

REPORT NUMBER: 214D-CAL-25-003

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION**

**Bayerische Motoren Werke AG
2025 MINI Countryman
5 Door SUV**

NHTSA No: C20254103

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



April 15, 2025

FINAL REPORT

**PREPARED FOR:
U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVE. S.E.
WEST Bldg. (NEF-240)
WASHINGTON, D.C. 20590**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Administration, in response to Contract Number 693JJ923D000043.

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Matthew Pronko, Test Engineer

Date: April 15, 2025

Approved by: Vanessa Hansen
Vanessa Hansen, Operations Manager

Date: April 15, 2025

FINAL REPORT ACCEPTANCE BY OVSC:

EDWARD E CHAN Digitally signed by EDWARD E CHAN
Date: 2025.09.30 11:02:18 -04'00'

Accepted by _____

Date: _____

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15. Supplementary Notes																																																							
16. Abstract A 48/24 kph 90° Impact (Moving Deformable Barrier) Compliance Tests was conducted on the subject 2025 MINI Countryman 5 Door SUV in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-09 for the determination of FMVSS No. 214 Side Impact Protection compliance. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on April 4, 2025. The impact velocity of the Moving Deformable Barrier (MDB) was 53.20 kph, and the ambient temperature at the struck (driver side) of the target vehicle at the time of impact was 21°C. The target vehicle post-test maximum crush was 163 mm located at level 2. The test vehicle's occupant performance data is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (ES-2re)</th> </tr> <tr> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC36)</td> <td></td> <td>1000</td> <td>35.638</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>44</td> <td>16.644</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>322.572</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>763.262</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC36)</td> <td></td> <td>1000</td> <td>38.408</td> </tr> <tr> <td>Lower Spine Resultant Acceleration</td> <td>G</td> <td>82</td> <td>31.040</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>1824.971</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>8.917</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45</td> <td>3.269</td> </tr> </tbody> </table>						Measurement Description	Driver ATD (ES-2re)			Units	IARV	Result	Head Injury Criteria (HIC36)		1000	35.638	Maximum Thoracic Rib Deflection	mm	44	16.644	Total Abdominal Force	N	2500	322.572	Pubic Symphysis Force	N	6000	763.262	Measurement Description	Passenger ATD (SID-IIs)			Units	IARV	Result	Head Injury Criteria (HIC36)		1000	38.408	Lower Spine Resultant Acceleration	G	82	31.040	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1824.971	Maximum Thoracic Rib Deflection	mm	38	8.917	Maximum Abdominal Rib Deflection	mm	45	3.269
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17. Key Words Compliance Testing Side Impact Protection MDB ES-2re SID-IIs				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services (TIS) Room E12-100 East Bldg. 1200 New Jersey Ave. Washington, D.C. 20590 Telephone No. (202) 366-2588																																																			
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This moving deformable barrier side impact test was conducted as part of the MY 2025 214 Side Impact Protection Compliance Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ923D000043. The purpose of this test was to evaluate side impact protection in a 2025 MINI Countryman 5 Door SUV. The side impact test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure, TP-214D-09 dated September 2012.

SUMMARY

A 2025 MINI Countryman 5 Door SUV was impacted on the left 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 53.20 kph. 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 April 4, 2025. Pre-test and post-test photographs of the test vehicle. The MDB and the dummies are included in this report.

Test dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OVSC Test Procedure, dated September, 2012. The side impact event was documented by 9 cameras. Camera location and other pertinent information are included in this report.

The ES2re male dummy was instrumented with triaxial accelerometer packs located in the head, three rib displacement transducers located in the chest, three load cells located in the abdomen and a load cell located in the pubic symphysis.

The SID-II female dummy was instrumented with triaxial accelerometer packs located in the head and the spine and load cells located in the pubic symphysis and acetabulum. A summary of each dummy's configuration and performance verification test data has been included in the report along with the dummy response traces.

Injury readings for the dummies were recorded as follows:

INJURY READINGS

ES-2re Injury Criteria	Units	Max. Allowable IARV	Measured Value	Pass/Fail
Head Injury Criteria (HIC36)		1000	35.638	Pass
Upper Rib Deflection	mm	44	8.081	Pass
Mid Rib Deflection	mm	44	14.523	Pass
Lower Rib Deflection	mm	44	16.644	Pass
Abdominal Load (front)	N		102.898	
Abdominal Load (mid)	N		175.860	
Abdominal Load (rear)	N		120.709	
Total Abdominal Force	N	2500	322.572	Pass
Pubic Symphysis Force	N	6000	763.262	Pass

INJURY READINGS

SIDIIIs Injury Criteria	Units	Max. Allowable IARV	Measured Value	Pass/Fail
Head Injury Criteria (HIC36)		1000	38.408	Pass
Lower Spine Resultant Acceleration	G	82	31.040	Pass
Acetabulum Force	N		1752.624	
Iliac Force	N		107.551	
Sum of Acetabular and Iliac	N	5525	1824.971	Pass

SECTION 2

OCCUPANT AND VEHICLE INFORMATION

This section contains information reporting for the following Data Sheets:

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DATA SHEET NO. 1
TEST VEHICLE INFORMATION AND OPTIONS

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

TEST VEHICLE INFORMATION AND OPTIONS

Make	MINI
Model	Countryman
Body Style	SUV
VIN	WMZ53GA09S7R64823
Body Color	Midnight Black II Metallic
Engine Displacement (L)	N/A
Type / No. Cylinders	Electric Vehicle
Engine Placement	N/A
Transmission Type	Automatic
Transmission Speeds	Single
Overdrive	Yes
Final Drive	All Wheel Drive
Odometer Reading	23 mi

Anti-Lock Brakes (ABS)	Yes
All-Wheel Drive (AWD)	Yes
Traction Control System (TCS)	Yes
Electric Stability Control (ECS)	Yes
Curtain Airbags	Yes
Torso Airbags – Front Seats	Yes
Torso Airbags – Rear Seats	Yes
Combination/Head Torso Bag	No
Pelvic Airbag – Front Seats	No
Pelvis Airbag – Rear Seats	No
Knee Airbag – Driver	Yes
Knee Airbag – Front Passenger	Yes
Seat Belt Pretensioners – Front Seats	Yes
Seat Belt Pretensioners – Rear Seats	Yes
Seat Belt Load Limiter – Front Seats	Yes
Seat Belt Load Limiter – Rear Seats	Yes
Tire Pressure Monitoring System (TPMS)	Yes
Tilt Steering Wheel	Yes
Automatic Door Locks (ADL)	Yes
Power Window Auto-reverse	Yes
Power Seats	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Bayerische Motoren Werke AG
Date of Manufacture	09/24
Vehicle Type	MPV

GVWR (kg)	2570
GAWR Front (kg)	1240
GAWR Rear (kg)	1440

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Type of Seats (Bench or Bucket)	Bucket	Split Bench	N/A	
Designated Seating Capacity (DSC)	2	3	N/A	5
Capacity Weight (VCW) (kg)				465

DATA SHEET NO. 1 ... (CONTINUED)

VEHICLE TIRE INFORMATION

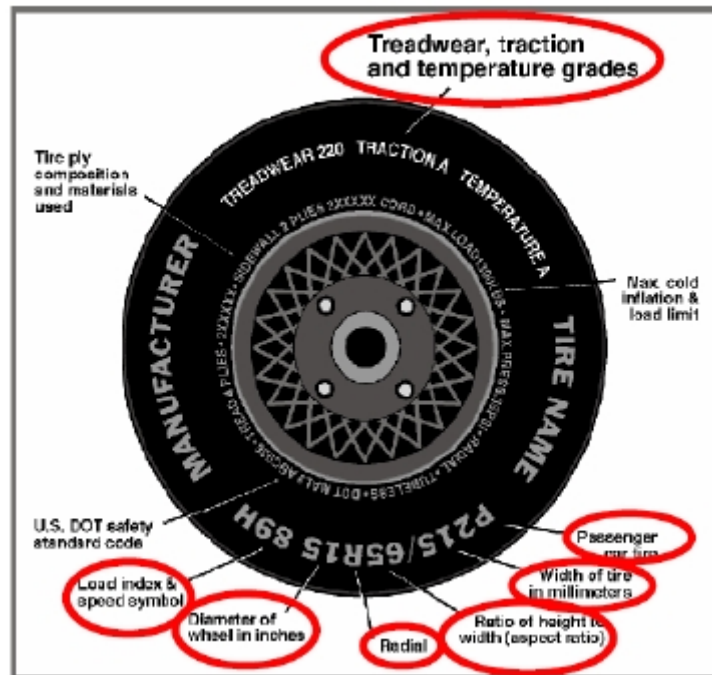
Test Vehicle: 2025 MINI Countryman 5 Door SUV

Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

VEHICLE TIRE INFORMATION

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



TIRE SIDEWALL INFORMATION

Tire Placard	Front	Rear
Recommended Cold Pressure (kPa)	250	300
Recommended Tire Size	225/55R18	225/55R18
Tire Sidewall	Front	Rear
Maximum Tire Pressure (kPa)	340	340
Tire Size on Vehicle	225/55R18	225/55R18
Tire Manufacturer Model	Bridgestone	Bridgestone
Tire Name	Turanza LS100	Turanza LS100
Tire Type	All Season	All Season
Tire Width	225	225
Aspect Ratio	55	55
Radial	Yes	Yes
Wheel Diameter	18"	18"
Load Index / Speed Symbol	102H	102H
Treadwear	560	560
Traction Grade	A	A
Temperature Grades	A	A

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	240	240	285	290
Tire Placard	kPa	250	250	300	300

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			Fully Loaded			As Tested		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	509	515		548	639		559	610	
Right	kg	536	499		541	592		543	594	
Ratio	%	50.8	49.2		46.9	53.1		47.8	52.2	
Totals	kg	1045	1014	2059	1089	1231	2320	1102	1204	2306

TARGET TEST WEIGHT (TVTW) CALCULATION

Measured Parameter	Units	Value	
As Delivered Weight (UVW)	kg	2059	(A)
Weight of 2 P572 ATDs	kg	131	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	124.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2314.8	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

Wheel Opening Location	Distance (grd to ref. point above wheel opening in mm)		Difference (mm)	Meets Requirement***
	Fully Loaded	As Tested		
Left Front	826	827	1	Yes
Right Front	830	824	6	Yes
Left Rear	811	816	5	Yes
Right Rear	820	818	2	Yes

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

MDB IMPACT POINT DATA

Measured Parameter	Distance (mm)	Met Requirement
Test Vehicle Wheelbase	2692	Yes
Target Vertical Impact Reference Line Aft of Front Axle	406	Yes
Actual Impact Point Location (fore-aft, above - below)	+3 / -16	Yes

Note: Fore or above the target impact point is positive (+). Aft or below the target impact point is negative (-)

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	8
Right Rear Window	2
HV Charger	7
Ballast (if any)	41

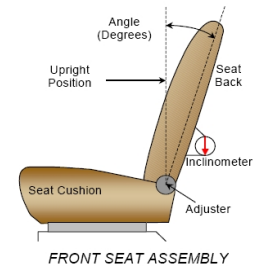
DATA SHEET NO. 3
SEAT AND SEAT BELT ANCHORAGE ADJUSTMENT DATA

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

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.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat	52.2	27 (0-26)	16.1	3
Front Passenger Seat	52.1	27 (0-26)	15.1	3
Rear Passenger Seat	28.0	8 (0-7)	16.35	0

*Measured on seat back per Form 1

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 passengers' seats should be set to the rear-most, lowest, mid-angle position

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	17.1	22.0	Max	-	-	-
			Mid	-	-	-
			Min	18.6	22.0	35.6
Front Passenger Seat	17.0	25.6	Max	-	-	-
			Mid	-	-	-
			Min	17.6	25.6	36.0

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detents*
Driver Seat	249	26 (0-25)	129.5	13
Front Passenger Seat	249	26 (0-25)	129.5	13
Rear Passenger Seat	Fixed	Fixed	Fixed	Fixed

SEAT BELT ANCHORAGE ADJUSTMENT

Seat	Total # of Positions	Placed in Position #
Driver Seat	Fixed	Fixed
Rear Passenger Seat	Fixed	Fixed

HEAD RESTRAINT ADJUSTMENT

Seat	Total # of Positions	Placed in Position #
Driver Seat	5 (0-4)	Uppermost
Rear Passenger Seat	3 (0-2)	Lowermost

DATA SHEET NO. 4
FUEL SYSTEMS AND STEERING WHEEL POSITION DATA

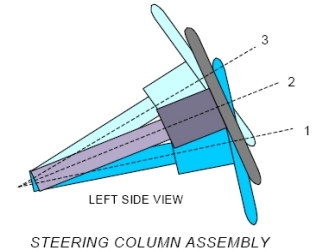
Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025

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.

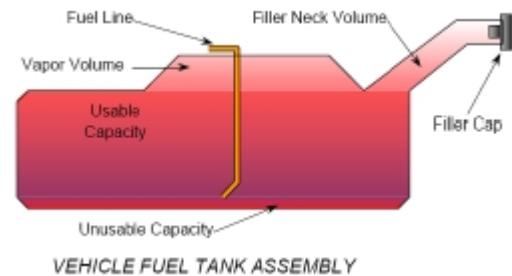
	Degrees	Fore / Aft Position (mm)
Lowermost - Position No. 1	23.3	
Geometric center - Position No. 2	25.5	
Uppermost - Position No. 3	27.8	
Telescoping Steering Wheel Travel		60
Test Position	25.5	30



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 charge port on the left rear of the vehicle.



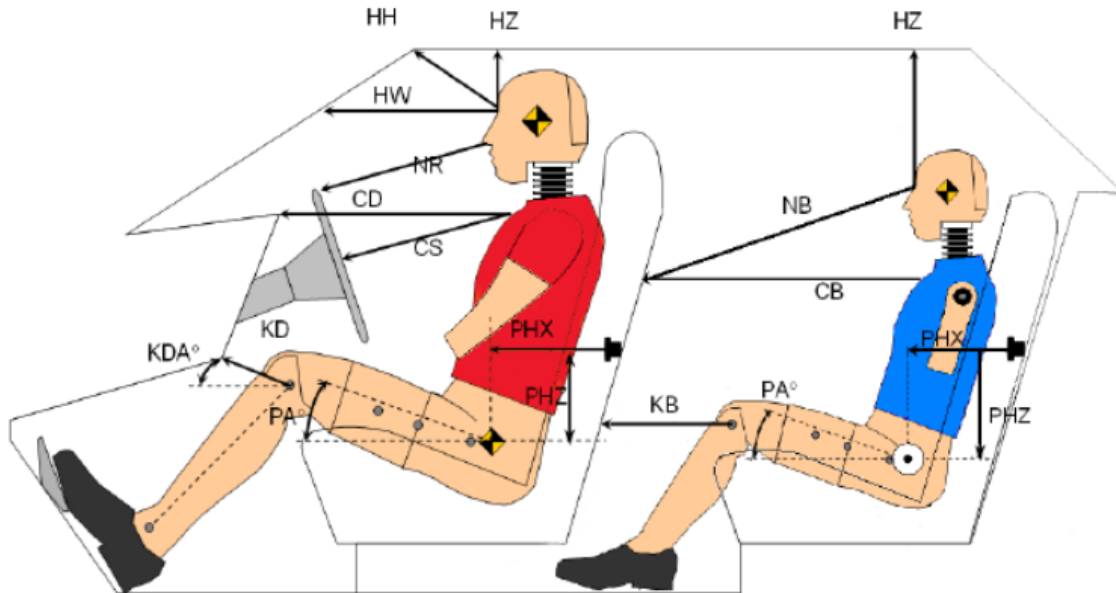
FUEL TANK CAPACITY

Description	Liters
Usable Capacity of - Form No.1	
Usable Capacity of - Owner's Manual	
92 - 94% of Usable Capacity	
Actual Amount of Solvent Used in Test	Electric Vehicle

DATA SHEET NO. 5
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025



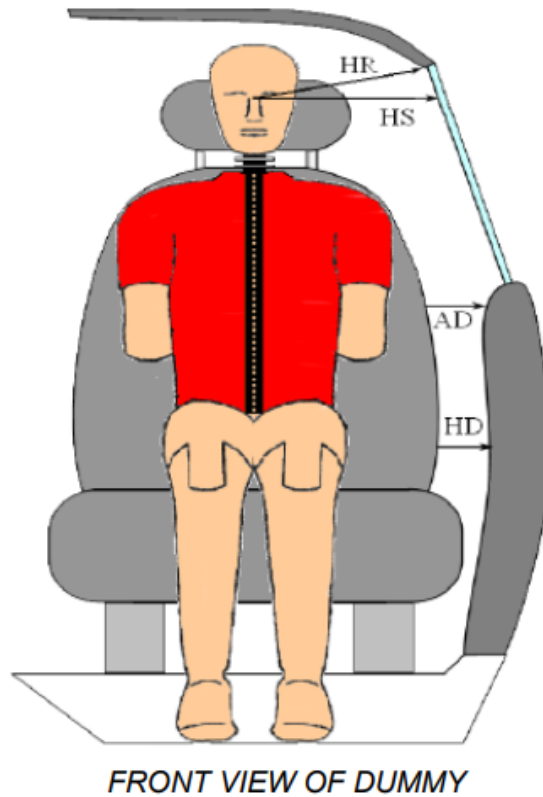
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Code	Pass. Code	Description	ES2-re		SID-IIs	
			Length (mm)	Angle	Length (mm)	Angle
HH		Head to Header	460			
HW		Head to Windshield	638			
HZ	HZ	Head to Roof Liner	239		322	
NR	NB	Nose to Rim	425		505	
CD	CB	Chest to Dash	693		516	
CS		Chest to Steering Wheel	342			
KD(L) / KDA(L)°	KB(L) / KBA(L)°	Left Knee to Dash	215	30.9	281	11.5
KD(R) / KDA(R)°	KB(R) / KBA(R)°	Right Knee to Dash	201	31.2	278	16.0
PAX°	PAX°	Pelvic Tilt Angle (X-Axis)		21.6		19.8
PAY°	PAY°	Pelvic Tilt Angle (Y-Axis)				0.2
PHX	PHX	Hip Point to Striker (X-Axis)	125		164	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	182		167	

DATA SHEET NO. 6
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025



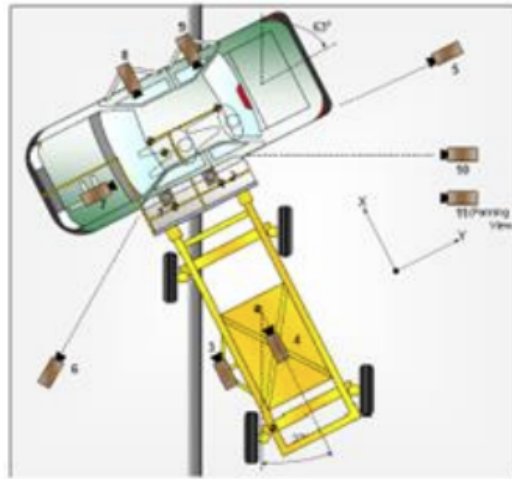
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Front Occupant	Rear Occupant
HR	Head to Side Header	mm	195	270
HS	Head to Side Window	mm	355	381
AD	Arm to Door	mm	90	144
HD	Hip Point to Door	mm	150	192

DATA SHEET NO. 7 **LOCATION OF CAMERAS**

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025



CAMERA LOCATIONS AND DATA

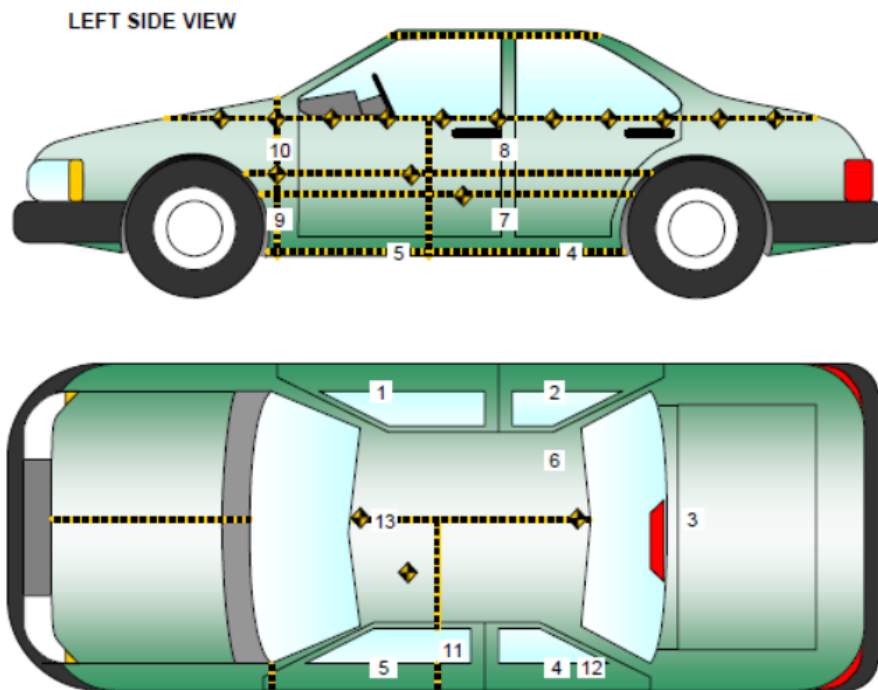
No.	Camera View	Location (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	0	0	-8128	12.5	1000
2	Overhead Close-up	0	0	-8128	28	1000
3	Impact Point Close-up				25	1000
4	Centerline of Impact (MDB)				8	1000
5	Right Side View	0	8040	-1446	28	1000
6	Left Side View	-2650	-5971	-1558	24	1000
7	Front Seat Occupant-Frontal View (OB)				25	1000
8	Front Seat Occupant-Side View (OB)				12.5	1000
9	Rear Passenger-Side View (OB)				12.5	1000
10	Real-time Coverage				Zoom	30

Notes: *Reference: Impact Point projected to Ground*
 +X = To Front of MDB, +Y = To Right of MDB, +Z = Down

DATA SHEET NO. 8 **TEST VEHICLE ACCELEROMETER LOCATIONS**

Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Left (or Rt.) Sill at Front Seat	2681	661	372
2	Left (or Rt.) Sill at Rear Seat	1801	671	359
3	Rear Floorpan Above Axle	887	47	171
4	Left (or Rt.) Sill at Front Door	1842	-673	356
5	Left (or Rt.) Sill at Rear Door	2664	-662	368
6	Left (or Rt.) Rear Occ. Compartment	1944	361	418
7	Left (or Rt.) B-Post Lower	2053	-673	230
8	Left (or Rt.) B-Post Middle	2004	-676	-154
9	Left (or Rt.) A-Post Lower	3053	-605	206
10	Left (or Rt.) A-Post Middle	2926	-643	-321
11	Front Seat Track	2182	-557	354
12	Rear Seat Track or Structure	1719	-439	244
13	Vehicle CG	1849	9	363

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

DATA SHEET NO. 9
TEST VEHICLE ACCELEROMETER DATA SUMMARY

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

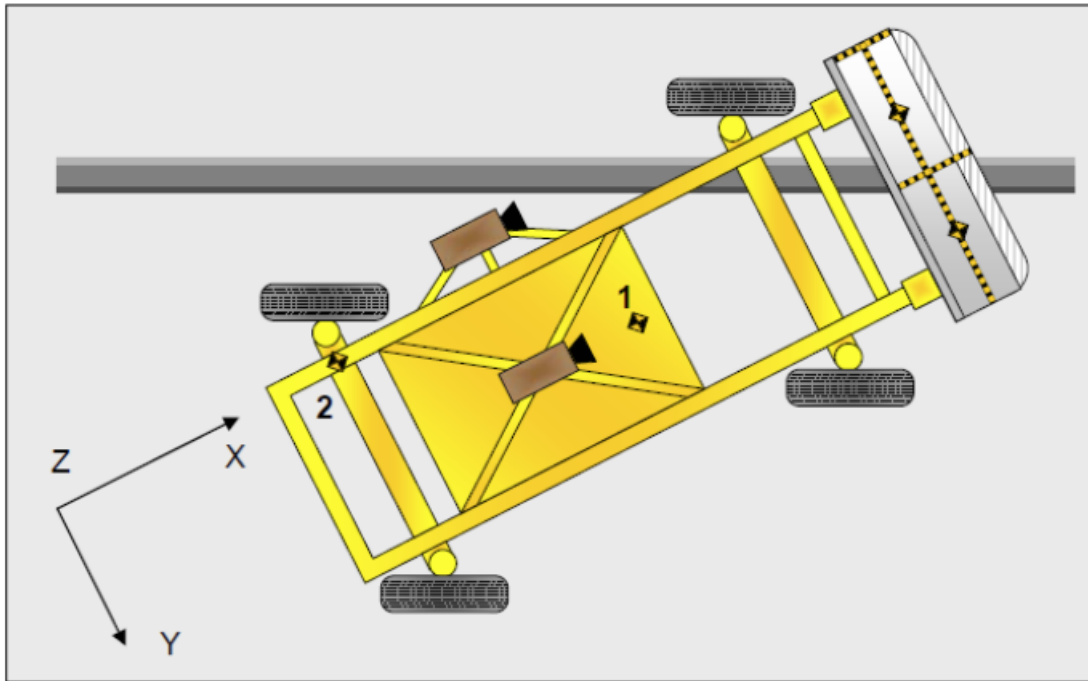
NHTSA No.: C20254103
Test Date: 04/04/2025

Loc. No	Description	Axes	Units	Peak Values (g's)			
				Max	Time (ms)	Min	Time (ms)
1	Left (or Rt.) Sill at Front Seat	X	g	2.41	35.45	-5.00	13.50
	Left (or Rt.) Sill at Front Seat	Y	g	15.22	21.20	-2.40	73.85
	Left (or Rt.) Sill at Front Seat	Z	g	3.67	65.80	-10.53	13.75
	Left (or Rt.) Sill at Front Seat Resultant	N/A	g	16.53	11.10	0.02	-35.15
2	Left (or Rt.) Sill at Rear Seat	X	g	0.75	25.25	-4.21	18.65
	Left (or Rt.) Sill at Rear Seat	Y	g	22.18	10.85	-2.01	74.95
	Left (or Rt.) Sill at Rear Seat	Z	g	9.30	33.10	-8.90	17.70
	Left (or Rt.) Sill at Rear Seat Resultant	N/A	g	22.49	10.85	0.04	-8.95
3	Rear Floor Pan Above Axle	X	g	3.00	48.60	-4.80	40.20
	Rear Floor Pan Above Axle	Y	g	24.08	30.00	-3.09	88.40
	Rear Floor Pan Above Axle	Z	g	7.67	17.20	-4.10	10.95
	Rear Floor Pan Above Axle Resultant	N/A	g	24.44	30.00	0.01	-43.25
4	Left (or Rt.) Sill at Rear Door	Y	g	168.96	7.15	-155.65	11.60
5	Left (or Rt.) Sill at Front Door	Y	g	101.13	6.50	-80.40	10.35
6	Left (or Rt.) Rear Occ. Compartment	Y	g	18.24	9.30	-1.78	96.30
7	Left (or Rt.) B-Post Lower	Y	g	195.79	16.25	-131.74	11.55
8	Left (or Rt.) B-Post Middle	Y	g	196.37	10.80	-109.53	14.50
9	Left (or Rt.) A-Post Lower	Y	g	97.79	21.65	-80.73	17.30
10	Left (or Rt.) A-Post Middle	Y	g	24.47	26.85	-30.19	22.40
11	Front Seat Track	Y	g	24.87	16.35	-1.56	127.05
12	Rear Seat Track or Structure	Y	g	17.92	8.50	-1.22	125.60
13	Vehicle CG	X	g	1.04	53.85	-4.25	9.45
	Vehicle CG	Y	g	18.66	8.80	-1.84	96.65
	Vehicle CG	Z	g	25.67	11.75	-11.62	15.35
	Vehicle CG Resultant	N/A	g	26.47	11.75	0.01	-9.65

DATA SHEET NO. 10
MDB ACCELEROMETER LOCATIONS DATA SUMMARY

Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025



MDB ACCELEROMETER LOCATIONS

Loc No.	Description	Axes	Units	Peak Values (g's)			
				Max	Time (ms)	Min	Time (ms)
1	MDB CG	X	g	1.26	82.55	-22.35	38.30
		Y	g	3.10	59.05	-8.13	23.95
		Z	g	14.59	34.70	-10.41	102.55
		Resultant		25.99	34.80	0.02	-47.10
2	MDB Rear	Y	g	2.29	100.15	-26.23	40.65
		Z	g	4.01	20.60	-4.06	57.35

DATA SHEET NO. 11
MDB SUMMARY OF RESULTS

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

MDB SPECIFICATIONS

Measurement Description	Requirement	Value
Overall Width of Framework Carriage	1241- 1261	1250
Overall Length Including Honeycomb Frame	4140 - 3990	4120
Wheelbase of Framework Carriage	2566 -2616	2600
CG Location of Front Axle		1120
MDB Front Axle Weight		764
MDB Rear Axle Weight		594
MDB Total Weight	1356.5 - 1365.5	1358

SPEED AND ANGLE AT IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	52.1 to 53.7	53.20
Trap No. 2 Velocity (Redundant)	km/h	52.1 to 53.7	53.28
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.0

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	Right	217
B	Top of Bumper	533	800	Right	153
C	Mid-Level	686	800	Left	135
D	Top of Stack	813	800	Left	170

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact Point	+3
Vertical Offset (- down / + up)	mm	+/- 20 of Intended Impact Point	-16

DATA SHEET NO. 12
DUMMY INJURY RESPONSE DATA
(Subpart U, ES-2re)

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

Dummy Serial No. DG5348

Description	Axes	Positive Direction		Negative Direction	
		Max	Time (ms)	Max	Time (ms)
HEAD ACCELERATION (g)					
Longitudinal	X	2.61	190.05	-11.09	70.25
Lateral	Y	20.39	59.70	-8.93	262.95
Vertical	Z	7.19	18.85	-3.65	70.65
Resultant	N/A	21.62	61.10		
HIC36 (t1, t2)	N/A	35.64		t1 = 47.75	t2 = 83.75
THORAX DEFLECTION (mm)					
Upper Rib	Y	8.08	67.65	-0.95	19.25
Middle Rib	Y	14.52	96.20	-0.54	22.10
Lower Rib	Y	16.64	95.00	-0.57	289.95
ABDOMINAL FORCES (N)					
Front	Y	102.90	25.60	-26.16	13.40
Middle	Y	175.86	17.40	-6.43	300.00
Rear	Y	120.71	17.80	-2.70	-32.80
SUM	N/A	322.57	17.80		
PELVIS FORCES (N)					
Pubic Symphysis	Y	87.58	148.35	-763.26	58.00

Reference: Positive Direction - Longitudinal (X) = forward
 - Lateral (Y) = to right
 - Vertical (Z) = down

DATA SHEET NO. 13
DUMMY INJURY RESPONSE DATA
(Subpart V, SIDIIIs)

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

Dummy Serial No. 224

Description	Axes	Positive Direction		Negative Direction	
		Max	Time (ms)	Max	Time (ms)
HEAD ACCELERATION (g)					
Longitudinal	X	2.93	184.45	-11.91	71.25
Lateral	Y	21.63	61.65	-4.62	192.05
Vertical	Z	16.24	17.85	-3.71	53.35
Resultant	N/A	22.43	61.65		
HIC36 (t1, t2)	N/A	38.41		t1 = 40.50	t2 = 76.50
LOWER SPINE (g)					
Longitudinal	X	7.01	51.75	-11.47	16.05
Lateral	Y	26.10	54.35	-1.96	128.75
Vertical	Z	8.86	16.75	-16.09	56.85
Resultant	N/A	31.04	56.60	0.00	-18.55
PELVIS FORCES (N)					
Acetabular	Y	1752.62	50.20	-34.49	124.95
Iliac	Y	107.55	52.65	-71.71	122.15

Reference: Positive Direction - Longitudinal (X) = forward
- Lateral (Y) = to right
- Vertical (Z) = down

DATA SHEET NO. 14
POST-TEST OBSERVATIONS

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Occupant	Rear Occupant
Head Contact	Curtain Airbag, Side Header, Grab Handle & Headrest	Curtain Airbag, Side Header & Headrest
Upper Torso Contact	Seatback & Torso/Pelvis Airbag & B-Pillar	Seatback & Torso/Pelvis Airbag
Lower Torso Contact	Seatback & Torso/Pelvis Airbag	Seatback & Torso/Pelvis Airbag
Left Knee Contact	Door Trim	Door Trim
Right Knee Contact	Left Knee	Left Knee

POST-TEST DOOR PERFORMANCE

Description	Front	Rear
Left Side Doors	Jammed	Jammed
Right Side Doors	Closed & Operational	Closed & Operational
Hatch and Other Doors		Closed & Operational
Seat Movement	None	None
Seatback Failure	None	None

*Note: Description for door opening must be specific with the following three categories: Remained closed and operational, opened/unlatched during the crash, or jammed shut. Sometimes the door is jammed and unlatched. If the door cannot be opened, then note the door as jammed shut. If open, measurement must be taken for the width of the door opening (mm).

POST-TEST STRUCTURAL OBSERVATIONS

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

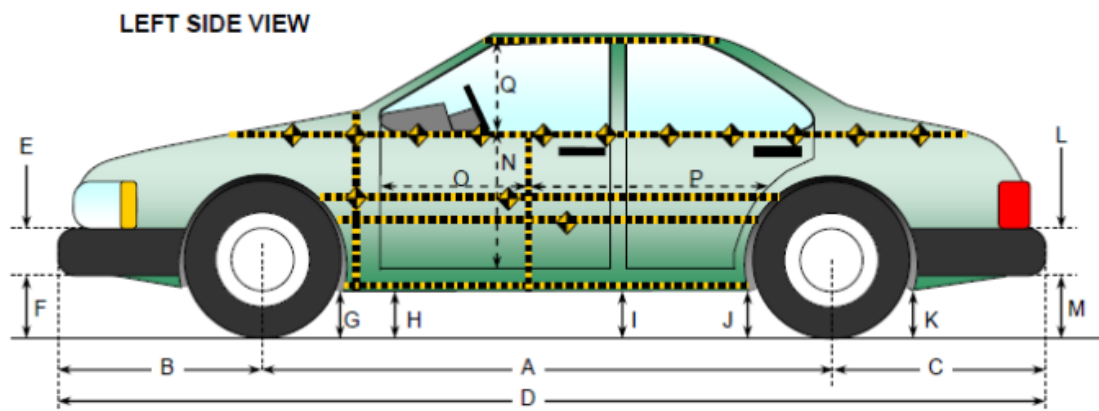
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Front Occupant		Rear Occupant	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No		
Curtain Airbag	Yes	Yes	Yes	Yes
Side - Torso/Pelvis Airbag	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Other				

DATA SHEET NO. 15
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025



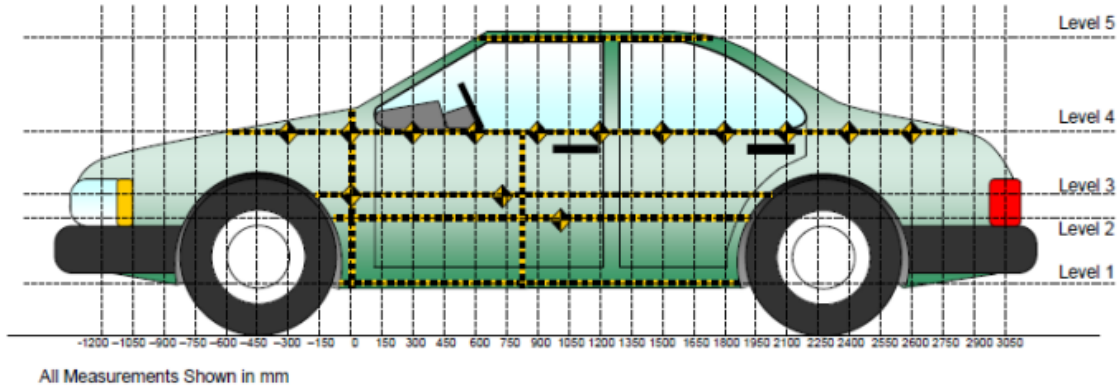
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code.	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2692	2688	-4
B	Front Axle to FSOV	853	865	12
C	Rear Axle to RSOV	885	884	-2
D2	Total Vehicle Length at Centerline	4434	4436	2
E	Front Bumper Thickness	145	145	0
F	Front Bumper Bottom to Ground	477	477	0
G	Sill Height at Front Wheel Well	225	225	0
H	Sill Height at Front Door Leading Edge	225	226	1
I	Sill Height at B Pillar	220	210	-10
J1	Sill Height at Rear Wheel Well	221	219	-2
J2	Pinch Weld Height at Rear Wheel Well	198	202	4
K	Sill Height Aft of Rear Wheel Well	268	287	19
L	Rear Bumper Thickness	125	125	0
M	Rear Bumper Bottom to Ground	386	407	21
N	Sill Height to Window Bottom of Front Window Sill	773	752	-21
O	Front Door Leading Edge to Impact CL	687	683	-4
P	Rear Door Trailing Edge to Impact CL	1306	1289	-16
Q	Front Window Opening	415	416	1
R	Right Side Length	4364	4364	0
S	Left Side Length	4362	4360	-2
T	Vehicle Width at B-Pillars	1831	1729	-102

DATA SHEET NO.16
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	296	9	1350
2	Occupant H-Point	mm	641	154	1650
3	Mid-Door	mm	732	163	1650
4	Window Sill	mm	1069	14	1200
5	Window Top	mm	1519	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.17 **VEHICLE EXTERIOR CRUSH PROFILES**

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

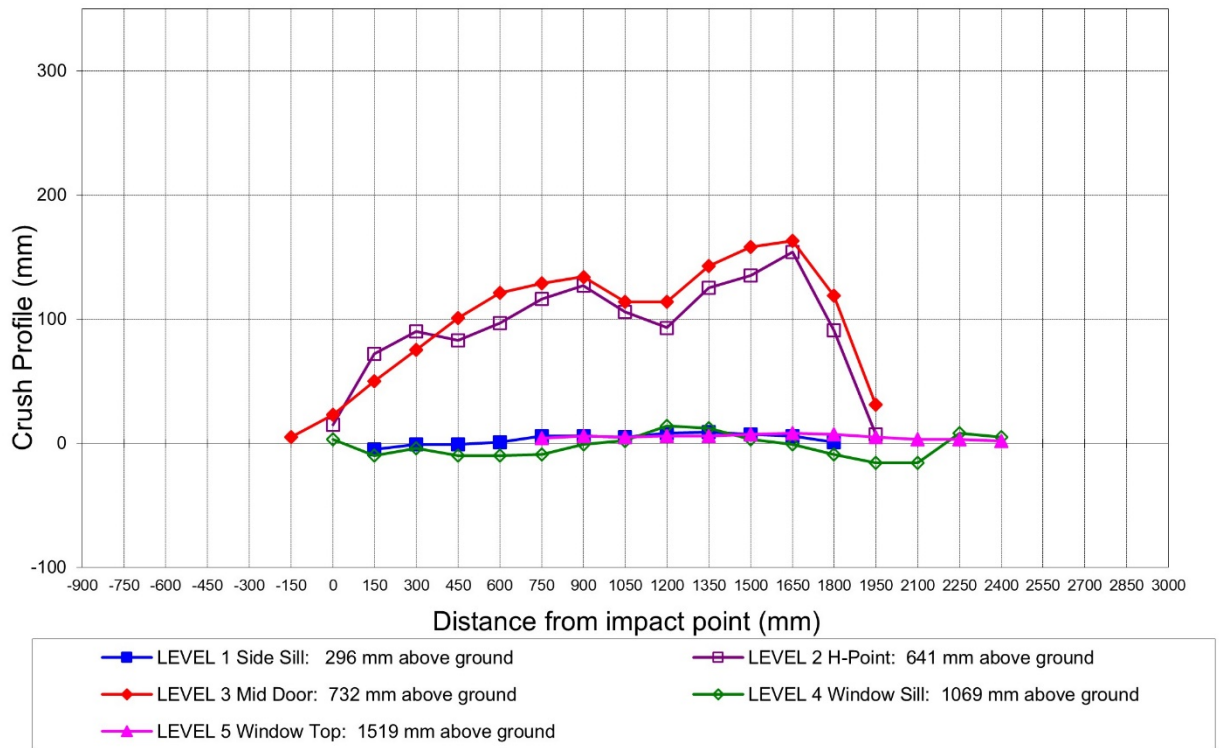
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150			916					911					5		
0		904	904	781			889	884	778			15	20	3	
150	867	902	902	797		872	830	852	807		-5	72	50	-10	
300	857	893	896	857		858	803	821	861		-1	90	75	-4	
450	853	897	901	824		854	814	800	834		-1	83	101	-10	
600	853	901	905	833		852	804	784	843		1	97	121	-10	
750	854	904	909	840	619	848	788	780	849	615	6	116	129	-9	4
900	857	906	912	850	630	851	779	778	851	624	6	127	134	-1	6
1050	857	909	914	853	635	852	803	800	851	630	5	106	114	2	5
1200	859	911	916	856	638	851	818	802	842	632	8	93	114	14	6
1350	860	913	917	857	639	851	788	774	845	633	9	125	143	12	6
1500	864	915	918	857	638	857	780	760	854	631	7	135	158	3	7
1650	870	913	917	857	635	864	759	754	858	627	6	154	163	-1	8
1800	876	910	916	859	630	875	819	797	868	623	1	91	119	-9	7
1950		911	914	861	621		904	883	877	616		7	31	-16	5
2100				862	609				878	606				-16	3
2250				857	593				849	590				8	3
2400				847	570				842	568				5	2
2550															
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.17 **TEST VEHICLE EXTERIOR CRUSH PROFILES (CONTINUED)**

Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025

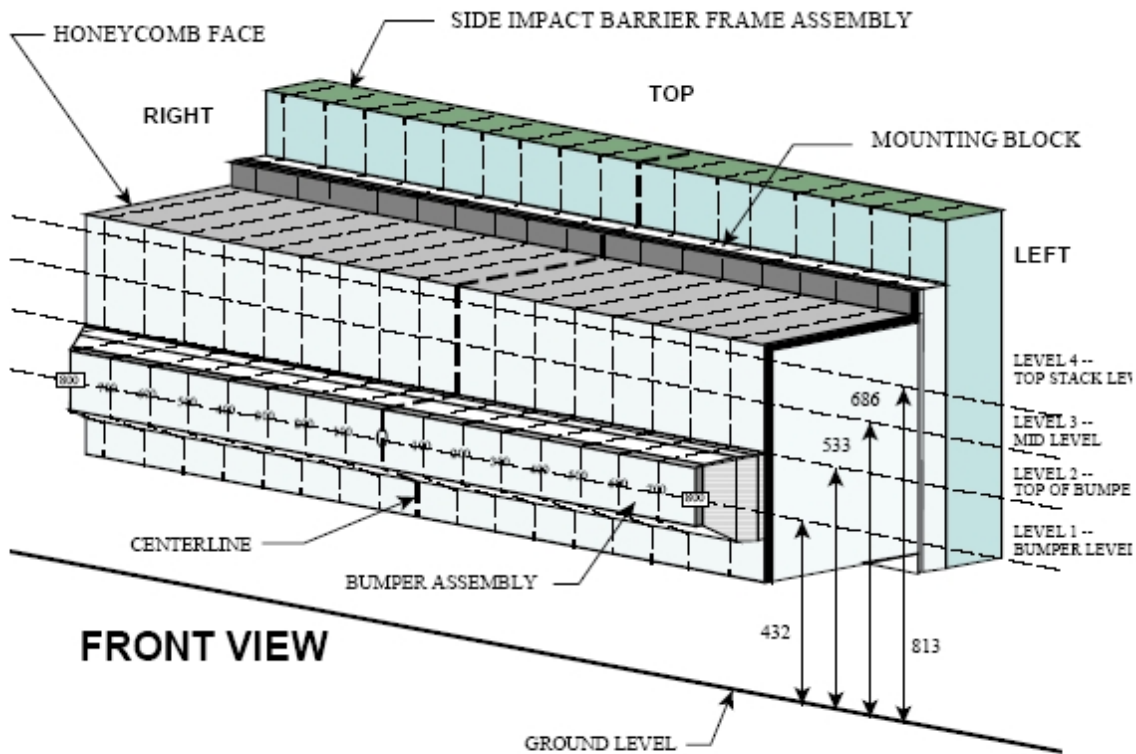


Vehicle Exterior Crush Measurements - Visual Representation

DATA SHEET NO.18 **EXTERIOR STATIC CRUSH FOR IMPACT FACE**

Test Vehicle: 2025 MINI Countryman 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254103
 Test Date: 04/04/2025



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

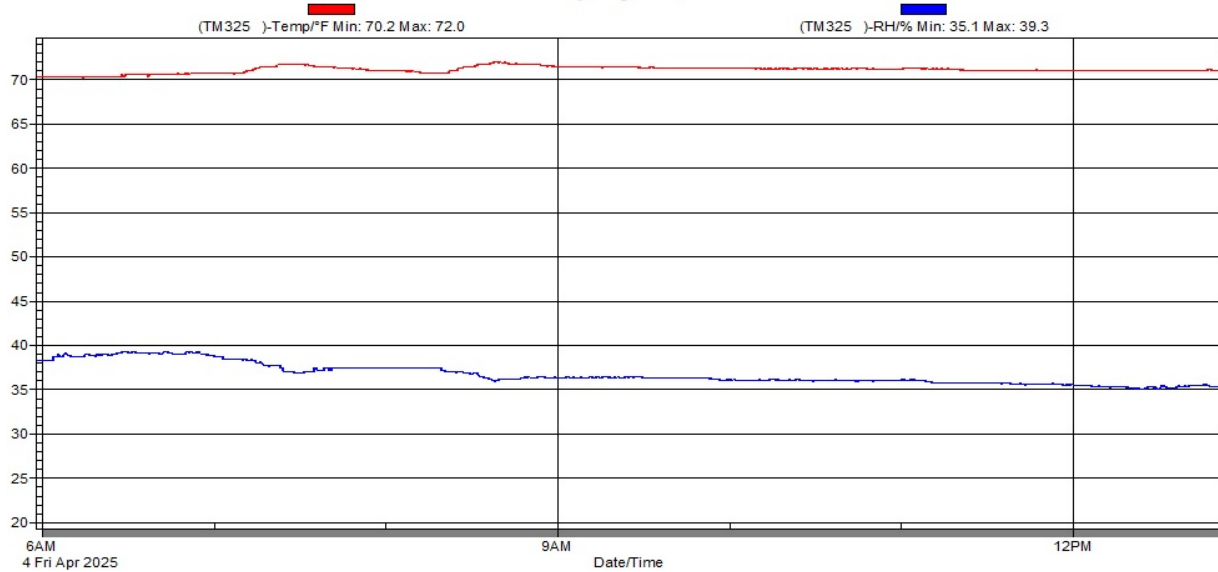
Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	217	211	205	202	199	196	192	189	186	189	192	196	199	202	205	211	217
2	153	148	143	139	137	143	136	127	125	127	136	143	137	139	143	148	153
3	78	75	81	87	86	109	113	81	62	81	113	109	86	87	81	75	78
4	72	70	70	75	83	110	111	85	83	85	111	110	83	75	70	70	72

DATA SHEET NO. 19
DUMMY / VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2025 MINI Countryman 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254103
Test Date: 04/04/2025

Friday, April 4, 2025



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

APPENDIX I
PHOTOGRAPHS

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Figure A-1: Pre-Test Frontal View of Test Vehicle



Figure A-2: Post-Test Frontal View of Test Vehicle



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



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



Figure A-5: Pre-Test Impacted Side View of Test Vehicle



Figure A-6: Post-Test Impacted Side View of Test Vehicle



Figure A-7: Pre-Test Frontal View of Impactor Face



Figure A-8: Post-Test Frontal View of Impactor Face



Figure A-9: Pre-Test Left Side View of Impactor Face



Figure A-10: Post-Test Left Side View of Impactor Face



Figure A-11: Pre-Test Right Side View of Impactor Face



Figure A-12: Post-Test Right Side View of Impactor Face



Figure A-13: Pre-Test Top View of Impactor Face



Figure A-14: Post-Test Top View of Impactor Face

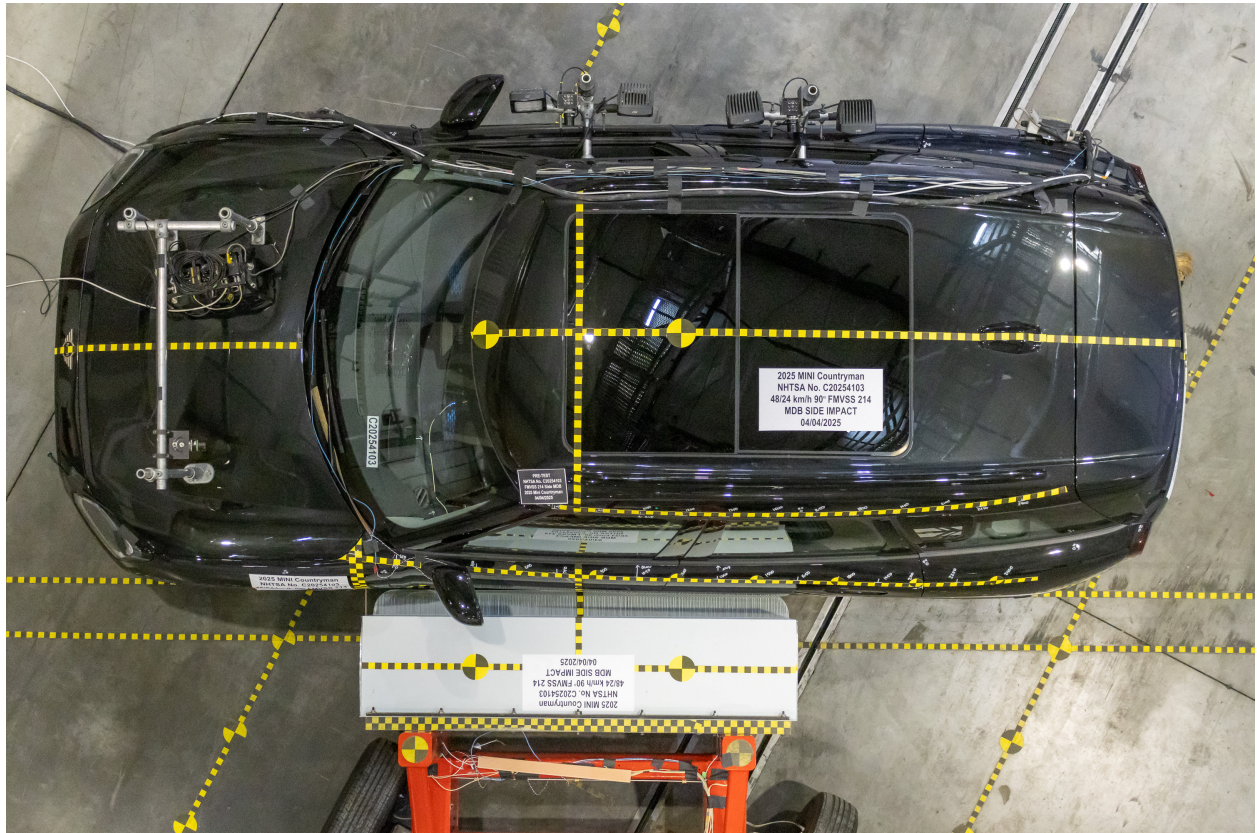


Figure A-15: Pre-Test Overhead View of MDB Positioned Against Impact Side of Test Vehicle at Impact Location

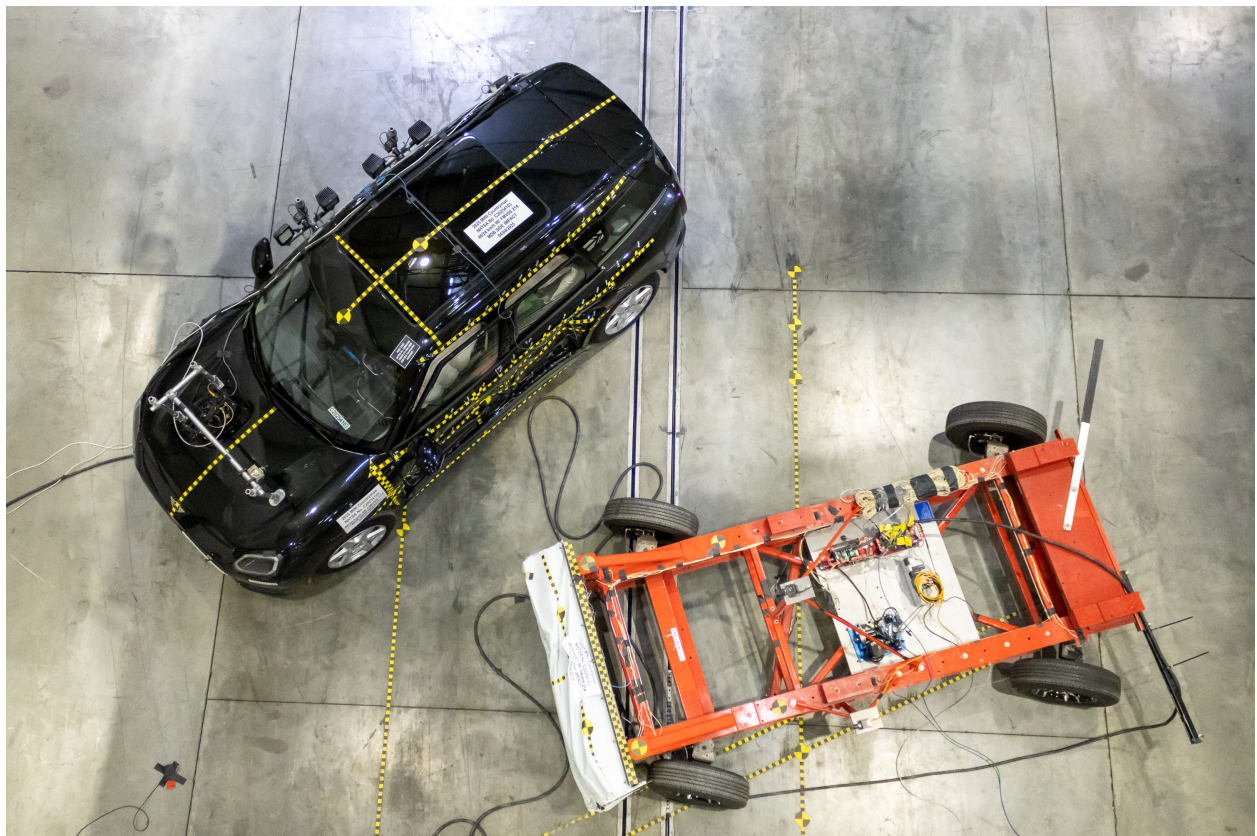


Figure A-16: Post-Test Overhead View of the MDB and Test Vehicle



Figure A-17: Pre-Test Front ES2-re in Final Seating Position (Door Open)



Figure A-18: Pre-Test Front ES2-re in Final Seating Position (Door Closed)



Figure A-19: Pre-Test Front ES2-re - Opposite Side View



Figure A-20: Post-Test Front ES2-re - Opposite Side View



Figure A-21: Pre-Test Rear SID in Final Seating Position (Door Open)



Figure A-22: Pre-Test Rear SID in Final Seating Position (Door Closed)



Figure A-23: Pre-Test Rear SID - Opposite Side View



Figure A-24: Post-Test Rear SID - Opposite Side View



Figure A-25: T (0) - Impact Event



Figure A-26: Post-Test Close-up View of Impact Point Target

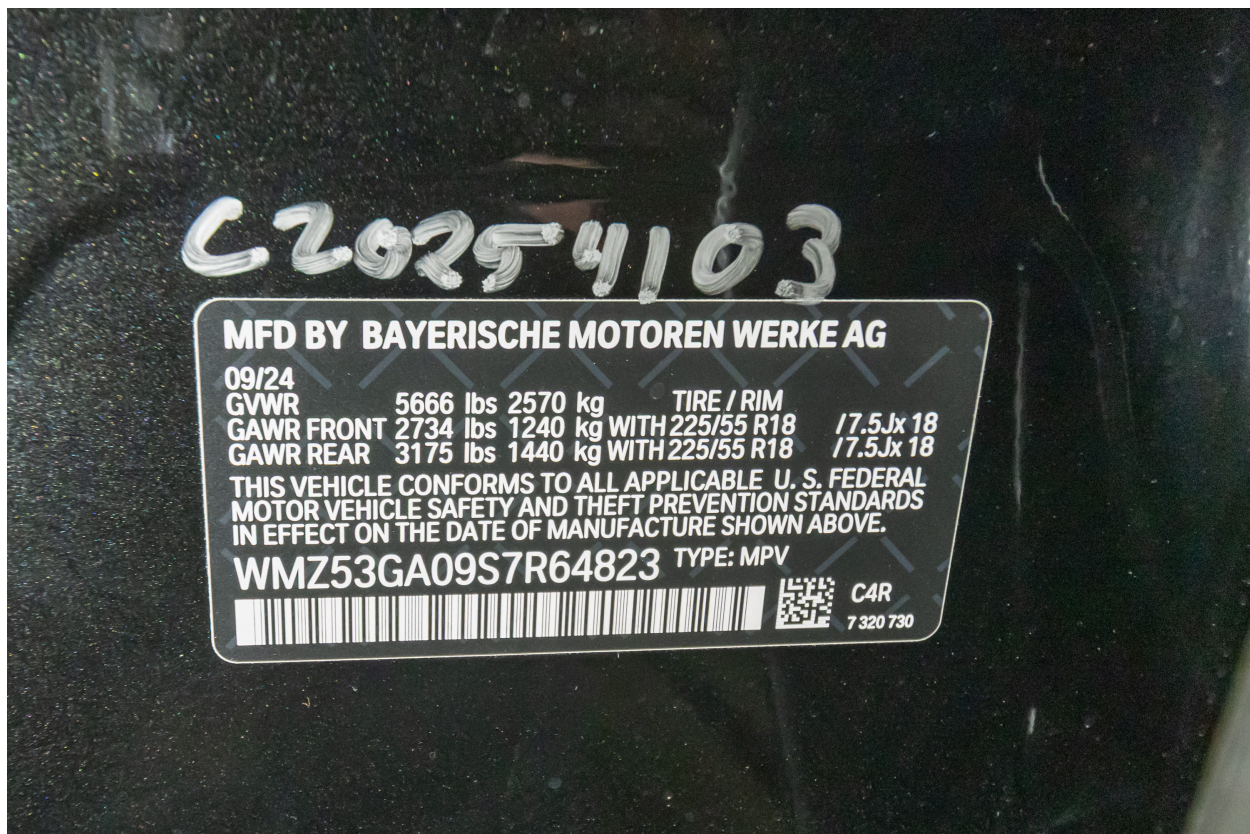


Figure A-27: Close-up View of Vehicle's Certification Label



Figure A-28: Post-Test Front Seat Occupant Area Showing Head & Torso Contact Regions



Figure A-29: Post-Test Rear Seat Occupant Area Showing Head & Torso Contact Regions



Figure A-30: Close-up View of Vehicle's Tire Placard

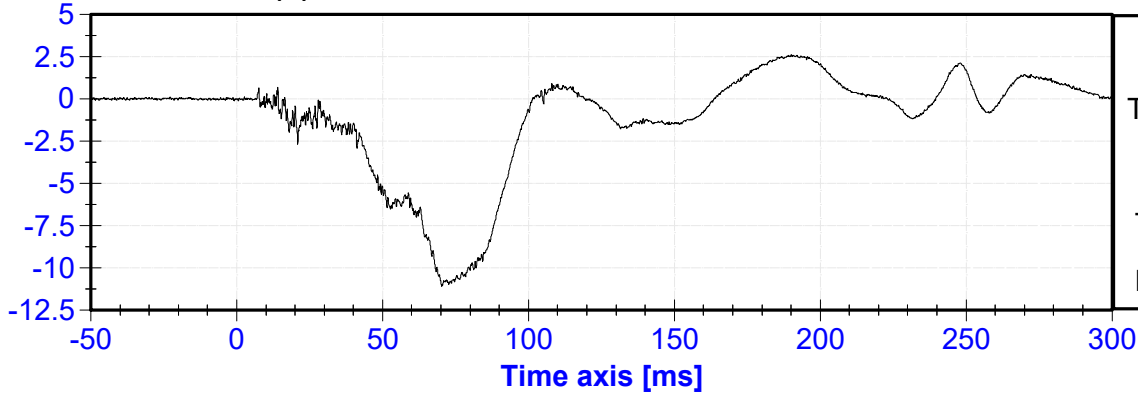
APPENDIX II
ES-2re DUMMY RESPONSE DATA TRACES

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18	ES-2re Pubic Symphysis Force (Y) vs. Time	II-7

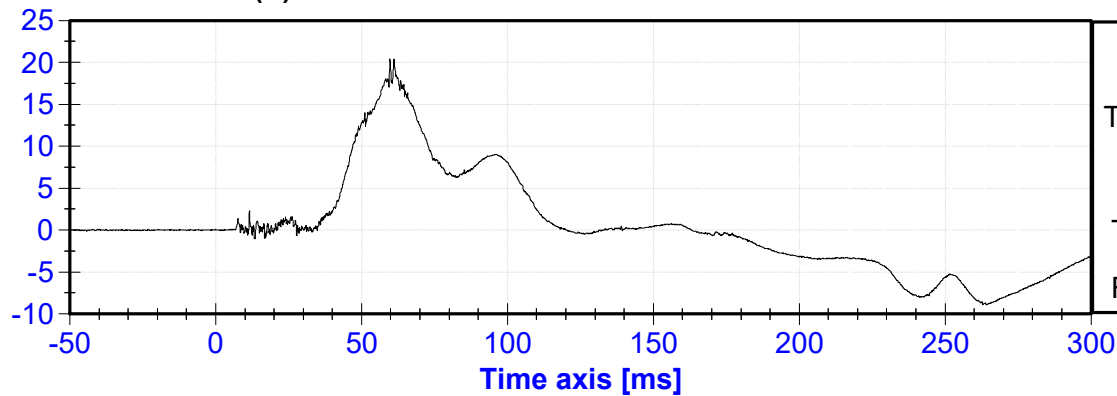
ACCELERATION [g's]

ES-2re Head (X) Acceleration vs. Time



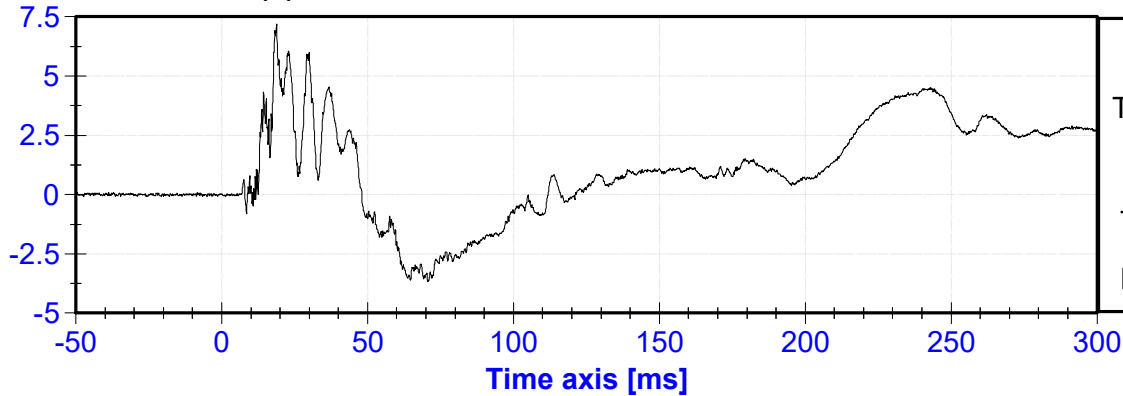
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ES-2re Head (Y) Acceleration vs. Time



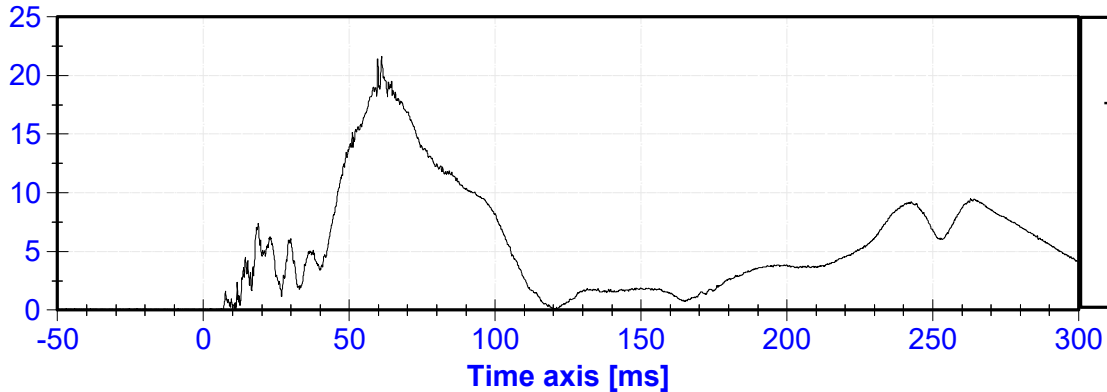
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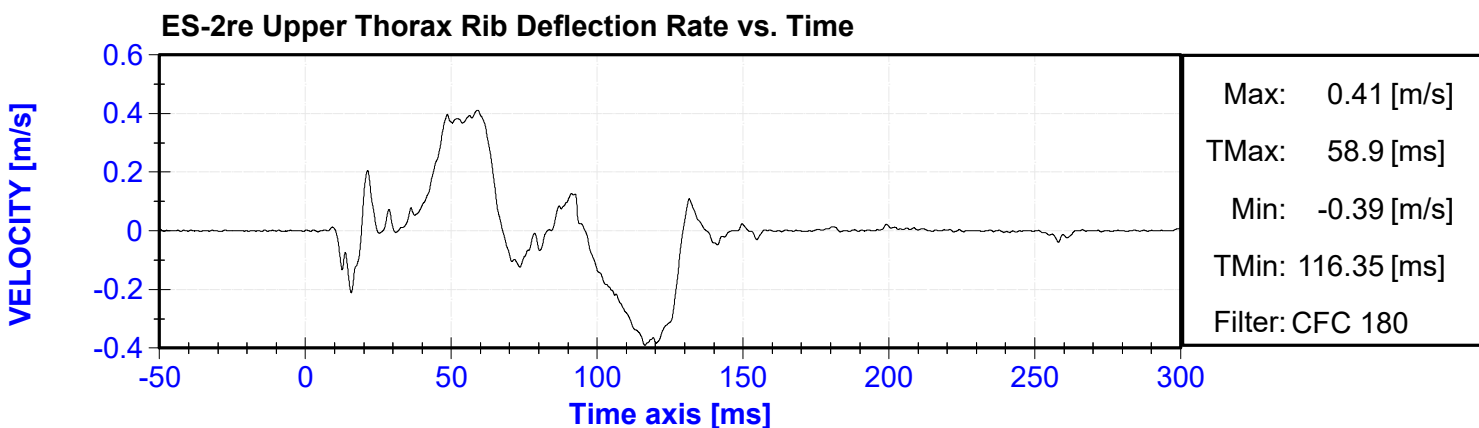
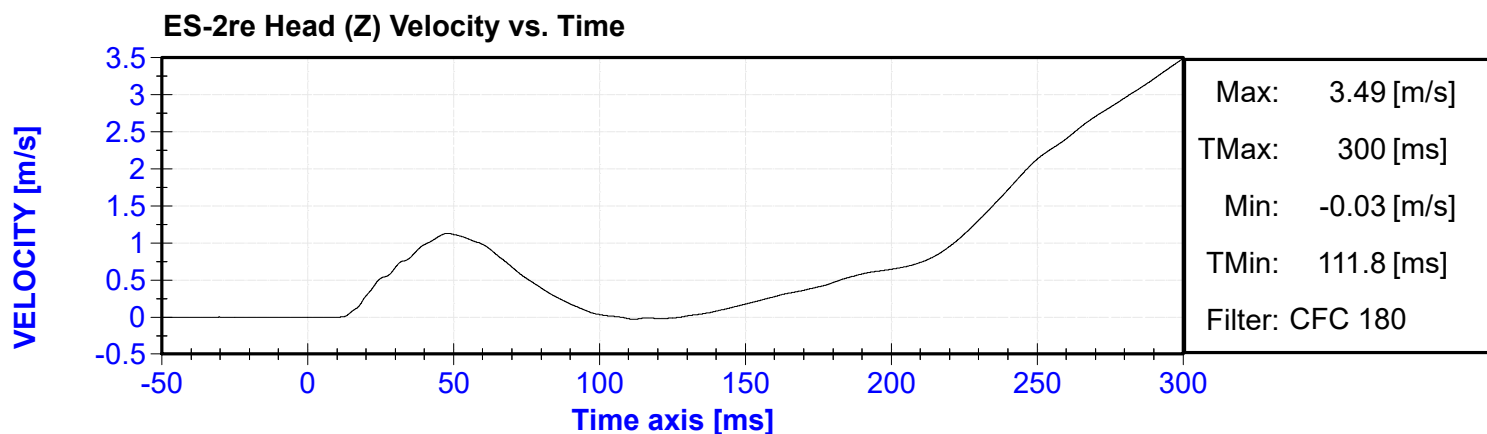
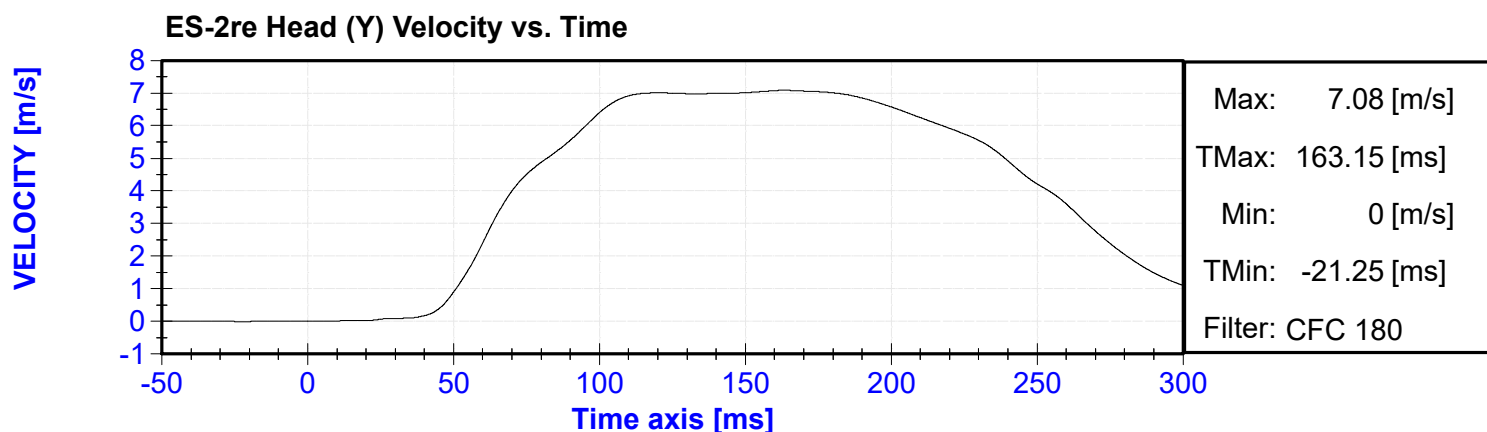
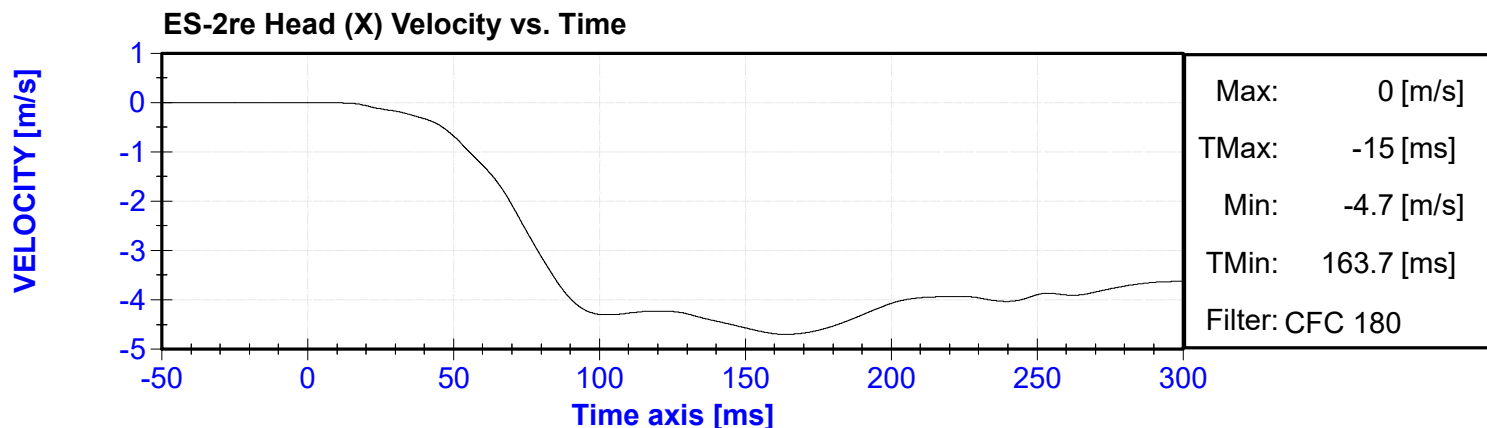
ES-2re Head (Z) Acceleration vs. Time

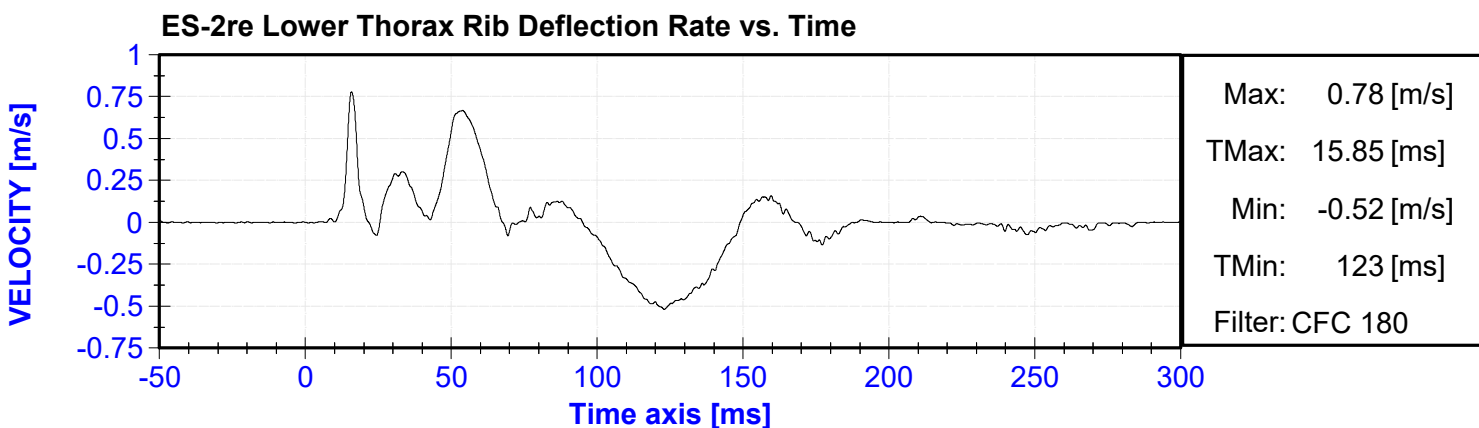
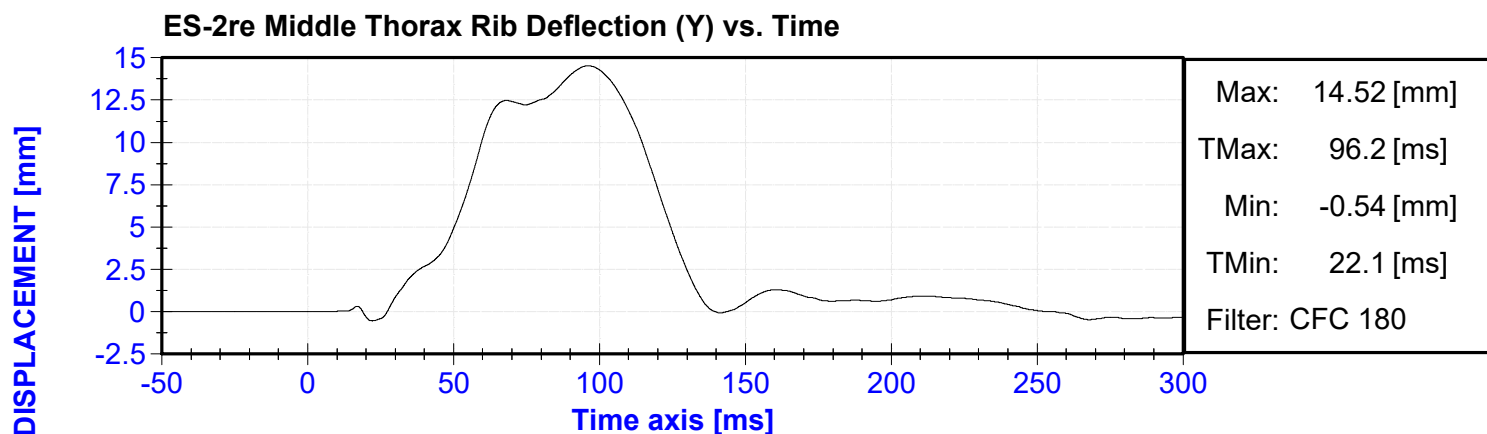
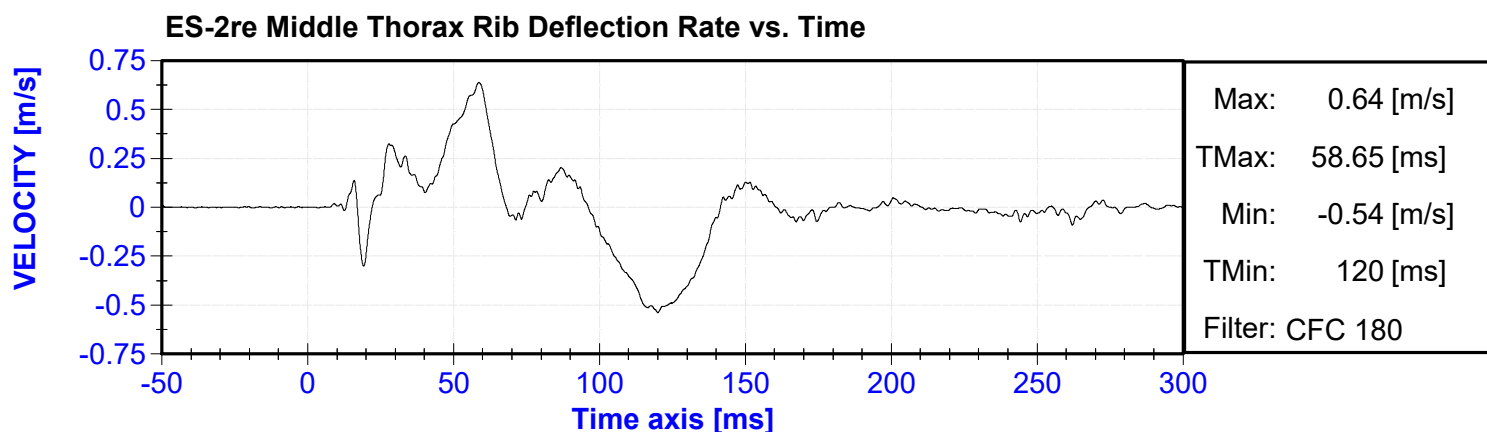
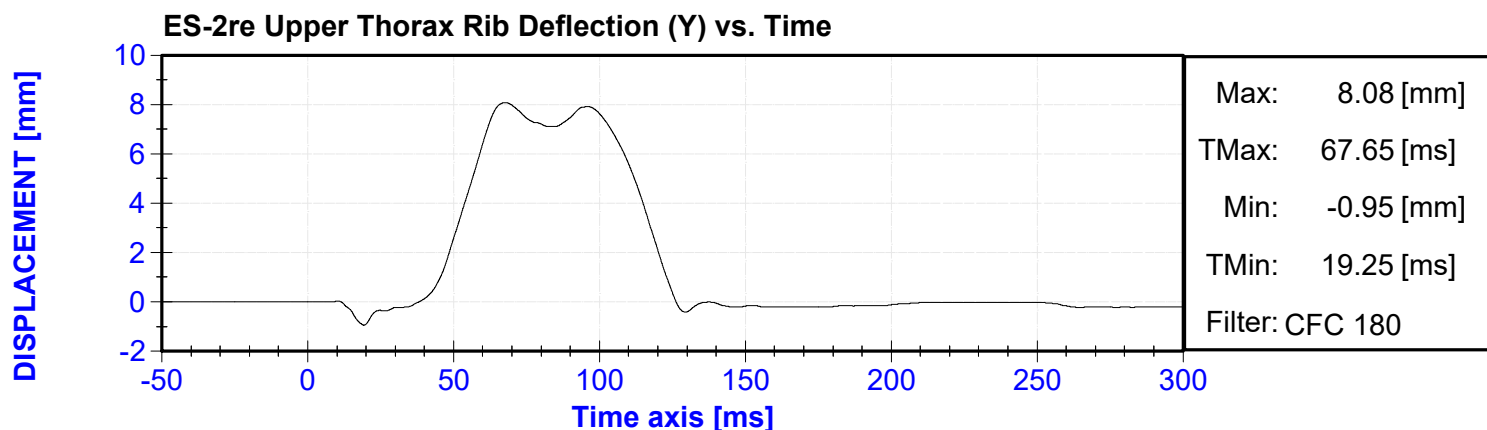


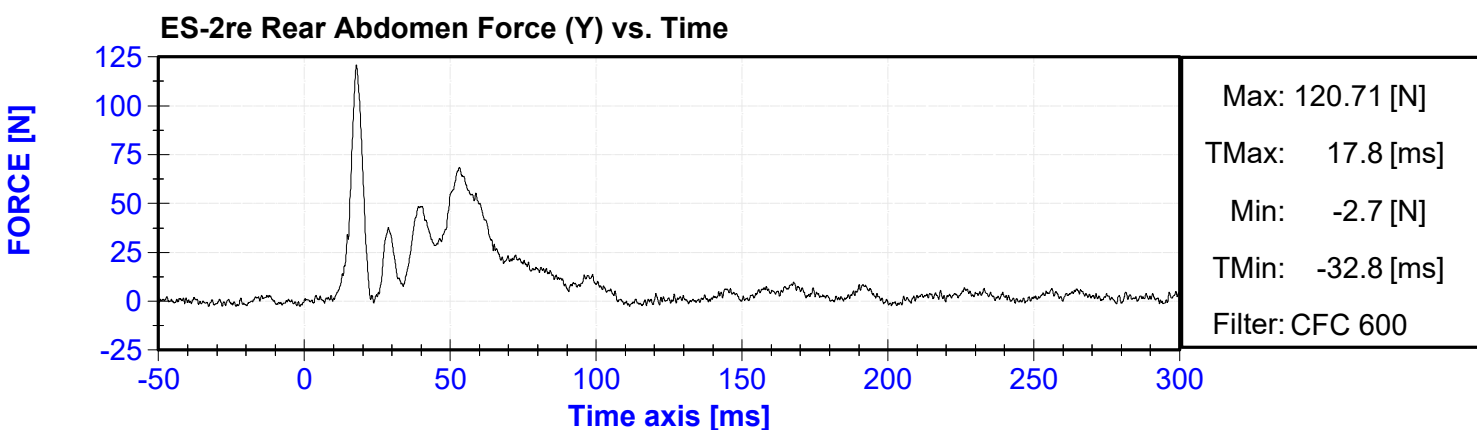
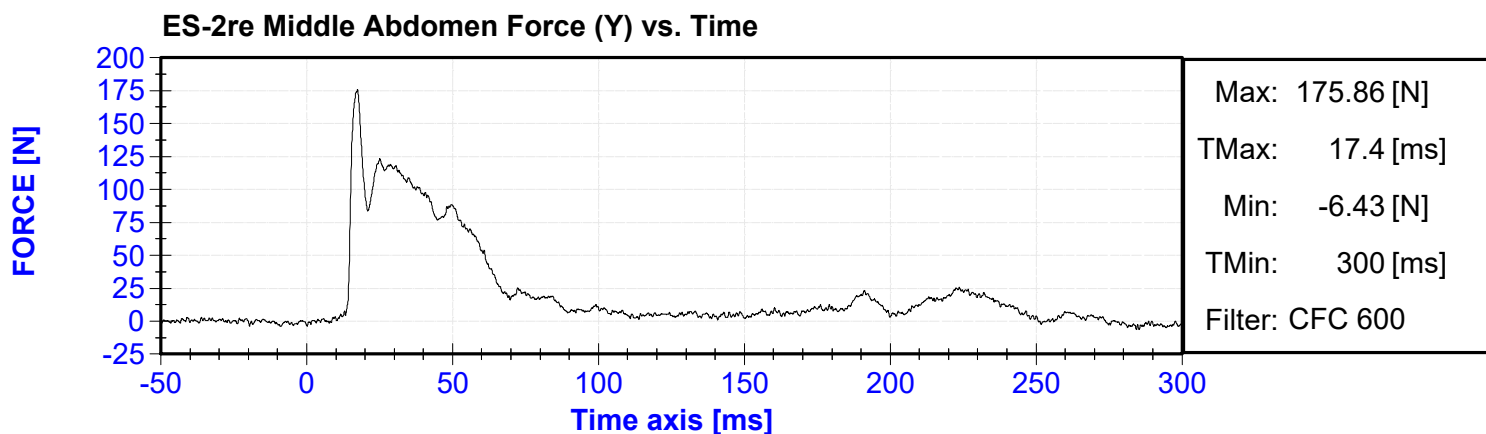
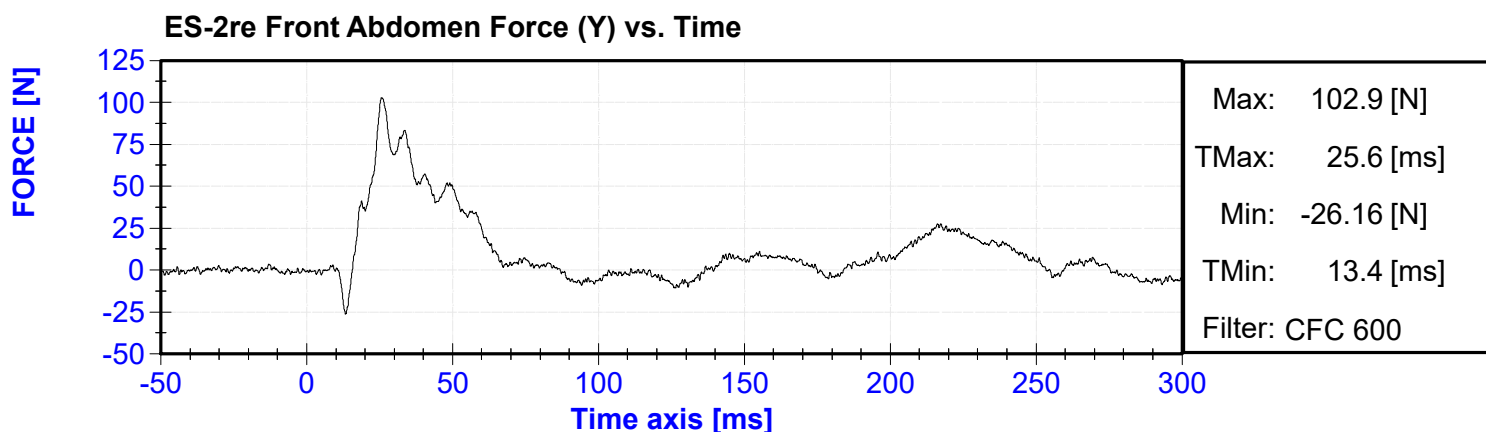
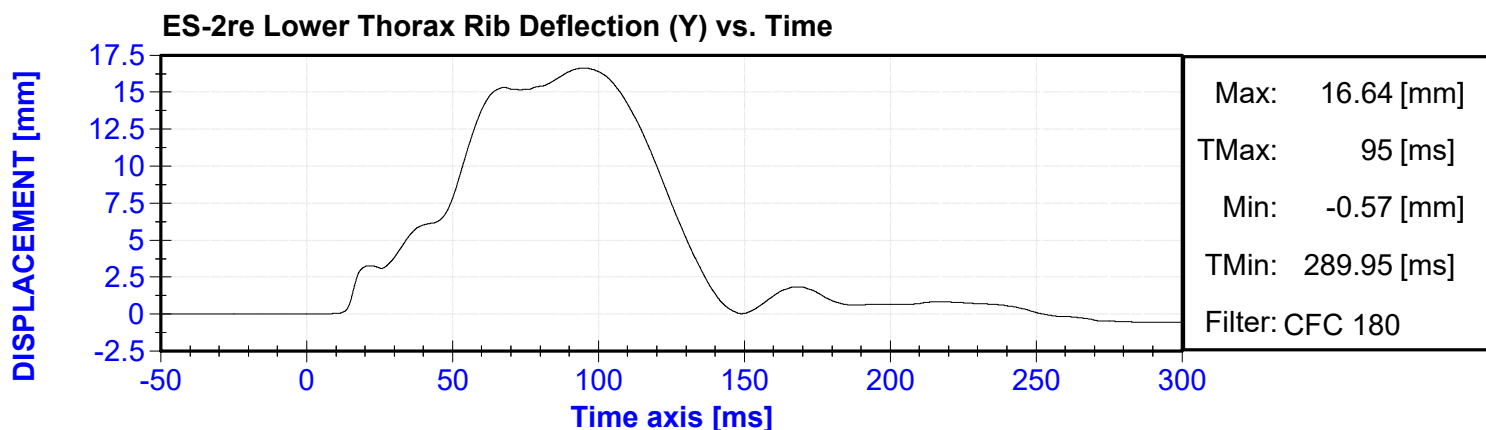
ACCELERATION [g's]

ES-2re Head Resultant Acceleration vs. Time

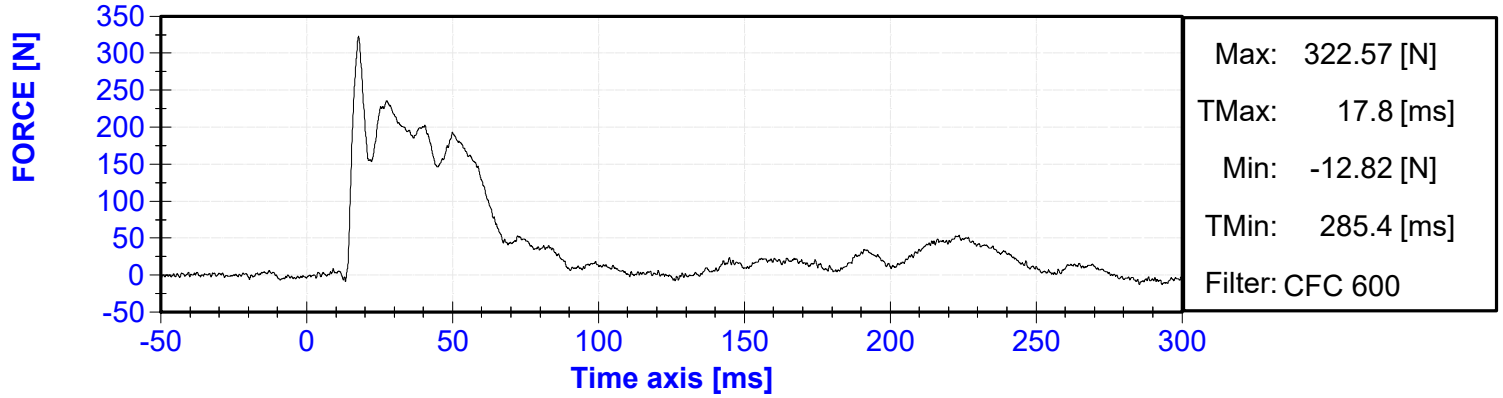




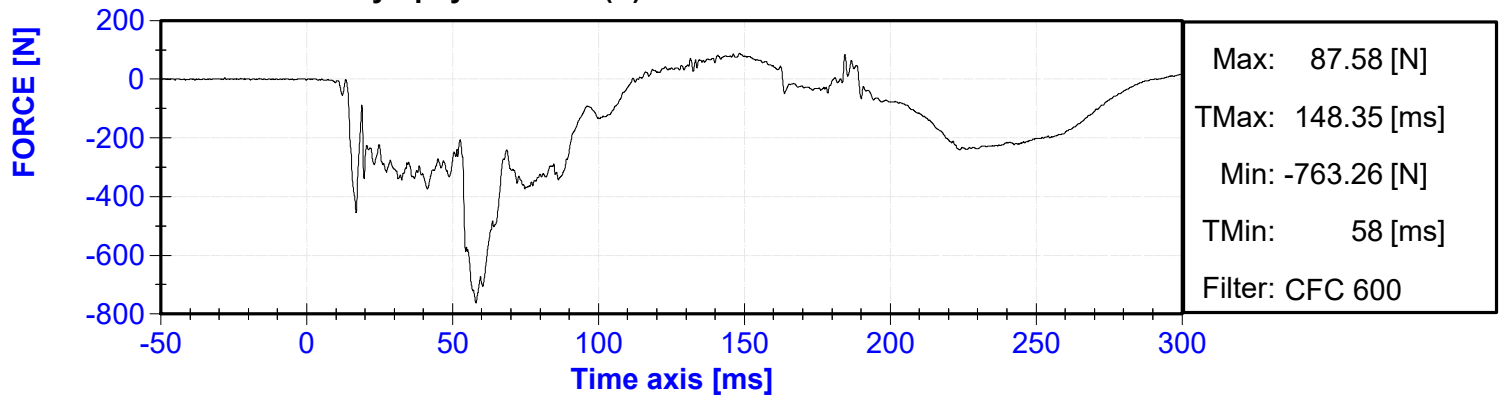




ES-2re Sum of Abdomen Forces vs. Time



ES-2re Pubic Symphysis Force (Y) vs. Time



APPENDIX III

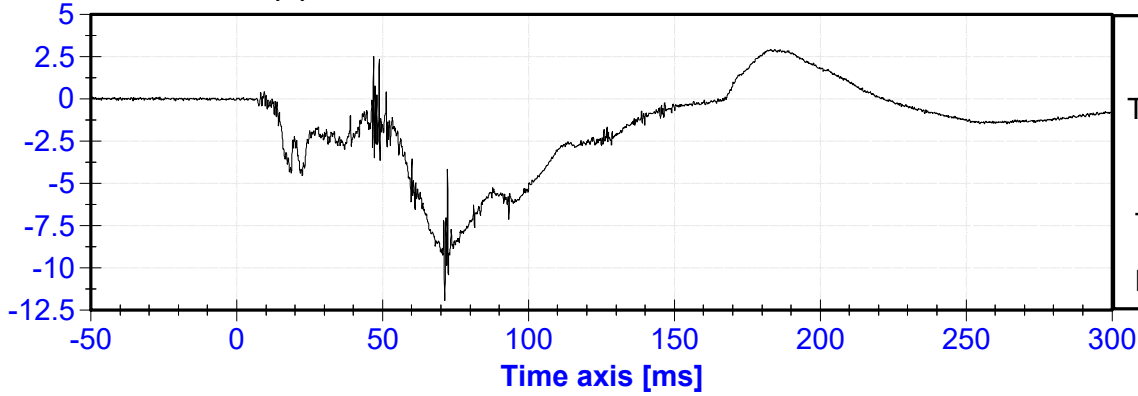
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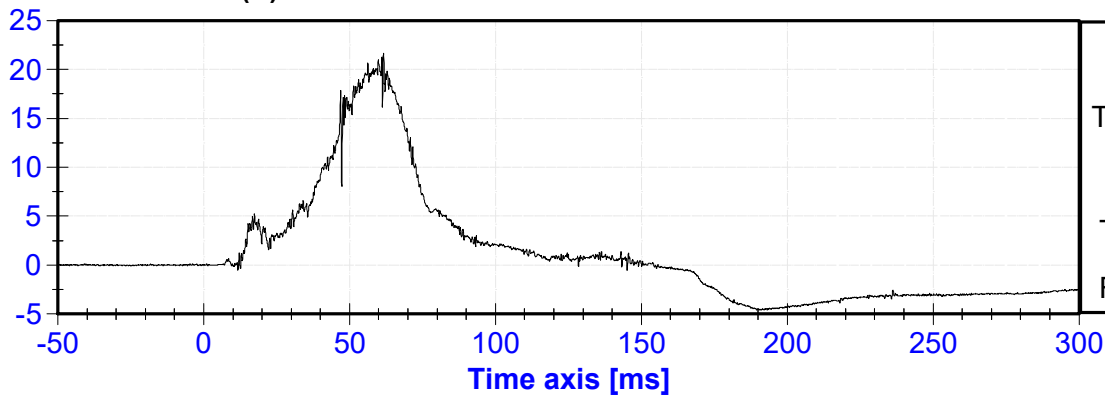
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SID-IIs Head (X) Acceleration vs. Time



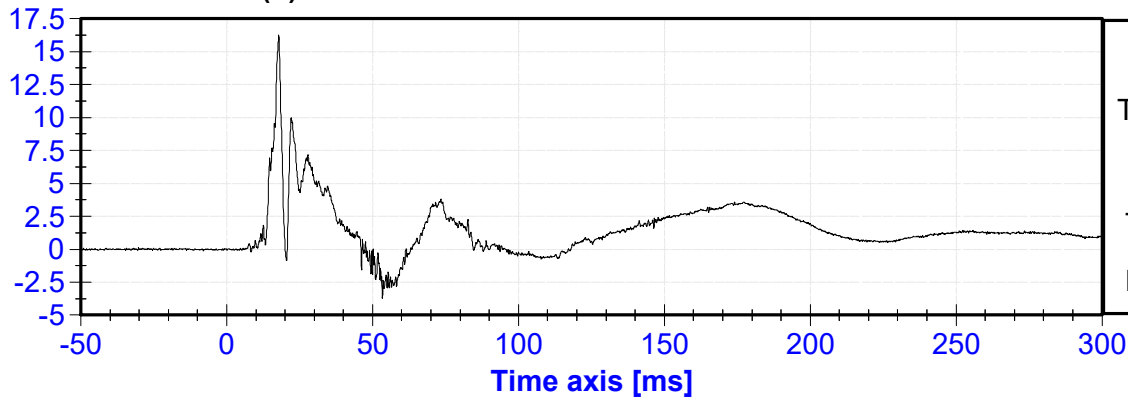
ACCELERATION [g's]

SID-IIs Head (Y) Acceleration vs. Time



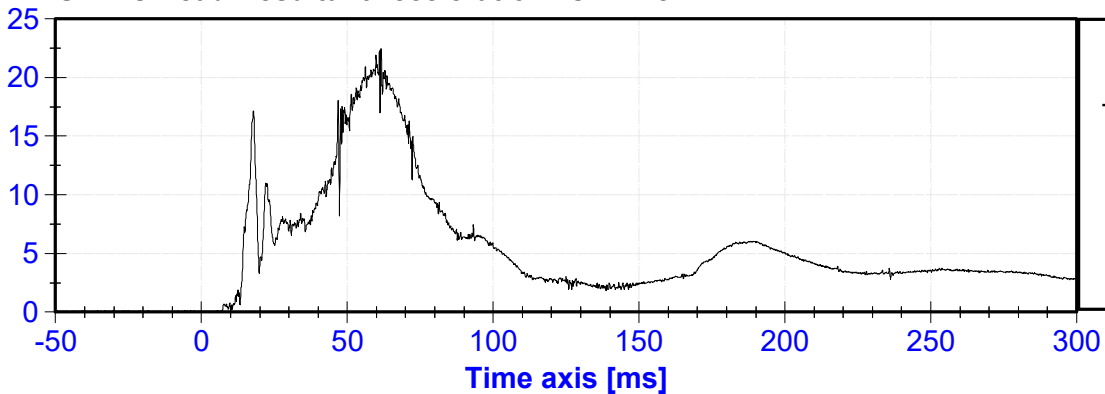
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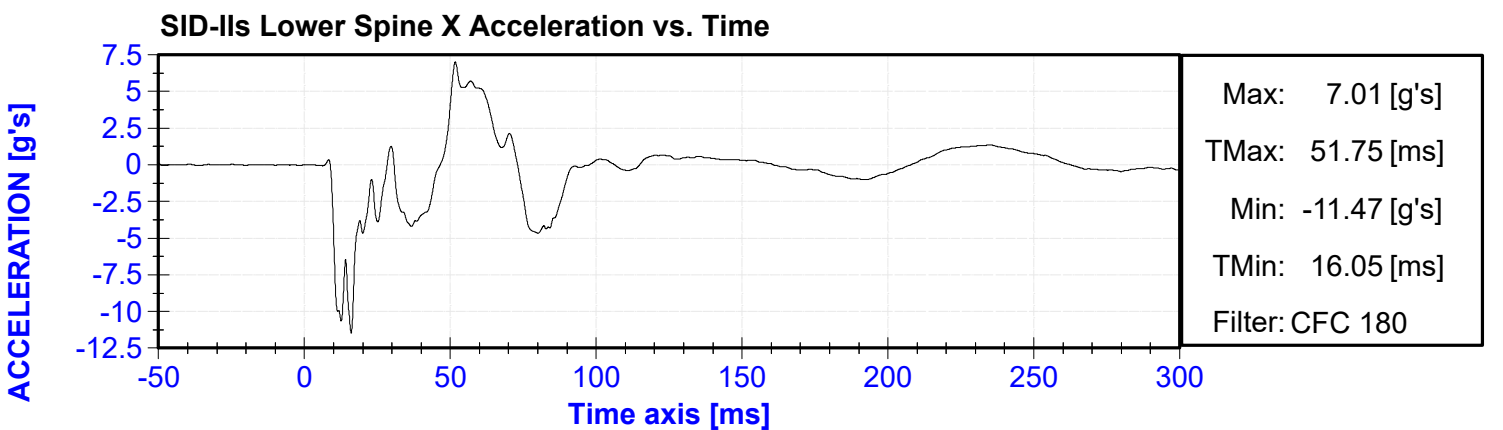
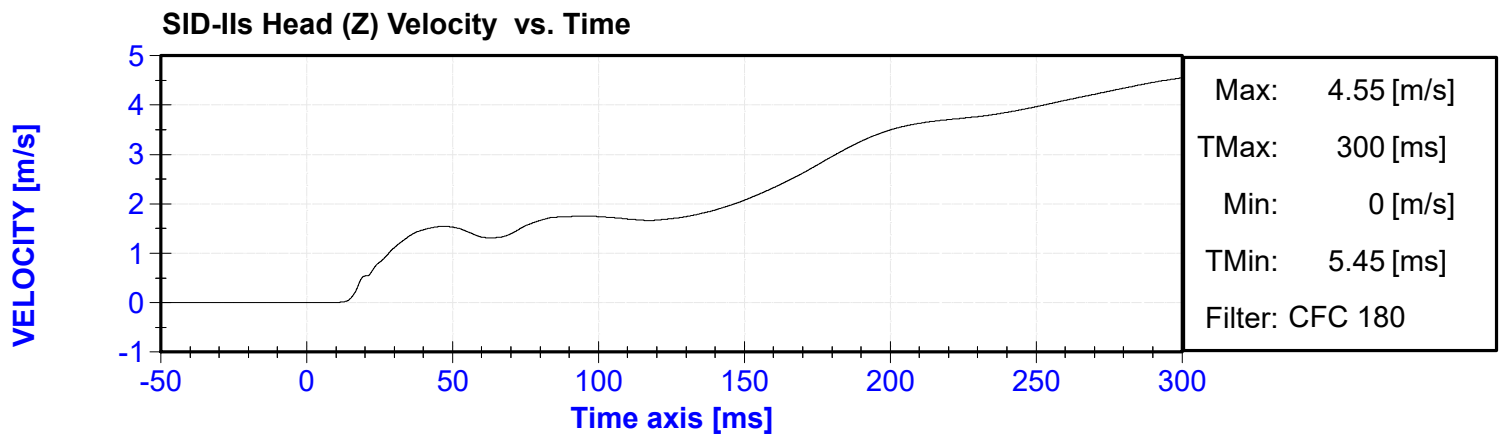
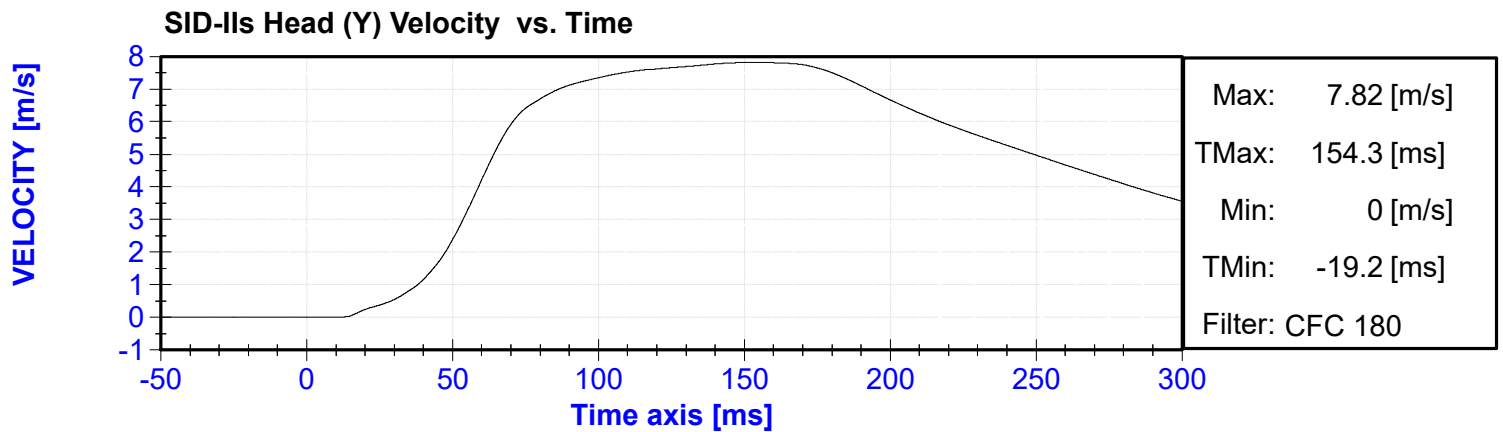
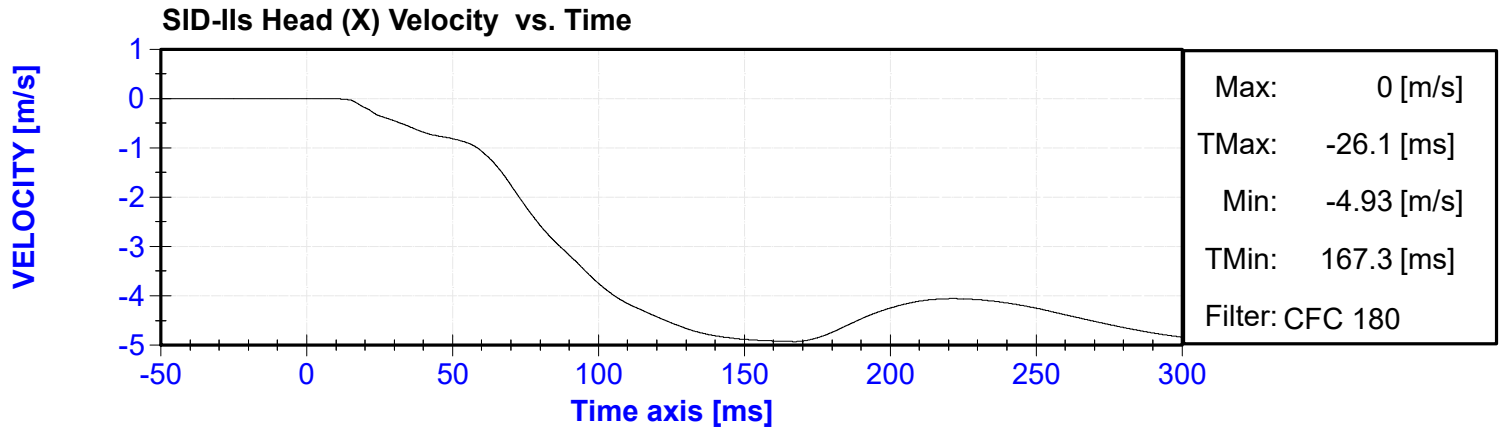
SID-IIs Head (Z) Acceleration vs. Time



ACCELERATION [g's]

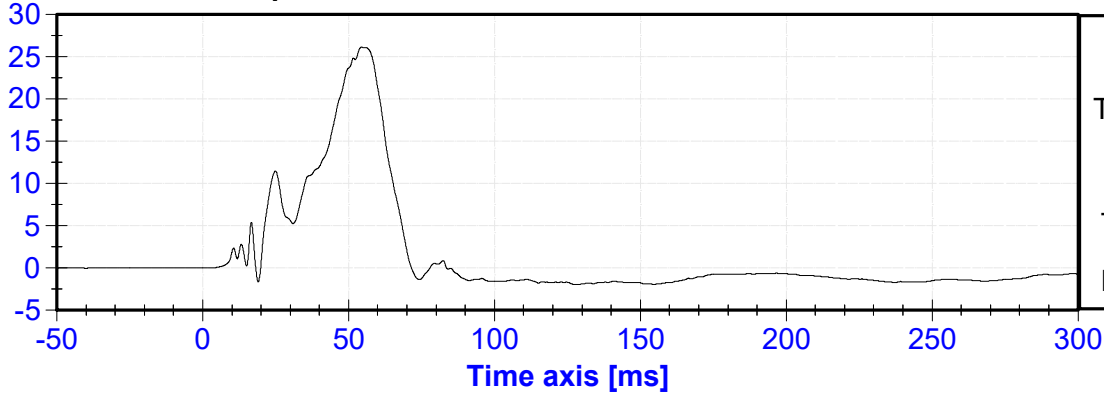
SID-IIs Head Resultant Acceleration vs. Time





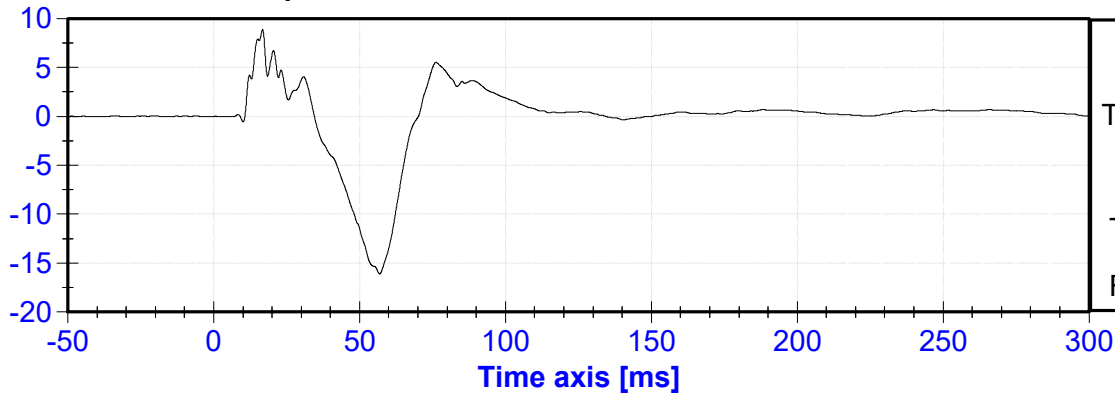
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SID-IIs Lower Spine Y Acceleration vs. Time



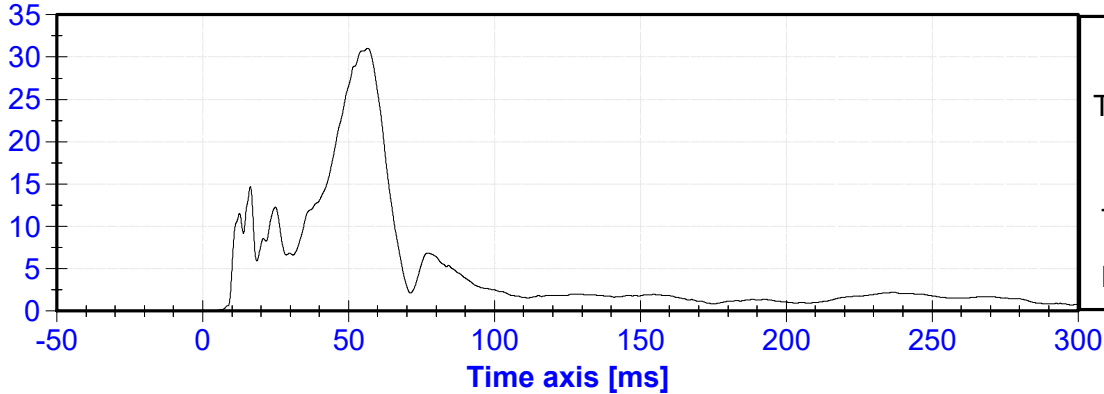
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SID-IIs Lower Spine Z Acceleration vs. Time



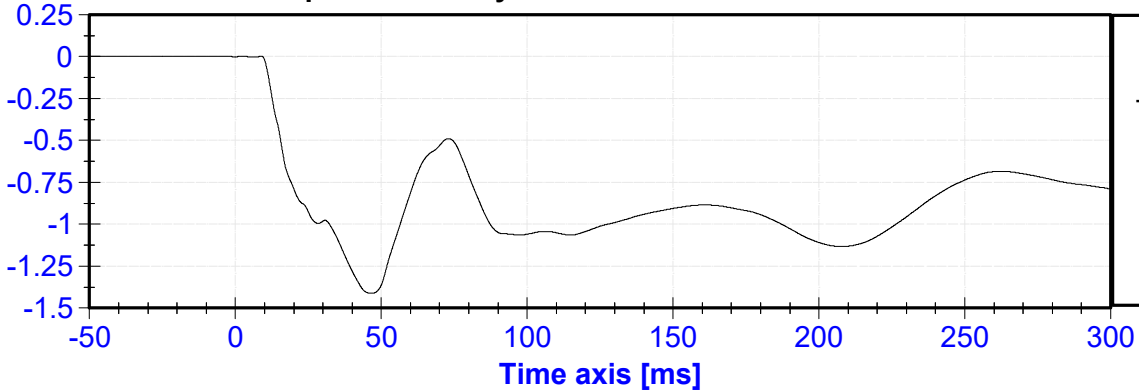
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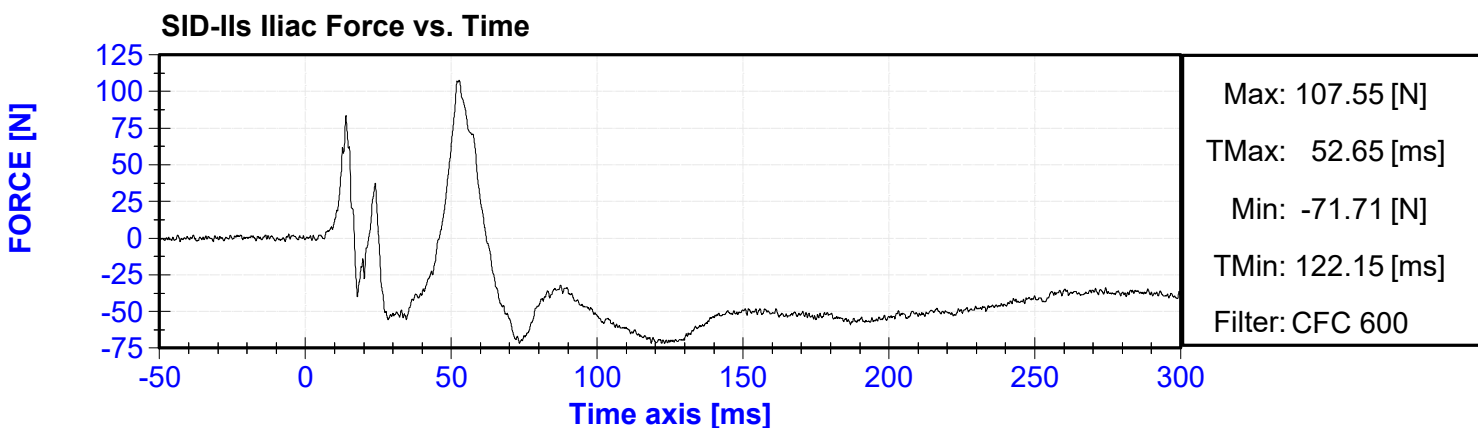
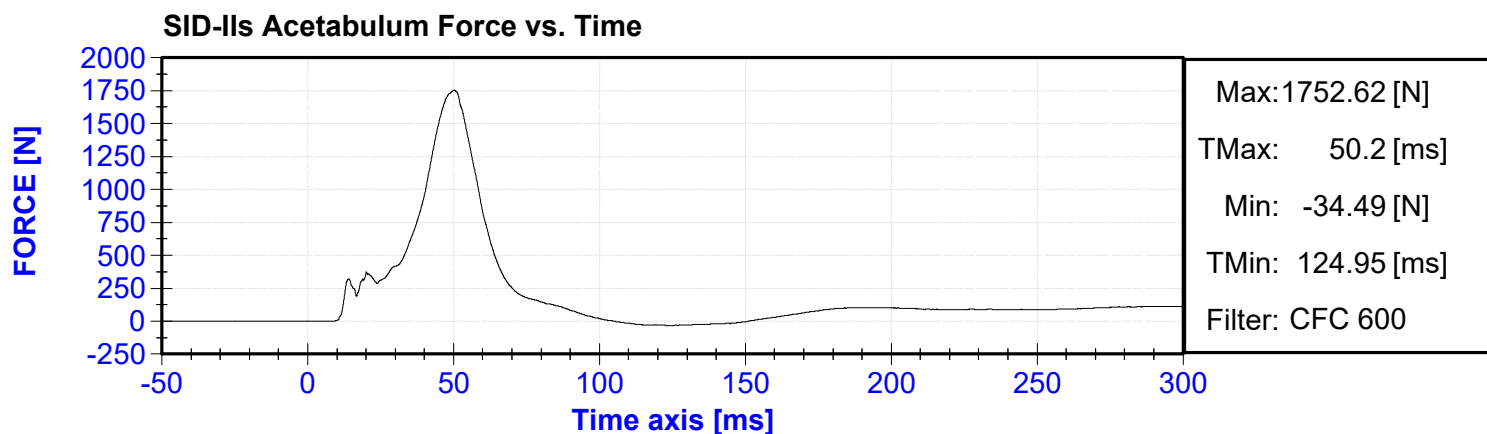
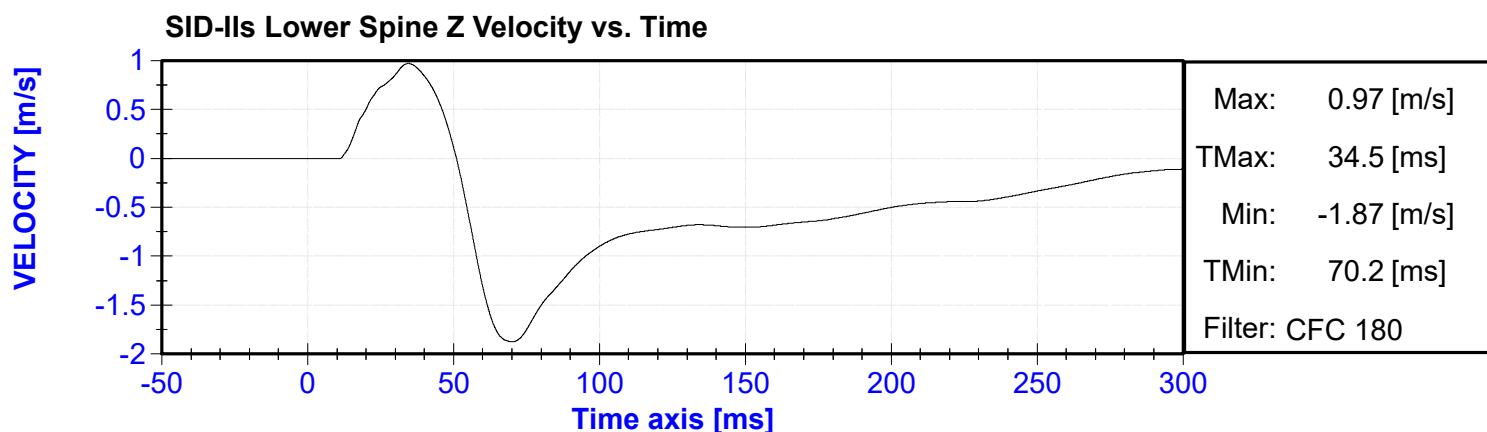
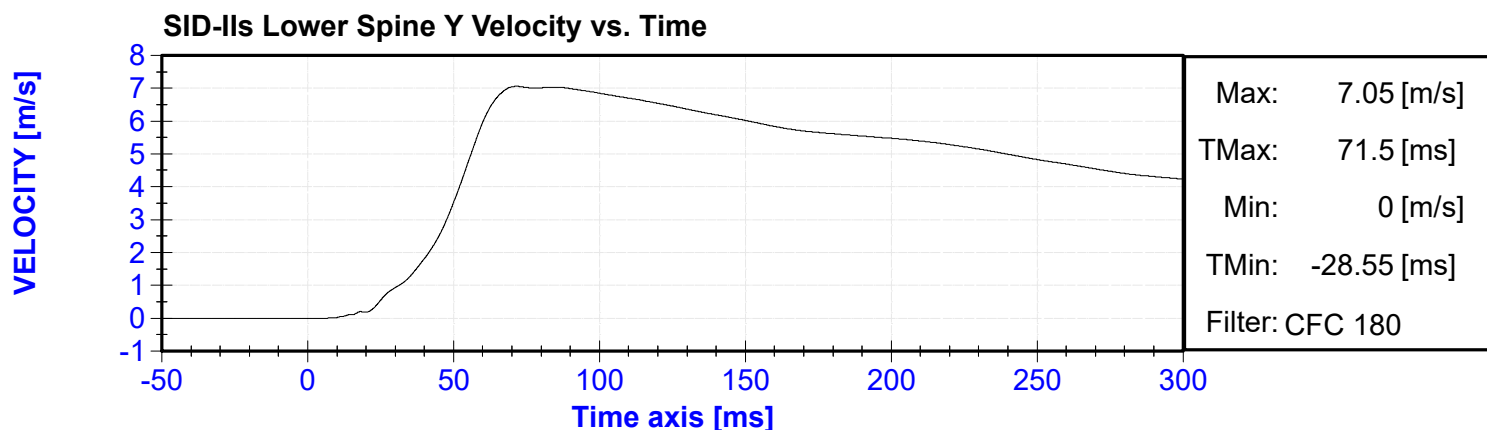
SID-IIs Lower Spine Resultant Acceleration vs. Time

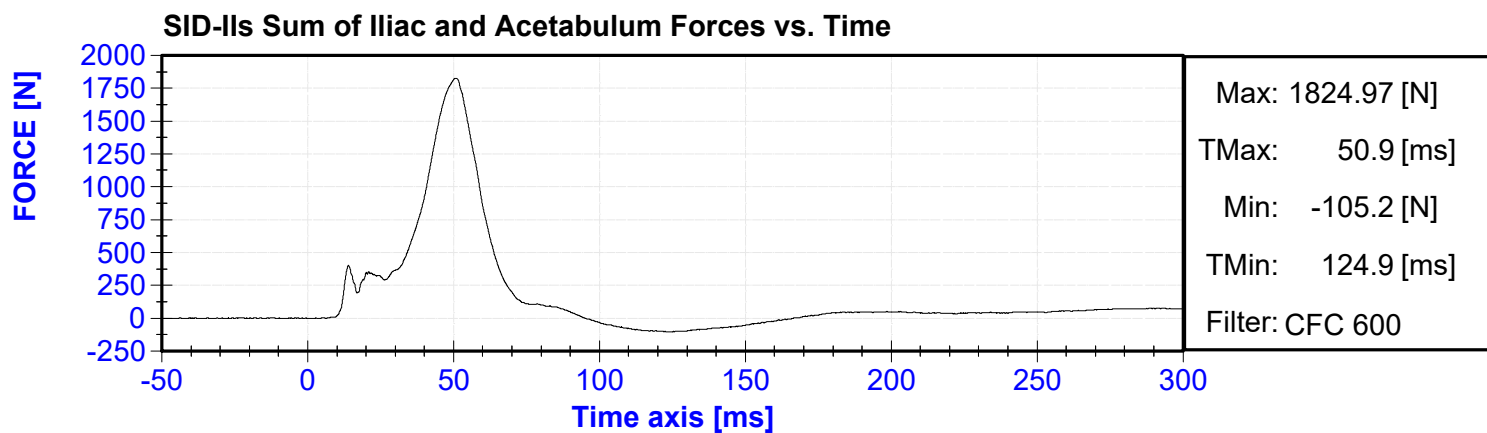


VELOCITY [m/s]

SID-IIs Lower Spine X Velocity vs. Time





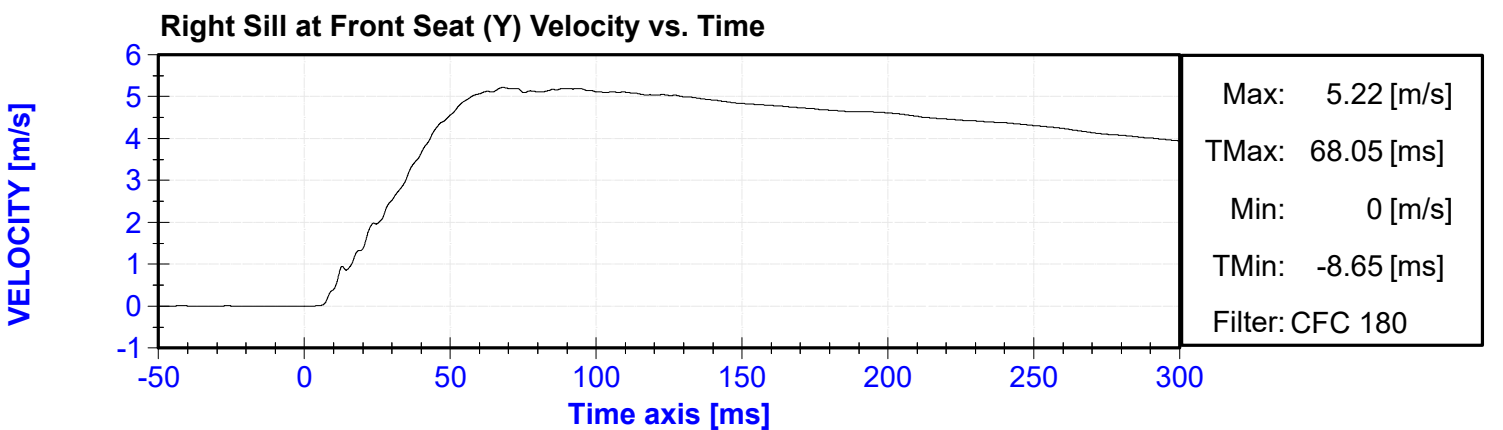
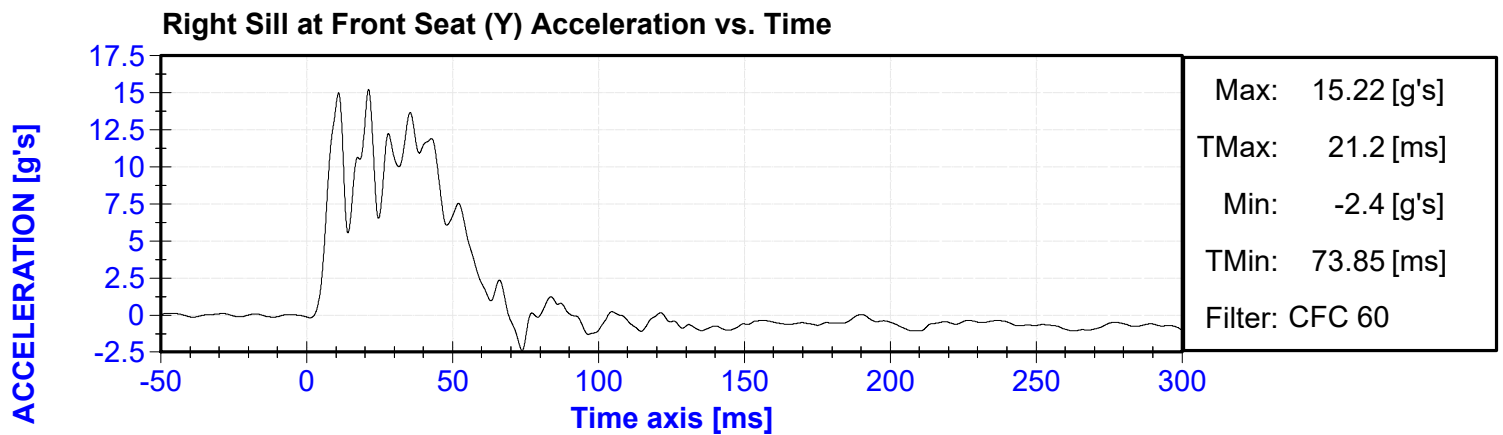
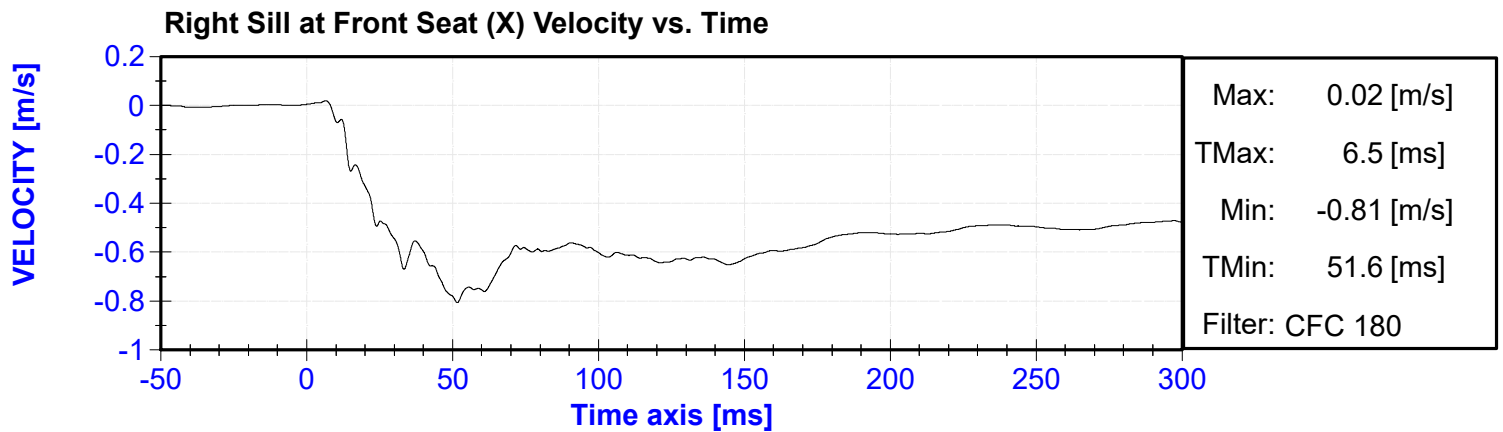
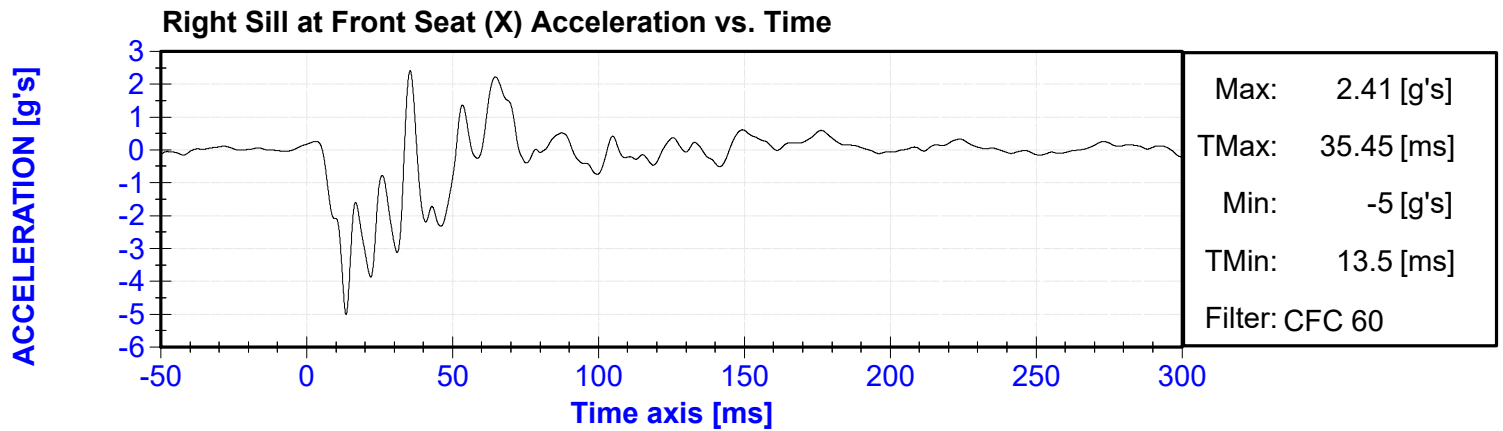


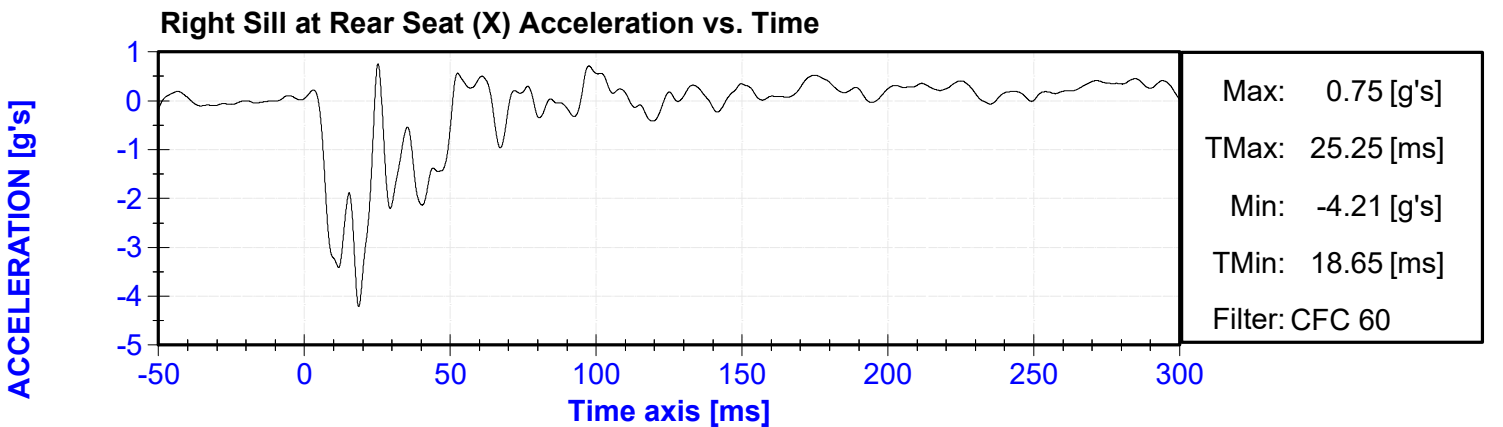
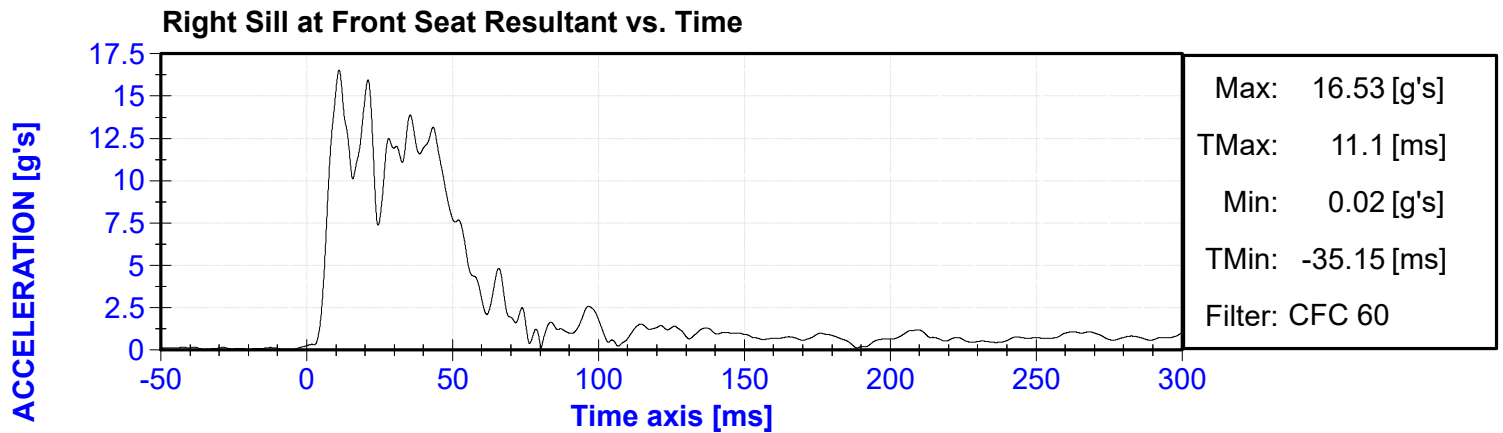
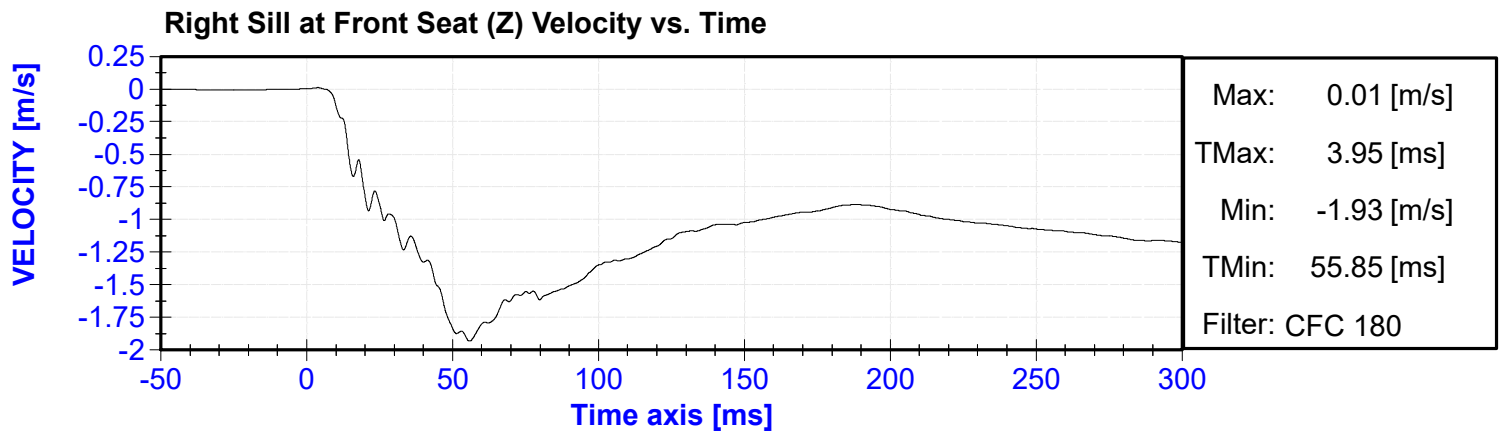
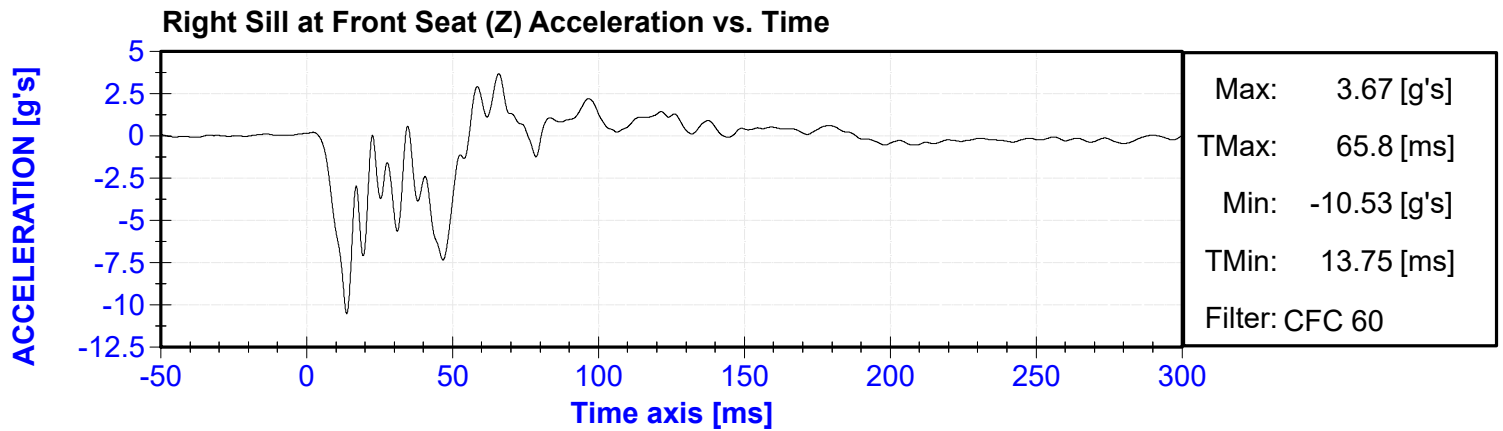
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VEHICLE AND MDB ACCELEROMETER RESPONSE
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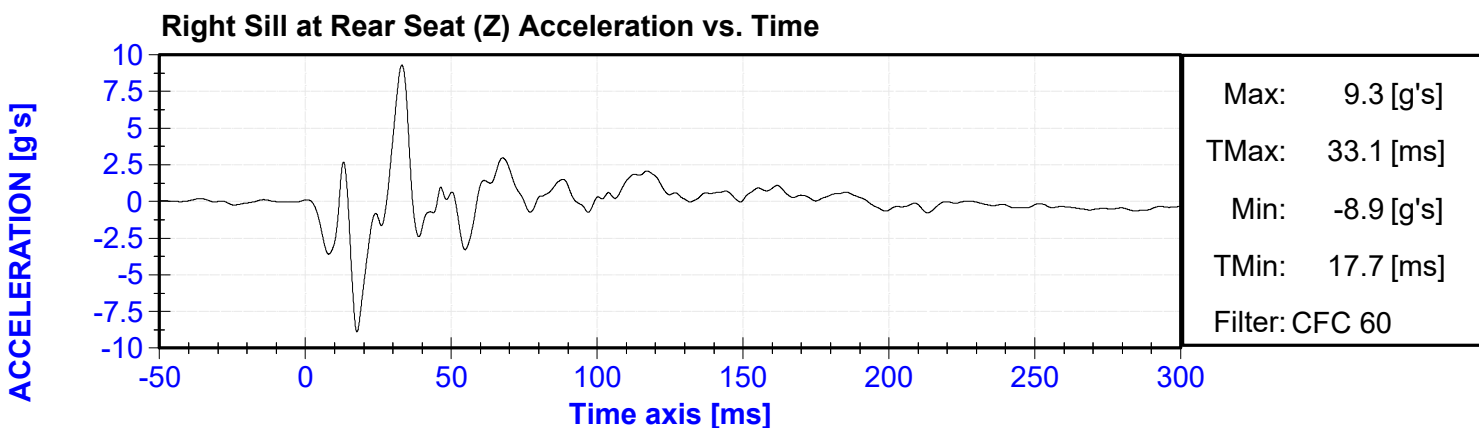
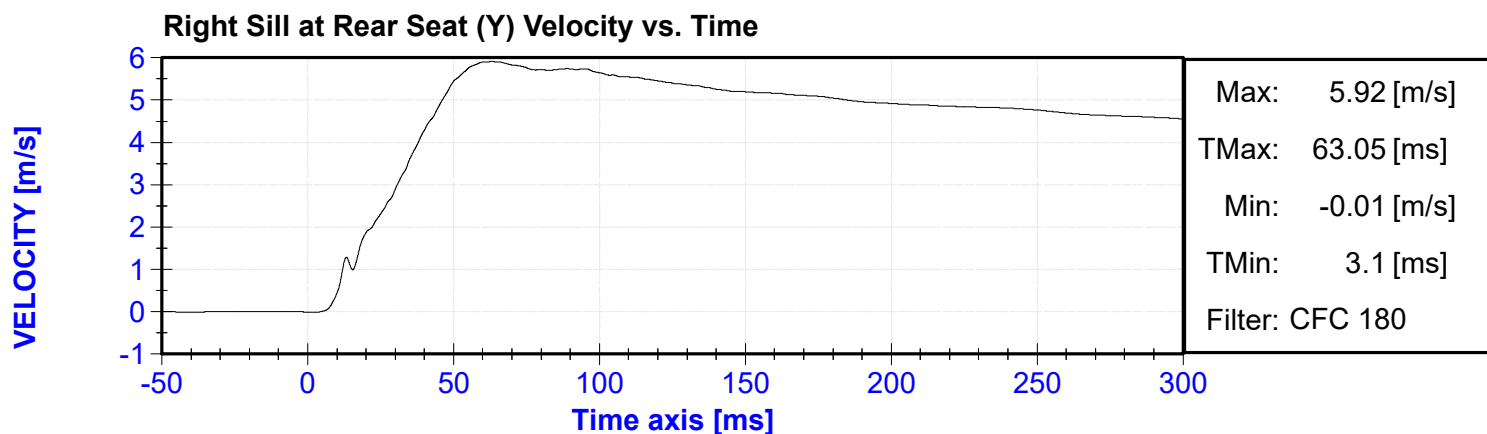
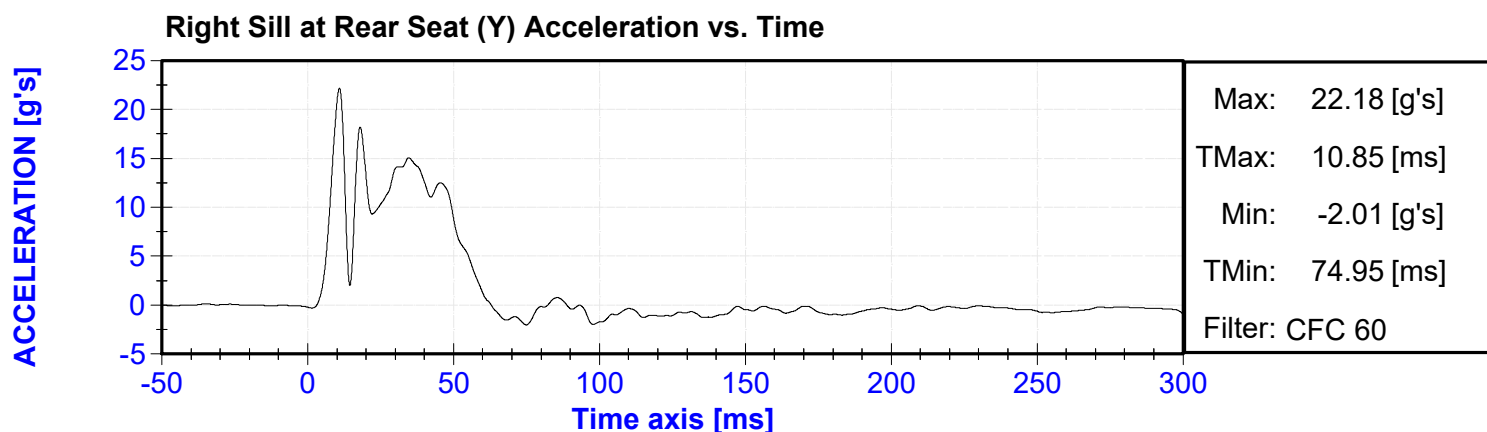
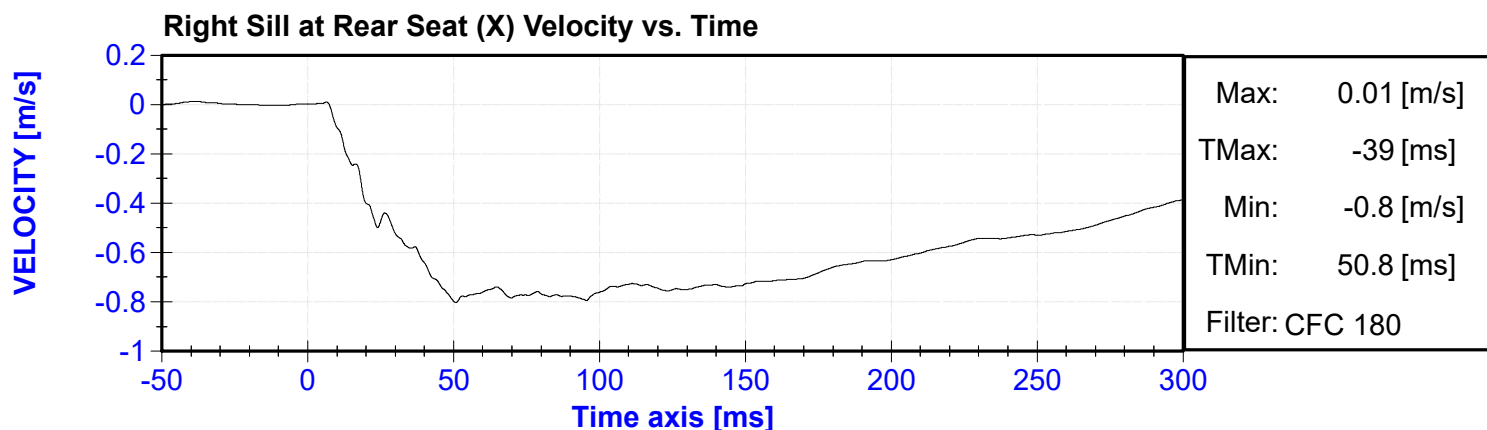
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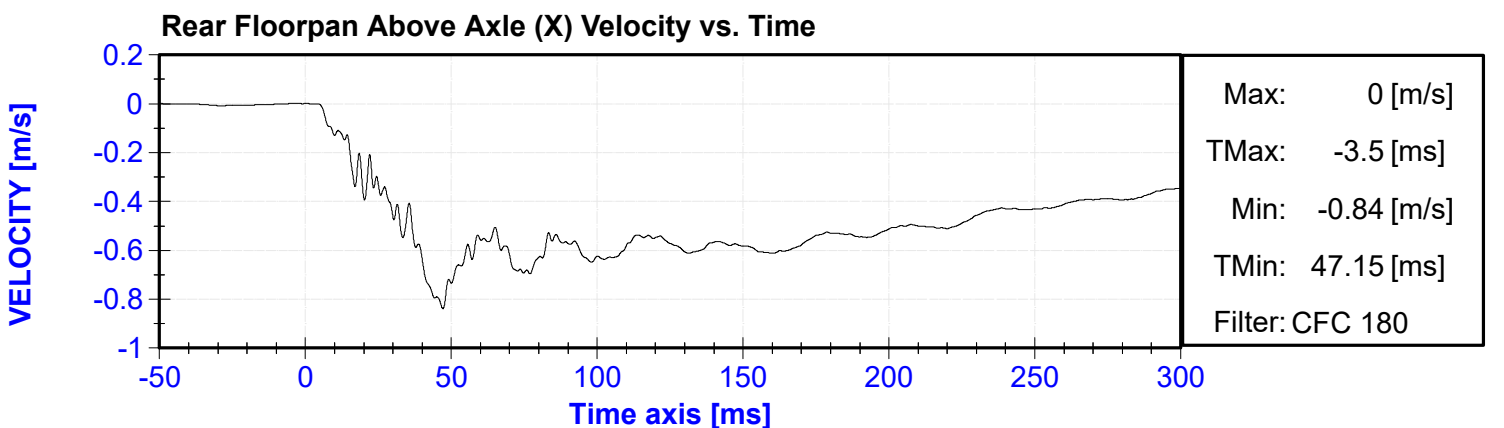
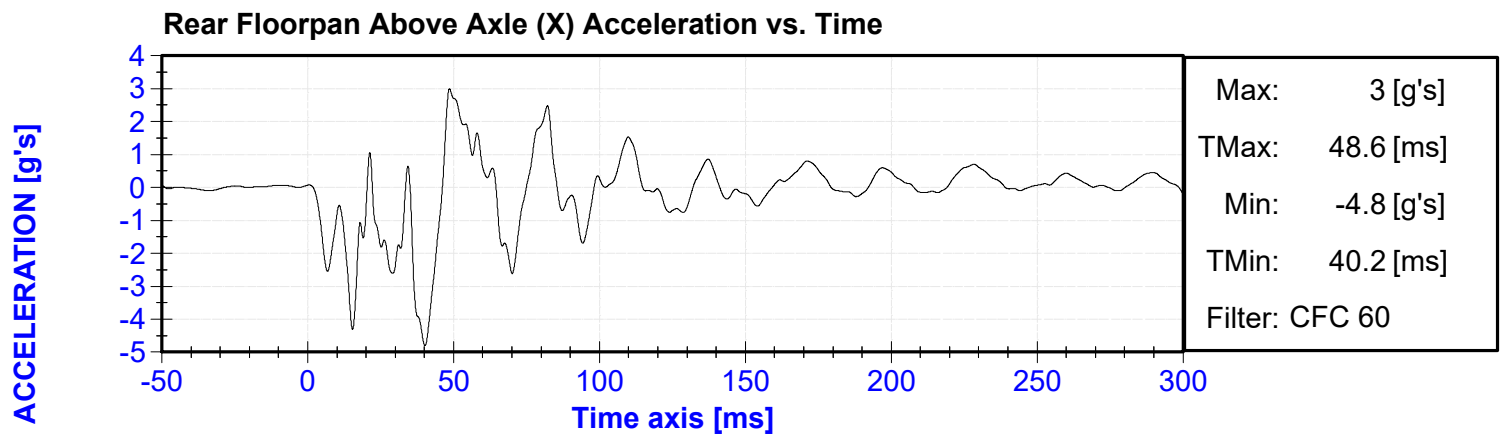
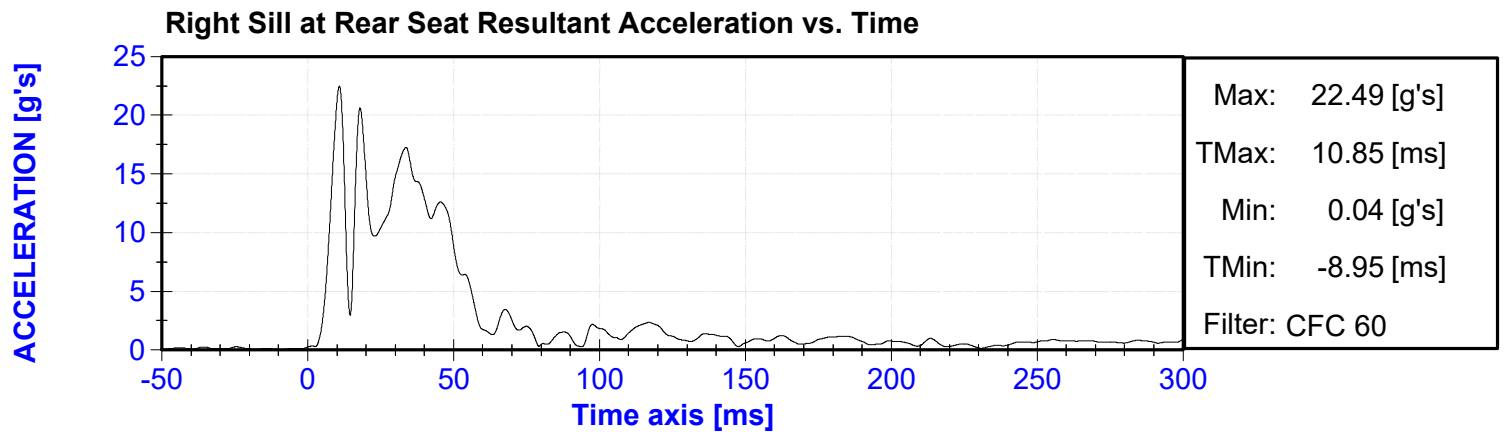
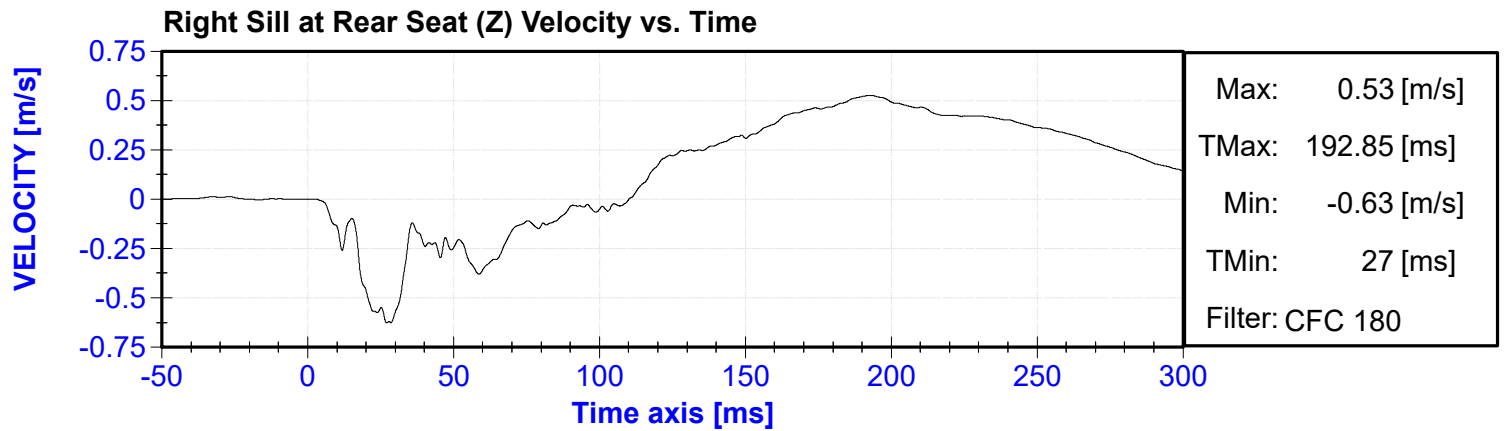
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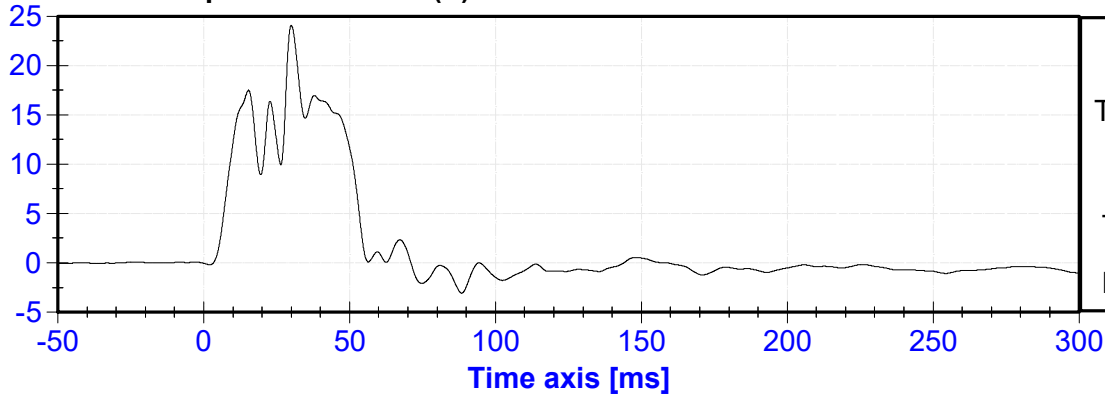






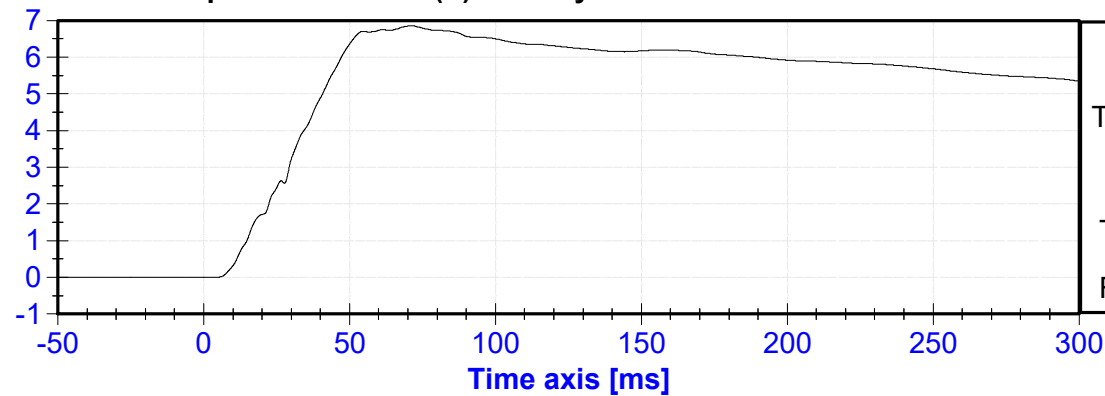
ACCELERATION [g's]

Rear Floorpan Above Axle (Y) Acceleration vs. Time



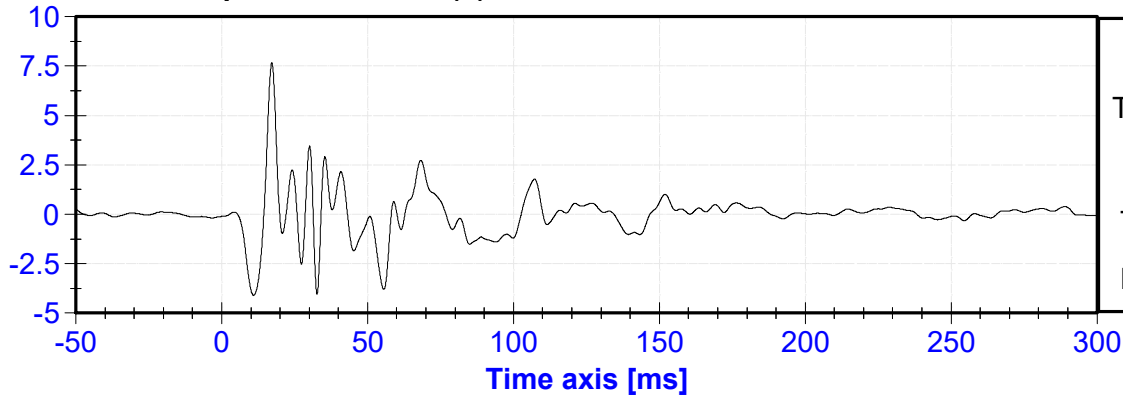
VELOCITY [m/s]

Rear Floorpan Above Axle (Y) Velocity vs. Time



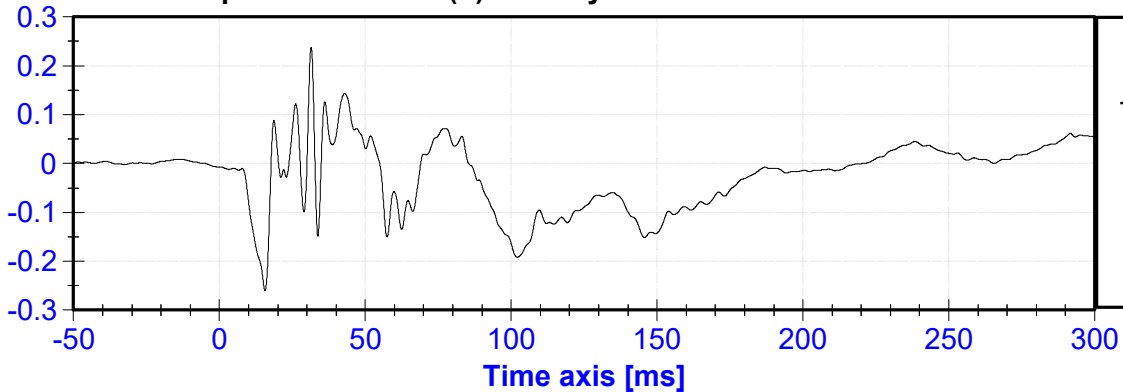
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Rear Floorpan Above Axle (Z) Acceleration vs. Time



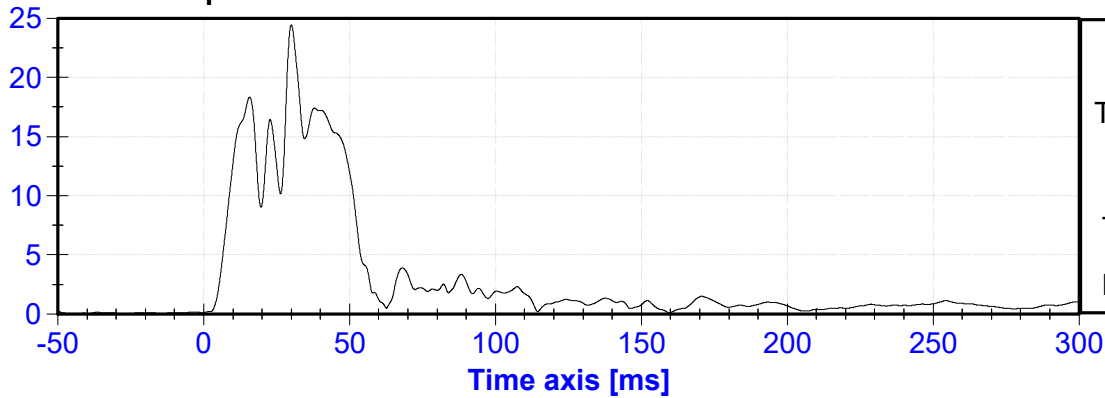
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Rear Floorpan Above Axle (Z) Velocity vs. Time



Rear Floorpan Above Axle Resultant Acceleration vs. Time

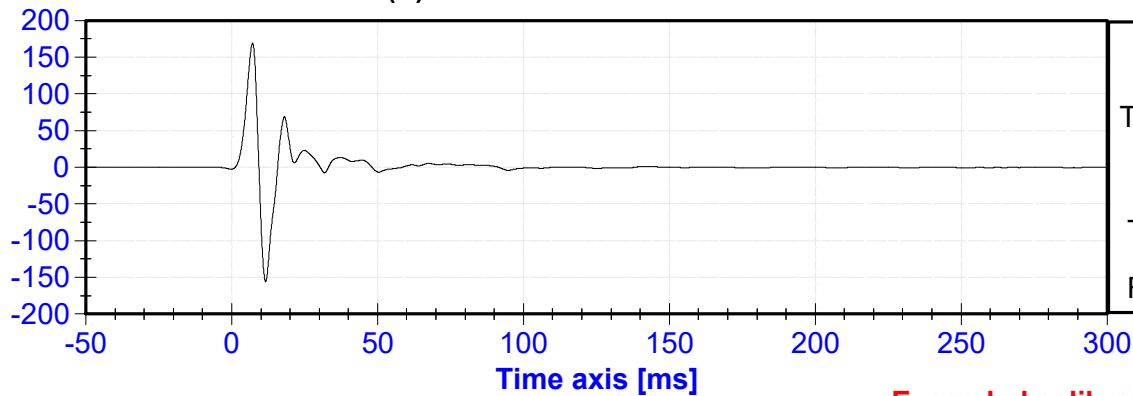
ACCELERATION [g's]



Left Sill at Rear Door (Y) Acceleration vs. Time

Exceeded calibration range at 7.9 ms

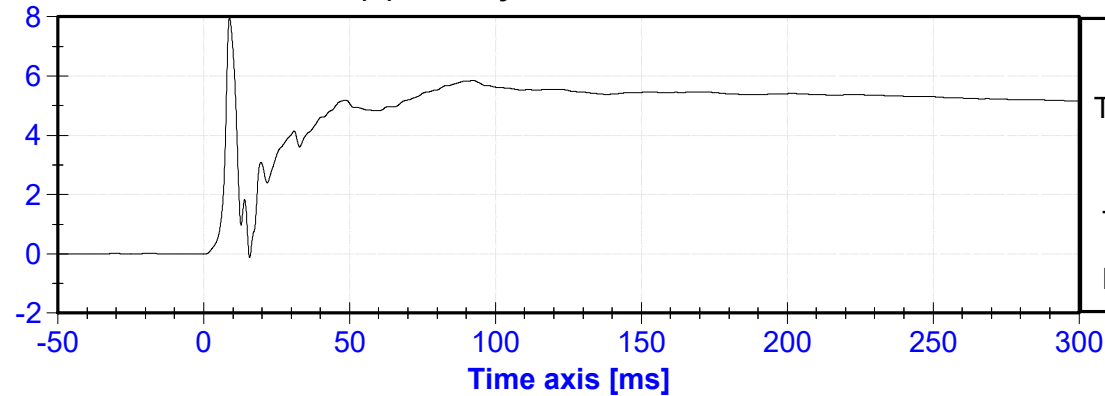
ACCELERATION [g's]



Left Sill at Rear Door (Y) Velocity vs. Time

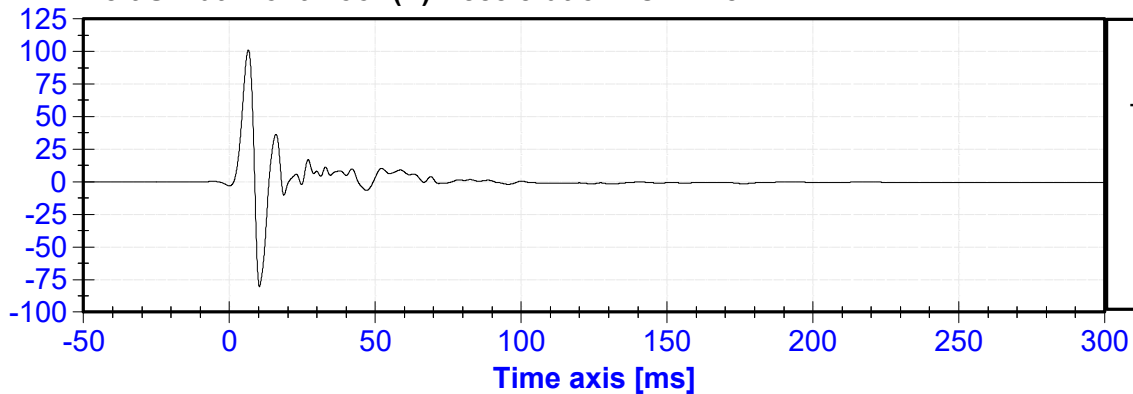
Exceeded calibration range at 7.9 ms

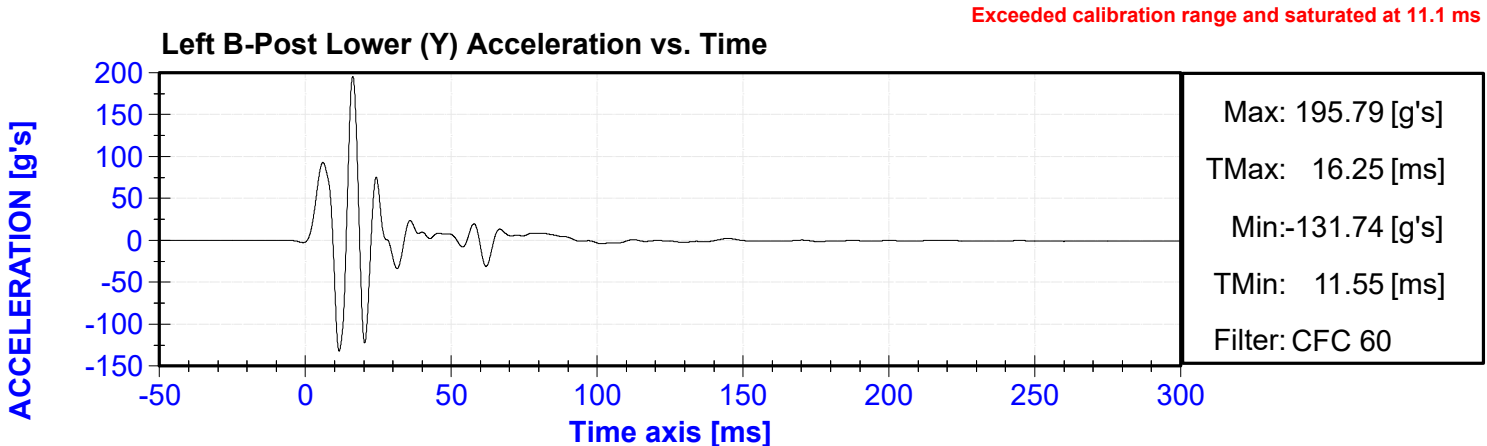
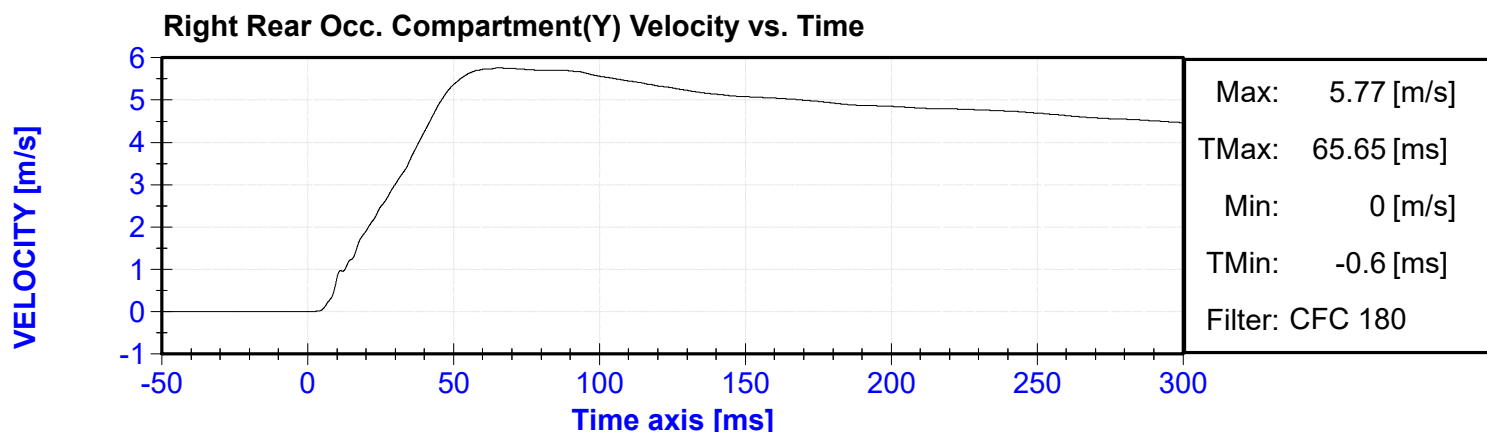
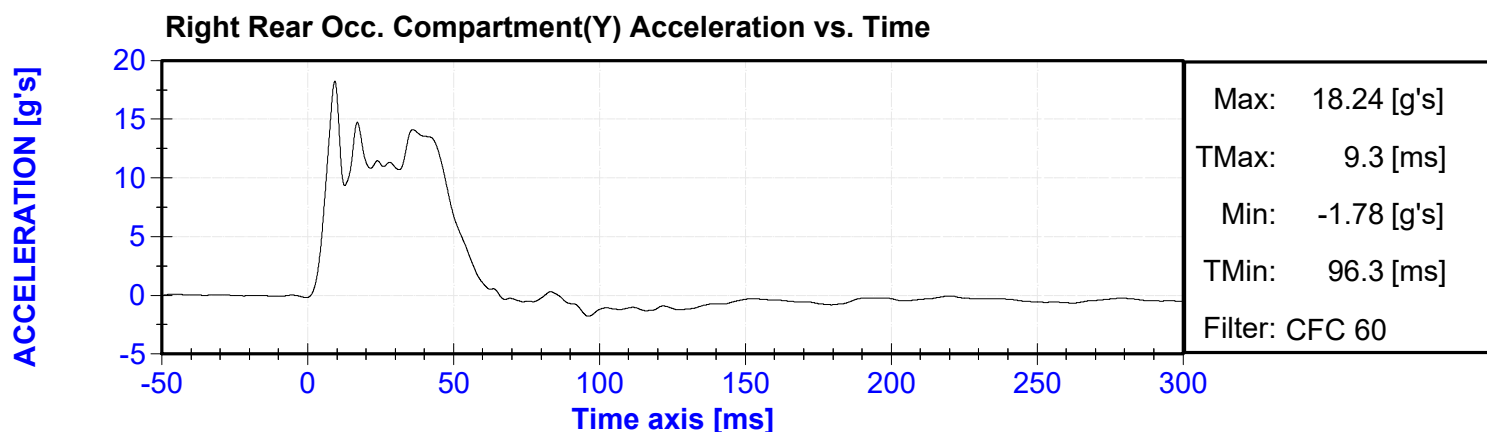
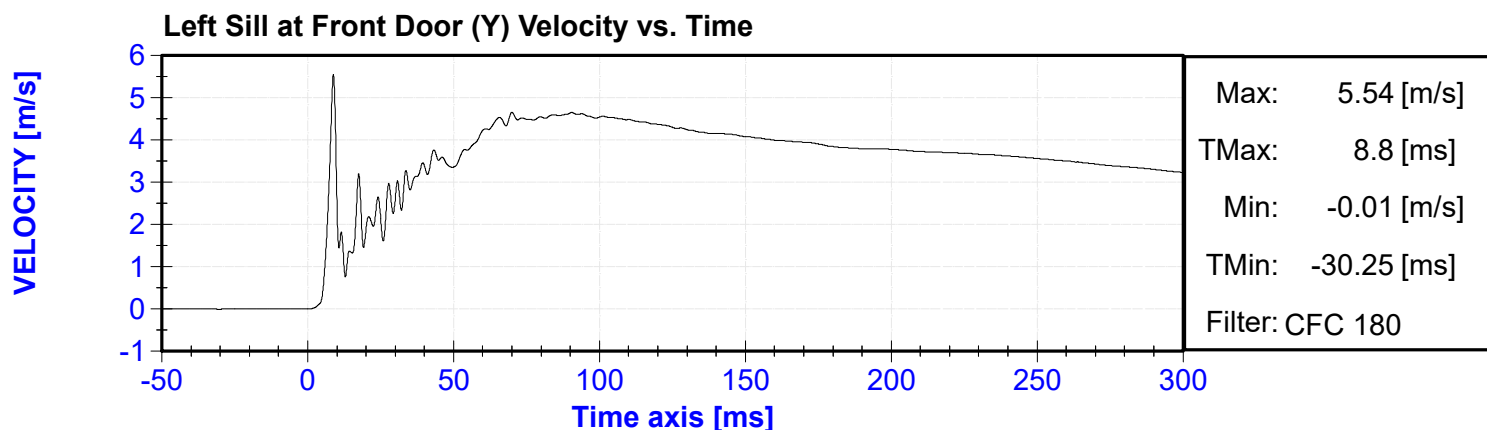
VELOCITY [m/s]



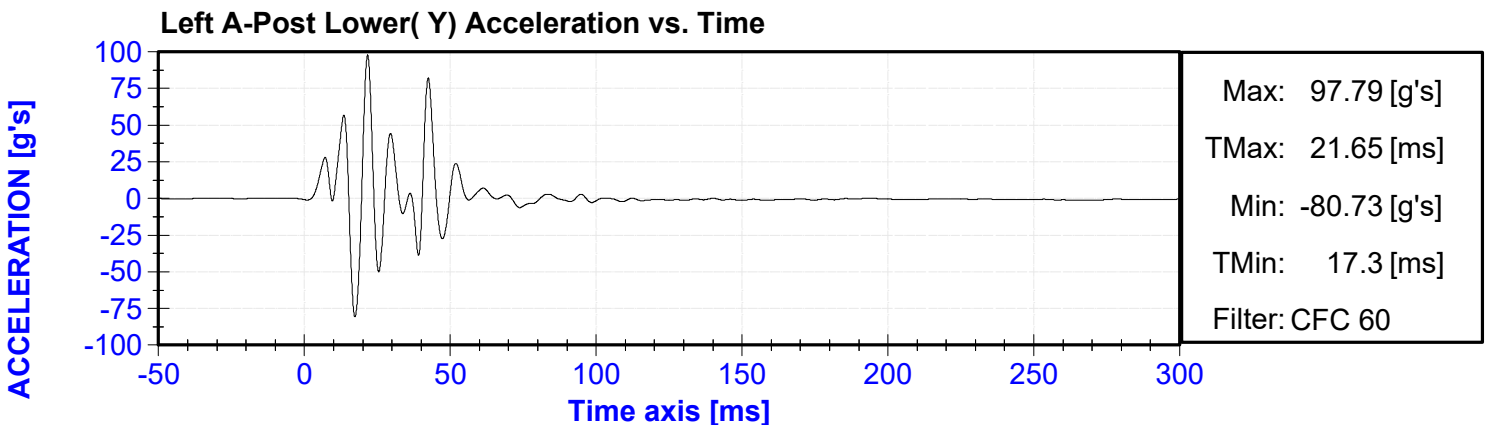
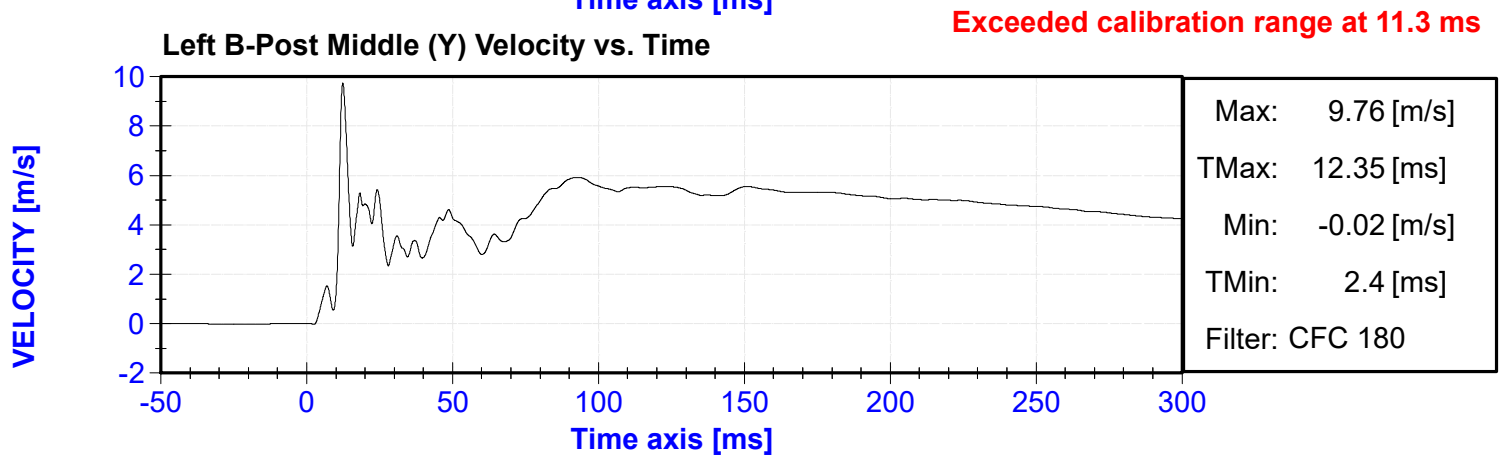
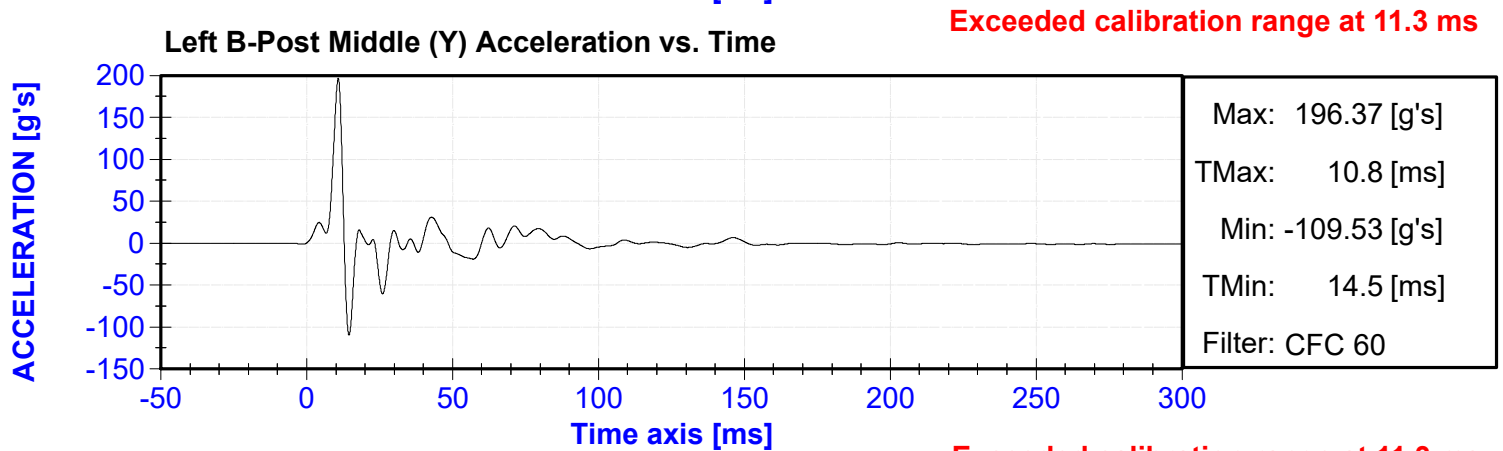
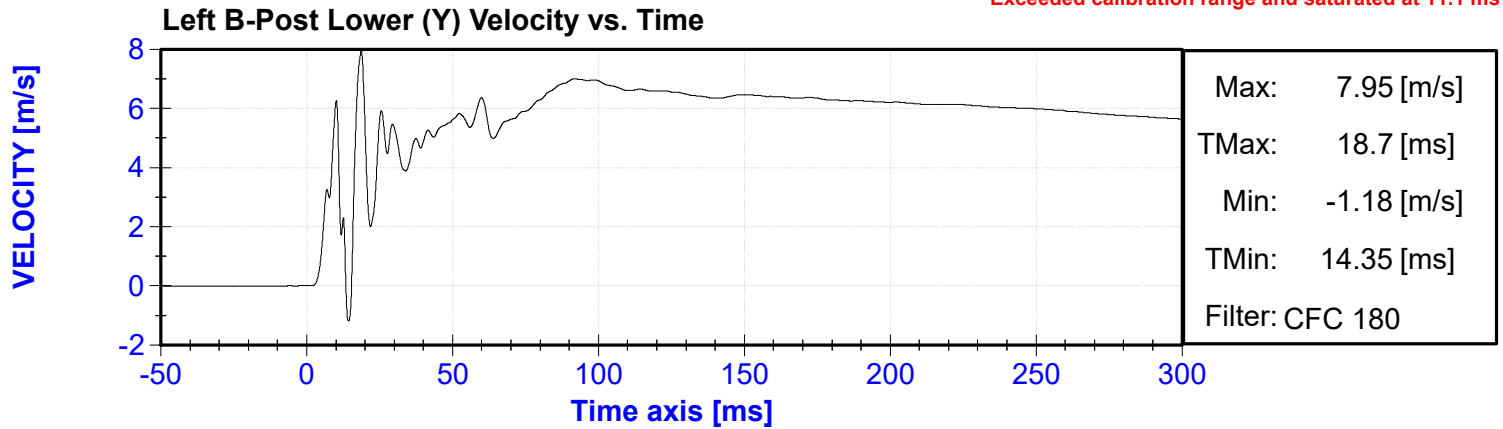
Left Sill at Front Door (Y) Acceleration vs. Time.

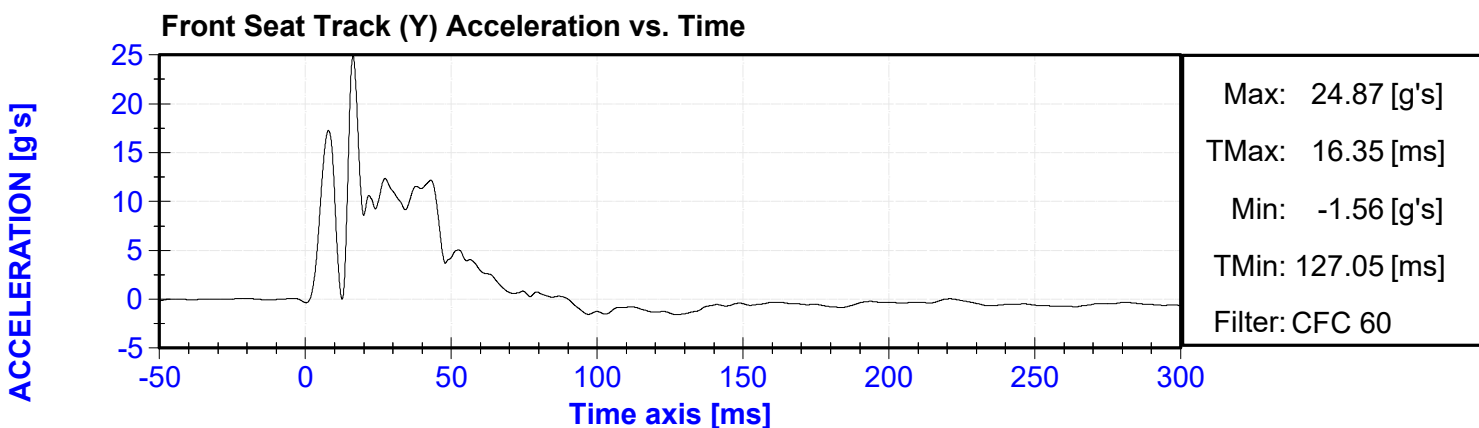
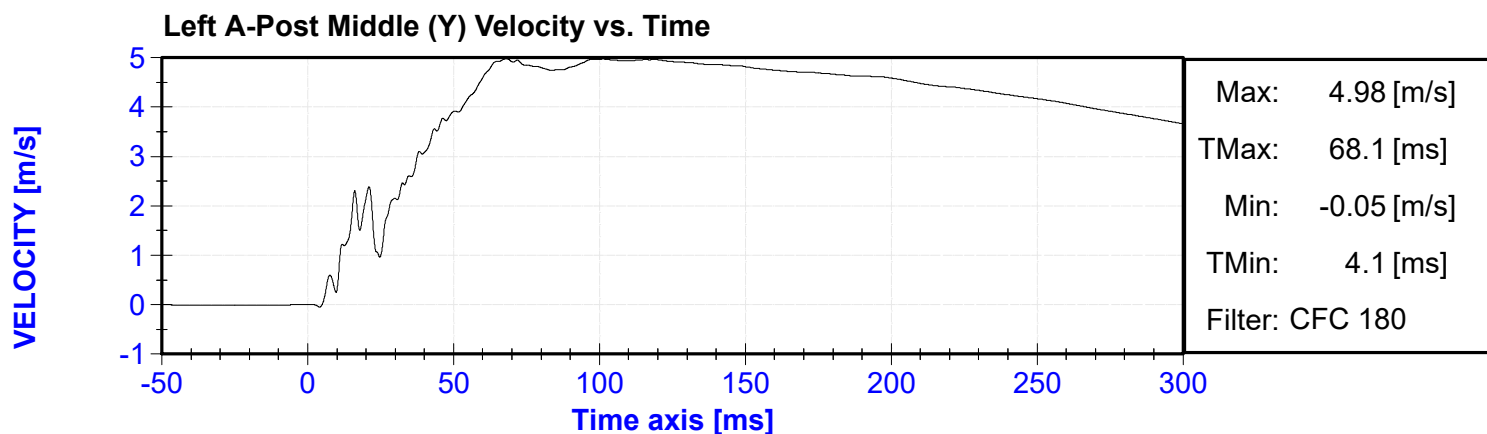
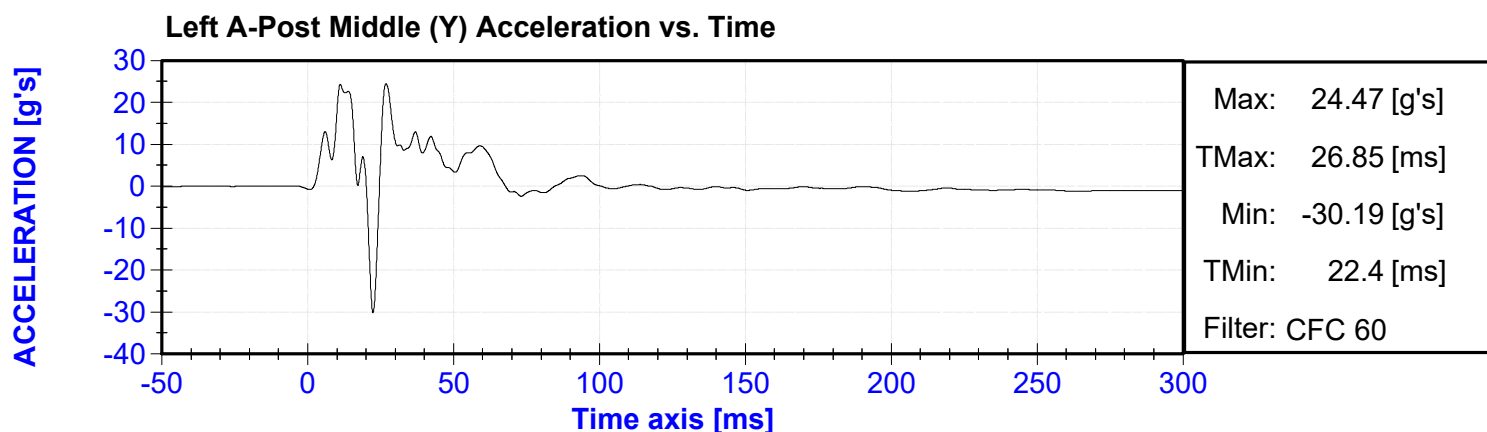
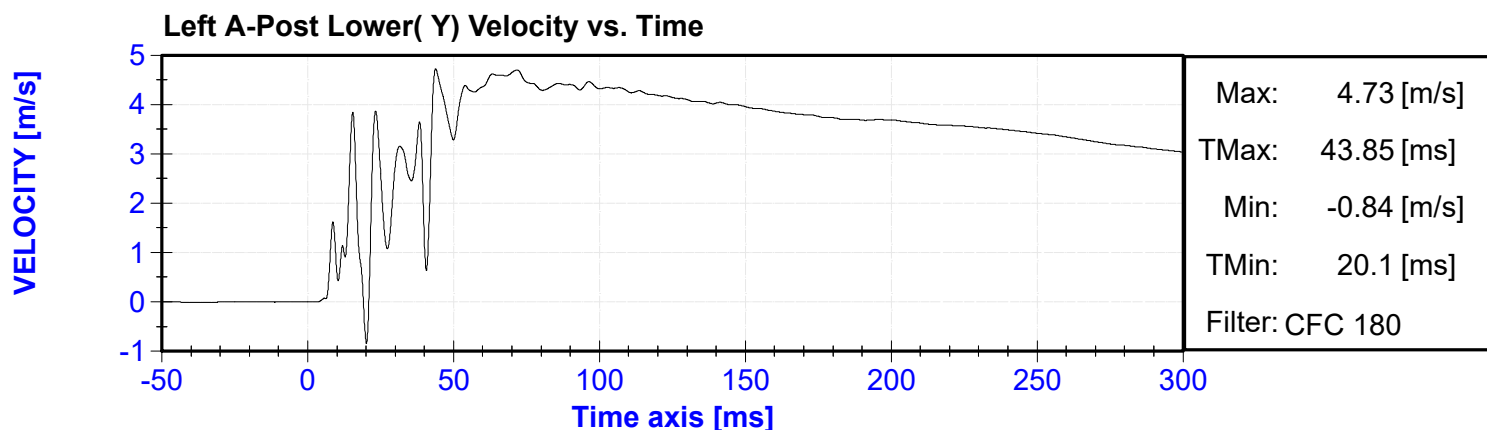
ACCELERATION [g's]

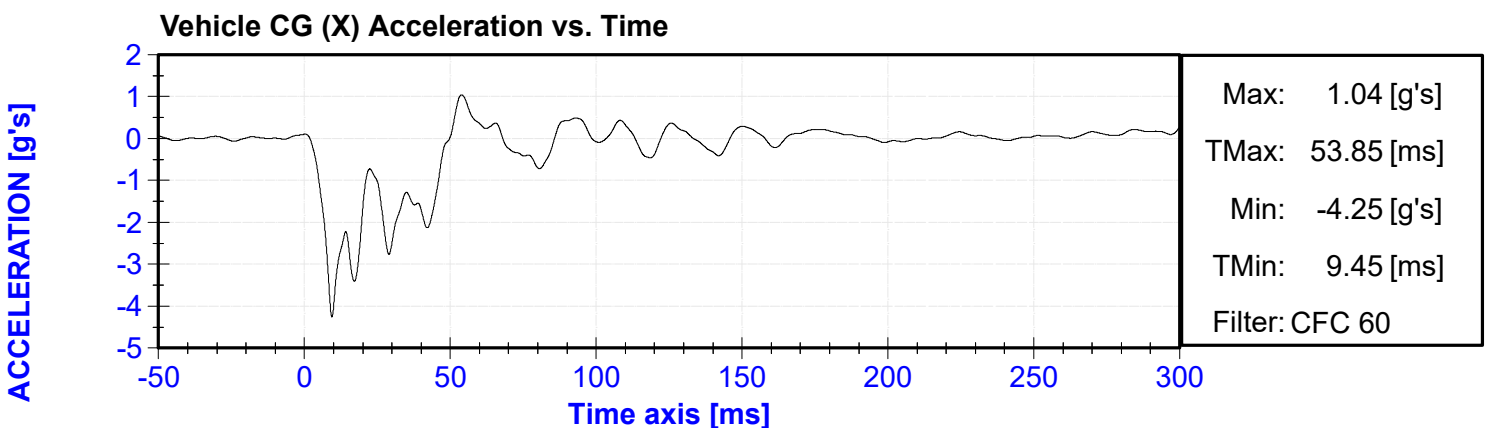
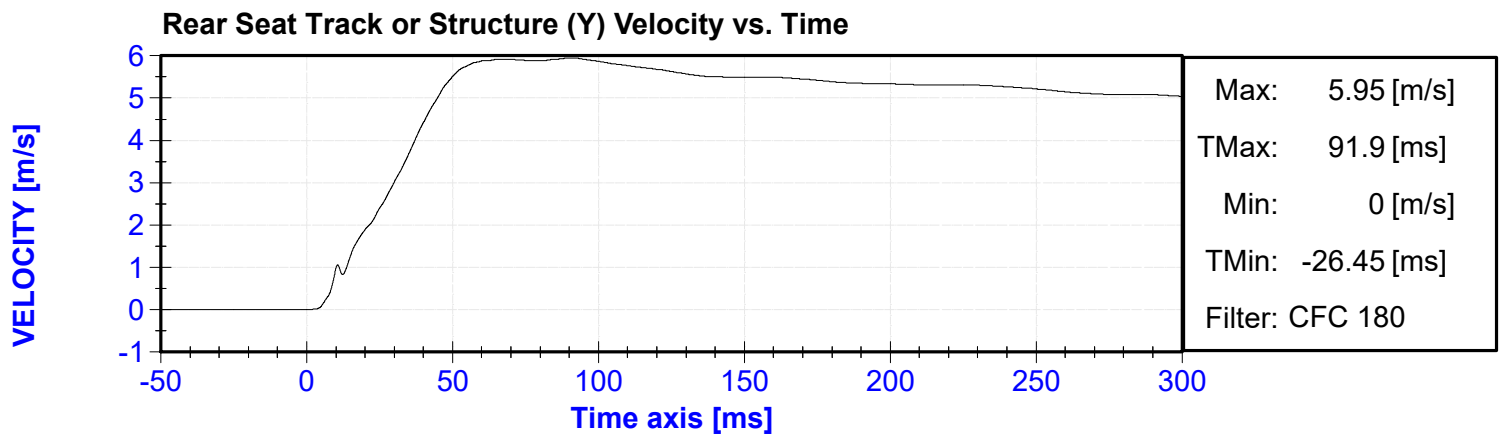
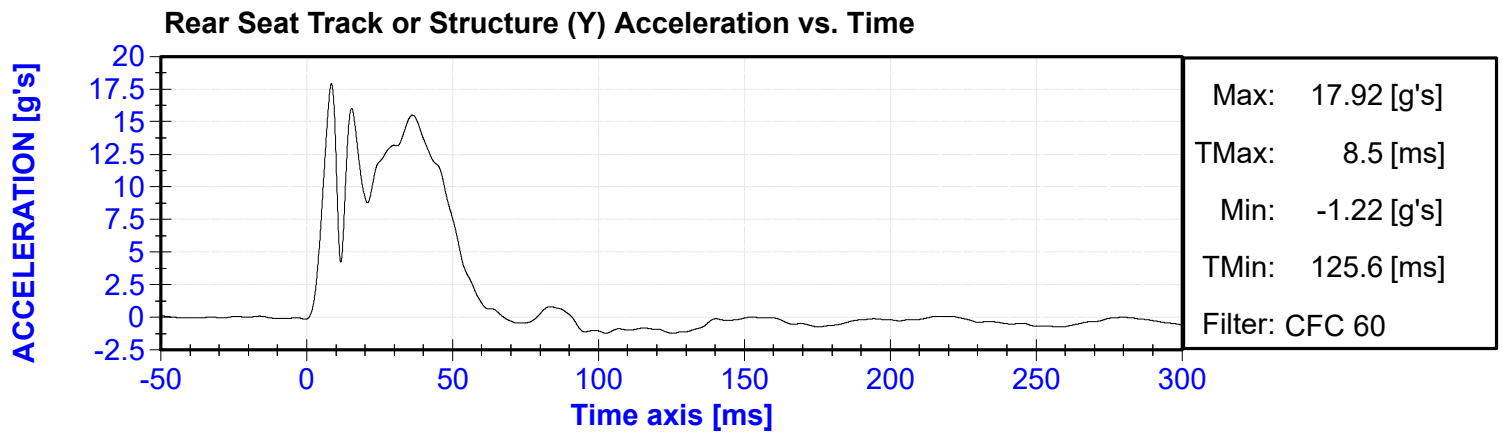
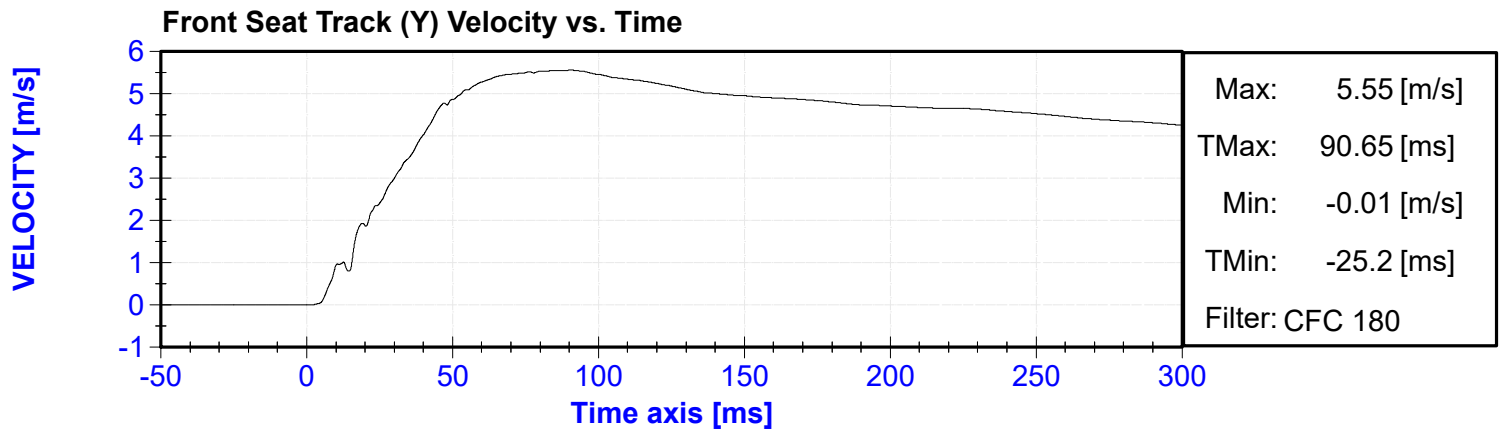


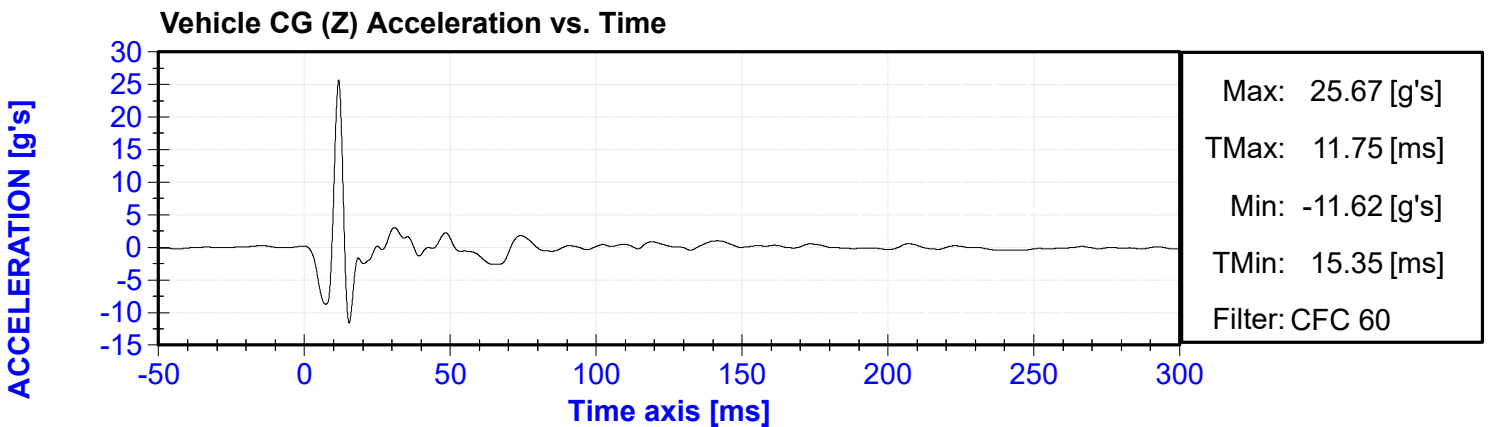
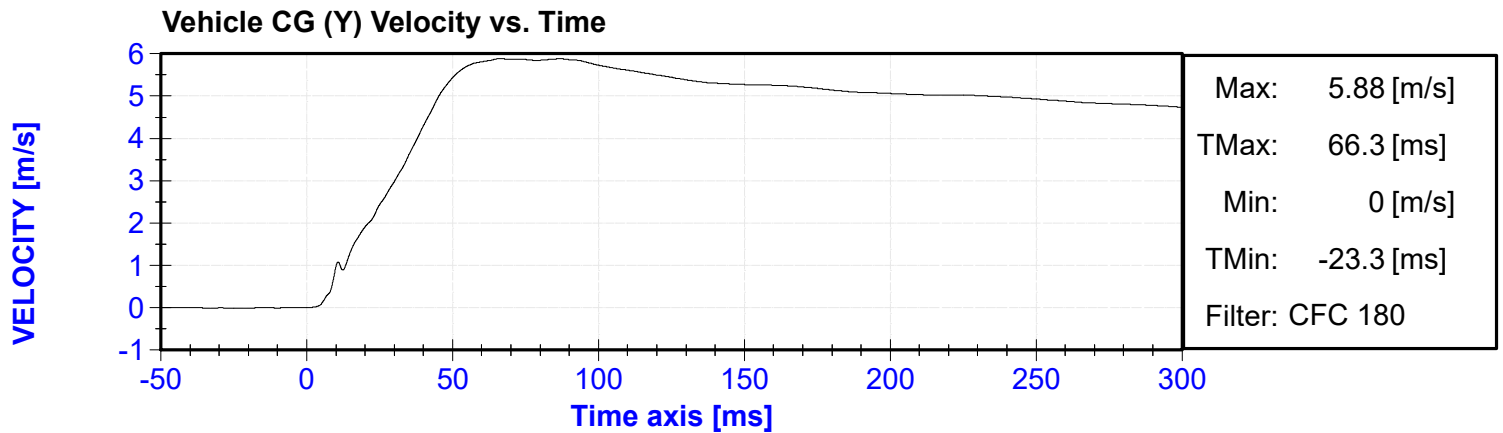
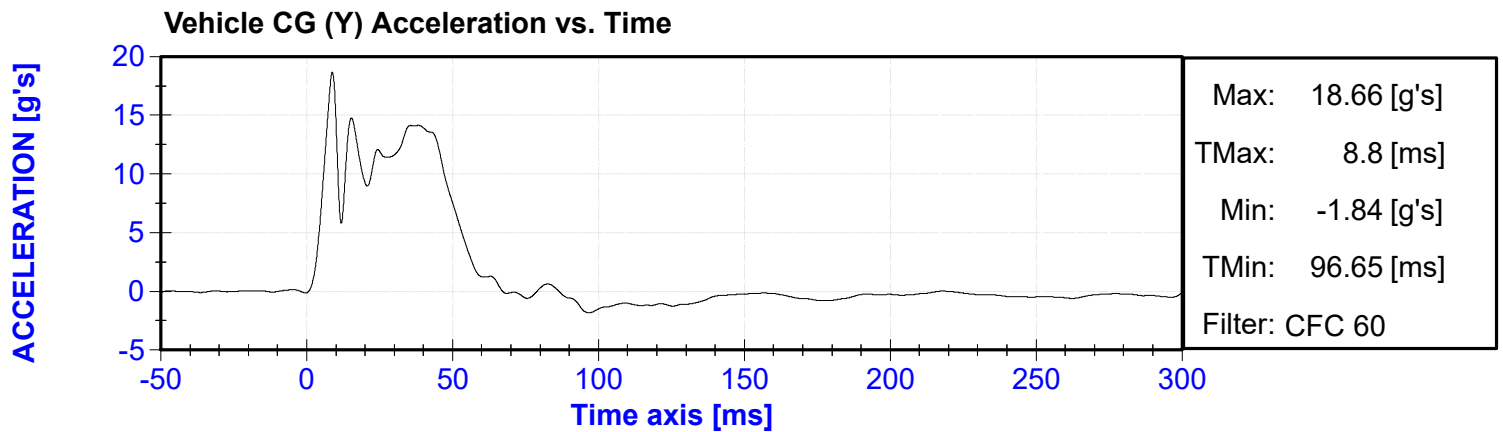
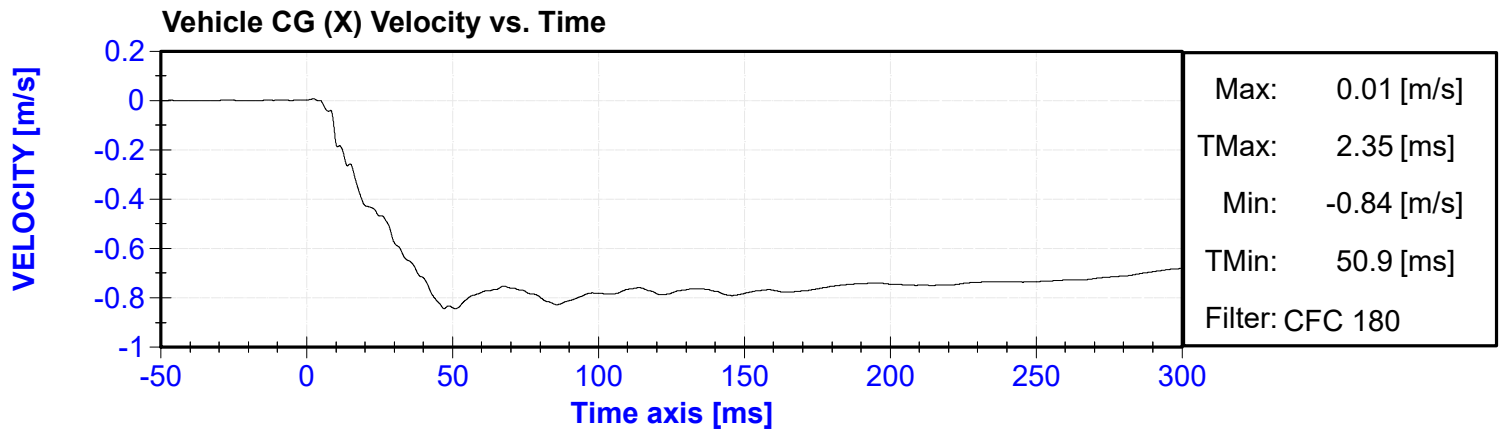


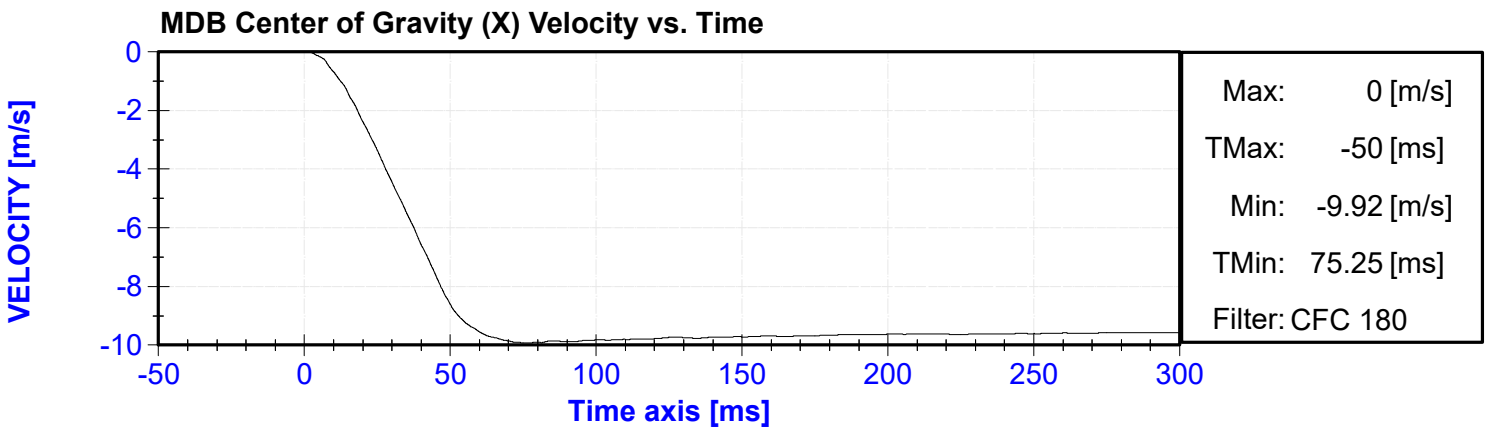
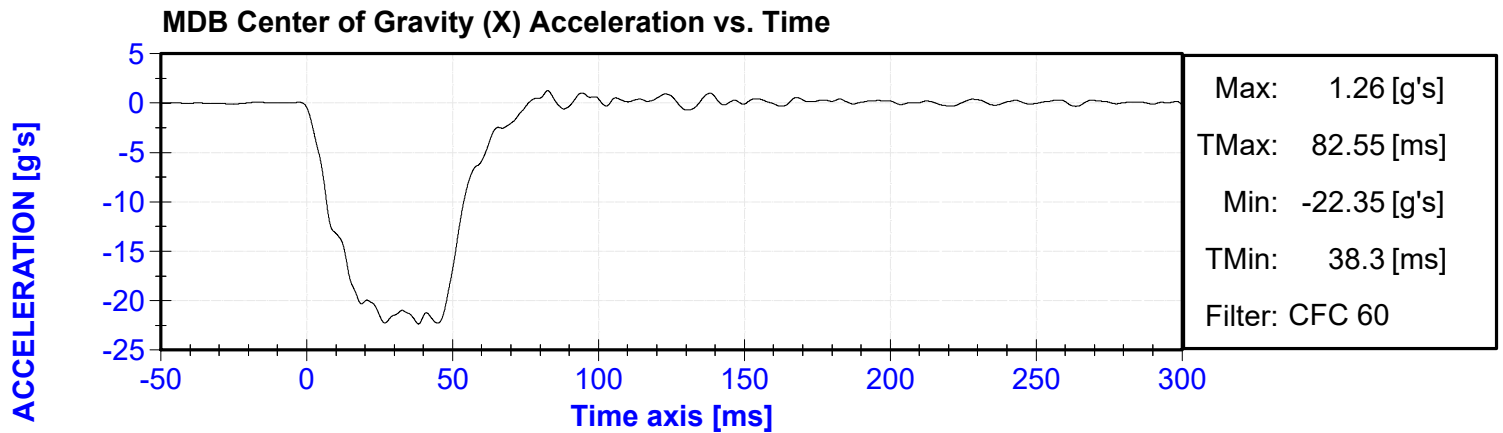
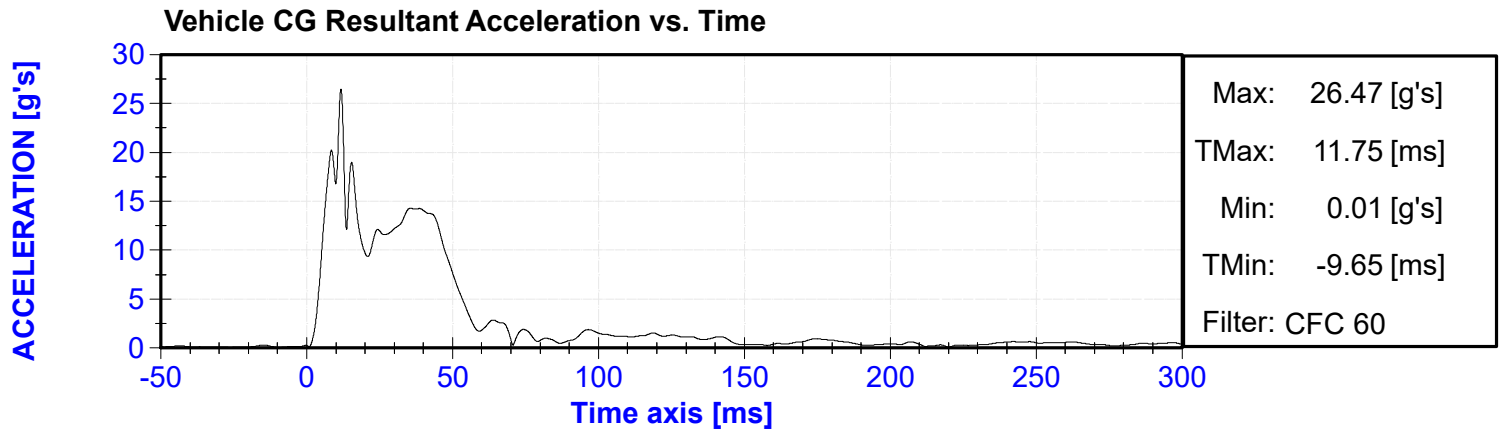
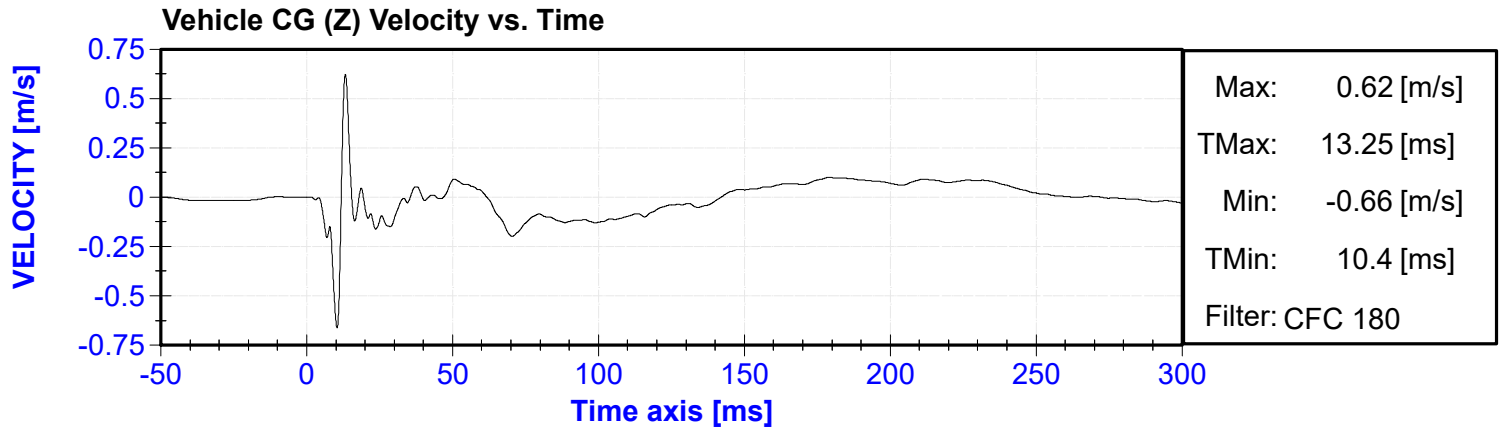
Exceeded calibration range and saturated at 11.1 ms

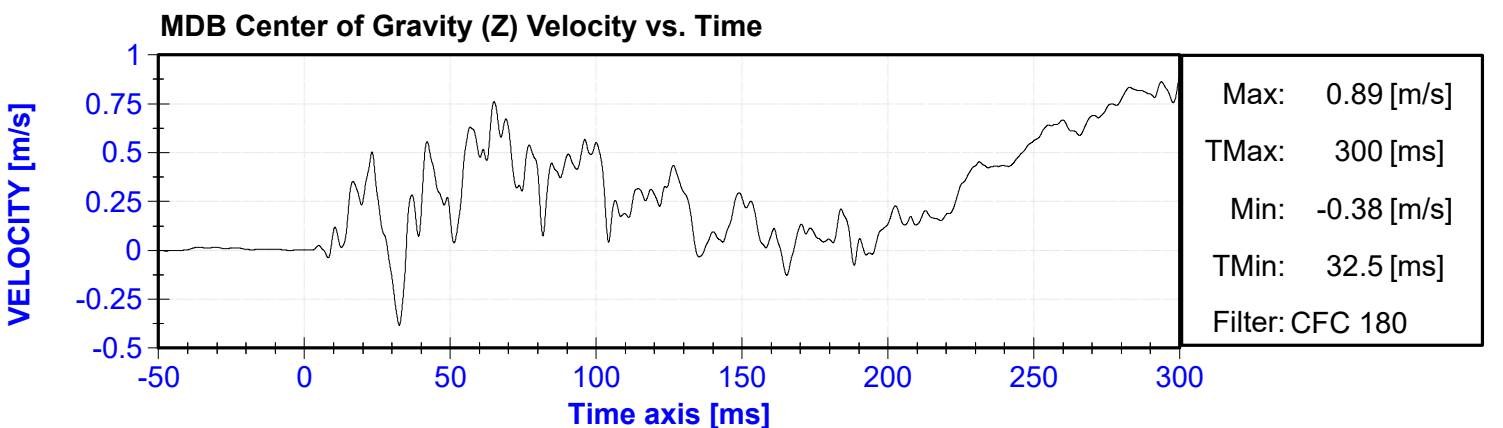
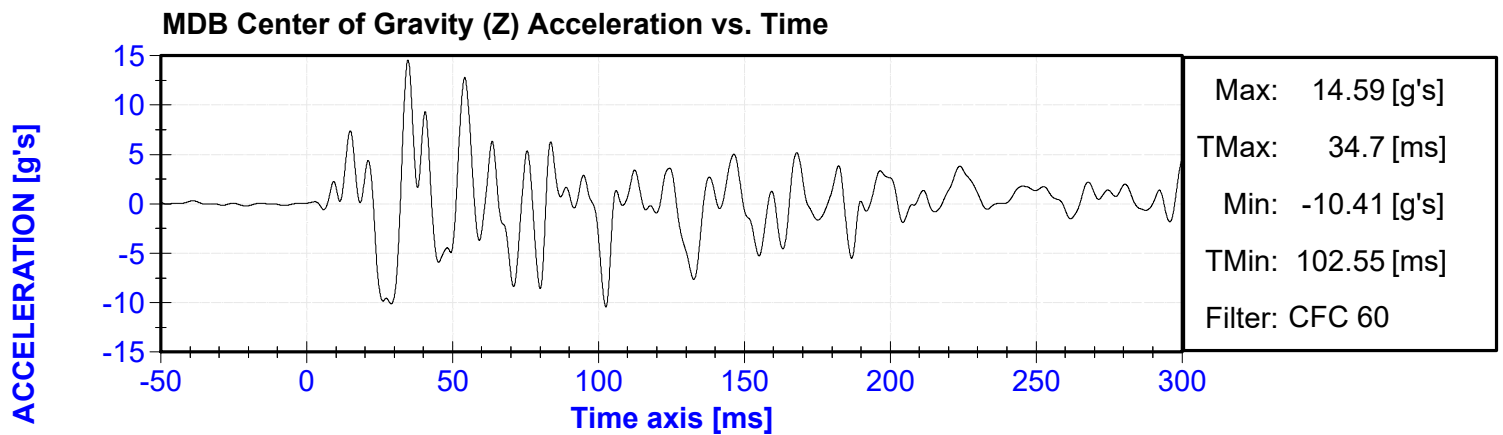
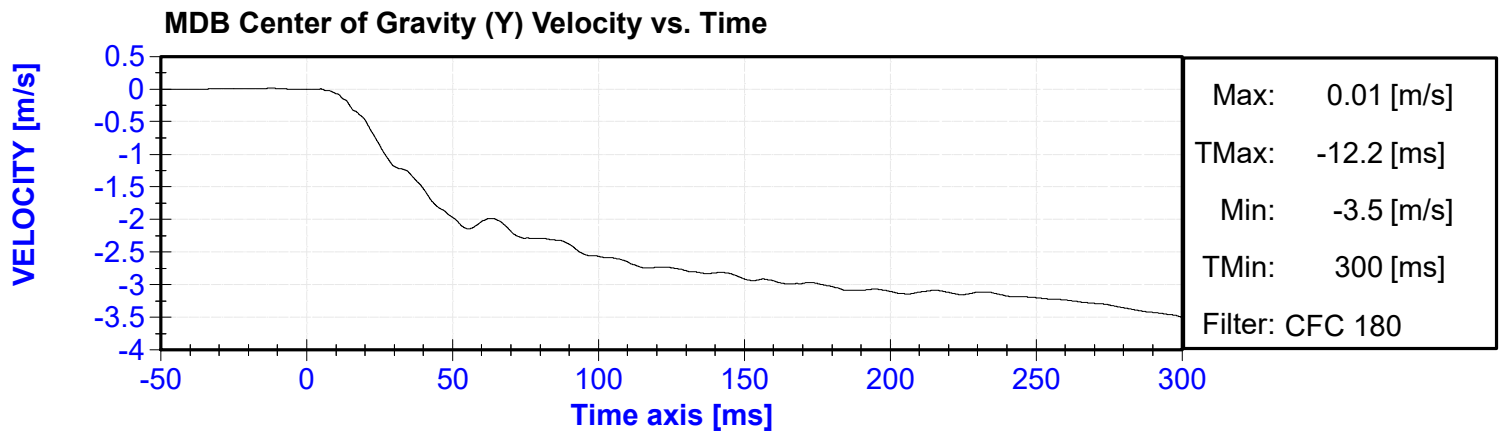
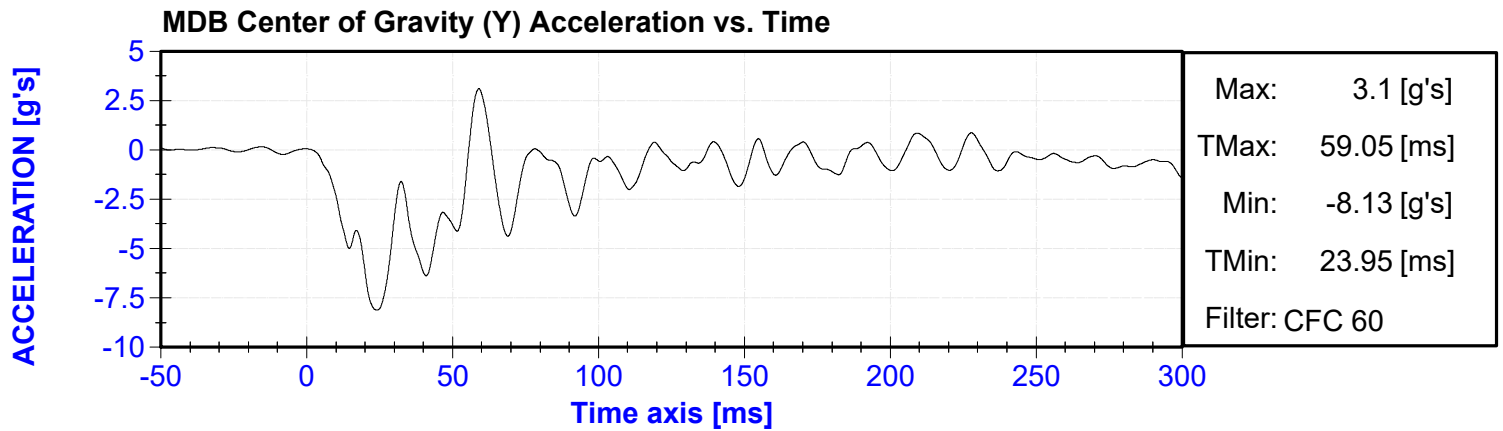






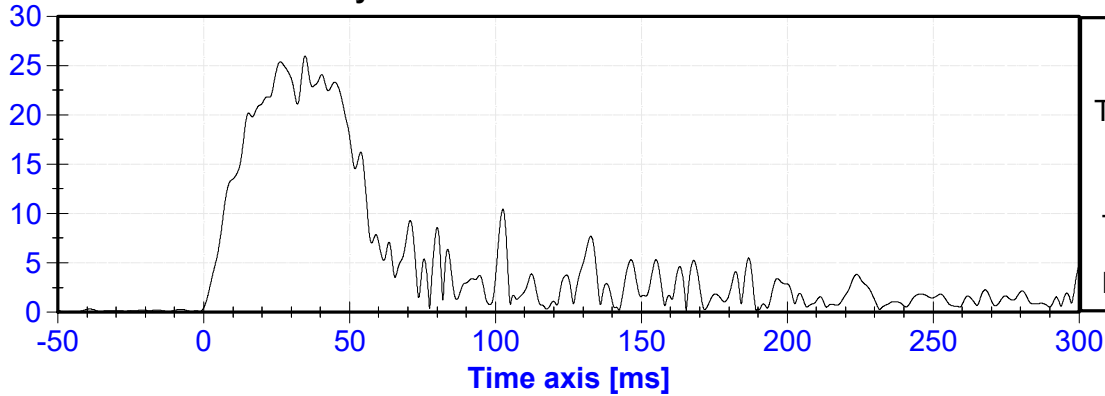






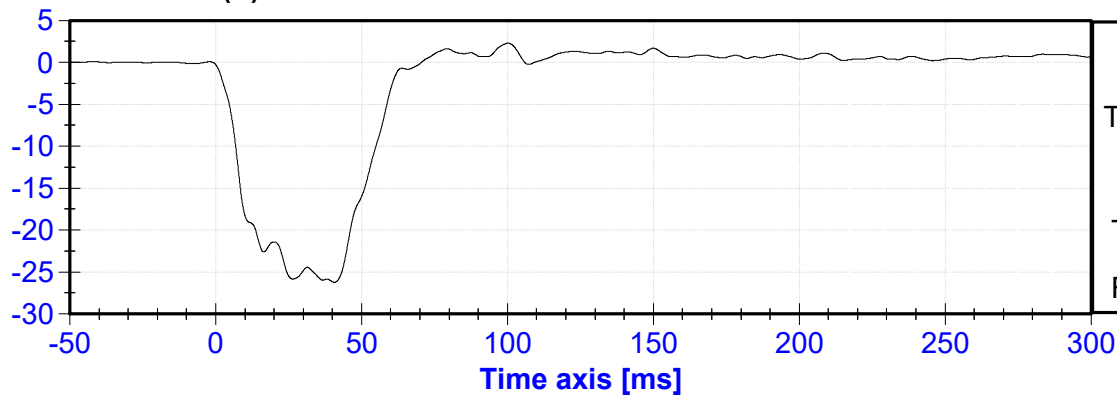
ACCELERATION [g's]

MDB Center of Gravity Resultant Acceleration vs. Time



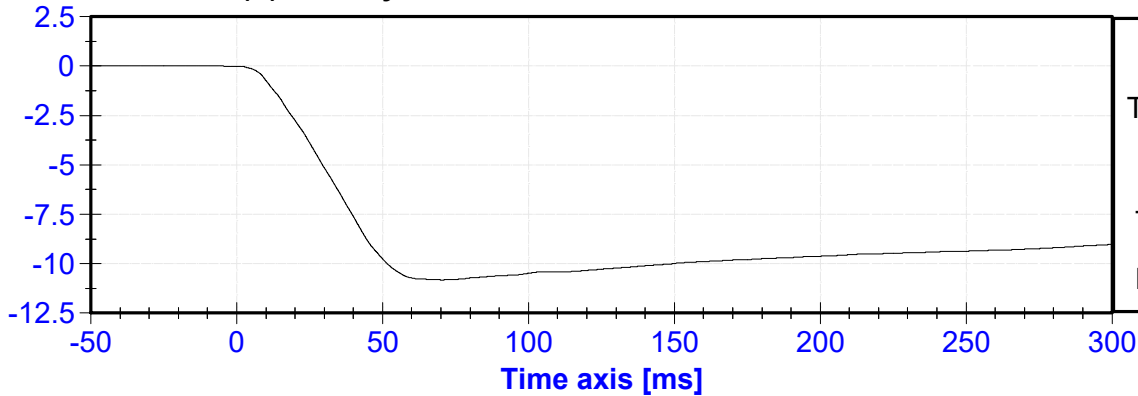
ACCELERATION [g's]

MDB Rear (X) Acceleration vs. Time



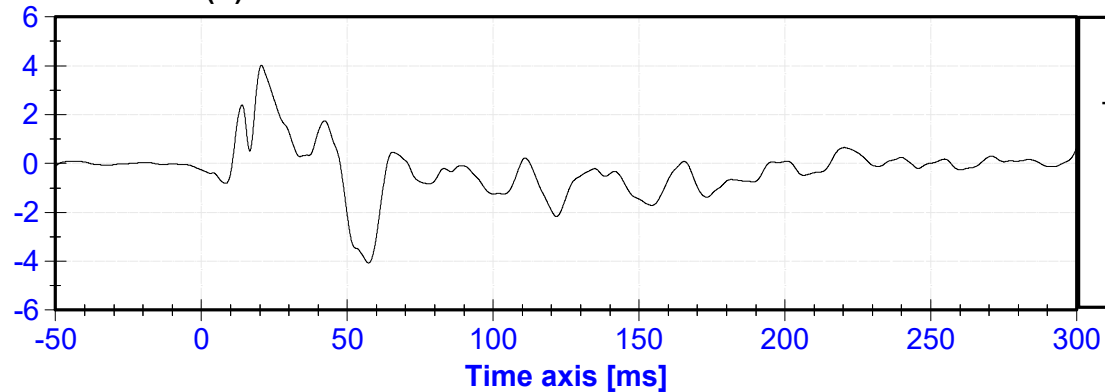
VELOCITY [m/s]

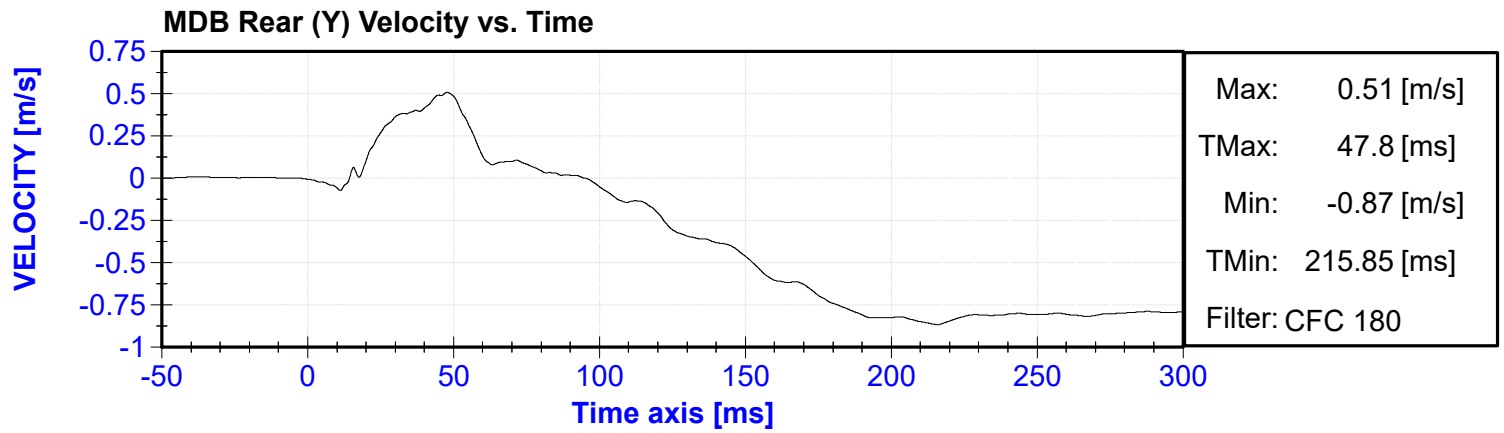
MDB Rear (X) Velocity vs. Time



ACCELERATION [g's]

MDB Rear (Y) Acceleration vs. Time





APPENDIX V

PRE-TEST ES-2re PERFORMANCE CALIBRATION TEST DATA

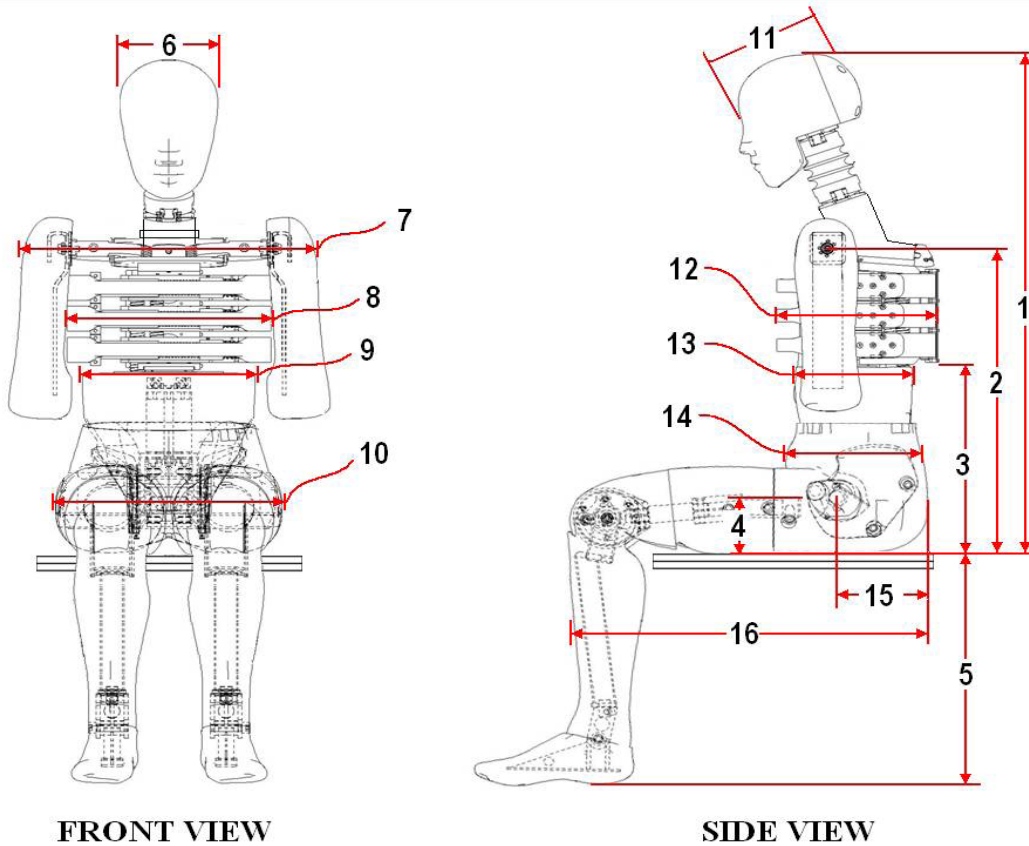


External Measurements - EuroSID-2re

Technician: J. Rios

Date: 3/25/2025

Dummy Serial Number: DG5348



FRONT VIEW

SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	914	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	404	Pass
6	Head Width	152	158	154	Pass
7	Shoulder/Arm Width	461	479	470	Pass
8	Thorax Width	322	332	328	Pass
9	Abdomen Width	273	287	276	Pass
10	Pelvis Lap Width	359	373	368	Pass
11	Head Depth	196	206	204	Pass
12	Thorax Depth	262	272	271	Pass
13	Abdomen Depth	194	204	200	Pass
14	Pelvis Depth	235	245	239	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	154	Pass
16	Back of Buttocks to Front Knee	597	615	602	Pass

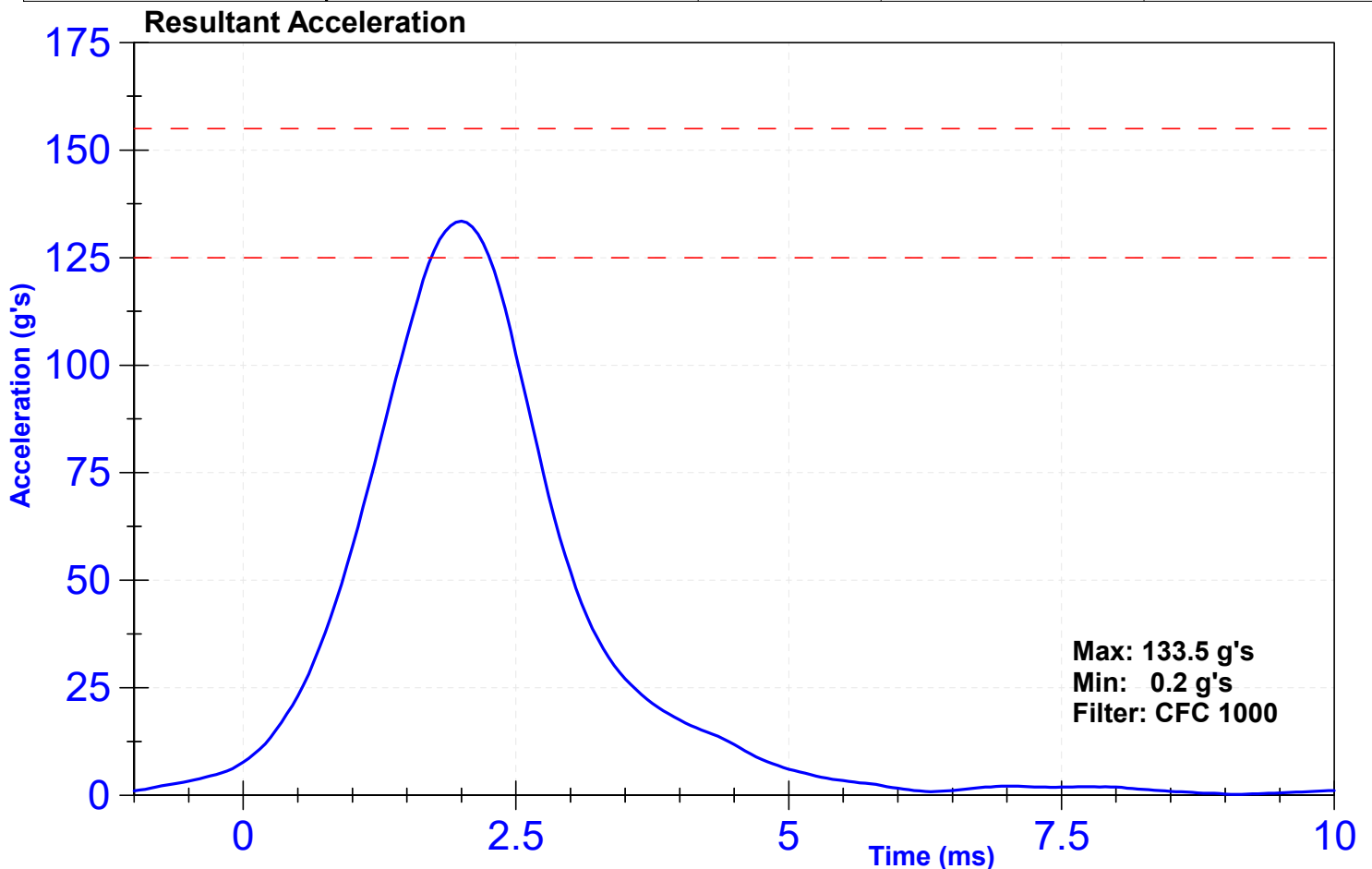
ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

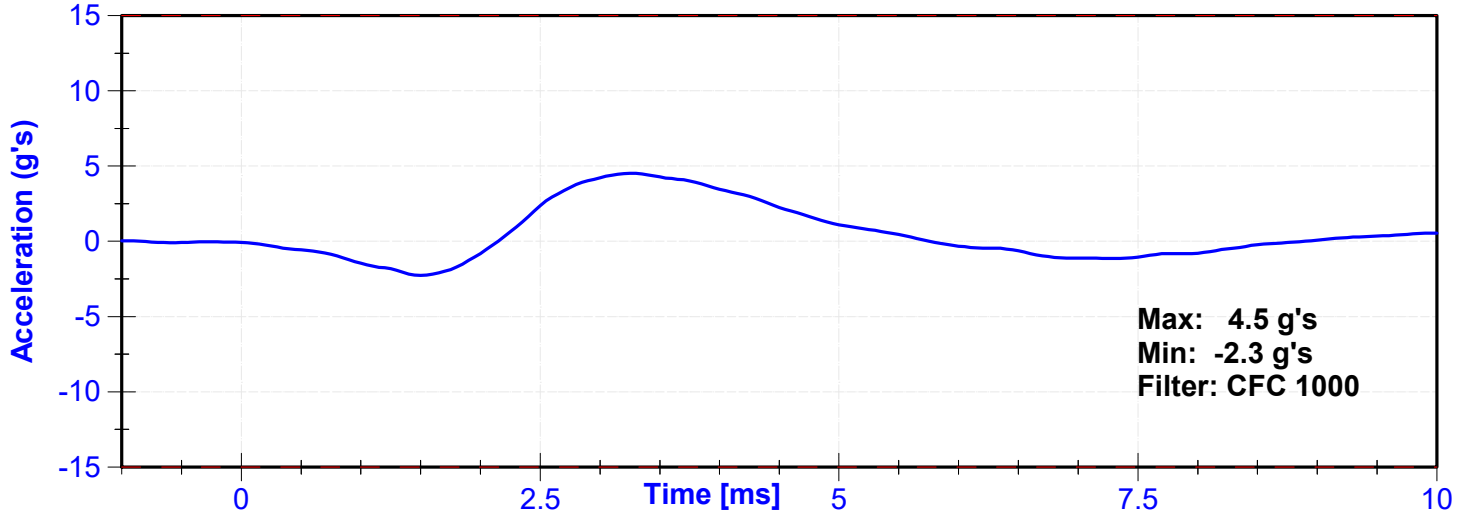
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.7	Pass
Humidity	10	70	%	21	Pass
Resultant Acceleration	125	155	g's	133.5	Pass
Oscillation	0	15	%	1.60	Pass
Fore-Aft Acceleration	-15	15	g's	4.5	Pass

Transducer Calibrations

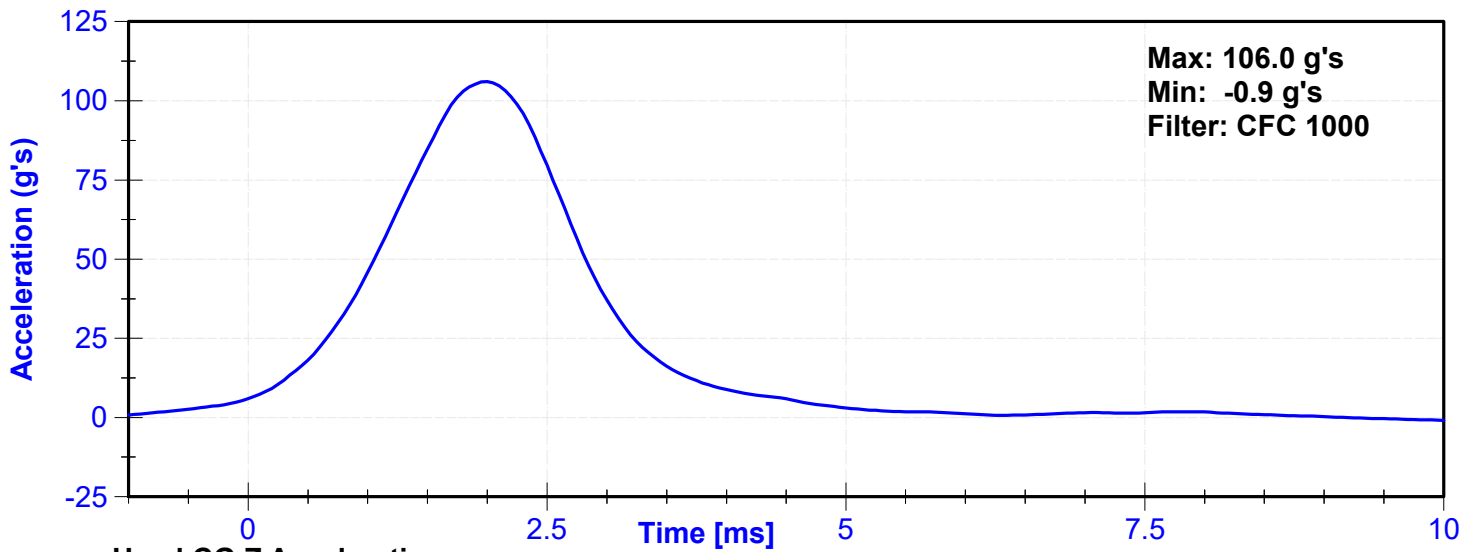
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	18613	1/17/2025	7/16/2025
Y Accelerometer	Endevco	18472	1/17/2025	7/16/2025
Z Accelerometer	Endevco	18663	1/17/2025	7/16/2025



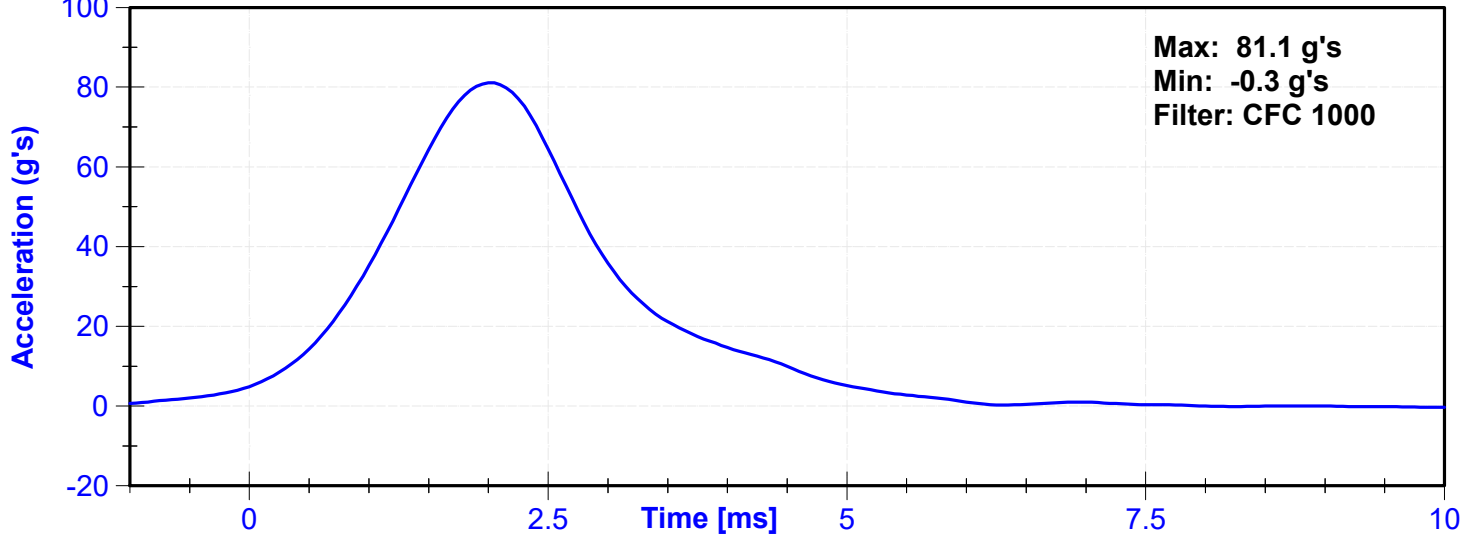
Head CG X Acceleration



Head CG Y Acceleration



Head CG Z Acceleration



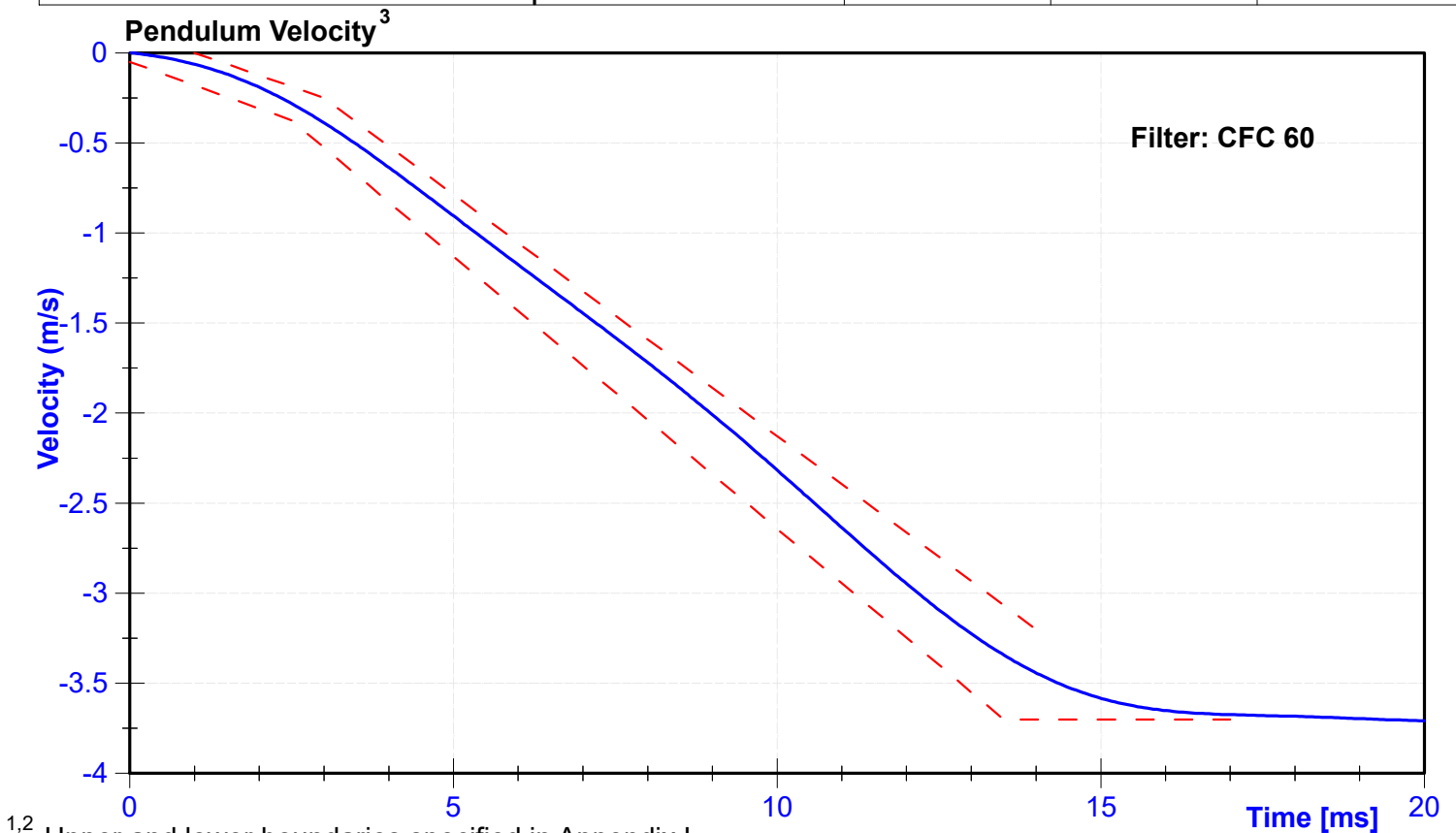
ATD Manufacturer	FTSS	Test Technician	K. Konieczny
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

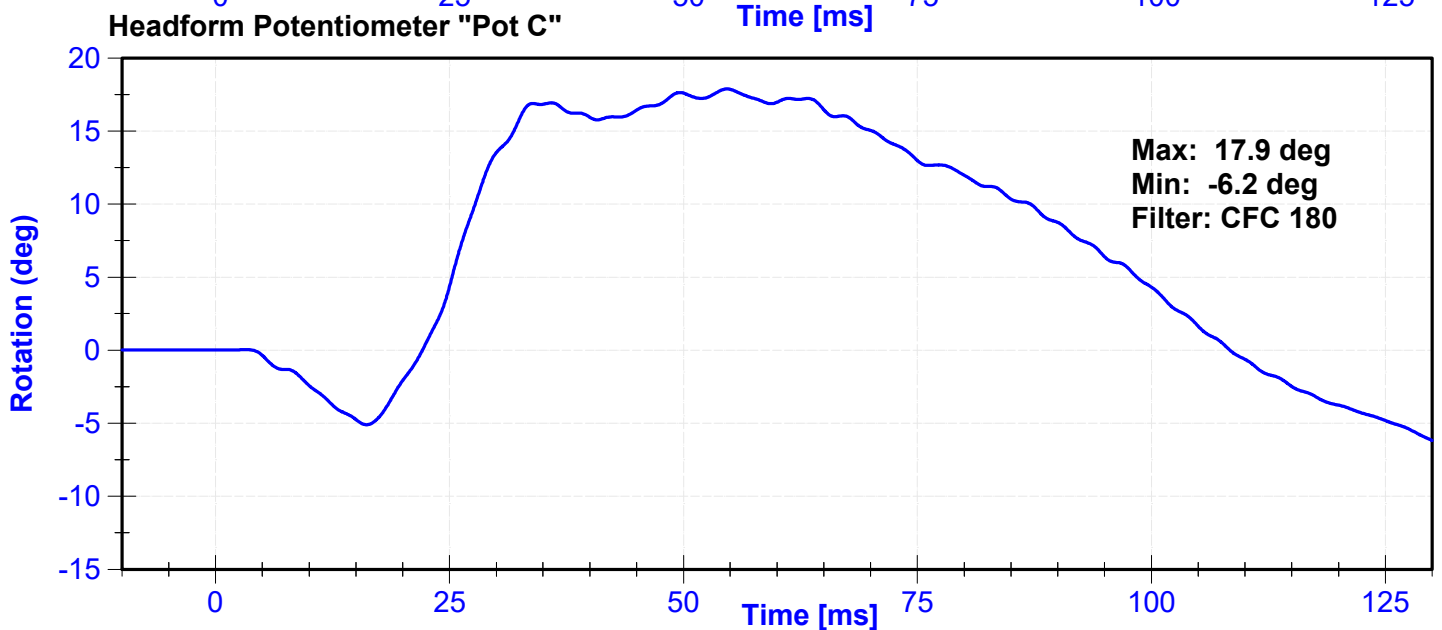
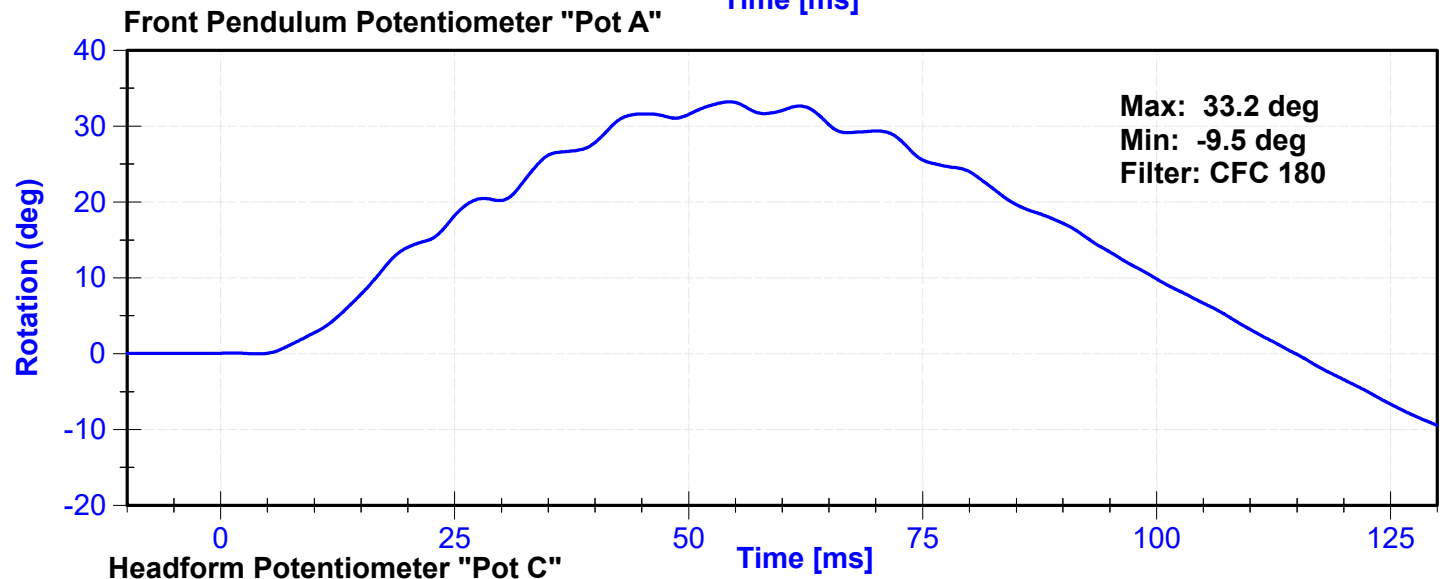
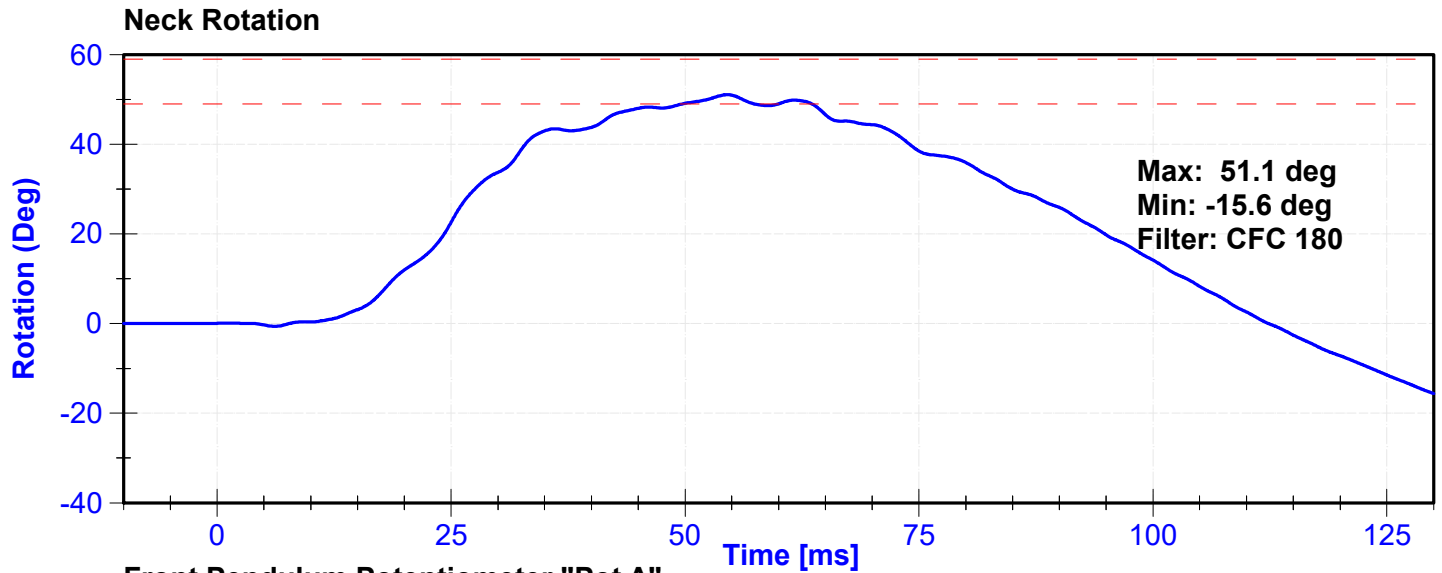
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	25	Pass
Velocity	3.3	3.5	m/s	3.45	Pass
Lateral Neck Rotation	49	59	deg	51.1	Pass
Time at Maximum Rotation	54	66	ms	54.5	Pass
Time of Rotation Decay from Maximum	53	88	ms	57.9	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	10/17/2024	4/15/2025
Front Pendulum Potentiometer	Sfernice	2247	9/13/2024	9/13/2025
Headform Potentiometer	Sfernice	095	9/13/2024	9/13/2025





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

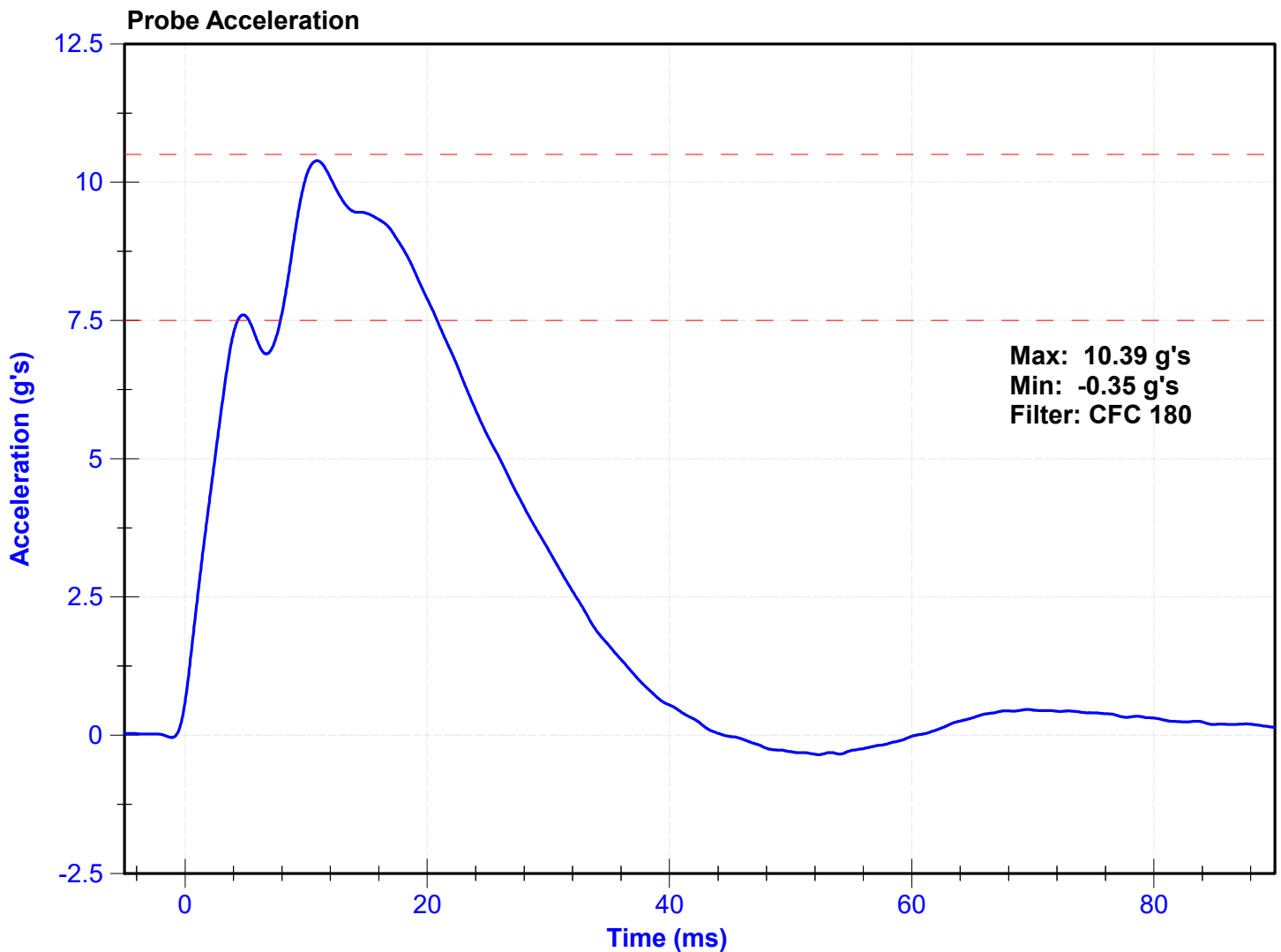
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	4.2	4.4	m/s	4.29	Pass
Probe Acceleration	7.5	10.5	g's	10.39	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	T25962	2/15/2025	8/14/2025



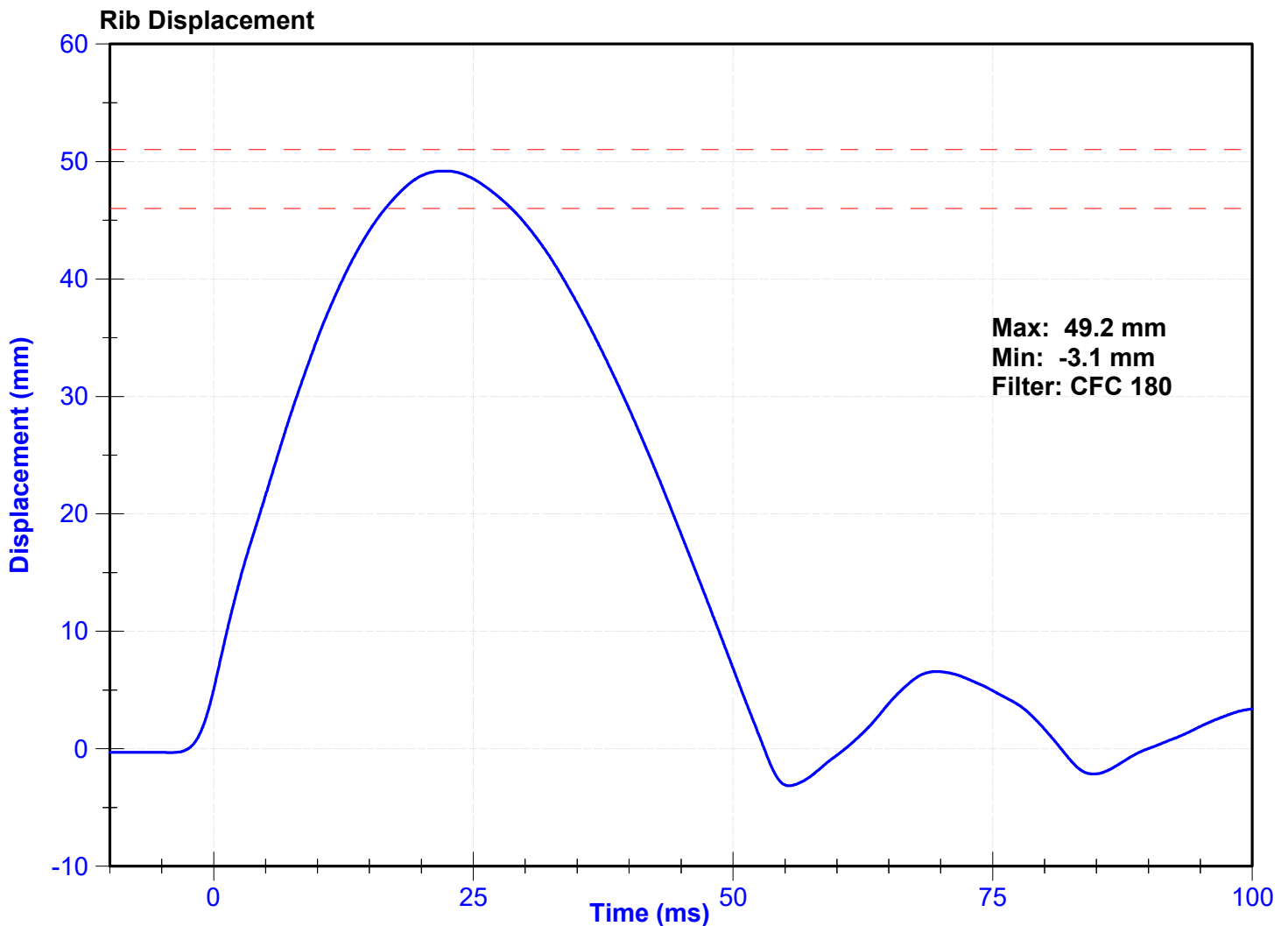
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	25	Pass
Rib Displacement	46	51	mm	49.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	268GFE	1/21/2025	7/22/2025



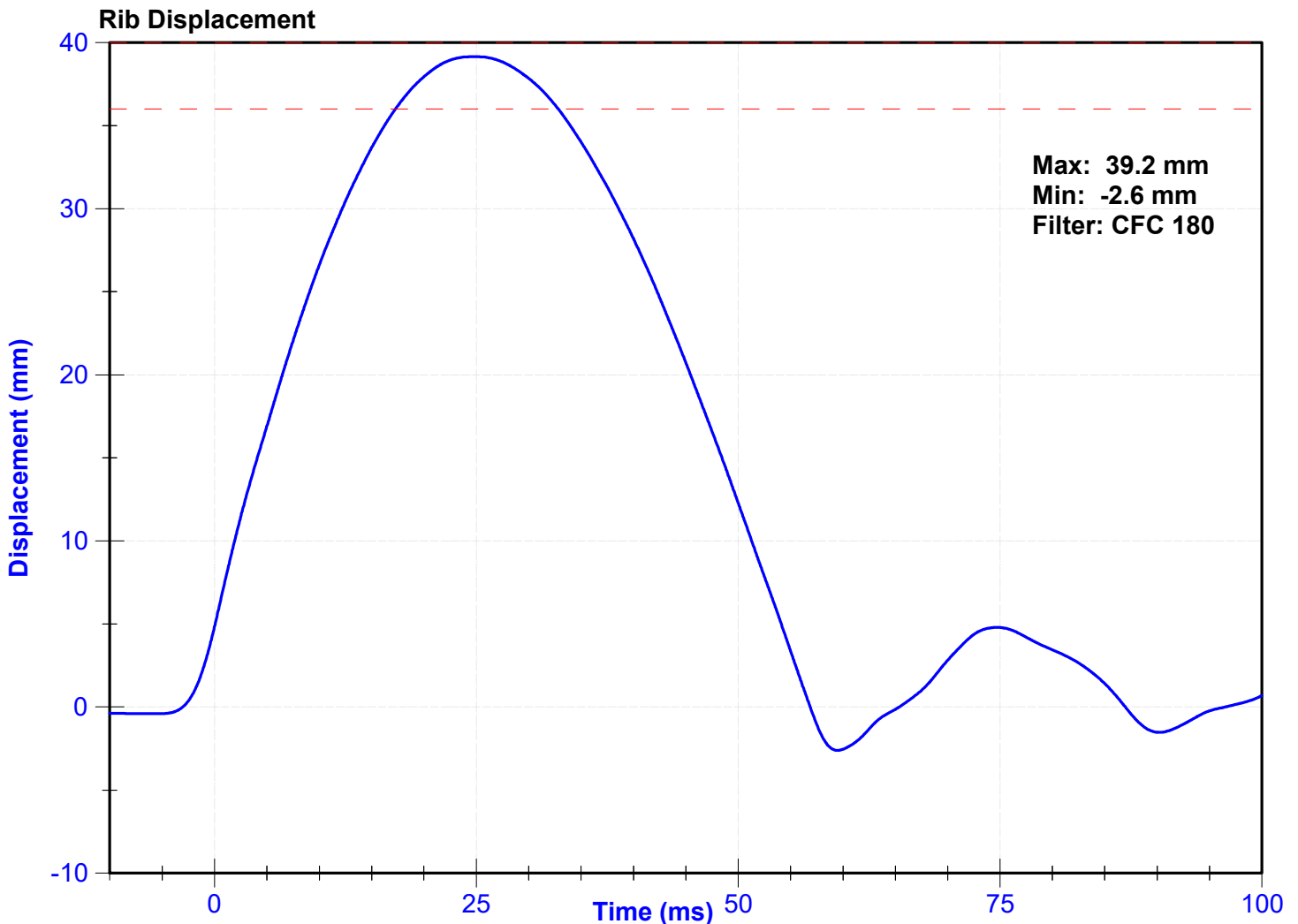
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	25	Pass
Rib Displacement	36	40	mm	39.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	268GFE	1/21/2025	7/22/2025



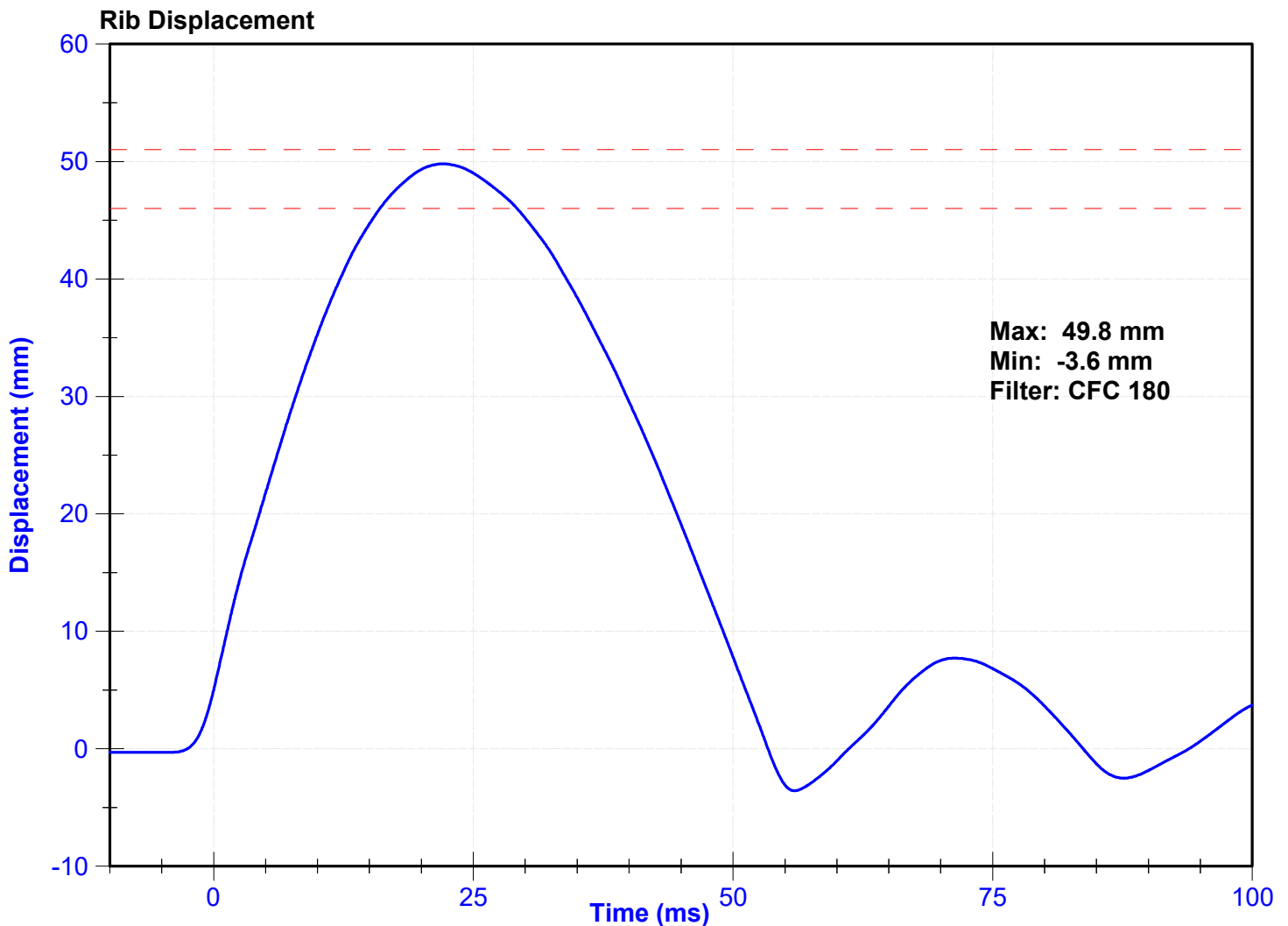
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	25	Pass
Rib Displacement	46	51	mm	49.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	269GFE	1/21/2025	7/22/2025



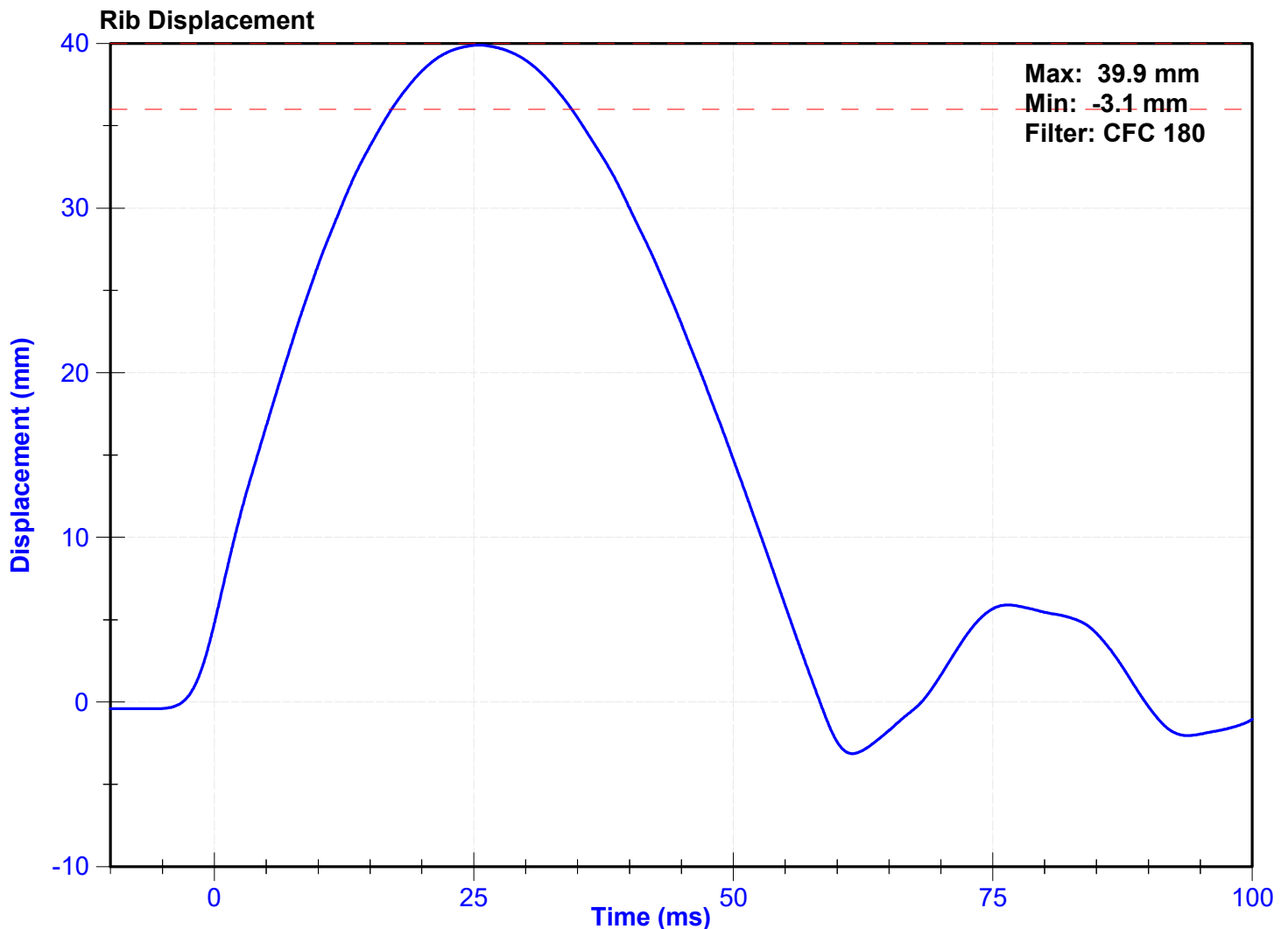
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	25	Pass
Rib Displacement	36	40	mm	39.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	269GFE	1/21/2025	7/22/2025



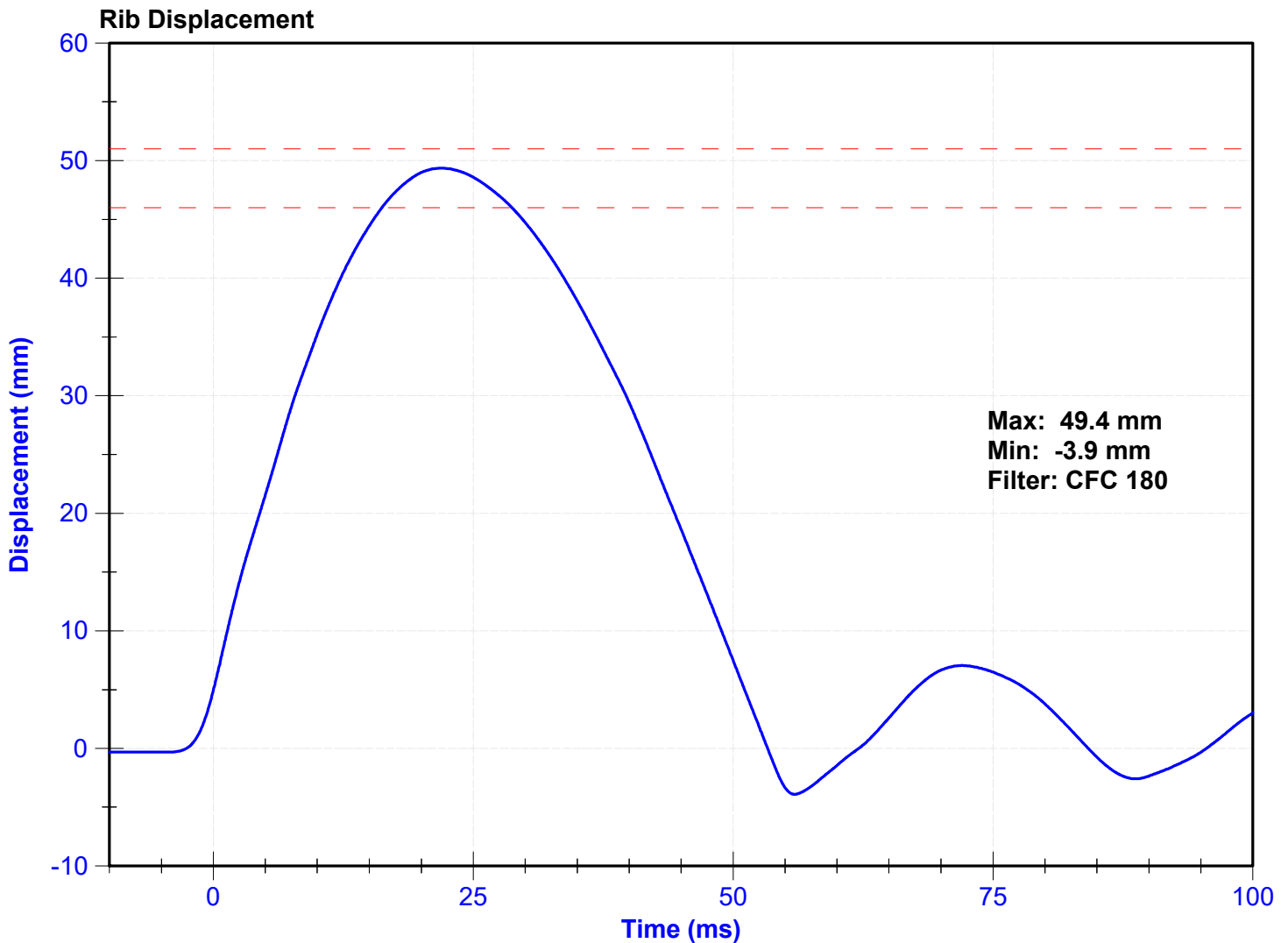
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	25	Pass
Rib Displacement	46	51	mm	49.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	270GFE	1/22/2025	7/23/2025



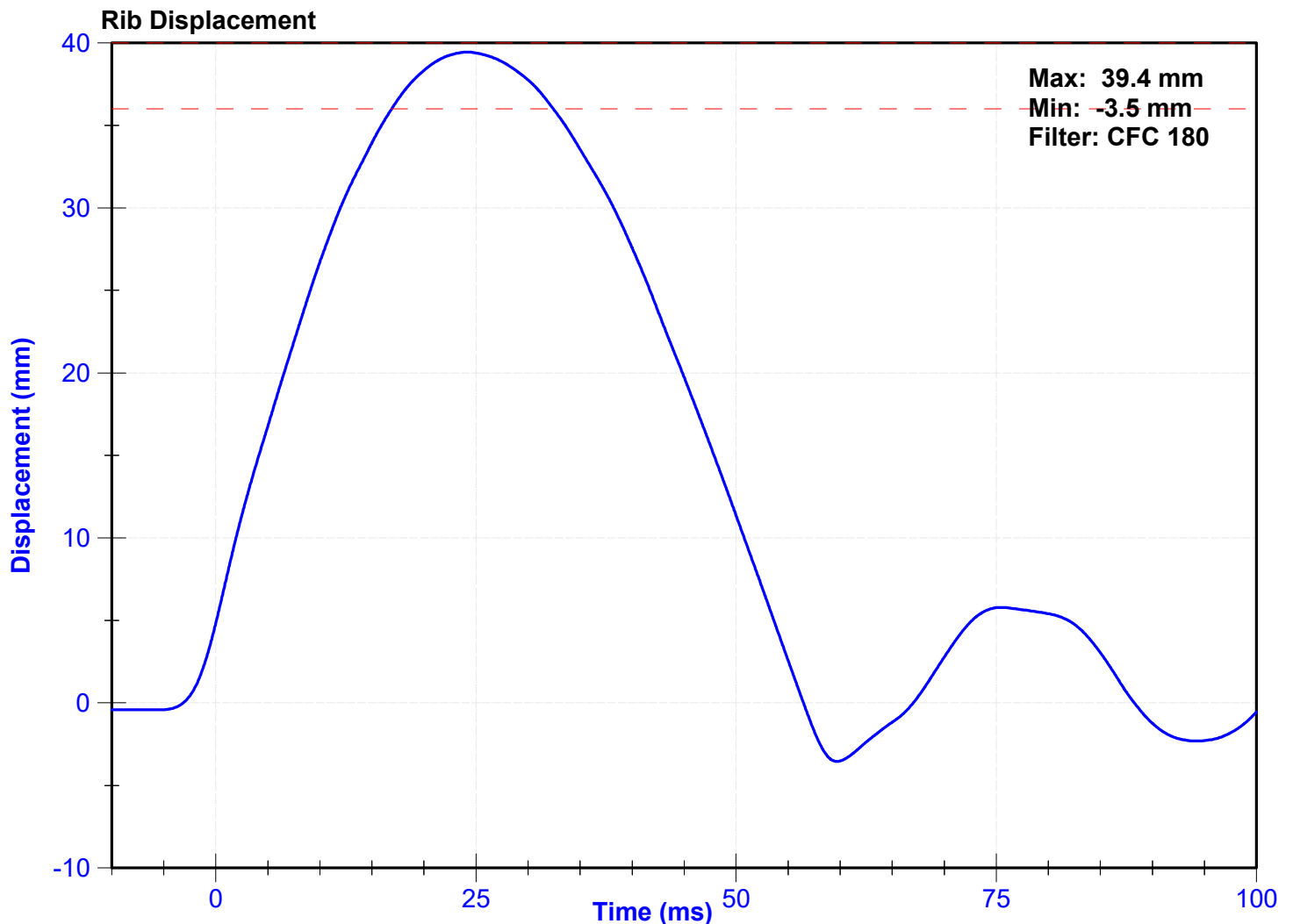
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	25	Pass
Rib Displacement	36	40	mm	39.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	270GFE	1/22/2025	7/23/2025



ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

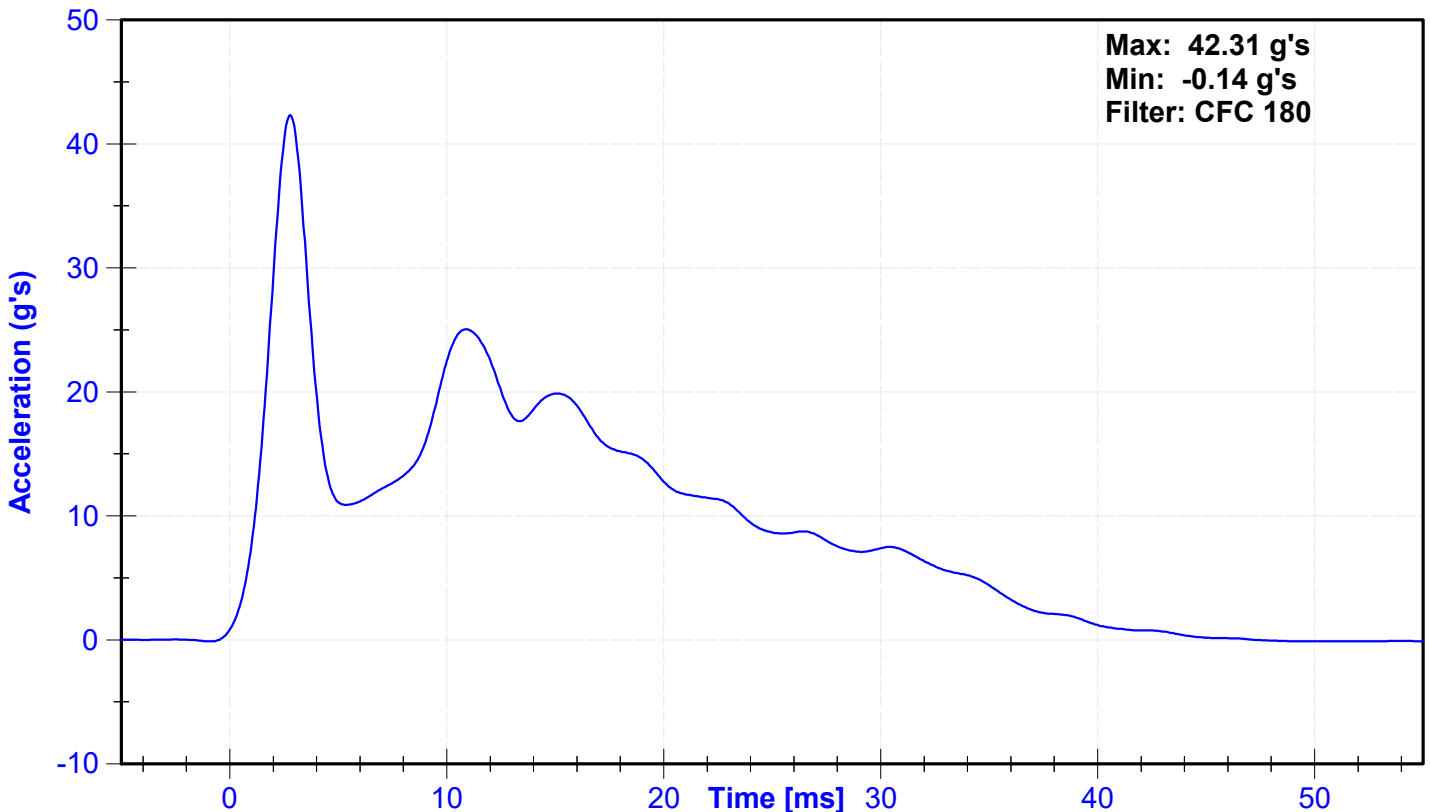
Results

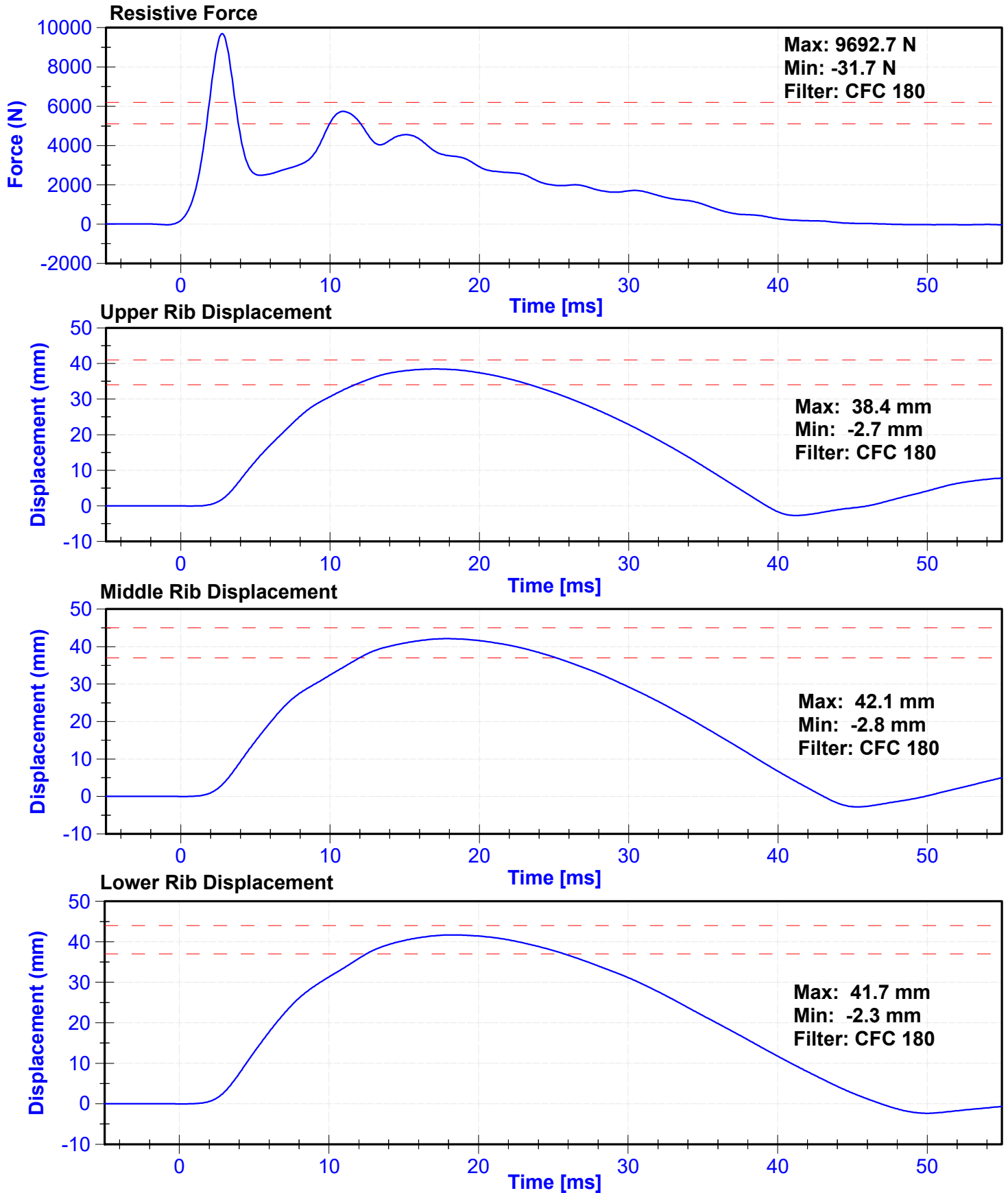
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	5.4	5.6	m/s	5.54	Pass
Resistive Force after 6ms	5100	6200	N	5737.3	Pass
Upper Thorax Rib Deflection	34	41	mm	38.4	Pass
Mid Thorax Rib Deflection	37	45	mm	42.1	Pass
Lower Thorax Rib Deflection	37	44	mm	41.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Upper Thorax Rib Potentiometer	Honeywell	268GFE	1/21/2025	7/22/2025
Middle Thorax Rib Potentiometer	Honeywell	269GFE	1/21/2025	7/22/2025
Lower Thorax Rib Potentiometer	Honeywell	270GFE	1/22/2025	7/23/2025

Probe Acceleration





ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

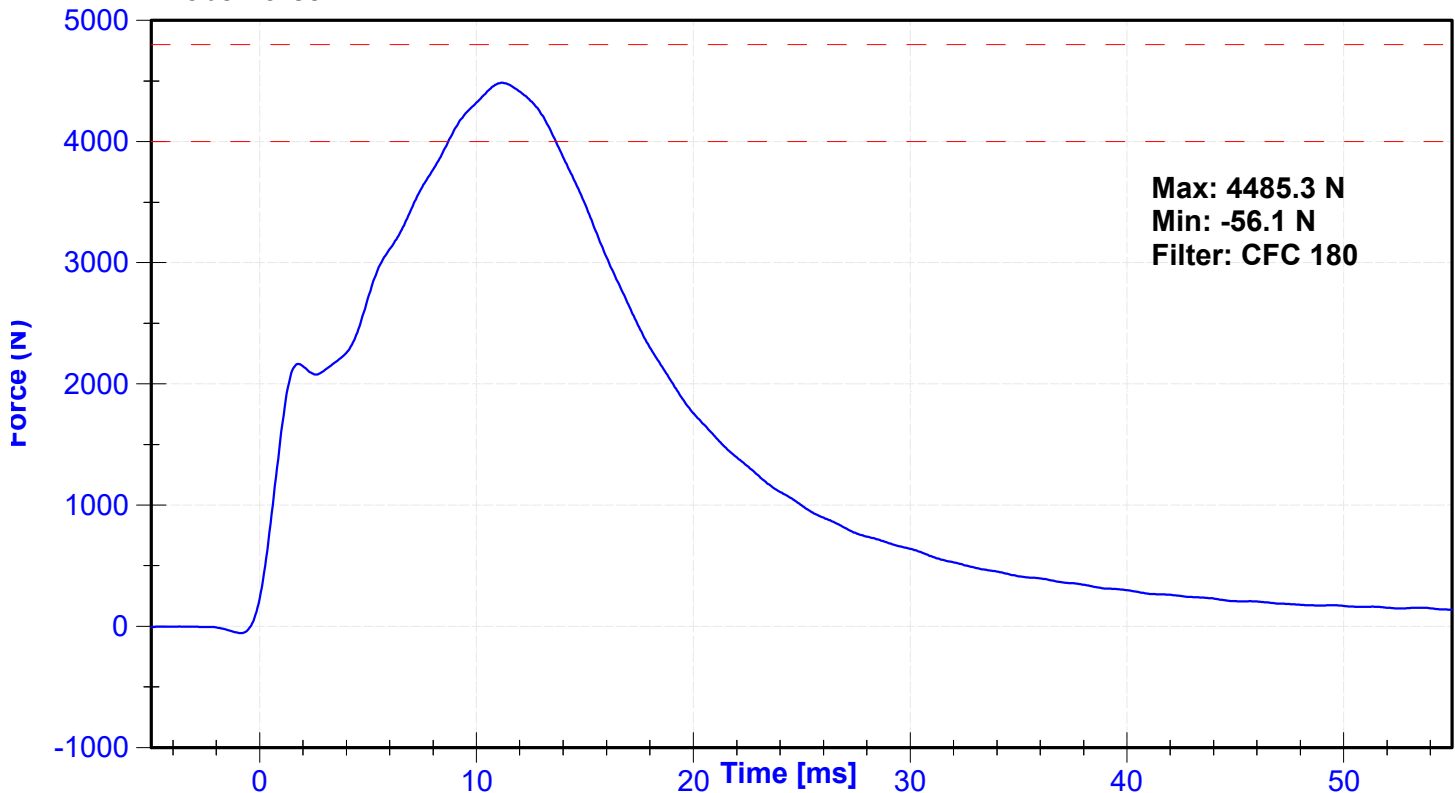
Results

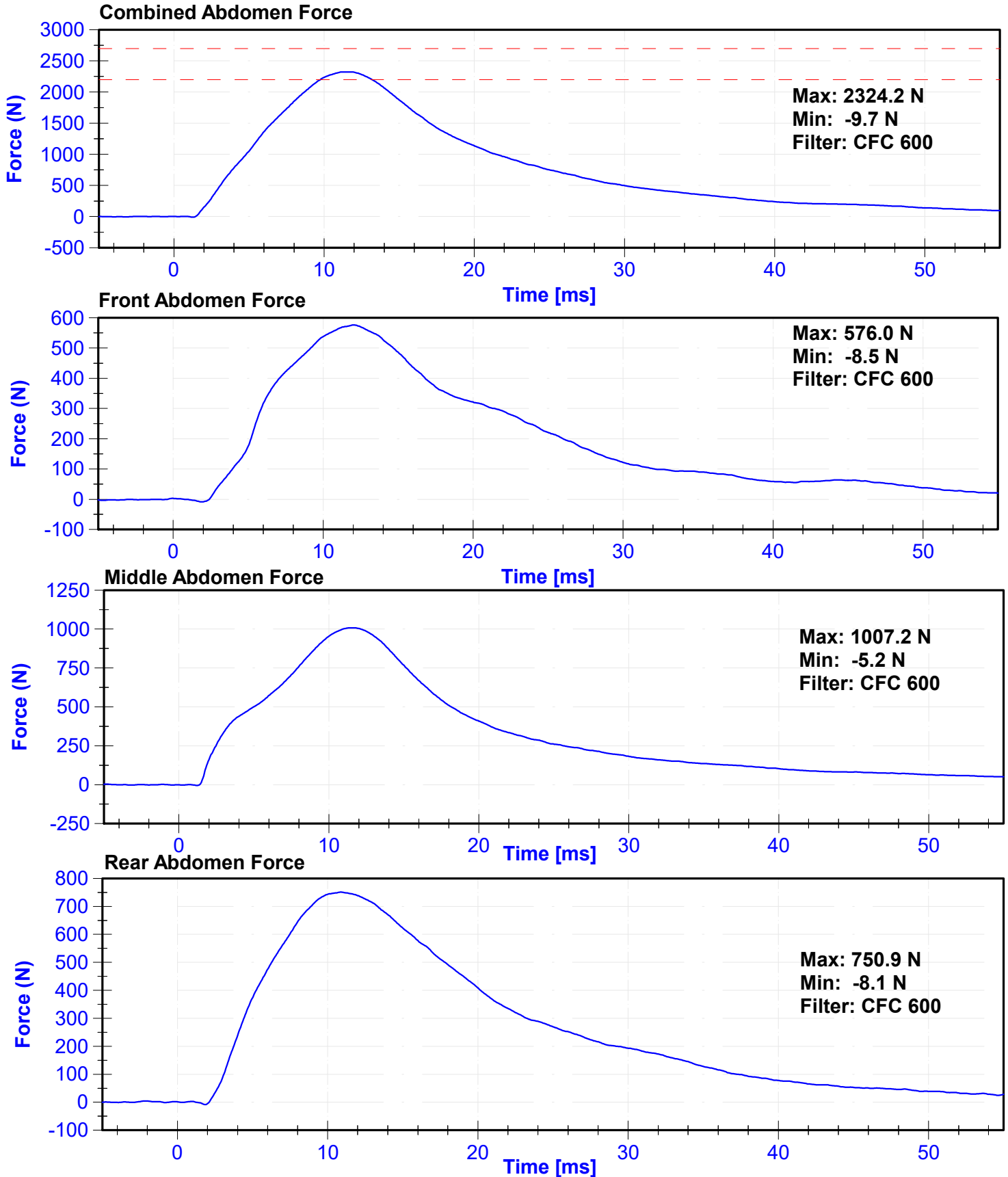
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	3.9	4.1	m/s	4.02	Pass
Combined Abdomen Force	2200	2700	N	2324.2	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	11.40	Pass
Resistive Probe Force	4000	4800	N	4485.3	Pass
Time at Peak Resistive Force	10.6	13.0	ms	11.20	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Front Abdomen Load Cell	Denton	DM5846	5/22/2024	5/22/2025
Middle Abdomen Load Cell	Denton	1529	5/22/2024	5/22/2025
Rear Abdomen Load Cell	Denton	1533	5/22/2024	5/22/2025

Probe Force





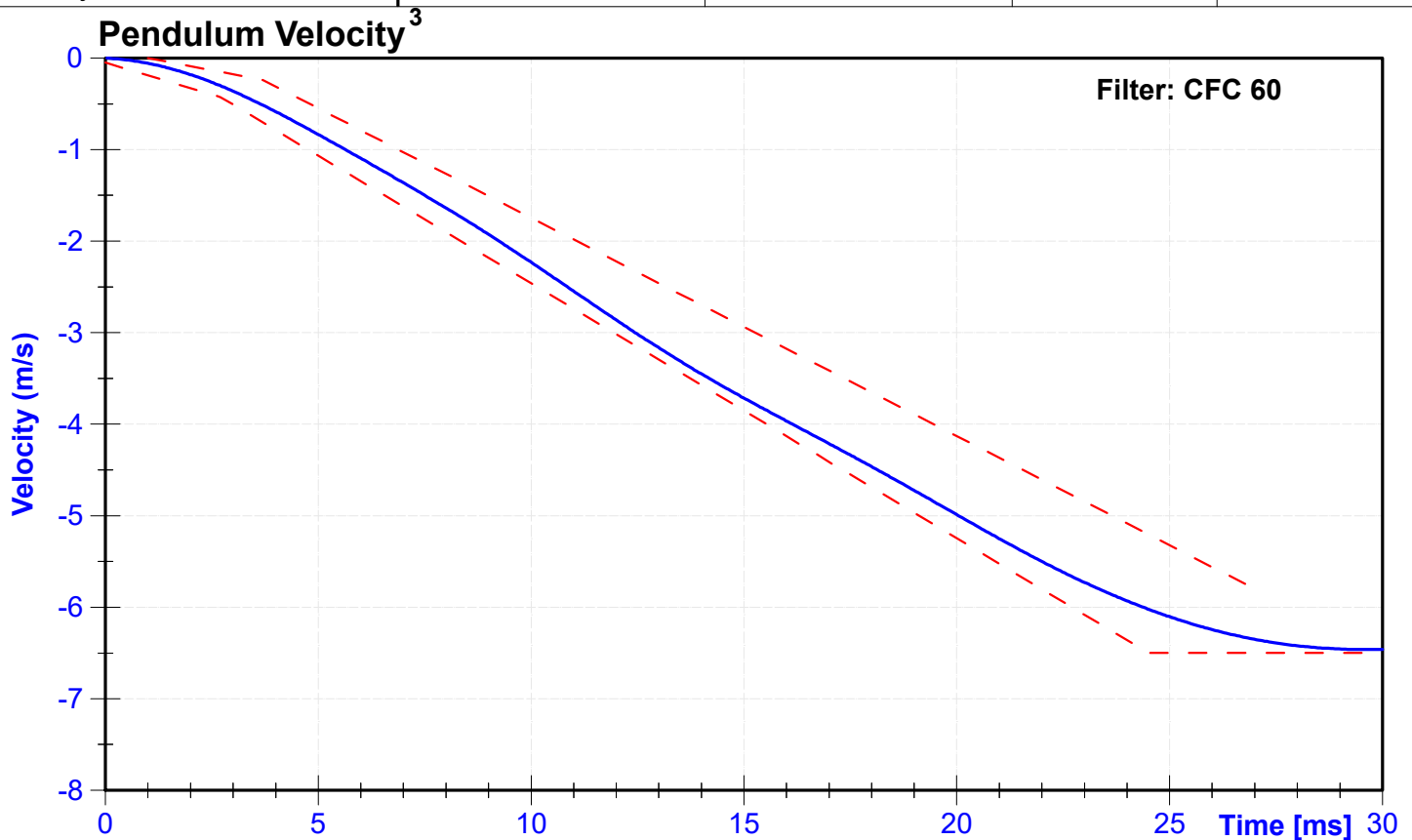
ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

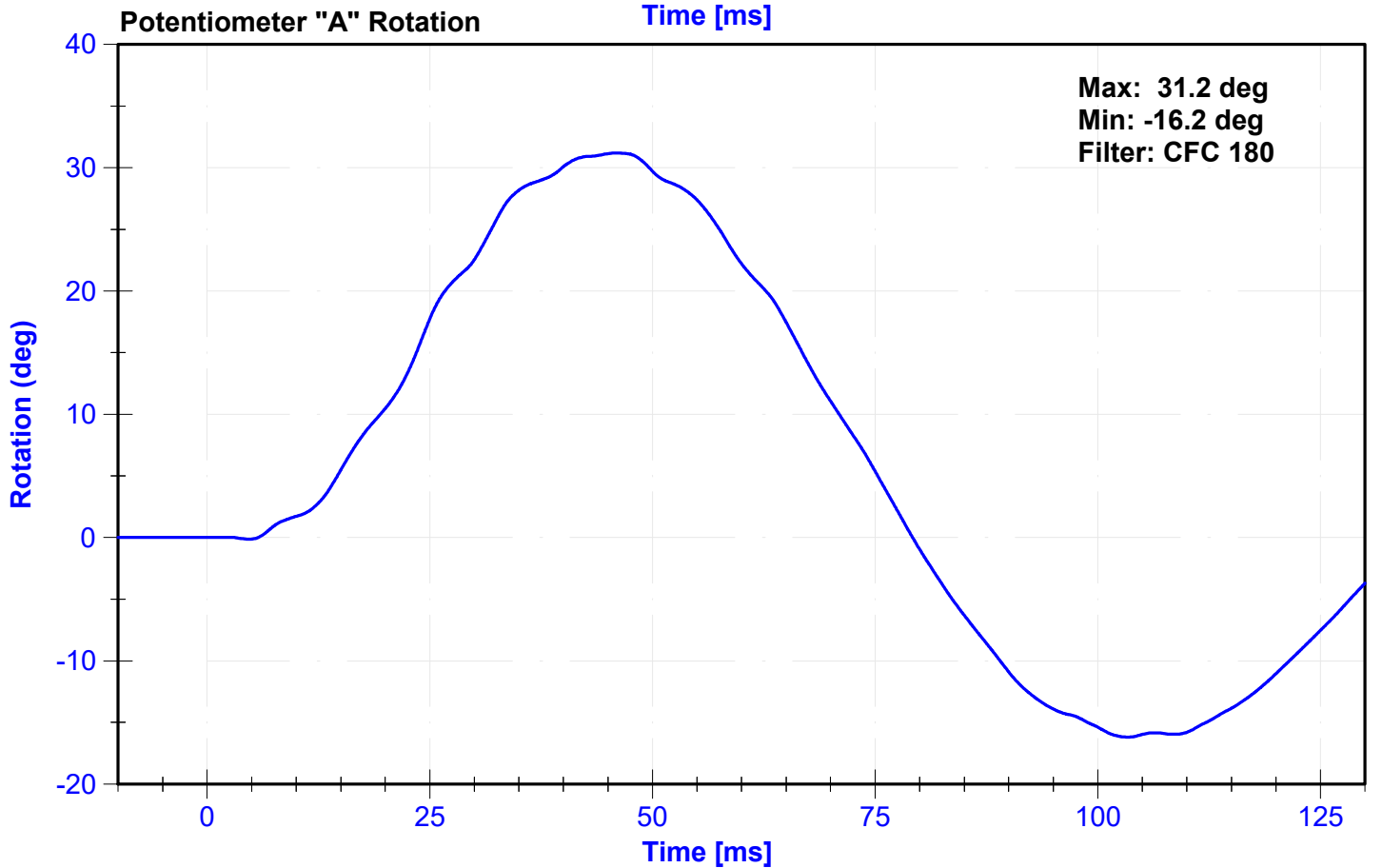
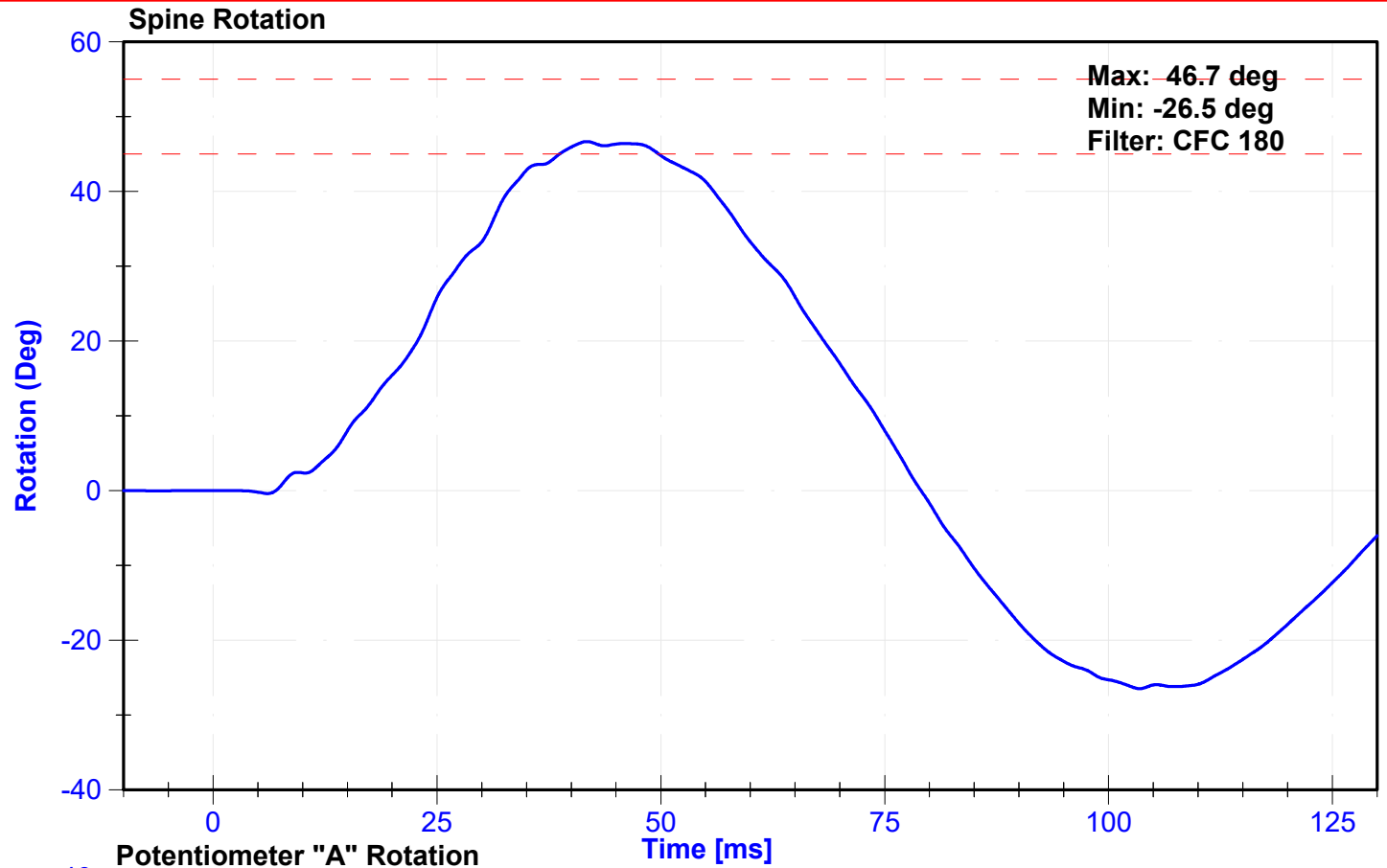
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	25	Pass
Velocity	5.95	6.15	m/s	6.054	Pass
Lateral Spine Rotation	45	55	deg	46.7	Pass
Time at Maximum Rotation	39	53	ms	41.7	Pass
Time of Decay to Zero Degrees	37	57	ms	37.3	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

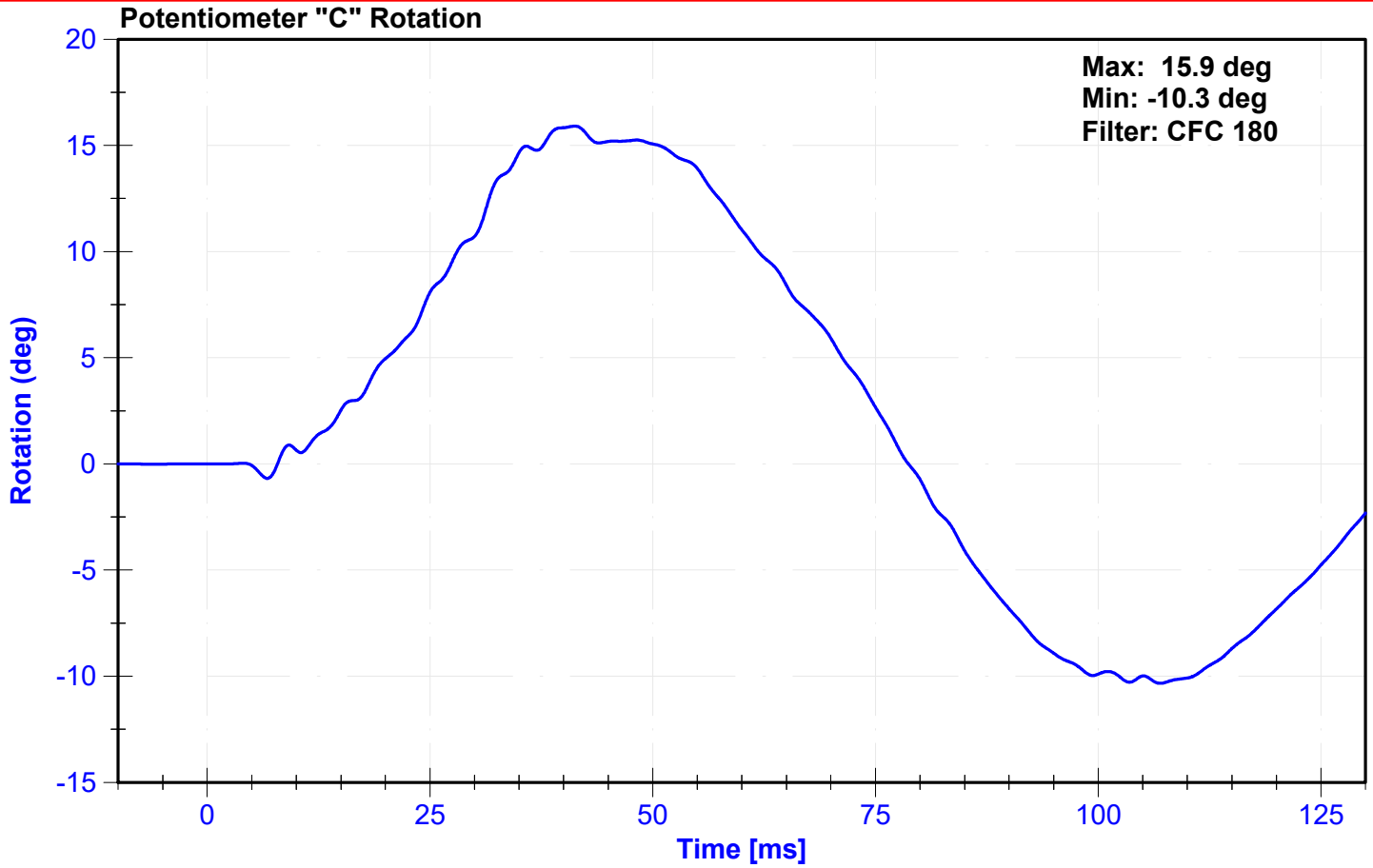
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	4/15/2025
Pendulum "A" Potentiometer	Sfernice	2247	9/13/2024	9/13/2025
Condyle "B" Potentiometer	Sfernice	095	9/13/2024	9/13/2025



^{1,2} Upper and lower boundaries specified in Appendix I





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

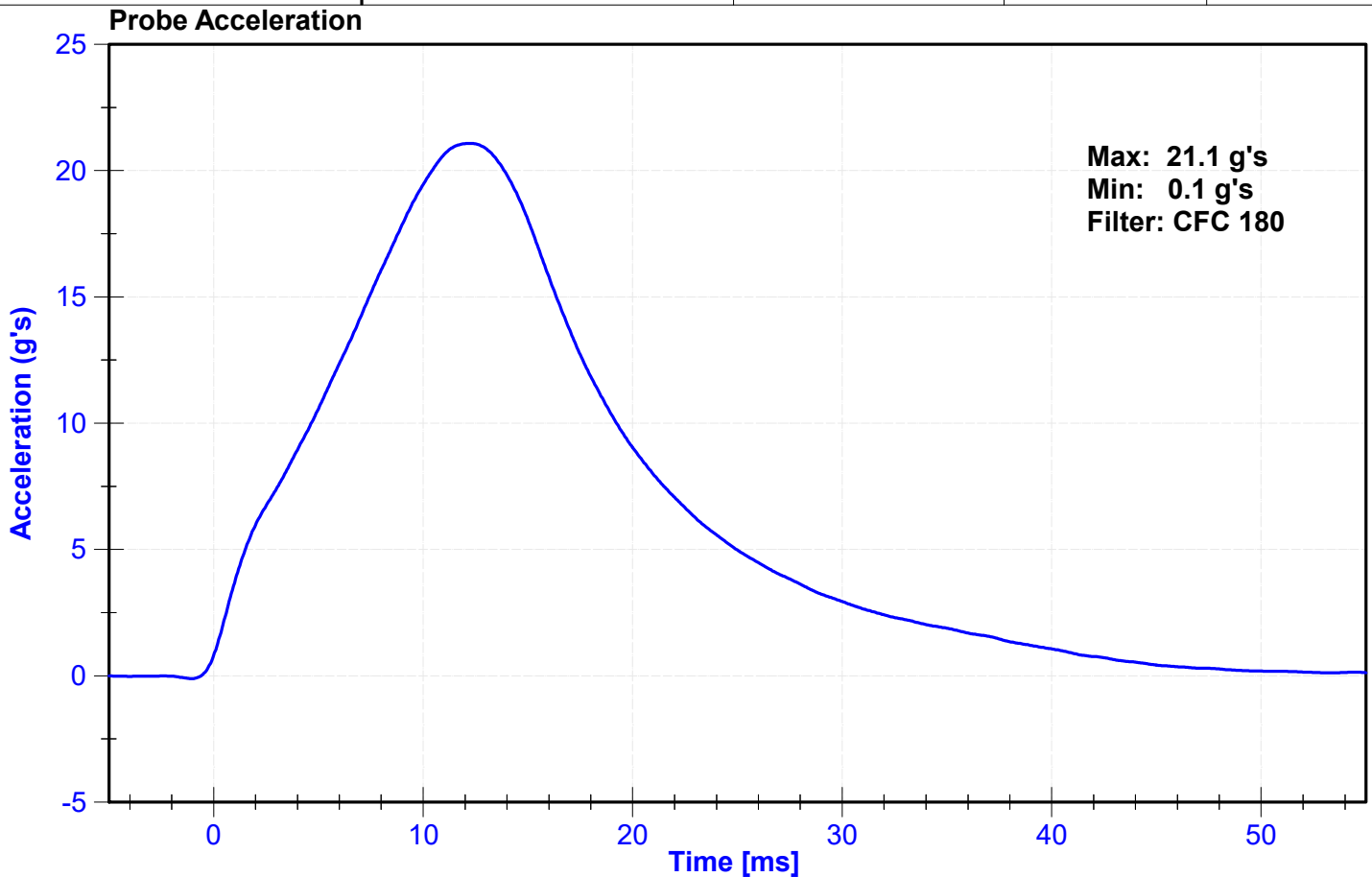
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

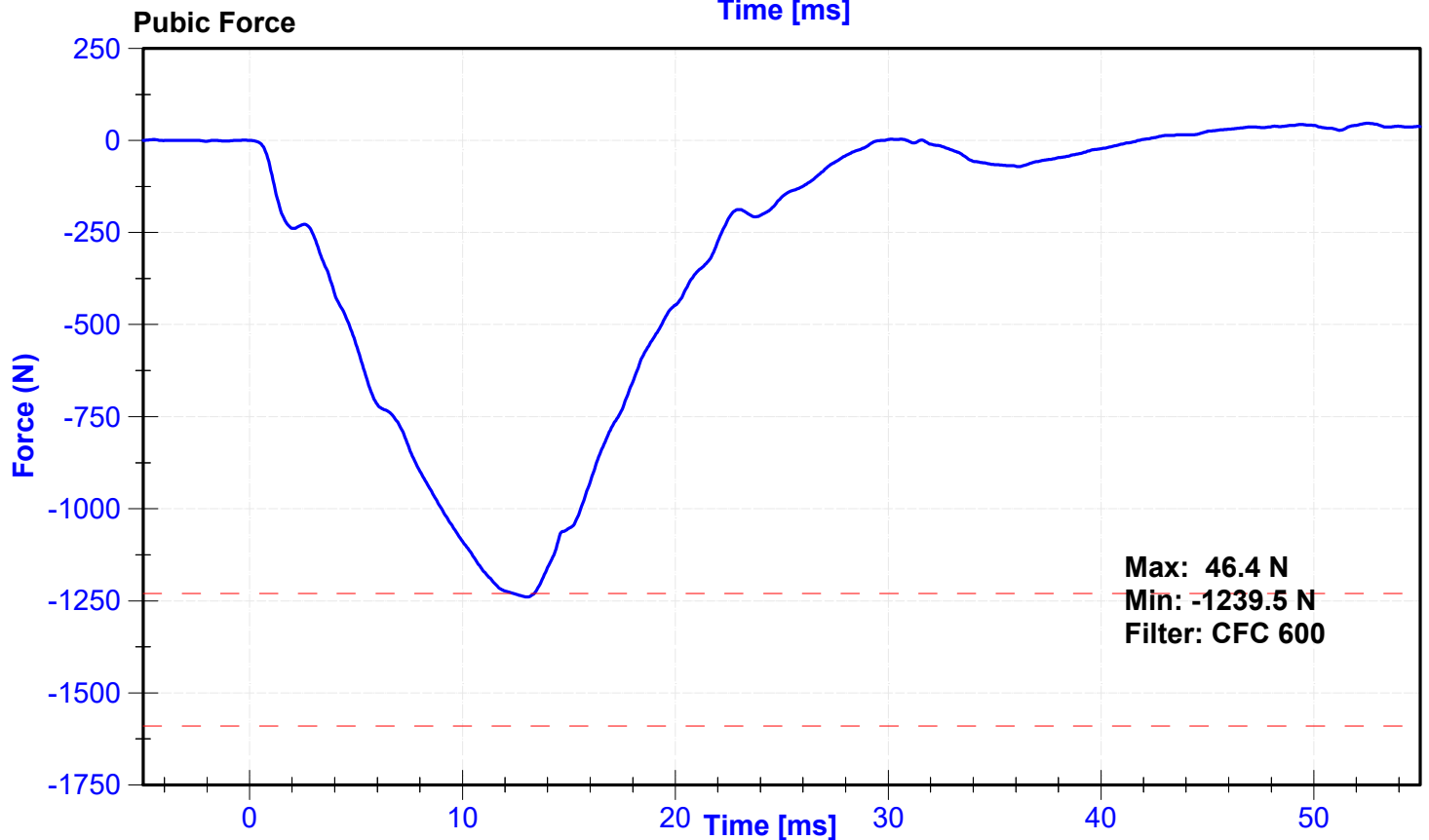
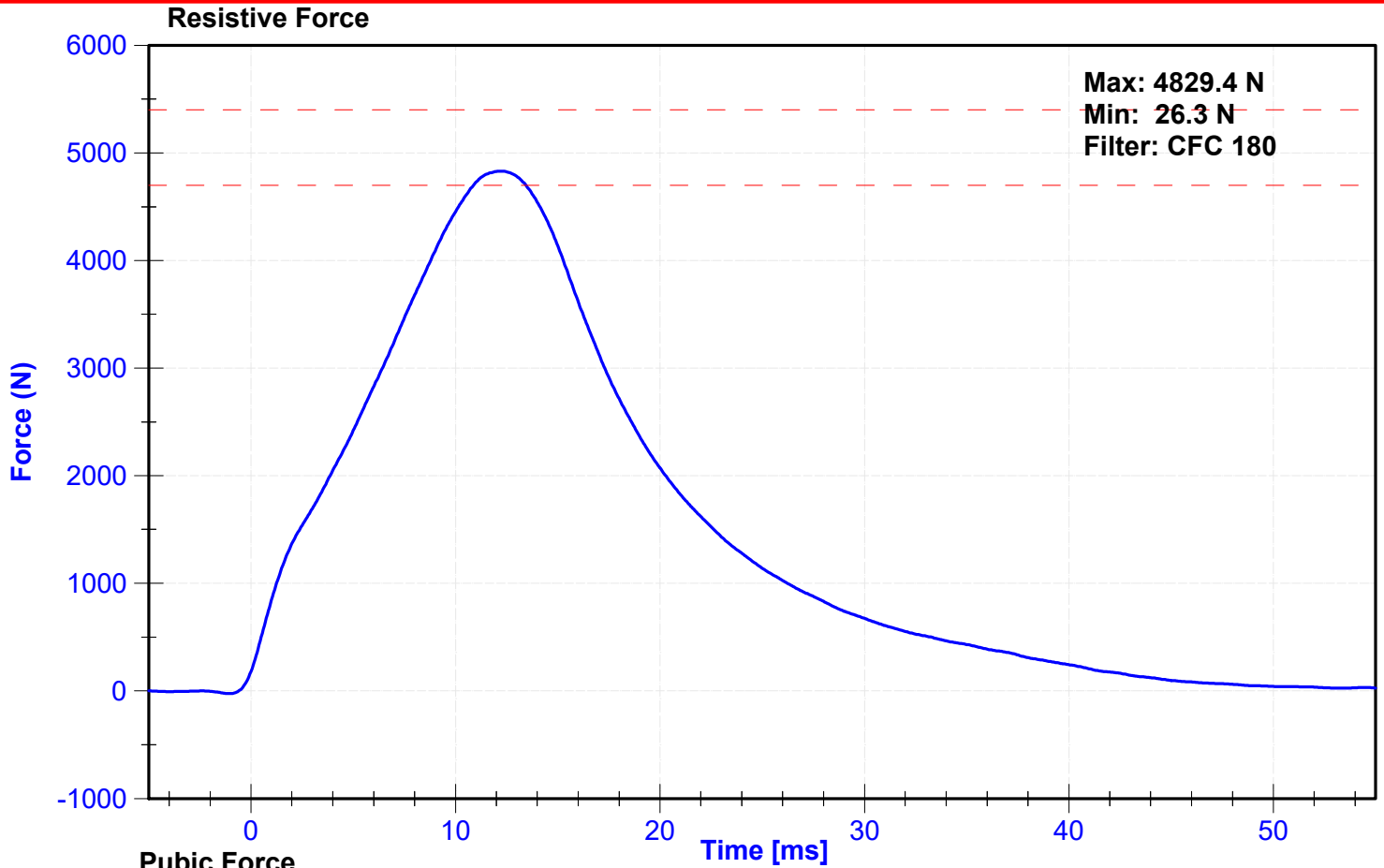
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Resistive Force	4700	5400	N	4829.4	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.25	Pass
Pubic Force	-1590	-1230	N	-1239.5	Pass
Time at Peak Pubic Force	12.2	17.0	ms	13.05	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Pubic Load Cell	Denton	459-FY	7/12/2024	7/12/2025





**POST-TEST
ES-2re PERFORMANCE CALIBRATION TEST DATA**

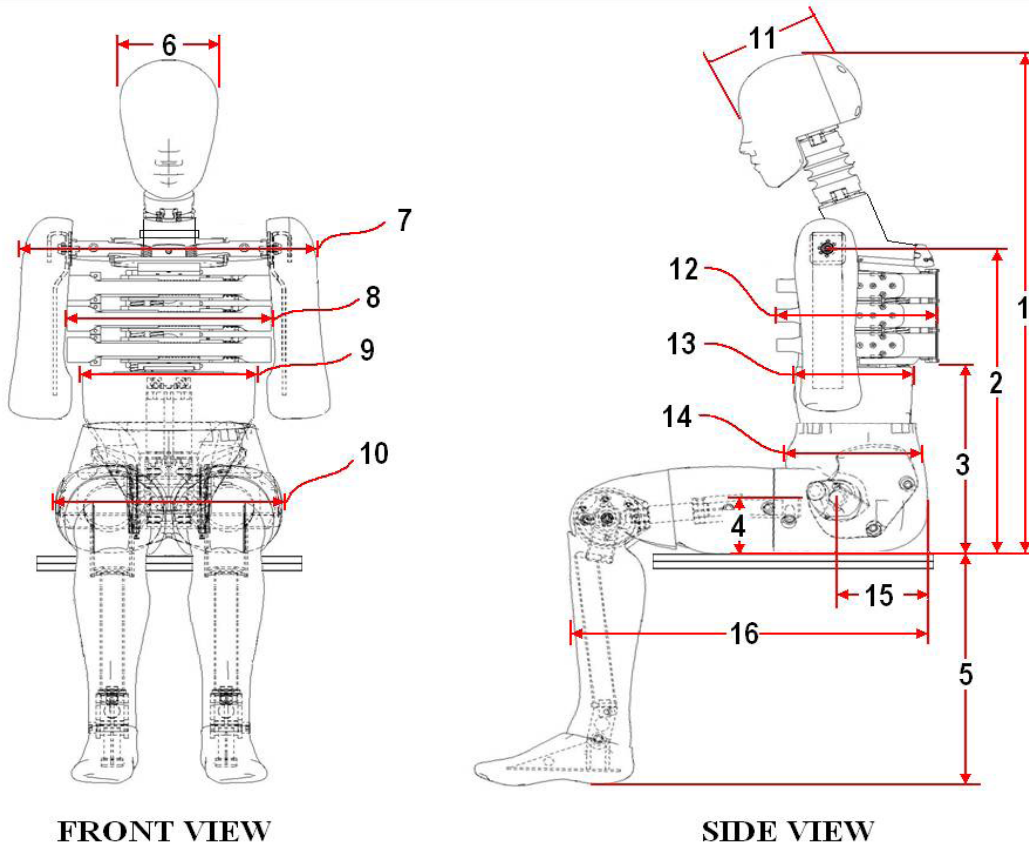


External Measurements - EuroSID-2re

Technician: J. Rios

Date: 4/8/2025

Dummy Serial Number: DG5348



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	562	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	351	Pass
4	Seat to Hip Joint (center of bolt)	97	103	100	Pass
5	Sole to Seat, Sitting	333	451	404	Pass
6	Head Width	152	158	155	Pass
7	Shoulder/Arm Width	461	479	472	Pass
8	Thorax Width	322	332	327	Pass
9	Abdomen Width	273	287	276	Pass
10	Pelvis Lap Width	359	373	365	Pass
11	Head Depth	196	206	204	Pass
12	Thorax Depth	262	272	268	Pass
13	Abdomen Depth	194	204	200	Pass
14	Pelvis Depth	235	245	240	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	155	Pass
16	Back of Buttocks to Front Knee	597	615	604	Pass

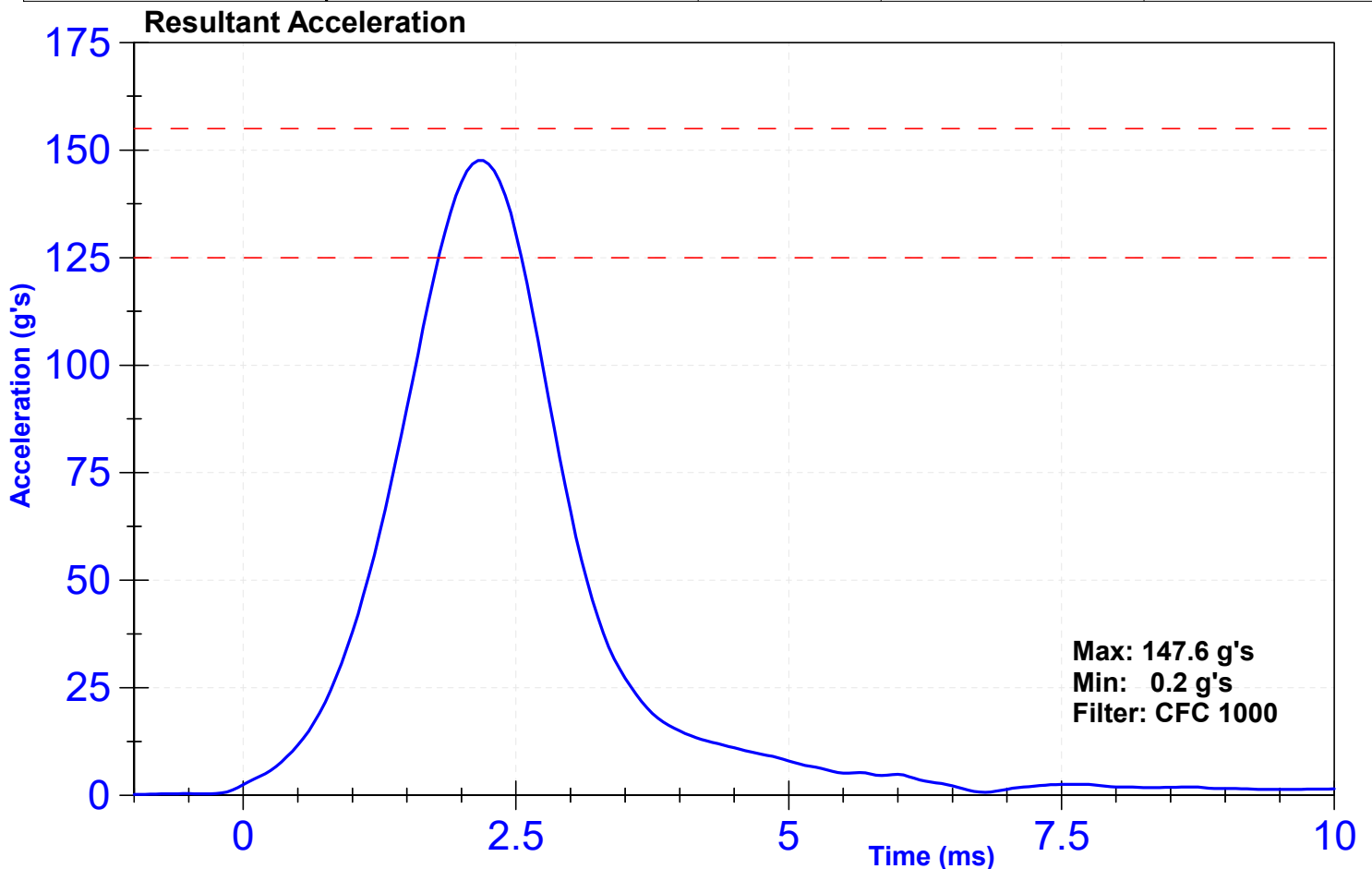
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

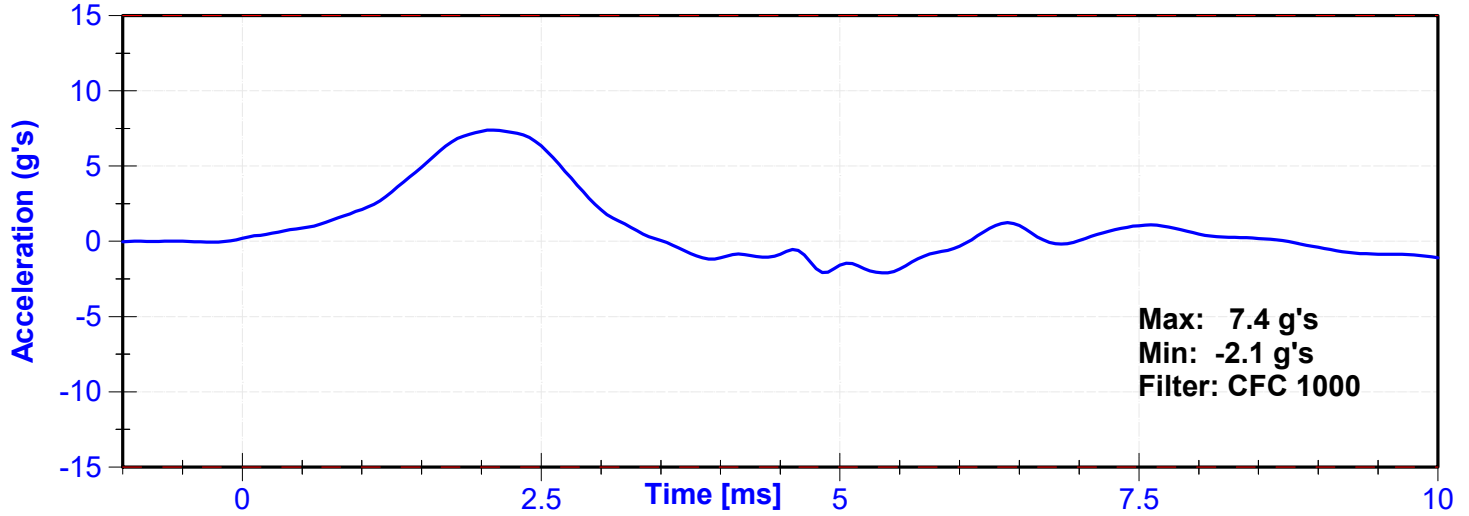
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Resultant Acceleration	125	155	g's	147.6	Pass
Oscillation	0	15	%	3.58	Pass
Fore-Aft Acceleration	-15	15	g's	7.4	Pass

Transducer Calibrations

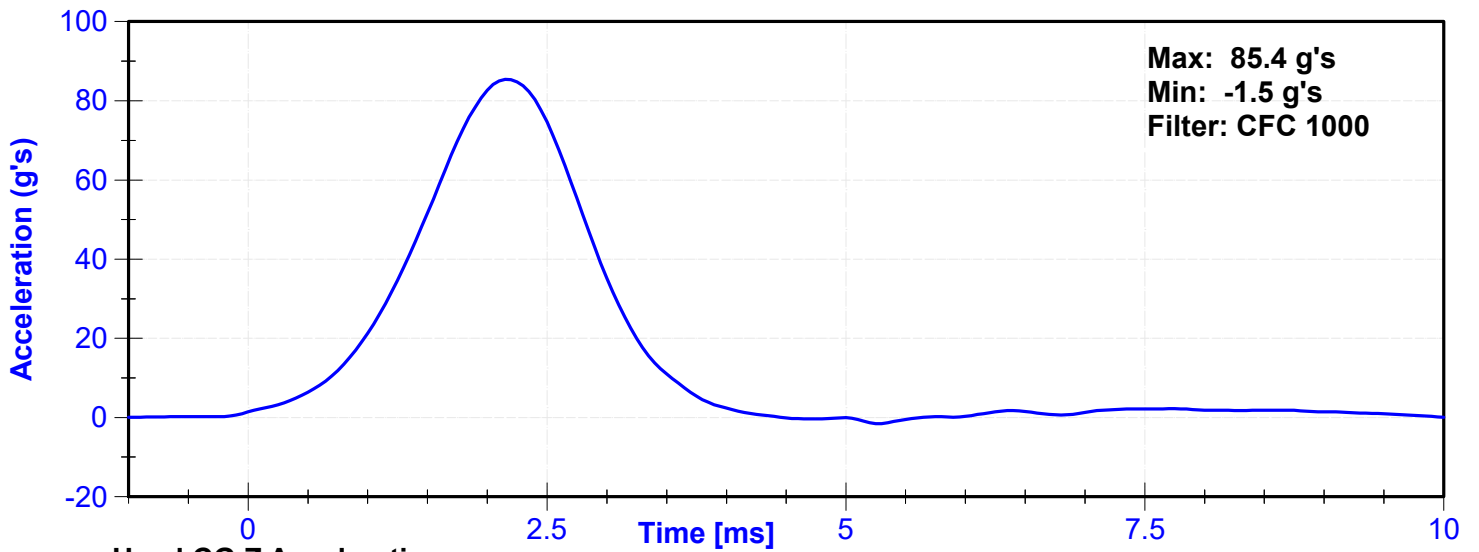
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	18613	1/17/2025	7/16/2025
Y Accelerometer	Endevco	18472	1/17/2025	7/16/2025
Z Accelerometer	Endevco	18663	1/17/2025	7/16/2025



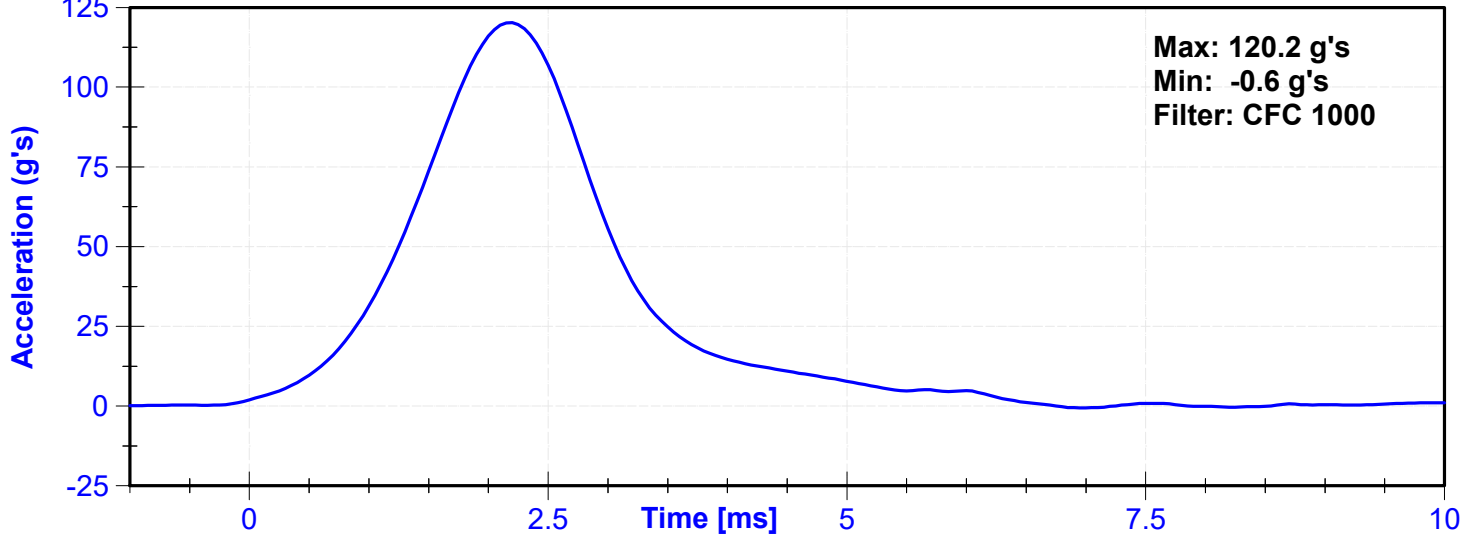
Head CG X Acceleration



Head CG Y Acceleration



Head CG Z Acceleration



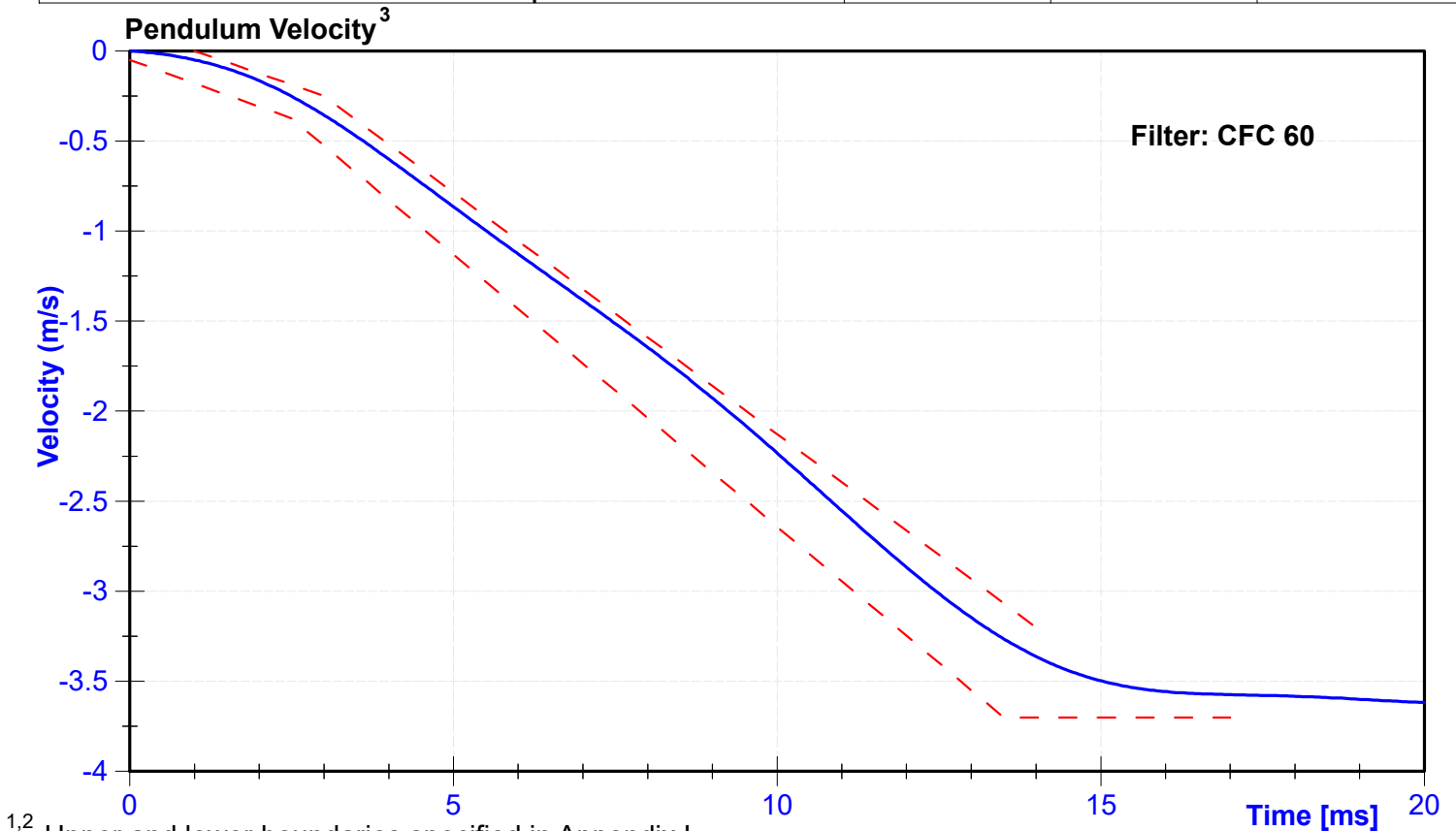
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

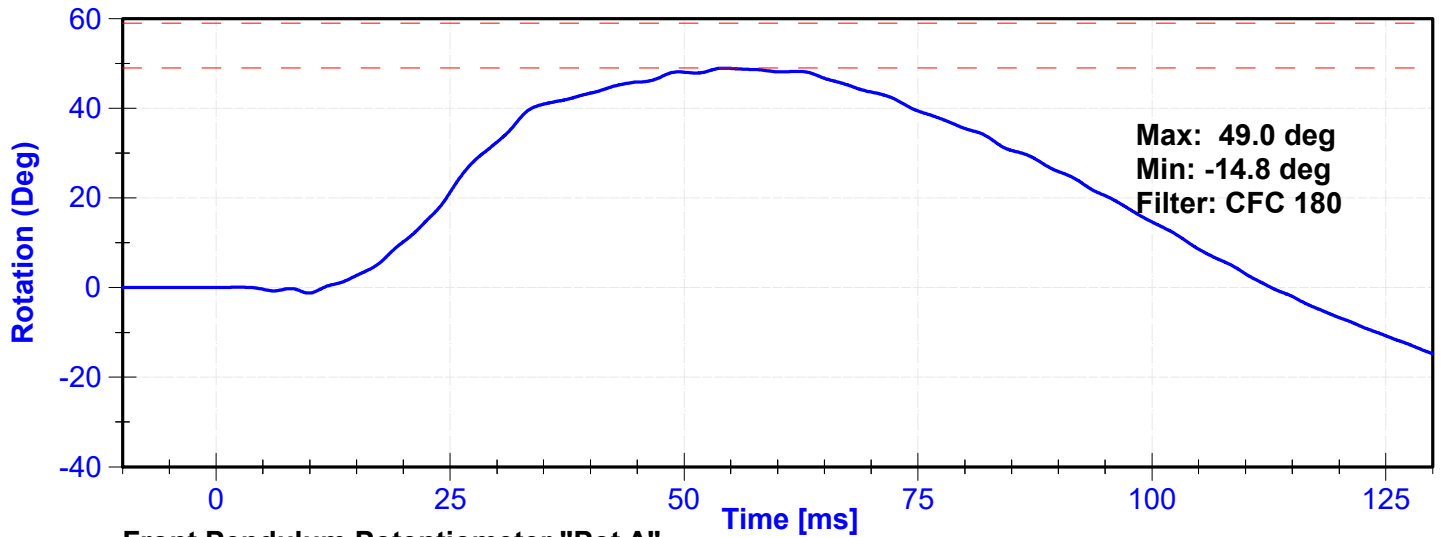
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	25	Pass
Velocity	3.3	3.5	m/s	3.38	Pass
Lateral Neck Rotation	49	59	deg	49.0	Pass
Time at Maximum Rotation	54	66	ms	54.2	Pass
Time of Rotation Decay from Maximum	53	88	ms	58.5	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

Transducer Calibrations

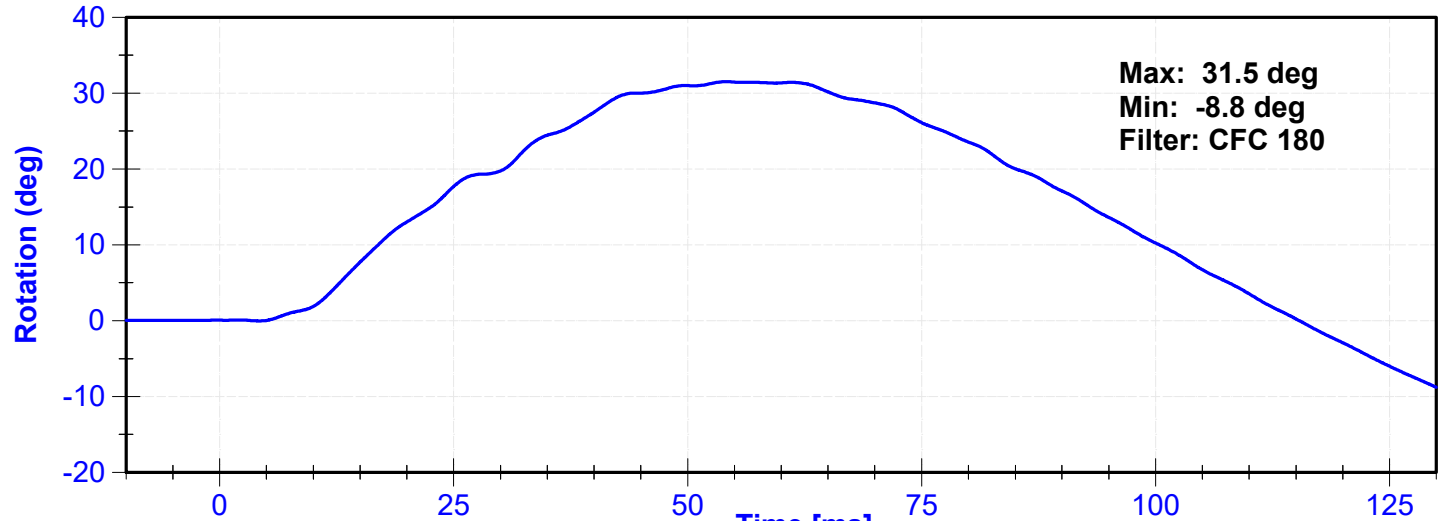
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	4/15/2025
Front Pendulum Potentiometer	Sfernice	2247	9/13/2024	9/13/2025
Headform Potentiometer	Sfernice	095	9/13/2024	9/13/2025



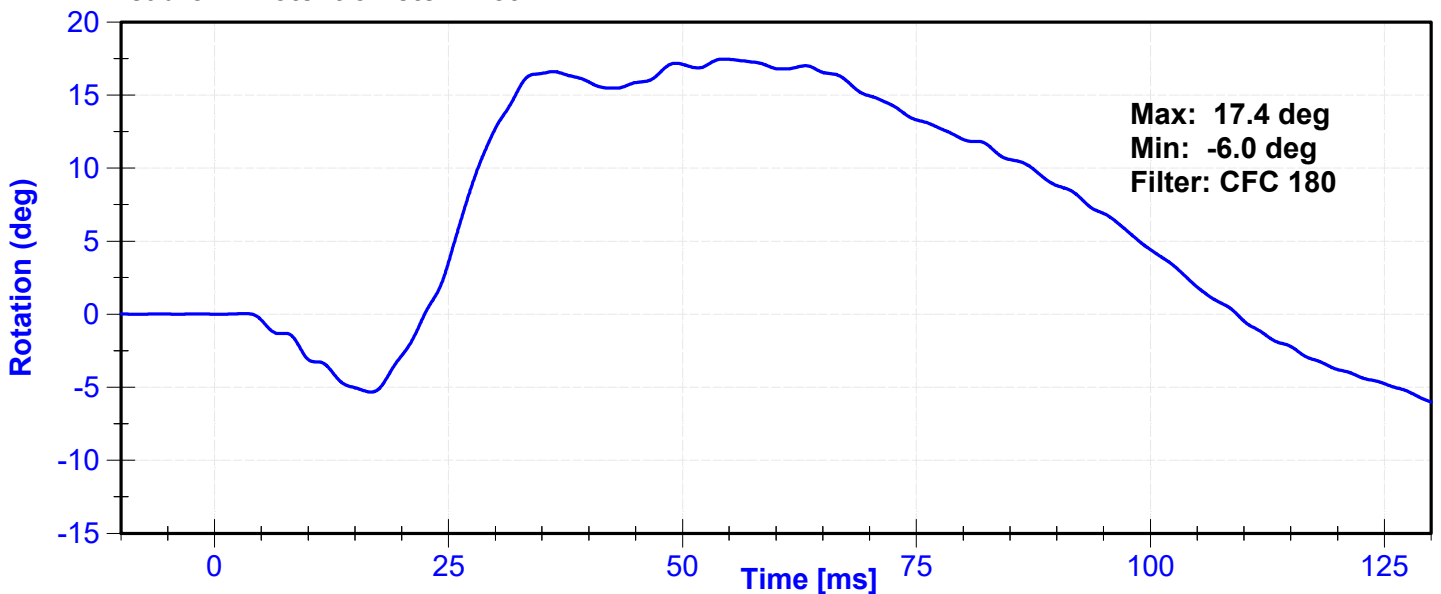
Neck Rotation



Front Pendulum Potentiometer "Pot A"



Headform Potentiometer "Pot C"



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

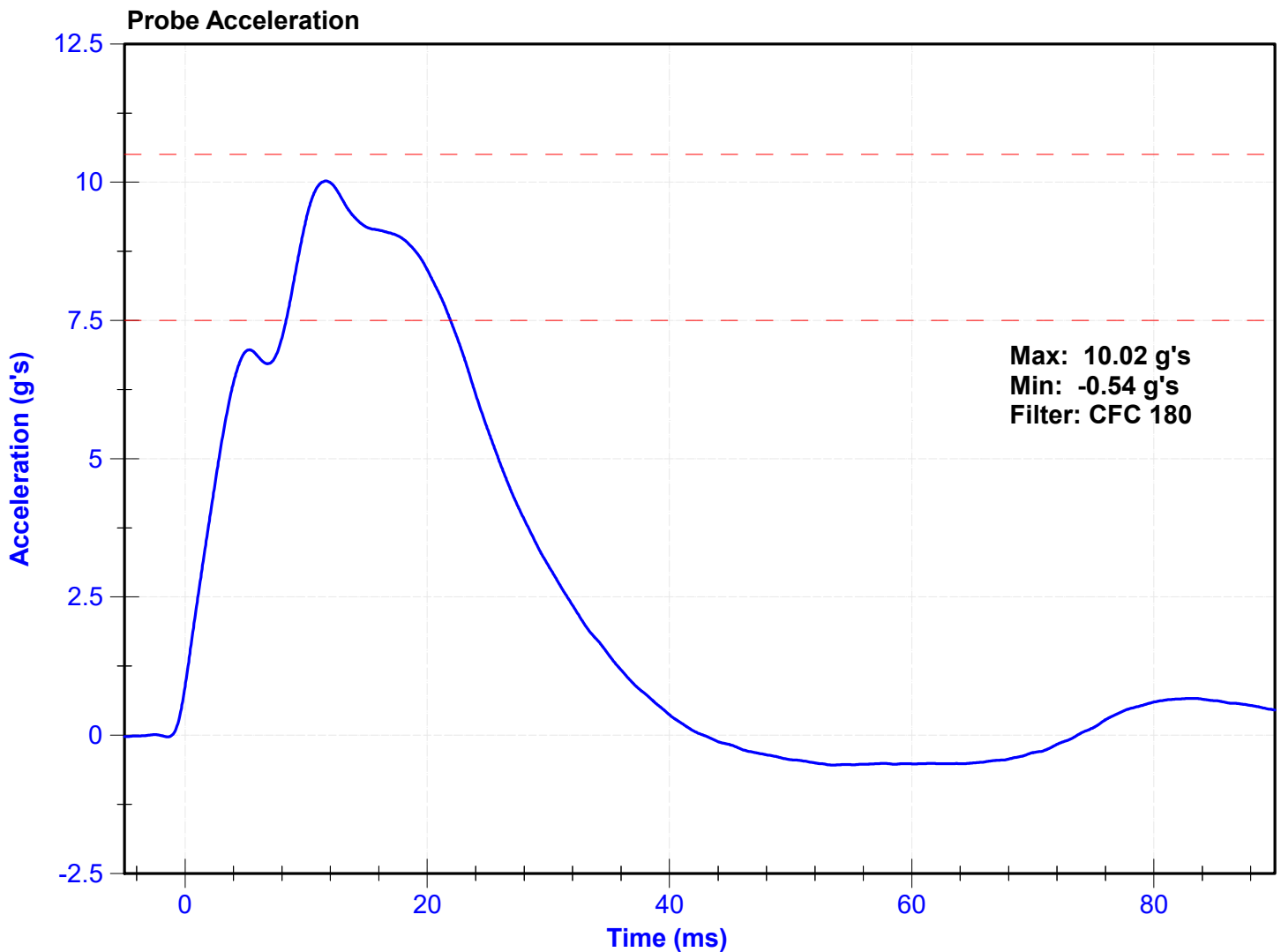
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	19	Pass
Velocity	4.2	4.4	m/s	4.24	Pass
Probe Acceleration	7.5	10.5	g's	10.02	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	T25962	2/15/2025	8/14/2025



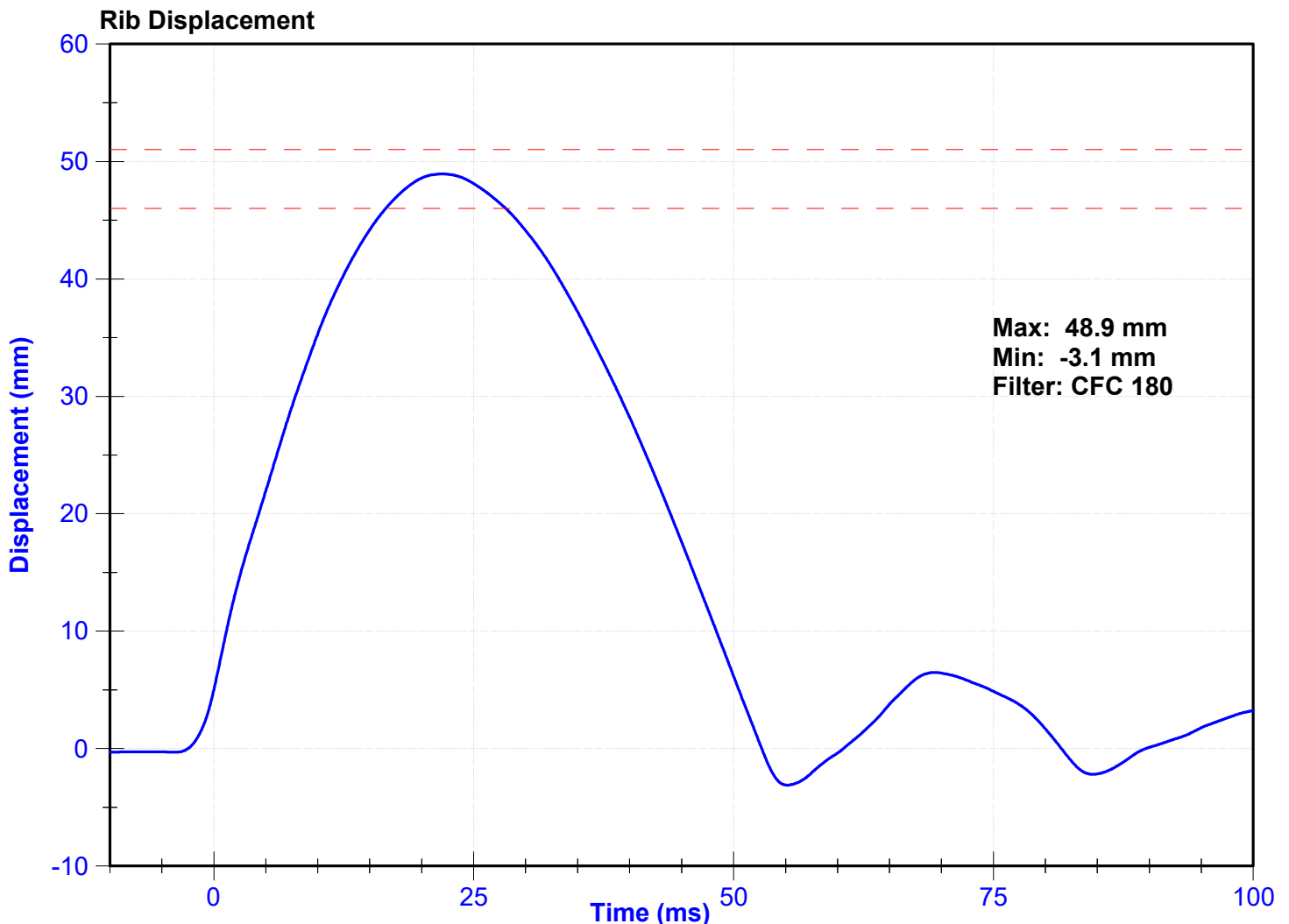
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	19	Pass
Rib Displacement	46	51	mm	48.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	268GFE	1/21/2025	7/22/2025



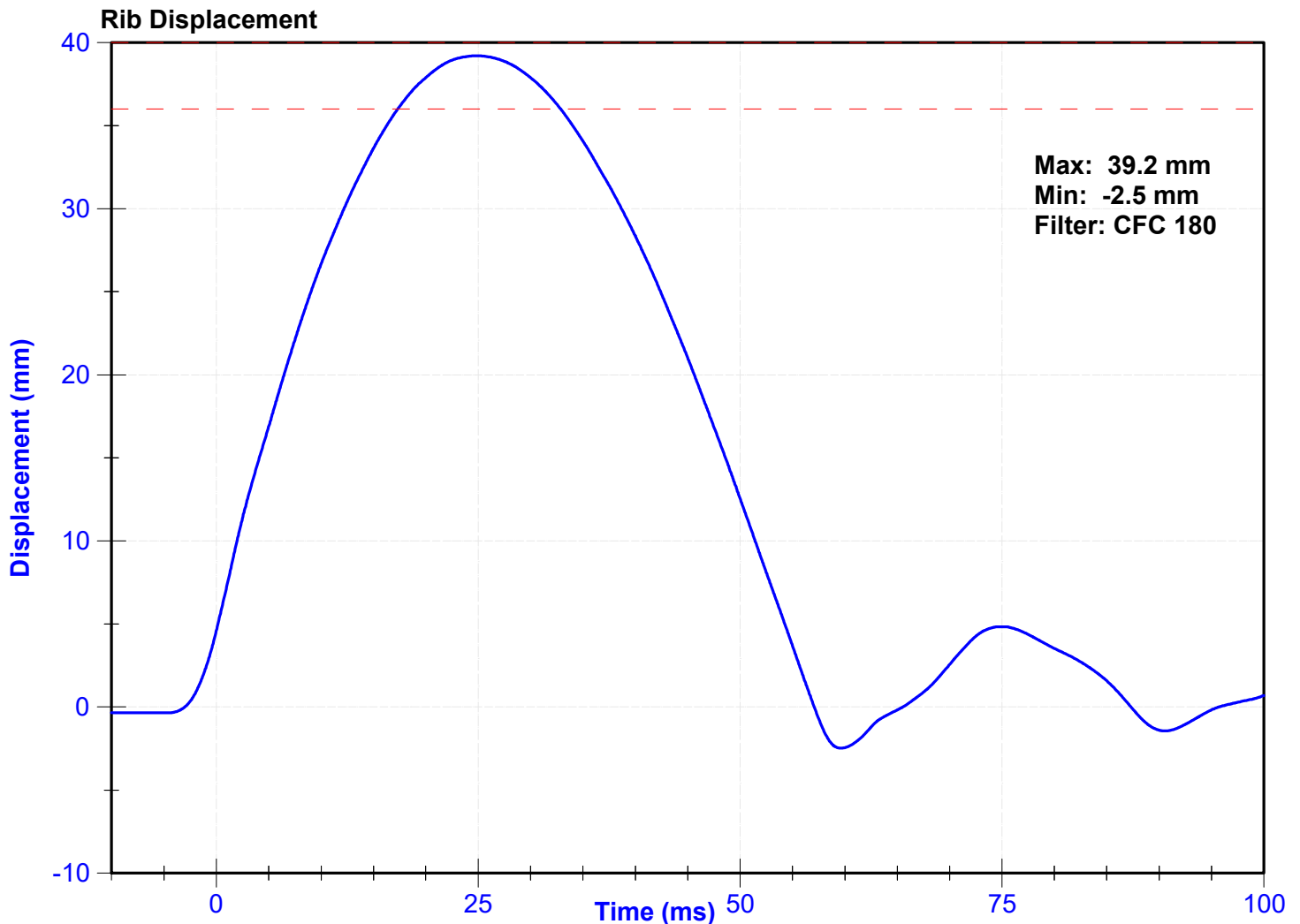
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	19	Pass
Rib Displacement	36	40	mm	39.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	268GFE	1/21/2025	7/22/2025



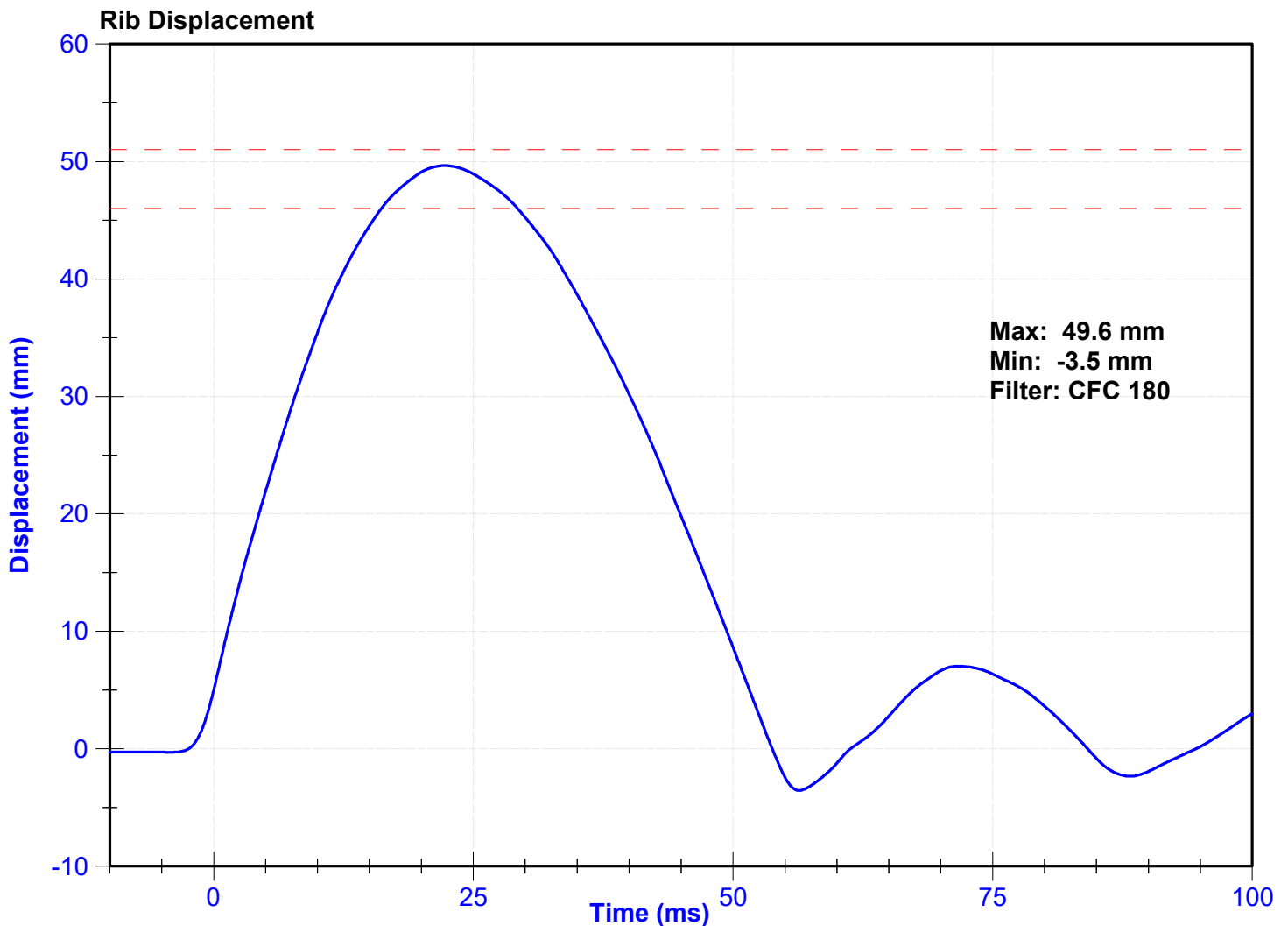
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	19	Pass
Rib Displacement	46	51	mm	49.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	269GFE	1/21/2025	7/22/2025



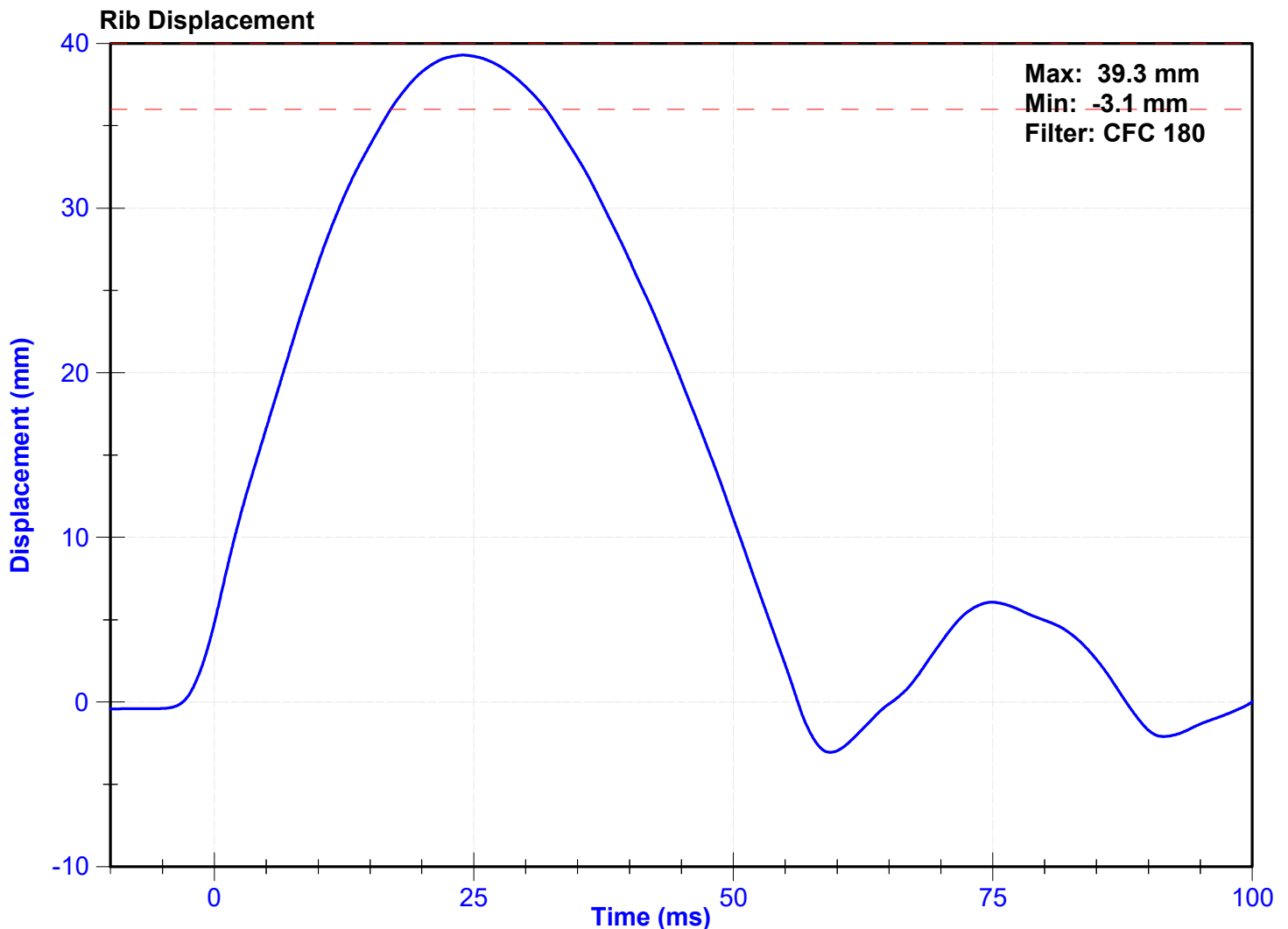
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	19	Pass
Rib Displacement	36	40	mm	39.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	269GFE	1/21/2025	7/22/2025



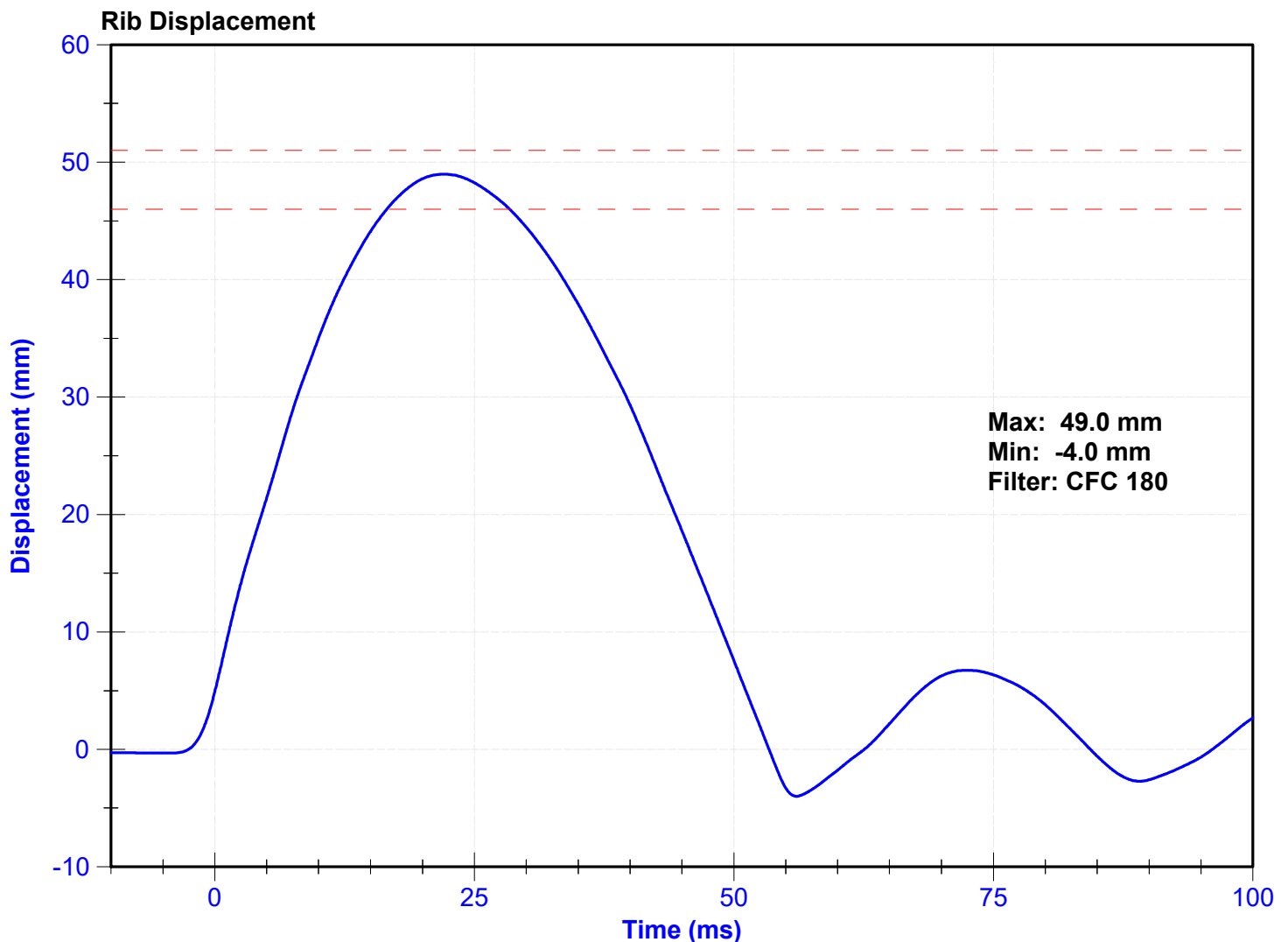
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	19	Pass
Rib Displacement	46	51	mm	49.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	270GFE	1/22/2025	7/23/2025



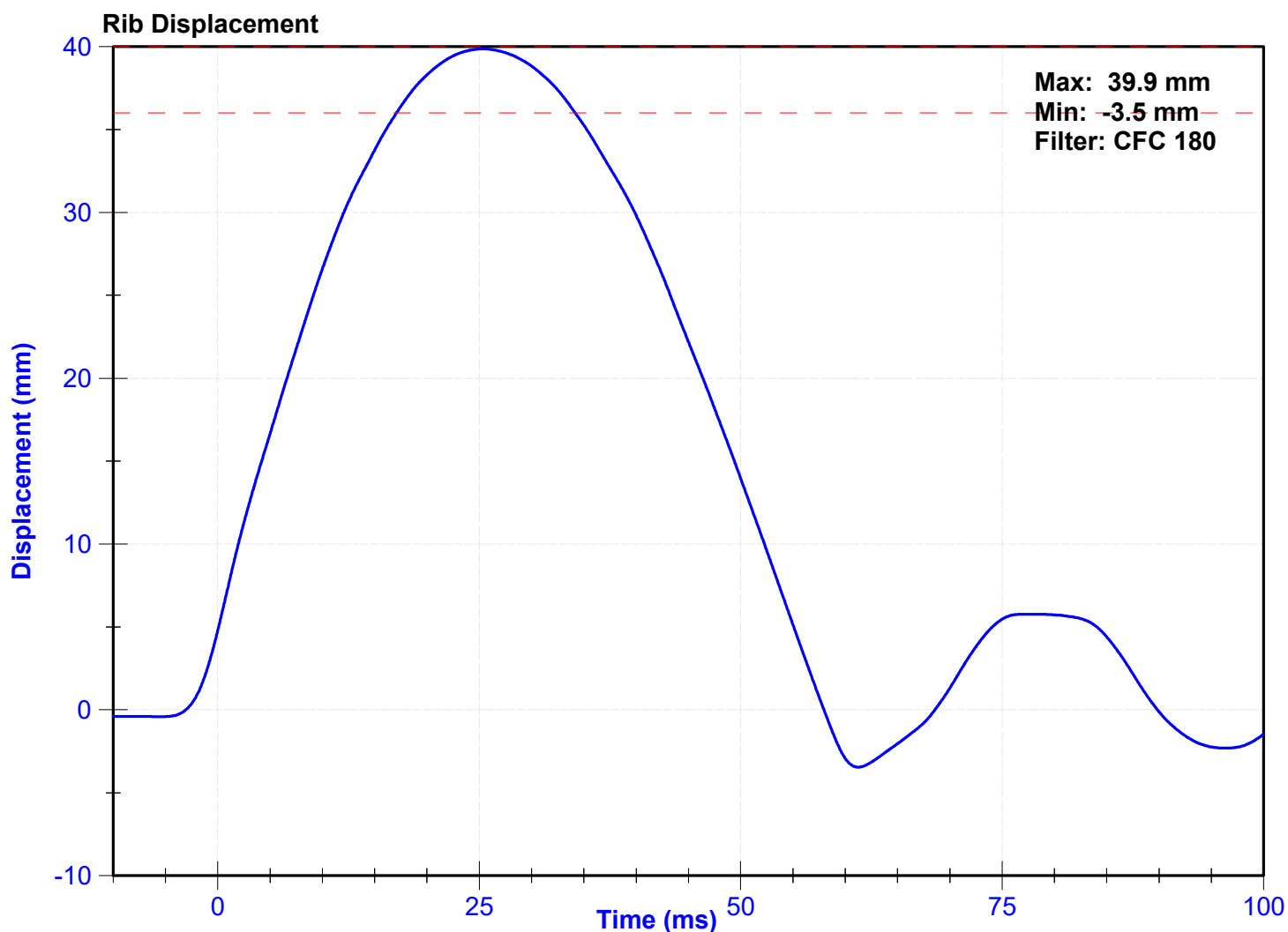
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	19	Pass
Rib Displacement	36	40	mm	39.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	270GFE	1/22/2025	7/23/2025



ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

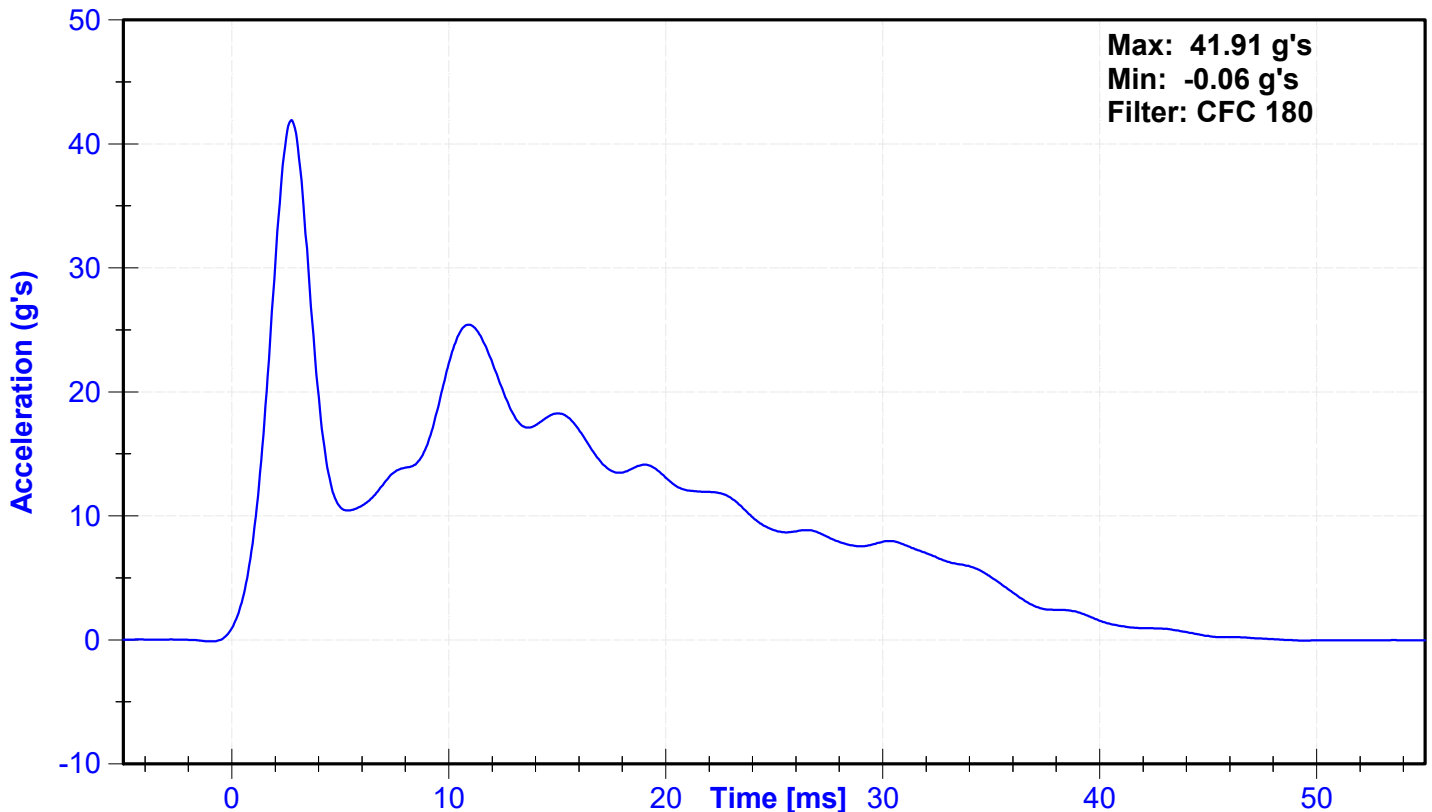
Results

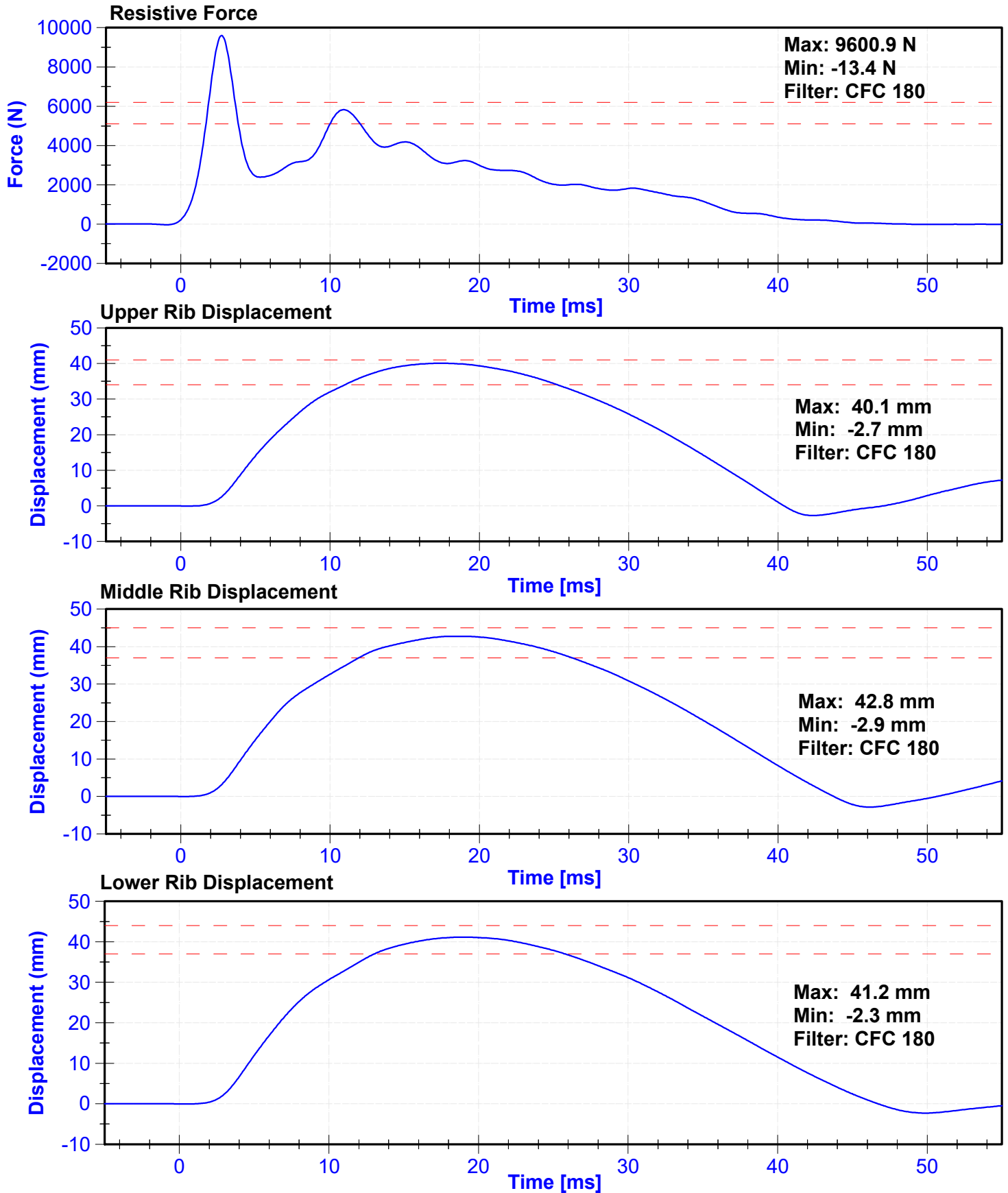
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	19	Pass
Velocity	5.4	5.6	m/s	5.55	Pass
Resistive Force after 6ms	5100	6200	N	5823.8	Pass
Upper Thorax Rib Deflection	34	41	mm	40.1	Pass
Mid Thorax Rib Deflection	37	45	mm	42.8	Pass
Lower Thorax Rib Deflection	37	44	mm	41.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Upper Thorax Rib Potentiometer	Honeywell	268GFE	1/21/2025	7/22/2025
Middle Thorax Rib Potentiometer	Honeywell	269GFE	1/21/2025	7/22/2025
Lower Thorax Rib Potentiometer	Honeywell	270GFE	1/22/2025	7/23/2025

Probe Acceleration





ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

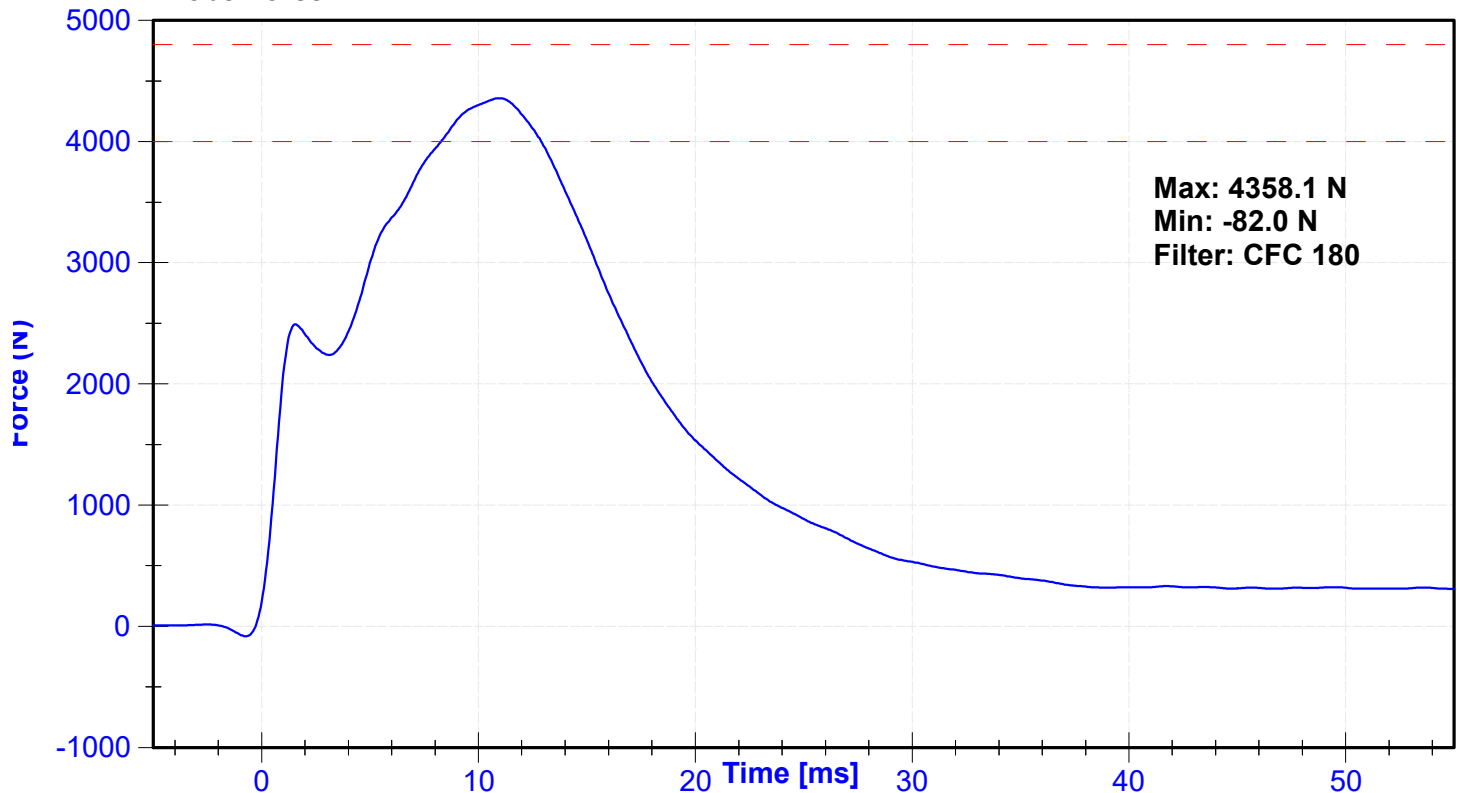
Results

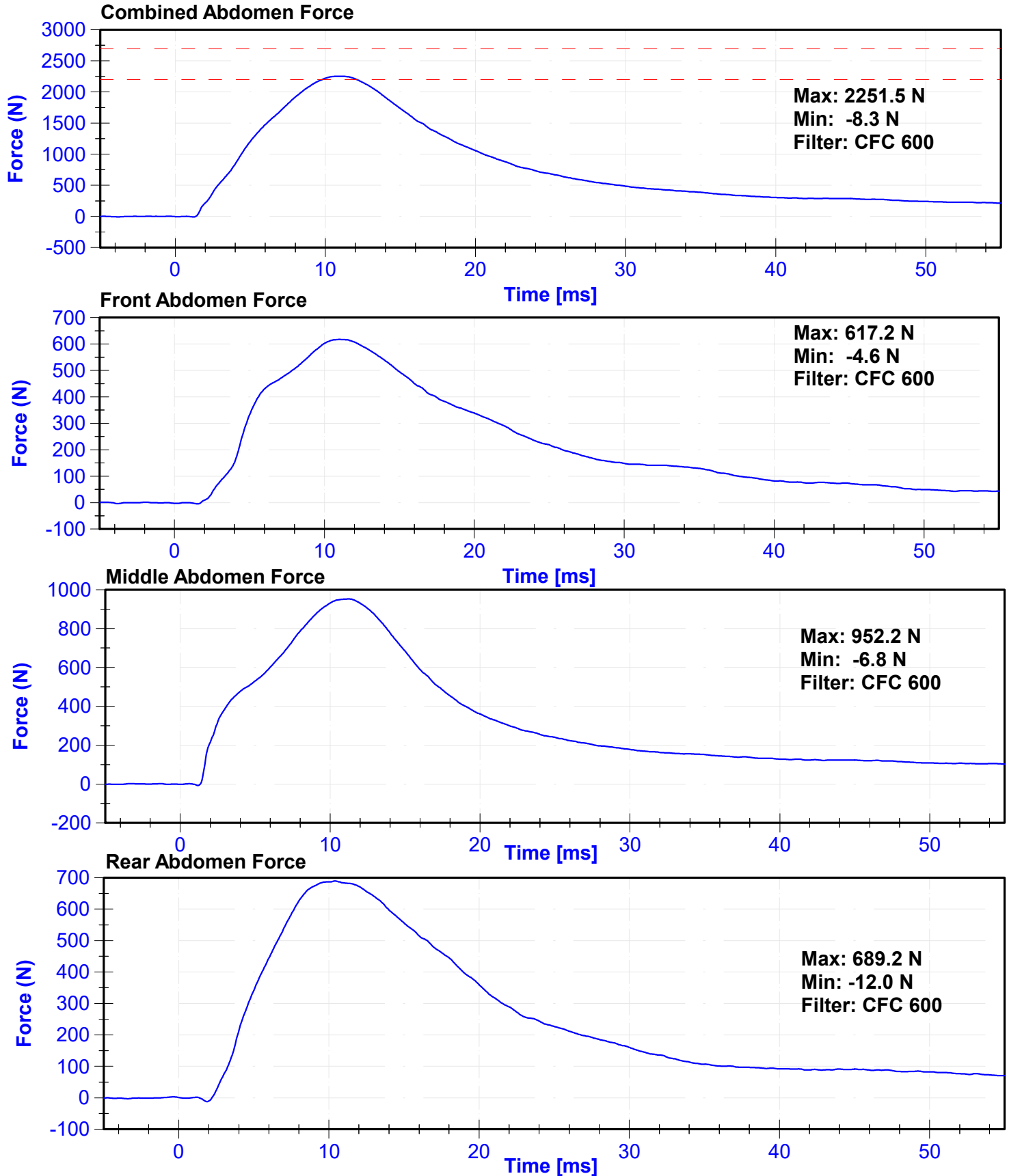
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	19	Pass
Velocity	3.9	4.1	m/s	4.01	Pass
Combined Abdomen Force	2200	2700	N	2251.5	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	11.20	Pass
Resistive Probe Force	4000	4800	N	4358.1	Pass
Time at Peak Resistive Force	10.6	13.0	ms	10.95	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Front Abdomen Load Cell	Denton	DM5846	5/22/2024	5/22/2025
Middle Abdomen Load Cell	Denton	1529	5/22/2024	5/22/2025
Rear Abdomen Load Cell	Denton	1533	5/22/2024	5/22/2025

Probe Force





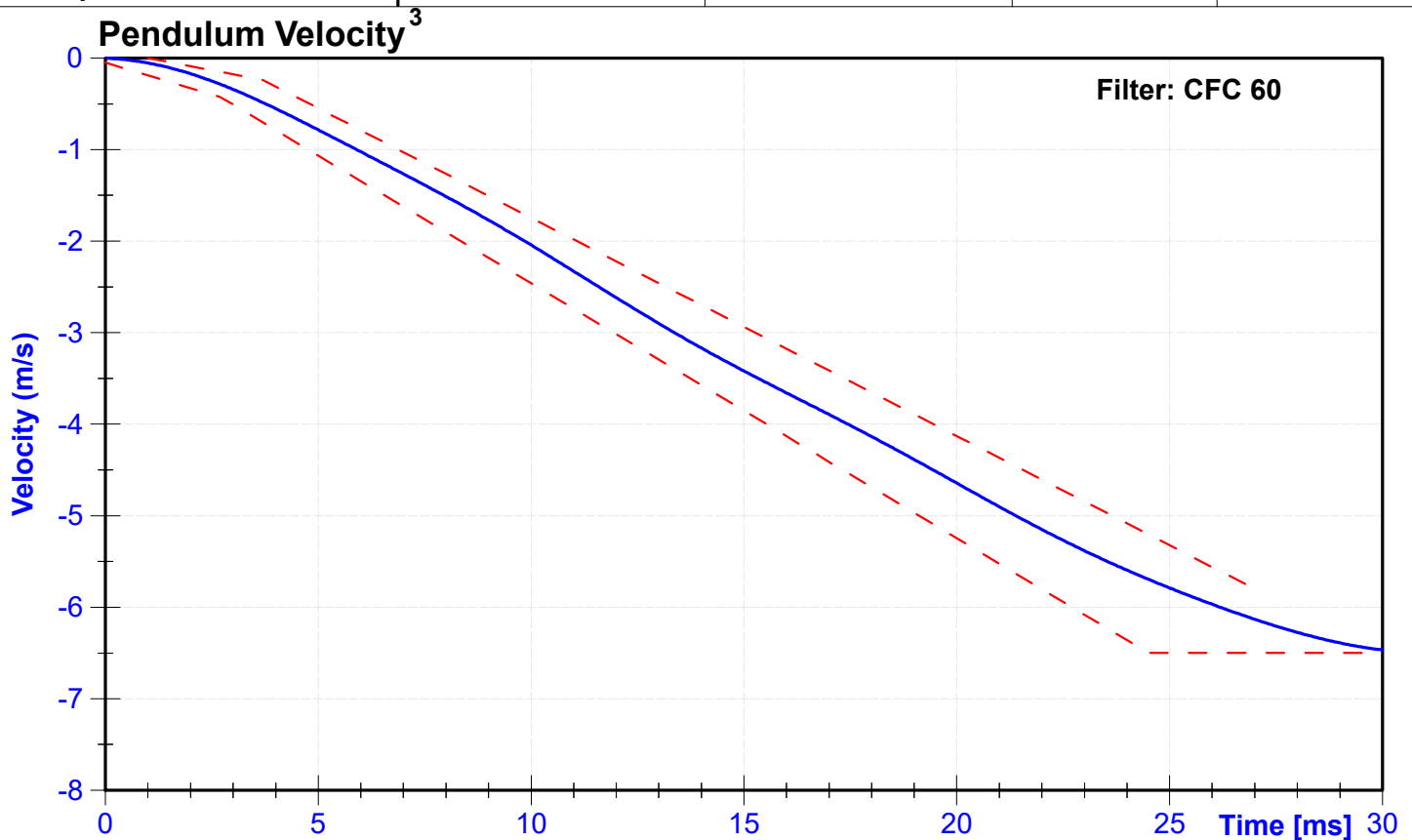
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

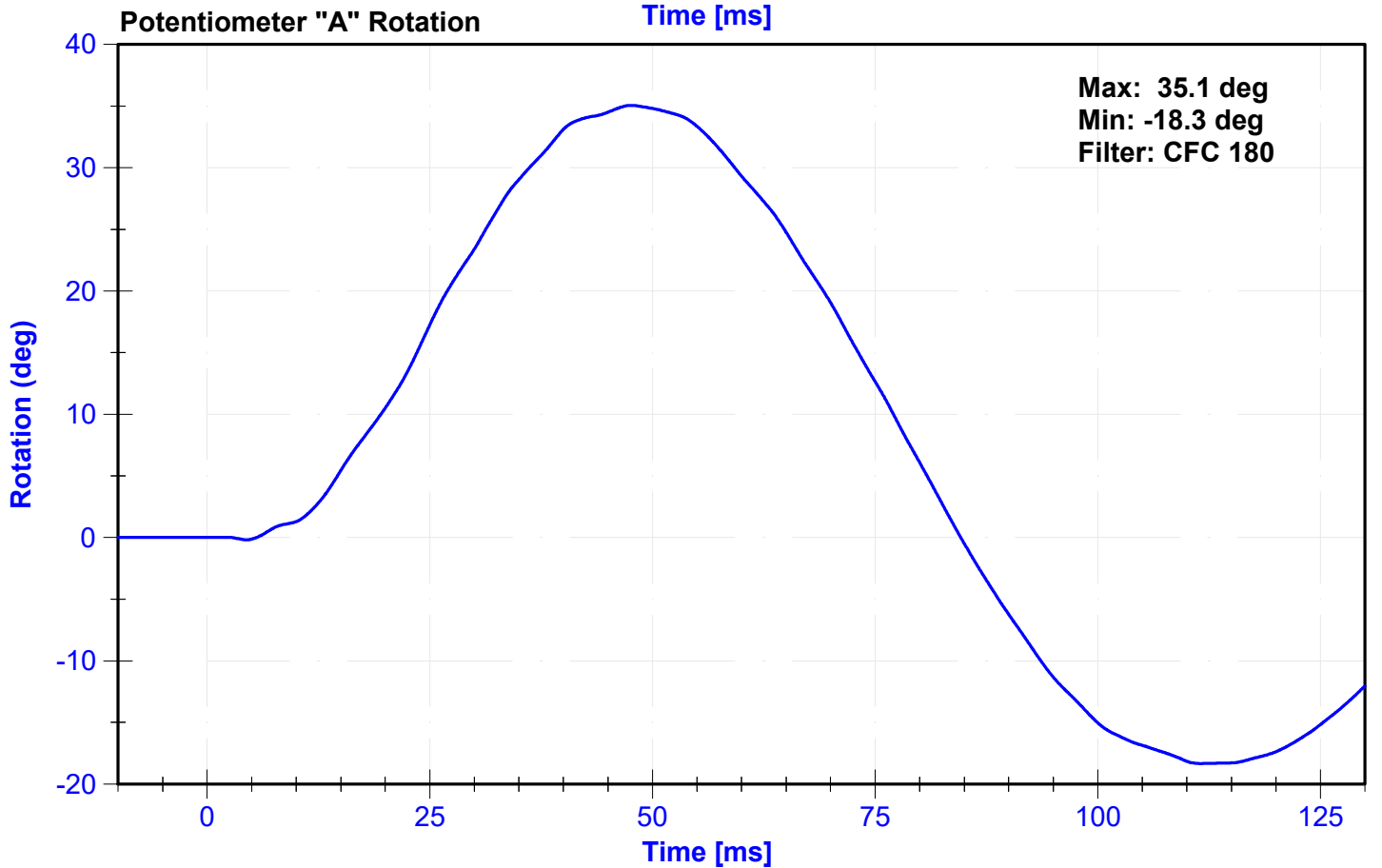
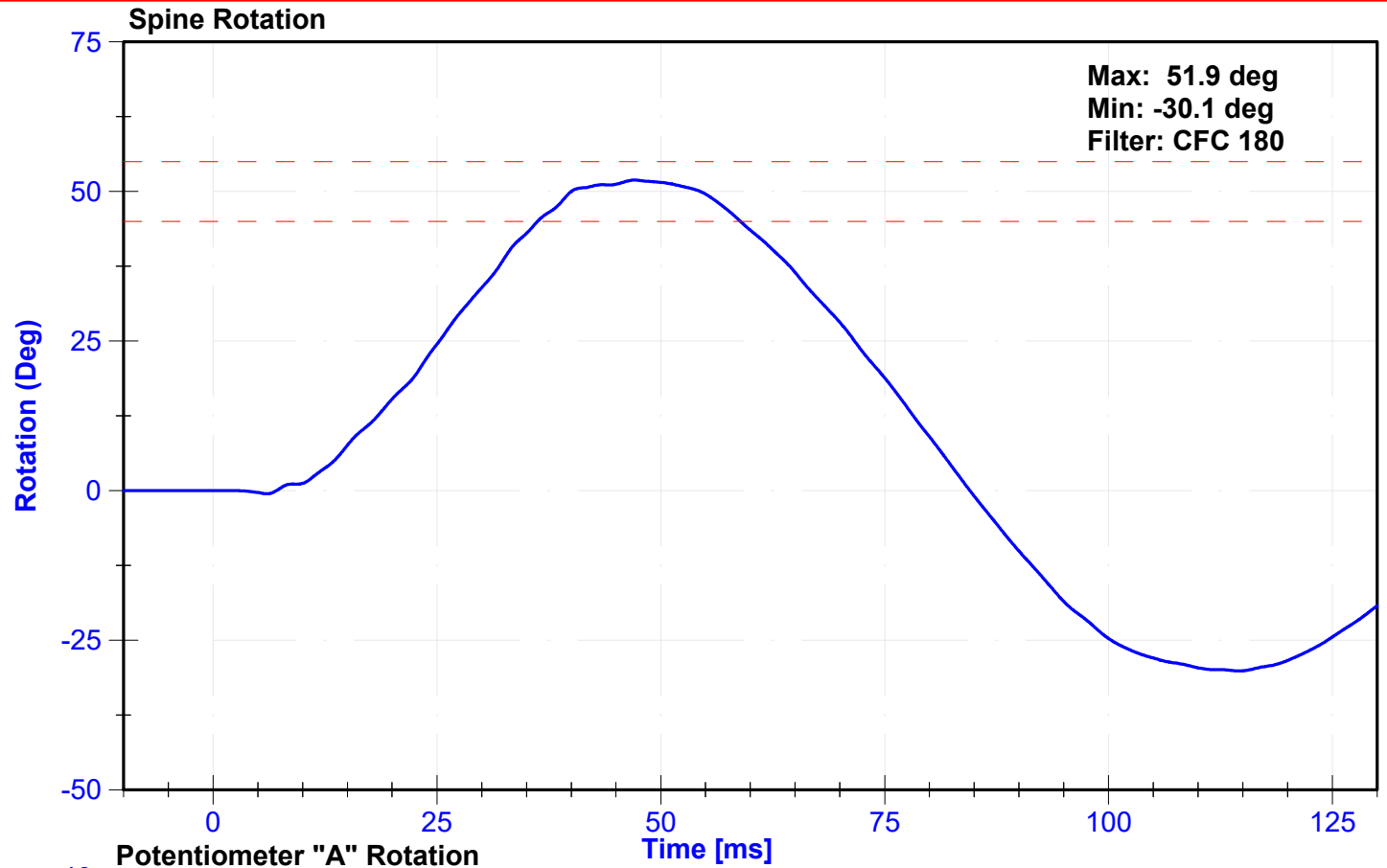
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	25	Pass
Velocity	5.95	6.15	m/s	6.133	Pass
Lateral Spine Rotation	45	55	deg	51.9	Pass
Time at Maximum Rotation	39	53	ms	47.0	Pass
Time of Decay to Zero Degrees	37	57	ms	37.5	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

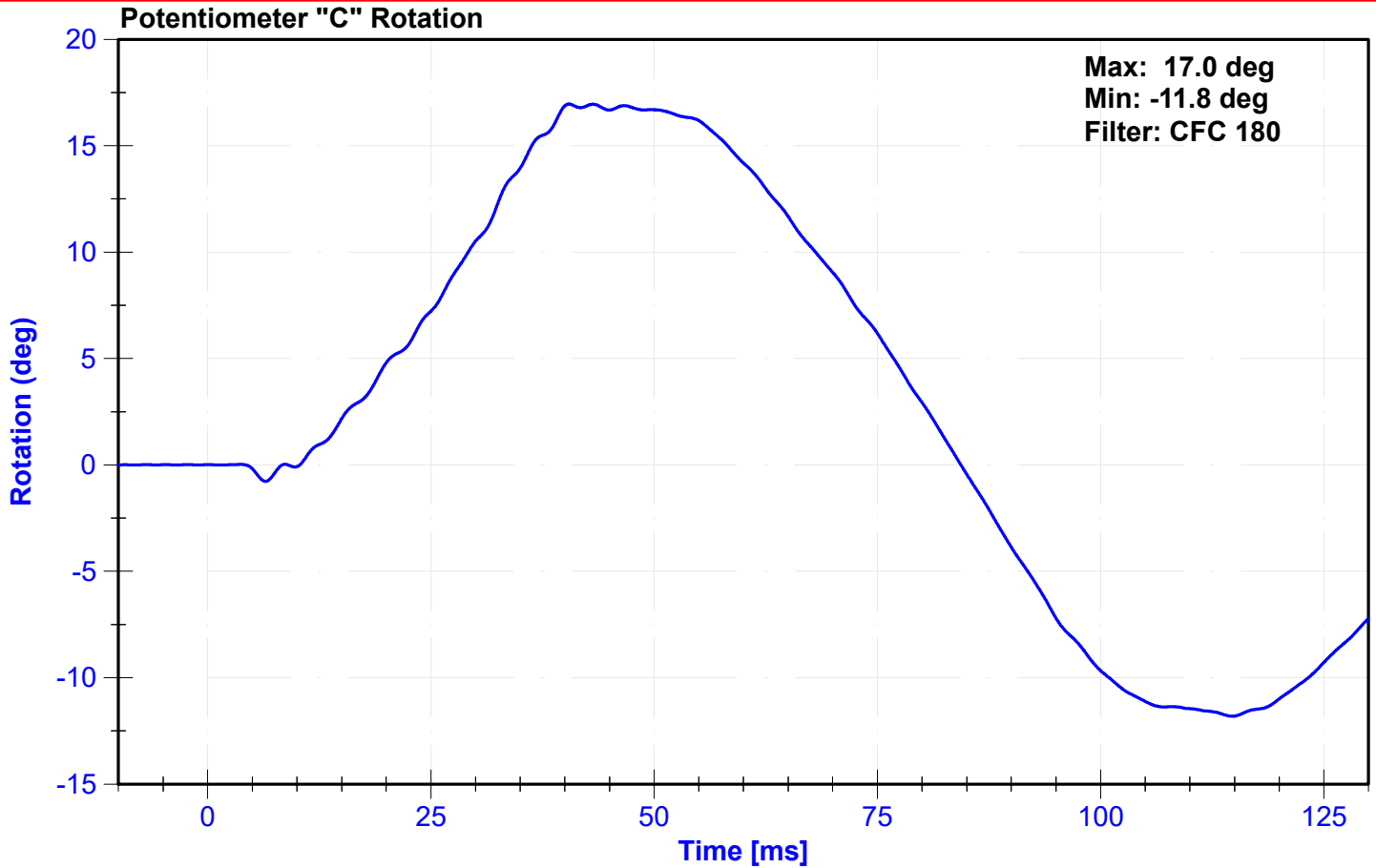
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	4/15/2025
Pendulum "A" Potentiometer	Sfernice	2247	9/13/2024	9/13/2025
Condyle "B" Potentiometer	Sfernice	095	9/13/2024	9/13/2025



^{1,2} Upper and lower boundaries specified in Appendix I





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

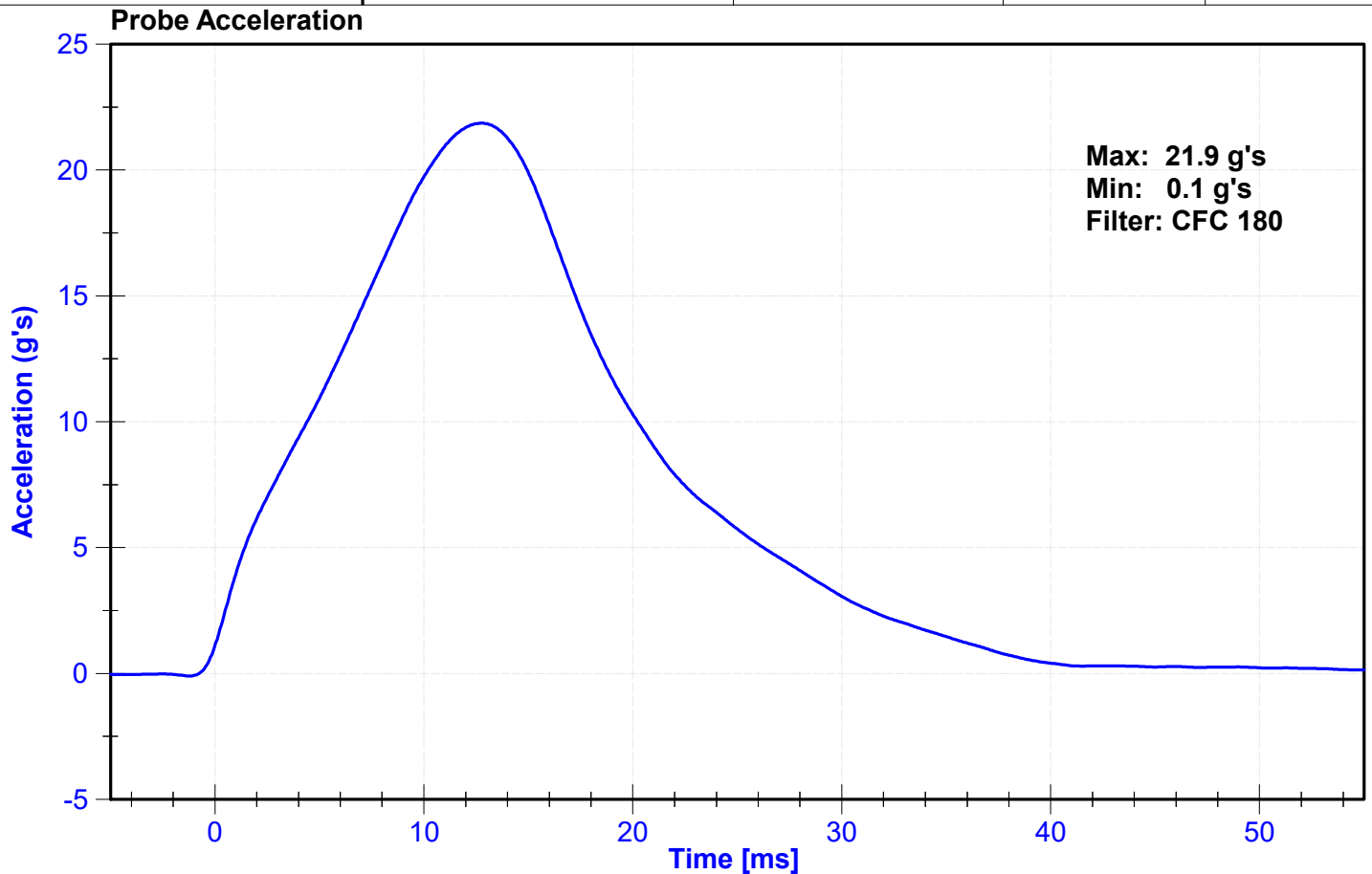
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

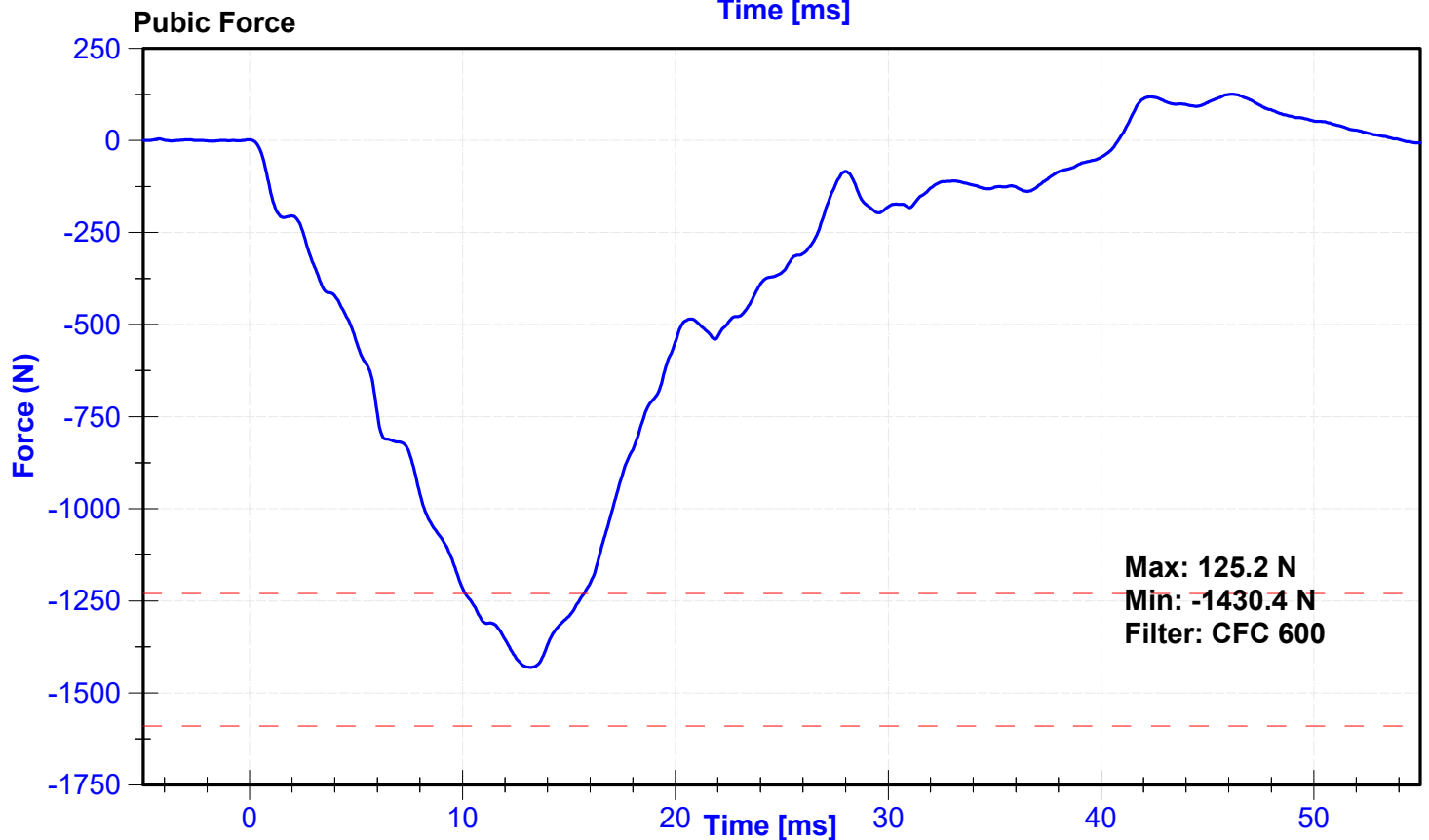
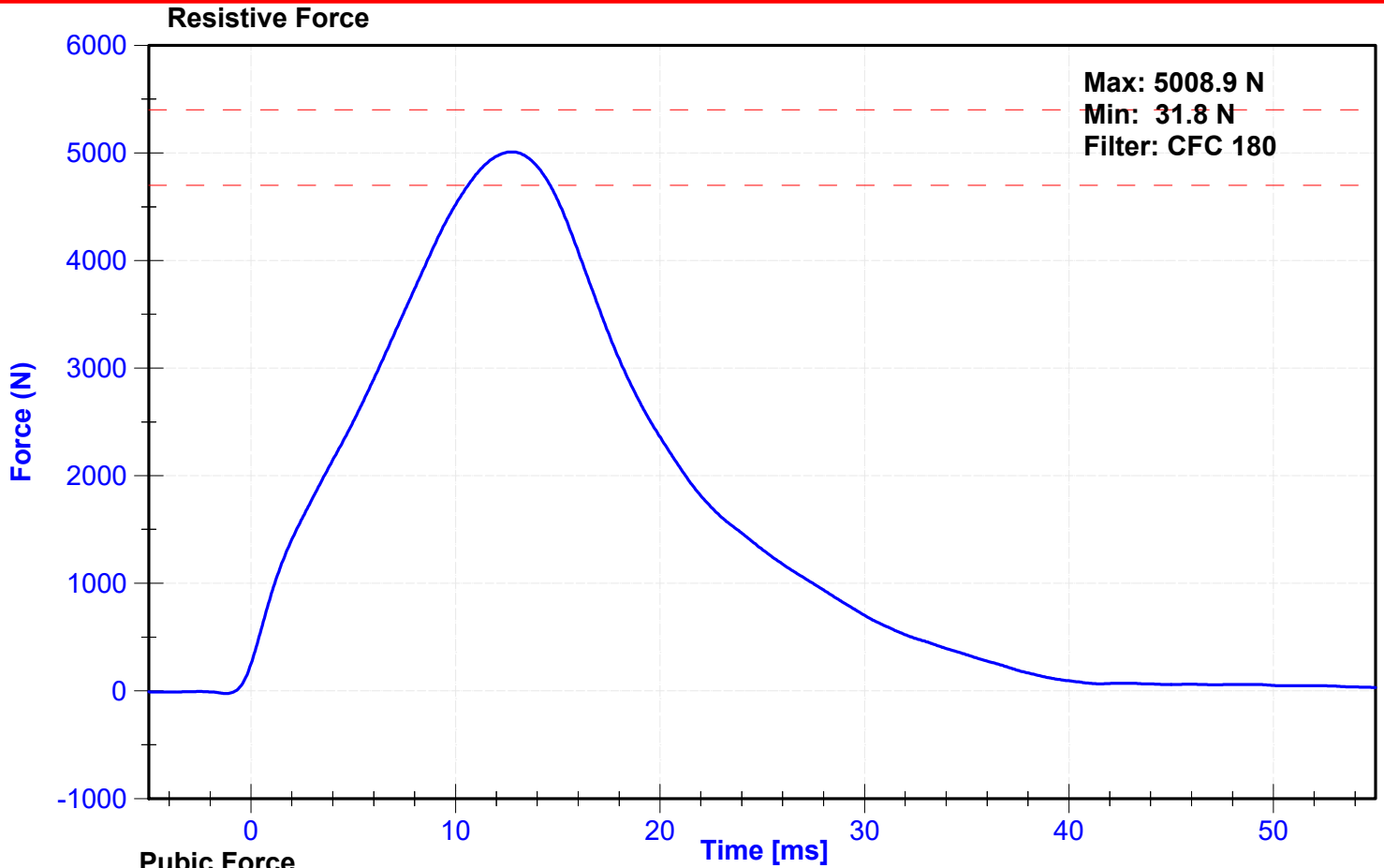
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	19	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Resistive Force	4700	5400	N	5008.9	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.75	Pass
Pubic Force	-1590	-1230	N	-1430.4	Pass
Time at Peak Pubic Force	12.2	17.0	ms	13.20	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Pubic Load Cell	Denton	459-FY	7/12/2024	7/12/2025





APPENDIX VI
SID-Is PERFORMANCE CALIBRATION TEST DATA

PRE-TEST
SID-IIs PERFORMANCE CALIBRATION TEST DATA

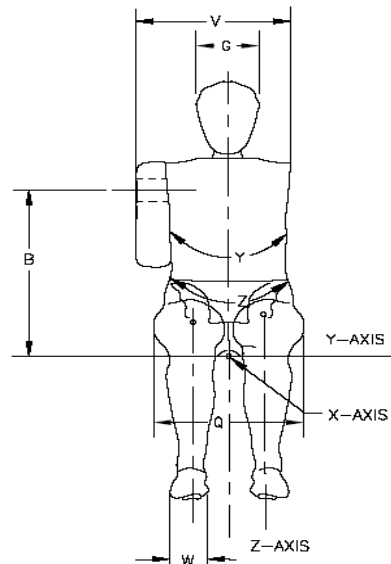
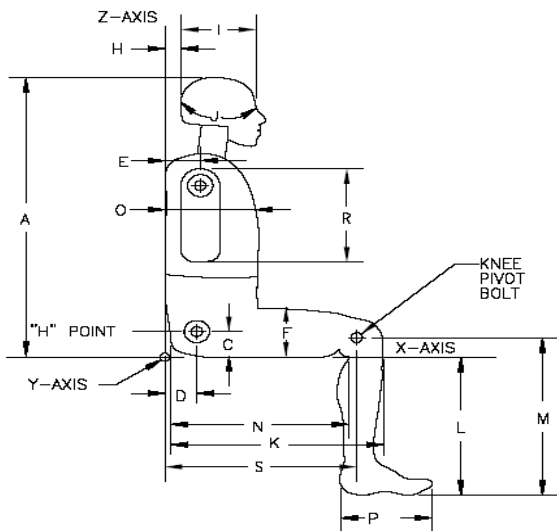


External Measurements - SID-IIs

Technician: **J. Rios**

Date: **4/3/2025**

Dummy Serial Number: **224**



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	783	Pass
B	Shoulder Pivot Height	437	453	447	Pass
C	H-point Height	79	89	83	Pass
D	H-point from seatback	141	151	143	Pass
E	Shoulder Pivot from Backline	97	107	100	Pass
F	Thigh Clearance	119	135	125	Pass
G	Head Breadth	140	148	142	Pass
H	Head Back from Backline	40	46	45	Pass
I	Head Depth	178	188	185	Pass
J	Head Circumference	541	551	550	Pass
K	Buttock to Knee Length	514	540	531	Pass
L	Popliteal Height	343	369	352	Pass
M	Knee Pivot to floor height	392	409	405	Pass
N	Buttock Popliteal Length	416	442	431	Pass
O	Chest Depth w/o jacket	195	211	207	Pass
P	Foot Length	216	232	225	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	485	Pass
V	Shoulder Width	341	357	348	Pass
W	Foot Width	78	94	84	Pass
Y	Chest Circumference w/jacket	851	881	870	Pass
Z	Waist Circumference	761	791	777	Pass

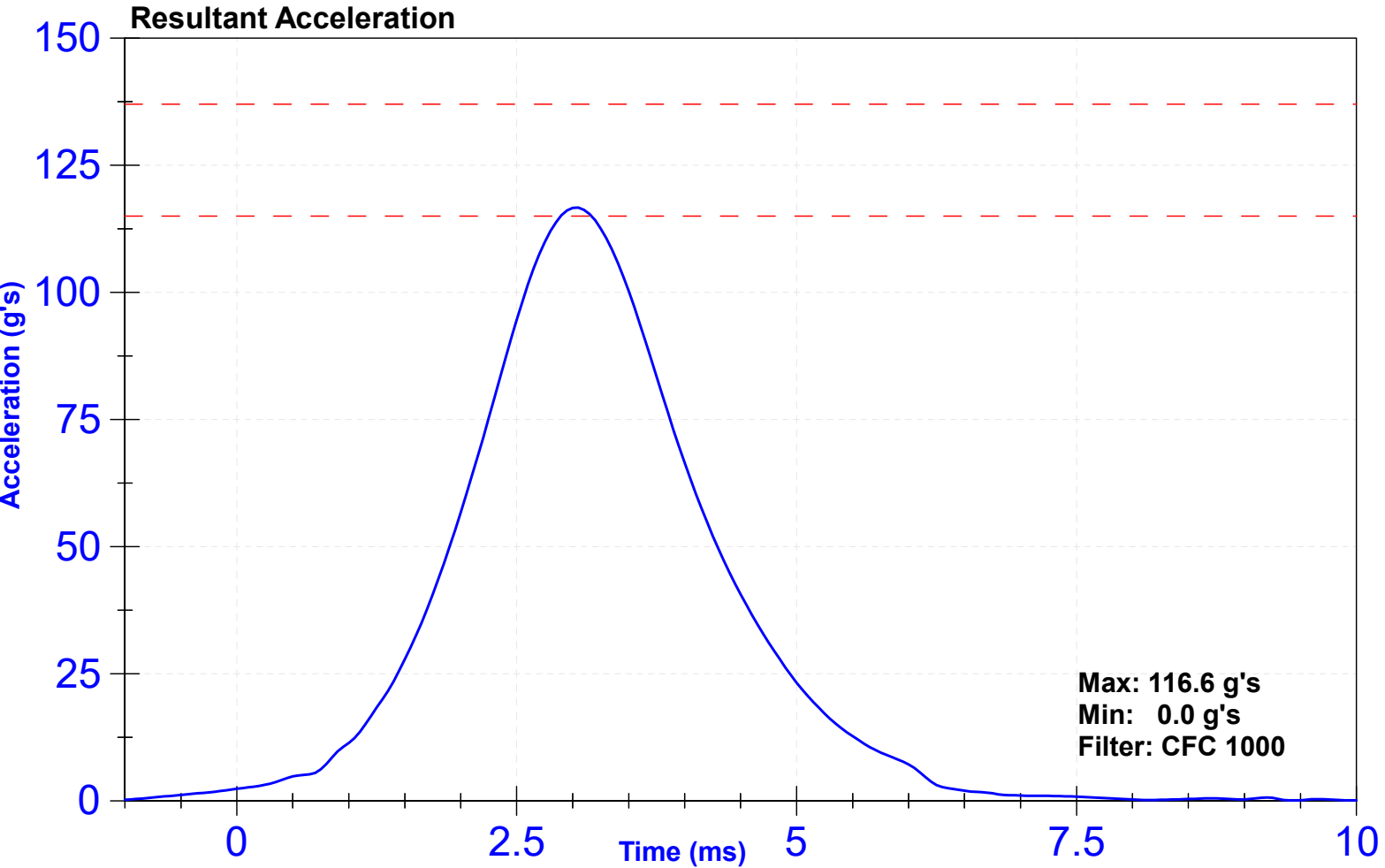
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

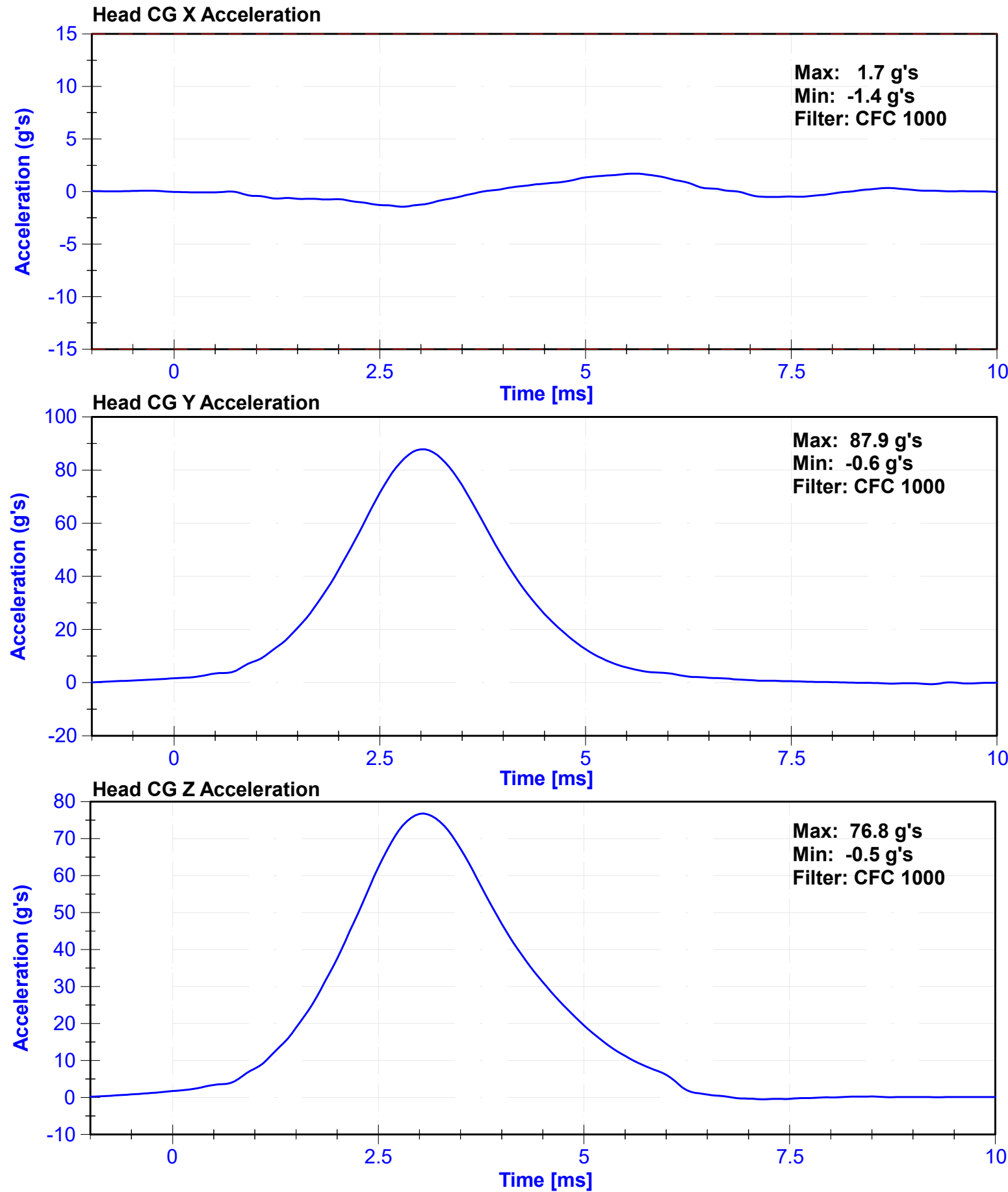
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	36	Pass
Resultant Acceleration	115	137	g's	116.6	Pass
Oscillation	0	15	%	2.6	Pass
Fore-Aft Acceleration	-15	15	g's	1.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibratio Date	Calibratio Due Date
X Accelerometer	Endevco	P51884	10/8/2024	4/6/2025
Y Accelerometer	Endevco	P73161	10/8/2024	4/6/2025
Z Accelerometer	Endevco	P79588	10/8/2024	4/6/2025





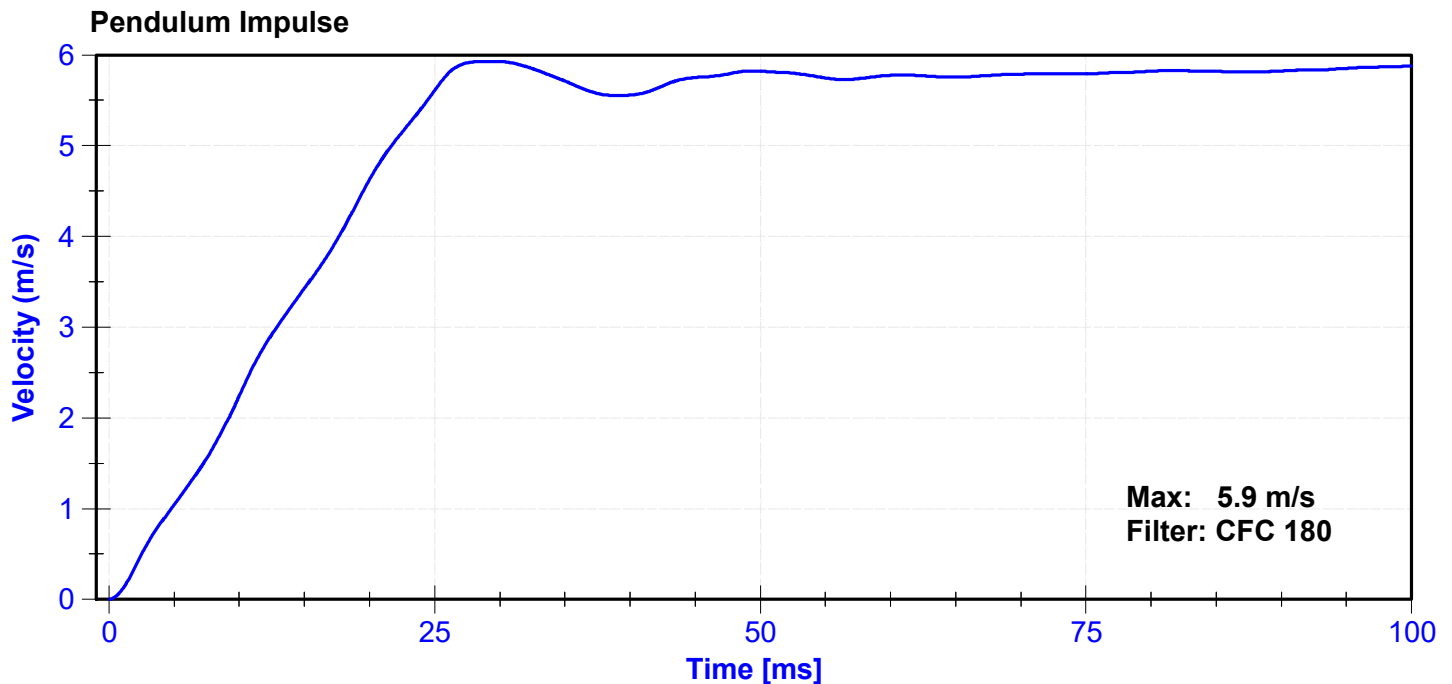
ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

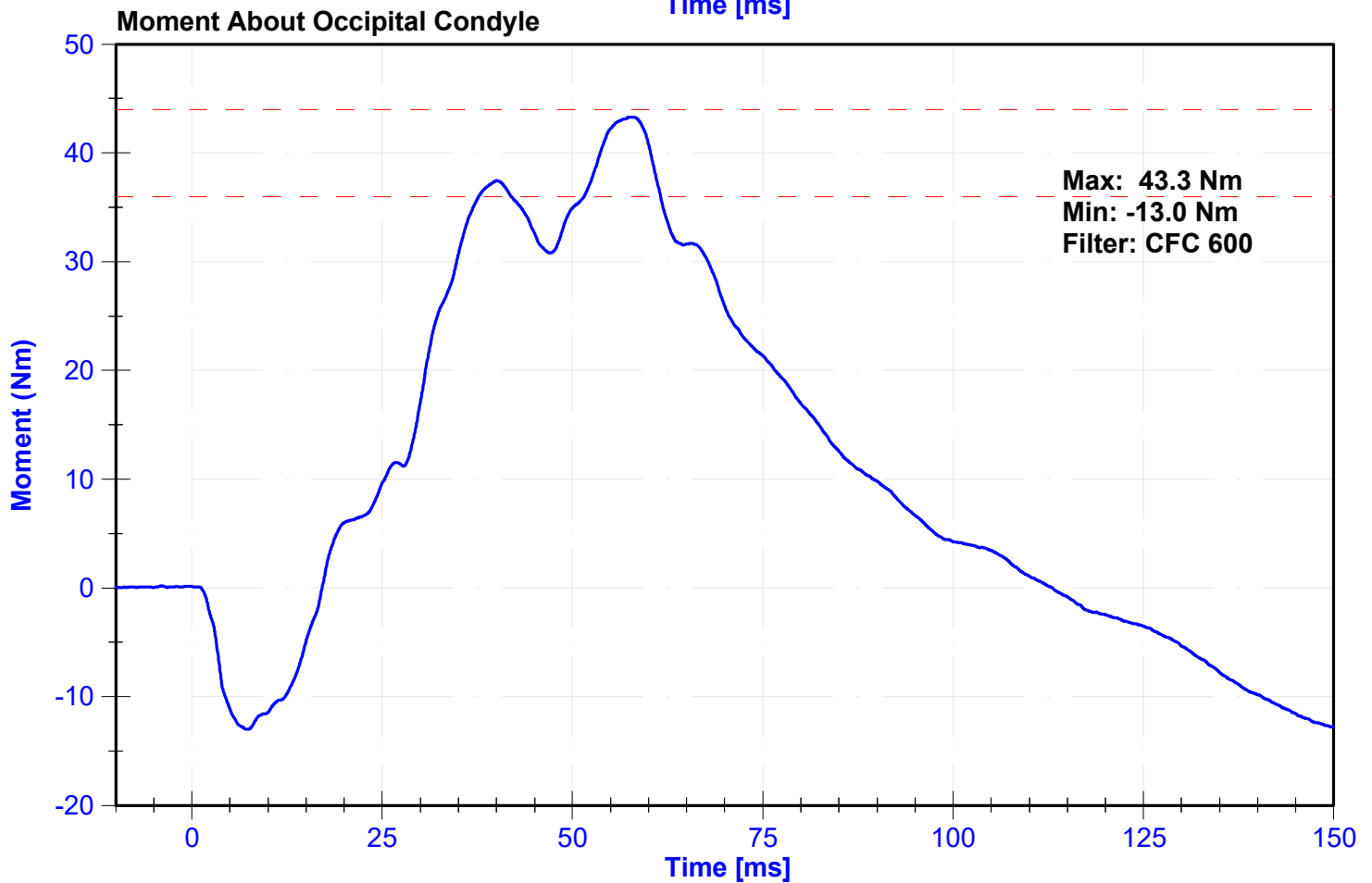
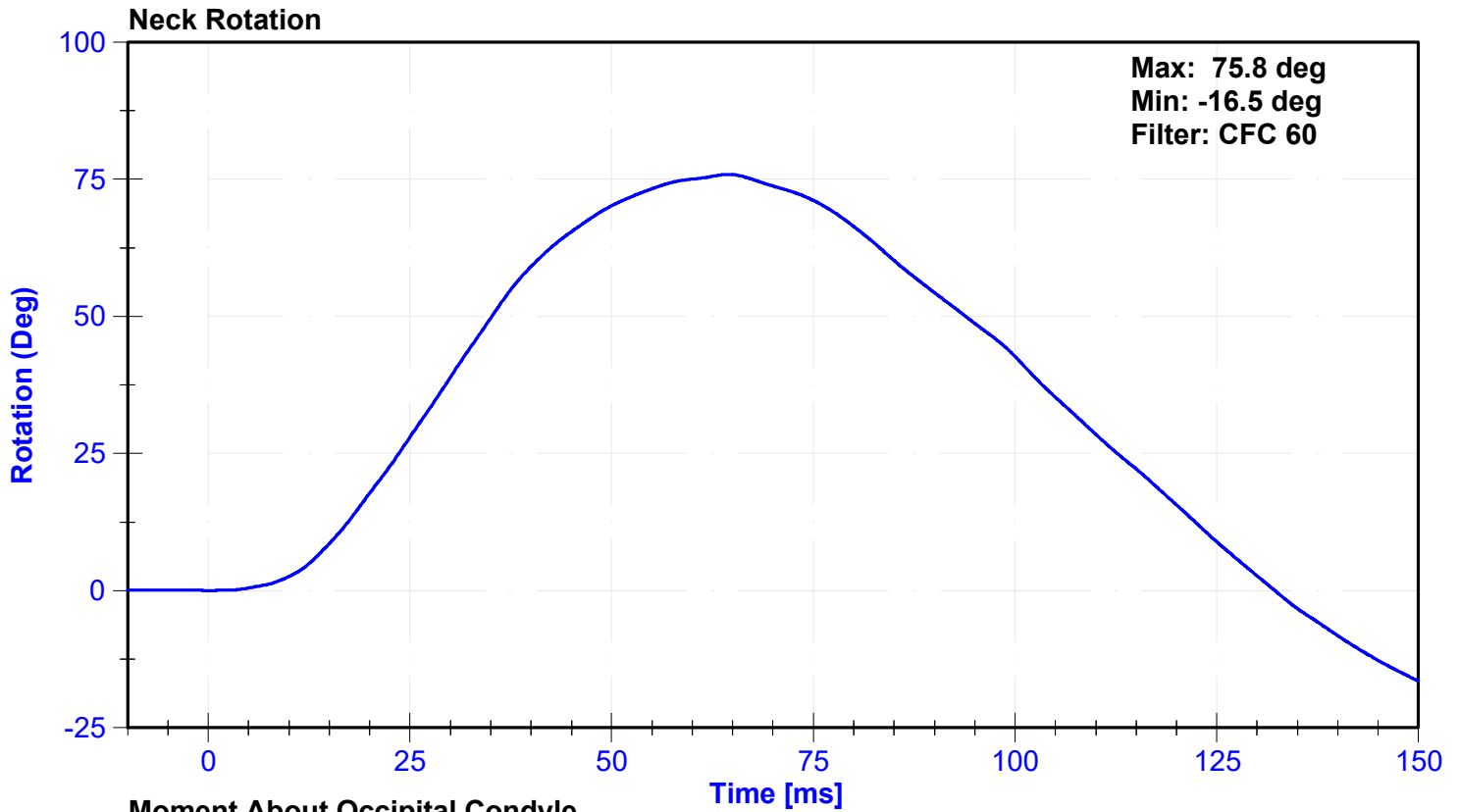
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	35	Pass
Velocity	5.51	5.63	m/s	5.566	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.25	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.43	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.63	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.61	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.93	Pass
Neck Rotation	71	81	deg	75.8	Pass
Time at Maximum Rotation	50	70	ms	64.4	Pass
Moment about the OC	36	44	Nm	43.3	Pass
Moment Decay to 0 Nm	102	126	ms	113.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231C-750	10/17/2024	4/15/2025
Pendulum Potentiometer	Servo	4961	9/23/2024	9/23/2025
Condyle Potentiometer	Servo	DS185	9/23/2024	9/23/2025
Upper Neck Load Cell	Denton	1716A_2187-FY	2/25/2025	2/25/2026





ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

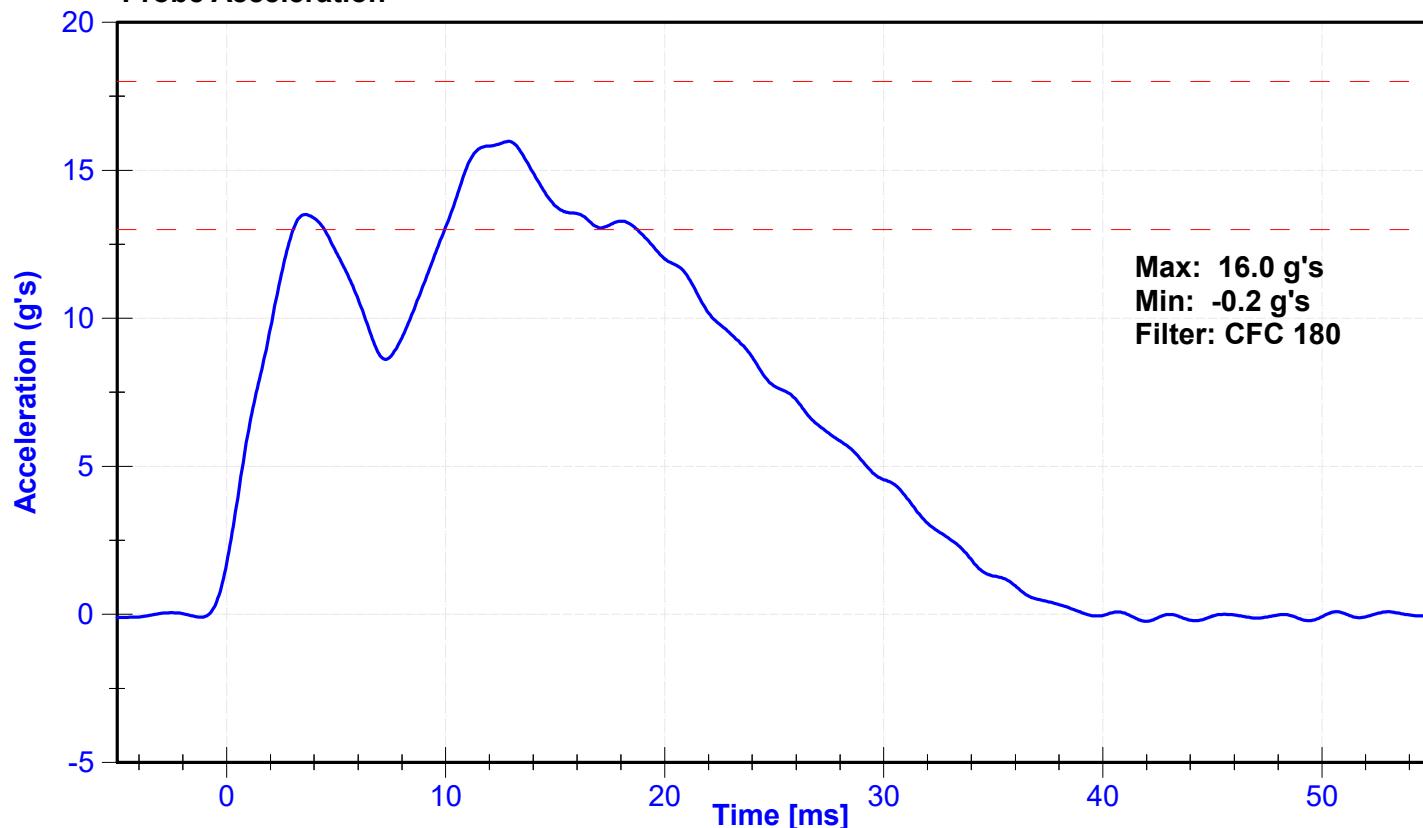
Results

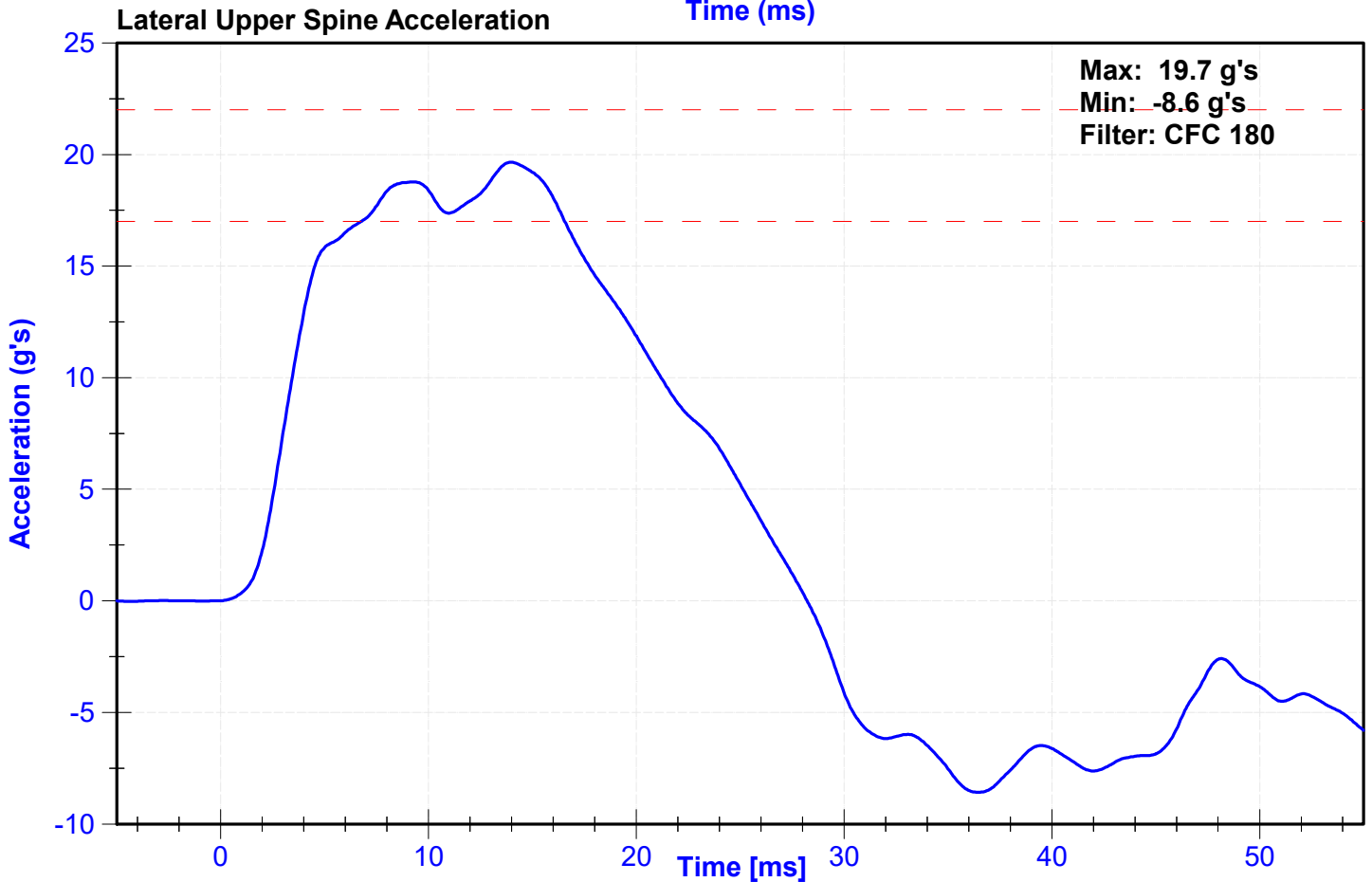
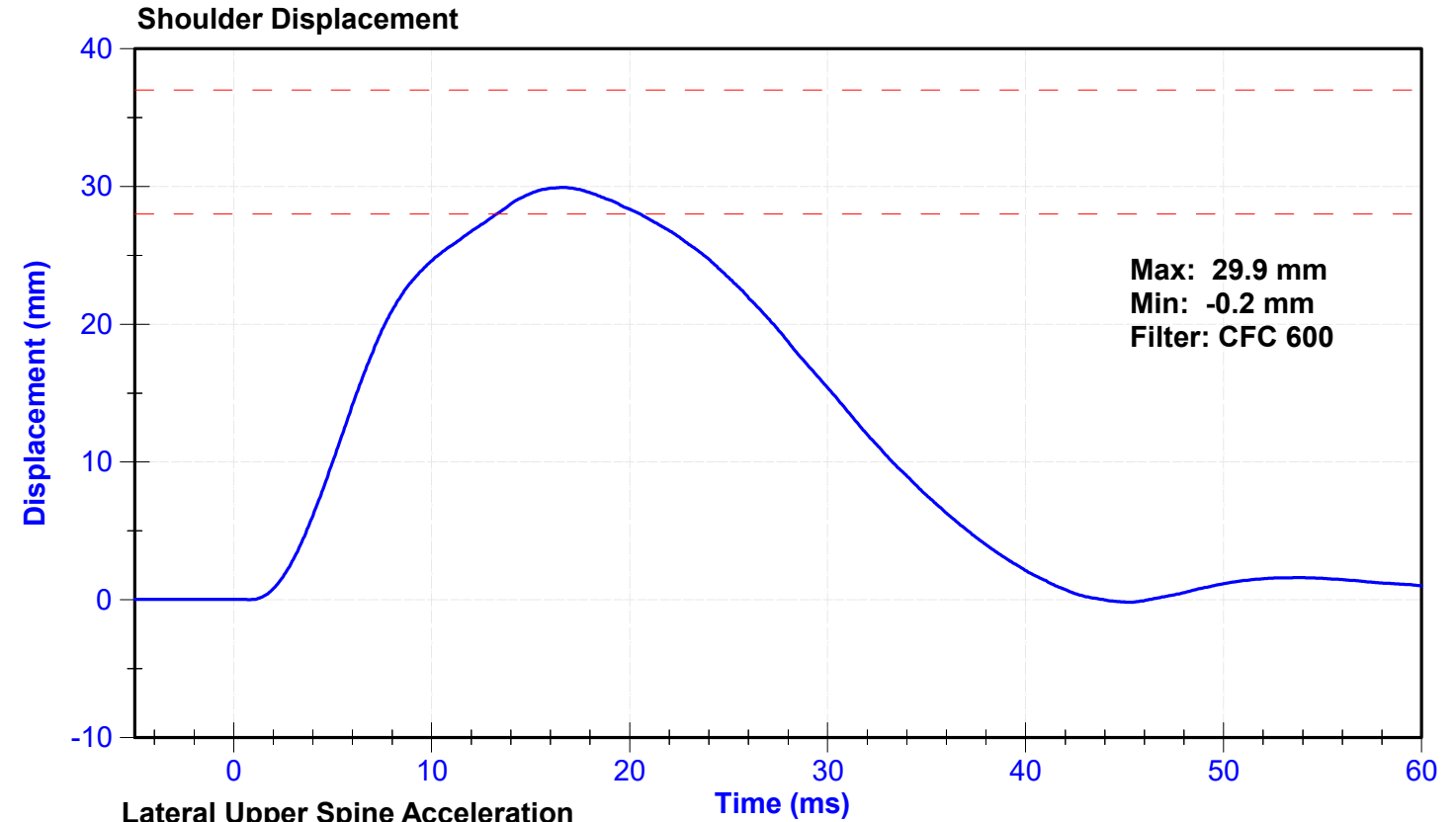
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	13	18	g's	16.0	Pass
Shoulder Deflection	28	37	mm	29.9	Pass
Lateral Upper Spine Acceleration	17	22	g's	19.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Shoulder Potentiometer	Servo	829GFE	10/8/2024	4/8/2025
Upper Spine Y Accelerometer	Endevco	P58883	10/8/2024	4/6/2025

Probe Acceleration





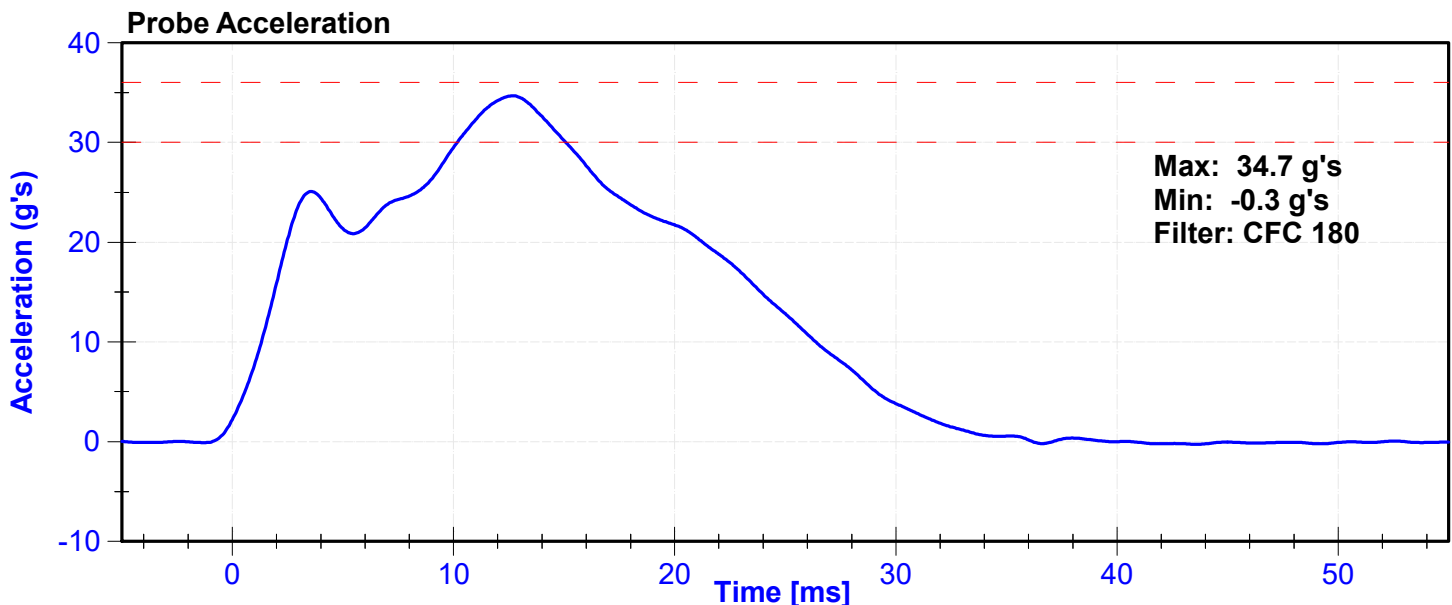
ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

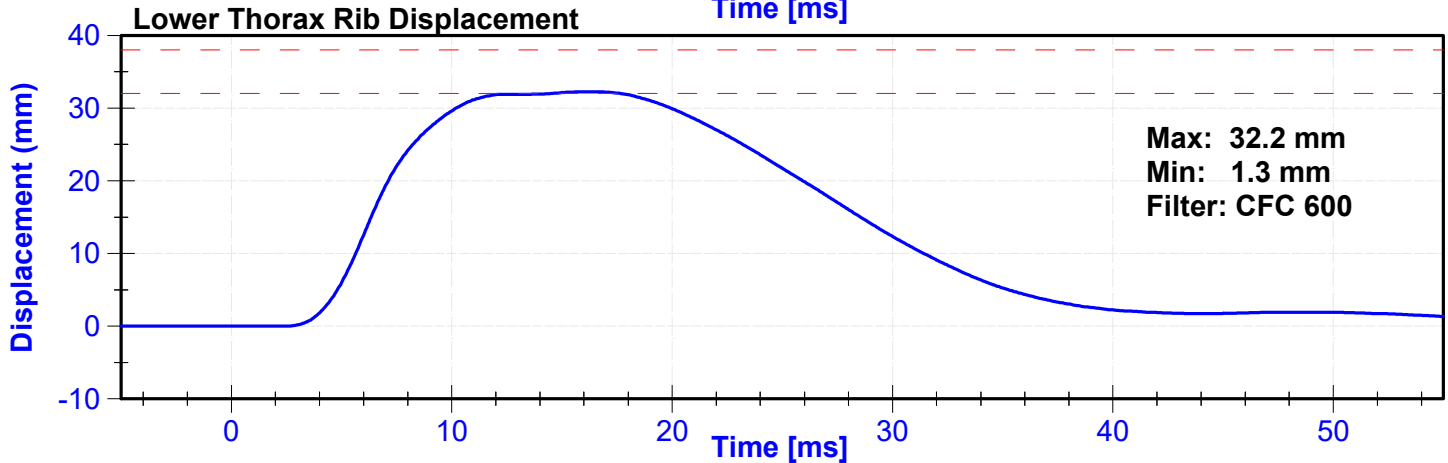
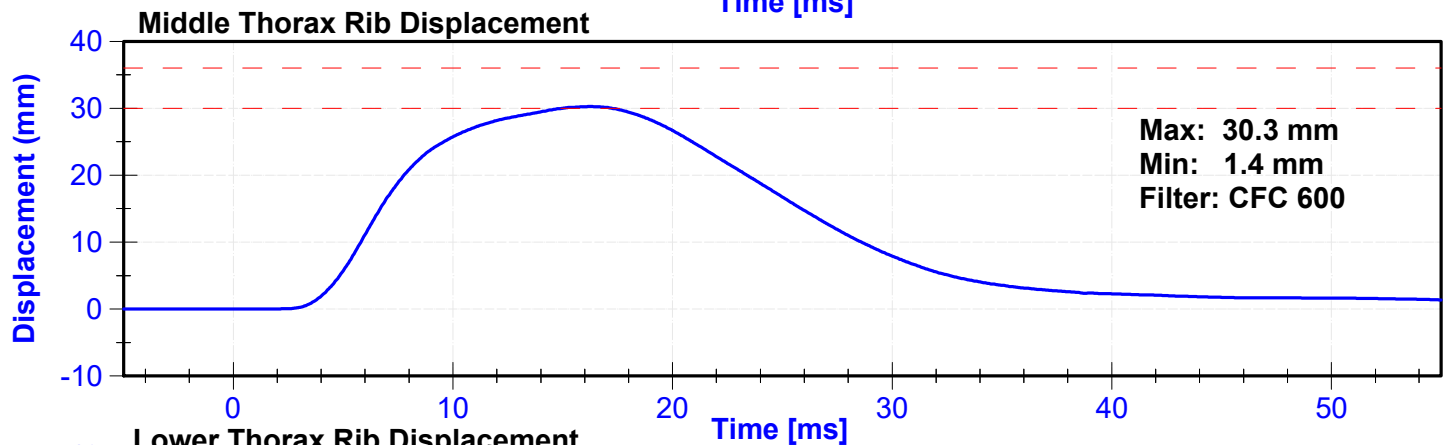
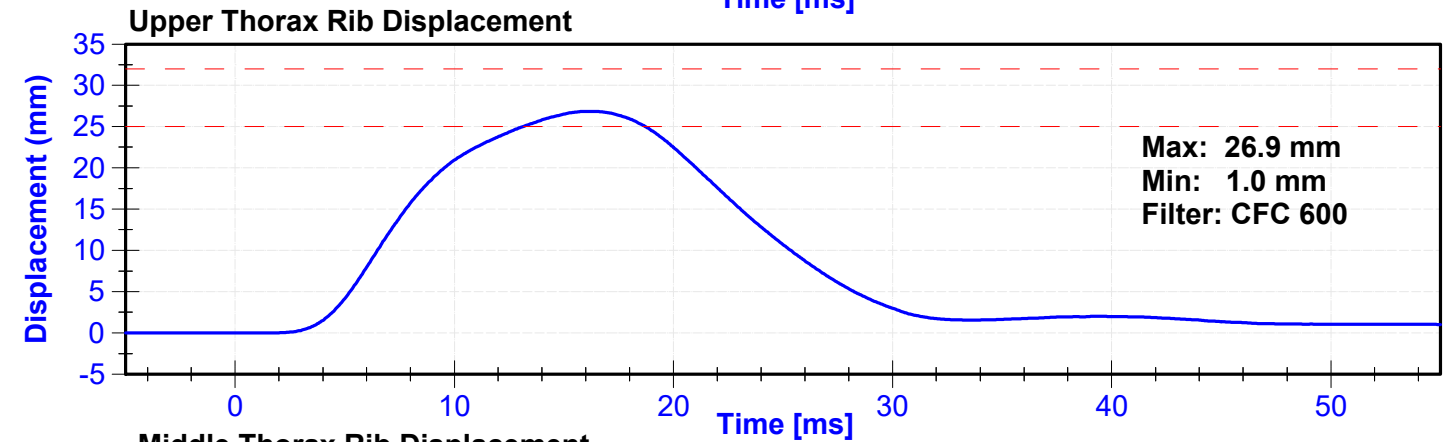
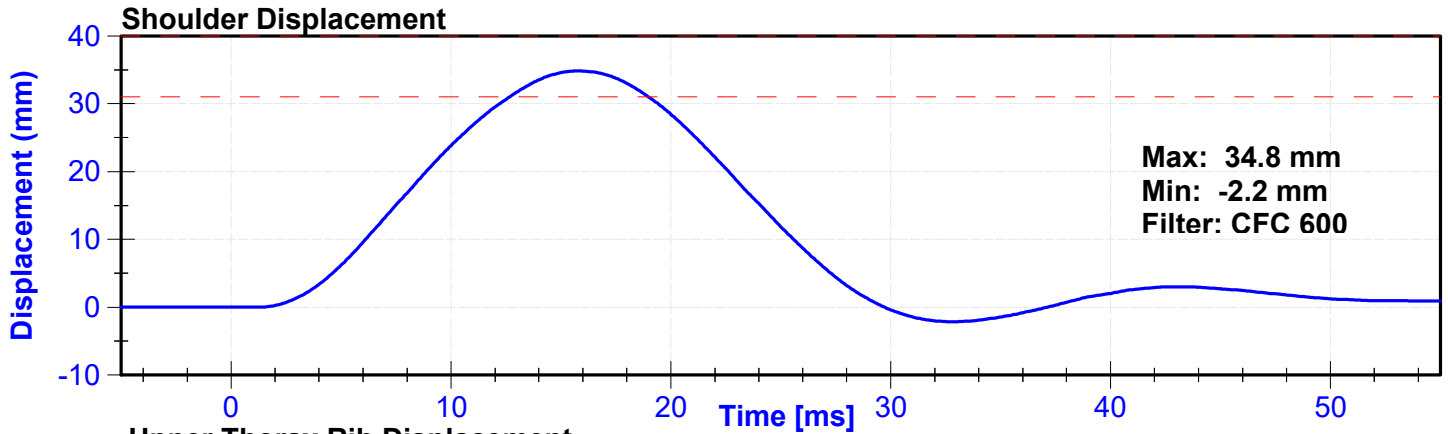
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Velocity	6.6	6.8	m/s	6.66	Pass
Probe Acceleration after 5 ms	30	36	g's	34.7	Pass
Lateral Upper Spine Acceleration	34	43	g's	37.1	Pass
Lateral Lower Spine Acceleration	29	37	g's	34.8	Pass
Shoulder Deflection	31	40	mm	34.8	Pass
Upper Thorax Rib Deflection	25	32	mm	26.9	Pass
Mid Thorax Rib Deflection	30	36	mm	30.3	Pass
Lower Thorax Rib Deflection	32	38	mm	32.2	Pass

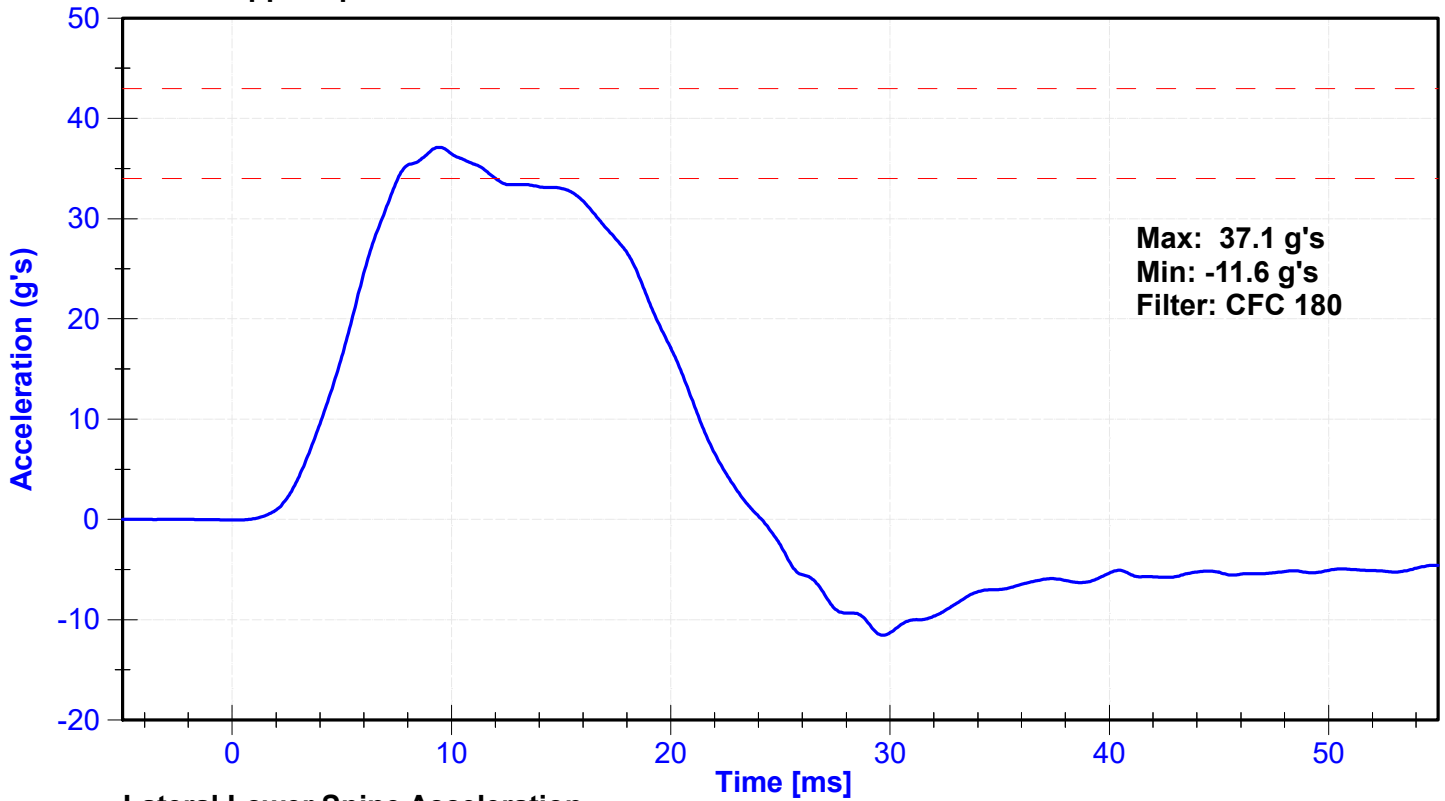
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Upper Spine T1 Y Accelerometer	Endevco	P58883	10/8/2024	4/6/2025
Upper Spine T12 Y Accelerometer	Endevco	T20906	10/8/2024	4/6/2025
Shoulder Potentiometer	Servo	829GFE	10/8/2024	4/8/2025
Upper Thorax Rib Potentiometer	Servo	DS-049GFE	10/8/2024	4/8/2025
Middle Thorax Rib Potentiometer	Servo	080GFE	10/9/2024	4/9/2025
Lower Thorax Rib Potentiometer	Servo	087GFE	12/5/2024	6/5/2025

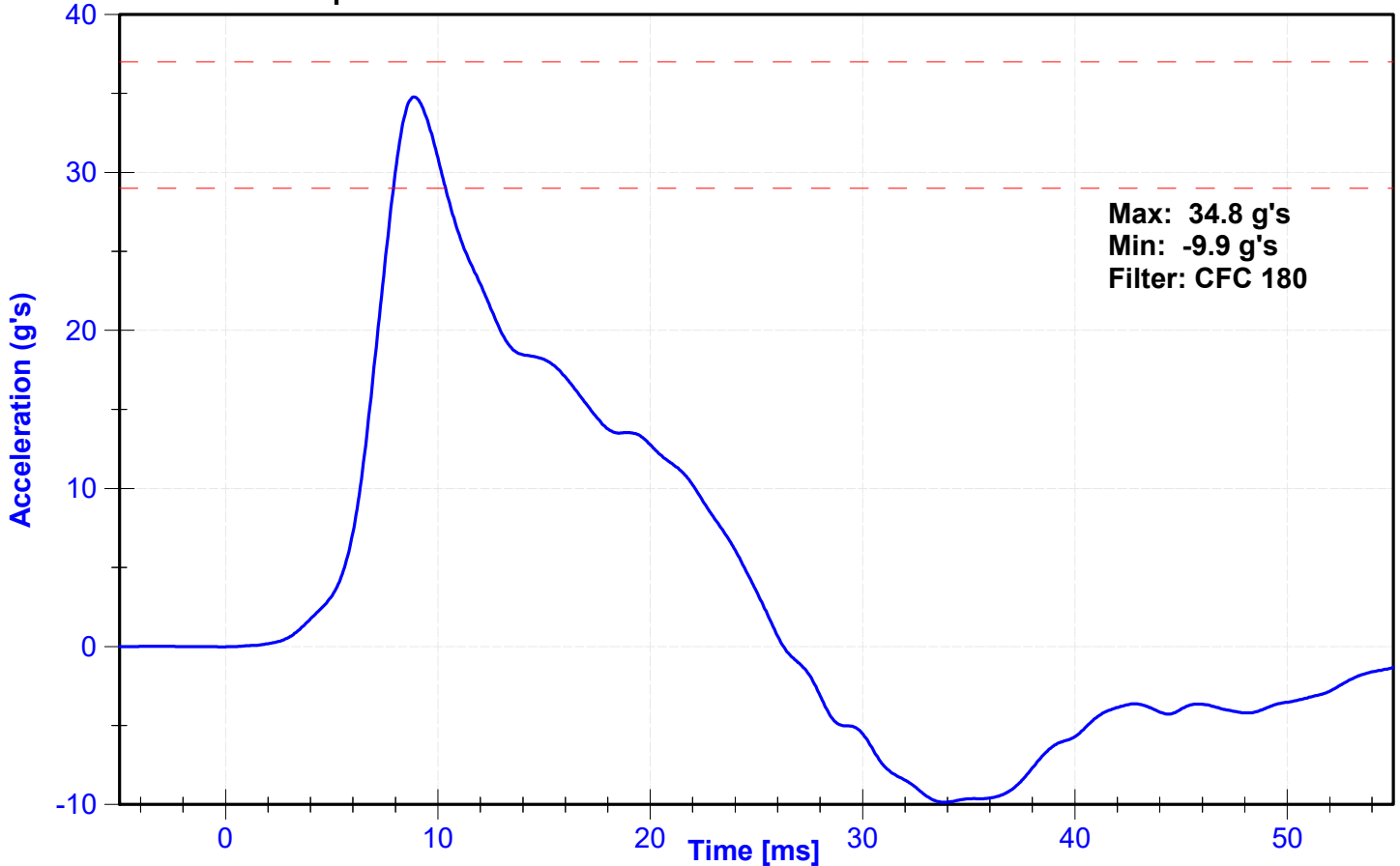




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



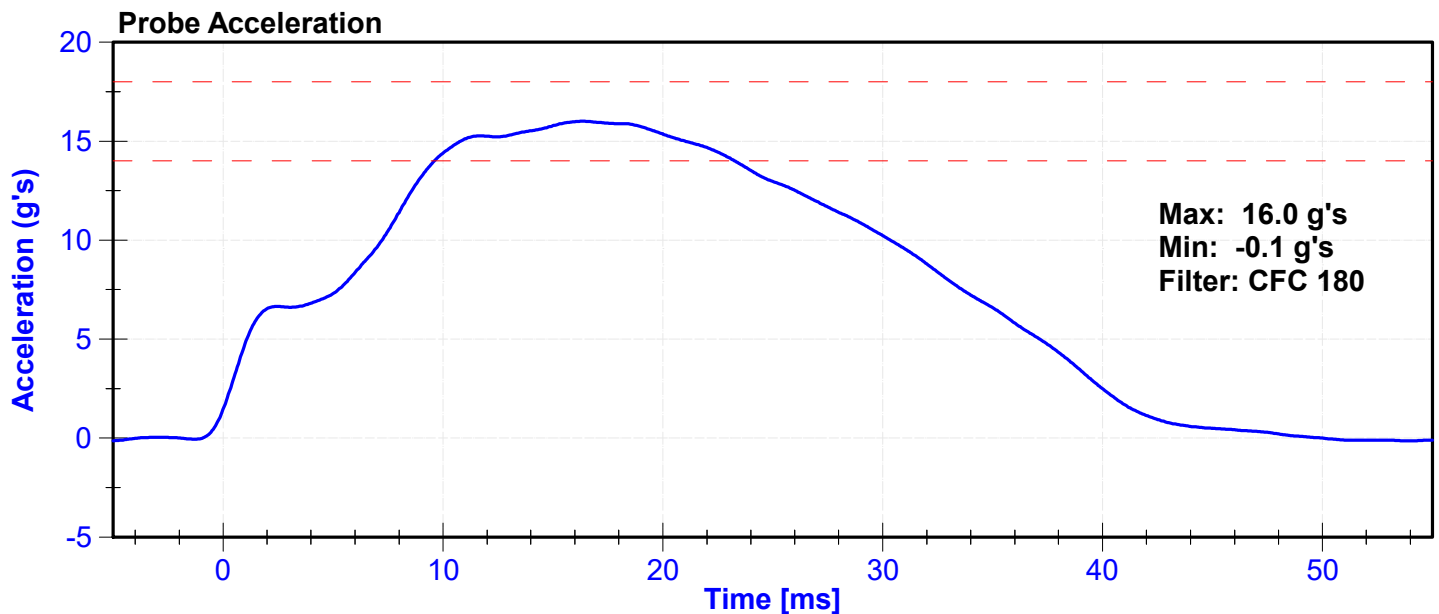
ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

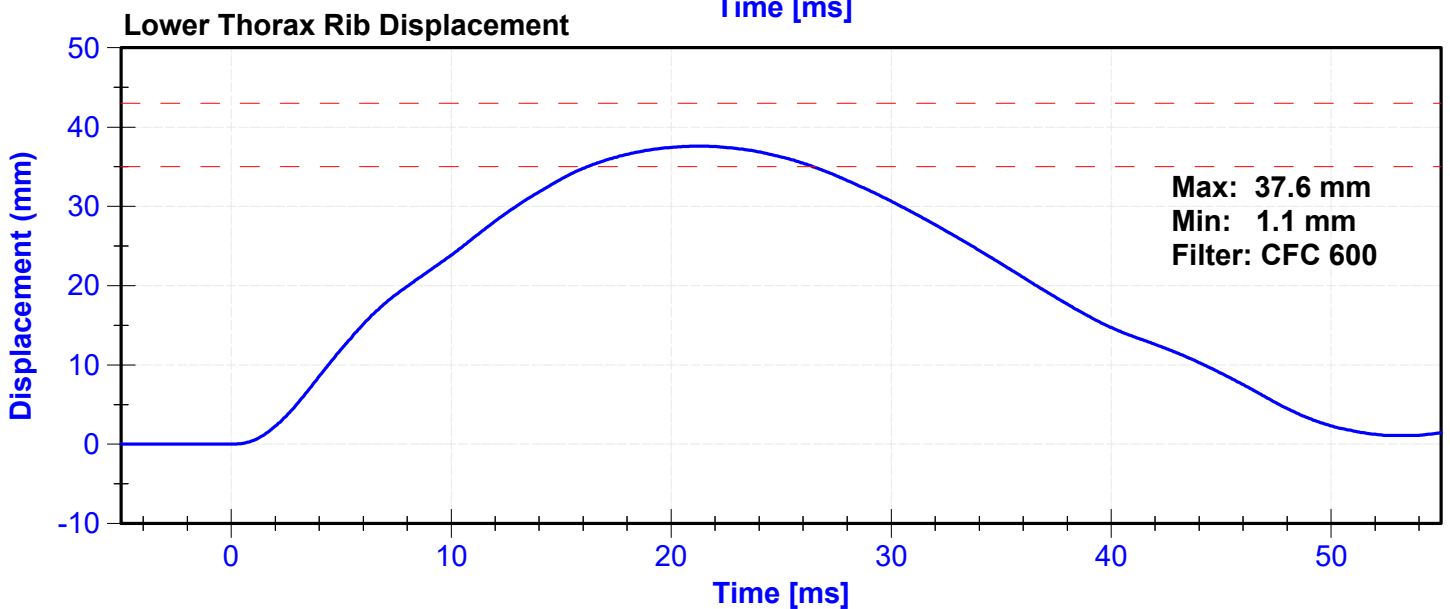
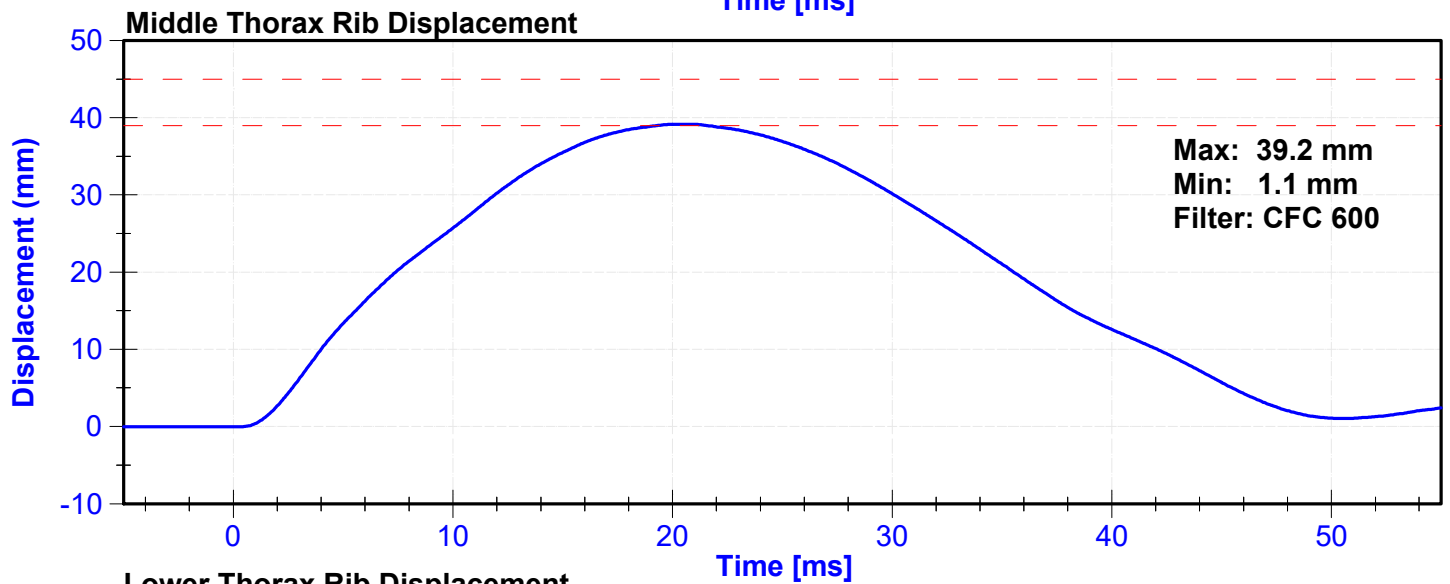
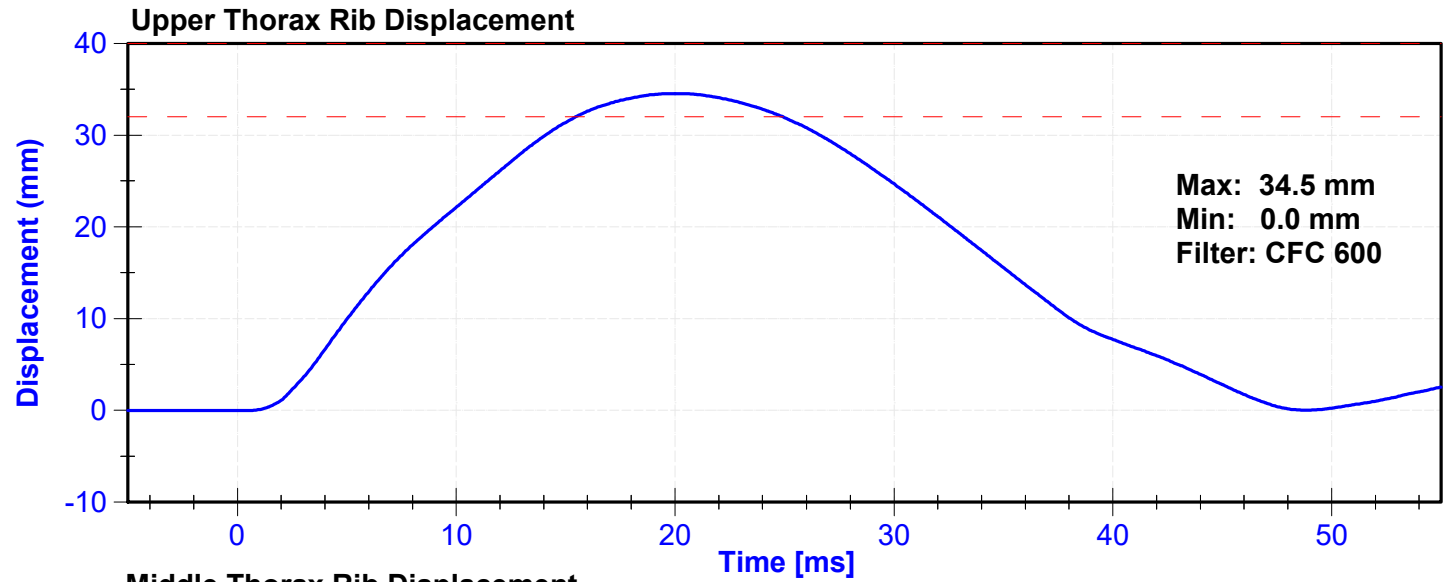
Results

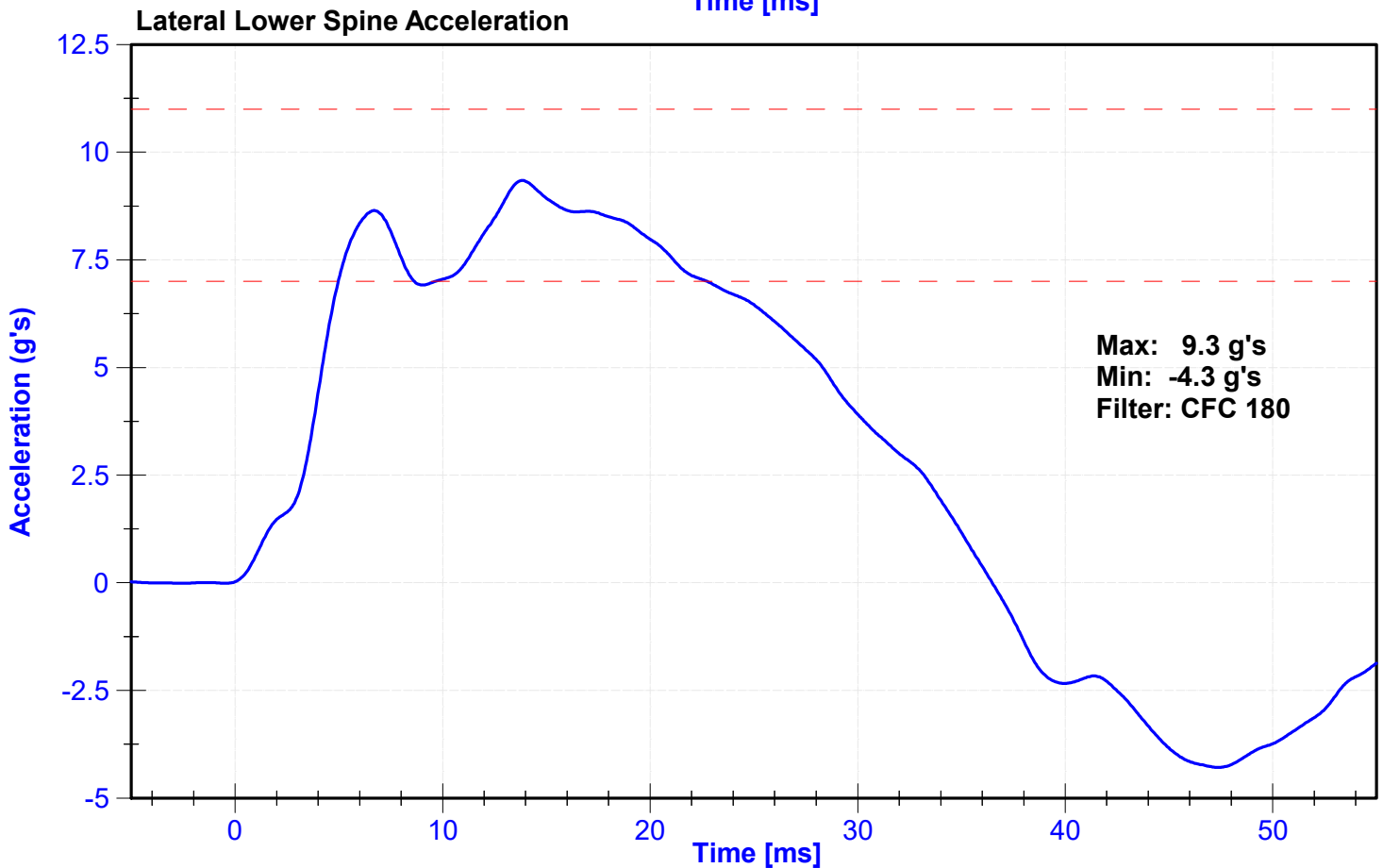
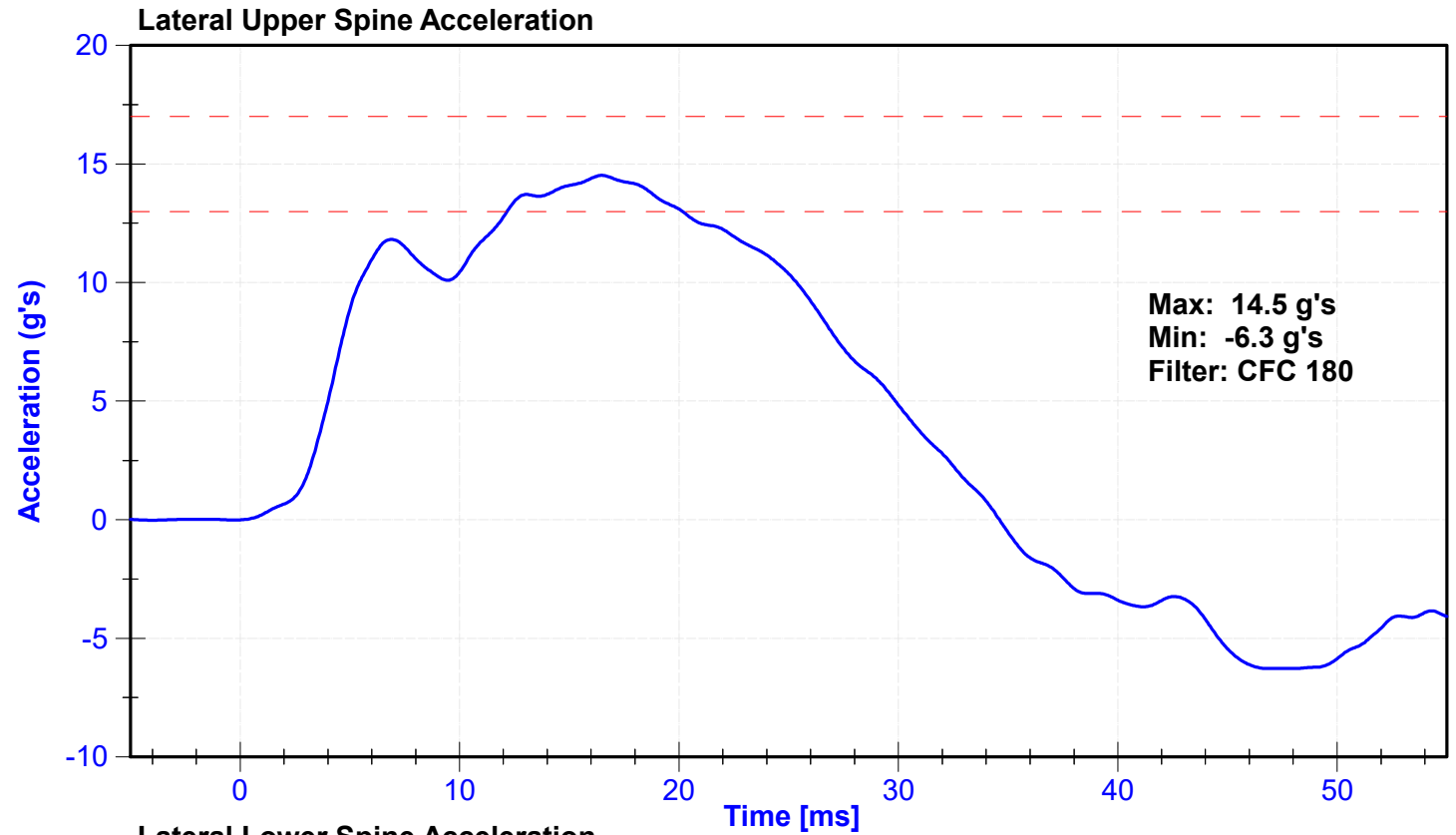
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.30	Pass
Probe Acceleration	14	18	g's	16.0	Pass
Lateral Upper Spine Acceleration	13	17	g's	14.5	Pass
Lateral Lower Spine Acceleration	7	11	g's	9.3	Pass
Upper Thorax Rib Deflection	32	40	mm	34.5	Pass
Middle Thorax Rib Deflection	39	45	mm	39.2	Pass
Lower Thorax Rib Deflection	35	43	mm	37.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Upper Spine Y Accelerometer	Endevco	P58883	10/8/2024	4/6/2025
Lower Spine Y Accelerometer	Endevco	T20906	10/8/2024	4/6/2025
Upper Thorax Rib Potentiometer	Servo	DS-049GFE	10/8/2024	4/8/2025
Middle Thorax Rib Potentiometer	Servo	080GFE	10/9/2024	4/9/2025
Lower Thorax Rib Potentiometer	Servo	087GFE	12/5/2024	6/5/2025







ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

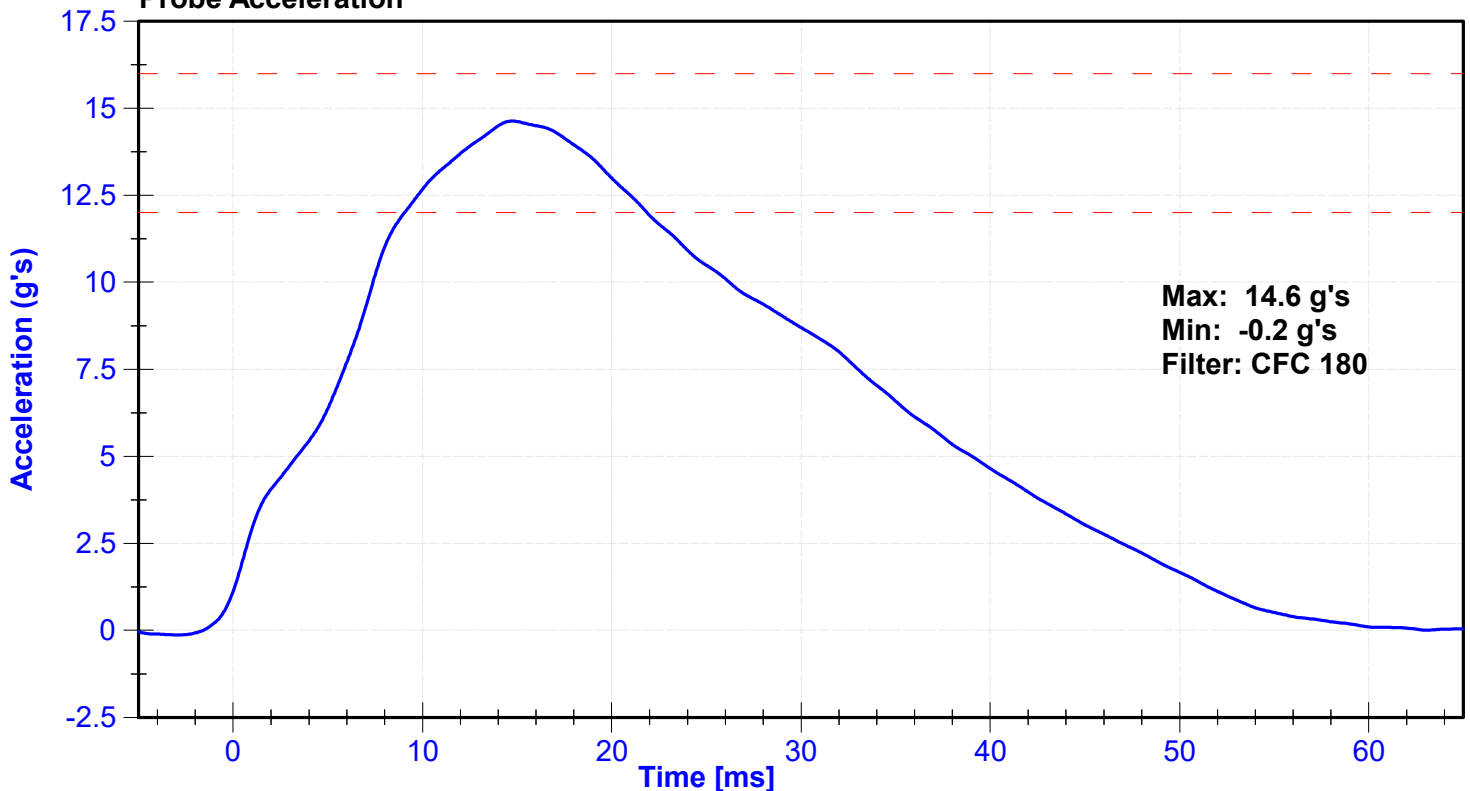
Results

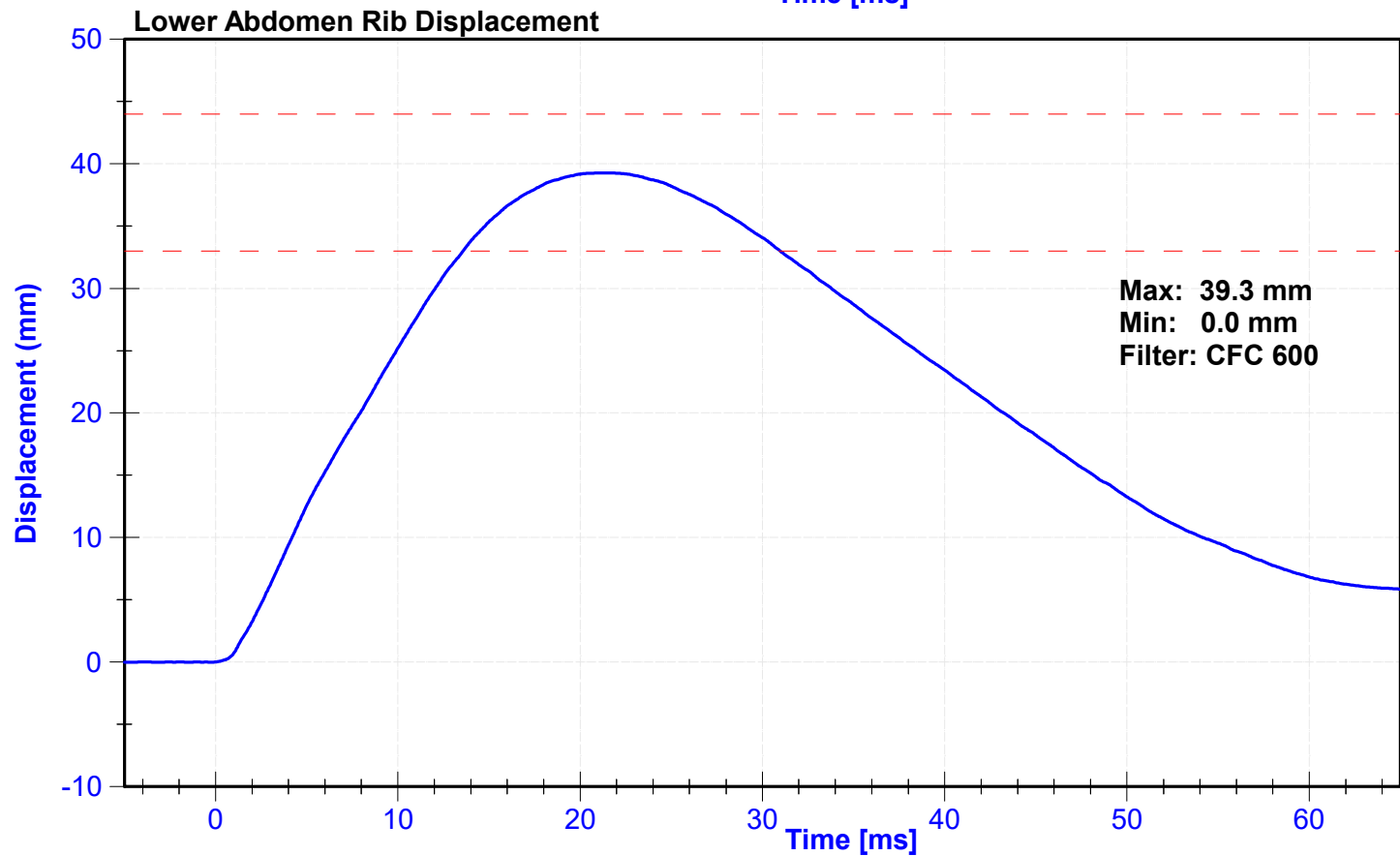
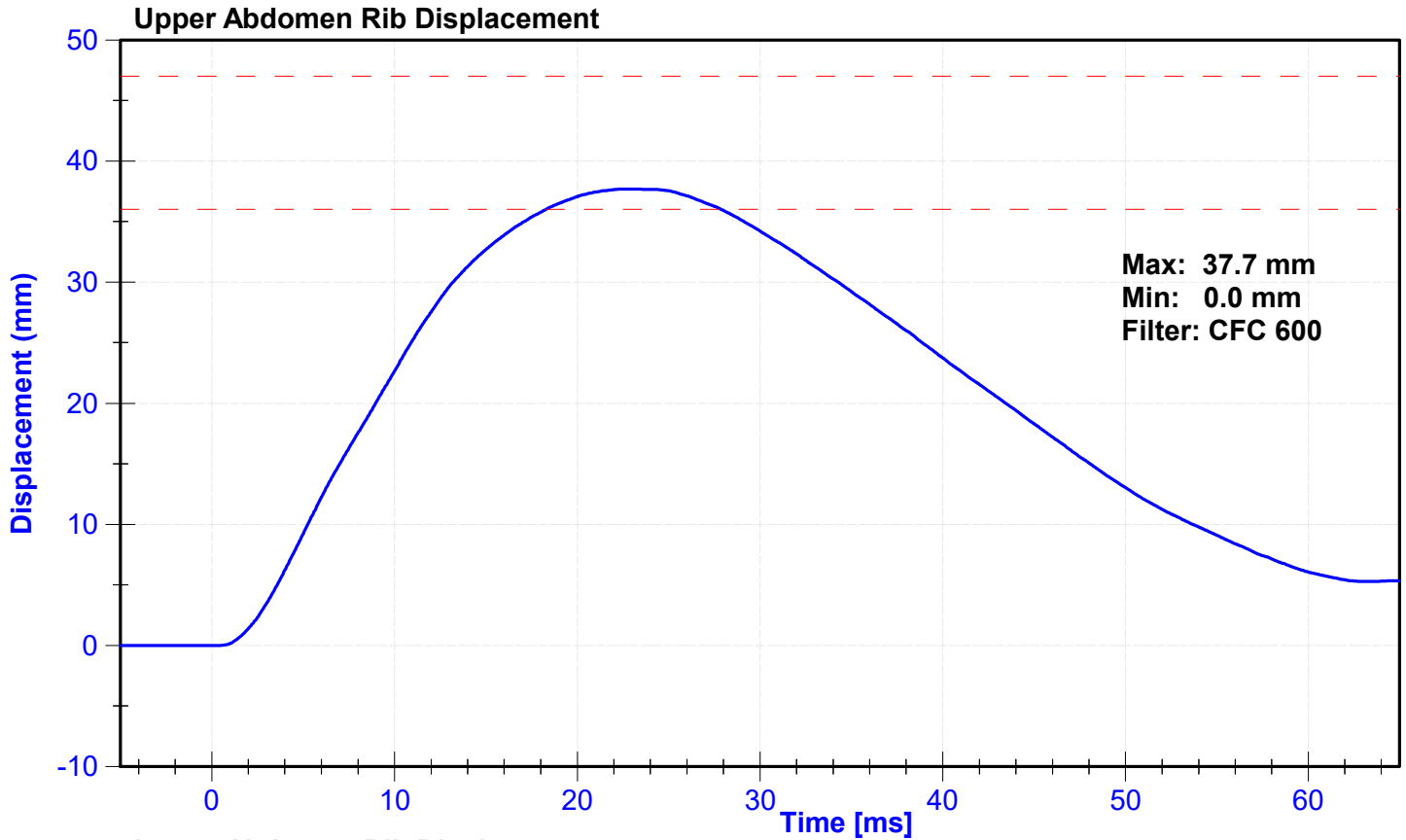
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.30	Pass
Probe Acceleration	12	16	g's	14.6	Pass
Lateral Lower Spine Acceleration	9	14	g's	11.2	Pass
Upper Abdomen Rib Deflection	36	47	mm	37.7	Pass
Lower Abdomen Rib Deflection	33	44	mm	39.3	Pass

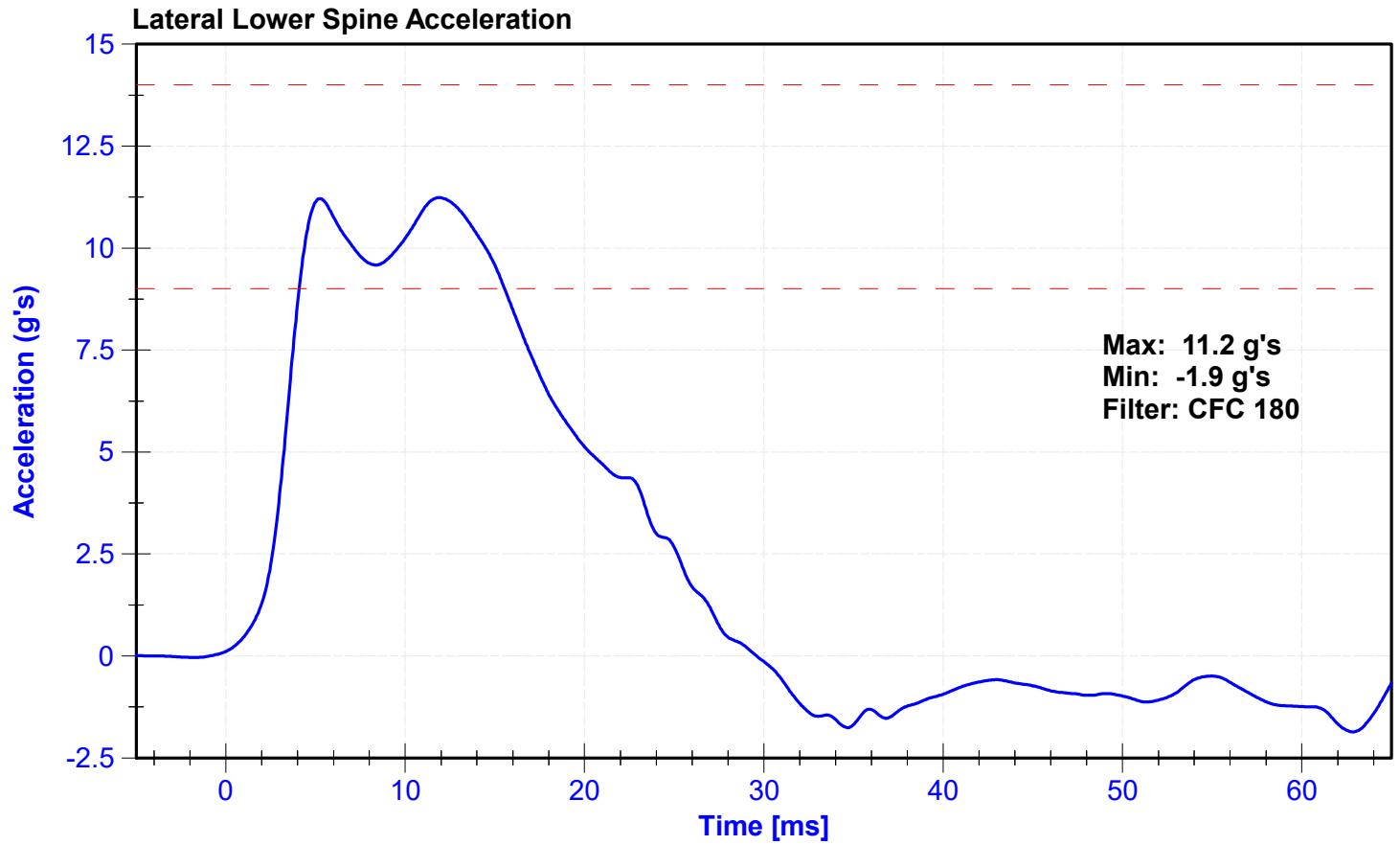
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Lower Spine Y Accelerometer	Endevco	T20906	10/8/2024	4/6/2025
Upper Abdomen Rib Potentiometer	Servo	DS-058GFE	10/8/2024	4/8/2025
Lower Abdomen Rib Potentiometer	Servo	1256GFE	10/8/2024	4/8/2025

Probe Acceleration







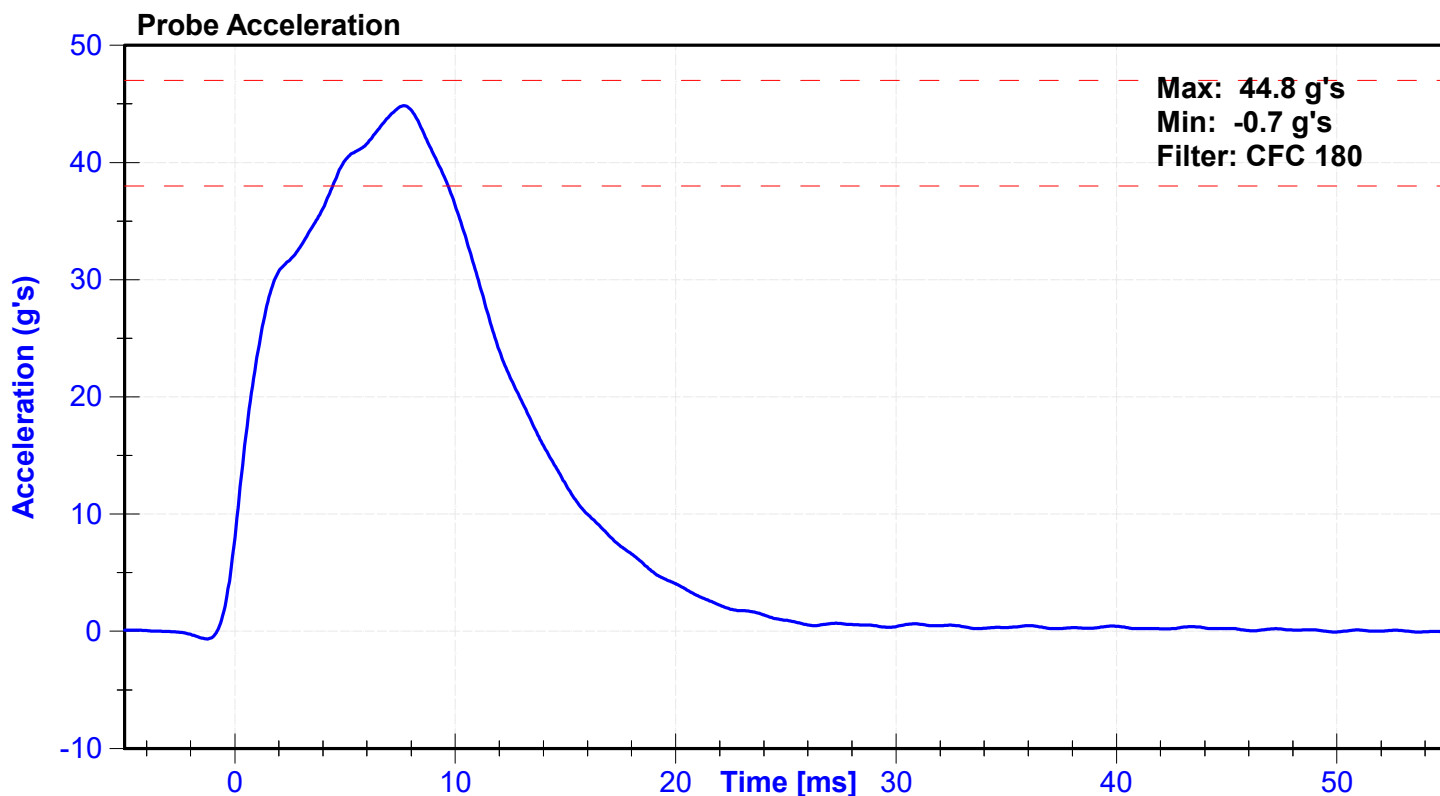
ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

Results

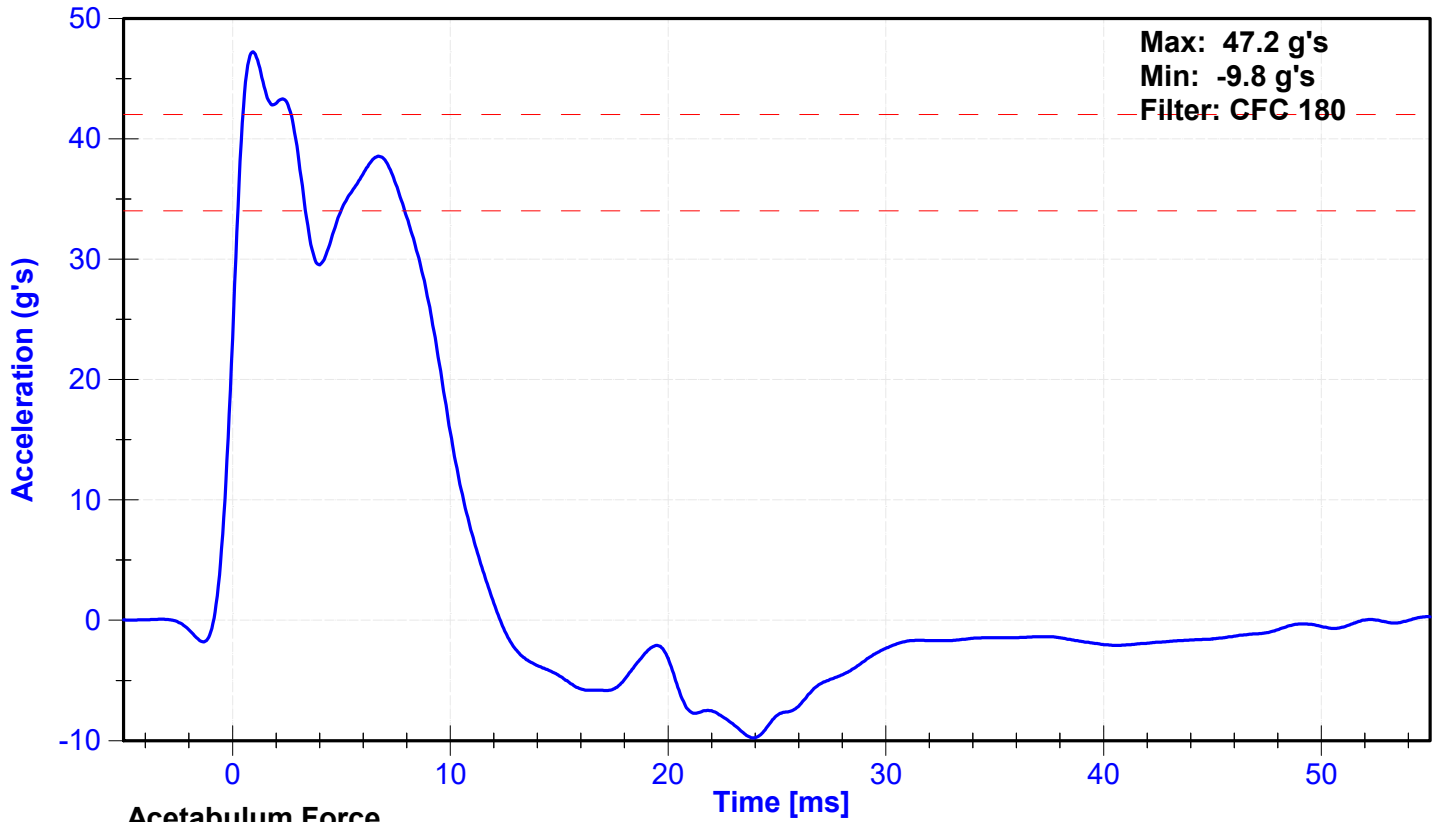
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Velocity	6.6	6.8	m/s	6.66	Pass
Probe Acceleration	38	47	g's	44.8	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	38.5	Pass
Acetabulum Force	3600	4300	N	3848.9	Pass

Transducer Calibrations

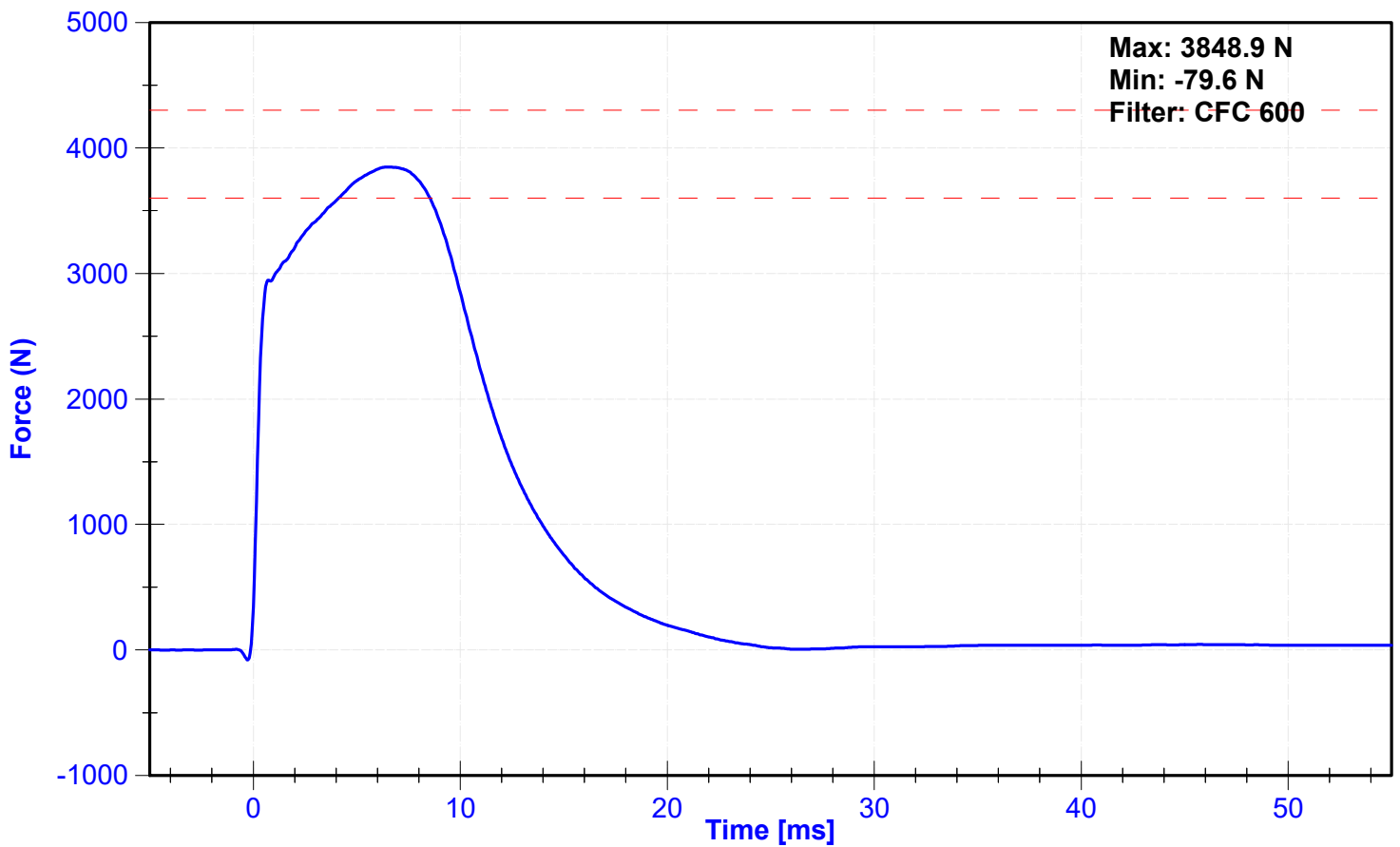
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Pelvis Y Accelerometer	Endevco	P63987	10/8/2024	4/6/2025
Acetabulum Load Cell	Denton	267-FY	9/16/2024	9/16/2025
Certification Plug	SACO			N/A
Crash Test Plug	SACO			N/A



Lateral Pelvis Acceleration



Acetabulum Force





SID-ILS Pelvis Plug Certification Test

Plug S/N 16829

Test Number 23640

Report Number 23697

Test Date 7/25/2022 10:11:42 AM

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

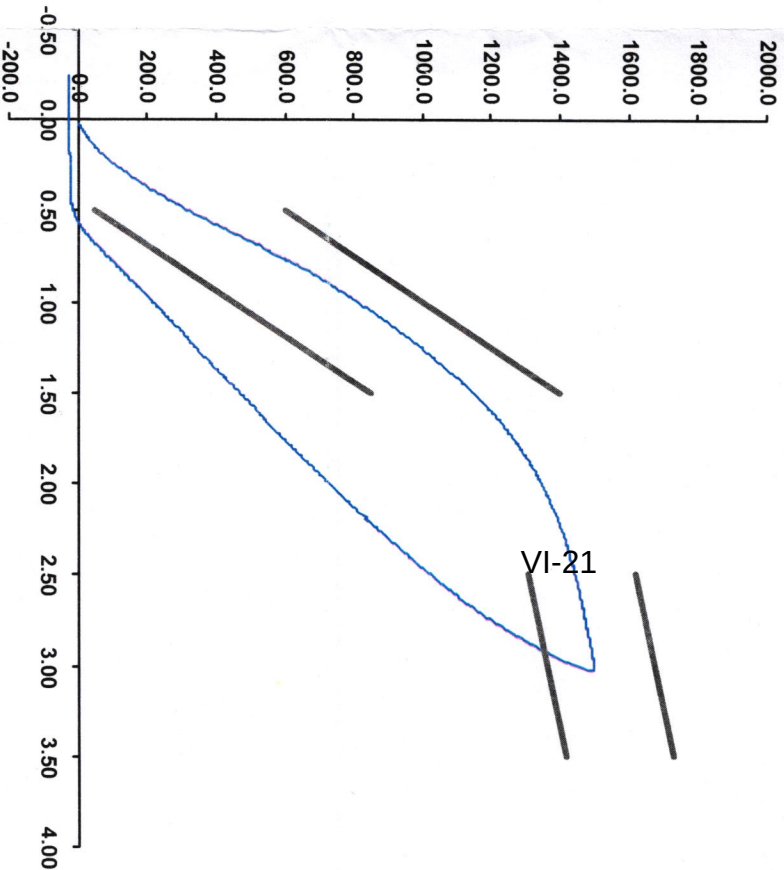
Testing Machine STM-20 5965542
Load Cell S/N (FI360947), Units (LBS) 1000

Crossthead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Test Plug 300 4-3-2025

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 25-Jul-22

SACO Research

By:

[Signature]

Date: 7/25/22

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

SID-11s Pelvis Plug Certification Test

Plug S/N 16812

Test Number 23623

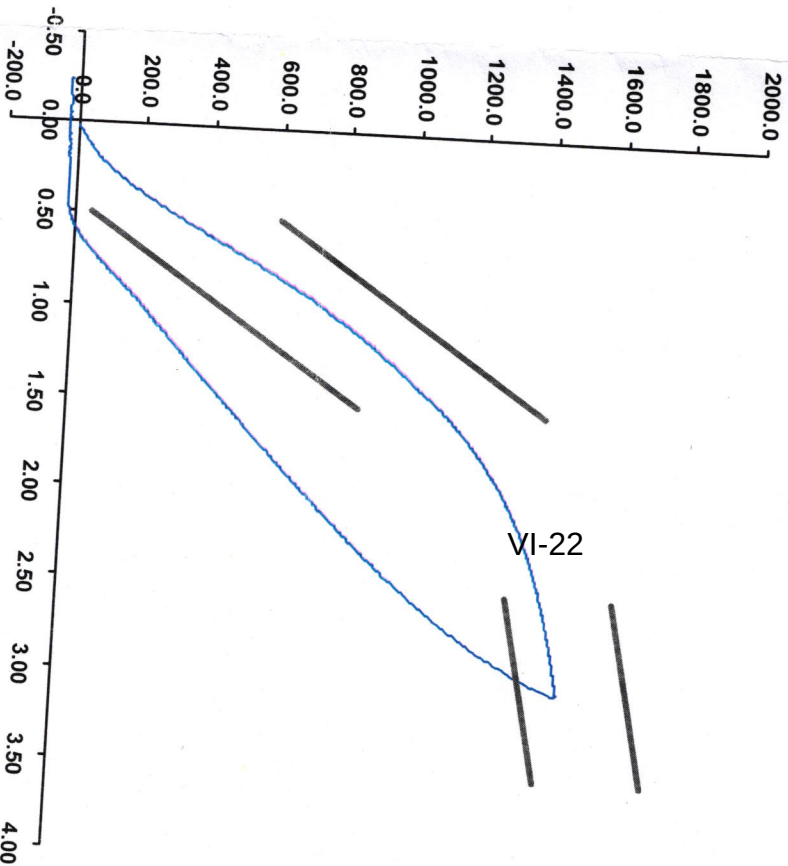
Report Number 23680

Test Date 7/25/2022 9:25:42 AM

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

Testing Machine STM-20 5965542
 Load Cell S/N (F1360947), Units (LBS) 1000
 Crosshead Speed (mm / min) or Rate 12.7
 Extension or Position Measured by XHD_100 (XHD100)

Notes: IMACT 324 4.3-25



Template No 107 25-Jul-22
 SACO Research

By: DC Date: 7/25/22

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

Part Number 180-4450

Operator

SID-IIs Pelvis Plug Certification Test

Plug S/N 16813

Test Number 23624

Report Number 23681

Test Date 7/25/2022 9:27:44 AM

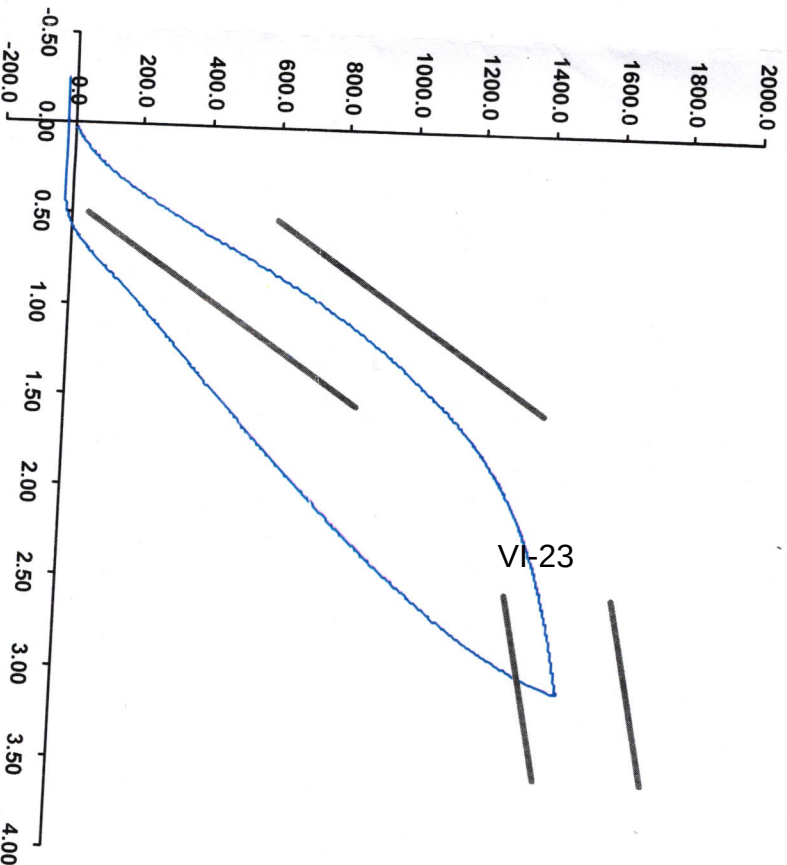
Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	50	600
Force @ 1.5 mm (N)	850	1,400
Force @ 2.5 mm (N)	1,306	1,618
Force @ 3.0 mm (N)	1,361	1,673

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

Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes: NON IMPACT 224 4-3-2025

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 25-Jul-22
SACO Research

By: *[Signature]*

Date: 7/25/22

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

ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

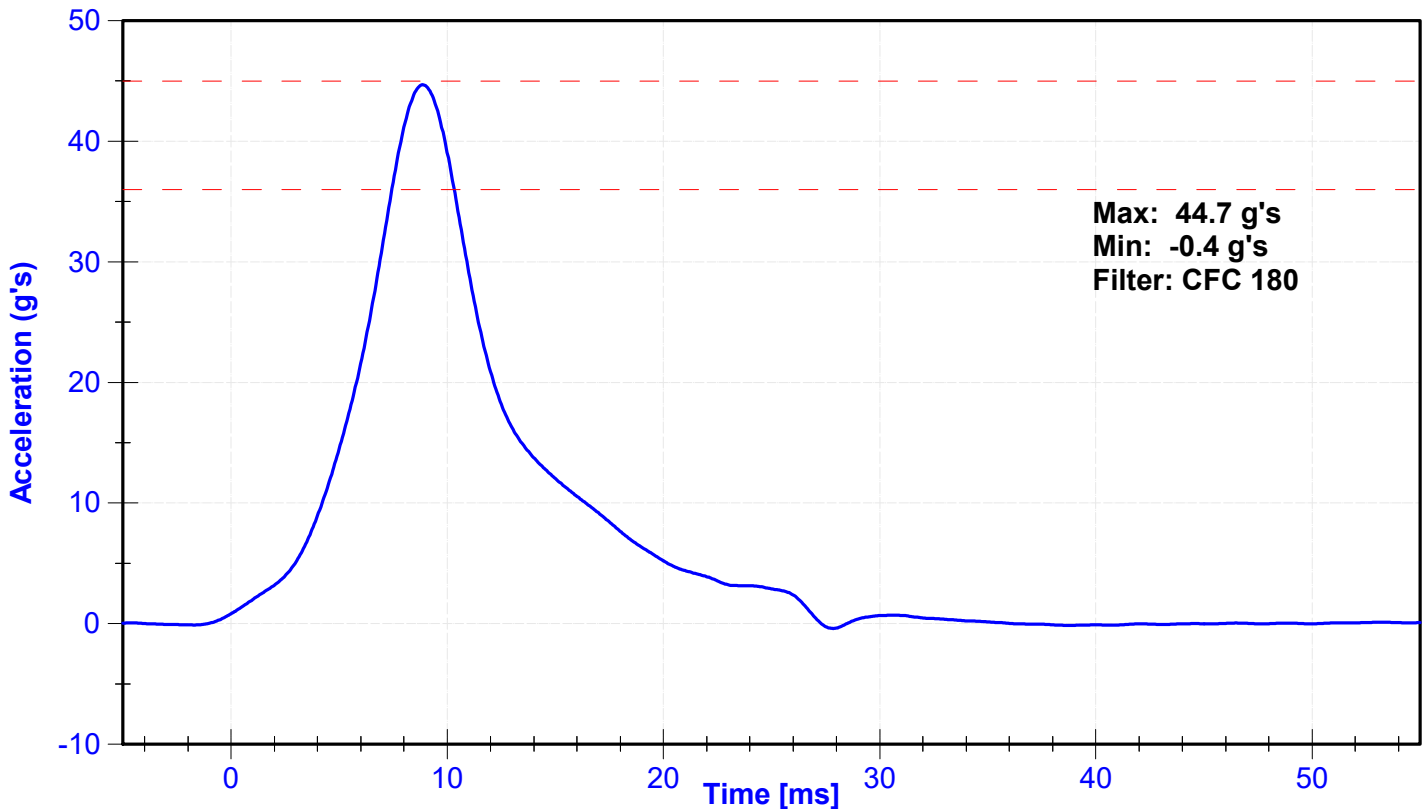
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.23	Pass
Probe Acceleration	36	45	g's	44.7	Pass
Lateral Pelvis Acceleration	28	39	g's	37.3	Pass
Iliac Force	4100	5100	N	5034.4	Pass

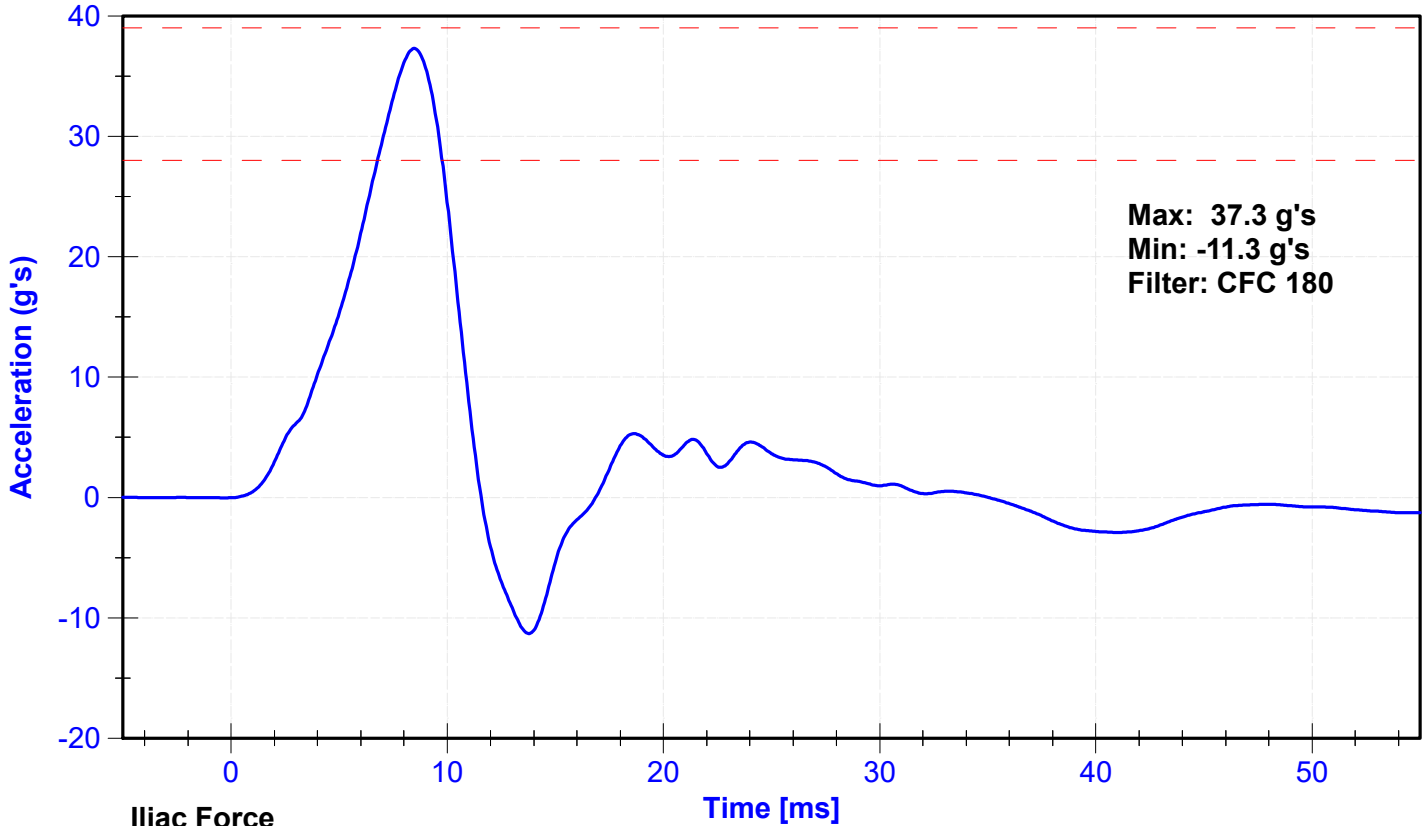
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/26/2024	5/25/2025
Pelvis Y Accelerometer	Endevco	P63987	10/8/2024	4/6/2025
Iliac Load Cell	Denton	280-FY	9/16/2024	9/16/2025

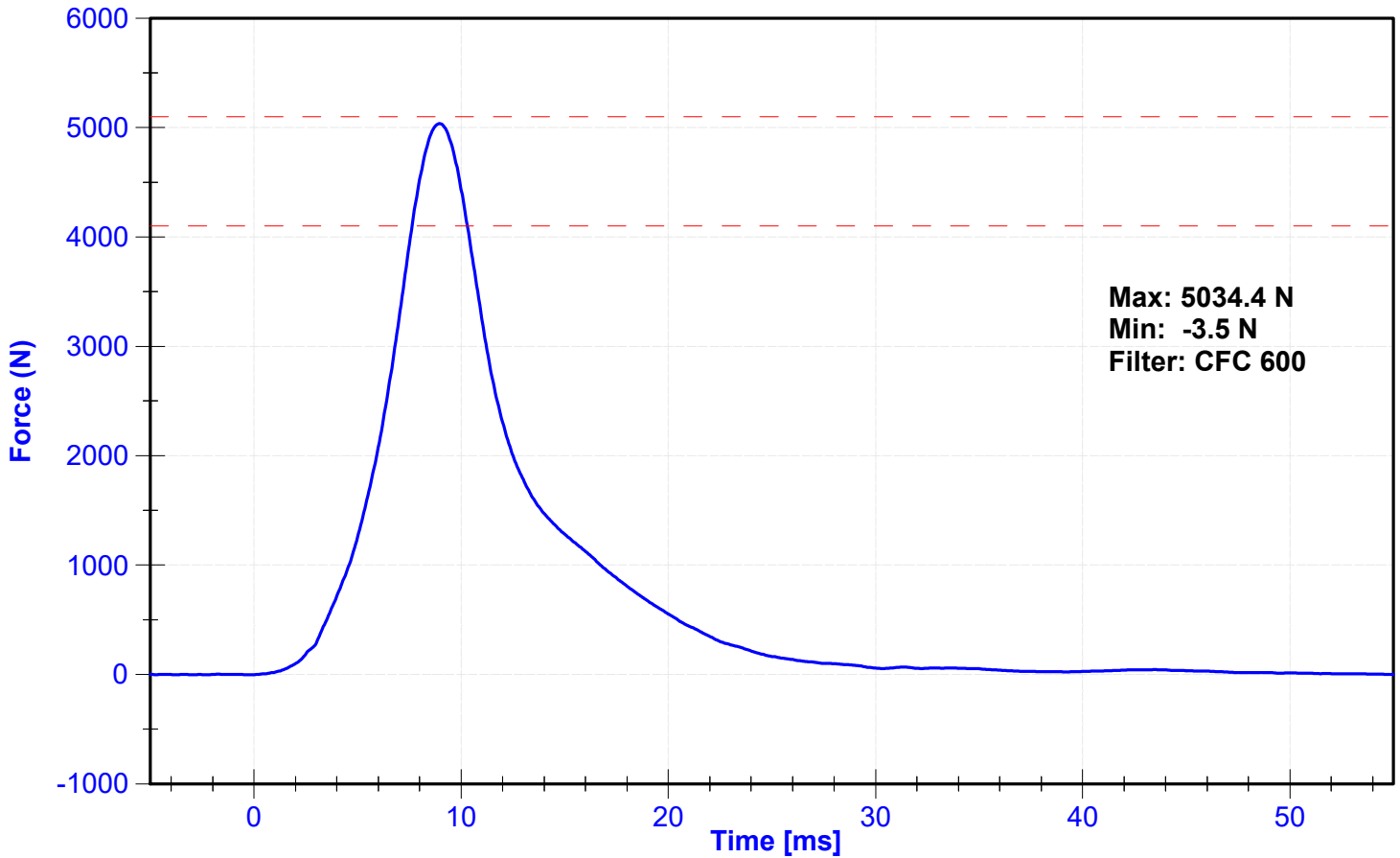
Probe Acceleration



Lateral Pelvis Acceleration



Iliac Force



**POST-TEST
SID-IIs PERFORMANCE CALIBRATION TEST DATA**

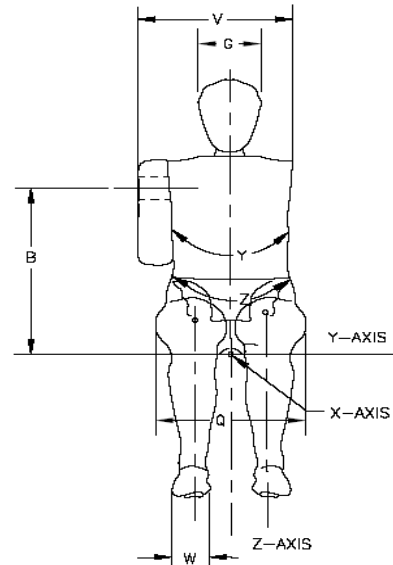
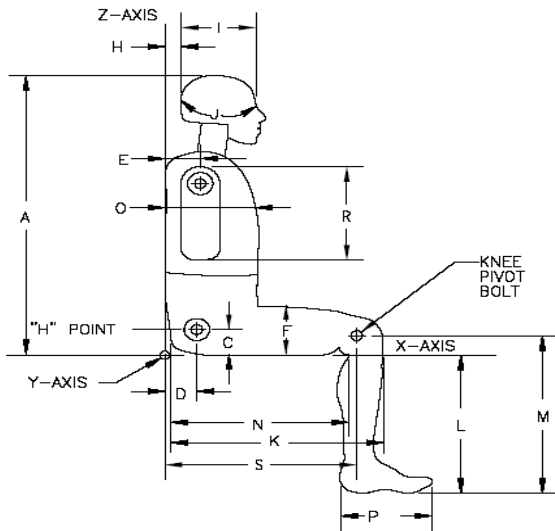


External Measurements - SID-IIs

Technician: **J. Rios**

Date: **4/8/2025**

Dummy Serial Number: **224**



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	779	Pass
B	Shoulder Pivot Height	437	453	442	Pass
C	H-point Height	79	89	83	Pass
D	H-point from seatback	141	151	147	Pass
E	Shoulder Pivot from Backline	97	107	102	Pass
F	Thigh Clearance	119	135	125	Pass
G	Head Breadth	140	148	145	Pass
H	Head Back from Backline	40	46	45	Pass
I	Head Depth	178	188	184	Pass
J	Head Circumference	541	551	550	Pass
K	Buttock to Knee Length	514	540	530	Pass
L	Popliteal Height	343	369	353	Pass
M	Knee Pivot to floor height	392	409	405	Pass
N	Buttock Popliteal Length	416	442	434	Pass
O	Chest Depth w/o jacket	195	211	207	Pass
P	Foot Length	216	232	228	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	319	Pass
R	Arm Length	249	259	252	Pass
S	Knee Joint to seatback	477	493	486	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	777	Pass

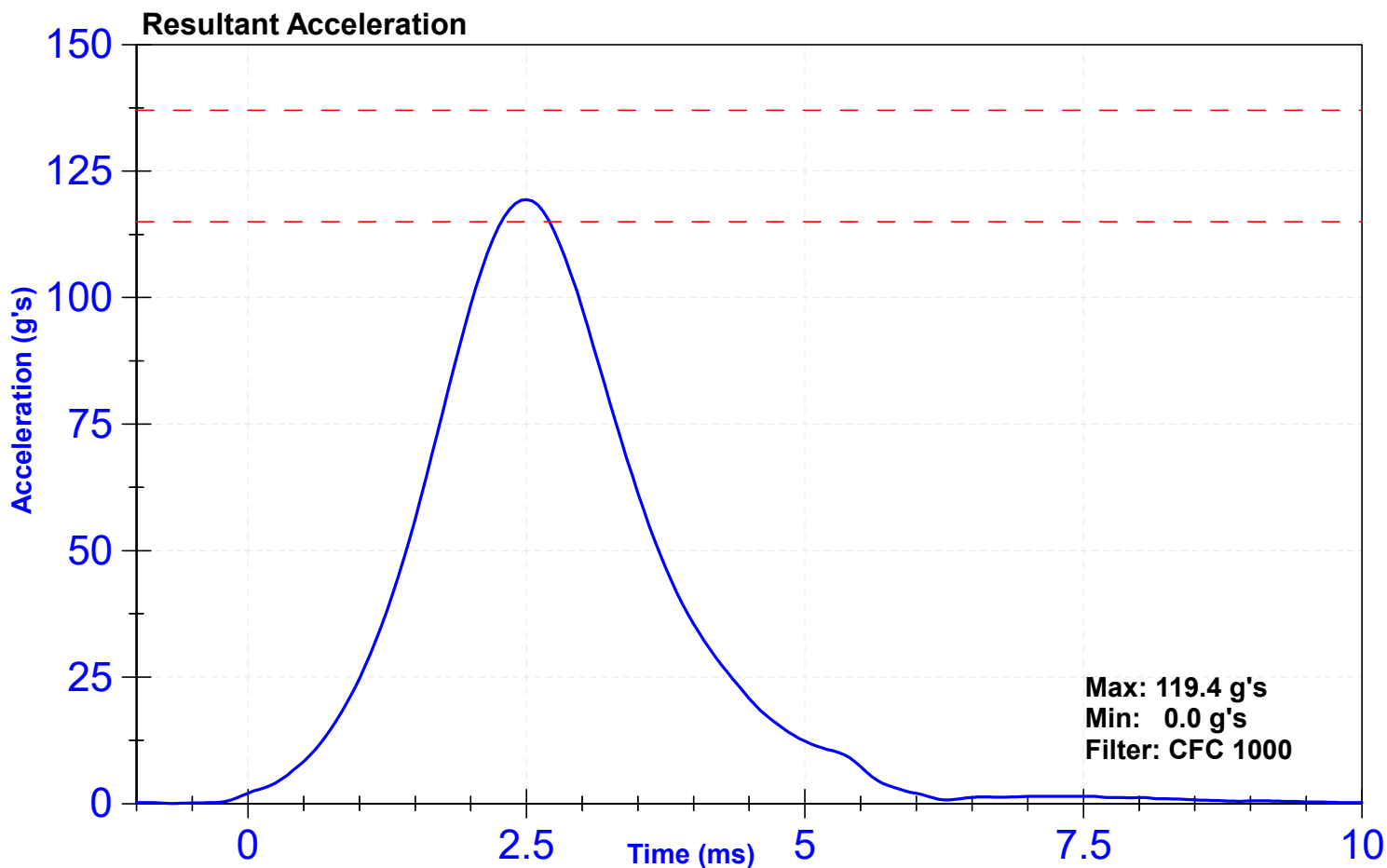
ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

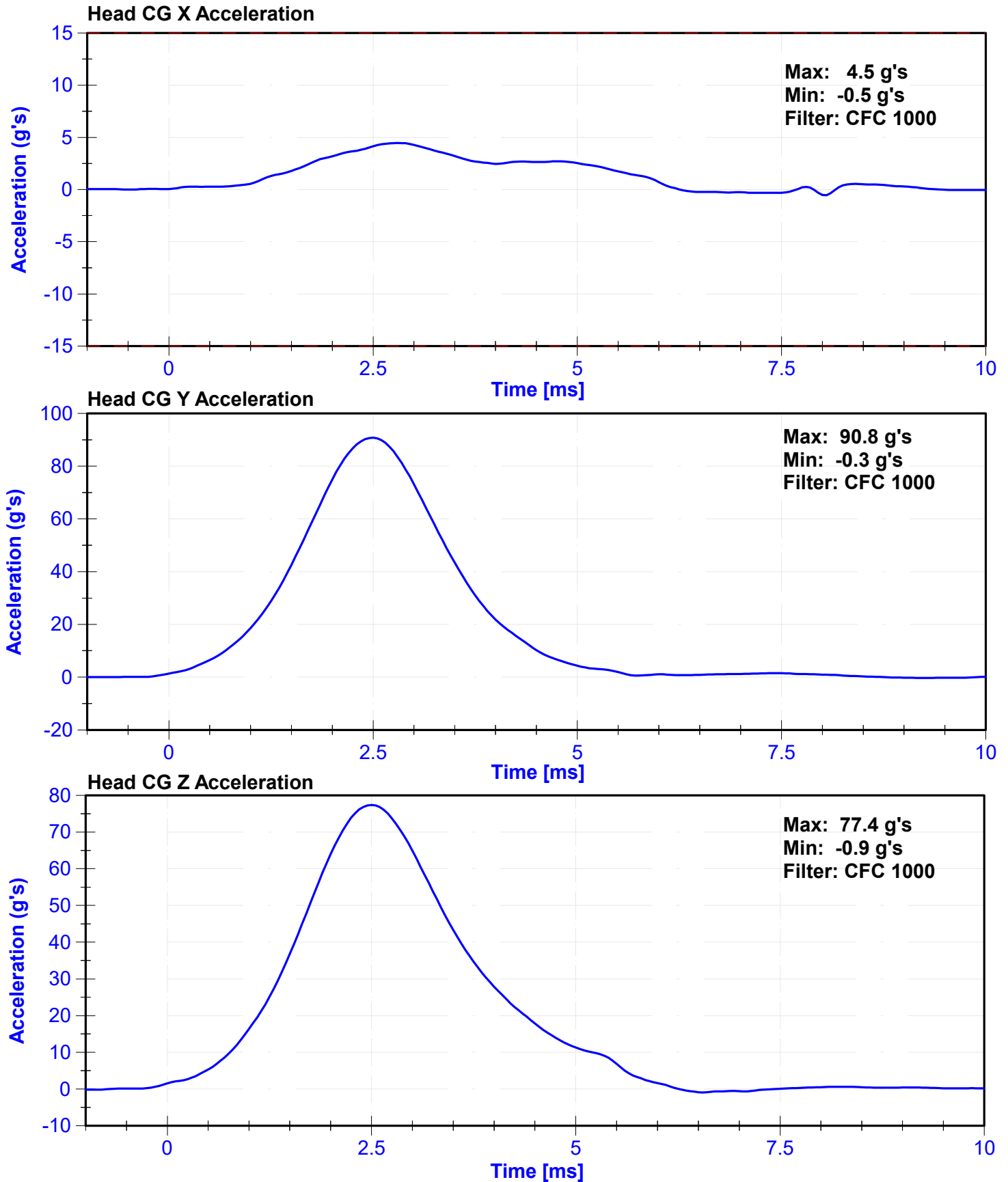
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	36	Pass
Resultant Acceleration	115	137	g's	119.4	Pass
Oscillation	0	15	%	1.2	Pass
Fore-Aft Acceleration	-15	15	g's	4.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibratio Date	Calibratio Due Date
X Accelerometer	Endevco	P51884	10/8/2024	4/6/2025
Y Accelerometer	Endevco	P73161	10/8/2024	4/6/2025
Z Accelerometer	Endevco	P79588	10/8/2024	4/6/2025





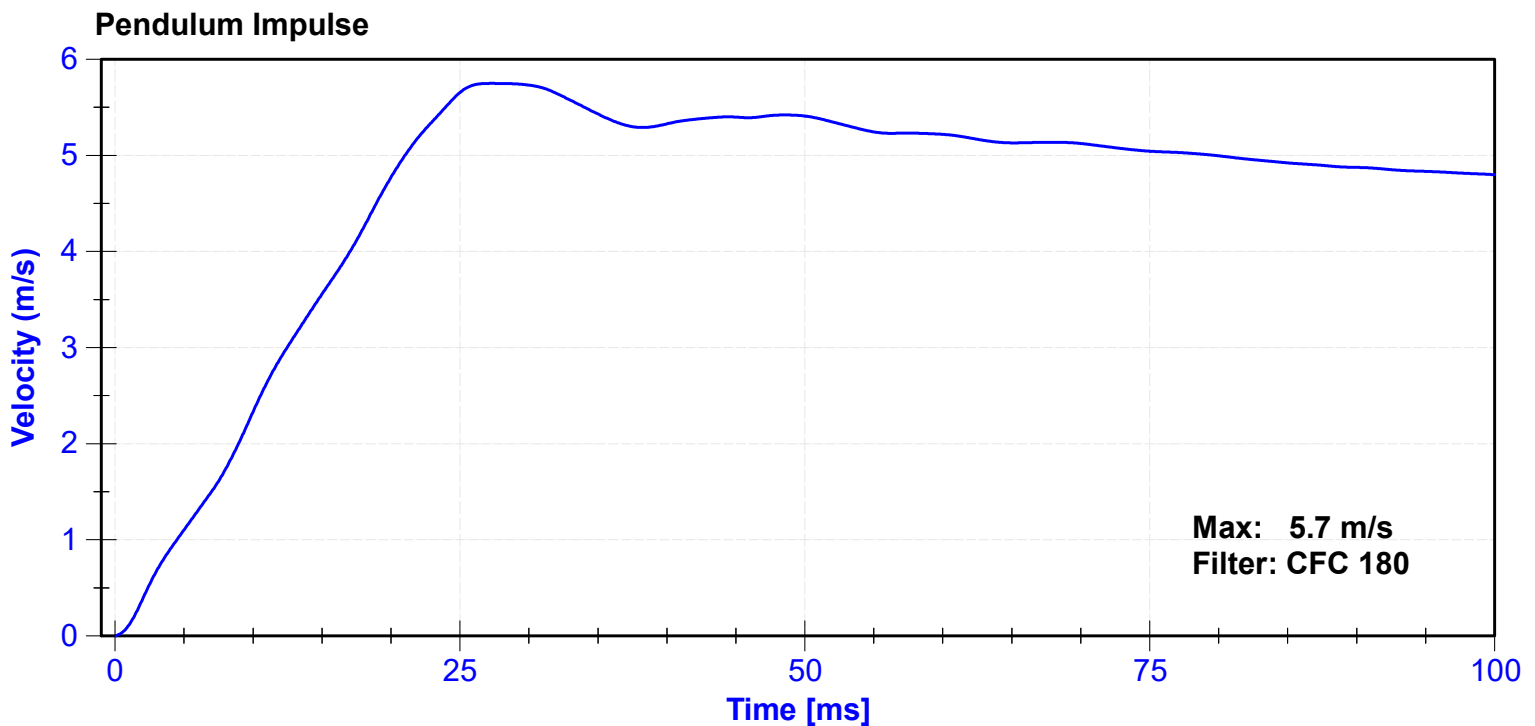
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

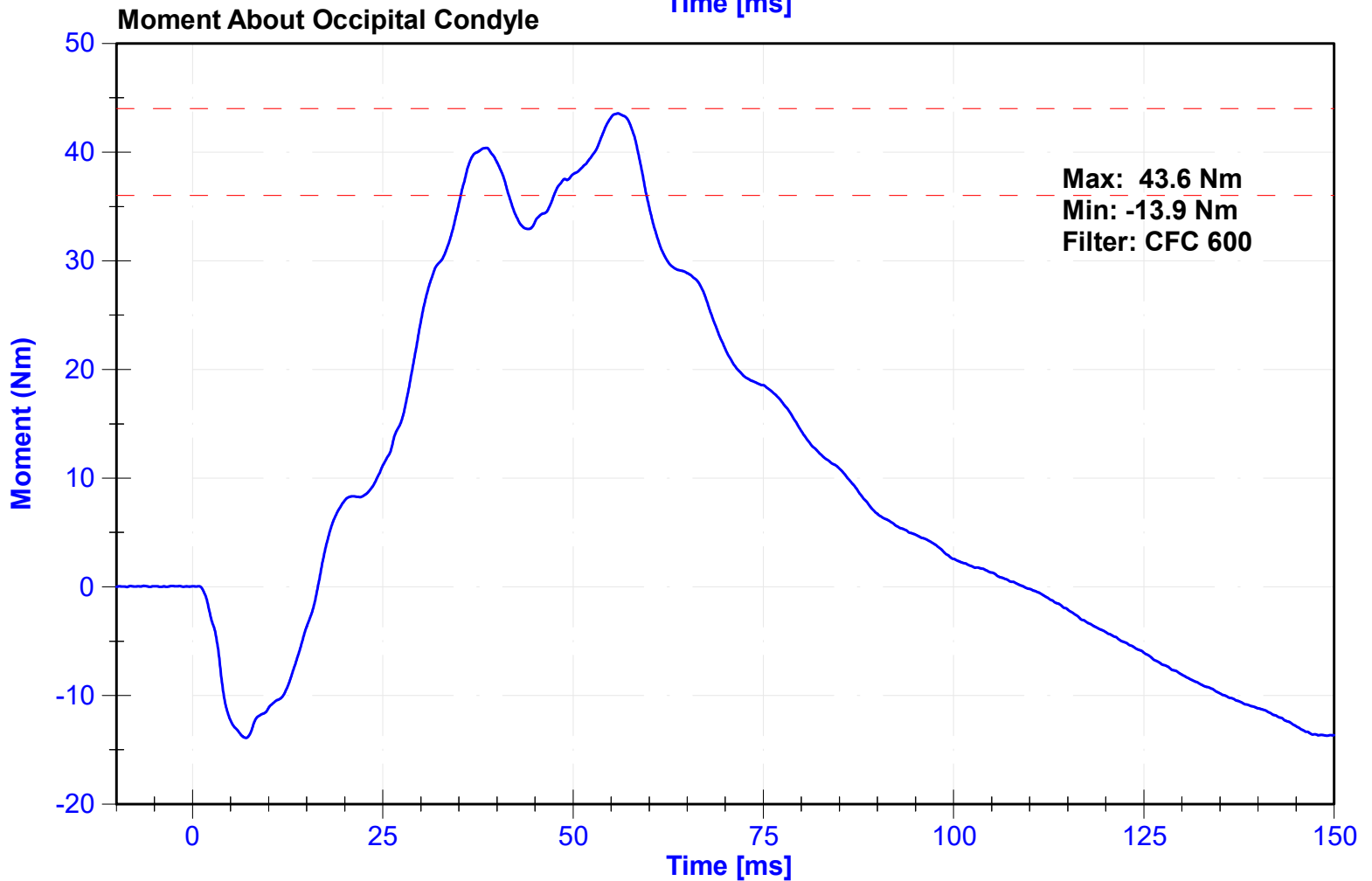
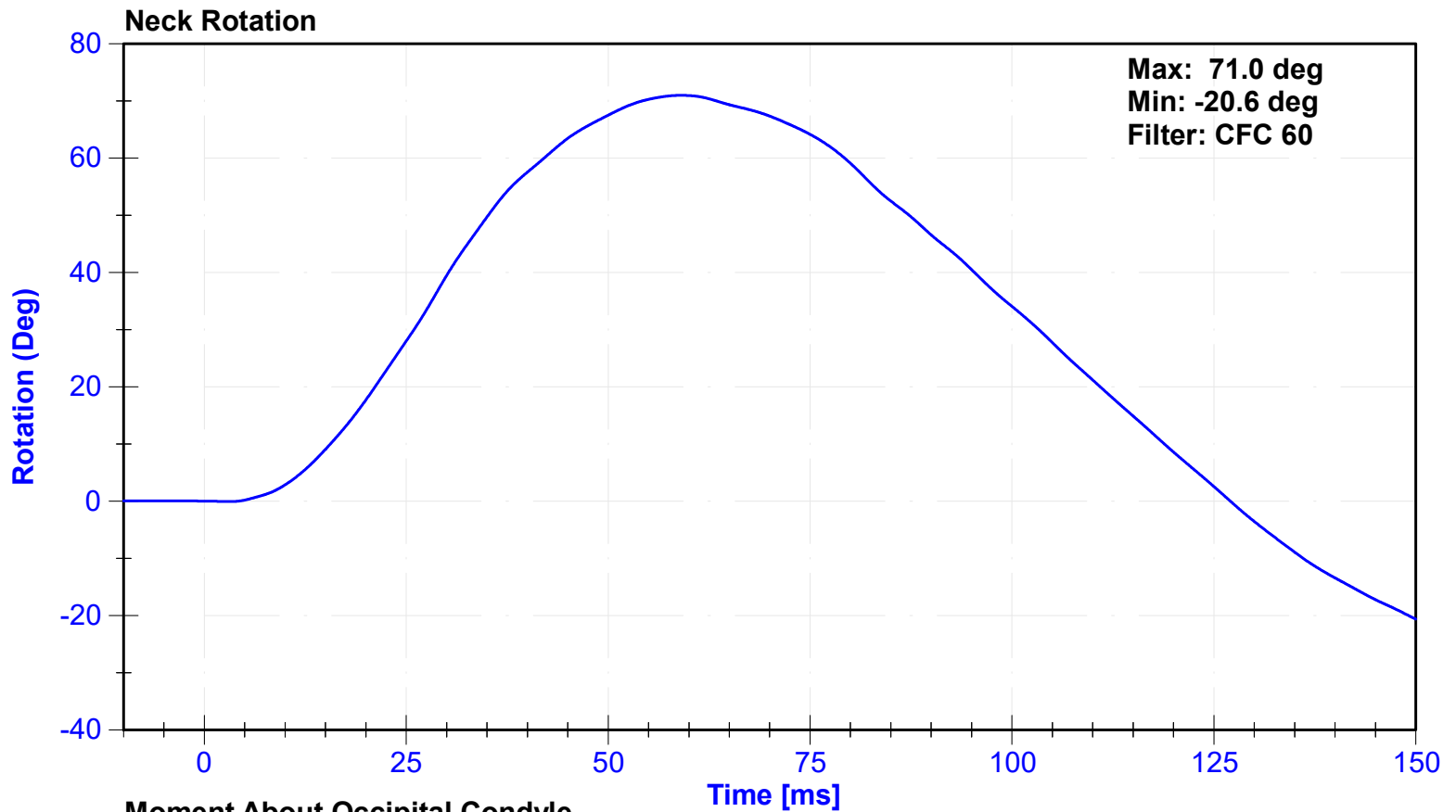
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	19	Pass
Velocity	5.51	5.63	m/s	5.542	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.33	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.56	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.77	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.65	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.75	Pass
Neck Rotation	71	81	deg	71.0	Pass
Time at Maximum Rotation	50	70	ms	59.0	Pass
Moment about the OC	36	44	Nm	43.6	Pass
Moment Decay to 0 Nm	102	126	ms	109.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231C-750	10/17/2024	4/15/2025
Pendulum Potentiometer	Servo	4961	9/23/2024	9/23/2025
Condyle Potentiometer	Servo	DS185	9/23/2024	9/23/2025
Upper Neck Load Cell	Denton	1716AJ_1805-FY	2/28/2025	2/28/2026





ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

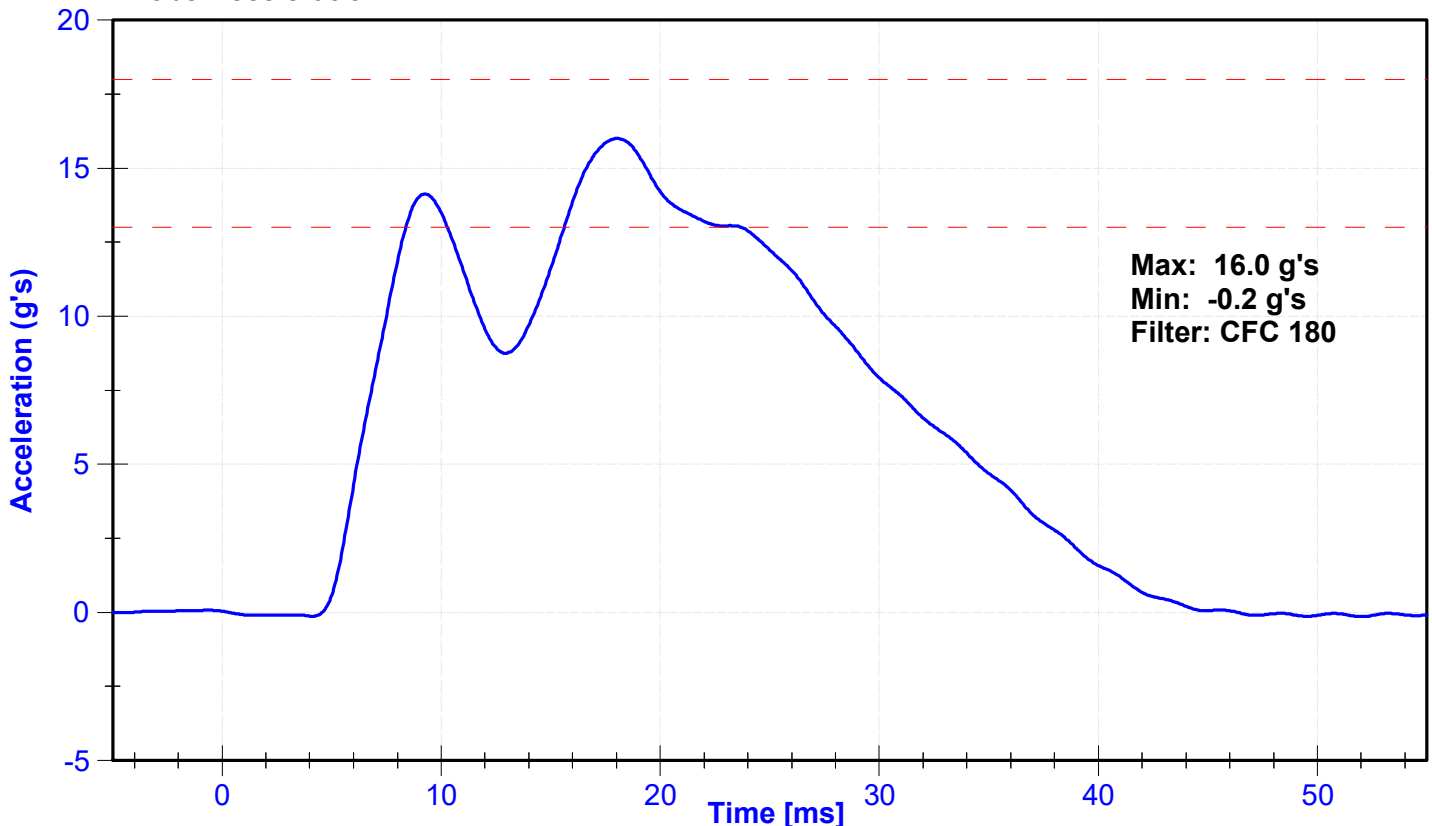
Results

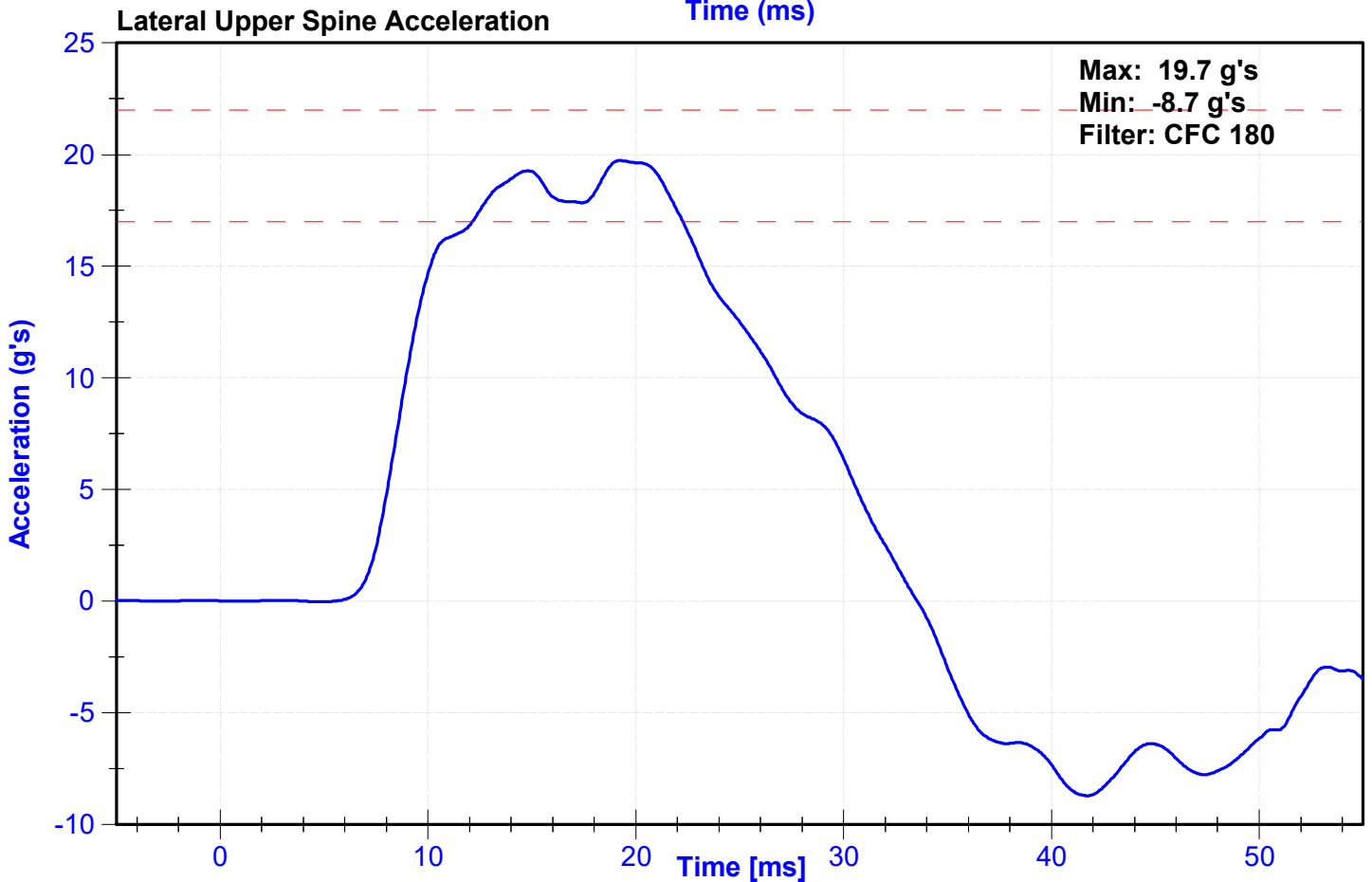
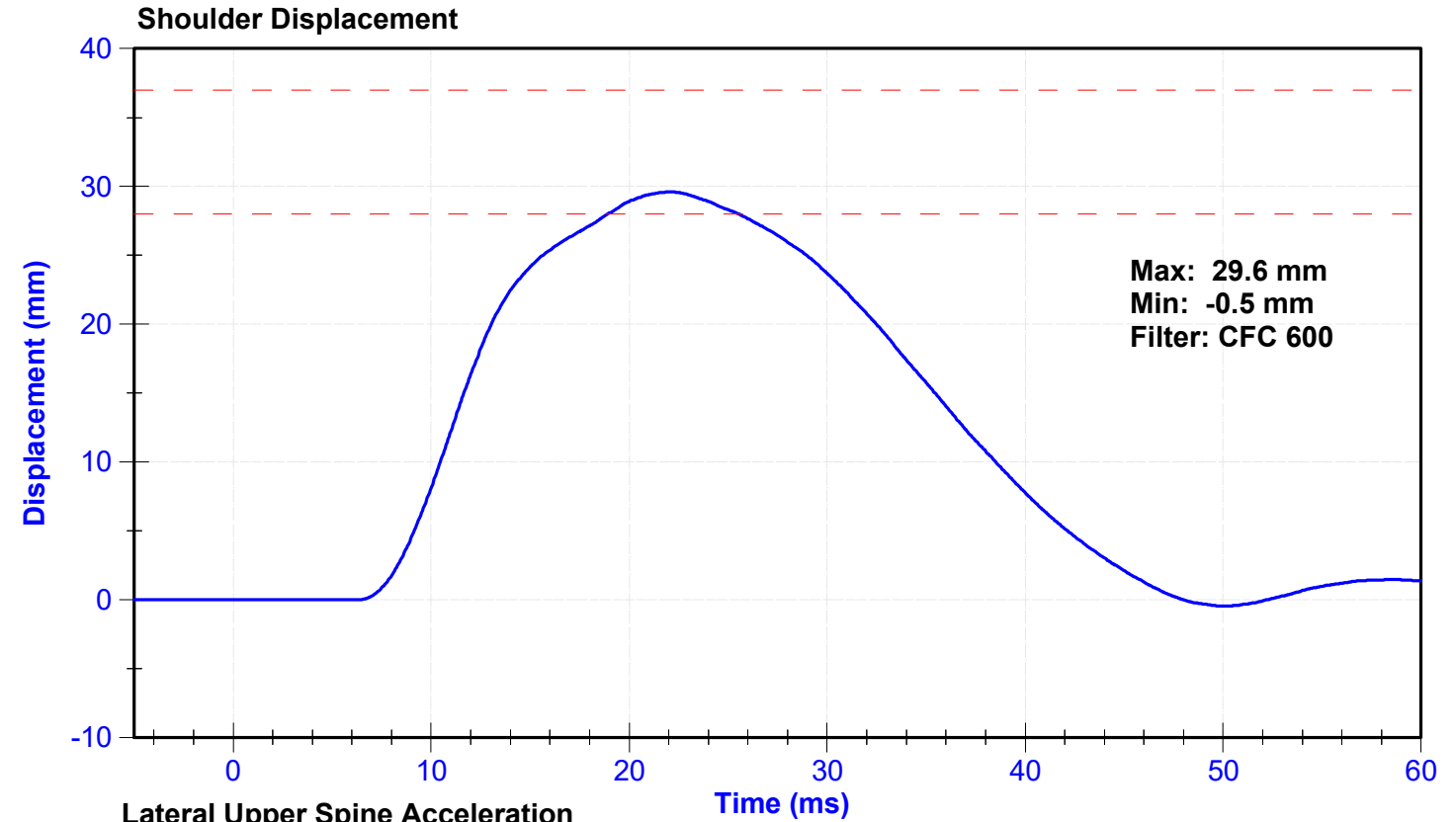
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	27	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	13	18	g's	16.0	Pass
Shoulder Deflection	28	37	mm	29.6	Pass
Lateral Upper Spine Acceleration	17	22	g's	19.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Shoulder Potentiometer	Servo	829GFE	10/8/2024	4/8/2025
Upper Spine Y Accelerometer	Endevco	P58883	10/8/2024	4/6/2025

Probe Acceleration





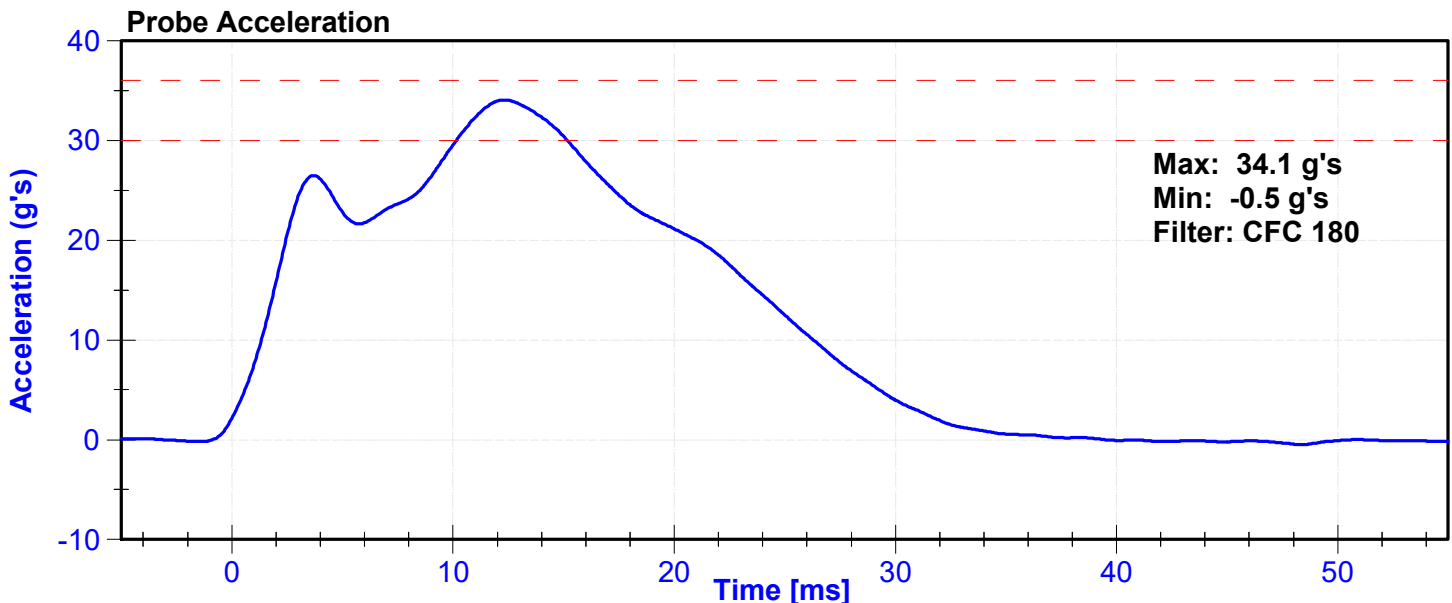
ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

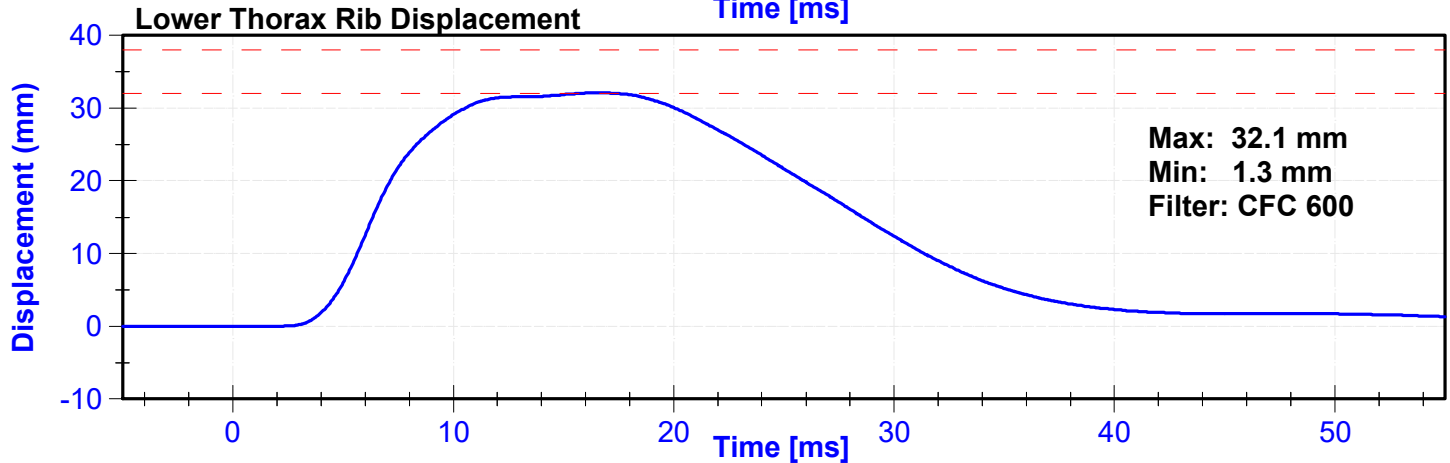
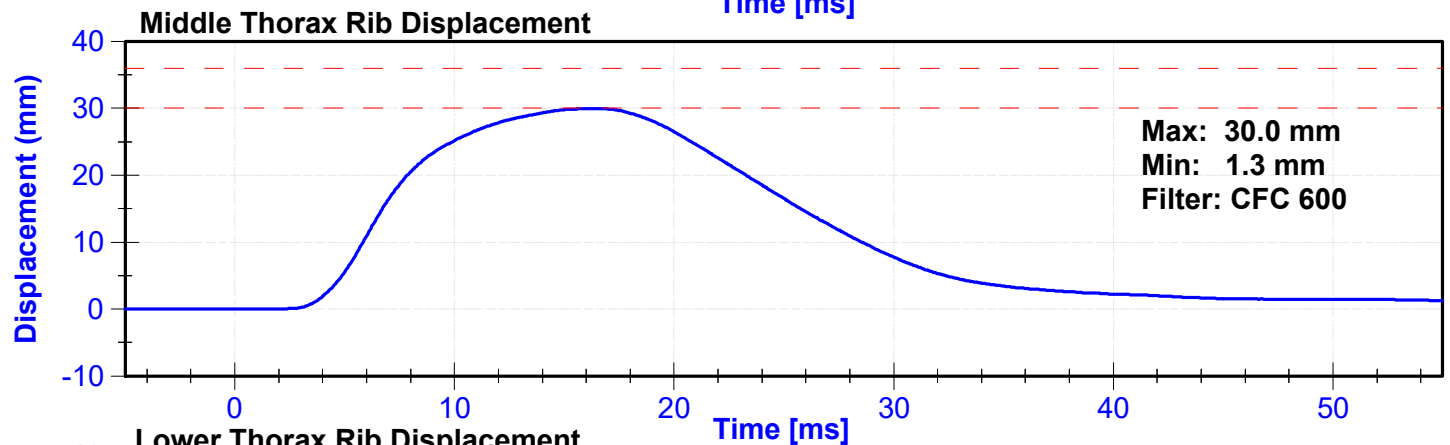
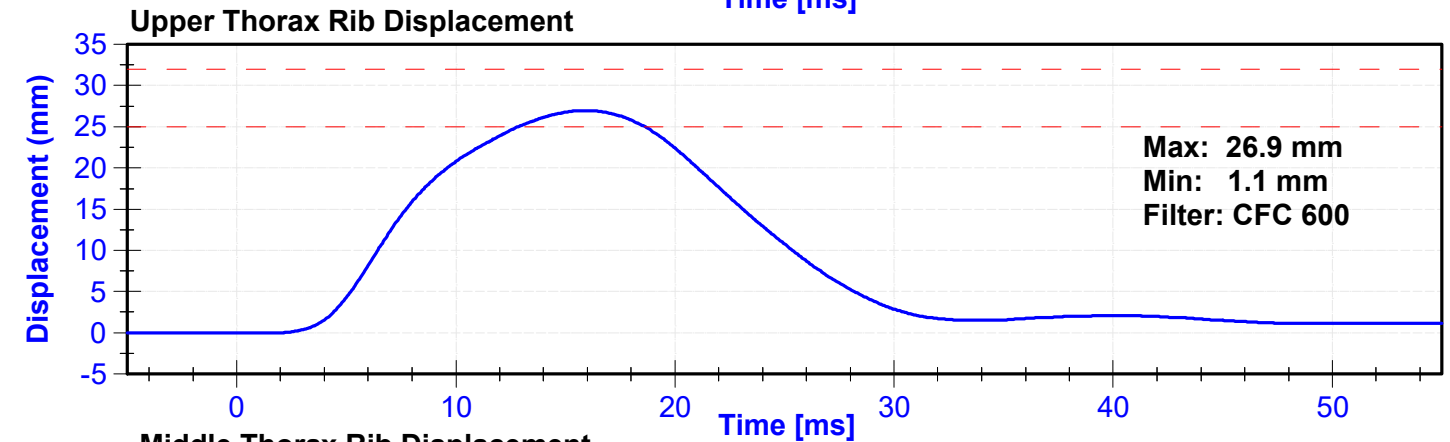
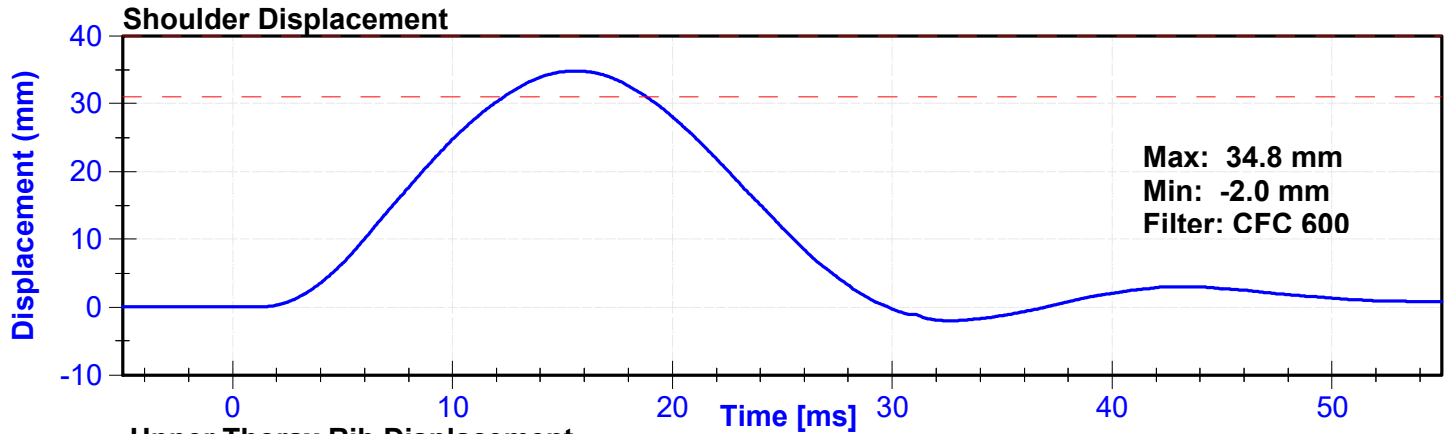
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	27	Pass
Velocity	6.6	6.8	m/s	6.68	Pass
Probe Acceleration after 5 ms	30	36	g's	34.1	Pass
Lateral Upper Spine Acceleration	34	43	g's	37.2	Pass
Lateral Lower Spine Acceleration	29	37	g's	33.4	Pass
Shoulder Deflection	31	40	mm	34.8	Pass
Upper Thorax Rib Deflection	25	32	mm	26.9	Pass
Mid Thorax Rib Deflection	30	36	mm	30.0	Pass
Lower Thorax Rib Deflection	32	38	mm	32.1	Pass

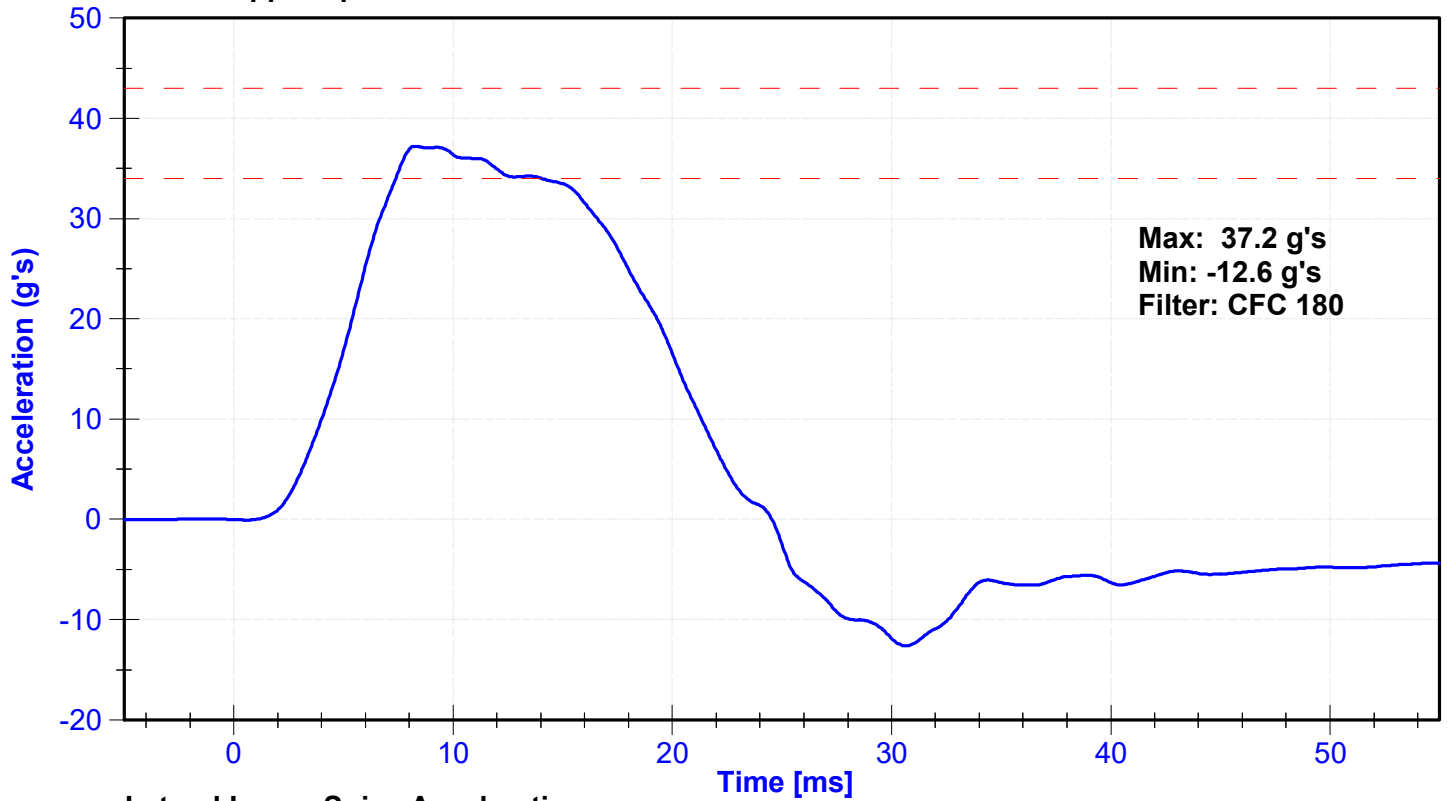
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Upper Spine T1 Y Accelerometer	Endevco	P58883	10/8/2024	4/6/2025
Upper Spine T12 Y Accelerometer	Endevco	T20906	10/8/2024	4/6/2025
Shoulder Potentiometer	Servo	829GFE	10/8/2024	4/8/2025
Upper Thorax Rib Potentiometer	Servo	DS-049GFE	10/8/2024	4/8/2025
Middle Thorax Rib Potentiometer	Servo	080GFE	10/9/2024	4/9/2025
Lower Thorax Rib Potentiometer	Servo	087GFE	12/5/2024	6/5/2025

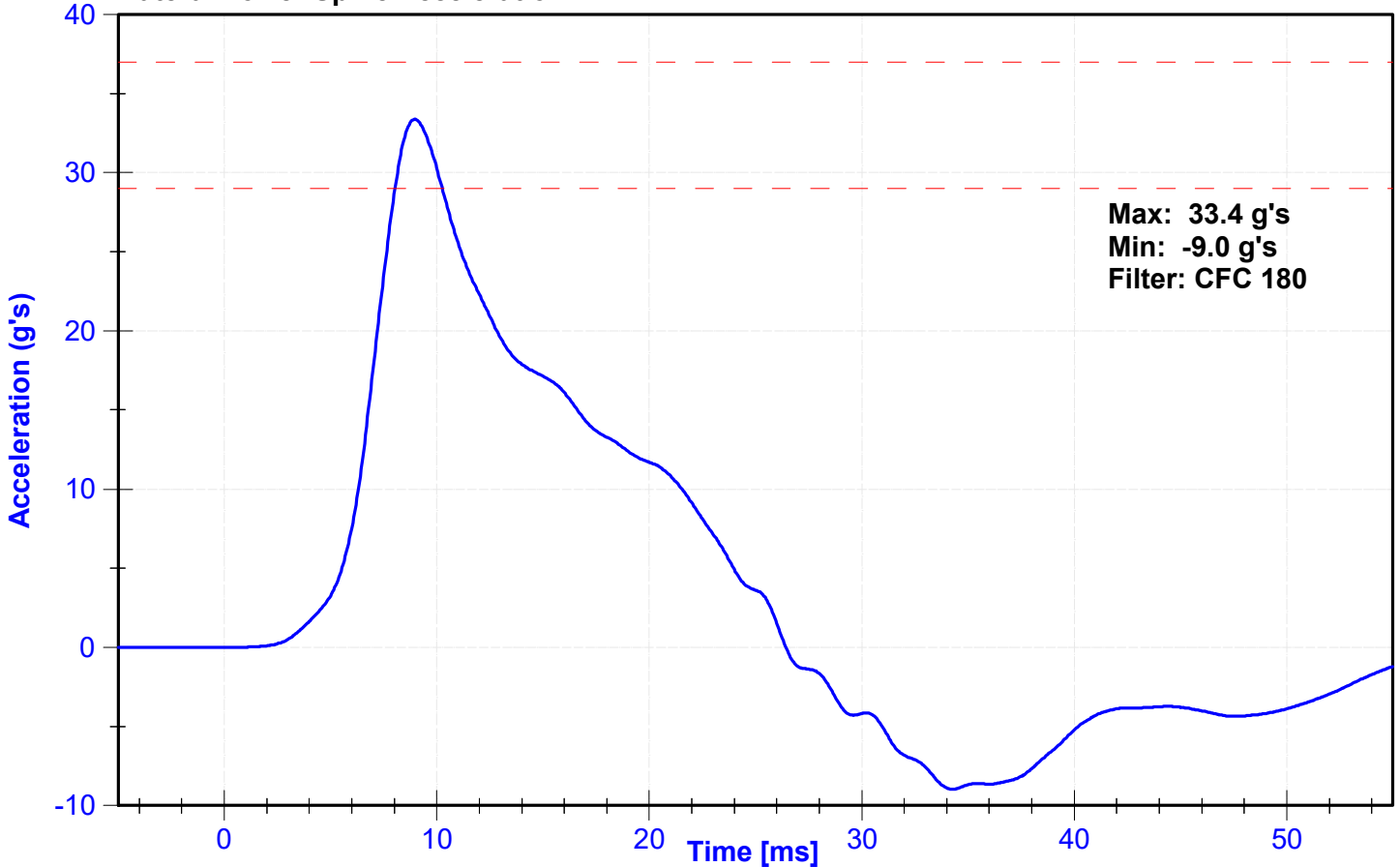




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



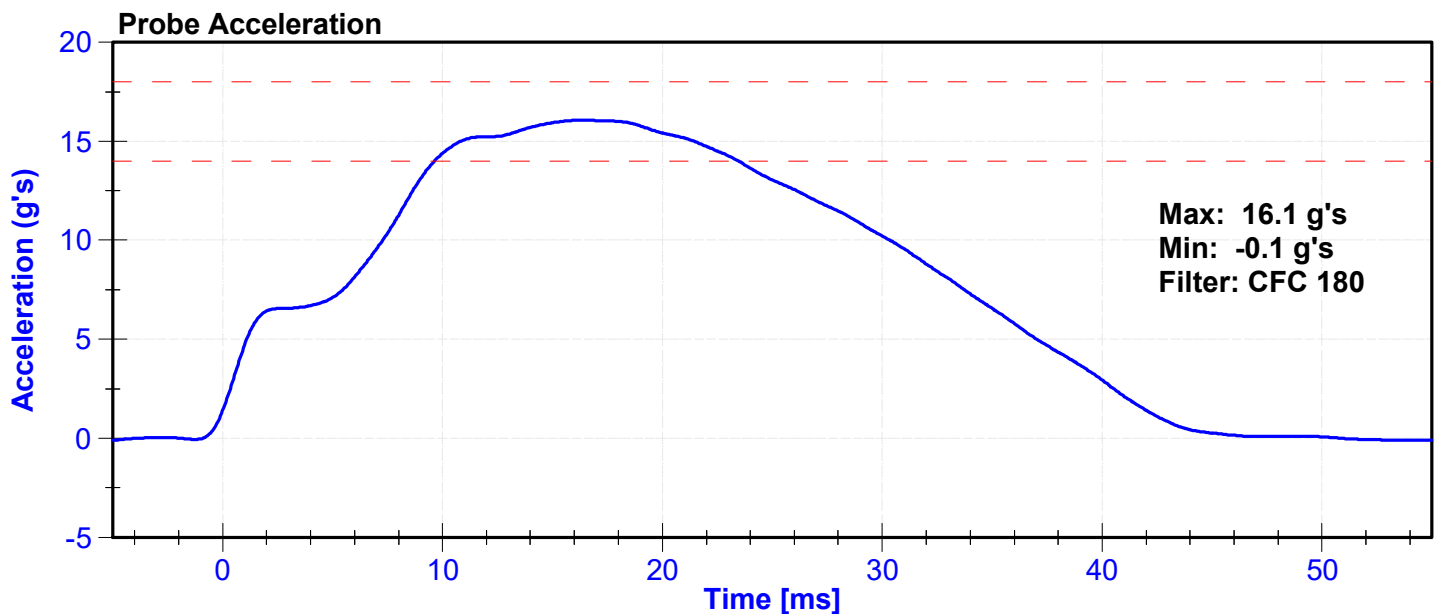
ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

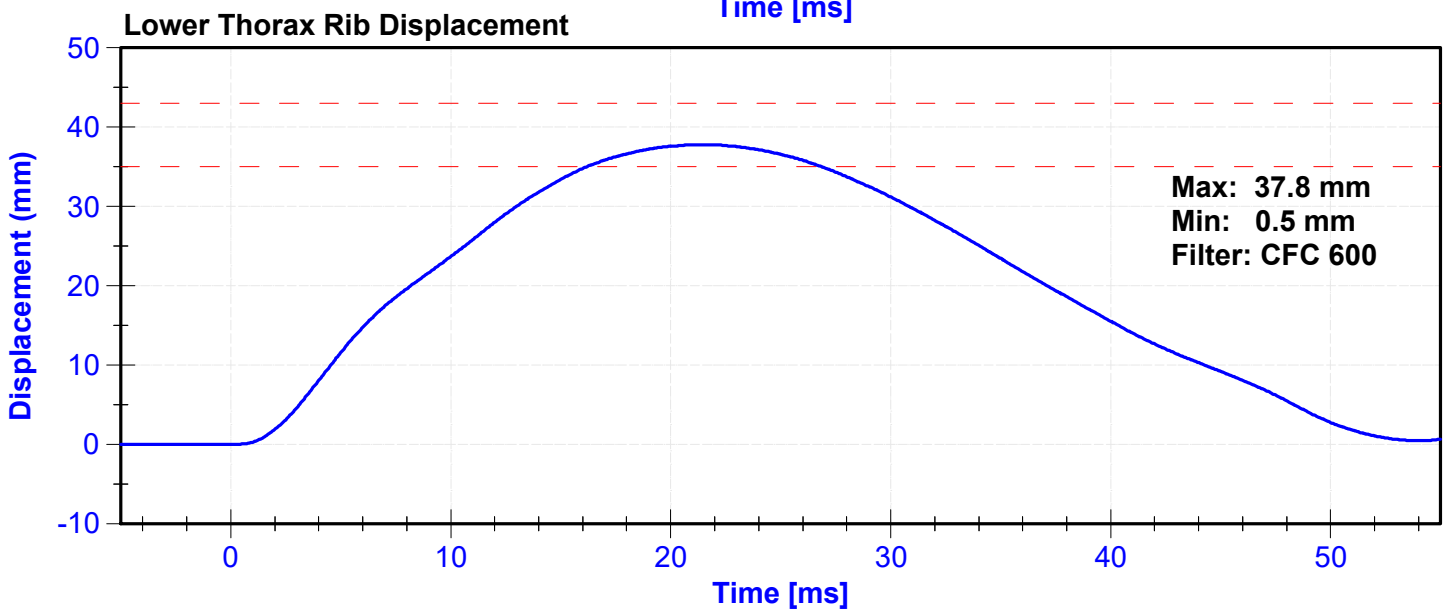
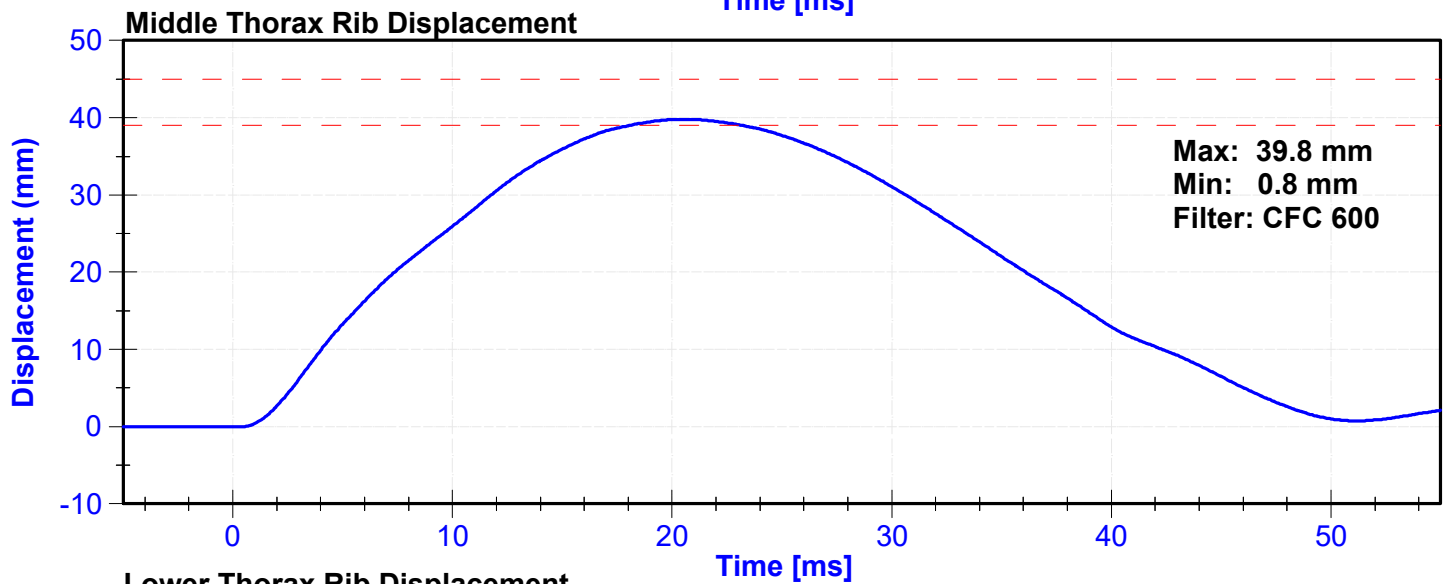
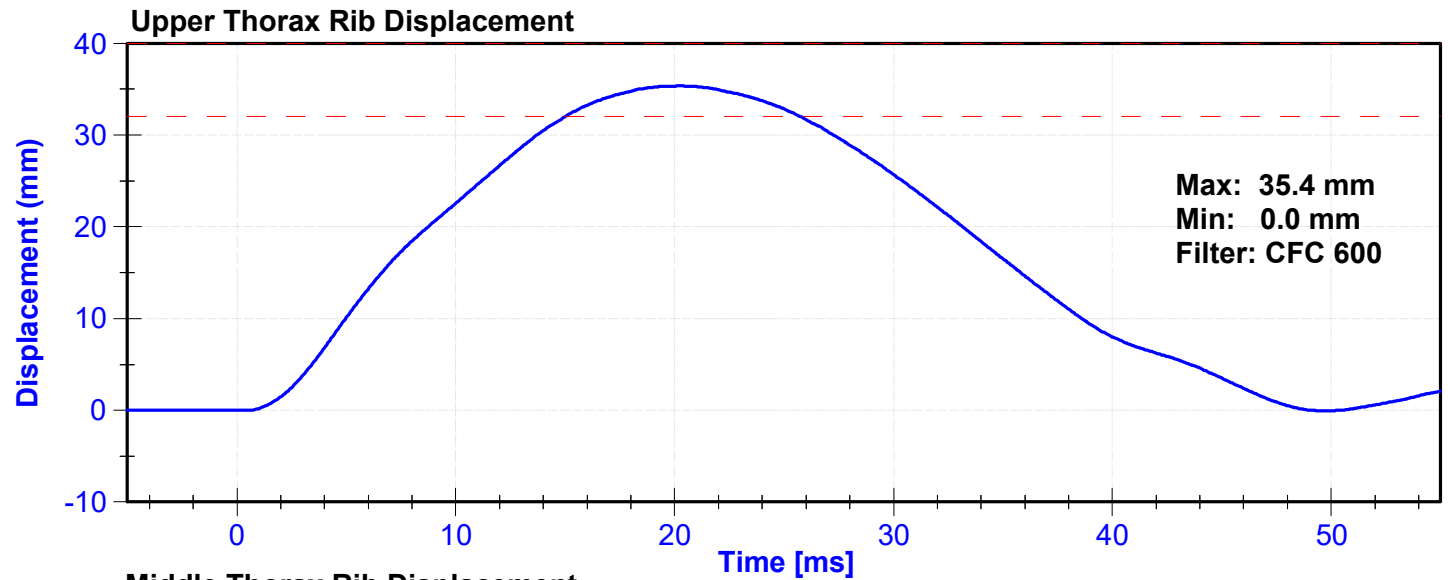
Results

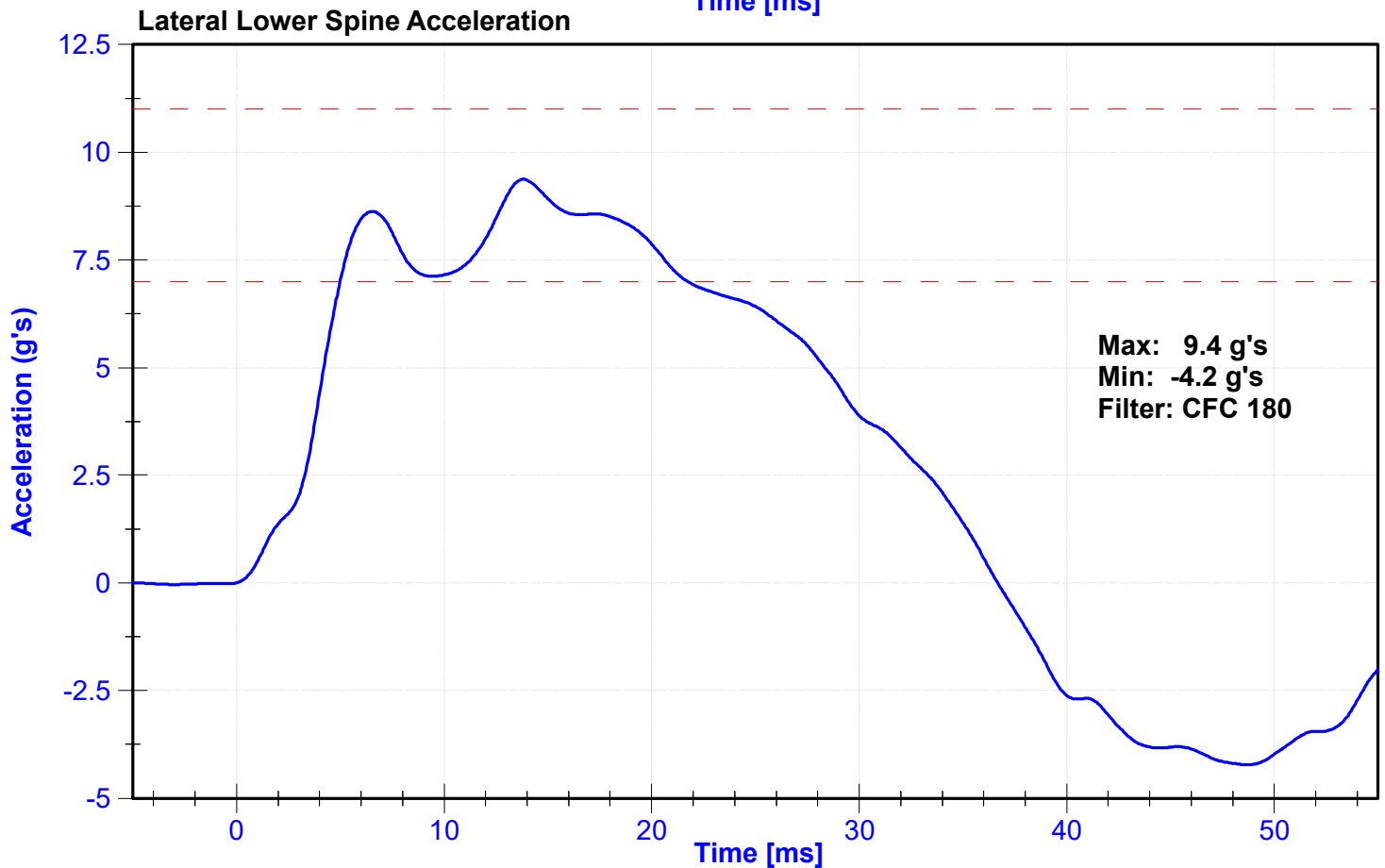
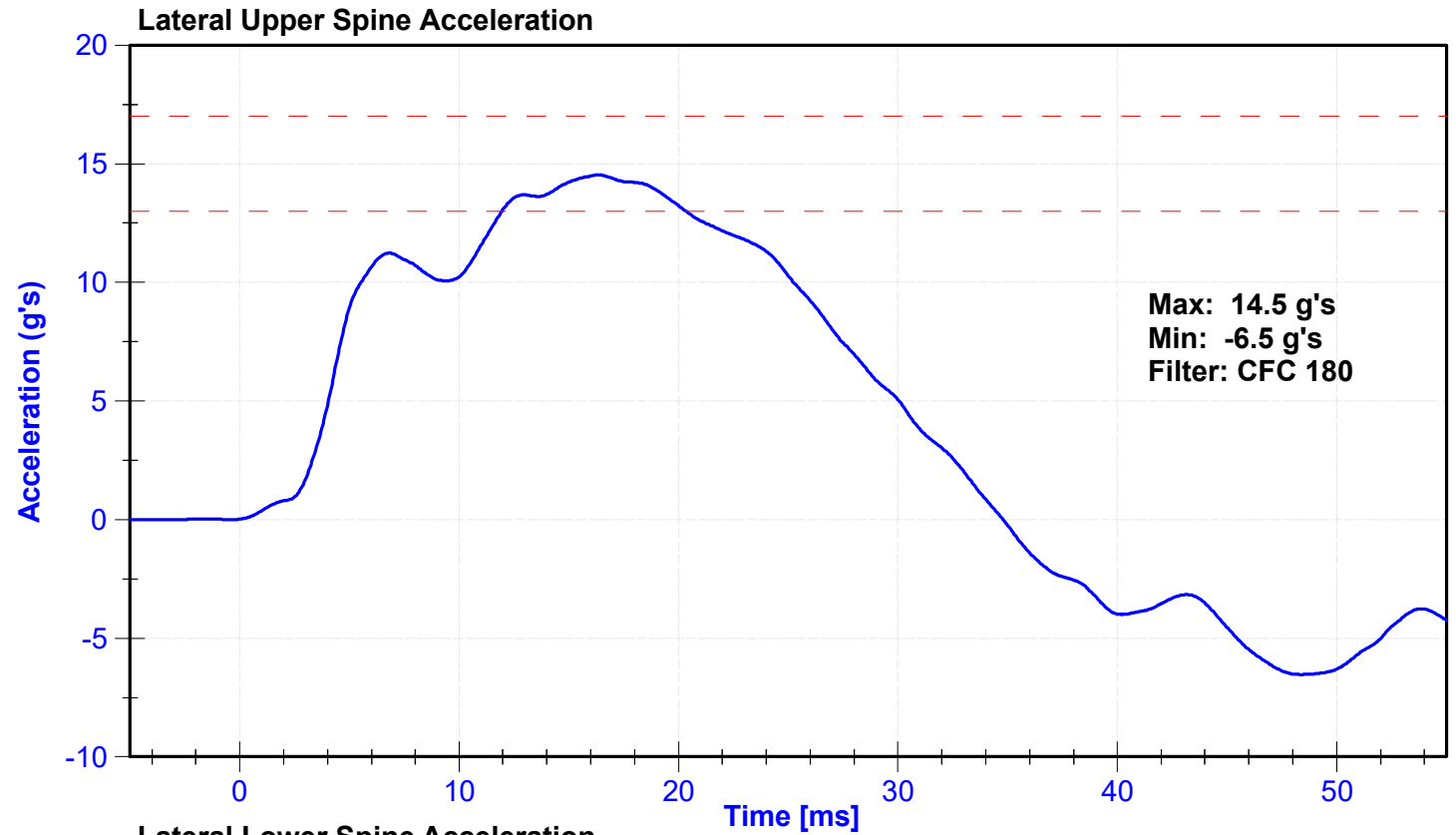
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	27	Pass
Velocity	4.2	4.4	m/s	4.32	Pass
Probe Acceleration	14	18	g's	16.1	Pass
Lateral Upper Spine Acceleration	13	17	g's	14.5	Pass
Lateral Lower Spine Acceleration	7	11	g's	9.4	Pass
Upper Thorax Rib Deflection	32	40	mm	35.4	Pass
Middle Thorax Rib Deflection	39	45	mm	39.8	Pass
Lower Thorax Rib Deflection	35	43	mm	37.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Upper Spine Y Accelerometer	Endevco	P58883	10/8/2024	4/6/2025
Lower Spine Y Accelerometer	Endevco	T20906	10/8/2024	4/6/2025
Upper Thorax Rib Potentiometer	Servo	DS-049GFE	10/8/2024	4/8/2025
Middle Thorax Rib Potentiometer	Servo	080GFE	10/9/2024	4/9/2025
Lower Thorax Rib Potentiometer	Servo	087GFE	12/5/2024	6/5/2025







ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

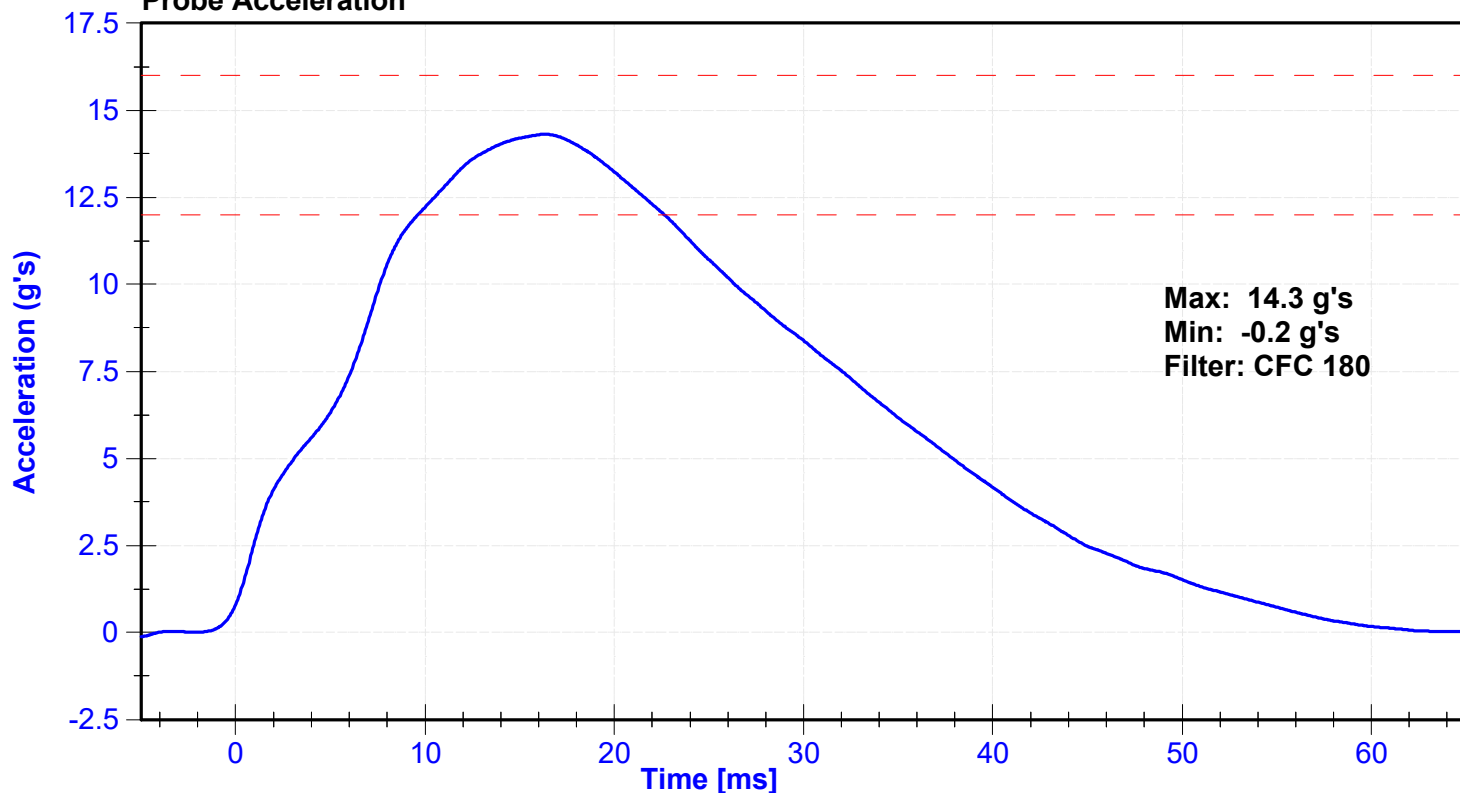
Results

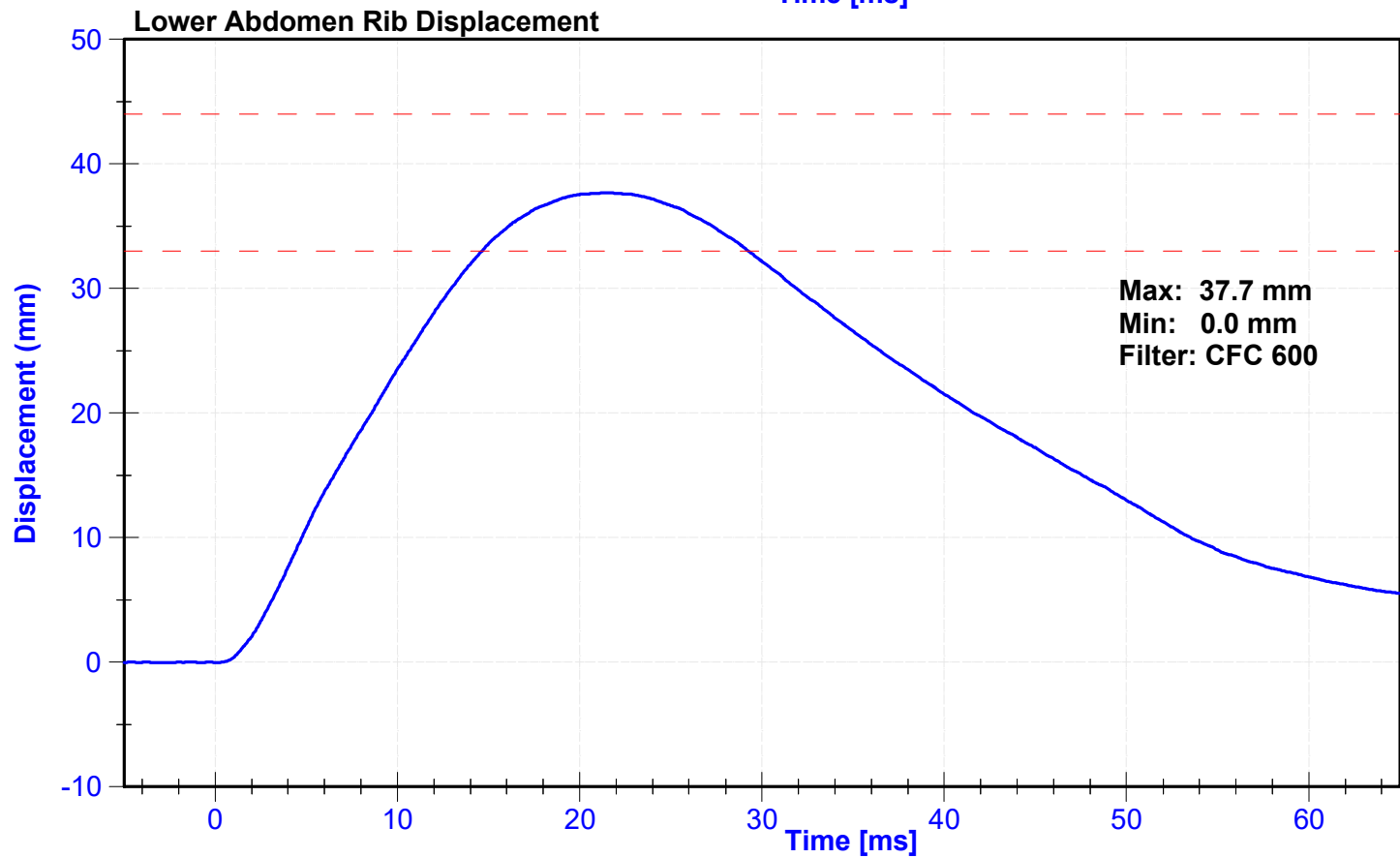
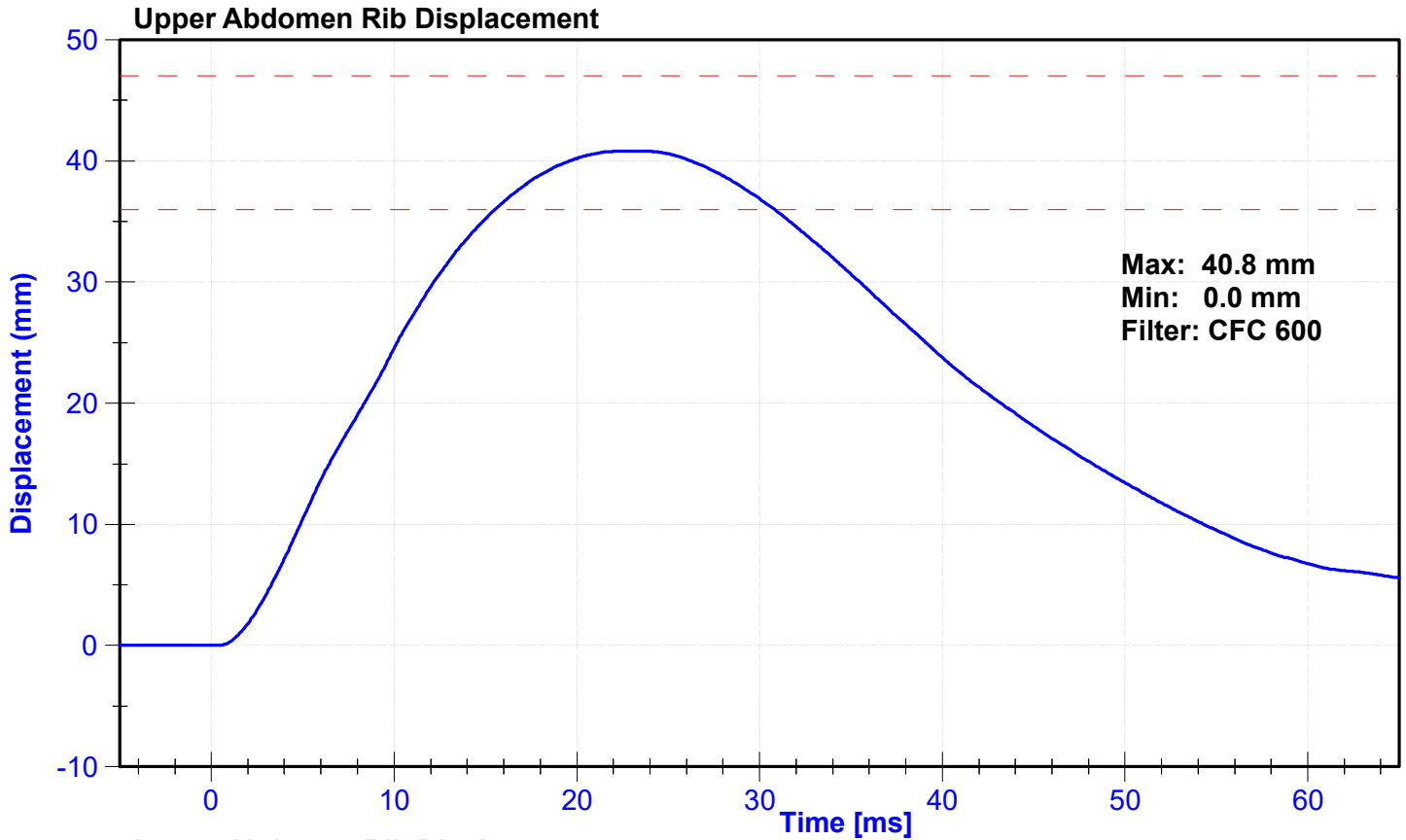
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	27	Pass
Velocity	4.2	4.4	m/s	4.31	Pass
Probe Acceleration	12	16	g's	14.3	Pass
Lateral Lower Spine Acceleration	9	14	g's	11.8	Pass
Upper Abdomen Rib Deflection	36	47	mm	40.8	Pass
Lower Abdomen Rib Deflection	33	44	mm	37.7	Pass

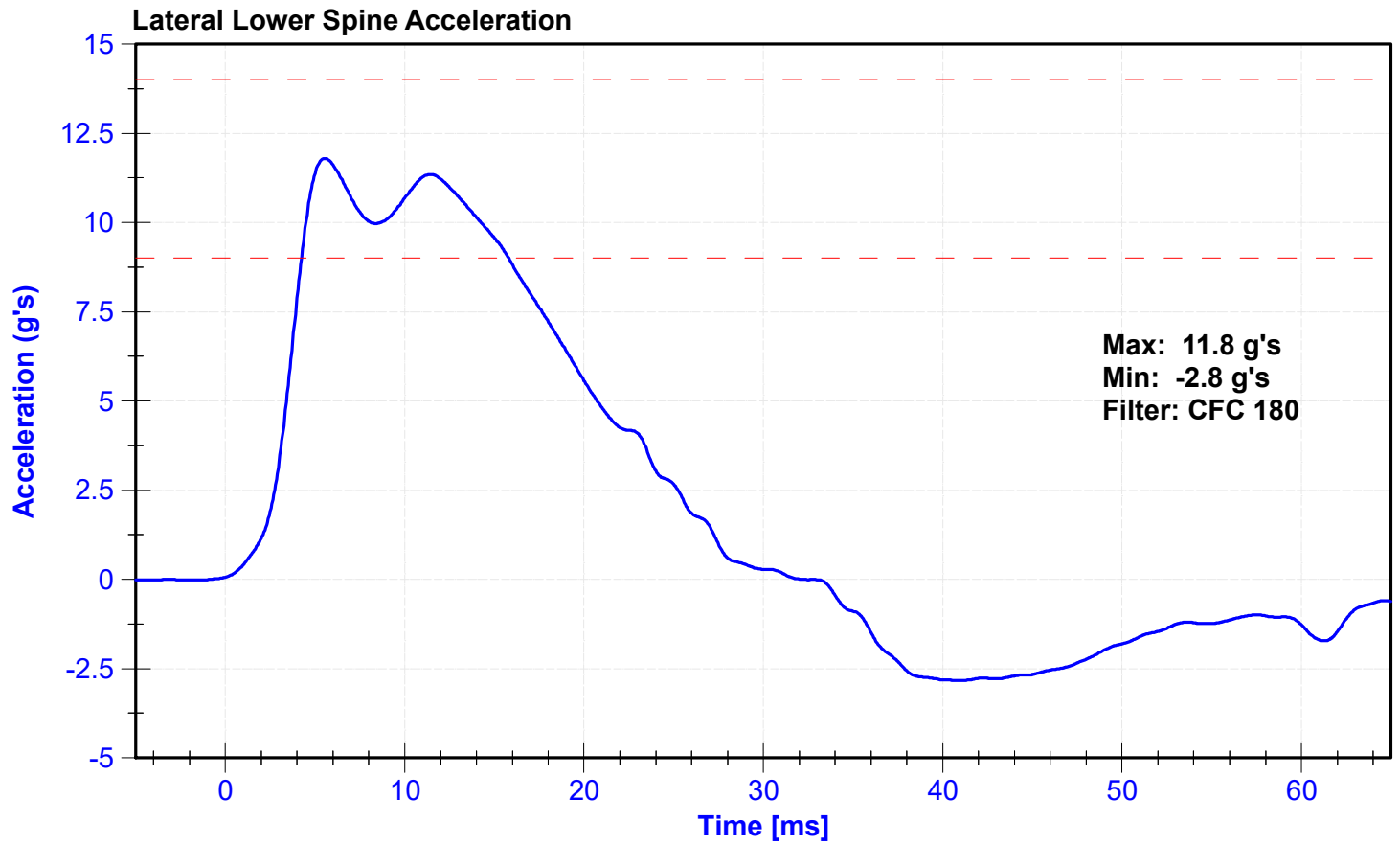
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Lower Spine Y Accelerometer	Endevco	T20906	10/8/2024	4/6/2025
Upper Abdomen Rib Potentiometer	Servo	DS-058GFE	10/8/2024	4/8/2025
Lower Abdomen Rib Potentiometer	Servo	1256GFE	10/8/2024	4/8/2025

Probe Acceleration







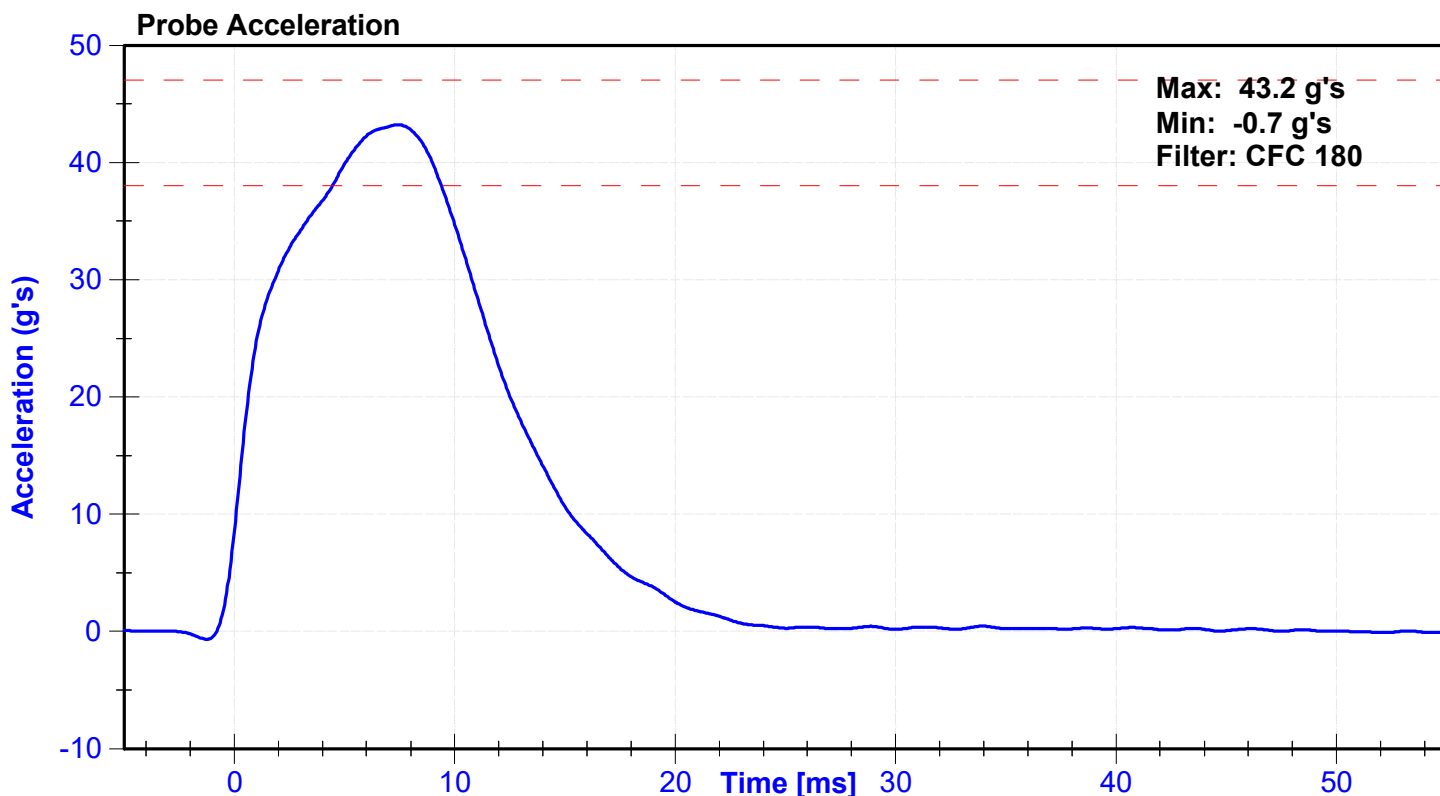
ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

Results

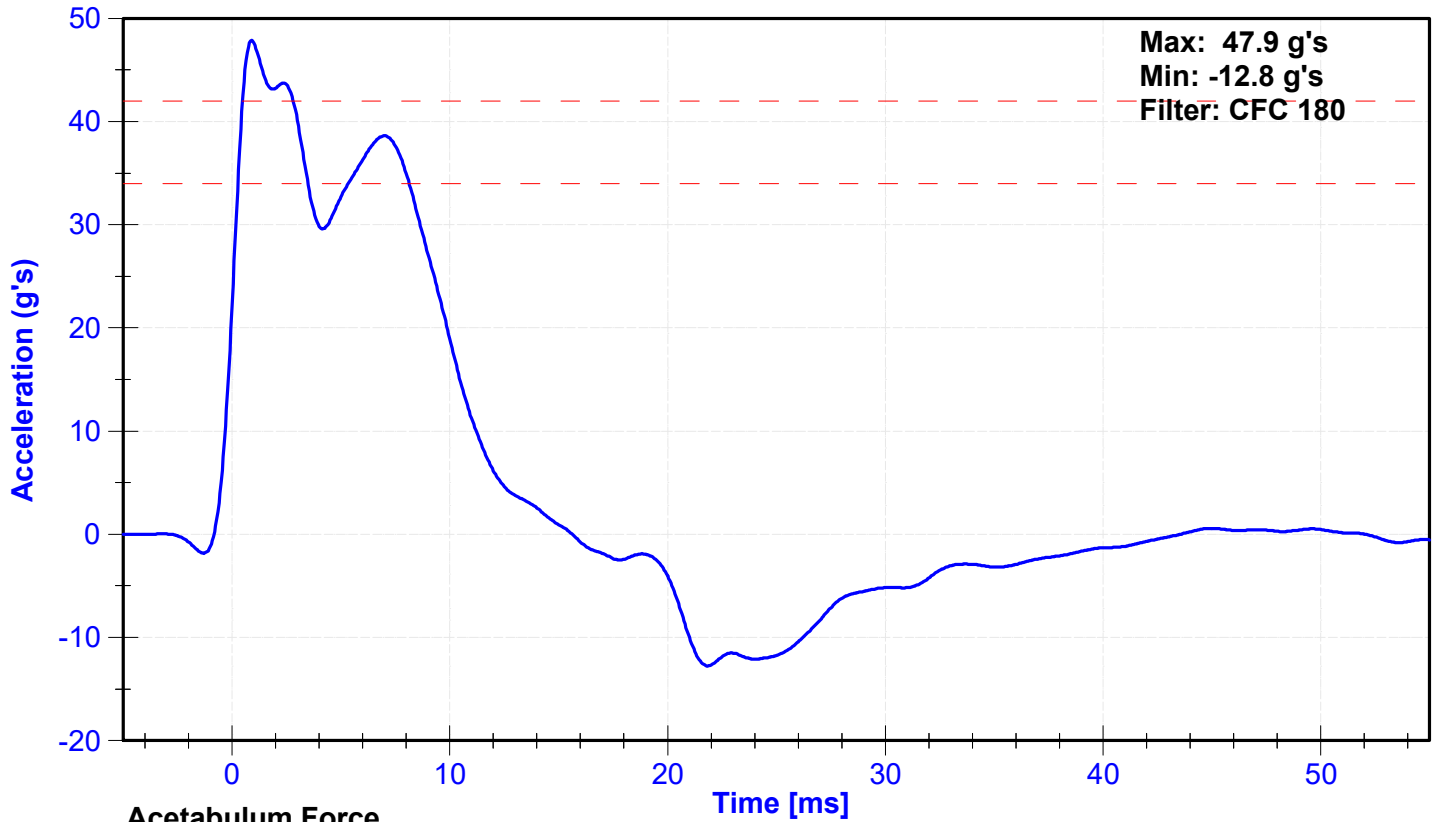
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	27	Pass
Velocity	6.6	6.8	m/s	6.64	Pass
Probe Acceleration	38	47	g's	43.2	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	38.6	Pass
Acetabulum Force	3600	4300	N	4016.3	Pass

Transducer Calibrations

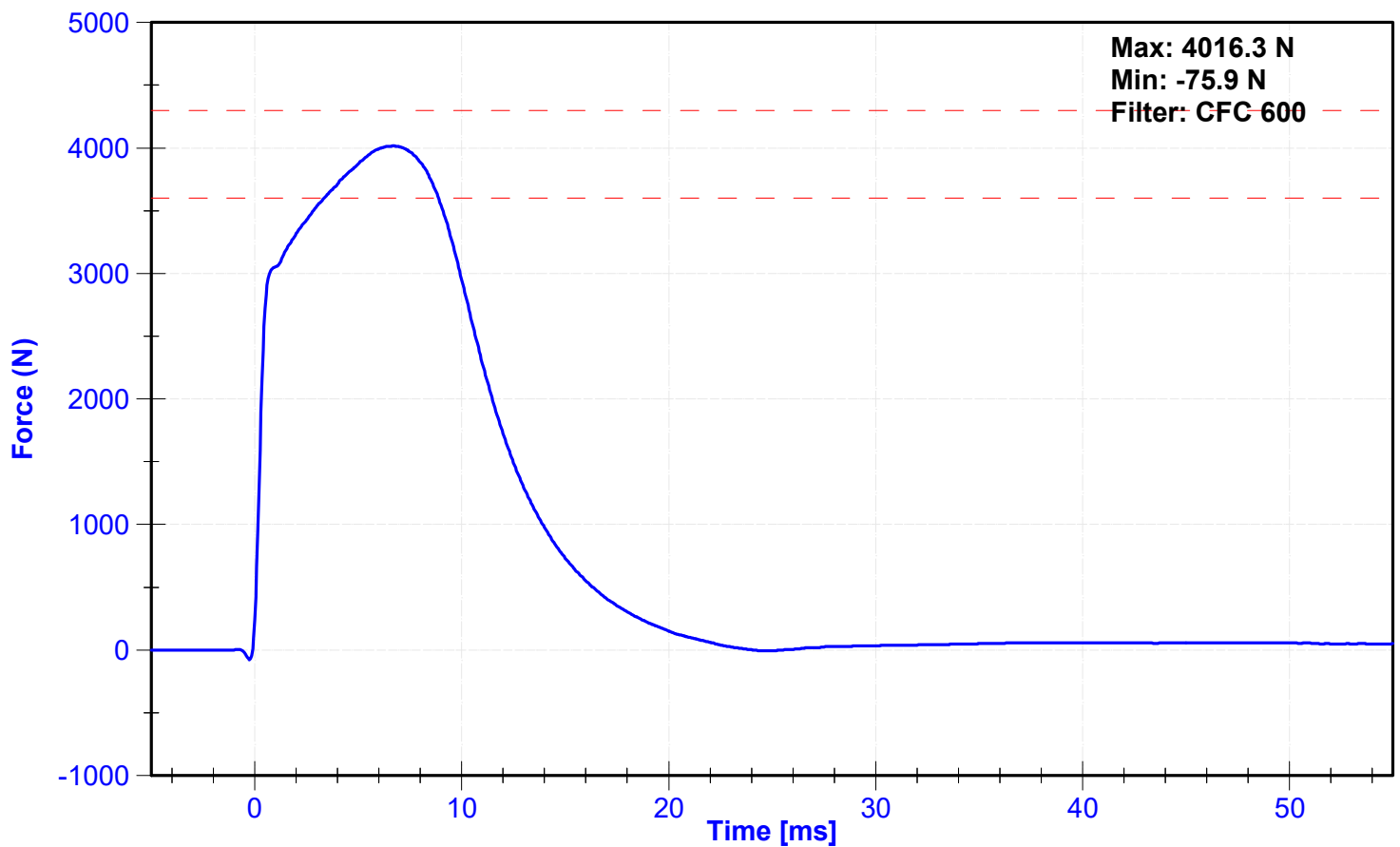
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Pelvis Y Accelerometer	Endevco	P63987	10/8/2024	4/6/2025
Acetabulum Load Cell	Denton	267-FY	9/16/2024	9/16/2025
Certification Plug	SACO			N/A
Crash Test Plug	SACO			N/A



Lateral Pelvis Acceleration



Acetabulum Force





SID-11s Pelvis Plug Certification Test

Plug S/N 16830
Test Number 23641
Report Number 23698
Test Date 7/25/2022 10:13:15 AM

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

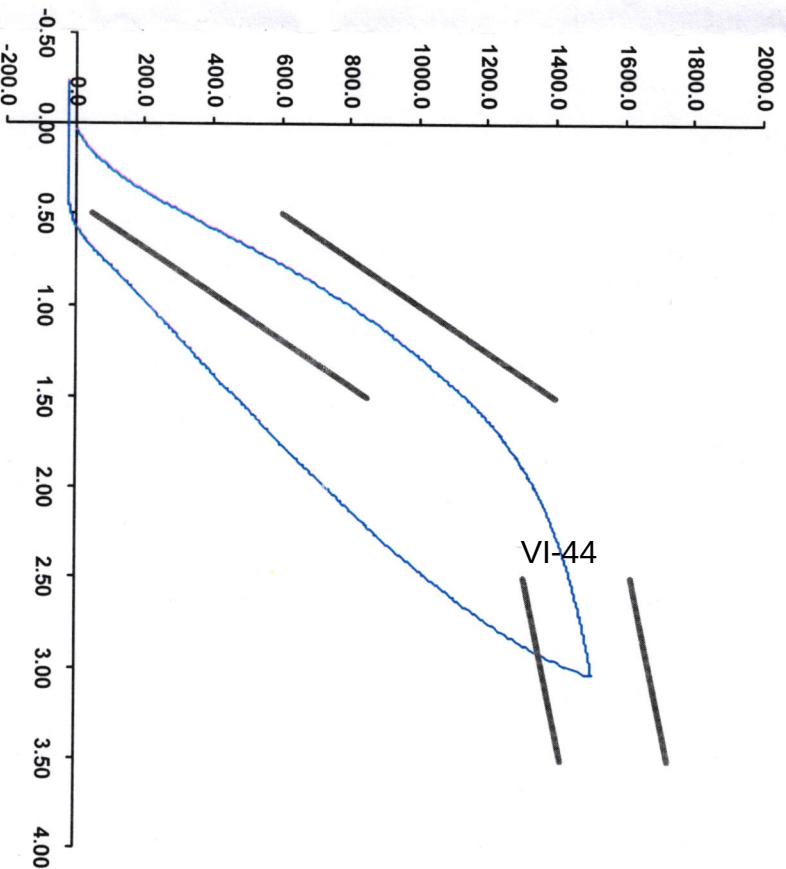
Testing Machine STM-20 5965542
Load Cell S/N (FI360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Test Plug 284 4-4-2025

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 25-Jul-22
SACO Research

By:

[Signature]

Date:

7/25/22



SID-ILIs Pelvis Plug Certification Test

Plug S/N 16831

Test Number 23642

Report Number 23699

Test Date 7/25/2022 10:16:21 AM

Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	339	50
Force @ 1.5 mm (N)	1,146	850
Force @ 2.5 mm (N)	1,431	1,306
Force @ 3.0 mm (N)	1,487	1,361

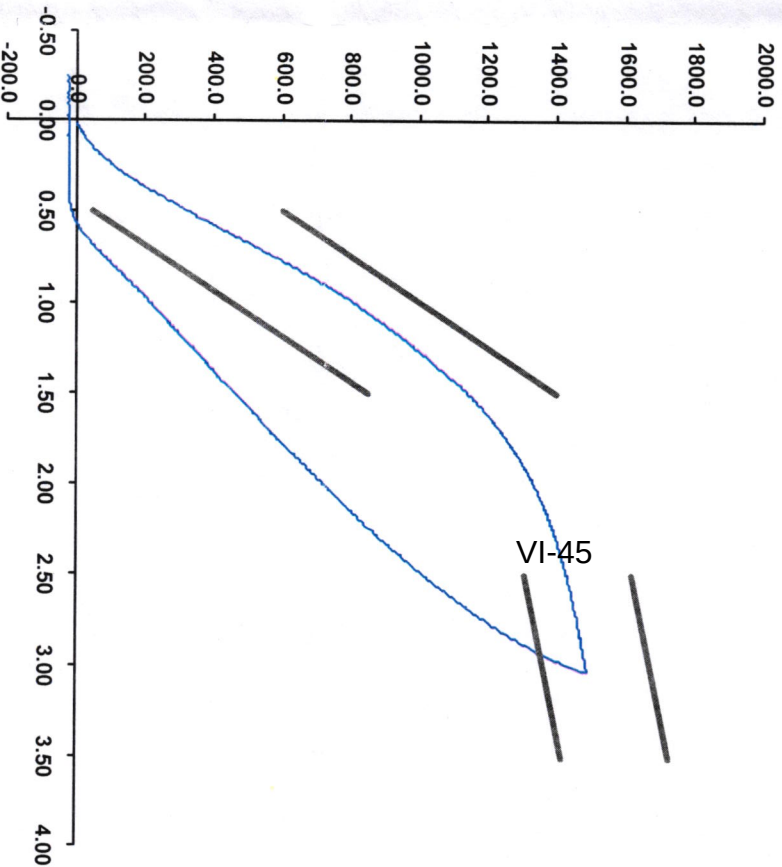
Testing Machine STM-20 5965542
Load Cell S/N (F1360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

IMPACT PLS 284 4-4-2025

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 25-Jul-22
SACO Research

By: DC Date: 7/25/22

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



SID-11s Pelvis Plug Certification Test

Plug S/N 16832
Test Number 23643
Report Number 23700
Test Date 7/25/2022 10:18:47 AM

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

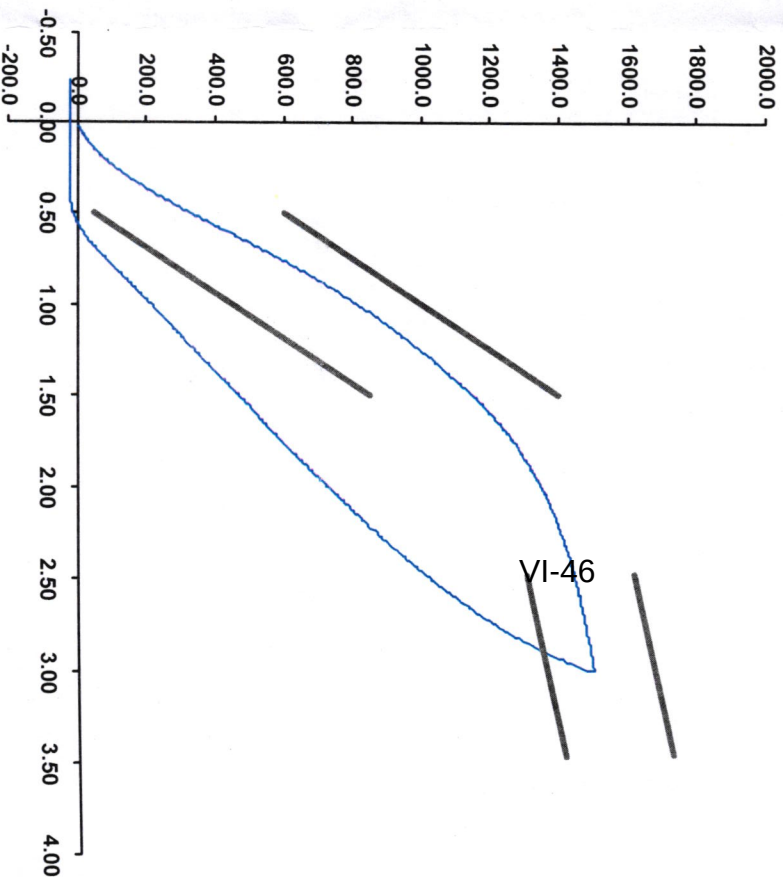
Testing Machine STM-20 5965542
Load Cell S/N (FI360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

NON EVALUATE 224 4-4-2025

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107
25-Jul-22
SACO Research

By:

DC

Date:

7/25/22

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

ATD Manufacturer	Humanetics	Test Technician	J. Rios
ATD Serial Number	224	Laboratory Supervisor	J. Kinderman

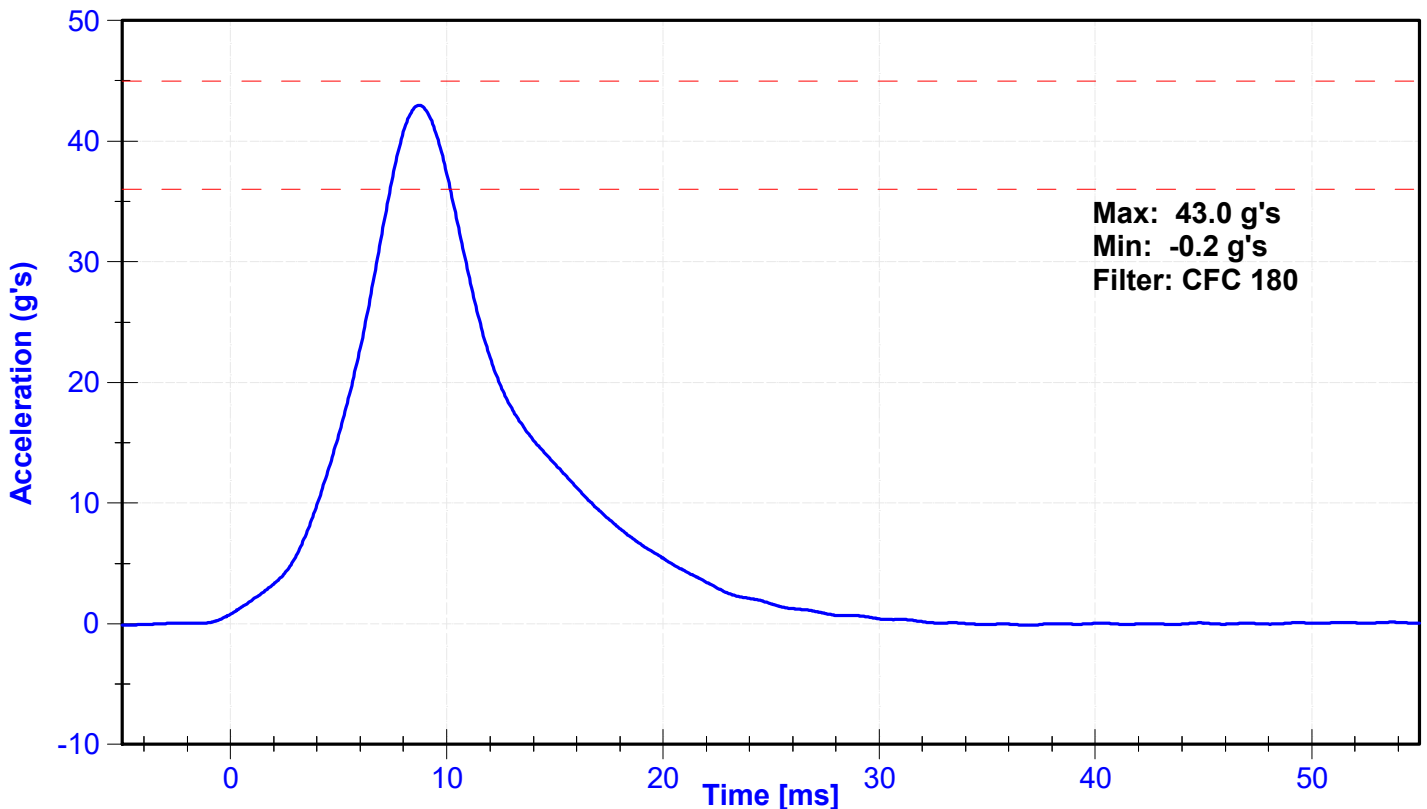
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	27	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	36	45	g's	43.0	Pass
Lateral Pelvis Acceleration	28	39	g's	34.1	Pass
Iliac Force	4100	5100	N	4726.4	Pass

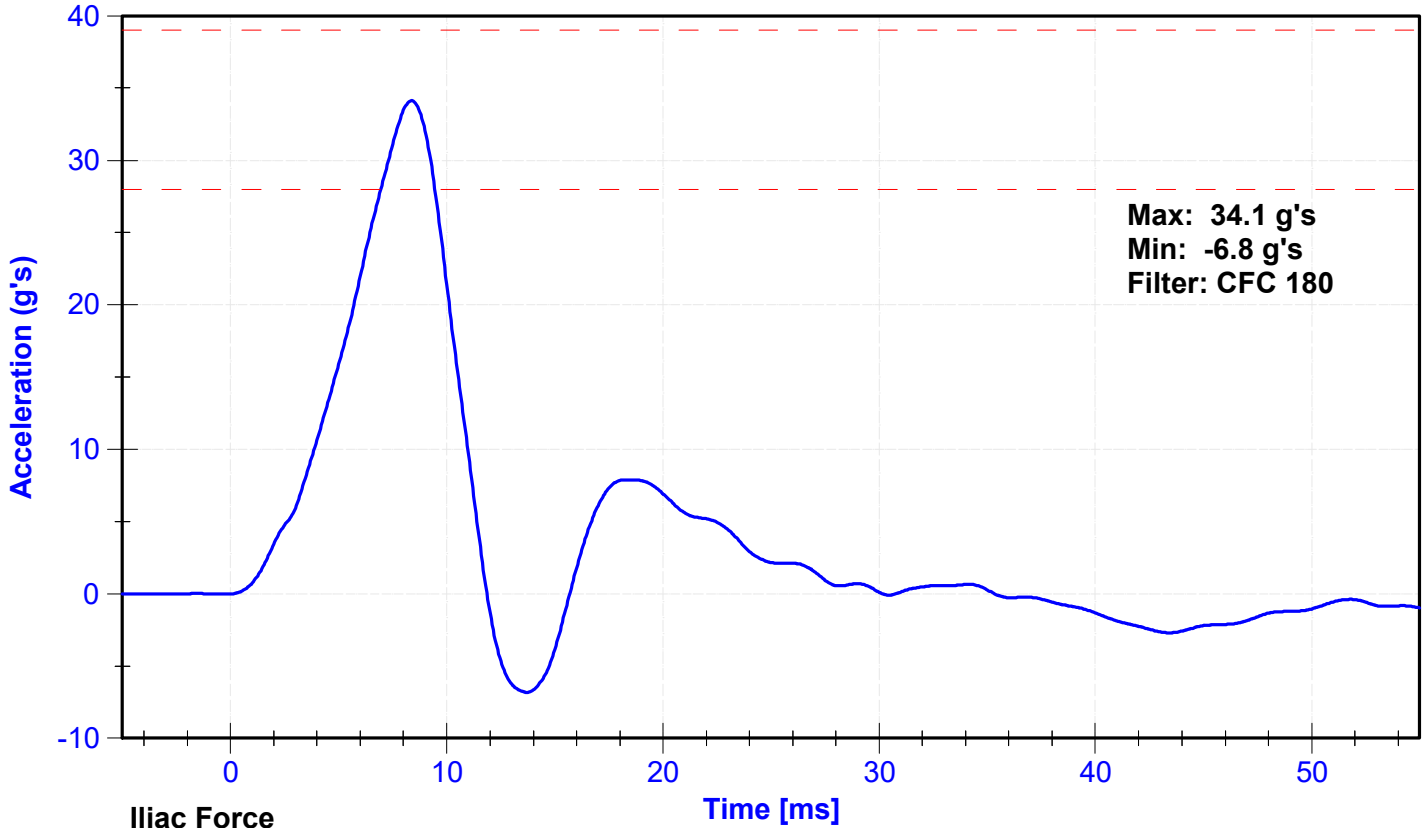
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25962	2/15/2025	8/14/2025
Pelvis Y Accelerometer	Endevco	P63987	10/8/2024	4/6/2025
Iliac Load Cell	Denton	280-FY	9/16/2024	9/16/2025

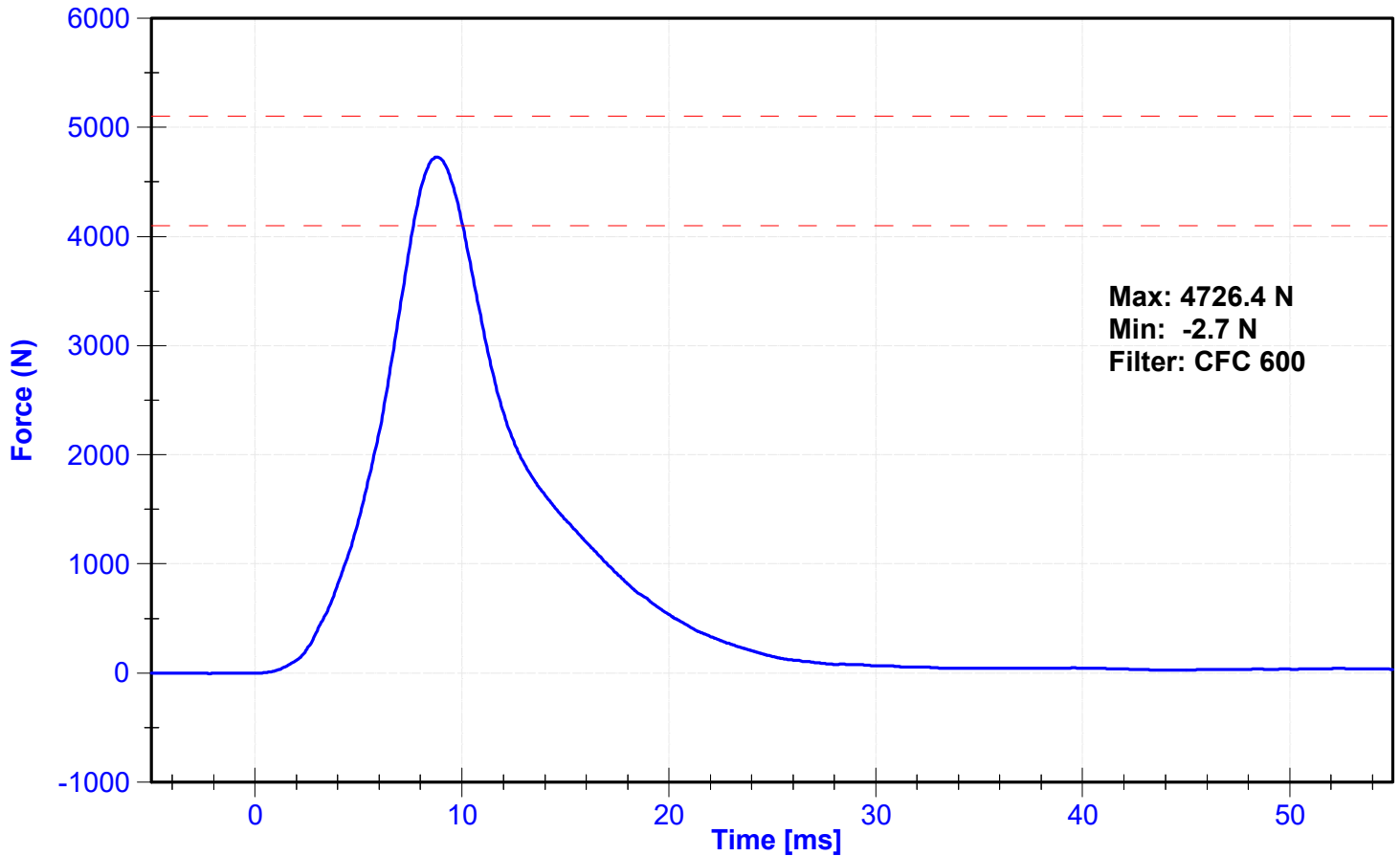
Probe Acceleration



Lateral Pelvis Acceleration



Iliac Force



APPENDIX VII

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N DG5348		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers	Primary	X	18613	Endevco	01/17/2025
		Y	18472	Endevco	01/17/2025
		Z	18663	Endevco	01/17/2025
	Redundant	X	18666	Endevco	01/17/2025
		Y	18664	Endevco	01/17/2025
		Z	18675	Endevco	01/17/2025
Thorax Rib Displacement Potentiometers	Upper	Y	268GFE	Honeywell	01/21/2025
	Middle	Y	269GFE	Honeywell	01/21/2025
	Lower	Y	270GFE	Honeywell	01/22/2025
Abdomen Load Cells	Forward	Y	DM5846	Denton	05/22/2024
	Middle	Y	1529	Denton	05/22/2024
	Rear	Y	1533	Denton	05/22/2024
Lower Spine Accelerometers (T12)		X	P96462	Endevco	02/07/2025
		Y	18532	Endevco	02/07/2025
		Z	18671	Endevco	01/17/2025
Pubic Symphysis Load Cell		Y	459-FY	Denton	07/12/2024

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 224		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers		Primary	X	P51884	Endevco	10/08/2024
			Y	P73161	Endevco	10/08/2024
			Z	P79588	Endevco	10/08/2024
		Redundant	X	P74963	Endevco	10/08/2024
			Y	P58864	Endevco	10/08/2024
			Z	P52030	Endevco	10/08/2024
Displacement Potentiometers	Thoracic Rib	Upper	Y	DS-049GFE	Servo	10/08/2024
		Middle	Y	080GFE	Servo	10/09/2024
		Lower	Y	087GFE	Servo	12/05/2024
	Abdominal Rib	Upper	Y	DS-058GFE	Servo	10/08/2024
		Lower	Y	1256GFE	Servo	10/08/2024
Lower Spine Accelerometers (T12)			X	P82326	Endevco	10/08/2024
			Y	T20906	Endevco	10/08/2024
			Z	T21176	Endevco	10/08/2024
Acetabulum Load Cell			Y	267-FY	Denton	09/16/2024
Iliac Wing Load Cell			Y	280-FY	Denton	09/16/2024
Pelvis Plug (struck side)				16719	SACO	07/22/2022
Pelvis Plug (non-struck side)				16661	SACO	07/21/2022

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	G24328	Endevco	02/14/2025
	Vehicle Center of Gravity	Y	G25006	Endevco	10/08/2024
	Vehicle Center of Gravity	Z	A315756	Measurement Specialties	11/20/2024
2	Right Sill at Front Seat	X	A281010	Measurement Specialties	10/11/2024
	Right Sill at Front Seat	Y	A290939	Measurement Specialties	10/11/2024
	Right Sill at Front Seat	Z	A399939	Measurement Specialties	10/11/2024
3	Right Sill at Rear Seat	X	A282647	Measurement Specialties	02/20/2025
	Right Sill at Rear Seat	Y	A315760	Measurement Specialties	02/20/2025
	Right Sill at Rear Seat	Z	A398296	Measurement Specialties	02/20/2025
4	Left Sill at Front Door	Y	G22618	Endevco	02/14/2025
5	Left Sill at Rear Door	Y	A351009	Measurement Specialties	10/11/2024
6	Left A-Post Lower	Y	A372808	Measurement Specialties	12/03/2024
7	Left A-Post Middle	Y	G26366	Endevco	12/30/2024
8	Left B-Post Lower	Y	A413580	Measurement Specialties	02/20/2025
9	Left B-Post Middle	Y	A398308	Measurement Specialties	10/15/2024
10	Front Seat Track	Y	G24236	Endevco	02/17/2025
11	Rear Seat Track or Structure	Y	A284350	Measurement Specialties	11/04/2024
12	Right Rear Occ. Compartment	Y	G22809	Endevco	11/21/2024
13	Engine Block	X	A370963	Measurement Specialties	12/17/2024
	Engine Block	Y	A372873	Measurement Specialties	11/19/2024
14	Rear Floorpan Above Axle	X	G22419	Endevco	12/14/2024
	Rear Floorpan Above Axle	Y	G23665	Endevco	12/14/2024
	Rear Floorpan Above Axle	Z	A431371	Measurement Specialties	12/14/2024

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle CG Acceleration vs. Time	X	G22621	Endevco	12/17/2024
Vehicle CG Acceleration vs. Time	Y	A374224	Measurement Specialties	12/17/2024
Vehicle CG Velocity vs. Time	Y	Computed	Measurement Specialties	12/17/2024
Vehicle CG Acceleration vs. Time	Z	A431195	Measurement Specialties	12/17/2024
Vehicle CG Velocity vs. Time	Z	Computed	Measurement Specialties	12/17/2024
Vehicle CG Resultant Acceleration vs. Time	R	Computed	Measurement Specialties	12/17/2024

APPENDIX VIII
CHECK SHEETS

External file CHECK SHEETS not uploaded.