

**REPORT NUMBER: SPNCAP-CAL-24-012**

**NEW CAR ASSESSMENT PROGRAM (NCAP)  
SIDE IMPACT POLE TEST**

**General Motors of Canada Company  
2024 Chevrolet Silverado 2500  
4 Door Truck**

**NHTSA No: M20240101**

**PREPARED BY:  
CALSPAN CORPORATION  
P.O. BOX 400  
BUFFALO, NEW YORK 14225**



**January 3, 2025**

**FINAL REPORT**

**PREPARED FOR:  
U. S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
OFFICE OF CRASHWORTHINESS STANDARDS  
1200 NEW JERSEY AVE SE  
WASHINGTON, D.C. 20590**



This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number 693JJ920D000016.

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Prepared by: Alexander Rudniski  
Alexander Rudniski, Test Engineer

Date: January 3, 2025

Approved by: Vanessa Hansen  
Vanessa Hansen, Operations Manager

Date: January 3, 2025

#### **FINAL REPORT ACCEPTANCE BY OCWS:**

\_\_\_\_\_  
Division Chief, New Car Assessment Program  
NHTSA, Office of Crashworthiness Standards

Date: \_\_\_\_\_

\_\_\_\_\_  
COTR, New Car Assessment Program  
NHTSA, Office of Crashworthiness Standards

Date: \_\_\_\_\_

# **TECHNICAL REPORT DOCUMENTATION PAGE**

| <b>1. Report No.</b><br>SPNCAP-CAL-24-012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                          | <b>2. Government Accession No.</b>                        |          | <b>3. Recipient's Catalog No.</b>                                                                                                                                                                                                    |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
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| <b>4. Title and Subtitle</b><br>Final Report of New Car Assessment Program<br>Side Impact Pole Testing of a 2024 Chevrolet Silverado 2500 4 Door Truck<br>NHTSA No.: M20240101                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                                                           |          | <b>5. Report Date</b><br>January 3, 2025                                                                                                                                                                                             |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
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| <b>7. Author(s)</b><br>Alexander Rudniski, Test Engineer<br>Vanessa Hansen, Operations Manager                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                                                           |          | <b>8. Performing Organization Report No.</b><br>CAL-DOT-2024-012                                                                                                                                                                     |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| <b>9. Performing Organization Name and Address</b><br>Calspan Corporation<br>Transportation Test Operations<br>P.O. Box 400<br>Buffalo, New York 14225                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |                                                           |          | <b>10. Work Unit No.</b>                                                                                                                                                                                                             |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
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| <b>12. Sponsoring Agency Name and Address</b><br>U.S. Department of Transportation<br>National Highway Traffic Safety Administration<br>Office of Crashworthiness Standards<br>1200 New Jersey Ave., SE<br>Washington, D.C. 20590                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |                                                           |          | <b>13. Type of Report and Period Covered:</b><br>Final Test Report<br>November 15, 2024 - January 3, 2025                                                                                                                            |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
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| <b>15. Supplementary Notes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                                                           |          |                                                                                                                                                                                                                                      |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| <b>16. Abstract</b><br><p>A 32.20 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2024 Chevrolet Silverado 2500 4 Door Truck in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on November 15, 2024.</p> <p>The impact velocity of the vehicle was 32.29 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle was 21°C. The target vehicle's maximum post-test static crush was 451 mm located at level 3. The test vehicle's occupant performance data is as follows:</p> <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)<br/>(Serial No.300 )</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC36)</td> <td></td> <td>1000</td> <td>239.786</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>G</td> <td>82</td> <td>39.203</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>2270.672</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>16.761</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45*</td> <td>14.561</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.</p> |                                          |                                                           |          |                                                                                                                                                                                                                                      |                  | Measurement Description | Driver ATD (SID-IIs)<br>(Serial No.300 ) |  |  | Units | Threshold | Result | Head Injury Criteria (HIC36) |  | 1000 | 239.786 | Resultant Lower Spine Acceleration | G | 82 | 39.203 | Total Pelvic Force (sum of acetabular and iliac forces) | N | 5525 | 2270.672 | Maximum Thoracic Rib Deflection | mm | 38 | 16.761 | Maximum Abdominal Rib Deflection | mm | 45* | 14.561 |
| Measurement Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Driver ATD (SID-IIs)<br>(Serial No.300 ) |                                                           |          |                                                                                                                                                                                                                                      |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Units                                    | Threshold                                                 | Result   |                                                                                                                                                                                                                                      |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| Head Injury Criteria (HIC36)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                          | 1000                                                      | 239.786  |                                                                                                                                                                                                                                      |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| Resultant Lower Spine Acceleration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | G                                        | 82                                                        | 39.203   |                                                                                                                                                                                                                                      |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| Total Pelvic Force (sum of acetabular and iliac forces)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | N                                        | 5525                                                      | 2270.672 |                                                                                                                                                                                                                                      |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| Maximum Thoracic Rib Deflection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | mm                                       | 38                                                        | 16.761   |                                                                                                                                                                                                                                      |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| Maximum Abdominal Rib Deflection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | mm                                       | 45*                                                       | 14.561   |                                                                                                                                                                                                                                      |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| <b>17. Key Words</b><br>New Car Assessment Program (NCAP)<br>Side Impact<br>Pole<br>Part 572V<br>SID-IIs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                          |                                                           |          | <b>18. Distribution Statement</b><br><u>Copies of this report are available from:</u><br>National Highway Traffic Safety Administration<br>Technical Information Services Division<br>1200 New Jersey Ave.<br>Washington, D.C. 20590 |                  |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |
| <b>19. Security Class. (of this report)</b><br>UNCLASSIFIED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          | <b>20. Security Class. (of this page)</b><br>UNCLASSIFIED |          | <b>21. No. of Pages</b><br>126                                                                                                                                                                                                       | <b>22. Price</b> |                         |                                          |  |  |       |           |        |                              |  |      |         |                                    |   |    |        |                                                         |   |      |          |                                 |    |    |        |                                  |    |     |        |

Form DOT F1700.7 (8-72)

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## **SECTION 1**

### **TEST PURPOSE AND PROCEDURE**

This side impact test was conducted as part of the MY 2024 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ920D000016. The purpose of this test is to generate comparative side impact performance in a 2024 Chevrolet Silverado 2500 4 Door Truck. The side impact test was conducted in accordance with the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure, dated March 2020.

## SECTION 2

### SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2024 Chevrolet Silverado 2500 4 Door Truck. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.29 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on November 15, 2024. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572U (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated March 2020. The side impact event was documented by 11 cameras. Camera locations and other pertinent camera information are included on page 3-11 in this report.

The Part 572U (SID-IIs) dummy was instrumented accordingly:

- Head CG tri-axial accelerometers
- Thorax upper, middle, and lower rib displacement potentiometers
- Abdomen upper and lower rib displacement potentiometers
- Lower spine tri-axial accelerometers
- Iliac load cell
- Acetabulum load cell

Appendix B contains the dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D identifies all serial numbers, manufacturers, and calibration dates for test equipment, dummy sensors, potentiometers, and load cells used to collect data during the test.

Injury readings for the SID-IIs dummy were recorded as follows:

#### INJURY READINGS

| Measurement Description                                 | Driver ATD (SID-IIs) |      |          |
|---------------------------------------------------------|----------------------|------|----------|
|                                                         | Units                | IARV | Result   |
| Head Injury Criteria (HIC36)                            |                      | 1000 | 239.786  |
| Resultant Lower Spine Acceleration                      | G                    | 82   | 39.203   |
| Total Pelvic Force (sum of acetabular and iliac forces) | N                    | 5525 | 2270.672 |
| Maximum Thoracic Rib Deflection                         | mm                   | 38   | 16.761   |
| Maximum Abdominal Rib Deflection                        | mm                   | 45*  | 14.561   |

\*Proposed IARV

Supplemental restraint information was recorded as follows:

#### SUPPLEMENTAL RESTRAINT INFORMATION

| Restraint Type                      | Left Front (Driver)<br>Occupant Location 1 |          | Left Rear (Passenger)<br>Occupant Location 4 |          |
|-------------------------------------|--------------------------------------------|----------|----------------------------------------------|----------|
|                                     | Mounted                                    | Deployed | Mounted                                      | Deployed |
| Front Airbag                        | Yes                                        | No       |                                              |          |
| Knee Airbag                         | No                                         | N/A      |                                              |          |
| Side Airbag 1 - Curtain             | Yes                                        | Yes      | Yes                                          | Yes      |
| Side Airbag 2 - Torso/Pelvis Airbag | Yes                                        | Yes      | No                                           | N/A      |
| Seat Belt Pretensioner              | Yes                                        | Yes      | No                                           | N/A      |
| Seat Belt Load Limiter              | Yes                                        | Yes      | No                                           | N/A      |
| Other                               |                                            |          |                                              |          |

#### GENERAL COMMENTS:

1. P1 serial number - 300

#### Data Anomalies:

- Left Front Sill Y Acceleration, Exceeded calibration range at 20.7 ms
- Front Seat Track Y Acceleration, Exceeded calibration range and saturated at 40.5 ms 46.9 ms
- Driver Head CG Redundant Y Acceleration, Questionable data after 47.7 ms
- Driver Head CG Redundant Y Acceleration, Questionable data after 47.7 ms
- Left Front Sill Y Acceleration, Exceeded calibration range at 20.7 ms
- Front Seat Track Y Acceleration, Exceeded calibration range and saturated at 40.5 ms 46.9 ms

## **SECTION 3**

### **OCCUPANT AND VEHICLE INFORMATION**

This section contains information reporting for the following Data Sheets:

Data Sheet No. 1 - General Test and Vehicle Parameter Data

Data Sheet No. 2 - Seat, Seat Belt, Steering Wheel Adjustment and Fuel Systems Data

Data Sheet No. 3 - Dummy Longitudinal Clearance Dimensions

Data Sheet No. 4 - Dummy Lateral Clearance Dimensions

Data Sheet No. 5 - Camera and Instrumentation Data

Data Sheet No. 6 - Test Vehicle Accelerometer Locations

Data Sheet No. 7- Rigid Pole Load Cell Data

Data Sheet No. 8 - Post-Test Observations

Data Sheet No. 9 - Test Vehicle Profile Measurements

Data Sheet No. 10 - Test Vehicle Exterior Crush Measurements

Data Sheet No. 11 - Vehicle Damage Profile Distances

Data Sheet No. 12 - FMVSS No. 301 Static Rollover Results

Data Sheet No. 13 - Dummy / Vehicle Temperature and Humidity Stabilization Data

**DATA SHEET NO. 1**  
**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck

NHTSA No.: M20240101

Test Program: NCAP Side Pole Impact Test

Test Date: 11/15/2024

**TEST VEHICLE INFORMATION AND OPTIONS**

|                          |                   |                                   |     |
|--------------------------|-------------------|-----------------------------------|-----|
| NHTSA No.                | M20240101         | Traction Control System (TCS)     | Yes |
| Model Year               | 2024              | Auto-Leveling System              | No  |
| Make                     | Chevrolet         | Automatic Door Locks (ADL)        | Yes |
| Model                    | Silverado 2500    | Power Window Auto-Reverse         | No  |
| Body Style               | Crew Cab Truck    | Other Optional Feature            | N/A |
| VIN                      | 2GC1WLE73R1234810 | Driver Front Airbag               | Yes |
| Body Color               | Summit White      | Driver Curtain Airbag             | Yes |
| Odometer Reading (km/mi) | 16 mi             | Driver Head/Torso Airbag          | No  |
| Engine Displacement (L)  | 6.6               | Driver Torso Airbag               | No  |
| Type / No. Cylinders     | V8                | Driver Torso / Pelvis Airbag      | Yes |
| Engine Placement         | Inline            | Driver Pelvis Airbag              | No  |
| Transmission Type        | Automatic         | Driver Knee Airbag                | No  |
| Transmission Speeds      | 10-Speed          | Rear Pass. Curtain Airbag         | Yes |
| Overdrive                | Yes               | Rear Pass. Head / Torso Airbag    | No  |
| Final Drive              | RWD               | Rear Pass. Torso Airbag           | No  |
| Roof Rack                | No                | Rear Pass. Torso / Pelvis Airbag  | No  |
| Sunroof / T-Top          | No                | Rear Pass. Pelvis Airbag          | No  |
| Running Boards           | No                | Driver Seat Belt Pretensioner     | Yes |
| Tilt Steering Wheel      | Yes               | Rear Pass. Seat Belt Pretensioner | No  |
| Power Seats              | No                | Driver Load Limiter               | Yes |
| Anti-Lock Brakes (ABS)   | Yes               | Rear Pass. Load Limiter           | No  |
|                          |                   | Other Safety Restraint            | N/A |

Does owner's manual provide instructions to turn off automatic door locks?

No

**DATA FROM CERTIFICATION LABEL**

|                     |                                  |                 |      |
|---------------------|----------------------------------|-----------------|------|
| Manufactured By     | General Motors of Canada Company | GVWR (KG)       | 4536 |
| Date of Manufacture | 04/24                            | GAWR Front (KG) | 2177 |
| Vehicle Type        | Truck                            | GAWR Rear (KG)  | 2898 |

**VEHICLE SEATING AND WEIGHT CAPACITY DATA**

| Measured Parameter                 | Front | Rear | Third | Total |
|------------------------------------|-------|------|-------|-------|
| Designated Seating Capacity (DSC)  | 3     | 3    | N/A   | 6     |
| Vehicle Capacity Weight (VCW) (kg) |       |      |       | 1455  |
| DSC x 68.0 kg                      |       |      |       | 408   |
| Cargo Weight (RCLW) (kg)           |       |      |       | 136   |

(A)

(B)

**VEHICLE SEAT TYPE**

| Seating Location        | Type Of Seat Pan |       |             |         | Type Of Seat Back |            |         |
|-------------------------|------------------|-------|-------------|---------|-------------------|------------|---------|
|                         | Bucket           | Bench | Split Bench | Contour | Fixed             | Adjustable |         |
|                         |                  |       |             |         |                   | W/ Lever   | W/ Knob |
| Front                   | X                |       |             |         |                   | X          |         |
| Rear or Second Row Seat |                  |       | X           |         | X                 |            |         |
| Third Row seat          | N/A              | N/A   | N/A         | N/A     | N/A               | N/A        | N/A     |

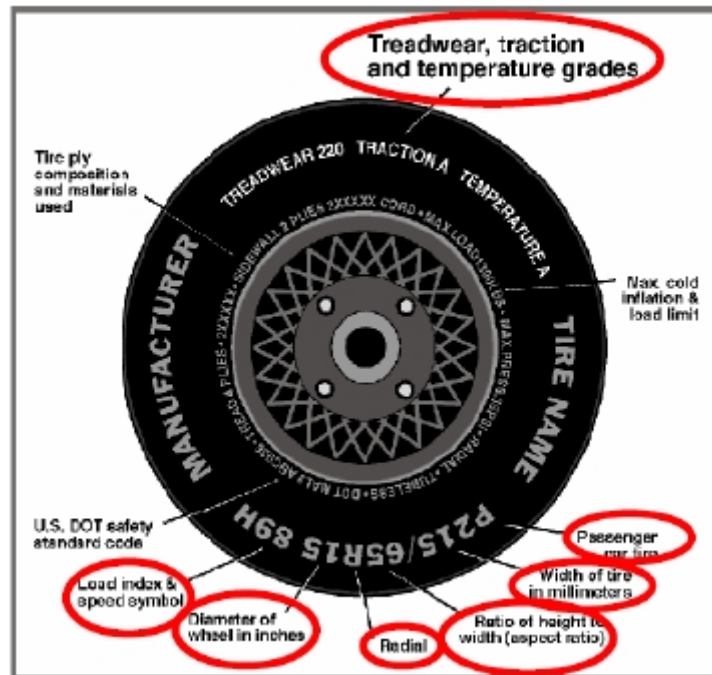


**DATA SHEET NO. 1 ... (CONTINUED)**  
**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024

*Collected for year, make, model, & VIN, all items circled in red, tire manufacturer and tire name*



**VEHICLE TIRE INFORMATION**

| Measured Parameter          | Front                            | Rear                             |
|-----------------------------|----------------------------------|----------------------------------|
| Maximum Tire Pressure (kPa) | 420                              | 550                              |
| Cold Pressure (kPa)         | 420                              | 550                              |
| Recommended Tire Size       | LT245/75R17ER                    | LT245/75R17ER                    |
| Tire Size on Vehicle        | LT245/75R17ER                    | LT245/75R17ER                    |
| Tire Manufacturer           | Firestone                        | Firestone                        |
| Tire Model                  | Transforce HT                    | Transforce HT                    |
| Treadwear                   | N/A                              | N/A                              |
| Traction                    | N/A                              | N/A                              |
| Temperature Grades          | N/A                              | N/A                              |
| Tire Plies Sidewall         | 2 Polyester                      | 2 Polyester                      |
| Tire Plies Body             | 2 Polyester, 2 Steel,<br>1 Nylon | 2 Polyester, 2 Steel,<br>1 Nylon |
| Load Index / Speed Symbol   | 121/118R                         | 121/118R                         |
| Tire Material               | Rubber                           | Rubber                           |
| DOT Safety Code Left        | 17X439F241324                    | 17X439F241324                    |
| DOT Safety Code Right       | 17X439F241324                    | 17X439F241324                    |

**DATA SHEET NO. 1 ... (CONTINUED)**  
**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024

**TIRE PRESSURES**

|                | Units | LF  | RF  | LR  | RR  |
|----------------|-------|-----|-----|-----|-----|
| As Delivered   | kPa   | 380 | 382 | 430 | 430 |
| Tire Placard   | kPa   | 420 | 420 | 550 | 550 |
| Owner's Manual | kPa   | 420 | 420 | 550 | 550 |
| As Tested      | kPa   | 420 | 420 | 550 | 550 |

**TEST VEHICLE WEIGHTS**

|        | Units | As Delivered (UVW) |      |       | As Tested (ATW) |       |       | Fully Loaded |      |       |
|--------|-------|--------------------|------|-------|-----------------|-------|-------|--------------|------|-------|
|        |       | Front              | Rear | Total | Rear            | Total | Total | Front        | Rear | Total |
| Left   | kg    | 841                | 685  |       | 875             | 749   |       | 843          | 780  |       |
| Right  | kg    | 834                | 673  |       | 850             | 739   |       | 832          | 755  |       |
| Ratio  | %     | 55.2               | 44.8 |       | 53.7            | 46.3  |       | 52.2         | 47.8 |       |
| Totals | kg    | 1675               | 1358 | 3033  | 1725            | 1488  | 3213  | 1675         | 1535 | 3210  |

**TARGET TEST WEIGHT CALCULATION**

| Measured Parameter                          | Units | Value |
|---------------------------------------------|-------|-------|
| Total As Delivered Weight (UVW)             | kg    | 3033  |
| Actual Weight of 1 P572V (SID-IIs) ATD Used | kg    | 50    |
| Rated Cargo / Luggage Weight (RCLW)         | kg    | 136   |
| Calculated Vehicle Target Weight (TVTW)     | kg    | 3219  |

**Does the measured As Test Vehicle Weight lie within the required weight range (i.e. Calculated**

**Test Vehicle Target Weight – 4.5 kg to – 9 kg)?**



Yes



No

**TEST VEHICLE ATTITUDES AND CG**

| Measurement Description                                        | Units | As Delivered | As Tested | Fully Loaded | Meets Rqmt*** |
|----------------------------------------------------------------|-------|--------------|-----------|--------------|---------------|
| Driver Door Sill Angle (front-to-rear)*                        | Deg   | -0.95        | -0.80     | -0.80        | Yes           |
| Front Passenger Sill Angle (front-to-rear)*                    | Deg   | -1.50        | -1.4      | -1.35        | Yes           |
| Front Bumper-Line Angle (left-to-right)**                      | Deg   | +0.20        | +0.2      | +0.25        | Yes           |
| Rear Bumper-Line Angle (left-to-right)**                       | Deg   | +0.30        | +0.20     | +0.20        | Yes           |
| Vehicle CG (Aft of Front Axle)                                 | mm    | 1808         | 1871      | 1931         |               |
| Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline) | mm    | 5.5          | 10        | 10           |               |

\* ND = Nose Down (-), NU = Nose Up (+)

\*\* LD = Left Down (-), LU = Left Up (+)

\*\*\* The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements. Indicate "Yes" or "No" for Meets Requirement

**DATA SHEET NO. 1 ... (CONTINUED)**  
**GENERAL TEST AND VEHICLE PARAMETER DATA**

|                                                                 |                              |
|-----------------------------------------------------------------|------------------------------|
| Test Vehicle: <u>2024 Chevrolet Silverado 2500 4 Door Truck</u> | NHTSA No.: <u>M20240101</u>  |
| Test Program: <u>NCAP Side Pole Impact Test</u>                 | Test Date: <u>11/15/2024</u> |

**WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW**

| Component Description                                      | Weight (kg) |
|------------------------------------------------------------|-------------|
| Tailgate Cover                                             | 3           |
| Ballast / Equipment Added                                  | 63.5        |
| Test Height – Adjustable Suspension Setting, if Applicable | N/A         |

**TEST SURFACE MARKING**

|                   | Distance from 75° Impact Location Line (mm) |
|-------------------|---------------------------------------------|
| Fore 25 mm target | 1010                                        |
| Aft 25 mm target  | 1006                                        |

**DATA SHEET NO. 2**  
**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024

**SEAT POSITIONING**

*The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the forward-most, mid-height, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rear-most, lowest, mid-angle position.*

**SCRL ANGLE RANGE**

| Seat                      | SCRL(°) |       |       |
|---------------------------|---------|-------|-------|
|                           | Max     | Min   | Mid   |
| Driver Seat               | Fixed   | Fixed | Fixed |
| Front Passenger Seat      | Fixed   | Fixed | Fixed |
| Front Center Seat         | Fixed   | Fixed | Fixed |
| Struck Side Rear Seat     | Fixed   | Fixed | Fixed |
| Non-Struck Side Rear Seat | Fixed   | Fixed | Fixed |
| Rear Center Seat          | Fixed   | Fixed | Fixed |

**SEAT HEIGHT AND ANGLE**

| Seat                      | As Tested SCRL Angle (Mid) (°) | As Tested SCRP Height (mm) | SCRP Height Position | SCRP Height (mm) |                |              |
|---------------------------|--------------------------------|----------------------------|----------------------|------------------|----------------|--------------|
|                           |                                |                            |                      | Rearmost         | Mid-Fore / Aft | Forward-Most |
| Driver Seat               | Fixed                          | Fixed                      | Max                  |                  |                |              |
|                           |                                |                            | Mid                  |                  |                |              |
|                           |                                |                            | Min                  |                  |                |              |
| Front Passenger Seat      | Fixed                          | Fixed                      | Max                  |                  |                |              |
|                           |                                |                            | Mid                  |                  |                |              |
|                           |                                |                            | Min                  |                  |                |              |
| Front Center Seat*        | Fixed                          | Fixed                      | Max                  |                  |                |              |
|                           |                                |                            | Mid                  |                  |                |              |
|                           |                                |                            | Min                  |                  |                |              |
| Struck Side Rear Seat     | Fixed                          | Fixed                      | Max                  |                  |                |              |
|                           |                                |                            | Mid                  |                  |                |              |
|                           |                                |                            | Min                  |                  |                |              |
| Non-Struck Side Rear Seat | Fixed                          | Fixed                      | Max                  |                  |                |              |
|                           |                                |                            | Mid                  |                  |                |              |
|                           |                                |                            | Min                  |                  |                |              |
| Rear Center Seat*         | Fixed                          | Fixed                      | Max                  |                  |                |              |
|                           |                                |                            | Mid                  |                  |                |              |
|                           |                                |                            | Min                  |                  |                |              |

*\*If applicable*

**DATA SHEET NO. 2 ... (CONTINUED)**  
**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck

NHTSA No.: M20240101

Test Program: NCAP Side Pole Impact Test

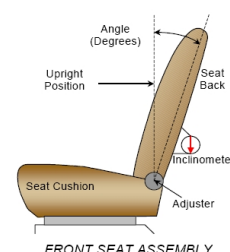
Test Date: 11/15/2024

**SEAT FORE / AFT POSITION**

| Seat                      | Total Fore / Aft Travel |           | Test Position from Forward most Position |          |
|---------------------------|-------------------------|-----------|------------------------------------------|----------|
|                           | mm                      | Detents*  | mm                                       | Detents* |
| Driver Seat               | 260                     | 27 (0-26) | 0                                        | 0        |
| Front Passenger Seat      | 260                     | 27 (0-26) | 0                                        | 0        |
| Front Center Seat         | Fixed                   | Fixed     | Fixed                                    | Fixed    |
| Struck Side Rear Seat     | Fixed                   | Fixed     | Fixed                                    | Fixed    |
| Non-Struck Side Rear Seat | Fixed                   | Fixed     | Fixed                                    | Fixed    |
| Rear Center Seat          | Fixed                   | Fixed     | Fixed                                    | Fixed    |

**SEAT BACK ANGLE ADJUSTMENT**

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1 for the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back are set to match the struck-side rear seat back.



| Seat                       | Total Seat Back Angle Range |          | Test Position from Most Upright |          |
|----------------------------|-----------------------------|----------|---------------------------------|----------|
|                            | Degrees                     | Detents* | Degrees                         | Detents* |
| Driver Seat w/Seated Dummy | 66                          | 34       | 22.15                           | 6        |
| Front Passenger Seat       | 66.1                        | 34       | 22.2                            | 6        |
| Front Center Seat          | Fixed                       | Fixed    | Fixed                           | Fixed    |
| Struck Side Rear Seat      | Fixed                       | Fixed    | Fixed                           | Fixed    |
| Non-Struck Side Rear Seat  | Fixed                       | Fixed    | Fixed                           | Fixed    |
| Rear Center Seat           | Fixed                       | Fixed    | Fixed                           | Fixed    |

**SEAT BELT ANCHORAGE ADJUSTMENT**

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. Zero is defined as the uppermost detent

| Seat        | Total # of Positions | Placed in Position # |
|-------------|----------------------|----------------------|
| Driver Seat | 4 (0-3)              | 0                    |

**HEAD RESTRAINT ADJUSTMENT**

The driver's head restraint is adjusted to the lowest and most full forward in-use position.

| Seat        | Total # of Positions | Placed in Position # |
|-------------|----------------------|----------------------|
| Driver Seat | 9 (0-8)              | Uppermost            |

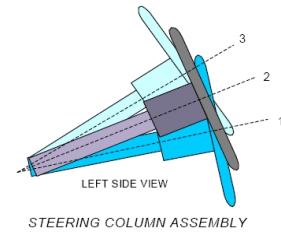
**DATA SHEET NO. 2 ... (CONTINUED)**  
**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024

**STEERING COLUMN POSITIONS**

*Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.*

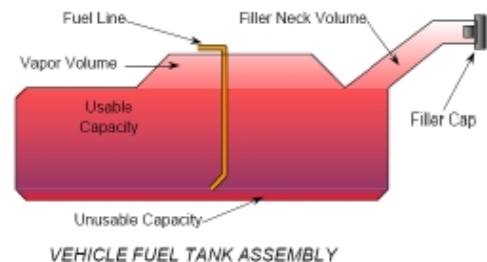


|                                   | Degrees | Fore / Aft Position (mm) |
|-----------------------------------|---------|--------------------------|
| Lowermost - Position No. 1        | 19.9    |                          |
| Geometric center - Position No. 2 | 21.9    |                          |
| Uppermost - Position No. 3        | 23.9    |                          |
| Telescoping Steering Wheel Travel |         | Fixed                    |
| Test Position                     | 21.9    | Fixed                    |

**FUEL PUMP**

*Describe the fuel pump type, details about how it operates, and the location of the fuel filler neck*

The vehicle is equipped with an electric fuel pump. The fuel filler neck is on the left side of the vehicle. The pump creates positive pressure in the fuel lines, pushing the gasoline to the engine. See form 1 for more information.



**FUEL TANK CAPACITY**

| Description                                             | Liters |
|---------------------------------------------------------|--------|
| Usable Capacity of "Standard Tank" - see Form No. 1     | 136.3  |
| Usable Capacity of "Optional Tank" - see Form No. 1     | N/A    |
| Usable Capacity of "Standard Tank" - see Owner's Manual | 136.3  |
| Usable Capacity of "Optional Tank" - see Owner's Manual | N/A    |
| 93% of Usable Capacity                                  | 126.8  |
| Actual Amount of Solvent Used in Test                   | 126.8  |
| 1/3 of Usable Capacity                                  | 45.4   |

Is the Actual Amount of Solvent Used in the test equal to 93%  $\pm$ 1% of the Usable

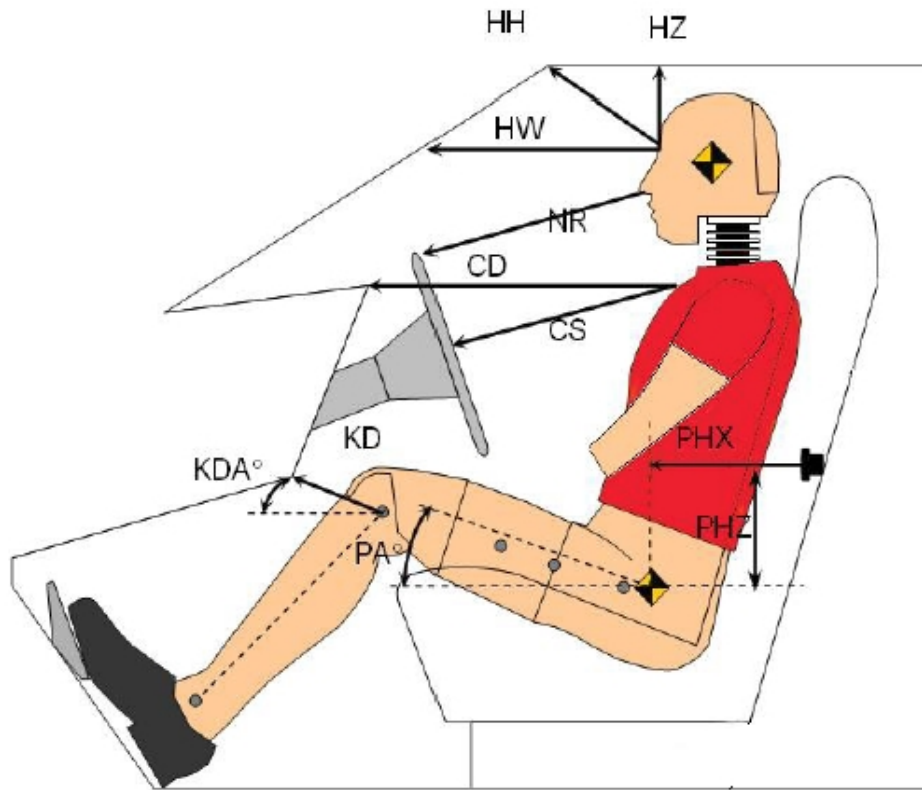
Capacity stated in Form No. 1?

☒ Yes ☐ No

**DATA SHEET NO. 3**  
**DUMMY LONGITUDINAL CLEARANCE DIMENSIONS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024



**Left Side View**

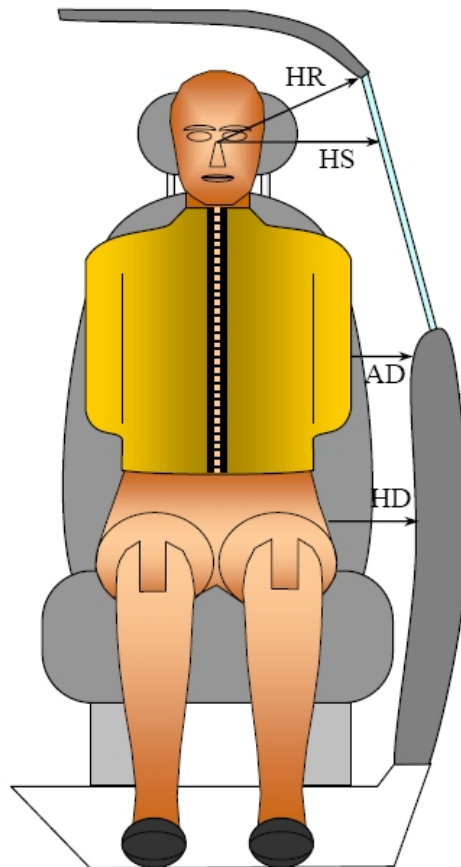
**DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION**

| Driver Code     | Description                   | Driver<br>(Serial No. 300) |           |
|-----------------|-------------------------------|----------------------------|-----------|
|                 |                               | Length (mm)                | Angle (°) |
| HH              | Head to Header                | 379                        |           |
| HW              | Head to Windshield            | 677                        |           |
| HZ              | Head to Roof Liner            | 282                        |           |
| NR              | Nose to Rim                   | 254                        |           |
| CD              | Chest to Dash                 | 450                        |           |
| CS              | Chest to Steering Wheel       | 208                        |           |
| KD(L) / KDA(L)° | Left Knee to Dash             | 125                        | 34.3      |
| KD(R) / KDA(R)° | Right Knee to Dash            | 112                        | 35.0      |
| PAX°            | Pelvic Tilt Angle (X-Axis)    |                            | 19.2      |
| PAY°            | Pelvic Tilt Angle (Y-Axis)    |                            | 0.3       |
| PHX             | Hip Point to Striker (X-Axis) | 355                        |           |
| PHZ             | Hip Point to Striker (Z-Axis) | 76                         |           |

**DATA SHEET NO. 4**  
**DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024



*FRONT VIEW OF DUMMY*

**DUMMY LATERAL CLEARANCE DIMENSION INFORMATION**

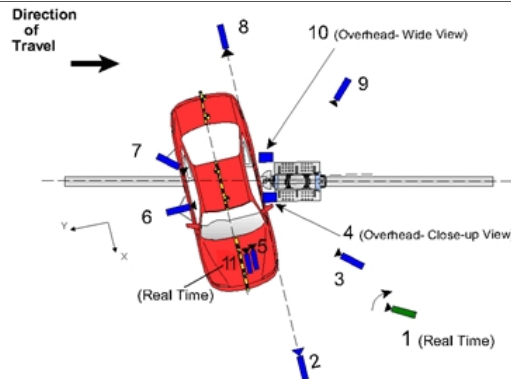
| Code | Measurement Description | Units | Driver – Length<br>(Serial No. 300) |
|------|-------------------------|-------|-------------------------------------|
| HR   | Head to Side Header     | mm    | 296                                 |
| HS   | Head to Side Window     | mm    | 395                                 |
| AD   | Arm to Door             | mm    | 196                                 |
| HD   | H-Point to Door         | mm    | 179                                 |



**DATA SHEET NO. 5**  
**CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
Test Date: 11/15/2024



**CAMERA LOCATIONS AND DATA**

| No. | Camera View                                | Location (mm) |       |       | Lens (mm) | Speed (fps) |
|-----|--------------------------------------------|---------------|-------|-------|-----------|-------------|
|     |                                            | X             | Y     | Z     |           |             |
| 1   | Real-time (24 - 30 fps) pan view of impact |               |       |       | Zoom      | 30          |
| 2   | Front ground level - impact view           | 7760          | 0     | -1520 | 28        | 1000        |
| 3   | Impact side 45° - forward pole view        | 5020          | -810  | -1423 | 24        | 1000        |
| 4   | Overhead Close-up view of impact           | 0             | 0     | -9375 | 28        | 1000        |
| 5   | Onboard - dummy front view                 |               |       |       | 25        | 1000        |
| 6   | Onboard - dummy side view                  |               |       |       | 12.5      | 1000        |
| 7   | Onboard - dummy rear oblique view          |               |       |       | 12.5      | 1000        |
| 8   | Rear ground level - impact view            | -8910         | 0     | -1503 | 28        | 1000        |
| 9   | Impact side 45° - rearward pole view       | -3921         | -4104 | -1532 | 24        | 1000        |
| 10  | Overhead wide - view of impact             | 0             | 0     | -9375 | 12.5      | 1000        |
| 11  | Real-time (24 - 30 fps) - dummy front view |               |       |       | Zoom      | 30          |

Notes: Reference - From Point of Impact for X and Y; from Ground for Z  
+X = Forward of vehicle, +Y = Right of vehicle, +Z = Down  
\* All measurements accurate to  $\pm 6$  mm. Vehicle is at a 75° angle to the rigid pole.

If applicable, explain why camera(s) did not operate as intended: All cameras operated as intended.

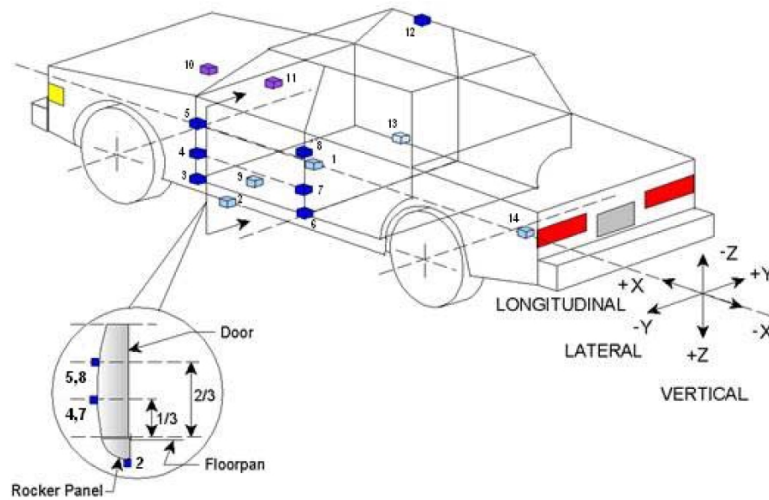
**INSTRUMENTATION**

| Description                      | Number of Channels |
|----------------------------------|--------------------|
| Driver Dummy Channels            | 16                 |
| Vehicle Structure Accelerometers | 18                 |
| Pole Load Cells                  | 8                  |
| Total                            | 42                 |

# **DATA SHEET NO. 6** **TEST VEHICLE ACCELEROMETER LOCATIONS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
Test Date: 11/15/2024



## **TEST VEHICLE ACCELEROMETER LOCATIONS**

| No. | Accelerometer Location | Coordinates (mm) |      |       |
|-----|------------------------|------------------|------|-------|
|     |                        | X                | Y    | Z     |
| 1   | Vehicle CG             | 3995             | 47   | -637  |
| 2   | Left Floor Sill        | 4173             | -744 | -121  |
| 3   | A-Pillar Sill          | 4645             | -744 | -203  |
| 4   | A-Pillar Low           | 4757             | -735 | -374  |
| 5   | A-Pillar Mid           | 4584             | -729 | -963  |
| 6   | B-Pillar Sill          | 3514             | -760 | -169  |
| 7   | B-Pillar Low           | 3536             | -762 | -457  |
| 8   | B-Pillar Mid           | 3518             | -748 | -815  |
| 9   | Driver Seat Track      | 3849             | -638 | -220  |
| 10  | Engine Top             | 5324             | 44   | -649  |
| 11  | Firewall               | 5131             | -1   | -788  |
| 12  | Right Roof             | 3583             | 668  | -1433 |
| 13  | Right Floor Sill       | 4171             | 746  | -118  |
| 14  | Rear Floor Pan         | 1319             | -6   | -364  |

Reference: X – Rear surface of vehicle (+ forward)  
Y – Vehicle centerline (+ to right)  
Z – Ground plane (+ down)

**DATA SHEET NO. 7**  
**RIGID POLE LOAD CELL DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
Test Date: 11/15/2024

**POLE BARRIER**



**RIGID POLE LOAD CELL LOCATION**

| ID | Units | Height From Ground |
|----|-------|--------------------|
| 1  | mm    | 200                |
| 2  | mm    | 590                |
| 3  | mm    | 750                |
| 4  | mm    | 1075               |
| 5  | mm    | 1260               |
| 6  | mm    | 1740               |
| 7  | mm    | 1920               |
| 8  | mm    | 2300               |

**DATA SHEET NO. 8  
POST-TEST OBSERVATIONS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
Test Date: 11/15/2024

**TEST DUMMY INFORMATION AND CONTACT POINTS**

| Dummy Body Part   | Driver Seat Dummy (SID-IIs)     |
|-------------------|---------------------------------|
| Face              | Curtain Airbag                  |
| Top of Head       | Curtain Airbag & Headrest       |
| Left Side of Head | Curtain Airbag                  |
| Back of Head      | Head Restraint & Curtain Airbag |
| Left Shoulder     | Seatback & Torso/Pelvis Airbag  |
| Upper Torso       | Seatback & Torso/Pelvis Airbag  |
| Lower Torso       | Seatback & Torso/Pelvis Airbag  |
| Left Hip          | Torso/Pelvis Airbag & Seat Pan  |
| Left Knee         | Door Trim                       |

**POST-TEST DOOR PERFORMANCE**

| Description                                                 | Struck Side |      | Non-Struck Side |      | Rear Hatch/Other |
|-------------------------------------------------------------|-------------|------|-----------------|------|------------------|
|                                                             | Front       | Rear | Front           | Rear |                  |
| Remained Closed and Operational                             | No          | No   | Yes             | Yes  | Yes              |
| Total Separation from Vehicle at Hinges or Latches          | No          | No   | No              | No   | No               |
| Latch or Hinge Systems Pulled Out of Their Anchorages       | No          | No   | No              | No   | No               |
| Disengaged from Latched Position                            | No          | No   | No              | No   | No               |
| Latch Separated from Striker                                | No          | No   | No              | No   | No               |
| Jammed Shut                                                 | Yes         | Yes  | No              | No   | No               |
| If Door Opened at Striker, Width of Opening at Striker (mm) | 0           | 0    | 0               | 0    | 0                |

**POST-TEST SEAT PERFORMANCE**

| Description                              | Struck Side |      | Non-Struck Side |      |
|------------------------------------------|-------------|------|-----------------|------|
|                                          | Front       | Rear | Front           | Rear |
| Seat Movement Along Seat Track           | No          | No   | No              | No   |
| Seat Disengagement from Floor Pan        | No          | No   | No              | No   |
| Seat Back Movement from Initial Position | No          | No   | No              | No   |
| Seat Back Collapse                       | No          | No   | No              | No   |

**DATA SHEET NO. 8 ... (CONTINUED)**  
**POST-TEST OBSERVATIONS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024

**POST-TEST STRUCTURAL OBSERVATIONS**

| Critical Areas of Performance | Observations and Conclusions                                         |
|-------------------------------|----------------------------------------------------------------------|
| Pillar Performance            | A-Pillar, B-Pillar and C-Pillars Buckled                             |
| Sill Separation               | 200mm of sill separation at impact zone                              |
| Windshield Damage             | Cracked throughout and separated along driver side A-pillar and roof |
| Side Window Damage            | Driver window shattered                                              |
| Other Notable Effects         | None                                                                 |

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

| Restraint Type                      | Struck Side Driver |          | Struck Side Rear Passenger |          |
|-------------------------------------|--------------------|----------|----------------------------|----------|
|                                     | Mounted            | Deployed | Mounted                    | Deployed |
| Front Airbag                        | Yes                | No       |                            |          |
| Knee Airbag                         | No                 | N/A      |                            |          |
| Side Airbag 1 - Curtain             | Yes                | Yes      | Yes                        | Yes      |
| Side Airbag 2 - Torso/Pelvis Airbag | Yes                | Yes      | No                         | N/A      |
| Seat Belt Pretensioner              | Yes                | Yes      | No                         | N/A      |
| Seat Belt Load Limiter              | Yes                | Yes      | No                         | N/A      |
| Other                               |                    |          |                            |          |

**VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA**

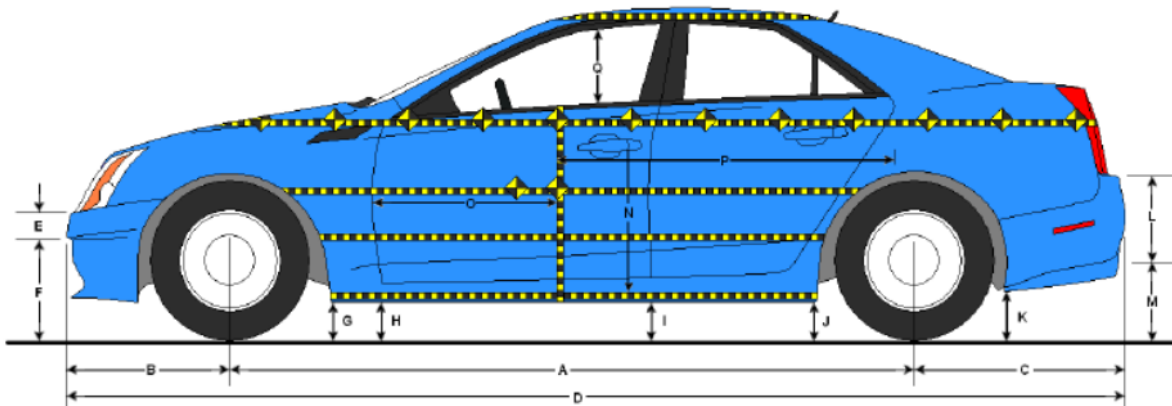
| Measured Parameter                                                         | Units | Tolerance    | Value |
|----------------------------------------------------------------------------|-------|--------------|-------|
| Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt           | mm    |              | 1268  |
| Actual Impact Point - Aft of Front Axle                                    | mm    |              | 1268  |
| Horizontal Offset (+ forward / - rearward)                                 | mm    | +/- 38*      | 0     |
| Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion | deg   | 75 +/- 3     | 75    |
| Trap No. 1 Velocity - Primary                                              | kph   | 31.4 to 33.0 | 32.29 |
| Trap No. 2 Velocity - Redundant                                            | kph   | 31.4 to 33.0 | 32.37 |

\*Of Intended Impact Point

**DATA SHEET NO. 9**  
**TEST VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
Test Date: 11/15/2024



**LEFT SIDE VIEW**

**VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION**

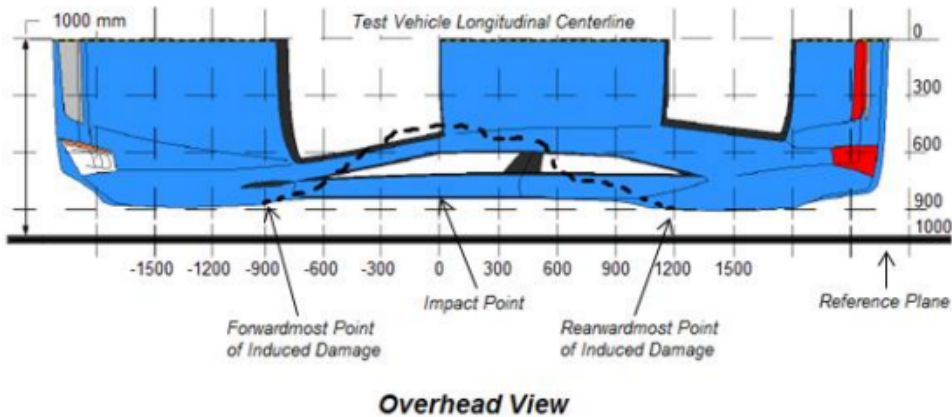
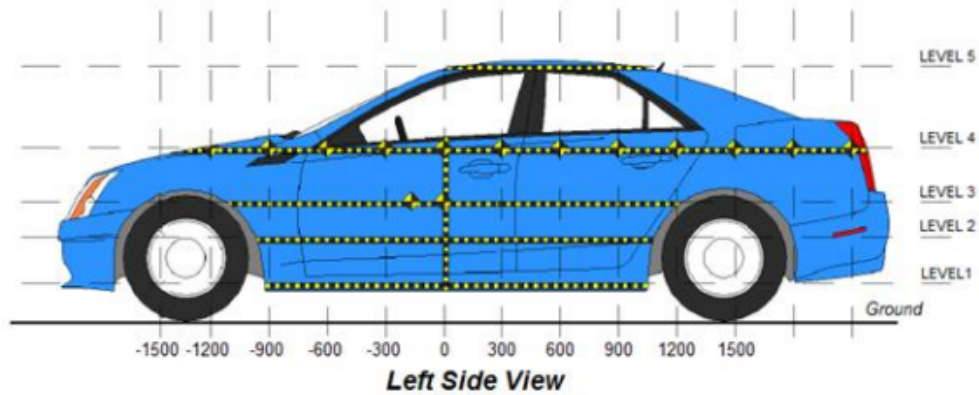
| No. | Measurement Description                    | Pre-Test | Post-Test | Change |
|-----|--------------------------------------------|----------|-----------|--------|
| A   | Vehicle Wheelbase                          | 4039     | 4015      | -24    |
| B   | Front Axle to FSOV                         | 1034     | 1039      | 5      |
| C   | Rear Axle to RSOV                          | 1288     | 1281      | -7     |
| D   | Total Length at Centerline                 | 6360     | 6335      | -25    |
| E   | Front Bumper Thickness                     | 82       | 82        | 0      |
| F   | Front Bumper Bottom to Ground              | 600      | 642       | 42     |
| G   | Sill Height at Front Wheel Well            | 434      | 424       | -10    |
| H   | Sill Height at Front Door Leading Edge     | 428      | 420       | -8     |
| I   | Sill Height at B Pillar                    | 448      | 464       | 16     |
| J1  | Sill Height at Rear Wheel Well             | 500      | 510       | 10     |
| J2  | Pinch Weld Height at Rear Wheel Well       | 469      | 482       | 13     |
| K   | Sill Height Aft of Rear Wheel Well         | 530      | 563       | 33     |
| L   | Rear Bumper Thickness                      | 62       | 62        | 0      |
| M   | Rear Bumper Bottom to Ground               | 581      | 596       | 15     |
| N   | Sill Height to Bottom of Front Window Sill | 829      | 825       | -4     |
| O   | Front Door Leading Edge to Impact CL       | 694      | 559       | -135   |
| P   | Rear Door Trailing Edge to Impact CL       | 1549     | 1442      | -107   |
| Q   | Front Window Opening                       | 477      | 469       | -8     |
| R   | Right Side Length                          | 6279     | 6260      | -19    |
| S   | Left Side Length                           | 6282     | 6250      | -32    |
| T   | Vehicle Width at B-Pillars                 | 2036     | 1972      | -64    |
| U   | Front Wheel Track width                    | 1740     | 1725      | -15    |
| V   | Rear Wheel Track Width                     | 1745     | 1743      | -2     |

\* All measurements in mm with tolerance of  $\pm 3$ mm

# **DATA SHEET NO.10** **TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024



## **MAXIMUM EXTERIOR CRUSH MEASUREMENTS**

| Level | Measurement Description | Units | Height Above Ground | Maximum Exterior Static Crush | Distance from Impact |
|-------|-------------------------|-------|---------------------|-------------------------------|----------------------|
| 1     | Sill Top                | mm    | 520                 | 376                           | 0                    |
| 2     | Driver H-Point          | mm    | 1014                | 448                           | 0                    |
| 3     | Mid-Door                | mm    | 957                 | 451                           | 0                    |
| 4     | Window Sill             | mm    | 1358                | 383                           | 0                    |
| 5     | Window Top              | mm    | 1963                | 117                           | 150                  |

**NOTE:** The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.

**DATA SHEET NO.10 ... (CONTINUED)**  
**TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024

**EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL**

|       | Pre-Test |      |      |     |     | Post-Test |      |      |      |     | Crush |     |     |     |     |
|-------|----------|------|------|-----|-----|-----------|------|------|------|-----|-------|-----|-----|-----|-----|
|       | 1        | 2    | 3    | 4   | 5   | 1         | 2    | 3    | 4    | 5   | 1     | 2   | 3   | 4   | 5   |
| -1500 |          |      |      |     |     |           |      |      |      |     |       |     |     |     |     |
| -1350 |          |      |      |     |     |           |      |      |      |     |       |     |     |     |     |
| -1200 |          |      |      |     |     |           |      |      |      |     |       |     |     |     |     |
| -1050 |          |      |      | 938 |     |           |      |      | 1005 |     |       |     |     | -67 |     |
| -900  |          |      | 1025 | 942 |     |           |      | 1041 | 984  |     |       |     | -16 | -42 |     |
| -750  |          | 1017 | 1017 | 945 |     |           | 1008 | 1012 | 949  |     |       | 9   | 5   | -4  |     |
| -600  | 952      | 1008 | 1009 | 944 |     | 946       | 952  | 951  | 920  |     | 6     | 56  | 58  | 24  |     |
| -450  | 928      | 1006 | 1008 | 938 |     | 787       | 856  | 852  | 837  |     | 141   | 150 | 156 | 101 |     |
| -300  | 916      | 1009 | 1010 | 943 |     | 697       | 760  | 757  | 753  |     | 219   | 249 | 253 | 190 |     |
| -150  | 916      | 1011 | 1012 | 949 |     | 613       | 661  | 660  | 663  |     | 303   | 350 | 352 | 286 |     |
| 0     | 918      | 1014 | 1015 | 954 |     | 542       | 566  | 564  | 571  |     | 376   | 448 | 451 | 383 |     |
| 150   | 919      | 1016 | 1016 | 956 | 671 | 601       | 583  | 583  | 598  | 554 | 318   | 433 | 433 | 358 | 117 |
| 300   | 919      | 1017 | 1018 | 960 | 684 | 727       | 716  | 717  | 721  | 605 | 192   | 301 | 301 | 239 | 79  |
| 450   | 919      | 1018 | 1019 | 961 | 692 | 785       | 858  | 859  | 846  | 643 | 134   | 160 | 160 | 115 | 49  |
| 600   | 919      | 1018 | 1018 | 962 | 695 | 818       | 934  | 931  | 897  | 668 | 101   | 84  | 87  | 65  | 27  |
| 750   | 918      | 1017 | 1018 | 962 | 698 | 838       | 944  | 941  | 907  | 676 | 80    | 73  | 77  | 55  | 22  |
| 900   | 916      | 1017 | 1017 | 963 | 698 | 850       | 953  | 951  | 917  | 676 | 66    | 64  | 66  | 46  | 22  |
| 1050  | 913      | 1016 | 1016 | 961 | 697 | 859       | 962  | 959  | 925  | 674 | 54    | 54  | 57  | 36  | 23  |
| 1200  | 910      | 1014 | 1014 | 962 | 696 | 866       | 970  | 967  | 934  | 671 | 44    | 44  | 47  | 28  | 25  |
| 1350  |          | 1012 | 1012 | 960 | 692 |           | 978  | 976  | 943  | 666 |       | 34  | 36  | 17  | 26  |
| 1500  |          |      | 1010 | 960 | 679 |           |      | 984  | 951  | 651 |       |     | 26  | 9   | 28  |

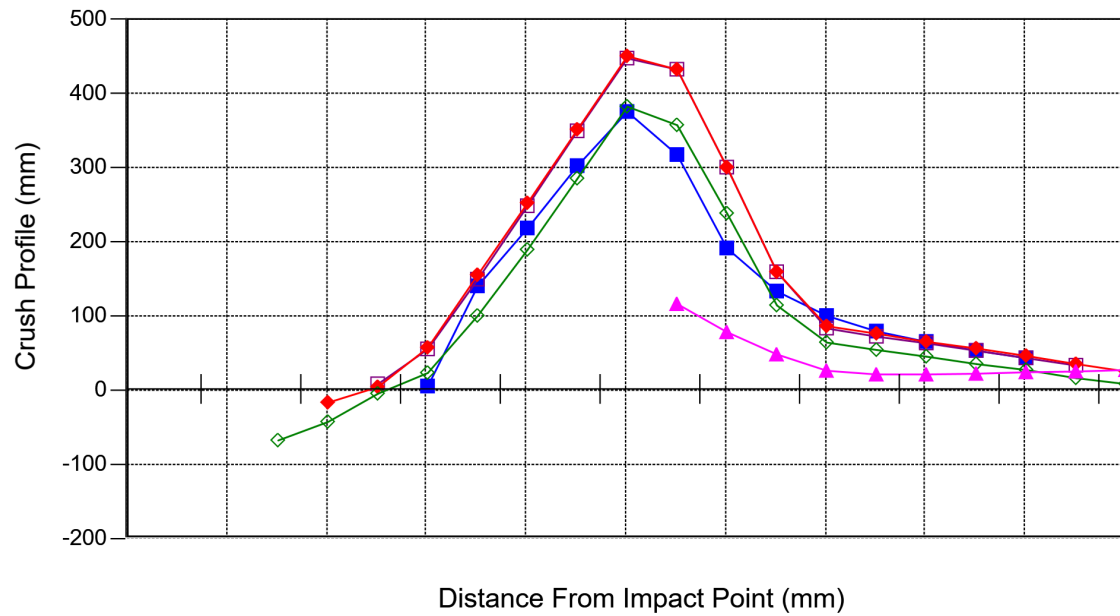
**NOTE:** Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point. The final distance from impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy's head.



# **DATA SHEET NO.10 ... (CONTINUED)** **TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024



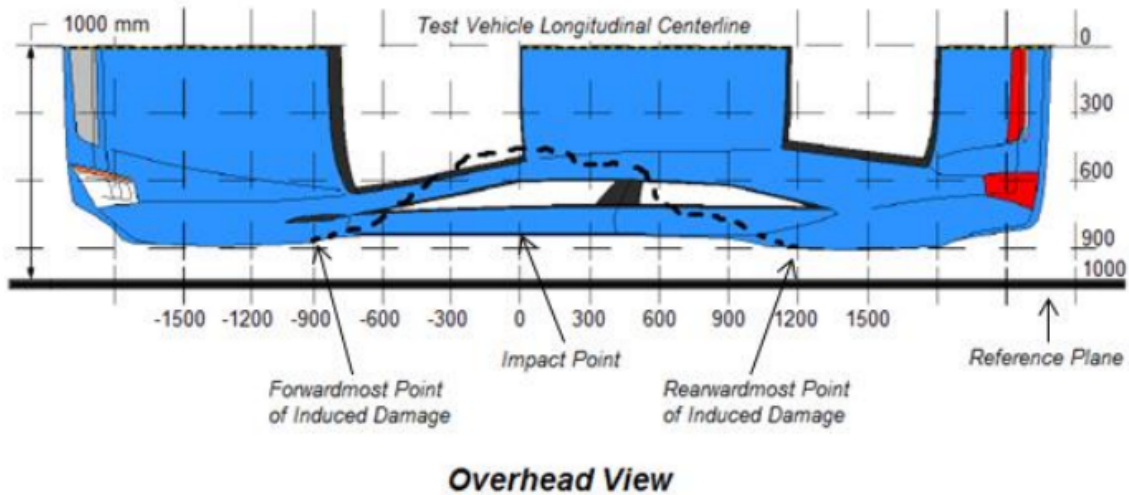
**Vehicle Exterior Crush Measurements - Visual Representation**

# **DATA SHEET NO.11** **VEHICLE DAMAGE PROFILE DISTANCES**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
 Test Date: 11/15/2024

For guidance regarding damage profile distance measurements, please refer to the latest version of the *NHTSA Test Reference Guide, Volume 1: Vehicle Tests*.



## **VEHICLE DAMAGE PROFILE DISTANCES**

| DPD | Distance From Impact Point (mm) | Level | Post-Test (mm) | Pre-Test (mm) | Crush (mm) |
|-----|---------------------------------|-------|----------------|---------------|------------|
| 1   | -900                            | 3     | -41            | -25           | -16        |
| 2   | -420                            | 3     | 167            | -8            | 175        |
| 3   | 60                              | 3     | 428            | -15           | 443        |
| 4   | 540                             | 3     | 98             | -18           | 116        |
| 5   | 1020                            | 3     | 43             | -16           | 59         |
| 6   | 1500                            | 3     | 16             | -10           | 26         |

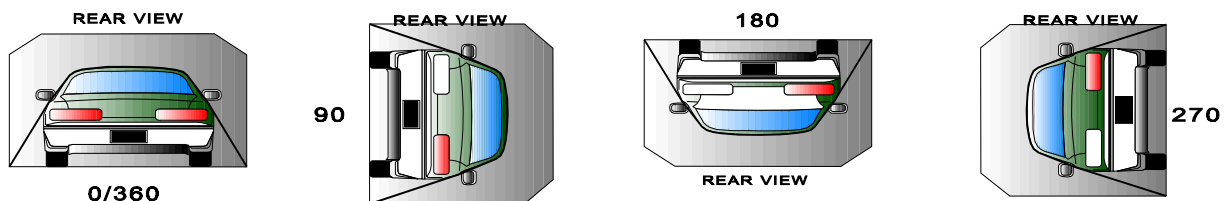
**DATA SHEET NO.12**  
**FMVSS NO.301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck NHTSA No.: M20240101  
 Test Program: NCAP Side Pole Impact Test Test Date: 11/15/2024

Test Time: 9:21 AM Temperature: 21 °C

A. From impact until vehicle motion ceases: 0 oz  
 (Maximum allowable is 1 oz.)  
 B. For the 5-minute period after motion ceases: 0 oz  
 (Maximum allowable is 5 oz.)  
 C. For the following 25 minutes: 0 oz  
 (Maximum allowable is 1 oz.)

D. Spillage Detail: No Spillage



**ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS**

| Test Phase   | Rotation Time | Hold Time | Total Time |
|--------------|---------------|-----------|------------|
| 0° to 90°    | 66            | 300       | 366        |
| 90° to 180°  | 63            | 300       | 363        |
| 180° to 270° | 68            | 300       | 368        |
| 270° to 360° | 67            | 300       | 367        |

**FMVSS 301 SPILLAGE TABLE**

| Test Phase   | First 5 Minutes | Sixth Minute | Seventh Minute | Eighth Minute |
|--------------|-----------------|--------------|----------------|---------------|
| 0° to 90°    | 0               | 0            | 0              |               |
| 90° to 180°  | 0               | 0            | 0              |               |
| 180° to 270° | 0               | 0            | 0              |               |
| 270° to 360° | 0               | 0            | 0              |               |

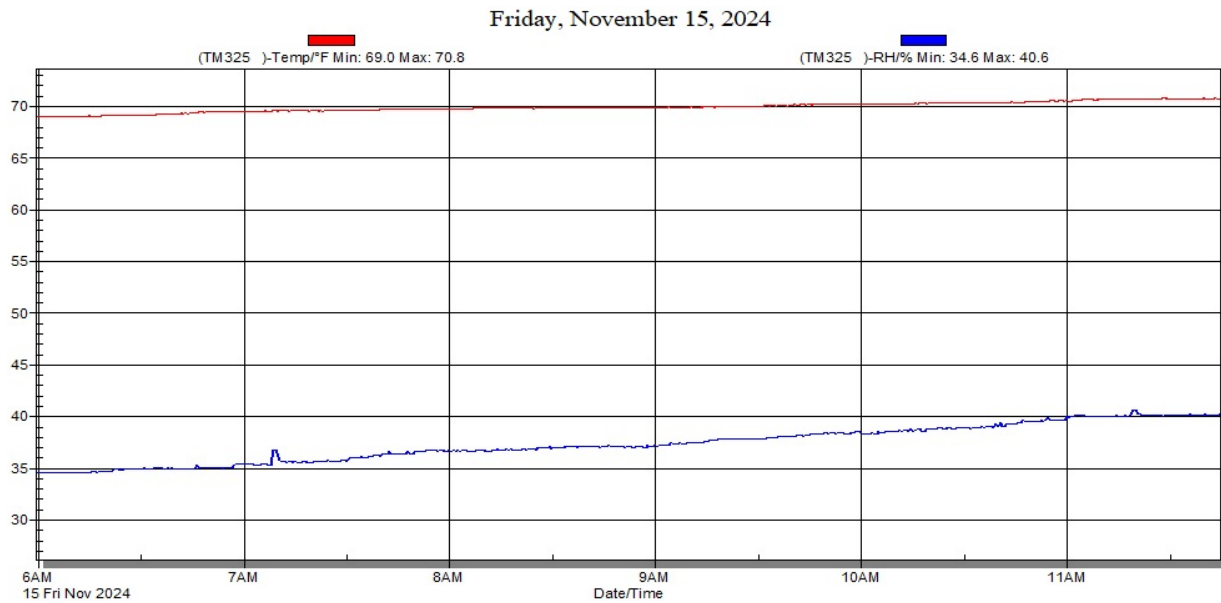
**SOLVENT SPILLAGE LOCATION TABLE**

| Test Phase   | Spillage Location |
|--------------|-------------------|
| 0° to 90°    | None              |
| 90° to 180°  | None              |
| 180° to 270° | None              |
| 270° to 360° | None              |

**DATA SHEET NO. 13**  
**DUMMY / VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA**

Test Vehicle: 2024 Chevrolet Silverado 2500 4 Door Truck  
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20240101  
Test Date: 11/15/2024



***Temperature and Humidity Stabilization Chart/Data for Dummies and Test Vehicle***

**APPENDIX A**  
**PHOTOGRAPHS**

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M20240101

**Figure A-1: As Delivered Right Front  $\frac{3}{4}$  View of Test Vehicle**



M20240101

**Figure A-2: As Delivered Left Rear  $\frac{3}{4}$  View of Test Vehicle**





**Figure A-3: Pre-Test Frontal View of Test Vehicle**



**Figure A-4: Post-Test Frontal View of Test Vehicle**





**Figure A-5: Pre-Test Left Front  $\frac{3}{4}$  View of Test Vehicle**



**Figure A-6: Post-Test Left Front  $\frac{3}{4}$  View of Test Vehicle**





**Figure A-7: Pre-Test Left Side View of Test Vehicle**



**Figure A-8: Post-Test Left Side View of Test Vehicle**





**Figure A-9: Pre-Test Left Rear  $\frac{3}{4}$  View of Test Vehicle**



**Figure A-10: Post-Test Left Rear  $\frac{3}{4}$  View of Test Vehicle**





**Figure A-11: Pre-Test Rear View of Test Vehicle**



**Figure A-12: Post-Test Rear View of Test Vehicle**



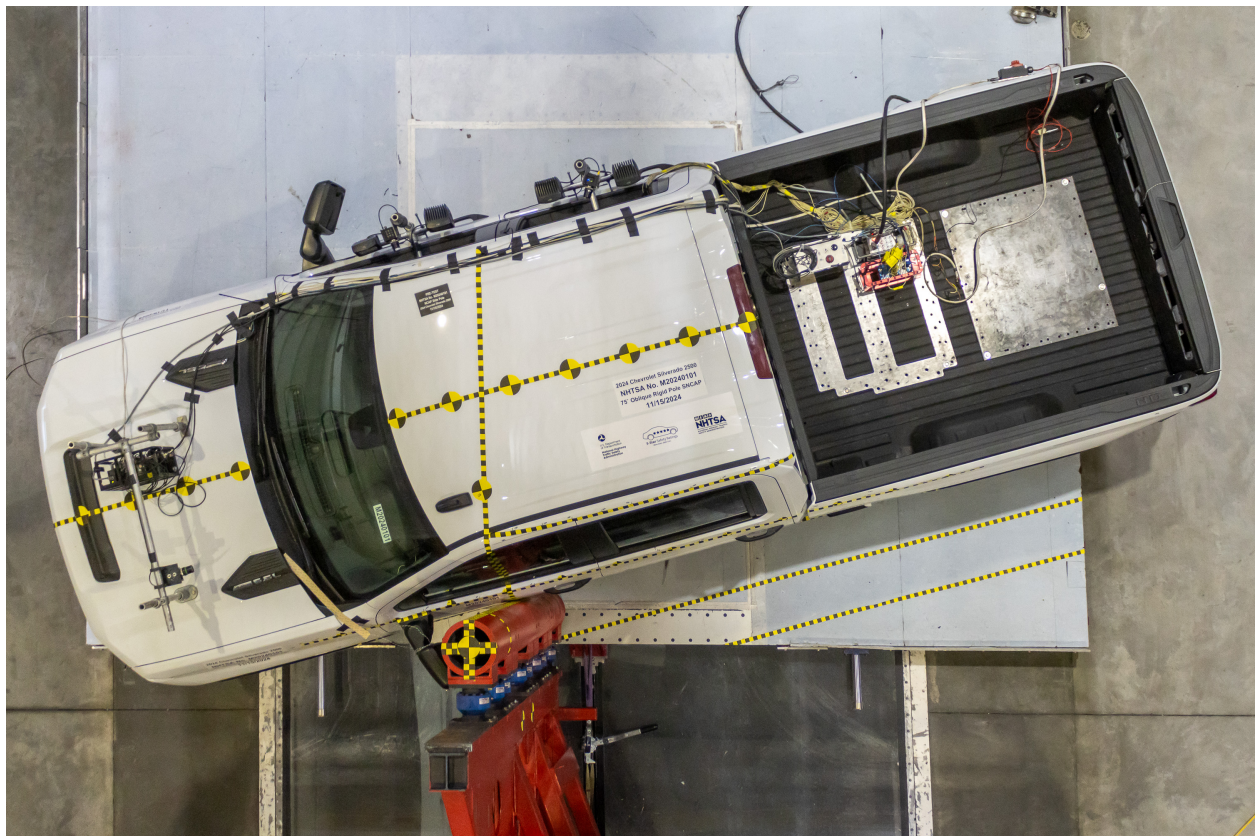


**Figure A-13: Pre-Test Right Side View of Test Vehicle**

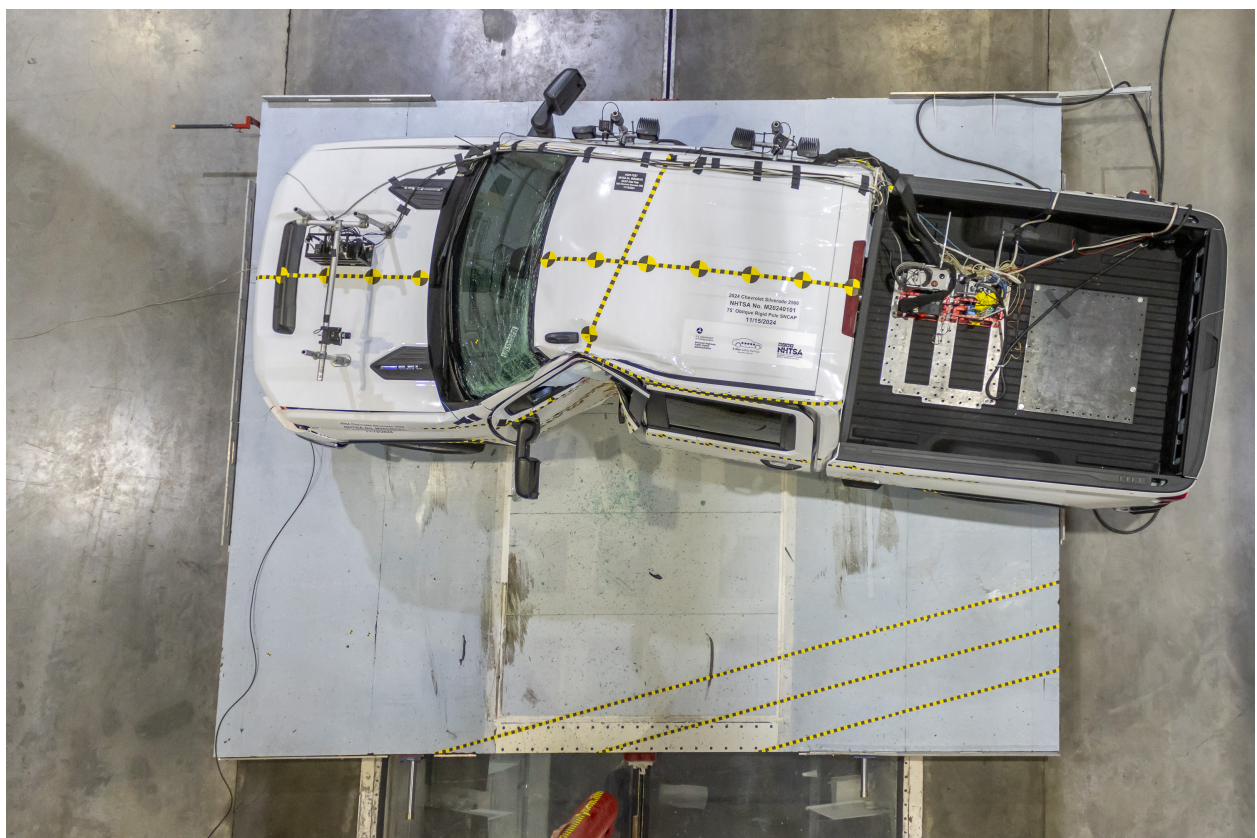


**Figure A-14: Post-Test Right Side View of Test Vehicle**





**Figure A-15: Pre-Test Overhead View of Test Area**



**Figure A-16: Post-Test Overhead View of Test Area**





**Figure A-17: Pre-Test Left Side View of Pole Positioned Against Side of Vehicle**



**Figure A-18: Pre-Test Right Side View of Pole Positioned Against Side of Vehicle**





Figure A-19: Pre-Test Close-Up View of Impact Point Target



Figure A-20: Post-Test Close-Up View of Impact Point Target Showing Impact Location





**Figure A-21: Pre-Test Front Close-Up View of Dummy Head and Chest**



**Figure A-22: Post-Test Front Close-Up View of Dummy**





**Figure A-23: Pre-Test Left Side View of Dummy Showing Belt and Chalking**



**Figure A-24: Pre-Test Left Side View of Dummy Shoulder and Door Top View**





**Figure A-25: Post-Test Left Side View of Dummy Shoulder and Door Top View**



**Figure A-26: Pre-Test Frontal View of Seat Back Prior to Dummy Positioning**





**Figure A-27: Pre-Test Frontal Close-Up View of Dummy Head / Shoulders in Relation to Head Restraint**



**Figure A-28: Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning**





**Figure A-29: Pre-Test Overhead View of Dummy Thighs on Seat Pan**



**Figure A-30: Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket**





Figure A-31: Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level



Figure A-32: Pre-Test Placement of Dummy's Feet





**Figure A-33: Pre-Test View of Belt Anchorage for Dummy**



**Figure A-34: Pre-Test Left Side View of Steering Wheel**





Figure A-35: Pre-Test View of Disengaged Parking Brake

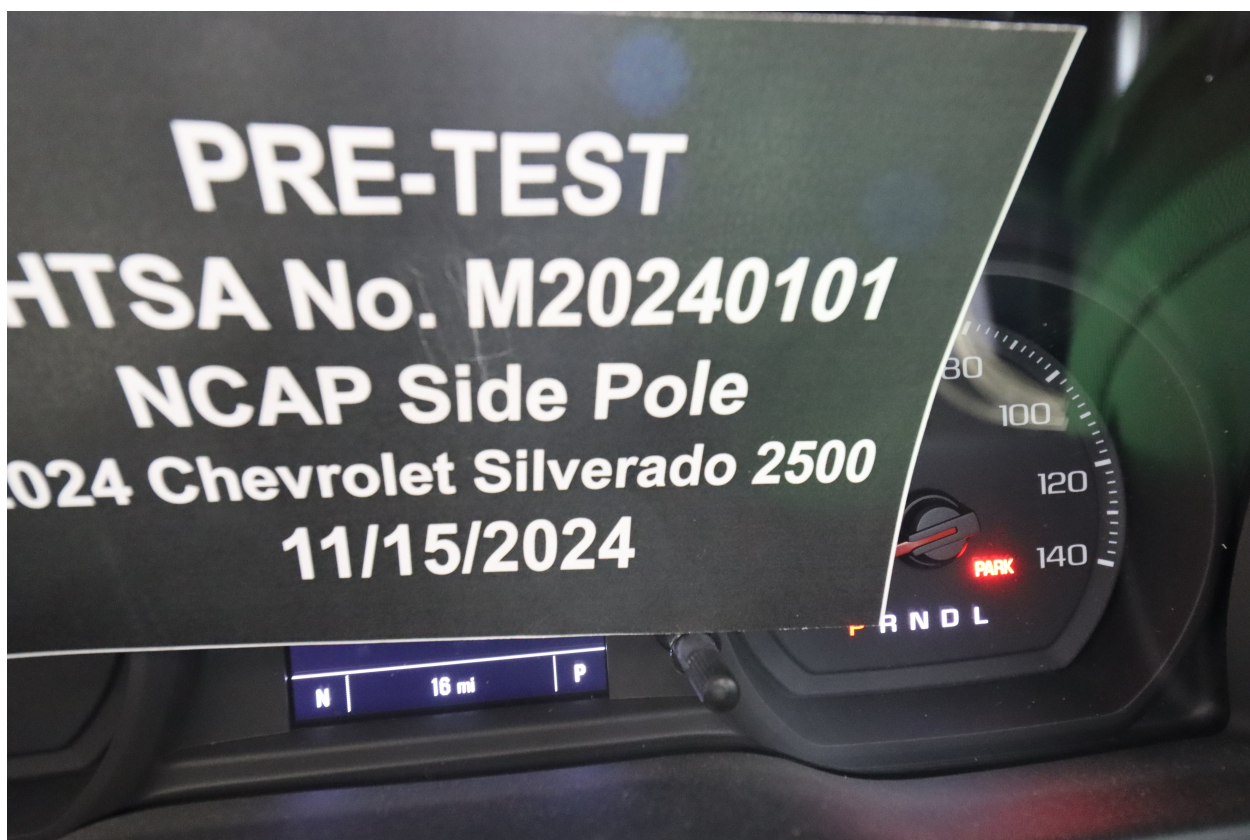


Figure A-36: Pre-Test View of Parking Brake





**Figure A-37: Pre-Test Close-Up Left Side View of Driver Seat Track**



**Figure A-38: Pre-Test Close-Up Left Side View of Driver Seat Back**





Figure A-39: Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Figure A-40: Pre-Test Dummy and Door Clearance View





**Figure A-41: Post-Test Dummy and Door Clearance View**



**Figure A-42: Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment**





**Figure A-43: Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment**



**Figure A-44: Pre-Test Inner Door Panel View**





**Figure A-45: Post-Test Inner Door Panel View Showing Dummy Contact Location**



**Figure A-46: Post-Test Dummy Close-Up Head Contact with Vehicle Interior View**





**Figure A-47: Post-Test Dummy Close-Up Head Contact with Side Airbag View**

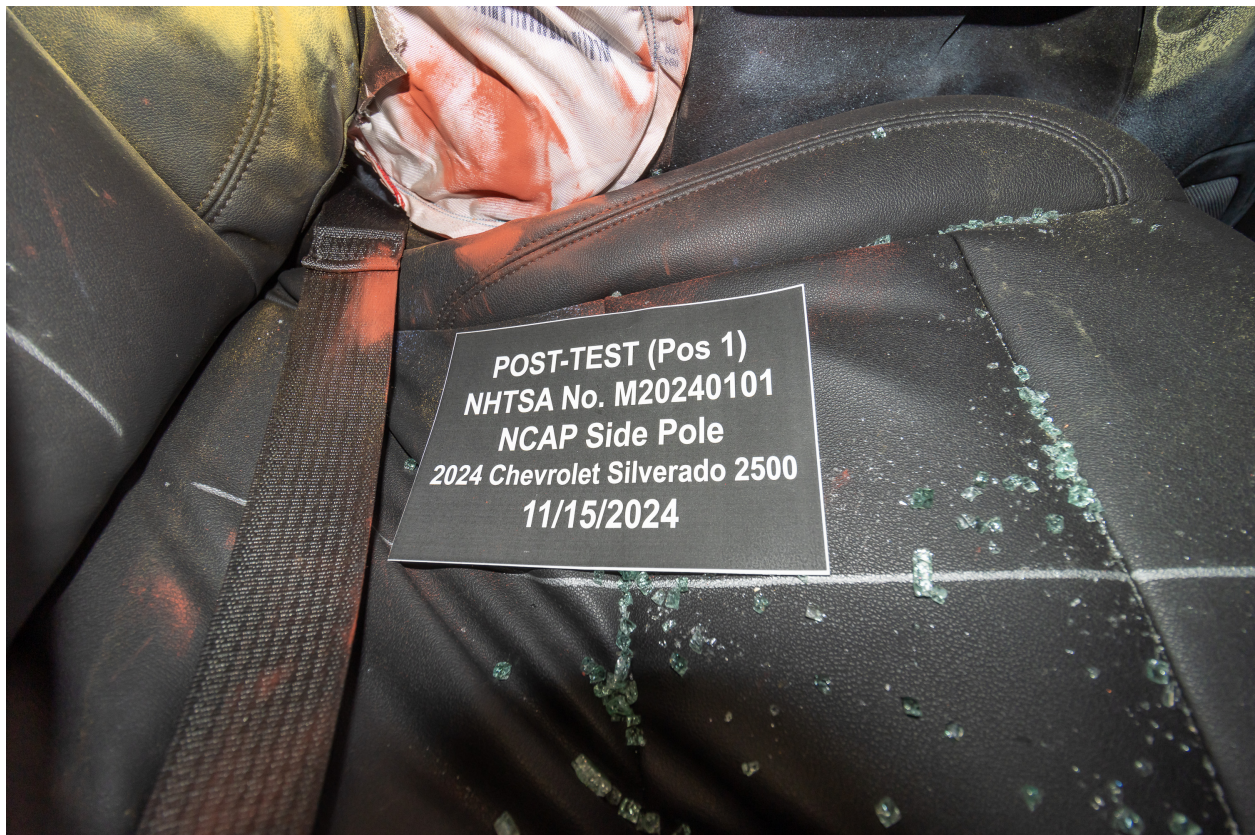


**Figure A-48: Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View**





**Figure A-49: Post-Test Dummy Close-Up Torso Contact with Side Airbag View**



**Figure A-50: Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View**





**Figure A-51: Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View**



**Figure A-52: Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View**





**Figure A-53: Pre-Test Right Side View of Dummy and Rear Seat of Occupant Compartment**



**Figure A-54: Post-Test Inner Rear Passenger Torso Air Bag Deployment View**





Figure A-55: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-56: Post-Test View of Fuel Filler Cap or Fuel Filler Neck





Figure A-57: Close-Up View of Vehicle's Certification Label

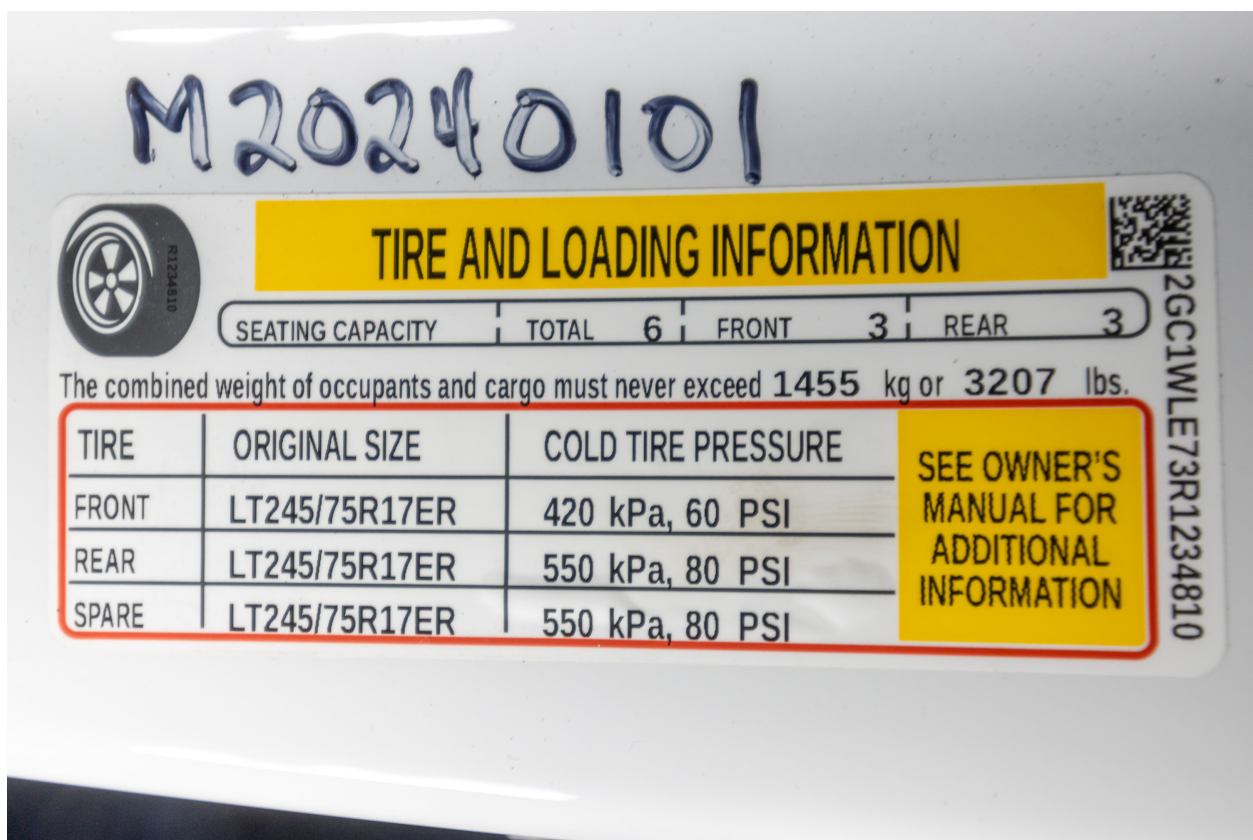
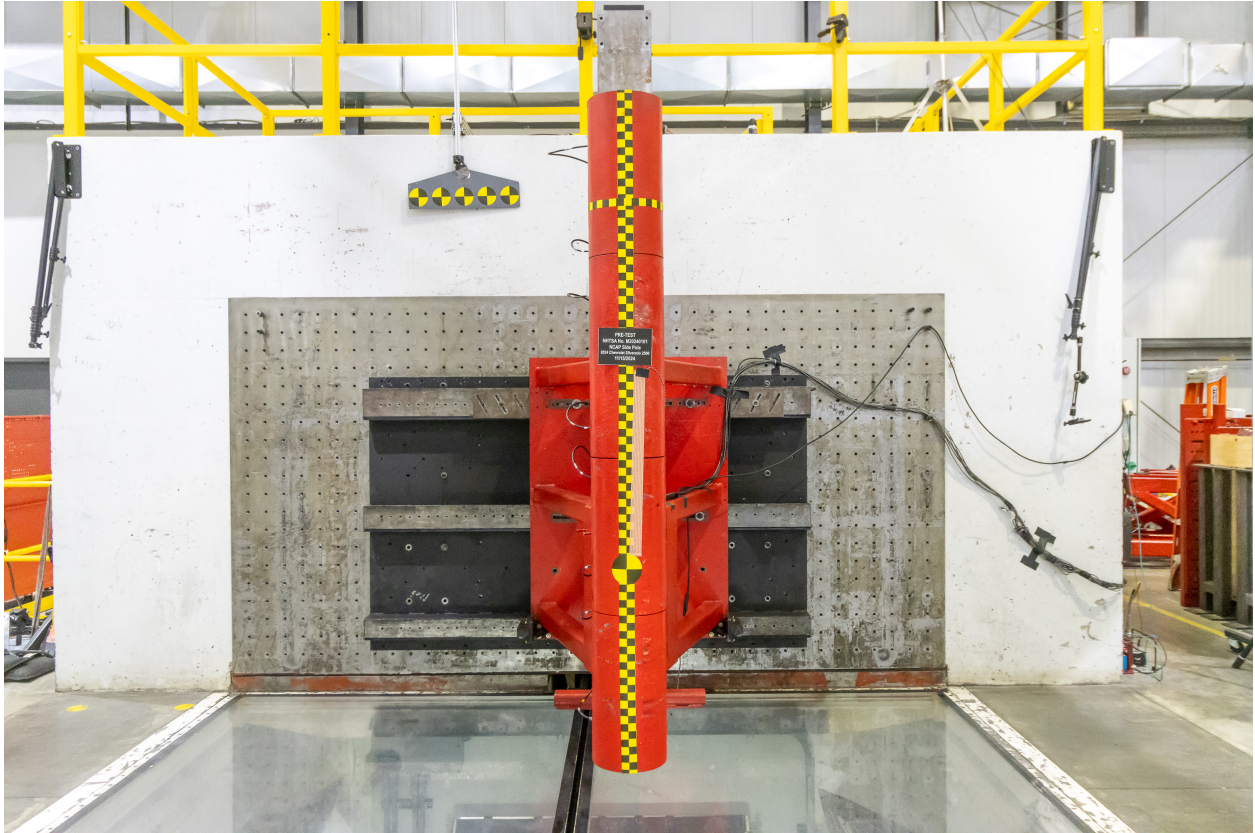
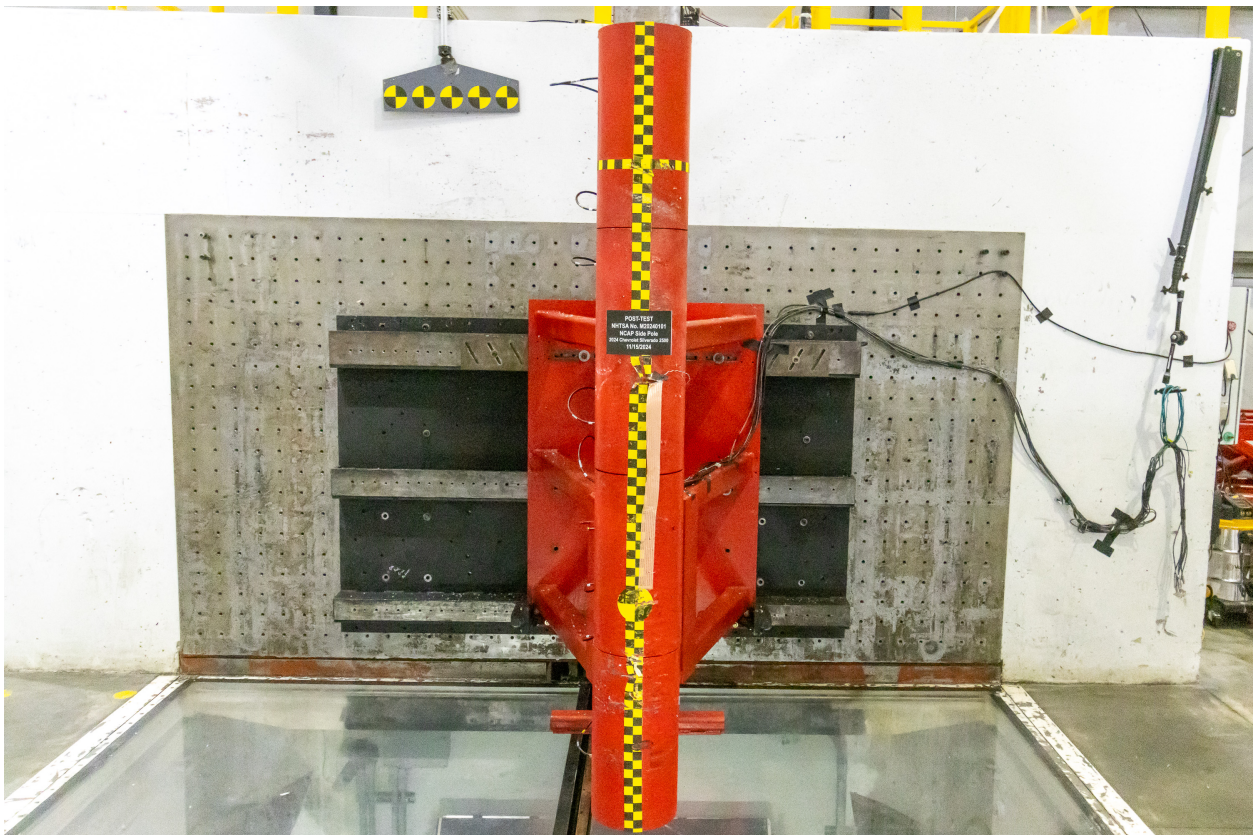


Figure A-58: Close-Up View of Vehicle's Tire Information Placard or Label





**Figure A-59: Pre-Test Pole Barrier Front View**

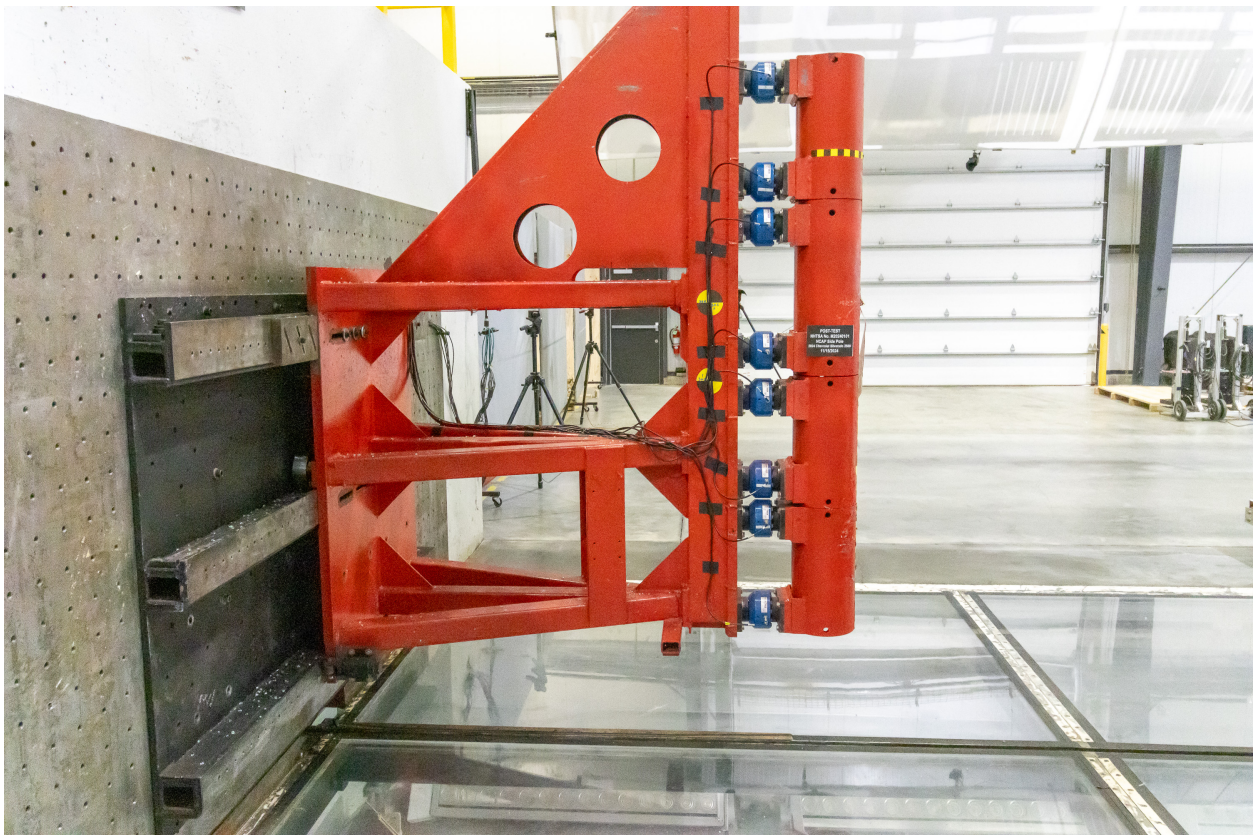


**Figure A-60: Post-Test Pole Barrier Front View**





**Figure A-61: Pre-Test Pole Barrier Side View**



**Figure A-62: Post-Test Pole Barrier Side View**



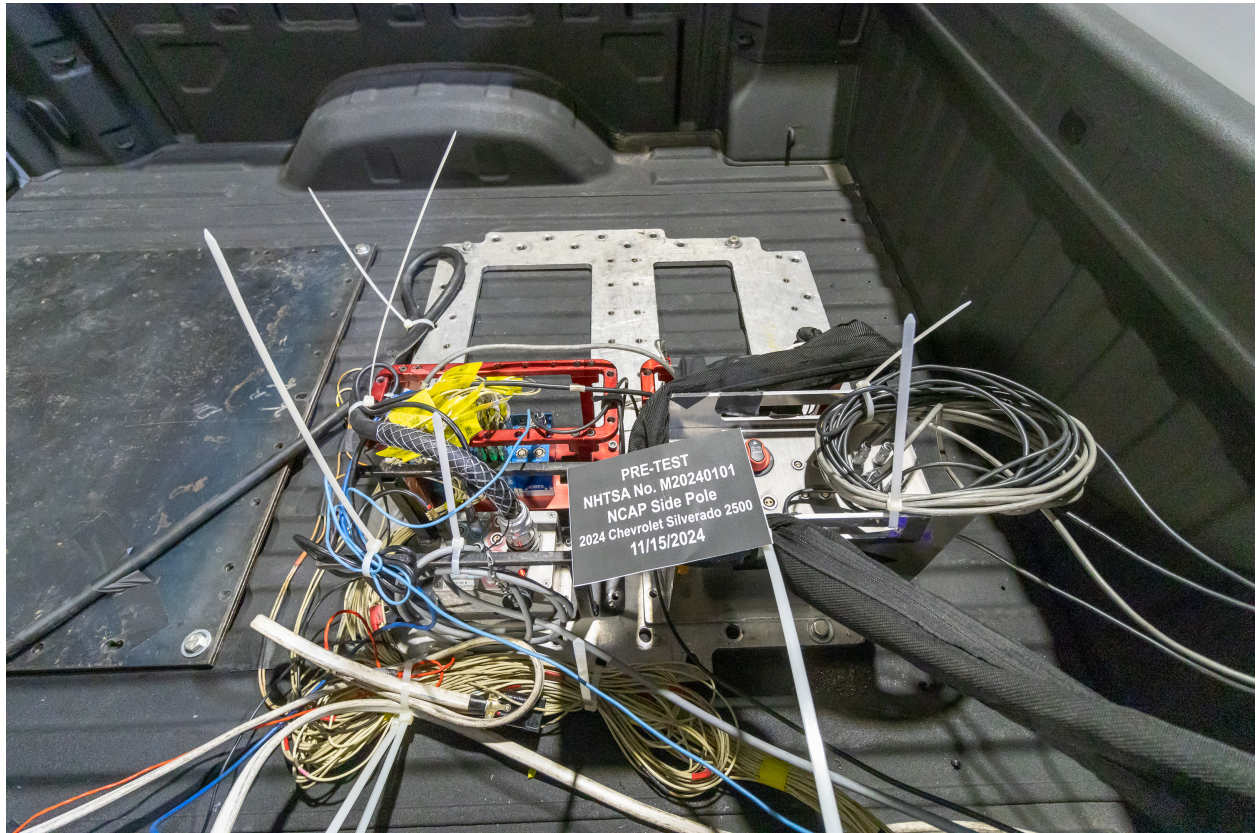


Figure A-63: Pre-Test Ballast View

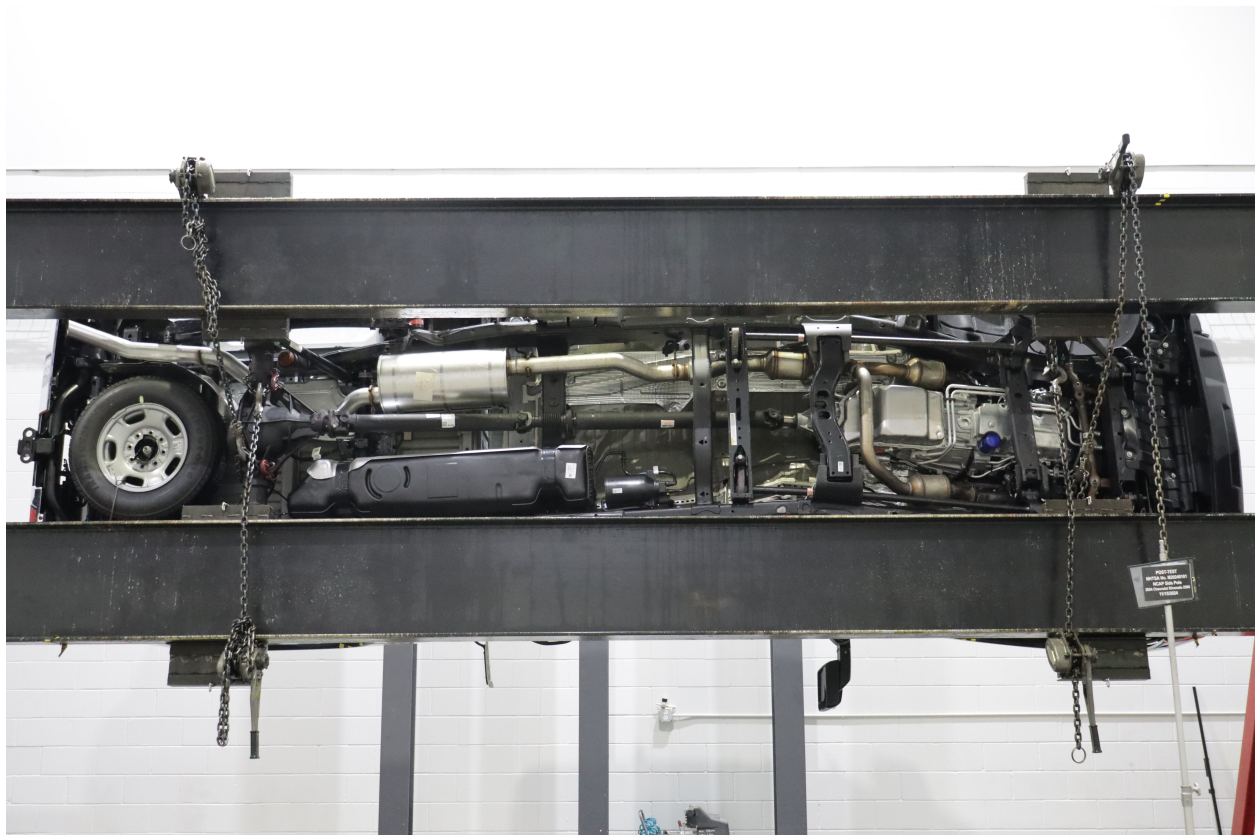


Figure A-64: Post-Test Primary and Redundant Speed Trap Read-Out



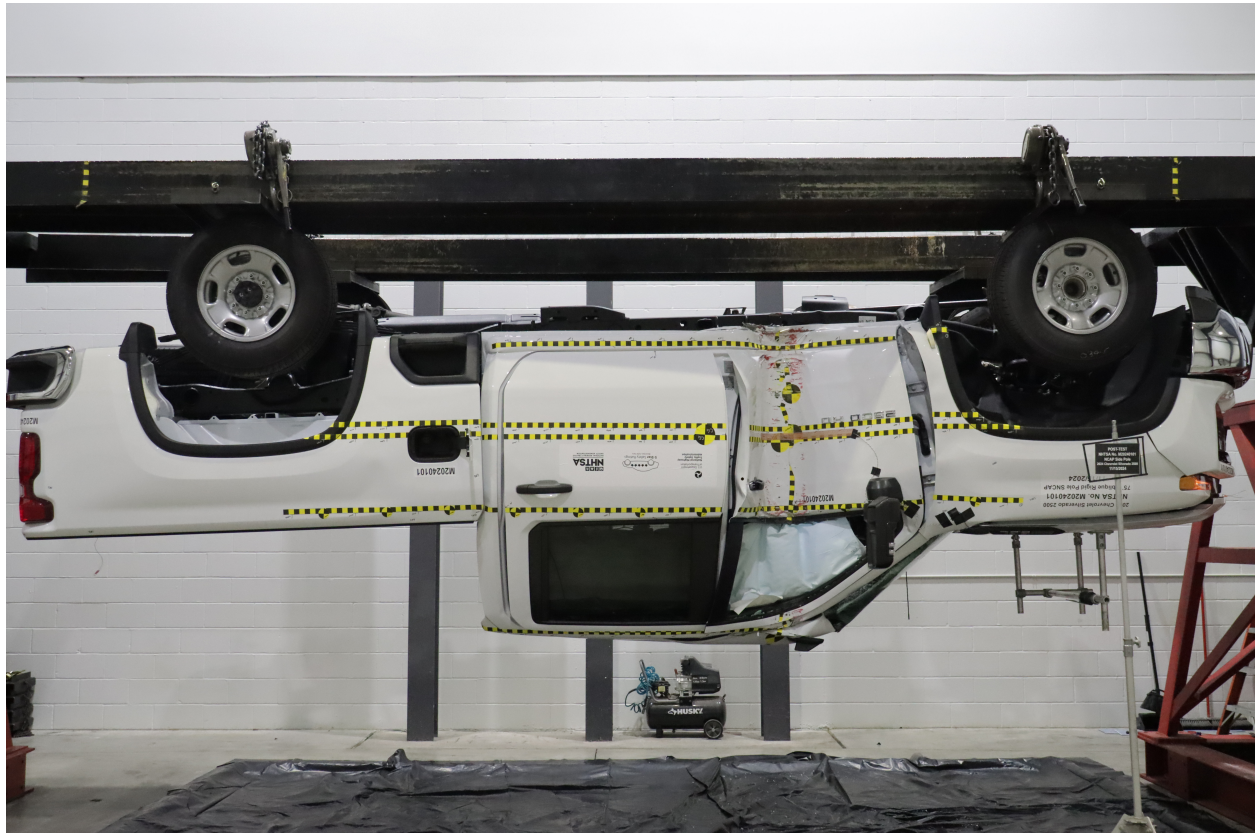


**Figure A-65: FMVSS No. 301 Static Rollover 0 Degrees**



**Figure A-66: FMVSS No. 301 Static Rollover 90 Degrees**





**Figure A-67: FMVSS No. 301 Static Rollover 180 Degrees**

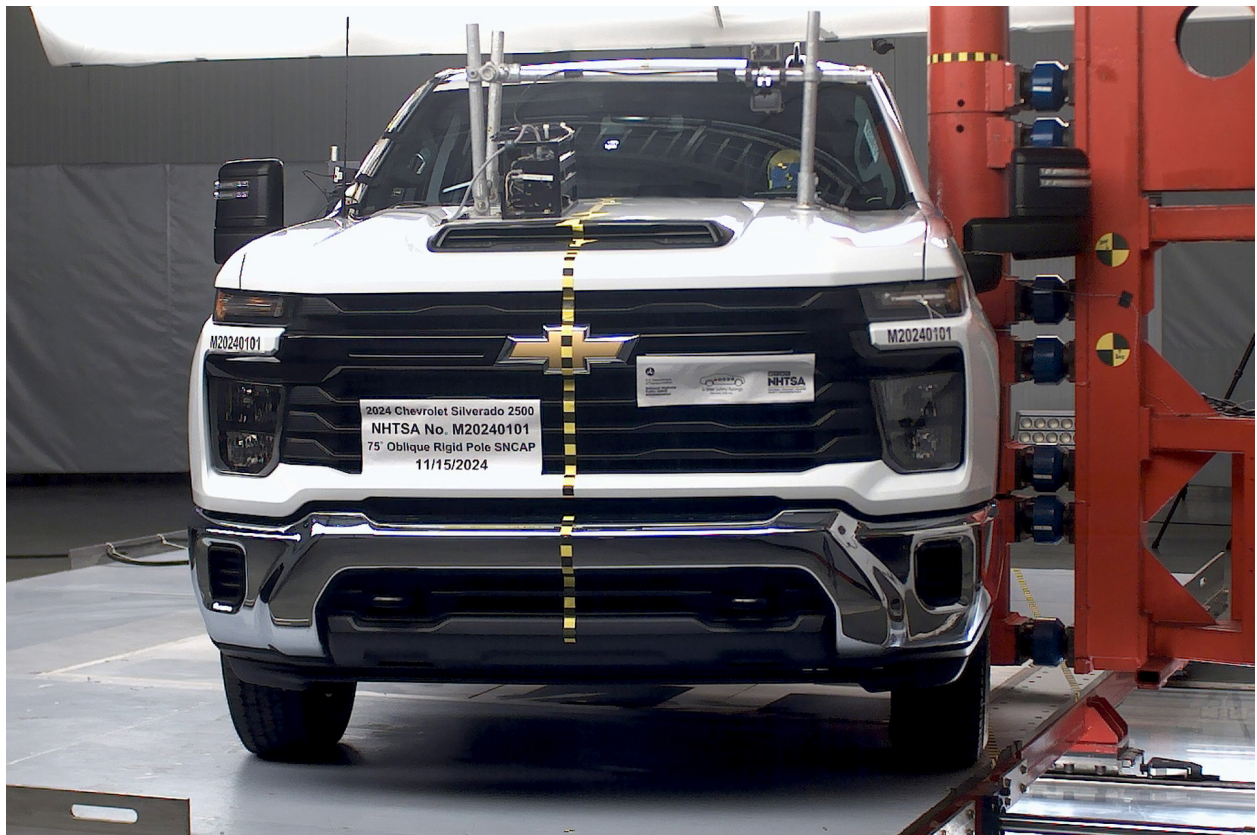


**Figure A-68: FMVSS No. 301 Static Rollover 270 Degrees**





**Figure A-69: FMVSS No. 301 Static Rollover 360 Degrees**



**Figure A-70: Impact Event**

**CHEVROLET**

**2024 SILVERADO 2500 CREW CAB  
WT 2WD**

**EXTERIOR: SUMMIT WHITE  
INTERIOR: JET BLACK**

**ENGINE: 6.6L V8 GASOLINE  
TRANS: ALLISON 10-SPEED AUTO**

Visit us at [www.chevy.com](http://www.chevy.com)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>STANDARD EQUIPMENT</b><br><small>(ITEMS FEATURED BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE SHOWN)</small><br><b>OWNER BENEFITS</b><br>• 3 YEAR / 36,000 MILE* BUMPER-TO-BUMPER LIMITED WARRANTY<br>• 5 YEAR / 60,000 MILE* POWERTRAIN LIMITED WARRANTY, ROADSIDE ASSISTANCE & COURTESY TRANSPORTATION<br>• FIRST MAINTENANCE VISIT<br>*WHICHEVER COMES FIRST<br>SEE CHEVROLET.COM OR DEALER FOR TERMS, DETAILS & LIMITS<br><b>SAFETY &amp; SECURITY</b><br>• AUTOMATIC EMERGENCY BRAKING<br>• FORWARD COLLISION ALERT<br>• FRONT PEDESTRIAN BRAKING<br>• LANE DEPARTURE WARNING<br>• FOLLOWING DISTANCE INDICATOR<br>• INTELLIBEAM | <b>PERFORMANCE &amp; MECHANICAL</b><br>• REAR VISION CAMERA<br>• BUCKLE TO DRIVE<br>• TEEN DRIVER MODE<br>• AUTO-LOCKING REAR DIFF<br>• 170 AMP ALTERNATOR<br>• INDEPENDENT FRONT SUSPENSION<br>• MULTI-LEAF REAR SPRING SUSP<br>• ALL-SEASON TIRES<br>• TRAILERING PACKAGE WITH HITCH GUIDANCE<br><b>CONNECTIVITY &amp; TECHNOLOGY</b><br>• CHEVROLET INFOTAINMENT 3<br>7" DIAO COLOR TOUCHSCREEN<br>ADDITIONAL FEATURES FOR COMPATIBLE PHONES INCLUDE:<br>BLUETOOTH AUDIO STREAMING<br>VOICE COMMAND PASSTHROUGH<br>TO PHONE, WIRELESS APPLE CAR-PLAY AND ANDROID AUTO CAPABLE<br>• 3 YEARS REMOTE ACCESS PLAN;<br>ONSTAR & WI-FI DATA CAPABLE | SEE ONSTAR.COM FOR TERMS<br>• DRIVER INFORMATION CENTER<br>• REMOTE KEYLESS ENTRY<br>• PUSH BUTTON START<br><b>INTERIOR</b><br>• AIR CONDITIONING<br>• FRONT 40/20/40 BENCH SEATS<br>W/ UNDER SEAT STORAGE<br>• 60/40 REAR FOLDING BENCH SEAT<br>• POWER DOOR LOCKS<br>• POWER WINDOWS<br><b>EXTERIOR</b><br>• CORNERSTEP REAR BUMPER<br>• FRONT RECOVERY HOOPS<br>MANUFACTURER'S SUGGESTED RETAIL PRICE<br><b>STANDARD VEHICLE PRICE \$47,900.00</b><br><b>OPTIONS &amp; PRICING</b><br><small>(OPTIONS INSTALLED BY THE MANUFACTURER MAY REPLACE STANDARD EQUIPMENT SHOWN)</small> | <b>WT SAFETY PACKAGE:</b> 845.00<br>• REAR PARK ASSIST<br>• LANE CHANGE ALERT WITH SIDE BLIND ZONE ALERT<br>• REAR CROSS TRAFFIC ALERT<br>• CHROME BUMPS<br><b>WT CONVENIENCE PACKAGE:</b> 800.00<br>• EZ LIFT, POWER LOCK & RELEASE TAILGATE<br>• DEEP-TINTED GLASS<br>• REAR-WINDOW DEFOGGER<br>• CRUISE CONTROL<br>TRAILERING MIRRORS - HEATED, POWER-ADJUSTABLE, AUTO-DIMMING<br>W/ TURN INDICATORS<br>CHEVYTEC SPRAY-ON BEDLINER 545.00<br>TRAILER BRAKE CONTROLLER 275.00<br>120V INTERIOR AND CARGO BED POWER OUTLET 225.00<br>UPPITTER SWITCH KIT (5) 150.00<br>(CUSTOMER RESPONSIBLE FOR INSTALLATION)<br>LOWERED GVWR:10,000LBS(4536 KG) INC. | REAR AXLE: 3.73 RATIO INC.<br>17" PAINTED STEEL WHEELS INC.<br><b>TOTAL OPTIONS \$3,560.00</b><br><b>TOTAL VEHICLE &amp; OPTIONS \$51,460.00</b><br><b>DESTINATION CHARGE 1,995.00</b><br><b>TOTAL VEHICLE PRICE* \$53,455.00</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**California Air Resources Board**

**Environmental Performance**  
These ratings are not directly comparable to the U.S. EPA/DOT light-duty vehicle label ratings. For information on how to compare, please see [www.arb.ca.gov/ep\\_label](http://www.arb.ca.gov/ep_label).  
 Protect the environment. Choose vehicles with **higher ratings**:  
**Greenhouse Gas Rating** (tailpipe only) **Smog Rating** (tailpipe only)

Vehicle emissions are a primary contributor to climate change and smog. Ratings are determined by the California Air Resources Board based on this vehicle's measured emissions.

**GOVERNMENT 5-STAR SAFETY RATINGS**  
 This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash or rollover risk.  
Source: National Highway Traffic Safety Administration (NHTSA) [www.safercar.gov](http://www.safercar.gov) or 1-888-327-4236

This label has been applied pursuant to Federal law - Do not remove prior to delivery to the ultimate purchaser. Includes Manufacturer's Recommended Pre-Delivery Service. Does not include dealer-installed options and accessories not listed above. Local laws or license fees.  
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ORDER NO 040218 - SALES CODE R  
SALES MODEL CODE C02014  
DEALER NO 25033  
PHILADELPHIA, PA  
CANADA  
VIN 2G0C1WLE73R1234810  
DEALER TO BEHOLD DELIVERED  
BACHMAN AUTO GROUP, INC.  
8650 BLUEGRASS PKWY  
LOUISVILLE, KY 40298-1902

**7J**  
 2GA0292039

Figure A-71: Monroney Label

44 Seats and Restraints

Head Restraints

**Warning**

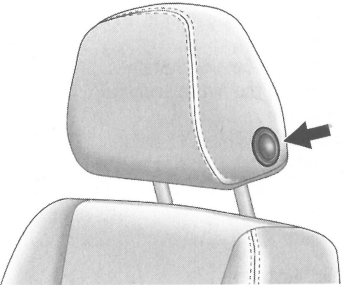
With head restraints that are not installed and adjusted properly, there is a greater chance that occupants will suffer a neck/spinal injury in a crash. Do not drive until the head restraints for all occupants are installed and adjusted properly.

**Front Seats**

The vehicle's front seats have adjustable head restraints in the outboard seating positions.



Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.



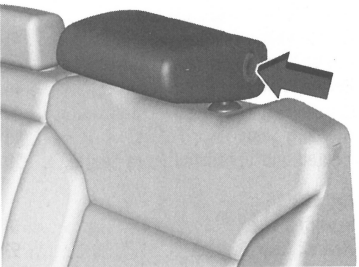
To raise or lower the head restraint, press the button on the side of the head restraint and pull up or push the head restraint down and release the button.

Pull and push on the head restraint after the button is released to make sure that it is locked in place.

The front seat outboard head restraints are not removable.

Rear Head Restraints

The vehicle's rear seat has head restraints in the outboard seating positions that cannot be adjusted.



The head restraint can be folded forward to allow for better visibility when the rear seat is unoccupied. To fold the head restraint, press the button on the side of the head restraint.

When an occupant is in the seat, always return the head restraint to the upright position until it locks into place. Push and pull on the head restraint to make sure that it is locked.

Figure A-72: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual





**Figure A-73: Post-Test View of Shattered Vehicle Inner Door Panel**

# **APPENDIX B**

## **VEHICLE AND DUMMY RESPONSE DATA TRACES**



## Table of Data Plots

### Driver Dummy Instrumentation Plots

| Fig.    | Description                                            | Page |
|---------|--------------------------------------------------------|------|
| Plot 1  | Driver Head Acceleration (X) Primary vs. Time          | B-4  |
| Plot 2  | Driver Head Acceleration (Y) Primary vs. Time          | B-4  |
| Plot 3  | Driver Head Acceleration (Z) Primary vs. Time          | B-4  |
| Plot 4  | Driver Head Resultant Primary vs. Time                 | B-4  |
| Plot 5  | Driver Lower Spine T12 Acceleration (X) vs. Time       | B-5  |
| Plot 6  | Driver Lower Spine T12 Acceleration (Y) vs. Time       | B-5  |
| Plot 7  | Driver Lower Spine T12 Acceleration (Z) vs. Time       | B-5  |
| Plot 8  | Driver Lower Spine T12 Resultant Acceleration vs. Time | B-5  |
| Plot 9  | Driver Iliac Wing Force on Impact Side (Y) vs. Time    | B-6  |
| Plot 10 | Driver Acetabulum Force on Impact Side (Y) vs. Time    | B-6  |
| Plot 11 | Driver Total Pelvis Force on Impact Side (Y) vs. Time  | B-6  |

The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at [www.NHTSA.gov](http://www.NHTSA.gov)

### **Additional Driver Dummy Instrumentation Data**

Driver Head Acceleration Redundant (X)  
Driver Head Acceleration Redundant (Y)  
Driver Head Acceleration Redundant (Z)  
Driver Upper Thorax Rib Deflection (Y)  
Driver Middle Thorax Rib Deflection (Y)  
Driver Lower Thorax Rib Deflection (Y)  
Driver Upper Abdomen Rib Deflection (Y)  
Driver Lower Abdomen Rib Deflection (Y)

### **Vehicle Instrumentation Data**

Vehicle Center of Gravity Acceleration (X)  
Vehicle Center of Gravity Acceleration (Y)  
Vehicle Center of Gravity Acceleration (Z)  
Left Floor Sill Acceleration (Y)  
Left A-Pillar Sill Acceleration (Y)  
Left Lower A-Pillar Acceleration (Y)  
Left Mid A-Pillar Acceleration (Y)  
Left B-Pillar Sill Acceleration (Y)  
Left Lower B-Pillar Acceleration (Y)  
Left Mid B-Pillar Acceleration (Y)  
Driver Seat Track at Dummy Hip Point Acceleration (Y)  
Engine Top Acceleration (X)  
Engine Top Acceleration (Y)  
Firewall Center Acceleration (Y)  
Right Roof at Vertical Impact Reference Line Acceleration (Y)  
Right Sill at Vertical Impact Reference Line Acceleration (Y)  
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)  
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

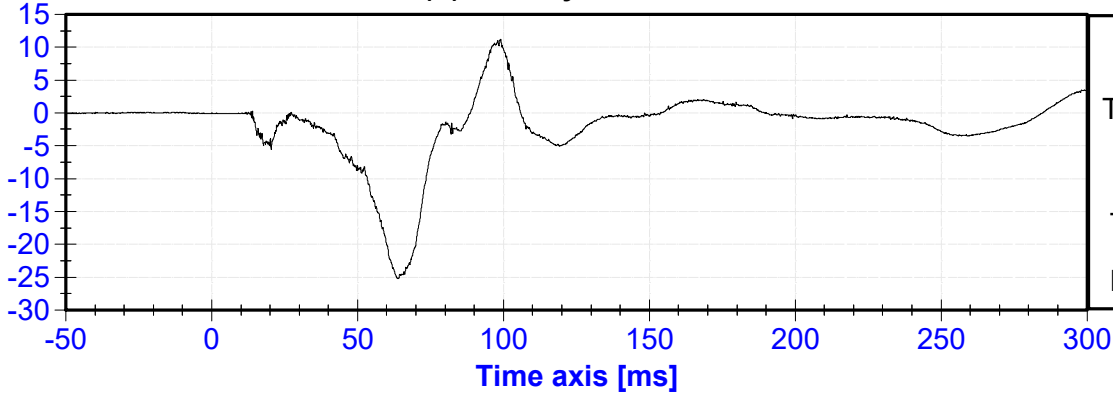
### **Pole Instrumentation Data**

Load Cell Pole Barrier #1 Force (Y)  
Load Cell Pole Barrier #2 Force (Y)  
Load Cell Pole Barrier #3 Force (Y)  
Load Cell Pole Barrier #4 Force (Y)  
Load Cell Pole Barrier #5 Force (Y)  
Load Cell Pole Barrier #6 Force (Y)  
Load Cell Pole Barrier #7 Force (Y)  
Load Cell Pole Barrier #8 Force (Y)



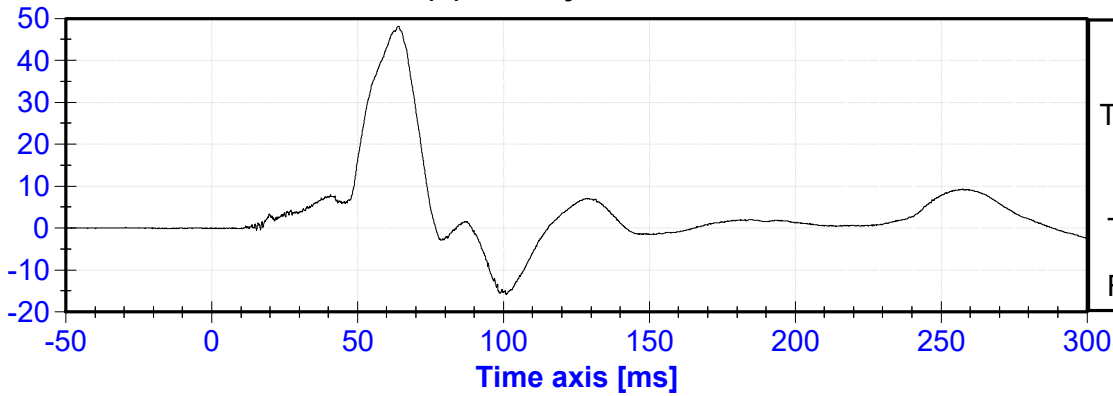
ACCELERATION [g's]

Driver Head Acceleration (X) Primary vs. Time



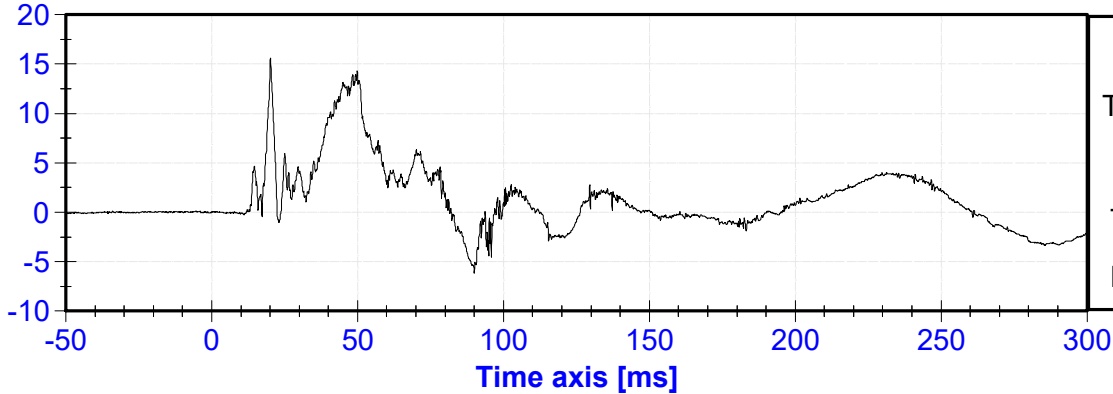
ACCELERATION [g's]

Driver Head Acceleration (Y) Primary vs. Time



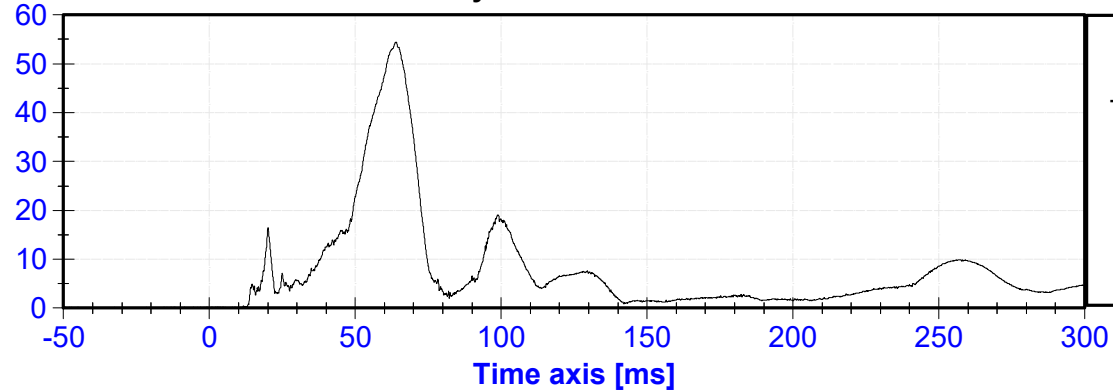
ACCELERATION [g's]

Driver Head Acceleration (Z) Primary vs. Time



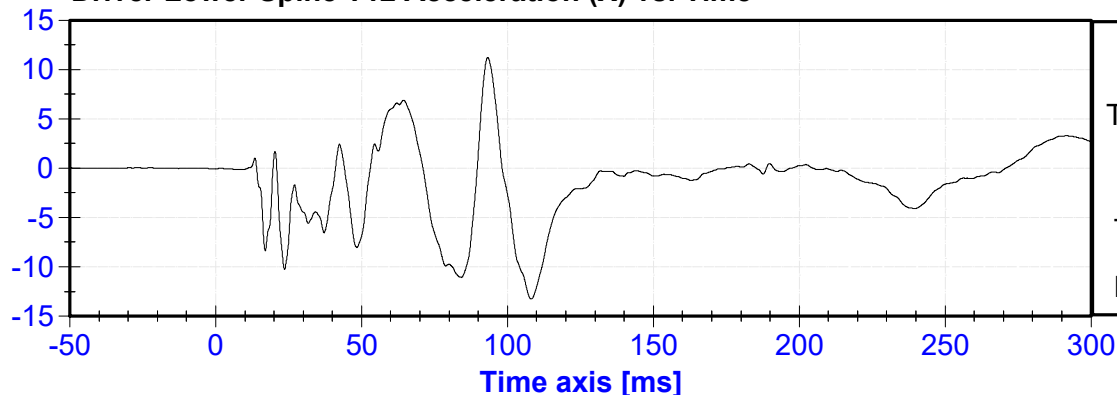
ACCELERATION [g's]

Driver Head Resultant Primary vs. Time



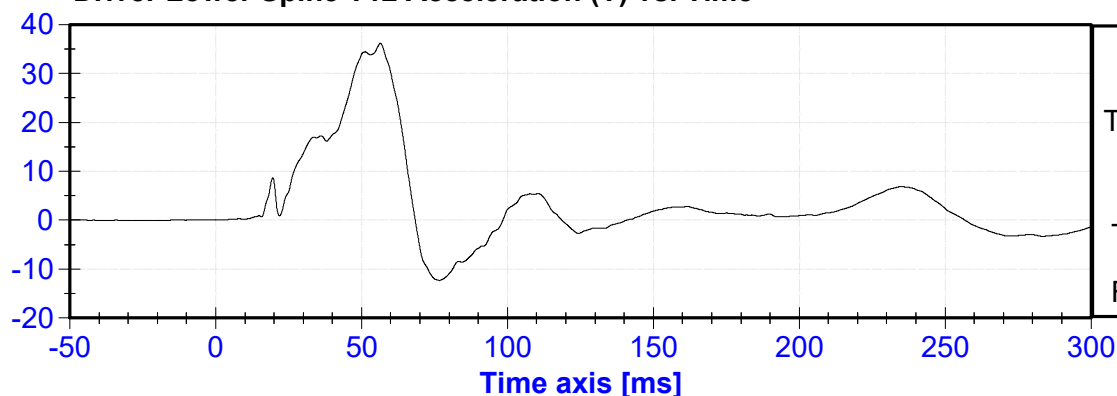
ACCELERATION [g's]

Driver Lower Spine T12 Acceleration (X) vs. Time



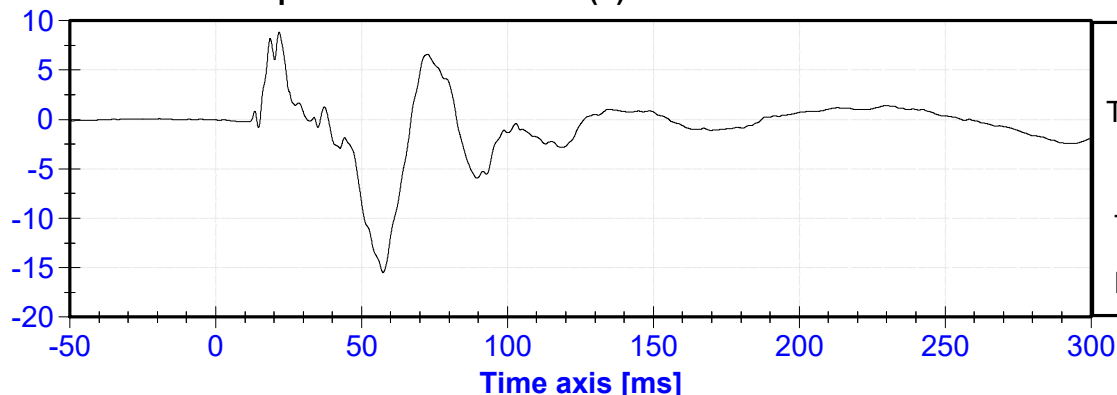
ACCELERATION [g's]

Driver Lower Spine T12 Acceleration (Y) vs. Time



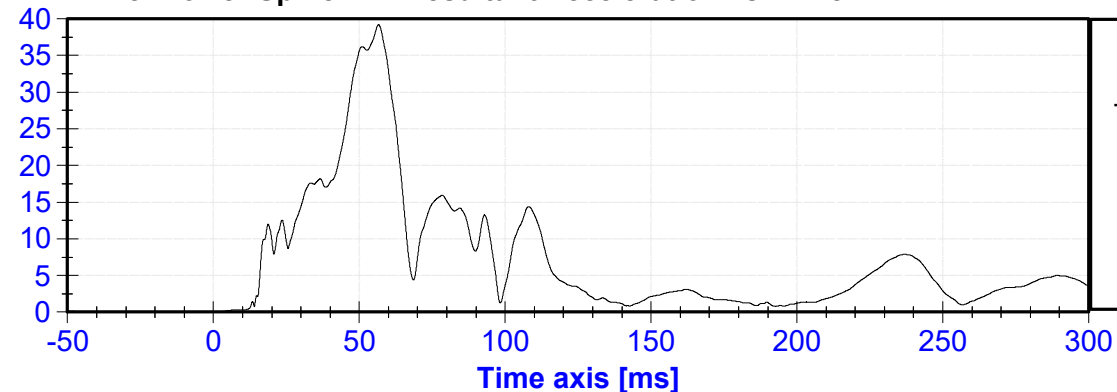
ACCELERATION [g's]

Driver Lower Spine T12 Acceleration (Z) vs. Time

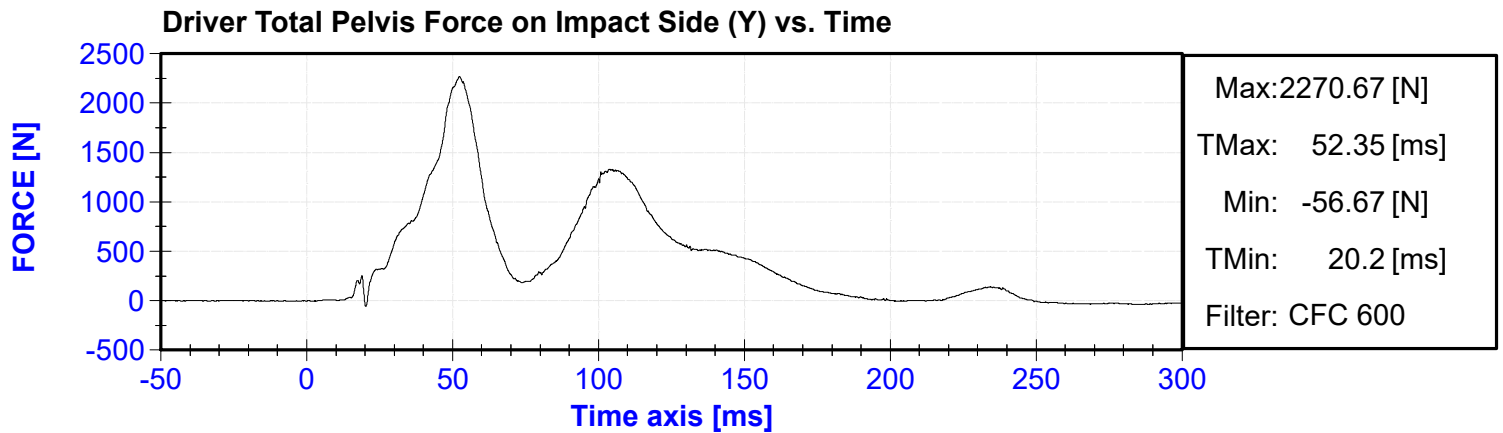
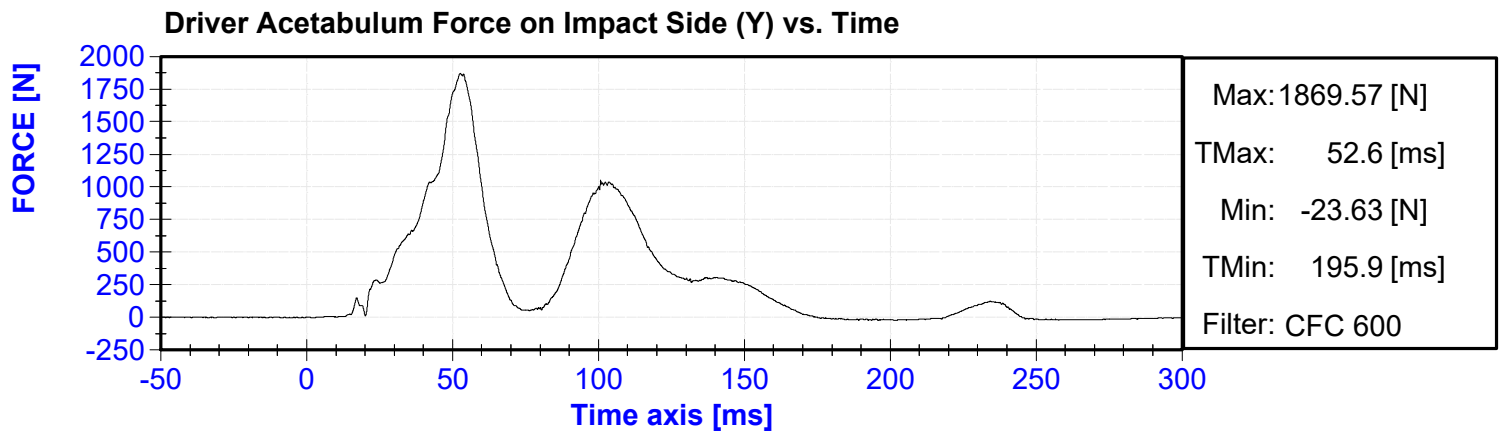
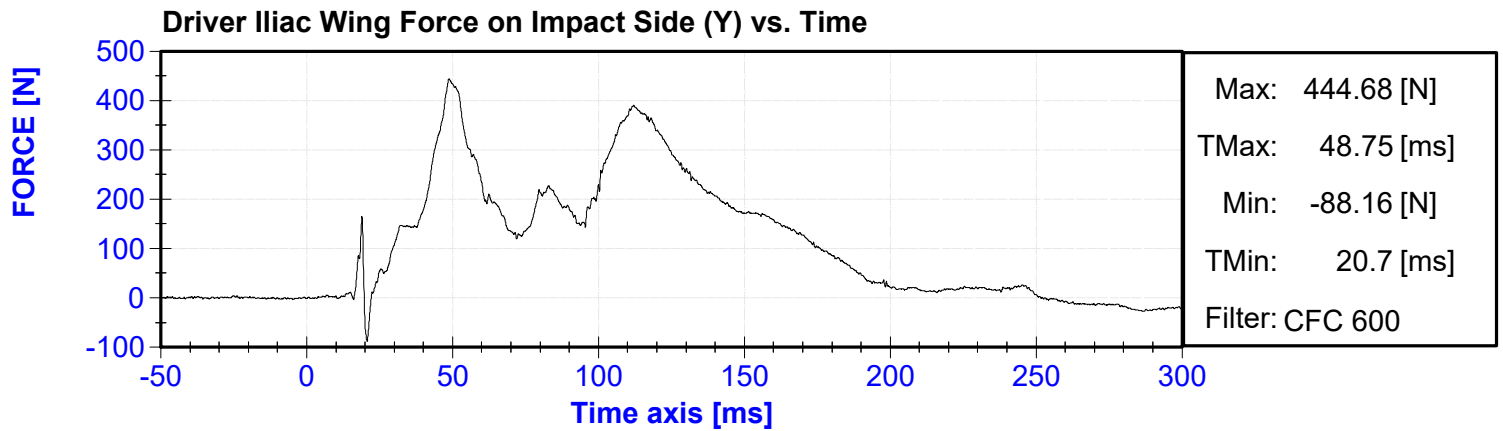


ACCELERATION [g's]

Driver Lower Spine T12 Resultant Acceleration vs. Time







**APPENDIX C**

**DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA**

**CALIBRATION TEST RESULTS**

**PRE-TEST**

**SID-IIS 5<sup>TH</sup> PERCENTILE FEMALE - DRIVER ATD**

**SERIAL NO:300**

**(CONFIGURED FOR LEFT SIDE IMPACT)**



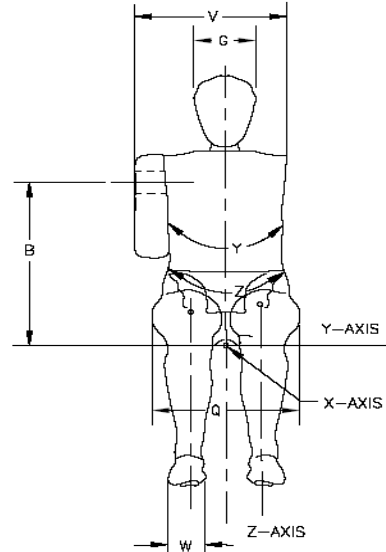
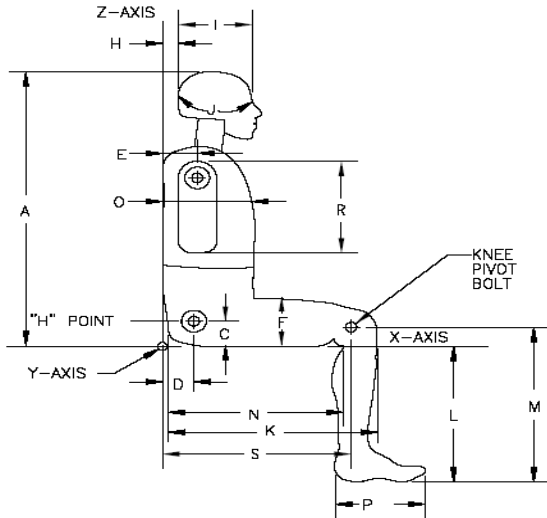


## External Measurements - SID-IIs

Technician: J. Rios

Date: 11/13/2024

Dummy Serial Number: 300



| Symbol | Description                  | Specification (mm) |     | Result (mm) | Pass/Fail |
|--------|------------------------------|--------------------|-----|-------------|-----------|
| A      | Sitting Height               | 772                | 788 | 775         | Pass      |
| B      | Shoulder Pivot Height        | 437                | 453 | 447         | Pass      |
| C      | H-point Height               | 79                 | 89  | 81          | Pass      |
| D      | H-point from seatback        | 141                | 151 | 145         | Pass      |
| E      | Shoulder Pivot from Backline | 97                 | 107 | 103         | Pass      |
| F      | Thigh Clearance              | 119                | 135 | 127         | Pass      |
| G      | Head Breadth                 | 140                | 148 | 145         | Pass      |
| H      | Head Back from Backline      | 40                 | 46  | 43          | Pass      |
| I      | Head Depth                   | 178                | 188 | 183         | Pass      |
| J      | Head Circumference           | 541                | 551 | 548         | Pass      |
| K      | Buttock to Knee Length       | 514                | 540 | 528         | Pass      |
| L      | Popliteal Height             | 343                | 369 | 357         | Pass      |
| M      | Knee Pivot to floor height   | 392                | 409 | 401         | Pass      |
| N      | Buttock Popliteal Length     | 416                | 442 | 431         | Pass      |
| O      | Chest Depth w/o jacket       | 195                | 211 | 205         | Pass      |
| P      | Foot Length                  | 216                | 232 | 225         | Pass      |
| Q      | Hip Breadth (w/pelvic plugs) | 313                | 323 | 317         | Pass      |
| R      | Arm Length                   | 249                | 259 | 255         | Pass      |
| S      | Knee Joint to seatback       | 477                | 493 | 479         | Pass      |
| V      | Shoulder Width               | 341                | 357 | 351         | Pass      |
| W      | Foot Width                   | 78                 | 94  | 86          | Pass      |
| Y      | Chest Circumference w/jacket | 851                | 881 | 862         | Pass      |
| Z      | Waist Circumference          | 761                | 791 | 785         | Pass      |

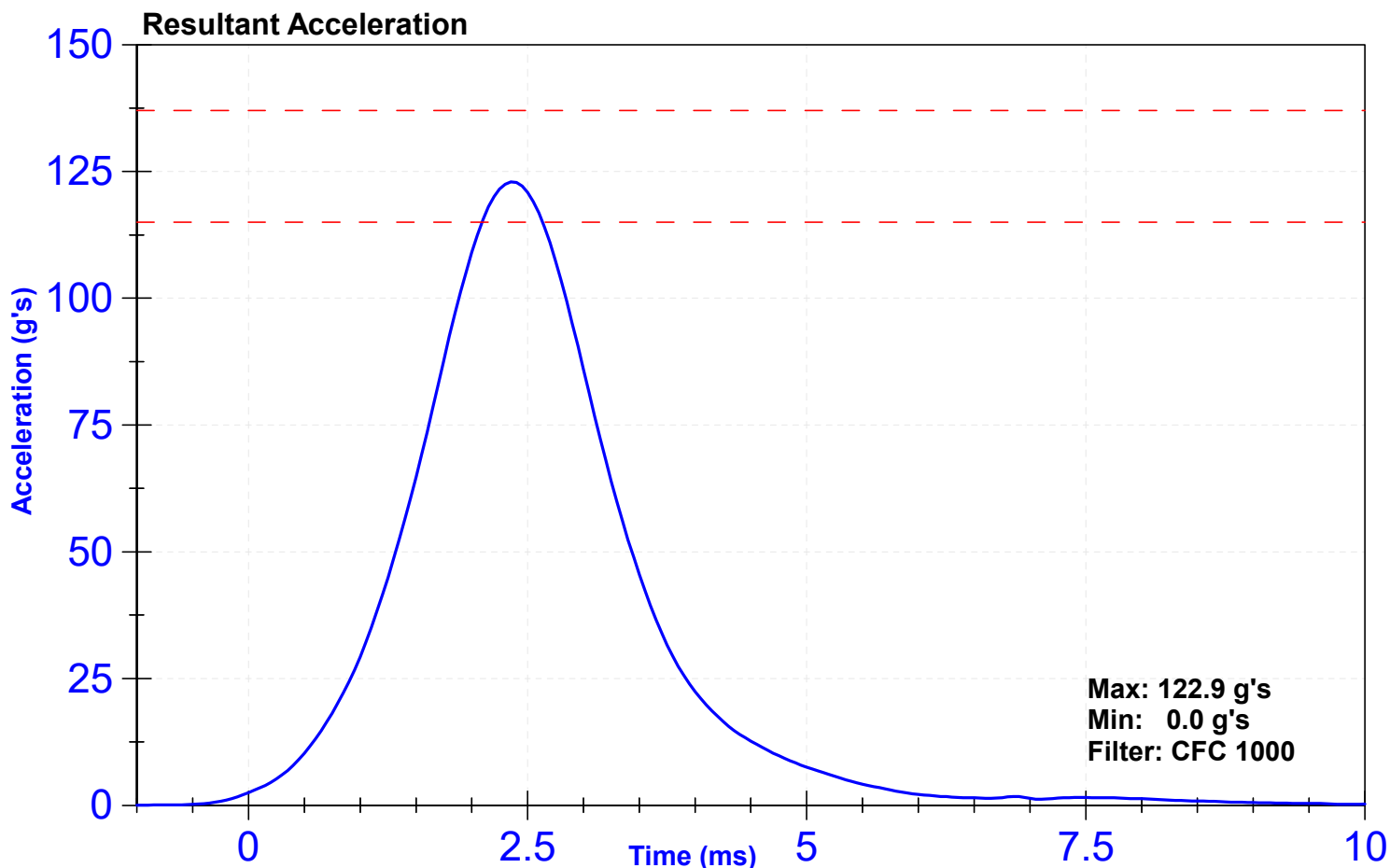
|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

**Results**

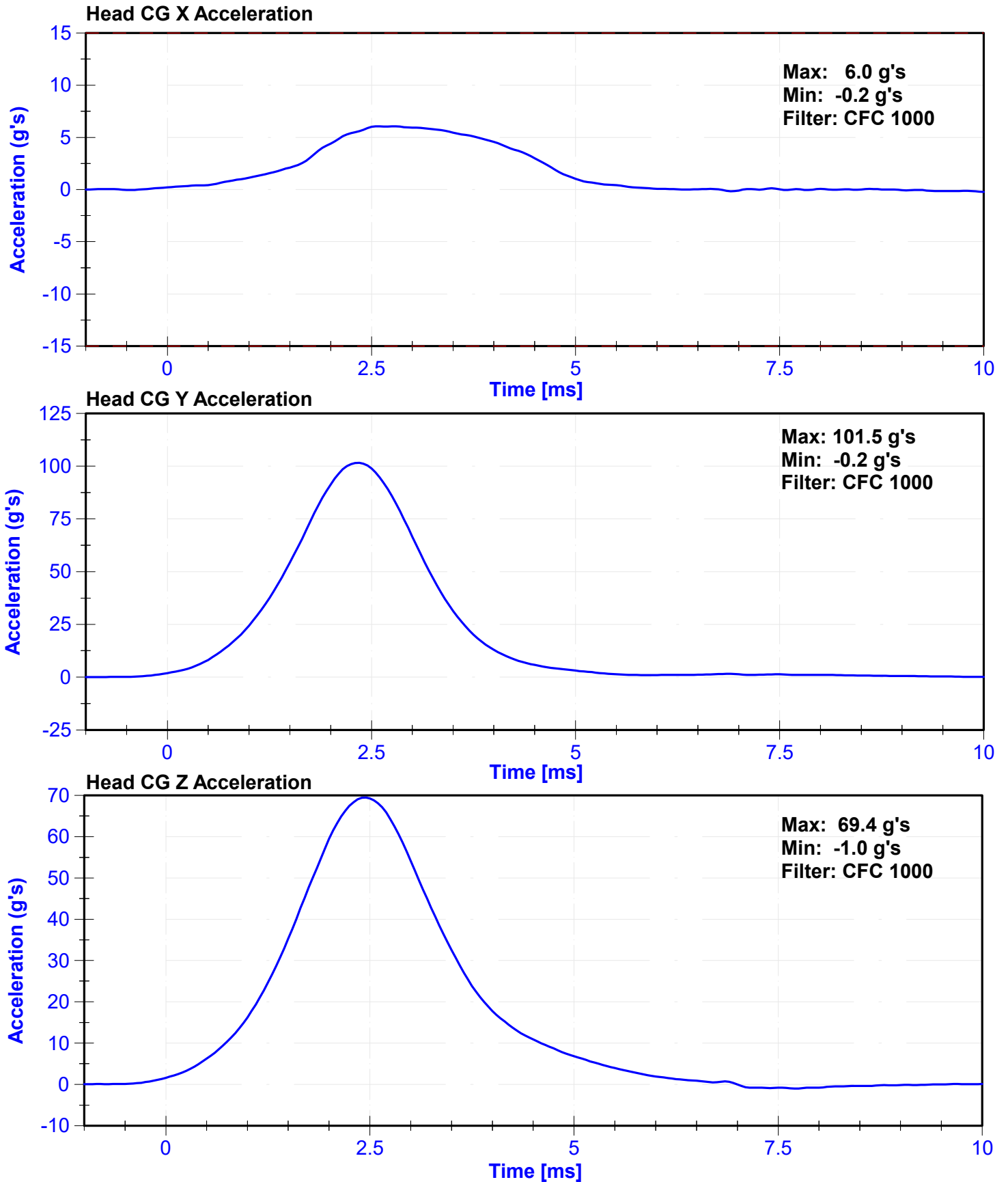
| Test Parameter         | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature            | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity               | 10                    | 70                    | %    | 39     | Pass      |
| Resultant Acceleration | 115                   | 137                   | g's  | 122.9  | Pass      |
| Oscillation            | 0                     | 15                    | %    | 1.4    | Pass      |
| Fore-Aft Acceleration  | -15                   | 15                    | g's  | 6.0    | Pass      |

**Transducer Calibrations**

| Channel         | Manufacturer | Serial Number | Calibratio Date | Calibratio Due Date |
|-----------------|--------------|---------------|-----------------|---------------------|
| X Accelerometer | Endevco      | P59018        | 10/17/2024      | 4/15/2025           |
| Y Accelerometer | Endevco      | P79189        | 10/17/2024      | 4/15/2025           |
| Z Accelerometer | Endevco      | P79587        | 10/17/2024      | 4/15/2025           |







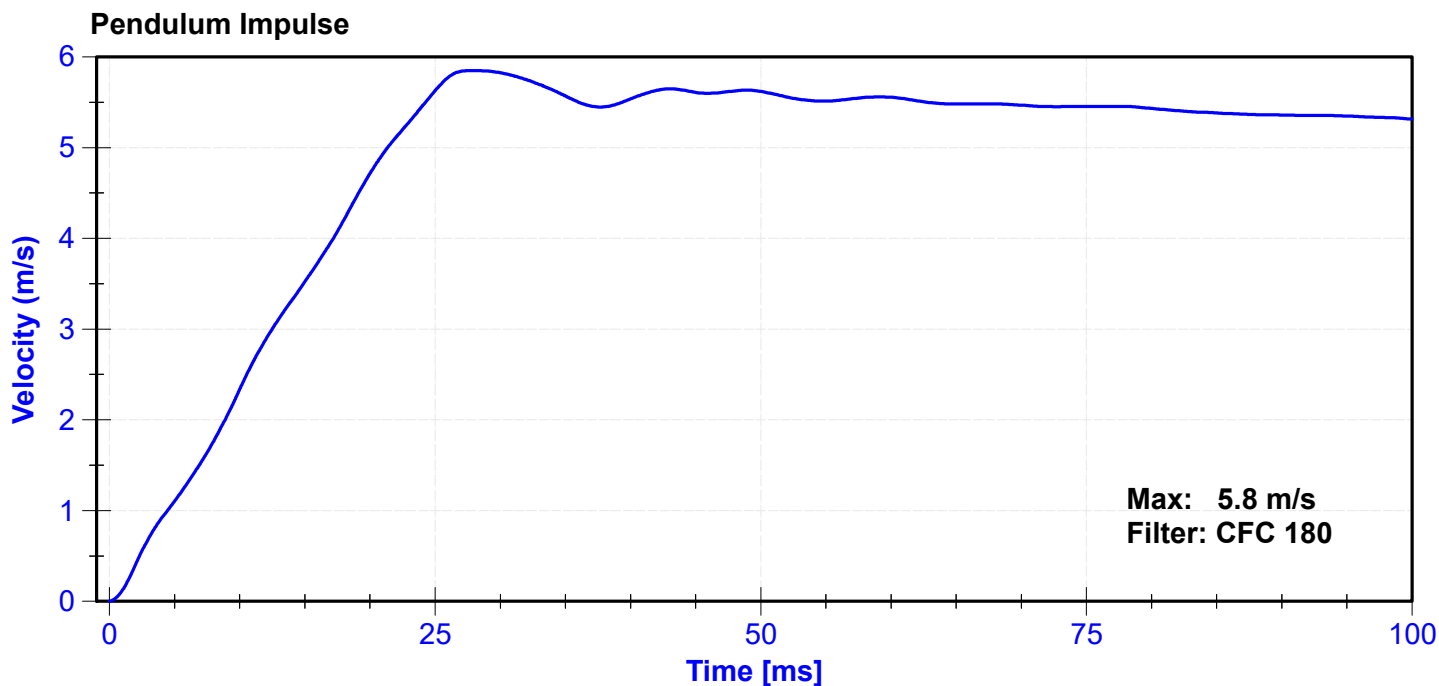
|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

### Results

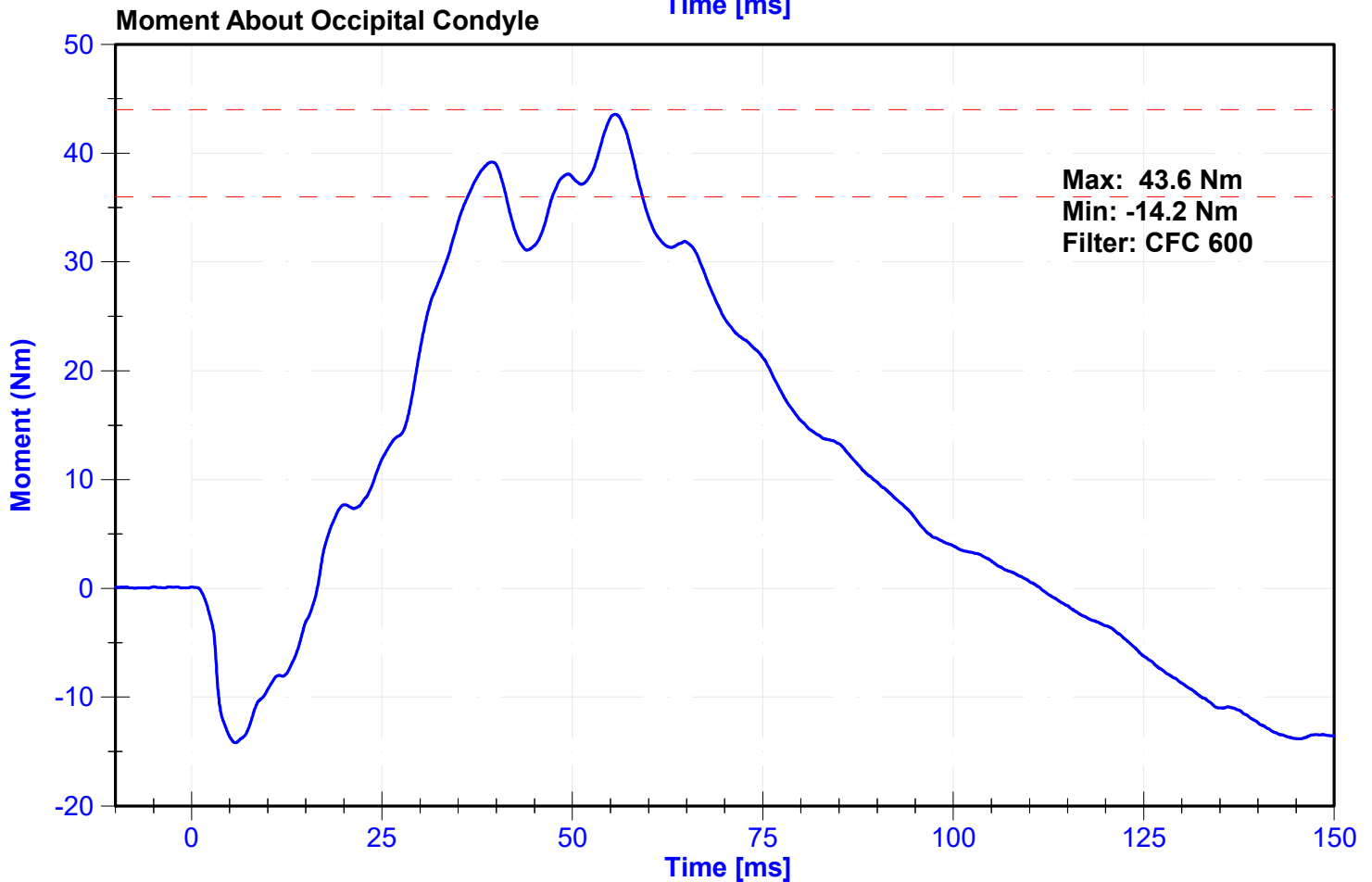
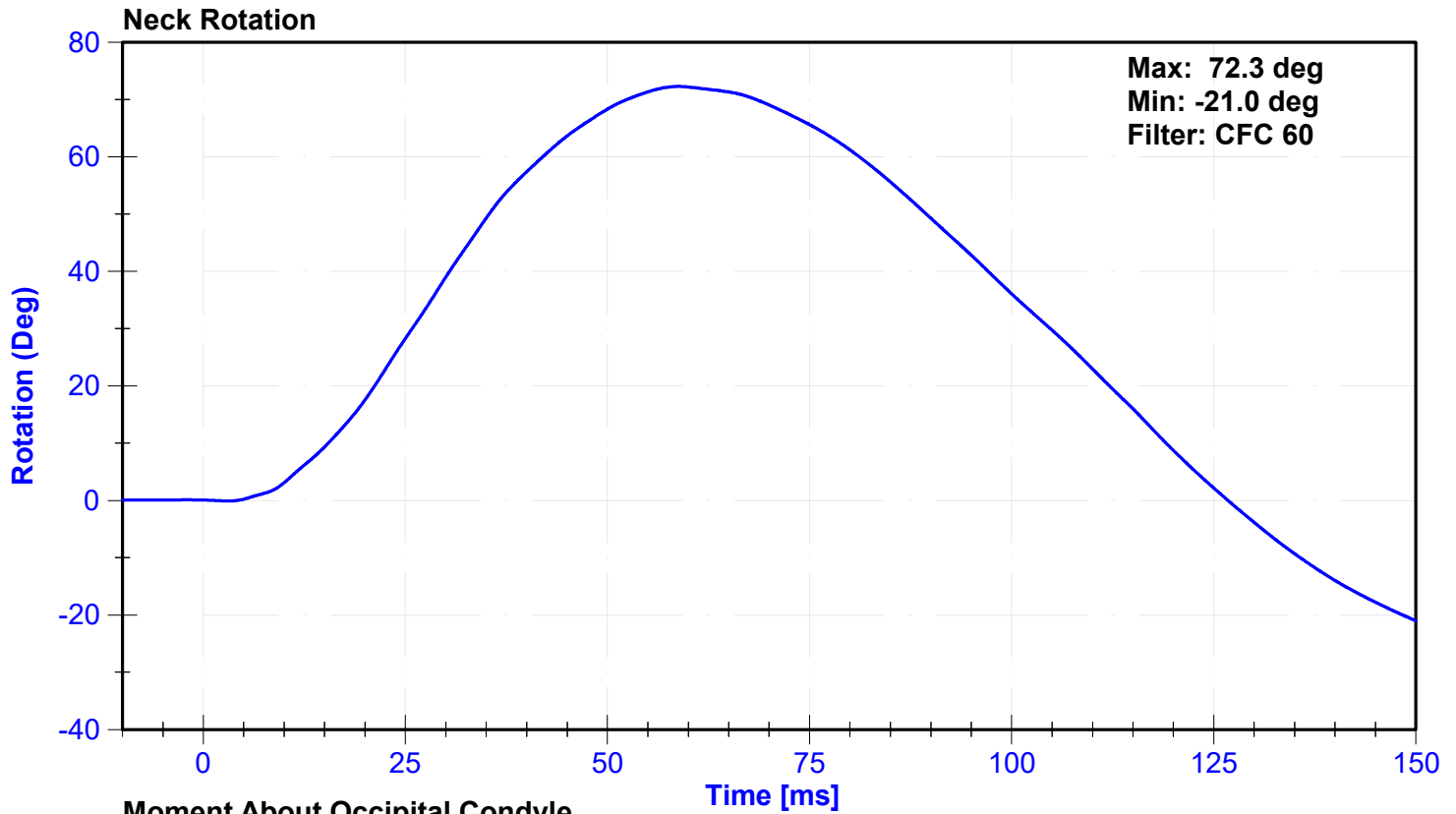
| Test Parameter                    | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|-----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                       | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                          | 10                    | 70                    | %    | 26     | Pass      |
| Velocity                          | 5.51                  | 5.63                  | m/s  | 5.576  | Pass      |
| Pendulum Impulse at 10ms          | 2.2                   | 2.8                   | m/s  | 2.34   | Pass      |
| Pendulum Impulse at 15ms          | 3.3                   | 4.1                   | m/s  | 3.52   | Pass      |
| Pendulum Impulse at 20ms          | 4.4                   | 5.4                   | m/s  | 4.72   | Pass      |
| Pendulum Impulse at 25ms          | 5.4                   | 6.1                   | m/s  | 5.63   | Pass      |
| Pendulum Impulse from 25 to 100ms | 5.5                   | 6.2                   | m/s  | 5.85   | Pass      |
| Neck Rotation                     | 71                    | 81                    | deg  | 72.3   | Pass      |
| Time at Maximum Rotation          | 50                    | 70                    | ms   | 58.8   | Pass      |
| Moment about the OC               | 36                    | 44                    | Nm   | 43.6   | Pass      |
| Moment Decay to 0 Nm              | 102                   | 126                   | ms   | 111.5  | Pass      |

### Transducer Calibrations

| Channel                | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer | Endevco      | 7231C-750     | 10/30/2024       | 4/28/2025            |
| Pendulum Potentiometer | Servo        | 4961          | 9/23/2024        | 9/23/2025            |
| Condyle Potentiometer  | Servo        | DS185         | 9/23/2024        | 9/23/2025            |
| Upper Neck Load Cell   | Denton       | 1716A_2187-FY | 12/5/2023        | 12/4/2024            |







|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

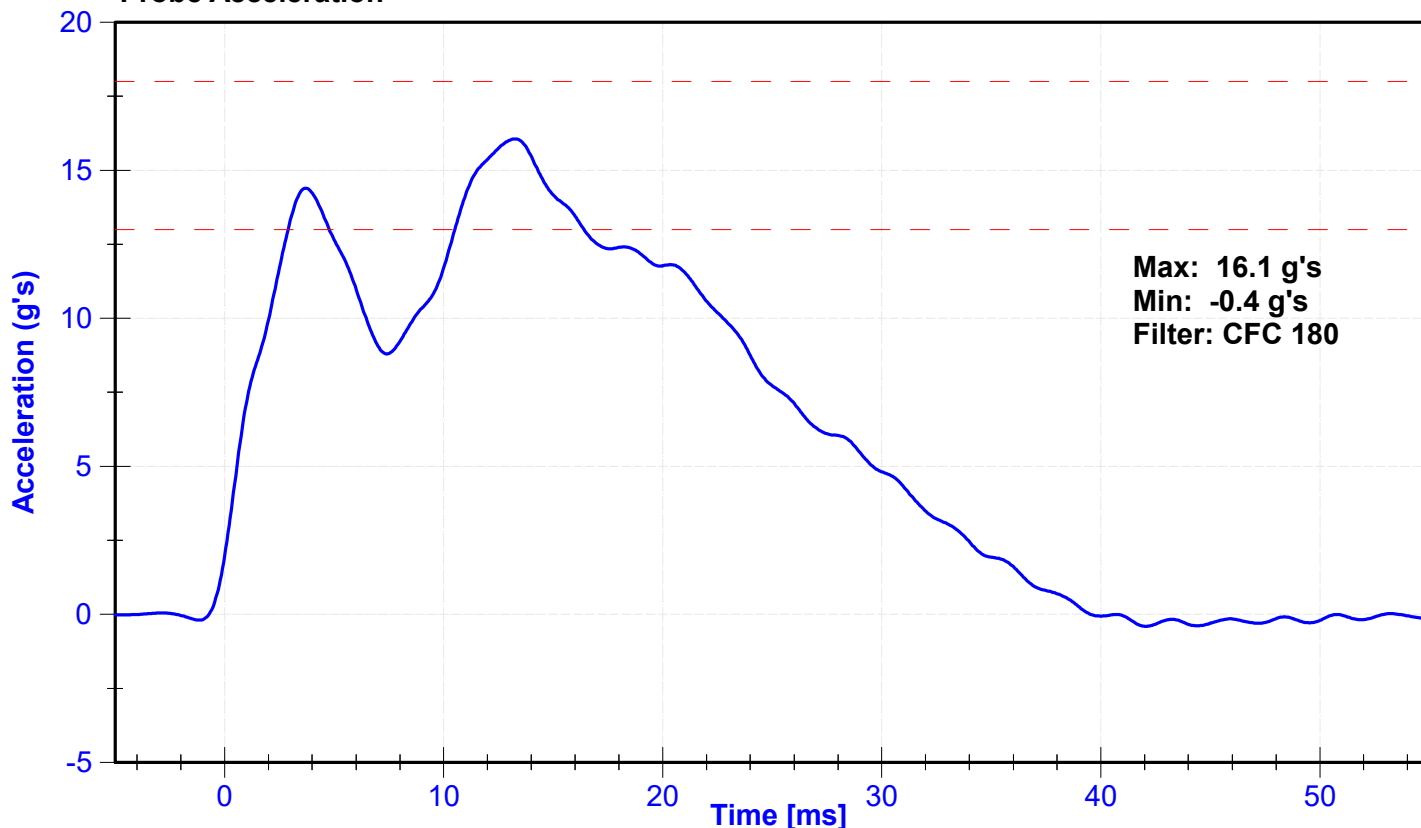
**Results**

| Test Parameter                   | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                      | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                         | 10                    | 70                    | %    | 35     | Pass      |
| Velocity                         | 4.2                   | 4.4                   | m/s  | 4.29   | Pass      |
| Probe Acceleration               | 13                    | 18                    | g's  | 16.1   | Pass      |
| Shoulder Deflection              | 28                    | 37                    | mm   | 29.5   | Pass      |
| Lateral Upper Spine Acceleration | 17                    | 22                    | g's  | 19.5   | Pass      |

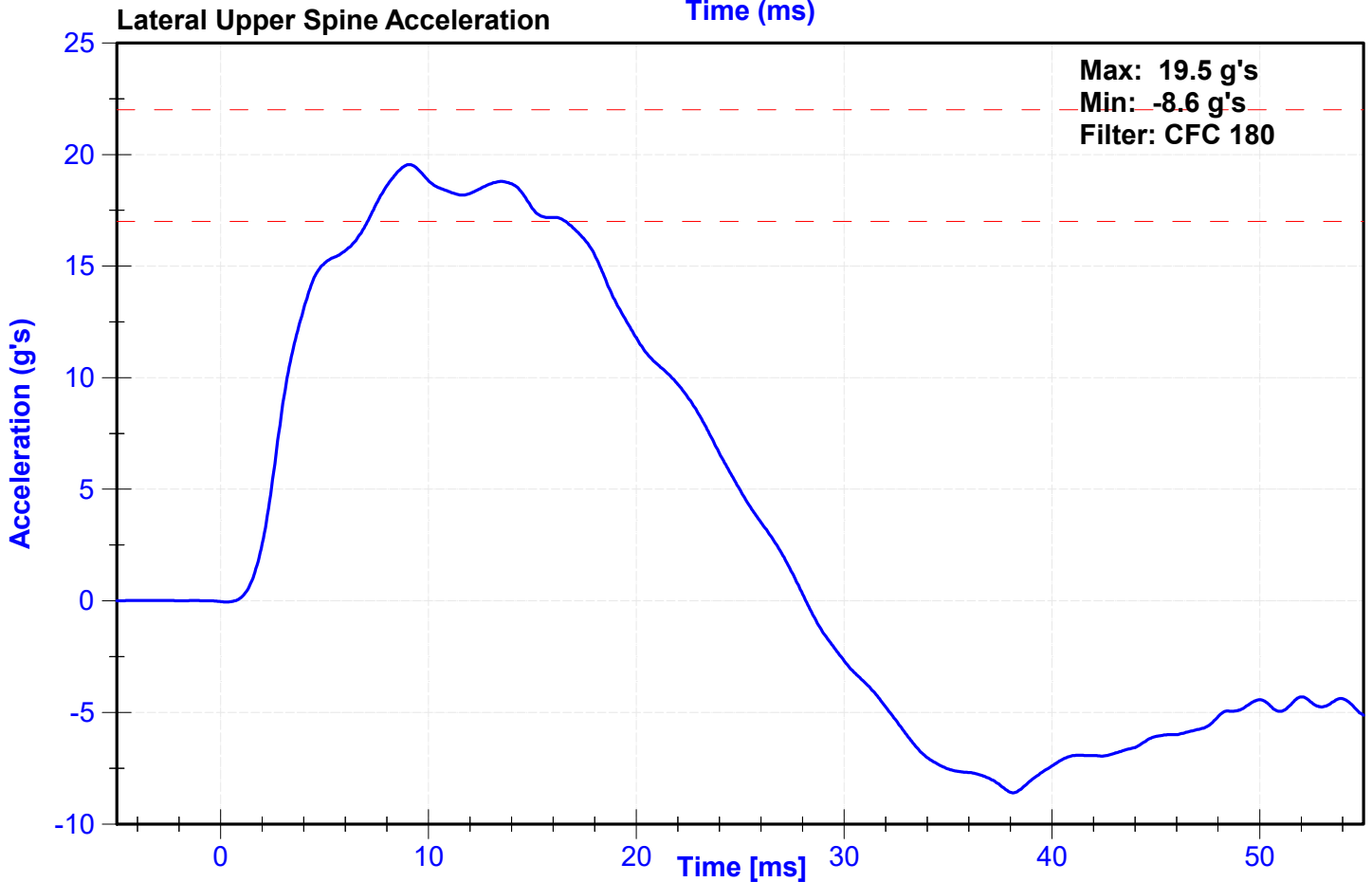
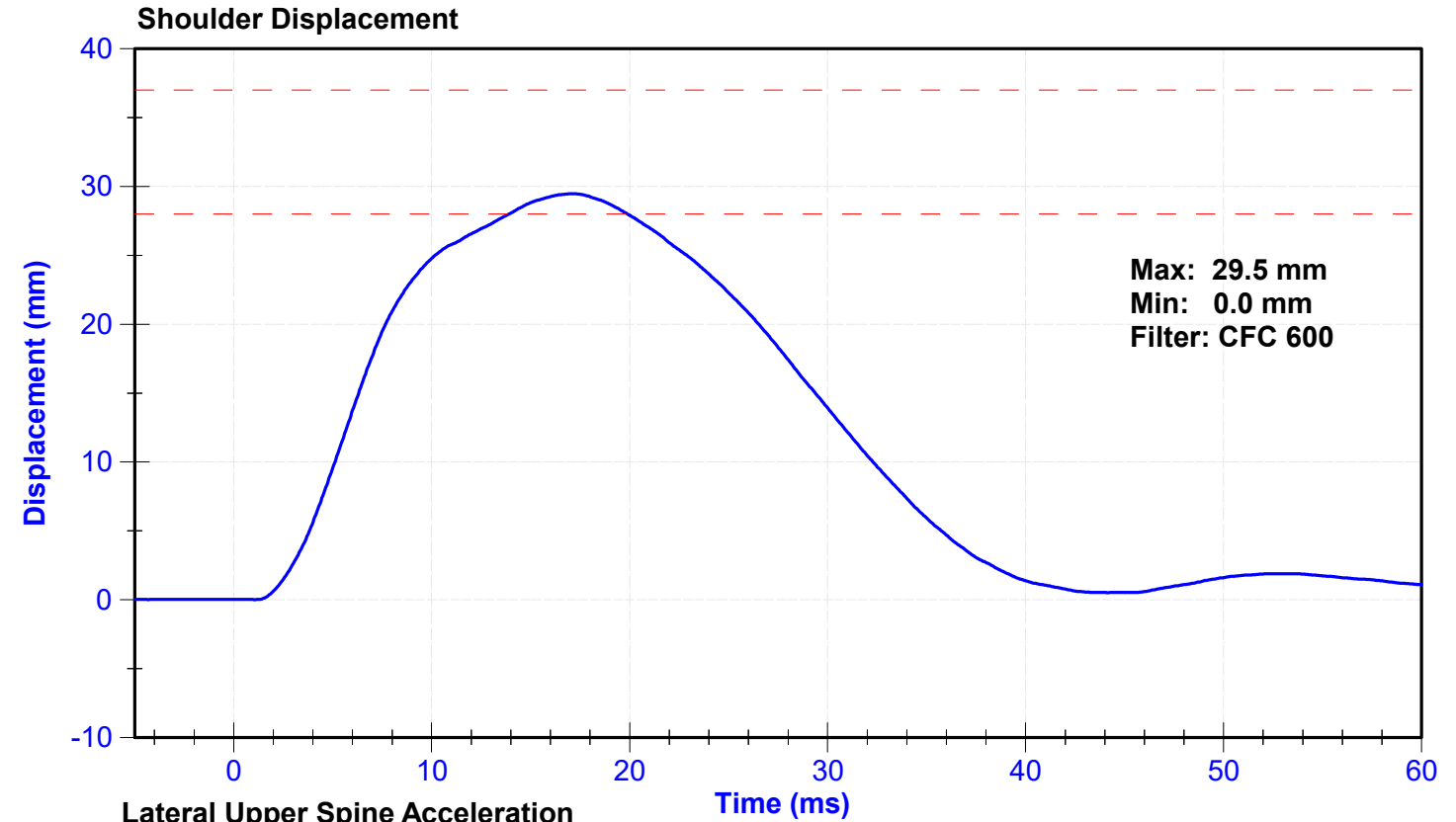
**Transducer Calibrations**

| Channel                     | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|-----------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer      | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Shoulder Potentiometer      | Servo        | 053GFE        | 10/16/2024       | 4/16/2025            |
| Upper Spine Y Accelerometer | Endevco      | T20880        | 10/17/2024       | 4/15/2025            |

**Probe Acceleration**







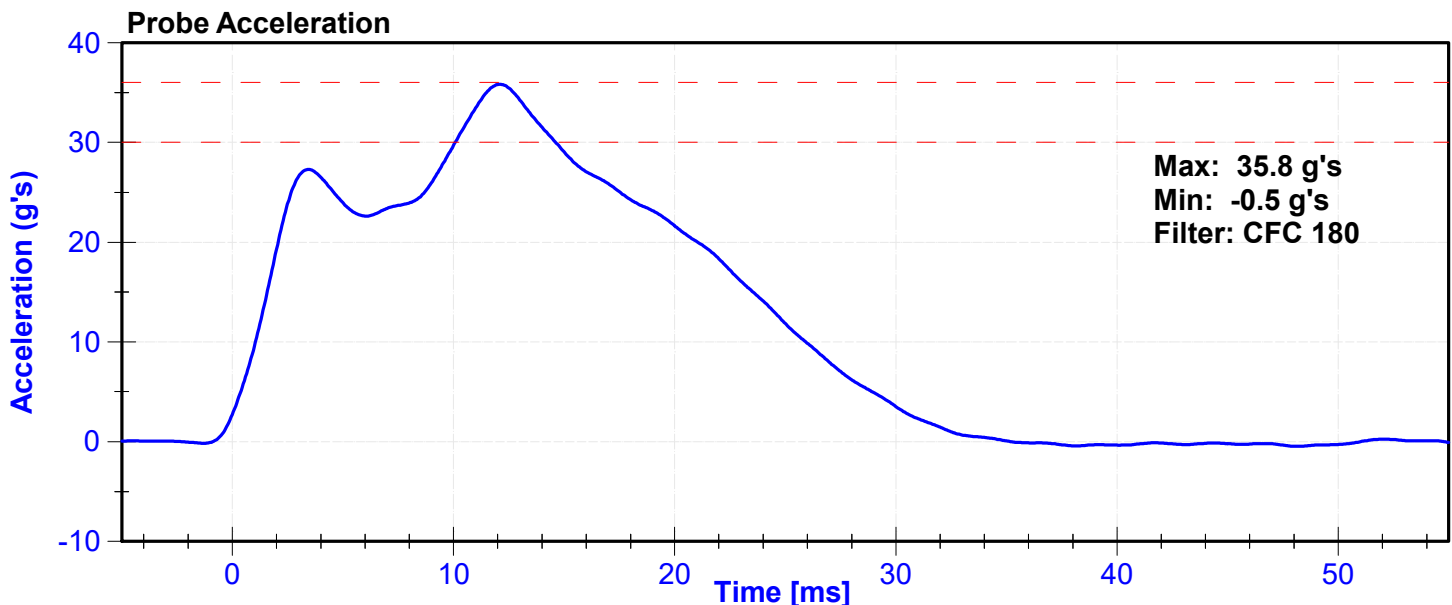
|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

### Results

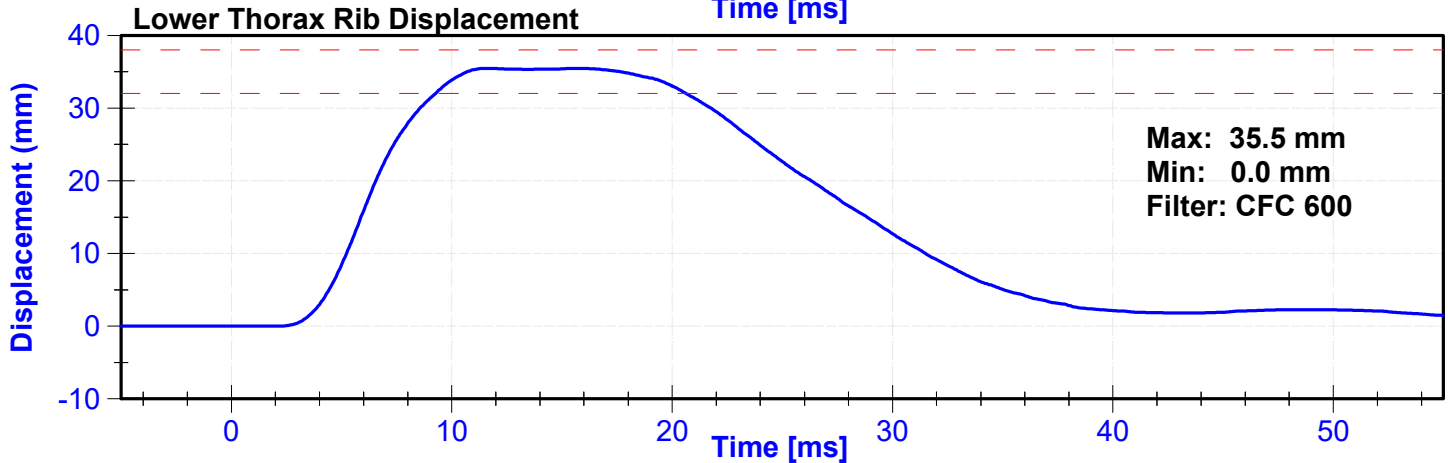
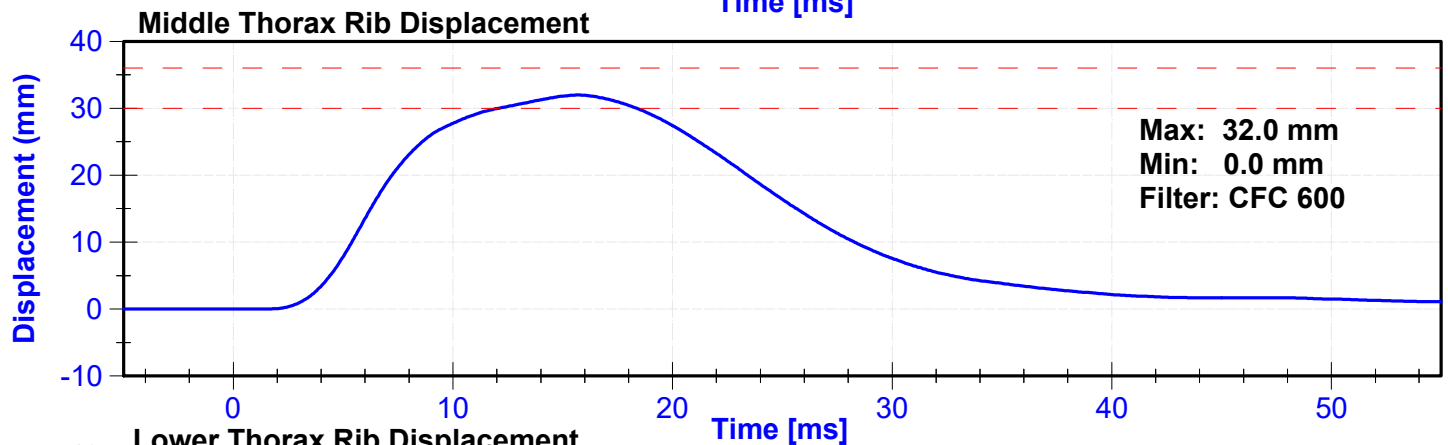
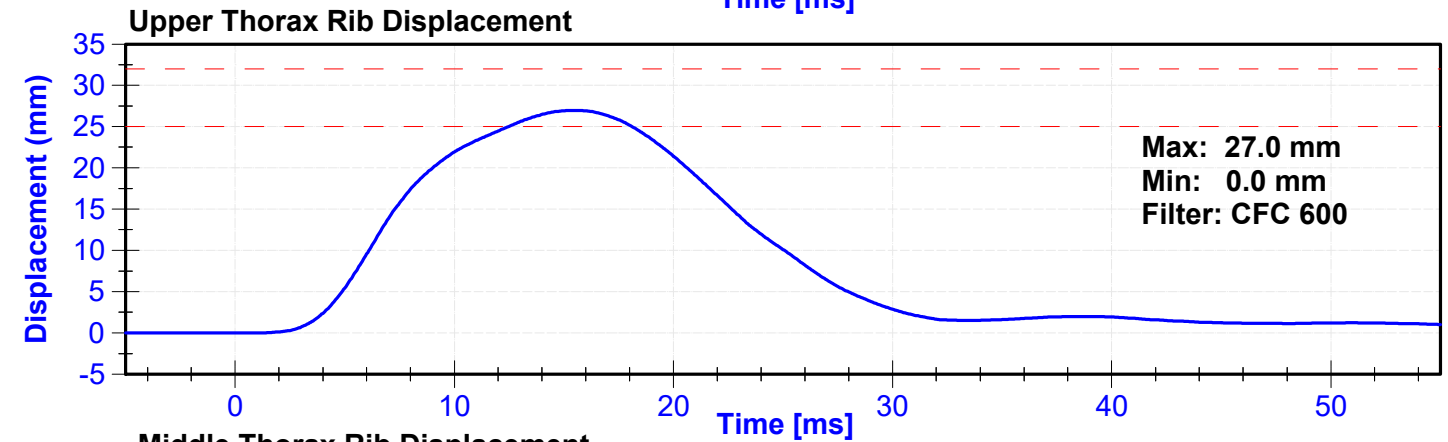
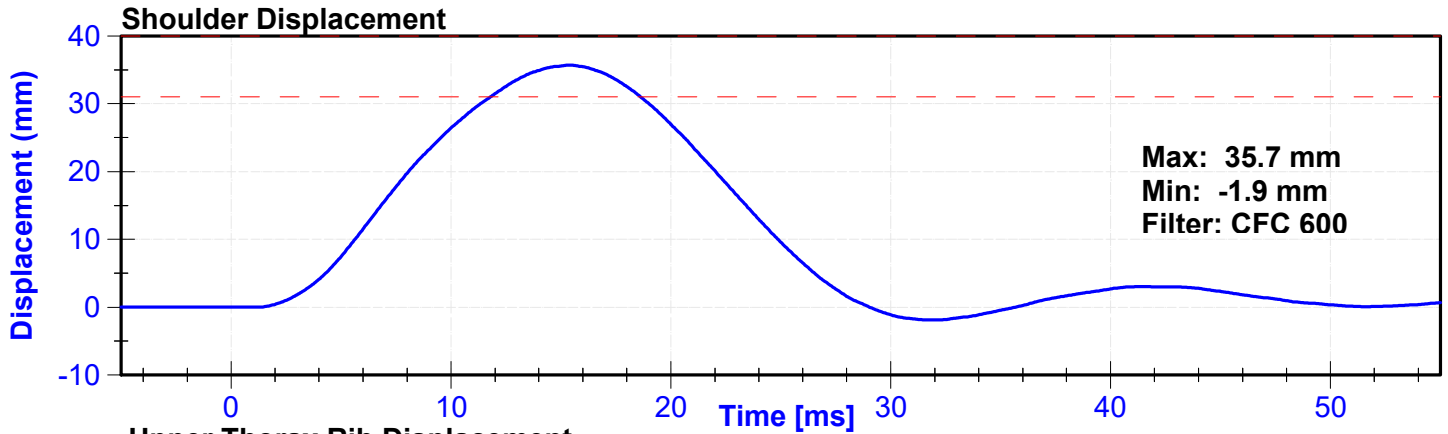
| Test Parameter                   | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                      | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                         | 10                    | 70                    | %    | 35     | Pass      |
| Velocity                         | 6.6                   | 6.8                   | m/s  | 6.66   | Pass      |
| Probe Acceleration after 5 ms    | 30                    | 36                    | g's  | 35.8   | Pass      |
| Lateral Upper Spine Acceleration | 34                    | 43                    | g's  | 36.6   | Pass      |
| Lateral Lower Spine Acceleration | 29                    | 37                    | g's  | 36.2   | Pass      |
| Shoulder Deflection              | 31                    | 40                    | mm   | 35.7   | Pass      |
| Upper Thorax Rib Deflection      | 25                    | 32                    | mm   | 27.0   | Pass      |
| Mid Thorax Rib Deflection        | 30                    | 36                    | mm   | 32.0   | Pass      |
| Lower Thorax Rib Deflection      | 32                    | 38                    | mm   | 35.5   | Pass      |

### Transducer Calibrations

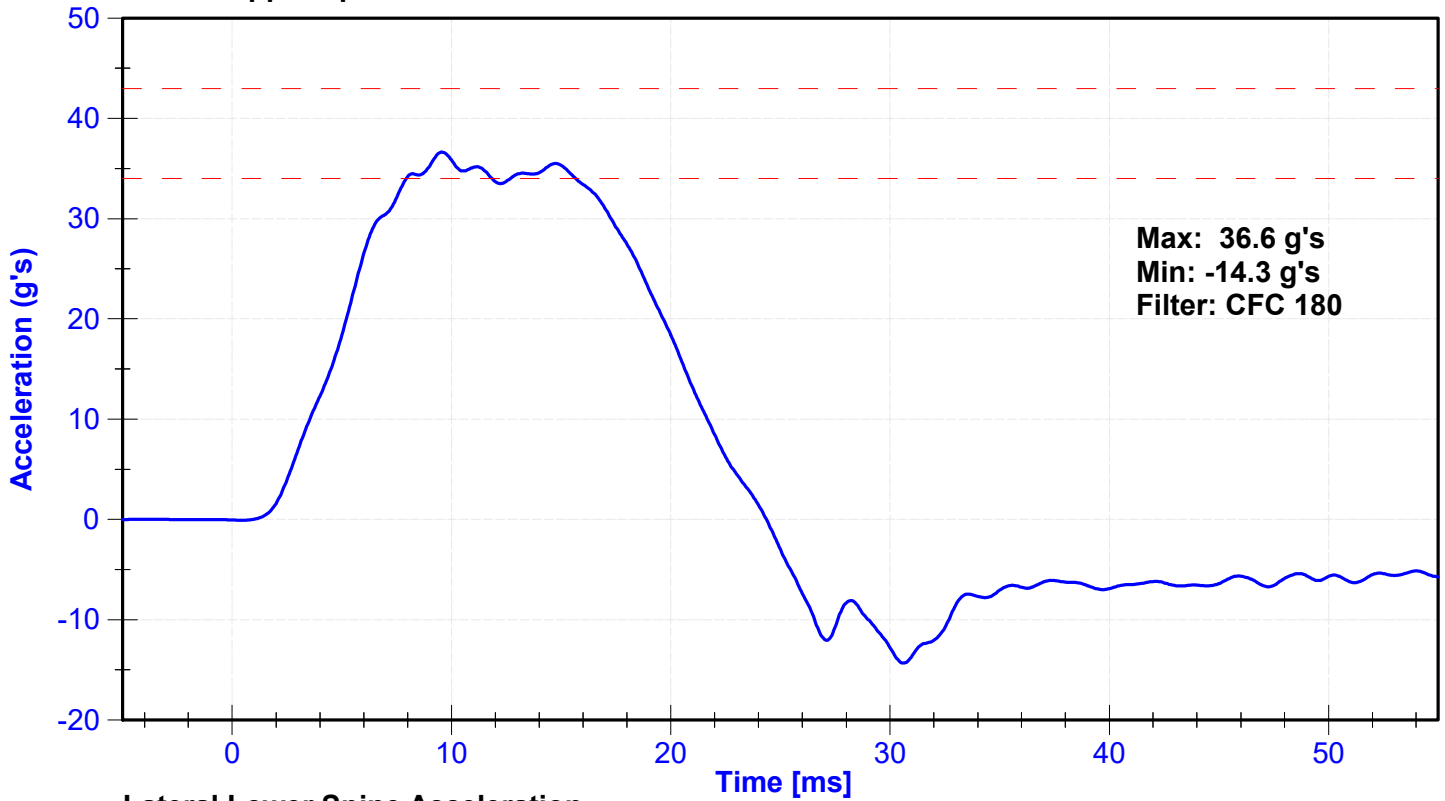
| Channel                         | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|---------------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer          | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Upper Spine T1 Y Accelerometer  | Endevco      | T20880        | 10/17/2024       | 4/15/2025            |
| Upper Spine T12 Y Accelerometer | Endevco      | P52071        | 10/17/2024       | 4/15/2025            |
| Shoulder Potentiometer          | Servo        | 053GFE        | 10/16/2024       | 4/16/2025            |
| Upper Thorax Rib Potentiometer  | Servo        | 2316GFE       | 10/16/2024       | 4/16/2025            |
| Middle Thorax Rib Potentiometer | Servo        | 085GFE        | 10/16/2024       | 4/16/2025            |
| Lower Thorax Rib Potentiometer  | Servo        | 1156GFE       | 10/16/2024       | 4/16/2025            |



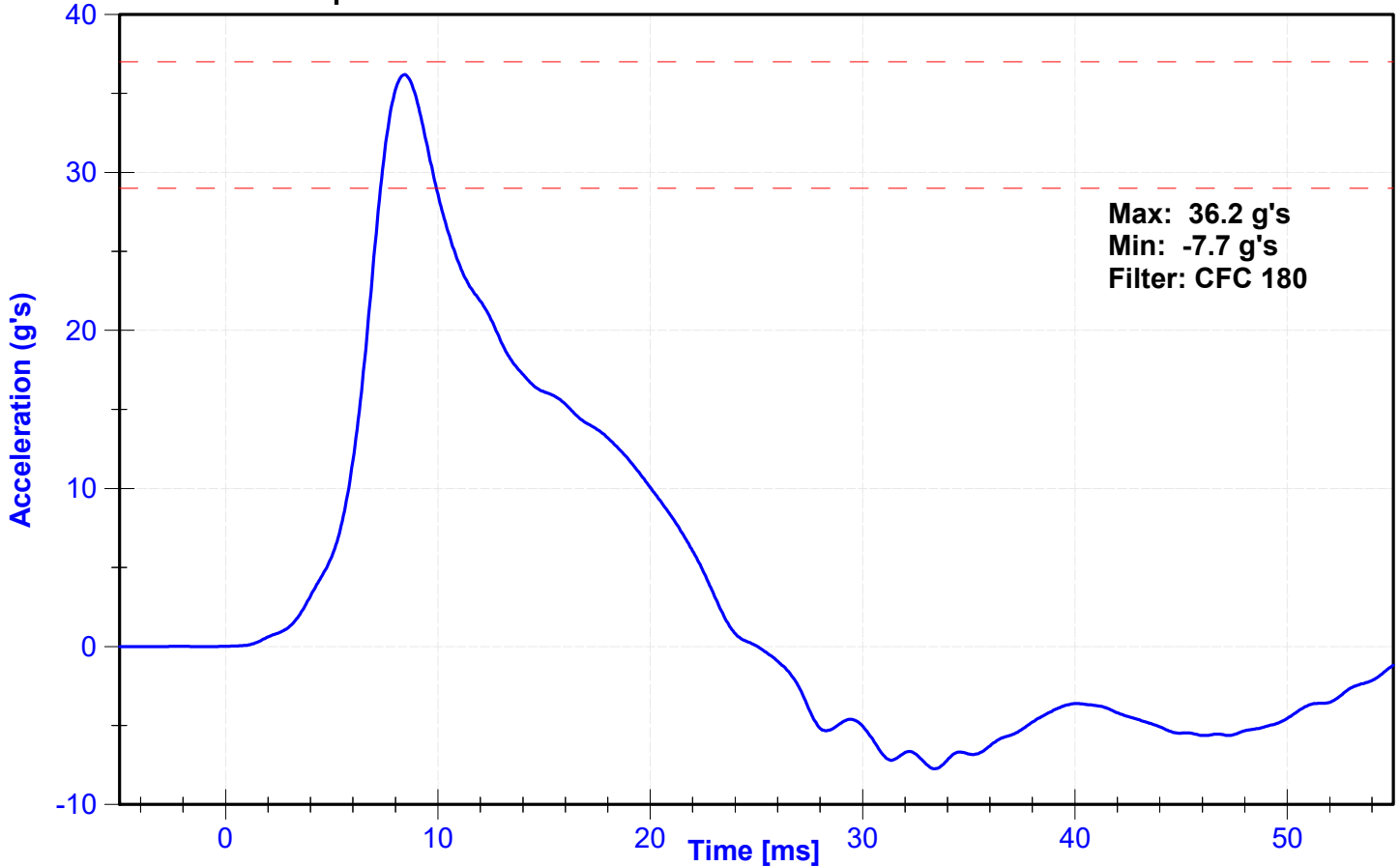




### Lateral Upper Spine Acceleration



### Lateral Lower Spine Acceleration





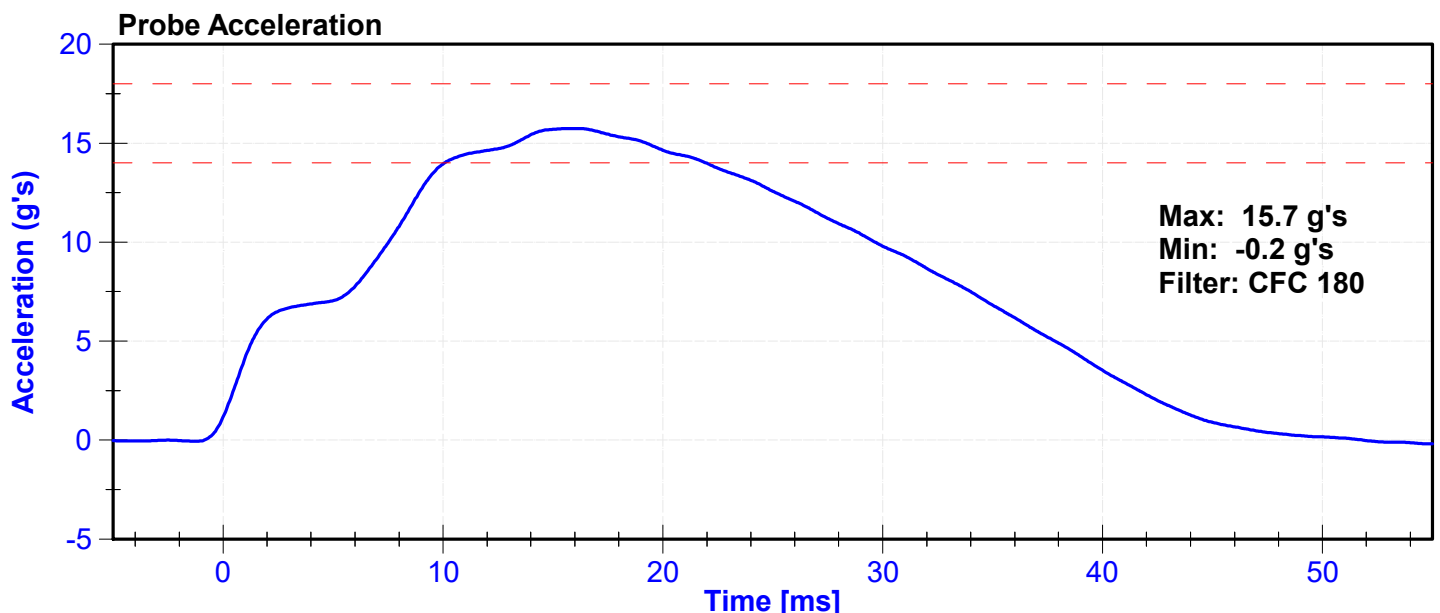
|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

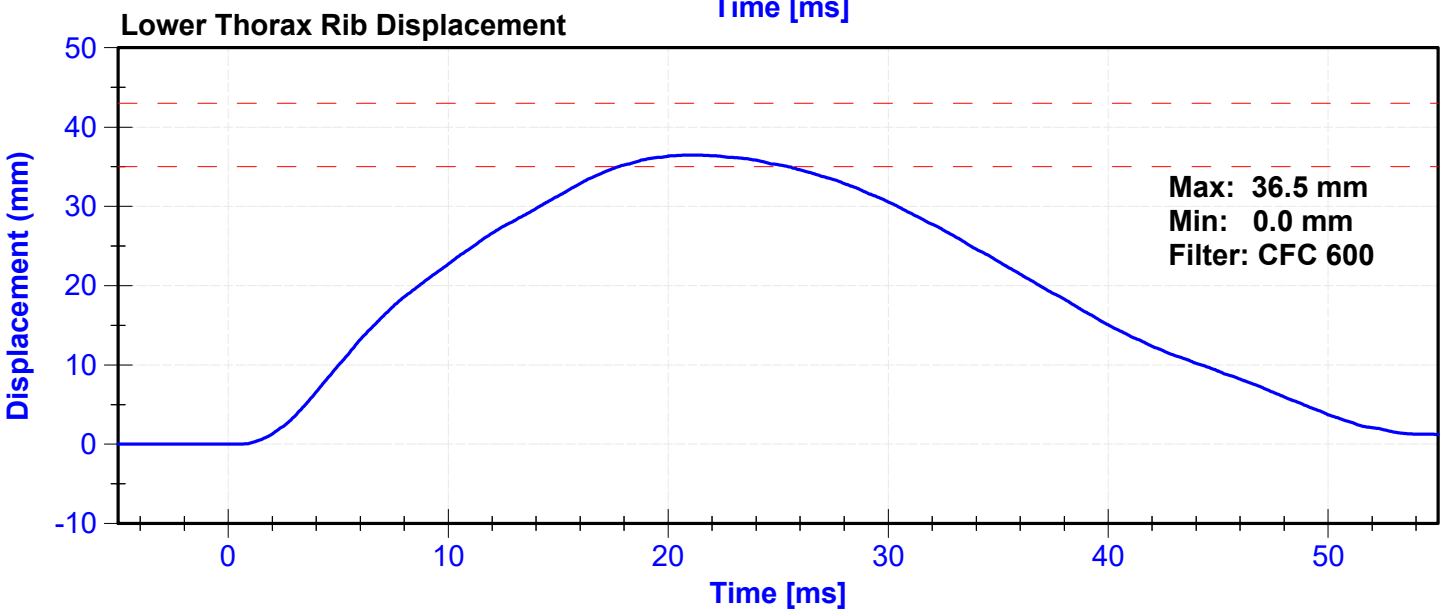
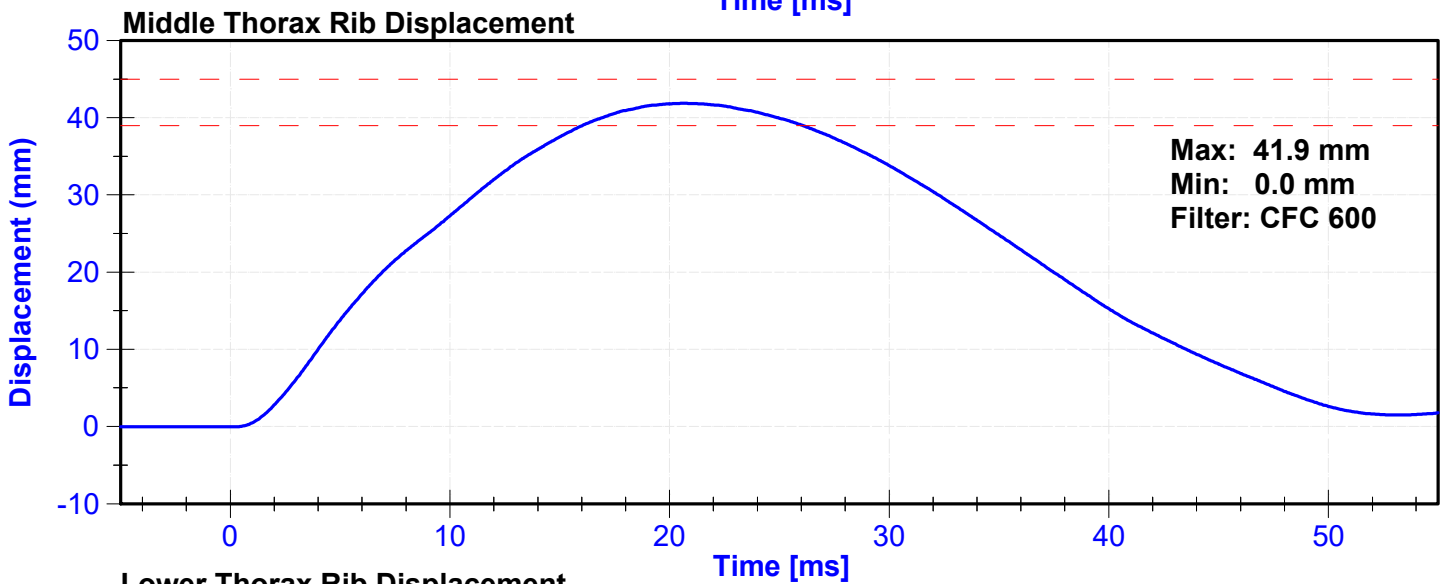
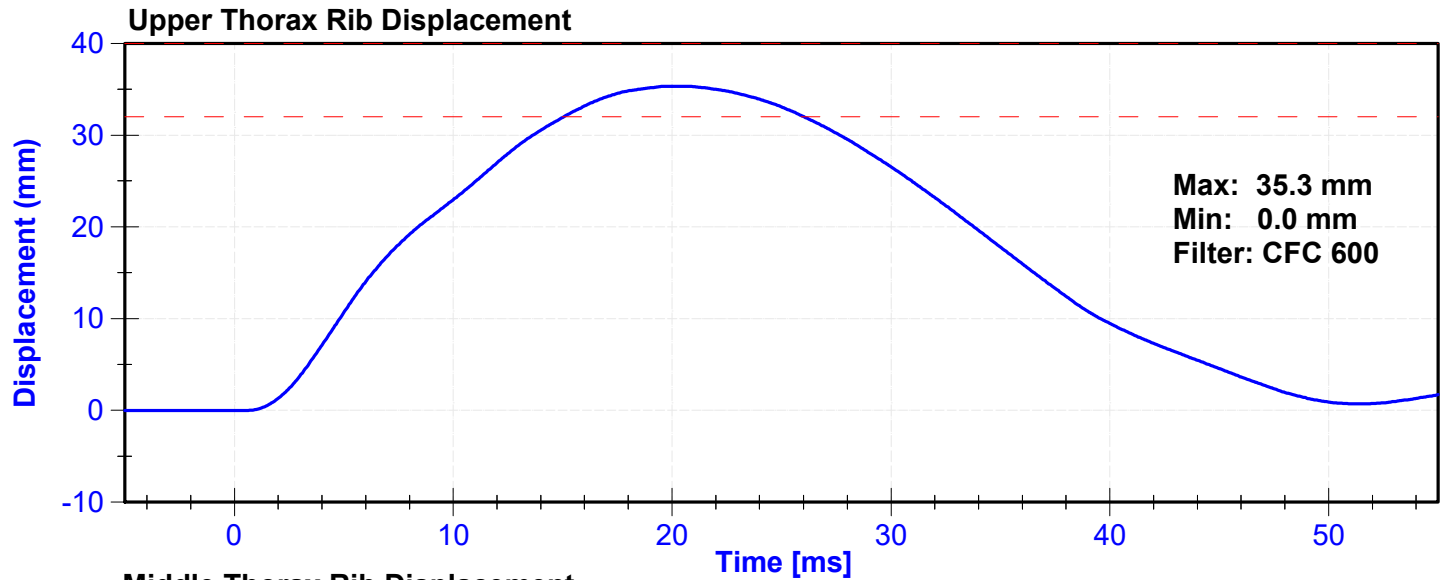
### Results

| Test Parameter                   | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                      | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                         | 10                    | 70                    | %    | 35     | Pass      |
| Velocity                         | 4.2                   | 4.4                   | m/s  | 4.31   | Pass      |
| Probe Acceleration               | 14                    | 18                    | g's  | 15.7   | Pass      |
| Lateral Upper Spine Acceleration | 13                    | 17                    | g's  | 14.9   | Pass      |
| Lateral Lower Spine Acceleration | 7                     | 11                    | g's  | 8.2    | Pass      |
| Upper Thorax Rib Deflection      | 32                    | 40                    | mm   | 35.3   | Pass      |
| Middle Thorax Rib Deflection     | 39                    | 45                    | mm   | 41.9   | Pass      |
| Lower Thorax Rib Deflection      | 35                    | 43                    | mm   | 36.5   | Pass      |

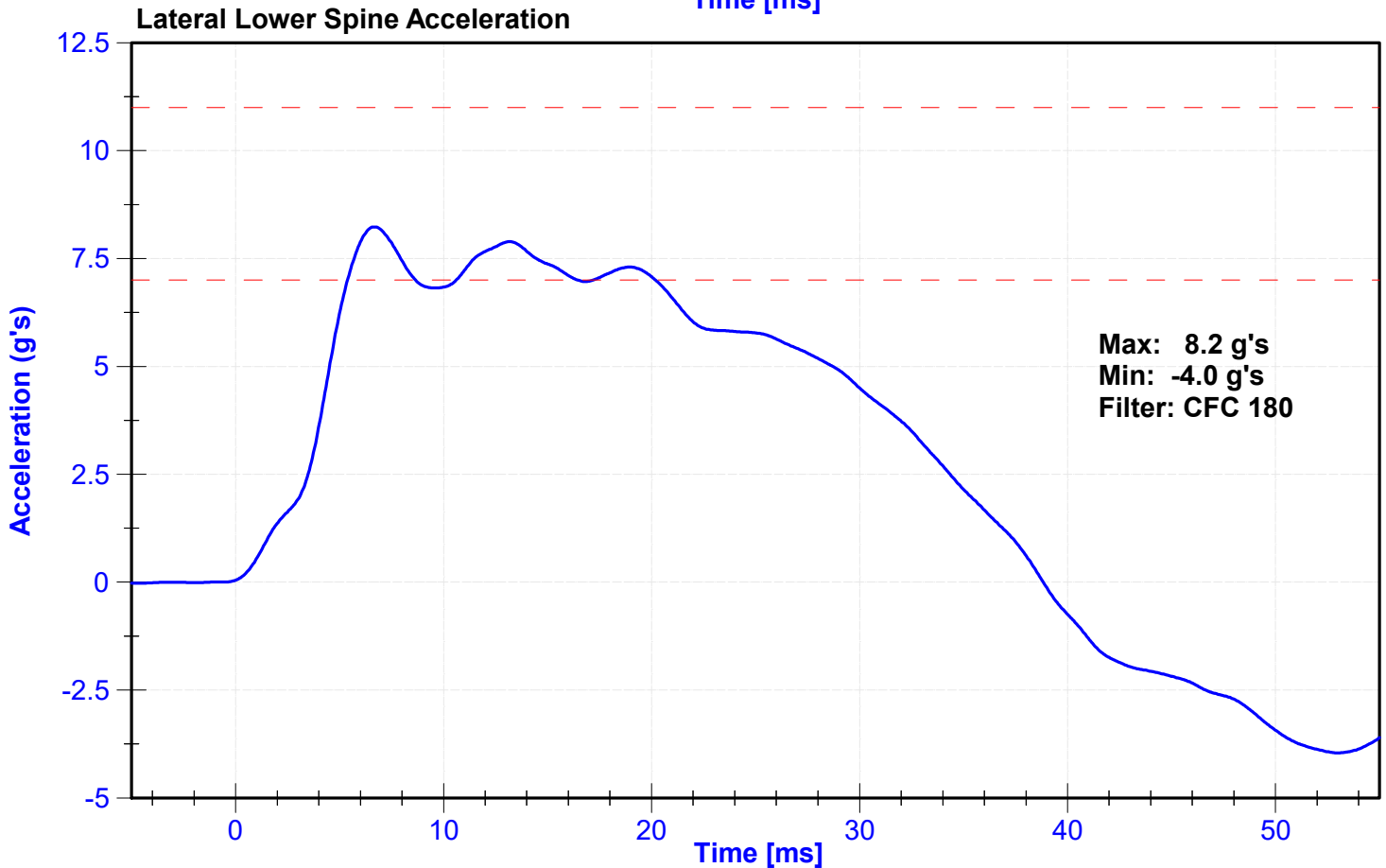
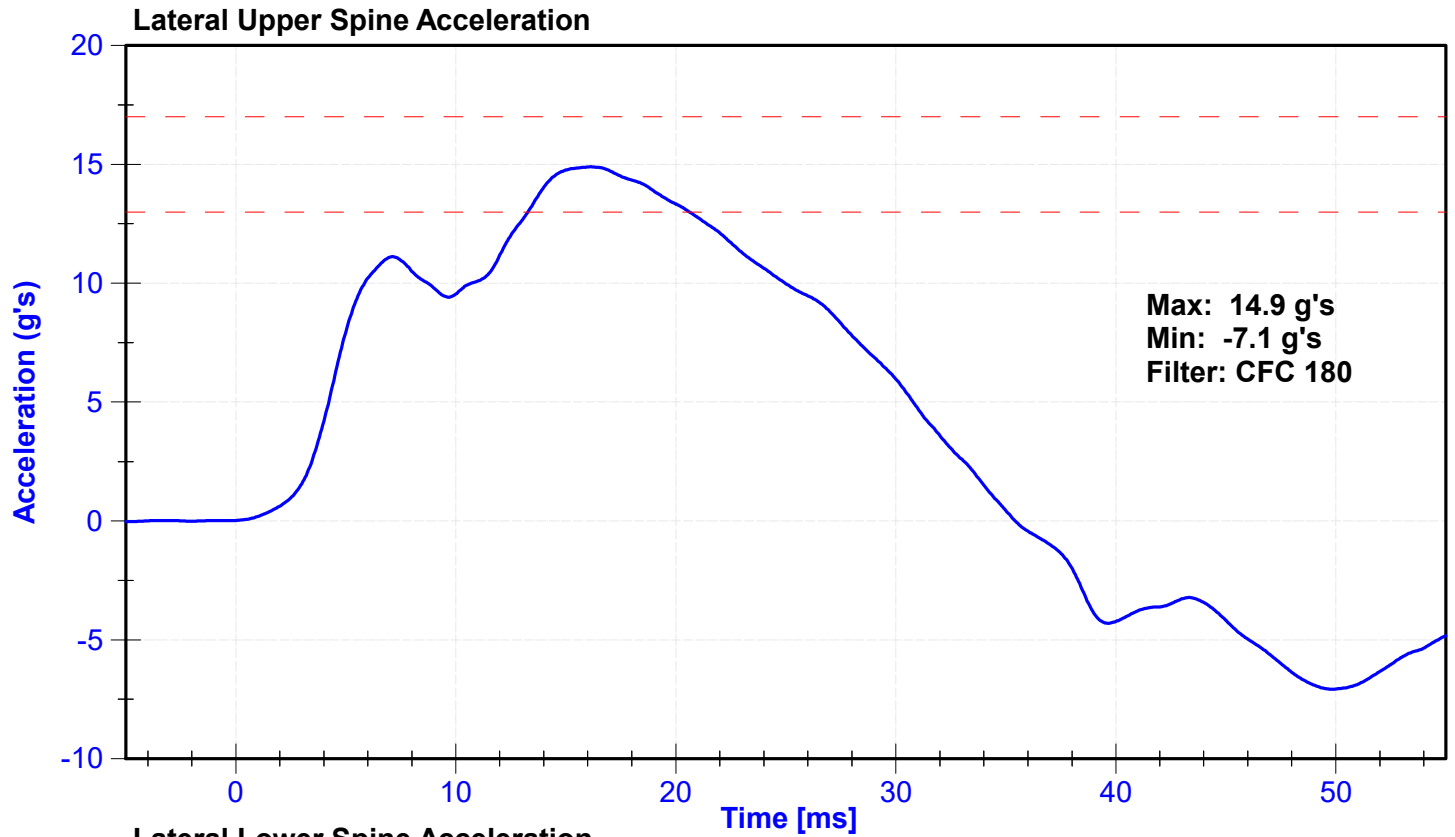
### Transducer Calibrations

| Channel                         | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|---------------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer          | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Upper Spine Y Accelerometer     | Endevco      | T20880        | 10/17/2024       | 4/15/2025            |
| Lower Spine Y Accelerometer     | Endevco      | P52071        | 10/17/2024       | 4/15/2025            |
| Upper Thorax Rib Potentiometer  | Servo        | 2316GFE       | 10/16/2024       | 4/16/2025            |
| Middle Thorax Rib Potentiometer | Servo        | 085GFE        | 10/16/2024       | 4/16/2025            |
| Lower Thorax Rib Potentiometer  | Servo        | 1156GFE       | 10/16/2024       | 4/16/2025            |









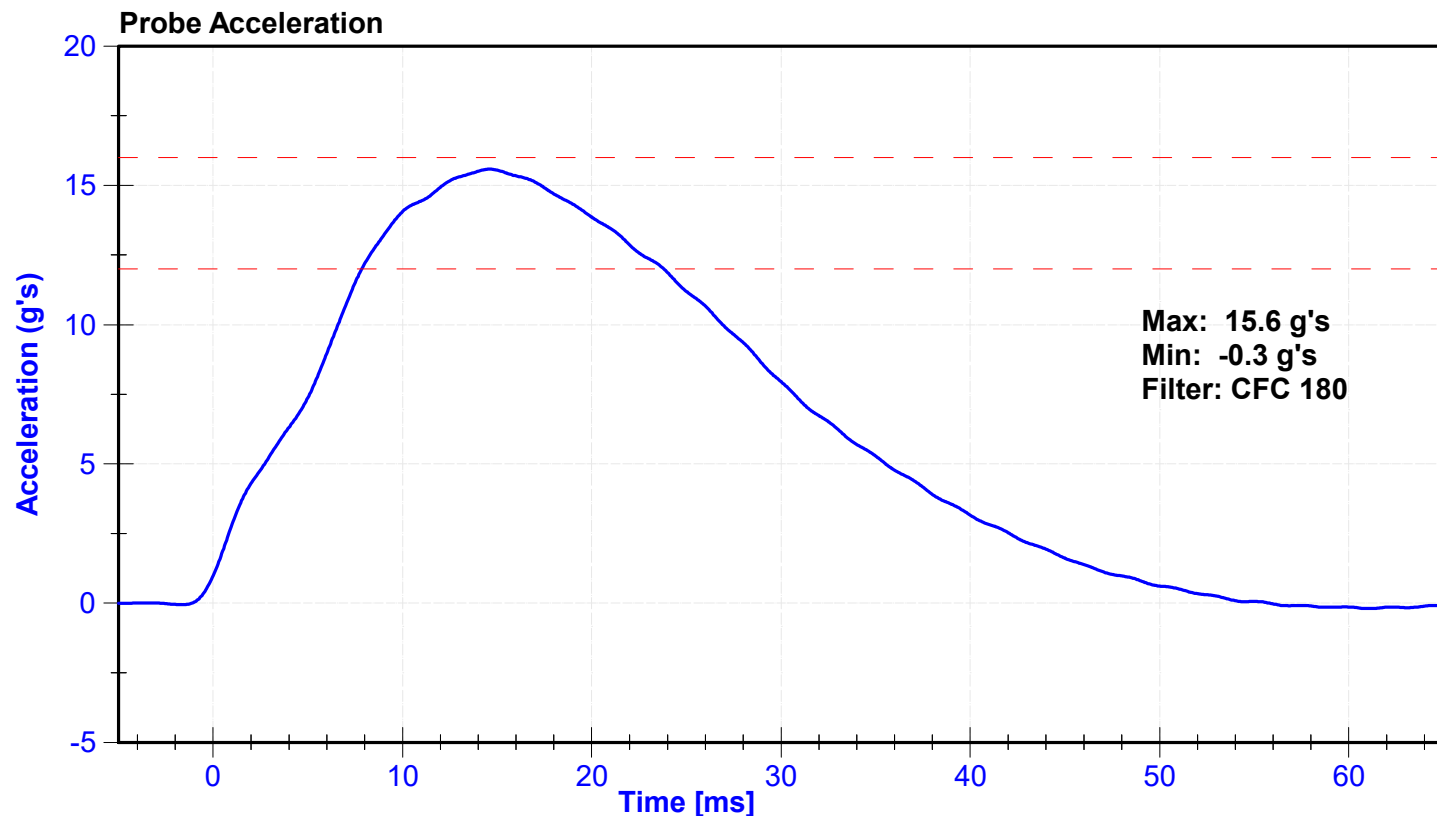
|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

### Results

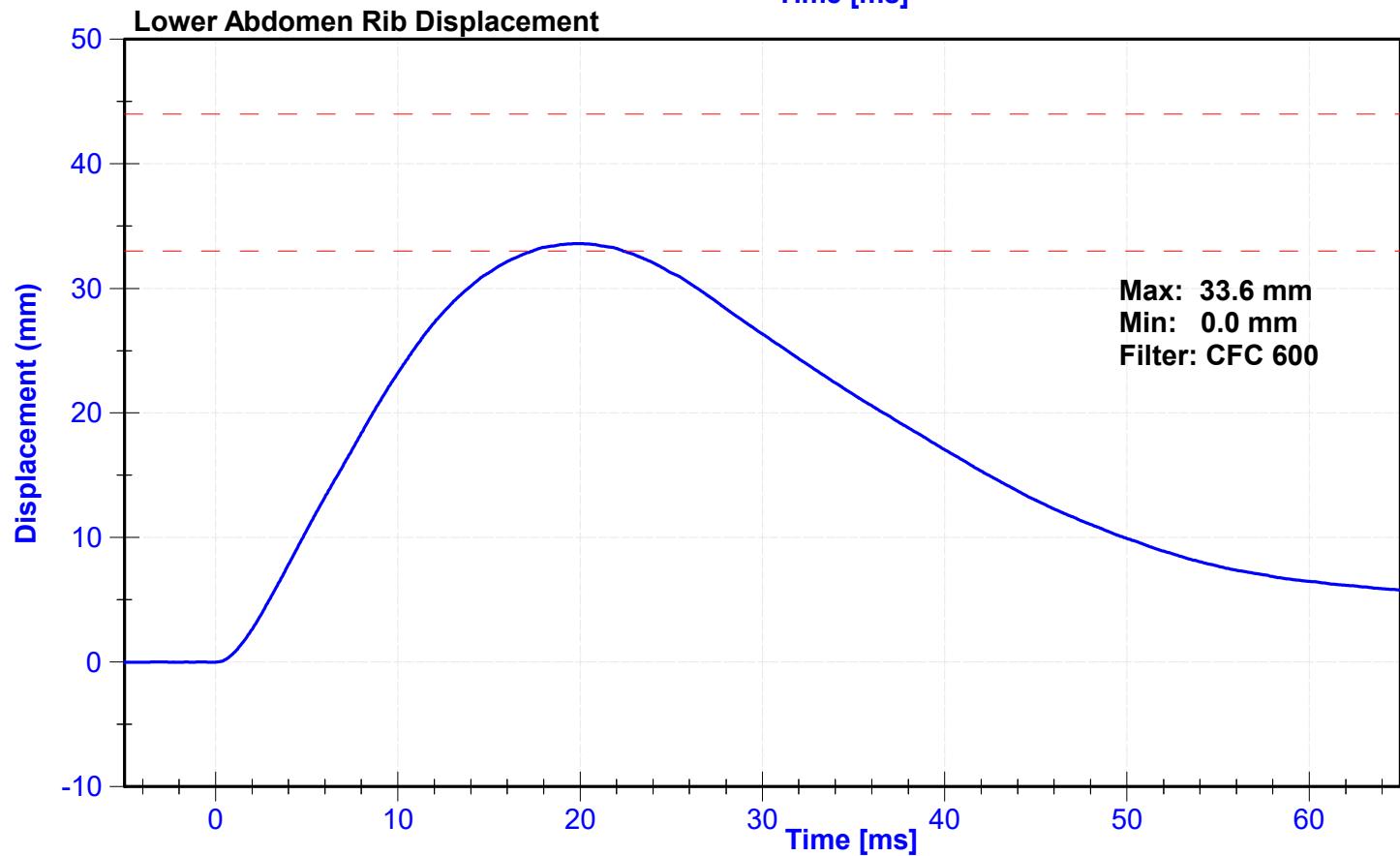
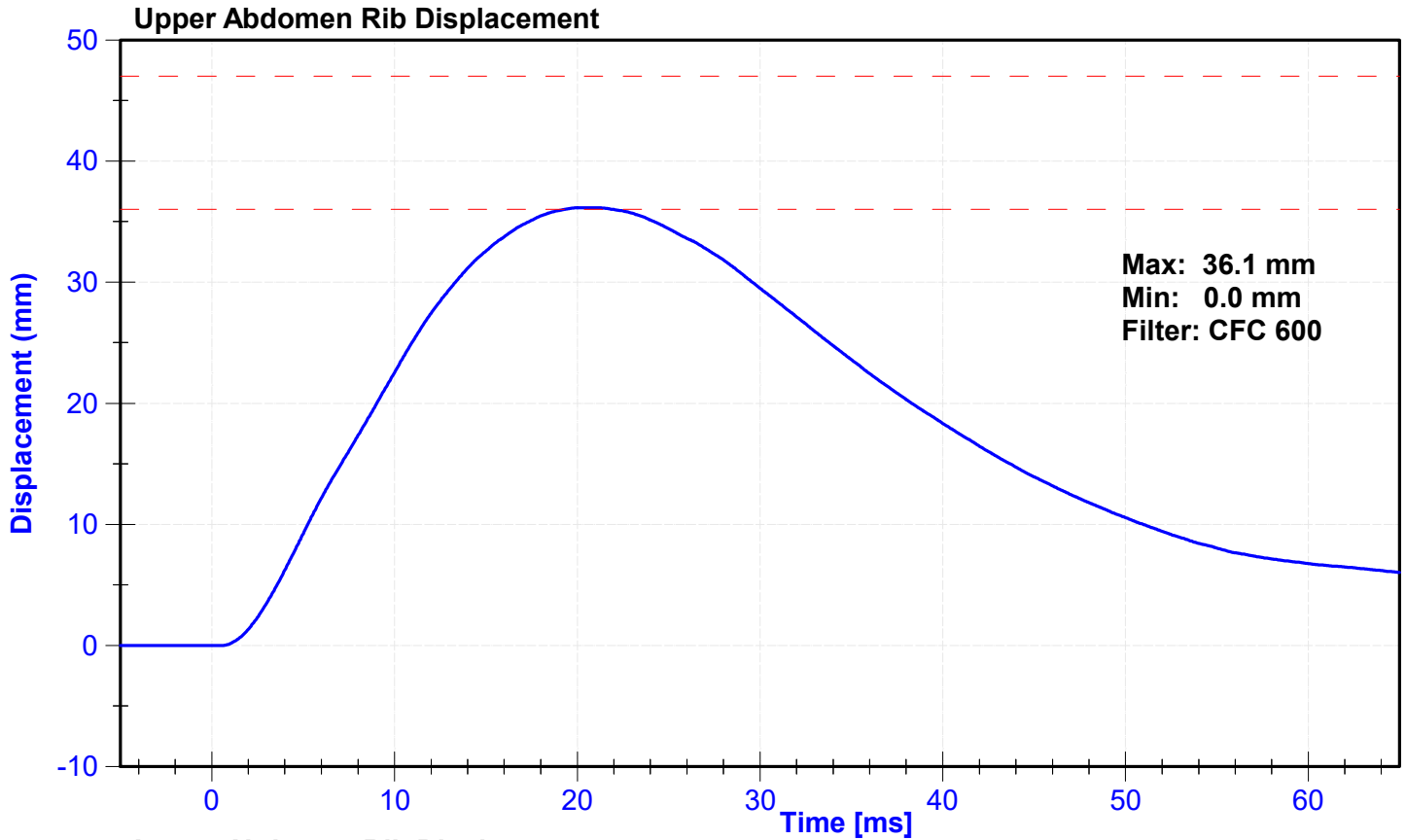
| Test Parameter                   | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                      | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                         | 10                    | 70                    | %    | 35     | Pass      |
| Velocity                         | 4.2                   | 4.4                   | m/s  | 4.28   | Pass      |
| Probe Acceleration               | 12                    | 16                    | g's  | 15.6   | Pass      |
| Lateral Lower Spine Acceleration | 9                     | 14                    | g's  | 12.3   | Pass      |
| Upper Abdomen Rib Deflection     | 36                    | 47                    | mm   | 36.1   | Pass      |
| Lower Abdomen Rib Deflection     | 33                    | 44                    | mm   | 33.6   | Pass      |

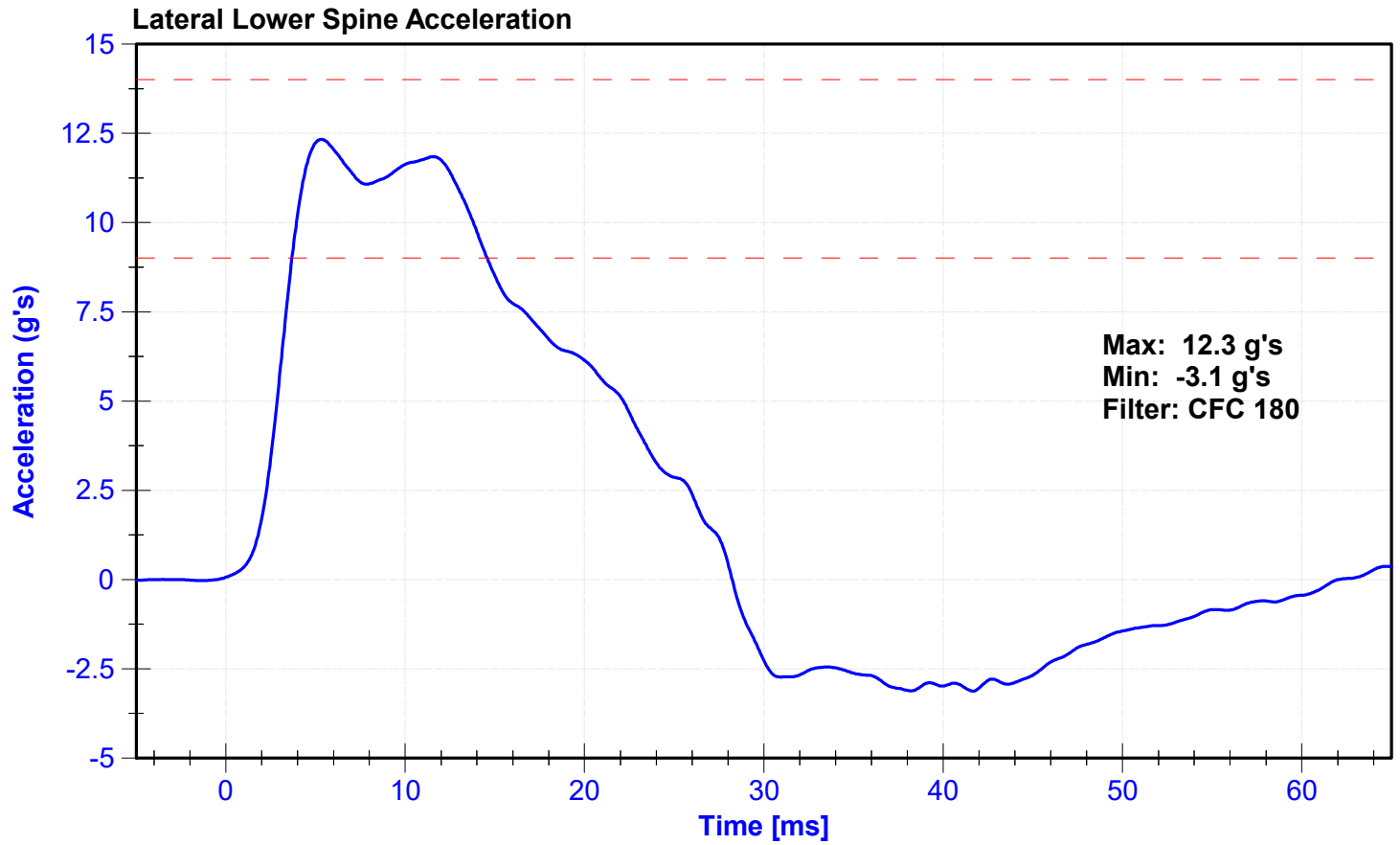
### Transducer Calibrations

| Channel                         | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|---------------------------------|--------------|---------------|------------------|----------------------|
| Probe Accelerometer             | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Lower Spine Y Accelerometer     | Endevco      | P52071        | 10/17/2024       | 4/15/2025            |
| Upper Abdomen Rib Potentiometer | Servo        | 074GFE        | 10/16/2024       | 4/16/2025            |
| Lower Abdomen Rib Potentiometer | Servo        | 075GFE        | 10/16/2024       | 4/16/2025            |











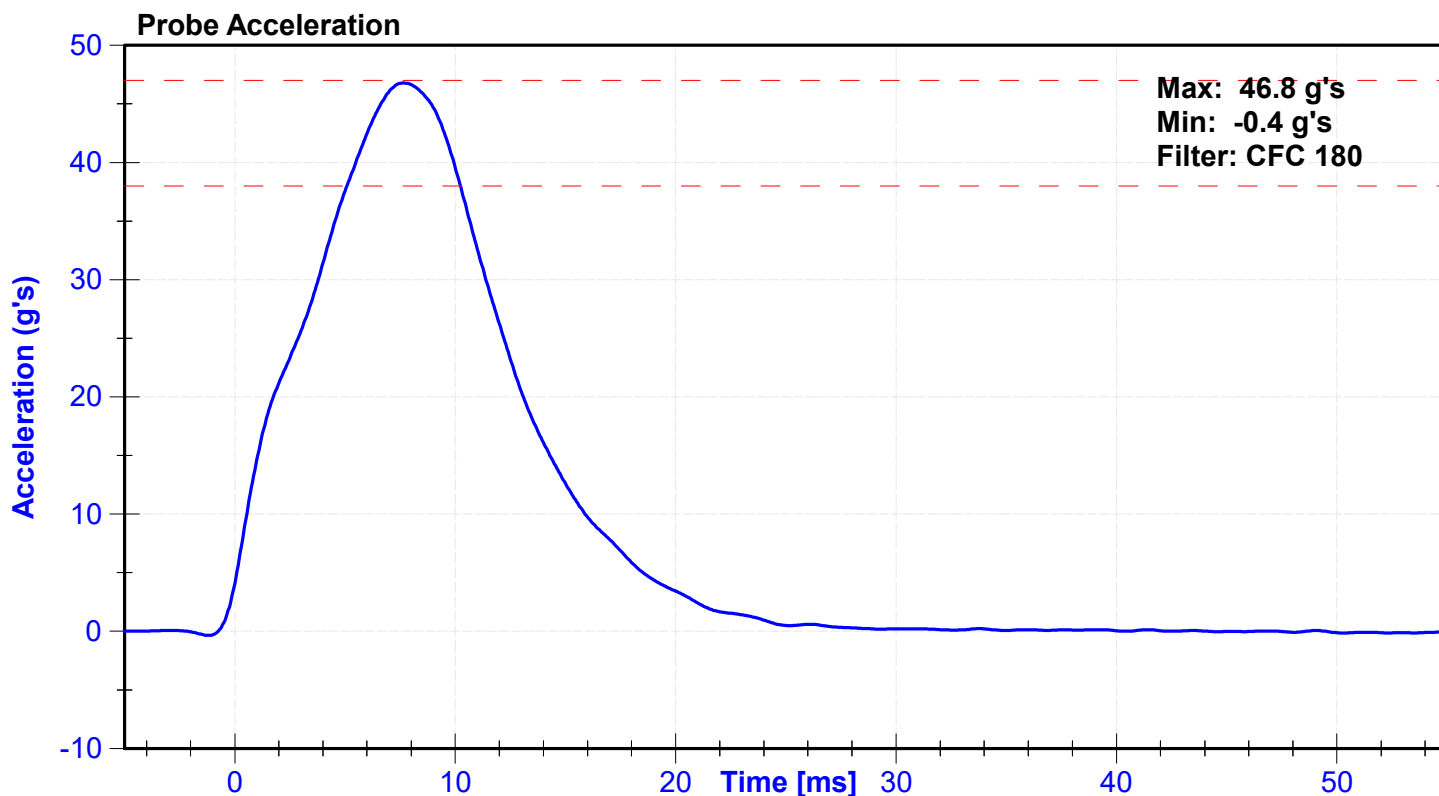
|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

### Results

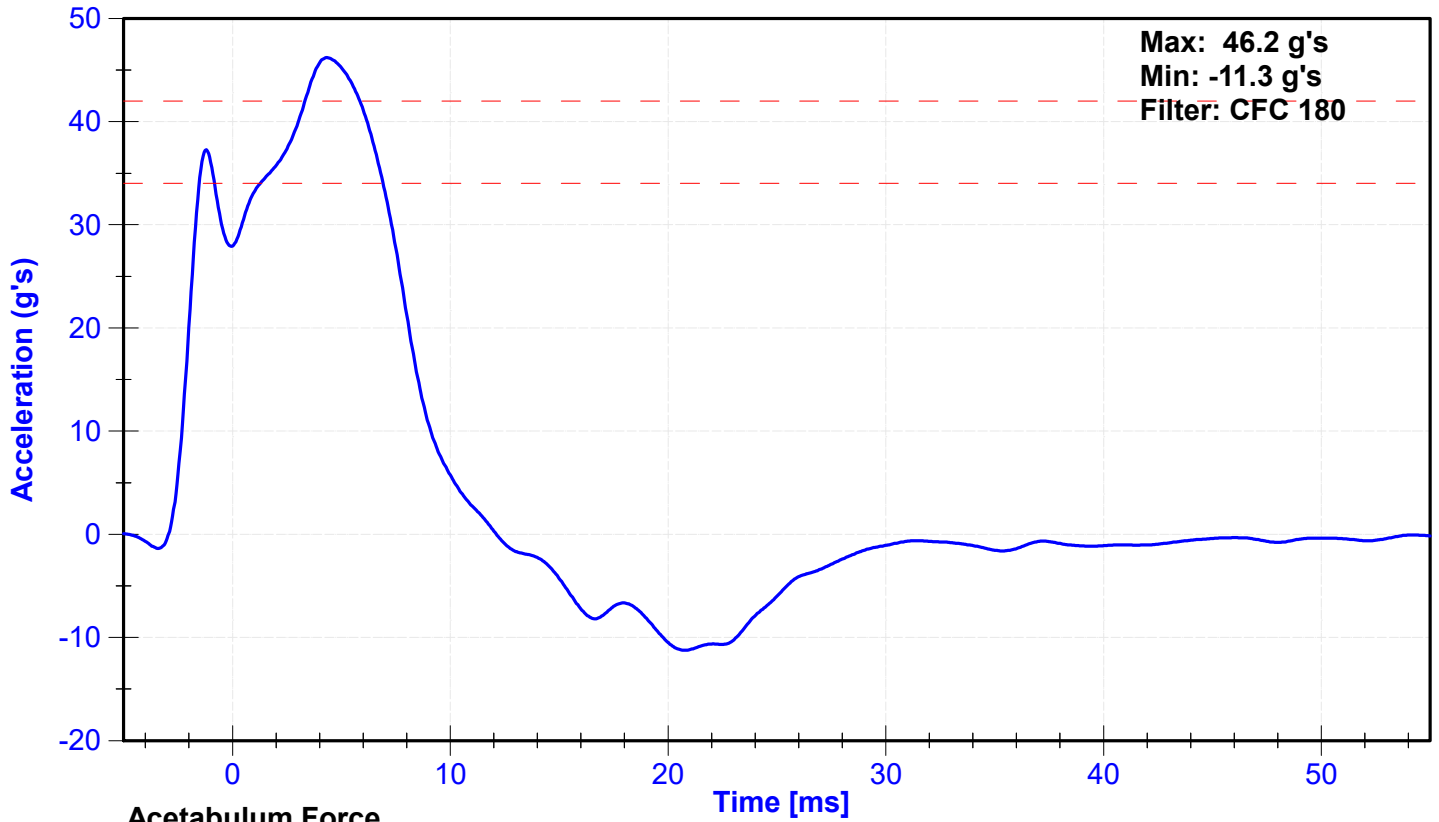
| Test Parameter                        | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|---------------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                           | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                              | 10                    | 70                    | %    | 35     | Pass      |
| Velocity                              | 6.6                   | 6.8                   | m/s  | 6.69   | Pass      |
| Probe Acceleration                    | 38                    | 47                    | g's  | 46.8   | Pass      |
| Lateral Pelvis Acceleration after 6ms | 34                    | 42                    | g's  | 41.1   | Pass      |
| Acetabulum Force                      | 3600                  | 4300                  | N    | 4261.2 | Pass      |

### Transducer Calibrations

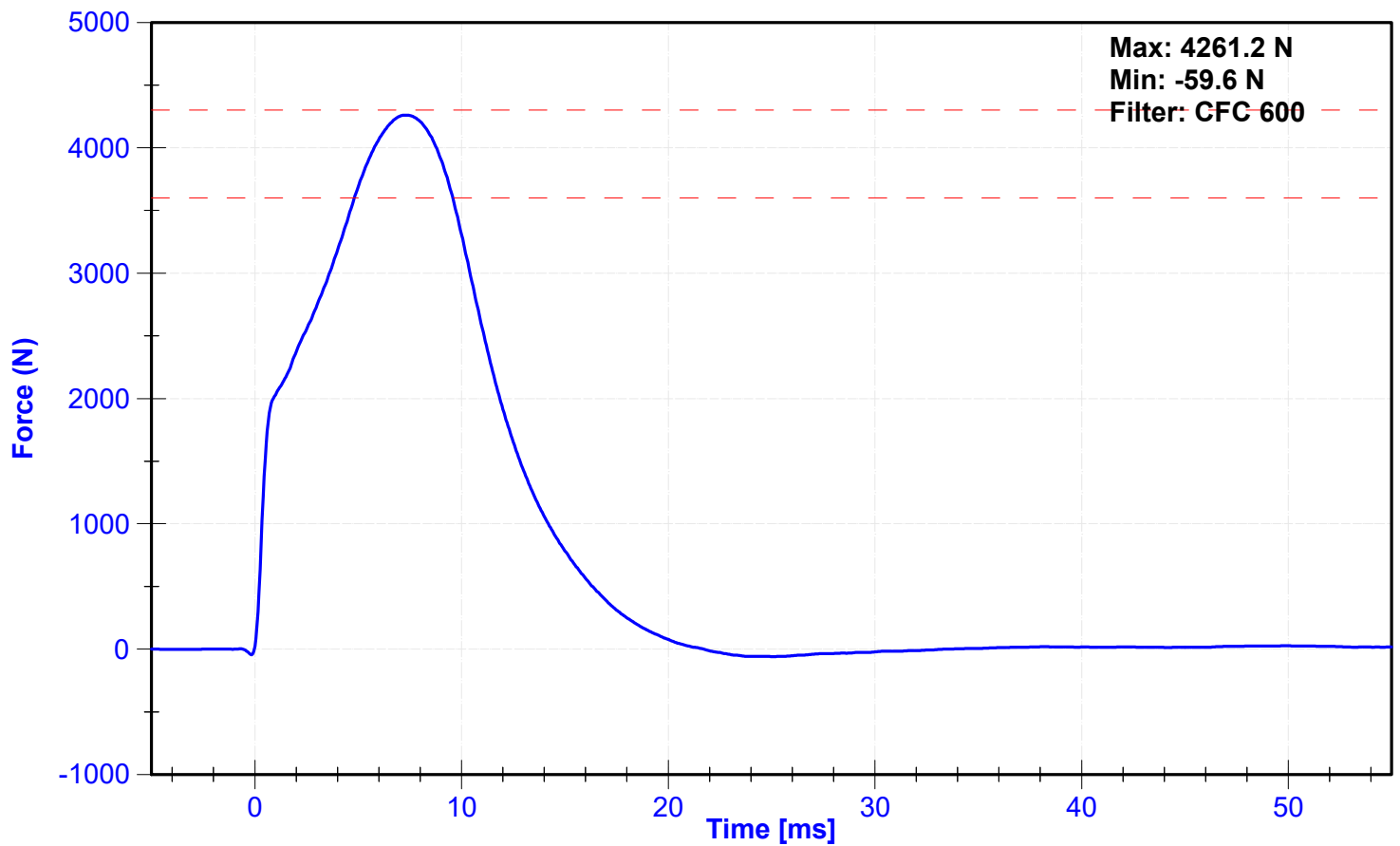
| Channel                | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Pelvis Y Accelerometer | Endevco      | P51731        | 10/17/2024       | 4/15/2025            |
| Acetabulum Load Cell   | Denton       | 275-FY        | 10/28/2024       | 10/28/2025           |
| Certification Plug     | SACO         |               |                  | N/A                  |
| Crash Test Plug        | SACO         |               |                  | N/A                  |



Lateral Pelvis Acceleration



Acetabulum Force







# SID-IIs Pelvis Plug Certification Test

Plug S/N 16663

Test Number 23439

Report Number 23496

Test Date 7/21/2022 11:52:12 AM

| Test Results       | Spec Min | Spec Max |
|--------------------|----------|----------|
| Force @ 0.5 mm (N) | 50       | 600      |
| Force @ 1.5 mm (N) | 850      | 1,400    |
| Force @ 2.5 mm (N) | 1,306    | 1,618    |
| Force @ 3.0 mm (N) | 1,361    | 1,673    |

Testing Machine STM-20 5965542

Load Cell S/N (F1360947), Units (LBS) 1000

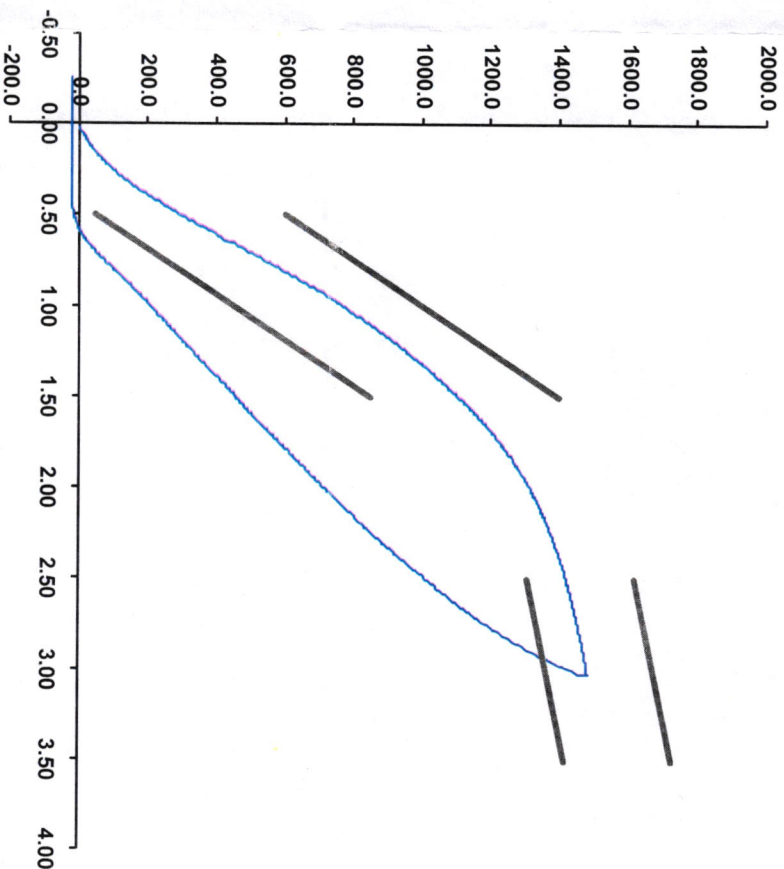
Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD\_100 (XHD100)

Notes:

Cert Plug 11-13-2024 300

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107

21-Jul-22

SACO Research

By:

DC

Date:

7/21/22

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



# SID-11s Pelvis Plug Certification Test

Plug S/N 16778

Test Number 23588

Report Number 23645

Test Date 7/25/2022 7:53:38 AM

| Test Results       | Spec Min | Spec Max |
|--------------------|----------|----------|
| Force @ 0.5 mm (N) | 334      | 600      |
| Force @ 1.5 mm (N) | 1,227    | 850      |
| Force @ 2.5 mm (N) | 1,518    | 1,306    |
| Force @ 3.0 mm (N) | 1,559    | 1,361    |

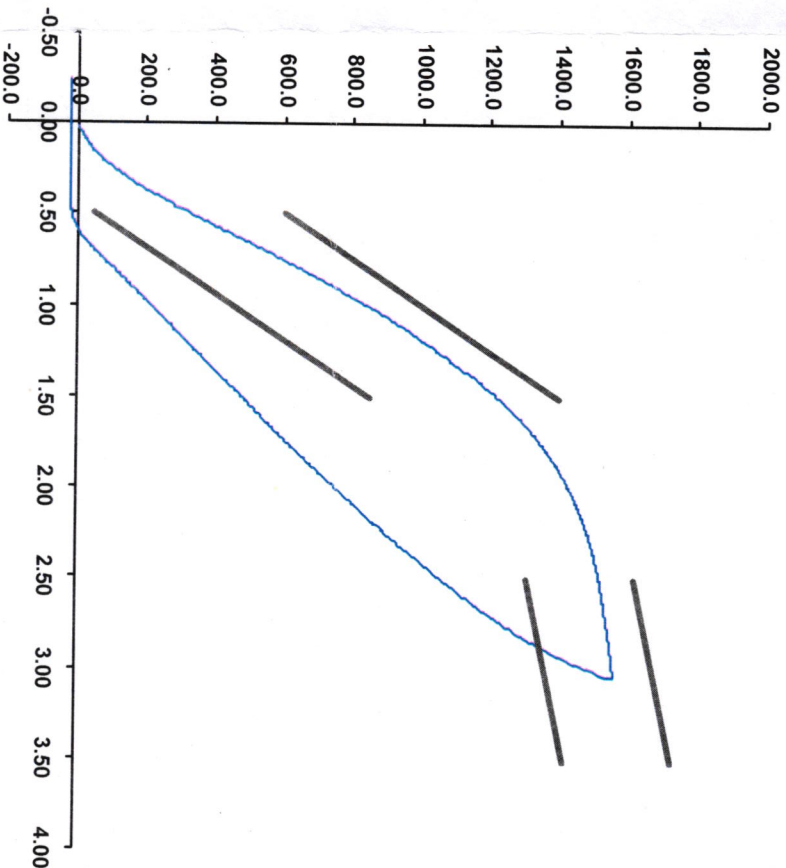
Testing Machine STM-20 5965542  
Load Cell S/N (F1360947), Units (LBS ) 1000

Crosshead Speed ( mm / min ) or Rate 12.7  
Extension or Position Measured by XHD\_100 (XHD100)

Notes:

Impact Plug 300 9-23-24

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 25-Jul-22  
SACO Research

By:

*DC*

Date:

*7/25/22*

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



# SID-11s Pelvis Plug Certification Test

Plug S/N 16781  
Test Number 23591  
Report Number 23648  
Test Date 7/25/2022 7:59:26 AM

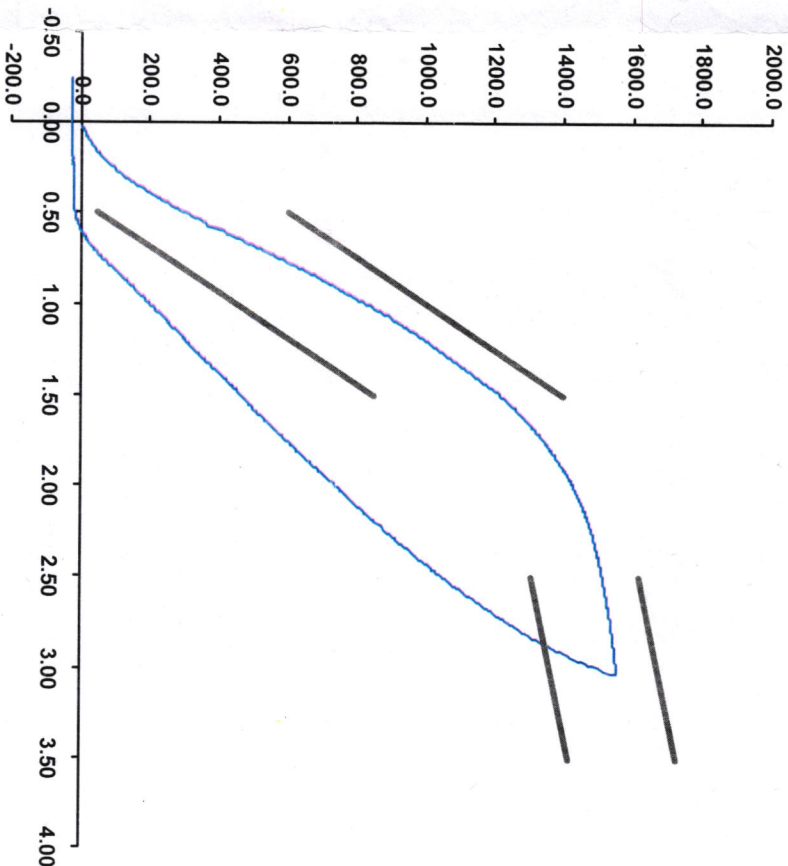
| Test Results       | Spec Min | Spec Max |
|--------------------|----------|----------|
| Force @ 0.5 mm (N) | 50       | 600      |
| Force @ 1.5 mm (N) | 850      | 1,400    |
| Force @ 2.5 mm (N) | 1,306    | 1,618    |
| Force @ 3.0 mm (N) | 1,361    | 1,673    |

Testing Machine STM-20 5965542  
Load Cell S/N (F1360947), Units (LBS ) 1000

Crosshead Speed ( mm / min ) or Rate 12.7  
Extension or Position Measured by XHD\_100 ( XHD100 )

Notes:  
Non Impact Plug 300 4-23-24

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 25-Jul-22  
SACO Research

By:

Date:

7/25/22

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

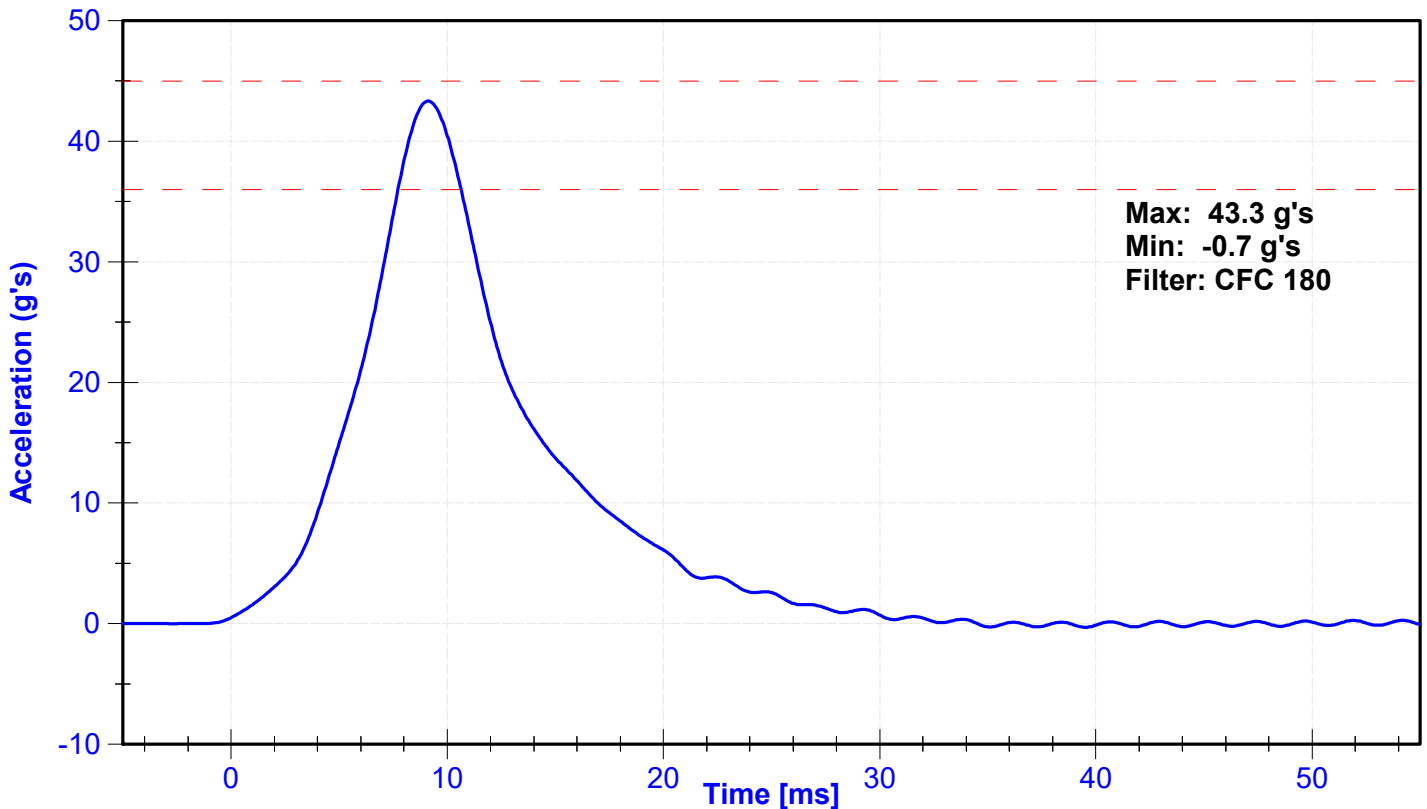
**Results**

| Test Parameter              | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|-----------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                 | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                    | 10                    | 70                    | %    | 35     | Pass      |
| Velocity                    | 4.2                   | 4.4                   | m/s  | 4.29   | Pass      |
| Probe Acceleration          | 36                    | 45                    | g's  | 43.3   | Pass      |
| Lateral Pelvis Acceleration | 28                    | 39                    | g's  | 33.2   | Pass      |
| Iliac Force                 | 4100                  | 5100                  | N    | 4724.8 | Pass      |

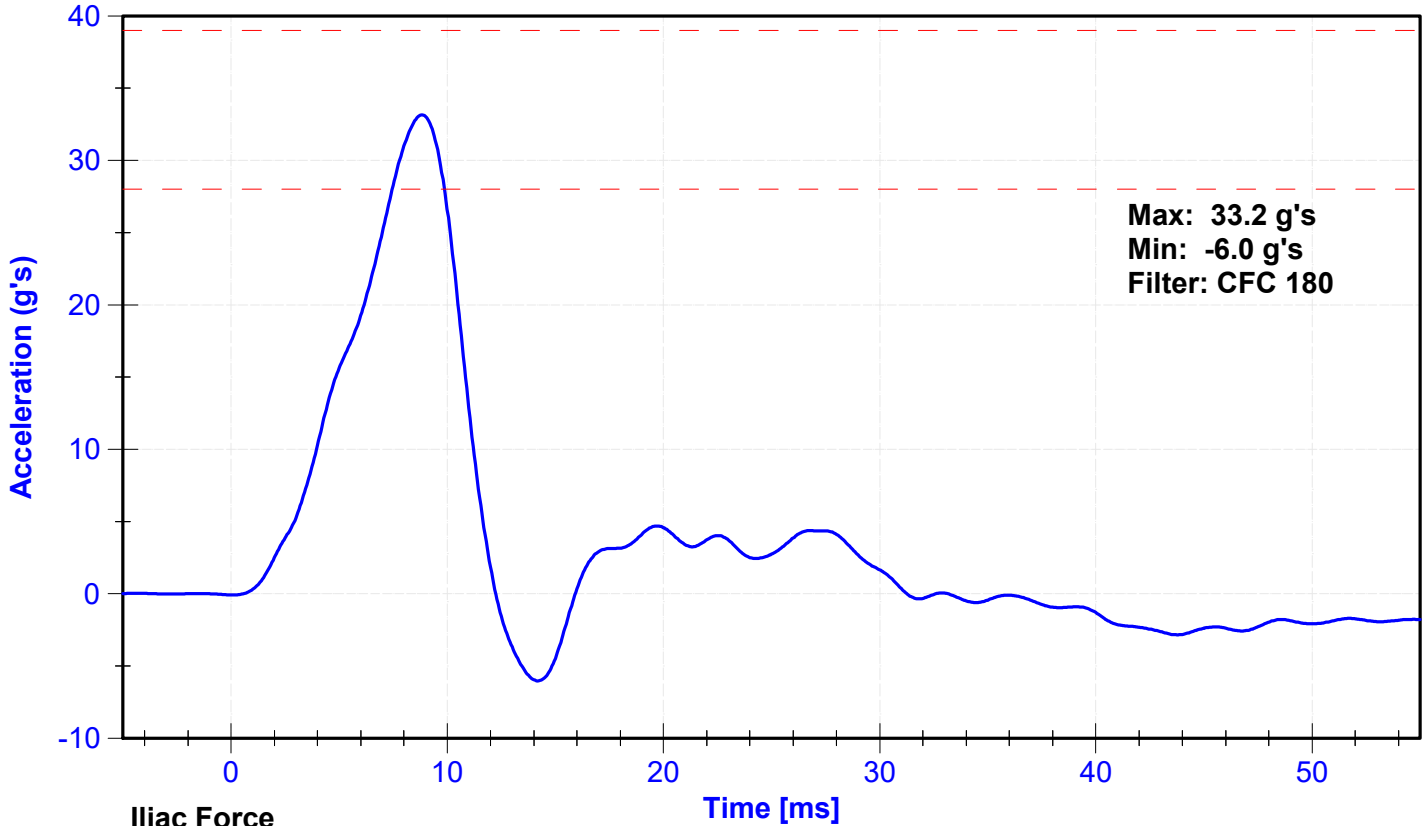
**Transducer Calibrations**

| Channel                | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Pelvis Y Accelerometer | Endevco      | P51731        | 10/17/2024       | 4/15/2025            |
| Iliac Load Cell        | Denton       | 279-FY        | 10/28/2024       | 10/28/2025           |

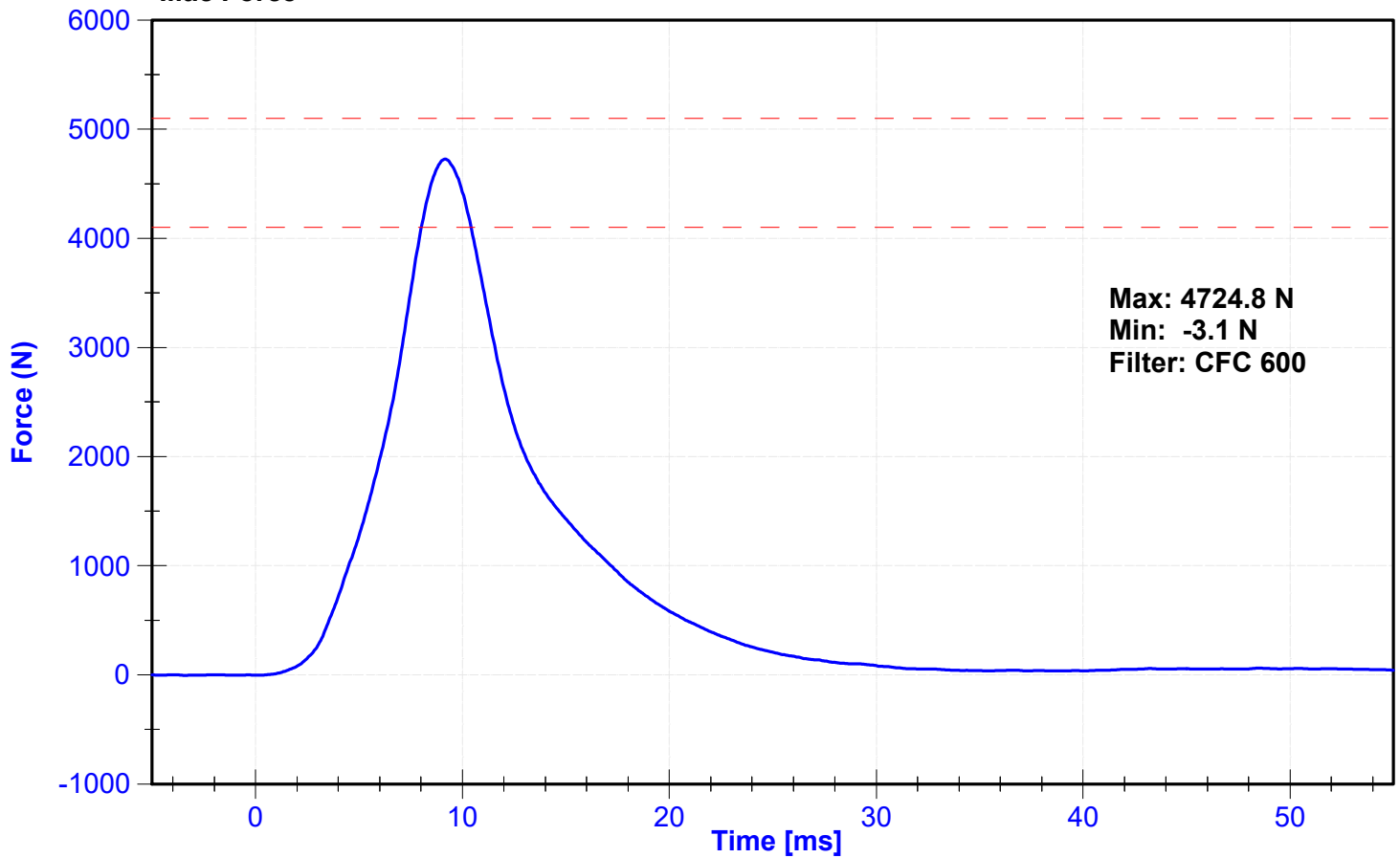
**Probe Acceleration**



### Lateral Pelvis Acceleration



### Iliac Force



**CALIBRATION TEST RESULTS**

**POST-TEST**

**SID-IIS 5<sup>TH</sup> PERCENTILE FEMALE - DRIVER ATD**

**SERIAL NO:300**

**(CONFIGURED FOR LEFT SIDE IMPACT)**



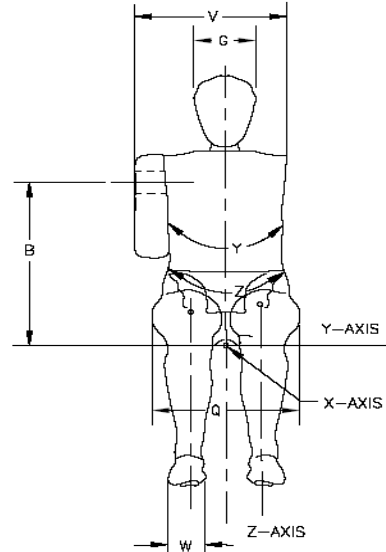
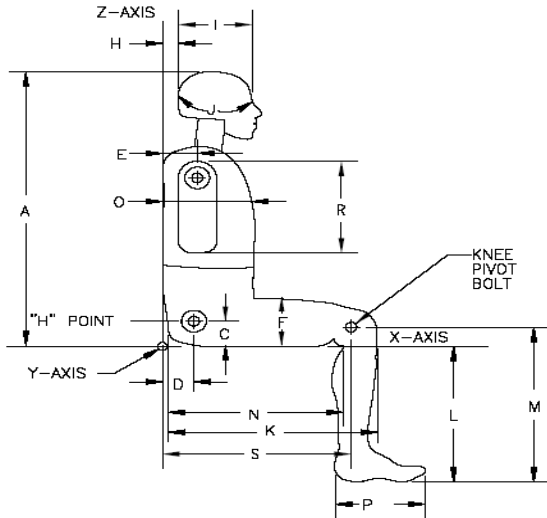


## External Measurements - SID-IIs

Technician: J. Rios

Date: 11/20/2024

Dummy Serial Number: 300



| Symbol | Description                  | Specification (mm) |     | Result (mm) | Pass/Fail |
|--------|------------------------------|--------------------|-----|-------------|-----------|
| A      | Sitting Height               | 772                | 788 | 782         | Pass      |
| B      | Shoulder Pivot Height        | 437                | 453 | 439         | Pass      |
| C      | H-point Height               | 79                 | 89  | 81          | Pass      |
| D      | H-point from seatback        | 141                | 151 | 142         | Pass      |
| E      | Shoulder Pivot from Backline | 97                 | 107 | 103         | Pass      |
| F      | Thigh Clearance              | 119                | 135 | 125         | Pass      |
| G      | Head Breadth                 | 140                | 148 | 145         | Pass      |
| H      | Head Back from Backline      | 40                 | 46  | 43          | Pass      |
| I      | Head Depth                   | 178                | 188 | 185         | Pass      |
| J      | Head Circumference           | 541                | 551 | 548         | Pass      |
| K      | Buttock to Knee Length       | 514                | 540 | 522         | Pass      |
| L      | Popliteal Height             | 343                | 369 | 357         | Pass      |
| M      | Knee Pivot to floor height   | 392                | 409 | 405         | Pass      |
| N      | Buttock Popliteal Length     | 416                | 442 | 431         | Pass      |
| O      | Chest Depth w/o jacket       | 195                | 211 | 202         | Pass      |
| P      | Foot Length                  | 216                | 232 | 225         | Pass      |
| Q      | Hip Breadth (w/pelvic plugs) | 313                | 323 | 320         | Pass      |
| R      | Arm Length                   | 249                | 259 | 255         | Pass      |
| S      | Knee Joint to seatback       | 477                | 493 | 488         | Pass      |
| V      | Shoulder Width               | 341                | 357 | 351         | Pass      |
| W      | Foot Width                   | 78                 | 94  | 80          | Pass      |
| Y      | Chest Circumference w/jacket | 851                | 881 | 868         | Pass      |
| Z      | Waist Circumference          | 761                | 791 | 778         | Pass      |

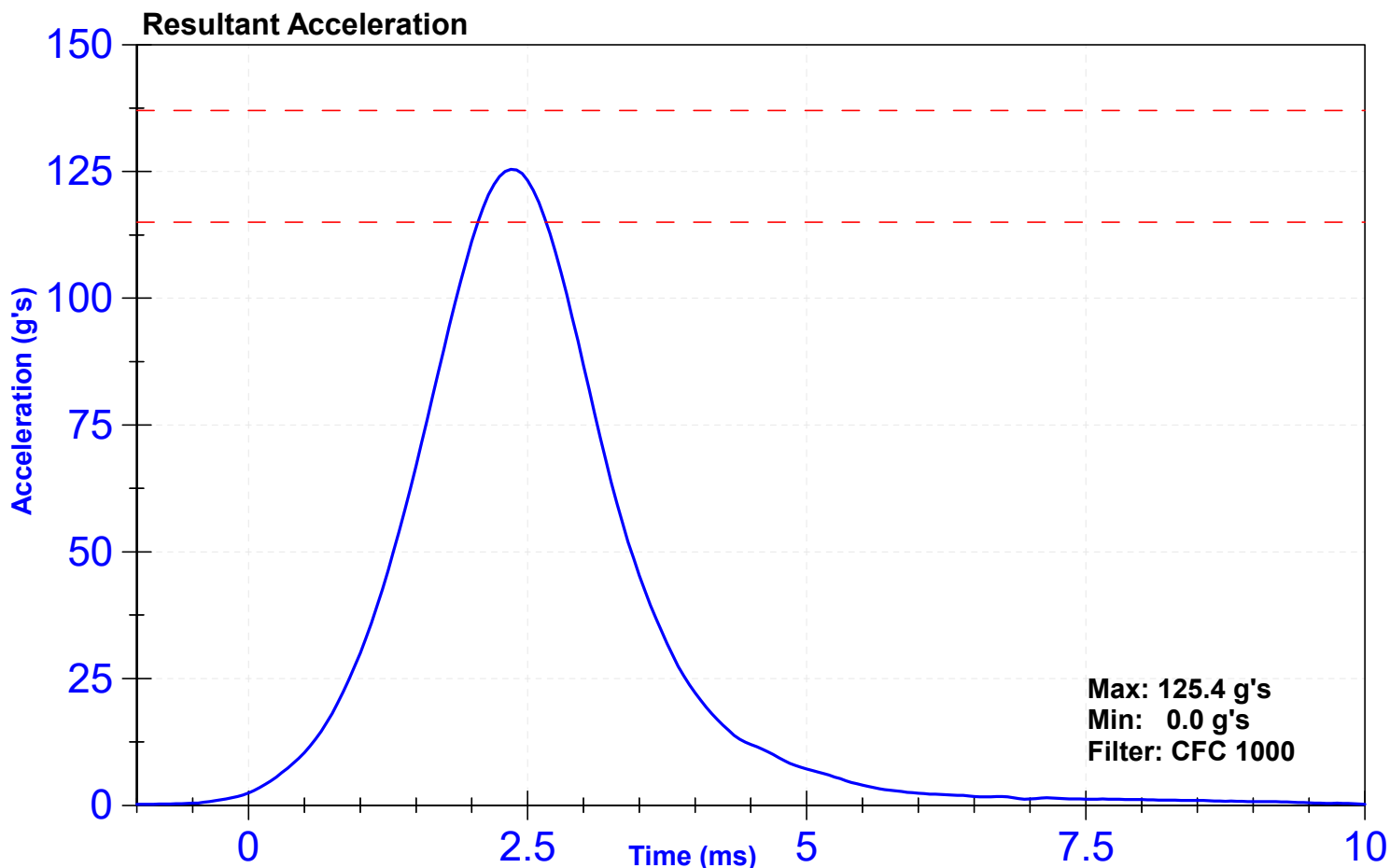
|                   |      |                       |            |
|-------------------|------|-----------------------|------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios    |
| ATD Serial Number | 300  | Laboratory Supervisor | C. Mantell |

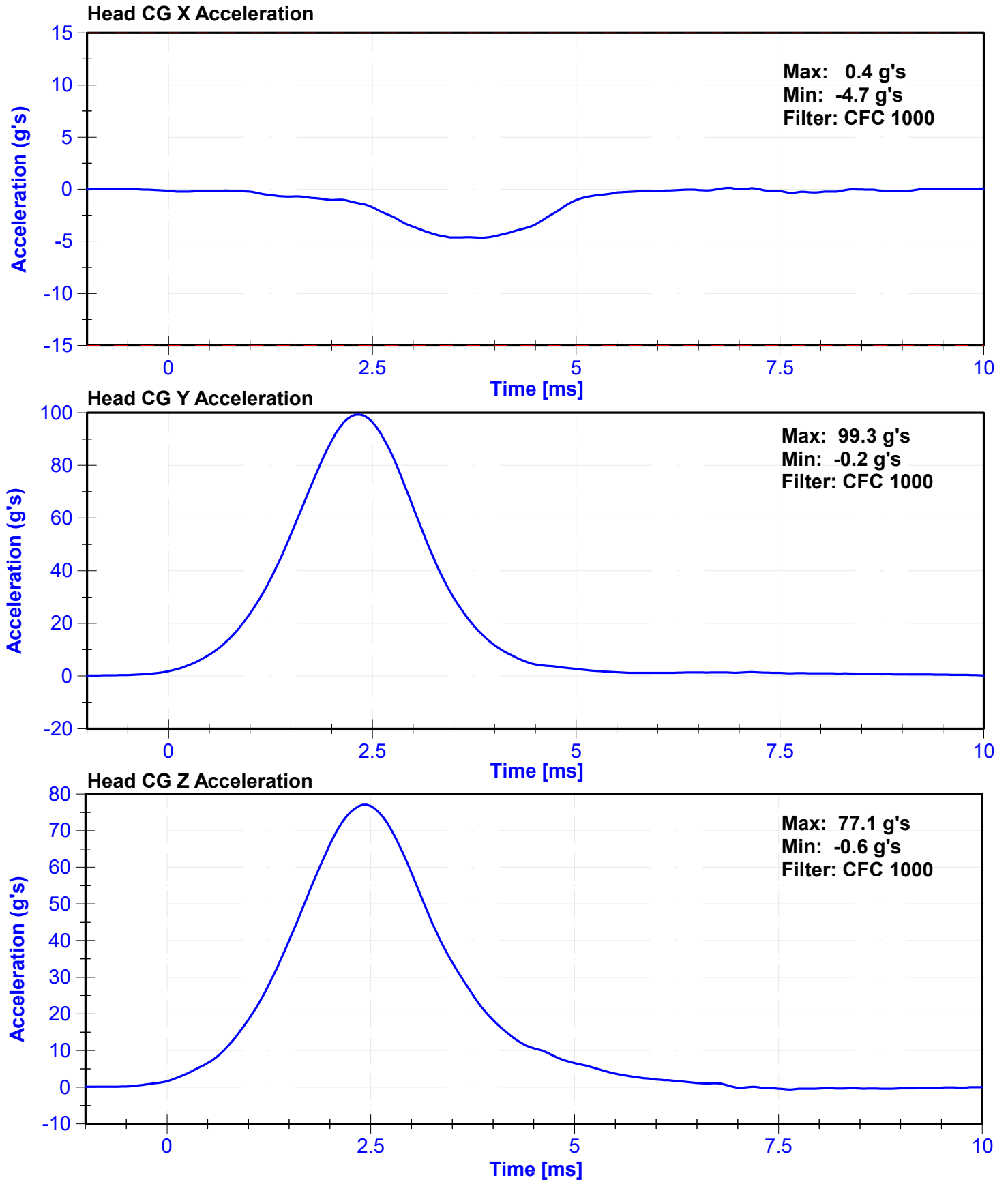
**Results**

| Test Parameter         | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature            | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity               | 10                    | 70                    | %    | 29     | Pass      |
| Resultant Acceleration | 115                   | 137                   | g's  | 125.4  | Pass      |
| Oscillation            | 0                     | 15                    | %    | 1.3    | Pass      |
| Fore-Aft Acceleration  | -15                   | 15                    | g's  | -4.7   | Pass      |

**Transducer Calibrations**

| Channel         | Manufacturer | Serial Number | Calibratio Date | Calibratio Due Date |
|-----------------|--------------|---------------|-----------------|---------------------|
| X Accelerometer | Endevco      | P59018        | 10/17/2024      | 4/15/2025           |
| Y Accelerometer | Endevco      | P79189        | 10/17/2024      | 4/15/2025           |
| Z Accelerometer | Endevco      | P79587        | 10/17/2024      | 4/15/2025           |







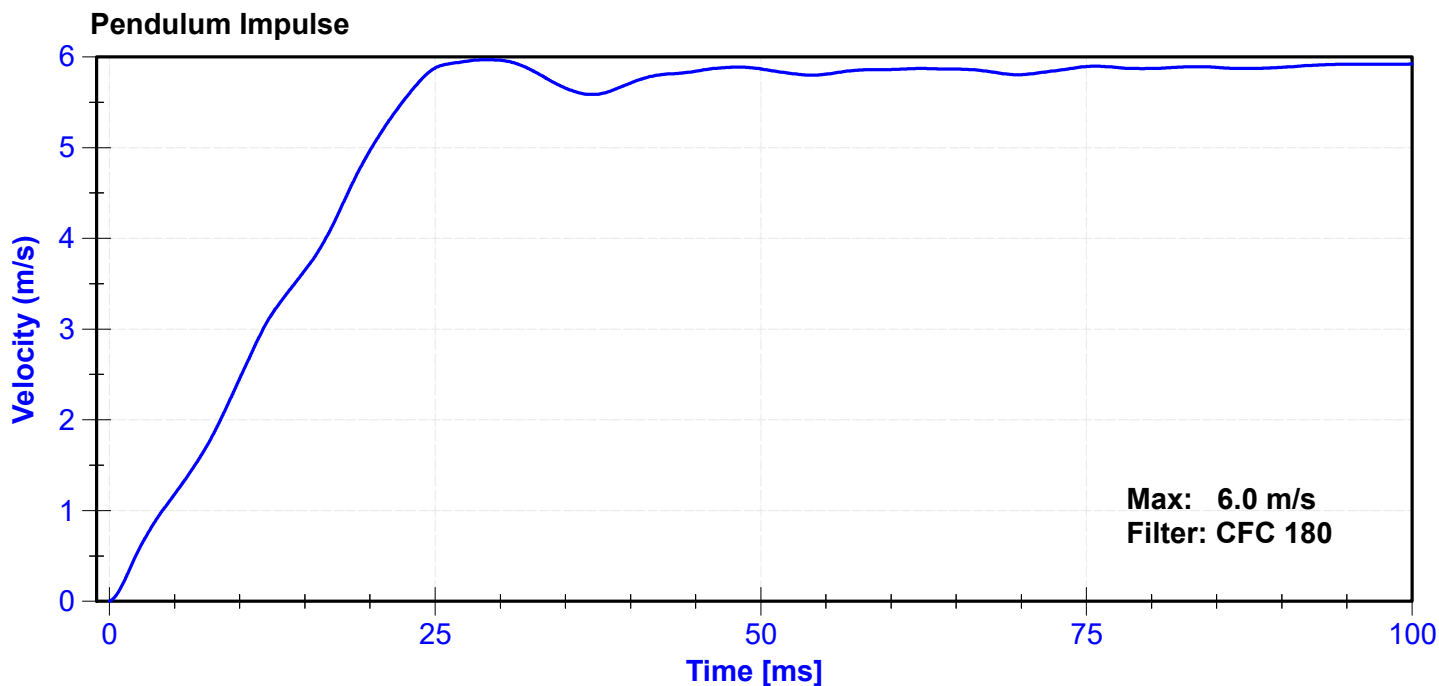
|                   |      |                       |              |
|-------------------|------|-----------------------|--------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios      |
| ATD Serial Number | 300  | Laboratory Supervisor | J. Kinderman |

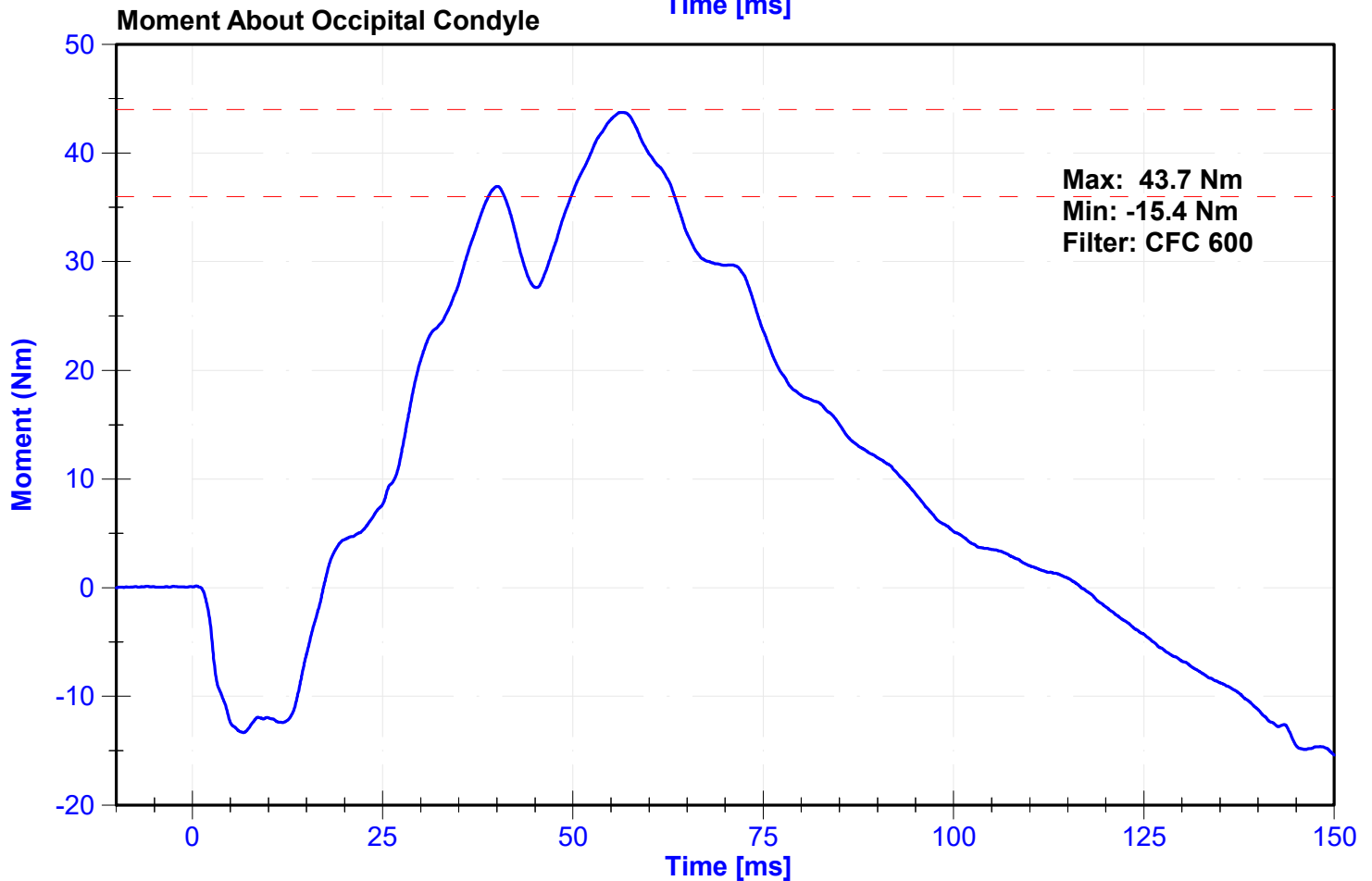
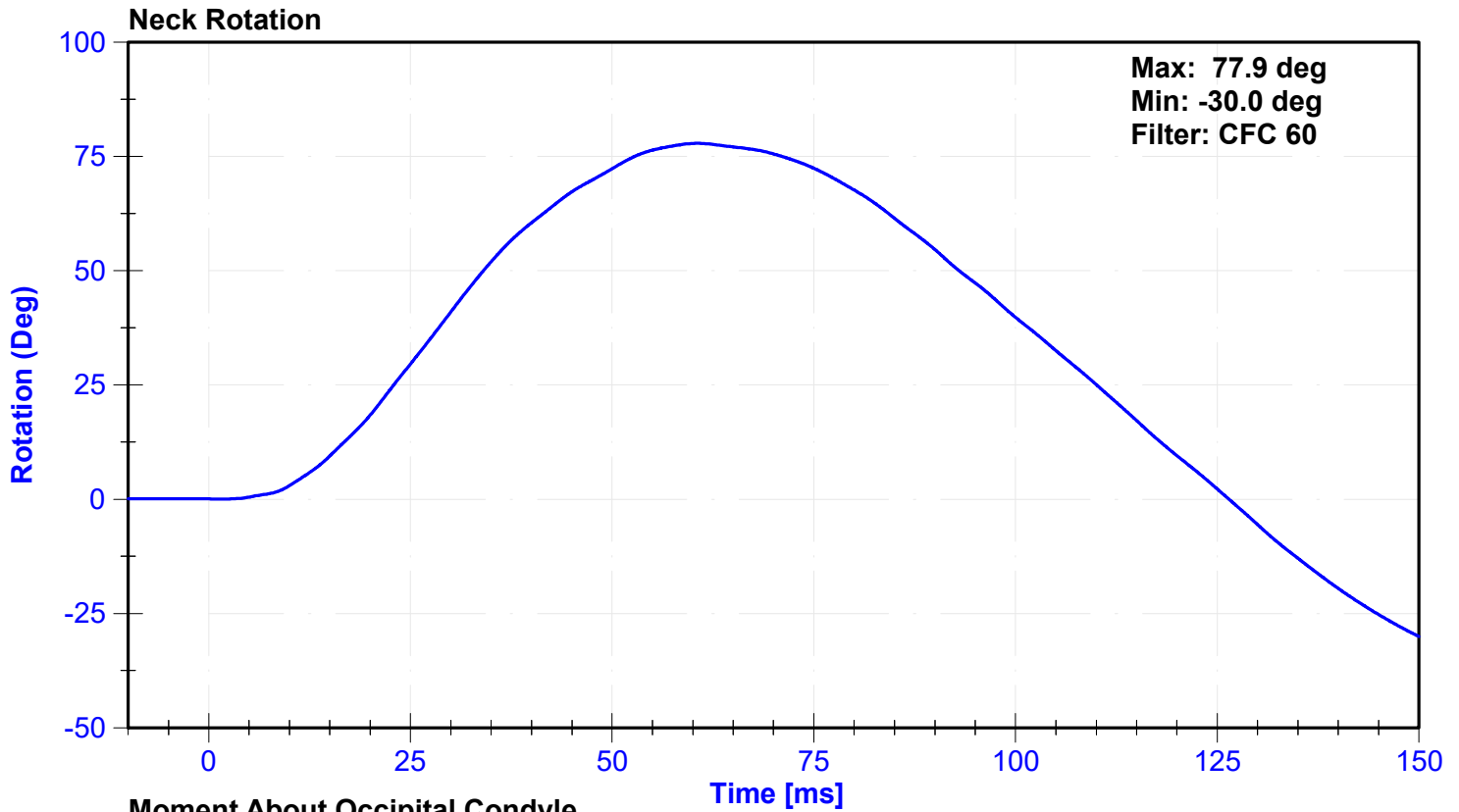
### Results

| Test Parameter                    | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|-----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                       | 20.6                  | 22.2                  | °C   | 20.8   | Pass      |
| Humidity                          | 10                    | 70                    | %    | 32     | Pass      |
| Velocity                          | 5.51                  | 5.63                  | m/s  | 5.579  | Pass      |
| Pendulum Impulse at 10ms          | 2.2                   | 2.8                   | m/s  | 2.46   | Pass      |
| Pendulum Impulse at 15ms          | 3.3                   | 4.1                   | m/s  | 3.65   | Pass      |
| Pendulum Impulse at 20ms          | 4.4                   | 5.4                   | m/s  | 4.97   | Pass      |
| Pendulum Impulse at 25ms          | 5.4                   | 6.1                   | m/s  | 5.88   | Pass      |
| Pendulum Impulse from 25 to 100ms | 5.5                   | 6.2                   | m/s  | 5.97   | Pass      |
| Neck Rotation                     | 71                    | 81                    | deg  | 77.9   | Pass      |
| Time at Maximum Rotation          | 50                    | 70                    | ms   | 60.6   | Pass      |
| Moment about the OC               | 36                    | 44                    | Nm   | 43.7   | Pass      |
| Moment Decay to 0 Nm              | 102                   | 126                   | ms   | 116.8  | Pass      |

### Transducer Calibrations

| Channel                | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer | Endevco      | 7231C-750     | 11/1/2024        | 11/1/2025            |
| Pendulum Potentiometer | Servo        | 4961          | 9/23/2024        | 9/23/2025            |
| Condyle Potentiometer  | Servo        | DS185         | 9/23/2024        | 9/23/2025            |
| Upper Neck Load Cell   | Denton       | 1716A_2187-FY | 12/5/2023        | 12/4/2024            |





|                   |      |                       |              |
|-------------------|------|-----------------------|--------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios      |
| ATD Serial Number | 300  | Laboratory Supervisor | J. Kinderman |

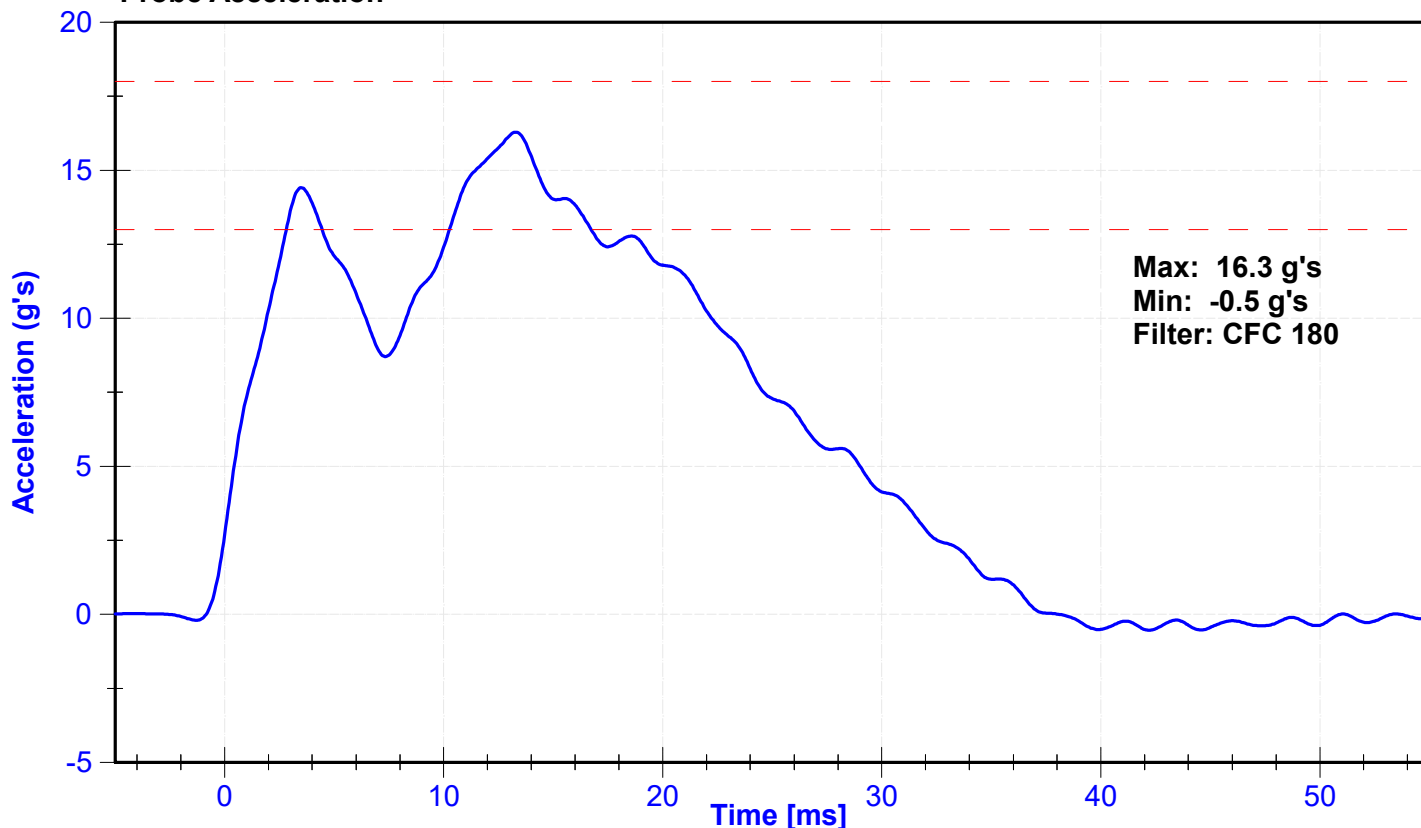
### Results

| Test Parameter                   | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                      | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                         | 10                    | 70                    | %    | 31     | Pass      |
| Velocity                         | 4.2                   | 4.4                   | m/s  | 4.29   | Pass      |
| Probe Acceleration               | 13                    | 18                    | g's  | 16.3   | Pass      |
| Shoulder Deflection              | 28                    | 37                    | mm   | 29.3   | Pass      |
| Lateral Upper Spine Acceleration | 17                    | 22                    | g's  | 19.9   | Pass      |

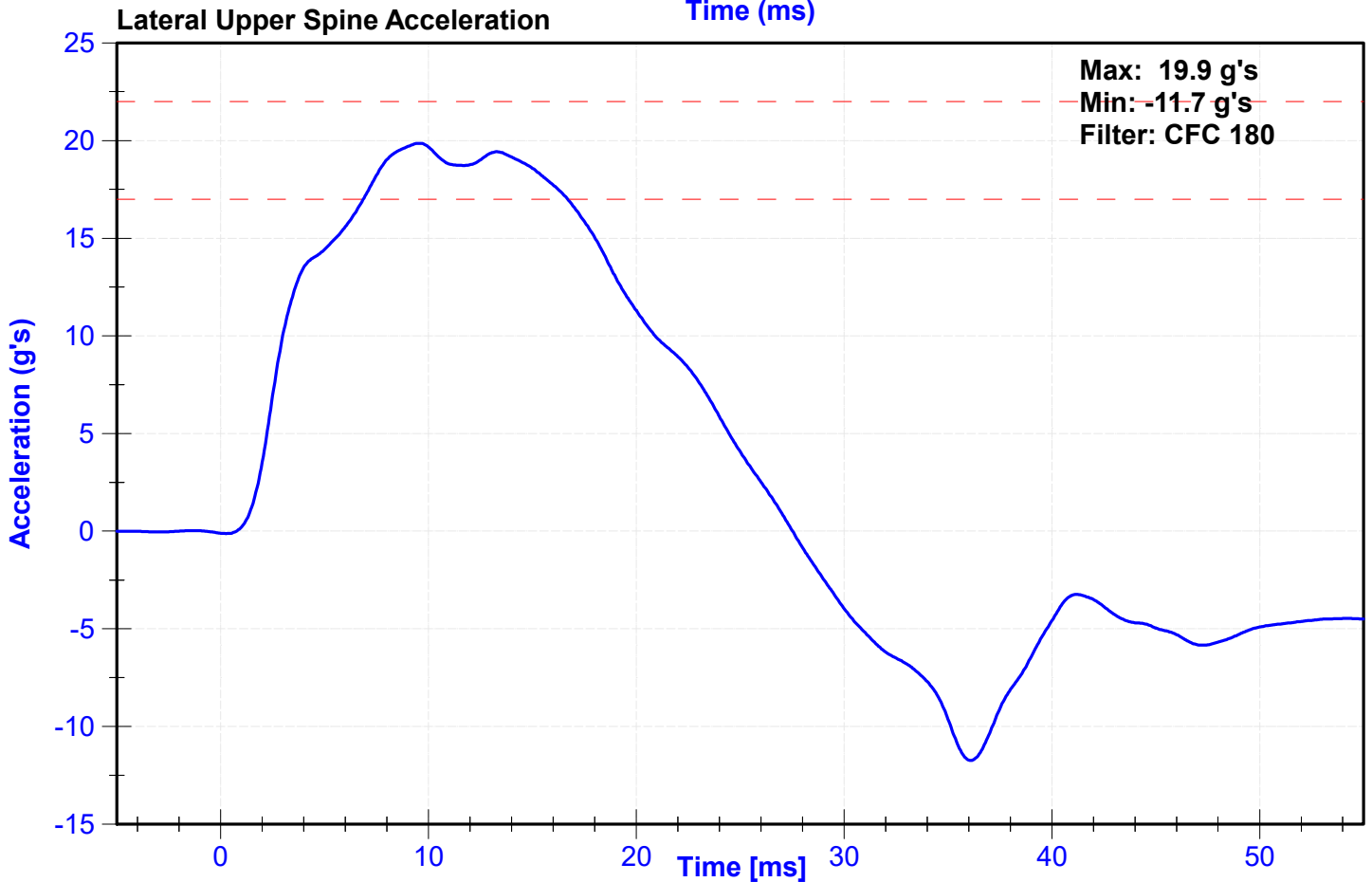
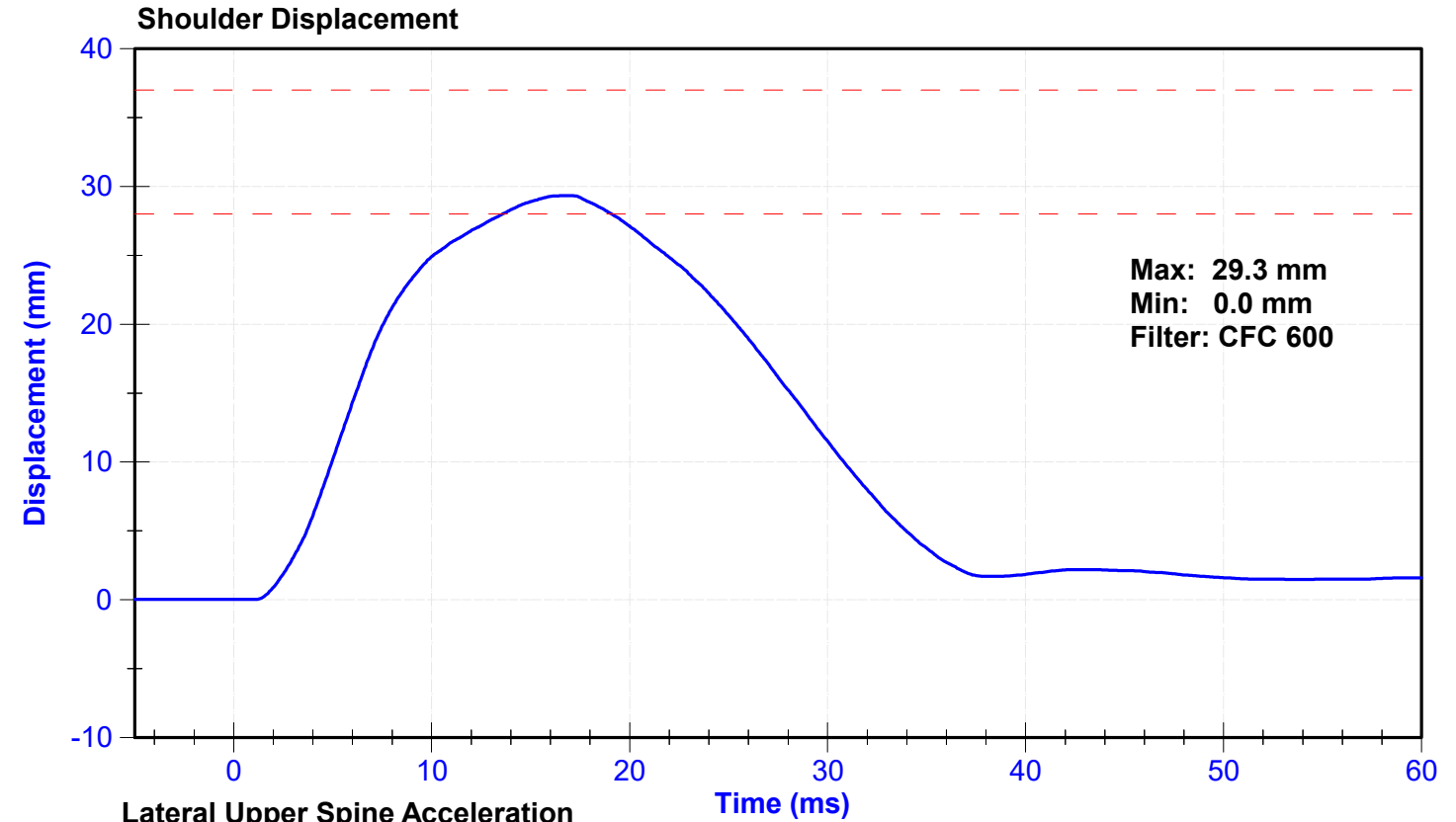
### Transducer Calibrations

| Channel                     | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|-----------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer      | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Shoulder Potentiometer      | Servo        | 053GFE        | 10/16/2024       | 4/16/2025            |
| Upper Spine Y Accelerometer | Endevco      | T20880        | 10/17/2024       | 4/15/2025            |

### Probe Acceleration







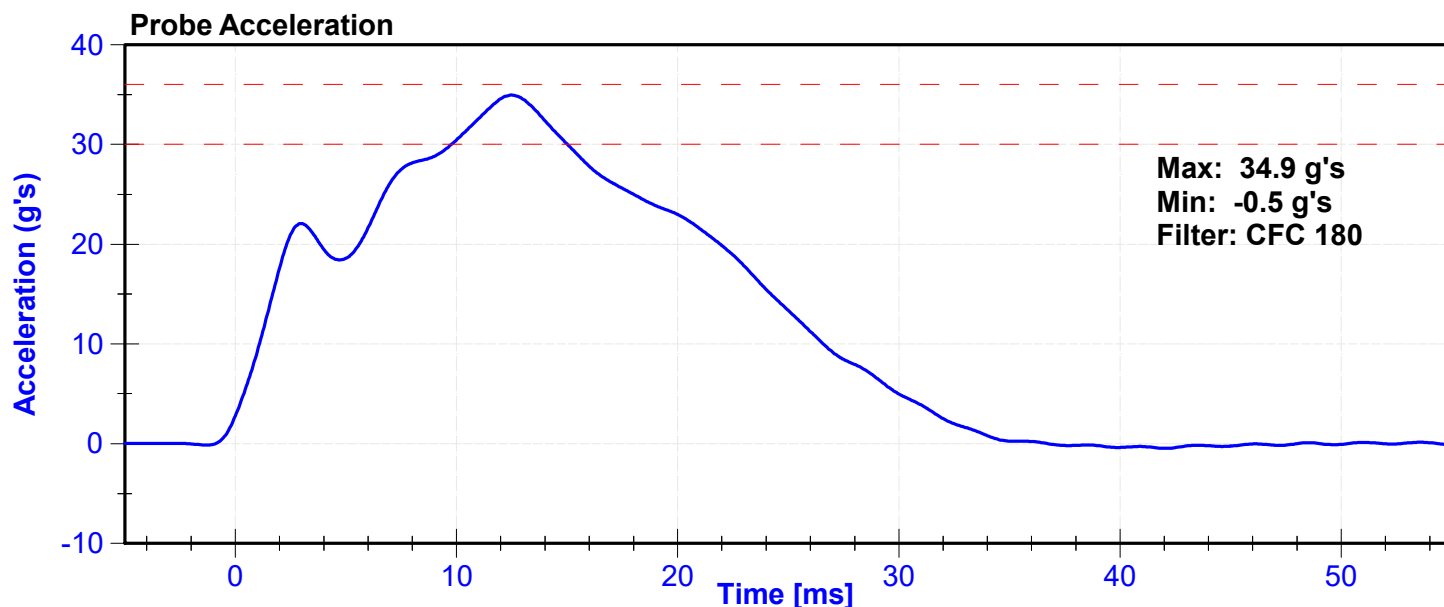
|                   |      |                       |              |
|-------------------|------|-----------------------|--------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios      |
| ATD Serial Number | 300  | Laboratory Supervisor | J. Kinderman |

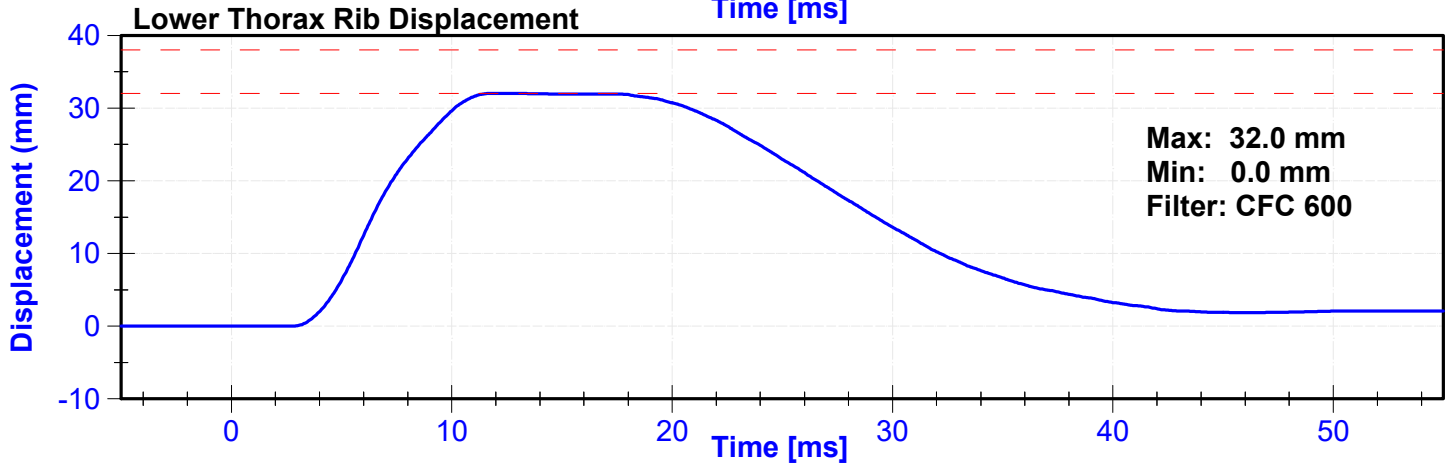
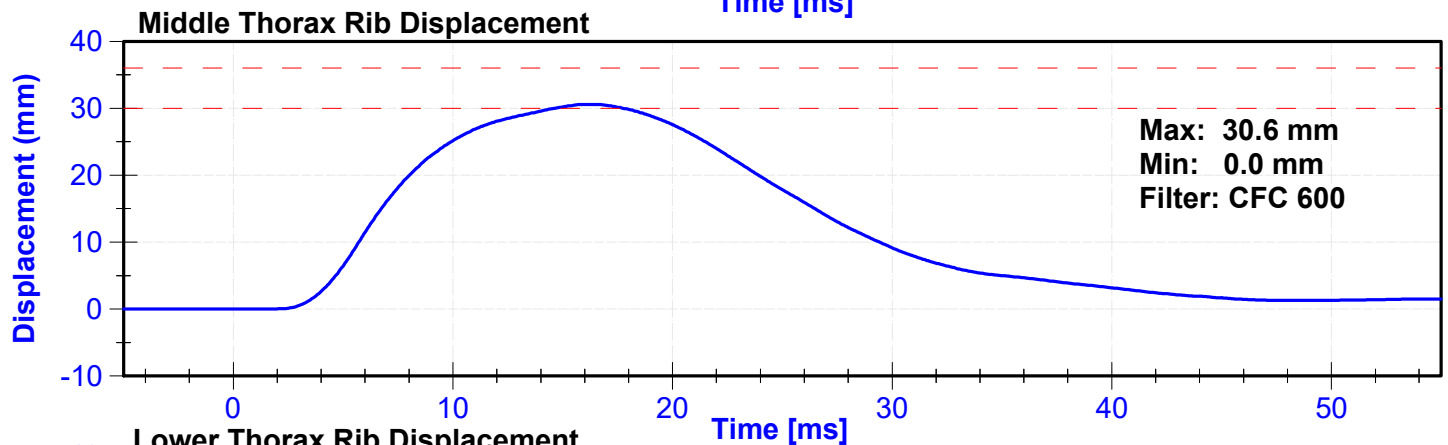
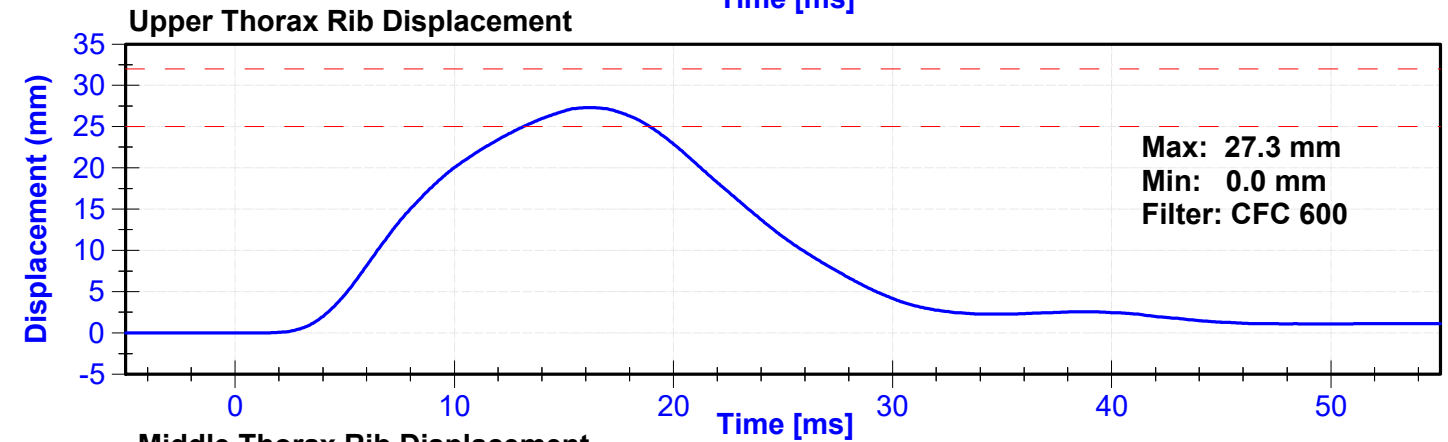
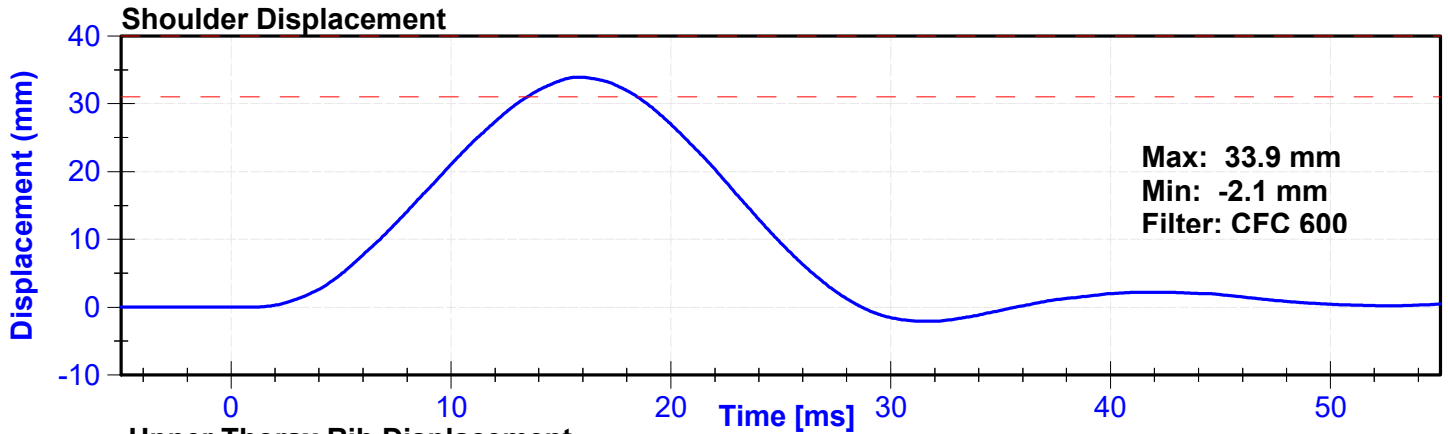
### Results

| Test Parameter                   | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                      | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                         | 10                    | 70                    | %    | 31     | Pass      |
| Velocity                         | 6.6                   | 6.8                   | m/s  | 6.67   | Pass      |
| Probe Acceleration after 5 ms    | 30                    | 36                    | g's  | 34.9   | Pass      |
| Lateral Upper Spine Acceleration | 34                    | 43                    | g's  | 34.7   | Pass      |
| Lateral Lower Spine Acceleration | 29                    | 37                    | g's  | 35.1   | Pass      |
| Shoulder Deflection              | 31                    | 40                    | mm   | 33.9   | Pass      |
| Upper Thorax Rib Deflection      | 25                    | 32                    | mm   | 27.3   | Pass      |
| Mid Thorax Rib Deflection        | 30                    | 36                    | mm   | 30.6   | Pass      |
| Lower Thorax Rib Deflection      | 32                    | 38                    | mm   | 32.0   | Pass      |

### Transducer Calibrations

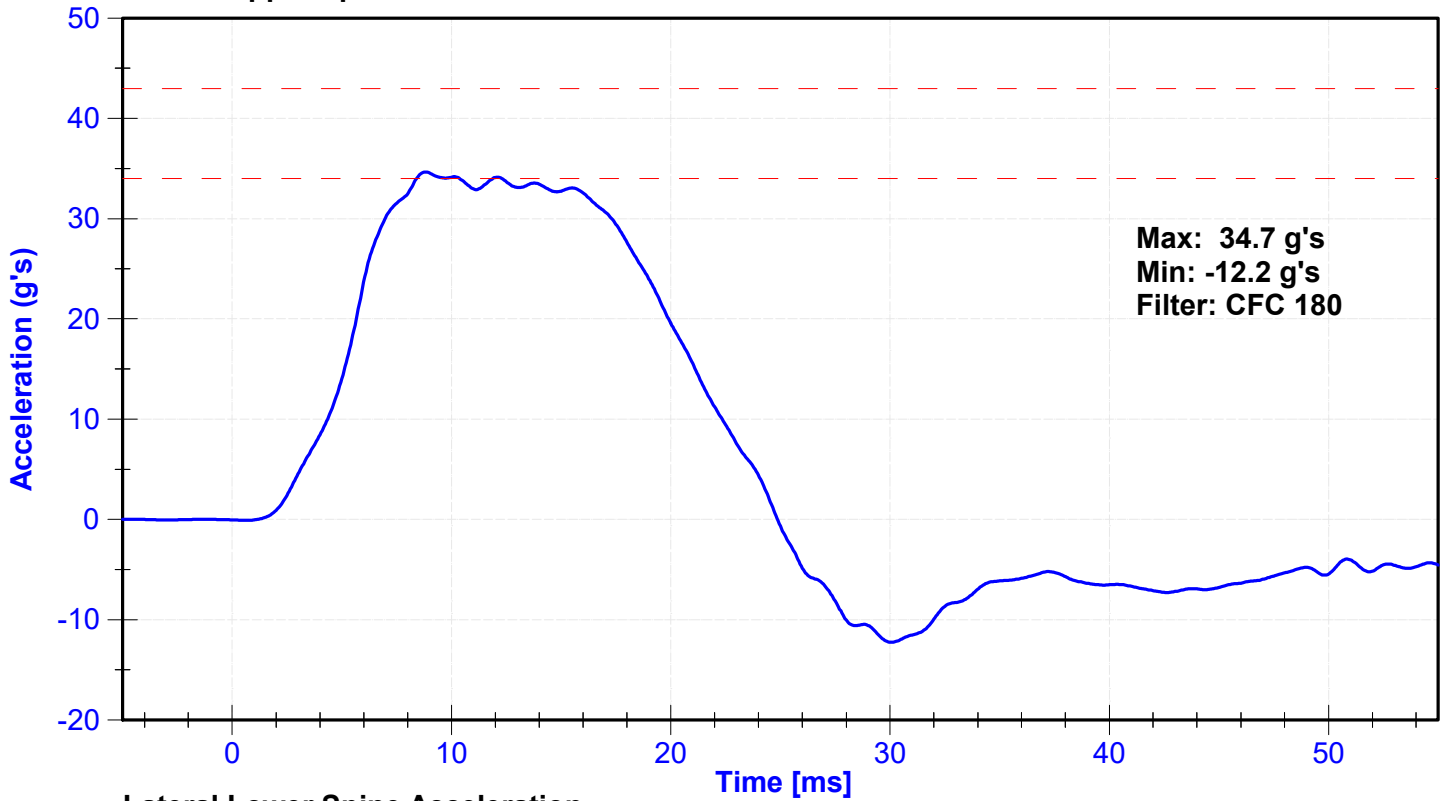
| Channel                         | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|---------------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer          | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Upper Spine T1 Y Accelerometer  | Endevco      | T20880        | 10/17/2024       | 4/15/2025            |
| Upper Spine T12 Y Accelerometer | Endevco      | P52071        | 10/17/2024       | 4/15/2025            |
| Shoulder Potentiometer          | Servo        | 053GFE        | 10/16/2024       | 4/16/2025            |
| Upper Thorax Rib Potentiometer  | Servo        | 2316GFE       | 10/16/2024       | 4/16/2025            |
| Middle Thorax Rib Potentiometer | Servo        | 085GFE        | 10/16/2024       | 4/16/2025            |
| Lower Thorax Rib Potentiometer  | Servo        | 1156GFE       | 10/16/2024       | 4/16/2025            |



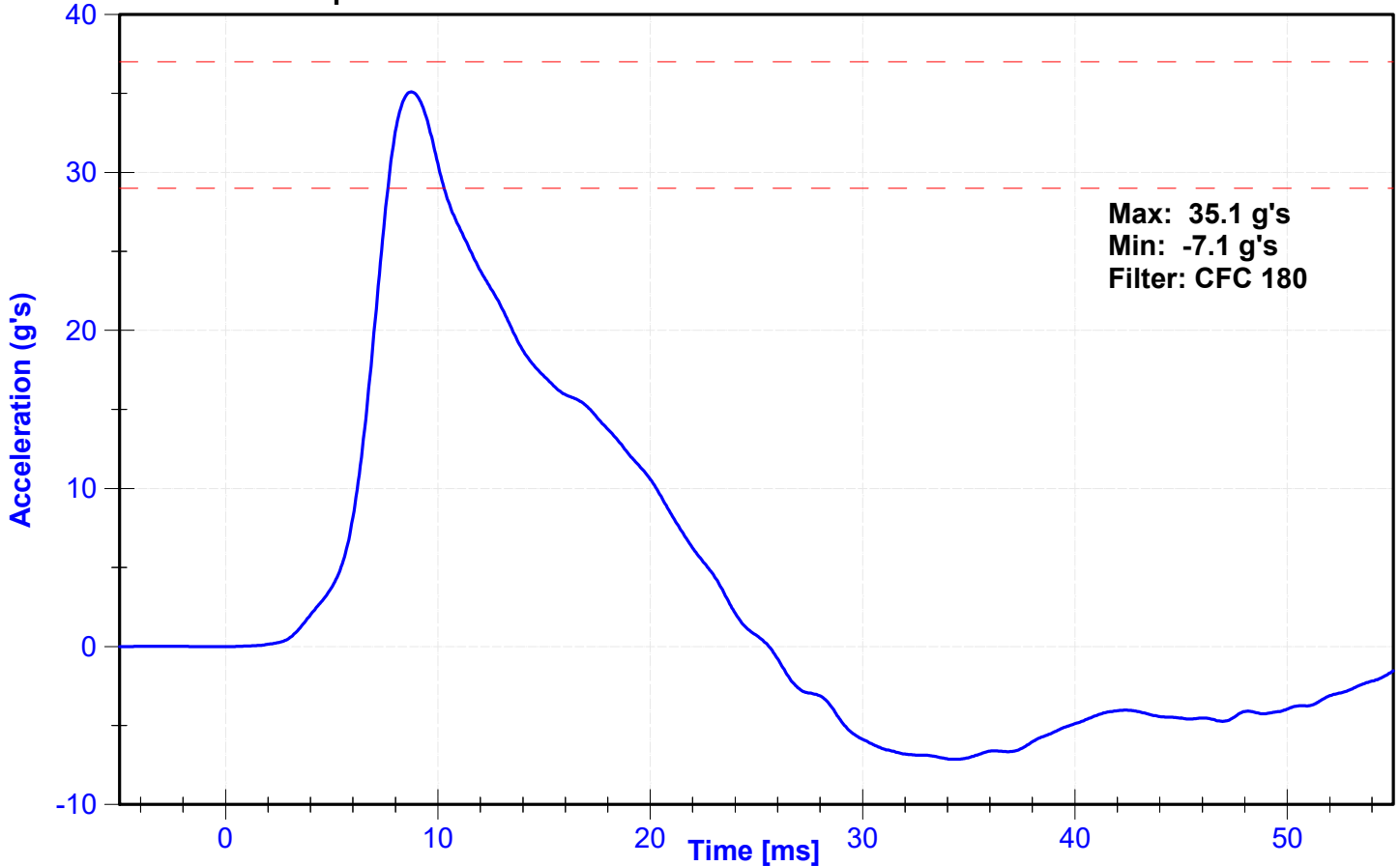




### Lateral Upper Spine Acceleration



### Lateral Lower Spine Acceleration



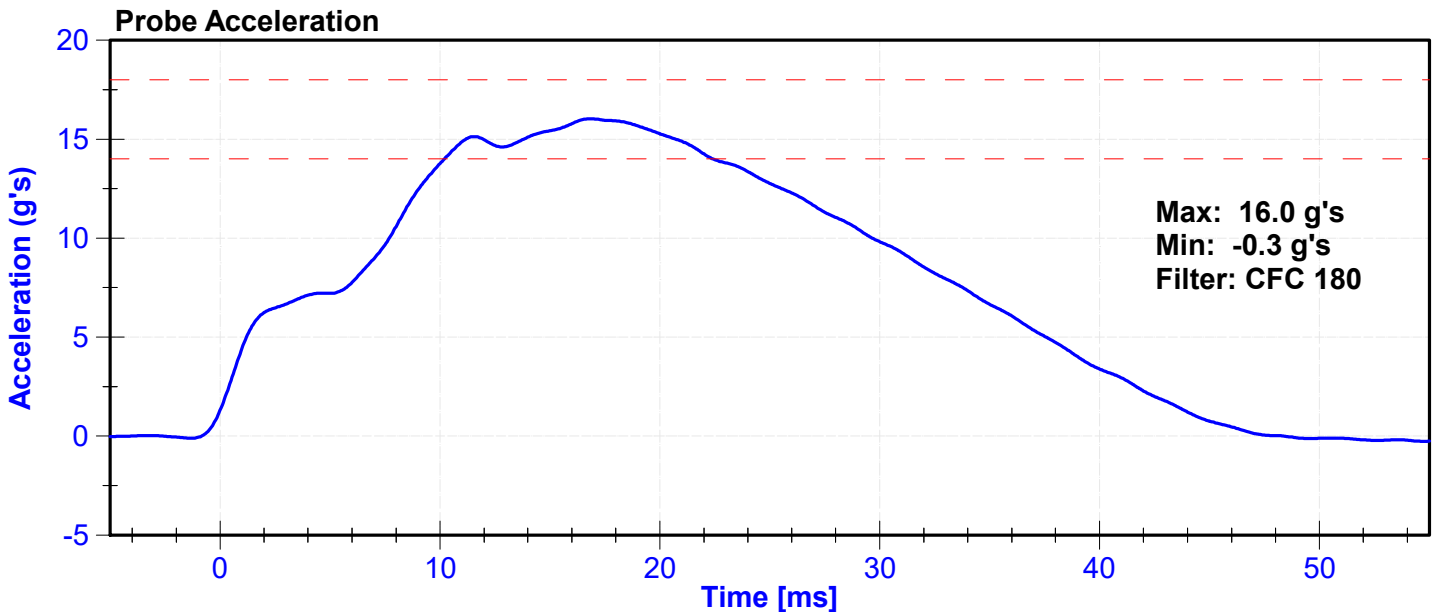
|                   |      |                       |              |
|-------------------|------|-----------------------|--------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios      |
| ATD Serial Number | 300  | Laboratory Supervisor | J. Kinderman |

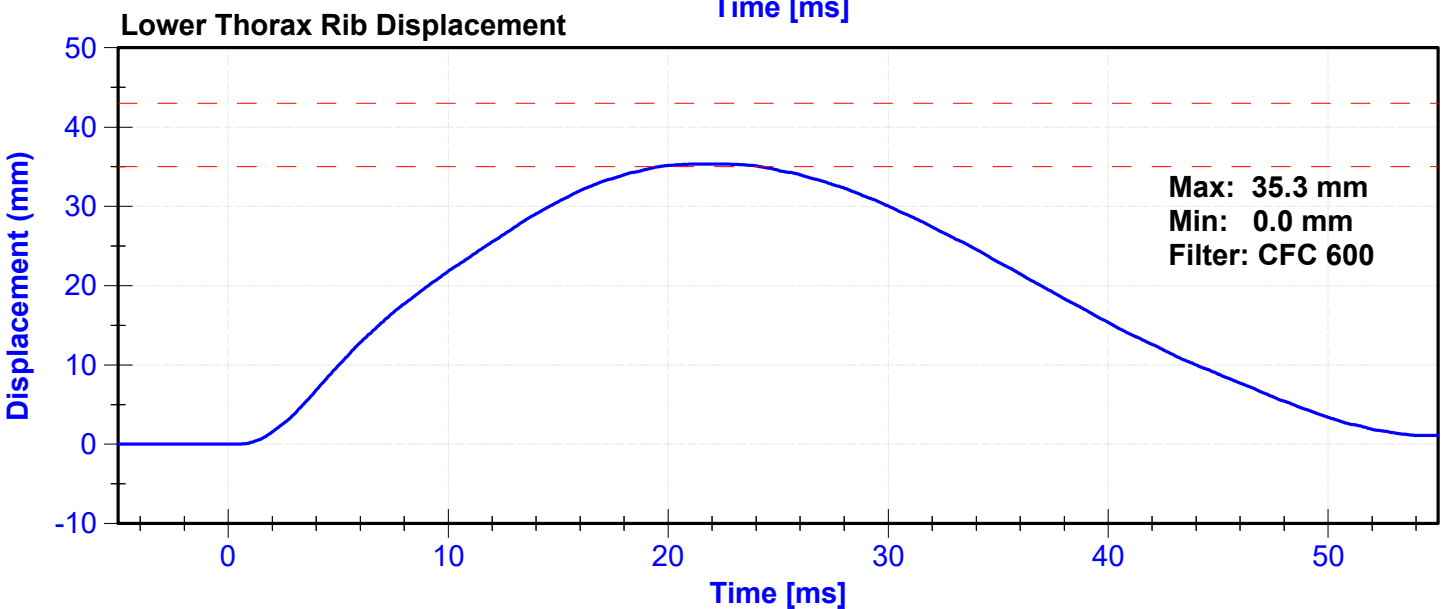
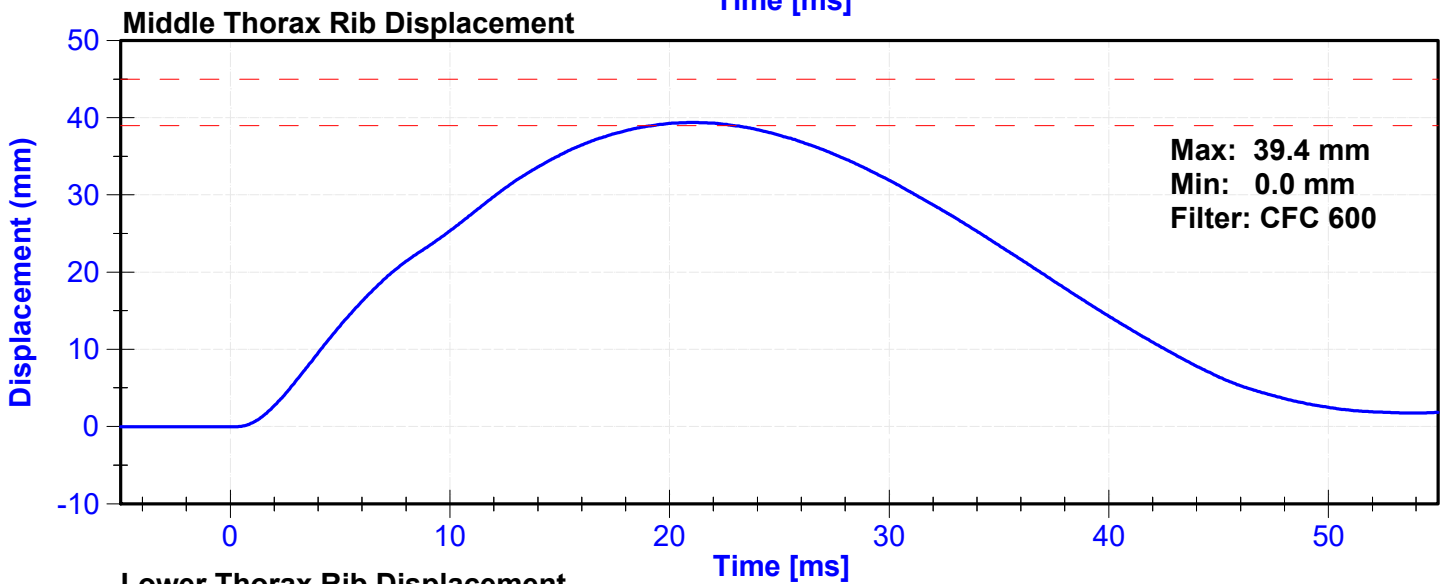
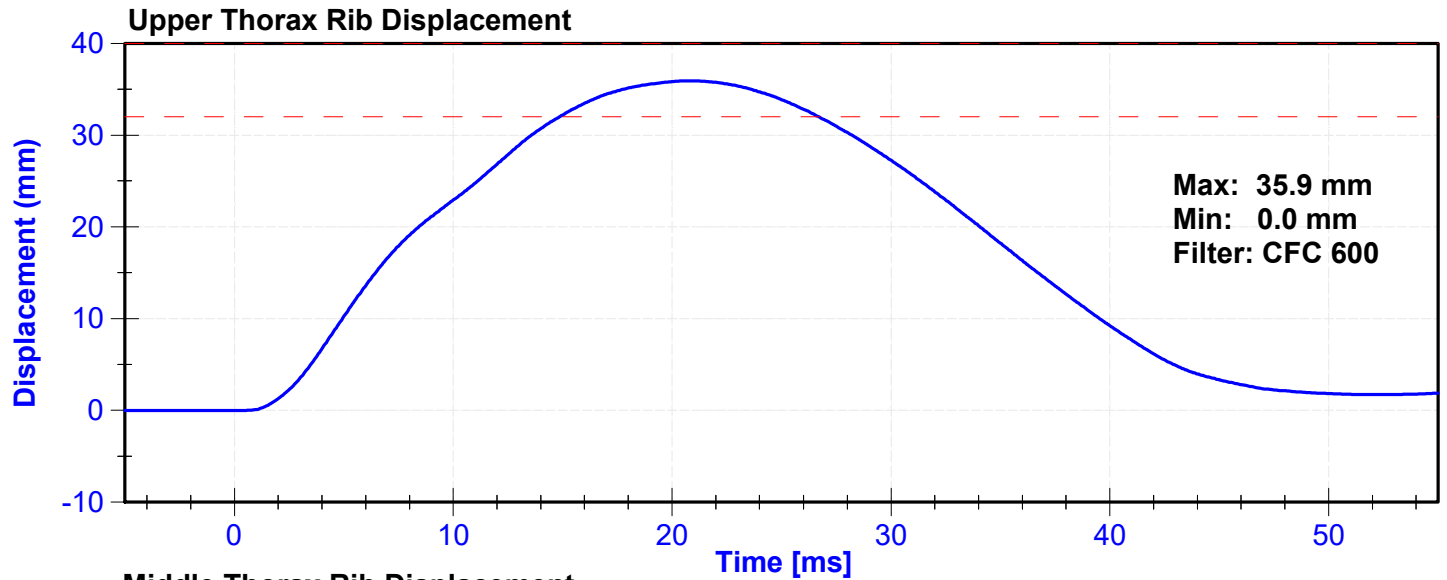
### Results

| Test Parameter                   | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                      | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                         | 10                    | 70                    | %    | 31     | Pass      |
| Velocity                         | 4.2                   | 4.4                   | m/s  | 4.28   | Pass      |
| Probe Acceleration               | 14                    | 18                    | g's  | 16.0   | Pass      |
| Lateral Upper Spine Acceleration | 13                    | 17                    | g's  | 14.8   | Pass      |
| Lateral Lower Spine Acceleration | 7                     | 11                    | g's  | 9.0    | Pass      |
| Upper Thorax Rib Deflection      | 32                    | 40                    | mm   | 35.9   | Pass      |
| Middle Thorax Rib Deflection     | 39                    | 45                    | mm   | 39.4   | Pass      |
| Lower Thorax Rib Deflection      | 35                    | 43                    | mm   | 35.3   | Pass      |

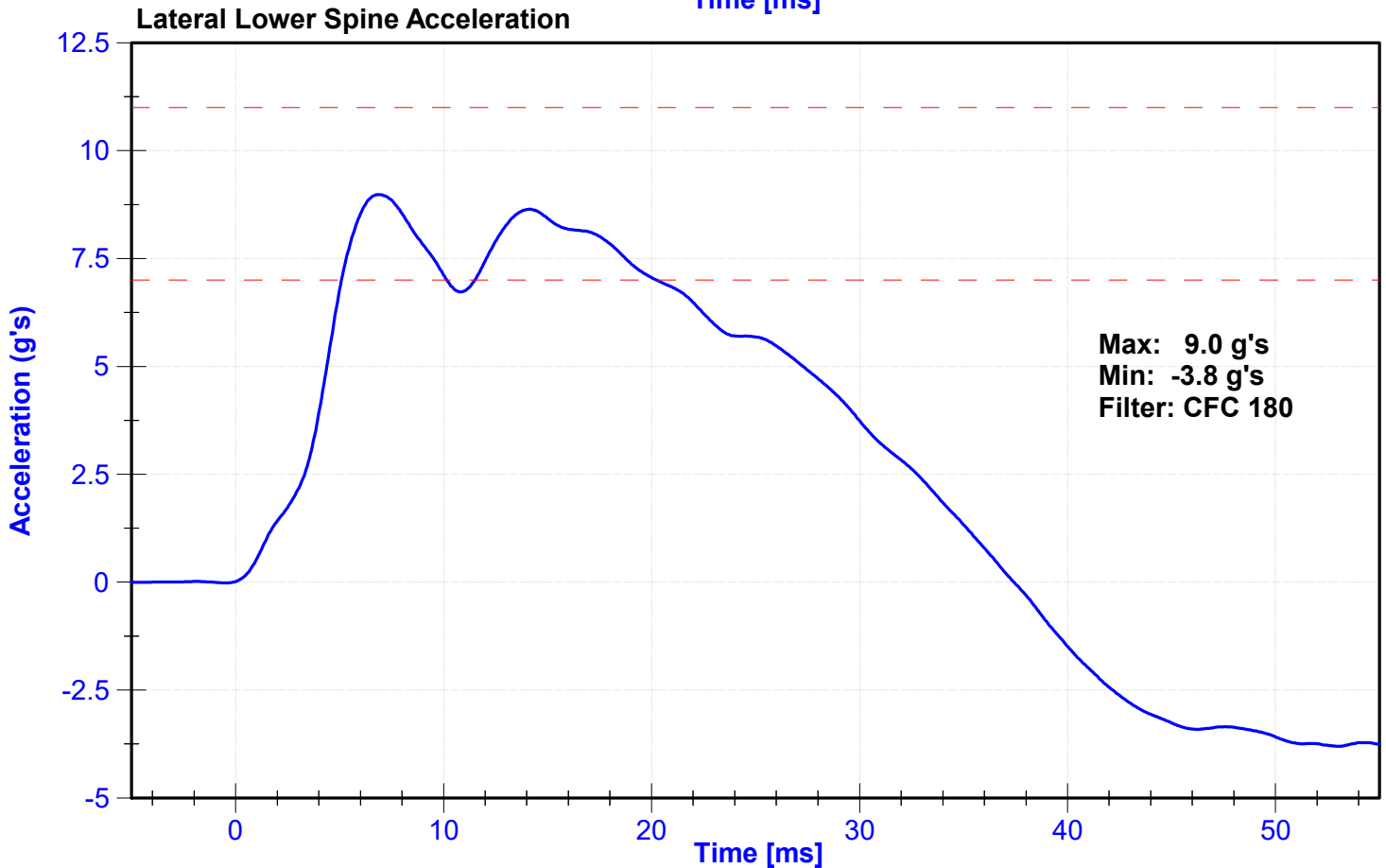
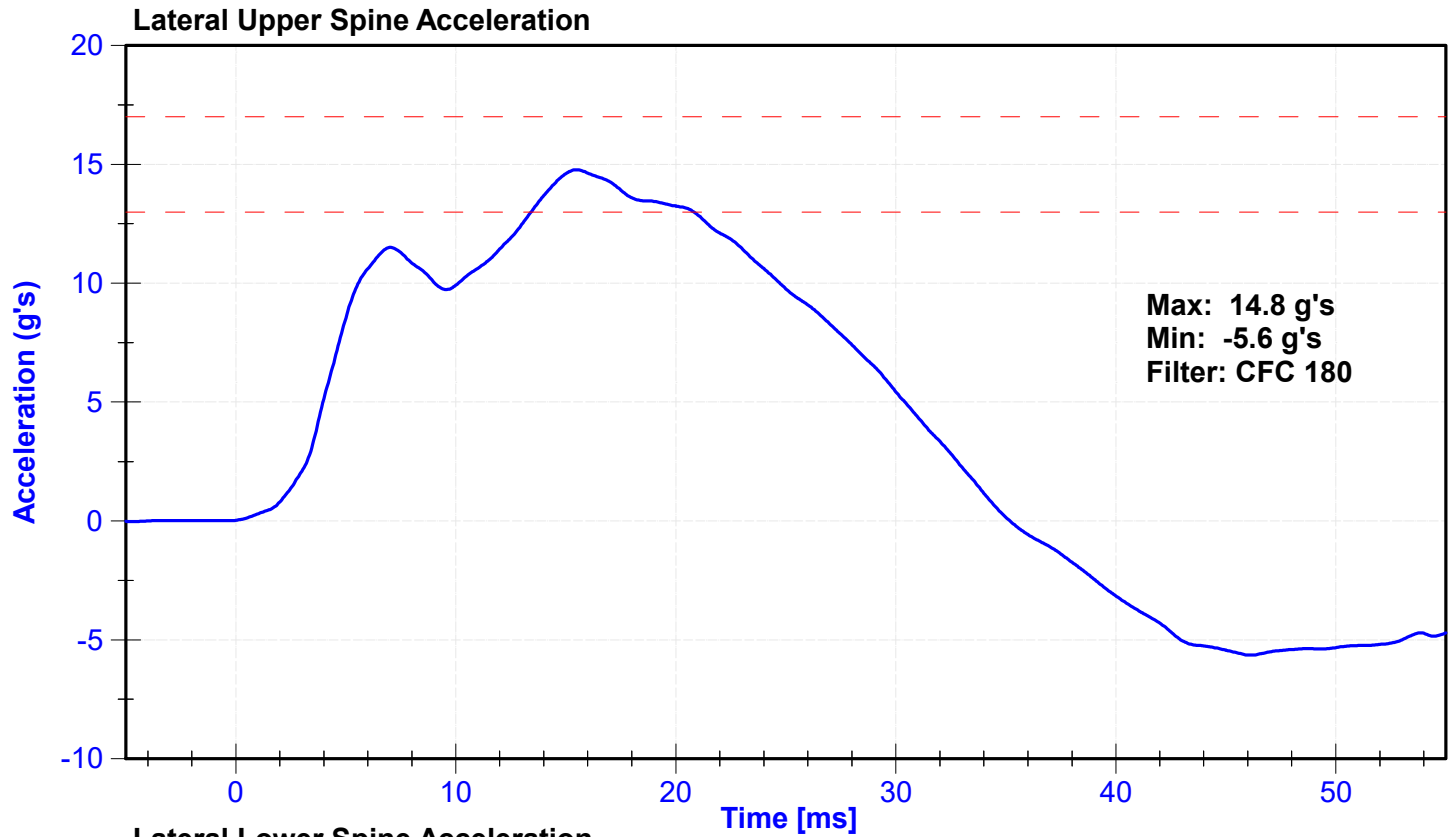
### Transducer Calibrations

| Channel                         | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|---------------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer          | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Upper Spine Y Accelerometer     | Endevco      | T20880        | 10/17/2024       | 4/15/2025            |
| Lower Spine Y Accelerometer     | Endevco      | P52071        | 10/17/2024       | 4/15/2025            |
| Upper Thorax Rib Potentiometer  | Servo        | 2316GFE       | 10/16/2024       | 4/16/2025            |
| Middle Thorax Rib Potentiometer | Servo        | 085GFE        | 10/16/2024       | 4/16/2025            |
| Lower Thorax Rib Potentiometer  | Servo        | 1156GFE       | 10/16/2024       | 4/16/2025            |









|                   |      |                       |              |
|-------------------|------|-----------------------|--------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios      |
| ATD Serial Number | 300  | Laboratory Supervisor | J. Kinderman |

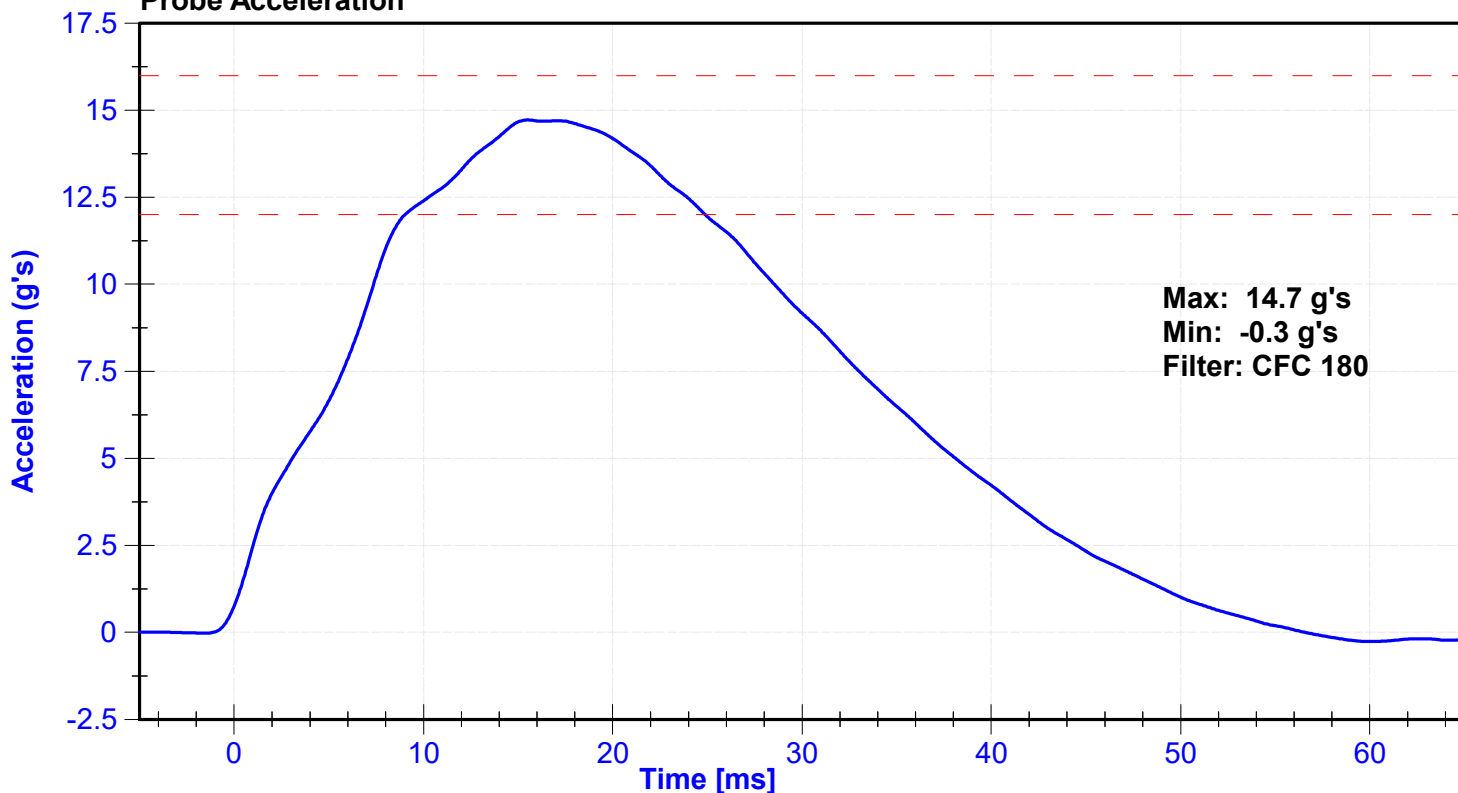
### Results

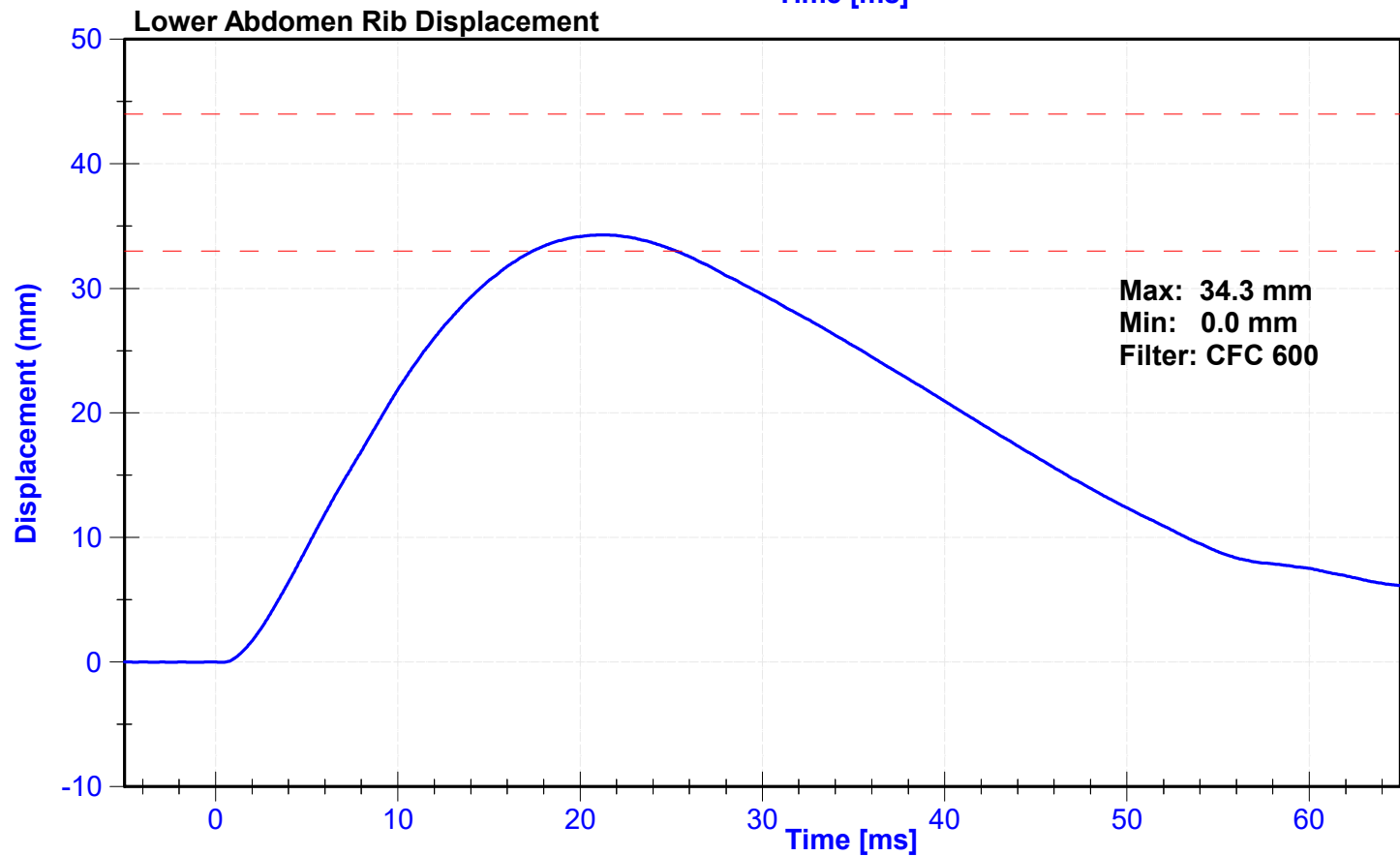
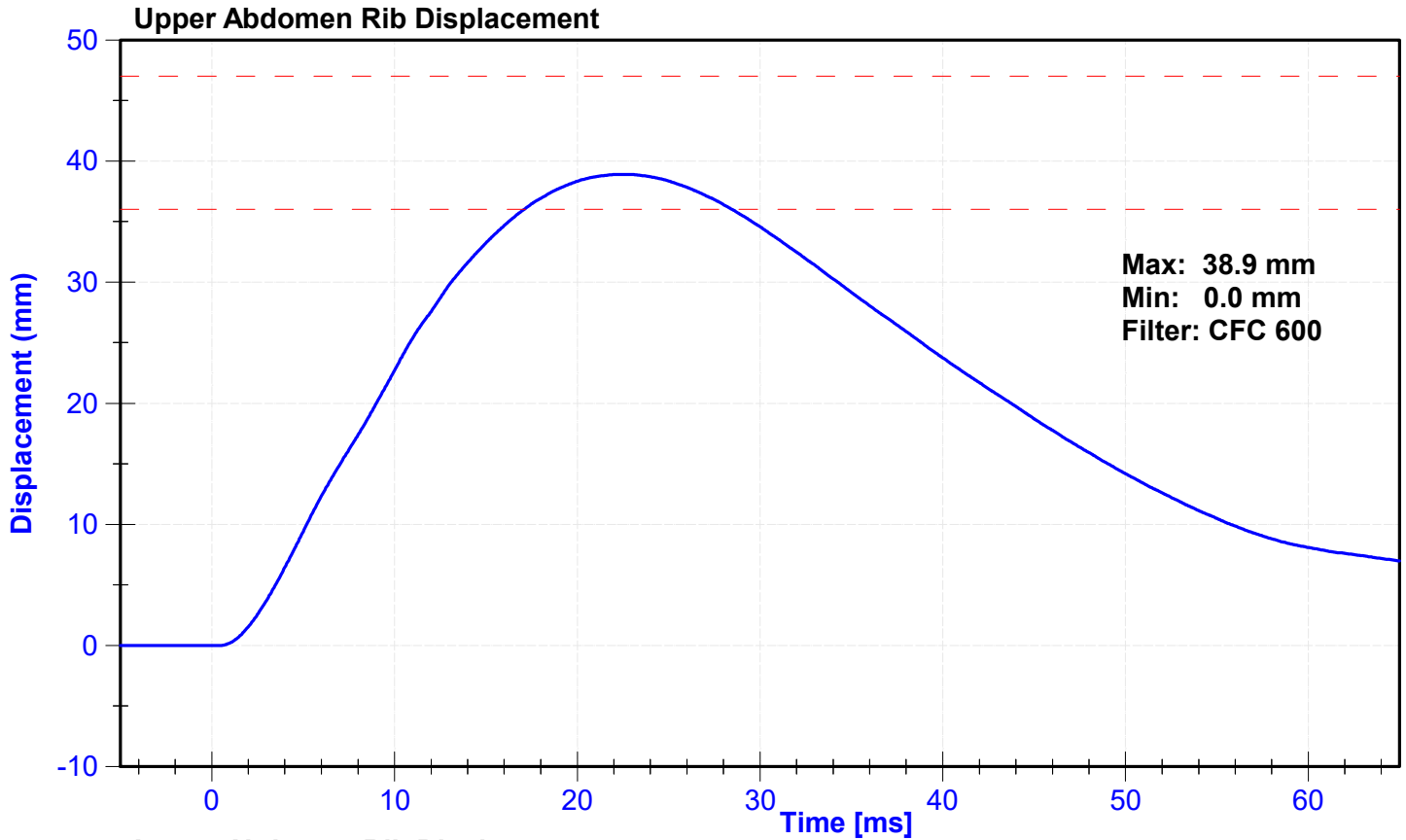
| Test Parameter                   | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|----------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                      | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                         | 10                    | 70                    | %    | 31     | Pass      |
| Velocity                         | 4.2                   | 4.4                   | m/s  | 4.30   | Pass      |
| Probe Acceleration               | 12                    | 16                    | g's  | 14.7   | Pass      |
| Lateral Lower Spine Acceleration | 9                     | 14                    | g's  | 13.1   | Pass      |
| Upper Abdomen Rib Deflection     | 36                    | 47                    | mm   | 38.9   | Pass      |
| Lower Abdomen Rib Deflection     | 33                    | 44                    | mm   | 34.3   | Pass      |

### Transducer Calibrations

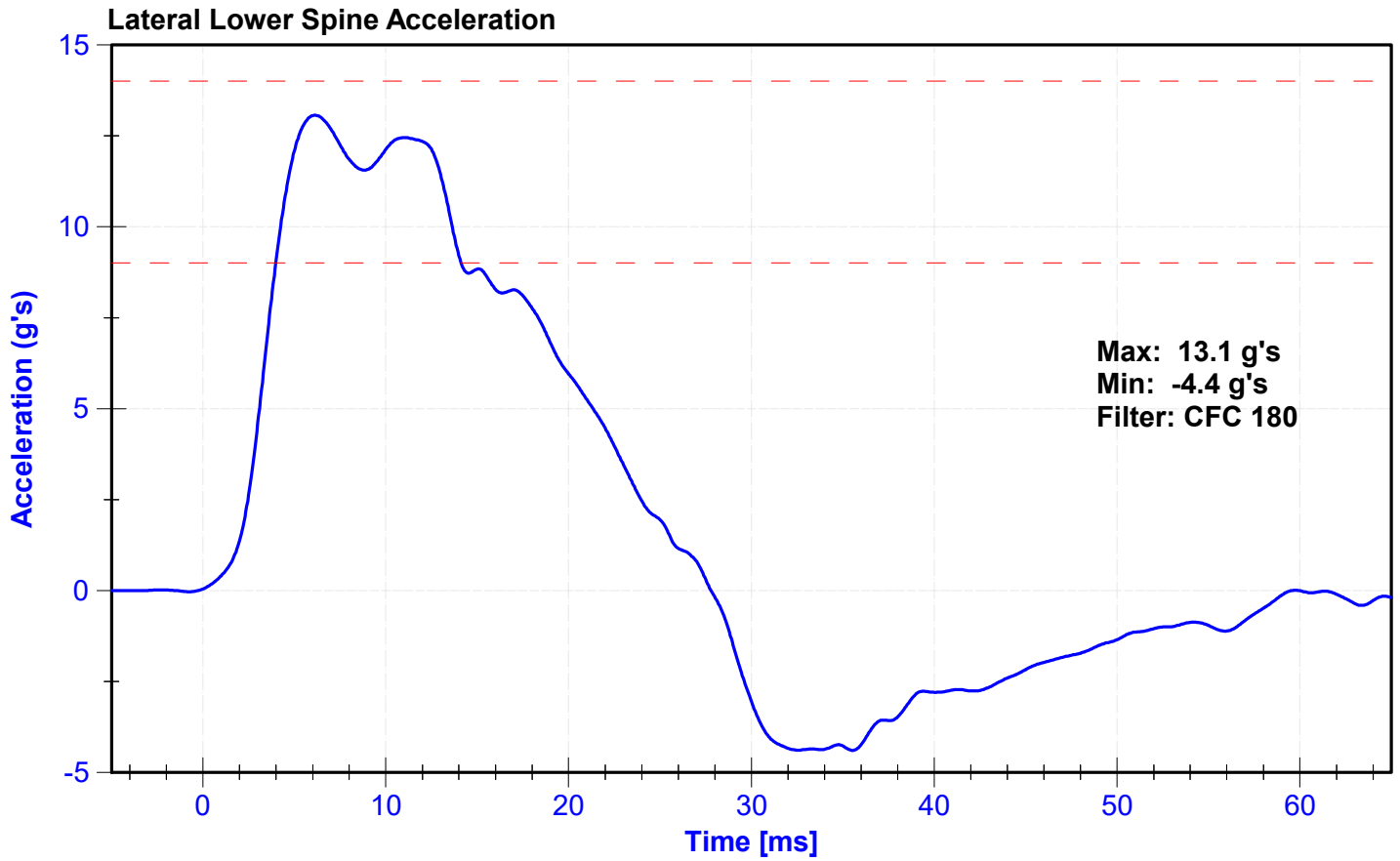
| Channel                         | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|---------------------------------|--------------|---------------|------------------|----------------------|
| Probe Accelerometer             | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Lower Spine Y Accelerometer     | Endevco      | P52071        | 10/17/2024       | 4/15/2025            |
| Upper Abdomen Rib Potentiometer | Servo        | 074GFE        | 10/16/2024       | 4/16/2025            |
| Lower Abdomen Rib Potentiometer | Servo        | 075GFE        | 10/16/2024       | 4/16/2025            |

### Probe Acceleration









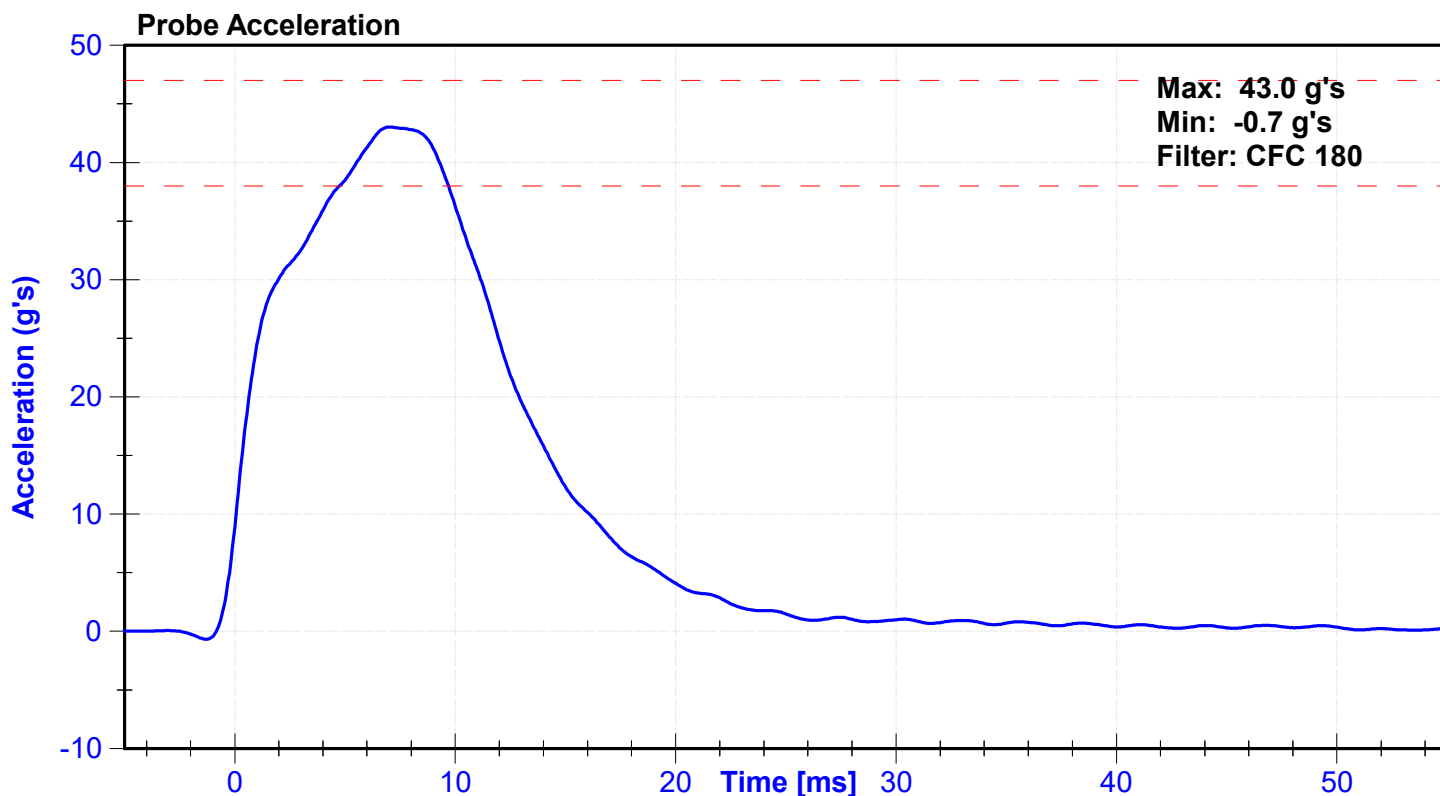
|                   |      |                       |              |
|-------------------|------|-----------------------|--------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios      |
| ATD Serial Number | 300  | Laboratory Supervisor | J. Kinderman |

### Results

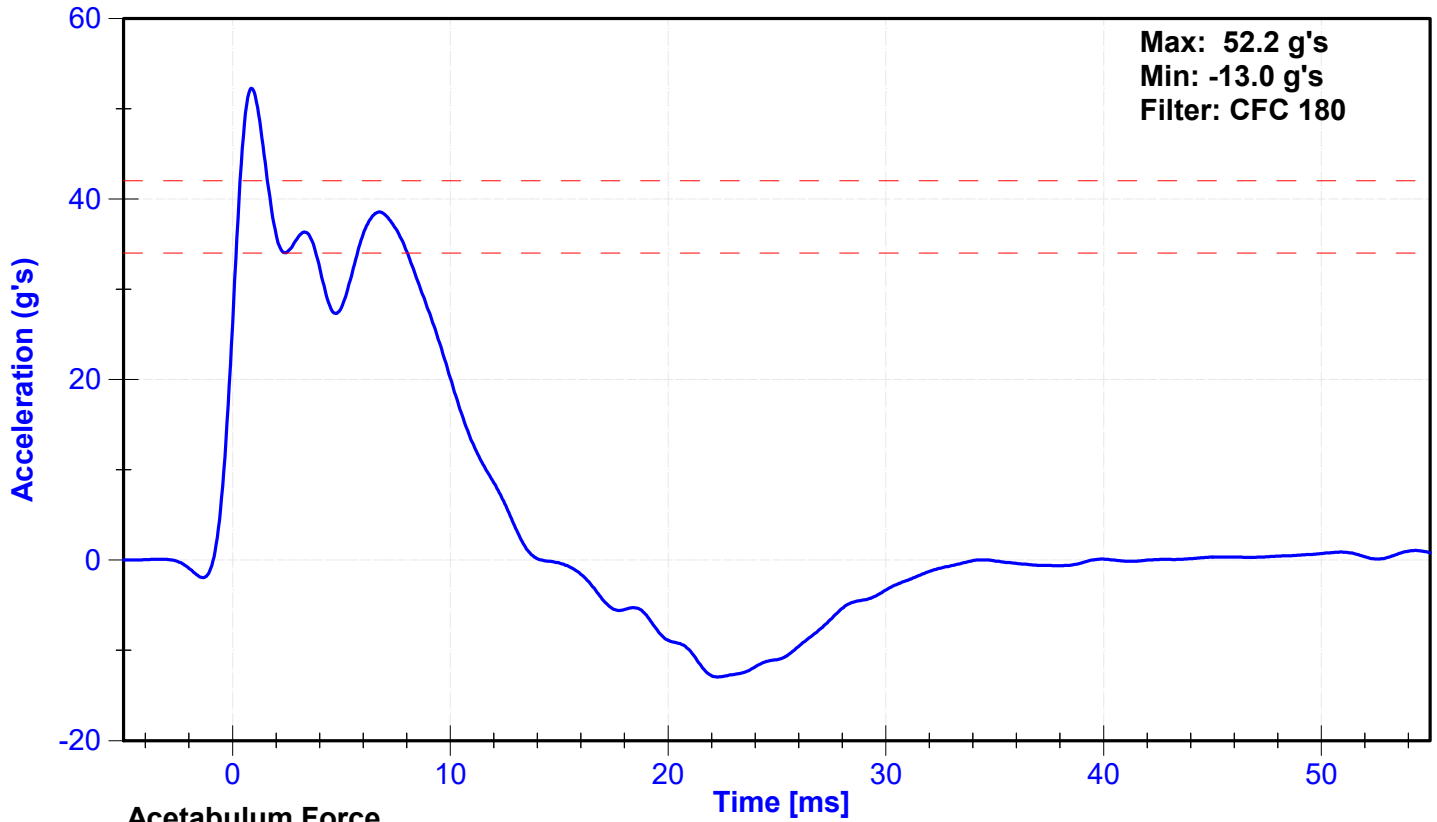
| Test Parameter                        | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|---------------------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                           | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                              | 10                    | 70                    | %    | 31     | Pass      |
| Velocity                              | 6.6                   | 6.8                   | m/s  | 6.66   | Pass      |
| Probe Acceleration                    | 38                    | 47                    | g's  | 43.0   | Pass      |
| Lateral Pelvis Acceleration after 6ms | 34                    | 42                    | g's  | 38.5   | Pass      |
| Acetabulum Force                      | 3600                  | 4300                  | N    | 3885.8 | Pass      |

### Transducer Calibrations

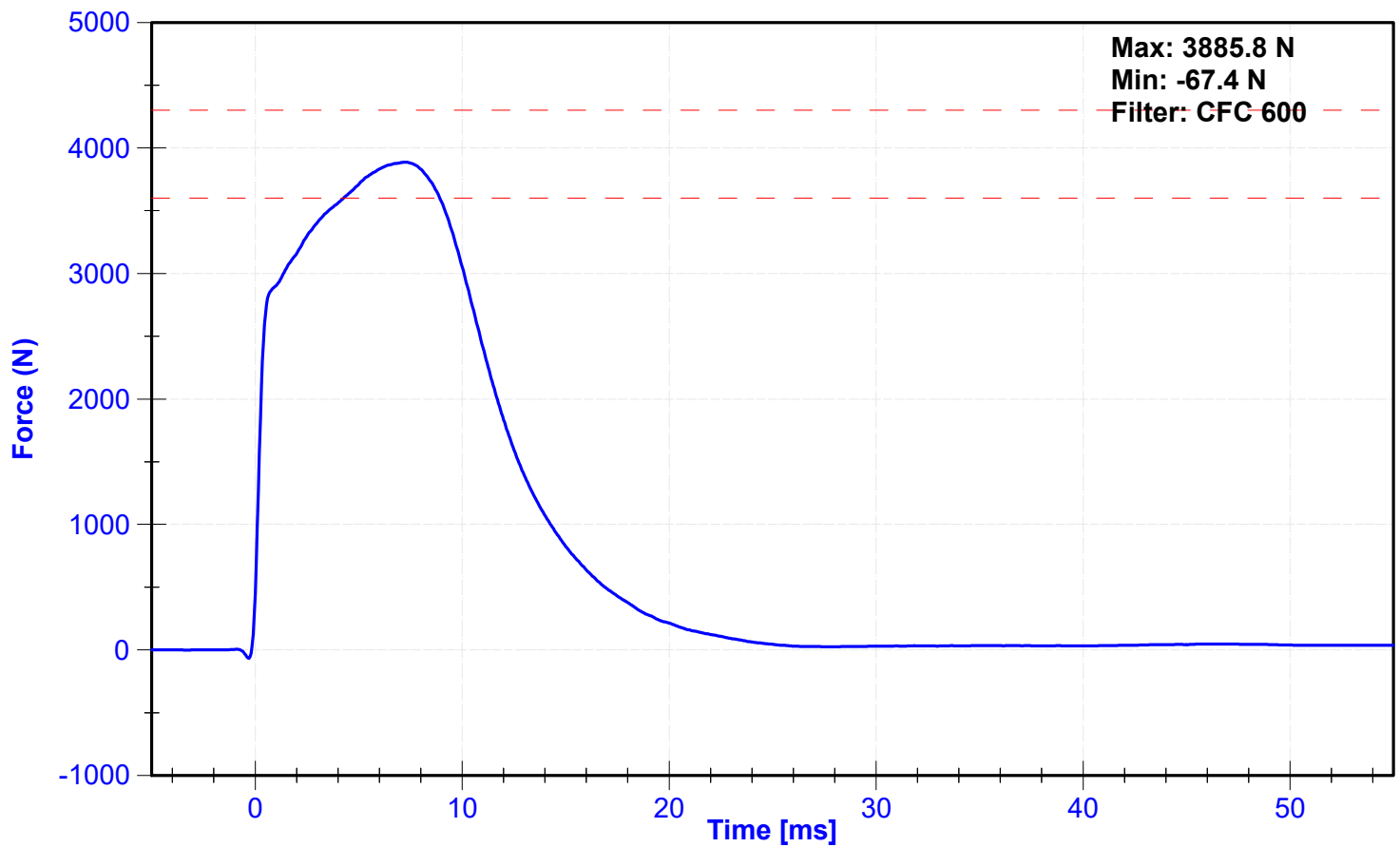
| Channel                | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Pelvis Y Accelerometer | Endevco      | P51731        | 10/17/2024       | 4/15/2025            |
| Acetabulum Load Cell   | Denton       | 275-FY        | 10/28/2024       | 10/28/2025           |
| Certification Plug     | SACO         |               |                  | N/A                  |
| Crash Test Plug        | SACO         |               |                  | N/A                  |



Lateral Pelvis Acceleration



Acetabulum Force







# SID-IIs Pelvis Plug Certification Test

Plug S/N 16734  
Test Number 23534  
Report Number 23591  
Test Date 7/22/2022 12:53:57 PM

| Test Results       | Spec Min | Spec Max |
|--------------------|----------|----------|
| Force @ 0.5 mm (N) | 294      | 50       |
| Force @ 1.5 mm (N) | 1,165    | 850      |
| Force @ 2.5 mm (N) | 1,451    | 1,306    |
| Force @ 3.0 mm (N) | 1,487    | 1,361    |
|                    |          | 1,673    |

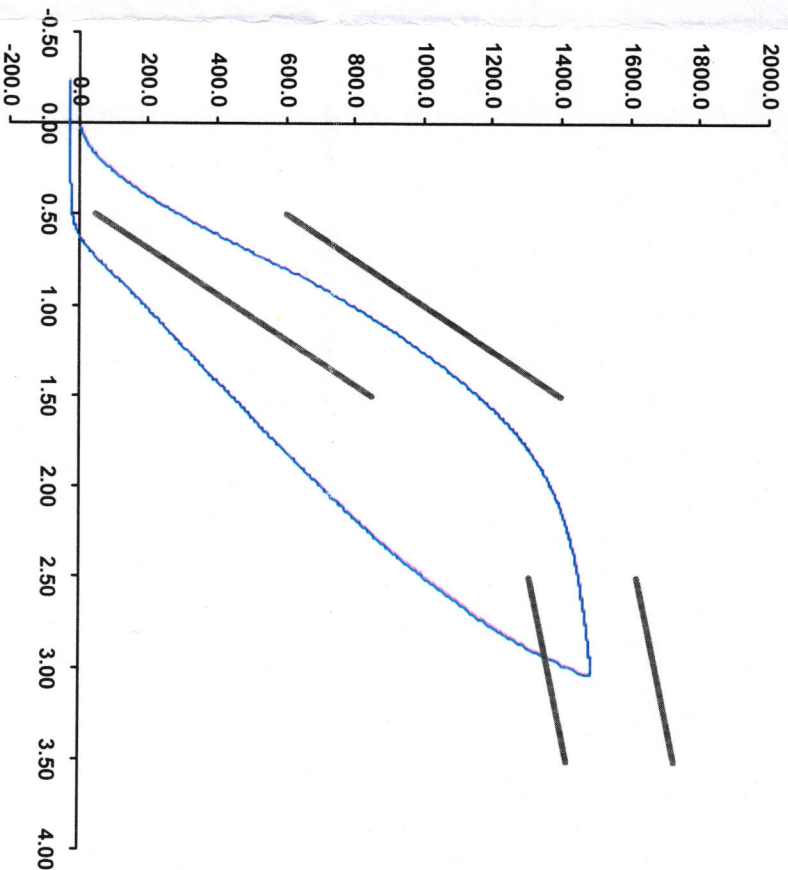
Testing Machine STM-20 5965542  
Load Cell S/N (FI360947), Units (LBS ) 1000

Crosshead Speed ( mm / min ) or Rate 12.7  
Extension or Position Measured by XHD\_100 (XHD100)

Notes:

Cost Plug 11-20-24 300

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 22-Jul-22  
SACO Research

By:  Date: 7/22/22

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



# SID-ILS Pelvis Plug Certification Test

Plug S/N 16691

Test Number 23491

Report Number 23548

Test Date 7/22/2022 10:55:48 AM

| Test Results       | Spec Min | Spec Max |
|--------------------|----------|----------|
| Force @ 0.5 mm (N) | 50       | 600      |
| Force @ 1.5 mm (N) | 850      | 1,400    |
| Force @ 2.5 mm (N) | 1,306    | 1,618    |
| Force @ 3.0 mm (N) | 1,361    | 1,673    |

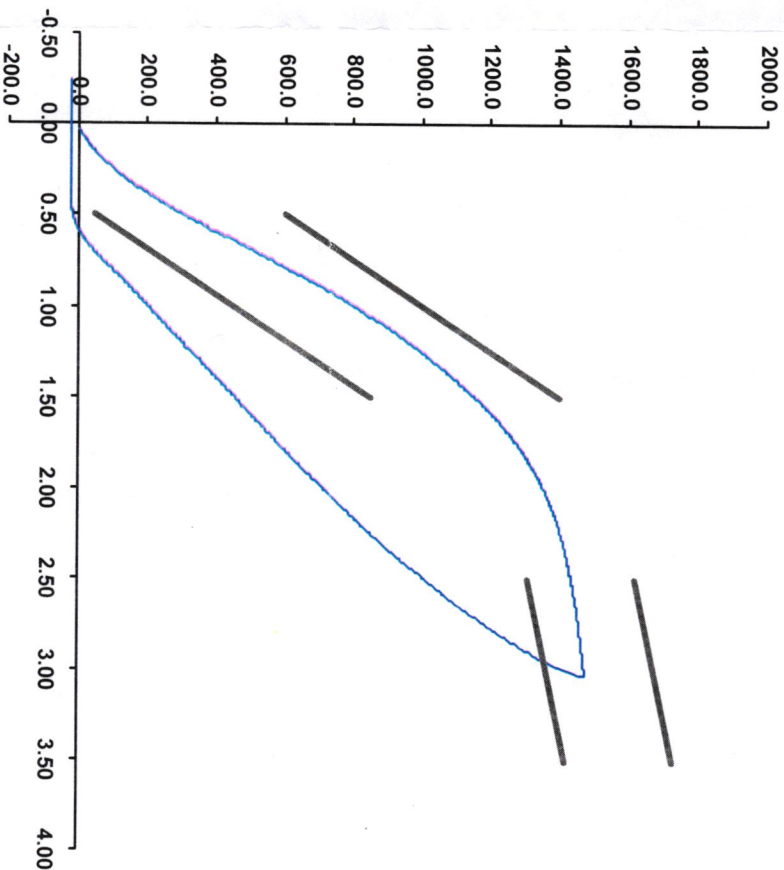
Testing Machine STM-20 5965542  
Load Cell S/N (FI360947), Units (LBS ) 1000

Crosshead Speed ( mm / min ) or Rate 12.7  
Extension or Position Measured by XHD\_100 (XHD100 )

Notes:

Impact Plug 11-80-84 300

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 22-Jul-22

SACO Research

By: DC

Date: 7/22/22

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



# SID-11s Pelvis Plug Certification Test

Plug S/N 16742

Test Number 23542

Report Number 23599

Test Date 7/22/2022 1:09:16 PM

| Test Results       | Spec Min | Spec Max |
|--------------------|----------|----------|
| Force @ 0.5 mm (N) | 50       | 600      |
| Force @ 1.5 mm (N) | 850      | 1,400    |
| Force @ 2.5 mm (N) | 1,306    | 1,618    |
| Force @ 3.0 mm (N) | 1,361    | 1,673    |

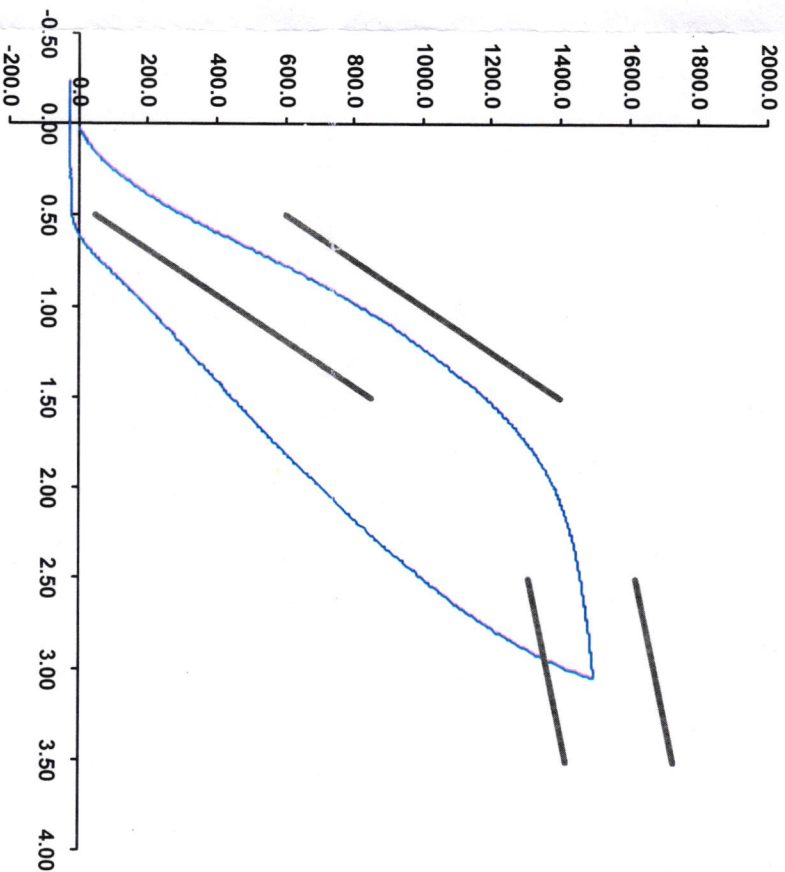
Testing Machine STM-20 5965542  
Load Cell S/N (F1360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7  
Extension or Position Measured by XHD\_100 (XHD100)

Notes:

NON IMPACT 11-20-24 300

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 22-Jul-22

SACO Research

By:

DC

Date:

7/22/22

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



|                   |      |                       |              |
|-------------------|------|-----------------------|--------------|
| ATD Manufacturer  | FTSS | Test Technician       | J. Rios      |
| ATD Serial Number | 300  | Laboratory Supervisor | J. Kinderman |

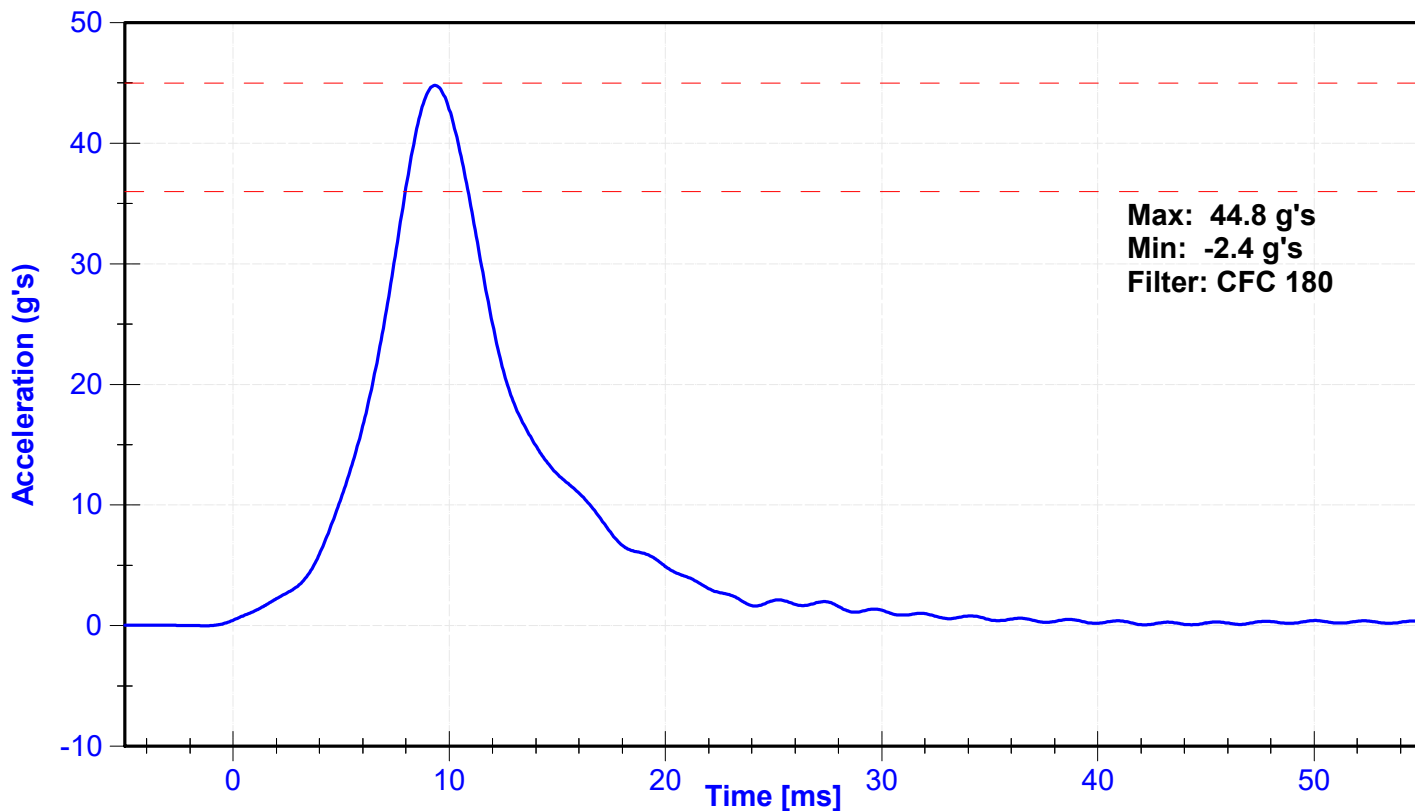
**Results**

| Test Parameter              | Minimum Specification | Maximum Specification | Unit | Result | Pass/Fail |
|-----------------------------|-----------------------|-----------------------|------|--------|-----------|
| Temperature                 | 20.6                  | 22.2                  | °C   | 20.6   | Pass      |
| Humidity                    | 10                    | 70                    | %    | 31     | Pass      |
| Velocity                    | 4.2                   | 4.4                   | m/s  | 4.30   | Pass      |
| Probe Acceleration          | 36                    | 45                    | g's  | 44.8   | Pass      |
| Lateral Pelvis Acceleration | 28                    | 39                    | g's  | 36.8   | Pass      |
| Iliac Force                 | 4100                  | 5100                  | N    | 5099.0 | Pass      |

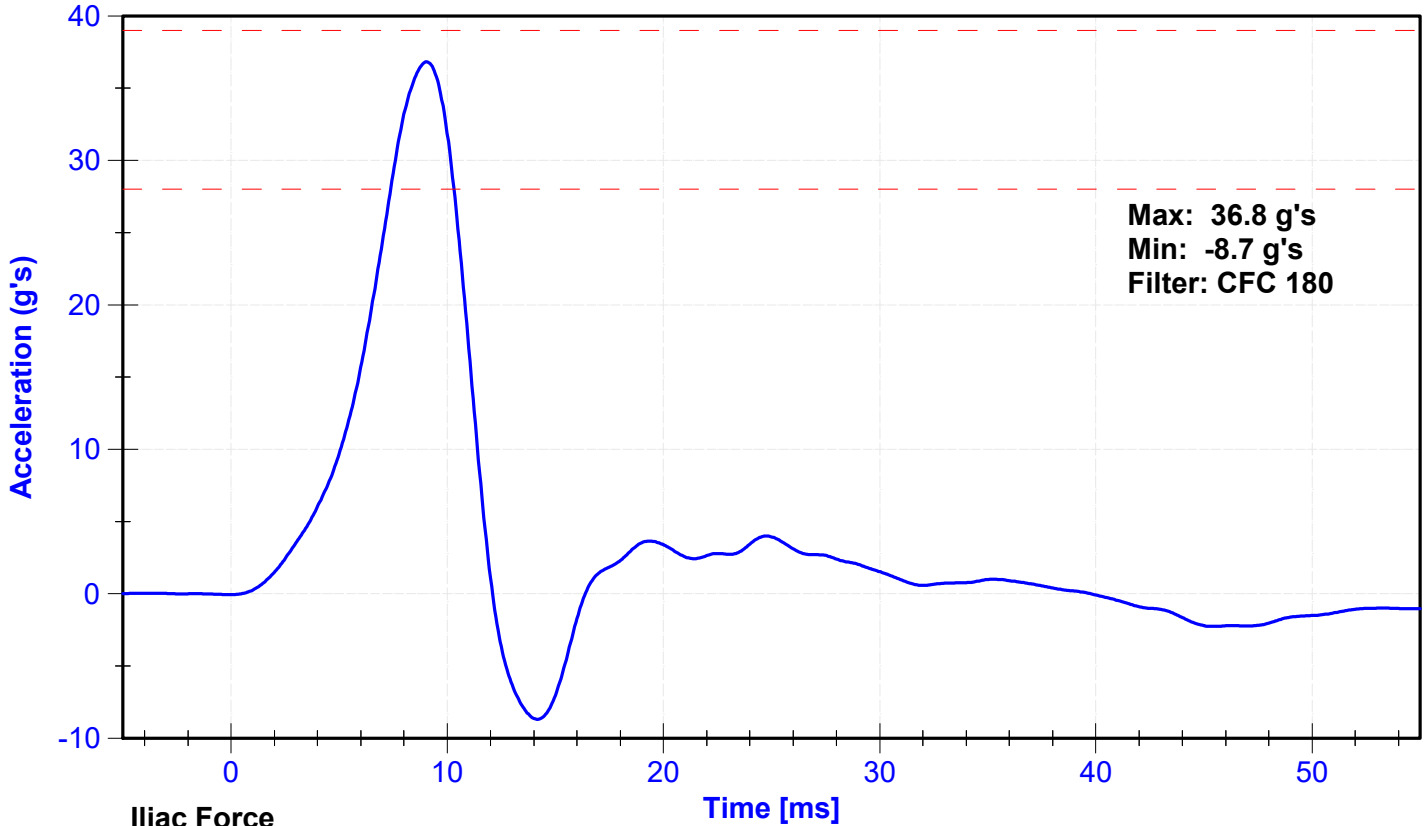
**Transducer Calibrations**

| Channel                | Manufacturer | Serial Number | Calibration Date | Calibration Due Date |
|------------------------|--------------|---------------|------------------|----------------------|
| Pendulum Accelerometer | Endevco      | 18527         | 8/2/2024         | 1/29/2025            |
| Pelvis Y Accelerometer | Endevco      | P51731        | 10/17/2024       | 4/15/2025            |
| Iliac Load Cell        | Denton       | 279-FY        | 10/28/2024       | 10/28/2025           |

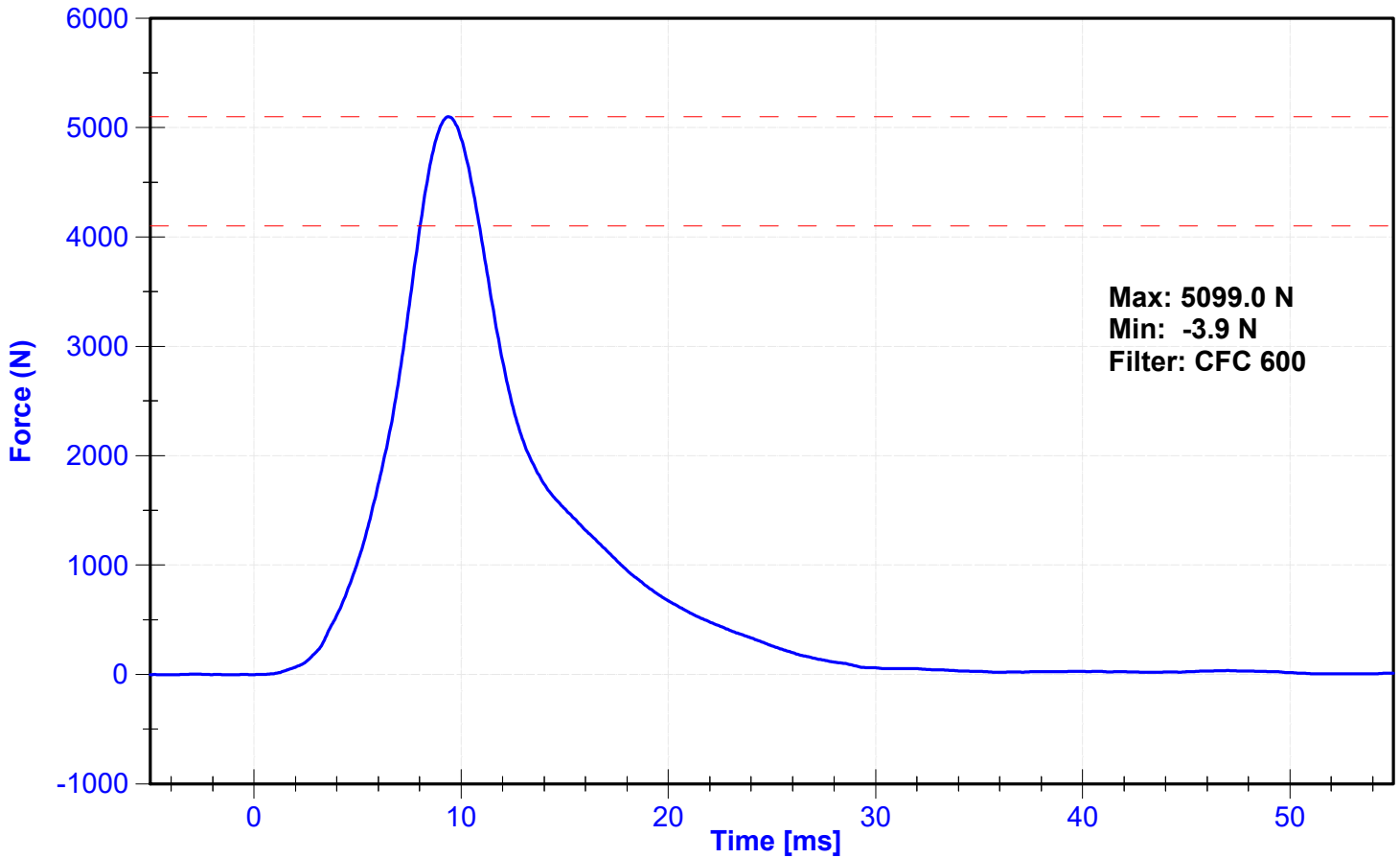
**Probe Acceleration**



### Lateral Pelvis Acceleration



### Iliac Force



## **APPENDIX D**

### **TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA**



**Table 1 – Dummy Instrumentation (SID-IIs)**

|                                  |               |        | SID-IIs S/N: 300 |              |                  |            |
|----------------------------------|---------------|--------|------------------|--------------|------------------|------------|
|                                  |               |        | Serial Number    | Manufacturer | Calibration Date |            |
| Head Accelerometers              |               |        | X                | P59018       | Endevco          | 10/17/2024 |
|                                  |               |        | Y                | P79189       | Endevco          | 10/17/2024 |
|                                  |               |        | Z                | P79587       | Endevco          | 10/17/2024 |
| Head Accelerometers - Redundant  |               |        | X                | P68057       | Endevco          | 10/17/2024 |
|                                  |               |        | Y                | P58986       | Endevco          | 10/17/2024 |
|                                  |               |        | Z                | P52025       | Endevco          | 10/17/2024 |
| Displacement Potentiometer       | Shoulder      |        | Y                |              |                  |            |
|                                  | Thoracic Rib  | Upper  | Y                | 2316GFE      | Servo            | 10/16/2024 |
|                                  |               | Middle | Y                | 085GFE       | Servo            | 10/16/2024 |
|                                  |               | Lower  | Y                | 1156GFE      | Servo            | 10/16/2024 |
|                                  | Abdominal Rib | Upper  | Y                | 074GFE       | Servo            | 10/16/2024 |
|                                  |               | Lower  | Y                | 075GFE       | Servo            | 10/16/2024 |
| Lower Spine Accelerometers (T12) |               |        | X                | P64003       | Endevco          | 10/17/2024 |
|                                  |               |        | Y                | P52071       | Endevco          | 10/17/2024 |
|                                  |               |        | Z                | P17283       | Endevco          | 10/17/2024 |
| Acetabulum Load Cell             |               |        | Y                | 275-FY       | Denton           | 10/28/2024 |
| Lilac Wing Load Cell             |               |        | Y                | 279-FY       | Denton           | 10/28/2024 |
| Pelvis Plug (Struck Side)        |               |        |                  | 16778        | SACO             | 07/25/2022 |
| Pelvis Plug (Non-Struck Side)    |               |        |                  | 16781        | SACO             | 07/25/2022 |

**Table 2 – Vehicle Instrumentation**

| Vehicle Instrumentation   |   | Serial Number | Manufacturer            | Calibration Date |
|---------------------------|---|---------------|-------------------------|------------------|
| Vehicle Center of Gravity | X | A431232       | Measurement Specialties | 10/07/2024       |
| Vehicle Center of Gravity | Y | A431233       | Measurement Specialties | 10/07/2024       |
| Vehicle Center of Gravity | Z | A431240       | Measurement Specialties | 10/07/2024       |
| Left Floor Sill           | Y | G22671        | Endevco                 | 10/10/2024       |
| A-Pillar Sill             | Y | G23647        | Endevco                 | 10/14/2024       |
| A-Pillar Low              | Y | G25560        | Endevco                 | 11/01/2024       |
| A-Pillar Mid              | Y | G25980        | Endevco                 | 07/18/2024       |
| B-Pillar Sill             | Y | A370907       | Measurement Specialties | 09/11/2024       |
| B-Pillar Low              | Y | A352327       | Measurement Specialties | 06/10/2024       |
| B-Pillar Mid              | Y | A398656       | Measurement Specialties | 09/18/2024       |
| Driver Seat               | Y | G23634        | Endevco                 | 07/17/2024       |
| Engine Top                | X | G22221        | Endevco                 | 08/21/2024       |
| Engine Top                | Y | G22763        | Endevco                 | 08/21/2024       |
| Firewall                  | Y | G25237        | Endevco                 | 10/14/2024       |
| Right Roof                | Y | G25269        | Endevco                 | 10/15/2024       |
| Right Floor Sill          | Y | A428017       | Measurement Specialties | 08/21/2024       |
| Rear Floorpan             | X | A280354       | Measurement Specialties | 09/17/2024       |
| Rear Floorpan             | Y | A280858       | Measurement Specialties | 09/17/2024       |

**Table 3 – Pole Instrumentation**

| Pole Instrumentation | Serial Number     | Manufacturer | Calibration Date |
|----------------------|-------------------|--------------|------------------|
| Load Cell 1          | 1220AF-1277329-F0 | Interface    | 06/21/2024       |
| Load Cell 2          | 1220AF-1117017-F0 | Interface    | 06/21/2024       |
| Load Cell 3          | 1220AF-1117025-F0 | Interface    | 06/21/2024       |
| Load Cell 4          | 1220AF-1130989-F0 | Interface    | 06/21/2024       |
| Load Cell 5          | 1220AF-1281288-F0 | Interface    | 06/21/2024       |
| Load Cell 6          | 1220AF-1281285-F0 | Interface    | 06/21/2024       |
| Load Cell 7          | 1220AF-1117035-F0 | Interface    | 06/21/2024       |
| Load Cell 8          | 1220AF-1117011-F0 | Interface    | 06/21/2024       |