

REPORT NUMBER: SINCAP-CAL-25-004

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

**Ford Motor Co.
2025 Ford Expedition
5 Door SUV**

NHTSA No: M20250202

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



March 6, 2026

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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Vanessa Hansen, Operations Manager

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: _____

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16. Abstract A 32.20 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2025 Ford Expedition 5 Door SUV 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 July 16, 2025. The impact velocity of the vehicle was 32.19 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 421 mm located at level 2. The test vehicle's occupant performance data is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs) (Serial No.DG8012)</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>171.473</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>G</td> <td>82</td> <td>41.659</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>2810.418</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>17.476</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45*</td> <td>17.388</td> </tr> </tbody> </table> 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.						Measurement Description	Driver ATD (SID-IIs) (Serial No.DG8012)			Units	Threshold	Result	Head Injury Criteria (HIC36)		1000	171.473	Resultant Lower Spine Acceleration	G	82	41.659	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2810.418	Maximum Thoracic Rib Deflection	mm	38	17.476	Maximum Abdominal Rib Deflection	mm	45*	17.388
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 2025 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 2025 Ford Expedition 5 Door SUV. 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 2025 Ford Expedition 5 Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.19 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on July 16, 2025. 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	171.473
Resultant Lower Spine Acceleration	G	82	41.659
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2810.418
Maximum Thoracic Rib Deflection	mm	38	17.476
Maximum Abdominal Rib Deflection	mm	45*	17.388

*Proposed IARV

Supplemental restraint information was recorded as follows:

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) 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	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

GENERAL COMMENTS:

1. P1 serial number - DG8012

Data Anomalies:

- No Questionable Channels

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: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20250202	Traction Control System (TCS)	Yes
Model Year	2025	Auto-Leveling System	No
Make	Ford	Automatic Door Locks (ADL)	Yes
Model	Expedition	Power Window Auto-Reverse	Yes
Body Style	SUV	Other Optional Feature	N/A
VIN	1FMJU1H86SEA25852	Driver Front Airbag	Yes
Body Color	Space Silver Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	250 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	3.5	Driver Torso Airbag	No
Type / No. Cylinders	V6	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	Rear Wheel Drive	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso / Pelvis Airbag	No
Sunroof / T-Top	Yes	Rear Pass. Pelvis Airbag	No
Running Boards	Yes	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	Yes
Power Seats	Yes	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	Yes
		Other Safety Restraint	N/A

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Co.	GVWR (KG)	3345
Date of Manufacture	04/25	GAWR Front (KG)	1440
Vehicle Type	MPV	GAWR Rear (KG)	2059

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	2	3	7	
Vehicle Capacity Weight (VCW) (kg)				616	(A)
DSC x 68.0 kg				476	(B)
Cargo Weight (RCLW) (kg)				136	(A-B)

VEHICLE SEAT TYPE

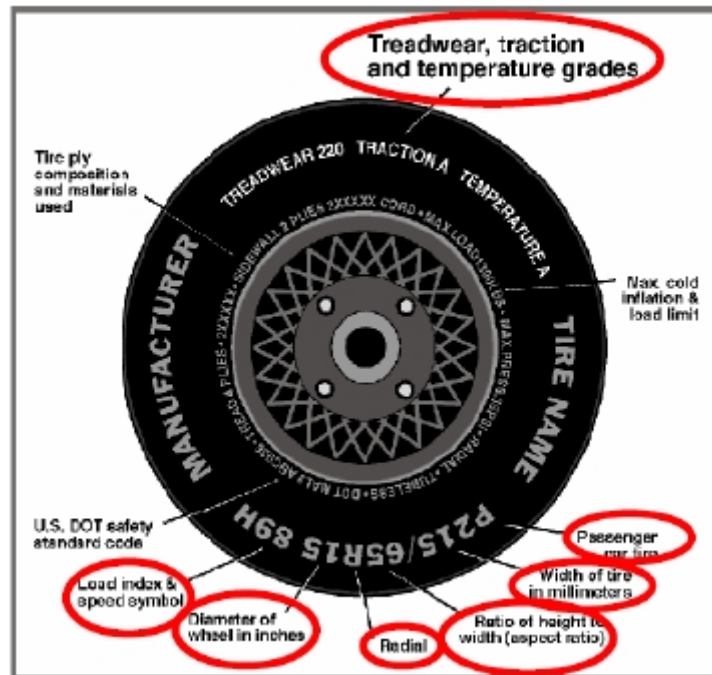
Seating Location	Type Of Seat Pan				Type Of Seat Back	
	Bucket	Bench	Split Bench	Contour	Fixed	Adjustable
						W/ Lever W/ Knob
Front	X					X
Rear or Second Row Seat	X					X
Third Row seat			X		X	

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025

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)	350	350
Cold Pressure (kPa)	250	250
Recommended Tire Size	275/60R20	275/60R20
Tire Size on Vehicle	275/60R20	275/60R20
Tire Manufacturer	Goodyear	Goodyear
Tire Model	Wrangler	Wrangler
Treadwear	680	680
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Polyamide	2 Polyester, 2 Steel, 1 Polyamide
Load Index / Speed Symbol	115H	115H
Tire Material	Rubber	Rubber
DOT Safety Code Left	14BW0JA6R1225	14BW0JA6R1225
DOT Safety Code Right	14BW0JA6R1225	14BW0JA6R1225

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	250	254	250	256
Tire Placard	kPa	250	250	250	250
Owner's Manual	kPa	250	250	250	250
As Tested	kPa	250	250	250	250

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Rear	Total	Total	Front	Rear	Total
Left	kg	584	647		600	720		597	740	
Right	kg	611	634		617	717		615	712	
Ratio	%	48.3	51.7		45.9	54.1		45.5	54.5	
Totals	kg	1195	1281	2476	1217	1437	2654	1212	1452	2664

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total As Delivered Weight (UVW)	kg	2476
Actual Weight of 1 P572V (SID-IIs) ATD Used	kg	50
Rated Cargo / Luggage Weight (RCLW)	kg	136
Calculated Vehicle Target Weight (TVTW)	kg	2662

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	-1.55	-1.25	-1.20	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg	-1.20	-1.25	-1.30	Yes
Front Bumper-Line Angle (left-to-right)**	Deg	-0.25	-0.05	+0.25	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg	-1.05	-1.10	-1.10	Yes
Vehicle CG (Aft of Front Axle)	mm	1612	1687	1698	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	+5	+5	+5	

* 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>2025 Ford Expedition 5 Door SUV</u>	NHTSA No.: <u>M20250202</u>
Test Program: <u>NCAP Side Pole Impact Test</u>	Test Date: <u>07/16/2025</u>

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	14
Jack	6
Ballast / Equipment Added	94
Test Height – Adjustable Suspension Setting, if Applicable	N/A

TEST SURFACE MARKING

	Distance from 75° Impact Location Line (mm)
Fore 25 mm target	1020
Aft 25 mm target	1020

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025

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	20.75	12.15	16.5
Front Passenger Seat	17.05	12.0	14.5
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	N/A	N/A	N/A

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	16.5	30	Max	44	47	50
			Mid	24	27	30
			Min	3	6.5	10
Front Passenger Seat	14.5	17	Max	-	-	-
			Mid	-	-	-
			Min	12	14.5	17
Front Center Seat*			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*	N/A	N/A	Max			
			Mid			
			Min			

**If applicable*

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

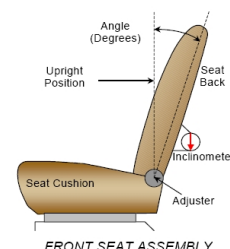
NHTSA No.: M20250202
 Test Date: 07/16/2025

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detents*
Driver Seat	250	Power	0	Power
Front Passenger Seat	250	Power	0	Power
Front Center Seat				
Struck Side Rear Seat	220	22 (0-21)	220	22
Non-Struck Side Rear Seat	220	22 (0-21)	220	22
Rear Center Seat	N/A	N/A	N/A	N/A

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	71.1	Power	8.0	Power
Front Passenger Seat	71.0	Power	8.0	Power
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	N/A	N/A	N/A	N/A

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	3 (0-2)	0

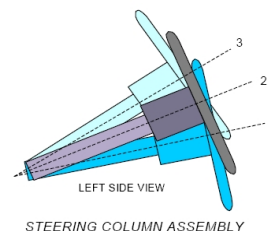
DATA SHEET NO. 2 ... (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025

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.

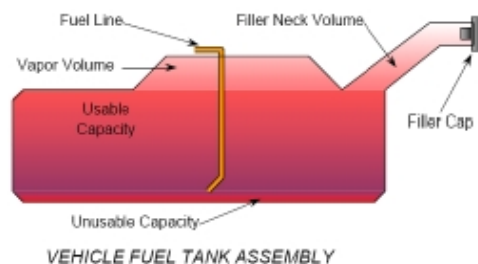


	Degrees	Fore / Aft Position (mm)
Lowermost - Position No. 1	18.8	
Geometric center - Position No. 2	22.2	
Uppermost - Position No. 3	25.5	
Telescoping Steering Wheel Travel		76
Test Position	22.2	38

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	93.5
Usable Capacity of "Optional Tank" - see Form No. 1	N/A
Usable Capacity of "Standard Tank" - see Owner's Manual	89.3
Usable Capacity of "Optional Tank" - see Owner's Manual	N/A
93% of Usable Capacity	86.9
Actual Amount of Solvent Used in Test	86.9
1/3 of Usable Capacity	31.1

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

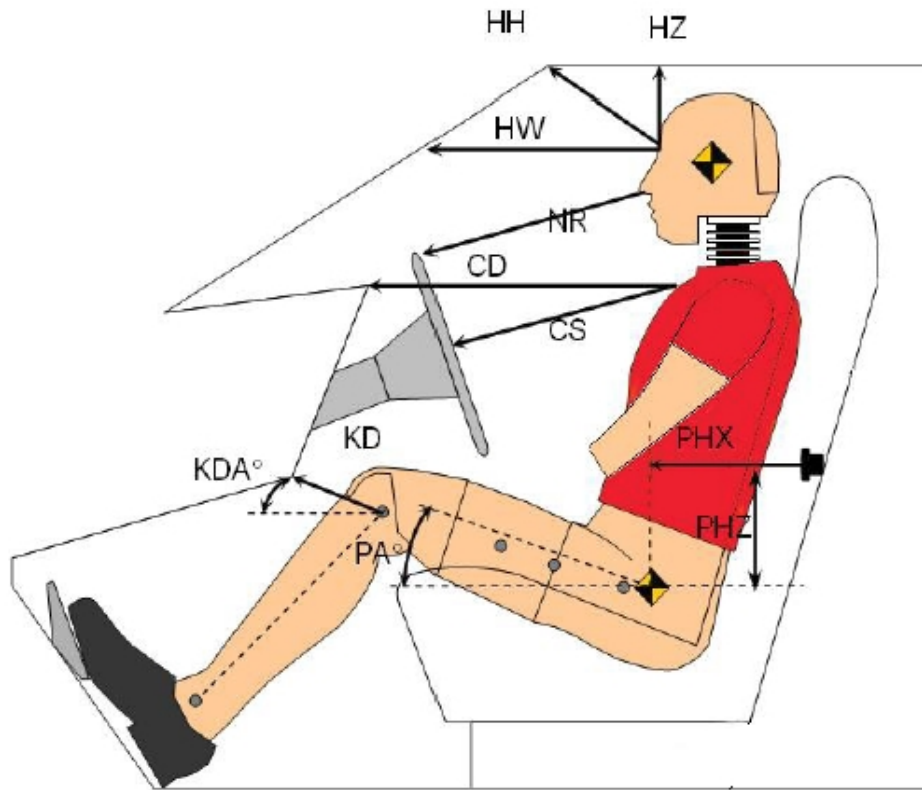
Capacity stated in Form No. 1?

☒ Yes ☐ No

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025



Left Side View

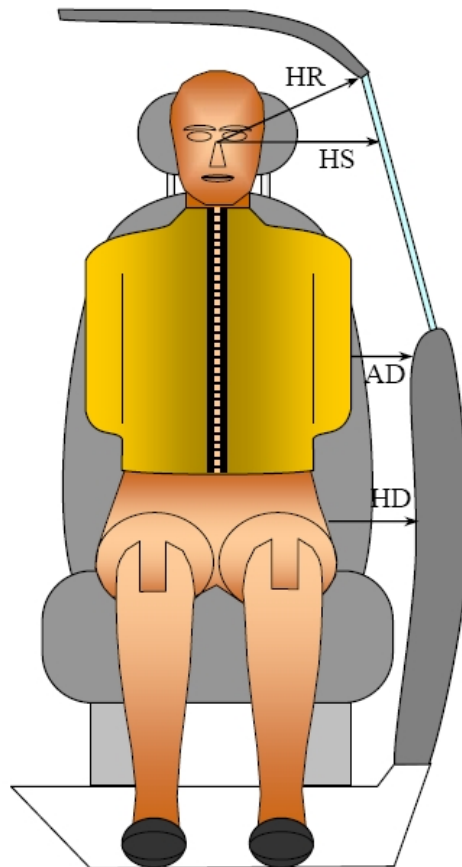
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver (Serial No. DG8012)	
		Length (mm)	Angle (°)
HH	Head to Header	365	
HW	Head to Windshield	657	
HZ	Head to Roof Liner	247	
NR	Nose to Rim	205	
CD	Chest to Dash	409	
CS	Chest to Steering Wheel	162	
KD(L) / KDA(L)°	Left Knee to Dash	87	32.8
KD(R) / KDA(R)°	Right Knee to Dash	75	38.5
PAX°	Pelvic Tilt Angle (X-Axis)		21.7
PAY°	Pelvic Tilt Angle (Y-Axis)		0.25
PHX	Hip Point to Striker (X-Axis)	411	
PHZ	Hip Point to Striker (Z-Axis)	54	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025



FRONT VIEW OF DUMMY

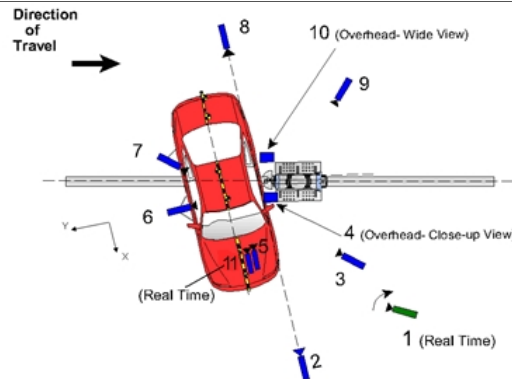
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver – Length (Serial No. DG8012)
HR	Head to Side Header	mm	282
HS	Head to Side Window	mm	397
AD	Arm to Door	mm	174
HD	H-Point to Door	mm	177

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025



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	60
2	Front ground level - impact view	0	6120	-1600	28	1000
3	Impact side 45° - forward pole view	2750	4300	-1600	24	1000
4	Overhead Close-up view of impact	0	0	-9200	24	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	0	-8100	-1600	28	1000
9	Impact side 45° - rearward pole view	5120	-4320	-1600	24	1000
10	Overhead wide - view of impact	0	0	-9200	16	1000
11	Real-time (24 - 30 fps) - dummy front view				Zoom	60

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 ± 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.

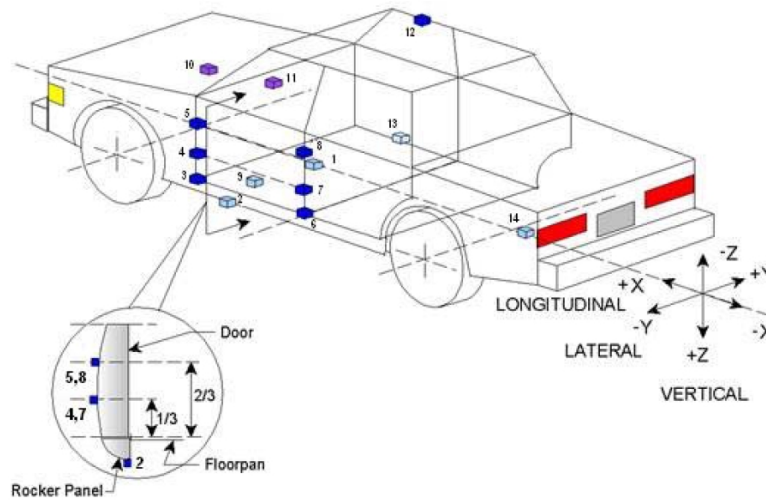
INSTRUMENTATION

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: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2781	2	-260
2	Left Floor Sill	3222	-767	-5
3	A-Pillar Sill	3631	-767	-32
4	A-Pillar Low	3642	-775	-259
5	A-Pillar Mid	3642	-737	-828
6	B-Pillar Sill	2536	-746	-78
7	B-Pillar Low	2512	-760	-461
8	B-Pillar Mid	2493	-758	-720
9	Driver Seat Track	2902	-633	-108
10	Engine Top	4448	9	-528
11	Firewall	4176	48	-681
12	Right Roof	2767	705	-1290
13	Right Floor Sill	3214	764	-6
14	Rear Floor Pan	829	-4	-201

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: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025

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: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025

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	Curtain Airbag, Headrest
Left Shoulder	Torso/Pelvis Airbag, Seatback
Upper Torso	Seat Back
Lower Torso	Torso/Pelvis Airbag, Seat Back
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: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	A-Pillar and B-Pillar Buckled
Sill Separation	None
Windshield Damage	Cracked Throughout, Separation along roof line
Side Window Damage	Driver door window shattered but remained laminated
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	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

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

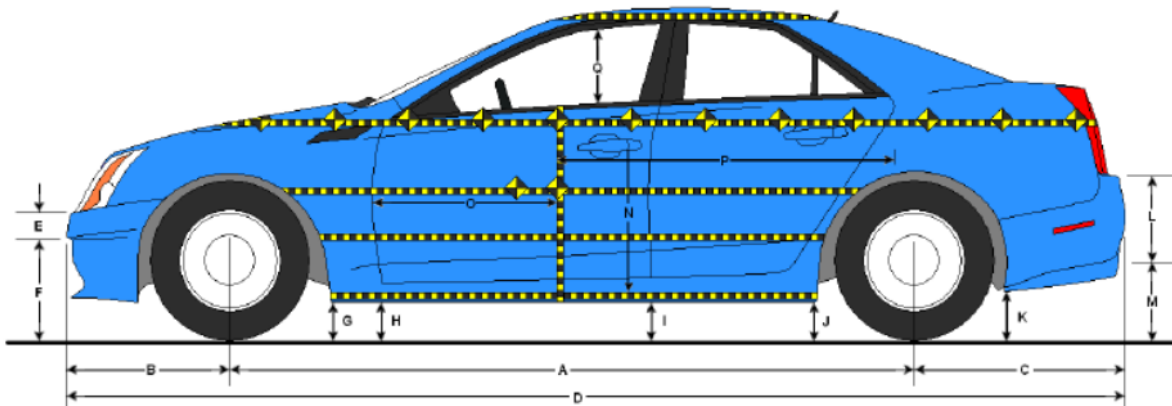
Measured Parameter	Units	Tolerance	Value
Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt	mm		1231
Actual Impact Point - Aft of Front Axle	mm		1235
Horizontal Offset (+ forward / - rearward)	mm	+/- 38	-4
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75
Trap No. 1 Velocity - Primary	kph	31.4 to 33.0	32.19
Trap No. 2 Velocity - Redundant	kph	31.4 to 33.0	32.20

*Of Intended Impact Point

DATA SHEET NO. 9
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

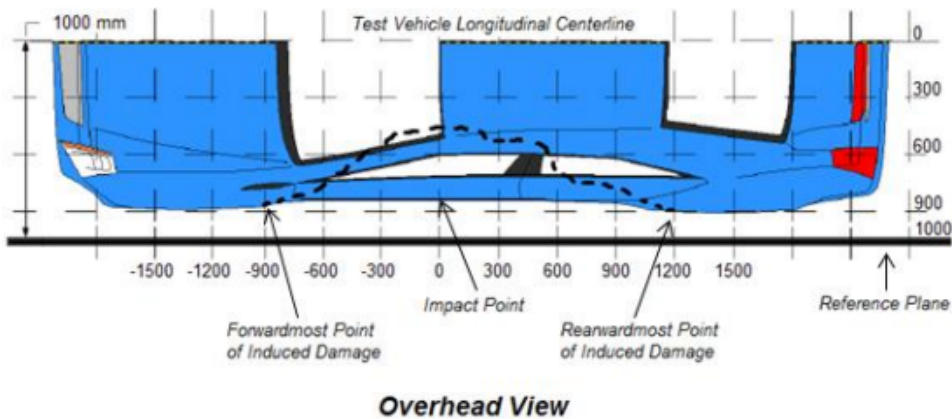
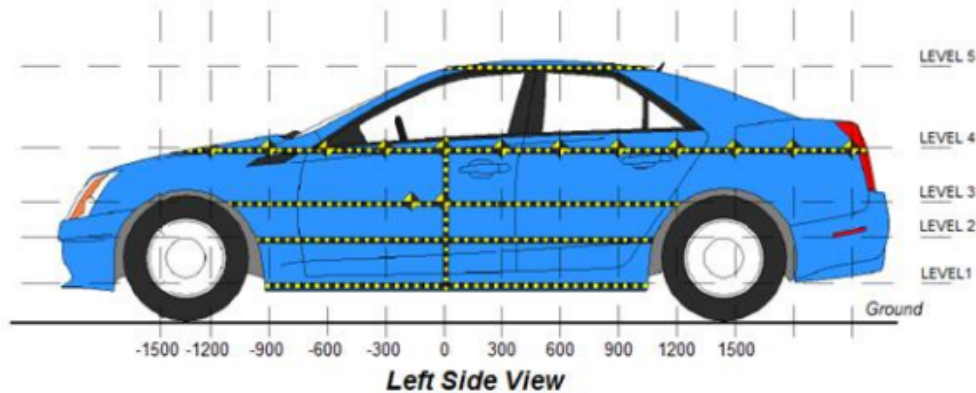
No.	Measurement Description	Pre-Test	Post-Test	Change
A	Vehicle Wheelbase	3116	3061	-55
B	Front Axle to FSOV	967	979	12
C	Rear Axle to RSOV	1239	1240	1
D	Total Length at Centerline	5322	5280	-42
E	Front Bumper Thickness	180	180	0
F	Front Bumper Bottom to Ground	520	530	10
G	Sill Height at Front Wheel Well	271	296	25
H	Sill Height at Front Door Leading Edge	296	304	8
I	Sill Height at B Pillar	318	358	40
J1	Sill Height at Rear Wheel Well	332	442	110
J2	Pinch Weld Height at Rear Wheel Well	408	438	30
K	Sill Height Aft of Rear Wheel Well	377	379	2
L	Rear Bumper Thickness	180	180	0
M	Rear Bumper Bottom to Ground	196	488	292
N	Sill Height to Bottom of Front Window Sill	883	884	1
O	Front Door Leading Edge to Impact CL	614	496	-118
P	Rear Door Trailing Edge to Impact CL	1710	1633	-77
Q	Front Window Opening	471	470	-1
R	Right Side Length	5278	5255	-23
S	Left Side Length	5278	5186	-92
T	Vehicle Width at B-Pillars	2087	2094	7
U	Front Wheel Track width	1724	1725	1
V	Rear Wheel Track Width	1726	1720	-6

* All measurements in mm with tolerance of ± 3 mm

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	570	406	0
2	Driver H-Point	mm	925	421	0
3	Mid-Door	mm	848	416	0
4	Window Sill	mm	1257	365	0
5	Window Top	mm	1846	147	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: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

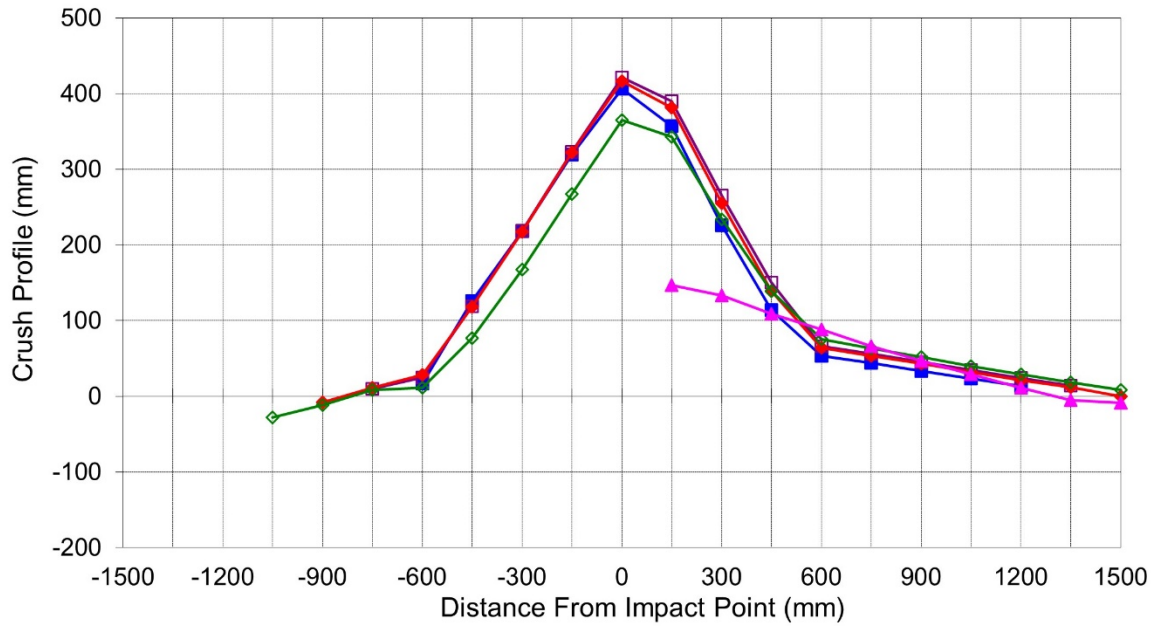
	Pre-Test					Post-Test					Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500															
-1350															
-1200															
-1050				908					936					-28	
-900			1017	916				1025	928				-8	-12	
-750		1008	1012	924			998	1001	916			10	11	8	
-600	997	1007	1005	930		980	982	977	919		17	25	28	11	
-450	999	1009	1007	938		873	890	889	861		126	119	118	77	
-300	1001	1011	1009	945		783	792	792	778		218	219	217	167	
-150	1002	1013	1009	949		683	690	687	682		319	323	322	267	
0	1002	1014	1010	953		596	593	594	588		406	421	416	365	
150	1003	1014	1010	957	680	646	624	629	614	533	357	390	381	343	147
300	1003	1014	1010	960	715	777	749	755	726	582	226	265	255	234	133
450	1003	1015	1010	962	720	889	865	871	823	611	114	150	139	139	109
600	1001	1015	1010	965	725	948	949	946	890	637	53	66	64	75	88
750	999	1014	1008	965	726	955	958	955	902	660	44	56	53	63	66
900	996	1012	1006	967	727	963	967	963	915	680	33	45	43	52	47
1050	993	1011	1005	966	728	970	976	973	926	699	23	35	32	40	29
1200	990	1009	1004	966	728	977	985	983	937	717	13	24	21	29	11
1350		1009	1008	964	728		995	996	946	733		14	12	18	-5
1500			1013	962	728			1013	954	737			0	8	-9

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: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025



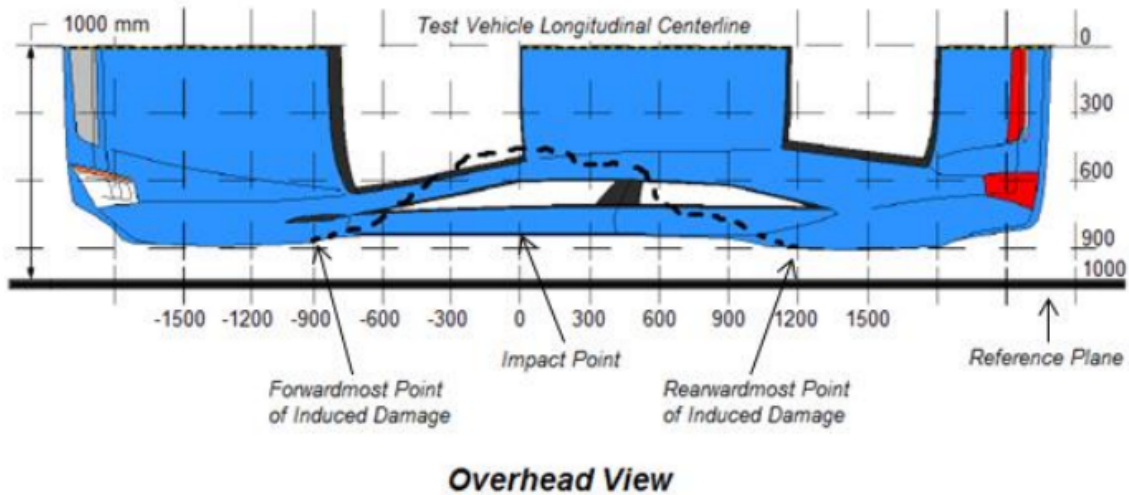
Vehicle Exterior Crush Measurements - Visual Representation

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
 Test Date: 07/16/2025

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	-25	-17	-8
2	-420	3	130	-7	137
3	60	3	392	-10	402
4	540	3	84	-10	94
5	1020	3	29	-5	34
6	1500	3	-13	-13	0

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

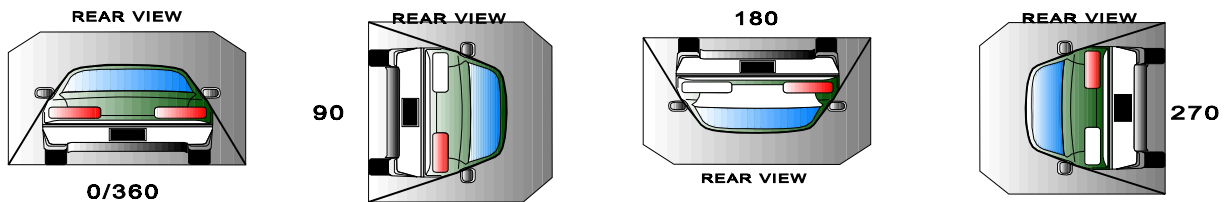
NHTSA No.: M20250202
Test Date: 07/16/2025

Test Time: 11:44AM

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°	62	300	362
90° to 180°	66	300	366
180° to 270°	67	300	367
270° to 360°	66	300	366

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	

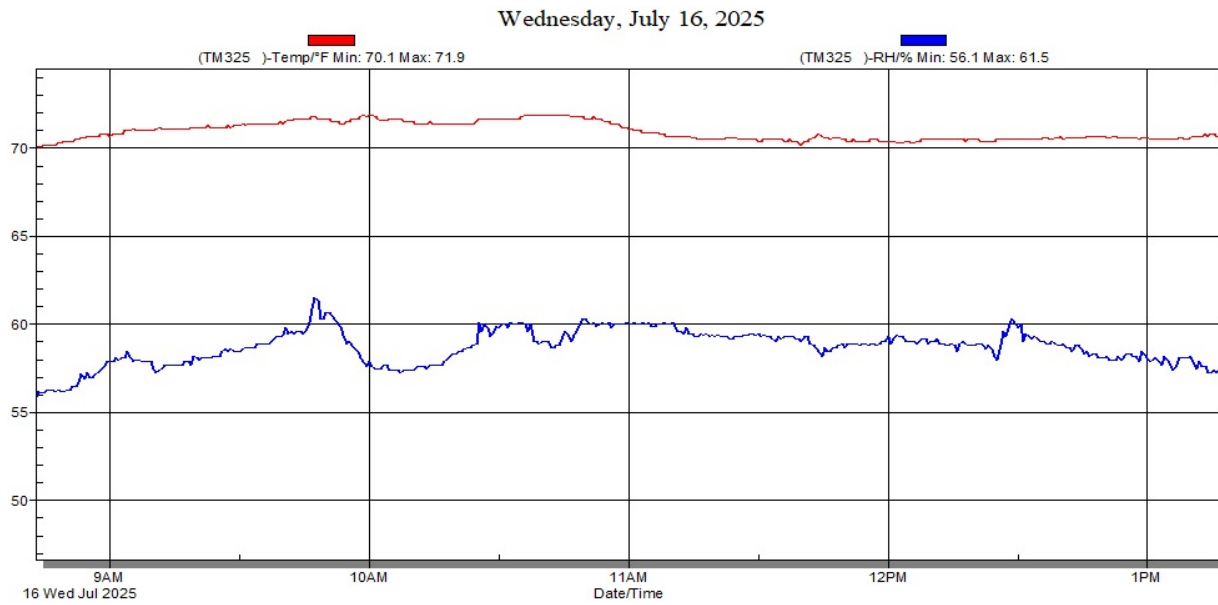
SOLVENT SPILLAGE LOCATION TABLE

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: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20250202
Test Date: 07/16/2025



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

APPENDIX A
PHOTOGRAPHS

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



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

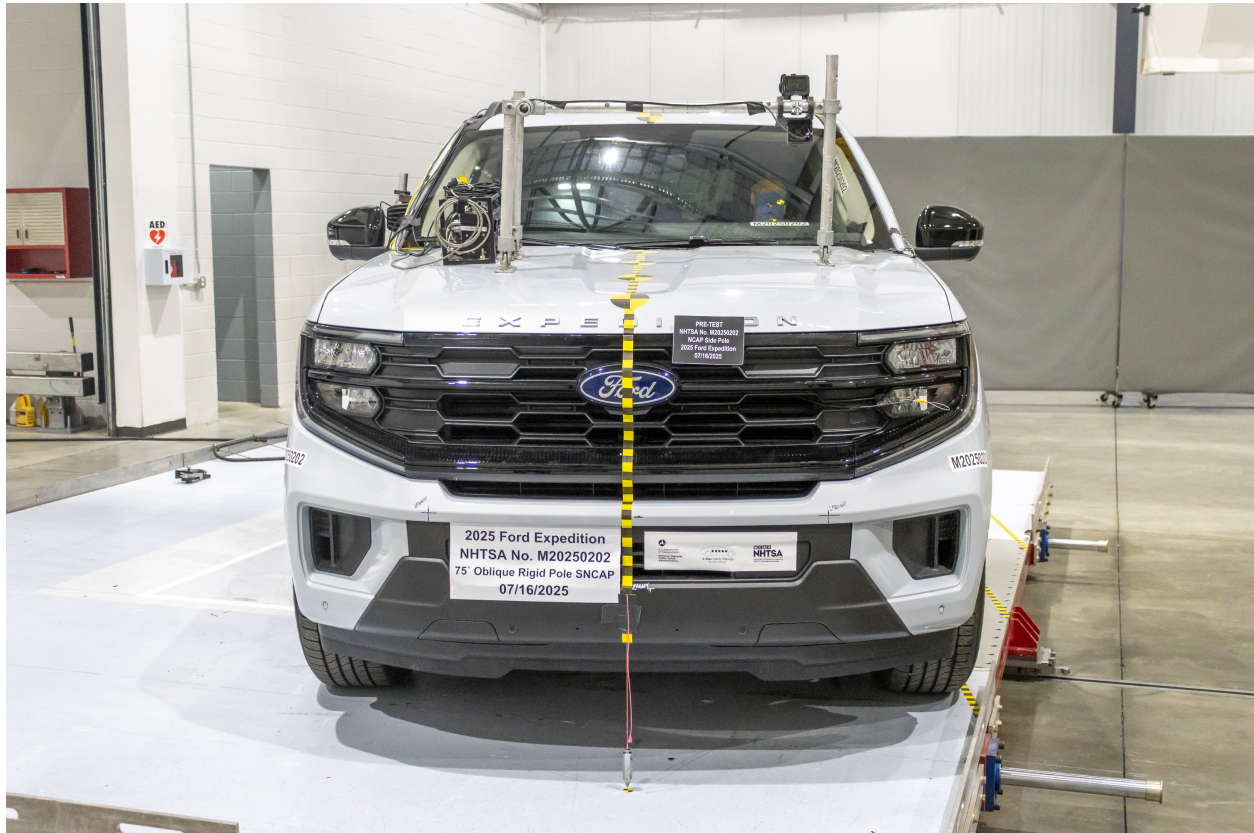


Figure A-3: Pre-Test Frontal View of Test Vehicle

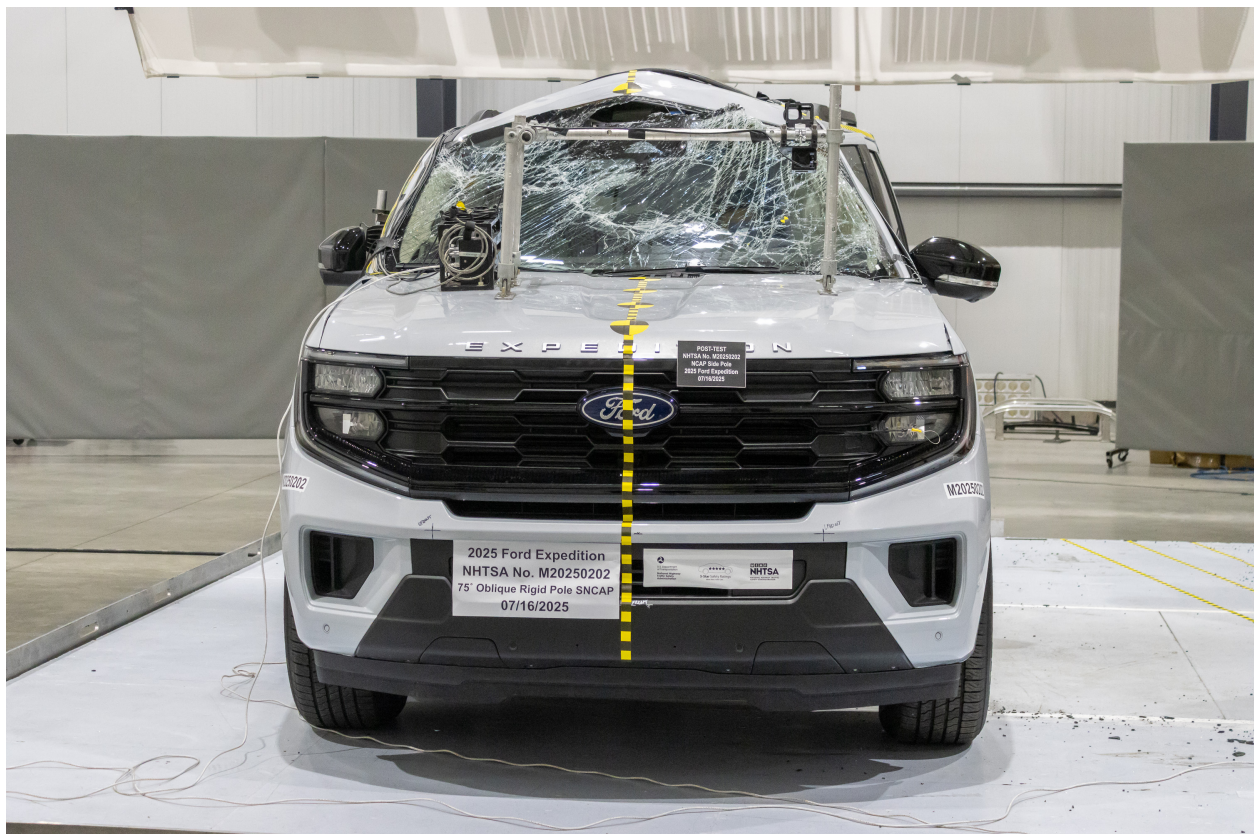


Figure A-4: Post-Test Frontal View of Test Vehicle



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

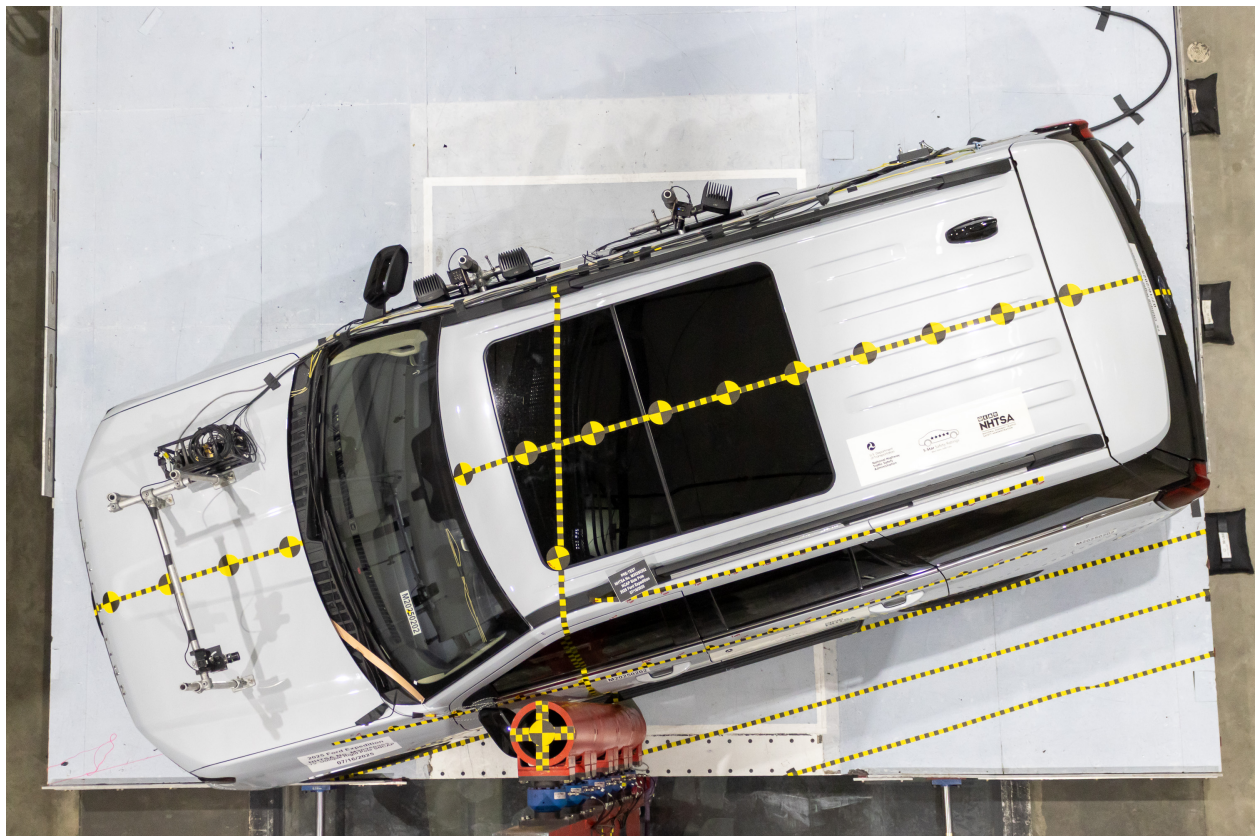


Figure A-15: Pre-Test Overhead View of Test Area



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

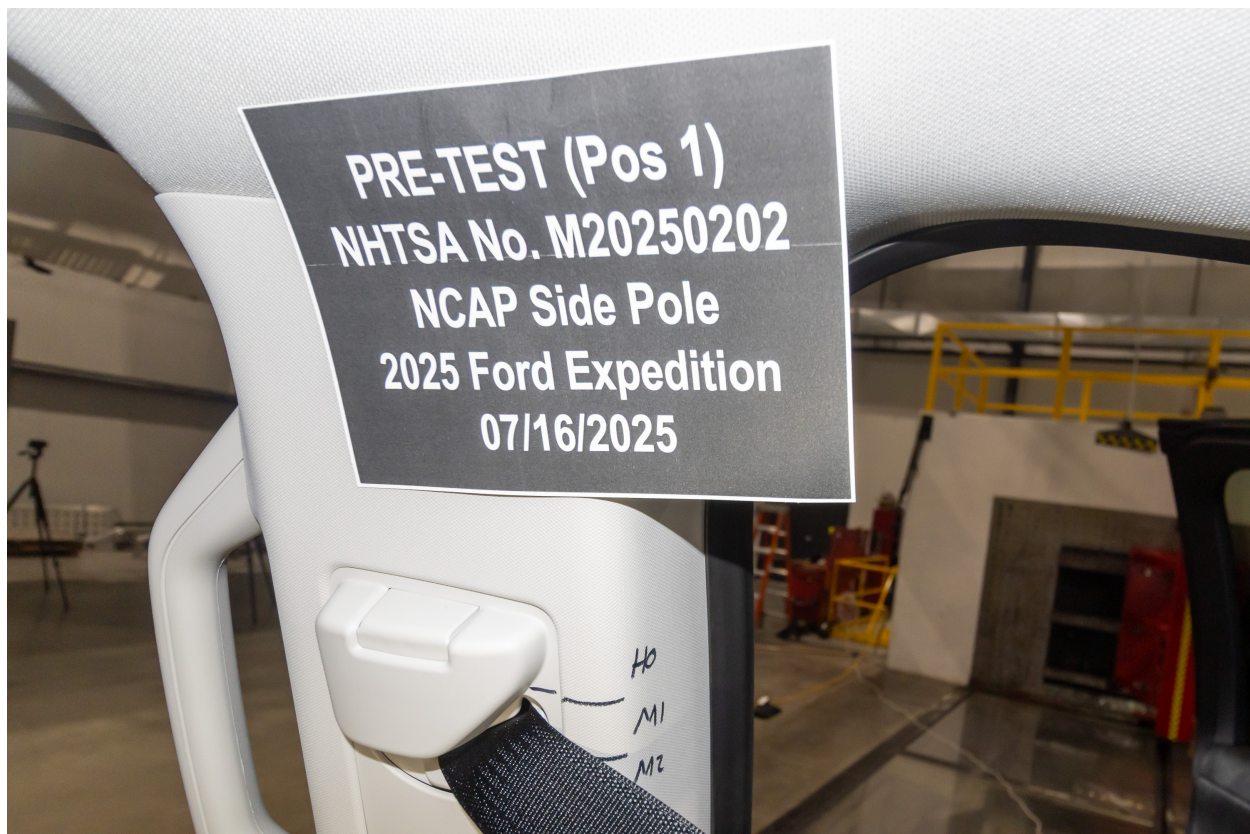


Figure A-33: Pre-Test View of Belt Anchorage for Dummy



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

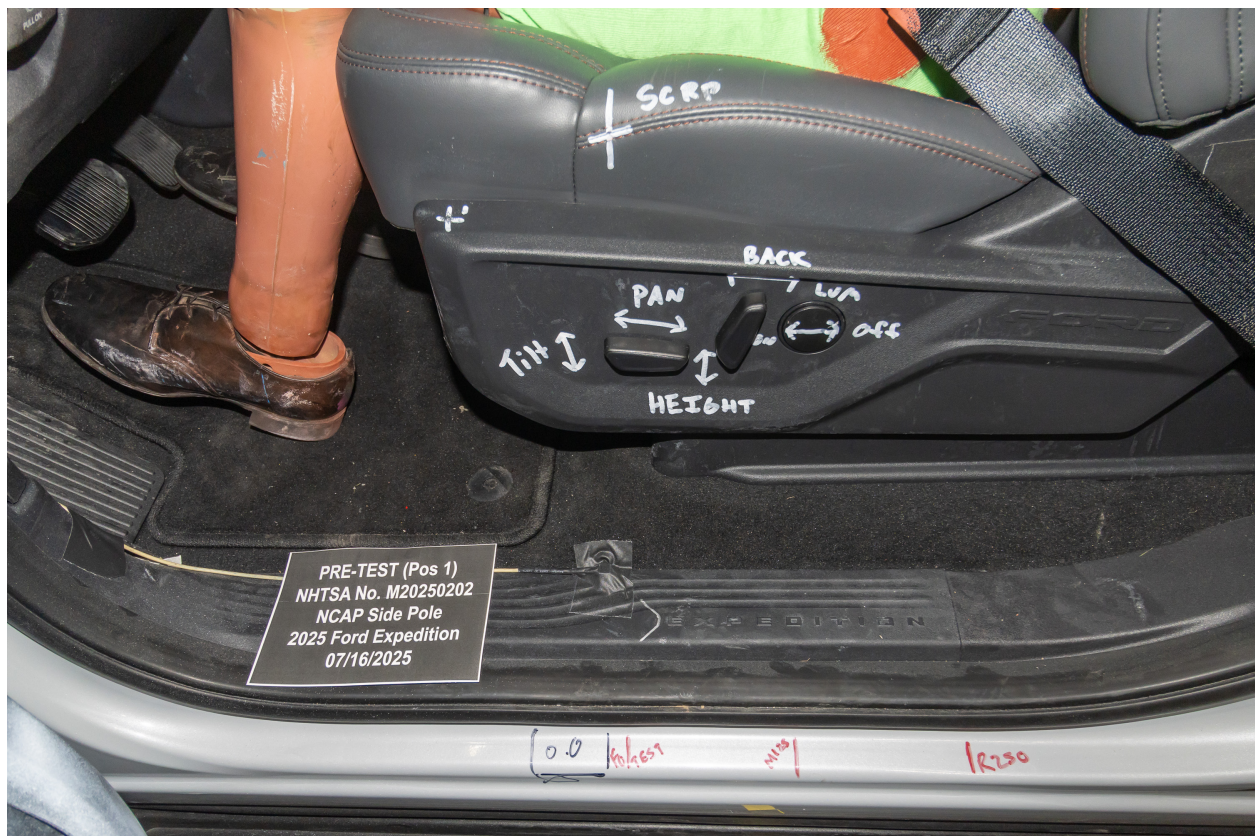


Figure A-37: Pre-Test Close-Up Left Side View of Driver Seat Track



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

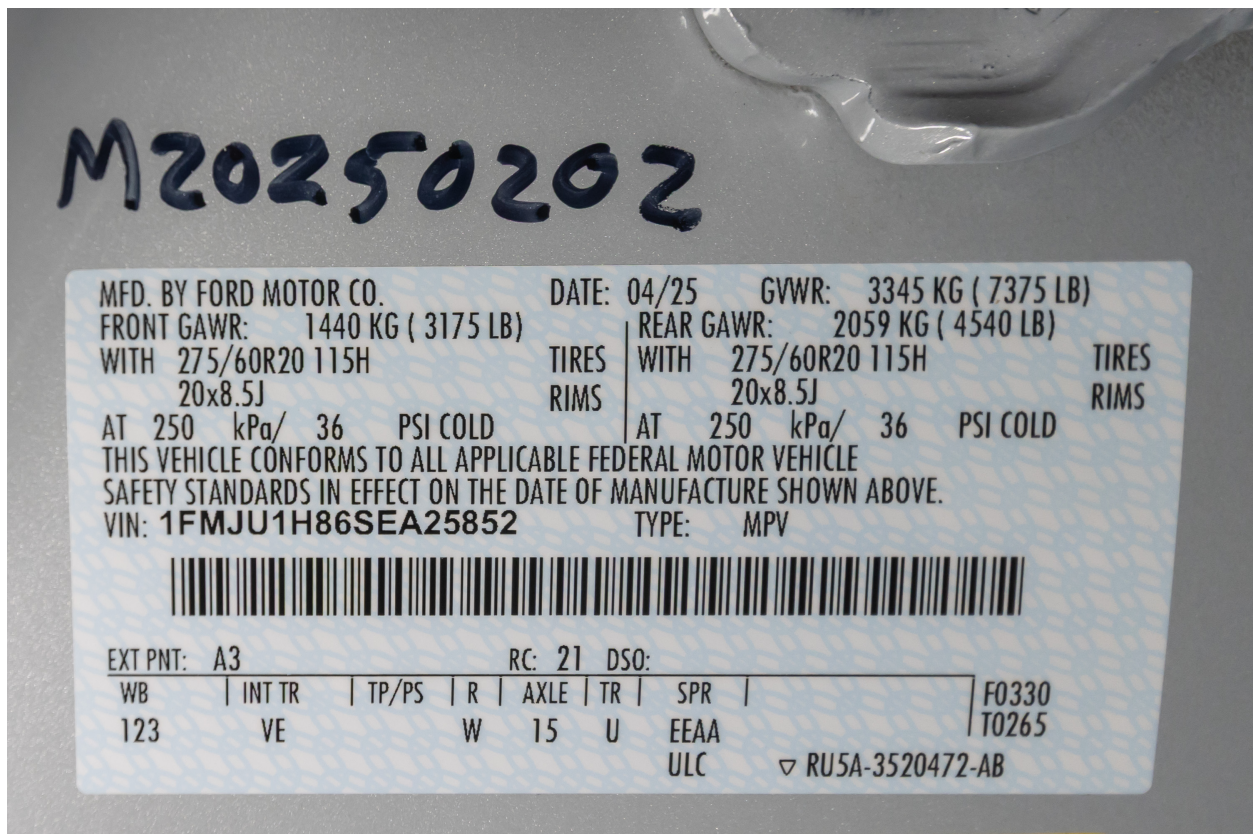


Figure A-57: Close-Up View of Vehicle's Certification Label

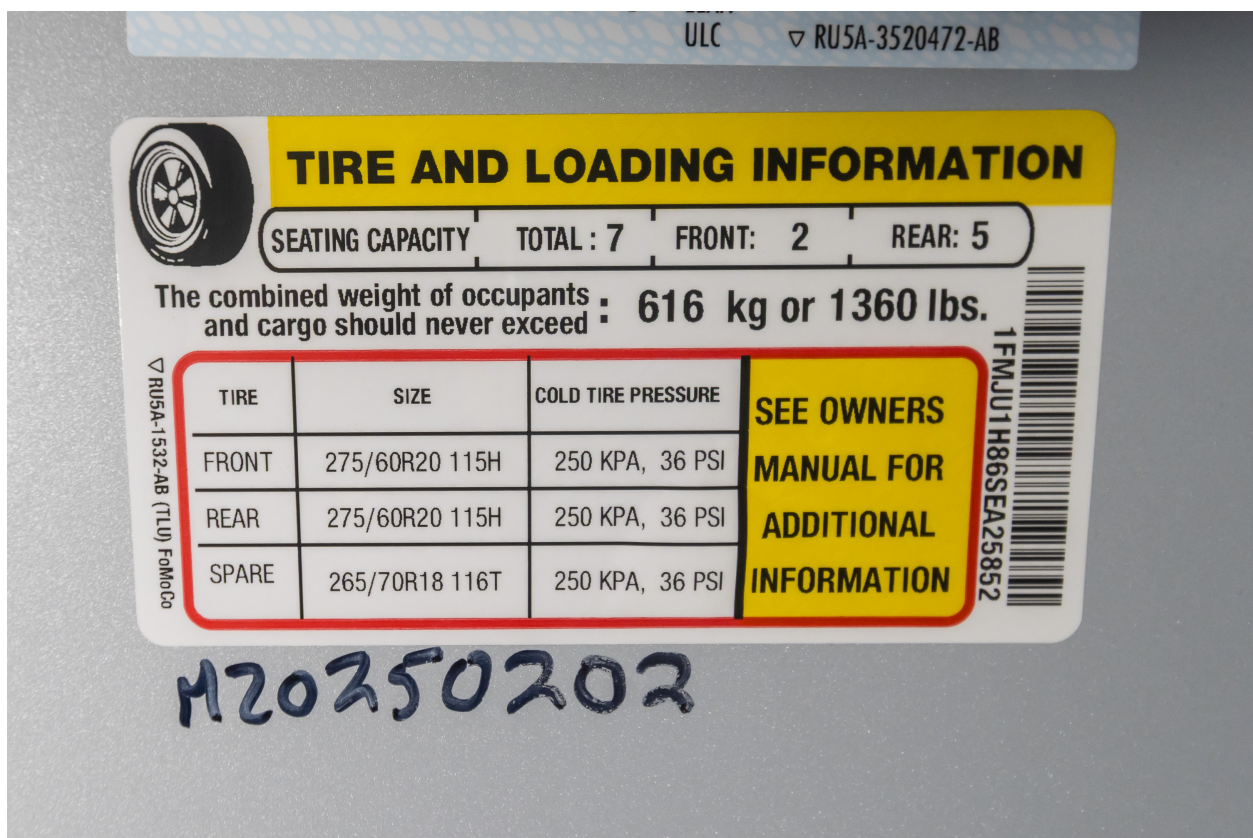


Figure A-58: Close-Up View of Vehicle's Tire Information Placard or Label

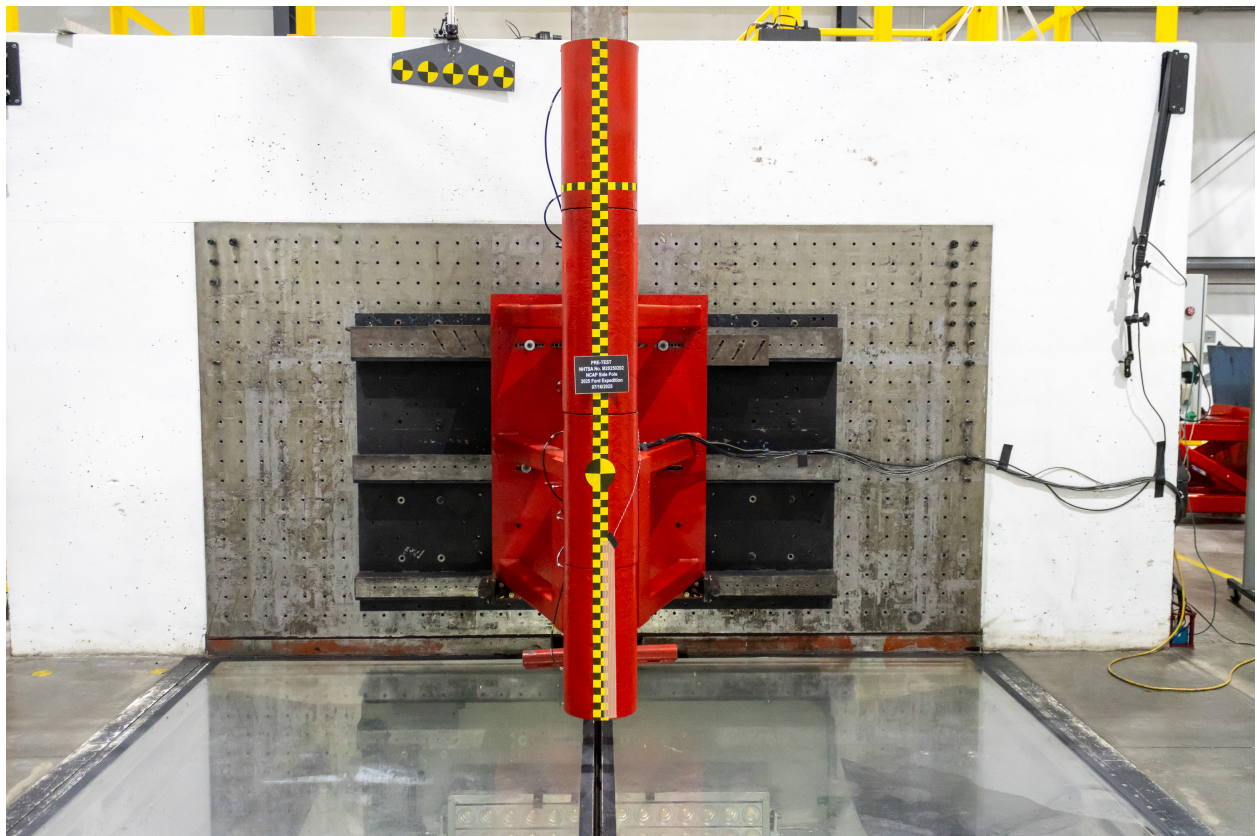


Figure A-59: Pre-Test Pole Barrier Front View



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

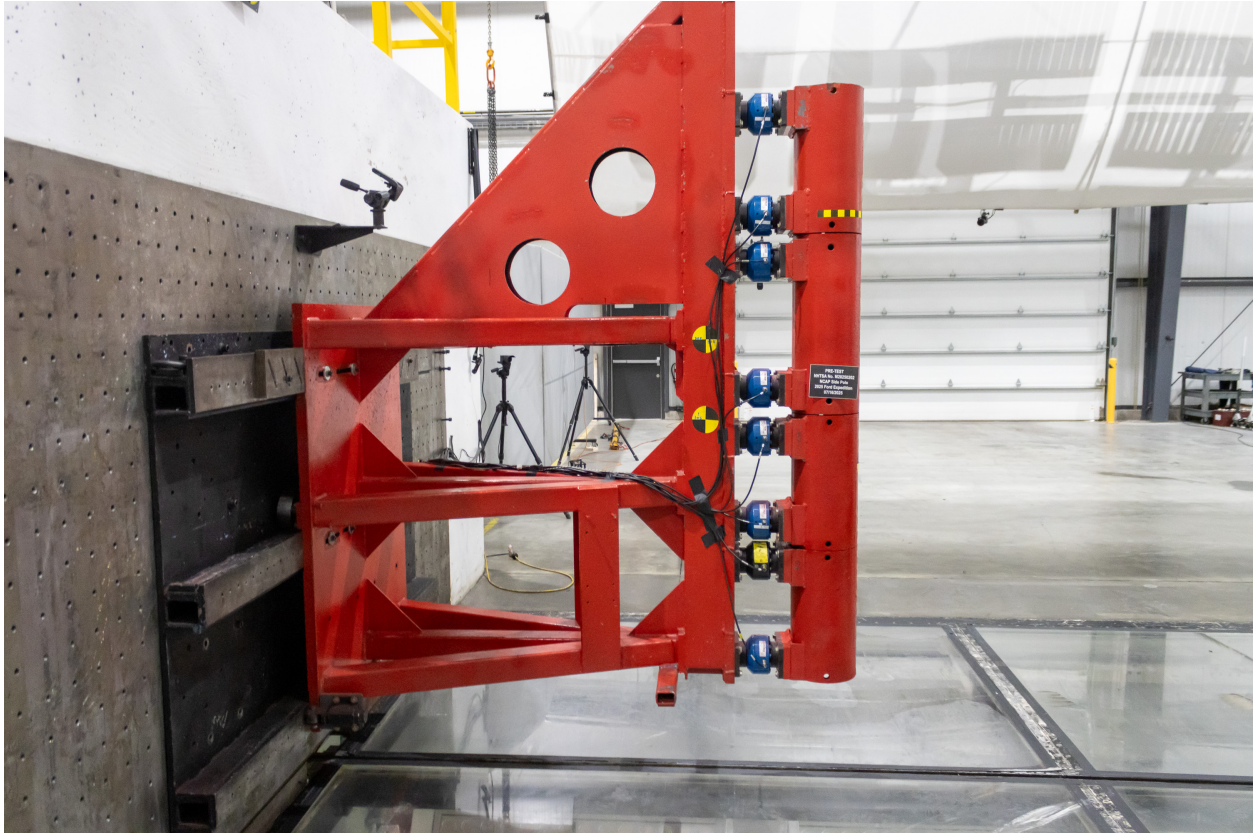


Figure A-61: Pre-Test Pole Barrier Side View

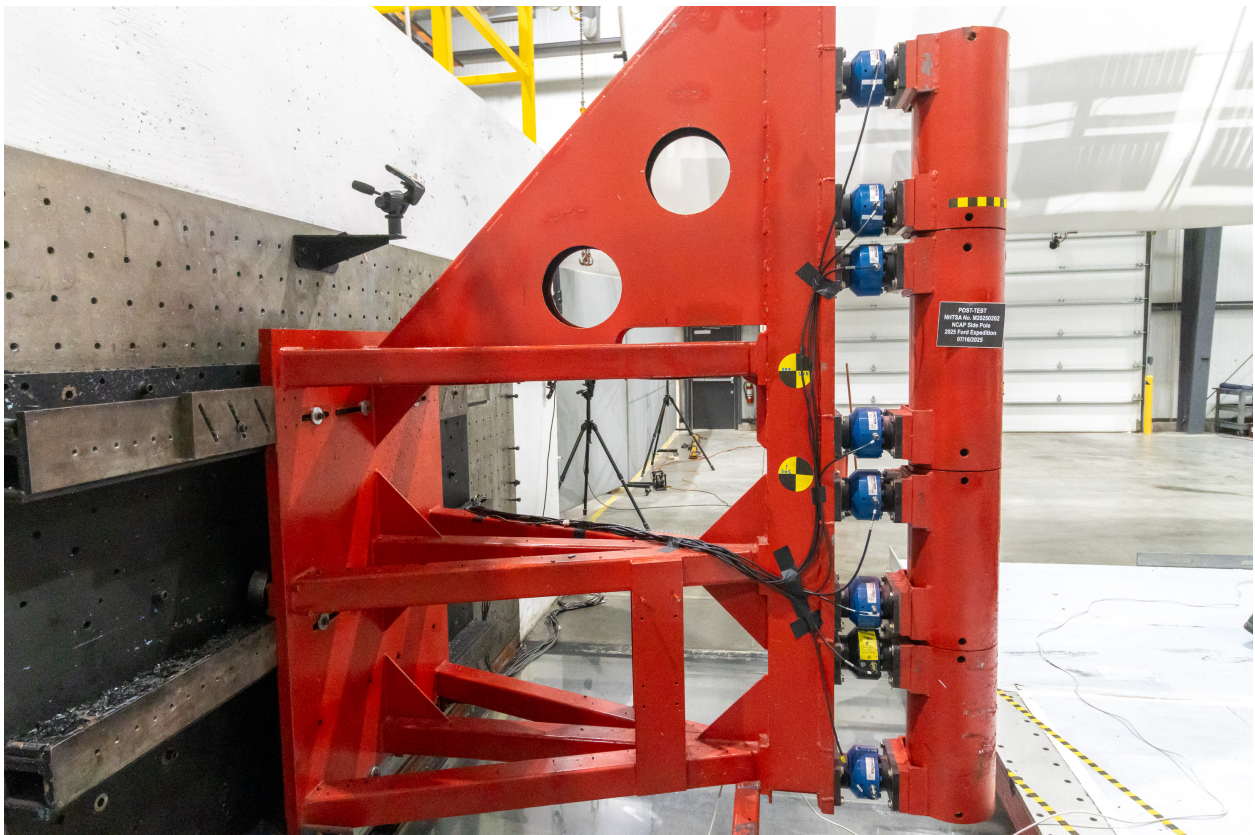


Figure A-62: Post-Test Pole Barrier Side View



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

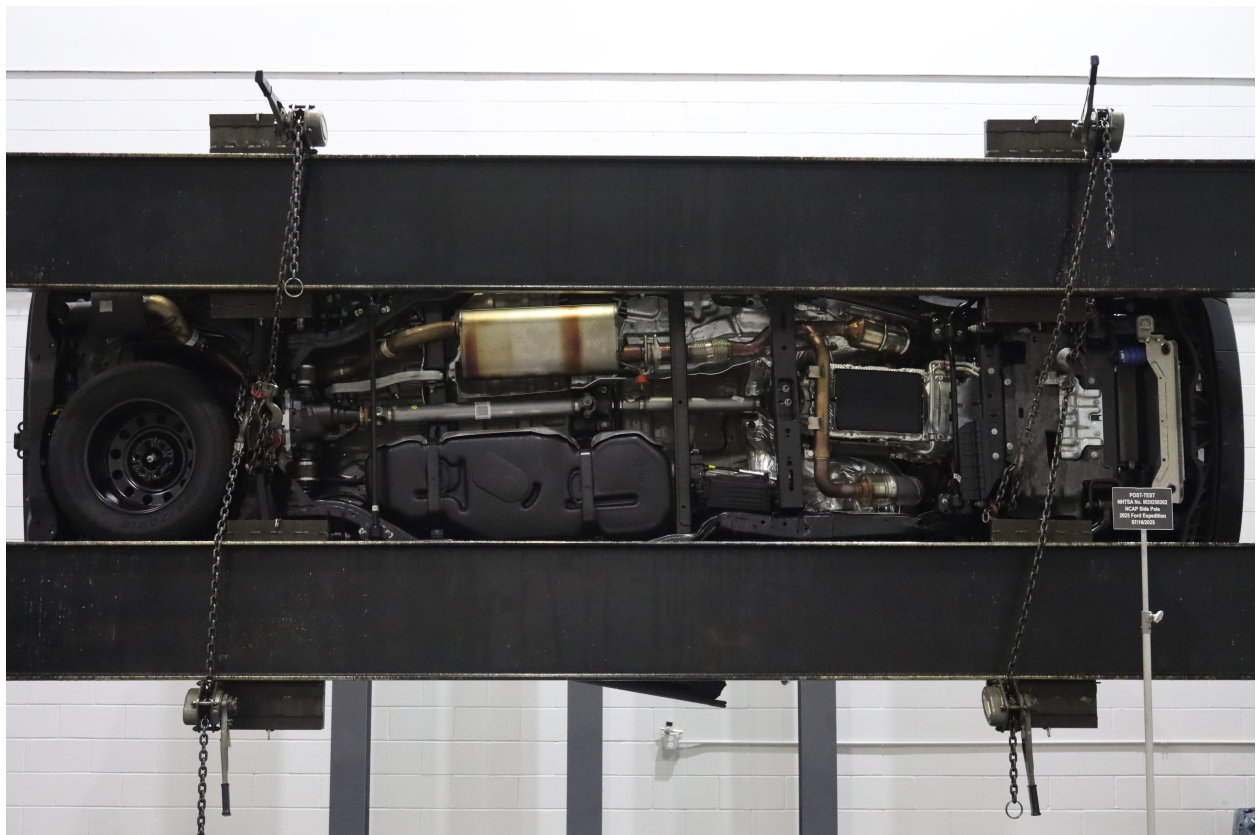


Figure A-66: FMVSS No. 301 Static Rollover 90 Degrees

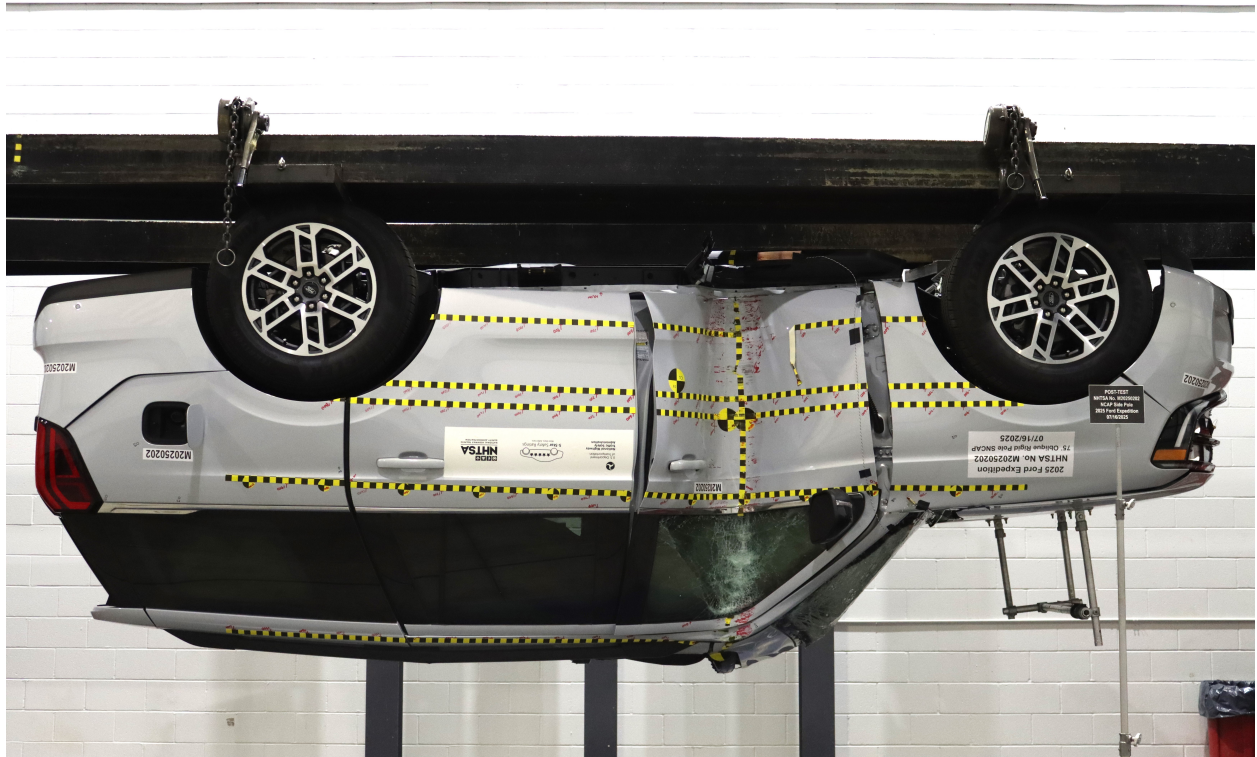


Figure A-67: FMVSS No. 301 Static Rollover 180 Degrees



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



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

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

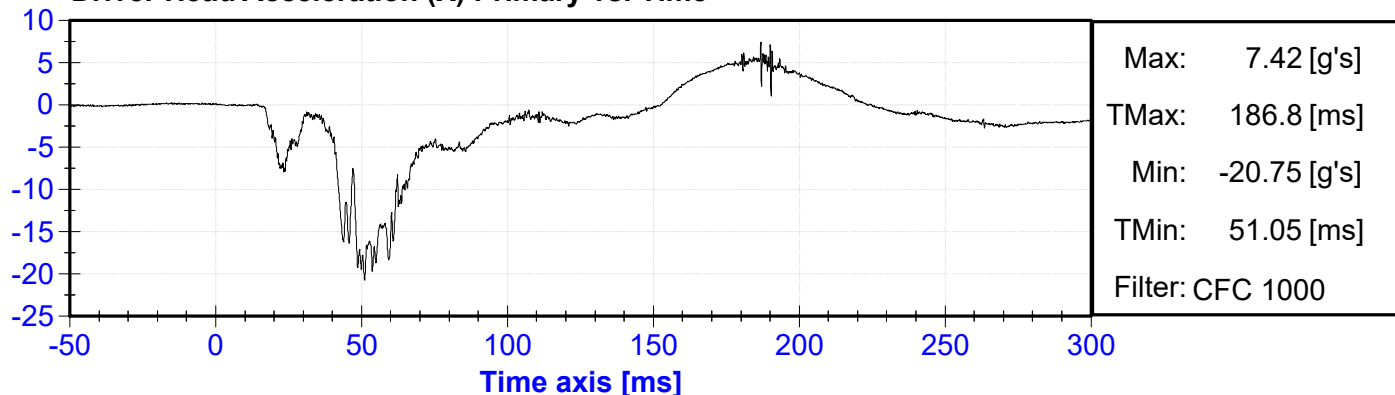
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (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)

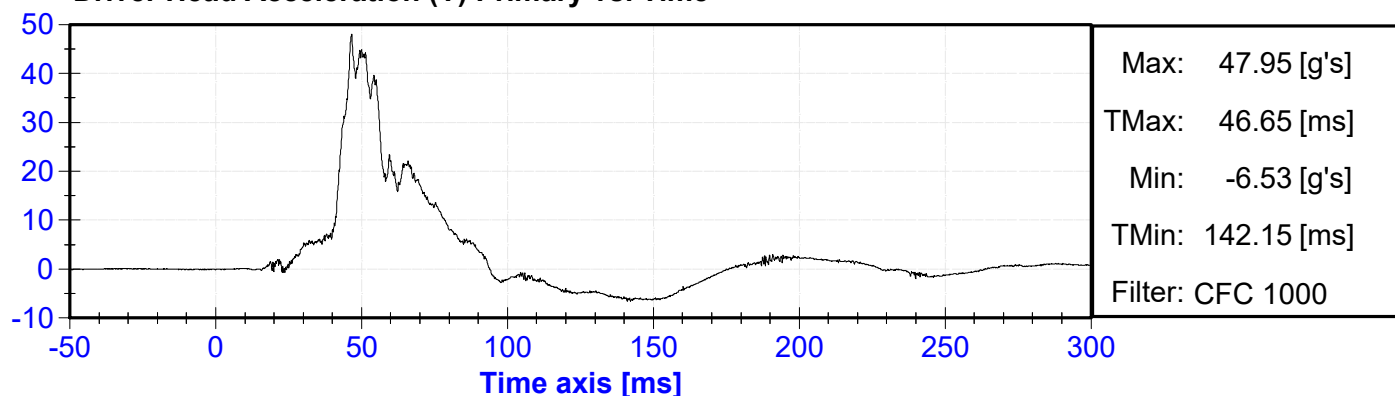
ACCELERATION [g's]

Driver Head Acceleration (X) Primary vs. Time



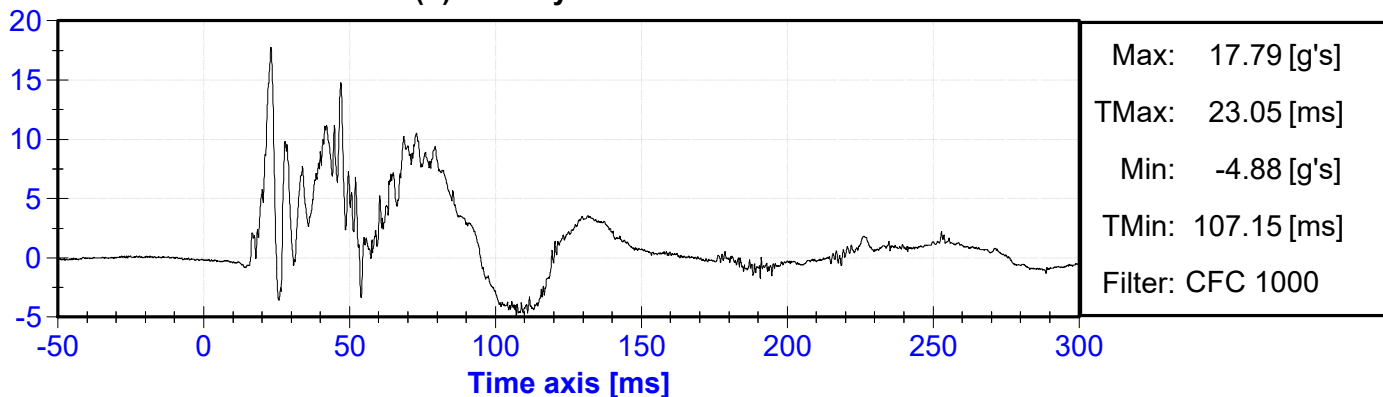
ACCELERATION [g's]

Driver Head Acceleration (Y) Primary vs. Time



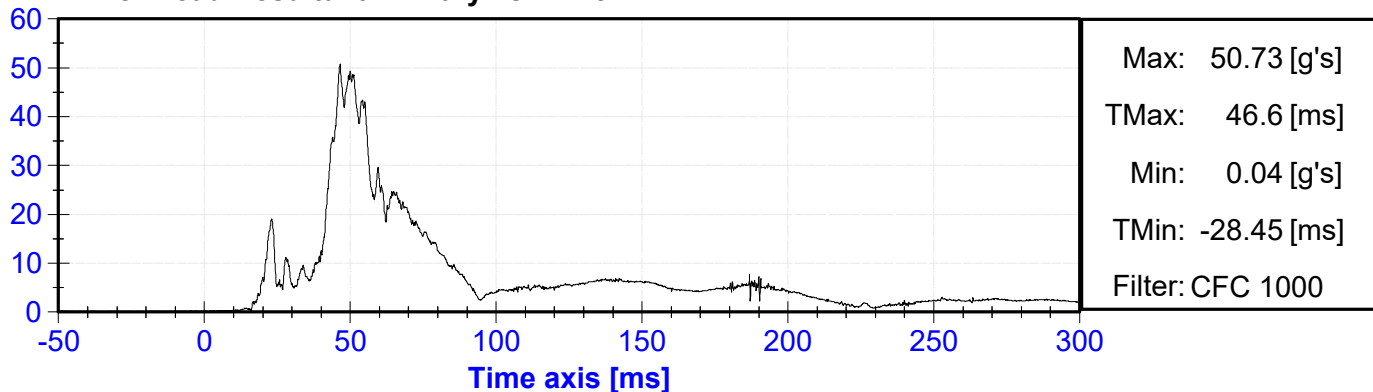
ACCELERATION [g's]

Driver Head Acceleration (Z) Primary vs. Time



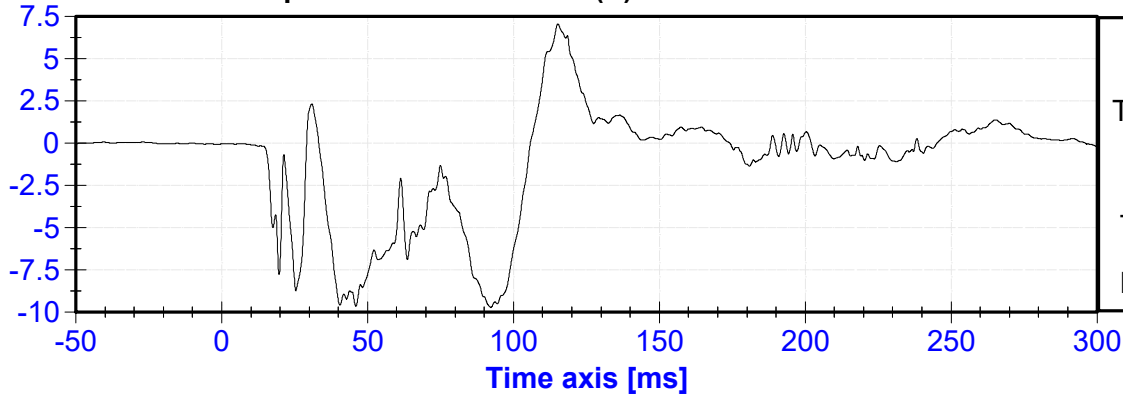
ACCELERATION [g's]

Driver Head Resultant Primary vs. Time



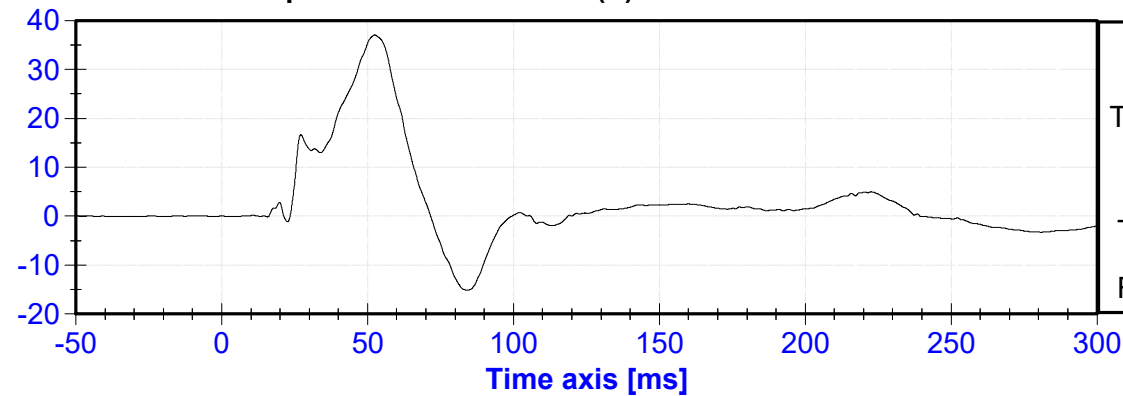
ACCELERATION [g's]

Driver Lower Spine T12 Acceleration (X) vs. Time



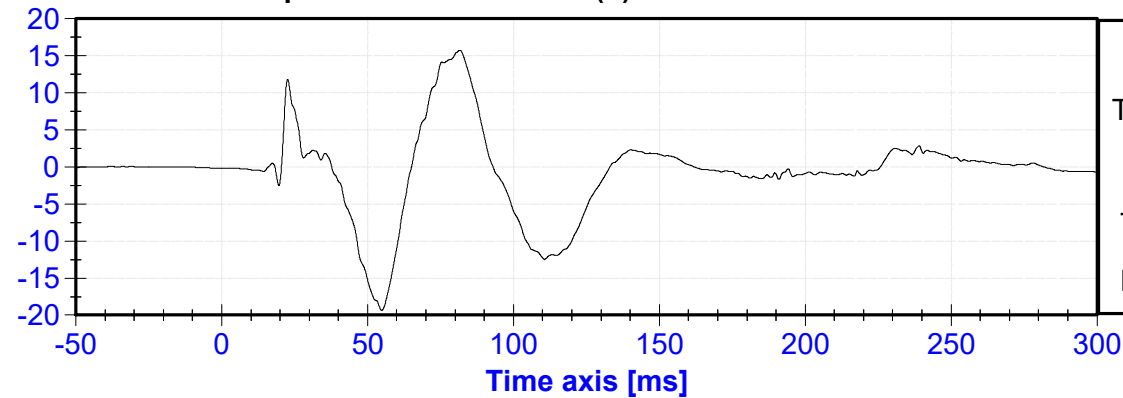
ACCELERATION [g's]

Driver Lower Spine T12 Acceleration (Y) vs. Time



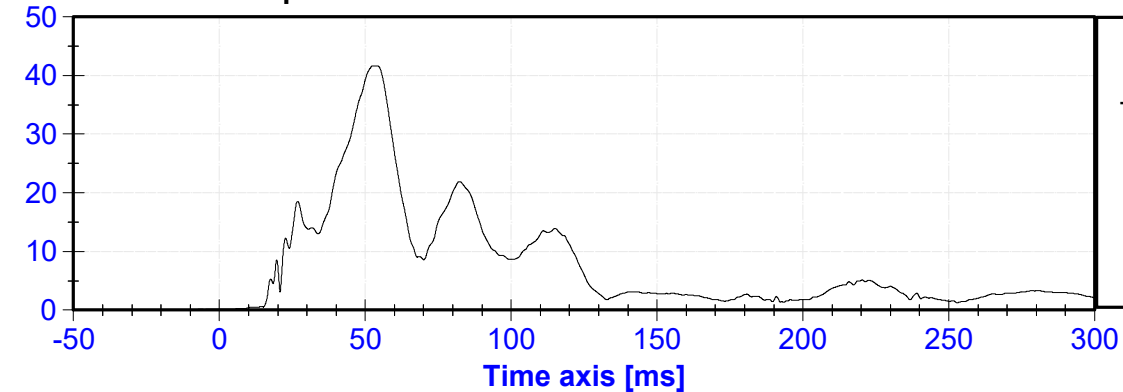
ACCELERATION [g's]

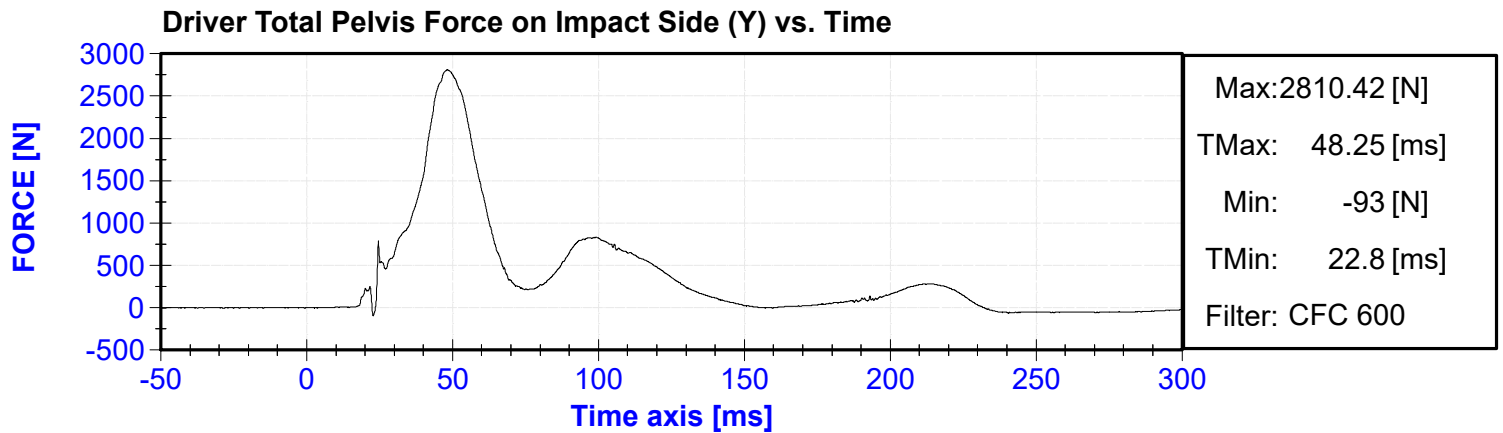
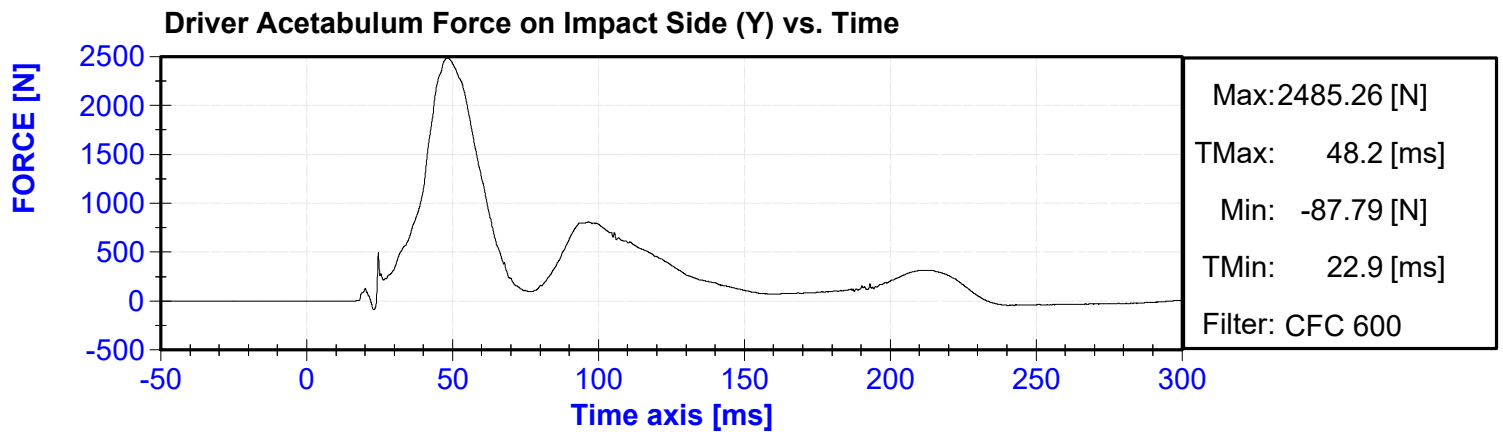
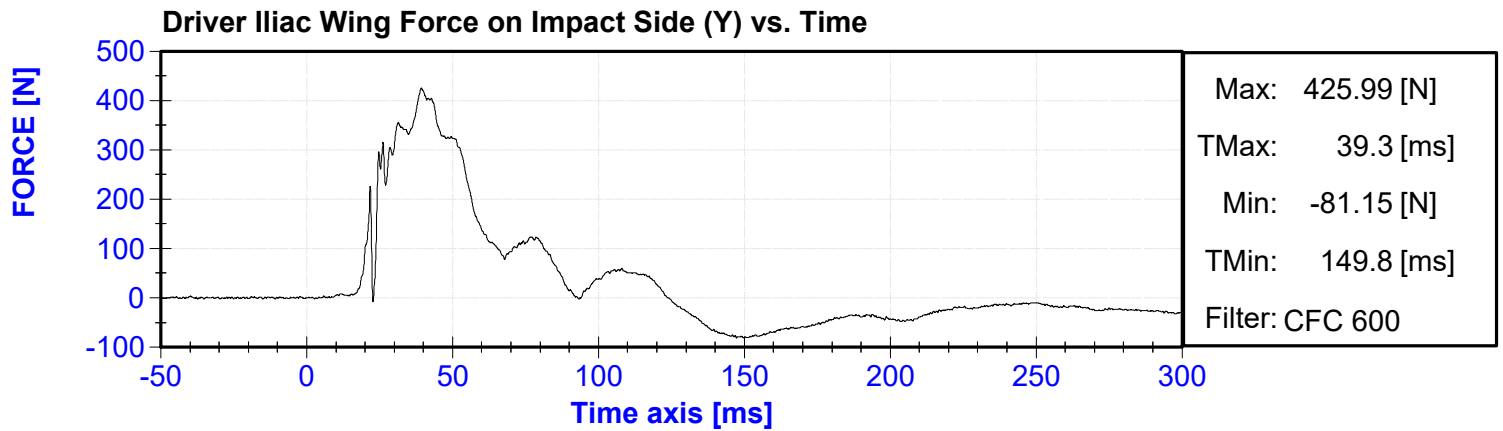
Driver Lower Spine T12 Acceleration (Z) vs. Time



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 5TH PERCENTILE FEMALE - DRIVER ATD

SERIAL NO:DG8012

(CONFIGURED FOR LEFT SIDE IMPACT)

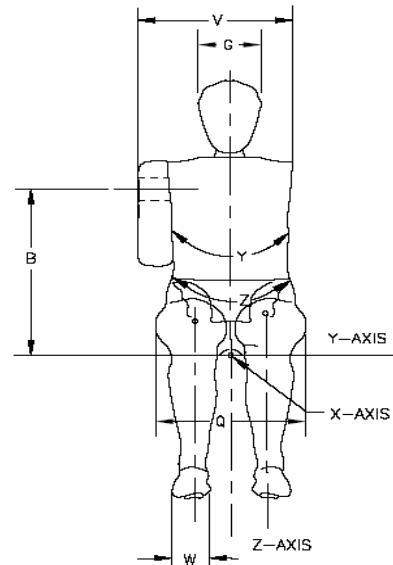
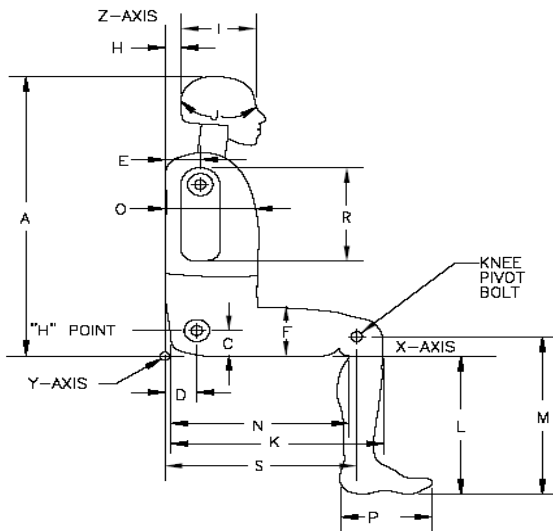


External Measurements - SID-IIs

Technician: **J. Rios**

Date: **07/15/2025**

Dummy Serial Number: **DG8012**



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	780	Pass
B	Shoulder Pivot Height	437	453	441	Pass
C	H-point Height	79	89	82	Pass
D	H-point from seatback	141	151	144	Pass
E	Shoulder Pivot from Backline	97	107	102	Pass
F	Thigh Clearance	119	135	128	Pass
G	Head Breadth	140	148	143	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	524	Pass
L	Popliteal Height	343	369	348	Pass
M	Knee Pivot to floor height	392	409	401	Pass
N	Buttock Popliteal Length	416	442	432	Pass
O	Chest Depth w/o jacket	195	211	202	Pass
P	Foot Length	216	232	224	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	319	Pass
R	Arm Length	249	259	254	Pass
S	Knee Joint to seatback	477	493	481	Pass
V	Shoulder Width	341	357	353	Pass
W	Foot Width	78	94	81	Pass
Y	Chest Circumference w/jacket	851	881	868	Pass
Z	Waist Circumference	761	791	787	Pass

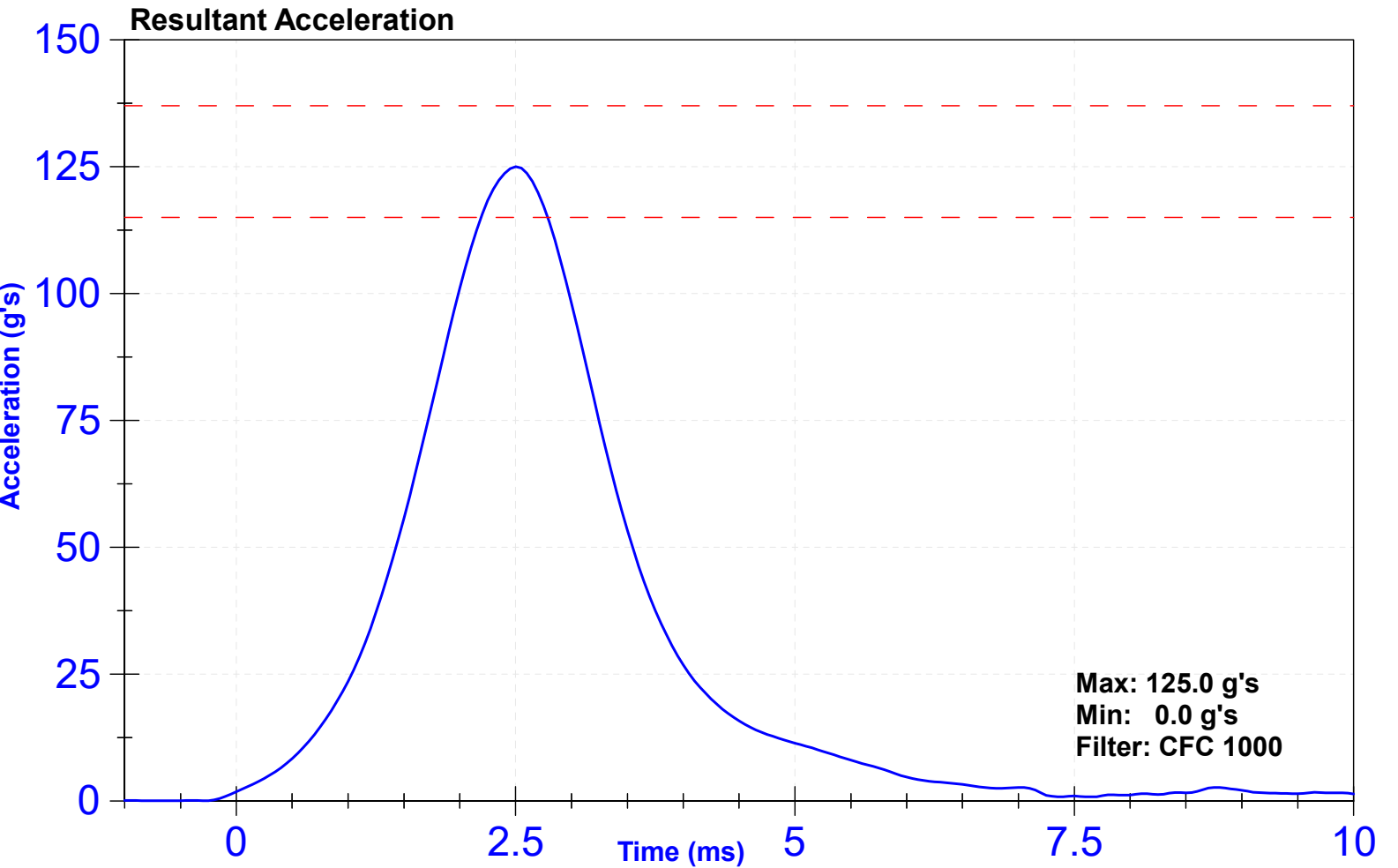
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

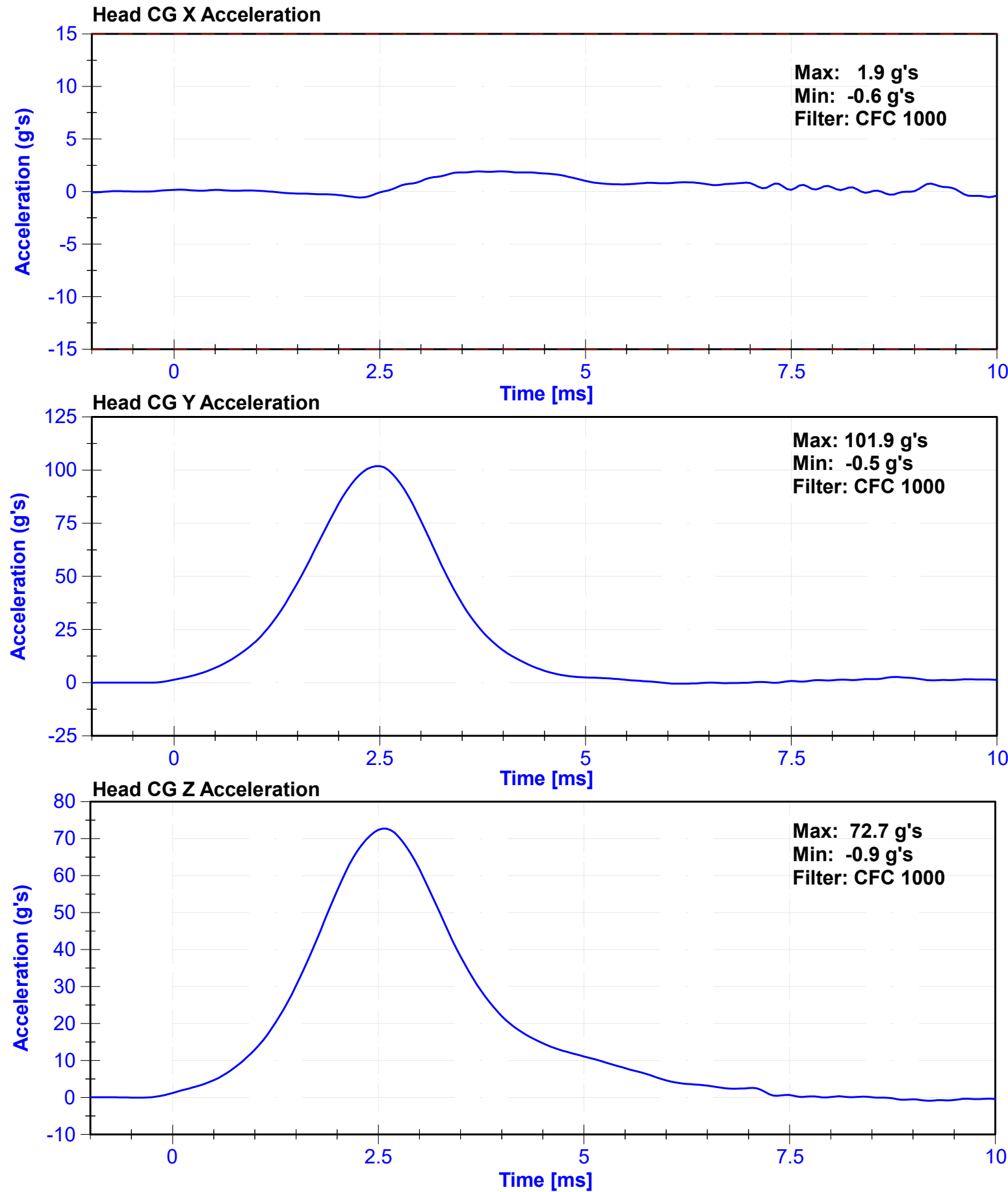
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Resultant Acceleration	115	137	g's	125.0	Pass
Oscillation	0	15	%	2.1	Pass
Fore-Aft Acceleration	-15	15	g's	1.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibratio Date	Calibratio Due Date
X Accelerometer	Endevco	T21184	7/2/2025	12/29/2025
Y Accelerometer	Endevco	T31030	7/2/2025	12/29/2025
Z Accelerometer	Endevco	P83319	7/2/2025	12/29/2025





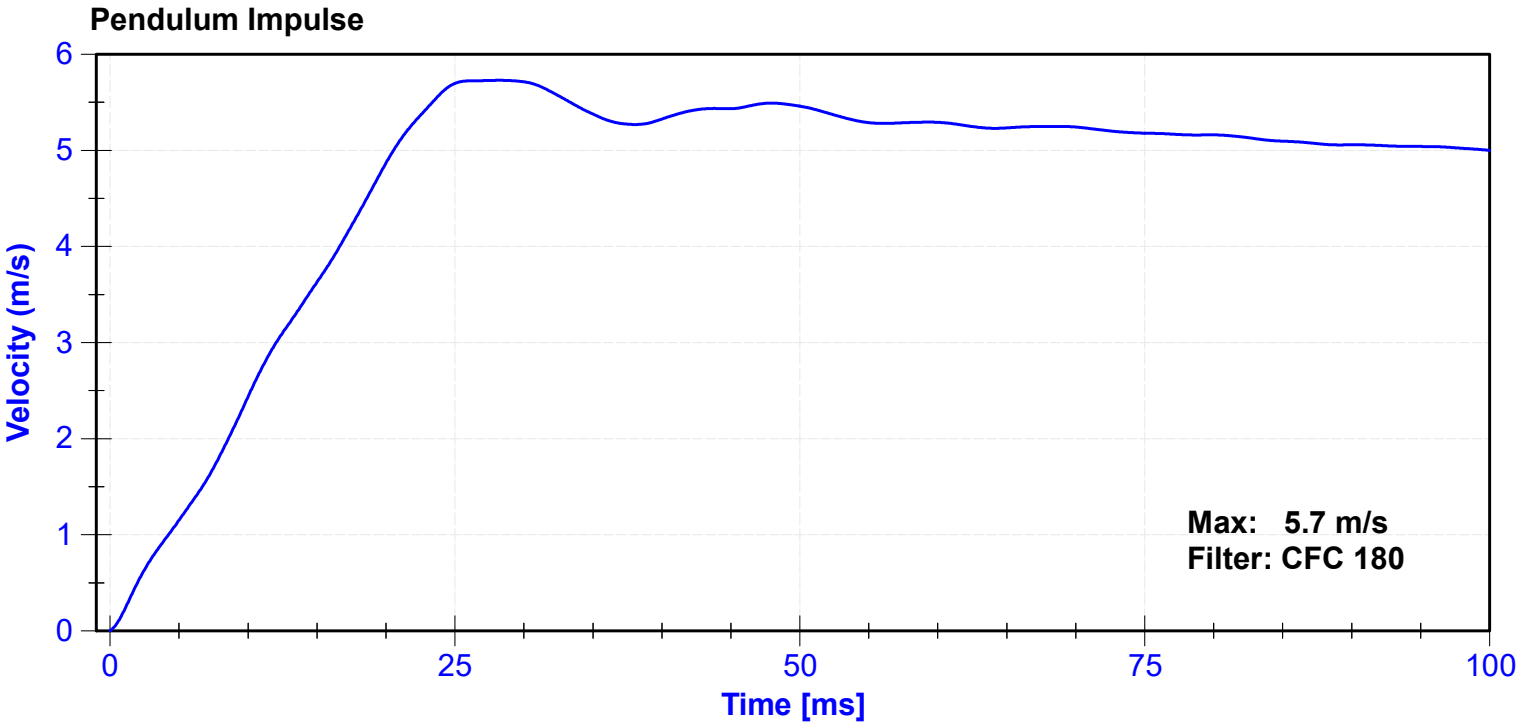
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

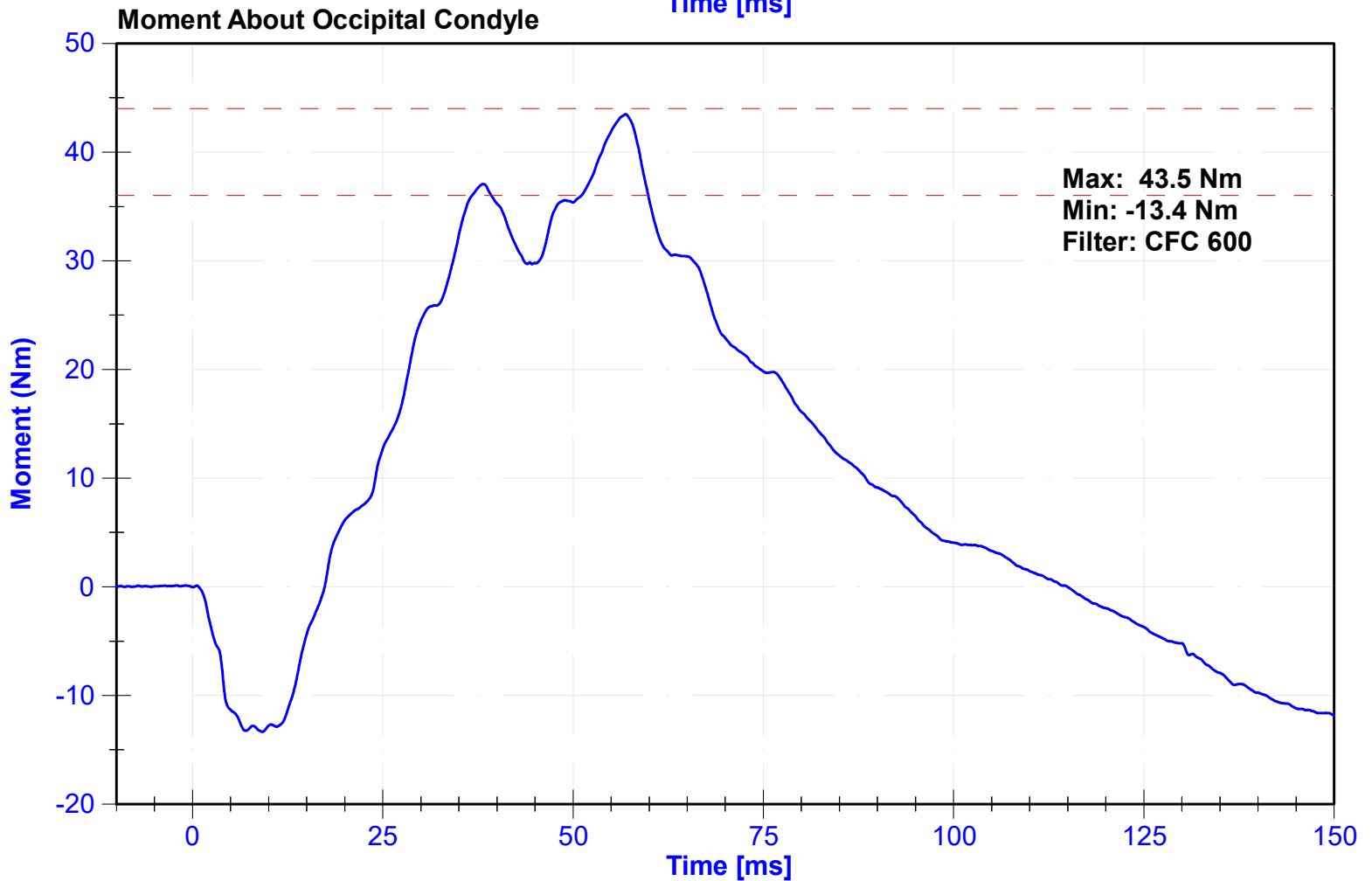
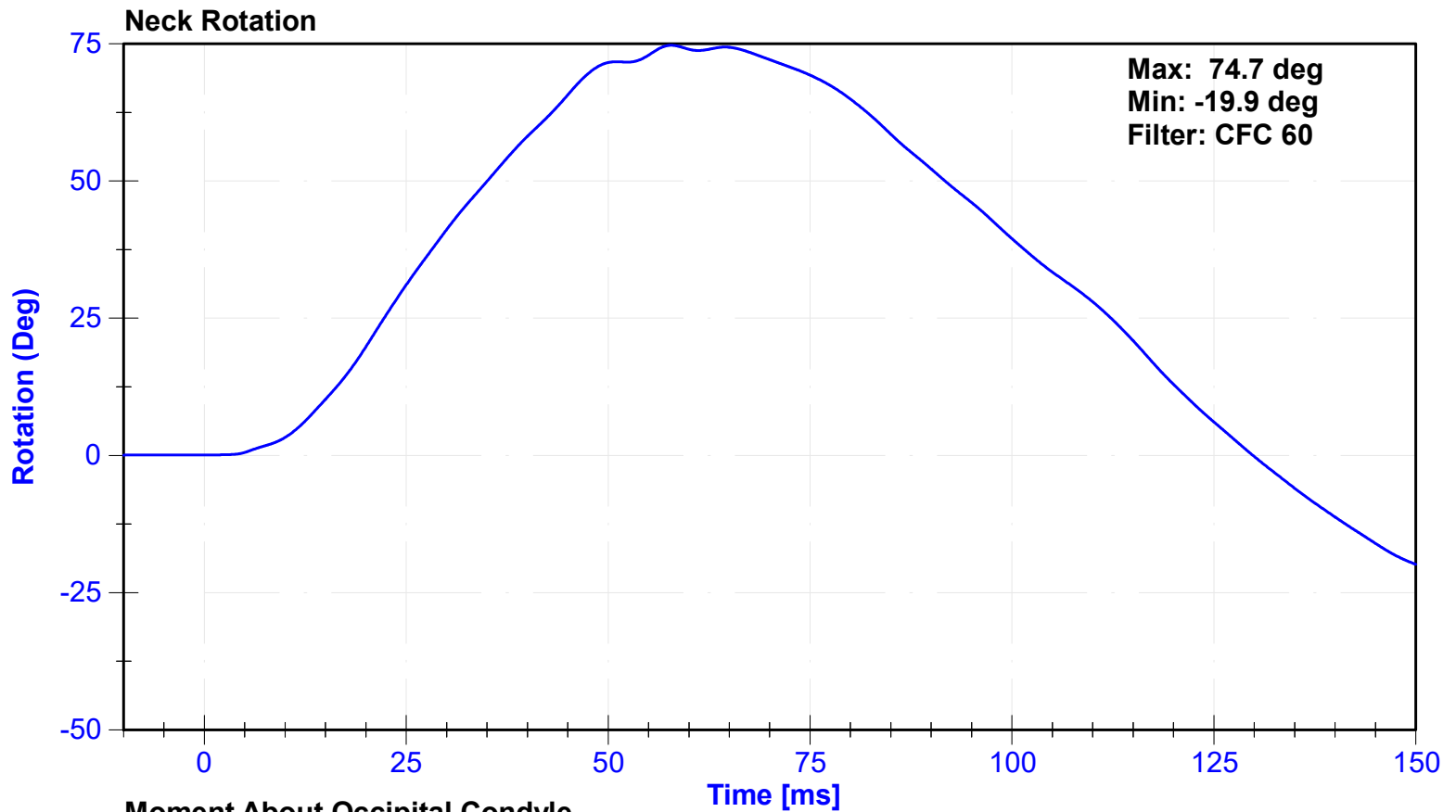
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Velocity	5.51	5.63	m/s	5.522	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.44	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.63	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.87	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.70	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.73	Pass
Neck Rotation	71	81	deg	74.7	Pass
Time at Maximum Rotation	50	70	ms	57.8	Pass
Moment about the OC	36	44	Nm	43.5	Pass
Moment Decay to 0 Nm	102	126	ms	115.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231C-750	10/17/2024	10/17/2025
Pendulum Potentiometer	Servo	4961	9/23/2024	9/23/2025
Condyle Potentiometer	Servo	DS185	9/23/2024	9/23/2025
Upper Neck Load Cell	Kistler	M555A6CFM_1935H01698-F4	4/17/2025	4/17/2026





ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

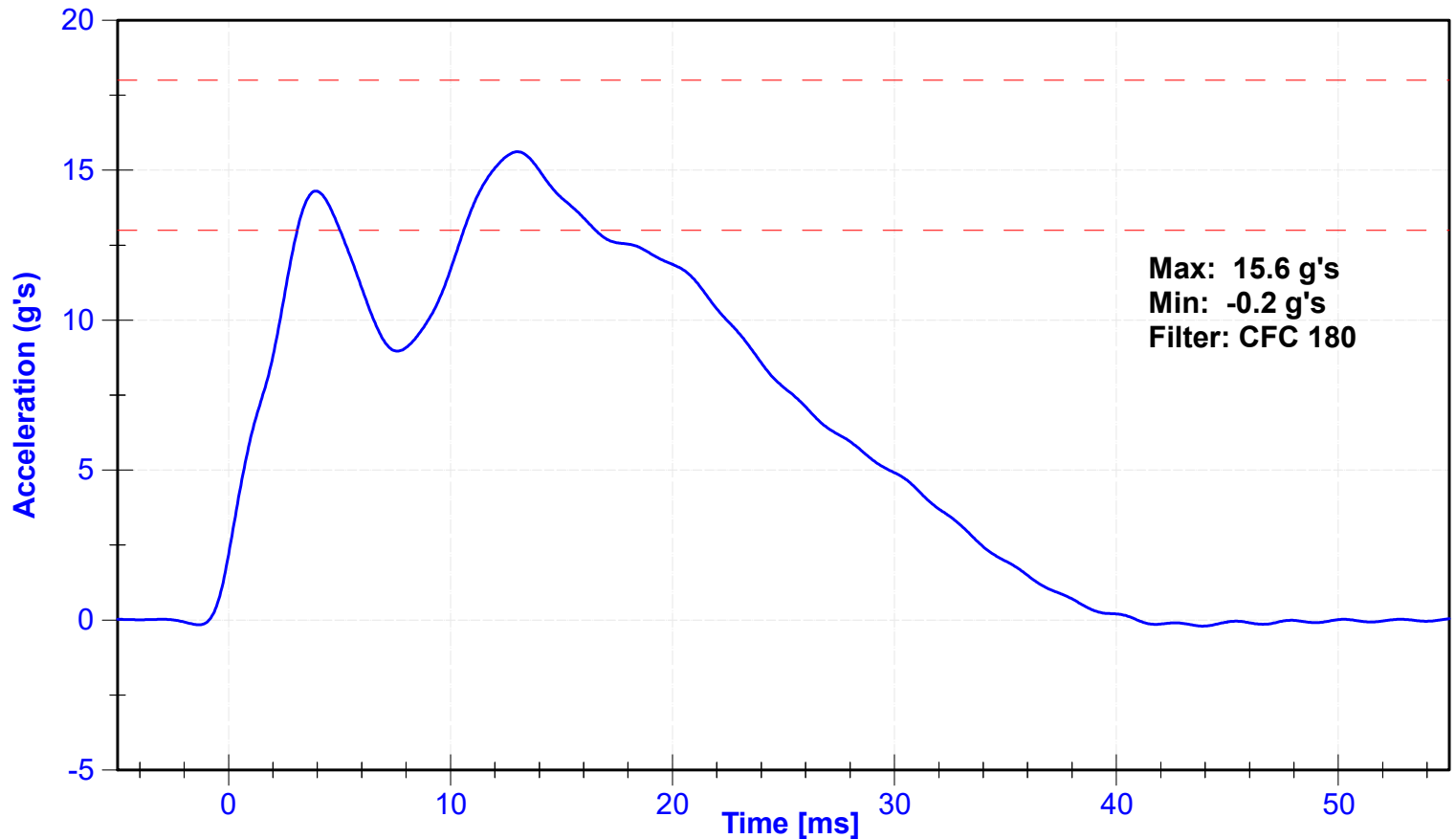
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	13	18	g's	15.6	Pass
Shoulder Deflection	28	37	mm	29.1	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.8	Pass

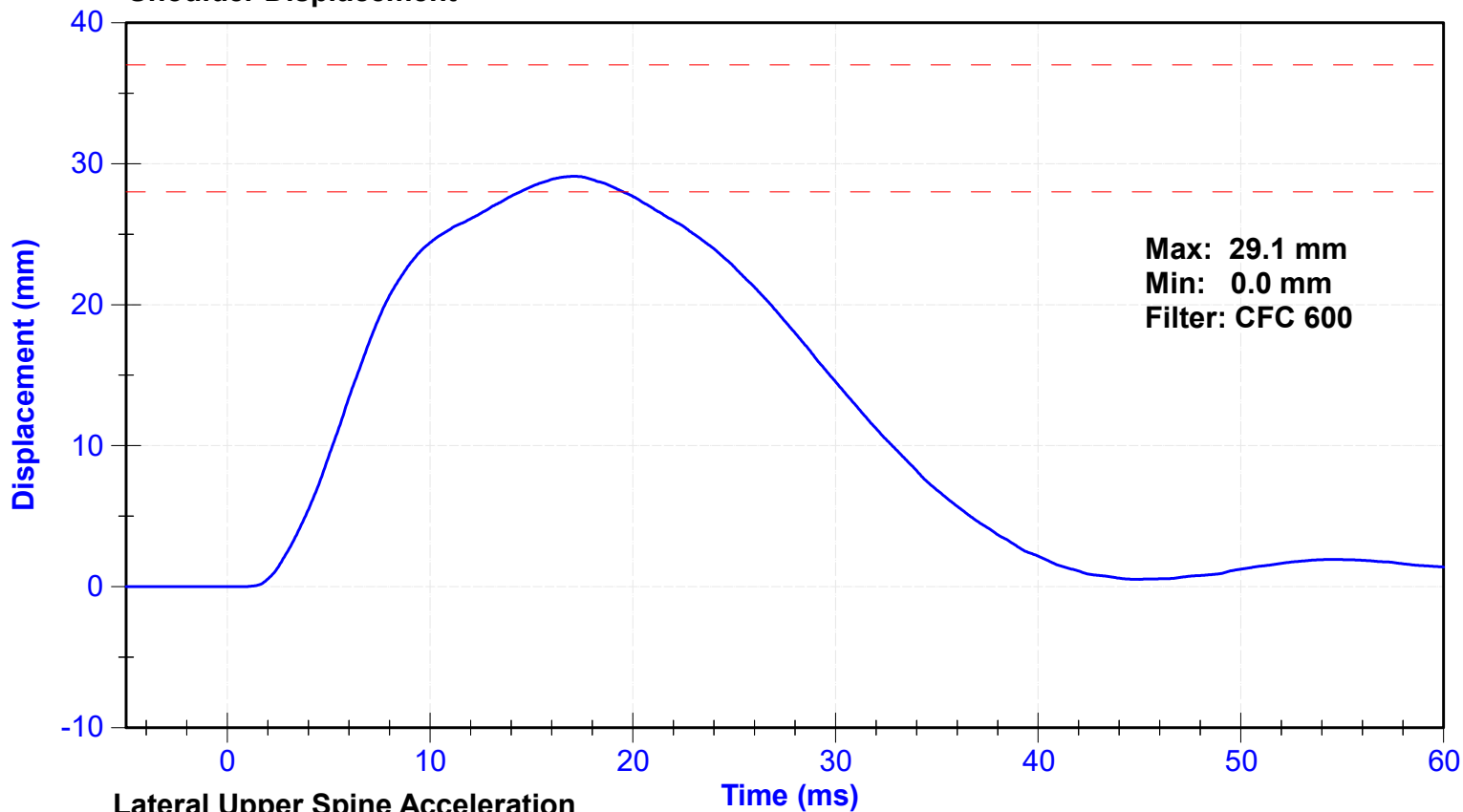
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Shoulder Potentiometer	Servo	1274GFE	7/8/2025	1/6/2026
Upper Spine Y Accelerometer	Endevco	P64148	7/2/2025	12/29/2025

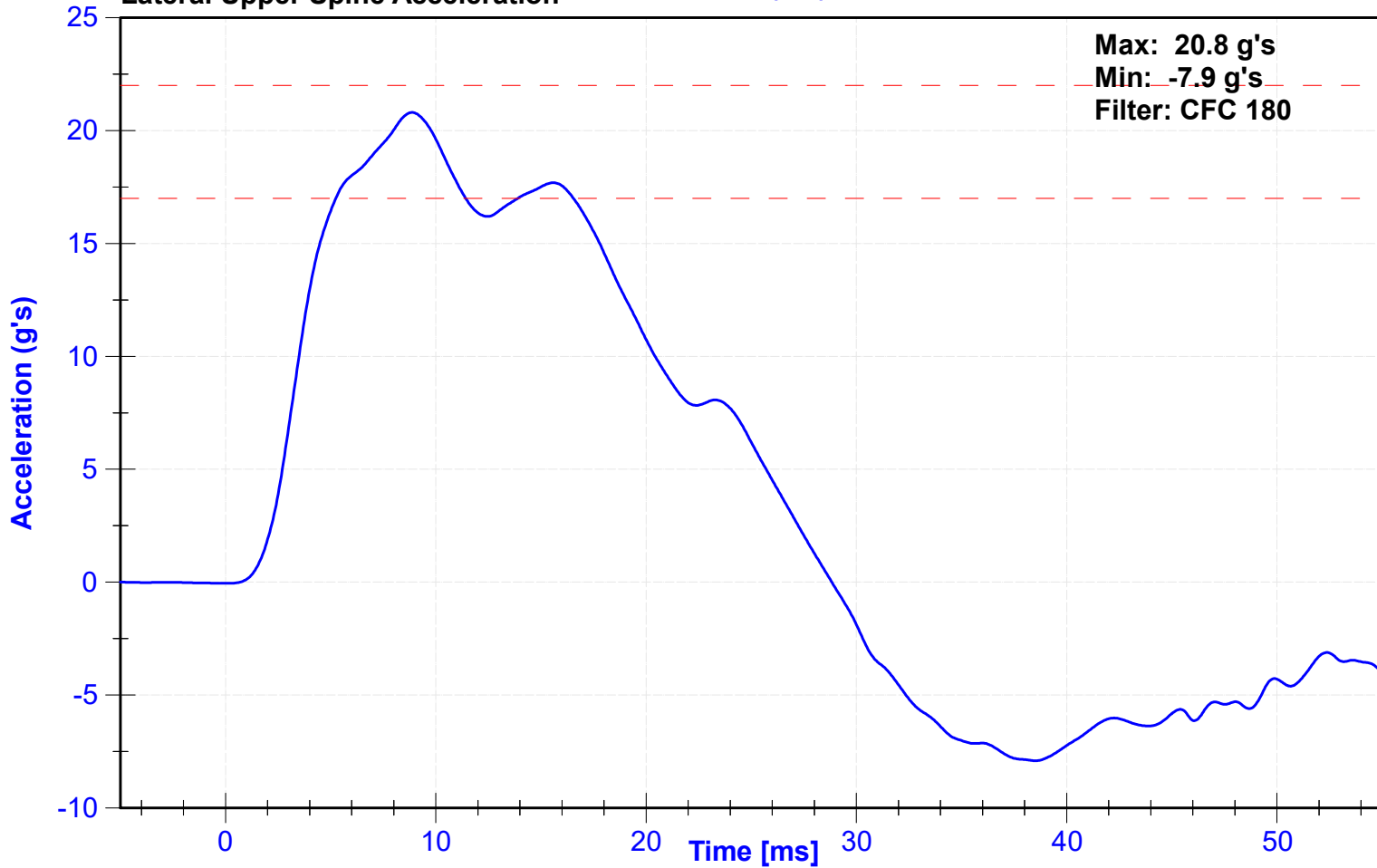
Probe Acceleration



Shoulder Displacement



Lateral Upper Spine Acceleration



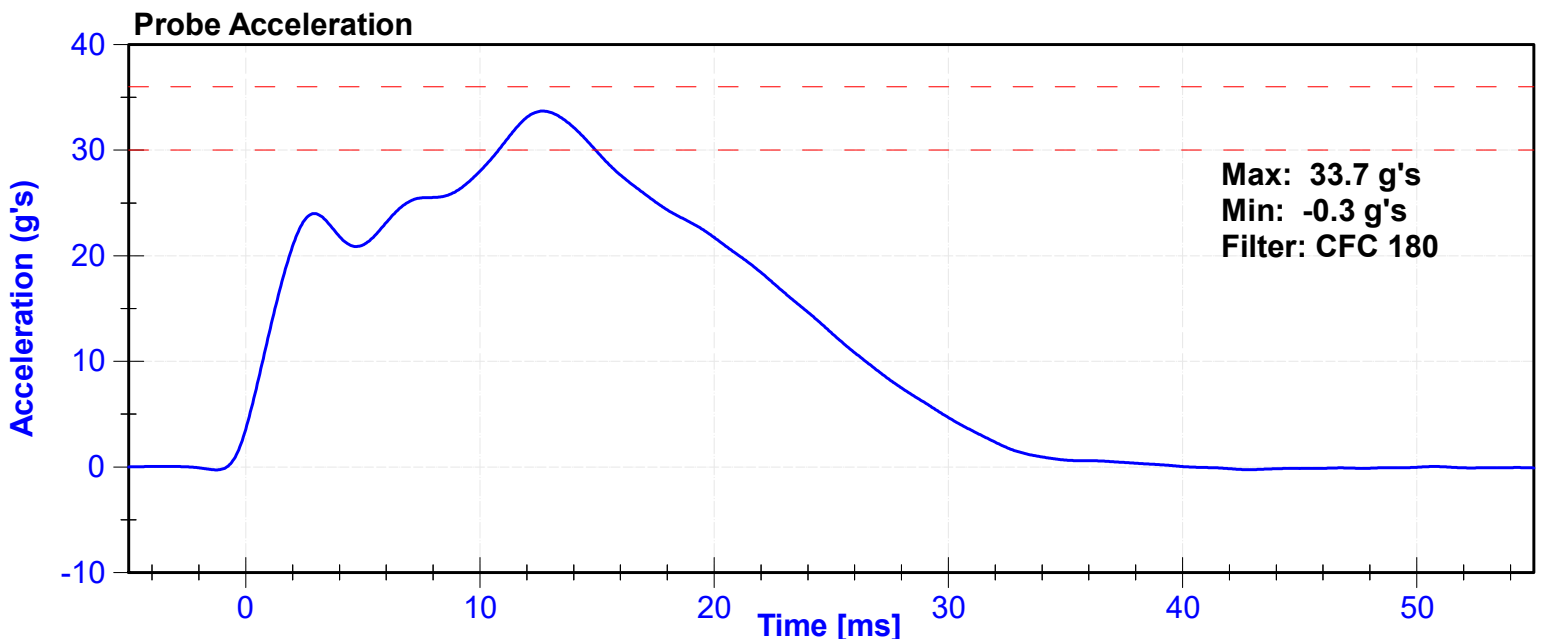
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

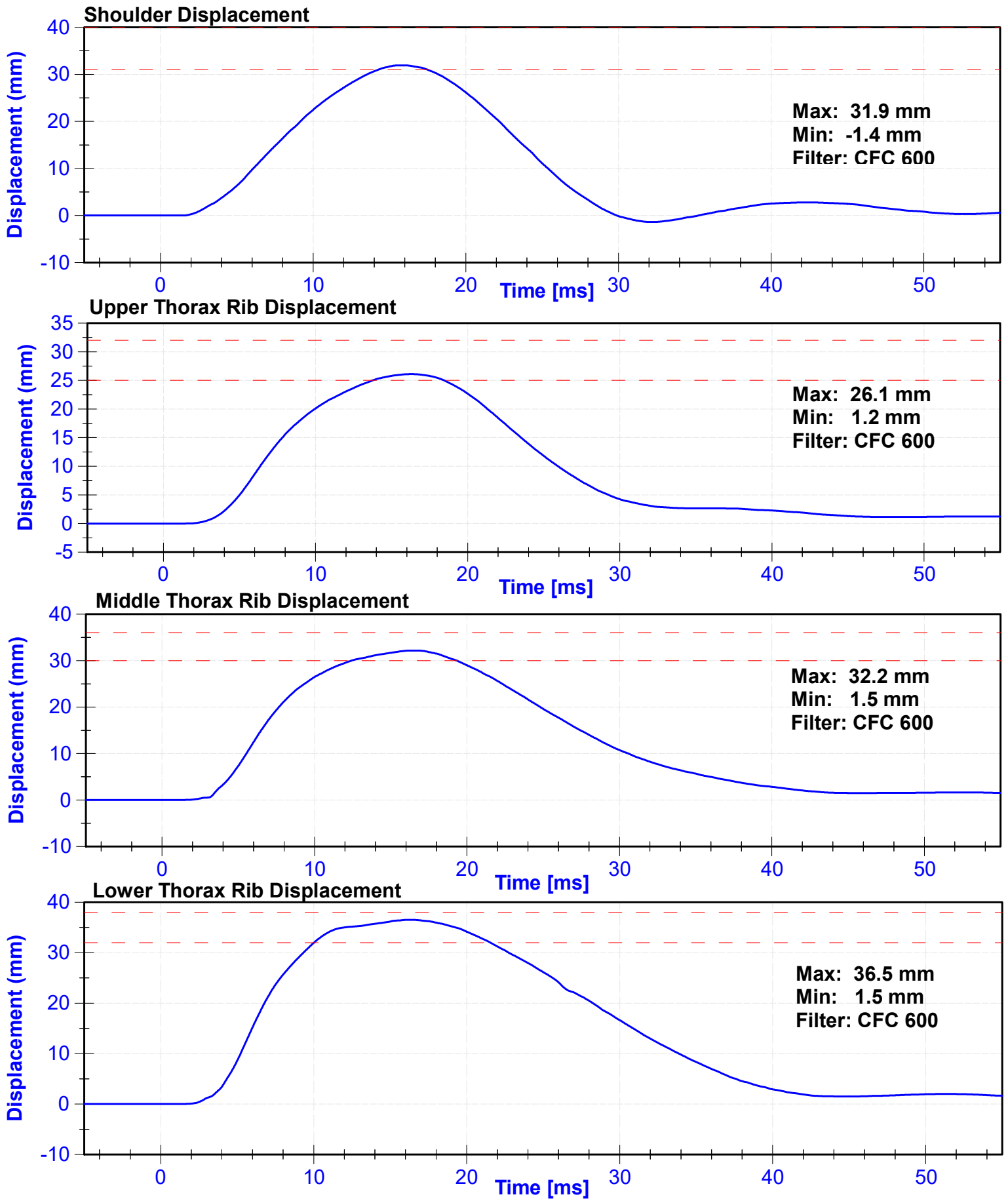
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Velocity	6.6	6.8	m/s	6.68	Pass
Probe Acceleration after 5 ms	30	36	g's	33.7	Pass
Lateral Upper Spine Acceleration	34	43	g's	38.4	Pass
Lateral Lower Spine Acceleration	29	37	g's	31.8	Pass
Shoulder Deflection	31	40	mm	31.9	Pass
Upper Thorax Rib Deflection	25	32	mm	26.1	Pass
Mid Thorax Rib Deflection	30	36	mm	32.2	Pass
Lower Thorax Rib Deflection	32	38	mm	36.5	Pass

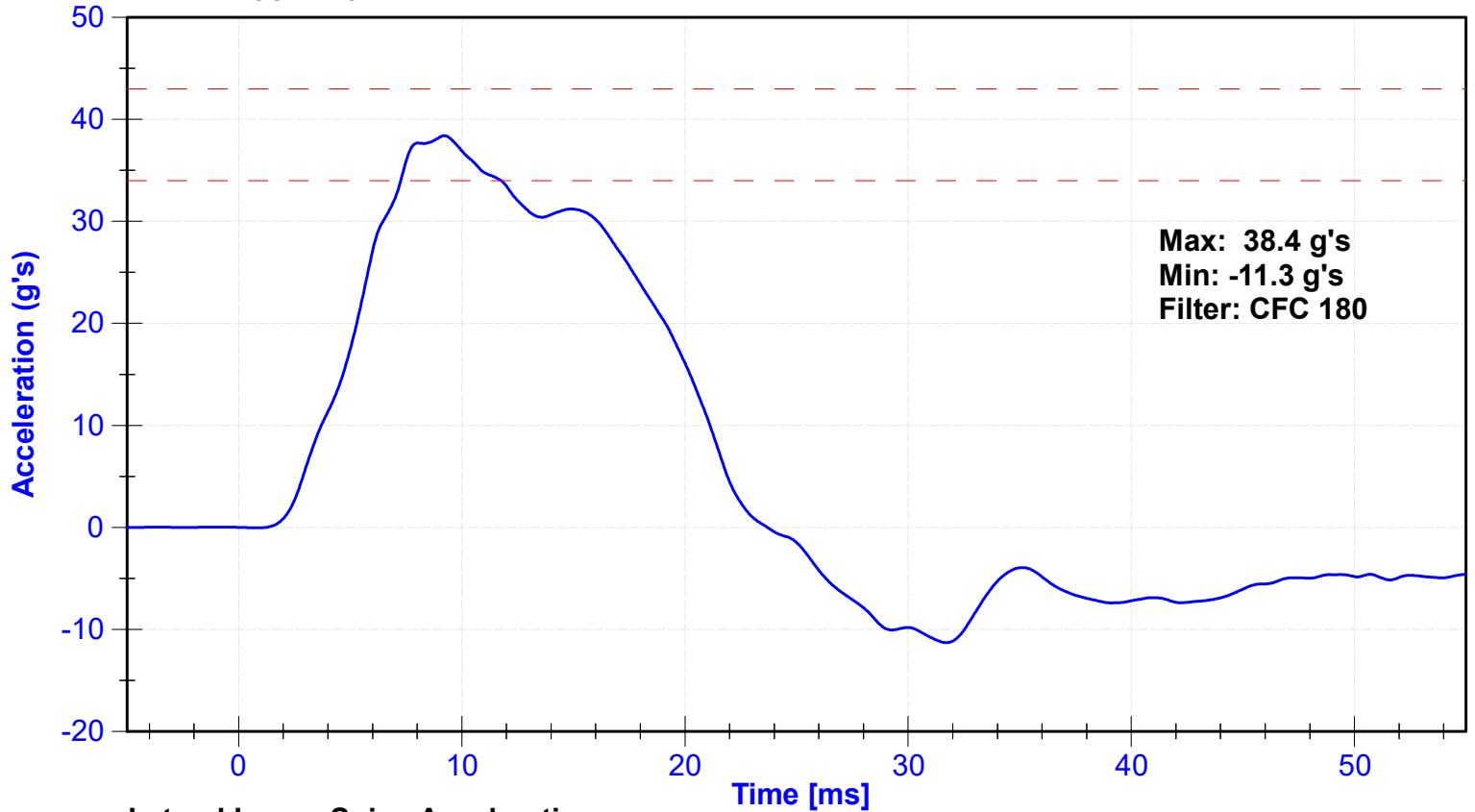
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Upper Spine T1 Y Accelerometer	Endevco	P64148	7/2/2025	12/29/2025
Upper Spine T12 Y Accelerometer	Endevco	P58883	7/2/2025	12/29/2025
Shoulder Potentiometer	Servo	1274GFE	7/8/2025	1/6/2026
Upper Thorax Rib Potentiometer	Servo	1199GFE	7/8/2025	1/6/2026
Middle Thorax Rib Potentiometer	Servo	1246GFE	7/8/2025	1/6/2026
Lower Thorax Rib Potentiometer	Servo	011GFE	7/8/2025	1/6/2026

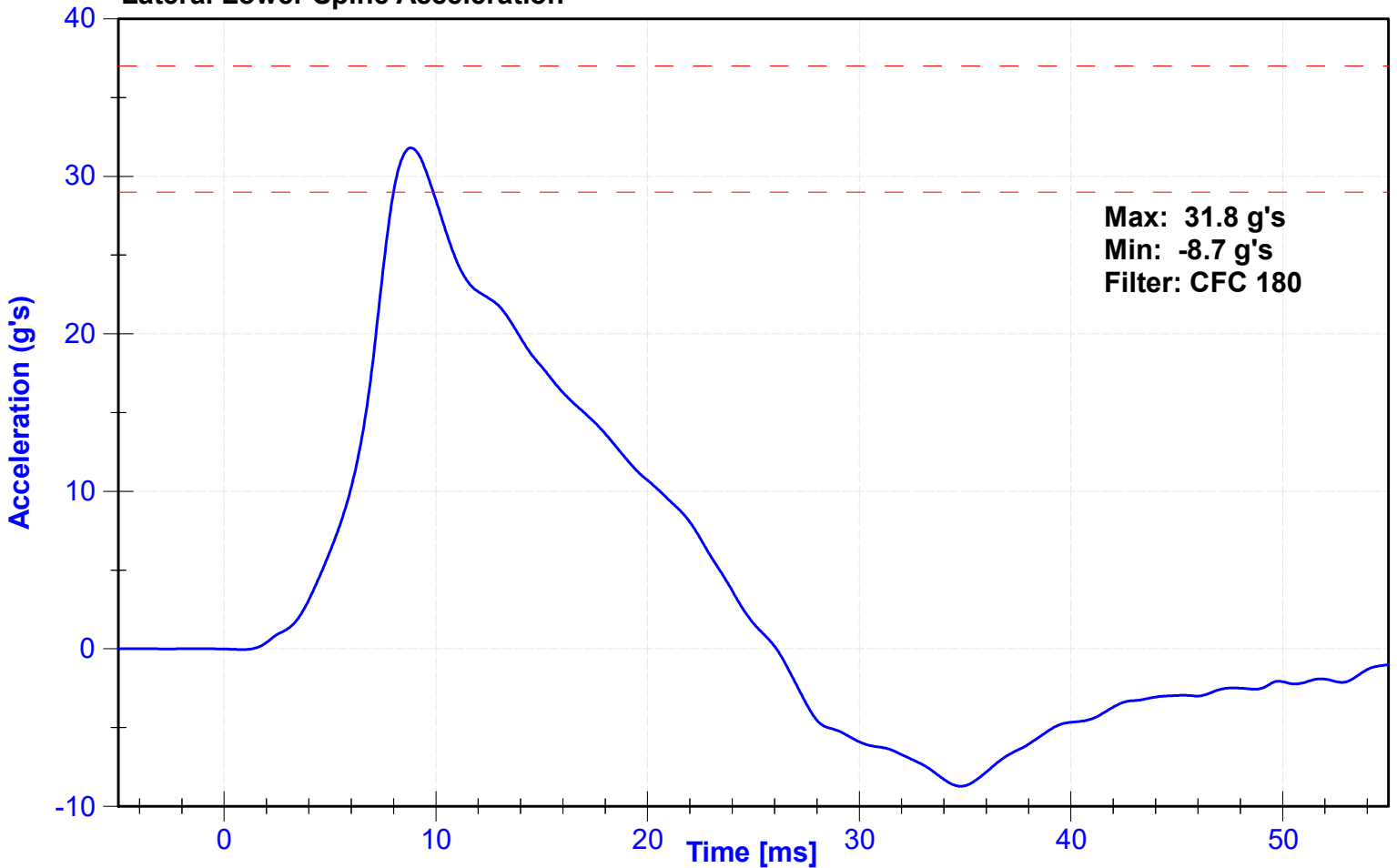




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



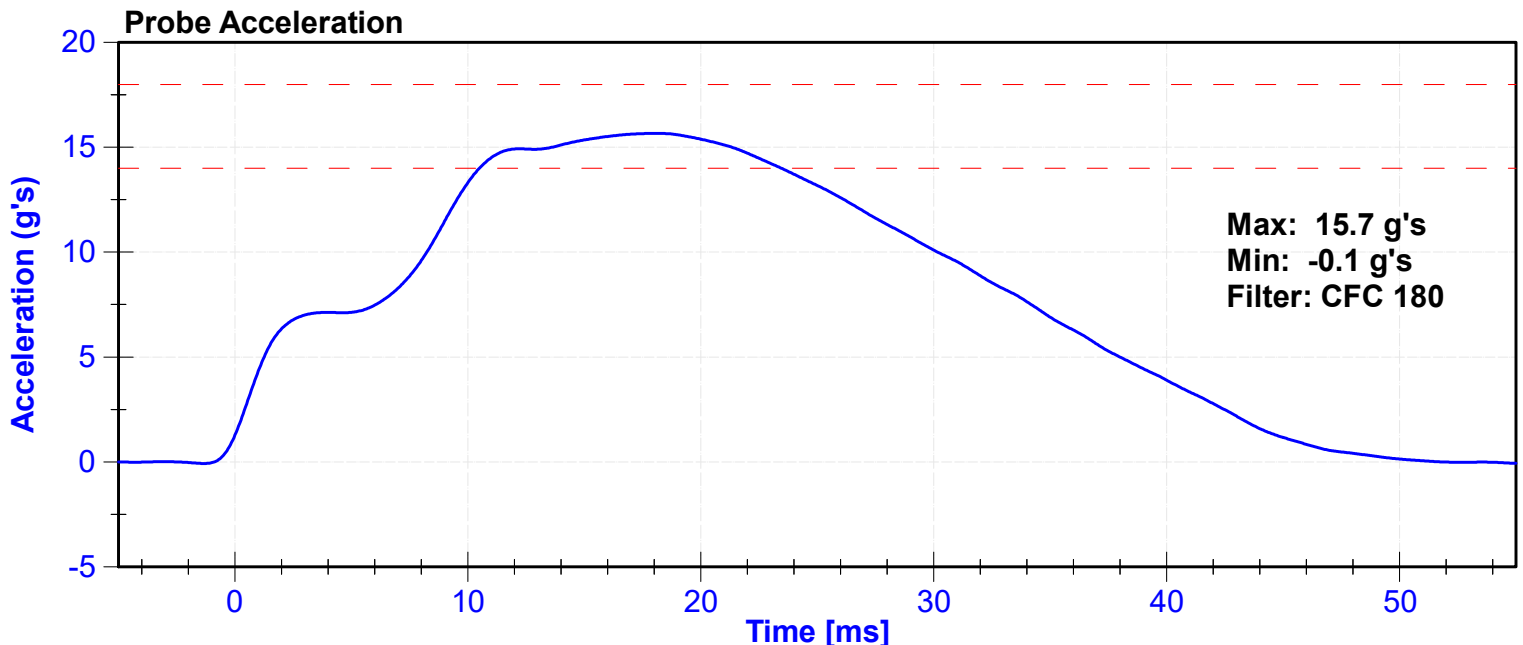
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

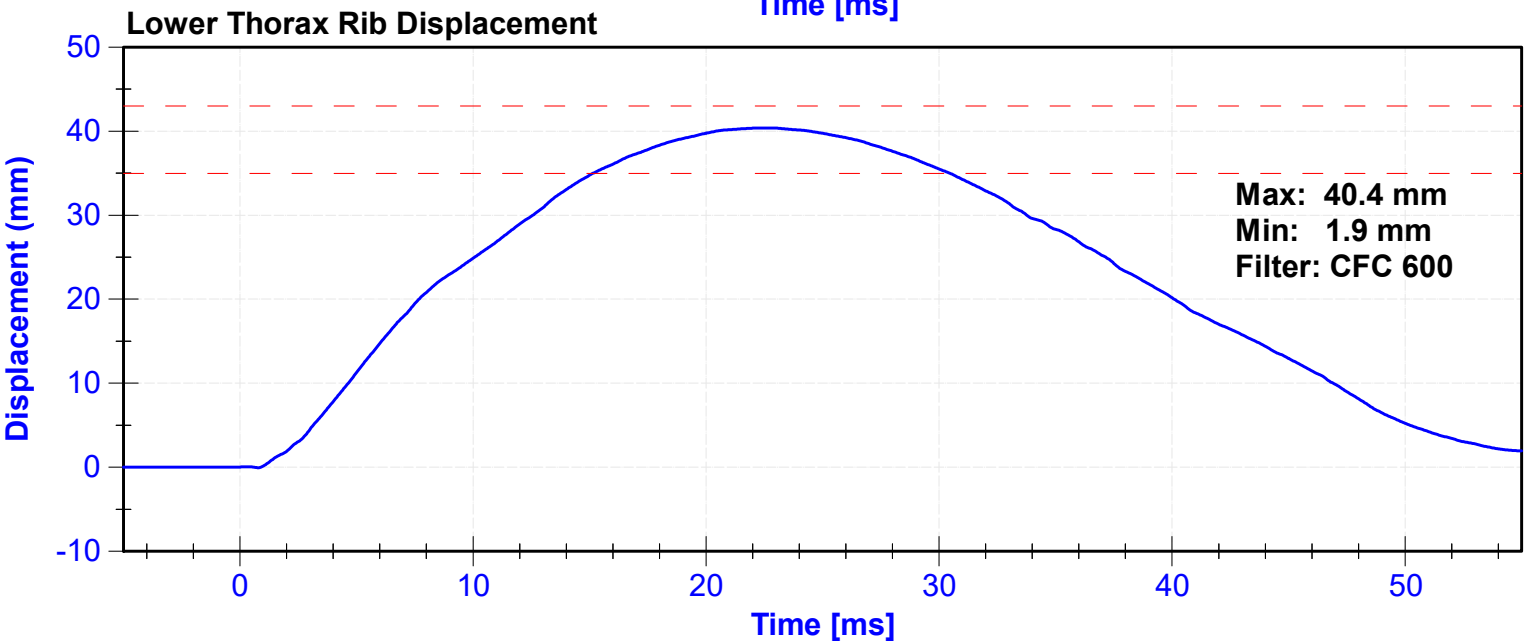
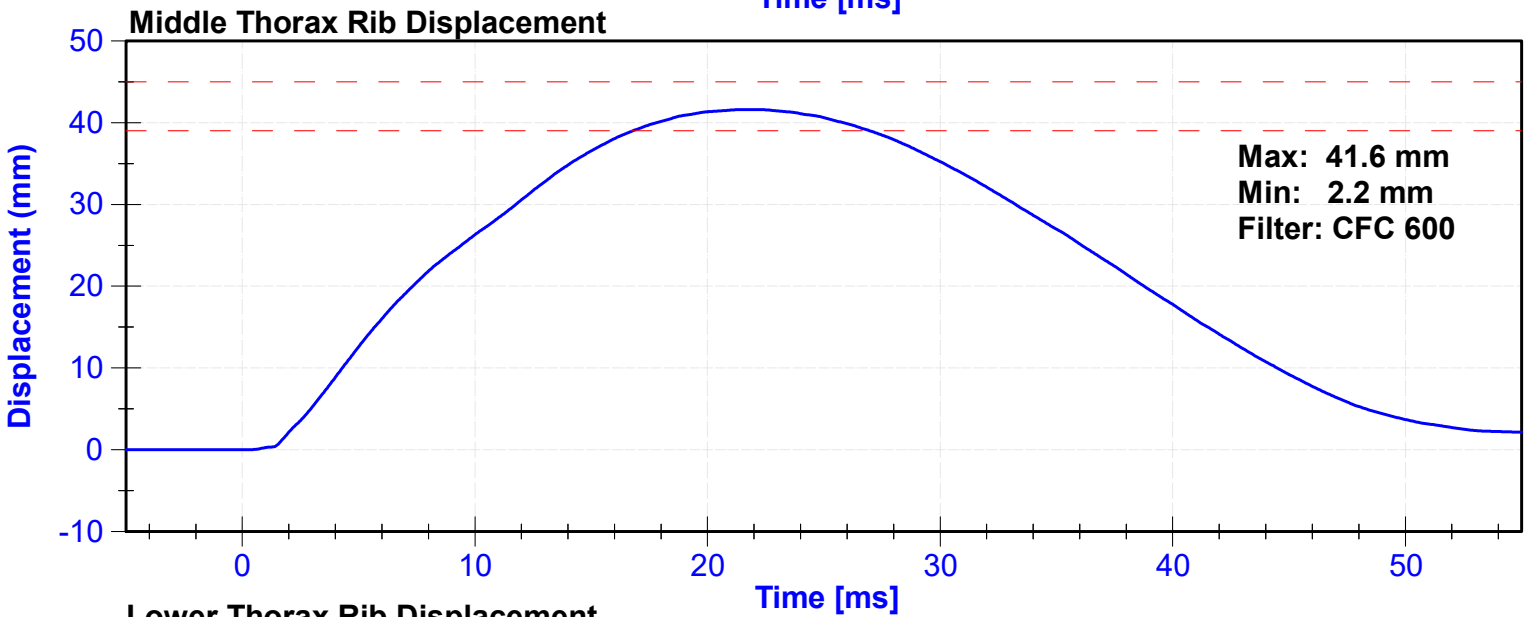
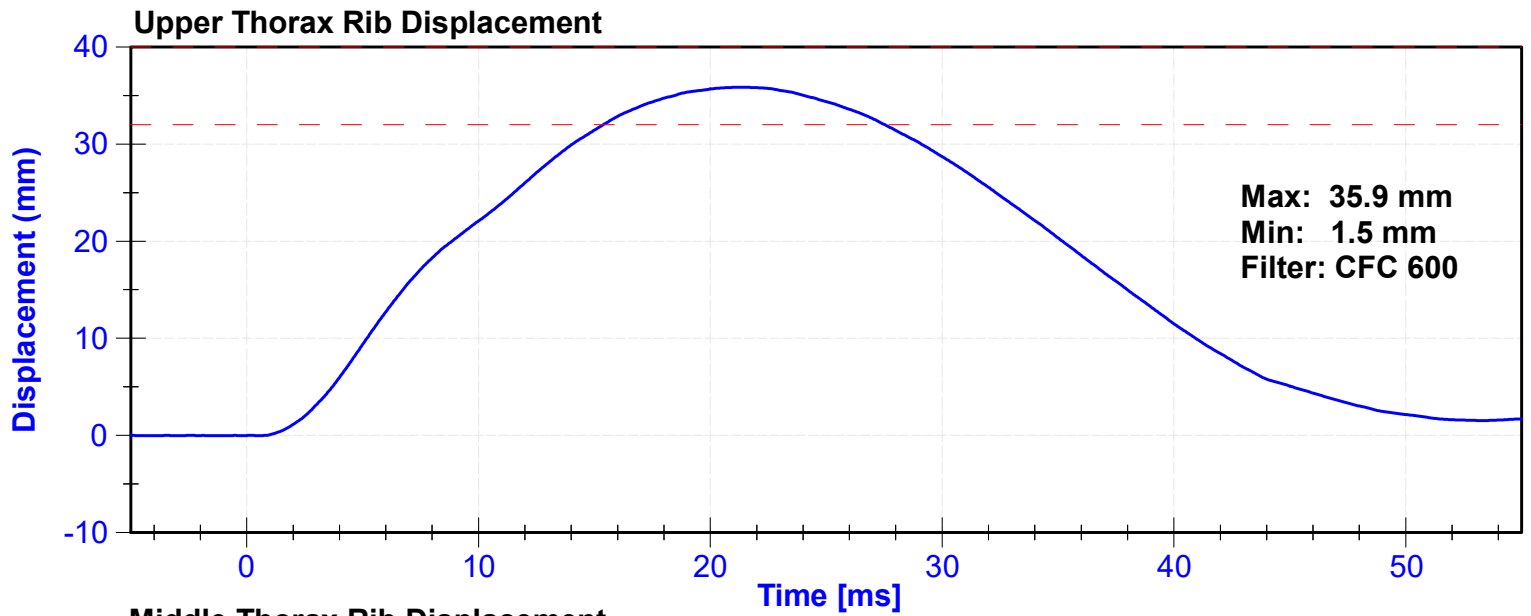
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	14	18	g's	15.7	Pass
Lateral Upper Spine Acceleration	13	17	g's	13.6	Pass
Lateral Lower Spine Acceleration	7	11	g's	8.8	Pass
Upper Thorax Rib Deflection	32	40	mm	35.9	Pass
Middle Thorax Rib Deflection	39	45	mm	41.6	Pass
Lower Thorax Rib Deflection	35	43	mm	40.4	Pass

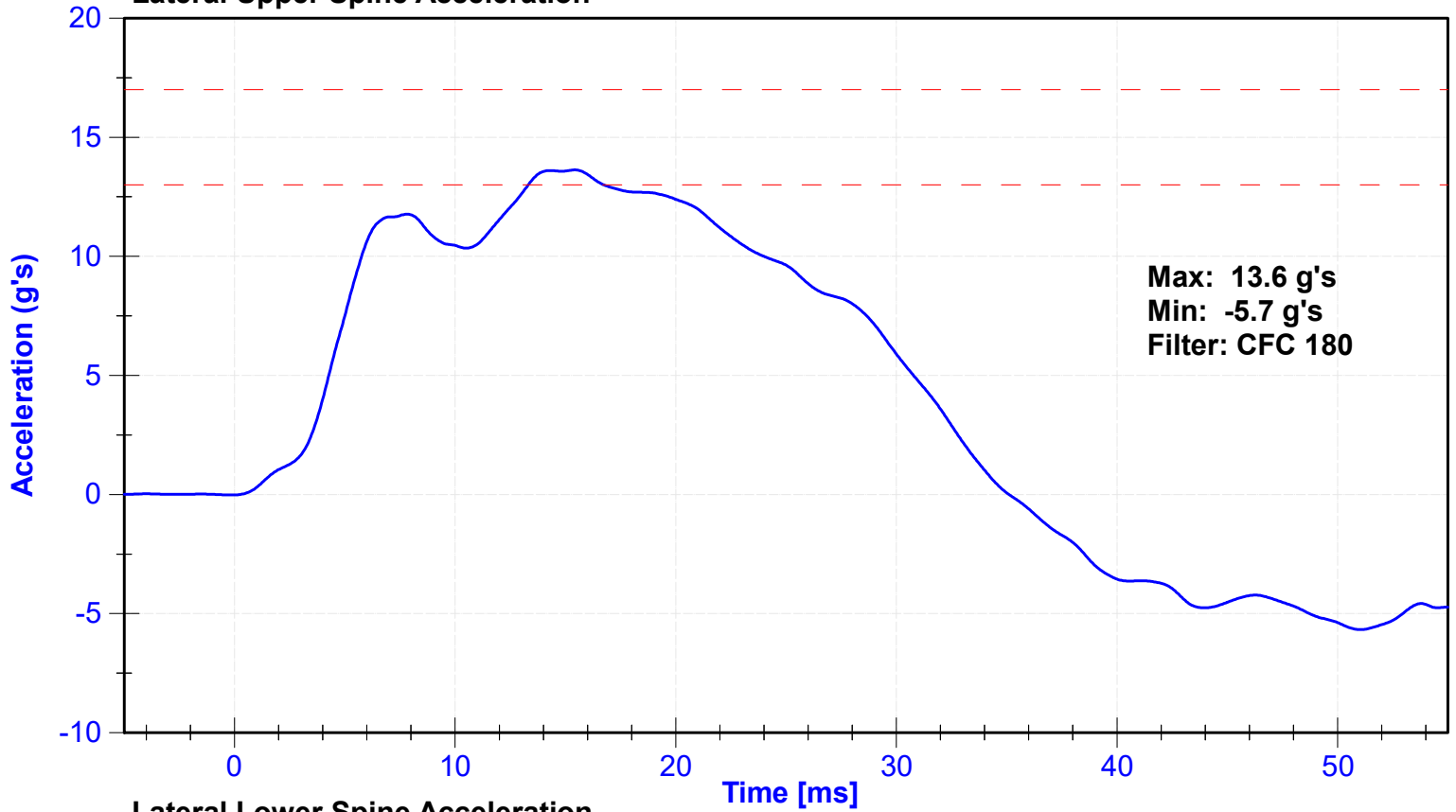
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Upper Spine Y Accelerometer	Endevco	P64148	7/2/2025	12/29/2025
Lower Spine Y Accelerometer	Endevco	P58883	7/2/2025	12/29/2025
Upper Thorax Rib Potentiometer	Servo	1199GFE	7/8/2025	1/6/2026
Middle Thorax Rib Potentiometer	Servo	1246GFE	7/8/2025	1/6/2026
Lower Thorax Rib Potentiometer	Servo	011GFE	7/8/2025	1/6/2026

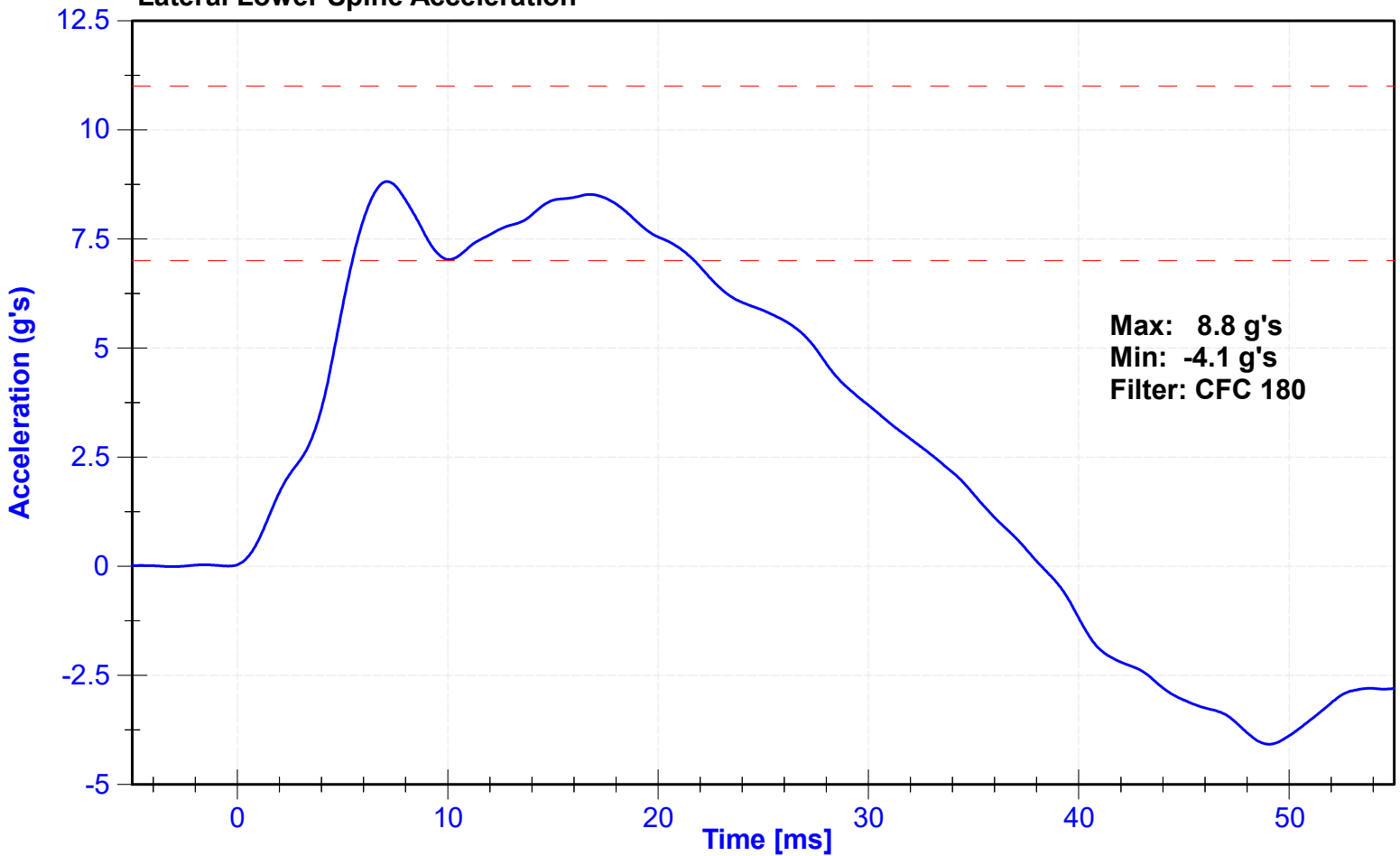




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

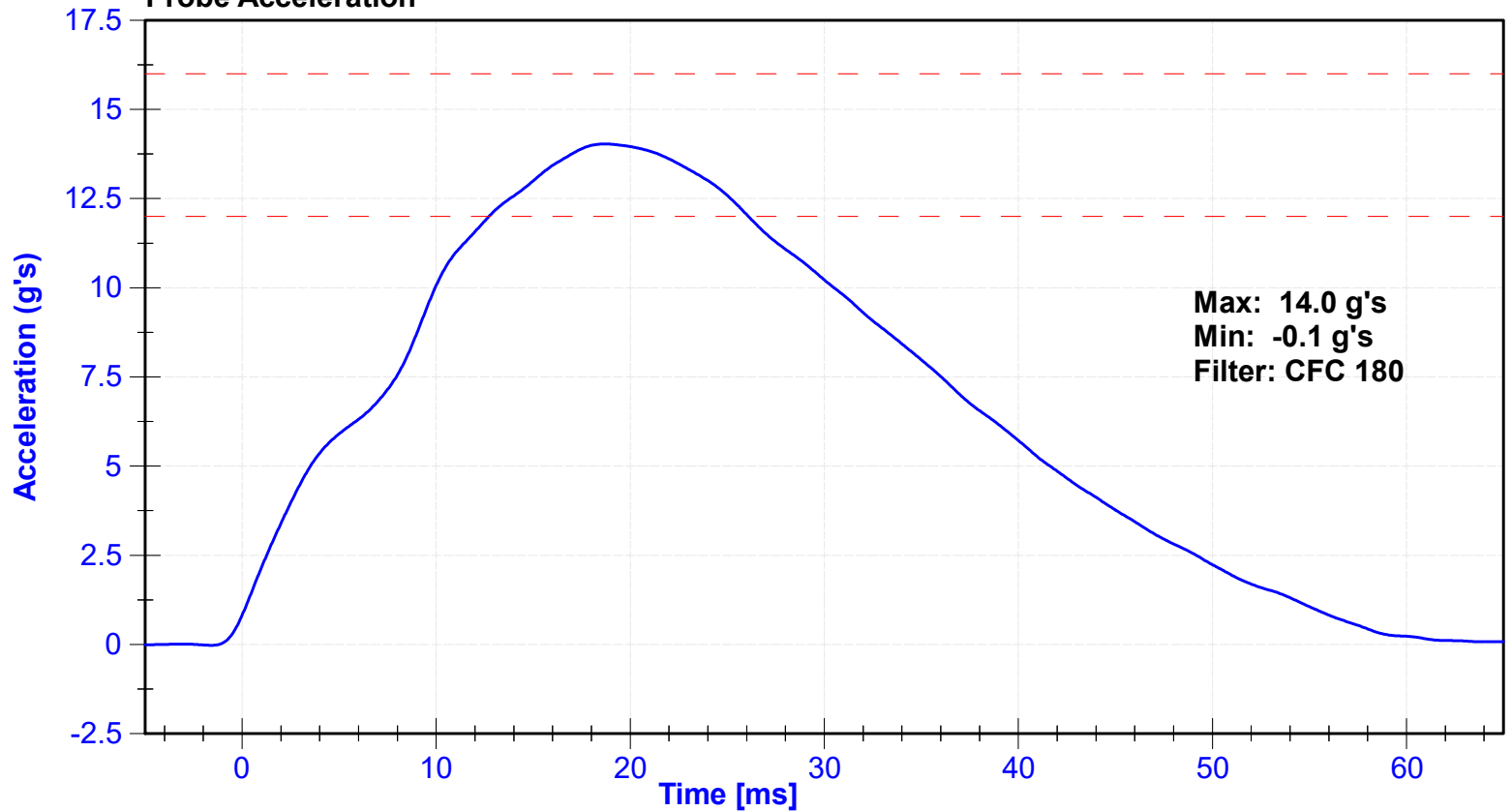
Results

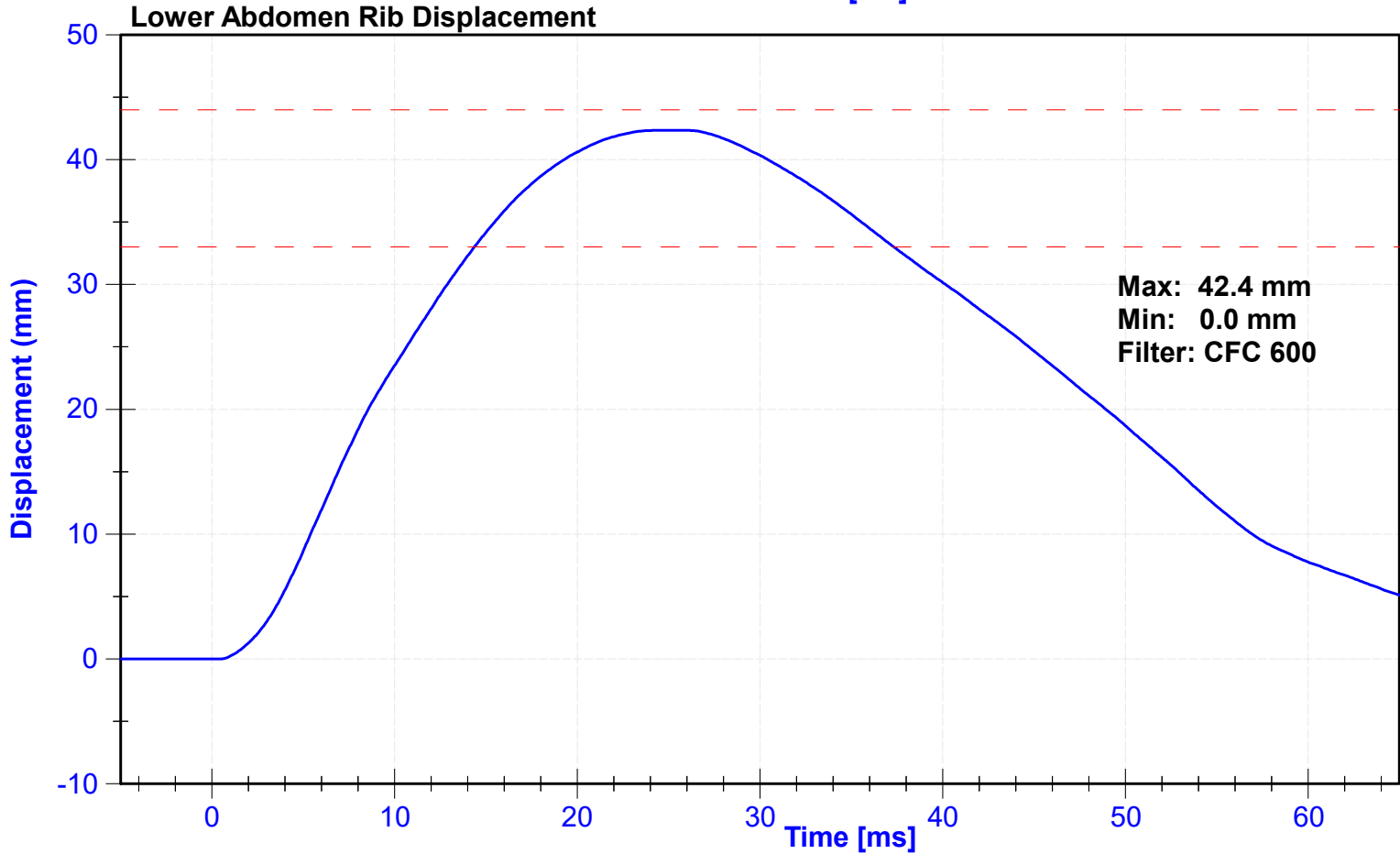
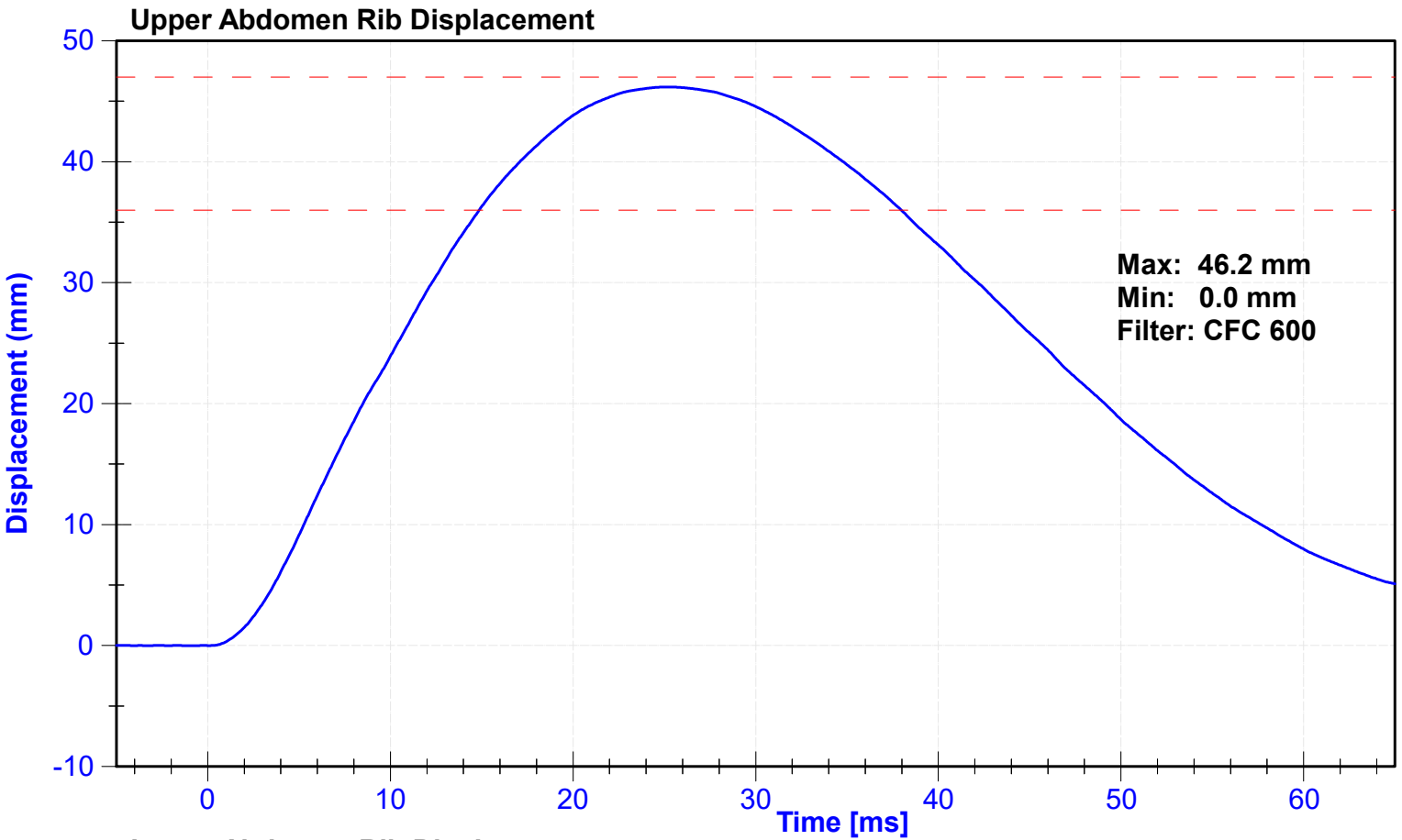
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Velocity	4.2	4.4	m/s	4.24	Pass
Probe Acceleration	12	16	g's	14.0	Pass
Lateral Lower Spine Acceleration	9	14	g's	10.3	Pass
Upper Abdomen Rib Deflection	36	47	mm	46.2	Pass
Lower Abdomen Rib Deflection	33	44	mm	42.4	Pass

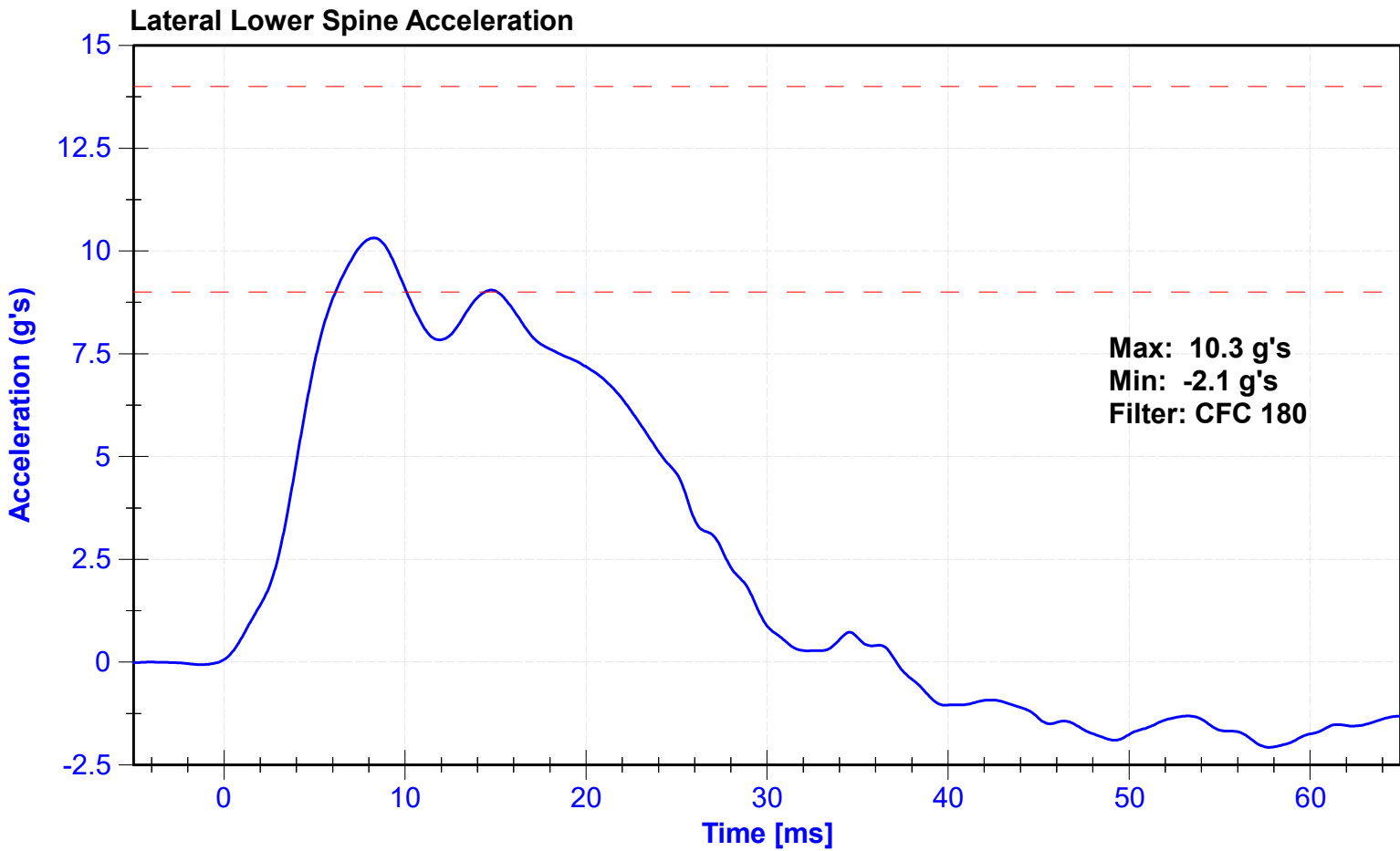
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Lower Spine Y Accelerometer	Endevco	P58883	7/2/2025	12/29/2025
Upper Abdomen Rib Potentiometer	Servo	008GFE	7/8/2025	1/6/2026
Lower Abdomen Rib Potentiometer	Servo	046GFE	7/8/2025	1/6/2026

Probe Acceleration







ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

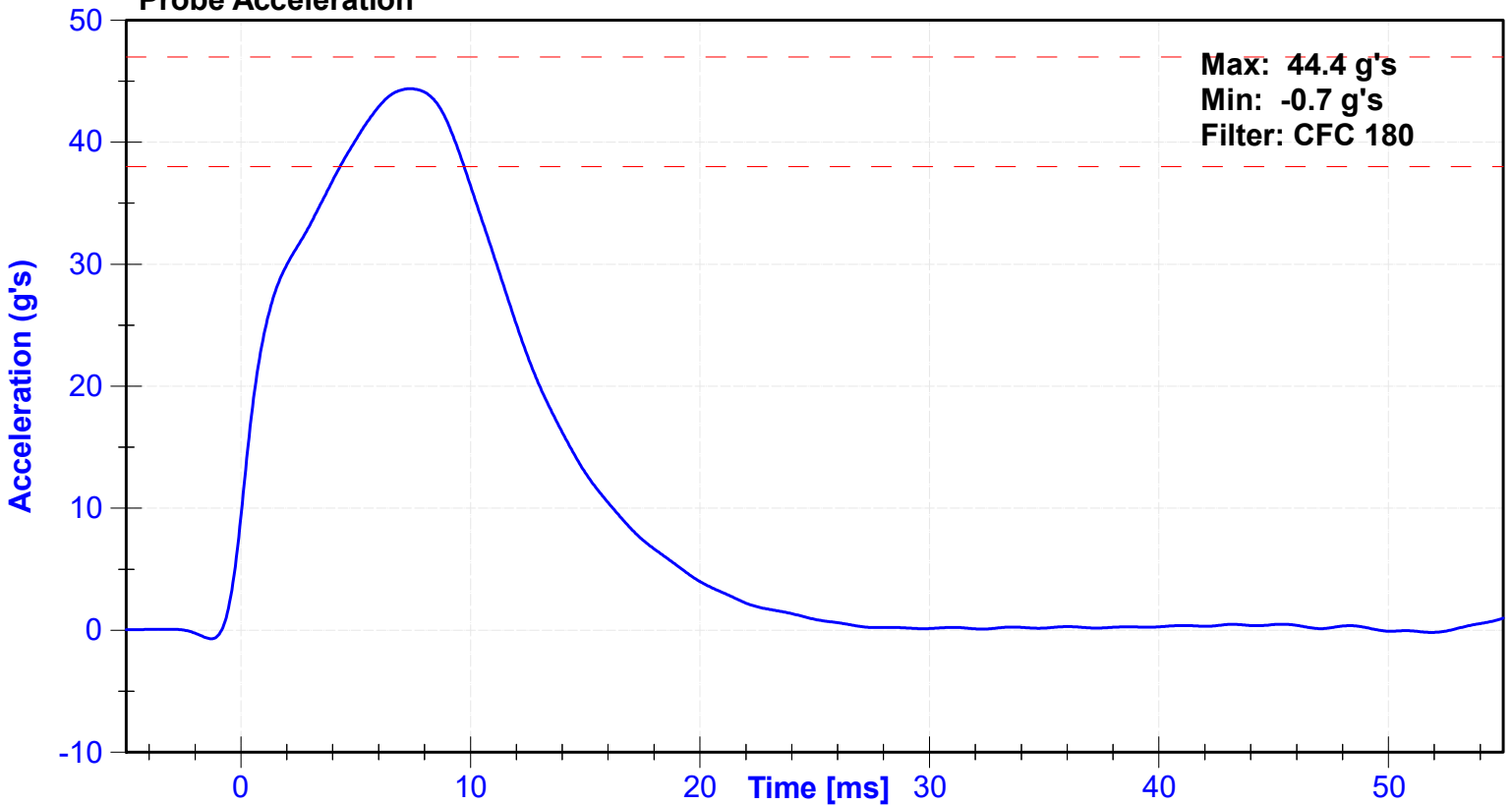
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Velocity	6.6	6.8	m/s	6.68	Pass
Probe Acceleration	38	47	g's	44.4	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	35.2	Pass
Acetabulum Force	3600	4300	N	3983.8	Pass

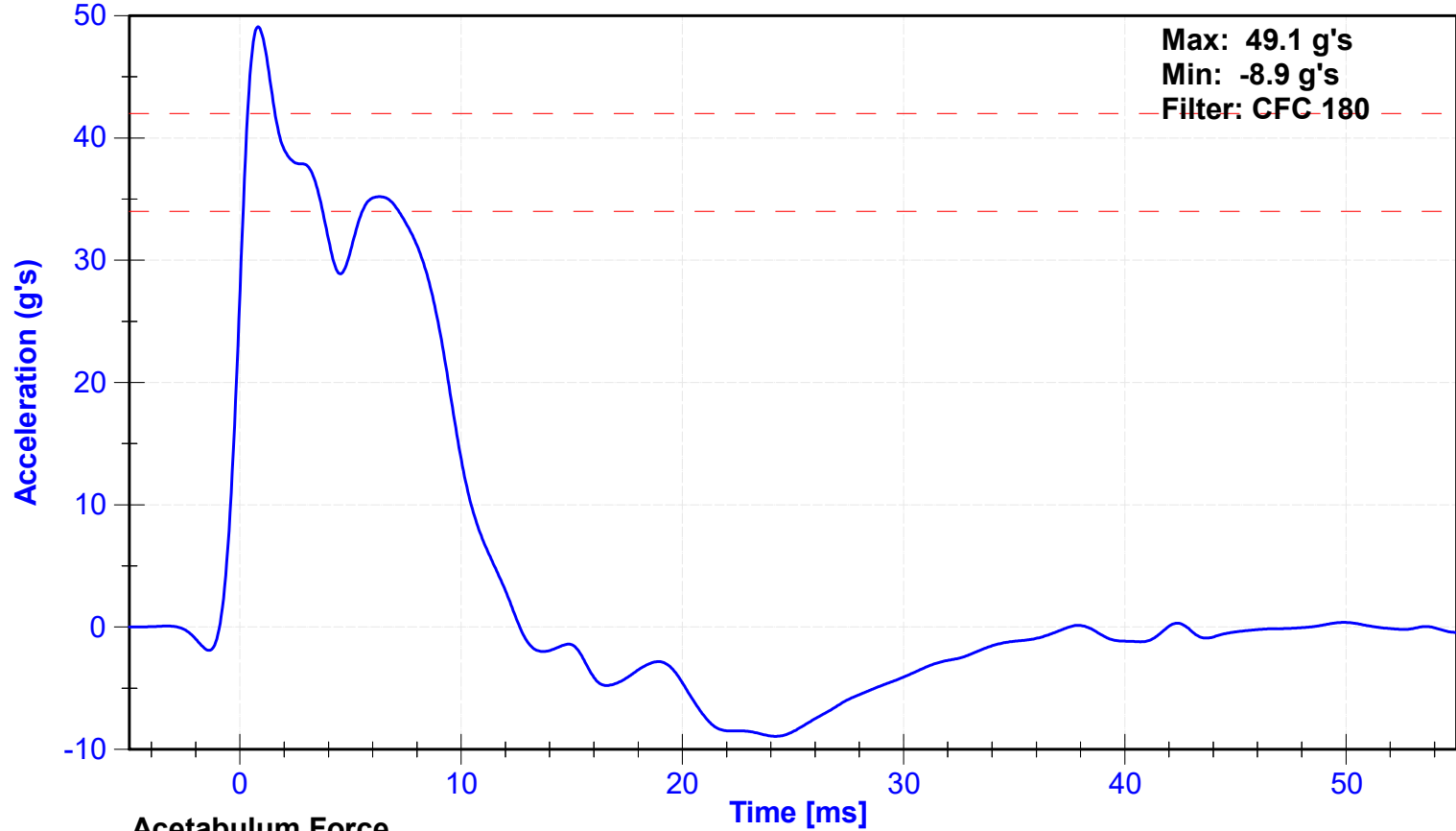
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Pelvis Y Accelerometer	Endevco	T20860	7/2/2025	12/29/2025
Acetabulum Load Cell	Denton	270-FY	9/16/2024	9/16/2025
Certification Plug	SACO			N/A
Crash Test Plug	SACO			N/A

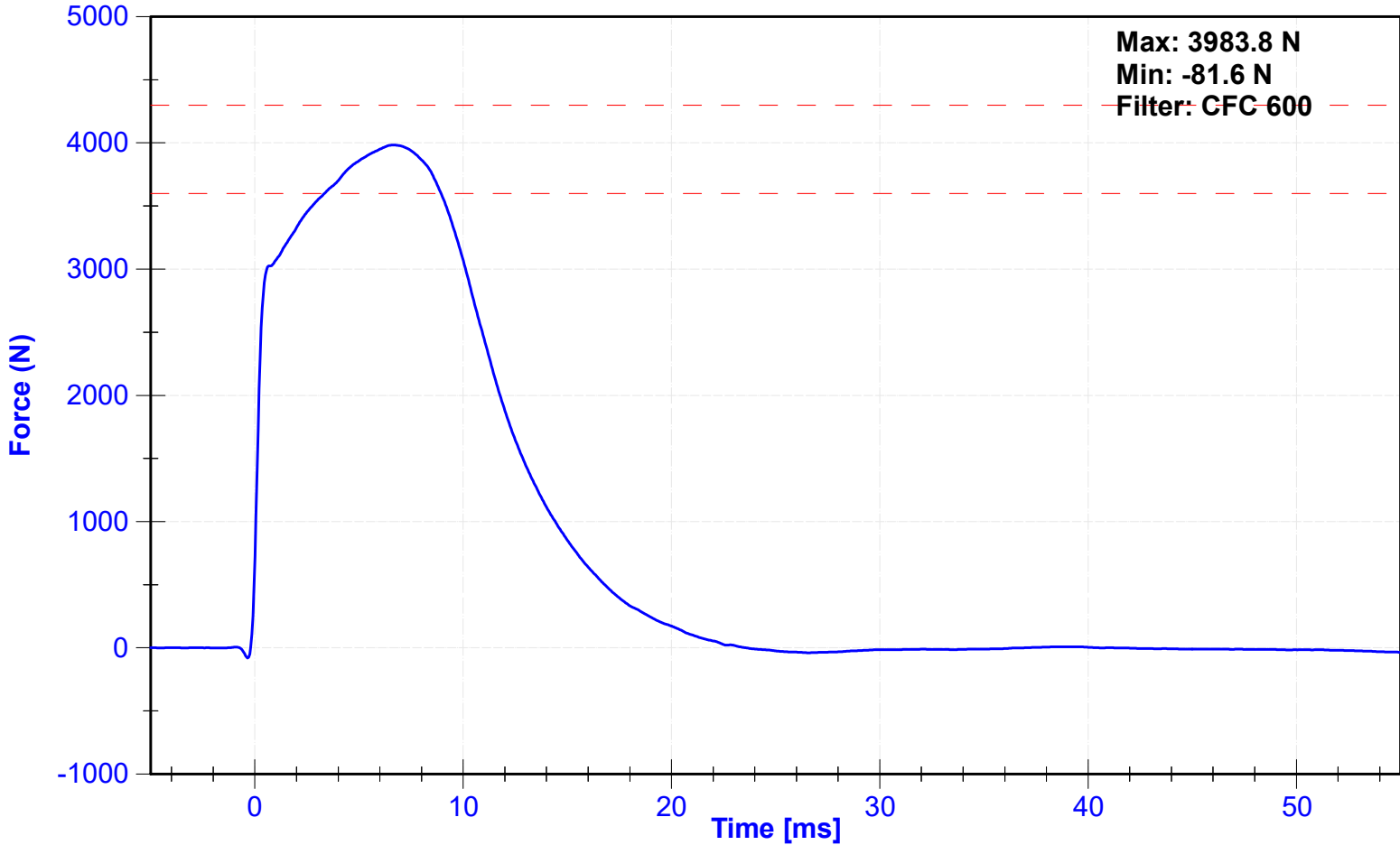
Probe Acceleration



Lateral Pelvis Acceleration



Acetabulum Force



SID-IIs Pelvis Plug Certification Test

Plug S/N 16873

Test Number 23710

Report Number 23767

Test Date 8/1/2022 10:50:53 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

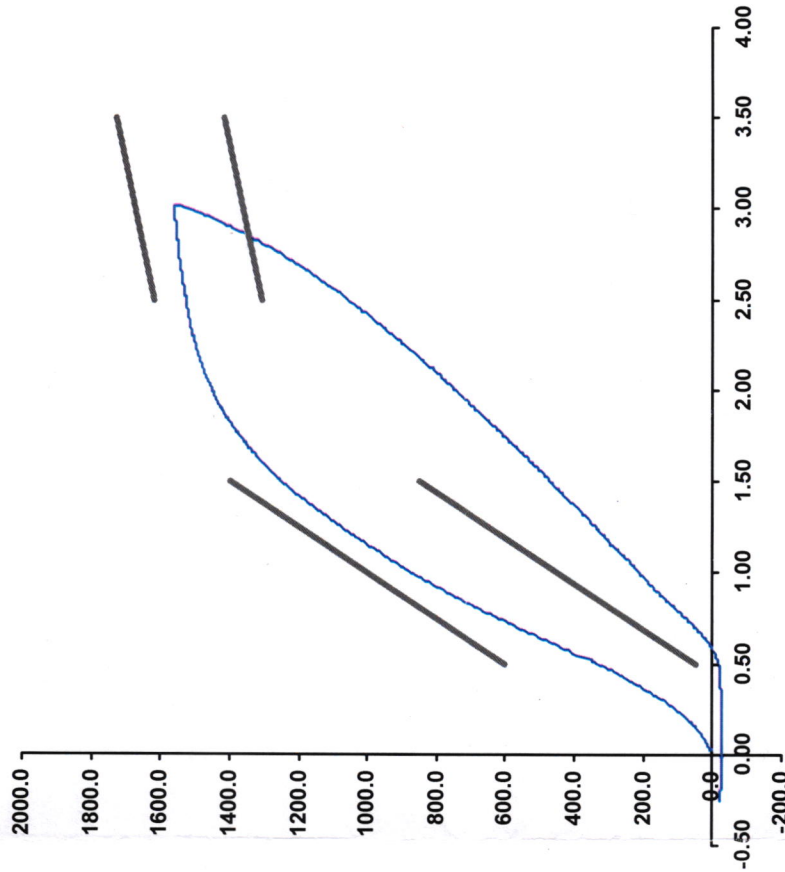
Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD_100 (XHD100)

Notes:

Impact DG801Z 7.15.25

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 01-Aug-22

SACO Research

By: *DC* Date: 8/1/22

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



SID-IIs Pelvis Plug Certification Test

Plug S/N 16869

Test Number 23705

Report Number 23762

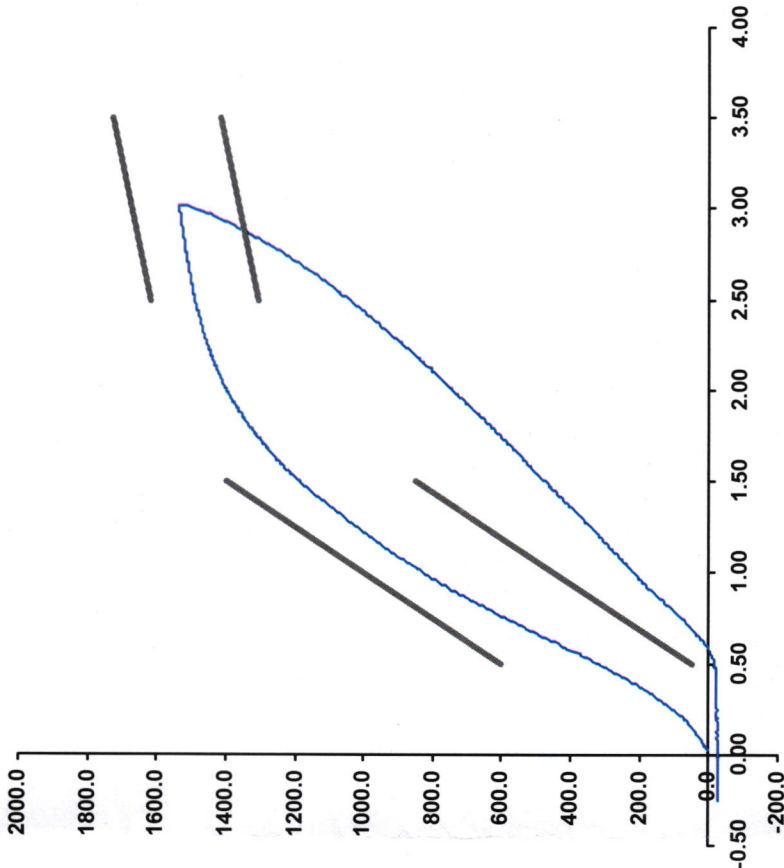
Test Date 8/1/2022 10:38:18 AM

Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	320	600
Force @ 1.5 mm (N)	1,183	1,400
Force @ 2.5 mm (N)	1,490	1,618
Force @ 3.0 mm (N)	1,538	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:
Non-Impact DG8012 7.15.25

Force (-N) vs Extension (-mm)



Operator
Part Number 180-4450

Template No 107 01-Aug-22
SACO Research

By: DC Date: 8/1/22
SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



SID-IIs Pelvis Plug Certification Test

Plug S/N 16878

Test Number 23724

Report Number 23781

Test Date 8/2/2022 1:36:41 PM

Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	306	600
Force @ 1.5 mm (N)	1,169	1,400
Force @ 2.5 mm (N)	1,492	1,618
Force @ 3.0 mm (N)	1,544	1,673

Testing Machine STM-20 5965542

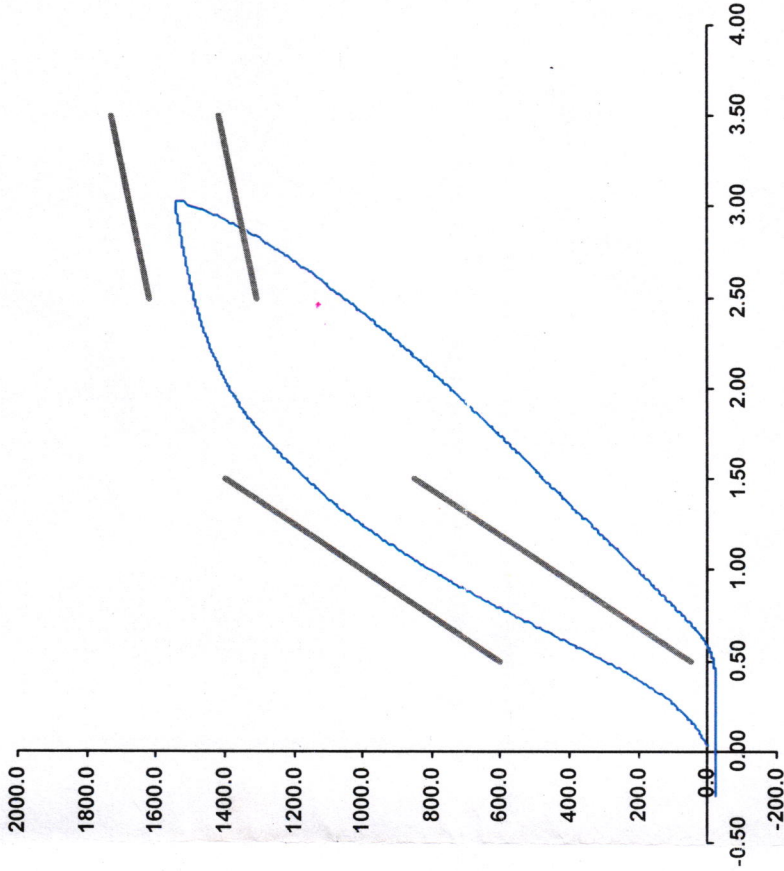
Load Cell S/N (F1360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD_100 (XHD100)

Notes: Cert DG8012 7.15.25

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 02-Aug-22

SACO Research

By : *DC* Date : 8/2/22

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

ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

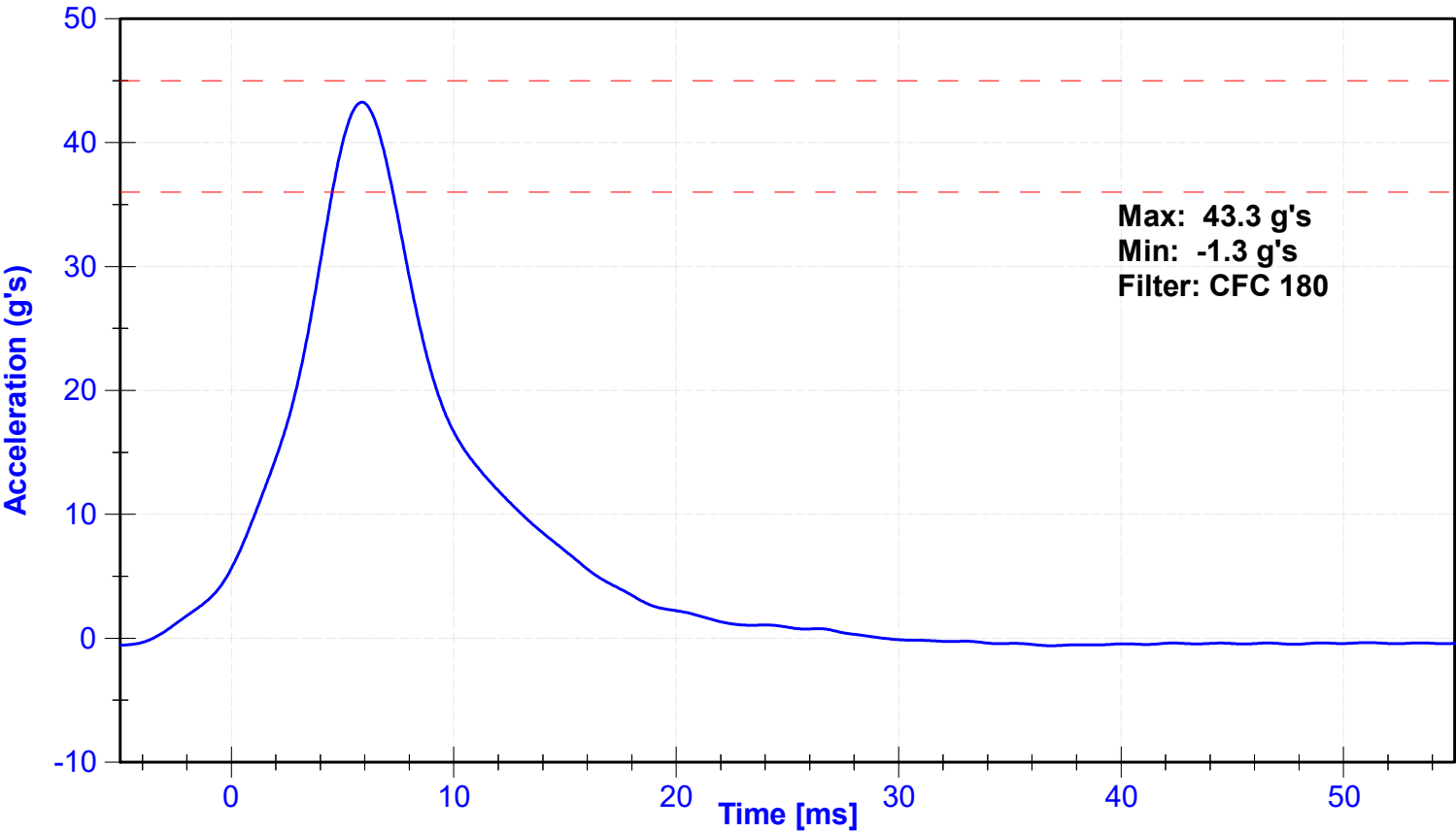
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Velocity	4.2	4.4	m/s	4.21	Pass
Probe Acceleration	36	45	g's	43.3	Pass
Lateral Pelvis Acceleration	28	39	g's	33.8	Pass
Iliac Force	4100	5100	N	4994.6	Pass

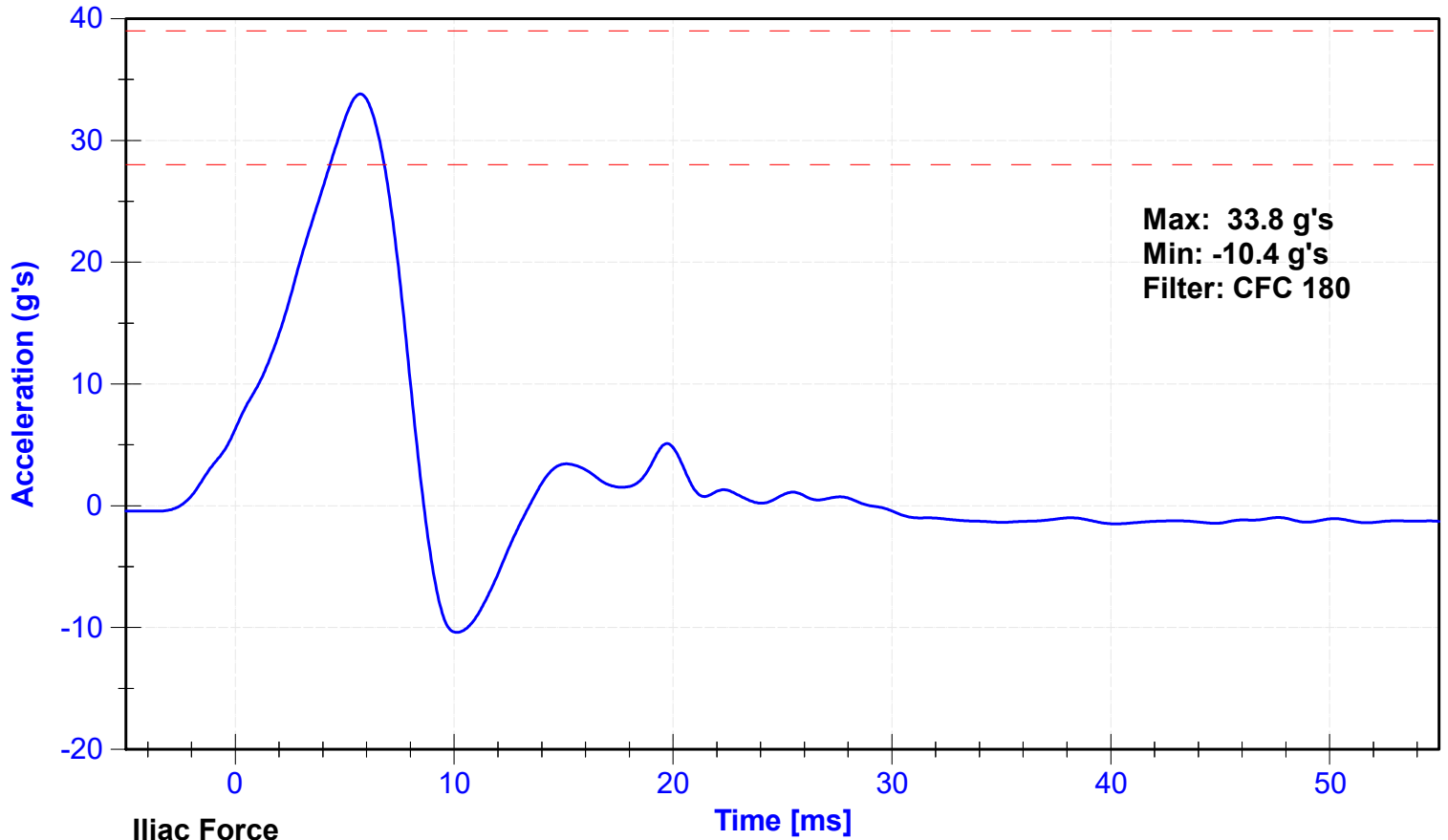
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Pelvis Y Accelerometer	Endevco	T20860	7/2/2025	12/29/2025
Iliac Load Cell	Denton	321	9/16/2024	9/16/2025

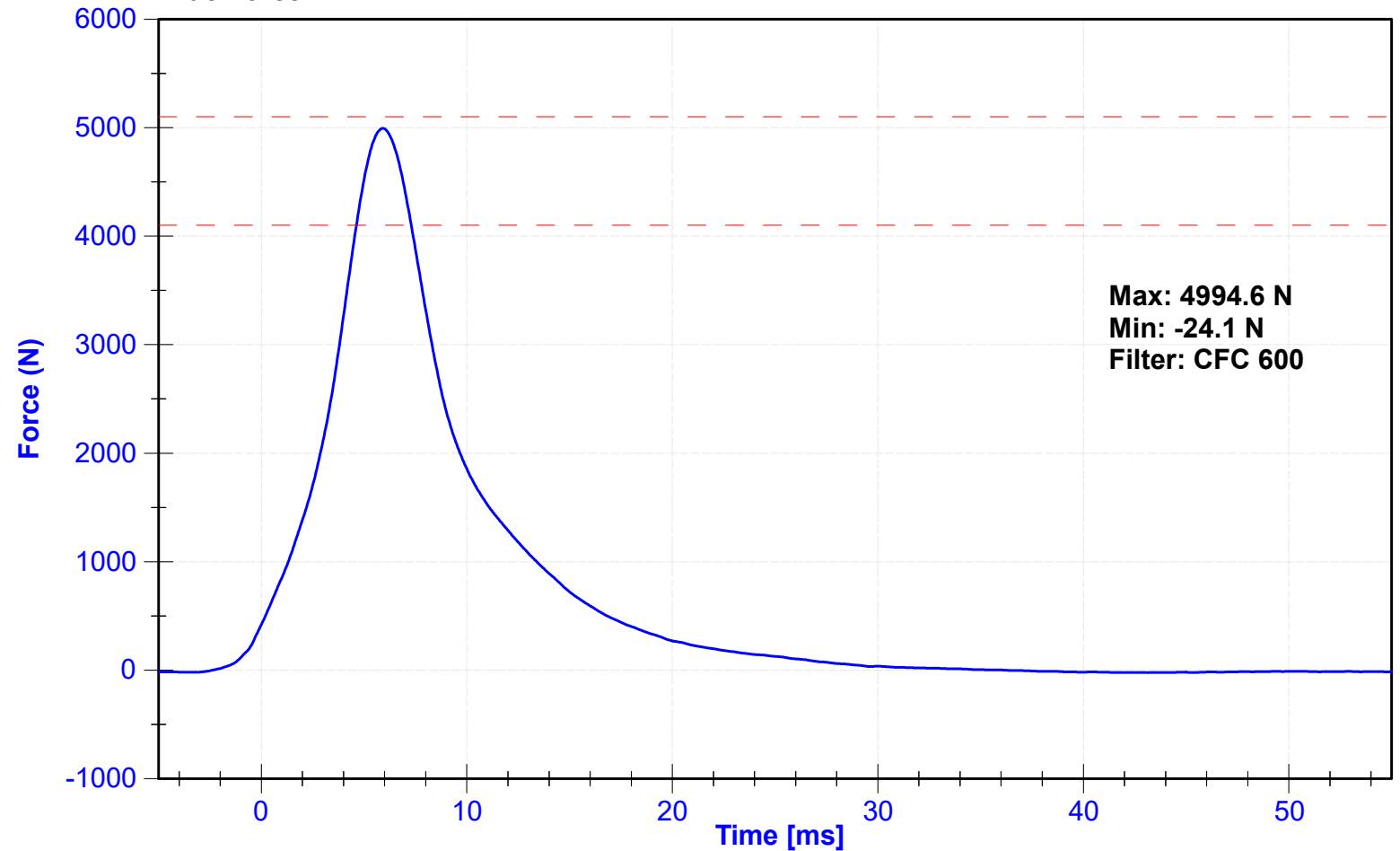
Probe Acceleration



Lateral Pelvis Acceleration



Iliac Force



CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SERIAL NO:DG8012

(CONFIGURED FOR LEFT SIDE IMPACT)

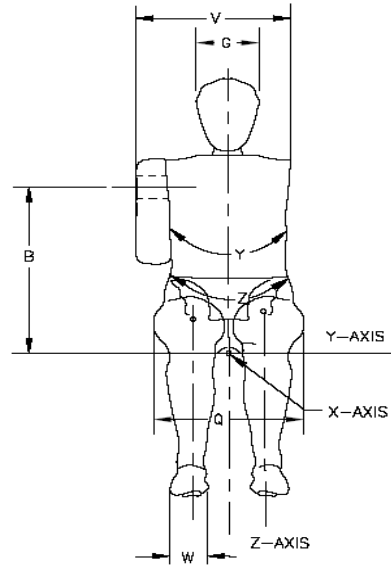
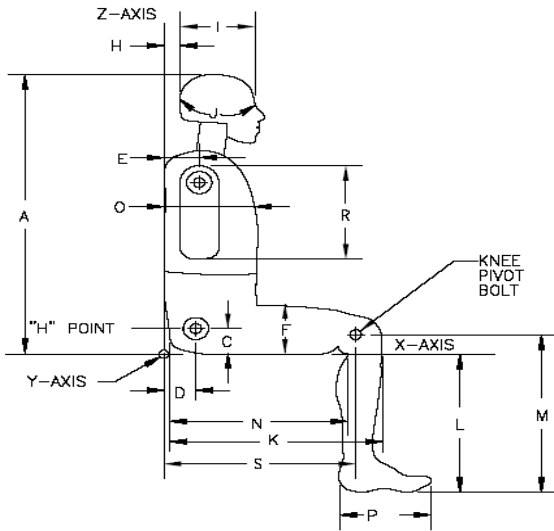


External Measurements - SID-IIs

Technician: **J. Rios**

Date: **07/22/2025**

Dummy Serial Number: **DG8012**



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	778	Pass
B	Shoulder Pivot Height	437	453	442	Pass
C	H-point Height	79	89	85	Pass
D	H-point from seatback	141	151	146	Pass
E	Shoulder Pivot from Backline	97	107	100	Pass
F	Thigh Clearance	119	135	124	Pass
G	Head Breadth	140	148	145	Pass
H	Head Back from Backline	40	46	43	Pass
I	Head Depth	178	188	182	Pass
J	Head Circumference	541	551	547	Pass
K	Buttock to Knee Length	514	540	522	Pass
L	Popliteal Height	343	369	355	Pass
M	Knee Pivot to floor height	392	409	402	Pass
N	Buttock Popliteal Length	416	442	428	Pass
O	Chest Depth w/o jacket	195	211	204	Pass
P	Foot Length	216	232	219	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	319	Pass
R	Arm Length	249	259	258	Pass
S	Knee Joint to seatback	477	493	483	Pass
V	Shoulder Width	341	357	353	Pass
W	Foot Width	78	94	85	Pass
Y	Chest Circumference w/jacket	851	881	872	Pass
Z	Waist Circumference	761	791	779	Pass

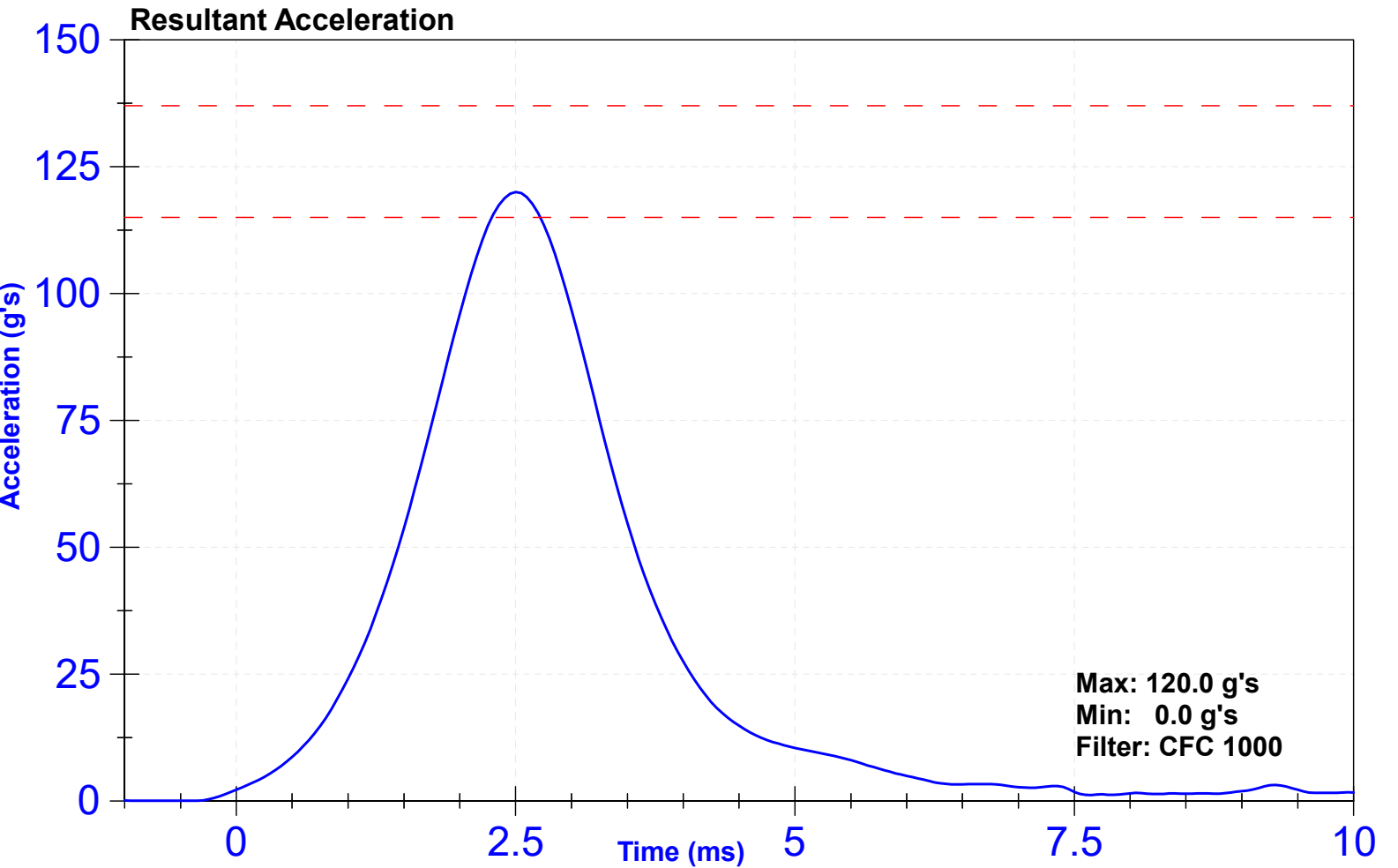
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

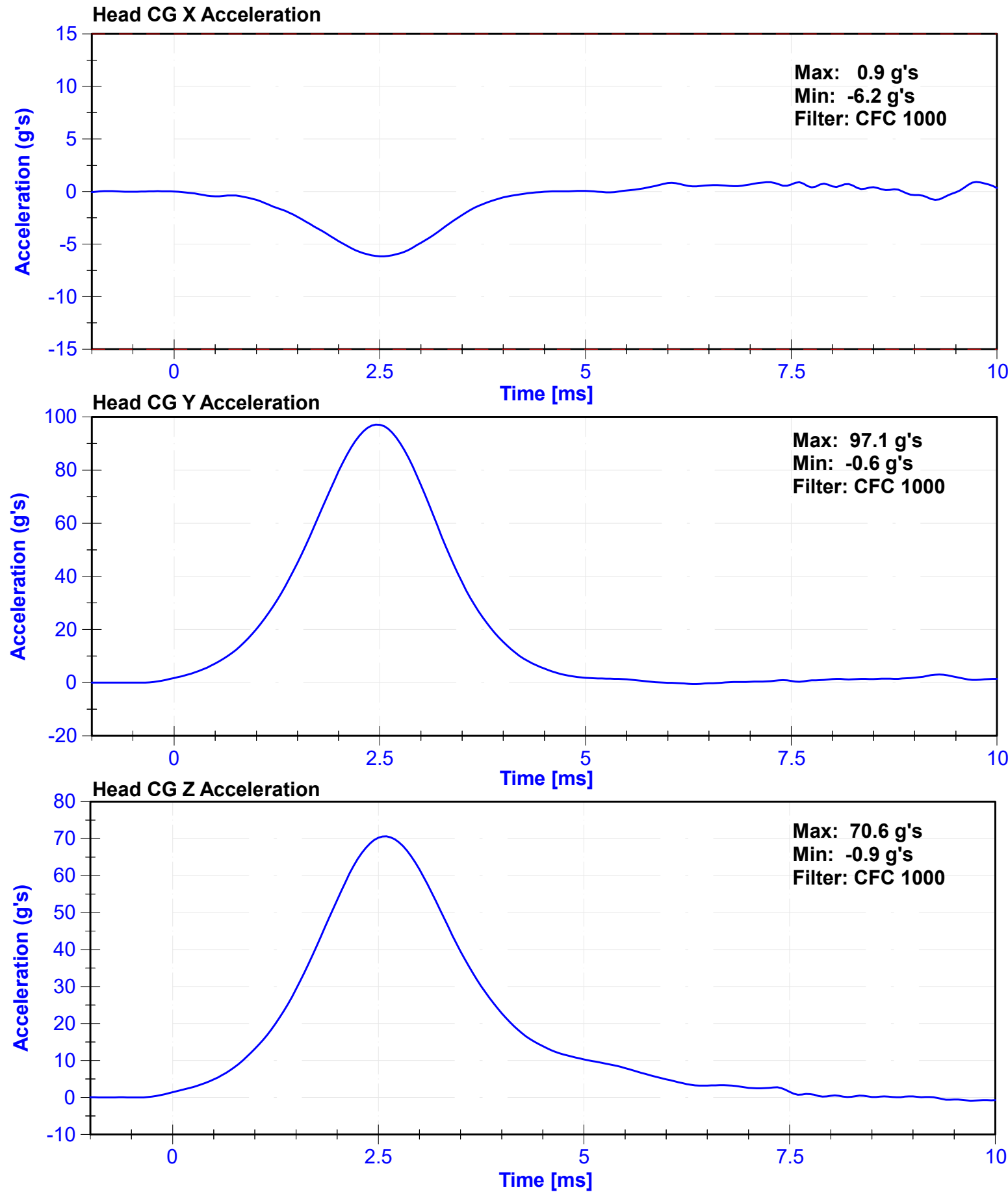
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	46	Pass
Resultant Acceleration	115	137	g's	120.0	Pass
Oscillation	0	15	%	2.7	Pass
Fore-Aft Acceleration	-15	15	g's	-6.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibratio Date	Calibratio Due Date
X Accelerometer	Endevco	T21184	7/2/2025	12/29/2025
Y Accelerometer	Endevco	T31030	7/2/2025	12/29/2025
Z Accelerometer	Endevco	P83319	7/2/2025	12/29/2025





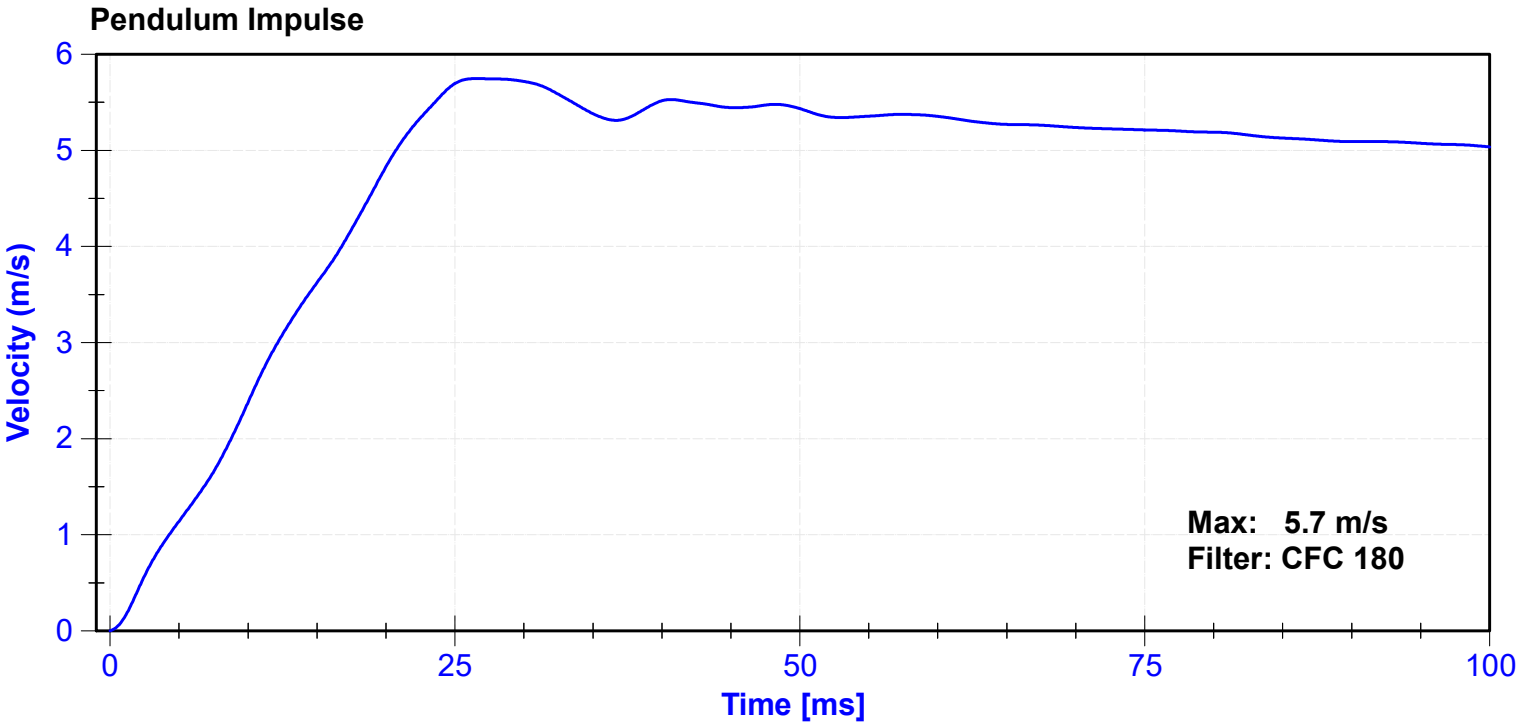
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

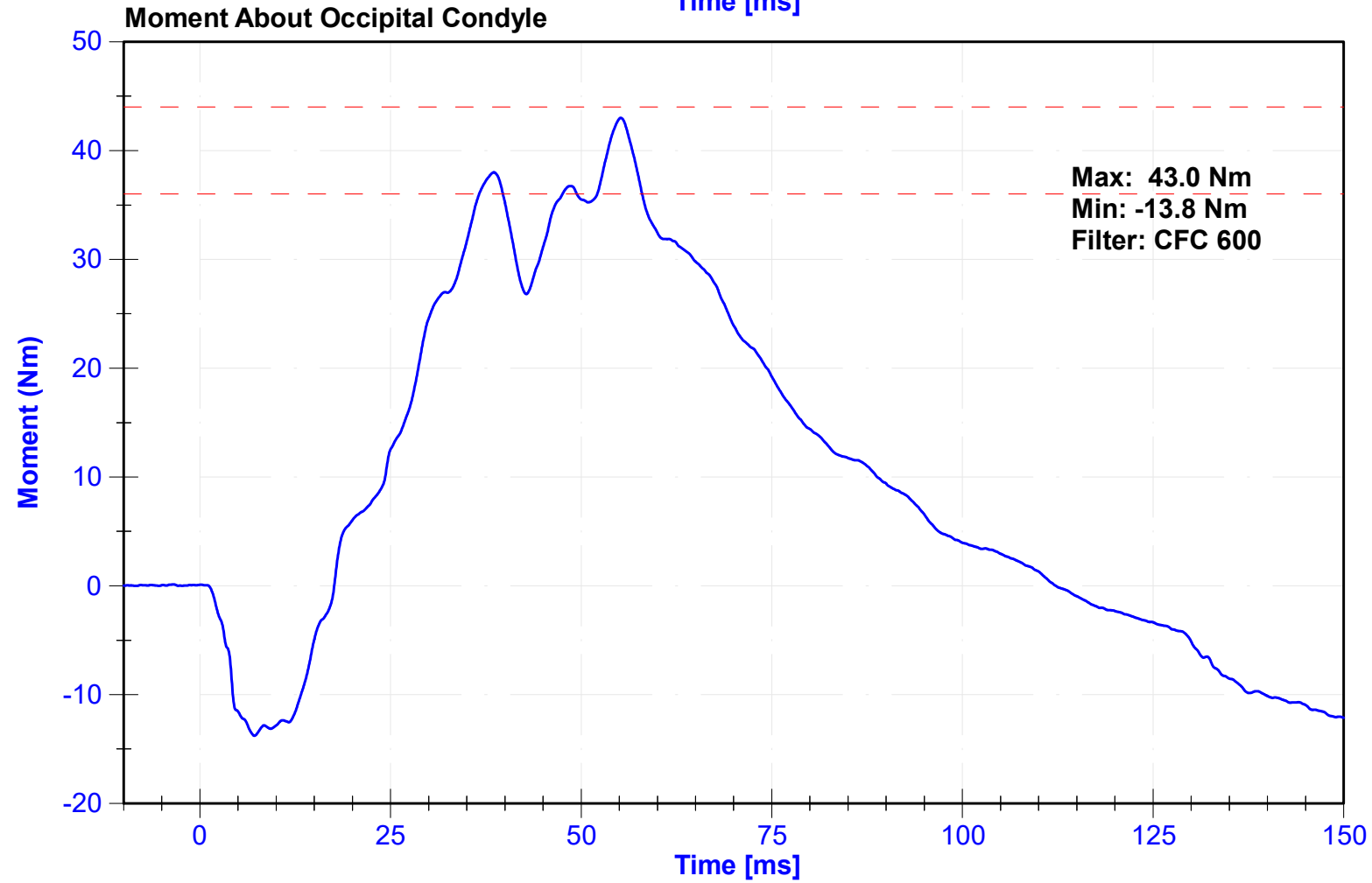
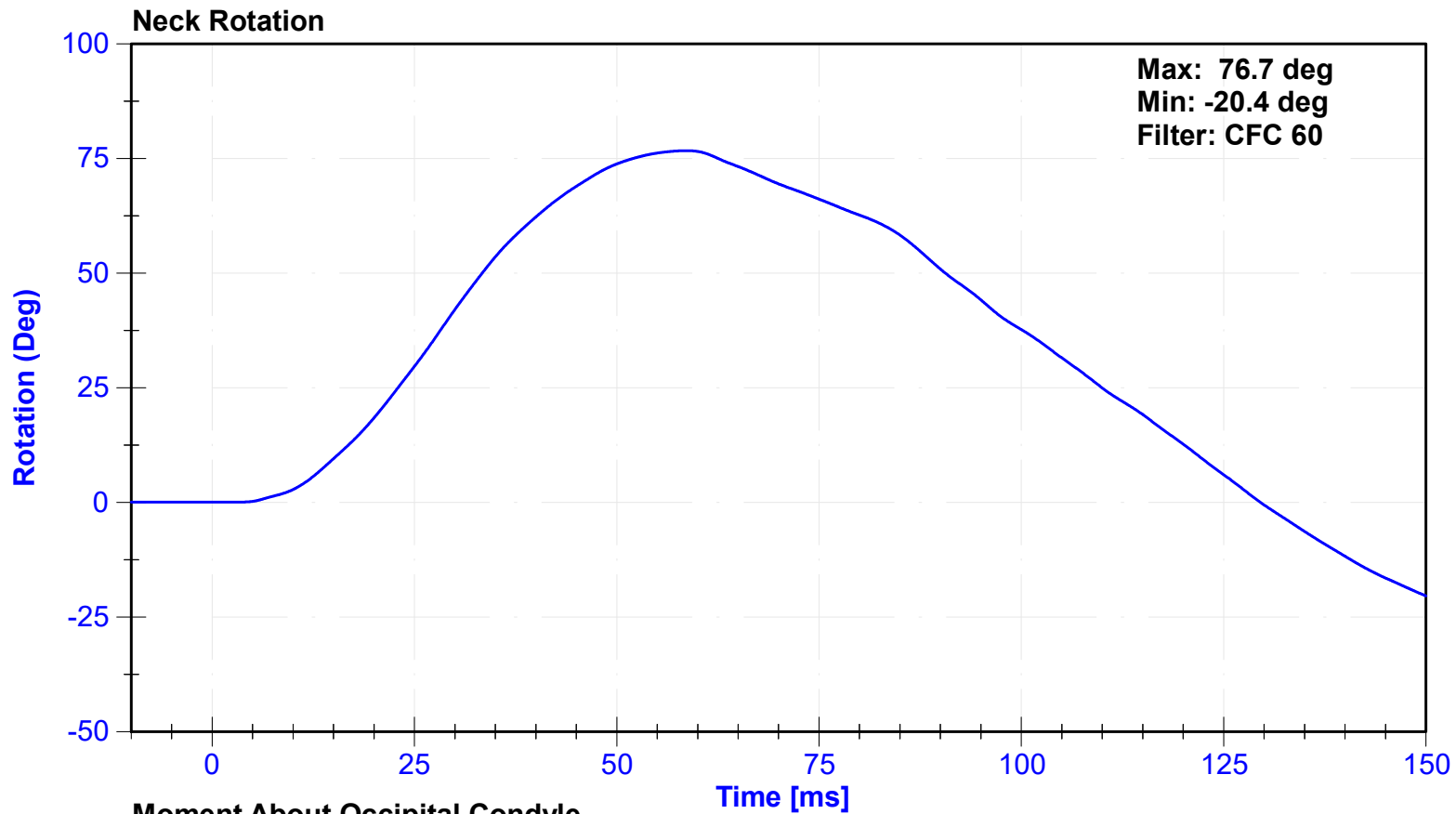
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	46	Pass
Velocity	5.51	5.63	m/s	5.517	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.38	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.62	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.83	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.70	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.75	Pass
Neck Rotation	71	81	deg	76.7	Pass
Time at Maximum Rotation	50	70	ms	58.6	Pass
Moment about the OC	36	44	Nm	43.0	Pass
Moment Decay to 0 Nm	102	126	ms	112.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231C-750	10/17/2024	10/17/2025
Pendulum Potentiometer	Servo	4961	9/23/2024	9/23/2025
Condyle Potentiometer	Servo	DS185	9/23/2024	9/23/2025
Upper Neck Load Cell	Kistler	M555A6CFM_1935H01698-F4	4/17/2025	4/17/2026





ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

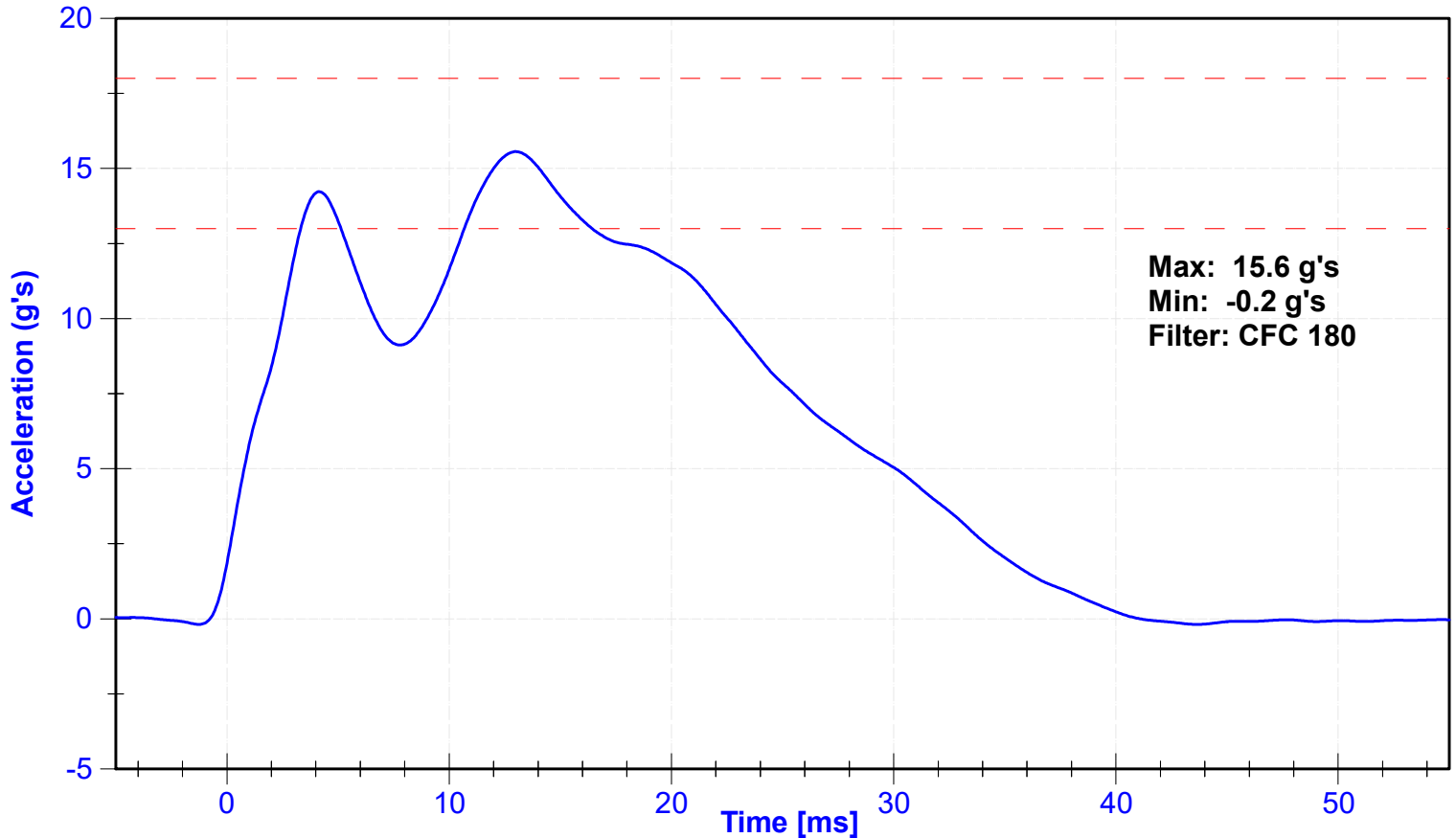
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	44	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	13	18	g's	15.6	Pass
Shoulder Deflection	28	37	mm	28.9	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.5	Pass

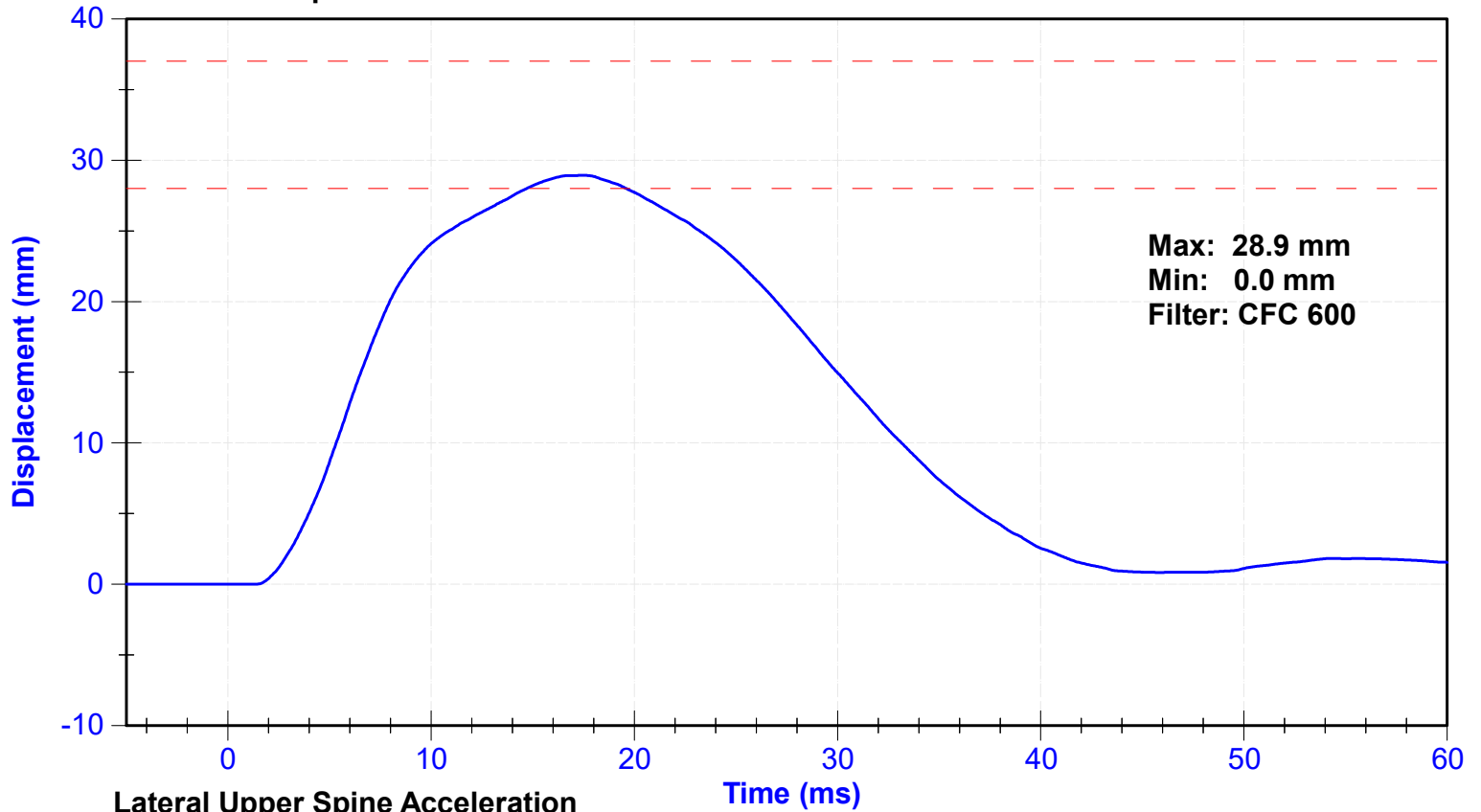
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Shoulder Potentiometer	Servo	1274GFE	7/8/2025	1/6/2026
Upper Spine Y Accelerometer	Endevco	P64148	7/2/2025	12/29/2025

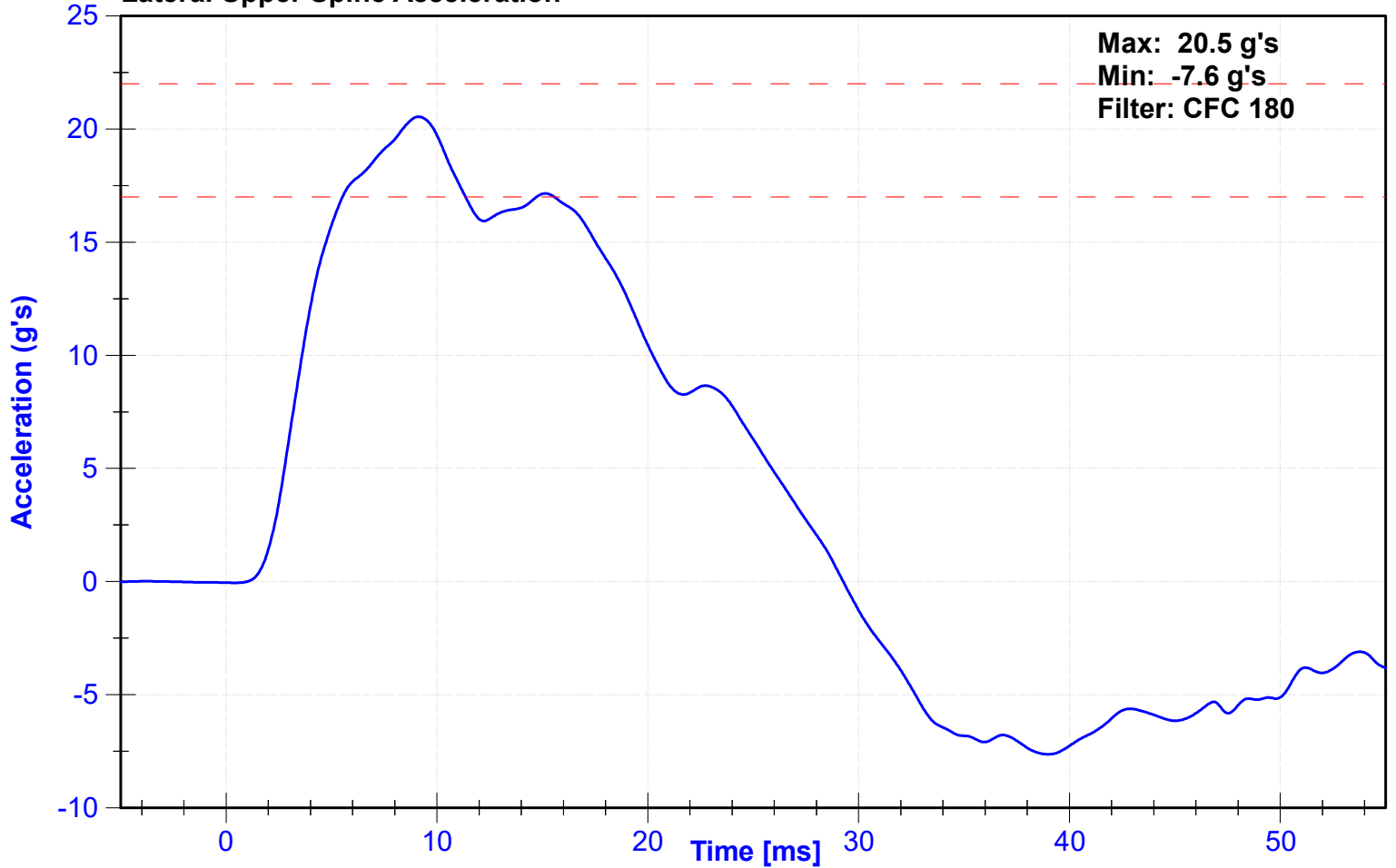
Probe Acceleration



Shoulder Displacement



Lateral Upper Spine Acceleration



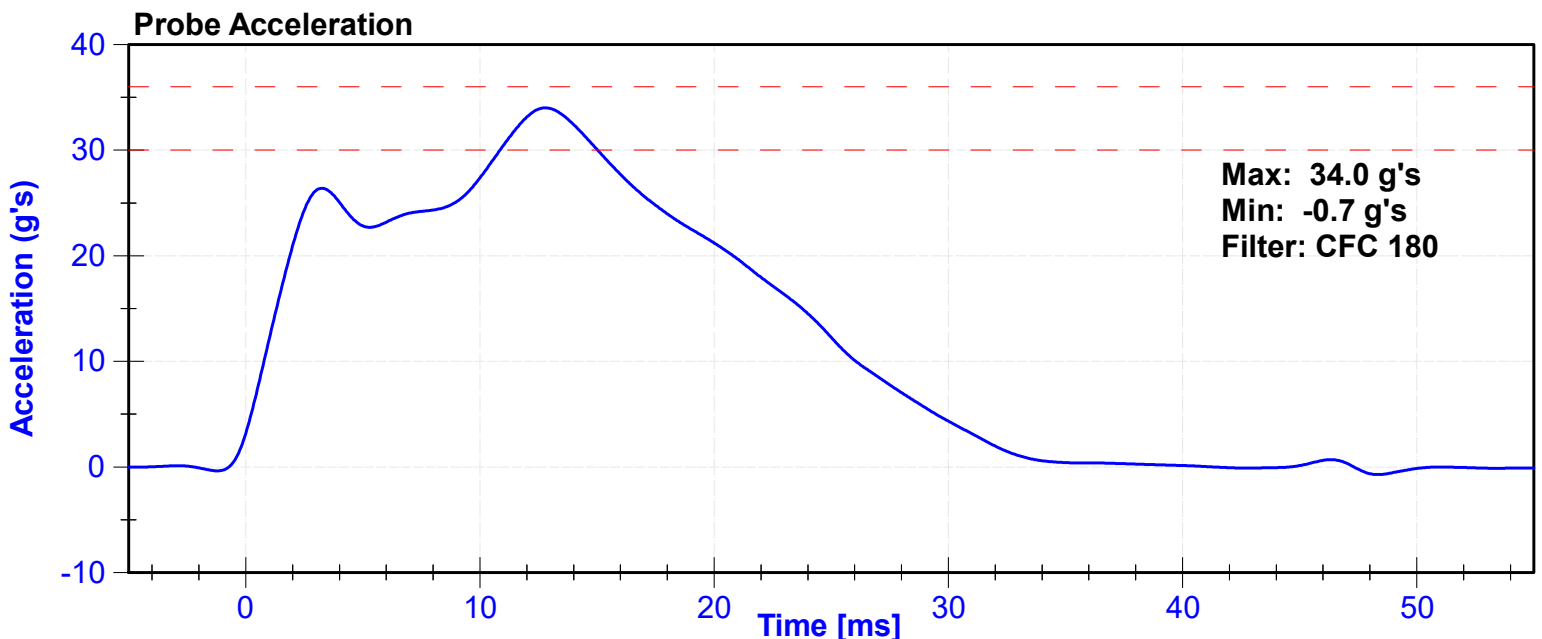
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

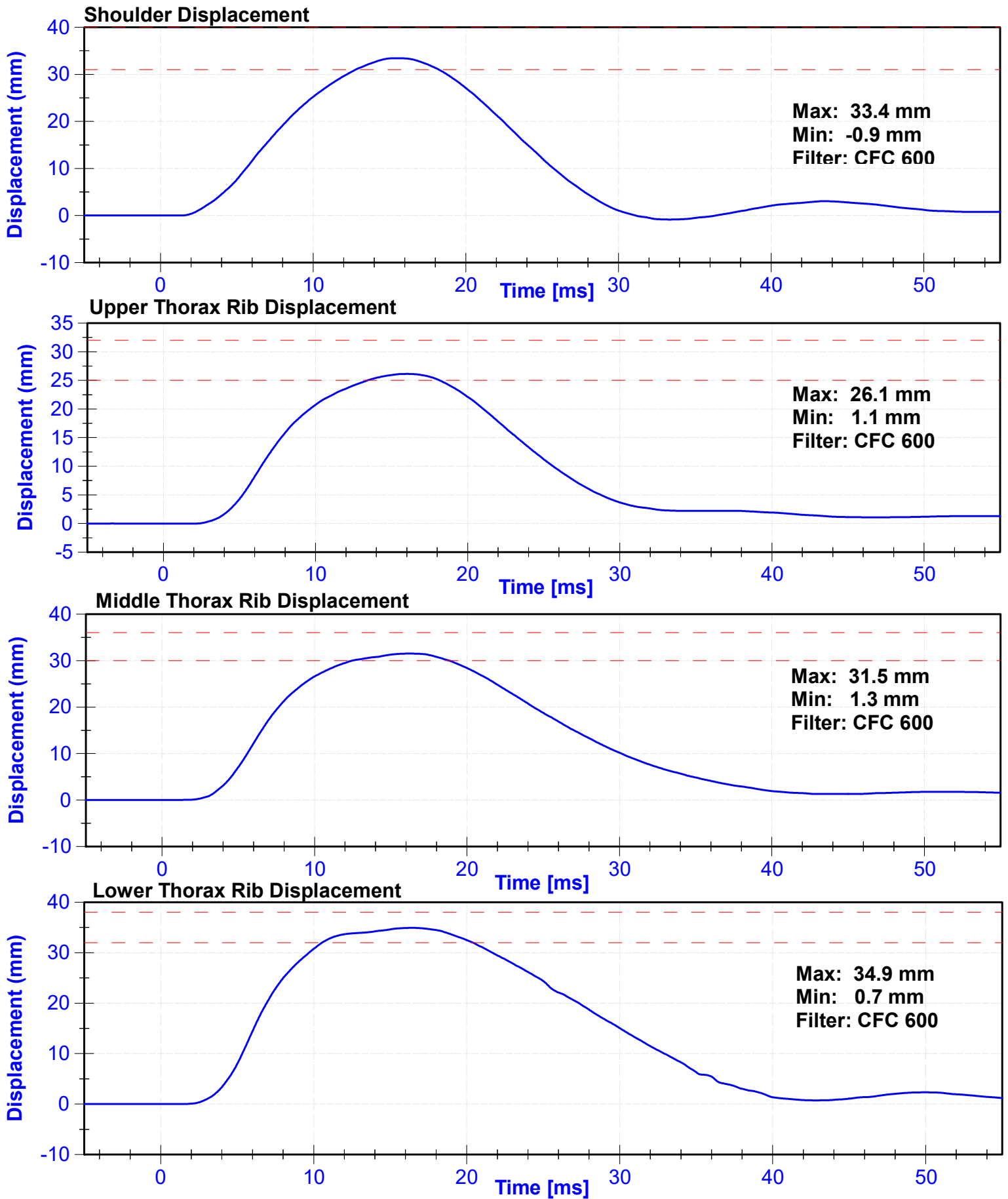
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	44	Pass
Velocity	6.6	6.8	m/s	6.68	Pass
Probe Acceleration after 5 ms	30	36	g's	34.0	Pass
Lateral Upper Spine Acceleration	34	43	g's	38.8	Pass
Lateral Lower Spine Acceleration	29	37	g's	32.8	Pass
Shoulder Deflection	31	40	mm	33.4	Pass
Upper Thorax Rib Deflection	25	32	mm	26.1	Pass
Mid Thorax Rib Deflection	30	36	mm	31.5	Pass
Lower Thorax Rib Deflection	32	38	mm	34.9	Pass

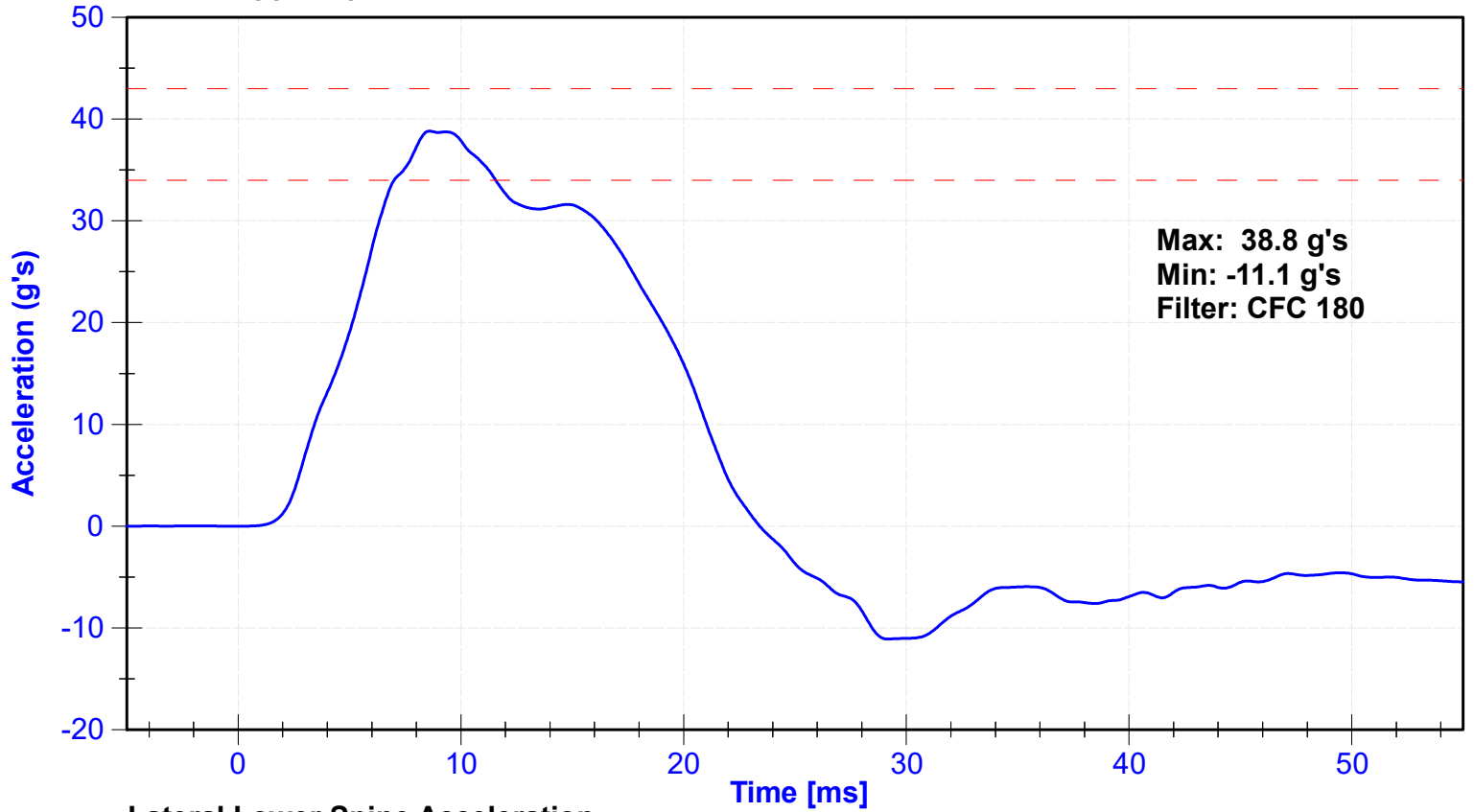
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Upper Spine T1 Y Accelerometer	Endevco	P64148	7/2/2025	12/29/2025
Upper Spine T12 Y Accelerometer	Endevco	P58883	7/2/2025	12/29/2025
Shoulder Potentiometer	Servo	1274GFE	7/8/2025	1/6/2026
Upper Thorax Rib Potentiometer	Servo	1199GFE	7/8/2025	1/6/2026
Middle Thorax Rib Potentiometer	Servo	1246GFE	7/8/2025	1/6/2026
Lower Thorax Rib Potentiometer	Servo	011GFE	7/8/2025	1/6/2026

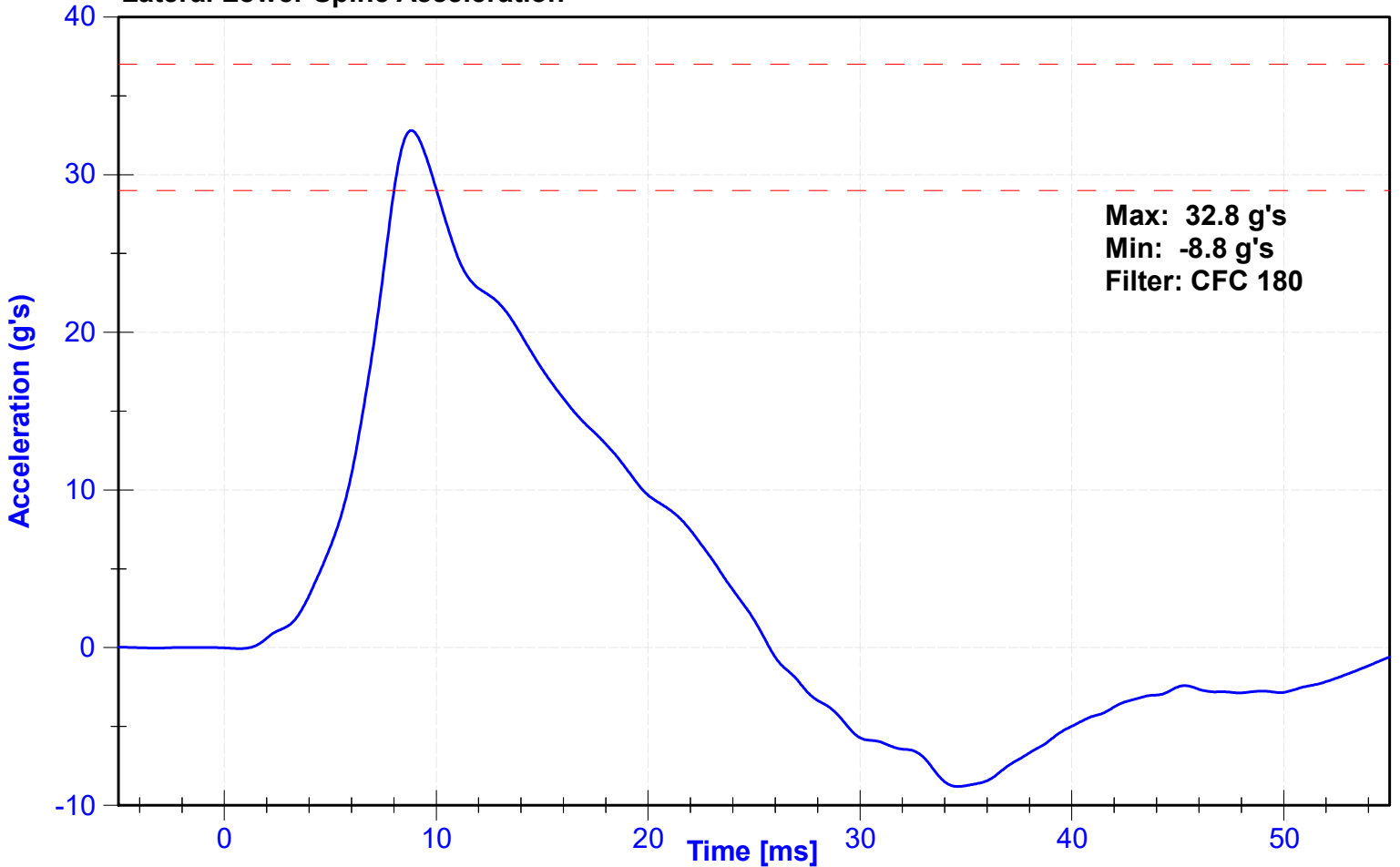




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



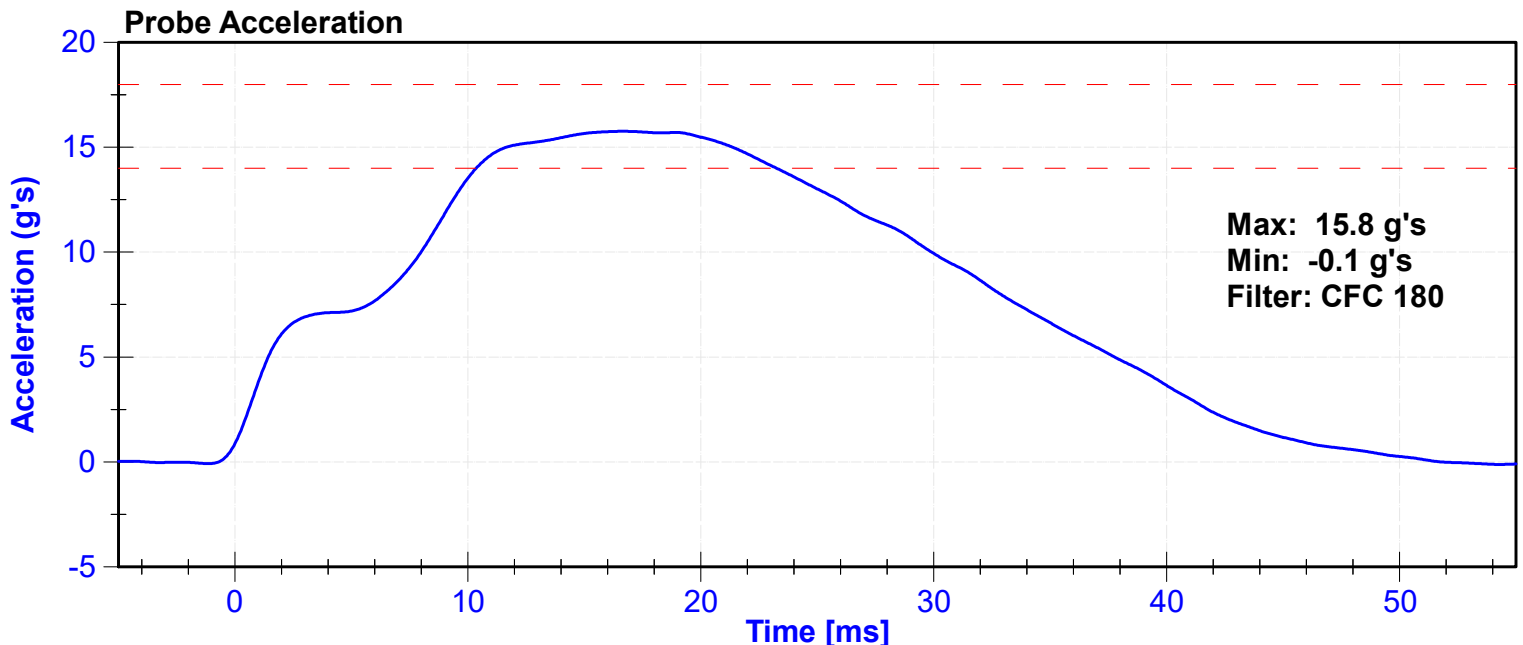
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

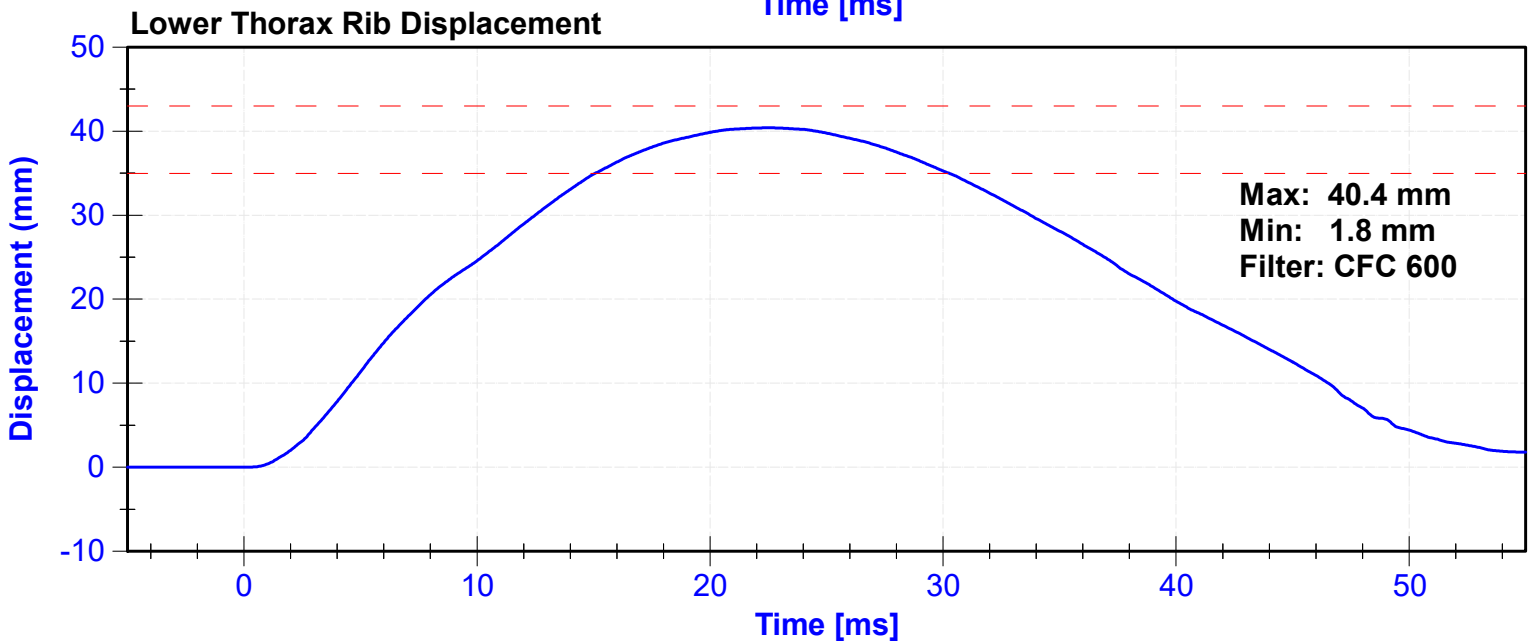
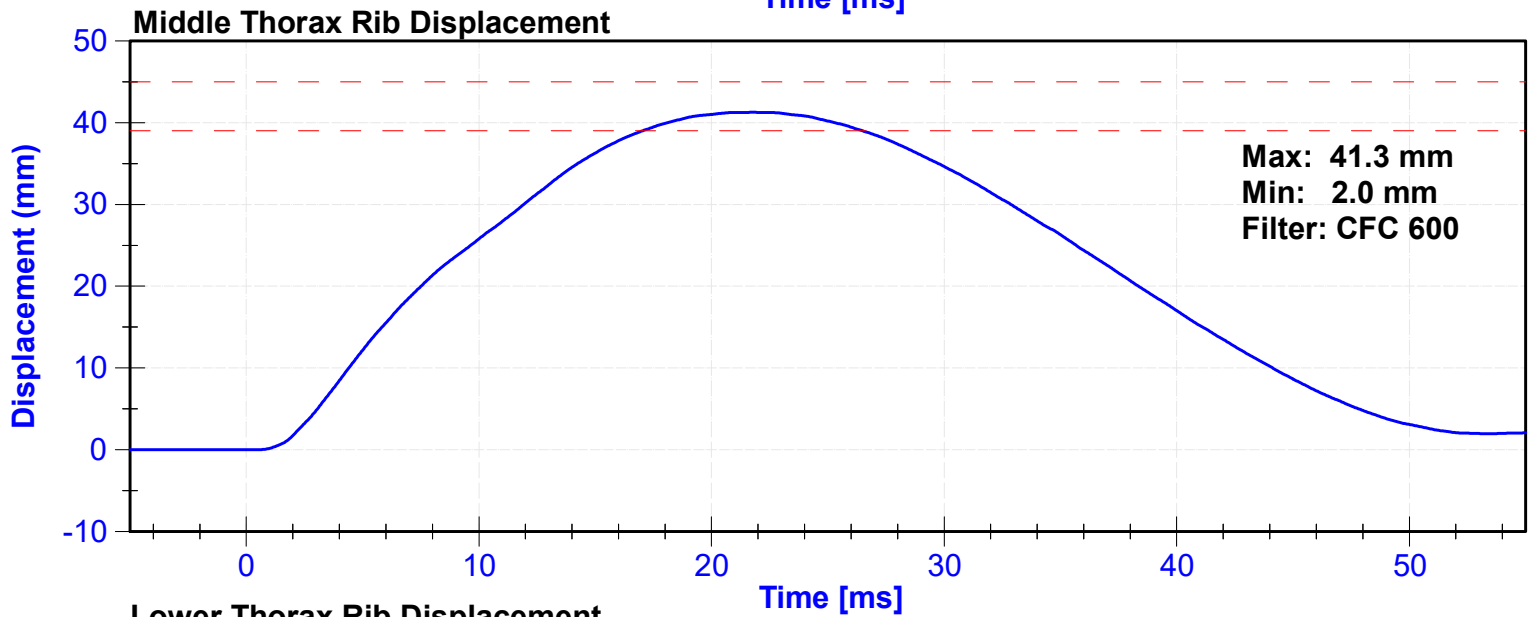
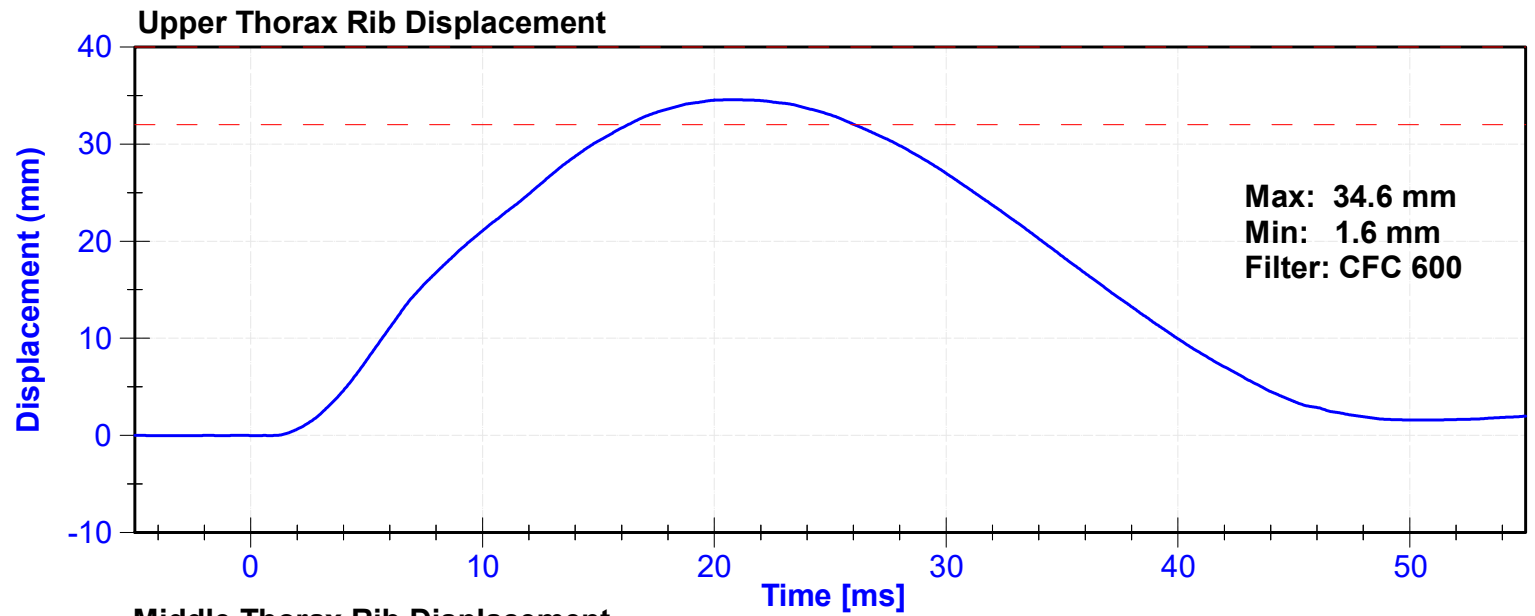
Results

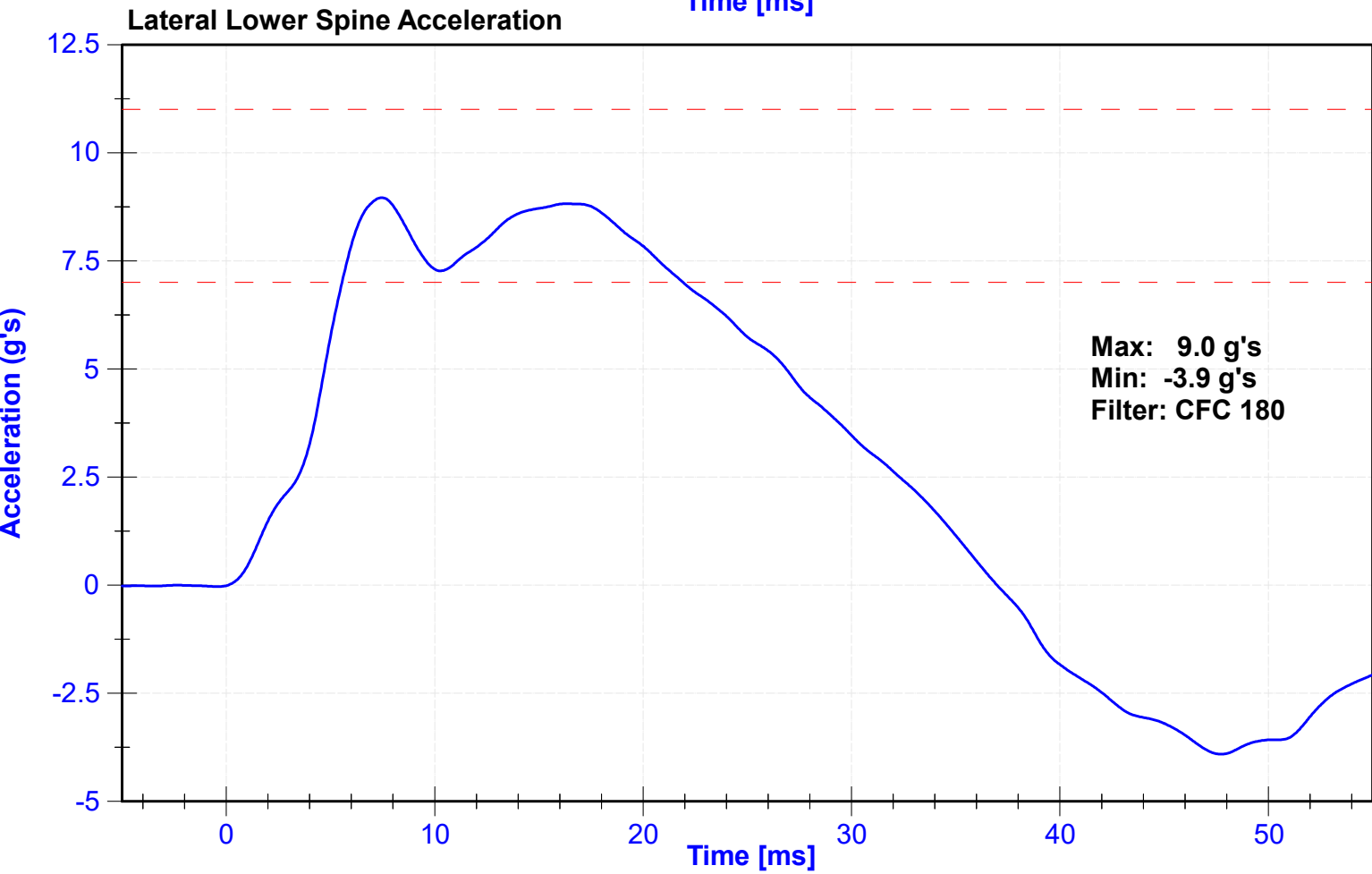
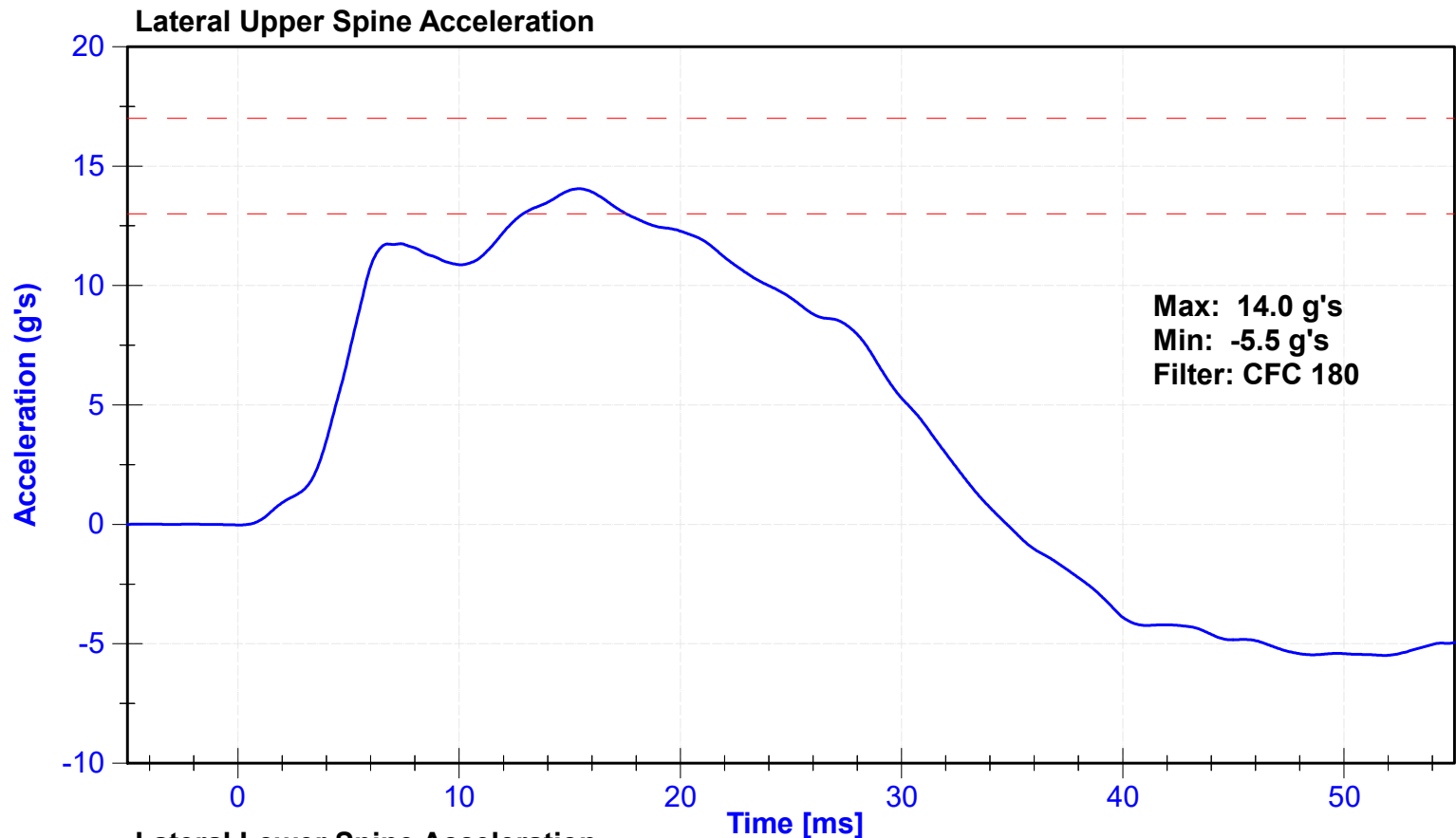
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	44	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	14	18	g's	15.8	Pass
Lateral Upper Spine Acceleration	13	17	g's	14.0	Pass
Lateral Lower Spine Acceleration	7	11	g's	9.0	Pass
Upper Thorax Rib Deflection	32	40	mm	34.6	Pass
Middle Thorax Rib Deflection	39	45	mm	41.3	Pass
Lower Thorax Rib Deflection	35	43	mm	40.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Upper Spine Y Accelerometer	Endevco	P64148	7/2/2025	12/29/2025
Lower Spine Y Accelerometer	Endevco	P58883	7/2/2025	12/29/2025
Upper Thorax Rib Potentiometer	Servo	1199GFE	7/8/2025	1/6/2026
Middle Thorax Rib Potentiometer	Servo	1246GFE	7/8/2025	1/6/2026
Lower Thorax Rib Potentiometer	Servo	011GFE	7/8/2025	1/6/2026







ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

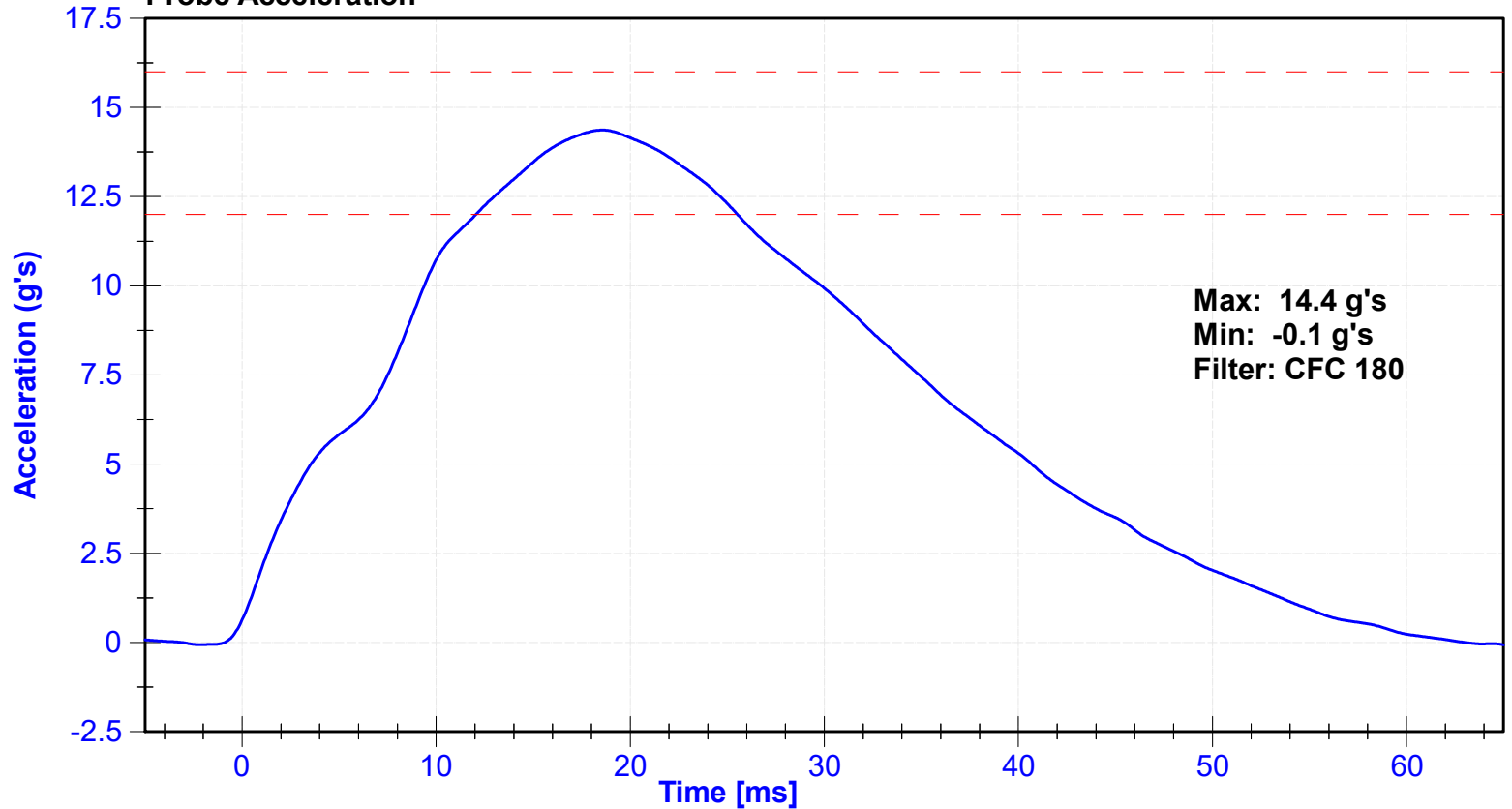
Results

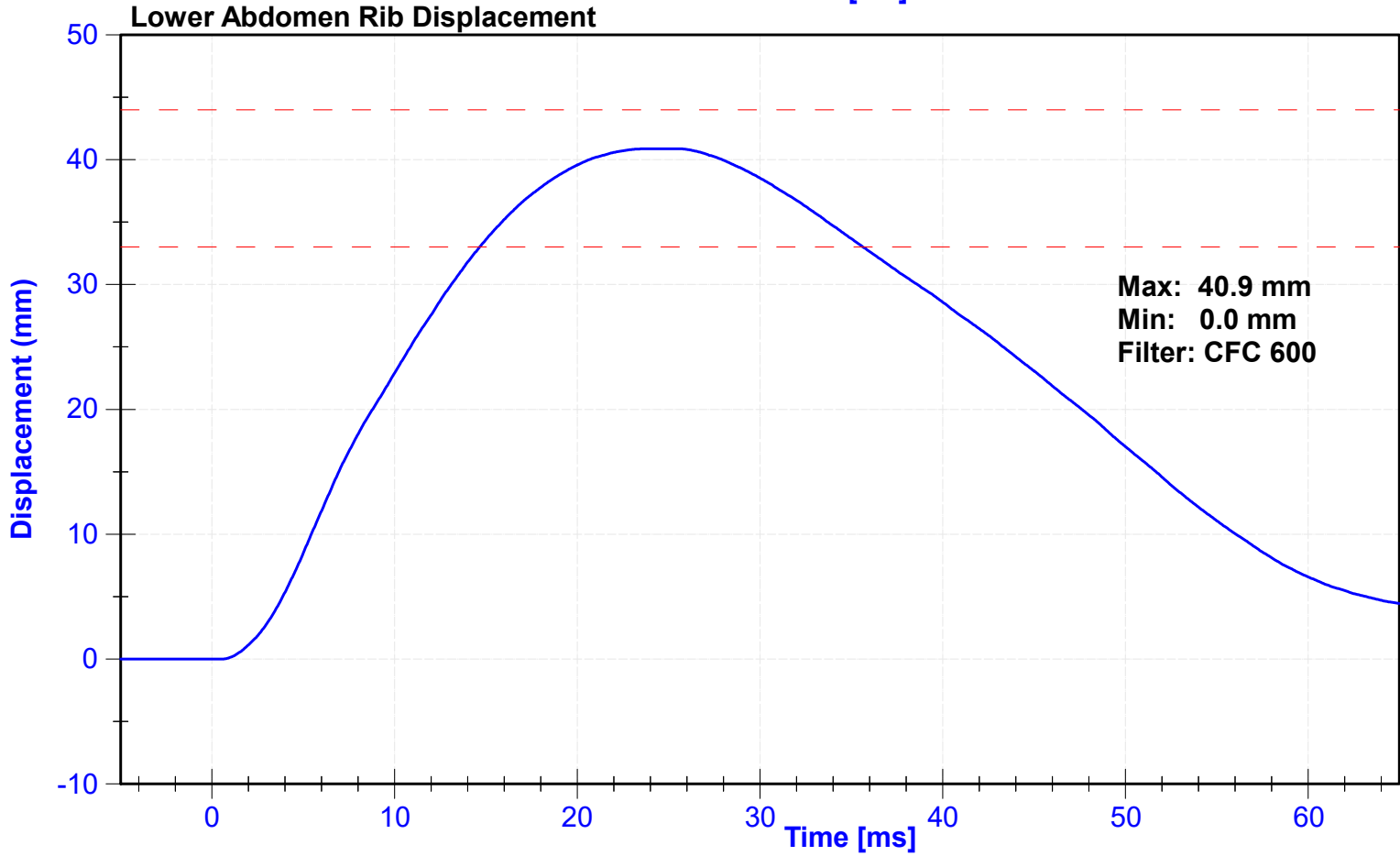
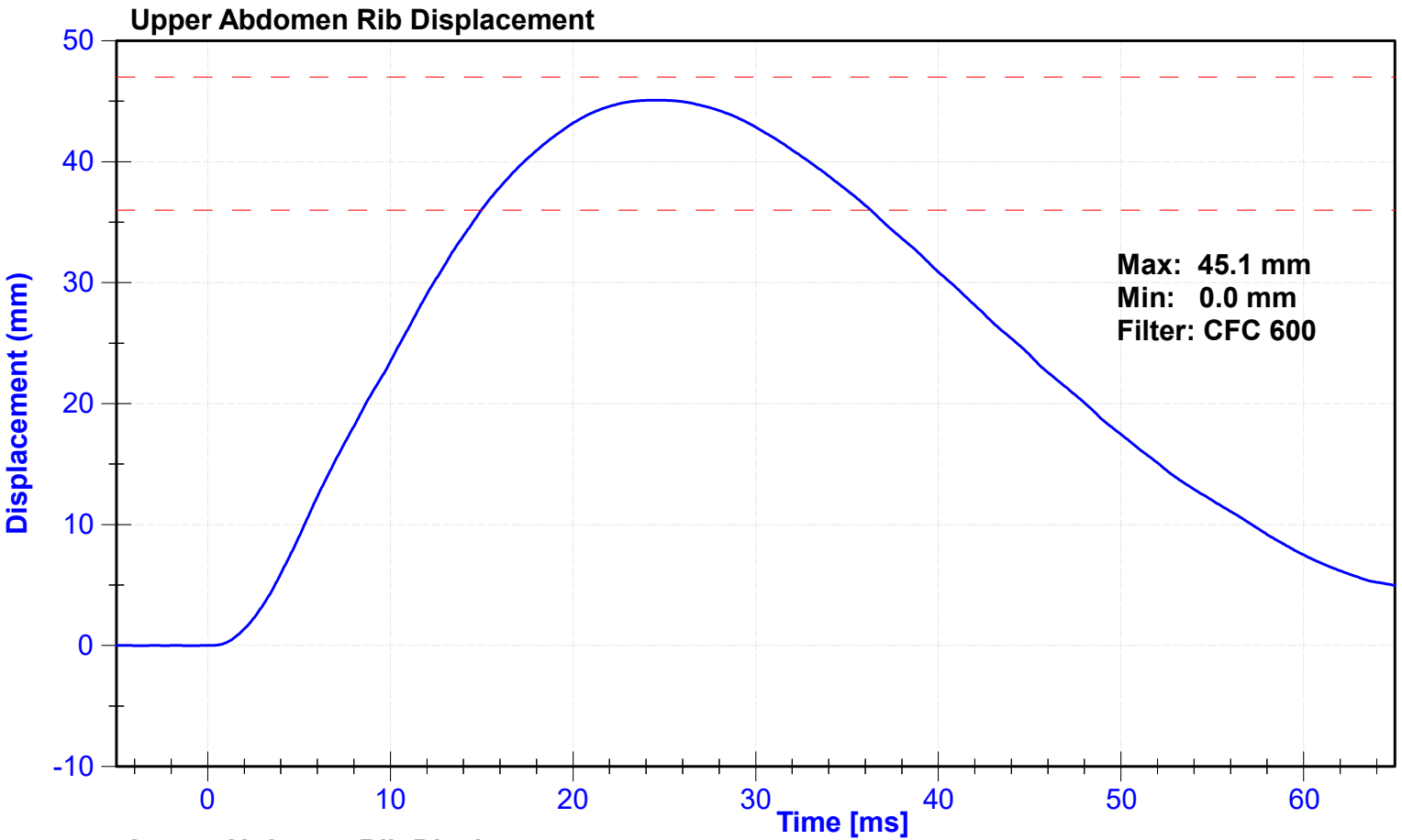
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	44	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	12	16	g's	14.4	Pass
Lateral Lower Spine Acceleration	9	14	g's	10.7	Pass
Upper Abdomen Rib Deflection	36	47	mm	45.1	Pass
Lower Abdomen Rib Deflection	33	44	mm	40.9	Pass

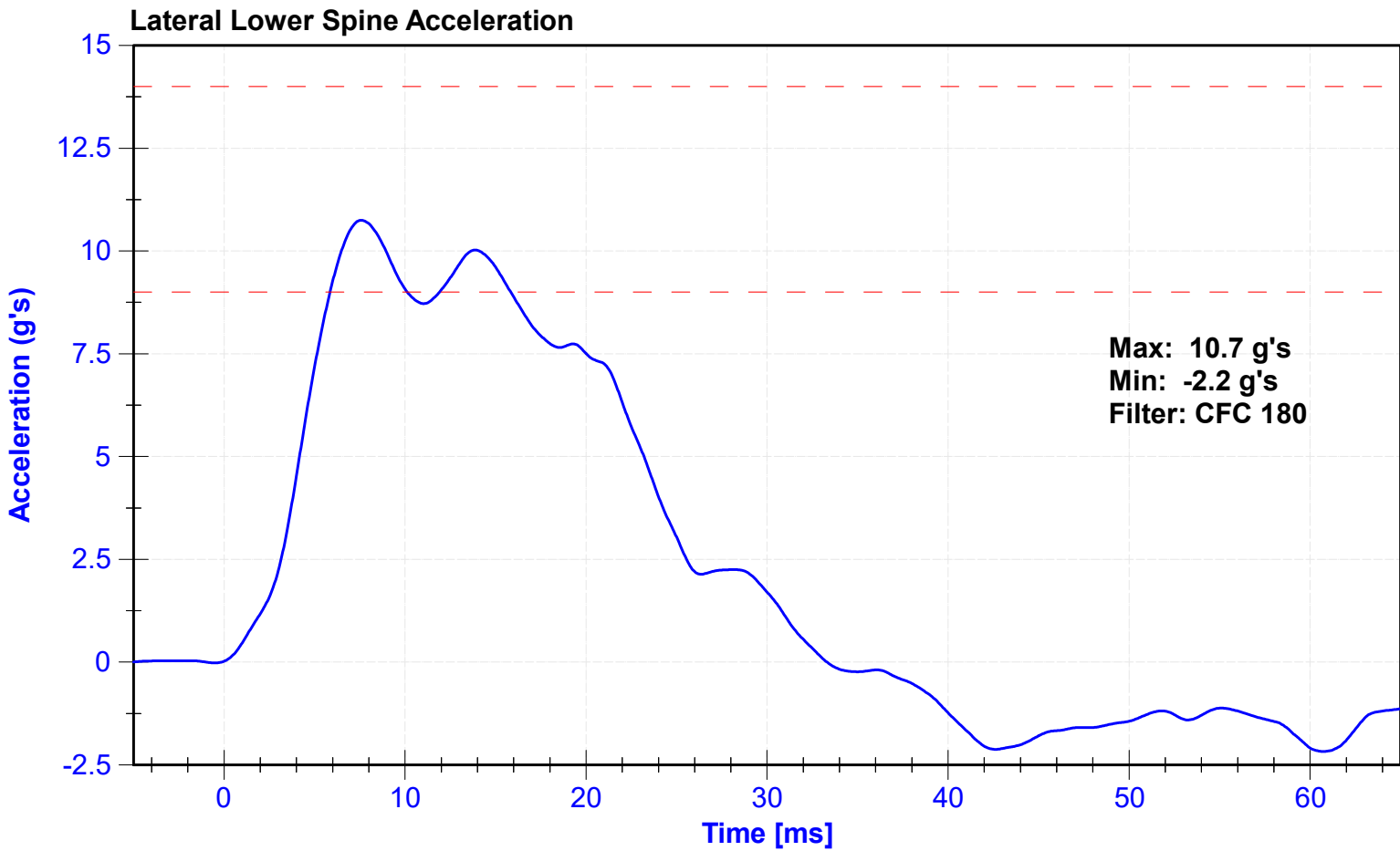
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Lower Spine Y Accelerometer	Endevco	P58883	7/2/2025	12/29/2025
Upper Abdomen Rib Potentiometer	Servo	008GFE	7/8/2025	1/6/2026
Lower Abdomen Rib Potentiometer	Servo	046GFE	7/8/2025	1/6/2026

Probe Acceleration







ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

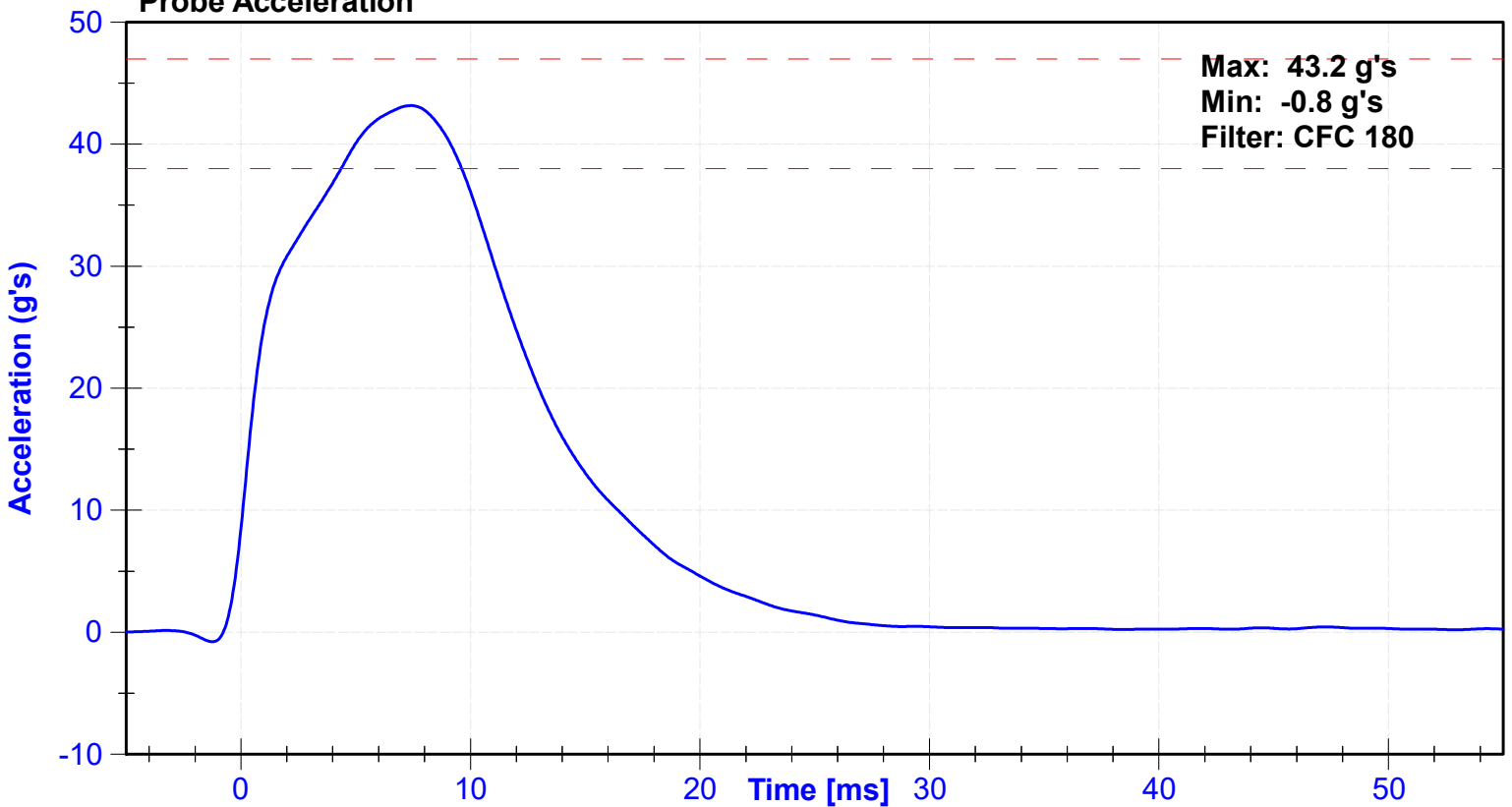
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	44	Pass
Velocity	6.6	6.8	m/s	6.67	Pass
Probe Acceleration	38	47	g's	43.2	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	35.1	Pass
Acetabulum Force	3600	4300	N	4081.5	Pass

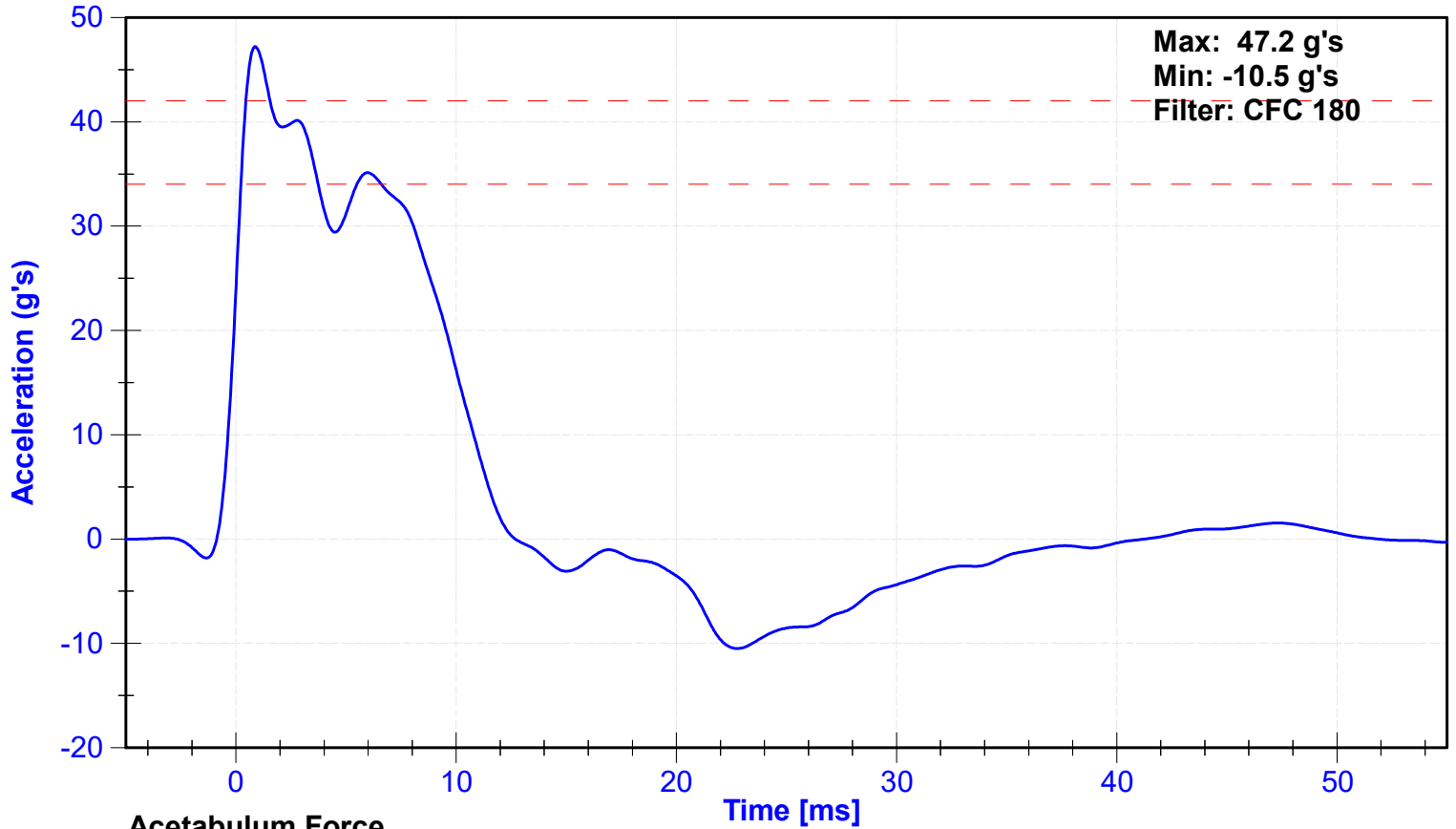
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Pelvis Y Accelerometer	Endevco	T20860	7/2/2025	12/29/2025
Acetabulum Load Cell	Denton	270-FY	9/16/2024	9/16/2025
Certification Plug	SACO			N/A
Crash Test Plug	SACO			N/A

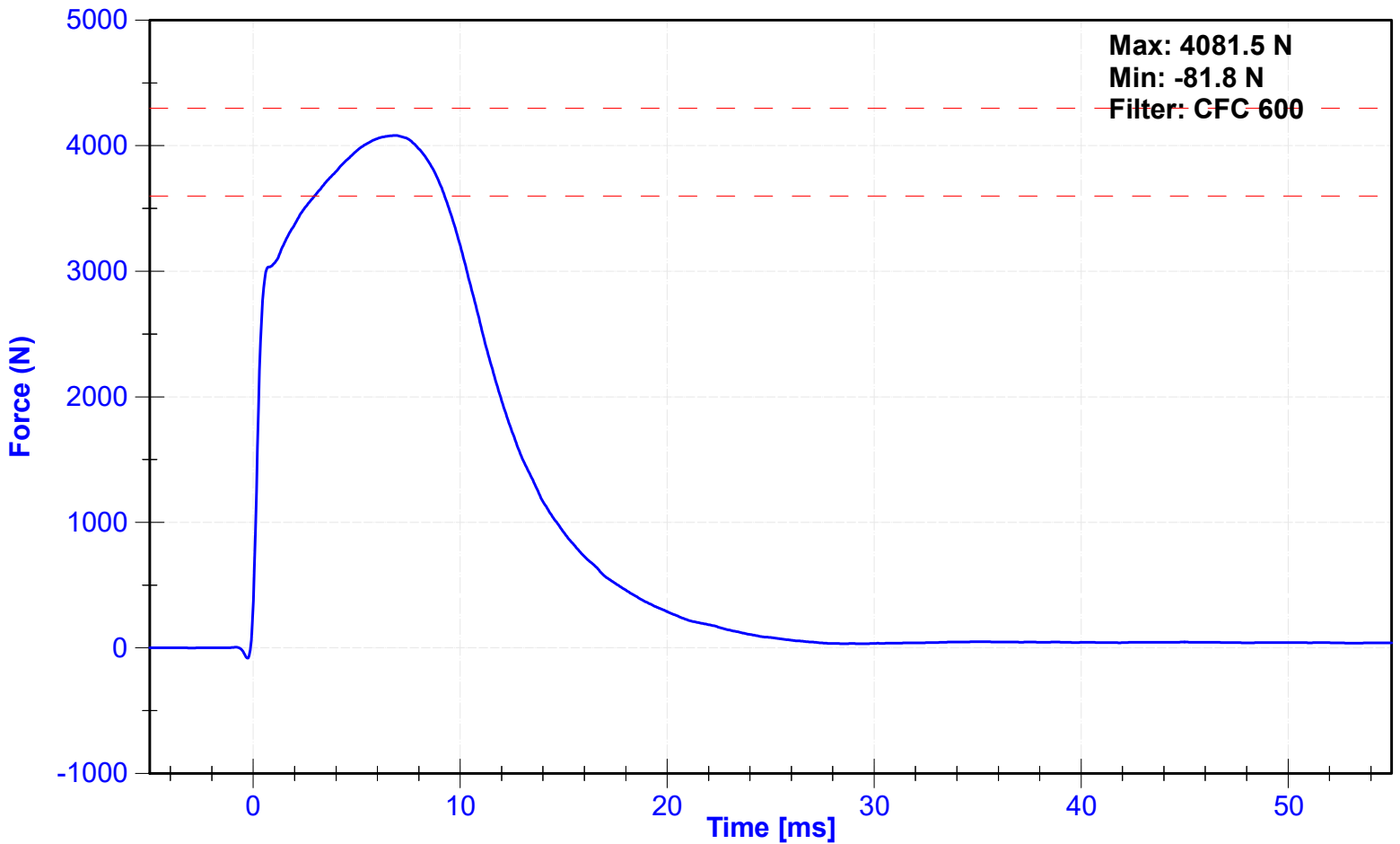
Probe Acceleration



Lateral Pelvis Acceleration



Acetabulum Force





SID-11s Pelvis Plug Certification Test

Plug S/N 16903

Test Number 23750

Report Number 23807

Test Date 8/2/2022 2:37:07 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 (FI360947), Units (LBS) 1000

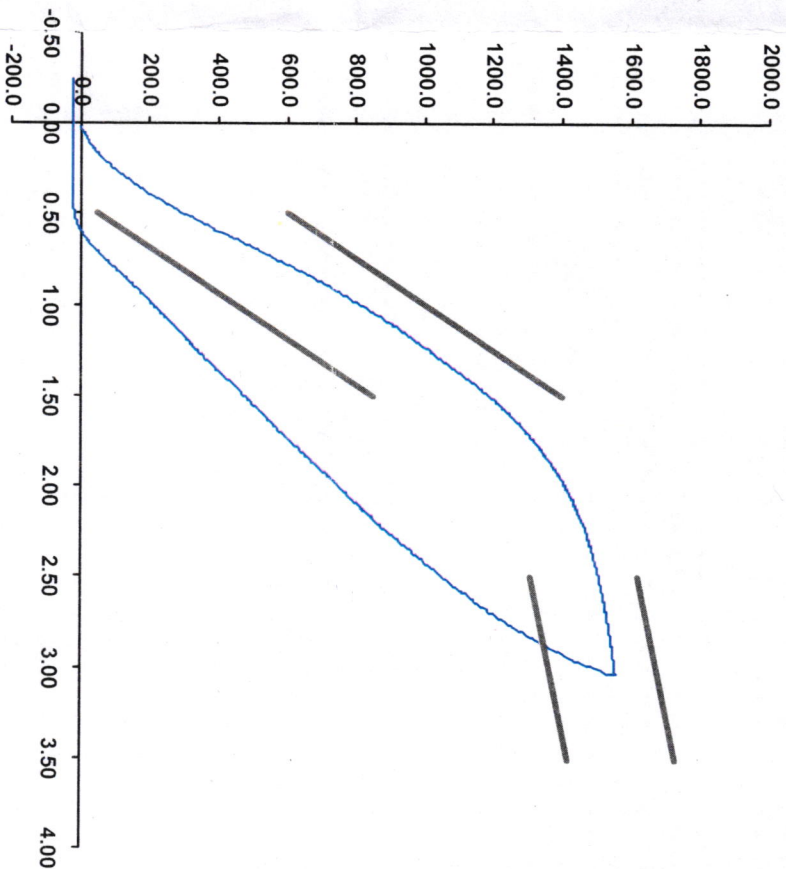
Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD_100 (XHD100)

Notes:

Cart DG8012 7.22.25

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 02-Aug-22
SACO Research

By:

DC

Date:

8/2/22

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



SID-11s Pelvis Plug Certification Test

Plug S/N 16883

Test Number 23729

Report Number 23786

Test Date 8/2/2022 1:46:01 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

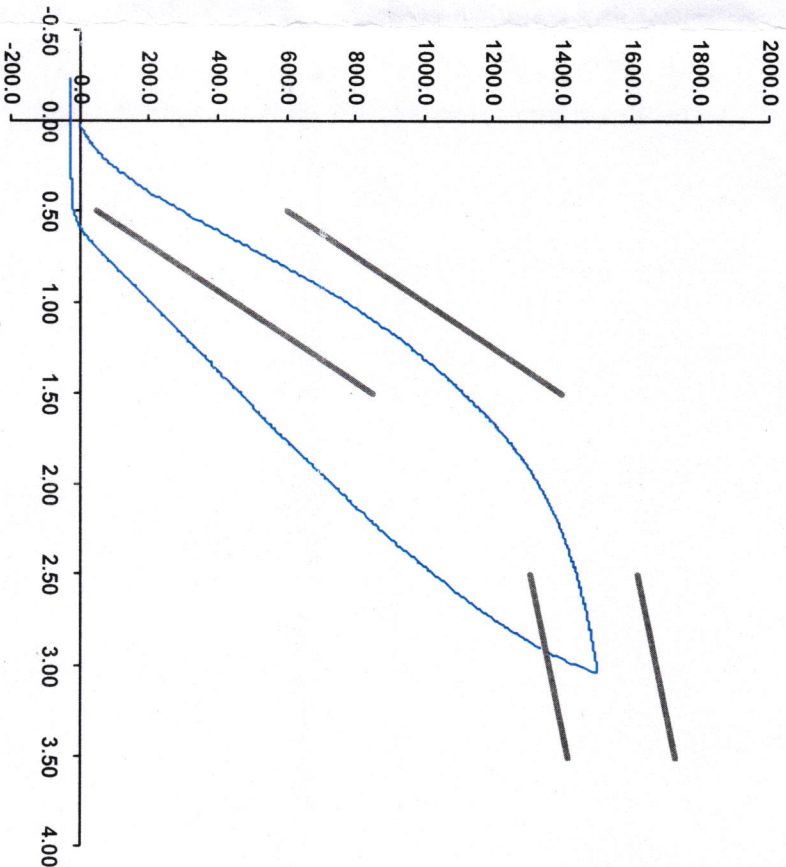
Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD_100 (XHD100)

Notes:

Impact D68012 7.21.25

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 02-Aug-22
SACO Research

By: *DC*

Date: *8/2/22*



SID-11s Pelvis Plug Certification Test

Plug S/N 16885
Test Number 23731
Report Number 23788
Test Date 8/2/2022 1:50:05 PM

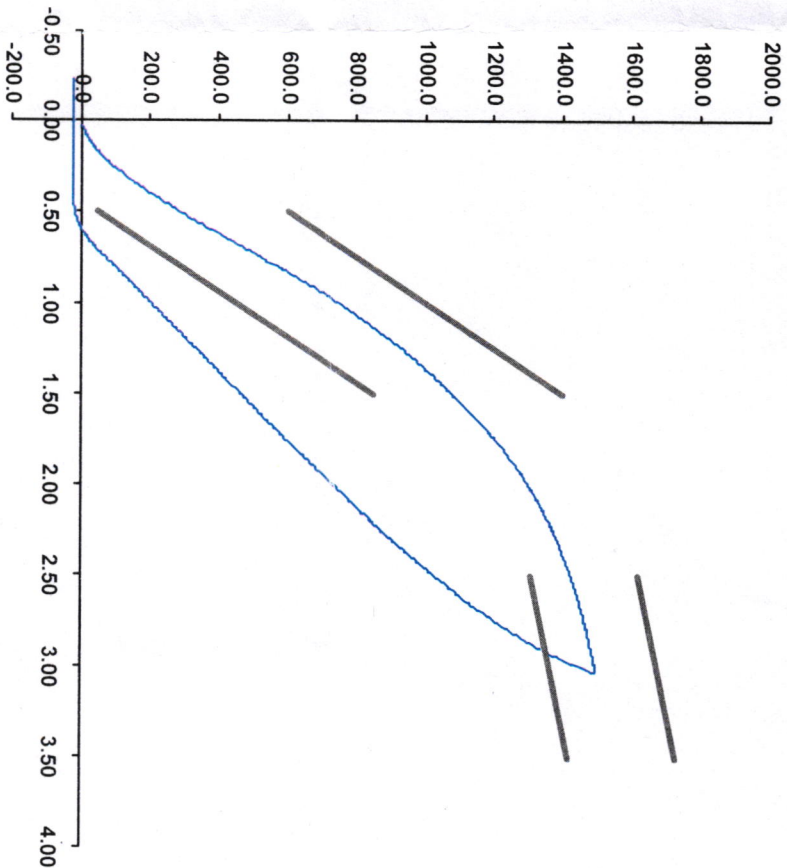
Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	50	600
Force @ 1.5 mm (N)	850	1,400
Force @ 2.5 mm (N)	1,306	1,618
Force @ 3.0 mm (N)	1,361	1,673

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 Decoiled 7.21.25

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 02-Aug-22
SACO Research

By: DC Date: 8/2/22

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

ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG8012	Laboratory Supervisor	J. Kinderman

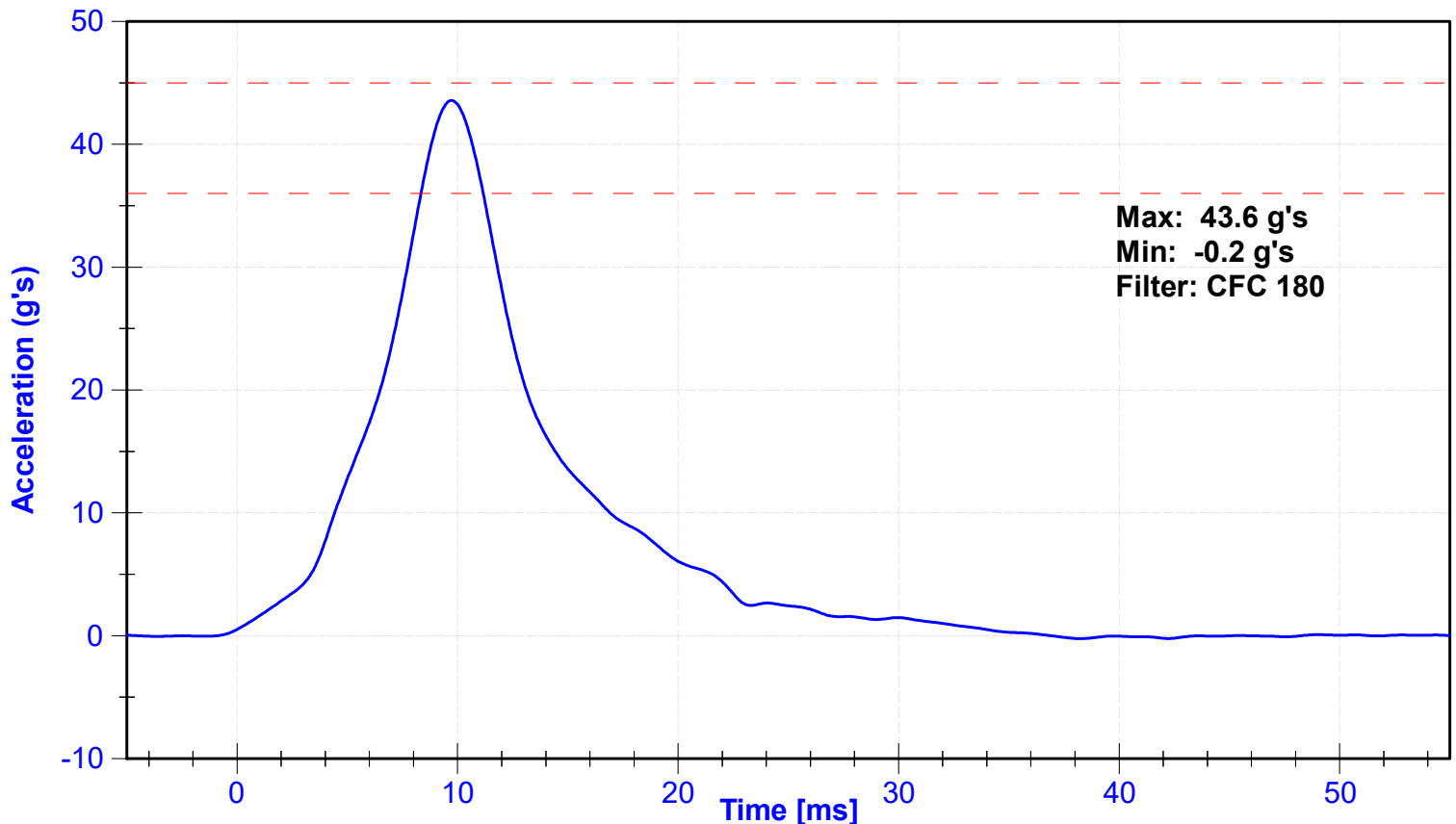
Results

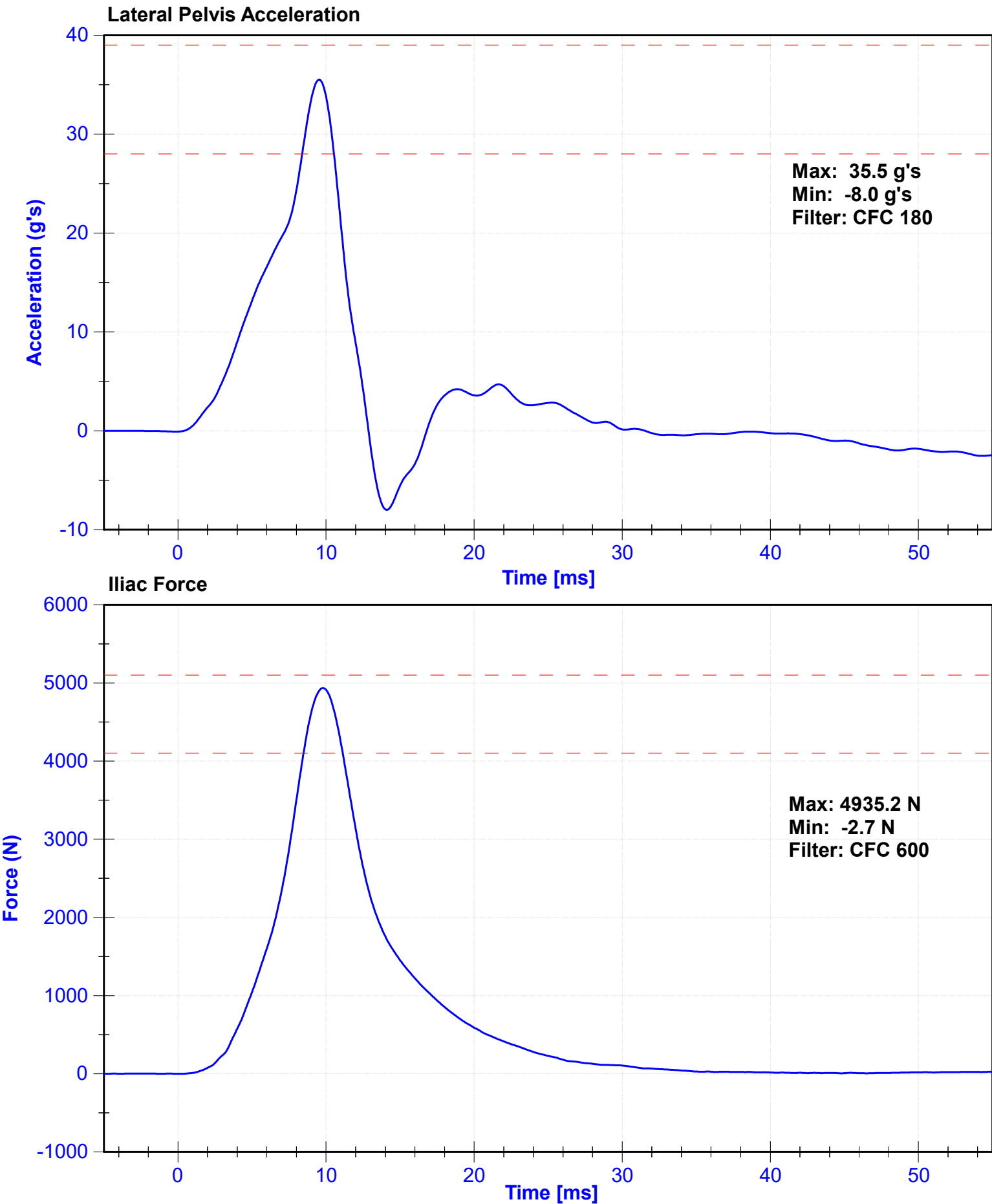
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	44	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	36	45	g's	43.6	Pass
Lateral Pelvis Acceleration	28	39	g's	35.5	Pass
Iliac Force	4100	5100	N	4935.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Pelvis Y Accelerometer	Endevco	T20860	7/2/2025	12/29/2025
Iliac Load Cell	Denton	321	9/16/2024	9/16/2025

Probe Acceleration





APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (SID-IIs)

			SID-IIs S/N: DG8012			
			Serial Number	Manufacturer	Calibration Date	
Head Accelerometers			X	T21184	Endevco	07/02/2025
			Y	T31030	Endevco	07/02/2025
			Z	P83319	Endevco	07/02/2025
Head Accelerometers - Redundant			X	T21354	Endevco	07/02/2025
			Y	P12566	Endevco	07/02/2025
			Z	P83322	Endevco	07/02/2025
Displacement Potentiometer	Shoulder		Y			
	Thoracic Rib	Upper	Y	1199GFE	Servo	07/08/2025
		Middle	Y	1246GFE	Servo	07/08/2025
		Lower	Y	011GFE	Servo	07/08/2025
	Abdominal Rib	Upper	Y	008GFE	Servo	07/08/2025
		Lower	Y	046GFE	Servo	07/08/2025
Lower Spine Accelerometers (T12)			X	P71272	Endevco	07/02/2025
			Y	P58883	Endevco	07/02/2025
			Z	T30065	Endevco	07/02/2025
Acetabulum Load Cell			Y	270-FY	Denton	09/16/2024
Lilac Wing Load Cell			Y	321	Denton	09/16/2024
Pelvis Plug (Struck Side)				16835	SACO	08/01/2022
Pelvis Plug (Non-Struck Side)				16837	SACO	08/01/2022

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	G16793	Endevco	04/18/2025
Vehicle Center of Gravity	Y	G22216	Endevco	04/18/2025
Vehicle Center of Gravity	Z	A405561	Measurement Specialties	04/18/2025
Left Floor Sill	Y	A274229	Measurement Specialties	12/18/2024
A-Pillar Sill	Y	A405534	Measurement Specialties	06/20/2025
A-Pillar Low	Y	A431248	Measurement Specialties	04/11/2025
A-Pillar Mid	Y	G26380	Endevco	07/10/2025
B-Pillar Sill	Y	G25564	Endevco	07/09/2025
B-Pillar Low	Y	G22750	Endevco	11/22/2024
B-Pillar Mid	Y	A398305	Measurement Specialties	07/10/2025
Driver Seat	Y	G22233	Endevco	07/10/2025
Engine Top	X	A372843	Measurement Specialties	06/20/2025
Engine Top	Y	A431223	Measurement Specialties	02/20/2025
Firewall	Y	G22759	Endevco	10/11/2024
Right Roof	Y	A315880	Measurement Specialties	04/07/2025
Right Floor Sill	Y	A374344	Measurement Specialties	07/10/2025
Rear Floorpan	X	G24215	Endevco	06/23/2025
Rear Floorpan	Y	G25343	Endevco	06/23/2025

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-BLACKLC	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