

REPORT NUMBER: NCAP-CAL-22-002

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

**Volkswagen De Mexico SA DE CV
2022 Volkswagen Jetta
Four Door Sedan**

NHTSA No: M20225806

**PREPARED BY:
CALSPAN CORPORATION
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May 15, 2023

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 Administration, in response to Contract Number 693JJ919D000005.

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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-21-002	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 2022 Volkswagen Jetta four door sedan NHTSA No.: M20225806	5. Report Date May 15, 2023		6. Performing Organization Code CAL																																																				
	8. Performing Organization Report No. CAL-DOT-2021-002																																																						
7. Author(s) Matthew Pronko, Test Engineer Vanessa Hansen, Operations Manager	10. Work Unit No.																																																						
9. Performing Organization Name and Address Calspan Corporation Transportation Test Operations P.O. Box 400 Buffalo, New York 104625	11. Contract or Grant No. 693JJ919D000005																																																						
	13. Type of Report and Period Covered: Final Test Report May 6, 2022 - May 15, 2023																																																						
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	14. Sponsoring Agency Code NRM-100																																																						
	15. Supplementary Notes																																																						
16. Abstract A 56.30 km/h (35 mph), NCAP frontal rigid barrier impact test was conducted on a 2022 Volkswagen Jetta four door sedan in accordance with the specifications of the Office of Crashworthiness Standards Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing. This test was conducted to obtain data related to FMVSS Nos. 208, 212, 219 (partial), 301, and 305 performance. The test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on May 6, 2022. The impact velocity of the vehicle was 56.27 km/h, and the ambient temperature at the barrier face at the time of impact was 21°C. The target vehicle post-test maximum crush was 217 mm at C4 to the right side of the front bumper. The test vehicle's occupant performance data is as follows:																																																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD (Serial No. 142)</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>277.793</td> <td>700</td> <td>231.769</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-31.189</td> <td>52</td> <td>-17.715</td> </tr> <tr> <td>Nij</td> <td></td> <td>1</td> <td>0.298</td> <td>1</td> <td>0.418</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4,170</td> <td>1208.718</td> <td>2,620</td> <td>589.484</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4,000</td> <td>-253.676</td> <td>2,520</td> <td>-603.657</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10,008</td> <td>-526.828</td> <td>6,805</td> <td>-1914.144</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10,008</td> <td>-449.305</td> <td>6,805</td> <td>-664.494</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD (Serial No. 142)		Passenger ATD (Serial No. 137)		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)		700	277.793	700	231.769	Maximum Chest Compression	mm	63	-31.189	52	-17.715	Nij		1	0.298	1	0.418	Neck Tension	N	4,170	1208.718	2,620	589.484	Neck Compression	N	4,000	-253.676	2,520	-603.657	Left Femur Force	N	10,008	-526.828	6,805	-1914.144	Right Femur Force	N	10,008	-449.305	6,805	-664.494
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17. Key Words 56.3 km/h (35 mph) Full Frontal Rigid Barrier Impact Test New Car Assessment Program (NCAP)		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave, SE Washington, DC 20590																																																					
19. Security Class. (of this report) UNCLASSIFIED	20. Security Class. (of this page) UNCLASSIFIED	21. No. of Pages 168	22. Price																																																				

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SECTION 1

PURPOSE AND SUMMARY OF 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 Testing.

SUMMARY

A load cell barrier consisting of 128 load cells was impacted by a 2022 Volkswagen Jetta four door sedan at a velocity of 56.27 km/h. The test was performed at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on May 6, 2022. 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 load cells were installed on the driver's and passenger's shoulder belts to measure dummy torso section loading. The driver (position 1) ATD (Serial No. 142) 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 486 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

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 217 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 then the head restraint. The upper torso contacted the frontal airbag. Both knees contacted the knee bolster.

The passenger's visible contact points were as follows: The passenger's head contacted the frontal airbag and then 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 (50 th)	277.793	0.298	1208.718	-253.676	46.527	-31.189	-526.828	-449.305
Passenger (5 th)	231.769	0.418	589.484	-603.657	53.202	-17.715	-1914.144	-664.494

GENERAL COMMENTS:

1. P1 (Driver) serial number - 142
2. P2 (Passenger) serial number - 137
3. Seatbelt Lap Load Cells were not used per OEM Request

Data Anomalies:

- Barrier F-13 MY – Does not return to zero.

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 Barrier Impact and Static Rollover Results

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

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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20225806
Model Year	2022
Make	Volkswagen
Model	Jetta
Body Style	Four Door Sedan
VIN	3VW7M7BU3NM000863
Body Color	Black
Odometer Reading (km /mi)	74 mi
Engine Displacement (L)	1.5
Type / No. Cylinders	I4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	8-Speed
Overdrive	Yes
Final Drive	Front Wheel Drive
Roof Rack	No
Sunroof / T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

Traction Control System (TCS)	Yes
Power Steering	Yes
Power Window Auto-Reverse	No
Driver Frontal Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Front Pass. Frontal Airbag	Yes
Front Pass. Curtain Airbag	Yes
Front Pass. Head/Torso Airbag	No
Front Pass. Torso Airbag	No
Front Pass. Torso/Pelvis Airbag	Yes
Front Pass. Pelvis Airbag	No
Front Pass. Knee Airbag	No
Driver Pretensioner	Yes
Driver Load Limiter	Yes
Front Pass. Pretensioner	Yes
Front Pass. Load Limiter	Yes
Other	No

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Volkswagen DE Mexico S.A. De C.V.
Date of Manufacture	12/21

GVWR (kg)	1890
GAWR Front (kg)	990
GAWR Rear (kg)	950

VEHICLE SEATING AND WEIGHT CAPACITY DATA

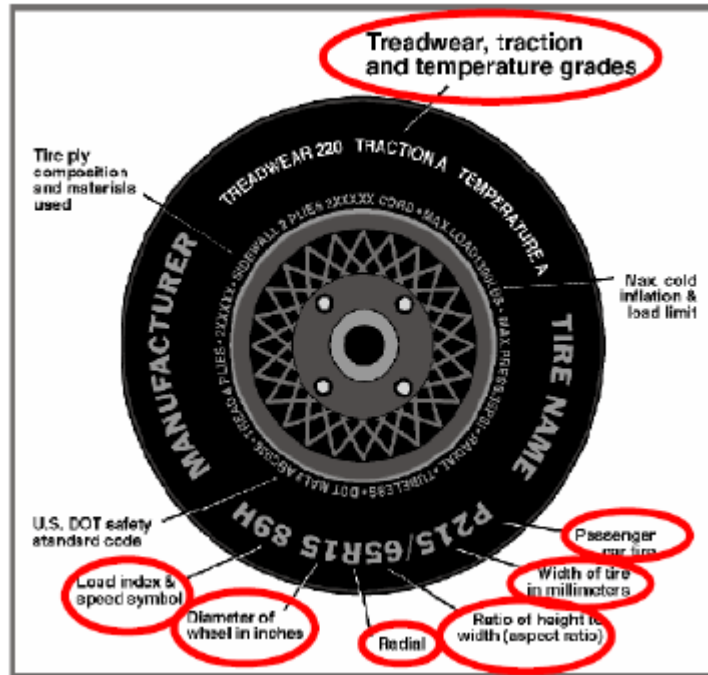
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	N/A	
Number of Occupants	2	3	N/A	5
Capacity Wt. (VCW) (kg)				415
Cargo Wt. (RCLW) (kg)				74.8

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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
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Collect items circled in red, tire manufacturer, and tire name.



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	250	250
Recommended Tire Size	205/55R17	205/55R17
Tire Size on Vehicle	205/55R17	205/55R17
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Turanza	Turanza
Treadwear	560	560
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index / Speed Symbol	91H	91H
Tire Material	Rubber	Rubber
DOT Safety Code Left	1V6 ETL10A3321	1V6ETL10A3121
DOT Safety Code Right	1V6ETL10A3121	1V6ETL10A3121

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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	427	287		462	366	
Right	kg	401	295		464	359	
Ratio	%	59	41		55.9	44.7	
Totals	kg	828	582	1410	896	725	1621

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1410	(A)
Weight of 1 P572E ATD & 1 P572O ATD	kg	142	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	74.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1626.8	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

Condition	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	733	732	725	731	1110
As Tested	mm	716	720	691	695	1202
Post-Test	mm	755	743	682	687	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2688
Total Vehicle Length at Left Side	mm	4629
Total Vehicle Length at Centerline	mm	4737
Total Vehicle Length at Right Side	mm	4632
Weight of Ballast in Cargo Area	kg	26.7
Weight of Vehicle Components Removed	kg	29
Amount of Stoddard Solvent in Fuel Tank	L	46.5

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT:

Trunk Carpeting, Spare Tire, Air Pump, and Tail Lights.

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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

TARGET VEHICLE STRUCTURAL MEASUREMENT

No.	Description	Pre-Test
1	Total Length	4737
2	Total Width	1799
3*	Bumper Top Height	583
4*	Bumper Bottom Height	410
5*	Longitudinal Member Top Height	566
6	Distance Between Longitudinal Members	1030
7	Longitudinal Member Width	68
8*	Engine Top Height	859
9*	Engine Bottom Height	194
10	Engine and Gearbox Width	526
11	Front Bumper-Engine Distance	465
12*	Front Shock Absorber Fixing Height	889
13*	Bonnet Leading Edge Height	761
14	Front Shock Absorber Fixing Width	1130
15	Front Bumper – Front Axle Distance	913
16	Front Axle – A Pillar Distance	472
17	A-Pillar – B-Pillar Distance	1134
18	B-Pillar – Rear Axle Distance	1081
19	B-Pillar – C-Pillar Distance	896
20*	Roof Sill Bottom Height	1378
21*	Roof Sill Top Height	1420
22*	Floor Sill Bottom Height	277
23*	Floor Sill Top Height	395

*Height Measurements are taken from the ground
 Note: All measurements are in millimeters

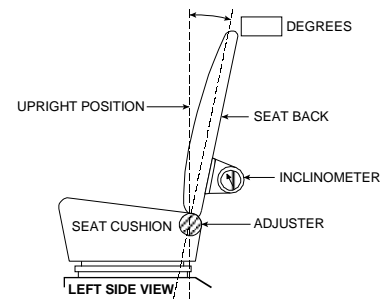
DATA SHEET NO. 2
SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

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.



FRONT SEAT ASSEMBLY

Seating Position	Degrees
Driver Seat Back Angle	16.4
Passenger Seat Back Angle	19.5

SEAT FORE / AFT POSITIONS

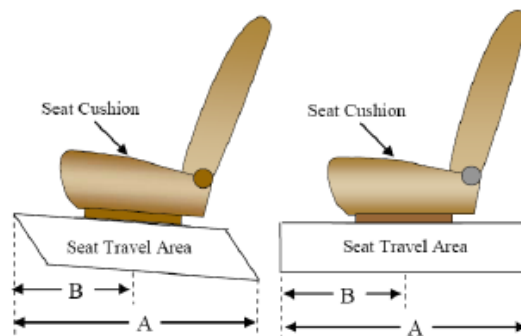
The driver's seat was positioned at the mid-point of fore/aft travel at its lowest position. The passenger's seat was positioned at the most forward position of fore/aft travel. Zero is defined as the forward most position.

Seating Position	Total Fore / Aft Travel	Placed in Position #
Driver Seat	312	156
Passenger Seat	252	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: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

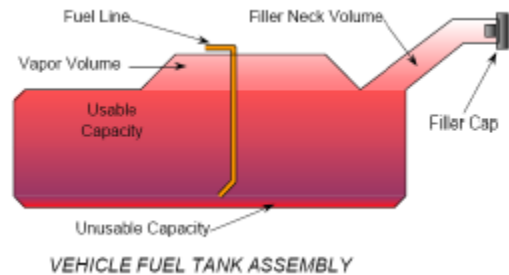
NHTSA No.: M20225806
 Test Date: 05/06/2022

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	50
Usable Capacity of "Optional Tank"	N/A
92%-94% of Usable Capacity	46 – 47
Actual Amount of Solvent Used	46.5
1/3 of Usable Capacity	16.5

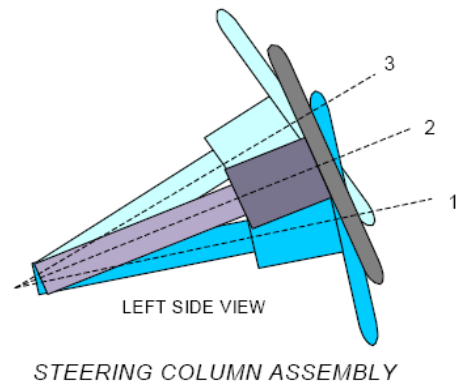
FUEL PUMP

The vehicle is equipped with an electric fuel pump. The fuel filler neck is on the right 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.



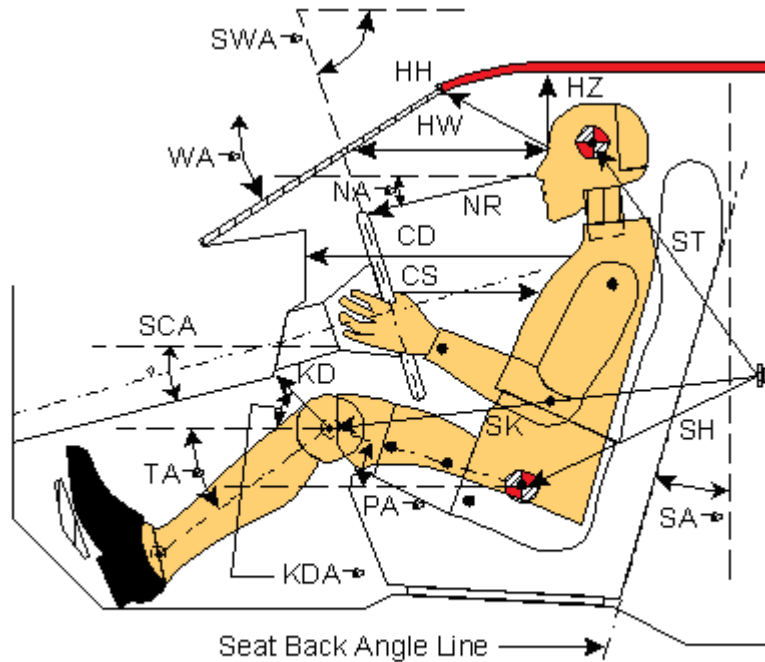
STEERING COLUMN POSITIONS

Description	Degrees	Fore / Aft Position (mm)
Lowermost position No. 1	18.7	
Geometric center position No. 2	21.4	
Uppermost position No. 3	24.0	
Telescoping Steering Wheel Travel		60
Test Position	21.4	30

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2022 Volkswagen Jetta four door sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
Test Date: 05/06/2022



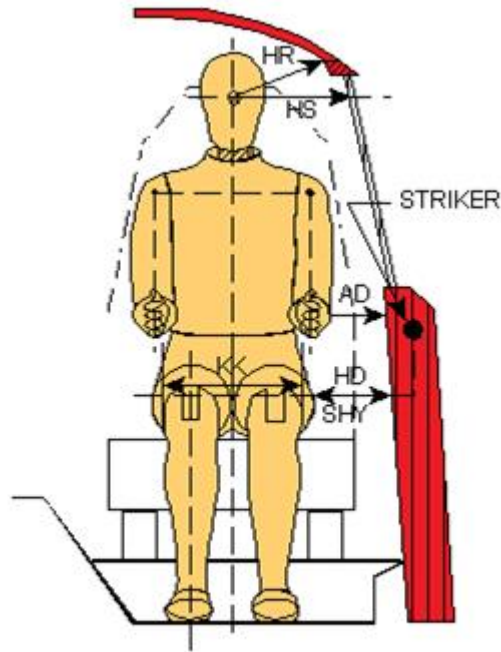
Left Side View

Code	Measurement Description	Driver (SN: 142)		Passenger (SN: 137)	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		30.8		
SWA°	Steering Wheel Angle		21.4		
SCA°	Steering Column Angle		68.6		
SA°	Seat Back Angle (on headrest post)		16.4		19.5
HZ	Head to Roof (Z)	173	90.0	216	90
HH	Head to Header	358	22.2	308	44.5
HW	Head to Windshield	679	0.0	590	0.0
NR	Nose to Rim / Dash	364	7.7	364	25.1
CD	Chest to Dash	510		320	
CS	Chest to Steering Hub	299	0.0		
RA	Rim to Abdomen	204	0.0		
KDL	Left Knee to Dash	221	31.3	111	46.7
KDR	Right Knee to Dash	202	32.7	116	39.9
PA°	Pelvic Angle		22.1		19.5
TA°	Tibia Angle		26.9		35.9
SK	Striker to Knee	563	16.0	695	13.7
ST	Striker to Head	407	72.1	415	51.2
SH	Striker to H-Point	334	60.7	433	34.6

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022



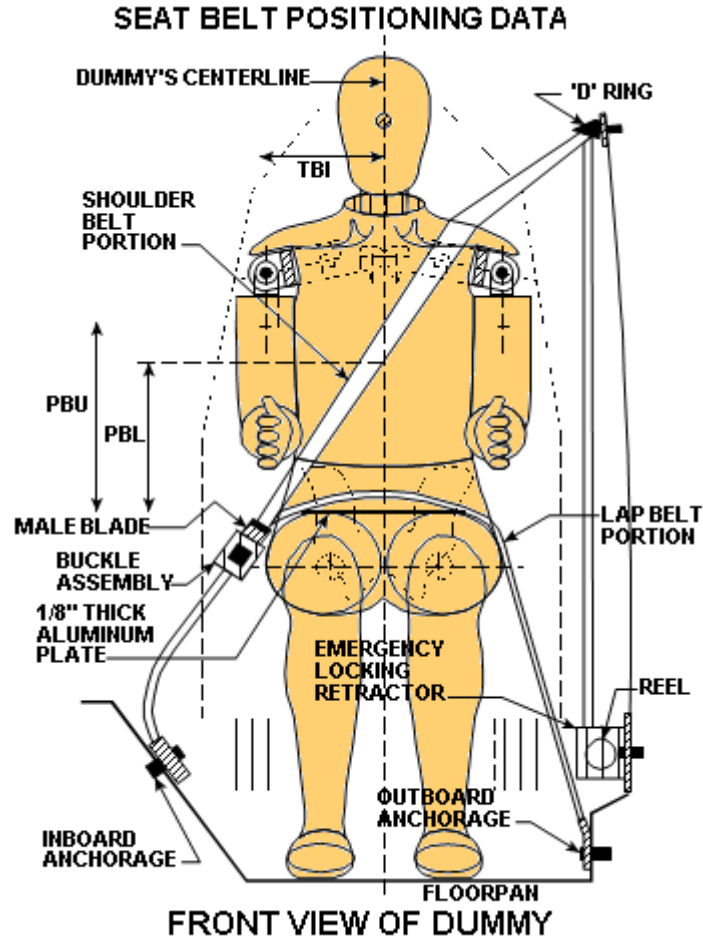
Front View

Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	154	97
HD	H-Point to Door	137	182
HR	Head to Side Header	224	258
HS	Head to Side Window	360	384
KK	Knee to Knee	342	210
SHY	Striker to H-Point (Y Direction)	236	290
AA	Ankle to Ankle	362	165

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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU — Top surface of reference to belt upper edge	mm	289	265
PBL — Top surface of reference to belt lower edge	mm	204	185

BELT LENGTH DATA

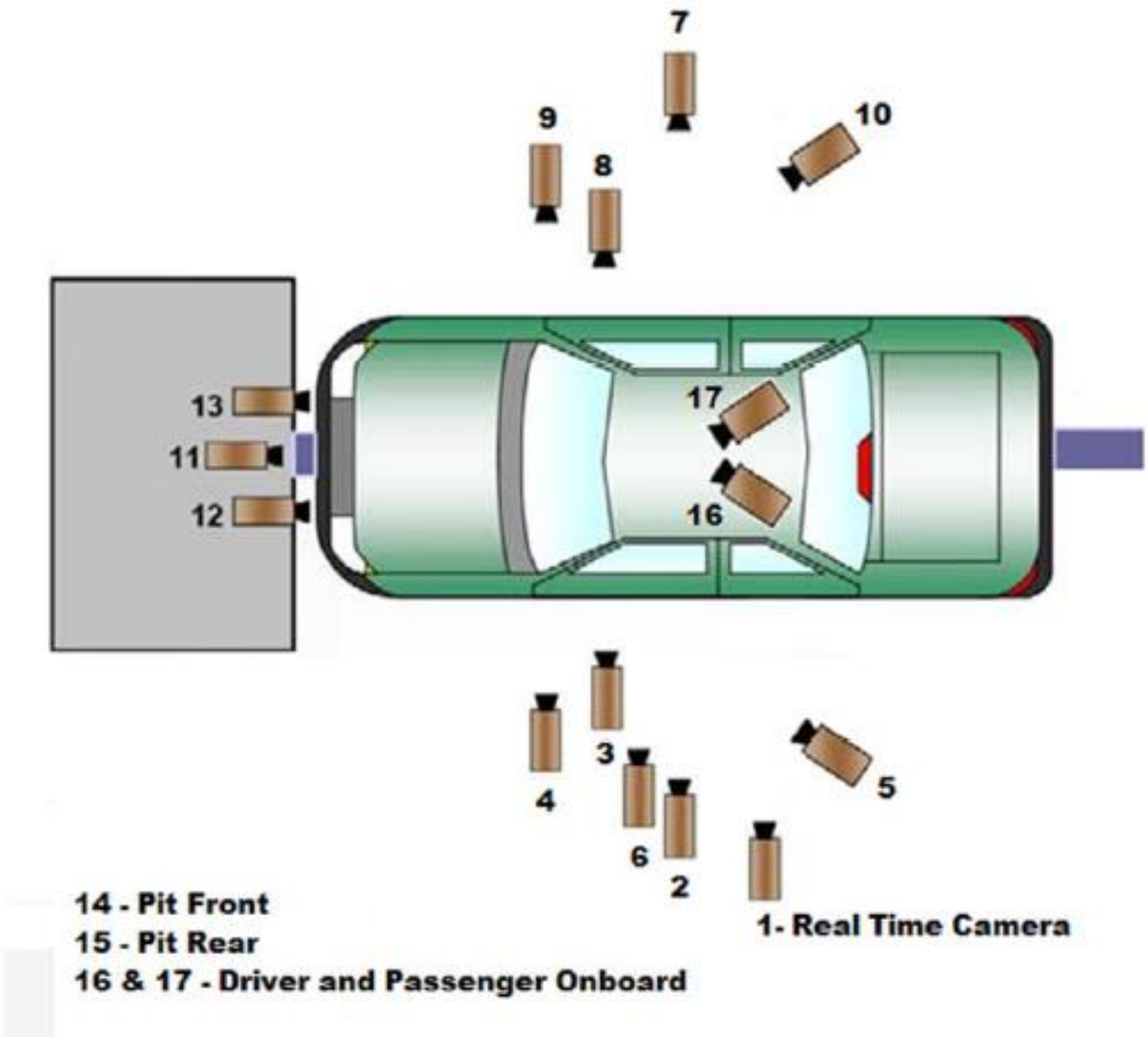
Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	863	960
Lap Belt Length as measured on ATD	mm	545	650
Remainder of belt on reel	mm	832	690
Total belt length for continuous webbing systems	mm	2240	2300

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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
Test Date: 05/06/2022

CAMERA POSITIONS FOR FRONTAL IMPACTS



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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

CAMERA LOCATIONS

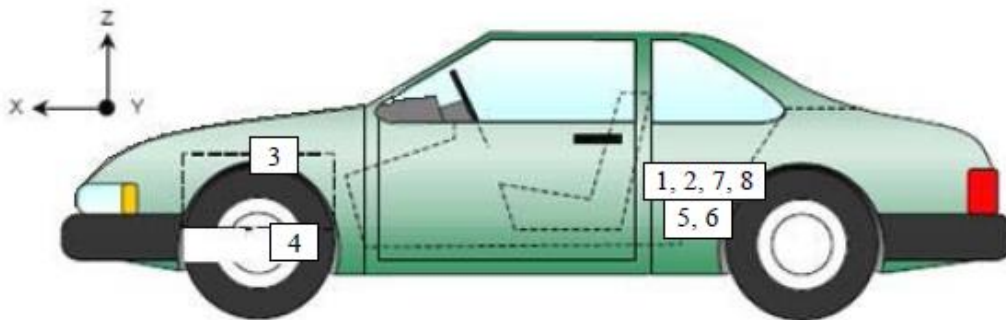
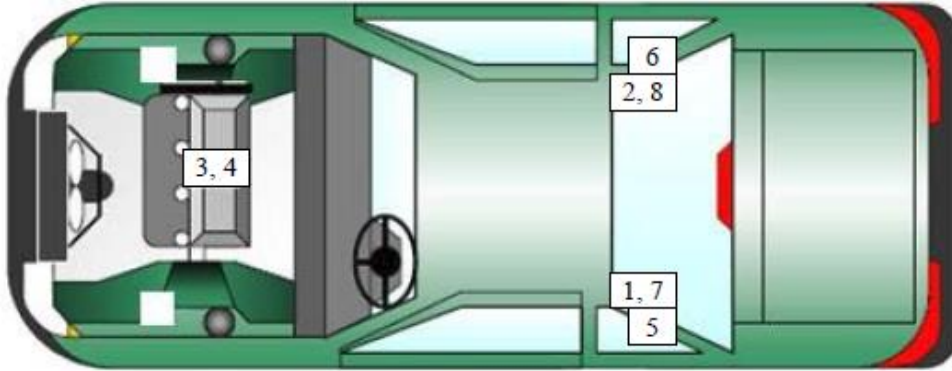
No.	Camera View	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-	-	-		60
2	Left Overall	-2234	-8579	-1605	24	1000
3	Driver Close-Up	-1635	-7749	-1708	50	1000
4	Left Front Half	-1130	-6756	-1187	28	1000
5	Left Angle	-4140	-4909	-2360	50	1000
6	Steering Column	-1072	-9319	-2236	75	1000
7	Right Overall	-2326	8877	-1628	24	1000
8	Passenger Close-Up	-1411	8432	-1523	50	1000
9	Right Front Half	-991	6994	-1260	28	1000
10	Right Angle	-3406	4650	-2432	50	1000
11	Windshield	1176	0	-4120	12.5	1000
12	Driver Windshield	834	-400	-2371	8	1000
13	Passenger Windshield	834	400	-2371	8	1000
14	Pit Front	-811	0	-2478	12.5	1000
15	Pit Rear	-2669	0	-2690	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: 2022 Volkswagen Jetta four door sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
Test Date: 05/06/2022



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear Accelerometer – X Direction	1980	-375	93
2	Right Rear Accelerometer – X Direction	1983	355	110
3	Engine Top X	3906	149	-274
4	Engine Bottom X	4003	129	298
5	Left Rear Accelerometer – Z Direction	1980	-375	93
6	Right Rear Accelerometer – Z Direction	1983	355	110
7	Left Rear Accelerometer – X Direction Redundant	1980	-375	93
8	Right Rear Accelerometer – X Direction Redundant	1983	355	110

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

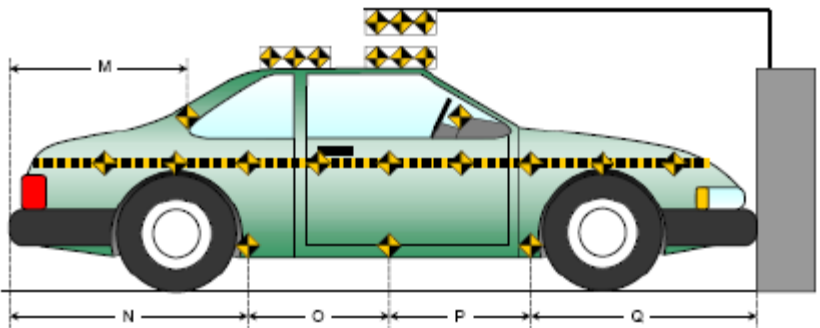
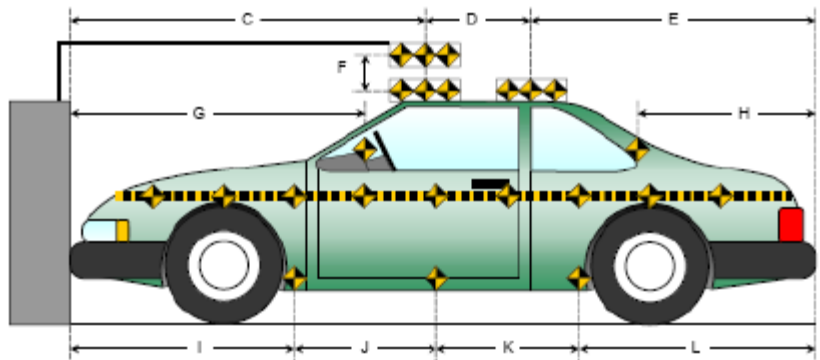
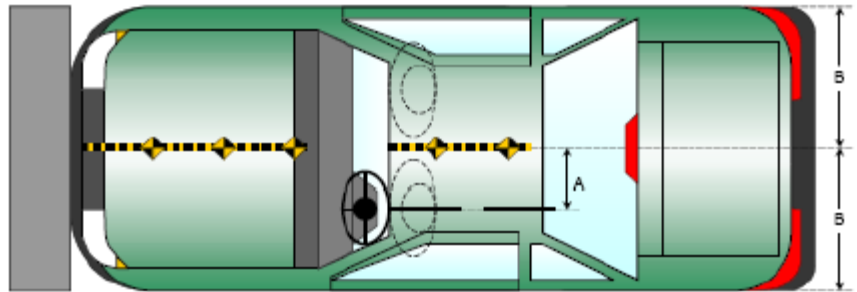
DATA SHEET NO. 8
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

Item	Value
A	315
B	900
C	2094
D	610
E	2033
F	237
G	1752
H	1252
I	1341
J	915
K	912
L	1569
M	1248
N	1568
O	915
P	912
Q	1342

All units in millimeters



DATA SHEET NO. 9
LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

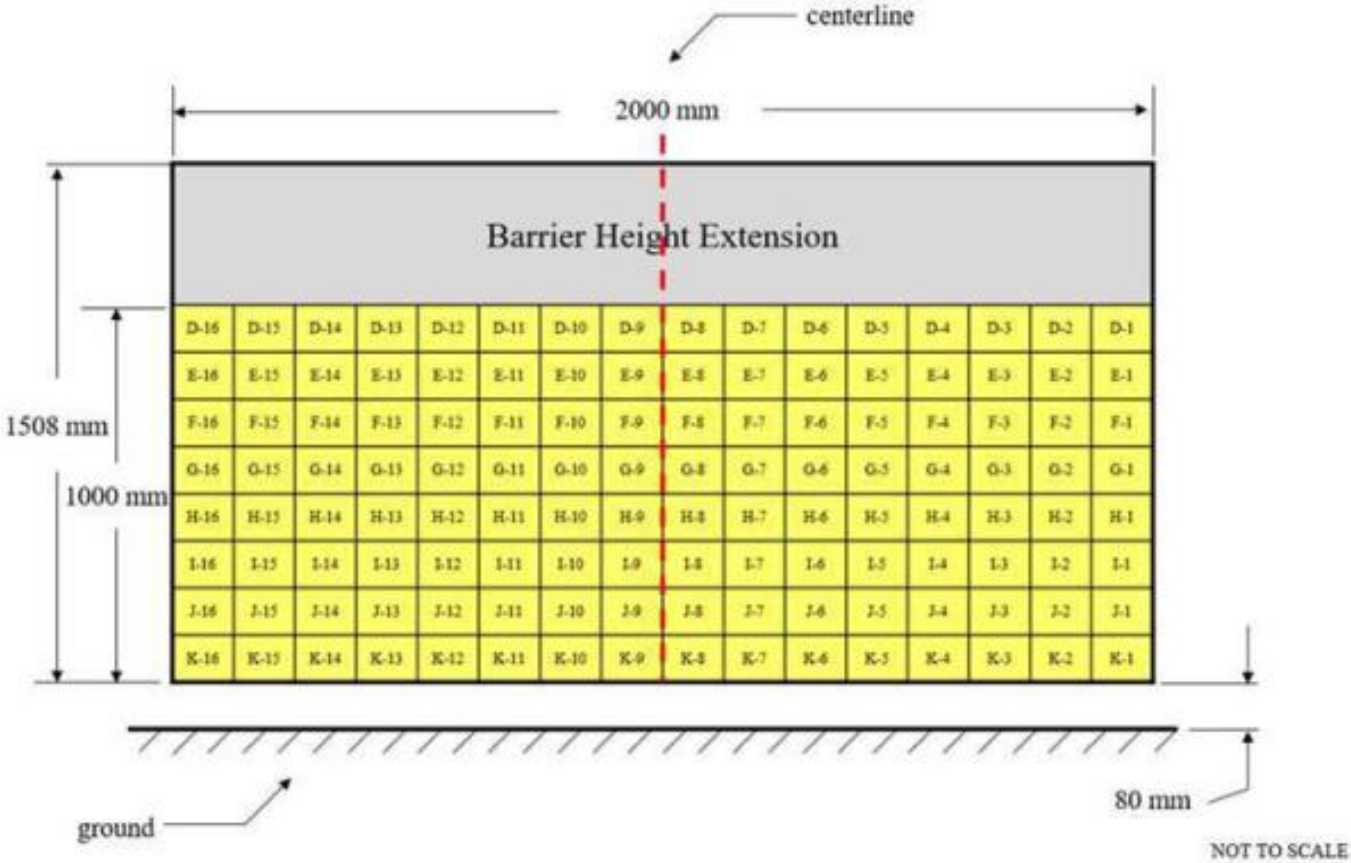


Figure 1 - Load Cell Locations on a 128-Load Cell Barrier with Plywood Height Extension*
 Please note above diagram is not actual representation of load cell barrier used.

DATA SHEET NO. 10
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2022 Volkswagen Jetta four door sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
Test Date: 05/06/2022

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Accelerometers	47
Passenger Dummy Accelerometers	47
Vehicle Structure Accelerometers	8
Load Cell Barrier	384
Total	486

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: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

TEST DUMMY INFORMATION AND CONTACT LOCATIONS

Description	Driver	Passenger
Dummy Type / Serial No.	P572E 50 th Male / 142	P5720 5 th Female / 137
Head Contact	Frontal Airbag	Frontal Airbag
Upper Torso Contact	Frontal Airbag	Frontal Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster	Glove Box
Right Knee Contact	Knee Bolster	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	

**NOTE: Indicate "No", "N/A", or "Yes" described

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Minor cracks at lower corner of passenger side
Window Damage	None
Other	None

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1394
Center	mm	1415
Right Side	mm	1503
Average	mm	1437

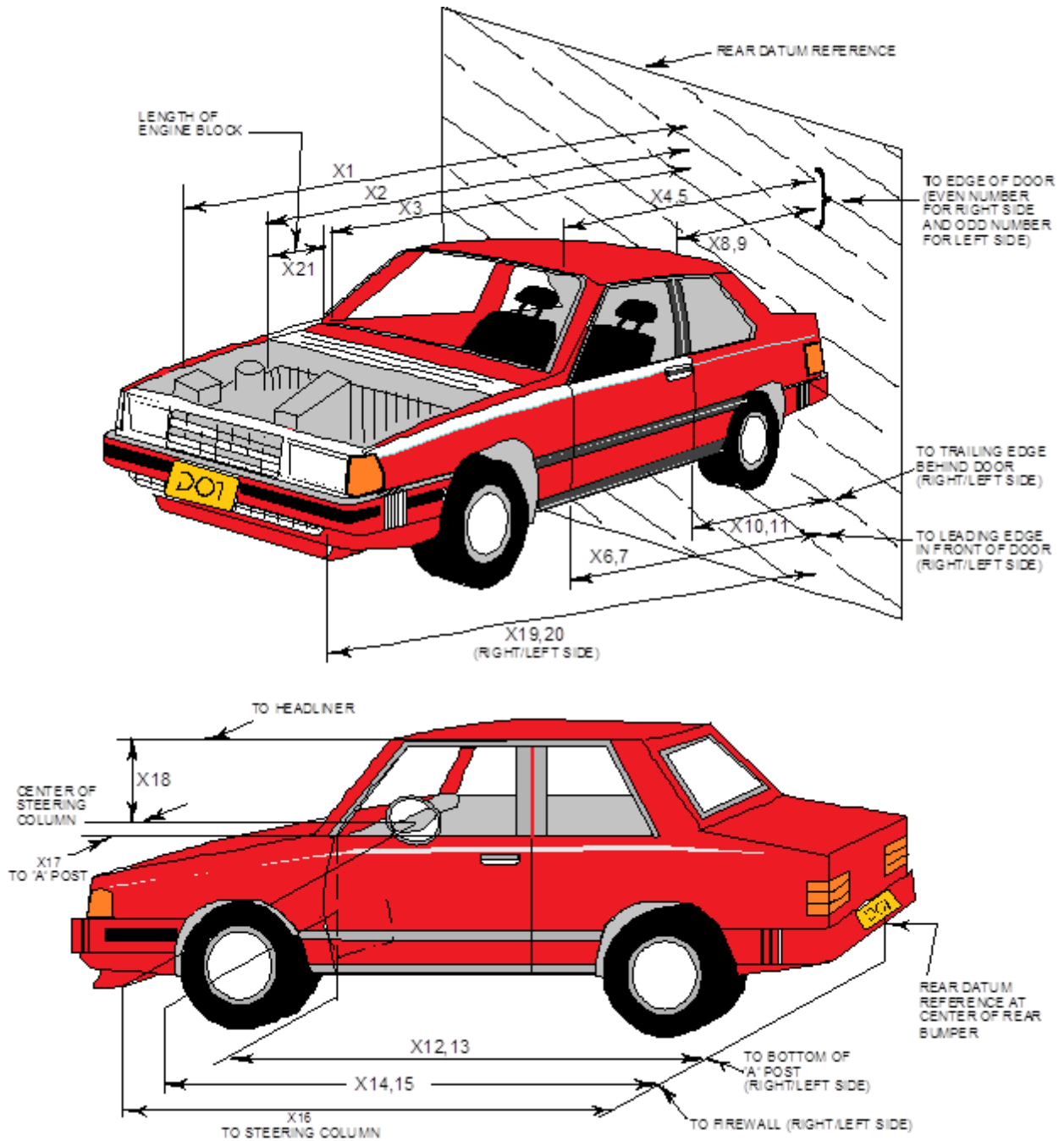
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver		Passenger	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	Yes	Yes
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
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: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022



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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
Test Date: 05/06/2022

No.	Measurement Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4737	4550	-187
2	Rear Surface of Vehicle (RSOV) to Front of Engine	4272	4146	-126
3	RSOV to Firewall	3707	3669	-38
4	RSOV to Upper Leading Edge of Right Door	3346	3346	0
5	RSOV to Upper Leading Edge of Left Door	3347	3334	-13
6	RSOV to Lower Leading Edge of Right Door	3328	3328	0
7	RSOV to Lower Leading Edge of Left Door	3329	3330	1
8	RSOV to Upper Trailing Edge of Right Door	2220	2219	-1
9	RSOV to Upper Trailing Edge of Left Door	2222	2222	0
10	RSOV to Lower Trailing Edge of Right Door	2265	2265	0
11	RSOV to Lower Trailing Edge of Left Door	2267	2268	1
12	RSOV to Bottom of "A" Post of Right Side	3270	3269	-1
13	RSOV to Bottom of "A" Post of Left Side	3271	3272	1
14	RSOV to Firewall, Right Side	3614	3612	-2
15	RSOV to Firewall, Left Side	3578	3578	0
16	RSOV to Steering Column	2830	2897	67
17	Center of Steering Column to "A" Post	309	305	-4
18	Center of Steering Column to Headliner	407	425	18
19	RSOV to Right Side of Front Bumper	4678	4483	-195
20	RSOV to Left Side of Front Bumper	4676	4512	-164
21	Length of Engine Block	496	496	0
RD	RSOV to Right Side of Dash Panel	3000	2999	-1
CD	RSOV to Center of Dash Panel	2993	2993	0
LD	RSOV to Left Side of Dash Panel	3003	3006	3

*UR= Unrecoverable data point
All Dimensions in mm

DATA SHEET NO. 13
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2022 Volkswagen Jetta four door sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
Test Date: 05/06/2022

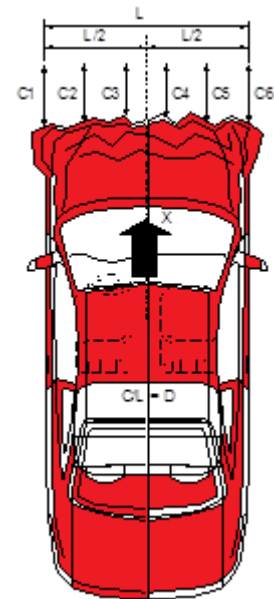
VEHICLE INFORMATION

VIN: 3VW7M7BU3NM000863
Vehicle Size Category: Passenger Car

Wheelbase (mm): 2688
Test Weight (kg): 1621

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): 56.67
Velocity Change (km/h): 65.75
Time of Separation (ms): 145



CRUSH PROFILE

Collision Deformation Classification: 12FDEW1
Midpoint of Damage: C4
Damage Region Length (mm): 1448
Impact Mode: Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	4511	4372	139
C2	Crush Zone 2 at Left Side	mm	4684	4504	180
C3	Crush Zone 3 at Left Side	mm	4725	4516	209
C4	Crush Zone 4 at Right Side	mm	4727	4510	217
C5	Crush Zone 5 at Right Side	mm	4686	4478	208
C6	Crush Zone 6 at Right Side	mm	4514	4383	131
L	C1 to C6	mm	1390	1448	-58

DATA SHEET NO. 14
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

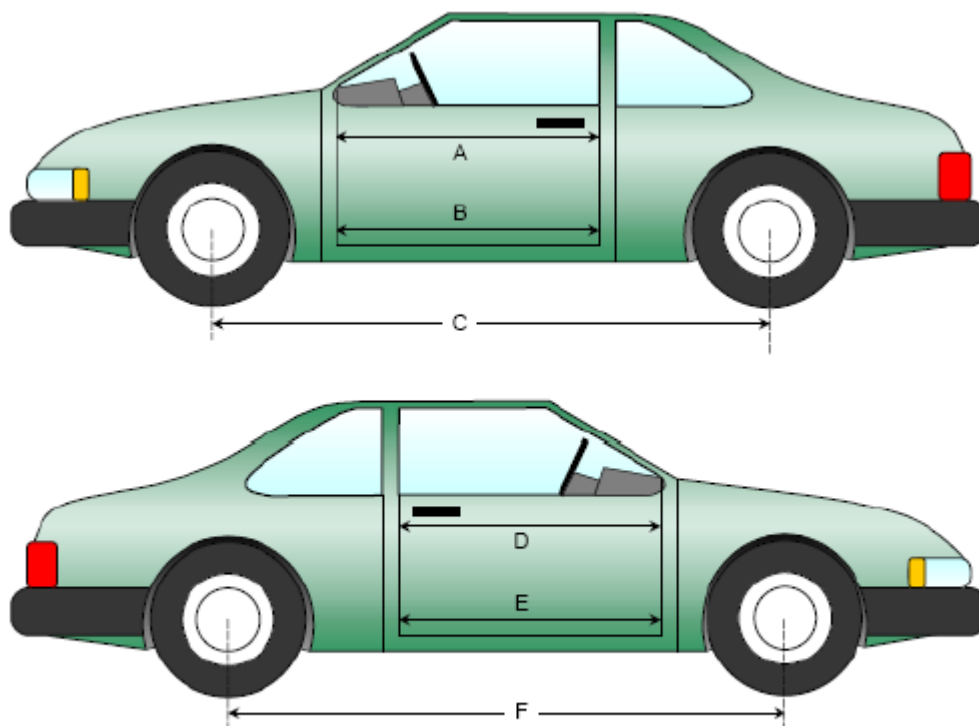
NHTSA No.: M20225806
 Test Date: 05/06/2022

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	961	961	0
B	Left Side Lower	mm	844	843	-1
D	Right Side Upper	mm	961	961	0
E	Right Side Lower	mm	842	842	0

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2688	2647	-41
F	Right Side Wheelbase	mm	2688	2668	-20



Left & Right Side Views

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

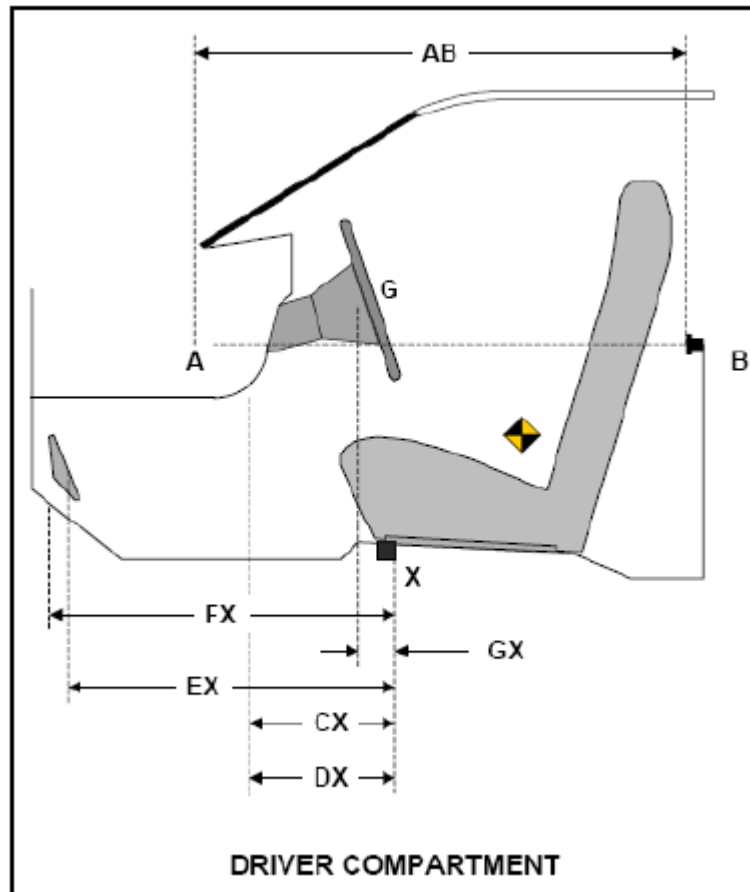
Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	775	776	1
CX	Left Knee Bolster to X	mm	316	317	1
DX	Right Knee Bolster to X	mm	302	304	2
EX	Brake Pedal to X	mm	566	539	-27
FX	Foot Rest to X	mm	603	598	-5
GX	Center of Steering Column Wheel Hub to X	mm	55	123	68

X = Front of Seat Track (Stationary)



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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022

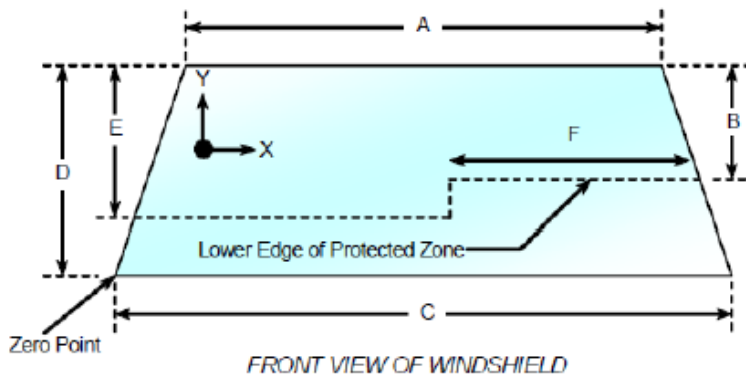
Windshield Mounting Details: A 0.8 mm trim surrounds the top and side of windshield while a plastic shroud is on the bottom.

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° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2127.5	2127.5	100
Right Side	2127.5	2127.5	100
Total	4255	4255	100



Item	Units	Value
A	mm	1189
B	mm	294
C	mm	1486
D	mm	790
E	mm	430
F	mm	550

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

X	Y

- 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

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

Test Vehicle: 2022 Volkswagen Jetta four door sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
Test Date: 05/06/2022

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21 ° C

Test Time: 10:50 AM

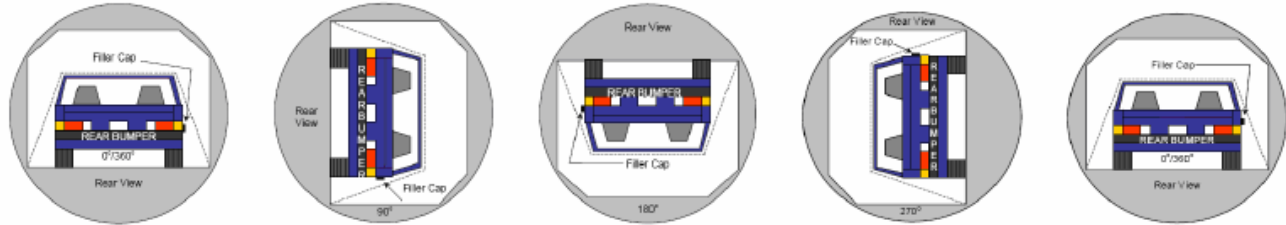
STODDARD SOLVENT SPILLAGE MEASUREMENTS

- 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./minute)
- D. Spillage: No Spillage Occurred

**DATA SHEET NO. 16
FMVSS 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2022 Volkswagen Jetta four door sedan
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
 Test Date: 05/06/2022



0° TO 90° 90° TO 180° 180° TO 270° 270° TO 360°

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°	70	300	370
90° to 180°	63	300	363
180° to 270°	64	300	364
270° to 360°	62	300	362

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	

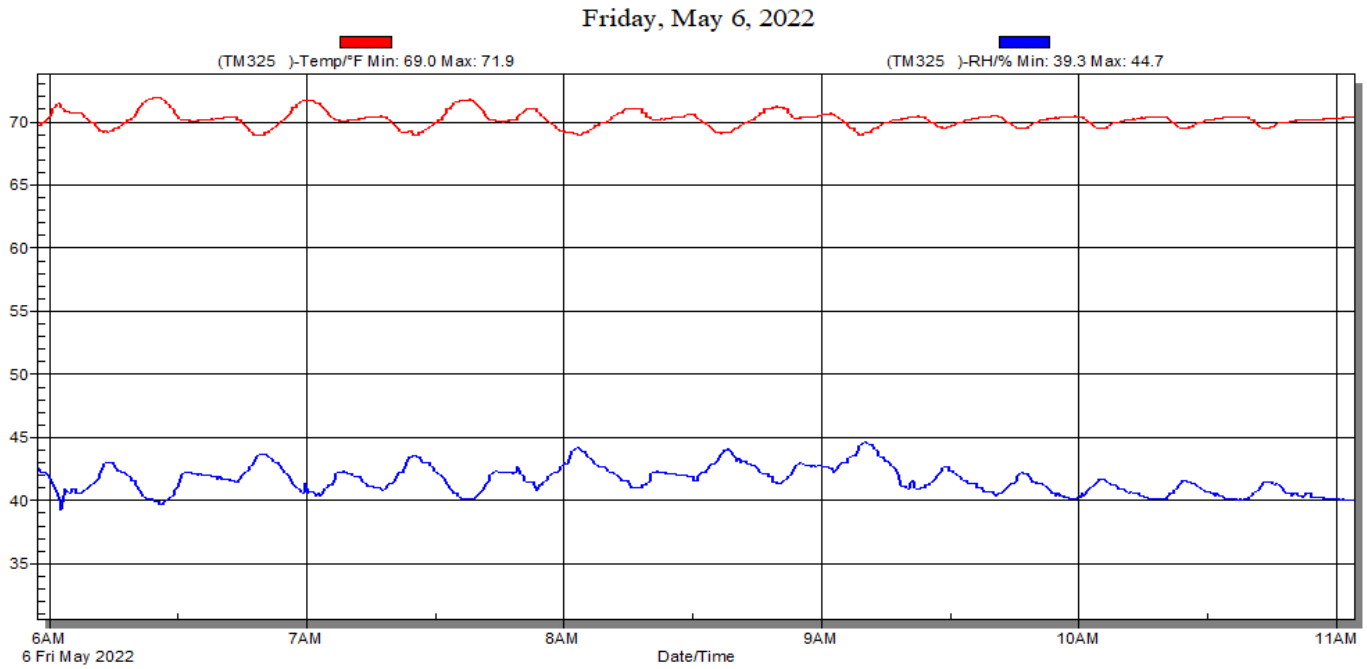
SOLVENT SPILLAGE LOCATION TABLE

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: 2022 Volkswagen Jetta four door sedan
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20225806
Test Date: 05/06/2022



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

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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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	2022 Volkswagen Jetta Frontal As Delivered	A-7
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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
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20	Pre-Test Engine Compartment View	A-14
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22	Pre-Test Fuel Filler Cap View	A-15
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28	Pre-Test Dummy Cable Routing	A-18
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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
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53	Pre-Test Passenger Dummy Front View	A-31
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55	Pre-Test Passenger Dummy Window View	A-32
56	Post-Test Passenger Dummy Window View	A-32
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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
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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
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69	Pre-Test Passenger's Side Floorpan	A-39
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71	Post-Test Passenger Dummy Face	A-40

Fig.	Description	Page
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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
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81	Vehicle at 360° on Static Rollover Device	A-45
82	2022 Volkswagen Jetta 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.*

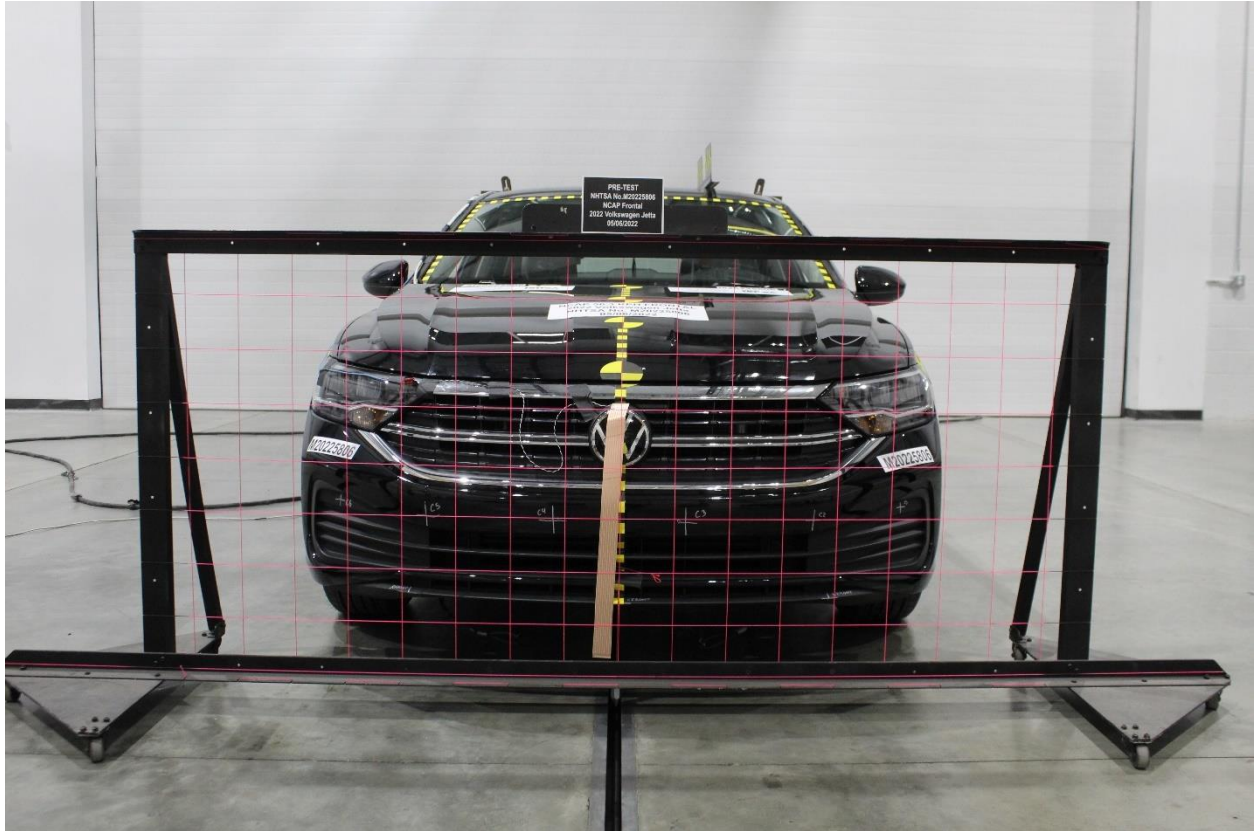


Figure A-1: Load Cell Location



Figure A-2: Pre-Test Load Cell Wall

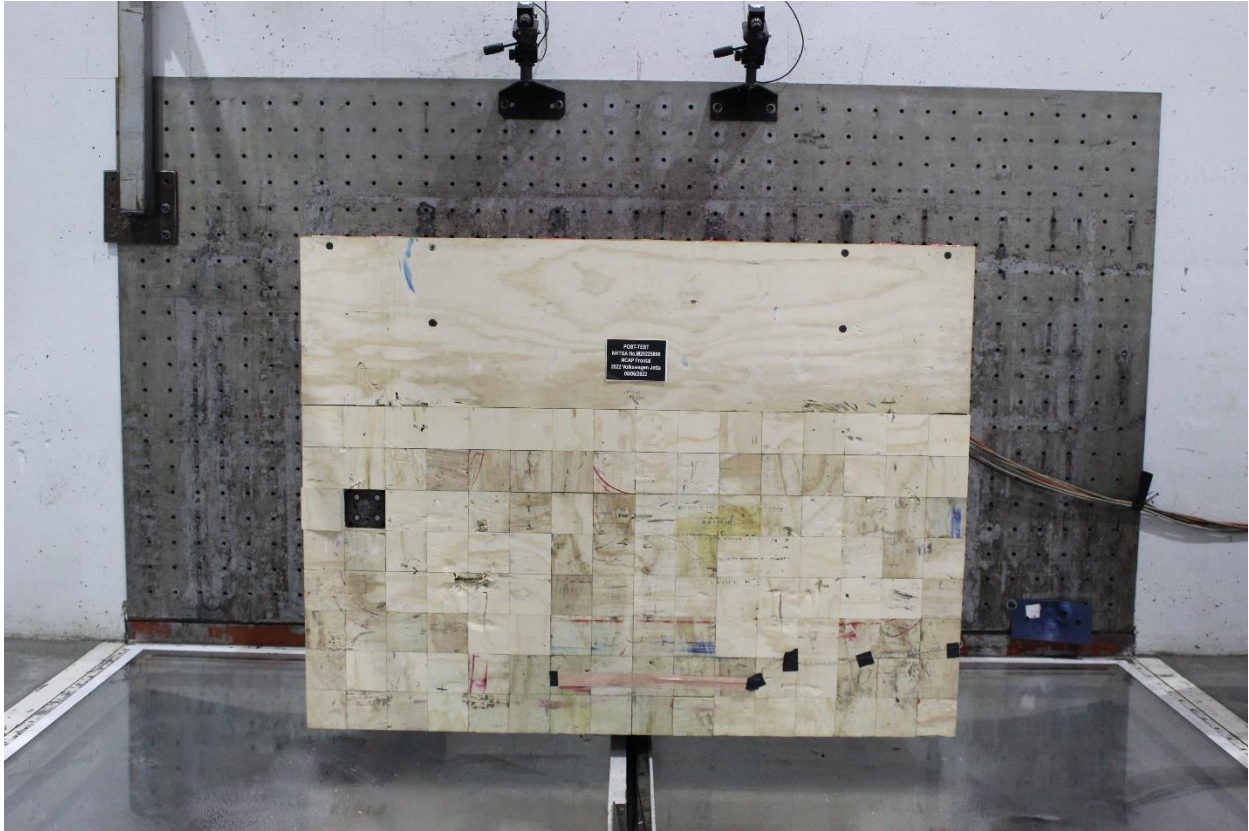


Figure A-3: Post-Test Load Cell Wall

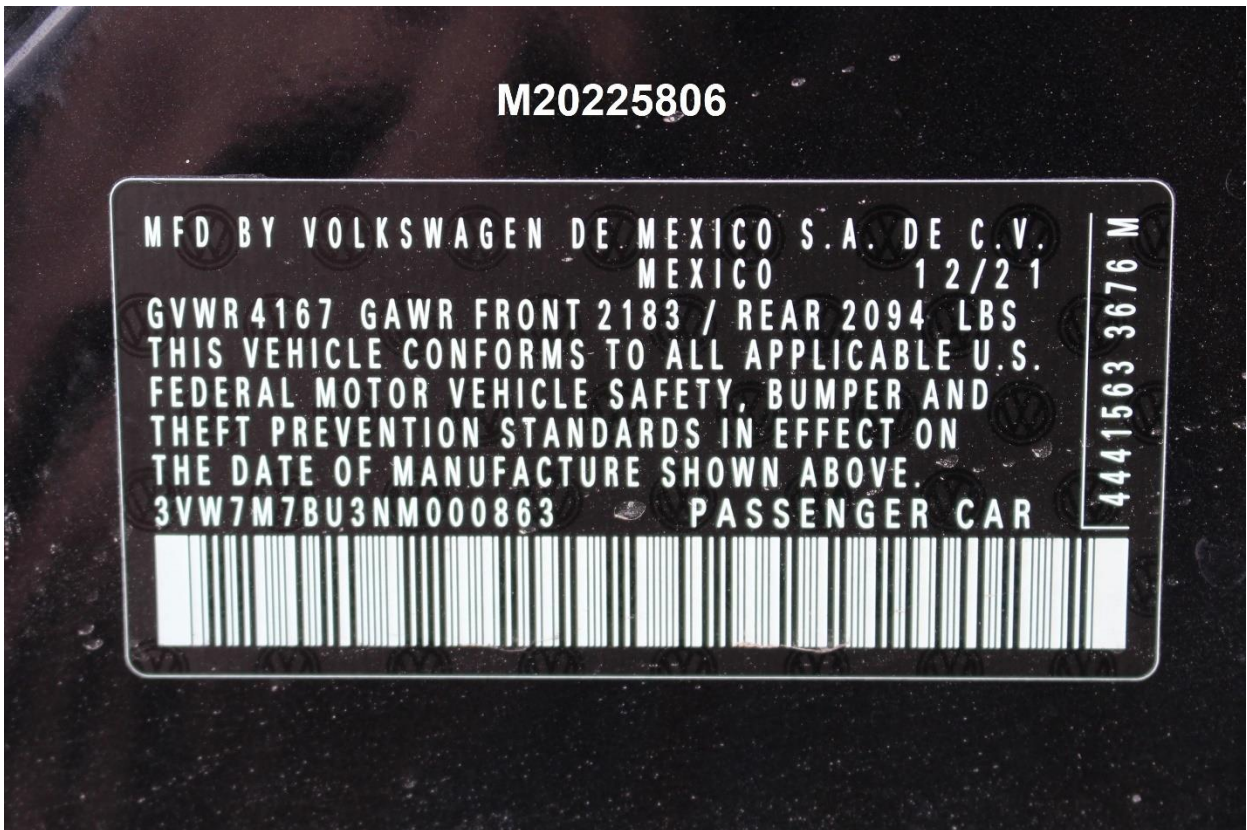


Figure A-4: Manufacturer's Label

M20225806

TIRE AND LOADING INFORMATION
RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT

SEATING CAPACITY/NOMBRE DE PLACES | TOTAL 5 | FRONT/AVANT 2 | REAR/ARRIERE 3

THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED 415 KG OR 915 LBS
LE POIDS TOTAL DES OCCUPANTS ET DU CHARGEMENT NE DOIT JAMAIS DEPASSER KG OU LB

TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSION DE PNEUS A FROID	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS
FRONT/AVANT	205/55 R17	250 KPA / 36 PSI	
REAR/ARRIERE	205/55 R17	250 KPA / 36 PSI	
SPARE/DE SECOURS	T125/70 R18 99M	420 KPA / 60 PSI	

5GM 010 000 PC
CDP-21

Figure A-5: Tire Placard



M20225806

Figure A-6: 2022 Volkswagen Jetta 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

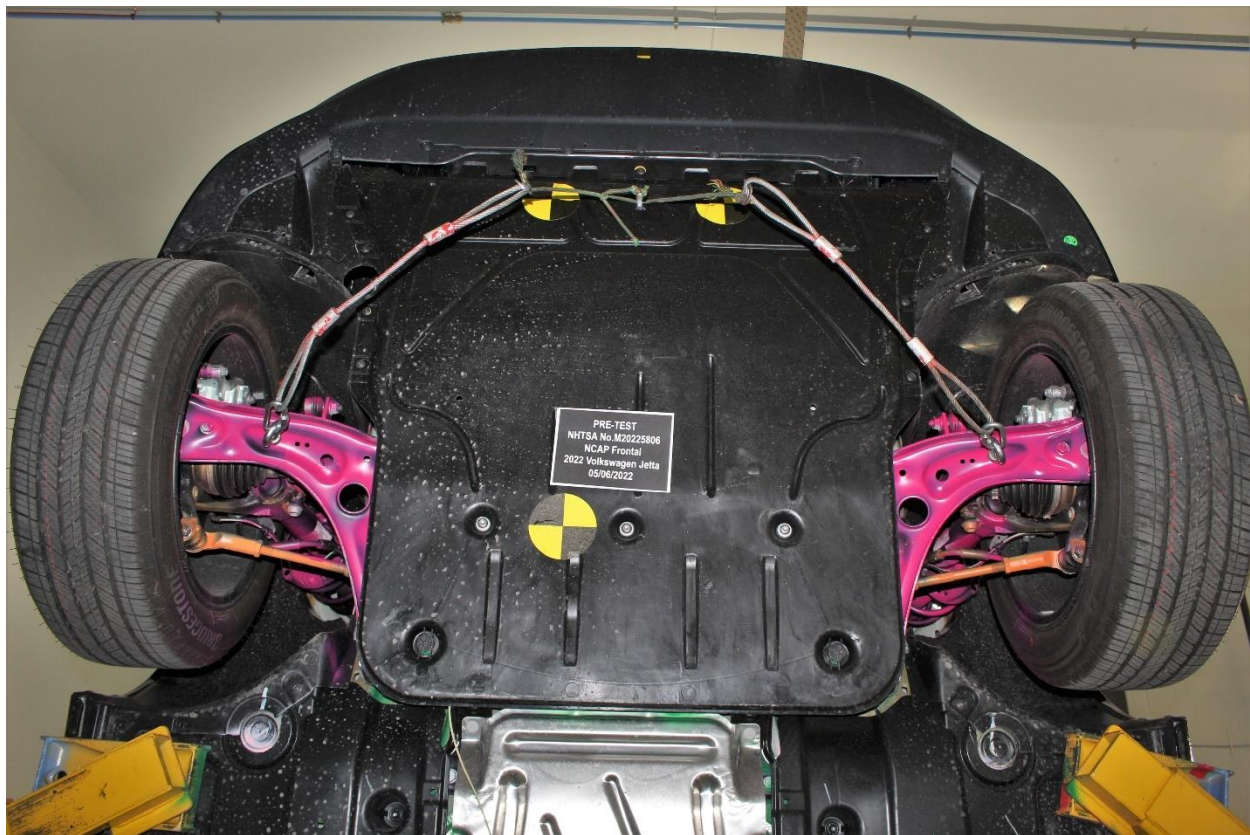


Figure A-24: Pre-Test Front Underbody View

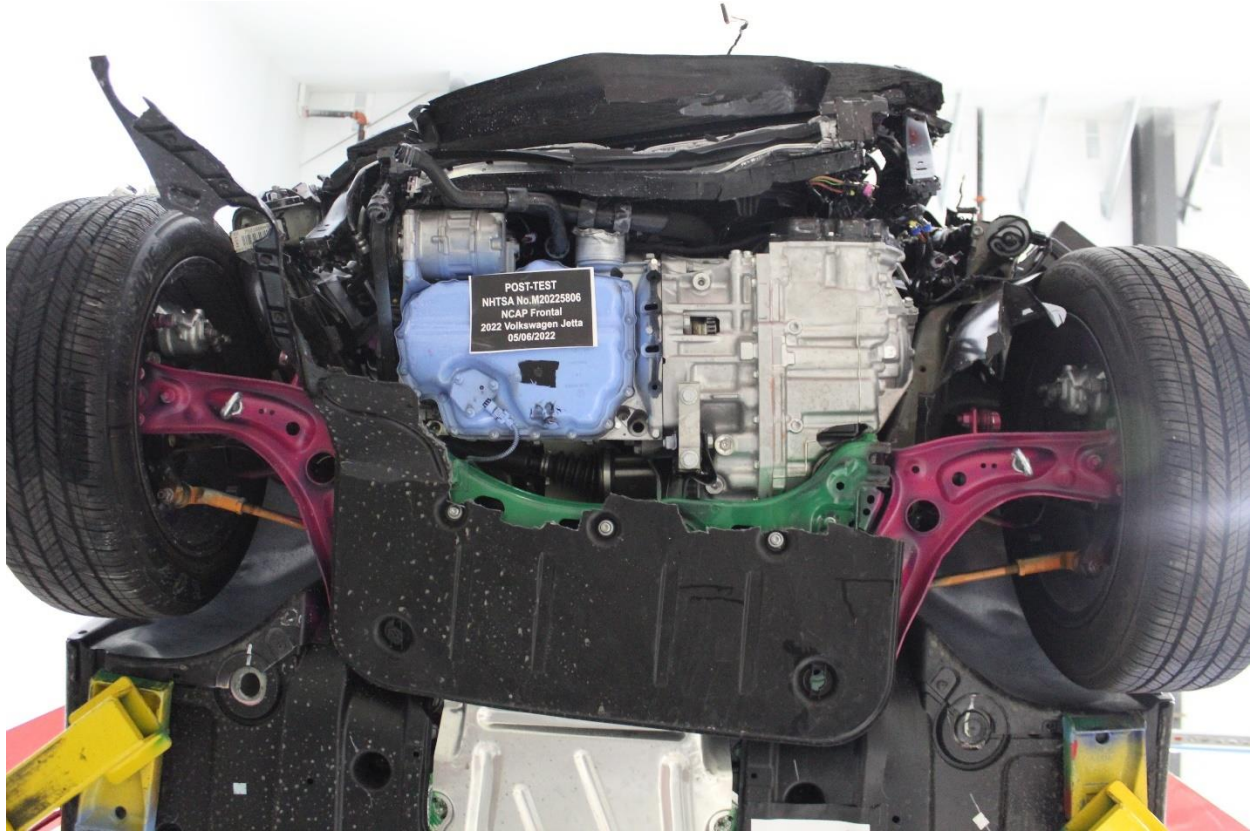


Figure A-25: Post-Test Front Underbody View



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

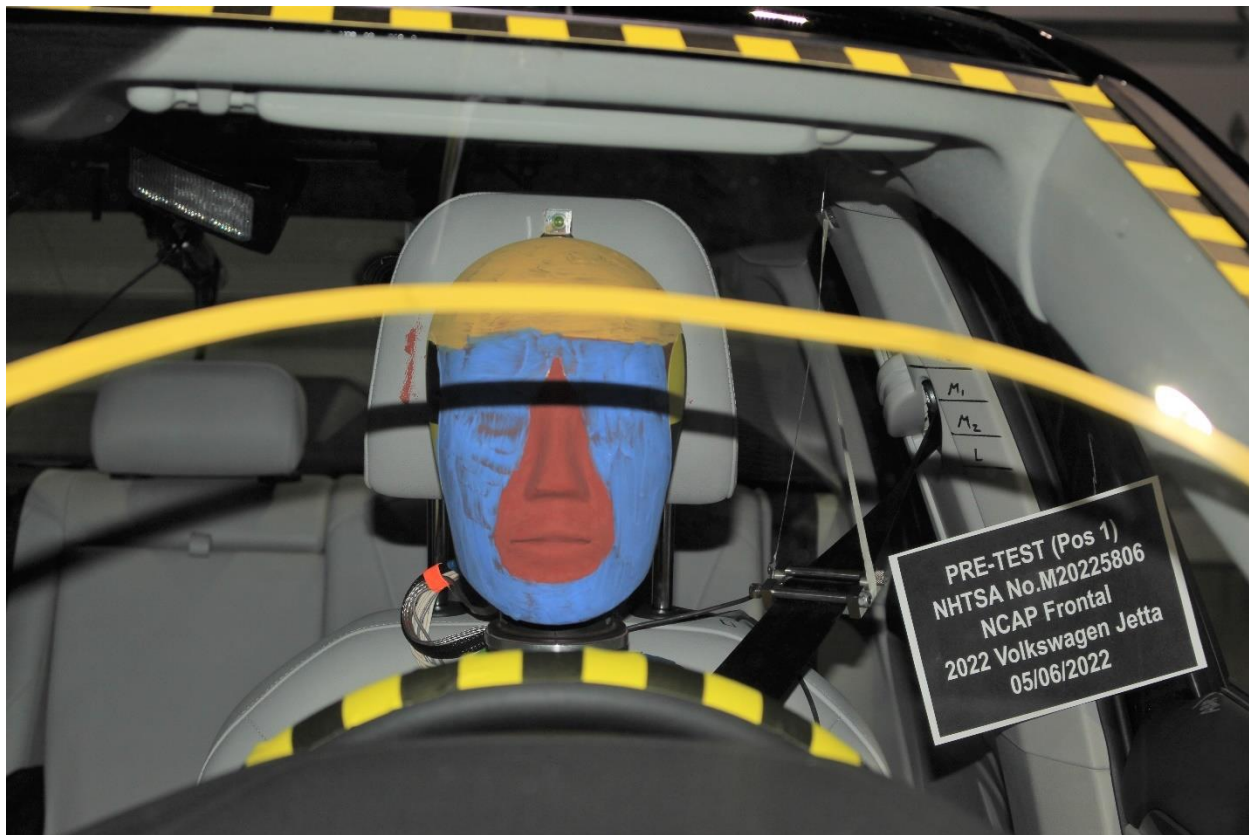


Figure A-30: Pre-Test Driver Dummy Front View



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

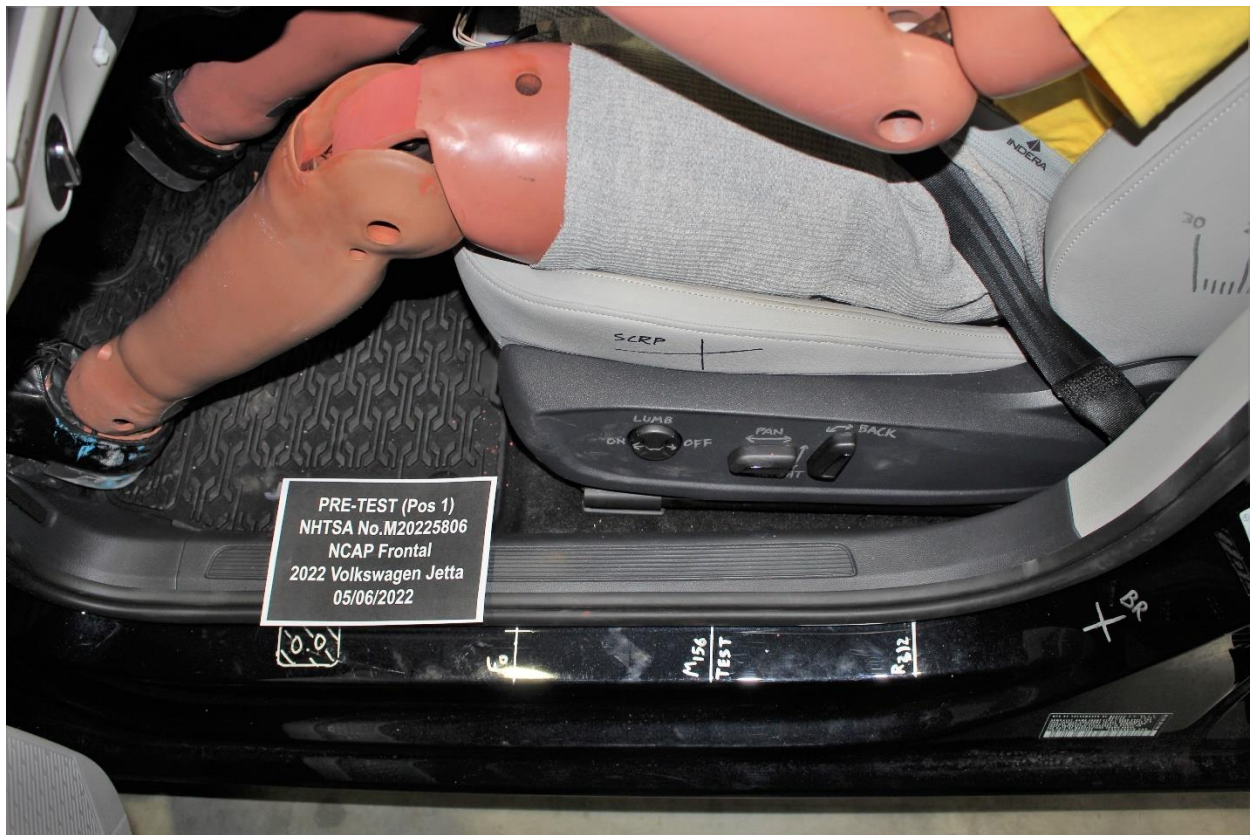


Figure A-36: Pre-Test Driver's Seat Fore-Aft Markings

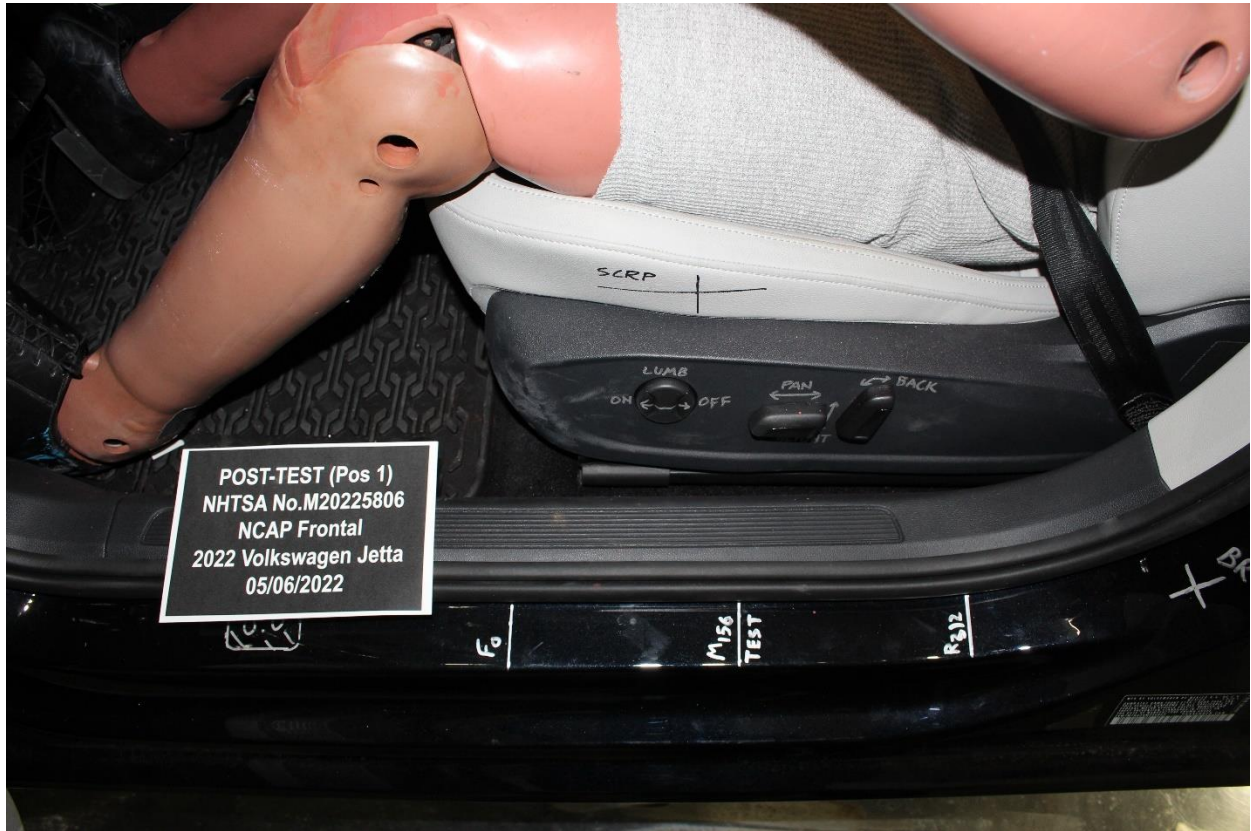


Figure A-37: Post-Test Driver's Seat Fore-Aft Markings



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



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

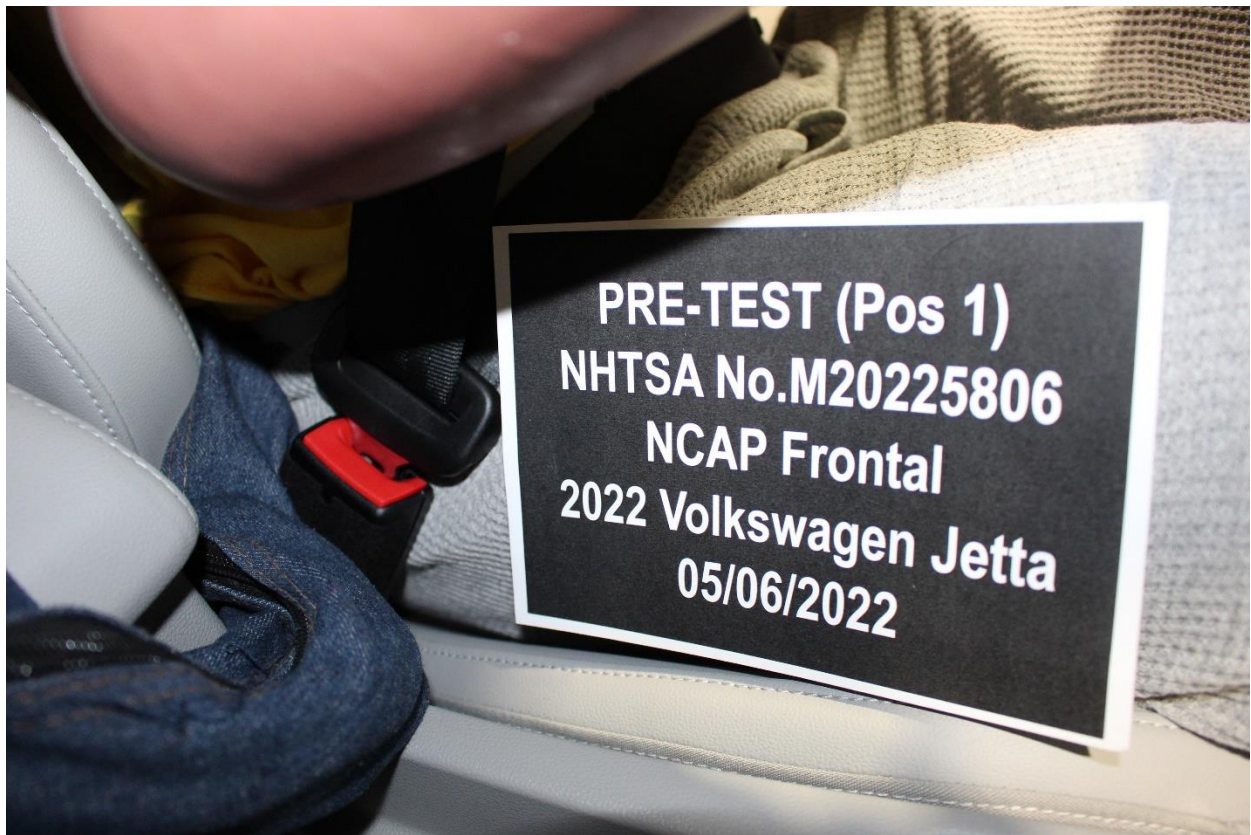


Figure A-40: Pre-Test View of Belt Buckle and Latch Plate for Driver Dummy



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

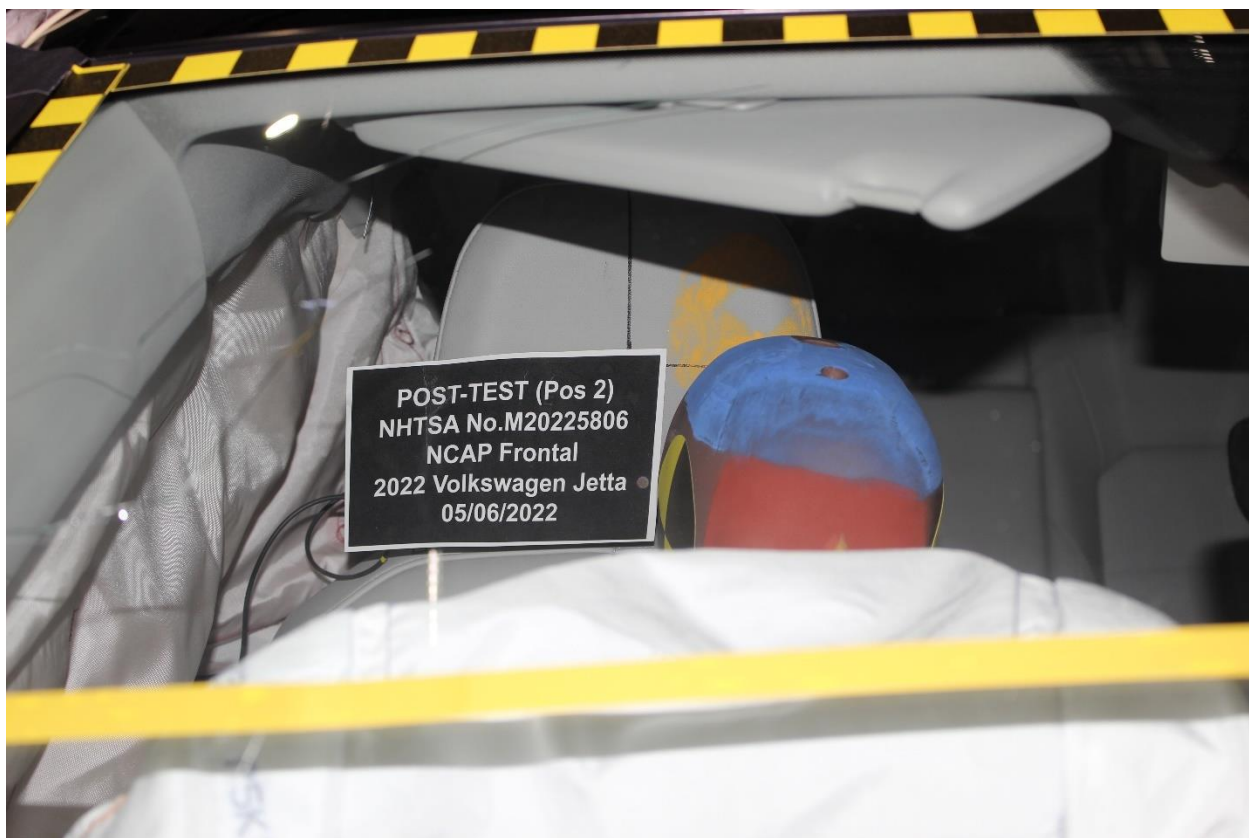


Figure A-54: Post-Test Passenger Dummy Front View



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

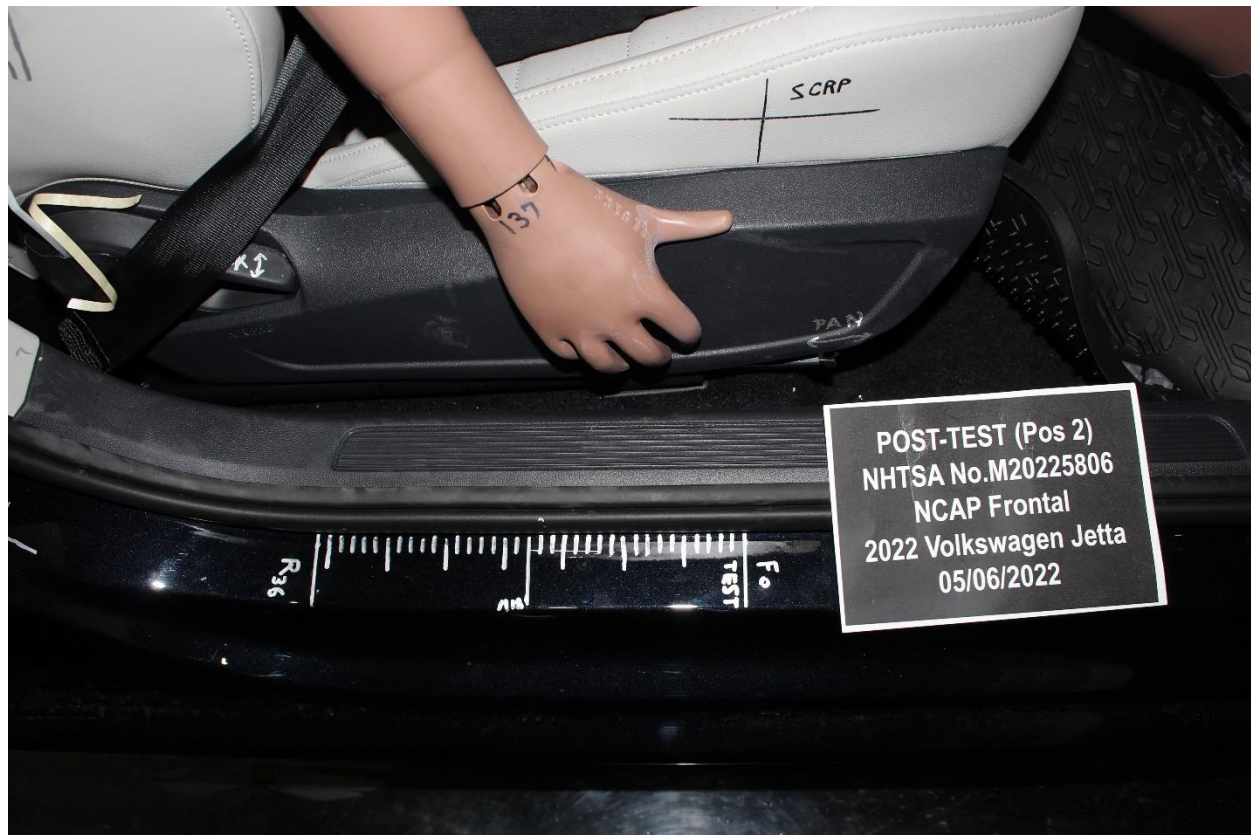


Figure A-60: Post-Test Passenger's Seat Fore-Aft Markings



PRE-TEST (Pos 2)
NHTSA No.M20225806
NCAP Frontal
2022 Volkswagen Jetta
05/06/2022

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



POST-TEST (Pos 2)
NHTSA No.M20225806
NCAP Frontal
2022 Volkswagen Jetta
05/06/2022

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

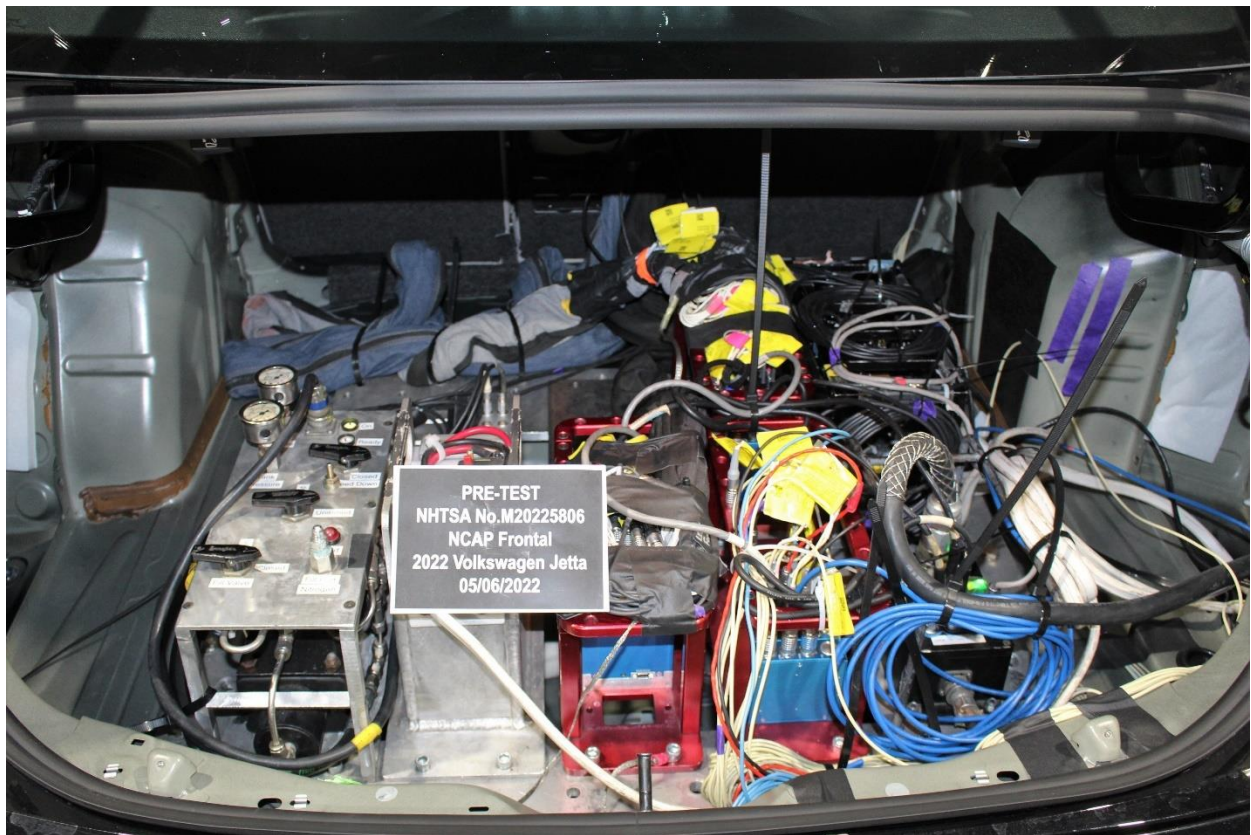


Figure A-74: Photograph of Ballast Installed in Vehicle

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: 2022 Volkswagen Jetta Frontal Impact Event

Fuel Economy and Environment

33 MPG
combined city/hwy

29 city
40 highway

3 gallons per 100 miles

You save \$1,250
in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,050

fuelconomy.gov

2022 Jetta 1.5T SE

Deep Black Pearl exterior
Storm Gray Leatherette interior

8-speed Automatic w/ Tiptronic®

STANDARD FEATURES (unless replaced by packages or options)

PERFORMANCE

- 1.5L TSI® 16V with DQ375 turbo 4-cylinder engine
- Front-wheel drive
- Engine Oil-Change System
- Electric power steering

EXTERIOR

- 17 alloy wheels w/ all-season tires
- Automatic LED headlights & LED Daytime Running Lights (DRL); LED taillights
- Heated, fold-in, power adjustable side mirrors
- Rain-sensing, variable intermittent front wipers

INTERIOR

- 8-speaker CD/USB automatic climate control
- Leather-wrapped steering wheel, multi-function
- Tilt & telescoping adjustable steering column
- Driver's seat: heated, power adjustable
- Front passenger seat: heated, manually adjustable
- Rear seat: 60/40 split-folding, w/ center armrest
- V-Tec seat-to-seat seating surfaces
- Center console w/ cup holders, armrest & storage
- Front-row USB ports
- Auto-dimming interior mirror w/ power

SAFETY & DRIVER ASSISTANCE

- Advanced Airbag Protection System w/ 6 airbags
- Anti-Slip Regulation (ASR); Engine Brake Assist (EBA)
- Electronic Brake pressure Distribution (EBD); Hydraulic Brake Assist (HBA)
- Electronic Stability Control (ESC); Electronic Differential Lock (EDL)
- Intelligent Cruise Response System (ICRS); Automatic Post-Collision Braking System
- Lower A-Breath & Tether for Children (LATCH); Tire Pressure Monitoring System (TPMS)
- Rear View Camera System
- Hill Hold Control
- IQ.DRIVE features:
 - Traffic Assist (semi-automated driving assistance)
 - Adaptive Cruise Control (ACC) Stop & Go
 - Lane Assist (lane keeping function)
 - Emergency Assist (semi-automated vehicle assistance in a medical emergency)
 - Front Assist (Forward Collision Warning & Autonomous Emergency Braking w/ Pedestrian Monitoring)
 - Active Blind Spot Monitor
 - Rear Traffic Alert

WARRANTY INFORMATION

- Volkswagen New Vehicle Limited Warranty: 4 years/50,000 miles (whichever occurs first); includes coverage for powertrain components
- Unlimited Mileage Powertrain Protection: 7 years/100,000 miles (whichever occurs first)

SCHEDULED CAREFREE MAINTENANCE

- > 2 years/20,000 miles (whichever occurs first)

24-HOUR ROADSIDE ASSISTANCE

- > 3 years/30,000 miles (whichever occurs first); for towing, jump starts, tire changes, out-of-fuel & lock-out. Services provided by third party supplier.

See owner's literature or dealer for details and limitations on all warranties and services.

IQ.DRIVE. Advanced Driver Assistance Technologies

Equipped with Next Generation VW Car-Net™

car-net

Base Manufacturer's Suggested Retail Price: \$23,795.00

PACKAGES & OPTIONS

Deep Black Pearl exterior	No Charge
Storm Gray Leatherette interior	No Charge
Power Tilt & Sliding Panoramic Sunroof	\$850.00
Black Wheel Package: 17" steel, graphite alloy wheels	\$395.00
Monitor Assist (set of 4) & Heavy Duty Trunk Liner w/ 10 CarGo slots	\$275.00
Roadside Assistance Kit	\$80.00
8-Speed Automatic w/ Tiptronic®	No Charge

Destination Charge: \$995.00

Total Manufacturer's Suggested Retail Price: \$26,400.00

Does not include tax, license, title or registration fees, taxes, dealer fees, or any options or items not listed above.

Ready to make this your new ride? Apply now with Volkswagen Credit!

Volkswagen Credit

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.

Crash	Driver Passenger	Not Rated
Frontal	★★★★	Not Rated
Side	★★★★	★★★★
Rollover	★★★★	★★★★

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

PARTS CONTENT INFORMATION

For vehicles in this carline: U.S./CANADIAN

For this vehicle: PUEBLA, MEXICO

Major sources of foreign parts content: MEXICO 35%

Note: parts content does not include final assembly, distribution or other non-parts costs.

For this vehicle: Final assembly point: PUEBLA, MEXICO

Country of origin: MEXICO

ENGINE: MEXICO

TRANSMISSION: JAPAN

VIN: 3VV7M7B1J3M000983

COMM. NUMBER: 2R1873

Port of Entry: MIDLOTGAN

GVW: 1,893 kg 4,167 lbs
GVWR Threshold: 28.35 kg 62.51 lbs
Accessories Weight: 55.98 kg 122.9 lbs

SOLD TO: 402648
FRANK BOUCHER VOLKSWAGEN
1807 WASHINGTON AVE
RACINE, WI 53408

SHIP TO: 402648
FRANK BOUCHER VOLKSWAGEN
1807 WASHINGTON AVE
RACINE, WI 53408

Figure A-83: Monroney Label Photograph

APPENDIX B
VEHICLE & DUMMY RESPONSE DATA TRACES

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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
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Plot 7	Driver Chest Y Acceleration vs. Time Primary	B-6
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Plot 9	Driver Chest Resultant Acceleration vs. Time Primary	B-7
Plot 10	Driver Upper Neck Force X vs. Time Primary	B-7
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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

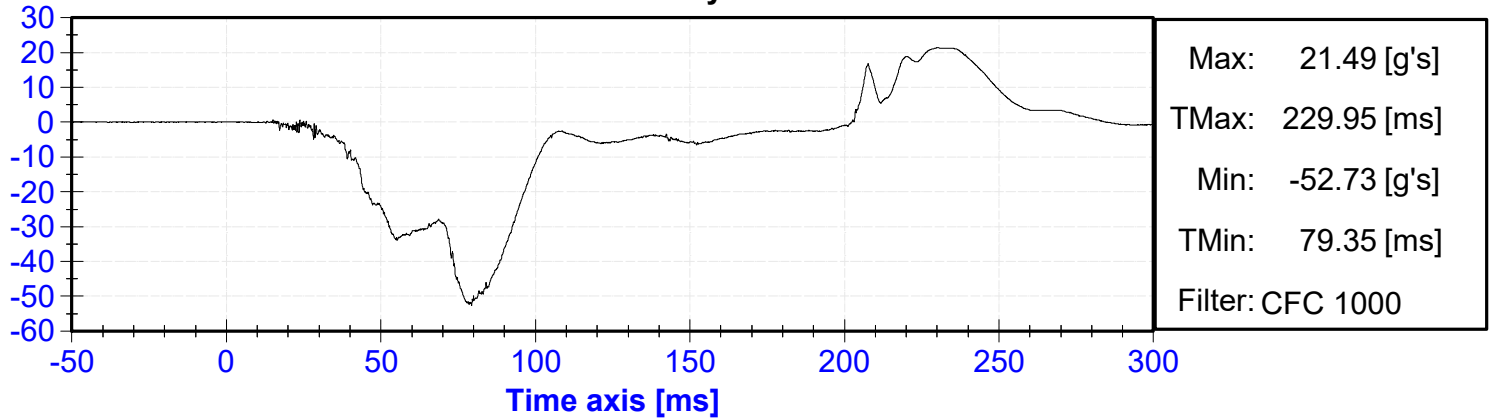
The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.NHTSA.gov

- 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

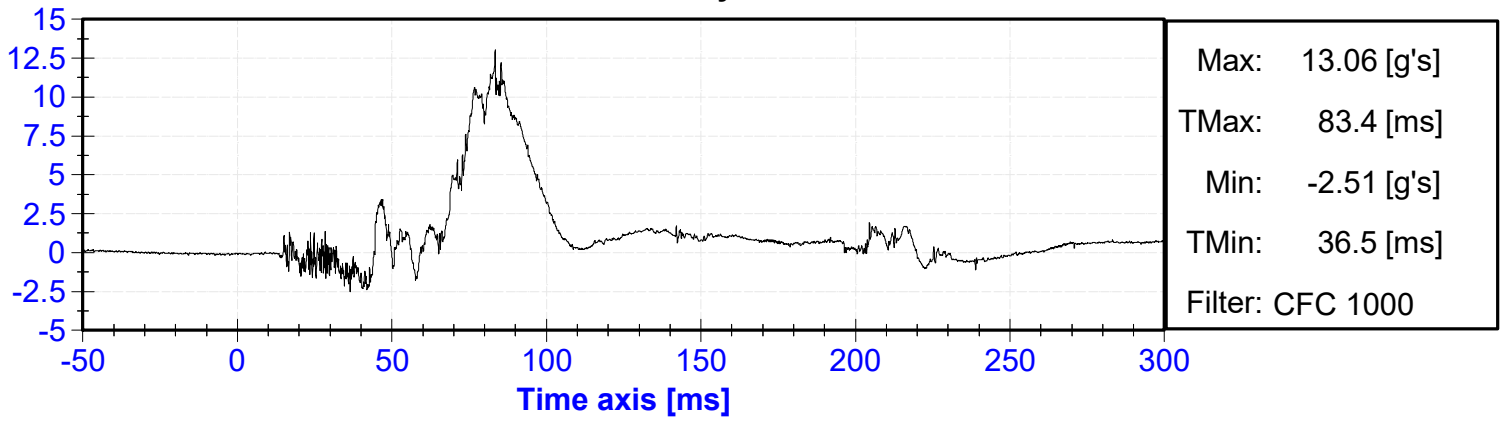
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver 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

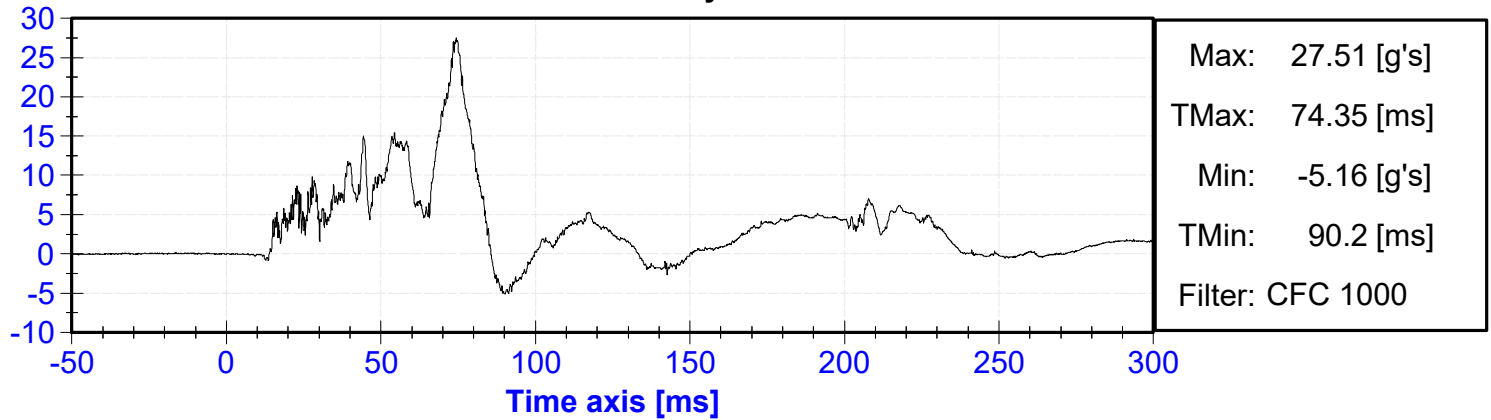
Driver Head X Acceleration vs. Time Primary



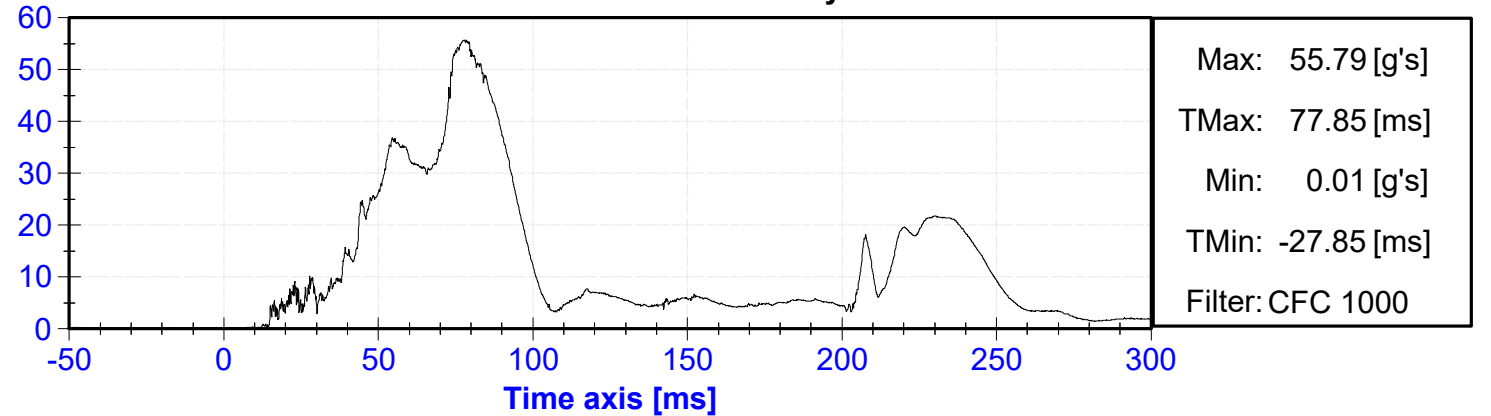
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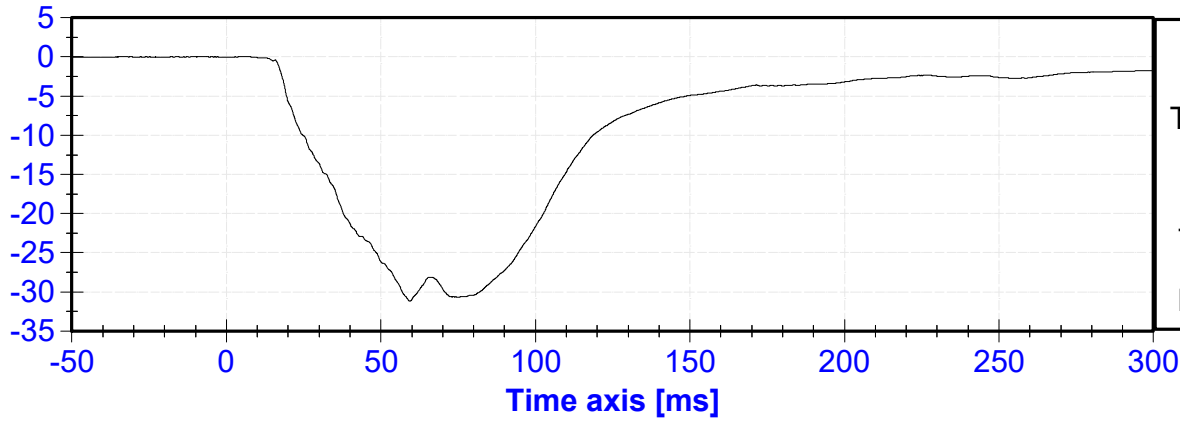
Driver Head Z Acceleration vs. Time Primary



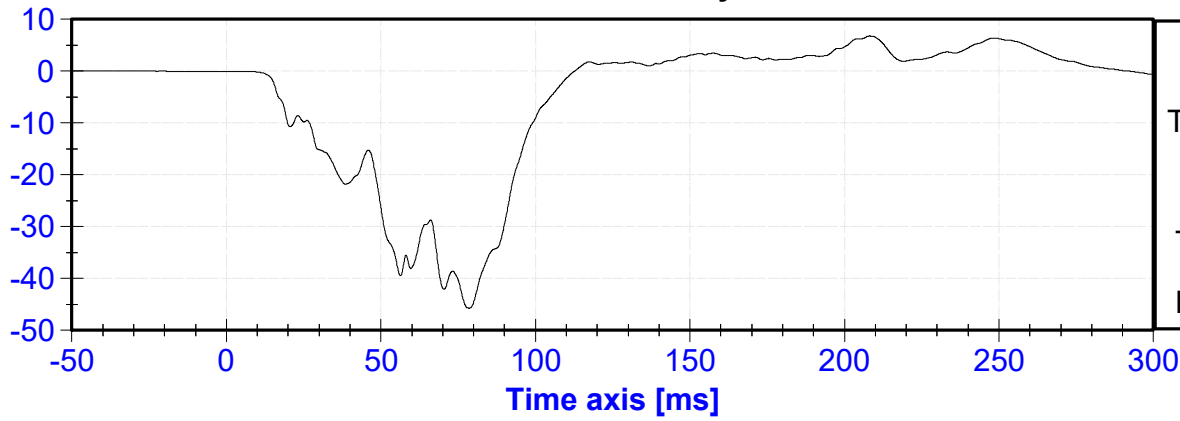
Driver Head Resultant Acceleration vs. Time Primary



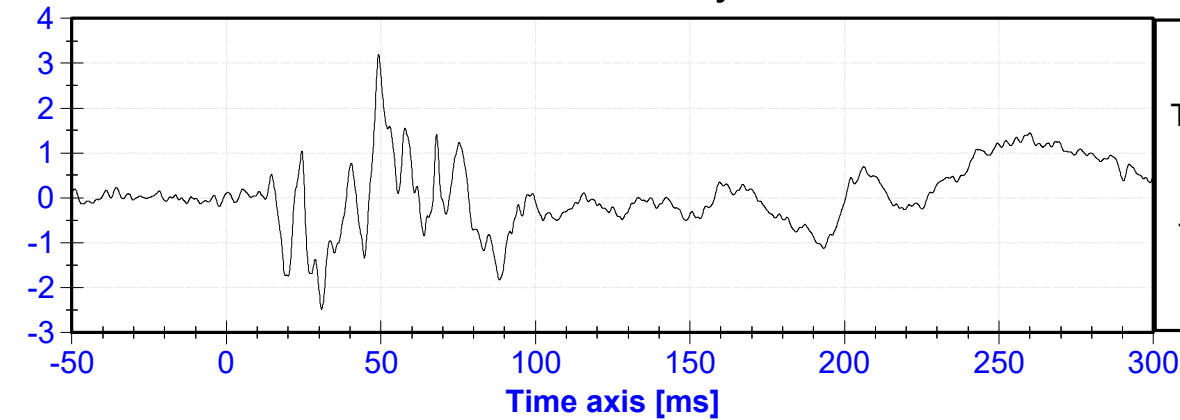
Driver Chest X Deflection vs. Time



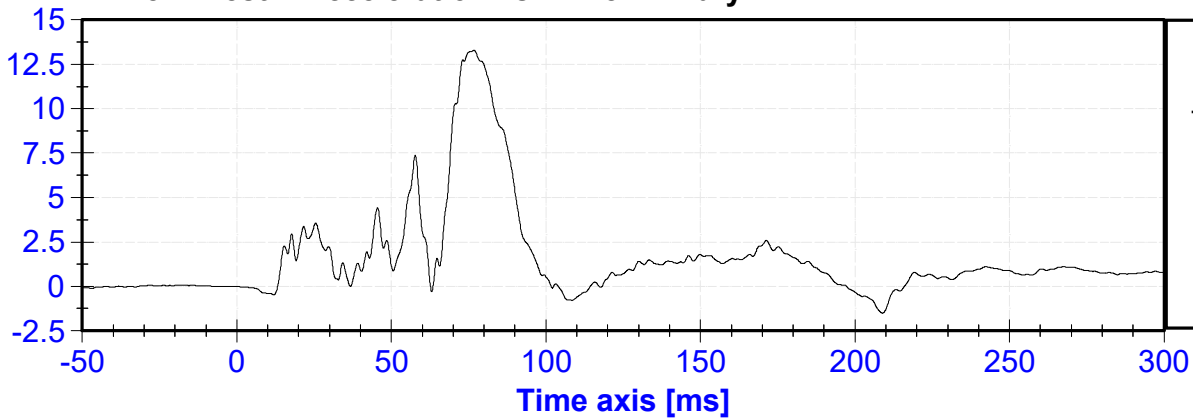
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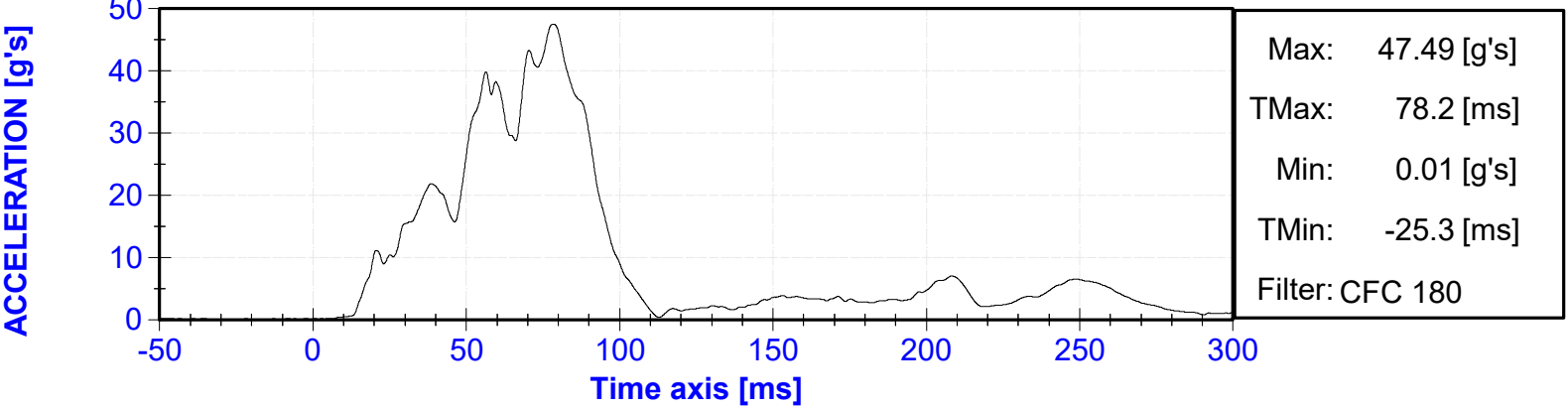
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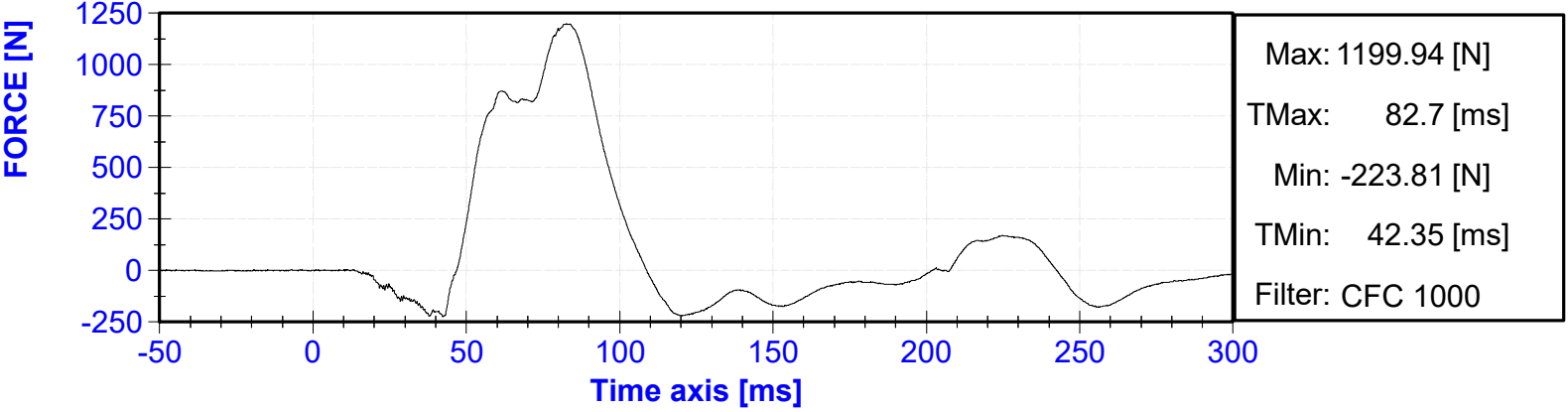
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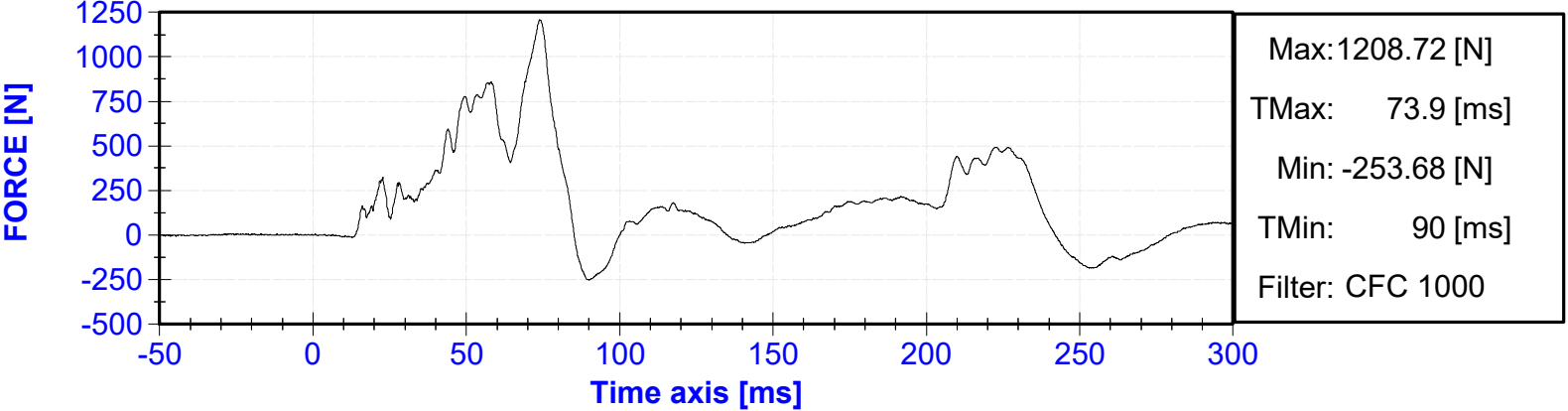
Driver Chest Resultant Acceleration vs. Time Primary



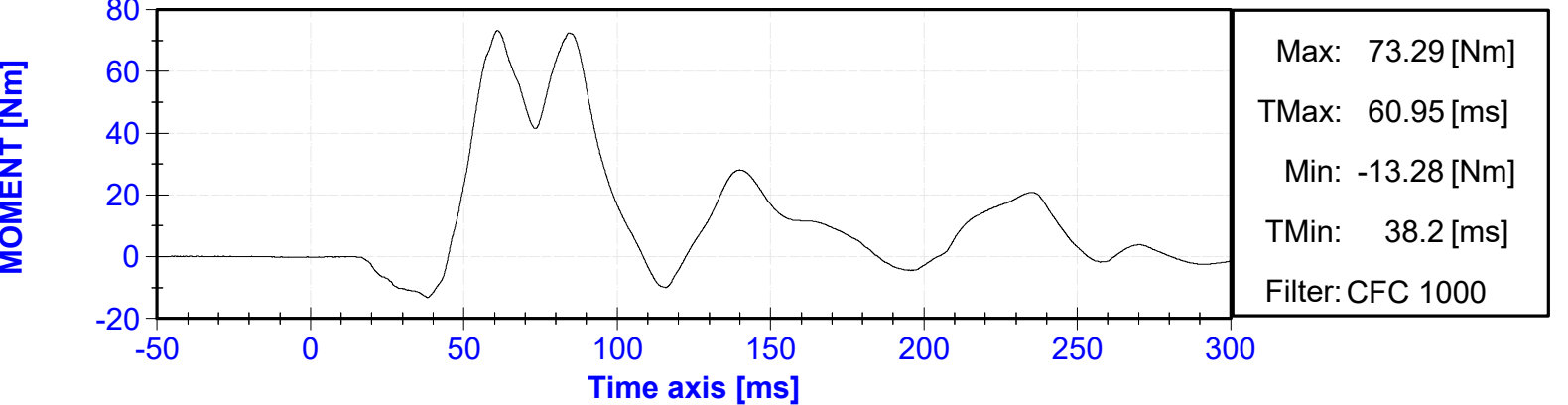
Driver Upper Neck Force X vs. Time Primary



Driver Upper Neck Force Z vs. Time Primary

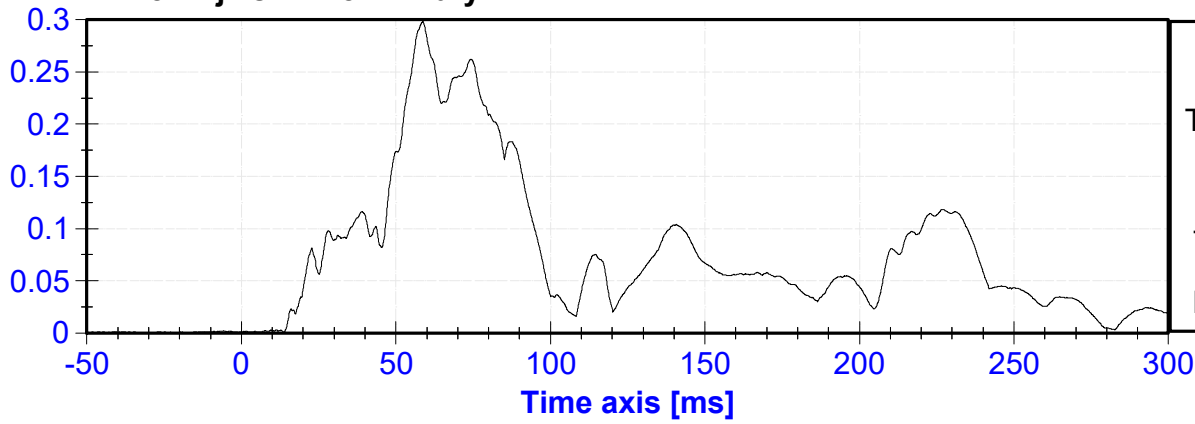


Driver Upper Neck Moment Y vs. Time Primary



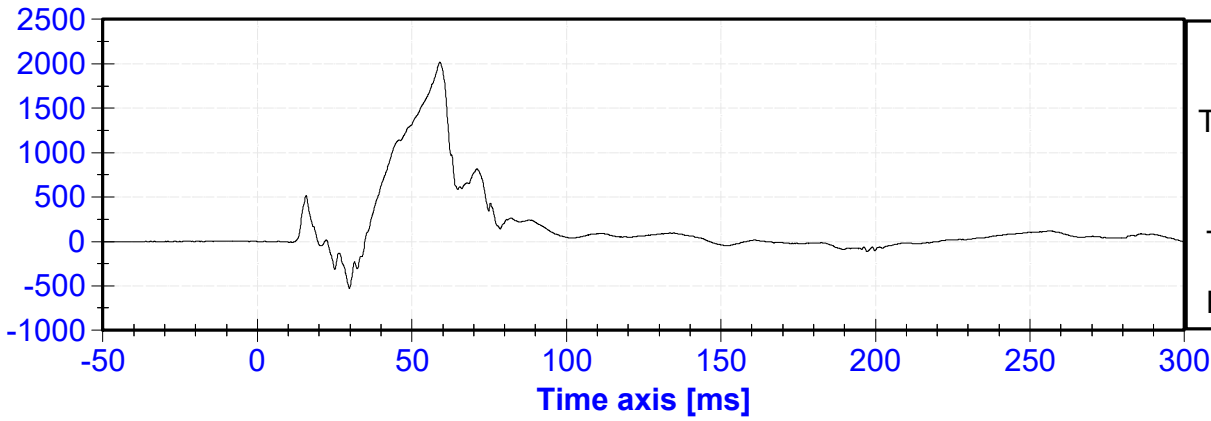
Driver Nij vs. Time Primary

NECK INJURY CRITERIA



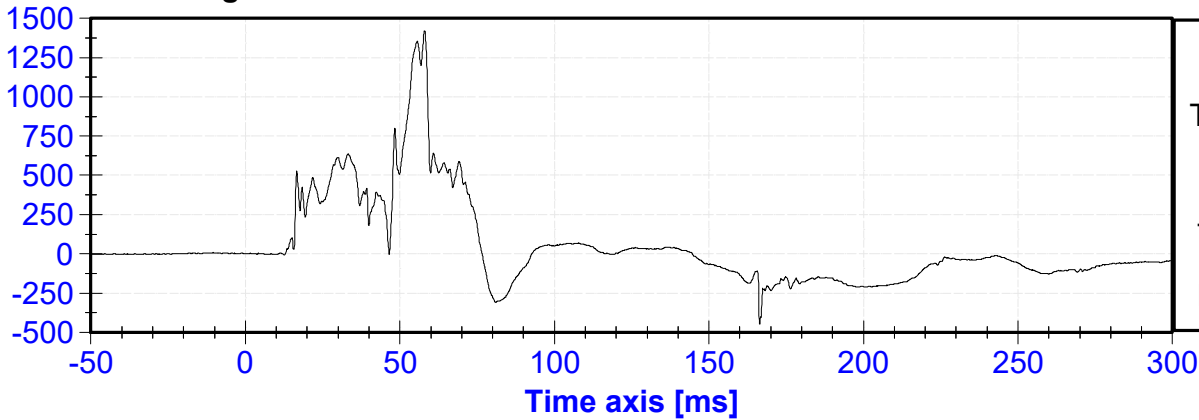
Driver Left Femur Force vs. Time

FORCE [N]



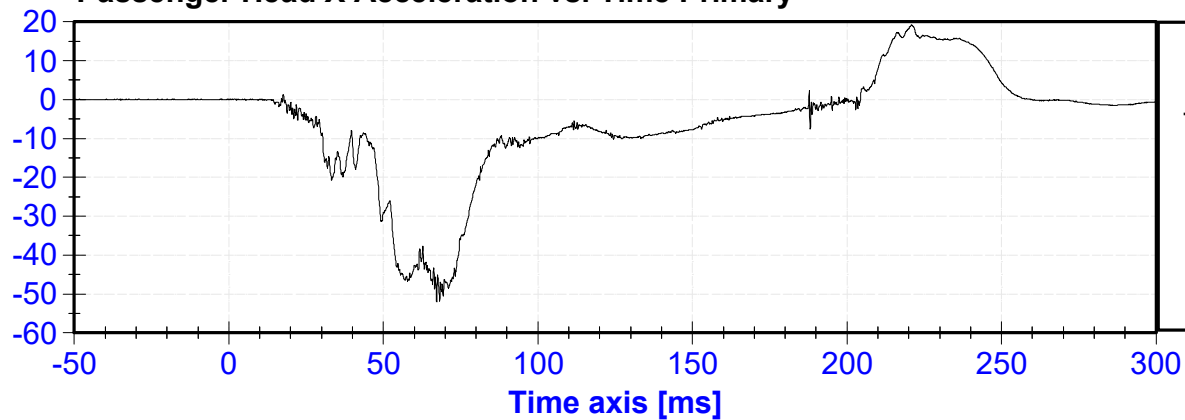
Driver Right Femur Force vs. Time

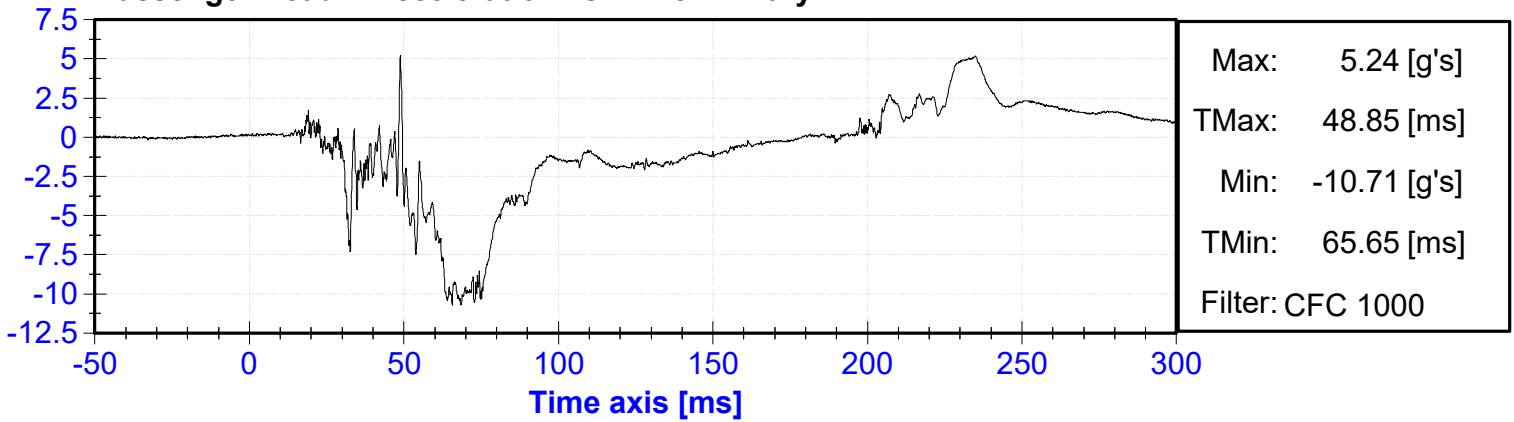
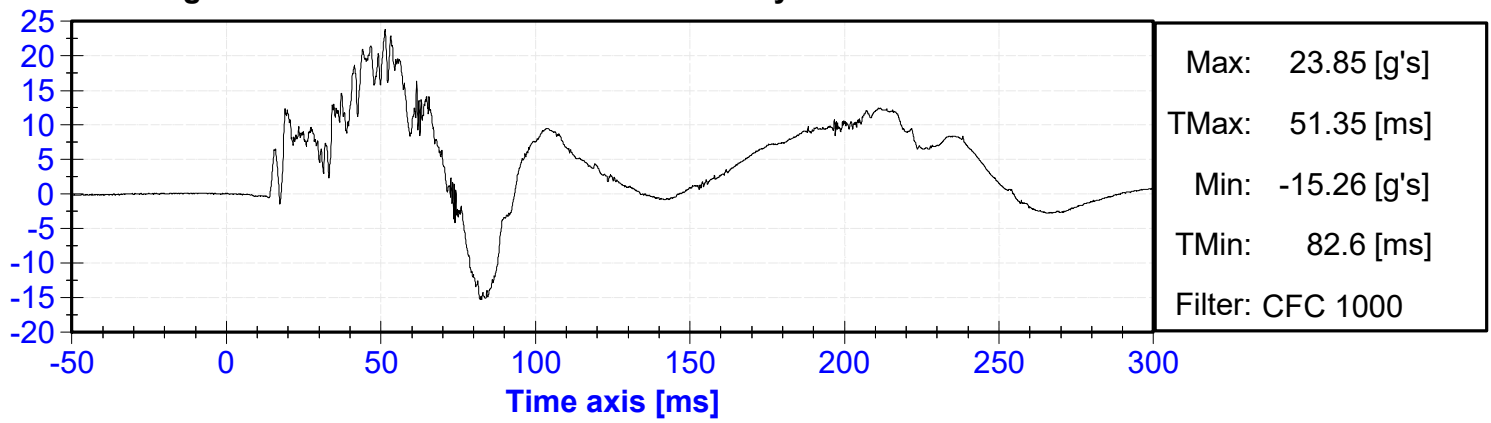
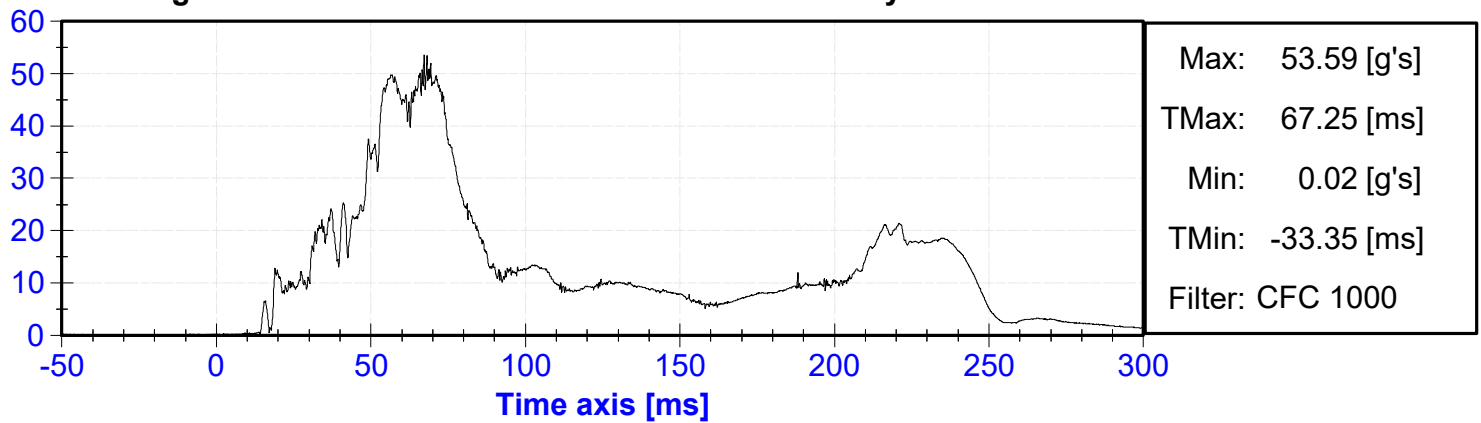
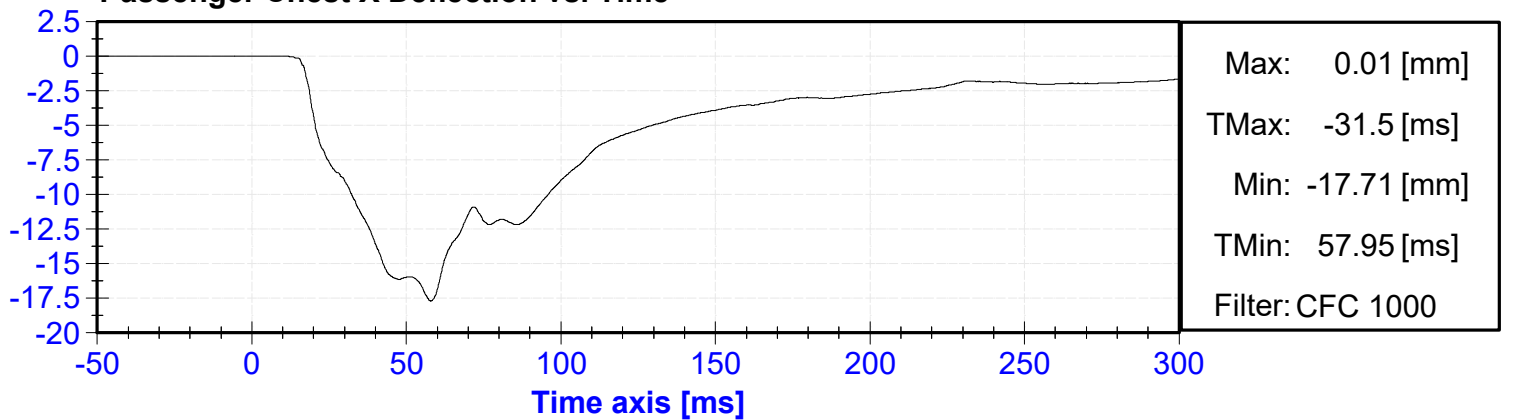
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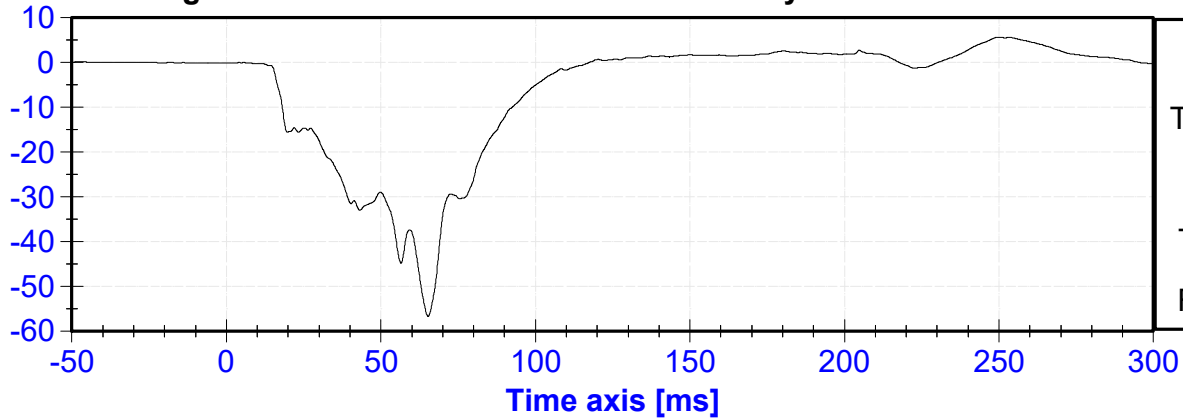
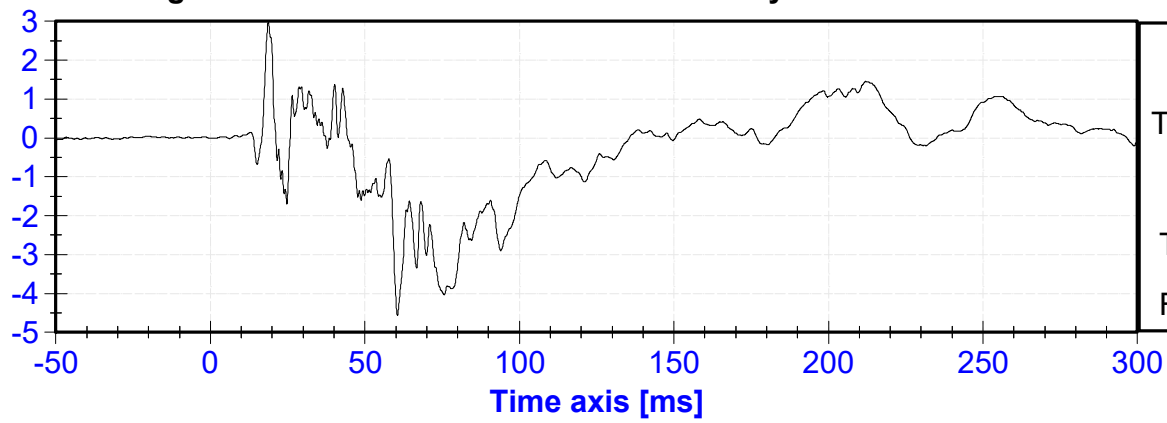
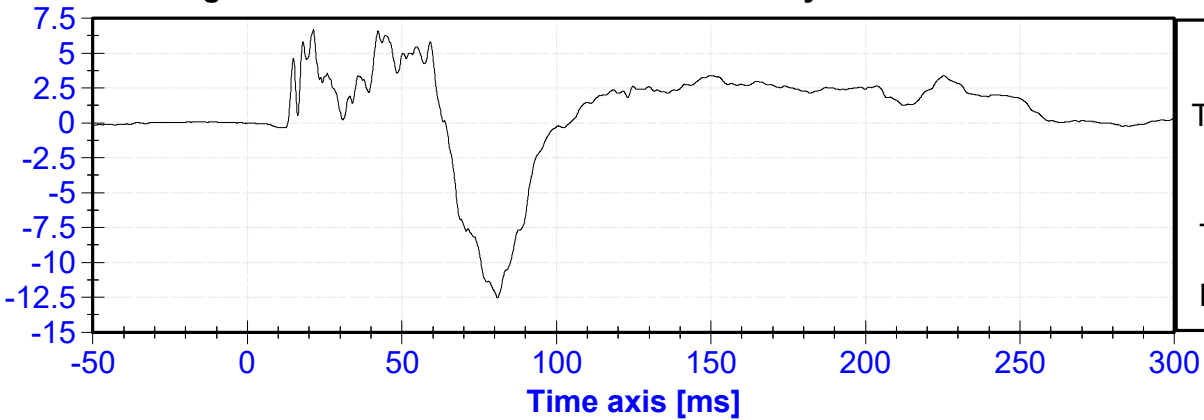
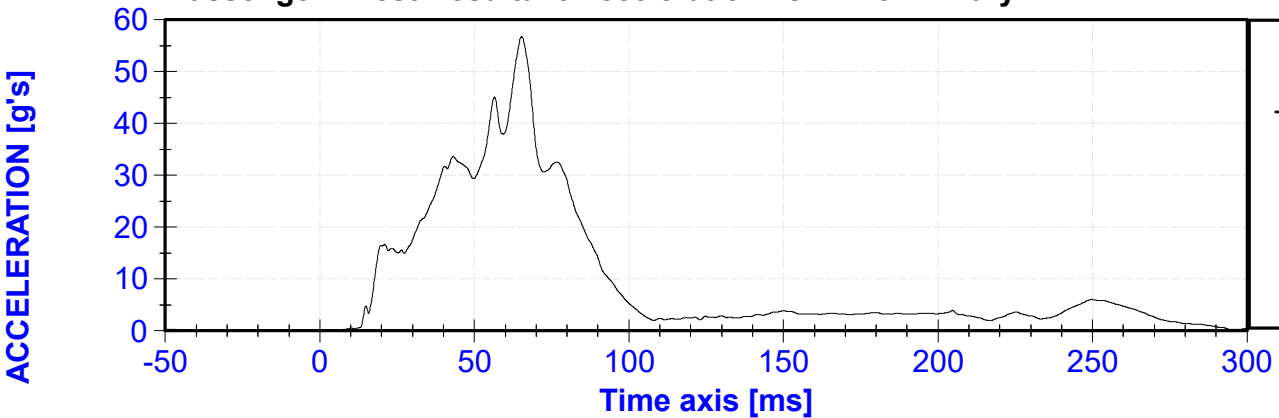


Passenger Head X Acceleration vs. Time Primary

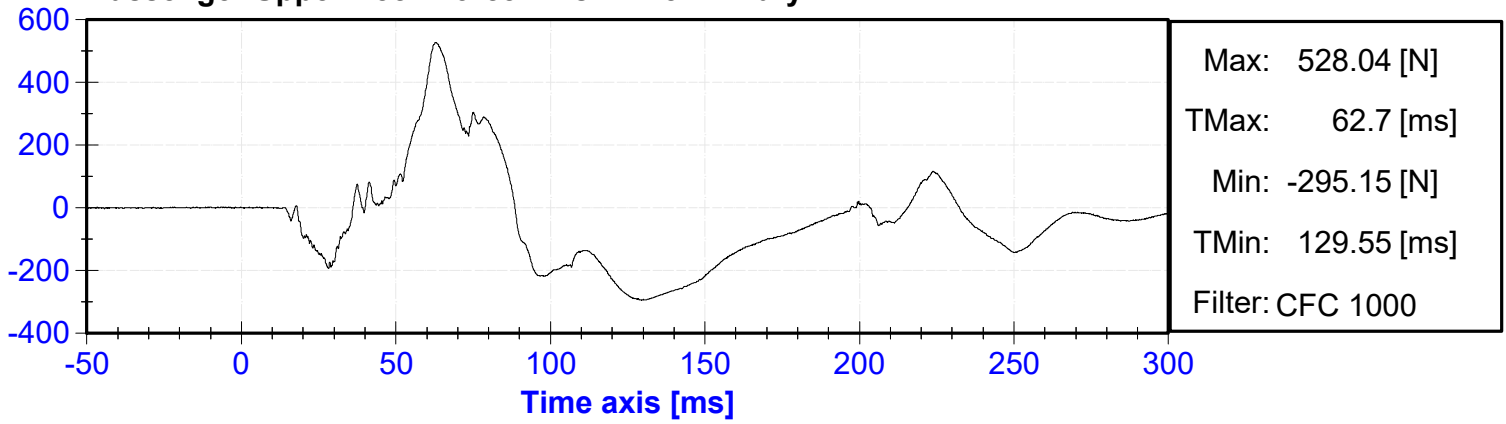
ACCELERATION [g's]



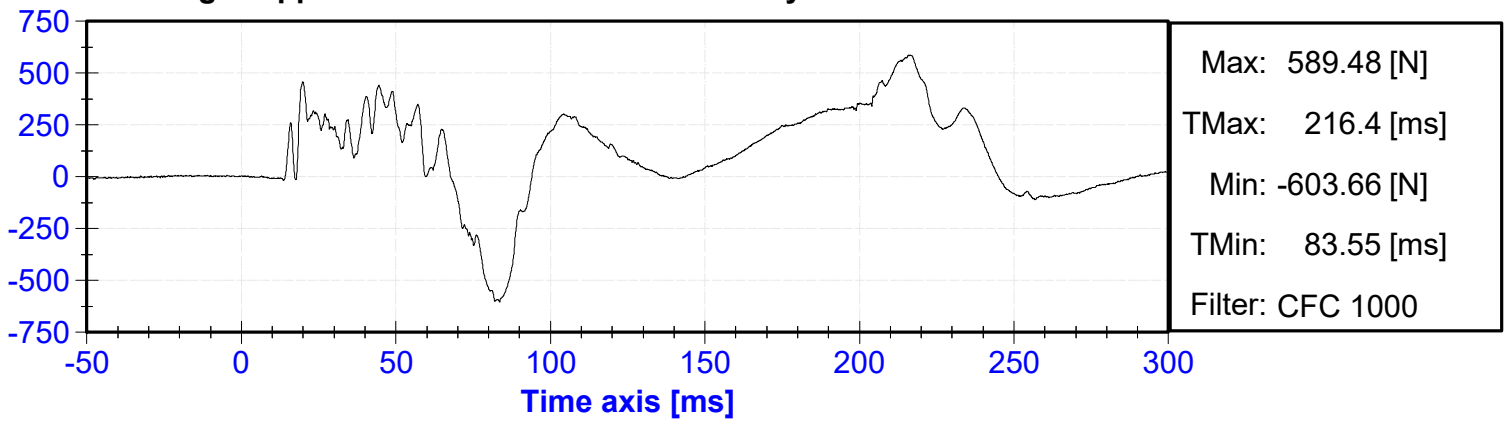
Passenger Head Y Acceleration vs. Time Primary**Passenger Head Z Acceleration vs. Time Primary****Passenger Head Resultant Acceleration vs. Time Primary****Passenger Chest X Deflection vs. Time**

Passenger Chest X Acceleration vs. Time Primary**Passenger Chest Y Acceleration vs. Time Primary****Passenger Chest Z Acceleration vs. Time Primary****Passenger Chest Resultant Acceleration vs. Time Primary**

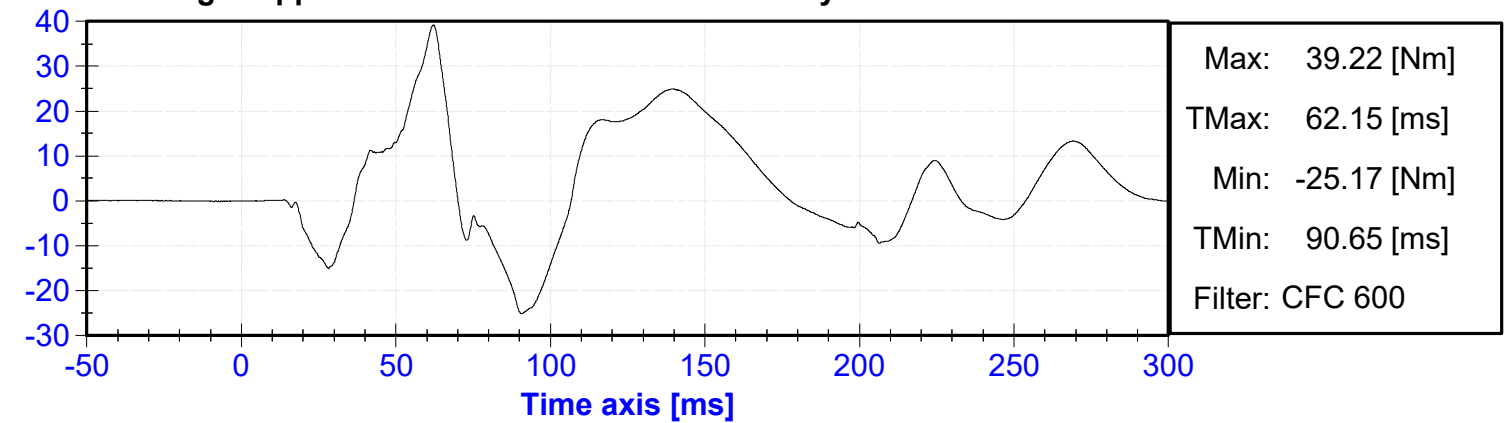
Passenger Upper Neck Force X vs. Time Primary



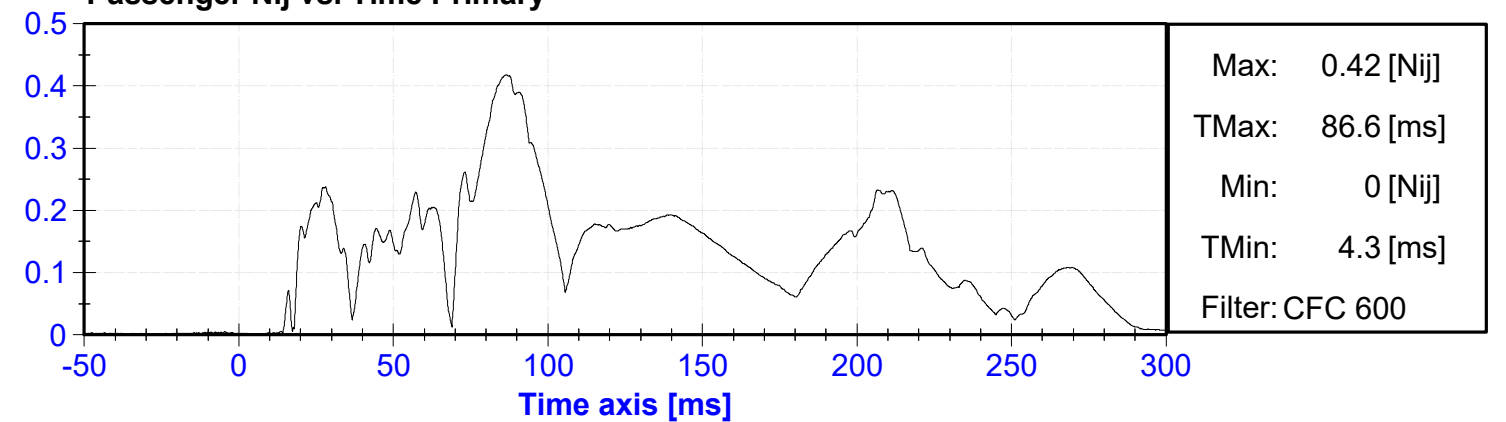
Passenger Upper Neck Force Z vs. Time Primary



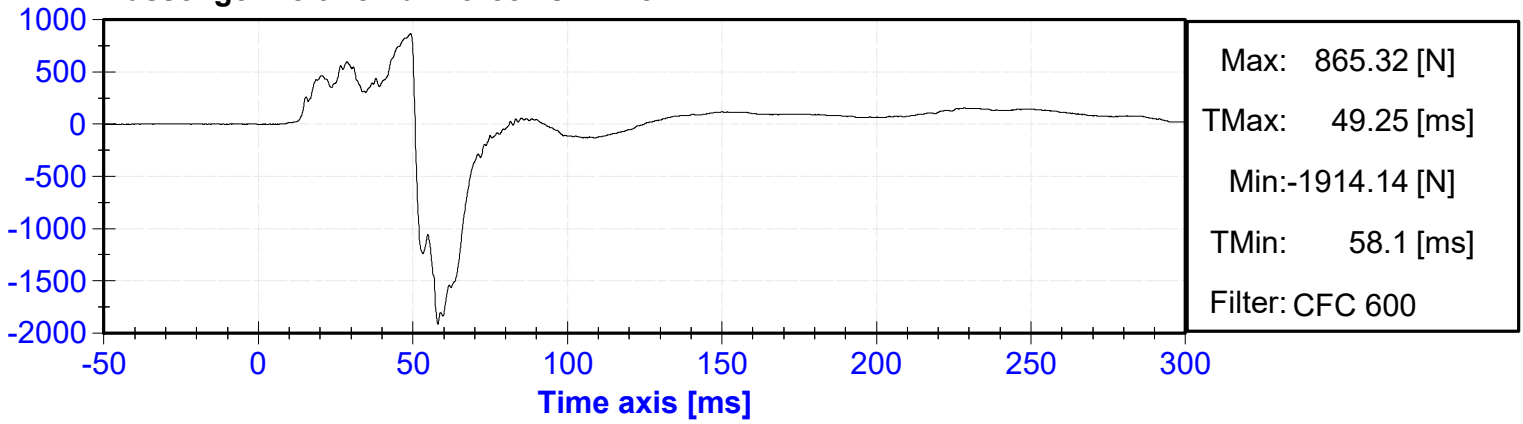
Passenger Upper Neck Moment Y vs. Time Primary



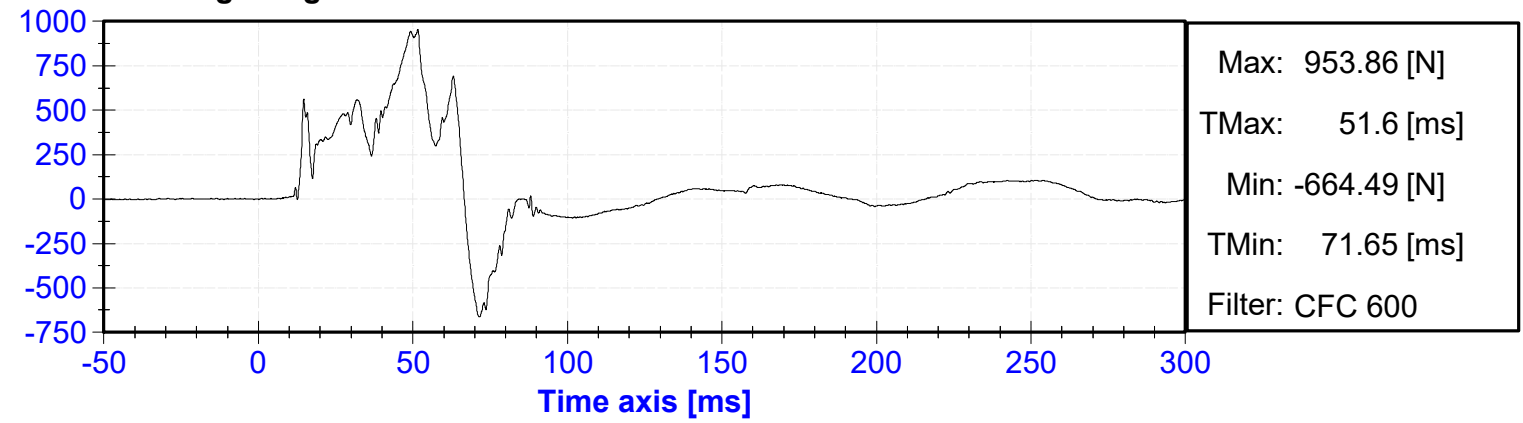
Passenger Nij vs. Time Primary



Passenger Left Femur Force vs. Time



Passenger Right Femur Force vs. Time



APPENDIX C

DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

HYBRID III 50TH PERCENTILE MALE - DRIVER ATD

SERIAL NO: 142

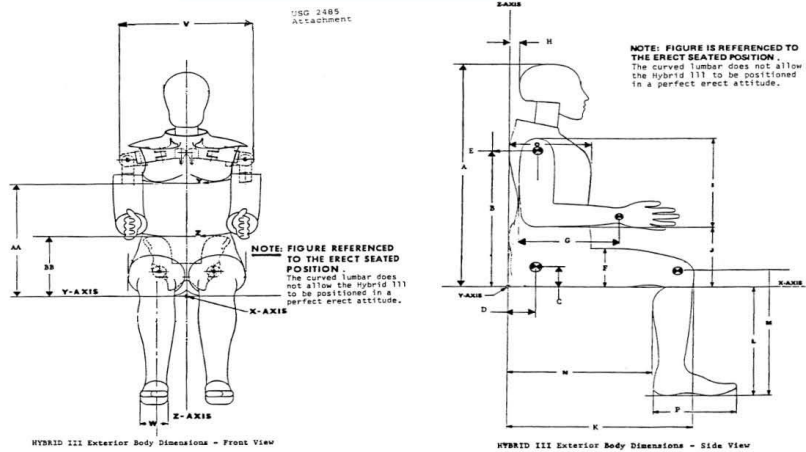


External Measurements - Hybrid 3 - 50th Male

Technician: K. Brogan

Date: 04/03/2022

Dummy Serial Number: 142



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	20.3	Pass
C	H-Point Height	3.3	3.5	3.4	Pass
D	H-Point from Backline	5.3	5.5	5.4	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	11.7	Pass
H	Head Back to Backline	1.6	1.8	1.7	Pass
I	Shoulder to Elbow Length	13.0	13.6	13.4	Pass
J	Elbow Rest Height	7.5	8.3	8.1	Pass
K	Buttock to Knee Length	22.8	23.8	23.2	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	18.3	Pass
O	Chest Depth without Jacket	8.4	9.0	8.8	Pass
P	Foot Length (right)	9.9	10.5	10.1	Pass
V	Shoulder Breadth	16.3	17.2	16.8	Pass
W	Foot Breadth	3.6	4.2	3.8	Pass
Y	Chest Circumference with Jacket	38.2	39.4	39.0	Pass
Z	Waist Circumference	32.9	34.1	33.7	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

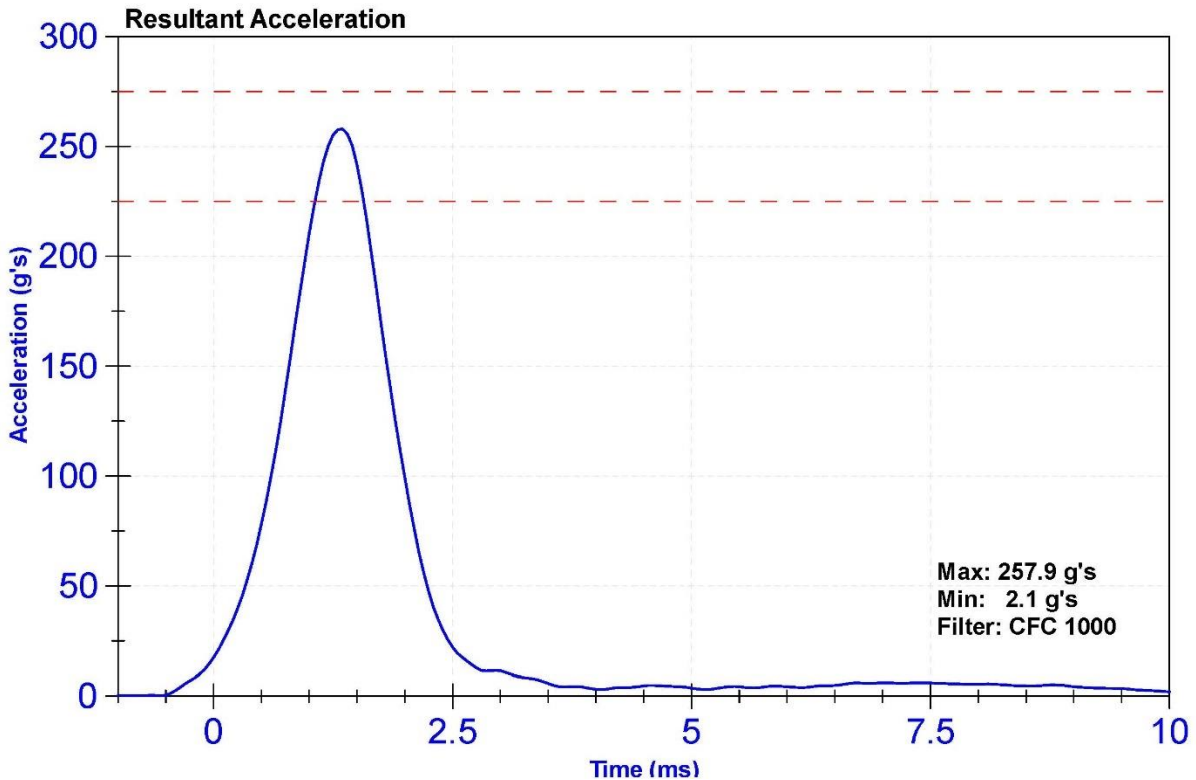
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

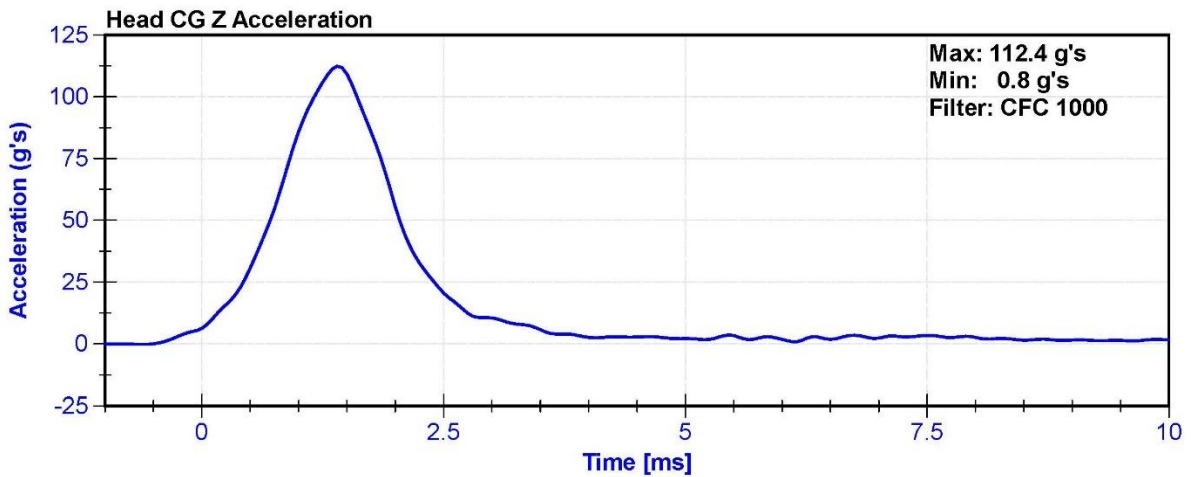
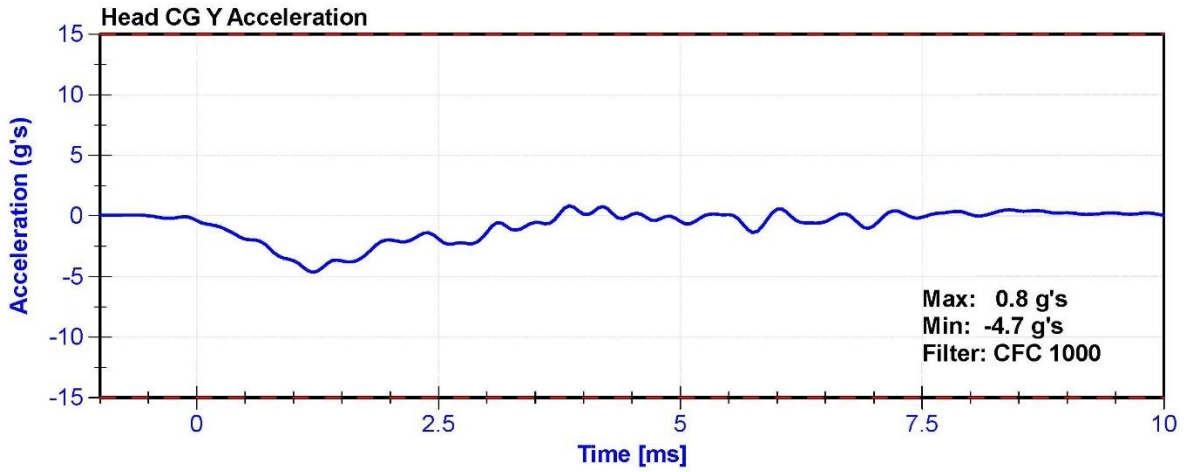
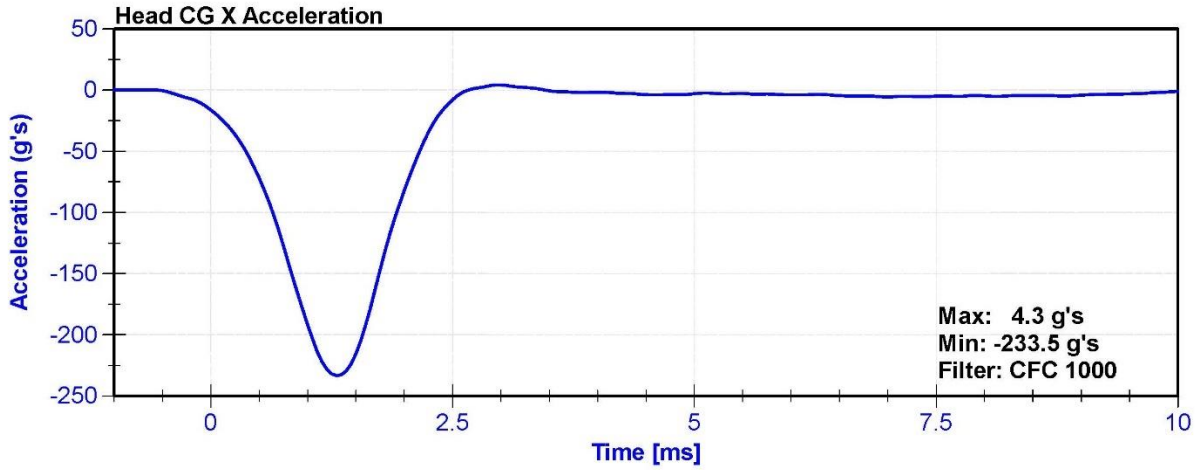
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.6	Pass
Humidity	10	70	%	28.1	Pass
Resultant Acceleration	225	275	g's	257.9	Pass
Oscillation	0	10	%	4.4	Pass
Lateral Acceleration	-15	15	g's	-4.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P51681	11/16/2021	5/15/2022
Y Accelerometer	Endevco	P64151	11/16/2021	5/15/2022
Z Accelerometer	Endevco	P52114	11/16/2021	5/15/2022





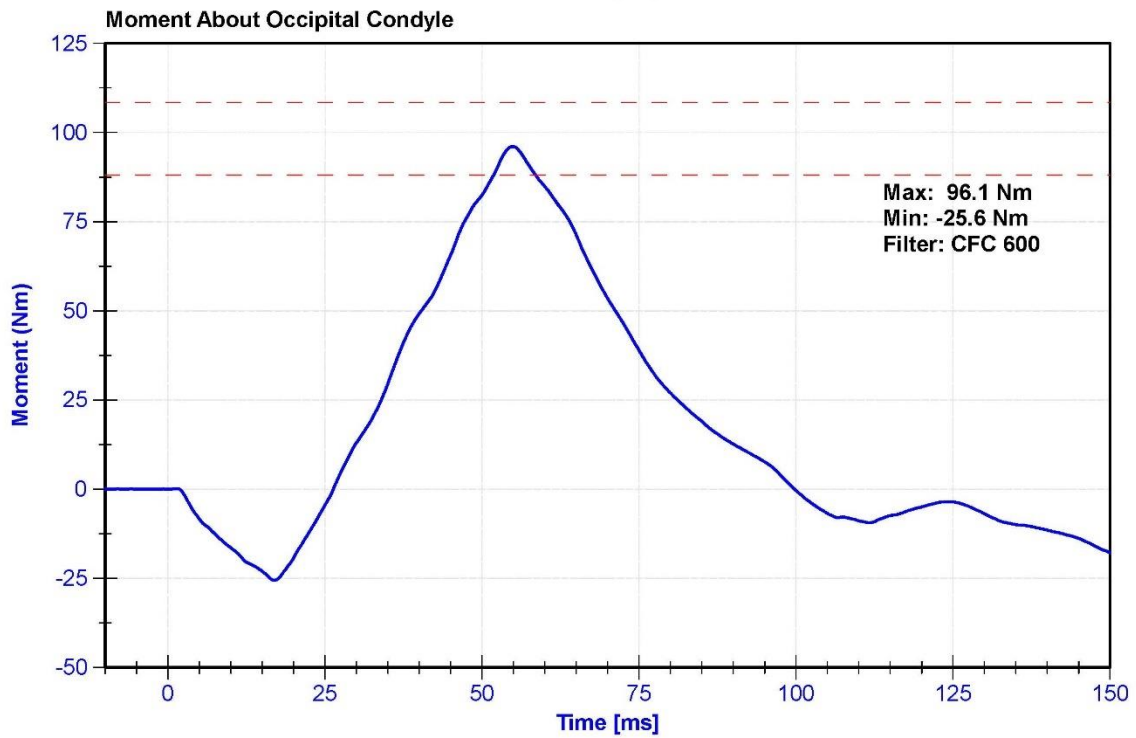
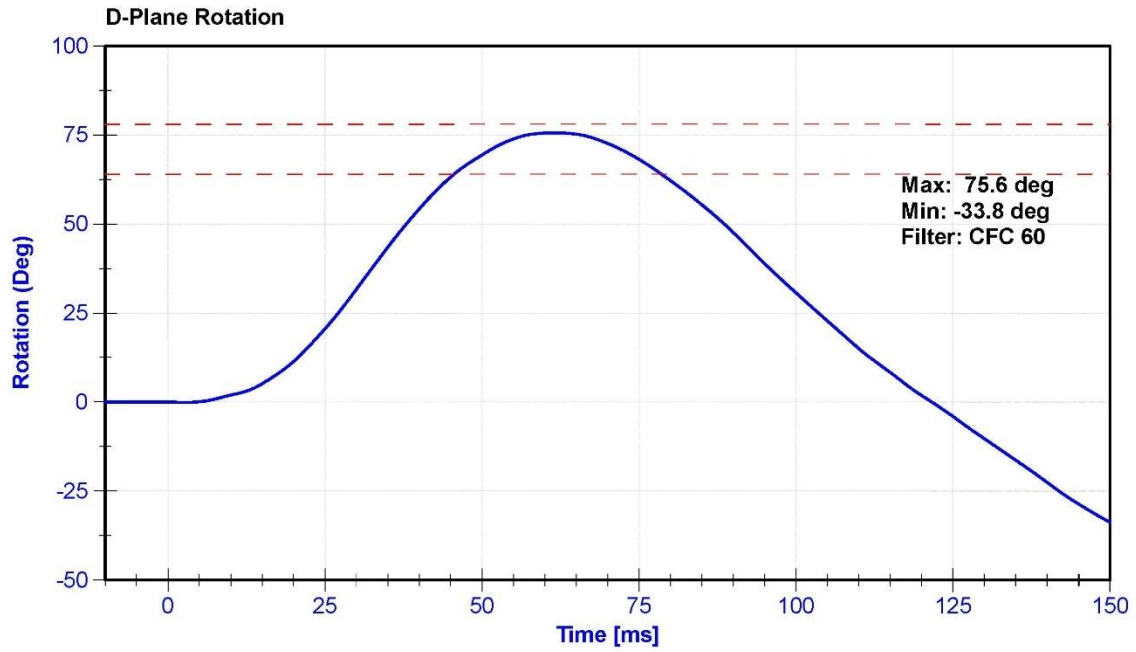
ATD Manufacturer	Humanetics	Test Technician	T. Roseman
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

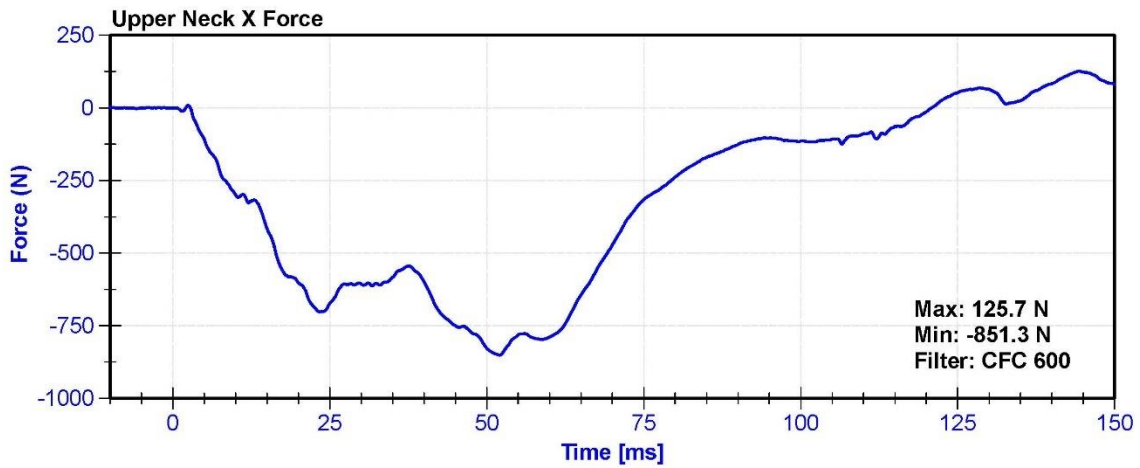
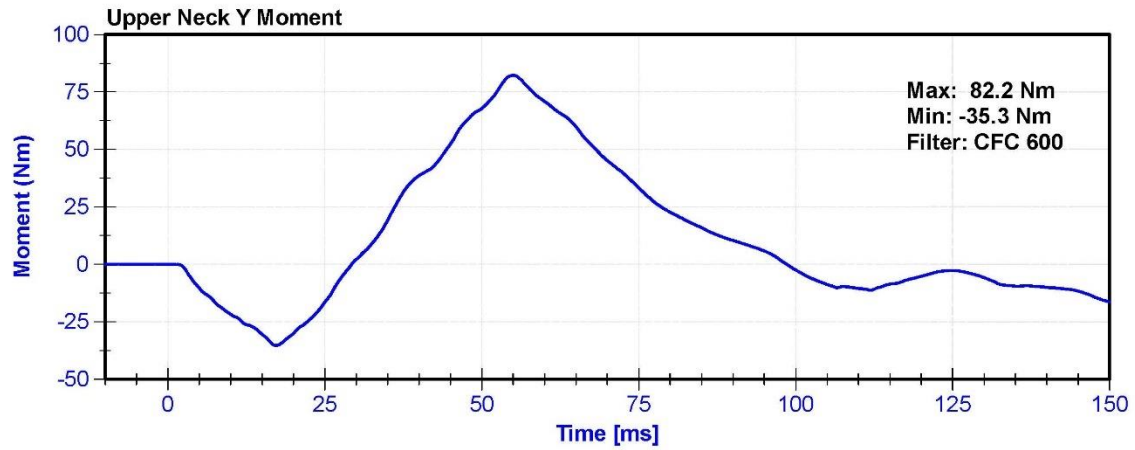
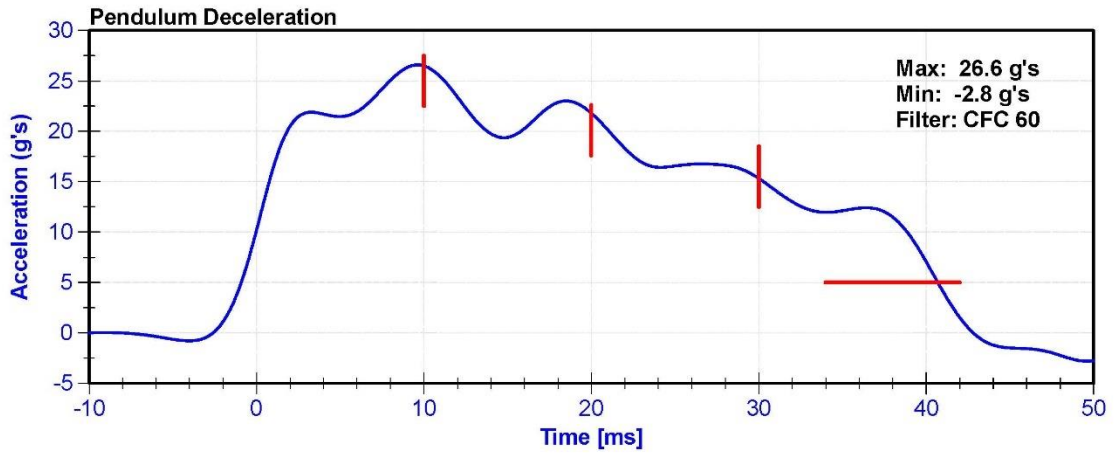
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.7	Pass
Humidity	10	70	%	31.3	Pass
Velocity	6.89	7.13	m/s	6.958	Pass
Pendulum Deceleration at 10ms	22.5	27.5	g's	26.49	Pass
Pendulum Deceleration at 20ms	17.6	22.6	g's	21.79	Pass
Pendulum Deceleration at 30ms	12.5	18.5	g's	15.33	Pass
Max. Pendulum Deceleration After 30ms	0	29	g's	26.6	Pass
Pendulum Deceleration Time to 5 g's	34	42	ms	40.7	Pass
Maximum D Plane Rotation	64	78	deg	75.6	Pass
Time to Maximum Rotation	57	64	ms	61.6	Pass
Rotation Decay to Zero	113	127	ms	121.6	Pass
Moment About Occipital Condyle	88.1	108.4	Nm	96.09	Pass
Time to Maximum Moment	47	58	ms	54.9	Pass
Moment Decay to Zero	97	107	ms	99.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231CT	10/28/2021	10/28/2022
Pendulum Potentiometer	ETI	LABPOT1	5/7/2021	5/7/2022
Condyle Potentiometer	ETI	LABPOT2	5/7/2021	5/7/2022
Upper Neck Load Cell	FTSS	280-FX	9/14/2021	9/14/2022





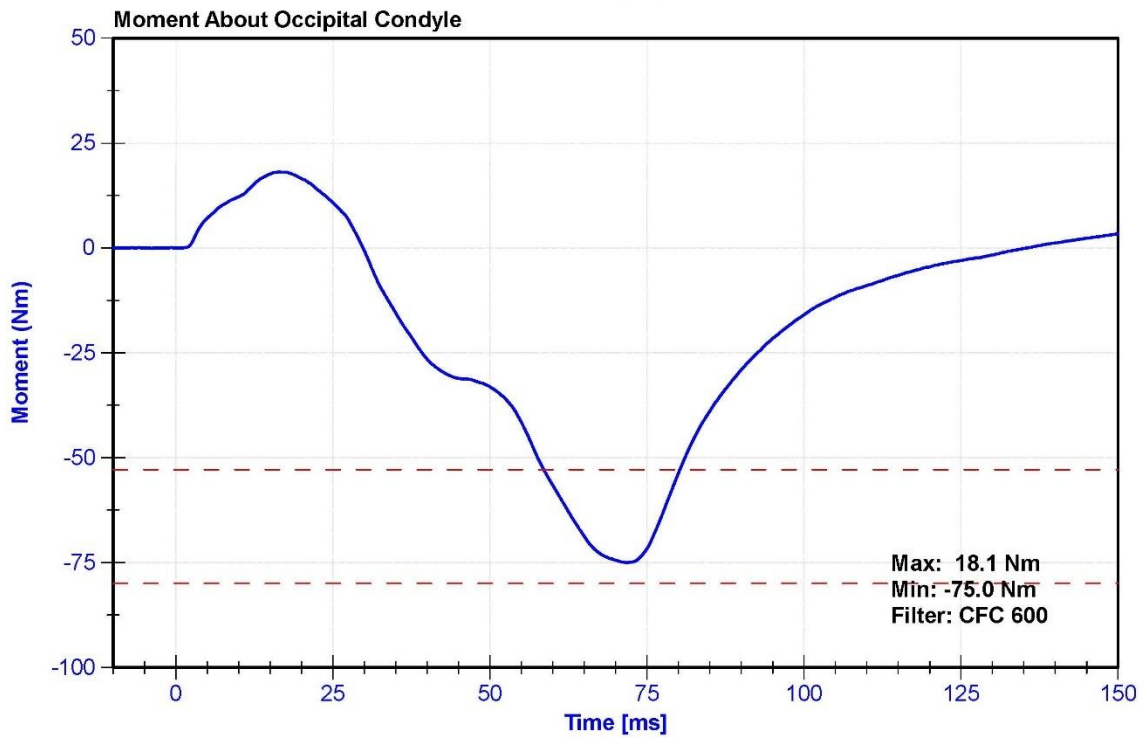
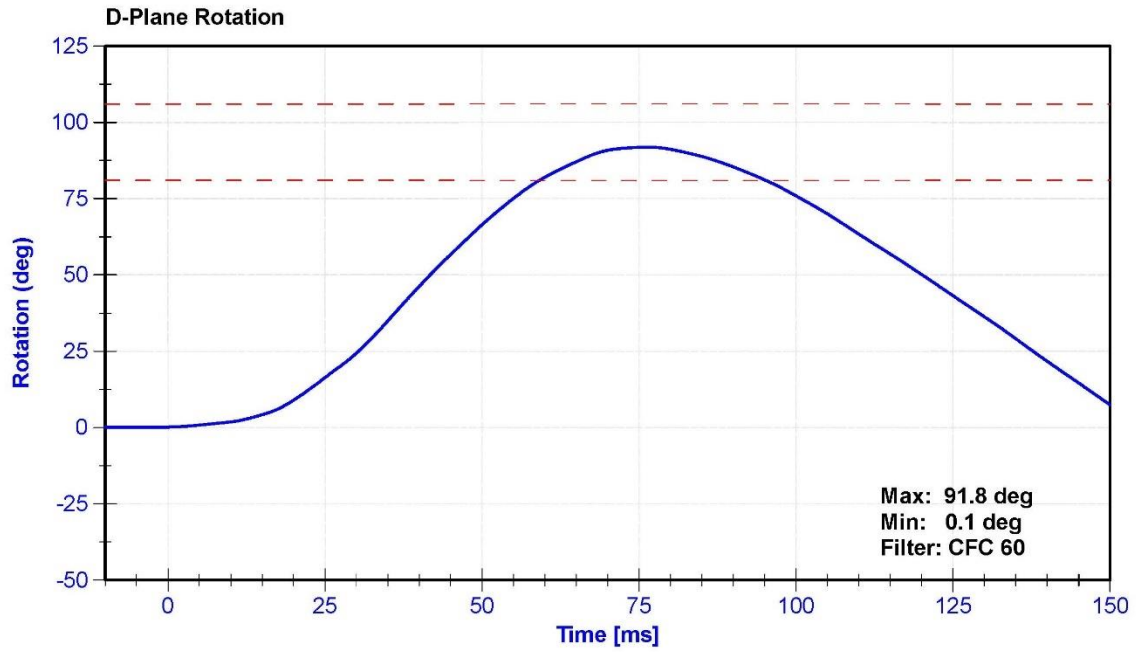
ATD Manufacturer	Humanetics	Test Technician	T. Roseman
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

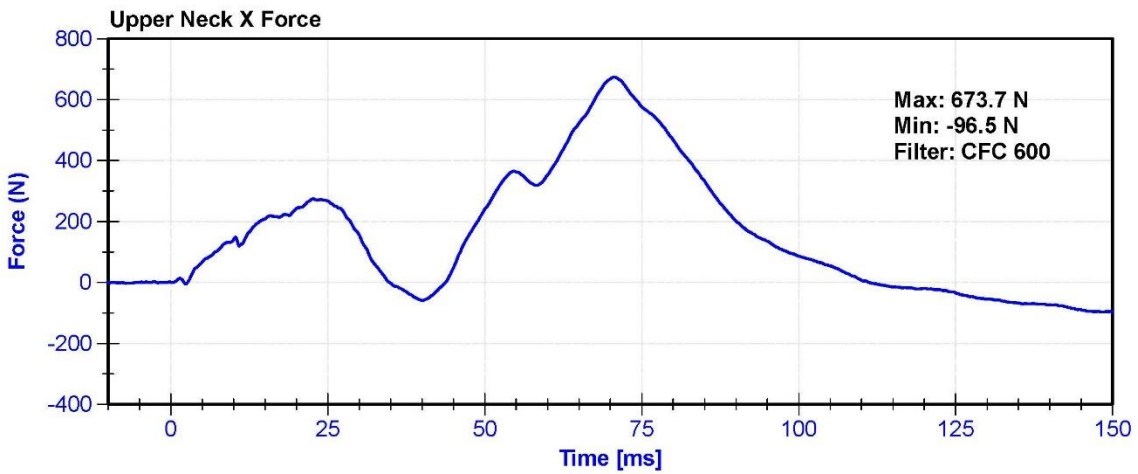
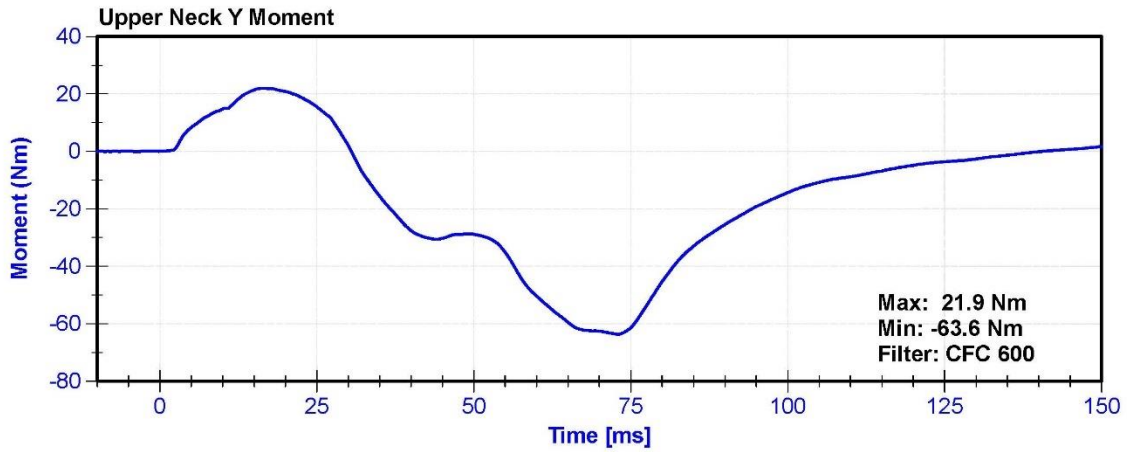
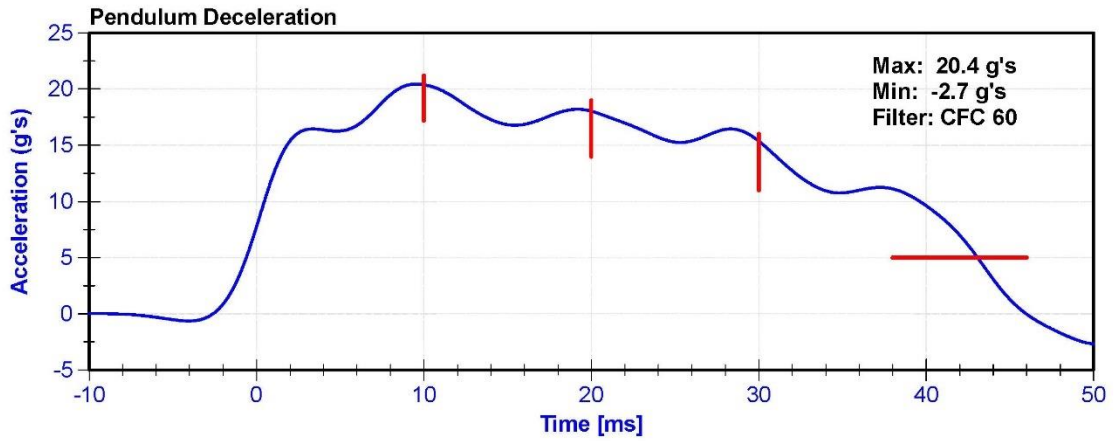
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.7	Pass
Humidity	10	70	%	31.3	Pass
Velocity	5.94	6.19	m/s	6.087	Pass
Pendulum Deceleration at 10ms	17.2	21.2	g's	20.38	Pass
Pendulum Deceleration at 20ms	14	19	g's	18.0	Pass
Pendulum Deceleration at 30ms	11	16	g's	15.4	Pass
Max. Pendulum Deceleration After 30ms	0	22	g's	20.4	Pass
Pendulum Deceleration Time to 5 g's	38	46	ms	43.1	Pass
Maximum D Plane Rotation	81	106	deg	91.8	Pass
Time to Maximum Rotation	72	82	ms	76.5	Pass
Rotation Decay to Zero	147	174	ms	155.2	Pass
Minimum Moment About OC	-80	-52.9	Nm	-75.03	Pass
Time to Minimum Moment	65	79	ms	71.8	Pass
Moment Decay to Zero	120	148	ms	135.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16503	10/28/2021	10/28/2022
Pendulum Potentiometer	ETI	LABPOT1	5/7/2021	5/7/2022
Condyle Potentiometer	ETI	LABPOT2	5/7/2021	5/7/2022
Upper Neck Load Cell	FTSS	280-FX	9/14/2021	9/14/2022





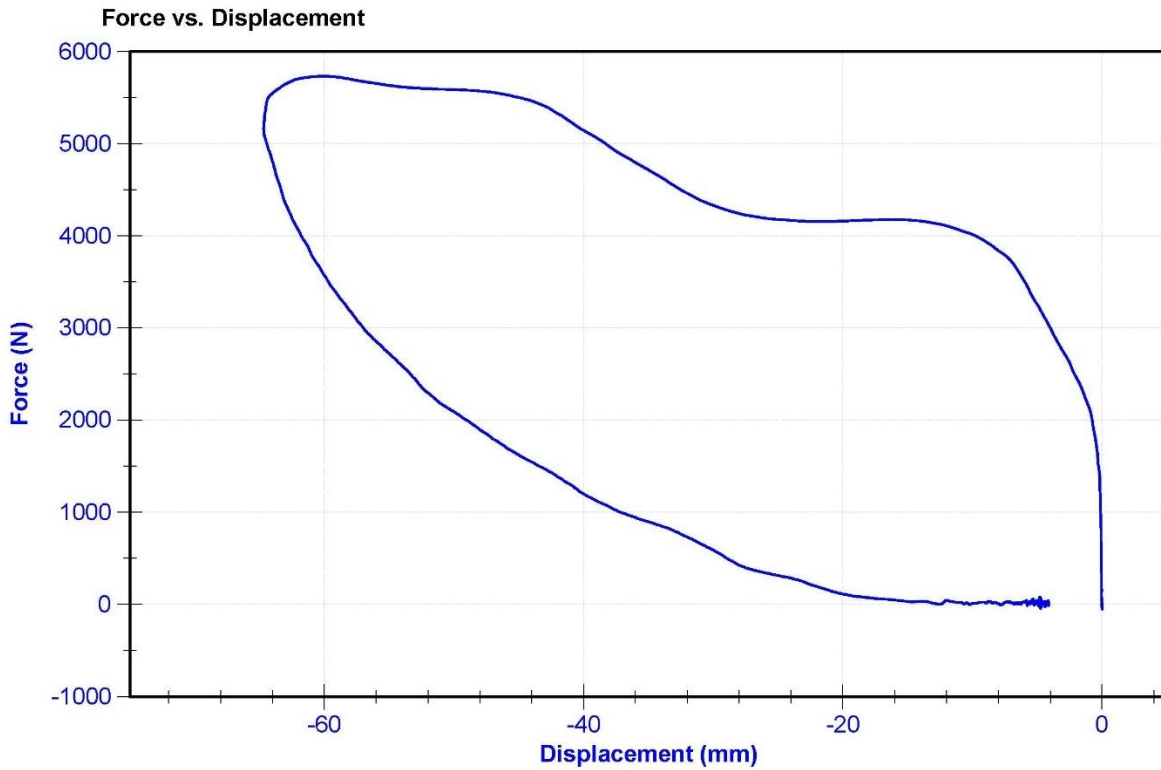
ATD Manufacturer	Humanetics	Test Technician	S. Vacanti
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

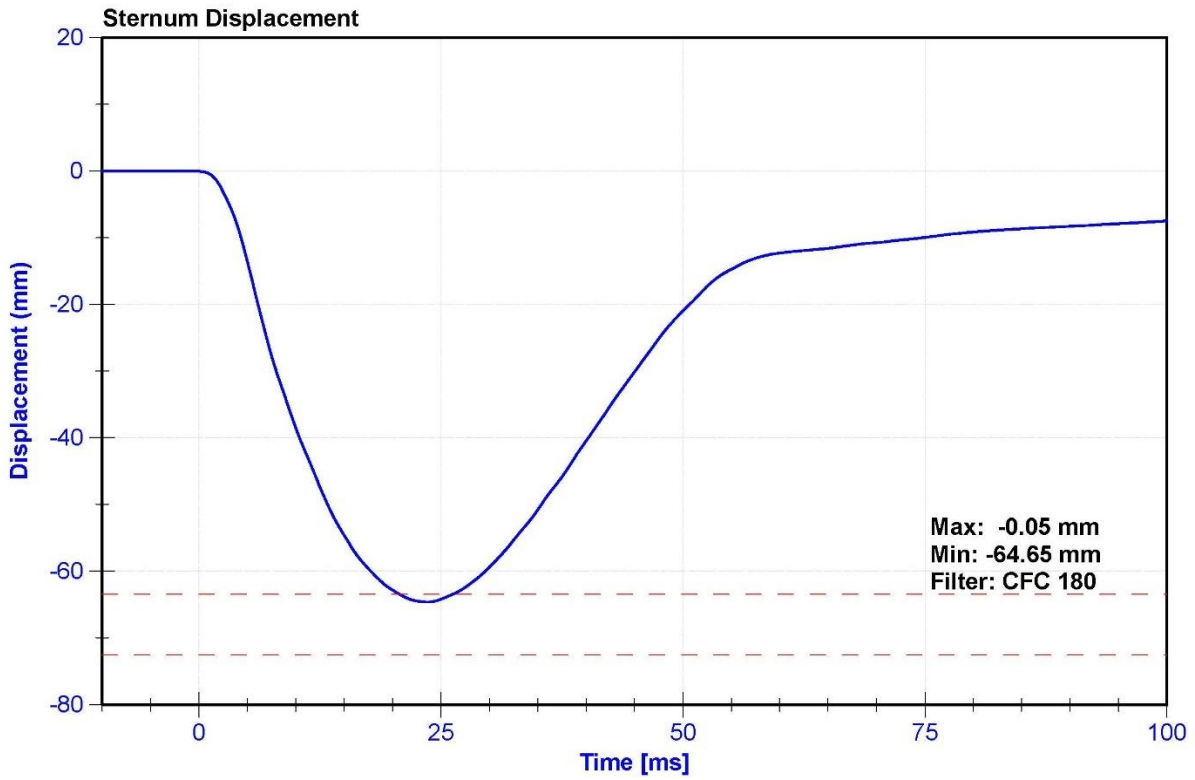
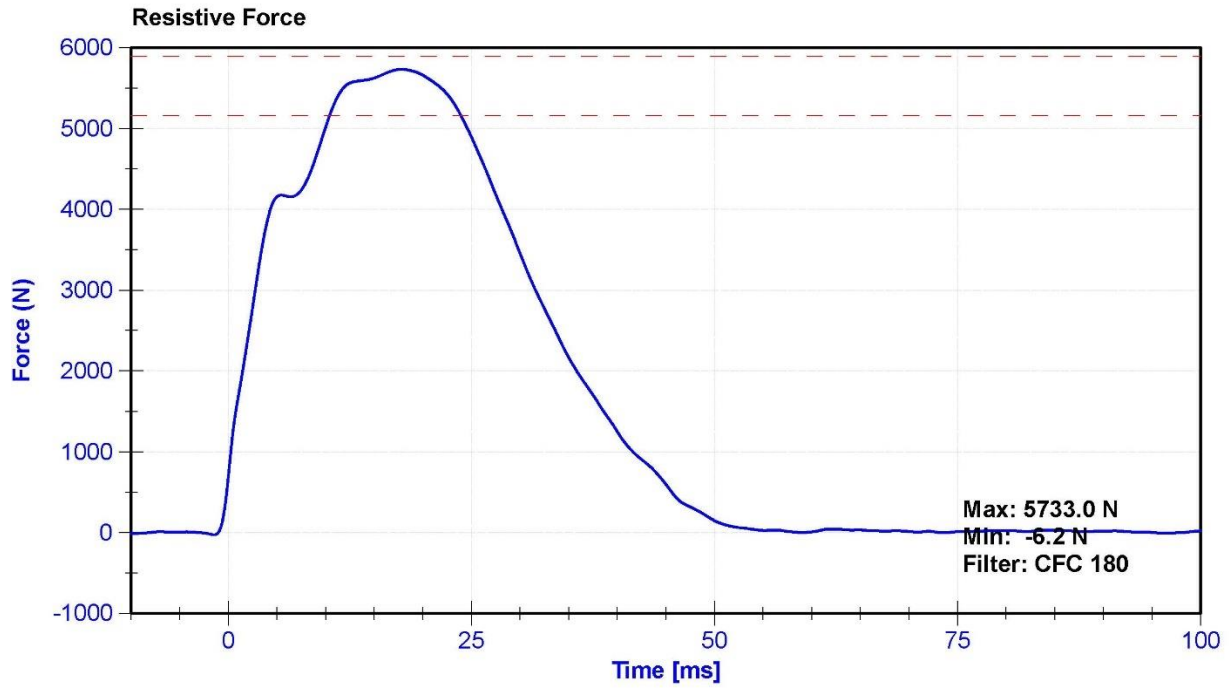
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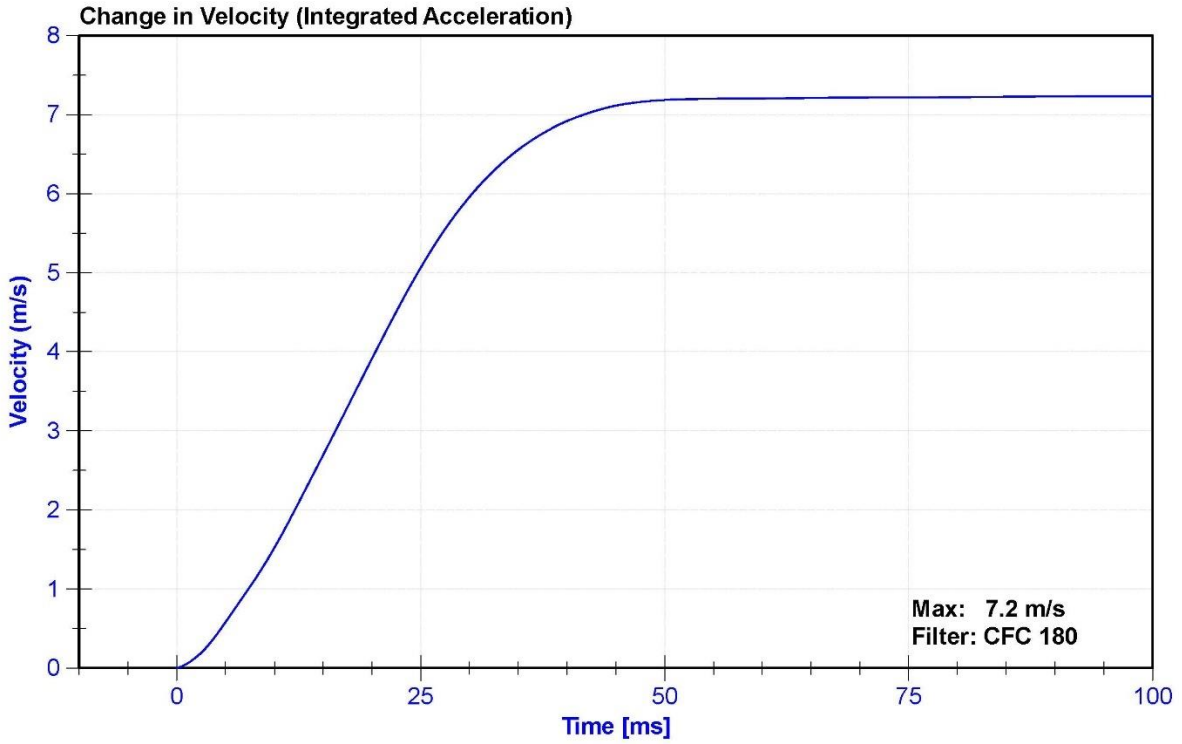
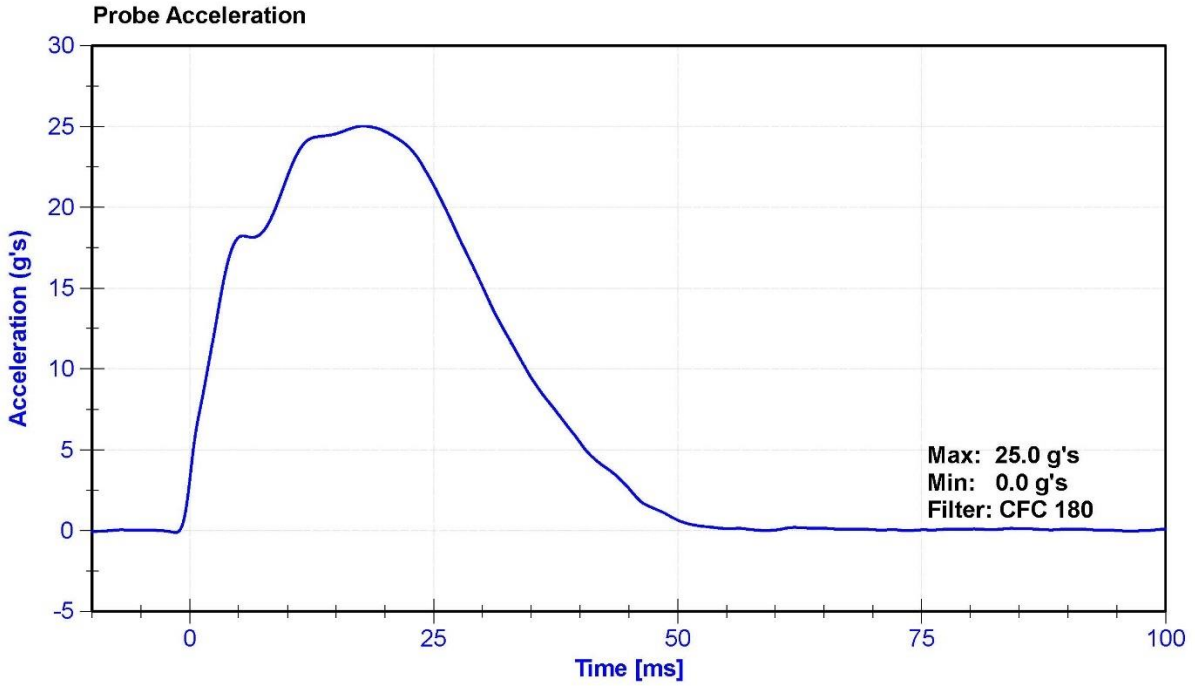
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.7	Pass
Humidity	10	70	%	30.3	Pass
Velocity	6.59	6.83	m/s	6.711	Pass
Chest Displacement	-72.6	-63.5	mm	-64.65	Pass
Resistive Force	5160	5894	N	5733.0	Pass
Hysteresis	65	85	%	74.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	P51736	10/25/2021	4/23/2022
Chest Potentiometer	Servo	142GFE	11/16/2021	5/17/2022







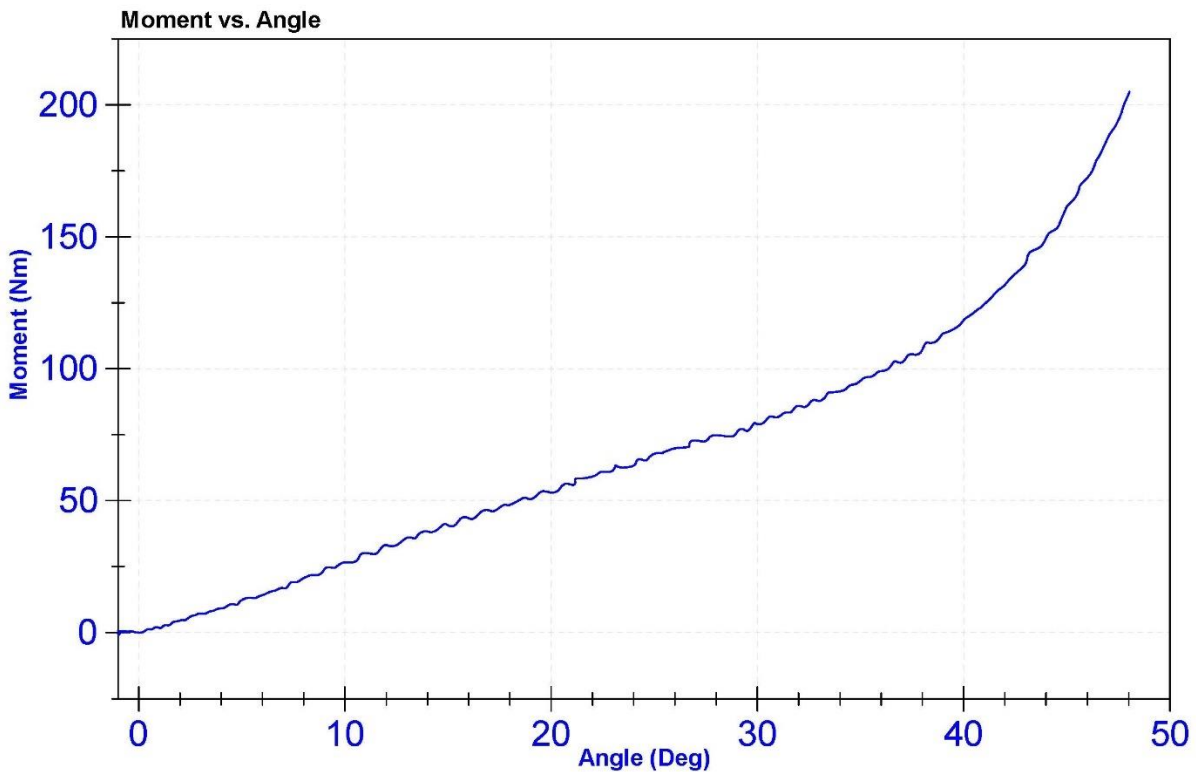
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.6	Pass
Humidity	10	70	%	30.7	Pass
Average Velocity	5	10	deg/s	7.6	Pass
Angle at 203Nm	40	50	deg	47.9	Pass
Moment at 30 degrees	0	94.9	Nm	79.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	ETI	DS-0008	2021-09-27	2022-09-27
Load Cell	Key Trans 2301-02	LC-115 My	2021-08-13	2022-08-13



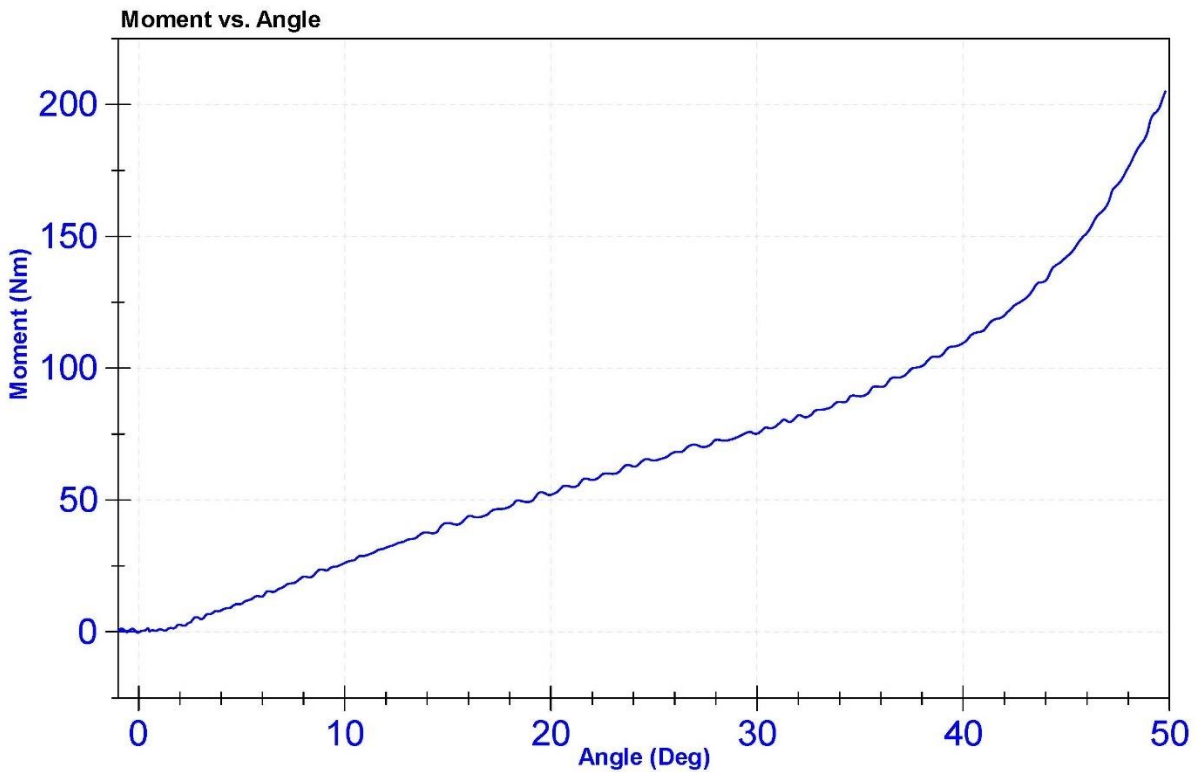
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.6	Pass
Humidity	10	70	%	30.7	Pass
Average Velocity	5	10	deg/s	7.6	Pass
Angle at 203Nm	40	50	deg	49.7	Pass
Moment at 30 degrees	0	94.9	Nm	75.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	ETI	DS-0008	2021-09-27	2022-09-27
Load Cell	Key Trans 2301-02	LC-115 My	2021-08-13	2022-08-13



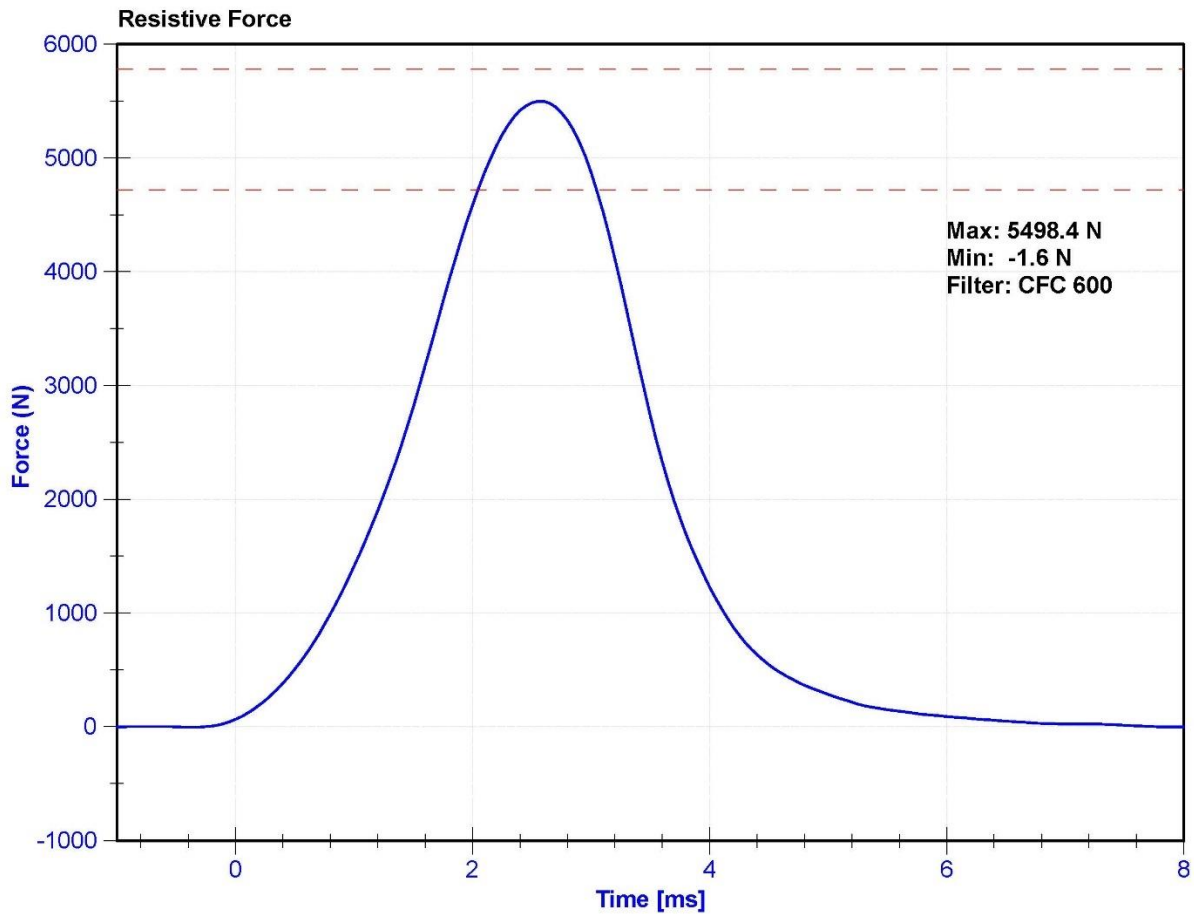
ATD Manufacturer	Humanetics	Test Technician	D. Reinhard
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

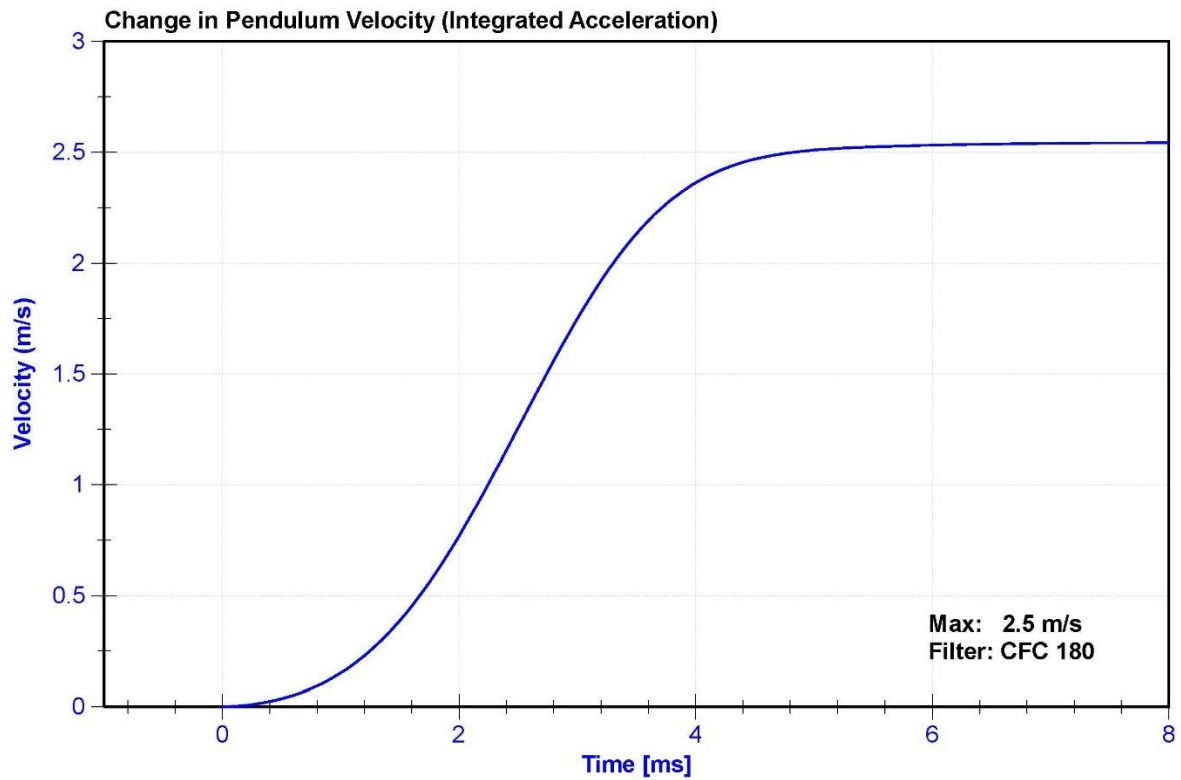
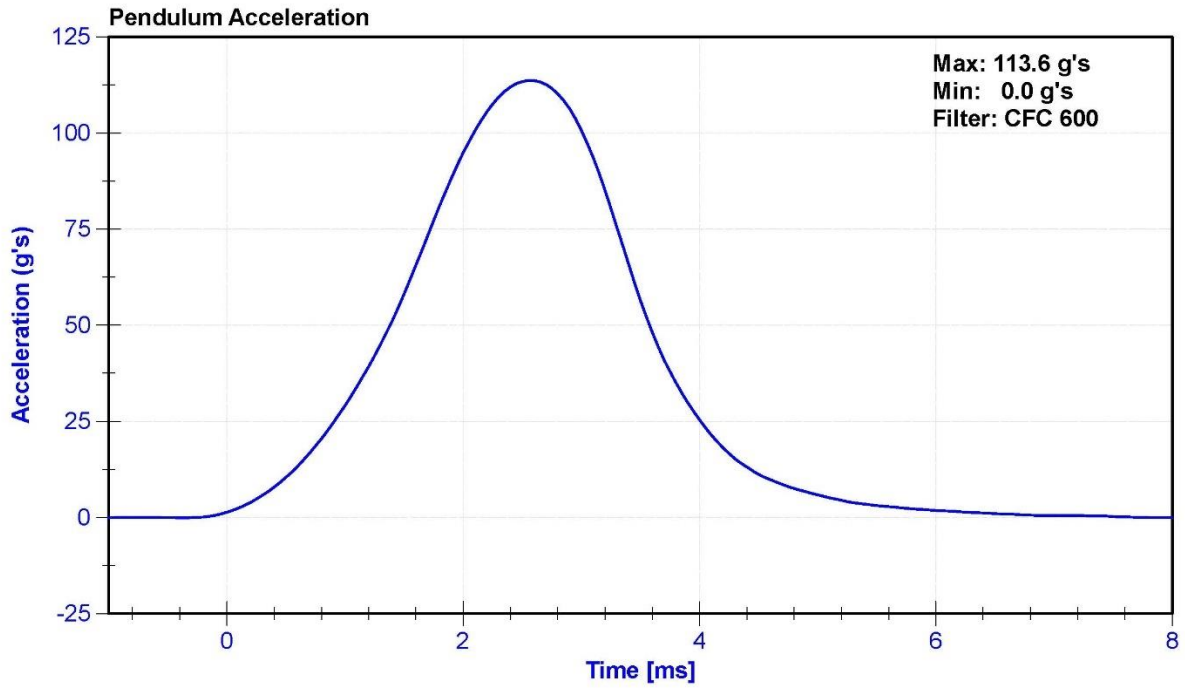
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.8	Pass
Humidity	10	70	%	30.8	Pass
Velocity	2.07	2.13	m/s	2.095	Pass
Maximum Resistive Force	4720	5780	N	5498.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25885	10/25/2021	4/23/2022





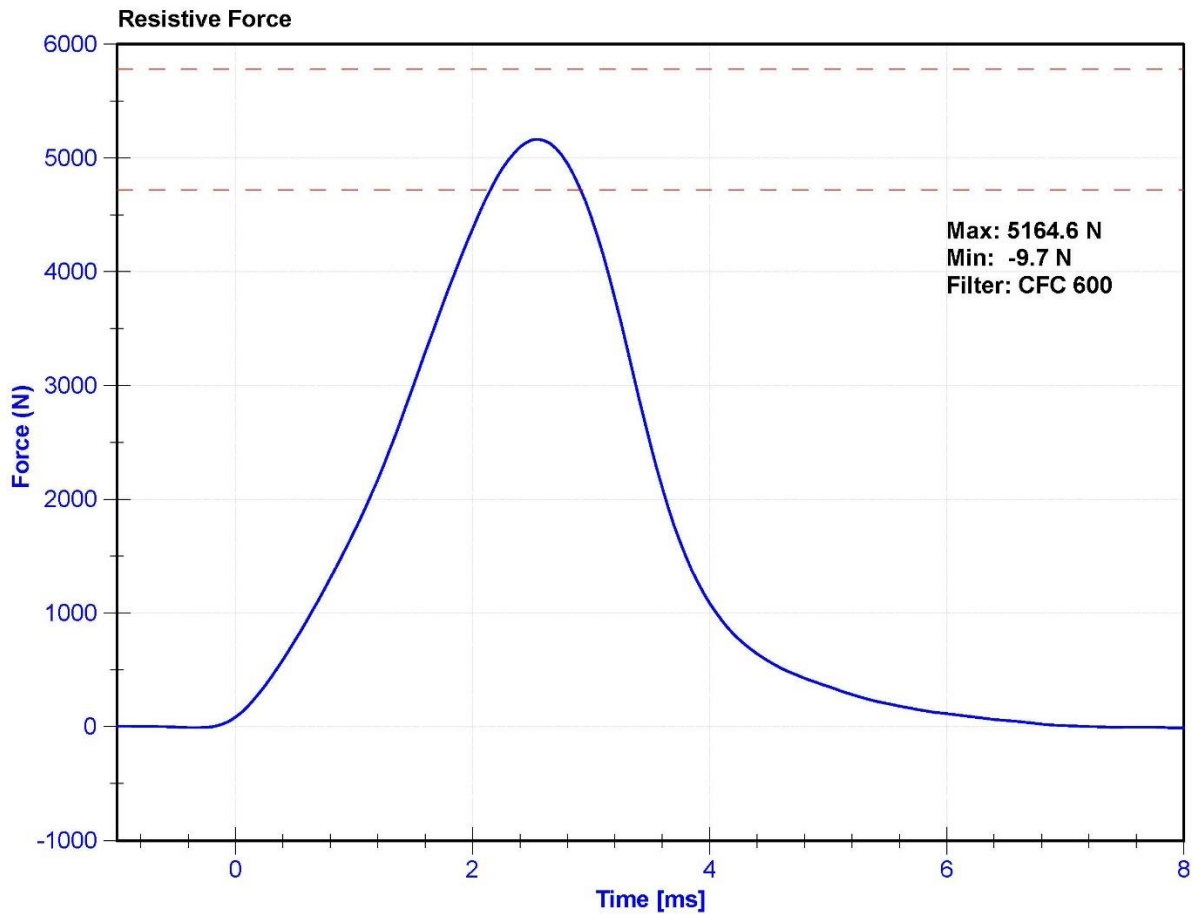
ATD Manufacturer	Humanetics	Test Technician	D. Reinhard
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

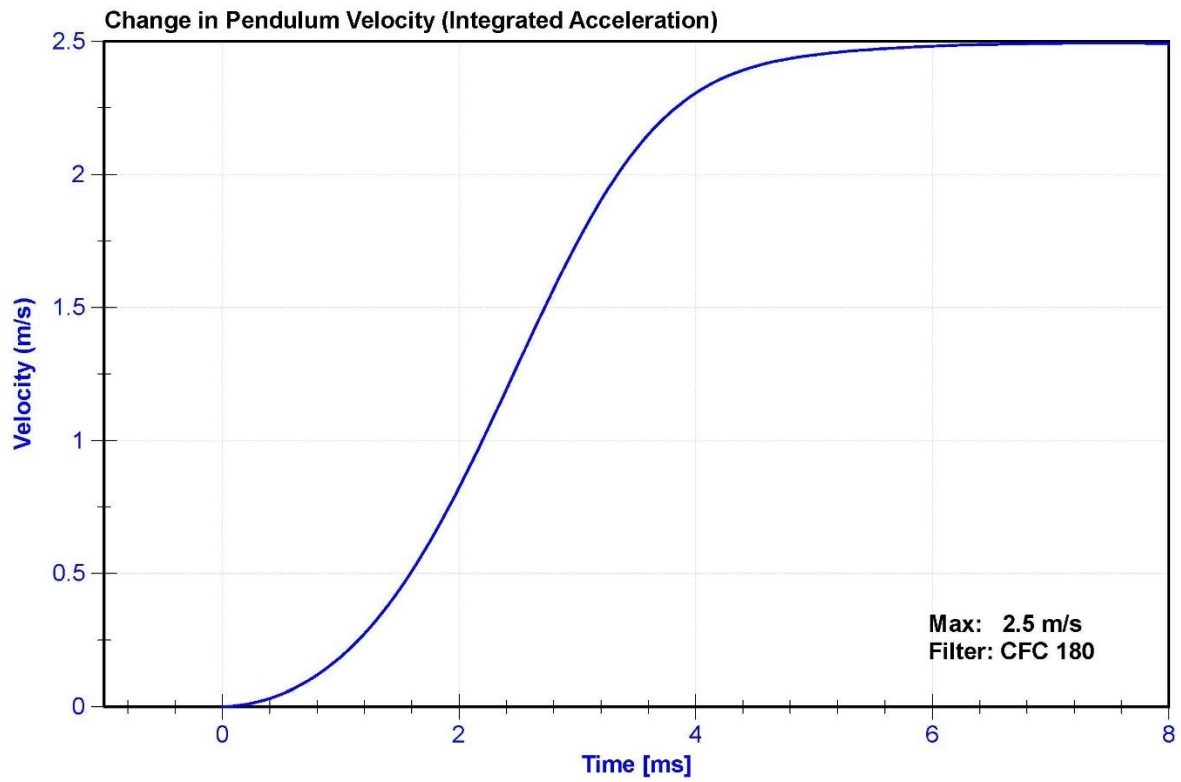
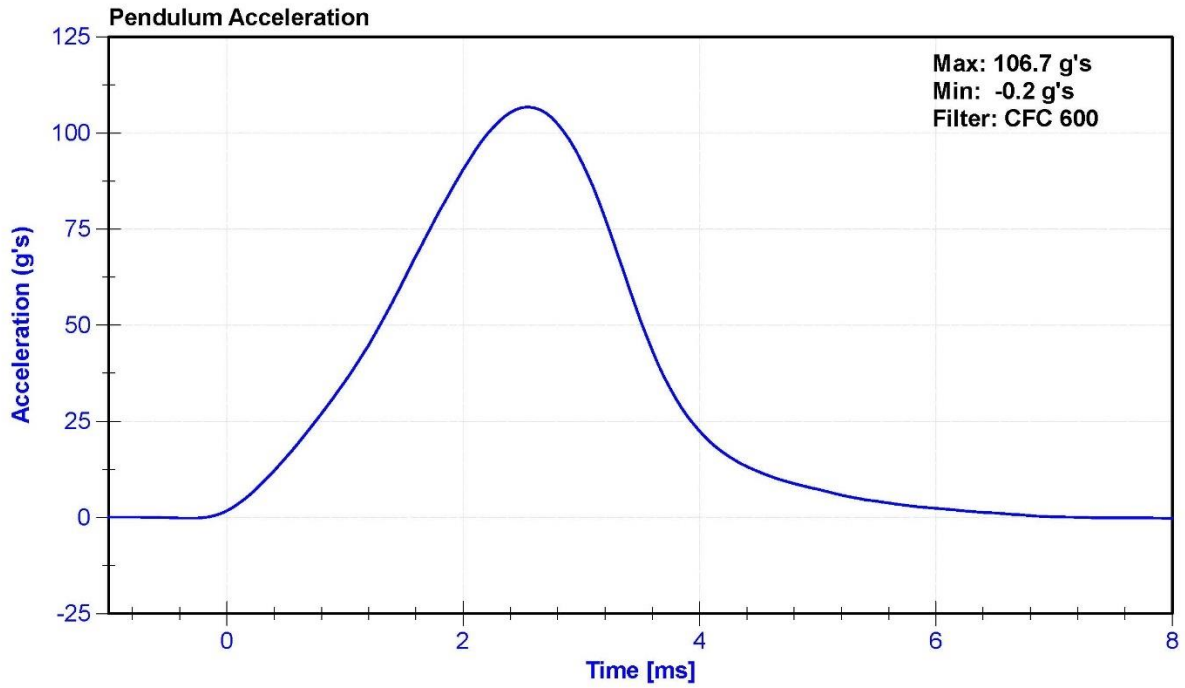
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.8	Pass
Humidity	10	70	%	30.8	Pass
Velocity	2.07	2.13	m/s	2.095	Pass
Maximum Resistive Force	4720	5780	N	5164.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25885	10/25/2021	4/23/2022





CALIBRATION TEST RESULTS

PRE-TEST

HYBRID III 5TH PERCENTILE - PASSENGER ATD

SERIAL NO: 137

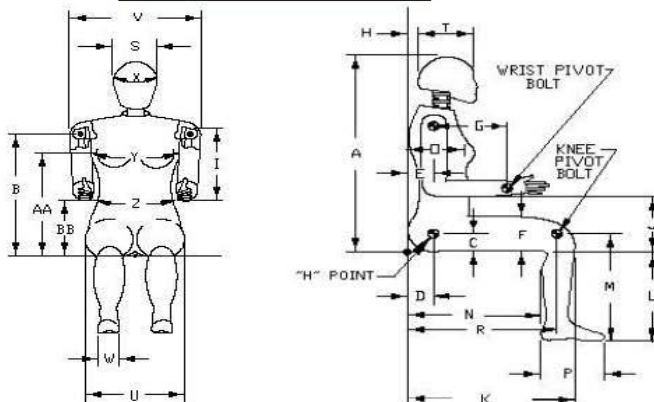


External Measurements - Hybrid 3 - 5th Female

Technician: K. Brogan

Date: 04-04-2022

Dummy Serial Number: 137



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	775	800	790	Pass
B	Shoulder Pivot Height	432	457	445	Pass
C	H-Point Height	81	86	83	Pass
D	H-Point from Backline	145	150	147	Pass
E	Shoulder Pivot from Backline	69	84	78	Pass
F	Thigh Clearance	119	135	125	Pass
G	Back of Elbow to Wrist Pivot	244	259	250	Pass
H	Head Back to Backline	43	48	45	Pass
I	Shoulder to Elbow Length	277	297	290	Pass
J	Elbow Rest Height	183	203	195	Pass
K	Buttock to Knee Length	521	546	541	Pass
L	Popliteal Height	356	376	365	Pass
M	Knee Pivot Height	394	419	412	Pass
N	Buttock Popliteal Length	414	439	425	Pass
O	Chest Depth without Jacket	175	191	181	Pass
P	Foot Length (right)	219	234	228	Pass
R	Buttock To Knee Pivot Length	457	483	466	Pass
S	Head Breadth	137	147	141	Pass
T	Head Depth	178	188	180	Pass
U	Hip Breadth	300	315	310	Pass
V	Shoulder Breadth	351	366	359	Pass
W	Foot Breadth	79	94	85	Pass
X	Head Circumference	528	549	540	Pass
Y	Chest Circumference with Jacket	851	881	874	Pass
Z	Waist Circumference	460	790	650	Pass
AA	Reference Location (Chest Circumference)	333	358	345	Pass
BB	Reference Location (Waist Circumference)	160	170	165	Pass

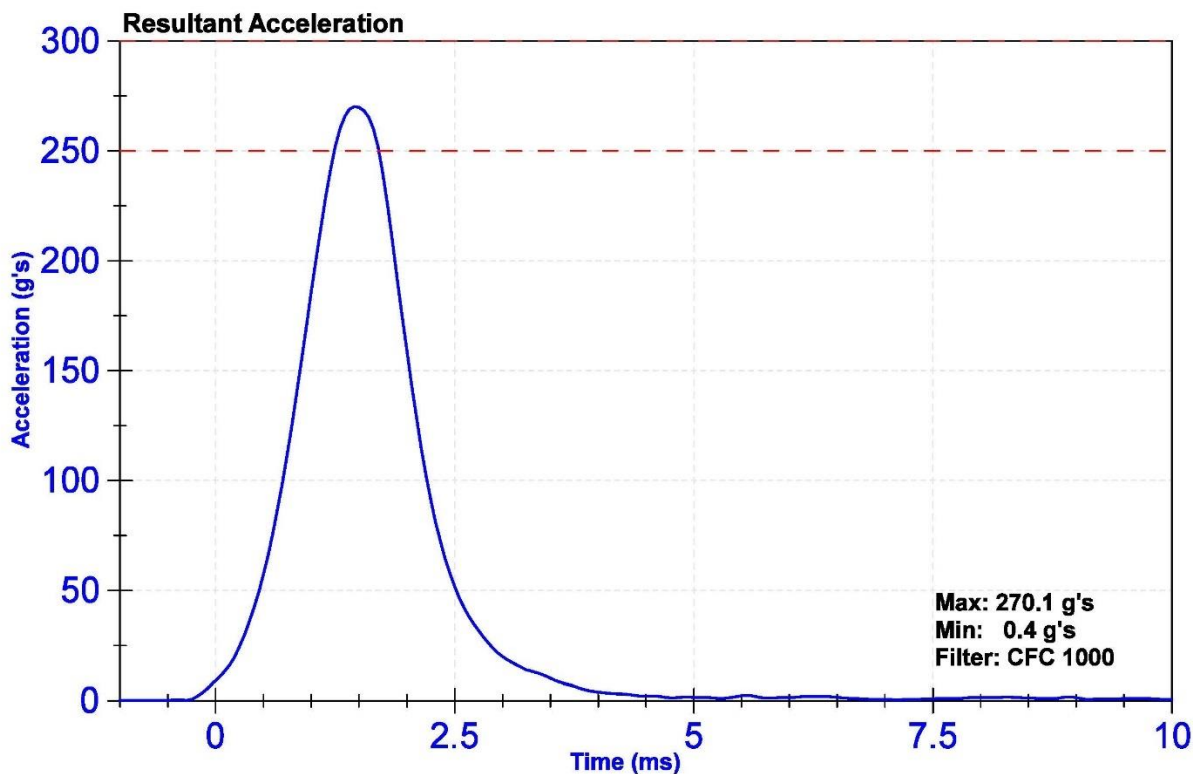
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

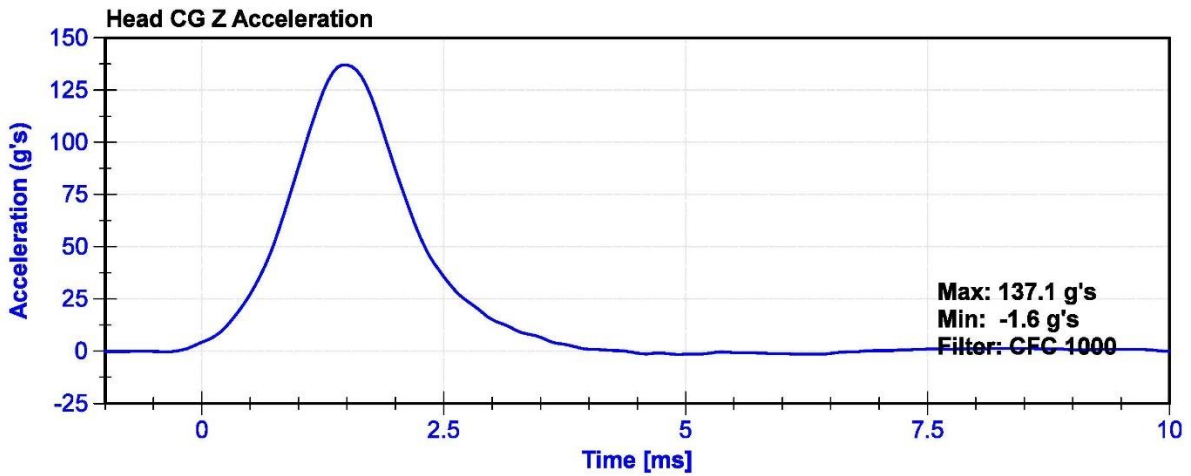
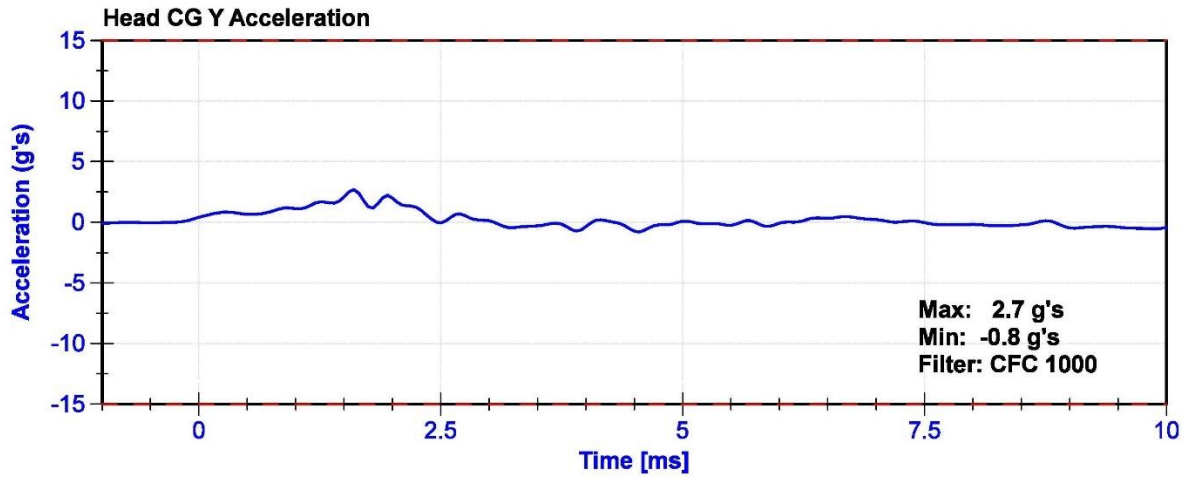
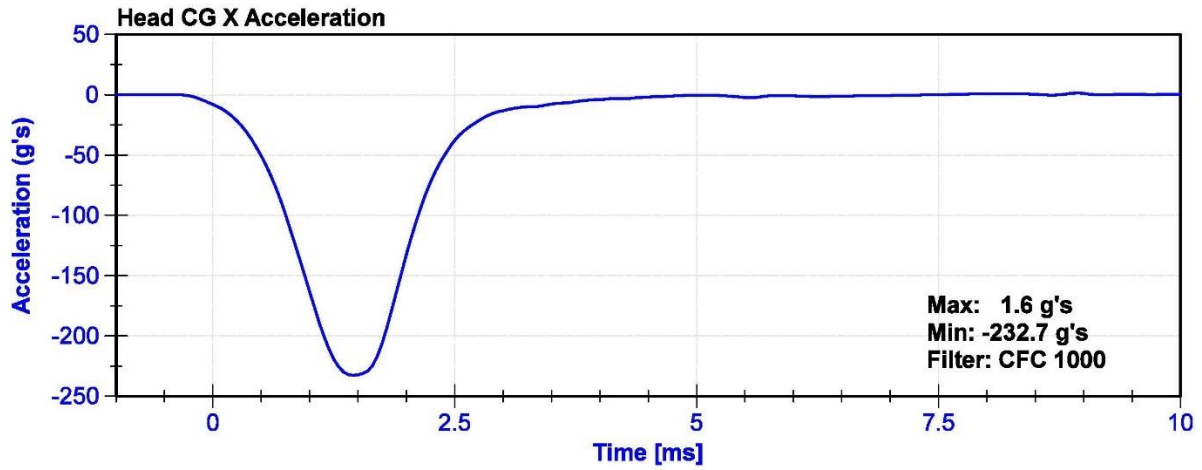
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.6	Pass
Humidity	10	70	%	28.1	Pass
Resultant Acceleration	250	300	g's	270.1	Pass
Oscillation	0	10	%	0.9	Pass
Lateral Acceleration	-15	15	g's	2.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P79417	2/1/2022	7/31/2022
Y Accelerometer	Endevco	P83335	2/1/2022	7/31/2022
Z Accelerometer	Endevco	P64149	2/1/2022	7/31/2022





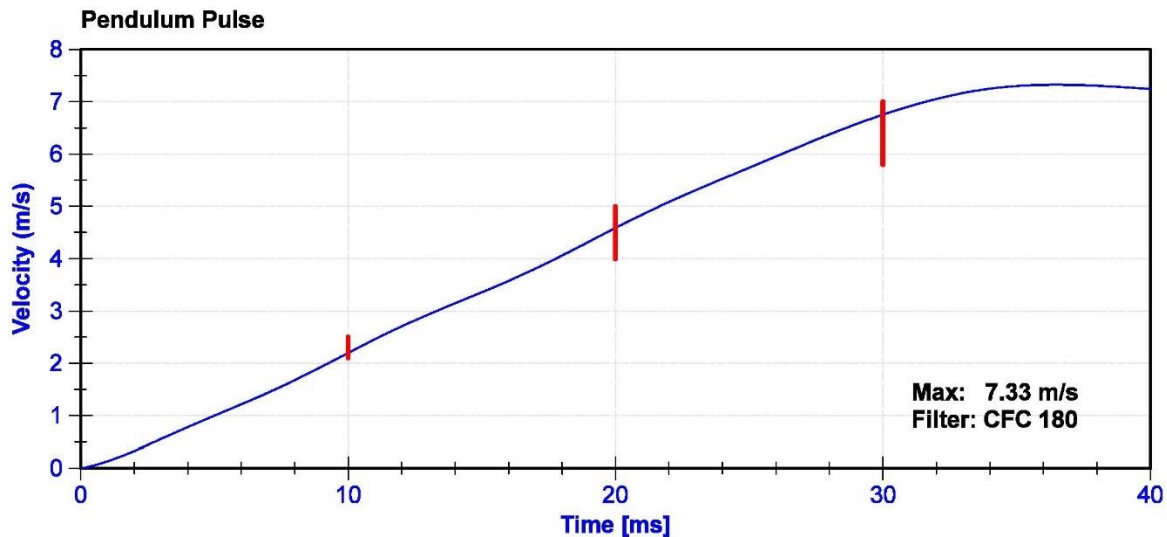
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

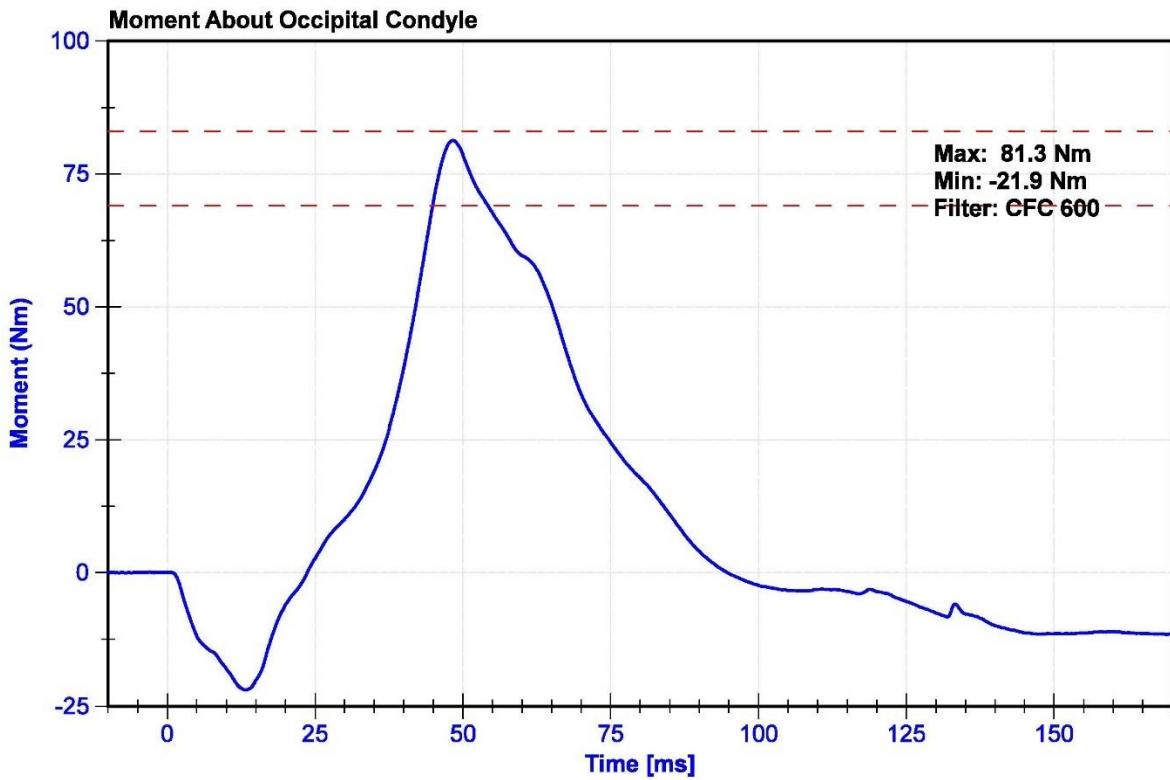
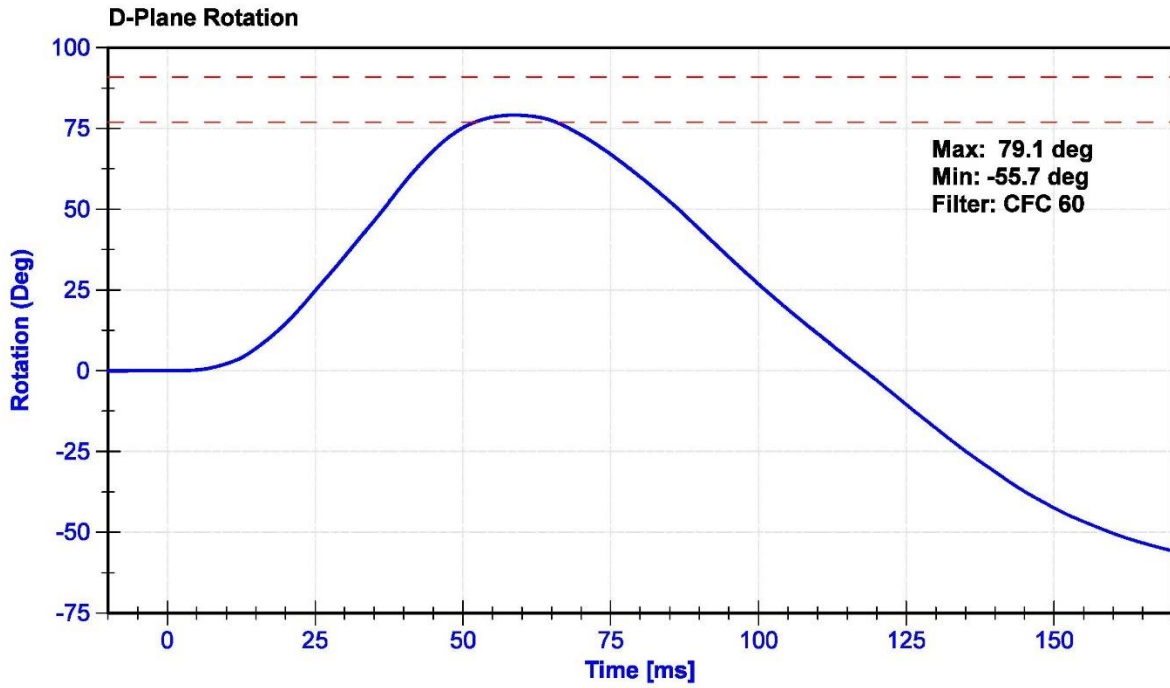
Results

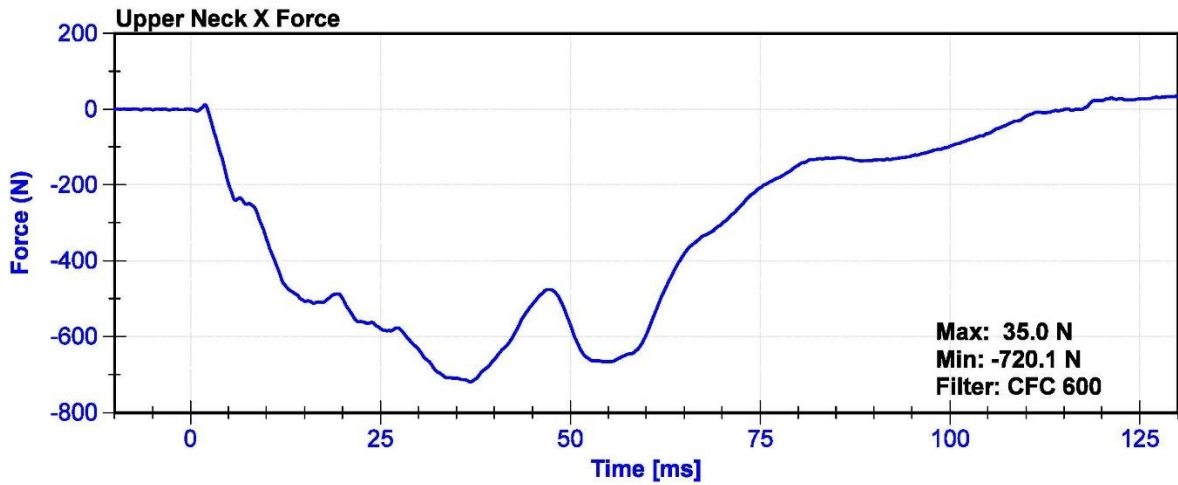
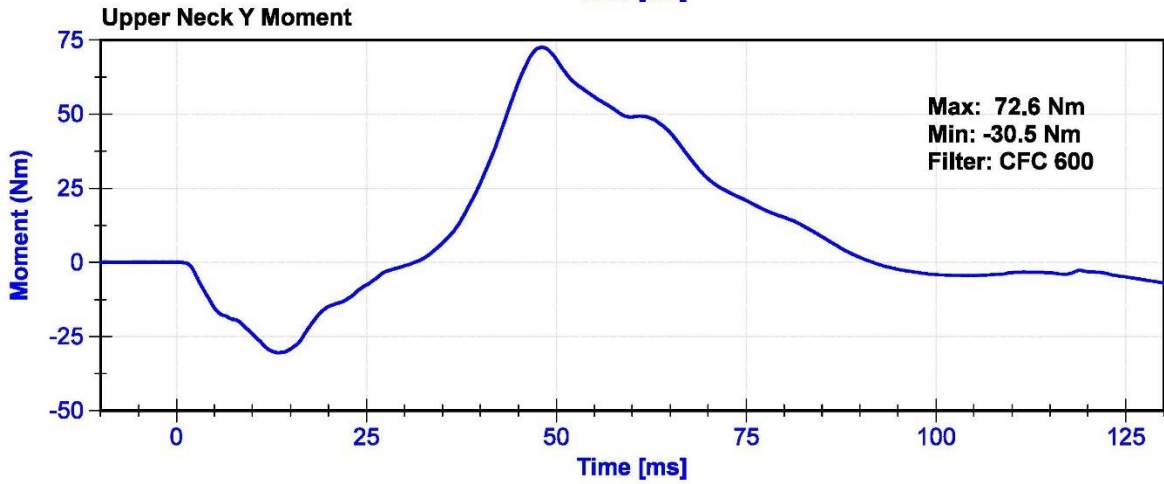
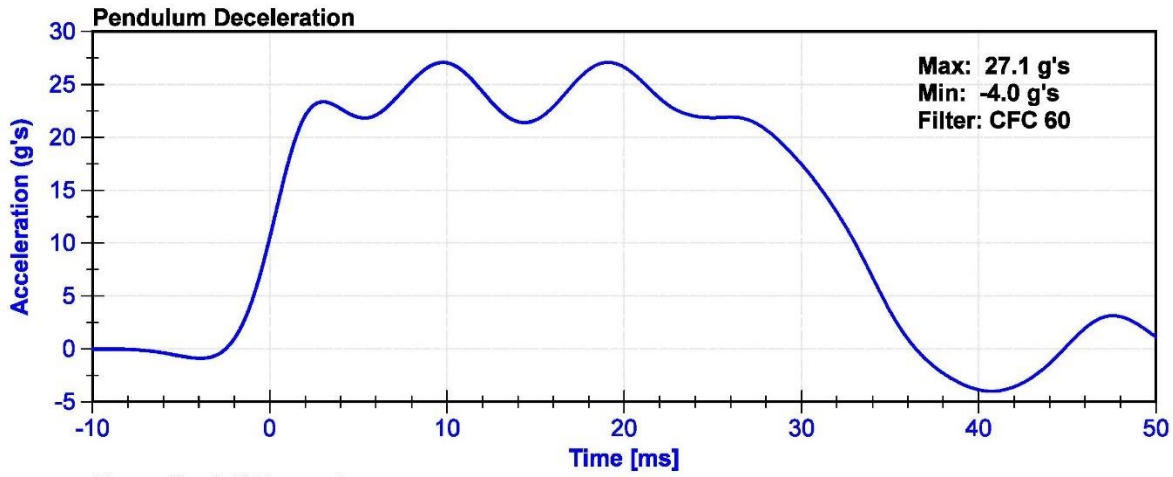
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	39.4	Pass
Velocity	6.89	7.13	m/s	7.019	Pass
Pendulum Impulse at 10ms	2.1	2.5	m/s	2.19	Pass
Pendulum Impulse at 20ms	4.0	5.0	m/s	4.59	Pass
Pendulum Impulse at 30ms	5.8	7.0	m/s	6.76	Pass
Max D Plane Rotation	77	91	deg	79.1	Pass
Max Moment During Rotation Interval	69	83	Nm	81.3	Pass
Moment Decay to 10.0 Nm	80	100	ms	85.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231CT	10/28/2021	10/28/2022
Pendulum Potentiometer	ETI	LABPOT1	5/7/2021	5/7/2022
Condyle Potentiometer	ETI	LABPOT2	5/7/2021	5/7/2022
Upper Neck Load Cell	Denton	2184-FX	6/24/2021	6/24/2022







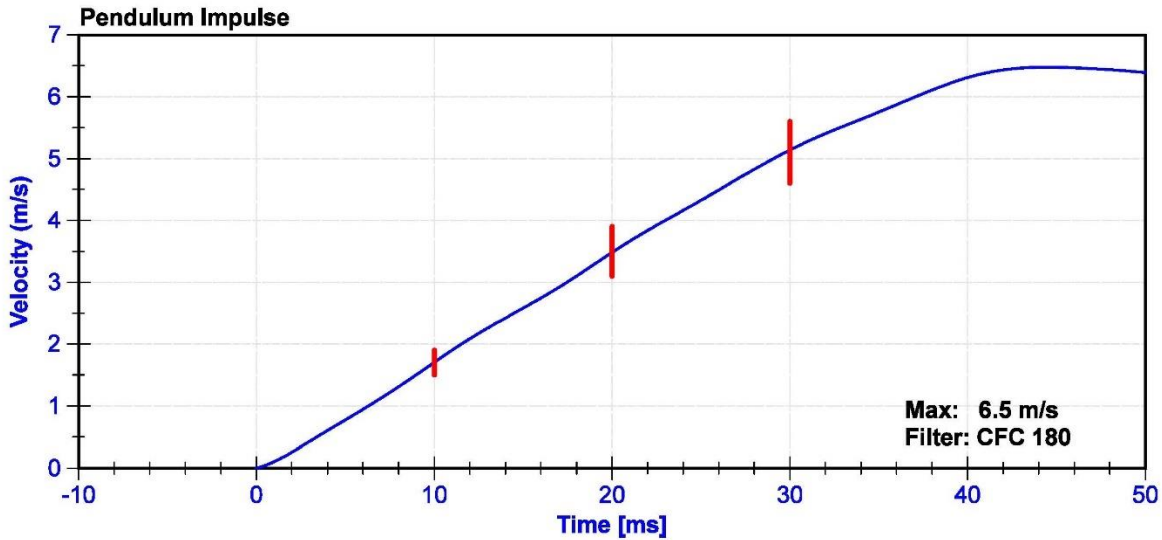
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

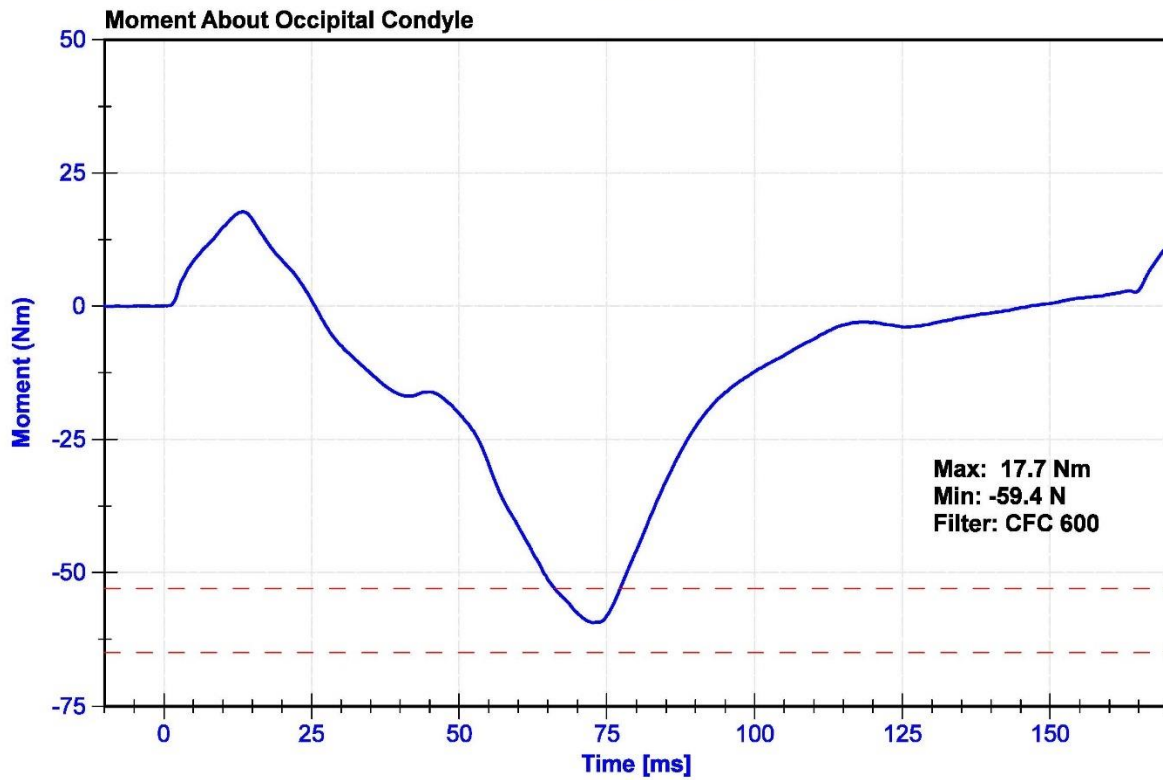
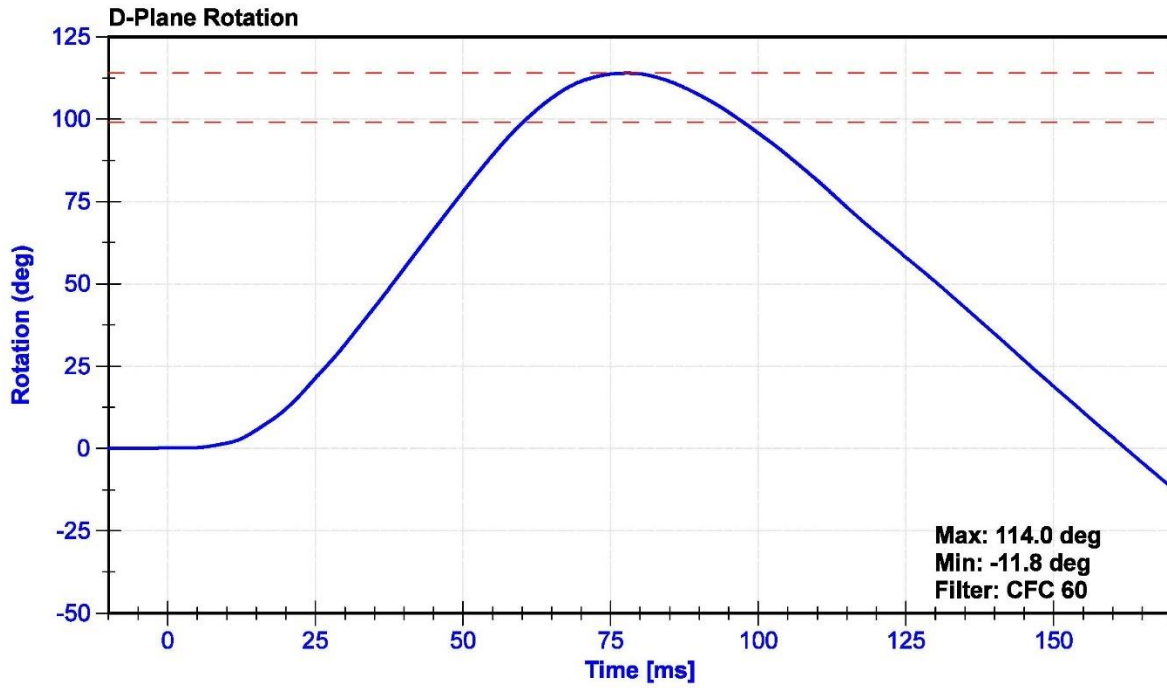
Results

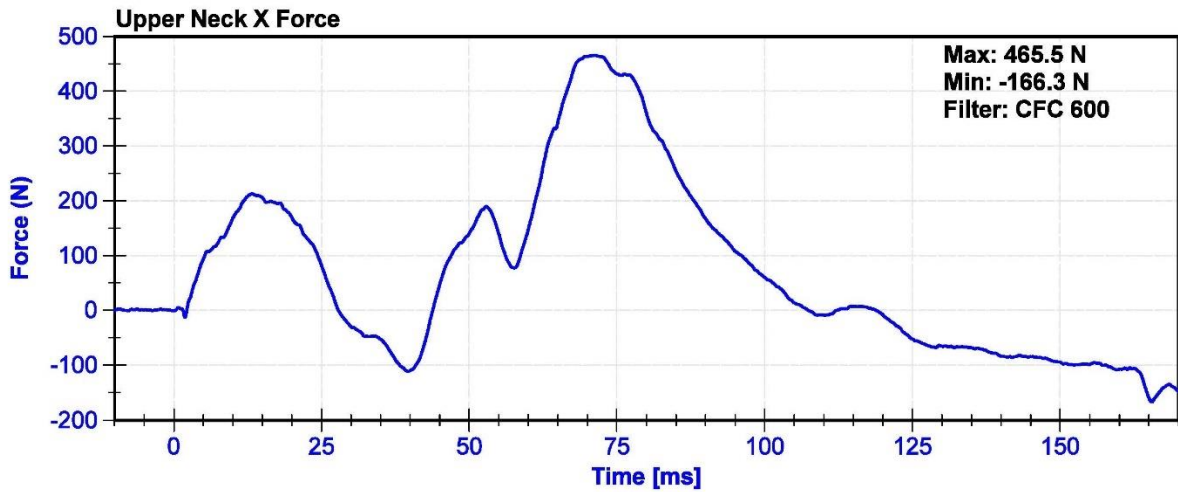
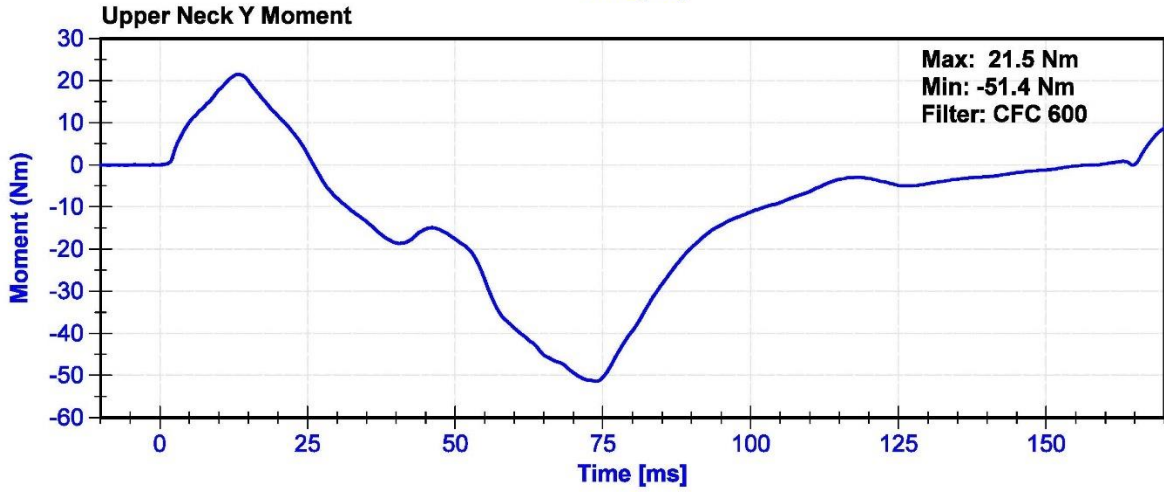
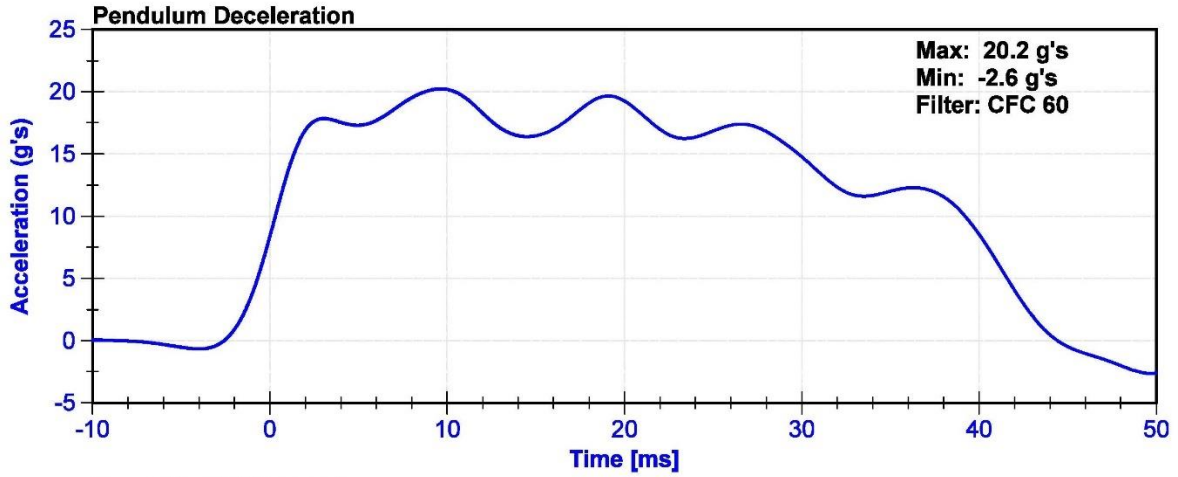
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	39.4	Pass
Velocity	5.95	6.19	m/s	6.145	Pass
Pendulum Impulse at 10ms	1.5	1.9	m/s	1.70	Pass
Pendulum Impulse at 20ms	3.1	3.9	m/s	3.48	Pass
Pendulum Impulse at 30ms	4.6	5.6	m/s	5.14	Pass
D Plane Rotation	99	114	deg	114.0	Pass
Moment During Rotation Interval	-65	-53	Nm	-59.4	Pass
Moment Decay to -10Nm	94	114	ms	103.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16503	10/28/2021	10/28/2022
Pendulum Potentiometer	ETI	LABPOT1	5/7/2021	5/7/2022
Condyle Potentiometer	ETI	LABPOT2	5/7/2021	5/7/2022
Upper Neck Load Cell	Denton	2184-FX	6/24/2021	6/24/2022







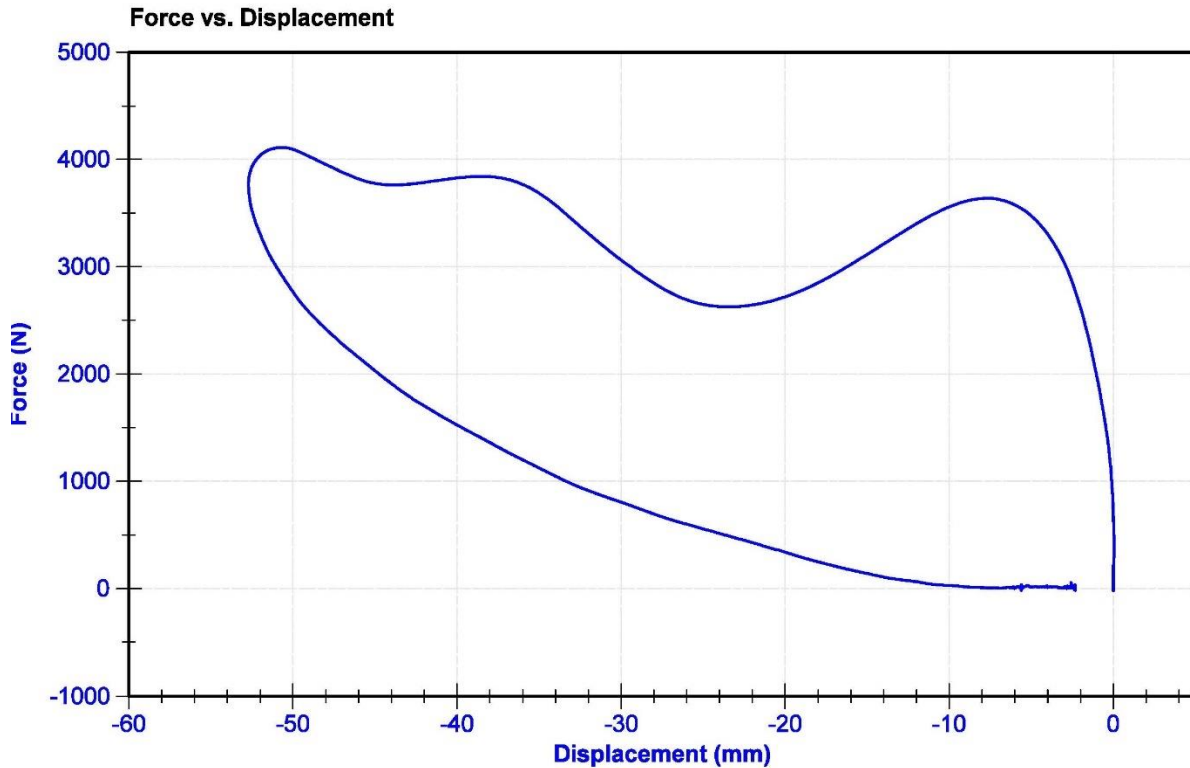
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

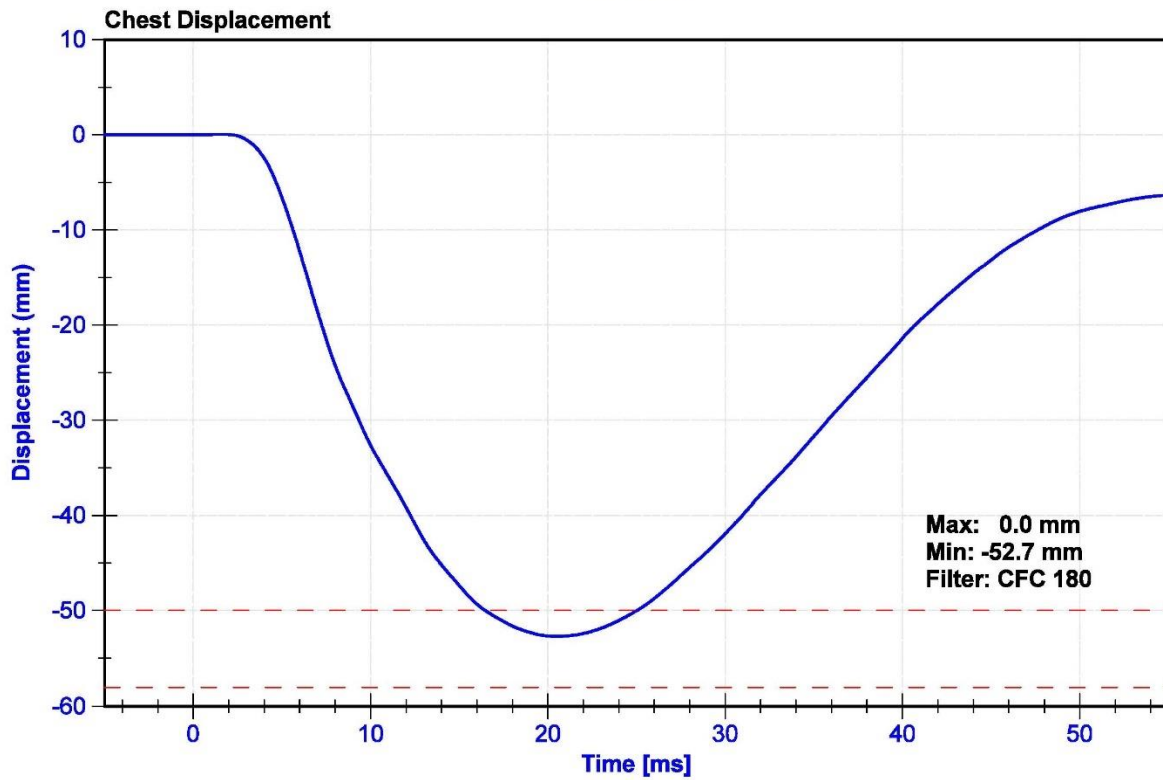
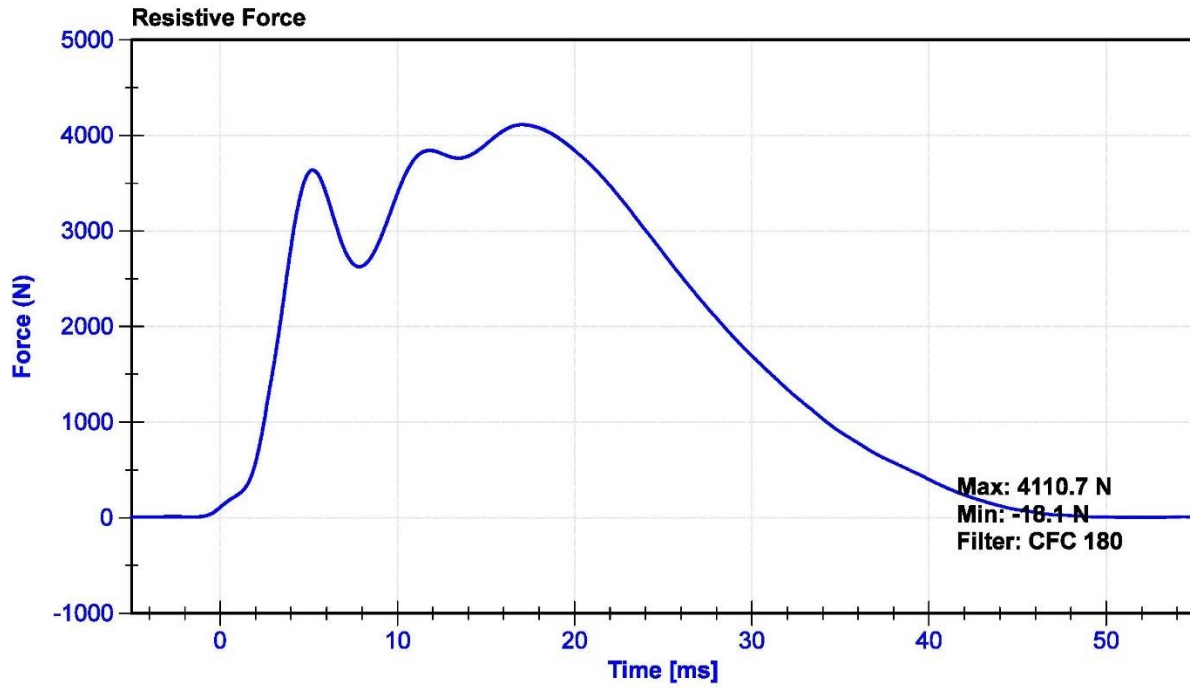
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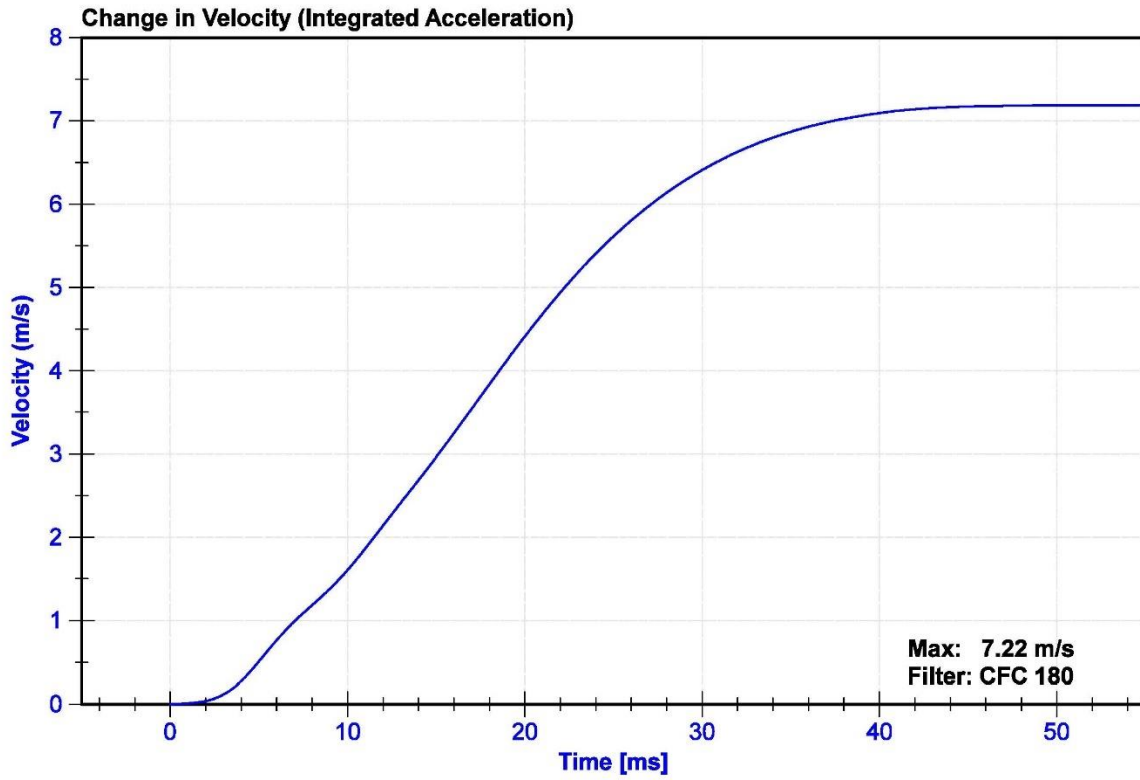
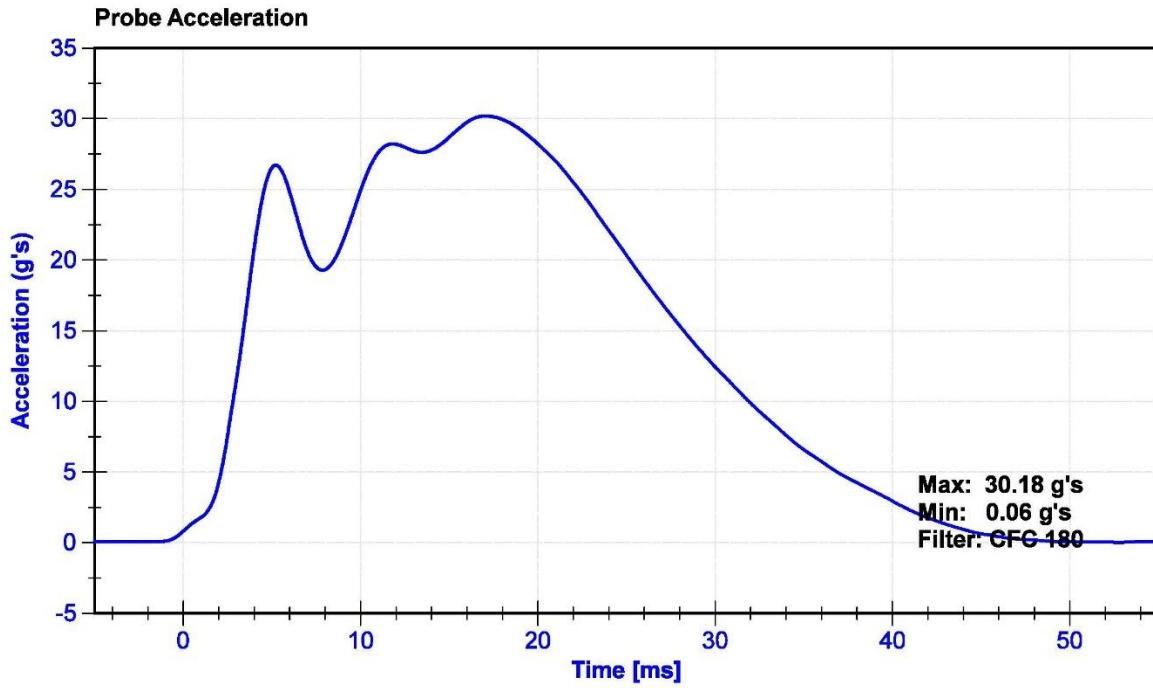
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	37.9	Pass
Velocity	6.59	6.83	m/s	6.613	Pass
Chest Deflection	-58	-50	mm	-52.7	Pass
Maximum Resistive Force (50 to 58mm)	3900	4400	N	4110.7	Pass
Maximum Resistive Force (18 to 50mm)	0	4600	N	4092.1	Pass
Hysteresis	69	85	%	72.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	P51736	10/25/2021	10/25/2022
Chest Potentiometer	Servo	0720	4/18/2022	10/17/2022







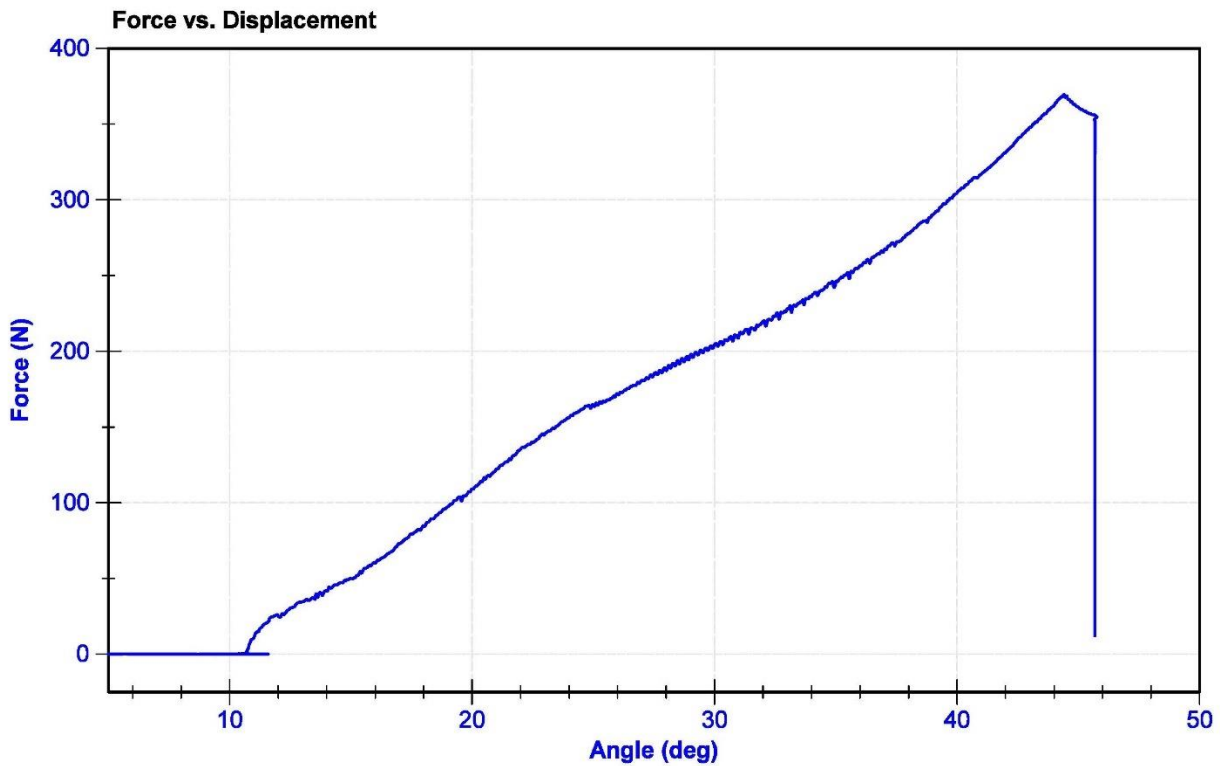
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.6	25.6	°C	20.6	Pass
Humidity	10	70	%	28.1	Pass
Initial Angle	0	20	deg	10.5	Pass
Force at 45 Degrees	320	390	N	369.5	Pass
Return Angle Relative to Initial	0	8	deg	1.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	Rieker	DS-1905226	2021-11-01	2022-11-01
Load Cell	Interface	1134516	2021-08-27	2022-08-27



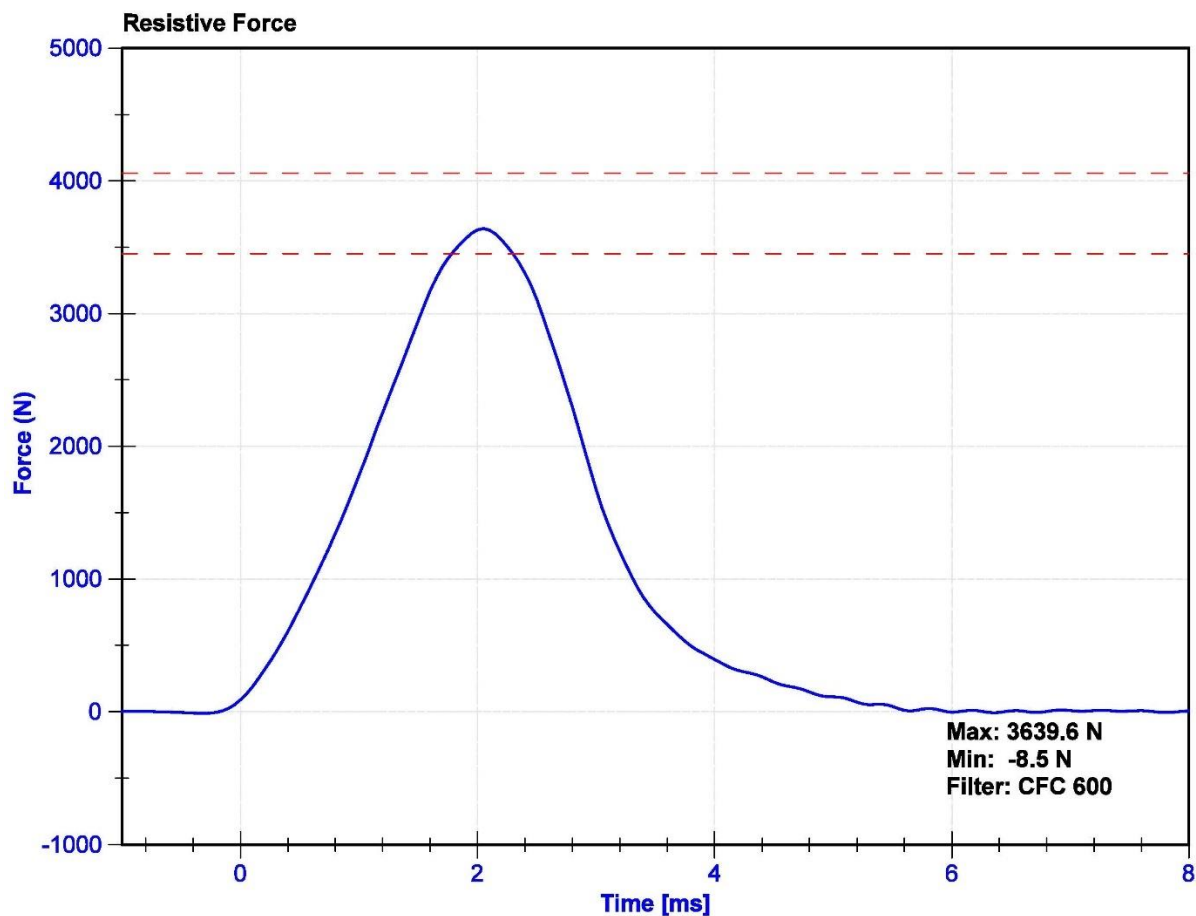
ATD Manufacturer	Humanetics	Test Technician	D. Reinhard
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

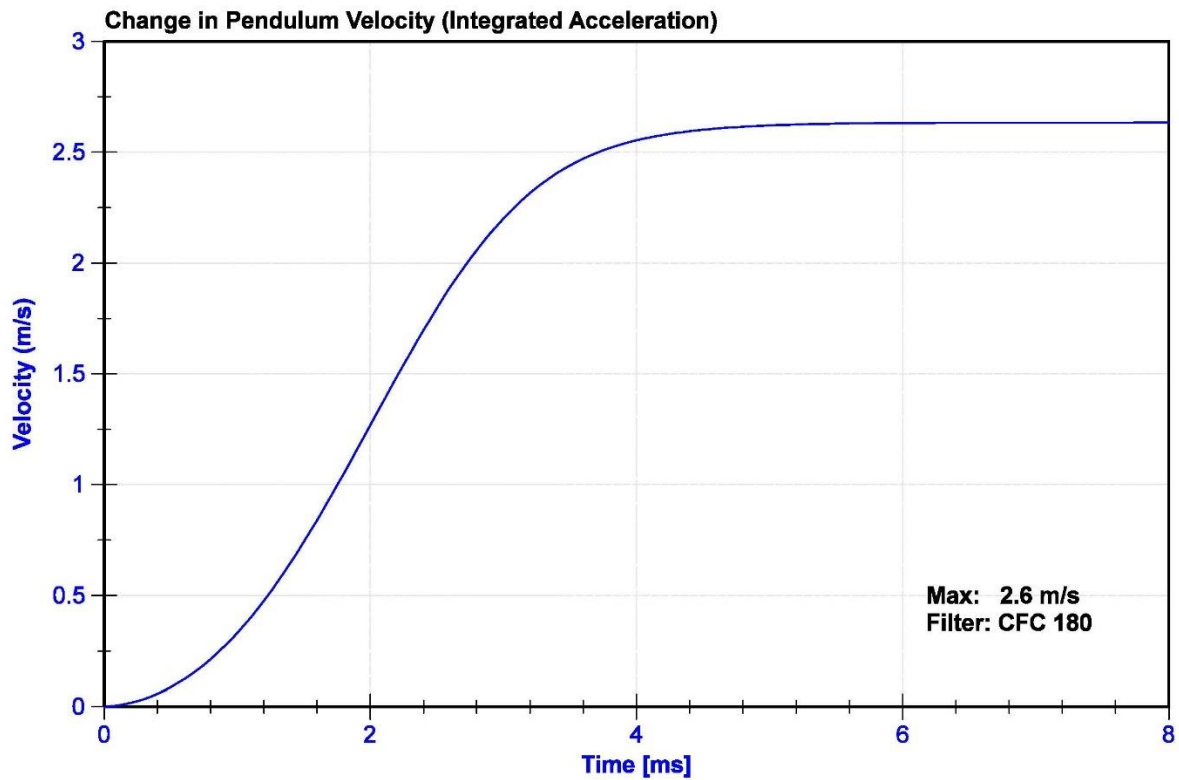
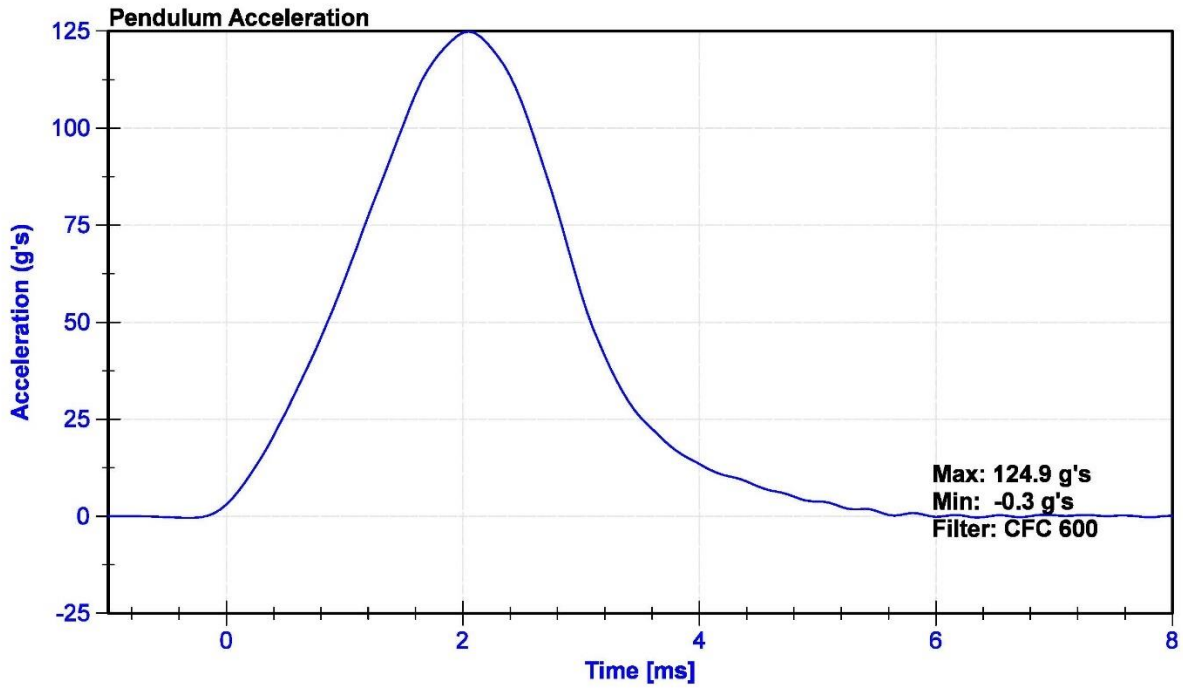
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.8	Pass
Humidity	10	70	%	30.8	Pass
Velocity	2.07	2.13	m/s	2.102	Pass
Resistive Force	3450	4060	N	3639.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25885	10/25/2021	4/23/2022





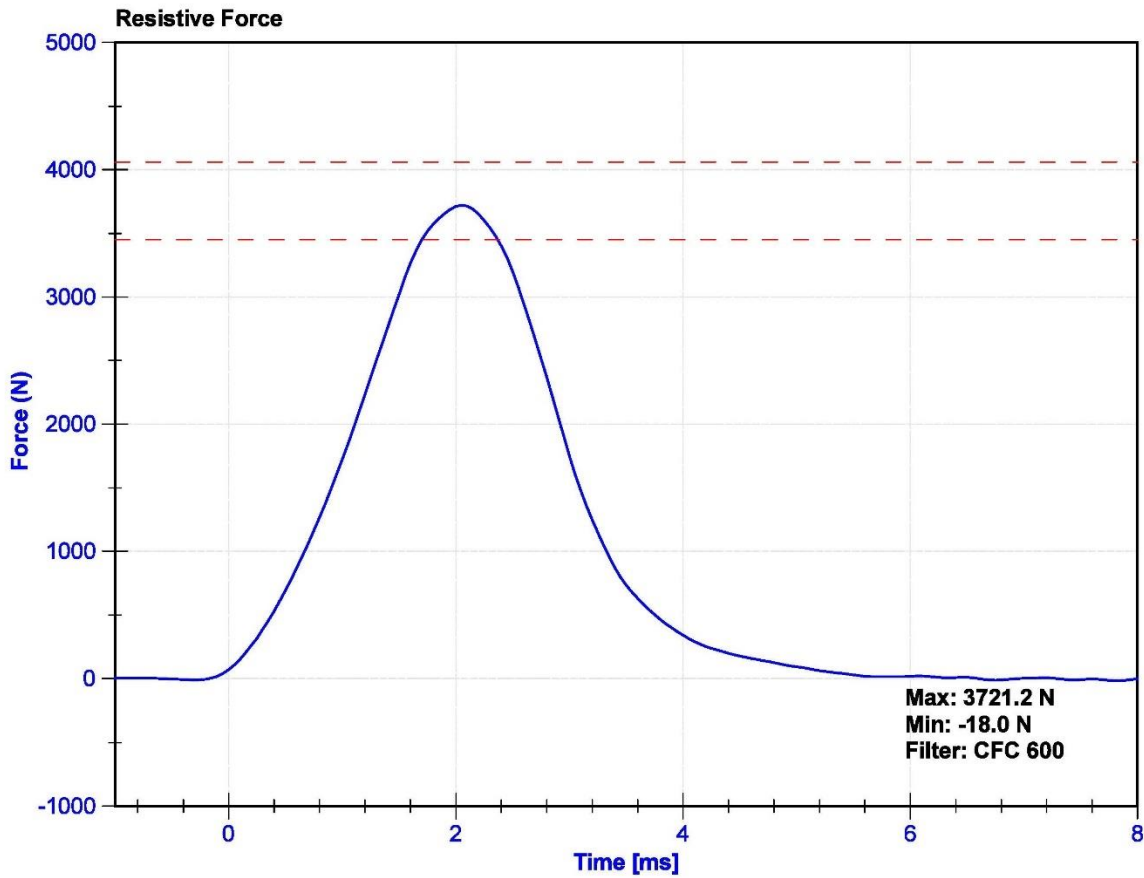
ATD Manufacturer	Humanetics	Test Technician	D. Reinhard
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

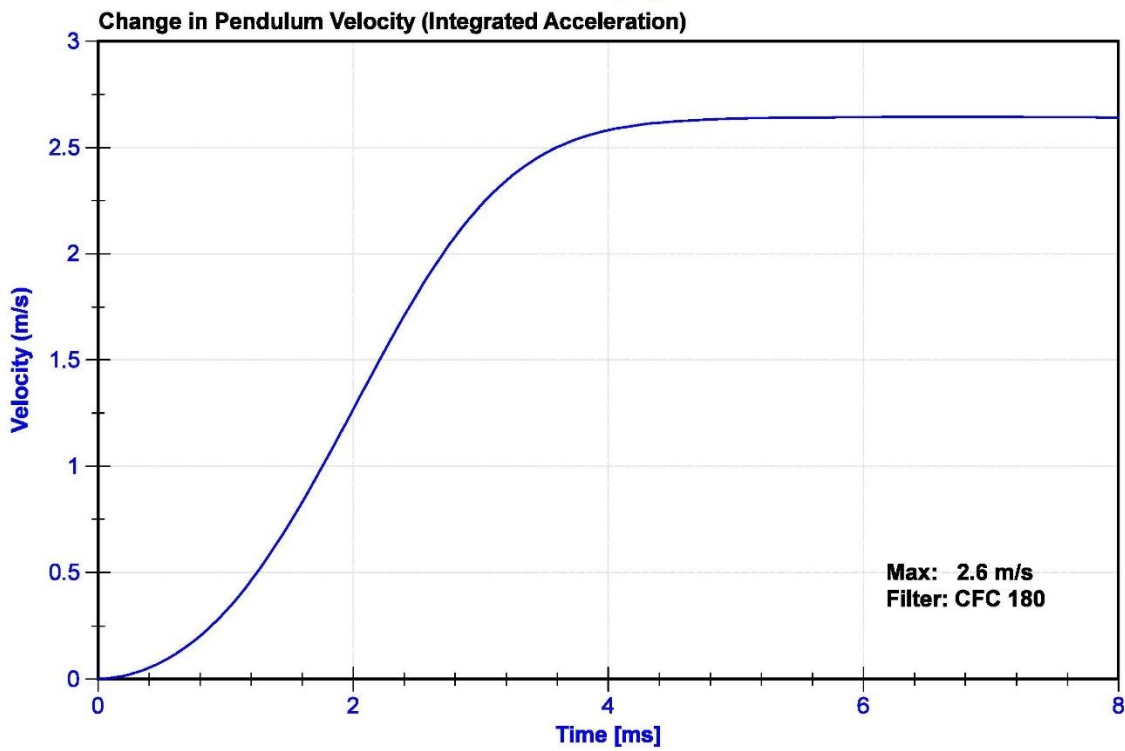
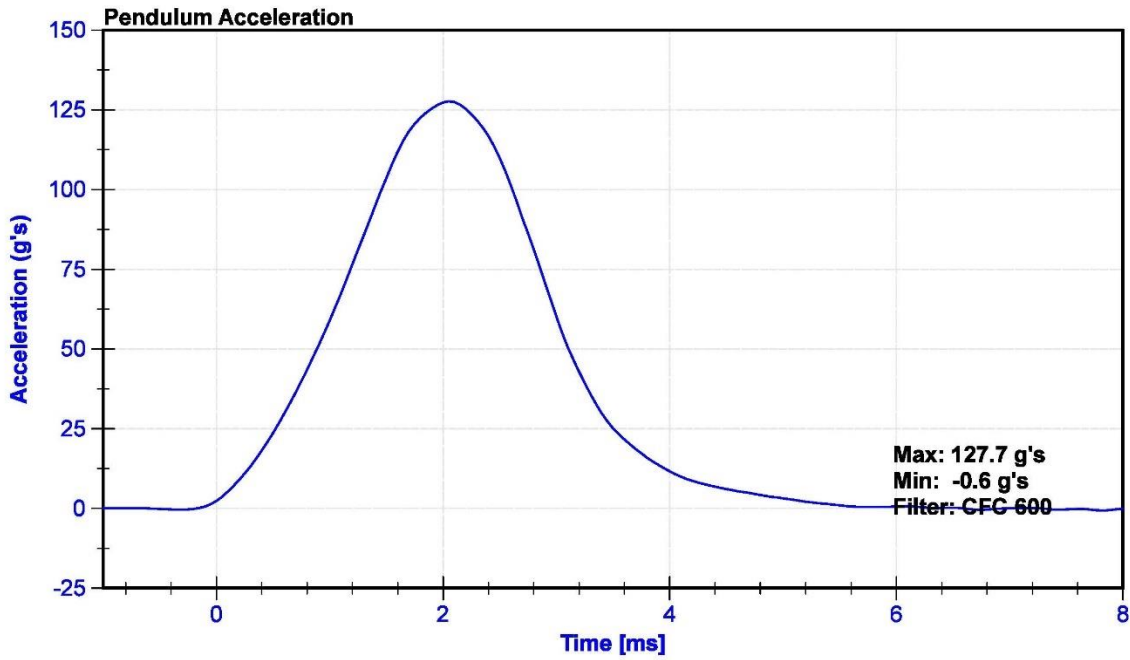
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.8	Pass
Humidity	10	70	%	30.8	Pass
Velocity	2.07	2.13	m/s	2.101	Pass
Resistive Force	3450	4060	N	3721.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25885	10/25/2021	4/23/2022





CALIBRATION TEST RESULTS

POST-TEST

HYBRID III 50TH PERCENTILE MALE - DRIVER ATD

SERIAL NO: 142

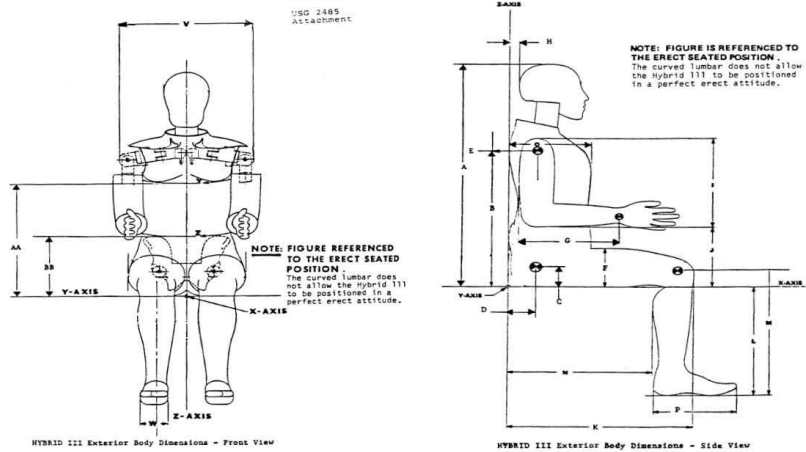


External Measurements - Hybrid 3 - 50th Male

Technician: K. Brogan

Date: 05/10/2022

Dummy Serial Number: 142



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	20.3	Pass
C	H-Point Height	3.3	3.5	3.4	Pass
D	H-Point from Backline	5.3	5.5	5.4	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	11.8	Pass
H	Head Back to Backline	1.6	1.8	1.7	Pass
I	Shoulder to Elbow Length	13.0	13.6	13.4	Pass
J	Elbow Rest Height	7.5	8.3	8.1	Pass
K	Buttock to Knee Length	22.8	23.8	23.2	Pass
L	Popliteal Height	16.9	17.9	17.4	Pass
M	Knee Pivot Height	19.1	19.7	19.4	Pass
N	Buttock Popliteal Length	17.8	18.8	18.0	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	16.8	Pass
W	Foot Breadth	3.6	4.2	3.8	Pass
Y	Chest Circumference with Jacket	38.2	39.4	39.0	Pass
Z	Waist Circumference	32.9	34.1	33.5	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

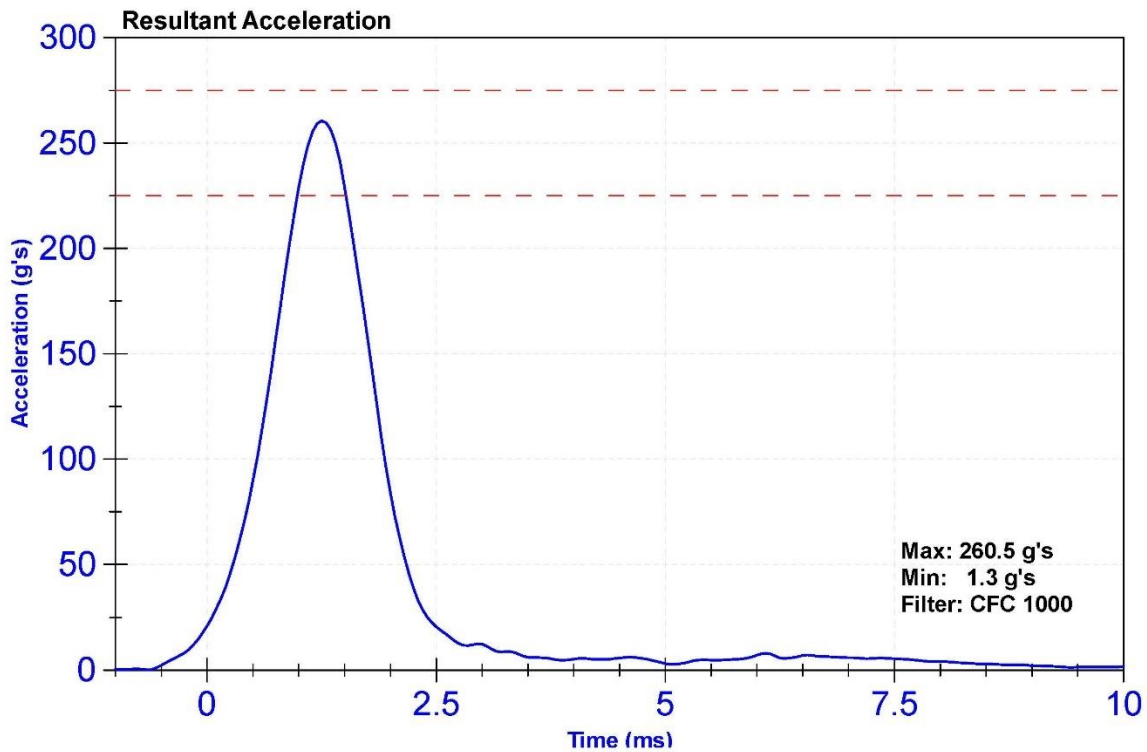
ATD Manufacturer	Humanetics	Test Technician	C. Mantell
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

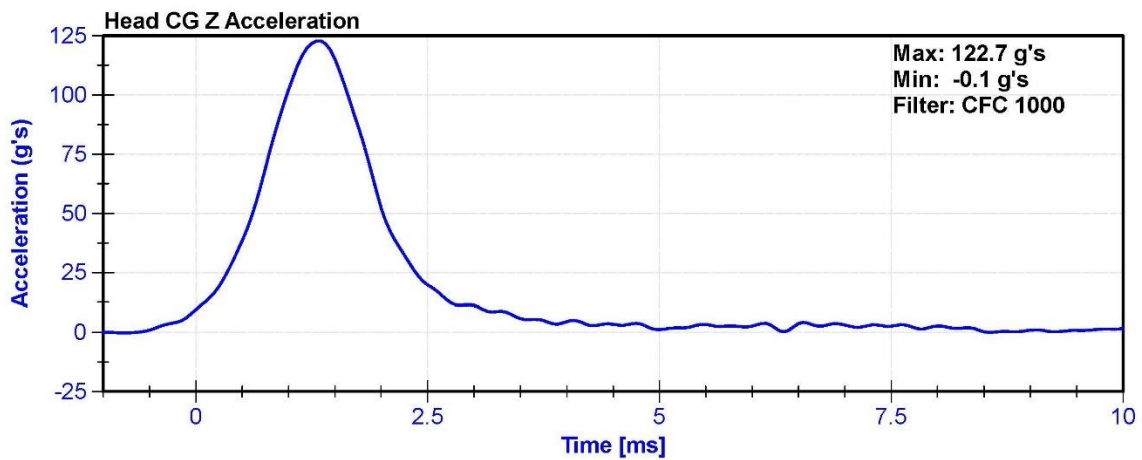
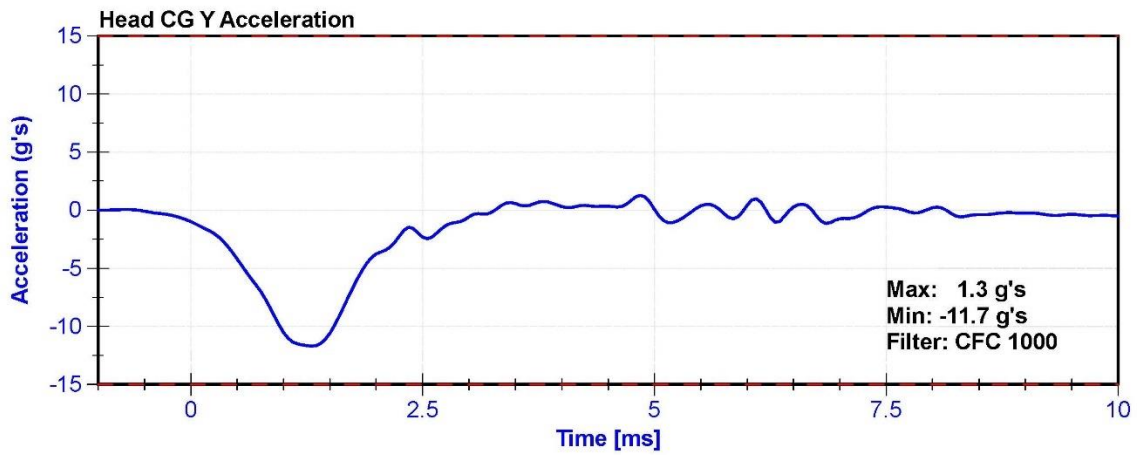
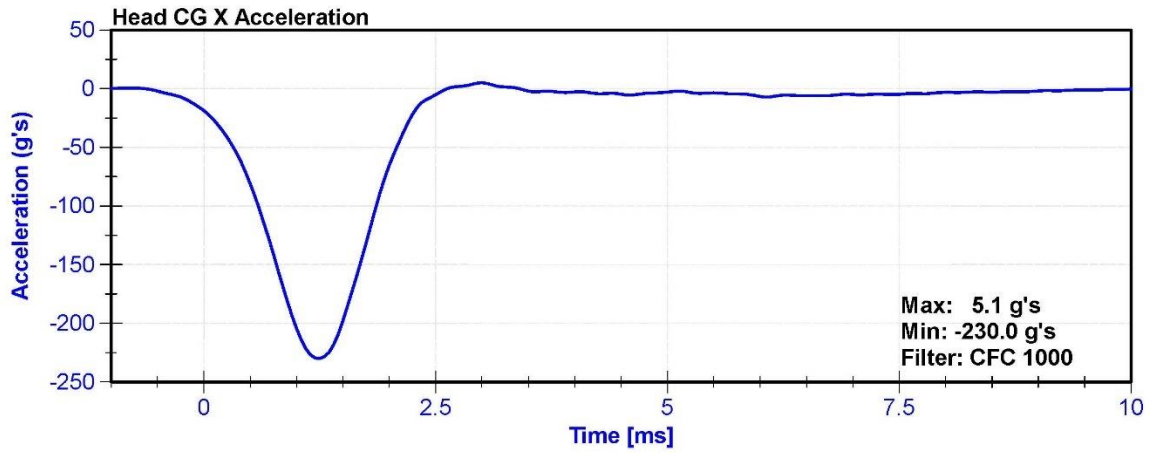
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.5	Pass
Humidity	10	70	%	45.6	Pass
Resultant Acceleration	225	275	g's	260.5	Pass
Oscillation	0	10	%	4.7	Pass
Lateral Acceleration	-15	15	g's	-11.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P51681	11/16/2021	5/15/2022
Y Accelerometer	Endevco	P64151	11/16/2021	5/15/2022
Z Accelerometer	Endevco	P52114	11/16/2021	5/15/2022





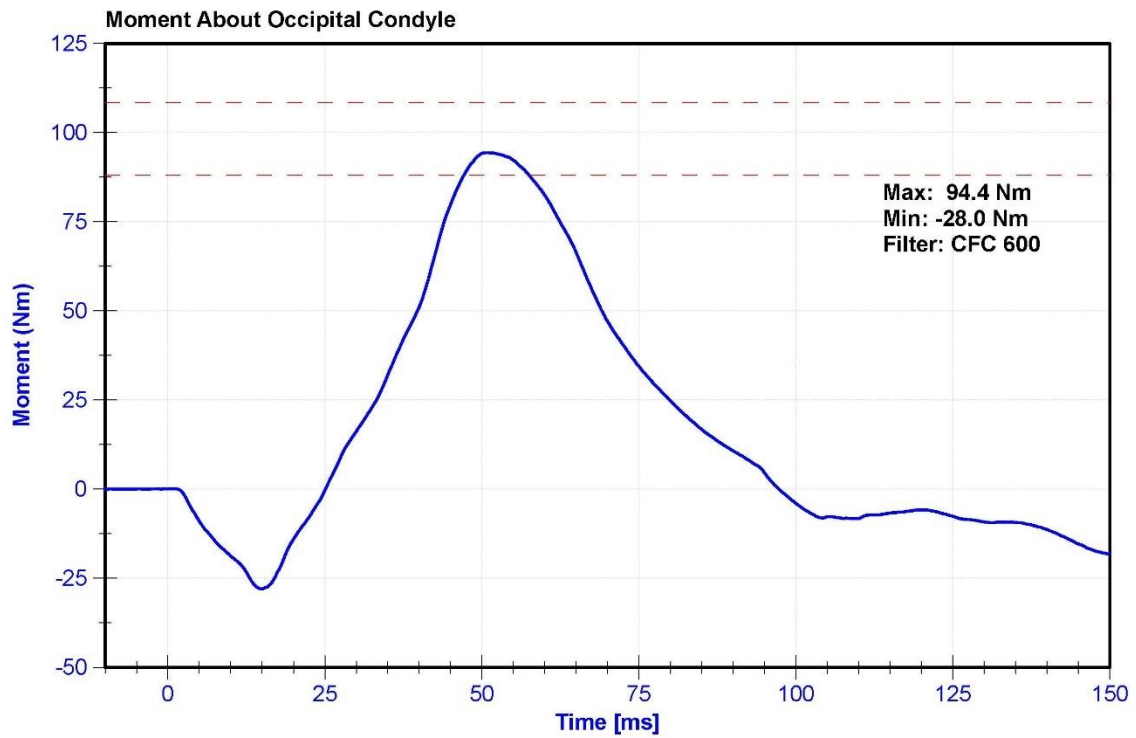
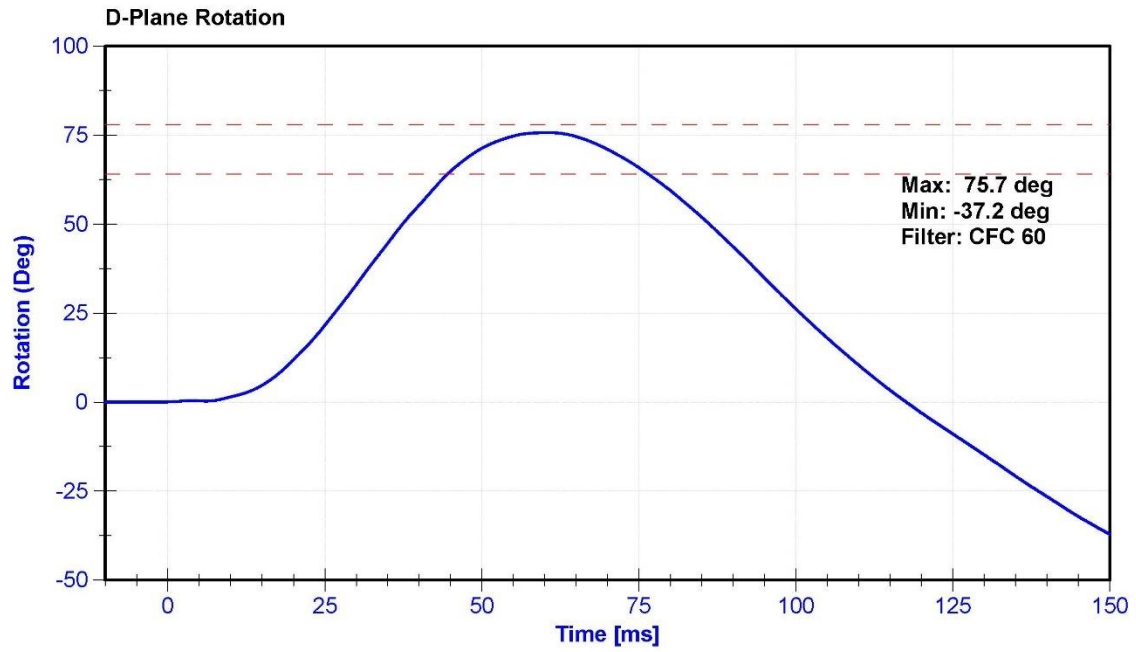
ATD Manufacturer	Humanetics	Test Technician	C. Mantell
ATD Serial Number	142	Laboratory Supervisor	C. Mantell

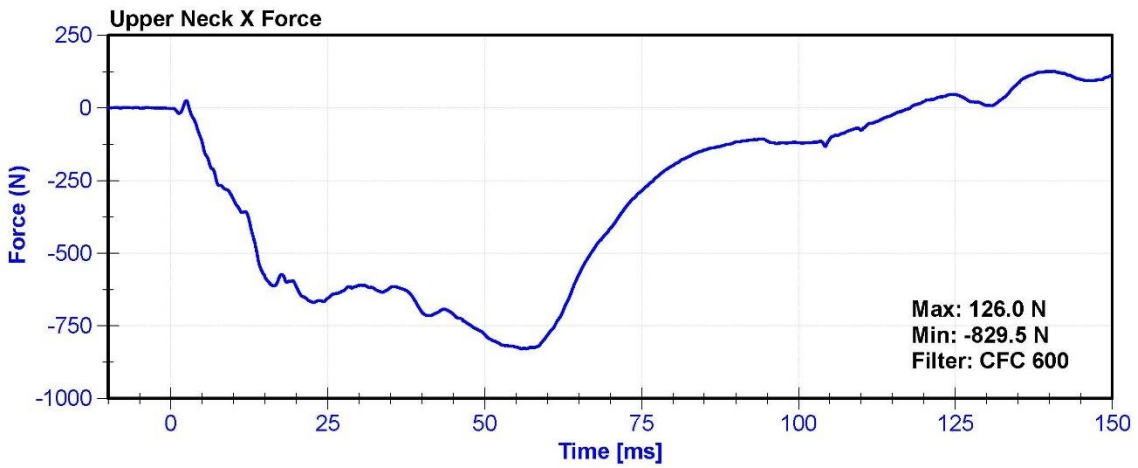
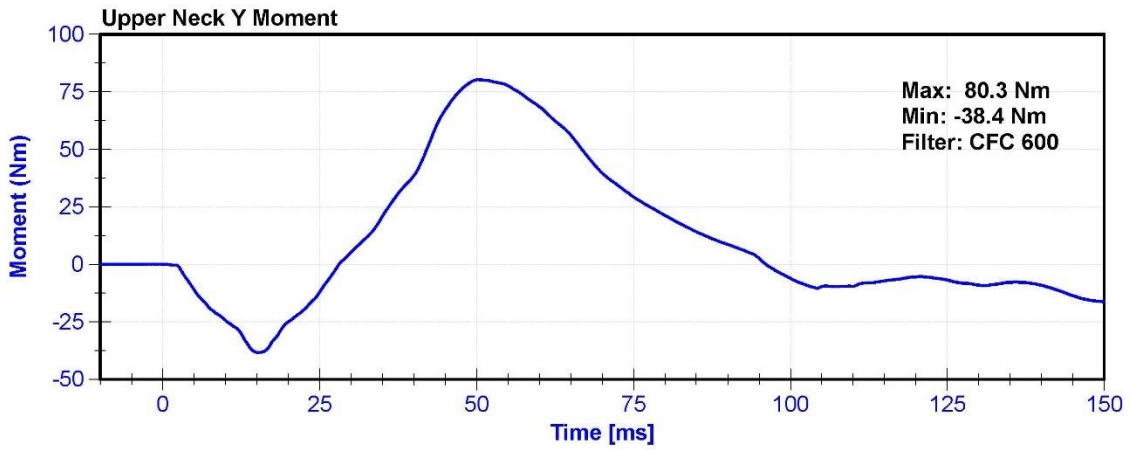
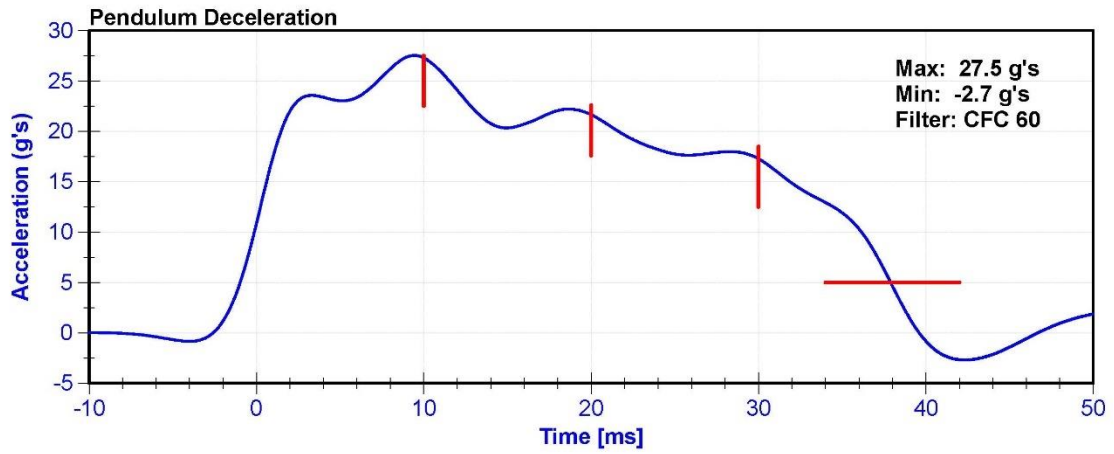
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.7	Pass
Humidity	10	70	%	44.3	Pass
Velocity	6.89	7.13	m/s	6.950	Pass
Pendulum Deceleration at 10ms	22.5	27.5	g's	27.29	Pass
Pendulum Deceleration at 20ms	17.6	22.6	g's	21.66	Pass
Pendulum Deceleration at 30ms	12.5	18.5	g's	17.28	Pass
Max. Pendulum Deceleration After 30ms	0	29	g's	27.5	Pass
Pendulum Deceleration Time to 5 g's	34	42	ms	37.9	Pass
Maximum D Plane Rotation	64	78	deg	75.7	Pass
Time to Maximum Rotation	57	64	ms	60.4	Pass
Rotation Decay to Zero	113	127	ms	117.6	Pass
Moment About Occipital Condyle	88.1	108.4	Nm	94.36	Pass
Time to Maximum Moment	47	58	ms	51.0	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	7231CT	10/28/2021	10/28/2022
Pendulum Potentiometer	ETI	LABPOT1	5/9/2022	5/9/2023
Condyle Potentiometer	ETI	LABPOT2	5/9/2022	5/9/2023
Upper Neck Load Cell	FTSS	280-FX	9/14/2021	9/14/2022





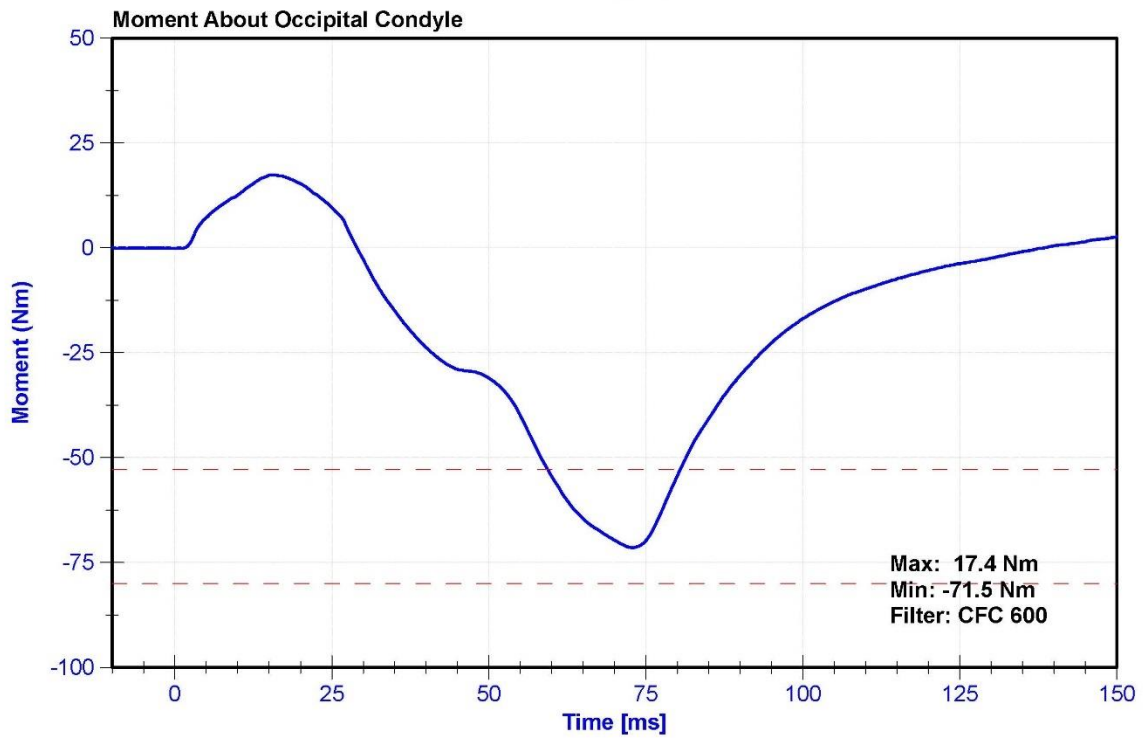
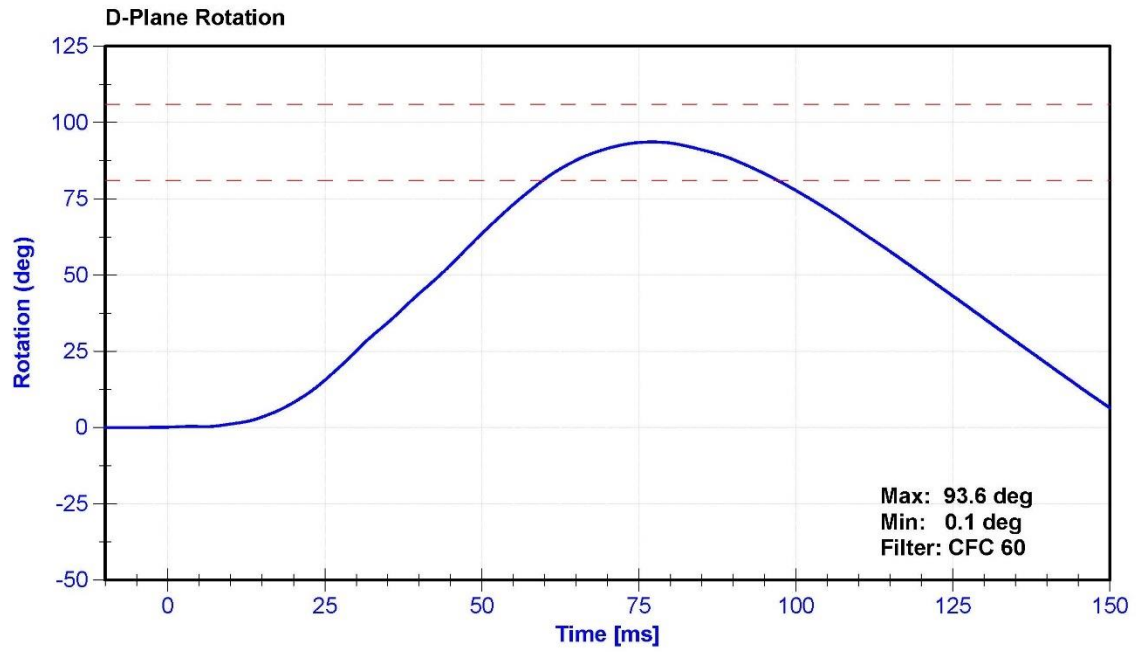
ATD Manufacturer	Humanetics	Test Technician	C. Mantell
ATD Serial Number	142	Laboratory Supervisor	C. Mantell

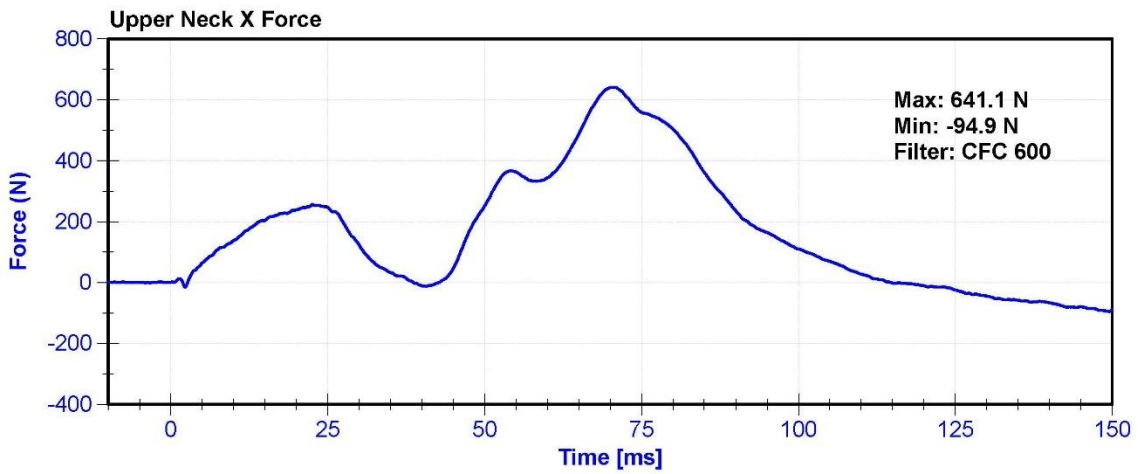
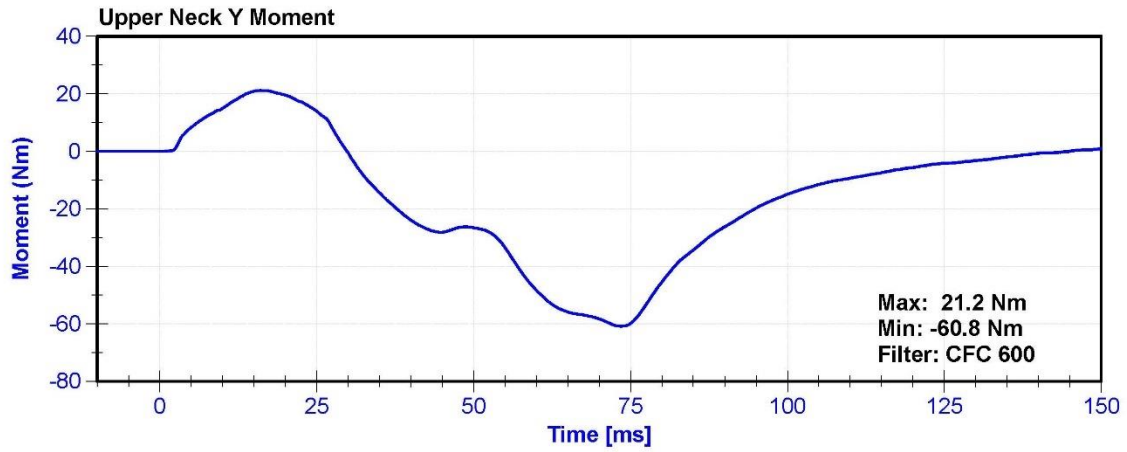
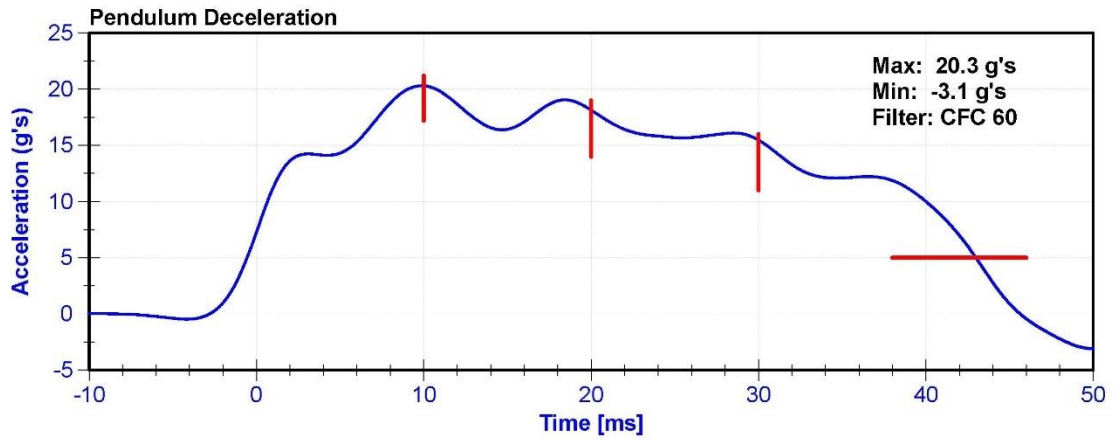
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.7	Pass
Humidity	10	70	%	44.3	Pass
Velocity	5.94	6.19	m/s	6.079	Pass
Pendulum Deceleration at 10ms	17.2	21.2	g's	20.30	Pass
Pendulum Deceleration at 20ms	14	19	g's	18.1	Pass
Pendulum Deceleration at 30ms	11	16	g's	15.5	Pass
Max. Pendulum Deceleration After 30ms	0	22	g's	20.3	Pass
Pendulum Deceleration Time to 5 g's	38	46	ms	43.0	Pass
Maximum D Plane Rotation	81	106	deg	93.6	Pass
Time to Maximum Rotation	72	82	ms	77.1	Pass
Rotation Decay to Zero	147	174	ms	154.6	Pass
Minimum Moment About OC	-80	-52.9	Nm	-71.48	Pass
Time to Minimum Moment	65	79	ms	72.9	Pass
Moment Decay to Zero	120	148	ms	138.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16503	10/28/2021	10/28/2022
Pendulum Potentiometer	ETI	LABPOT1	5/9/2022	5/9/2023
Condyle Potentiometer	ETI	LABPOT2	5/9/2022	5/9/2023
Upper Neck Load Cell	FTSS	280-FX	9/14/2021	9/14/2022





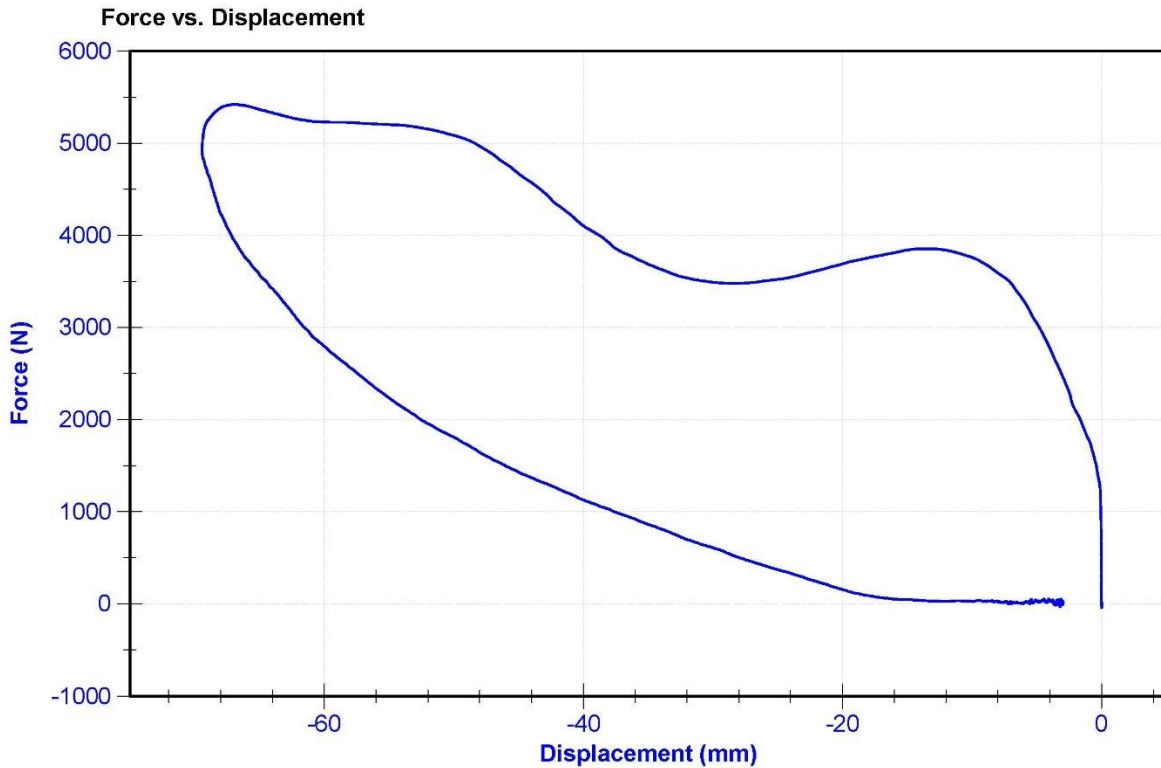
ATD Manufacturer	Humanetics	Test Technician	B. Kirchner
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

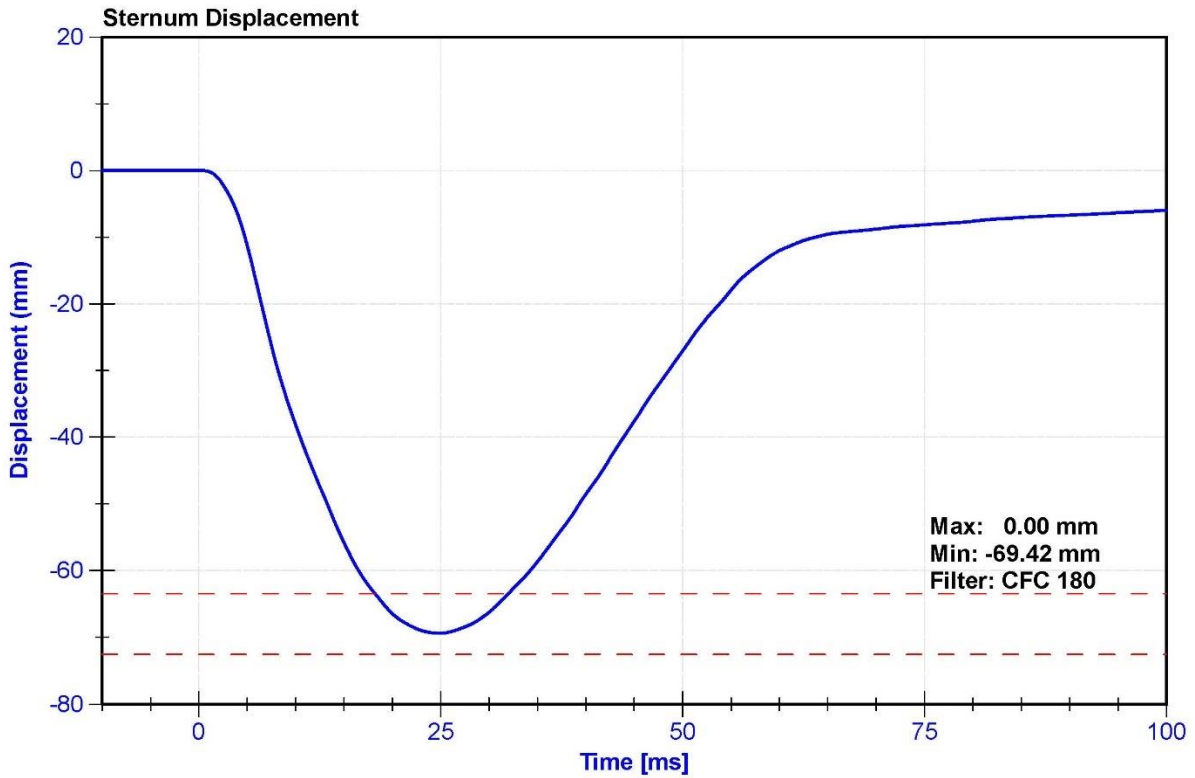
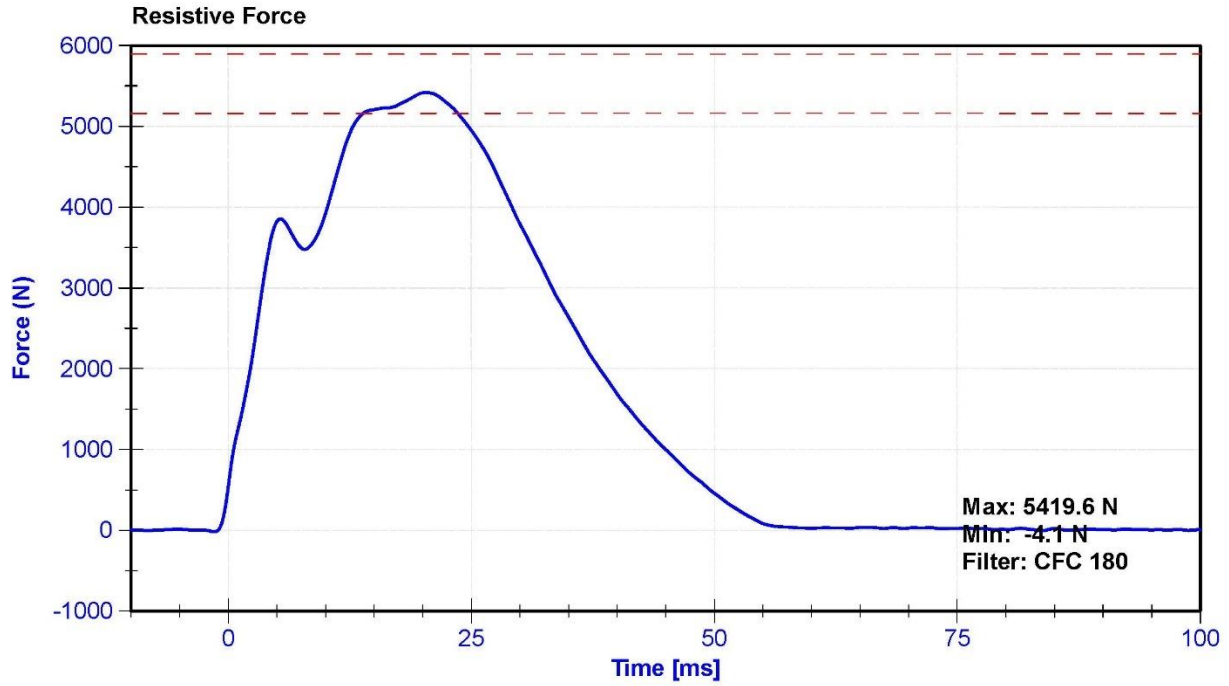
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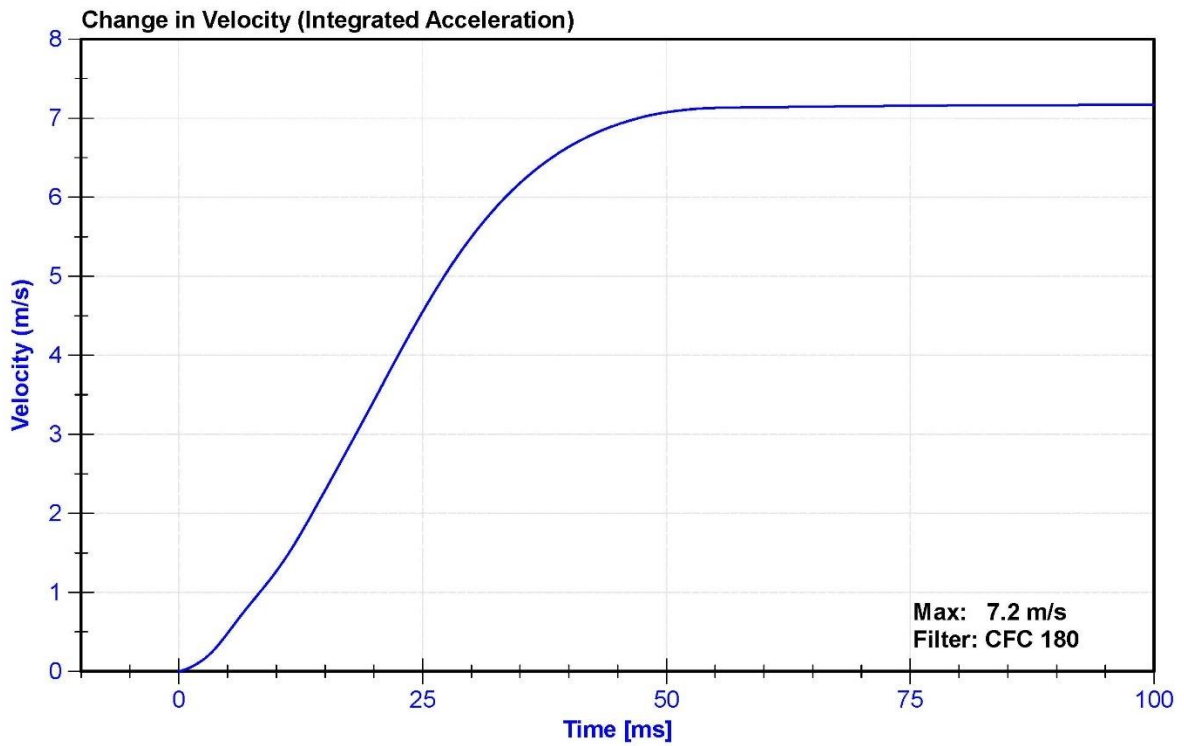
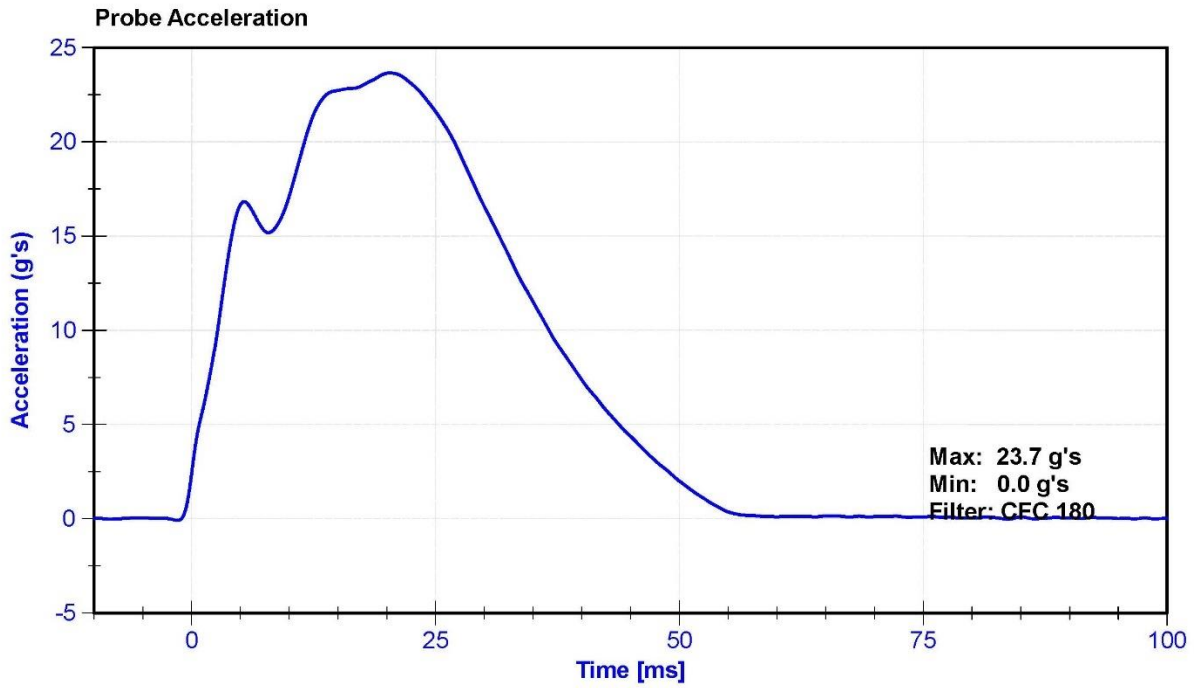
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	24.9	Pass
Velocity	6.59	6.83	m/s	6.644	Pass
Chest Displacement	-72.6	-63.5	mm	-69.42	Pass
Resistive Force	5160	5894	N	5419.6	Pass
Hysteresis	65	85	%	70.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	P51736	10/25/2021	10/25/2022
Chest Potentiometer	Servo	142GFE	11/16/2021	5/17/2022







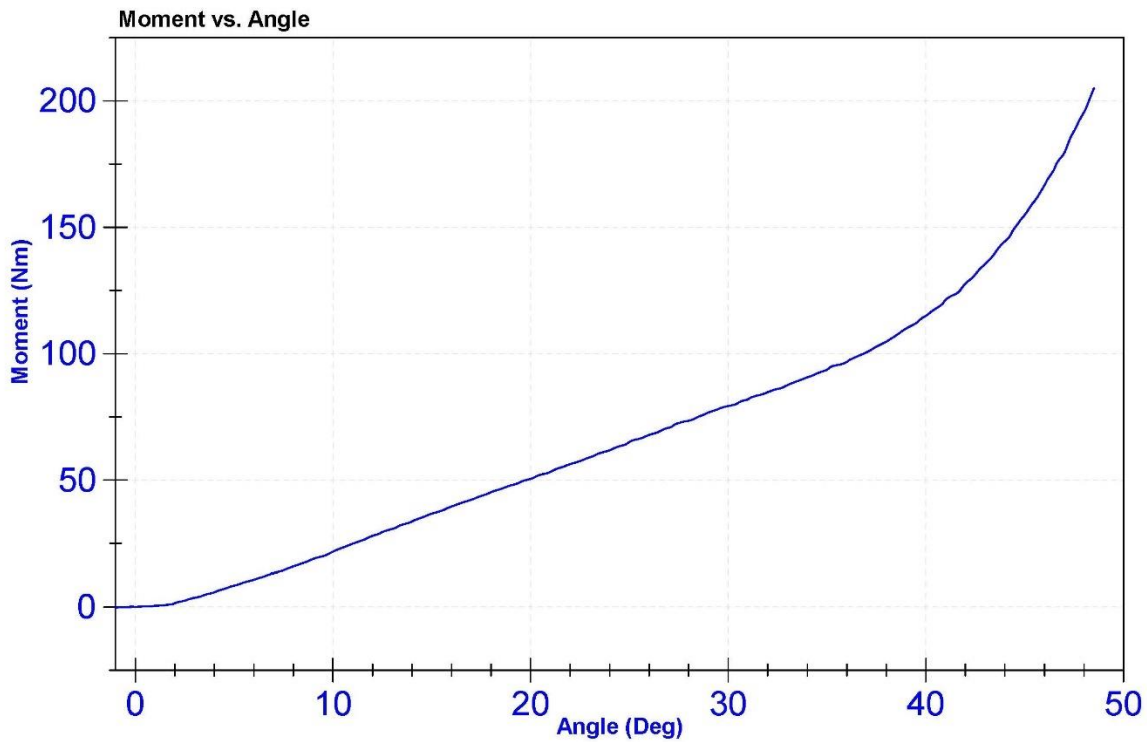
ATD Manufacturer	Humanetics	Test Technician	S. Vacanti
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.8	Pass
Humidity	10	70	%	28	Pass
Average Velocity	5	10	deg/s	7.5	Pass
Angle at 203Nm	40	50	deg	48.4	Pass
Moment at 30 degrees	0	94.9	Nm	79.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	ETI SP22	DS-0008	9/27/2021	9/27/2022
Load Cell	Key Trans 2301-02	LC-115 My	2021-08-13	2022-08-13



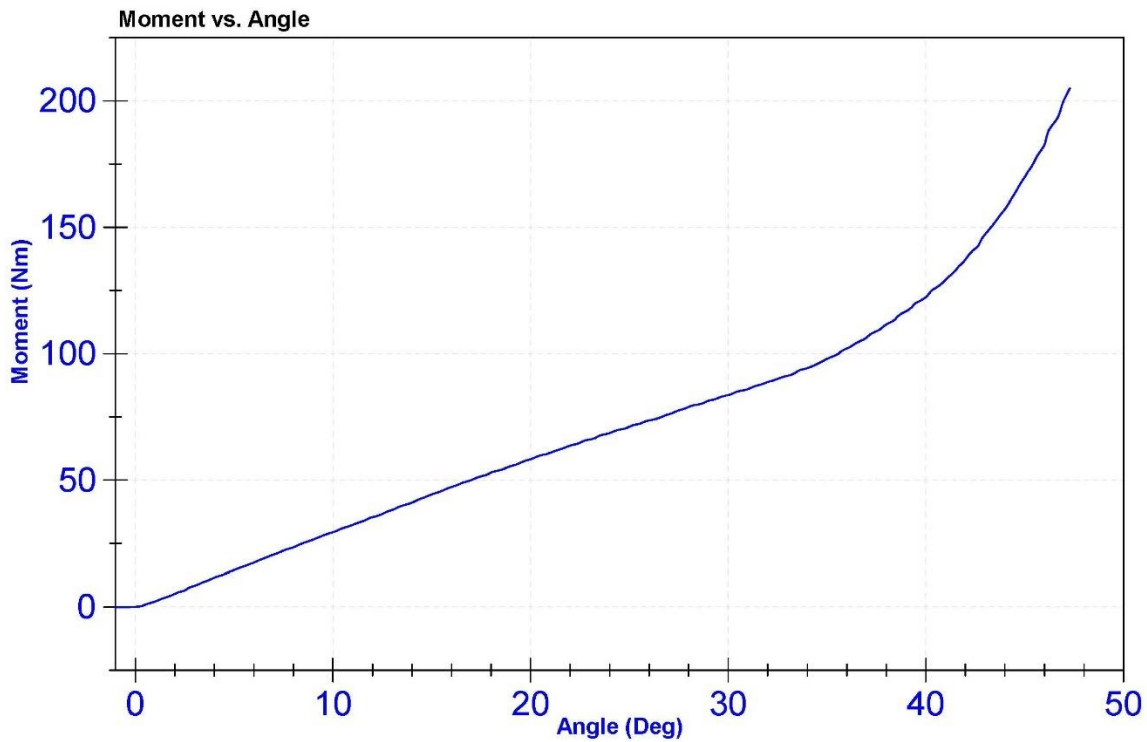
ATD Manufacturer	Humanetics	Test Technician	S. Vacanti
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.8	Pass
Humidity	10	70	%	28	Pass
Average Velocity	5	10	deg/s	7.4	Pass
Angle at 203Nm	40	50	deg	47.2	Pass
Moment at 30 degrees	0	94.9	Nm	83.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	ETI SP22	DS-0008	9/27/2021	9/27/2022
Load Cell	Key Trans 2301-02	LC-115 My	2021-08-13	2022-08-13



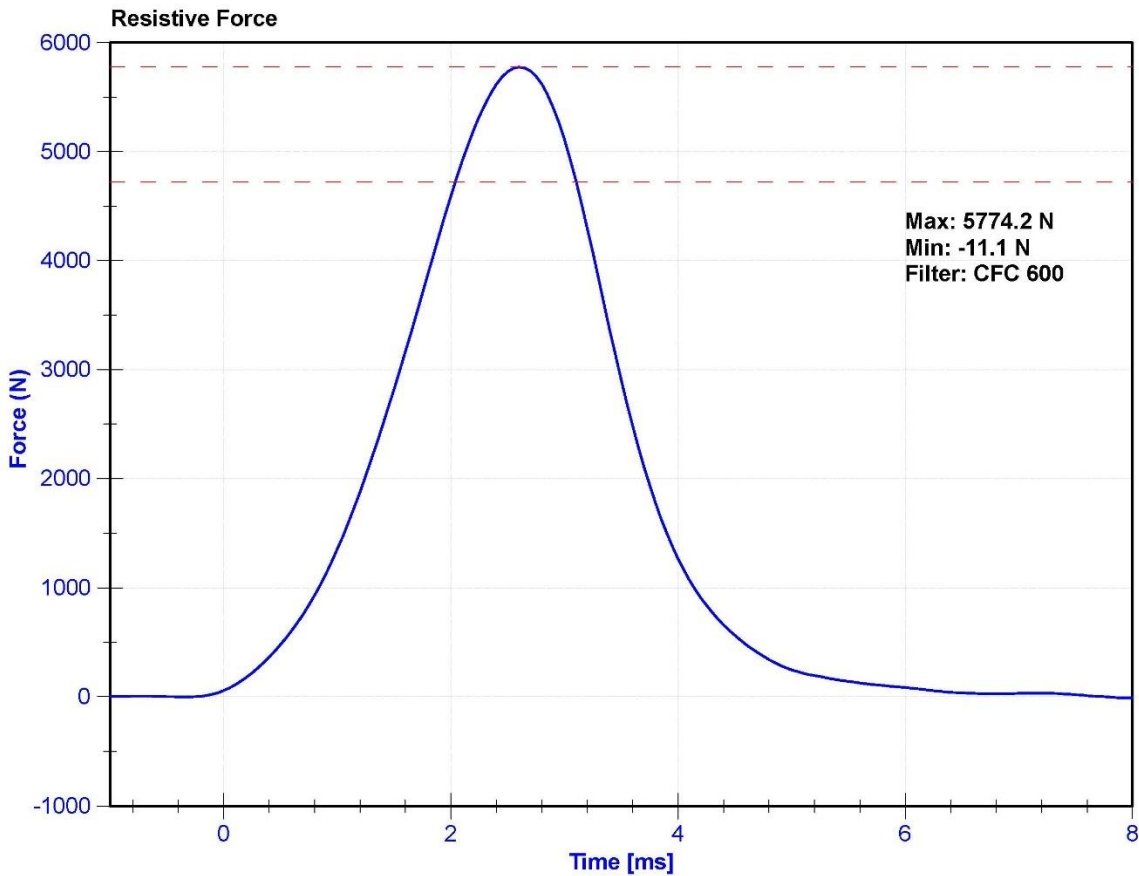
ATD Manufacturer	Humanetics	Test Technician	S. Vacanti
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

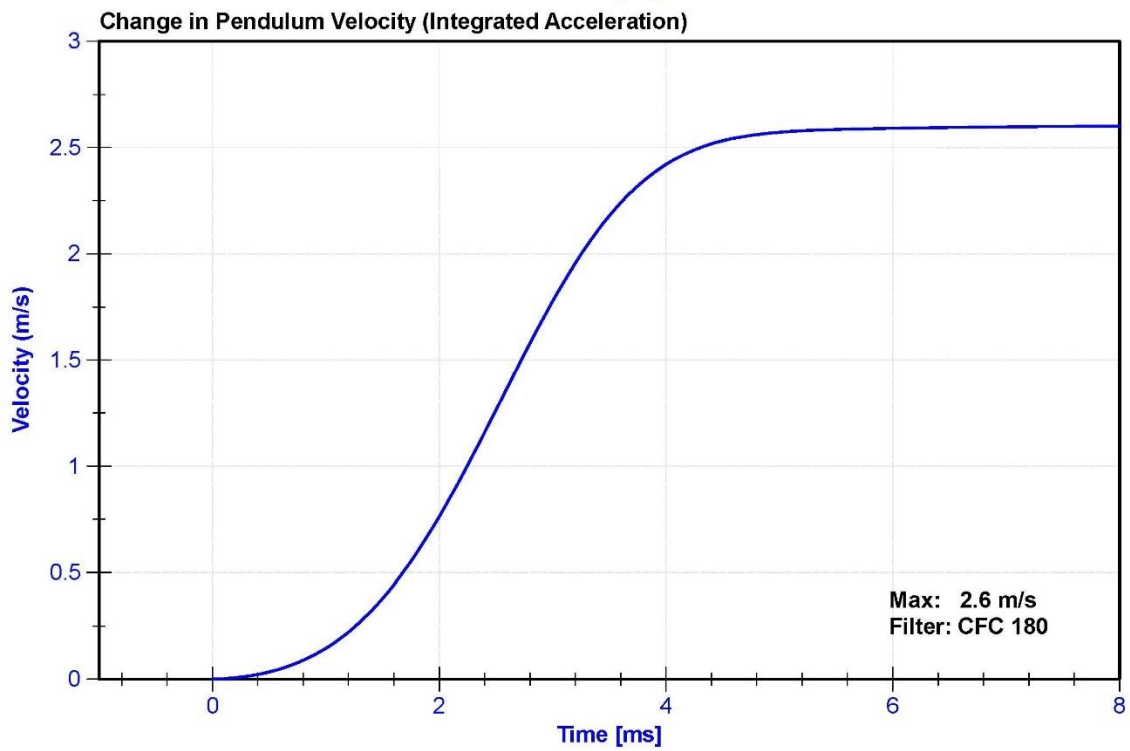
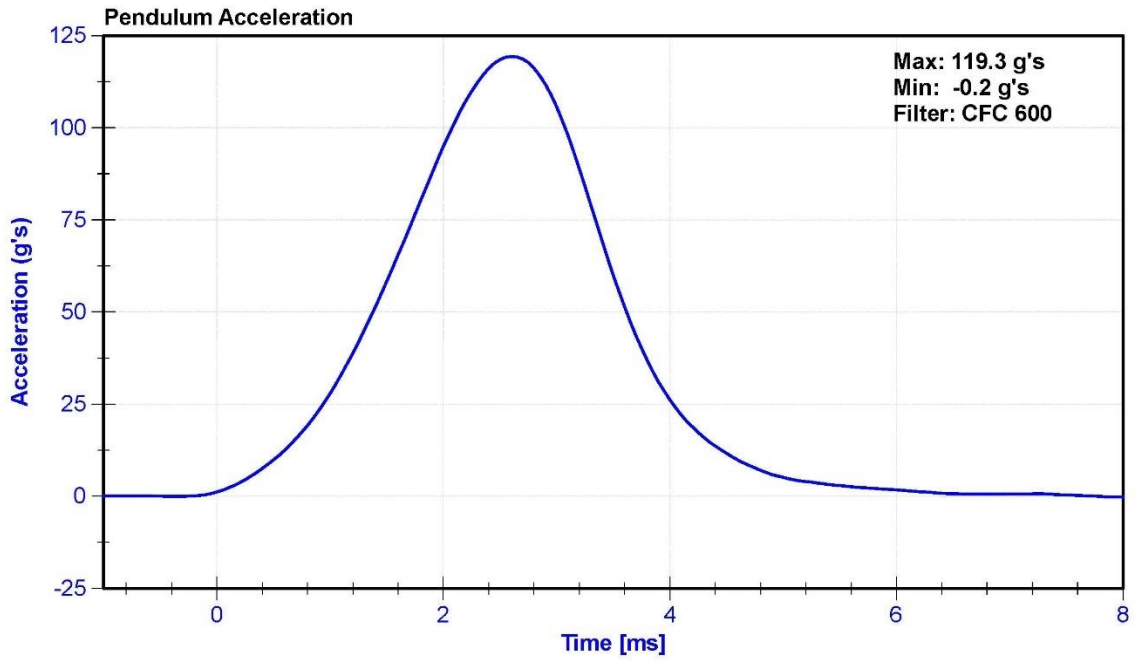
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.8	Pass
Humidity	10	70	%	28	Pass
Velocity	2.07	2.13	m/s	2.115	Pass
Maximum Resistive Force	4720	5780	N	5774.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25885	10/25/2021	10/25/2022





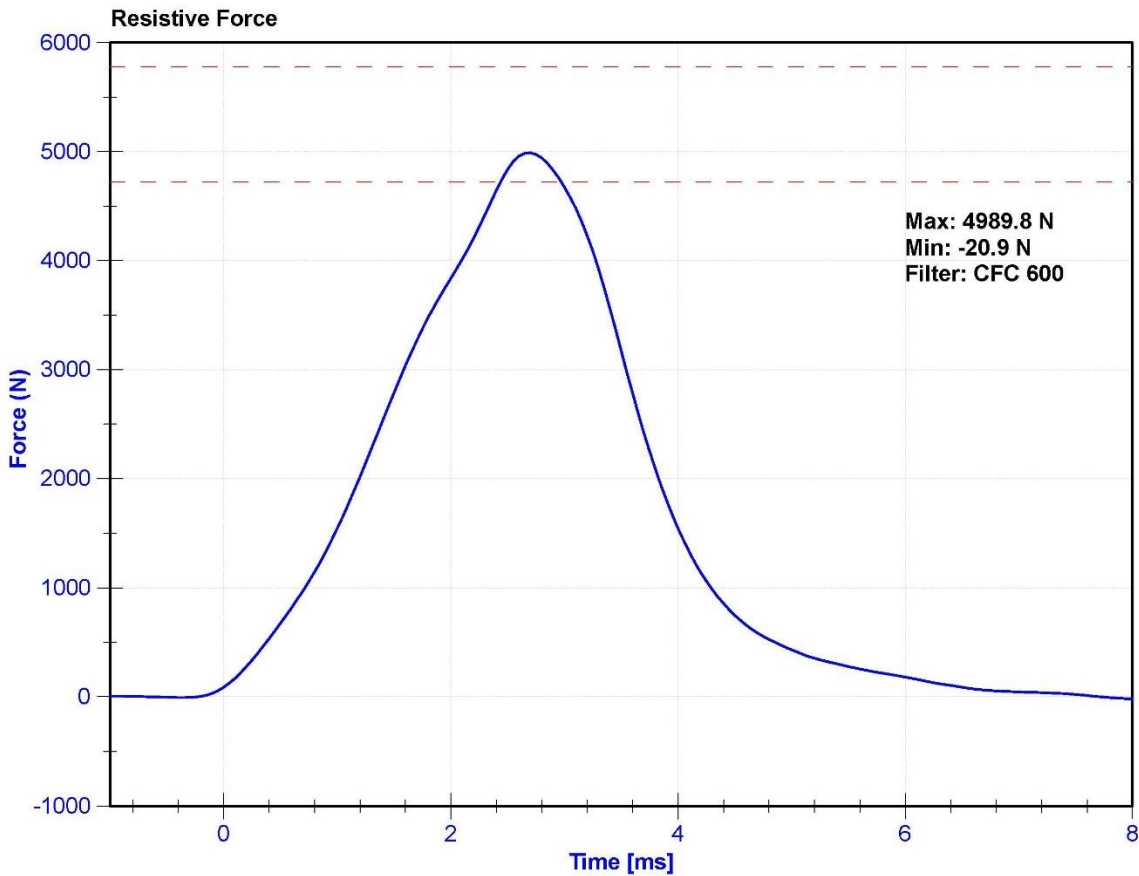
ATD Manufacturer	Humanetics	Test Technician	S. Vacanti
ATD Serial Number	142	Laboratory Supervisor	K. Brogan

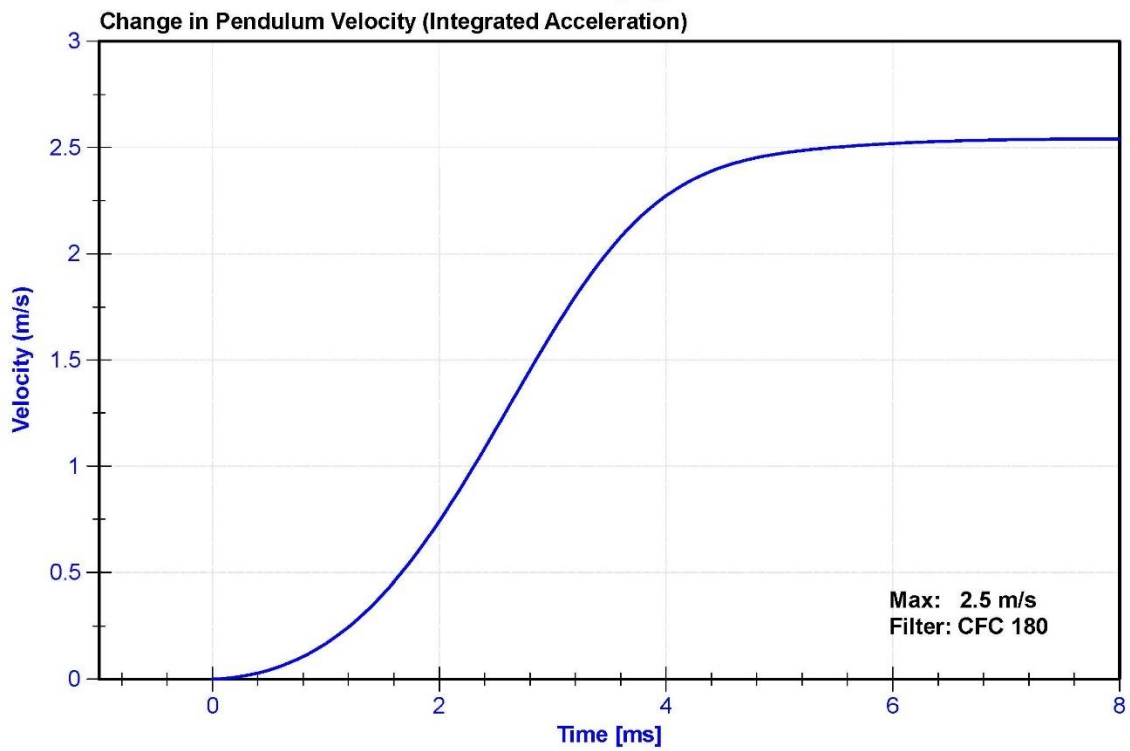
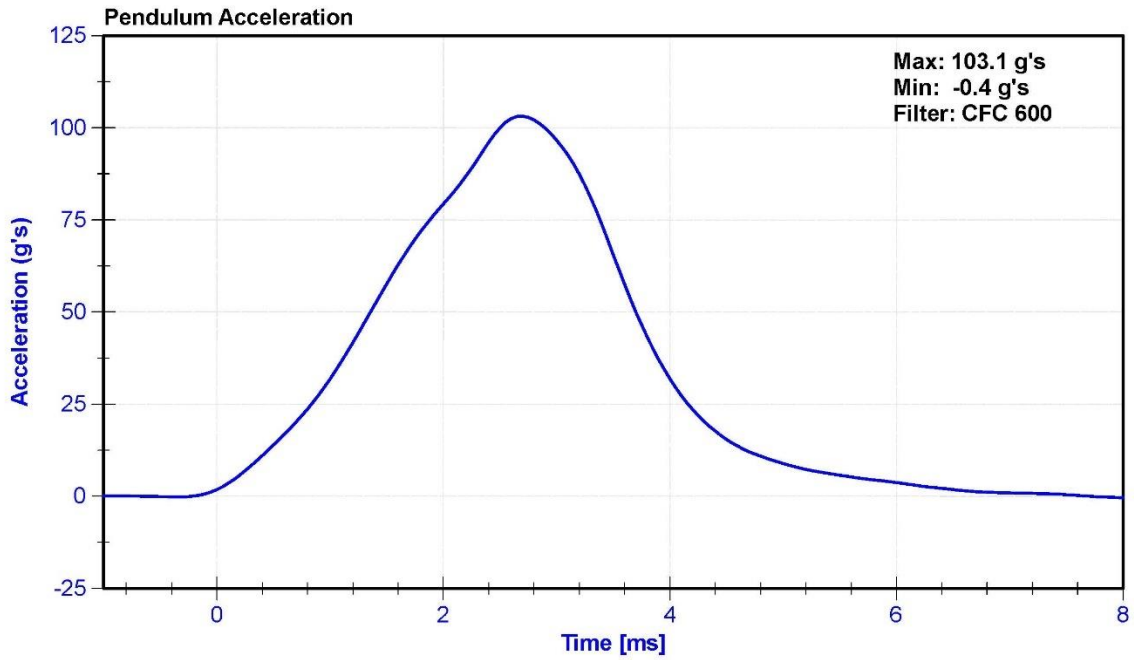
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.8	Pass
Humidity	10	70	%	28	Pass
Velocity	2.07	2.13	m/s	2.104	Pass
Maximum Resistive Force	4720	5780	N	4989.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25885	10/25/2021	10/25/2022





CALIBRATION TEST RESULTS

POST-TEST

HYBRID III 5TH PERCENTILE FEMALE - PASSENGER ATD

SERIAL NO: 137

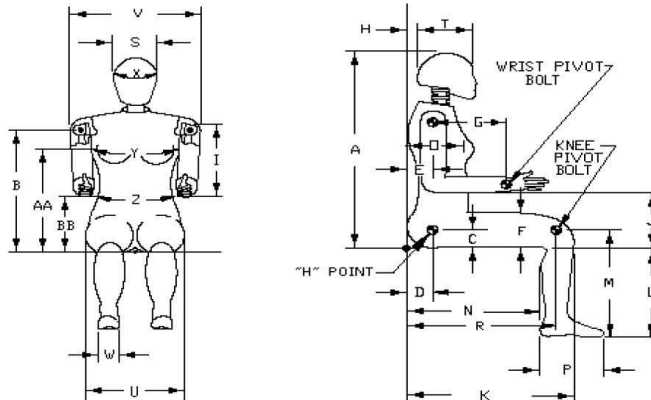


External Measurements - Hybrid 3 - 5th Female

Technician: K. Brogan

Date: 05-12-2022

Dummy Serial Number: 137



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	775	800	788	Pass
B	Shoulder Pivot Height	432	457	445	Pass
C	H-Point Height	81	86	84	Pass
D	H-Point from Backline	145	150	147	Pass
E	Shoulder Pivot from Backline	69	84	78	Pass
F	Thigh Clearance	119	135	124	Pass
G	Back of Elbow to Wrist Pivot	244	259	250	Pass
H	Head Back to Backline	43	48	45	Pass
I	Shoulder to Elbow Length	277	297	285	Pass
J	Elbow Rest Height	183	203	195	Pass
K	Buttock to Knee Length	521	546	541	Pass
L	Popliteal Height	356	376	365	Pass
M	Knee Pivot Height	394	419	410	Pass
N	Buttock Popliteal Length	414	439	425	Pass
O	Chest Depth without Jacket	175	191	180	Pass
P	Foot Length (right)	219	234	228	Pass
R	Buttock To Knee Pivot Length	457	483	465	Pass
S	Head Breadth	137	147	141	Pass
T	Head Depth	178	188	180	Pass
U	Hip Breadth	300	315	310	Pass
V	Shoulder Breadth	351	366	359	Pass
W	Foot Breadth	79	94	85	Pass
X	Head Circumference	528	549	540	Pass
Y	Chest Circumference with Jacket	851	881	874	Pass
Z	Waist Circumference	460	790	650	Pass
AA	Reference Location (Chest Circumference)	333	358	345	Pass
BB	Reference Location (Waist Circumference)	160	170	165	Pass

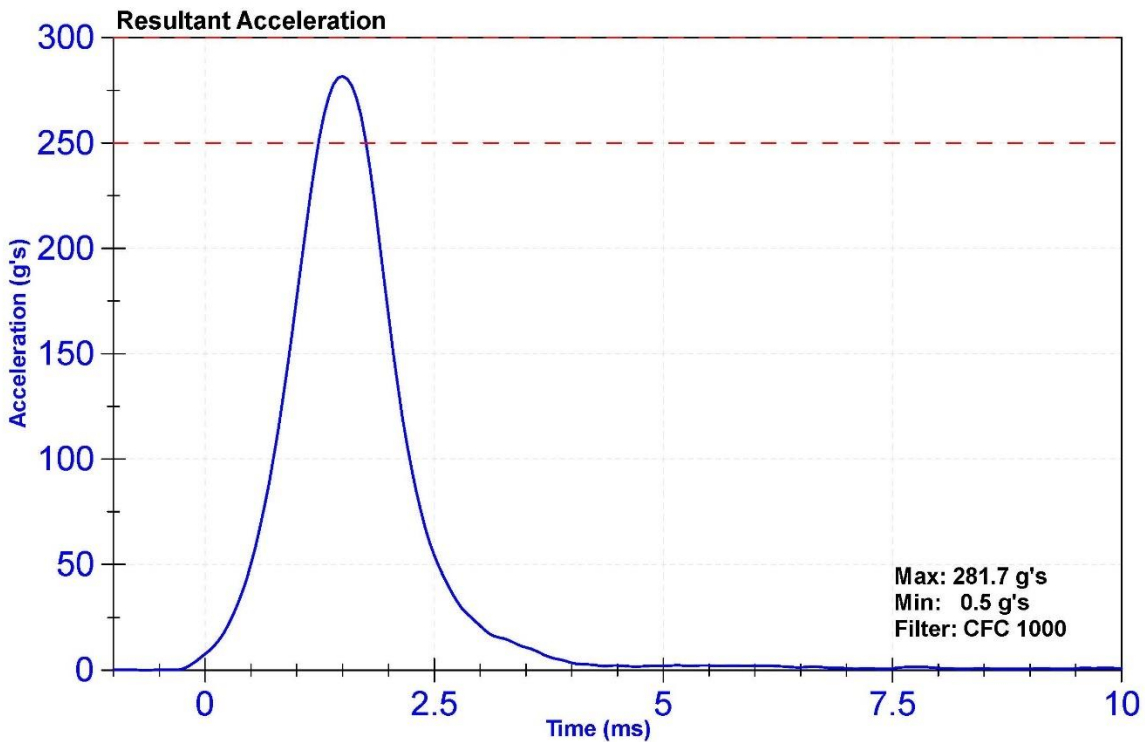
ATD Manufacturer	Humanetics	Test Technician	T. Roseman
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

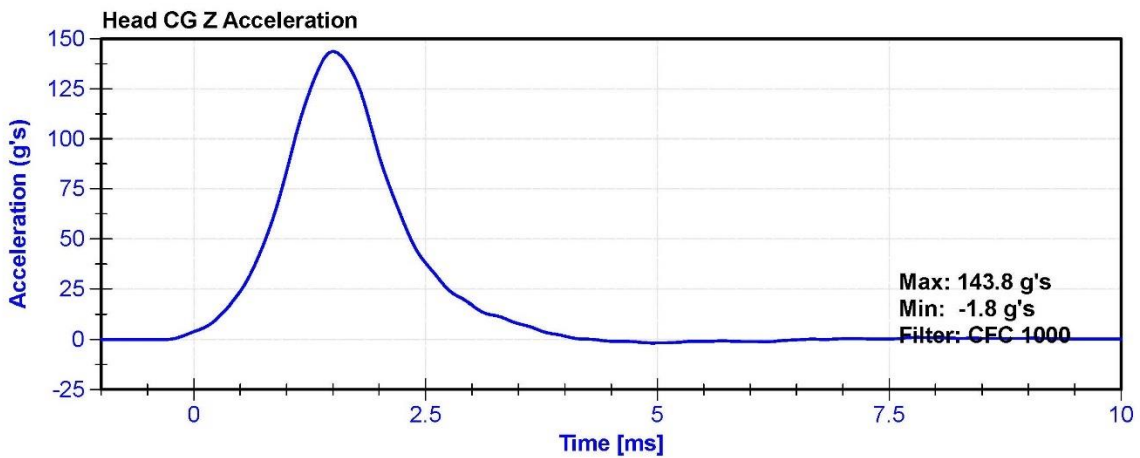
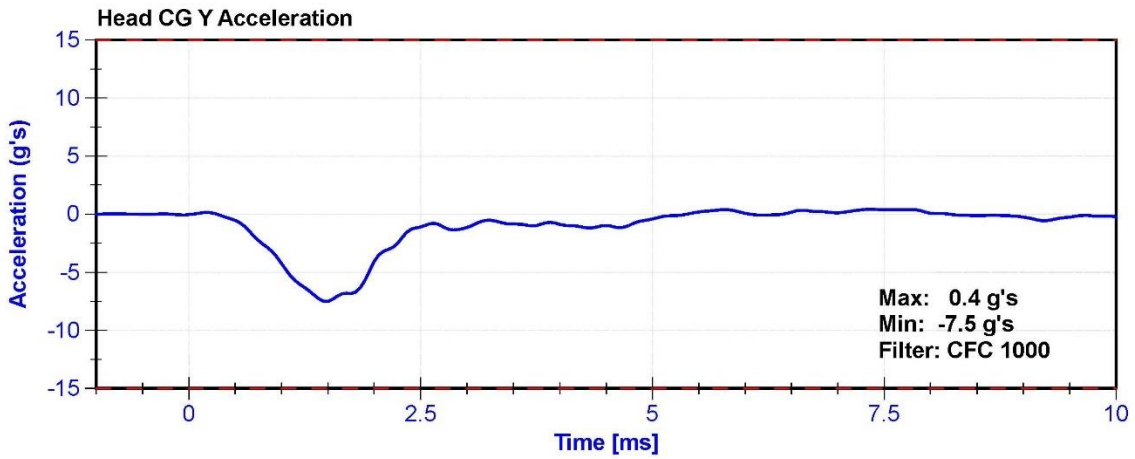
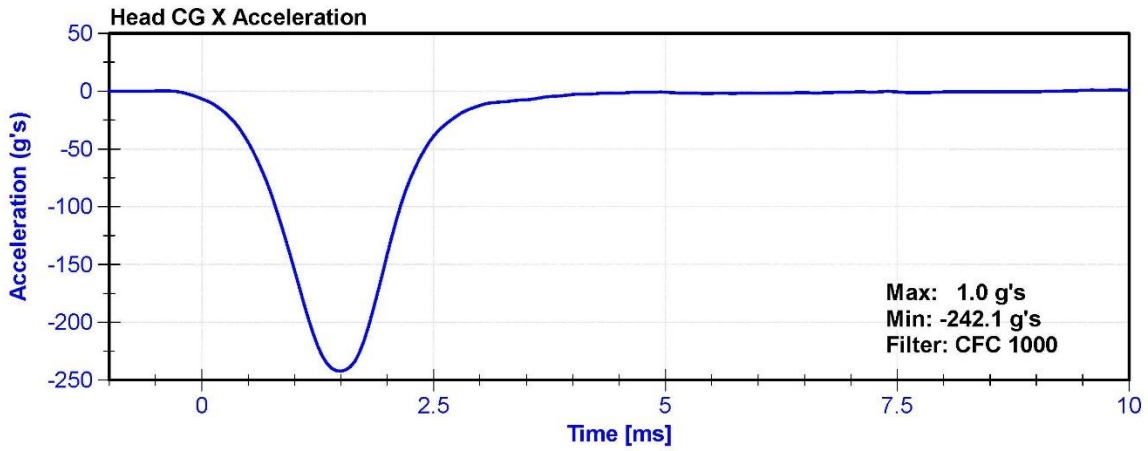
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.2	Pass
Humidity	10	70	%	26.0	Pass
Resultant Acceleration	250	300	g's	281.7	Pass
Oscillation	0	10	%	0.8	Pass
Lateral Acceleration	-15	15	g's	-7.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P79417	2/1/2022	7/31/2022
Y Accelerometer	Endevco	P83335	2/1/2022	7/31/2022
Z Accelerometer	Endevco	P64149	2/1/2022	7/31/2022





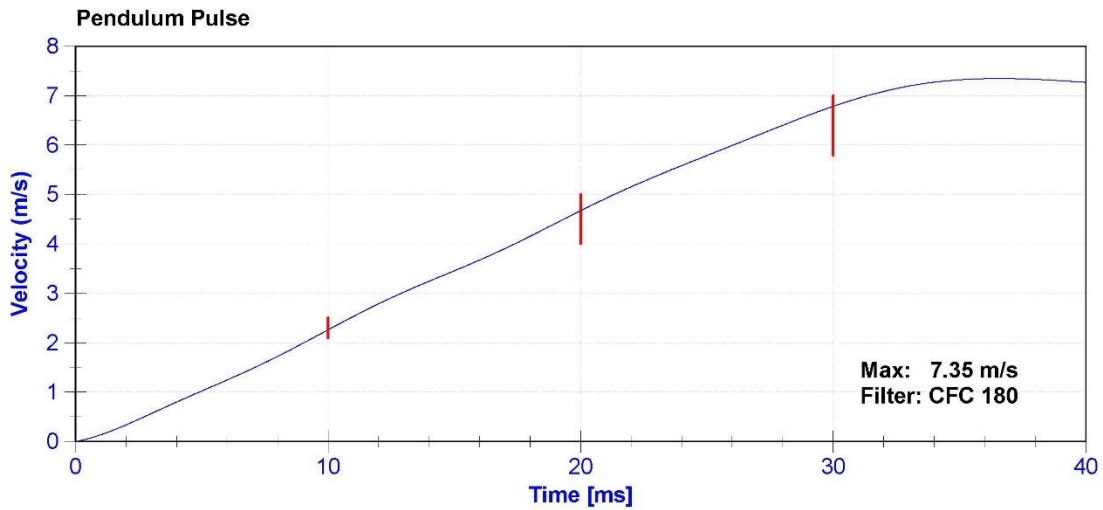
ATD Manufacturer	Humanetics	Test Technician	C. Mantell
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

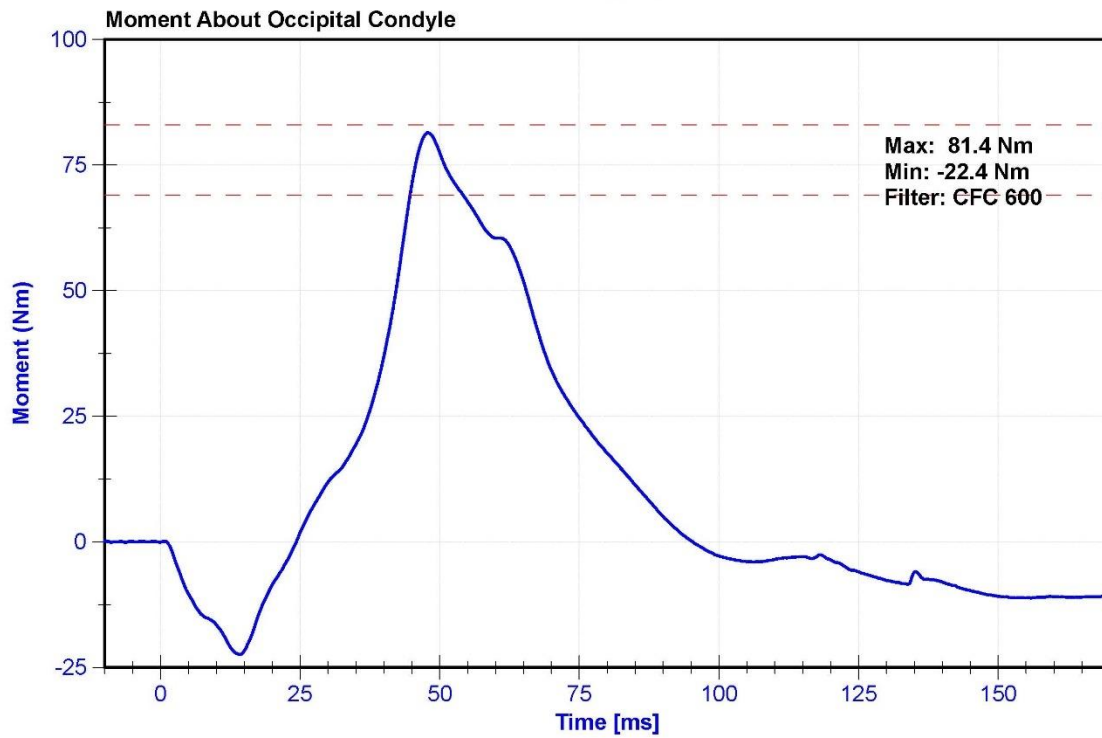
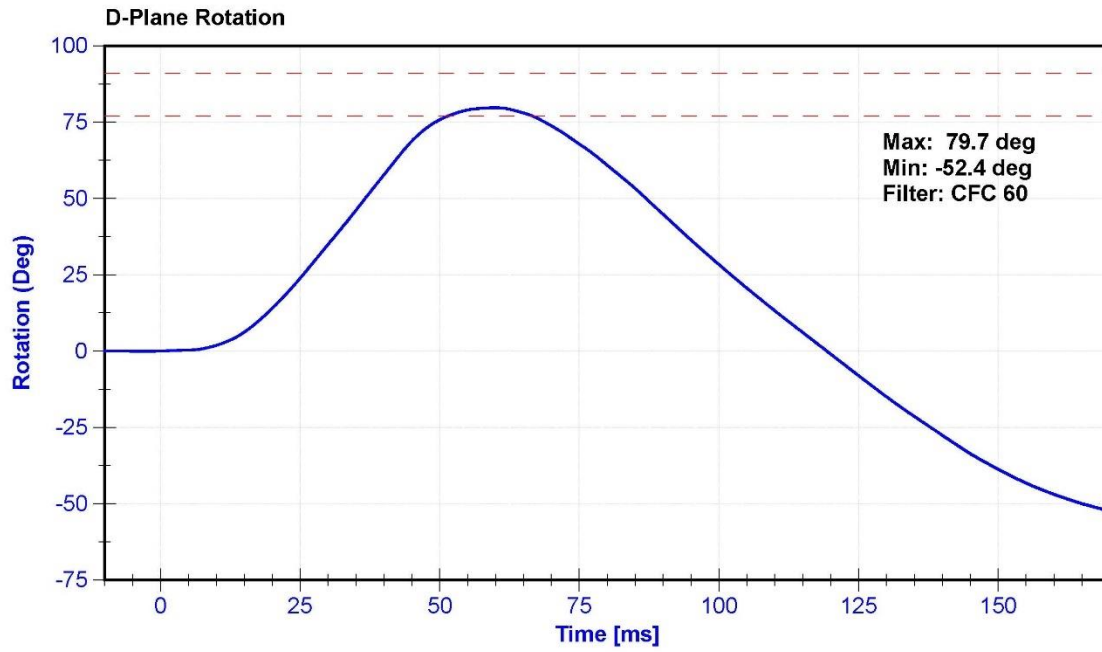
Results

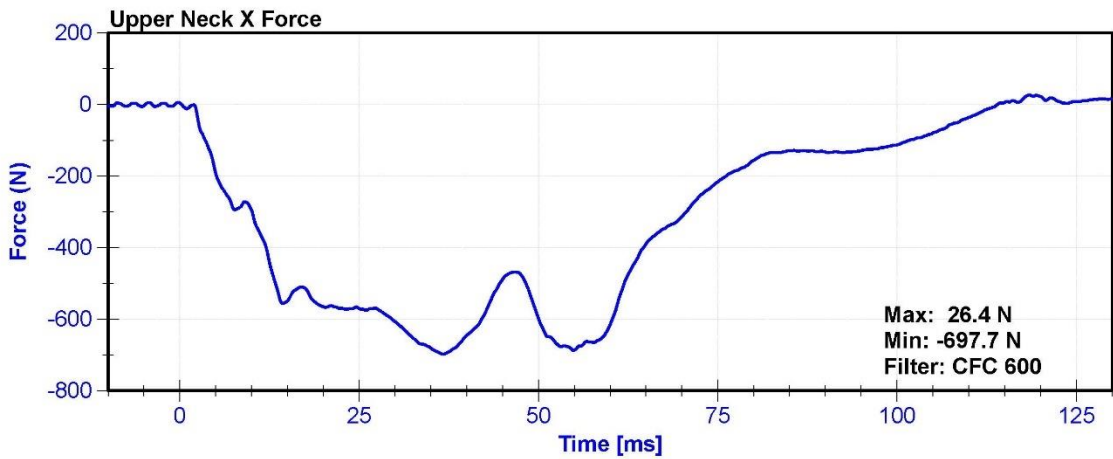
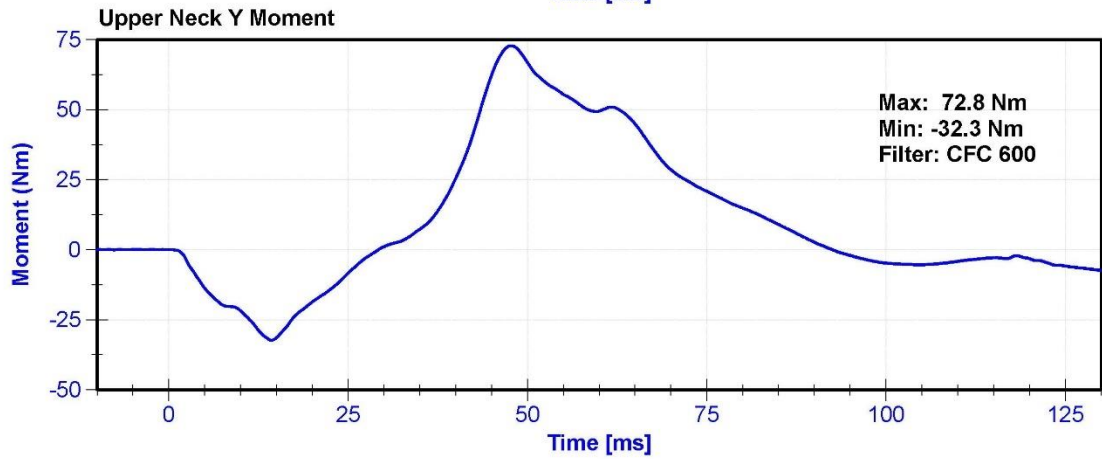
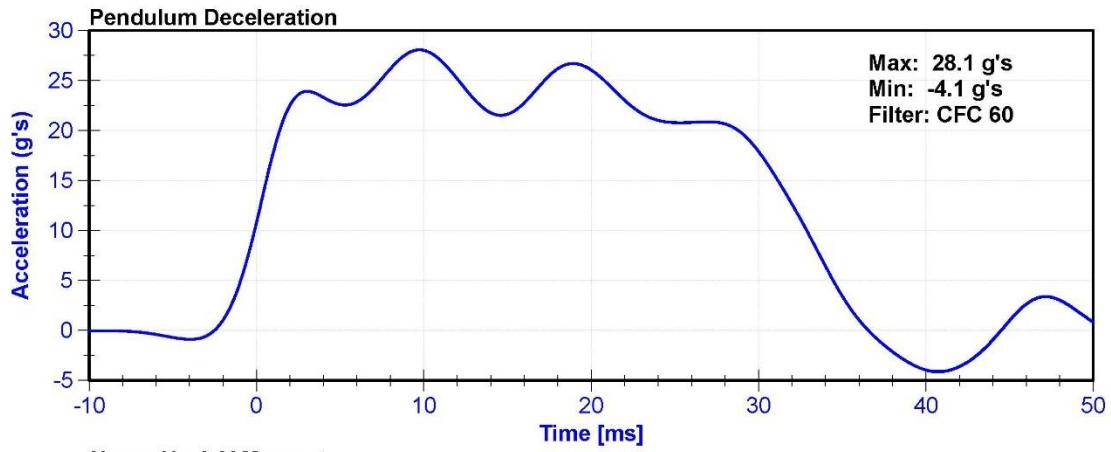
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	41.5	Pass
Velocity	6.89	7.13	m/s	7.026	Pass
Pendulum Impulse at 10ms	2.1	2.5	m/s	2.26	Pass
Pendulum Impulse at 20ms	4.0	5.0	m/s	4.67	Pass
Pendulum Impulse at 30ms	5.8	7.0	m/s	6.79	Pass
Max D Plane Rotation	77	91	deg	79.7	Pass
Max Moment During Rotation Interval	69	83	Nm	81.4	Pass
Moment Decay to 10.0 Nm	80	100	ms	86.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231CT	10/28/2021	10/28/2022
Pendulum Potentiometer	ETI	LABPOT1	5/9/2022	5/9/2023
Condyle Potentiometer	ETI	LABPOT2	5/9/2022	5/9/2023
Upper Neck Load Cell	Denton	2184-FX	6/24/2021	6/24/2022







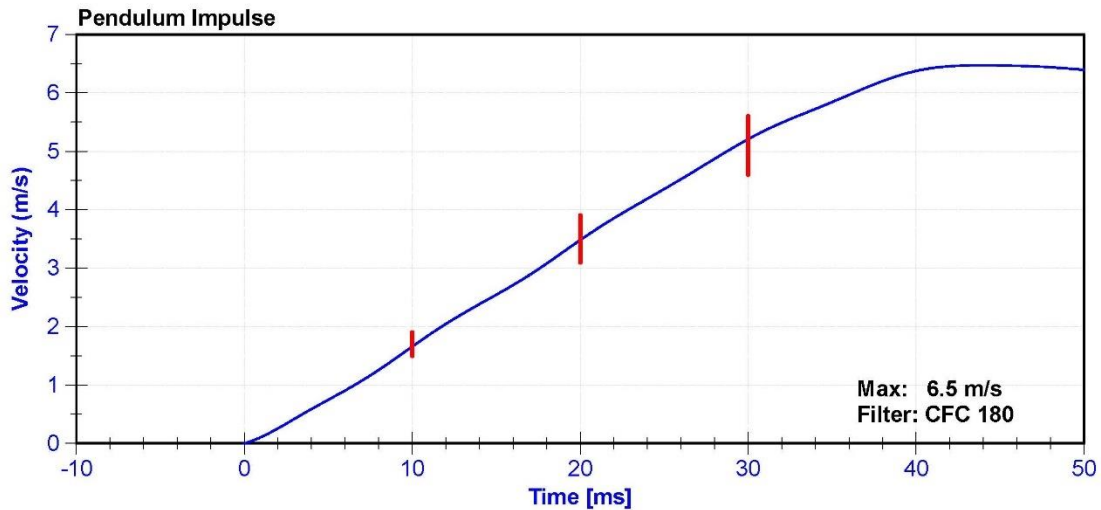
ATD Manufacturer	Humanetics	Test Technician	S. Vacanti
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

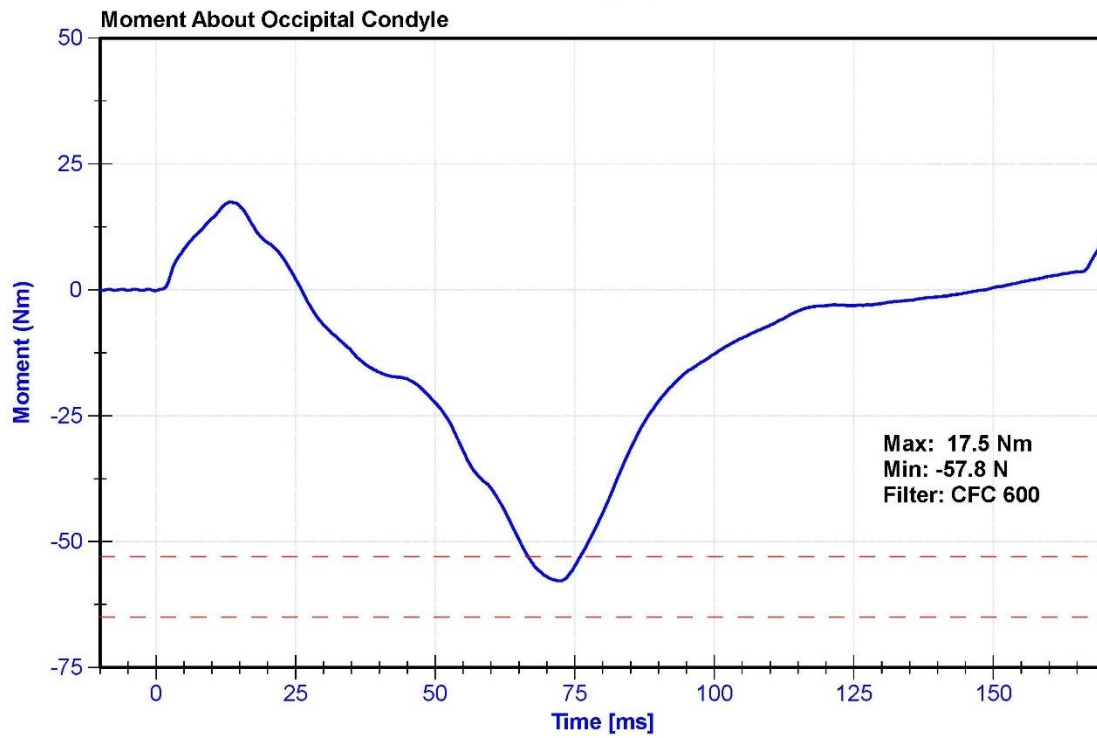
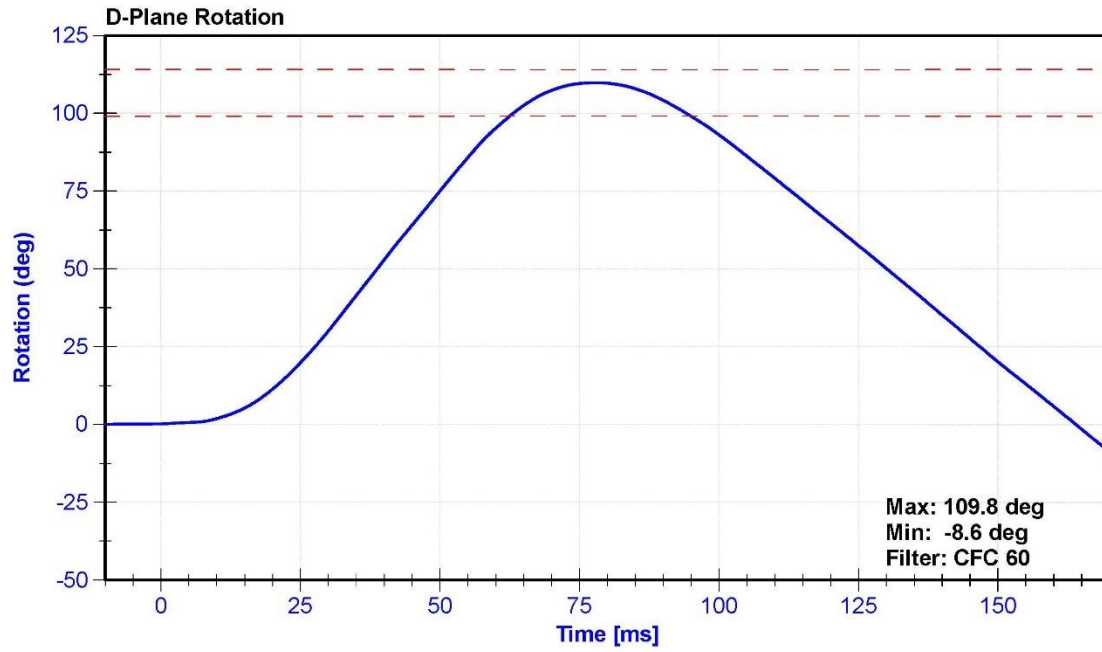
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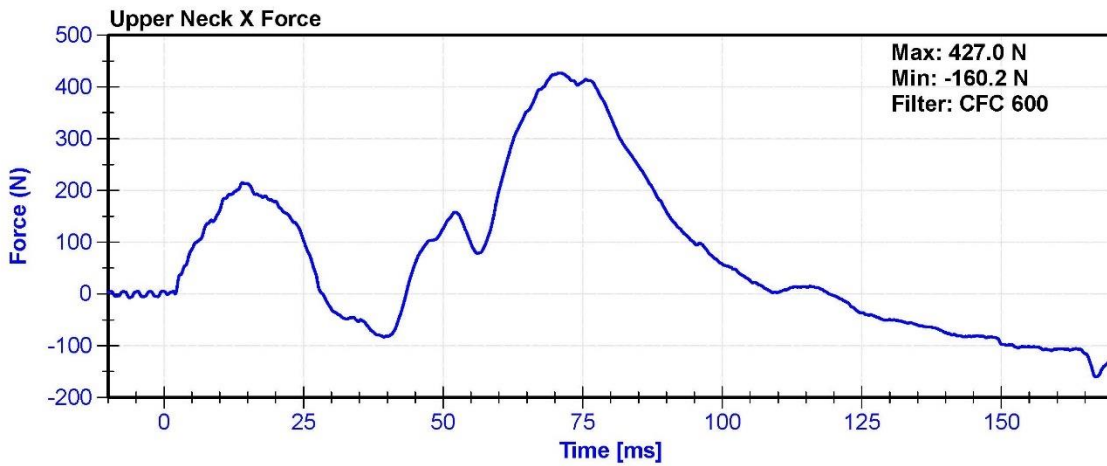
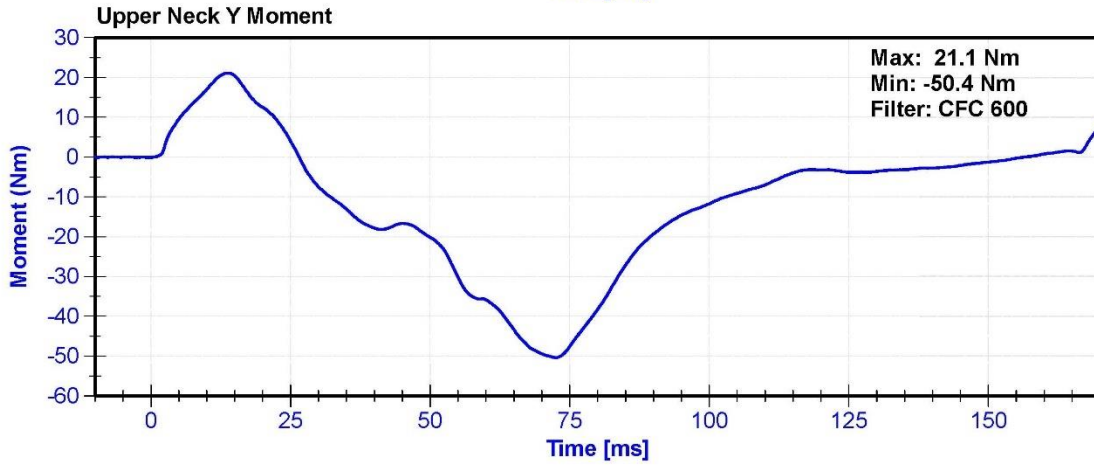
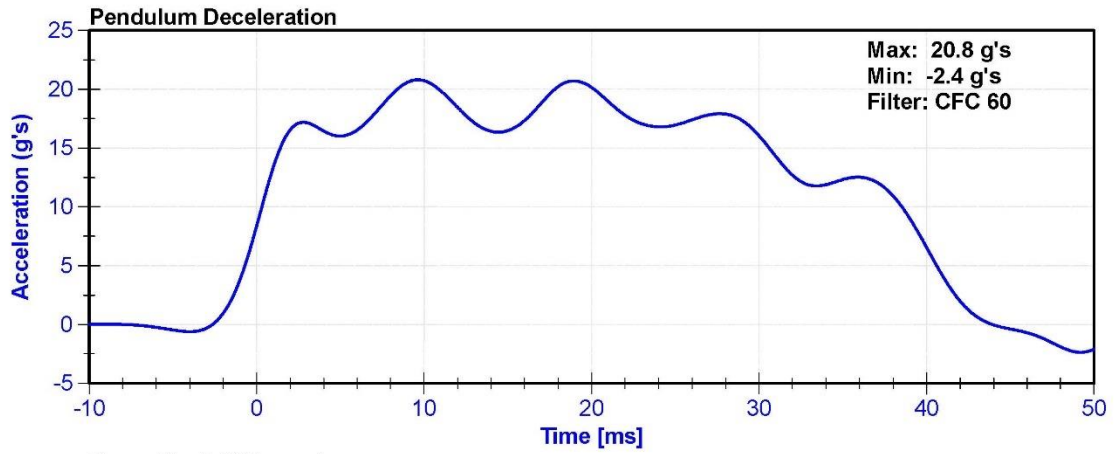
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	41.5	Pass
Velocity	5.95	6.19	m/s	6.139	Pass
Pendulum Impulse at 10ms	1.5	1.9	m/s	1.66	Pass
Pendulum Impulse at 20ms	3.1	3.9	m/s	3.48	Pass
Pendulum Impulse at 30ms	4.6	5.6	m/s	5.21	Pass
D Plane Rotation	99	114	deg	109.8	Pass
Moment During Rotation Interval	-65	-53	Nm	-57.8	Pass
Moment Decay to -10Nm	94	114	ms	104.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16503	10/28/2021	10/28/2022
Pendulum Potentiometer	ETI	LABPOT1	5/9/2022	5/9/2023
Condyle Potentiometer	ETI	LABPOT2	5/9/2022	5/9/2023
Upper Neck Load Cell	Denton	2184-FX	6/24/2021	6/24/2022







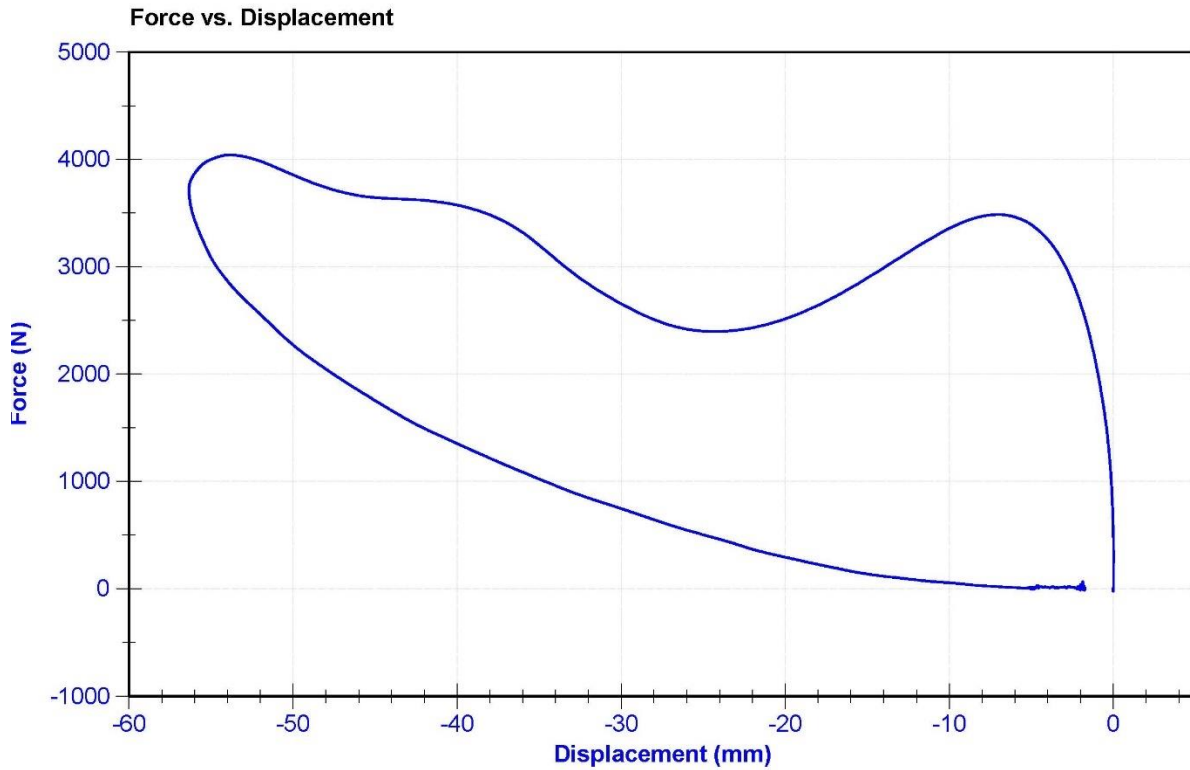
ATD Manufacturer	Humanetics	Test Technician	T. Roseman
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

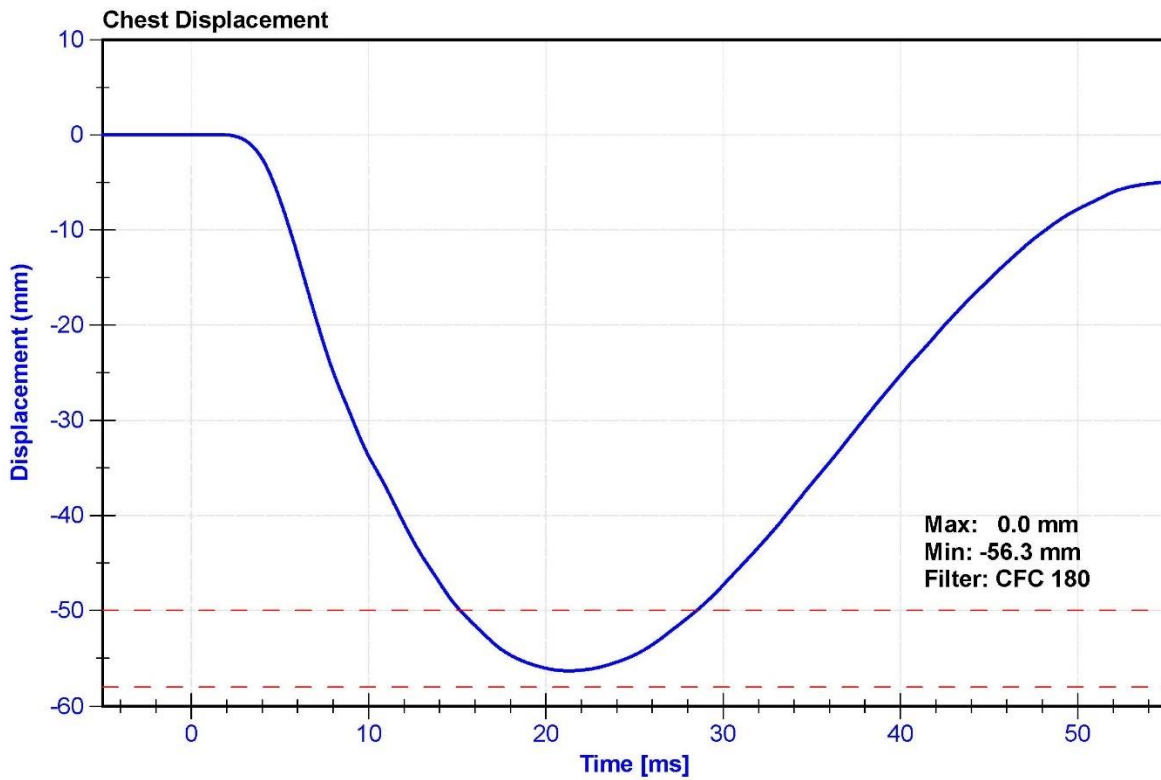
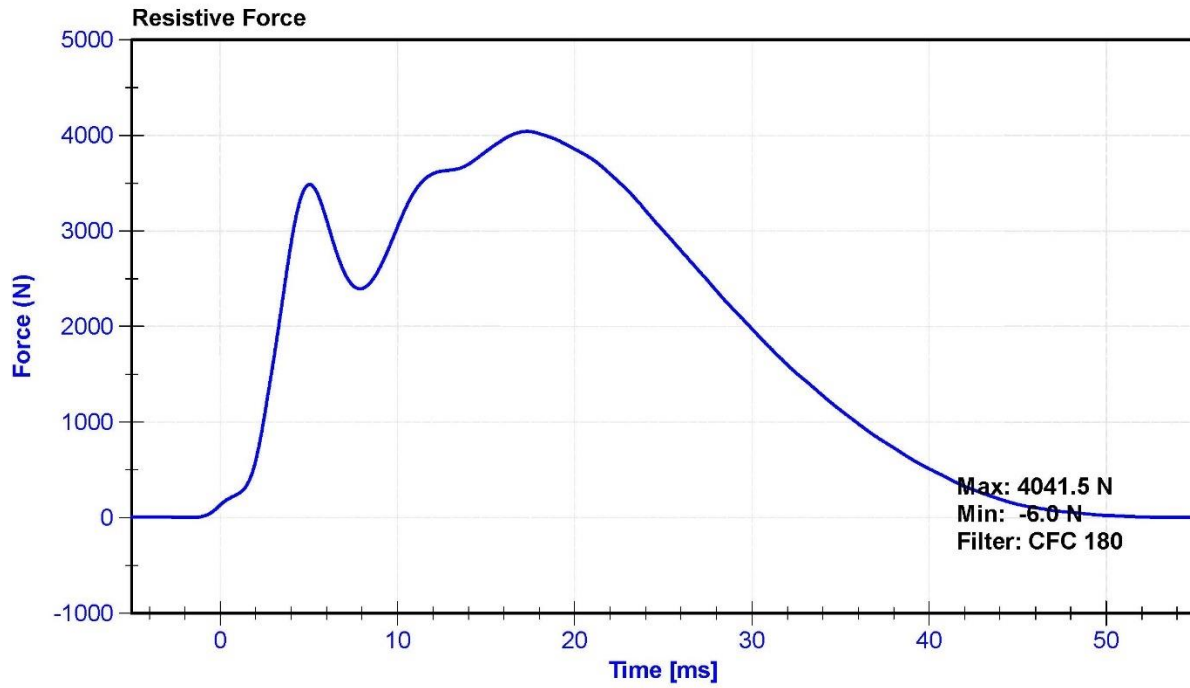
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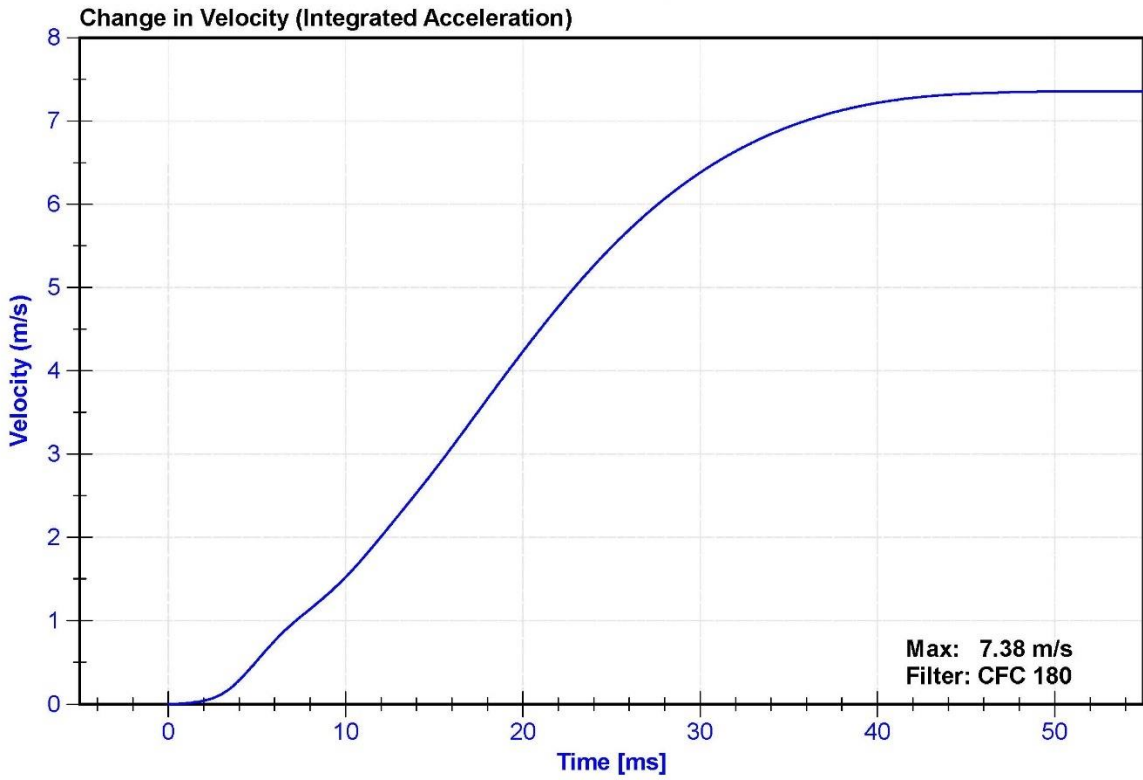
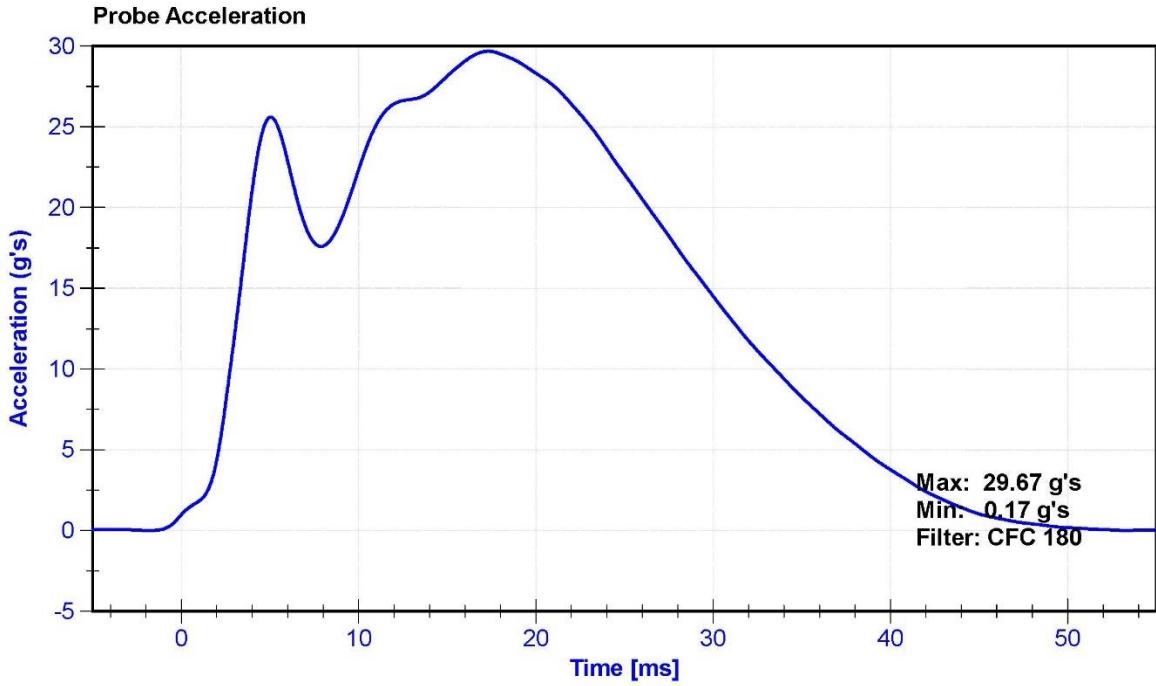
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.0	Pass
Humidity	10	70	%	26.0	Pass
Velocity	6.59	6.83	m/s	6.606	Pass
Chest Deflection	-58	-50	mm	-56.3	Pass
Maximum Resistive Force (50 to 58mm)	3900	4400	N	4041.5	Pass
Maximum Resistive Force (18 to 50mm)	0	4600	N	3852.5	Pass
Hysteresis	69	85	%	70.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	P51736	10/25/2021	10/25/2022
Chest Potentiometer	Servo	0720	4/18/2022	10/17/2022







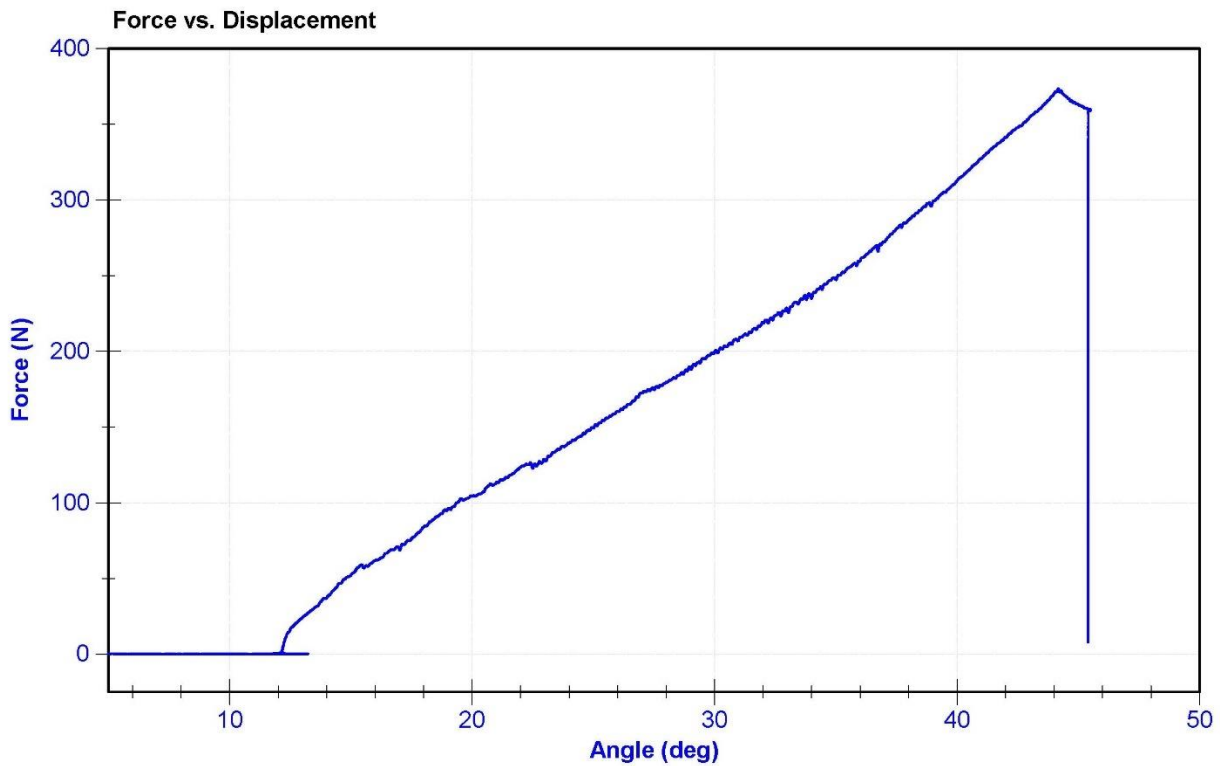
ATD Manufacturer	Humanetics	Test Technician	T. Roseman
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.6	25.6	°C	21.2	Pass
Humidity	10	70	%	26.0	Pass
Initial Angle	0	20	deg	12.0	Pass
Force at 45 Degrees	320	390	N	373.4	Pass
Return Angle Relative to Initial	0	8	deg	3.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Potentiometer	Rieker	DS-1905226	2021-11-01	2022-11-01
Load Cell	Interface	1134516	2021-08-27	2022-08-27



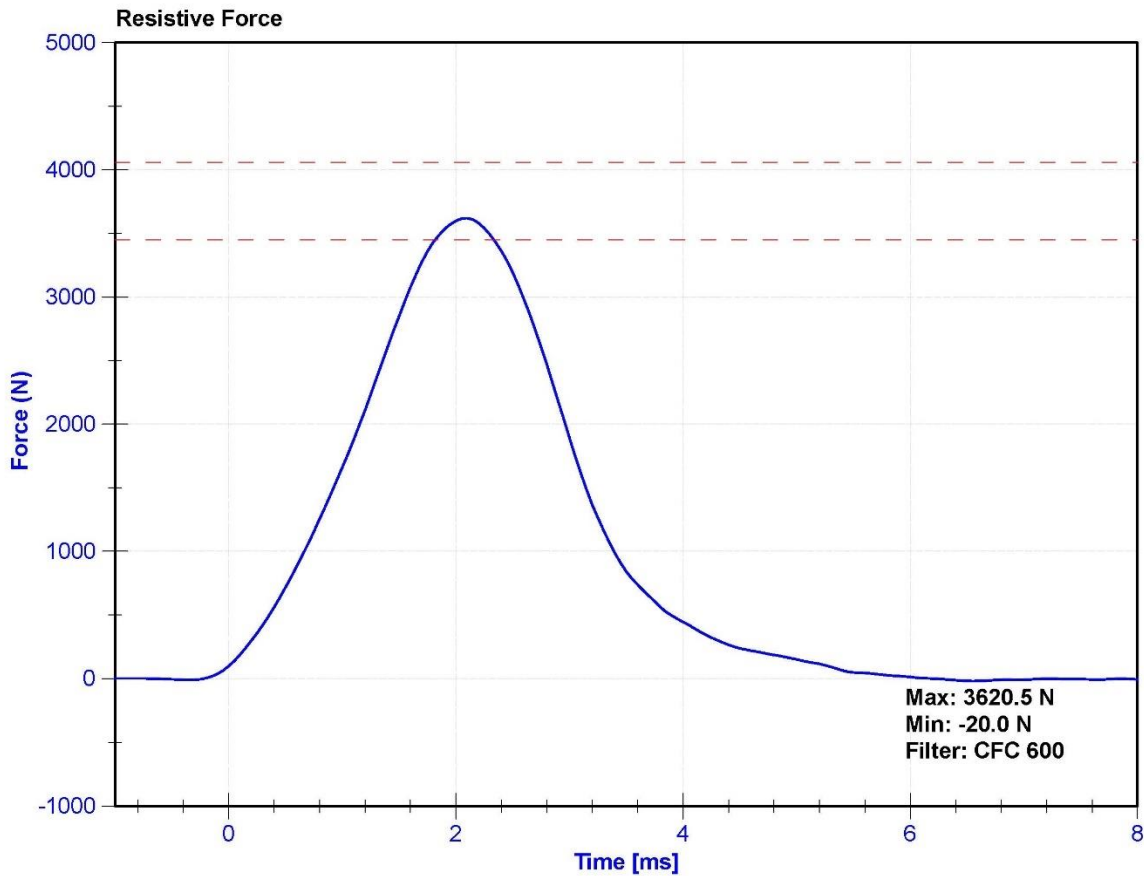
ATD Manufacturer	Humanetics	Test Technician	S. Vacanti
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

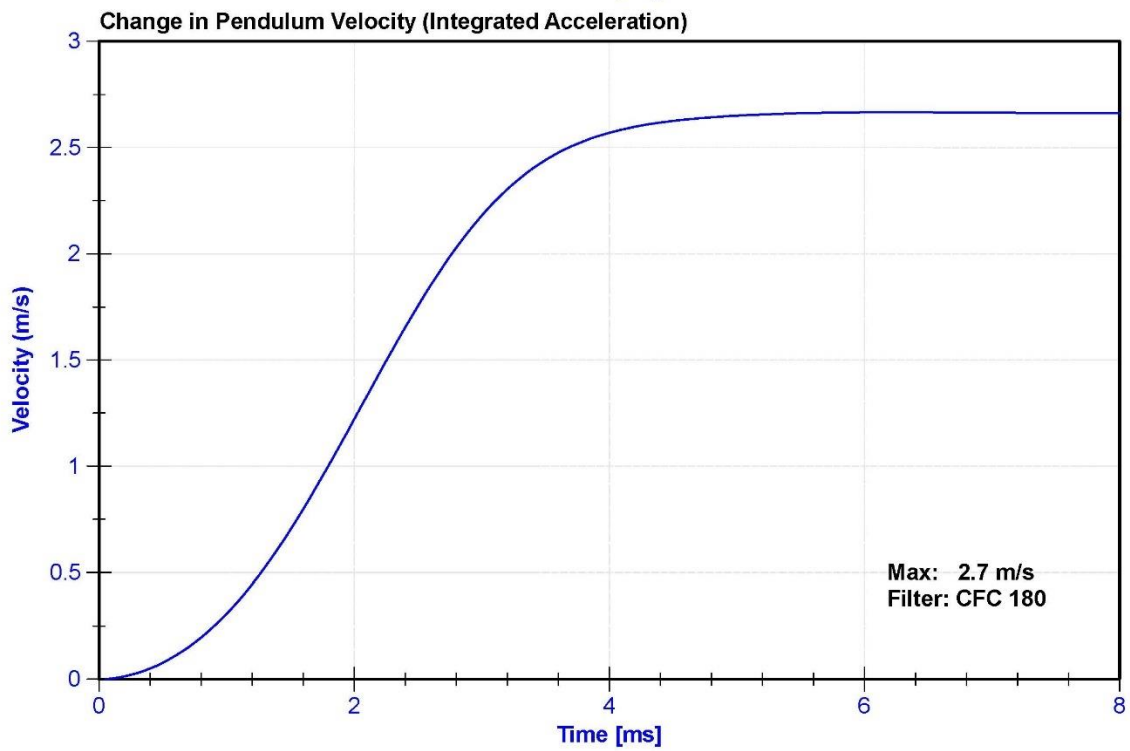
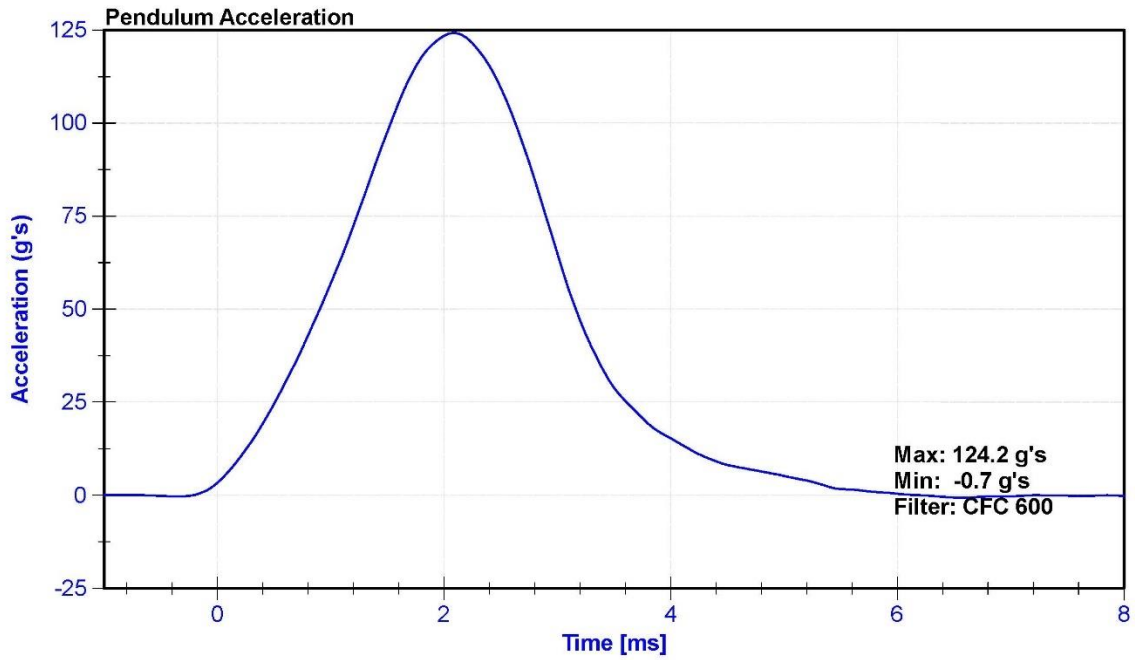
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.8	Pass
Humidity	10	70	%	28	Pass
Velocity	2.07	2.13	m/s	2.099	Pass
Resistive Force	3450	4060	N	3620.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25885	10/25/2021	10/25/2022





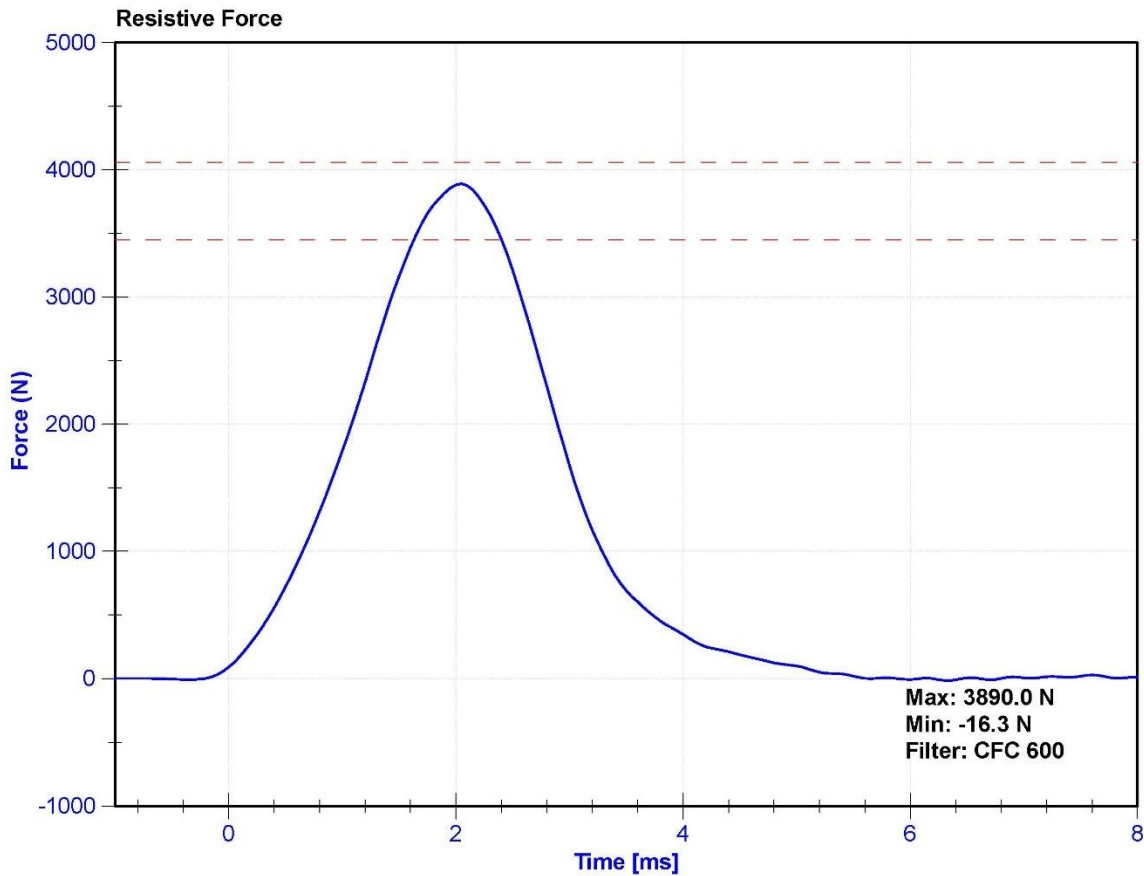
ATD Manufacturer	Humanetics	Test Technician	S. Vacanti
ATD Serial Number	137	Laboratory Supervisor	K. Brogan

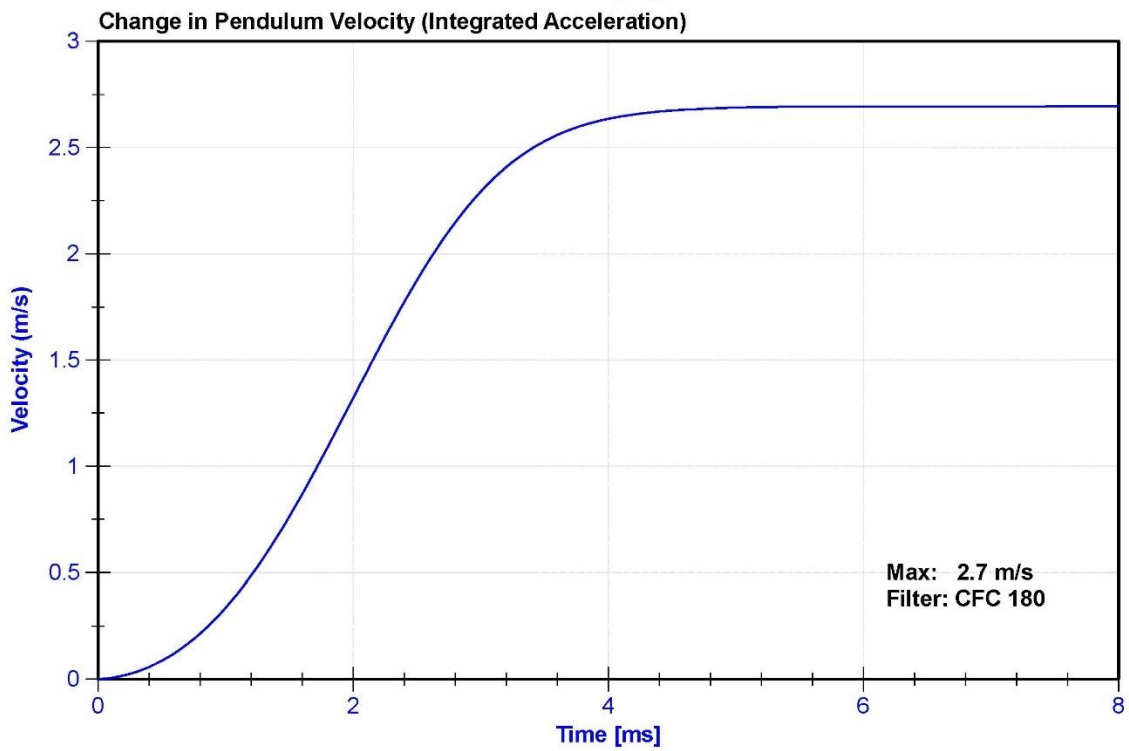
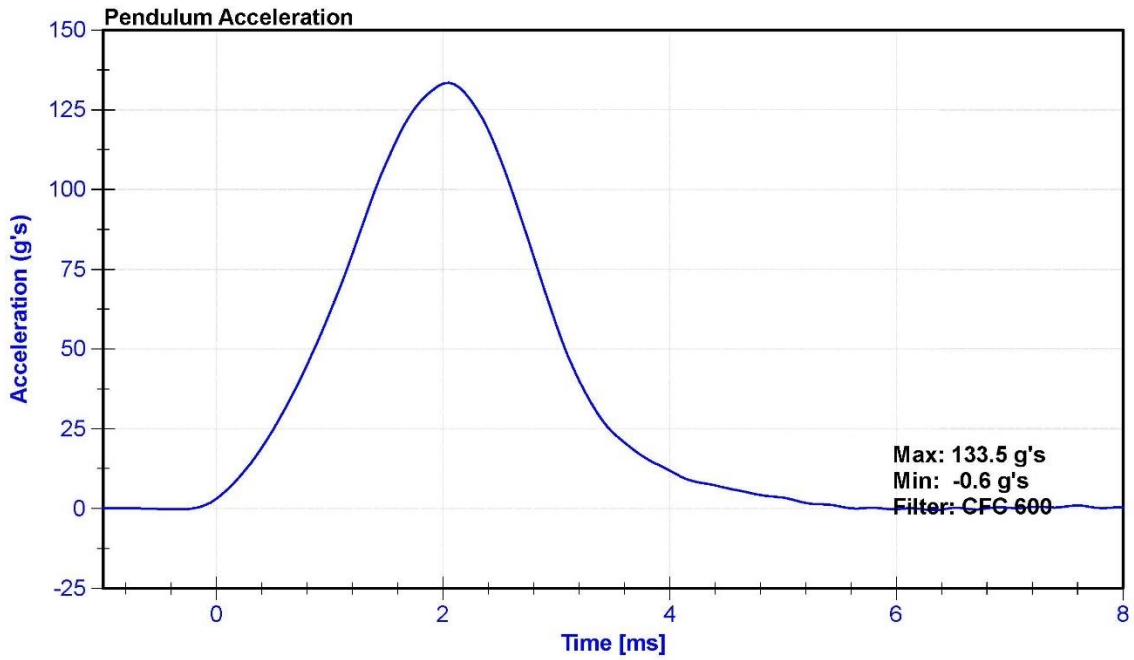
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.8	Pass
Humidity	10	70	%	28	Pass
Velocity	2.07	2.13	m/s	2.102	Pass
Resistive Force	3450	4060	N	3890.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	T25885	10/25/2021	10/25/2022





APPENDIX D

DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

Table 1 – Driver Dummy Instrumentation

Instrumentation		Axis/Location	Hybrid III 50 th S/N: 142		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers	Primary	X	P51681	Endevco	11/16/2021
		Y	P64151	Endevco	11/16/2021
		Z	P52114	Endevco	11/16/2021
	Redundant	X	P58833	Endevco	11/16/2021
		Y	P58905	Endevco	11/16/2021
		Z	P63996	Endevco	11/16/2021
Head Angular Rate Sensors		X	7589	DTS ARS	8/9/2021
		Y	7370	DTS ARS	8/9/2021
		Z	13095	DTS ARS	8/9/2021
Upper Neck Load Cell		FX, Fy, Fz MX,MY, MZ	280-FX	FTSS	9/14/2021
Chest Accelerometers	Primary	X	P51991	Endevco	11/16/2021
		Y	P80337	Endevco	1/14/2022
		Z	P49185	Endevco	11/16/2021
	Redundant	X	P68059	Endevco	11/16/2021
		Y	P51713	Endevco	11/16/2021
		Z	P78824	Endevco	11/16/2021
Chest Potentiometer		X	142GFE	Servo JDK	11/16/2021
Pelvis Accelerometer		X	P58800	Endevco	11/16/2021
		Y	P52157	Endevco	11/16/2021
		Z	P52156	Endevco	11/16/2021
Femur Load Cells - Left	Primary	Z	DT0998-FZ1	Denton	6/30/2021
	Redundant	Z	DT0998-FZ2	Denton	6/30/2021
Femur Load Cells - Right	Primary	Z	117-FZ1	Denton	9/14/2021
	Redundant	Z	117-FZ2	Denton	9/14/2021
Tibia Load Cells - Left	Upper	MX, MY, FZ	371-FZ	Denton	7/30/2021
	Lower	MX, MY, FZ	673-FZ	Denton	7/30/2021
Tibia Load Cells – Right	Upper	MX, MY, FZ	361-FZ	Denton	7/30/2021
	Lower	MX, MY, FZ	362-FZ	Denton	7/30/2021
Foot Accelerometers - Left	Rear	X	P82756	Endevco	11/16/2021
	Front	Z	P51872	Endevco	11/16/2021
Foot Accelerometers - Right	Rear	X	P49195	Endevco	11/16/2021
	Front	Z	P58779	Endevco	11/16/2021
Seat belt Load Cells	Lap		N/A	N/A	N/A
	Shoulder		DK1753	GFE	2/25/2022

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	2/1/2022
		Y	P83335	Endevco	2/1/2022
		Z	P64149	Endevco	2/1/2022
	Redundant	X	P52008	Endevco	2/1/2022
		Y	P52045	Endevco	2/1/2022
		Z	P74774	Endevco	2/1/2022
Head Angular Rate Sensors		X	4718	DTS ARS	8/9/2021
		Y	7603	DTS ARS	8/9/2021
		Z	7521	DTS ARS	8/9/2021
Upper Neck Load Cell		FX, Fy, Fz MX,MY, MZ	2184-FX	Denton	6/24/2021
Chest Accelerometers	Primary	X	T21142	Endevco	2/1/2022
		Y	P83346	Endevco	2/1/2022
		Z	P49190	Endevco	2/1/2022
	Redundant	X	P58794	Endevco	2/1/2022
		Y	P69791	Endevco	2/14/2022
		Z	T11253	Endevco	2/1/2022
Chest Potentiometer		X	0720	Servo	4/18/2022
Pelvis Accelerometer		X	P58735	Endevco	1/31/2022
		Y	P77587	Endevco	1/31/2022
		Z	P51285	Endevco	1/31/2022
Femur Load Cells - Left	Primary	Z	119-FZ1	Denton	6/30/2021
	Redundant	Z	119-FZ2	Denton	6/30/2021
Femur Load Cells - Right	Primary	Z	109-FZ1	Denton	6/30/2021
	Redundant	Z	109-FZ2	Denton	6/30/2021
Tibia Load Cells - Left	Upper	MX, MY, FZ	406-FZ	Denton	7/30/2021
	Lower	MX, MY, FZ	360-FZ	Denton	7/30/2021
Tibia Load Cells – Right	Upper	MX, MY, FZ	476-FZ	Denton	7/30/2021
	Lower	MX, MY, FZ	359-FZ	Denton	7/30/2021
Foot Accelerometers - Left	Rear	X	P78959	Endevco	1/31/2022
	Front	Z	P83418	Endevco	1/31/2022
Foot Accelerometers - Right	Rear	X	P83428	Endevco	1/31/2022
	Front	Z	P80265	Endevco	1/31/2022
Seat belt Load Cells	Lap		N/A	N/A	N/A
	Shoulder		295	GFE	2/25/2022

Table 3 – Vehicle Instrumentation

Instrumentation			Axis	Serial Number	Manufacturer	Calibration Date
Crossmember/Rear Seat Accelerometers	Left	Primary	X	A352346	Measurement Specialties	2/16/2022
			Z	A352420	Measurement Specialties	2/16/2022
	Right	Primary	X	A405621	Measurement Specialties	1/20/2022
			Z	A315880	Measurement Specialties	3/11/2022
		Redundant	X	A413614	Measurement Specialties	12/15/2021
Engine Accelerometers	Top	X	A399981	Measurement Specialties	3/10/2022	
	Bottom	X	A428008	Measurement Specialties	3/1/2022	
			X	A414767	Measurement Specialties	12/24/2021