

REPORT NUMBER: NCAP-CAL-25-005

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

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

NHTSA No: M20250201

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



March 6, 2026

FINAL REPORT

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

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number 693JJ919D000005.

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof.

If trade or manufacturers' names or products are mentioned it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared by: Matthew Pronko Date: March 6, 2026
Matthew Pronko, Test Engineer

Approved by: Vanessa Hansen Date: March 6, 2026
Vanessa Hansen, Operations Manager

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. NCAP-CAL-25-005		2. Government Accession No.		3. Recipient's Catalog No.																																																					
4. Title and Subtitle Final Report of New Car Assessment Program Frontal Impact Testing of a 2025 Ford Expedition 5 Door SUV NHTSA No.: M20250201				5. Report Date March 6, 2026																																																					
				6. Performing Organization Code CAL																																																					
7. Author(s) Matthew Pronko, Test Engineer Vanessa Hansen, Operations Manager				8. Performing Organization Report No. CAL-DOT-2025-005																																																					
9. Performing Organization Name and Address Calspan Corporation Transportation Test Operations P.O. Box 400 Buffalo, New York 14225				10. Work Unit No.																																																					
				11. Contract or Grant No. 693JJ919D000005																																																					
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 1200 New Jersey Ave., SE Washington, D.C. 20590				13. Type of Report and Period Covered: Final Test Report July 15, 2025 - March 6, 2026																																																					
				14. Sponsoring Agency Code NRM-110																																																					
15. Supplementary Notes																																																									
16. Abstract A 56.30 km/h (35 mph), NCAP frontal rigid barrier impact test was conducted on a 2025 Ford Expedition 5 Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing. The test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on July 15, 2025. The impact velocity of the vehicle was 56.35 km/h, and the ambient temperature at the barrier face at the time of impact was 21.9°C. The target vehicle post-test maximum crush was 480 mm at crush zone 3. The test vehicle's occupant performance data is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD (Serial No. 065)</th> <th colspan="2">Passenger ATD (Serial No. 137)</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC15)</td> <td></td> <td>700</td> <td>225.993</td> <td>700</td> <td>275.007</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-14.396</td> <td>52</td> <td>-10.373</td> </tr> <tr> <td>Nij</td> <td></td> <td>1</td> <td>0.263</td> <td>1</td> <td>0.250</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>1040.038</td> <td>2620</td> <td>579.719</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>-438.272</td> <td>2520</td> <td>-328.165</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>-1382.000</td> <td>6805</td> <td>-1094.225</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>-140.825</td> <td>6805</td> <td>-967.380</td> </tr> </tbody> </table>						Measurement Description	Units	Driver ATD (Serial No. 065)		Passenger ATD (Serial No. 137)		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC15)		700	225.993	700	275.007	Maximum Chest Compression	mm	63	-14.396	52	-10.373	Nij		1	0.263	1	0.250	Neck Tension	N	4170	1040.038	2620	579.719	Neck Compression	N	4000	-438.272	2520	-328.165	Left Femur Force	N	10008	-1382.000	6805	-1094.225	Right Femur Force	N	10008	-140.825	6805	-967.380
Measurement Description	Units	Driver ATD (Serial No. 065)		Passenger ATD (Serial No. 137)																																																					
		Threshold	Result	Threshold	Result																																																				
Head Injury Criteria (HIC15)		700	225.993	700	275.007																																																				
Maximum Chest Compression	mm	63	-14.396	52	-10.373																																																				
Nij		1	0.263	1	0.250																																																				
Neck Tension	N	4170	1040.038	2620	579.719																																																				
Neck Compression	N	4000	-438.272	2520	-328.165																																																				
Left Femur Force	N	10008	-1382.000	6805	-1094.225																																																				
Right Femur Force	N	10008	-140.825	6805	-967.380																																																				
17. Key Words 56.3 km/h (35 mph) Full Frontal Rigid Barrier Impact Test New Car Assessment Program (NCAP)				18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave, SE Washington, DC 20590																																																					
19. Security Class. (of this report) UNCLASSIFIED		20. Security Class. (of this page) UNCLASSIFIED		21. No. of Pages 169																																																					
22. Price																																																									

Form DOT F1700.7 (8-69)

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1	Purpose and Summary of the Test	1-1
2	Occupant and Vehicle Information / Data Sheets	2-1
<u>Data Sheet</u>		<u>Page</u>
1	General Test and Vehicle Parameter Data	2-2
2	Seat Adjustment, Fuel System, and Steering Wheel Data	2-6
3	Dummy Longitudinal Clearance Dimensions	2-8
4	Dummy Lateral Clearance Dimensions	2-9
5	Seat Belt Positioning Data	2-10
6	High-Speed Camera Locations and Data	2-11
7	Vehicle Accelerometer Locations	2-13
8	Photographic Reference Target Locations	2-14
9	Load Cell Locations on Fixed Barrier	2-15
10	Test Vehicle Summary of Results	2-16
11	Post-Test Observations	2-17
12	Vehicle Profile Measurements	2-18
13	Accident Investigation Division Data	2-21
14	Vehicle Intrusion Measurements	2-22
15	Summary FMVSS No.212, 219 (Partial) and 301 Data	2-24
16	FMVSS 301 Static Rollover Results	2-26
17	Dummy/Vehicle Temperature Stabilization Chart	2-27
<u>Appendix</u>		<u>Page</u>
A	Photographs	A-1
B	Dummy Response Data Traces	B-1
C	Dummy Calibration and Performance Verification Data	C-1
D	Test Equipment and Instrumentation Calibration	D-1

SECTION 1

PURPOSE AND SUMMARY OF THE TEST

PURPOSE

This 56.3 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. 693JJ919D000005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Test Procedure dated May 2018.

SUMMARY

A flat plywood rigid barrier was impacted by a 2025 Ford Expedition 5 Door SUV at a velocity of 56.35 km/h. The test was performed at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on July 15, 2025. Pre- and post-test photographs of the vehicle and dummies to document the test can be found in Appendix A. One real-time camera and 16 high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in Data Sheet 6 of this report.

One Part 572E, 50th percentile male anthropomorphic test device (ATD), was placed in the driver seating position and one Part 572O 5th percentile female ATD was placed in the right-front passenger seating position according to dummy placement instructions specified in the Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing. Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck transducers, femur load cells, and lower leg instrumentation. Seat belt loads cells were not installed on the driver's and passenger's lap and shoulder belts and dummy torso and pelvic section loading was not measured. The driver (position 1) ATD (Serial No. 065) and the right-front passenger (position 2) ATD (Serial No. 137) were qualified prior to this test. Certification details, along with instrumentation calibration data, can be found in Appendix C of this report.

The 102 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle and dummy response data traces. The load cell barrier was not used.

There was 100 percent windshield retention and no intrusion into the protected zone of the windshield during the event. There was a total of 0.0 grams of Stoddard solvent leakage after the event or during any phase of the static rollover. The maximum static crush of the vehicle was 480 mm and both driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver's head contacted the frontal airbag and the head restraint. The upper torso contacted the frontal airbag. Both knees contacted the knee bolster and steering column shroud.

The passenger's visible contact points were as follows: The passenger's head contacted the frontal airbag and the head restraint. The upper torso contacted the frontal airbag. Both knees contacted the glove box.

The occupant data is summarized below.

ATD Position	HIC ₁₅	Nij	Neck Tension (N)	Neck Comp. (N)	3ms Chest Clip (Gs)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)
Driver (50th)	225.993	0.263	1040.038	-438.272	37.042	-14.396	-1382.000	-140.825
Passenger (5th)	275.007	0.250	579.719	-328.165	36.573	-10.373	-1094.225	-967.380

GENERAL COMMENTS:

1. P1 (Driver) serial number - 065
2. P2 (Passenger) serial number - 137

Data Anomalies:

- No Questionable Channels

SECTION 2

OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

This section contains information reporting for the following Data Sheets:

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

Data Sheet No. 2 – Seat Adjustment, Fuel System, and Steering Wheel Data

Data Sheet No. 3 – Dummy Longitudinal Clearance Dimensions

Data Sheet No. 4 – Dummy Lateral Clearance Dimensions

Data Sheet No. 5 – Seat Belt Positioning Data

Data Sheet No. 6 – High-Speed Camera Locations and Data

Data Sheet No. 7 – Vehicle Accelerometer Locations

Data Sheet No. 8 – Photographic Reference Target Locations

Data Sheet No. 9 – Load Cell Locations on Fixed Barrier

Data Sheet No. 10 – Test Vehicle Summary of Results

Data Sheet No. 11 – Post-Test Observations

Data Sheet No. 12 – Vehicle Profile Measurements

Data Sheet No. 13 – Accident Investigation Division Data

Data Sheet No. 14 – Vehicle Intrusion Measurements

Data Sheet No. 15 – Summary of Indicant FMVSS No. 212 and FMVSS No. 219 (Partial)

Data Sheet No. 16 – FMVSS 301 Static Rollover Results

Data Sheet No. 17 – Dummy/Vehicle Temperature Stabilization Chart

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
Test Date: 07/15/2025

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20250201	Traction Control System (TCS)	Yes
Model Year	2025	Power Steering	Yes
Make	Ford	Power Window Auto-Reverse	Yes
Model	Expedition	Driver Frontal Airbag	Yes
Body Style	5 Door SUV	Driver Curtain Airbag	Yes
VIN	1FMJU1J8XSEA25587	Driver Head/Torso Airbag	No
Body Color	Agate Black Metallic	Driver Torso Airbag	No
Odometer Reading (km /mi)	11.5 mi	Driver Torso/Pelvis Airbag	Yes
Engine Displacement (L)	3.5	Driver Pelvis Airbag	No
Type / No. Cylinders	V6	Driver Knee Airbag	No
Engine Placement	Inline	Front Pass. Frontal Airbag	Yes
Transmission Type	Automatic	Front Pass. Curtain Airbag	Yes
Transmission Speeds	10-Speed	Front Pass. Head/Torso Airbag	No
Overdrive	Yes	Front Pass. Torso Airbag	No
Final Drive	4x4	Front Pass. Torso/Pelvis Airbag	Yes
Roof Rack	No	Front Pass. Pelvis Airbag	No
Sunroof / T-Top	No	Front Pass. Knee Airbag	No
Running Boards	Yes	Driver Pretensioner	Yes
Tilt Steering Wheel	Yes	Driver Load Limiter	Yes
Power Seats	Yes	Front Pass. Pretensioner	Yes
Anti-Lock Brakes (ABS)	Yes	Front Pass. Load Limiter	Yes
Automatic Door Locks (ADLs)	Yes	Other –	N/A

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Co.	GVWR (KG)	3459
Date of Manufacture	05/25	GAWR Front (KG)	1531
		GAWR Rear (KG)	2084

VEHICLE SEATING AND WEIGHT CAPACITY DATA

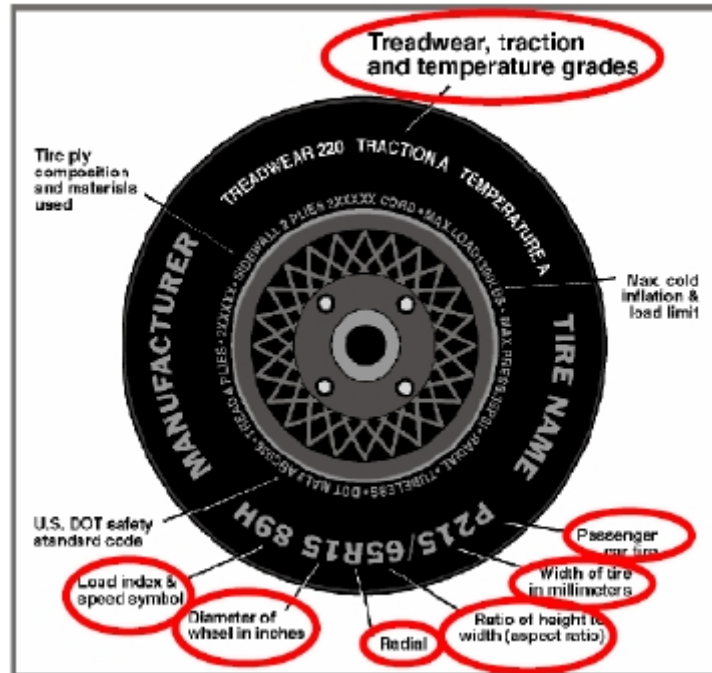
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Split Bench	Split Bench	
Number of Occupants	2	3	3	8
Capacity Wt. (VCW) (kg)				616
Cargo Wt. (RCLW) (kg)				72

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

Collect items circled in red, tire manufacturer, and tire name.



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	250	250
Recommended Tire Size	265/70R18	265/70R18
Tire Size on Vehicle	265/70R18	265/70R18
Tire Manufacturer	Pirelli	Pirelli
Tire Model	Scorpion ATR	Scorpion ATR
Treadwear	520	520
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel	2 Polyester, 2 Steel
Load Index / Speed Symbol	116T	116T
Tire Material	Rubber	Rubber
DOT Safety Code Left	1N9RB322N3424	1N9RB322N3424
DOT Safety Code Right	1N9RB322N3324	1N9RB322N3424

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	625	651		673	721	
Right	kg	638	636		668	695	
Ratio	%	49.5	50.5		48.6	51.4	
Total	kg	1263	1287	2550	1341	1416	2757

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2550	(A)
Weight of 1 P572E ATD & 1 P572O ATD	kg	142	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	72	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2764	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

Condition	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	910	913	941	944	1572
As Tested	mm	900	903	925	930	1599
Post-Test	mm	825	882	927	935	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	3114
Total Vehicle Length at Left Side	mm	5278
Total Vehicle Length at Centerline	mm	5331
Total Vehicle Length at Right Side	mm	5278
Weight of Ballast in Cargo Area	kg	45
Weight of Vehicle Components Removed	kg	60
Amount of Stoddard Solvent in Fuel Tank	L	86.9

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT:

Trunk carpeting, jack, third row seats.

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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

TARGET VEHICLE STRUCTURAL MEASUREMENT

No.	Description	Pre-Test
1	Total Length	5331
2	Total Width	2088
3*	Bumper Top Height	711
4*	Bumper Bottom Height	665
5*	Longitudinal Member Top Height	608
6	Distance Between Longitudinal Members	922
7	Longitudinal Member Width	72
8*	Engine Top Height	1070
9*	Engine Bottom Height	308
10	Engine and Gearbox Width	551
11	Front Bumper-Engine Distance	909
12*	Front Shock Absorber Fixing Height	823
13*	Bonnet Leading Edge Height	1148
14	Front Shock Absorber Fixing Width	978
15	Front Bumper – Front Axle Distance	975
16	Front Axle – A Pillar Distance	618
17	A-Pillar – B-Pillar Distance	1186
18	B-Pillar – Rear Axle Distance	1310
19	B-Pillar – C-Pillar Distance	1115
20*	Roof Sill Bottom Height	1823
21*	Roof Sill Top Height	1858
22*	Floor Sill Bottom Height	551
23*	Floor Sill Top Height	565

*Height Measurements are taken from the ground

Note: All measurements are in millimeters

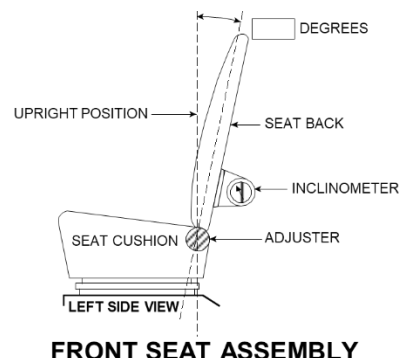
DATA SHEET NO. 2 SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
Test Date: 07/15/2025

NOMINAL DESIGN RIDING POSITION

The driver's seat back was set to the manufacturer's designated angle. The passenger's seat back was positioned in a similar manner as the driver's seat back. Seat back angles are measured at the headrest post bezel using a digital inclinometer.



Seating Position	Degrees
Driver Seat Back Angle	3.05
Passenger Seat Back Angle	-2.5

SEAT FORE / AFT POSITIONS

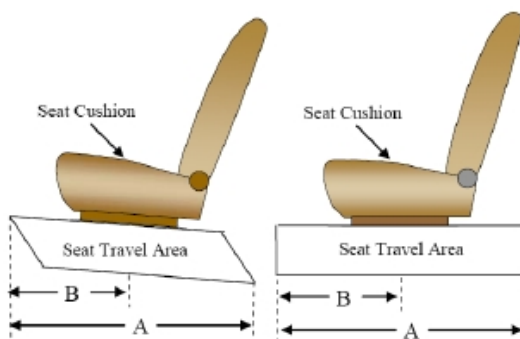
The driver's seat was positioned at the mid-point of fore/aft travel at its lowest position. The passenger's seat was positioned at the most forward position of fore/aft travel. Zero is defined as the forward most position.

Seating Position	Total Fore / Aft Travel	Placed in Position #
Driver Seat	308	154
Passenger Seat	250	0

SEAT BELT UPPER ANCHORAGE

The driver's seat belt anchorage was positioned according to the manufacturer's designated positioning for a 50th percentile adult male ATD. The passenger's seat belt anchorage was positioned according to the manufacturer's designated positioning for a 5th percentile adult female ATD. For this test zero is defined as the uppermost position.

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



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

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

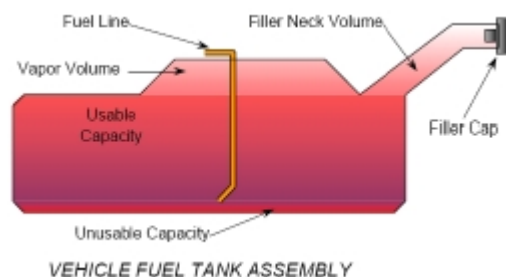
NHTSA No.: M20250201
 Test Date: 07/15/2025

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	93.5
Usable Capacity of "Optional Tank"	N/A
92%-94% of Usable Capacity	86.0 - 87.9
Actual Amount of Solvent Used	86.9
1/3 of Usable Capacity	31.2

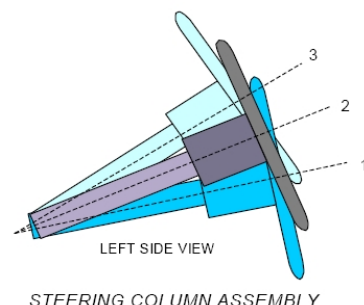
FUEL PUMP

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



STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. For angular measurements, a digital inclinometer was used to measure a plate which was placed across the steering wheel rim. A tape measure was used to measure the telescoping steering wheel travel.



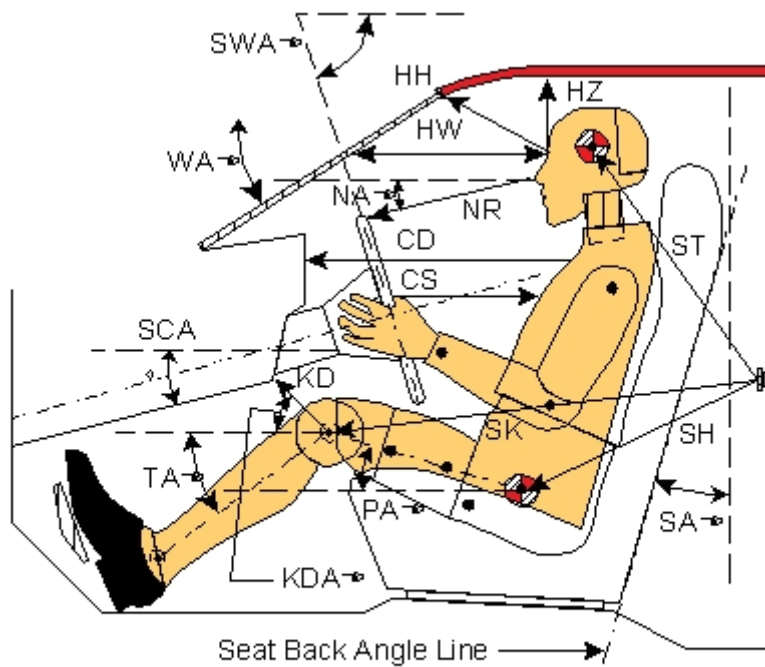
STEERING COLUMN POSITIONS

Description	Degrees	Fore / Aft Position (mm)
Lowermost position No. 1	19.5	
Geometric center position No. 2	22.75	
Uppermost position No. 3	26.0	
Telescoping Steering Wheel Travel		72
Test Position	22.75	36

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025



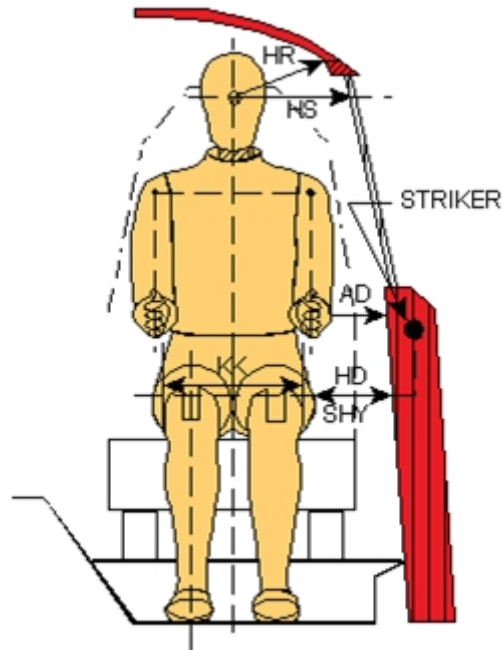
Left Side View

Code	Measurement Description	Driver (SN: 065)		Passenger (SN: 137)	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		35.2		
SWA°	Steering Wheel Angle		22.75		
SCA°	Steering Column Angle		67.25		
SA°	Seat Back Angle (on headrest post)		3.05		-2.5
HZ	Head to Roof (Z)	273	90.0	279	90.0
HH	Head to Header	484	25.2	398	35.0
HW	Head to Windshield	776	0.0	728	0.0
NR	Nose to Rim / Dash	405	11.7	495	39.3
CD	Chest to Dash	578		381	
CS	Chest to Steering Hub	350	6.7		
RA	Rim to Abdomen	232	0.0		
KDL	Left Knee to Dash	174	31.15	80	37.5
KDR	Right Knee to Dash	149	25.2	86	34.9
PA°	Pelvic Angle		24.75		21.6
TA°	Tibia Angle		54.5		52.6
SK	Striker to Knee	645	3.5	775	1.7
ST	Striker to Head	575	69.0	590	55.5
SH	Striker to H-Point	262	29.2	465	11.0

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025



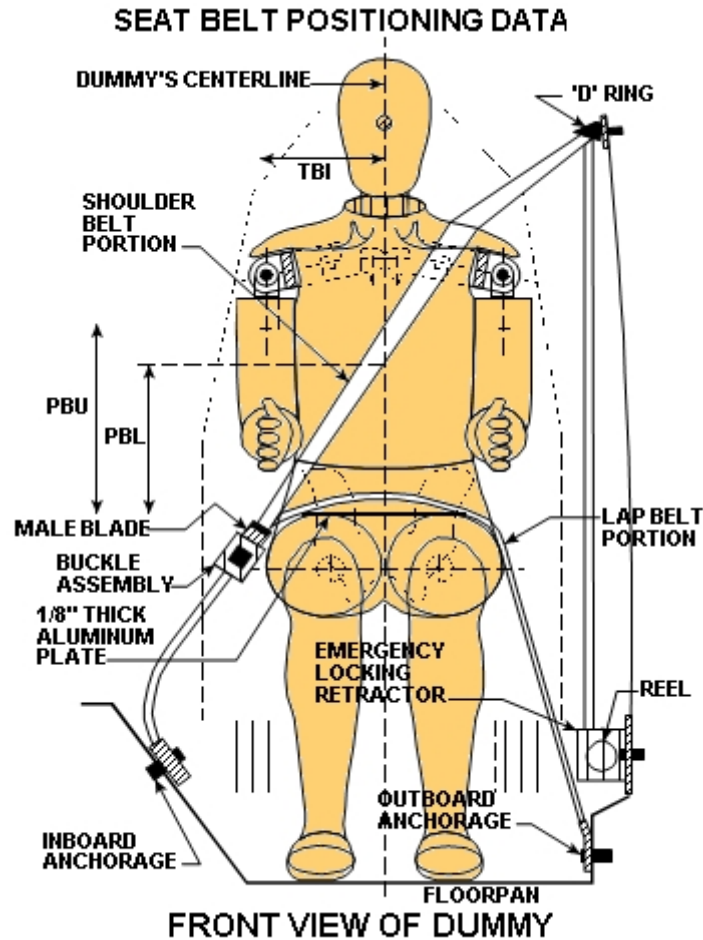
Front View

Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	110	90
HD	H-Point to Door	153	192
HR	Head to Side Header	245	285
HS	Head to Side Window	354	385
KK	Knee to Knee	280	215
SHY	Striker to H-Point (Y Direction)	266	285
AA	Ankle to Ankle	305	170

DATA SHEET NO. 5 **SEAT BELT POSITIONING DATA**

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU — Top surface of reference to belt upper edge	mm	380	295
PBL — Top surface of reference to belt lower edge	mm	290	205

BELT LENGTH DATA

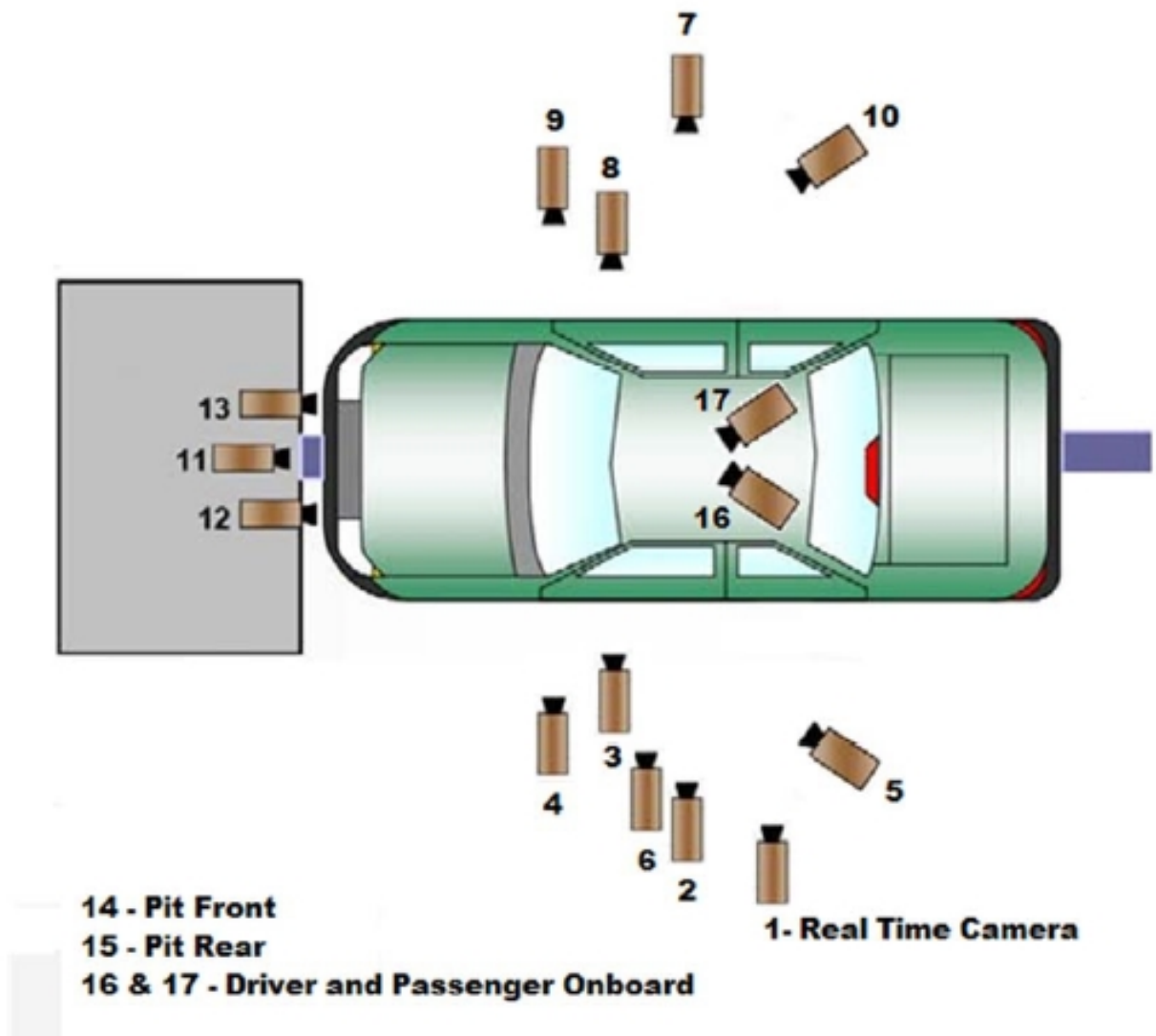
Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	850	920
Lap Belt Length as measured on ATD	mm	565	650
Remainder of belt on reel	mm	935	780
Total belt length for continuous webbing systems	mm	2350	2350

DATA SHEET NO. 6
HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
Test Date: 07/15/2025

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 ... (CONTINUED)
HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

CAMERA LOCATIONS

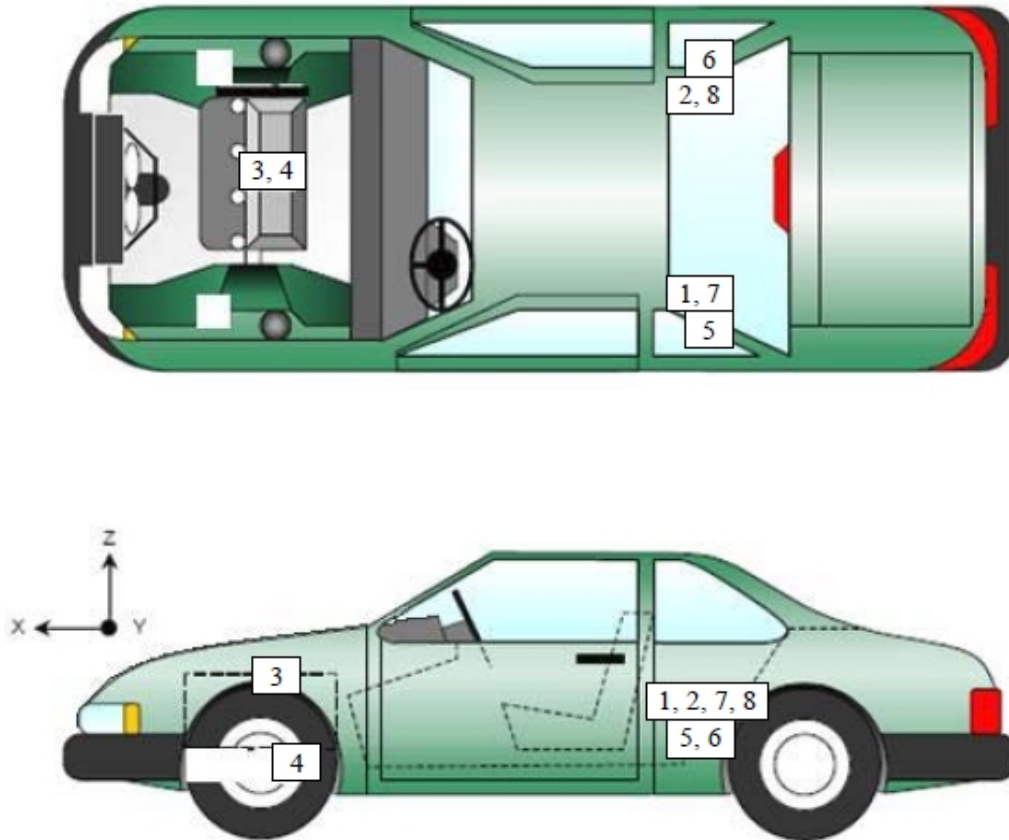
No.	Camera View	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall				Zoom	30
2	Left Overall	-1257	-7342	-1501	24	1000
3	Driver Close-Up	-1381	-6342	-1492	50	1000
4	Left Front Half	-900	-6245	-1486	28	1000
5	Left Angle	-3925	-4763	-2459	50	1000
6	Steering Column	-1425	-7241	-2350	75	1000
7	Right Overall	-1304	7032	-1520	24	1000
8	Passenger Close-Up	-1392	5958	-1493	50	1000
9	Right Front Half	-1010	6056	-1460	28	1000
10	Right Angle	-3940	4572	-2456	50	1000
11	Windshield	1168	0	-3471	12.5	1000
12	Driver Windshield	958	-458	-2204	12.5	1000
13	Passenger Windshield	958	458	-2204	12.5	1000
14	Pit Front	-833	0	2228	12.5	1000
15	Pit Rear	-3022	0	2234	12.5	1000
16	Onboard Driver Airbag (Optional)				8	1000
17	Onboard Passenger Airbag (Optional)				8	1000

* COORDINATES: +X = forward of impact plane
 +Y = right of monorail center
 +Z = into ground

DATA SHEET NO. 7 **VEHICLE ACCELEROMETER LOCATIONS**

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear Accelerometer – X Direction	2151	-438	-39
2	Right Rear Accelerometer – X Direction	2151	443	-42
3	Engine Top X	4323	34	-500
4	Engine Bottom X	4295	11	279
5	Left Rear Accelerometer – Z Direction	2151	-438	-39
6	Right Rear Accelerometer – Z Direction	2151	443	-42
7	Left Rear Accelerometer – X Direction Redundant	2145	-430	-39
8	Right Rear Accelerometer – X Direction Redundant	2150	437	-42

Reference Points: *X – Rear Surface of Vehicle (+ forward)*
 Y – Vehicle Centerline (+ to right)
 Z – Ground Plane (+ down)

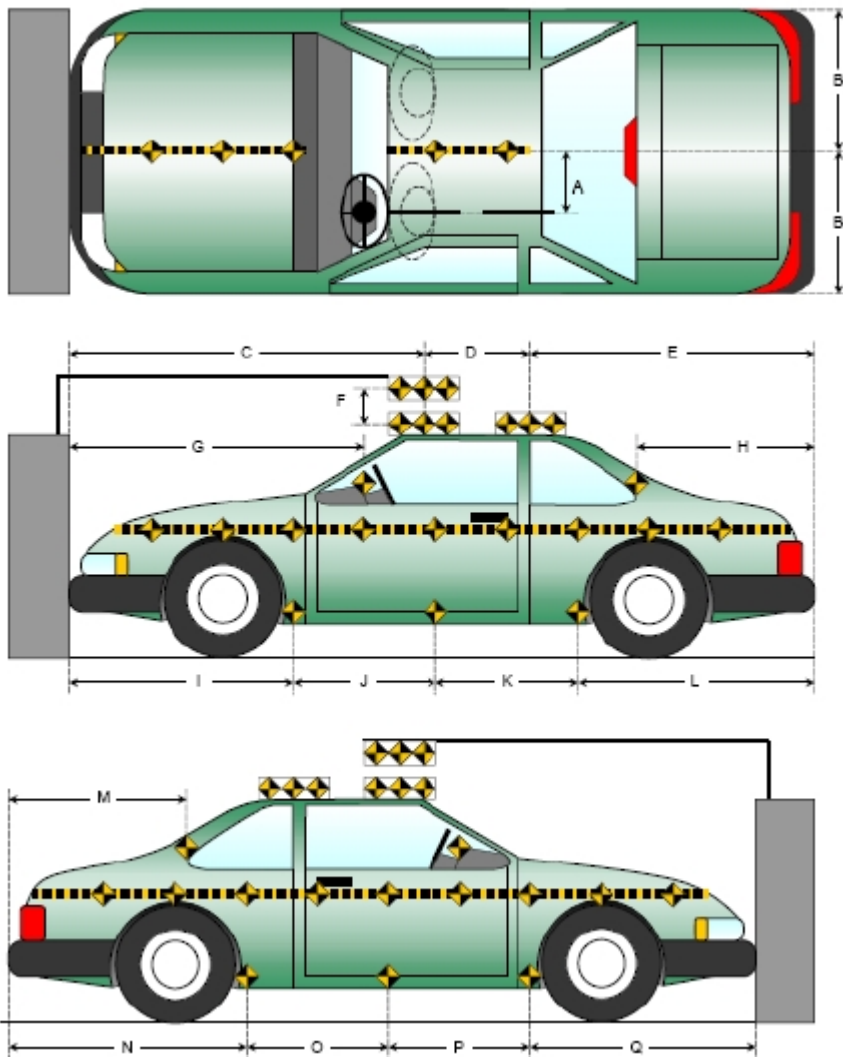
DATA SHEET NO. 8 **PHOTOGRAPHIC REFERENCE TARGET LOCATIONS**

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

Item	Value
A	456
B	1044
C	3064
D	610
E	1657
F	320
G	1937
H	1362
I	1517
J	1009
K	1013
L	1792
M	1365
N	1789
O	1011
P	1010
Q	1521

All units in millimeters



DATA SHEET NO. 9 **LOAD CELL LOCATIONS ON FIXED BARRIER**

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

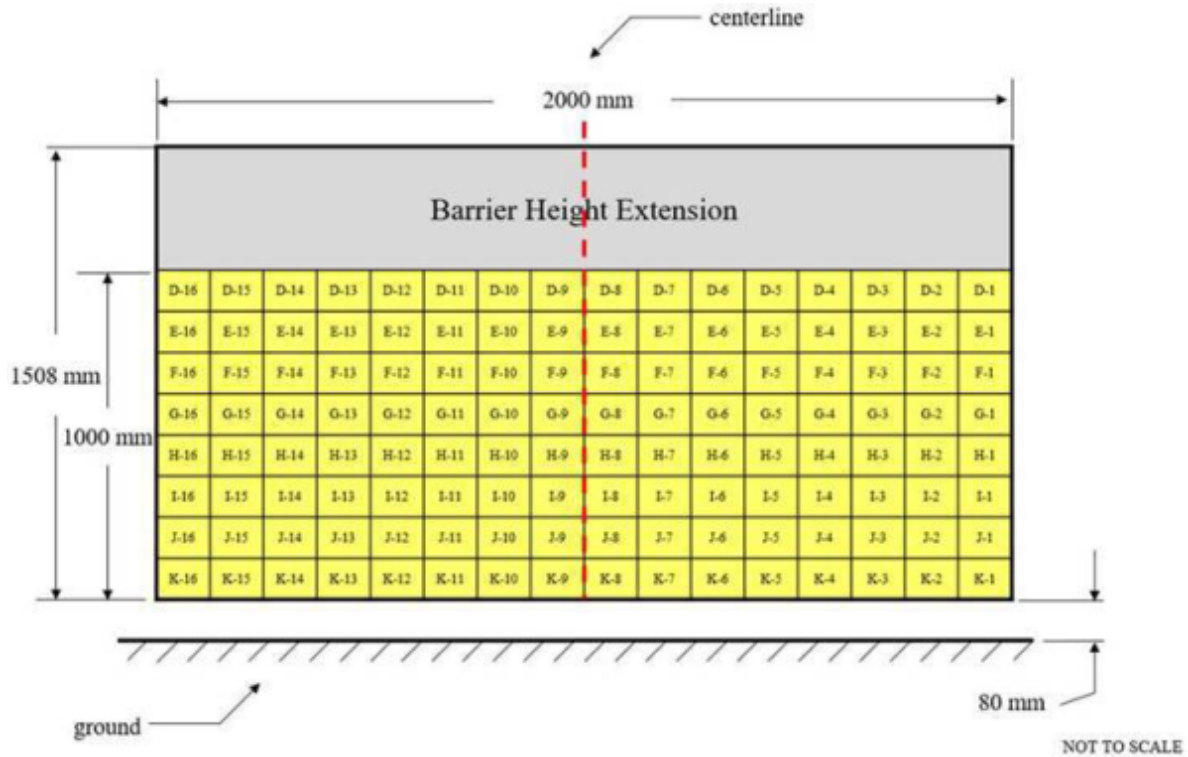


Figure 1 - Load Cell Locations on a 128-Load Cell Barrier with Plywood Height Extension*
 Please note above diagram is not actual representation of load cell barrier used.

DATA SHEET NO. 10
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
Test Date: 07/15/2025

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Accelerometers	47
Passenger Dummy Accelerometers	47
Vehicle Structure Accelerometers	8
Load Cell Barrier	0
Total	102

CAMERA COVERAGE

Type of Camera	Number Used in this Test
High-Speed Vehicle Onboard	2
High-Speed Offboard	14
Real-Time Panning	1
Total	17

**DATA SHEET NO. 11
POST-TEST OBSERVATIONS**

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
Test Date: 07/15/2025

TEST DUMMY INFORMATION AND CONTACT LOCATIONS

Description	Driver	Passenger
Dummy Type / Serial No.	Hybrid III 50th Male / 065	Hybrid III 5th Female / 137
Head Contact	Frontal Airbag & Headrest	Frontal Airbag & Headrest
Upper Torso Contact	Frontal Airbag	Frontal Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster & Steering Column Shroud	Glove Box
Right Knee Contact	Knee Bolster & Steering Column Shroud	Glove Box

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger	Other
Locked / Unlocked Doors	Unlocked	Unlocked	
Front Door Opening	Closed & Operational	Closed & Operational	
Rear Door Opening	Closed & Operational	Closed & Operational	
Trunk/Hatch/Tailgate Opening			Closed & Operational
Seat Track Shift (mm)	0	0	
Seat Back Movement from Initial Position	None	None	

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	None
Window Damage	None
Other	None

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	428
Center	mm	381
Right Side	mm	356
Average	mm	388

DATA SHEET NO. 11 ... (CONTINUED)
POST-TEST OBSERVATIONS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

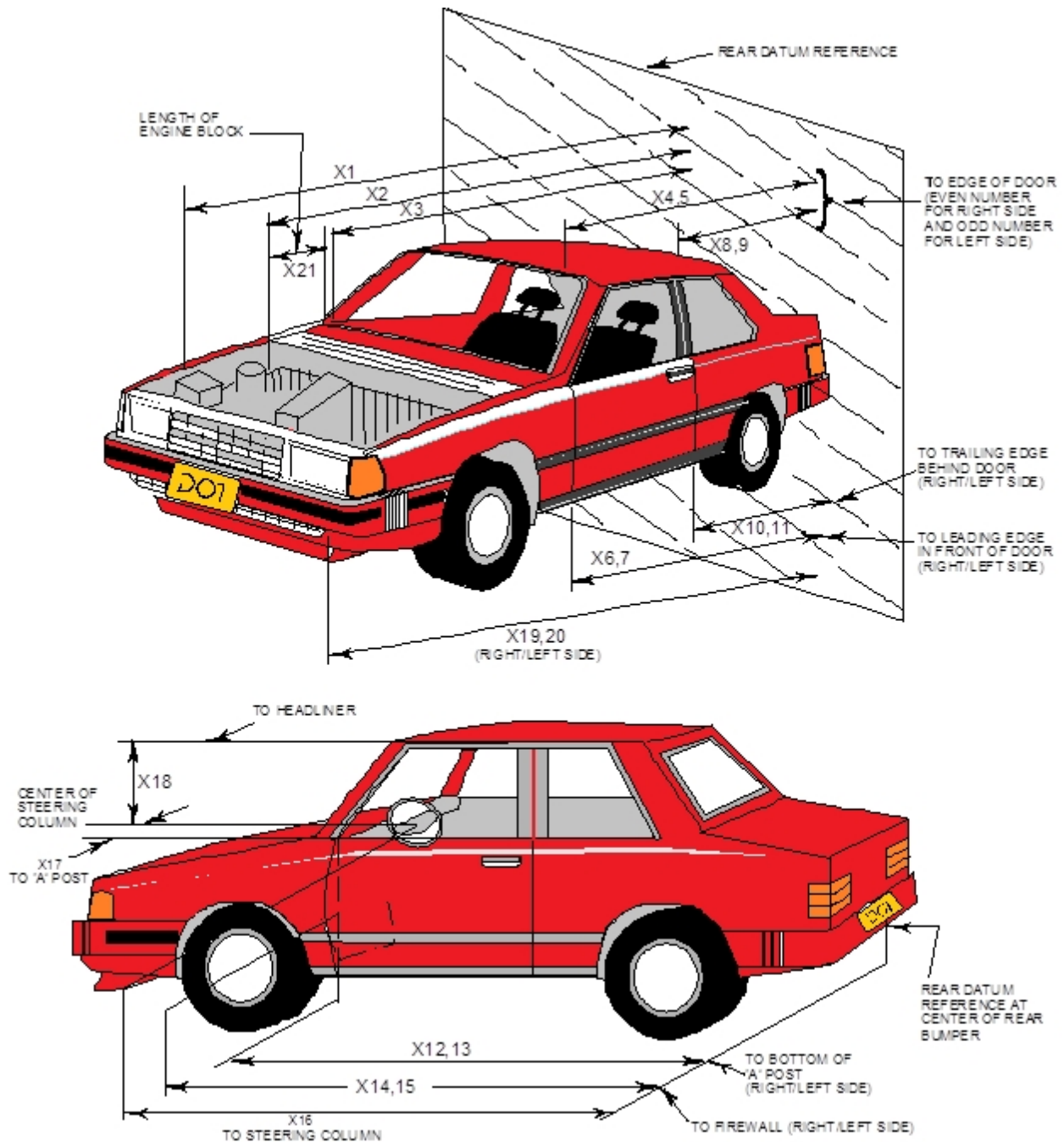
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

DATA SHEET NO. 12 **VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025



DATA SHEET NO. 12 ... (CONTINUED)
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 Ford Expedition 5 Door SUV

NHTSA No.: M20250201

Test Program: NCAP Frontal Barrier Impact Test

Test Date: 07/15/2025

No.	Measurement Description	Pre-Test	Post-Test	Change
1	Total Length of Vehicle at Centerline	5331	4851	-480
2	Rear Surface of Vehicle (RSOV) to Front of Engine	4422	4328	-94
3	RSOV to Firewall	4181	4191	10
4	RSOV to Upper Leading Edge of Right Door	3736	3736	0
5	RSOV to Upper Leading Edge of Left Door	3738	3737	-1
6	RSOV to Lower Leading Edge of Right Door	3679	3681	2
7	RSOV to Lower Leading Edge of Left Door	3685	3685	0
8	RSOV to Upper Trailing Edge of Right Door	2552	2551	-1
9	RSOV to Upper Trailing Edge of Left Door	2552	2552	0
10	RSOV to Lower Trailing Edge of Right Door	2519	2521	2
11	RSOV to Lower Trailing Edge of Left Door	2522	2524	2
12	RSOV to Bottom of "A" Post of Right Side	3825	3827	2
13	RSOV to Bottom of "A" Post of Left Side	3825	3824	-1
14	RSOV to Firewall, Right Side	4159	4153	-6
15	RSOV to Firewall, Left Side	4172	4173	1
16	RSOV to Steering Column	3219	3243	24
17	Center of Steering Column to "A" Post	280	281	1
18	Center of Steering Column to Headliner	442	447	5
19	RSOV to Right Side of Front Bumper	5297	4827	-470
20	RSOV to Left Side of Front Bumper	5297	4817	-480
21	Length of Engine Block	372	372	0
RD	RSOV to Right Side of Dash Panel	3371	3374	3
CD	RSOV to Center of Dash Panel	3391	3396	5
LD	RSOV to Left Side of Dash Panel	3376	3377	1

All Dimensions in mm

DATA SHEET NO. 13 **ACCIDENT INVESTIGATION DIVISION DATA**

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

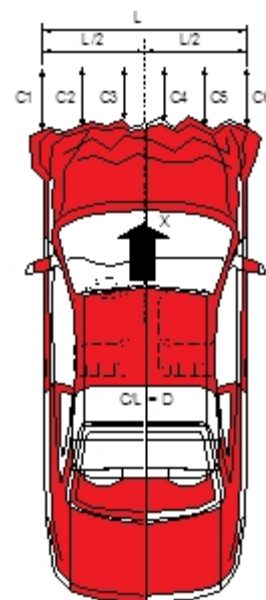
NHTSA No.: M20250201
 Test Date: 07/15/2025

VEHICLE INFORMATION

VIN: 1FMJU1J8XSEA25587 Wheelbase (mm): 3114
 Vehicle Size Category: MPV Test Weight (kg): 2757

ACCELEROMETER DATA

Accelerometer Locations: Please See Data Sheet No. 7
 Cal. Procedure / Interval: Calspan Procedure / 6 month
 Integration Algorithm: Trapezoidal
 Linearity: > 99%
 Impact Velocity (km/h): 56.35
 Velocity Change (km/h): 66.25
 Time of Separation (ms): 133



CRUSH PROFILE

Collision Deformation Classification: 12FDEW2
 Midpoint of Damage: C3
 Damage Region Length (mm): 1691
 Impact Mode: Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Crush
C1	Crush Zone 1 at Left Side	mm	5155	4815	340
C2	Crush Zone 2 at Left Side	mm	5301	4829	472
C3	Crush Zone 3 at Left Side	mm	5328	4849	479
C4	Crush Zone 4 at Right Side	mm	5328	4850	478
C5	Crush Zone 5 at Right Side	mm	5300	4831	469
C6	Crush Zone 6 at Right Side	mm	5152	4786	366
L	C1 to C6	mm	1607	1691	-84

DATA SHEET NO. 14
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Frontal Barrier Impact Test

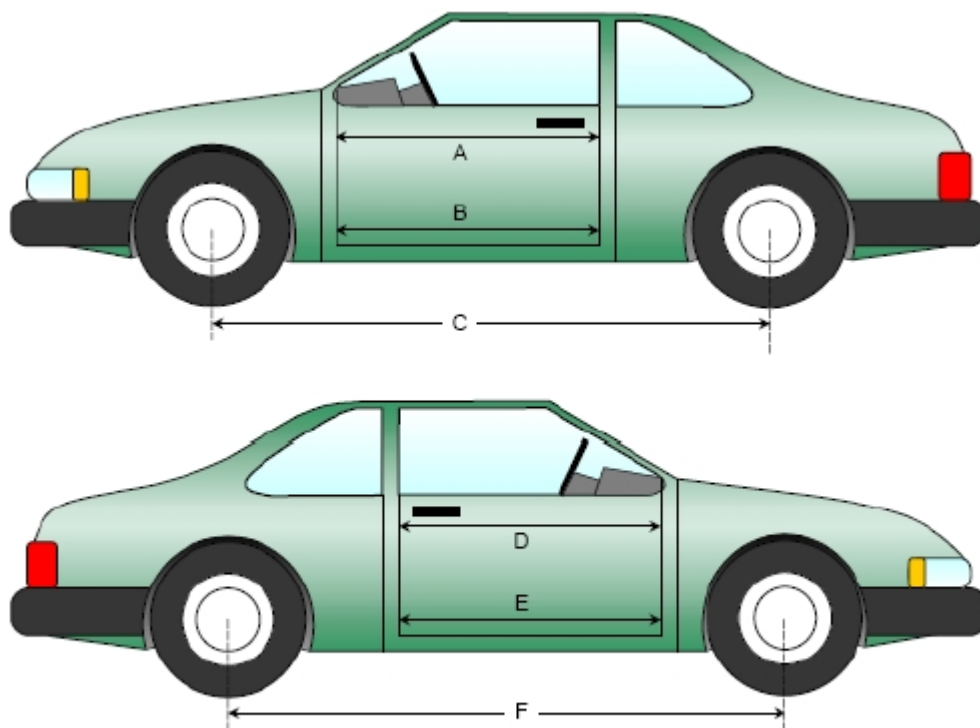
NHTSA No.: M20250201
Test Date: 07/15/2025

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Change
A	Left Side Upper	mm	1053	1054	1
B	Left Side Lower	mm	913	914	1
D	Right Side Upper	mm	1054	1054	0
E	Right Side Lower	mm	912	913	1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Change
C	Left Side Wheelbase	mm	3114	3011	-103
F	Right Side Wheelbase	mm	3114	3050	-64



Left & Right Side Views

DATA SHEET NO.14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

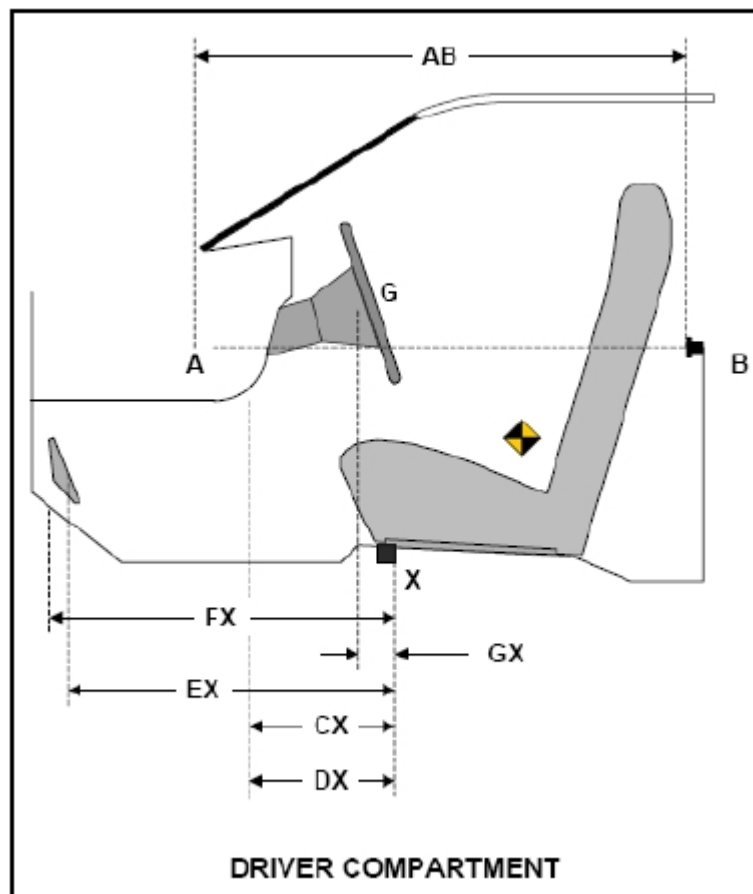
Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Change
AB	Door Opening (Inside Window Jam)	mm	831	830	-1
CX	Left Knee Bolster to X	mm	323	327	4
DX	Right Knee Bolster to X	mm	313	316	3
EX	Brake Pedal to X	mm	546	549	3
FX	Foot Rest to X	mm	597	602	5
GX	Center of Steering Column Wheel Hub to X	mm	68	94	26

X = Front of Seat Track (Stationary)



DATA SHEET NO. 15
SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025

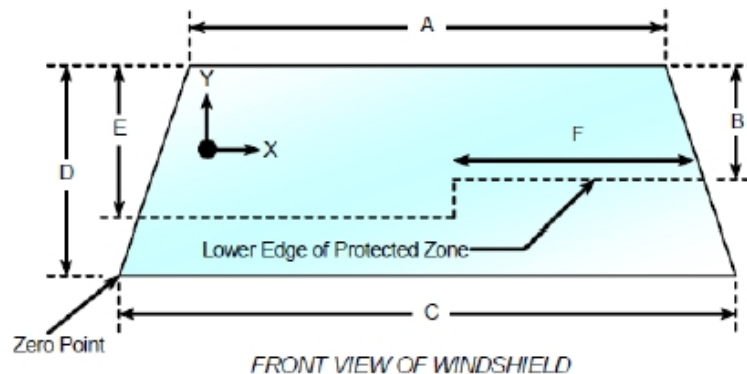
Windshield Mounting Details: A trim surrounds the top and side of windshield while a plastic shroud is on the bottom.

The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurement for vehicles not equipped with occupant passive restraints and 50% for each side of the windshield for vehicles which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.9 °C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2377.5	2377.5	100%
Right Side	2377.5	2377.5	100%
Total	4755	4755	100%



Item	Units	Value
A	mm	1455
B	mm	474
C	mm	1760
D	mm	770
E	mm	565
F	mm	540

AREAS OF PROTECTED ZONE FAILURES

- A. Provide coordinates of the area that the protected zone was penetrated more than .25 inches by a vehicle component other than one that is normally in contact with the windshield.
- No Penetration
- B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component.
- No Penetration

X	Y
X	Y

DATA SHEET NO. 15 ... (CONTINUED)
SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
Test Date: 07/15/2025

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21.9°C

Test Time: 12:27 PM

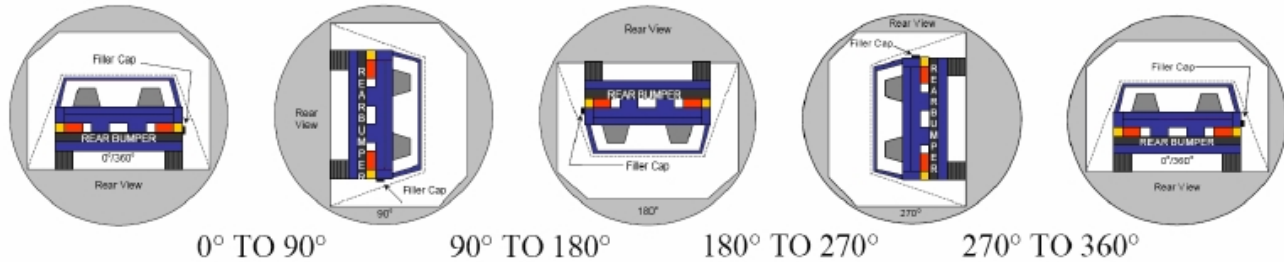
STODDARD SOLVENT SPILLAGE MEASUREMENTS

- A. From impact until vehicle motion ceases 0 oz
(Maximum allowable is 1 oz.)
- B. For the 5-minute period after motion ceases 0 oz
(Maximum allowable is 5 oz.)
- C. For the following 25 minutes: 0 oz
(Maximum allowable is 1 oz.)
- D. Spillage: No Spillage Occurred

DATA SHEET NO. 16
FMVSS 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2025 Ford Expedition 5 Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
 Test Date: 07/15/2025



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent Spillage: No Spillage Occurred

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	69	300	369
90° to 180°	64	300	364
180° to 270°	65	300	365
270° to 360°	66	300	366

FMVSS 301 SPILLAGE TABLE

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

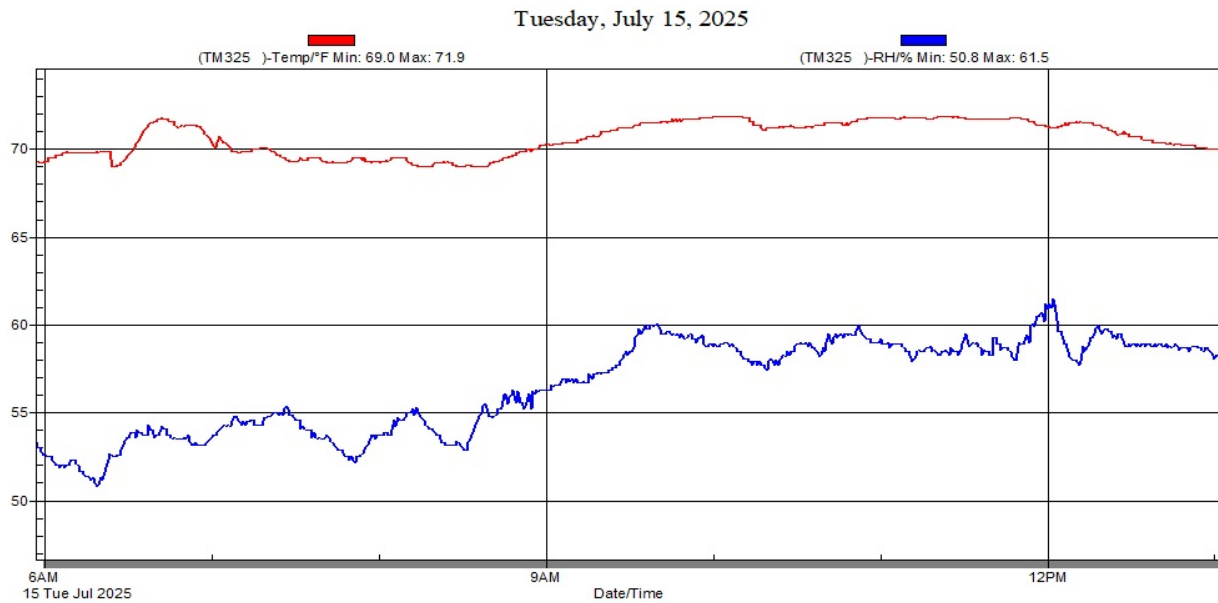
SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 17
DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2025 Ford Expedition 5 Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20250201
Test Date: 07/15/2025



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

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Fig.	Description	Page
1	Load Cell Location	A-5
2	Pre-Test Load Cell Wall	A-5
3	Post-Test Load Cell Wall	A-6
4	Manufacturer's Label	A-6
5	Tire Placard	A-7
6	2025 Ford Expedition Frontal As Delivered	A-7
7	Left Rear 3-4 View, as Received	A-8
8	Pre-Test Front View of Test Vehicle	A-8
9	Post-Test Front View of Test Vehicle	A-9
10	Pre-Test Left View of Test Vehicle	A-9
11	Post-Test Left View of Test Vehicle	A-10
12	Pre-Test Right View of Test Vehicle	A-10
13	Post-Test Right View of Test Vehicle	A-11
14	Pre-Test Right Front 3-4 View	A-11
15	Post-Test Right Front 3-4 View	A-12
16	Pre-Test Left Rear 3-4 View	A-12
17	Post-Test Left Rear 3-4 View	A-13
18	Pre-Test Windshield View	A-13
19	Post-Test Windshield View	A-14
20	Pre-Test Engine Compartment View	A-14
21	Post-Test Engine Compartment View	A-15
22	Pre-Test Fuel Filler Cap View	A-15
23	Post-Test Fuel Filler Cap View	A-16
24	Pre-Test Front Underbody View ¹	A-16
25	Post-Test Front Underbody View ¹	A-17
26	Pre-Test Rear Underbody View ¹	A-17
27	Post-Test Rear Underbody View ¹	A-18
28	Pre-Test Dummy Cable Routing	A-18
29	Post-Test Dummy Cable Routing	A-19
30	Pre-Test Driver Dummy Front View	A-19
31	Post-Test Driver Dummy Front View	A-20
32	Pre-Test Driver Dummy Window View	A-20
33	Post-Test Driver Dummy Window View	A-21
34	Pre-Test Driver Dummy and Vehicle Interior View	A-21
35	Post-Test Driver Dummy and Vehicle Interior View	A-22

Fig.	Description	Page
36	Pre-Test Driver's Seat Fore-Aft Markings	A-22
37	Post-Test Driver's Seat Fore-Aft Markings	A-23
38	Pre-Test View of Belt Anchorage for Driver Dummy	A-23
39	Post-Test View of Belt Anchorage for Driver Dummy	A-24
40	Pre-Test View of Belt Buckle and Latch Plate for Driver Dummy	A-24
41	Post-Test View of Belt Buckle and Latch Plate for Driver Dummy	A-25
42	Pre-Test Driver Dummy Feet	A-25
43	Post-Test Driver Dummy Feet	A-26
44	Pre-Test Driver's Side Knee Bolster	A-26
45	Post-Test Driver's Side Knee Bolster	A-27
46	Pre-Test Driver's Side Floorpan	A-27
47	Post-Test Driver's Side Floorpan	A-28
48	Post-Test Driver Dummy Face	A-28
49	Post-Test Driver Dummy Contact With Airbag	A-29
50	Post-Test Driver Dummy Contact With Headrest	A-29
51	Pre-Test View of the Steering Wheel	A-30
52	Post-Test View of the Steering Wheel	A-30
53	Pre-Test Passenger Dummy Front View	A-31
54	Post-Test Passenger Dummy Front View	A-31
55	Pre-Test Passenger Dummy Window View	A-32
56	Post-Test Passenger Dummy Window View	A-32
57	Pre-Test Passenger Dummy and Vehicle Interior View	A-33
58	Post-Test Passenger Dummy and Vehicle Interior View	A-33
59	Pre-Test Passenger's Seat Fore-Aft Markings	A-34
60	Post-Test Passenger's Seat Fore-Aft Markings	A-34
61	Pre-Test View of Belt Anchorage for Passenger Dummy	A-35
62	Post-Test View of Belt Anchorage for Passenger Dummy	A-35
63	Pre-Test View of Belt Buckle and Latch Plate for Passenger Dummy	A-36
64	Post-Test View of Belt Buckle and Latch Plate for Passenger Dummy	A-36
65	Pre-Test Passenger Dummy Feet	A-37
66	Post-Test Passenger Dummy Feet	A-37
67	Pre-Test Passenger's Side Knee Bolster	A-38
68	Post-Test Passenger's Side Knee Bolster	A-38
69	Pre-Test Passenger's Side Floorpan	A-39
70	Post-Test Passenger's Side Floorpan	A-39
71	Post-Test Passenger Dummy Face	A-40

Fig.	Description	Page
72	Post-Test Passenger Dummy Contact With Airbag	A-40
73	Post-Test Passenger Dummy Contact With Headrest	A-41
74	Photograph of Ballast Installed in Vehicle	A-41
75	Post-Test Stoddard Solvent Spillage Location View, if Required	A-42
76	Post-Test Speed Trap Read-Out	A-42
77	Vehicle at 0° on Static Rollover Device	A-43
78	Vehicle at 90° on Static Rollover Device	A-43
79	Vehicle at 180° on Static Rollover Device	A-44
80	Vehicle at 270° on Static Rollover Device	A-44
81	Vehicle at 360° on Static Rollover Device	A-45
82	2025 Ford Expedition Frontal Impact Event	A-45
83	Monroney Label Photograph	A-46

¹NOTE: *The underbody views should include the following vehicle components: fuel pump, fuel lines, sender unit, fuel tank filler pipe and any other visible system components.*

Photo Not Applicable

Figure A-1: Load Cell Location



Figure A-2: Pre-Test Load Cell Wall



Figure A-3: Post-Test Load Cell Wall



Figure A-4: Manufacturer's Label

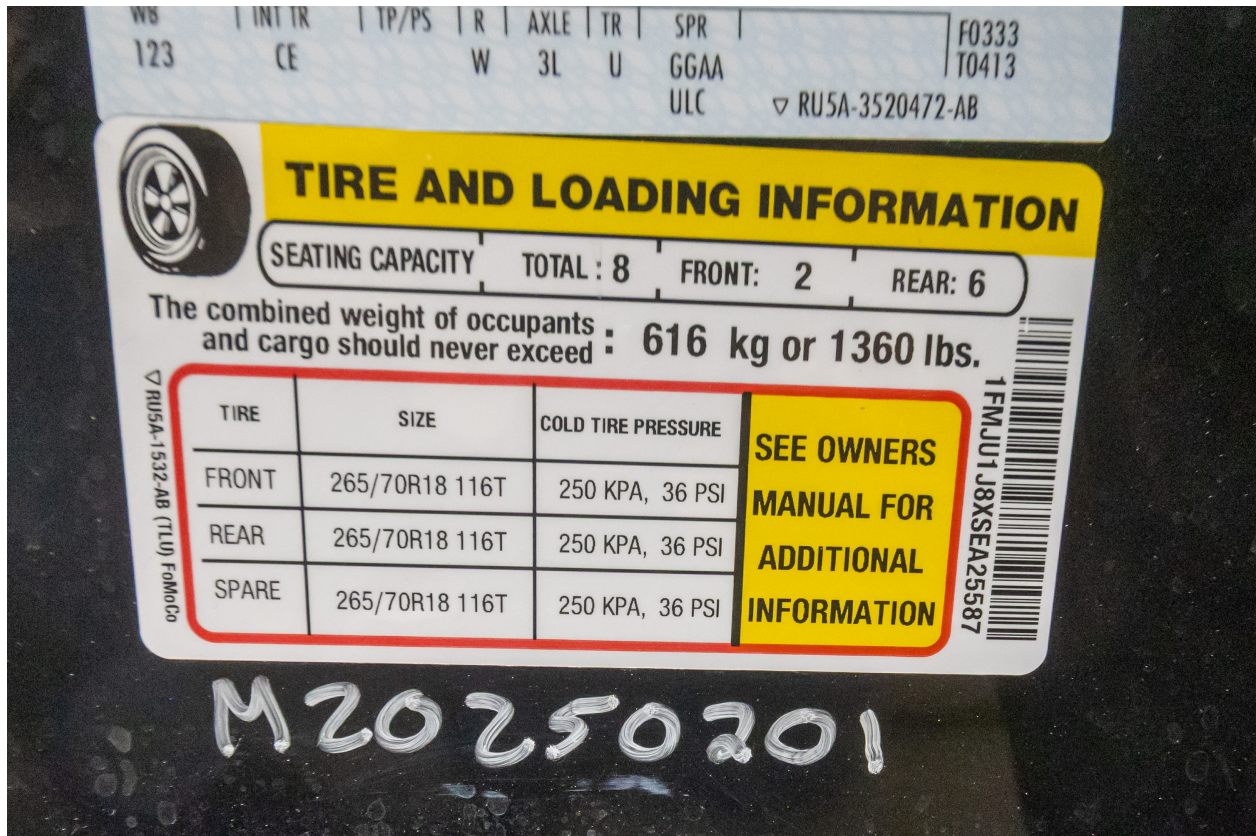


Figure A-5: Tire Placard



Figure A-6: 2025 Ford Expedition Frontal As Delivered



Figure A-7: Left Rear 3-4 View, As Received



Figure A-8: Pre-Test Front View of Test Vehicle



Figure A-9: Post-Test Front View of Test Vehicle



Figure A-10: Pre-Test Left View of Test Vehicle



Figure A-11: Post-Test Left View of Test Vehicle



Figure A-12: Pre-Test Right View of Test Vehicle



Figure A-13: Post-Test Right View of Test Vehicle



Figure A-14: Pre-Test Right Front 3-4 View



Figure A-15: Post-Test Right Front 3-4 View



Figure A-16: Pre-Test Left Rear 3-4 View



Figure A-17: Post-Test Left Rear 3-4 View



Figure A-18: Pre-Test Windshield View



Figure A-19: Post-Test Windshield View



Figure A-20: Pre-Test Engine Compartment View



Figure A-21: Post-Test Engine Compartment View



Figure A-22: Pre-Test Fuel Filler Cap View



Figure A-23: Post-Test Fuel Filler Cap View

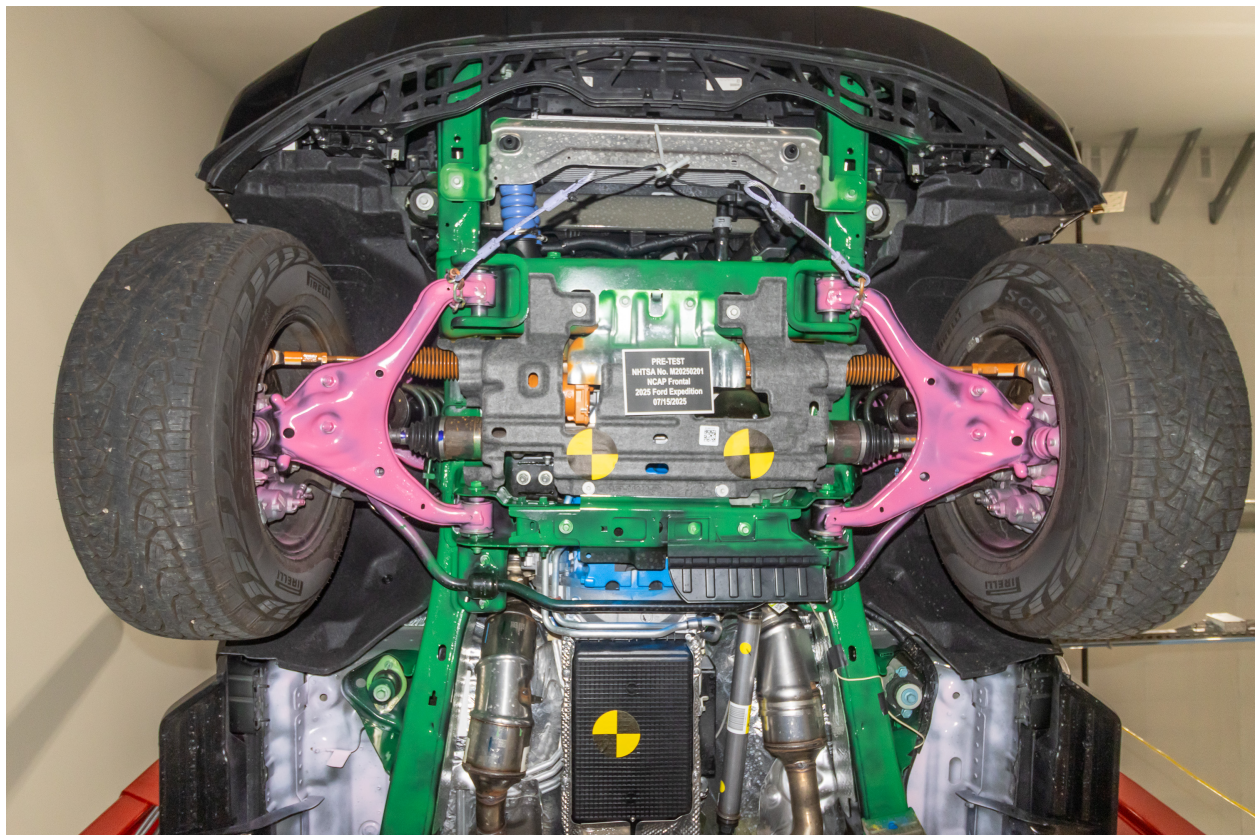


Figure A-24: Pre-Test Front Underbody View

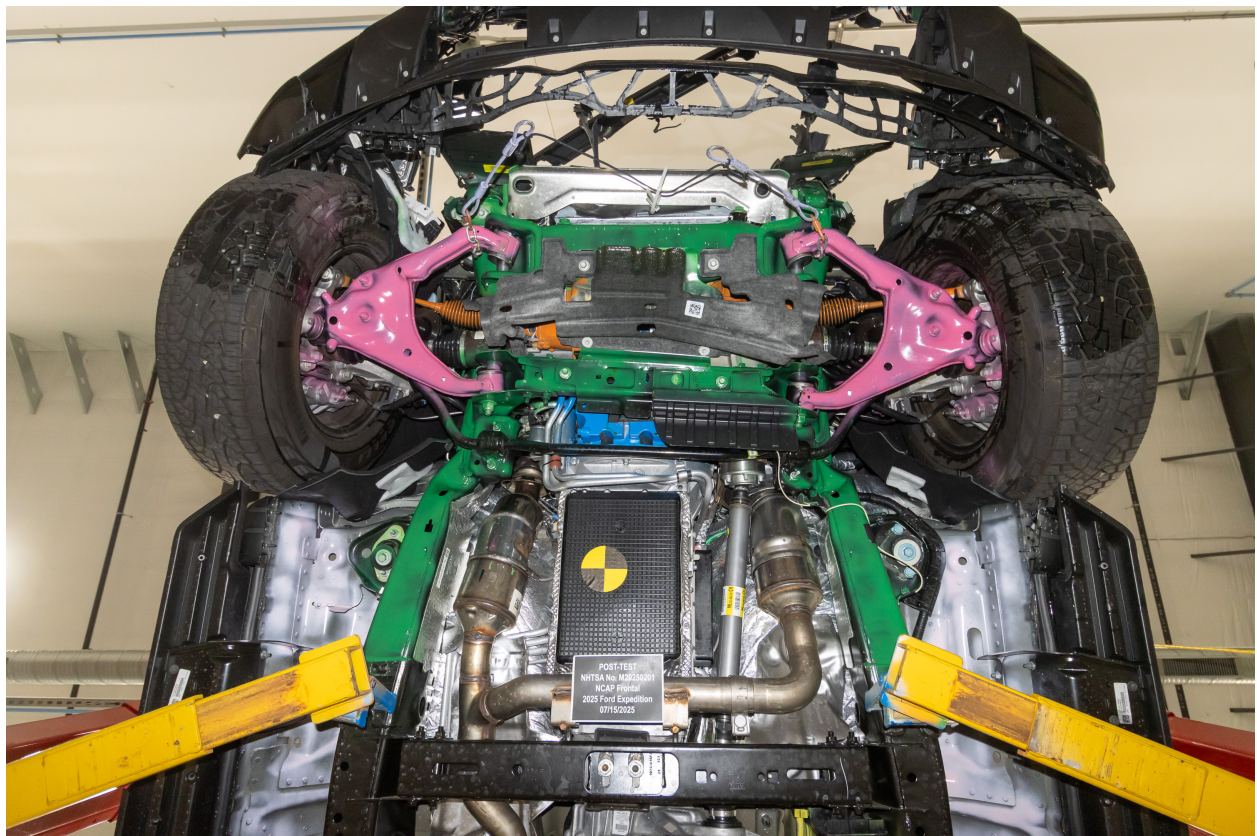


Figure A-25: Post-Test Front Underbody View



Figure A-26: Pre-Test Rear Underbody View

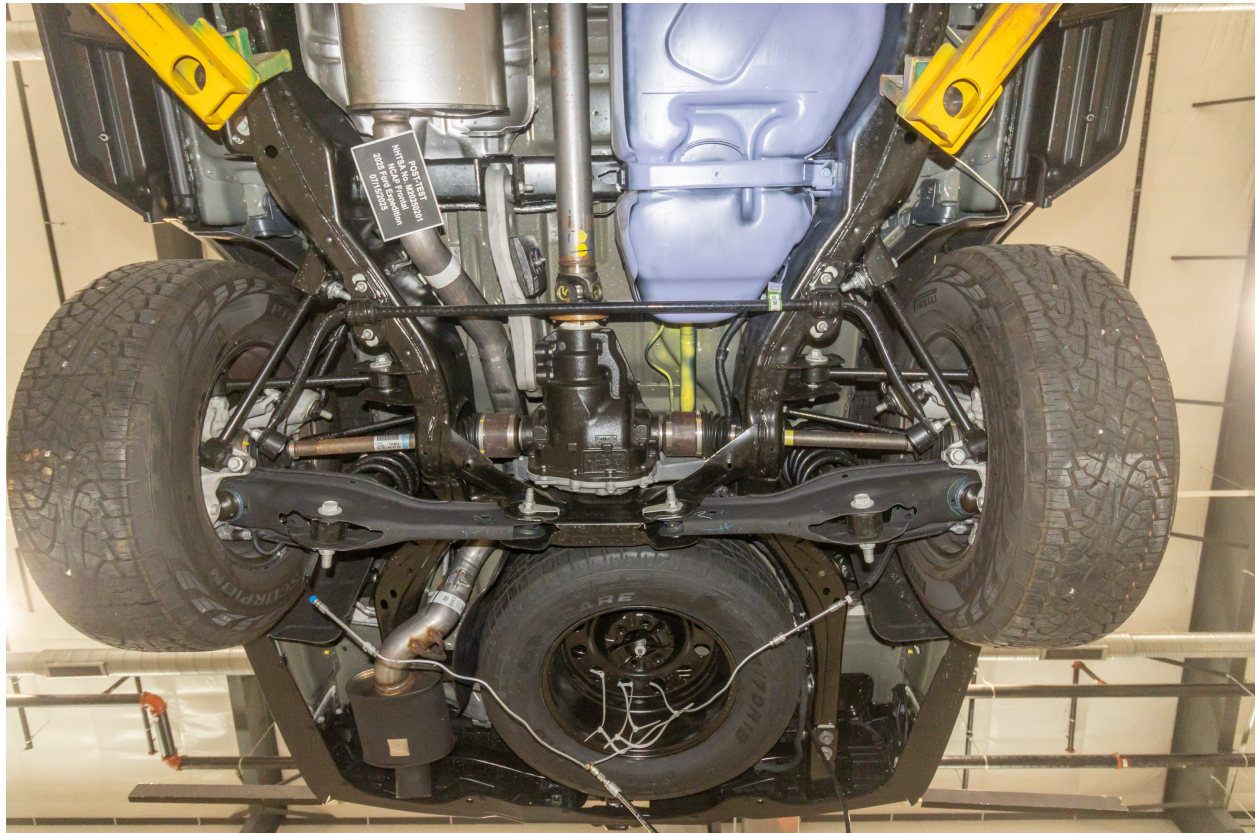


Figure A-27: Post-Test Rear Underbody View



Figure A-28: Pre-Test Dummy Cable Routing



Figure A-29: Post-Test Dummy Cable Routing



Figure A-30: Pre-Test Driver Dummy Front View



Figure A-31: Post-Test Driver Dummy Front View



Figure A-32: Pre-Test Driver Dummy Window View



Figure A-33: Post-Test Driver Dummy Window View



Figure A-34: Pre-Test Driver Dummy and Vehicle Interior View



Figure A-35: Post-Test Driver Dummy and Vehicle Interior View



Figure A-36: Pre-Test Driver's Seat Fore-Aft Markings



Figure A-37: Post-Test Driver's Seat Fore-Aft Markings



Figure A-38: Pre-Test View of Belt Anchorage for Driver Dummy



Figure A-39: Post-Test View of Belt Anchorage for Driver Dummy



Figure A-40: Pre-Test View of Belt Buckle and Latch Plate for Driver Dummy



Figure A-41: Post-Test View of Belt Buckle and Latch Plate for Driver Dummy



Figure A-42: Pre-Test Driver Dummy Feet



Figure A-43: Post-Test Driver Dummy Feet



Figure A-44: Pre-Test Driver's Side Knee Bolster



Figure A-45: Post-Test Driver's Side Knee Bolster



Figure A-46: Pre-Test Driver's Side Floorpan



Figure A-47: Post-Test Driver's Side Floorpan



Figure A-48: Post-Test Driver Dummy Face



Figure A-49: Post-Test Driver Dummy Contact With Airbag



Figure A-50: Post-Test Driver Dummy Contact With Headrest



Figure A-51: Pre-Test View of the Steering Wheel



Figure A-52: Post-Test View of the Steering Wheel

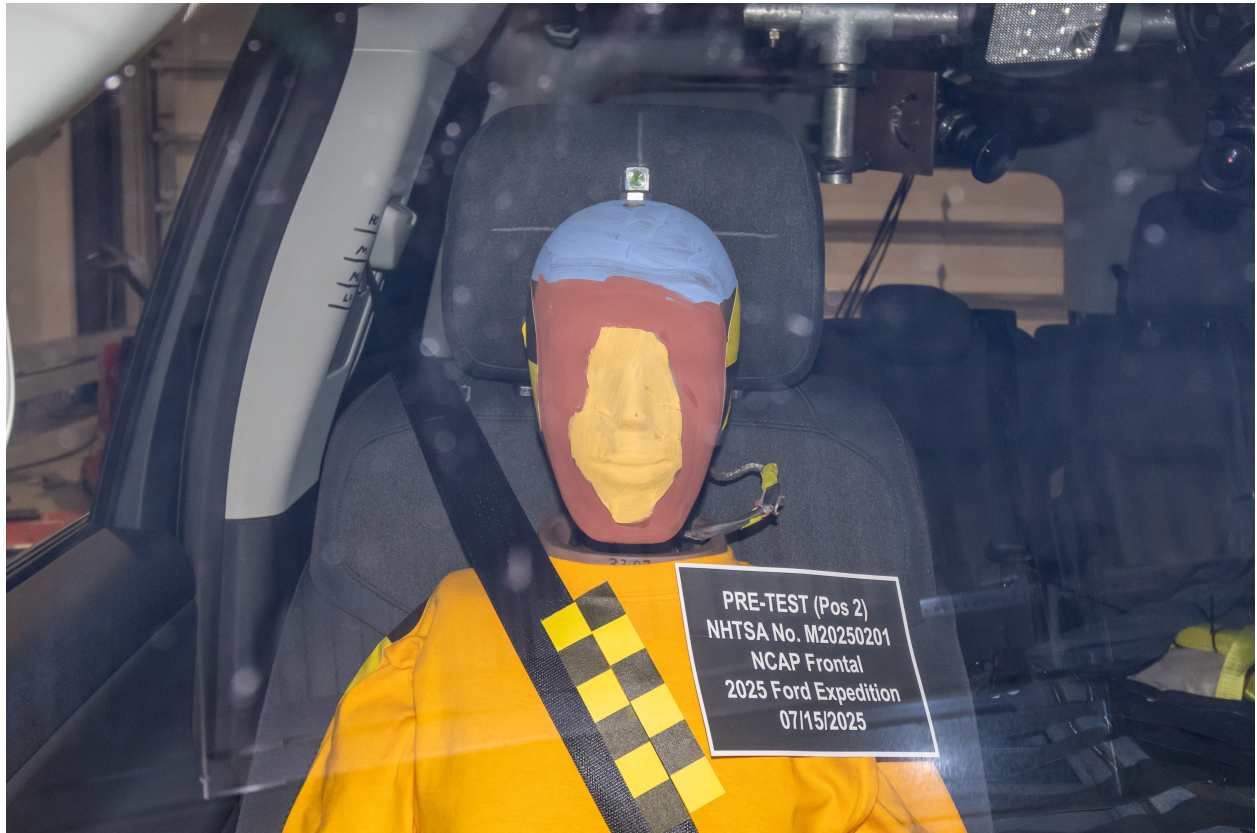


Figure A-53: Pre-Test Passenger Dummy Front View



Figure A-54: Post-Test Passenger Dummy Front View



Figure A-55: Pre-Test Passenger Dummy Window View



Figure A-56: Post-Test Passenger Dummy Window View



Figure A-57: Pre-Test Passenger Dummy and Vehicle Interior View



Figure A-58: Post-Test Passenger Dummy and Vehicle Interior View

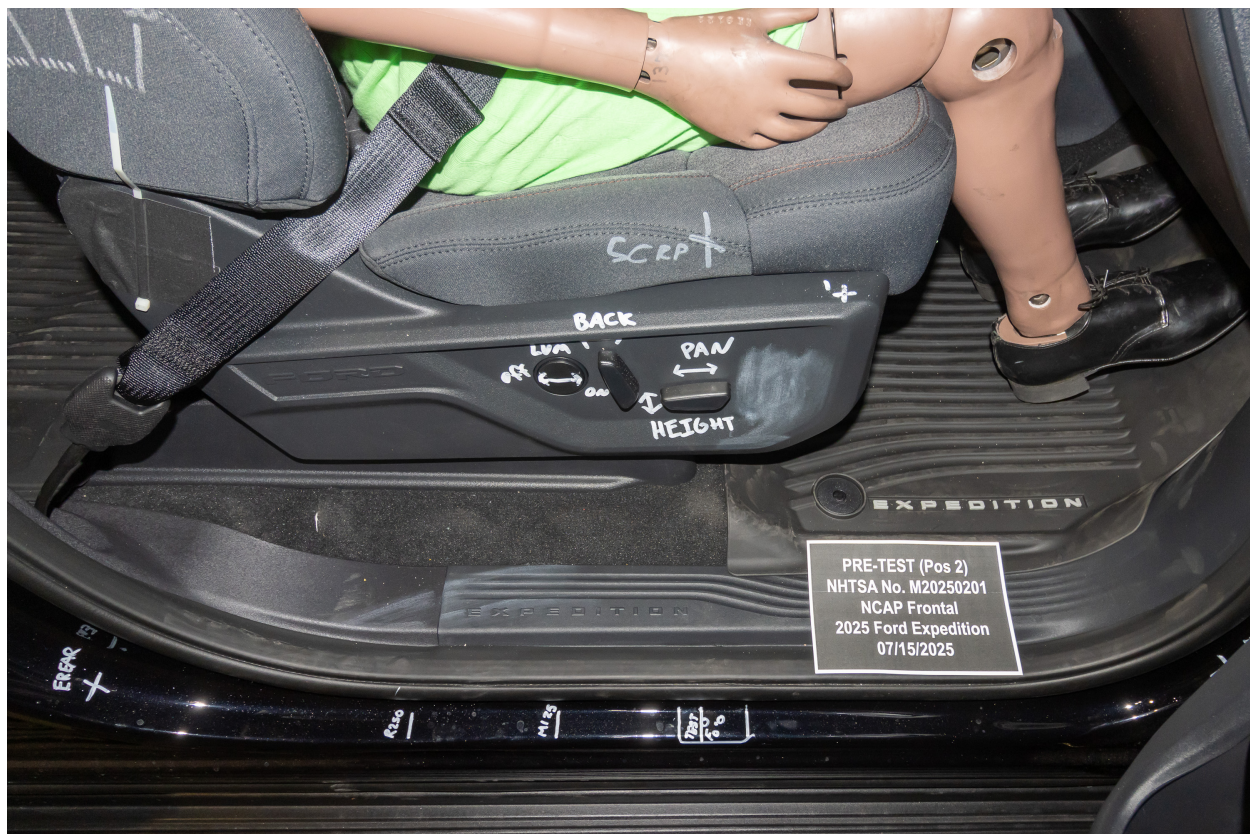


Figure A-59: Pre-Test Passenger's Seat Fore-Aft Markings



Figure A-60: Post-Test Passenger's Seat Fore-Aft Markings



Figure A-61: Pre-Test View of Belt Anchorage for Passenger Dummy



Figure A-62: Post-Test View of Belt Anchorage for Passenger Dummy



Figure A-63: Pre-Test View of Belt Buckle and Latch Plate for Passenger Dummy

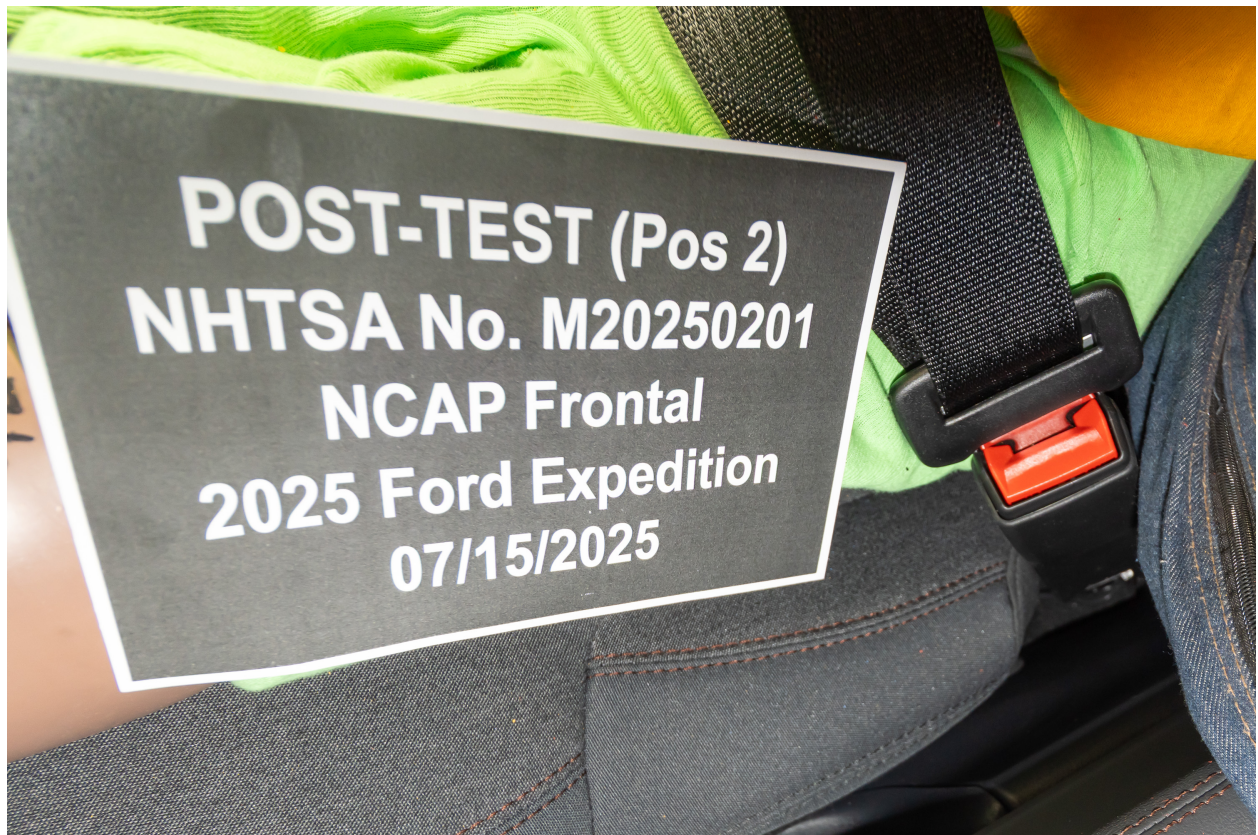


Figure A-64: Post-Test View of Belt Buckle and Latch Plate for Passenger Dummy



Figure A-65: Pre-Test Passenger Dummy Feet



Figure A-66: Post-Test Passenger Dummy Feet



Figure A-67: Pre-Test Passenger's Side Knee Bolster



Figure A-68: Post-Test Passenger's Side Knee Bolster



Figure A-69: Pre-Test Passenger's Side Floorpan



Figure A-70: Post-Test Passenger's Side Floorpan



Figure A-71: Post-Test Passenger Dummy Face



Figure A-72: Post-Test Passenger Dummy Contact With Airbag



Figure A-73: Post-Test Passenger Dummy Contact With Headrest

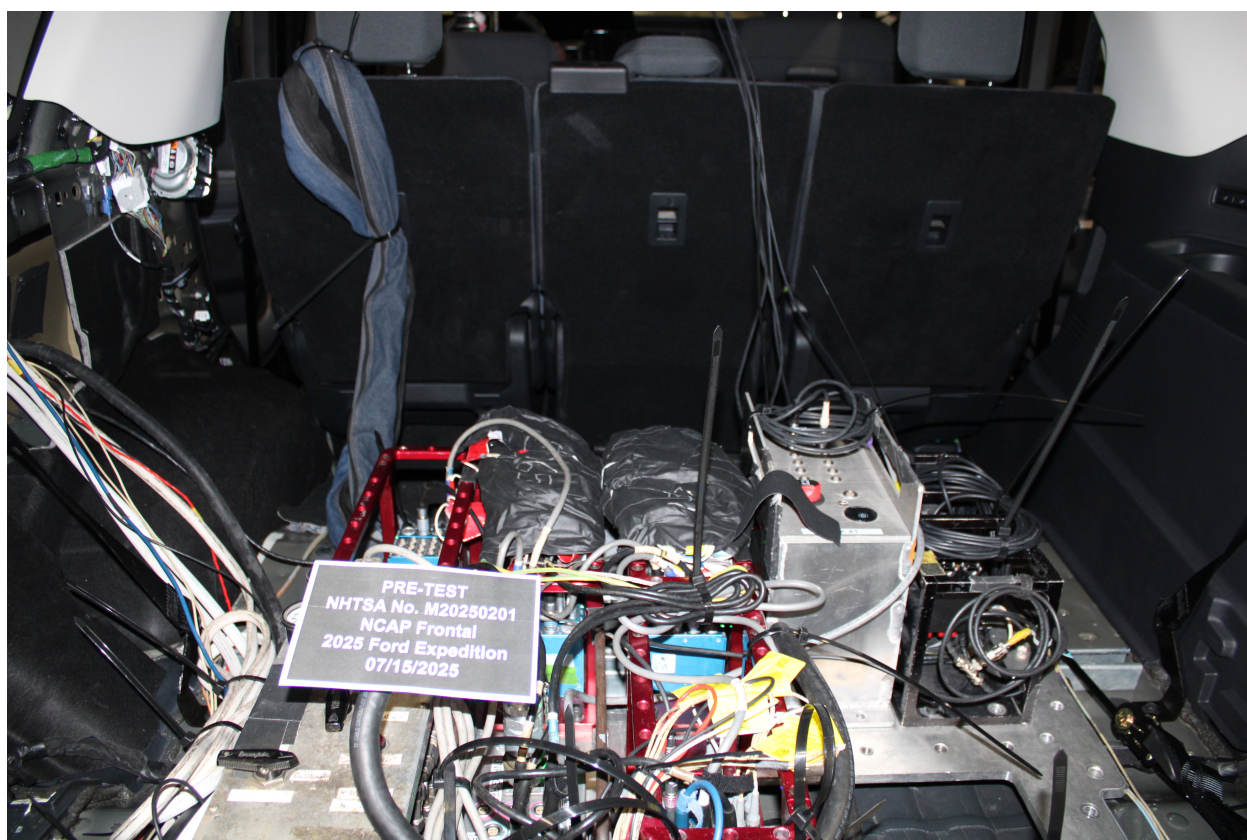


Figure A-74: Photograph of Ballast Installed in Vehicle

Photo Not Applicable

Figure A-75: Post-Test Stoddard Solvent Spillage Location View, If Required



Figure A-76: Post-Test Speed Trap Read-Out



Figure A-77: Vehicle at 0° on Static Rollover Device



Figure A-78: Vehicle at 90° on Static Rollover Device



Figure A-79: Vehicle at 180° on Static Rollover Device

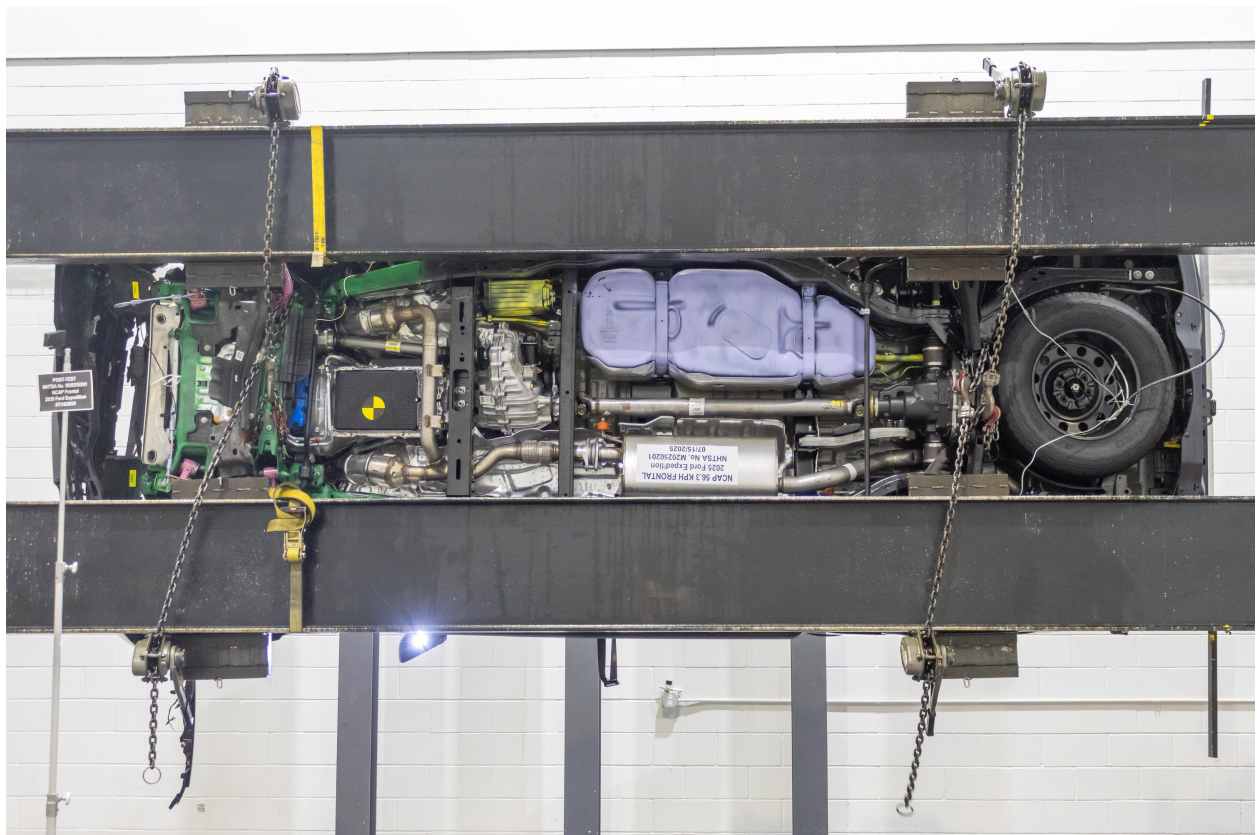


Figure A-80: Vehicle at 270° on Static Rollover Device



Figure A-81: Vehicle at 360° on Static Rollover Device



Figure A-82: 2025 Ford Expedition Frontal Impact Event

ford.com

VEHICLE DESCRIPTION

EXPEDITION

2025 EXPD ACTIVE 4X4
ACTIVE 6-PASSENGER
3.5L ECOBOOST V6 ENGINE
10SPD AUTO TRANS W/SLTSHFT

EXTERIOR
AGATE BLACK METALLIC
INTERIOR
DARK GRAY CLOTH CAPT CHAIR

SE A25587

STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE

EXTERIOR

- DOOR HANDLES - BODY COLOR
- EASY FUELS CARLESS FILLER
- FORD SPLIT GATE
- HEADLAMPS-LED REFLECTOR
- HEAVY DUTY TRAILER TOW
- PRIVACY GLASS - REAR DOORS
- REAR INT WIPER/WASH/DFRST
- ROOF-RACK SIDE RAILS-BLACK
- RUNNING BOARDS - FIXED
- TAIL LAMPS - LED
- TRAILER SWAY CONTROL

INTERIOR

- 1 TOUCH UP/DOWN DR/PASS WIN
- 2ND ROW 40/20/40 FOLD-FLAT
- AUTO-DM REARVIEW MIRROR
- CARGO MANAGEMENT SYSTEM
- CENTER CONSOLE W/ARMREST
- DUAL LLUM VIS VANITY MIRR
- POWERFOLD 3RD ROW SEAT
- ROTARY GEAR SHIFT DIAL
- STEERING TILT/TEL ESCOPE
- CRUISE & AUDIO CONTROLS
- TRI-ZONE AUTO CLIMATE CTRL

FUNCTIONAL

- 4-WHEEL INDEPENDENT SUSP.
- 24" PAND DISPLAY - IP
- 13.2" CENTER TOUCH SCREEN
- AM/FM/MP3, 6 SPEAKERS
- HILL DESCENT CONTROL
- HILL START ASSIST
- INTELLIGENT 4WD SYSTEM
- PUSH-BUTTON START
- SIRIUSXM® W/360L - NA AK&HI
- TERRAIN MANAGEMENT SYSTEM
- W/ SELECTABLE DRIVE MODES
- TWO-SPEED TRANSFER CASE

SAFETY/SECURITY

- ADVANCETRAC™ WITH RSC®
- AIRBAGS - DUAL STAGE FRONT
- AIRBAGS - SAFETY CANOPY®
- AIRBAGS - SIDE IMPACT
- INDV TIRE PRESS MONIT SYS
- LATCH CHILD SAFETY SYSTEM
- PERIMETER ALARM
- PERSONAL SAFETY SYSTEM™
- REAR OCCUPANT ALERT
- SECURILOCK® ANTI-THEFT SYS
- SOS POST-CRASH ALERT SYS™

WARRANTY

- 5YR/60,000 BUMPER / BUMPER
- 5YR/60,000 POWERTRAIN
- 5YR/60,000 ROADSIDE ASSIST

INCLUDED ON THIS VEHICLE (MSRP)

EQUIPMENT GROUP 200A

OPTIONAL EQUIPMENT/OTHER

16" DARK ALLOY PNTD ALUM WHL

FORD CO-PILOT360 ASSIST 2.0

POSS/DRIVE AT BSW TIRES

FLR LINERS RW 1&2 W/O CRPET MAT

CONNECT PKG-1YR INCL.

160.00

PRICE INFORMATION (MSRP)

BASE PRICE \$65,000.00

TOTAL OPTIONS/OTHER 160.00

TOTAL VEHICLE & OPTIONS/OTHER 65,160.00

DESTINATION & DELIVERY 1,995.00

SOLD TO

Tom Wood Ford

3130 E 96th St

Indianapolis IN 46240

47A 019

RAMP ONE

CA1K

FINAL ASSEMBLY PLANT

KENTUCKY

METHOD OF TRANSFER

CONVOY

ITEM #

47-2300 Q/T 2

47-2300 Q/T 2

Whether you decide to lease or finance your vehicle, you'll find the choices that are right for you. See your dealer for details or visit www.ford.com/finance.

SD241 N RB 2X 525 000942 04 24 25

SHIP TO (IF OTHER THAN SOLD TO)

SHIP THROUGH

This label is affixed pursuant to the Federal Automobile Information Disclosure Act. Gasoline, License, and Title Fees, State and Local taxes are not included. Dealer installed options or accessories are not included unless listed above.

EPA DOT Fuel Economy and Environment

Gasoline Vehicle

Fuel Economy

18 MPG combined city/hwy

15 city

22 highway

5.6 gallons per 100 miles

You spend \$5,000 more in fuel costs over 5 years compared to the average new vehicle.*

Annual fuel cost \$2,900

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

4

Smog Rating (tailpipe only)

6

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 23 MPG and costs \$6,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.50 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov

Calculate personalized estimates and compare vehicles

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated

Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash Driver Passenger Not Rated Not Rated

Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Side Crash Front seat Rear seat Not Rated Not Rated

Based on the risk of injury in a side impact.

Rollover Not Rated

Based on the risk of rollover in a single-vehicle crash.

Star ratings range from 1 to 5 stars (*****), with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA). www.safercar.gov or 1-888-327-4236

1FMJ1J8XSEA25587

WARNING: Operating, servicing and maintaining a passenger vehicle, pickup truck, van, or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

SCAN OR TEXT 1F8EA587 10 46089

QR Code

Scan to see more details

Visit ford.com

Figure A-83: Monroney Label Photograph

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA TRACES

Table of Data Plots

Fig.	Description	Page
Plot 1	Driver Head X Acceleration vs. Time Primary	B-5
Plot 2	Driver Head Y Acceleration vs. Time Primary	B-5
Plot 3	Driver Head Z Acceleration vs. Time Primary	B-5
Plot 4	Driver Head Resultant Acceleration vs. Time Primary	B-5
Plot 5	Driver Chest X Deflection vs. Time	B-6
Plot 6	Driver Chest X Acceleration vs. Time Primary	B-6
Plot 7	Driver Chest Y Acceleration vs. Time Primary	B-6
Plot 8	Driver Chest Z Acceleration vs. Time Primary	B-6
Plot 9	Driver Chest Resultant Acceleration vs. Time Primary	B-7
Plot 10	Driver Upper Neck Force X vs. Time Primary	B-7
Plot 11	Driver Upper Neck Force Z vs. Time Primary	B-7
Plot 12	Driver Upper Neck Moment Y vs. Time Primary	B-7
Plot 13	Driver Nij vs. Time Primary	B-8
Plot 14	Driver Left Femur Force vs. Time	B-8
Plot 15	Driver Right Femur Force vs. Time	B-8
Plot 16	Passenger Head X Acceleration vs. Time Primary	B-8
Plot 17	Passenger Head Y Acceleration vs. Time Primary	B-9
Plot 18	Passenger Head Z Acceleration vs. Time Primary	B-9
Plot 19	Passenger Head Resultant Acceleration vs. Time Primary	B-9
Plot 20	Passenger Chest X Deflection vs. Time	B-9
Plot 21	Passenger Chest X Acceleration vs. Time Primary	B-10
Plot 22	Passenger Chest Y Acceleration vs. Time Primary	B-10
Plot 23	Passenger Chest Z Acceleration vs. Time Primary	B-10
Plot 24	Passenger Chest Resultant Acceleration vs. Time Primary	B-10
Plot 25	Passenger Upper Neck Force X vs. Time Primary	B-11
Plot 26	Passenger Upper Neck Force Z vs. Time Primary	B-11
Plot 27	Passenger Upper Neck Moment Y vs. Time Primary	B-11
Plot 28	Passenger Nij vs. Time Primary	B-11
Plot 29	Passenger Left Femur Force vs. Time	B-12
Plot 30	Passenger Right Femur Force vs. Time	B-12

The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.NHTSA.gov

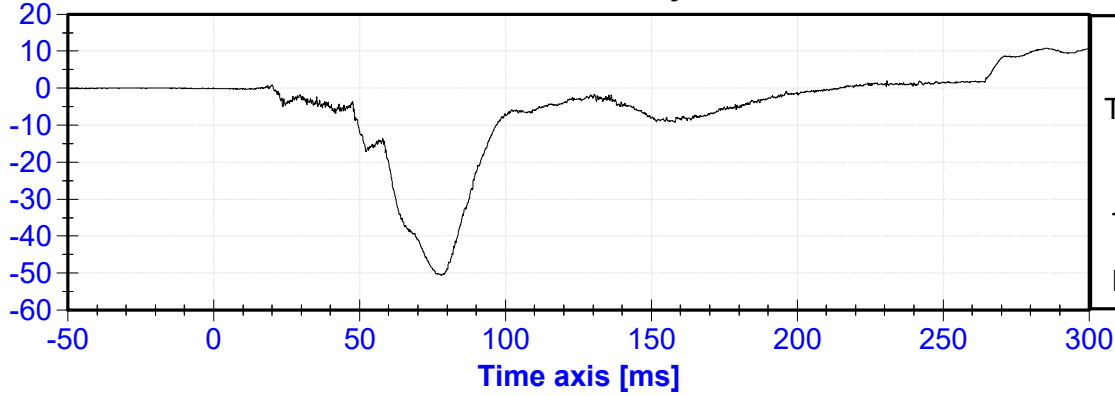
Driver Head X Acceleration Redundant
 Driver Head Y Acceleration Redundant
 Driver Head Z Acceleration Redundant
 Driver Upper Neck Force Y
 Driver Upper Neck Moment X
 Driver Upper Neck Moment Z
 Driver Chest X Acceleration Redundant
 Driver Chest Y Acceleration Redundant
 Driver Chest Z Acceleration Redundant
 Driver Pelvis X
 Driver Pelvis Y
 Driver Pelvis Z
 Driver Left Femur Redundant
 Driver Right Femur Redundant
 Driver Left Upper Tibia Moment X
 Driver Left Upper Tibia Moment Y

Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Driver Shoulder Belt Force
Driver Lap Belt Force
Driver Head Angular Velocity X
Driver Head Angular Velocity Y
Driver Head Angular Velocity Z
Passenger Head X Acceleration Redundant
Passenger Head Y Acceleration Redundant
Passenger Head Z Acceleration Redundant
Passenger Upper Neck Force X
Passenger Upper Neck Force Z
Passenger Upper Neck Moment Y
Passenger Chest X Acceleration Redundant
Passenger Chest Y Acceleration Redundant
Passenger Chest Z Acceleration Redundant
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z
Passenger Left Femur Redundant
Passenger Right Femur Redundant
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z

Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Passenger Shoulder Belt Force
Passenger Lap Belt Force
Passenger Head Angular Velocity X
Passenger Head Angular Velocity Y
Passenger Head Angular Velocity Z
Left Rear Seat Crossmember X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Left Rear Seat Crossmember X Redundant
Right Rear Seat Crossmember X Redundant
Vehicle Engine Top X
Vehicle Engine Bottom X
Load Cell Barrier Forces and Moments

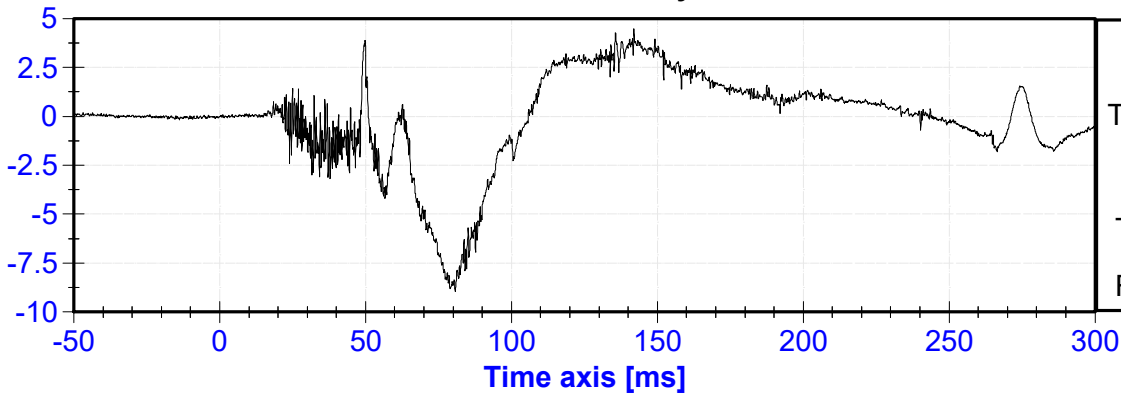
ACCELERATION [g's]

Driver Head X Acceleration vs. Time Primary



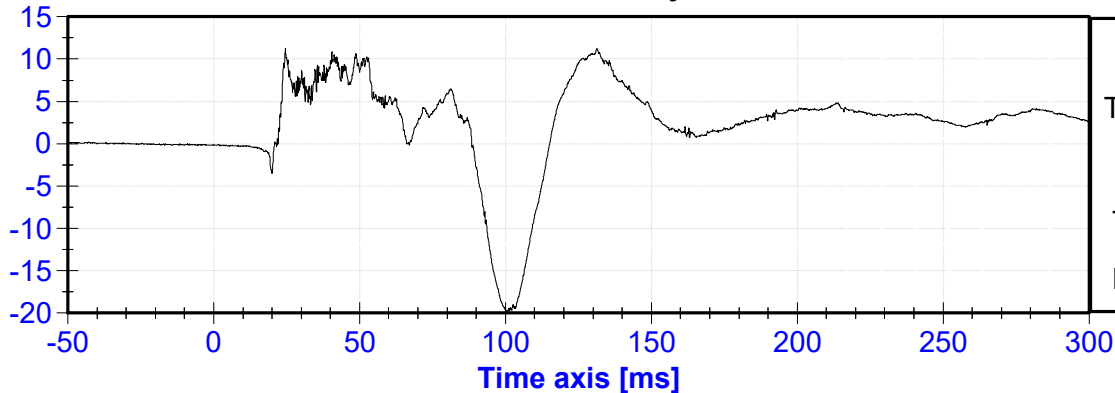
ACCELERATION [g's]

Driver Head Y Acceleration vs. Time Primary



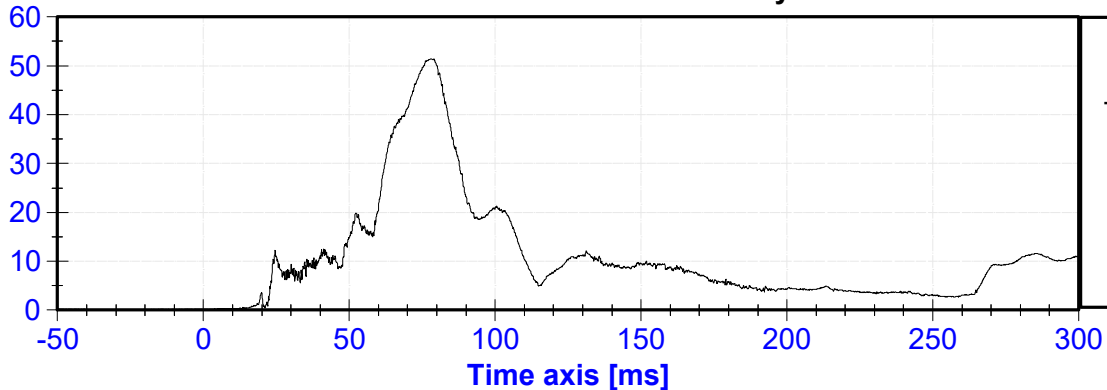
ACCELERATION [g's]

Driver Head Z Acceleration vs. Time Primary



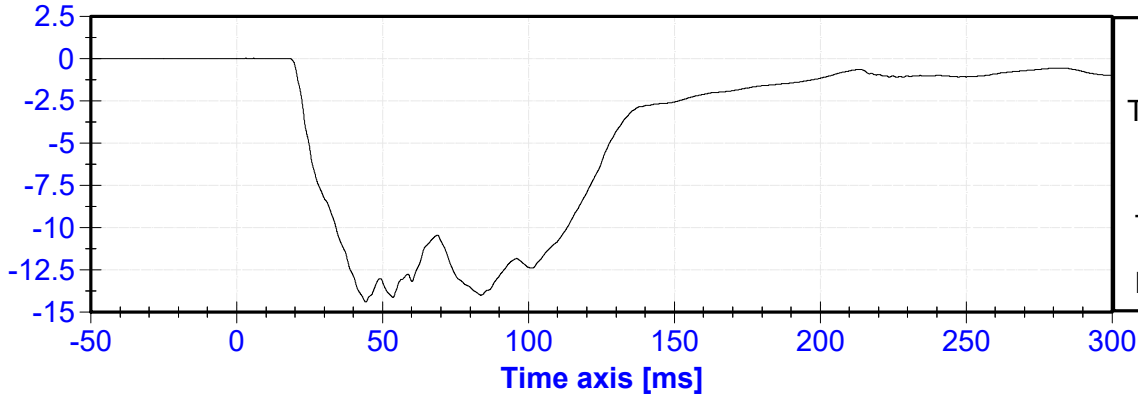
ACCELERATION [g's]

Driver Head Resultant Acceleration vs. Time Primary



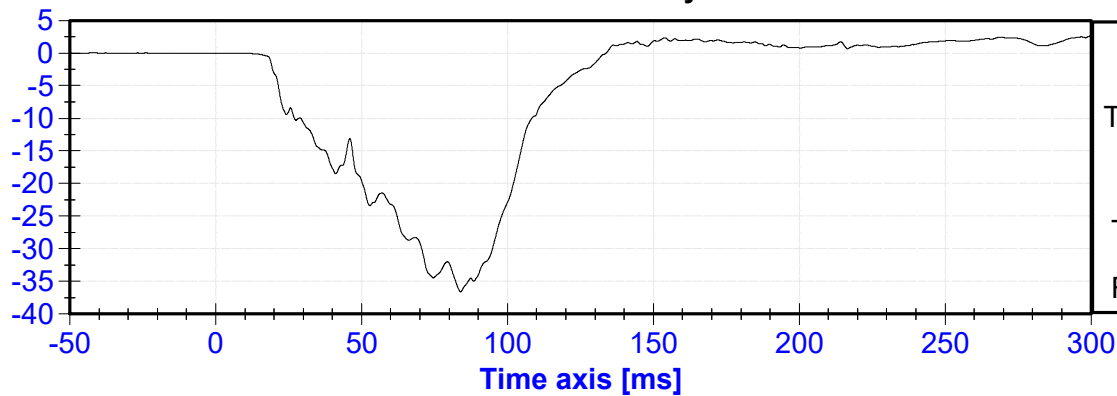
DISPLACEMENT [mm]

Driver Chest X Deflection vs. Time



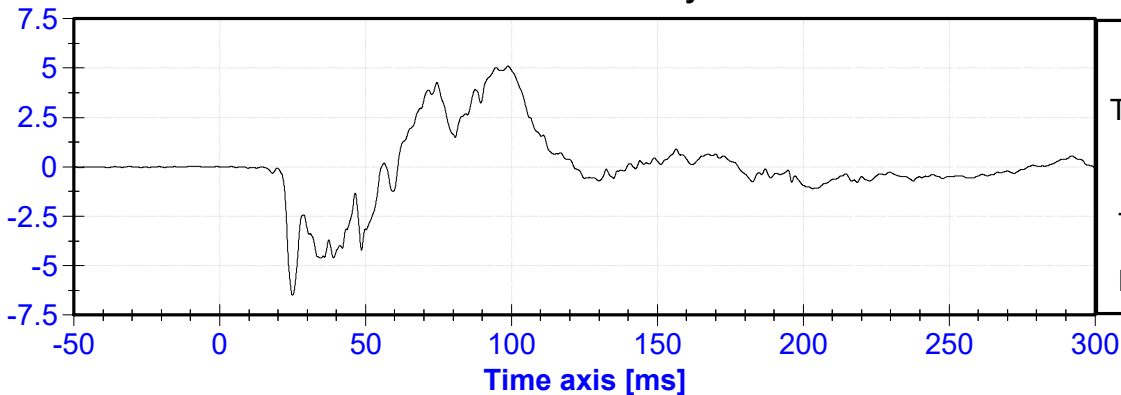
ACCELERATION [g's]

Driver Chest X Acceleration vs. Time Primary



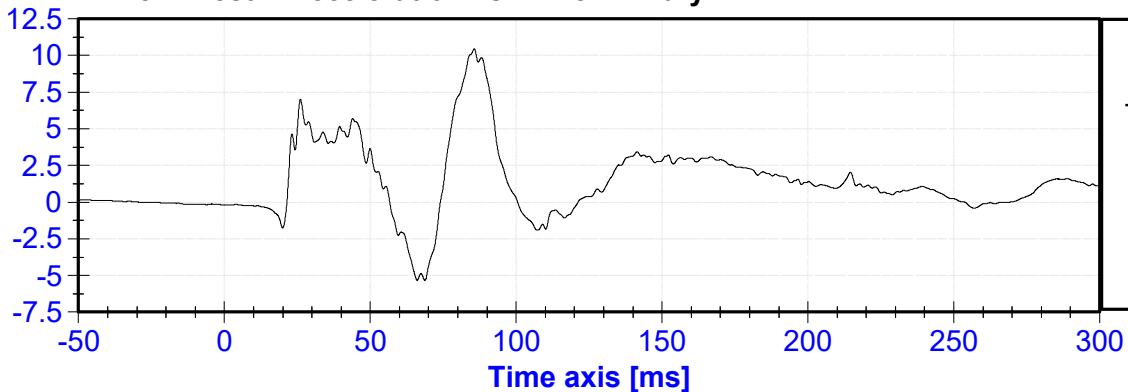
ACCELERATION [g's]

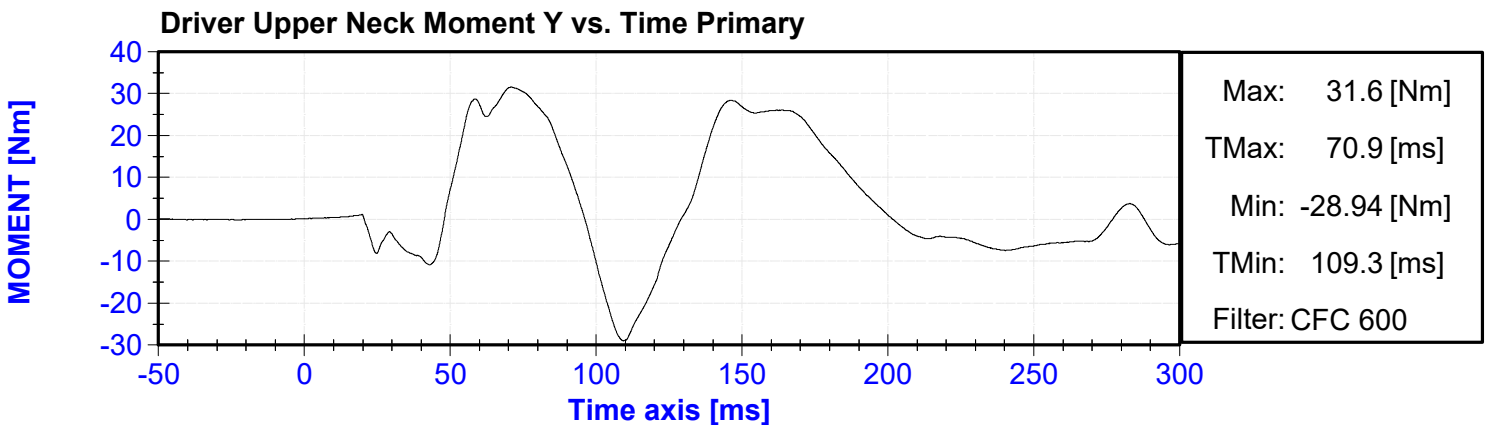
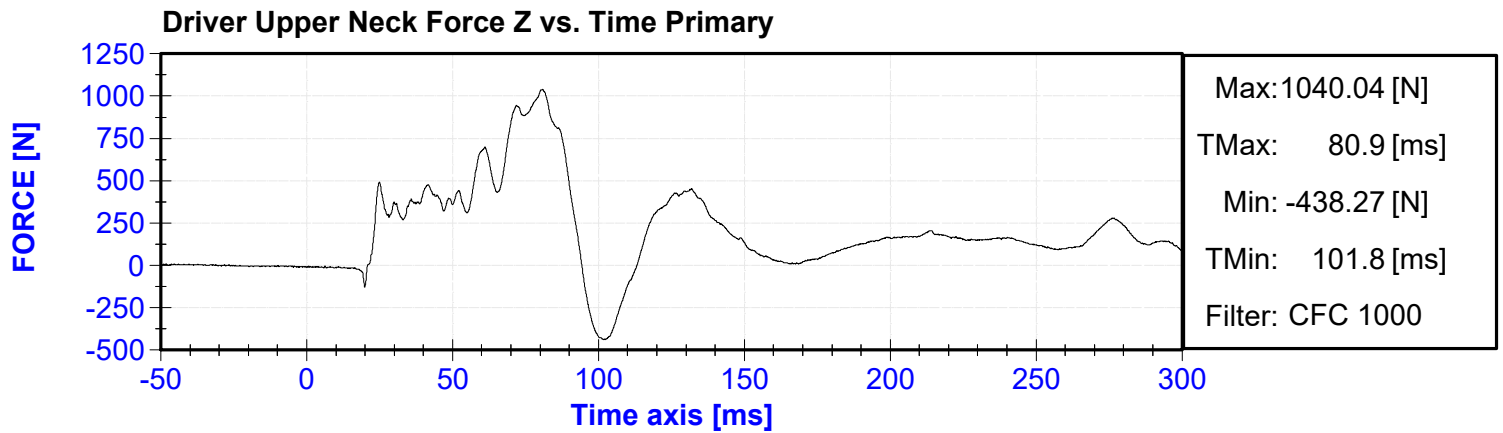
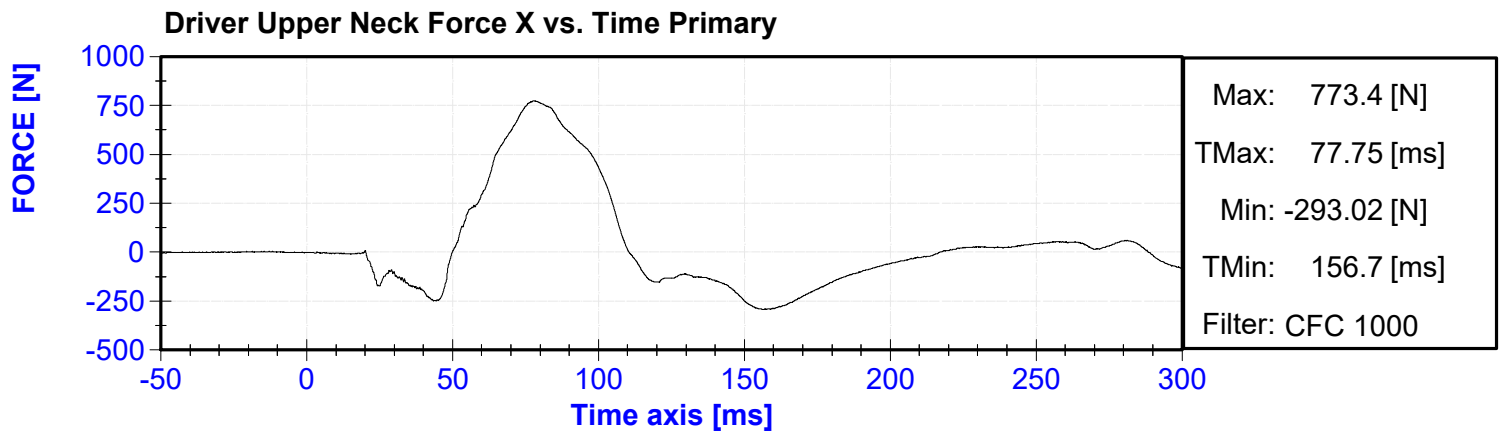
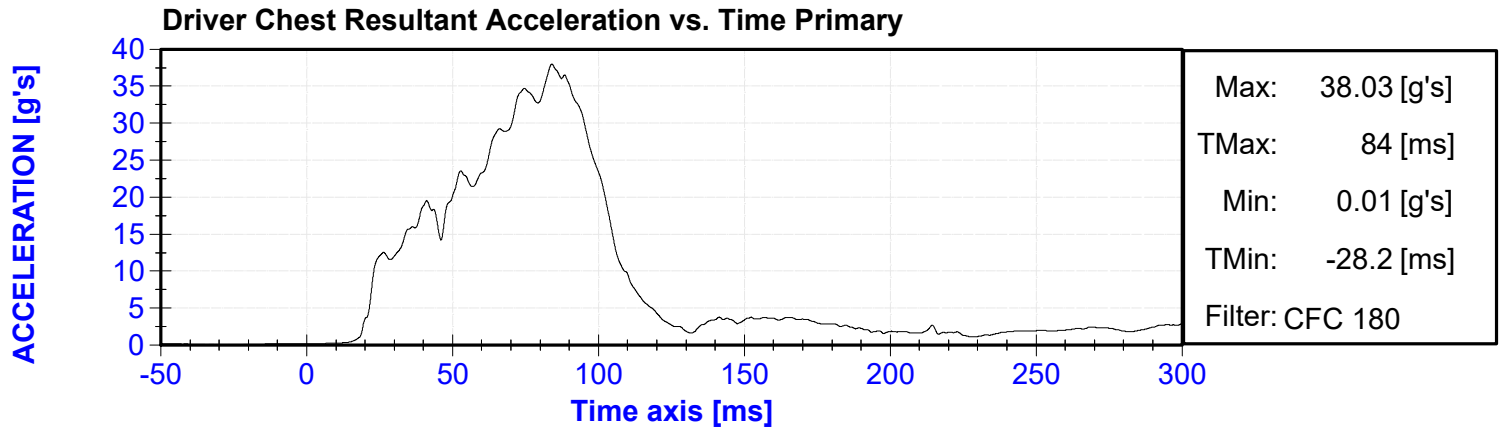
Driver Chest Y Acceleration vs. Time Primary



ACCELERATION [g's]

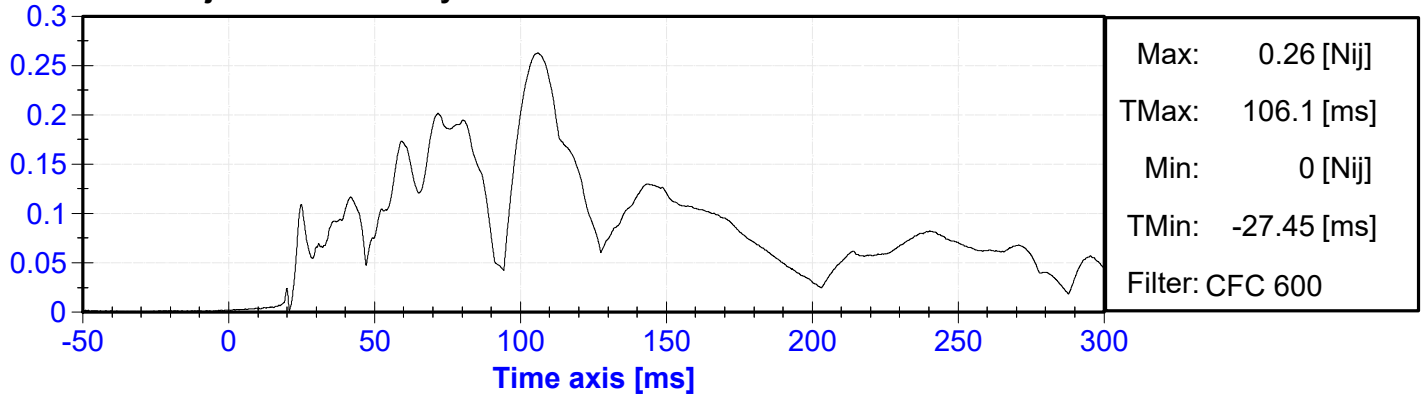
Driver Chest Z Acceleration vs. Time Primary





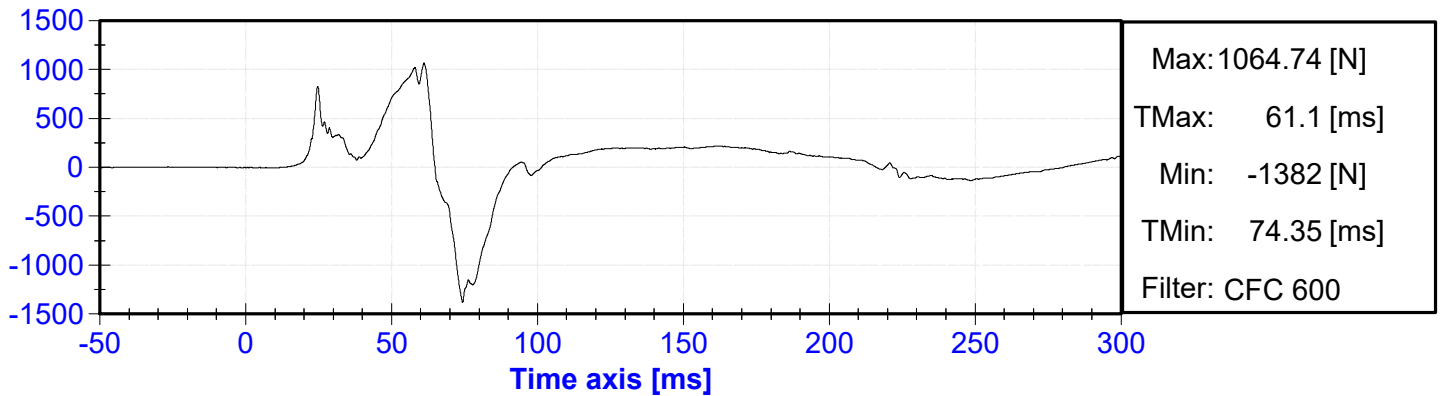
NECK INJURY CRITERIA

Driver Nij vs. Time Primary



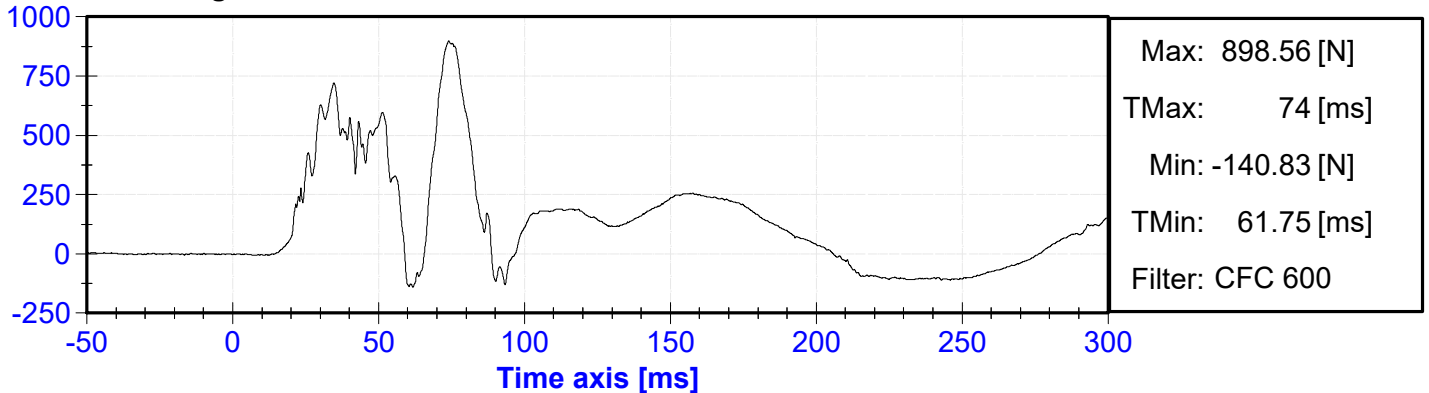
FORCE [N]

Driver Left Femur Force vs. Time



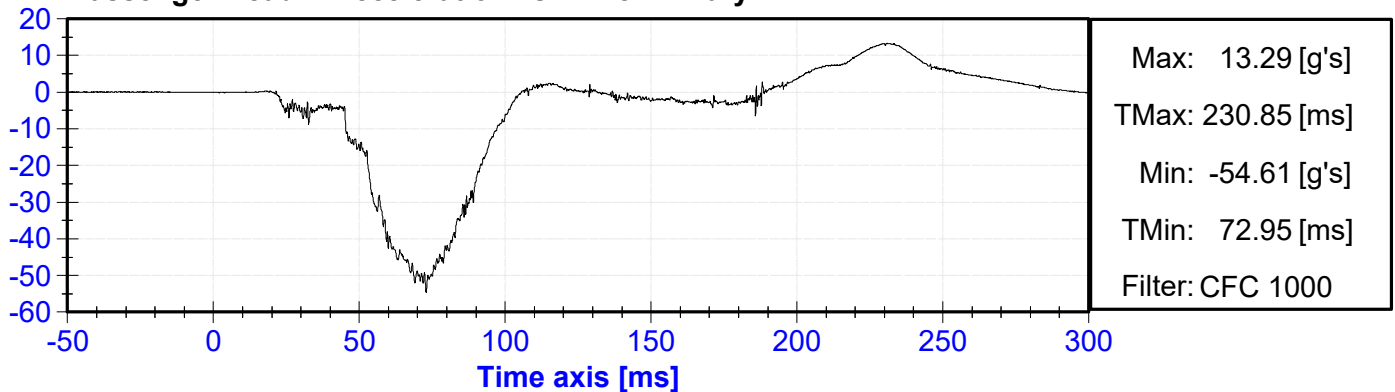
FORCE [N]

Driver Right Femur Force vs. Time



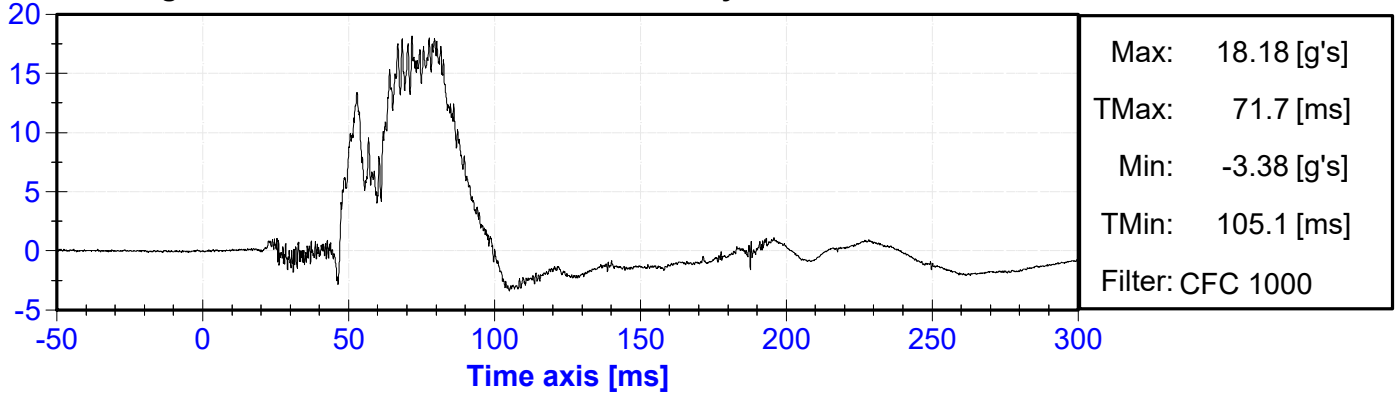
ACCELERATION [g's]

Passenger Head X Acceleration vs. Time Primary



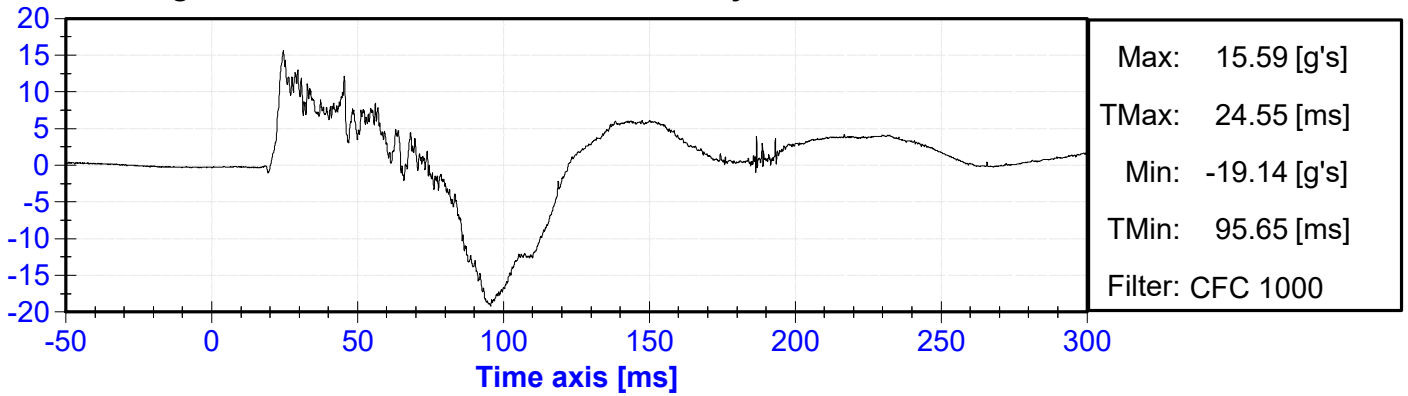
ACCELERATION [g's]

Passenger Head Y Acceleration vs. Time Primary



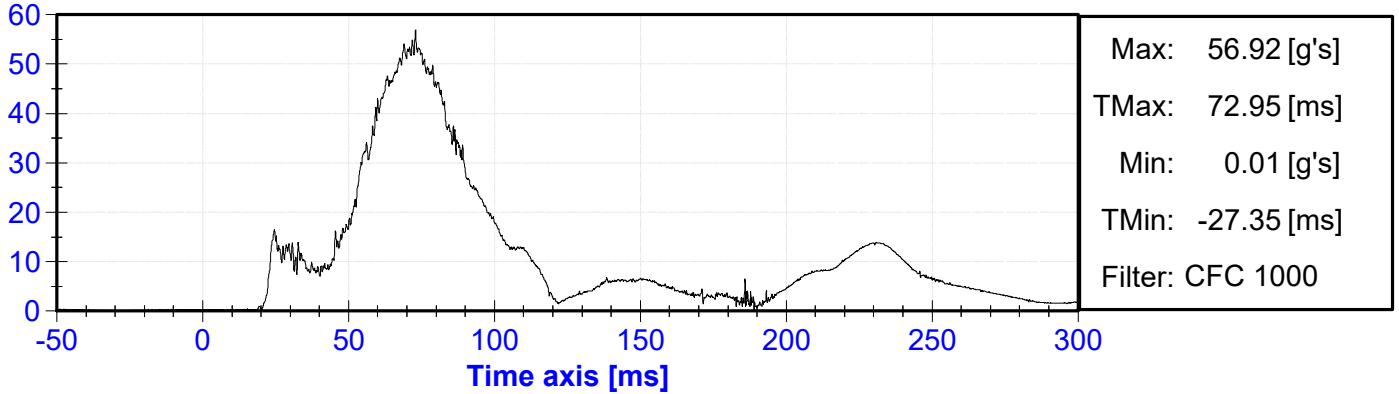
ACCELERATION [g's]

Passenger Head Z Acceleration vs. Time Primary



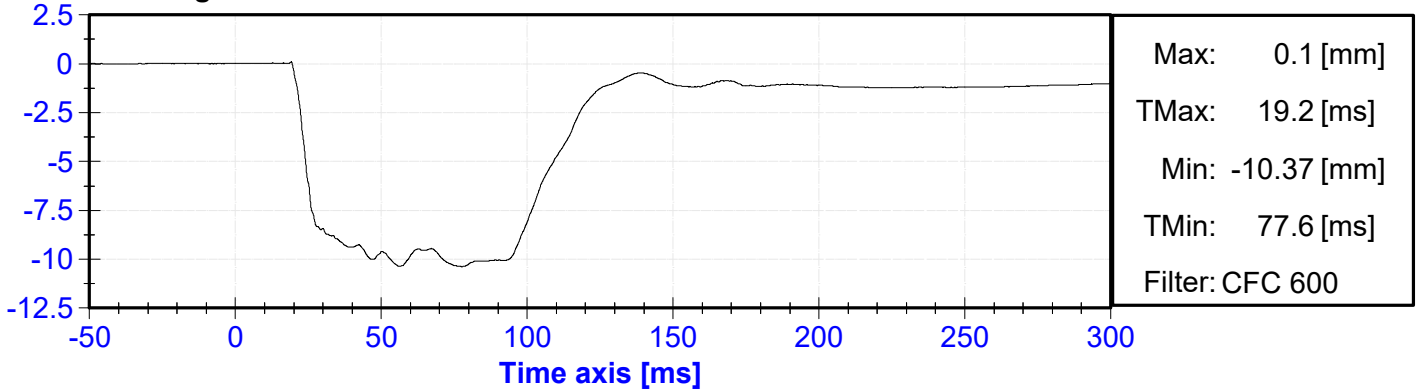
ACCELERATION [g's]

Passenger Head Resultant Acceleration vs. Time Primary



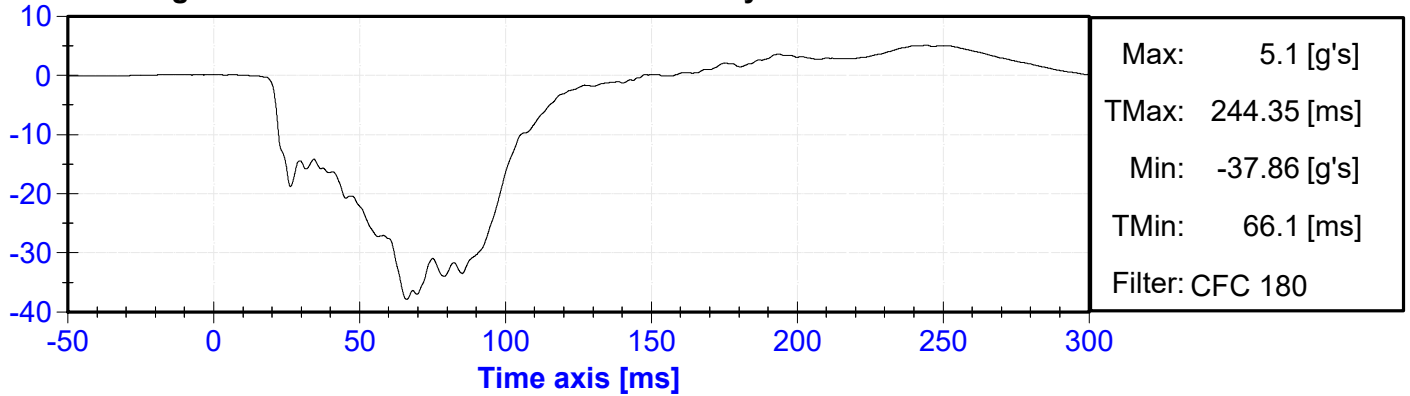
DISPLACEMENT [mm]

Passenger Chest X Deflection vs. Time



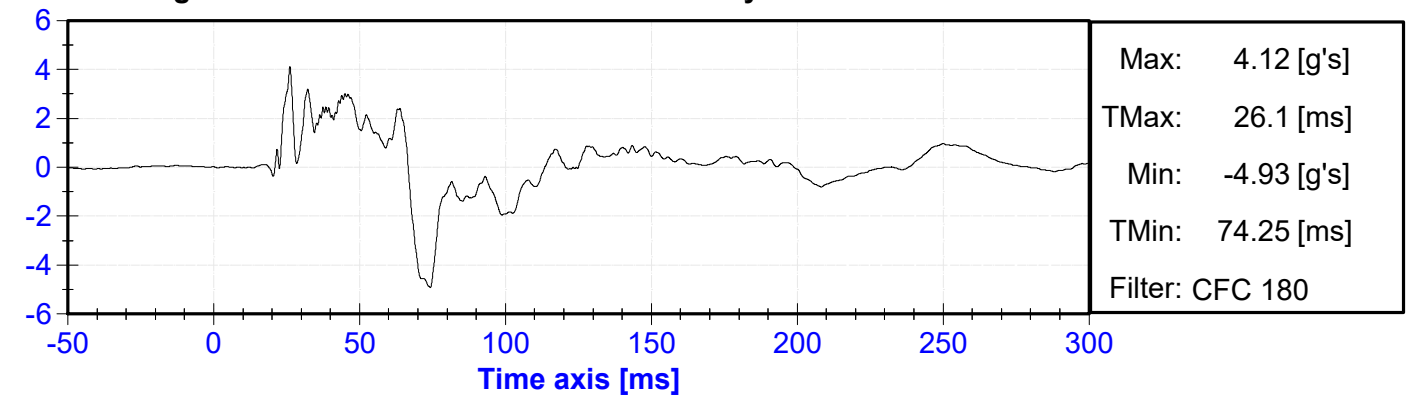
ACCELERATION [g's]

Passenger Chest X Acceleration vs. Time Primary



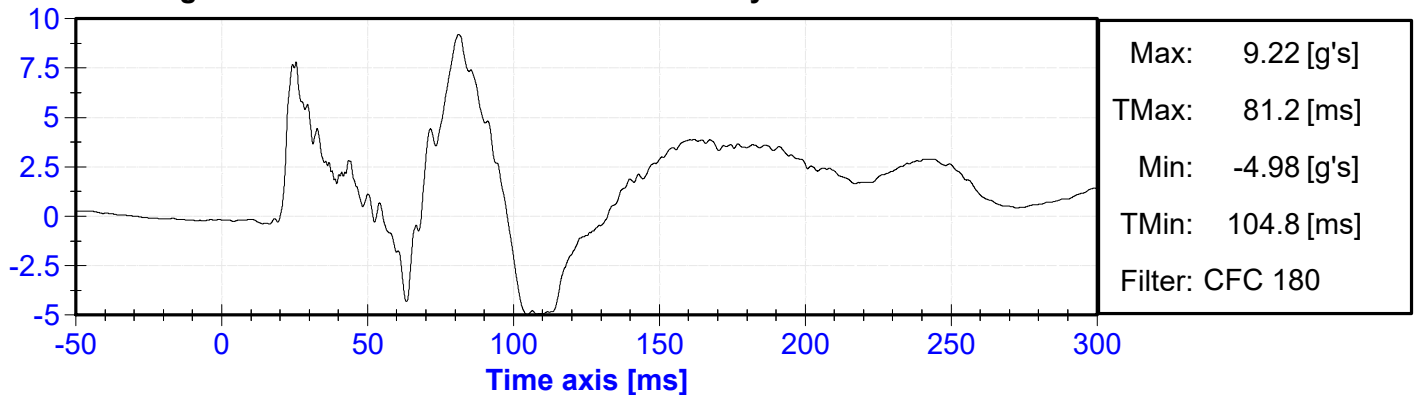
ACCELERATION [g's]

Passenger Chest Y Acceleration vs. Time Primary



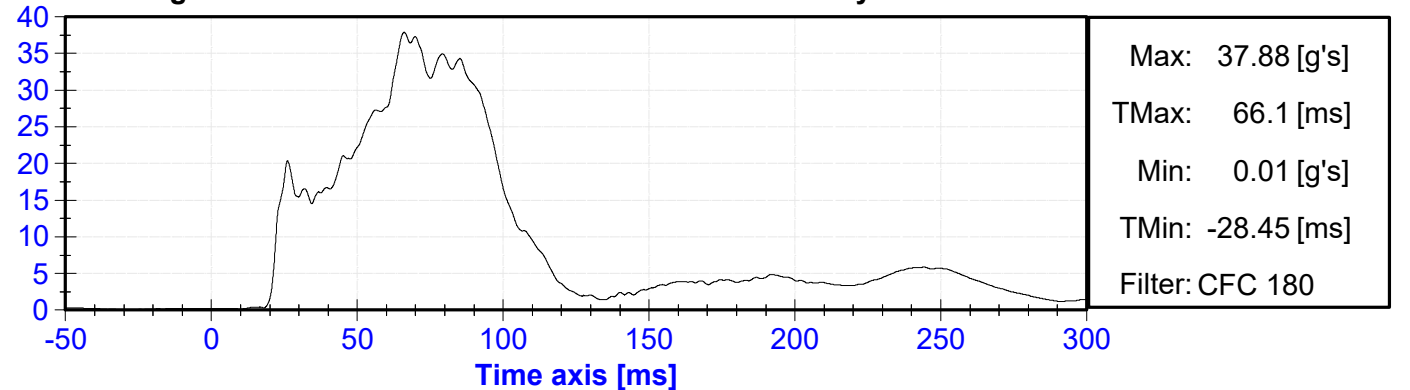
ACCELERATION [g's]

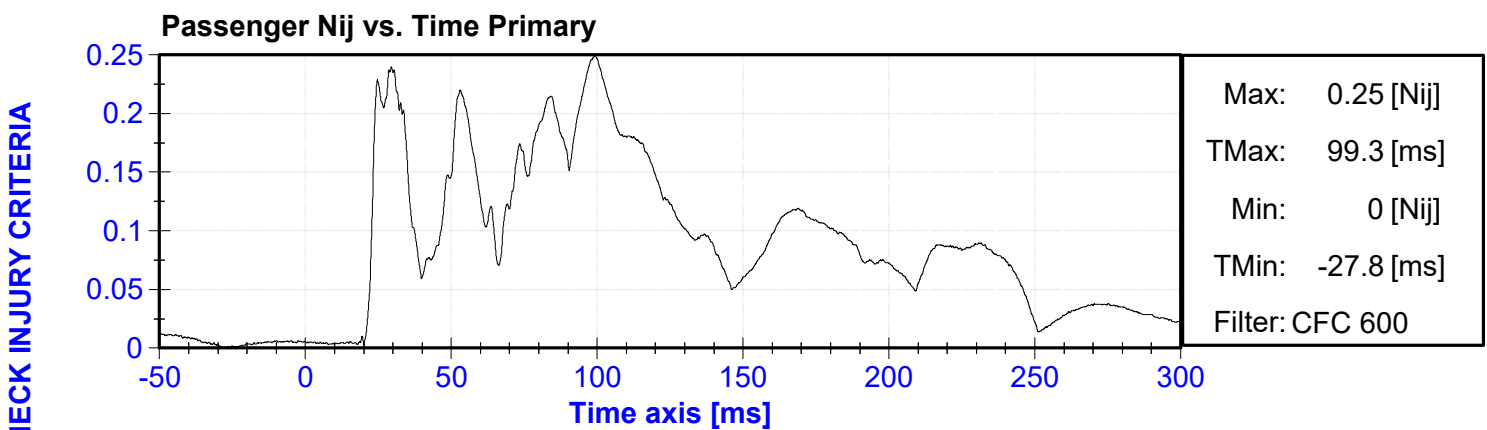
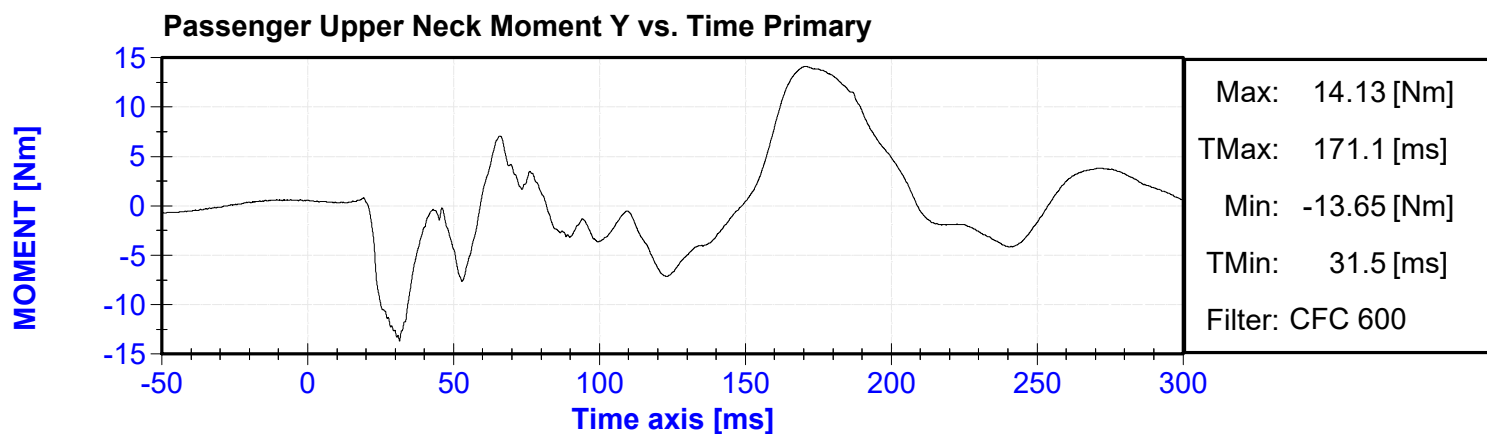
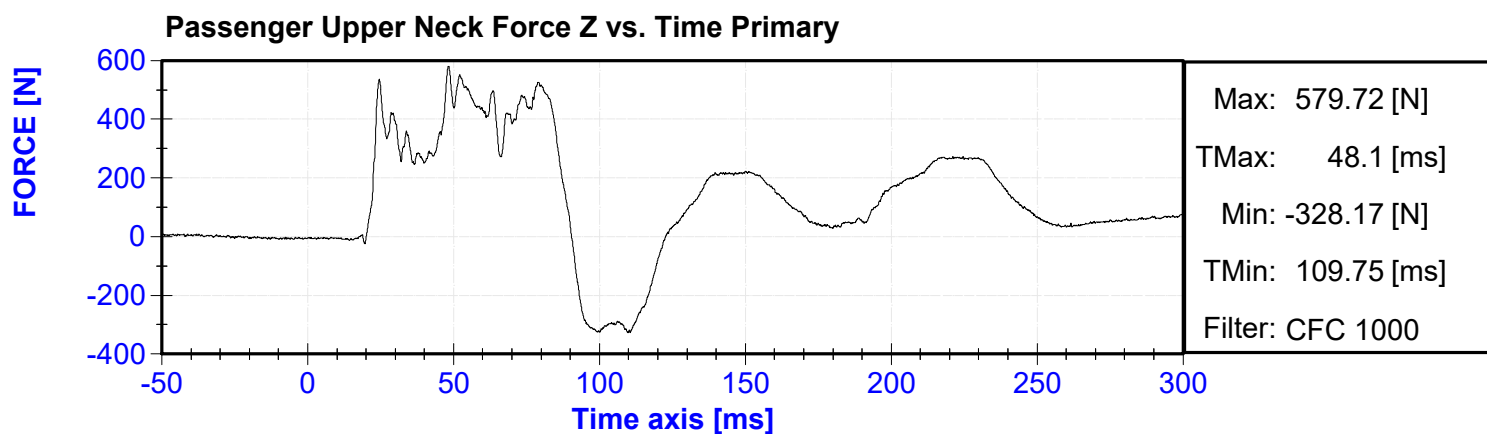
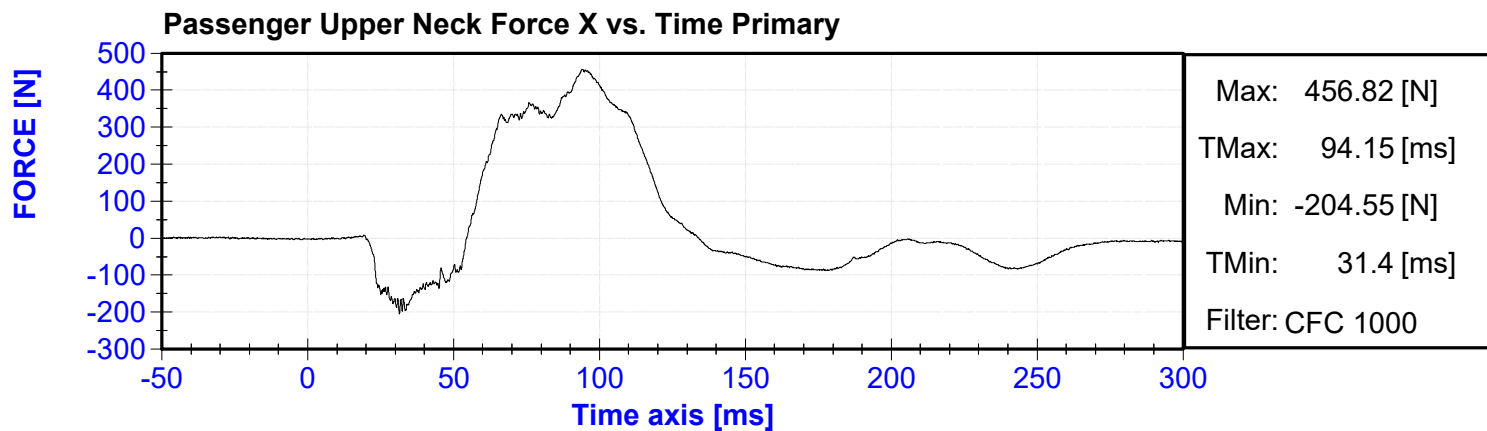
Passenger Chest Z Acceleration vs. Time Primary

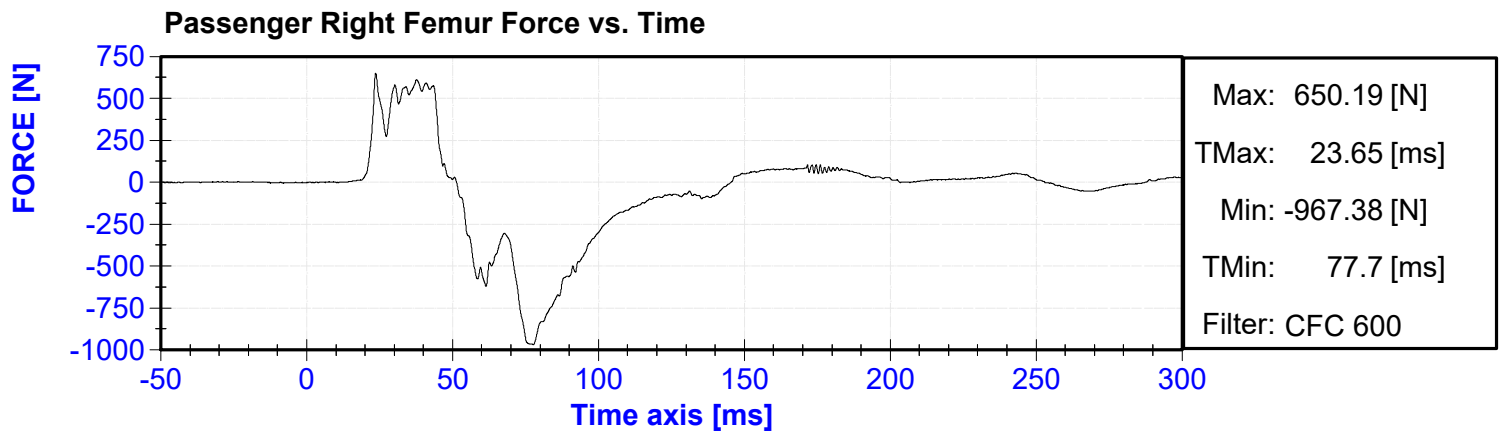
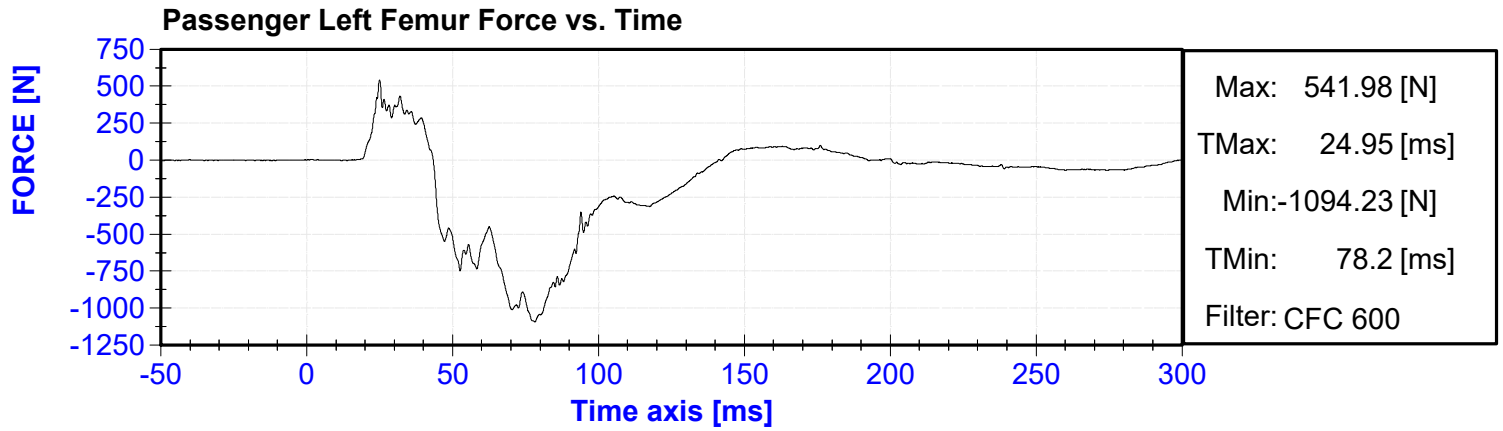


ACCELERATION [g's]

Passenger Chest Resultant Acceleration vs. Time Primary







APPENDIX C

DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

HYBRID III 50TH PERCENTILE MALE - DRIVER ATD

SERIAL NO: 065

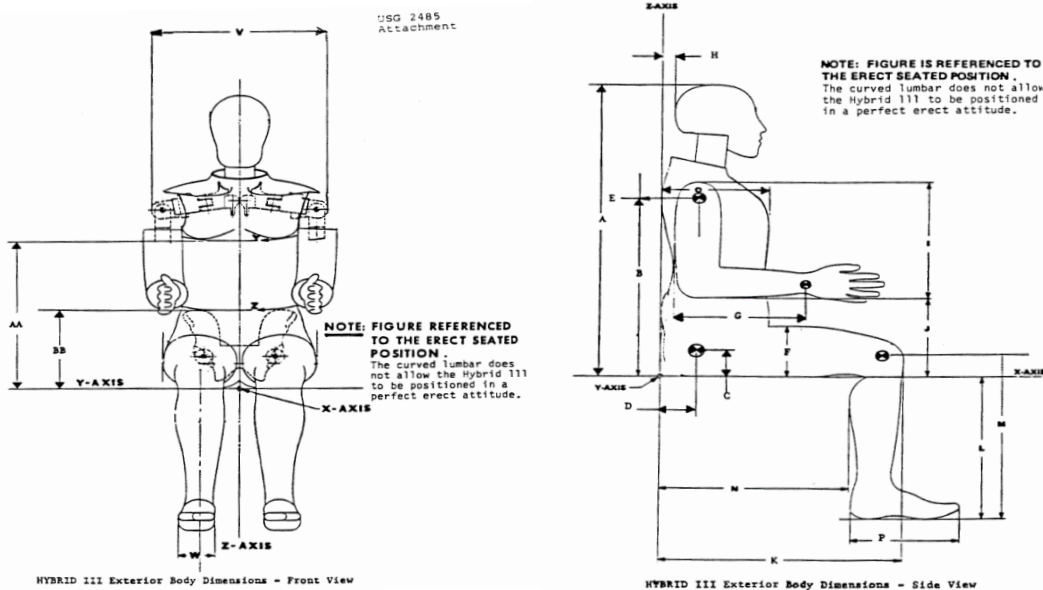


External Measurements - Hybrid 3 - 50th Male

Technician: J. Rios

Date: 07/11/2025

Dummy Serial Number: 065



Symbol	Description	Specification (in)		Result (in)	Pass/Fail
A	Sitting Height	34.6	35.0	34.7	Pass
B	Shoulder Pivot Height	19.9	20.5	20.4	Pass
C	H-Point Height	3.3	3.5	3.4	Pass
D	H-Point from Backline	5.3	5.5	5.3	Pass
E	Shoulder Pivot from Backline	3.3	3.7	3.4	Pass
F	Thigh Clearance	5.5	6.1	5.9	Pass
G	Back of Elbow to Wrist Pivot	11.4	12.0	11.7	Pass
H	Head Back to Backline	1.6	1.8	1.7	Pass
I	Shoulder to Elbow Length	13.0	13.6	13.2	Pass
J	Elbow Rest Height	7.5	8.3	8.1	Pass
K	Buttock to Knee Length	22.8	23.8	23.3	Pass
L	Popliteal Height	16.9	17.9	17.2	Pass
M	Knee Pivot Height	19.1	19.7	19.4	Pass
N	Buttock Popliteal Length	17.8	18.8	18.4	Pass
O	Chest Depth without Jacket	8.4	9.0	8.8	Pass
P	Foot Length (right)	9.9	10.5	10.2	Pass
V	Shoulder Breadth	16.3	17.2	16.6	Pass
W	Foot Breadth	3.6	4.2	4.1	Pass
Y	Chest Circumference with Jacket	38.2	39.4	38.8	Pass
Z	Waist Circumference	32.9	34.1	33.6	Pass
AA	Reference Location (Chest Circumference)	16.9	17.1	17.0	Pass
BB	Reference Location (Waist Circumference)	8.9	9.1	9.0	Pass

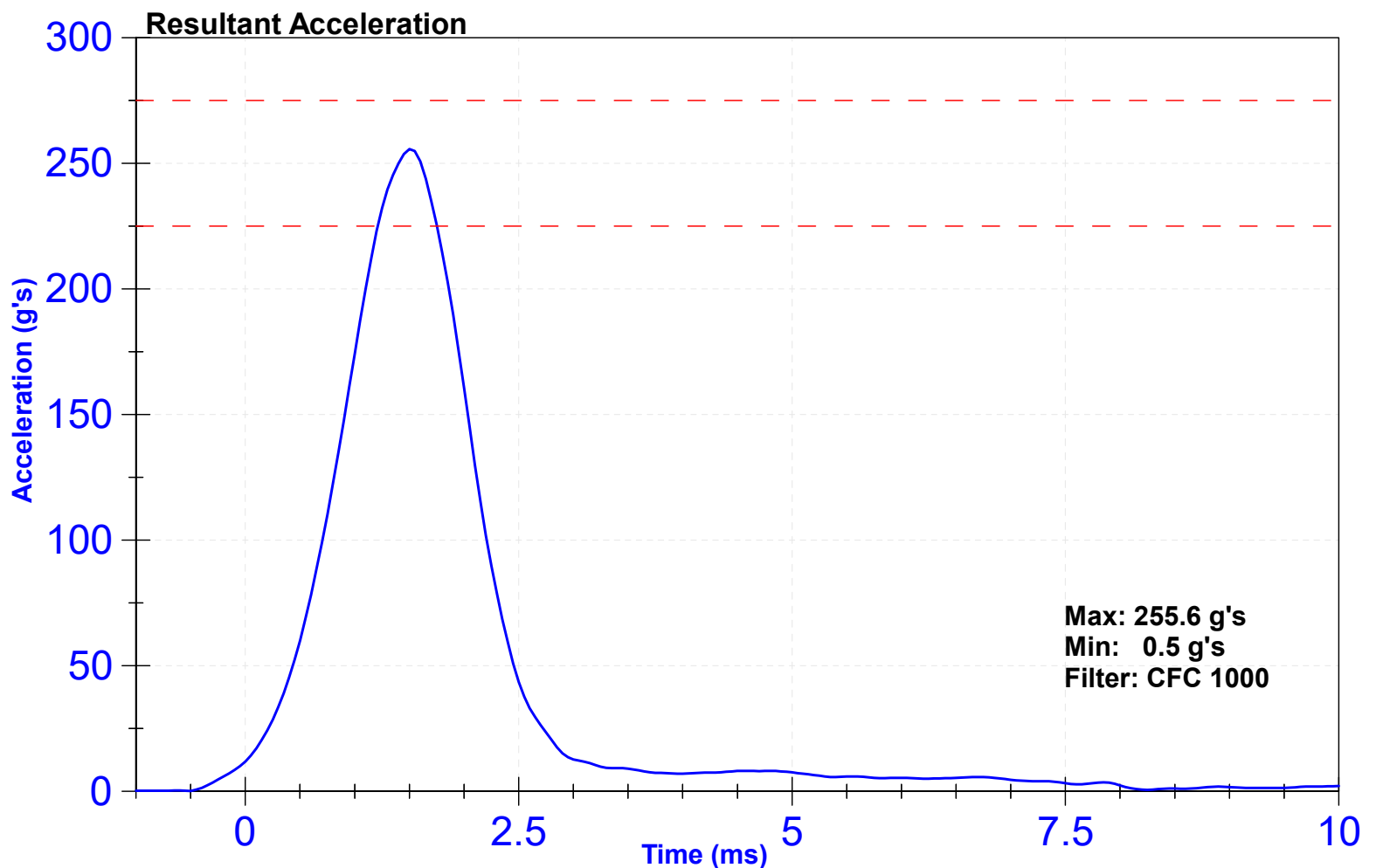
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

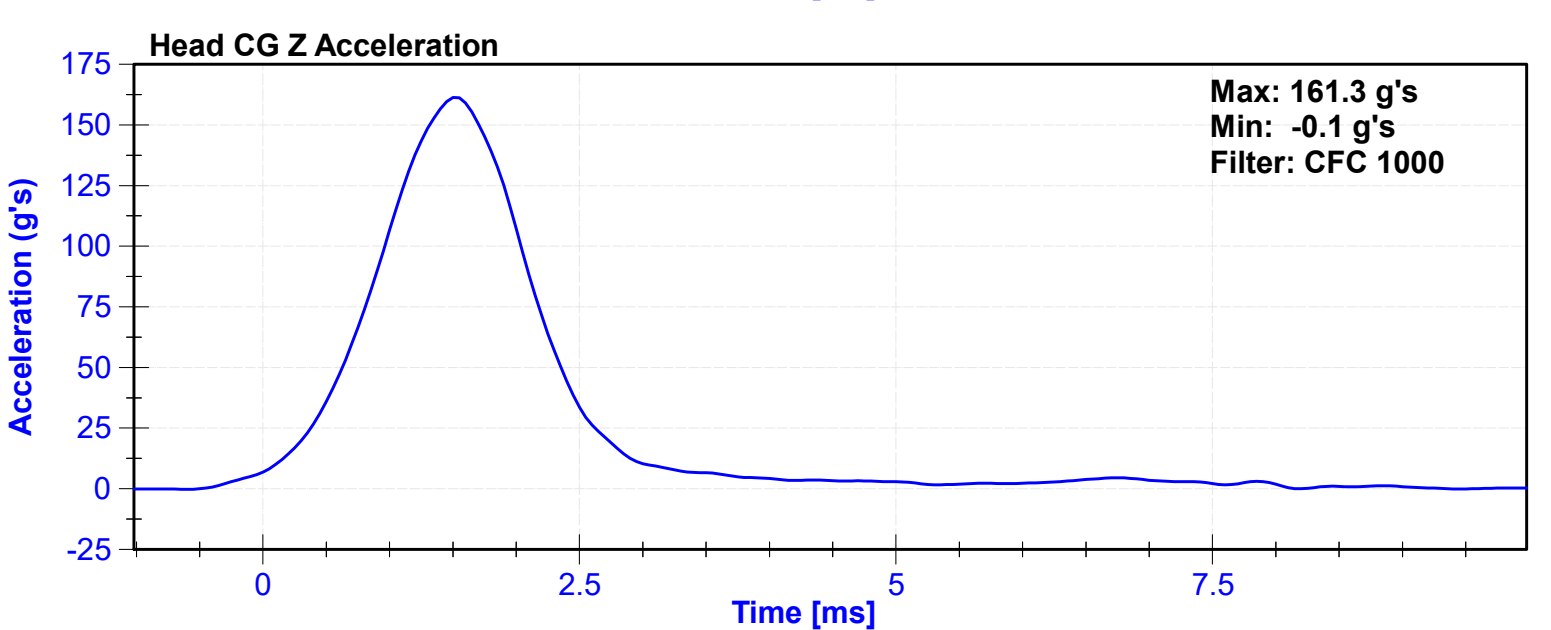
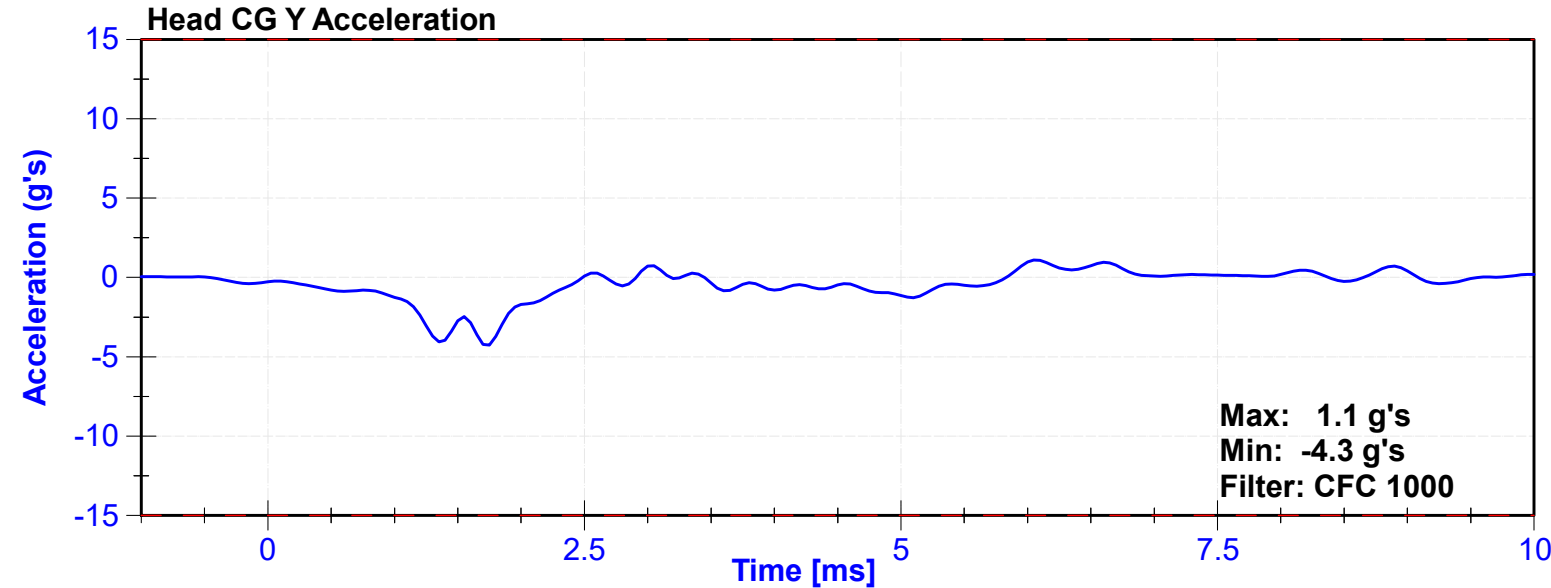
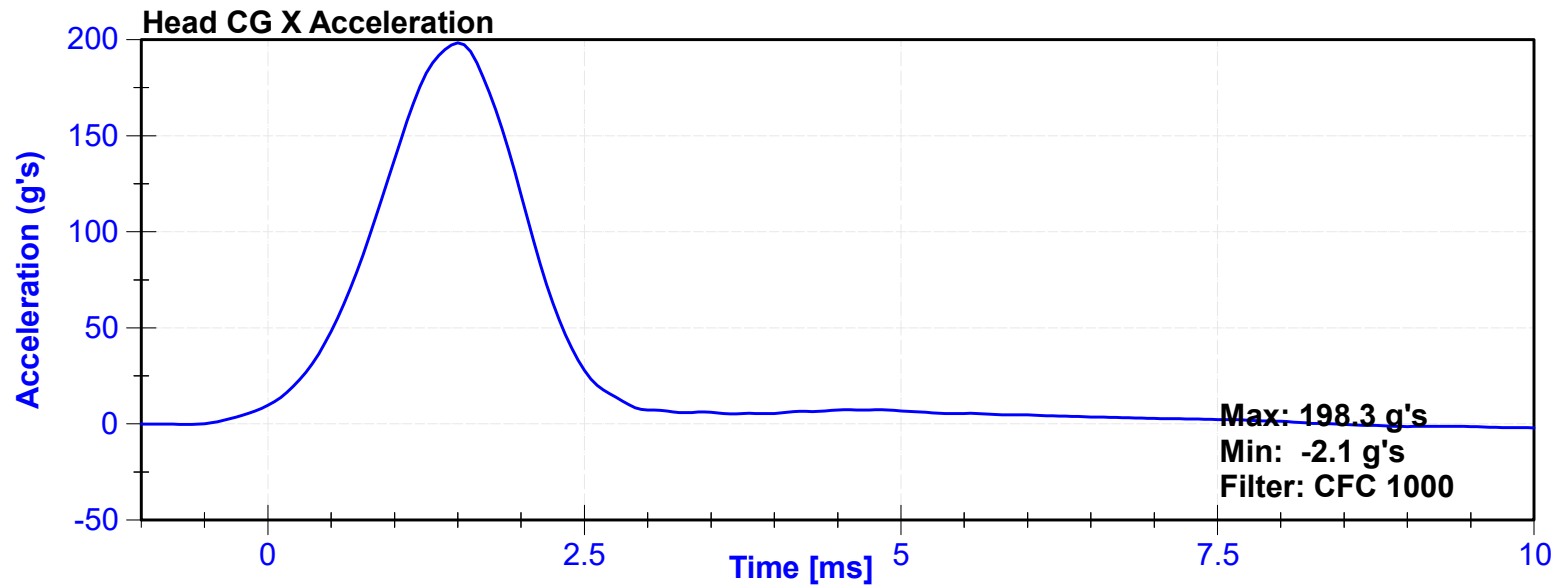
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	22.0	Pass
Humidity	10	70	%	51	Pass
Resultant Acceleration	225	275	g's	255.6	Pass
Oscillation	0	10	%	3.5	Pass
Lateral Acceleration	-15	15	g's	-4.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P52152	6/10/2025	12/7/2025
Y Accelerometer	Endevco	P58888	6/10/2025	12/7/2025
Z Accelerometer	Endevco	P58911	6/10/2025	12/7/2025





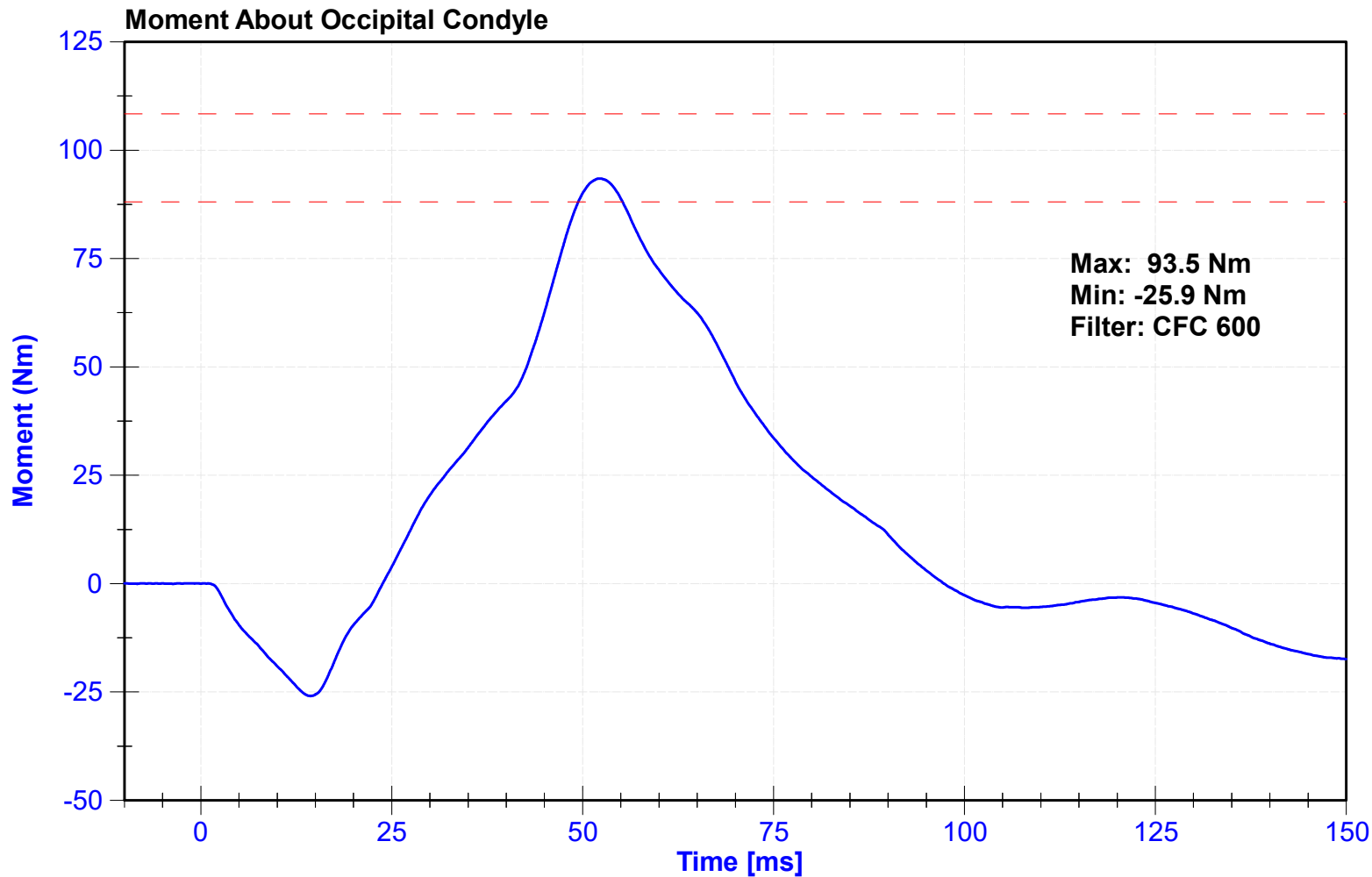
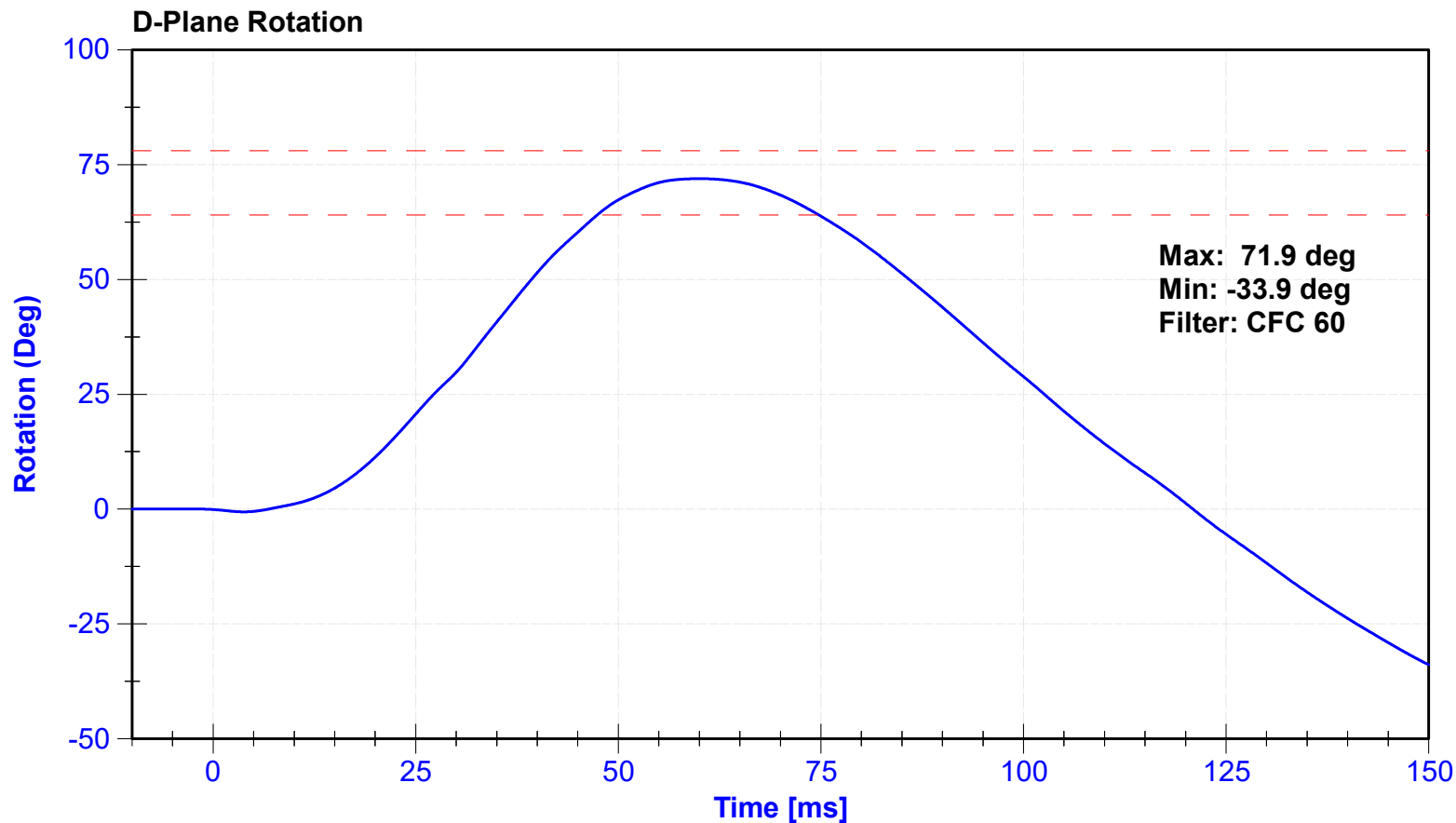
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

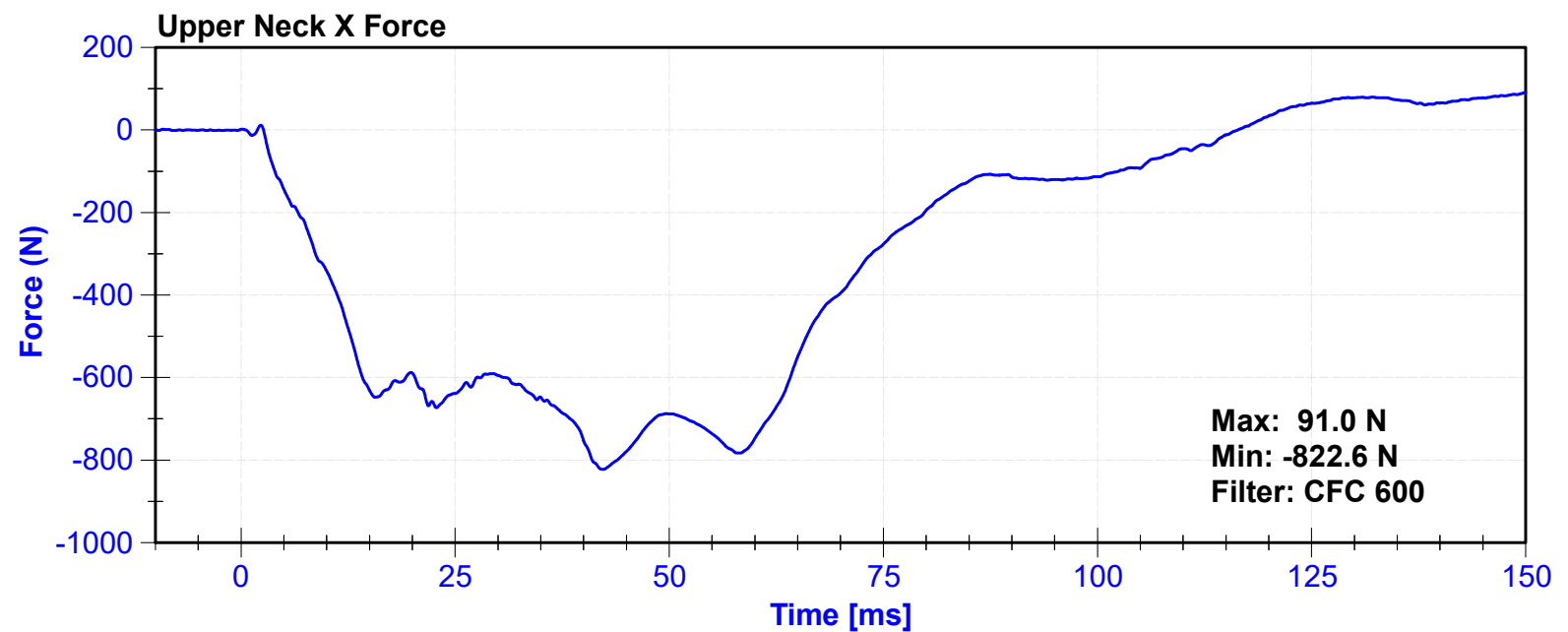
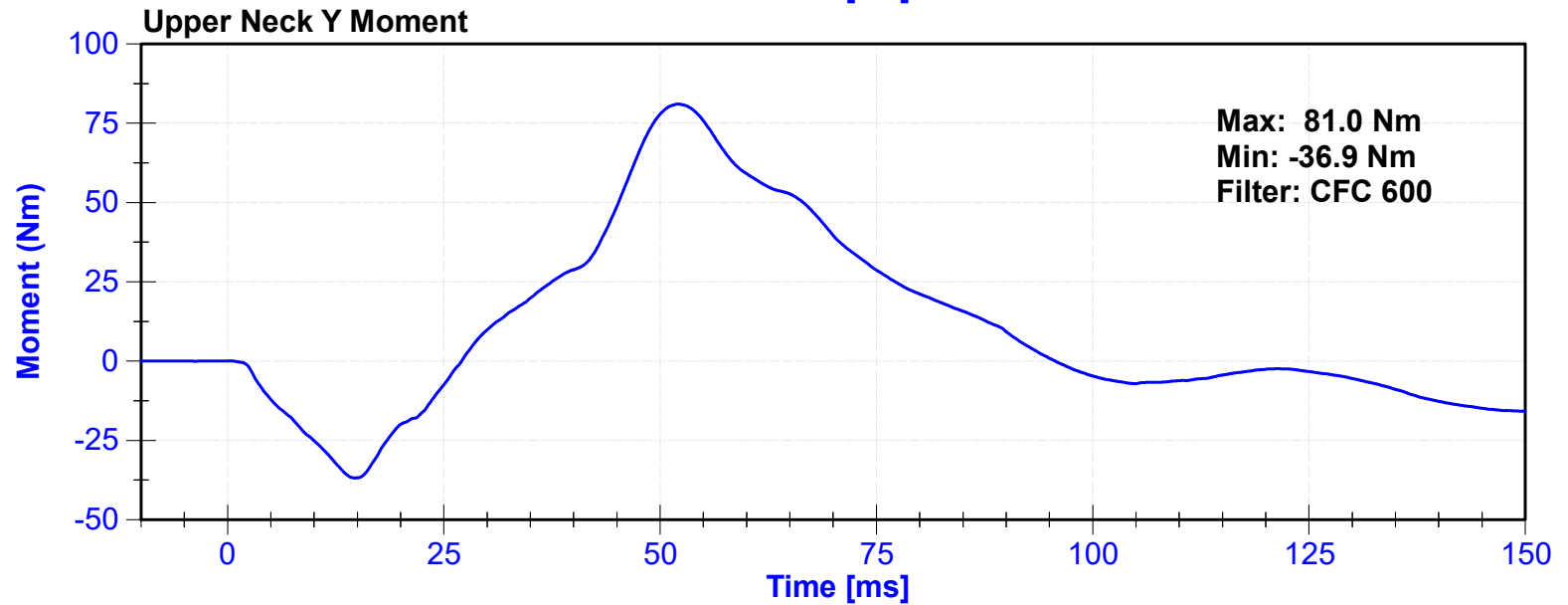
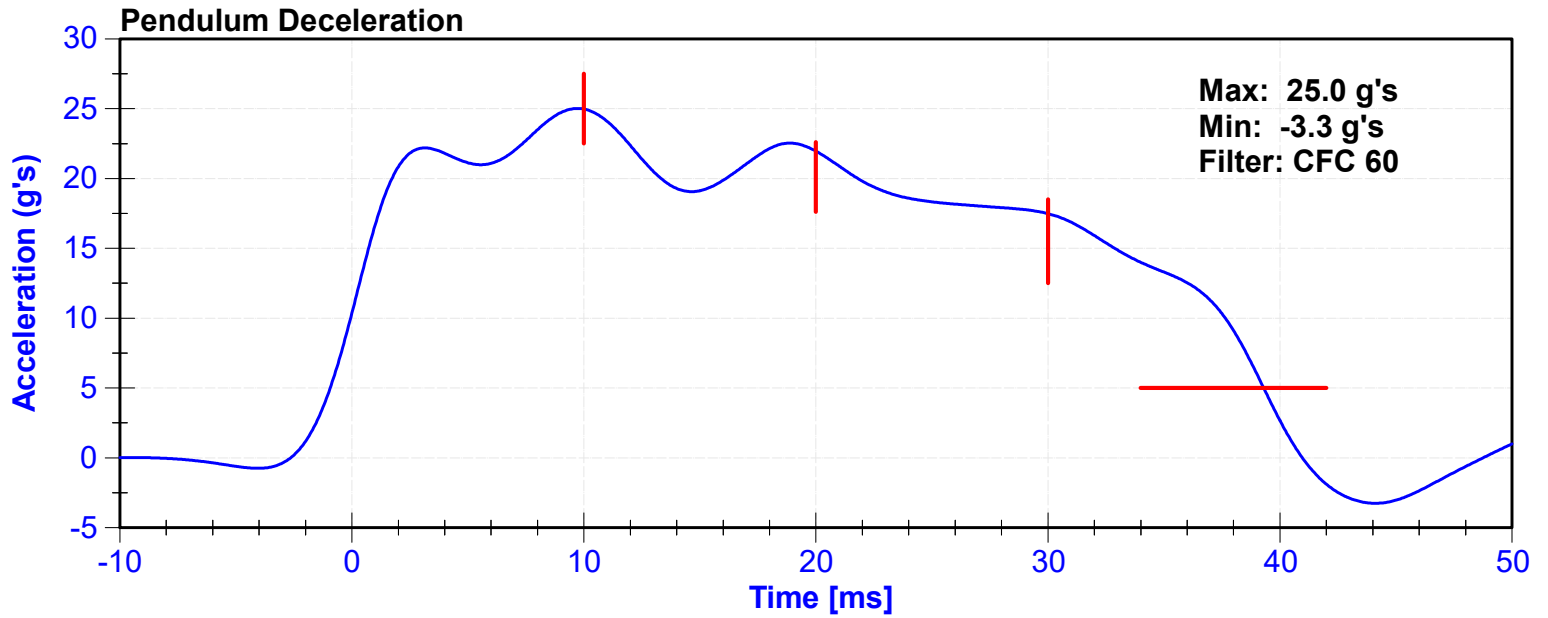
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	52	Pass
Velocity	6.89	7.13	m/s	6.984	Pass
Pendulum Deceleration at 10ms	22.5	27.5	g's	24.96	Pass
Pendulum Deceleration at 20ms	17.6	22.6	g's	21.95	Pass
Pendulum Deceleration at 30ms	12.5	18.5	g's	17.48	Pass
Max. Pendulum Deceleration After 30ms	0	29	g's	25.0	Pass
Pendulum Deceleration Time to 5 g's	34	42	ms	39.3	Pass
Maximum D Plane Rotation	64	78	deg	71.9	Pass
Time to Maximum Rotation	57	64	ms	60.0	Pass
Rotation Decay to Zero	113	127	ms	121.0	Pass
Moment About Occipital Condyle	88.1	108.4	Nm	93.49	Pass
Time to Maximum Moment	47	58	ms	52.3	Pass
Moment Decay to Zero	97	107	ms	97.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Pendulum Potentiometer	ETI	LABPOT1	5/14/2025	5/14/2026
Condyle Potentiometer	ETI	LABPOT2	5/14/2025	5/14/2026
Upper Neck Load Cell	Humanetics	2019-FX	9/12/2024	9/12/2025





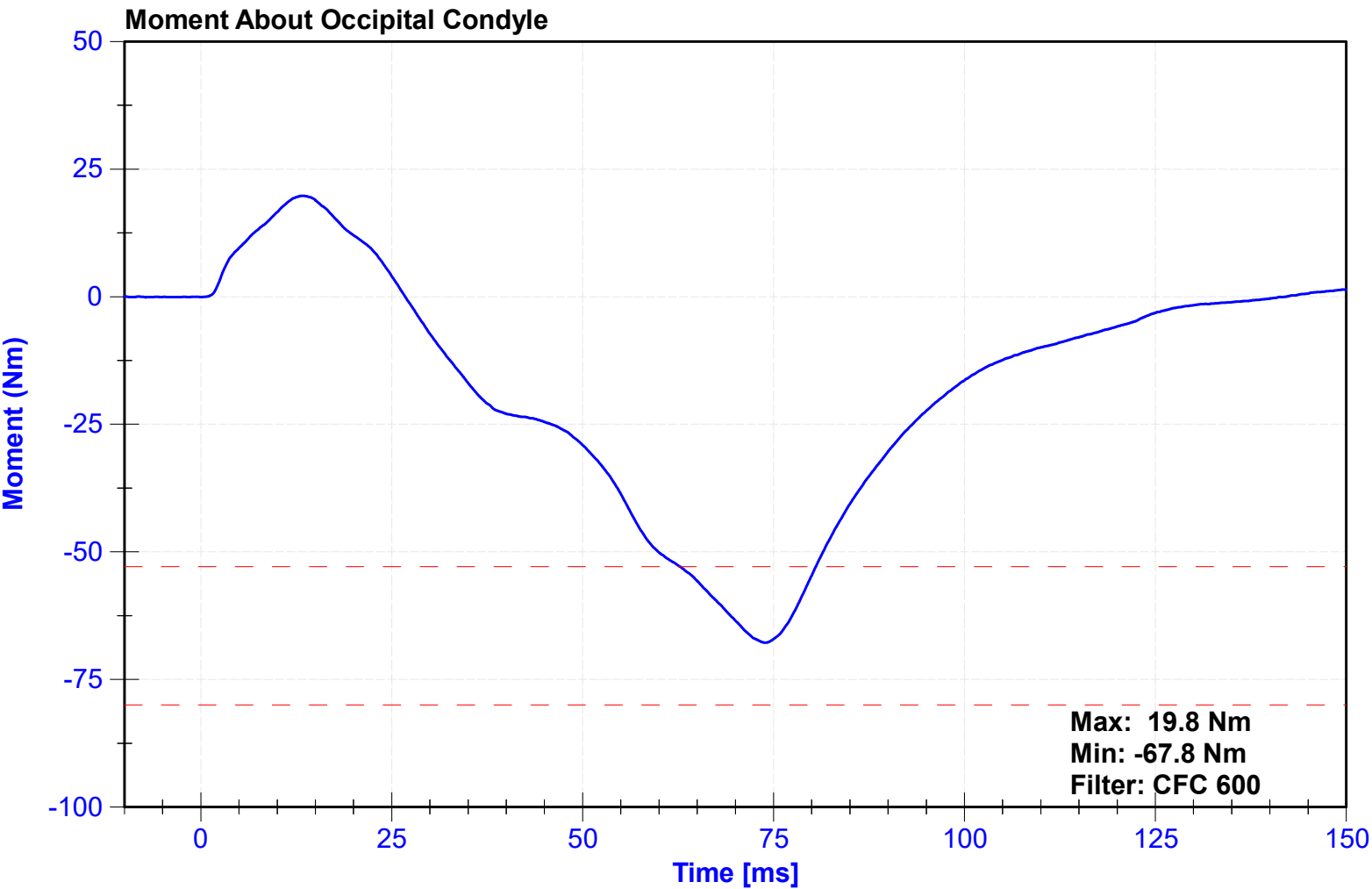
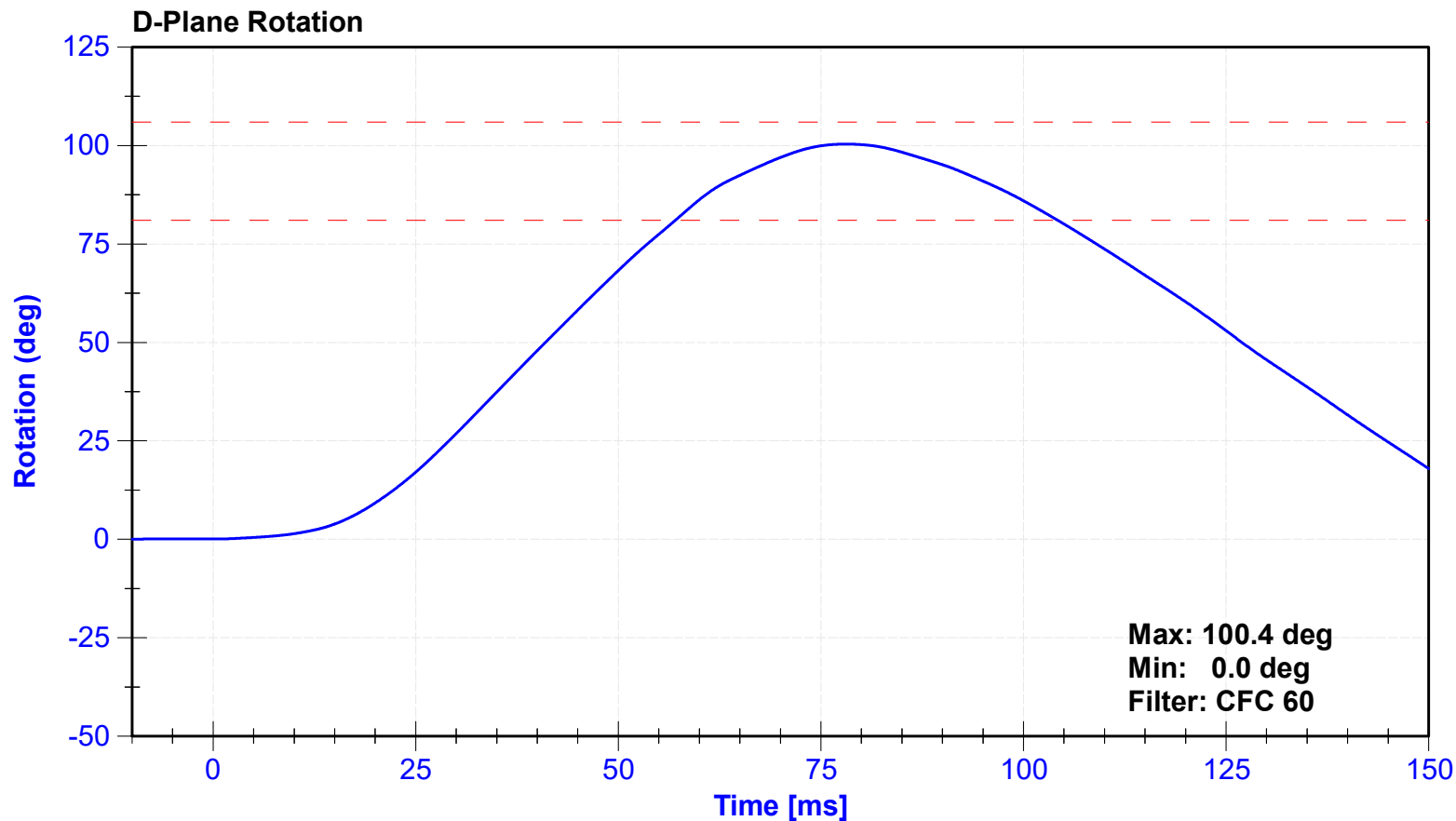
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

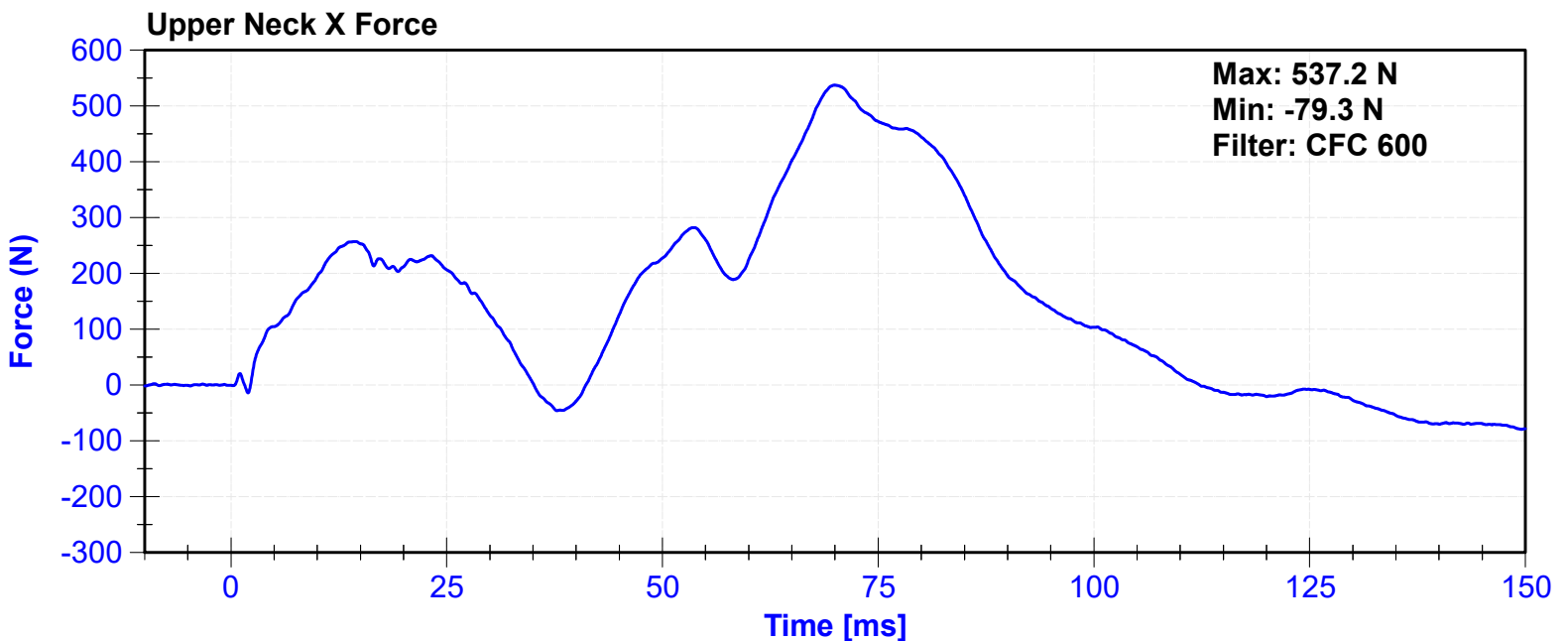
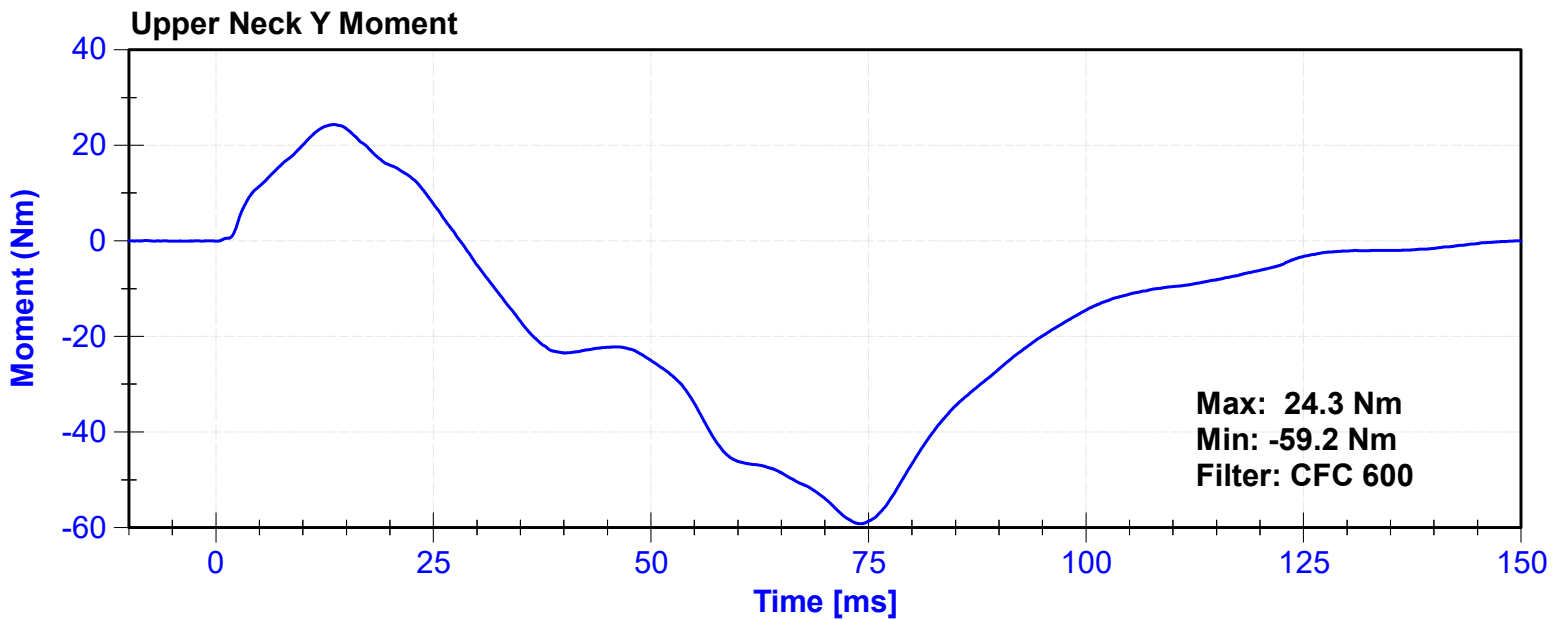
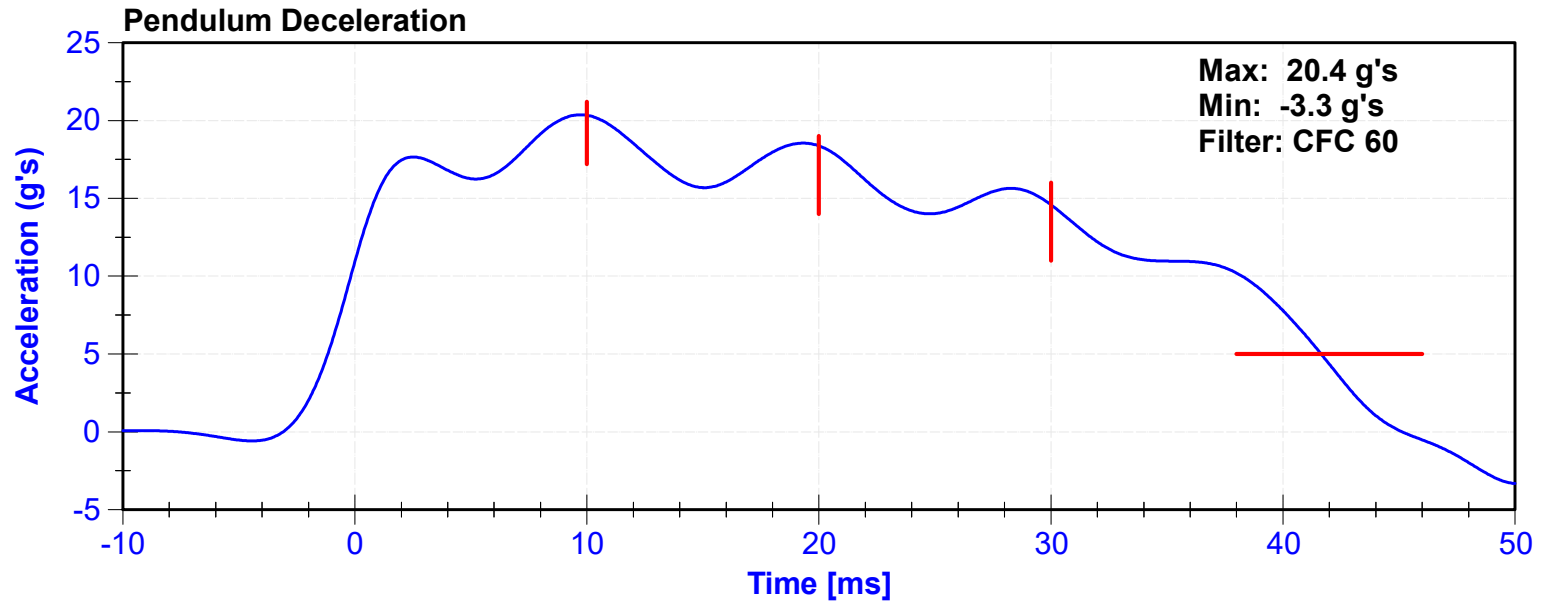
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	52	Pass
Velocity	5.94	6.19	m/s	6.011	Pass
Pendulum Deceleration at 10ms	17.2	21.2	g's	20.33	Pass
Pendulum Deceleration at 20ms	14	19	g's	18.4	Pass
Pendulum Deceleration at 30ms	11	16	g's	14.6	Pass
Max. Pendulum Deceleration After 30ms	0	22	g's	20.4	Pass
Pendulum Deceleration Time to 5 g's	38	46	ms	41.6	Pass
Maximum D Plane Rotation	81	106	deg	100.4	Pass
Time to Maximum Rotation	72	82	ms	78.1	Pass
Rotation Decay to Zero	147	174	ms	163.5	Pass
Minimum Moment About OC	-80	-52.9	Nm	-67.80	Pass
Time to Minimum Moment	65	79	ms	73.9	Pass
Moment Decay to Zero	120	148	ms	142.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Pendulum Potentiometer	ETI	SP22G_LABPOT1	5/14/2025	5/14/2026
Condyle Potentiometer	ETI	SP22G_LABPOT2	5/14/2025	5/14/2026
Upper Neck Load Cell	Humanetics	2019-FX	9/12/2024	9/12/2025





ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

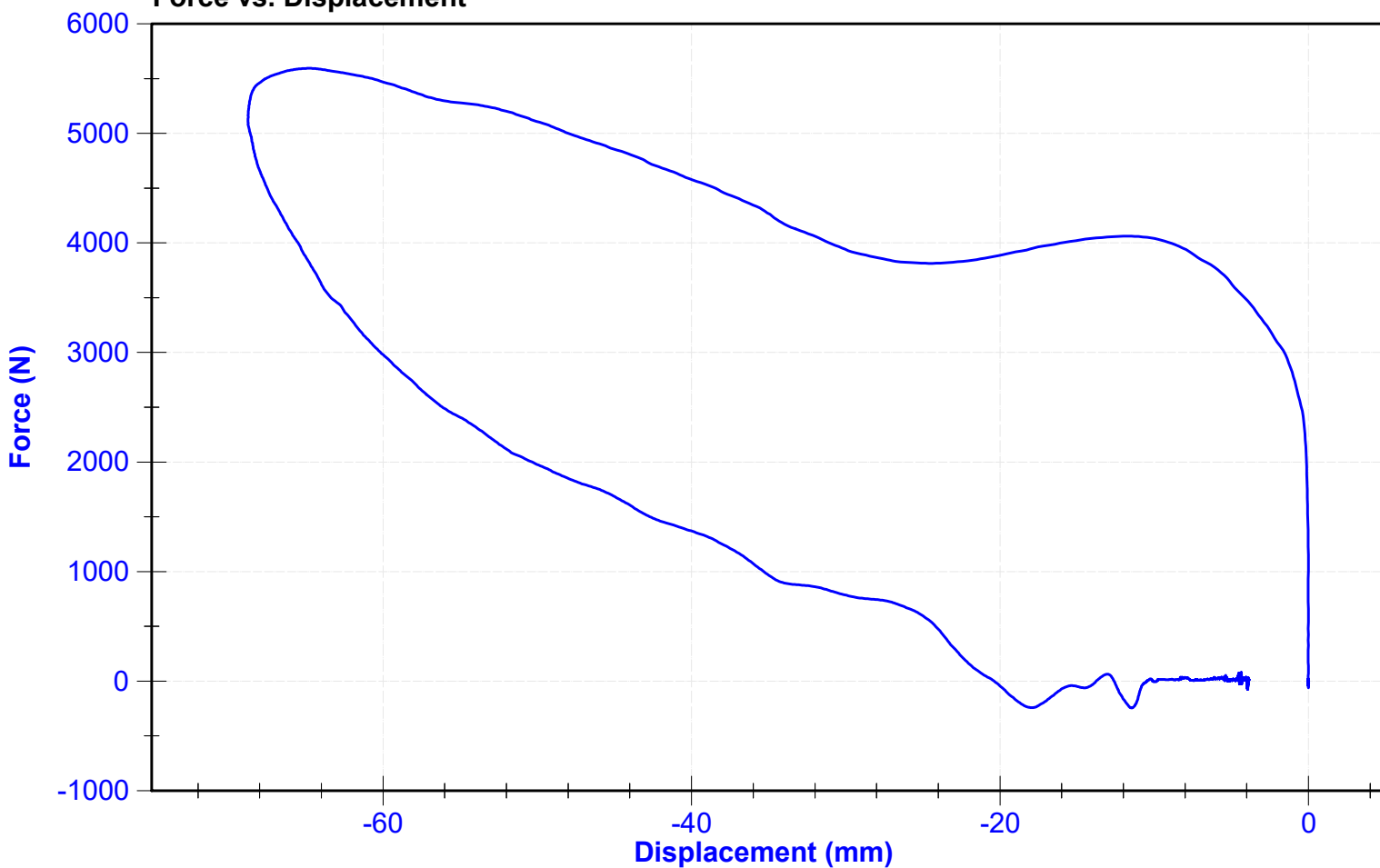
Results

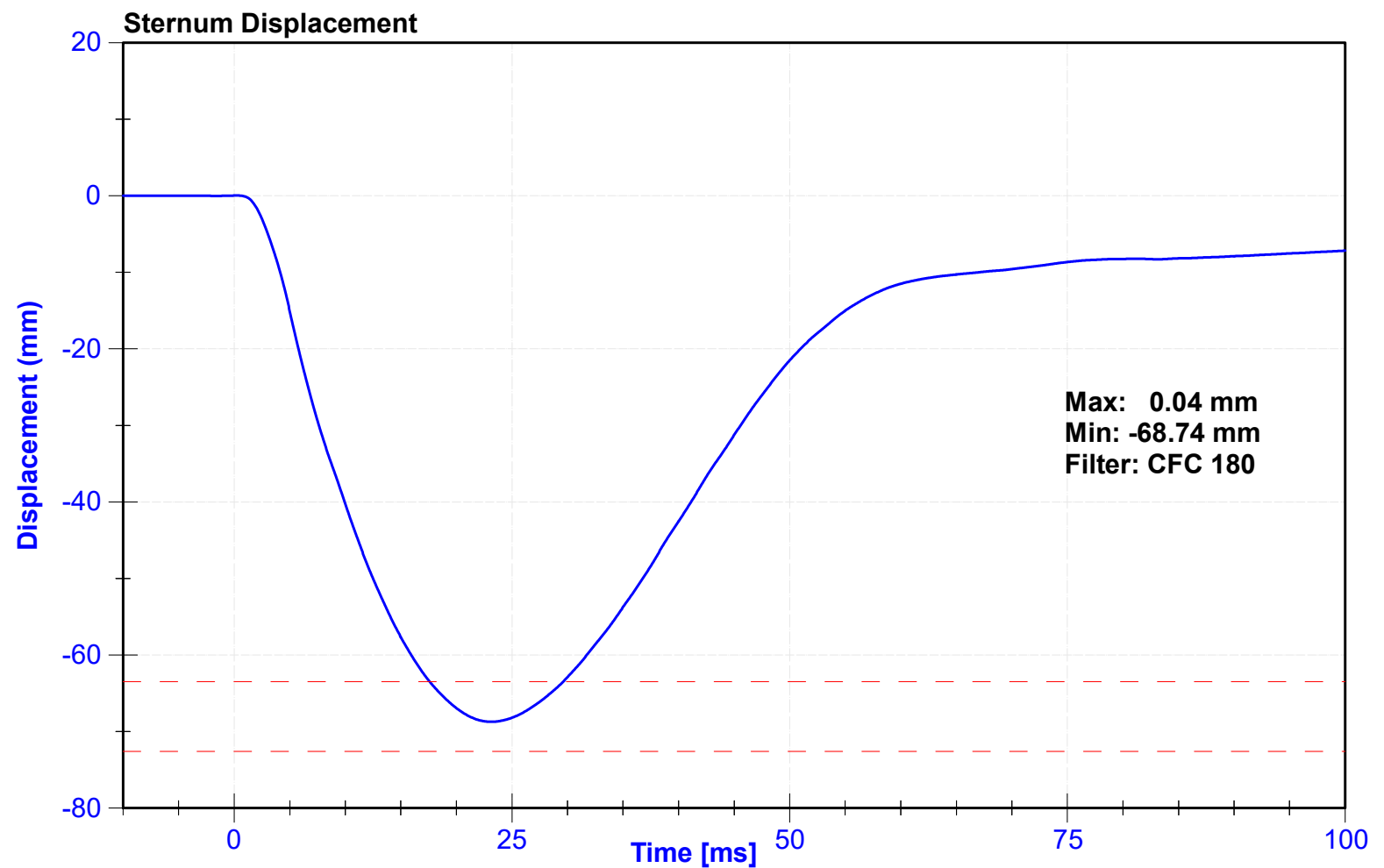
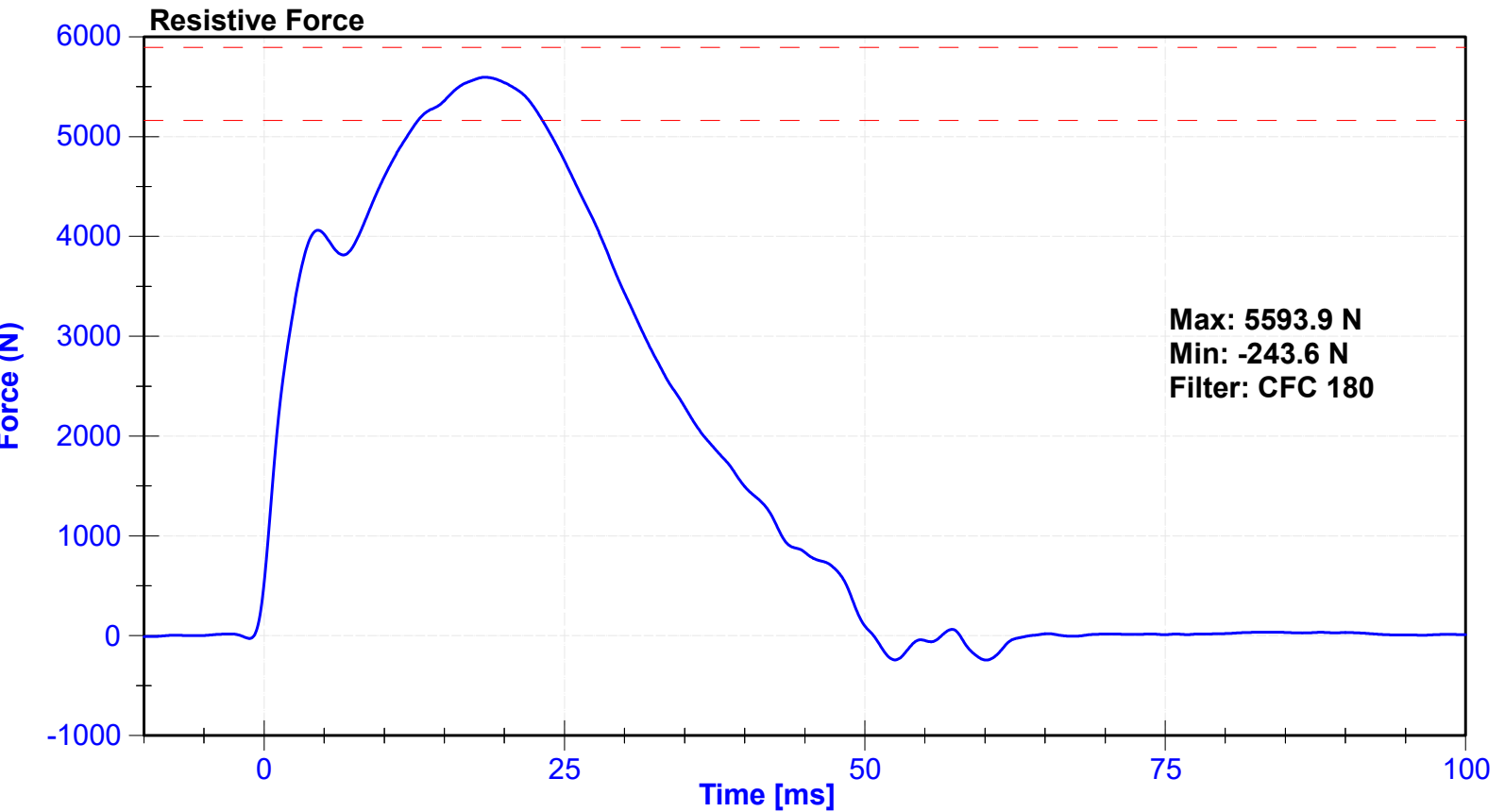
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	52	Pass
Velocity	6.59	6.83	m/s	6.679	Pass
Chest Displacement	-72.6	-63.5	mm	-68.74	Pass
Resistive Force	5160	5894	N	5593.9	Pass
Hysteresis	69	85	%	70.8	Pass

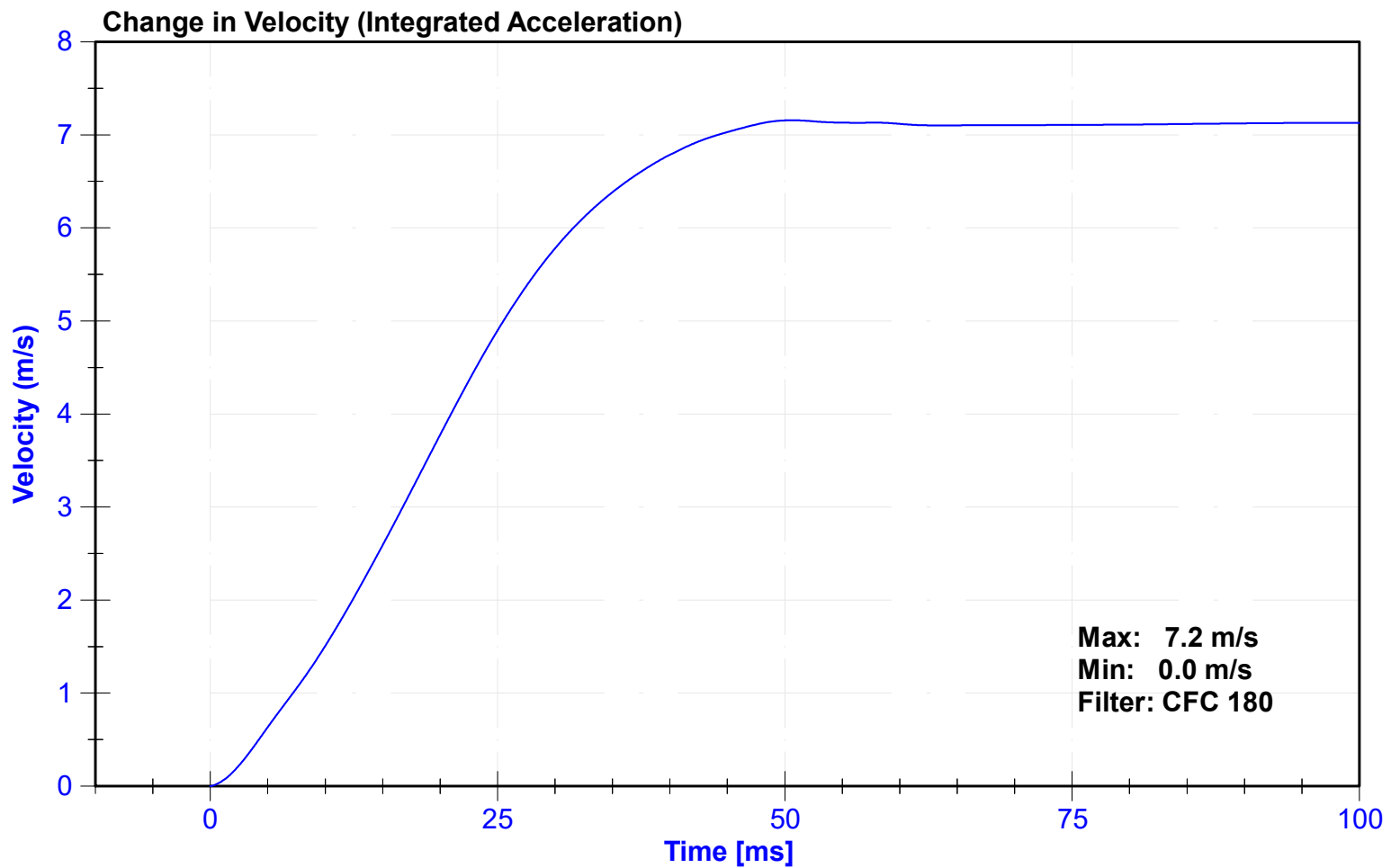
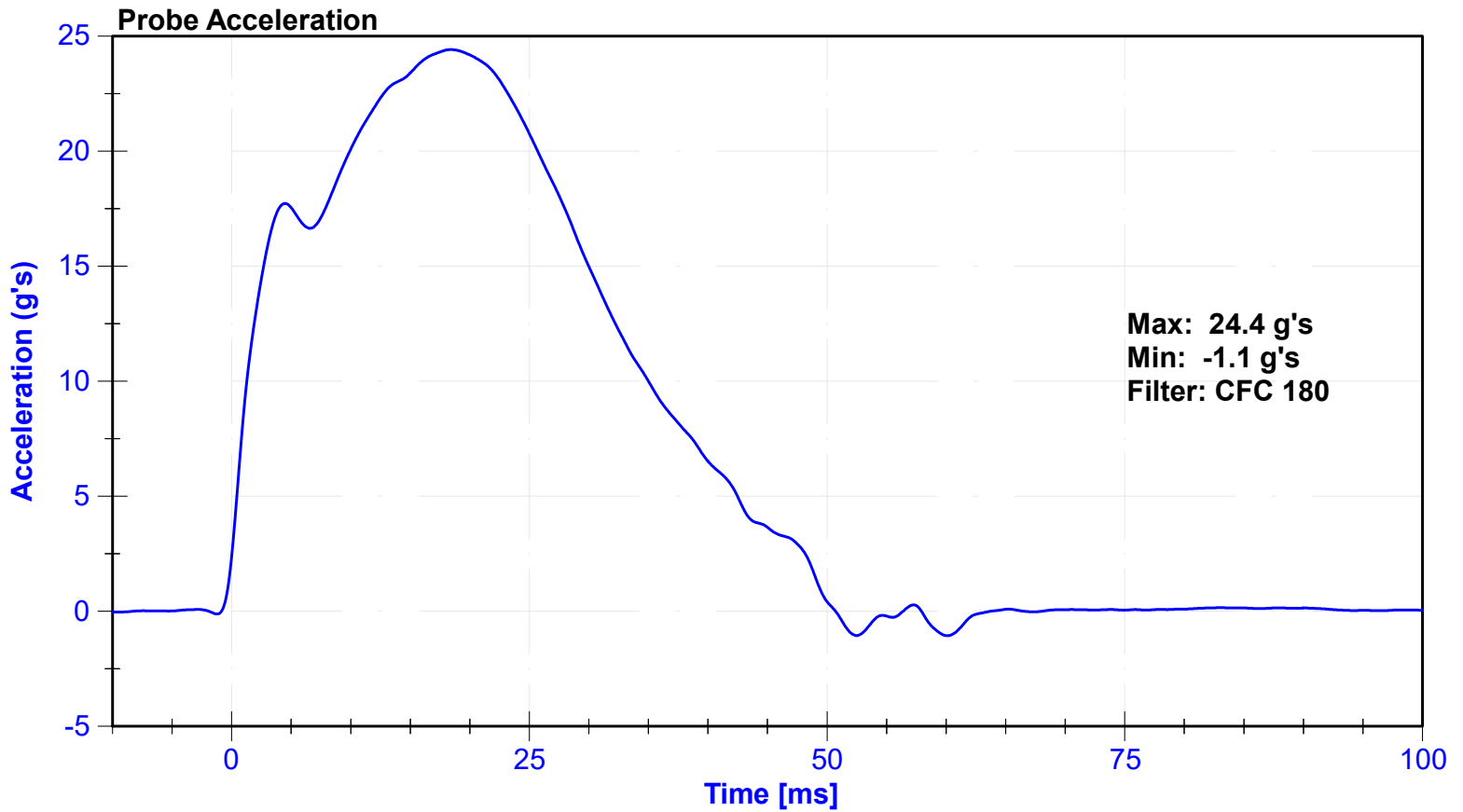
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Chest Potentiometer	Servo	1046	6/10/2025	12/9/2025

Force vs. Displacement







ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

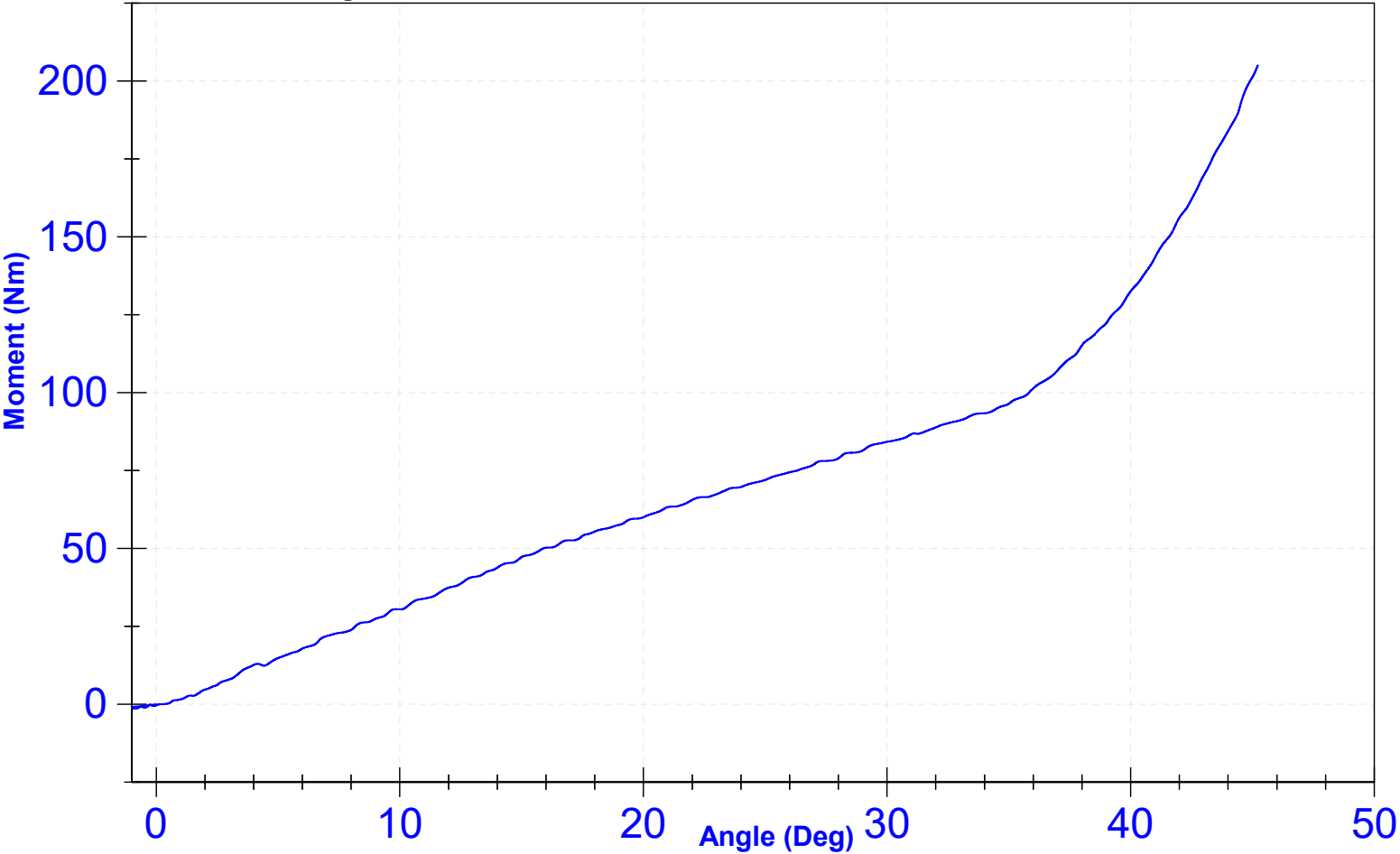
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	23.2	Pass
Humidity	10	70	%	51	Pass
Average Velocity	5	10	deg/s	7.3	Pass
Angle at 203Nm	40	50	deg	45.1	Pass
Moment at 30 degrees	0	94.9	Nm	84.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	ETI SP22	DS0008	9/23/2024	9/23/2025
Load Cell	PCB 2301-02	115	2024-11-11	2025-11-11

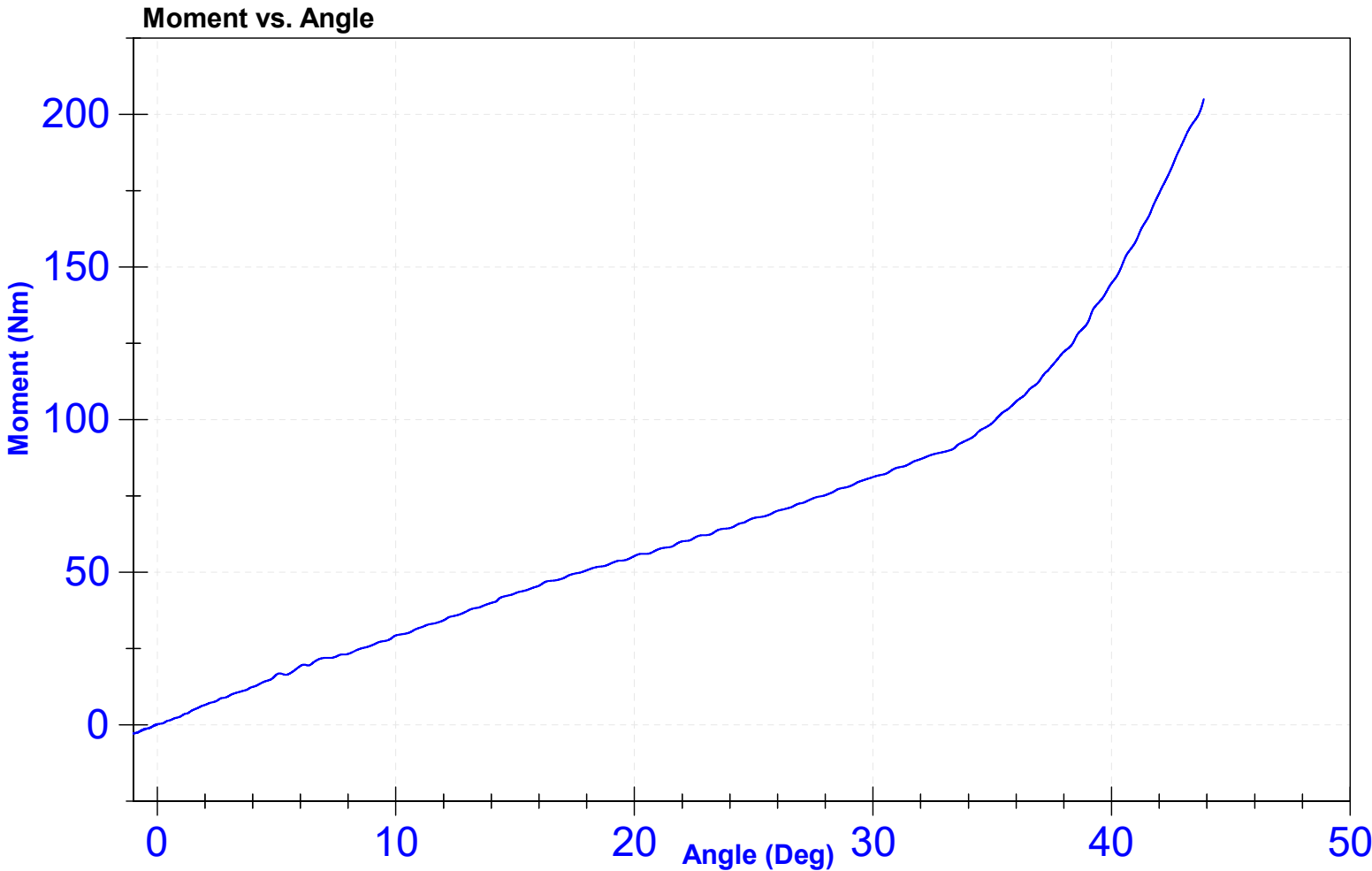
Moment vs. Angle



ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

Test Parameter	Results		Unit	Result	Pass/Fail
	Minimum Specification	Maximum Specification			
Temperature	18.9	25.6	°C	23.2	Pass
Humidity	10	70	%	51	Pass
Average Velocity	5	10	deg/s	7.3	Pass
Angle at 203Nm	40	50	deg	43.8	Pass
Moment at 30 degrees	0	94.9	Nm	81.1	Pass

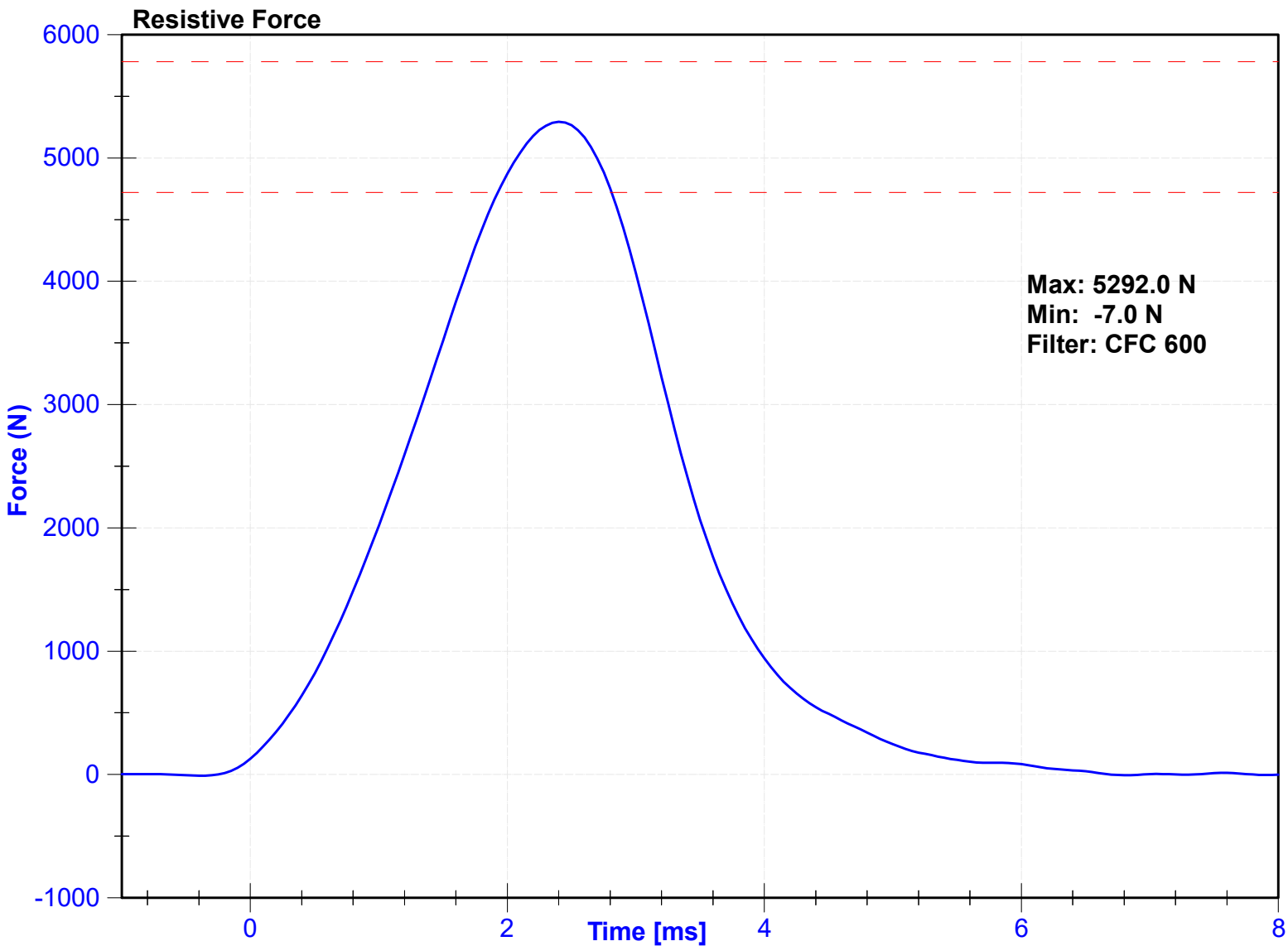
Transducer Calibrations				
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	ETI SP22	DS0008	9/23/2024	9/23/2025
Load Cell	PCB 2301-02	115	2024-11-11	2025-11-11

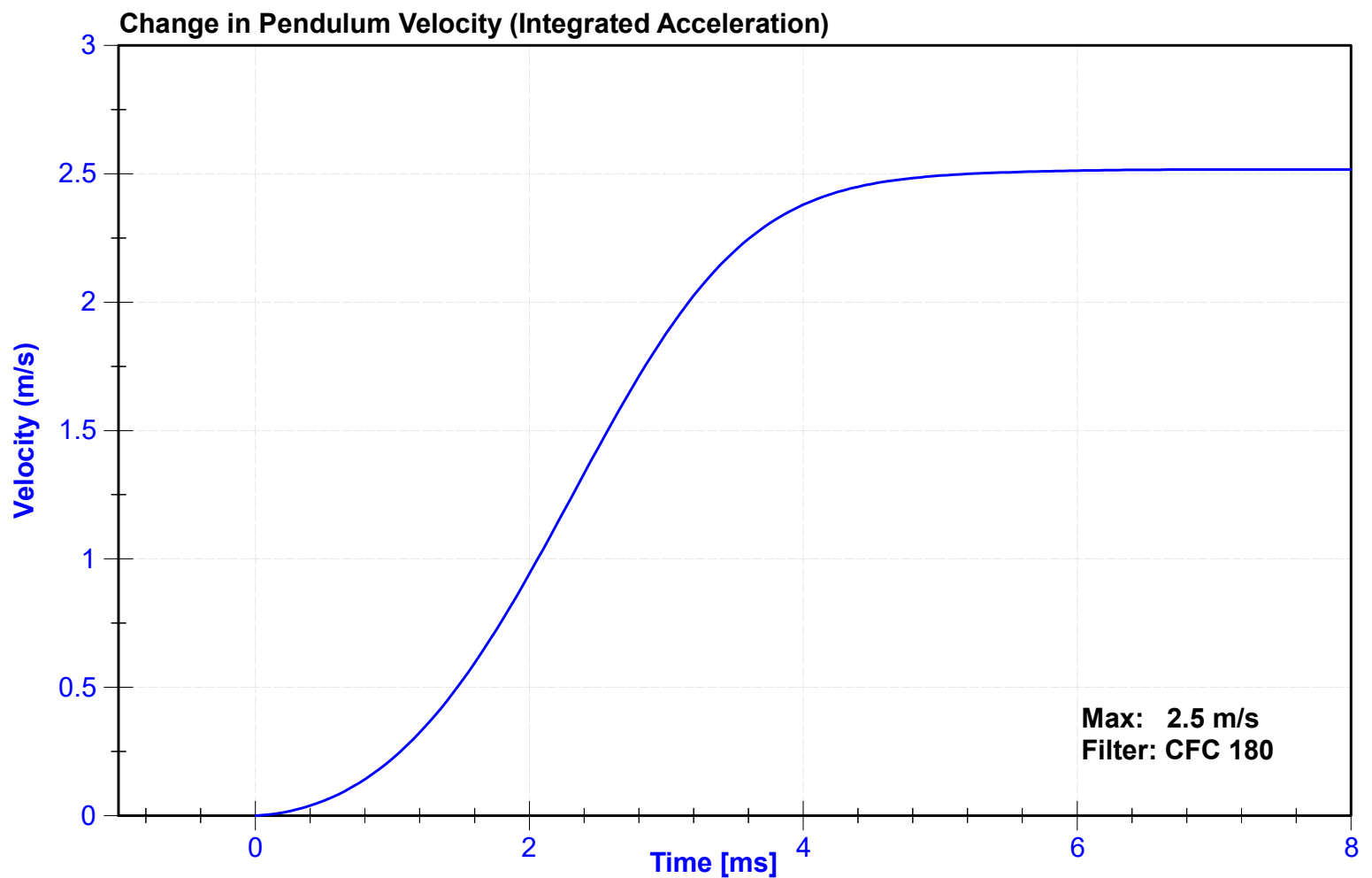
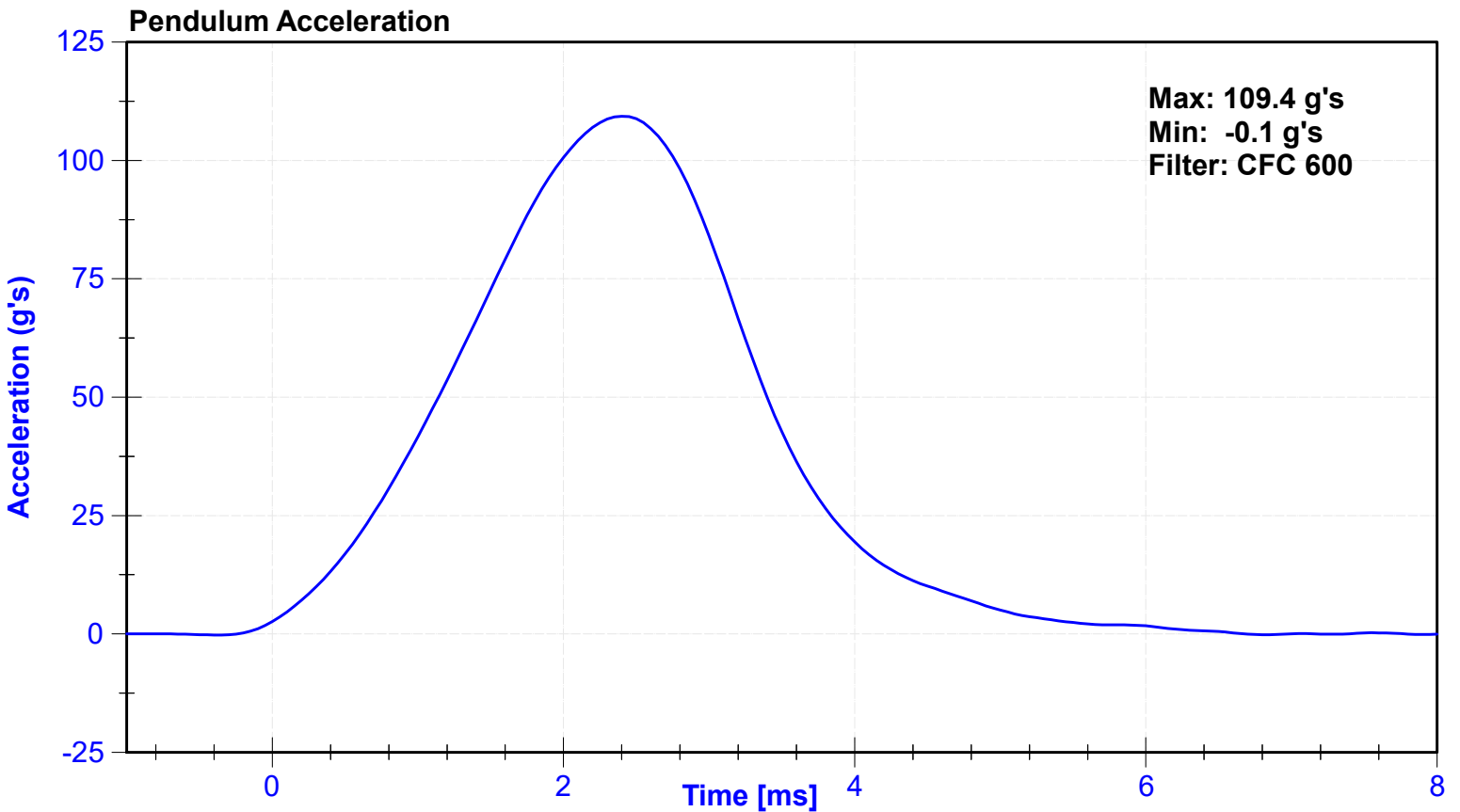


ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

Results					
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	22.1	Pass
Humidity	10	70	%	52	Pass
Velocity	2.07	2.13	m/s	2.090	Pass
Maximum Resistive Force	4720	5780	N	5292.0	Pass

Transducer Calibrations				
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025





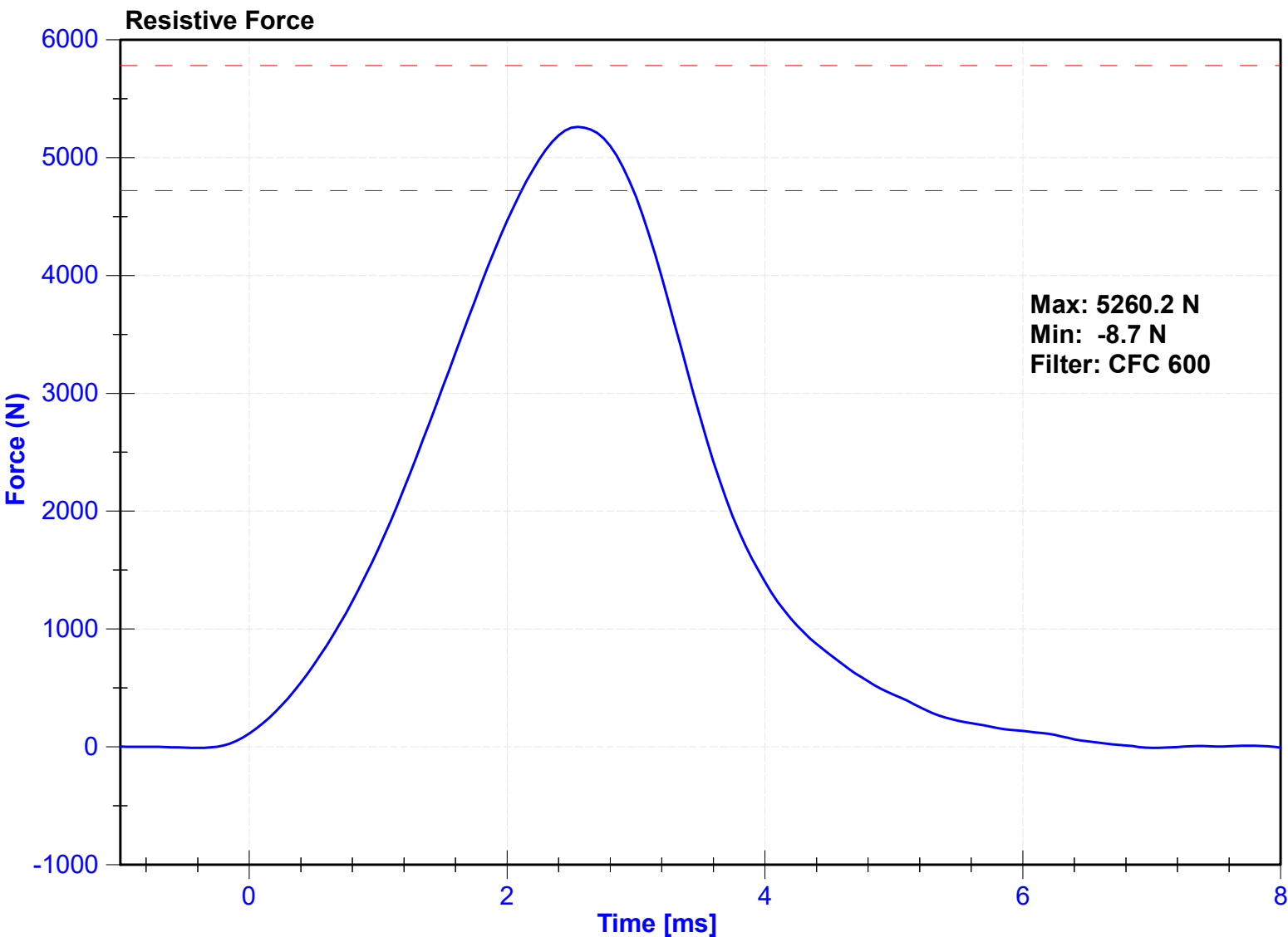
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

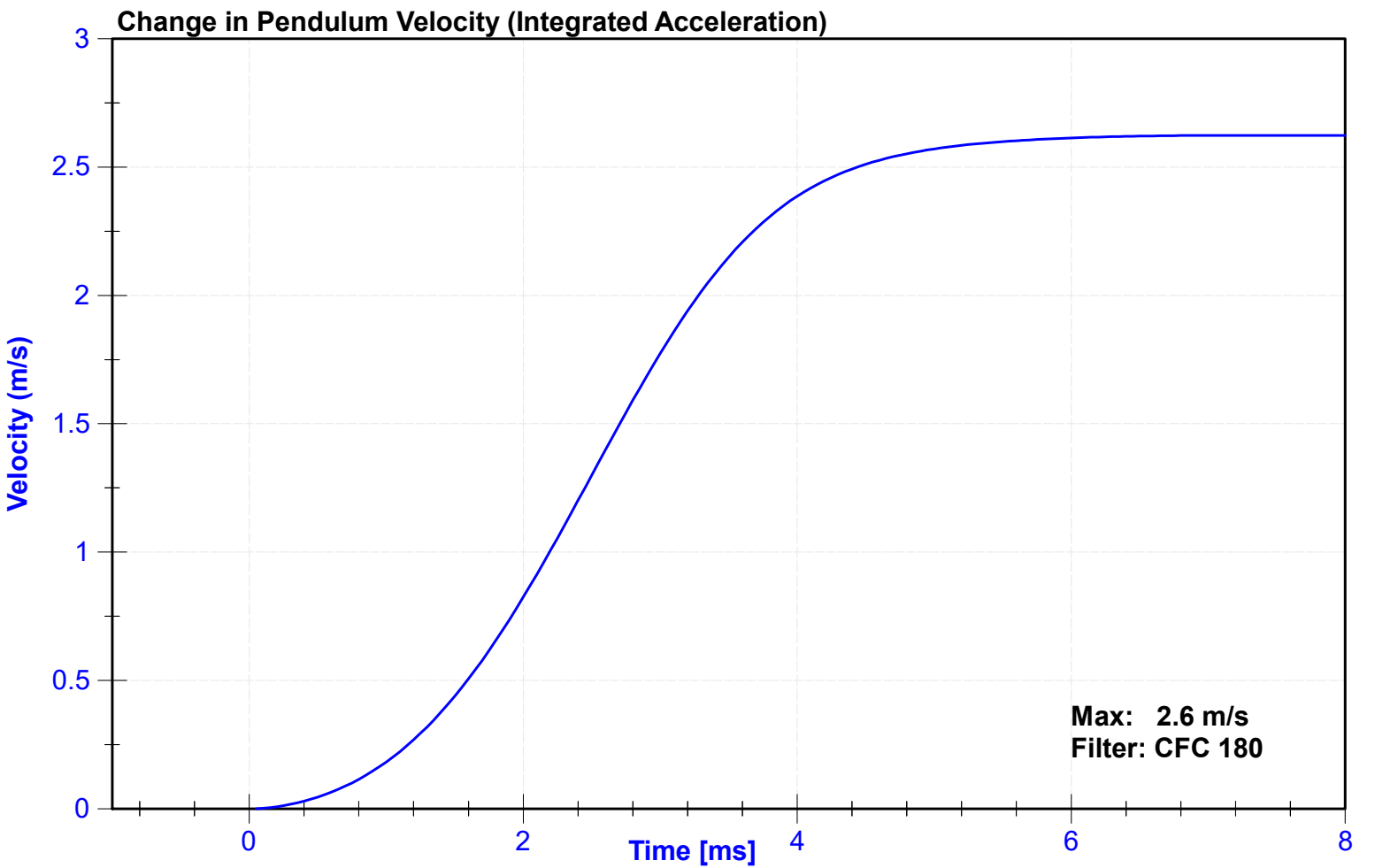
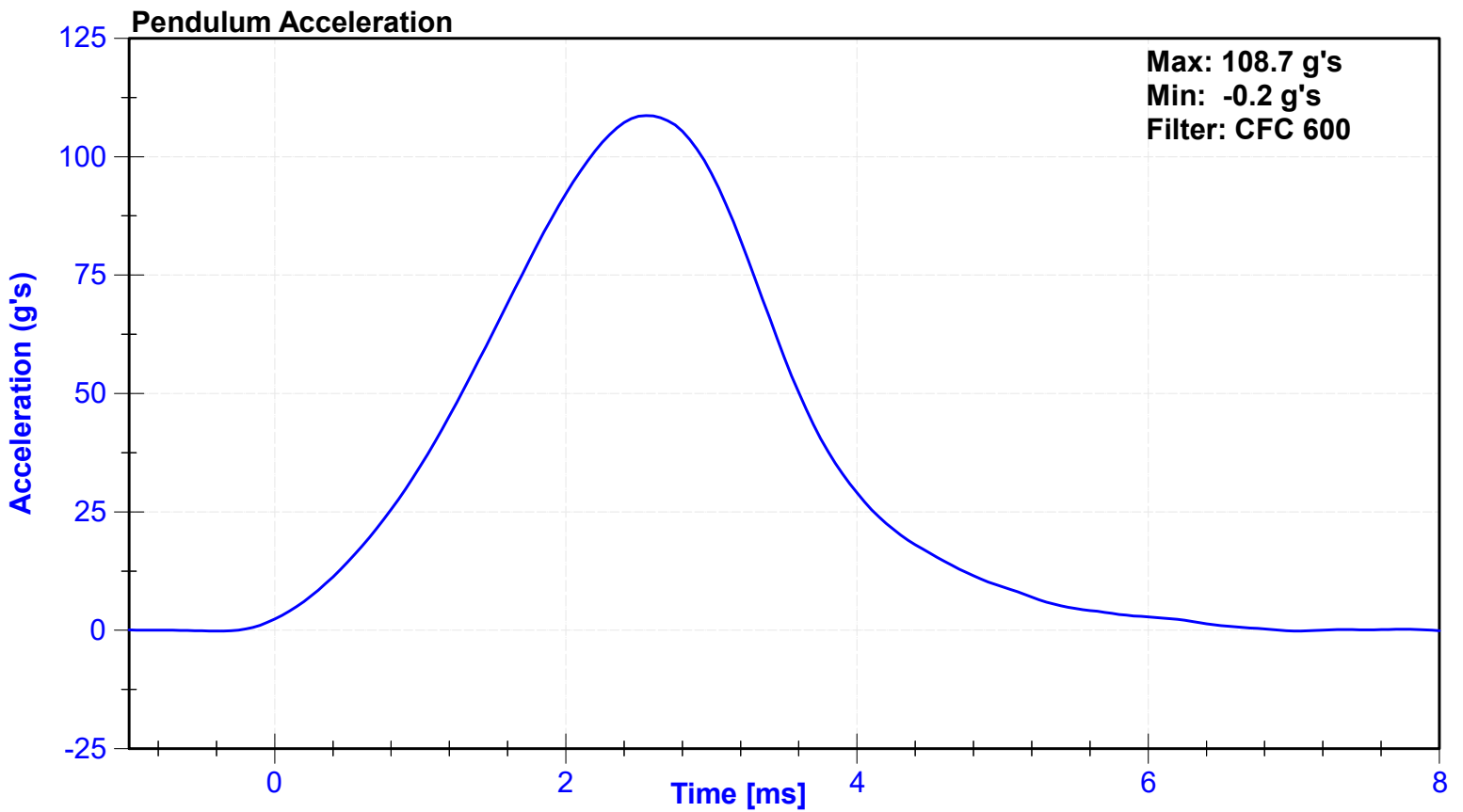
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	22.1	Pass
Humidity	10	70	%	52	Pass
Velocity	2.07	2.13	m/s	2.092	Pass
Maximum Resistive Force	4720	5780	N	5260.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025





CALIBRATION TEST RESULTS

PRE-TEST

HYBRID III 5TH PERCENTILE - PASSENGER ATD

SERIAL NO: 137

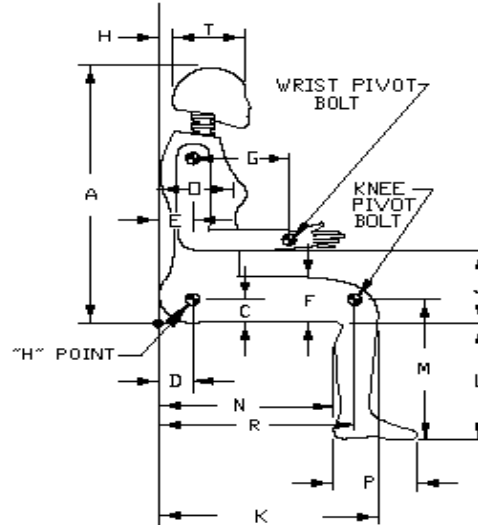
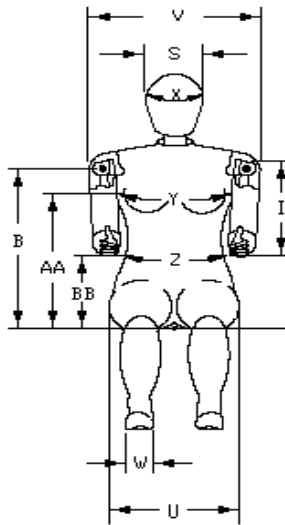


External Measurements - Hybrid 3 - 5th Female

Technician: **J. Rios**

Date: **07/12/2025**

Dummy Serial Number: **137**



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	775	800	787	Pass
B	Shoulder Pivot Height	432	457	442	Pass
C	H-Point Height	81	86	84	Pass
D	H-Point from Backline	145	150	148	Pass
E	Shoulder Pivot from Backline	69	84	77	Pass
F	Thigh Clearance	119	135	129	Pass
G	Back of Elbow to Wrist Pivot	244	259	254	Pass
H	Head Back to Backline	43	48	46	Pass
I	Shoulder to Elbow Length	277	297	289	Pass
J	Elbow Rest Height	183	203	189	Pass
K	Buttock to Knee Length	521	546	531	Pass
L	Popliteal Height	356	376	360	Pass
M	Knee Pivot Height	394	419	407	Pass
N	Buttock Popliteal Length	414	439	431	Pass
O	Chest Depth without Jacket	175	191	184	Pass
P	Foot Length (right)	219	234	226	Pass
R	Buttock To Knee Pivot Length	457	483	469	Pass
S	Head Breadth	137	147	141	Pass
T	Head Depth	178	188	182	Pass
U	Hip Breadth	300	315	311	Pass
V	Shoulder Breadth	351	366	358	Pass
W	Foot Breadth	79	94	84	Pass
X	Head Circumference	528	549	540	Pass
Y	Chest Circumference with Jacket	851	881	874	Pass
Z	Waist Circumference	460	790	645	Pass
AA	Reference Location (Chest Circumference)	333	358	342	Pass
BB	Reference Location (Waist Circumference)	160	170	164	Pass

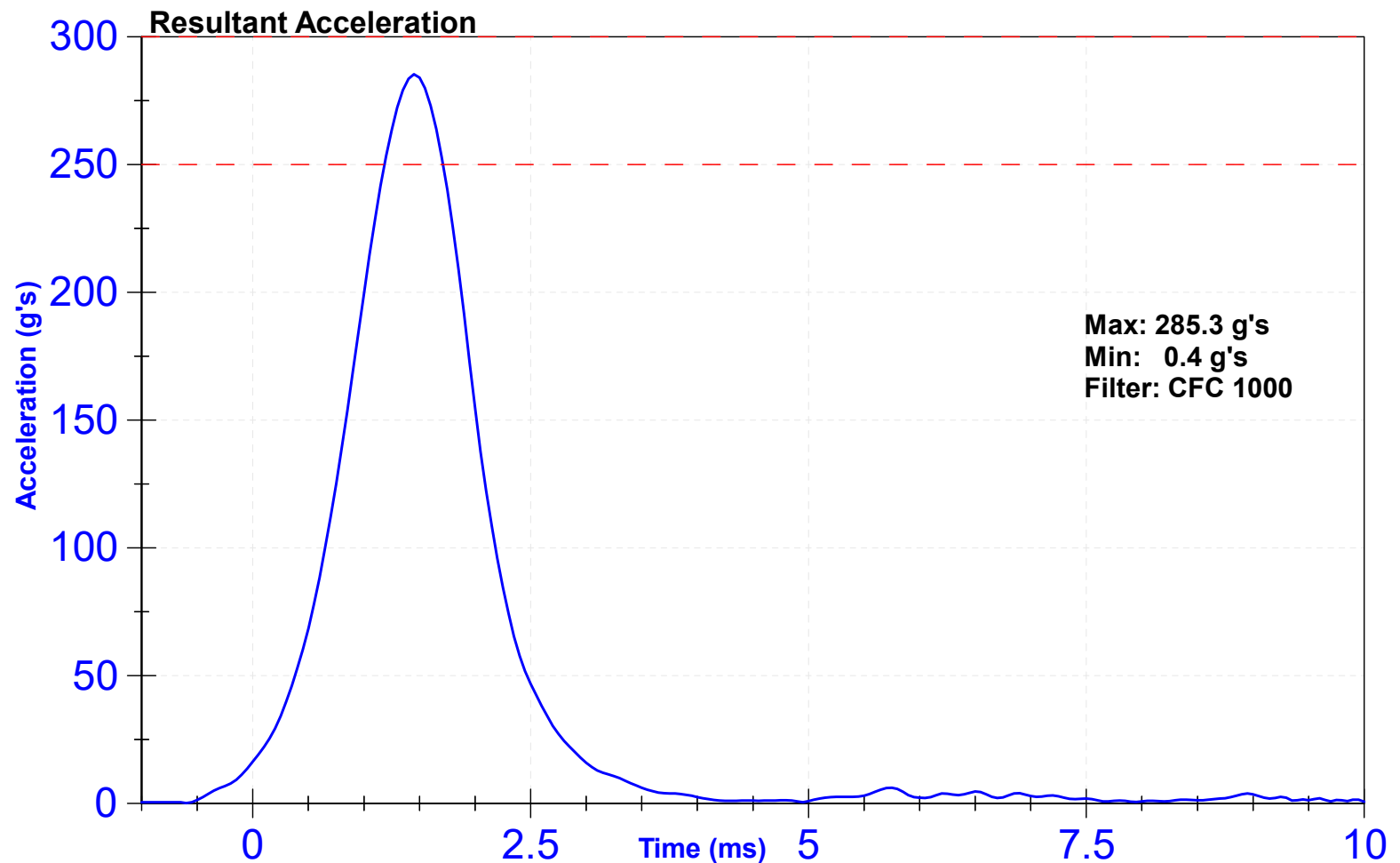
ATD Manufacturer	Humanetics	Test Technician	D. Sakona
ATD Serial Number	137	Laboratory Supervisor	J, Kinderman

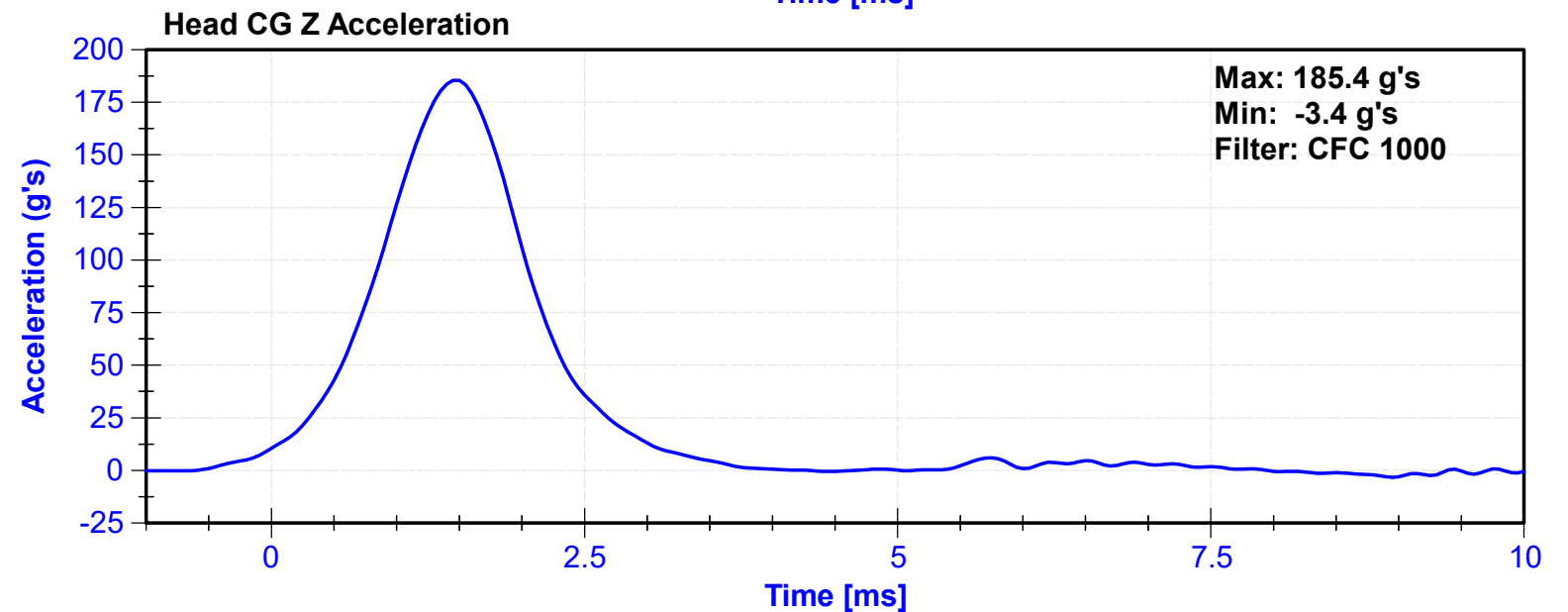
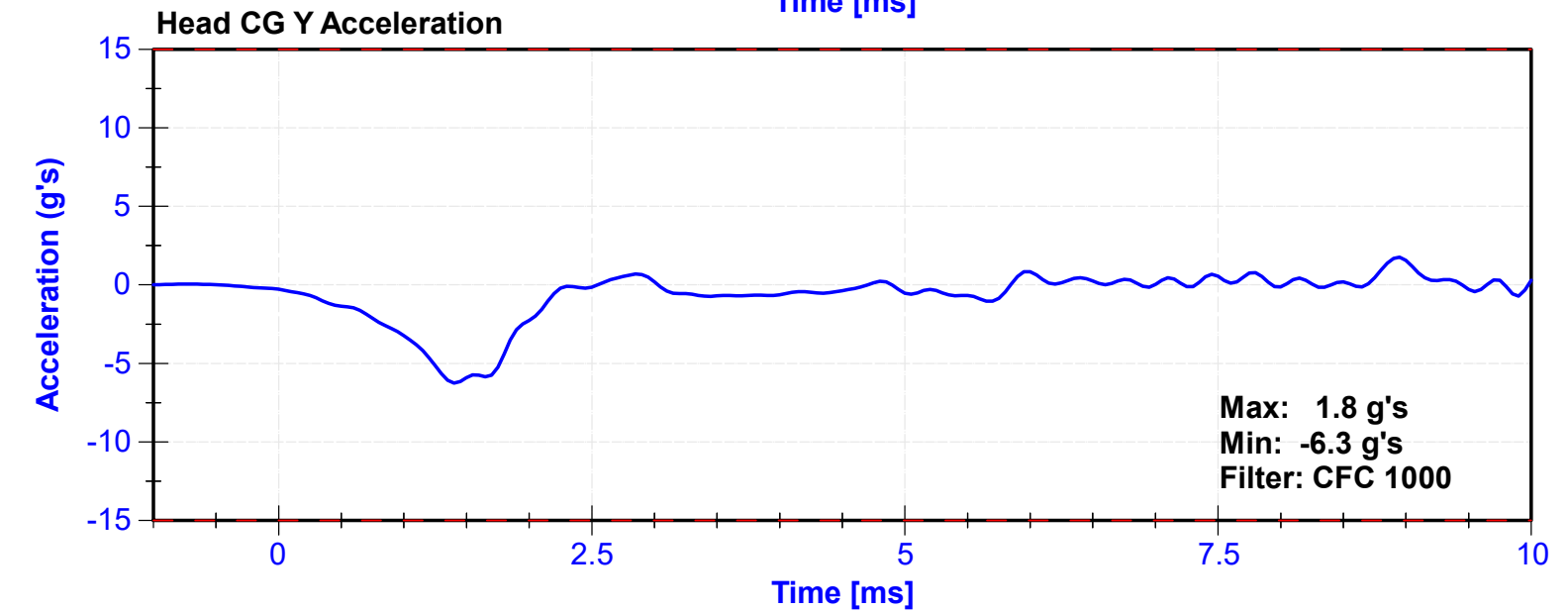
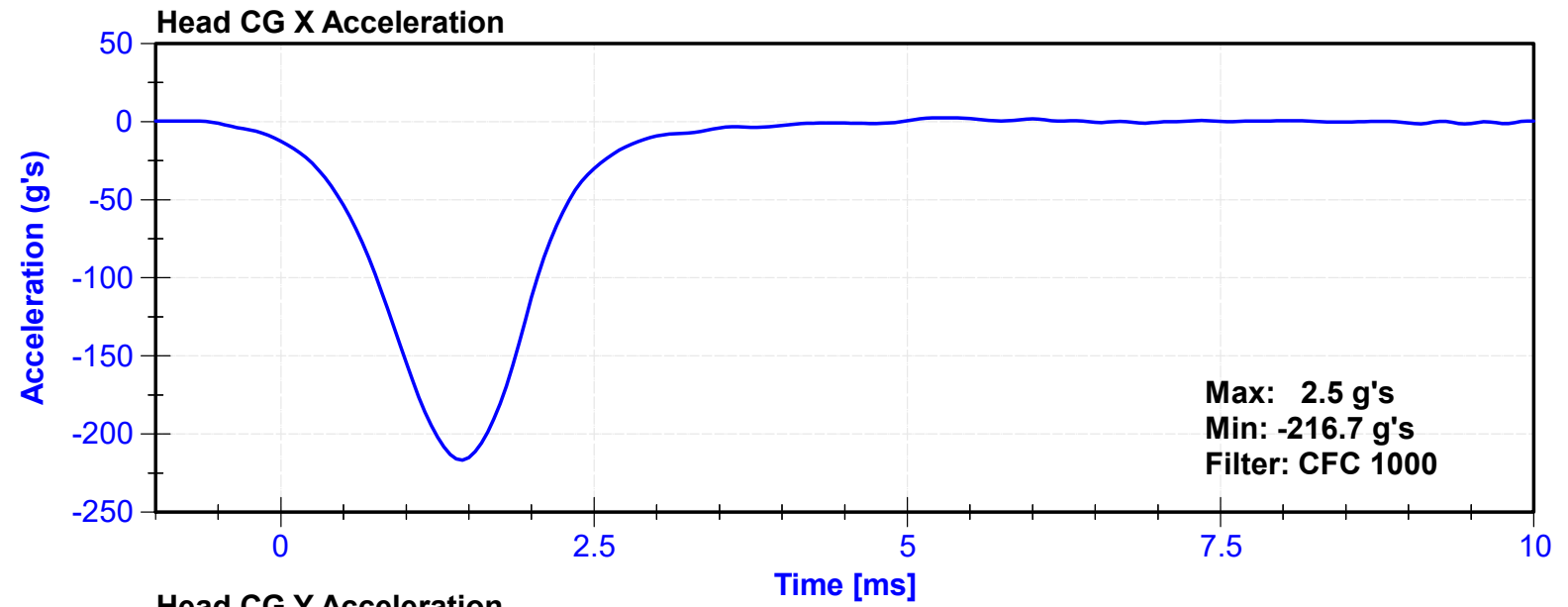
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.4	Pass
Humidity	10	70	%	54	Pass
Resultant Acceleration	250	300	g's	285.3	Pass
Oscillation	0	10	%	2.1	Pass
Lateral Acceleration	-15	15	g's	-6.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P79417	6/11/2025	12/8/2025
Y Accelerometer	Endevco	P83335	6/11/2025	12/8/2025
Z Accelerometer	Endevco	P64149	6/11/2025	12/8/2025





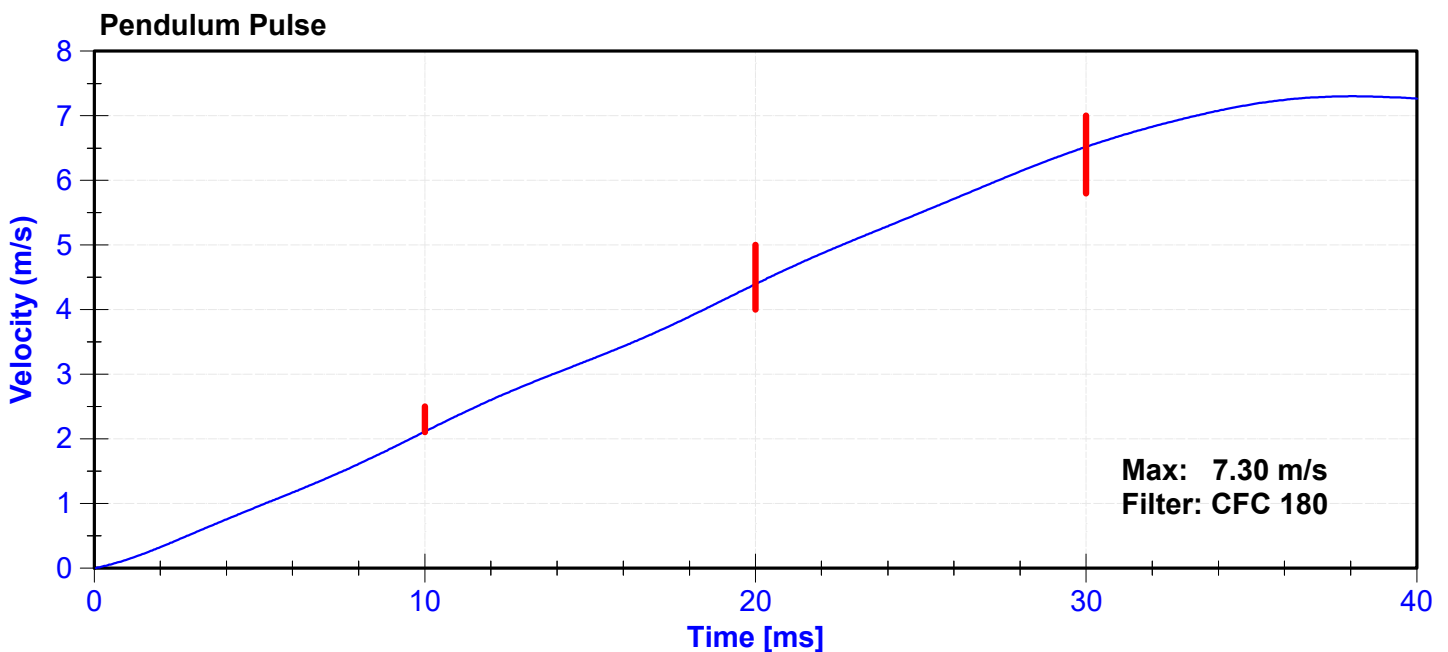
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

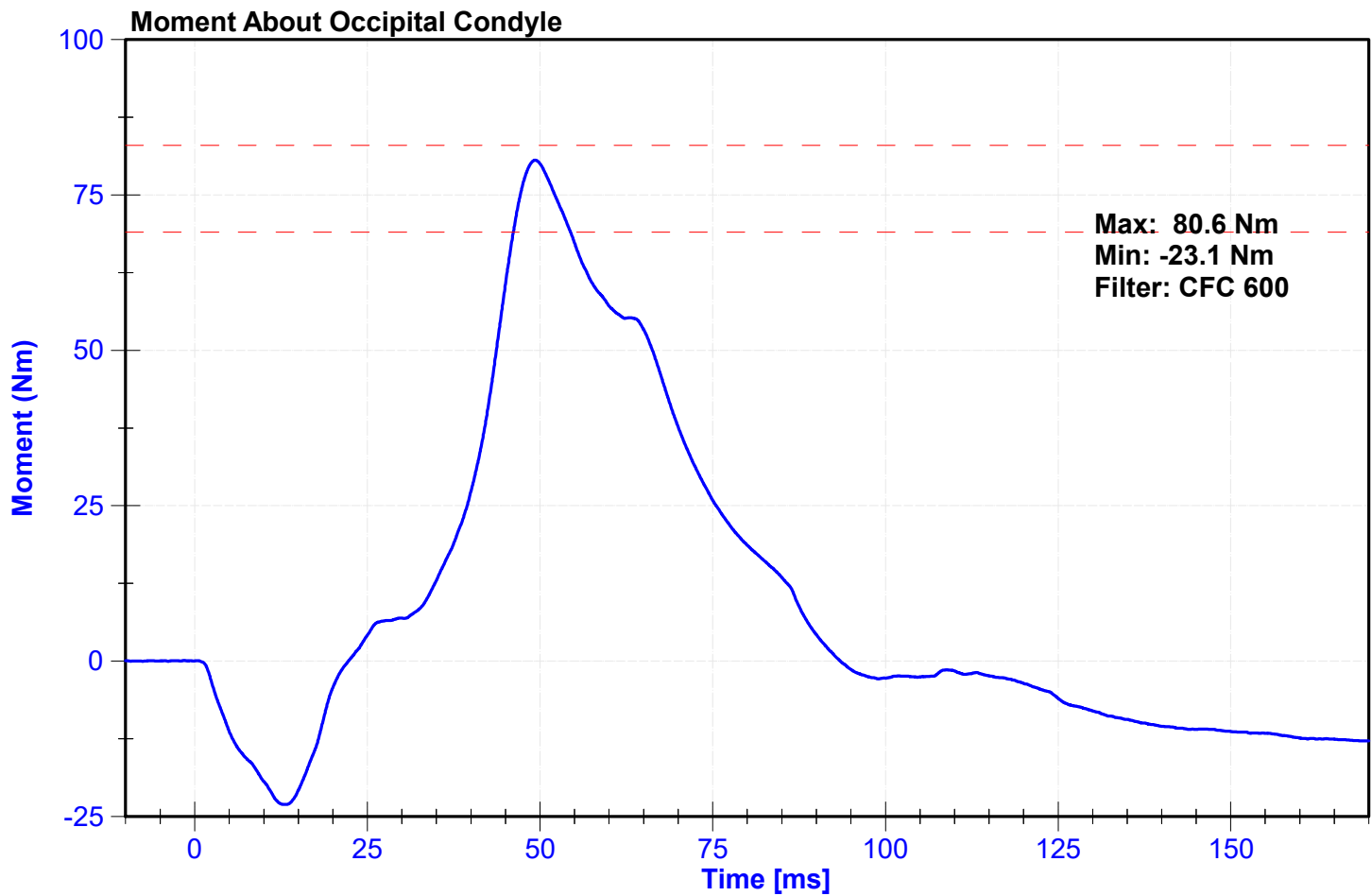
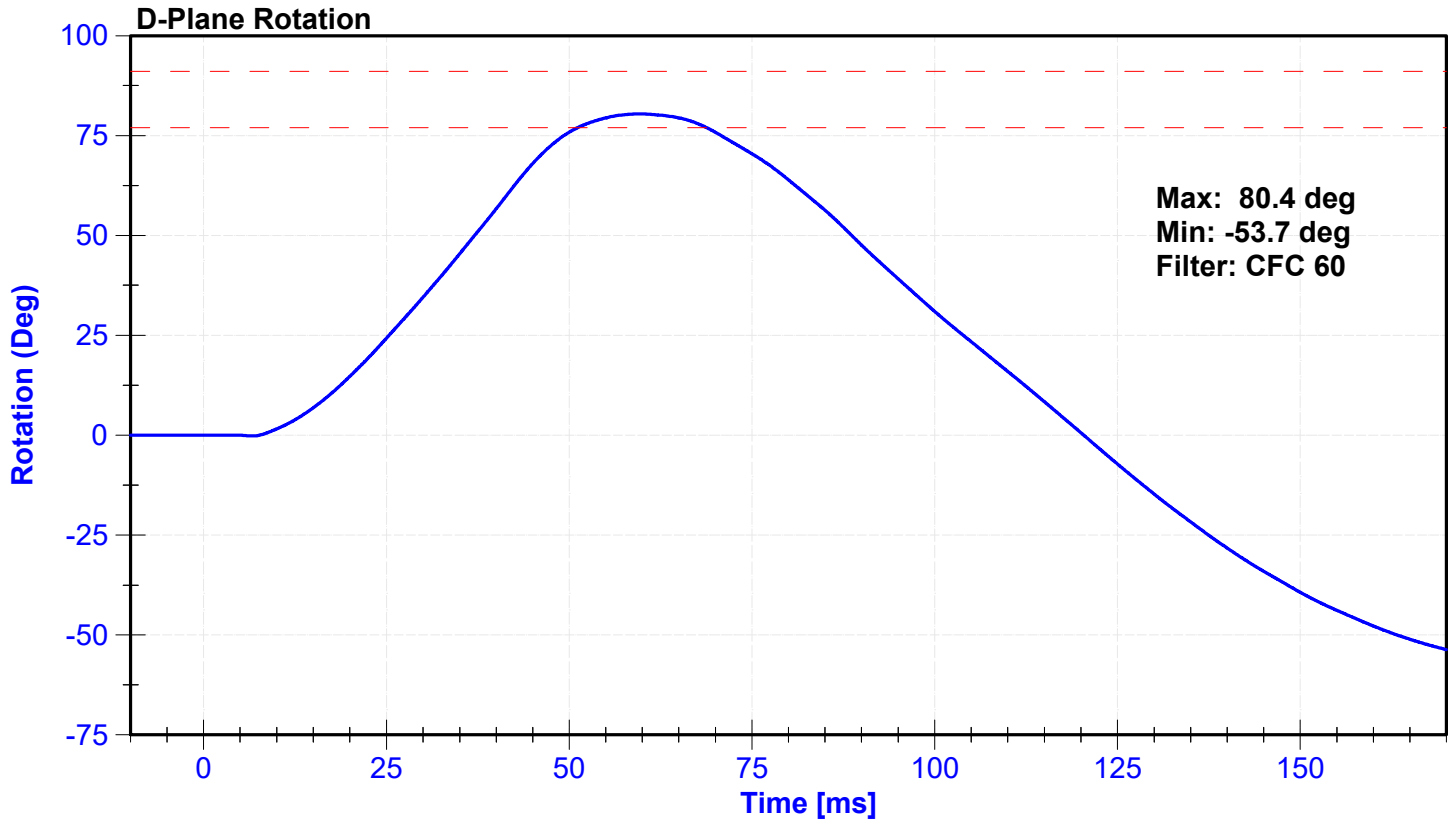
Results

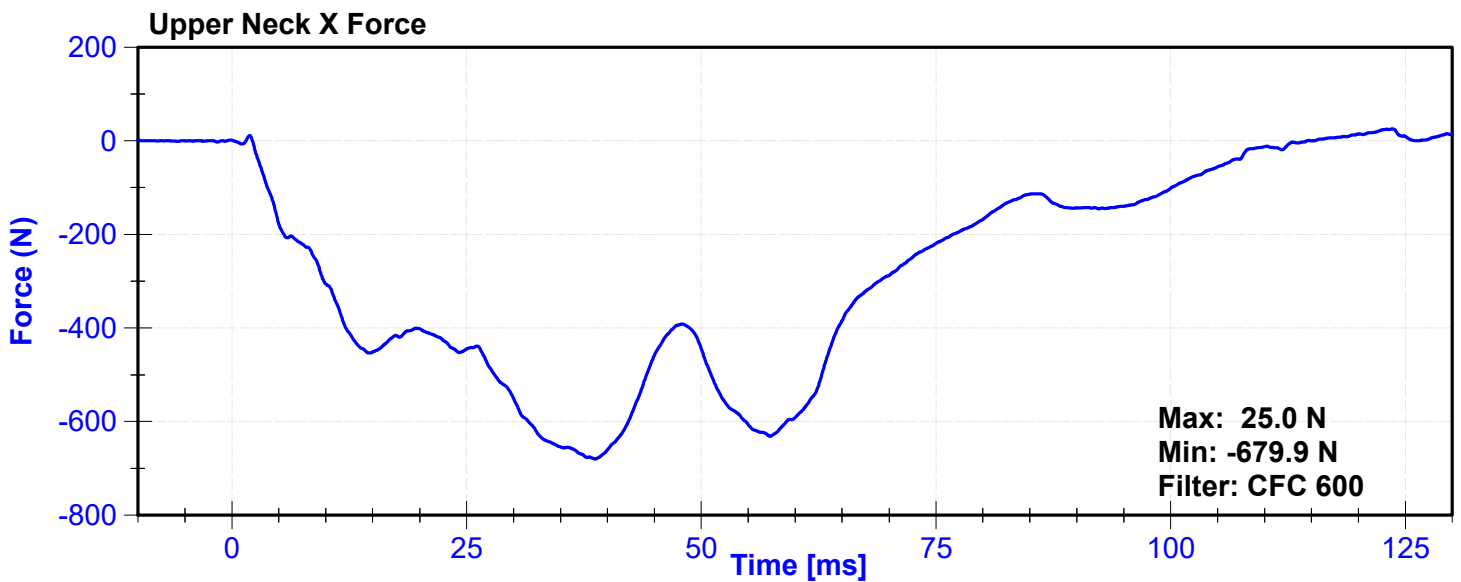
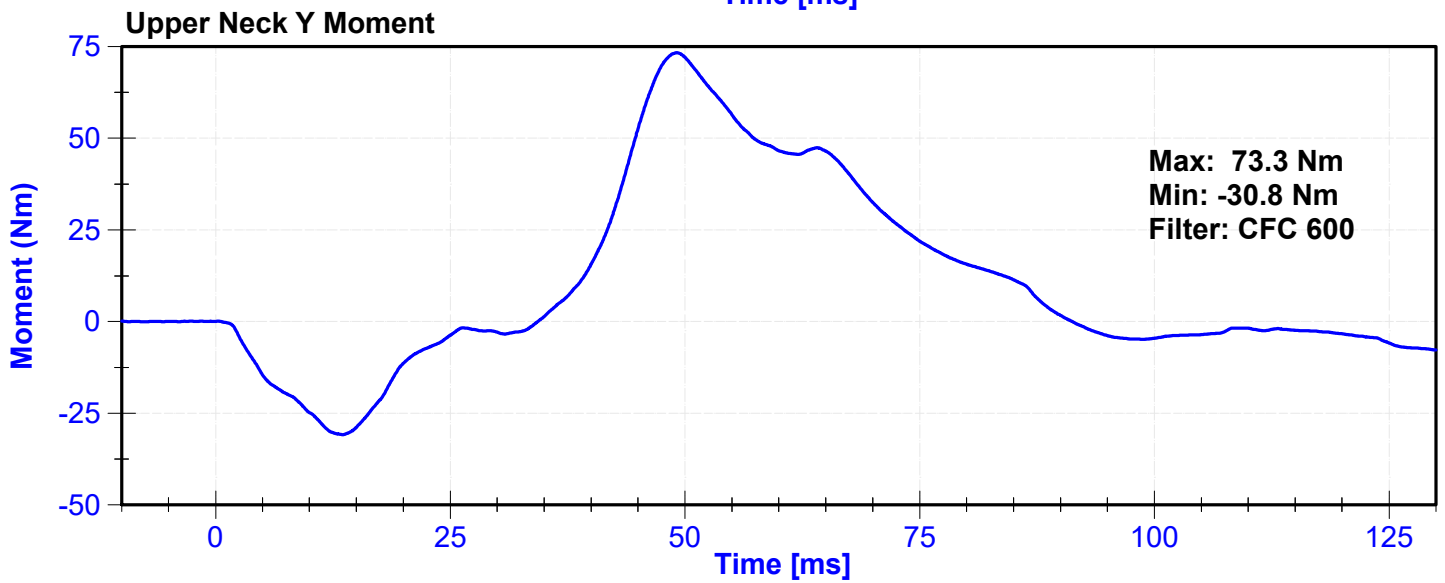
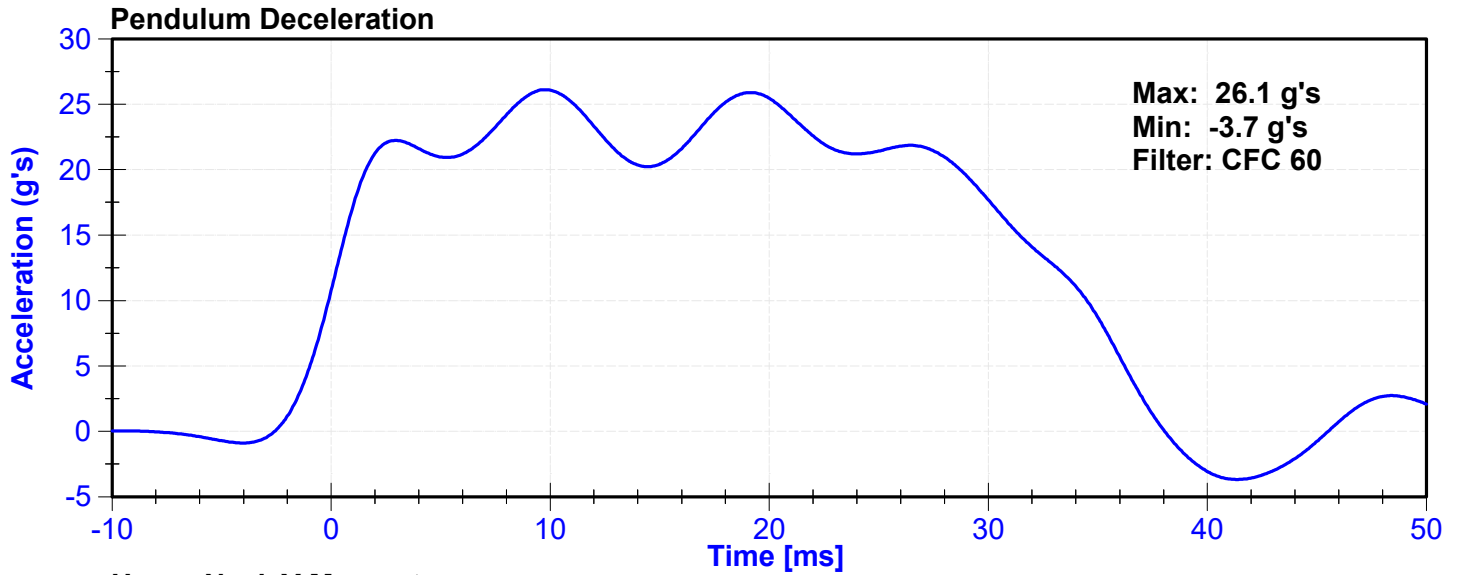
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	52	Pass
Velocity	6.89	7.13	m/s	7.009	Pass
Pendulum Impulse at 10ms	2.1	2.5	m/s	2.11	Pass
Pendulum Impulse at 20ms	4.0	5.0	m/s	4.39	Pass
Pendulum Impulse at 30ms	5.8	7.0	m/s	6.52	Pass
Max D Plane Rotation	77	91	deg	80.4	Pass
Max Moment During Rotation Interval	69	83	Nm	80.6	Pass
Moment Decay to 10.0 Nm	80	100	ms	87.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Pendulum Potentiometer	ETI	SP22G_LABPOT1	5/14/2025	5/14/2026
Condyle Potentiometer	ETI	SP22G_LABPOT2	5/14/2025	5/14/2026
Upper Neck Load Cell	Humanetics	1916-FX	9/12/2024	9/12/2025







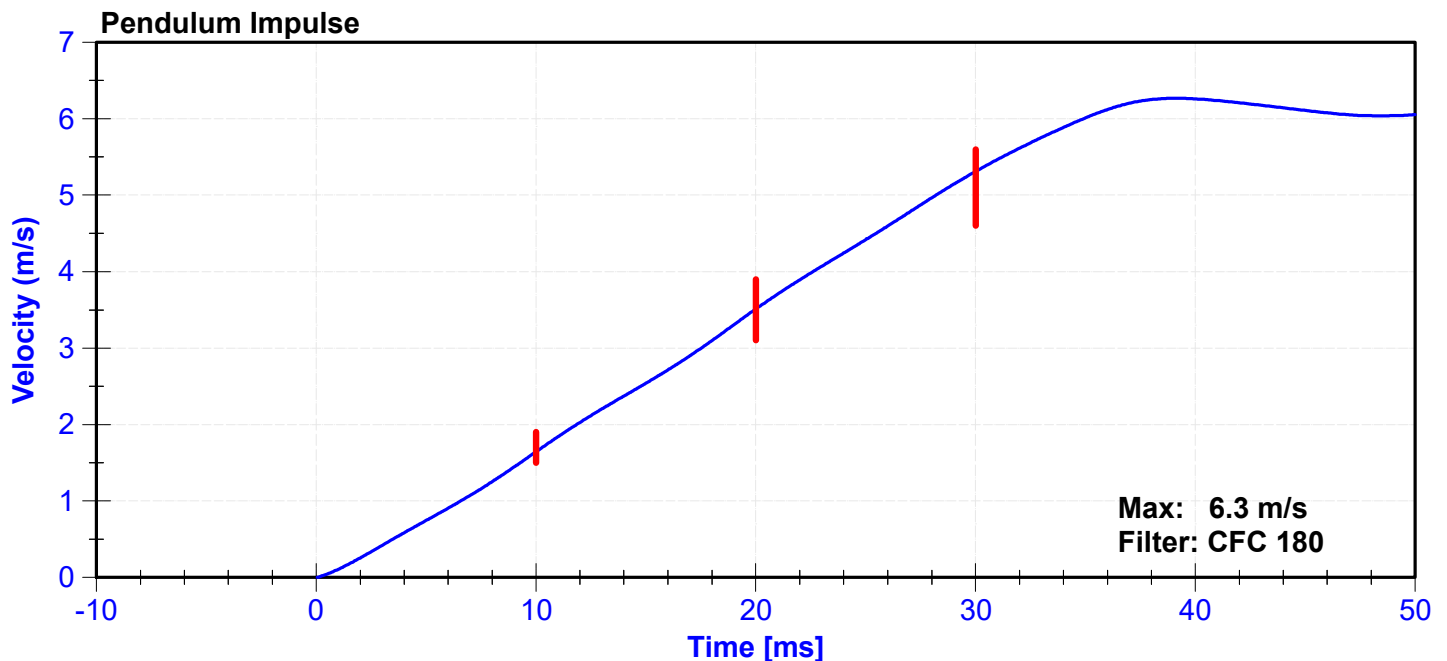
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

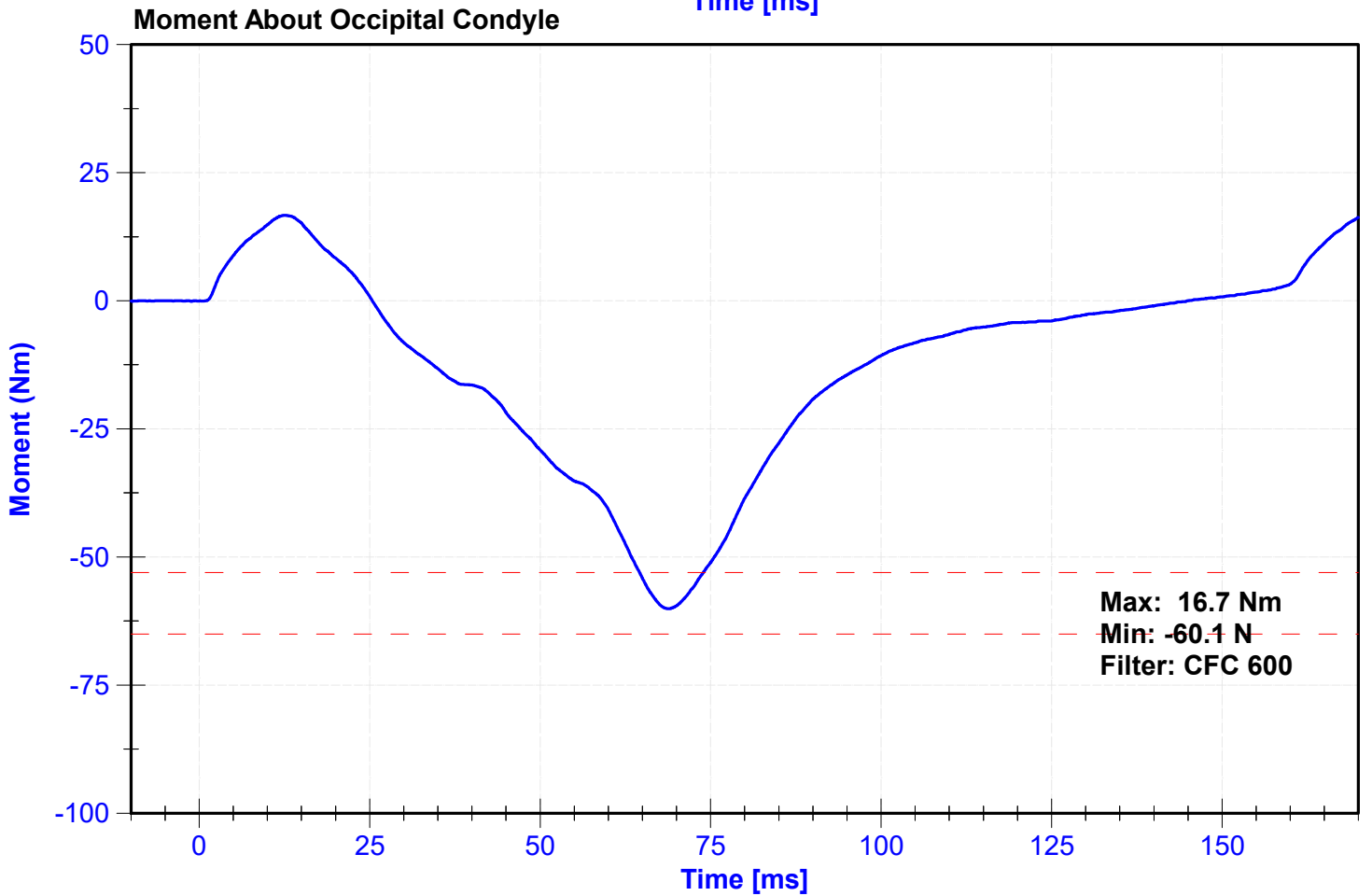
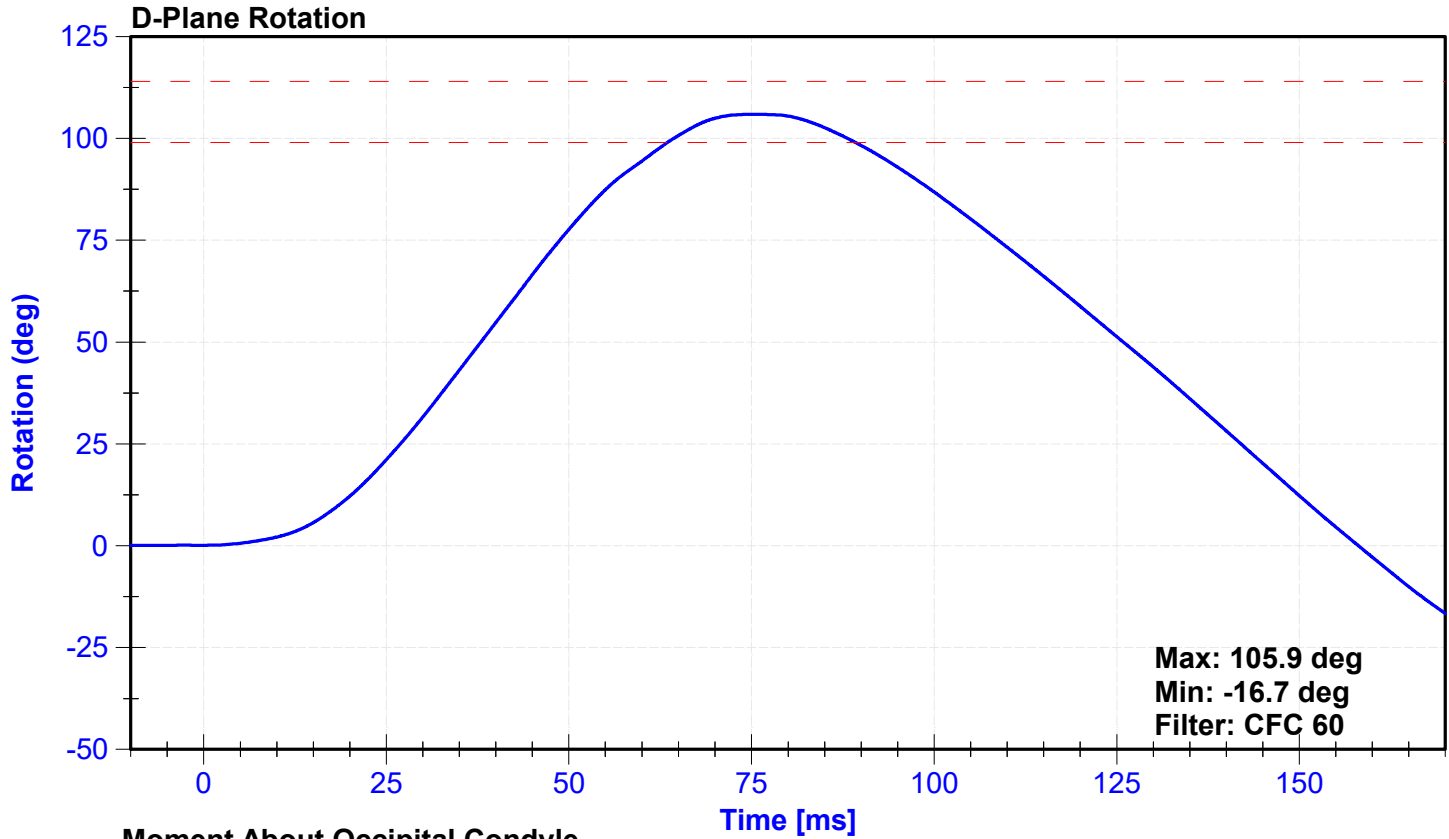
Results

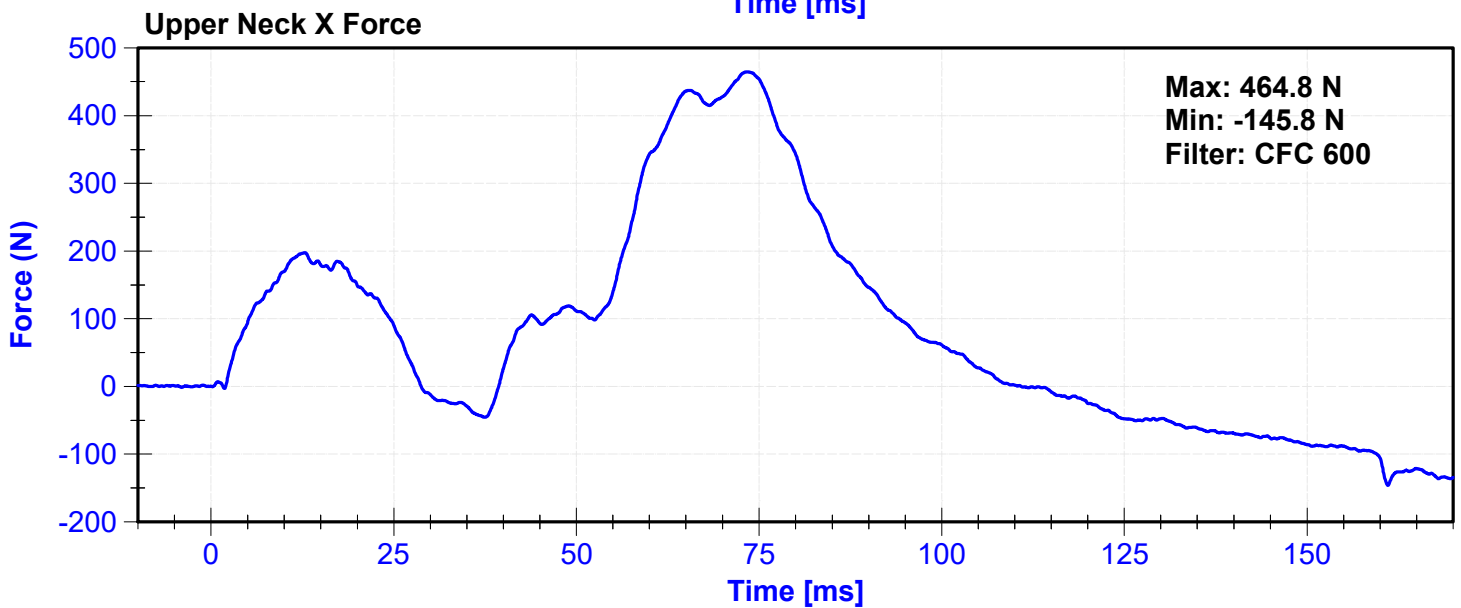
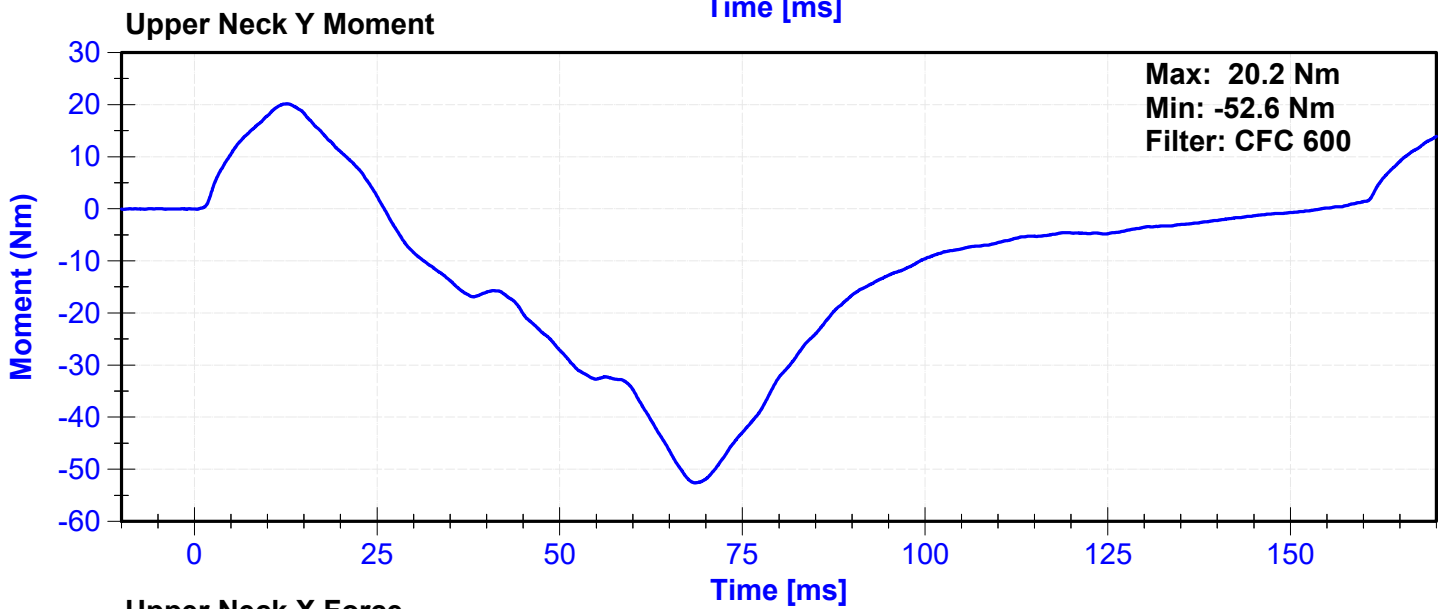
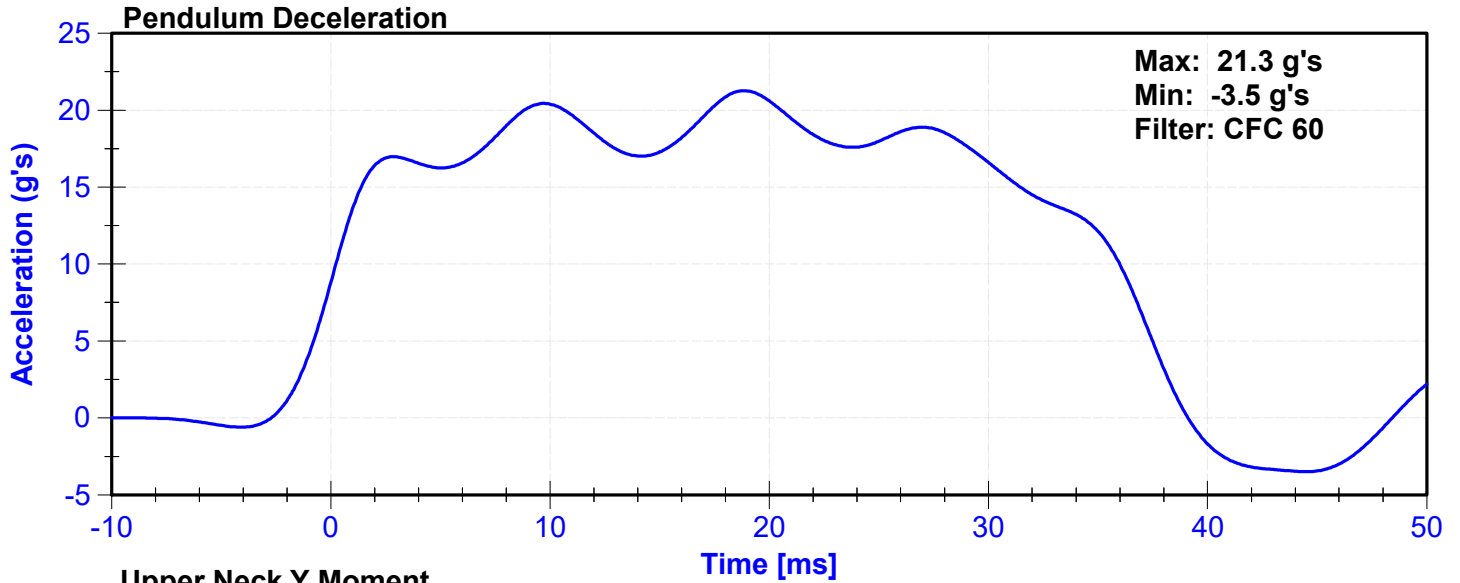
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	52	Pass
Velocity	5.95	6.19	m/s	6.024	Pass
Pendulum Impulse at 10ms	1.5	1.9	m/s	1.64	Pass
Pendulum Impulse at 20ms	3.1	3.9	m/s	3.51	Pass
Pendulum Impulse at 30ms	4.6	5.6	m/s	5.31	Pass
D Plane Rotation	99	114	deg	105.9	Pass
Moment During Rotation Interval	-65	-53	Nm	-60.1	Pass
Moment Decay to -10Nm	94	114	ms	101.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Pendulum Potentiometer	ETI	SP22G_LABPOT1	5/14/2025	5/14/2026
Condyle Potentiometer	ETI	SP22G_LABPOT2	5/14/2025	5/14/2026
Upper Neck Load Cell	Humanetics	1716A	9/12/2024	9/12/2025







ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

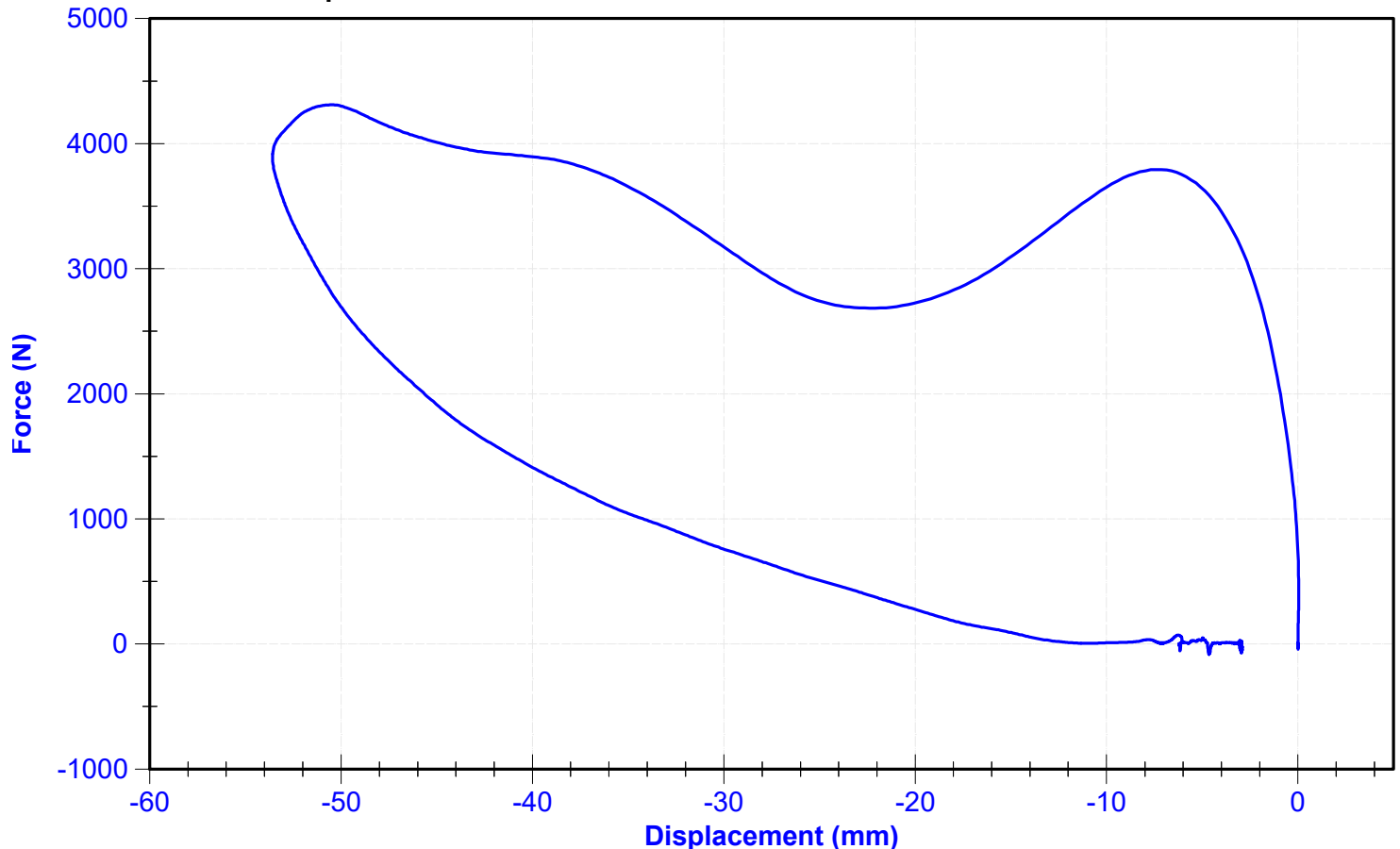
Results

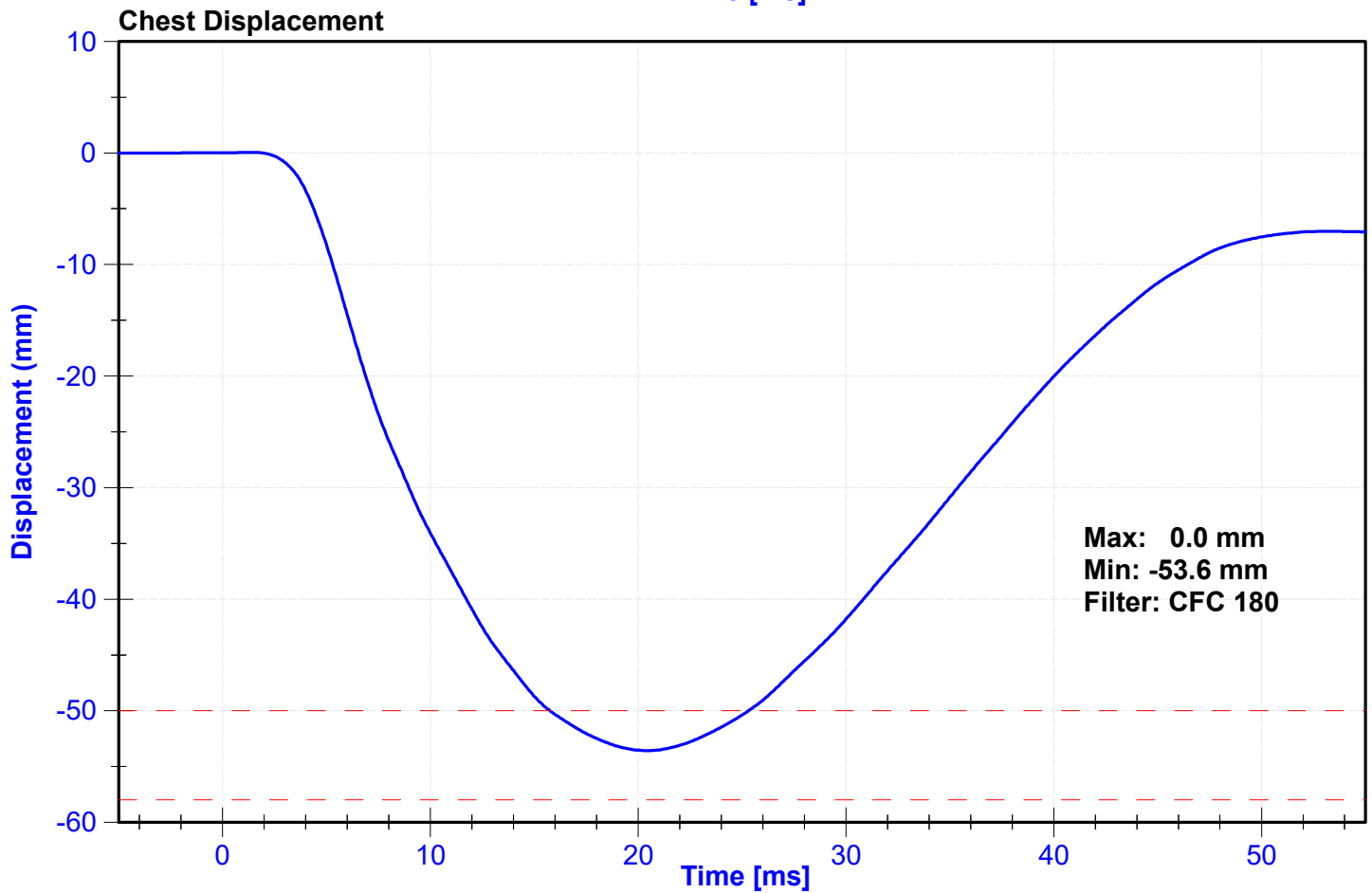
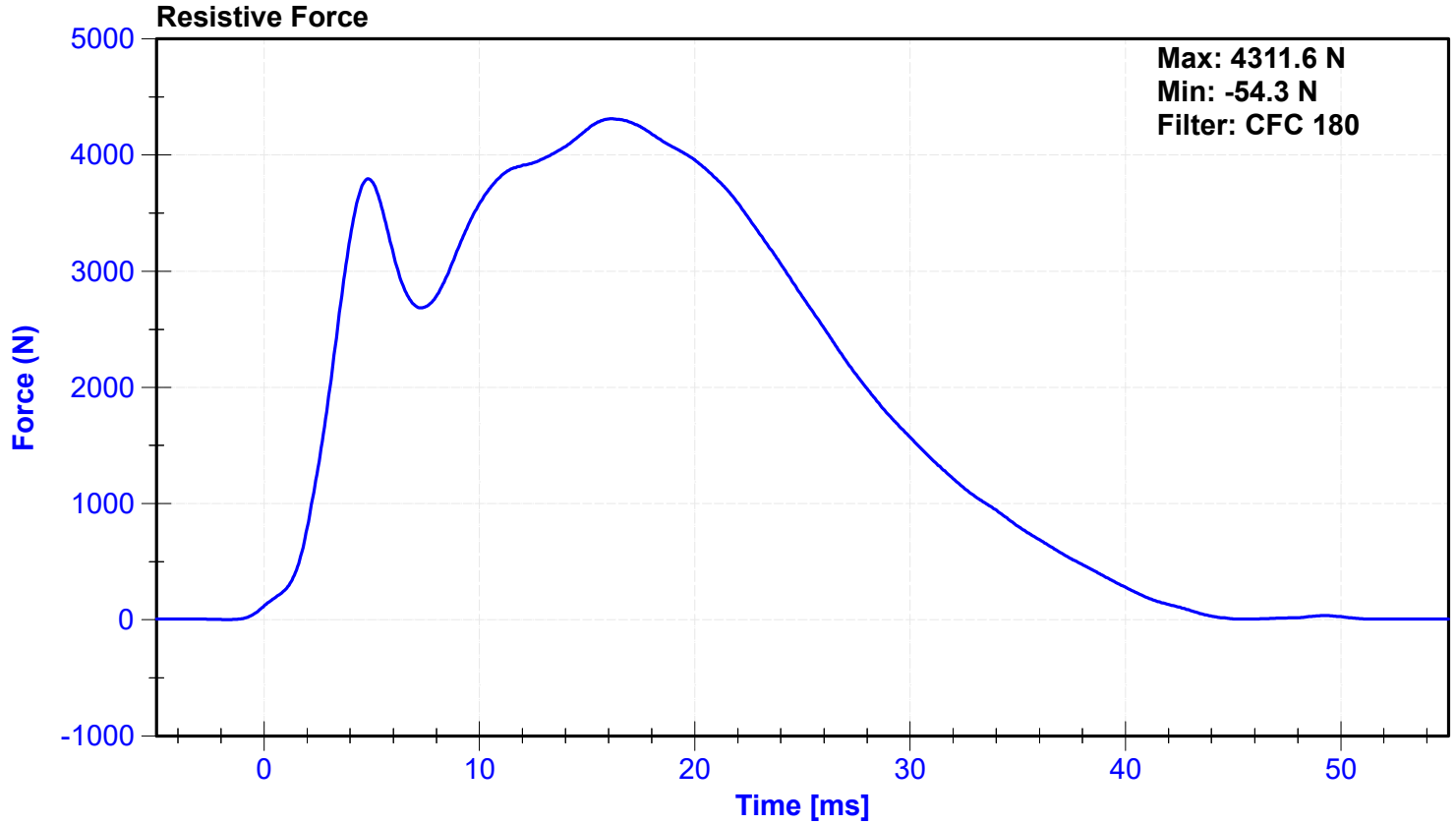
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	50	Pass
Velocity	6.59	6.83	m/s	6.671	Pass
Chest Deflection	-58	-50	mm	-53.6	Pass
Maximum Resistive Force (50 to 58mm)	3900	4400	N	4311.6	Pass
Maximum Resistive Force (18 to 50mm)	0	4600	N	4297.5	Pass
Hysteresis	69	85	%	73.9	Pass

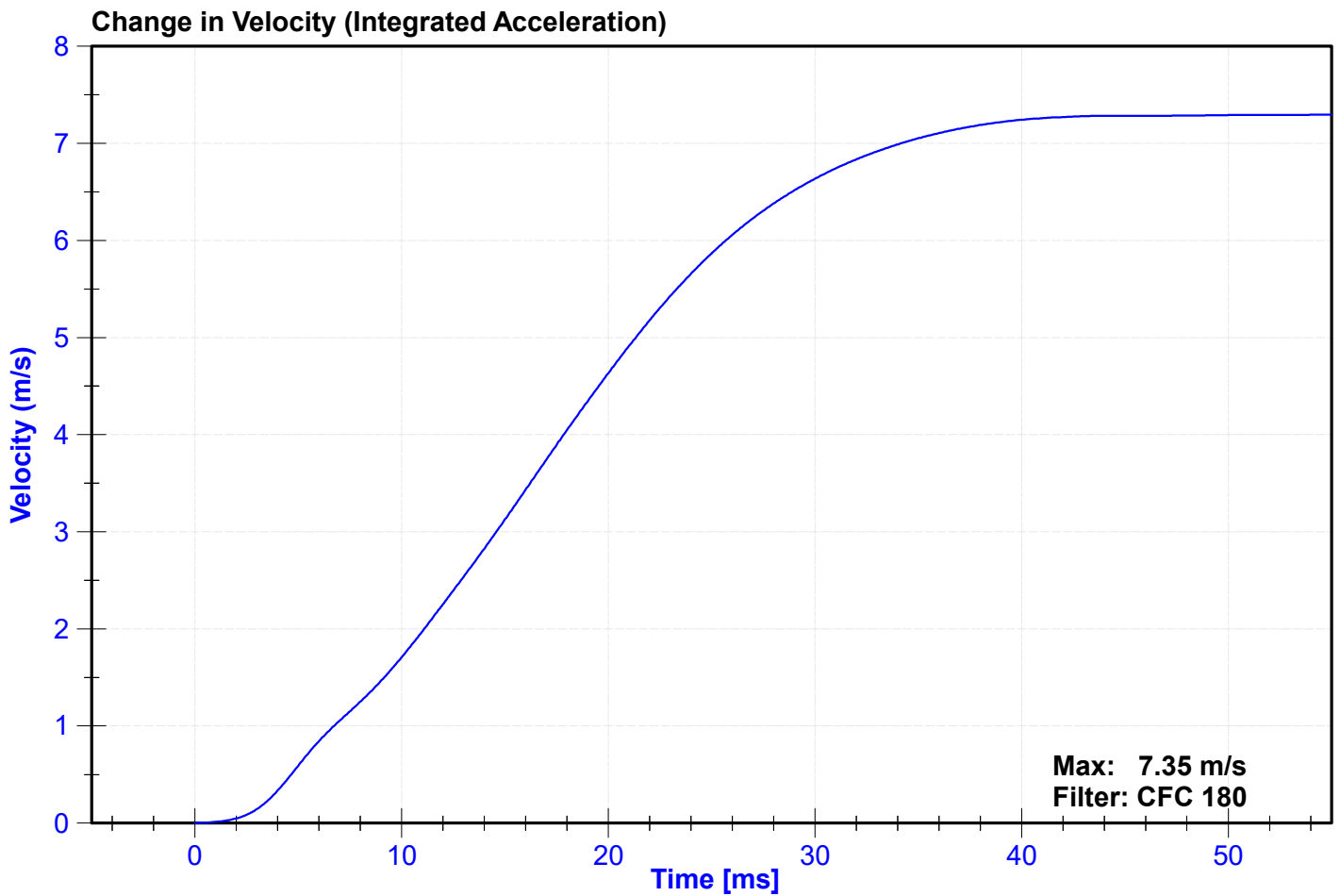
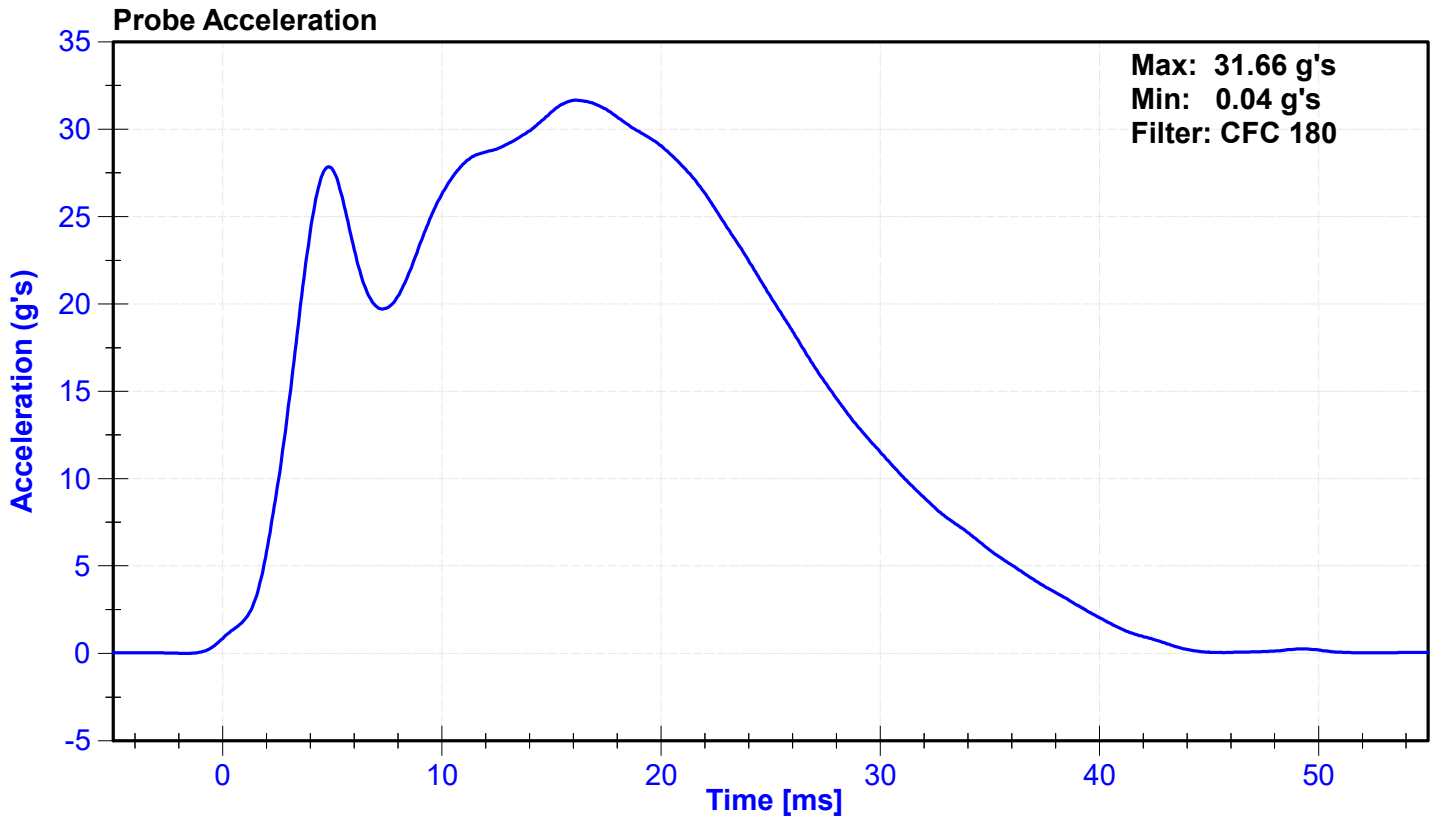
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Chest Potentiometer	Servo	0720	6/17/2025	12/16/2025

Force vs. Displacement







ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

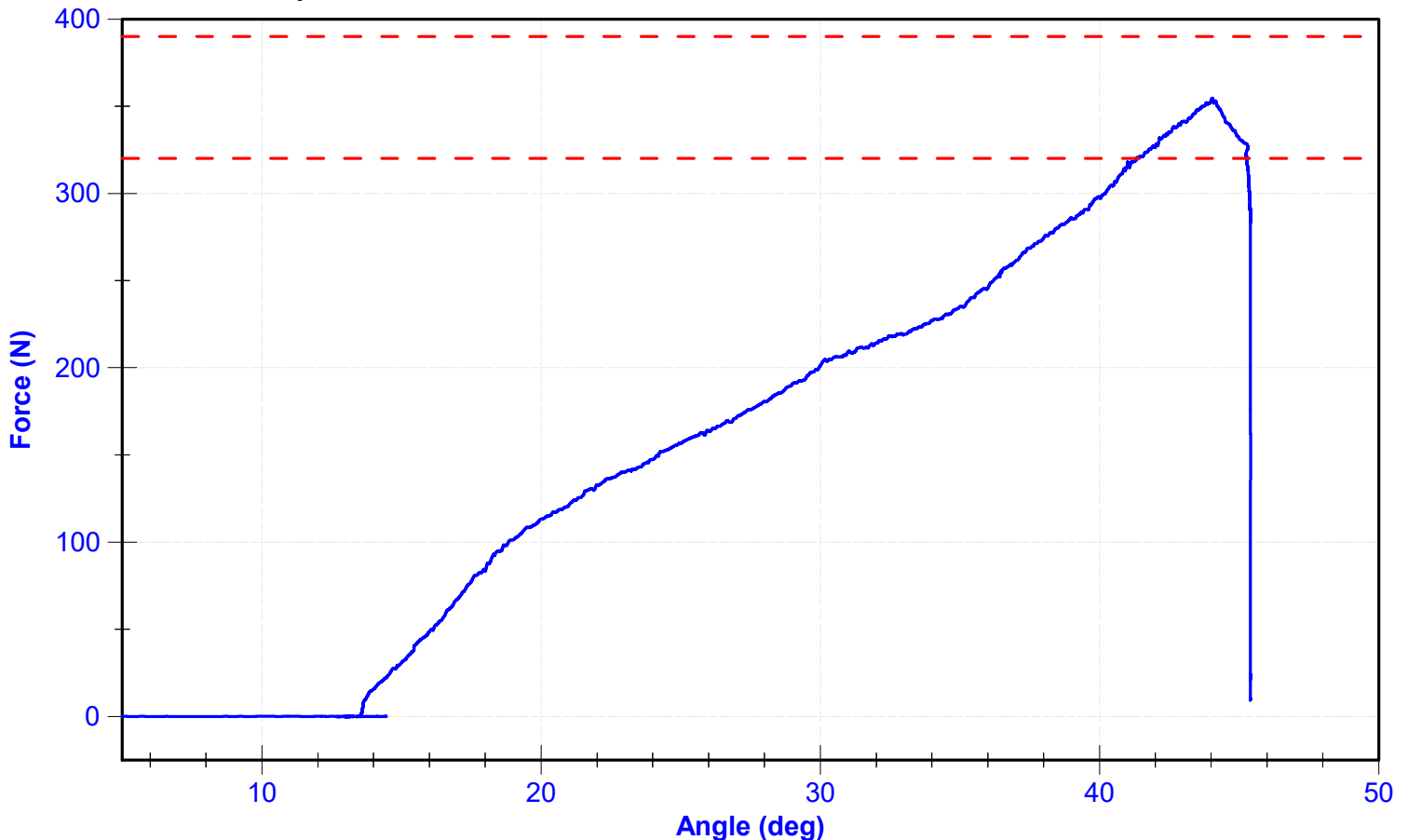
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.6	25.6	°C	22.2	Pass
Humidity	10	70	%	55	Pass
Initial Angle	0	20	deg	13.5	Pass
Force at 45 Degrees	320	390	N	354.5	Pass
Return Angle Relative to Initial	0	8	deg	5.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	Rieker	DS-1905226	2024-11-16	2025-11-16
Load Cell	Interface	493319	2024-08-14	2025-08-14

Force vs. Displacement



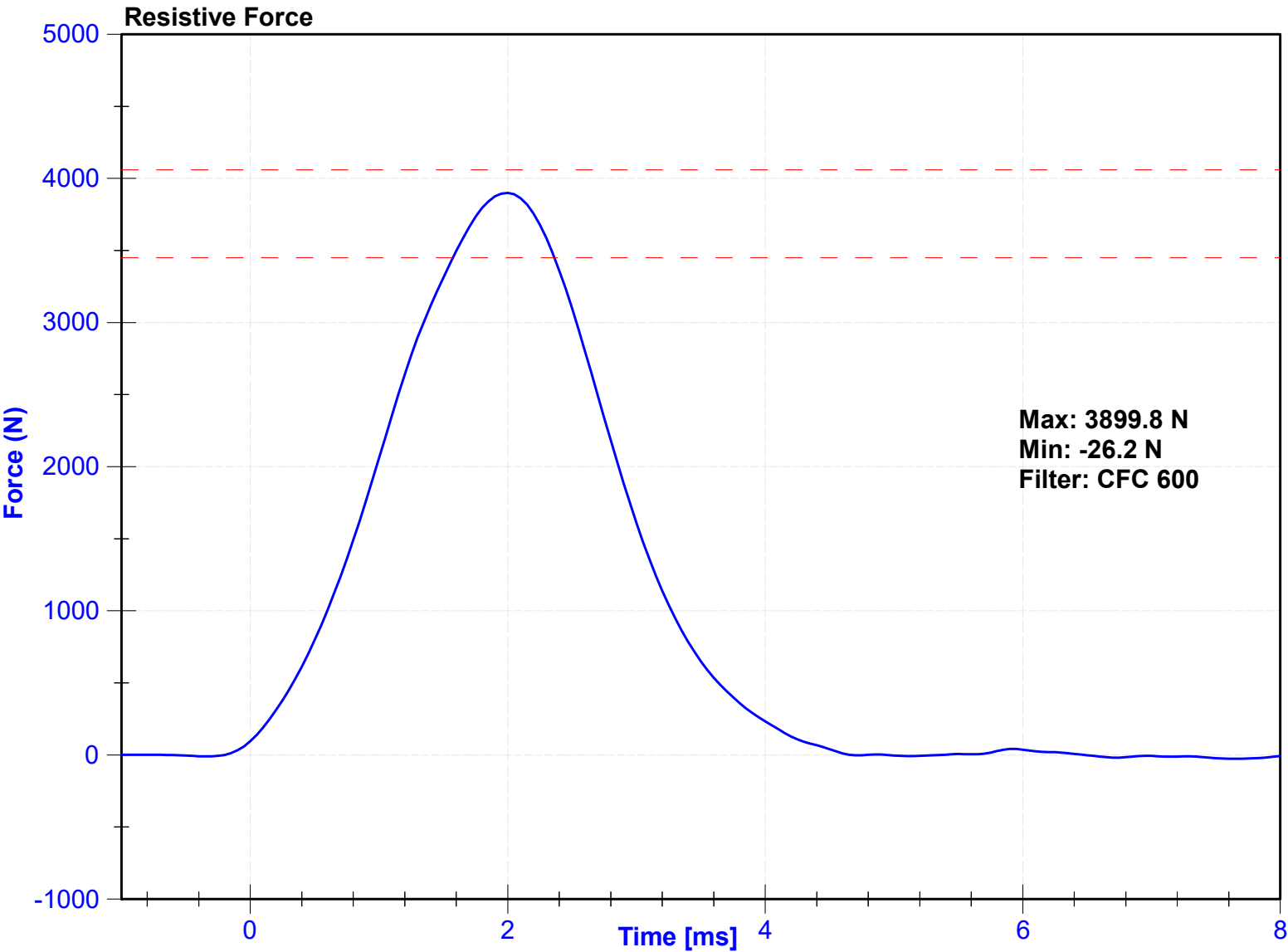
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

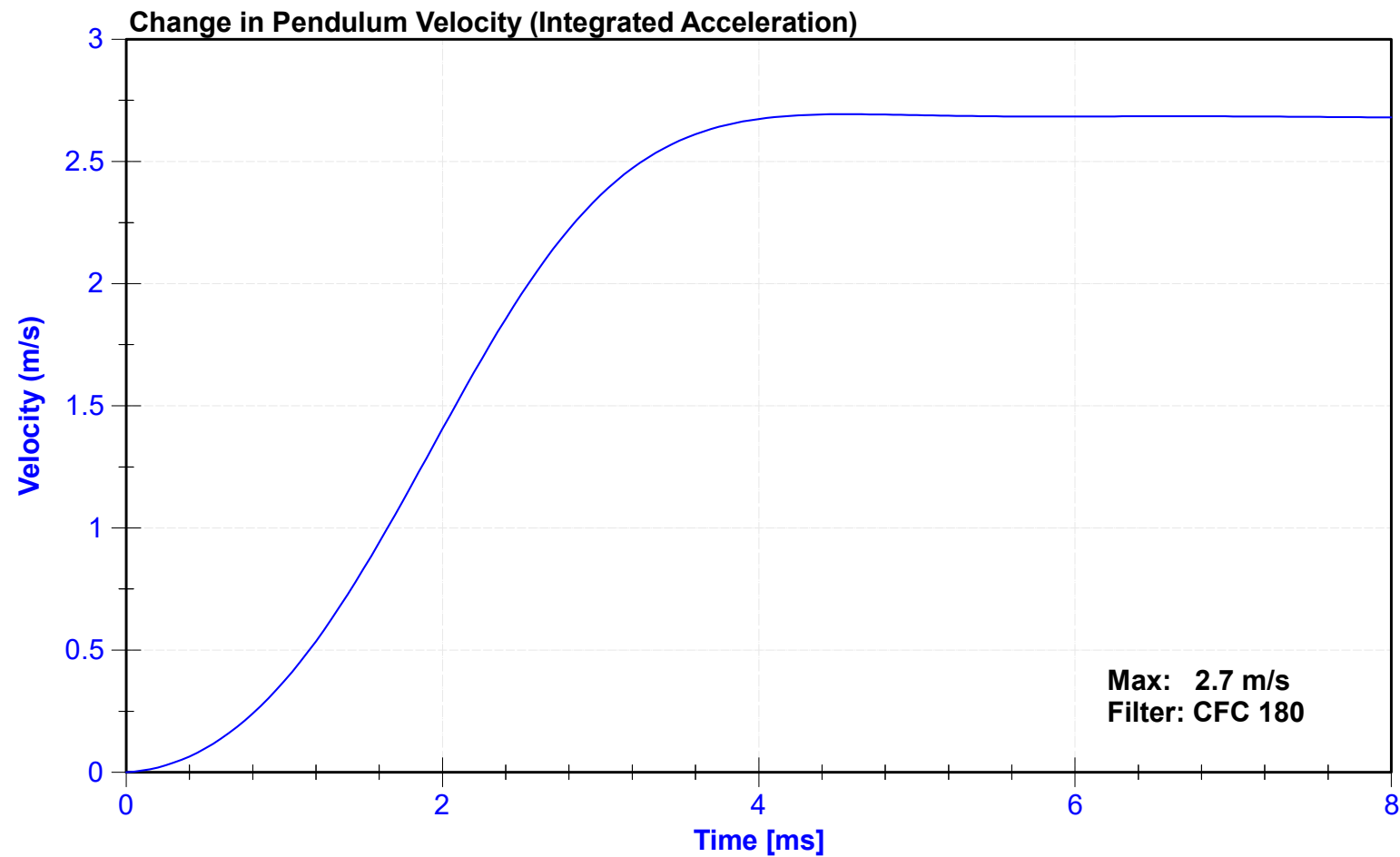
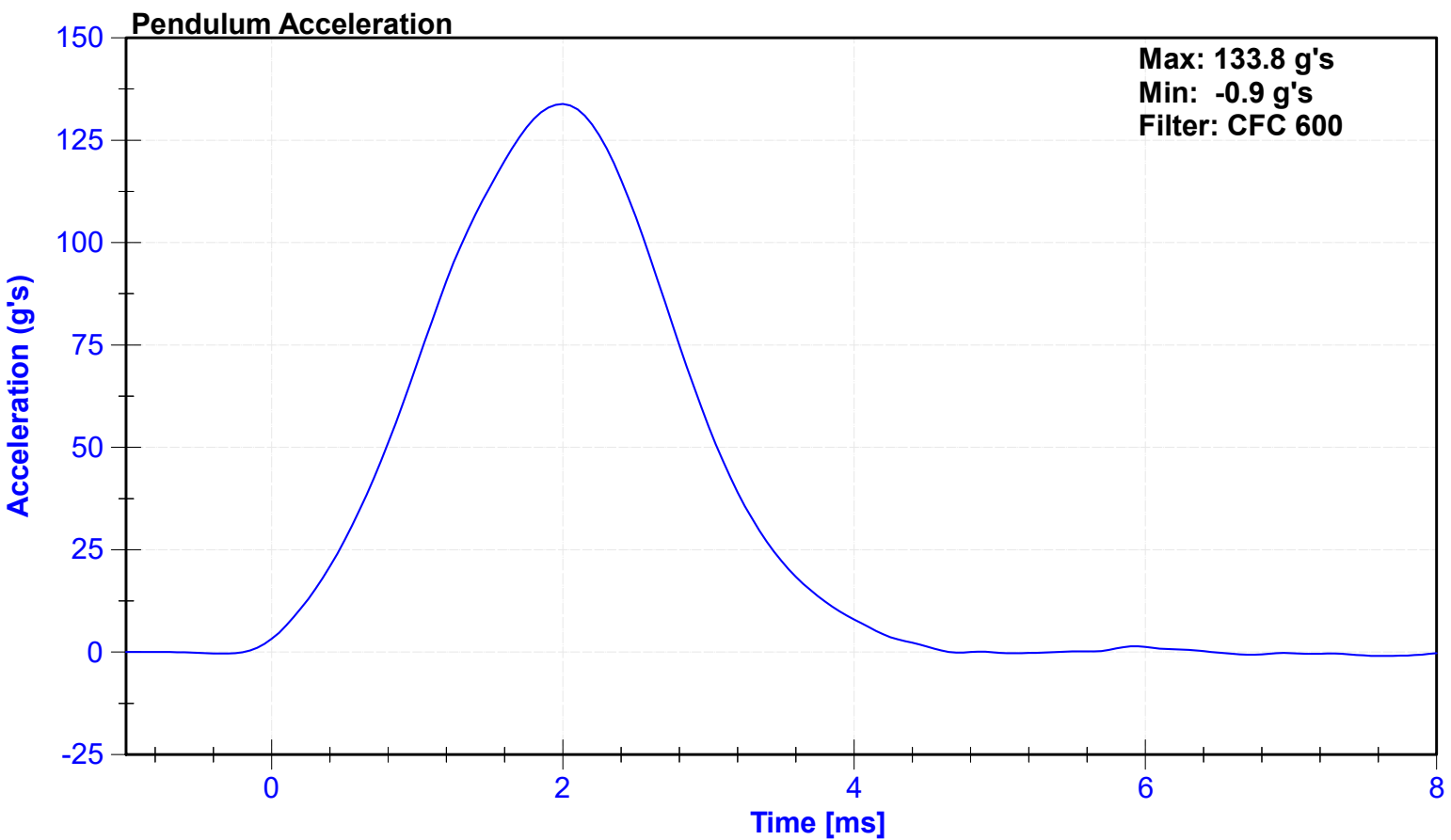
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	22.3	Pass
Humidity	10	70	%	54	Pass
Velocity	2.07	2.13	m/s	2.096	Pass
Resistive Force	3450	4060	N	3899.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025





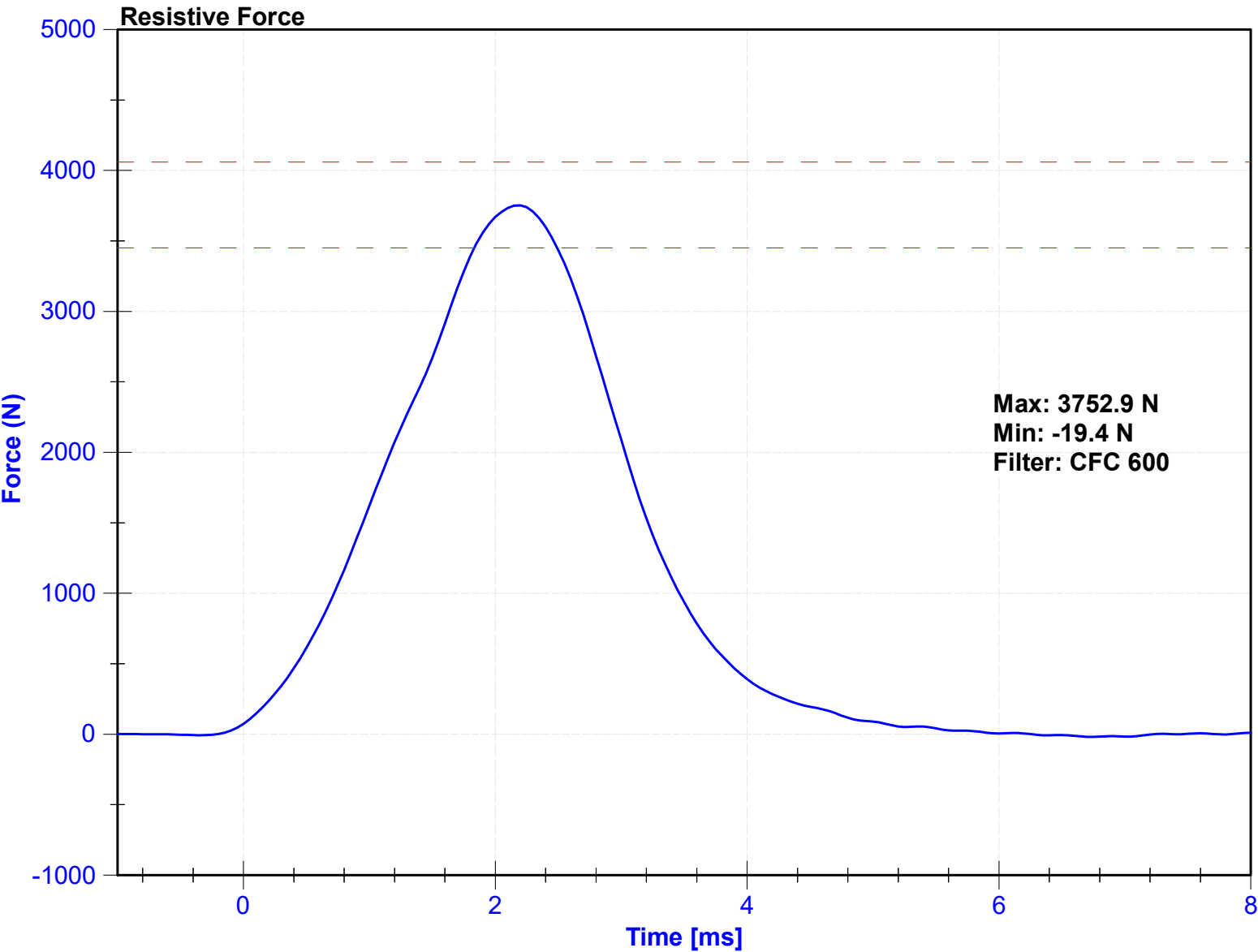
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

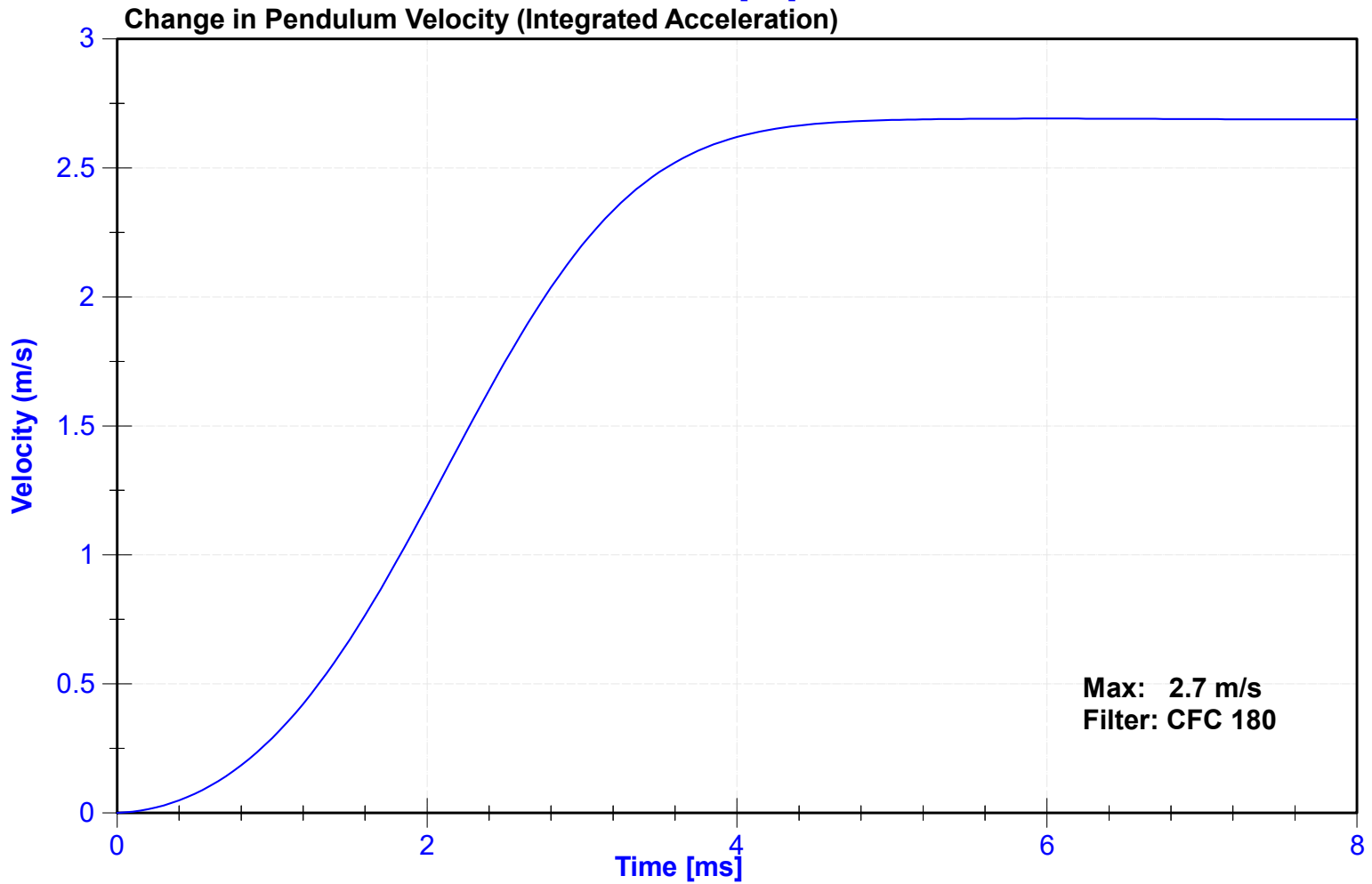
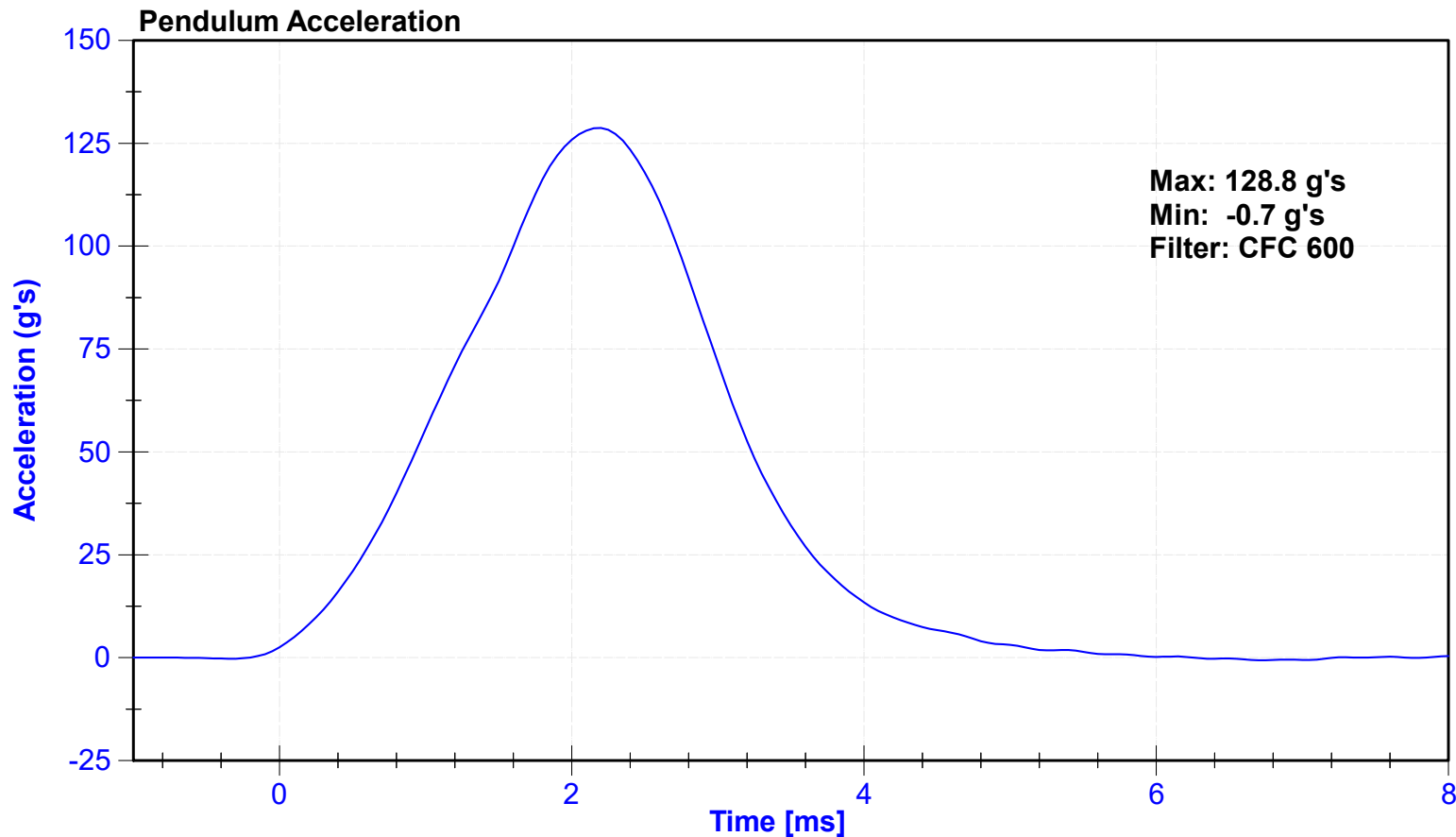
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	22.3	Pass
Humidity	10	70	%	54	Pass
Velocity	2.07	2.13	m/s	2.096	Pass
Resistive Force	3450	4060	N	3752.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025





CALIBRATION TEST RESULTS

POST-TEST

HYBRID III 50TH PERCENTILE MALE - DRIVER ATD

SERIAL NO: 065

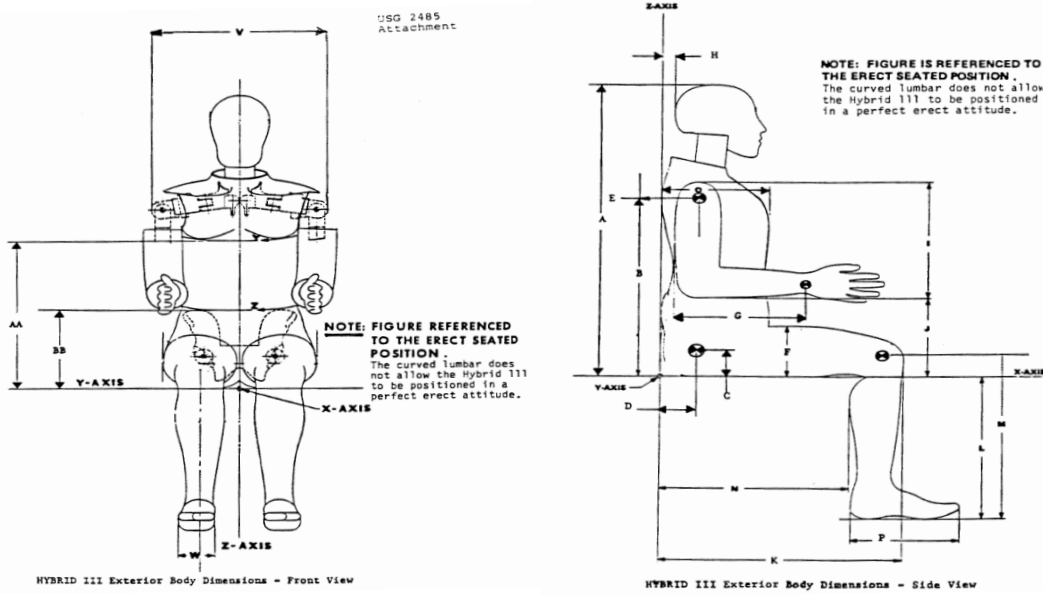


External Measurements - Hybrid 3 - 50th Male

Technician: J. Rios

Date: 07/19/2025

Dummy Serial Number: 065



Symbol	Description	Specification (in)		Result (in)	Pass/Fail
A	Sitting Height	34.6	35.0	34.8	Pass
B	Shoulder Pivot Height	19.9	20.5	20.2	Pass
C	H-Point Height	3.3	3.5	3.5	Pass
D	H-Point from Backline	5.3	5.5	5.3	Pass
E	Shoulder Pivot from Backline	3.3	3.7	3.5	Pass
F	Thigh Clearance	5.5	6.1	5.8	Pass
G	Back of Elbow to Wrist Pivot	11.4	12.0	11.6	Pass
H	Head Back to Backline	1.6	1.8	1.7	Pass
I	Shoulder to Elbow Length	13.0	13.6	13.2	Pass
J	Elbow Rest Height	7.5	8.3	8.1	Pass
K	Buttock to Knee Length	22.8	23.8	23.1	Pass
L	Popliteal Height	16.9	17.9	17.3	Pass
M	Knee Pivot Height	19.1	19.7	19.4	Pass
N	Buttock Popliteal Length	17.8	18.8	18.3	Pass
O	Chest Depth without Jacket	8.4	9.0	8.8	Pass
P	Foot Length (right)	9.9	10.5	10.3	Pass
V	Shoulder Breadth	16.3	17.2	16.7	Pass
W	Foot Breadth	3.6	4.2	4.0	Pass
Y	Chest Circumference with Jacket	38.2	39.4	38.8	Pass
Z	Waist Circumference	32.9	34.1	33.8	Pass
AA	Reference Location (Chest Circumference)	16.9	17.1	17.0	Pass
BB	Reference Location (Waist Circumference)	8.9	9.1	9.0	Pass

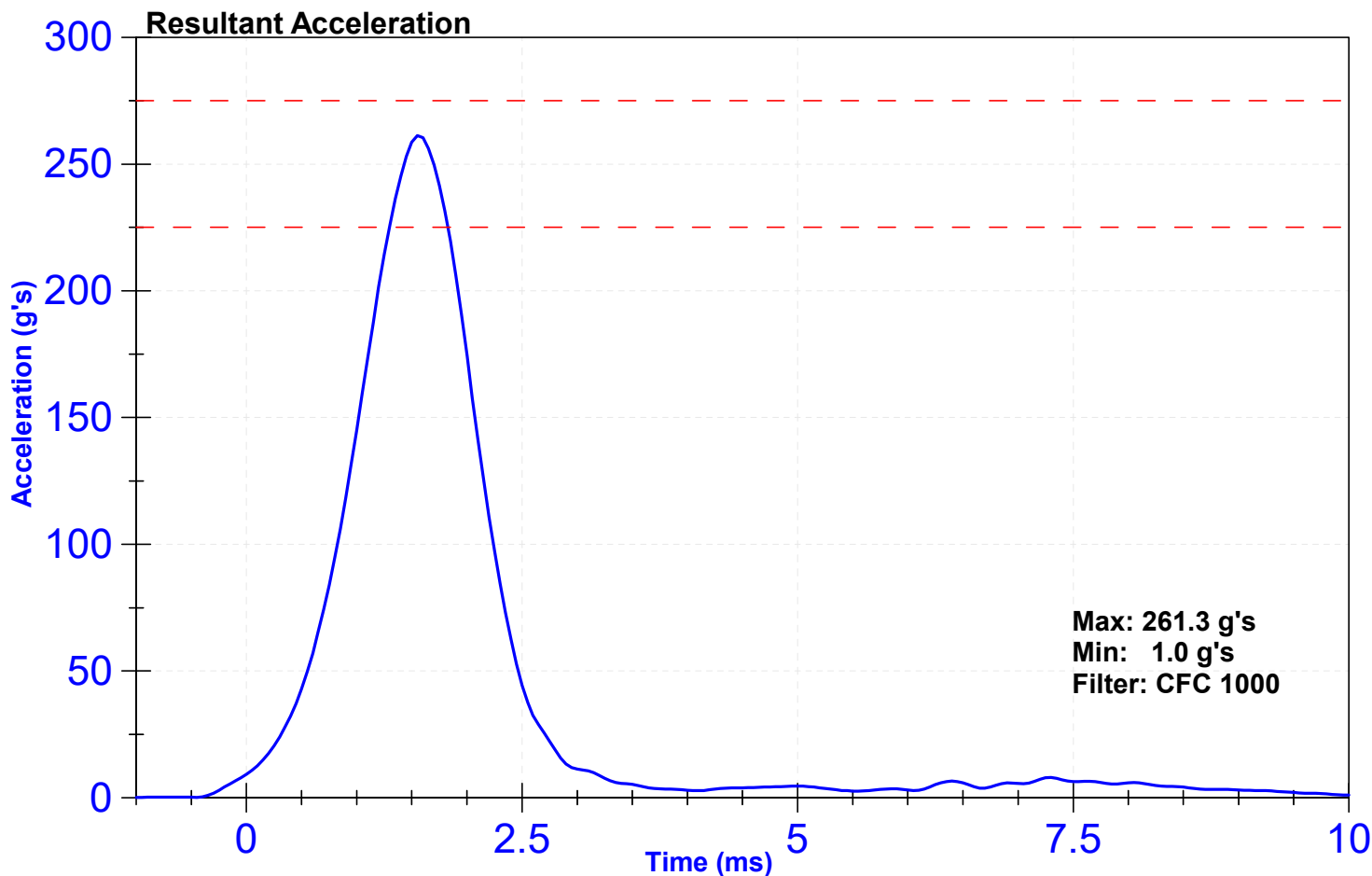
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

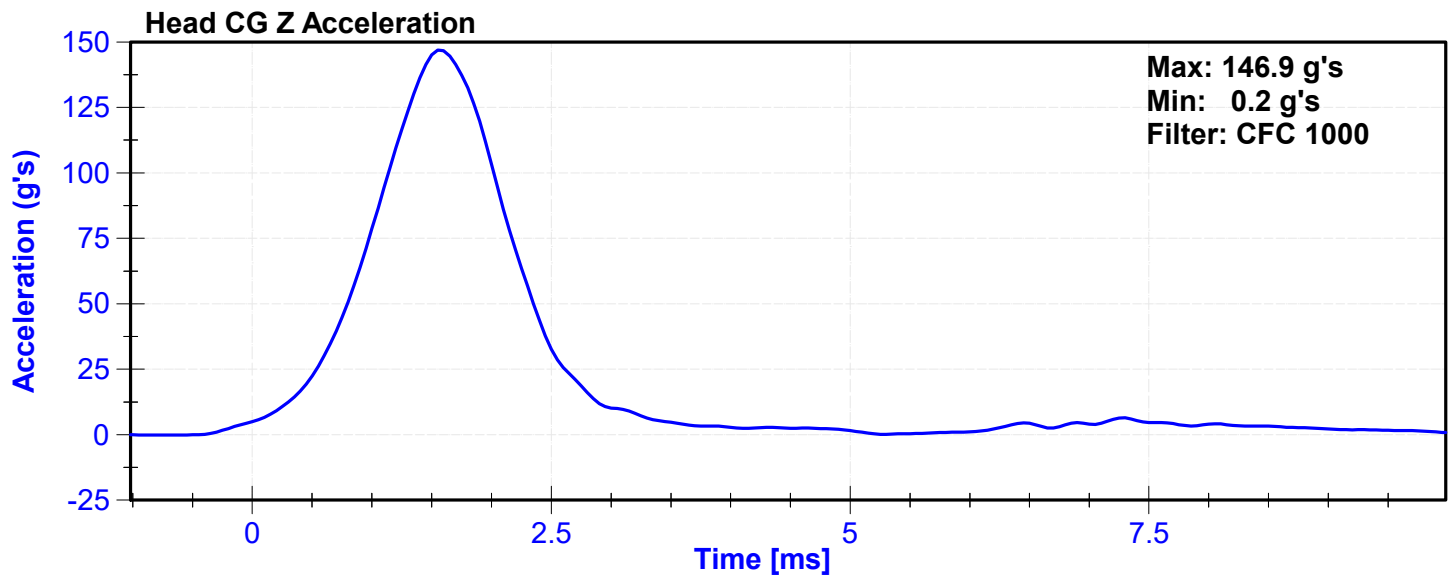
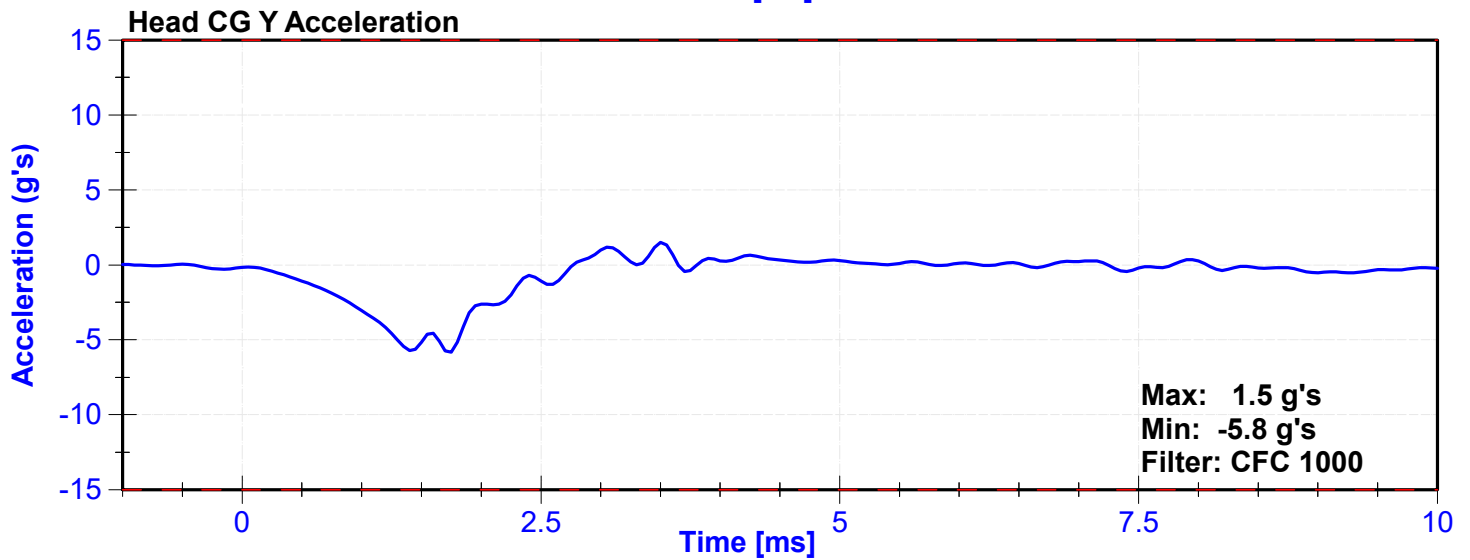
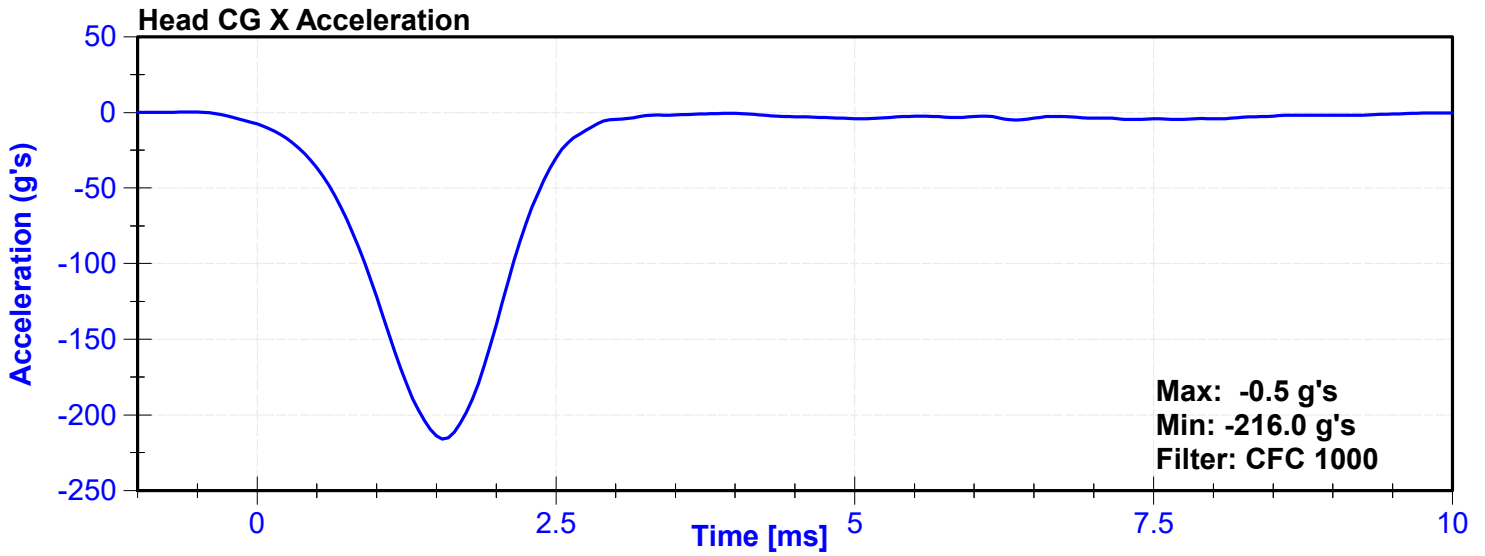
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.8	Pass
Humidity	10	70	%	44	Pass
Resultant Acceleration	225	275	g's	261.3	Pass
Oscillation	0	10	%	3.0	Pass
Lateral Acceleration	-15	15	g's	-5.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P52152	6/10/2025	12/7/2025
Y Accelerometer	Endevco	P58888	6/10/2025	12/7/2025
Z Accelerometer	Endevco	P58911	6/10/2025	12/7/2025





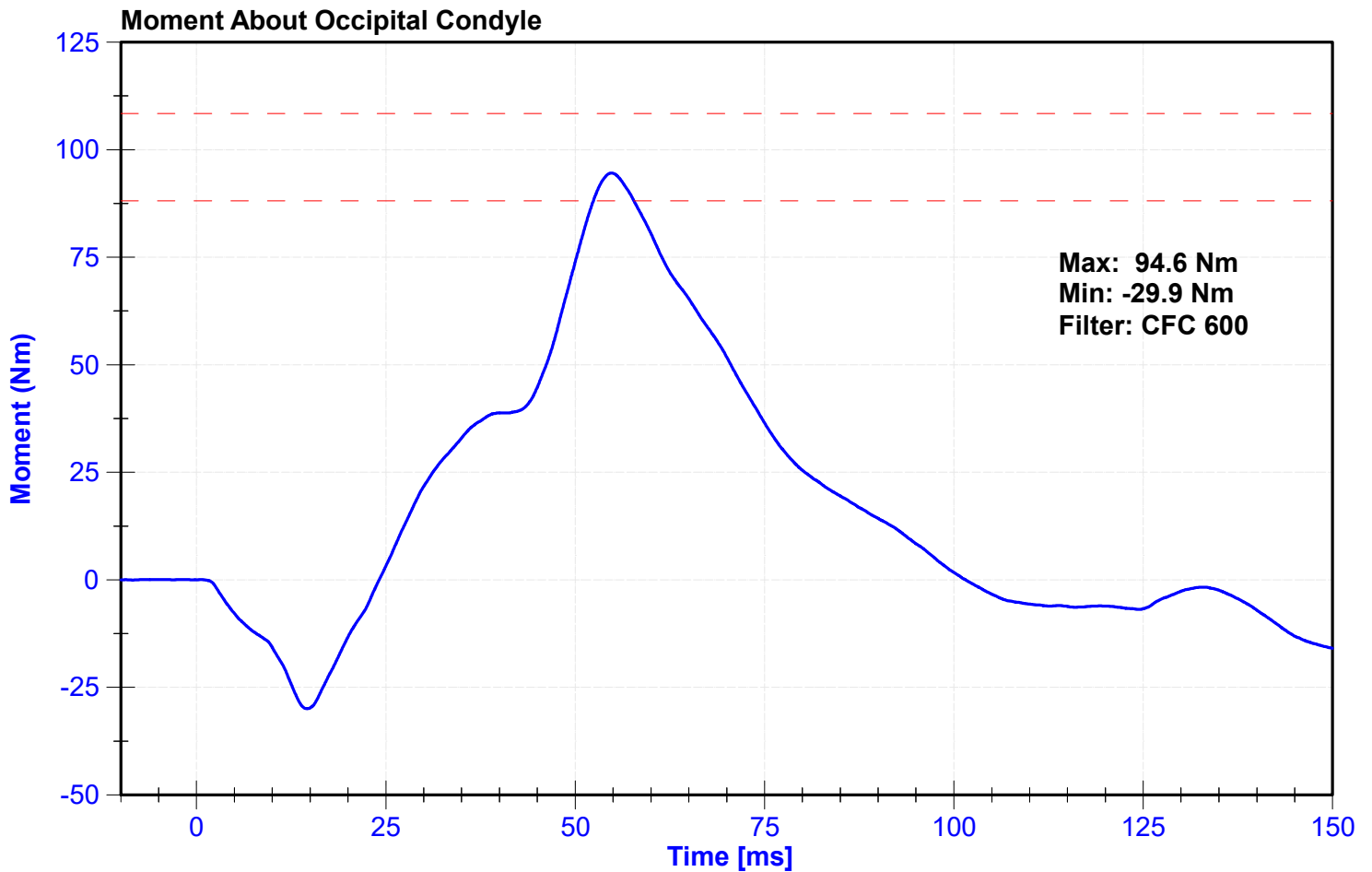
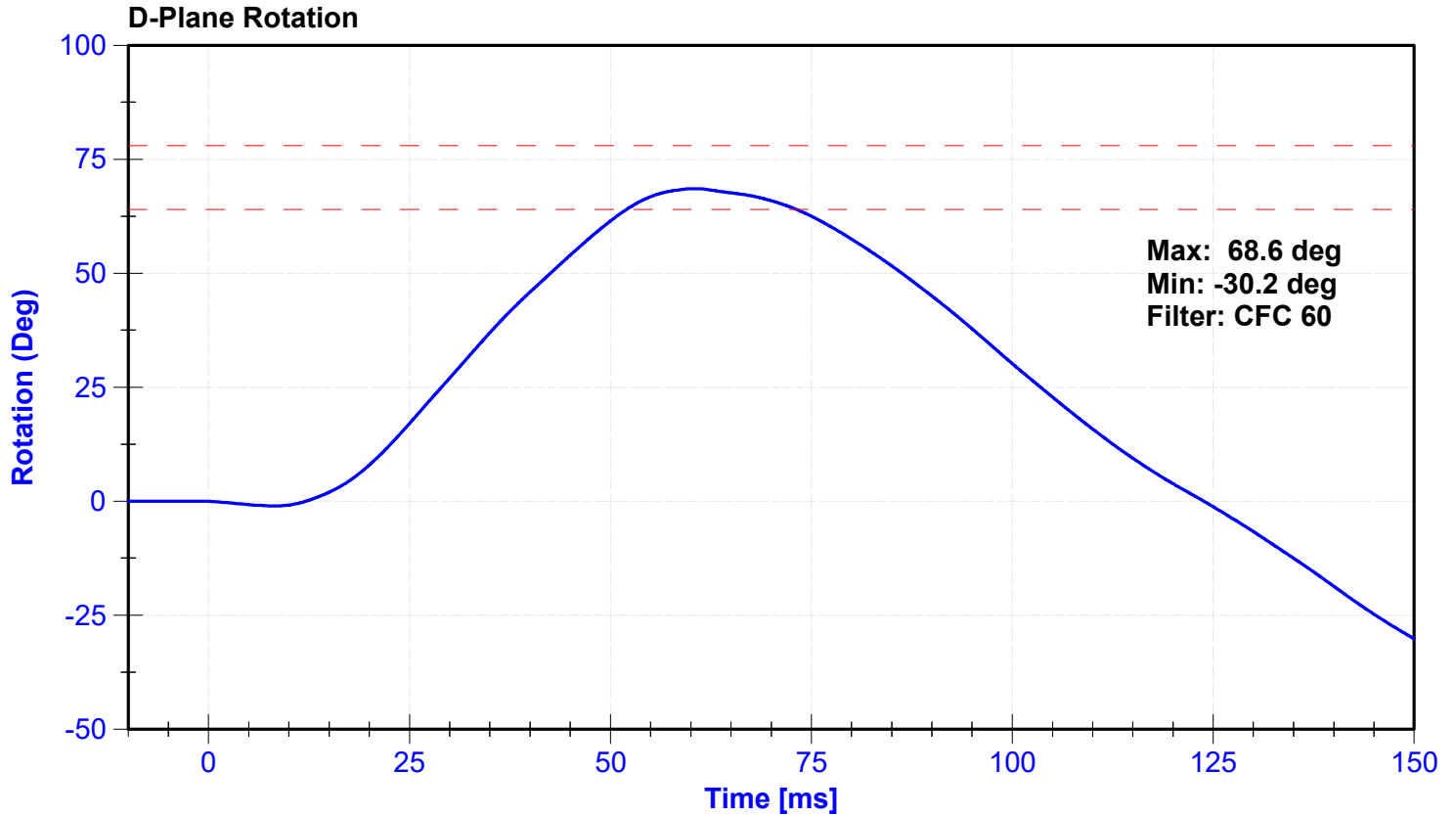
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

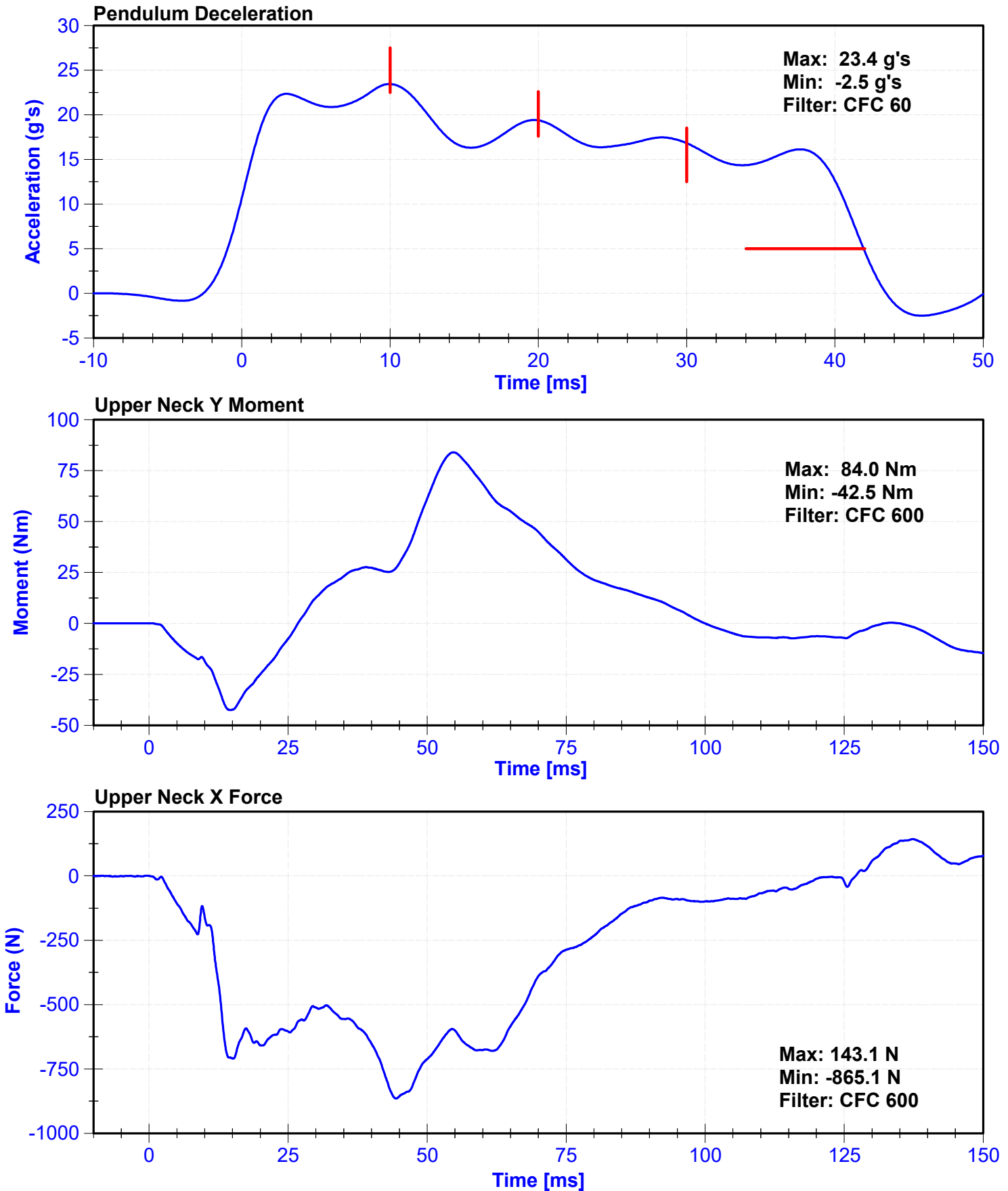
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	47	Pass
Velocity	6.89	7.13	m/s	6.984	Pass
Pendulum Deceleration at 10ms	22.5	27.5	g's	23.44	Pass
Pendulum Deceleration at 20ms	17.6	22.6	g's	19.38	Pass
Pendulum Deceleration at 30ms	12.5	18.5	g's	16.82	Pass
Max. Pendulum Deceleration After 30ms	0	29	g's	23.4	Pass
Pendulum Deceleration Time to 5 g's	34	42	ms	42.0	Pass
Maximum D Plane Rotation	64	78	deg	68.6	Pass
Time to Maximum Rotation	57	64	ms	60.5	Pass
Rotation Decay to Zero	113	127	ms	123.9	Pass
Moment About Occipital Condyle	88.1	108.4	Nm	94.58	Pass
Time to Maximum Moment	47	58	ms	54.8	Pass
Moment Decay to Zero	97	107	ms	101.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Pendulum Potentiometer	ETI	LABPOT1	5/14/2025	5/14/2026
Condyle Potentiometer	ETI	LABPOT2	5/14/2025	5/14/2026
Upper Neck Load Cell	Humanetics	2019-FX	9/12/2024	9/12/2025





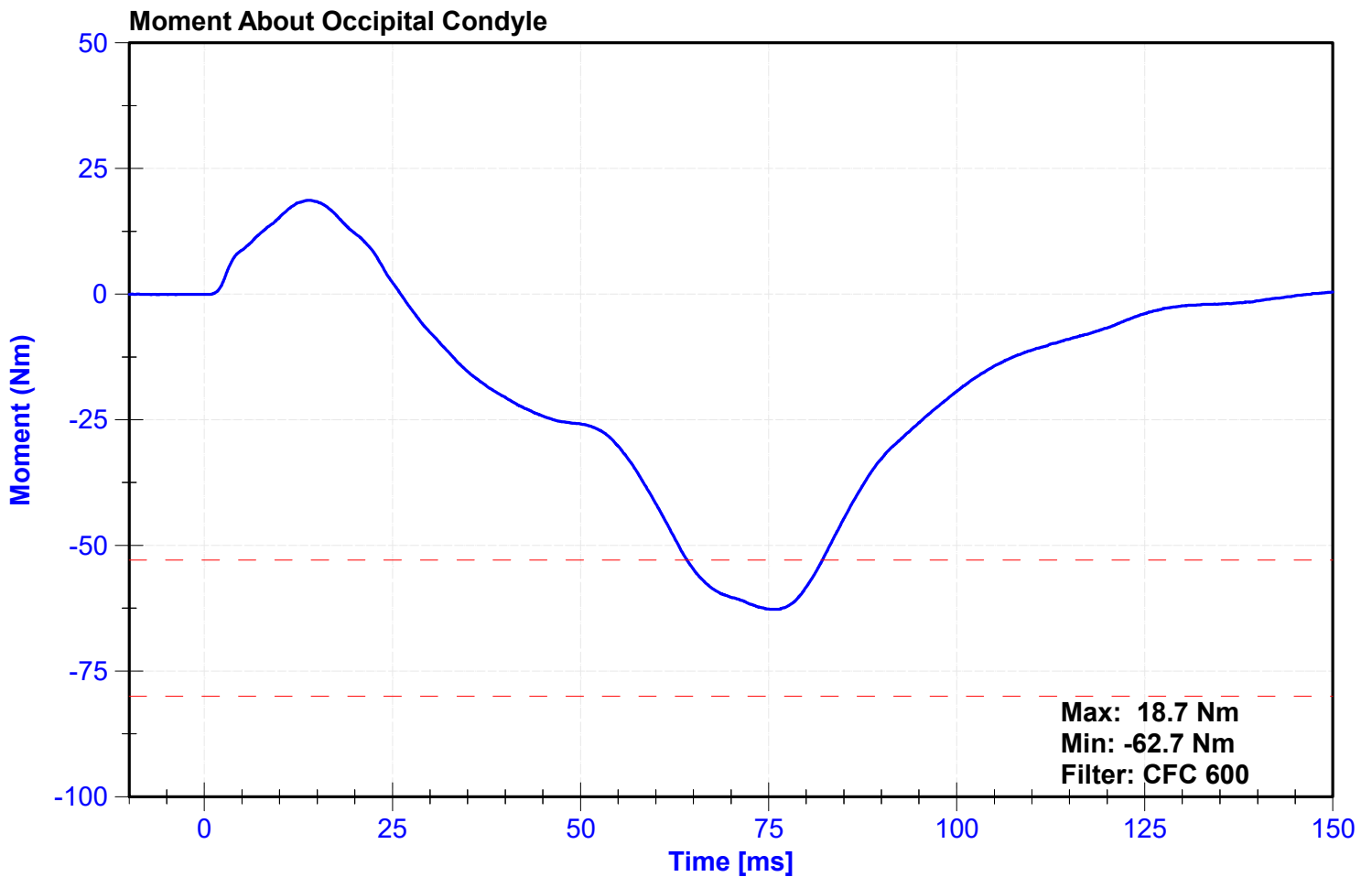
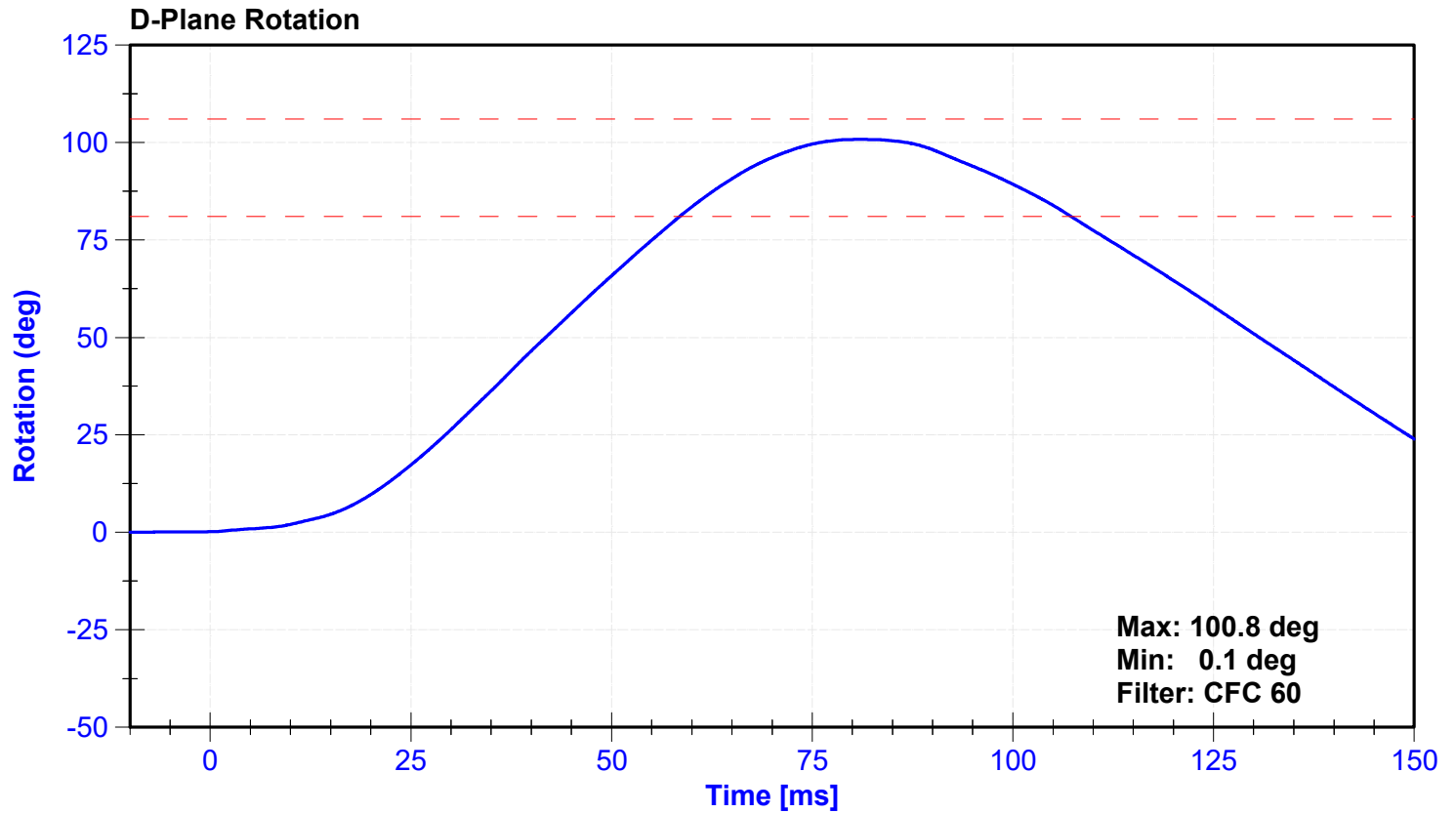
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

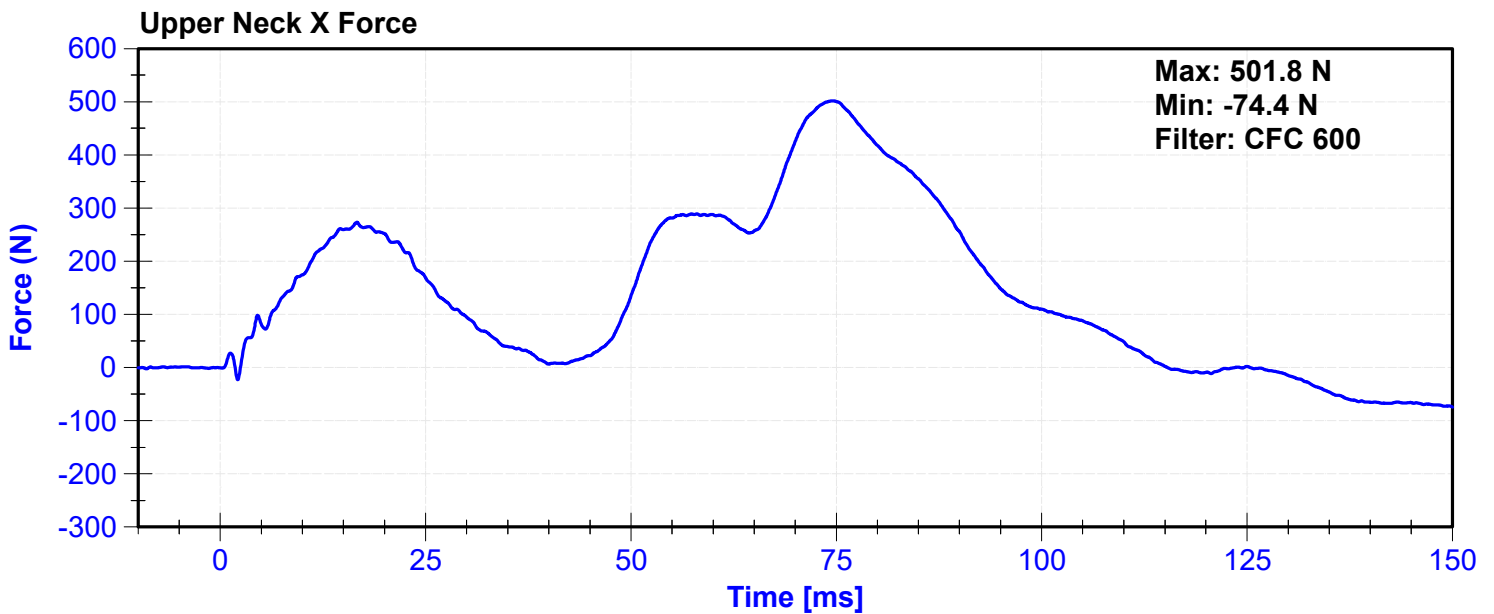
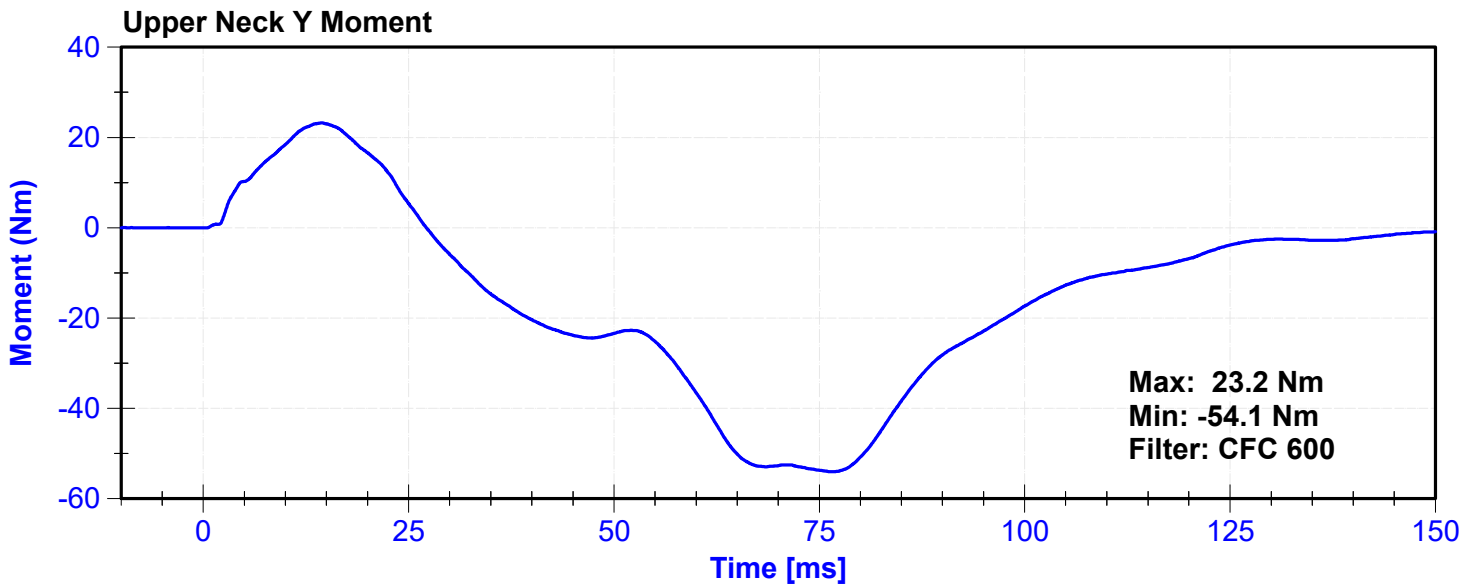
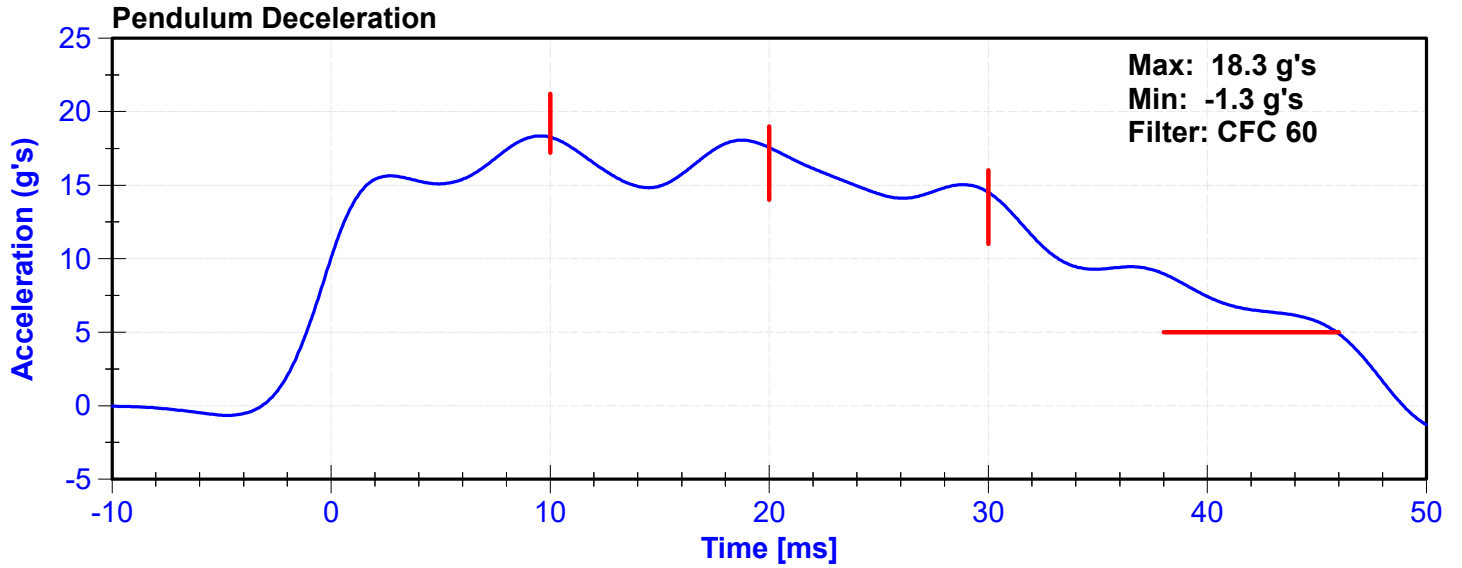
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	47	Pass
Velocity	5.94	6.19	m/s	6.004	Pass
Pendulum Deceleration at 10ms	17.2	21.2	g's	18.26	Pass
Pendulum Deceleration at 20ms	14	19	g's	17.6	Pass
Pendulum Deceleration at 30ms	11	16	g's	14.5	Pass
Max. Pendulum Deceleration After 30ms	0	22	g's	18.3	Pass
Pendulum Deceleration Time to 5 g's	38	46	ms	45.9	Pass
Maximum D Plane Rotation	81	106	deg	100.8	Pass
Time to Maximum Rotation	72	82	ms	80.9	Pass
Rotation Decay to Zero	147	174	ms	168.0	Pass
Minimum Moment About OC	-80	-52.9	Nm	-62.71	Pass
Time to Minimum Moment	65	79	ms	75.5	Pass
Moment Decay to Zero	120	148	ms	147.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Pendulum Potentiometer	ETI	SP22G_LABPOT1	5/14/2025	5/14/2026
Condyle Potentiometer	ETI	SP22G_LABPOT2	5/14/2025	5/14/2026
Upper Neck Load Cell	Humanetics	2019-FX	9/12/2024	9/12/2025





ATD Manufacturer	Humanetics	Test Technician	J.Kinderman
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

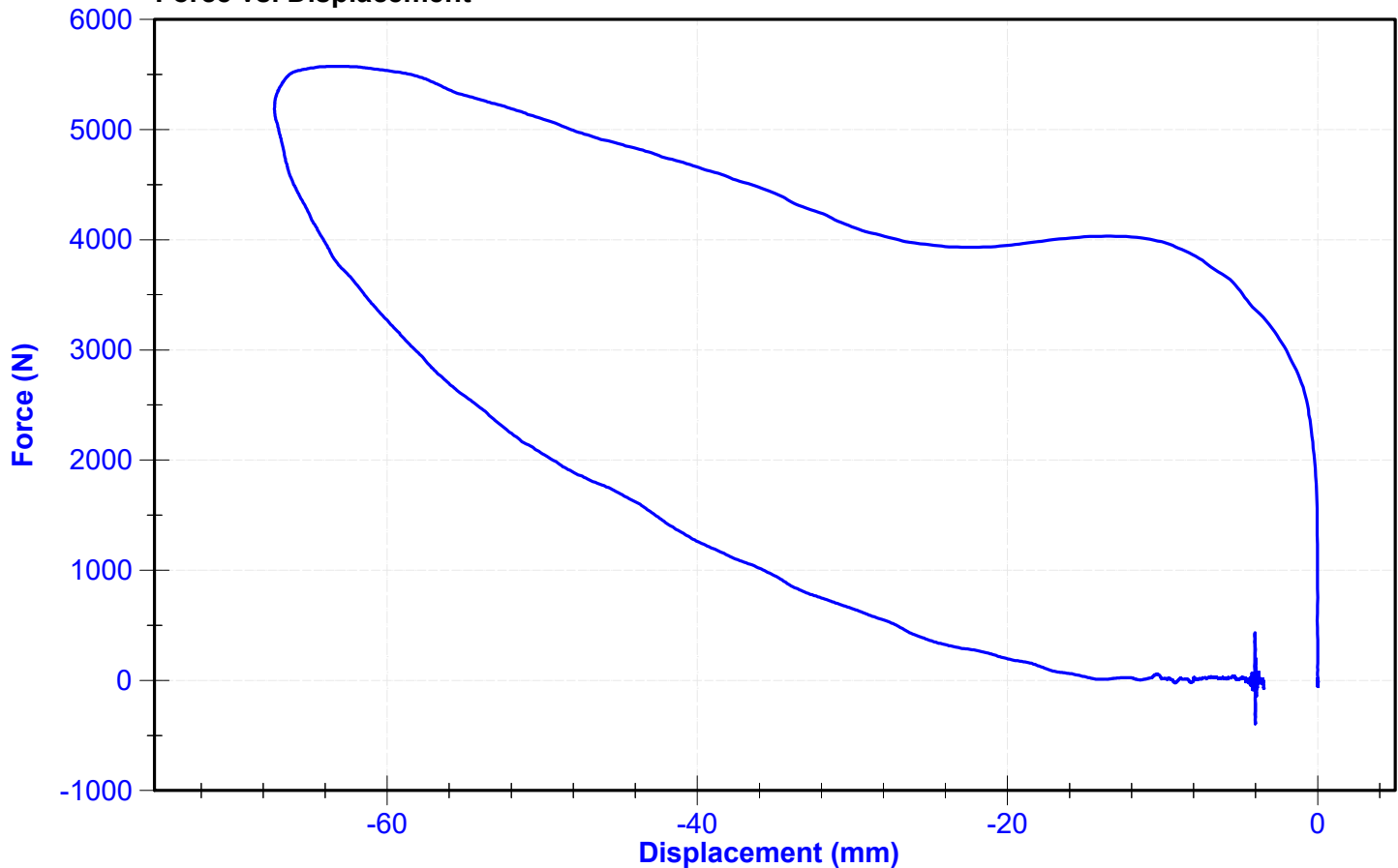
Results

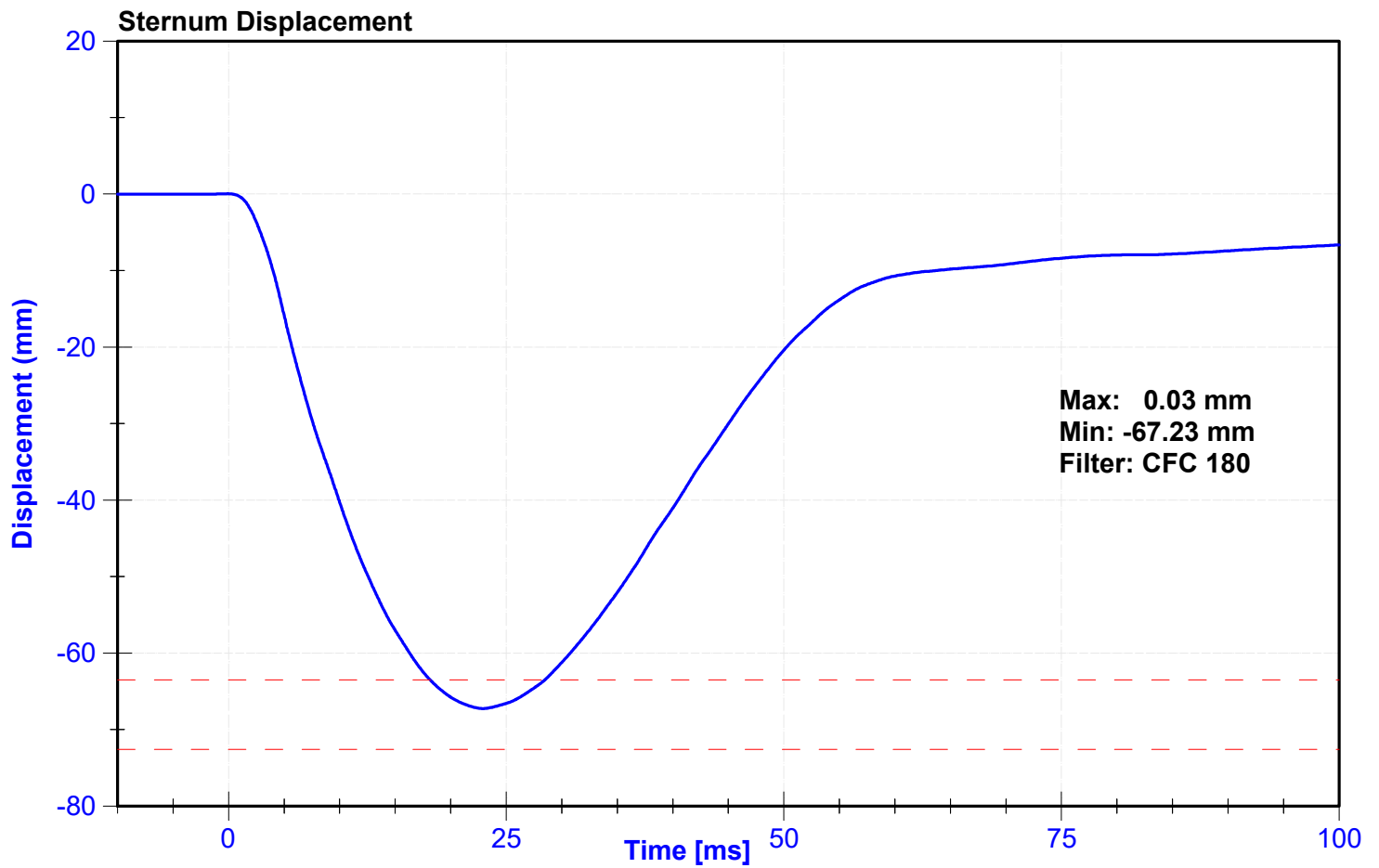
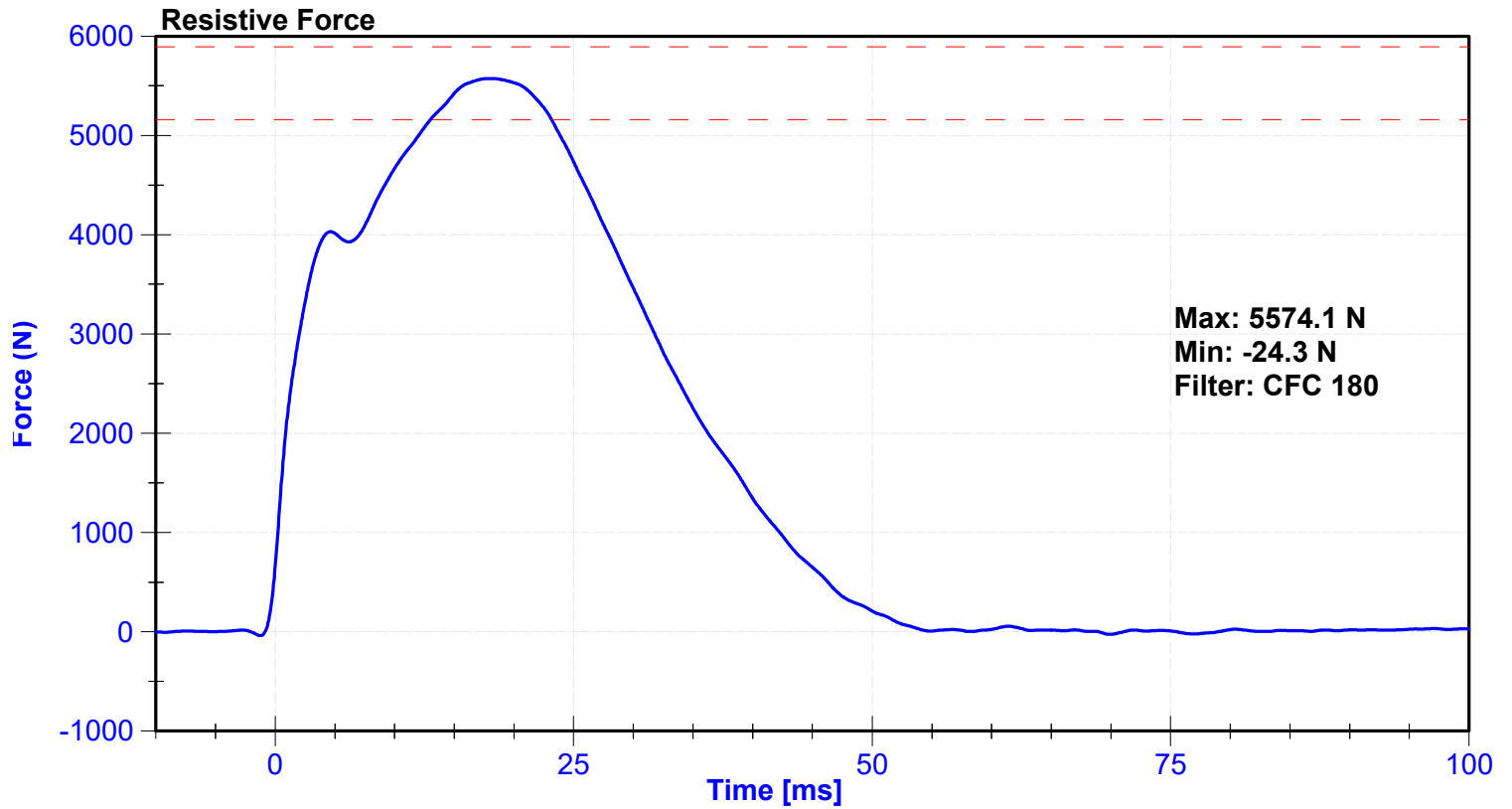
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	52	Pass
Velocity	6.59	6.83	m/s	6.717	Pass
Chest Displacement	-72.6	-63.5	mm	-67.23	Pass
Resistive Force	5160	5894	N	5574.1	Pass
Hysteresis	69	85	%	71.4	Pass

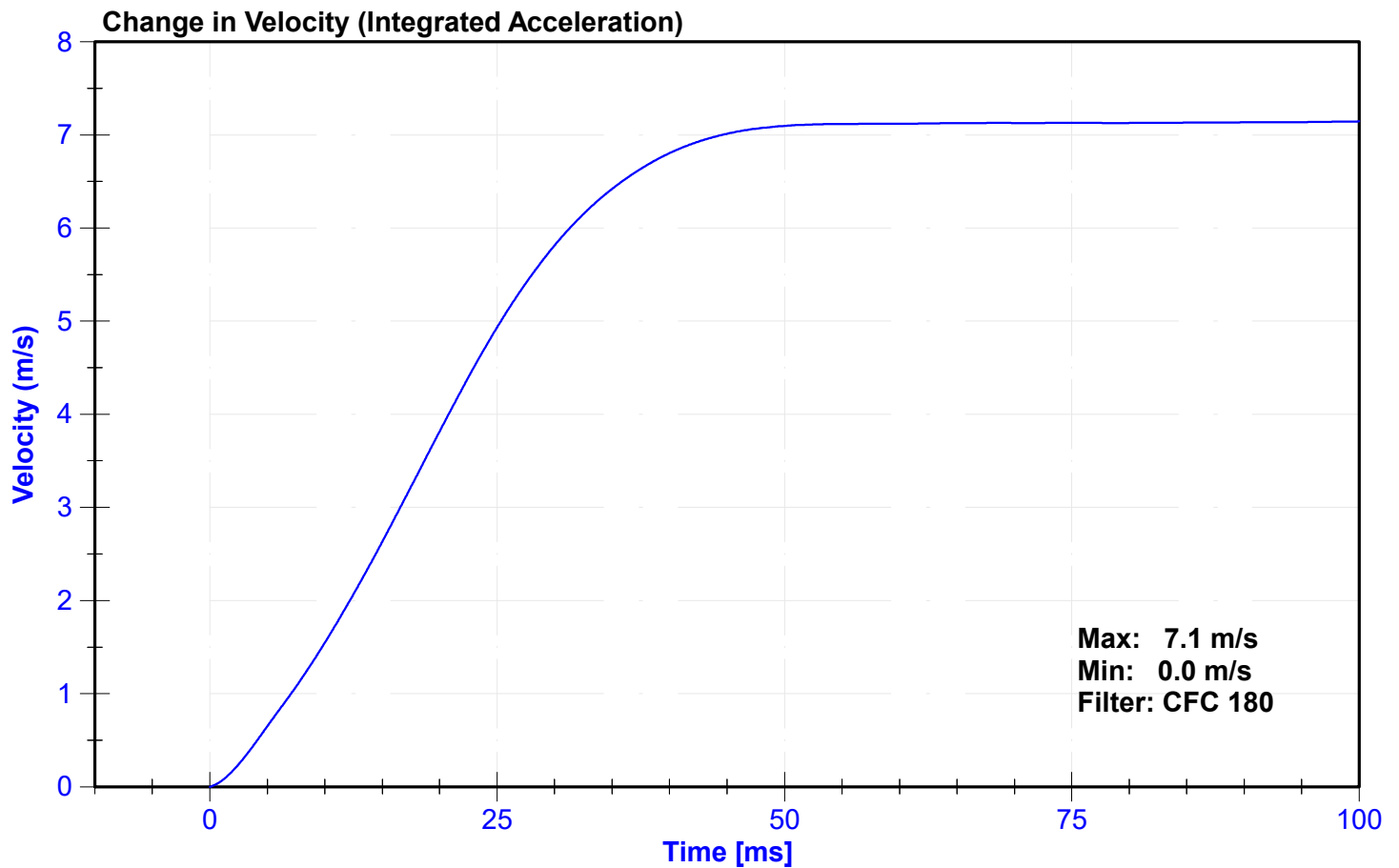
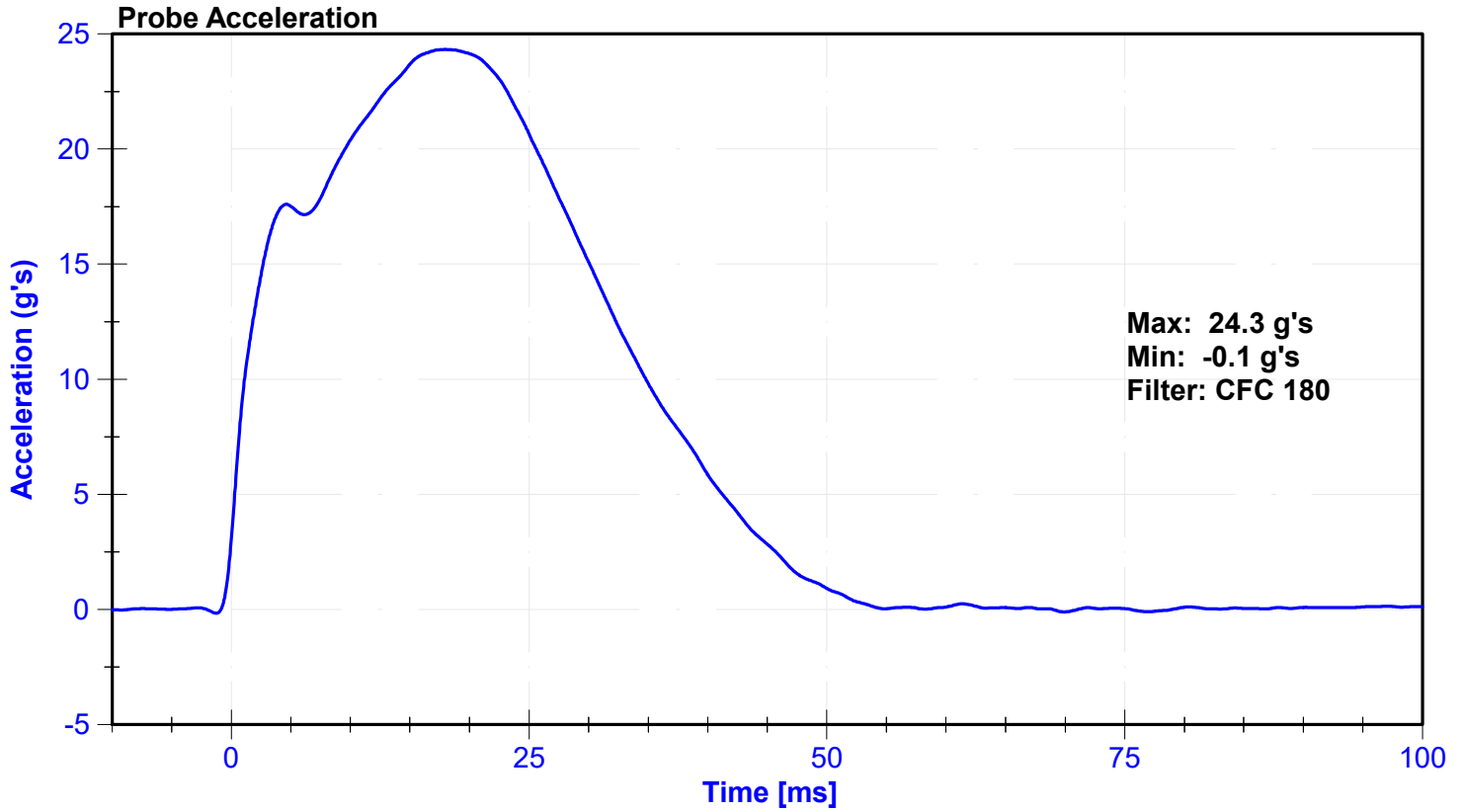
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Chest Potentiometer	Servo	1046	6/10/2025	12/9/2025

Force vs. Displacement







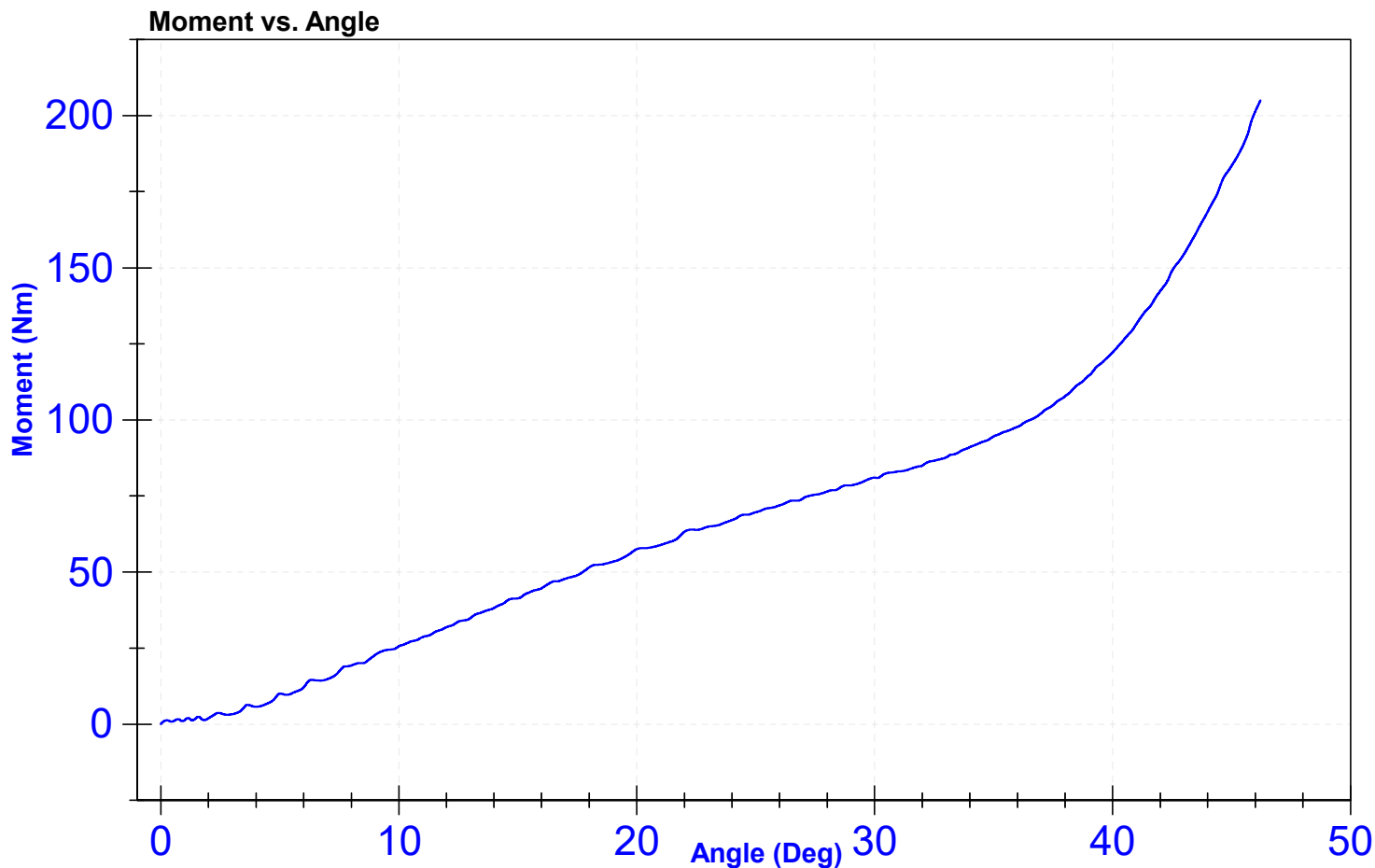
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.9	Pass
Humidity	10	70	%	45	Pass
Average Velocity	5	10	deg/s	7.2	Pass
Angle at 203Nm	40	50	deg	46.1	Pass
Moment at 30 degrees	0	94.9	Nm	80.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	ETI SP22	DS0008	9/23/2024	9/23/2025
Load Cell	PCB 2301-02	115	2024-11-11	2025-11-11



ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

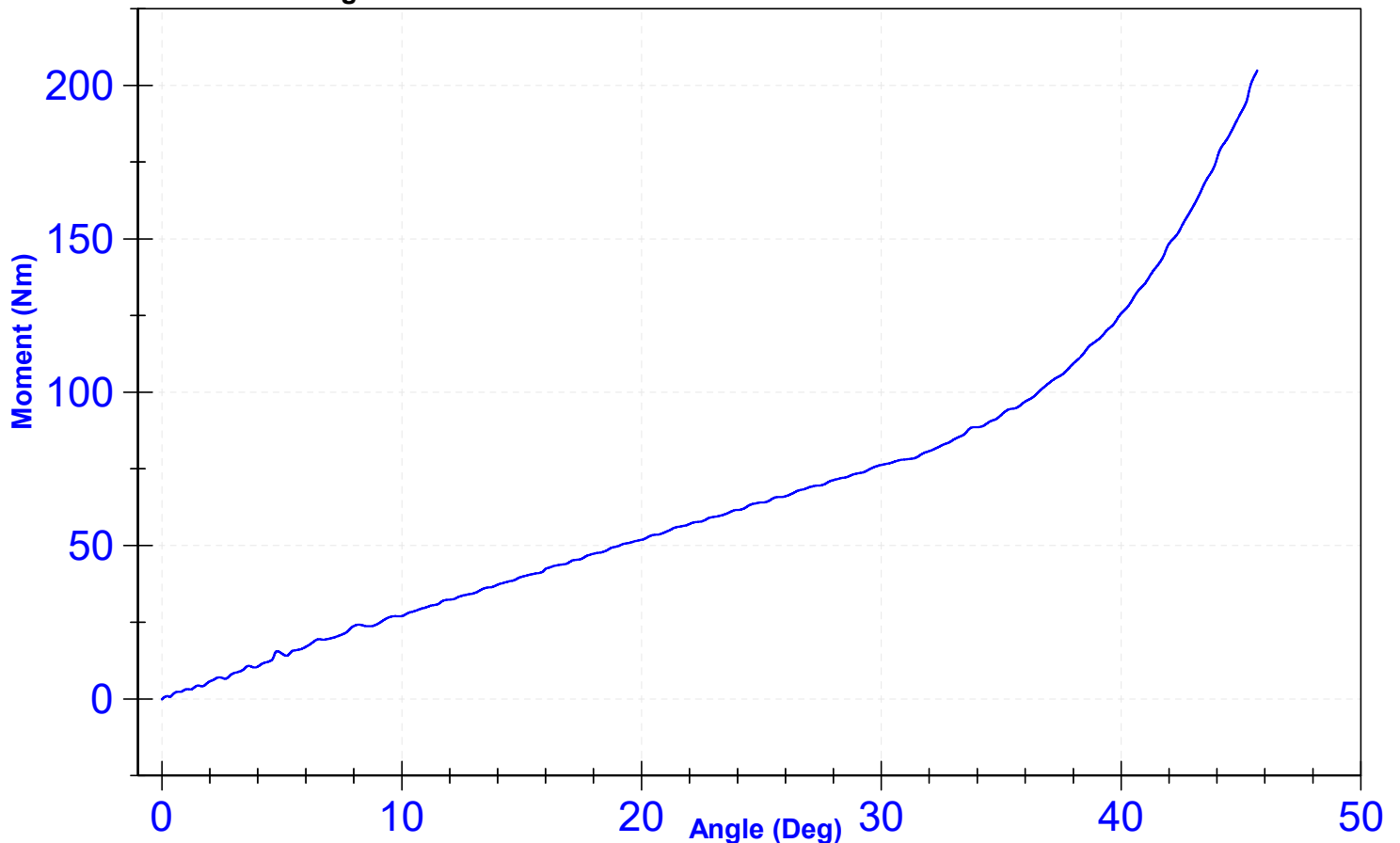
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.9	Pass
Humidity	10	70	%	45	Pass
Average Velocity	5	10	deg/s	7.2	Pass
Angle at 203Nm	40	50	deg	45.6	Pass
Moment at 30 degrees	0	94.9	Nm	76.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	ETI SP22	DS0008	9/23/2024	9/23/2025
Load Cell	PCB 2301-02	115	2024-11-11	2025-11-11

Moment vs. Angle



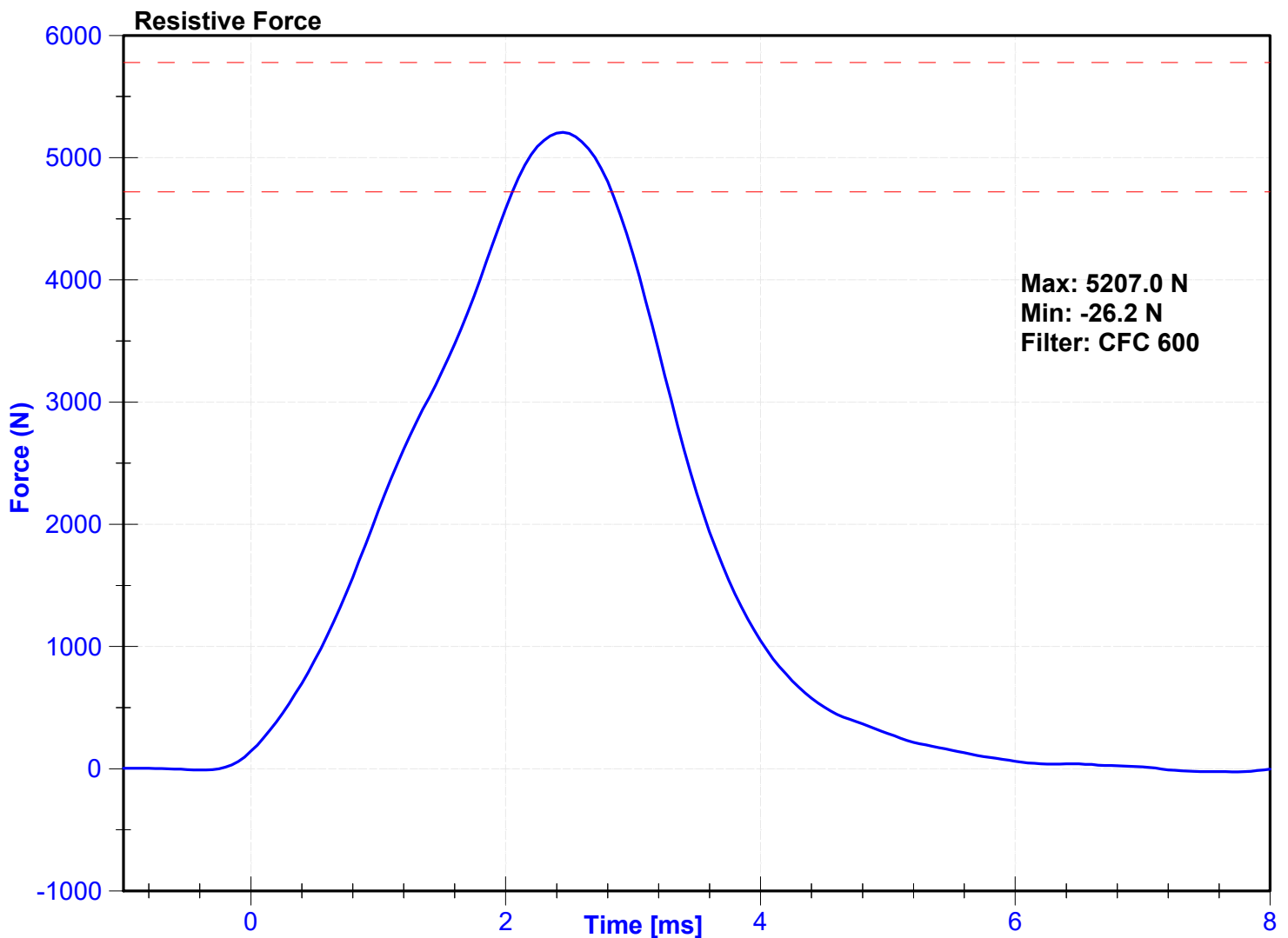
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

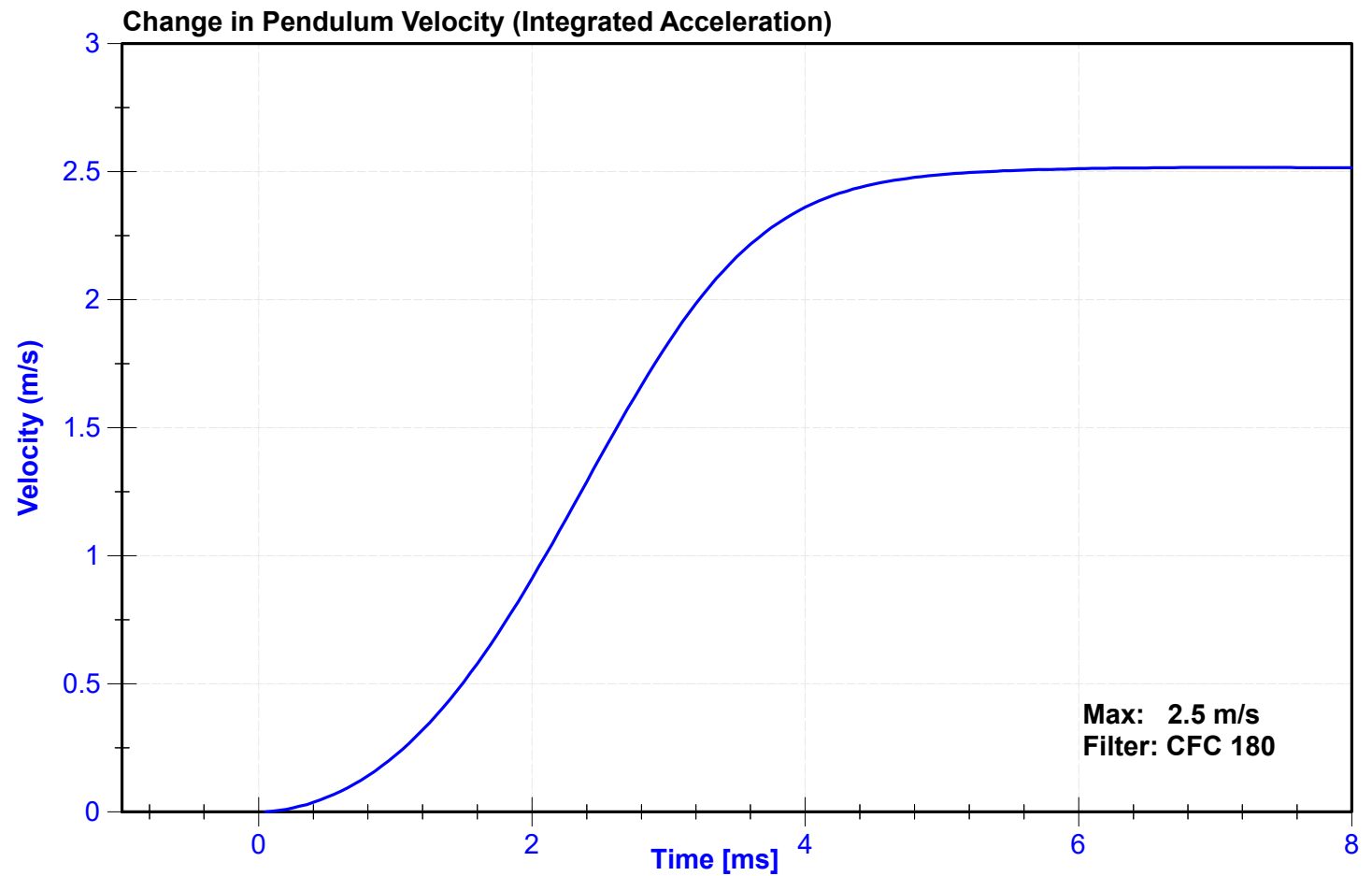
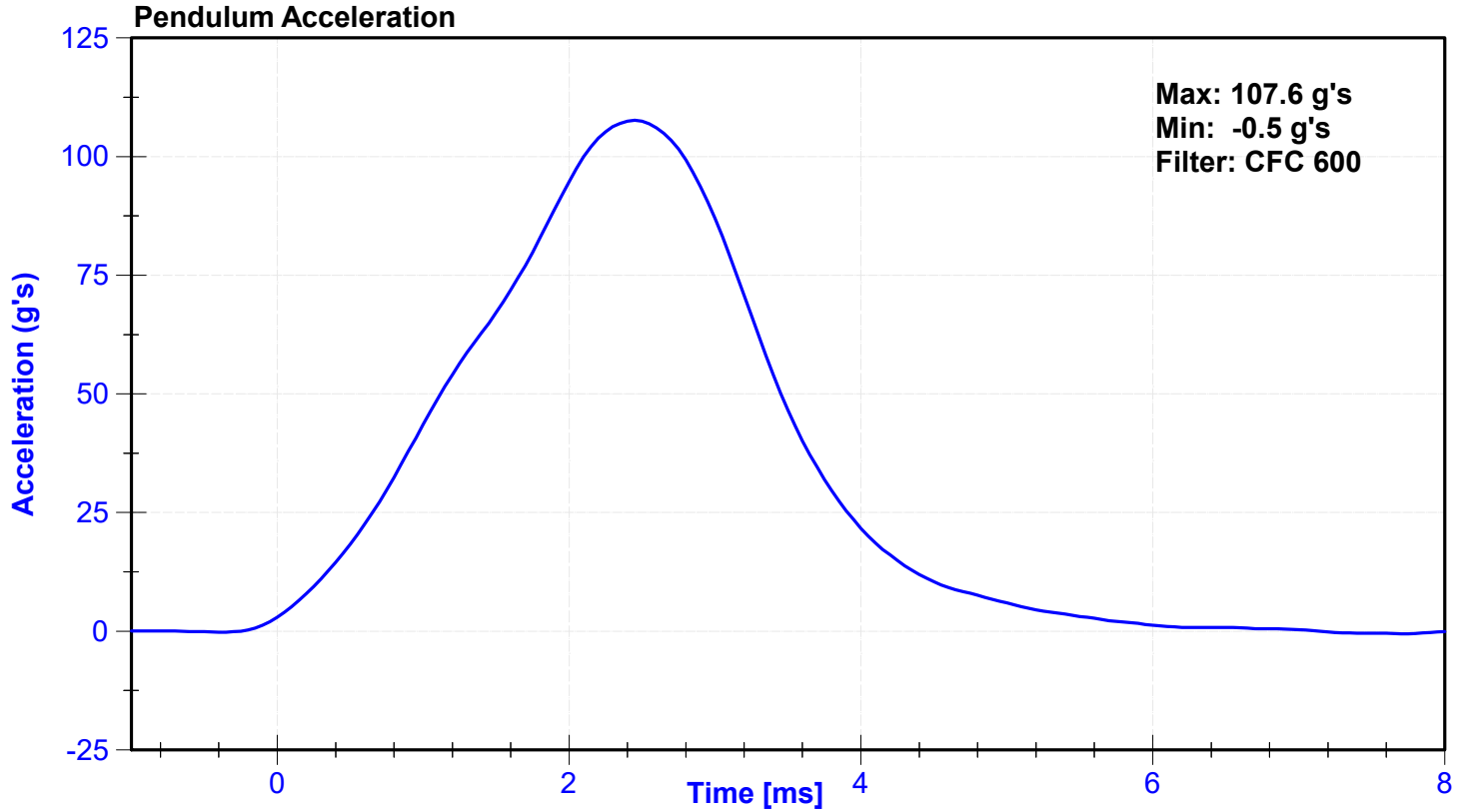
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.9	Pass
Humidity	10	70	%	49	Pass
Velocity	2.07	2.13	m/s	2.090	Pass
Maximum Resistive Force	4720	5780	N	5207.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025





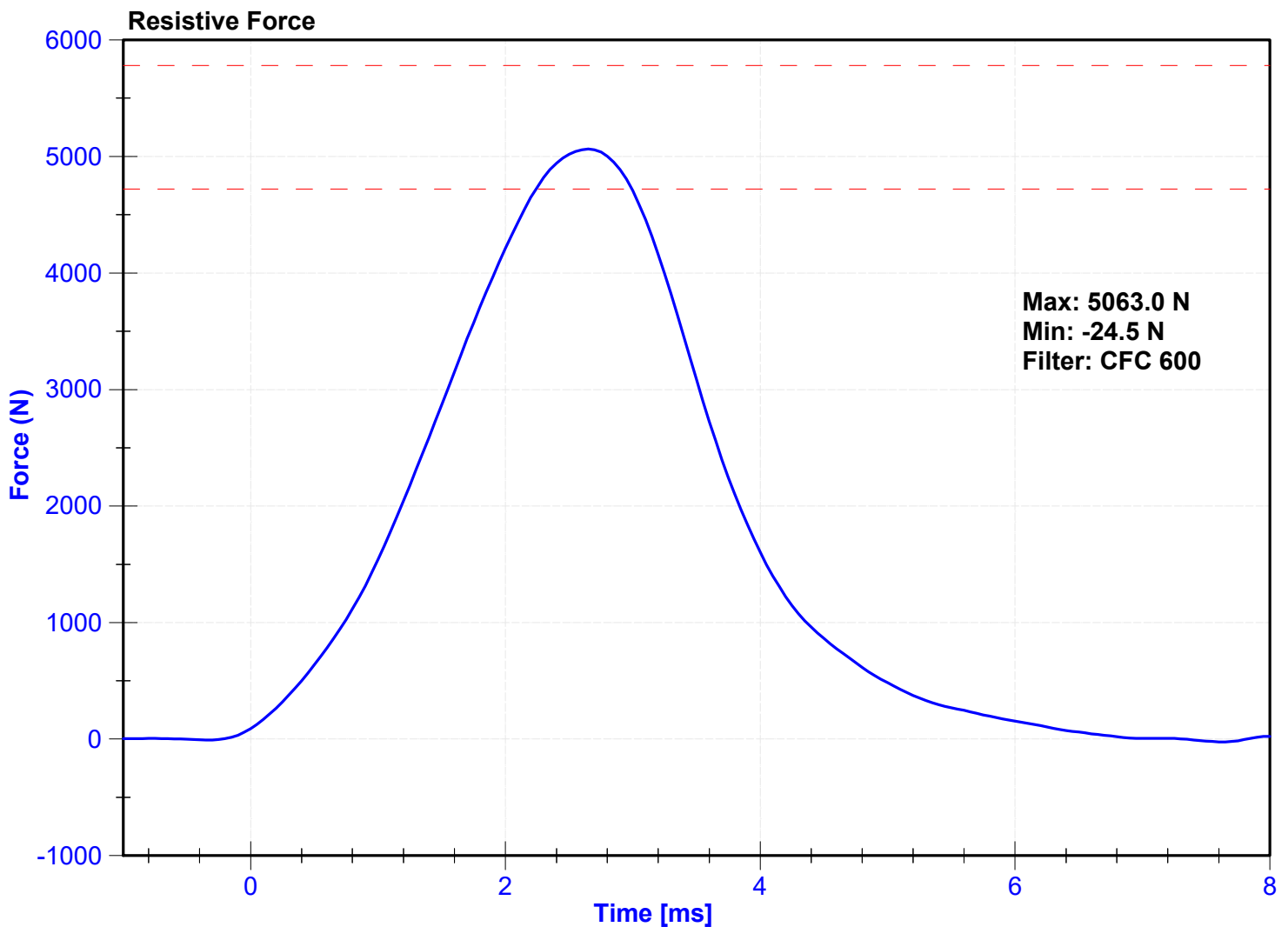
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	065	Laboratory Supervisor	J. Kinderman

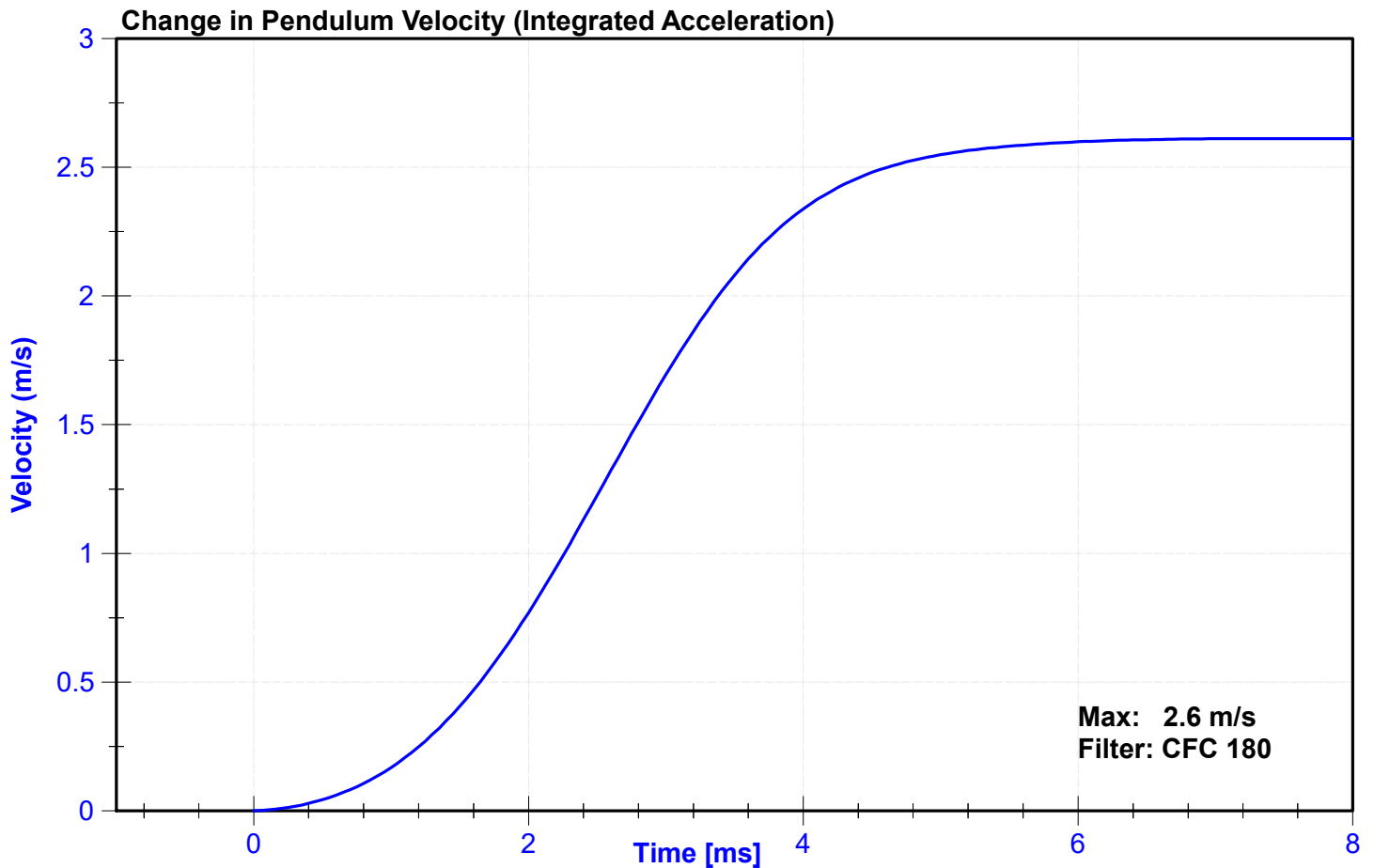
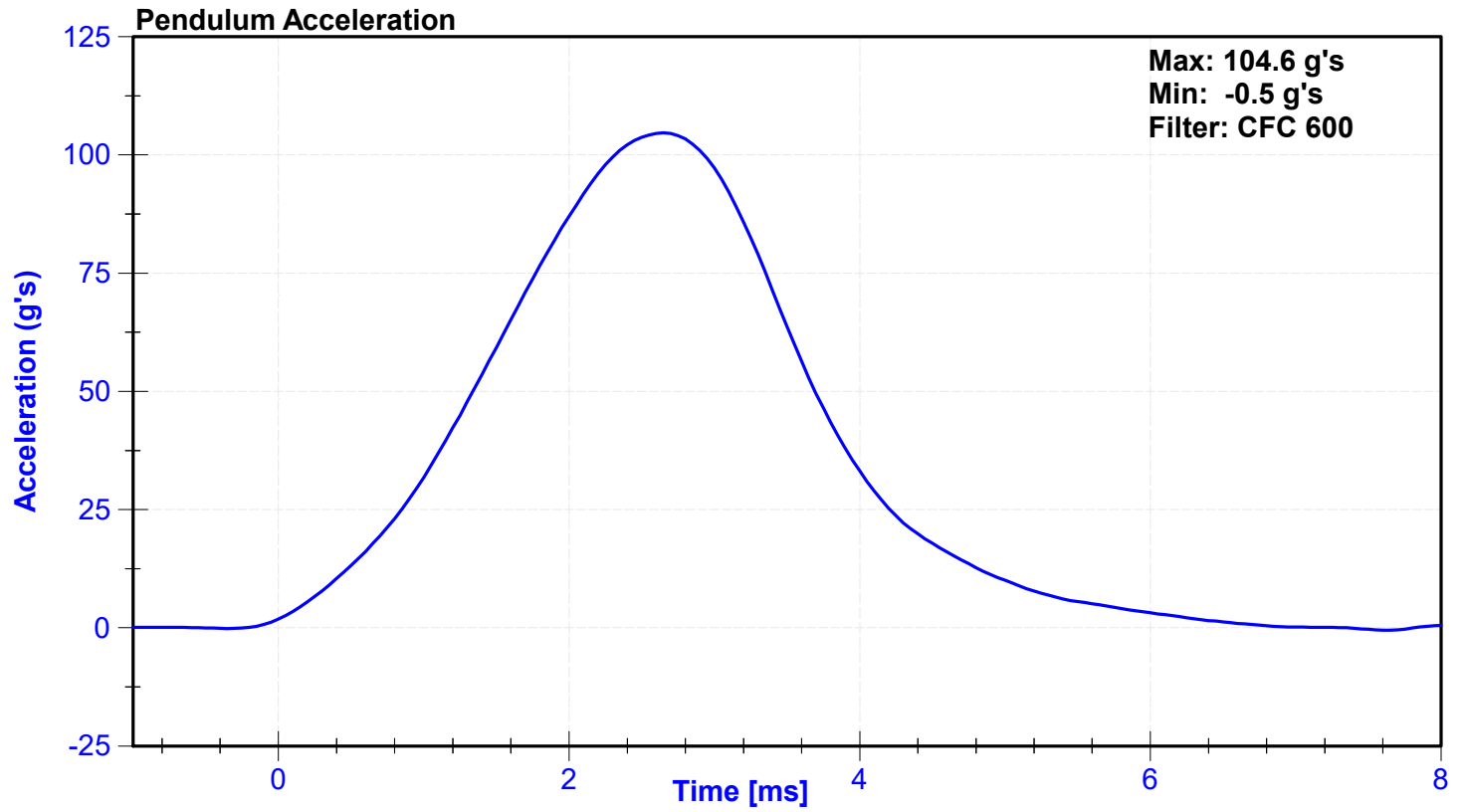
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.9	Pass
Humidity	10	70	%	49	Pass
Velocity	2.07	2.13	m/s	2.091	Pass
Maximum Resistive Force	4720	5780	N	5063.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025





CALIBRATION TEST RESULTS

POST-TEST

HYBRID III 5TH PERCENTILE FEMALE - PASSENGER ATD

SERIAL NO: 137

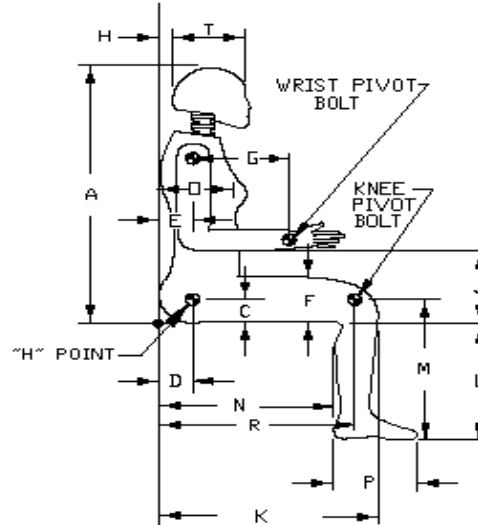
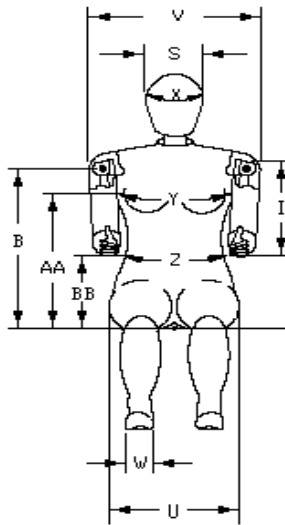


External Measurements - Hybrid 3 - 5th Female

Technician: **J. Rios**

Date: **07/21/2025**

Dummy Serial Number: **137**



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	775	800	791	Pass
B	Shoulder Pivot Height	432	457	445	Pass
C	H-Point Height	81	86	85	Pass
D	H-Point from Backline	145	150	146	Pass
E	Shoulder Pivot from Backline	69	84	79	Pass
F	Thigh Clearance	119	135	125	Pass
G	Back of Elbow to Wrist Pivot	244	259	253	Pass
H	Head Back to Backline	43	48	45	Pass
I	Shoulder to Elbow Length	277	297	288	Pass
J	Elbow Rest Height	183	203	191	Pass
K	Buttock to Knee Length	521	546	532	Pass
L	Popliteal Height	356	376	362	Pass
M	Knee Pivot Height	394	419	405	Pass
N	Buttock Popliteal Length	414	439	427	Pass
O	Chest Depth without Jacket	175	191	180	Pass
P	Foot Length (right)	219	234	225	Pass
R	Buttock To Knee Pivot Length	457	483	466	Pass
S	Head Breadth	137	147	146	Pass
T	Head Depth	178	188	183	Pass
U	Hip Breadth	300	315	309	Pass
V	Shoulder Breadth	351	366	355	Pass
W	Foot Breadth	79	94	85	Pass
X	Head Circumference	528	549	539	Pass
Y	Chest Circumference with Jacket	851	881	874	Pass
Z	Waist Circumference	460	790	638	Pass
AA	Reference Location (Chest Circumference)	333	358	340	Pass
BB	Reference Location (Waist Circumference)	160	170	163	Pass

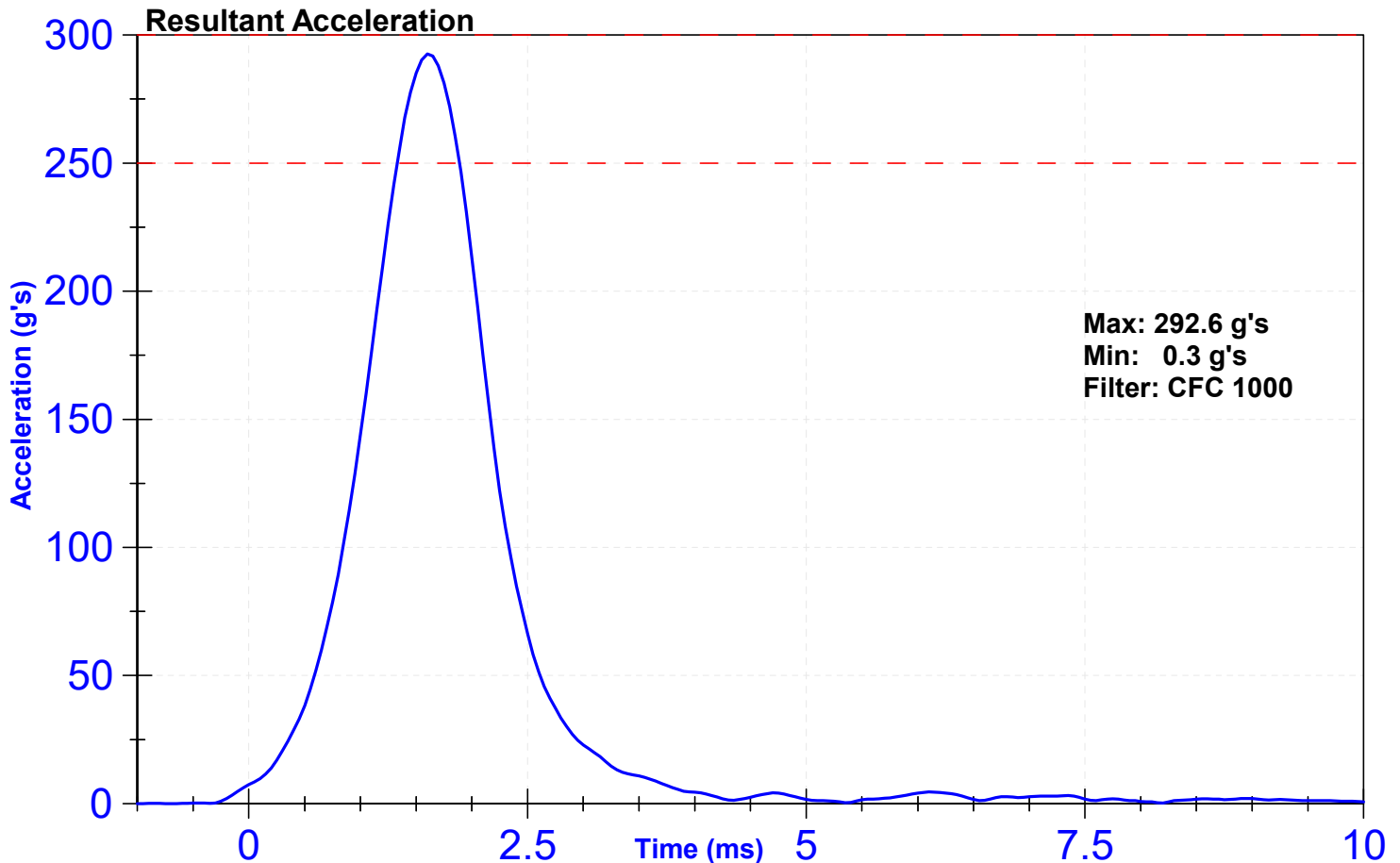
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

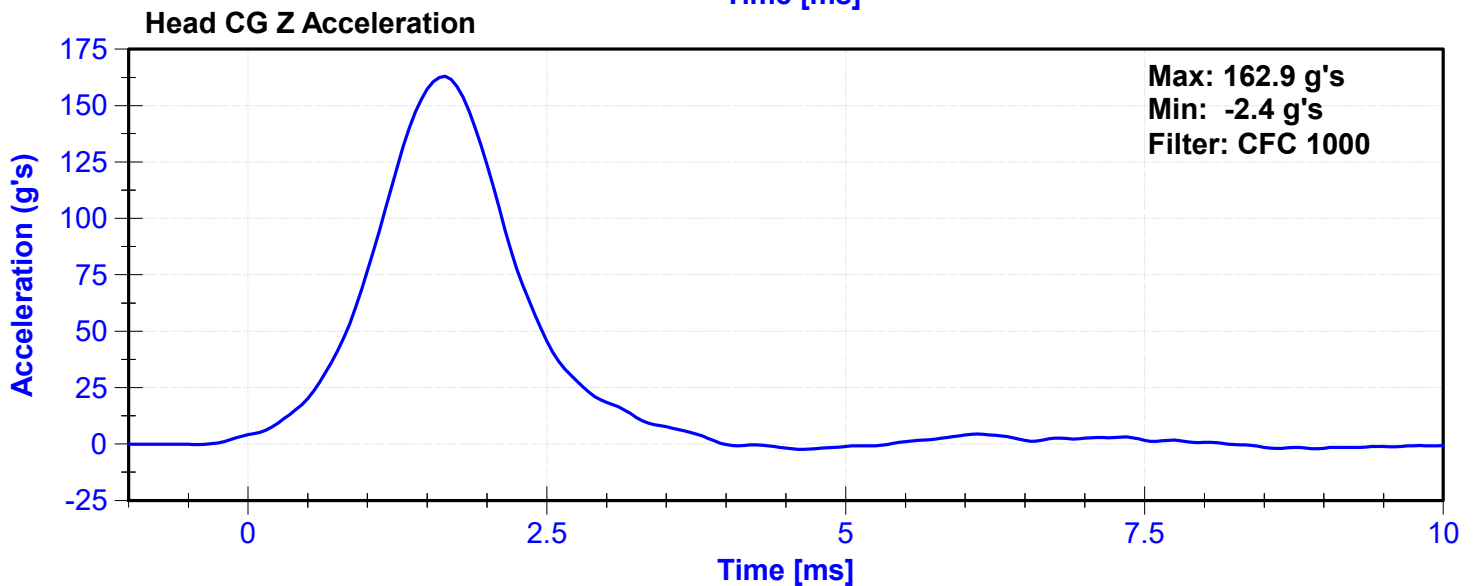
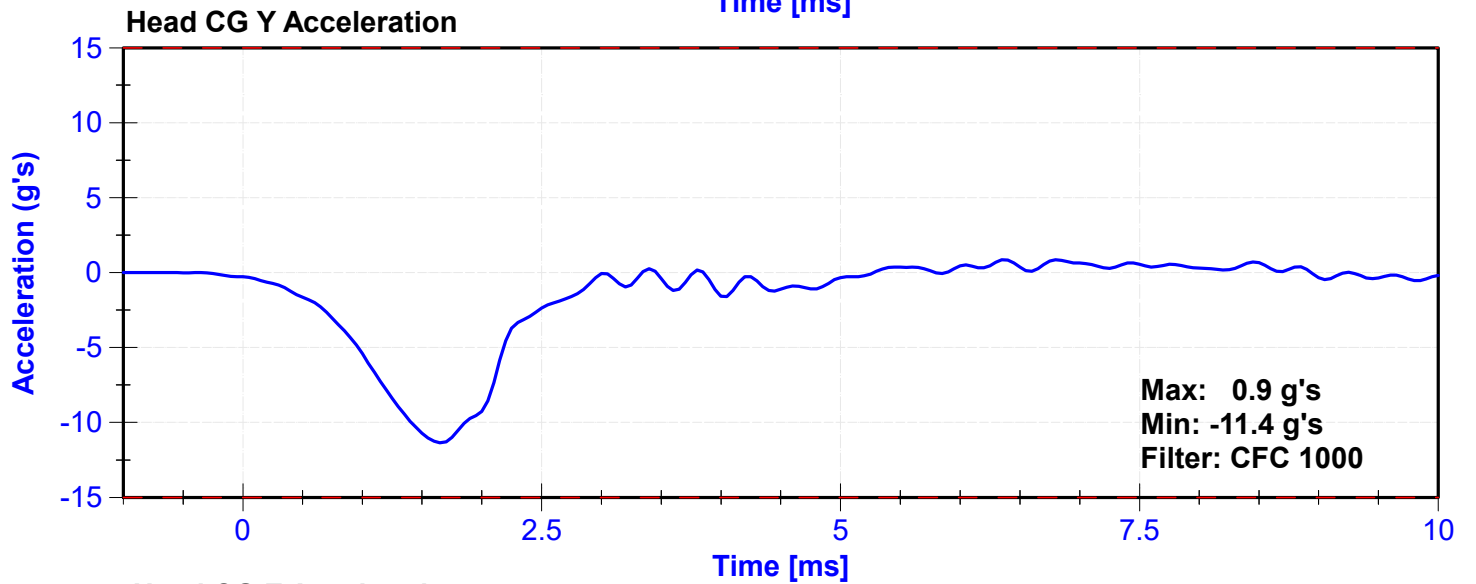
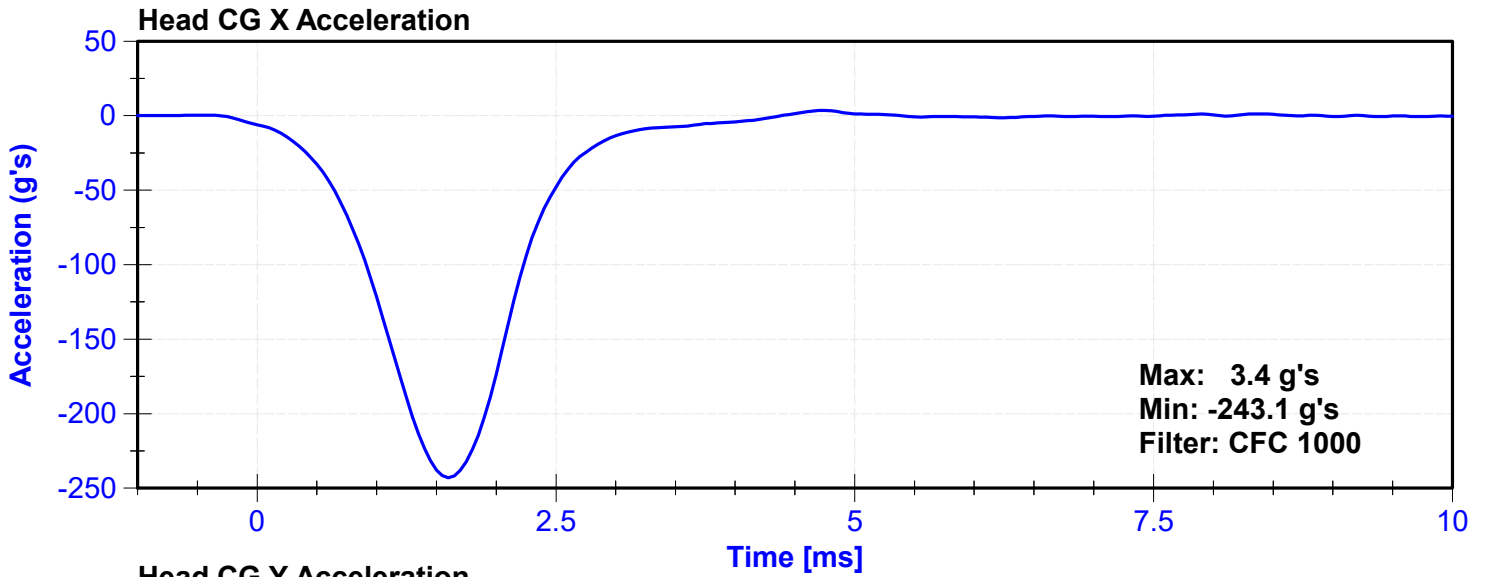
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.5	Pass
Humidity	10	70	%	44	Pass
Resultant Acceleration	250	300	g's	292.6	Pass
Oscillation	0	10	%	1.5	Pass
Lateral Acceleration	-15	15	g's	-11.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P79417	6/11/2025	12/11/2025
Y Accelerometer	Endevco	P83335	6/11/2025	12/11/2025
Z Accelerometer	Endevco	P64149	6/11/2025	12/11/2025





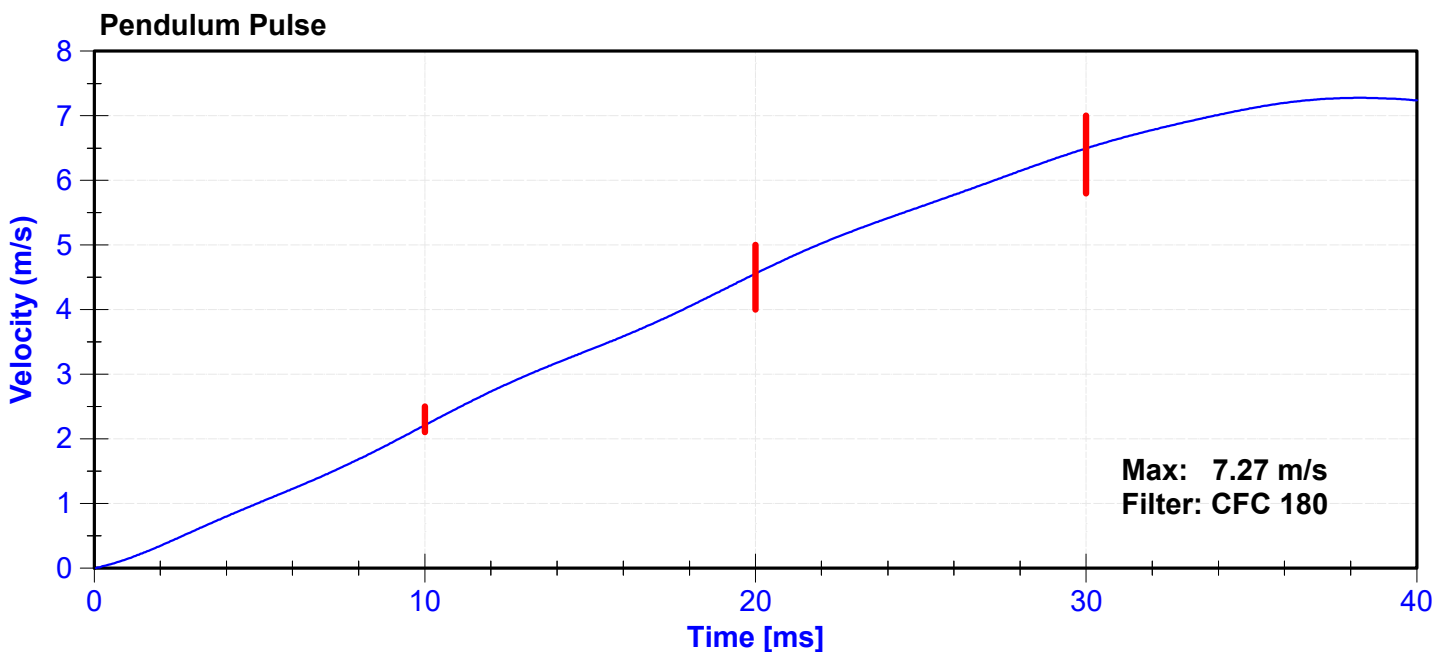
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

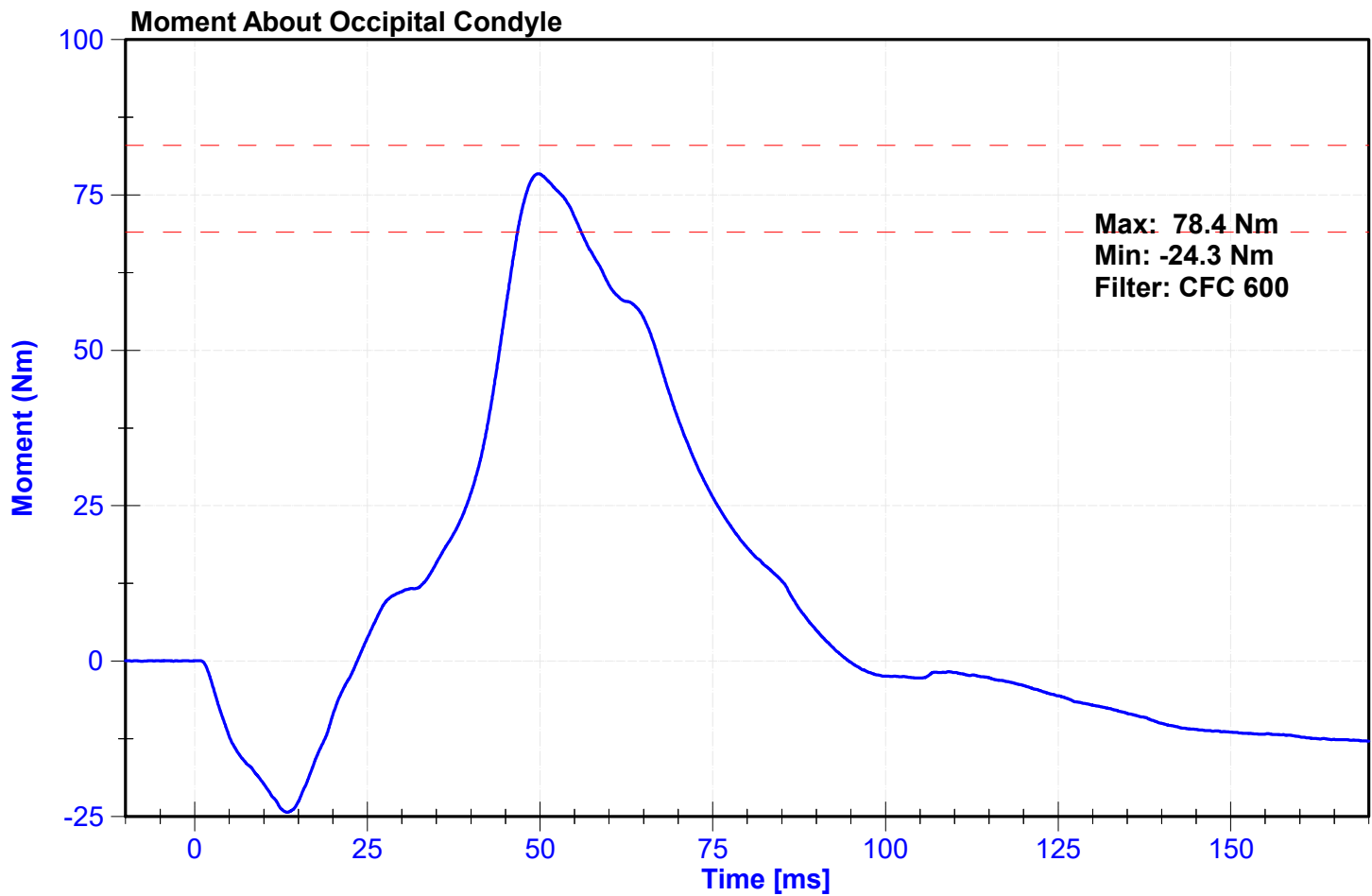
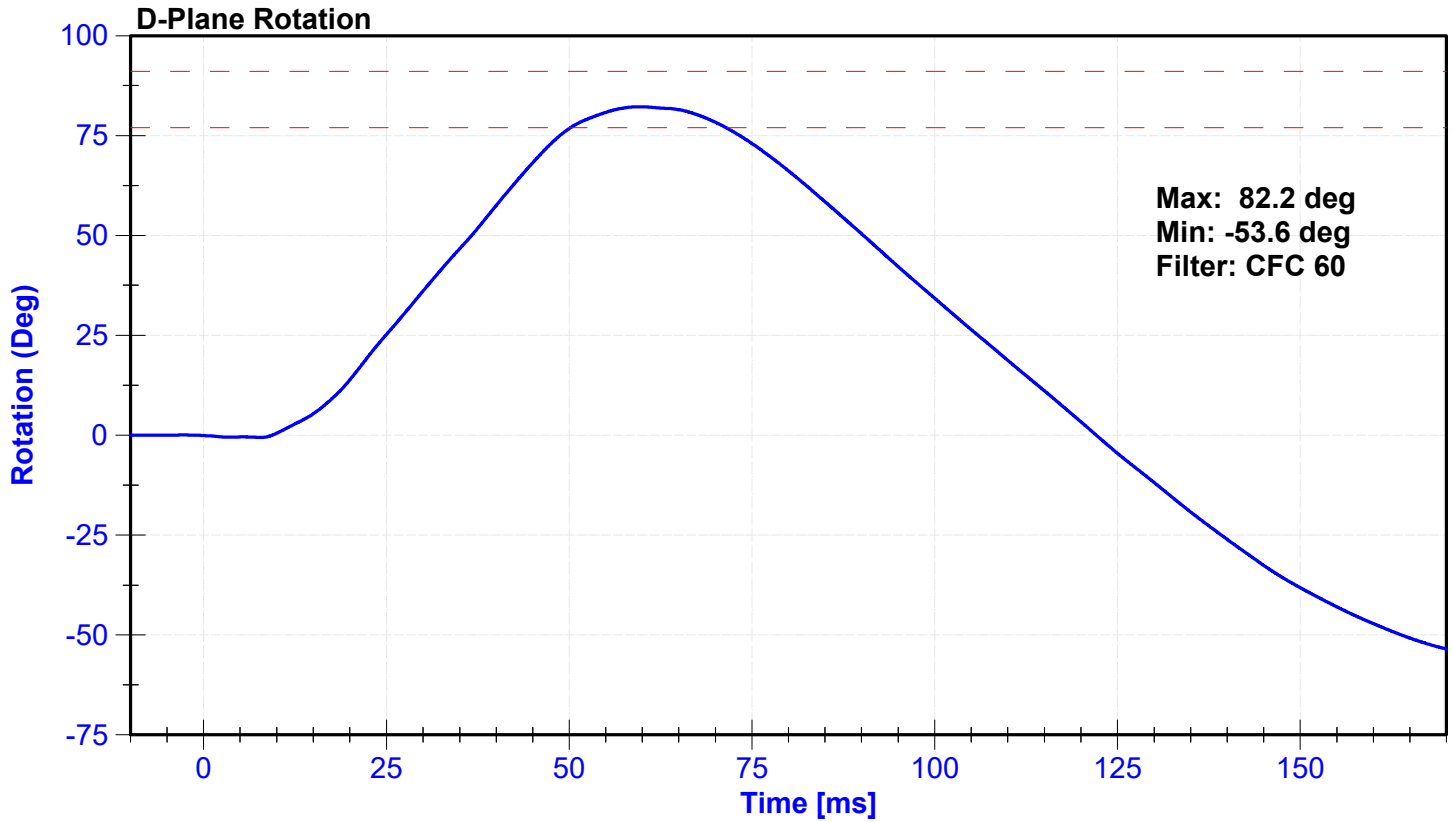
Results

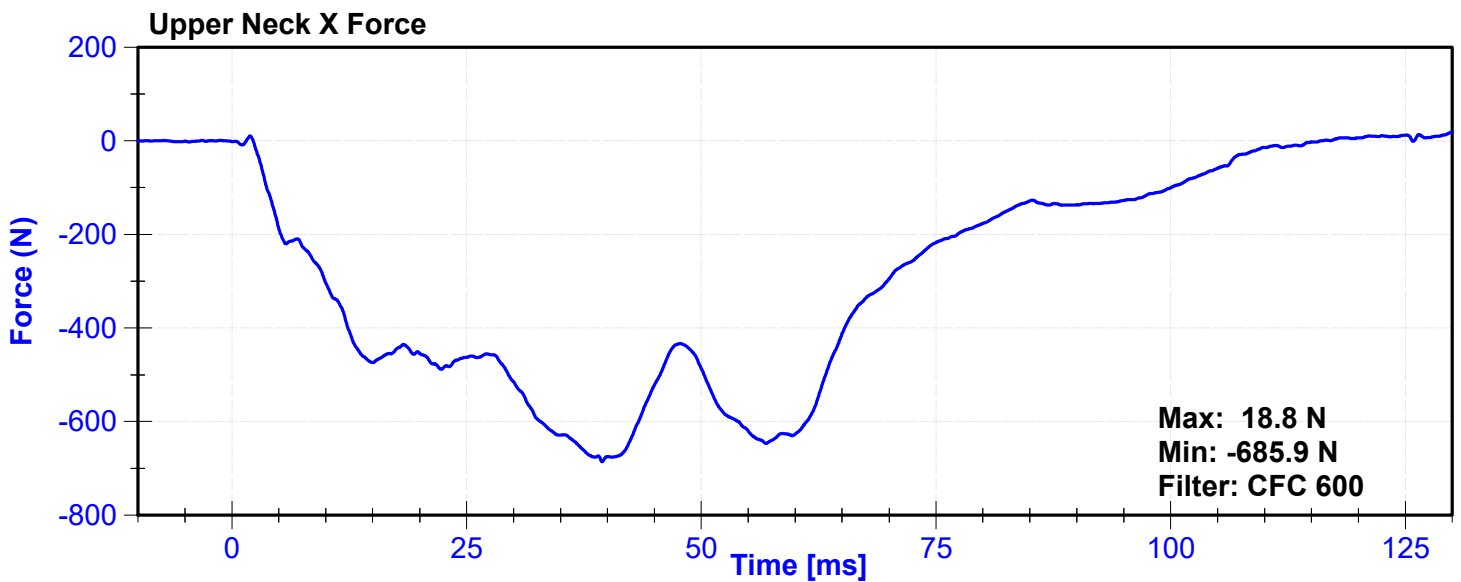
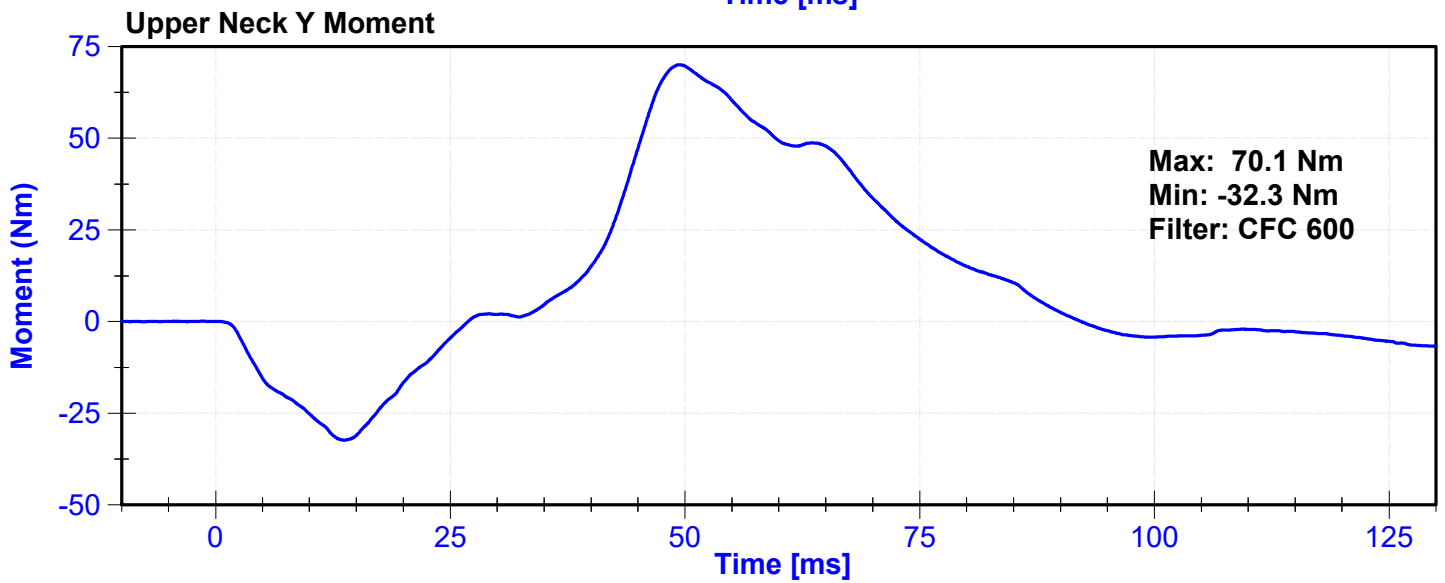
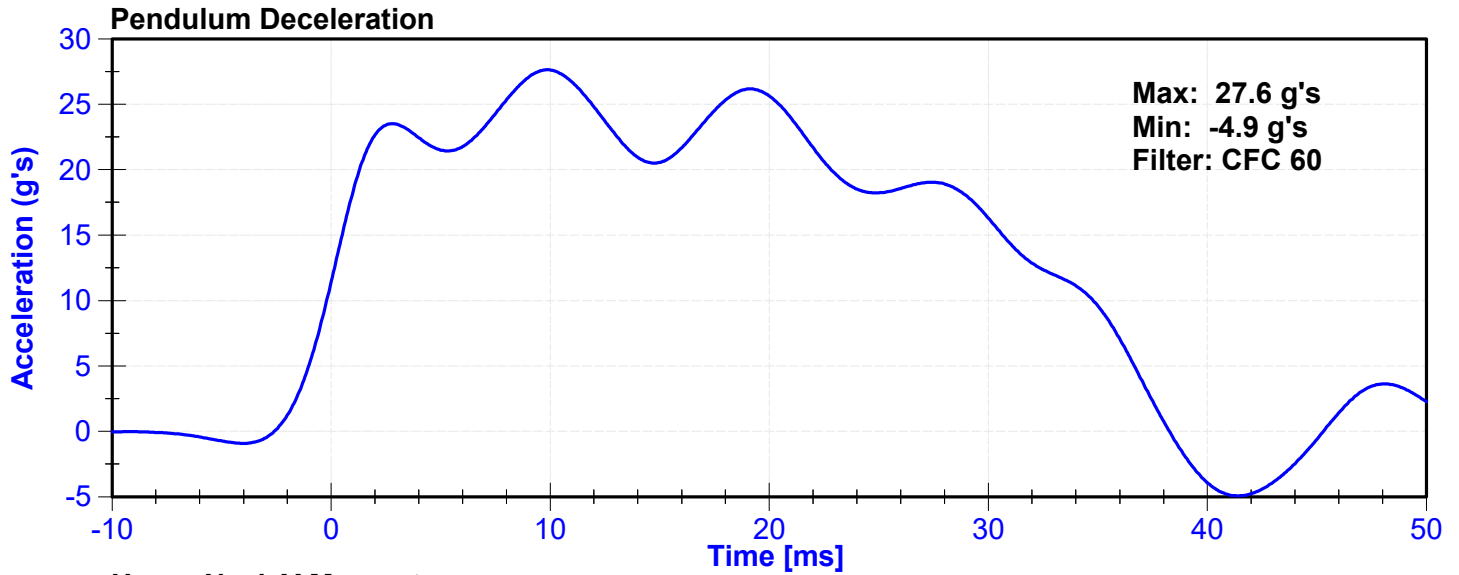
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.9	Pass
Humidity	10	70	%	46	Pass
Velocity	6.89	7.13	m/s	7.004	Pass
Pendulum Impulse at 10ms	2.1	2.5	m/s	2.21	Pass
Pendulum Impulse at 20ms	4.0	5.0	m/s	4.56	Pass
Pendulum Impulse at 30ms	5.8	7.0	m/s	6.49	Pass
Max D Plane Rotation	77	91	deg	82.2	Pass
Max Moment During Rotation Interval	69	83	Nm	78.4	Pass
Moment Decay to 10.0 Nm	80	100	ms	86.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Pendulum Potentiometer	ETI	SP22G_LABPOT1	5/14/2025	5/14/2026
Condyle Potentiometer	ETI	SP22G_LABPOT2	5/14/2025	5/14/2026
Upper Neck Load Cell	Humanetics	1916-FX	9/12/2024	9/12/2025







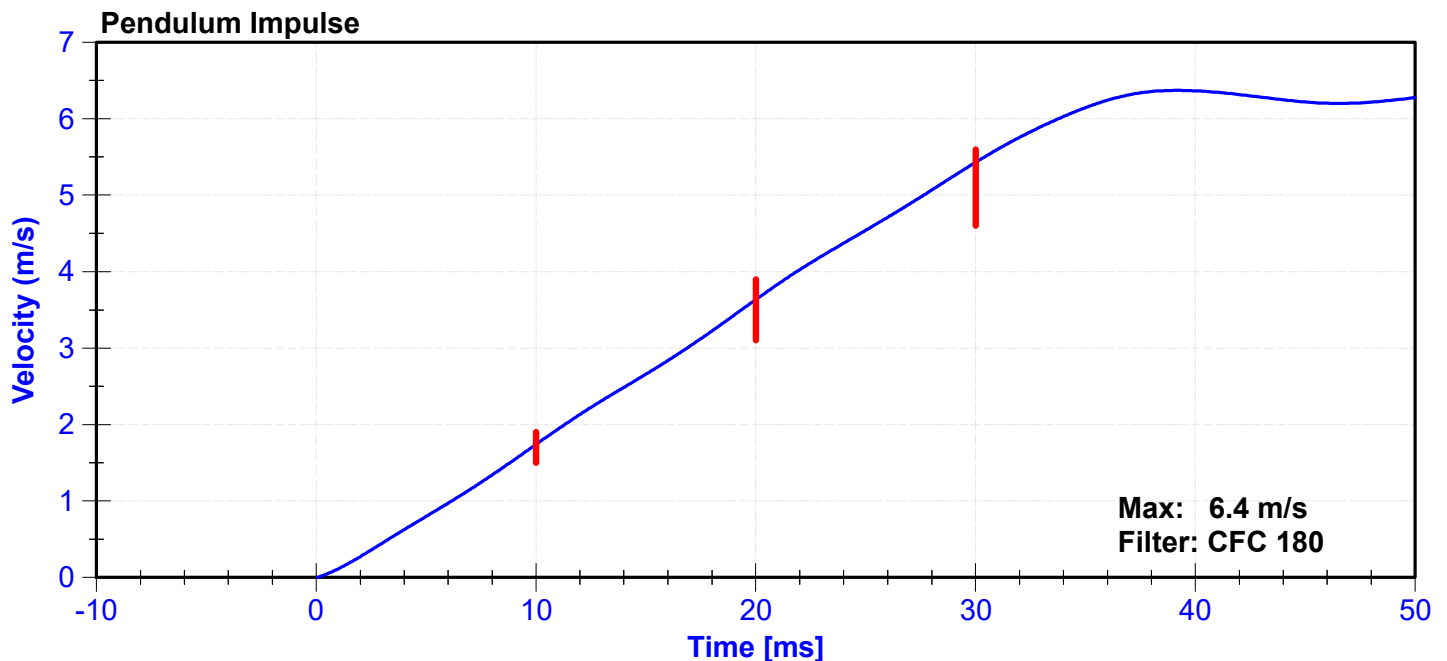
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

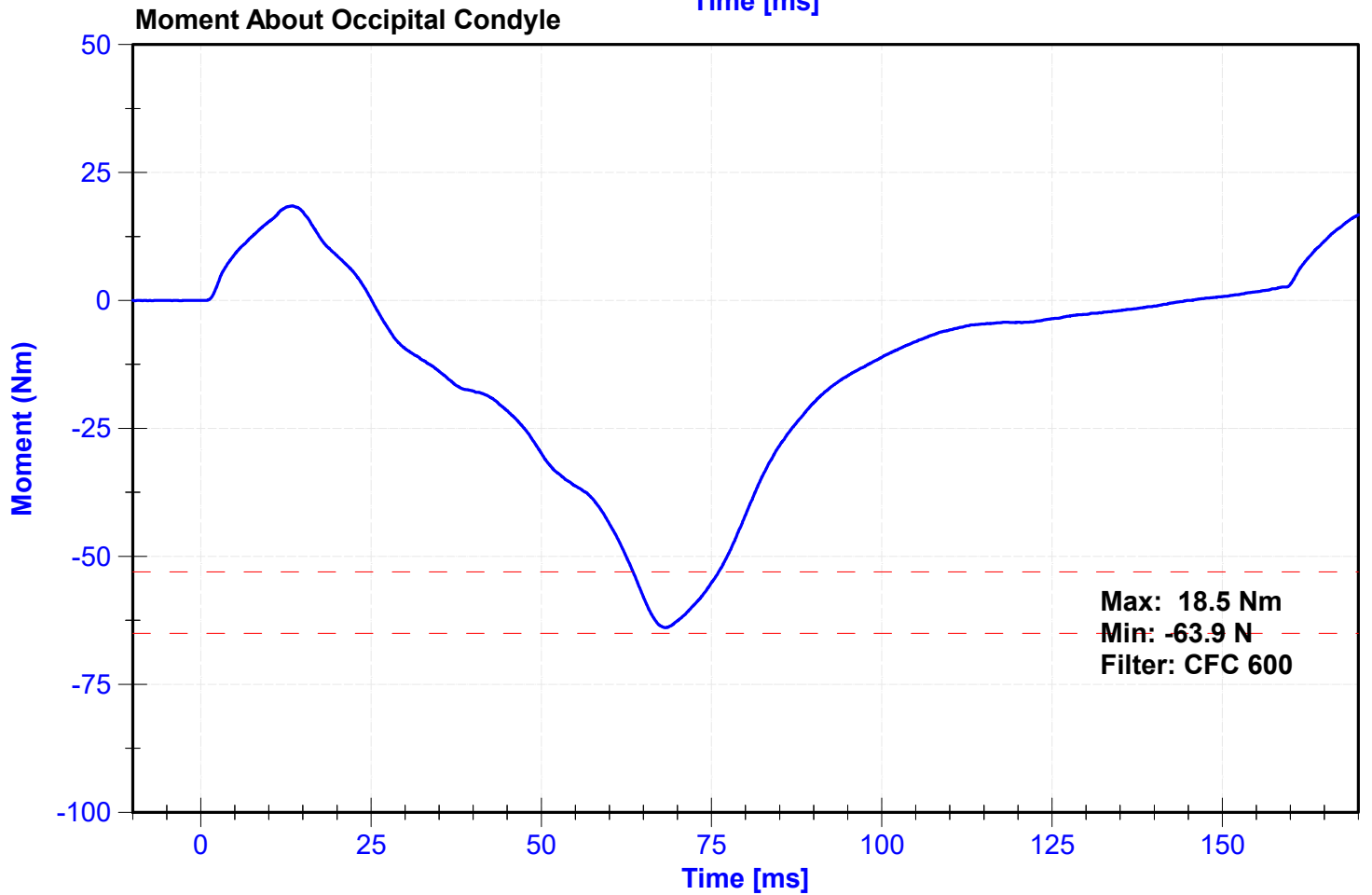
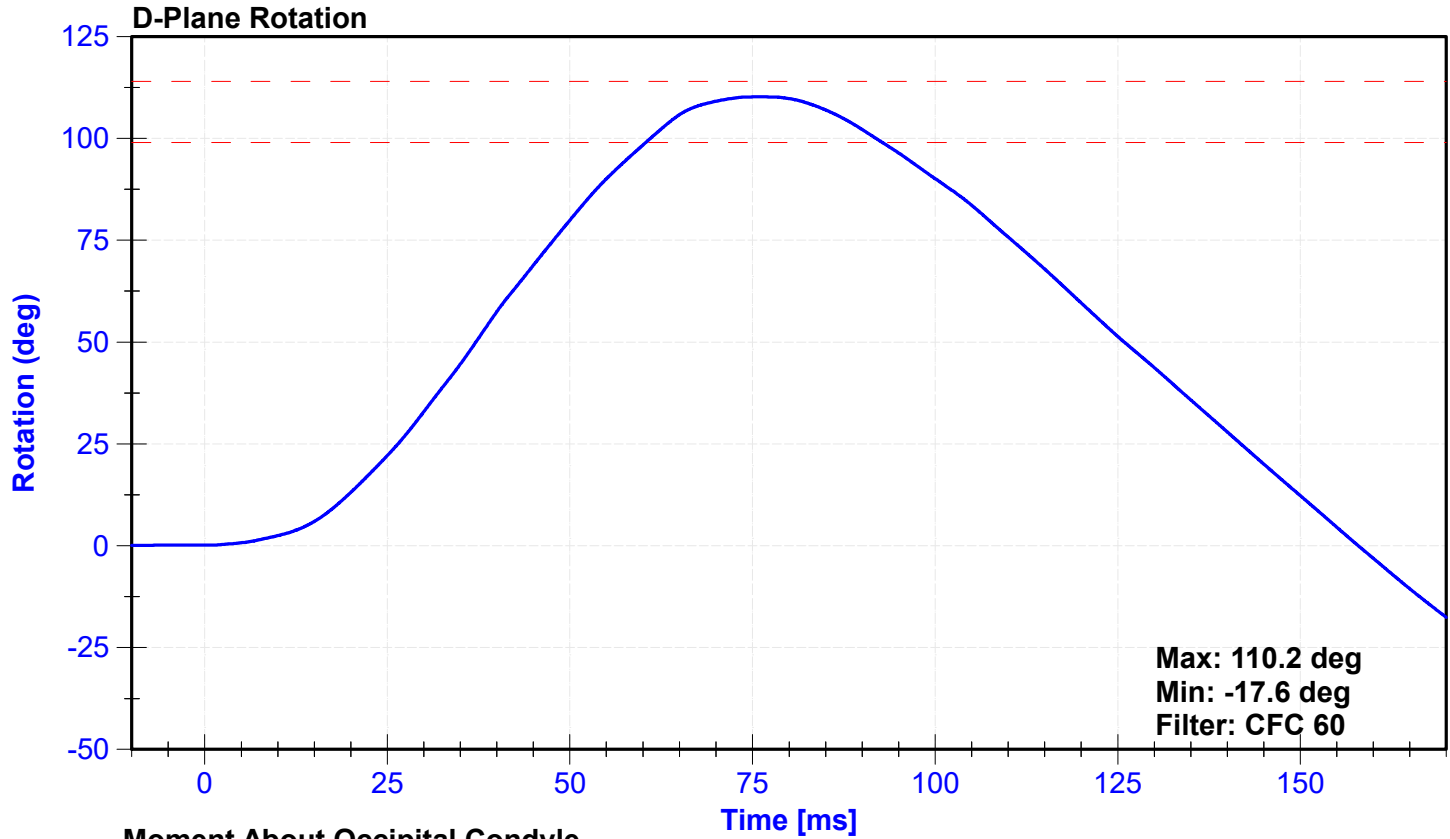
Results

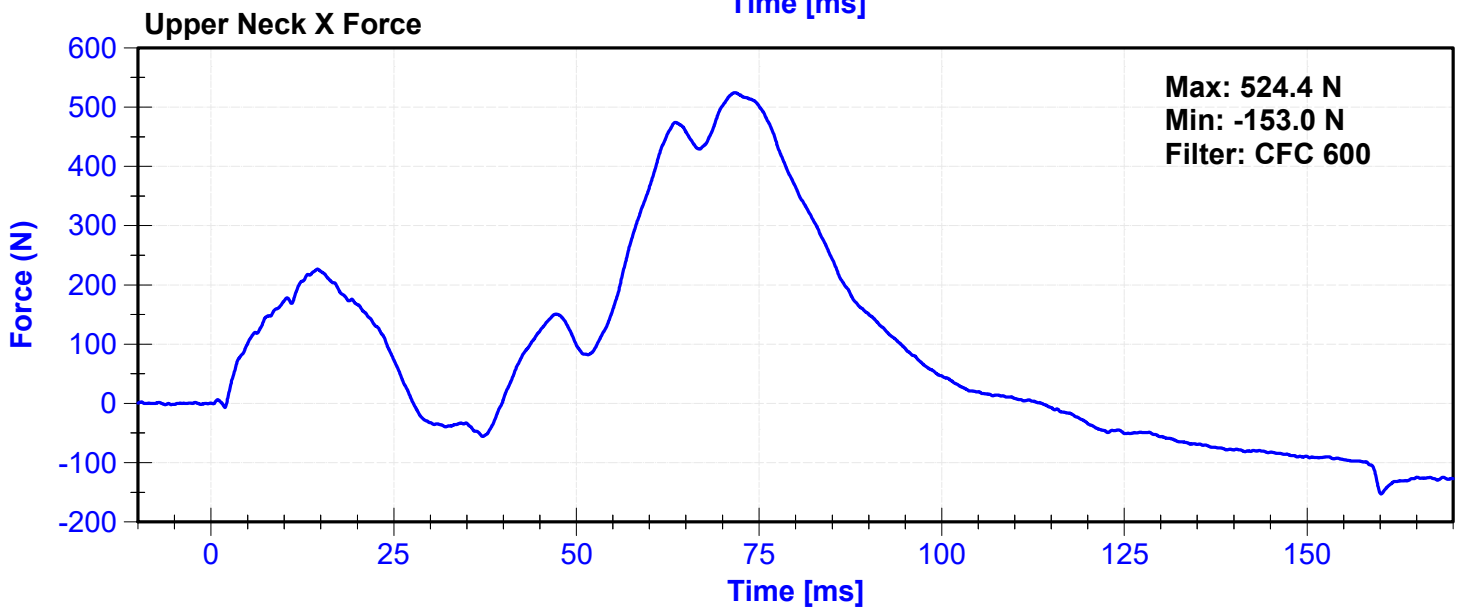
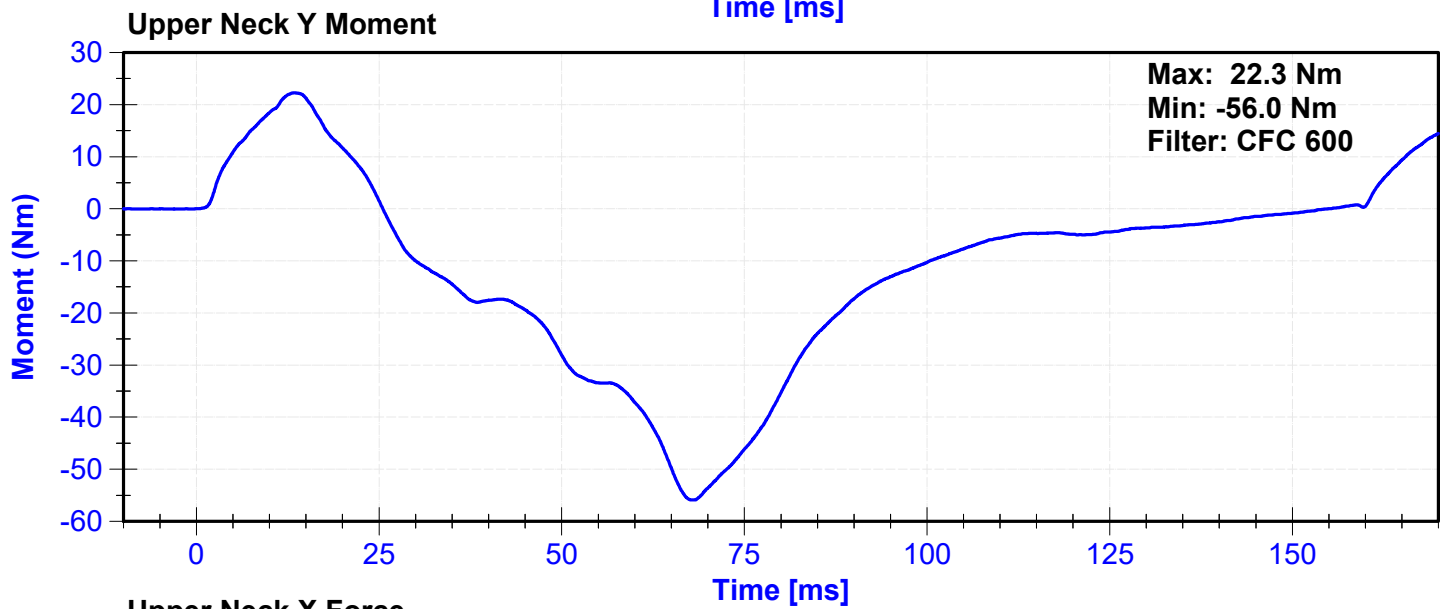
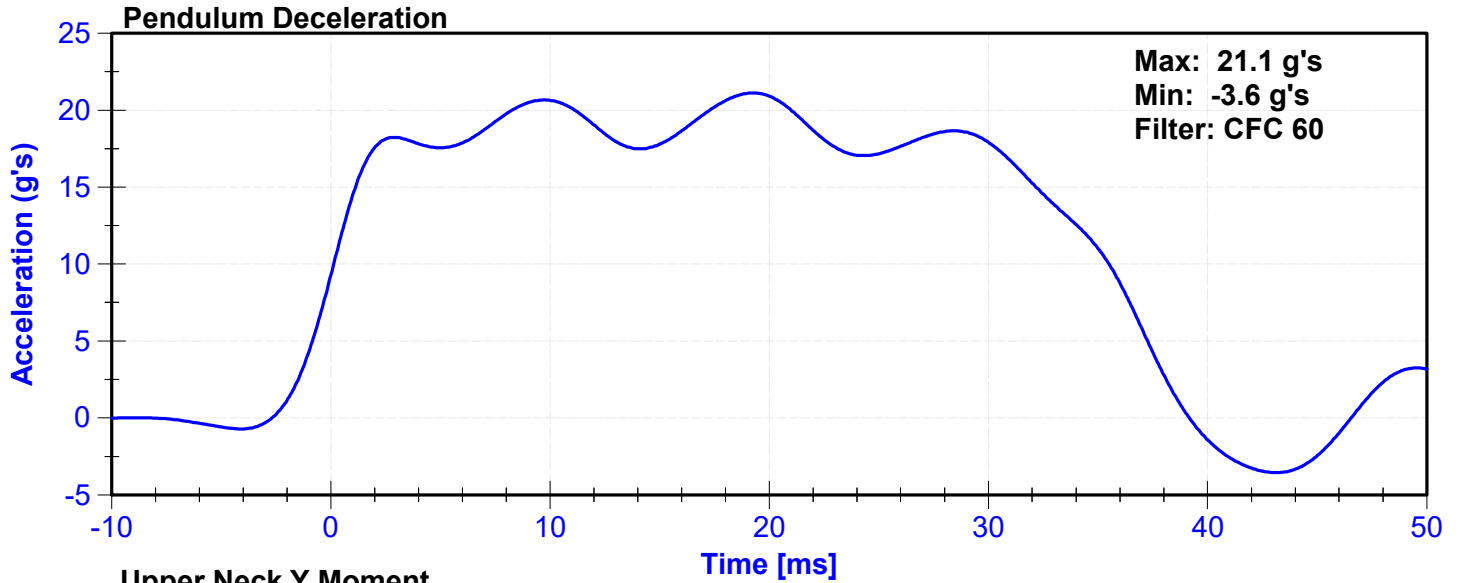
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.9	Pass
Humidity	10	70	%	46	Pass
Velocity	5.95	6.19	m/s	6.013	Pass
Pendulum Impulse at 10ms	1.5	1.9	m/s	1.74	Pass
Pendulum Impulse at 20ms	3.1	3.9	m/s	3.64	Pass
Pendulum Impulse at 30ms	4.6	5.6	m/s	5.43	Pass
D Plane Rotation	99	114	deg	110.2	Pass
Moment During Rotation Interval	-65	-53	Nm	-63.9	Pass
Moment Decay to -10Nm	94	114	ms	101.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Pendulum Potentiometer	ETI	SP22G_LABPOT1	5/14/2025	5/14/2026
Condyle Potentiometer	ETI	SP22G_LABPOT2	5/14/2025	5/14/2026
Upper Neck Load Cell	Humanetics	1716A	9/12/2024	9/12/2025







ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

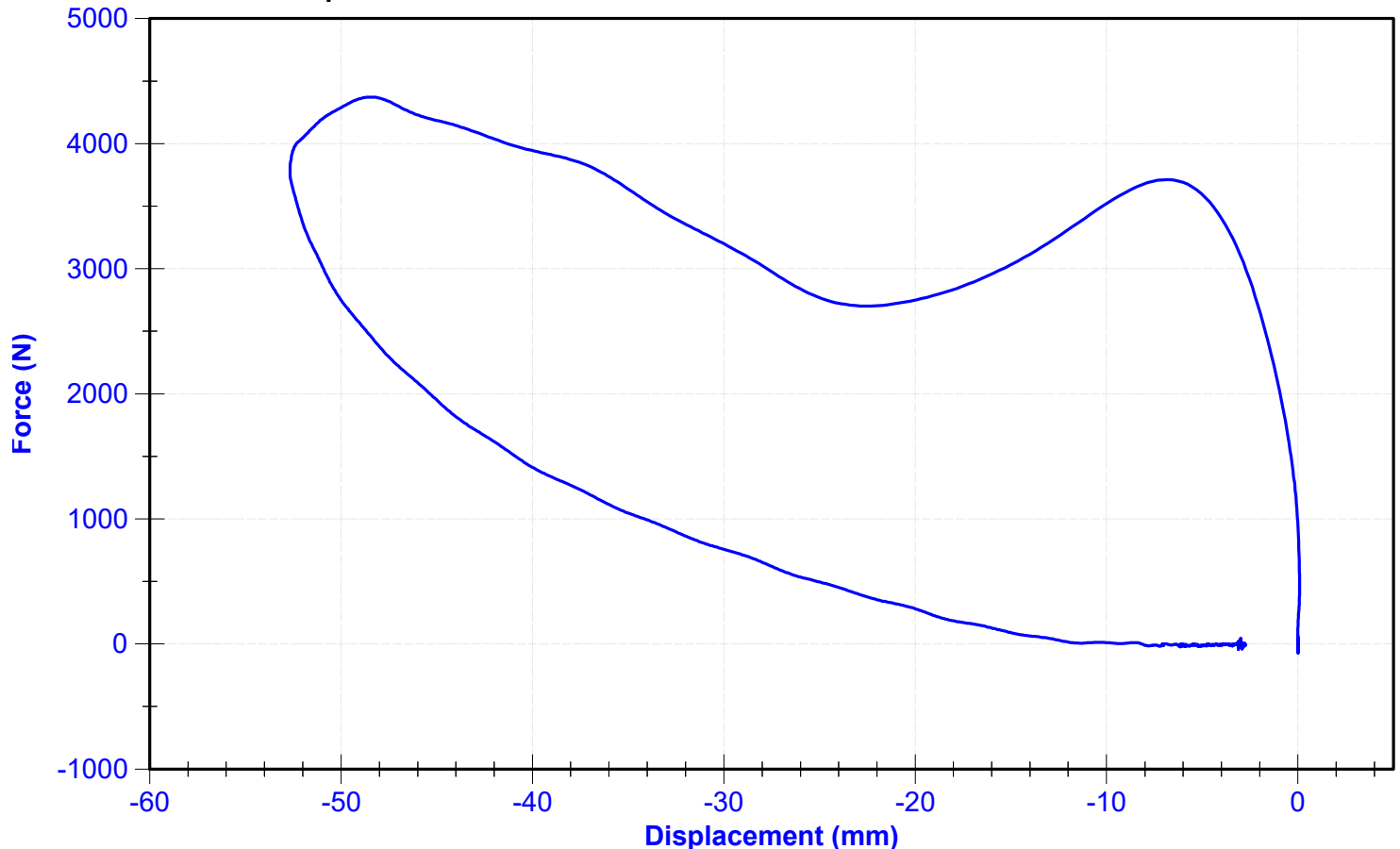
Results

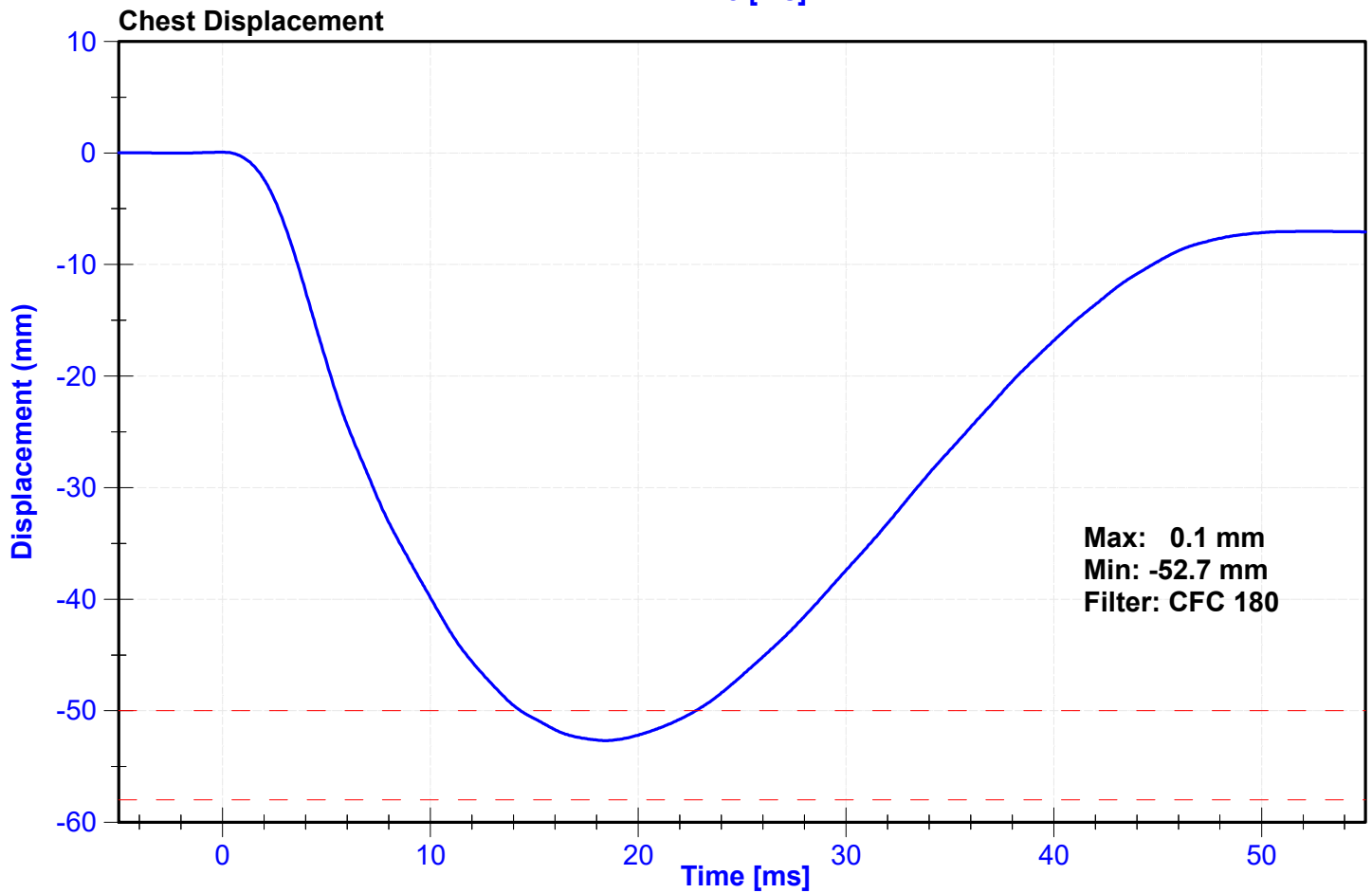
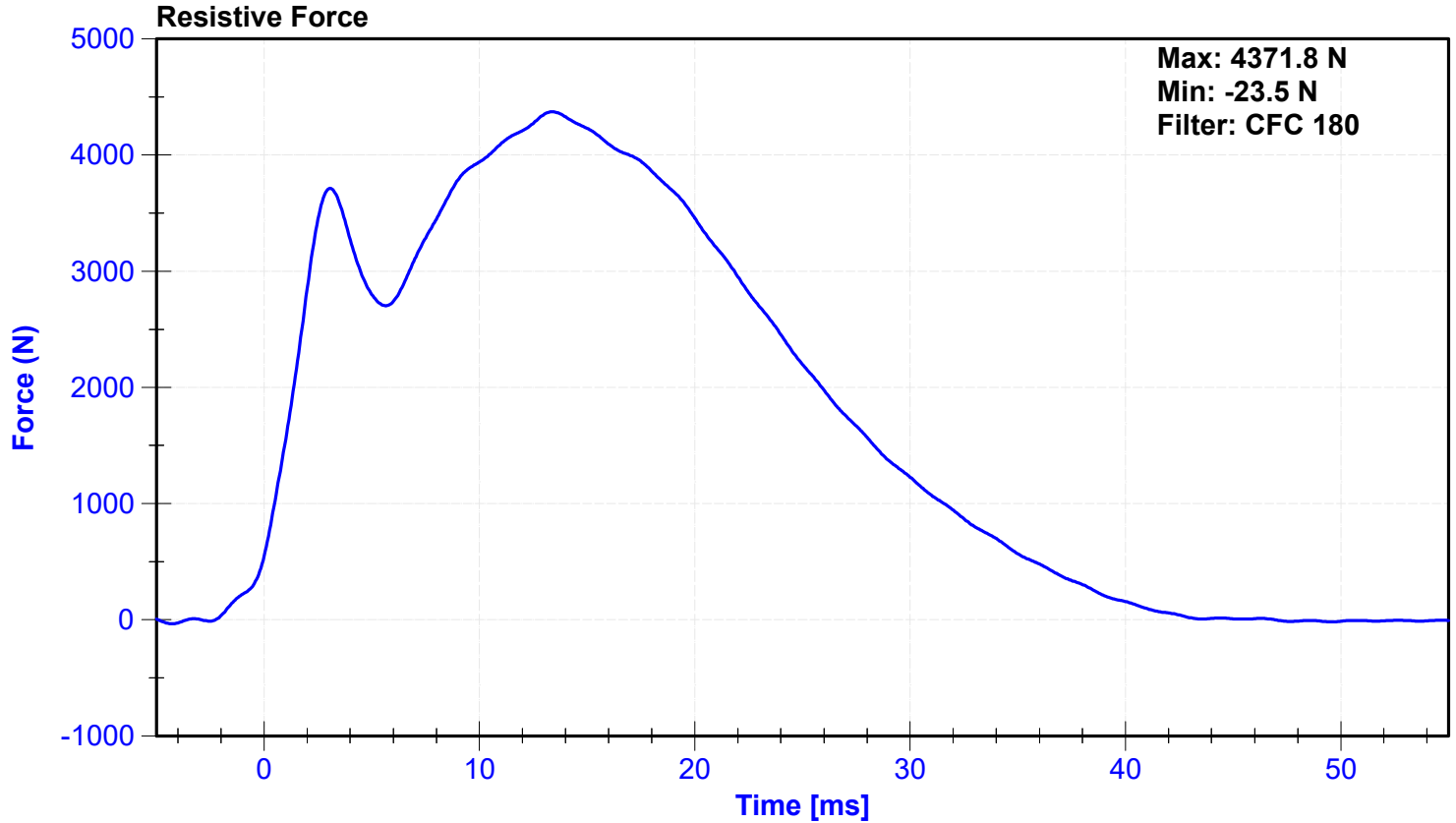
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	46	Pass
Velocity	6.59	6.83	m/s	6.597	Pass
Chest Deflection	-58	-50	mm	-52.7	Pass
Maximum Resistive Force (50 to 58mm)	3900	4400	N	4292.3	Pass
Maximum Resistive Force (18 to 50mm)	0	4600	N	4371.8	Pass
Hysteresis	69	85	%	75.0	Pass

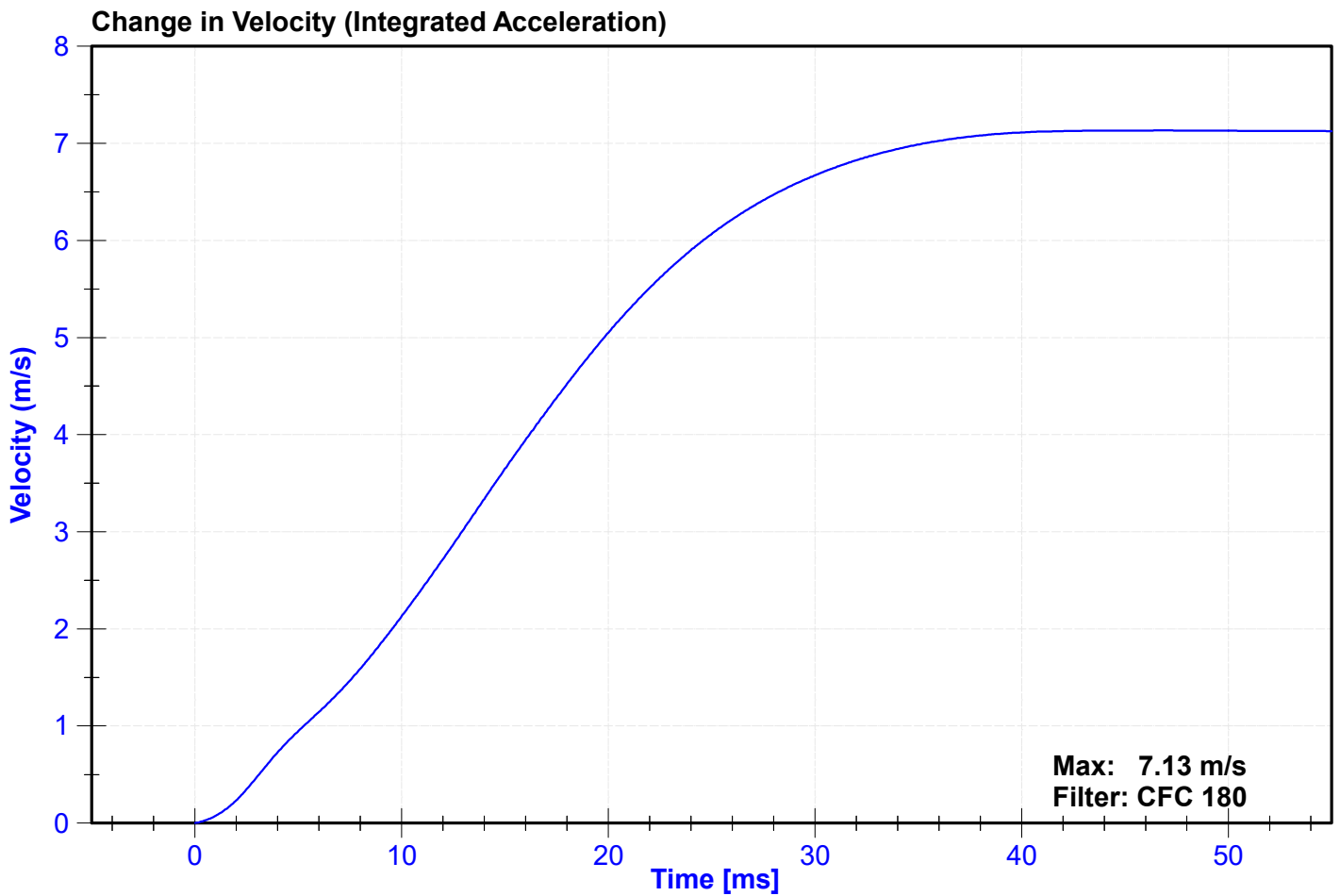
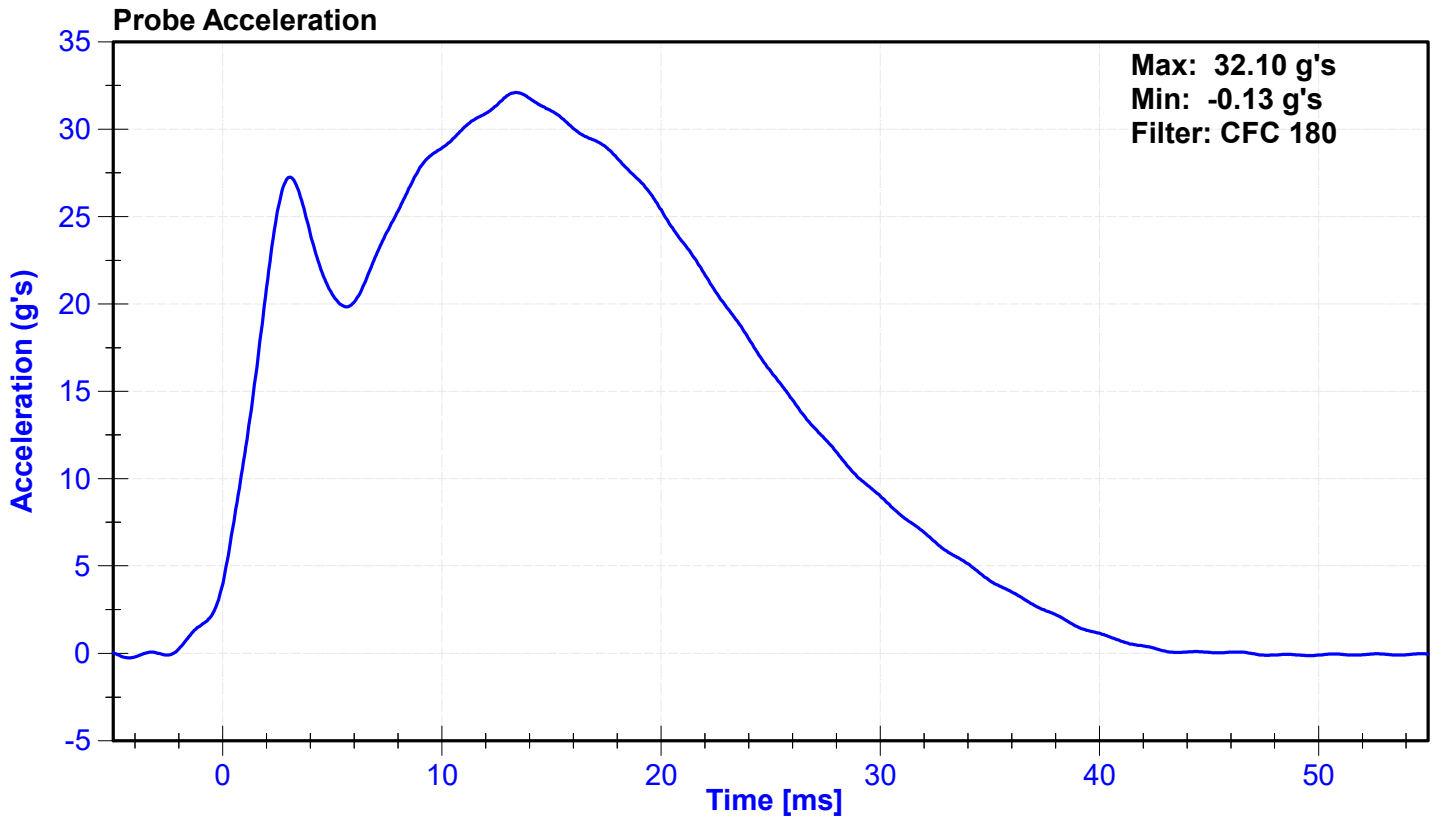
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	P40997	5/7/2025	11/3/2025
Chest Potentiometer	Servo	0720	6/17/2025	12/16/2025

Force vs. Displacement







ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

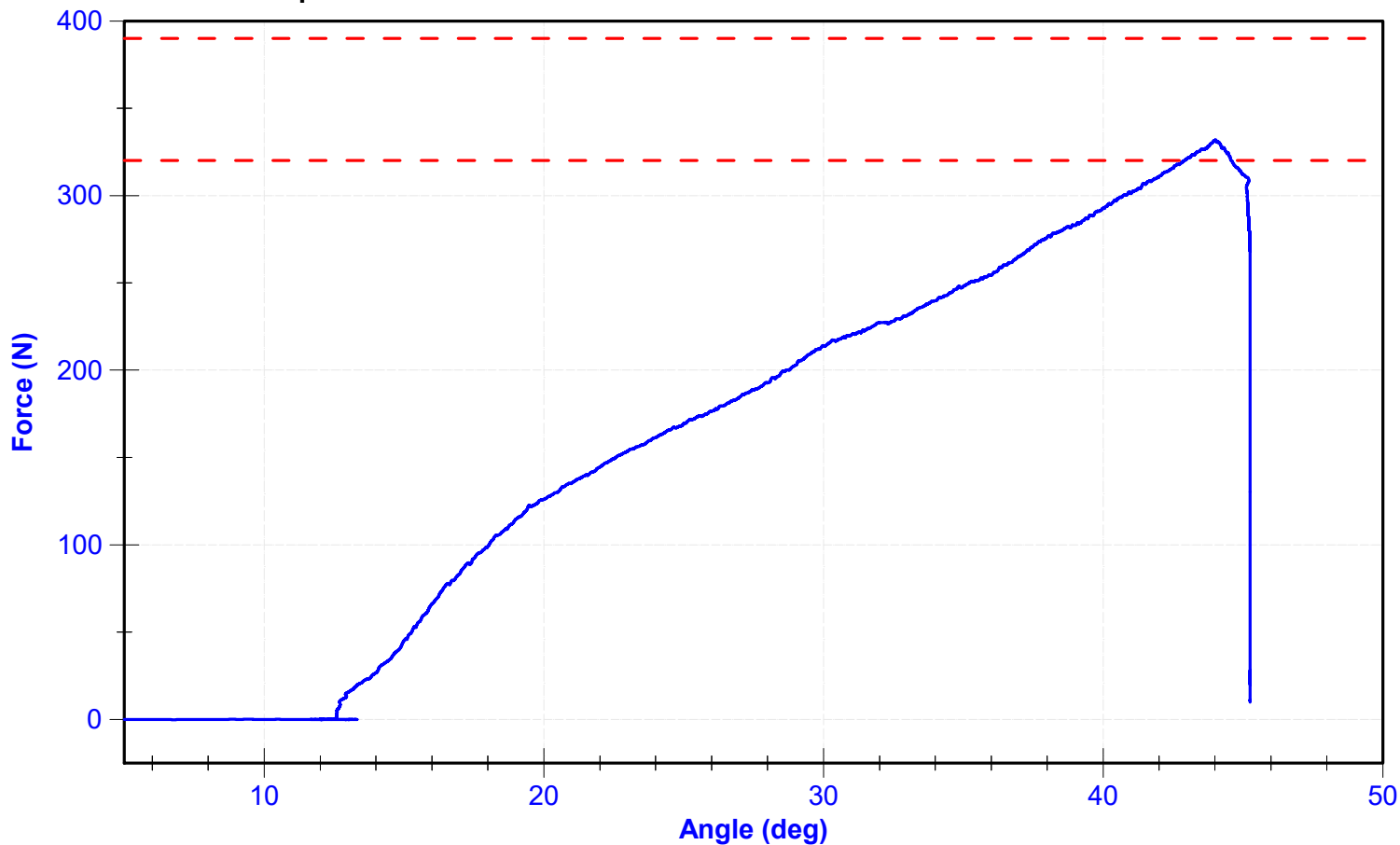
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.6	25.6	°C	21.4	Pass
Humidity	10	70	%	47	Pass
Initial Angle	0	20	deg	12.5	Pass
Force at 45 Degrees	320	390	N	331.8	Pass
Return Angle Relative to Initial	0	8	deg	6.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	Rieker	DS-1905226	2024-11-16	2025-11-16
Load Cell	Interface	493319	2024-08-14	2025-08-14

Force vs. Displacement



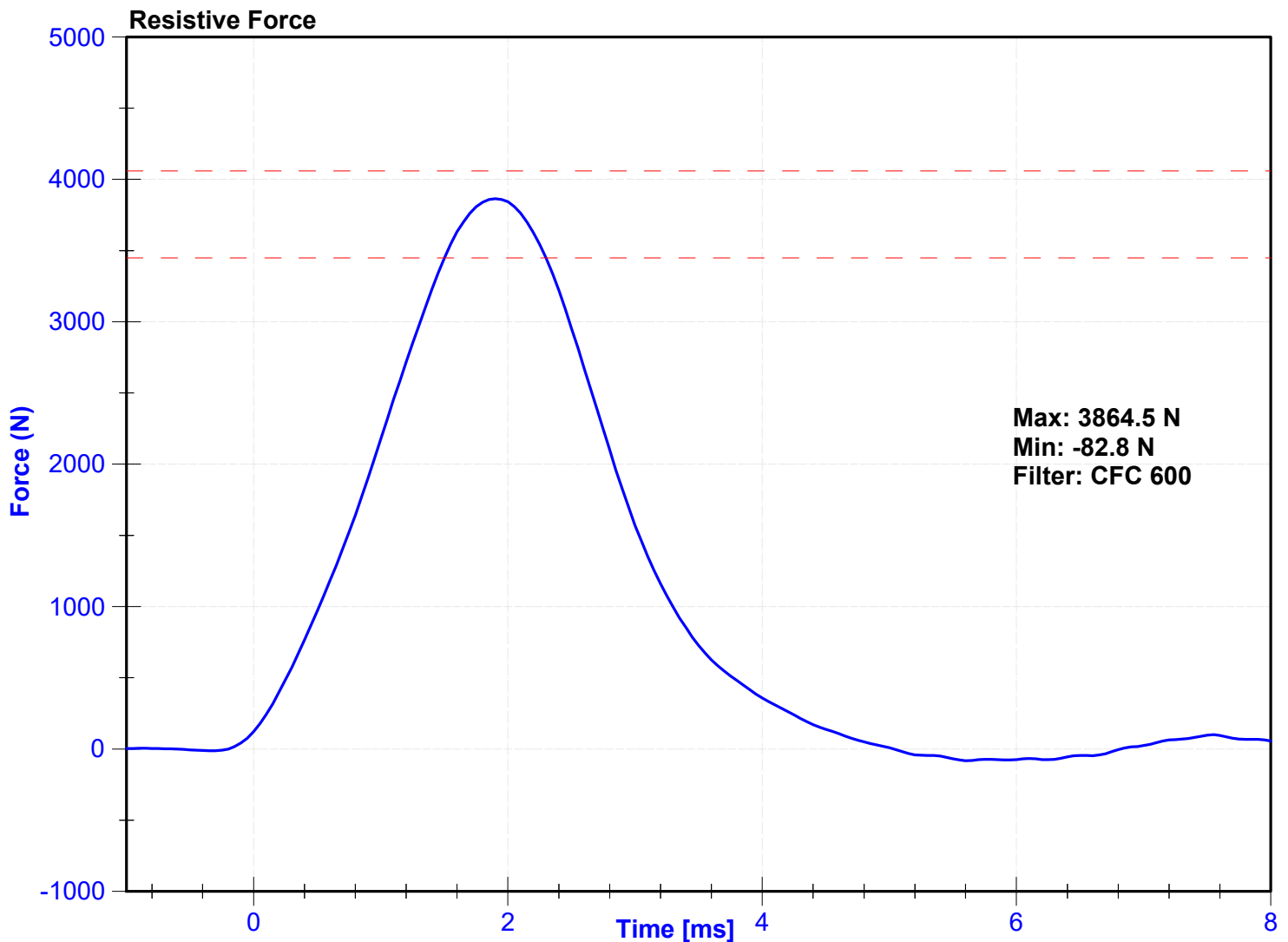
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

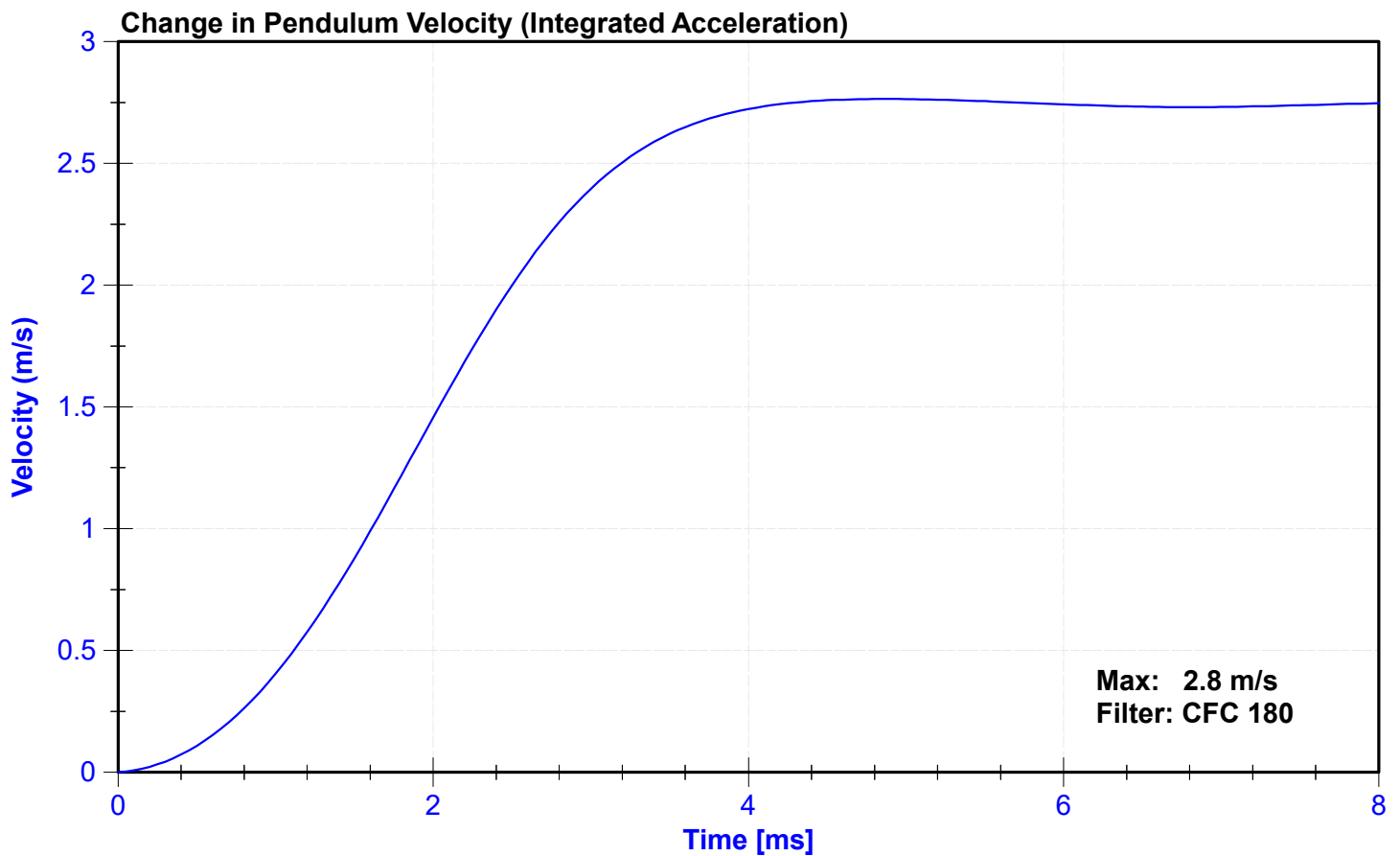
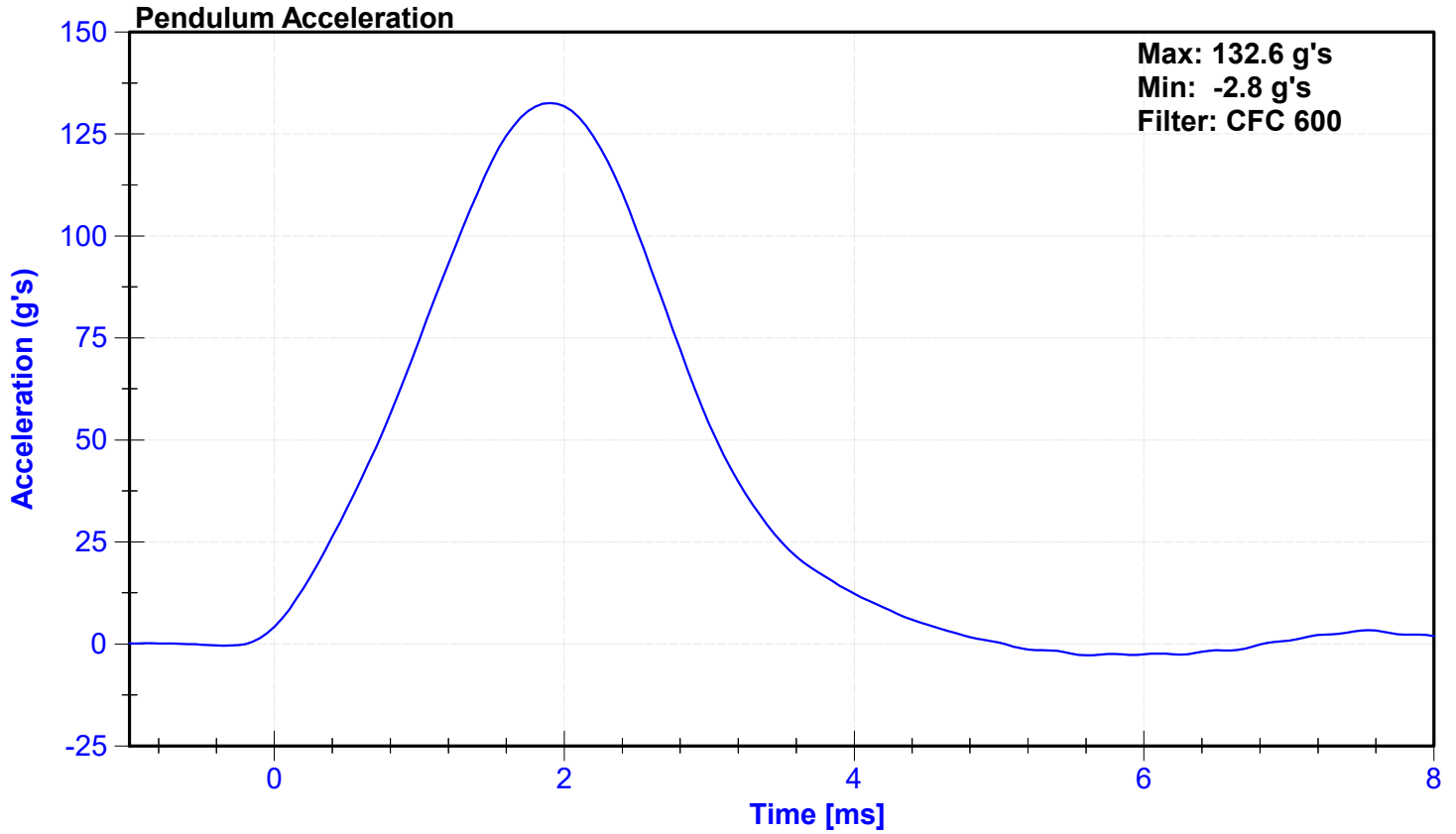
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	22.1	Pass
Humidity	10	70	%	52	Pass
Velocity	2.07	2.13	m/s	2.112	Pass
Resistive Force	3450	4060	N	3864.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025





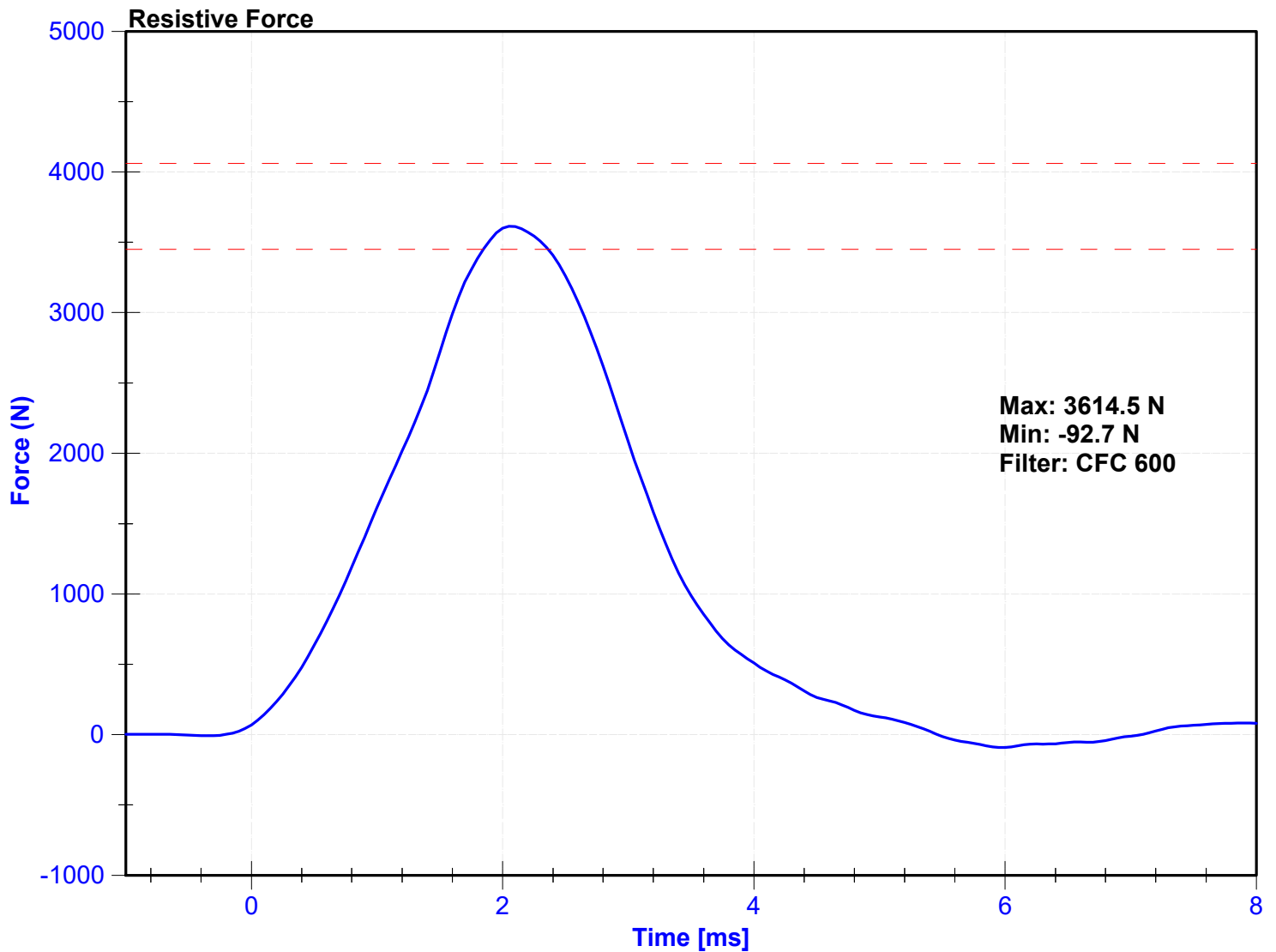
ATD Manufacturer	Humanetics	Test Technician	W. Brokx
ATD Serial Number	137	Laboratory Supervisor	J. Kinderman

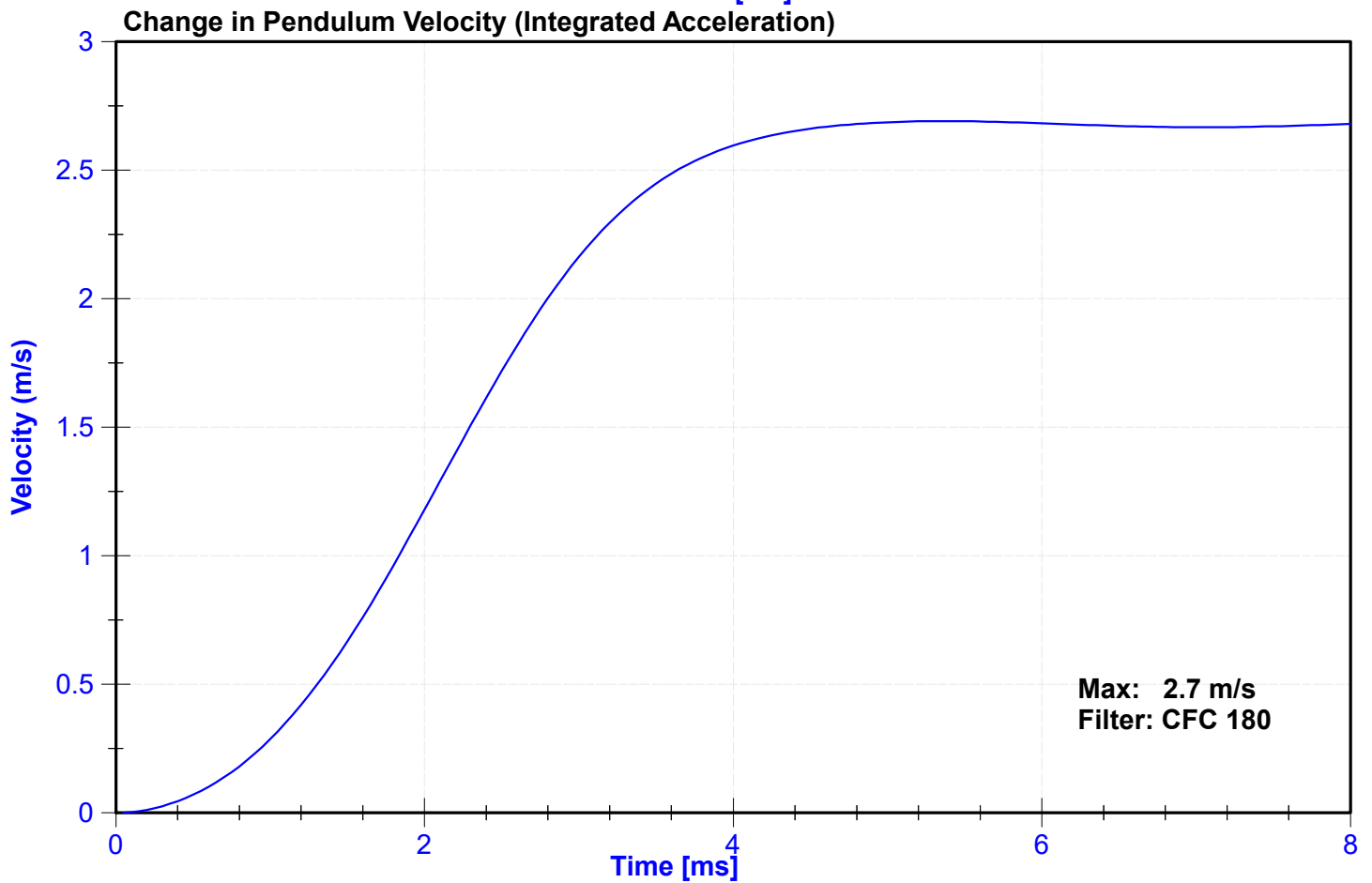
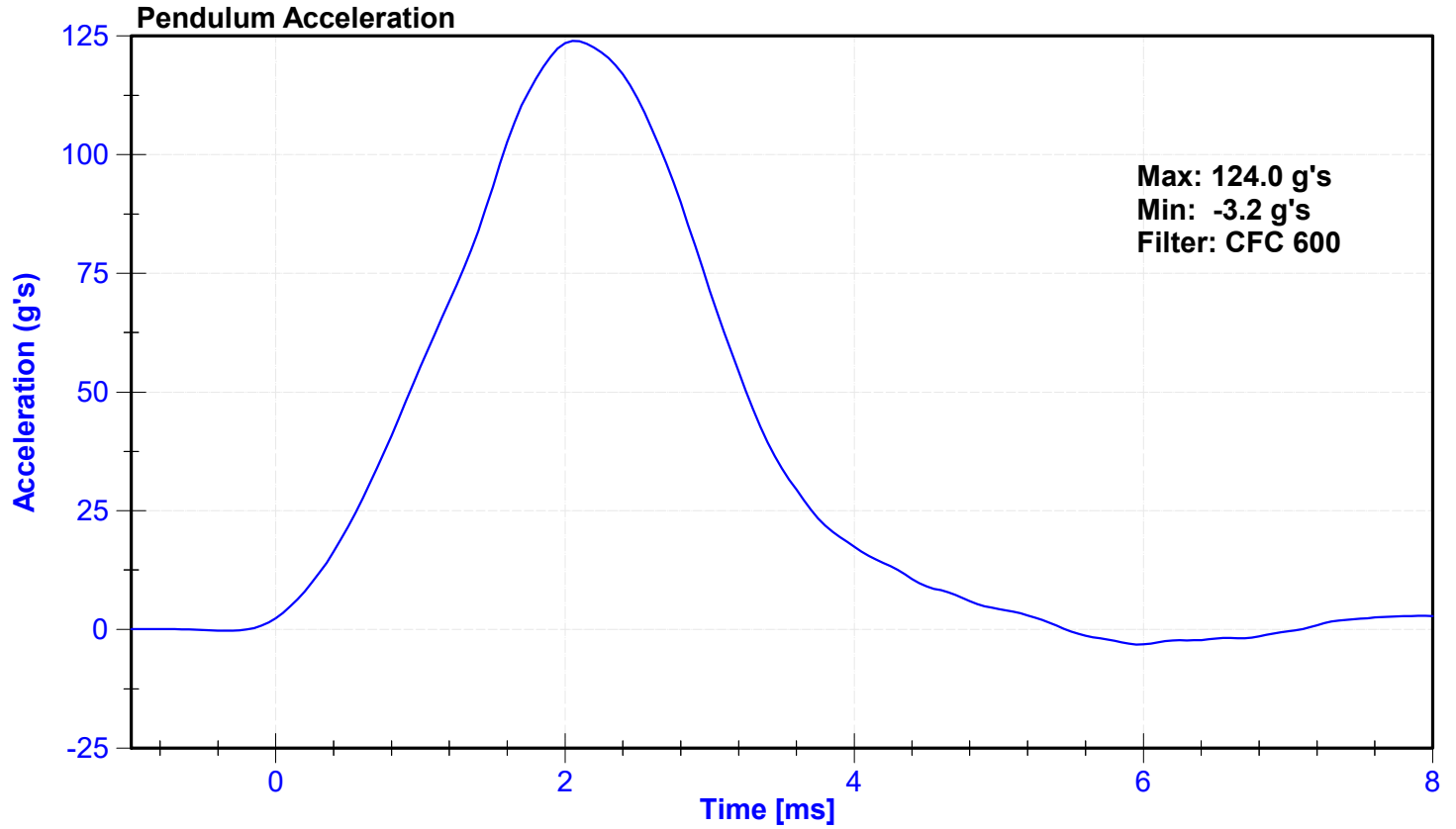
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	22.1	Pass
Humidity	10	70	%	52	Pass
Velocity	2.07	2.13	m/s	2.078	Pass
Resistive Force	3450	4060	N	3614.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025





APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

Table 1 – Driver Dummy Instrumentation

Instrumentation		Axis/Location	Hybrid III 50 th S/N: 065		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers	Primary	X	P52152	Endevco	06/10/2025
		Y	P58888	Endevco	06/10/2025
		Z	P58911	Endevco	06/10/2025
	Redundant	X	P52012	Endevco	06/10/2025
		Y	P51979	Endevco	06/10/2025
		Z	P49204	Endevco	06/10/2025
Head Angular Rate Sensors		X	7603	DTS ARS	03/03/2025
		Y	15692	DTS ARS	03/03/2025
		Z	7589	DTS ARS	03/03/2025
Upper Neck Load Cell		FX, Fy, Fz MX,MY, MZ	2019-FX	Humanetics	09/12/2024
Chest Accelerometers	Primary	X	P58887	Endevco	06/09/2025
		Y	P66917	Endevco	06/09/2025
		Z	P49197	Endevco	06/09/2025
	Redundant	X	P49213	Endevco	06/09/2025
		Y	P63840	Endevco	06/09/2025
		Z	P83313	Endevco	06/09/2025
Chest Potentiometer		X	1046	Servo	06/10/2025
Pelvis Accelerometer		X	P51699	Endevco	06/09/2025
		Y	P94090	Endevco	06/09/2025
		Z	P83437	Endevco	06/09/2025
Femur Load Cells - Left	Primary	Z	DI4211-FZ1	Denton	09/16/2024
	Redundant	Z	DI4211-FZ2	Denton	09/16/2024
Femur Load Cells - Right	Primary	Z	136-FZ1	Denton	09/16/2024
	Redundant	Z	136-FZ2	Denton	09/16/2024
Tibia Load Cells - Left	Upper	MX, MY, FZ	364-FZ	Denton	09/13/2024
	Lower	MX, MY, FZ	364-FZ	Denton	09/13/2024
Tibia Load Cells – Right	Upper	MX, MY, FZ	407-FZ	Denton	09/13/2024
	Lower	MX, MY, FZ	396-FZ	Denton	09/13/2024
Foot Accelerometers - Left	Rear	X	P49214	Endevco	06/12/2025
	Front	Z	P51729	Endevco	06/09/2025
Foot Accelerometers - Right	Rear	X	T20878	Endevco	06/09/2025
	Front	Z	P51685	Endevco	06/09/2025

Table 2 – Front Passenger Dummy Instrumentation

Instrumentation		Axis/Location	Hybrid III 5 th S/N: 137		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers	Primary	X	P79417	Endevco	06/11/2025
		Y	P83335	Endevco	06/11/2025
		Z	P64149	Endevco	06/11/2025
	Redundant	X	P52008	Endevco	06/11/2025
		Y	P52045	Endevco	06/11/2025
		Z	P74774	Endevco	06/11/2025
Head Angular Rate Sensors		X	15212	DTS ARS	03/03/2025
		Y	14921	DTS ARS	03/03/2025
		Z	7370	DTS ARS	03/03/2025
Upper Neck Load Cell		FX, Fy, Fz MX,MY, MZ	1916-FX	Humanetics	09/12/2024
Chest Accelerometers	Primary	X	P58780	Endevco	06/11/2025
		Y	P83346	Endevco	06/11/2025
		Z	P49190	Endevco	06/11/2025
	Redundant	X	P58794	Endevco	06/11/2025
		Y	P69791	Endevco	06/11/2025
		Z	T11253	Endevco	06/11/2025
Chest Potentiometer		X	0720	Servo	06/17/2025
Pelvis Accelerometer		X	P58735	Endevco	06/11/2025
		Y	P77587	Endevco	06/11/2025
		Z	P51285	Endevco	06/11/2025
Femur Load Cells - Left	Primary	Z	115-FZ1	Denton	09/16/2024
	Redundant	Z	115-FZ2	Denton	09/16/2024
Femur Load Cells - Right	Primary	Z	135-FZ1	Denton	09/16/2024
	Redundant	Z	135-FZ2	Denton	09/16/2024
Tibia Load Cells - Left	Upper	MX, MY, FZ	368-FZ	Denton	09/13/2024
	Lower	MX, MY, FZ	492-FZ	Denton	09/13/2024
Tibia Load Cells – Right	Upper	MX, MY, FZ	362-FZ	Denton	09/13/2024
	Lower	MX, MY, FZ	490-FZ	Denton	09/13/2024
Foot Accelerometers - Left	Rear	X	P78959	Endevco	06/11/2025
	Front	Z	T29381	Endevco	07/11/2025
Foot Accelerometers - Right	Rear	X	P63998	Endevco	06/11/2025
	Front	Z	P80265	Endevco	06/11/2025

Table 3 – Vehicle Instrumentation

Instrumentation			Axis	Serial Number	Manufacturer	Calibration Date
Crossmember/Rear Seat Accelerometers	Left	Primary	X	A350918	Measurement Specialties	05/15/2025
			Z	A280842	Measurement Specialties	05/15/2025
		Redundant	X	A335457	Measurement Specialties	05/15/2025
	Right	Primary	X	G22690	Endevco	04/29/2025
			Z	A335472	Measurement Specialties	04/29/2025
		Redundant	X	G22784	Endevco	04/29/2025
Engine Accelerometers	Top		X	A405630	Measurement Specialties	05/16/2025
	Bottom		X	G26377	Endevco	07/09/2025