

REPORT NUMBER: SPNCAP-CAL-24-003

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

**Hyundai Motor Manufacturing Alabama, LLC.
2024 Genesis GV70
5 Door SUV**

NHTSA No: O20244211

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



CWtVYf ' % 2024


FINAL REPORT

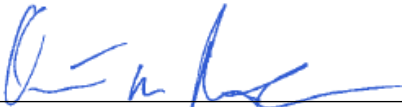
**PREPARED FOR:
U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVE SE
WASHINGTON, D.C. 20590**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number 693JJ920D000016.

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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

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4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of a 2024 Genesis GV70 5 Door SUV NHTSA No.: O20244211				5. Report Date Uℓ HF, 2024		
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7. Author(s) Nicholas Marshall, Test Engineer Quinn Porzio, Test Engineer				8. Performing Organization Report No. CAL-DOT-2024-003		
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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 1200 New Jersey Ave., SE Washington, D.C. 20590				13. Type of Report and Period Covered: Final Test Report January 23, 2024 - Uℓ HF, 2024		
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15. Supplementary Notes						
16. Abstract A 32.20 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2024 Genesis GV70 5 Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on January 23, 2024. The impact velocity of the vehicle was 32.12 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle was 21°C. The target vehicle's maximum post-test static crush was 343 mm located at level 3. The test vehicle's occupant performance data is as follows:						
				Driver ATD (SID-IIs) (Serial No.DG8012)		
Measurement Description				Units	Threshold	Result
Head Injury Criteria (HIC36)					1000	286.801
Resultant Lower Spine Acceleration				G	82	34.283
Total Pelvic Force (sum of acetabular and iliac forces)				N	5525	2242.466
Maximum Thoracic Rib Deflection				mm	38	24.151
Maximum Abdominal Rib Deflection				mm	45*	27.291
The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.						
17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave. Washington, D.C. 20590		
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 2024 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ920D000016. The purpose of this test is to generate comparative side impact performance in a 2024 Genesis GV70 5 Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure, dated March 2020.

SECTION 2
SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2024 Genesis GV70 5 Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.12 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on January 23, 2024. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572U (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated March 2020. The side impact event was documented by 11 cameras. Camera locations and other pertinent camera information are included on page 3-11 in this report.

The Part 572U (SID-IIs) dummy was instrumented accordingly:

- Head CG tri-axial accelerometers
- Thorax upper, middle, and lower rib displacement potentiometers
- Abdomen upper and lower rib displacement potentiometers
- Lower spine tri-axial accelerometers
- Iliac load cell
- Acetabulum load cell

Appendix B contains the dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D identifies all serial numbers, manufacturers, and calibration dates for test equipment, dummy sensors, potentiometers, and load cells used to collect data during the test.

Injury readings for the SID-IIs dummy were recorded as follows:

INJURY READINGS

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC36)		1000	286.801
Resultant Lower Spine Acceleration	G	82	34.283
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2242.466
Maximum Thoracic Rib Deflection	mm	38	24.151
Maximum Abdominal Rib Deflection	mm	45*	27.291

*Proposed IARV

Supplemental restraint information was recorded as follows:

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Airbag - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2- Torso/Pelvis Airbag	Yes	Yes	No	N/A
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other - Center Seat Airbag	Yes	Yes	No	N/A

GENERAL COMMENTS:

1. P1 serial number - DG8012

Data Anomalies:

- No Questionable Channels

SECTION 3

OCCUPANT AND VEHICLE INFORMATION

This section contains information reporting for the following Data Sheets:

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

Data Sheet No. 2 - Seat, Seat Belt, Steering Wheel Adjustment and Fuel Systems Data

Data Sheet No. 3 - Dummy Longitudinal Clearance Dimensions

Data Sheet No. 4 - Dummy Lateral Clearance Dimensions

Data Sheet No. 5 - Camera and Instrumentation Data

Data Sheet No. 6 - Vehicle Accelerometer Data

Data Sheet No. 7- Rigid Pole Load Cell Data

Data Sheet No. 8 - Post-Test Observations

Data Sheet No. 9 - Test Vehicle Profile Measurements

Data Sheet No. 10 - Test Vehicle Exterior Crush Measurements

Data Sheet No. 11 - Vehicle Damage Profile Distances

Data Sheet No. 12 - FMVSS No. 301 Static Rollover Results

Data Sheet No. 13 - Dummy / Vehicle Temperature and Humidity Stabilization Data

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20244211
Model Year	2024
Make	Genesis
Model	GV70
Body Style	SUV
VIN	5NMMADTB6RH001170
Body Color	Savile Silver
Odometer Reading (km/mi)	137 miles
Engine Displacement (L)	2.5
Type / No. Cylinders	I4
Engine Placement	Inline
Transmission Type	Automatic
Transmission Speeds	8-Speed
Overdrive	Yes
Final Drive	All Wheel Drive
Roof Rack	No
Sunroof / T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

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

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Hyundai Motor Manufacturing Alabama, LLC.
Date of Manufacture	Jul/11/23
Vehicle Type	MPV

GVWR (KG)	2495
GVWR Front (KG)	1245
GVWR Rear (KG)	1420

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3	N/A	5	
Vehicle Capacity Weight (VCW) (kg)				462	(A)
DSC x 68.0 kg				340	(B)
Cargo Weight (RCLW) (kg)				122	(A-B)

VEHICLE SEAT TYPE

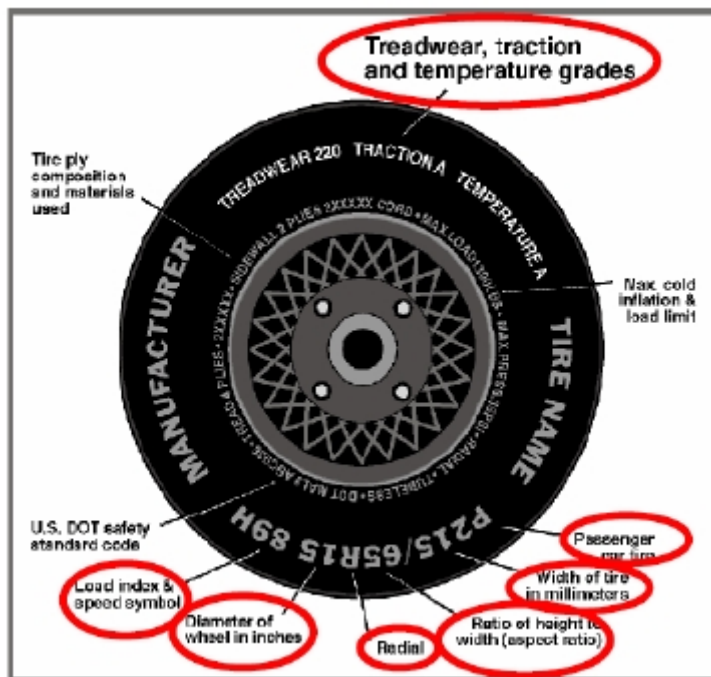
Seating Location	Type Of Seat Pan				Type Of Seat Back		
	Bucket	Bench	Split Bench	Contour	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front	X						X
Rear or Second Row Seat			X			X	
Third Row seat	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

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



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	340	340
Cold Pressure (kPa)	230	250
Recommended Tire Size	235/55R19	235/55R19
Tire Size on Vehicle	235/55R19	235/55R19
Tire Manufacturer	Michelin	Michelin
Tire Model	Primacy Tour	Primacy Tour
Treadwear	540	540
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 2 Polyamide	2 Polyester, 2 Steel, 2 Polyamide
Load Index / Speed Symbol	104W	104W
Tire Material	Rubber	Rubber
DOT Safety Code Left	0C8F04AX1123	0C8F04AX0423
DOT Safety Code Right	0C8F04AX0423	0C8F04AX0423

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	235	236	249	248
Tire Placard	kPa	230	230	250	250
Owner's Manual	kPa	230	230	250	250
As Tested	kPa	230	230	250	250

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Rear	Total	Total	Front	Rear	Total
Left	kg	508	488		520	552		532	567	
Right	kg	523	467		538	540		527	534	
Ratio	%	51.9	48.1		49.2	50.8		49.0	51.0	
Totals	kg	1031	955	1986	1058	1092	2150	1059	1101	2160

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1986	(A)
Actual Weight of 1 P572V (SID-IIs) ATD Used	kg	50	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	122	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2158	(A+B+C)

Does the measured As Test Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to – 9 kg)?

Yes No

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Rqmt***
Driver Door Sill Angle (front-to-rear)*	Deg	+0.25	+0.10	+0.10	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg	-0.50	-0.25	-0.25	Yes
Front Bumper-Line Angle (left-to-right)**	Deg	+0.10	-0.05	-0.25	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg	+1.40	+1.00	+1.00	Yes
Vehicle CG (Aft of Front Axle)	mm	1382	1460	1495	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	-3	+2	-15	

* ND = Nose Down (-), NU = Nose Up (+)

** LD = Left Down (-), LU = Left Up (+)

*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements. Indicate "Yes" or "No" for Meets Requirement"

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	17.5
Spare Tire	16
Jack	3
Right Rear Window	2.5
Ballast / Equipment Added	101

Test Height – Adjustable Suspension Setting, if Applicable	N/A
--	-----

TEST SURFACE MARKING

	Distance from 75° Impact Location Line (mm)
Fore 25 mm target	1160
Aft 25 mm target	1163

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the forward-most, mid-height, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rear-most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max	Min	Mid
Driver Seat	19.6	10.2	14.9
Front Passenger Seat	19.4	10.8	15.1
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore / Aft	Forward-Most
Driver Seat	14.9	49	Max	66	73	82
			Mid	34	41	49
			Min	2	9	16
Front Passenger Seat	15.1	44	Max	63	70	74
			Mid	31	39	44
			Min	1	7	13
Front Center Seat*			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max			
			Mid			
			Min			
Non-Struck Side Rear Seat	Fixed	Fixed	Max			
			Mid			
			Min			
Rear Center Seat*	Fixed	Fixed	Max			
			Mid			
			Min			

**If applicable*

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

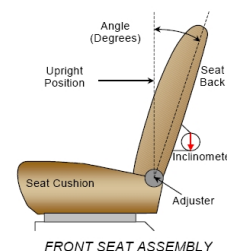
NHTSA No.: O20244211
 Test Date: 01/23/2024

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detents*
Driver Seat	260	Power	0	Power
Front Passenger Seat	248	Power	0	Power
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1 for the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back are set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/Seated Dummy	70.6	Power	8.3	Power
Front Passenger Seat	70.2	Power	8.3	Power
Front Center Seat				
Struck Side Rear Seat	28.2	12 (0-11)	13.0	4
Non-Struck Side Rear Seat	28.3	12 (0-11)	13.0	4
Rear Center Seat	28.2	12 (0-11)	13.0	4

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. Zero is defined as the uppermost detent

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

HEAD RESTRAINT ADJUSTMENT

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

Seat	Total # of Positions	Placed in Position #
Driver Seat	6 (0-5)	Lowest

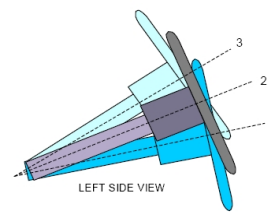
DATA SHEET NO. 2 ... (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

STEERING COLUMN POSITIONS

Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

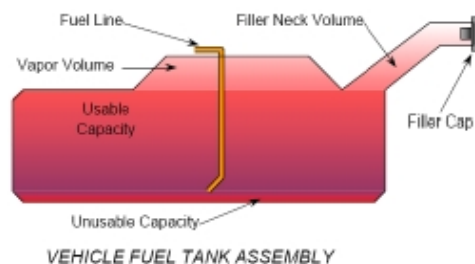


	Degrees	Fore / Aft Position (mm)
Lowermost - Position No. 1	21.5	
Geometric center - Position No. 2	23.7	
Uppermost - Position No. 3	25.8	
Telescoping Steering Wheel Travel		58
Test Position	23.7	29

FUEL PUMP

Describe the fuel pump type, details about how it operates, and the location of the fuel filler neck

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



FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank" - see Form No. 1	66.0
Usable Capacity of "Optional Tank" - see Form No. 1	N/A
Usable Capacity of "Standard Tank" - see Owner's Manual	66.0
Usable Capacity of "Optional Tank" - see Owner's Manual	N/A
93% of Usable Capacity	61.4
Actual Amount of Solvent Used in Test	60.9
1/3 of Usable Capacity	22.0

Is the Actual Amount of Solvent Used in the test equal to 93% ±1% of the Usable

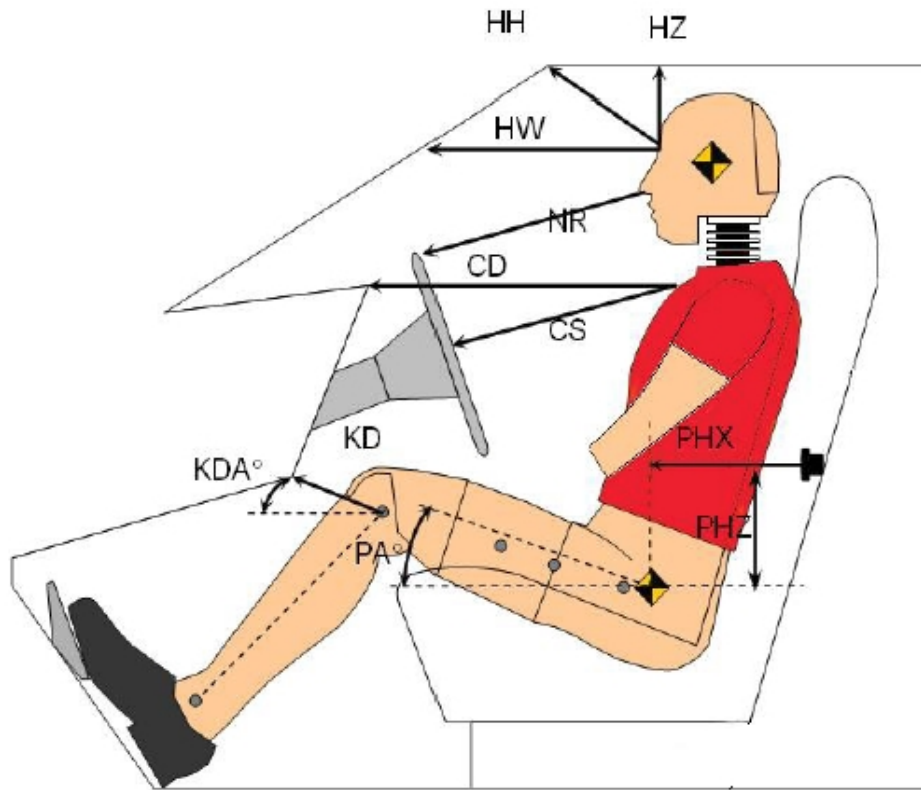
Capacity stated in Form No. 1?

Yes No

**DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS**

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024



Left Side View

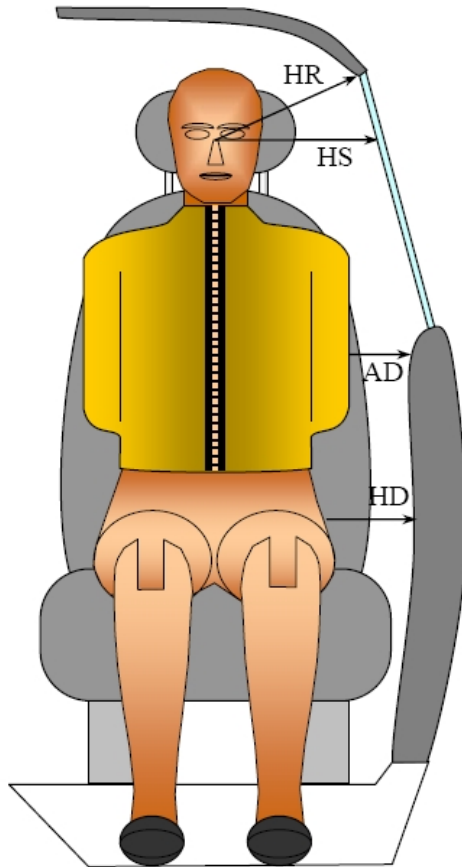
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver (Serial No. DG8012)	
		Length (mm)	Angle (°)
HH	Head to Header	292	
HW	Head to Windshield	605	
HZ	Head to Roof Liner	203	
NR	Nose to Rim	225	
CD	Chest to Dash	405	
CS	Chest to Steering Wheel	161	
KD(L) / KDA(L)°	Left Knee to Dash	116	33.1
KD(R) / KDA(R)°	Right Knee to Dash	97	30.3
PAX°	Pelvic Tilt Angle (X-Axis)		20.1
PAY°	Pelvic Tilt Angle (Y-Axis)		0.1
PHX	Hip Point to Striker (X-Axis)	306	
PHZ	Hip Point to Striker (Z-Axis)	174	

**DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024



FRONT VIEW OF DUMMY

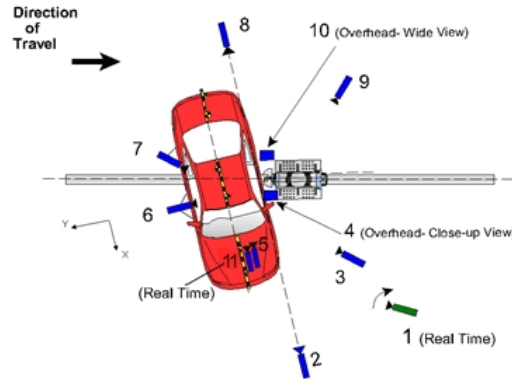
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver – Length (Serial No. DG8012)
HR	Head to Side Header	mm	261
HS	Head to Side Window	mm	373
AD	Arm to Door	mm	175
HD	H-Point to Door	mm	229

**DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024



CAMERA LOCATIONS AND DATA

No.	Camera View	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-time (24 - 30 fps) pan view of impact				Zoom	60
2	Front ground level - impact view	6756	341	-1436	28	1000
3	Impact side 45° - forward pole view	4708	-680	-1498	24	1000
4	Overhead Close-up view of impact	0	0	-8992	28	1000
5	Onboard - dummy front view				25	1000
6	Onboard - dummy side view				12	1000
7	Onboard - dummy rear oblique view				12	1000
8	Rear ground level - impact view	-7715	336	-1488	28	1000
9	Impact side 45° - rearward pole view	-3348	-3715	-1444	24	1000
10	Overhead wide - view of impact	0	47	-8992	16	1000
11	Real-time (24 - 30 fps) - dummy front view				Zoom	60

Notes: Reference - From Point of Impact for X and Y; from Ground for Z
 +X = Forward of vehicle, +Y = Right of vehicle, +Z = Down
 * All measurements accurate to ± 6 mm. Vehicle is at a 75° angle to the rigid pole.

All cameras operated as intended.

If applicable, explain why camera(s) did not operate as intended: _____

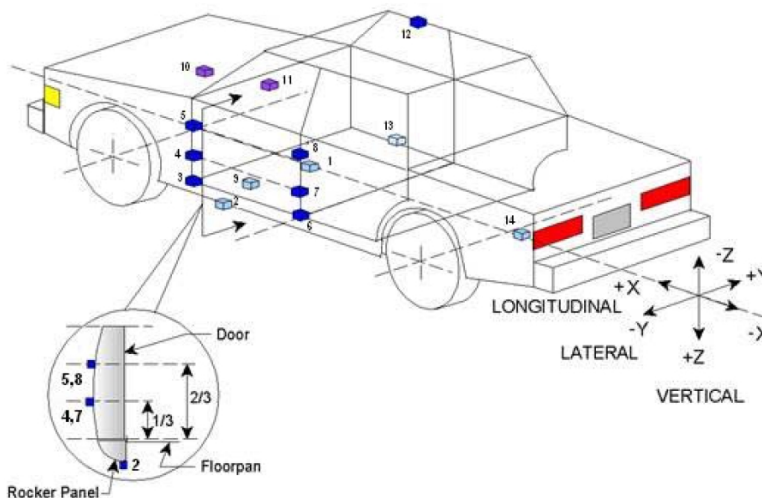
INSTRUMENTATION

Description	Number of Channels
Driver Dummy Channels	16
Vehicle Structure Accelerometers	18
Pole Load Cells	8
Total	42

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2024 Genesis GV70 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
Test Date: 01/23/2024



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1915	1	4
2	Left Floor Sill	2788	-688	100
3	A-Pillar Sill	3168	-658	77
4	A-Pillar Low	3292	-647	-132
5	A-Pillar Mid	3101	-689	-642
6	B-Pillar Sill	2064	-686	96
7	B-Pillar Low	2141	-705	-152
8	B-Pillar Mid	2074	-697	-482
9	Driver Seat Track	2378	-599	64
10	Engine Top	3955	47	-447
11	Firewall	3434	297	-293
12	Right Roof	2207	623	-1110
13	Right Floor Sill	2759	691	94
14	Rear Floor Pan	813	-168	-69

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

**DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA**

Test Vehicle: 2024 Genesis GV70 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
Test Date: 01/23/2024

POLE BARRIER



RIGID POLE LOAD CELL LOCATION

ID	Units	Height From Ground
1	mm	200
2	mm	590
3	mm	750
4	mm	1075
5	mm	1260
6	mm	1740
7	mm	1920
8	mm	2300

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver Seat Dummy (SID-IIs)
Face	Curtain Airbag & Center Seat Airbag
Top of Head	Curtain Airbag & Center Seat Airbag
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag & Headrest
Left Shoulder	Torso/Pelvis Airbag & Headrest
Upper Torso	Seatback & Torso/Pelvis Airbag
Lower Torso	Seatback & Torso/Pelvis Airbag
Left Hip	Seat Pan & Torso/Pelvis Airbag
Left Knee	Driver Door

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/Other
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	A-Pillar & B-Pillar buckled
Sill Separation	350mm rear of impact area
Windshield Damage	Cracked throughout
Side Window Damage	Driver window cracked throughout
Other Notable Effects	Sunroof popped up from molding

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

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

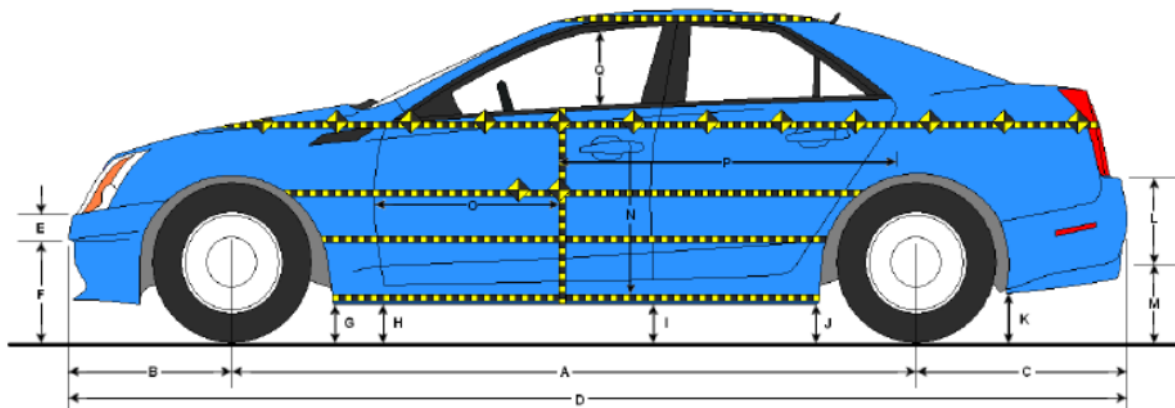
Measured Parameter	Units	Tolerance	Value
Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt	mm		1280
Actual Impact Point - Aft of Front Axle	mm		1287
Horizontal Offset (+ forward / - rearward)	mm	+/- 38*	-7
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75
Trap No. 1 Velocity - Primary	kph	31.4 to 33.0	32.12
Trap No. 2 Velocity - Redundant	kph	31.4 to 33.0	32.18

*Of Intended Impact Point

**DATA SHEET NO. 9
TEST VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

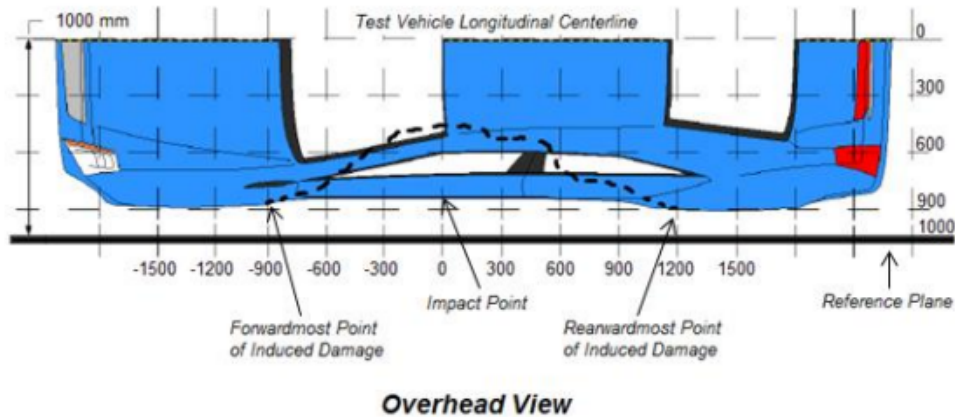
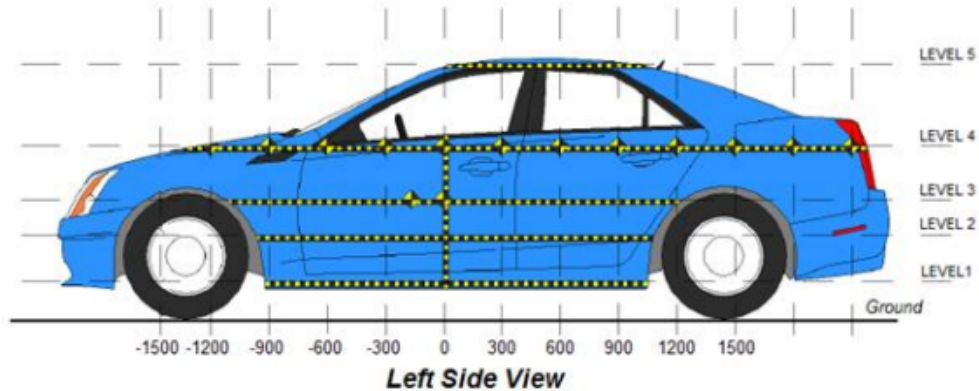
No.	Measurement Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2874	2799	-75
B	Front Axle to FSOV	839	889	50
C	Rear Axle to RSOV	998	1000	3
D	Total Length at Centerline	4710	4688	-22
E	Front Bumper Thickness	148	148	0
F	Front Bumper Bottom to Ground	458	381	-77
G	Sill Height at Front Wheel Well	208	189	-19
H	Sill Height at Front Door Leading Edge	207	192	-15
I	Sill Height at B Pillar	213	218	5
J1	Sill Height at Rear Wheel Well	217	234	17
J2	Pinch Weld Height at Rear Wheel Well	209	230	21
K	Sill Height Aft of Rear Wheel Well	265	275	10
L	Rear Bumper Thickness	155	155	0
M	Rear Bumper Bottom to Ground	467	466	-1
N	Sill Height to Bottom of Front Window Sill	884	895	11
O	Front Door Leading Edge to Impact CL	634	549	-85
P	Rear Door Trailing Edge to Impact CL	1509	1445	-64
Q	Front Window Opening	429	422	-7
R	Right Side Length	4634	4632	-2
S	Left Side Length	4635	4590	-45
T	Vehicle Width at B-Pillars	1888	1784	-104
U	Front Wheel Track width	1649	1636	-13
V	Rear Wheel Track Width	1663	1658	-5

* All measurements in mm with tolerance of ± 3mm

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	325	253	0
2	Driver H-Point	mm	708	335	0
3	Mid-Door	mm	782	343	150
4	Window Sill	mm	1090	284	0
5	Window Top	mm	1590	74	300

NOTE: The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO.10 ... (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

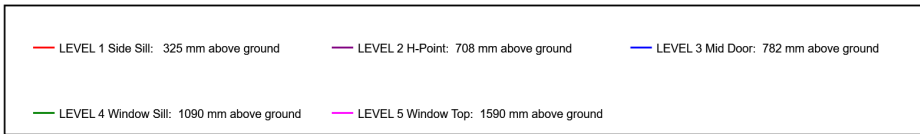
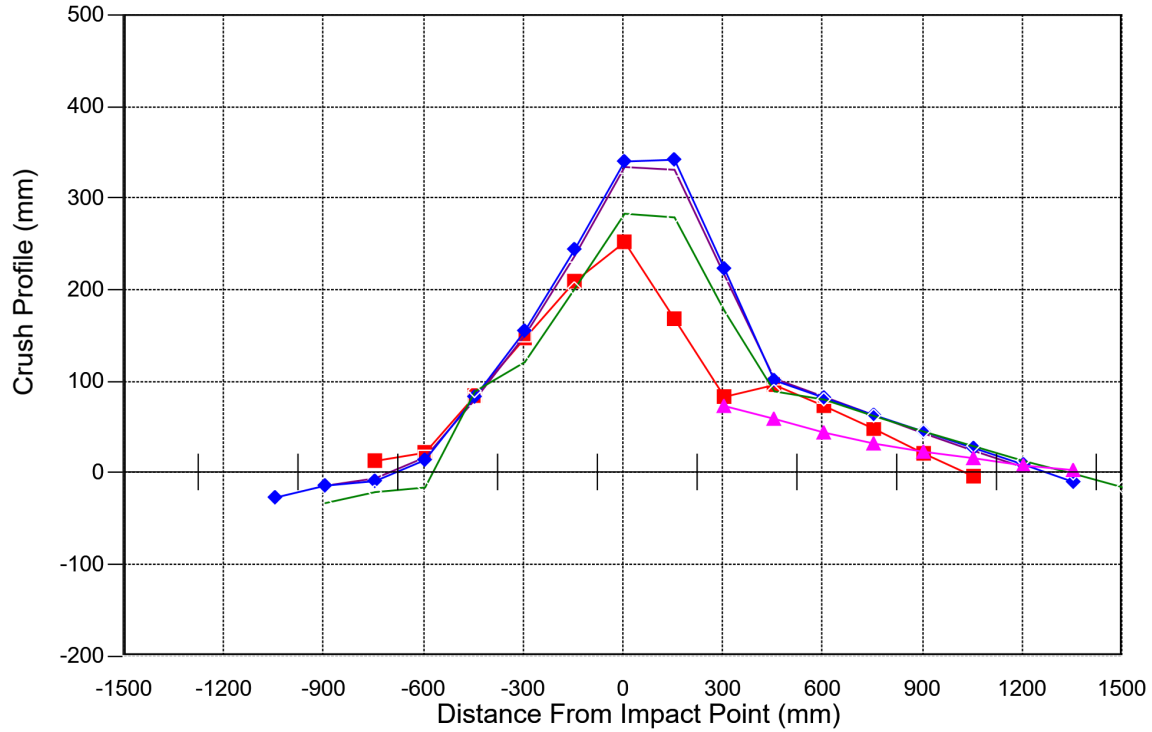
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500															
-1350															
-1200															
-1050			957					983					-26		
-900		951	952	822			964	965	854			-13	-13	-32	
-750	917	943	943	834		903	948	951	854		14	-5	-8	-20	
-600	916	935	939	847		893	917	924	862		23	18	15	-15	
-450	915	933	939	897		830	852	855	807		85	81	84	90	
-300	913	934	940	869		765	783	784	747		148	151	156	122	
-150	910	935	941	871		700	697	696	669		210	238	245	202	
0	908	935	941	876		655	600	600	592		253	335	341	284	
150	903	935	941	877		734	603	598	597		169	332	343	280	
300	899	935	940	879	635	815	718	716	701	561	84	217	224	178	74
450	897	933	938	877	637	800	829	836	787	577	97	104	102	90	60
600	893	932	935	876	635	819	848	852	795	590	74	84	83	81	45
750	891	931	933	871	630	842	867	869	808	597	49	64	64	63	33
900	891	934	935	869	622	869	890	889	823	598	22	44	46	46	24
1050	901	945	943	870	609	904	920	915	840	592	-3	25	28	30	17
1200		956	957	875	590		949	947	861	581		7	10	14	9
1350			959	879	566			968	879	562			-9	0	4
1500				880					895					-15	

NOTE: Pre-test measurements are taken when the vehicle is in the “As Tested” weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point. The final distance from impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy’s head.

DATA SHEET NO.10 ... (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024



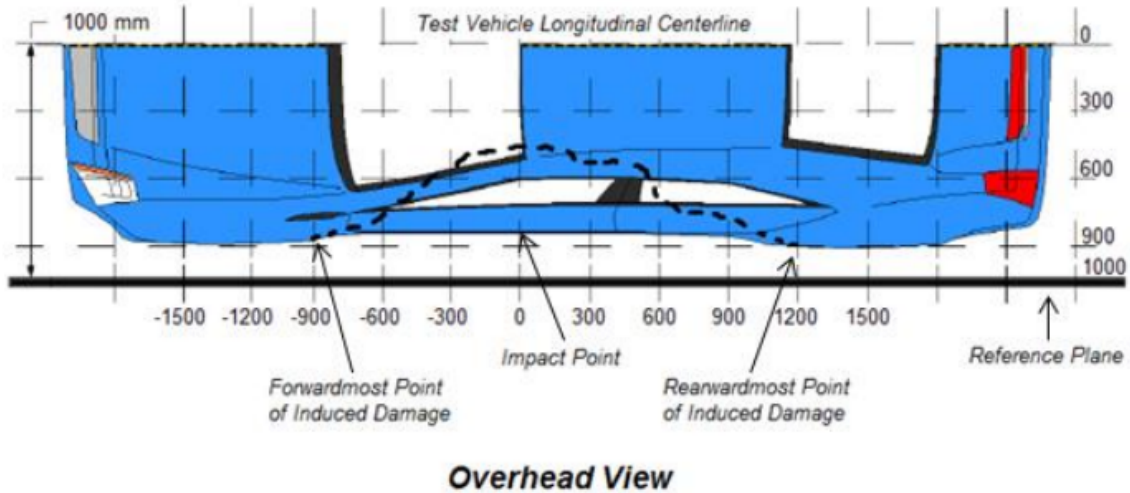
Vehicle Exterior Crush Measurements - Visual Representation

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
 Test Date: 01/23/2024

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



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	-900	3	35	48	-13
2	-480	3	131	61	70
3	-60	3	362	59	303
4	360	3	236	61	175
5	780	3	127	67	60
6	1200	3	53	43	10

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

Test Vehicle: 2024 Genesis GV70 5 Door SUV
 Test Program: NCAP Side Pole Impact Test

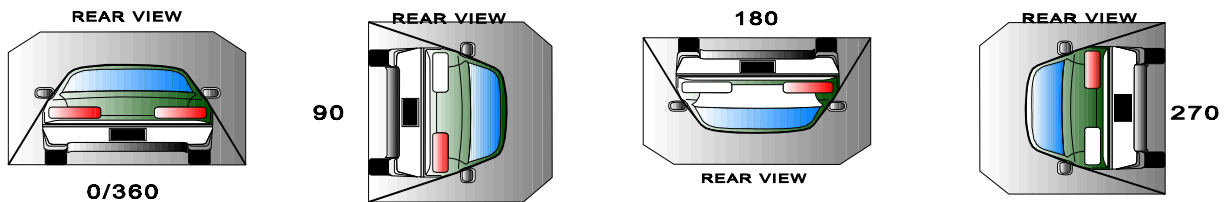
NHTSA No.: O20244211
 Test Date: 01/23/2024

Test Time: 9:11 AM

Temperature: 21 °C

- A. From impact until vehicle motion ceases: _____ 0 oz
 (Maximum allowable is 1 oz.)
- B. For the 5-minute period after motion ceases: _____ 0 oz
 (Maximum allowable is 5 oz.)
- C. For the following 25 minutes: _____ 0 oz
 (Maximum allowable is 1 oz.)

D. Spillage Detail: No Spillage Occurred



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	69	300	369
90° to 180°	63	300	363
180° to 270°	67	300	367
270° to 360°	69	300	369

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

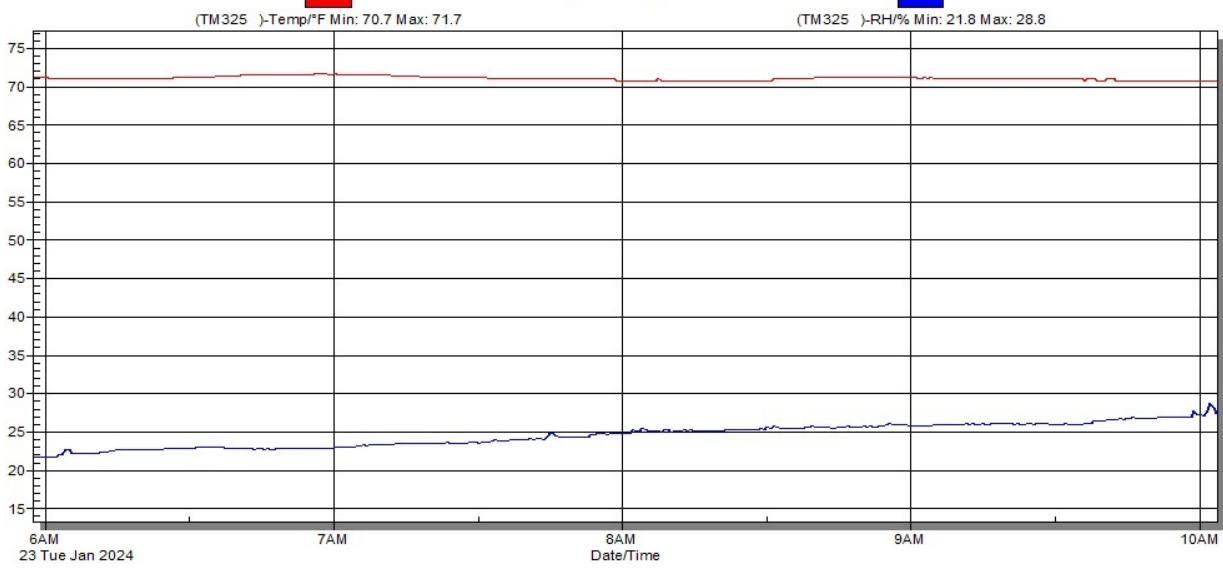
Test Phase	Spillage Location
0° to 90°	None
90° to 180°	None
180° to 270°	None
270° to 360°	None

DATA SHEET NO. 13
DUMMY / VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2024 Genesis GV70 5 Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20244211
Test Date: 01/23/2024

Tuesday, January 23, 2024



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

APPENDIX A
PHOTOGRAPHS

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O20244211

Figure A-1: As Delivered Right Front 3/4 View of Test Vehicle



O20244211

Figure A-2: As Delivered Left Rear 3/4 View of Test Vehicle



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



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



Figure A-5: Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



Figure A-6: Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



Figure A-7: Pre-Test Left Side View of Test Vehicle



Figure A-8: Post-Test Left Side View of Test Vehicle



Figure A-9: Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-10: Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-11: Pre-Test Rear View of Test Vehicle



Figure A-12: Post-Test Rear View of Test Vehicle



Figure A-13: Pre-Test Right Side View of Test Vehicle



Figure A-14: Post-Test Right Side View of Test Vehicle

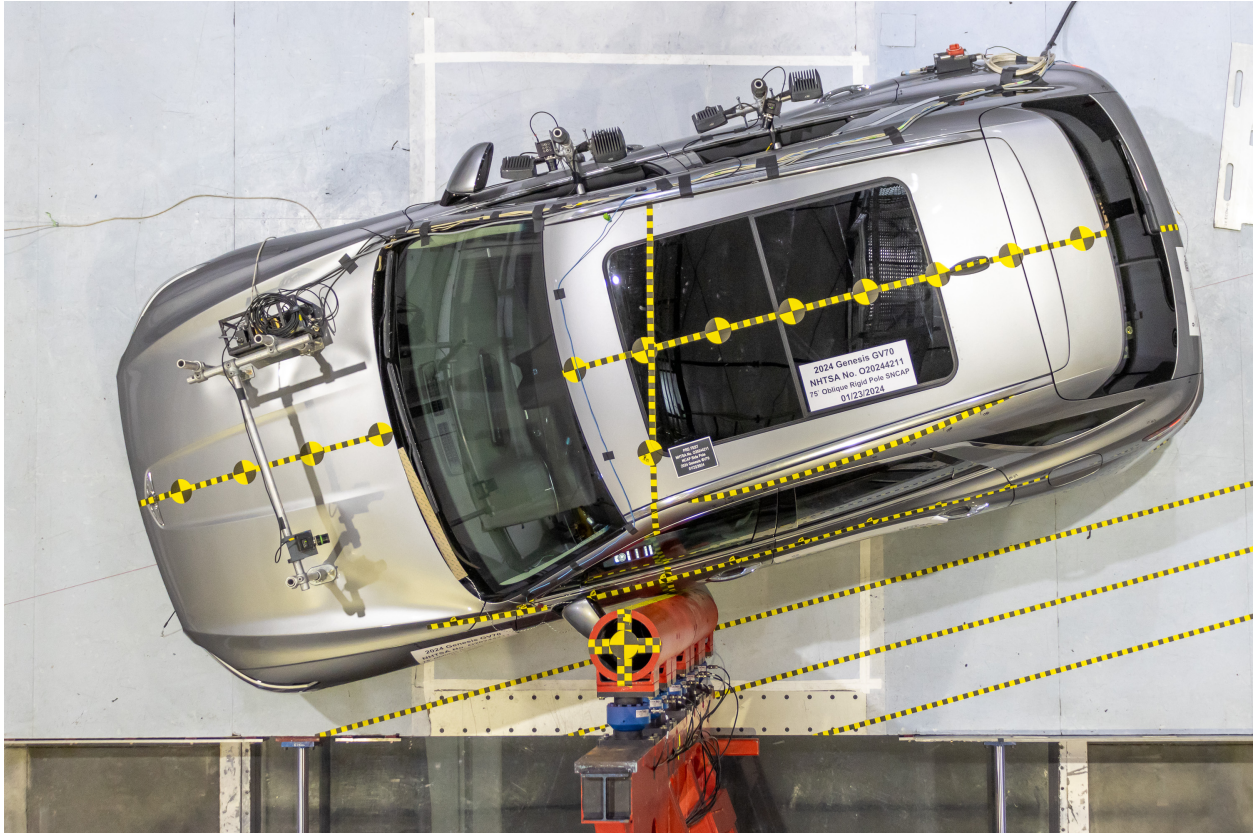


Figure A-15: Pre-Test Overhead View of Test Area

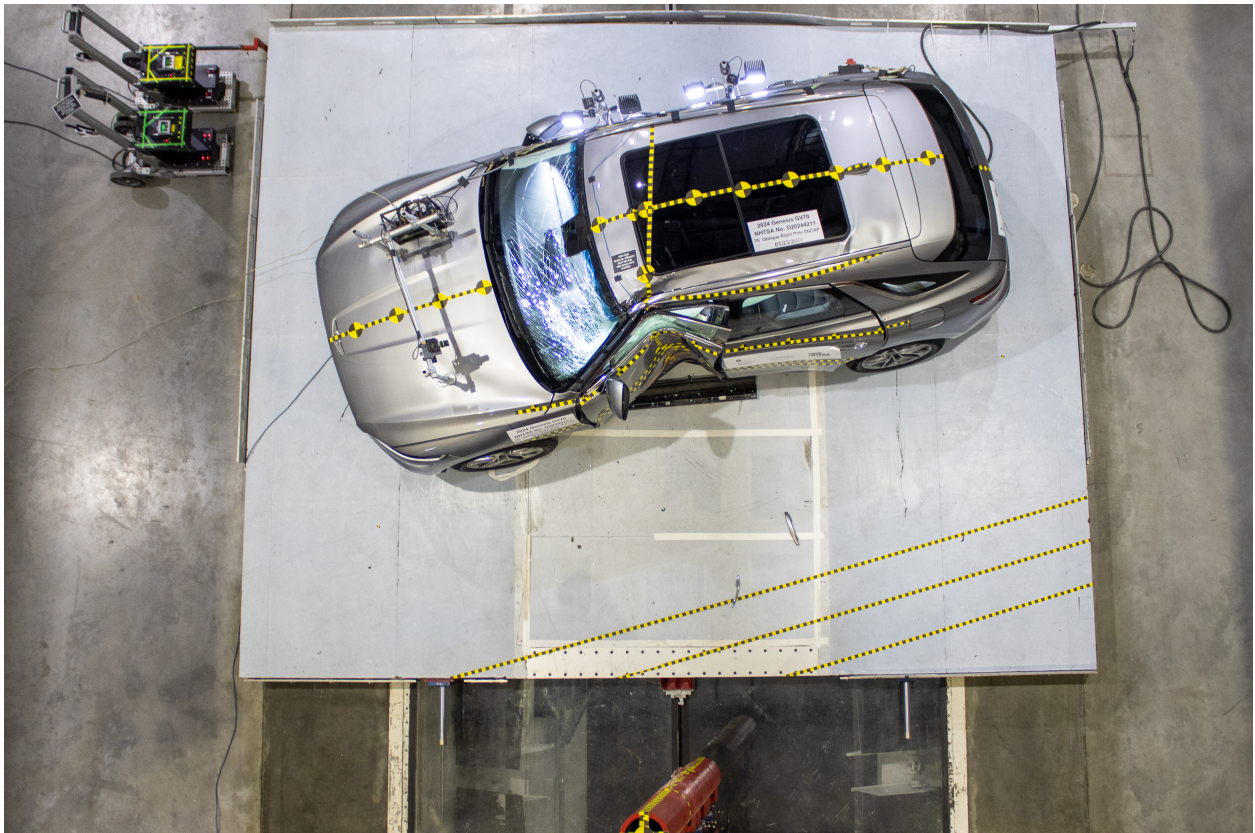


Figure A-16: Post-Test Overhead View of Test Area



Figure A-17: Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



Figure A-18: Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



Figure A-19: Pre-Test Close-Up View of Impact Point Target



Figure A-20: Post-Test Close-Up View of Impact Point Target Showing Impact Location



Figure A-21: Pre-Test Front Close-Up View of Dummy Head and Chest



Figure A-22: Post-Test Front Close-Up View of Dummy



Figure A-23: Pre-Test Left Side View of Dummy Showing Belt and Chalking



Figure A-24: Pre-Test Left Side View of Dummy Shoulder and Door Top View



Figure A-25: Post-Test Left Side View of Dummy Shoulder and Door Top View



Figure A-26: Pre-Test Frontal View of Seat Back Prior to Dummy Positioning



Figure A-27: Pre-Test Frontal Close-Up View of Dummy Head / Shoulders in Relation to Head Restraint



Figure A-28: Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning



Figure A-29: Pre-Test Overhead View of Dummy Thighs on Seat Pan

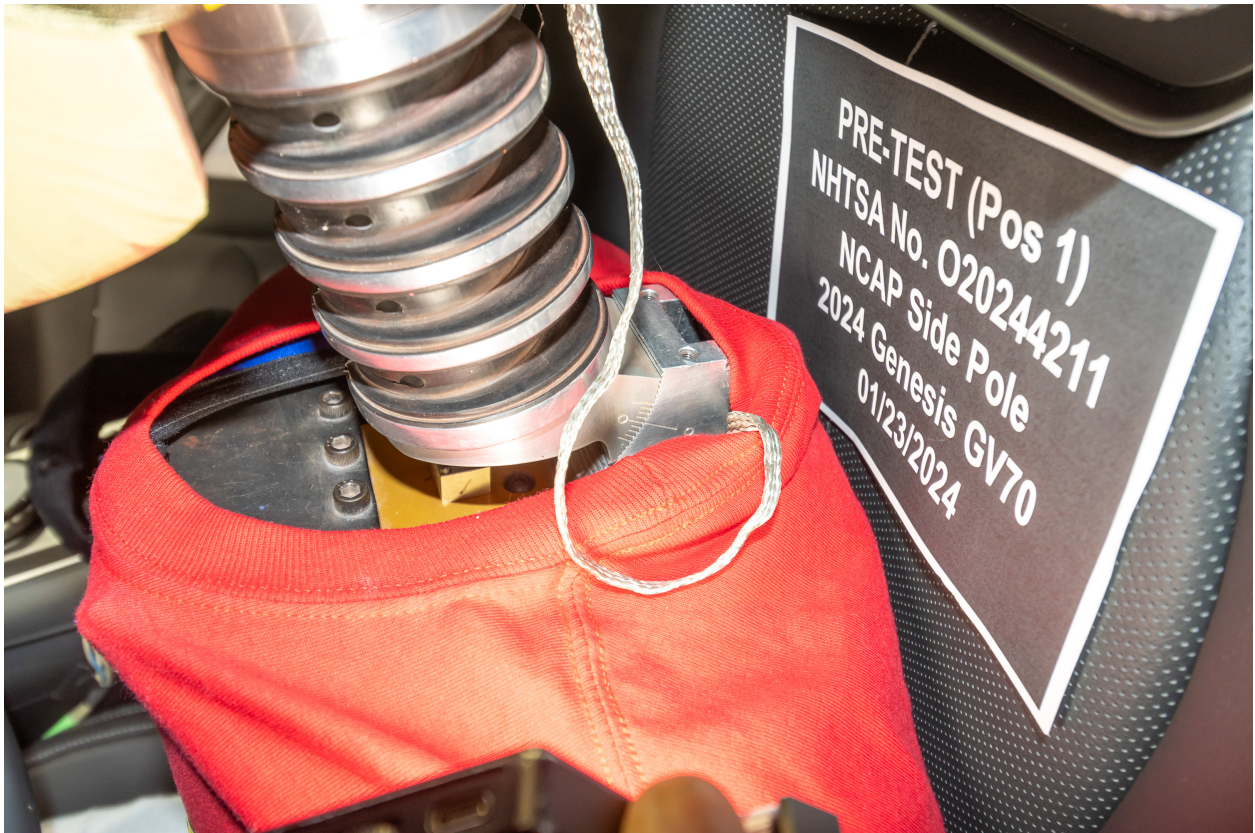


Figure A-30: Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket



Figure A-31: Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level



Figure A-32: Pre-Test Placement of Dummy's Feet

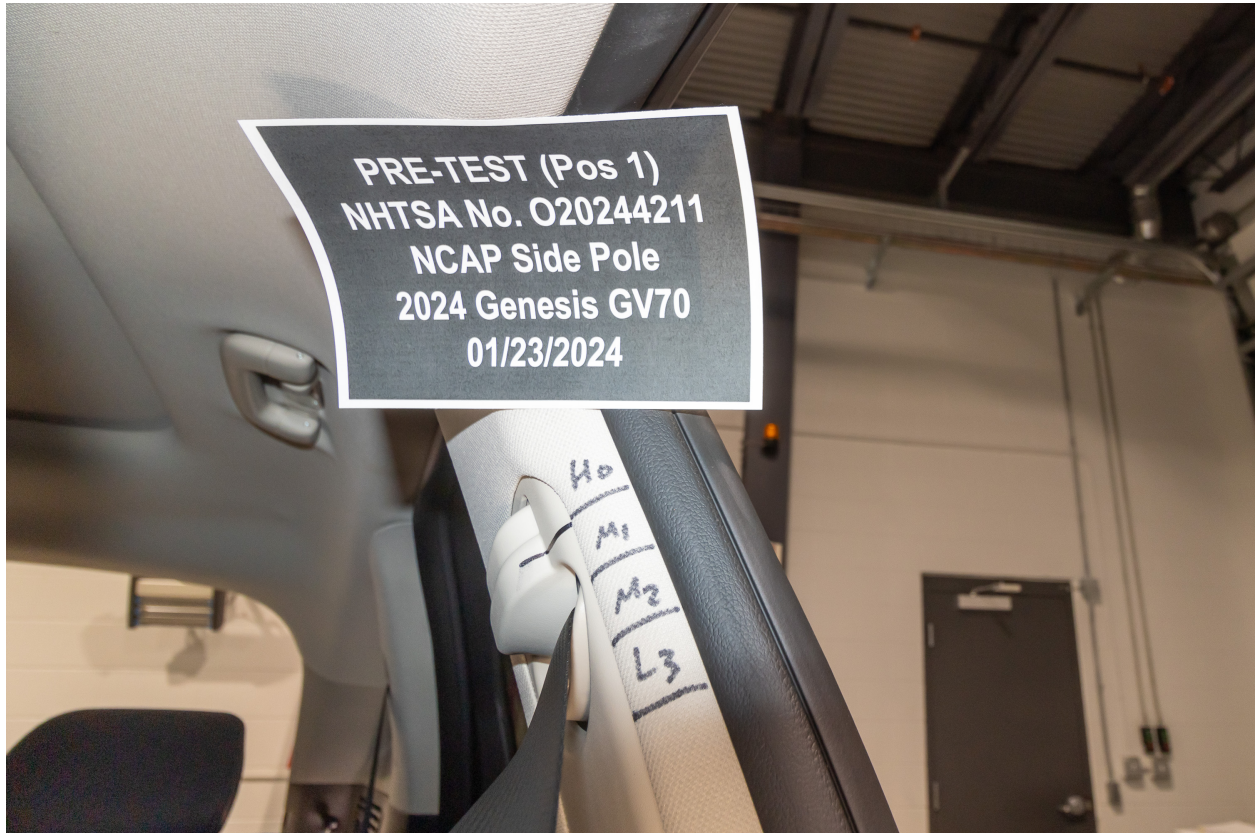


Figure A-33: Pre-Test View of Belt Anchorage for Dummy



Figure A-34: Pre-Test Left Side View of Steering Wheel



Figure A-35: Pre-Test View of Disengaged Parking Brake



Figure A-36: Pre-Test View of Parking Brake



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



Figure A-38: Pre-Test Close-Up Left Side View of Driver Seat Back



Figure A-39: Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Figure A-40: Pre-Test Dummy and Door Clearance View



Figure A-41: Post-Test Dummy and Door Clearance View



Figure A-42: Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



POST-TEST (Pos 1)
NHTSA No. 020244211
NCAP Side Pole
2024 Genesis GV70
01/23/2024

Figure A-43: Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



PRE-TEST (Pos 1)
NHTSA No. 020244211
NCAP Side Pole
2024 Genesis GV70
01/23/2024

Figure A-44: Pre-Test Inner Door Panel View



Figure A-45: Post-Test Inner Door Panel View Showing Dummy Contact Location



Figure A-46: Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



Figure A-47: Post-Test Dummy Close-Up Head Contact with Side Airbag View



Figure A-48: Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Figure A-49: Post-Test Dummy Close-Up Torso Contact with Side Airbag View



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



Figure A-51: Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



Figure A-52: Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



Figure A-53: Pre-Test Right Side View of Dummy and Rear Seat of Occupant Compartment



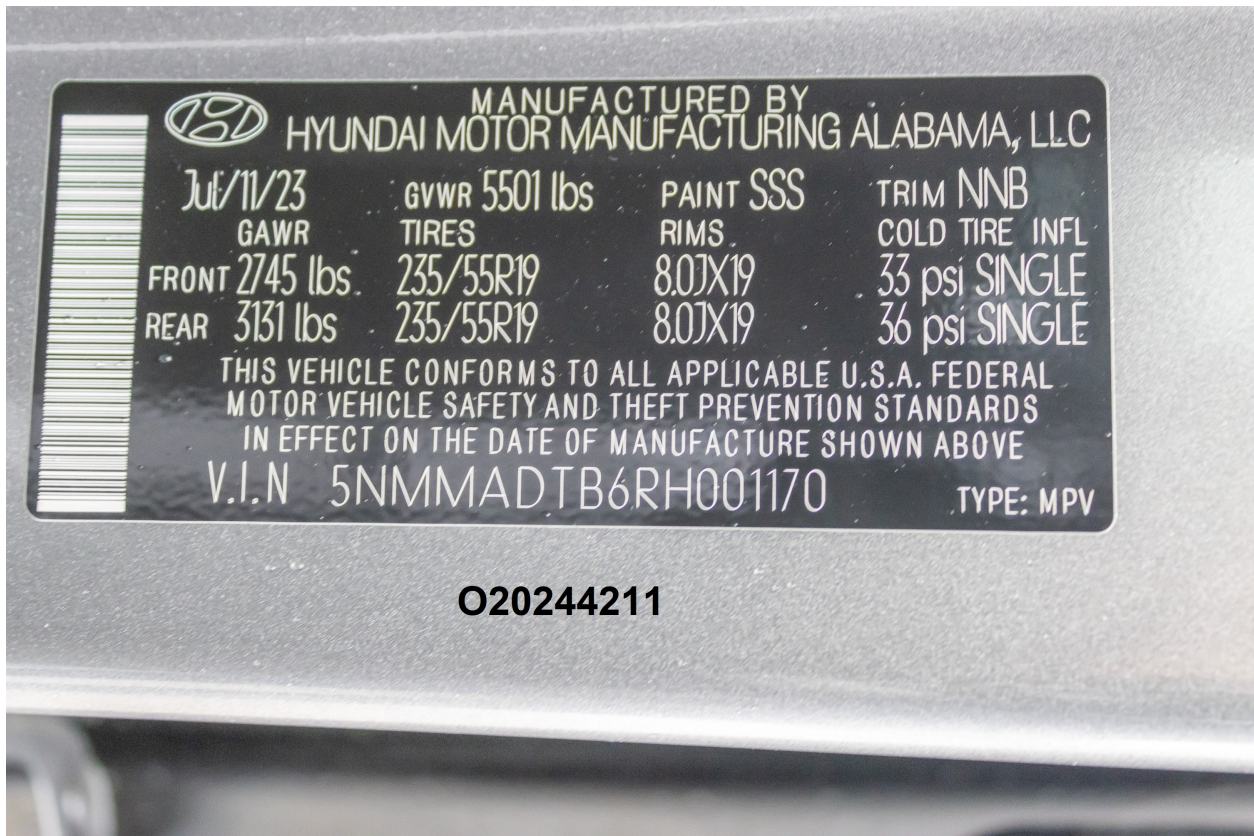
Figure A-54: Post-Test Inner Rear Passenger Torso Air Bag Deployment View



Figure A-55: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-56: Post-Test View of Fuel Filler Cap or Fuel Filler Neck



O20244211

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



O20244211

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

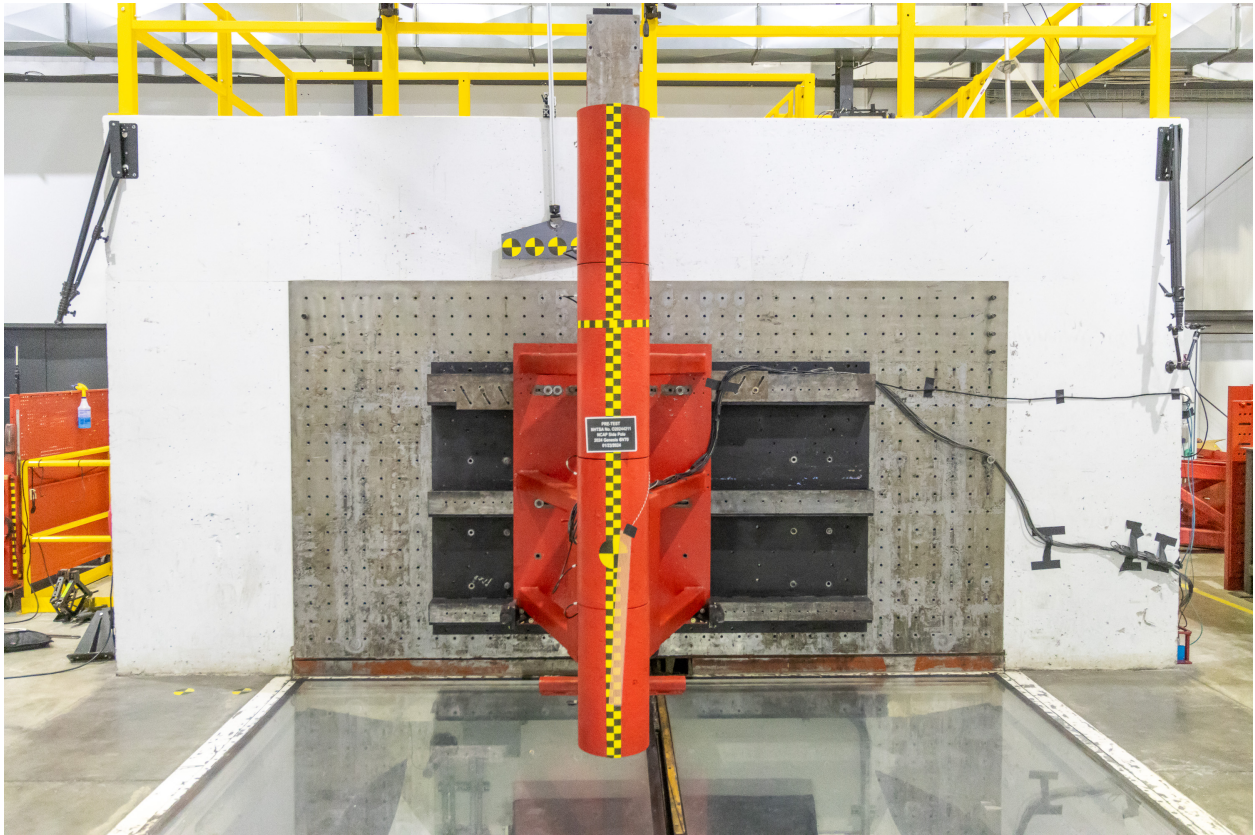


Figure A-59: Pre-Test Pole Barrier Front View

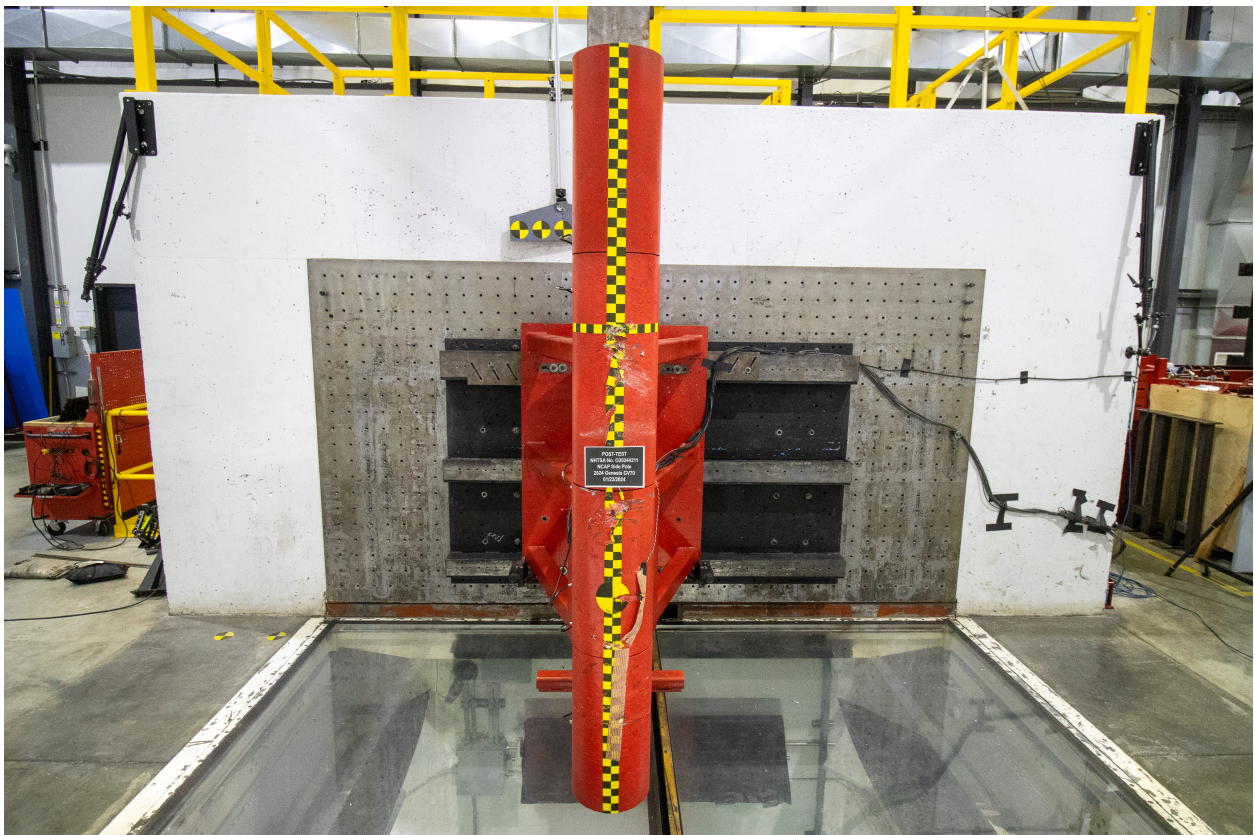


Figure A-60: Post-Test Pole Barrier Front View

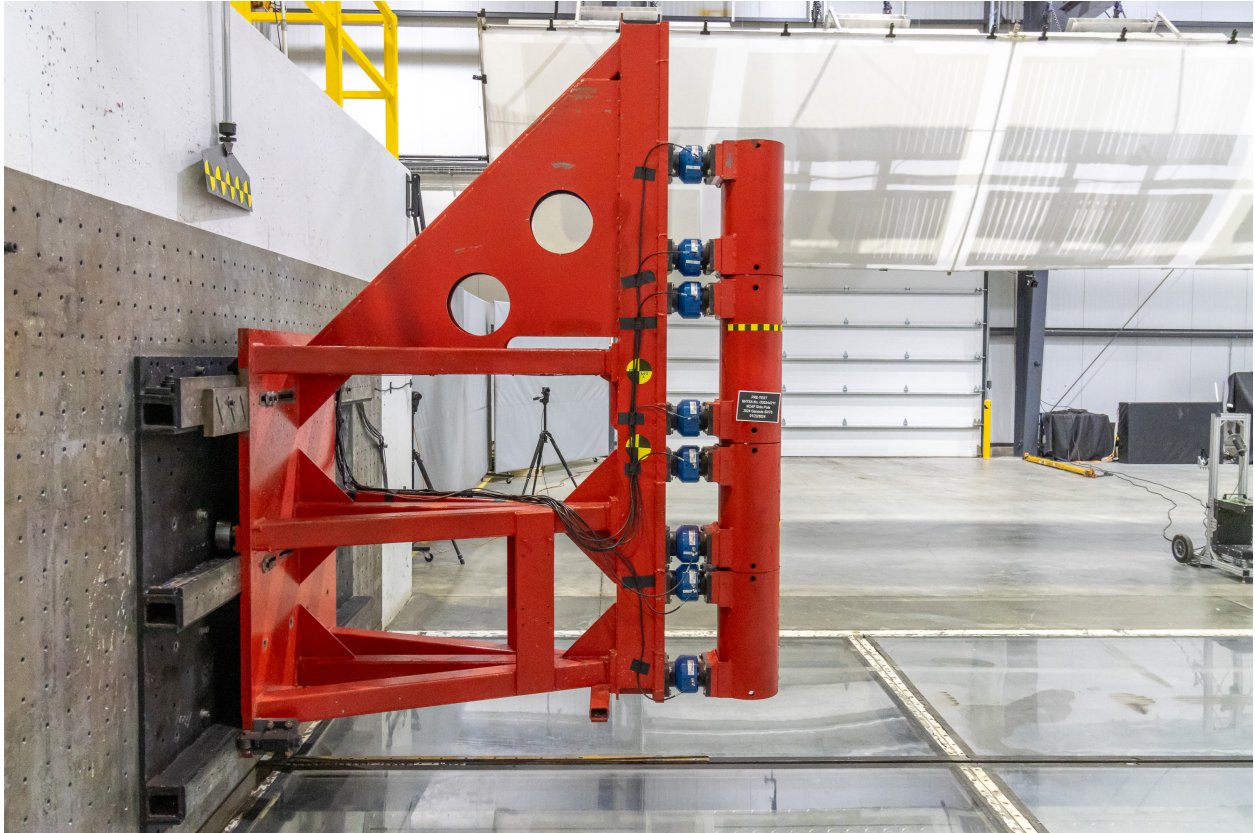


Figure A-61: Pre-Test Pole Barrier Side View

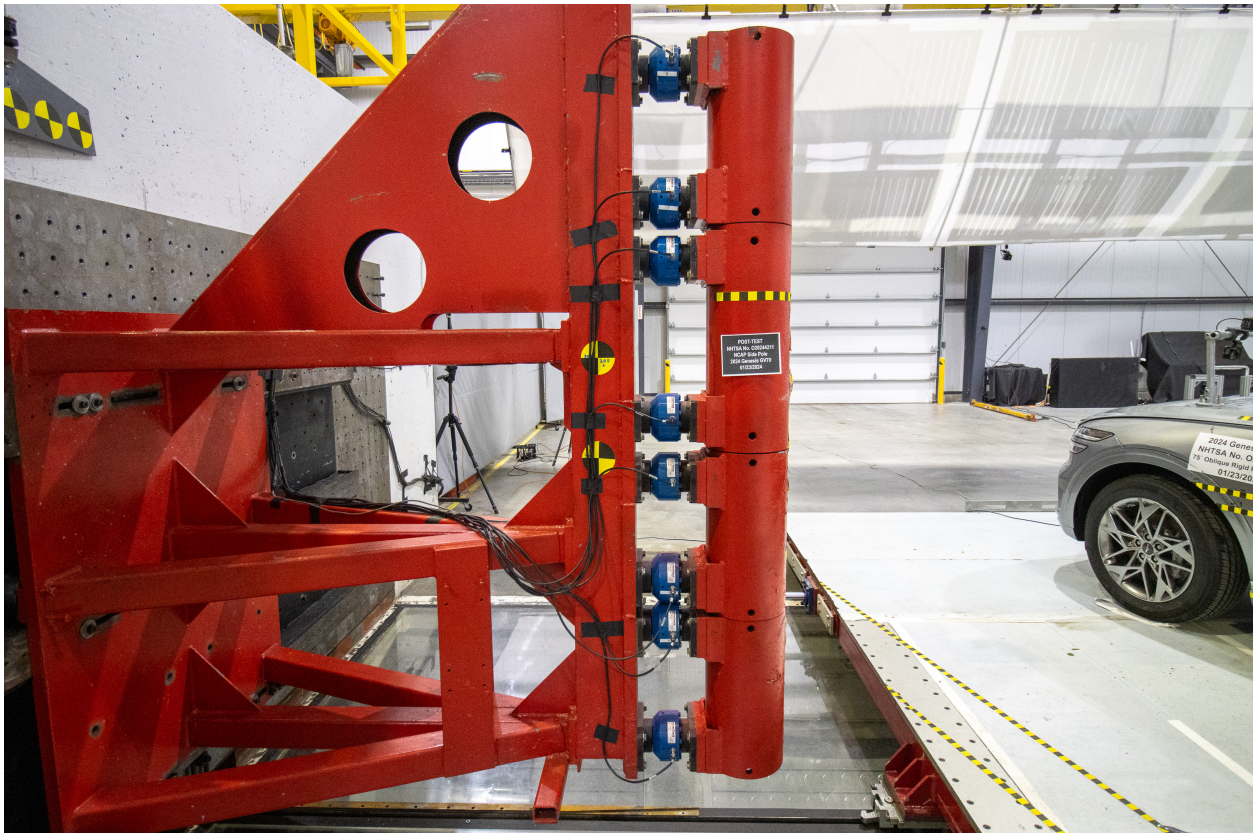


Figure A-62: Post-Test Pole Barrier Side View



Figure A-63: Pre-Test Ballast View



Figure A-64: Post-Test Primary and Redundant Speed Trap Read-Out



Figure A-65: FMVSS No. 301 Static Rollover 0 Degrees

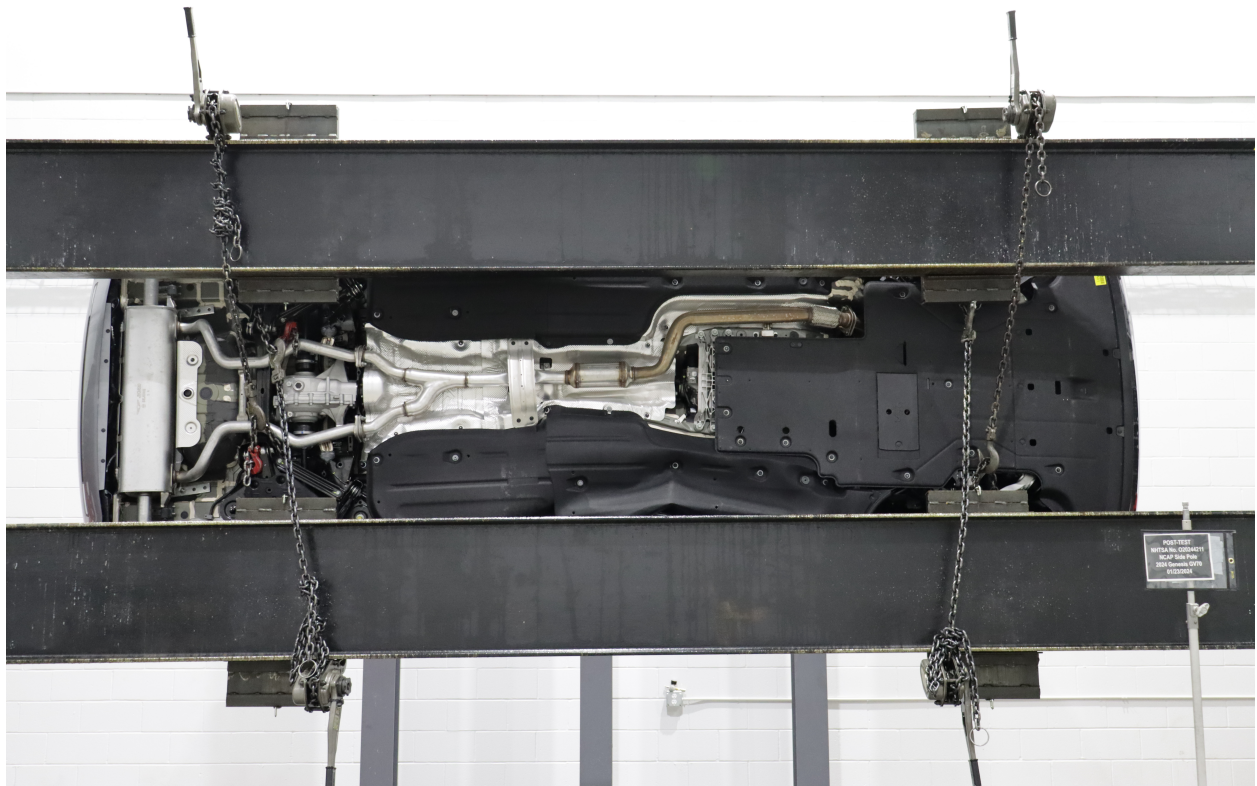


Figure A-66: FMVSS No. 301 Static Rollover 90 Degrees

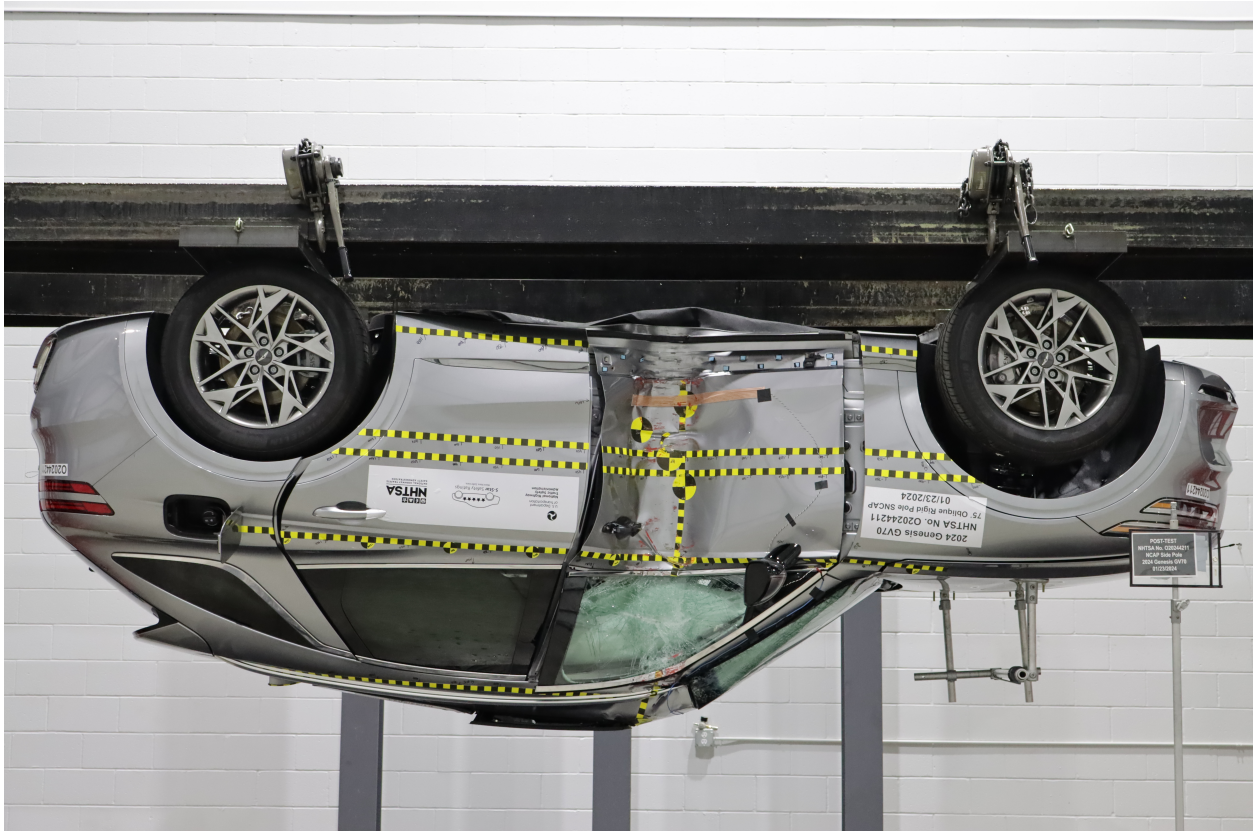


Figure A-67: FMVSS No. 301 Static Rollover 180 Degrees



Figure A-68: FMVSS No. 301 Static Rollover 270 Degrees



Figure A-69: FMVSS No. 301 Static Rollover 360 Degrees



Figure A-70: Impact Event

2024 GV70 AWD 2.5T SELECT

THE GENESIS EXPERIENCE
 - 3 Yr / 36K Complimentary Maintenance
 - 3 Yr / 36K Complimentary Service Valet*
 - 3 Yr Complimentary Map Care
 - Complimentary Genesis Connected Services*
 *Exclusions may apply, see retailer for details

STANDARD FEATURES:
ADVANCED SAFETY TECHNOLOGY
 - Forward Collision-Avoidance Assist
 - Lane Keeping Assist
 - Lane Following Assist
 - Driver Attention Warning
 - Blind-Spot Collision Avoidance-Assist
 - Rear Cross-Traffic Collision Avoidance-Assist
 - Parking Distance Warning - Reverse
 - Rearview Camera
 - Safe Exit Assist
 - Rear Occupant Alert
POWERTRAIN TECHNOLOGY
 - 2.5L Inline 4 Turbo GDI (300 HP / 311 lb.-ft)
 - 8-speed Automatic Transmission
EXTERIOR
 - 19-inch Alloy Wheels
 - Power Hands-Free Smart Liftgate w/ Auto Open
 - Heated Outside Mirrors w/ Turn-Signal Indicator
 - High Beam Assist
COMFORT & CONVENIENCE
 - Leatherette Seating Surfaces
 - Power Driver's Seat with 4-Way Power Lumbar
 - Power Front Passenger Seat
 - Heated Front Seats

COMFORT & CONVENIENCE(cont.)
 - Smart Cruise Control
 - Intelligent Speed Limit Assist
 - Highway Driving Assist
 - 8" Digital Cluster + Analog Gauges
MULTIMEDIA & CONNECTIVITY
 - 14.5" Navigation System w/AM/FM/HD Radio*
 - SiriusXM Radio** w/90-day trial subscription; Not Available in AK & HI
 - Apple CarPlay (TM) & Android Auto (TM)
 - Genesis Connected Services
 - Wireless Phone Charger
 - Fingerprint Authentication System
Additional Standard Features
 - Carpeted Floor Mats
Full Tank of Gas
GENESIS WARRANTY
 - 5-year/60,000-mile New Vehicle Warranty**
 - 10-year/100,000-mile Powertrain Warranty**
 - 7-year/Unlimited-mile Anti-perforation Warranty**
 ** Limited warranties, see dealer for details

Manufacturer's Suggested Retail Price: \$44,900.00
ADDED FEATURES:
 - *SAVILE SILVER(SSS) Paint \$575.00
***Select Package:**
 - Panoramic Sunroof \$3,000.00
 - Heated Steering Wheel
 - Aluminum Trim w/ Spin Brushed Paint
Accessories
 - **Cargo Net \$50.00
 - **Reversible Cargo Tray \$160.00
 - **First Aid Kit \$45.00

SOLD TO: IL712 **SHIPPED TO: IL712**
 GENESIS OF SCHAUMBURG
 1020 E. GOLF RD.
 SCHAUMBURG IL 60173

INLAND FREIGHT & HANDLING: \$1,195.00

TOTAL PRICE: \$49,925.00

VIN: 5NMMADT66RH001170 **ENGINE:** G6KRPA500929 **EXTERIOR COLOR:** SAVILE SILVER **INTERIOR/SEAT COLOR:** OESIDIAN BL/ACC/OESIDIAN
MODEL: U0422A45 **PORT OF ENTRY:** MA **TRANSPORT:** TRUCK **ACCESSORY WEIGHT:** 14 lbs./ 6 kgs.

EMISSIONS:
 This vehicle is certified to meet emission requirements in all 50 states

EPA DOT Fuel Economy and Environment Gasoline Vehicle

Fuel Economy
24 MPG Small SUV's range from 14 to 123 MPG. The best vehicle rates 140 MPG.
 combined city/hwy 22 city 28 Highway
 4.2 gallons per 100 miles

You spend \$3,750
 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$2,700 Fuel Economy & Greenhouse Gas Rating (tailpipe only) Smog Rating (tailpipe only)

1 5 10 1 5 10
 Best

This vehicle emits 369 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and transporting fuel also create emissions. Learn more at fuelconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 28 MPG and costs \$3,750 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$4.20 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
 Calculate personalized estimates and compare vehicles

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated
 Based on the combined rating of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Driver ★ ★ ★ ★
 Crash Passenger ★ ★ ★ ★

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

Side Front seat Not Rated
 Crash Rear seat Not Rated

Based on the risk of injury in a side impact.

Rollover ★ ★ ★ ★

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

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

Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. Gasoline license and title fees state and local taxes and dealer installed options and accessories are not included in the manufacturer's suggested retail price. This label has been affixed to this vehicle by Genesis Motor America, pursuant to the requirements of 15 U.S.C. 1231 et seq, which prohibits its removal or alteration prior to delivery to the ultimate purchaser.

PARTS CONTENT INFORMATION
 FOR VEHICLES IN THIS CARLINE: U.S./CANADIAN PARTS CONTENT: 25 %
 MAJOR SOURCES OF FOREIGN PARTS CONTENT: KOREA: 70 %
 FOR THIS VEHICLE: FINAL ASSEMBLY POINT: MONTGOMERY, ALABAMA
 COUNTRY OF ORIGIN:
 ENGINE: KOREA TRANSMISSION: KOREA
 Note: Parts content does not include final assembly, distribution, or other non-parts costs.

Figure A-71: Monroney Label

Seats & Safety System

WARNING
 When sitting on the rear seat, do not adjust the height of the head restraint to the lowest position.

CAUTION
 When there is no occupant in the rear seats, adjust the height of the head restraint to the lowest position. The rear seat head restraint can reduce the visibility of the rear area.

NOTICE
 To prevent damage, NEVER hit or pull on the head restraints.

Front seat head restraints

The driver's and front passenger's seats are equipped with adjustable head restraints for the passengers safety and comfort.

Adjusting the height up and down
 To raise the head restraint:
 1. Pull it up to the desired position (1).
 To lower the head restraint:
 1. Push and hold the release button (2) on the head restraint support.
 2. Lower the head restraint to the desired position (3).

3-18

Figure A-72: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



Figure A-73: Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA TRACES

Table of Data Plots

Driver Dummy Instrumentation Plots

Fig.	Description	Page
Plot 1	Driver Head Acceleration (X) Primary vs. Time	B-4
Plot 2	Driver Head Acceleration (Y) Primary vs. Time	B-4
Plot 3	Driver Head Acceleration (Z) Primary vs. Time	B-4
Plot 4	Driver Head Resultant Primary vs. Time	B-4
Plot 5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-5
Plot 6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-5
Plot 7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-5
Plot 8	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-5
Plot 9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-6
Plot 10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-6
Plot 11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-6

Additional Driver Dummy Instrumentation Data

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

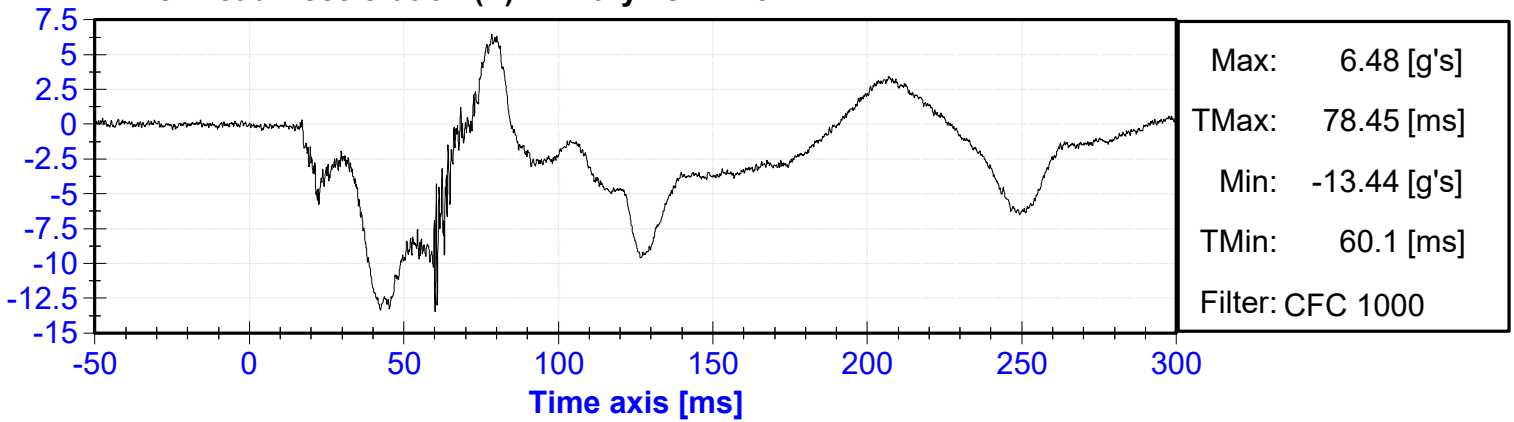
Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

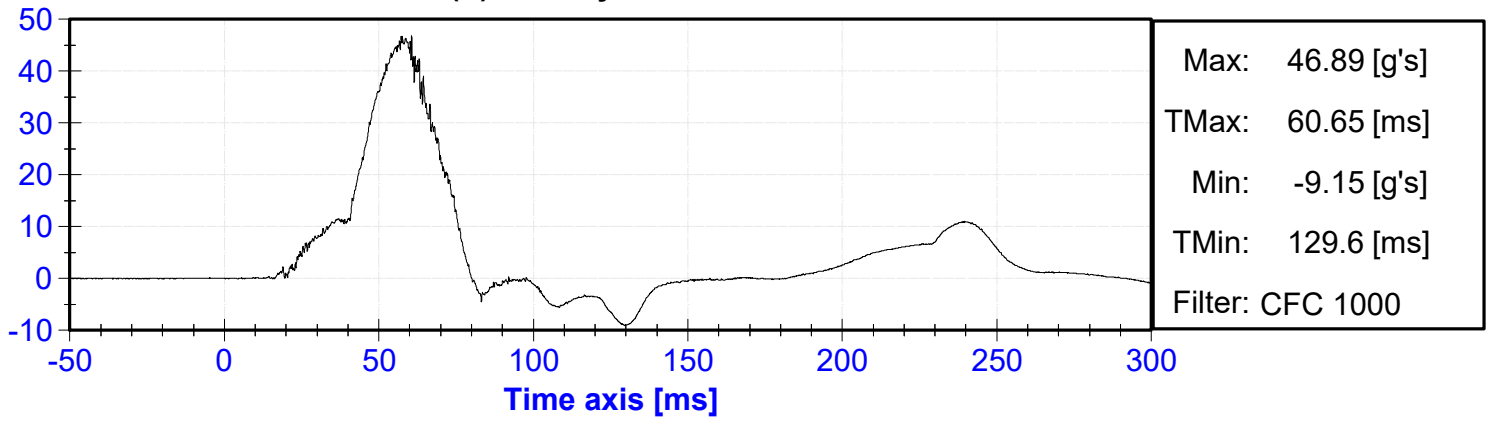
Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

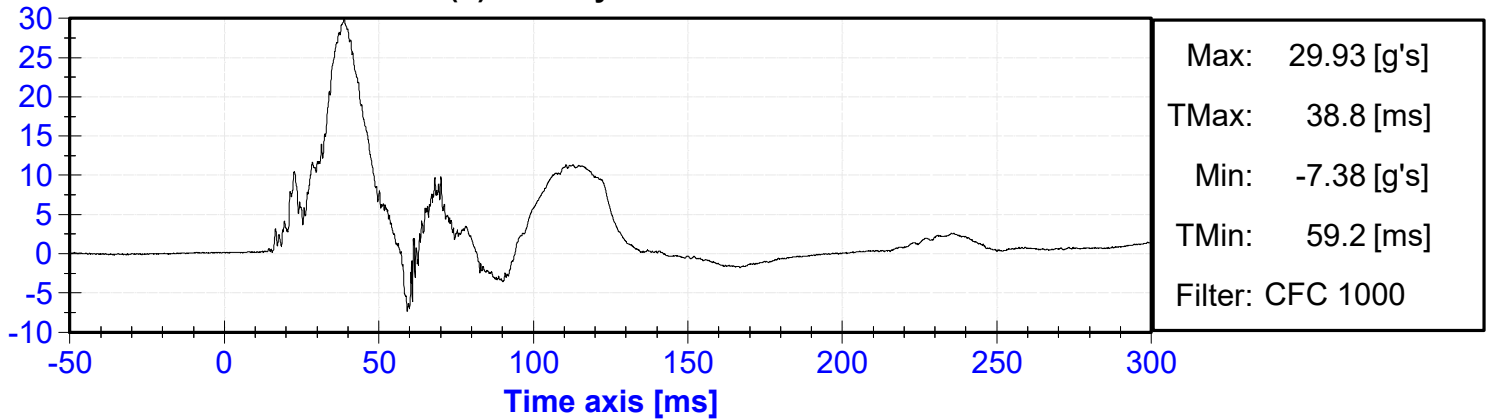
Driver Head Acceleration (X) Primary vs. Time



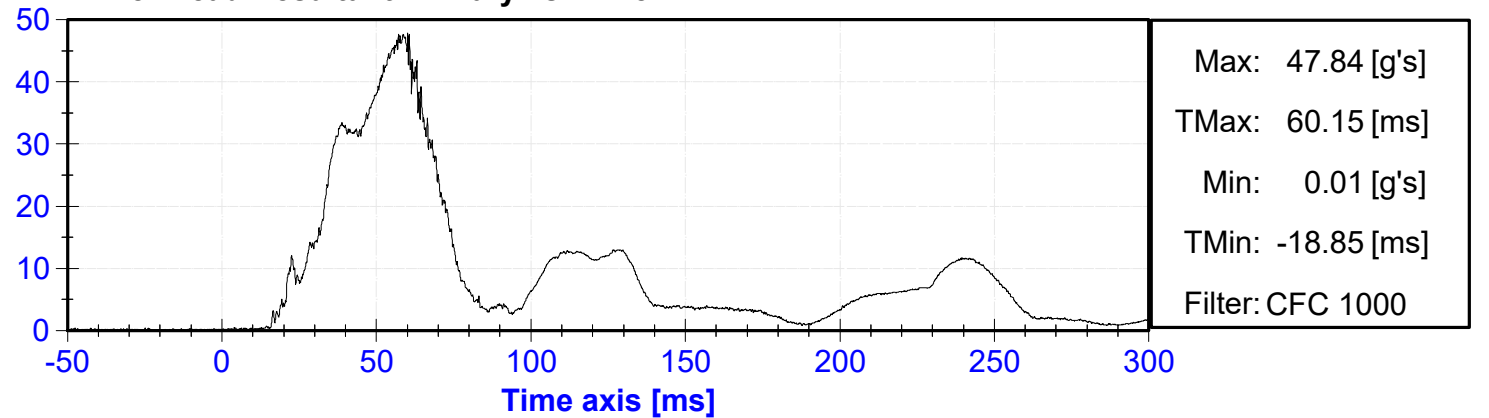
Driver Head Acceleration (Y) Primary vs. Time



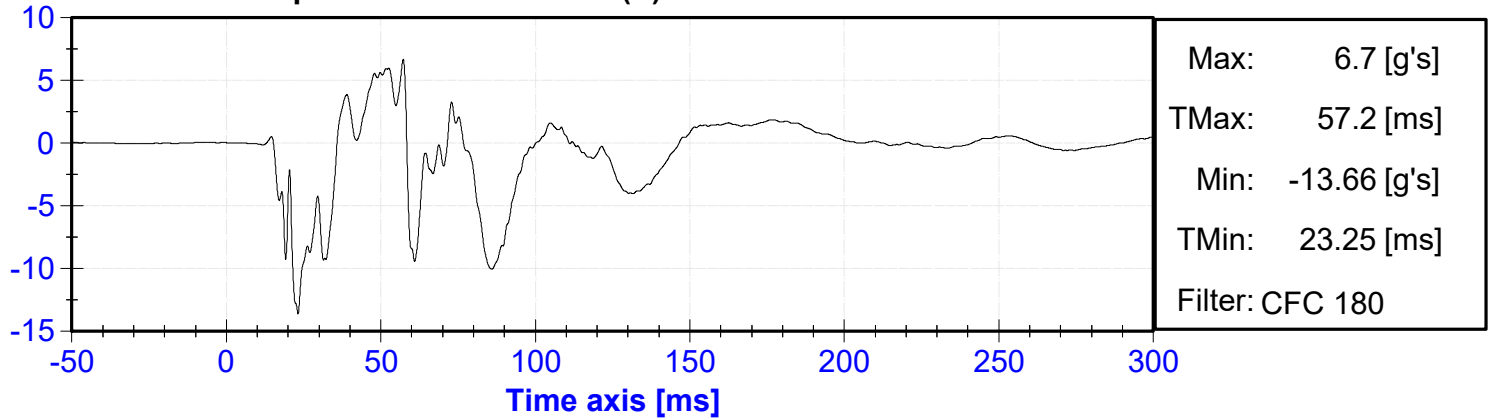
Driver Head Acceleration (Z) Primary vs. Time



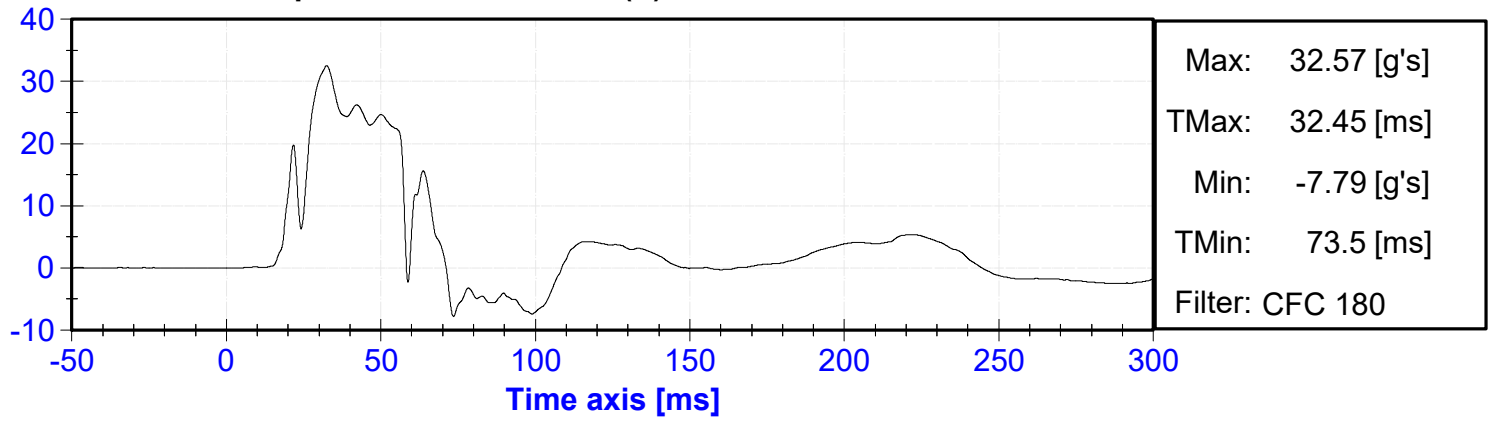
Driver Head Resultant Primary vs. Time



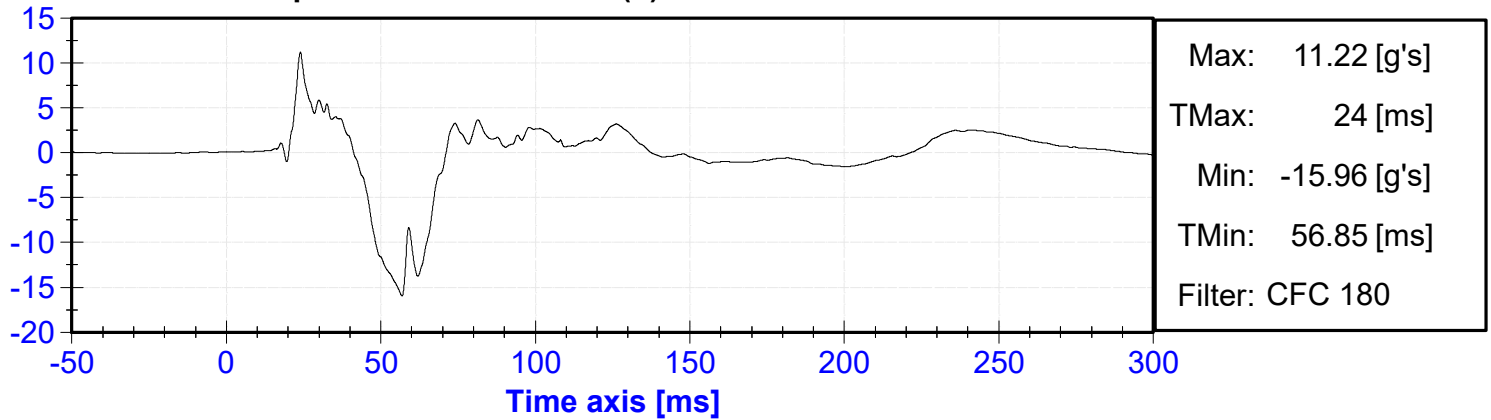
Driver Lower Spine T12 Acceleration (X) vs. Time



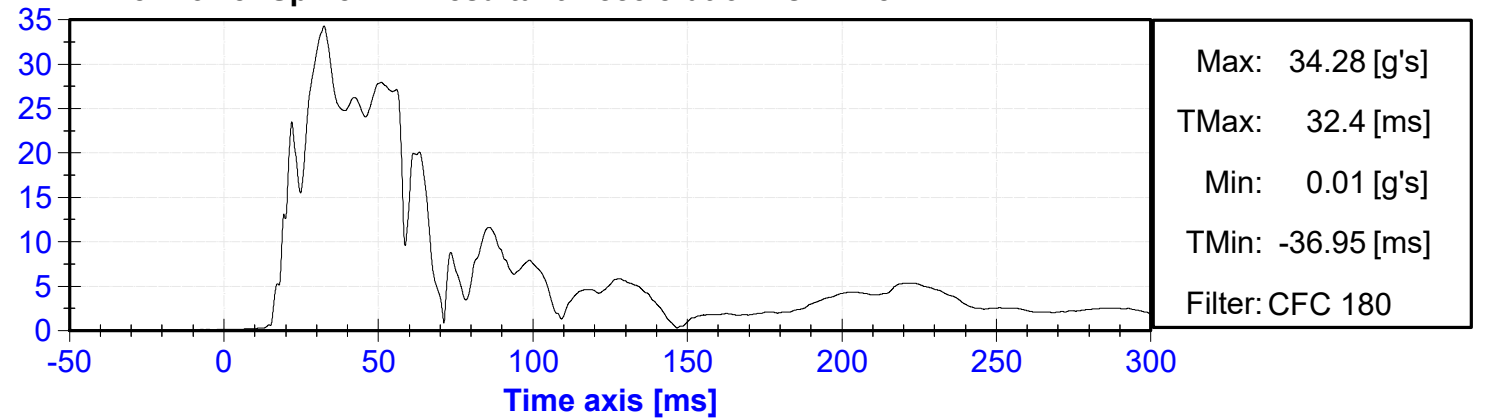
Driver Lower Spine T12 Acceleration (Y) vs. Time



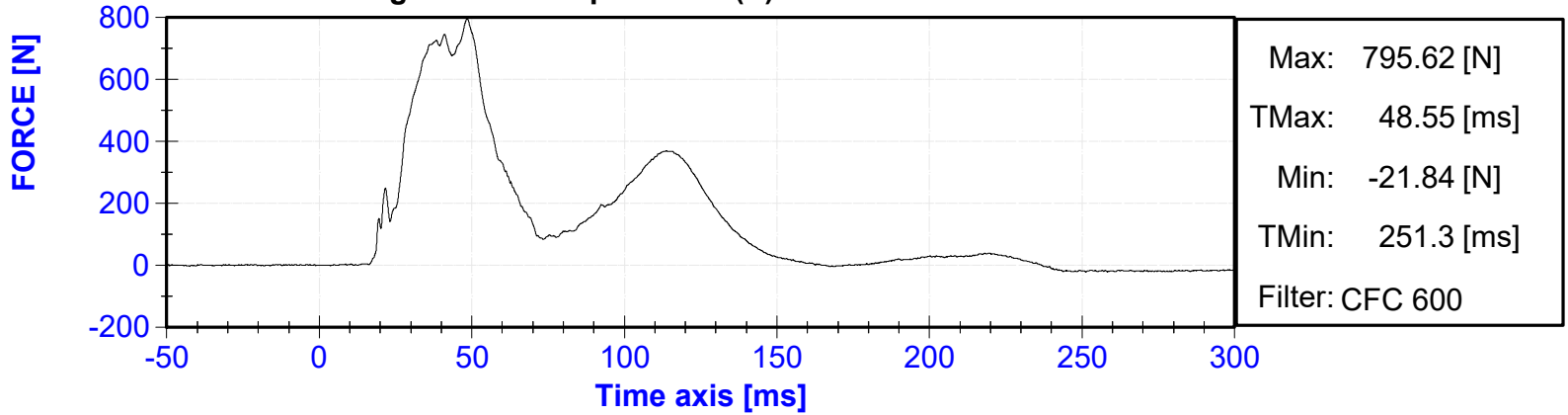
Driver Lower Spine T12 Acceleration (Z) vs. Time



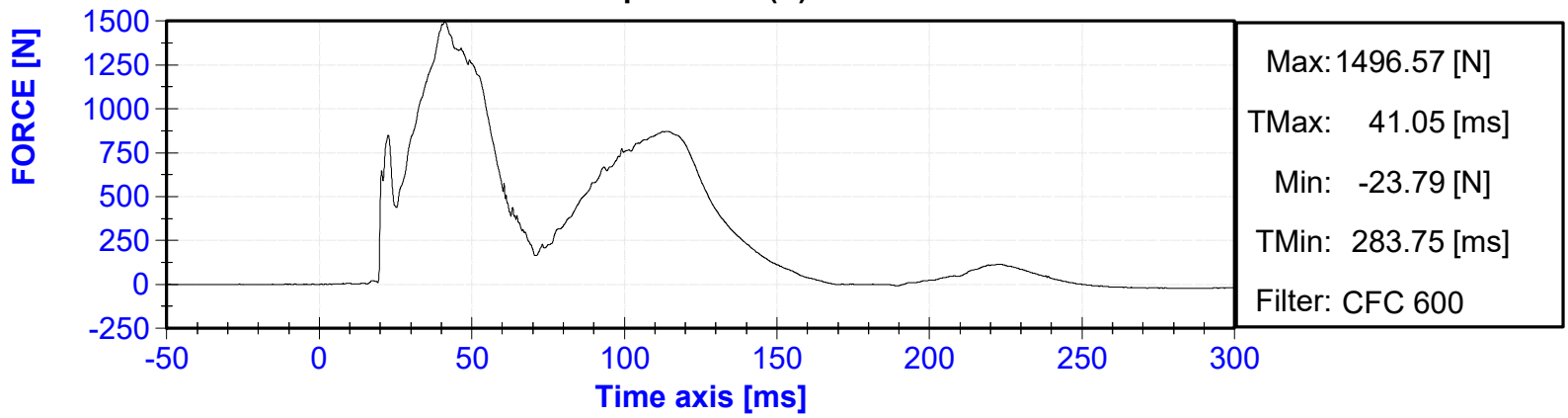
Driver Lower Spine T12 Resultant Acceleration vs. Time



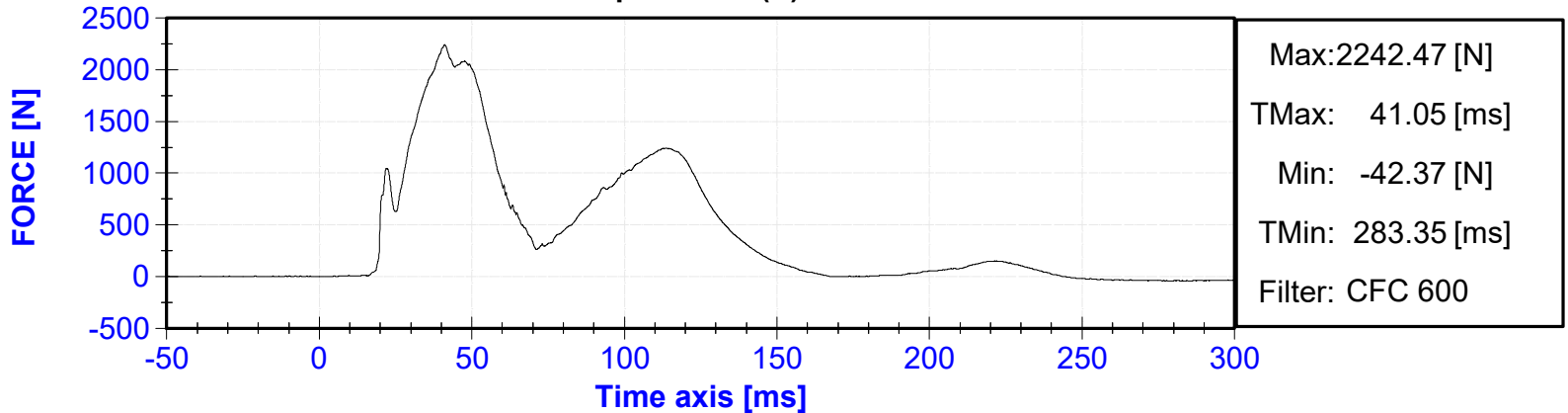
Driver Iliac Wing Force on Impact Side (Y) vs. Time



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



Driver Total Pelvis Force on Impact Side (Y) vs. Time



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SERIAL NO:DG8012

(CONFIGURED FOR LEFT SIDE IMPACT)

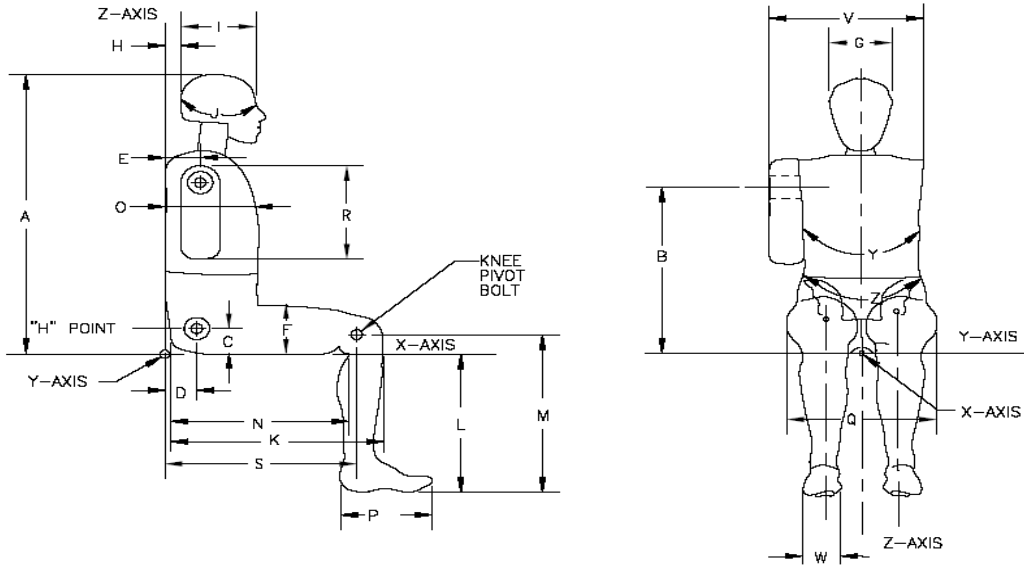


External Measurements - SID-IIs

Technician: K. Brogan

Date: 01/10/2024

Dummy Serial Number: DG8012



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	782	Pass
B	Shoulder Pivot Height	437	453	447	Pass
C	H-point Height	79	89	84	Pass
D	H-point from seatback	141	151	145	Pass
E	Shoulder Pivot from Backline	97	107	105	Pass
F	Thigh Clearance	119	135	129	Pass
G	Head Breadth	140	148	143	Pass
H	Head Back from Backline	40	46	44	Pass
I	Head Depth	178	188	183	Pass
J	Head Circumference	541	551	545	Pass
K	Buttock to Knee Length	514	540	530	Pass
L	Popliteal Height	343	369	362	Pass
M	Knee Pivot to floor height	392	409	399	Pass
N	Buttock Popliteal Length	416	442	438	Pass
O	Chest Depth w/o jacket	195	211	204	Pass
P	Foot Length	216	232	220	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	319	Pass
R	Arm Length	249	259	254	Pass
S	Knee Joint to seatback	477	493	485	Pass
V	Shoulder Width	341	357	353	Pass
W	Foot Width	78	94	85	Pass
Y	Chest Circumference w/jacket	851	881	869	Pass
Z	Waist Circumference	761	791	780	Pass

ATD Manufacturer	FTSS	Test Technician	D. Sakona
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

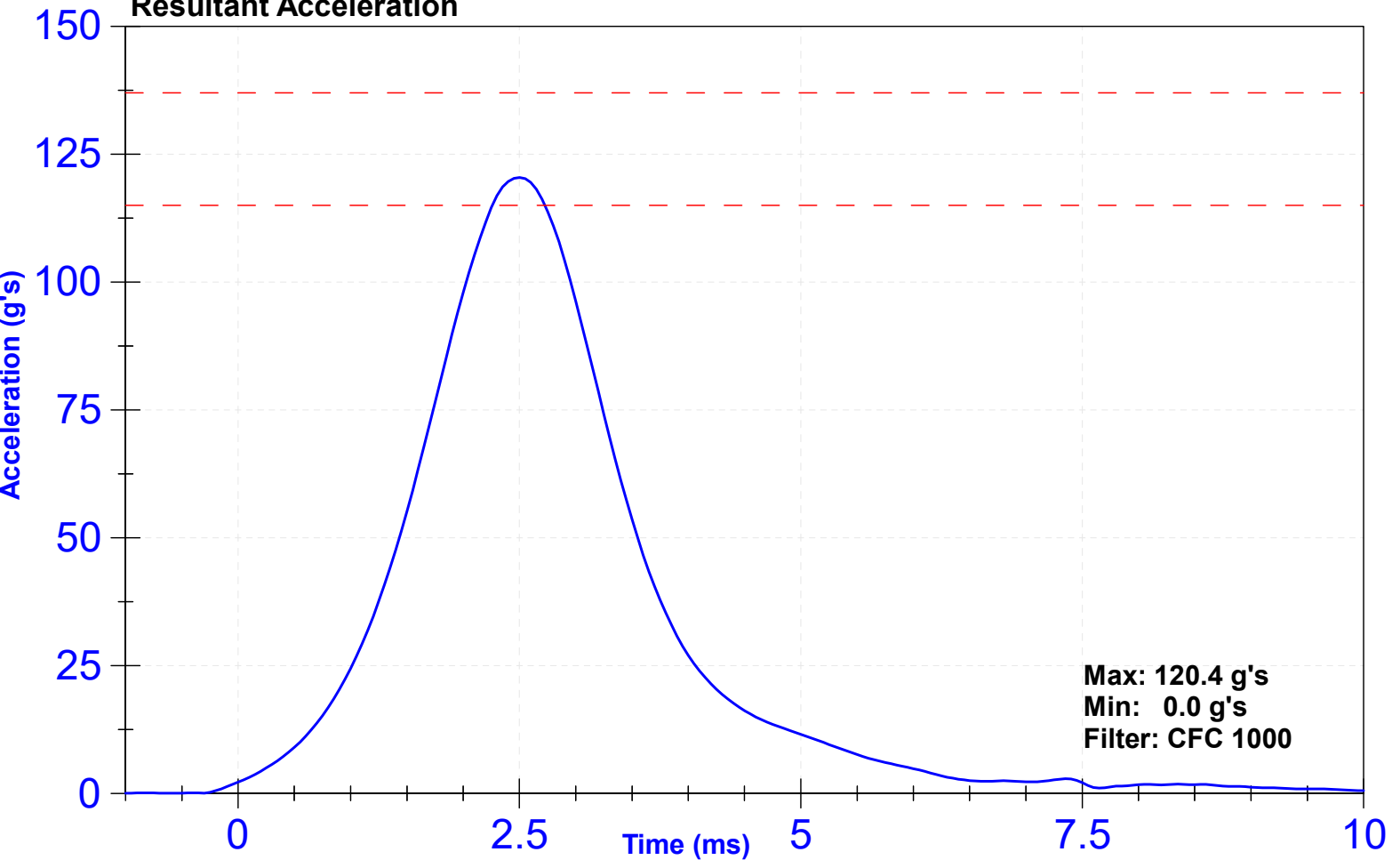
Results

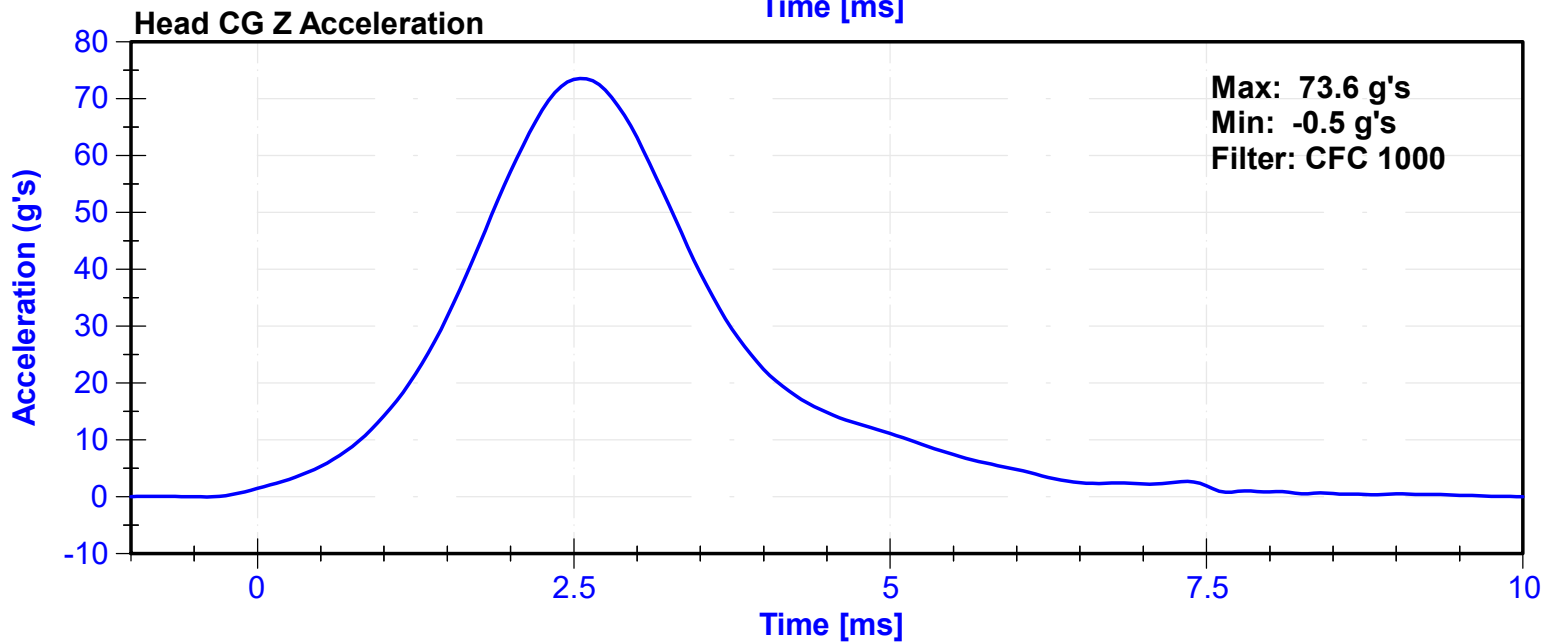
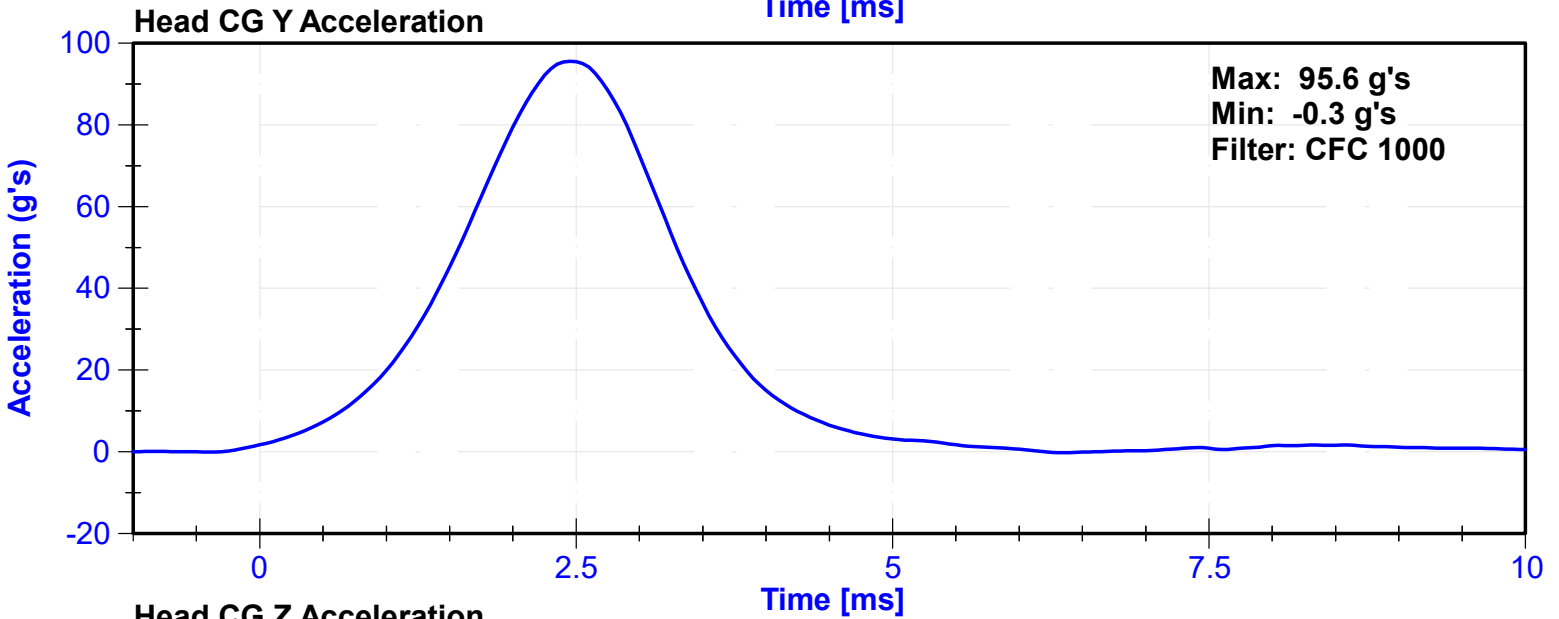
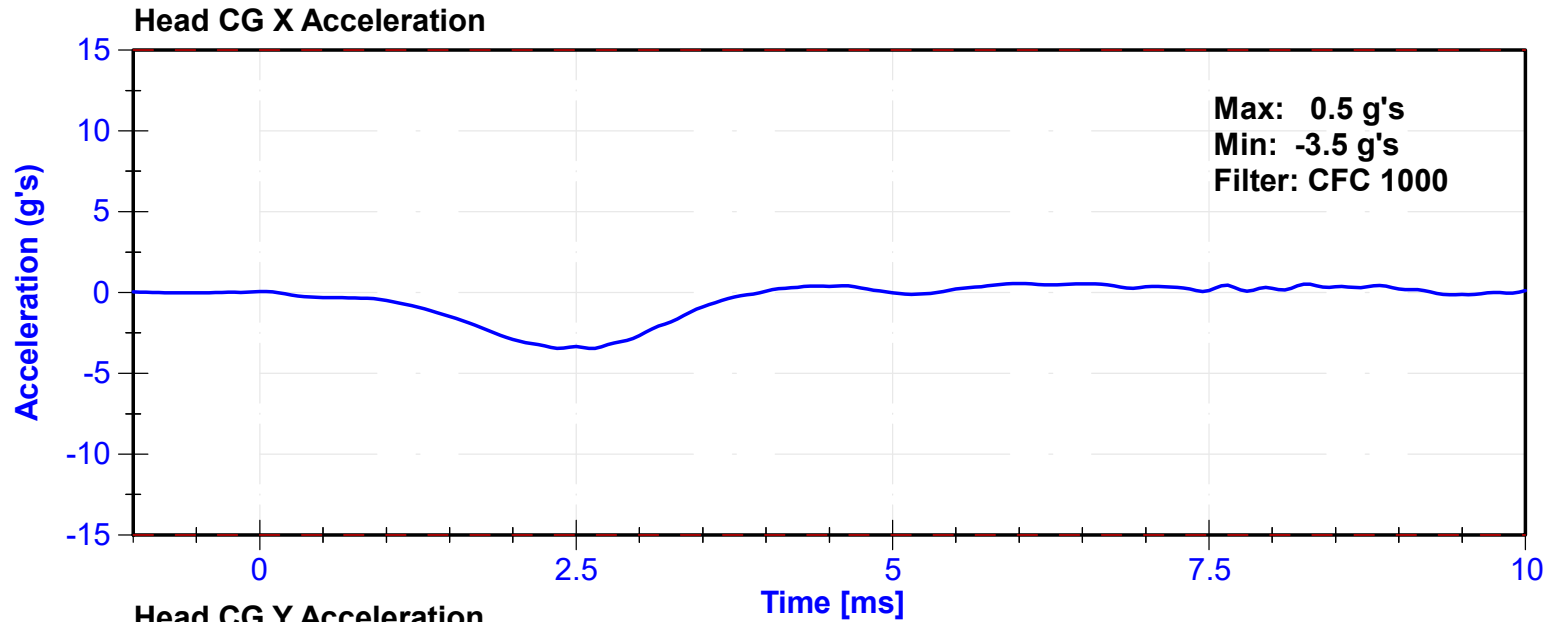
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	24	Pass
Resultant Acceleration	115	137	g's	120.4	Pass
Oscillation	0	15	%	2.3	Pass
Fore-Aft Acceleration	-15	15	g's	-3.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibratio Date	Calibratio Due Date
X Accelerometer	Endevco	P74788	11/16/2023	5/14/2024
Y Accelerometer	Endevco	P51668	11/16/2023	5/14/2024
Z Accelerometer	Endevco	P83319	11/16/2023	5/14/2024

Resultant Acceleration





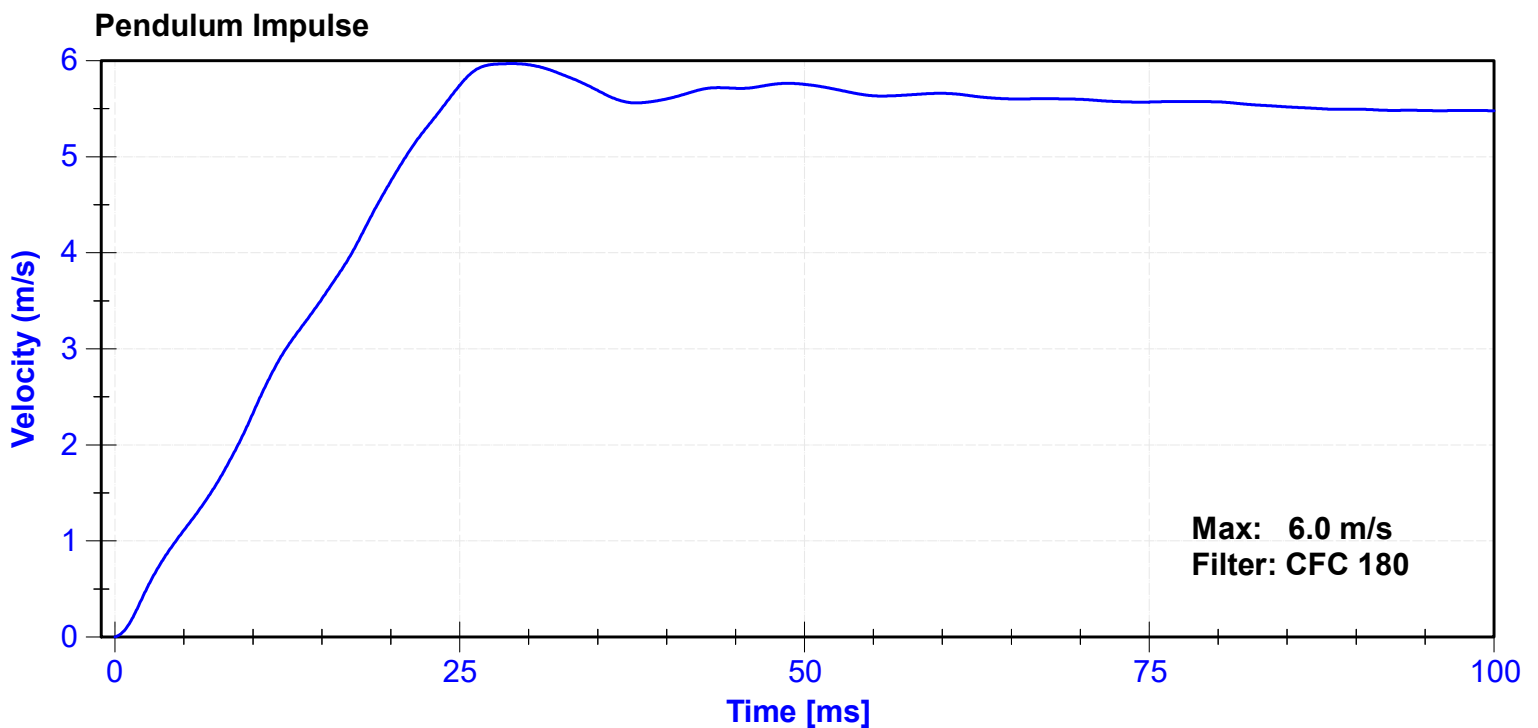
ATD Manufacturer	FTSS	Test Technician	D. Sakona
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

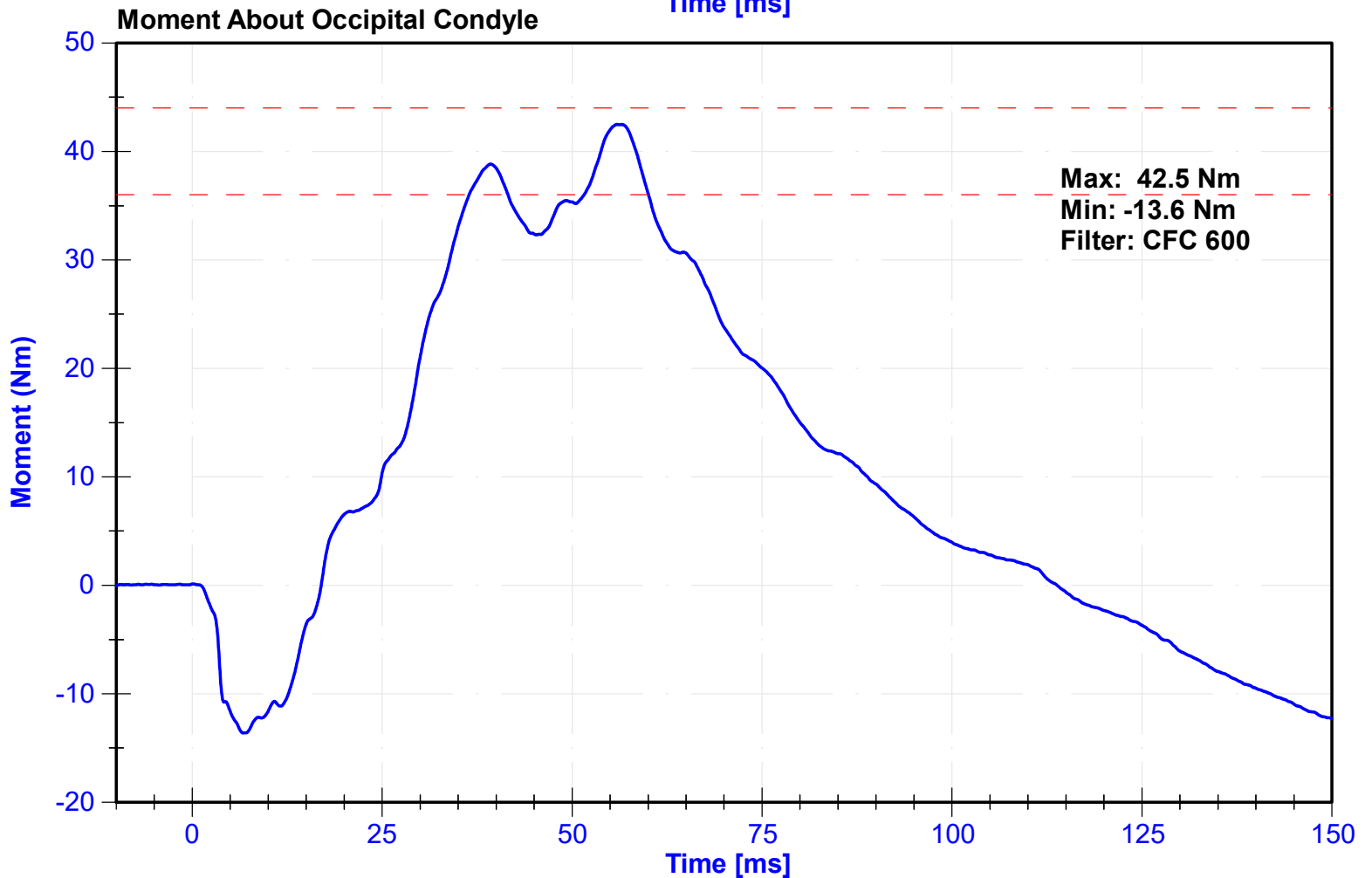
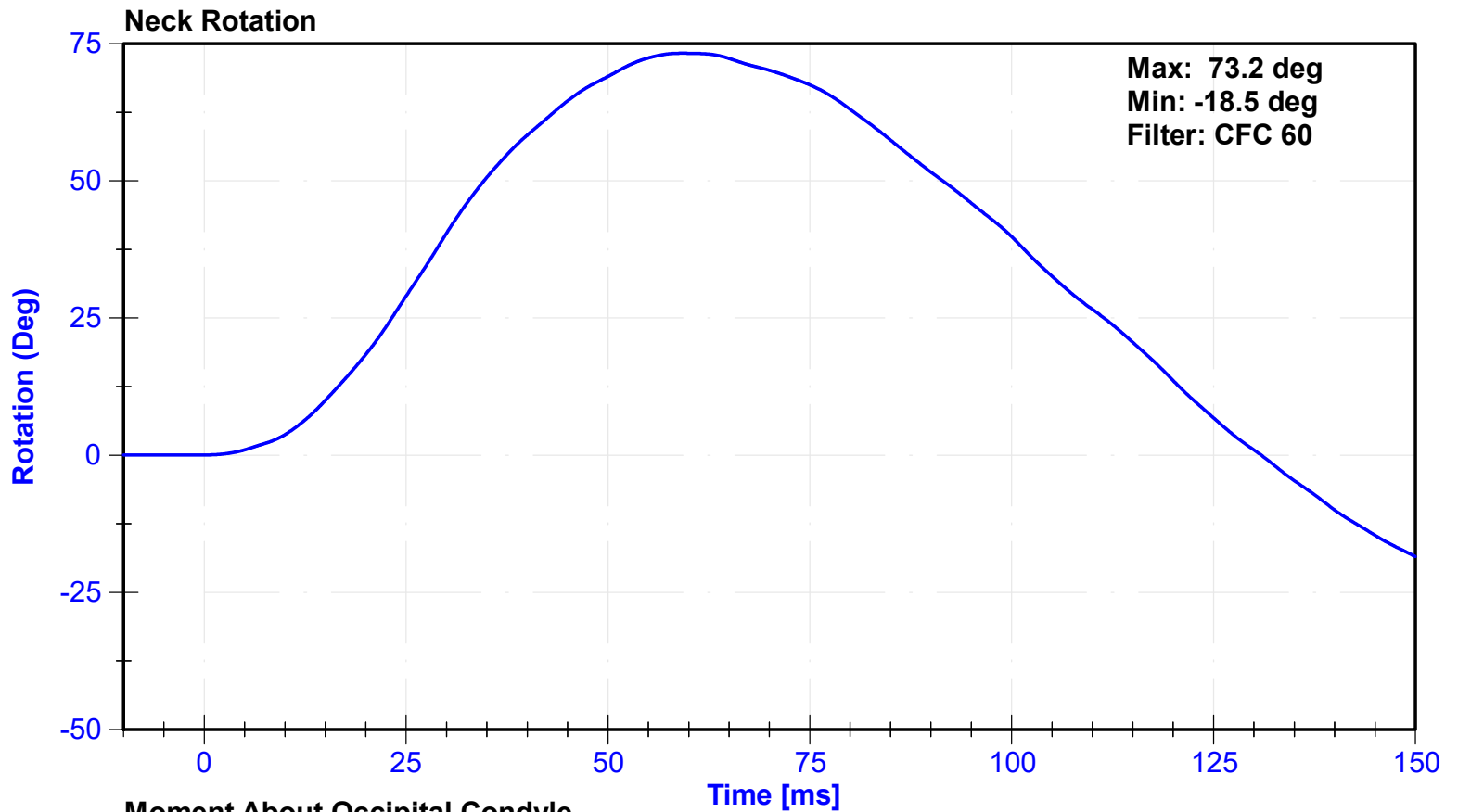
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	28	Pass
Velocity	5.51	5.63	m/s	5.603	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.33	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.52	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.75	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.74	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.97	Pass
Neck Rotation	71	81	deg	73.2	Pass
Time at Maximum Rotation	50	70	ms	59.2	Pass
Moment about the OC	36	44	Nm	42.5	Pass
Moment Decay to 0 Nm	102	126	ms	113.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231C-750	10/31/2023	4/28/2024
Pendulum Potentiometer	Servo	4961	10/2/2023	10/1/2024
Condyle Potentiometer	Servo	DS185	10/2/2023	10/1/2024
Upper Neck Load Cell	Denton	1716ATF_2184-FY	5/18/2023	5/17/2024





ATD Manufacturer	FTSS	Test Technician	D. Sakona
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

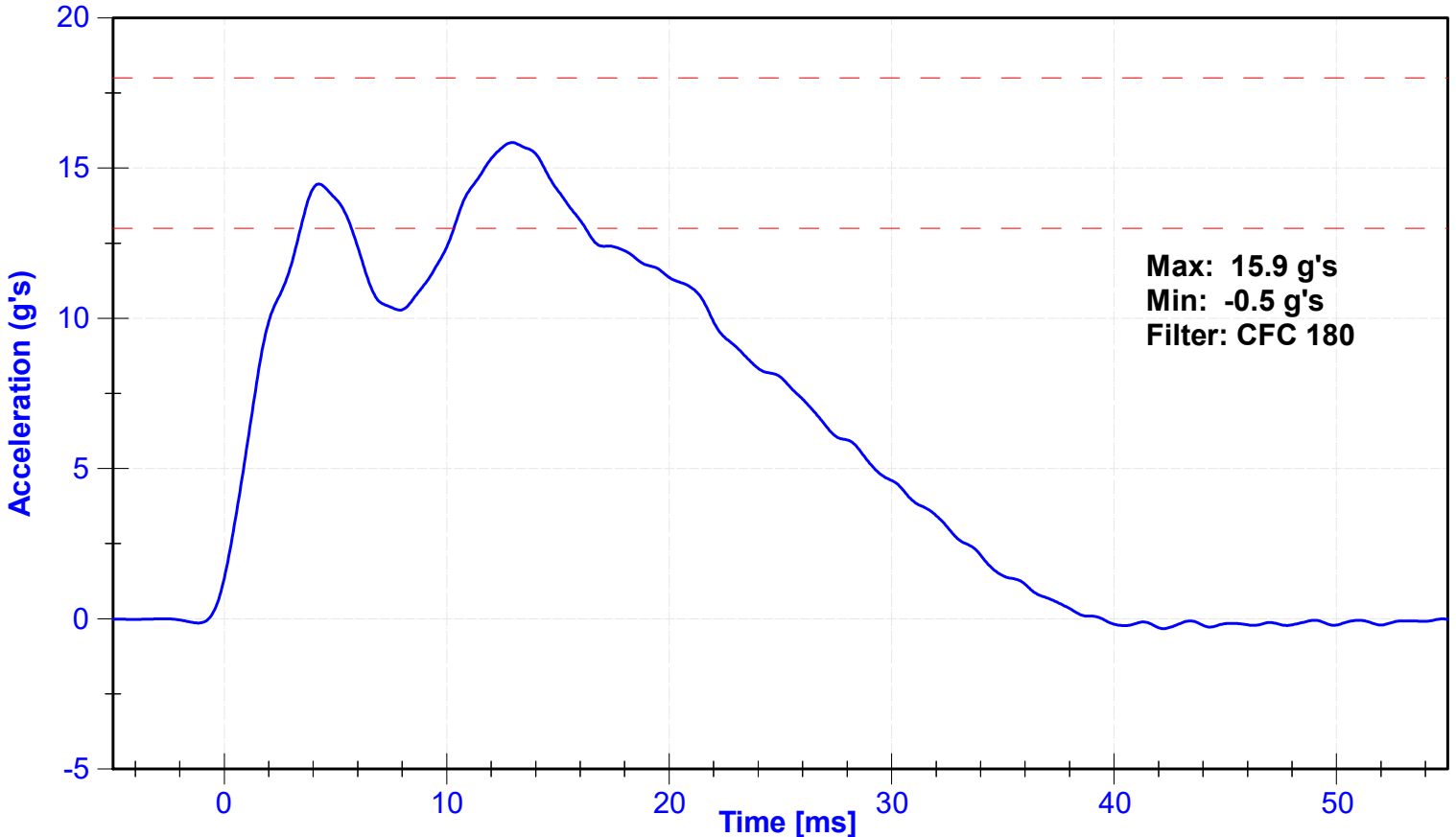
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	28	Pass
Velocity	4.2	4.4	m/s	4.29	Pass
Probe Acceleration	13	18	g's	15.9	Pass
Shoulder Deflection	28	37	mm	28.1	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.0	Pass

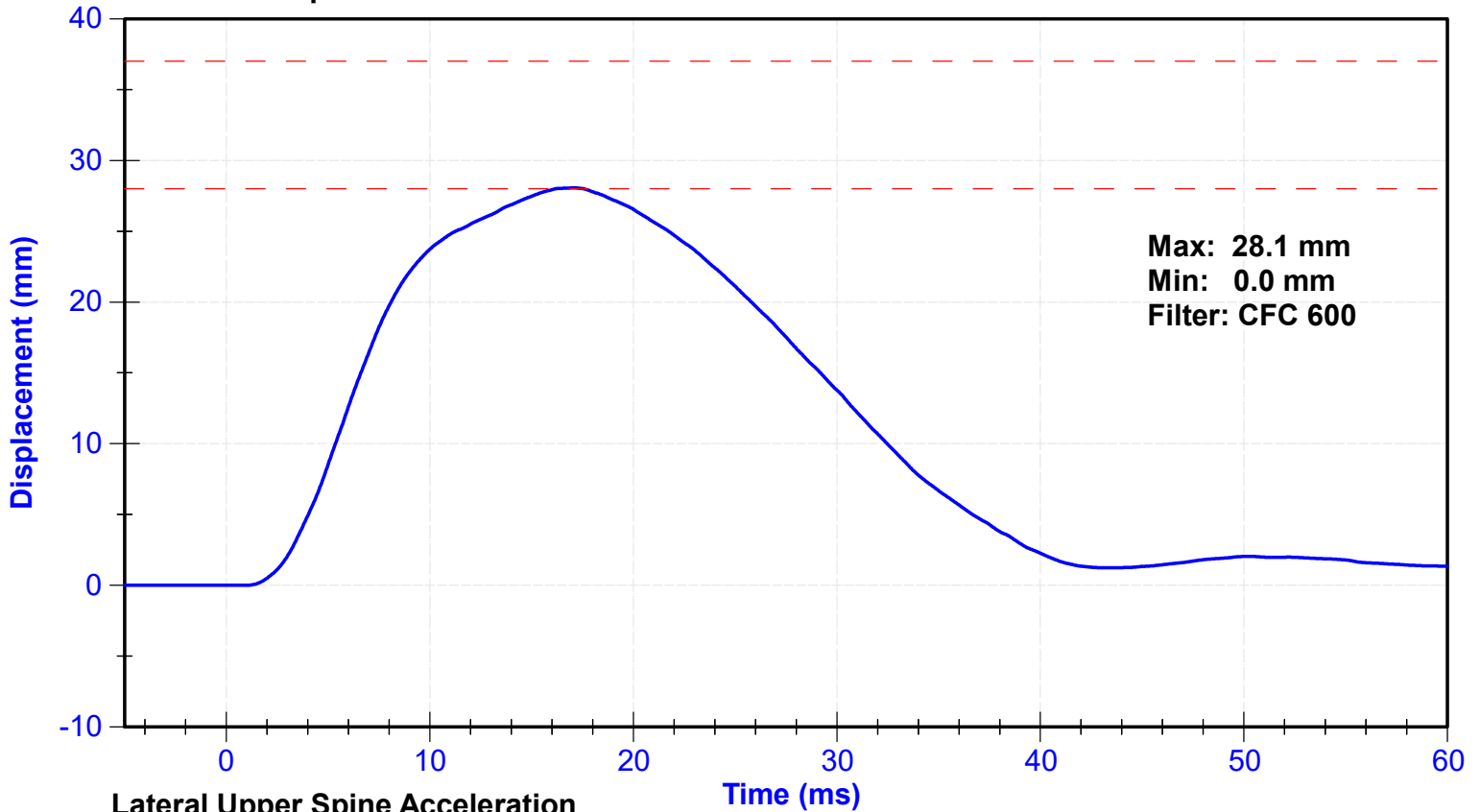
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18619	9/29/2023	3/27/2024
Shoulder Potentiometer	Servo	1274GFE	11/17/2023	5/17/2024
Upper Spine Y Accelerometer	Endevco	P64148	11/16/2023	5/14/2024

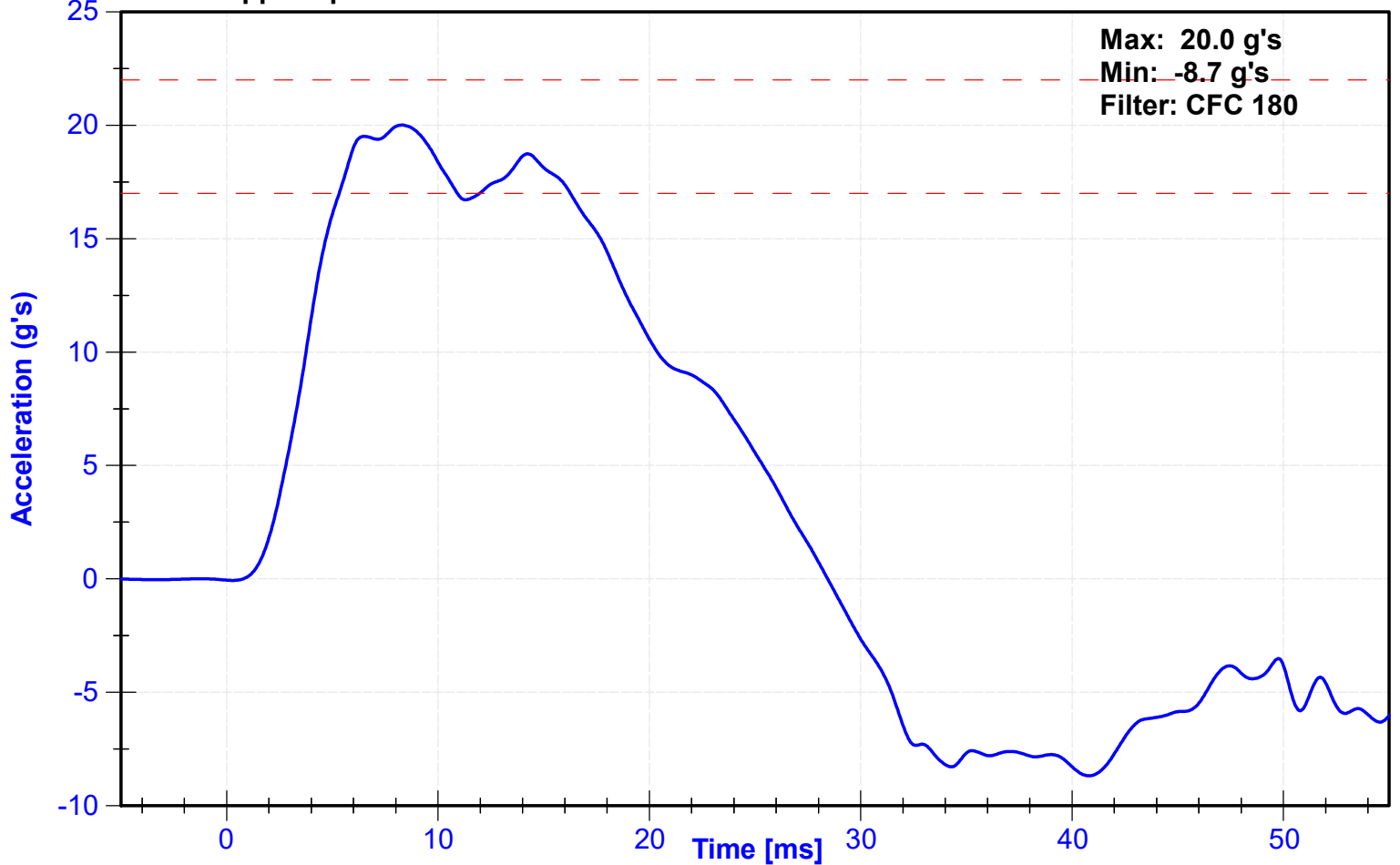
Probe Acceleration



Shoulder Displacement



Lateral Upper Spine Acceleration



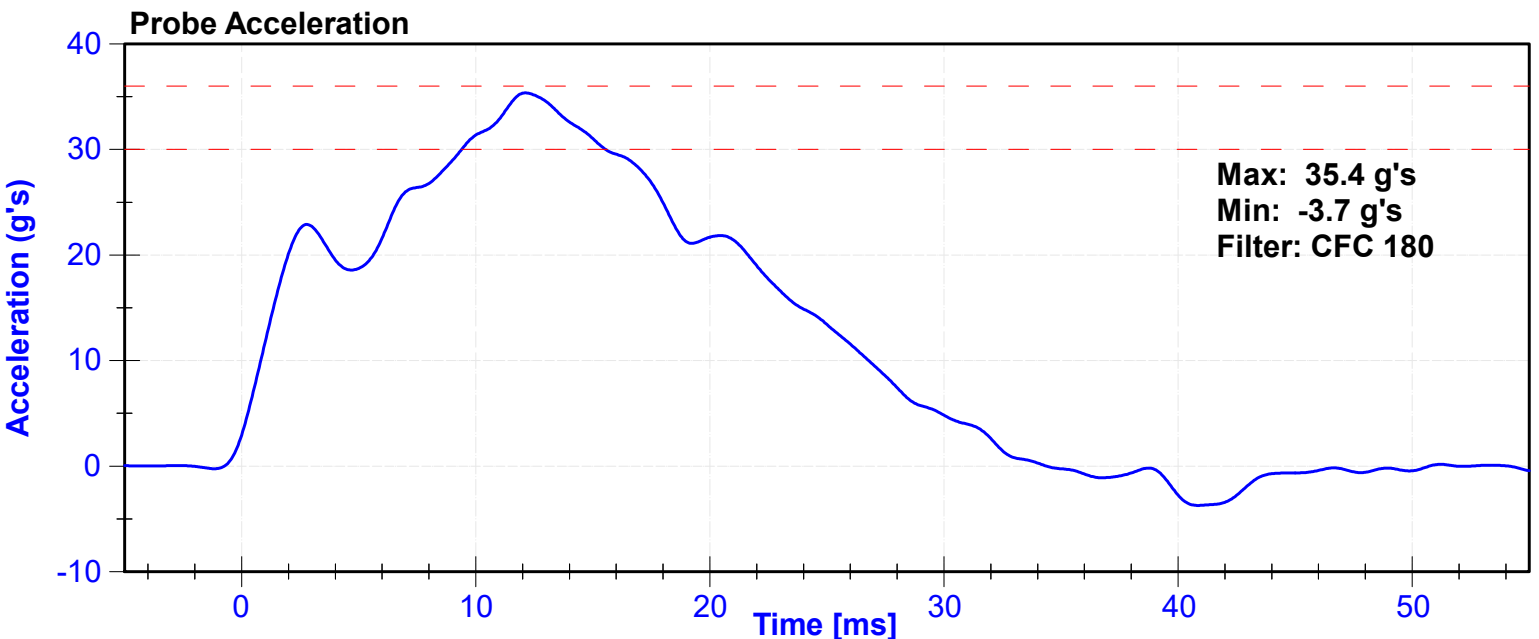
ATD Manufacturer	FTSS	Test Technician	D. Sakona
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

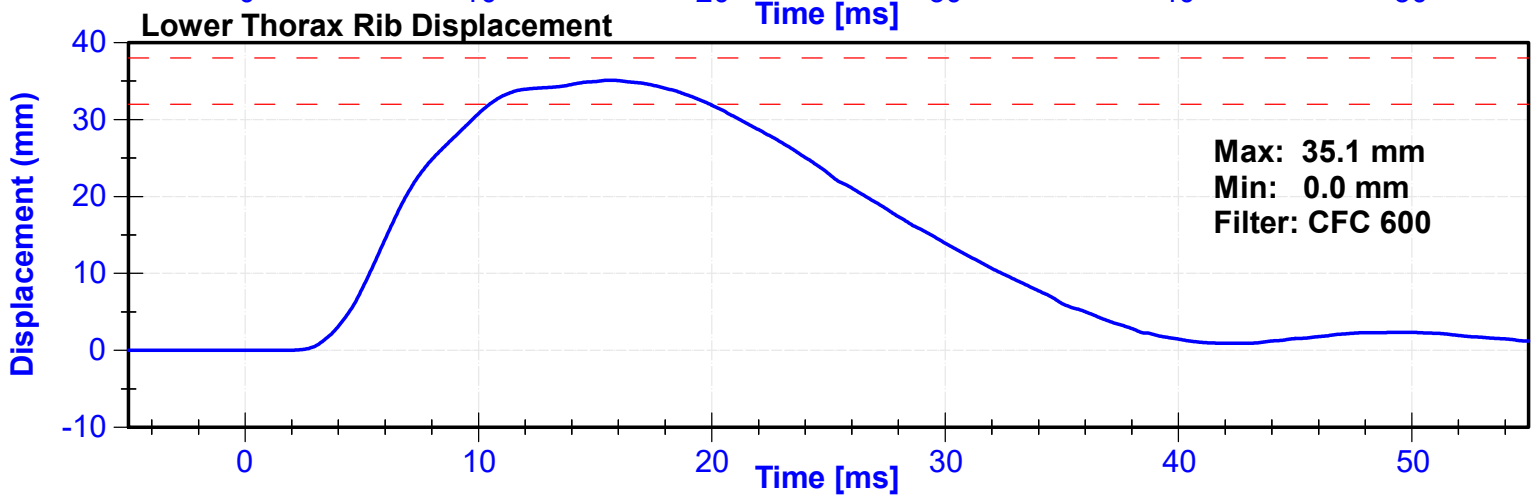
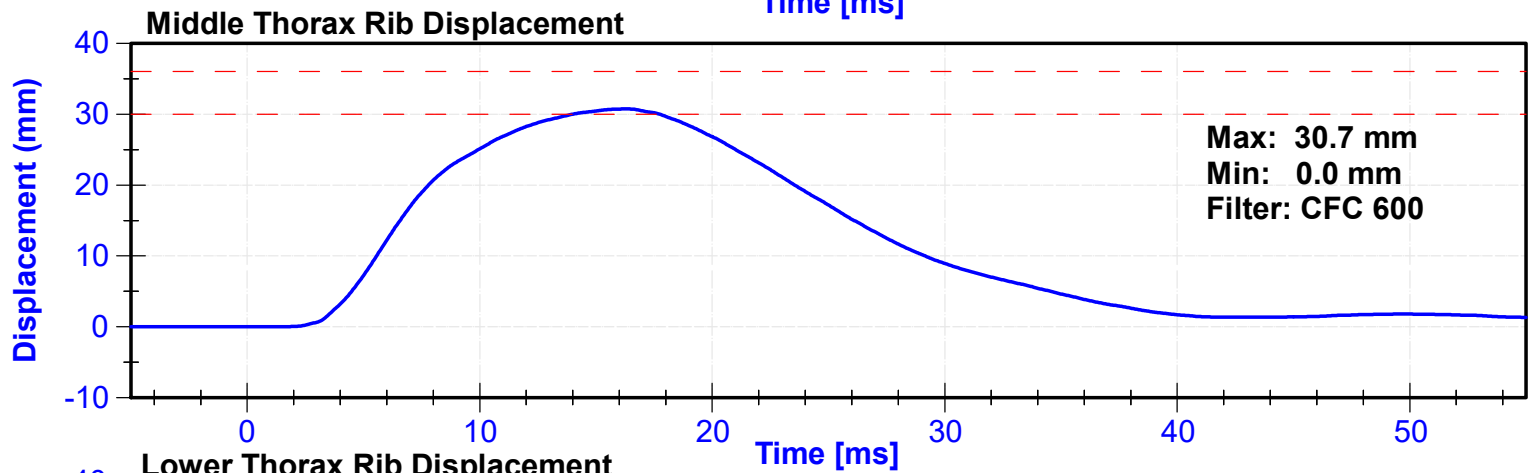
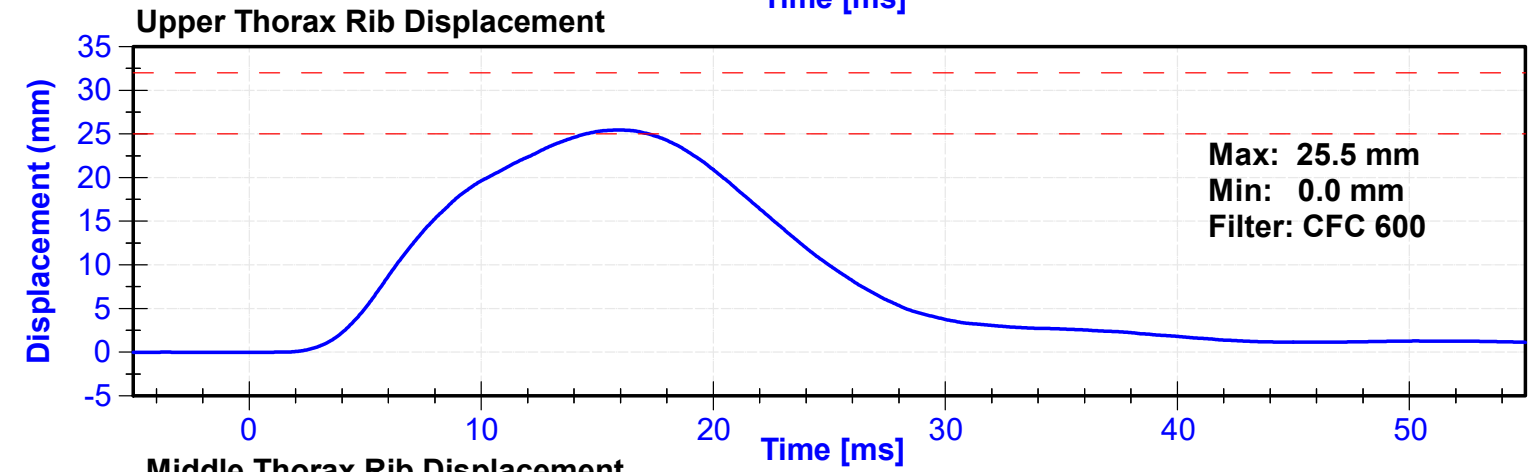
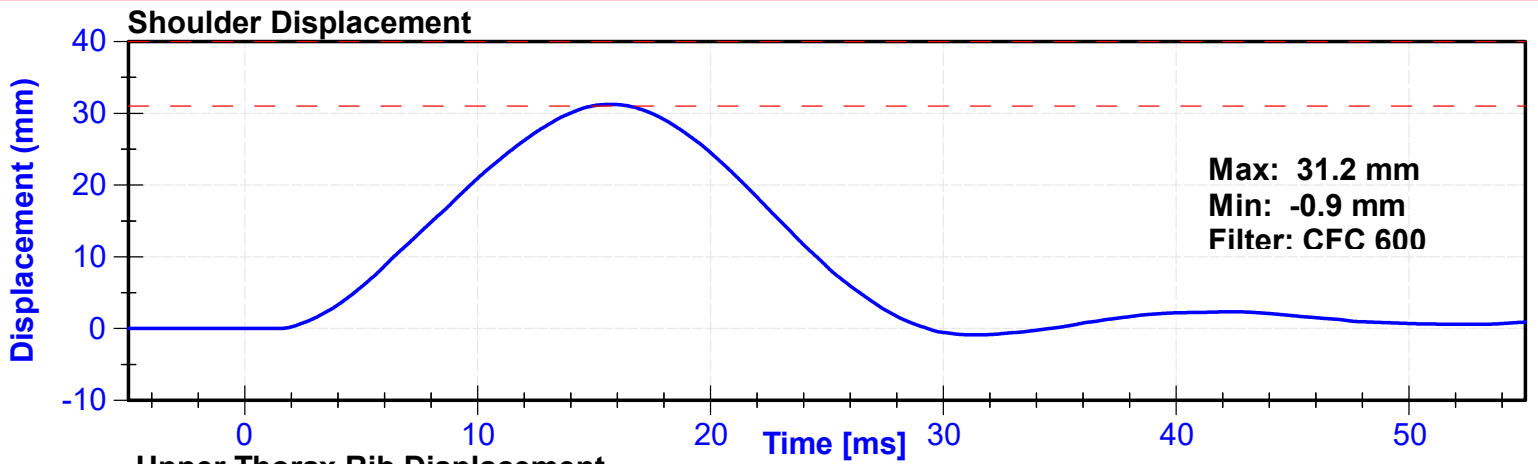
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	28	Pass
Velocity	6.6	6.8	m/s	6.67	Pass
Probe Acceleration after 5 ms	30	36	g's	35.4	Pass
Lateral Upper Spine Acceleration	34	43	g's	38.5	Pass
Lateral Lower Spine Acceleration	29	37	g's	32.1	Pass
Shoulder Deflection	31	40	mm	31.2	Pass
Upper Thorax Rib Deflection	25	32	mm	25.5	Pass
Mid Thorax Rib Deflection	30	36	mm	30.7	Pass
Lower Thorax Rib Deflection	32	38	mm	35.1	Pass

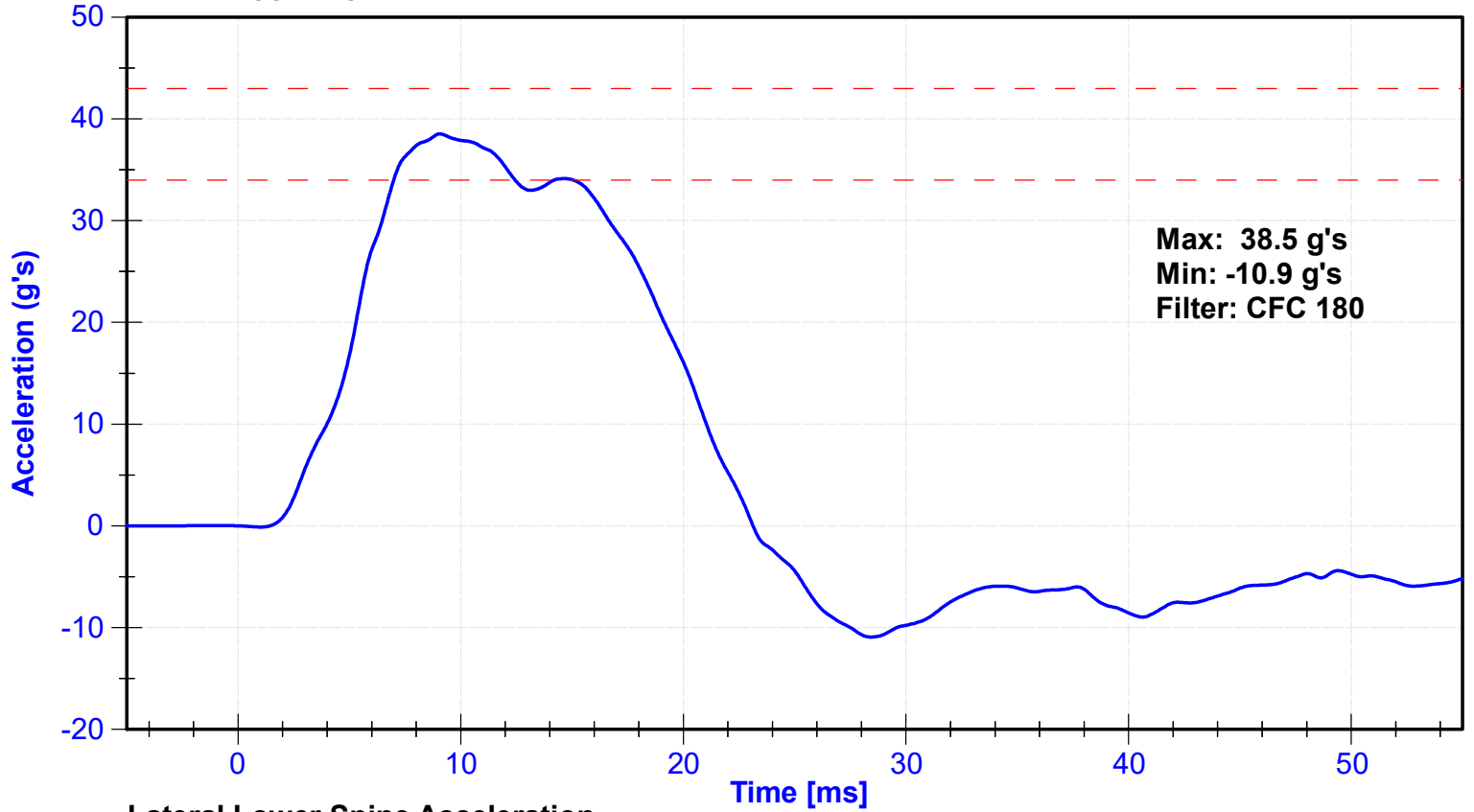
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18619	9/29/2023	3/27/2024
Upper Spine T1 Y Accelerometer	Endevco	P64148	11/16/2023	5/14/2024
Upper Spine T12 Y Accelerometer	Endevco	P51327	11/16/2023	5/14/2024
Shoulder Potentiometer	Servo	1274GFE	11/17/2023	5/17/2024
Upper Thorax Rib Potentiometer	Servo	1199GFE	11/17/2023	5/17/2024
Middle Thorax Rib Potentiometer	Servo	1246GFE	11/17/2023	5/17/2024
Lower Thorax Rib Potentiometer	Servo	011GFE	11/17/2023	5/17/2024

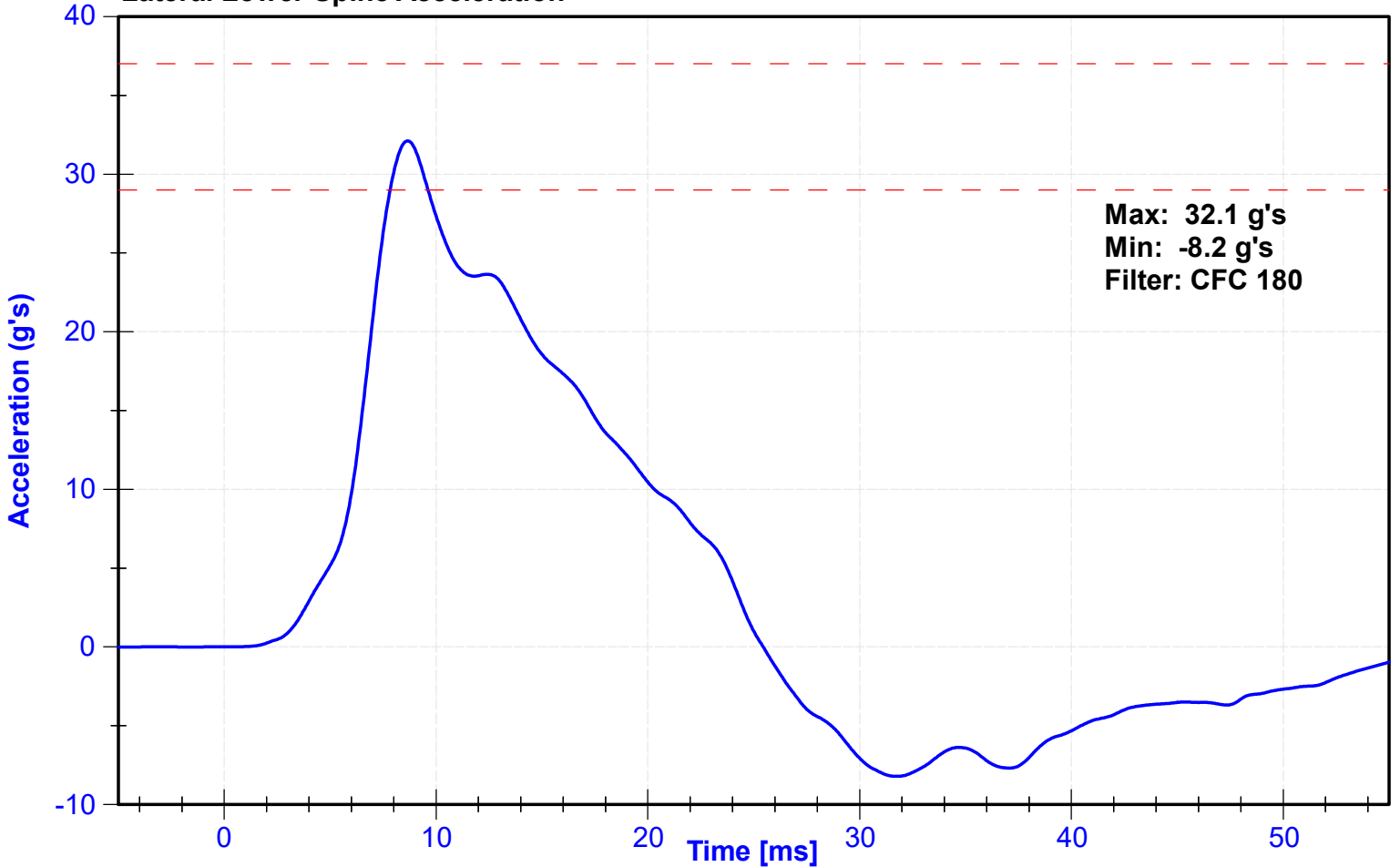




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



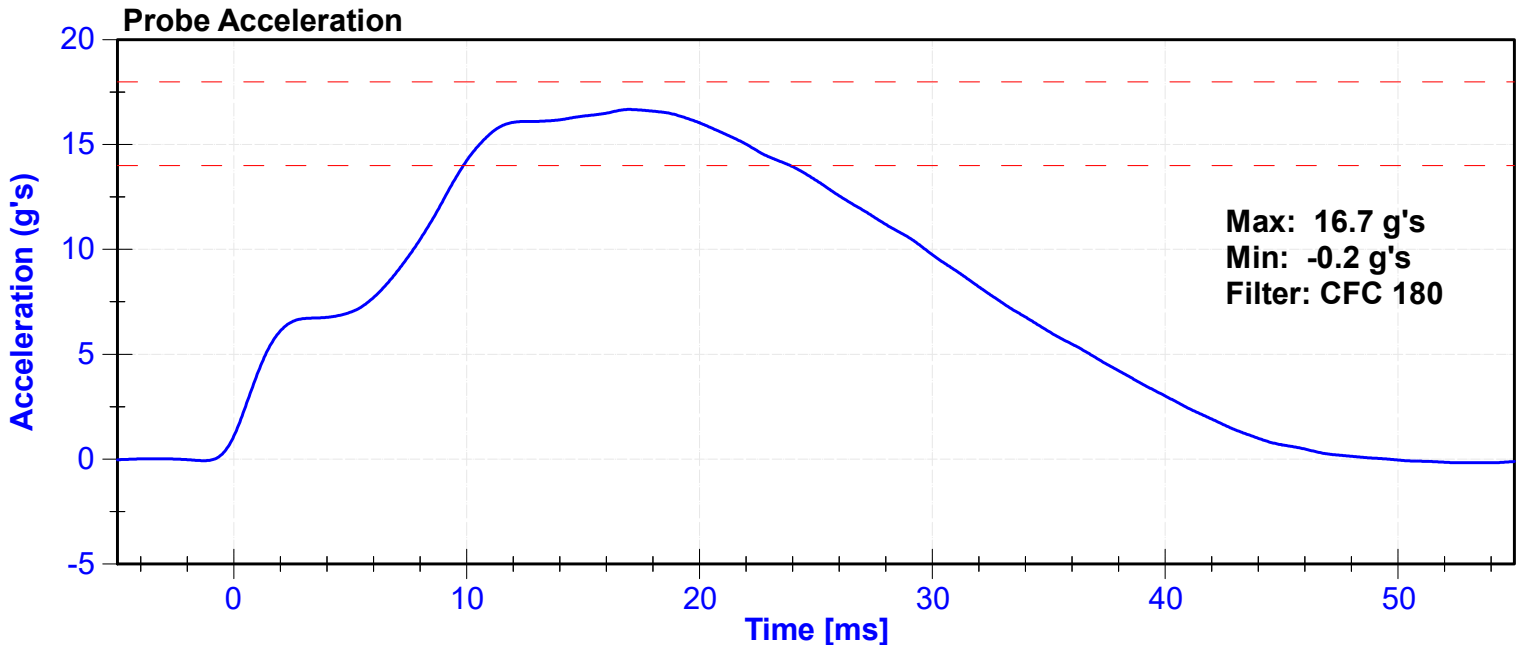
ATD Manufacturer	FTSS	Test Technician	D. Sakona
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

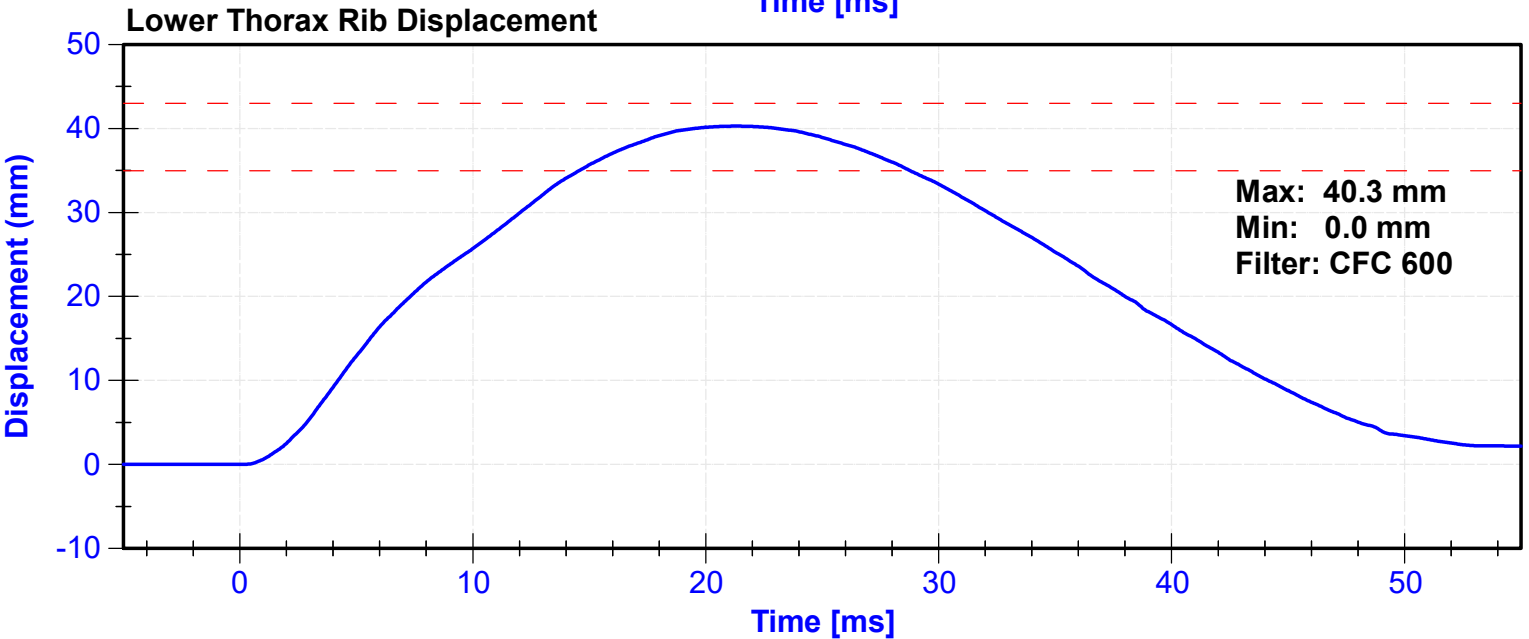
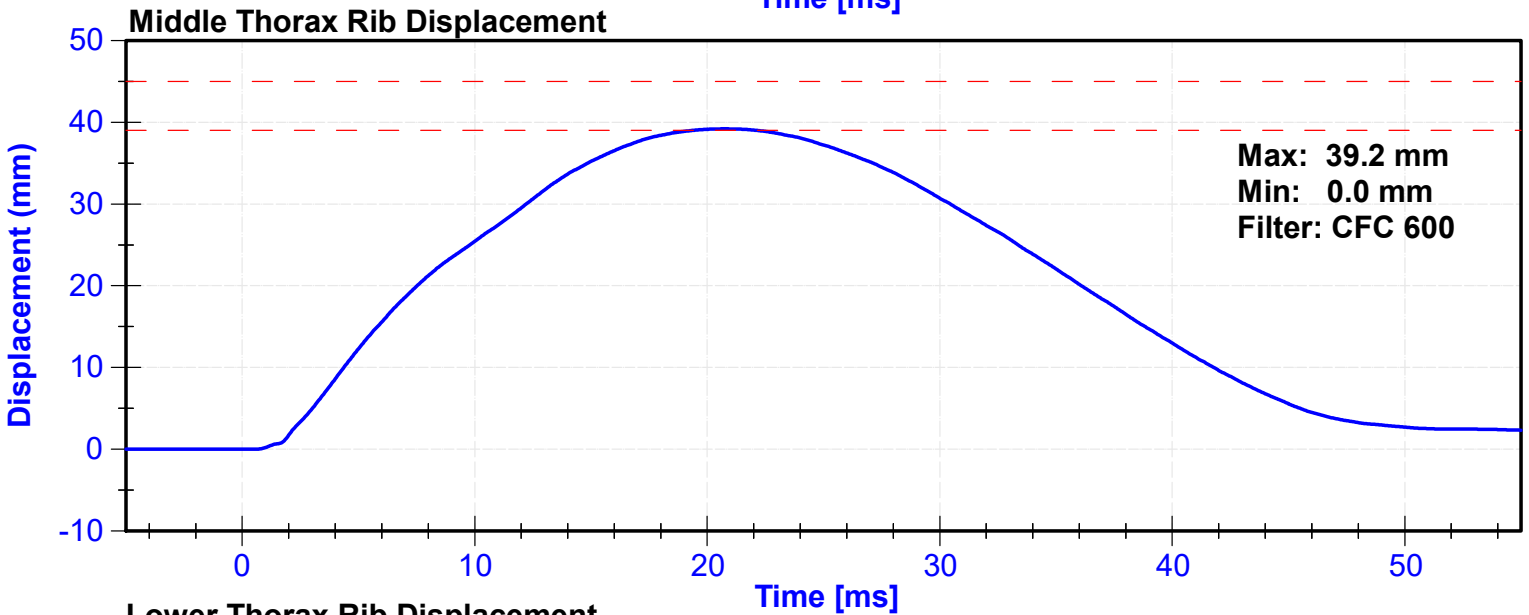
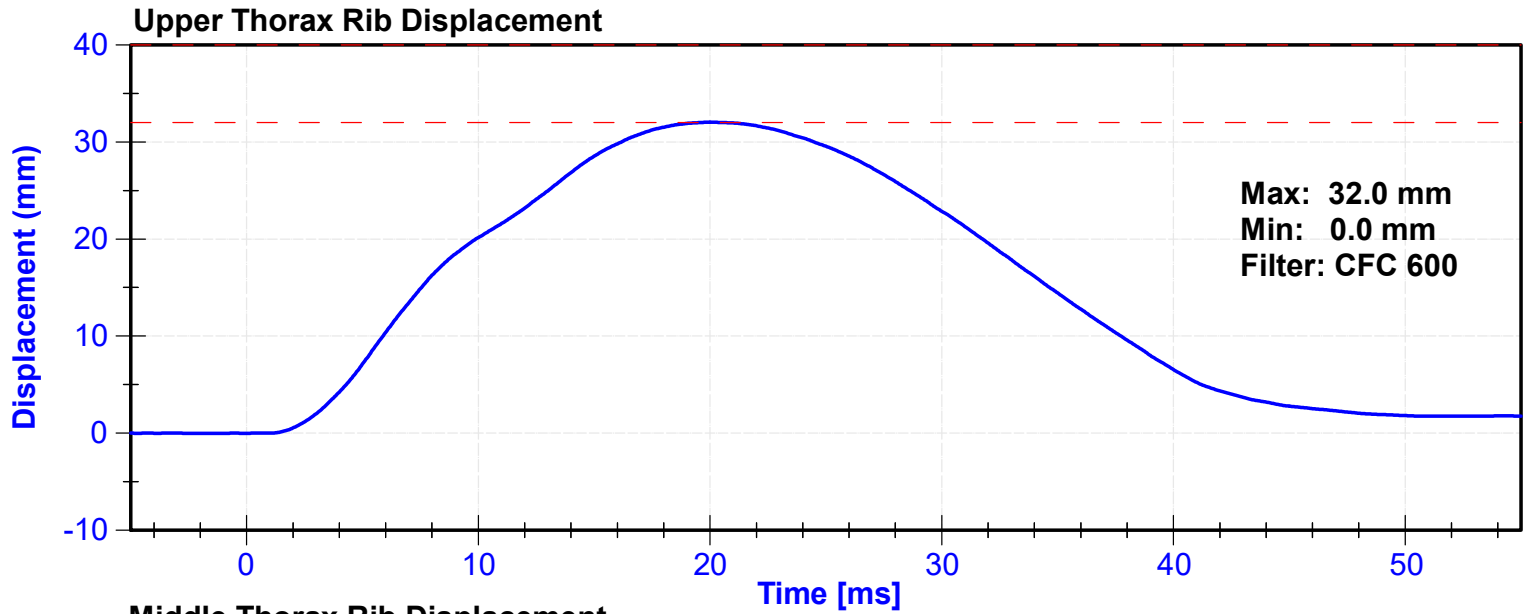
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	28	Pass
Velocity	4.2	4.4	m/s	4.29	Pass
Probe Acceleration	14	18	g's	16.7	Pass
Lateral Upper Spine Acceleration	13	17	g's	15.3	Pass
Lateral Lower Spine Acceleration	7	11	g's	9.8	Pass
Upper Thorax Rib Deflection	32	40	mm	32.0	Pass
Middle Thorax Rib Deflection	39	45	mm	39.2	Pass
Lower Thorax Rib Deflection	35	43	mm	40.3	Pass

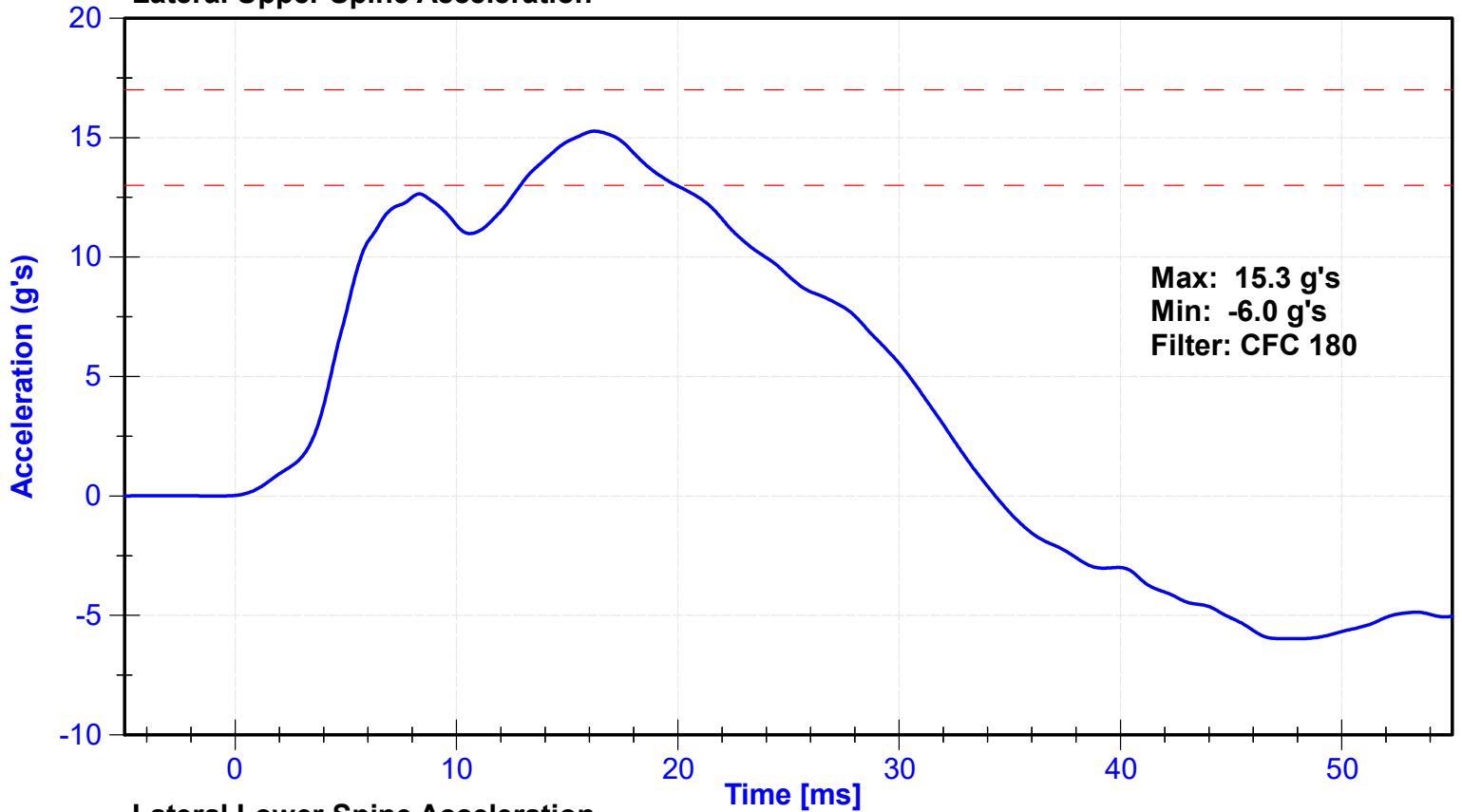
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18619	9/29/2023	3/27/2024
Upper Spine Y Accelerometer	Endevco	P64148	11/16/2023	5/14/2024
Lower Spine Y Accelerometer	Endevco	P51327	11/16/2023	5/14/2024
Upper Thorax Rib Potentiometer	Servo	1199GFE	11/17/2023	5/17/2024
Middle Thorax Rib Potentiometer	Servo	1246GFE	11/17/2023	5/17/2024
Lower Thorax Rib Potentiometer	Servo	011GFE	11/17/2023	5/17/2024

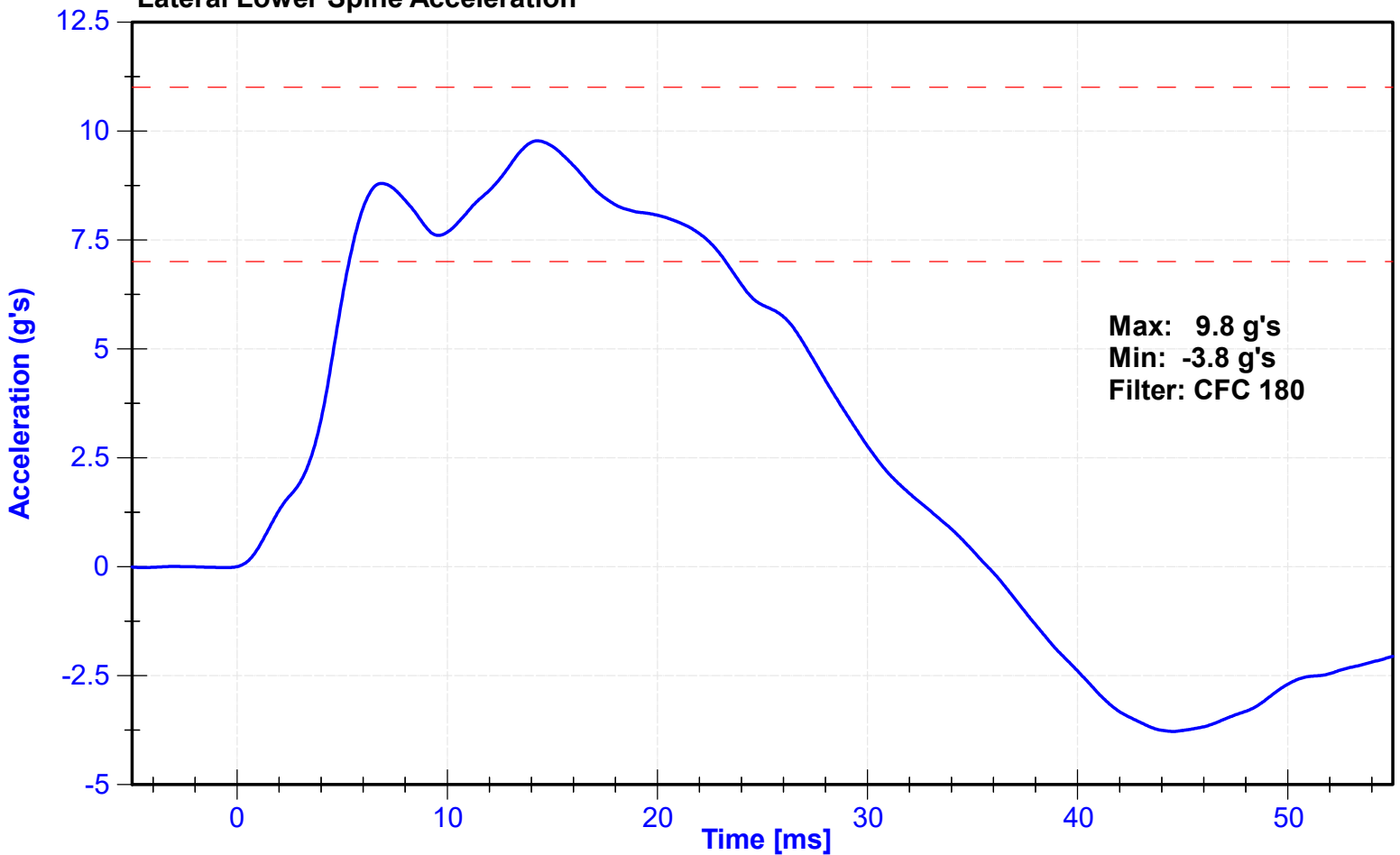




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



ATD Manufacturer	FTSS	Test Technician	D. Sakona
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

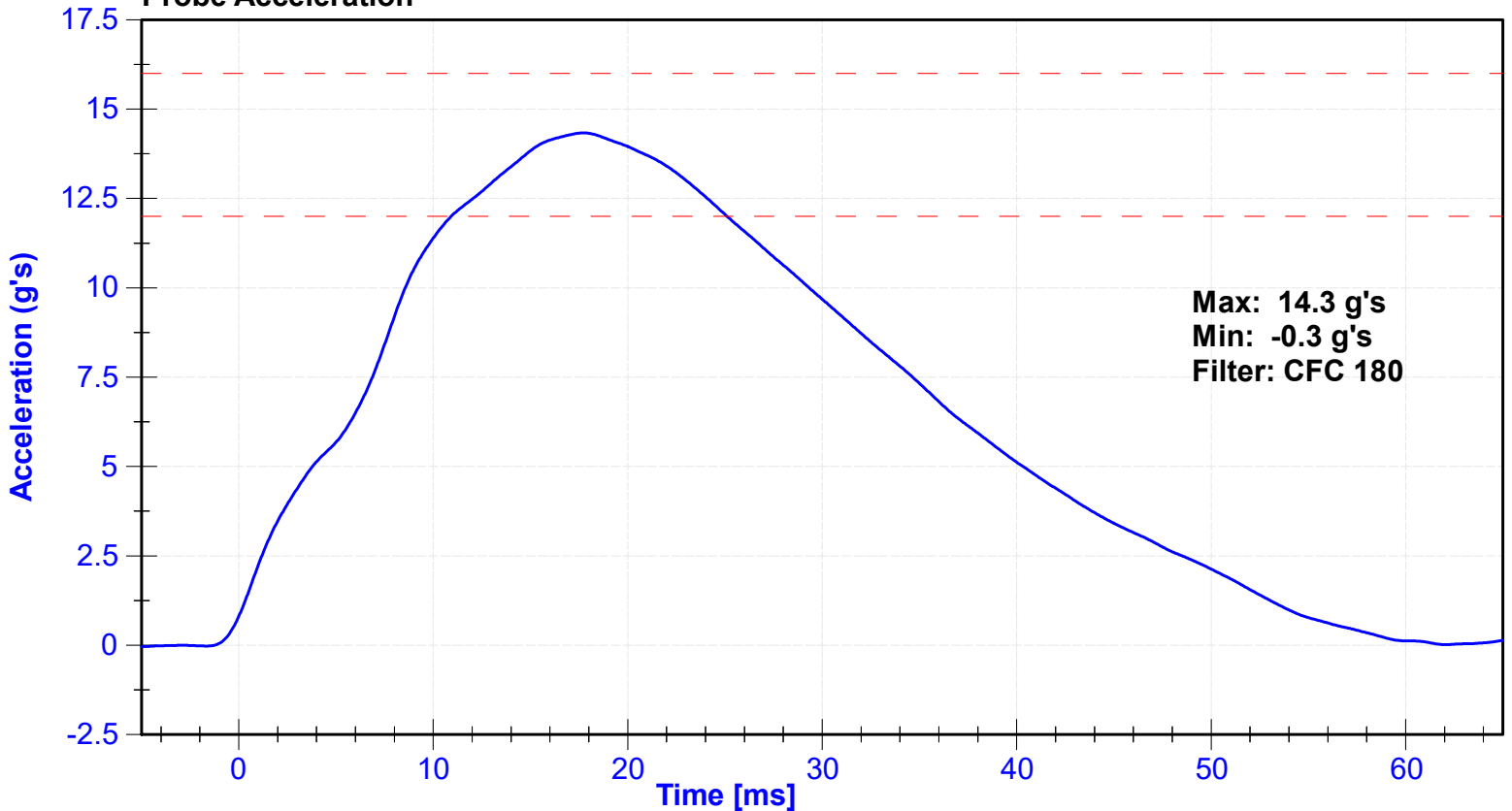
Results

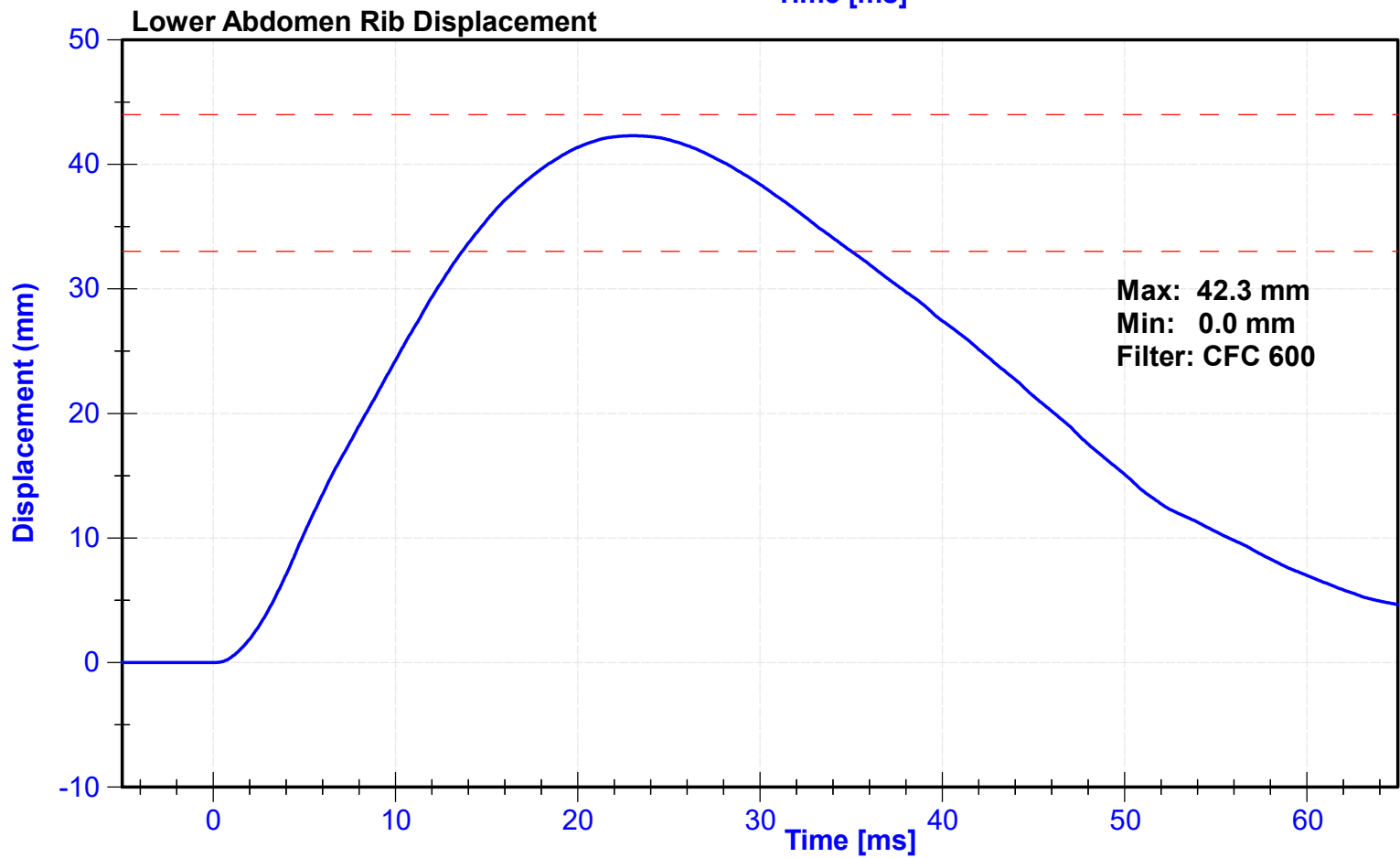
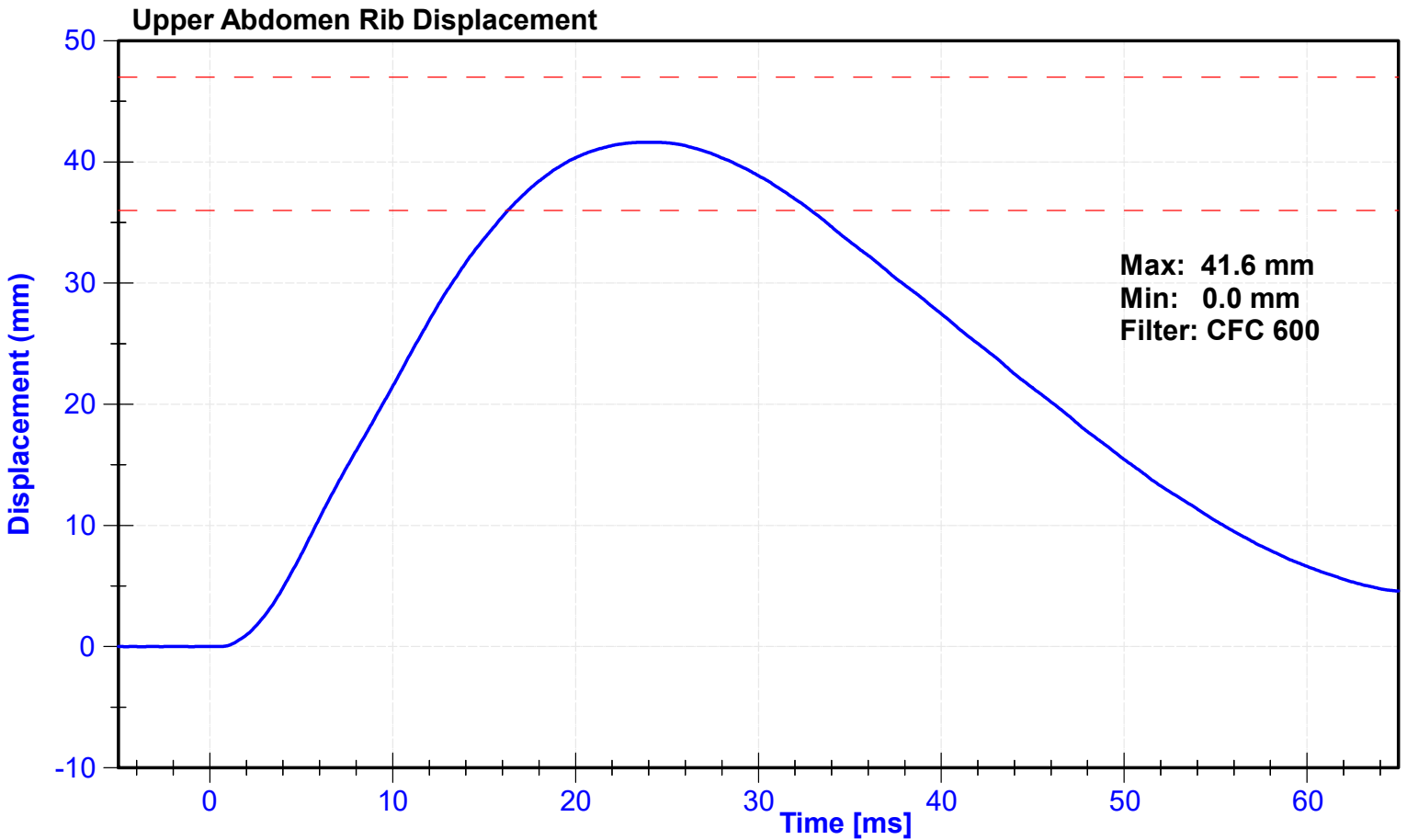
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	28	Pass
Velocity	4.2	4.4	m/s	4.29	Pass
Probe Acceleration	12	16	g's	14.3	Pass
Lateral Lower Spine Acceleration	9	14	g's	10.6	Pass
Upper Abdomen Rib Deflection	36	47	mm	41.6	Pass
Lower Abdomen Rib Deflection	33	44	mm	42.3	Pass

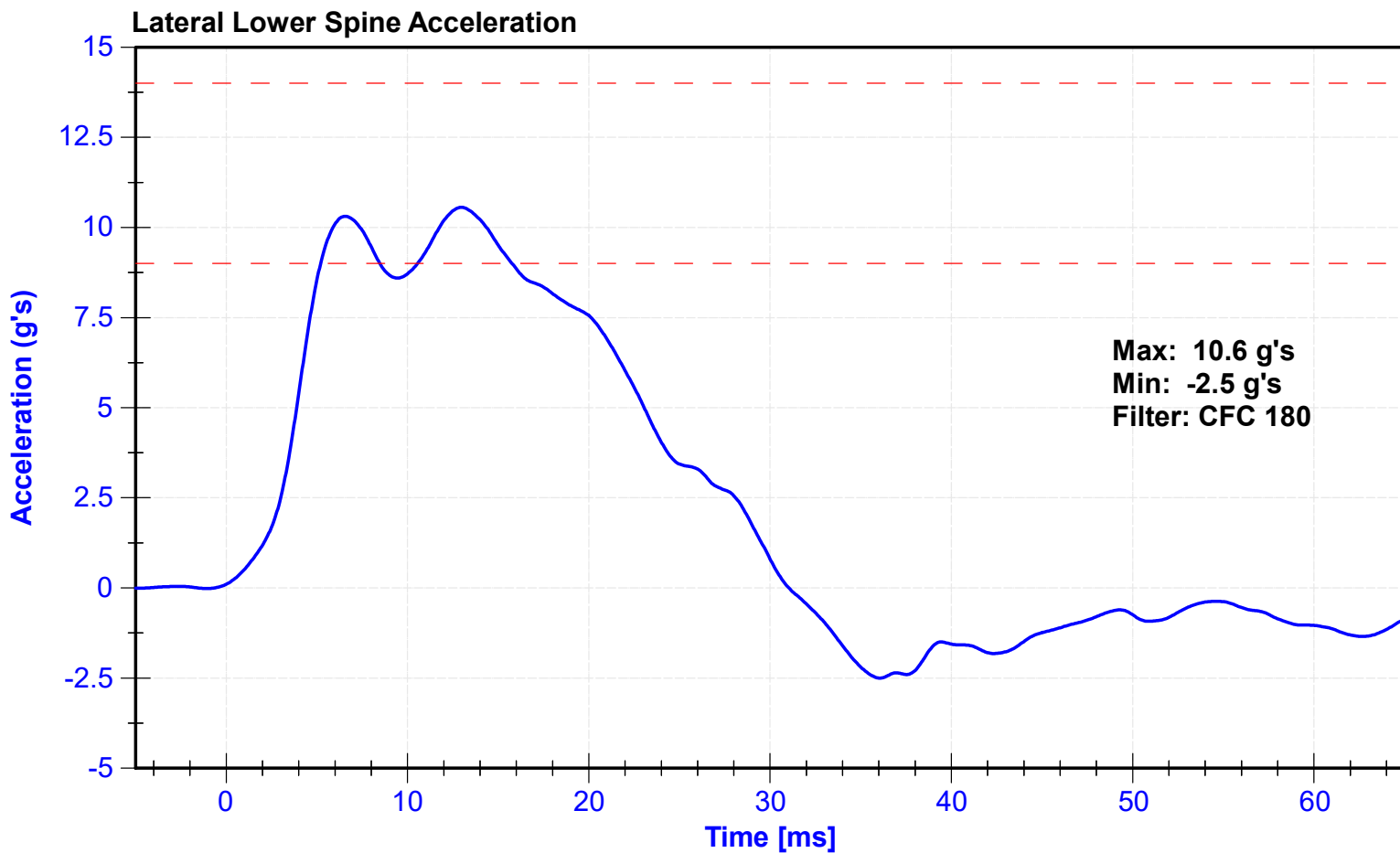
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18619	9/29/2023	3/27/2024
Lower Spine Y Accelerometer	Endevco	P51327	11/16/2023	5/14/2024
Upper Abdomen Rib Potentiometer	Servo	008GFE	11/17/2023	5/17/2024
Lower Abdomen Rib Potentiometer	Servo	046	11/17/2023	5/17/2024

Probe Acceleration







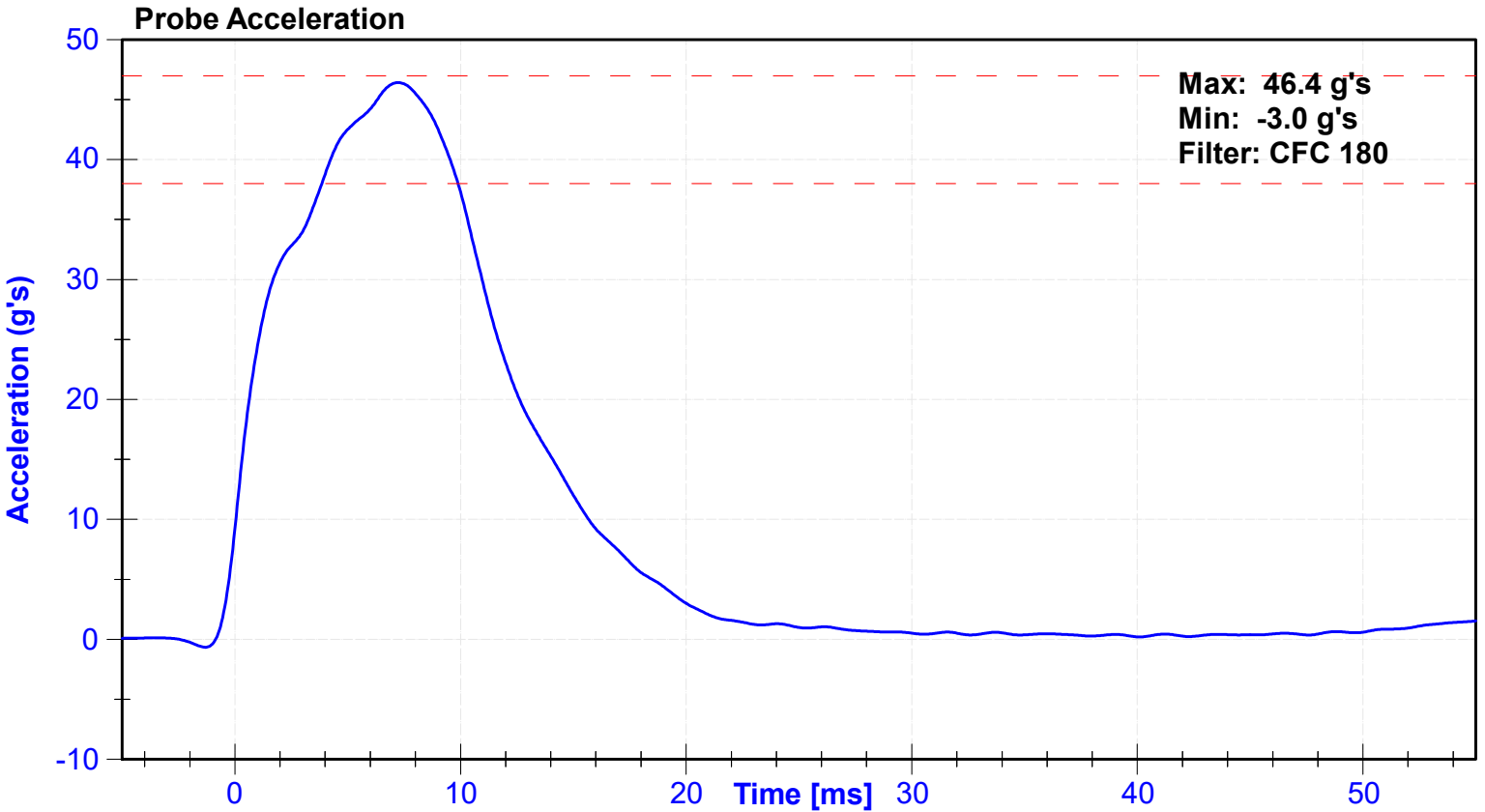
ATD Manufacturer	FTSS	Test Technician	D. Sakona
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

Results

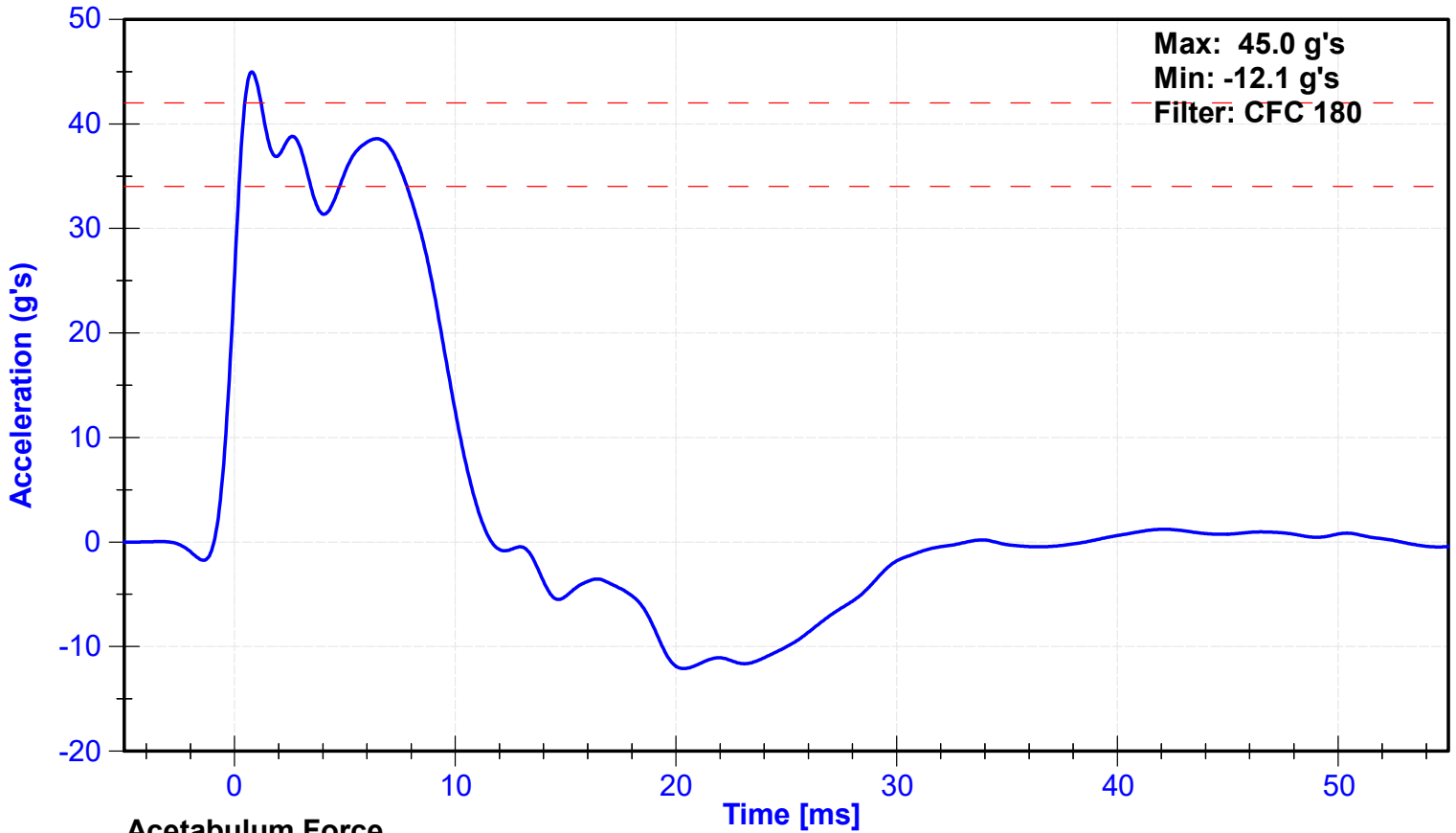
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	28	Pass
Velocity	6.6	6.8	m/s	6.67	Pass
Probe Acceleration	38	47	g's	46.4	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	38.6	Pass
Acetabulum Force	3600	4300	N	4011.1	Pass

Transducer Calibrations

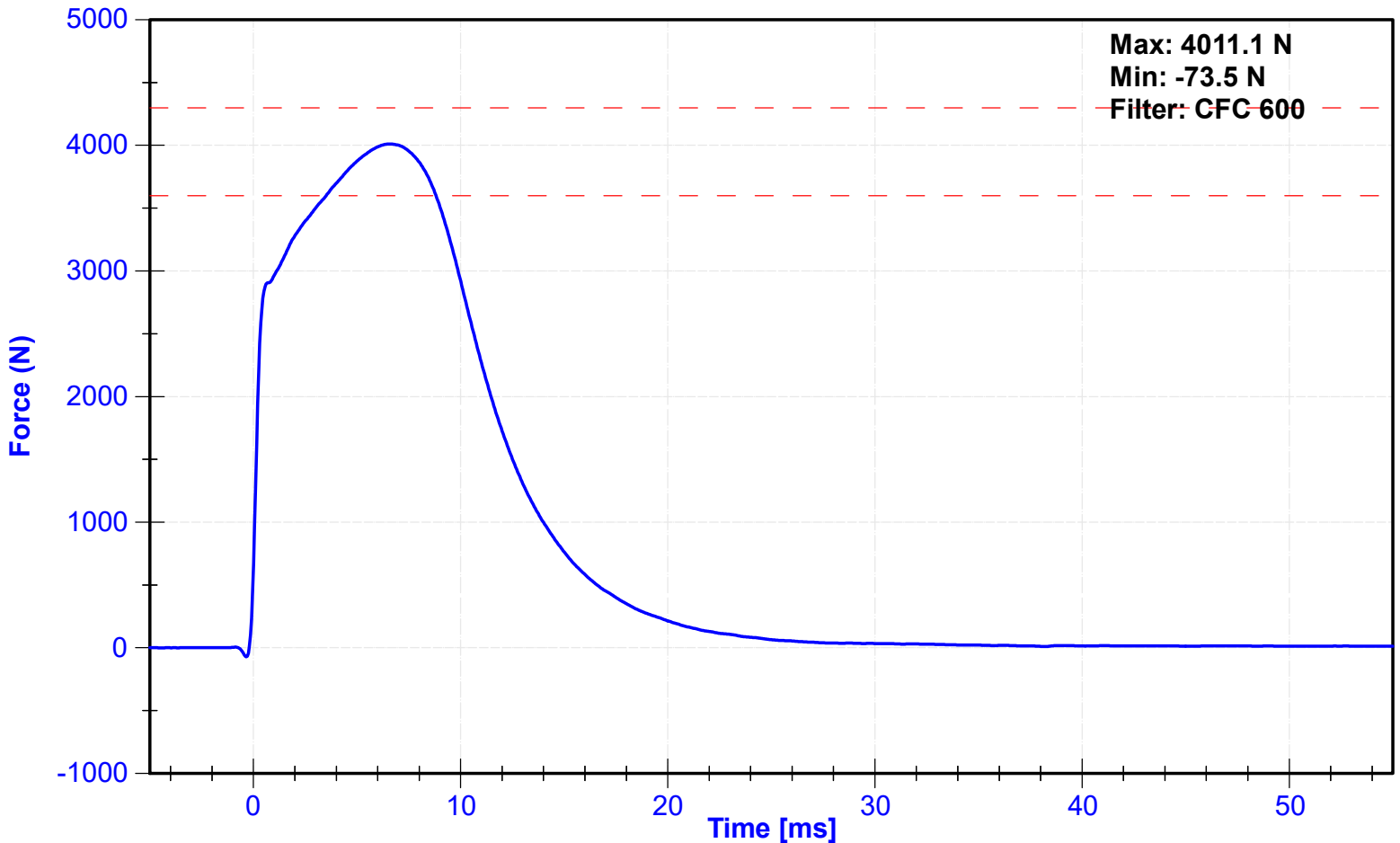
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18619	9/29/2023	3/27/2024
Pelvis Y Accelerometer	Endevco	P50078	11/16/2023	5/14/2024
Acetabulum Load Cell	Denton	270-FY	9/11/2023	9/10/2024
Certification Plug	SACO			N/A
Crash Test Plug	SACO			N/A



Lateral Pelvis Acceleration



Acetabulum Force





Cert
5/12/24

SID-Its Pelvis Plug Certification Test

Plug S/N 16441

Test Number 23010

Report Number 23068

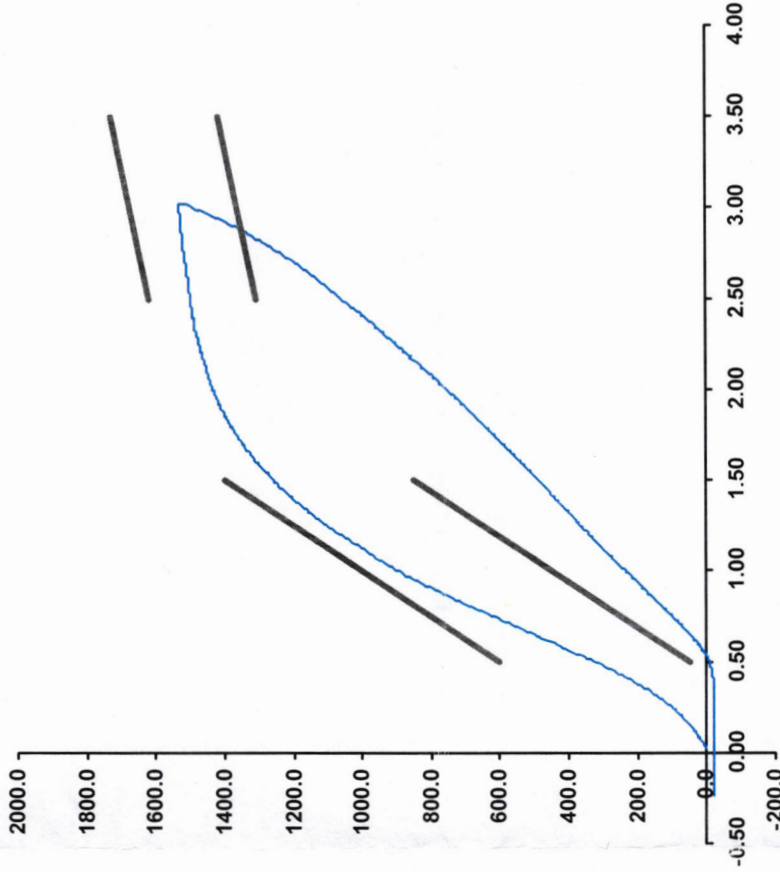
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Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	50	600
Force @ 1.5 mm (N)	850	1,400
Force @ 2.5 mm (N)	1,306	1,618
Force @ 3.0 mm (N)	1,361	1,673

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

Notes:

Force (-N) vs Extension (-mm)



Operator _____
 Part Number 180-4450

Template No 107 23-May-22
 SACO Research

By : DC Date : 5/03/2022



Impact
1/10/24

SID-IIs Pelvis Plug Certification Test

Plug S/N 16320

Test Number 22886

Report Number 22943

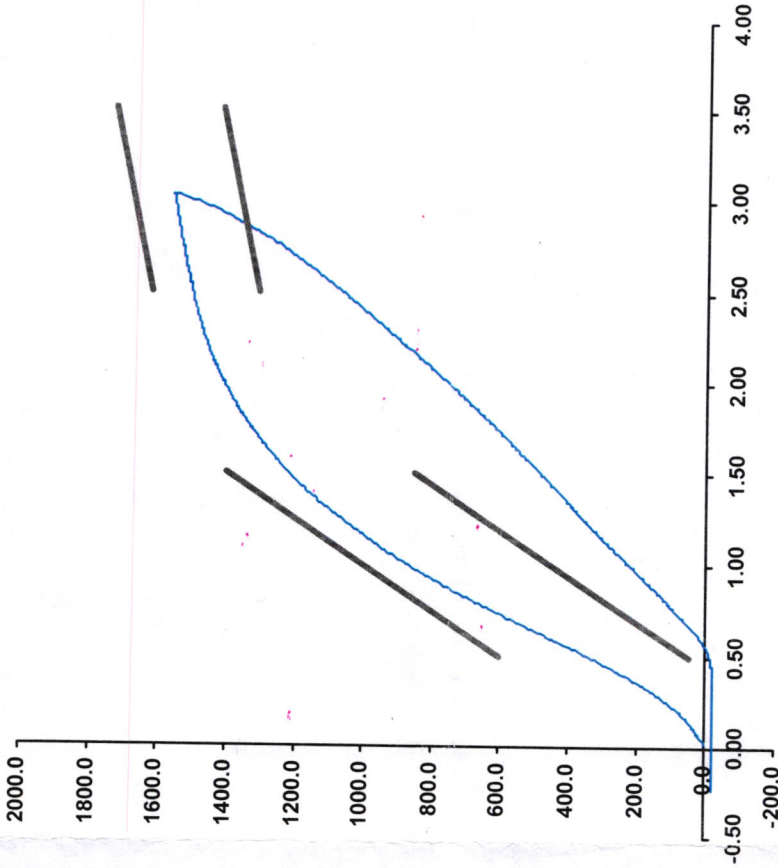
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Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	50	600
Force @ 1.5 mm (N)	850	1,400
Force @ 2.5 mm (N)	1,306	1,618
Force @ 3.0 mm (N)	1,361	1,673

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

Notes:

Force (-N) vs Extension (-mm)



Operator
 Part Number 180-4450

Template No 107 20-May-22

SACO Research

By : DC Date : 5/20/2022

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



Non Impact
1/10/24

SID-IIs Pelvis Plug Certification Test

Plug S/N 16457

Test Number 23026

Report Number 23084

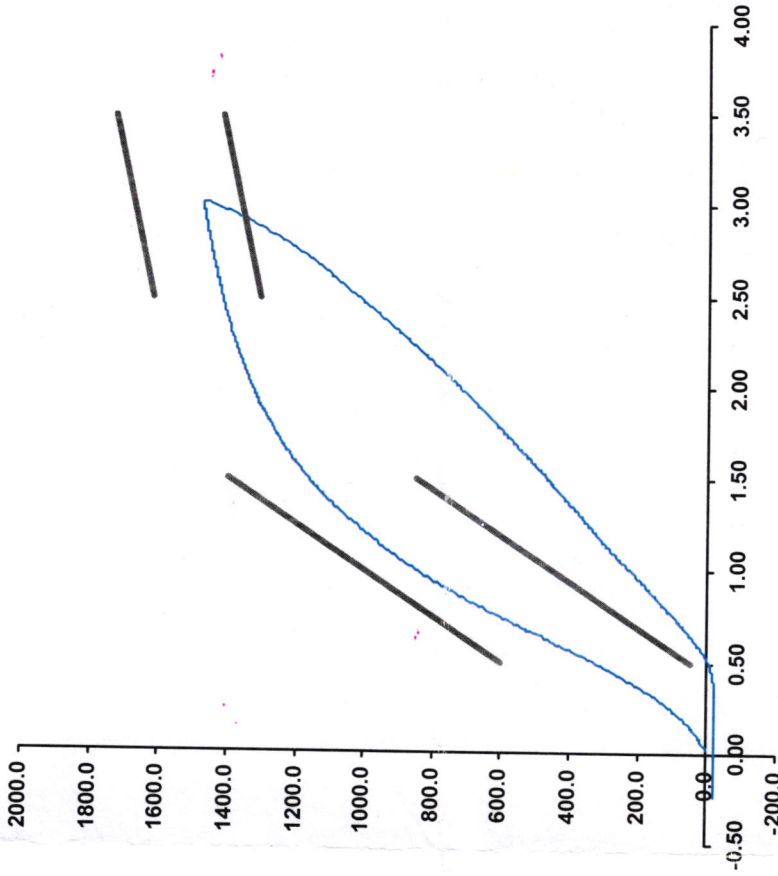
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Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	50	600
Force @ 1.5 mm (N)	850	1,400
Force @ 2.5 mm (N)	1,306	1,618
Force @ 3.0 mm (N)	1,361	1,673

Testing Machine STM-20 5965542
 Load Cell S/N (FI360947), Units (LBS) 1000
 Crosshead Speed (mm / min) or Rate 12.7
 Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator _____
 Part Number 180-4450

Template No 107 23-May-22
 SACO Research

By: DC Date: 5/23/2022

ATD Manufacturer	FTSS	Test Technician	D. Sakona
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

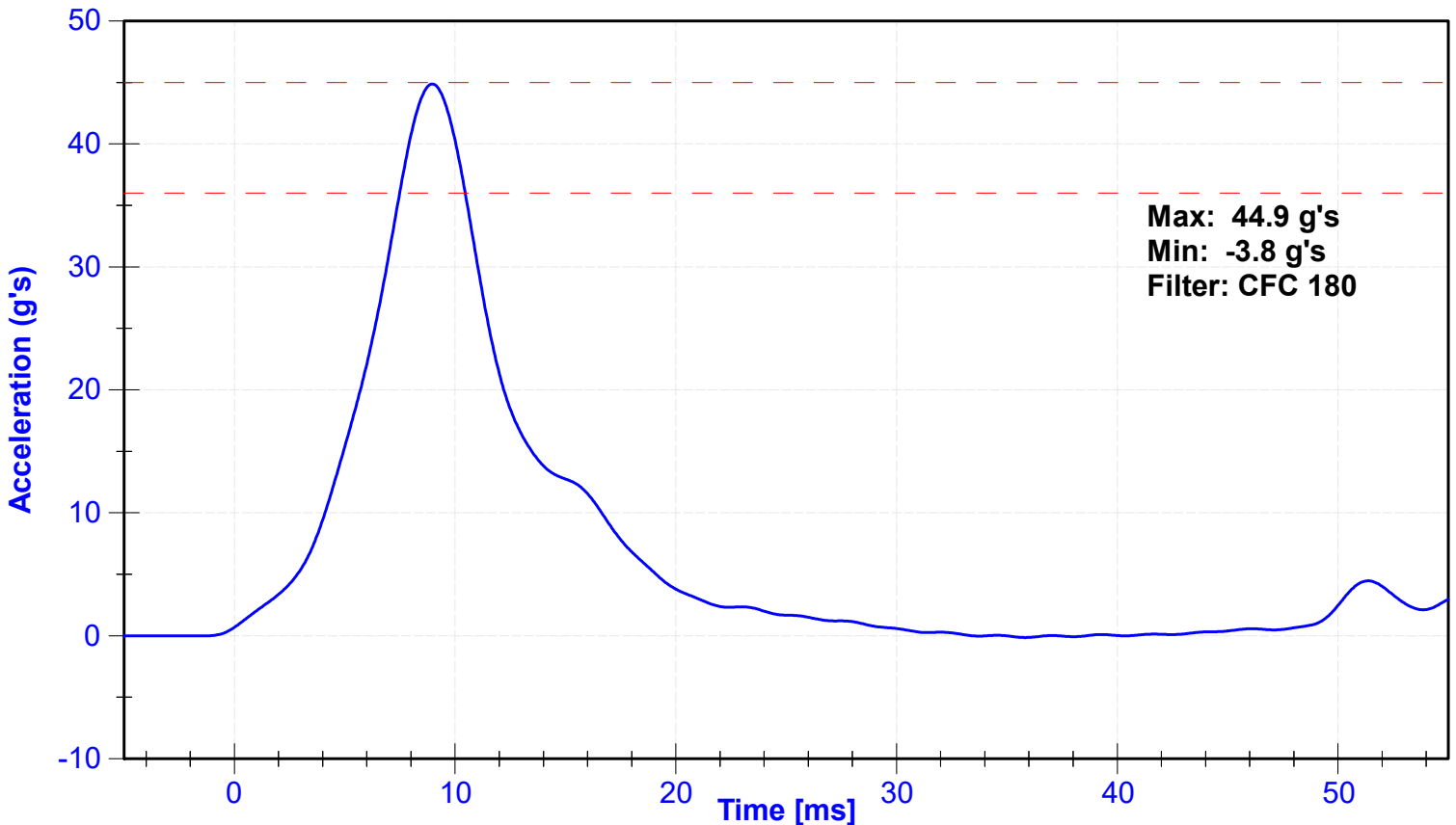
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	28	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	36	45	g's	44.9	Pass
Lateral Pelvis Acceleration	28	39	g's	35.2	Pass
Iliac Force	4100	5100	N	4943.3	Pass

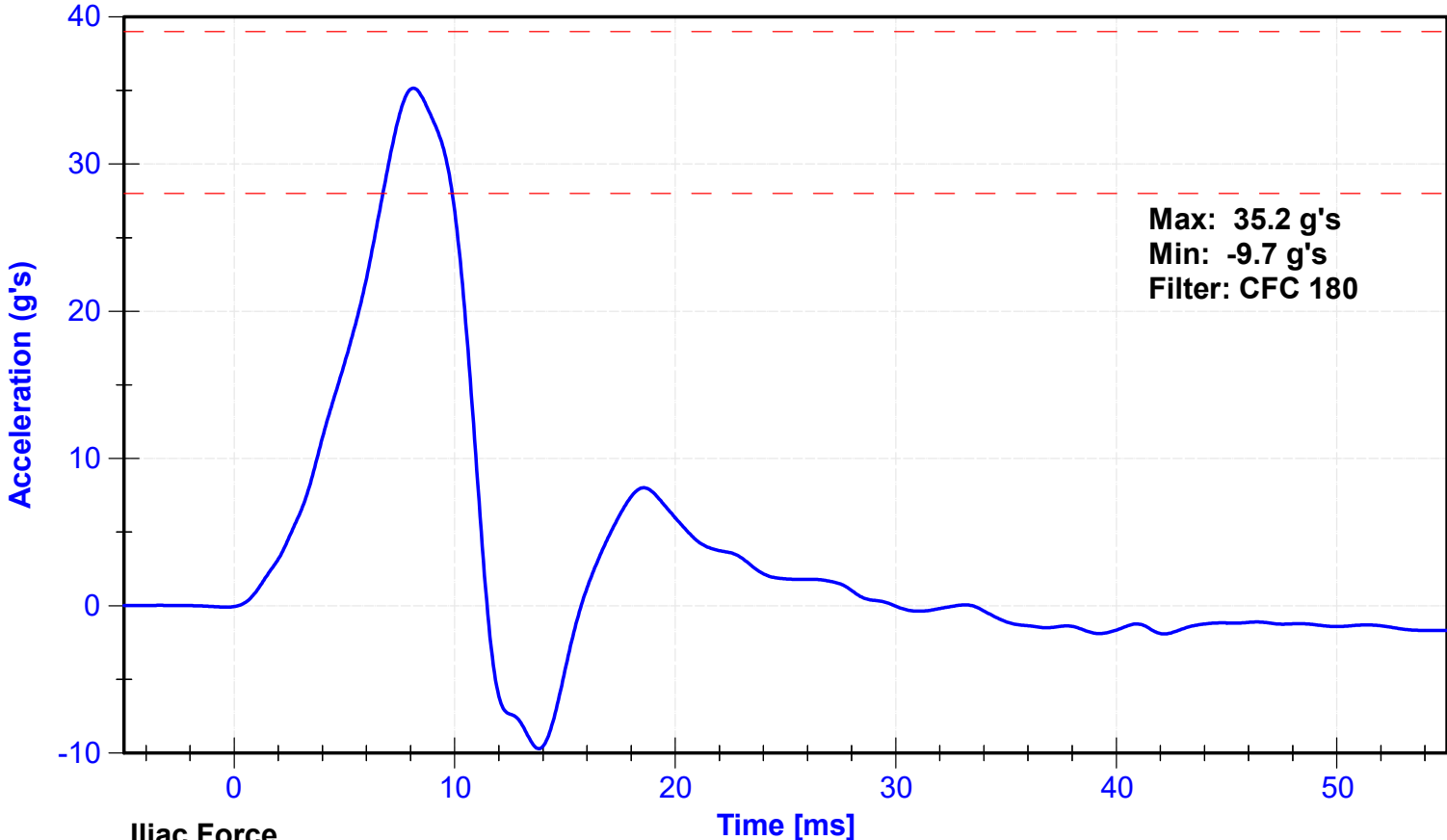
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18619	9/29/2023	3/27/2024
Pelvis Y Accelerometer	Endevco	P50078	11/16/2023	5/14/2024
Iliac Load Cell	Denton	280-FY	9/11/2023	9/10/2024

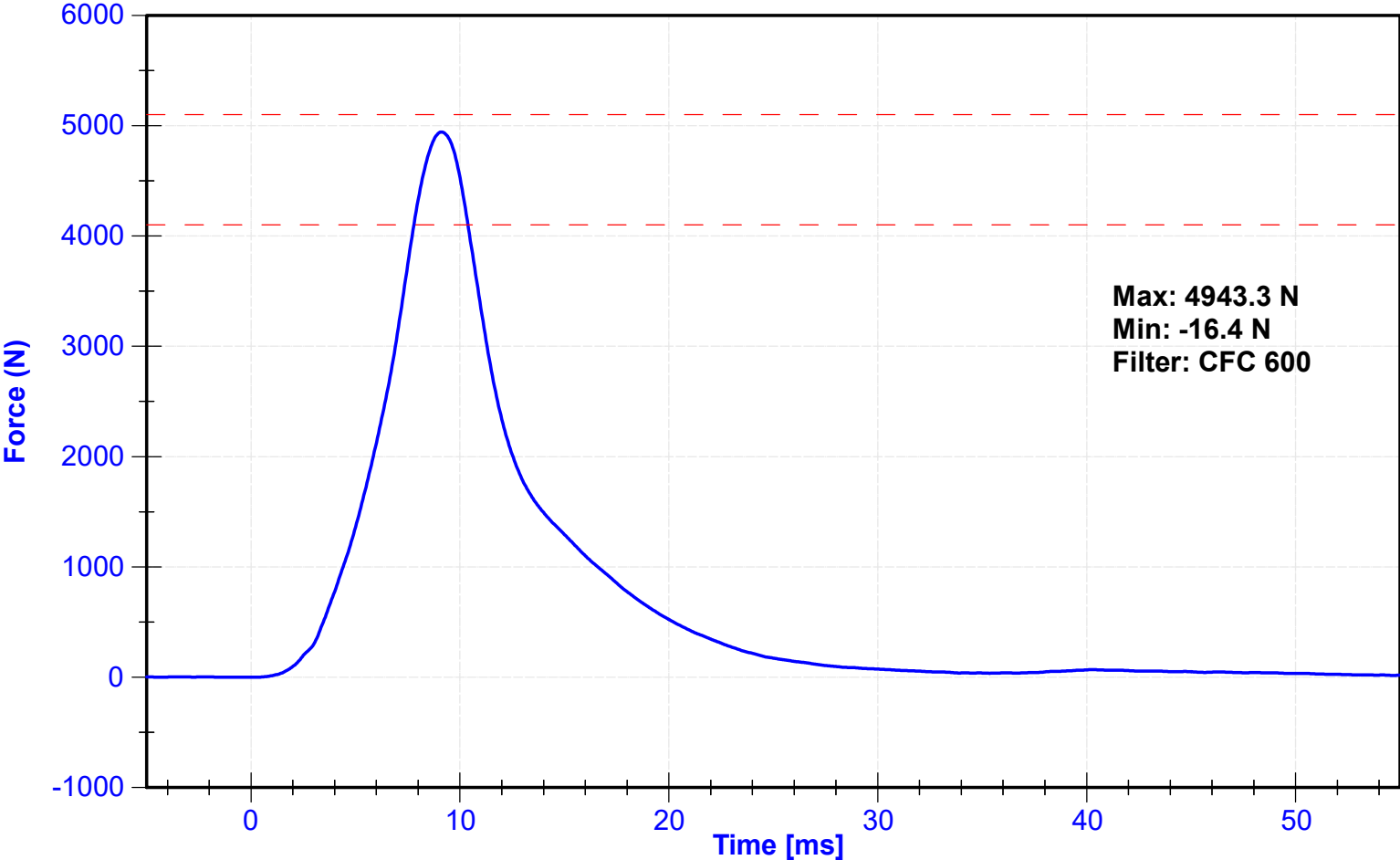
Probe Acceleration



Lateral Pelvis Acceleration



Iliac Force



CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SERIAL NO:DG8012

(CONFIGURED FOR LEFT SIDE IMPACT)

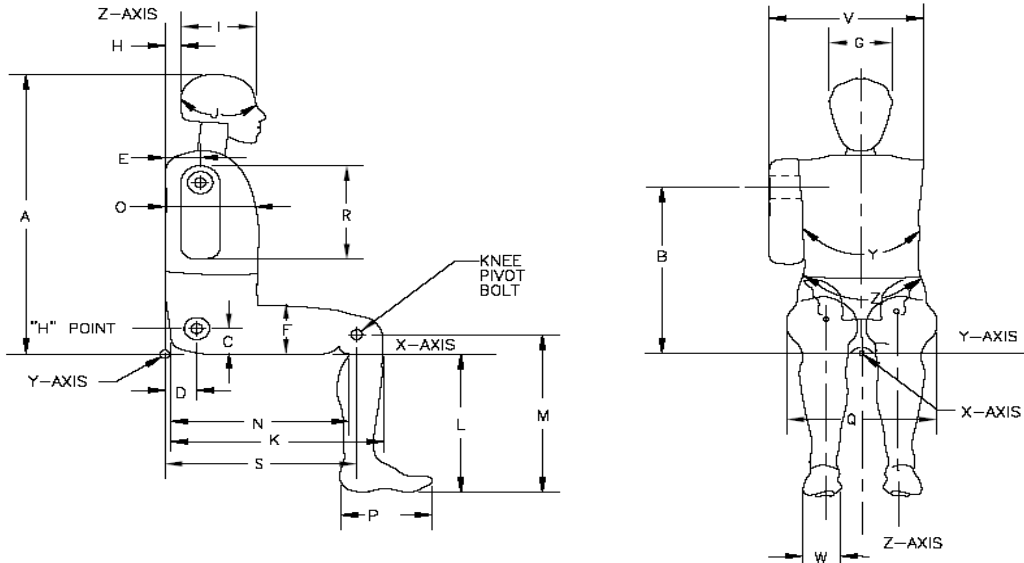


External Measurements - SID-IIs

Technician: K. Brogan

Date: 01/26/2024

Dummy Serial Number: DG8012



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	782	Pass
B	Shoulder Pivot Height	437	453	447	Pass
C	H-point Height	79	89	84	Pass
D	H-point from seatback	141	151	145	Pass
E	Shoulder Pivot from Backline	97	107	105	Pass
F	Thigh Clearance	119	135	129	Pass
G	Head Breadth	140	148	143	Pass
H	Head Back from Backline	40	46	44	Pass
I	Head Depth	178	188	183	Pass
J	Head Circumference	541	551	545	Pass
K	Buttock to Knee Length	514	540	530	Pass
L	Popliteal Height	343	369	362	Pass
M	Knee Pivot to floor height	392	409	399	Pass
N	Buttock Popliteal Length	416	442	438	Pass
O	Chest Depth w/o jacket	195	211	204	Pass
P	Foot Length	216	232	220	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	319	Pass
R	Arm Length	249	259	254	Pass
S	Knee Joint to seatback	477	493	485	Pass
V	Shoulder Width	341	357	353	Pass
W	Foot Width	78	94	85	Pass
Y	Chest Circumference w/jacket	851	881	869	Pass
Z	Waist Circumference	761	791	780	Pass

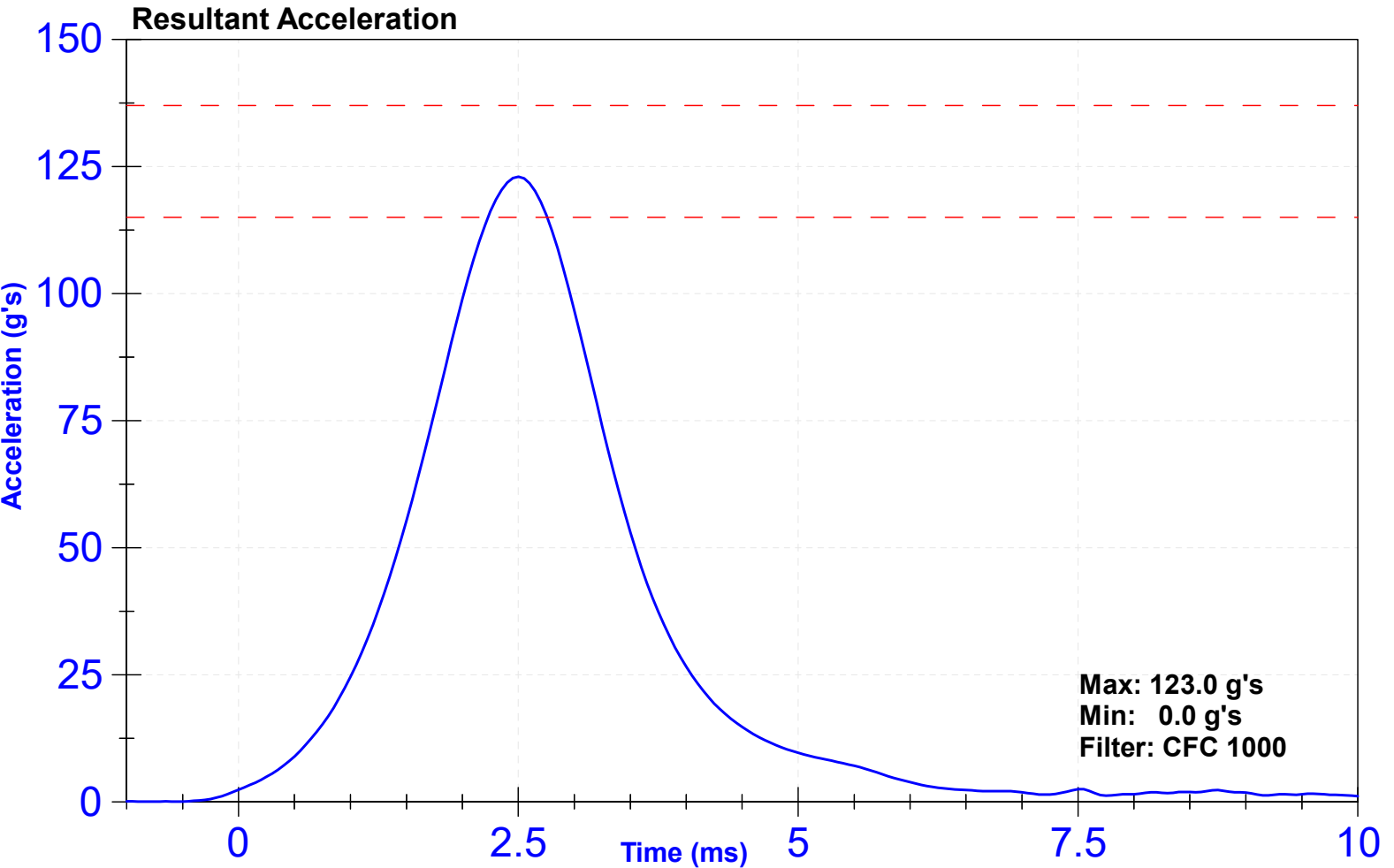
ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

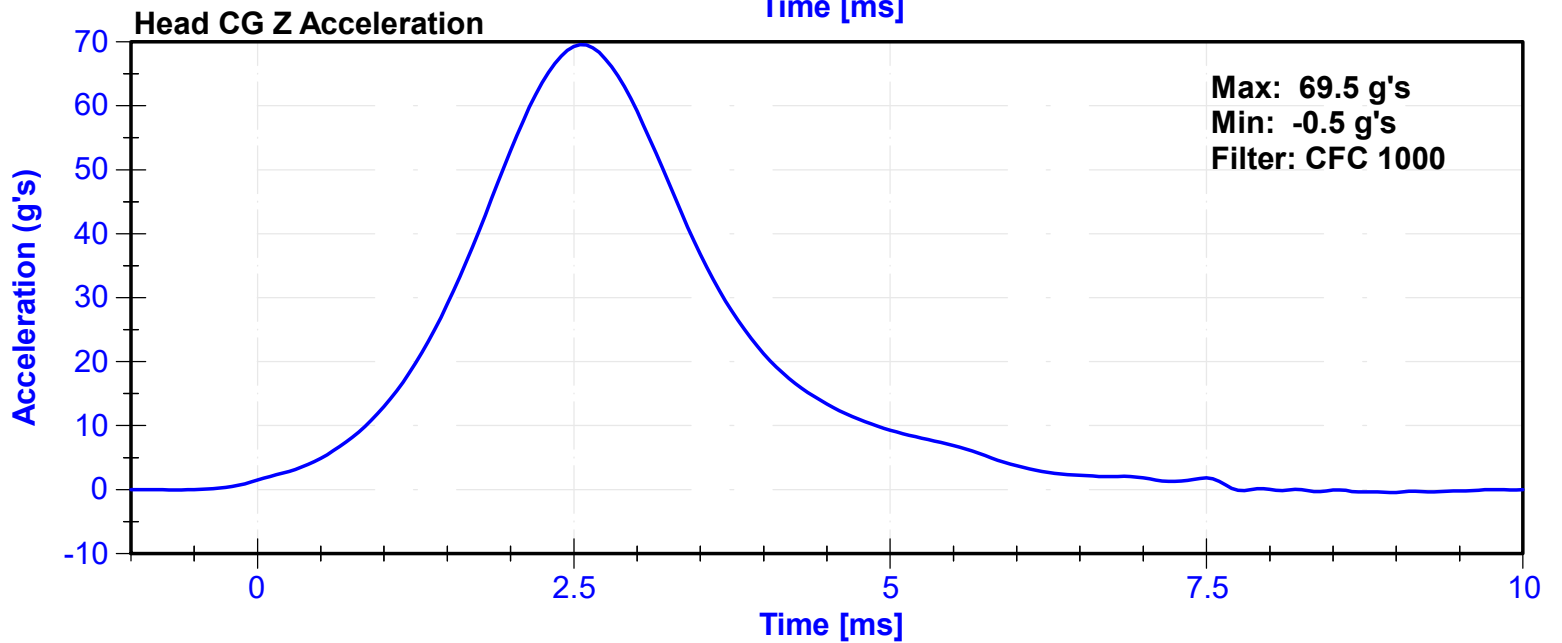
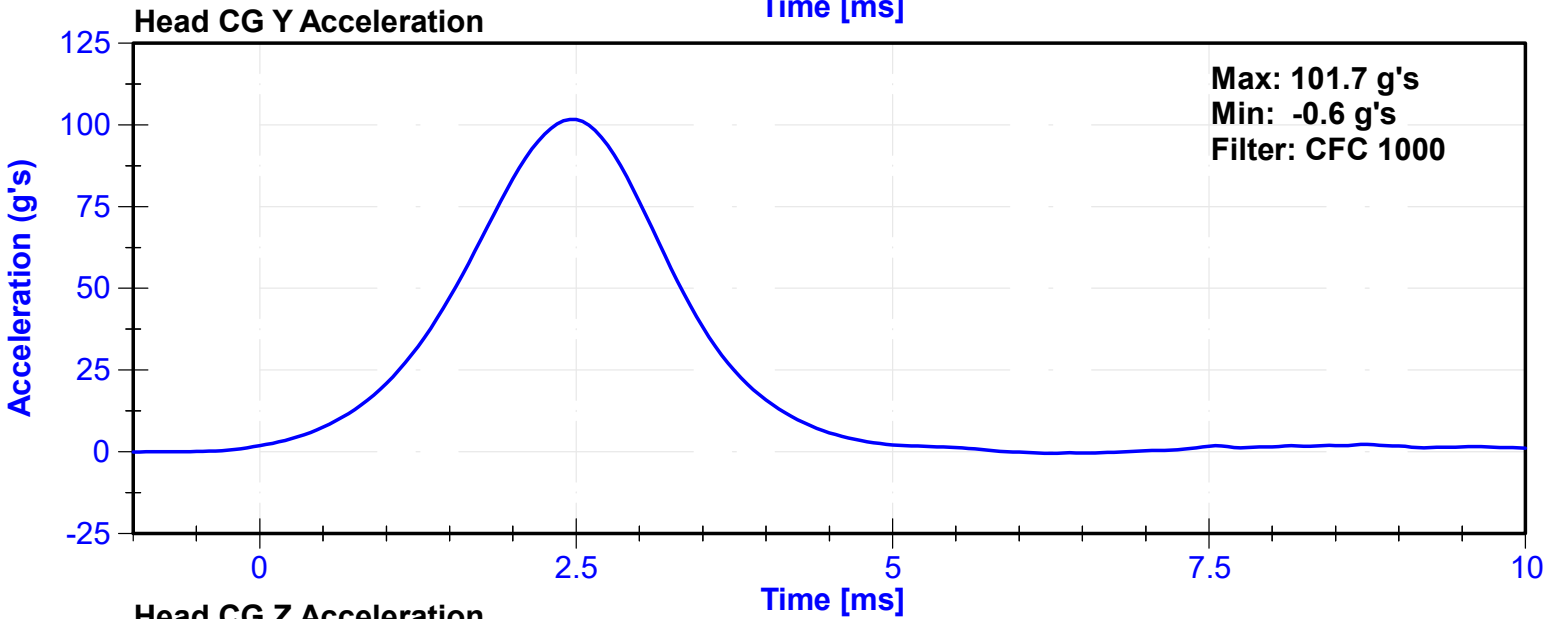
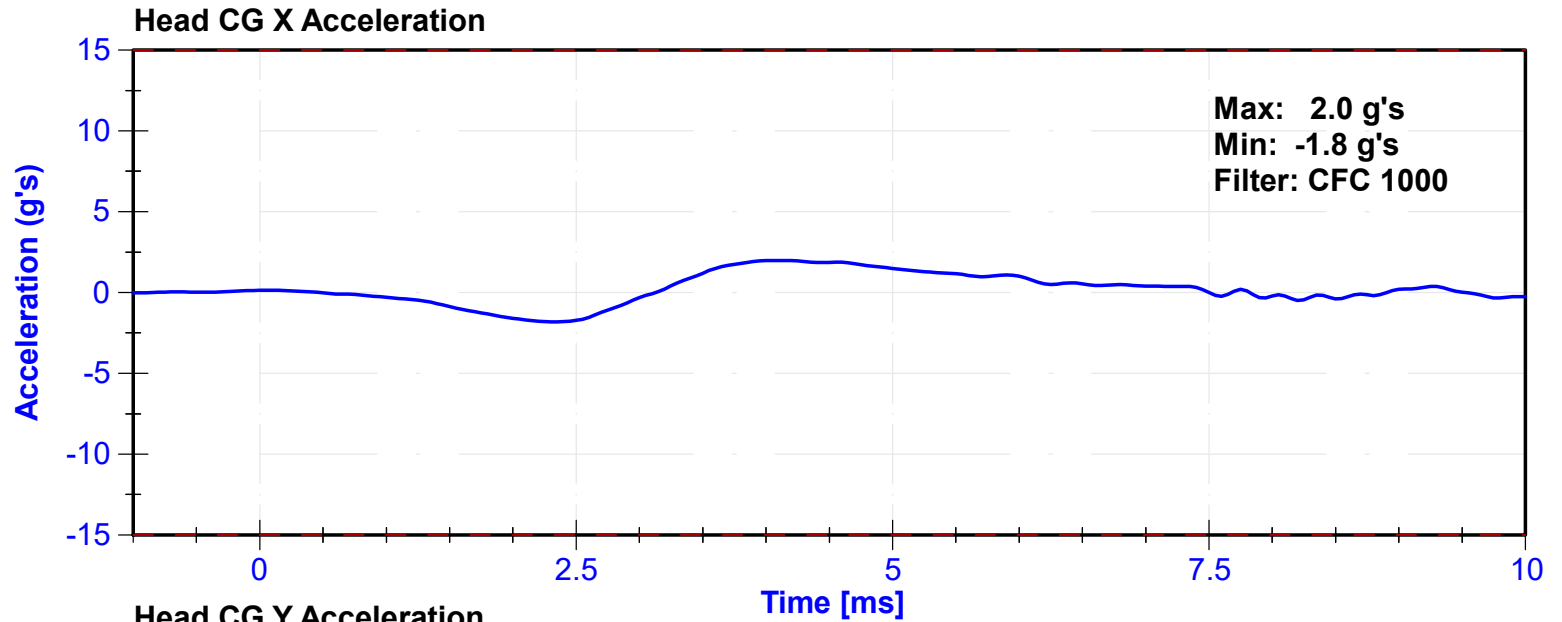
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	24	Pass
Resultant Acceleration	115	137	g's	123.0	Pass
Oscillation	0	15	%	2.0	Pass
Fore-Aft Acceleration	-15	15	g's	2.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibratio Date	Calibratio Due Date
X Accelerometer	Endevco	P74788	11/16/2023	5/14/2024
Y Accelerometer	Endevco	P51668	11/16/2023	5/14/2024
Z Accelerometer	Endevco	P83319	11/16/2023	5/14/2024





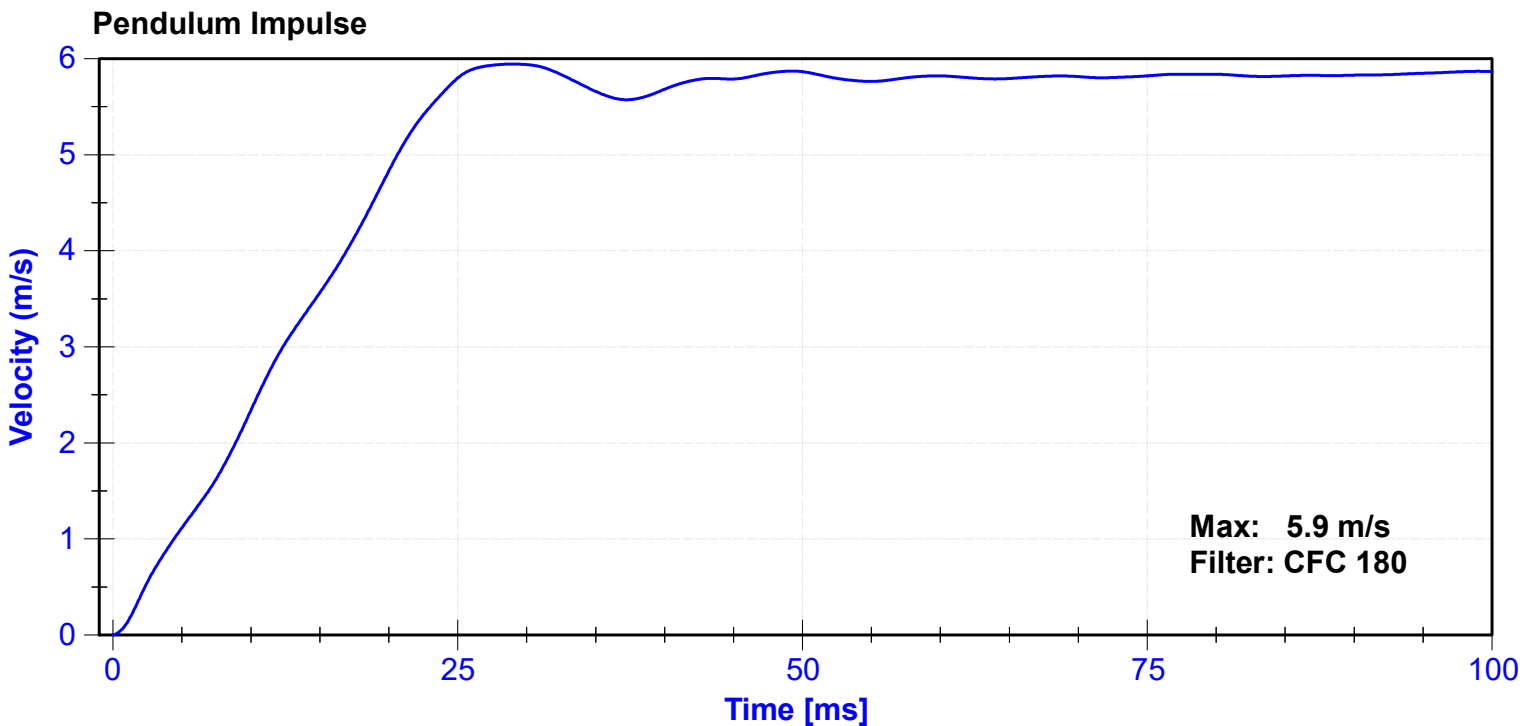
ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

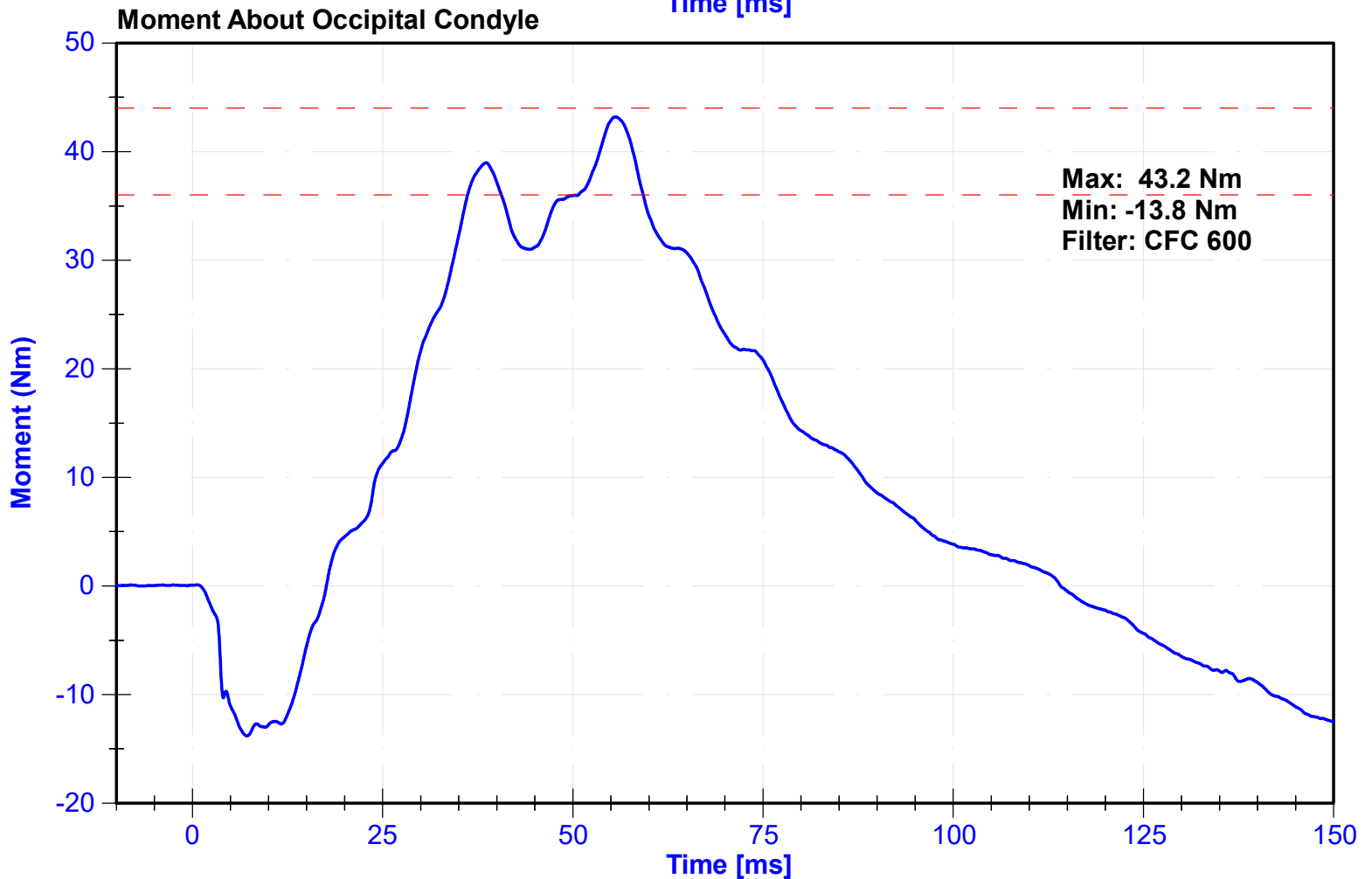
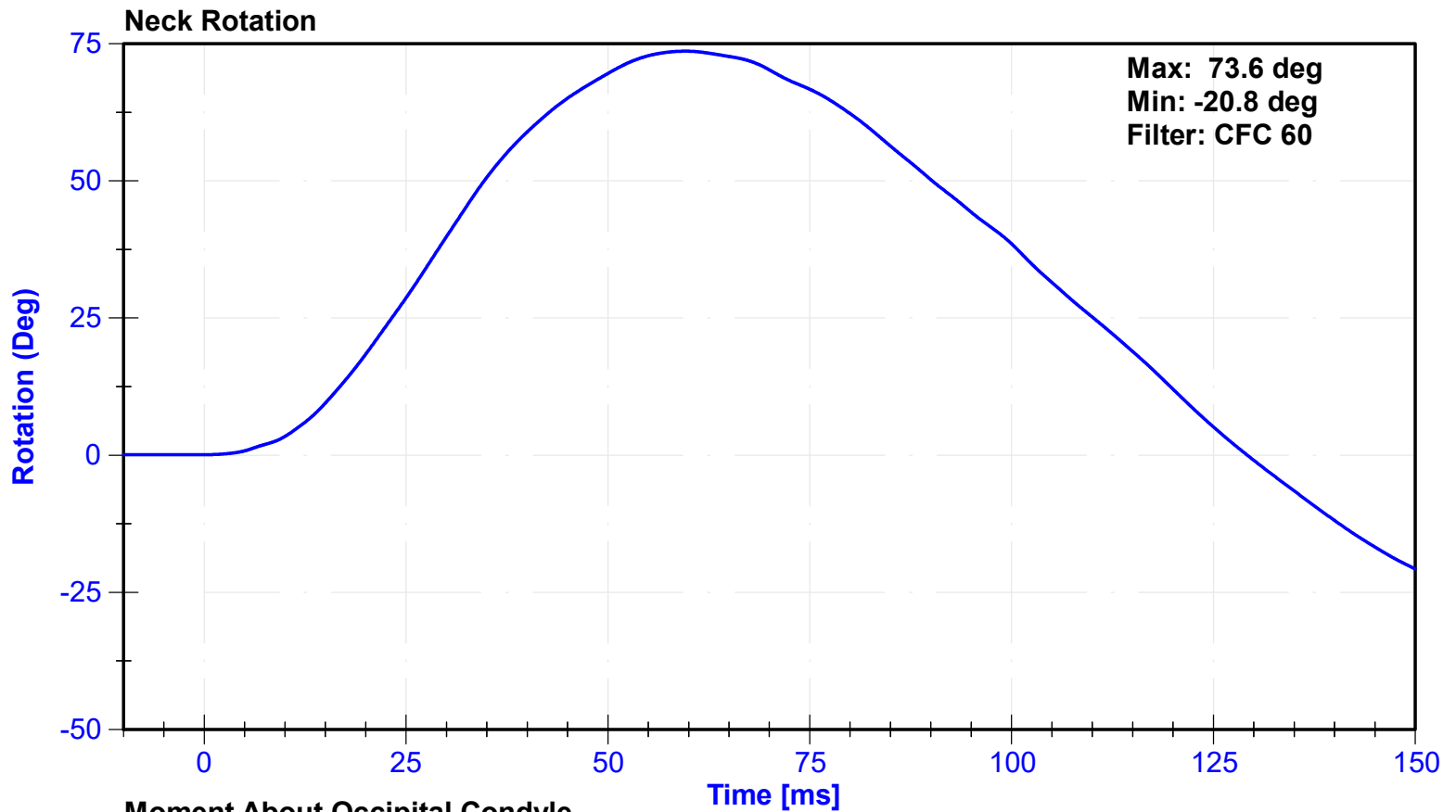
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	30	Pass
Velocity	5.51	5.63	m/s	5.527	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.34	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.56	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.83	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.80	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.94	Pass
Neck Rotation	71	81	deg	73.6	Pass
Time at Maximum Rotation	50	70	ms	59.6	Pass
Moment about the OC	36	44	Nm	43.2	Pass
Moment Decay to 0 Nm	102	126	ms	114.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	7231C-750	10/31/2023	4/28/2024
Pendulum Potentiometer	Servo	4961	10/2/2023	10/1/2024
Condyle Potentiometer	Servo	DS185	10/2/2023	10/1/2024
Upper Neck Load Cell	Denton	1716ATF_2184-FY	5/18/2023	5/17/2024





ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

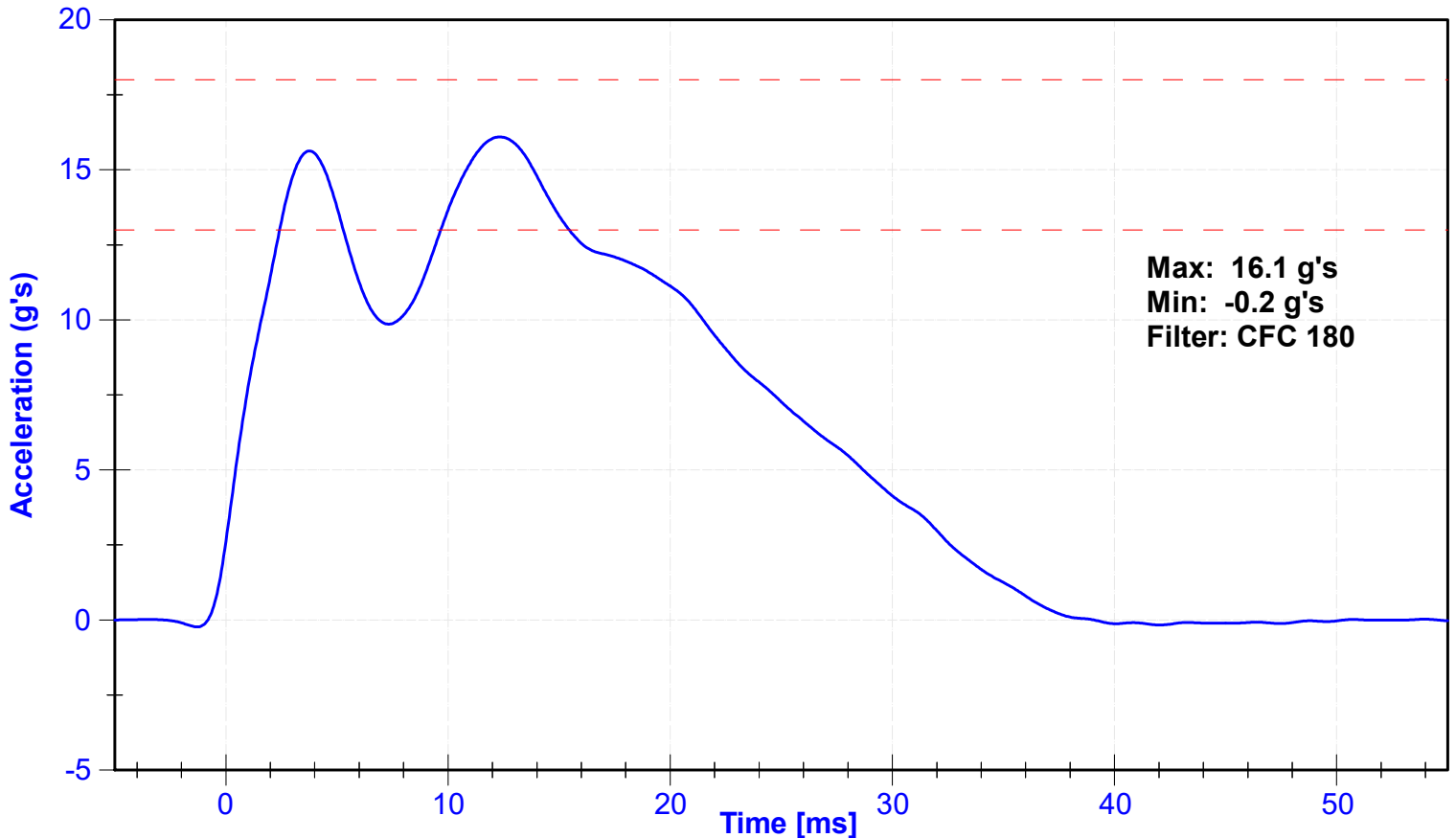
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	30	Pass
Velocity	4.2	4.4	m/s	4.26	Pass
Probe Acceleration	13	18	g's	16.1	Pass
Shoulder Deflection	28	37	mm	28.0	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.1	Pass

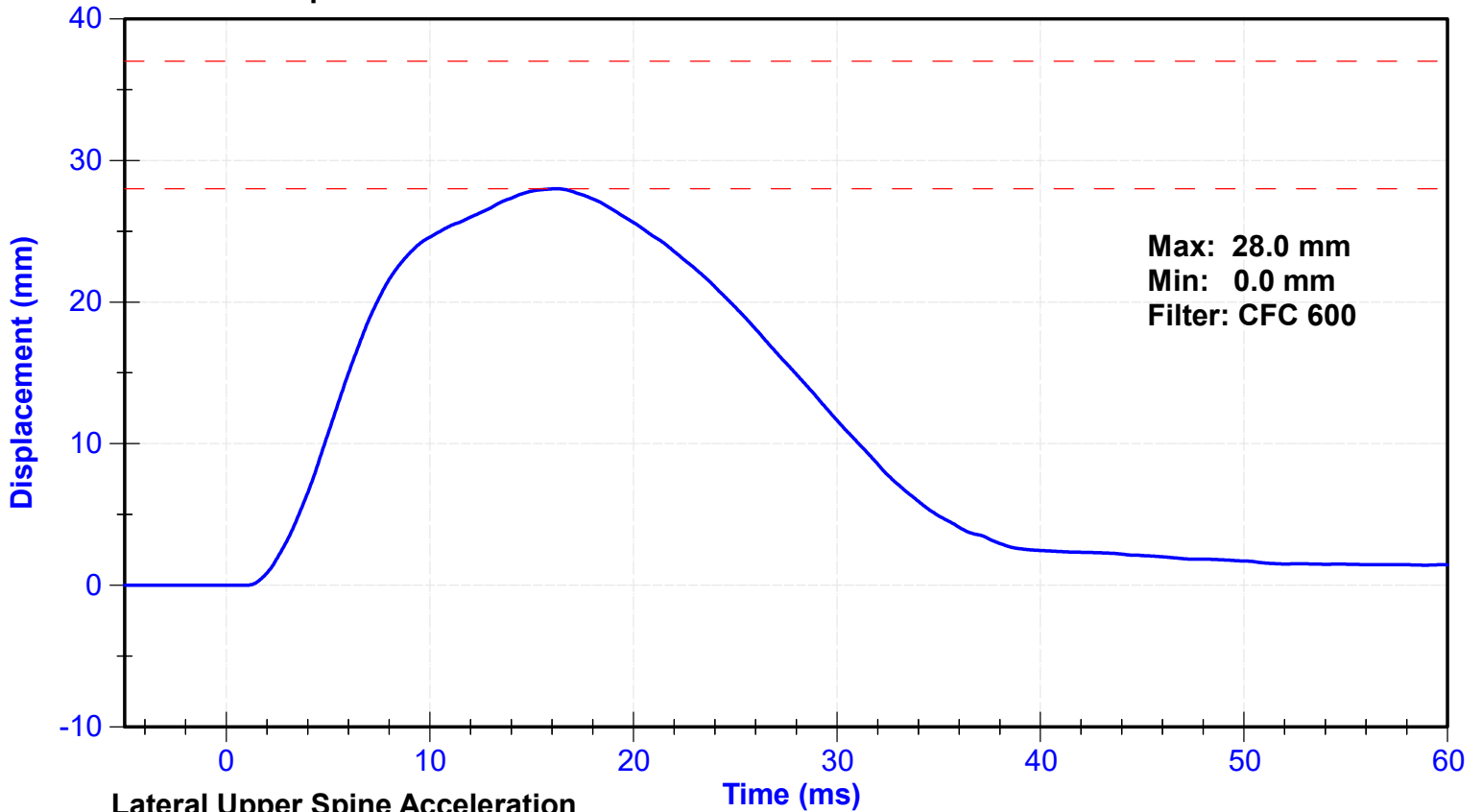
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18587	11/20/2023	11/19/2024
Shoulder Potentiometer	Servo	1274GFE	11/17/2023	5/17/2024
Upper Spine Y Accelerometer	Endevco	P64148	11/16/2023	5/14/2024

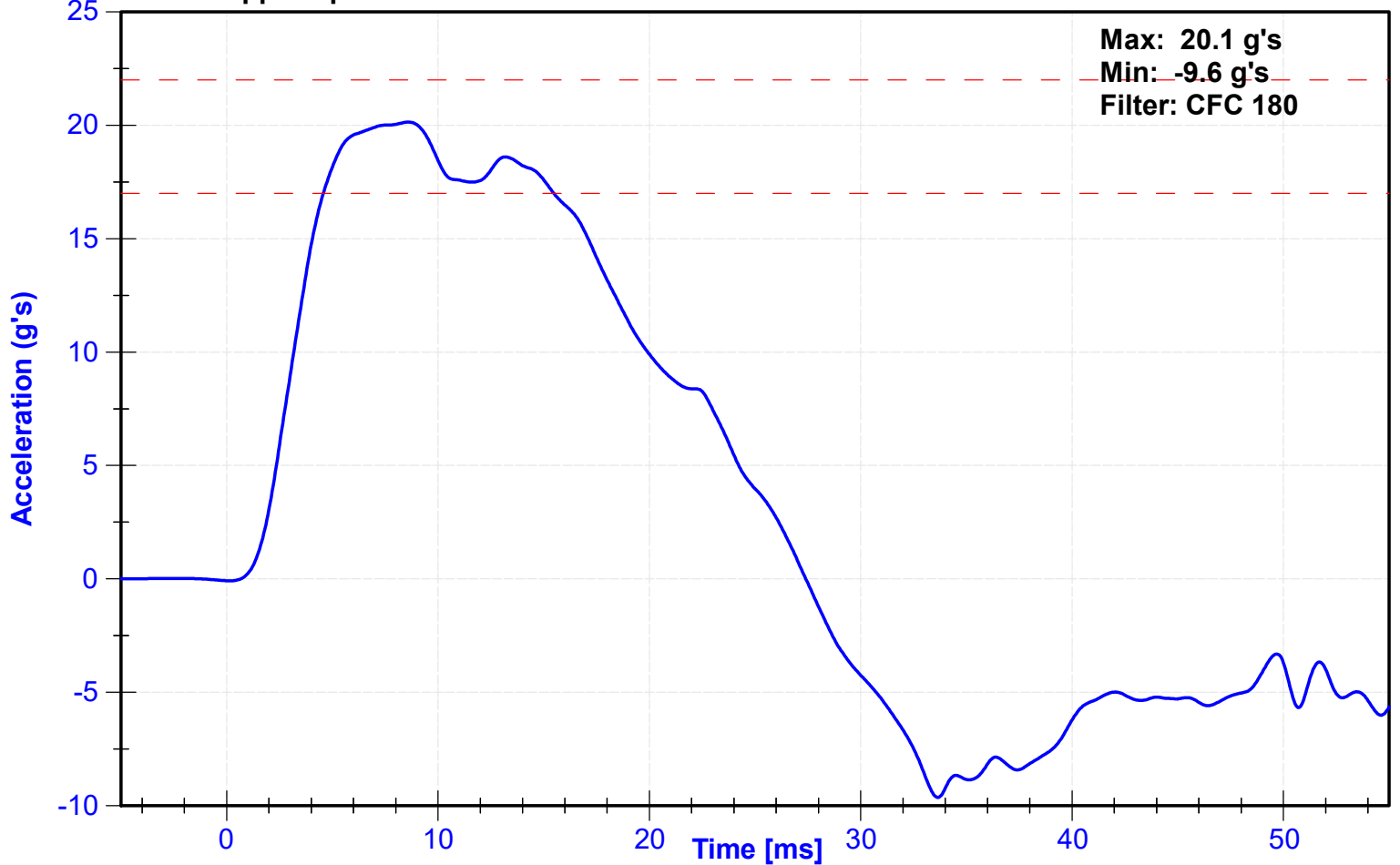
Probe Acceleration



Shoulder Displacement



Lateral Upper Spine Acceleration



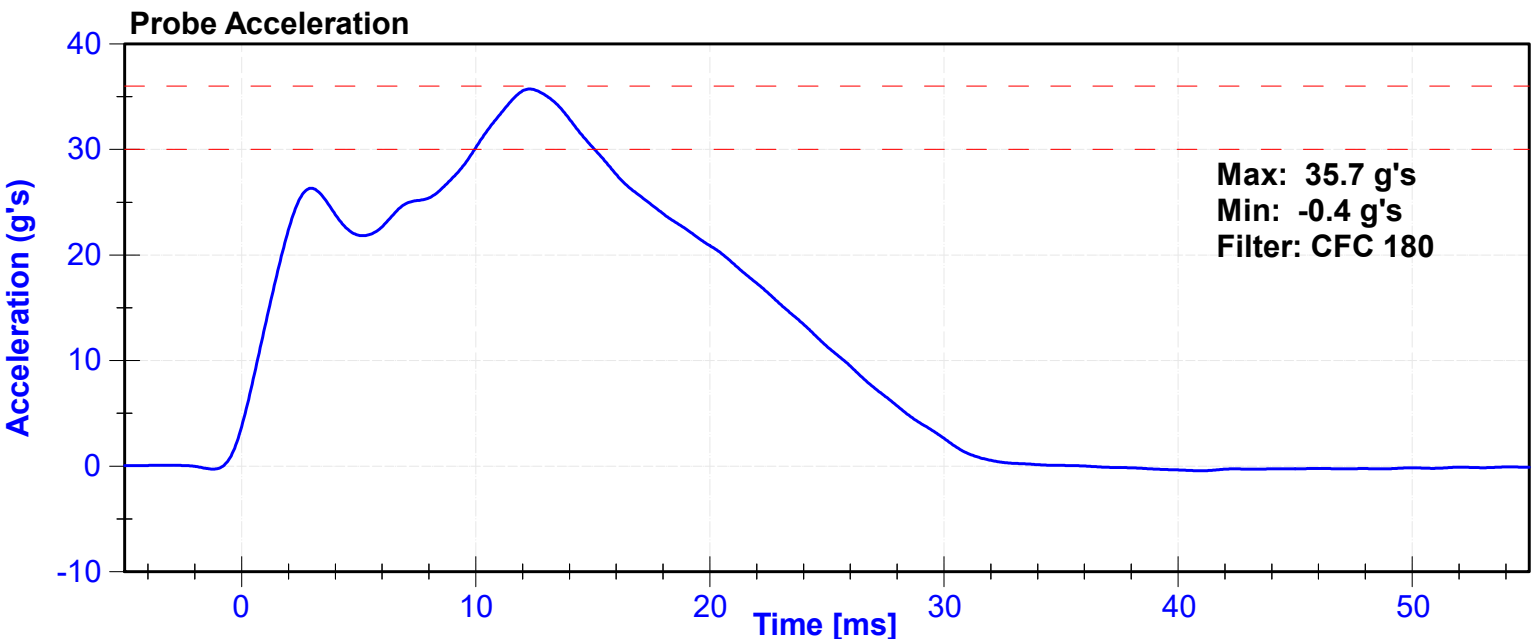
ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

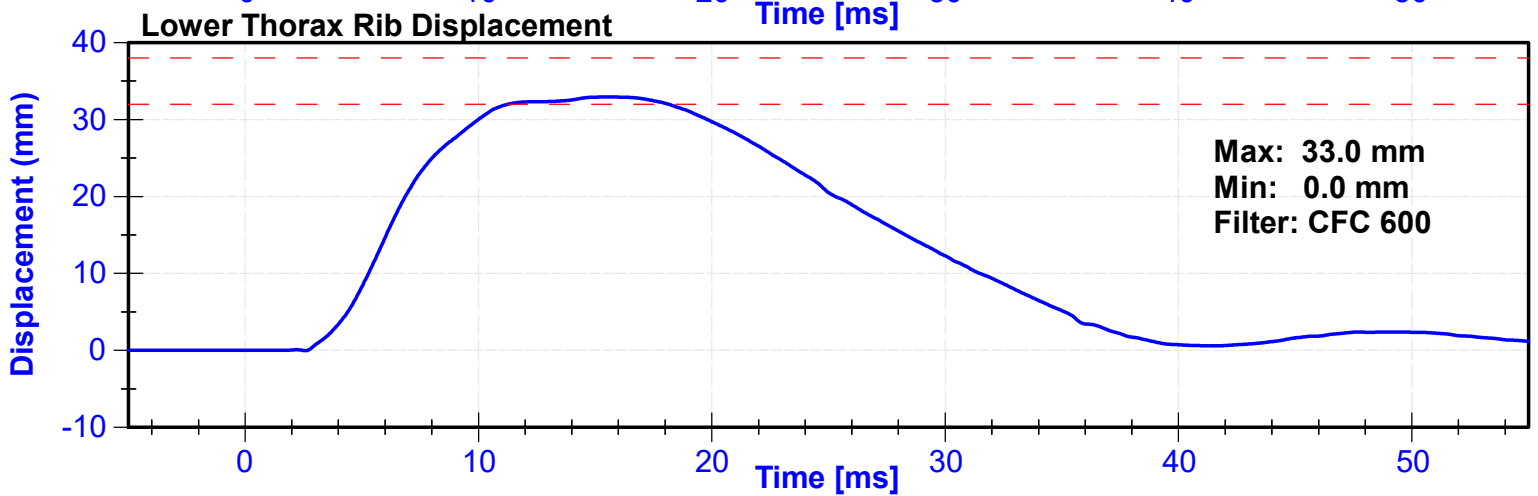
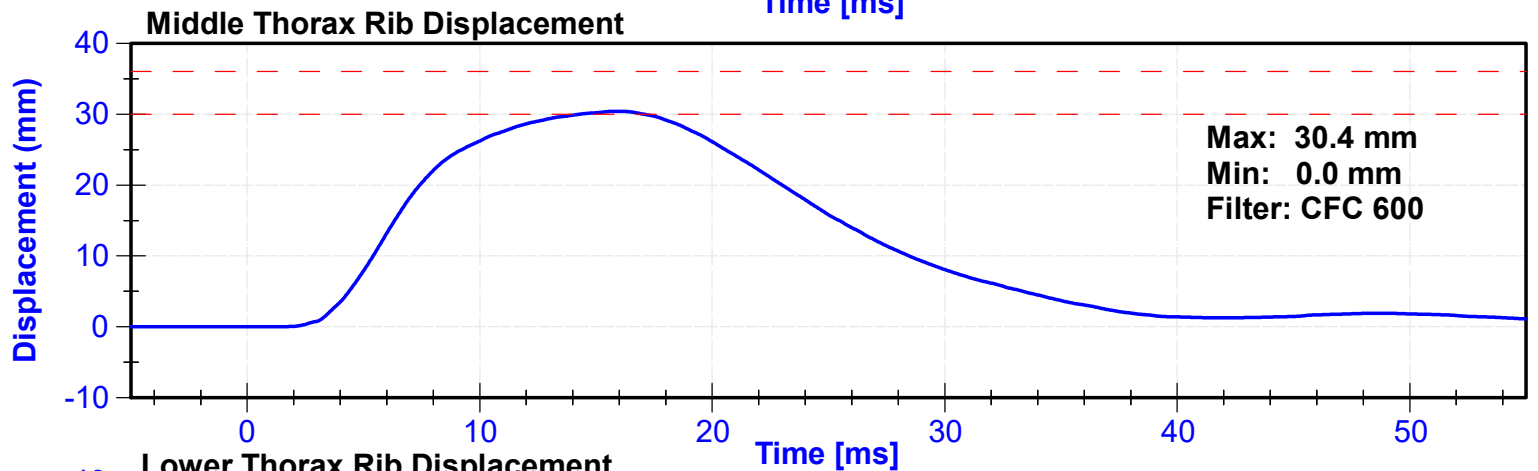
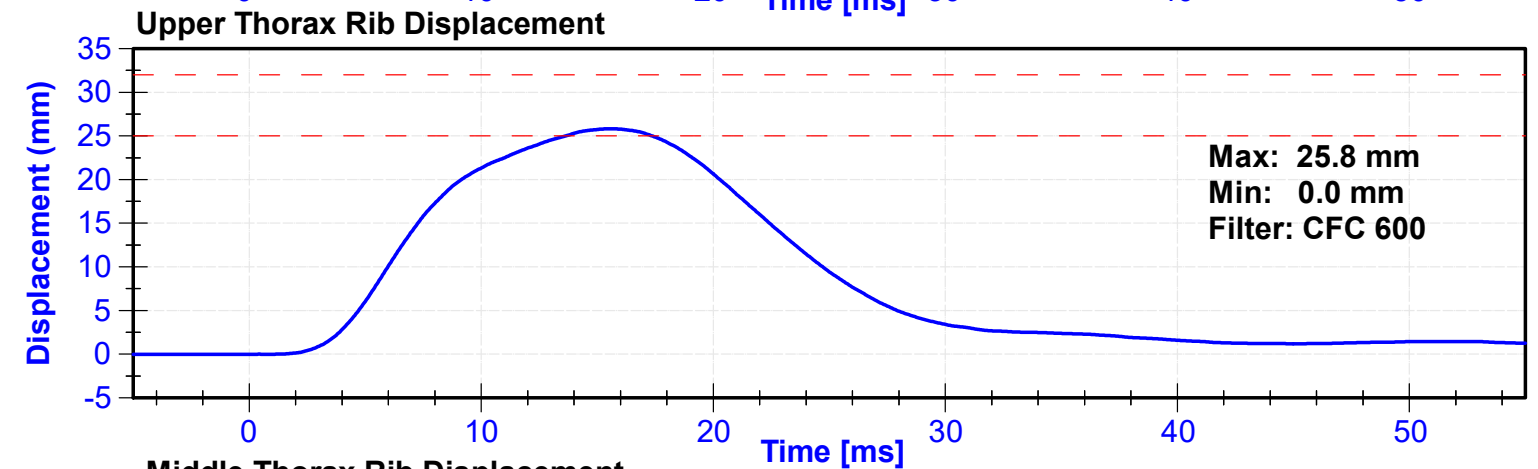
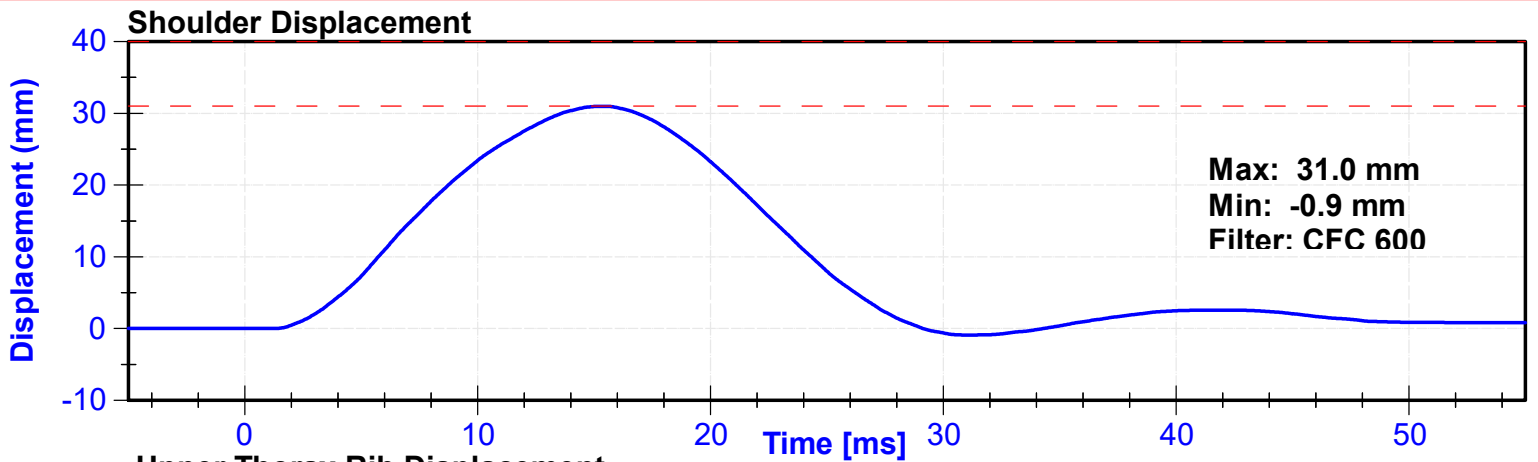
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	30	Pass
Velocity	6.6	6.8	m/s	6.65	Pass
Probe Acceleration after 5 ms	30	36	g's	35.7	Pass
Lateral Upper Spine Acceleration	34	43	g's	40.0	Pass
Lateral Lower Spine Acceleration	29	37	g's	33.3	Pass
Shoulder Deflection	31	40	mm	31.0	Pass
Upper Thorax Rib Deflection	25	32	mm	25.8	Pass
Mid Thorax Rib Deflection	30	36	mm	30.4	Pass
Lower Thorax Rib Deflection	32	38	mm	33.0	Pass

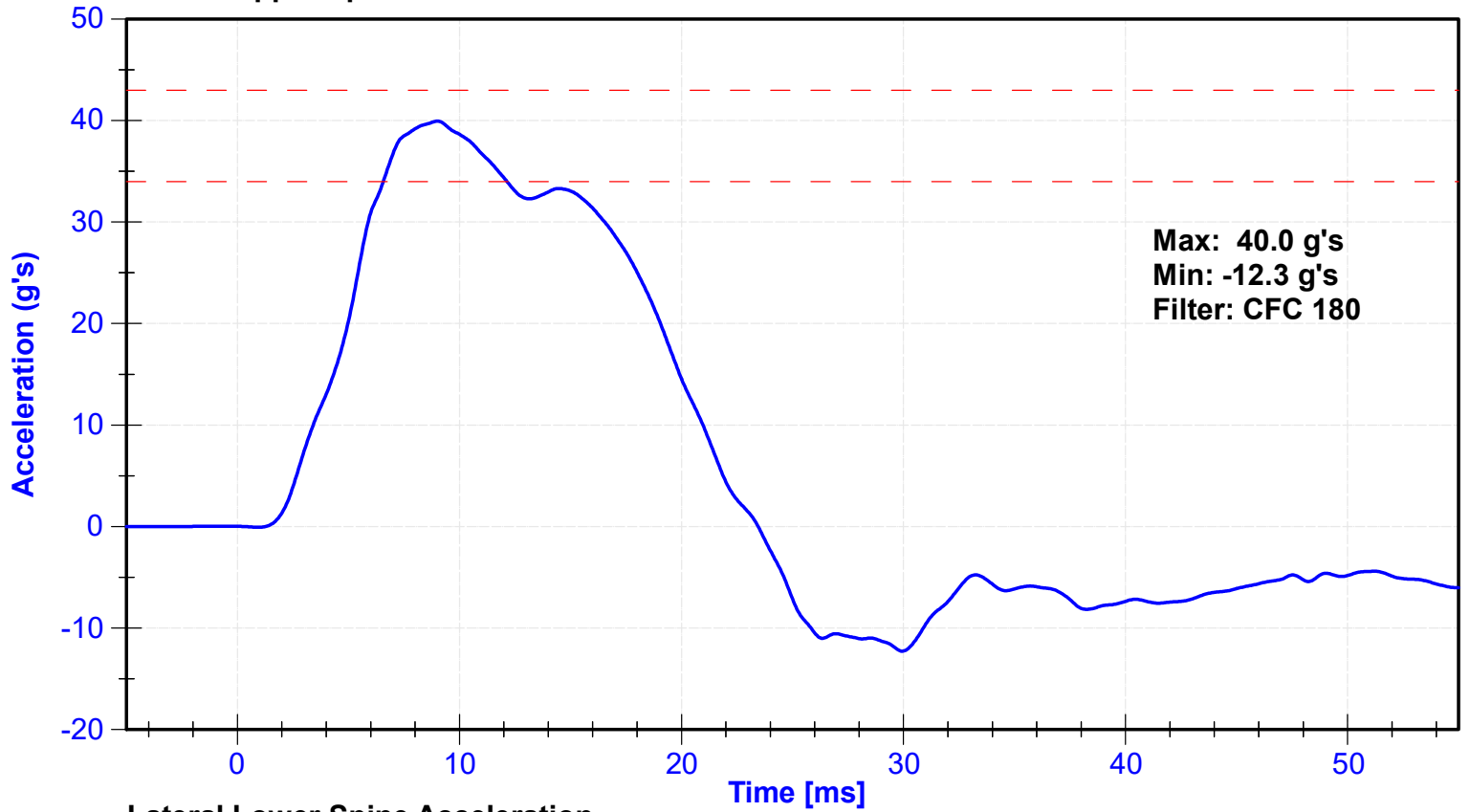
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18587	11/20/2023	11/19/2024
Upper Spine T1 Y Accelerometer	Endevco	P64148	11/16/2023	5/14/2024
Upper Spine T12 Y Accelerometer	Endevco	P51327	11/16/2023	5/14/2024
Shoulder Potentiometer	Servo	1274GFE	11/17/2023	5/17/2024
Upper Thorax Rib Potentiometer	Servo	1199GFE	11/17/2023	5/17/2024
Middle Thorax Rib Potentiometer	Servo	1246GFE	11/17/2023	5/17/2024
Lower Thorax Rib Potentiometer	Servo	011GFE	11/17/2023	5/17/2024

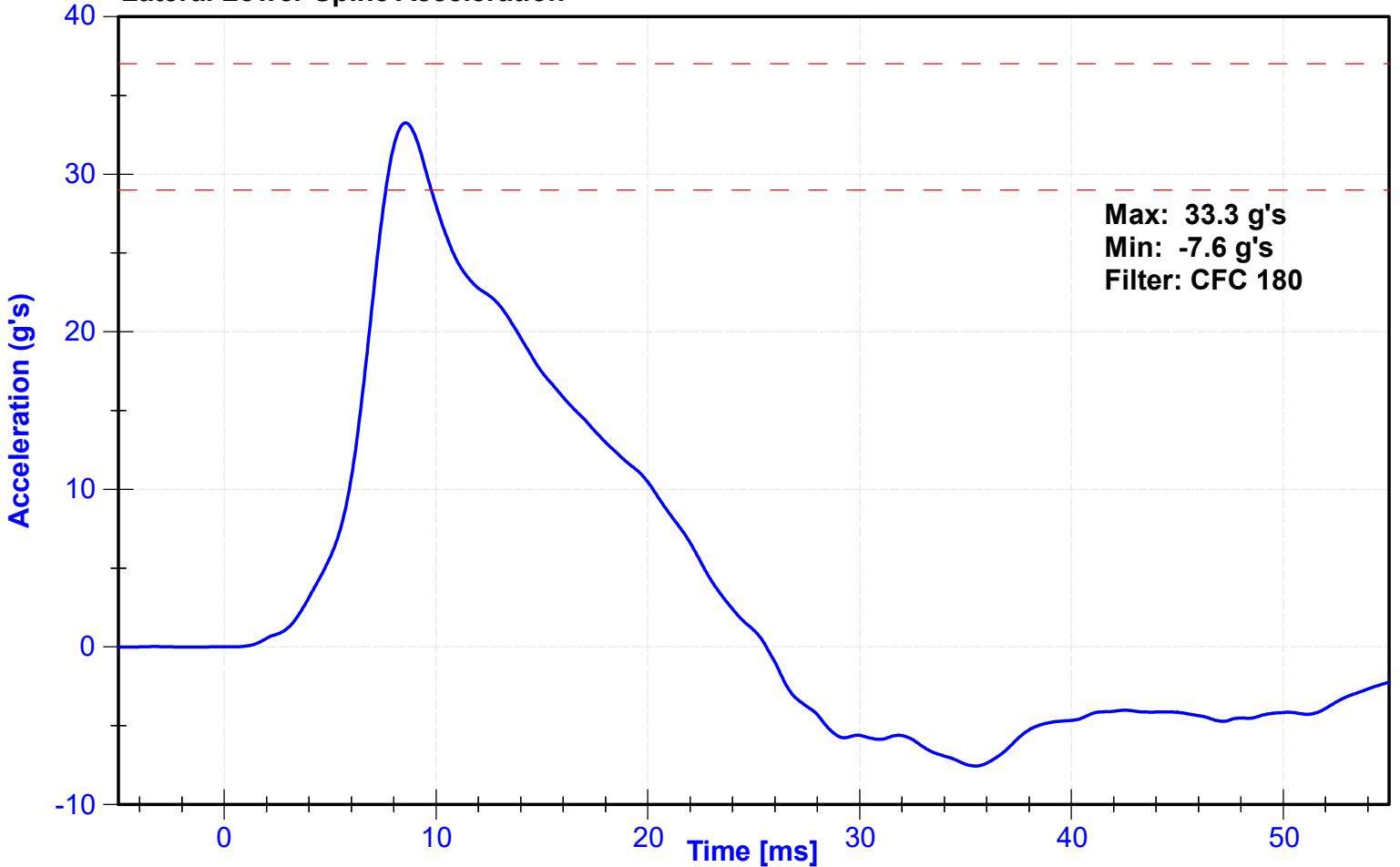




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



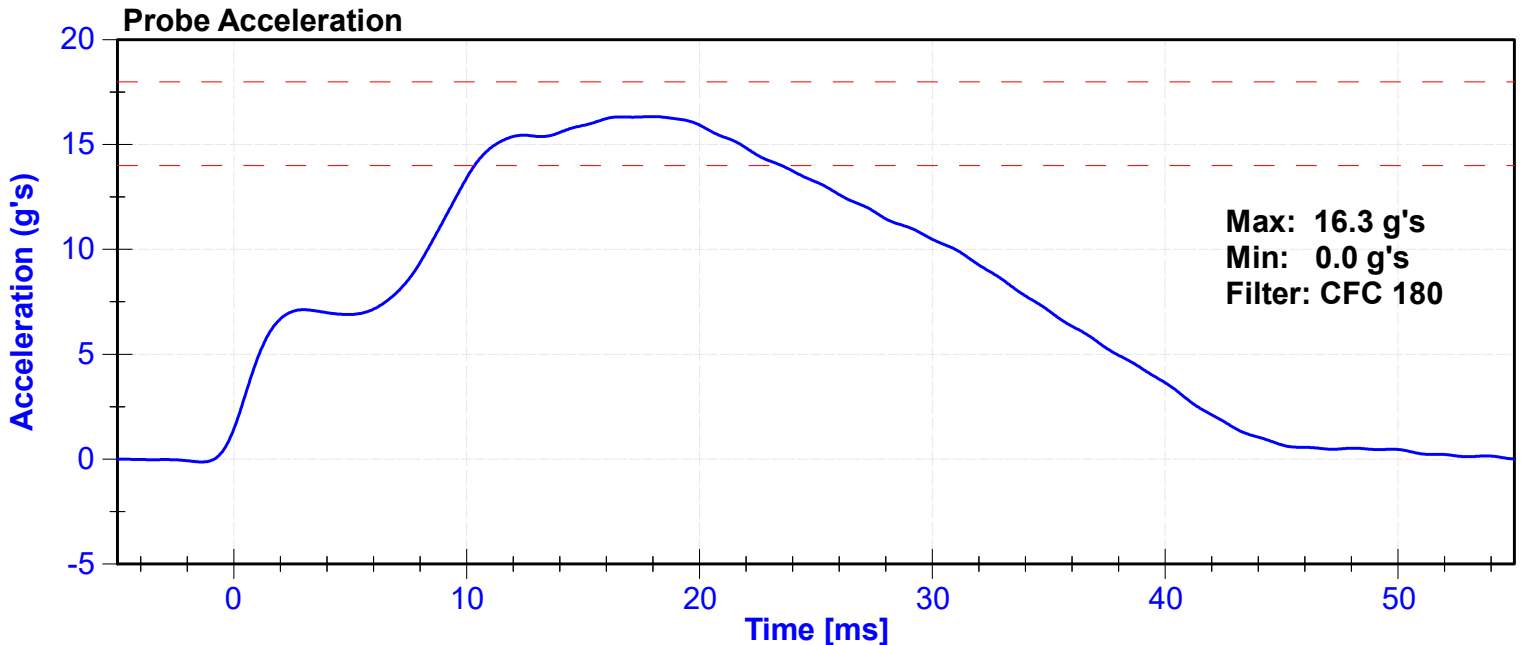
ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

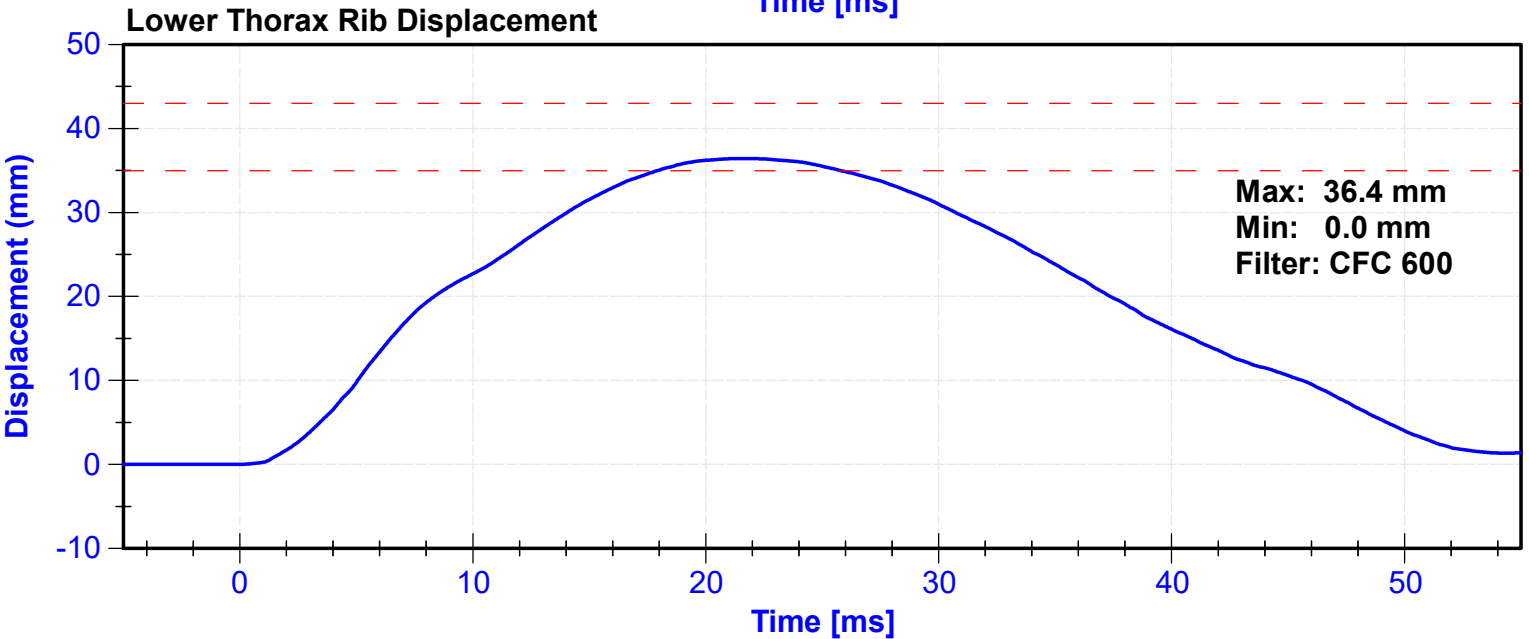
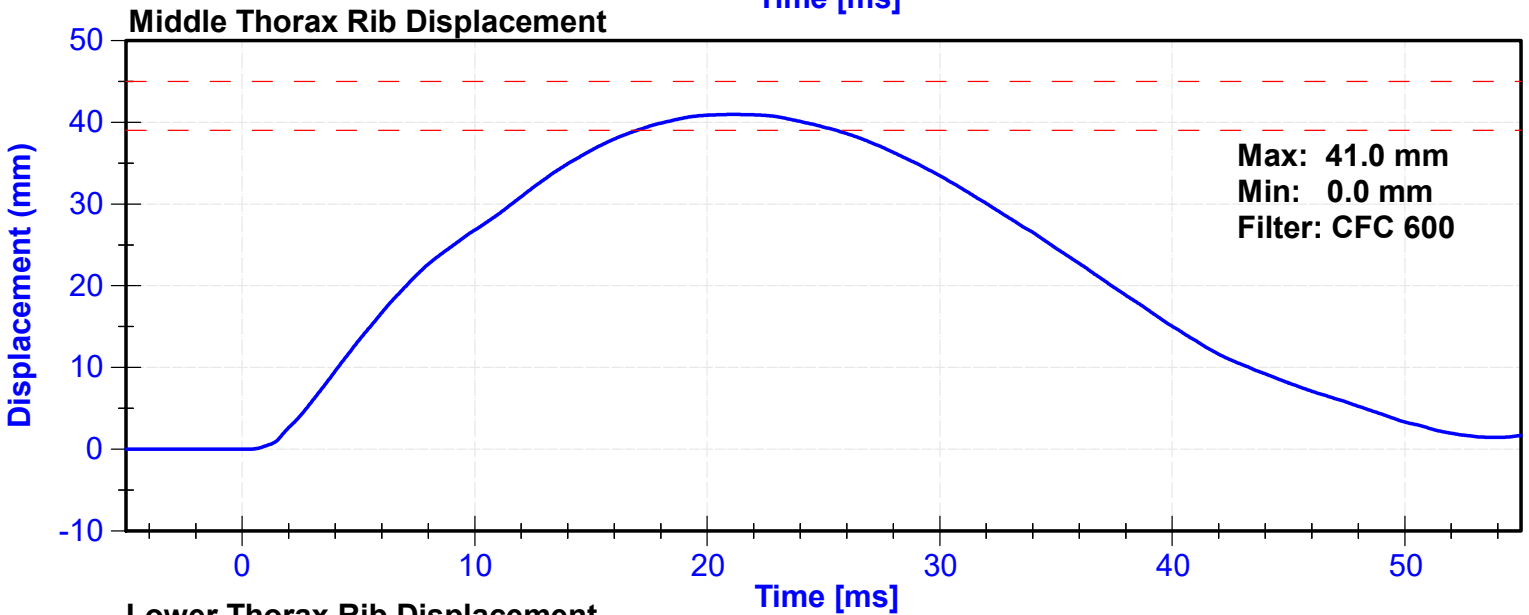
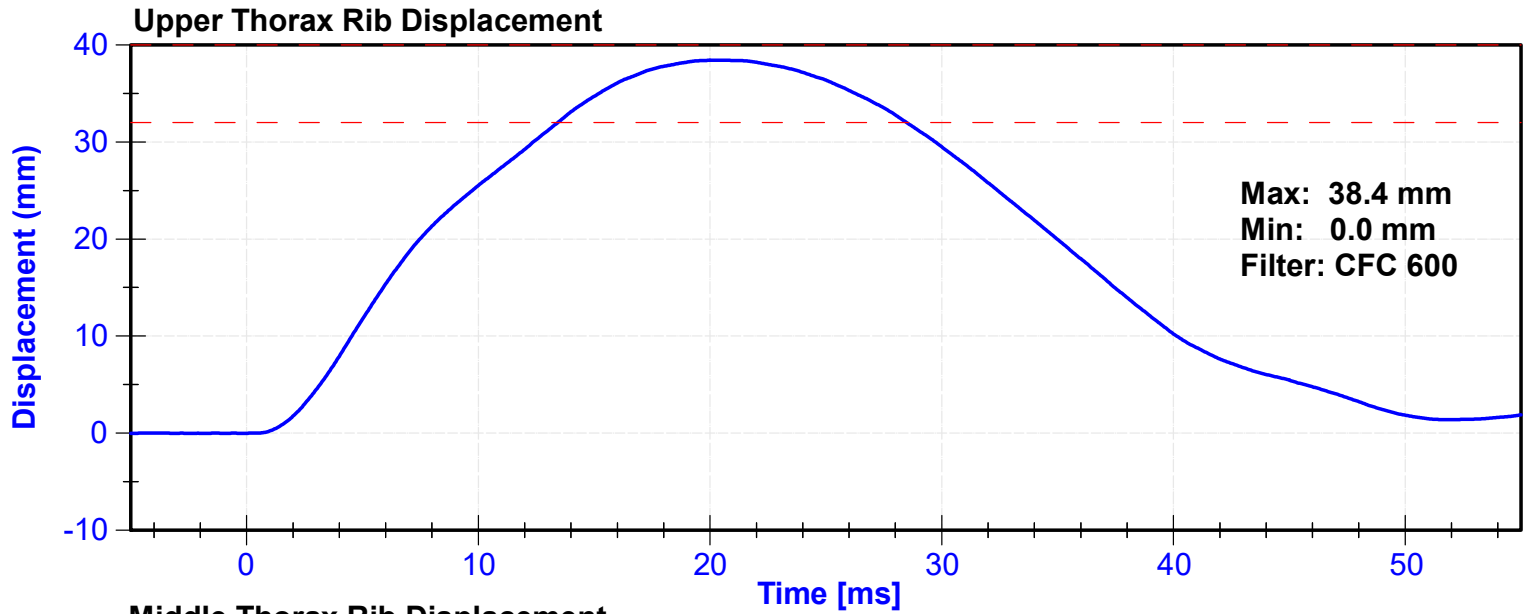
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	30	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	14	18	g's	16.3	Pass
Lateral Upper Spine Acceleration	13	17	g's	15.4	Pass
Lateral Lower Spine Acceleration	7	11	g's	8.7	Pass
Upper Thorax Rib Deflection	32	40	mm	38.4	Pass
Middle Thorax Rib Deflection	39	45	mm	41.0	Pass
Lower Thorax Rib Deflection	35	43	mm	36.4	Pass

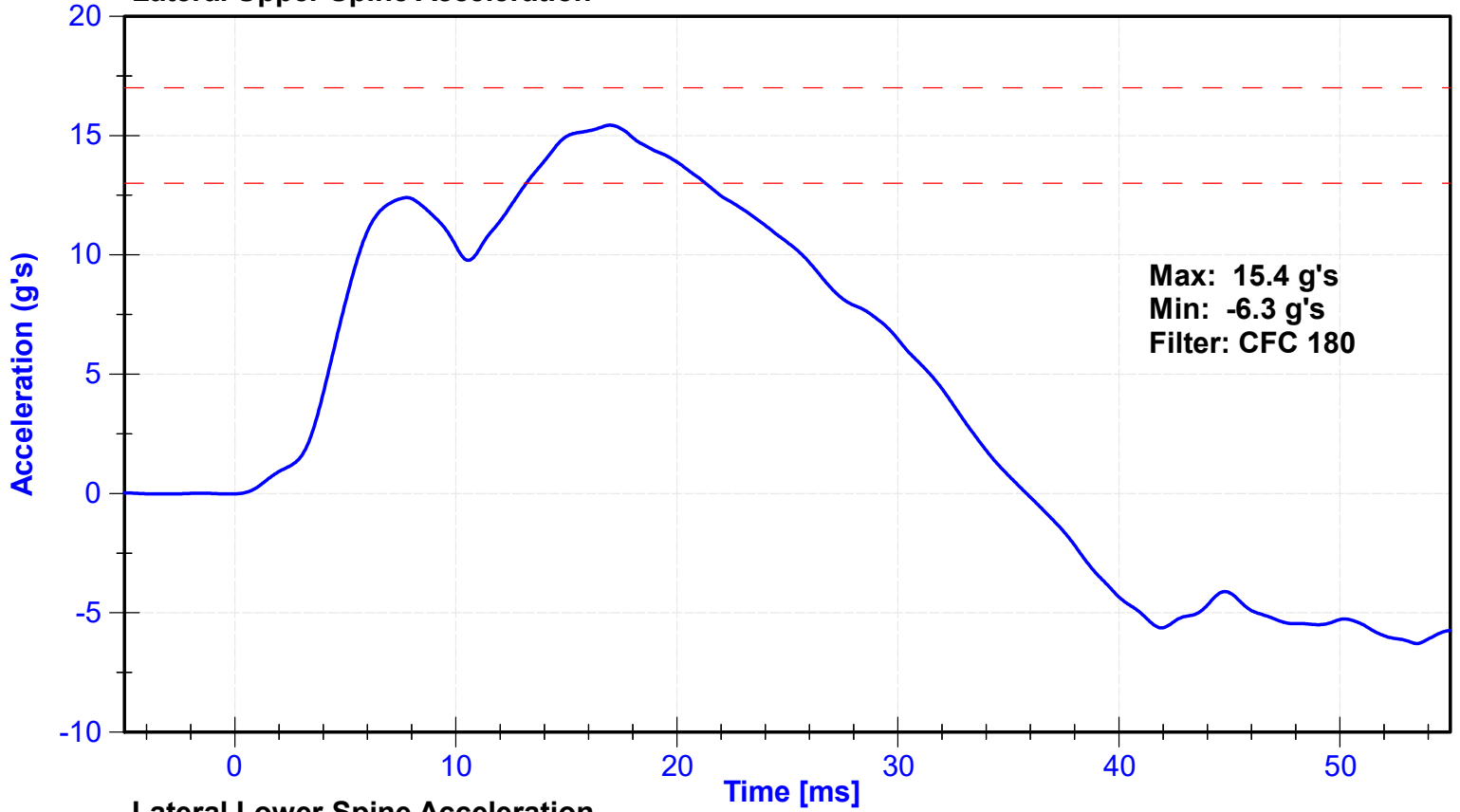
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18587	11/20/2023	11/19/2024
Upper Spine Y Accelerometer	Endevco	P64148	11/16/2023	5/14/2024
Lower Spine Y Accelerometer	Endevco	P51327	11/16/2023	5/14/2024
Upper Thorax Rib Potentiometer	Servo	1199GFE	11/17/2023	5/17/2024
Middle Thorax Rib Potentiometer	Servo	1246GFE	11/17/2023	5/17/2024
Lower Thorax Rib Potentiometer	Servo	011GFE	11/17/2023	5/17/2024

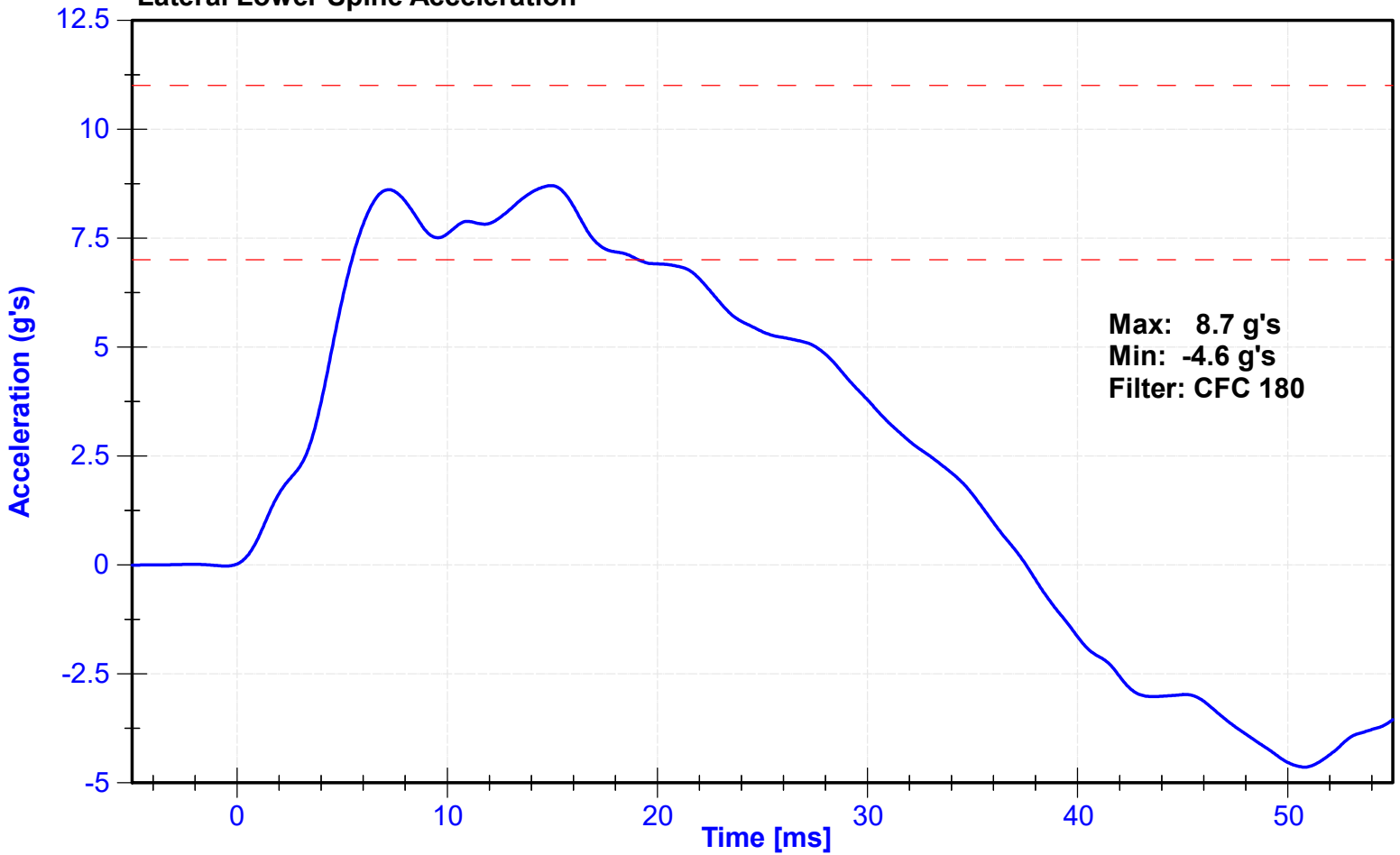




Lateral Upper Spine Acceleration



Lateral Lower Spine Acceleration



ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

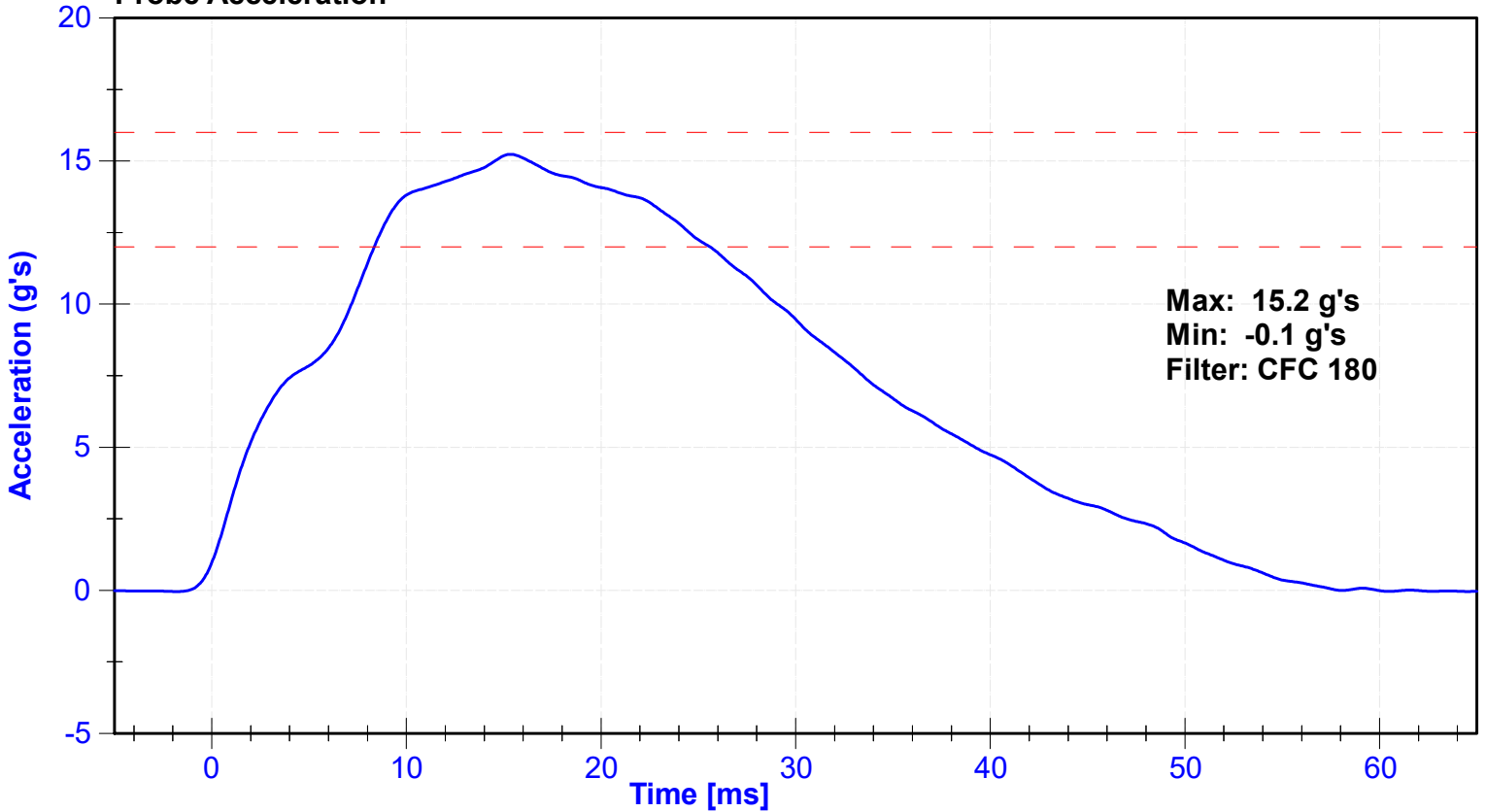
Results

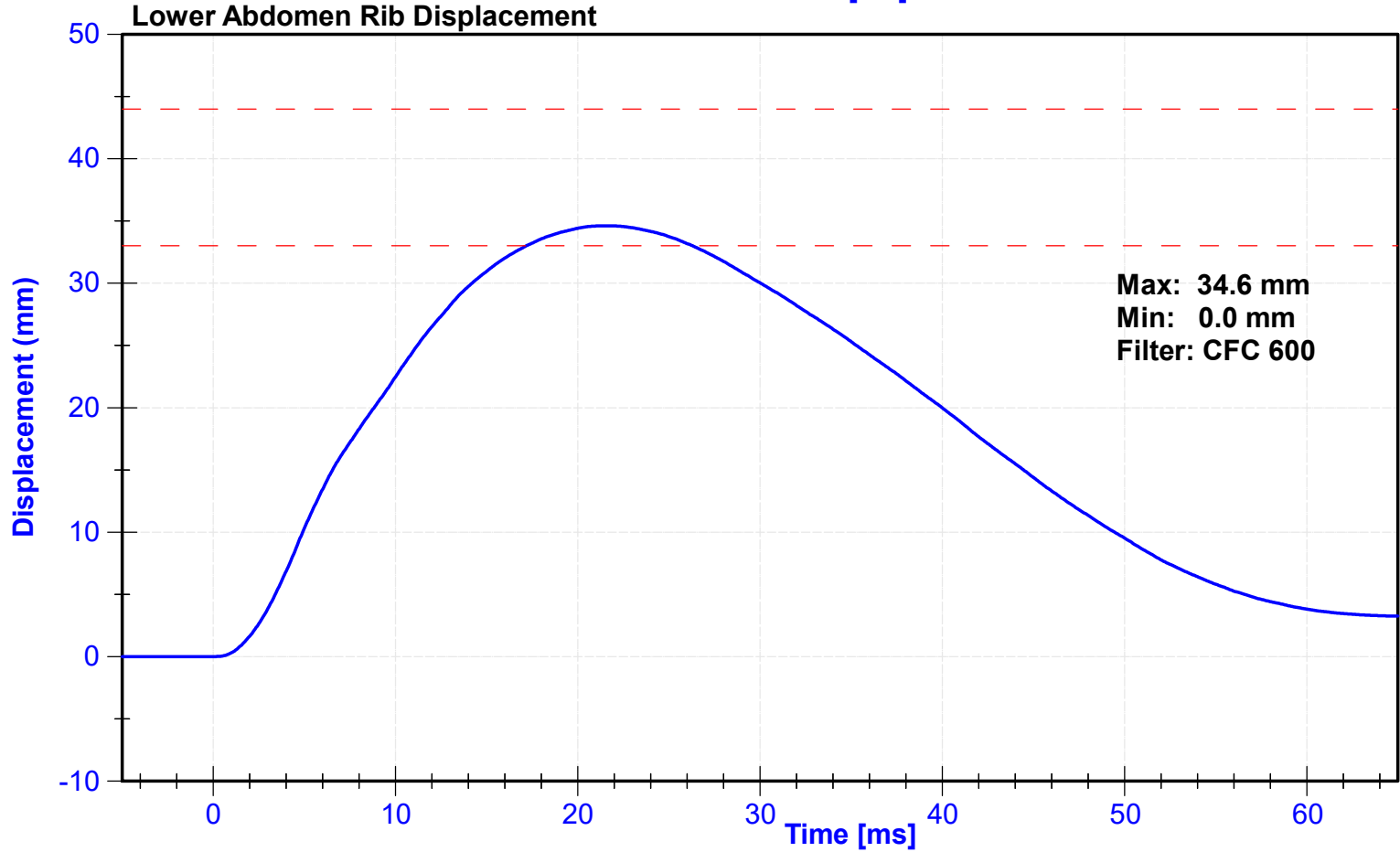
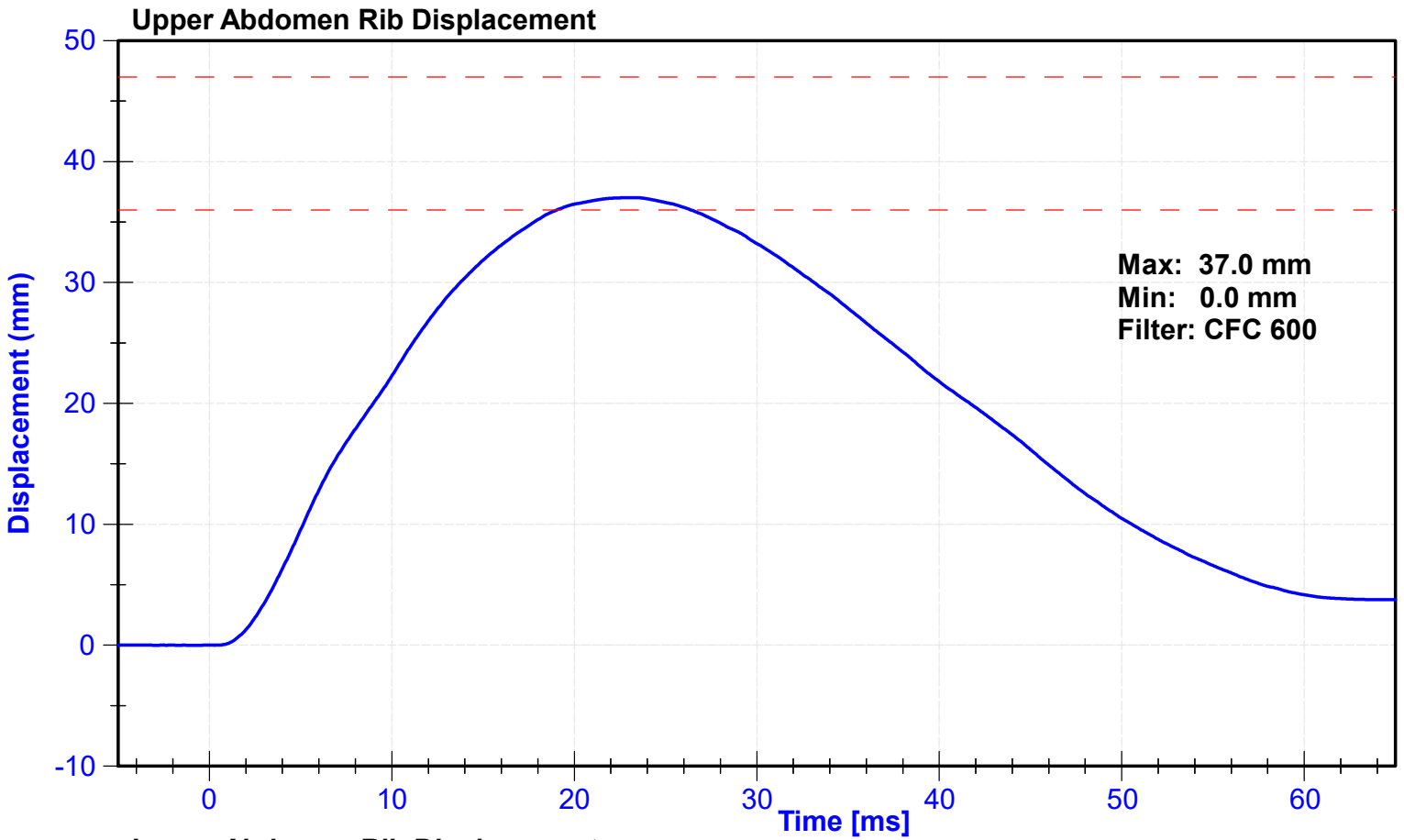
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	30	Pass
Velocity	4.2	4.4	m/s	4.31	Pass
Probe Acceleration	12	16	g's	15.2	Pass
Lateral Lower Spine Acceleration	9	14	g's	14.0	Pass
Upper Abdomen Rib Deflection	36	47	mm	37.0	Pass
Lower Abdomen Rib Deflection	33	44	mm	34.6	Pass

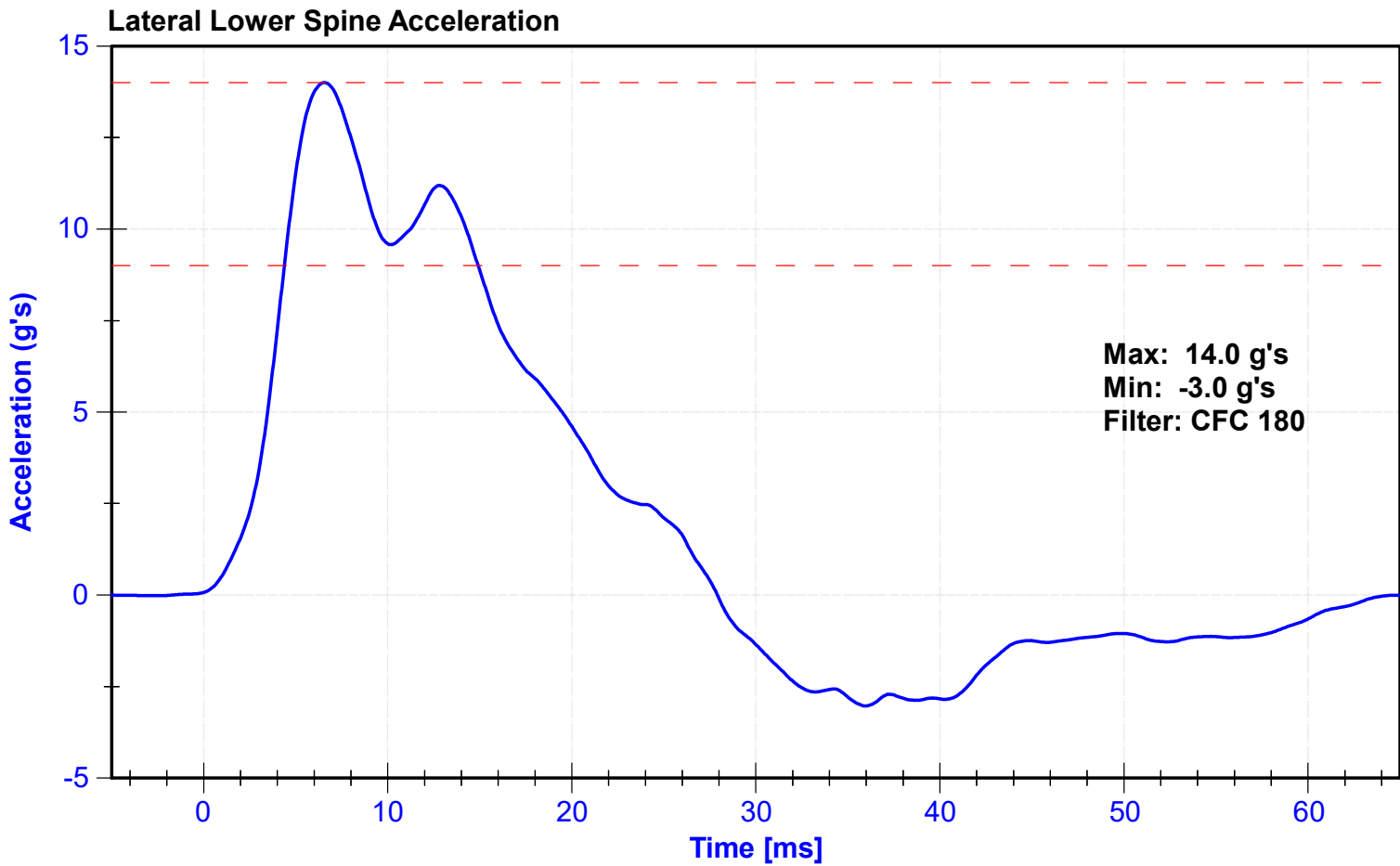
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18587	11/20/2023	11/19/2024
Lower Spine Y Accelerometer	Endevco	P51327	11/16/2023	5/14/2024
Upper Abdomen Rib Potentiometer	Servo	008GFE	11/17/2023	5/17/2024
Lower Abdomen Rib Potentiometer	Servo	046	11/17/2023	5/17/2024

Probe Acceleration







ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

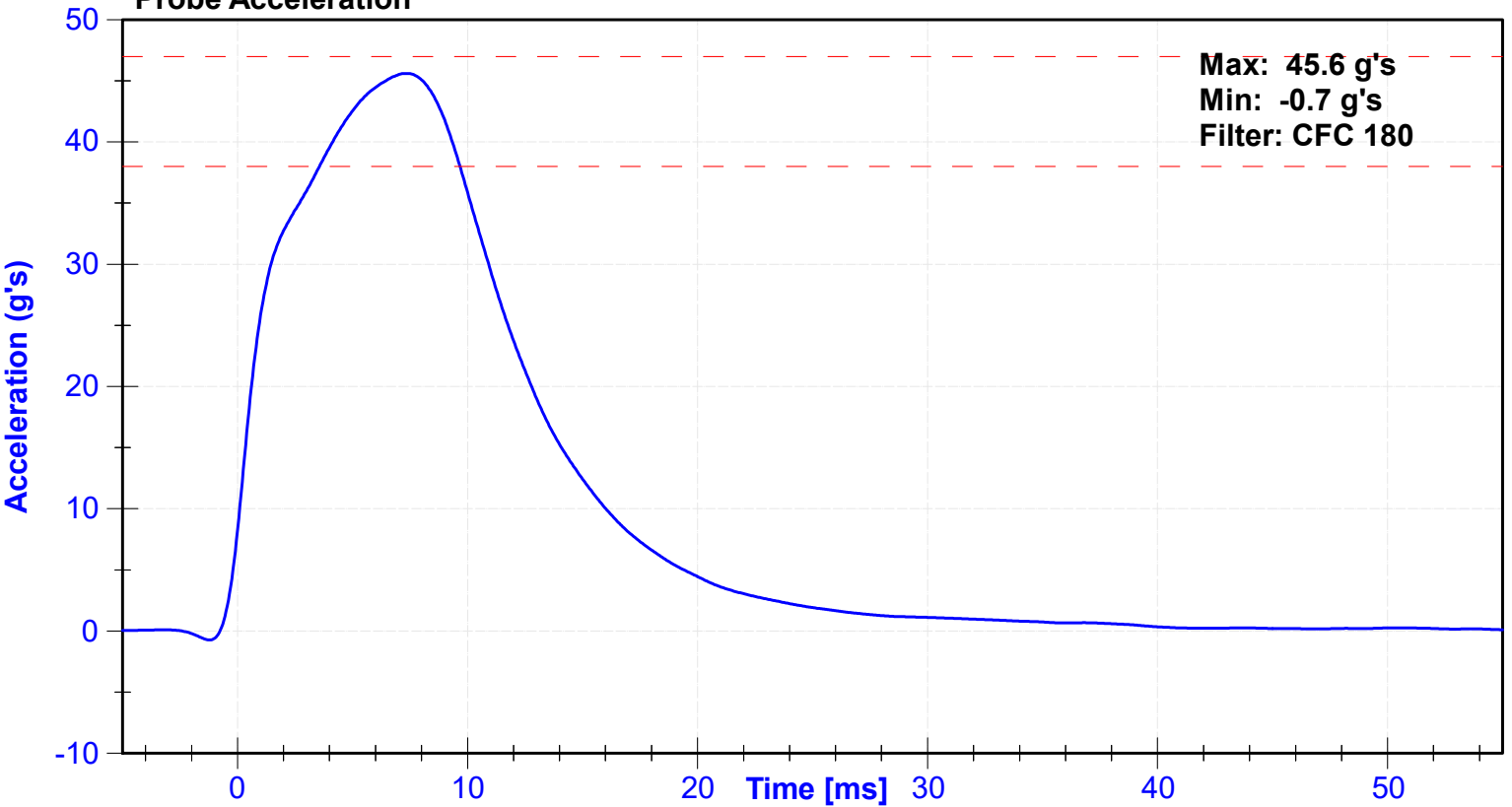
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	30	Pass
Velocity	6.6	6.8	m/s	6.64	Pass
Probe Acceleration	38	47	g's	45.6	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	38.9	Pass
Acetabulum Force	3600	4300	N	4036.6	Pass

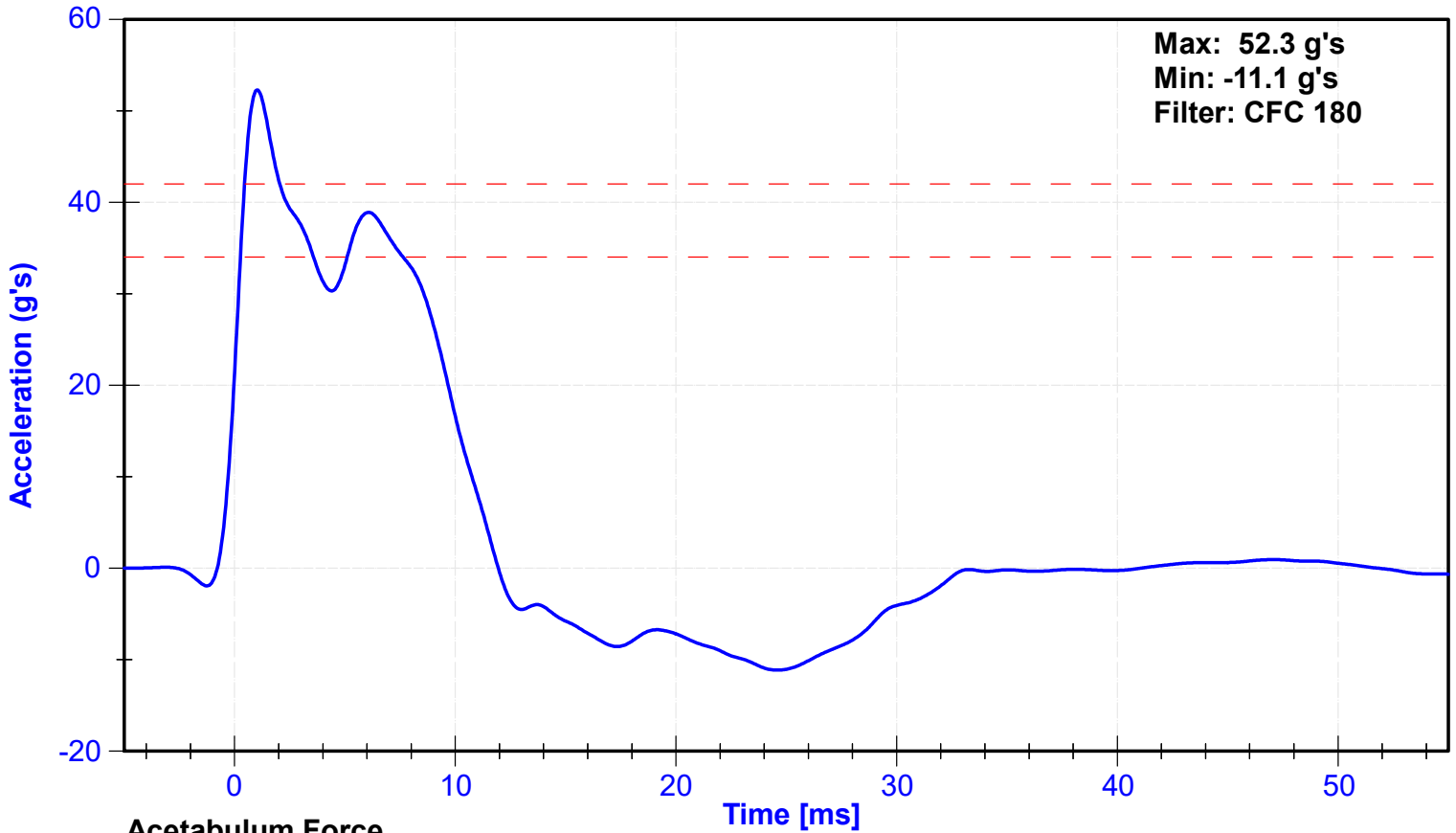
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18587	11/20/2023	11/19/2024
Pelvis Y Accelerometer	Endevco	P50078	11/16/2023	5/14/2024
Acetabulum Load Cell	Denton	270-FY	9/11/2023	9/10/2024
Certification Plug	SACO			N/A
Crash Test Plug	SACO			N/A

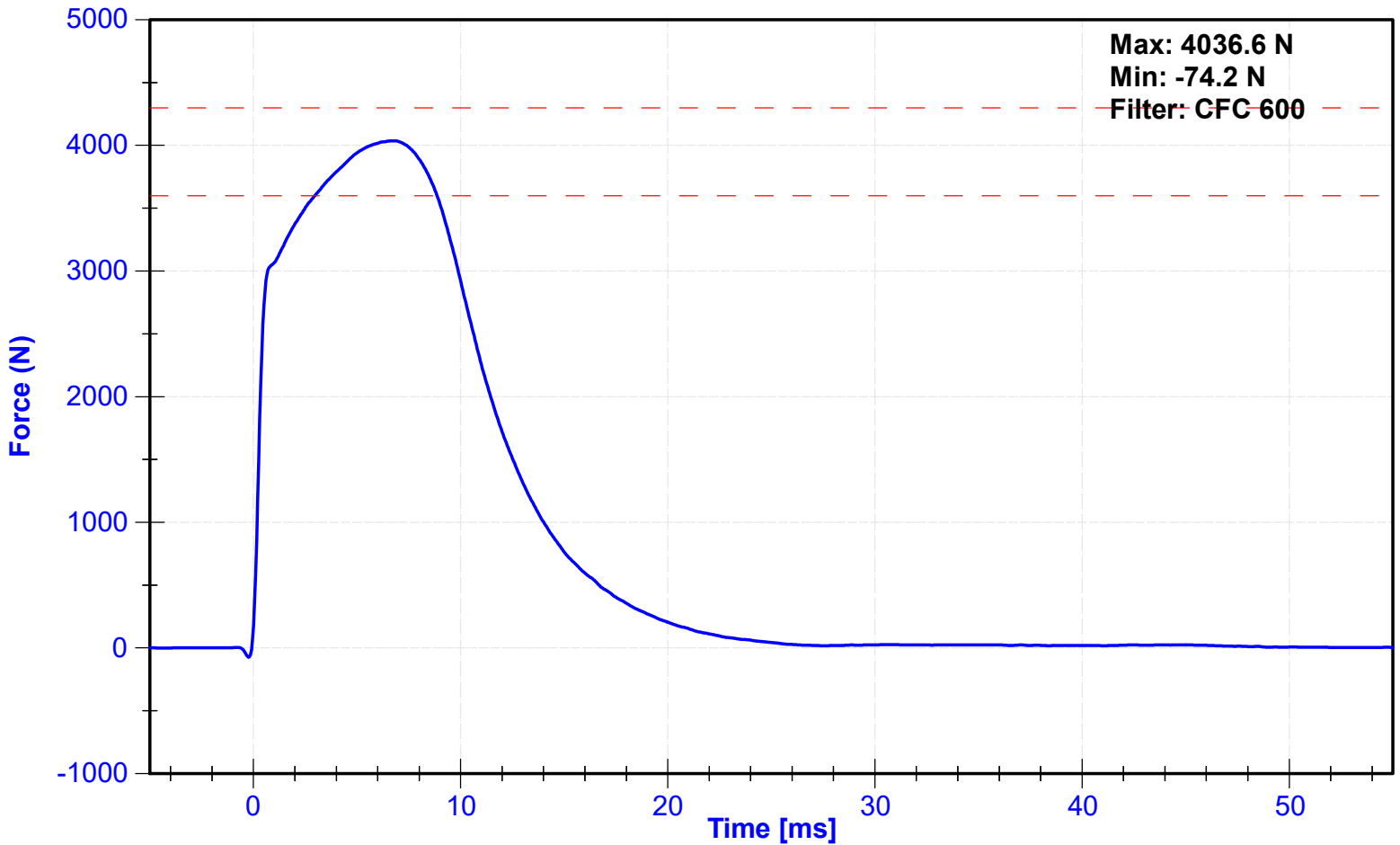
Probe Acceleration



Lateral Pelvis Acceleration



Acetabulum Force





Cert #1: 1
01-26-24

SID-IIs Pelvis Plug Certification Test

Plug S/N 16628

Test Number 23394

Report Number 23451

Test Date 7/20/2022 12:01:14 PM

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

Testing Machine STM-20 5965542

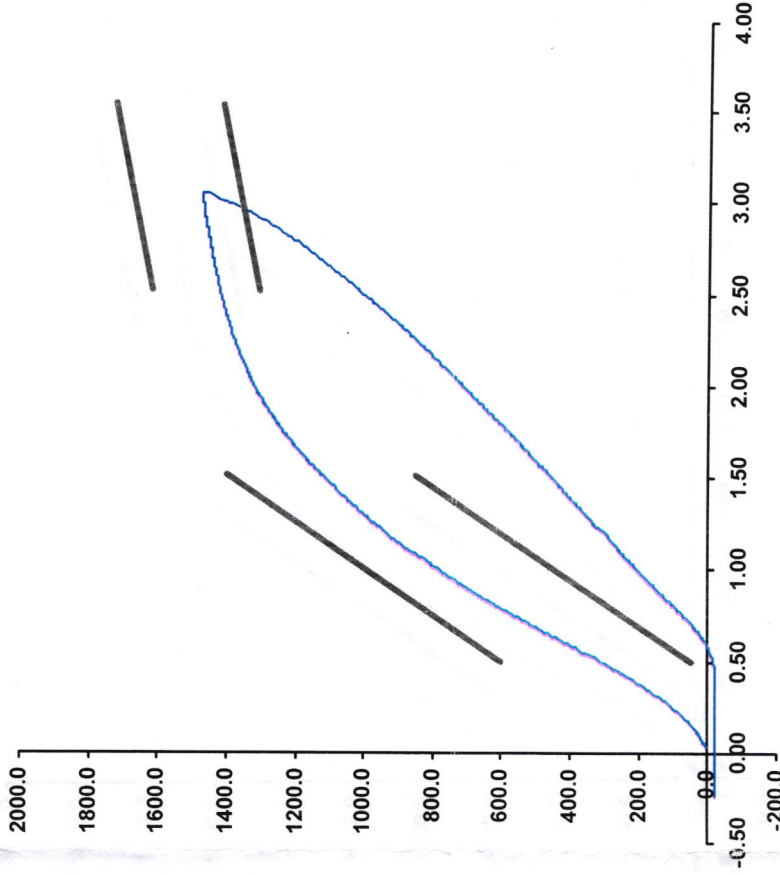
Load Cell S/N (F1360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 20-Jul-22

SACO Research

By: DC Date: 7/20/22

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



SID-IIs Pelvis Plug Certification Test

Plug S/N 16635
 Test Number 23401
 Report Number 23458

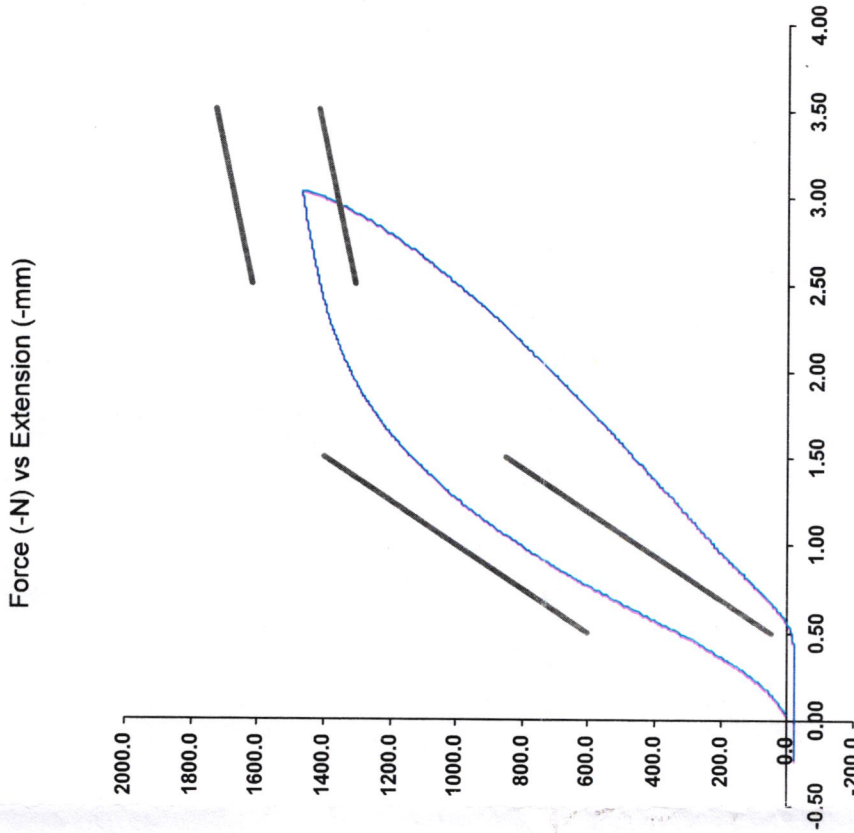
Vertical Impact

Test Date 7/20/2022 1:18:53 PM

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

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

Notes:



Operator _____
 Part Number 180-4450

Template No 107 20-Jul-22
 SACO Research

By: *DC* Date: *7/20/20*
 SACO Research 41735 Elm St. #401 Murrieta, CA 92562 Tel 310-694-2082 Fax



SID-IIs Pelvis Plug Certification Test

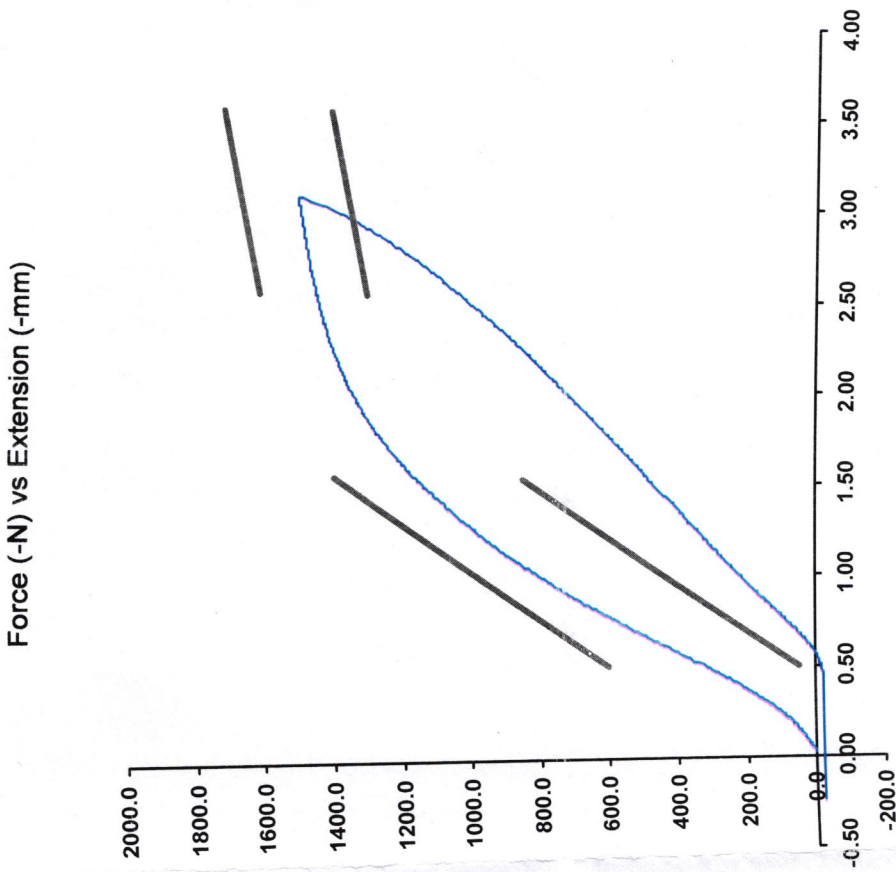
Plug S/N 16633
 Test Number 23399
 Report Number 23456
 Test Date 7/20/2022 1:09:52 PM

Impact side

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

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

Notes:



Operator

Part Number 180-4450

Date: *7/20/22*

By: *DC*

20-Jul-22

Template No 107
 SACO Research

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

ATD Manufacturer	FTSS	Test Technician	J. Rios
ATD Serial Number	DG8012	Laboratory Supervisor	C. Mantell

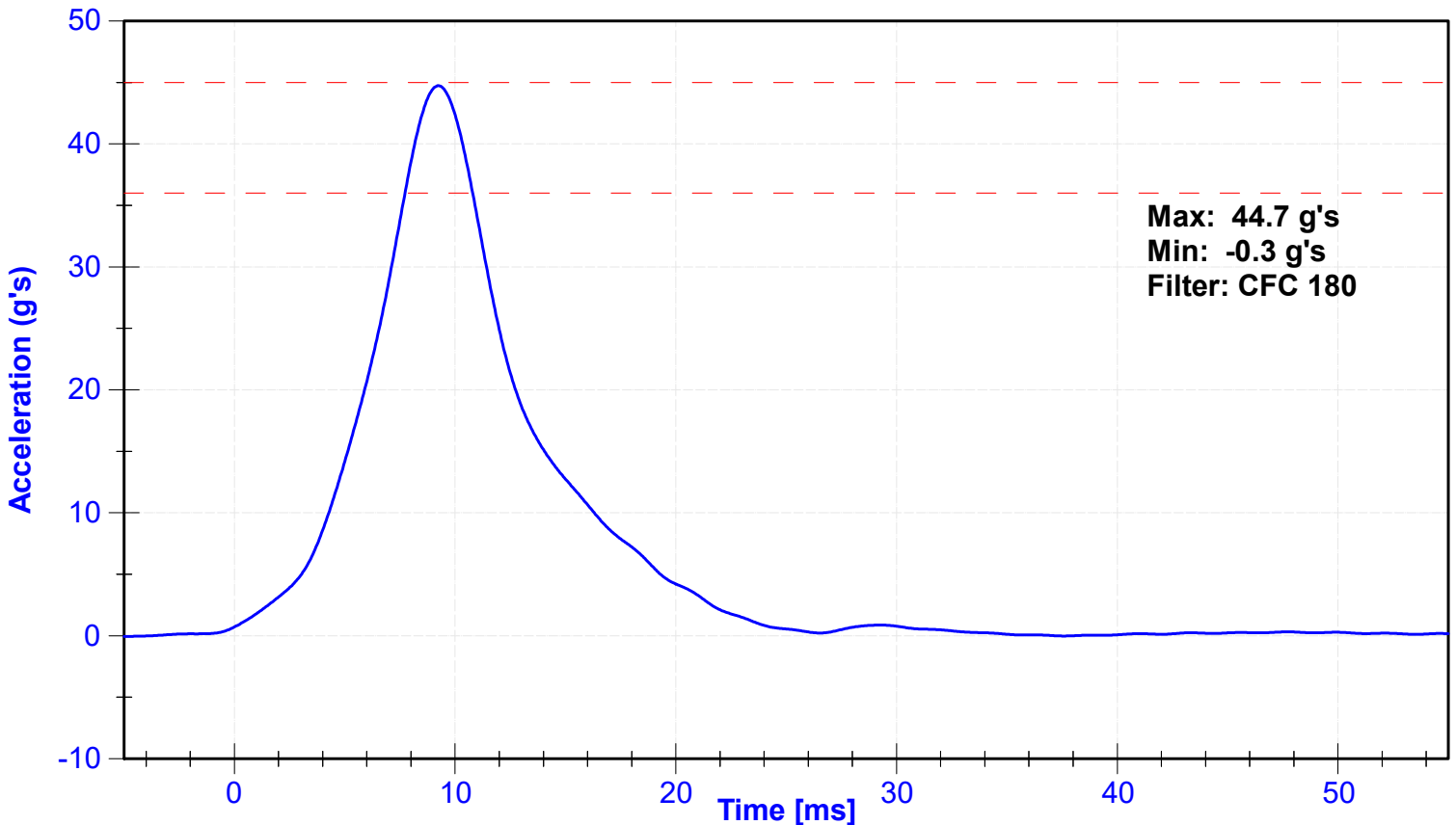
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	30	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	36	45	g's	44.7	Pass
Lateral Pelvis Acceleration	28	39	g's	37.3	Pass
Iliac Force	4100	5100	N	4804.2	Pass

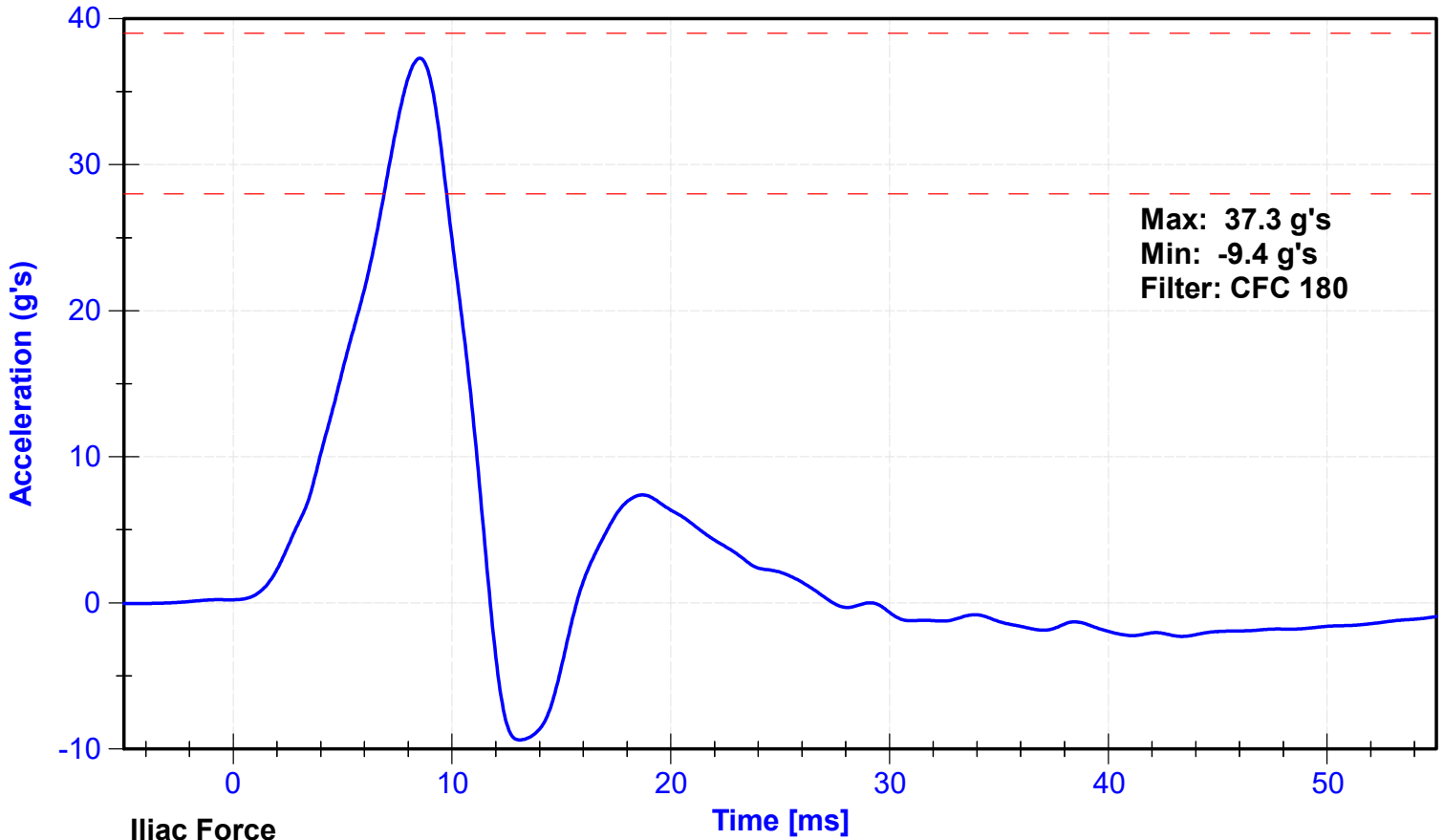
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18587	11/20/2023	11/19/2024
Pelvis Y Accelerometer	Endevco	P50078	11/16/2023	5/14/2024
Iliac Load Cell	Denton	280-FY	9/11/2023	9/10/2024

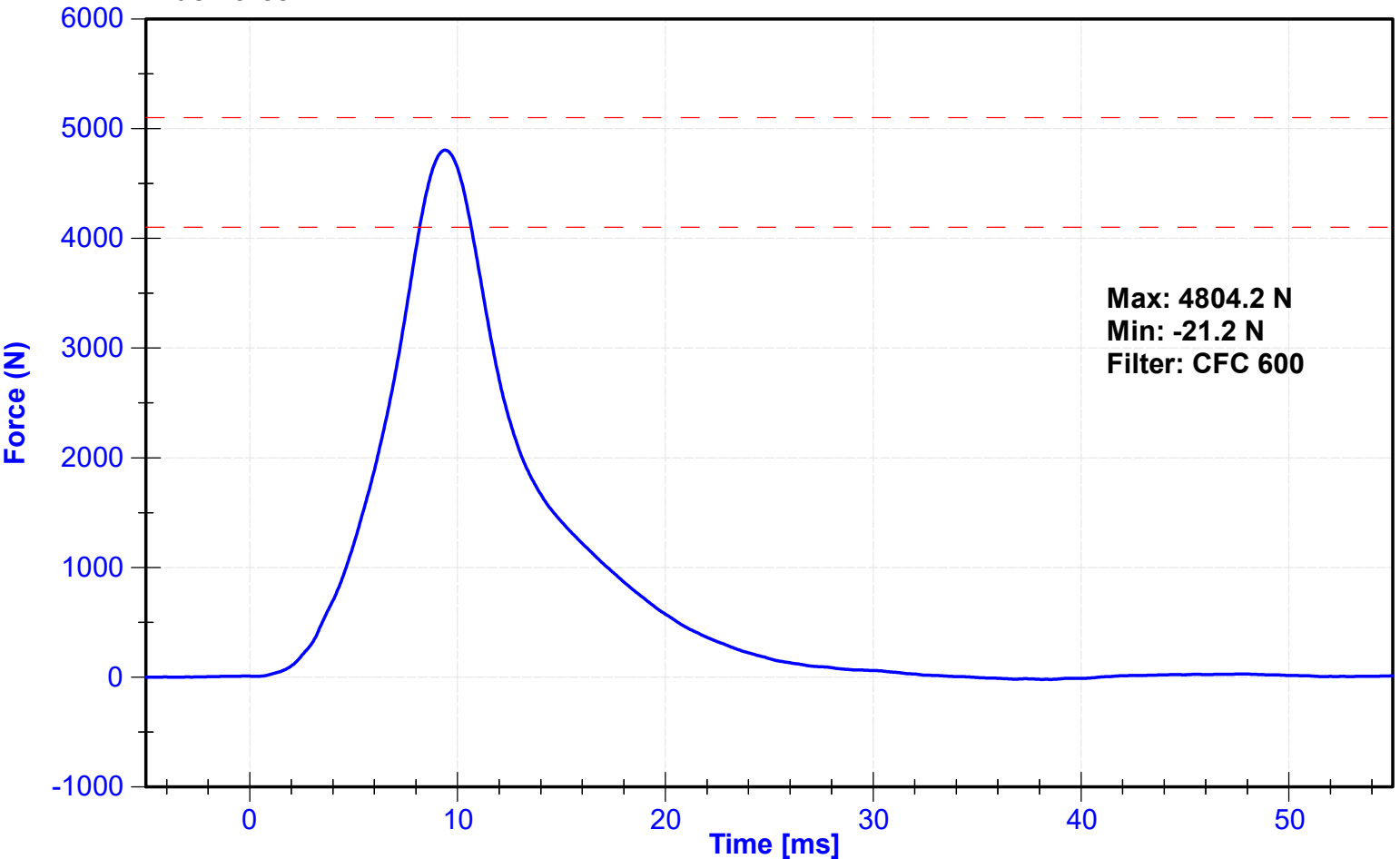
Probe Acceleration



Lateral Pelvis Acceleration



Iliac Force



APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (SID-IIs)

			SID-IIs S/N: DG8012			
			Serial Number	Manufacturer	Calibration Date	
Head Accelerometers	X		P80334	Endevco	11/16/2023	
	Y		P52155	Endevco	11/16/2023	
	Z		P83319	Endevco	11/16/2023	
Head Accelerometers - Redundant	X		P74788	Endevco	11/16/2023	
	Y		P51668	Endevco	11/16/2023	
	Z		P83322	Endevco	11/16/2023	
Displacement Potentiometer	Shoulder		Y			
	Thoracic Rib	Upper	Y	1199GFE	Servo	11/17/2023
		Middle	Y	1246GFE	Servo	11/17/2023
		Lower	Y	011GFE	Servo	11/17/2023
	Abdominal Rib	Upper	Y	008GFE	Servo	11/17/2023
		Lower	Y	046	Servo	11/17/2023
Lower Spine Accelerometers (T12)	X		P71272	Endevco	11/16/2023	
	Y		P51327	Endevco	11/16/2023	
	Z		P52067	Endevco	11/16/2023	
Acetabulum Load Cell		Y	270-FY	Denton	09/11/2023	
Lilac Wing Load Cell		Y	280-FY	Denton	09/11/2023	
Pelvis Plug (Struck Side)			16320	SACO	05/20/2022	
Pelvis Plug (Non-Struck Side)			16457	SACO	05/23/2022	

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	G22428	Endevco	09/27/2023
Vehicle Center of Gravity	Y	A315110	Measurement Specialties	12/09/2023
Vehicle Center of Gravity	Z	A398318	Measurement Specialties	09/13/2023
Left Floor Sill	Y	G24198	Endevco	09/05/2023
A-Pillar Sill	Y	A290917	Measurement Specialties	11/29/2023
A-Pillar Low	Y	A431199	Measurement Specialties	12/08/2023
A-Pillar Mid	Y	A335492	Measurement Specialties	09/09/2023
B-Pillar Sill	Y	A335439	Measurement Specialties	12/08/2023
B-Pillar Low	Y	G23679	Endevco	10/25/2023
B-Pillar Mid	Y	G22108	Endevco	09/19/2023
Driver Seat	Y	A315125	Measurement Specialties	10/24/2023
Engine Top	X	G23654	Endevco	09/12/2023
Engine Top	Y	A373180	Measurement Specialties	09/12/2023
Firewall	Y	A431211	Measurement Specialties	10/16/2023
Right Roof	Y	A370896	Measurement Specialties	09/30/2023
Right Floor Sill	Y	G22444	Endevco	10/26/2023
Rear Floorpan	X	G22712	Endevco	09/27/2023
Rear Floorpan	Y	G23445	Endevco	09/28/2023

Table 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	1220AF-1277329-F0	Interface	07/18/2023
Load Cell 2	1220AF-1117017-F0	Interface	07/18/2023
Load Cell 3	1220AF-1117025-F0	Interface	07/18/2023
Load Cell 4	1220AF-1130989-F0	Interface	07/18/2023
Load Cell 5	1220AF-1281288-F0	Interface	07/18/2023
Load Cell 6	1220AF-1281285-F0	Interface	07/18/2023
Load Cell 7	1220AF-1117035-F0	Interface	07/18/2023
Load Cell 8	1220AF-1117011-F0	Interface	07/18/2023