REPORT NUMBER: SINCAP-CAL-26-001

NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST

Hyundai Motor Company
2026 Hyundai Palisade
5 Door SUV

NHTSA No: O20264202

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

July 1, 2026

FINAL REPORT

PREPARED FOR:
U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NRM-110
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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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

1. *Report No.* SINCAP-CAL-26-001	***2. Government Accession No.***	***3. Recipient's Catalog No.***
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact MDB Testing of a 2026 Hyundai Palisade 5 Door SUV NHTSA No.: O20264202		***5. Report Date*** July 1, 2026 ***6. Performing Organization Code*** CAL
7. Author(s) Matthew Pronko, Test Engineer Vanessa Hansen, Operations Manager		***8. Performing Organization Report No.*** CAL-DOT-2026-001
9. Performing Organization Name and Address Calspan Corporation Transportation Test Operations P.O. Box 400 Buffalo, New York 14225		***10. Work Unit No.*** ***11. Contract or Grant No.*** 693JJ920D000016
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NRM-110) 1200 New Jersey Ave., SE Washington, D.C. 20590		***13. Type of Report and Period Covered:*** Final Test Report December 15, 2025 - July 1, 2026 ***14. Sponsoring Agency Code*** NRM-110
15. Supplementary Notes		

16. Abstract

A 55/28, (61.90kph / 38.5 mph), 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2026 Hyundai Palisade 5 Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP MDB Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on December 15, 2025.

The impact velocity of the Moving Deformable Barrier (MDB) was 61.96 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 159 mm located at level 2. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (ES-2re)		
	Units	IARV	Result
Head Injury Criteria (HIC36)		1000	42.060
Maximum Thorax Rib Deflection	mm	44	15.087
Total Abdominal Force	N	2500	490.242
Pubic Symphysis Force	N	6000	973.421
Lower Spine (T12) Resultant Acceleration	G	82*	17.856
Measurement Description	**Passenger ATD (SID-IIs)**		
	Units	**IARV**	**Result**
Head Injury Criteria (HIC36)		1000	47.444
Maximum Thorax Rib Deflection	mm	38*	8.086
Lower Spine (T12) Resultant Acceleration	G	82	41.225
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1447.431
Maximum Abdominal Rib Deflection	mm	45*	11.461

**Proposed IARV*

The two doors on the struck side of vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.

17. Key Words New Car Assessment Program (NCAP) Side Impact MDB ES-2re SID-IIs	***18. Distribution Statement*** Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave. SE Washington, D.C. 20590

19. Security Class. (of this report)	***20. Security Class. (of this page)***	***21. No. of Pages***	***22. Price***
UNCLASSIFIED	UNCLASSIFIED	196	

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SECTION 1

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2026 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number 693JJ920D000016. The purpose of this test is to generate comparative side impact performance in a 2026 Hyundai Palisade 5 Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated March 2020.

SECTION 2

SUMMARY OF TEST RESULTS

A 2026 Hyundai Palisade 5 Door SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.96 km/h. The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Calspan Corporation's Transportation Test Operations Center in Buffalo, New York on December 15, 2025. Pre-test and post-test photographs of the test vehicle, the MDB and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated March 2020. The side impact event was documented by 9 high-speed and 2 real-time cameras. Camera locations are included in this report.

The Dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)
Primary and redundant head CG tri-axial accelerometers
Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers
Abdomen forward, middle, and rear y-axis load cells
Lower spine (T12) tri-axial accelerometers
Pubic symphysis y-axis load cell

PASSENGER ATD (SID-IIs)
Primary and redundant head CG tri-axial accelerometers
Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers
Abdomen upper rib and lower rib y-axis displacement potentiometers
Lower spine (T12) tri-axial accelerometers
Acetabulum and iliac wing y-axis load cells

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in APPENDIX C of this report. Appendix D of this report contains the test equipment and instrumentation calibration data.

DUMMY INJURY VALUES

Measurement Description	Driver ATD (ES-2re)		
	Units	IARV	Result
Head Injury Criteria (HIC36)		1000	42.060
Maximum Thorax Rib Deflection	mm	44	15.087
Total Abdominal Force	N	2500	490.242
Pubic Symphysis Force	N	6000	973.421
Lower Spine (T12) Resultant Acceleration	G	82*	17.856

Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC36)		1000	47.444
Maximum Thorax Rib Deflection	mm	38*	8.086
Lower Spine (T12) Resultant Acceleration	G	82	41.225
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1447.431
Maximum Abdominal Rib Deflection	mm	45*	11.461

**Proposed IARV*

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	Yes	No		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 - Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Airbag 3 - Torso Airbag	No	N/A	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other - Seat Center Airbag	Yes	Yes	No	N/A

GENERAL COMMENTS:

1. P1 serial number - F033
2. P4 serial number - 300

Data Anomalies:

The following channel was questionable for:

- Left Rear Sill Y Acceleration, Exceeded calibration range at 9 ms
- Left B-Pillar Middle Y Acceleration, Exceeded calibration range at 11 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- MDB Accelerometer Locations

Data Sheet No. 8 - Post-Test Observations

Data Sheet No. 9 - MDB Summary of Results

Data Sheet No. 10 - Test Vehicle Profile Measurements

Data Sheet No. 11 - Test Vehicle Exterior Crush Measurements

Data Sheet No. 12 - MDB Exterior Static Crush Measurements

Data Sheet No. 13 - Vehicle and MDB Damage Profile Distances

Data Sheet No. 14 - FMVSS No. 301 Static Rollover Results

Data Sheet No. 15 - Dummy / Vehicle Temperature and Humidity Stabilization Data

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2026 Hyundai Palisade 5 Door SUV
NHTSA No.: O20264202
Test Program: NCAP Side MDB Impact Test
Test Date: 12/15/2025

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20264202
Model Year	2026
Make	Hyundai
Model	Palisade
Body Style	5 Door SUV
VIN	KM8RG5S2XTU019744
Body Color	Creamy White
Odometer Reading (km/mi)	118 miles
Engine Displacement (L)	3.5
Type / No. Cylinders	V6
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	8-Speed
Overdrive	Yes
Final Drive	Front Wheel Drive
Roof Rack	No
Sunroof / T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso / Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head / Torso Airbag	No
Rear Pass. Torso Airbag	Yes
Rear Pass. Torso / Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other Safety Restraint - Driver Center Seat Airbag	Yes

Does owner's manual provide instructions to turn off automatic door locks? No

DATA FROM CERTIFICATION LABEL

Manufactured By	Hyundai Motor Company
Date of Manufacture	May / 2025
Vehicle Type	MPV

GVWR (KG)	2870
GAWR Front (KG)	1450
GAWR Rear (KG)	1600

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)				550	(A)
DSC x 68.0 kg				476	(B)
Cargo Weight (RCLW) (kg)				74	(A-B)

VEHICLE SEAT TYPE

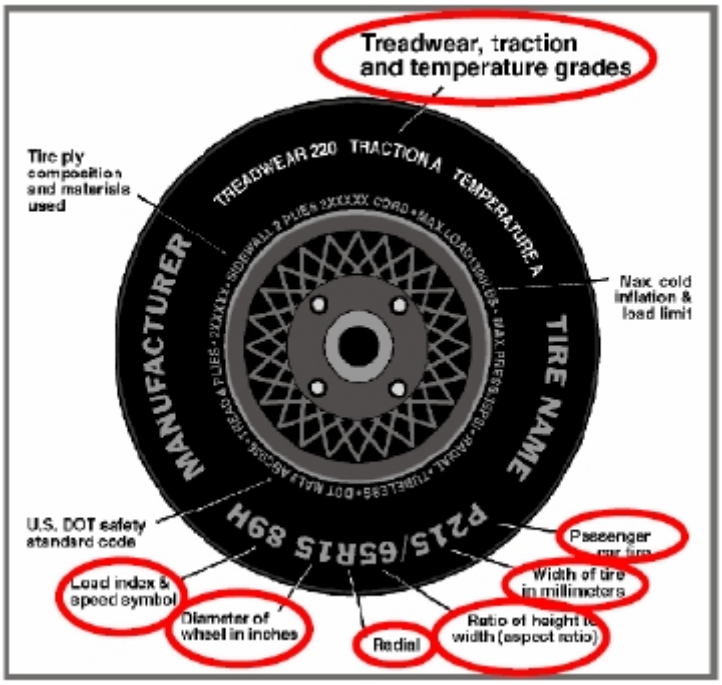
Seating Location	Type Of Seat Pan				Type Of Seat Back		
	Bucket	Bench	Split Bench	Contour	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front	X						X
Rear or Second Row Seat	X					X	
Third Row Seat			X			X	

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

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025

VEHICLE TIRE INFORMATION

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



TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	250	250
Recommended Tire Size	235/65R18	235/65R18
Tire Size on Vehicle	235/65R18	235/65R18
Tire Manufacturer	Nexen	Nexen
Tire Model	N'Fera	N'Fera
Treadwear	560	560
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 1 Steel, Polyamide	1 Polyester, 1 Steel, 1 Polyamide
Load Index / Speed Symbol	106 H	106 H
Tire Material	Rubber	Rubber
DOT Safety Code Left	1UA0HKBHB 1925	1UA0HKBHB 2025
DOT Safety Code Right	1UA0HKBHB 1925	1UA0HKBHB 2025

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

Test Vehicle: 2026 Hyundai Palisade 5 Door SUV | NHTSA No.: O20264202
Test Program: NCAP Side MDB Impact Test | Test Date: 12/15/2025

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	220	220	222	222
Tire Placard	kPa	250	250	250	250
Owner's Manual	kPa	250	250	250	250
As Tested	kPa	250	250	250	250

MDB TIRE SPECIFICATIONS

	Units	Requirements	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21	207	207	207	207

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	586	444		629	522		629	534	
Right	kg	563	454		584	506		575	511	
Ratio	%	56.1	43.9		54.1	45.9		53.5	46.5	
Totals	kg	1149	898	2047	1213	1028	2241	1204	1045	2249

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	2047	(A)
Actual Weight of 2 P572V (ES-2re and SID-IIs) ATDs Used	kg	127	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	74	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2248	(A+B+C)

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)? [X] **Yes** [ ] **No**

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	As Tested	Fully Loaded	Meets Rqmt***
LF	mm	899	899	Yes
RF	mm	908	914	Yes
RR	mm	930	921	Yes
LR	mm	925	925	Yes
Vehicle CG (Aft of Front Axle)	mm	1363	1380	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	+24	+30	

****The "As Tested" vehicle attitude measurements must be equal to or within ± 10mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirements".*

Test height adjustable suspension setting, if applicable: N/A

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

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Truck carpeting & Plastics	16
Jack	4
Third Row Seats	46
Ballast / Equipment Added	61.5

TEST SURFACE MARKINGS

	Distance from 63° Impact Location Line (mm)
Fore 25 mm target	932
Aft 25 mm target	935
Pre-Impact Angle Line	230

Parallel Track Target	X Location (mm)	Y Location (mm)
A	0	0
B	2955	1555
C	2955	3355
D	0	3000

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

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, 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	21.3	12.35	16.8
Front Passenger Seat	20.45	12.0	16.2
Front Center Seat	N/A	N/A	N/A
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	16.8	9.4	Max	67.4	73.4	79.5
			Mid	35.75	41.4	46.75
			Min	4.1	9.4	14.0
Front Passenger Seat	16.2	9.0	Max	67.9	73.5	79.1
			Mid	35.65	41.25	46.65
			Min	3.4	9.0	14.2
Front Center Seat*	N/A	N/A	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: 2026 Hyundai Palisade 5 Door SUV
NHTSA No.: O20264202
Test Program: NCAP Side MDB Impact Test
Test Date: 12/15/2025

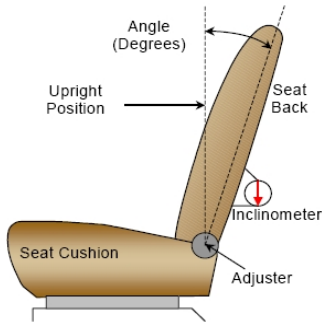
SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detents*
Driver Seat	233	Power	116.5	Power
Front Passenger Seat	220	Power	110	Power
Front Center Seat	N/A	N/A	N/A	N/A
Struck Side Rear Seat	150	16 (0-15)	150	15
Non-Struck Side Rear Seat	150	16 (0-15)	150	15
Rear Center Seat	N/A	N/A	N/A	N/A

**if applicable*

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated design angle. 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 seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck-side rear seat back.



FRONT SEAT ASSEMBLY

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat	63.4	Power	0.0	Power
Front Passenger Seat	63.4	Power	0.2	Power
Front Center Seat	N/A	N/A	N/A	N/A
Struck Side Rear Seat	21.7	12 (0-11)	7.65	0
Non-Struck Side Rear Seat	21.7	12 (0-11)	9.0	0
Rear Center Seat	N/A	N/A	N/A	N/A

**if applicable*

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

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. For this test zero is defined as the uppermost position.

Seat	Total # of Positions	Placed in Position #
Driver Seat	4 (0-3)	0 - Uppermost
Rear Seat	3 (0-2)	2 - Lowest

HEAD RESTRAINT ADJUSTMENT

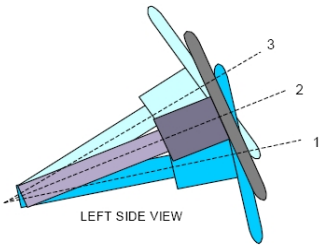
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

Seat	Total # of Positions	Placed in Position #
Driver Seat	6 (0-5)	Uppermost / Foremost
Rear Seat	4 (0-3)	Lowest

STEERING COLUMN ADJUSTMENT

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	24.0	
Geometric center - Position No. 2	26.5	
Uppermost - Position No. 3	29.0	
Telescoping Steering Wheel Travel		50
Test Position	26.5	25

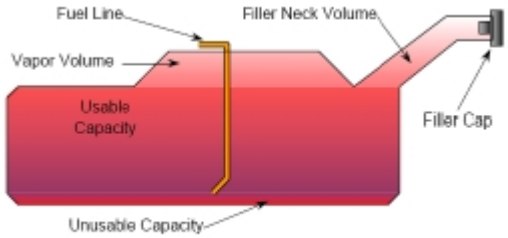


STEERING COLUMN ASSEMBLY

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.



VEHICLE FUEL TANK ASSEMBLY

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

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025

FUEL TANK CAPACITY

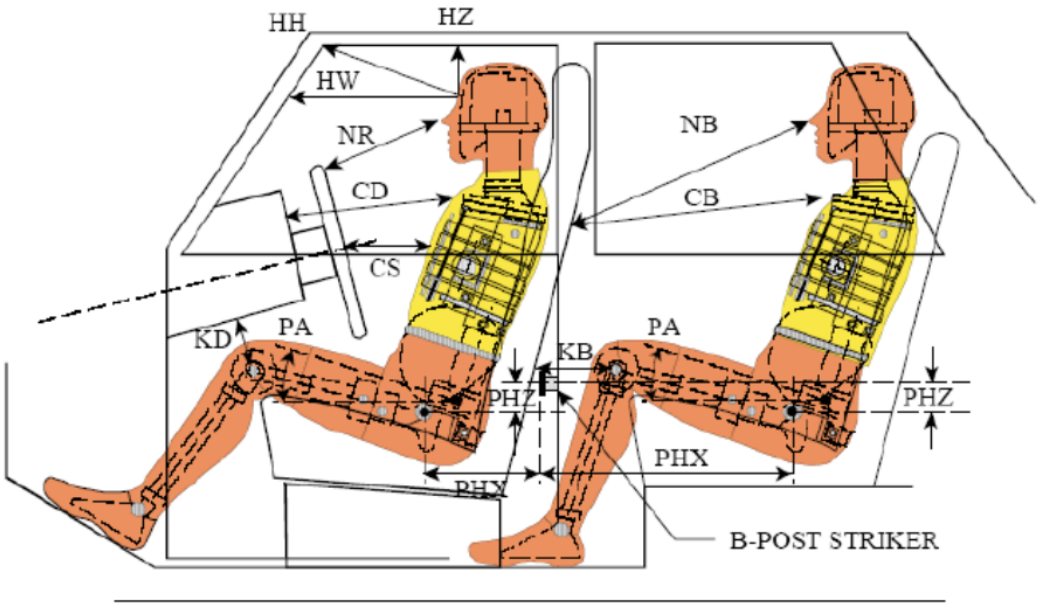
Description	Liters
Usable Capacity of “Standard Tank” (see Form No. 1)	72
Usable Capacity of “Optional Tank” (see Form No. 1)	N/A
Usable Capacity of “Standard Tank” (see Owner’s Manual)	72
Usable Capacity of “Optional Tank” (see Owner’s Manual)	N/A
93% of Usable Capacity	67
Actual Amount of Solvent Used in Test	67
1/3 of Usable Capacity	24

Is the Actual Amount of Solvent Used in the test equal to 93% ±1% of the Usable Capacity stated in Form No. 1? [X] **Yes** [ ] **No**

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION



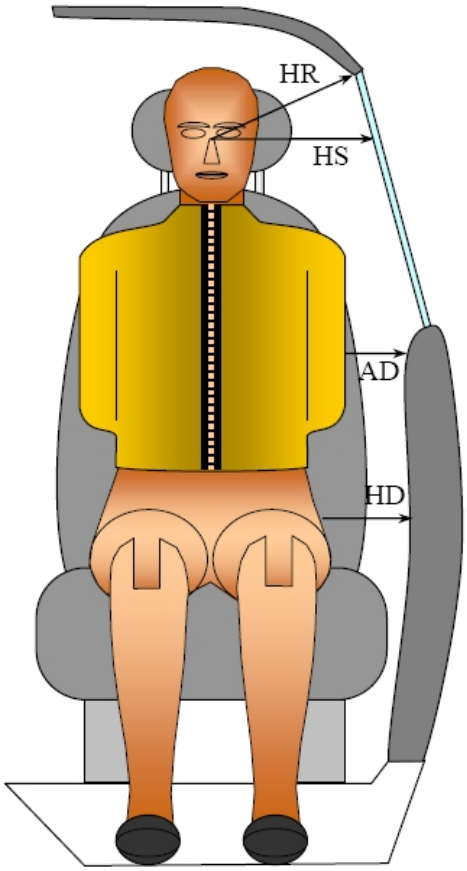
LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN. REAR DUMMY PHX & PHZ MEASUREMENTS FOR A 4-DOOR VEHICLE WOULD USE THE C-POST STRIKER AS A REFERENCE POINT

Driver Code	Pass. Code	Description	Driver (Serial No. F033)		Left Rear Passenger (Serial No. 300)	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Header to Header	365			
HW		Header to Windshield	657			
HZ	HZ	Head to Roof Liner	224		340	
NR	NB	Nose to Rim/Seat Back	433		600	
CD	CB	Chest to Dash/Seat Back	597		583	
CS		Chest to Steering Wheel	375			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	187	26.9	328	11.5
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	181	25.2	320	11.7
PAX°	PAX°	Pelvic Tilt Angle X		21.2		21.8
	PAY°	Pelvic Tilt Angle Y				0.1
PHX	PHX	Hip Point to Striker (X-Axis)	215		324	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	257		195	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025



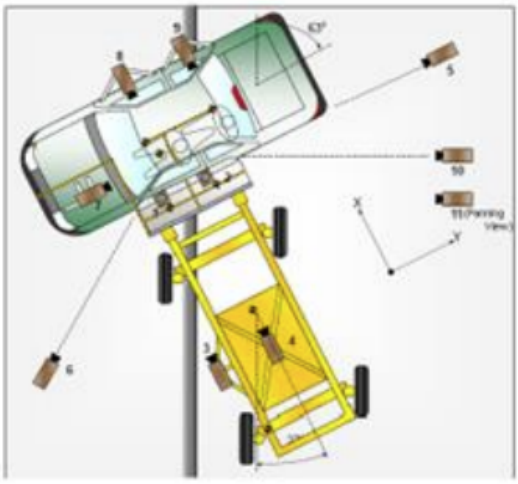
FRONT VIEW OF DUMMY

DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver (Serial No. F033)	Left Rear Passenger (Serial No. 300)
HR	Head to Side Header	mm	259	293
HS	Head to Side Window	mm	344	384
AD	Arm to Door	mm	116	197
HD	Hip Point to Door	mm	157	191

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2026 Hyundai Palisade 5 Door SUV
NHTSA No.: O20264202
Test Program: NCAP Side MDB Impact Test
Test Date: 12/15/2025



CAMERA LOCATIONS AND DATA

No.	Camera View	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Overhead Overall	0	310	-9220	12.5	1000
2	Overhead Close-up	0	0	-9220	28	1000
3	Left Impact Point (MDB)	1470	0	-847	25	1000
4	Side Overall (MDB)	-1140	-878	-1587	8	1000
5	Rear	416	7718	-1561	28	1000
6	Left Front	-2760	-6755	-1519	24	1000
7	Driver Front (OB)				25	1000
8	Driver Side (OB)				12.5	1000
9	Passenger Side (OB)				12.5	1000
10	Real-time Left Rear				Zoom	60
11	Real-time In Run				Zoom	60

Notes: *Reference: Impact Point projected to Ground*
+X = To Front of MDB, +Y = To Right of MDB, +Z = Down
** All measurements accurate to ± 6 mm.*

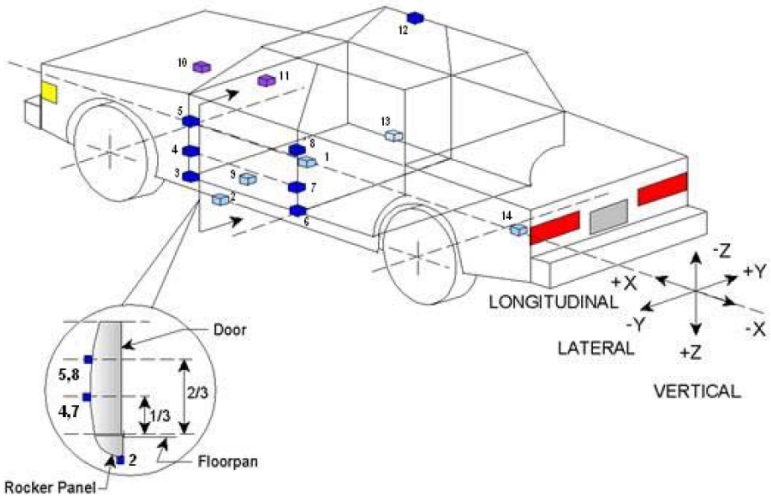
If applicable, explain why camera(s) did not operate as intended: All cameras operated as intended.

INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MDB Accelerometers	7
Total	62

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025



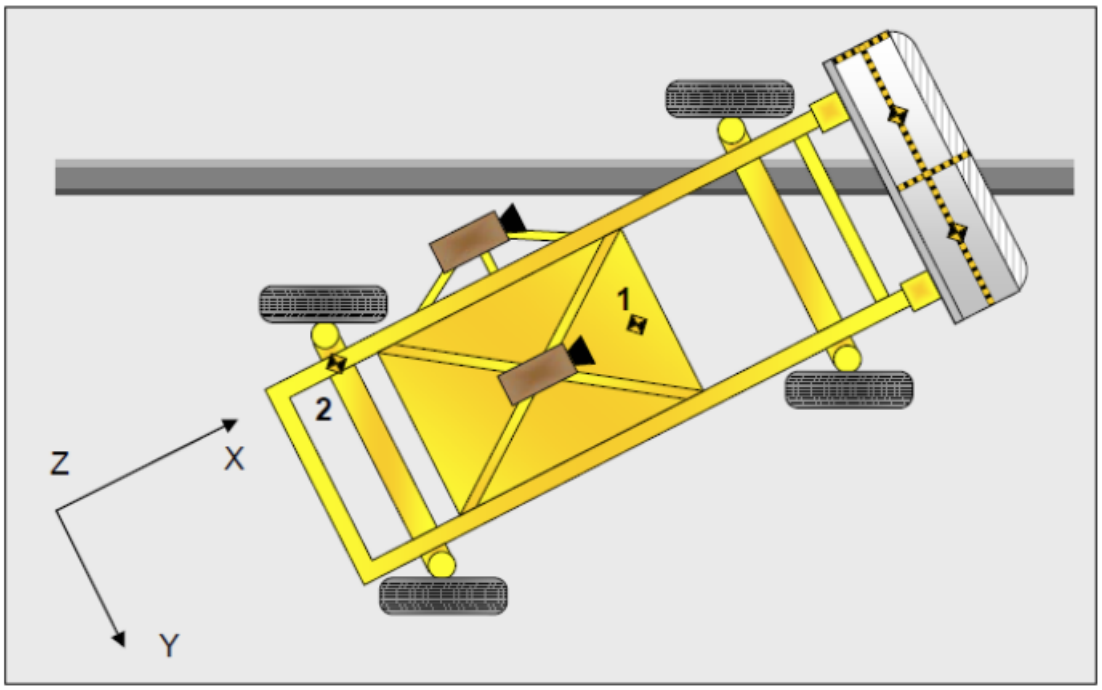
TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2443	-7	681
2	Right Sill at Front Seat	3170	726	684
3	Right Sill at Rear Seat	2218	723	684
4	Left Sill at Front Door	3088	-736	664
5	Left Sill at Rear Door	2225	-724	686
6	A-Post Lower	3571	-693	427
7	A-Post Middle	3467	-712	-103
8	B-Post Lower	2444	-744	293
9	B-Post Middle	2399	-733	-37
10	Front Seat Track	2697	-647	640
11	Rear Seat Structure	2094	-624	587
12	Rt. Rear Occ. Compartment	2360	407	777
13	Engine Block	4176	133	174
14	Rear Above Axle	1009	2	575

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

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025



MDB ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	1859	0	-330
2	MDB Rear	386	-660	-660

Reference: *X – Face of MDB (+forward)*
Y – MDB centerline (+ to right)
Z – Ground plane (+down)

Width between left and right contact switches (mm): 1485

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2026 Hyundai Palisade 5 Door SUV NHTSA No.: O20264202
Test Program: NCAP Side MDB Impact Test Test Date: 12/15/2025

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag	None
Top of Head	Curtain Airbag	Curtain Airbag
Left Side of Head	Curtain Airbag	Curtain Airbag
Back of Head	Curtain Airbag & Headrest	Curtain Airbag & Headrest
Left Shoulder	Curtain Airbag & Torso/Pelvis Airbag	Torso Airbag & Seatback
Upper Torso	Torso/Pelvis Airbag & Seatback	Torso Airbag & Seatback
Lower Torso	Torso/Pelvis Airbag & Seatback	Torso Airbag & Seatback
Left Hip	Torso/Pelvis Airbag, Seatback & Seat Pan	Torso Airbag & Doortrim
Left Knee	Door Panel	Door Panel

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	B-Pillar Buckled
Sill Separation	None
Windshield Damage	None
Side Window Damage	None
Other Notable Effects	None

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

Test Vehicle: 2026 Hyundai Palisade 5 Door SUV
NHTSA No.: O20264202
Test Program: NCAP Side MDB Impact Test
Test Date: 12/15/2025

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 - Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Airbag 3 - Torso Airbag	No	N/A	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other - Seat Center Airbag	Yes	Yes	No	N/A

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2971
Vertical Impact Reference Line (Aft of Front Axle - Intended Impact Point)	mm		508
Actual Impact Point (Aft of Frontal Axle)	mm		508
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact Point	0
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	+5

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Frame	4120
Wheelbase of Framework Carriage	2591
CG Location of Front Axle	1122

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	396	291.5	687.5
Right	kg	377.5	301	678.5
Ratio	%	56.6	43.4	100
Totals	kg	773.5	592.5	1366

SPEED AND ANGLE AT IMPACT DATA

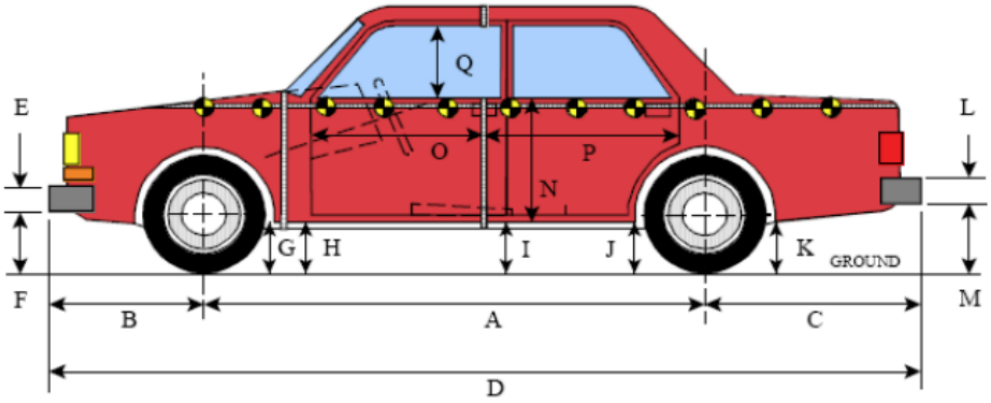
Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.10 to 62.70	61.96
Trap No. 2 Velocity (Redundant)	km/h	61.10 to 62.70	61.82
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.0
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.0
MDB Crabbed angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.0

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Left	259
B	Top of Bumper	533	800	Left	190
C	Mid-Level	686	800	Left	169
D	Top of Stack	813	800	Left	201

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025



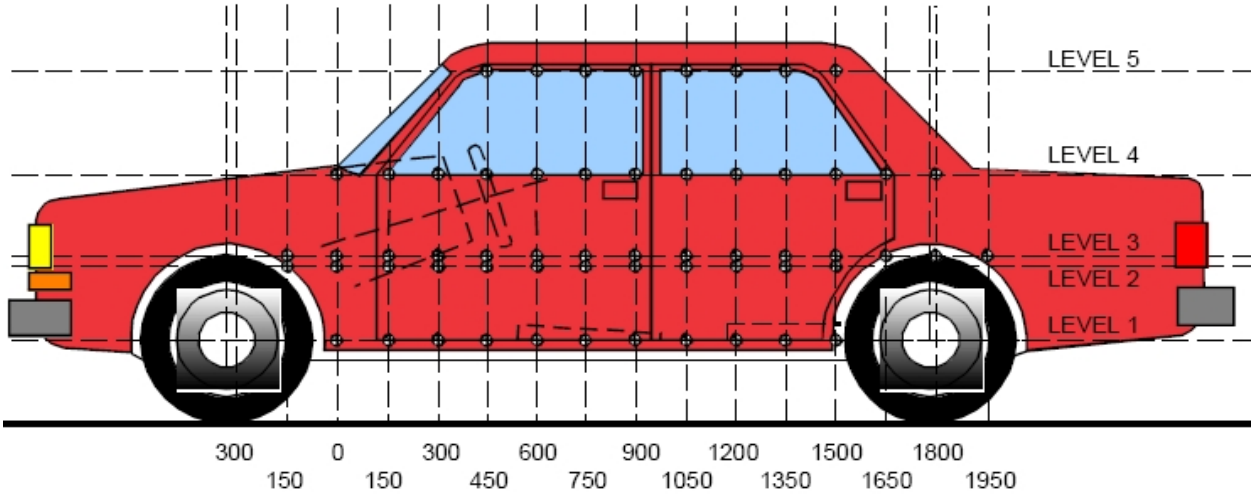
LEFT SIDE VIEW
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code.	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2971	3018	47
B	Front Axle to FSOV	924	875	-49
C	Rear Axle to RSOV	1163	1162	-1
D	Total Length at Centerline	5057	5055	-2
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	488	489	1
G	Sill Height at Front Wheel Well	255	254	-1
H	Sill Height at Front Door Leading Edge	262	252	-10
I	Sill Height at B Pillar	265	263	-2
J1	Sill Height at Rear Wheel Well	272	272	0
J2	Pinch Weld Height at Rear Wheel Well	263	264	1
K	Sill Height Aft of Rear Wheel Well	294	302	8
L	Rear Bumper Thickness	115	115	0
M	Rear Bumper Bottom to Ground	551	553	2
N	Sill Height to Bottom of Front Window Sill	917	928	11
O	Front Door Leading Edge to Impact CL	754	755	1
P	Rear Door Trailing Edge to Impact CL	1490	1480	-10
Q	Front Window Opening	465	467	2
R	Right Side Length	4973	4971	-2
S	Left Side Length	4972	4968	-4
T	Maximum Vehicle Width	1975	1895	-80
U	Front Wheel Track Width	1722	1728	6
V	Rear Wheel Track Width	1728	1724	-4

DATA SHEET NO.11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	379	32	1200
2	Driver H-Point	mm	711	159	1350
3	Mid-Door	mm	792	132	1350
4	Window Sill	mm	1163	13	1200
5	Window Top	mm	1684	8	1650

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.11 … (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2026 Hyundai Palisade 5 Door SUV NHTSA No.: O20264202
Test Program: NCAP Side MDB Impact Test Test Date: 12/15/2025

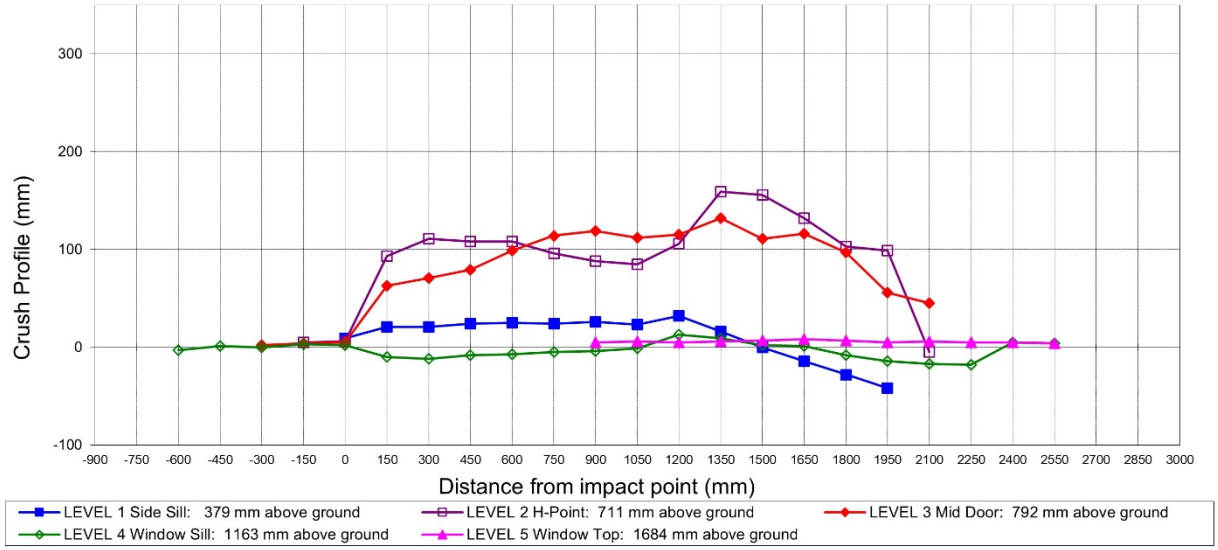
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600				842					845					-3	
-450				851					850					1	
-300			990	858				988	858				2	0	
-150		989	987	866			984	983	863			5	4	3	
0	955	982	982	871		946	976	980	869		9	6	2	2	
150	947	978	980	880		926	885	917	890		21	93	63	-10	
300	945	978	981	886		924	867	910	898		21	111	71	-12	
450	946	979	983	893		922	871	904	901		24	108	79	-8	
600	949	980	985	900		924	872	886	907		25	108	99	-7	
750	951	981	986	904		927	885	872	909		24	96	114	-5	
900	950	981	987	908	695	924	893	868	912	690	26	88	119	-4	5
1050	950	981	987	912	697	927	896	875	913	691	23	85	112	-1	6
1200	948	978	985	912	698	916	872	870	899	693	32	106	115	13	5
1350	946	977	984	916	698	930	818	852	907	692	16	159	132	9	6
1500	946	975	983	918	697	946	819	872	916	690	0	156	111	2	7
1650	946	973	981	920	696	960	841	865	919	688	-14	132	116	1	8
1800	947	974	980	918	693	975	871	883	926	686	-28	103	97	-8	7
1950	955	980	982	915	688	997	881	926	929	683	-42	99	56	-14	5
2100		988	980	914	684		993	935	931	678		-5	45	-17	6
2250				910	677				928	672				-18	5
2400				907	670				902	665				5	5
2550				902	661				898	657				4	4
2700															
2850															
3000															

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.11 … (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

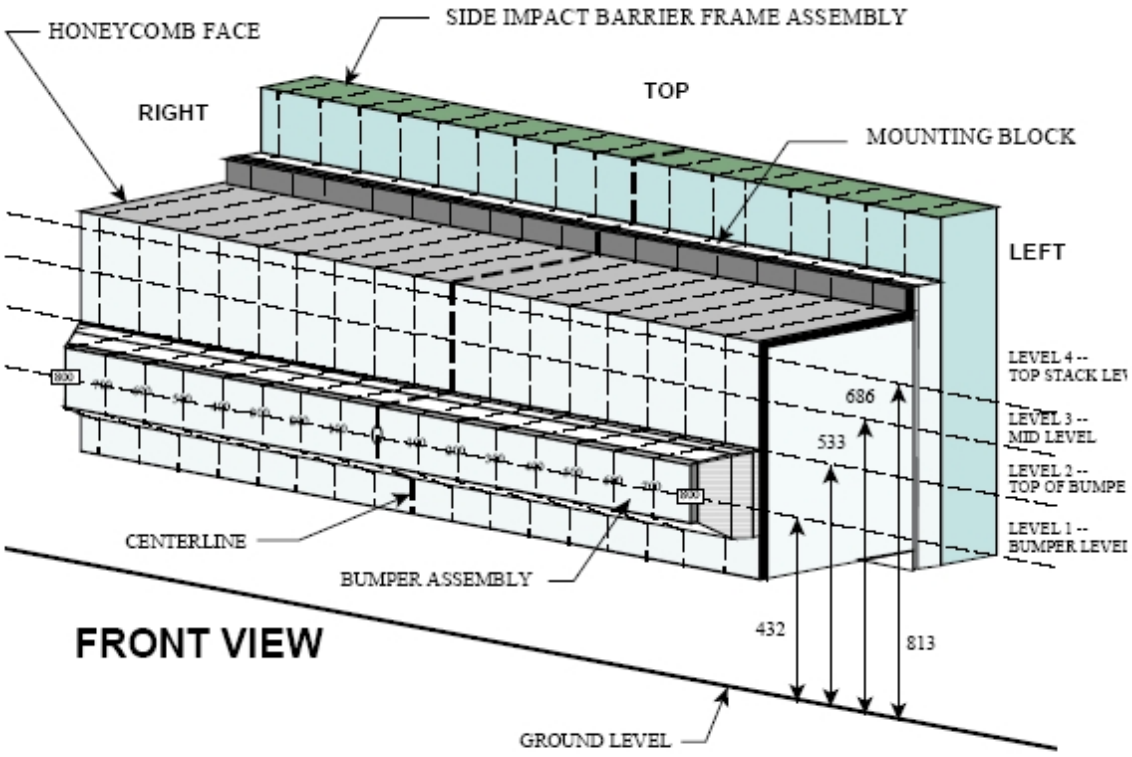
Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025



Vehicle Exterior Crush Measurements - Visual Representation

DATA SHEET NO.12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025



NOTE: Dimensions are shown in millimeters, mm

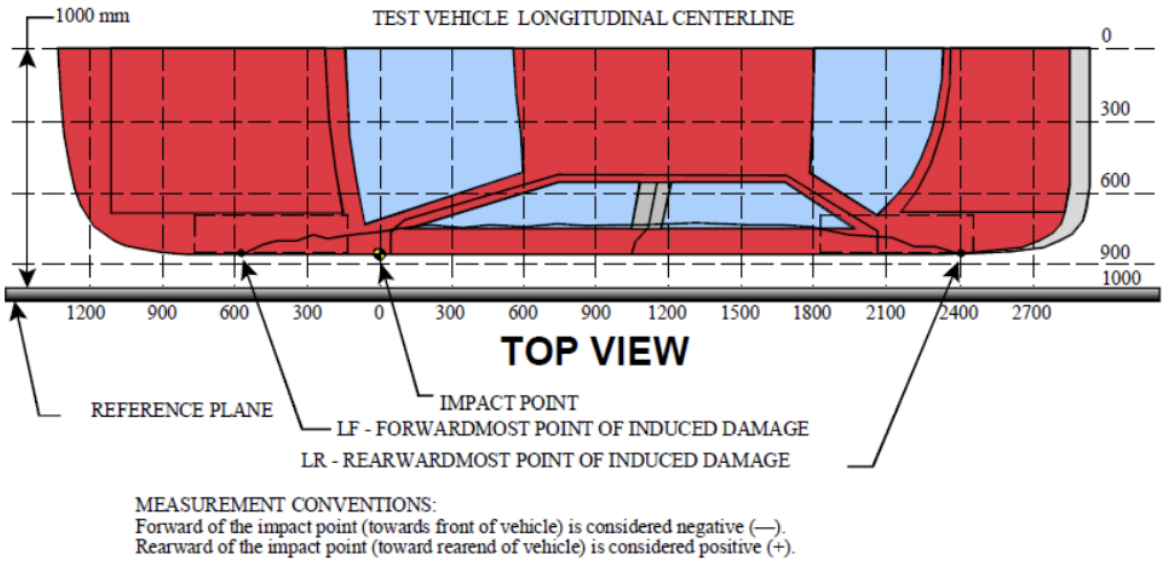
DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
1	255	255	255	255	256	256	255	255	254	250	250	250	250	251	251	253	259
2	159	163	161	156	153	161	159	155	158	154	154	154	156	156	158	160	190
3	118	101	91	89	108	150	167	161	134	111	97	90	88	96	107	123	169
4	155	147	142	123	124	149	164	146	130	124	120	113	122	129	153	178	201

DATA SHEET NO.13
VEHICLE AND MDB DAMAGE PROFILE DISTANCE

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025

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



MEASUREMENT CONVENTIONS:
Forward of the impact point (towards front of vehicle) is considered negative (—).
Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	-300	3	12	10	2
2	180	3	84	20	64
3	660	3	120	15	105
4	1140	3	128	14	114
5	1620	3	134	19	115
6	2100	3	65	20	45

MDB DAMAGE PROFILE DISTANCES

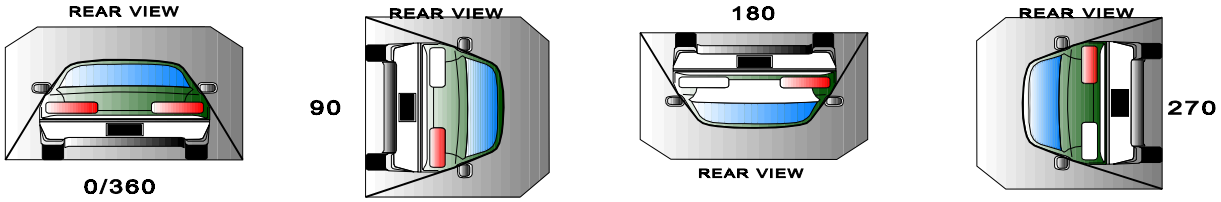
DPD	Distance From Center of MDB	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	800 mm left of center	1	246	505	-259
2	480 mm left of center	1	263	514	-251
3	160 mm left of center	1	264	514	-250
4	160 mm right of center	1	258	513	-255
5	480 mm right of center	1	258	513	-255
6	800 mm right of center	1	246	501	-255

DATA SHEET NO.14
FMVSS NO.301 STATIC ROLLOVER RESULTS

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025
Test Time:	12:19 PM	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°	71	300	371
90° to 180°	64	300	364
180° to 270°	63	300	363
270° to 360°	66	300	366

FMVSS 301 SPILLAGE TABLE

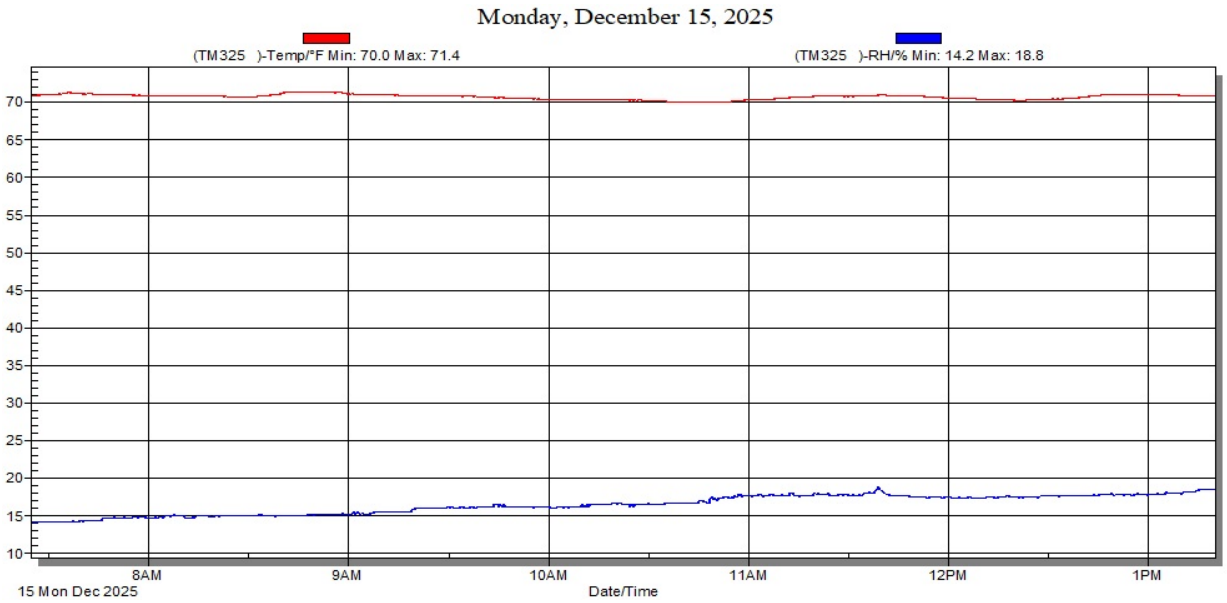
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0	0	0	
90° to 180°	0	0	0	
180° to 270°	0	0	0	
270° to 360°	0	0	0	

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	No Spillage
90° to 180°	No Spillage
180° to 270°	No Spillage
270° to 360°	No Spillage

DATA SHEET NO. 15
DUMMY / VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle:	2026 Hyundai Palisade 5 Door SUV	NHTSA No.:	O20264202
Test Program:	NCAP Side MDB Impact Test	Test Date:	12/15/2025



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

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Fig.	Description	Page
1	As-Delivered Right Front 3/4 View of Test Vehicle	A-5
2	As-Delivered Left Rear 3/4 View of Test Vehicle	A-5
3	Pre-Test Frontal View of Test Vehicle	A-6
4	Post-Test Frontal View of Test Vehicle	A-6
5	Pre-Test Left Front ¾ View of Test Vehicle	A-7
6	Post-Test Left Front ¾ View of Test Vehicle	A-7
7	Pre-Test Left Side View of Test Vehicle	A-8
8	Post-Test Left Side View of Test Vehicle	A-8
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Figure A-10: Post-Test Left Rear ¾ 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

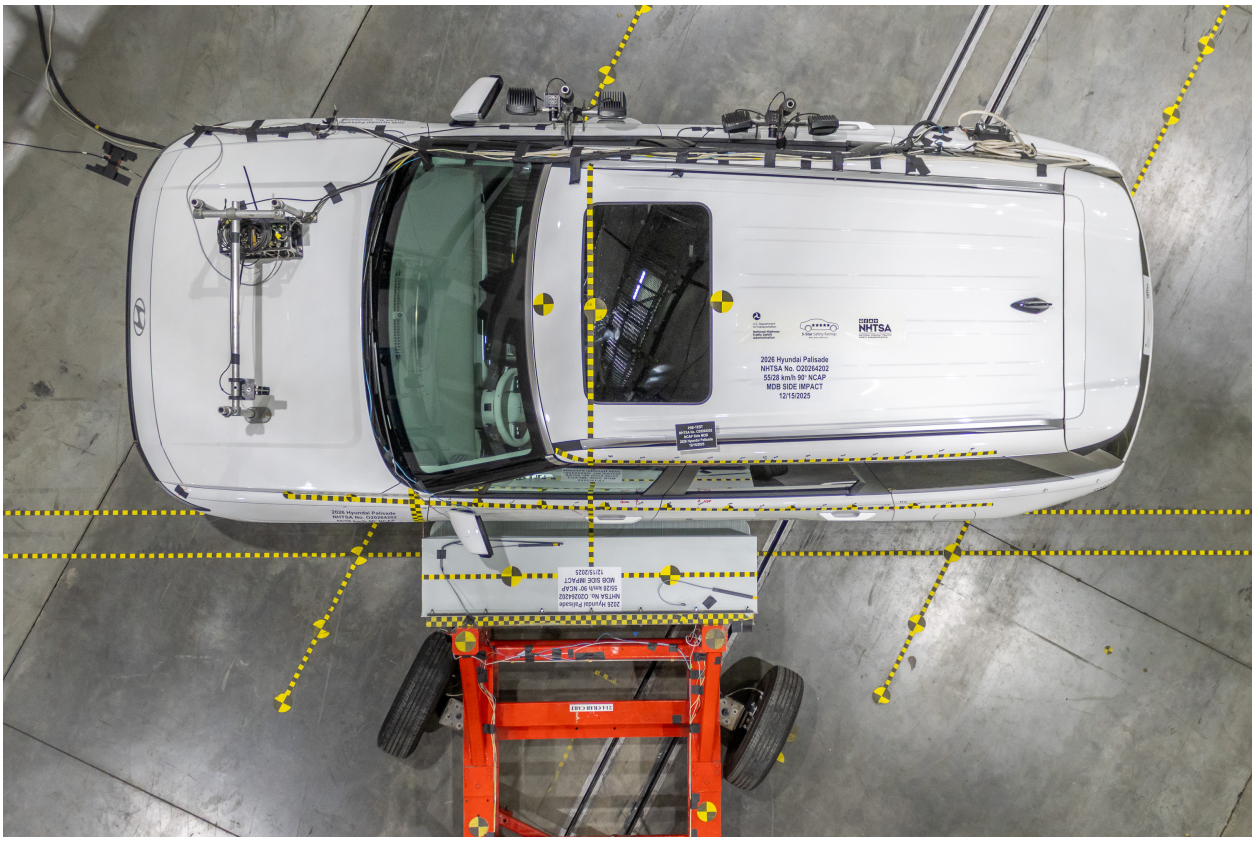

Figure A-15: Pre-Test Overhead View of Test Area

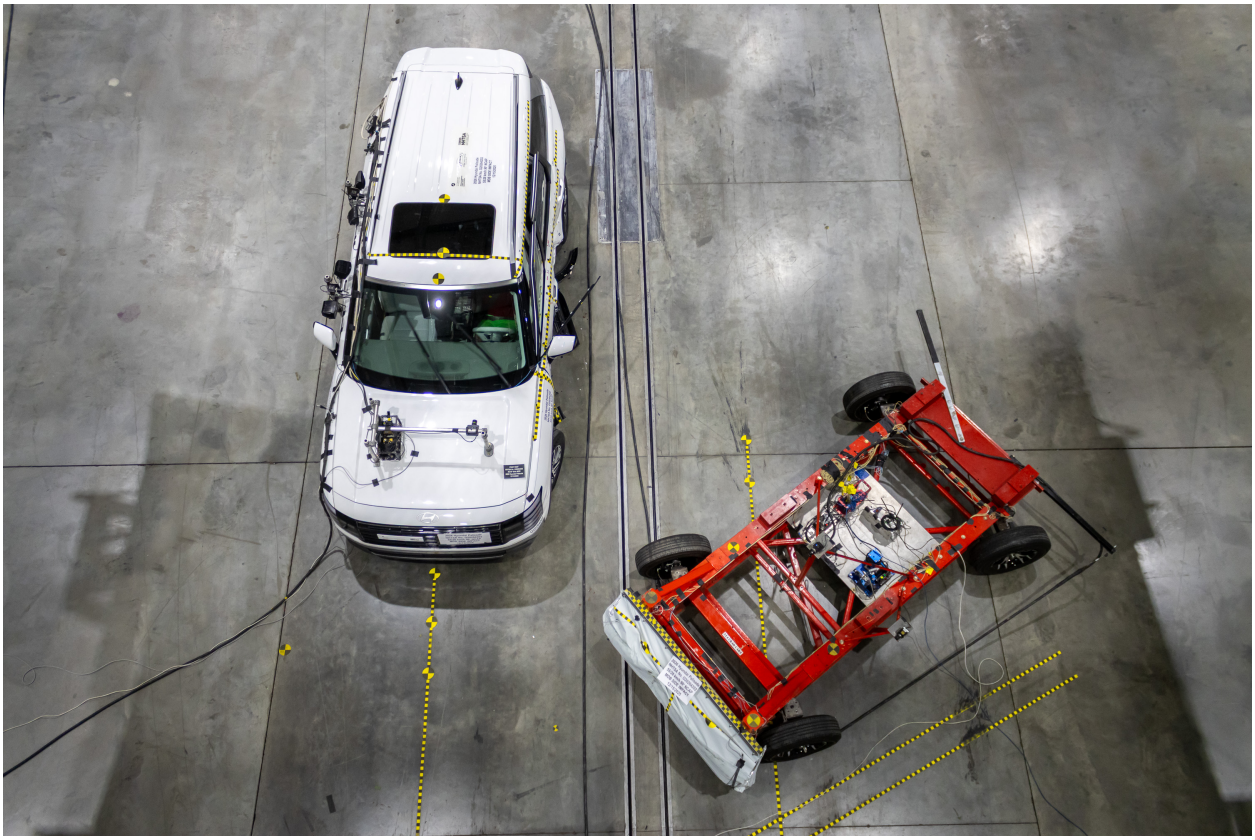

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Figure A-20: Post-Test Close-up View of Impact Point Target

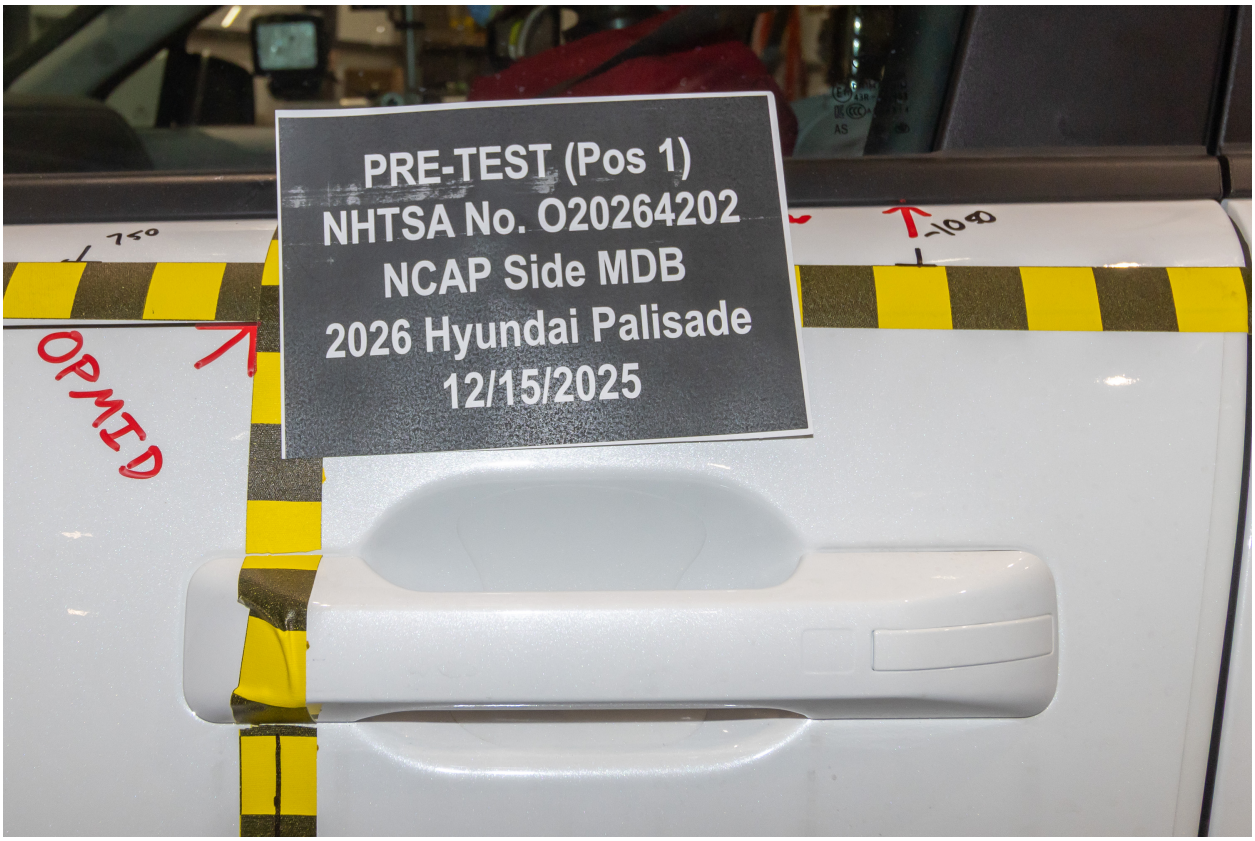

Figure A-21: Pre-Test Left Front Door Latch Close-Up

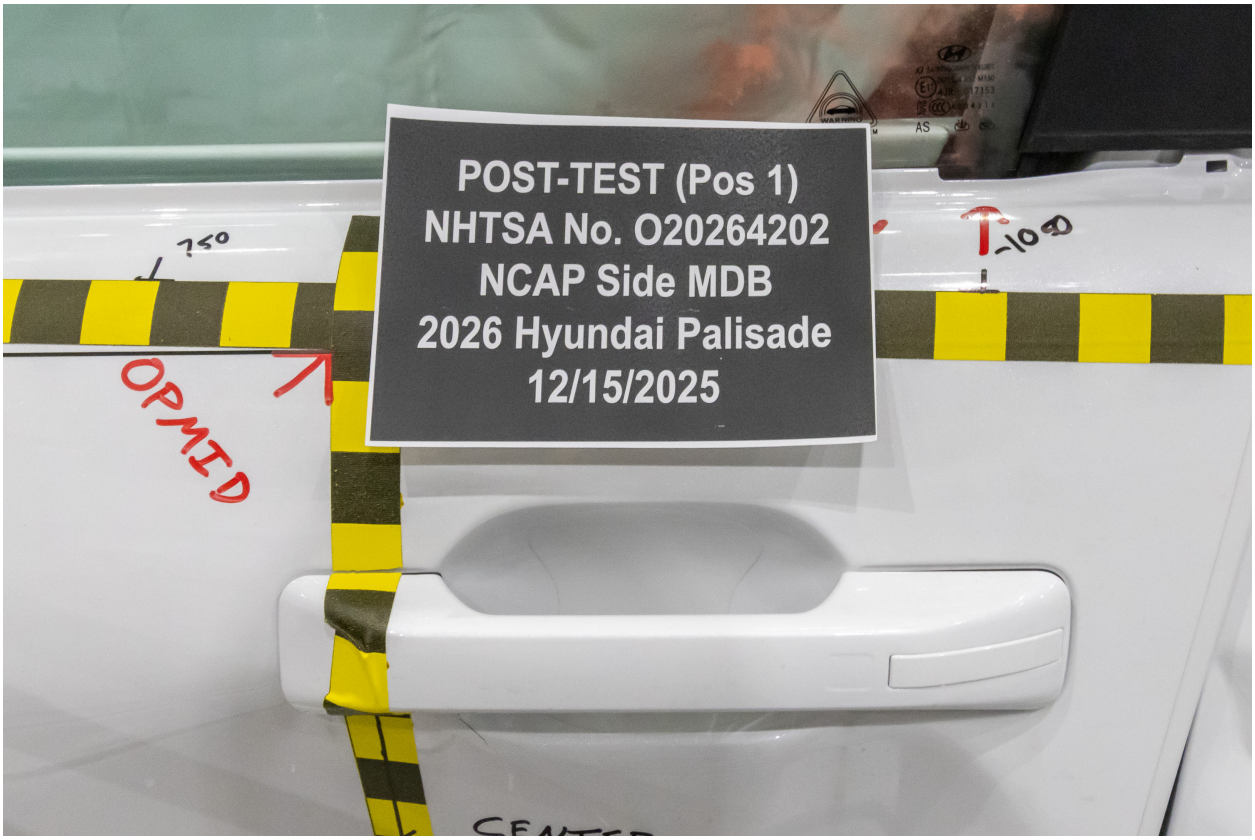

Figure A-22: Post-Test Left Front Door Latch Close-Up

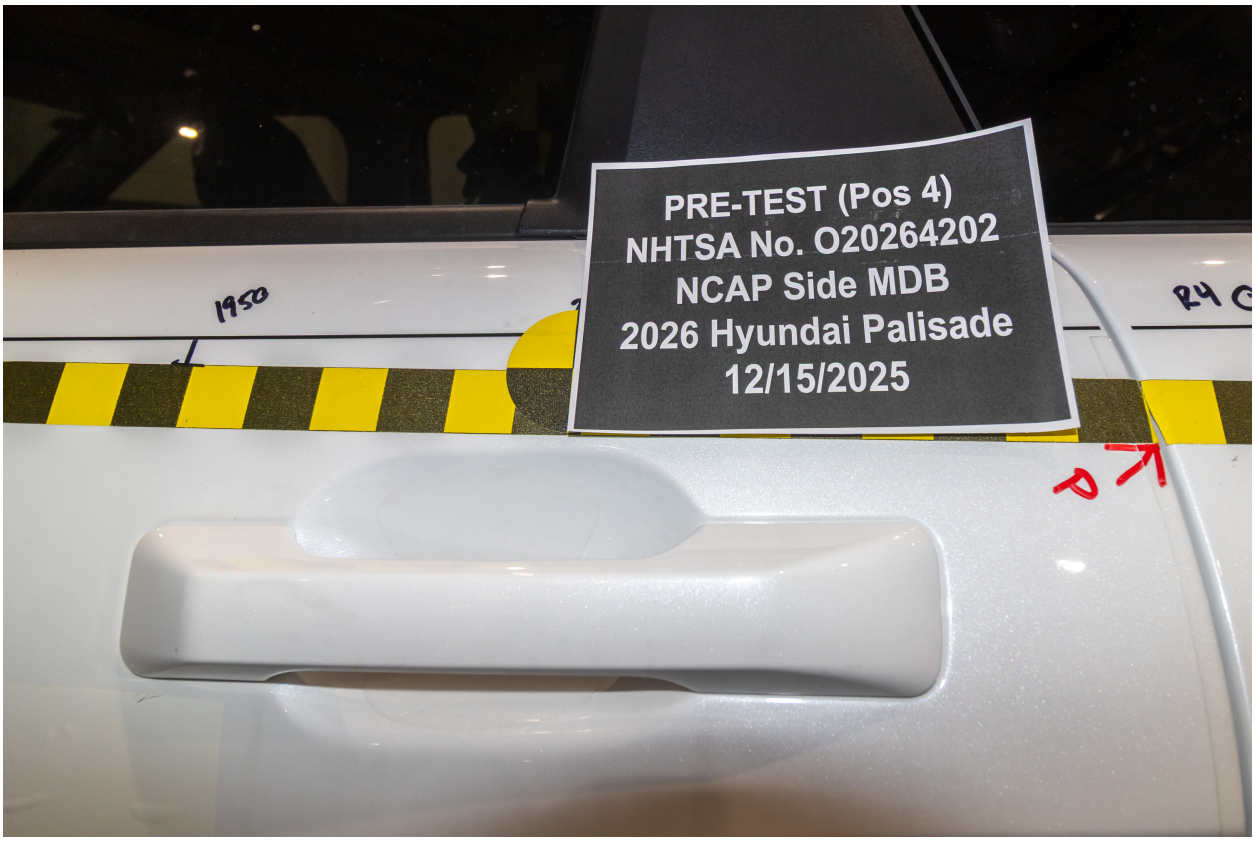

Figure A-23: Pre-Test Left Rear Door Latch Close-Up

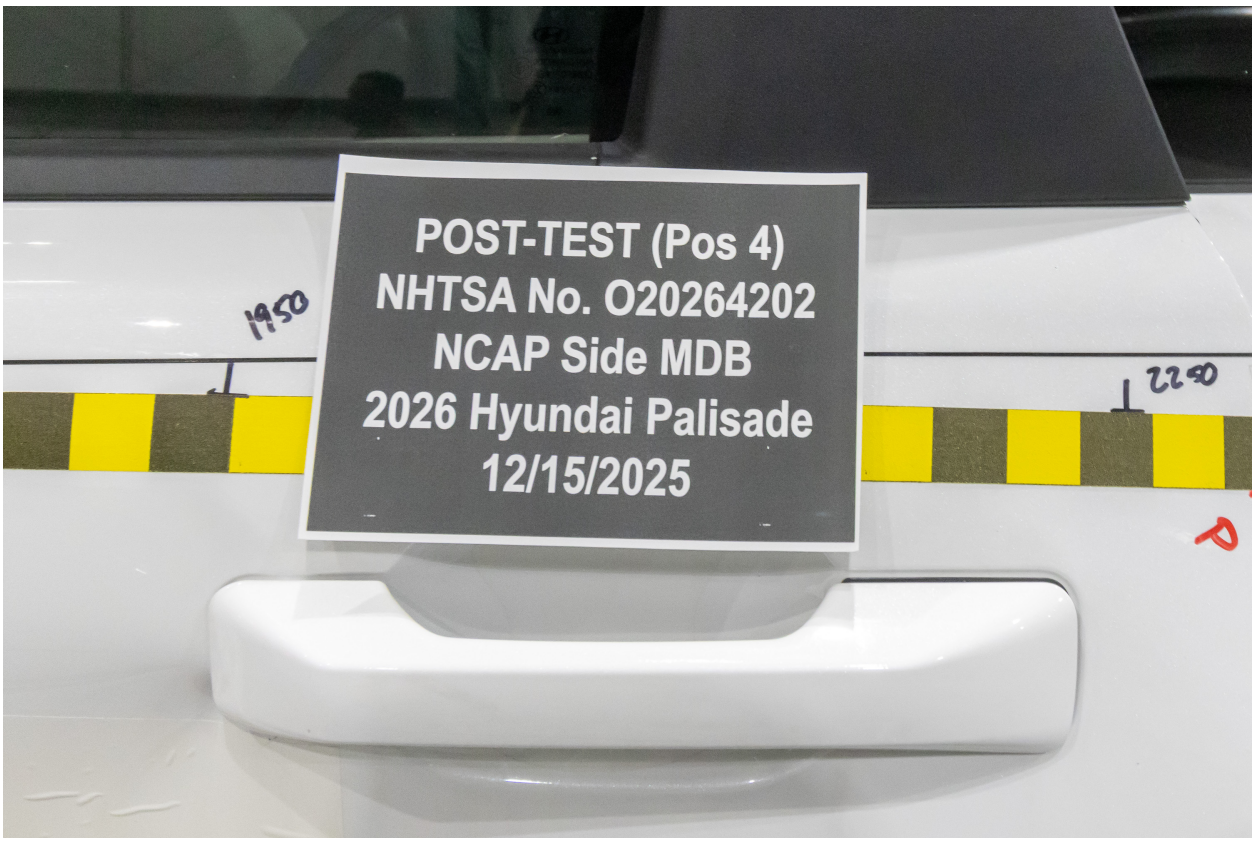

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Figure A-45: Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment

Figure A-46: Pre-Test Driver Inner Door Panel View

Figure A-47: Post-Test Driver Inner Door Panel View

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Figure A-49: Post-Test Driver Dummy Close-Up Head Contact with Side Air bag View

Figure A-50: Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View

Figure A-51: Post-Test Driver Dummy Close-Up Torso Contact with Side Air bag View

Figure A-52: Post-Test Driver Dummy Close-Up Pelvis Contact View

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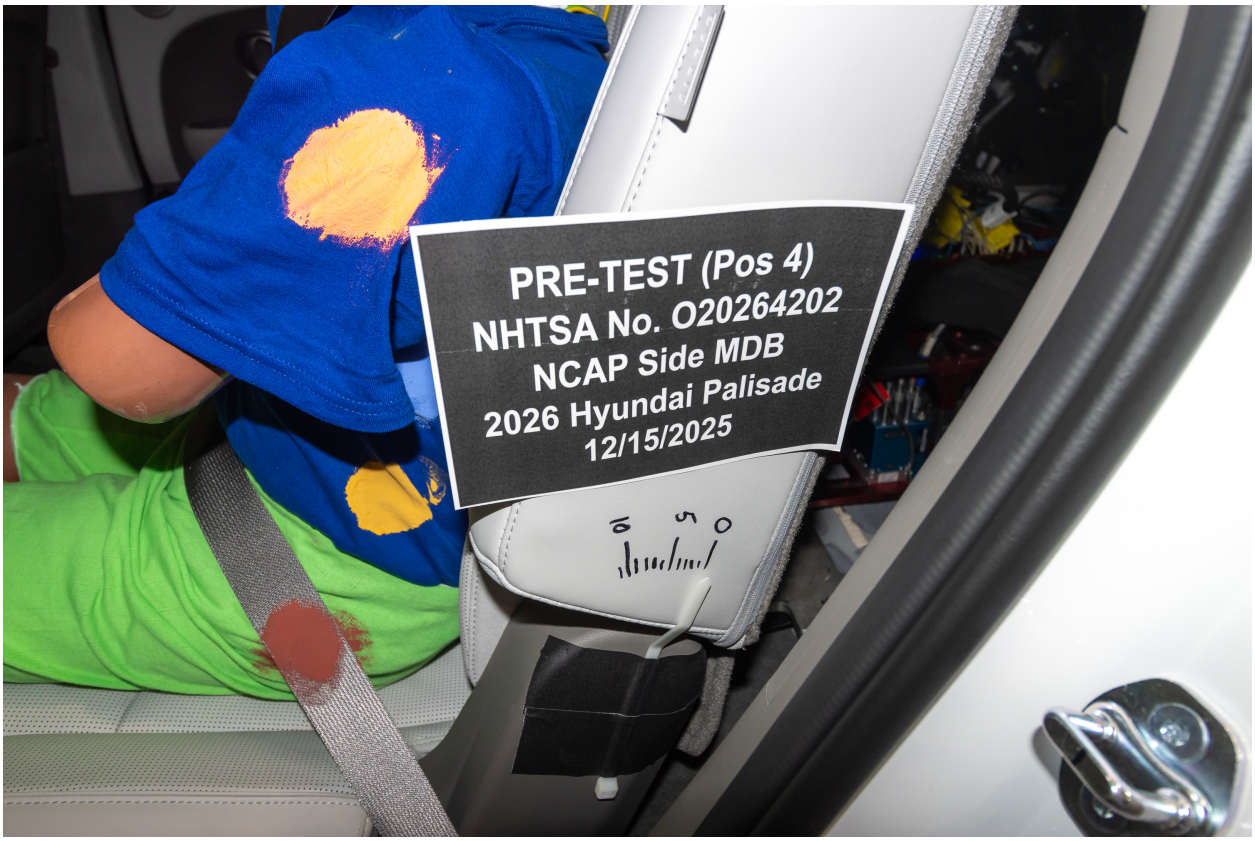

Figure A-67: Pre-test Close-Up Left Side View of Rear Passenger Seat Back

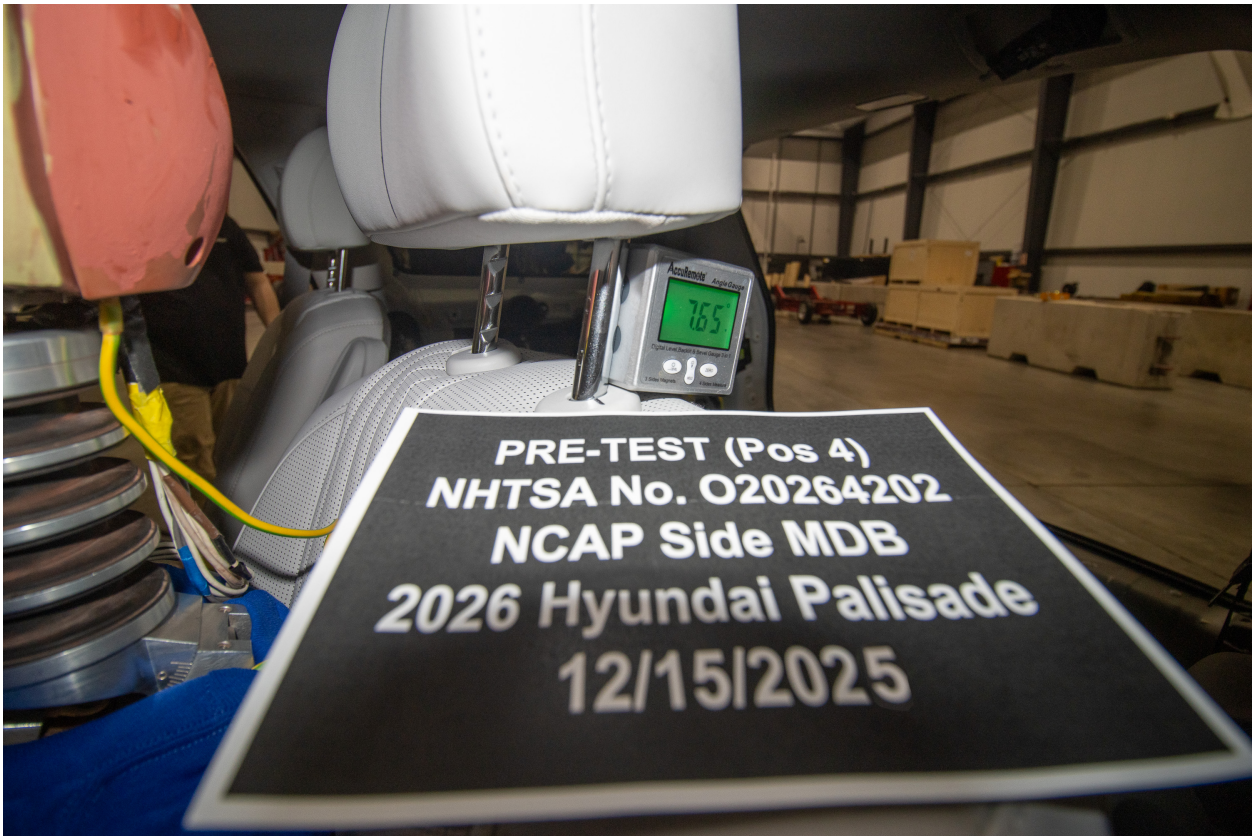

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Figure A-82: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

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Figure A-84: Pre-Test Front View of MDB Impactor Face

Figure A-85: Post-Test Front View of MDB Impactor Face

Figure A-86: Pre-Test Top View of MDB Impactor Face

Figure A-87: Post-Test Top View of MDB Impactor Face

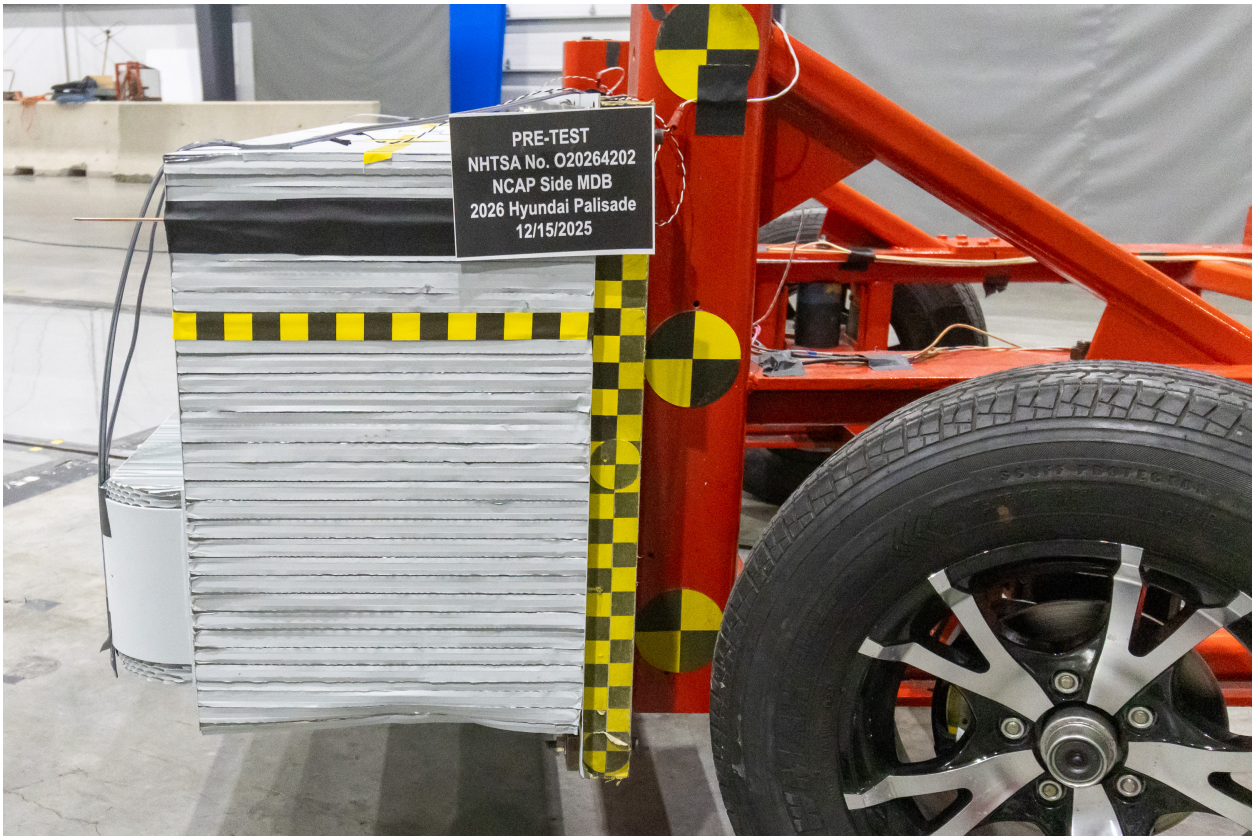

Figure A-88: Pre-Test Left Side View of MDB Impactor Face

Figure A-89: Post-Test Left Side View of MDB Impactor Face

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Figure A-91: Post-Test Right Side View of MDB Impactor Face

Figure A-92: Close-Up View of Vehicle's Certification Label

Figure A-93: Close-Up View of Vehicle's Tire Information Placard or Label

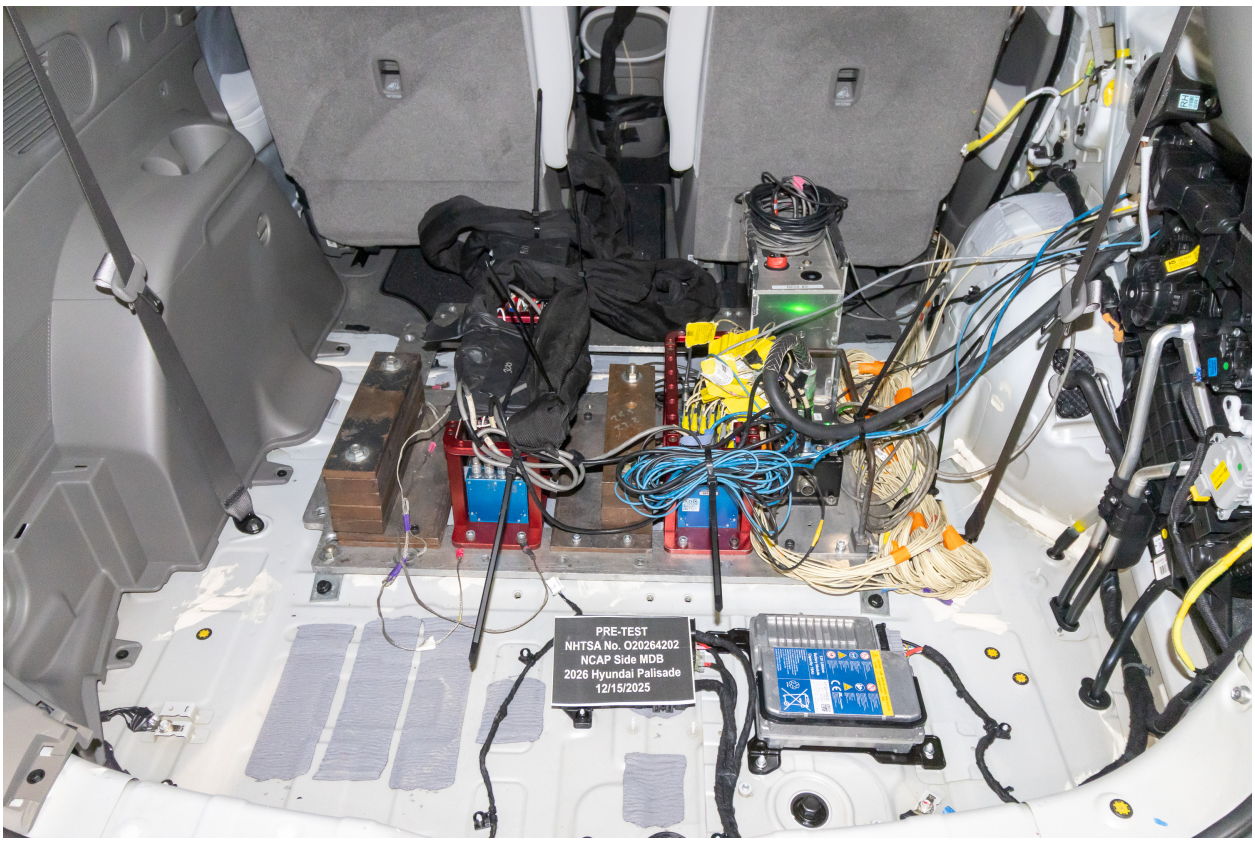

Figure A-94: Pre-Test Ballast View

Figure A-95: Post-Test Primary and Redundant Speed Trap Read-Out

Figure A-96: FMVSS No. 301 Static Rollover 0 Degrees

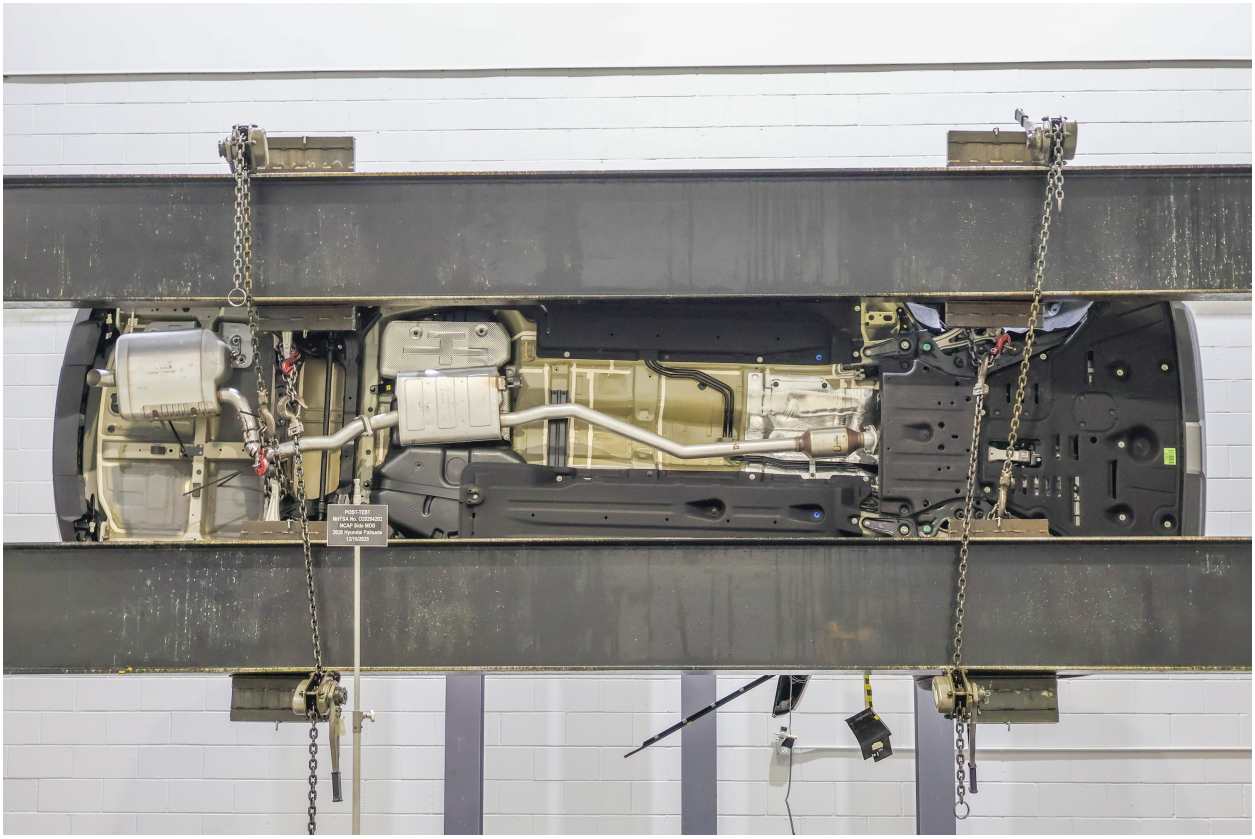

Figure A-97: FMVSS No. 301 Static Rollover 90 Degrees

Figure A-98: FMVSS No. 301 Static Rollover 180 Degrees

Figure A-99: FMVSS No. 301 Static Rollover 270 Degrees

Figure A-100: FMVSS No. 301 Static Rollover 360 Degrees

Figure A-101: Impact Event

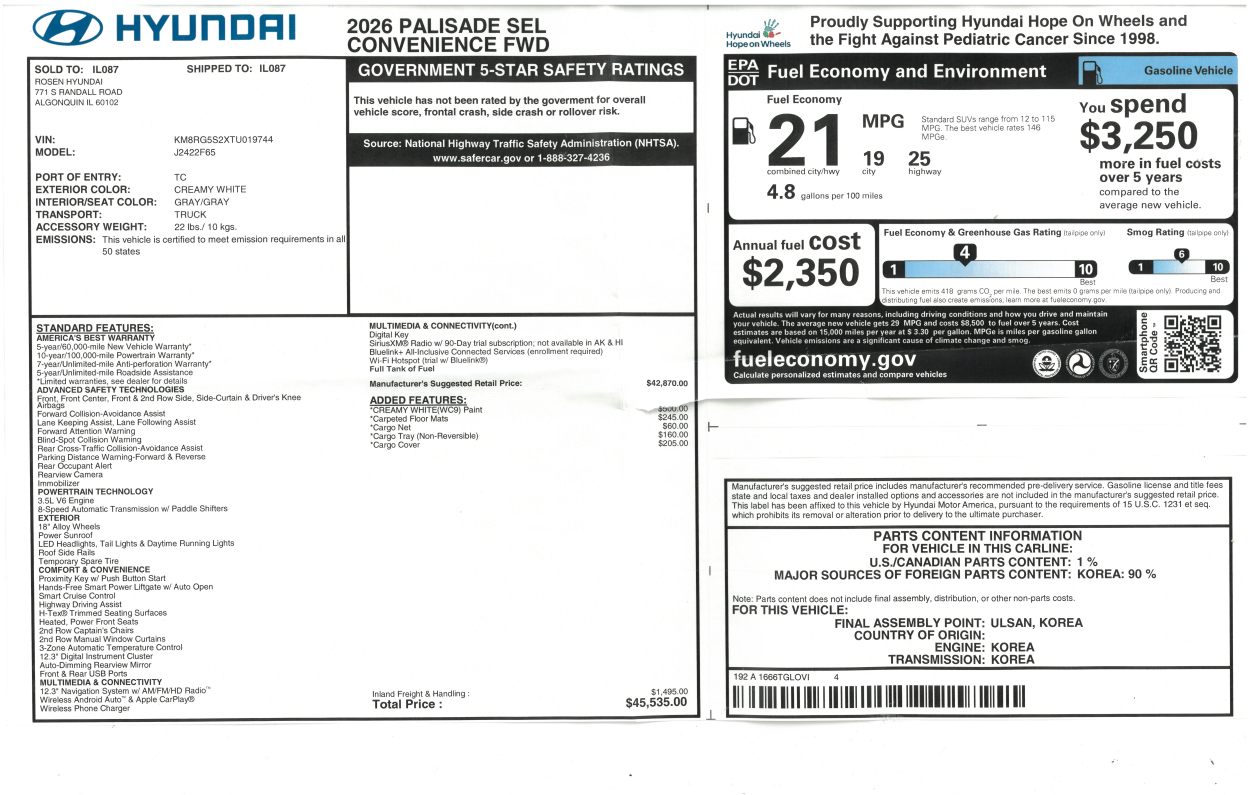

Figure A-102: Monroney Label

The head restraint may be adjusted forward to 3 different positions by pulling the head restraint forward to the desired position. To adjust the head restraint to it's furthest rearwards position, pull it fully forward to the farthest position and release it.

Adjusting the height up and down

Press and hold the release button on the head restraint support to adjust the height.

Removing the head restraint

1 Recline the seatback with the seatback angle lever or switch.
2 Raise the head restraint as far as it can go.

Figure A-103: Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Information

The height of the 3rd row automatic folding head restraints cannot be adjusted.

Removing the head restraint (2nd row seat)

1 Raise the head restraint as far as it can go.
2 Raise the head restraint all the way up, simultaneously press the release button and the groove on the opposite side using a pin or another sharp object, and then lift the head restraint up to detach it.

Reinstalling the head restraint (2nd row seat)

1 Put the head restraint poles into the holes while pressing the release button.
2 Adjust the head restraint to the appropriate height.

Figure A-104: Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA TRACES

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Driver Dummy Instrumentation Plots

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The following additional dummy and vehicle response data can be obtained from the Research and Development section of the NHTSA website. The website can be found at www.NHTSA.gov

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

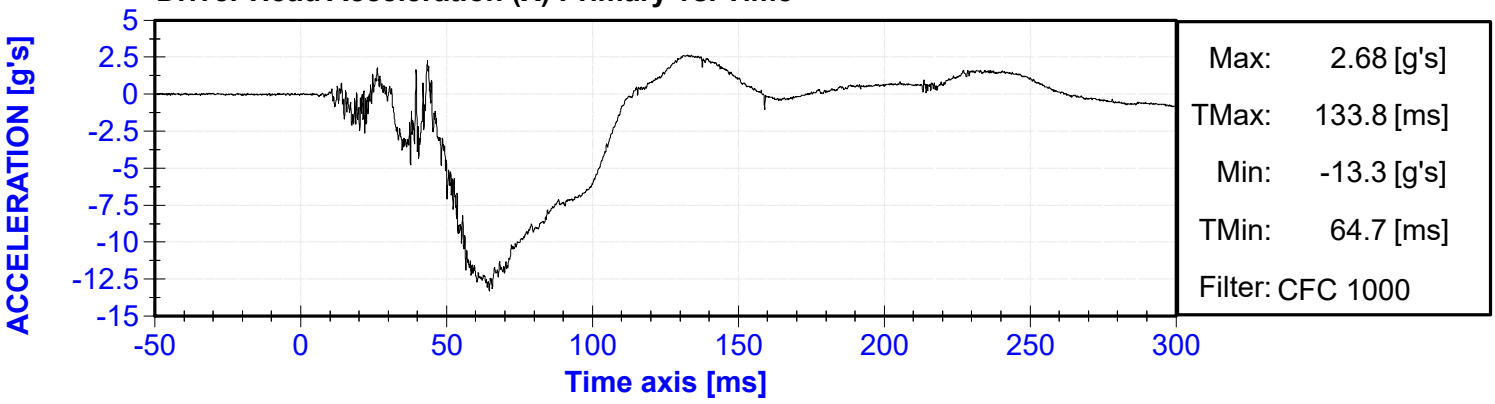
Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

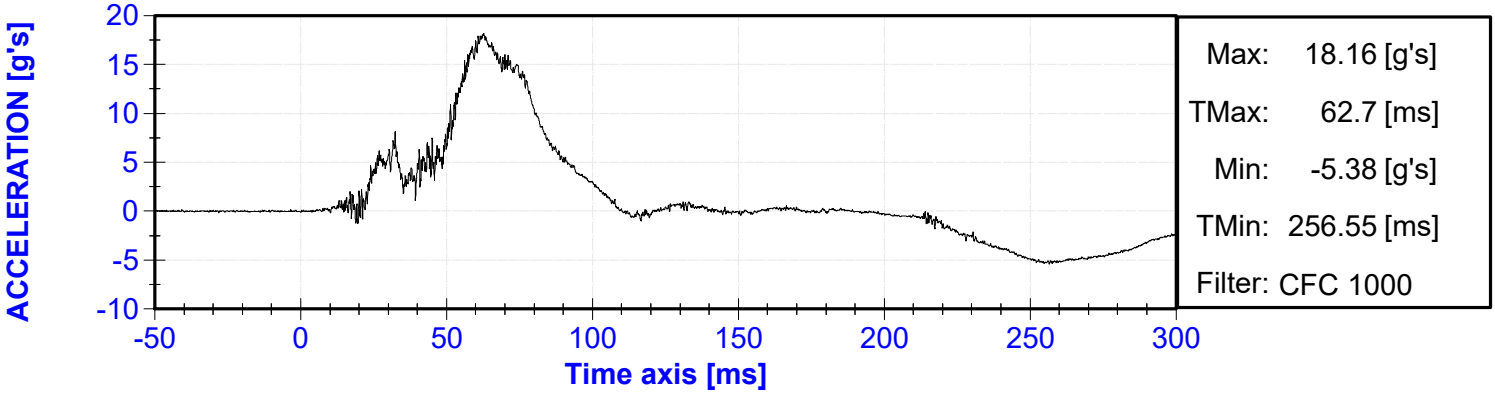
MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

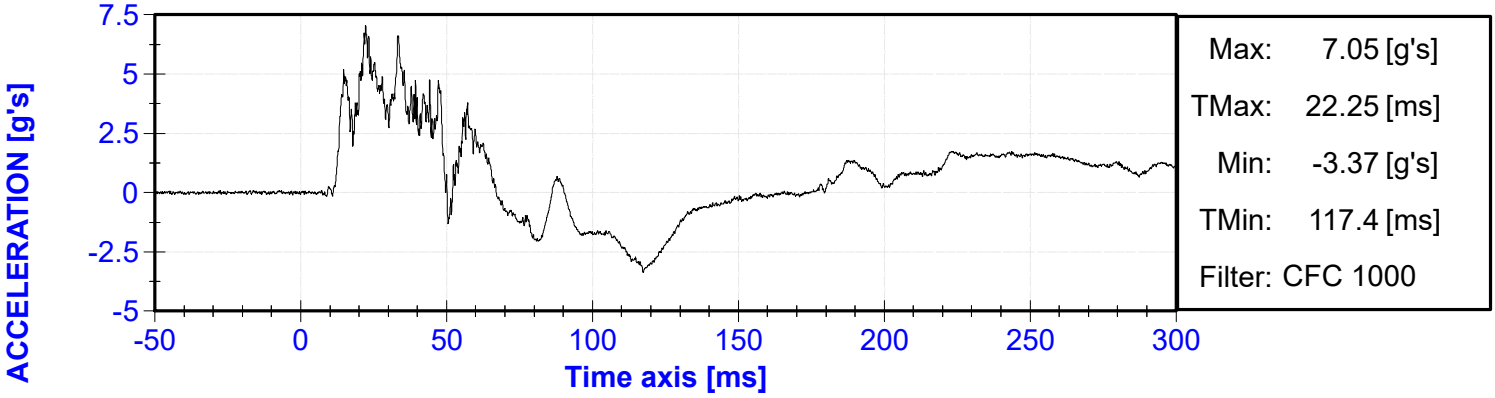
Driver Head Acceleration (X) Primary vs. Time



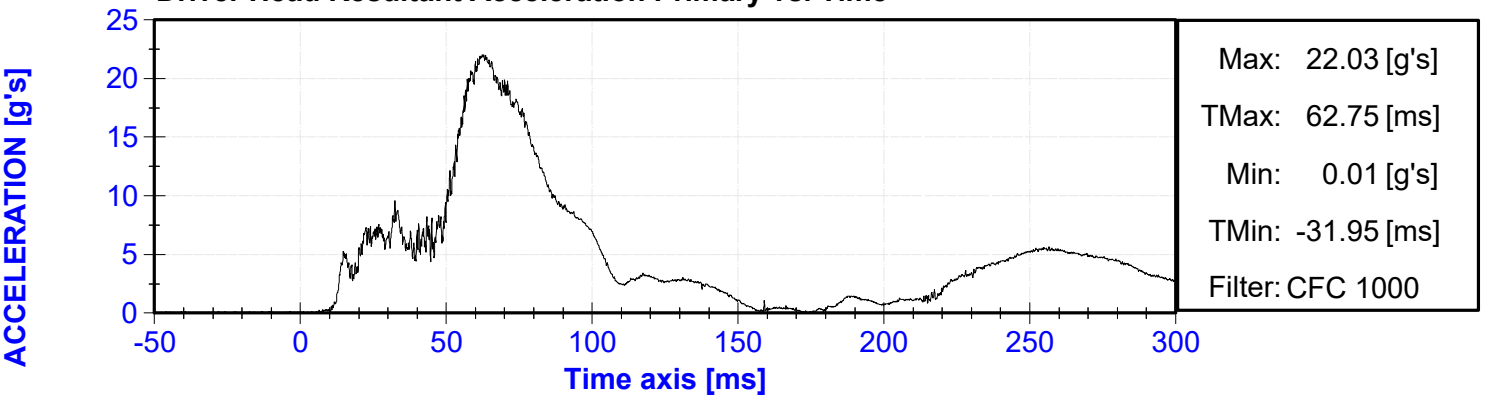
Driver Head Acceleration (Y) Primary vs. Time



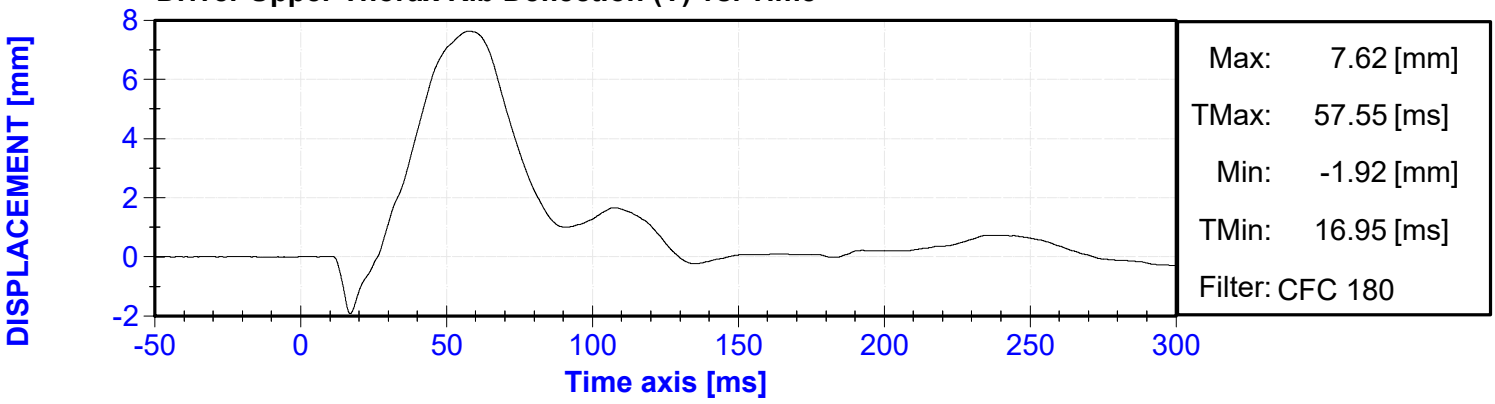
Driver Head Acceleration (Z) Primary vs. Time



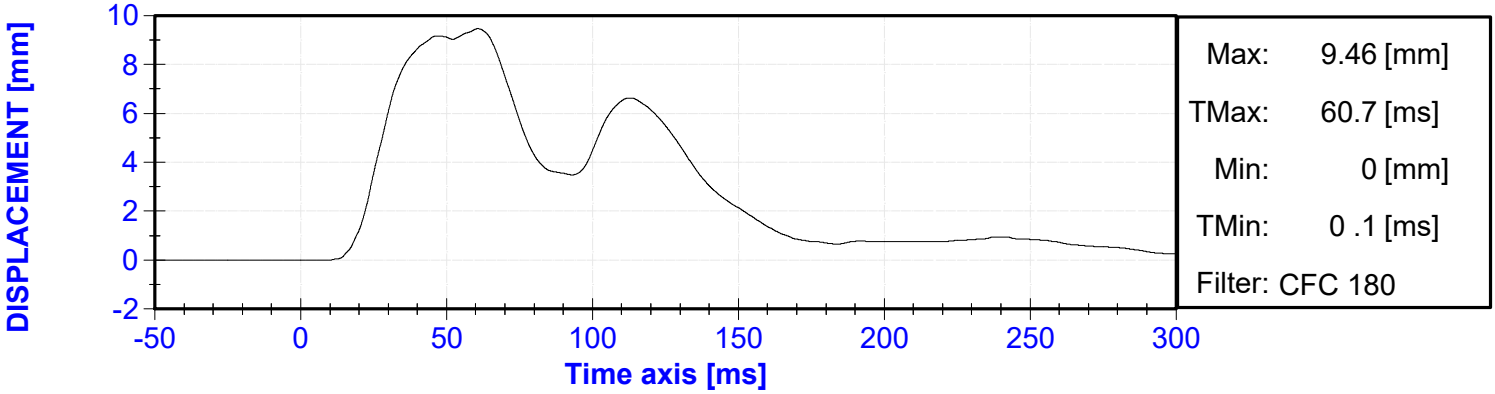
Driver Head Resultant Acceleration Primary vs. Time



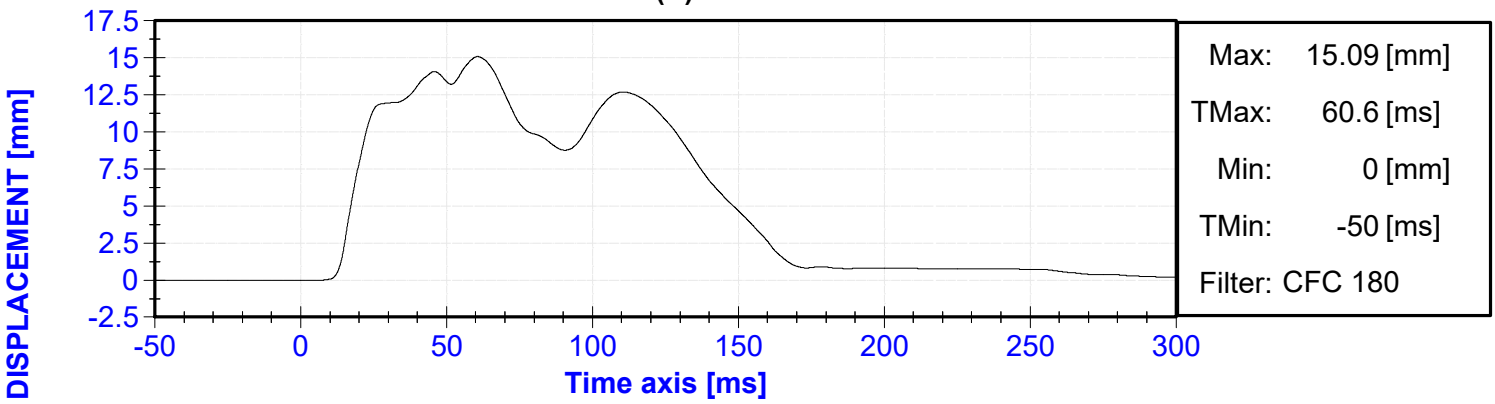
Driver Upper Thorax Rib Deflection (Y) vs. Time



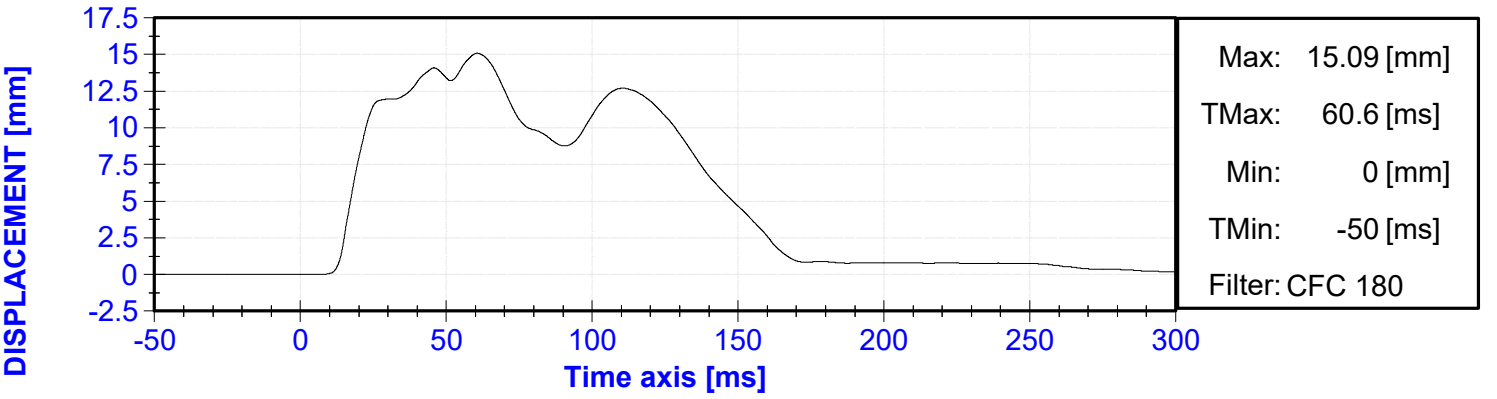
Driver Middle Thorax Rib Deflection (Y) vs. Time



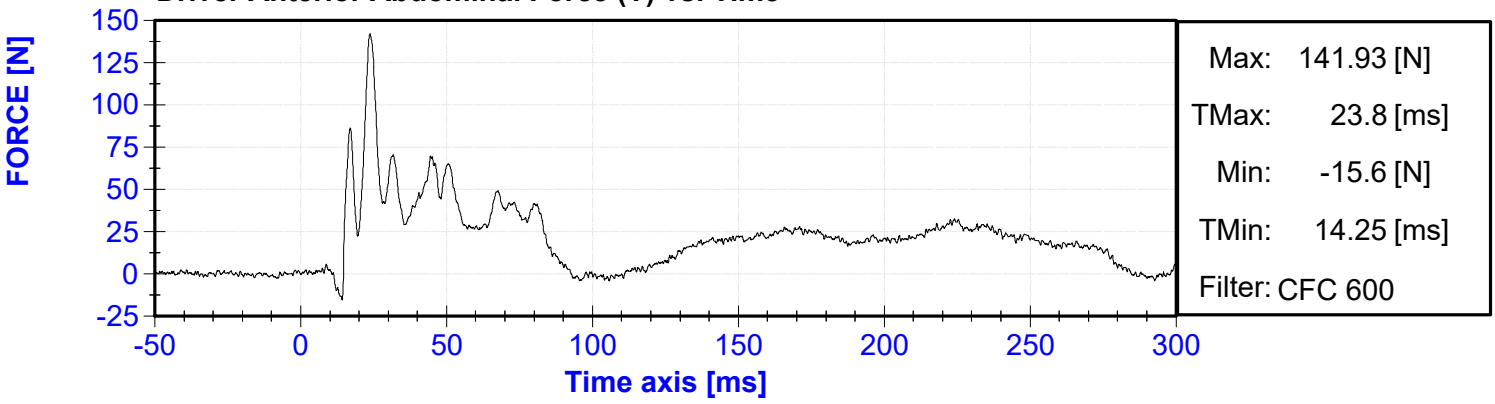
Driver Lower Thorax Rib Deflection (Y) vs. Time



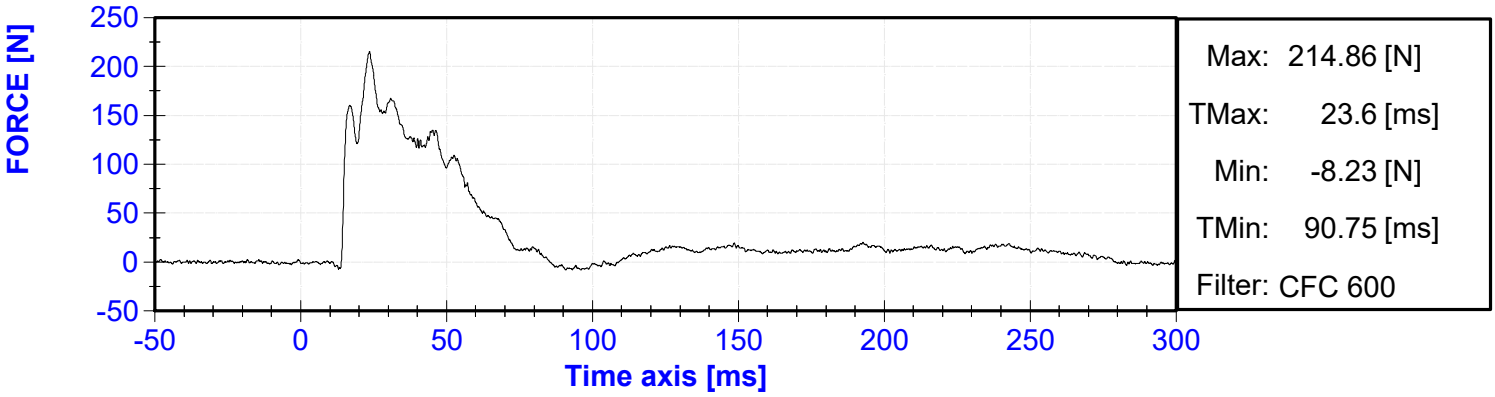
Driver Thorax Rib Deflection Maximum vs. Time



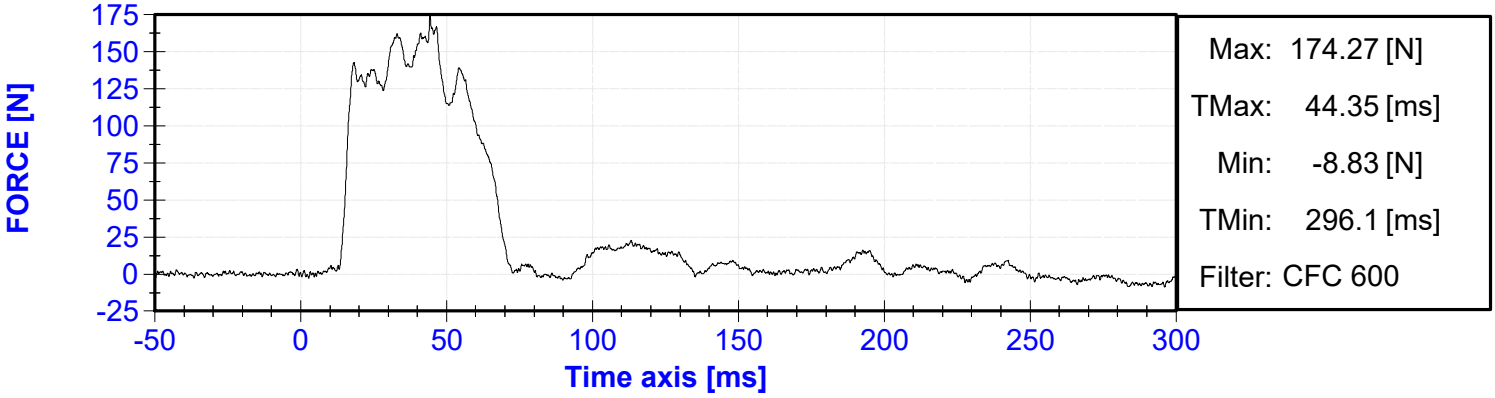
Driver Anterior Abdominal Force (Y) vs. Time



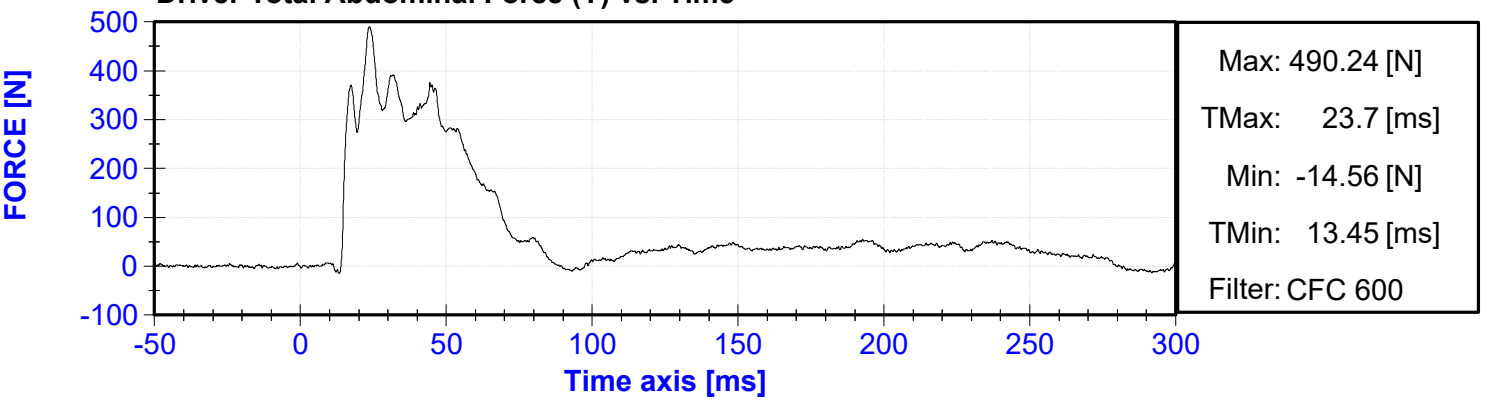
Driver Middle Abdominal Force (Y) vs. Time

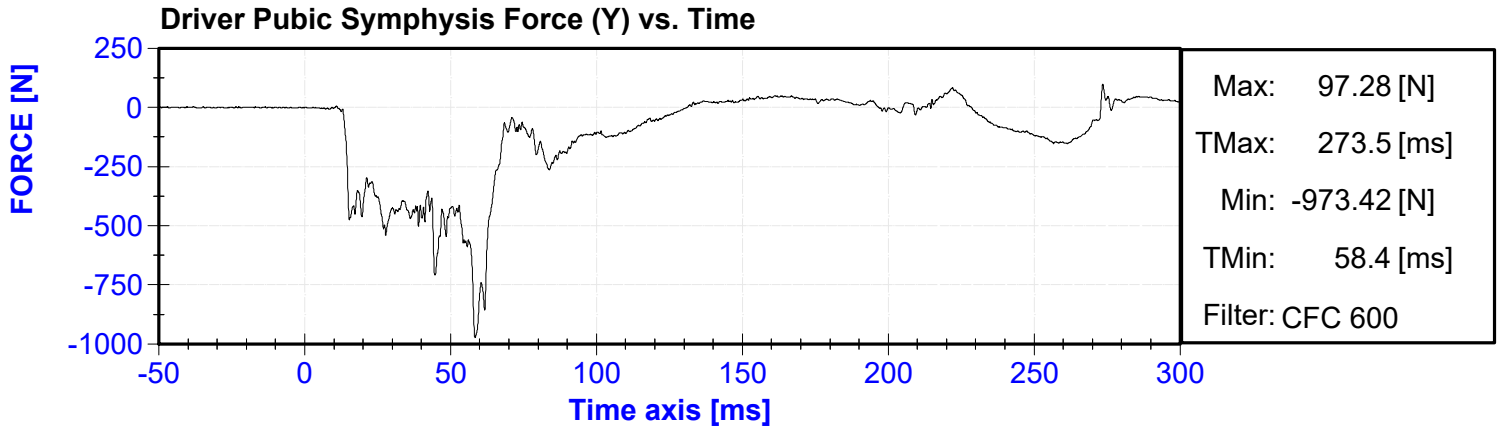


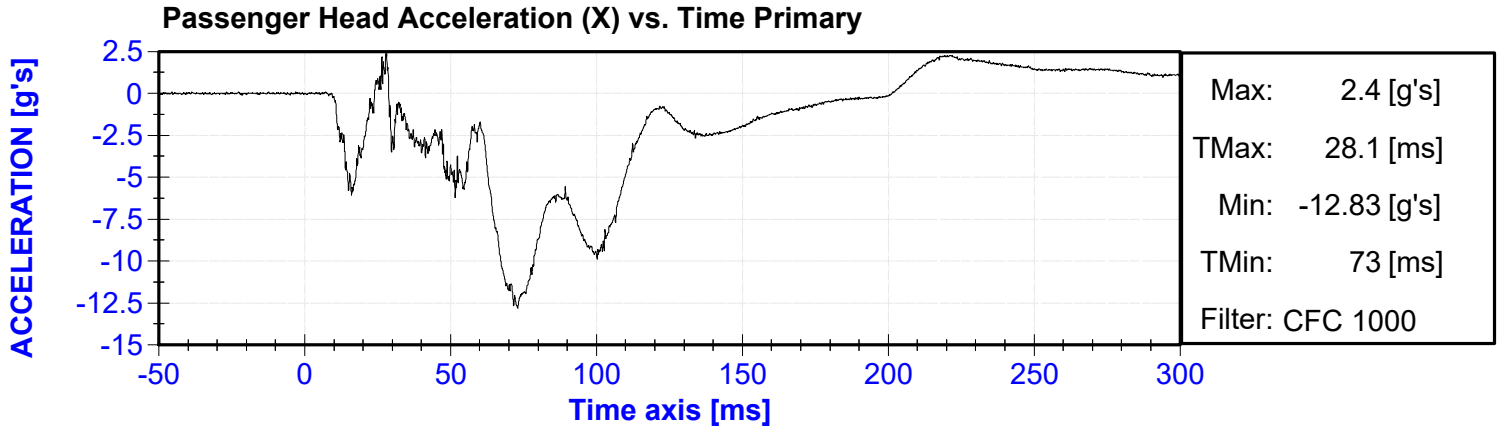
Driver Posterior Abdominal Force (Y) vs. Time

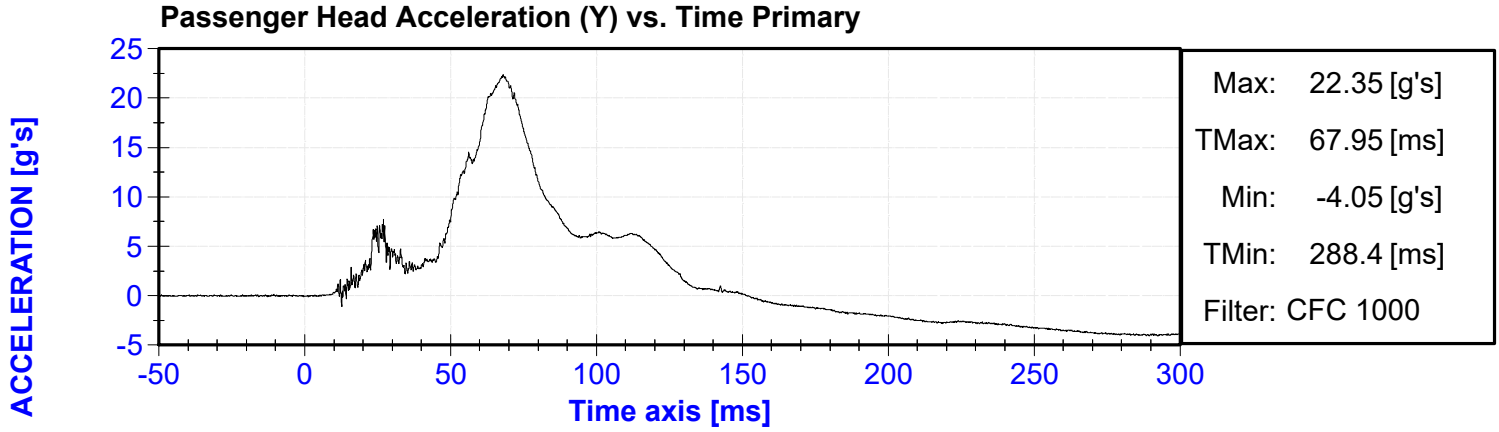


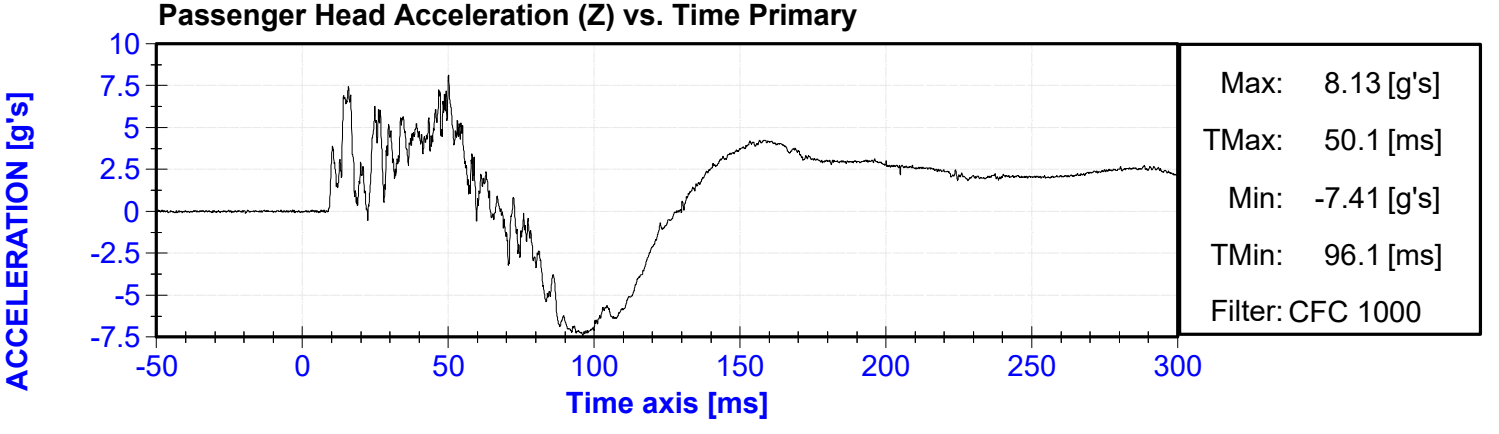
Driver Total Abdominal Force (Y) vs. Time



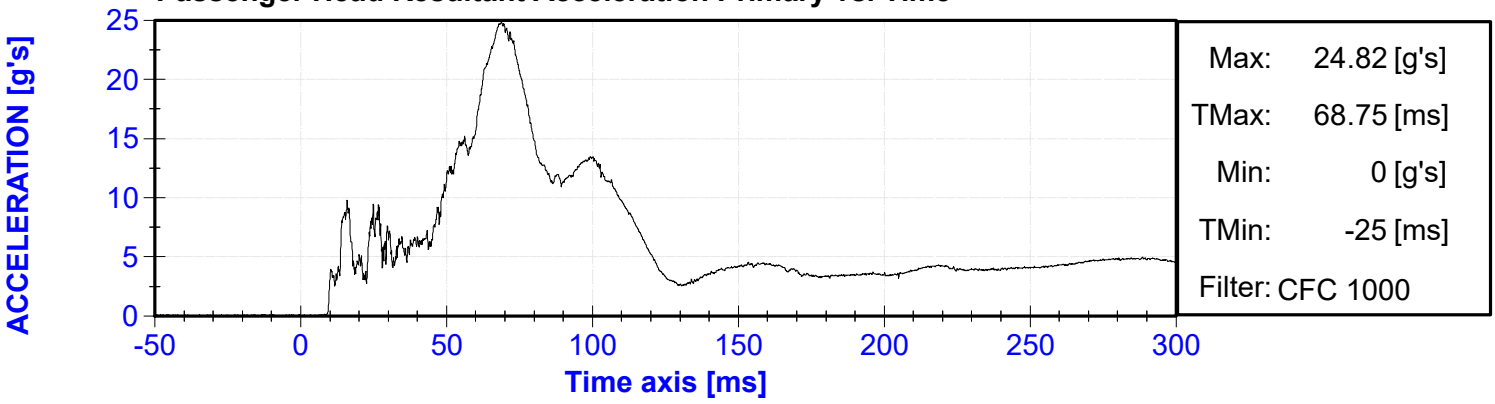

Driver Pubic Symphysis Force (Y) vs. Time
FORCE [N]
250
0
-250
-500
-750
-1000
-50
0
50
100
150
200
250
300
Time axis [ms]
Max: 97.28 [N]
TMax: 273.5 [ms]
Min: -973.42 [N]
TMin: 58.4 [ms]
Filter: CFC 600


Passenger Head Acceleration (X) vs. Time Primary
ACCELERATION [g's]
2.5
0
-2.5
-5
-7.5
-10
-12.5
-15
-50
0
50
100
150
200
250
300
Time axis [ms]
Max: 2.4 [g's]
TMax: 28.1 [ms]
Min: -12.83 [g's]
TMin: 73 [ms]
Filter: CFC 1000

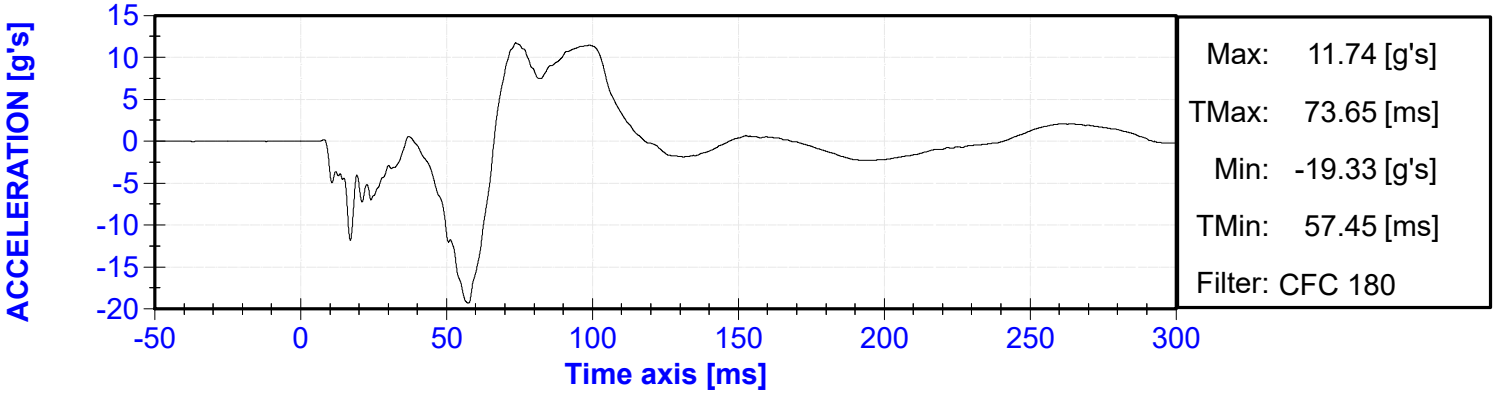

Passenger Head Acceleration (Y) vs. Time Primary
ACCELERATION [g's]
25
20
15
10
5
0
-5
-50
0
50
100
150
200
250
300
Time axis [ms]
Max: 22.35 [g's]
TMax: 67.95 [ms]
Min: -4.05 [g's]
TMin: 288.4 [ms]
Filter: CFC 1000


Passenger Head Acceleration (Z) vs. Time Primary
ACCELERATION [g's]
10
7.5
5
2.5
0
-2.5
-5
-7.5
-50
0
50
100
150
200
250
300
Time axis [ms]
Max: 8.13 [g's]
TMax: 50.1 [ms]
Min: -7.41 [g's]
TMin: 96.1 [ms]
Filter: CFC 1000

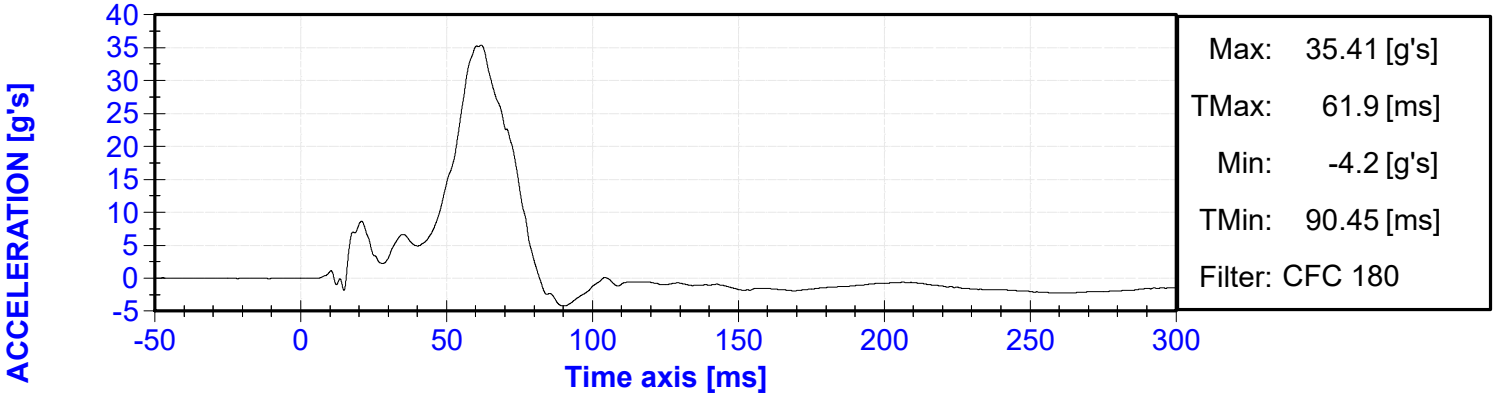
Passenger Head Resultant Acceleration Primary vs. Time



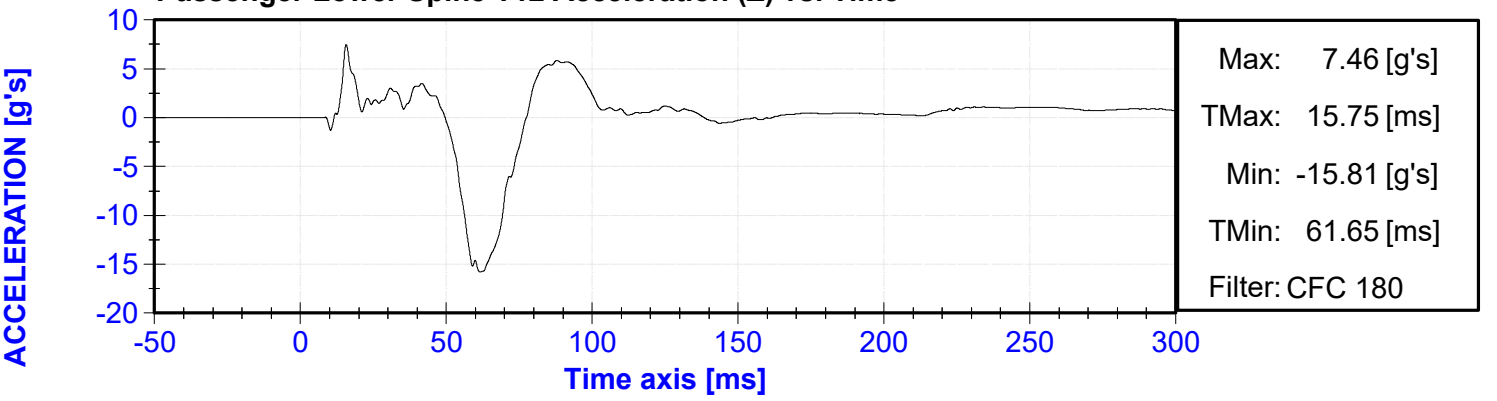
Passenger Lower Spine T12 Acceleration (X) vs. Time



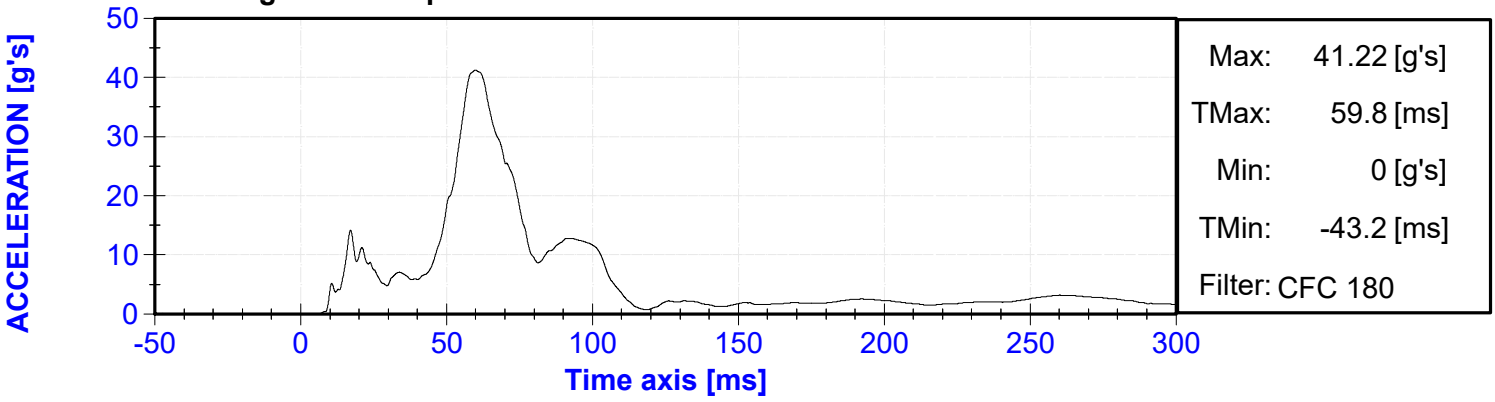
Passenger Lower Spine T12 Acceleration (Y) vs. Time



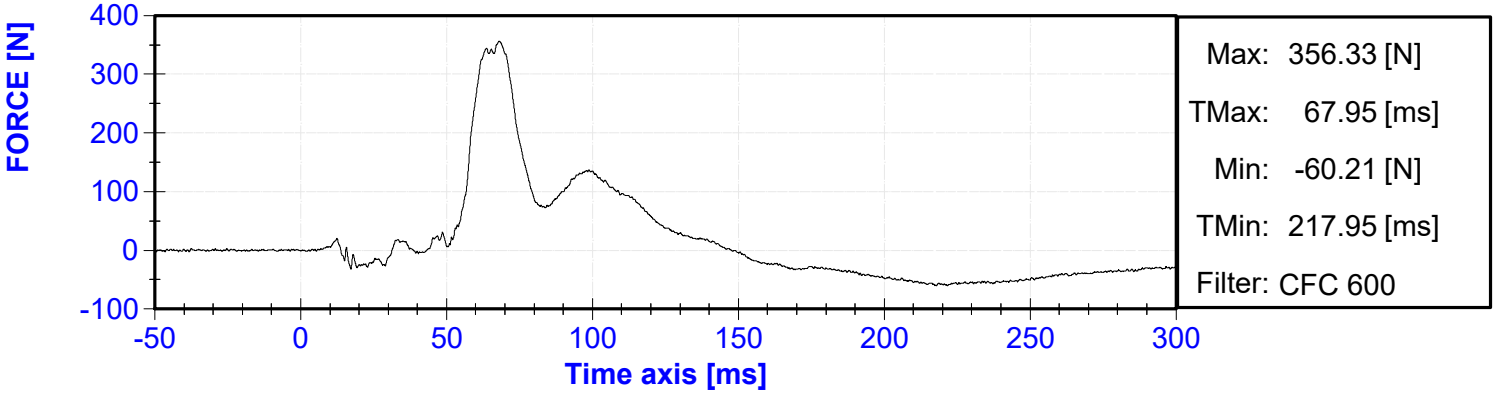
Passenger Lower Spine T12 Acceleration (Z) vs. Time



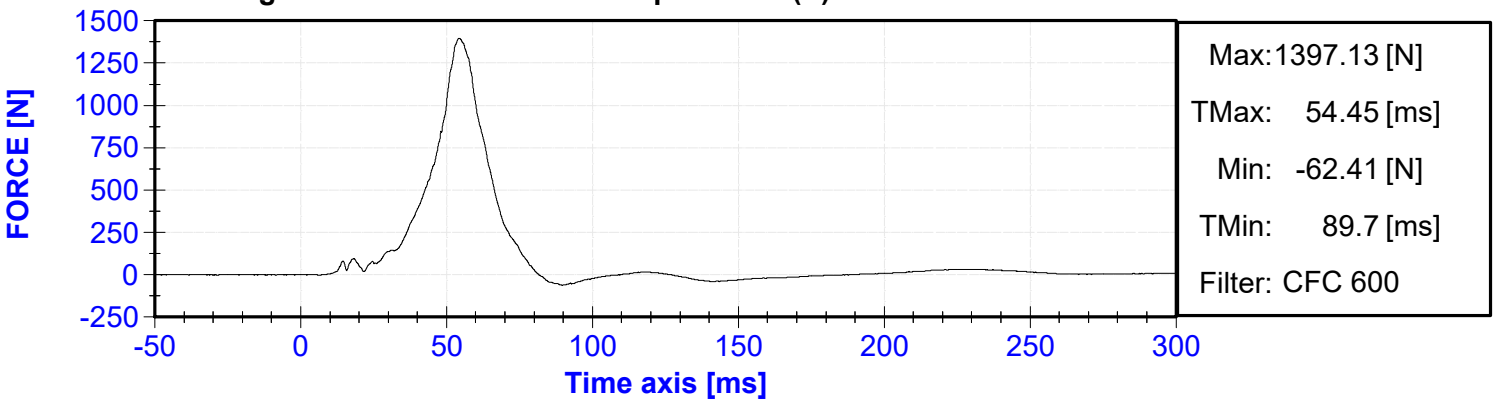
Passenger Lower Spine T12 Resultant Acceleration vs. Time



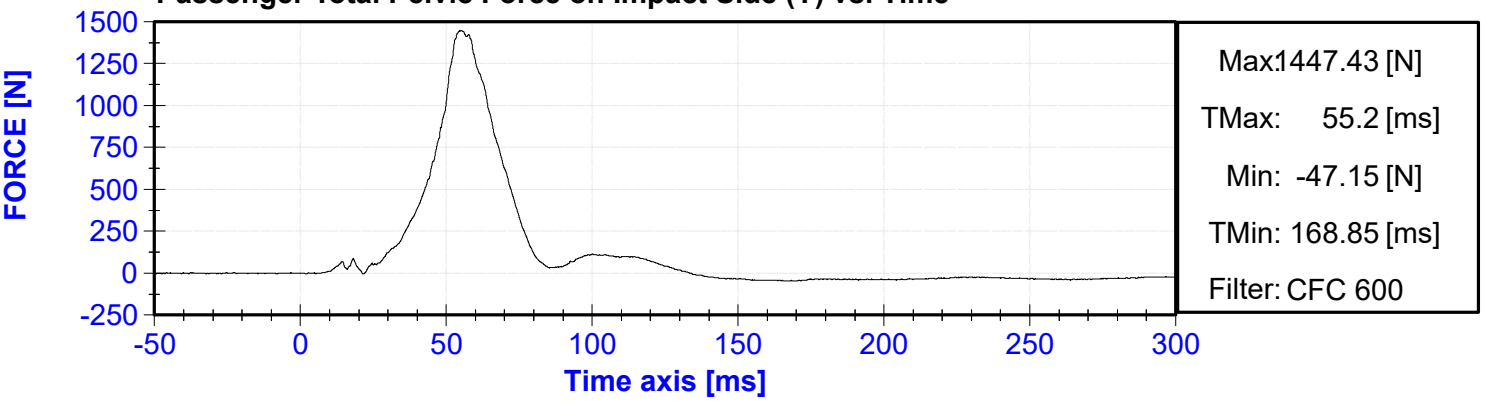
Passenger Iliac Force on Impact Side (Y) vs. Time



Passenger Acetabulum Force on Impact Side (Y) vs. Time



Passenger Total Pelvic Force on Impact Side (Y) vs. Time



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

EUROSID 2 (ES-2RE) MALE – DRIVER ATD

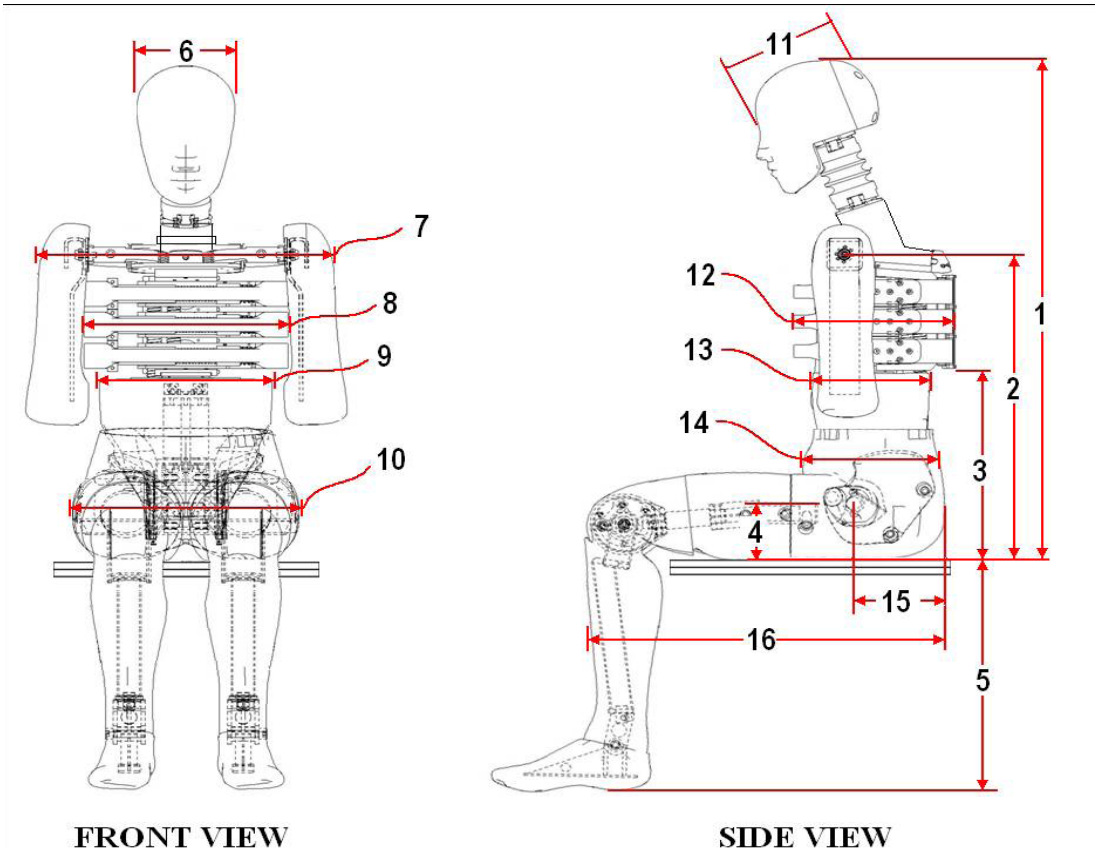
SERIAL NO:F033

(CONFIGURED FOR LEFT SIDE IMPACT)

External Measurements - EuroSID-2re

Technician: J. Rios Date: 12/10/2025

Dummy Serial Number: F033



FRONT VIEW SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	912	Pass
2	Seat to Shoulder Joint	558	572	568	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	351	Pass
4	Seat to Hip Joint (center of bolt)	97	103	101	Pass
5	Sole to Seat, Sitting	333	451	410	Pass
6	Head Width	152	158	155	Pass
7	Shoulder/Arm Width	461	479	467	Pass
8	Thorax Width	322	332	325	Pass
9	Abdomen Width	273	287	282	Pass
10	Pelvis Lap Width	359	373	367	Pass
11	Head Depth	196	206	197	Pass
12	Thorax Depth	262	272	271	Pass
13	Abdomen Depth	194	204	199	Pass
14	Pelvis Depth	235	245	239	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	155	Pass
16	Back of Buttocks to Front Knee	597	615	611	Pass

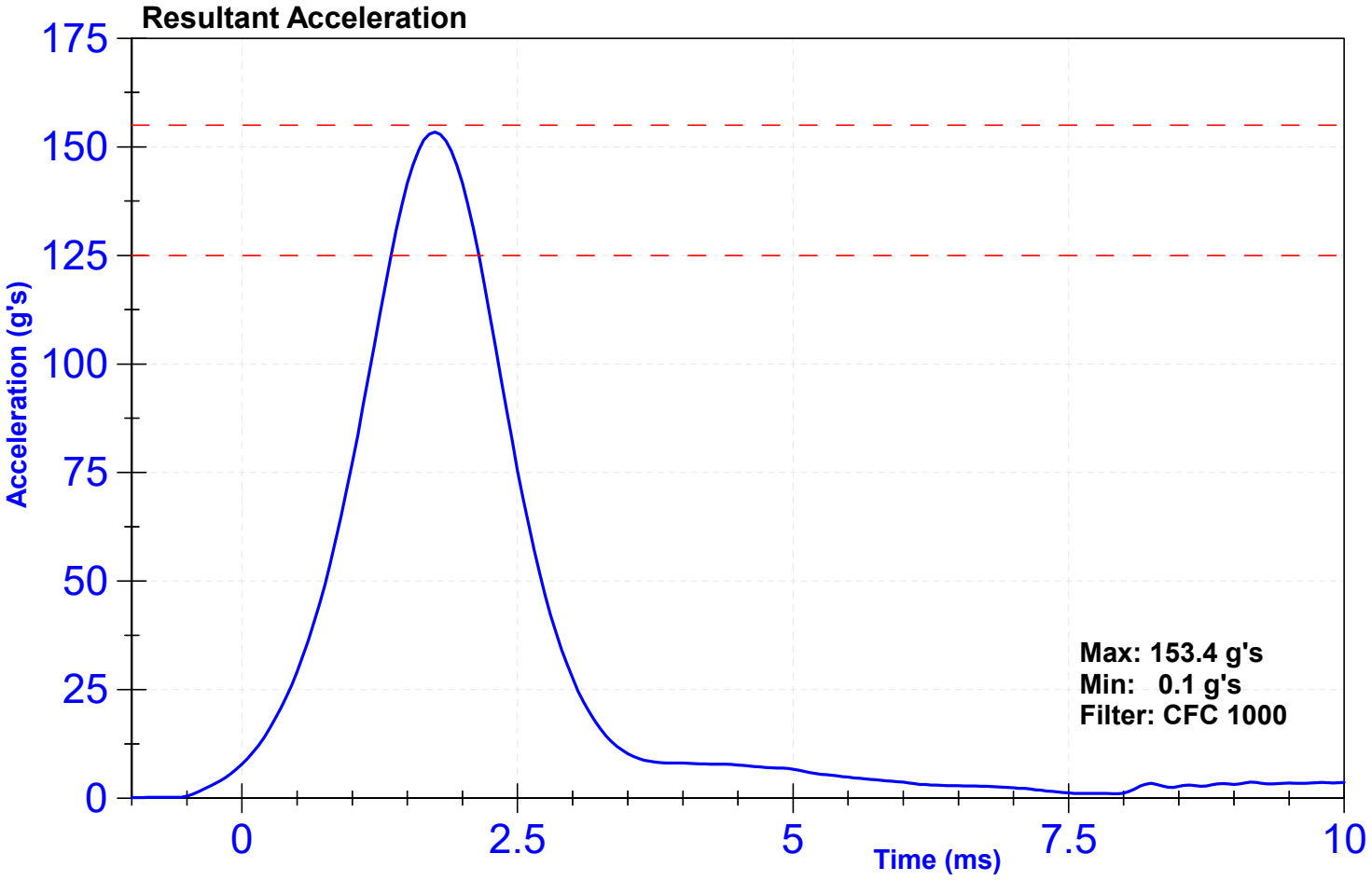
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

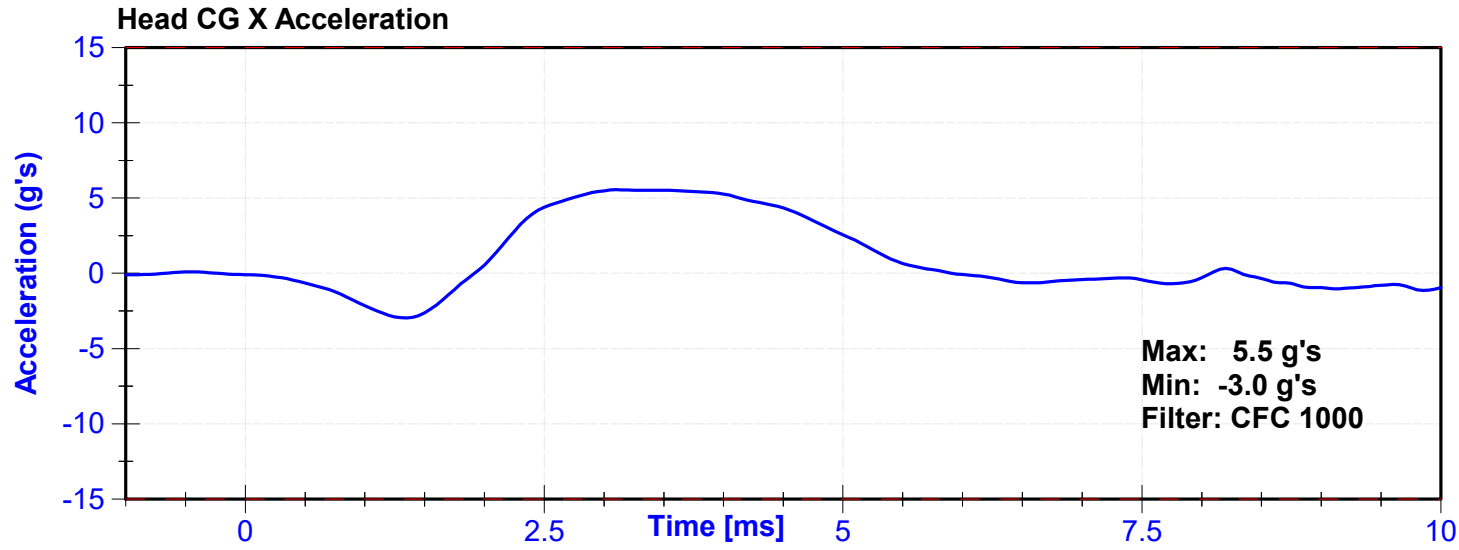
Results

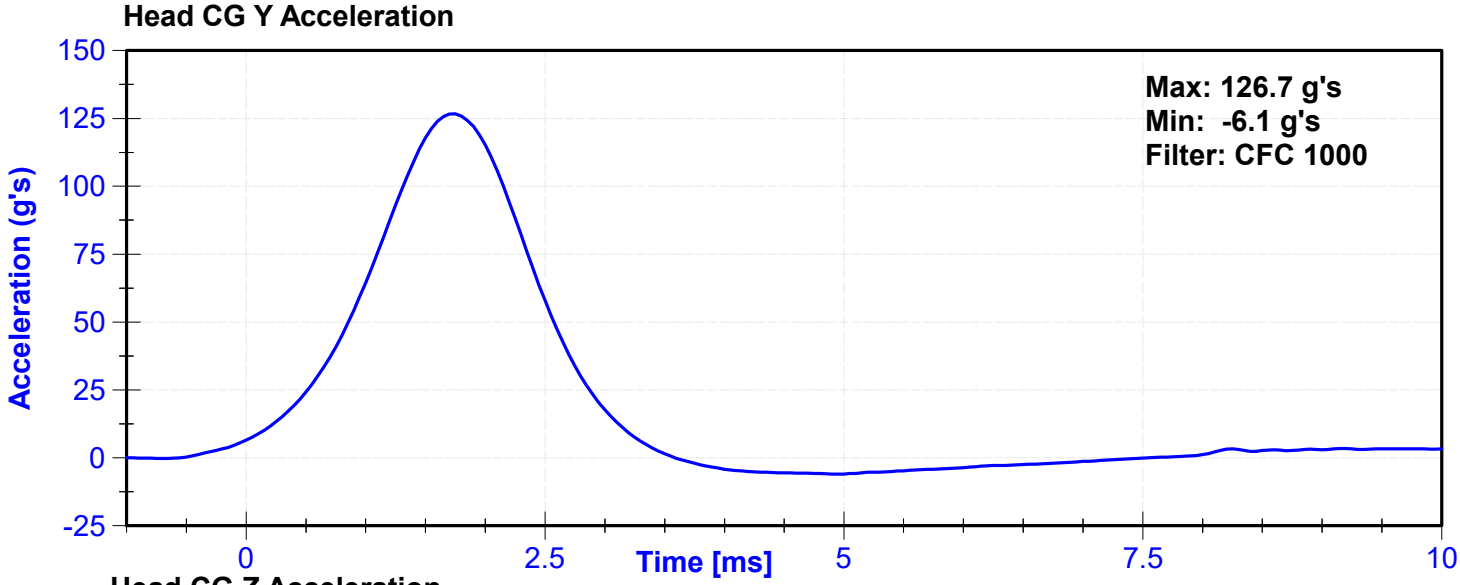
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Resultant Acceleration	125	155	g's	153.4	Pass
Oscillation	0	15	%	2.38	Pass
Fore-Aft Acceleration	-15	15	g's	5.5	Pass

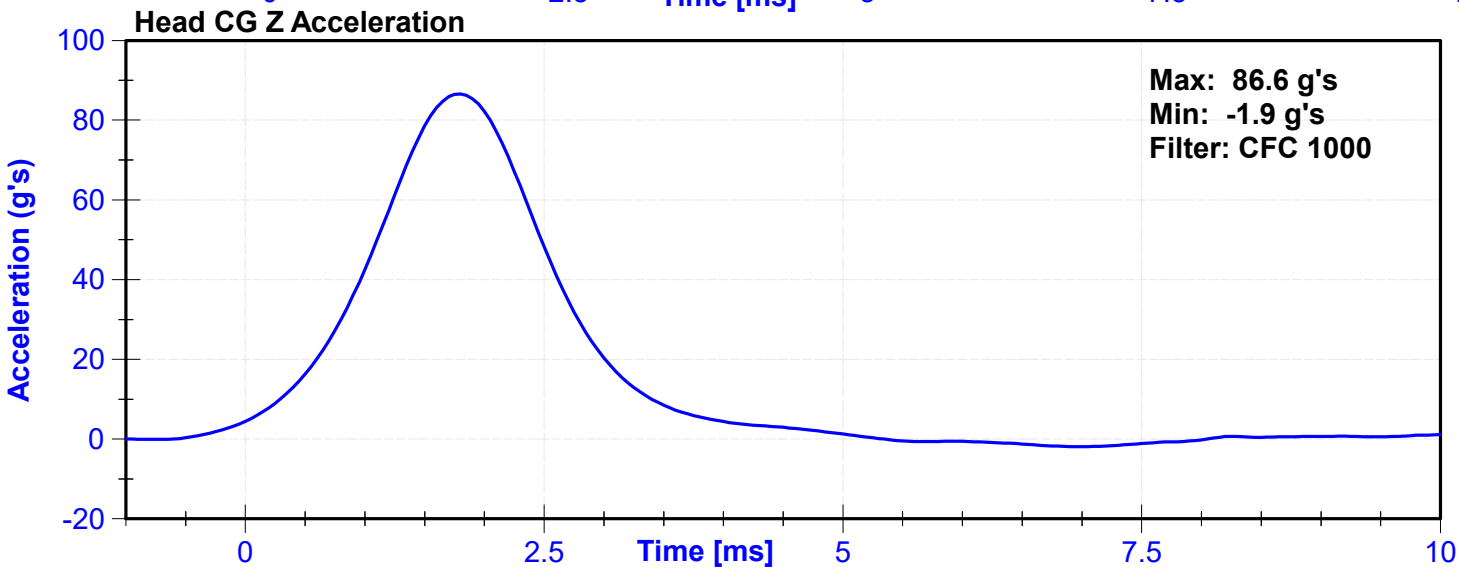
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P63861	12/4/2025	6/2/2026
Y Accelerometer	Endevco	P49216	12/4/2025	6/2/2026
Z Accelerometer	Endevco	P51303	12/4/2025	6/2/2026




Head CG X Acceleration
Acceleration (g's)
15
10
5
0
-5
-10
-15
0
2.5
5
7.5
10
Time [ms]
Max: 5.5 g's
Min: -3.0 g's
Filter: CFC 1000


Head CG Y Acceleration
Acceleration (g's)
150
125
100
75
50
25
0
-25
0
2.5
5
7.5
10
Time [ms]
Max: 126.7 g's
Min: -6.1 g's
Filter: CFC 1000


Head CG Z Acceleration
Acceleration (g's)
100
80
60
40
20
0
-20
0
2.5
5
7.5
10
Time [ms]
Max: 86.6 g's
Min: -1.9 g's
Filter: CFC 1000

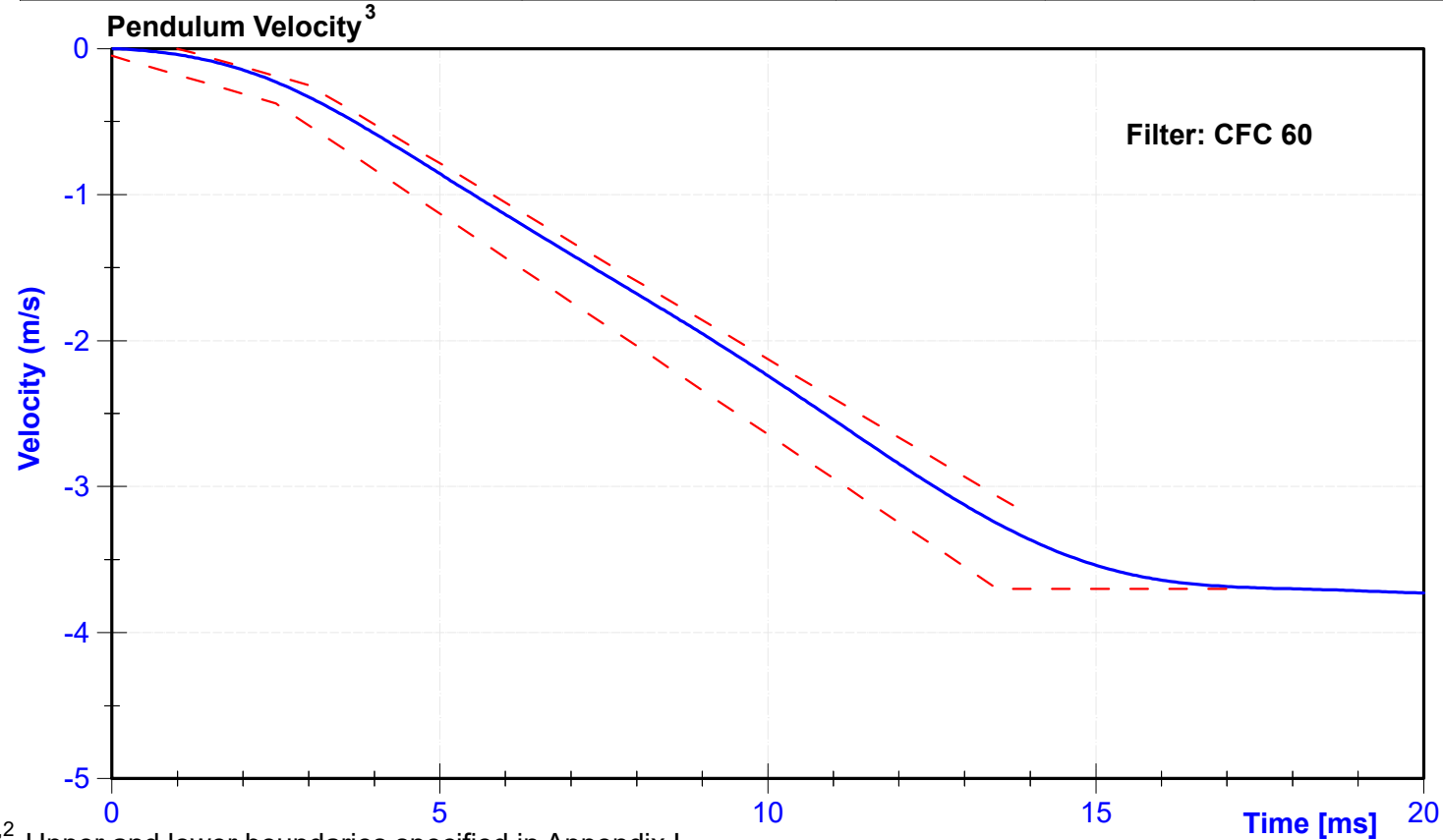
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

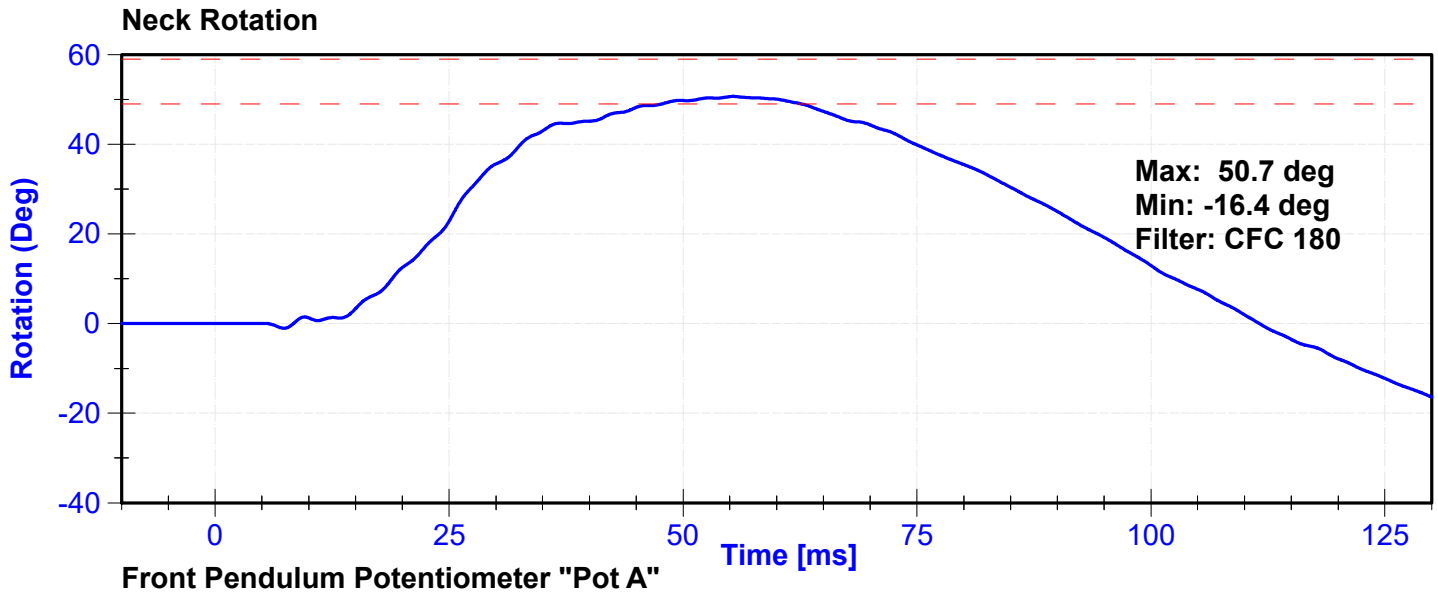
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	16	Pass
Velocity	3.3	3.5	m/s	3.47	Pass
Lateral Neck Rotation	49	59	deg	50.7	Pass
Time at Maximum Rotation	54	66	ms	55.4	Pass
Time of Rotation Decay from Maximum	53	88	ms	56.3	Pass
Pendulum Velocity Overall Corridor	Lower Boundary[1]	Upper Boundary[2]	m/s	See Plot[3]	Pass

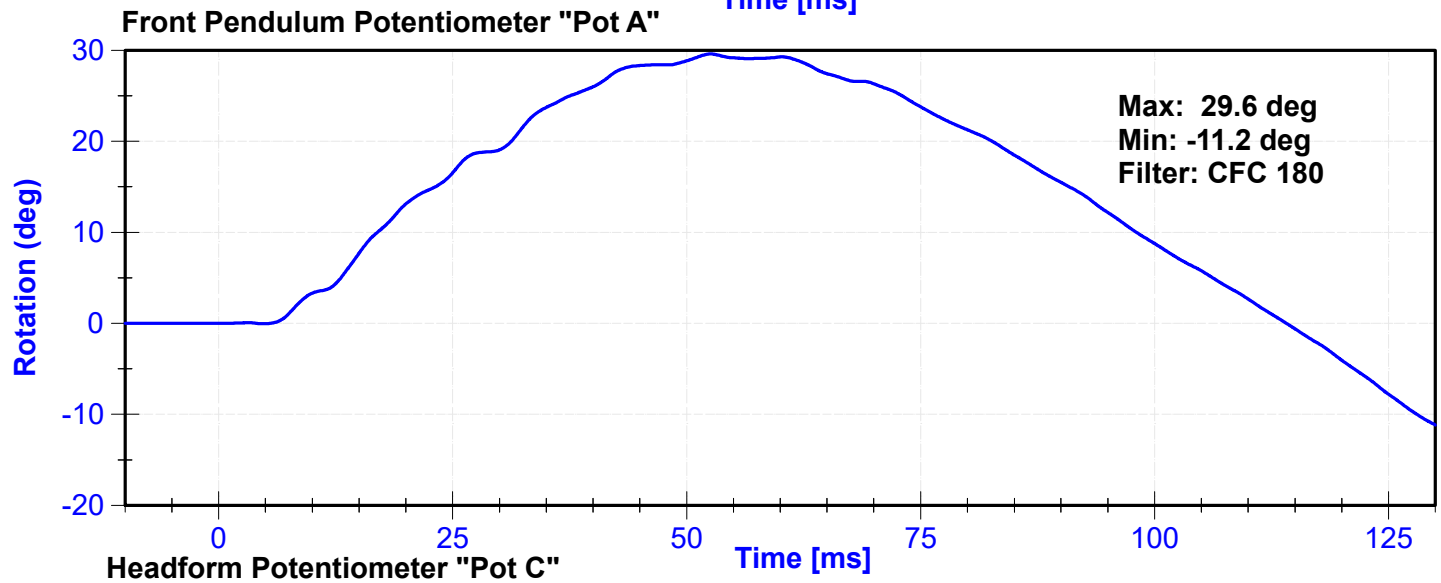
Transducer Calibrations

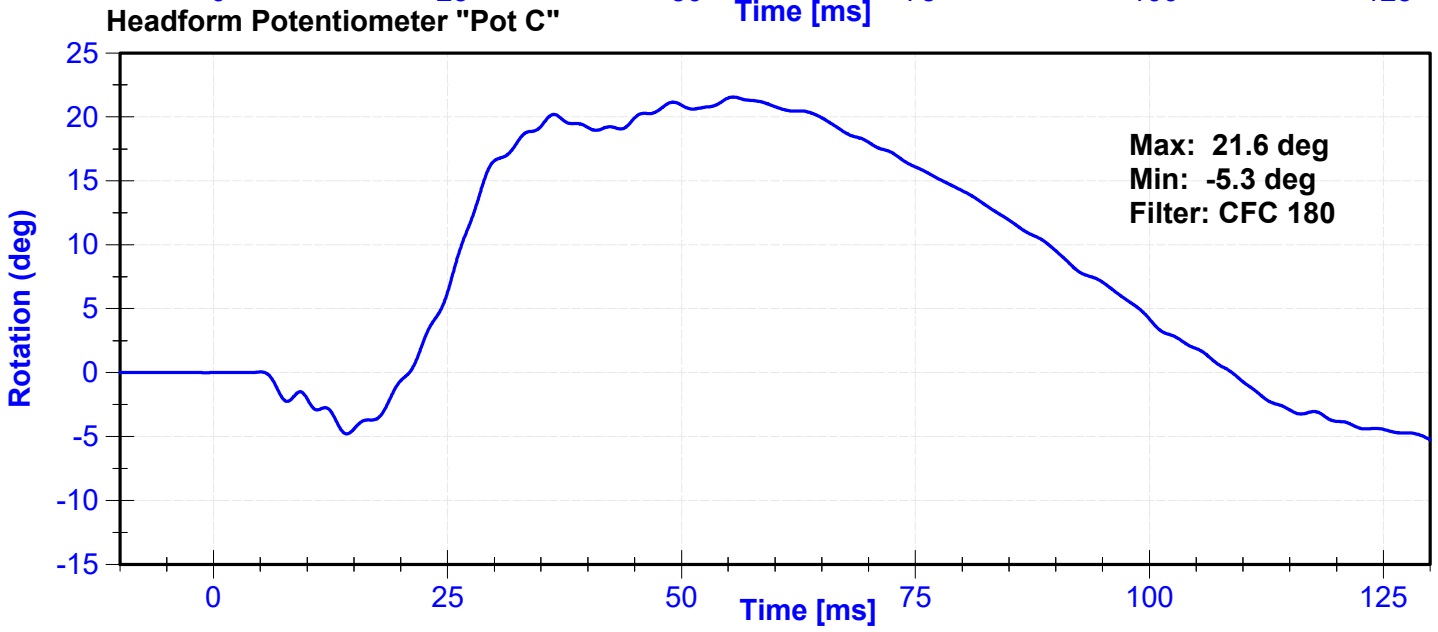
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/21/2025	10/21/2026
Front Pendulum Potentiometer	Sfernice	2247	9/30/2025	9/30/2026
Headform Potentiometer	Sfernice	095	9/30/2025	9/30/2026



[1,2] Upper and lower boundaries specified in Appendix I


Neck Rotation
Rotation (Deg)
60
40
20
0
-20
-40
0
25
50
75
100
125
Time [ms]
Max: 50.7 deg
Min: -16.4 deg
Filter: CFC 180


Front Pendulum Potentiometer "Pot A"
Rotation (deg)
30
20
10
0
-10
-20
0
25
50
75
100
125
Time [ms]
Max: 29.6 deg
Min: -11.2 deg
Filter: CFC 180


Headform Potentiometer "Pot C"
Rotation (deg)
25
20
15
10
5
0
-5
-10
-15
0
25
50
75
100
125
Time [ms]
Max: 21.6 deg
Min: -5.3 deg
Filter: CFC 180

Appendix I

[2] Upper Boundary Corridor		[1] Lower Boundary Corridor	
Time (ms)	Velocity (m/s)	Time (ms)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.25	2.5	-0.375
14.0	-3.20	13.5	-3.7
		17.0	-3.7

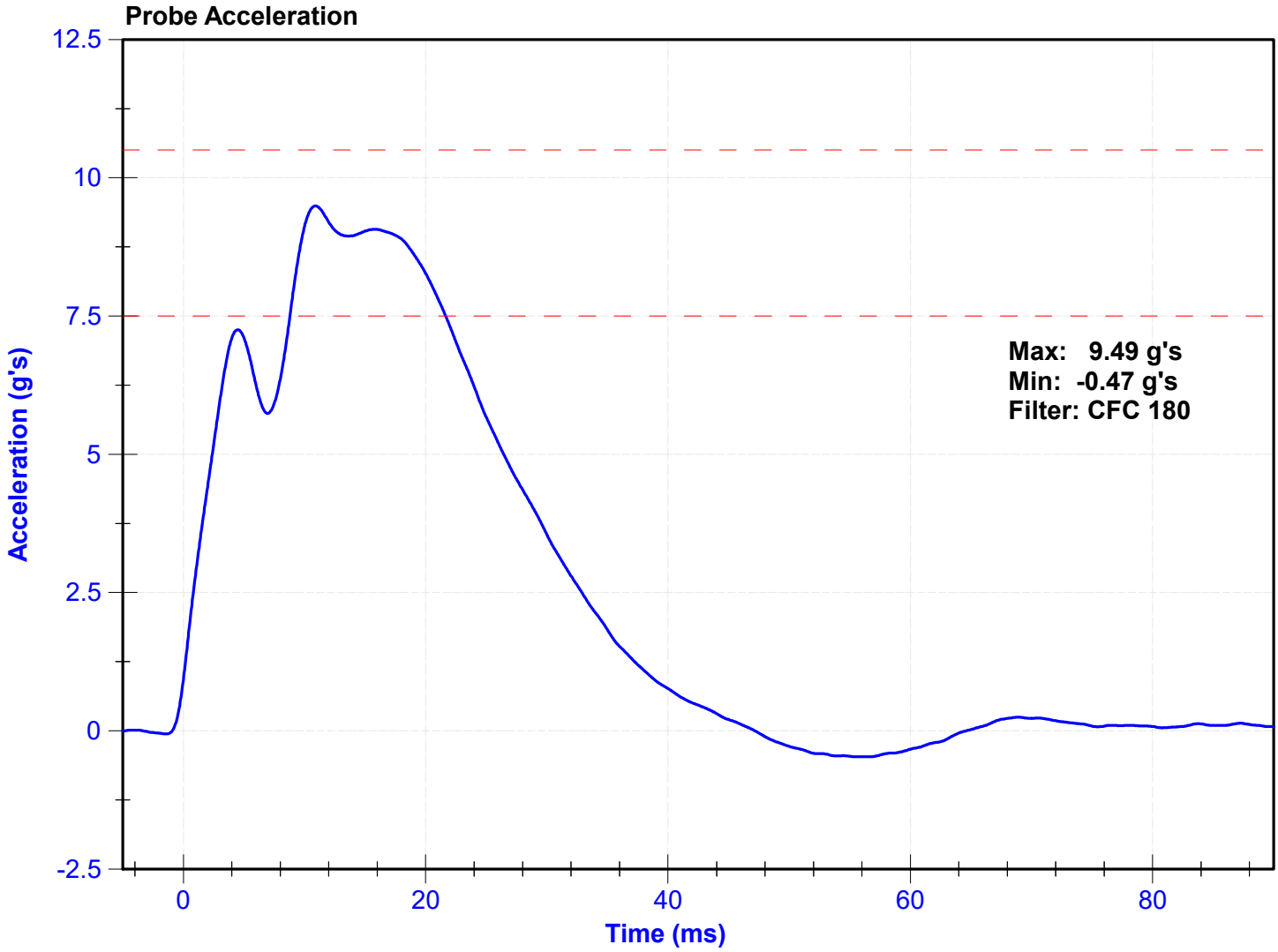
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Velocity	4.2	4.4	m/s	4.20	Pass
Probe Acceleration	7.5	10.5	g's	9.49	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/5/2025	5/4/2026



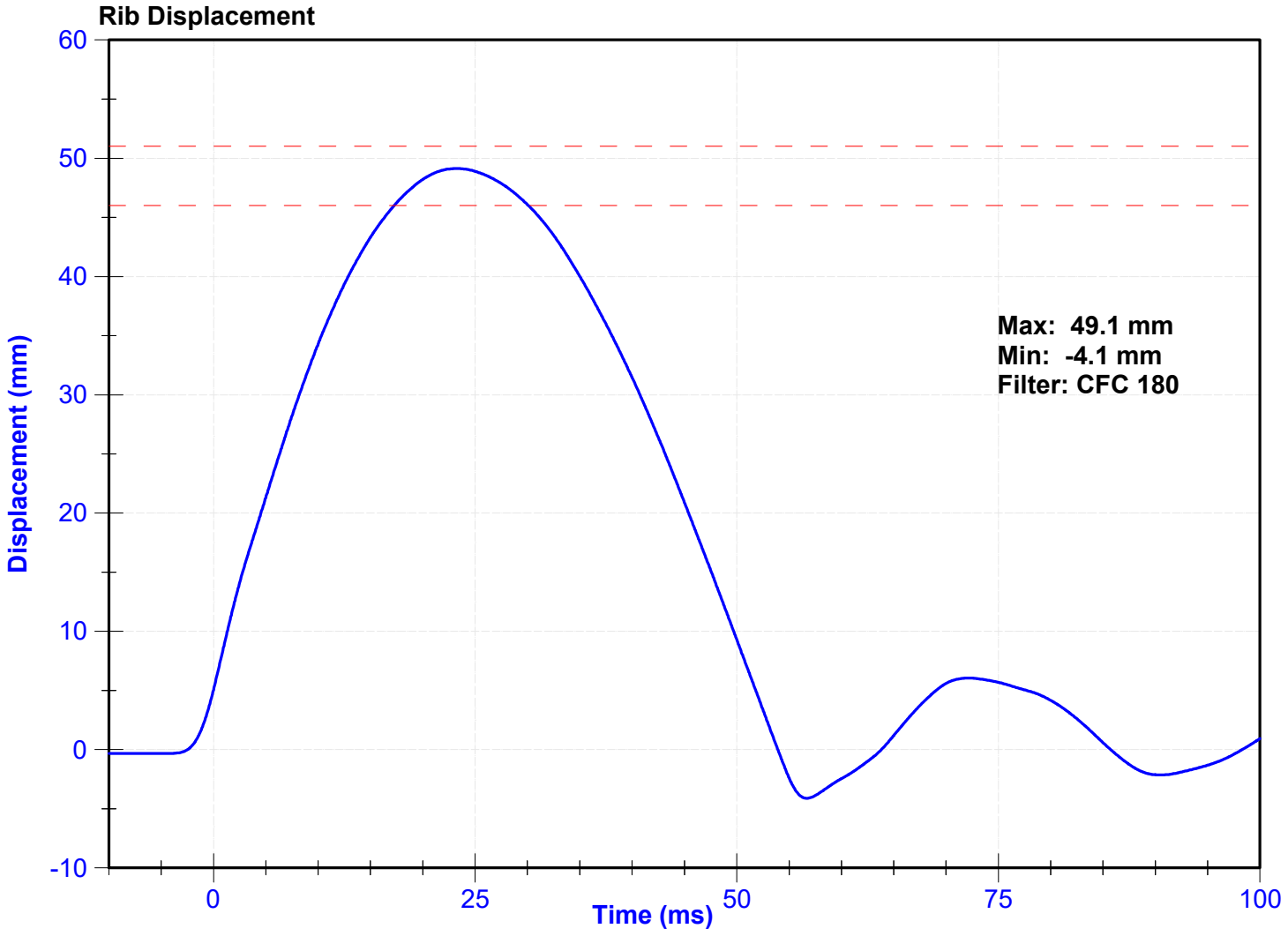
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	46	51	mm	49.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	179GFE	12/4/2025	6/4/2026



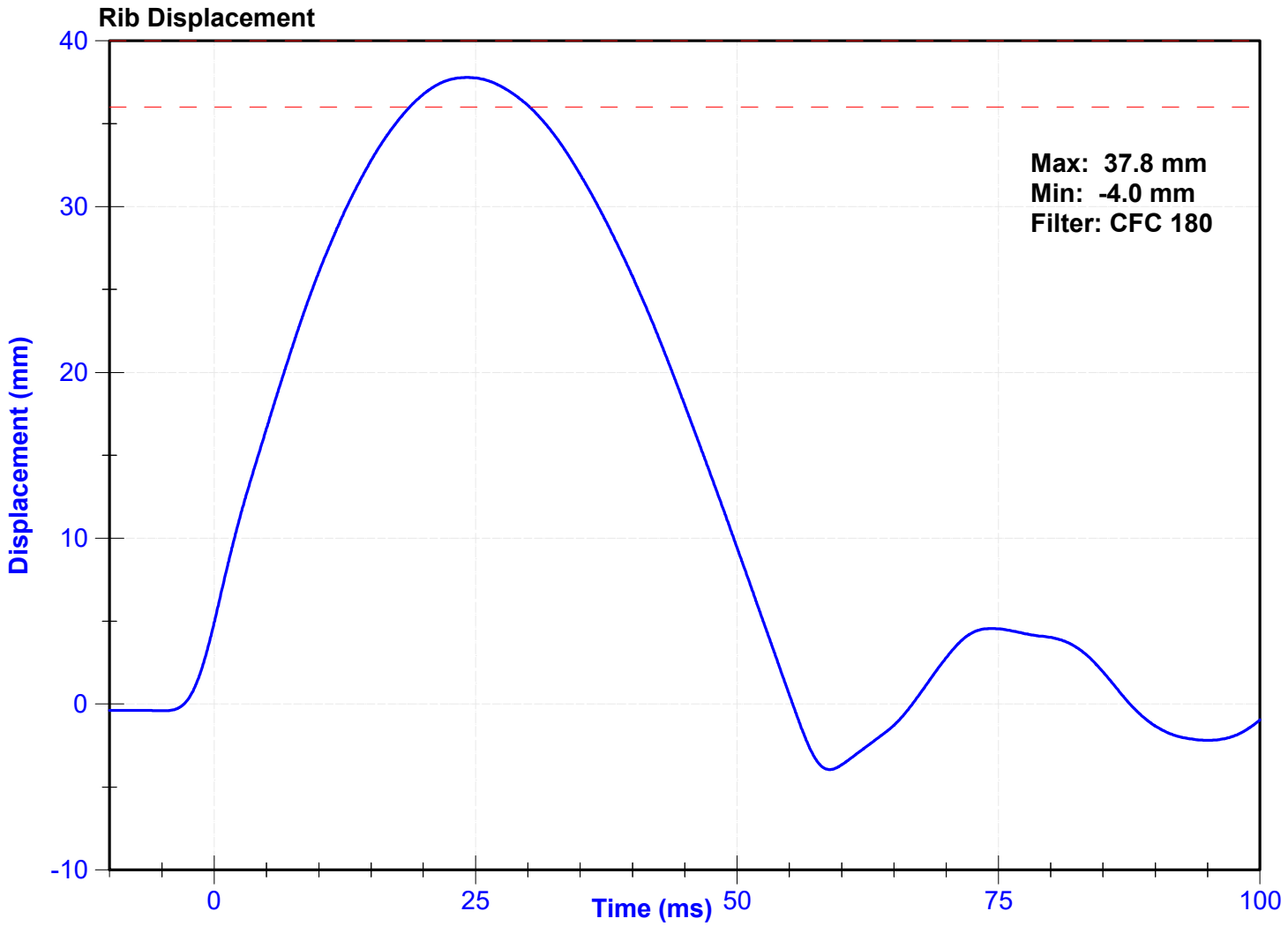
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	36	40	mm	37.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	179GFE	12/4/2025	6/4/2026



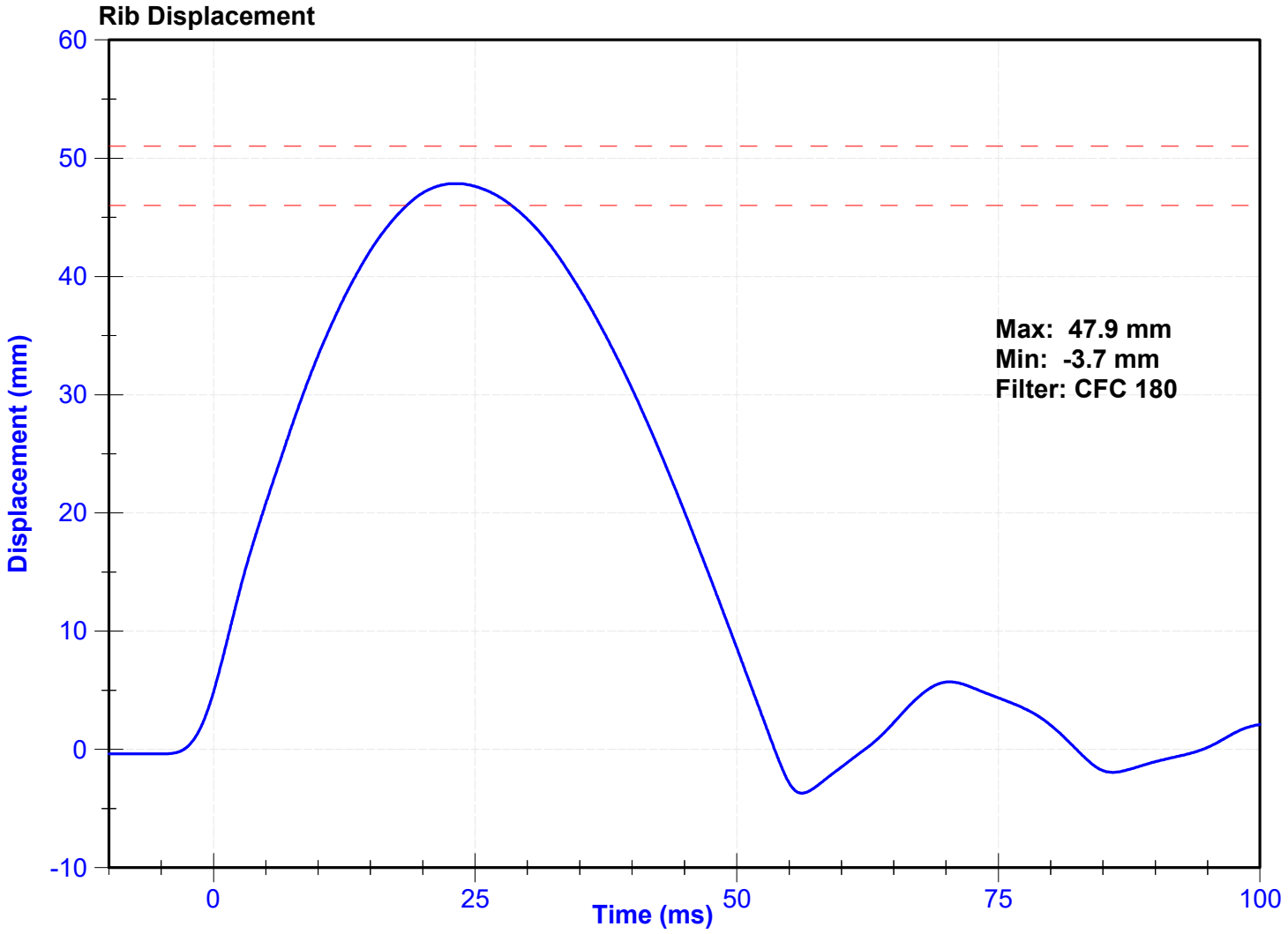
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	46	51	mm	47.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	185GFE	12/4/2025	6/4/2026



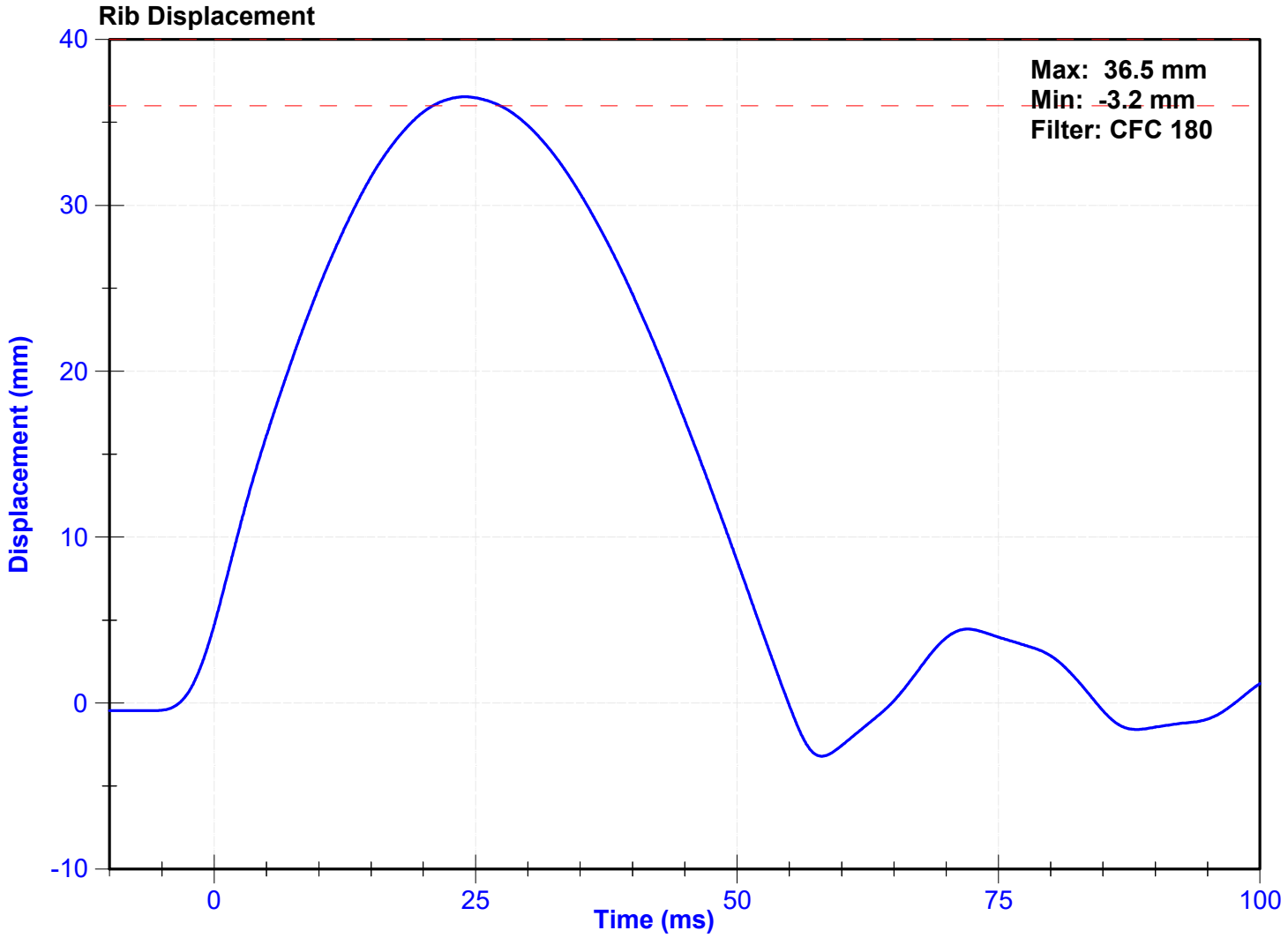
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	36	40	mm	36.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	185GFE	12/4/2025	6/4/2026



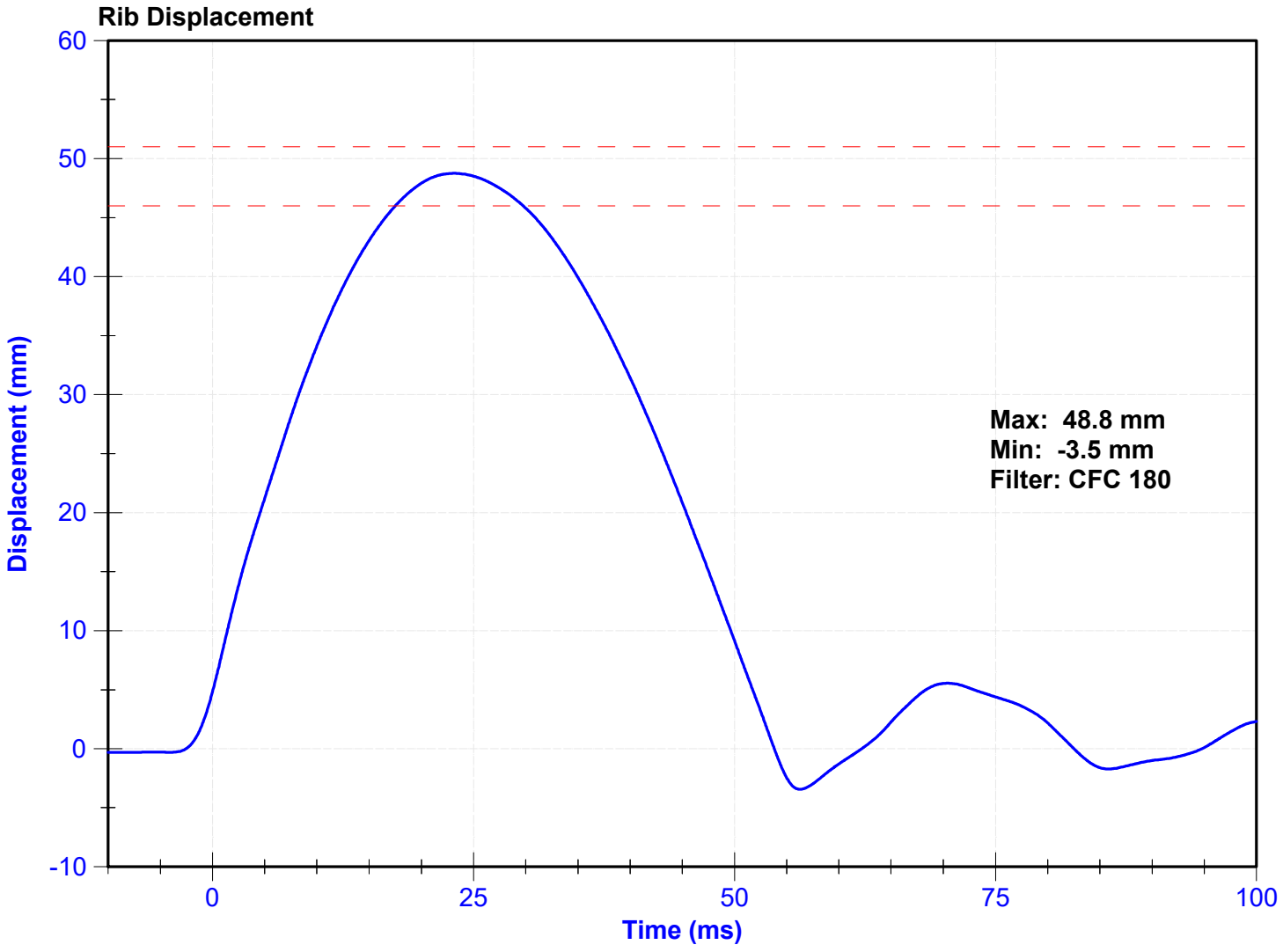
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	46	51	mm	48.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	184GFE	12/4/2025	6/4/2026



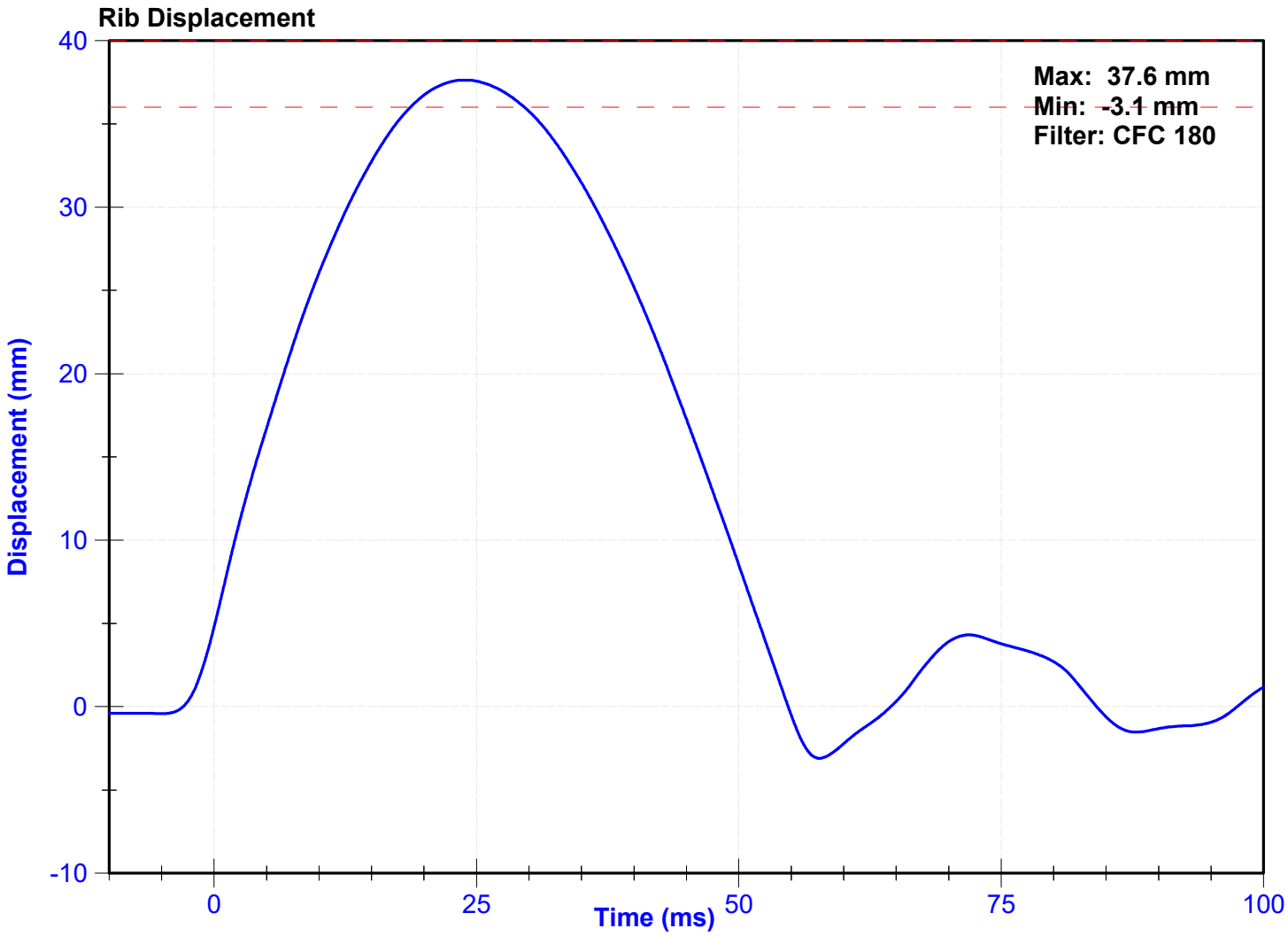
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	36	40	mm	37.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	184GFE	12/4/2025	6/4/2026



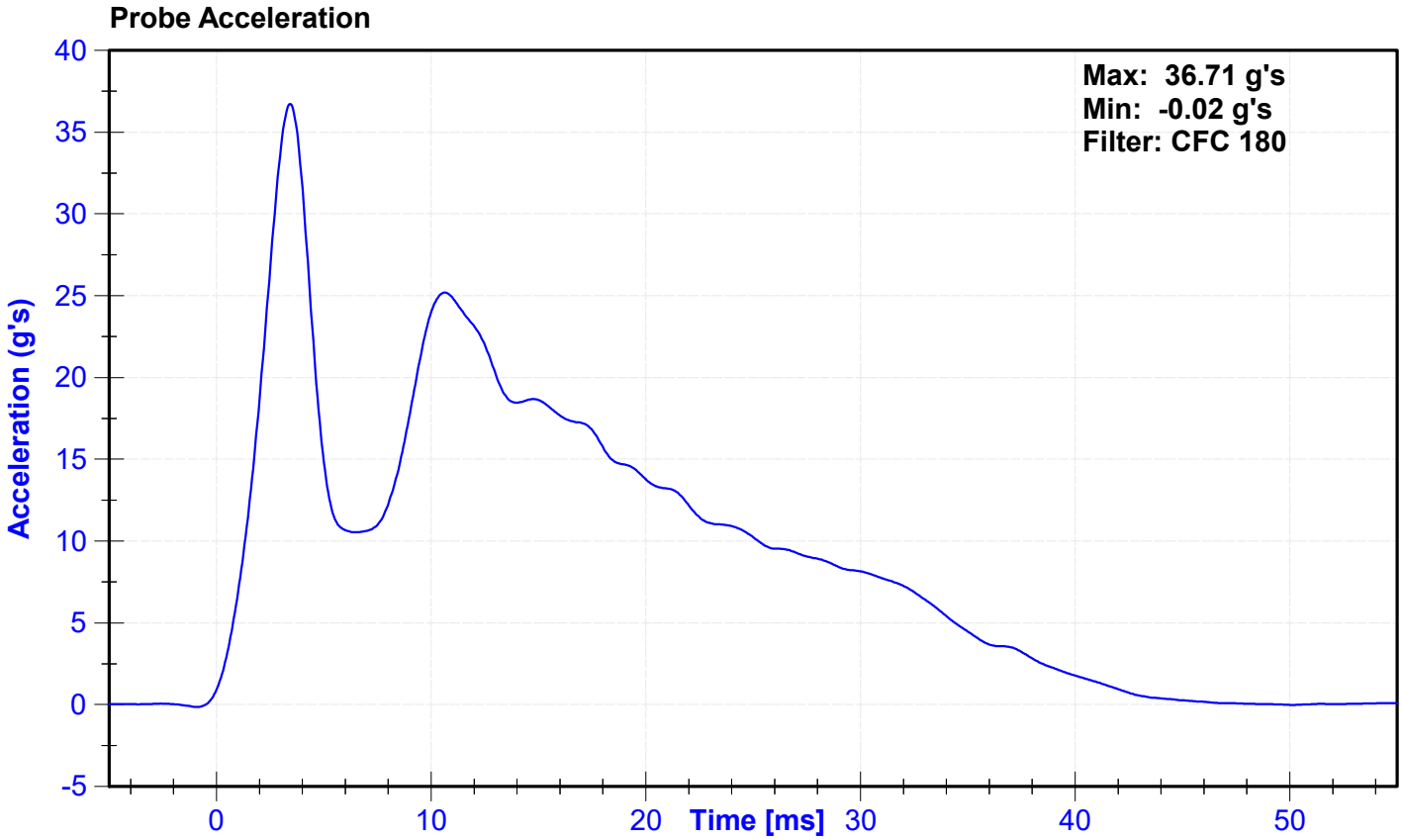
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

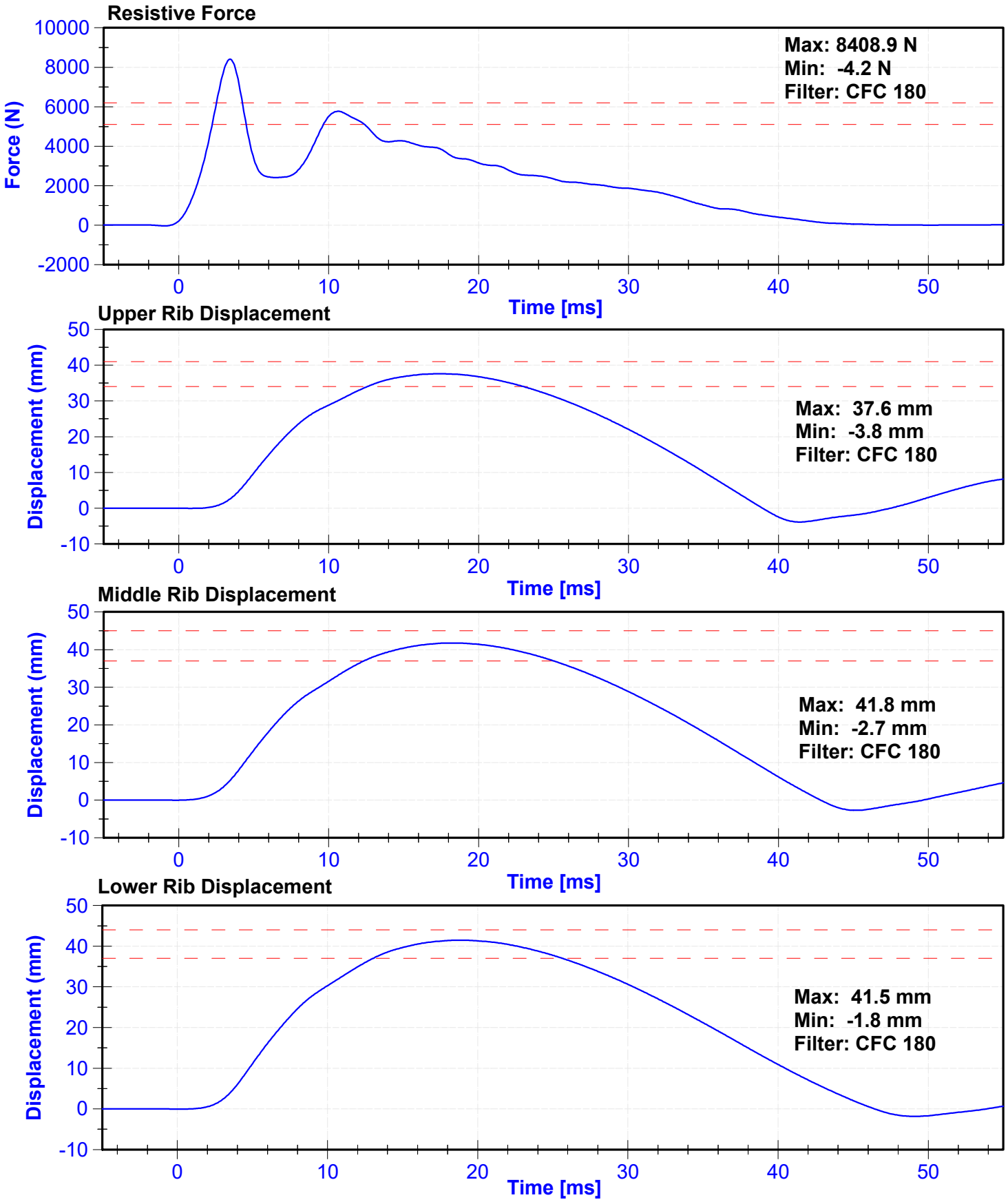
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Velocity	5.4	5.6	m/s	5.53	Pass
Resistive Force after 6ms	5100	6200	N	5770.4	Pass
Upper Thorax Rib Deflection	34	41	mm	37.6	Pass
Mid Thorax Rib Deflection	37	45	mm	41.8	Pass
Lower Thorax Rib Deflection	37	44	mm	41.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Upper Thorax Rib Potentiometer	Honeywell	179GFE	12/4/2025	6/4/2026
Middle Thorax Rib Potentiometer	Honeywell	185GFE	12/4/2025	6/4/2026
Lower Thorax Rib Potentiometer	Honeywell	184GFE	12/4/2025	6/4/2026




Resistive Force
Max: 8408.9 N
Min: -4.2 N
Filter: CFC 180
Force (N)
Time [ms]
Upper Rib Displacement
Max: 37.6 mm
Min: -3.8 mm
Filter: CFC 180
Displacement (mm)
Time [ms]
Middle Rib Displacement
Max: 41.8 mm
Min: -2.7 mm
Filter: CFC 180
Displacement (mm)
Time [ms]
Lower Rib Displacement
Max: 41.5 mm
Min: -1.8 mm
Filter: CFC 180
Displacement (mm)
Time [ms]

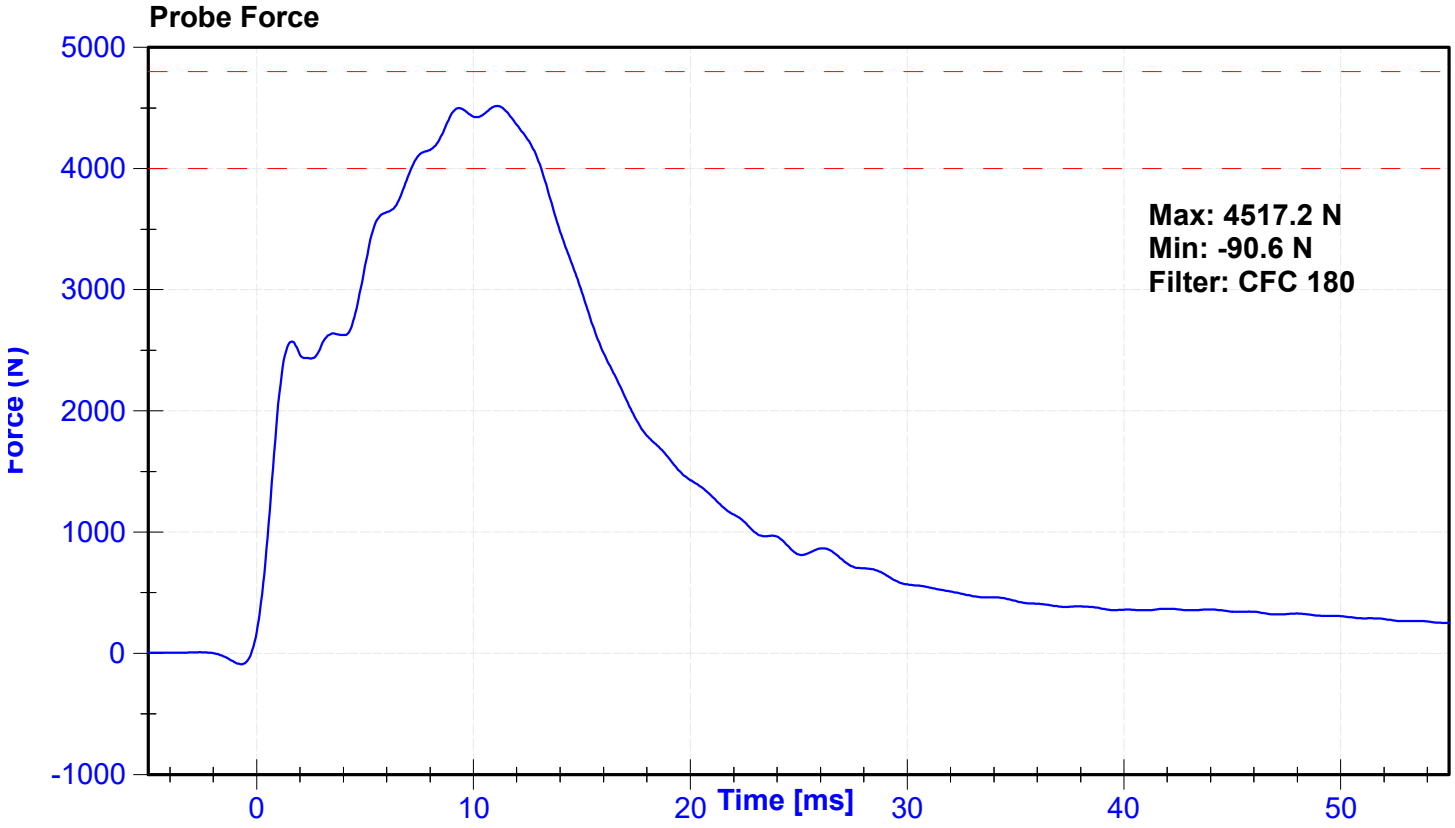
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

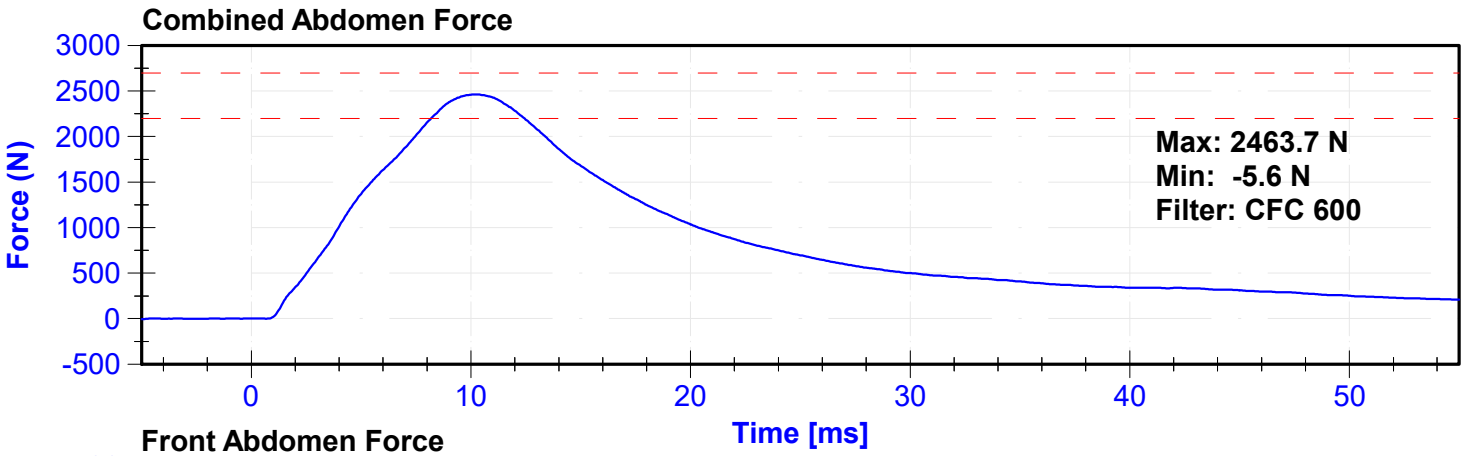
Results

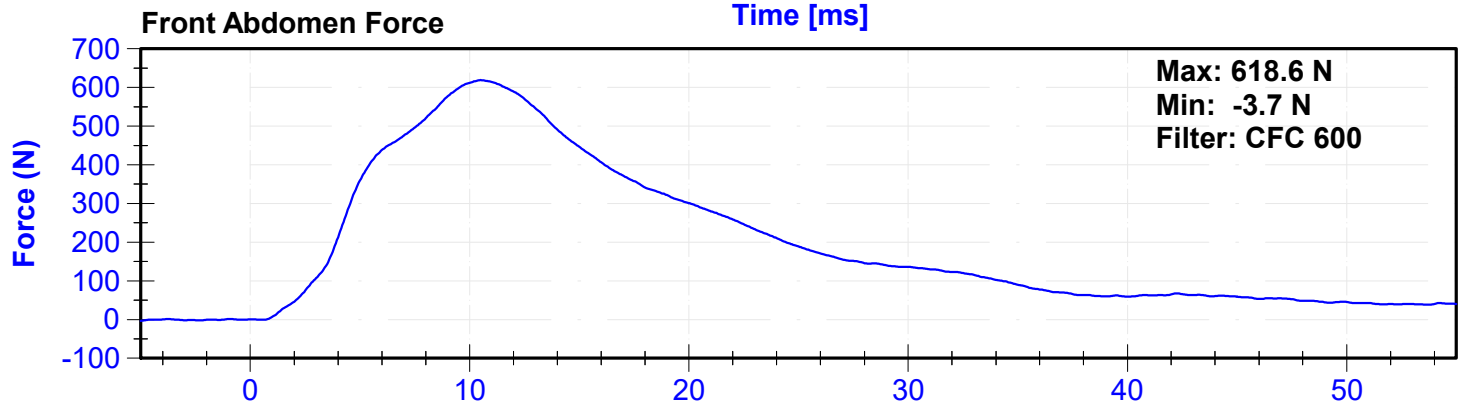
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Velocity	3.9	4.1	m/s	4.02	Pass
Combined Abdomen Force	2200	2700	N	2463.7	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	10.25	Pass
Resistive Probe Force	4000	4800	N	4517.2	Pass
Time at Peak Resistive Force	10.6	13.0	ms	11.10	Pass

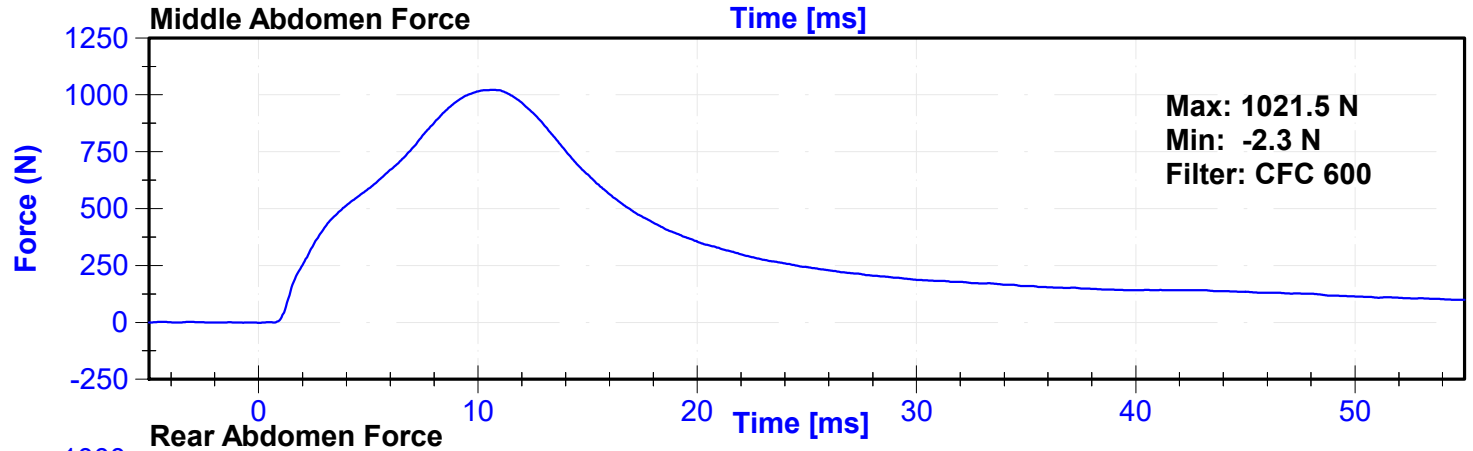
Transducer Calibrations

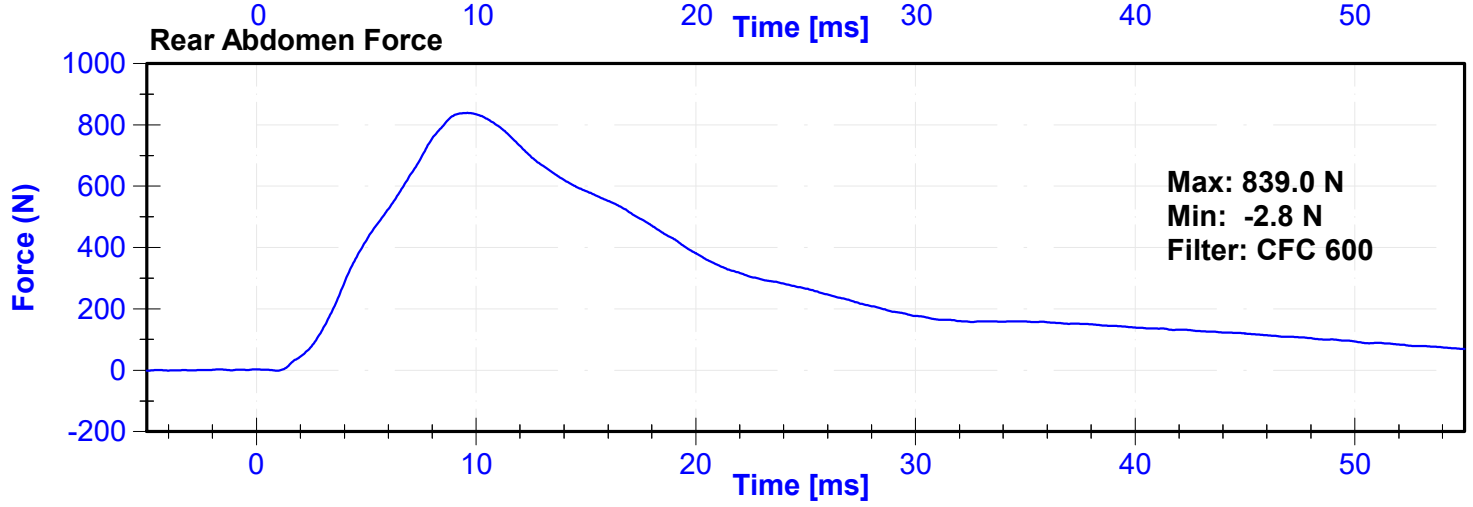
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Front Abdomen Load Cell	Denton	DM5846	9/24/2025	9/24/2026
Middle Abdomen Load Cell	Denton	1529	9/24/2025	9/24/2026
Rear Abdomen Load Cell	Denton	1533	9/24/2025	9/24/2026




Combined Abdomen Force
Force (N)
3000
2500
2000
1500
1000
500
0
-500
0
10
20
30
40
50
Time [ms]
Max: 2463.7 N
Min: -5.6 N
Filter: CFC 600


Front Abdomen Force
Force (N)
700
600
500
400
300
200
100
0
-100
0
10
20
30
40
50
Time [ms]
Max: 618.6 N
Min: -3.7 N
Filter: CFC 600


Middle Abdomen Force
Force (N)
1250
1000
750
500
250
0
-250
0
10
20
30
40
50
Time [ms]
Max: 1021.5 N
Min: -2.3 N
Filter: CFC 600


Rear Abdomen Force
Force (N)
1000
800
600
400
200
0
-200
0
10
20
30
40
50
Time [ms]
Max: 839.0 N
Min: -2.8 N
Filter: CFC 600

ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

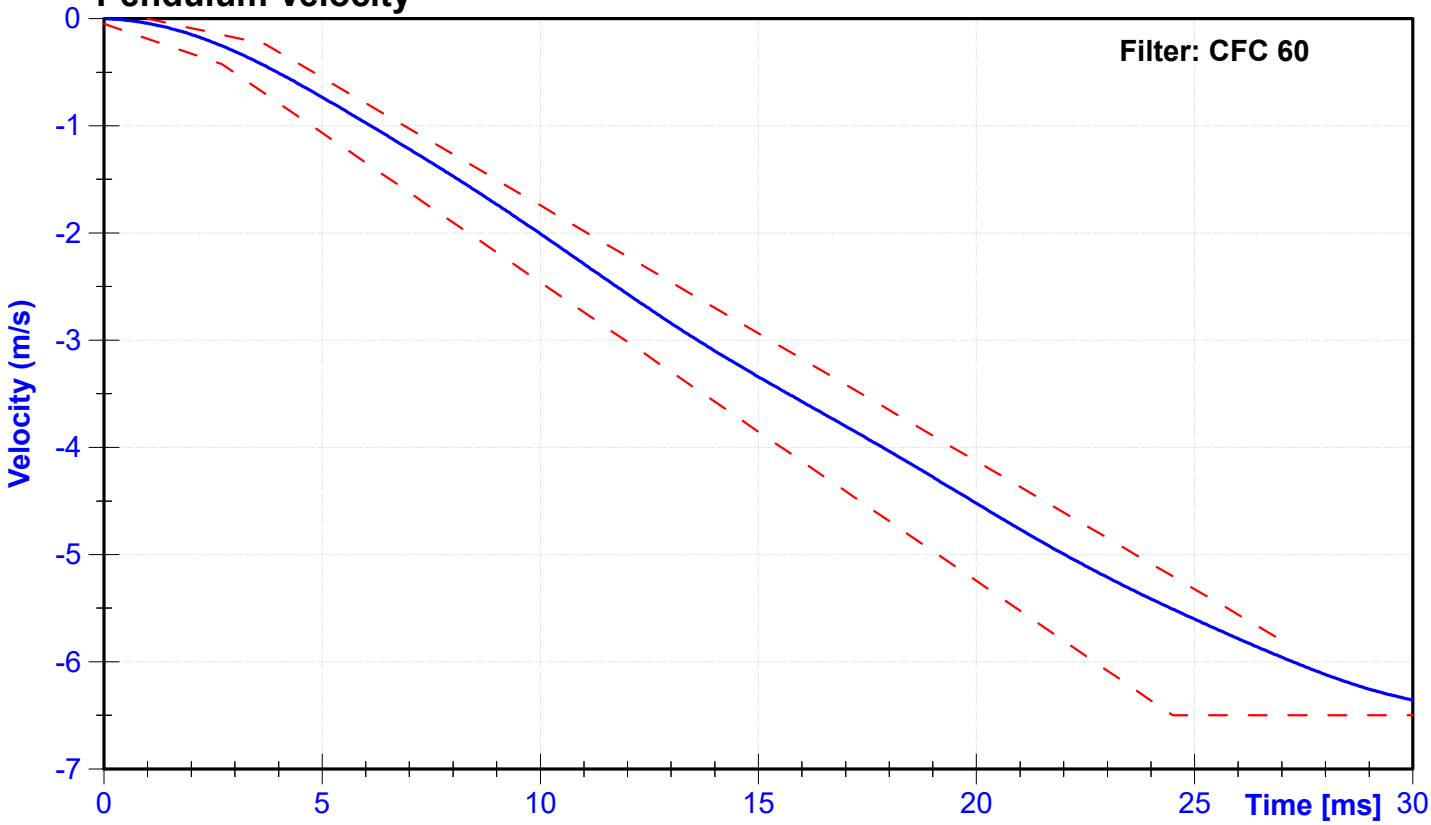
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	16	Pass
Velocity	5.95	6.15	m/s	6.120	Pass
Lateral Spine Rotation	45	55	deg	45.7	Pass
Time at Maximum Rotation	39	53	ms	42.3	Pass
Time of Decay to Zero Degrees	37	57	ms	37.2	Pass
Pendulum Velocity Overall Corridor	Lower Boundary[1]	Upper Boundary[2]	m/s	See Plot[3]	Pass

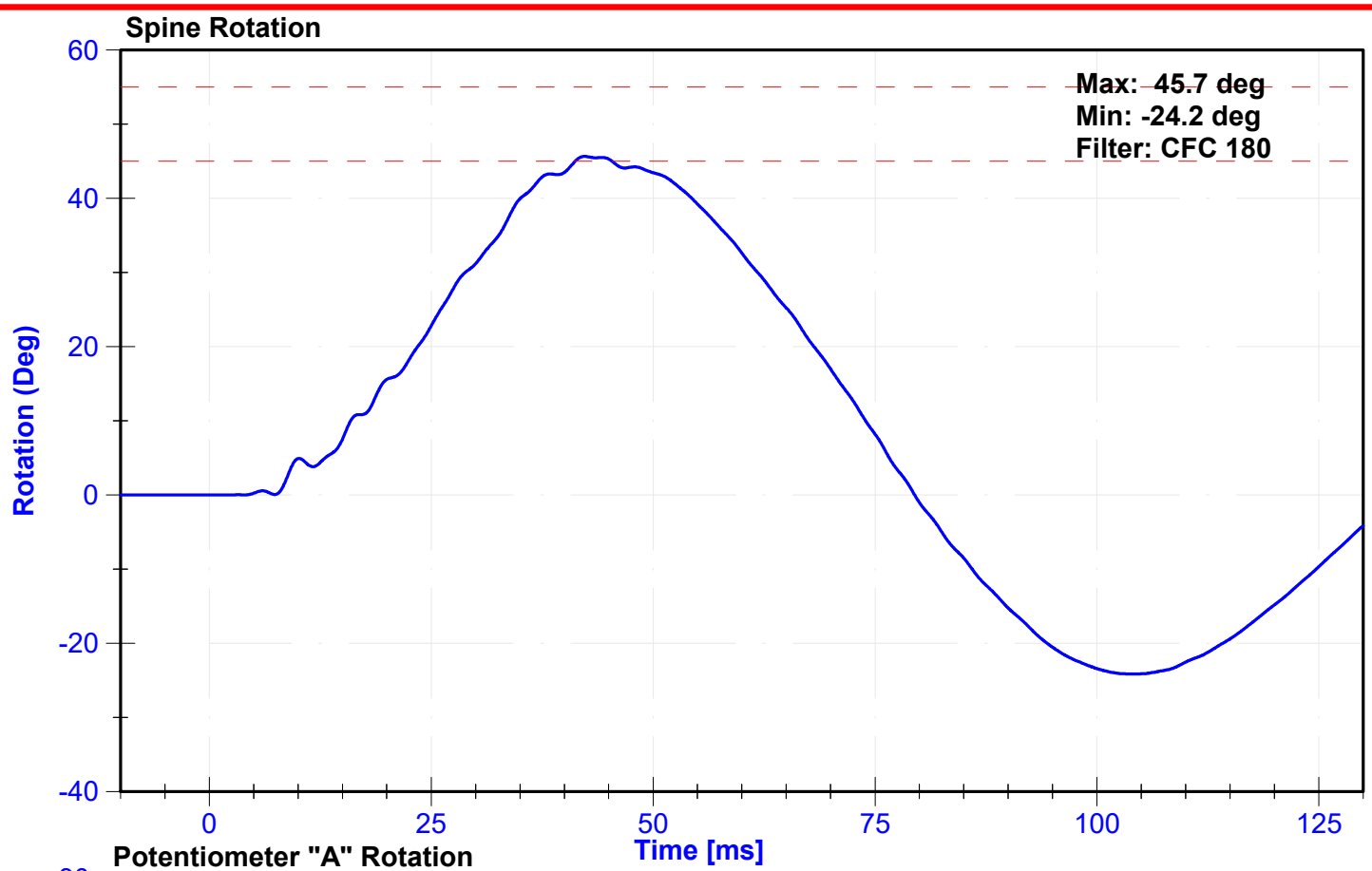
Transducer Calibrations

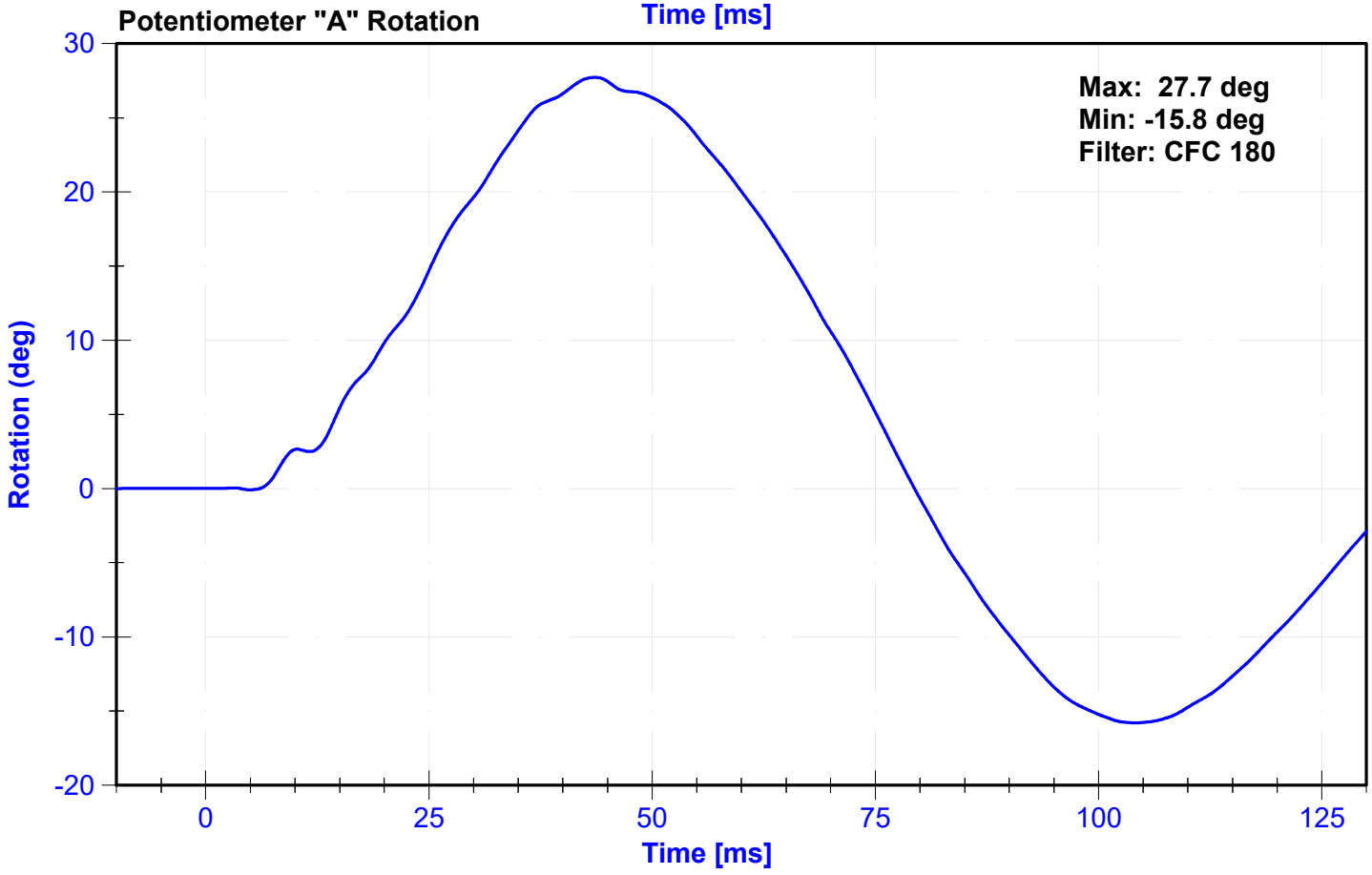
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/21/2025	10/21/2026
Pendulum "A" Potentiometer	Sfernice	2247	9/30/2025	9/30/2026
Condyle "B" Potentiometer	Sfernice	095	9/30/2025	9/30/2026

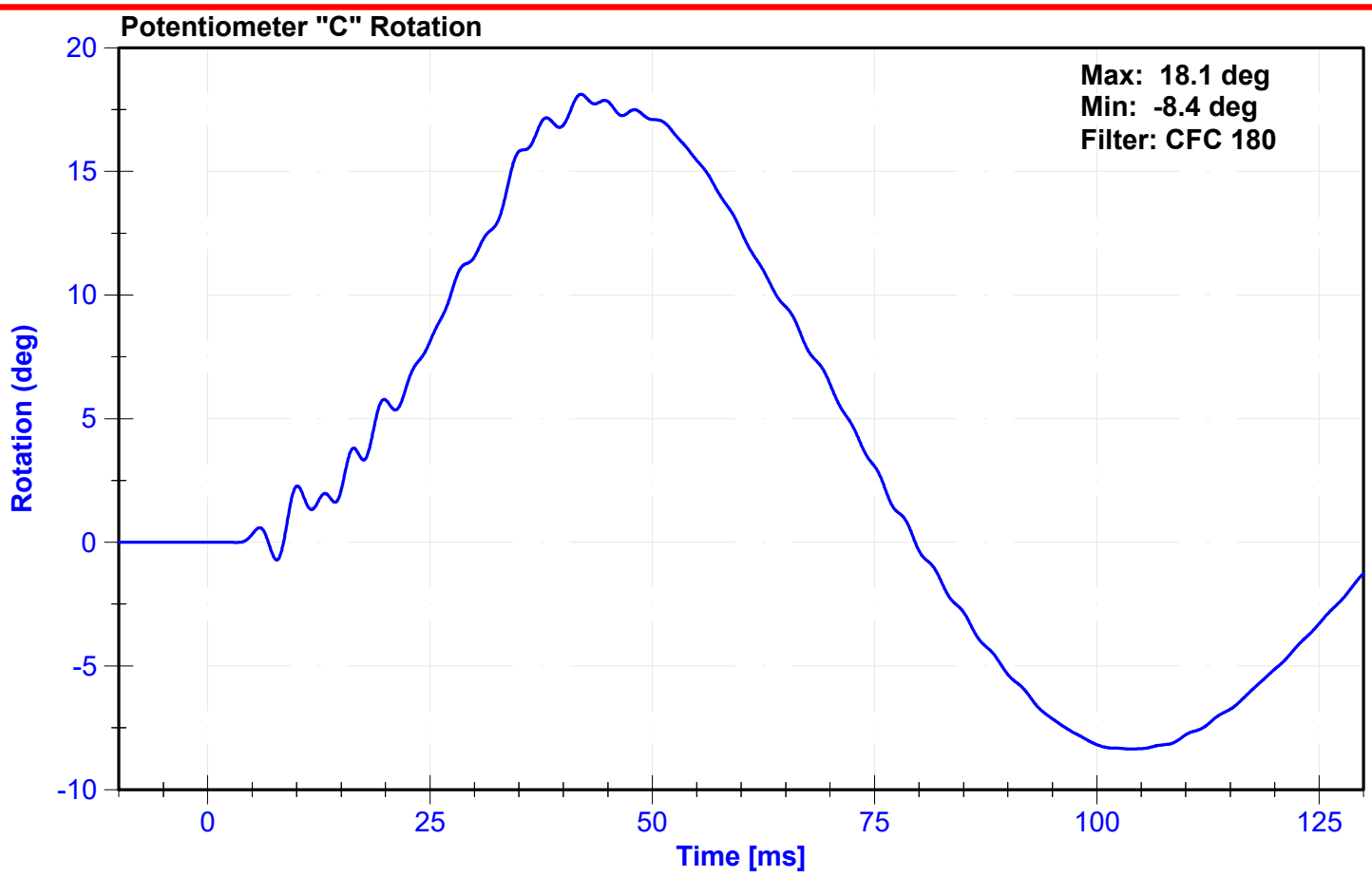
Pendulum Velocity[3]



[1,2] Upper and lower boundaries specified in Appendix I


Spine Rotation
Max: 45.7 deg
Min: -24.2 deg
Filter: CFC 180
Rotation (Deg)
60
40
20
0
-20
-40
0
25
50
75
100
125
Time [ms]


Potentiometer "A" Rotation
Max: 27.7 deg
Min: -15.8 deg
Filter: CFC 180
Rotation (deg)
30
20
10
0
-10
-20
0
25
50
75
100
125
Time [ms]



Appendix I

[2] Upper Boundary Corridor		[1] Lower Boundary Corridor	
Time (ms)	Velocity (m/s)	Time (ms)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.5
		30.0	-6.5

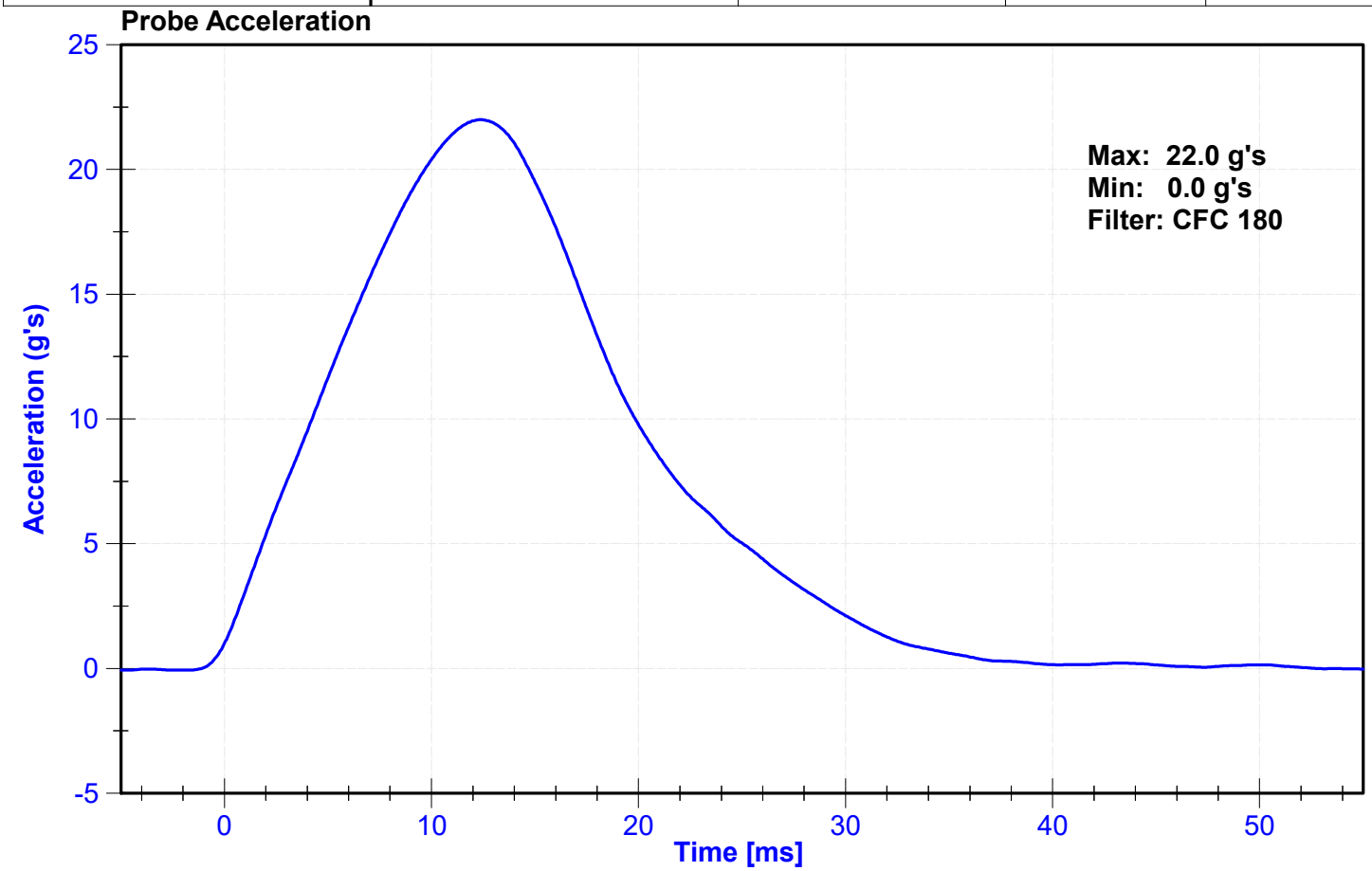
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

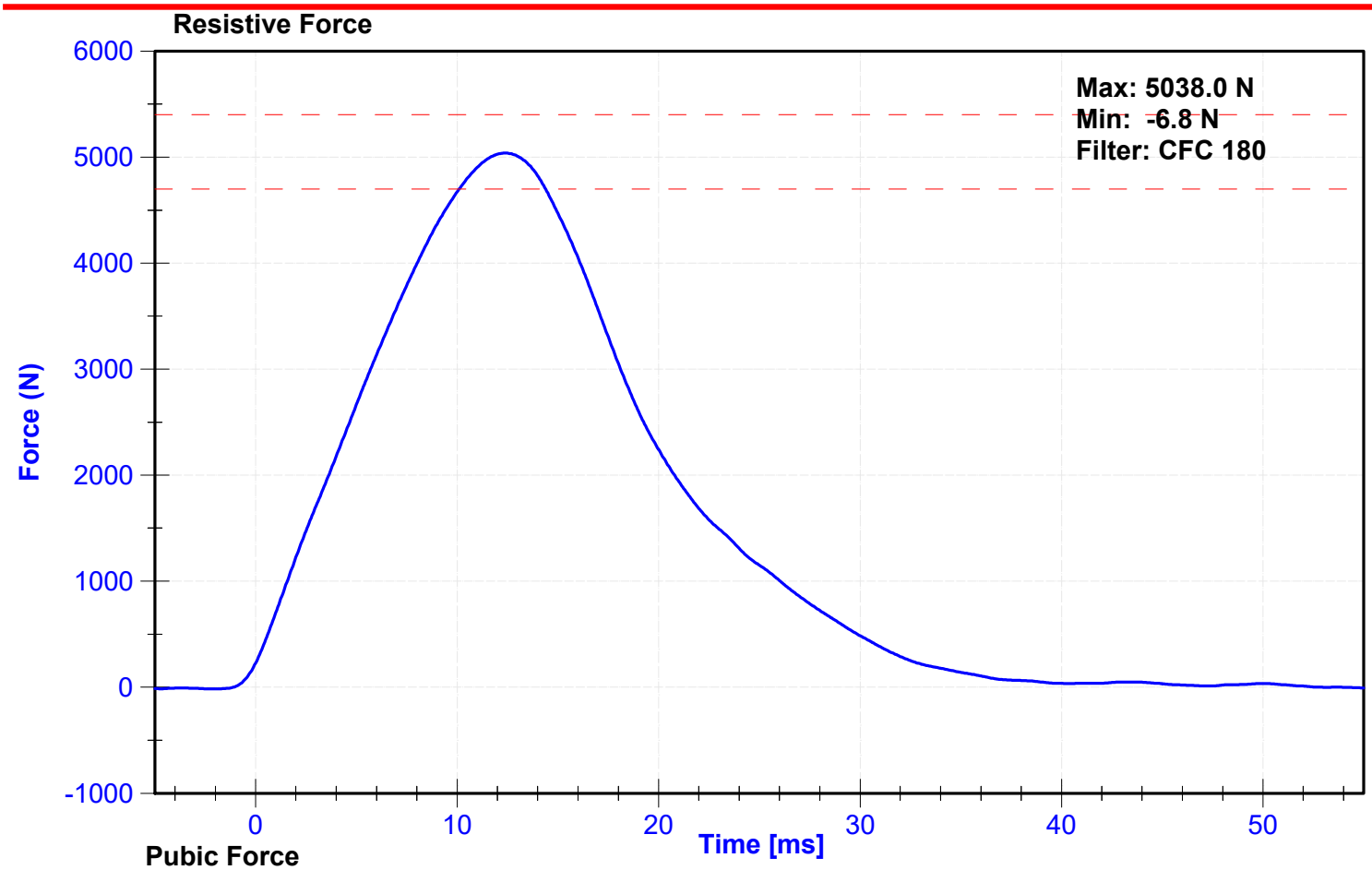
Results

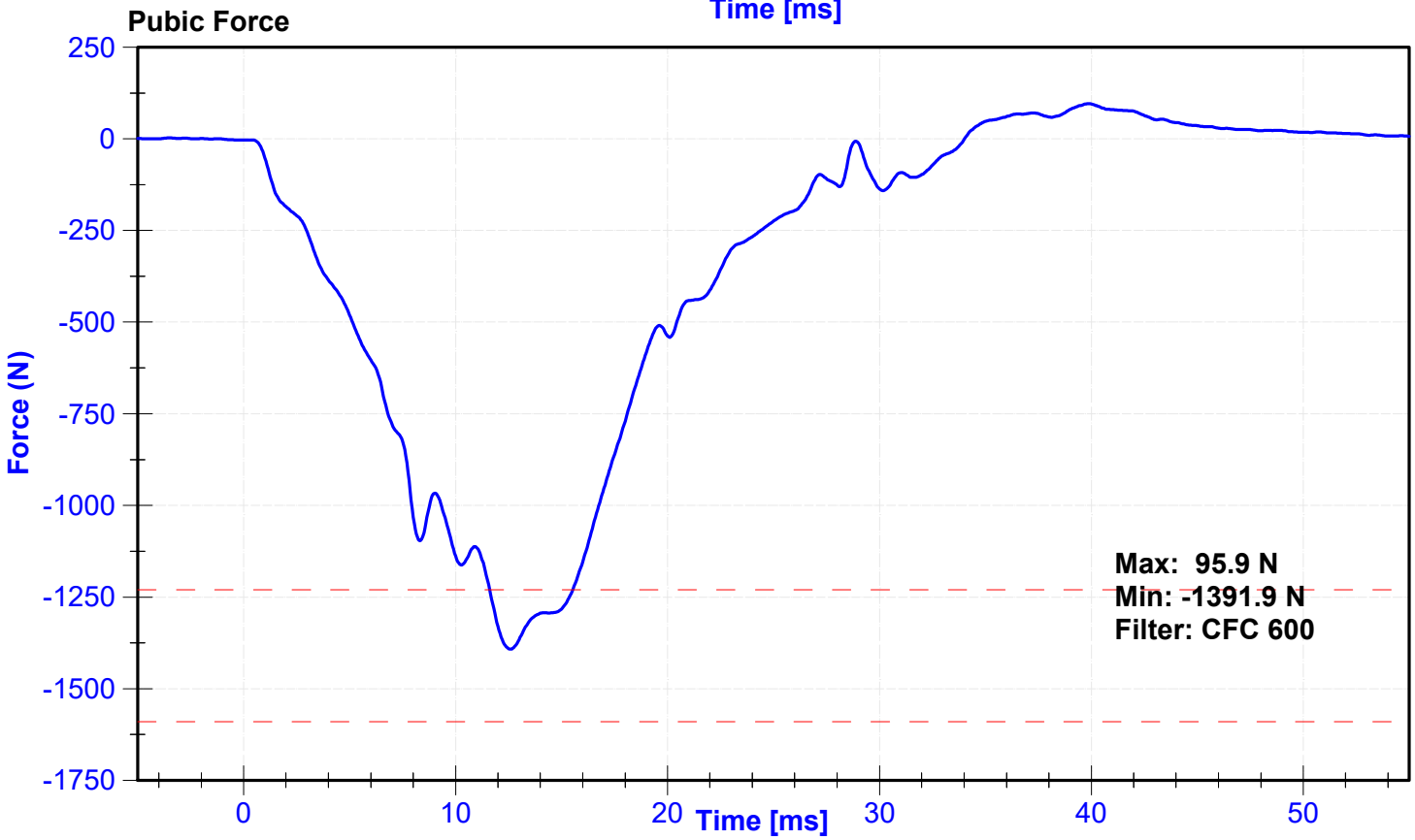
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	21	Pass
Velocity	4.2	4.4	m/s	4.21	Pass
Resistive Force	4700	5400	N	5038.0	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.40	Pass
Pubic Force	-1590	-1230	N	-1391.9	Pass
Time at Peak Pubic Force	12.2	17.0	ms	12.60	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25863	1/17/2025	1/17/2026
Pubic Load Cell	Denton	459-FY	7/9/2025	7/9/2026




Resistive Force
Max: 5038.0 N
Min: -6.8 N
Filter: CFC 180
Force (N)
Time [ms]
6000
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50


Pubic Force
Max: 95.9 N
Min: -1391.9 N
Filter: CFC 600
Force (N)
Time [ms]
250
0
-250
-500
-750
-1000
-1250
-1500
-1750
0
10
20
30
40
50

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE – PASSENGER ATD

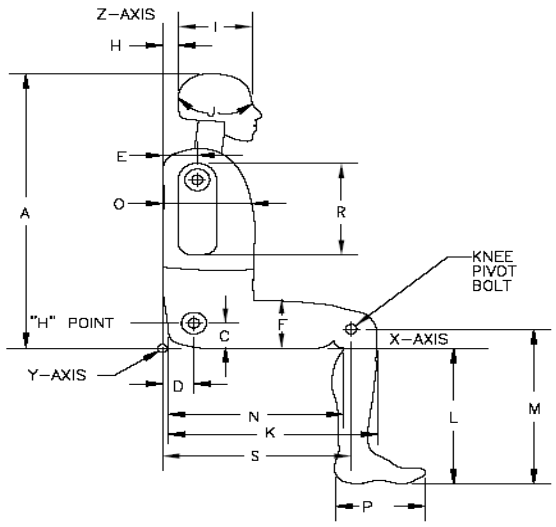
SERIAL NO:300

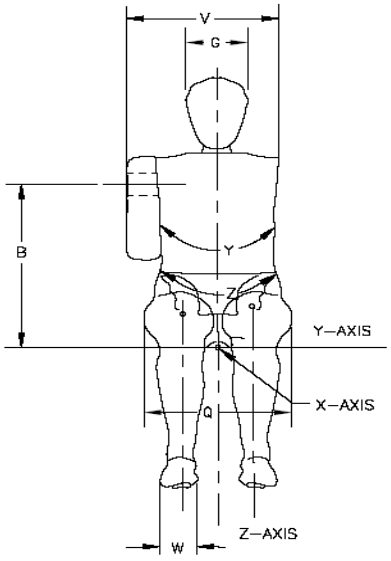
(CONFIGURED FOR LEFT SIDE IMPACT)

External Measurements - SID-IIs

Technician: J. Rios Date: 12/11/2025

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	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	105	Pass
F	Thigh Clearance	119	135	126	Pass
G	Head Breadth	140	148	144	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	531	Pass
L	Popliteal Height	343	369	362	Pass
M	Knee Pivot to floor height	392	409	405	Pass
N	Buttock Popliteal Length	416	442	428	Pass
O	Chest Depth w/o jacket	195	211	202	Pass
P	Foot Length	216	232	223	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	318	Pass
R	Arm Length	249	259	252	Pass
S	Knee Joint to seatback	477	493	482	Pass
V	Shoulder Width	341	357	350	Pass
W	Foot Width	78	94	84	Pass
Y	Chest Circumference w/jacket	851	881	872	Pass
Z	Waist Circumference	761	791	773	Pass

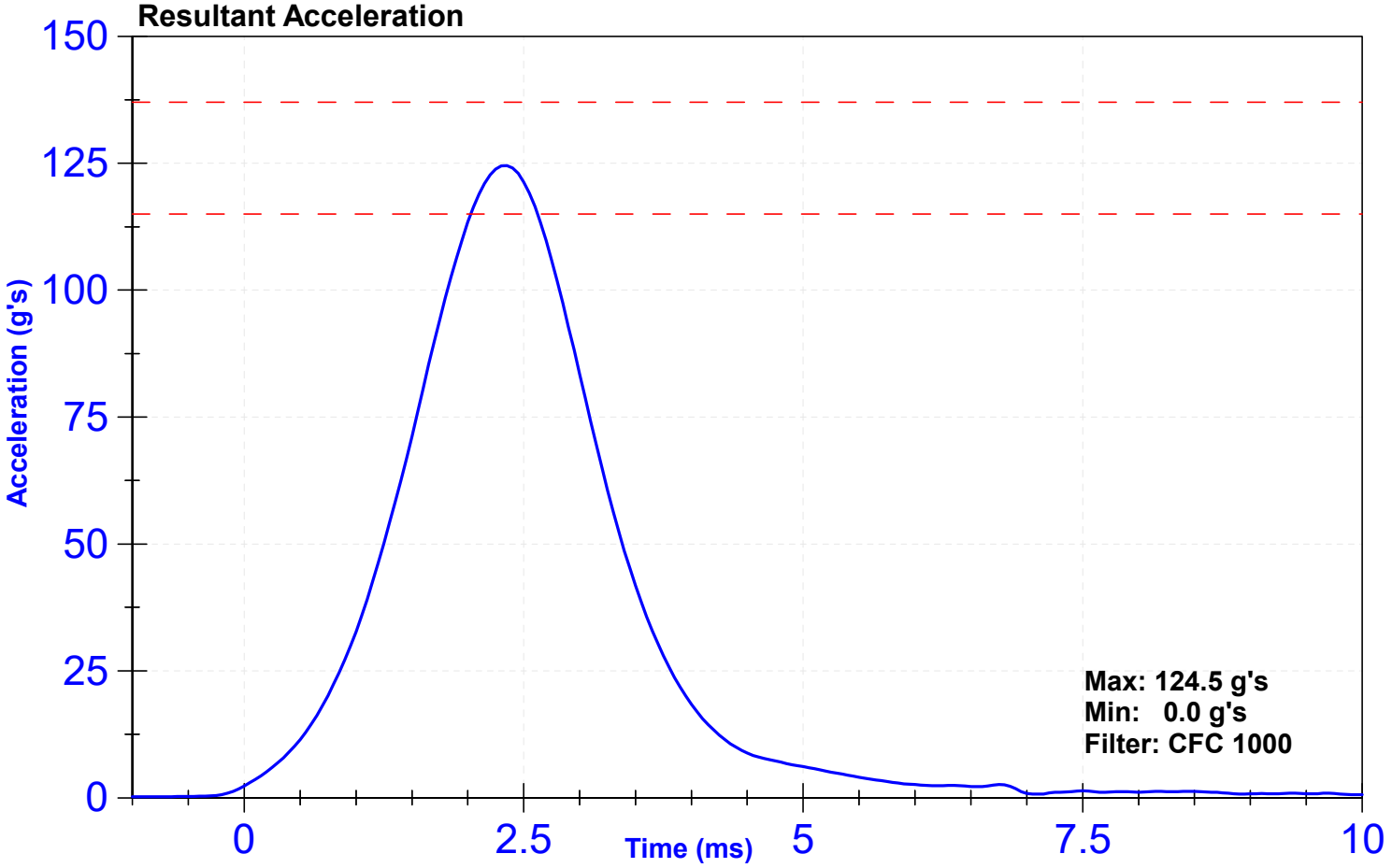
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

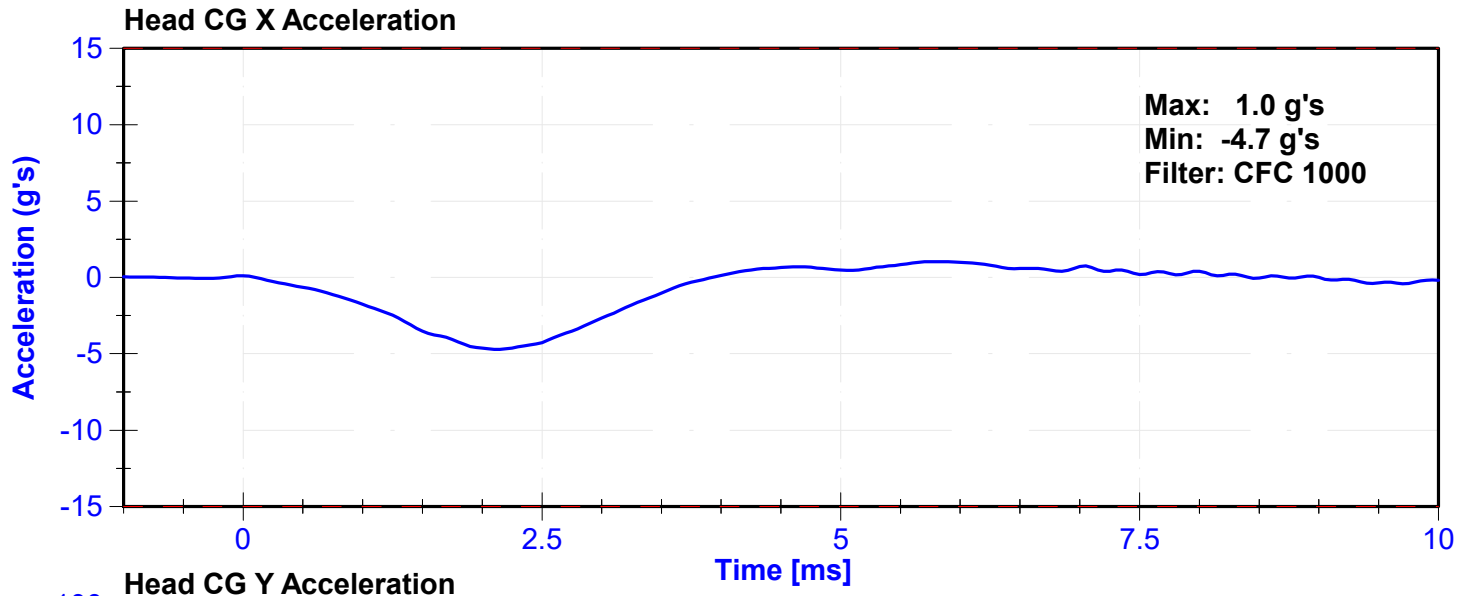
Results

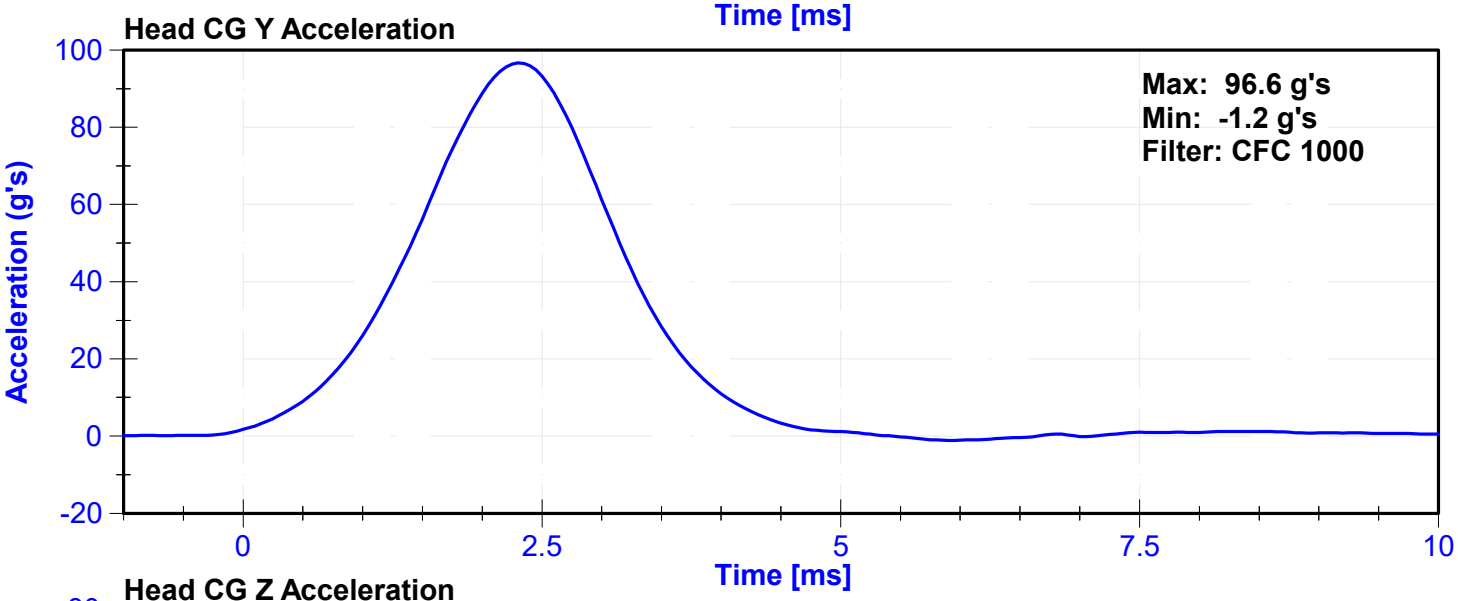
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	22	Pass
Resultant Acceleration	115	137	g's	124.5	Pass
Oscillation	0	15	%	2.0	Pass
Fore-Aft Acceleration	-15	15	g's	-4.7	Pass

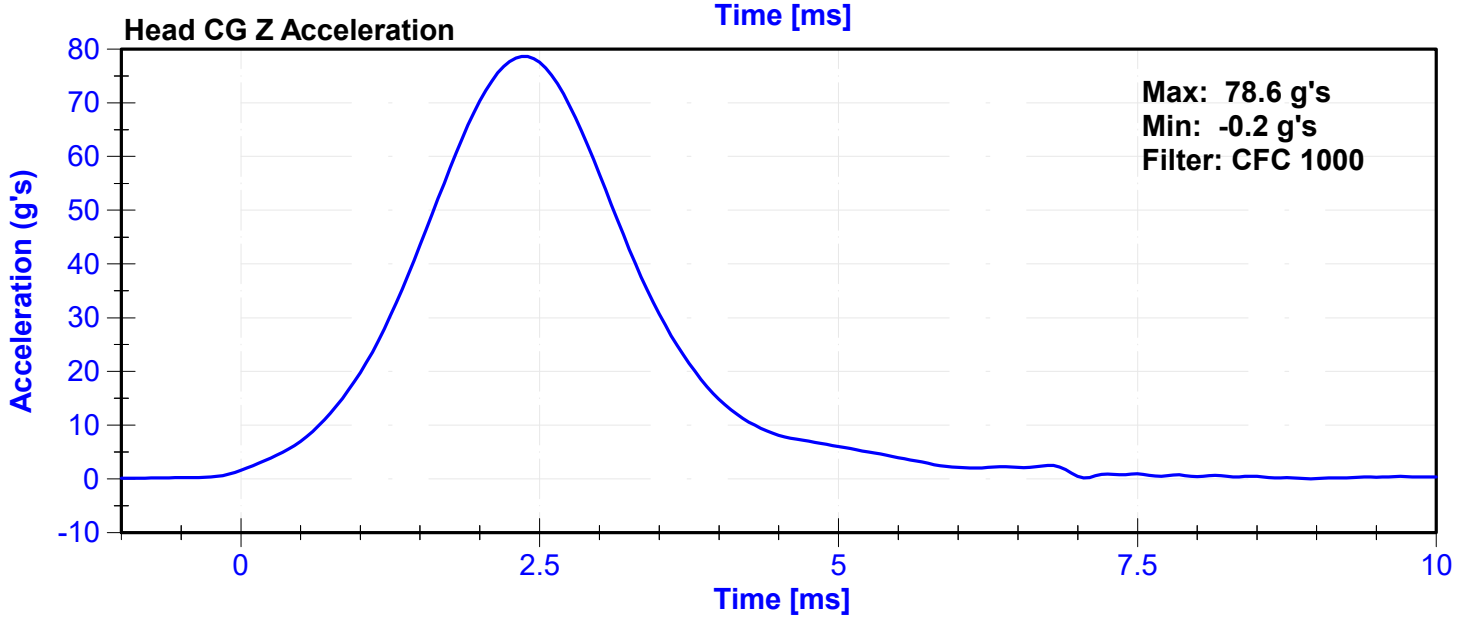
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibratio Date	Calibratio Due Date
X Accelerometer	Endevco	P59018	12/8/2025	6/6/2026
Y Accelerometer	Endevco	P79189	12/8/2025	6/6/2026
Z Accelerometer	Endevco	P51682	12/8/2025	6/6/2026




Head CG X Acceleration
Max: 1.0 g's
Min: -4.7 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]


Head CG Y Acceleration
Max: 96.6 g's
Min: -1.2 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]


Head CG Z Acceleration
Max: 78.6 g's
Min: -0.2 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]

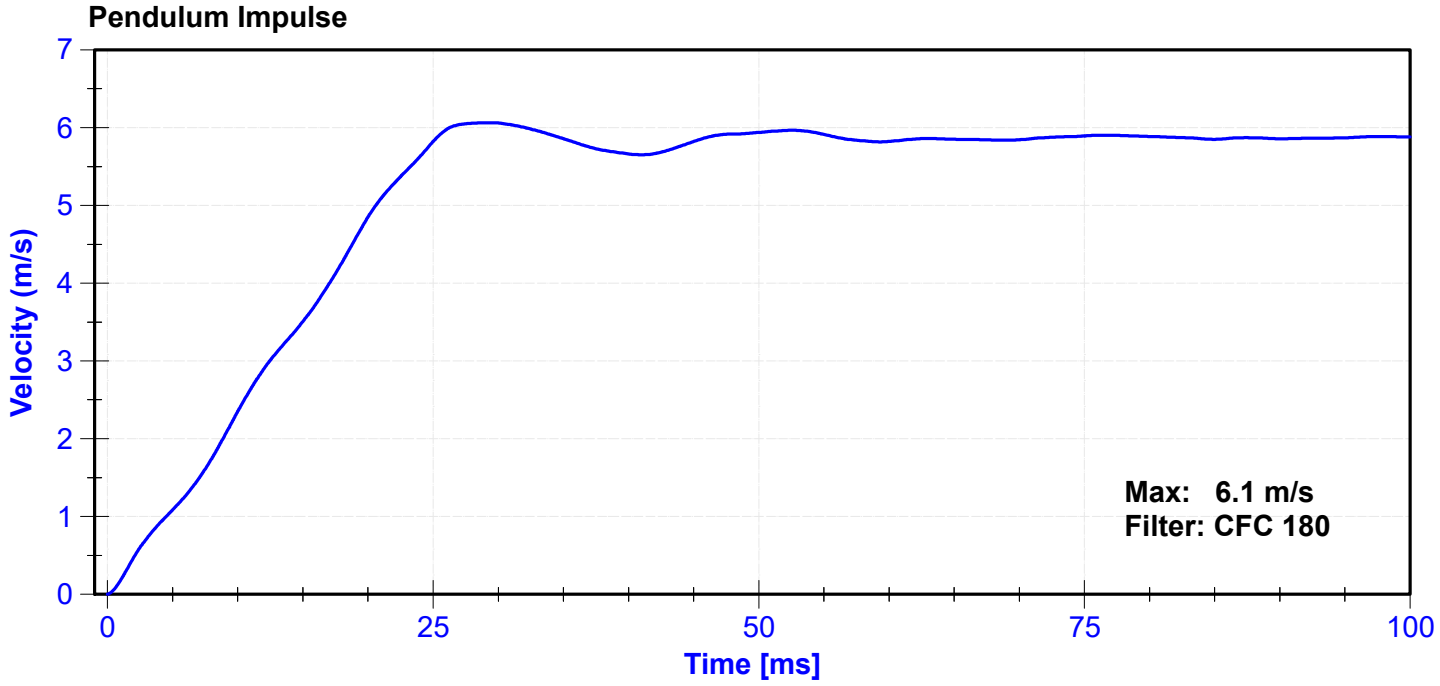
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

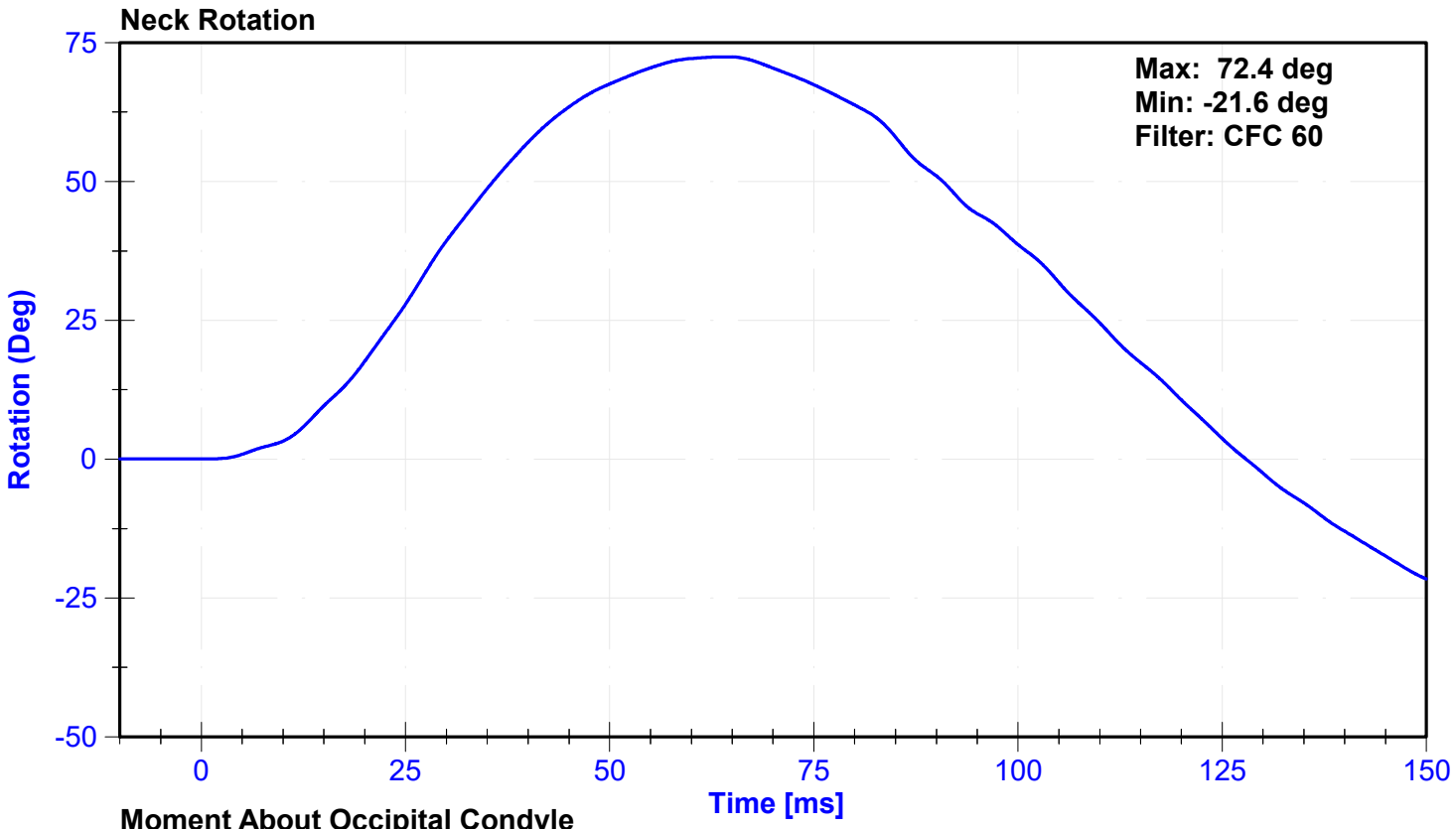
Results

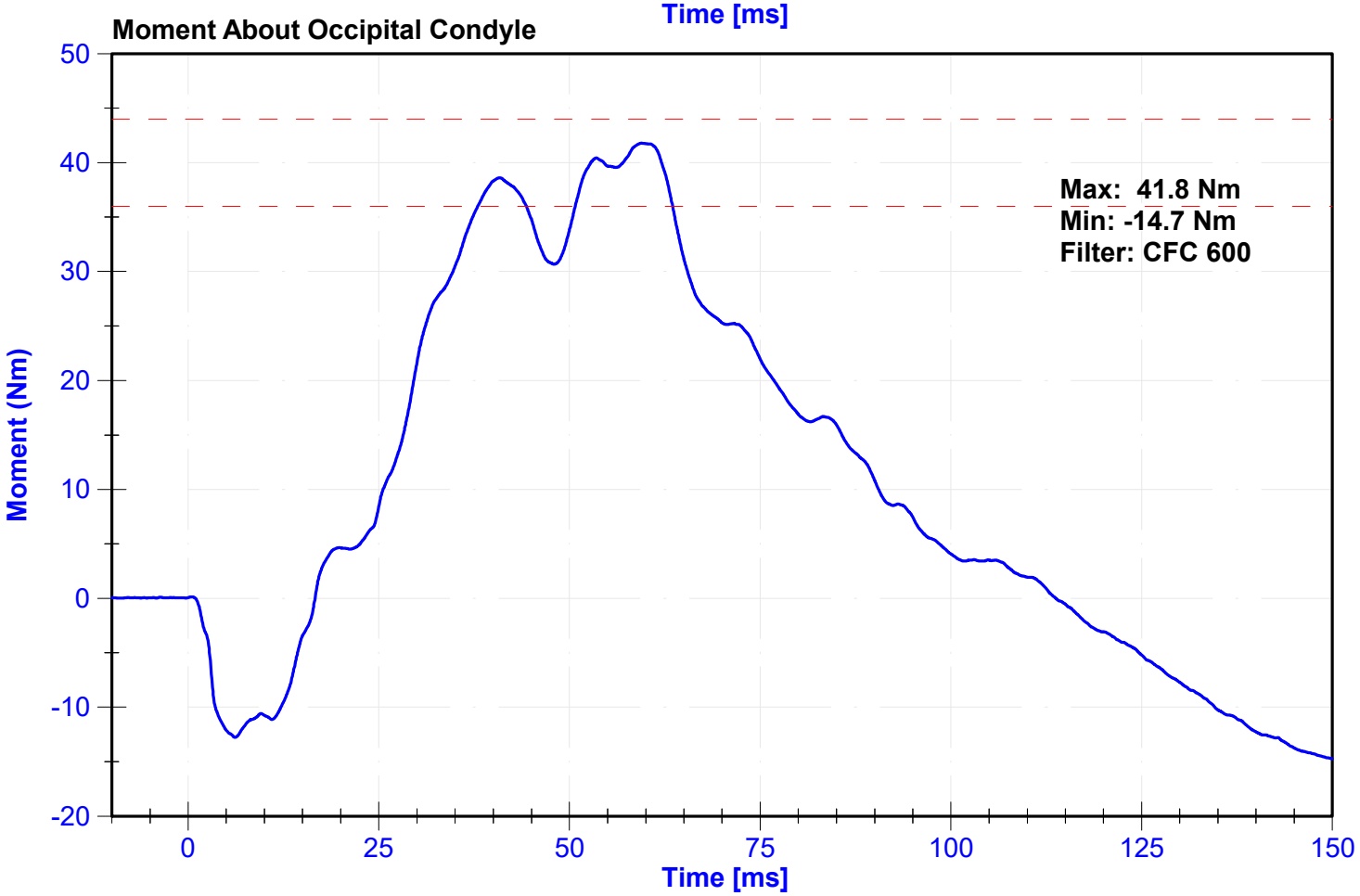
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	24	Pass
Velocity	5.51	5.63	m/s	5.608	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.35	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.51	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.85	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.82	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	6.06	Pass
Neck Rotation	71	81	deg	72.4	Pass
Time at Maximum Rotation	50	70	ms	64.3	Pass
Moment about the OC	36	44	Nm	41.8	Pass
Moment Decay to 0 Nm	102	126	ms	113.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231C-750	8/8/2025	8/8/2026
Pendulum Potentiometer	Servo	4961	9/30/2025	9/30/2026
Condyle Potentiometer	Servo	DS185	9/30/2025	9/30/2026
Upper Neck Load Cell	Denton	1716ATF_2184-FY	7/8/2025	7/8/2026




Neck Rotation
Max: 72.4 deg
Min: -21.6 deg
Filter: CFC 60
Rotation (Deg)
75
50
25
0
-25
-50
0
25
50
75
100
125
150
Time [ms]


Moment About Occipital Condyle
Max: 41.8 Nm
Min: -14.7 Nm
Filter: CFC 600
Moment (Nm)
50
40
30
20
10
0
-10
-20
0
25
50
75
100
125
150
Time [ms]

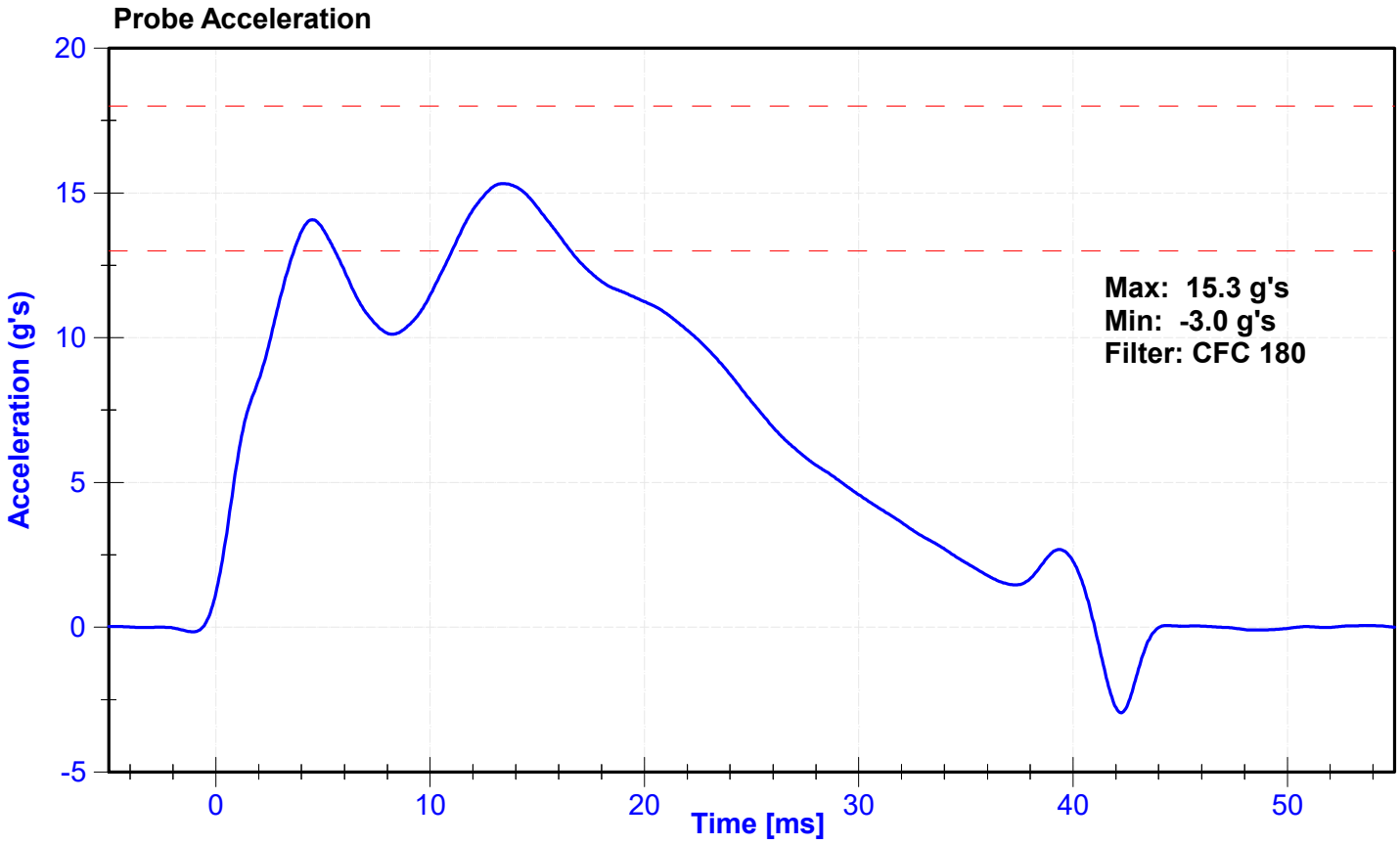
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

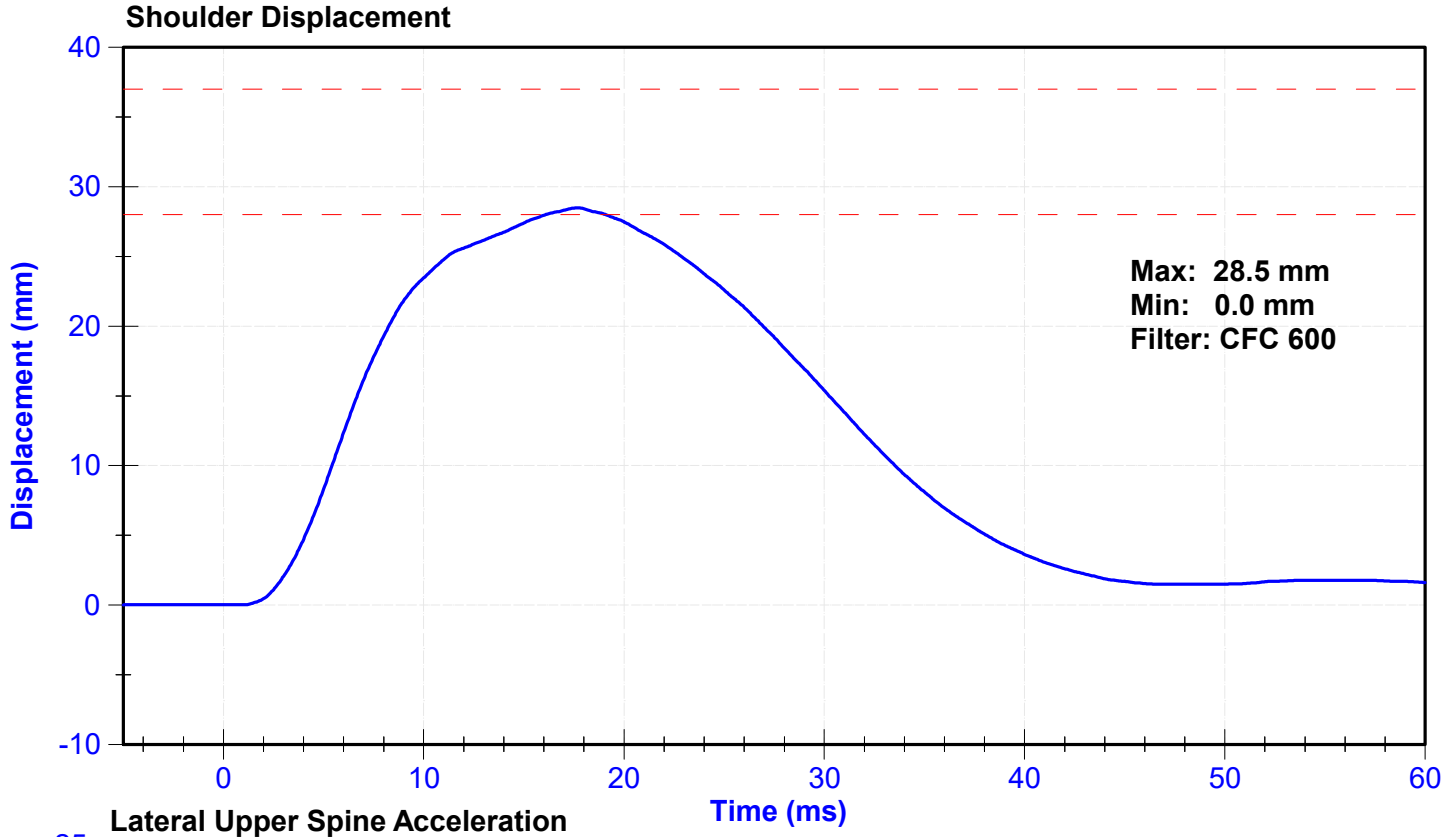
Results

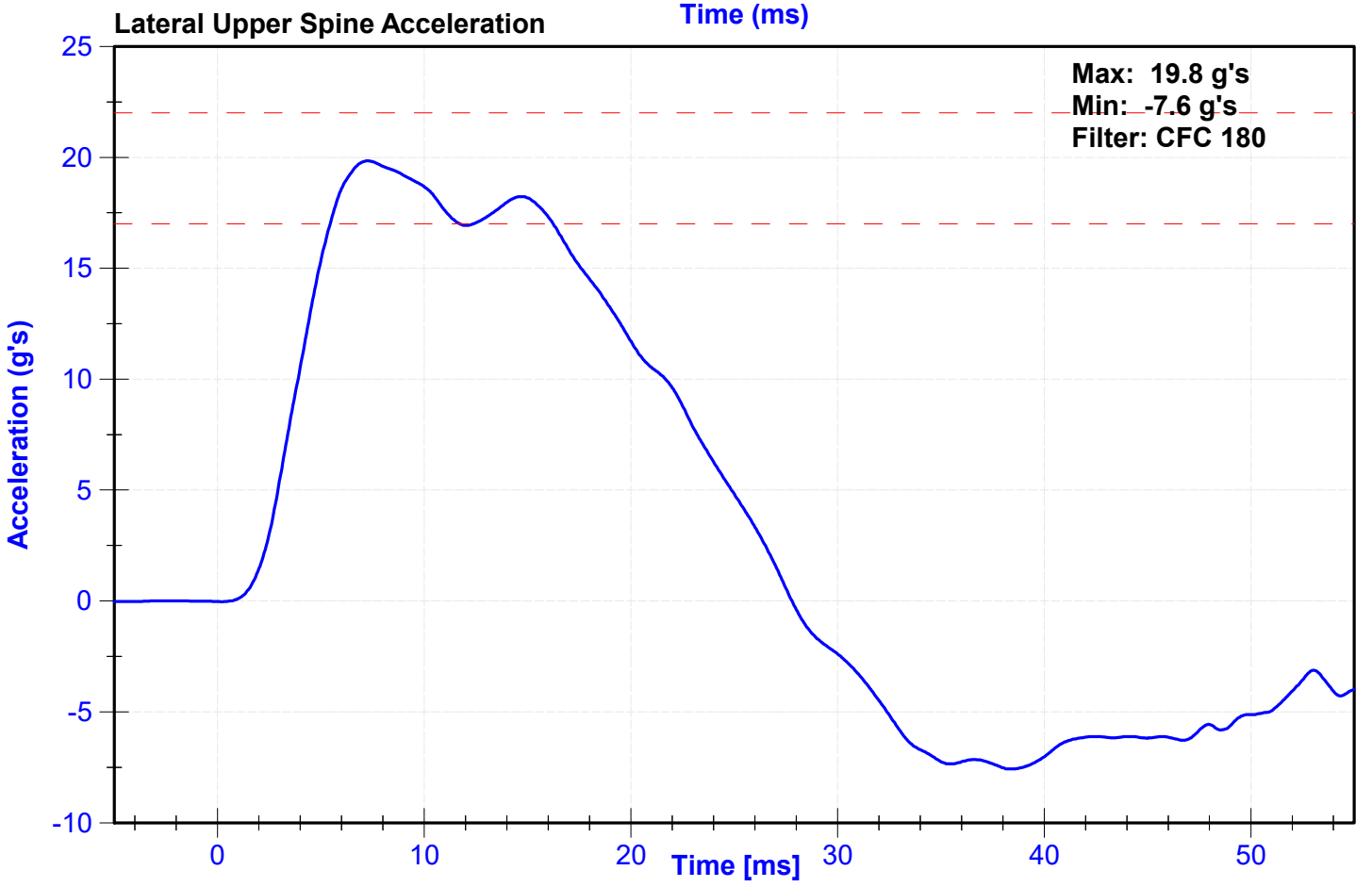
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	19	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	13	18	g's	15.3	Pass
Shoulder Deflection	28	37	mm	28.5	Pass
Lateral Upper Spine Acceleration	17	22	g's	19.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Shoulder Potentiometer	Servo	053GFE	12/8/2025	6/8/2026
Upper Spine Y Accelerometer	Endevco	P52018	12/8/2025	6/6/2026




Shoulder Displacement
Displacement (mm)
Time (ms)
Max: 28.5 mm
Min: 0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 19.8 g's
Min: -7.6 g's
Filter: CFC 180

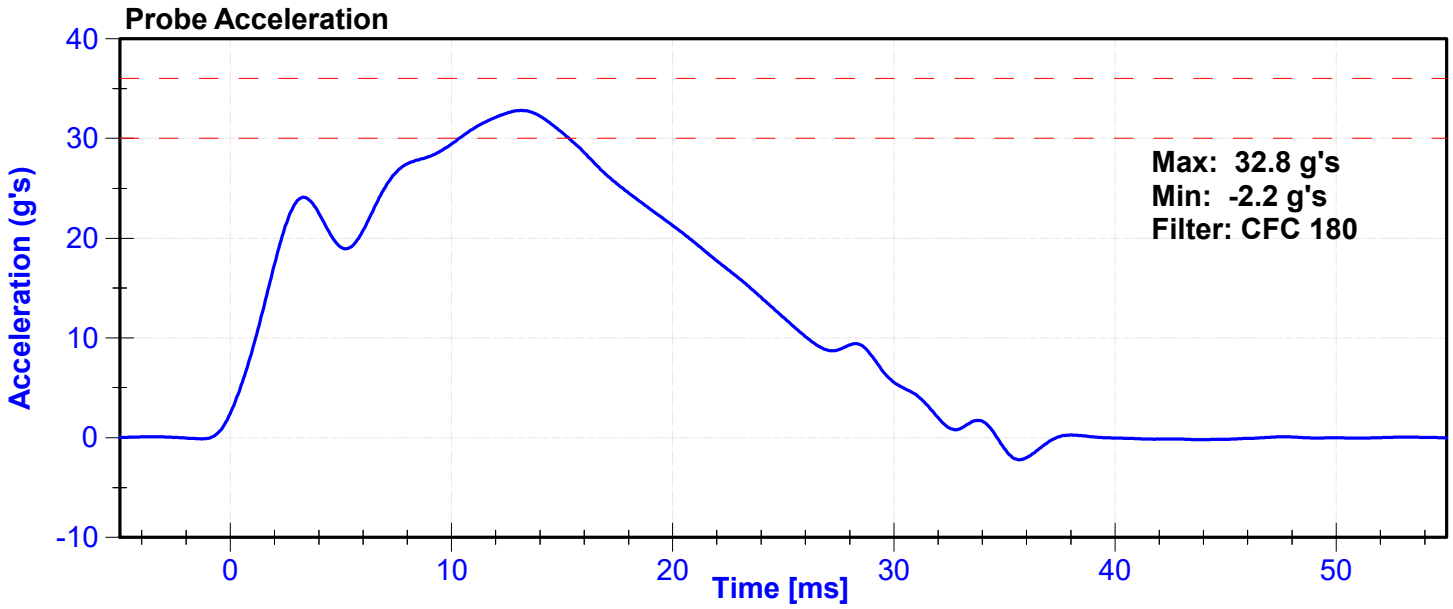
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

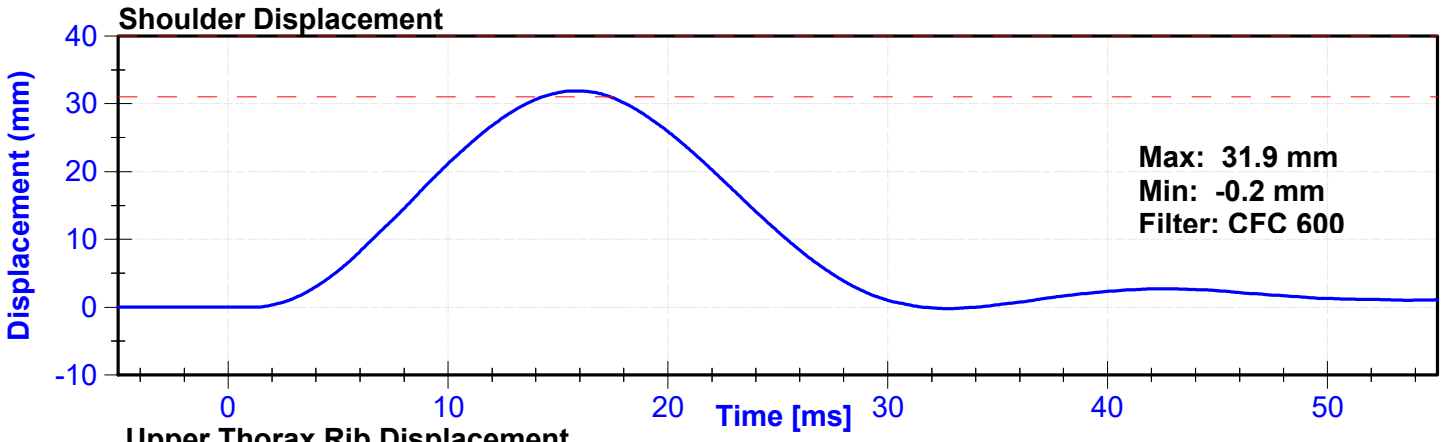
Results

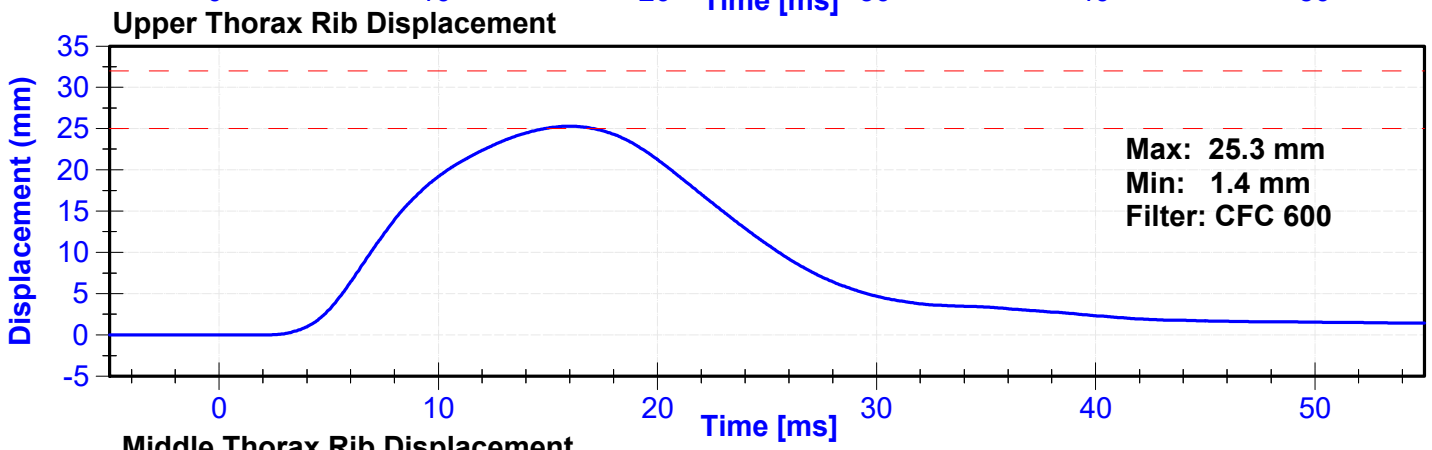
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	19	Pass
Velocity	6.6	6.8	m/s	6.62	Pass
Probe Acceleration after 5 ms	30	36	g's	32.8	Pass
Lateral Upper Spine Acceleration	34	43	g's	39.7	Pass
Lateral Lower Spine Acceleration	29	37	g's	33.6	Pass
Shoulder Deflection	31	40	mm	31.9	Pass
Upper Thorax Rib Deflection	25	32	mm	25.3	Pass
Mid Thorax Rib Deflection	30	36	mm	31.0	Pass
Lower Thorax Rib Deflection	32	38	mm	34.2	Pass

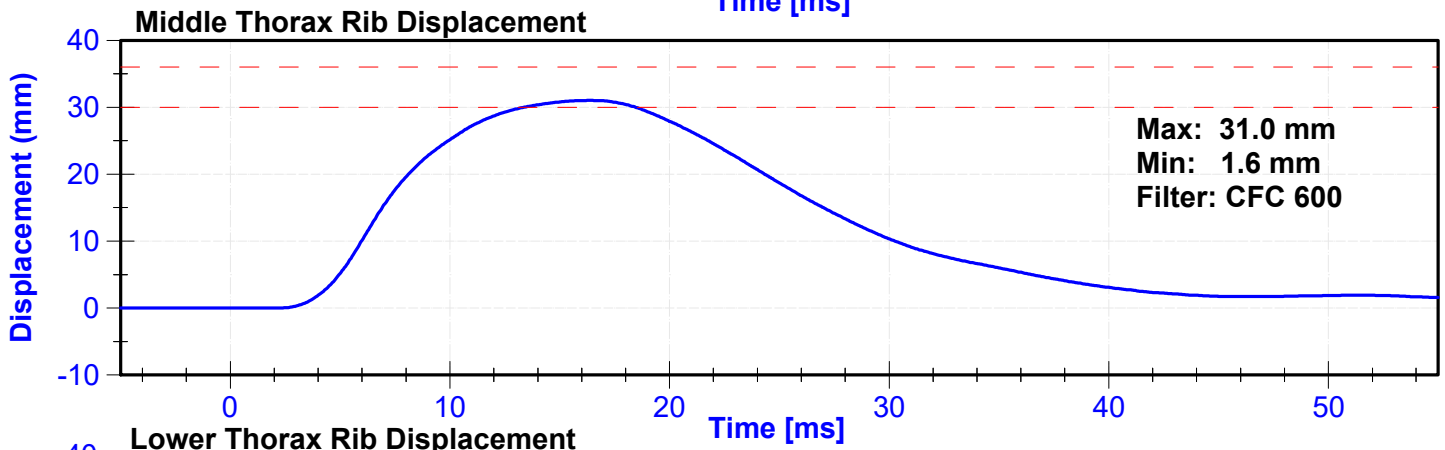
Transducer Calibrations

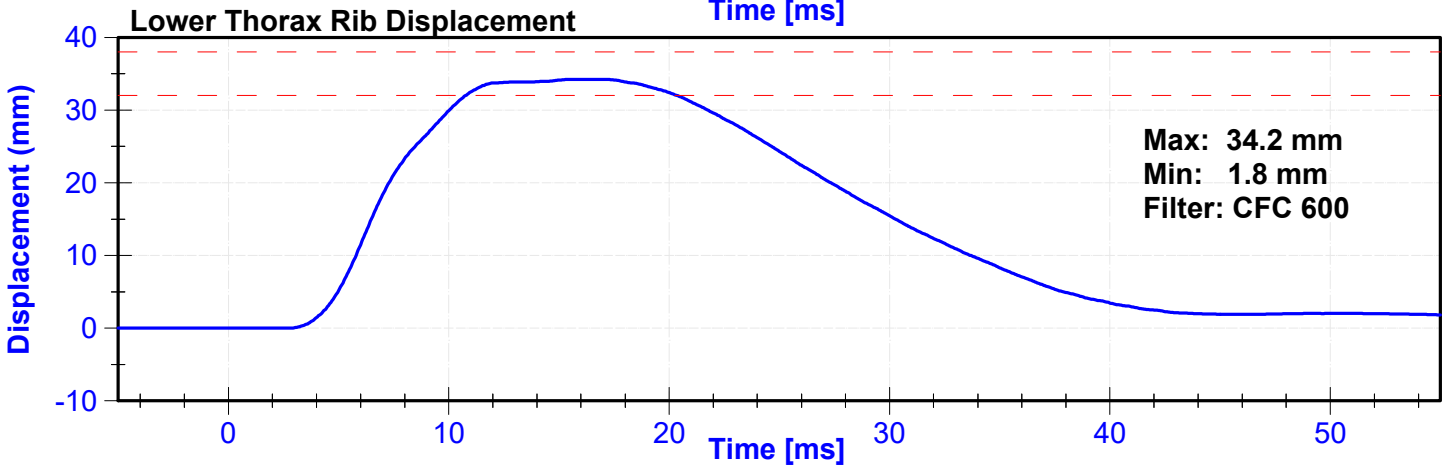
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Upper Spine T1 Y Accelerometer	Endevco	P52018	12/8/2025	6/6/2026
Upper Spine T12 Y Accelerometer	Endevco	P17283	12/8/2025	6/6/2026
Shoulder Potentiometer	Servo	053GFE	12/8/2025	6/8/2026
Upper Thorax Rib Potentiometer	Servo	2316GFE	12/8/2025	6/8/2026
Middle Thorax Rib Potentiometer	Servo	085GFE	12/4/2025	6/4/2026
Lower Thorax Rib Potentiometer	Servo	1156GFE	12/4/2025	6/4/2026

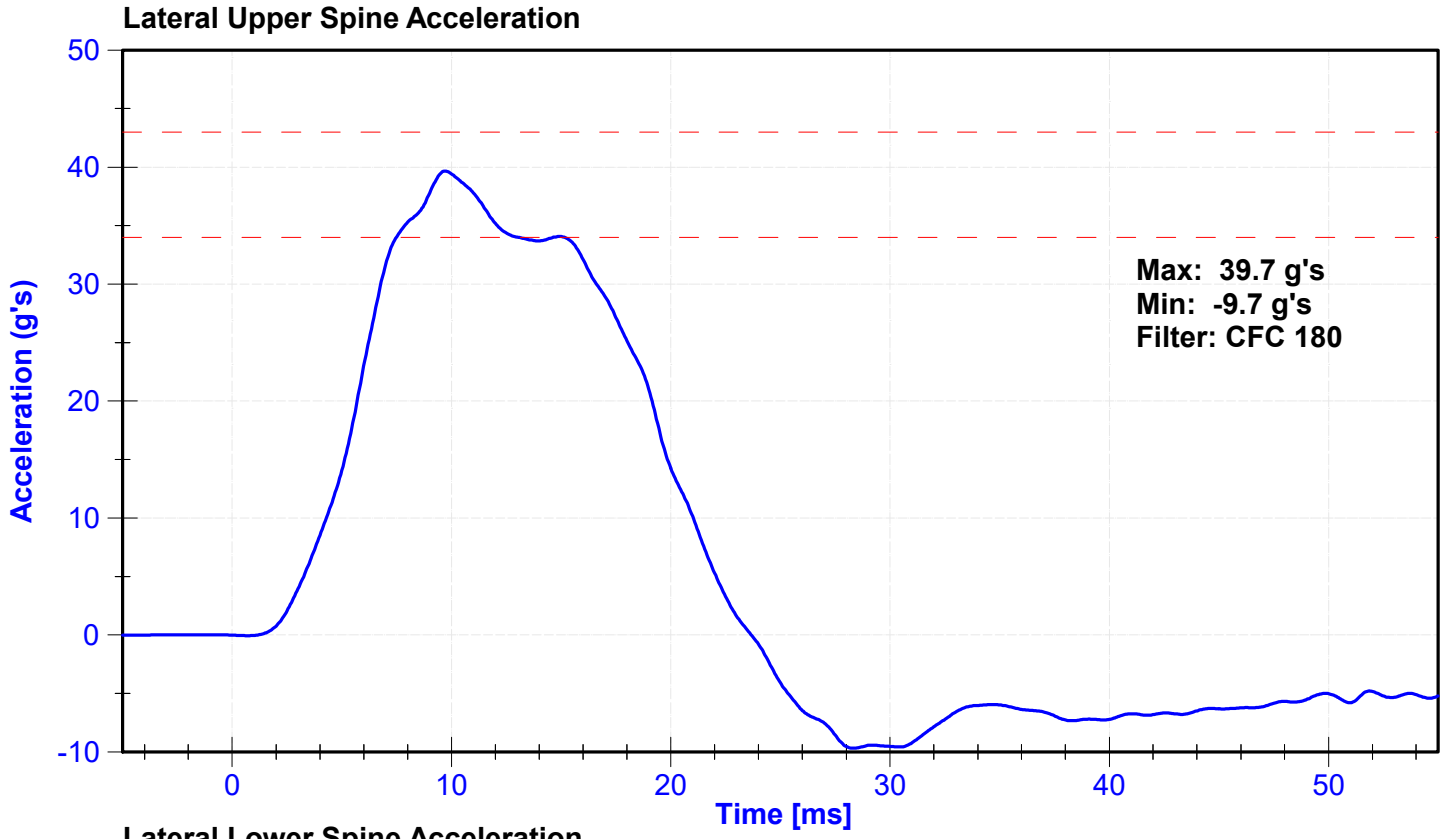


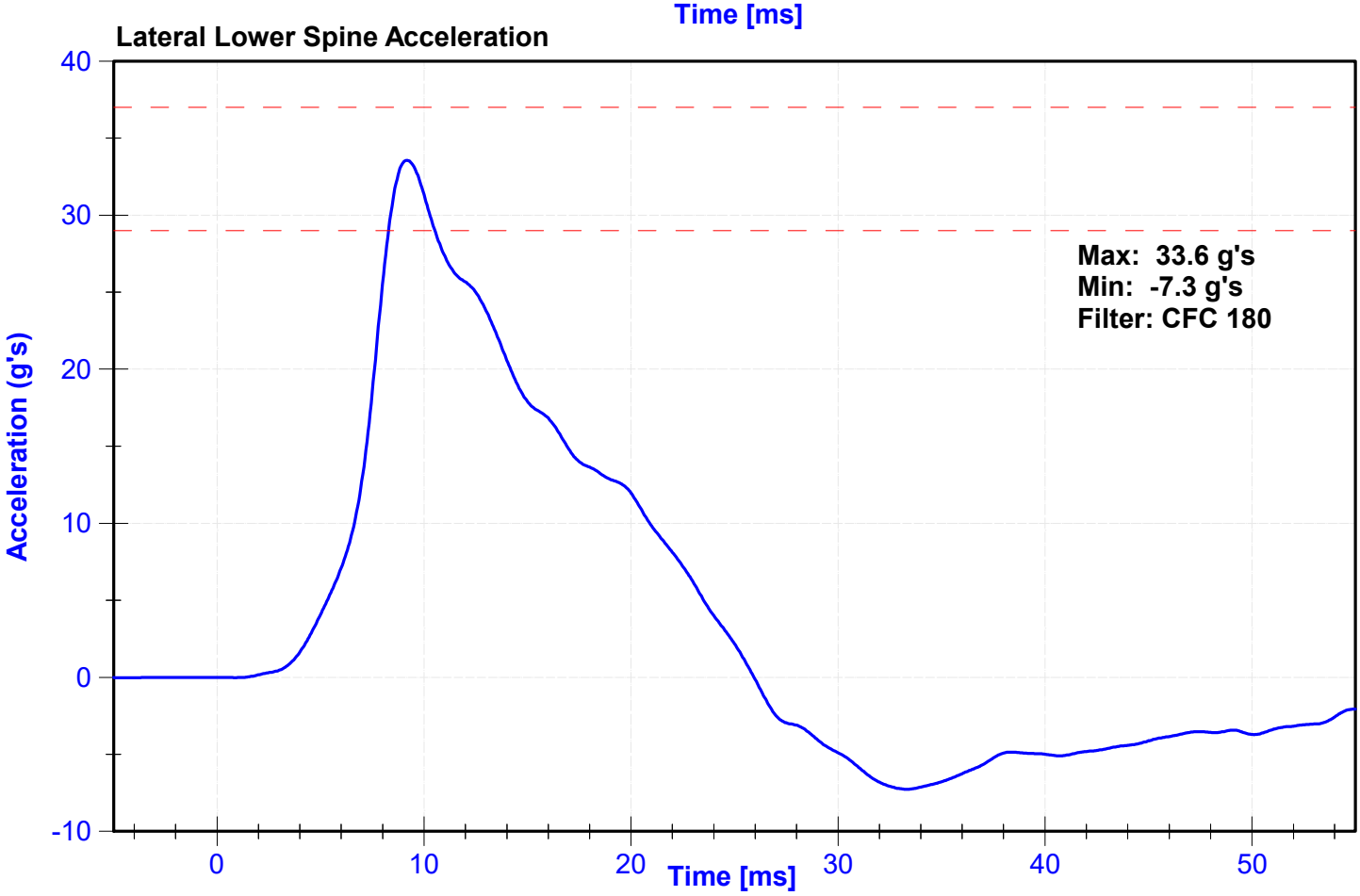

Shoulder Displacement
Displacement (mm)
Time [ms]
Max: 31.9 mm
Min: -0.2 mm
Filter: CFC 600


Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 25.3 mm
Min: 1.4 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 31.0 mm
Min: 1.6 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 34.2 mm
Min: 1.8 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 39.7 g's
Min: -9.7 g's
Filter: CFC 180


Lateral Lower Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 33.6 g's
Min: -7.3 g's
Filter: CFC 180

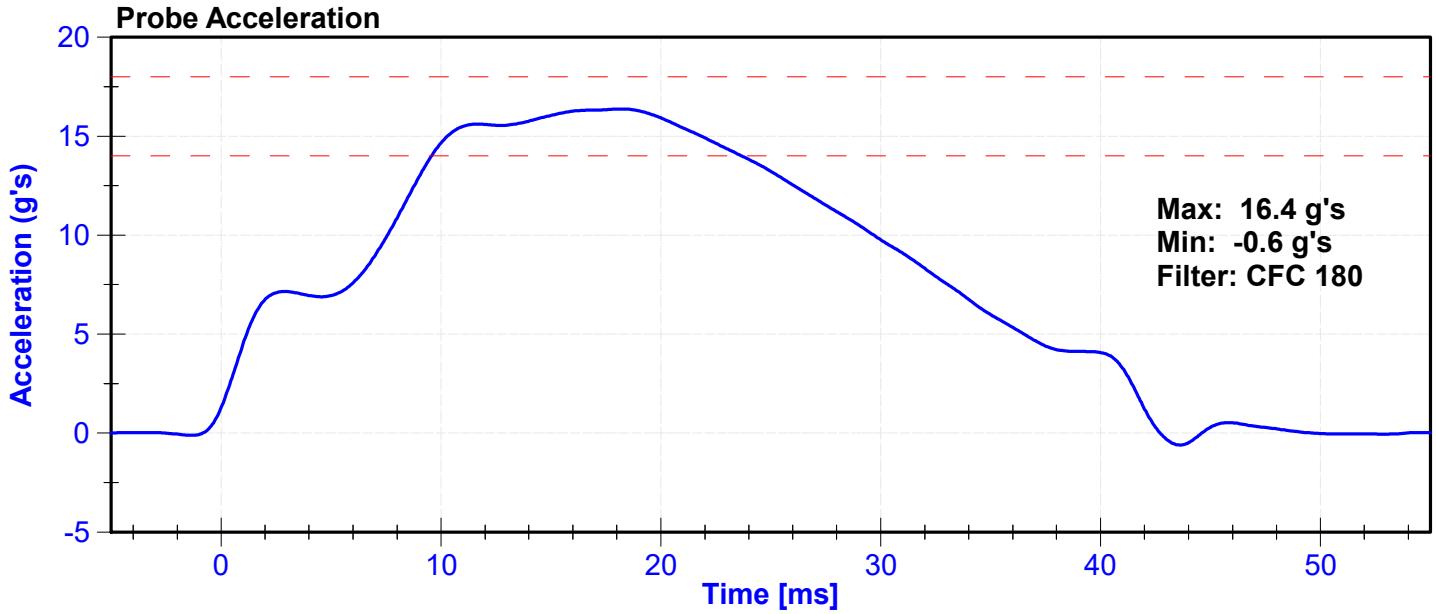
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

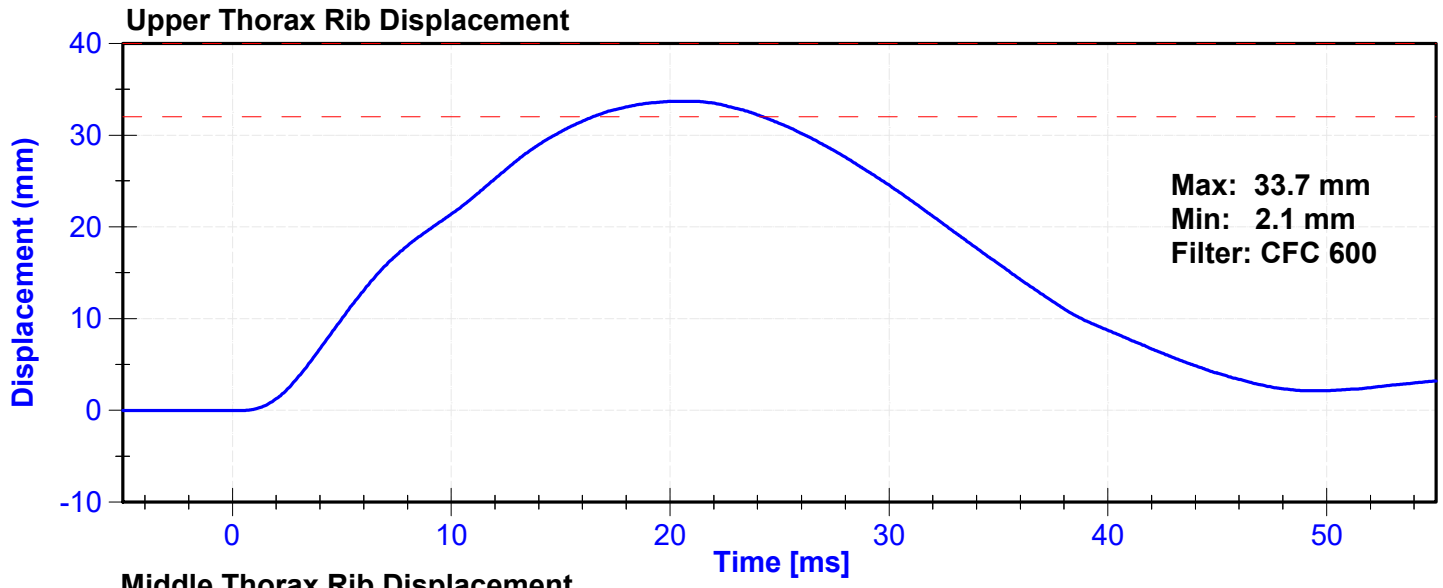
Results

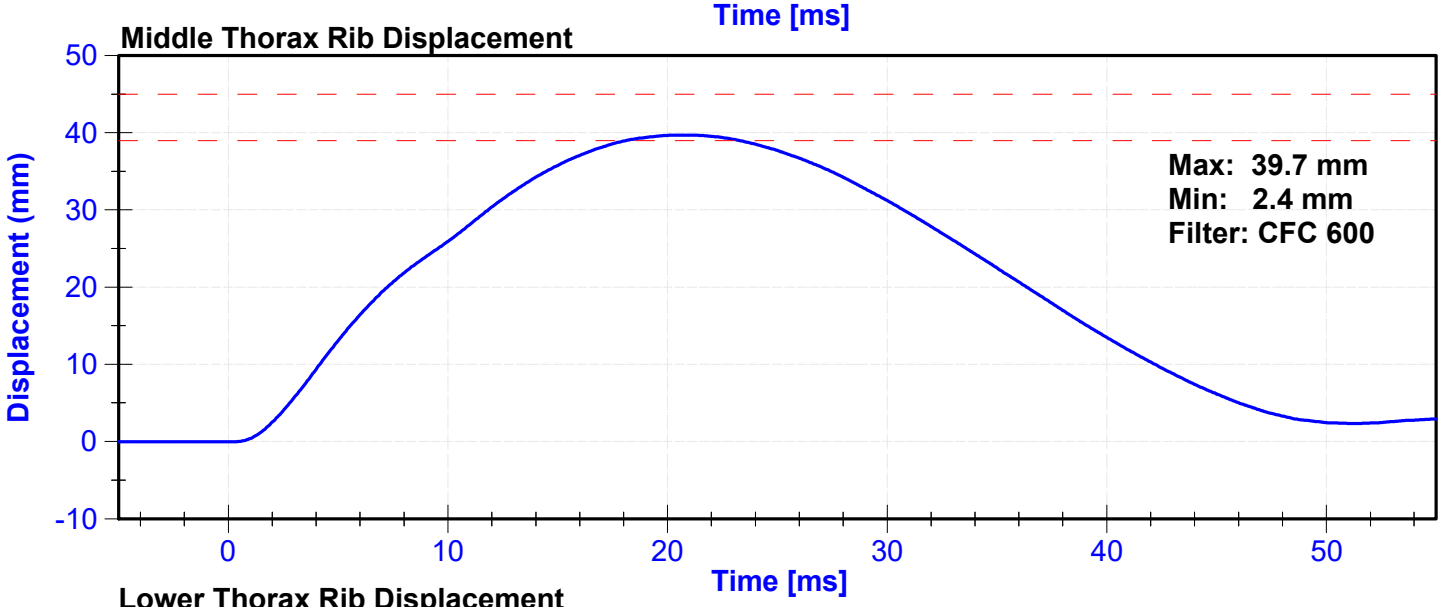
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	19	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	14	18	g's	16.4	Pass
Lateral Upper Spine Acceleration	13	17	g's	15.1	Pass
Lateral Lower Spine Acceleration	7	11	g's	9.7	Pass
Upper Thorax Rib Deflection	32	40	mm	33.7	Pass
Middle Thorax Rib Deflection	39	45	mm	39.7	Pass
Lower Thorax Rib Deflection	35	43	mm	37.9	Pass

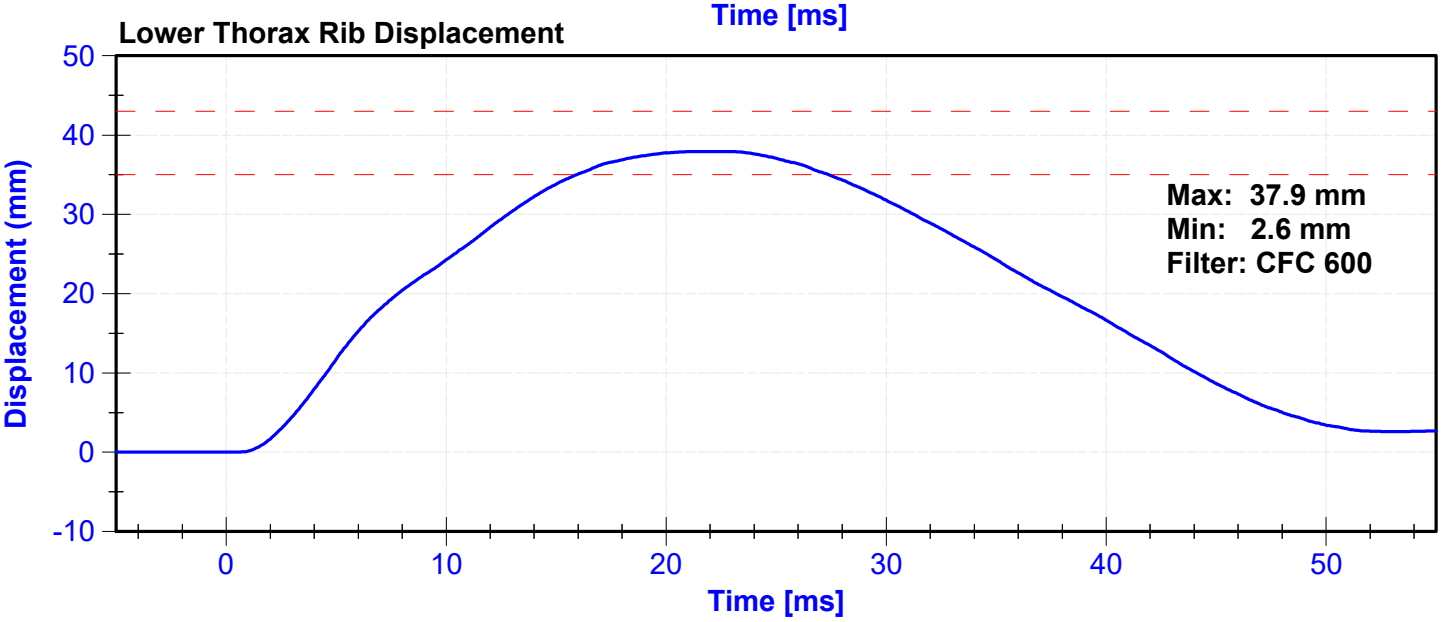
Transducer Calibrations

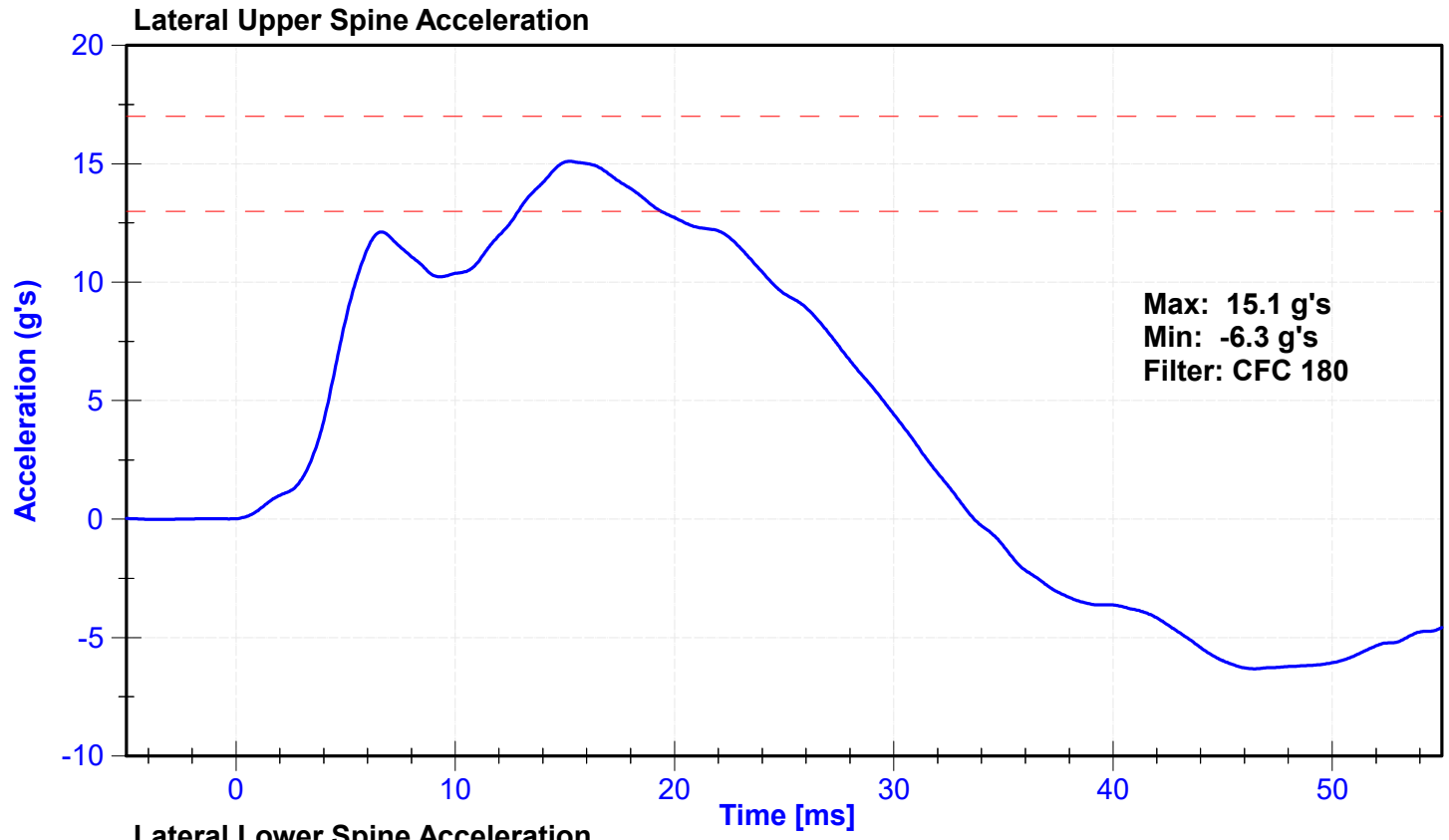
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Upper Spine Y Accelerometer	Endevco	P52018	12/8/2025	6/6/2026
Lower Spine Y Accelerometer	Endevco	P17283	12/8/2025	6/6/2026
Upper Thorax Rib Potentiometer	Servo	2316GFE	12/8/2025	6/8/2026
Middle Thorax Rib Potentiometer	Servo	085GFE	12/4/2025	6/4/2026
Lower Thorax Rib Potentiometer	Servo	1156GFE	12/4/2025	6/4/2026

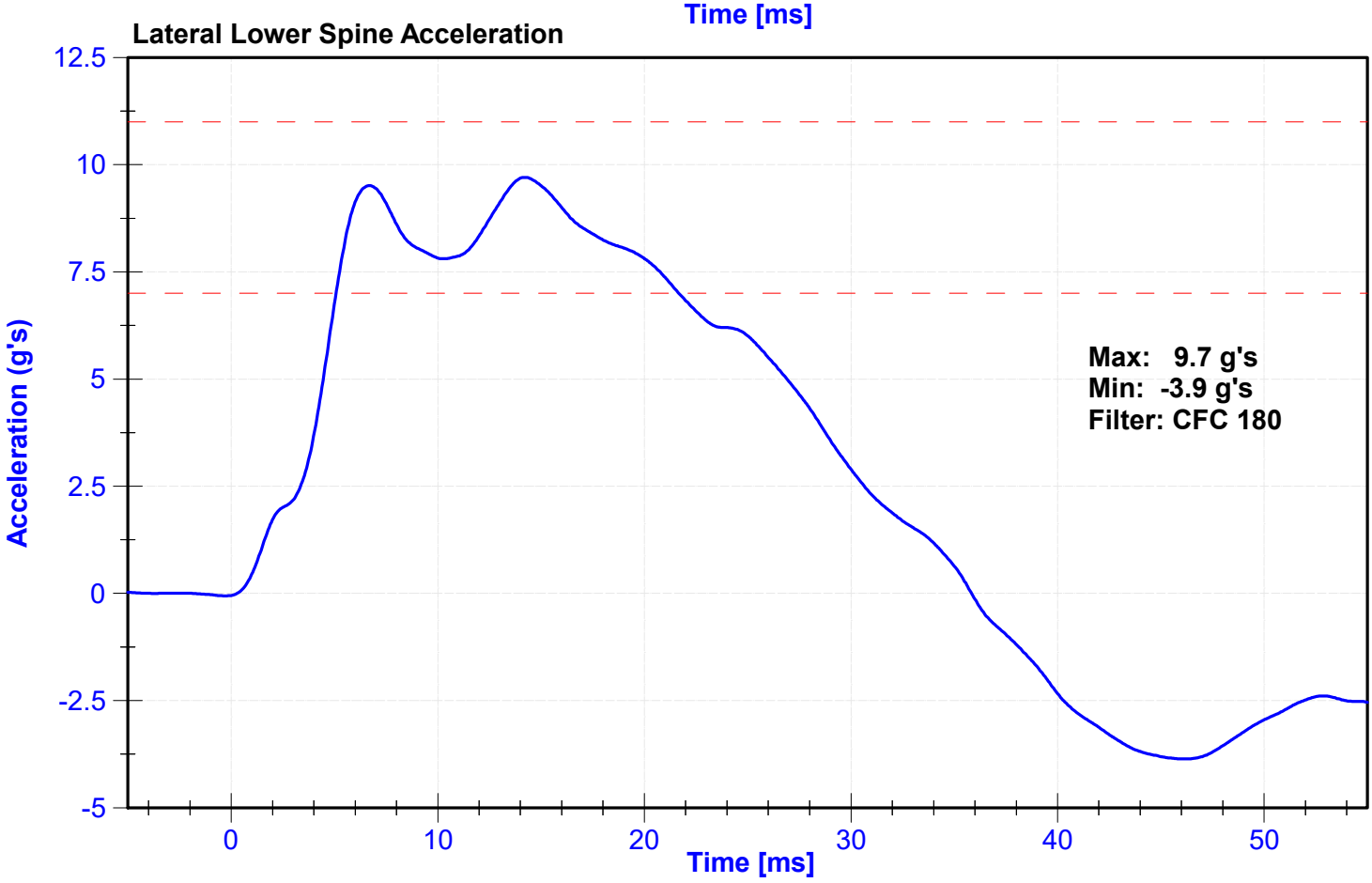



Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 33.7 mm
Min: 2.1 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 39.7 mm
Min: 2.4 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 37.9 mm
Min: 2.6 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 15.1 g's
Min: -6.3 g's
Filter: CFC 180


Lateral Lower Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 9.7 g's
Min: -3.9 g's
Filter: CFC 180

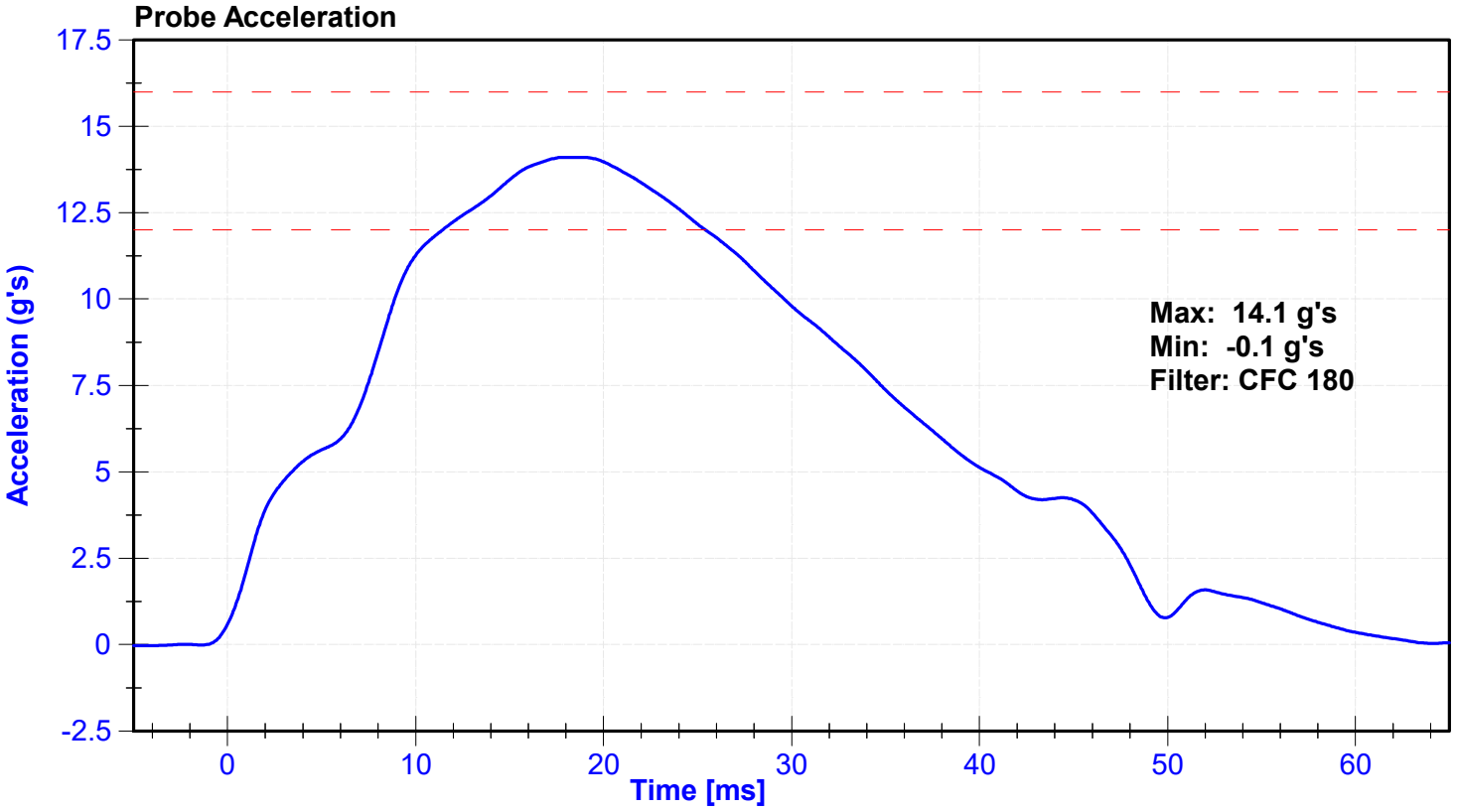
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

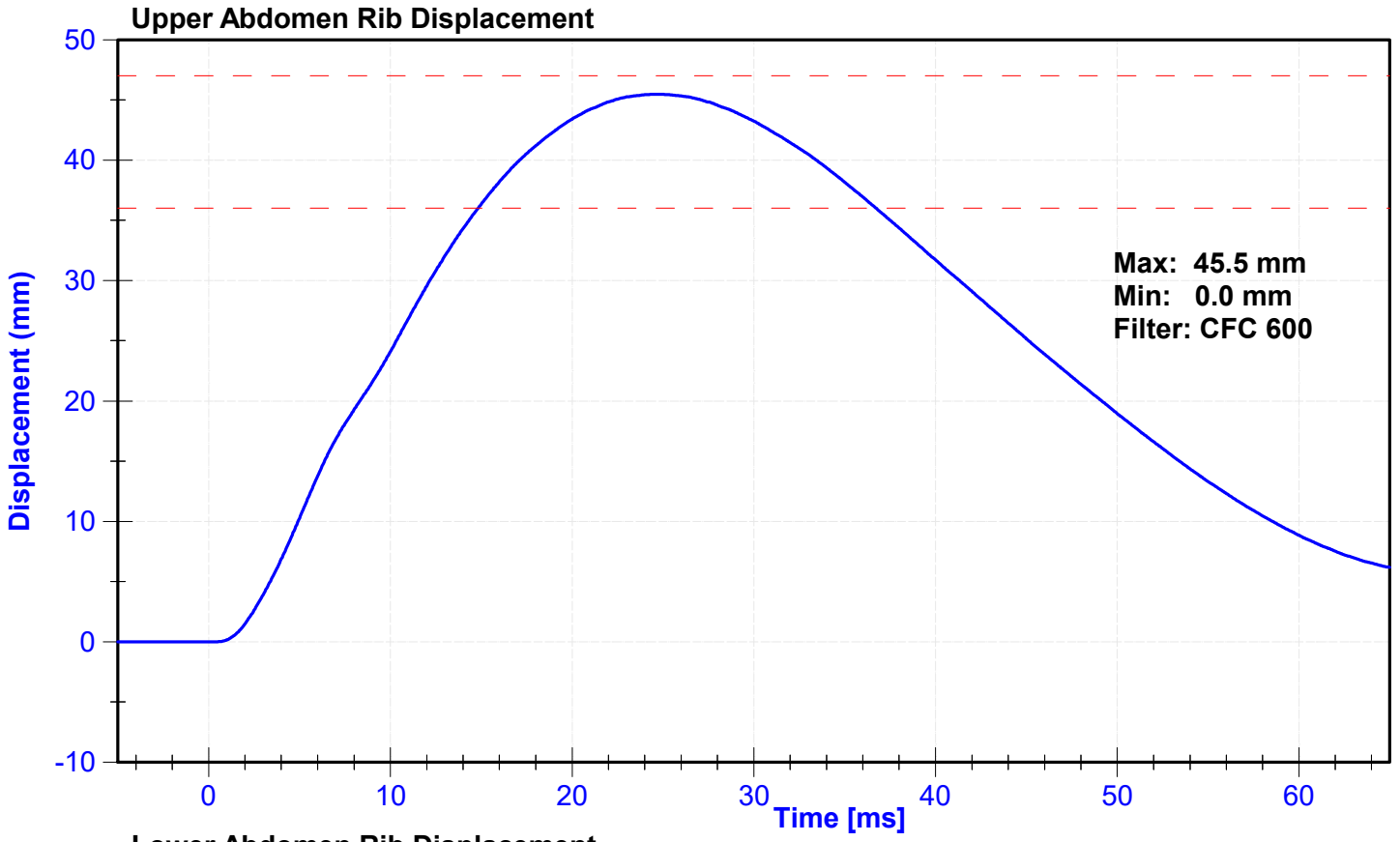
Results

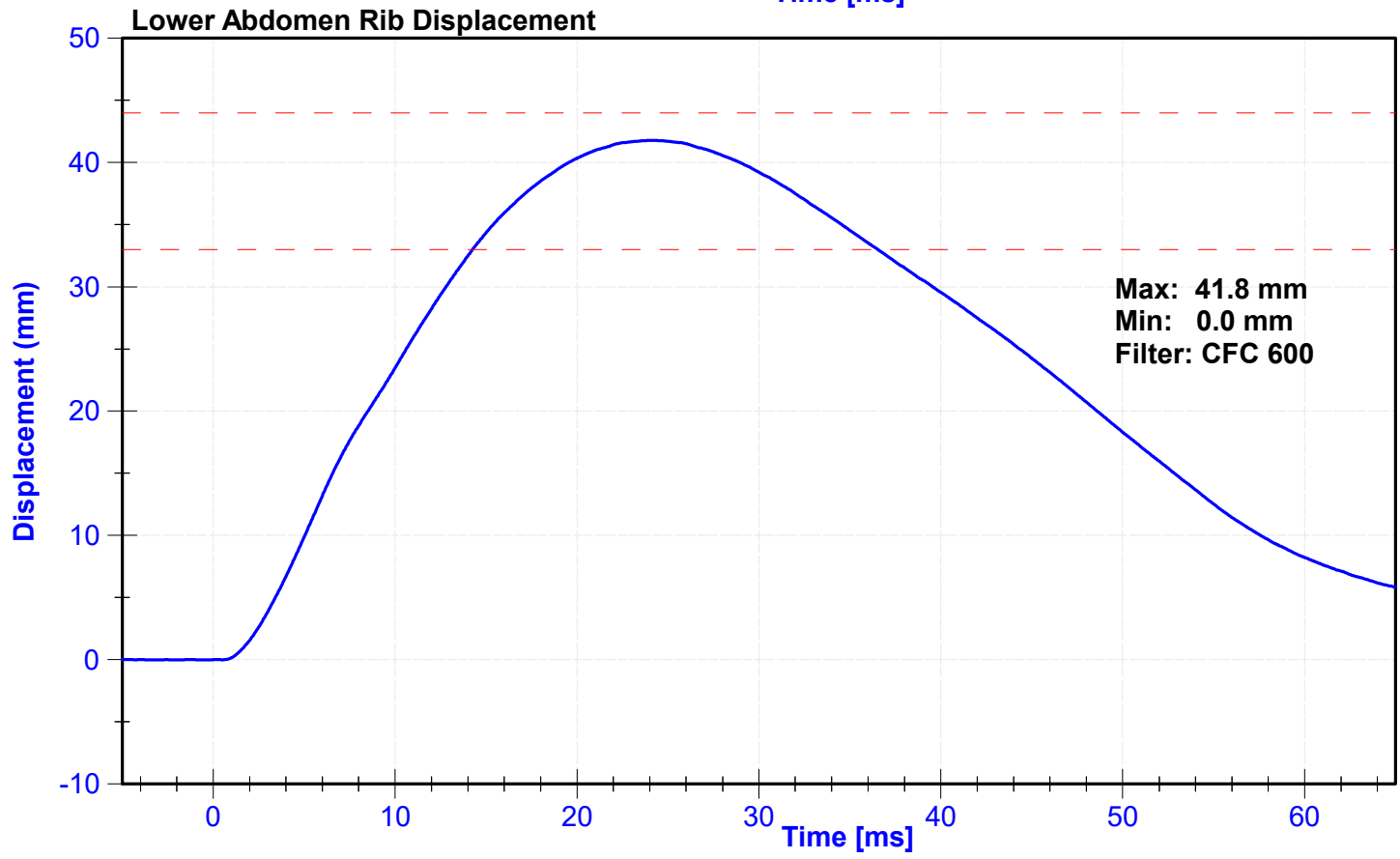
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	19	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	12	16	g's	14.1	Pass
Lateral Lower Spine Acceleration	9	14	g's	11.6	Pass
Upper Abdomen Rib Deflection	36	47	mm	45.5	Pass
Lower Abdomen Rib Deflection	33	44	mm	41.8	Pass

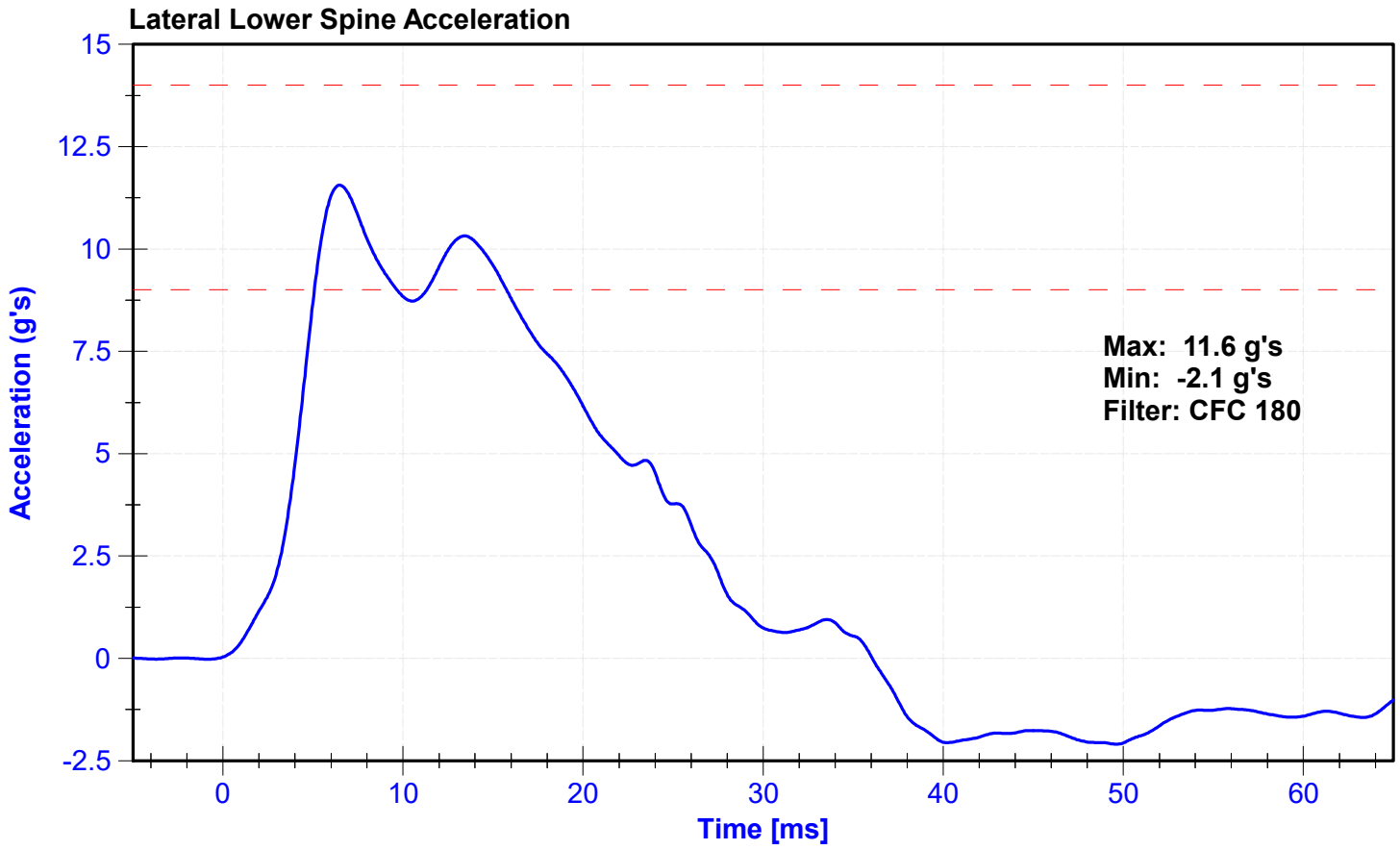
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Lower Spine Y Accelerometer	Endevco	P17283	12/8/2025	6/6/2026
Upper Abdomen Rib Potentiometer	Servo	074GFE	12/4/2025	6/4/2026
Lower Abdomen Rib Potentiometer	Servo	075GFE	12/8/2025	6/8/2026




Upper Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 45.5 mm
Min: 0.0 mm
Filter: CFC 600


Lower Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 41.8 mm
Min: 0.0 mm
Filter: CFC 600


Lateral Lower Spine Acceleration
Acceleration (g's)
15
12.5
10
7.5
5
2.5
0
-2.5
0
10
20
30
40
50
60
Time [ms]
Max: 11.6 g's
Min: -2.1 g's
Filter: CFC 180

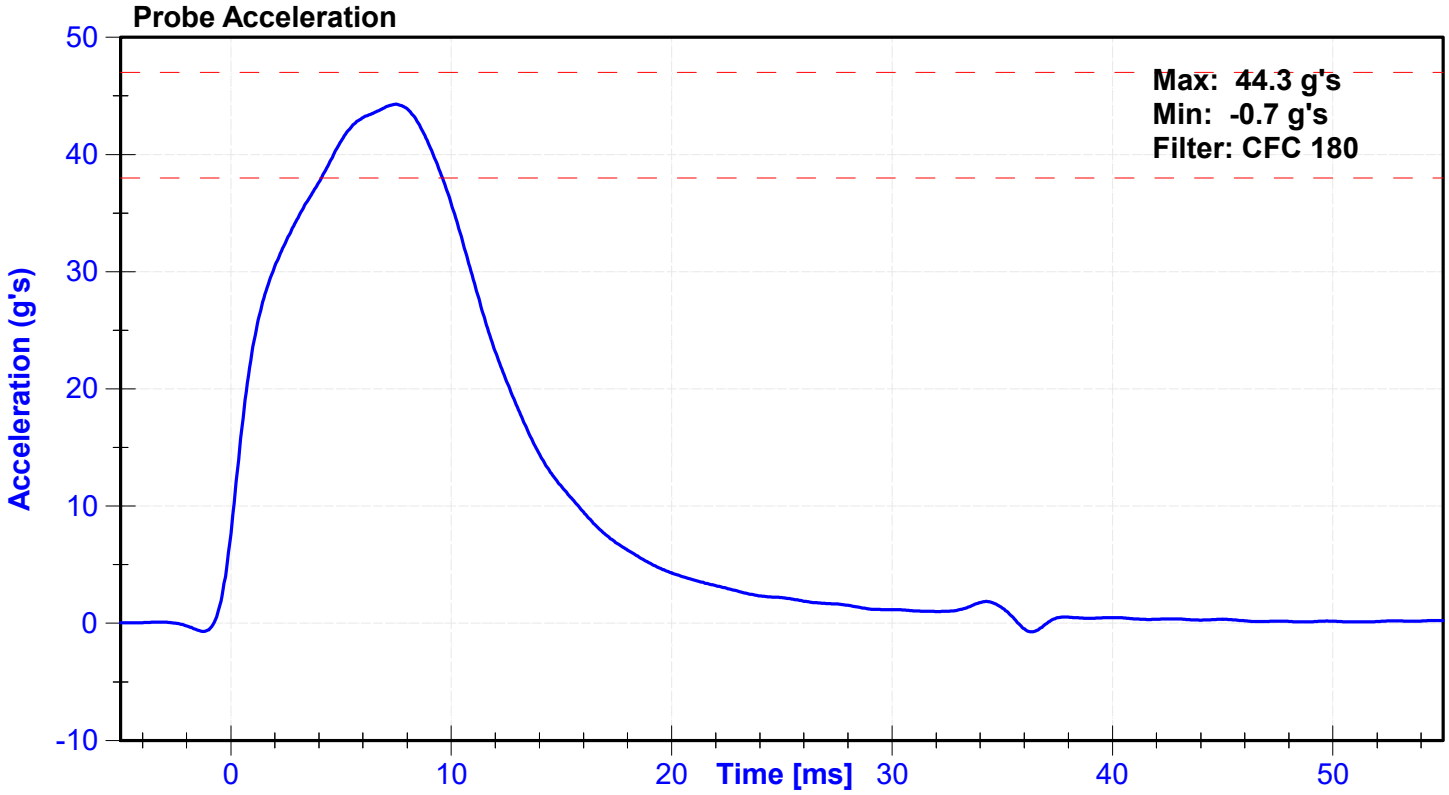
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

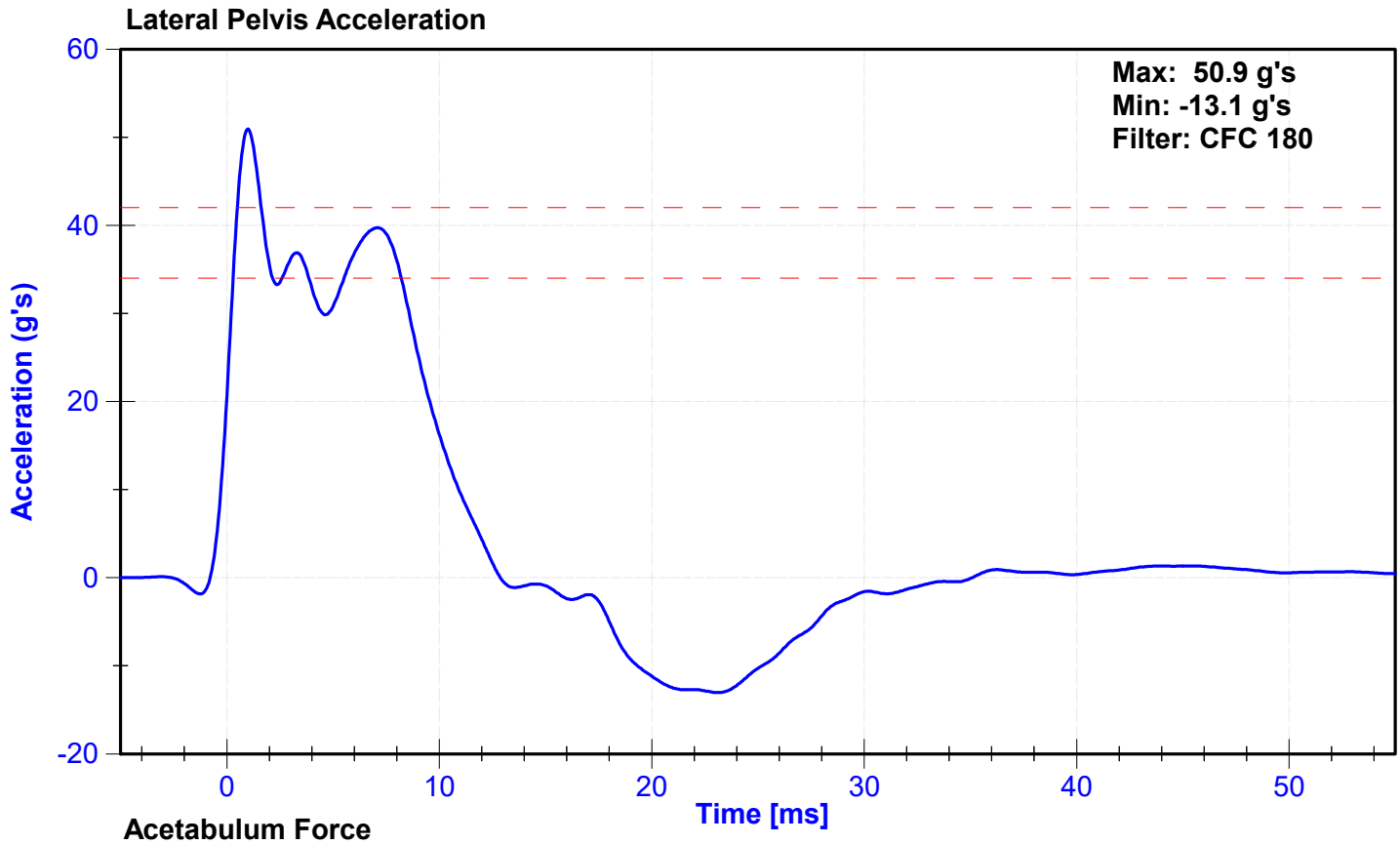
Results

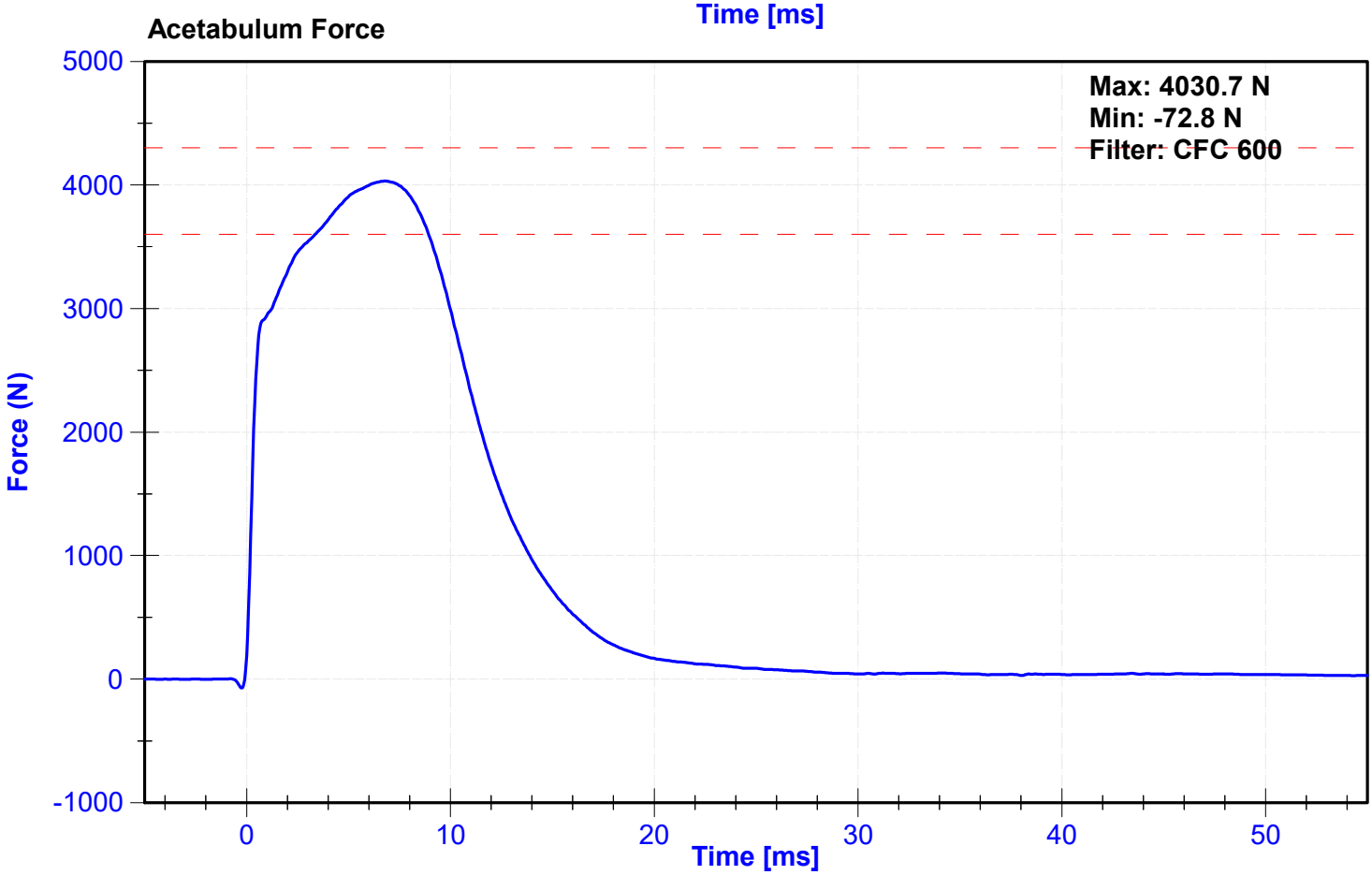
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	19	Pass
Velocity	6.6	6.8	m/s	6.63	Pass
Probe Acceleration	38	47	g's	44.3	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	39.7	Pass
Acetabulum Force	3600	4300	N	4030.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Pelvis Y Accelerometer	Endevco	P51731	12/8/2025	6/6/2026
Acetabulum Load Cell	Denton	270-FY	10/15/2025	10/15/2026
Certification Plug	SACO			N/A
Crash Test Plug	SACO			N/A




Lateral Pelvis Acceleration
Max: 50.9 g's
Min: -13.1 g's
Filter: CFC 180
Acceleration (g's)
60
40
20
0
-20
0
10
20
30
40
50
Time [ms]


Acetabulum Force
Max: 4030.7 N
Min: -72.8 N
Filter: CFC 600
Force (N)
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50
Time [ms]

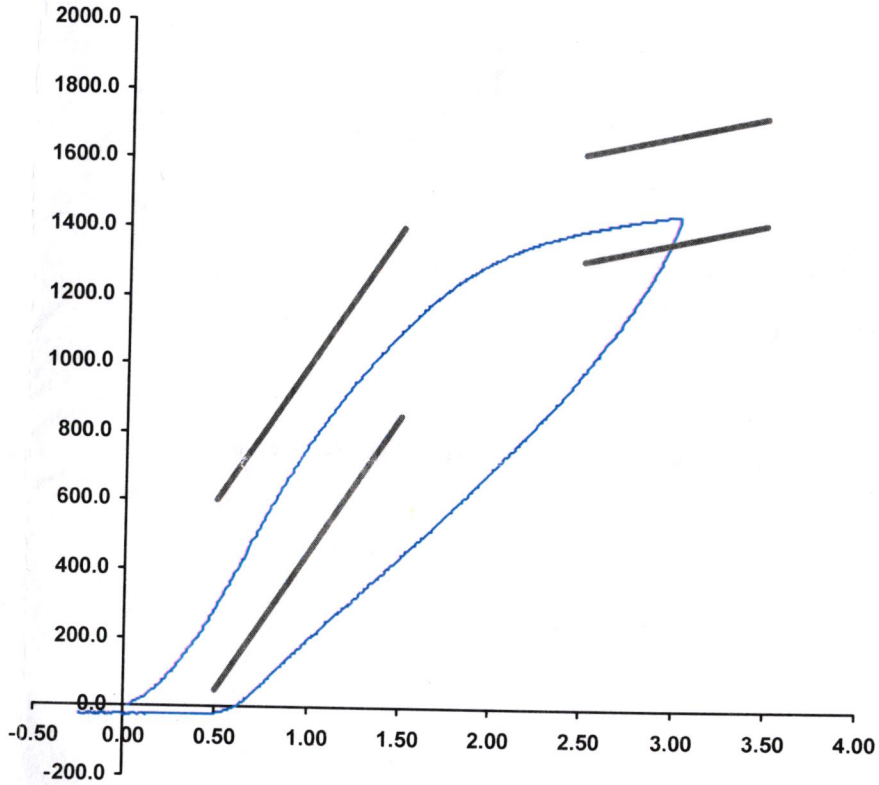
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 16684
Test Number 23484
Report Number 23541
Test Date 7/22/2022 10:39:53 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	294	50	600
Force @ 1.5 mm (N)	1,097	850	1,400
Force @ 2.5 mm (N)	1,396	1,306	1,618
Force @ 3.0 mm (N)	1,441	1,361	1,673

Force (-N) vs Extension (-mm)



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 300 12/11/25 ZN

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

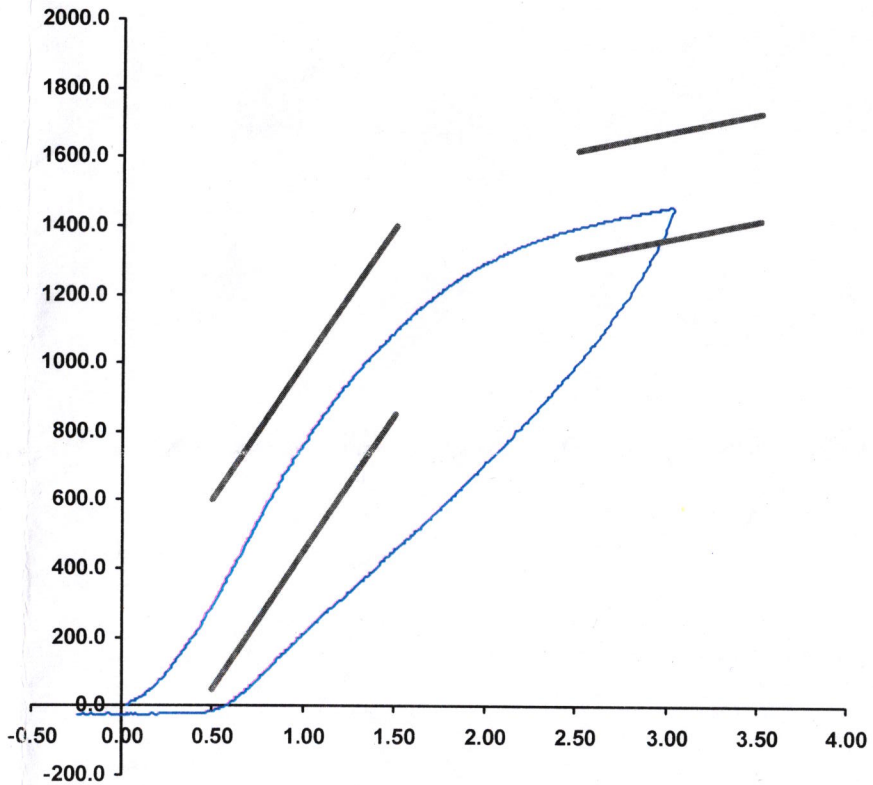
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 16668
Test Number 23444
Report Number 23501
Test Date 7/21/2022 11:59:49 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	299	50	600
Force @ 1.5 mm (N)	1,093	850	1,400
Force @ 2.5 mm (N)	1,395	1,306	1,618
Force @ 3.0 mm (N)	1,455	1,361	1,673

Force (-N) vs Extension (-mm)



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 300 12/11/25 ZN

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

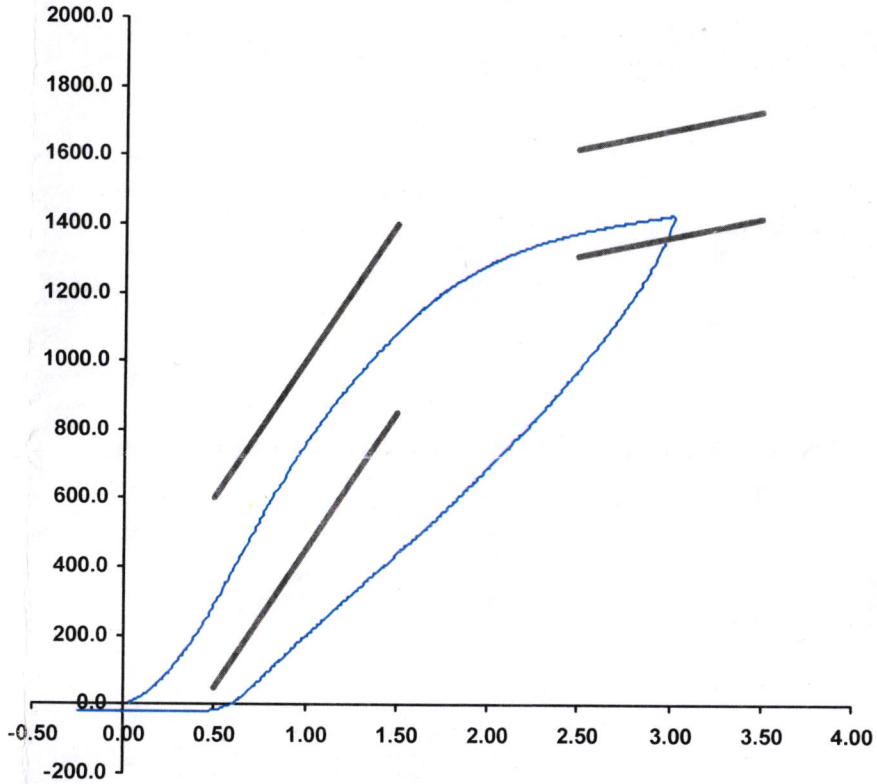
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 16698
Test Number 23498
Report Number 23555
Test Date 7/22/2022 11:12:21 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	296	50	600
Force @ 1.5 mm (N)	1,085	850	1,400
Force @ 2.5 mm (N)	1,375	1,306	1,618
Force @ 3.0 mm (N)	1,425	1,361	1,673

Force (-N) vs Extension (-mm)



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:
Cert 300 12.11.25 ZN

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

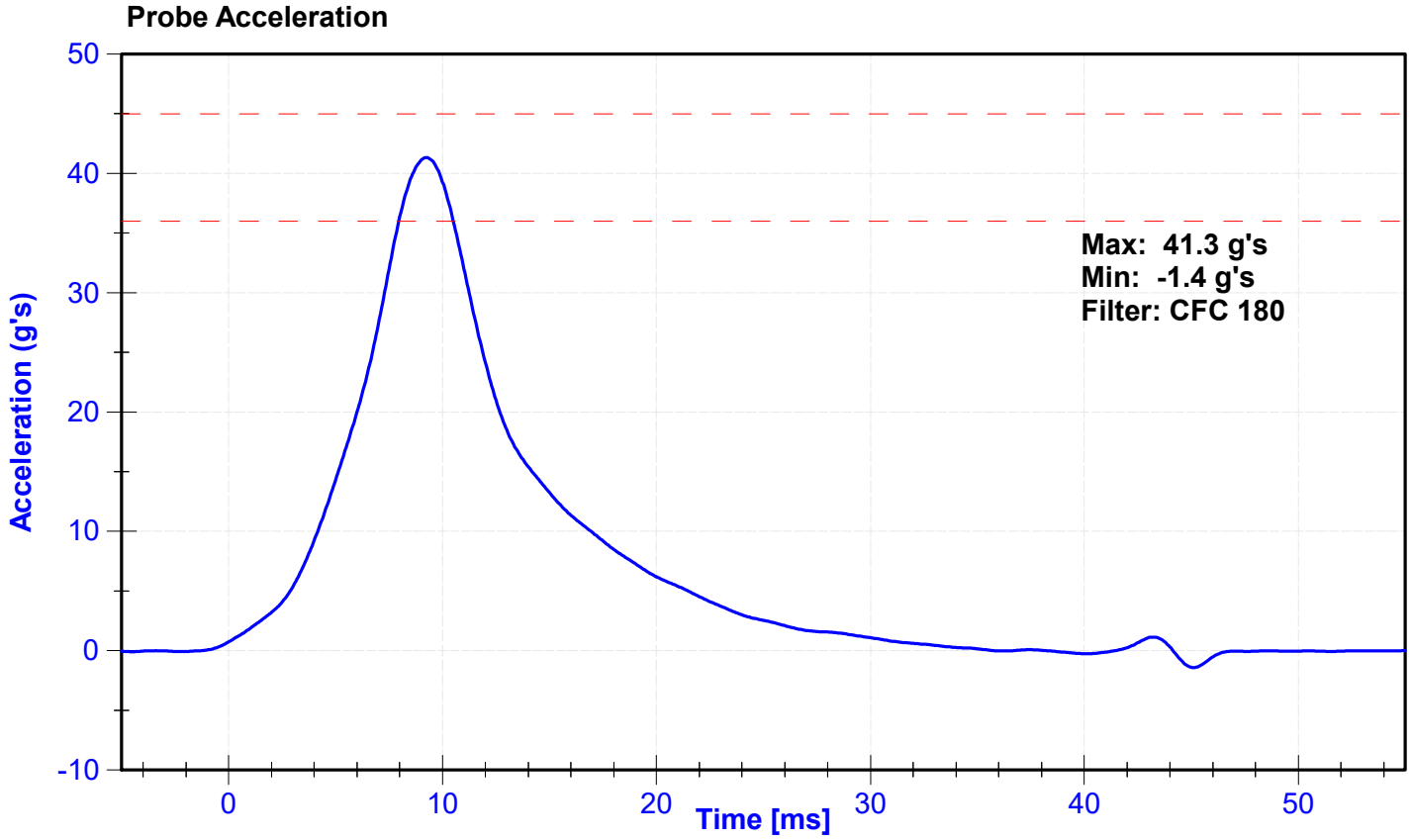
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

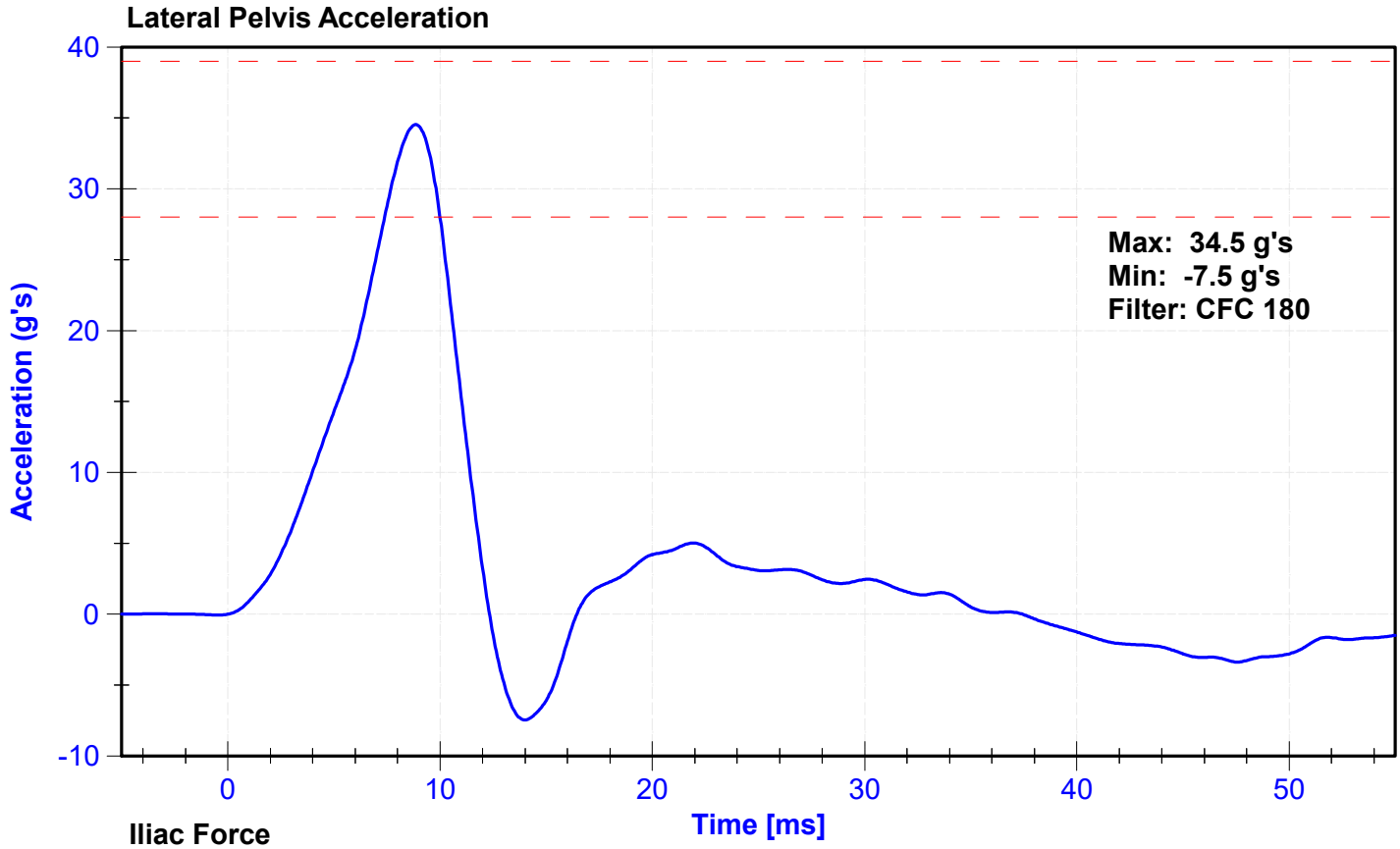
Results

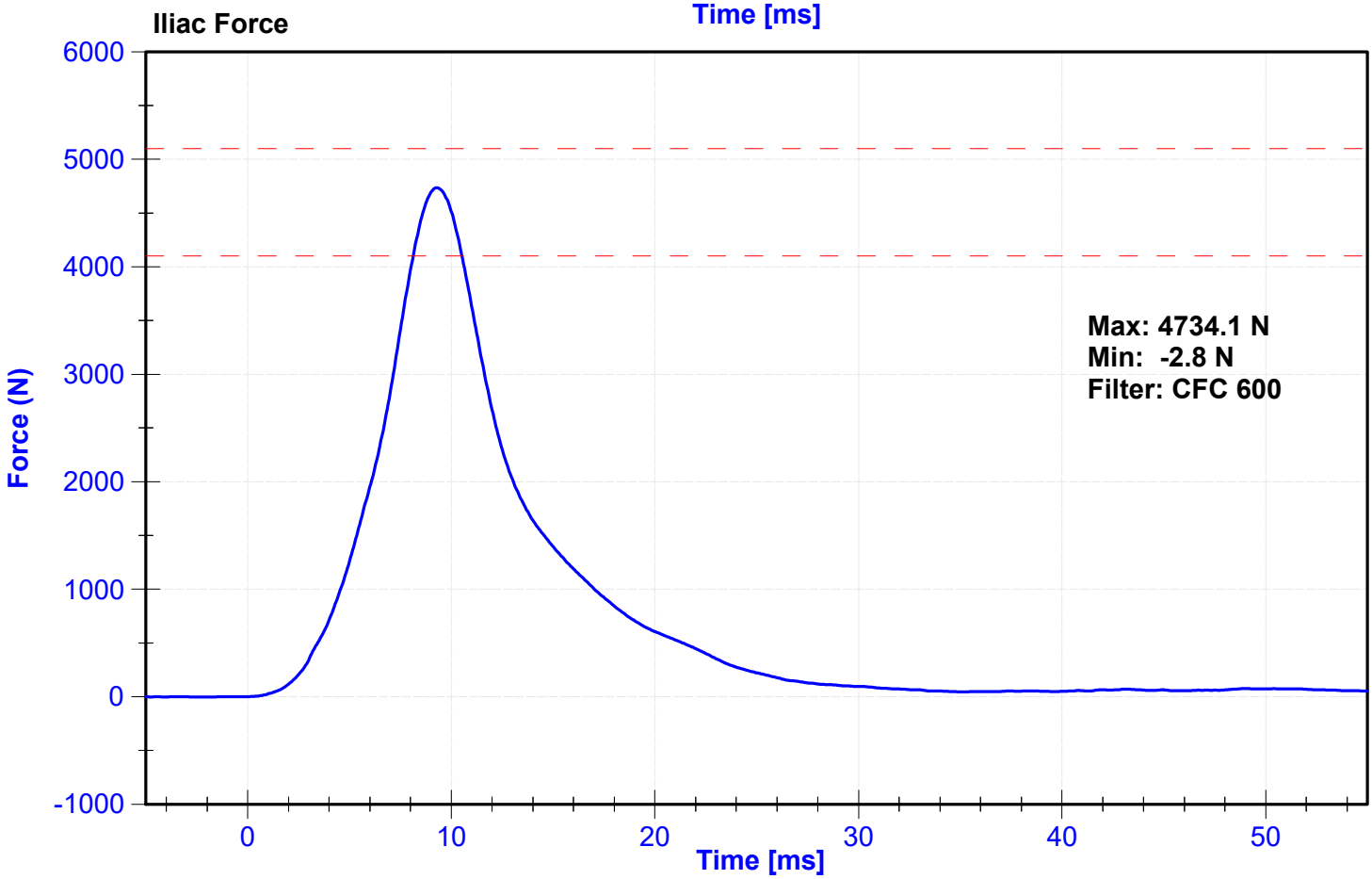
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	19	Pass
Velocity	4.2	4.4	m/s	4.24	Pass
Probe Acceleration	36	45	g's	41.3	Pass
Lateral Pelvis Acceleration	28	39	g's	34.5	Pass
Iliac Force	4100	5100	N	4734.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Pelvis Y Accelerometer	Endevco	P51731	12/8/2025	6/6/2026
Iliac Load Cell	FTSS	225-FY	9/24/2025	9/24/2026




Lateral Pelvis Acceleration
Acceleration (g's)
Time [ms]
Max: 34.5 g's
Min: -7.5 g's
Filter: CFC 180


Iliac Force
Force (N)
Time [ms]
Max: 4734.1 N
Min: -2.8 N
Filter: CFC 600

CALIBRATION TEST RESULTS

POST-TEST

EUROSID 2 (ES-2RE) MALE – DRIVER ATD

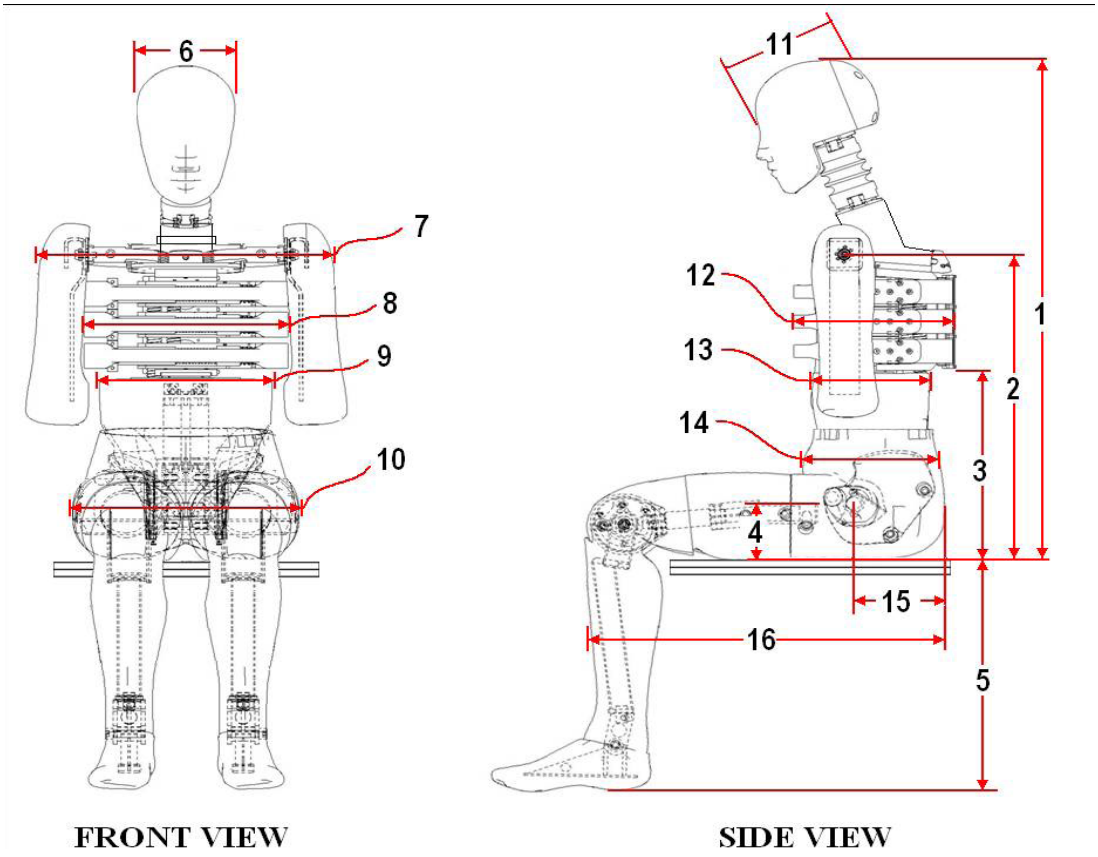
SERIAL NO:F033

(CONFIGURED FOR LEFT SIDE IMPACT)

External Measurements - EuroSID-2re

Technician: J. Rios Date: 12/17/2025

Dummy Serial Number: F033



FRONT VIEW SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	910	Pass
2	Seat to Shoulder Joint	558	572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	351	Pass
4	Seat to Hip Joint (center of bolt)	97	103	102	Pass
5	Sole to Seat, Sitting	333	451	402	Pass
6	Head Width	152	158	156	Pass
7	Shoulder/Arm Width	461	479	471	Pass
8	Thorax Width	322	332	327	Pass
9	Abdomen Width	273	287	282	Pass
10	Pelvis Lap Width	359	373	367	Pass
11	Head Depth	196	206	201	Pass
12	Thorax Depth	262	272	268	Pass
13	Abdomen Depth	194	204	199	Pass
14	Pelvis Depth	235	245	238	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	154	Pass
16	Back of Buttocks to Front Knee	597	615	607	Pass

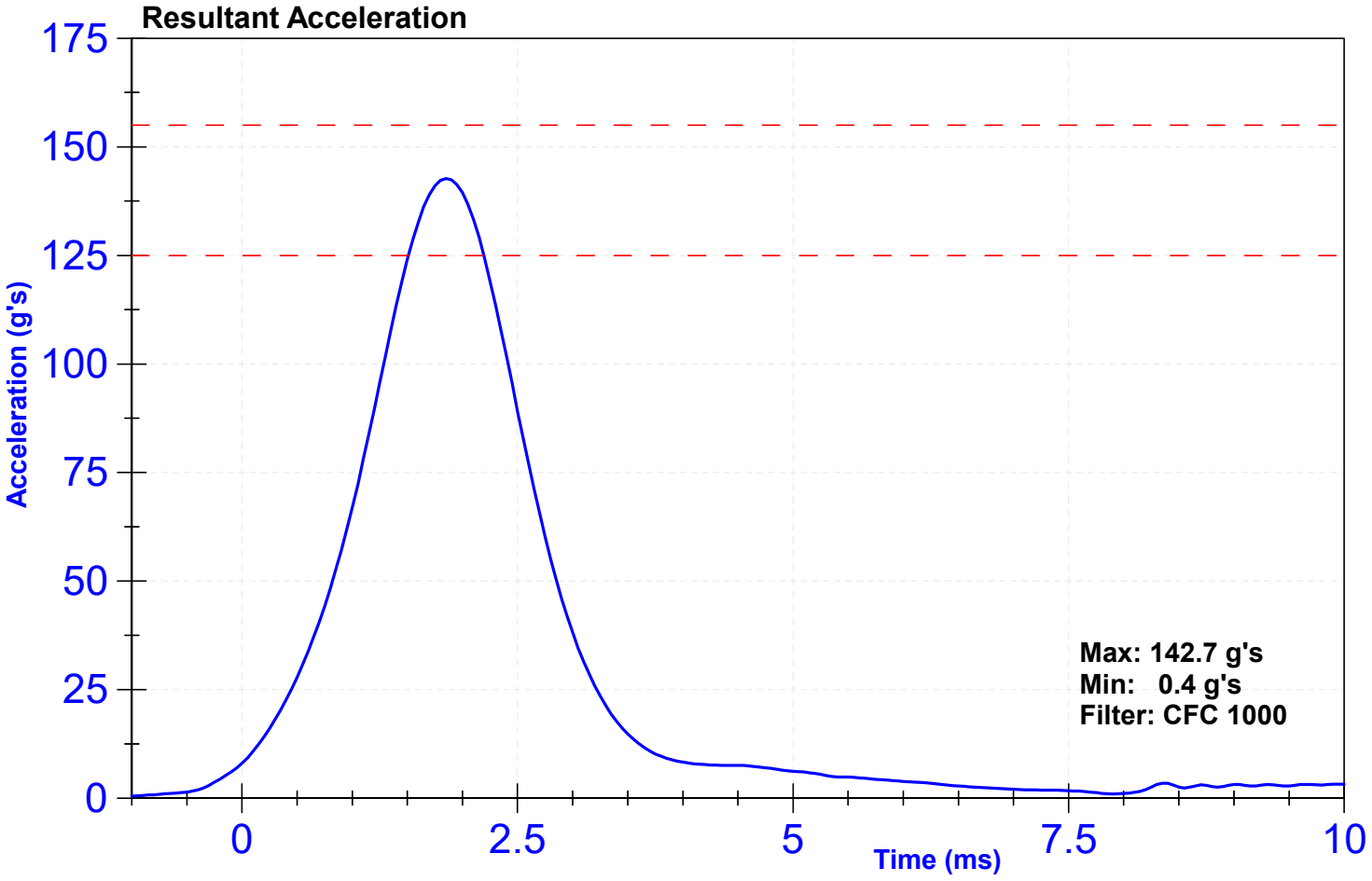
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

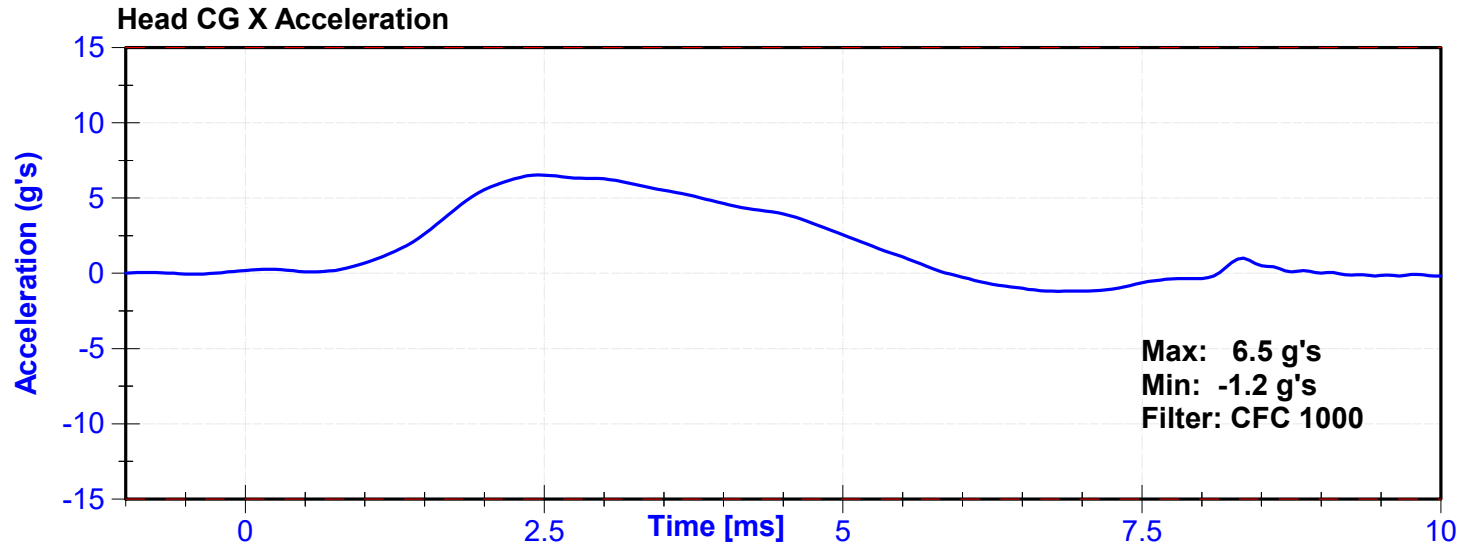
Results

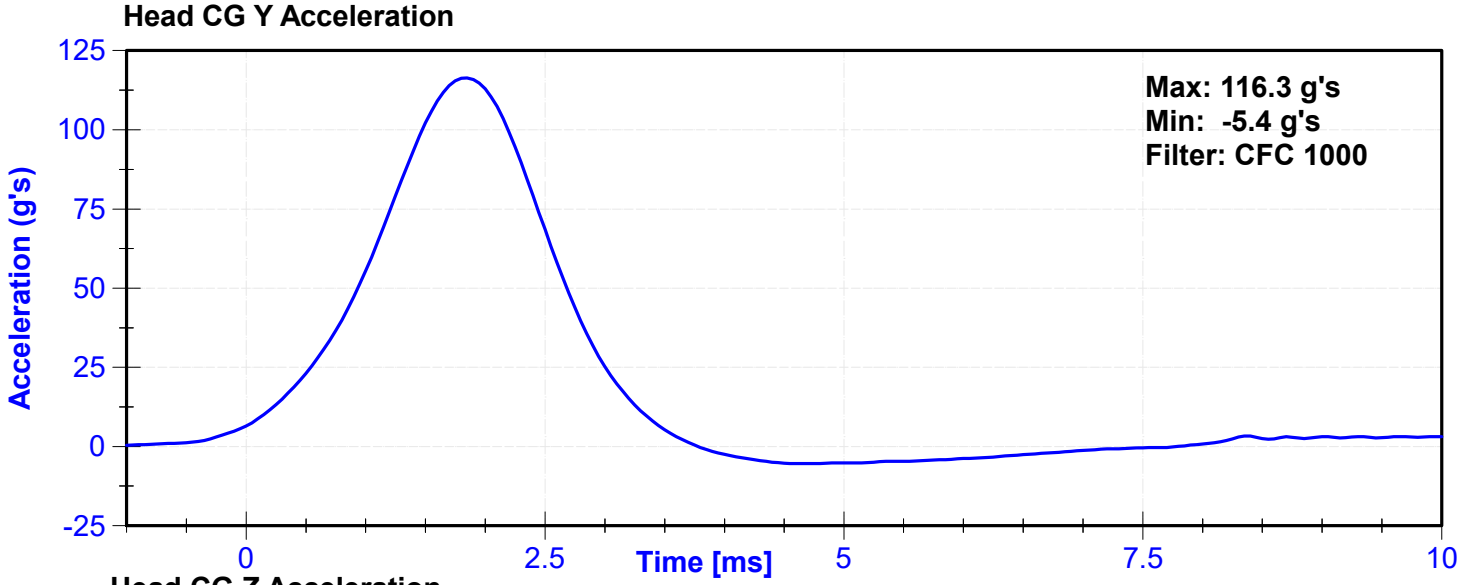
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	24	Pass
Resultant Acceleration	125	155	g's	142.7	Pass
Oscillation	0	15	%	5.32	Pass
Fore-Aft Acceleration	-15	15	g's	6.5	Pass

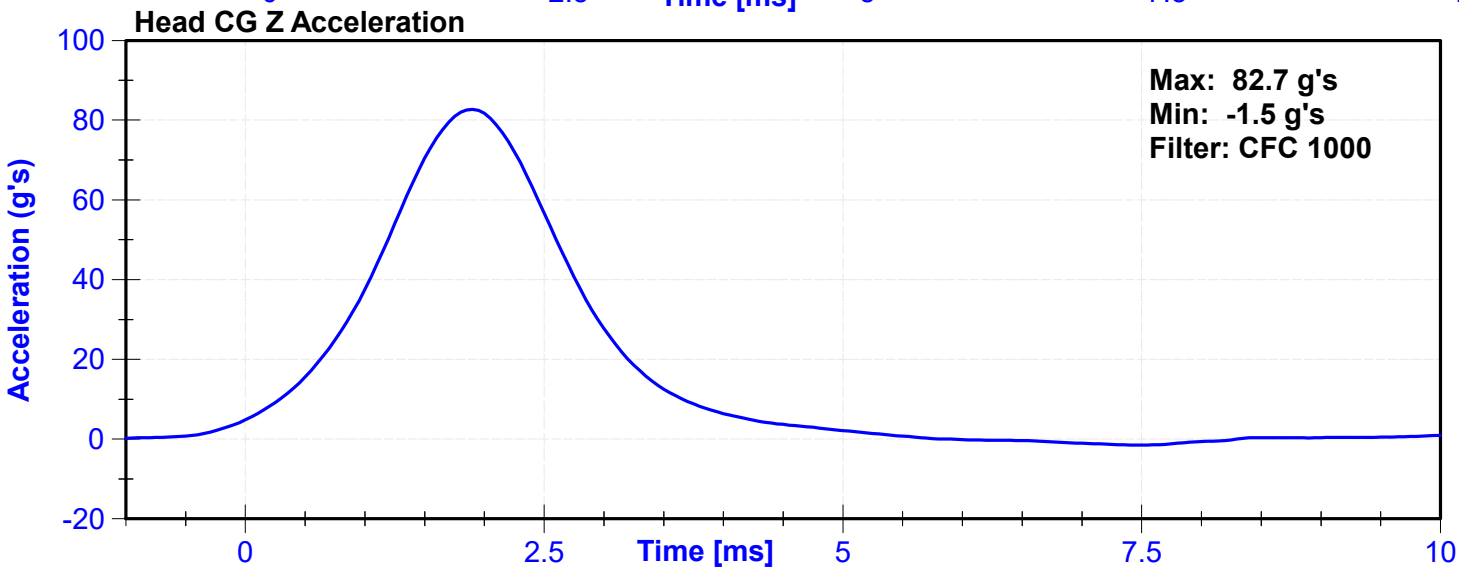
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P63861	12/4/2025	6/2/2026
Y Accelerometer	Endevco	P49216	12/4/2025	6/2/2026
Z Accelerometer	Endevco	P51303	12/4/2025	6/2/2026




Head CG X Acceleration
Acceleration (g's)
15
10
5
0
-5
-10
-15
0
2.5
5
7.5
10
Time [ms]
Max: 6.5 g's
Min: -1.2 g's
Filter: CFC 1000


Head CG Y Acceleration
Acceleration (g's)
125
100
75
50
25
0
-25
0
2.5
5
7.5
10
Time [ms]
Max: 116.3 g's
Min: -5.4 g's
Filter: CFC 1000


Head CG Z Acceleration
Acceleration (g's)
100
80
60
40
20
0
-20
0
2.5
5
7.5
10
Time [ms]
Max: 82.7 g's
Min: -1.5 g's
Filter: CFC 1000

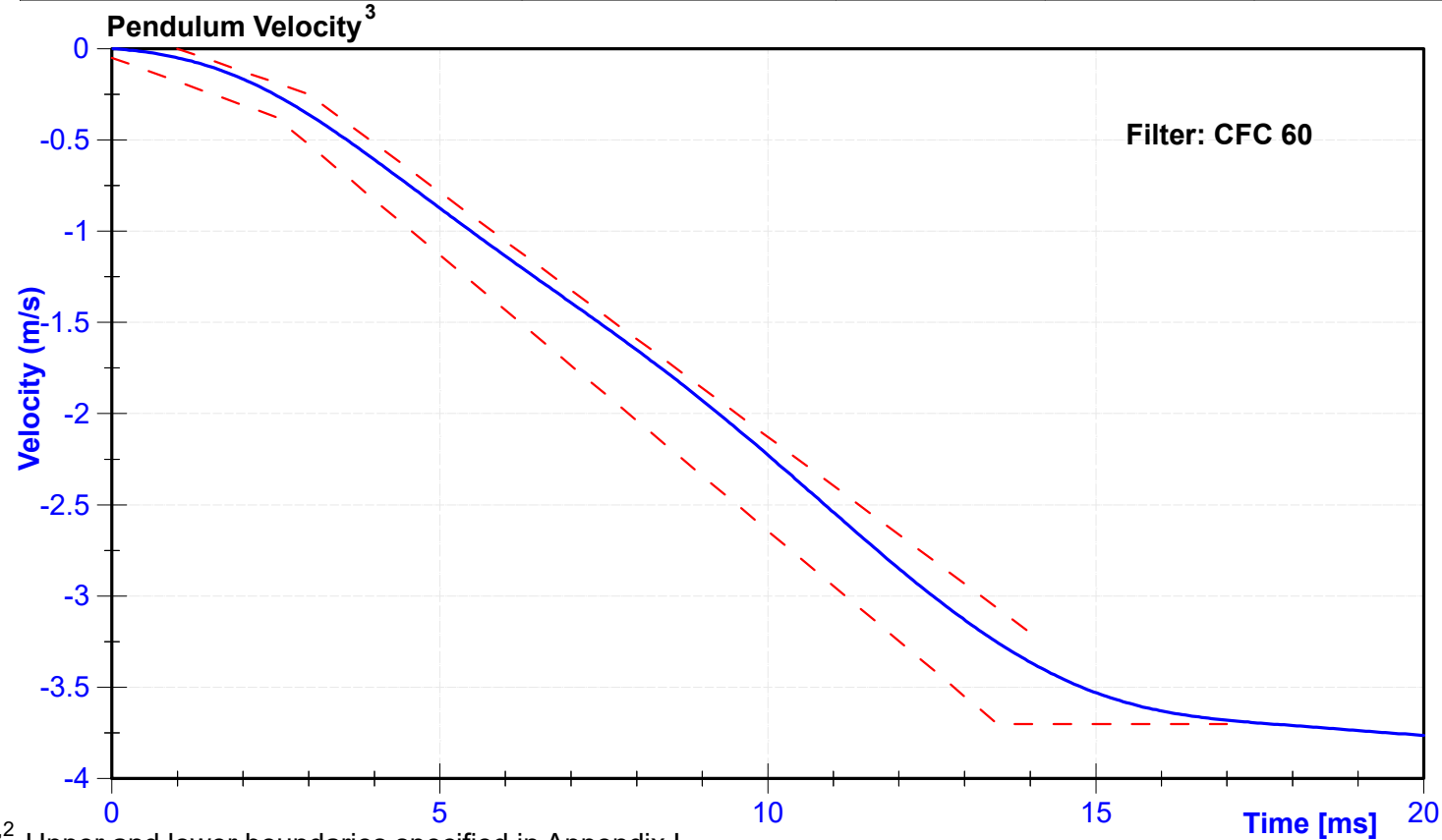
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

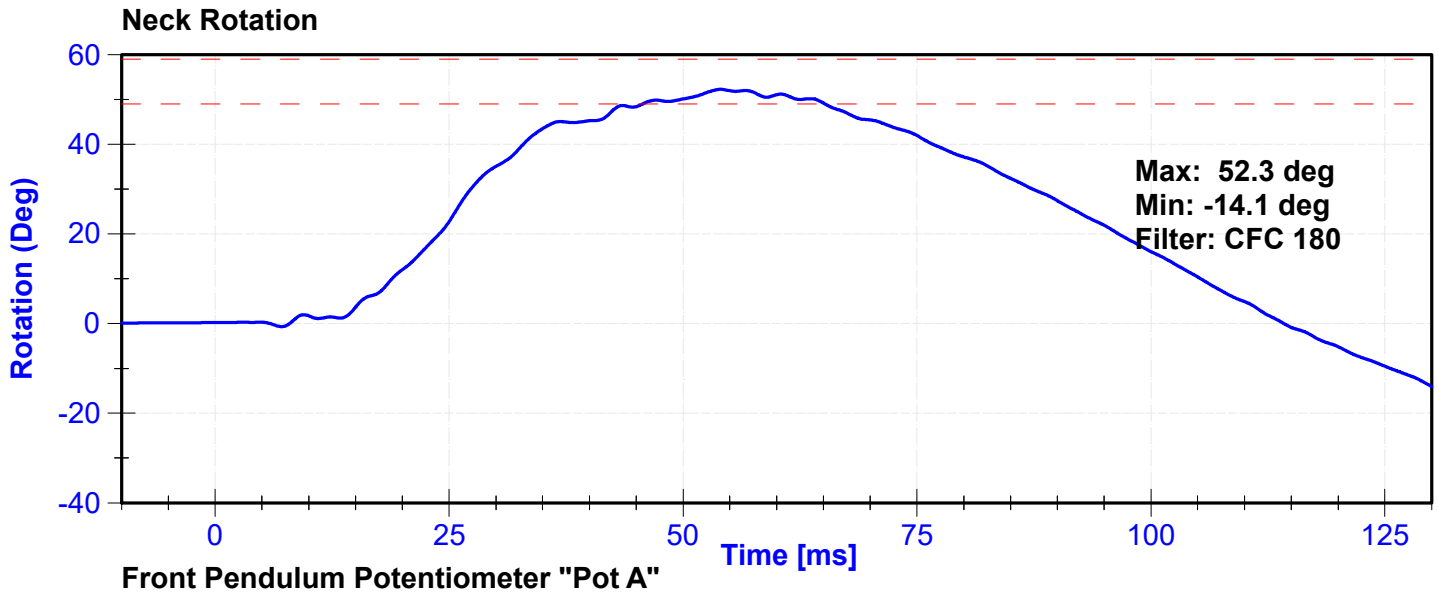
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	22	Pass
Velocity	3.3	3.5	m/s	3.46	Pass
Lateral Neck Rotation	49	59	deg	52.3	Pass
Time at Maximum Rotation	54	66	ms	54.0	Pass
Time of Rotation Decay from Maximum	53	88	ms	60.2	Pass
Pendulum Velocity Overall Corridor	Lower Boundary[1]	Upper Boundary[2]	m/s	See Plot[3]	Pass

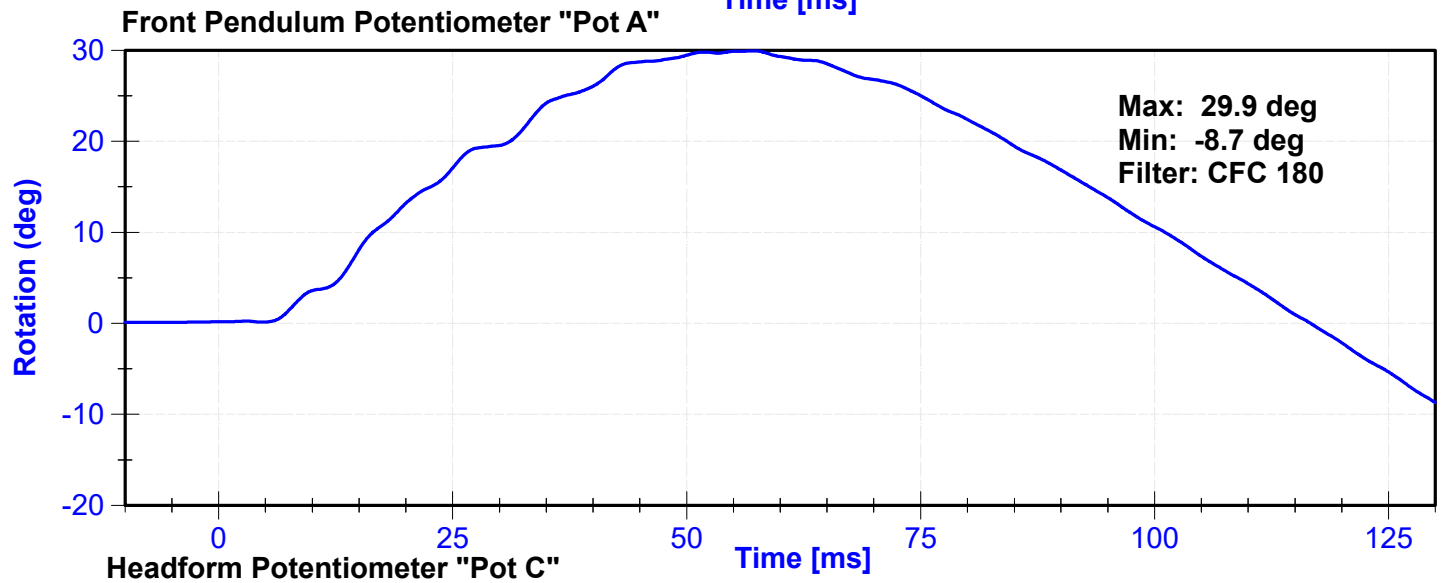
Transducer Calibrations

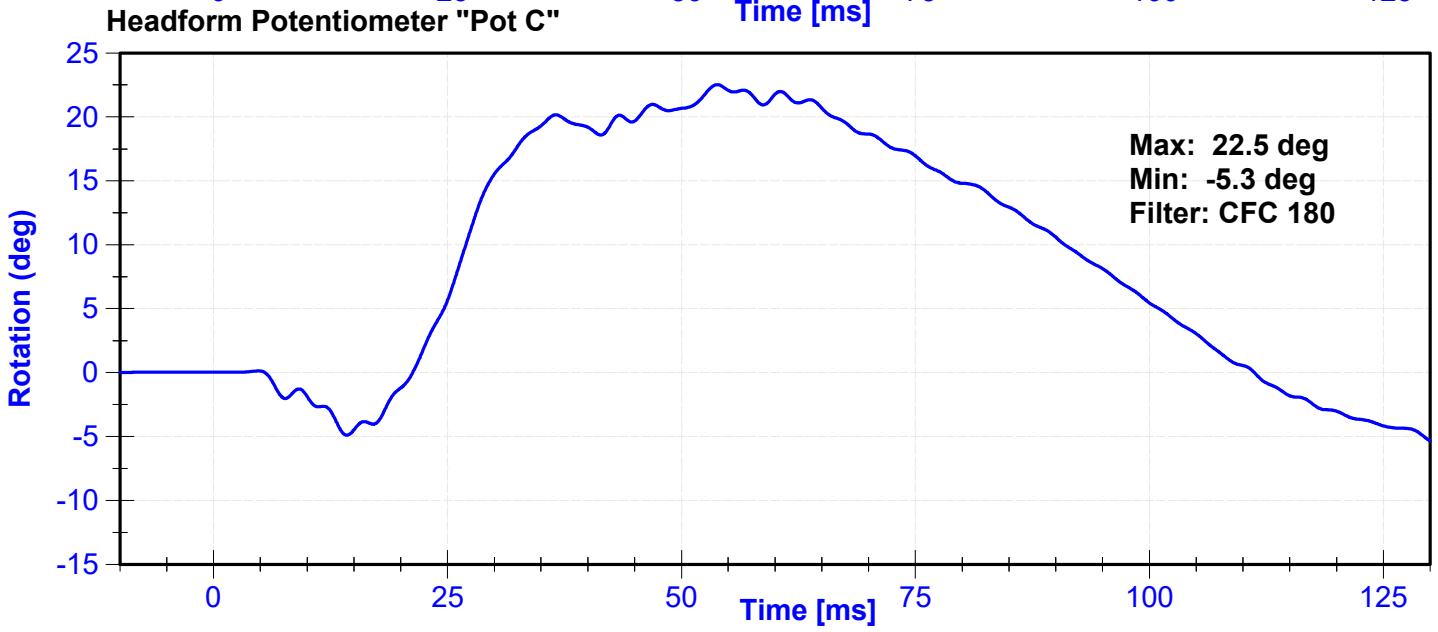
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16650	8/8/2025	8/8/2026
Front Pendulum Potentiometer	Sfernice	2247	9/30/2025	9/30/2026
Headform Potentiometer	Sfernice	095	9/30/2025	9/30/2026



[1,2] Upper and lower boundaries specified in Appendix I


Neck Rotation
Rotation (Deg)
60
40
20
0
-20
-40
0
25
50
75
100
125
Time [ms]
Max: 52.3 deg
Min: -14.1 deg
Filter: CFC 180


Front Pendulum Potentiometer "Pot A"
Rotation (deg)
30
20
10
0
-10
-20
0
25
50
75
100
125
Time [ms]
Max: 29.9 deg
Min: -8.7 deg
Filter: CFC 180


Headform Potentiometer "Pot C"
Rotation (deg)
25
20
15
10
5
0
-5
-10
-15
0
25
50
75
100
125
Time [ms]
Max: 22.5 deg
Min: -5.3 deg
Filter: CFC 180

Appendix I

[2] Upper Boundary Corridor		[1] Lower Boundary Corridor	
Time (ms)	Velocity (m/s)	Time (ms)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.0	-0.25	2.5	-0.375
14.0	-3.20	13.5	-3.7
		17.0	-3.7

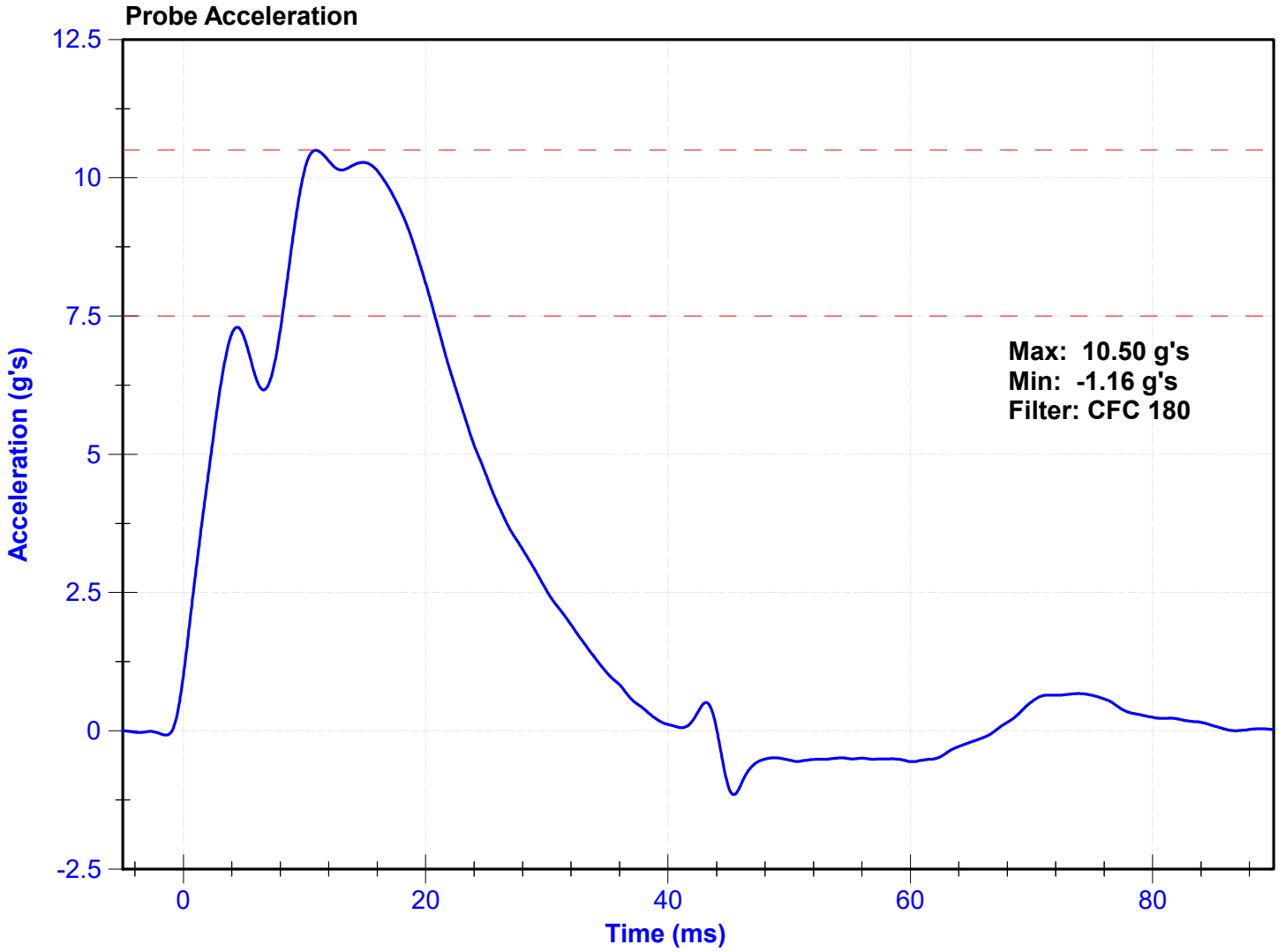
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.21	Pass
Probe Acceleration	7.5	10.5	g's	10.50	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/5/2025	5/4/2026



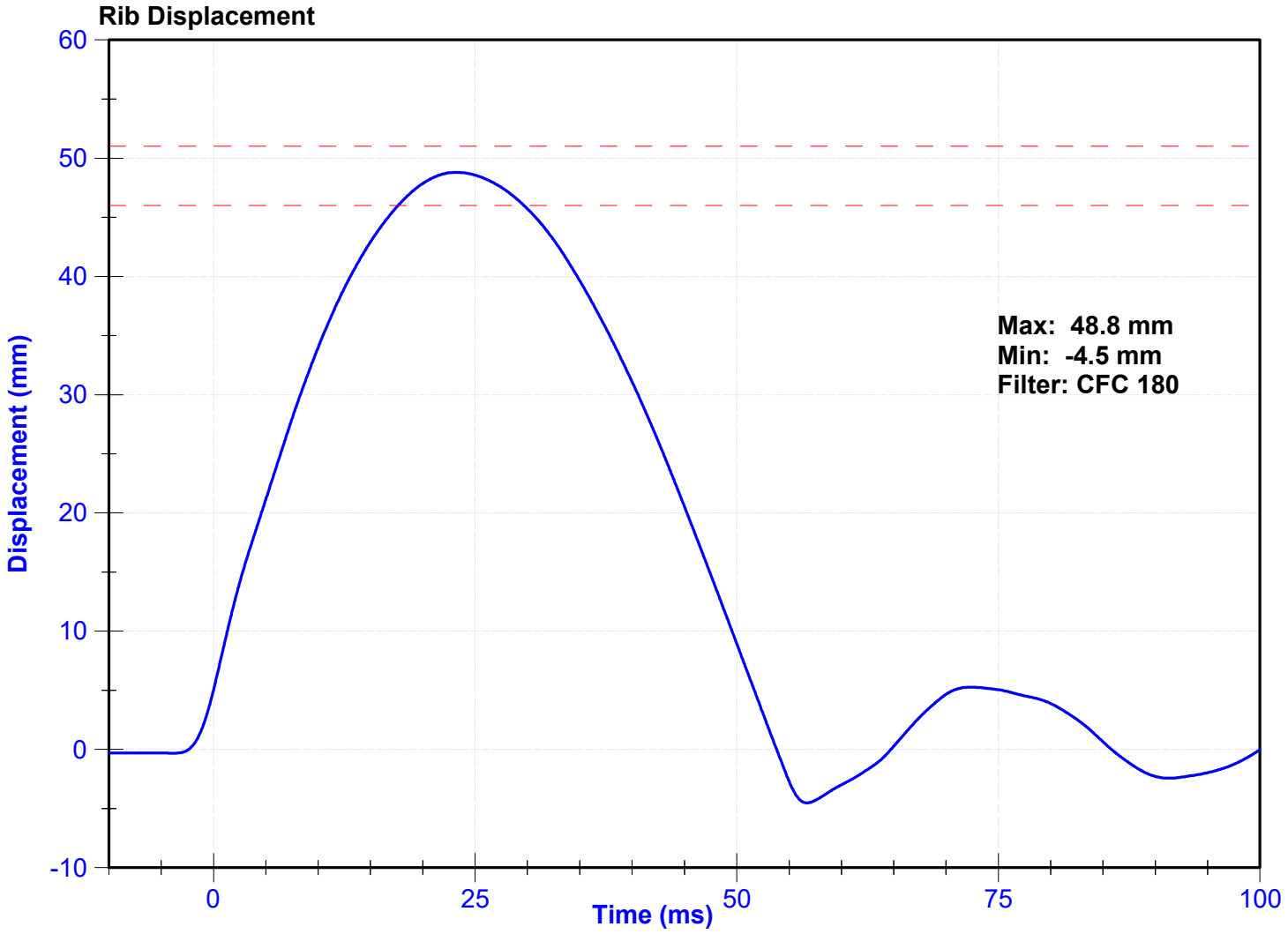
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	46	51	mm	48.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	179GFE	12/4/2025	6/4/2026



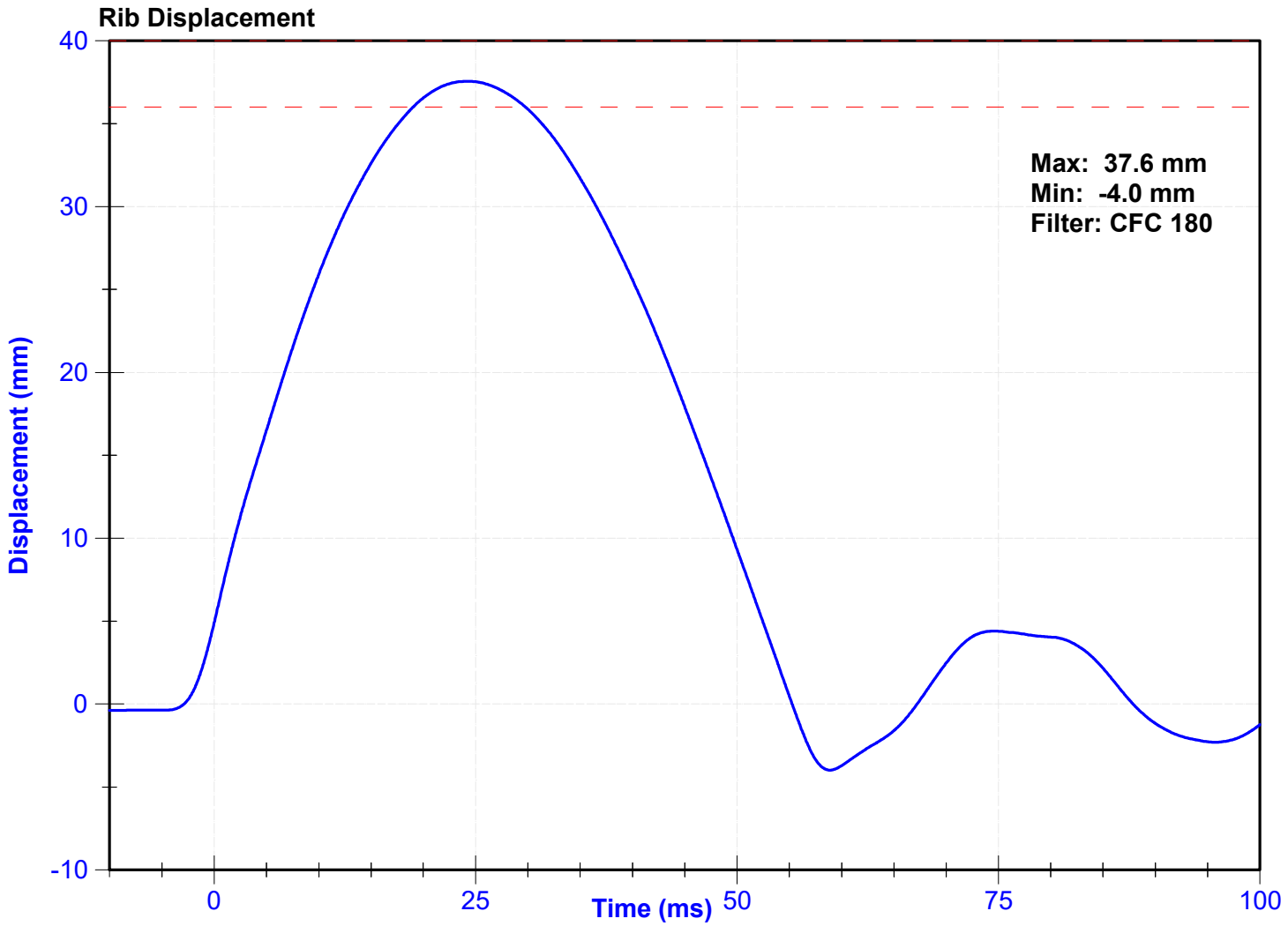
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	36	40	mm	37.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	179GFE	12/4/2025	6/4/2026



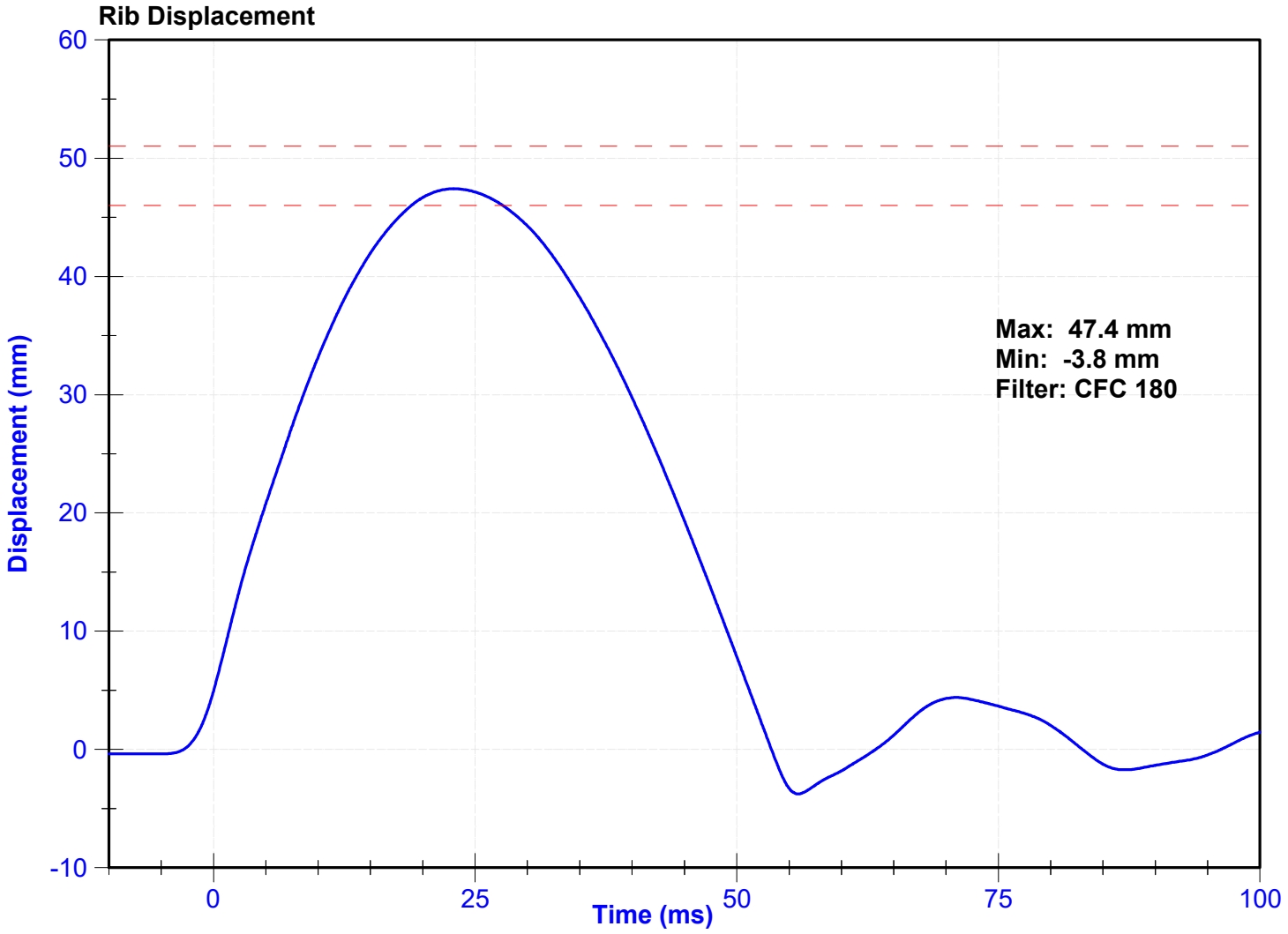
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	46	51	mm	47.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	185GFE	12/4/2025	6/4/2026



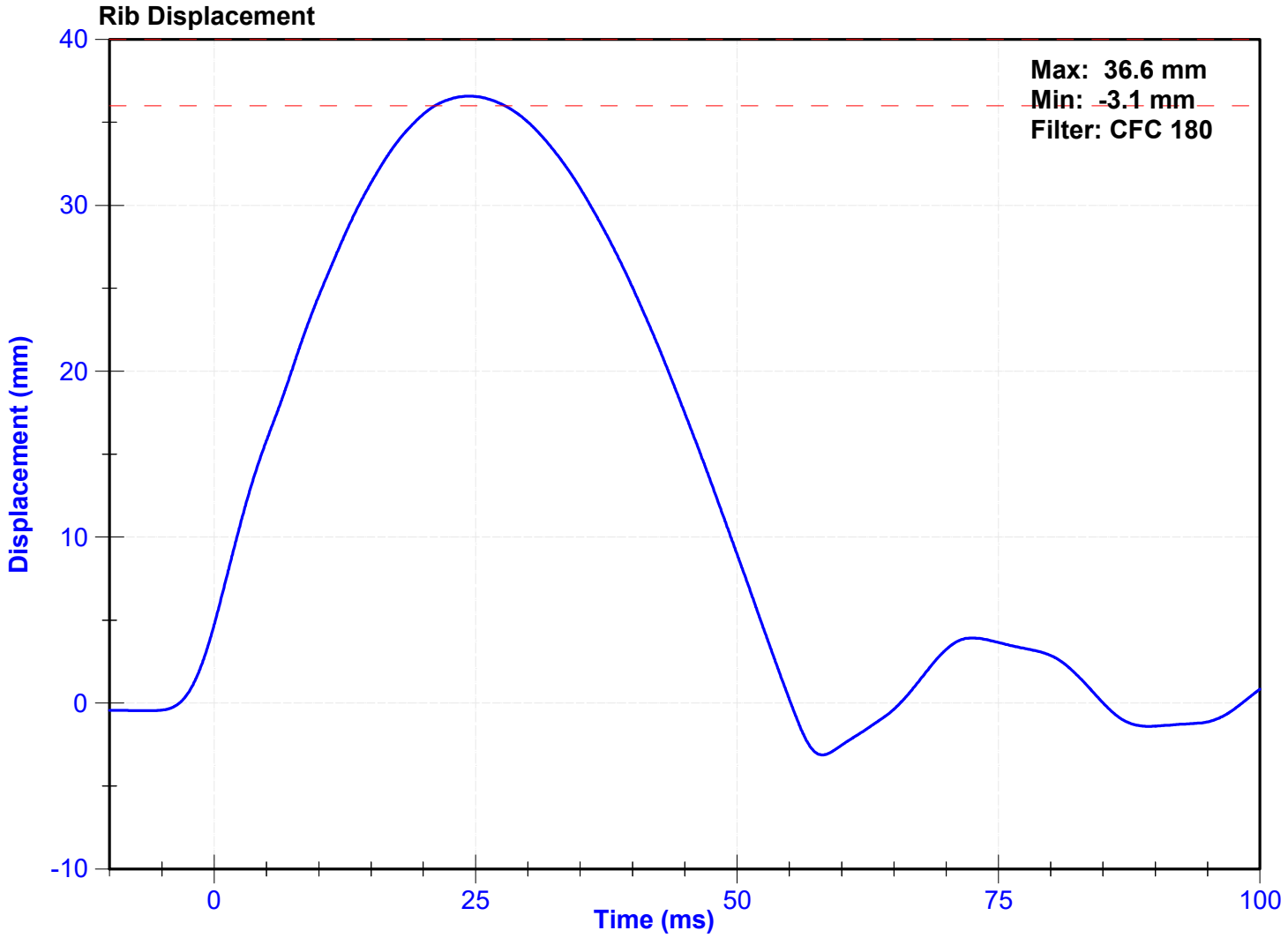
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	36	40	mm	36.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	185GFE	12/4/2025	6/4/2026



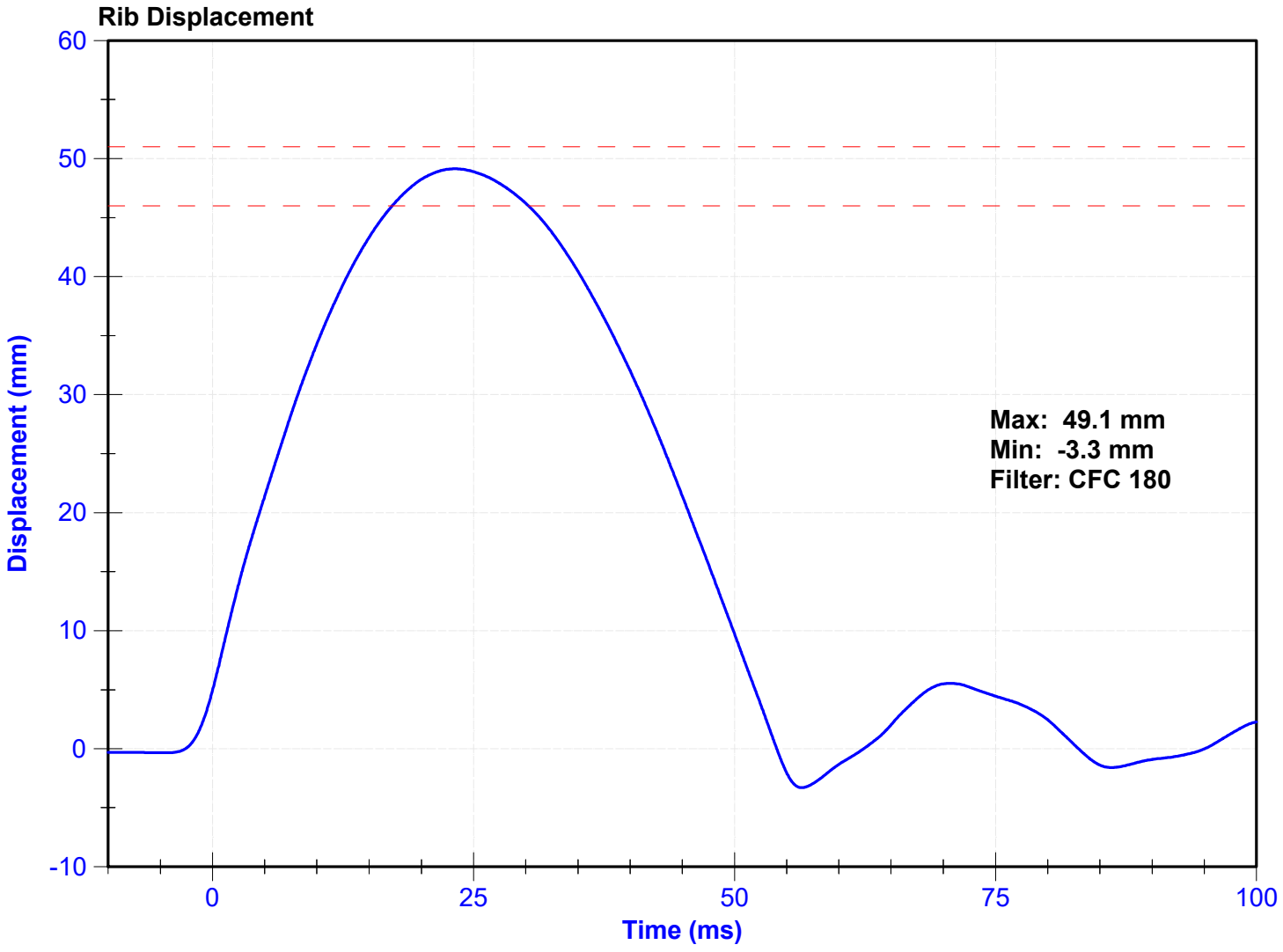
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	46	51	mm	49.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	184GFE	12/4/2025	6/4/2026



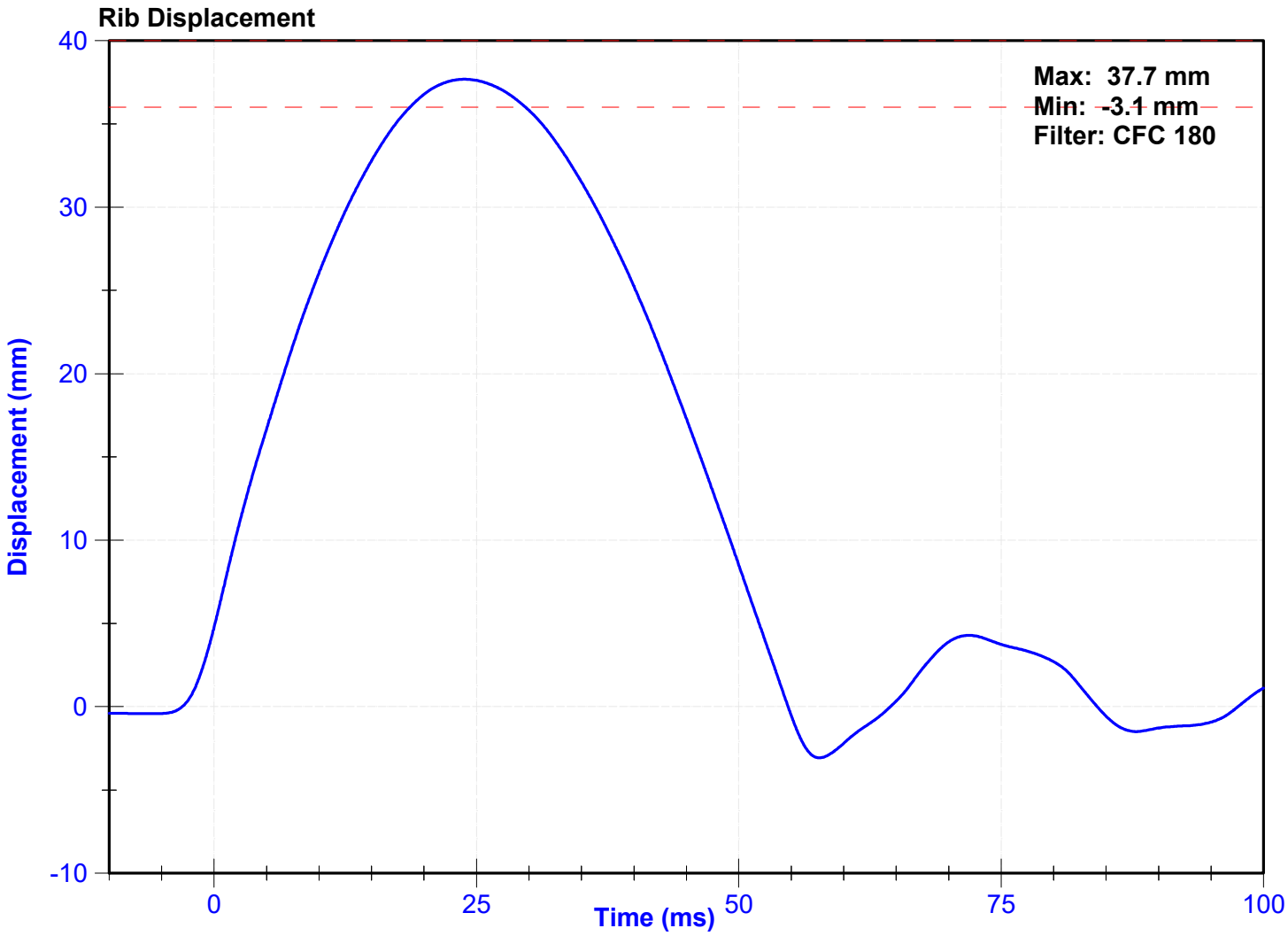
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	16	Pass
Rib Displacement	36	40	mm	37.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	184GFE	12/4/2025	6/4/2026



ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

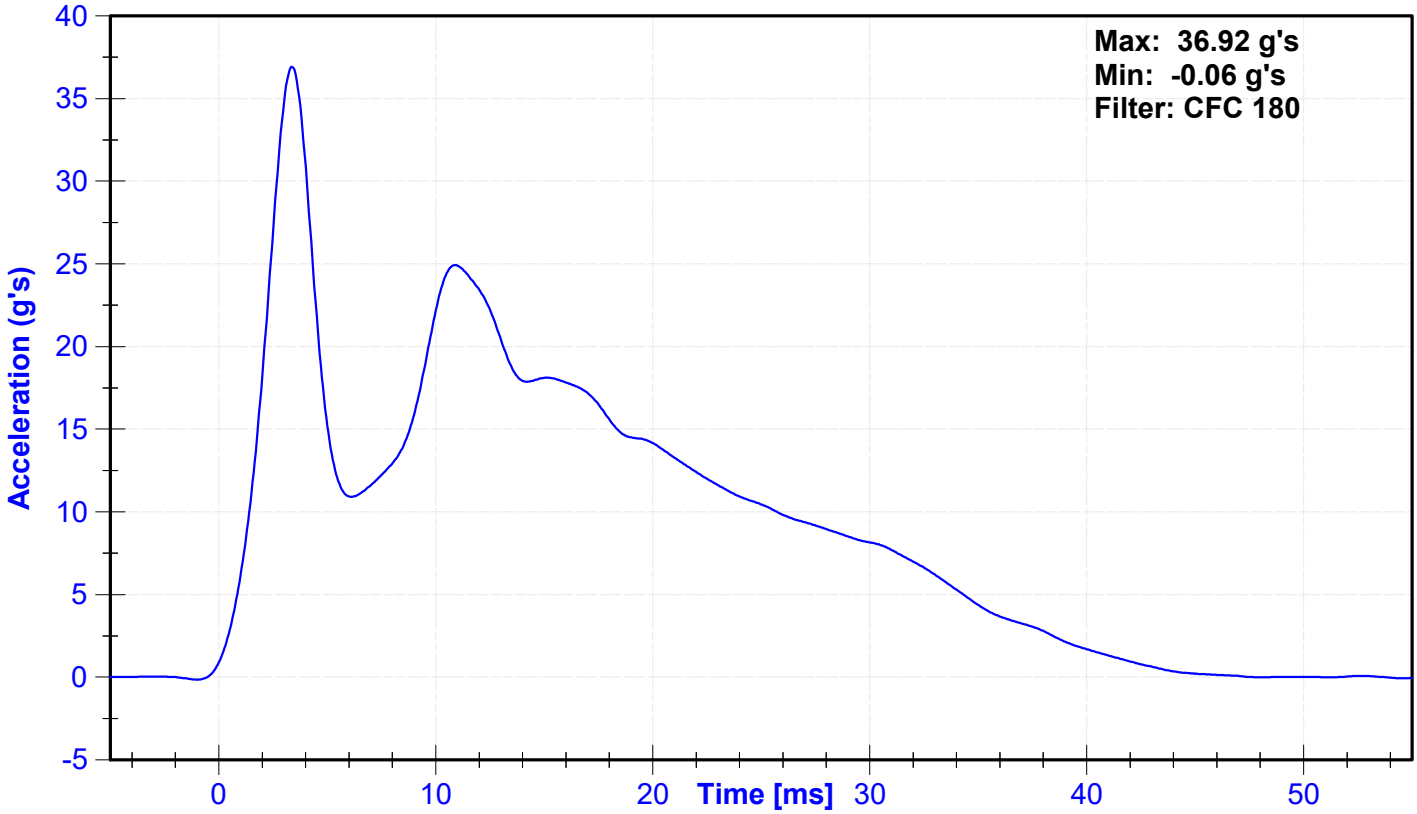
Results

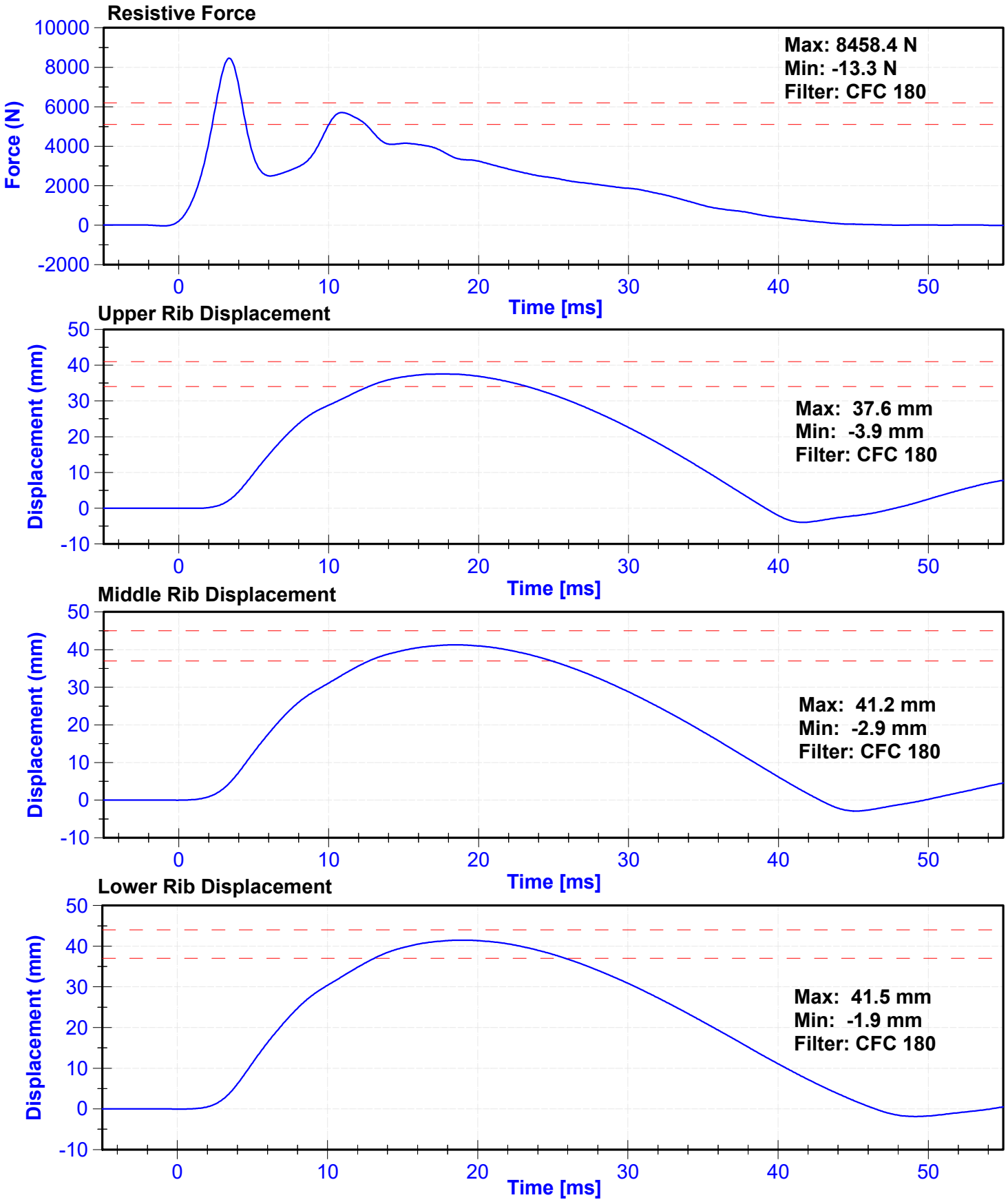
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	5.4	5.6	m/s	5.54	Pass
Resistive Force after 6ms	5100	6200	N	5709.5	Pass
Upper Thorax Rib Deflection	34	41	mm	37.6	Pass
Mid Thorax Rib Deflection	37	45	mm	41.2	Pass
Lower Thorax Rib Deflection	37	44	mm	41.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Upper Thorax Rib Potentiometer	Honeywell	179GFE	12/4/2025	6/4/2026
Middle Thorax Rib Potentiometer	Honeywell	185GFE	12/4/2025	6/4/2026
Lower Thorax Rib Potentiometer	Honeywell	184GFE	12/4/2025	6/4/2026

Probe Acceleration




Resistive Force
Max: 8458.4 N
Min: -13.3 N
Filter: CFC 180
Force (N)
Time [ms]
Upper Rib Displacement
Max: 37.6 mm
Min: -3.9 mm
Filter: CFC 180
Displacement (mm)
Time [ms]
Middle Rib Displacement
Max: 41.2 mm
Min: -2.9 mm
Filter: CFC 180
Displacement (mm)
Time [ms]
Lower Rib Displacement
Max: 41.5 mm
Min: -1.9 mm
Filter: CFC 180
Displacement (mm)
Time [ms]

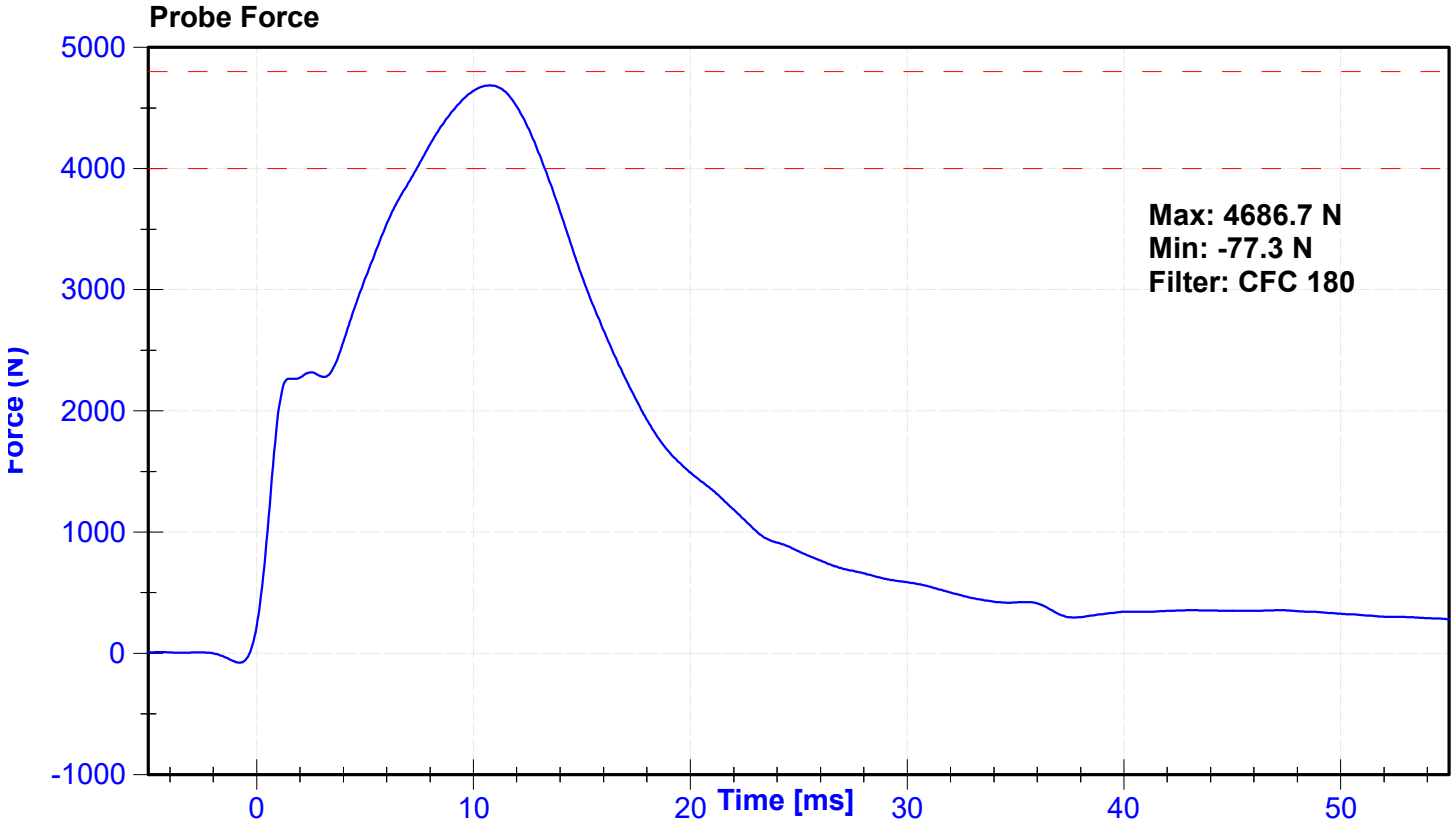
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

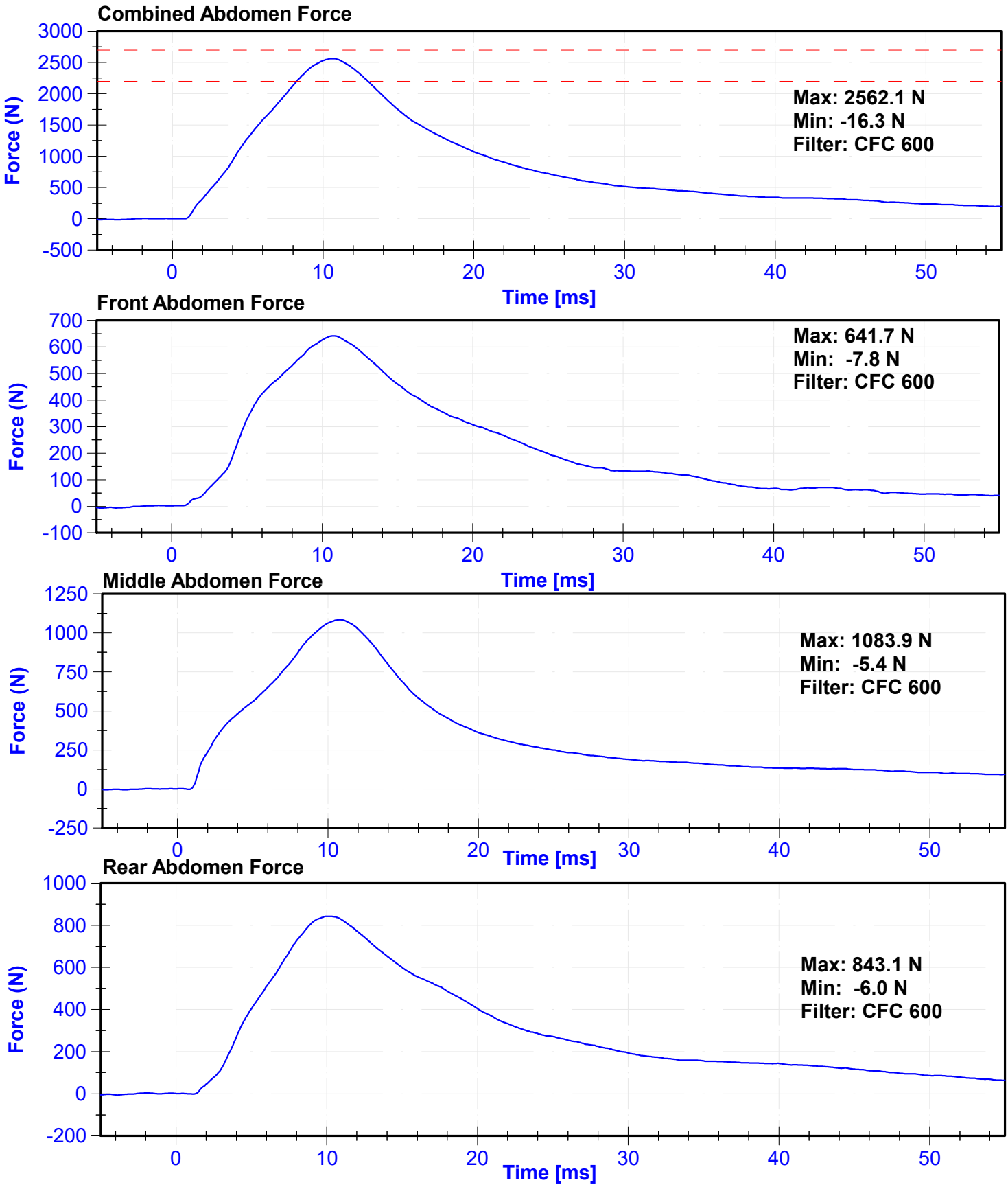
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	3.9	4.1	m/s	4.03	Pass
Combined Abdomen Force	2200	2700	N	2562.1	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	10.65	Pass
Resistive Probe Force	4000	4800	N	4686.7	Pass
Time at Peak Resistive Force	10.6	13.0	ms	10.75	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Front Abdomen Load Cell	Denton	DM5846	9/24/2025	9/24/2026
Middle Abdomen Load Cell	Denton	1529	9/24/2025	9/24/2026
Rear Abdomen Load Cell	Denton	1533	9/24/2025	9/24/2026




Combined Abdomen Force
Force (N)
Time [ms]
Max: 2562.1 N
Min: -16.3 N
Filter: CFC 600
Front Abdomen Force
Max: 641.7 N
Min: -7.8 N
Filter: CFC 600
Middle Abdomen Force
Max: 1083.9 N
Min: -5.4 N
Filter: CFC 600
Rear Abdomen Force
Max: 843.1 N
Min: -6.0 N
Filter: CFC 600

ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

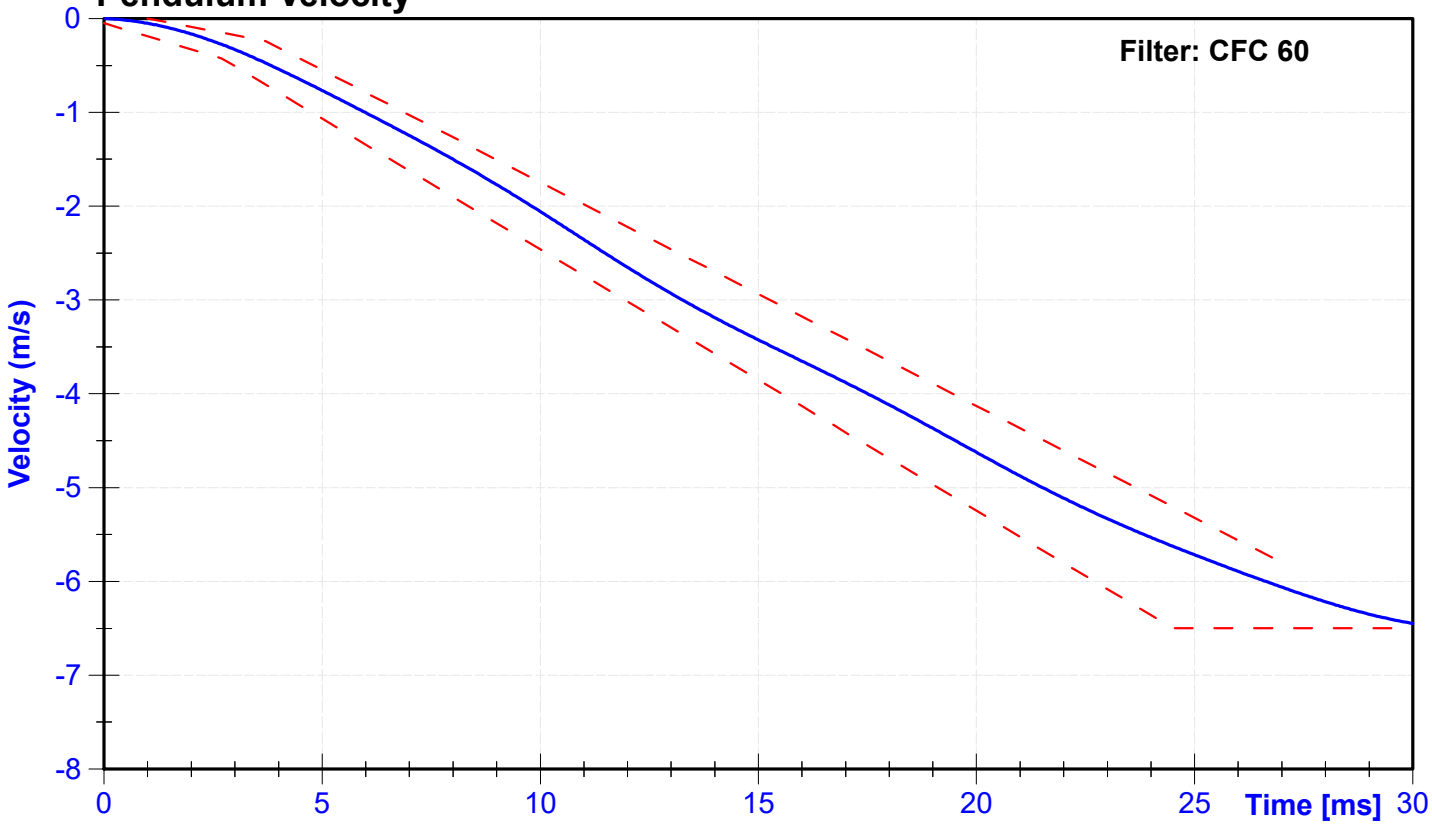
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	22	Pass
Velocity	5.95	6.15	m/s	6.122	Pass
Lateral Spine Rotation	45	55	deg	48.7	Pass
Time at Maximum Rotation	39	53	ms	43.3	Pass
Time of Decay to Zero Degrees	37	57	ms	38.2	Pass
Pendulum Velocity Overall Corridor	Lower Boundary[1]	Upper Boundary[2]	m/s	See Plot[3]	Pass

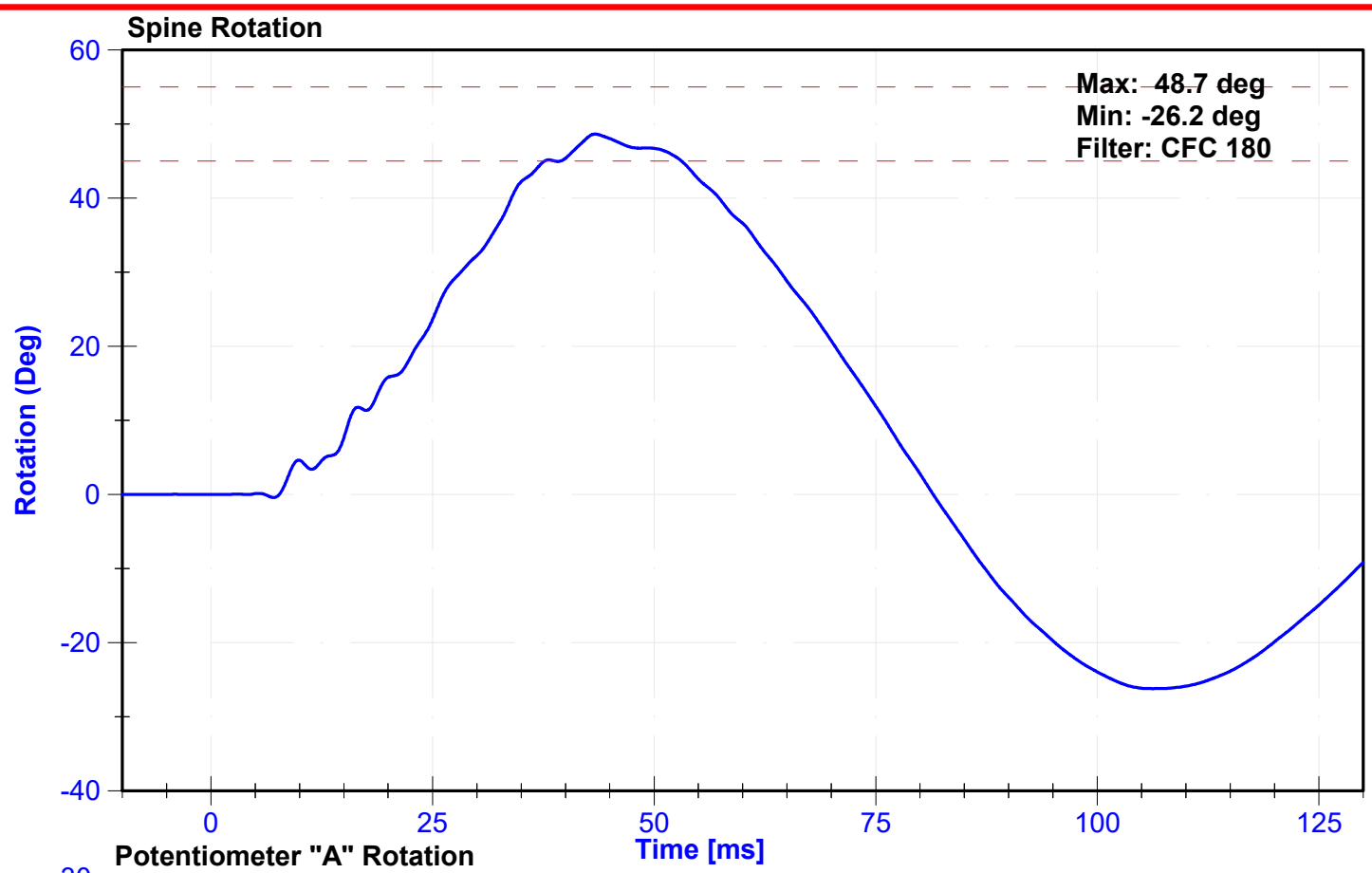
Transducer Calibrations

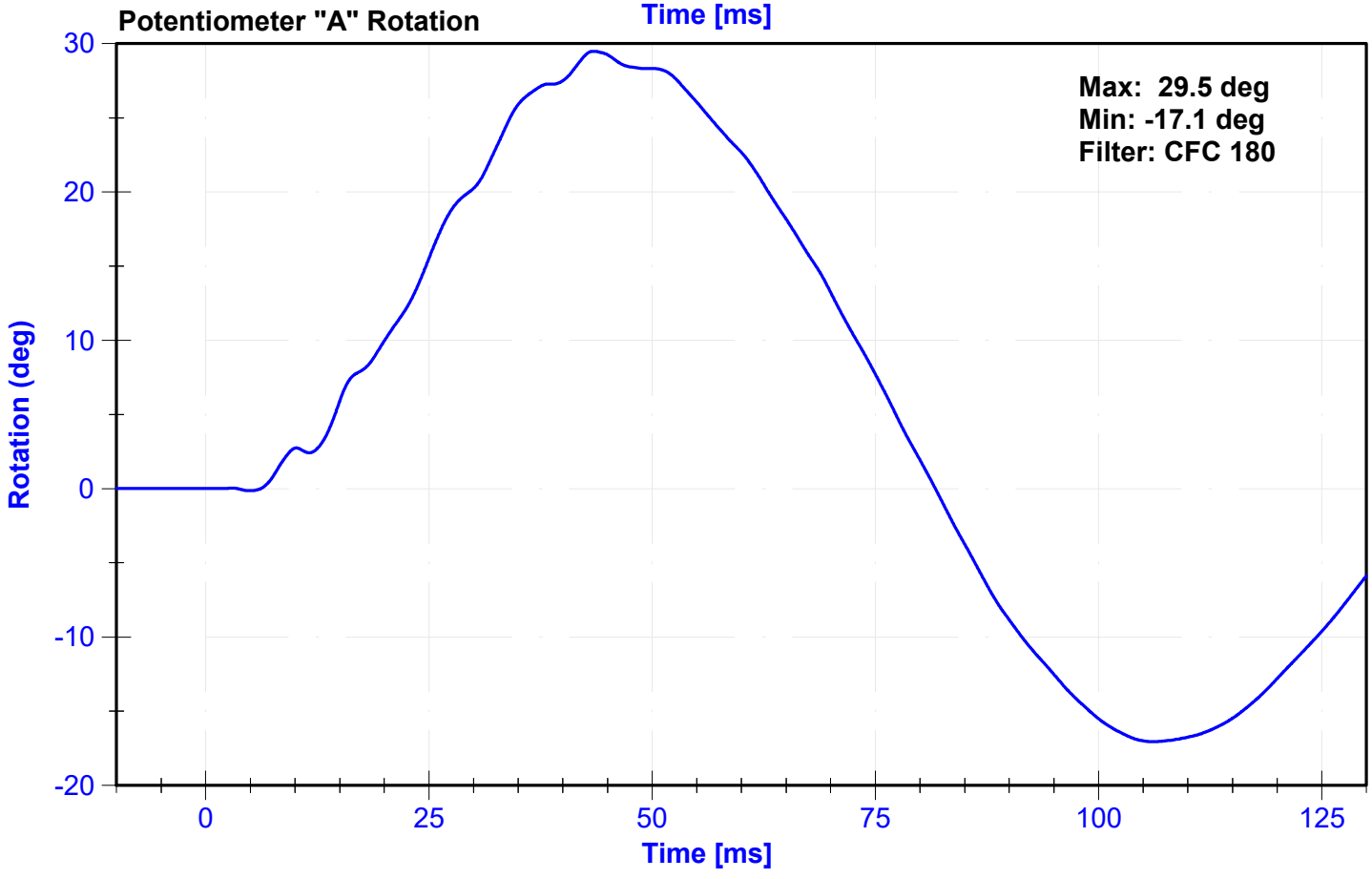
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16650	8/8/2025	8/8/2026
Pendulum "A" Potentiometer	Sfernice	2247	9/30/2025	9/30/2026
Condyle "B" Potentiometer	Sfernice	095	9/30/2025	9/30/2026

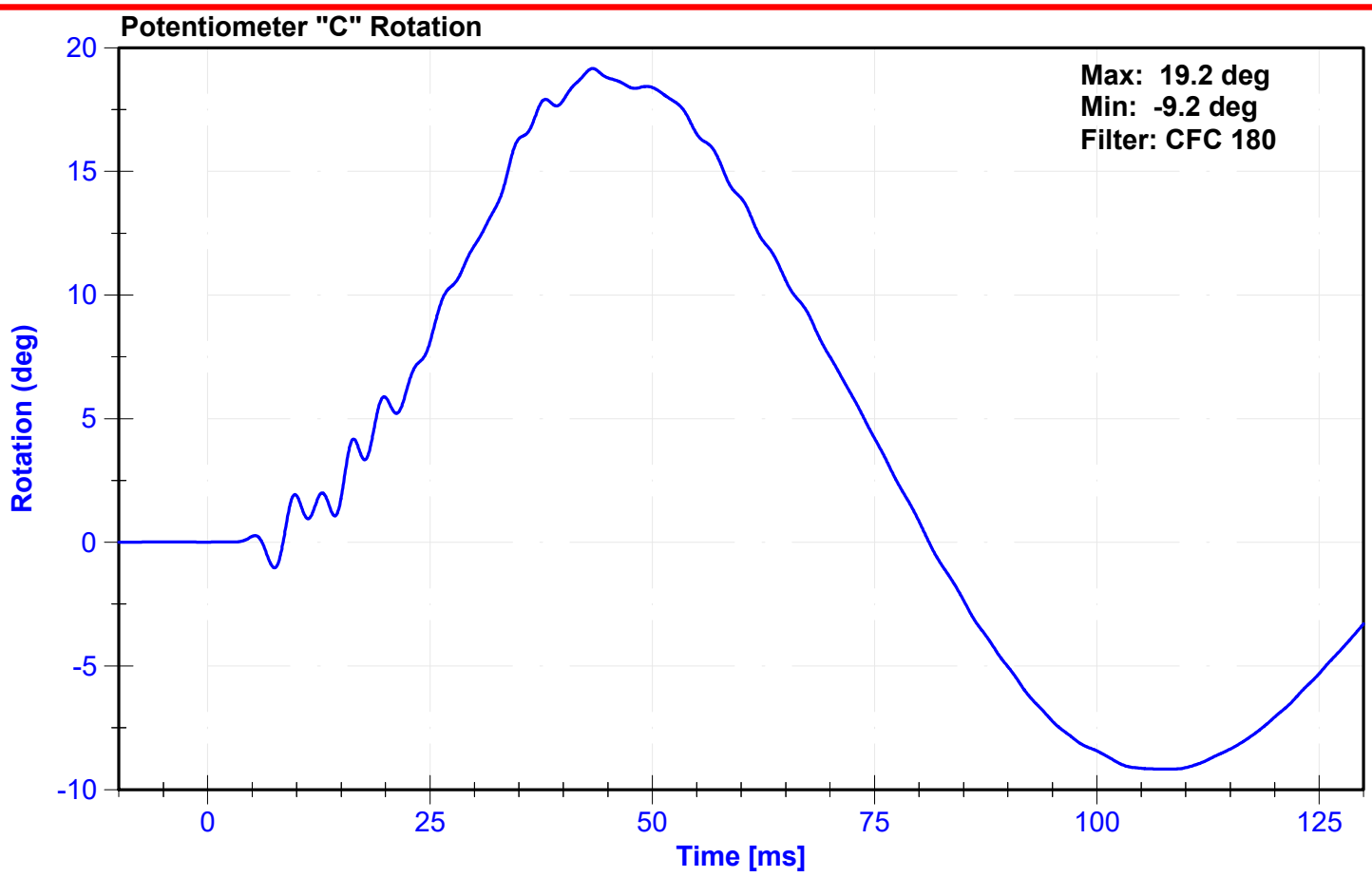
Pendulum Velocity[3]



[1,2] Upper and lower boundaries specified in Appendix I


Spine Rotation
Max: 48.7 deg
Min: -26.2 deg
Filter: CFC 180
Rotation (Deg)
60
40
20
0
-20
-40
0
25
50
75
100
125
Time [ms]


Potentiometer "A" Rotation
Max: 29.5 deg
Min: -17.1 deg
Filter: CFC 180
Rotation (deg)
30
20
10
0
-10
-20
0
25
50
75
100
125
Time [ms]



Appendix I

[2] Upper Boundary Corridor		[1] Lower Boundary Corridor	
Time (ms)	Velocity (m/s)	Time (ms)	Velocity (m/s)
1.0	0.00	0.0	-0.05
3.7	-0.24	2.7	-0.425
27.0	-5.80	24.5	-6.5
		30.0	-6.5

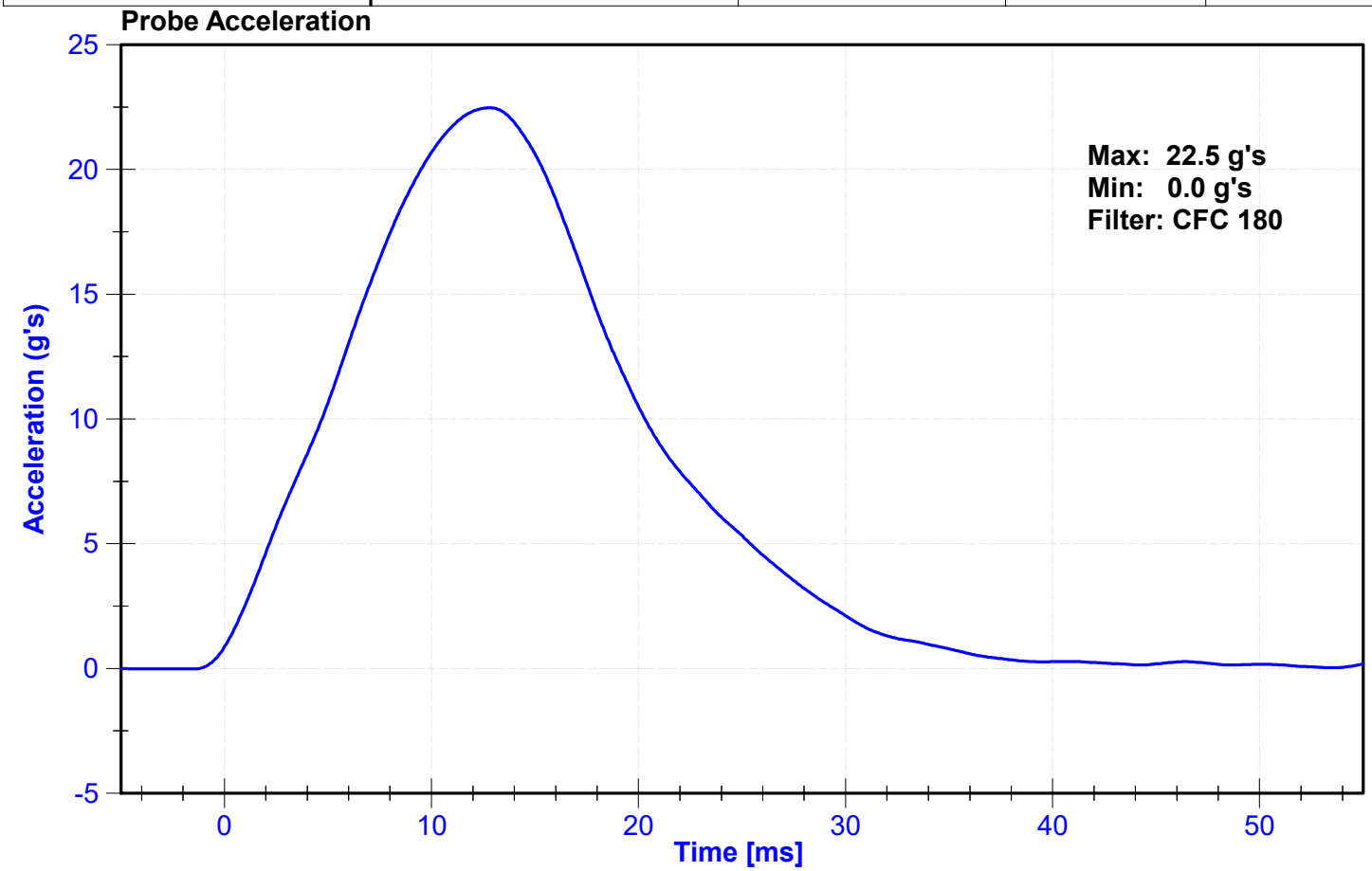
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	F033	Laboratory Supervisor	J. Kinderman

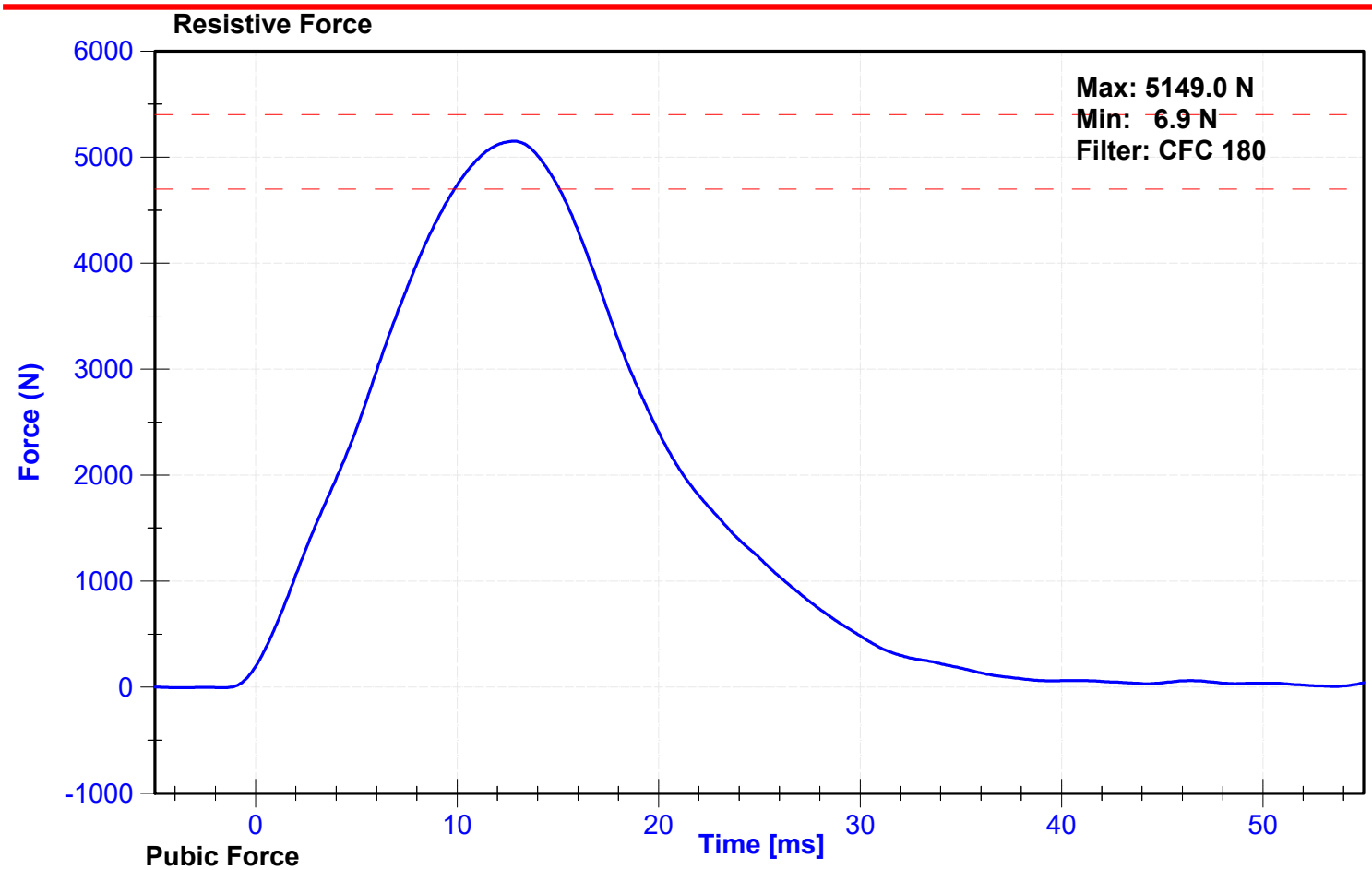
Results

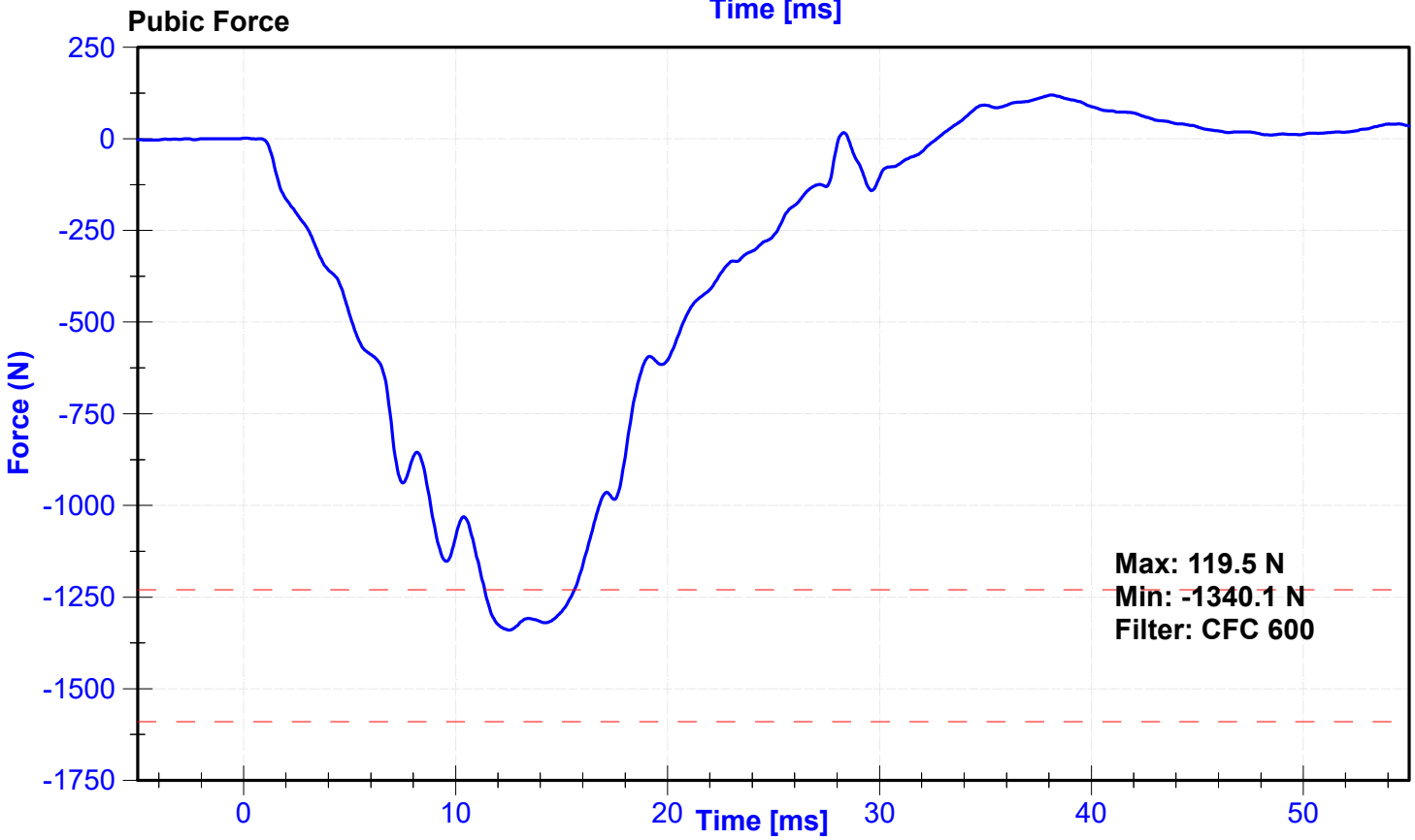
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.30	Pass
Resistive Force	4700	5400	N	5149.0	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.80	Pass
Pubic Force	-1590	-1230	N	-1340.1	Pass
Time at Peak Pubic Force	12.2	17.0	ms	12.55	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Pubic Load Cell	Denton	459-FY	7/9/2025	7/9/2026




Resistive Force
Max: 5149.0 N
Min: 6.9 N
Filter: CFC 180
Force (N)
6000
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50
Time [ms]


Pubic Force
Max: 119.5 N
Min: -1340.1 N
Filter: CFC 600
Force (N)
250
0
-250
-500
-750
-1000
-1250
-1500
-1750
0
10
20
30
40
50
Time [ms]

CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE – PASSENGER ATD

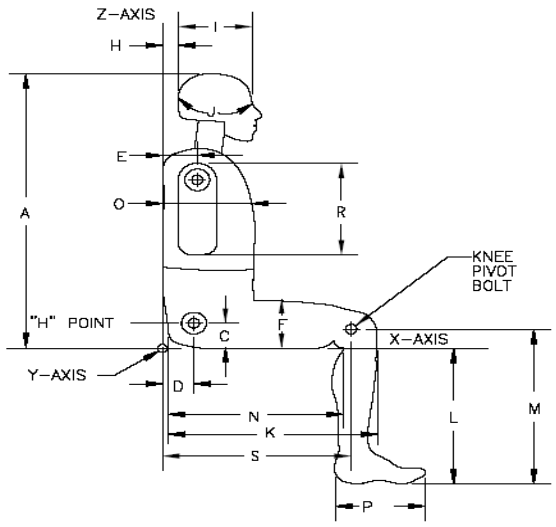
SERIAL NO:300

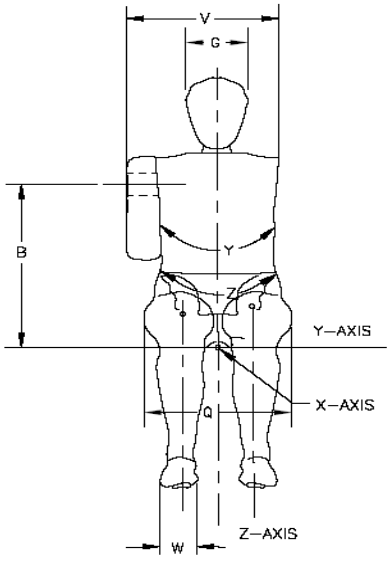
(CONFIGURED FOR LEFT SIDE IMPACT)

External Measurements - SID-IIs

Technician: J. Rios Date: 12/22/2025

Dummy Serial Number: 300





Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	783	Pass
B	Shoulder Pivot Height	437	453	442	Pass
C	H-point Height	79	89	83	Pass
D	H-point from seatback	141	151	146	Pass
E	Shoulder Pivot from Backline	97	107	101	Pass
F	Thigh Clearance	119	135	123	Pass
G	Head Breadth	140	148	142	Pass
H	Head Back from Backline	40	46	43	Pass
I	Head Depth	178	188	183	Pass
J	Head Circumference	541	551	547	Pass
K	Buttock to Knee Length	514	540	530	Pass
L	Popliteal Height	343	369	359	Pass
M	Knee Pivot to floor height	392	409	404	Pass
N	Buttock Popliteal Length	416	442	434	Pass
O	Chest Depth w/o jacket	195	211	206	Pass
P	Foot Length	216	232	224	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	482	Pass
V	Shoulder Width	341	357	350	Pass
W	Foot Width	78	94	82	Pass
Y	Chest Circumference w/jacket	851	881	870	Pass
Z	Waist Circumference	761	791	774	Pass

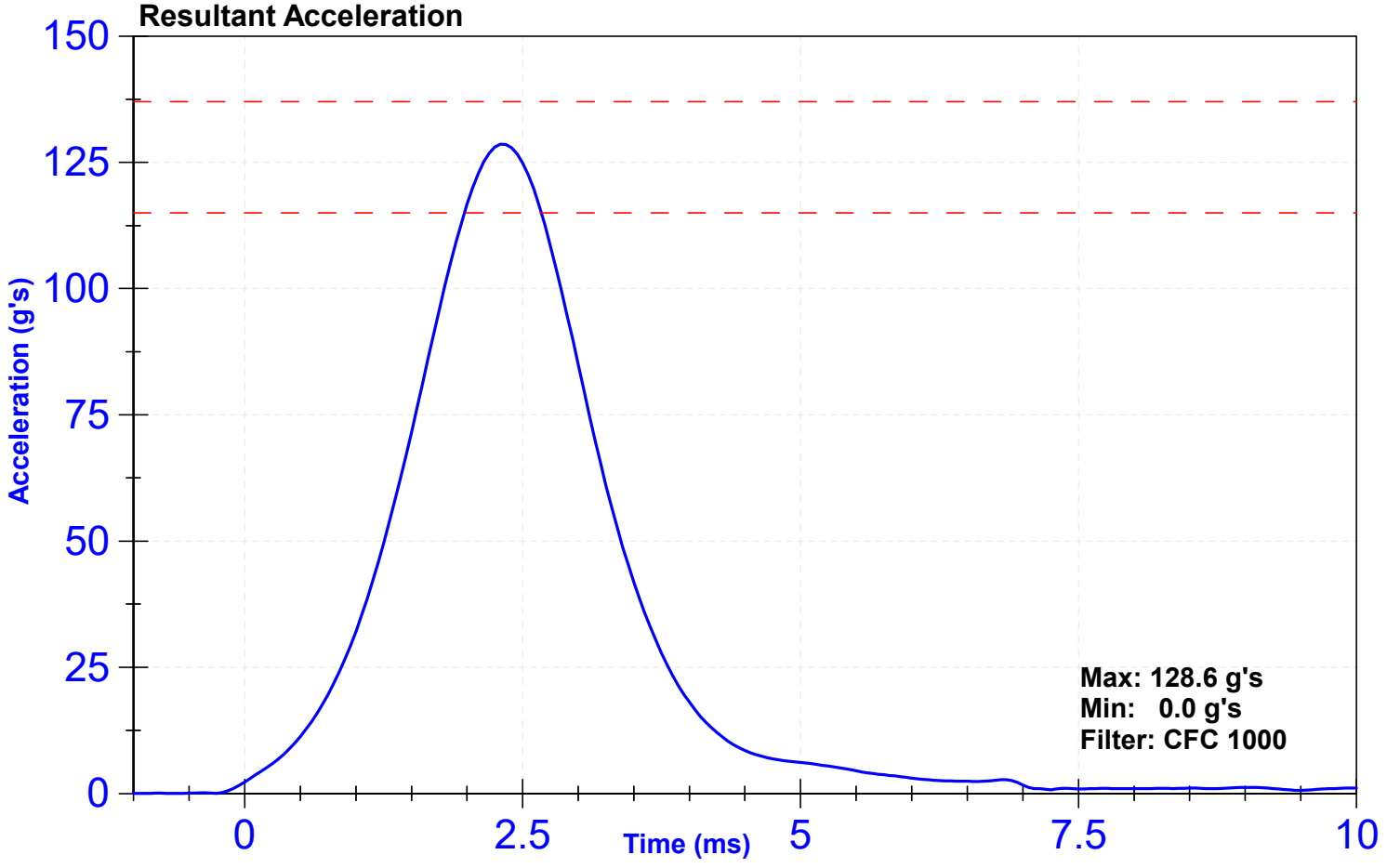
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

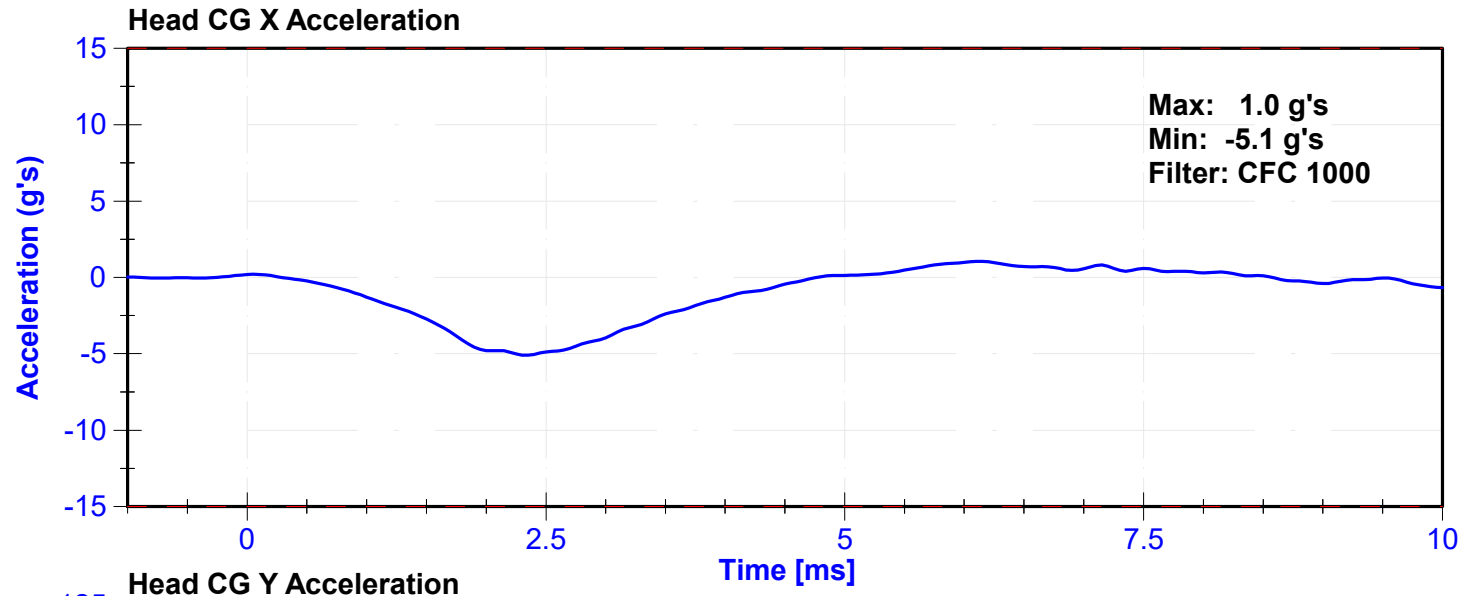
Results

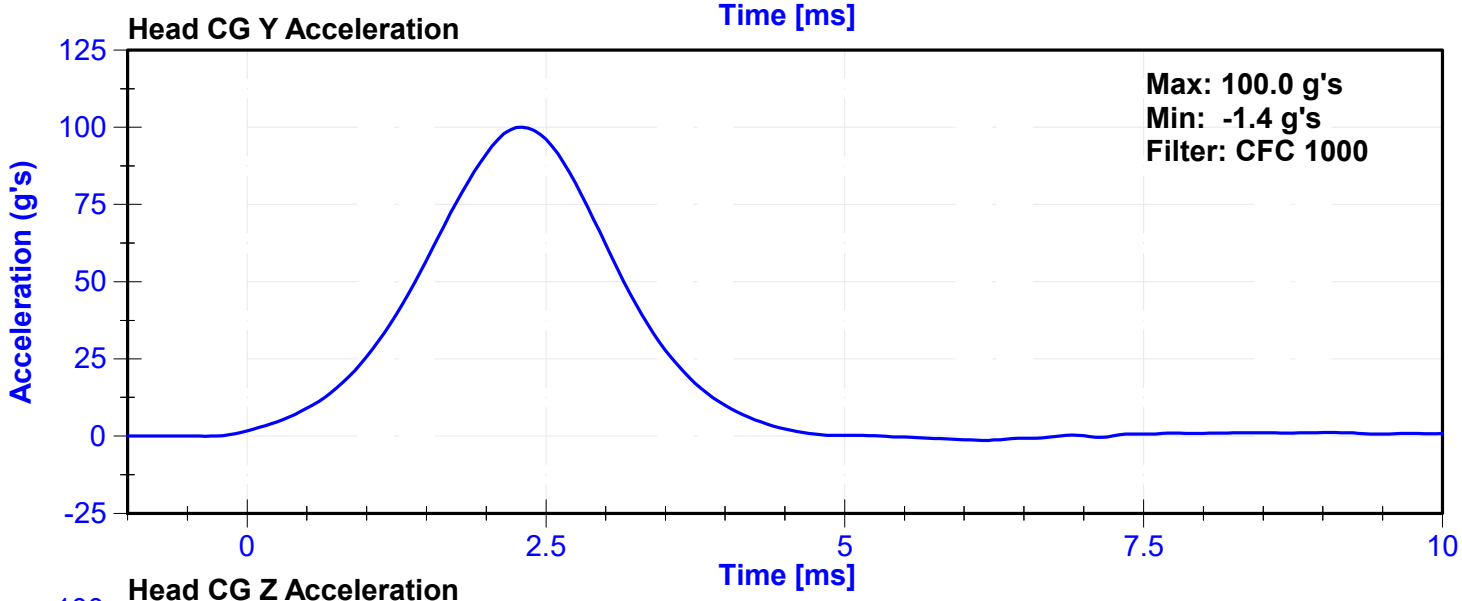
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	29	Pass
Resultant Acceleration	115	137	g's	128.6	Pass
Oscillation	0	15	%	2.1	Pass
Fore-Aft Acceleration	-15	15	g's	-5.1	Pass

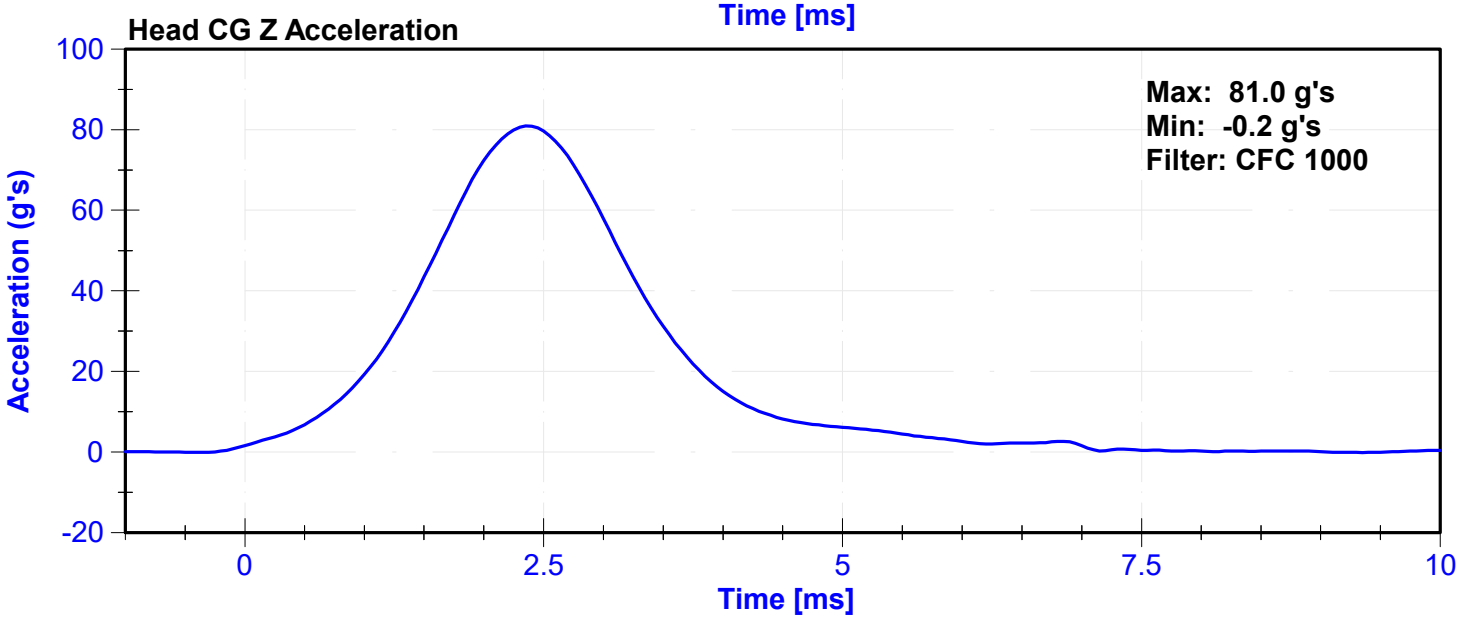
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibratio Date	Calibratio Due Date
X Accelerometer	Endevco	P59018	12/8/2025	6/6/2026
Y Accelerometer	Endevco	P79189	12/8/2025	6/6/2026
Z Accelerometer	Endevco	P51682	12/8/2025	6/6/2026




Head CG X Acceleration
Max: 1.0 g's
Min: -5.1 g's
Filter: CFC 1000
Acceleration (g's)
15
10
5
0
-5
-10
-15
0
2.5
5
7.5
10
Time [ms]


Head CG Y Acceleration
Max: 100.0 g's
Min: -1.4 g's
Filter: CFC 1000
Acceleration (g's)
125
100
75
50
25
0
-25
0
2.5
5
7.5
10
Time [ms]


Head CG Z Acceleration
Max: 81.0 g's
Min: -0.2 g's
Filter: CFC 1000
Acceleration (g's)
100
80
60
40
20
0
-20
0
2.5
5
7.5
10
Time [ms]

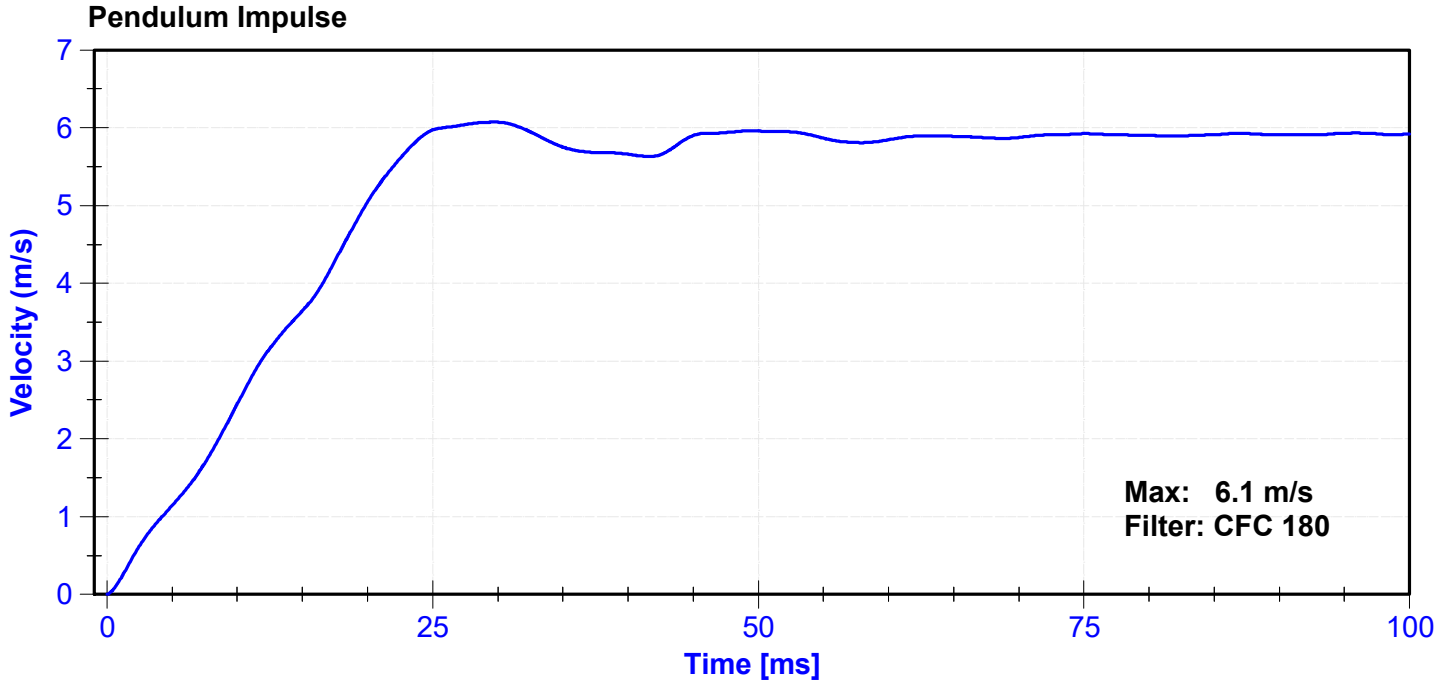
ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

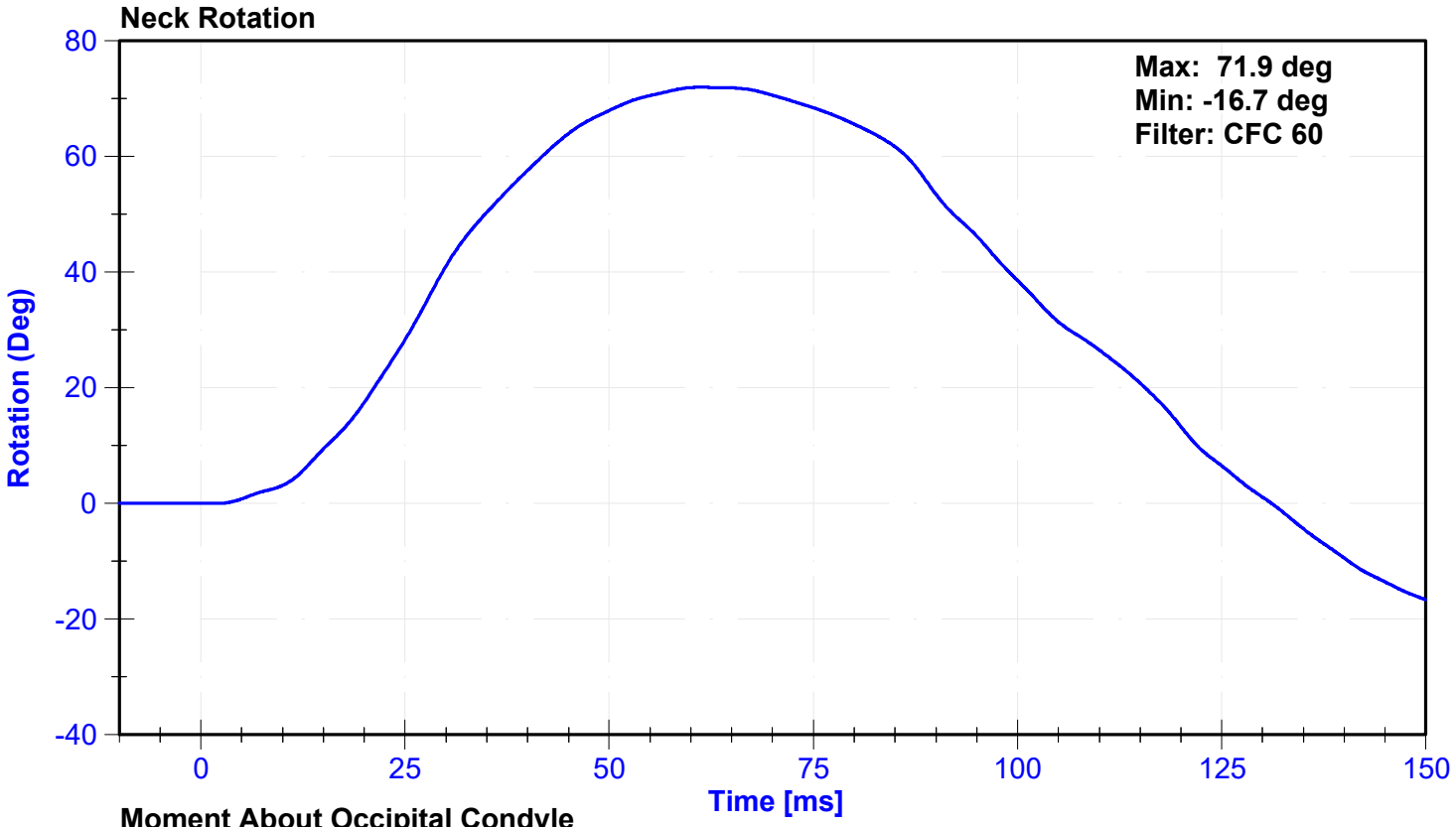
Results

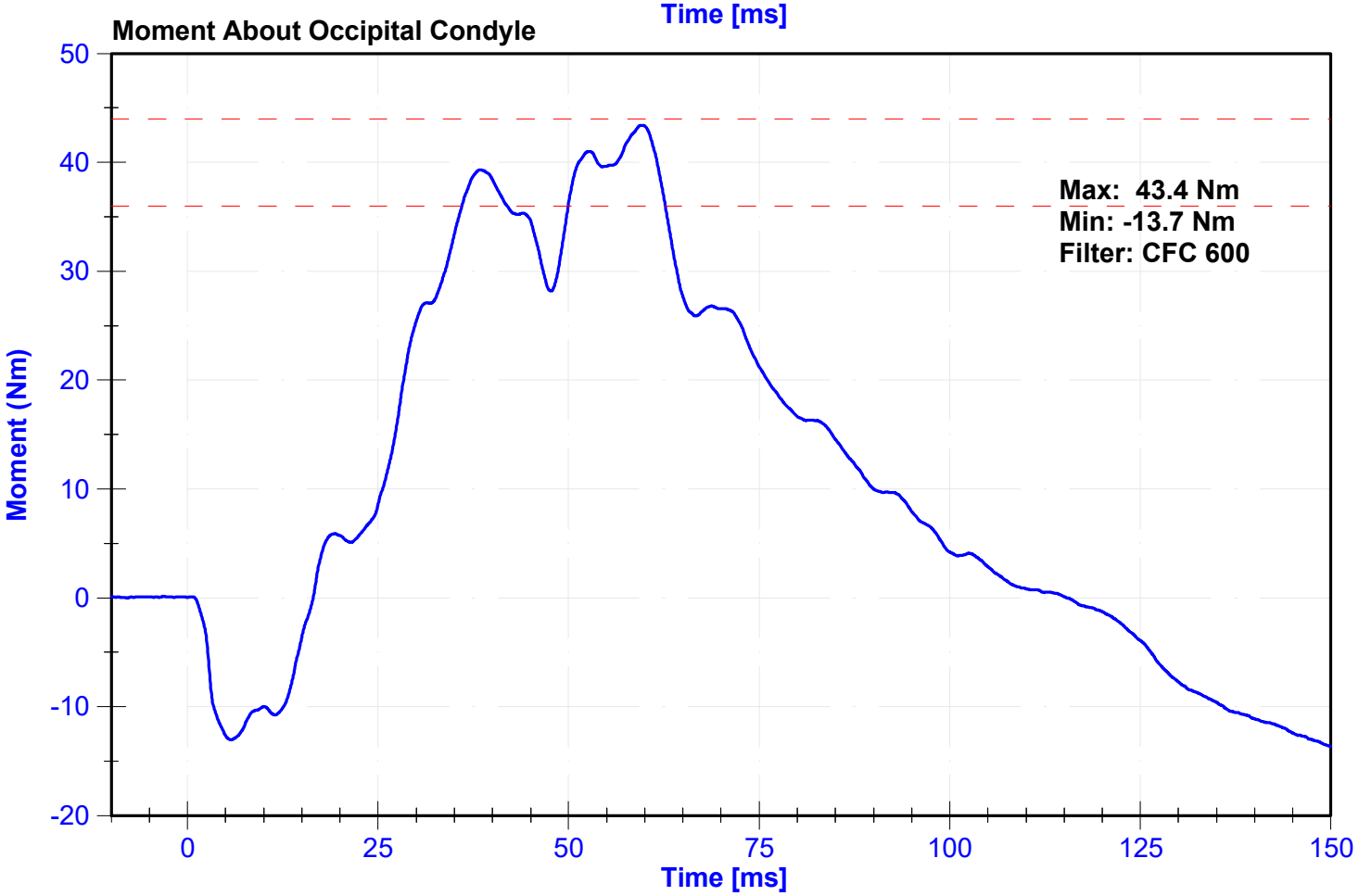
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	19	Pass
Velocity	5.51	5.63	m/s	5.597	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.45	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.65	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	5.05	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.97	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	6.07	Pass
Neck Rotation	71	81	deg	71.9	Pass
Time at Maximum Rotation	50	70	ms	61.2	Pass
Moment about the OC	36	44	Nm	43.4	Pass
Moment Decay to 0 Nm	102	126	ms	115.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231C-750	8/8/2025	8/8/2026
Pendulum Potentiometer	Servo	4961	9/30/2025	9/30/2026
Condyle Potentiometer	Servo	DS185	9/30/2025	9/30/2026
Upper Neck Load Cell	Denton	1716ATF_2184-FY	7/8/2025	7/8/2026




Neck Rotation
Max: 71.9 deg
Min: -16.7 deg
Filter: CFC 60
Rotation (Deg)
80
60
40
20
0
-20
-40
0
25
50
75
100
125
150
Time [ms]


Moment About Occipital Condyle
Max: 43.4 Nm
Min: -13.7 Nm
Filter: CFC 600
Moment (Nm)
50
40
30
20
10
0
-10
-20
0
25
50
75
100
125
150
Time [ms]

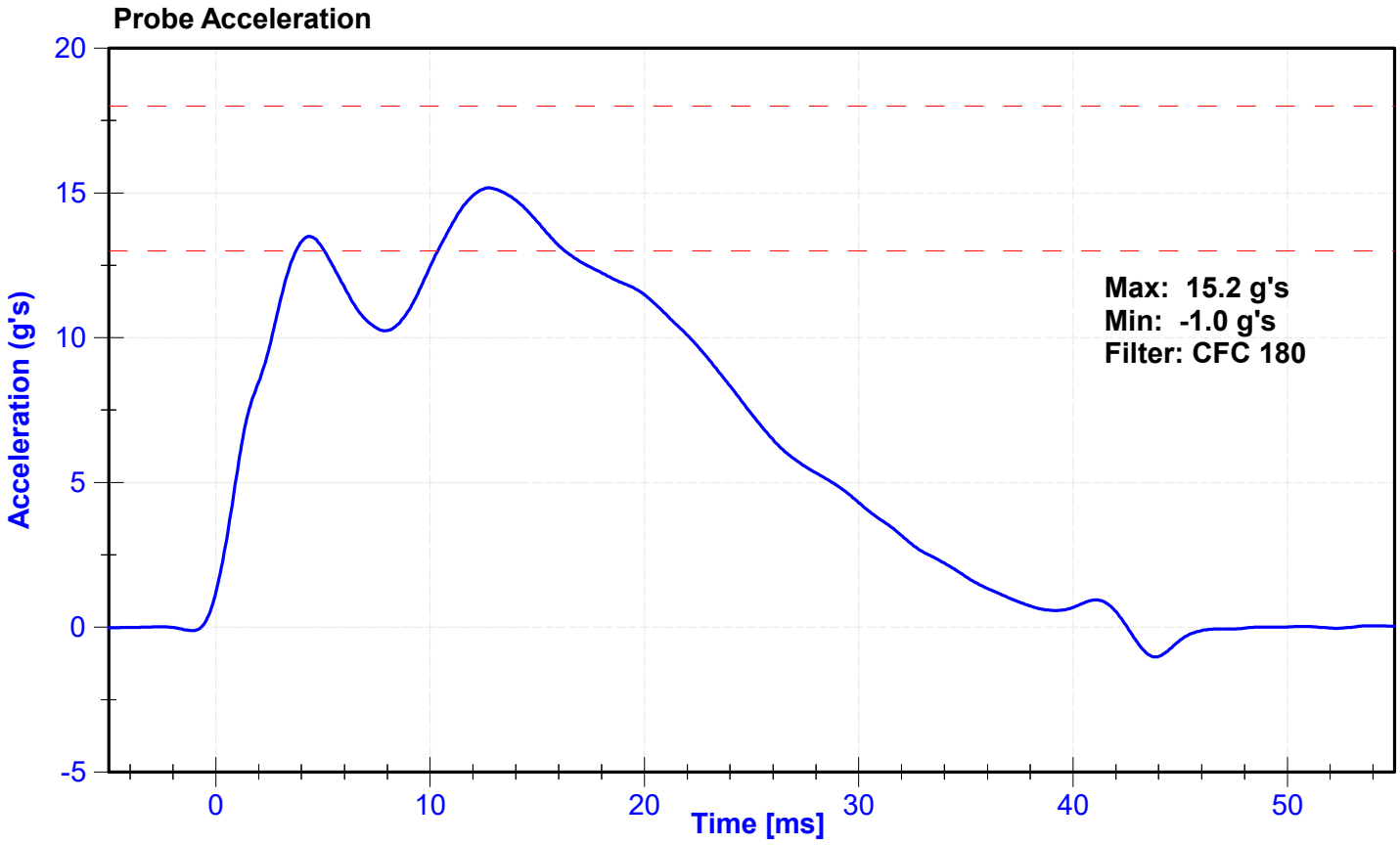
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

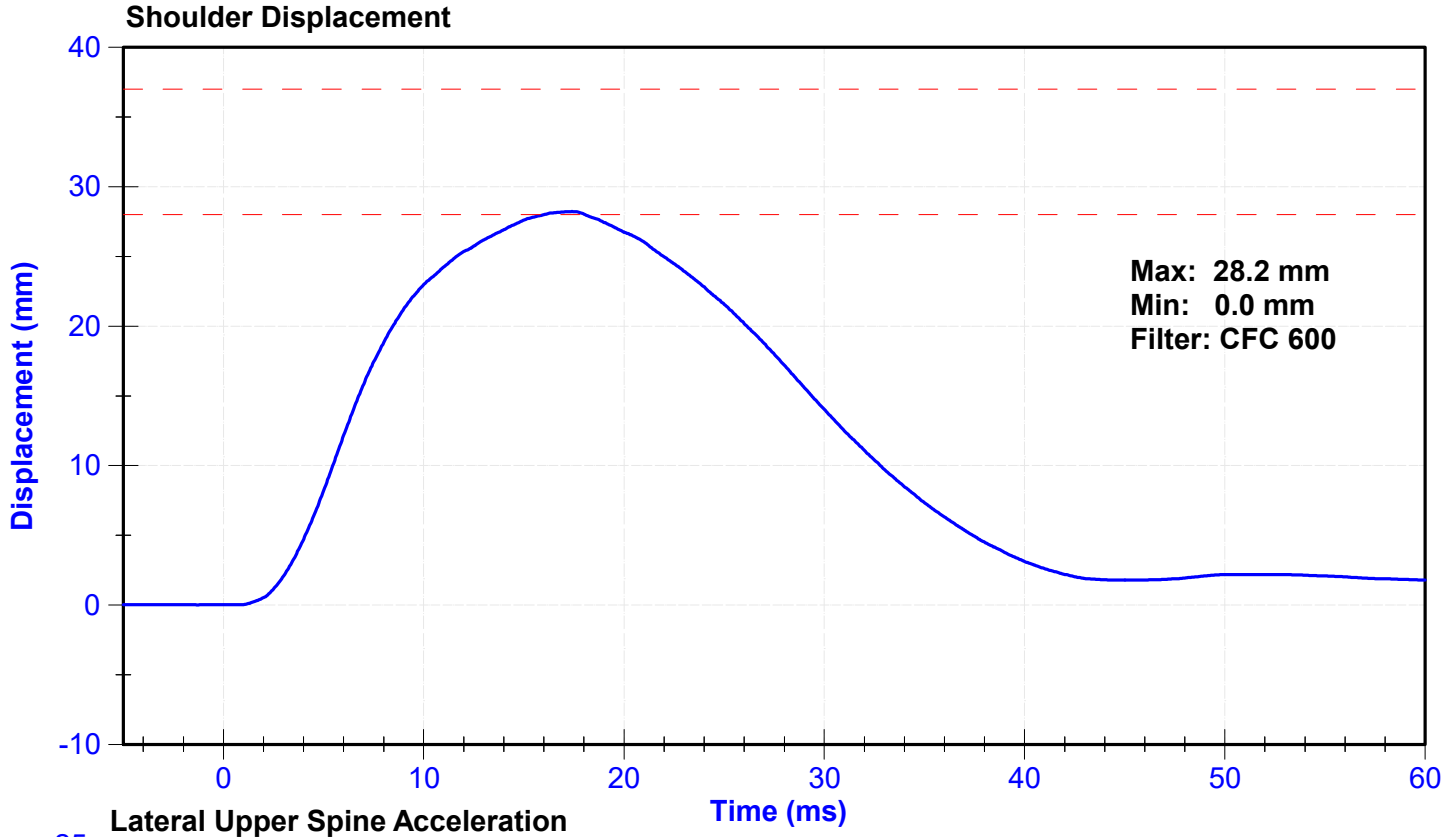
Results

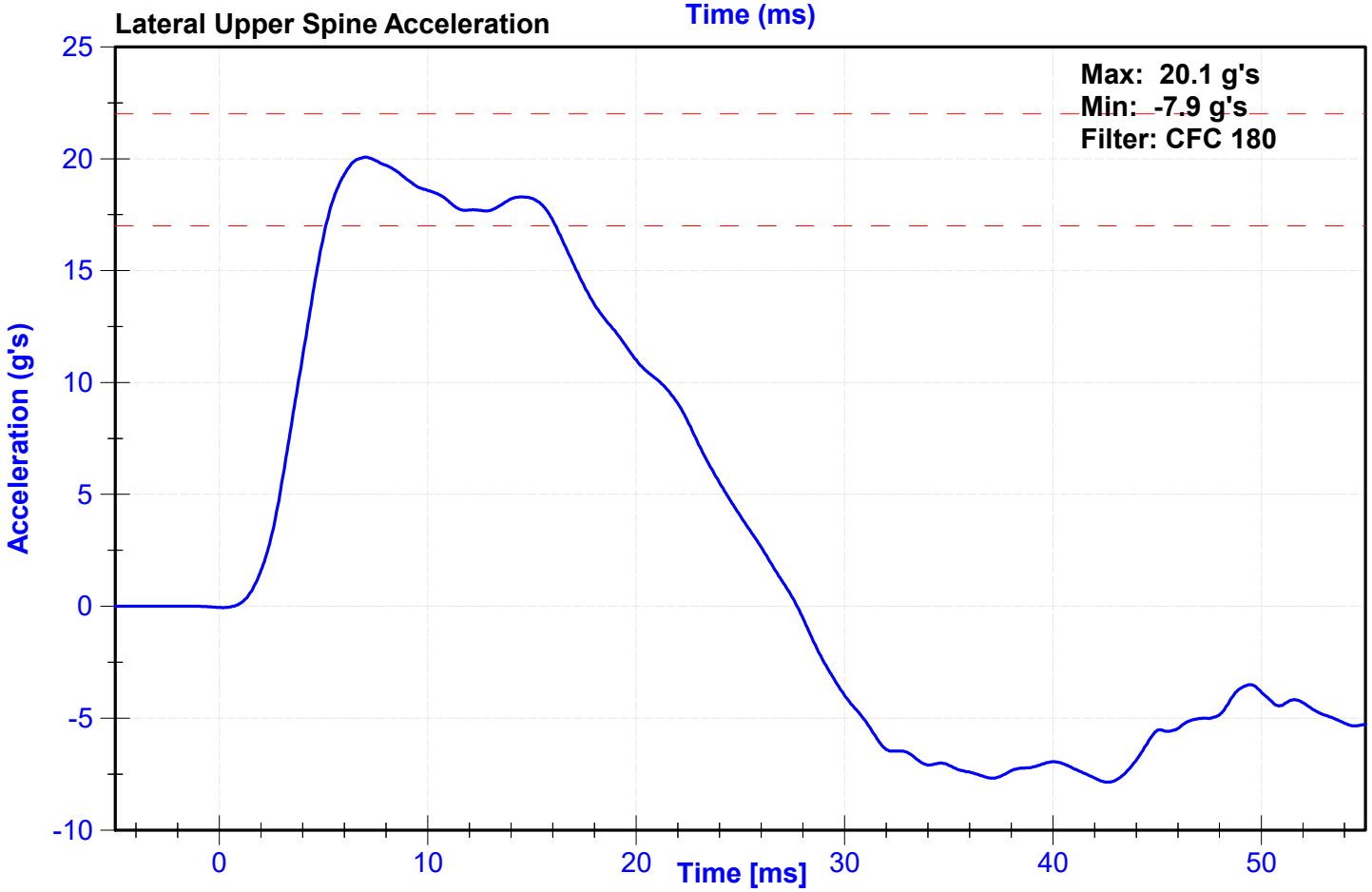
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.32	Pass
Probe Acceleration	13	18	g's	15.2	Pass
Shoulder Deflection	28	37	mm	28.2	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Shoulder Potentiometer	Servo	053GFE	12/8/2025	6/8/2026
Upper Spine Y Accelerometer	Endevco	P52018	12/8/2025	6/6/2026




Shoulder Displacement
Displacement (mm)
Time (ms)
Max: 28.2 mm
Min: 0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 20.1 g's
Min: -7.9 g's
Filter: CFC 180

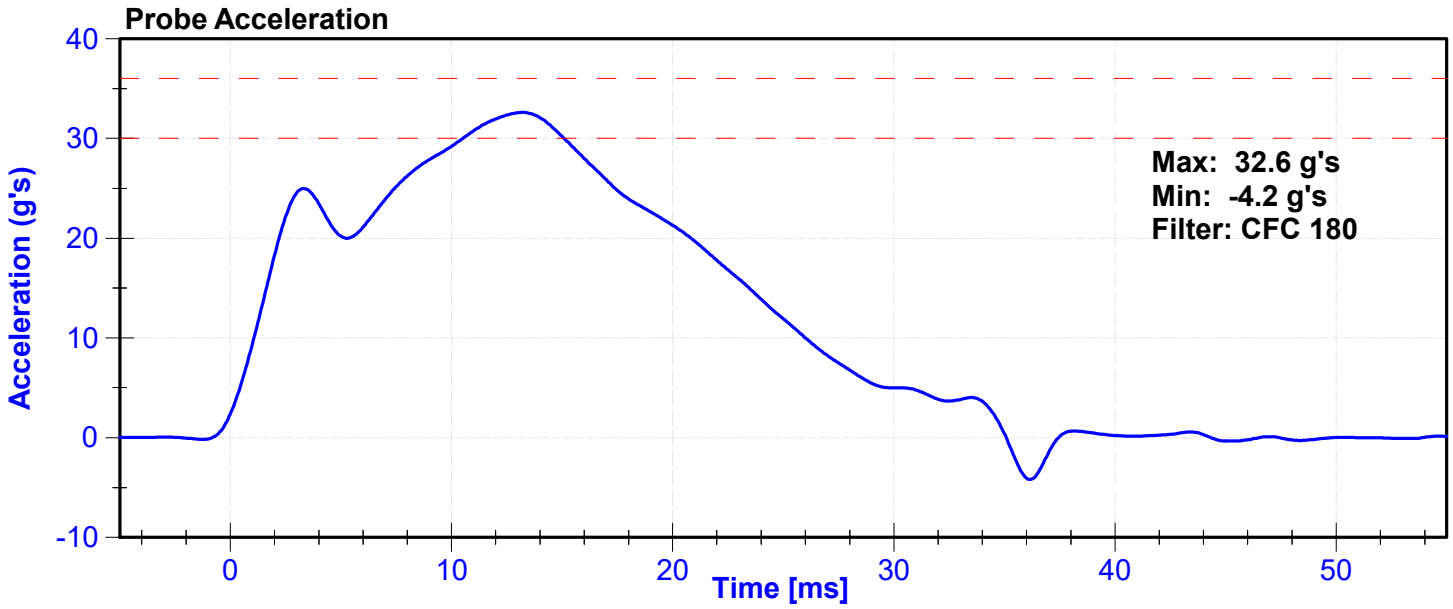
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

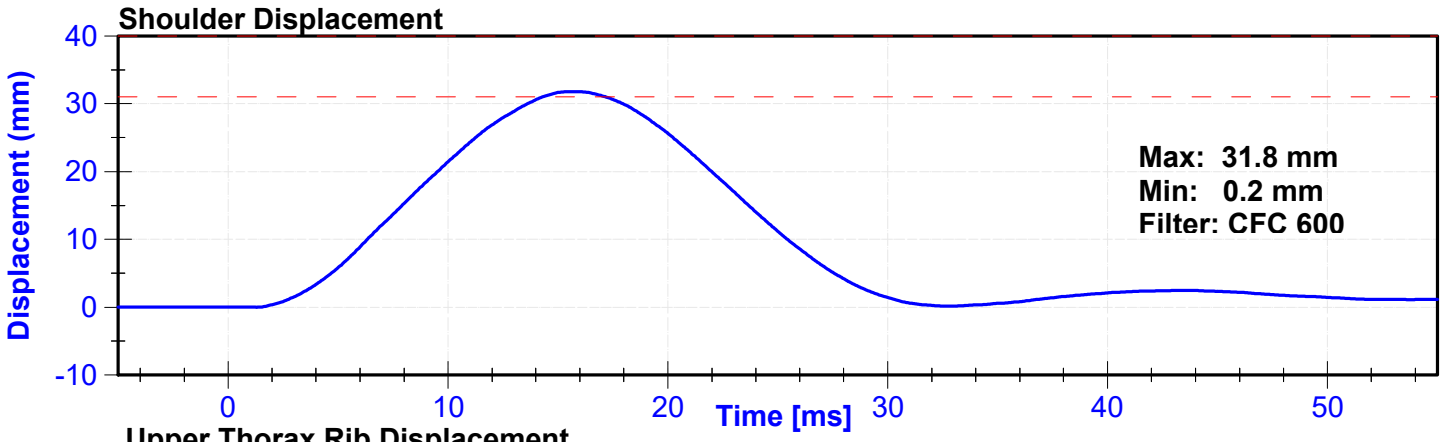
Results

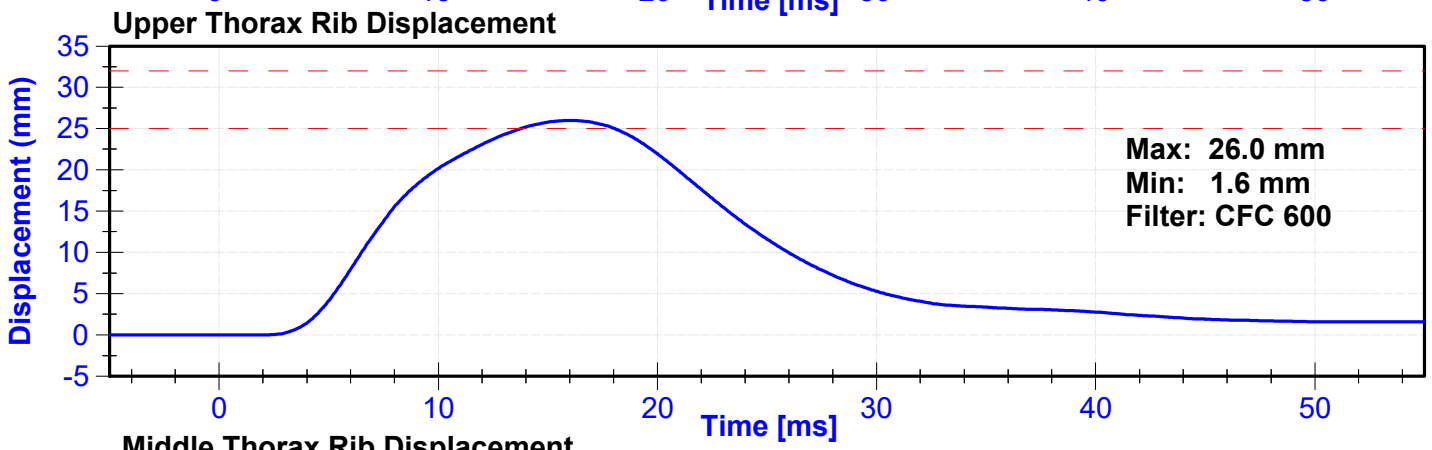
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	6.6	6.8	m/s	6.69	Pass
Probe Acceleration after 5 ms	30	36	g's	32.6	Pass
Lateral Upper Spine Acceleration	34	43	g's	36.6	Pass
Lateral Lower Spine Acceleration	29	37	g's	33.5	Pass
Shoulder Deflection	31	40	mm	31.8	Pass
Upper Thorax Rib Deflection	25	32	mm	26.0	Pass
Mid Thorax Rib Deflection	30	36	mm	30.8	Pass
Lower Thorax Rib Deflection	32	38	mm	33.7	Pass

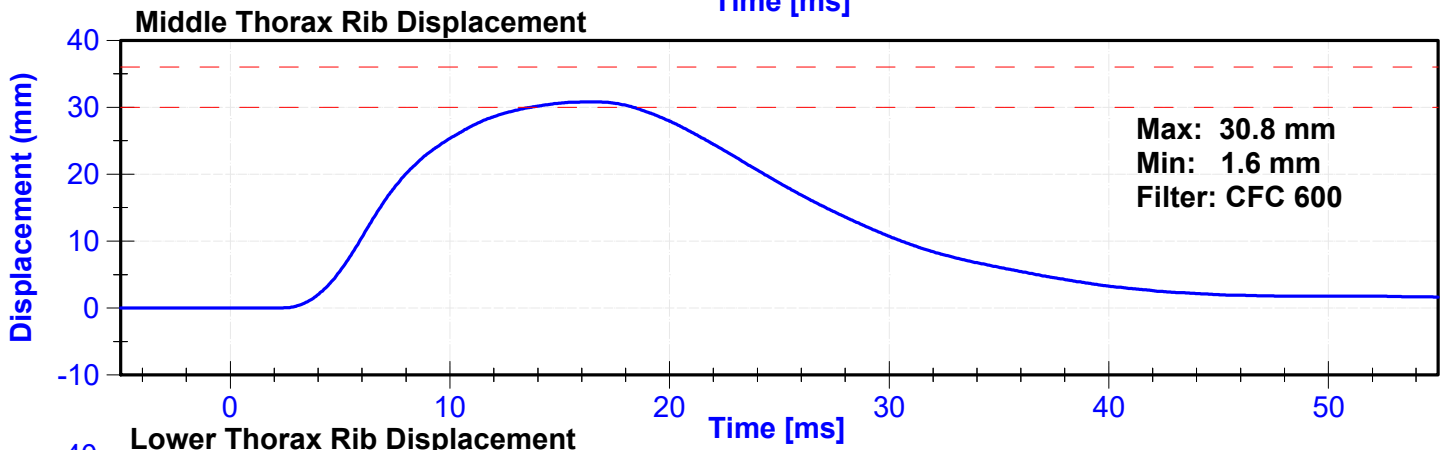
Transducer Calibrations

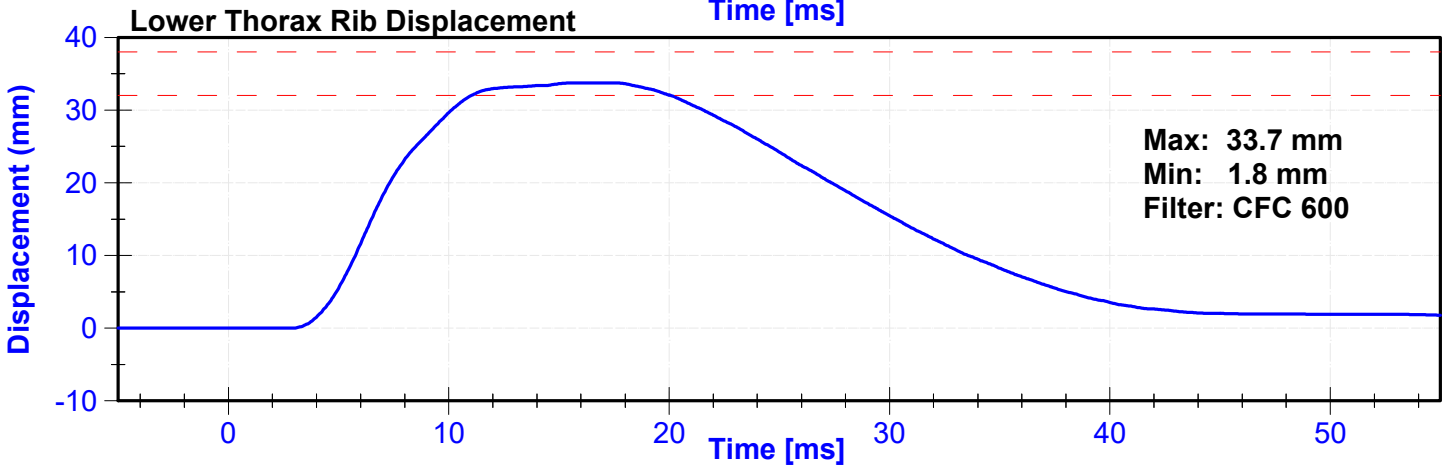
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Upper Spine T1 Y Accelerometer	Endevco	P52018	12/8/2025	6/6/2026
Upper Spine T12 Y Accelerometer	Endevco	P17283	12/8/2025	6/6/2026
Shoulder Potentiometer	Servo	053GFE	12/8/2025	6/8/2026
Upper Thorax Rib Potentiometer	Servo	2316GFE	12/8/2025	6/8/2026
Middle Thorax Rib Potentiometer	Servo	085GFE	12/4/2025	6/4/2026
Lower Thorax Rib Potentiometer	Servo	1156GFE	12/4/2025	6/4/2026

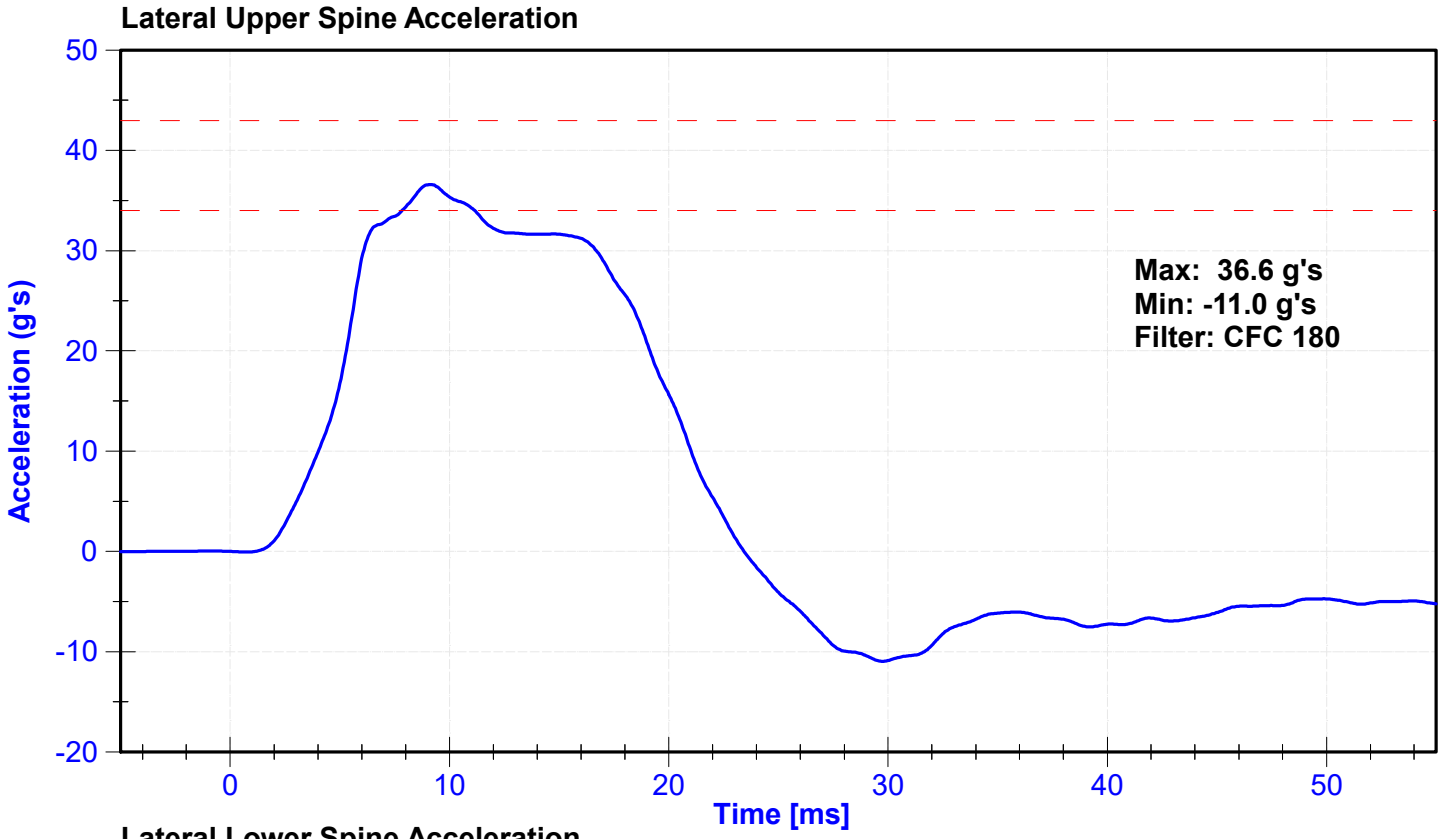


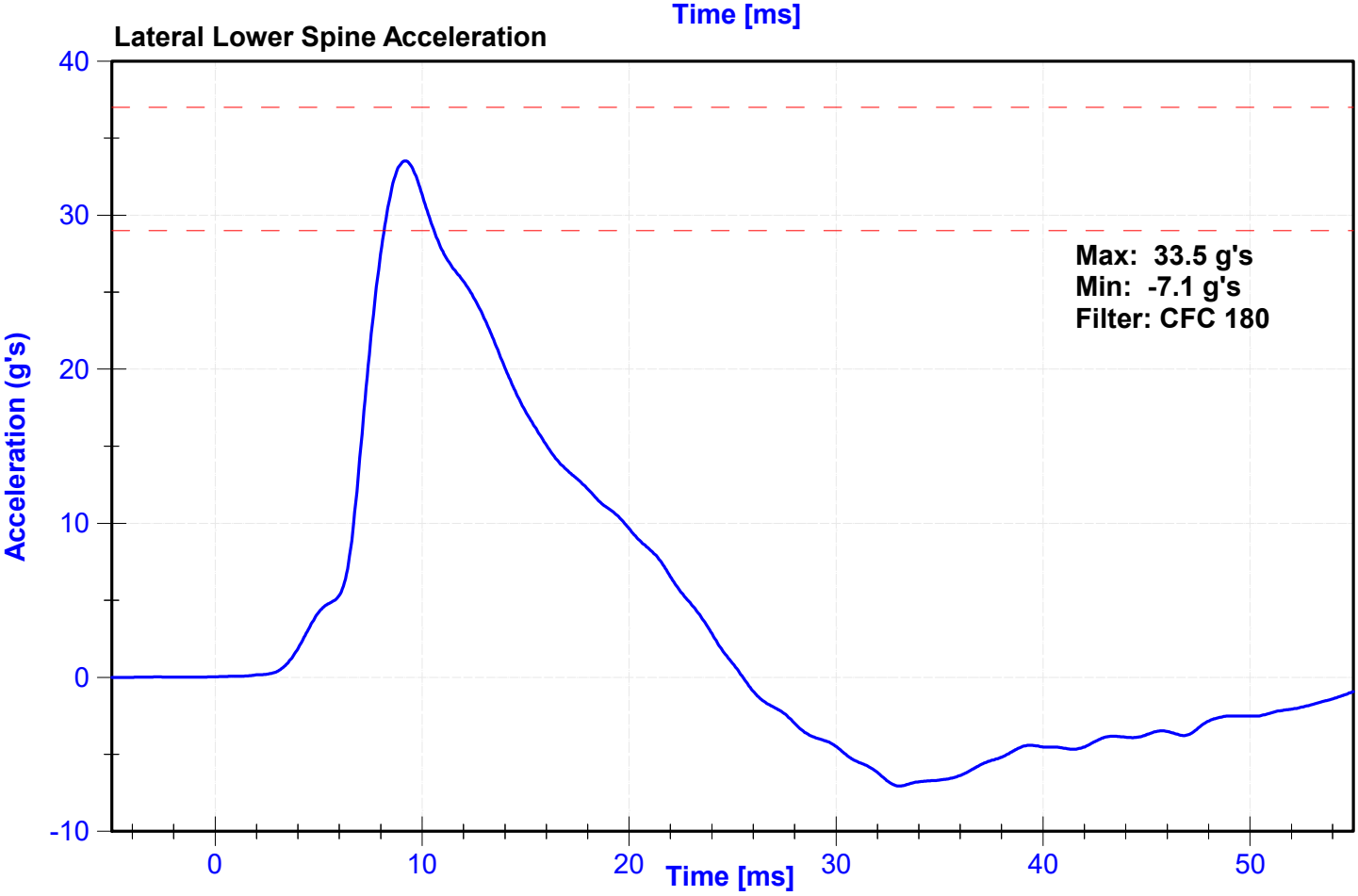

Shoulder Displacement
Displacement (mm)
Time [ms]
Max: 31.8 mm
Min: 0.2 mm
Filter: CFC 600


Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 26.0 mm
Min: 1.6 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 30.8 mm
Min: 1.6 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 33.7 mm
Min: 1.8 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 36.6 g's
Min: -11.0 g's
Filter: CFC 180


Lateral Lower Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 33.5 g's
Min: -7.1 g's
Filter: CFC 180

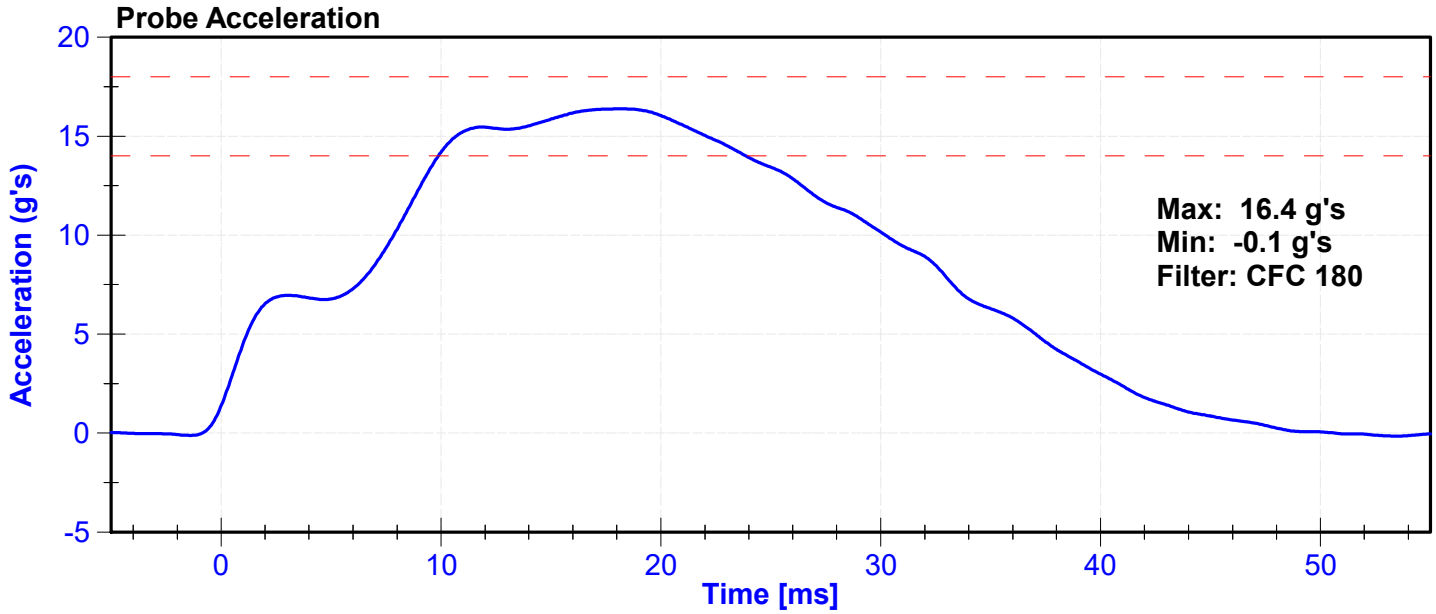
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

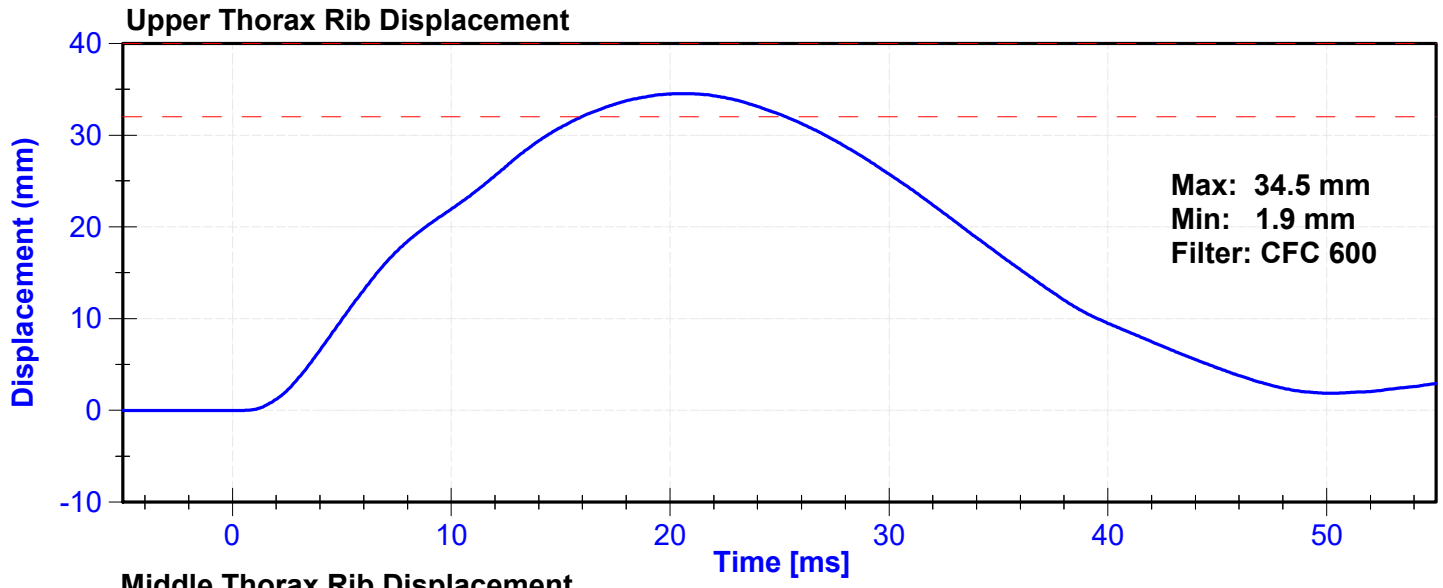
Results

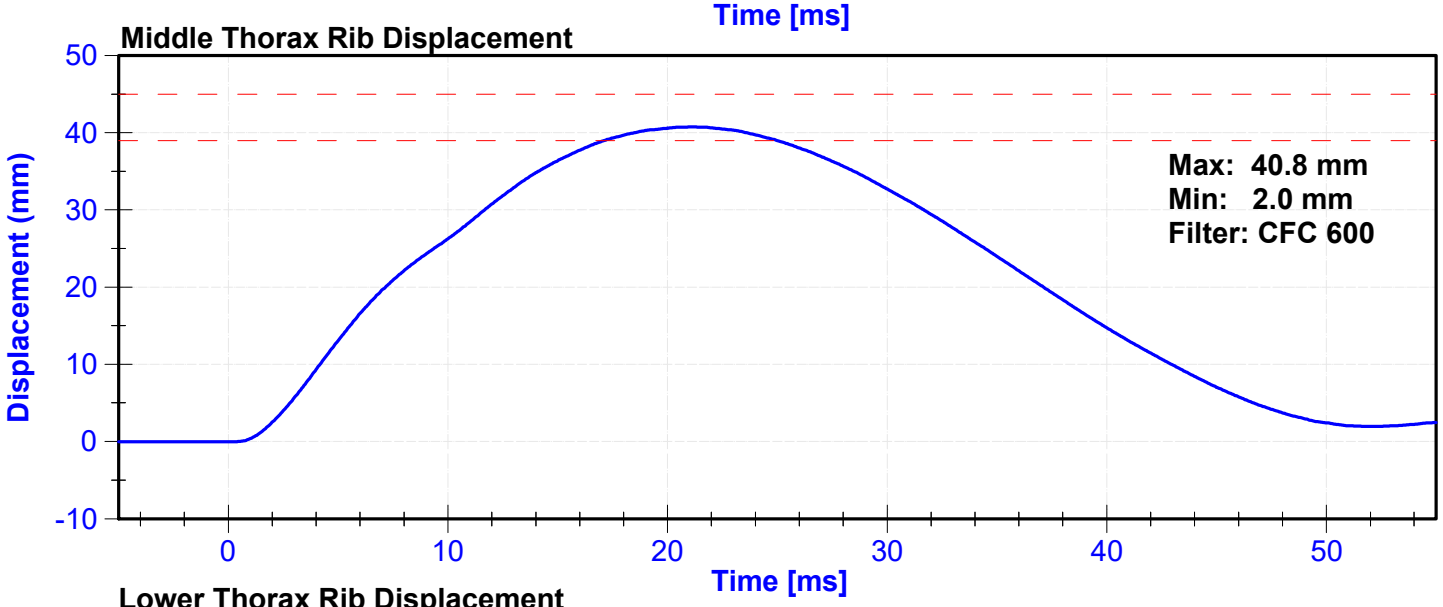
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	14	18	g's	16.4	Pass
Lateral Upper Spine Acceleration	13	17	g's	15.0	Pass
Lateral Lower Spine Acceleration	7	11	g's	9.3	Pass
Upper Thorax Rib Deflection	32	40	mm	34.5	Pass
Middle Thorax Rib Deflection	39	45	mm	40.8	Pass
Lower Thorax Rib Deflection	35	43	mm	39.0	Pass

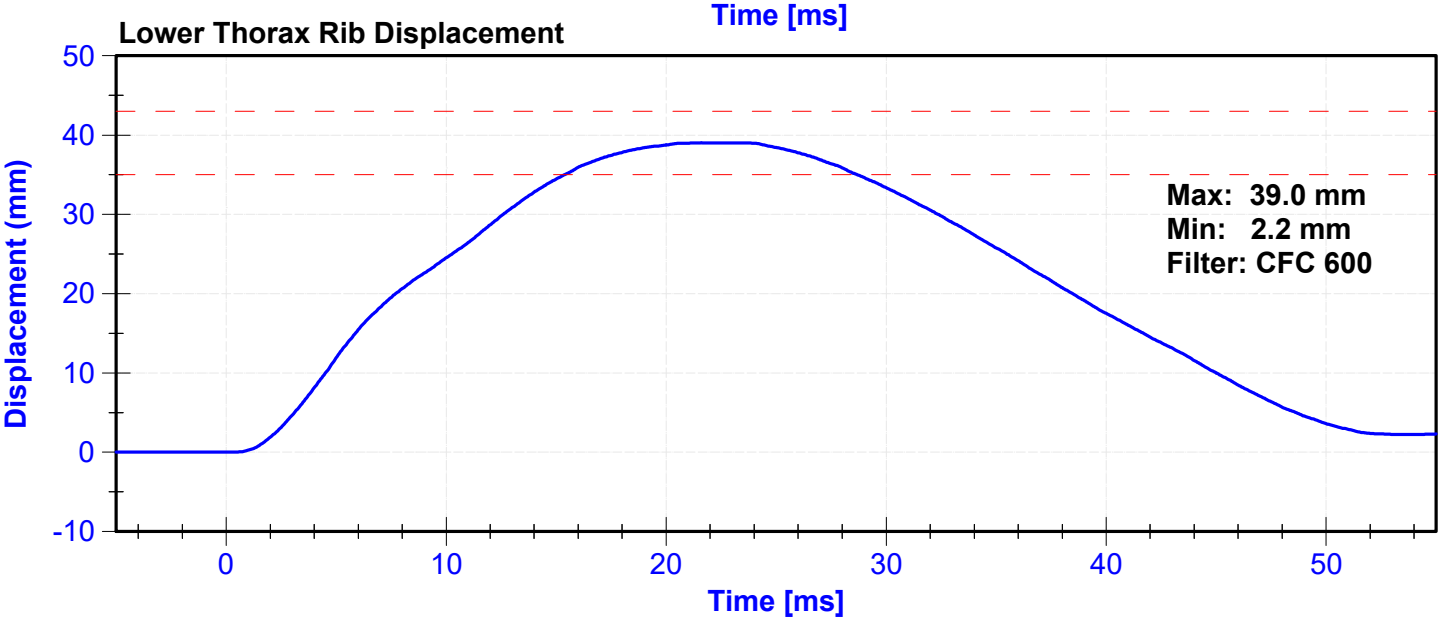
Transducer Calibrations

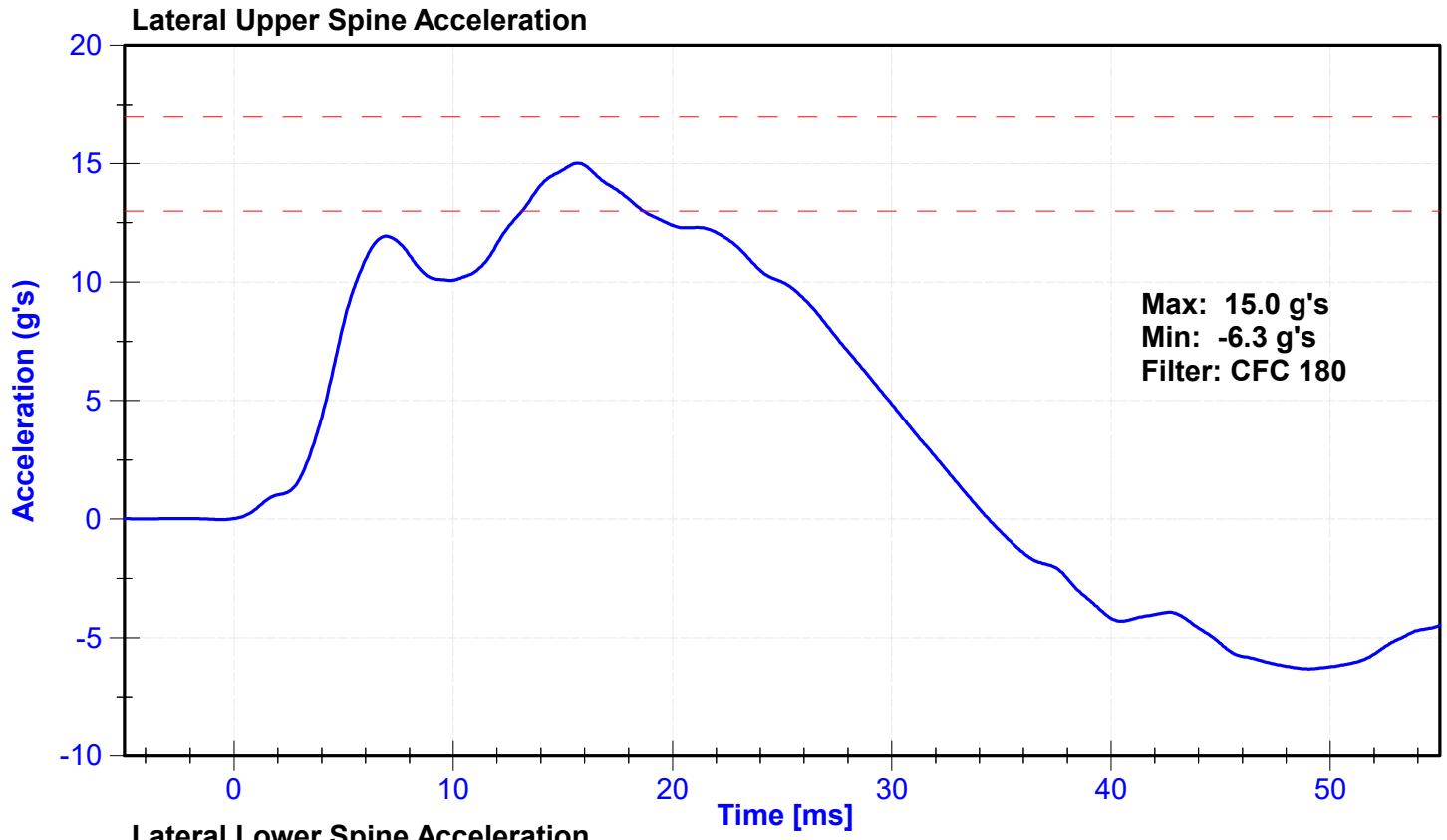
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Upper Spine Y Accelerometer	Endevco	P52018	12/8/2025	6/6/2026
Lower Spine Y Accelerometer	Endevco	P17283	12/8/2025	6/6/2026
Upper Thorax Rib Potentiometer	Servo	2316GFE	12/8/2025	6/8/2026
Middle Thorax Rib Potentiometer	Servo	085GFE	12/4/2025	6/4/2026
Lower Thorax Rib Potentiometer	Servo	1156GFE	12/4/2025	6/4/2026

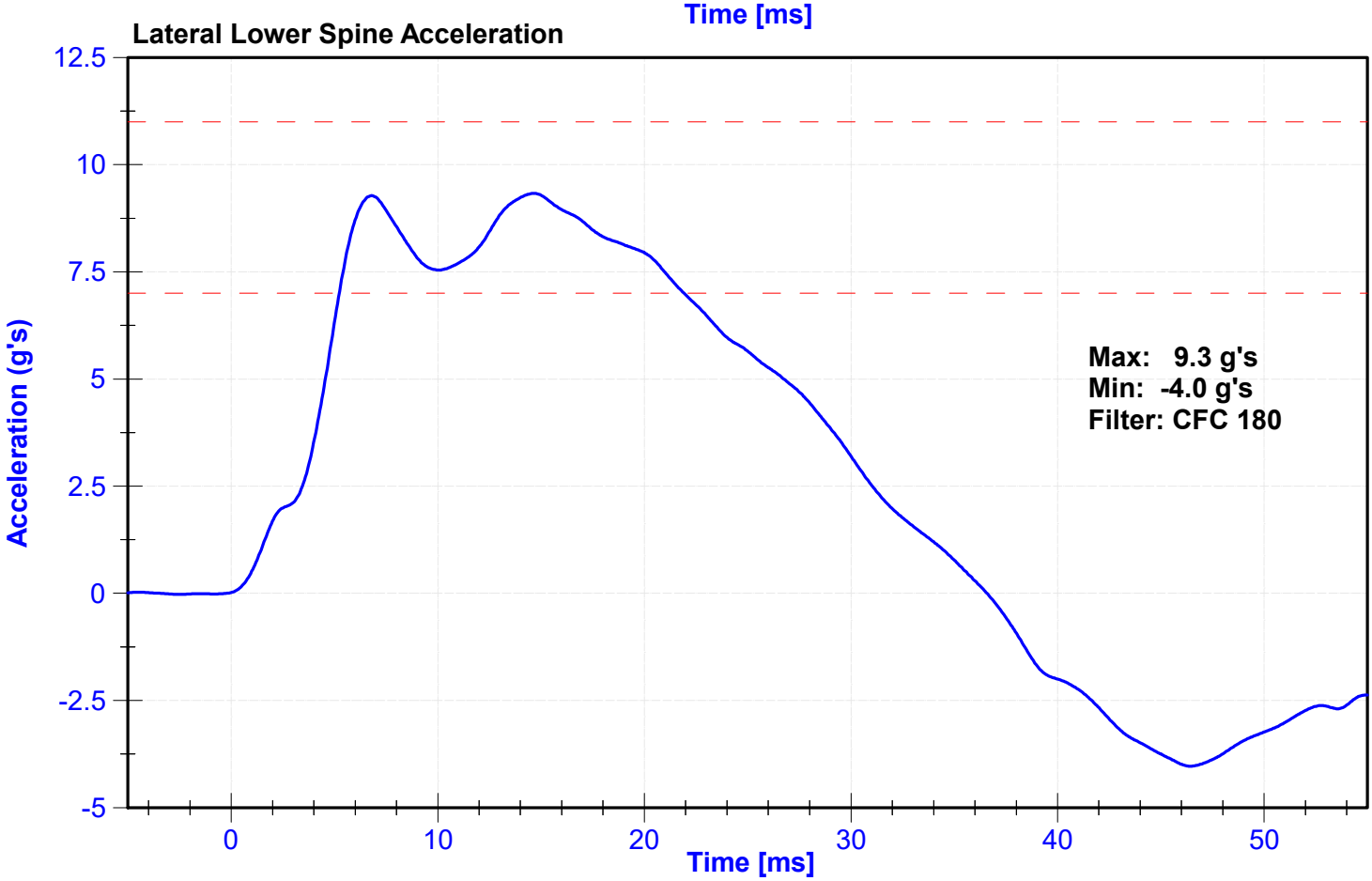



Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 34.5 mm
Min: 1.9 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 40.8 mm
Min: 2.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 39.0 mm
Min: 2.2 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 15.0 g's
Min: -6.3 g's
Filter: CFC 180


Lateral Lower Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 9.3 g's
Min: -4.0 g's
Filter: CFC 180

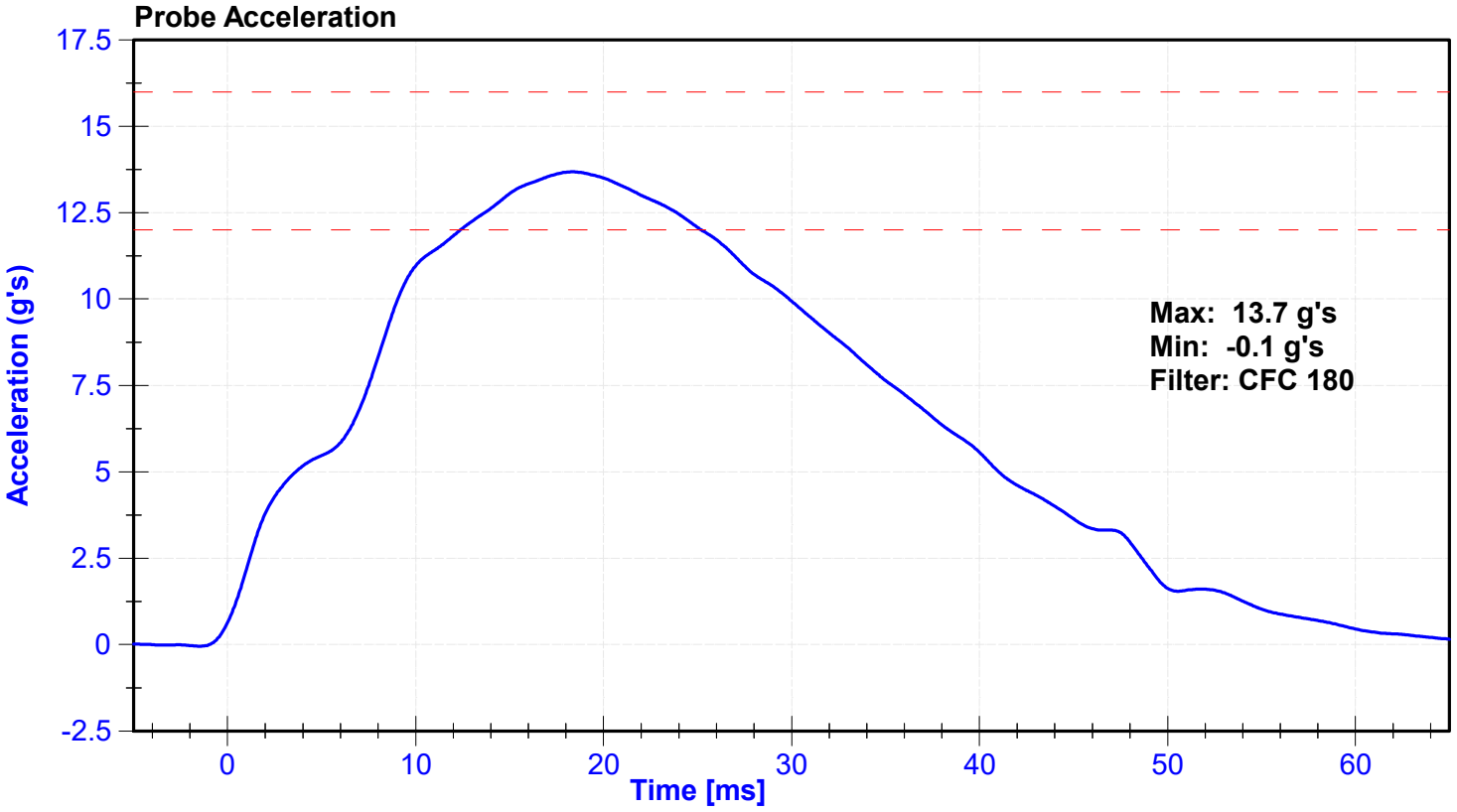
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

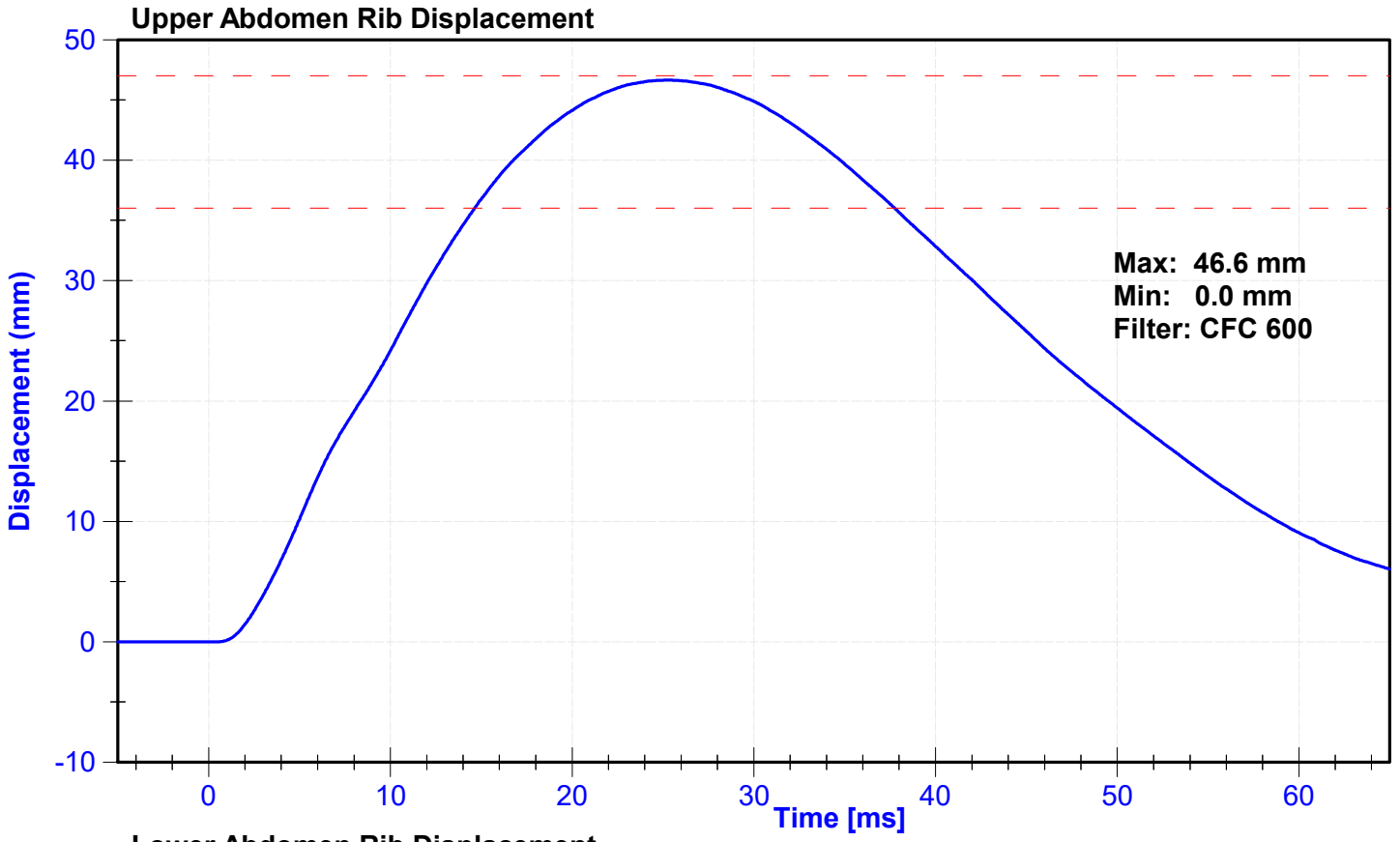
Results

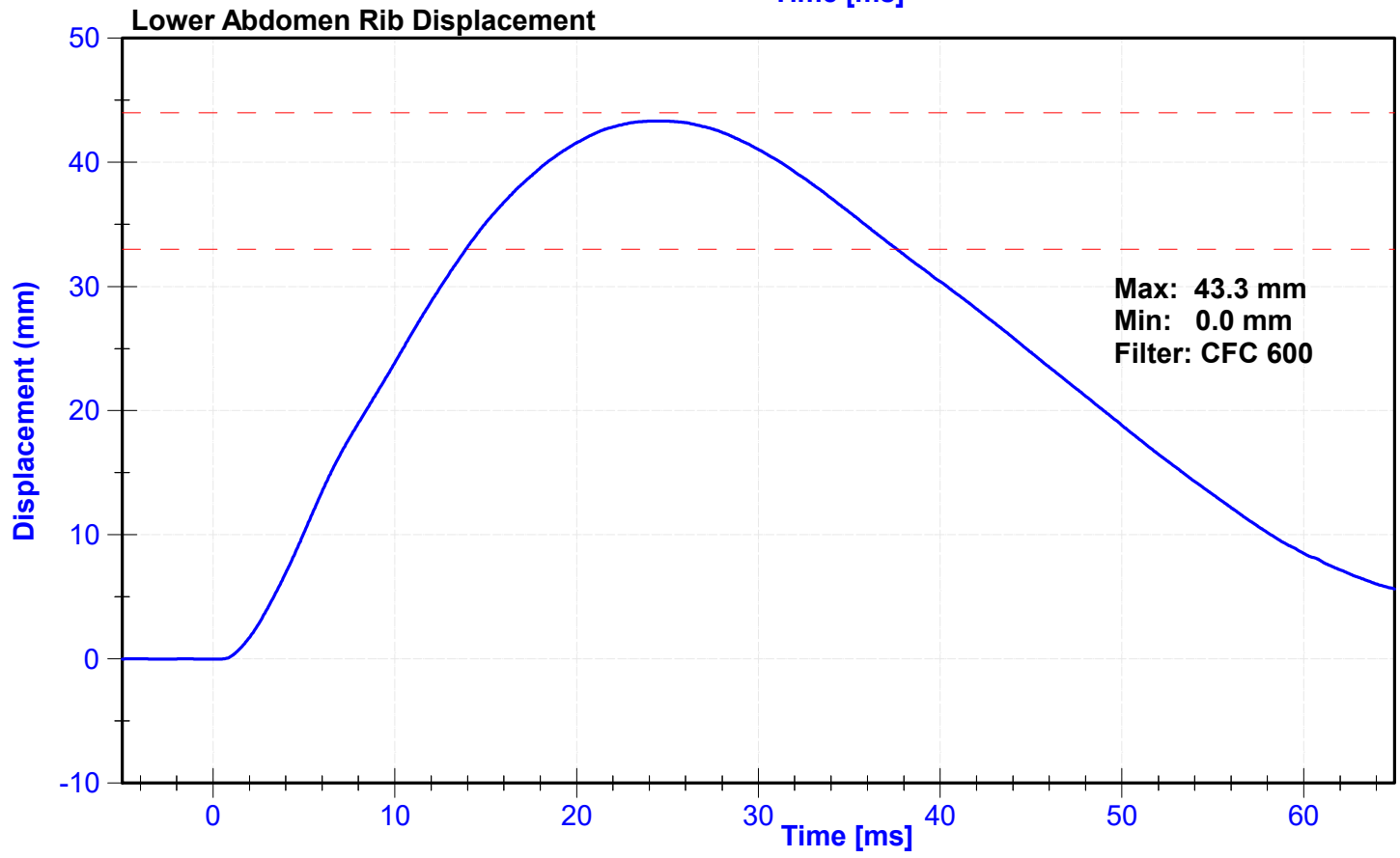
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	12	16	g's	13.7	Pass
Lateral Lower Spine Acceleration	9	14	g's	11.2	Pass
Upper Abdomen Rib Deflection	36	47	mm	46.6	Pass
Lower Abdomen Rib Deflection	33	44	mm	43.3	Pass

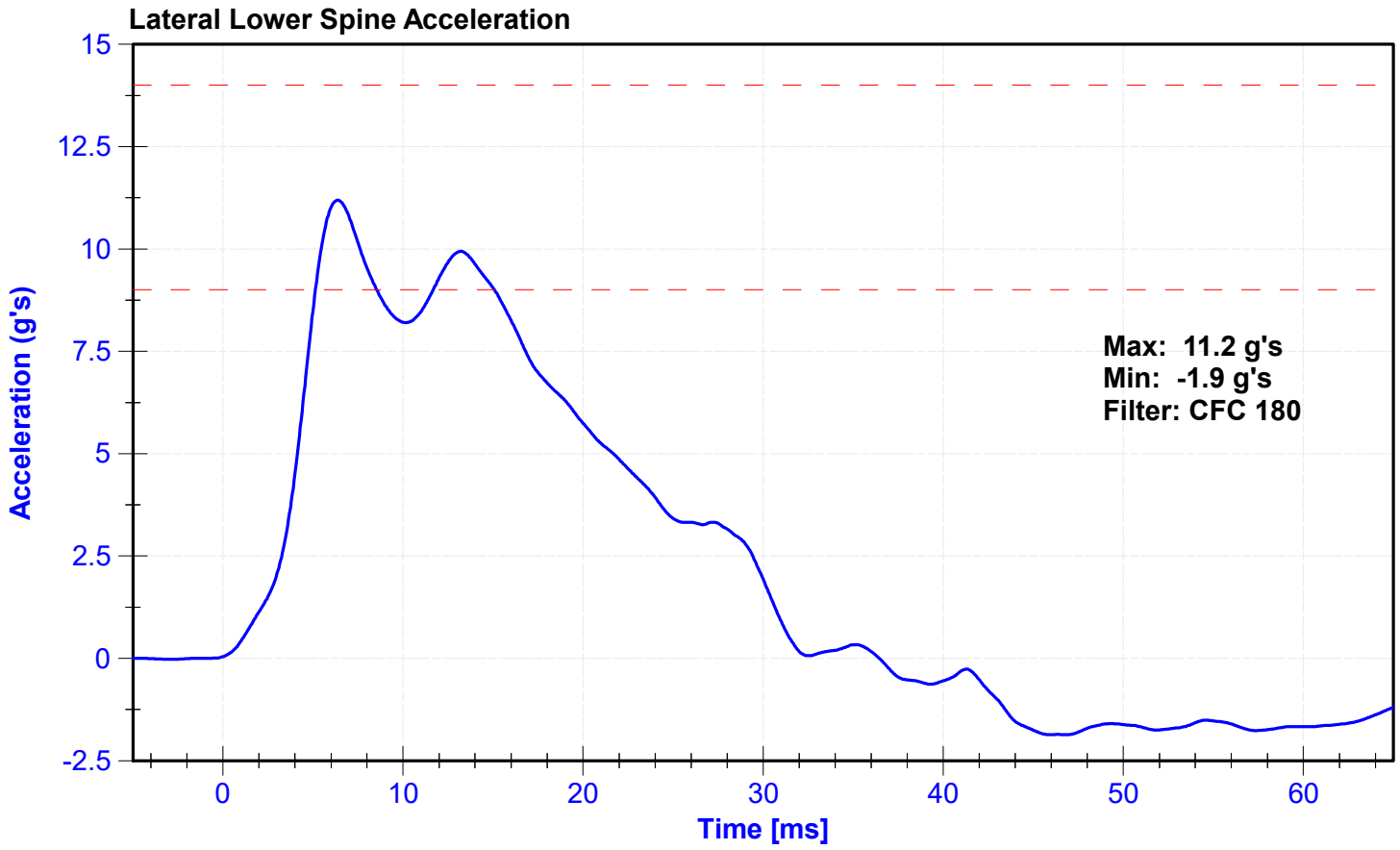
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Lower Spine Y Accelerometer	Endevco	P17283	12/8/2025	6/6/2026
Upper Abdomen Rib Potentiometer	Servo	074GFE	12/4/2025	6/4/2026
Lower Abdomen Rib Potentiometer	Servo	075GFE	12/8/2025	6/8/2026




Upper Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 46.6 mm
Min: 0.0 mm
Filter: CFC 600


Lower Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 43.3 mm
Min: 0.0 mm
Filter: CFC 600


Lateral Lower Spine Acceleration
Acceleration (g's)
15
12.5
10
7.5
5
2.5
0
-2.5
0
10
20
30
40
50
60
Time [ms]
Max: 11.2 g's
Min: -1.9 g's
Filter: CFC 180

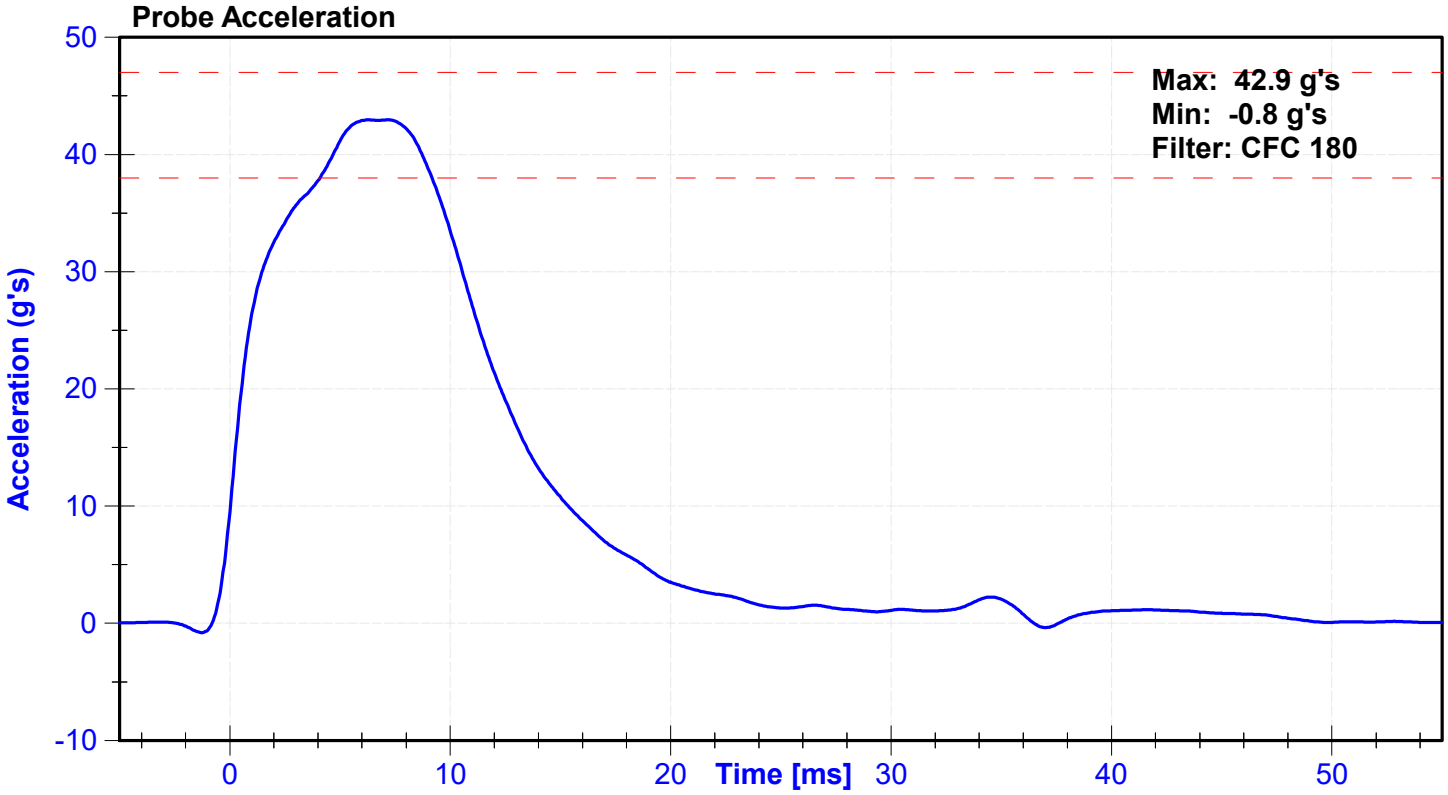
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

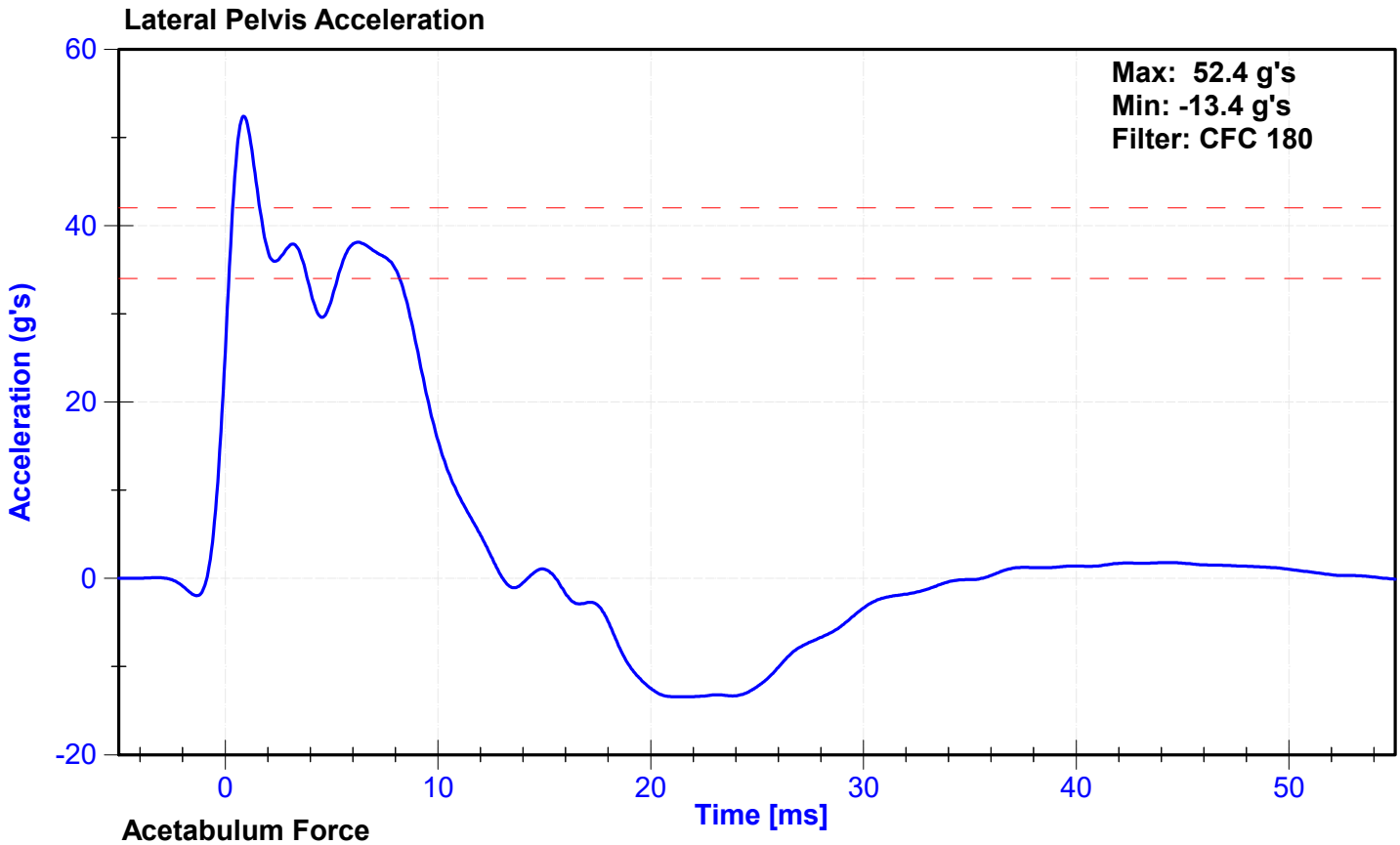
Results

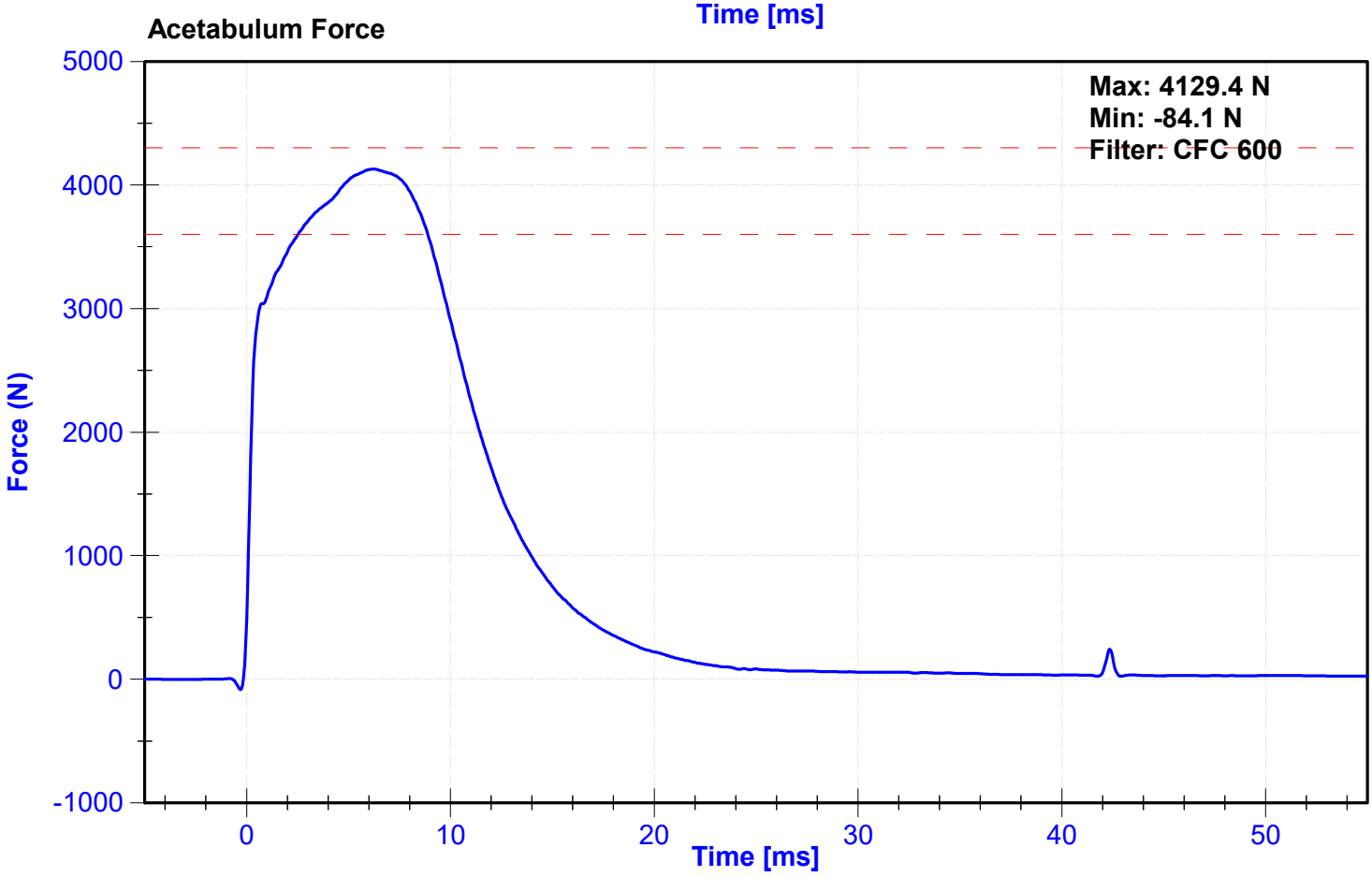
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	6.6	6.8	m/s	6.64	Pass
Probe Acceleration	38	47	g's	42.9	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	38.1	Pass
Acetabulum Force	3600	4300	N	4129.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Pelvis Y Accelerometer	Endevco	P51731	12/8/2025	6/6/2026
Acetabulum Load Cell	Denton	270-FY	10/15/2025	10/15/2026
Certification Plug	SACO			N/A
Crash Test Plug	SACO			N/A




Lateral Pelvis Acceleration
Max: 52.4 g's
Min: -13.4 g's
Filter: CFC 180
Acceleration (g's)
60
40
20
0
-20
0
10
20
30
40
50
Time [ms]


Acetabulum Force
Max: 4129.4 N
Min: -84.1 N
Filter: CFC 600
Force (N)
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50
Time [ms]

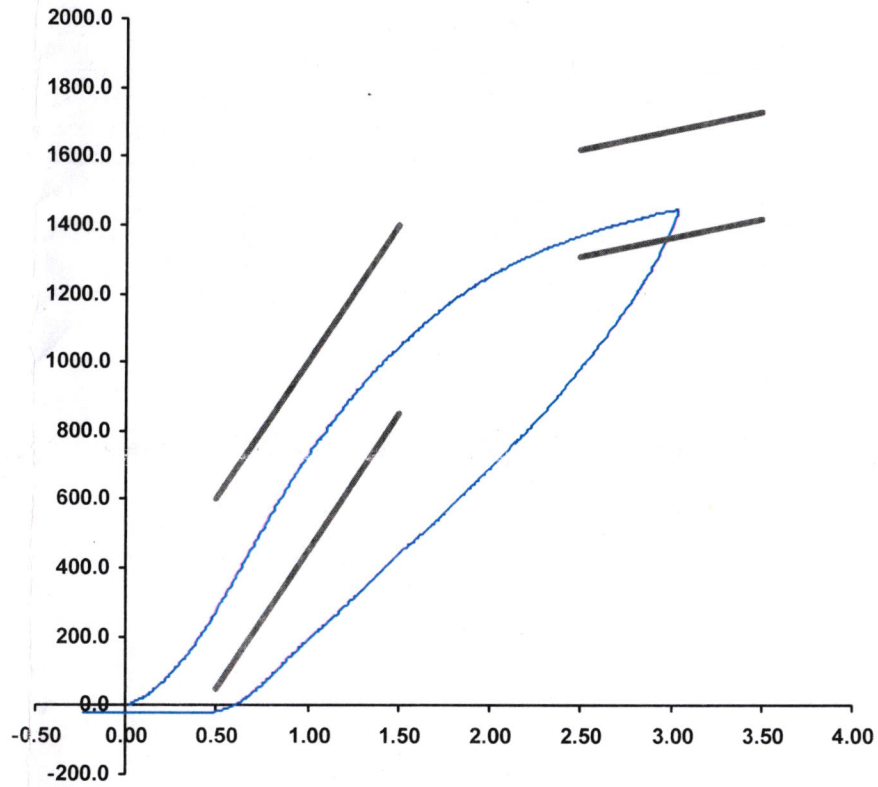
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 16579
Test Number 23363
Report Number 23420
Test Date 7/19/2022 10:43:55 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	282	50	600
Force @ 1.5 mm (N)	1,044	850	1,400
Force @ 2.5 mm (N)	1,368	1,306	1,618
Force @ 3.0 mm (N)	1,441	1,361	1,673

Force (-N) vs Extension (-mm)



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 300 12.18.25 ZN

Operator

Part Number 180-4450

Template No 107 19-Jul-22
SACO Research

By : DC Date : 7/19/22

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

C-90

19

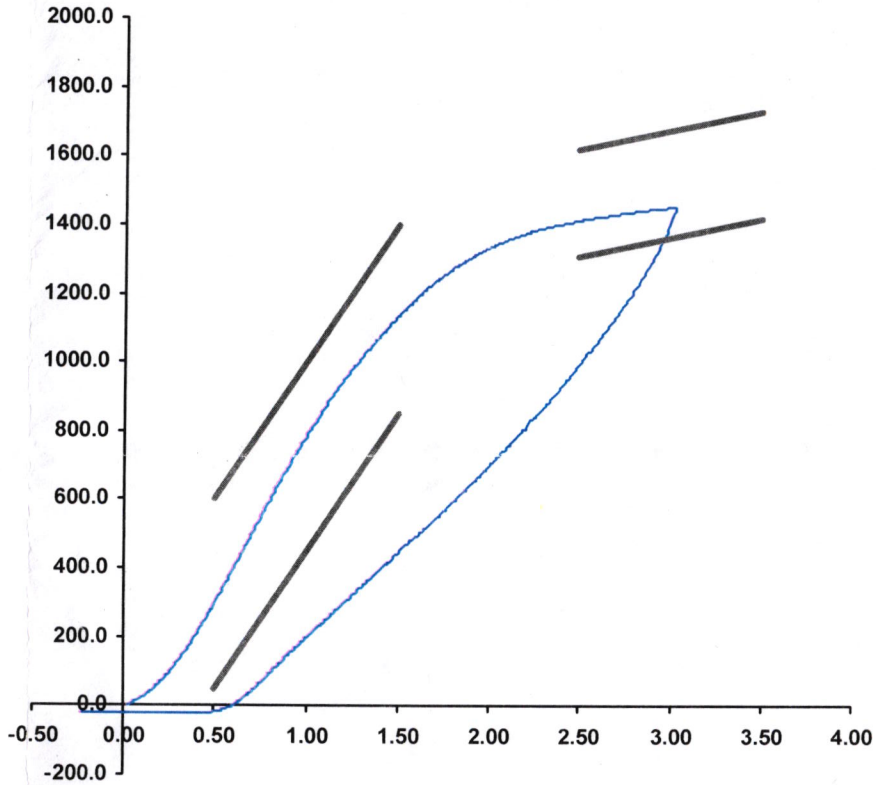
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 16685
Test Number 23485
Report Number 23542
Test Date 7/22/2022 10:43:11 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	309	50	600
Force @ 1.5 mm (N)	1,131	850	1,400
Force @ 2.5 mm (N)	1,413	1,306	1,618
Force @ 3.0 mm (N)	1,450	1,361	1,673

Force (-N) vs Extension (-mm)



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 300 12.18.25 ZN

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

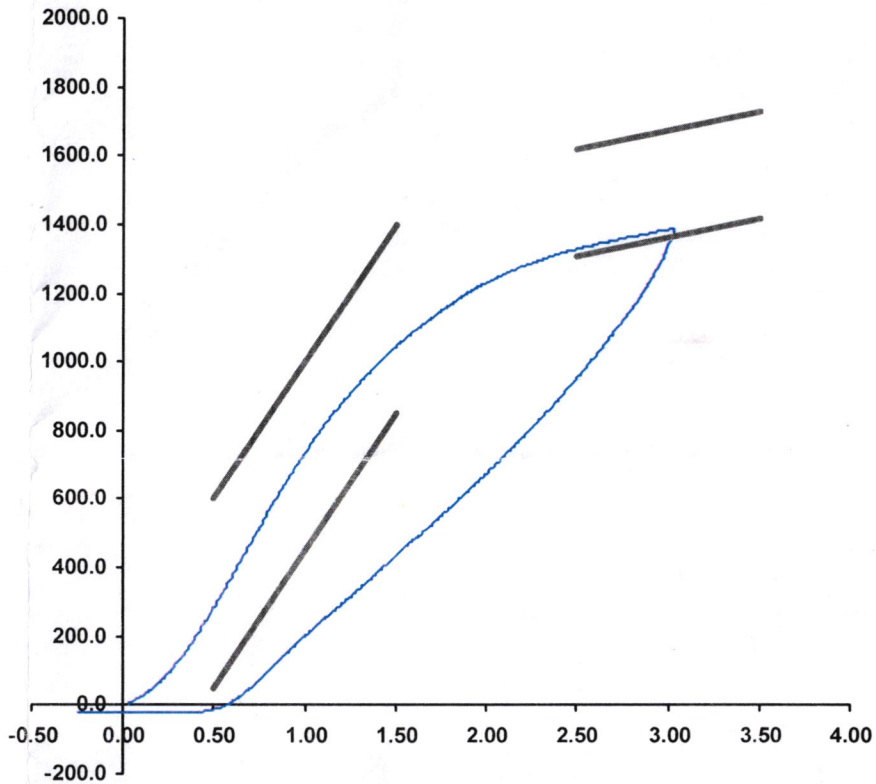
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 16573
Test Number 23357
Report Number 23414
Test Date 7/19/2022 10:30:59 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	287	50	600
Force @ 1.5 mm (N)	1,047	850	1,400
Force @ 2.5 mm (N)	1,330	1,306	1,618
Force @ 3.0 mm (N)	1,385	1,361	1,673

Force (-N) vs Extension (-mm)



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:
Cert 300 12.18.25 ZN

Operator

Part Number 180-4450

Template No 107 19-Jul-22
SACO Research

By : DC Date : 7/19/22

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

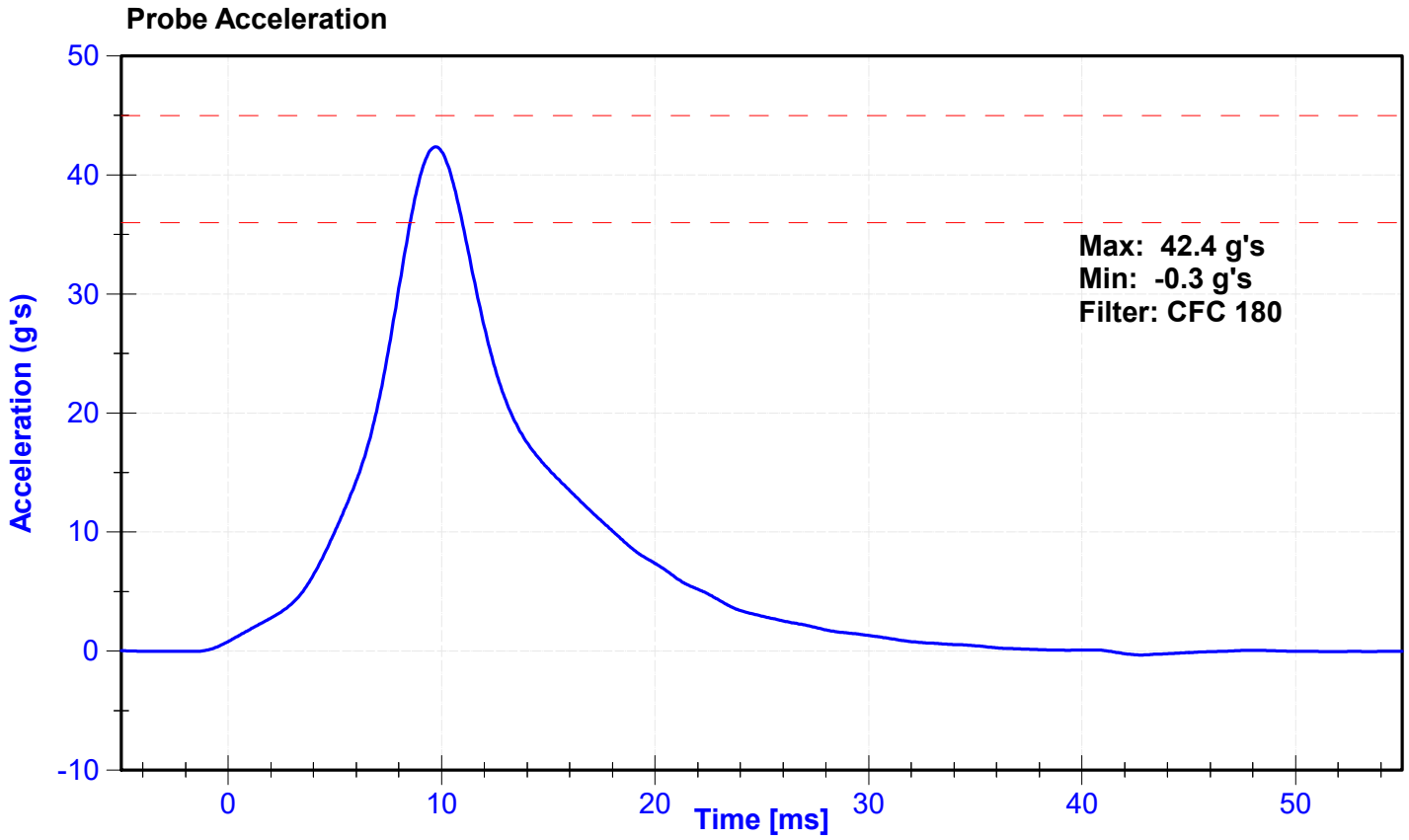
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	300	Laboratory Supervisor	J. Kinderman

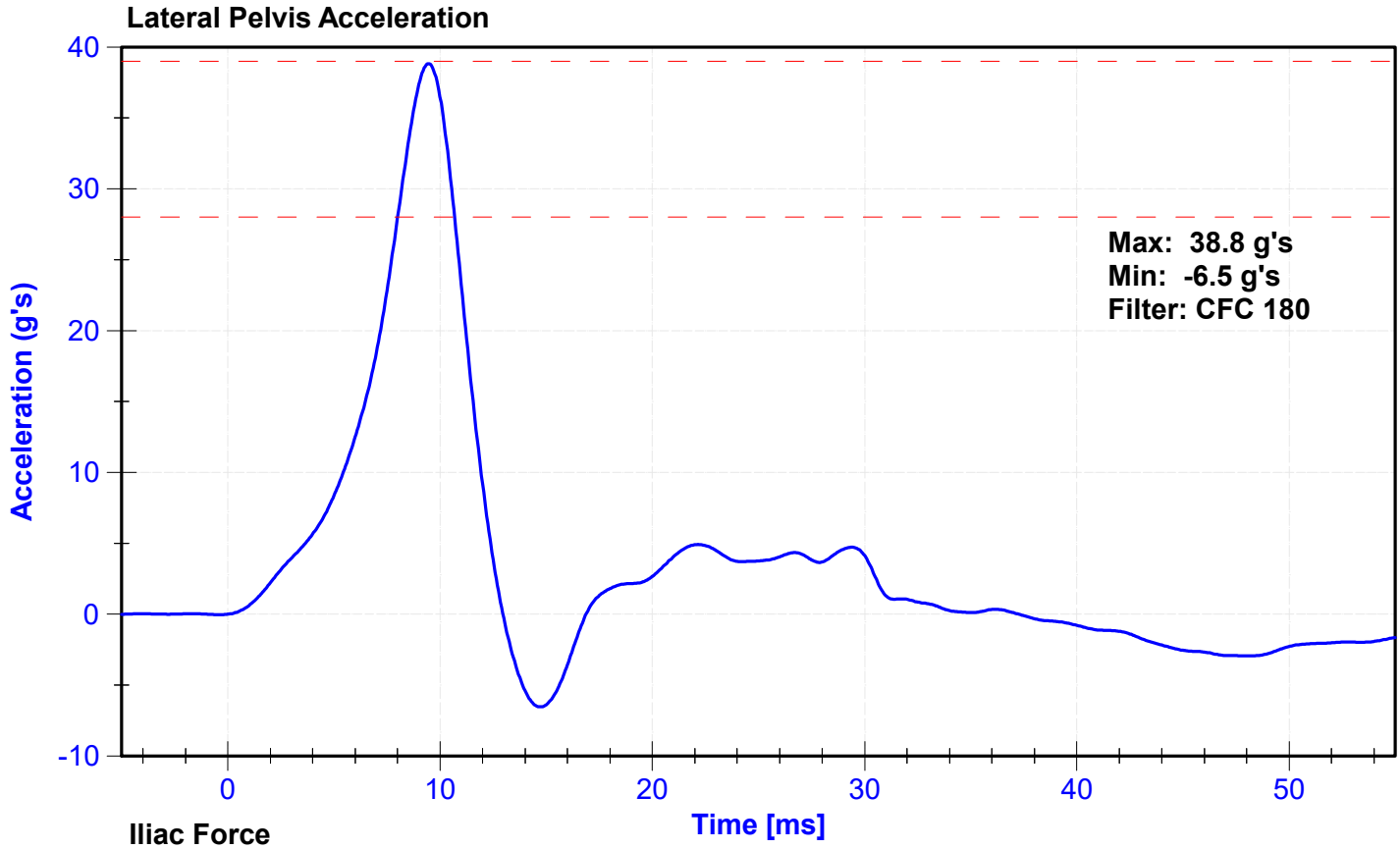
Results

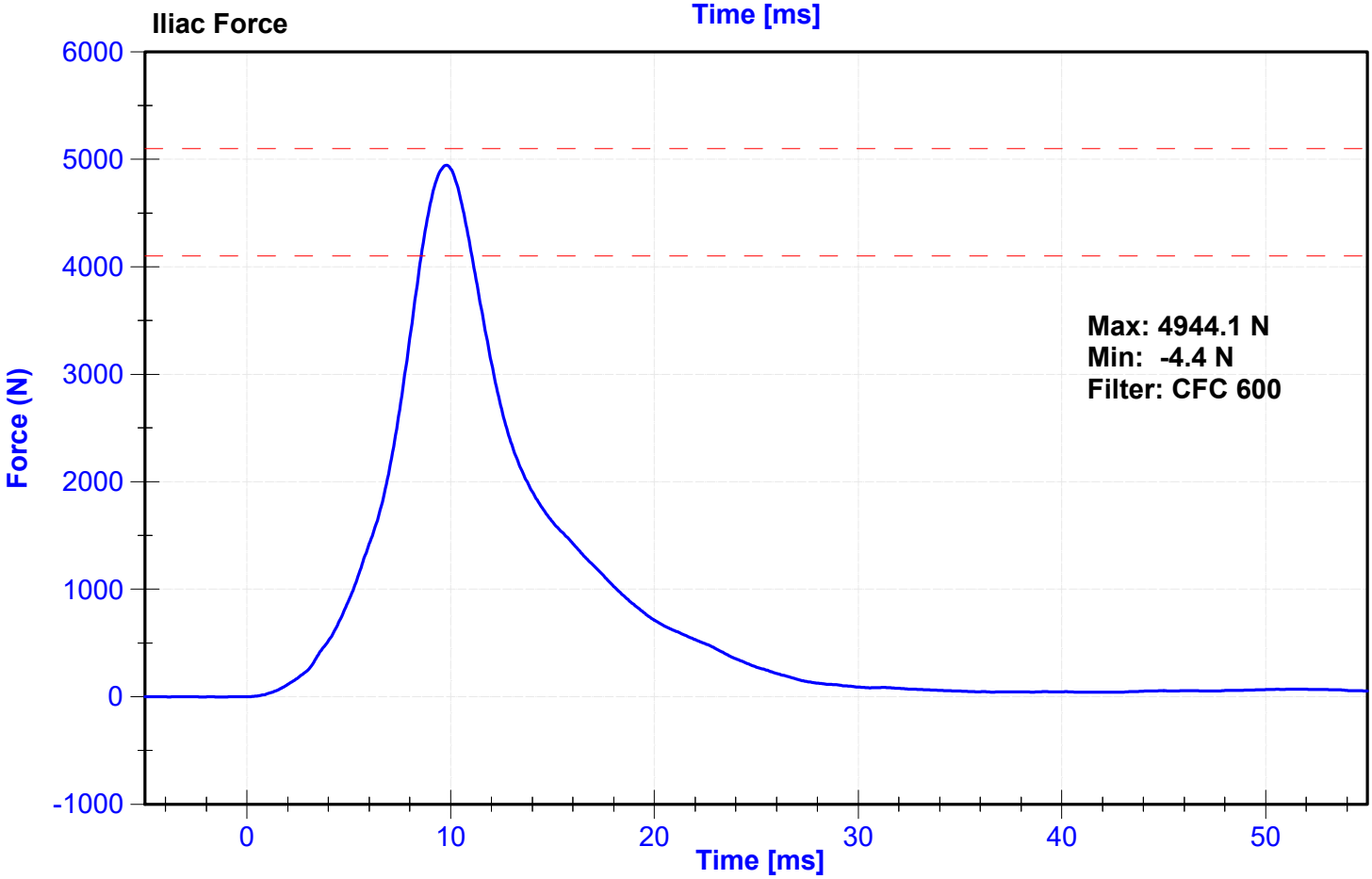
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.20	Pass
Probe Acceleration	36	45	g's	42.4	Pass
Lateral Pelvis Acceleration	28	39	g's	38.8	Pass
Iliac Force	4100	5100	N	4944.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/5/2025	5/4/2026
Pelvis Y Accelerometer	Endevco	P51731	12/8/2025	6/6/2026
Iliac Load Cell	FTSS	225-FY	9/24/2025	9/24/2026




Lateral Pelvis Acceleration
Acceleration (g's)
40
30
20
10
0
-10
0
10
20
30
40
50
Time [ms]
Max: 38.8 g's
Min: -6.5 g's
Filter: CFC 180


Iliac Force
Force (N)
6000
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50
Time [ms]
Max: 4944.1 N
Min: -4.4 N
Filter: CFC 600

APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F033		
			Serial Number	**Manufacturer**	**Calibration Date**
Head Accelerometers	Primary	X	P63861	Endevco	12/04/2025
		Y	P49216	Endevco	12/04/2025
		Z	P51303	Endevco	12/04/2025
	Redundant	X	P58868	Endevco	12/04/2025
		Y	P59020	Endevco	12/04/2025
		Z	P52132	Endevco	12/04/2025
Thorax Rib Displacement Potentiometers	Upper	Y	179GFE	Honeywell	12/04/2025
	Middle	Y	185GFE	Honeywell	12/04/2025
	Lower	Y	184GFE	Honeywell	12/04/2025
Abdomen Load Cells	Forward	Y	DM5846	Denton	09/24/2025
	Middle	Y	1529	Denton	09/24/2025
	Rear	Y	1533	Denton	09/24/2025
Lower Spine Accelerometers (T12)		X	T21166	Endevco	12/04/2025
		Y	T31029	Endevco	12/04/2025
		Z	P52033	Endevco	12/04/2025
Pubic Symphysis Load Cell		Y	459-FY	Denton	07/09/2025

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 300		
				Serial Number	**Manufacturer**	**Calibration Date**
Head Accelerometers		Primary	X	P59018	Endevco	12/08/2025
			Y	P79189	Endevco	12/08/2025
			Z	P51682	Endevco	12/08/2025
		Redundant	X	P49182	Endevco	12/08/2025
			Y	T28133	Endevco	12/08/2025
			Z	P52025	Endevco	12/08/2025
Displacement Potentiometers	Thoracic Rib	Upper	Y	2316GFE	Servo	12/08/2025
		Middle	Y	085GFE	Servo	12/04/2025
		Lower	Y	1156GFE	Servo	12/04/2025
	Abdominal Rib	Upper	Y	074GFE	Servo	12/04/2025
		Lower	Y	075GFE	Servo	12/08/2025
Lower Spine Accelerometers (T12)			X	P64003	Endevco	12/08/2025
			Y	P17283	Endevco	12/08/2025
			Z	P52071	Endevco	12/08/2025
Acetabulum Load Cell			Y	270-FY	Denton	10/15/2025
Iliac Wing Load Cell			Y	225-FY	FTSS	09/24/2025
Pelvis Plug (struck side)				23499	SACO	07/21/2022
Pelvis Plug (non-struck side)				23551	SACO	07/22/2022

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	G23465	Endevco	09/08/2025
	Vehicle Center of Gravity	Y	G27011	Endevco	09/08/2025
	Vehicle Center of Gravity	Z	G25557	Endevco	09/08/2025
2	Right Sill at Front Seat	X	A279985	Measurement Specialties	10/22/2025
	Right Sill at Front Seat	Y	A350993	Measurement Specialties	10/22/2025
	Right Sill at Front Seat	Z	G24234	Endevco	10/22/2025
3	Right Sill at Rear Seat	X	G24224	Endevco	08/15/2025
	Right Sill at Rear Seat	Y	G22807	Endevco	08/15/2025
	Right Sill at Rear Seat	Z	A374318	Measurement Specialties	08/15/2025
4	Left Sill at Front Door	Y	G19361	Endevco	08/21/2025
5	Left Sill at Rear Door	Y	G26700	Endevco	09/18/2025
6	Left A-Post Lower	Y	G19968	Endevco	11/07/2025
7	Left A-Post Middle	Y	G19579	Endevco	11/06/2025
8	Left B-Post Lower	Y	G27154	Endevco	09/23/2025
9	Left B-Post Middle	Y	G19907	Endevco	11/06/2025
10	Front Seat Track	Y	G19430	Endevco	08/20/2025
11	Rear Seat Track or Structure	Y	A280973	Measurement Specialties	08/19/2025
12	Right Rear Occ. Compartment	Y	G19913	Endevco	11/06/2025
13	Engine Block	X	G26765	Endevco	09/08/2025
	Engine Block	Y	G26771	Endevco	09/08/2025
14	Rear Floorpan Above Axle	X	G25851	Endevco	11/18/2025
	Rear Floorpan Above Axle	Y	G22222	Endevco	11/18/2025
	Rear Floorpan Above Axle	Z	G24036	Endevco	11/18/2025

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	A413590	Measurement Specialties	06/23/2025
MDB Center of Gravity	Y	G24322	Endevco	06/23/2025
MDB Center of Gravity	Z	G25374	Endevco	12/14/2024
Left Frame at Rear Axle Centerline	X	A374247	Measurement Specialties	06/20/2025
Left Frame at Rear Axle Centerline	Y	G25272	Endevco	06/23/2025