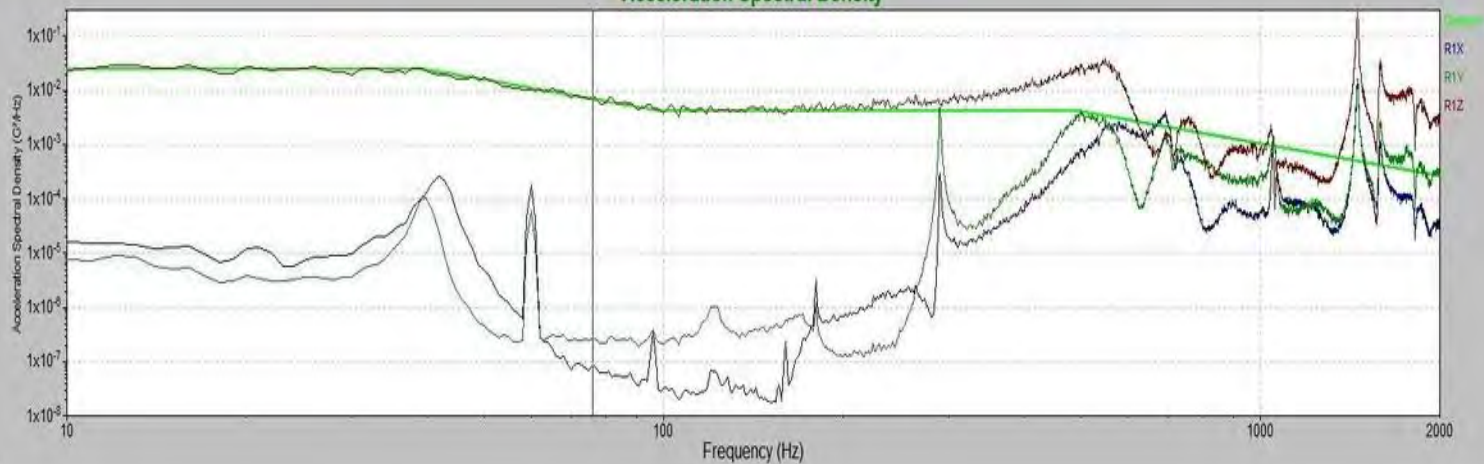
Test axis: Z

S/N: 180001

Control Acceleration Spectral Density



Acceleration Spectral Density





5.6.6 Test Equipment List

Table 5.6-1: Vibration Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC043856 (ED2)	Shaker (Electro-Dynamic)	Ling Electronics	335	NCR	NCR
WC059830	Wrench (Torque)	CDI Torque Products	1002MFRMH	11/08/2022	11/08/2023
WC061701	Computer (Vibration Controller)	Vibration Research	VR9500	05/03/2022	05/03/2023
WC061708	Computer (Vibration Controller)	Vibration Research	VR9500	05/03/2022	05/03/2023
WC061717	Accelerometer (Tri-Axial)	PCB Piezotronics	356A01	03/07/2022	03/07/2023
WC070238	Accelerometer (Vibration)	PCB Piezotronics	352C04	11/08/2022	11/08/2023
WC070240	Accelerometer (Vibration)	PCB Piezotronics	352C04	11/08/2022	11/08/2023
WC070466	Meter (Hygrometer)	Fluke	971	05/23/2022	05/23/2023

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required



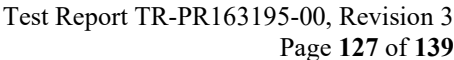
5.7 Humidity

5.7.1 Test Procedure

The ATOM2 was tested in accordance with DO-160G Section 6 Category A.

5.7.2 Test Result

The EUT showed no visual damage after the test was completed.

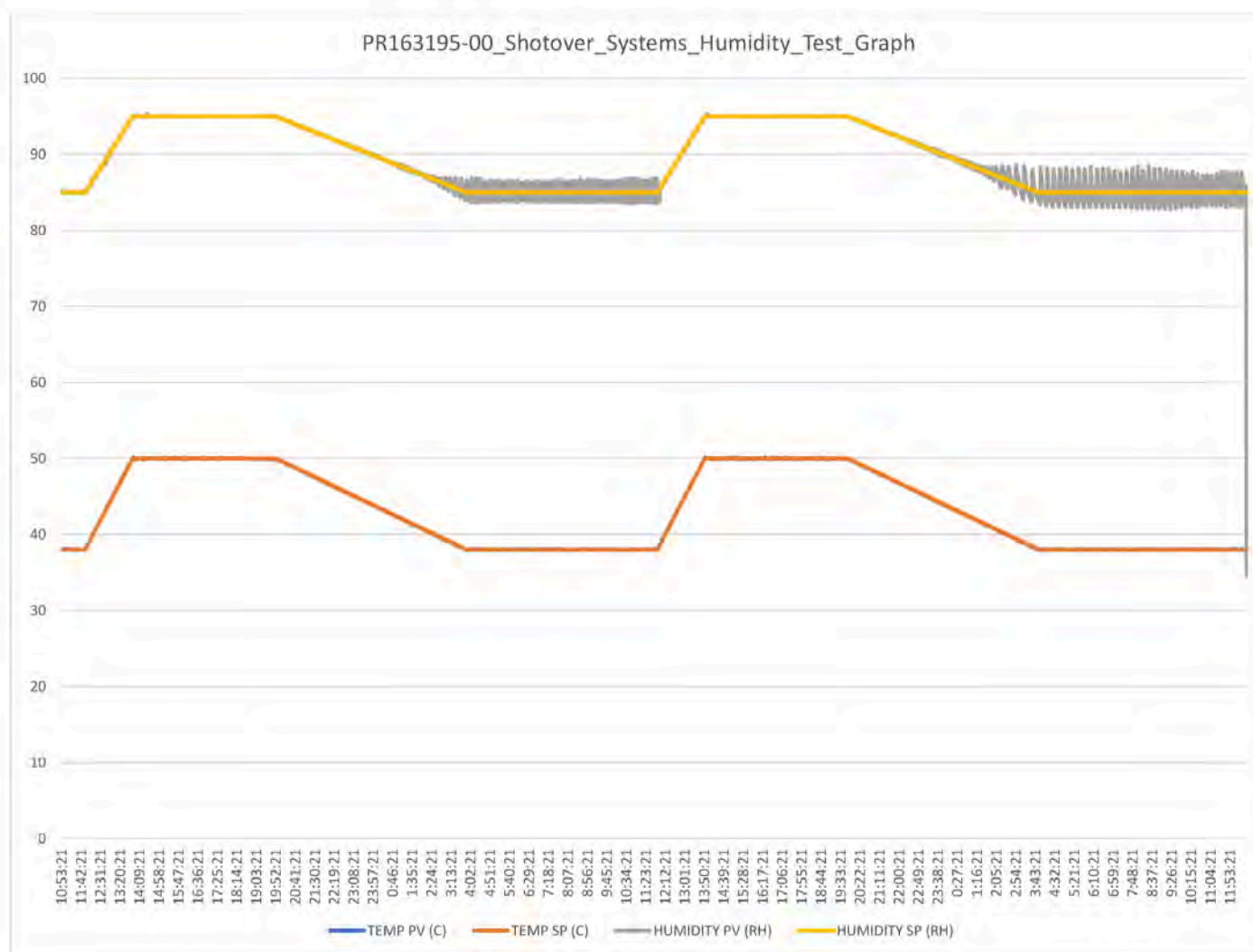
[illegible]

5.7.4 Test Photographs



_Humidity _Test _Ch 47

5.7.5 Test Data



**5.7.6 Test Equipment List****Table 5.7-1: Humidity Test Equipment List**

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC061626	Chamber (Temperature/Humidity)	Envirotronics	SH16 C	09/23/2022	09/23/2023
WC070559	Controller (Temperature)	Future Design Controls	FDC-9300	09/23/2022	09/23/2023

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required



Appendix A

5.8 Explosive Atmosphere

5.8.1 Test Procedure

This testing was performed by NTS Labs LLC Huntsville. The ATOM2 was tested in accordance with DO-160G Section 9 Category E.

5.8.2 Test Result

The EUT showed no visual damage or anomalies noted after the test was completed.



5.8.3 Test Datasheets

EXPLOSIVE ATMOSPHERE						
Site TEMP:	72.0	Site RH:	50.0%	Site BAROMETRIC PRESSURE:	988.7	hPa
TEST DESCRIPTION						
The Explosive Atmosphere Test was repeated at test altitudes of: 14.34 (Site)						
Test Altitude	Chamber Temp (°F)	Specimen Temp (°F)	Wall Temp (°F)	Specimen Operation	Results	
Site	159.6	149.2	149.7	off	Ramp to 7,270 Ft	
7270	158.1	148.8	149.5	off	add 509.58ml of Hexane	
3970	158.6	150.8	150.6	On	Verify sample. Power up uut.	
670	157.7	158.8	151.5	off	Power off uut. Verify sample.	
					End of test	
REMARKS: No ignition caused by UUT operation.						
CALCULATION:						
Chamber Volume (ft ³)	Pressure (PSIA)	Temperature (°C)	Temperature (°R)	Specific Gravity of Hexane @ 25°	Volume 95% Hexane (mL)	
92.00	14.34	72.00		0.656	509.58	
FORMULA:						
Volume of 95% n-hexane (ml) =		$(150.41) \left[\frac{(\text{net chamber vol (ft}^3\text{)}) \times (\text{chamber pressure (psia)})}{(\text{chamber temp (R)}) \times (\text{specific gravity of n-hexane})} \right]$				

5.8.4 Test Photographs



Setup



Setup 1



Setup 2



Setup 3



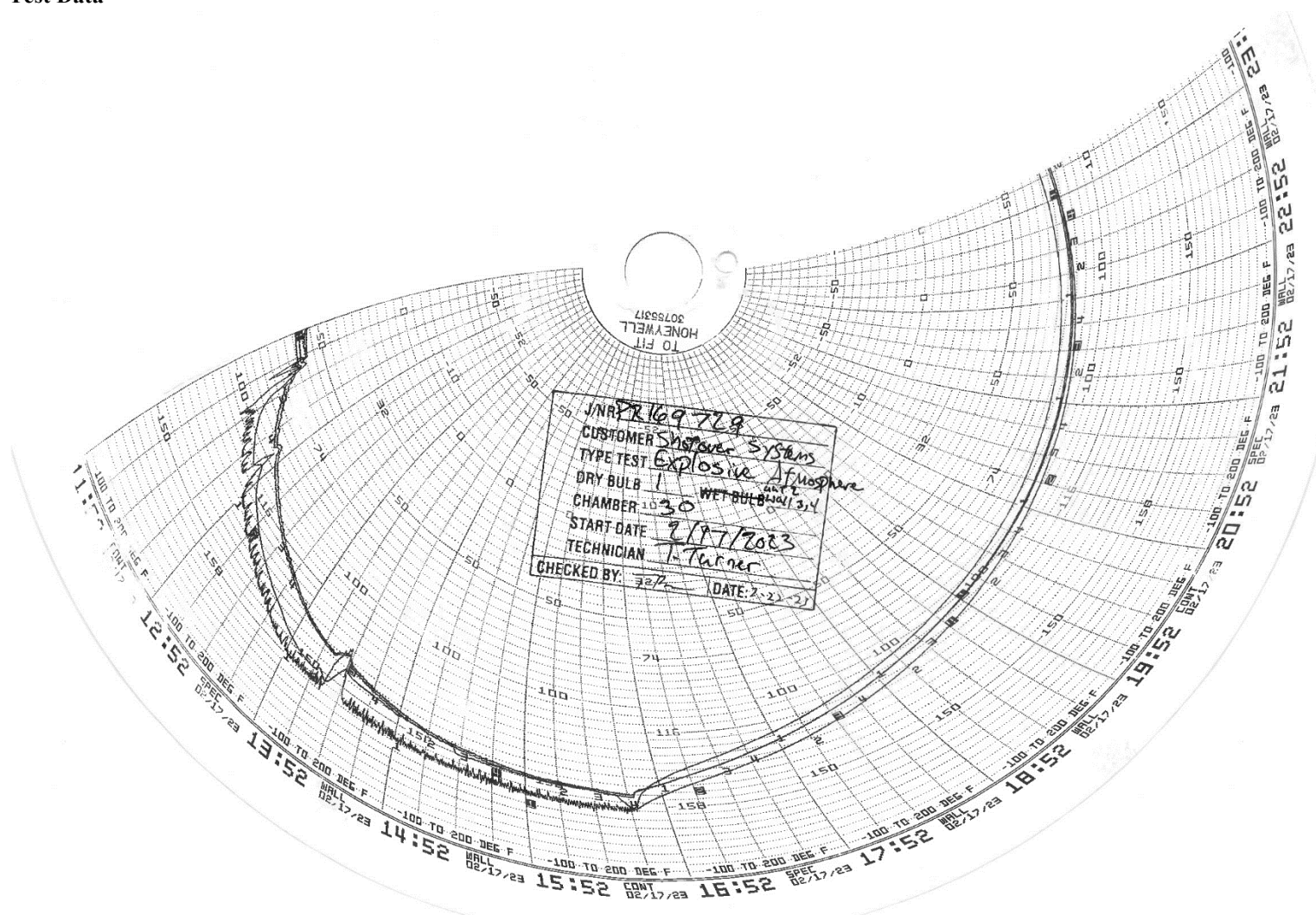


Screen During Test



Post Test

5.8.5 Test Data





5.8.6 Test Equipment List

Table 5.8-1: Explosive Atmosphere Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC041565	Chamber (Explosive Atmosphere)	Tenney	6x3	10/10/2018	NCR
WC048203	Controller (Temperature)	Watlow	SD4L	02/10/2023	02/10/2024
WC048796	Recorder (Chart)	Honeywell	DR450T	02/10/2023	02/10/2024
WC063698	Indicator (Temperature)	Acurite	829	05/12/2022	05/12/2023
WC069699	Meter (PH)	Mettler Toledo	SEVEN2GO	03/26/2022	03/26/2023
WC069882	Meter (Densitometer)	Mettler Toledo	30PX	04/23/2019	04/23/2024

Calibration Abbreviations

CAL: Calibration

NCR: No Calibration Required



End of Test Report