

REPORT NUMBER: 214P-CAL-25-007

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
DYNAMIC SIDE IMPACT PROTECTION
RIGID POLE TEST**

**General Motors DE Mexico, S. DE R.L. DE CV
2025 Cadillac Optiq
5 Door SUV**

NHTSA No: C20250103

**PREPARED BY:
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April 22, 2025

FINAL REPORT

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

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Date: April 22, 2025

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FINAL REPORT ACCEPTANCE BY OVSC:

EDWARD E CHAN Digitally signed by EDWARD E
CHAN
Date: 2025.04.24 10:57:36 -04'00'

Accepted by _____

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16. Abstract A 31.00 km/h (19.3 mph), 75° oblique compliance test was conducted on the subject 2025 Cadillac Optiq 5 Door SUV in accordance with the specifications of the Office of Vehicle Safety Compliance TP-214P-01 for the determination of FMVSS No.214 Side Impact Protection compliance. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on April 11, 2025. The impact velocity of the vehicle was 30.99 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 154 mm located at level 3. The test vehicle's occupant performance data is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (ES-2re)</th> </tr> <tr> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC36)</td> <td></td> <td>1000</td> <td>380.959</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>44</td> <td>36.818</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>1062.503</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>1518.823</td> </tr> </tbody> </table> 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.						Measurement Description	Driver ATD (ES-2re)			Units	IARV	Result	Head Injury Criteria (HIC36)		1000	380.959	Maximum Thoracic Rib Deflection	mm	44	36.818	Total Abdominal Force	N	2500	1062.503	Pubic Symphysis Force	N	6000	1518.823
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17. Key Words Compliance Testing Side Impact Protection Pole Test ES-2re SID-IIs				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services (TIS) Room E12-100 East Bldg. 1200 New Jersey Ave. Washington, D.C. 20590 Telephone No. (202) 366-2588																								
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Form DOT F1700.7 (8-72)

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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This side impact test was conducted as part of the FY 2025 FMVSS 214 Side Impact Protection Compliance Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ923D000043. The purpose of this test was to evaluate side impact protection in a 2025 Cadillac Optiq 5 Door SUV. The side impact test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure, TP-214P-01 dated September 2012.

SUMMARY

A rigid pole side impact test was conducted on a 2025 Cadillac Optiq 5 Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 30.99 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on April 11, 2025. Pre-test and post-test photographs of the test vehicle and side impact dummy (ES2re) are included in Appendix I of this report.

One Part 572U (ES-2re) dummy was placed in the driver designated seating position according to instructions specified in the TP-214P-01 Test Procedure, dated September 2012. The side impact event was documented by nine High Speed Cameras and one real time camera.

The ES2re male dummy was instrumented accordingly:

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

Appendix II contains the dummy response data. Dummy configuration and performance verification data can be found in Appendix IV of this report. Appendix V 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 ES2re dummy were recorded as follows:

INJURY READINGS

Measurement Description	Driver ATD (ES2re)		
	Units	IARV	Result
Head Injury Criteria (HIC36)		1000	380.959
Upper Rib Deflection	mm	44	36.818
Mid Rib Deflection	mm	44	32.472
Lower Rib Deflection	mm	44	33.079
Abdominal Load (front)	N		271.212
Abdominal Load (mid)	N		353.193
Abdominal Load (rear)	N		497.746
Total Abdominal Force	N	2500	1062.503
Pubic Symphysis Force	N	6000	1518.823

SECTION 2

OCCUPANT AND VEHICLE INFORMATION

This section contains information reporting for the following Data Sheets:

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DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20250103
 Test Date: 04/11/2025

TEST VEHICLE INFORMATION AND OPTIONS

Make	Cadillac	Anti-Lock Brakes (ABS)	Yes
Model	Optiq	All-Wheel Drive (AWD)	Yes
Body Style	SUV	Traction Control System (TCS)	Yes
VIN	3GYK3EMR3SS147277	Electric Stability Control (ECS)	Yes
Body Color	Monarch Orange	Curtain Airbags	Yes
Engine Displacement (L)	Electric Vehicle	Torso Airbags – Front Seats	Yes
Type / No. Cylinders	N/A	Torso Airbags – Rear Seats	No
Engine Placement	N/A	Combination/Head Torso Bag	No
Transmission Type	Automatic	Pelvic Airbag – Front Seats	No
Transmission Speeds	Direct Drive	Pelvis Airbag – Rear Seats	No
Overdrive	No	Knee Airbag – Driver	Yes
Final Drive	All Wheel Drive	Knee Airbag – Front Passenger	Yes
Odometer Reading (mi)	21 miles	Seat Belt Pretensioners – Front Seats	Yes
		Seat Belt Pretensioners – Rear Seats	Yes
		Seat Belt Load Limiter – Front Seats	Yes
		Seat Belt Load Limiter – Rear Seats	Yes
		Tire Pressure Monitoring System (TPMS)	Yes
		Tilt Steering Wheel	Yes
		Automatic Door Locks (ADL)	Yes
		Power Window Auto-reverse	Yes
		Power Seats	Yes
		Other Safety Restraint - Center Seat Airbag	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors DE Mexico, S. DE R.L. DE CV	GVWR (kg)	2900
Date of Manufacture	11/2024	GAWR Front (kg)	1450
Vehicle Type	MPV	GAWR Rear (kg)	1530

VEHICLE SEATING AND WEIGHT CAPACITY DATA

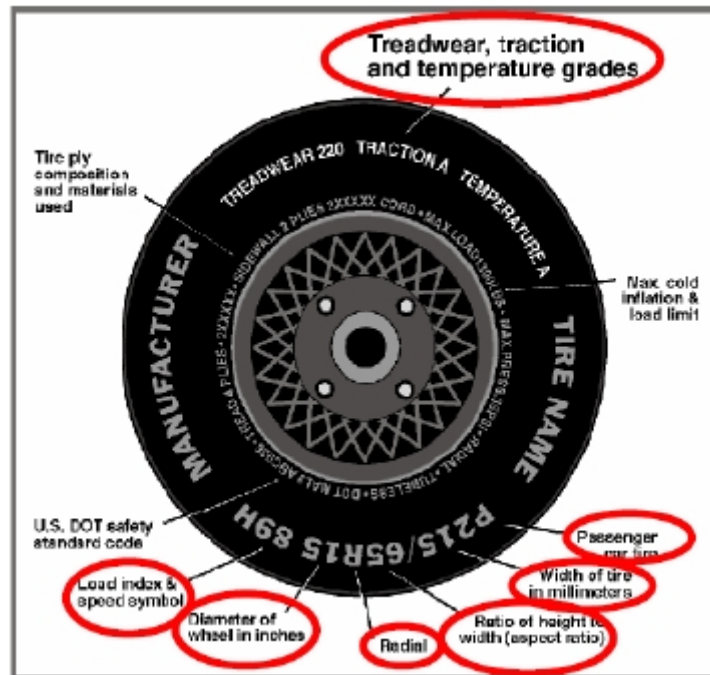
Measured Parameter	Front	Rear	Third	Total
Type of Seats (Bench or Bucket)	Bucket	Split Bench	N/A	
Designated Seating Capacity (DSC)	2	3	N/A	5
Capacity Weight (VCW) (kg)				542
Cargo Weight (RCLW) (kg)				136

DATA SHEET NO. 2 VEHICLE TIRE INFORMATION

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025

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



VEHICLE TIRE INFORMATION

Tire Placard	Front	Rear
Recommended Cold Pressure (kPa)	290	290
Recommended Tire Size	245/50R20	245/50R20
Tire Sidewall	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Tire Size on Vehicle	245/50R20	245/50R20
Tire Manufacturer Model	Continental	Continental
Tire Name	CrossContact RX	CrossContact RX
Tire Type	All Season	All Season
Tire Width	245	245
Aspect Ratio	50	50
Radial	Yes	Yes
Wheel Diameter	20"	20"
Load Index / Speed Symbol	105H	105H
Treadwear	480	480
Traction Grade	A	A
Temperature Grades	A	A

DATA SHEET NO. 3
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	290	287	285	290
Tire Placard	kPa	290	290	290	290

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			Fully Loaded			As Tested		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	618	560		651	656		641	647	
Right	kg	610	549		618	632		630	629	
Ratio	%	52.5	47.5		49.6	50.4		49.9	50.1	
Totals	kg	1228	1109	2337	1269	1288	2557	1271	1276	2547

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	2337	(A)
Weight of Test Dummy	kg	81	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	136	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2554	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	As Delivered	Fully Loaded	As Tested
Driver Door Sill Angle	Deg	+0.20	+0.30	+0.20
Front Passenger Sill Angle	Deg	+0.7	+0.65	+0.65
Front Bumper-Line Angle	Deg	-0.30	-0.35	-0.30
Rear Bumper-Line Angle	Deg	+0.0	-0.20	-0.20

ND = Nose Down (-), NU = Nose Up (+), LD = Left Down (-), LU = Left Up (+)

CALCULATION OF VERTICAL IMPACT REFERENCE LINE

Measured Parameter	Units	Value
Test Vehicle Wheelbase	mm	2951
Vertical Impact Reference Line Aft of Front Axle	mm	1466

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	14
Rear Speaker	1
Carger Kit	3
Tow Hook	1
Ballast (if any)	77

DATA SHEET NO. 4
SEAT AND SEAT BELT ANCHORAGE ADJUSTMENT DATA

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

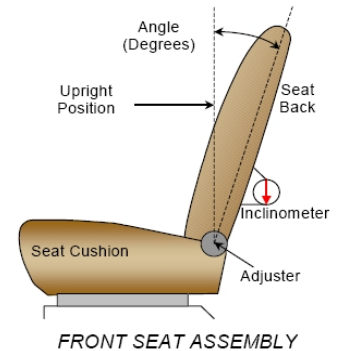
NHTSA No.: C20250103
Test Date: 04/11/2025

SEAT BACK ANGLE ADJUSTMENT

The driver and passenger seat backs are positioned to the manufacturer's designated angle provided in the Form1.

	Units	Seat Back Angle
Driver Seat	Degrees	19.5
Front Passenger Seat	Degrees	19.5

*Measurement taken on seatback



SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	SCR P Height Position	SCR P Height (mm)		
			Rearmost	Mid-Fore / Aft	Forward-Most
Driver Seat	15.3	Max	70	77	82
		Mid	35	43	49
		Min	0	8	15
Front Passenger Seat	14.6	Max	-	-	-
		Mid	-	-	-
		Min	13	20	27

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Placed in Position #	
	mm	Detents*	mm	Detents*
Driver Seat	259	Power	129.5	Power
Front Passenger Seat	259	Power	129.5	Power

SEAT BELT ANCHORAGE ADJUSTMENT

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

HEAD RESTRAINT ADJUSTMENT

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

DATA SHEET NO. 5
FUEL SYSTEMS AND STEERING WHEEL POSITION DATA

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20250103
 Test Date: 04/11/2025

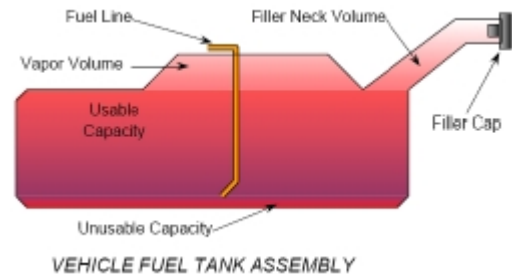
FUEL TANK CAPACITY DATA

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

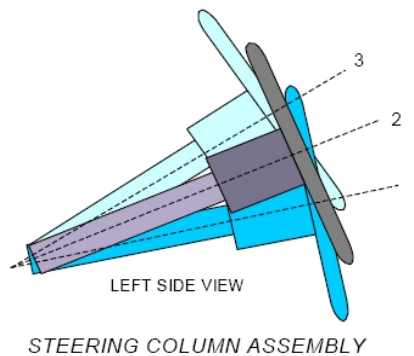
FUEL PUMP

Describe the operation of the fuel pump.

The vehicle is equipped with a charge port on the Left Front of the vehicle.



STEERING COLUMN POSITIONS

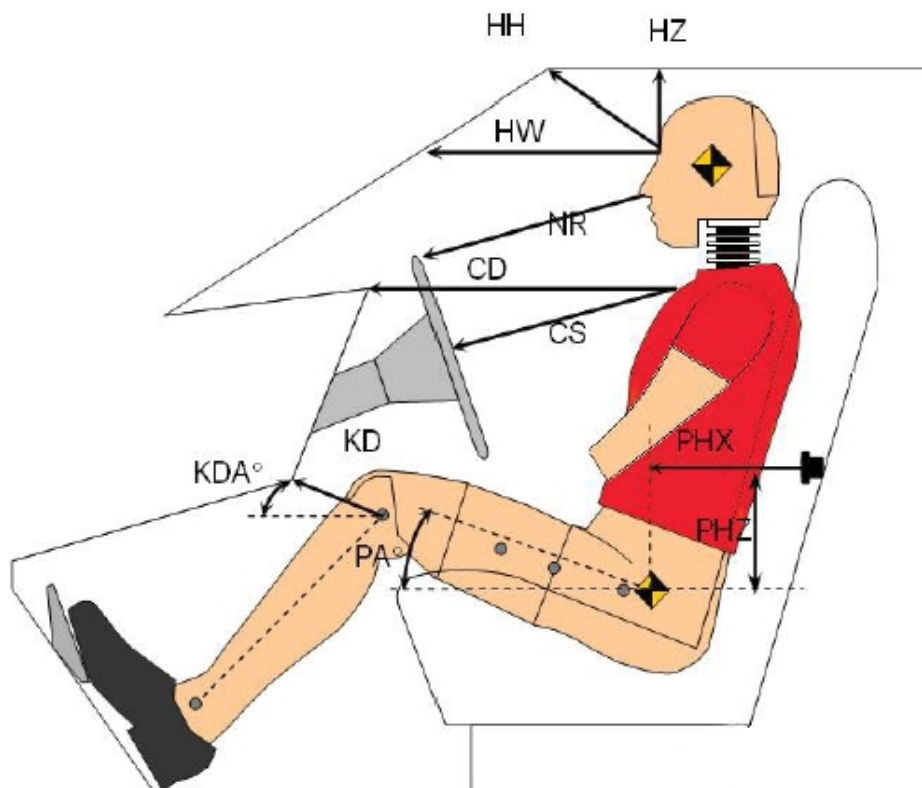


	Degrees	Fore / Aft Position (mm)
Lowermost - Position No. 1	19.9	
Geometric center - Position No. 2	21.9	
Uppermost - Position No. 3	23.9	
Telescoping Steering Wheel Travel		52
Test Position	21.9	26

DATA SHEET NO. 6
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20250103
 Test Date: 04/11/2025



Left Side View

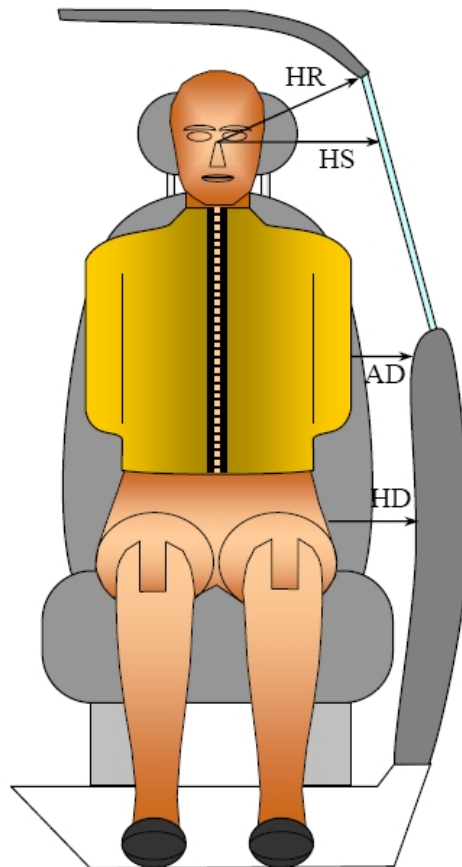
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	464	
HW	Head to Windshield	766	
HZ	Head to Roof Liner	224	
NR	Nose to Rim	466	
CD	Chest to Dash	652	
CS	Chest to Steering Wheel	409	
KD(L) / KDA(L)°	Left Knee to Dash	255	31.2
KD(R) / KDA(R)°	Right Knee to Dash	232	27.7
PAX°	Pelvic Tilt Angle (X-Axis)		24.2
PAY°	Pelvic Tilt Angle (Y-Axis)		-1.6
PHX	Hip Point to Striker (X-Axis)	173	
PHZ	Hip Point to Striker (Z-Axis)	162	

DATA SHEET NO. 7
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20250103
 Test Date: 04/11/2025



FRONT VIEW OF DUMMY

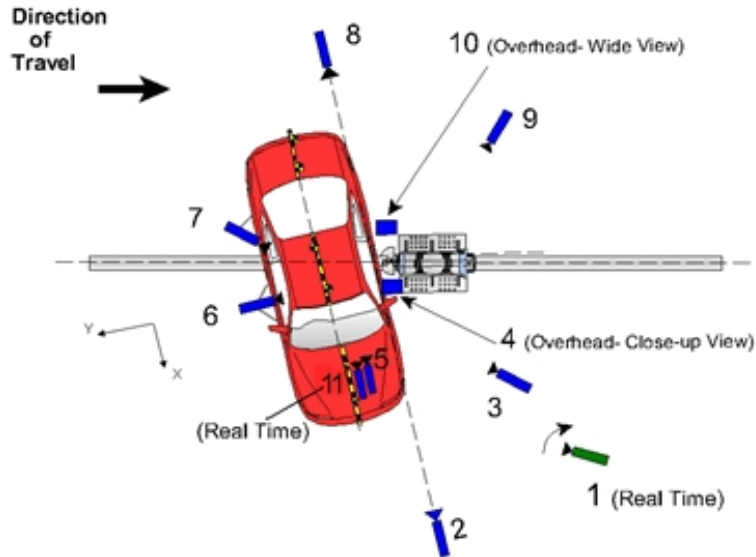
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	227
HS	Head to Side Window	mm	354
AD	Arm to Door	mm	94
HD	H-Point to Door	mm	157

DATA SHEET NO. 8 **LOCATION OF CAMERA**

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025



CAMERA LOCATIONS AND DATA

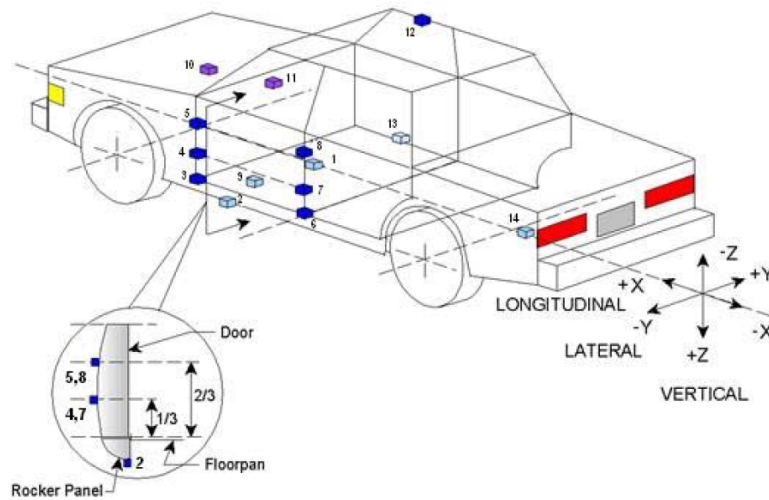
No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real-time (24 - 30 fps) pan view of impact				Zoom	30
2	Front ground level - impact view	7765	0	-1489	28	1000
3	Impact side 45° - forward pole view	5034	-782	-1420	24	1000
4	Overhead Close-up view of impact	0	0	-9375	28	1000
5	Onboard - dummy front view				25	1000
6	Onboard - dummy side view				12.5	1000
7	Onboard - dummy rear oblique view				12.5	1000
8	Rear ground level - impact view	-8910	0	-1489	28	1000
9	Impact side 45° - rearward pole view	-3923	-4103	-1532	24	1000
10	Overhead wide - view of impact	0	0	-9375	12.5	1000

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.*

DATA SHEET NO. 9
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2570	17	-297
2	Left Floor Sill	2773	-667	159
3	A-Pillar Sill	3169	-645	175
4	A-Pillar Low	3221	-644	-121
5	A-Pillar Mid	3313	-663	-576
6	B-Pillar Sill	2120	-691	107
7	B-Pillar Low	2155	-685	-99
8	B-Pillar Mid	2108	-667	-508
9	Seat	2353	-556	142
10	Engine	4119	90	-309
11	Firewall	3579	6	-237
12	Roof	1987	582	-1017
13	Right Floor Sill	2779	672	144
14	Rear Deck	828	27	-12

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

DATA SHEET NO. 10
TEST VEHICLE ACCELEROMETER DATA SUMMARY

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025

Loc. No	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Max	Time (ms)
1	Vehicle CG	X	g	37.80	58.90	-29.29	82.75
	Vehicle CG	Y	g	88.88	54.75	-33.43	77.45
	Vehicle CG	Z	g	37.24	64.55	-24.29	75.25
	Vehicle CG Resultant	N/A	g	89.01	54.70	0.04	-30.20
2	Floor Sill (Left)	Y	g	76.39	18.00	-33.68	22.05
3	A Pillar Sill	Y	g	90.40	46.10	-78.86	38.75
4	A Pillar Low	Y	g	101.85	40.25	-51.15	35.20
5	A Pillar Mid	Y	g	58.60	27.20	-20.54	47.70
6	B Pillar Sill	Y	g	2338.03	108.00	-2420.31	53.80
7	B Pillar Low	Y	g	102.01	17.00	-18.18	53.20
8	B Pillar Mid	Y	g	115.58	18.35	-36.71	13.55
9	Seat	Y	g	50.74	15.00	-1.93	110.15
10	Engine Top	X	g	5.61	68.75	-17.17	38.10
	Engine Top	Y	g	39.06	41.80	-7.50	28.05
11	Firewall	Y	g	37.16	17.55	-1.21	202.95
12	Roof	Y	g	35.58	23.40	-8.23	16.85
13	Floor Sill (Right)	Y	g	46.36	19.35	-1.49	81.75
14	Rear Deck	X	g	53.14	33.20	-23.33	27.70
	Rear Deck	Y	g	51.97	27.85	-5.35	83.25

DATA SHEET NO. 11
DUMMY INJURY RESPONSE DATA
(Subpart U, ES-2re)

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV

NHTSA No.: C20250103

Test Facility: Calspan

Test Date: 04/11/2025

Dummy Serial No. DG5348

Description	Axes	Positive Direction		Negative Direction	
		Max	Time (ms)	Max	Time (ms)
HEAD ACCELERATION (g)					
Longitudinal	X	16.82	78.75	-33.80	57.75
Lateral	Y	50.85	51.65	-5.79	82.75
Vertical	Z	27.81	52.45	-11.93	77.80
Resultant	N/A	59.14	52.40		
HIC36 (t1, t2)	N/A	380.96		t1 = 41.10	t2 = 65.30
THORAX DEFLECTION (mm)					
Upper Rib	Y	36.82	50.50	0.00	-13.30
Middle Rib	Y	32.47	49.80	-1.22	76.35
Lower Rib	Y	33.08	50.55	-0.90	76.80
ABDOMINAL FORCES (N)					
Front	Y	271.21	36.40	-22.30	18.30
Middle	Y	353.19	46.85	-3.81	79.90
Rear	Y	497.75	47.80	-8.52	70.00
SUM	N/A	1062.50	46.85		
PELVIS FORCES (N)					
Pubic Symphysis	Y	213.36	68.70	-1518.82	48.00

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

DATA SHEET NO. 12
POST-TEST OBSERVATIONS

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025

IMPACT POINT DATA

Measured Parameter	Units	Value
Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt	mm	1466
Actual Impact Point - Aft of Front Axle	mm	1469
Difference	mm	3

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver Seat Dummy (ES2-re)
Head Contact	Curtain Airbag, Headliner & Headrest
Upper Torso Contact	Torso/Pelvis Airbag & Seat back
Lower Torso Contact	Torso/Pelvis Airbag & Seat back
Left Knee Contact	Door Trim
Right Knee Contact	Left Knee

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/Other
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Width of Opening at Striker (mm)	0	0	0	0	0

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

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

DATA SHEET NO. 12 ... (CONTINUED)
POST-TEST OBSERVATIONS

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025

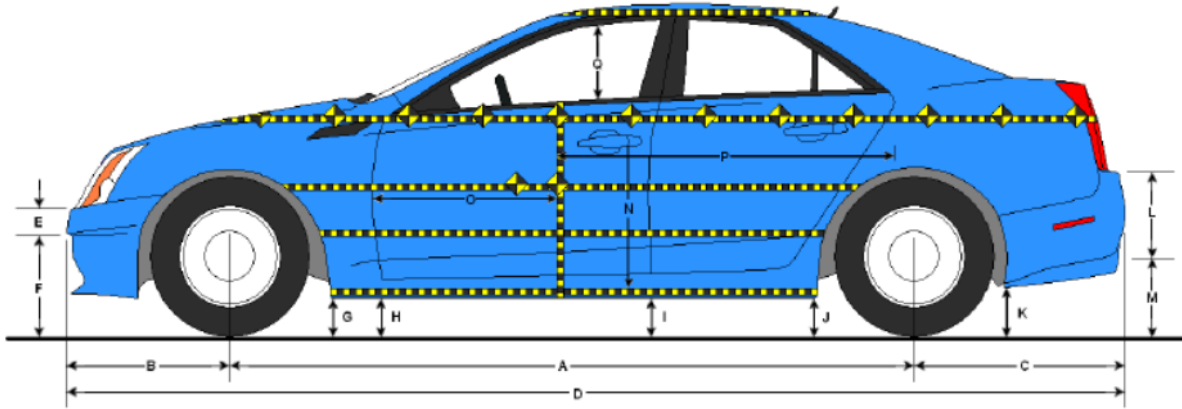
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

DATA SHEET NO. 13
VEHICLE PRE TEST AND POST TEST MEASUREMENTS

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20250103
 Test Date: 04/11/2025



LEFT SIDE VIEW

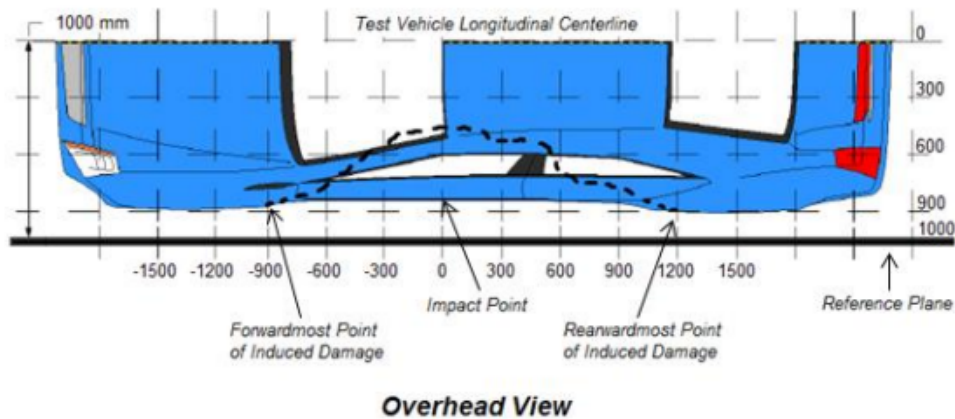
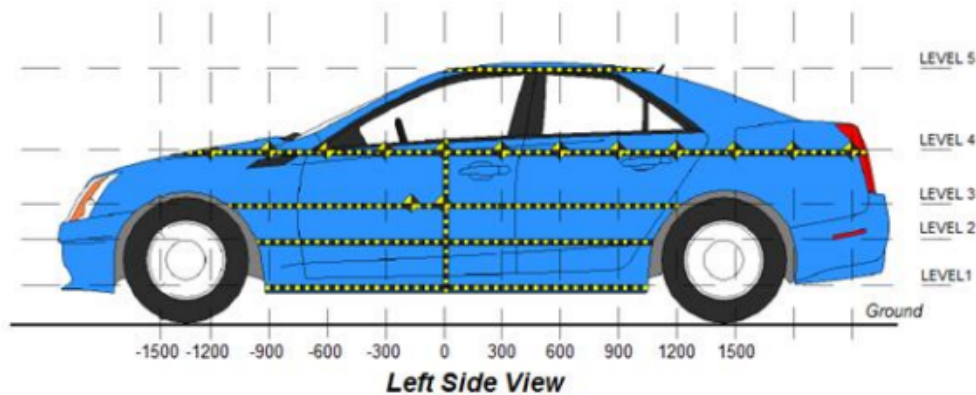
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

No.	Measurement Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2951	2949	-2
B	Front Axle to FSOV	955	959	5
C	Rear Axle to RSOV	918	909	-9
D	Total Vehicle Length at Centerline	4824	4818	-6
E	Front Bumper Thickness	80	80	0
F	Front Bumper Bottom to Ground	454	459	5
G	Sill Height at Front Wheel Well	215	214	-1
H	Sill Height at Front Door Leading Edge	228	229	1
I	Sill Height at B Pillar	220	217	-3
J1	Sill Height at Rear Wheel Well	220	227	7
J2	Pinch Weld Height at Rear Wheel Well	222	226	4
K	Sill Height Aft of Rear Wheel Well	278	275	-3
L	Rear Bumper Thickness	135	135	0
M	Rear Bumper Bottom to Ground	506	492	-14
N	Sill Height to Window Bottom Sill	877	880	3
O	Front Door Leading Edge to Impact CL	903	888	-15
P	Rear Door Trailing Edge to Impact CL	1289	1270	-19
Q	Front Window Opening	342	342	0
R	Right Side Length	4692	4690	-3
S	Left Side Length	4689	4674	-16
T	Vehicle Width at B-Pillars	1902	1878	-24

DATA SHEET NO. 14
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20250103
 Test Date: 04/11/2025



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	328	80	0
2	Occupant H-Point	mm	656	152	0
3	Mid-Door	mm	707	154	0
4	Window Sill	mm	1070	151	0
5	Window Top	mm	1535	1	1350

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. 14
VEHICLE EXTERIOR CRUSH MEASUREMENTS (CONTINUED)

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20250103
 Test Date: 04/11/2025

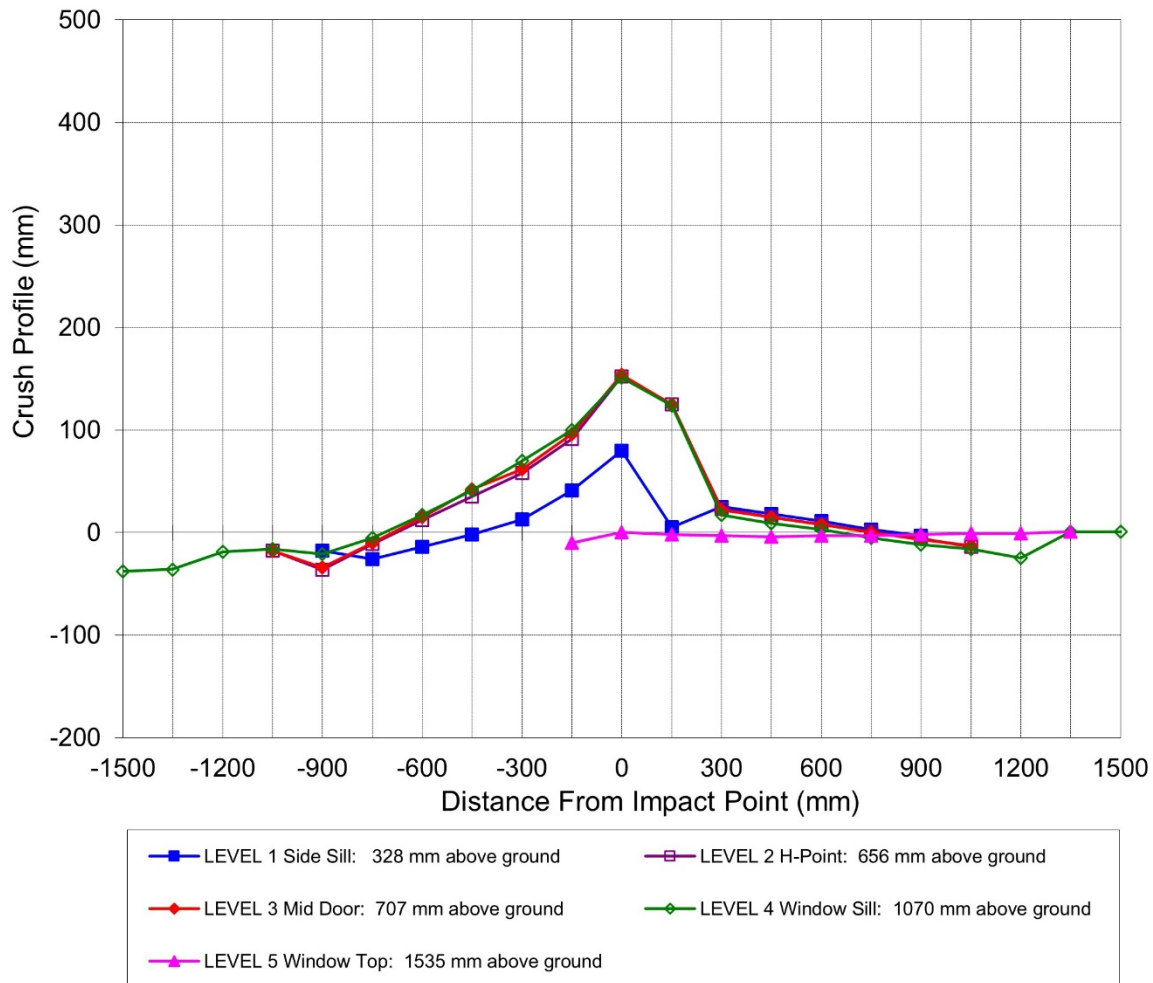
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500				798					836					-38	
-1350				812					848					-36	
-1200				823					842					-19	
-1050		943	948	838			961	966	854			-18	-18	-16	
-900	920	942	944	854		938	978	978	875		-18	-36	-34	-21	
-750	915	941	943	910		941	952	953	915		-26	-11	-10	-5	
-600	915	940	942	874		929	928	927	857		-14	12	15	17	
-450	915	939	941	882		917	904	899	841		-2	35	42	41	
-300	914	938	939	890		901	880	877	820		13	58	62	70	
-150	913	938	938	895	640	872	847	842	795	650	41	91	96	100	-10
0	911	938	936	900	646	831	786	782	749	646	80	152	154	151	0
150	910	937	933	902	647	905	812	808	778	649	5	125	125	124	-2
300	911	936	931	904	647	886	913	909	887	650	25	23	22	17	-3
450	909	937	931	903	645	891	922	916	894	649	18	15	15	9	-4
600	908	939	933	901	642	897	931	925	898	645	11	8	8	3	-3
750	906	942	937	896	637	903	941	937	901	640	3	1	0	-5	-3
900	905	947	944	892	630	908	953	951	904	632	-3	-6	-7	-12	-2
1050		944	950	888	619		958	963	904	620		-14	-13	-16	-1
1200				881	600				906	601				-25	-1
1350				872	566				871	565				1	1
1500				863					862					1	

DATA SHEET NO. 14
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS (CONTINUED)

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025

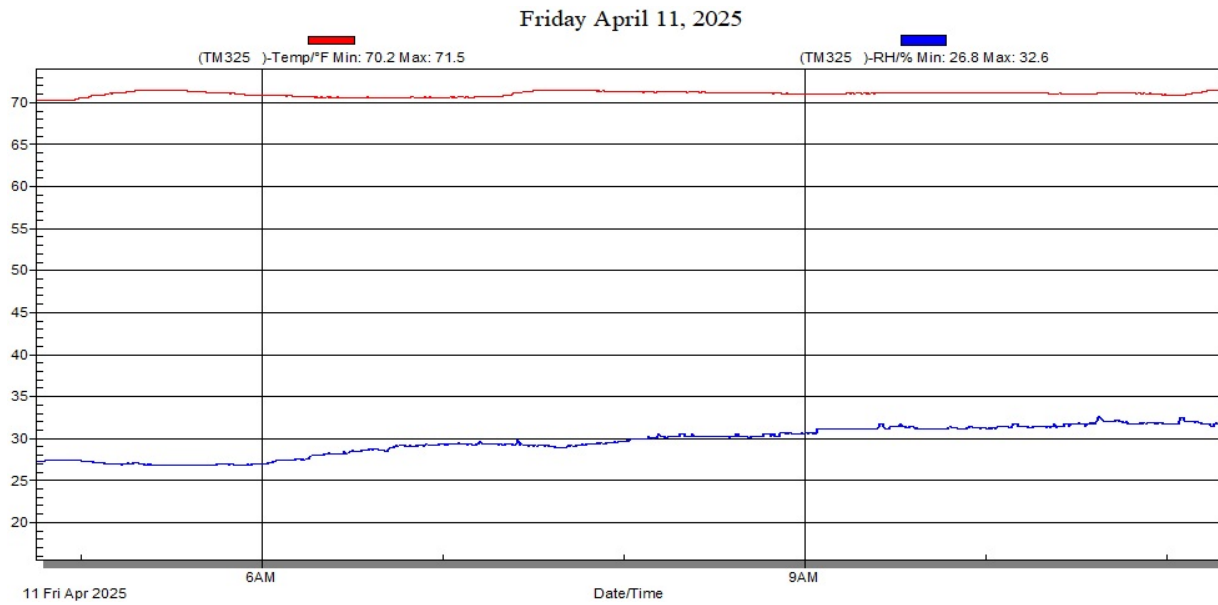


Vehicle Exterior Crush Measurements - Visual Representation

DATA SHEET NO. 16
DUMMY / VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2025 Cadillac Optiq 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20250103
Test Date: 04/11/2025



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

APPENDIX I
PHOTOGRAPHS

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



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



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



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



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

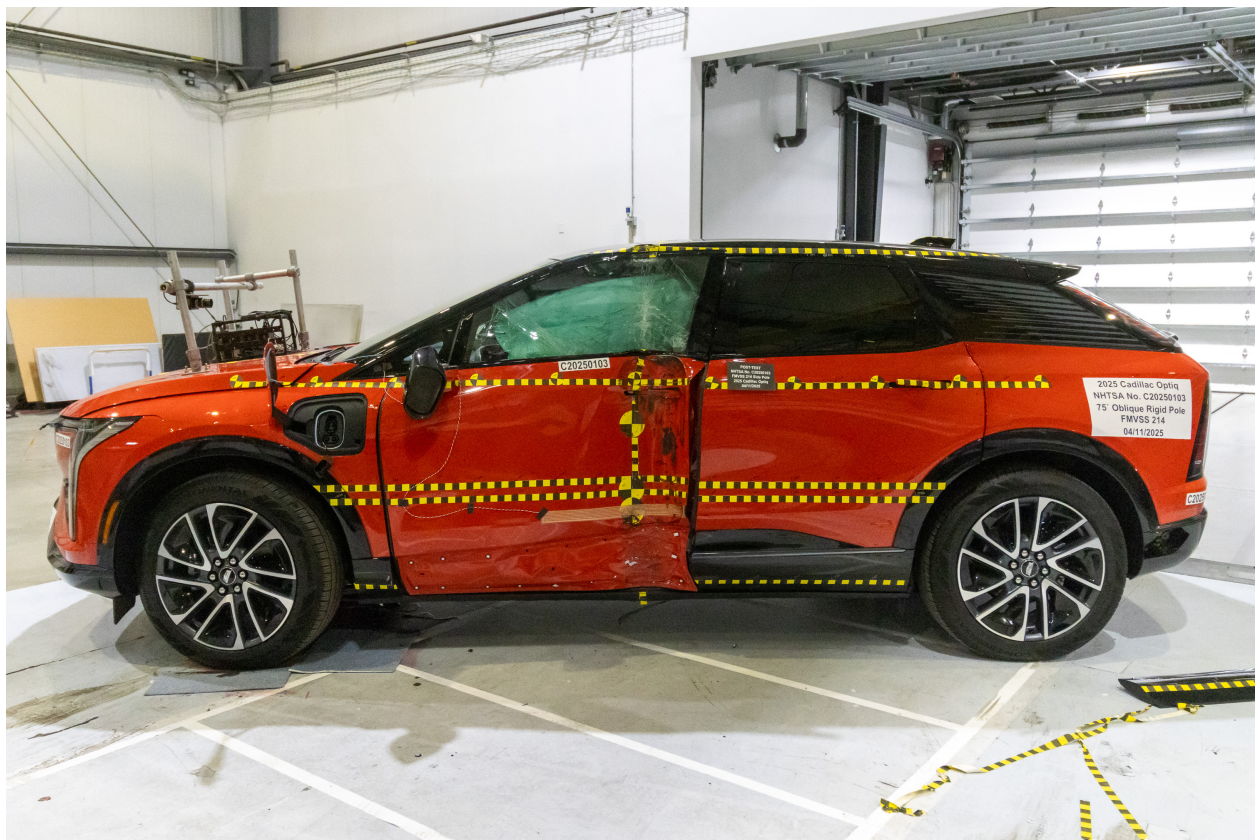


Figure A-6: Post-Test Impacted Side View of Test Vehicle



Figure A-7: Pre-Test Left $\frac{3}{4}$ Front View of Vehicle and Pole



Figure A-8: Pre-Test Left $\frac{3}{4}$ Rear View of Vehicle and Pole



Figure A-9: Pre-Test Overhead View of Test Vehicle

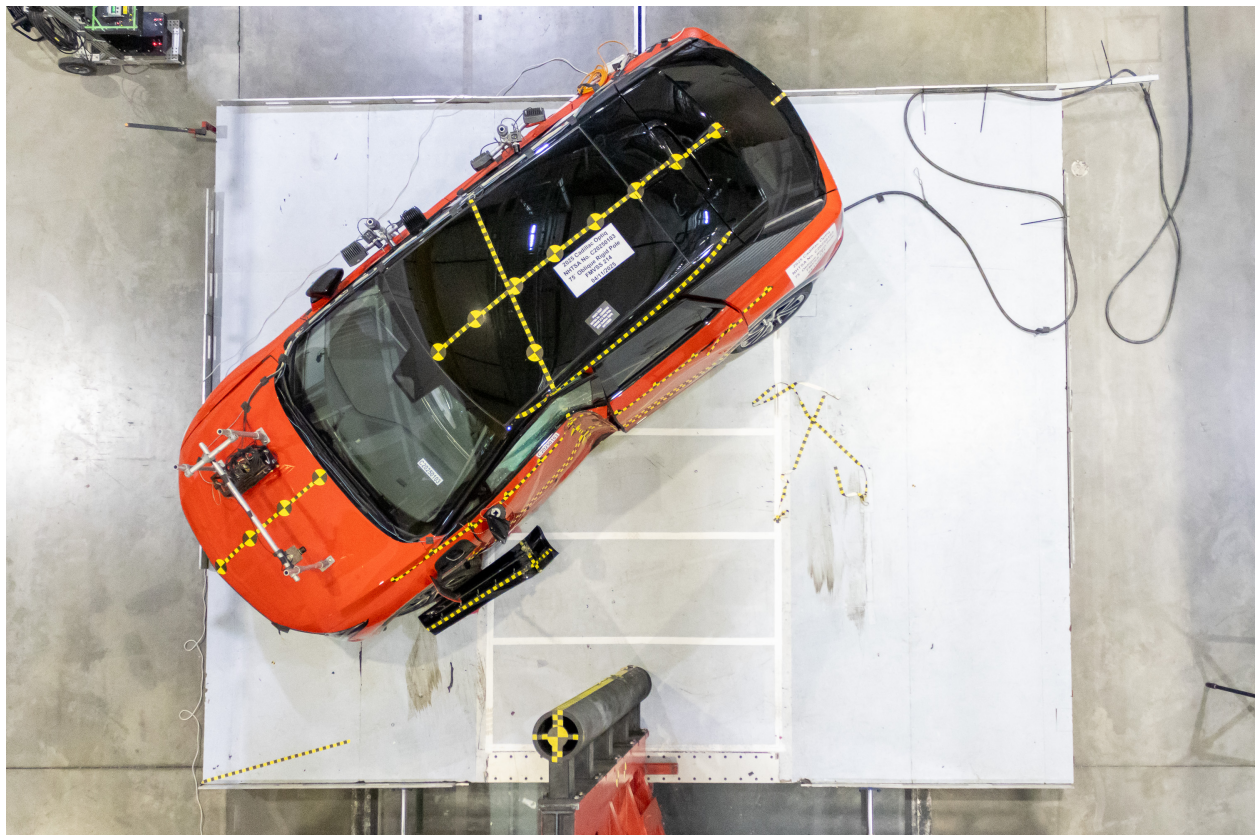


Figure A-10: Post-Test Overhead View of Test Vehicle



Figure A-11: Pre-Test Dummy Through Opposite Window



Figure A-12: Post-Test Dummy Through Opposite Window



Figure A-13: Pre-Test Close-Up of Dummy with Door Closed (Impact Side)



Figure A-14: Post-Test Close-Up of Dummy with Door Closed (Impact Side)



Figure A-15: Pre-Test Dummy with Door Open



Figure A-16: Pre-Test Dummy Shoulder and Door Top View



Figure A-17: Post-Test Dummy Shoulder and Door Top View



Figure A-18: Pre-Test Interior of Front Door Closed (through opposite window)



Figure A-19: Post-Test Interior of Front Door Showing Dummy Impact Locations

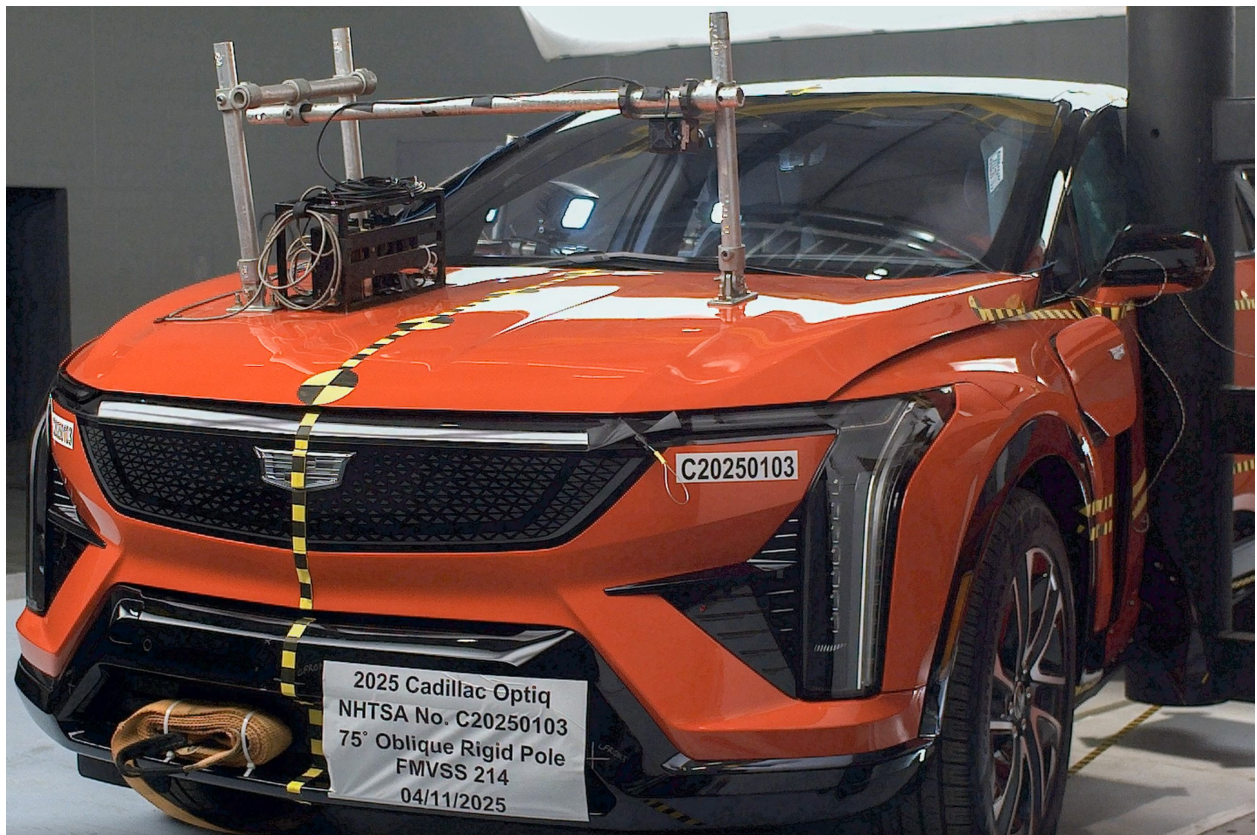


Figure A-20: Impact Event



Figure A-21: Post-Test Impact Zone Close-Up View



Figure A-22: Post-Test $\frac{3}{4}$ Front View of Impact Zone



Figure A-23: Post-Test ¾ Rear View of Impact Zone



Figure A-24: Post-Test Close-Up View of Impact Point Target



Figure A-25: Close-Up View of Vehicle's Certification Label

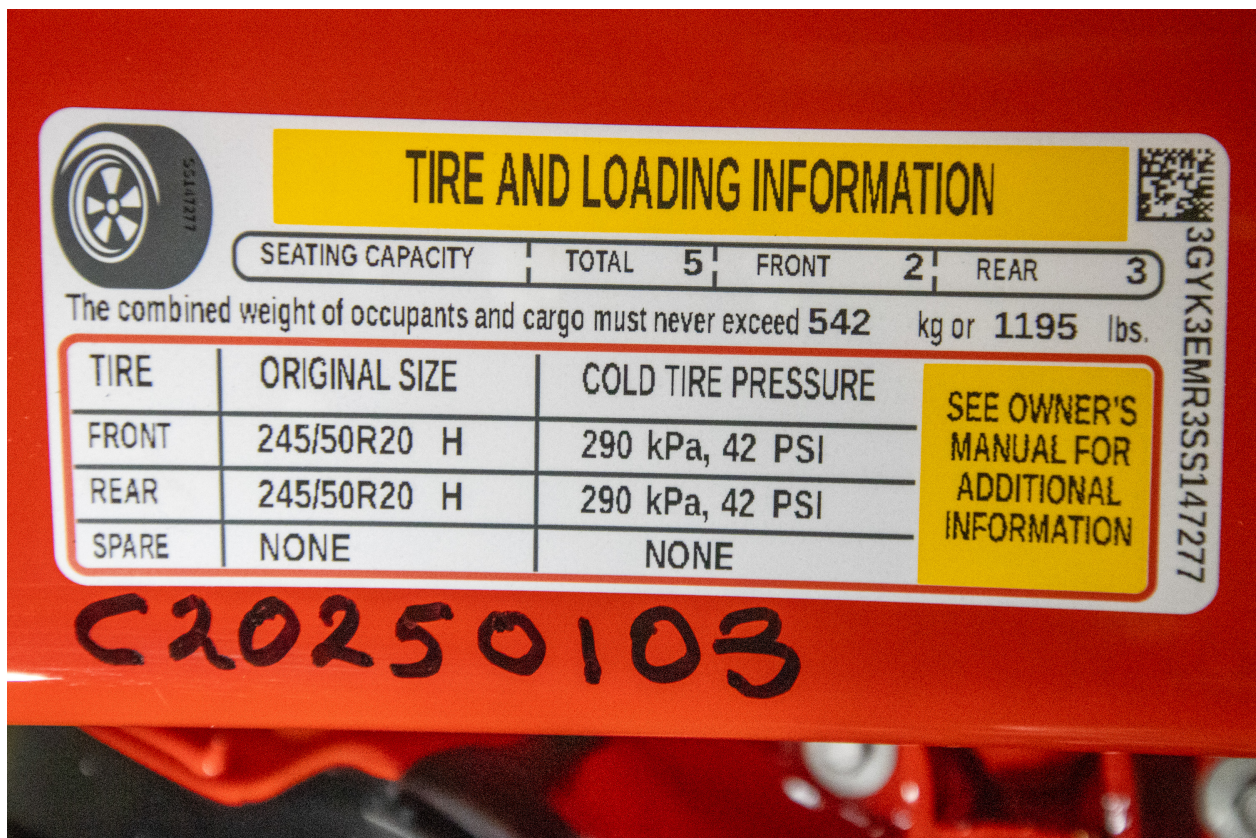


Figure A-26: Close-Up View of Vehicle's Tire Placard Label

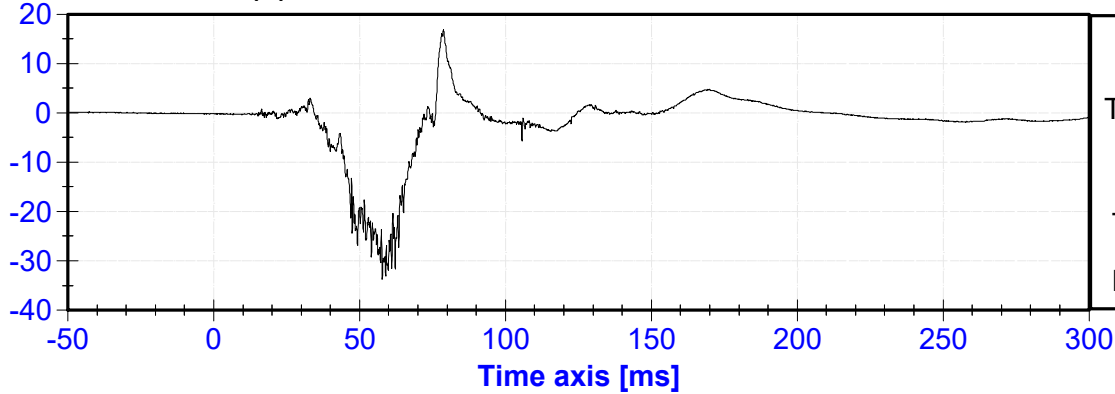
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ES-2re DUMMY RESPONSE DATA TRACES

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

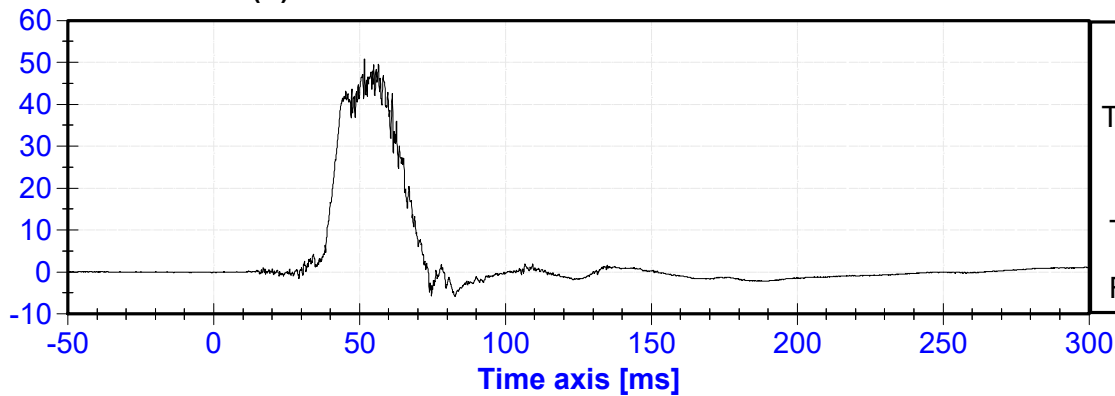
ACCELERATION [g's]

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



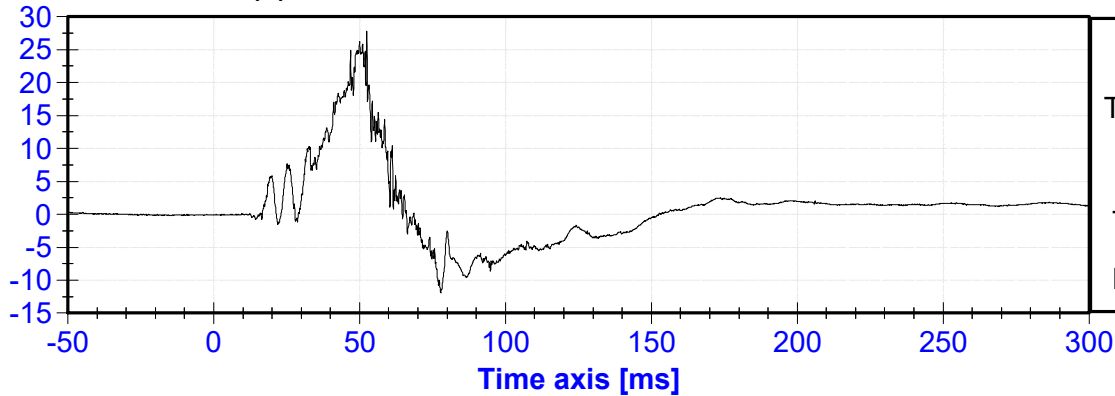
ACCELERATION [g's]

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



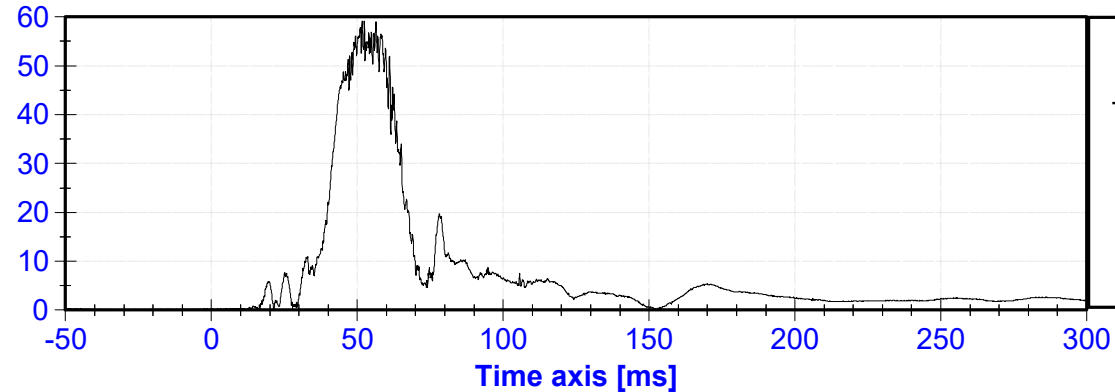
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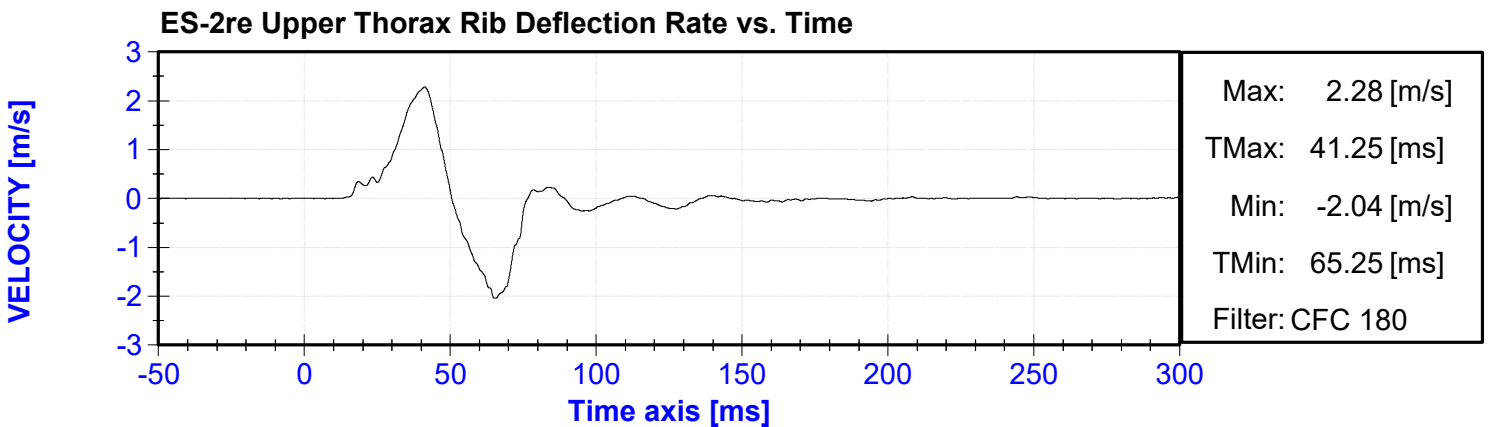
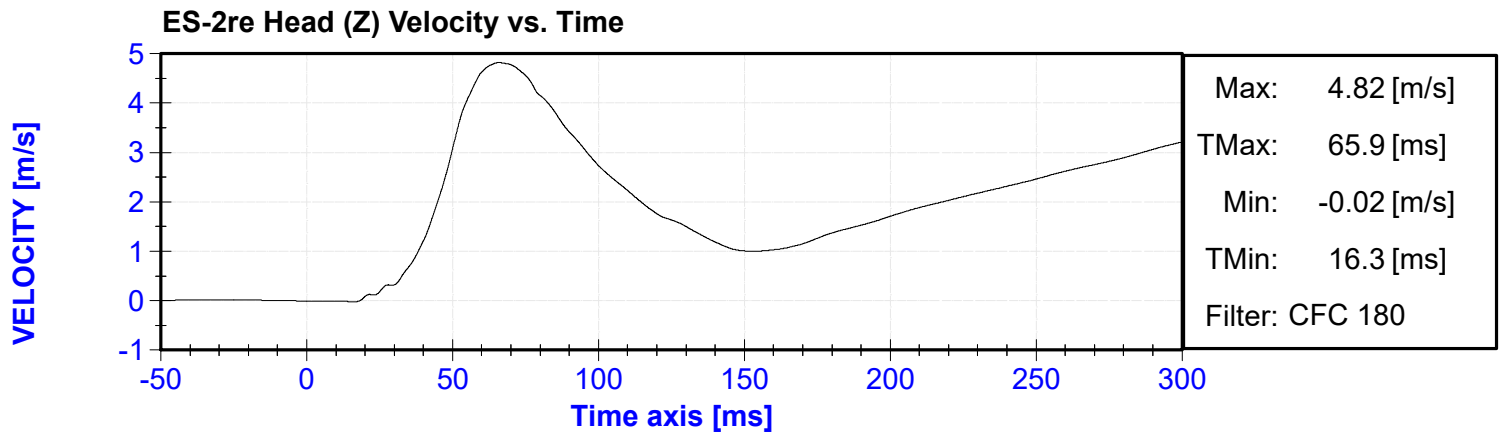
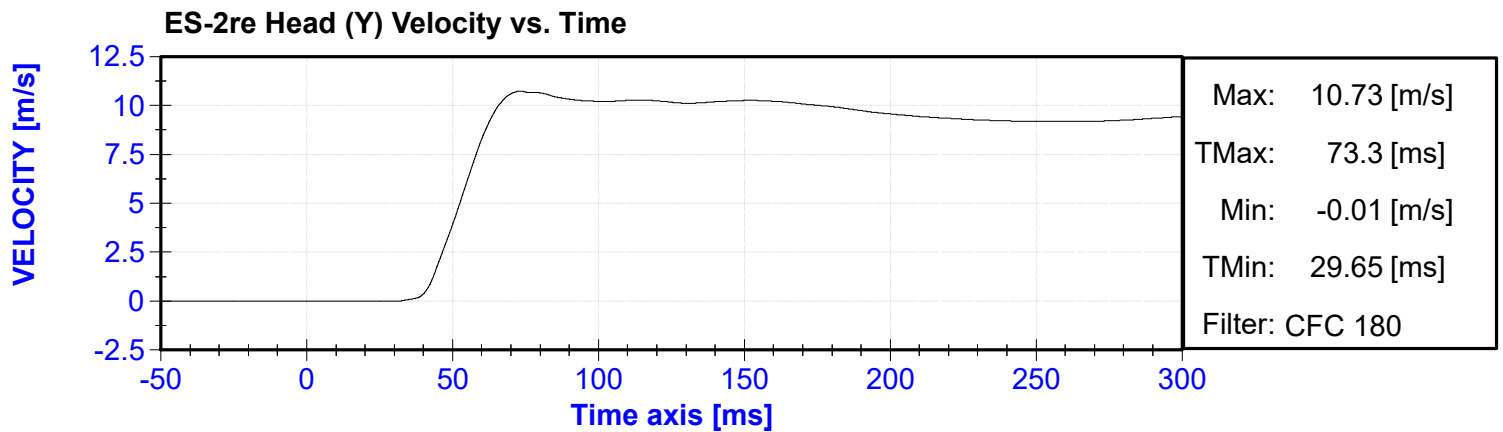
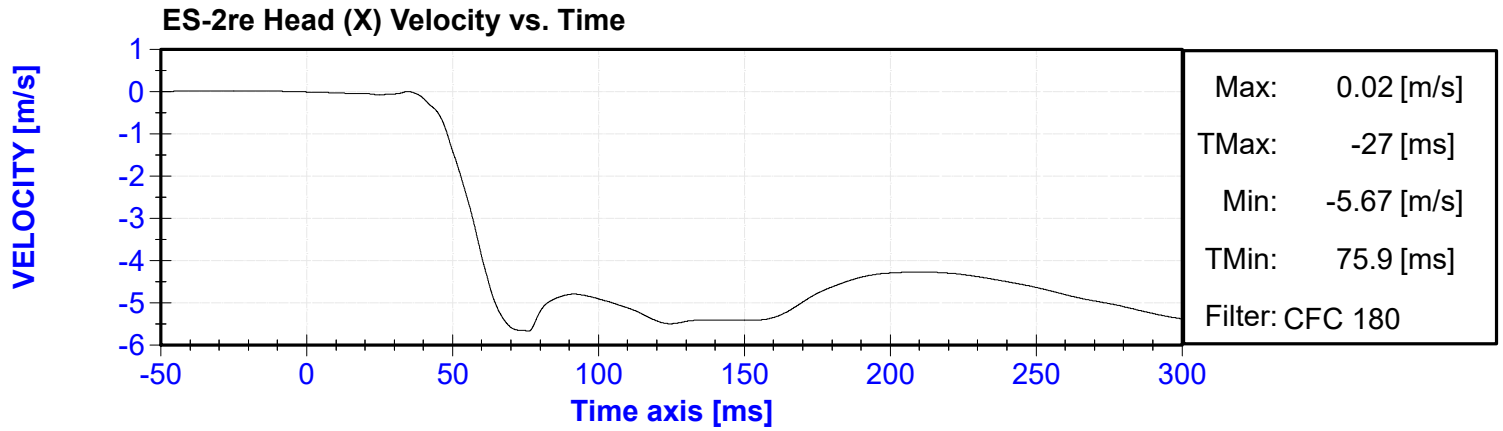
ES-2re Head (Z) Acceleration vs. Time



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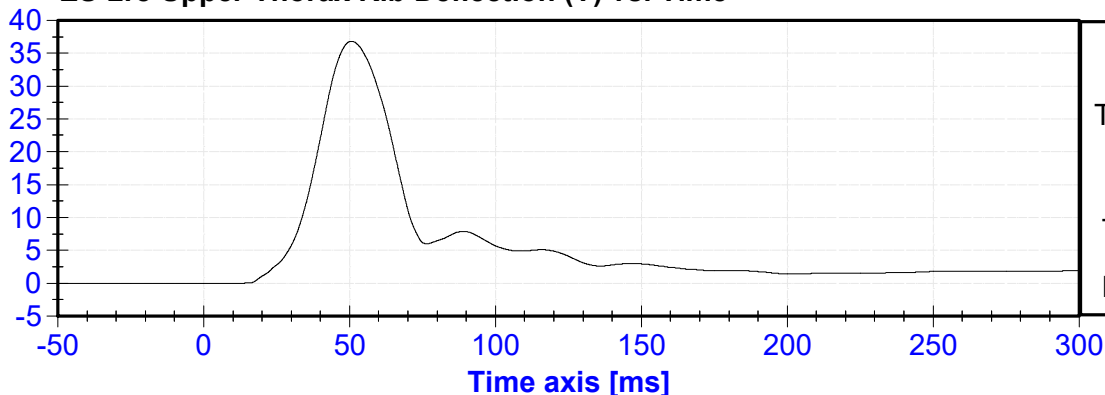
ES-2re Head Resultant Acceleration vs. Time





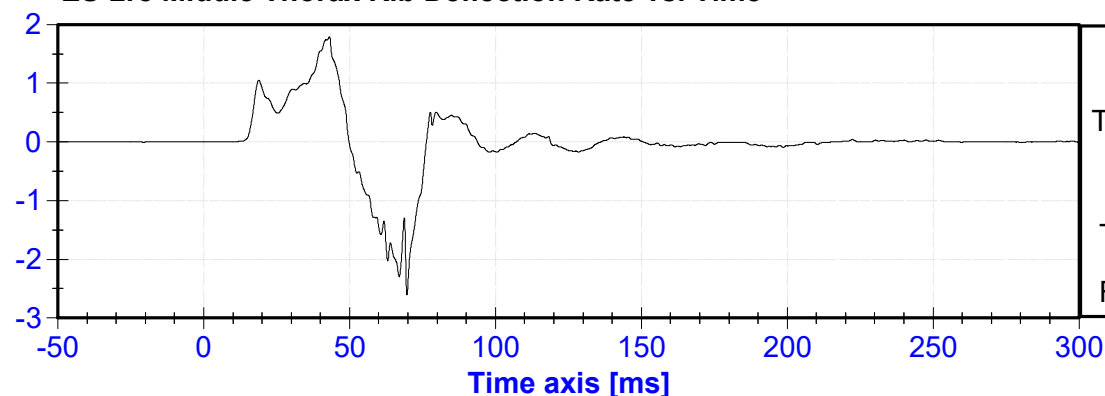
ES-2re Upper Thorax Rib Deflection (Y) vs. Time

DISPLACEMENT [mm]



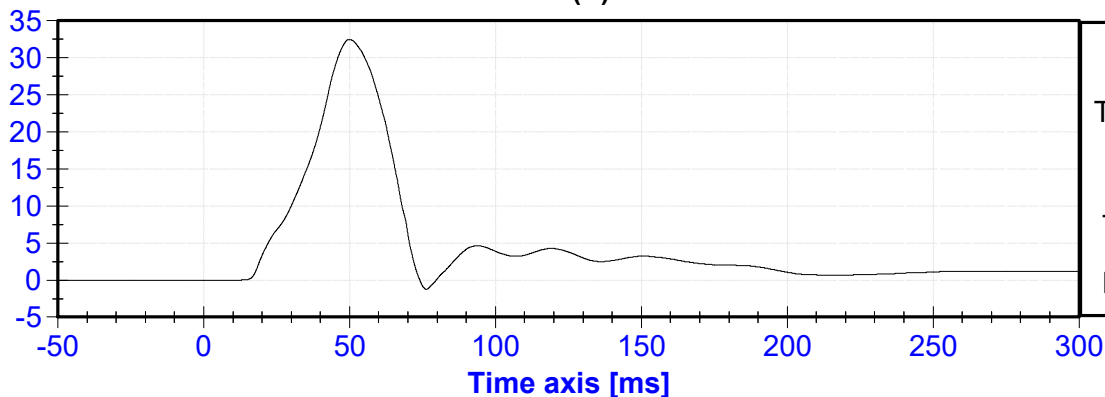
ES-2re Middle Thorax Rib Deflection Rate vs. Time

VELOCITY [m/s]



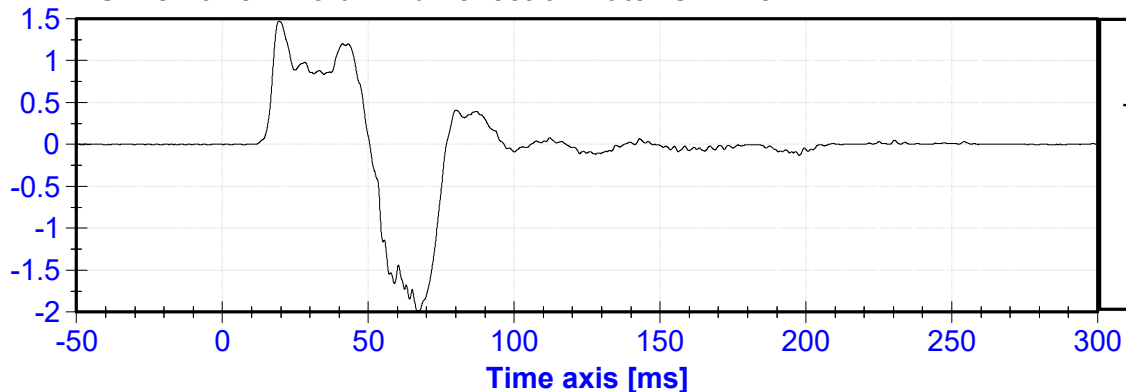
ES-2re Middle Thorax Rib Deflection (Y) vs. Time

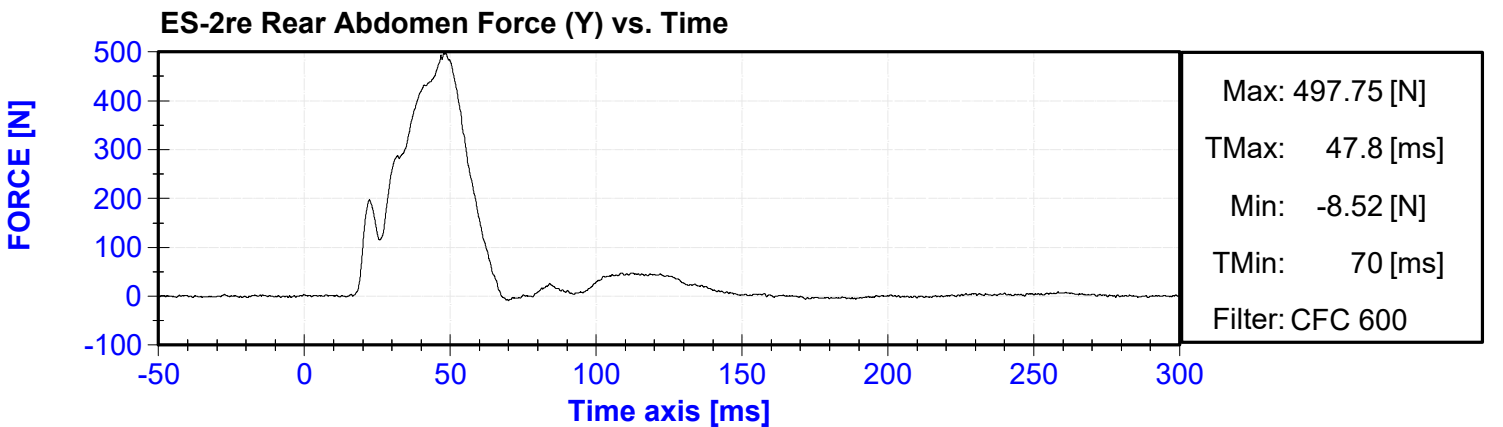
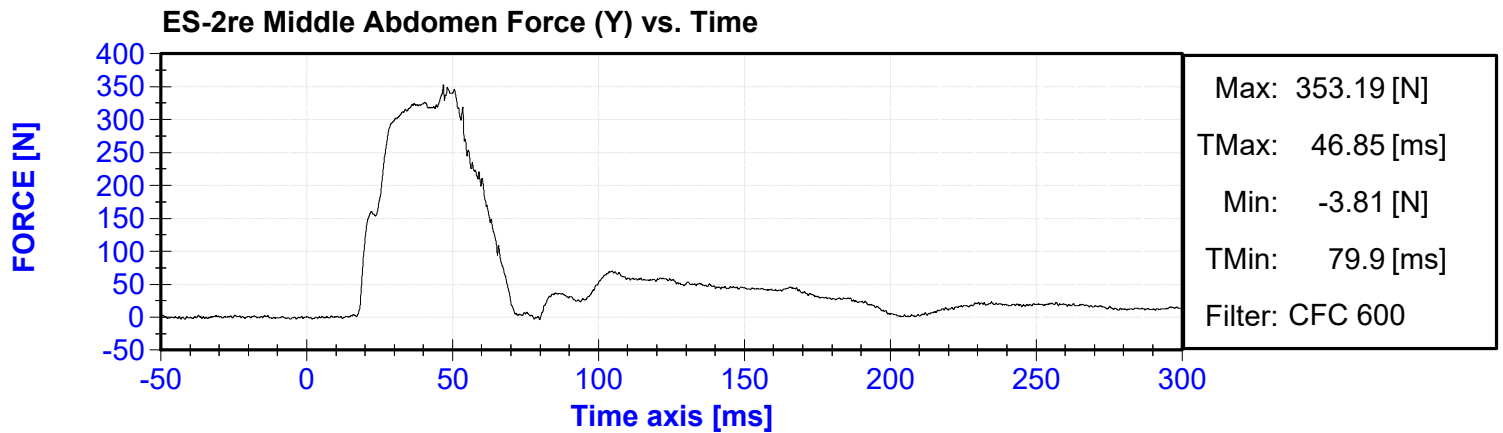
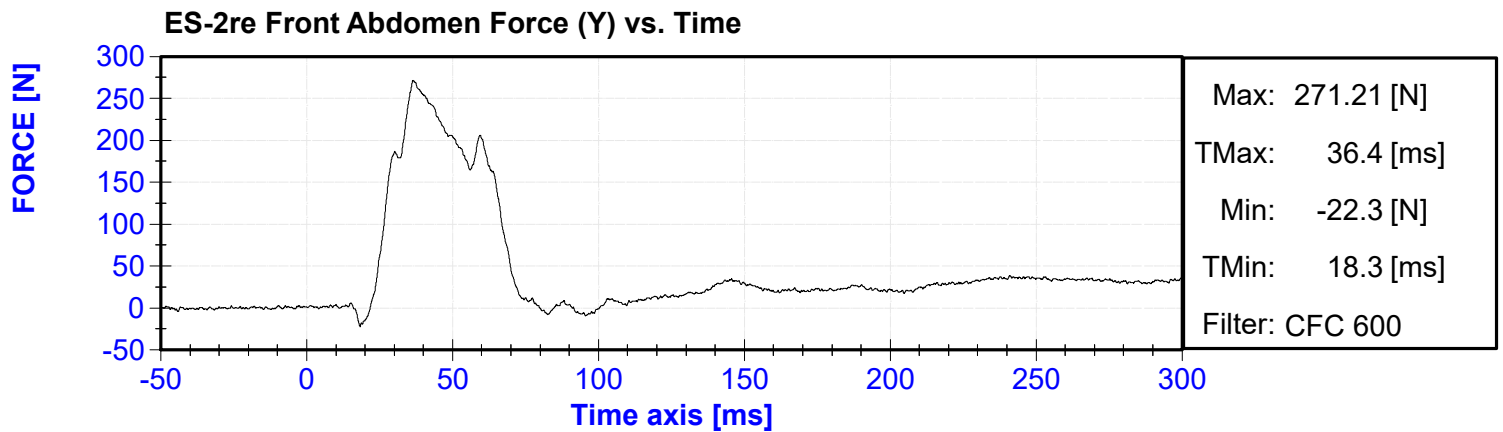
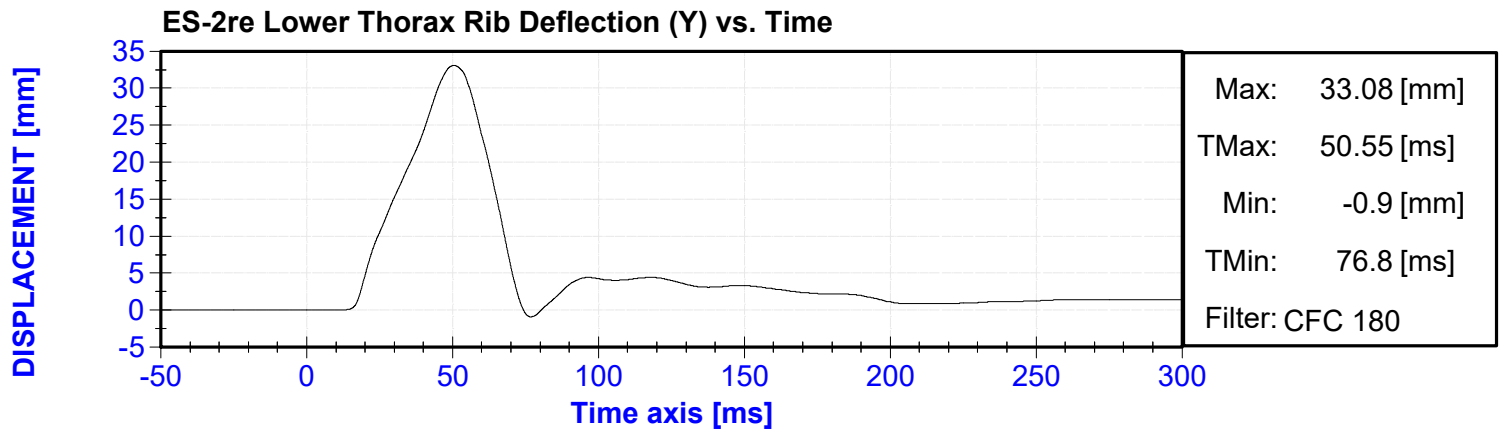
DISPLACEMENT [mm]

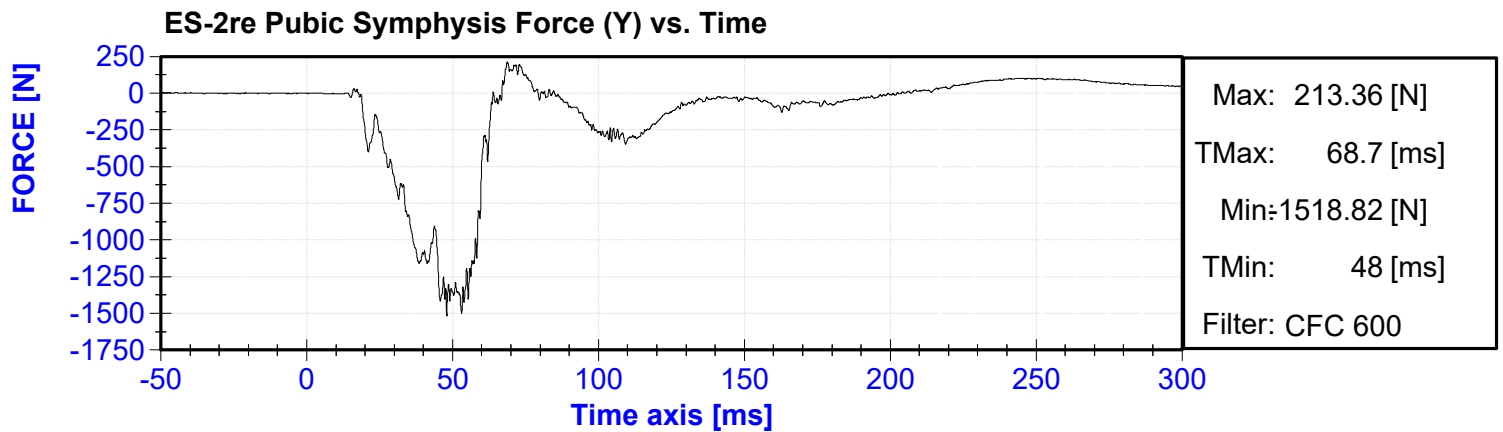
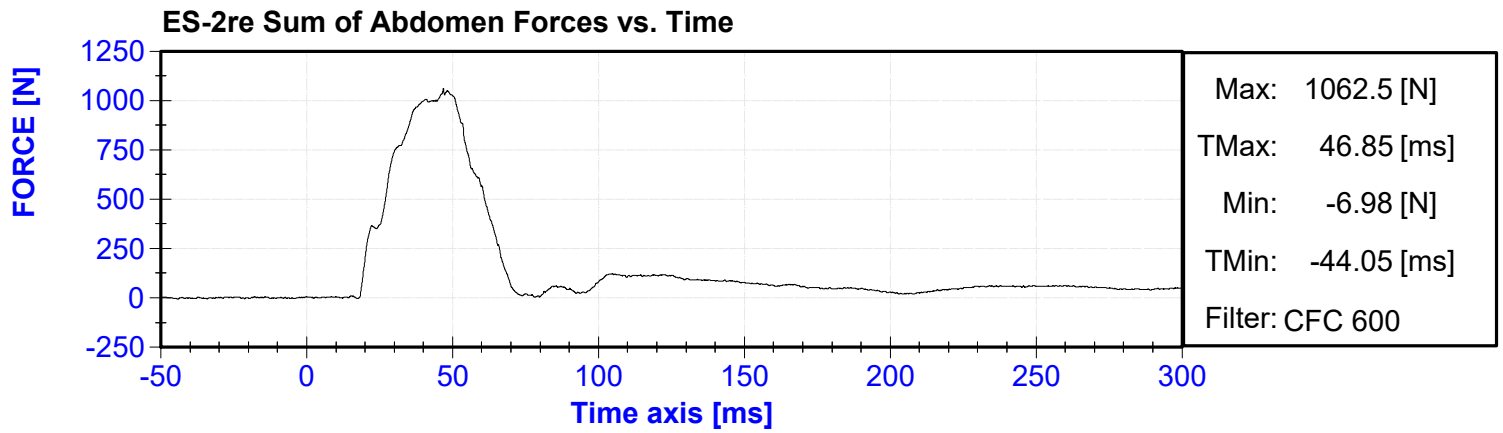


ES-2re Lower Thorax Rib Deflection Rate vs. Time

VELOCITY [m/s]





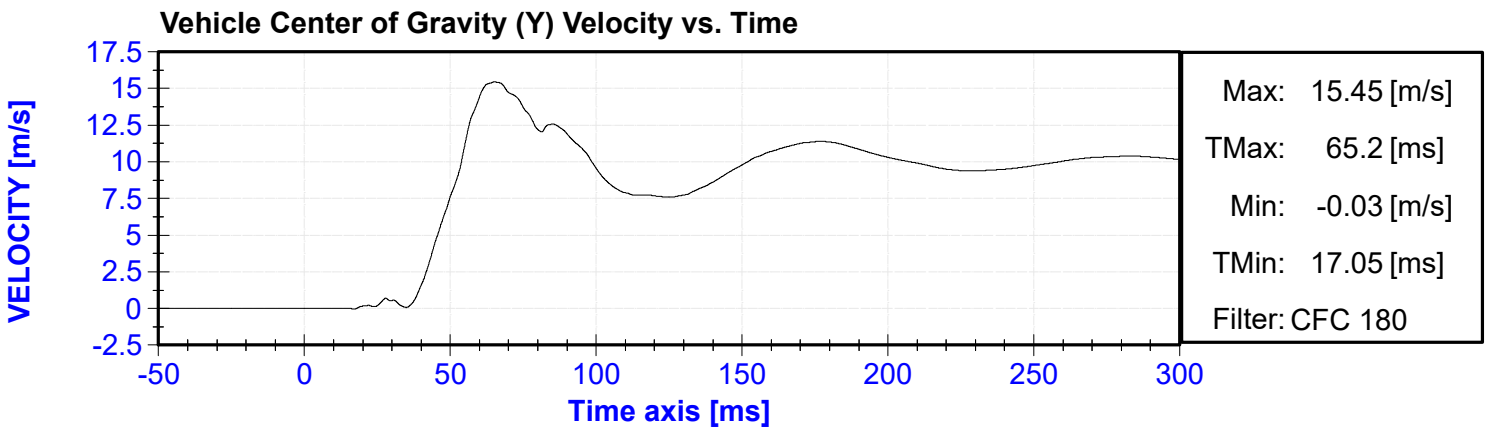
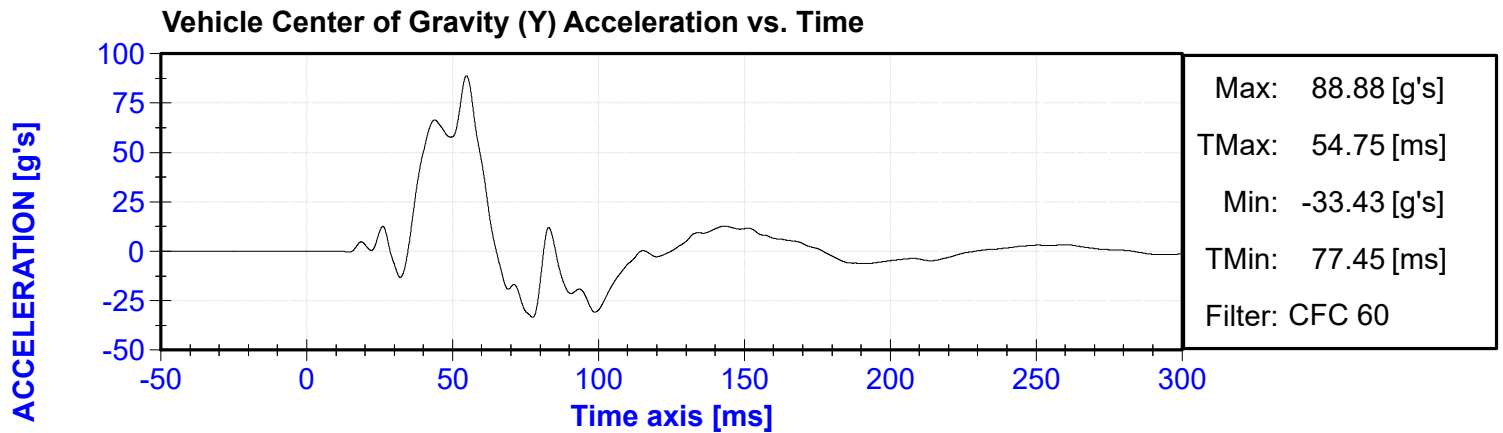
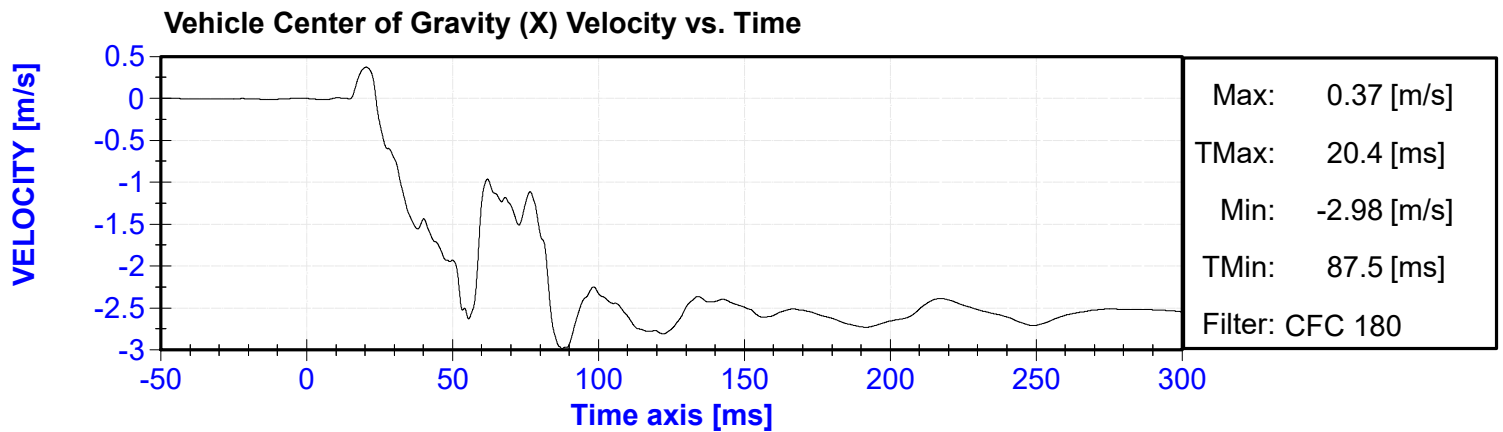
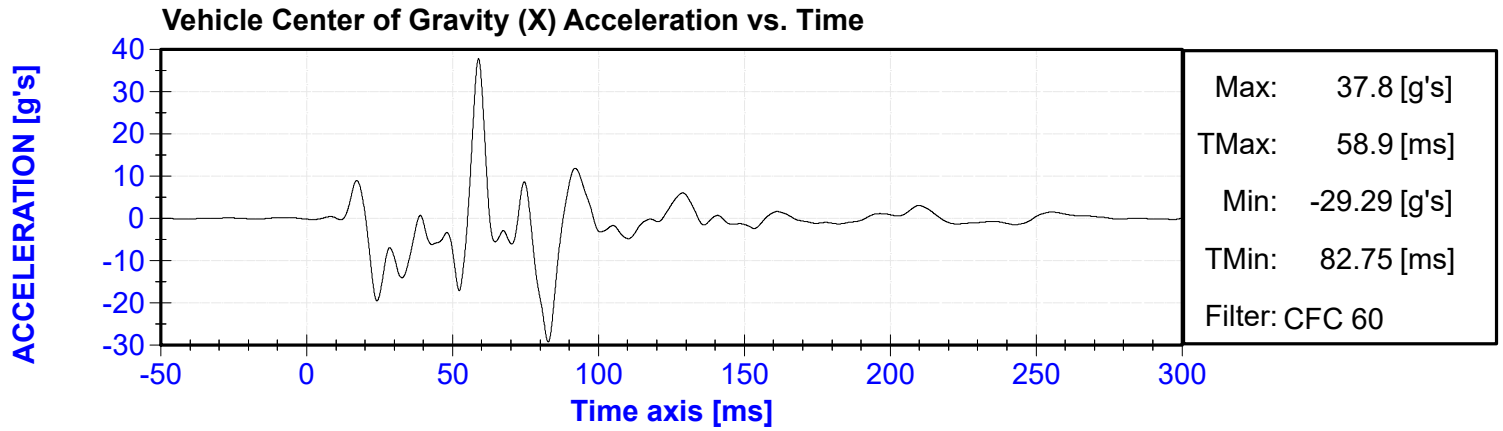


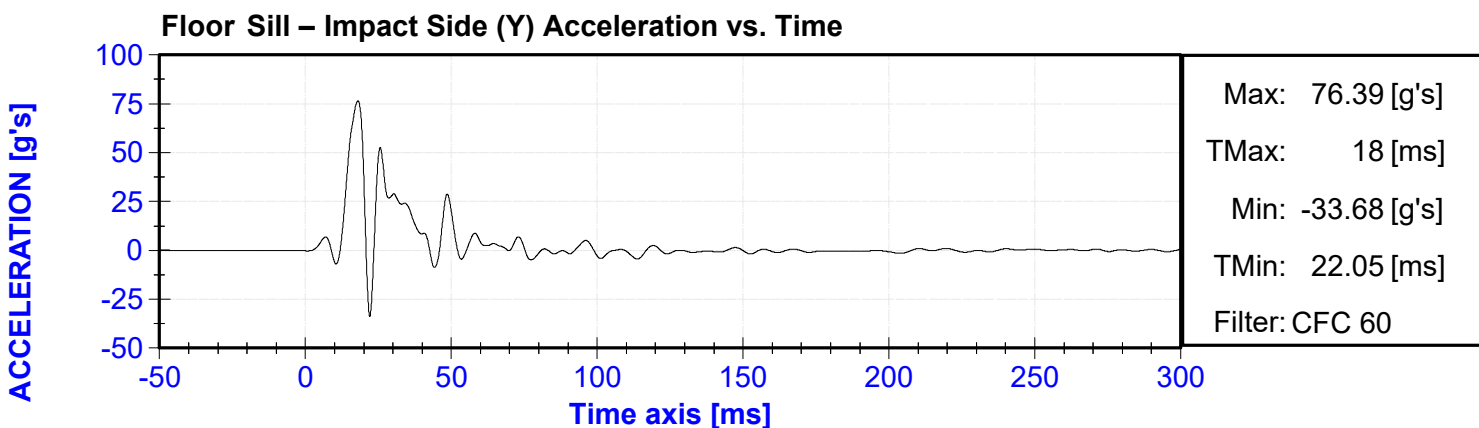
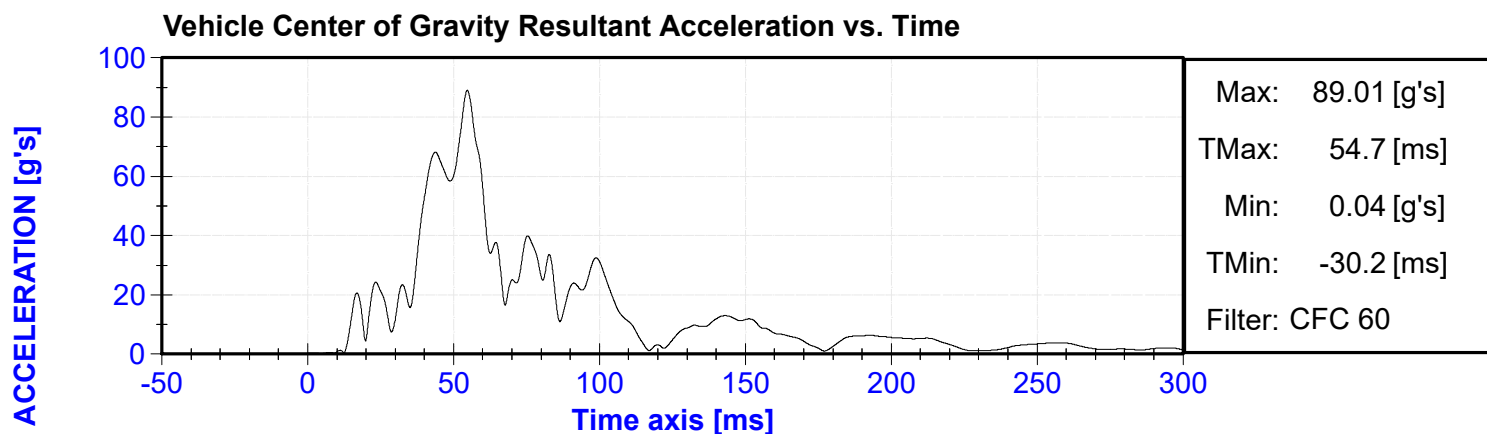
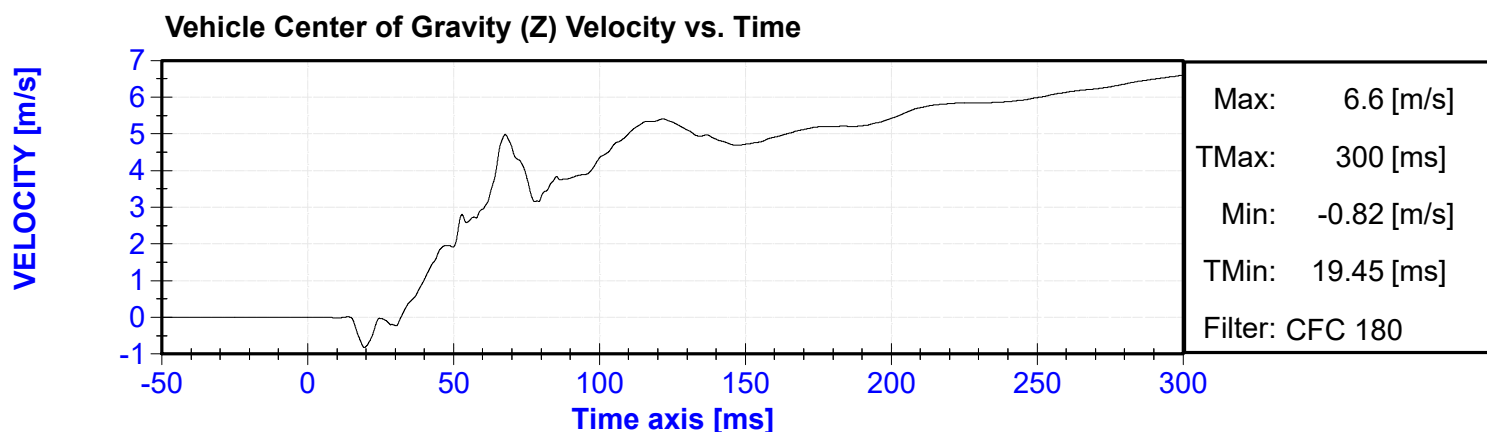
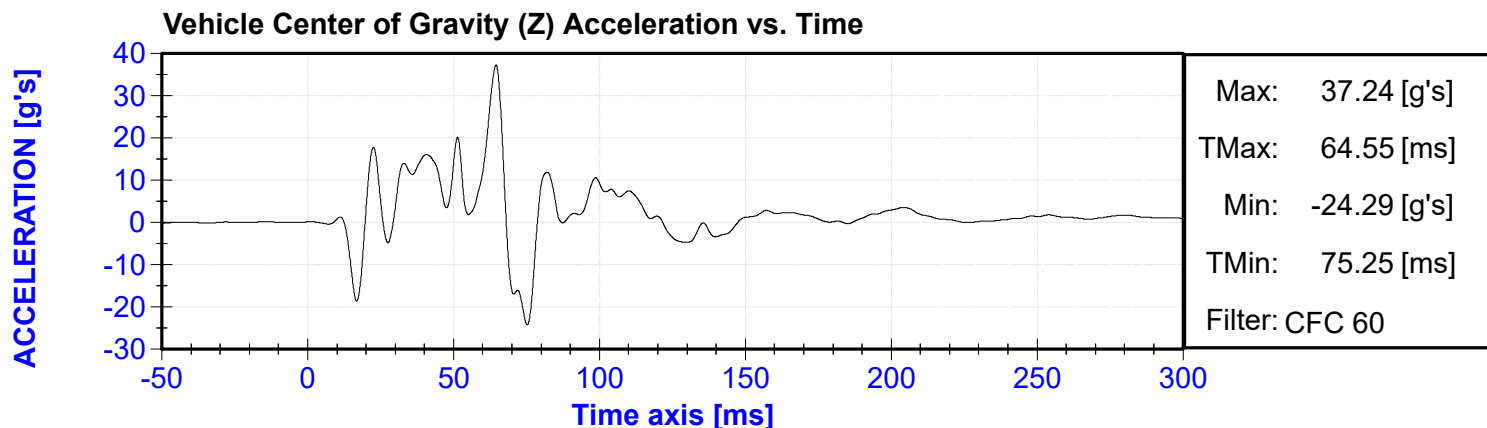
APPENDIX III

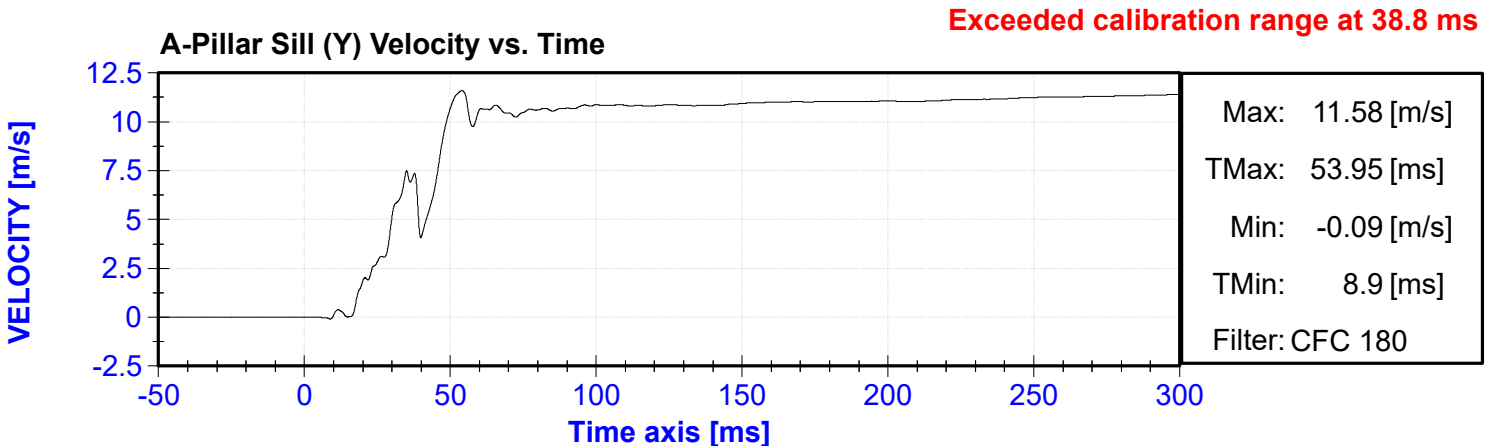
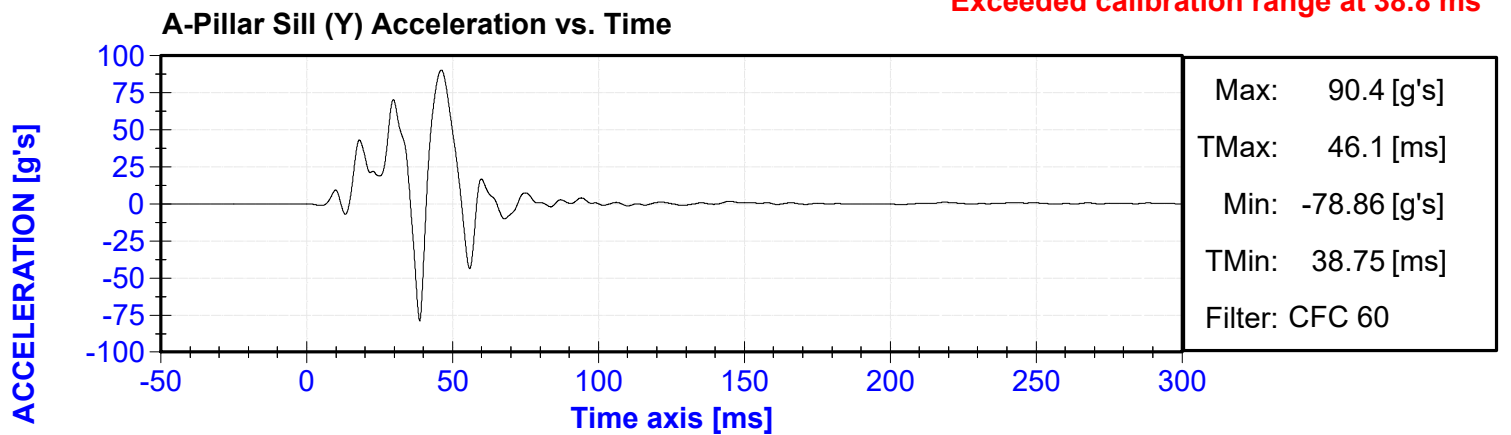
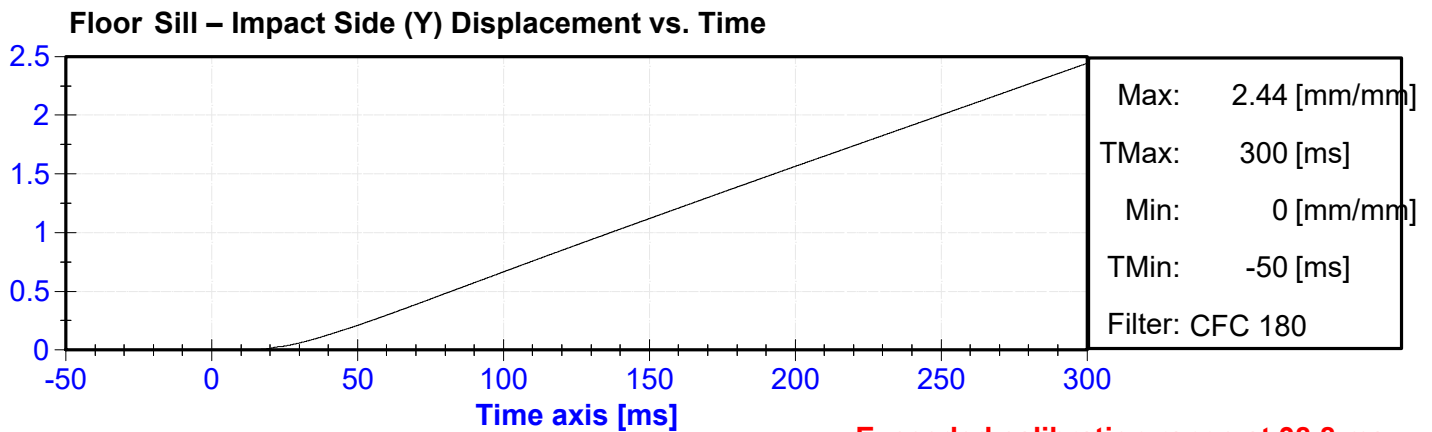
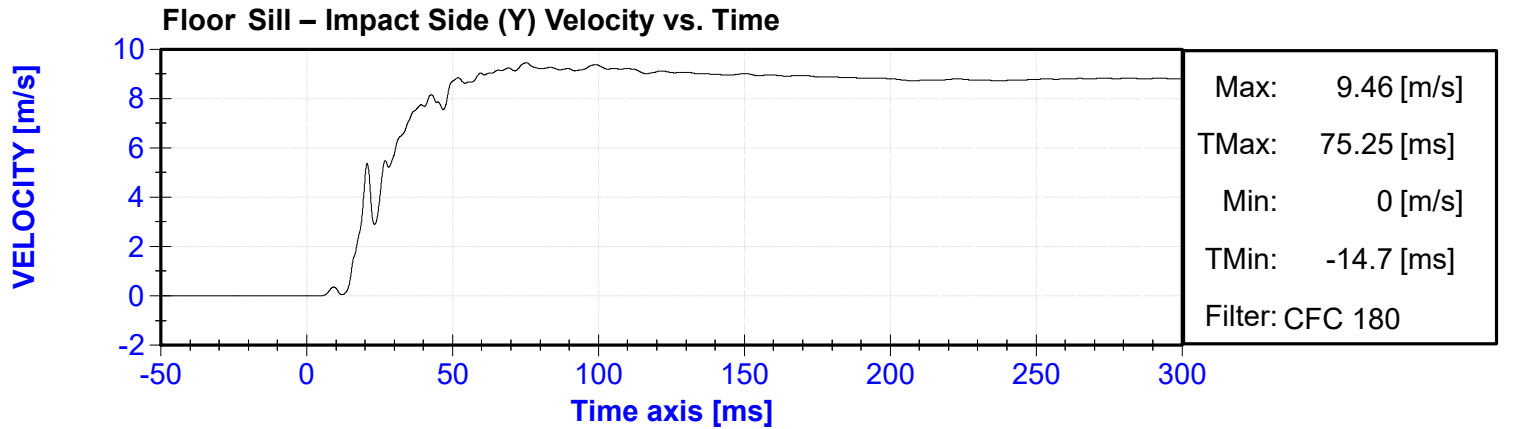
VEHICLE ACCELEROMETER RESPONSE DATA

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29	Seat (Y) Acceleration vs. Time	III-10
30	Seat (Y) Velocity vs. Time	III-10
31	Seat (Y) Displacement vs. Time	III-10
32	Engine (X) Acceleration vs. Time	III-10
33	Engine (X) Velocity vs. Time	III-11
34	Engine (Y) Acceleration vs. Time	III-11
35	Engine (Y) Velocity vs. Time	III-11
36	Firewall (Y) Acceleration vs. Time	III-11
37	Firewall (Y) Velocity vs. Time	III-12
38	Roof (Y) Acceleration vs. Time	III-12
39	Roof (Y) Velocity vs. Time	III-12
40	Floor Sill – Non Impact Side (Y) Acceleration vs. Time	III-12
41	Floor Sill – Non Impact Side (Y) Velocity vs. Time	III-13
42	Rear Deck (X) Acceleration vs. Time	III-13
43	Rear Deck (X) Velocity vs. Time	III-13
44	Rear Deck (Y) Acceleration vs. Time	III-13
45	Rear Deck (Y) Velocity vs. Time	III-14

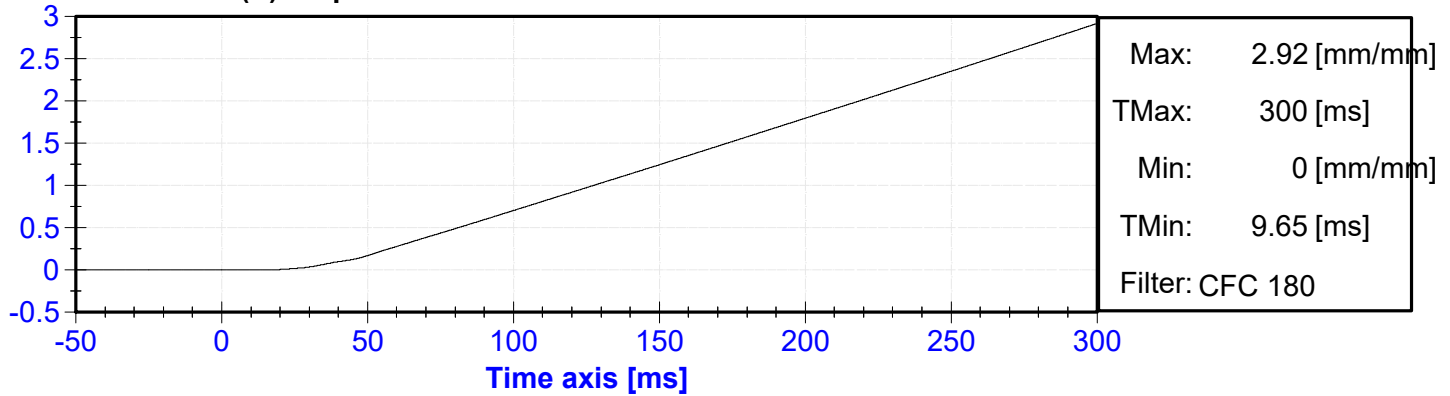




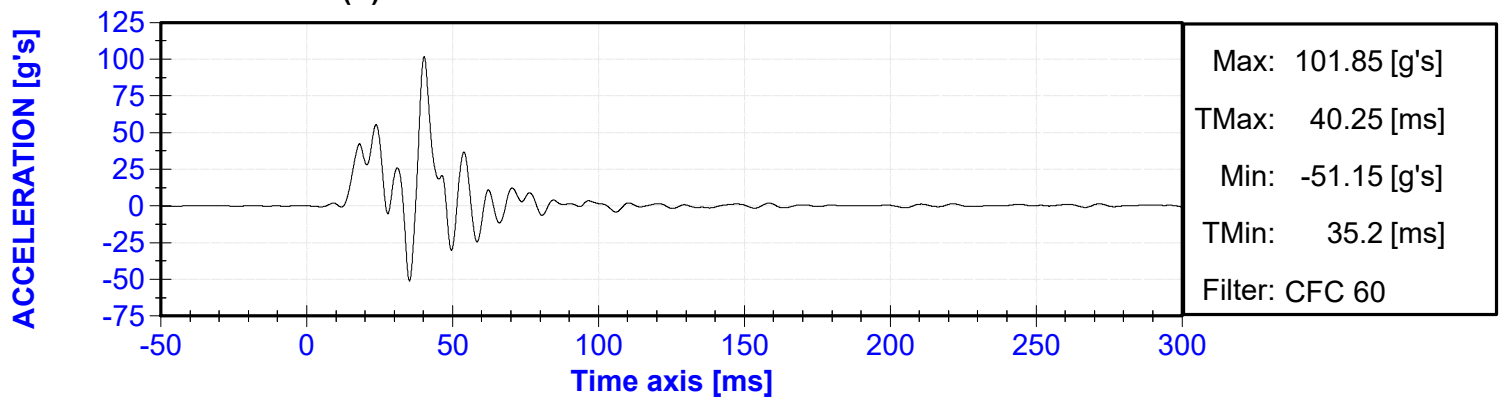


Exceeded calibration range at 38.8 ms

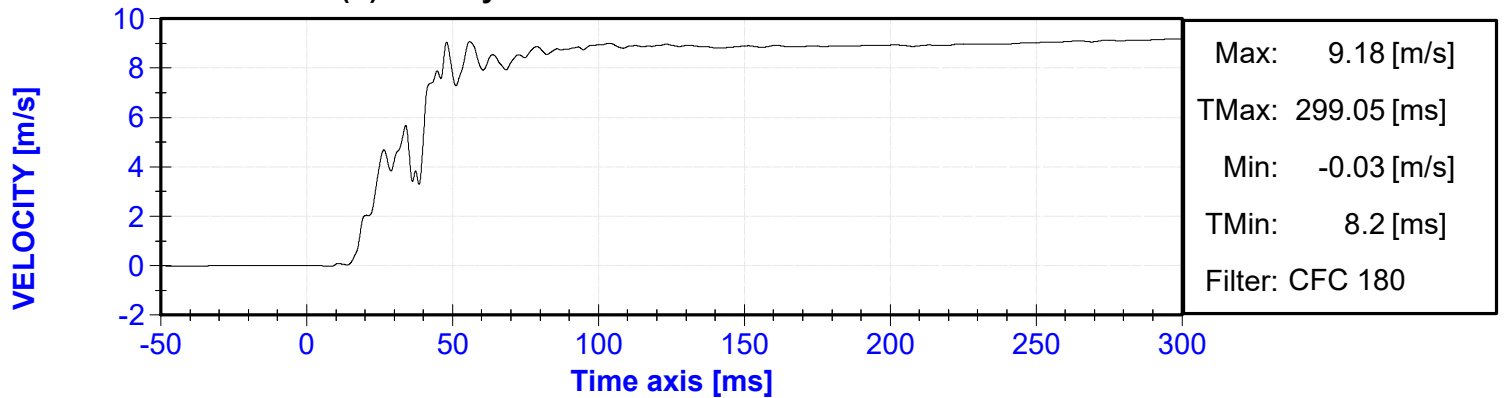
A-Pillar Sill (Y) Displacement vs. Time



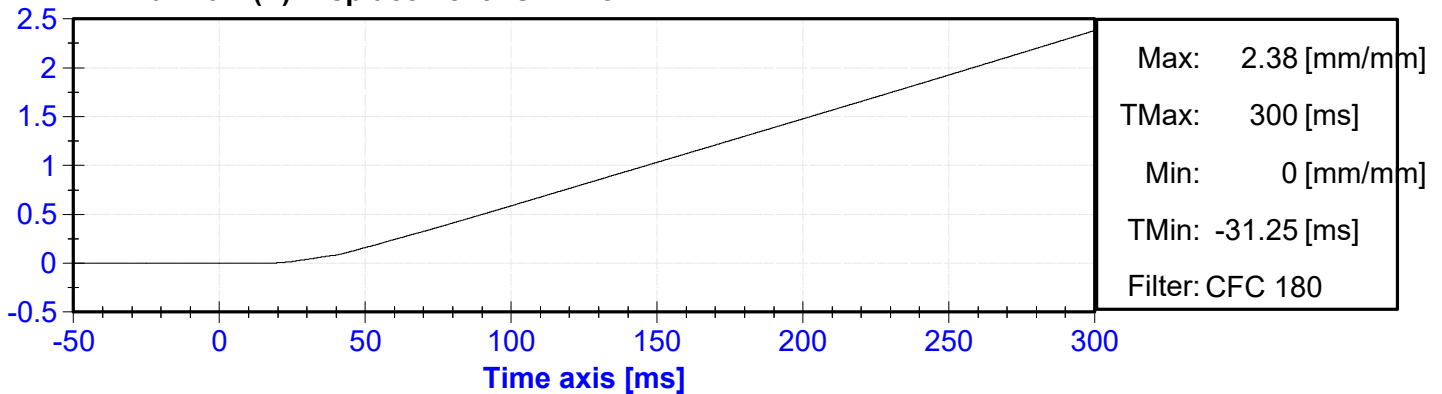
A-Pillar Low (Y) Acceleration vs. Time

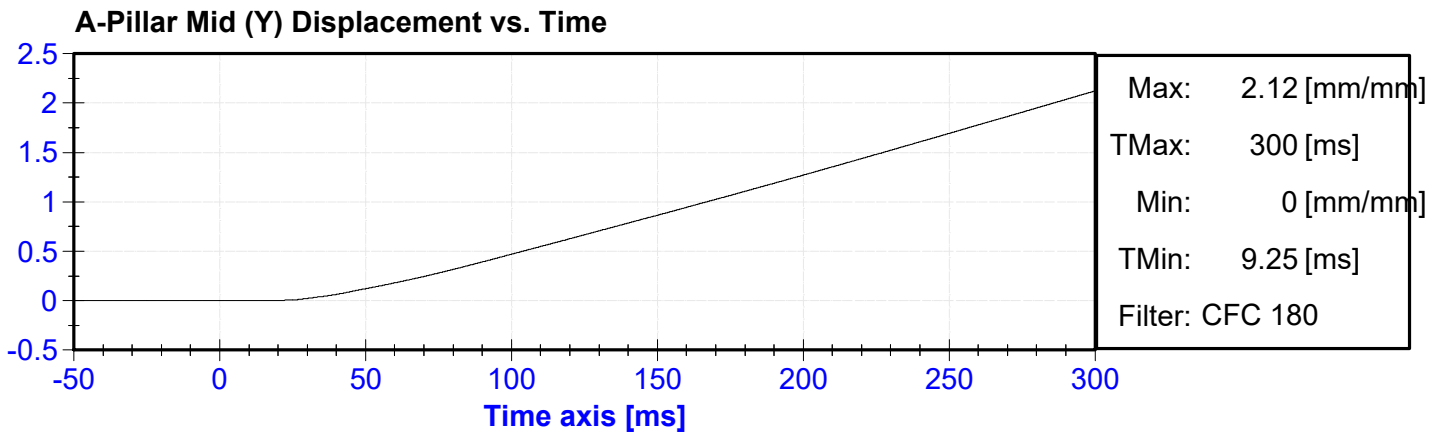
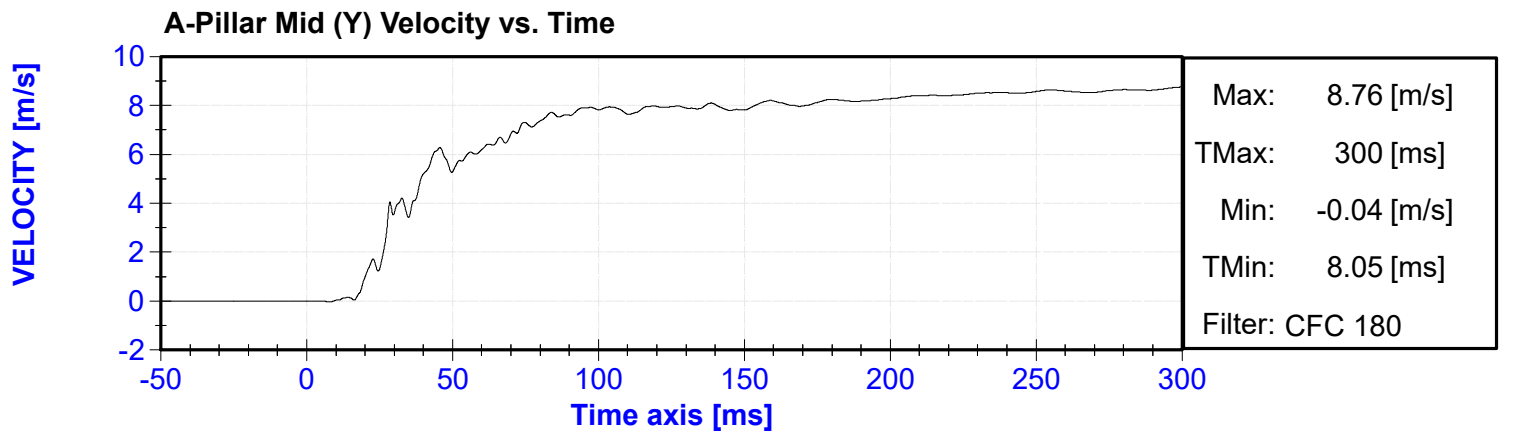
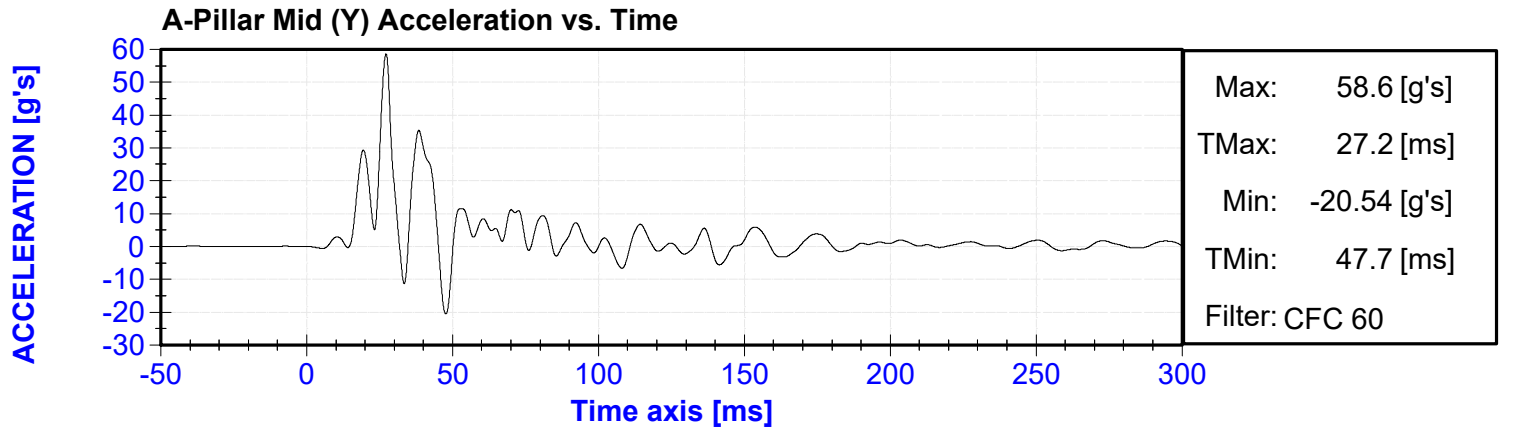


A-Pillar Low (Y) Velocity vs. Time

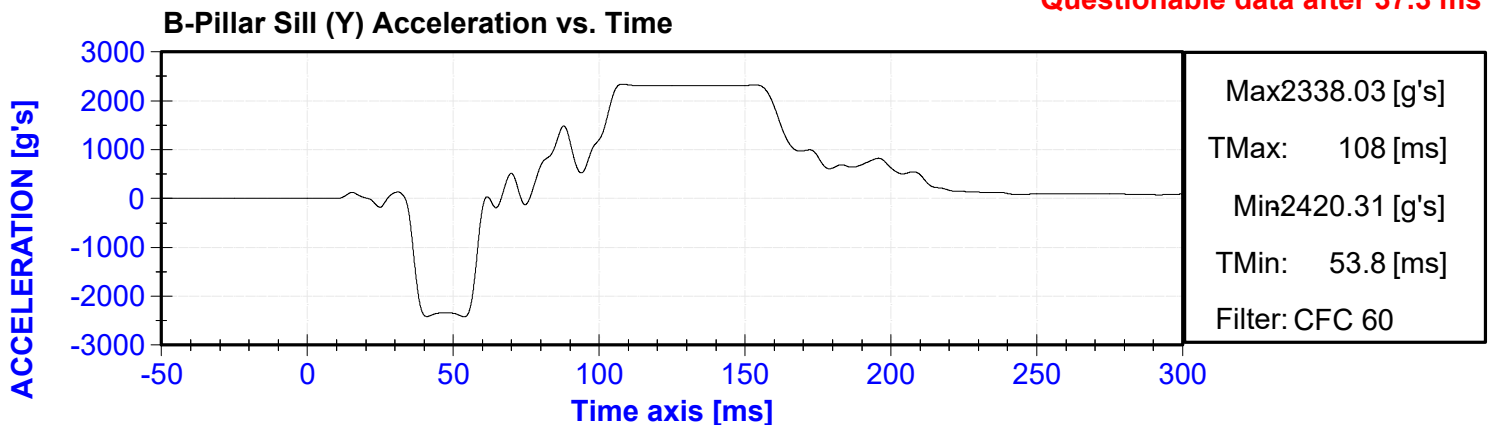


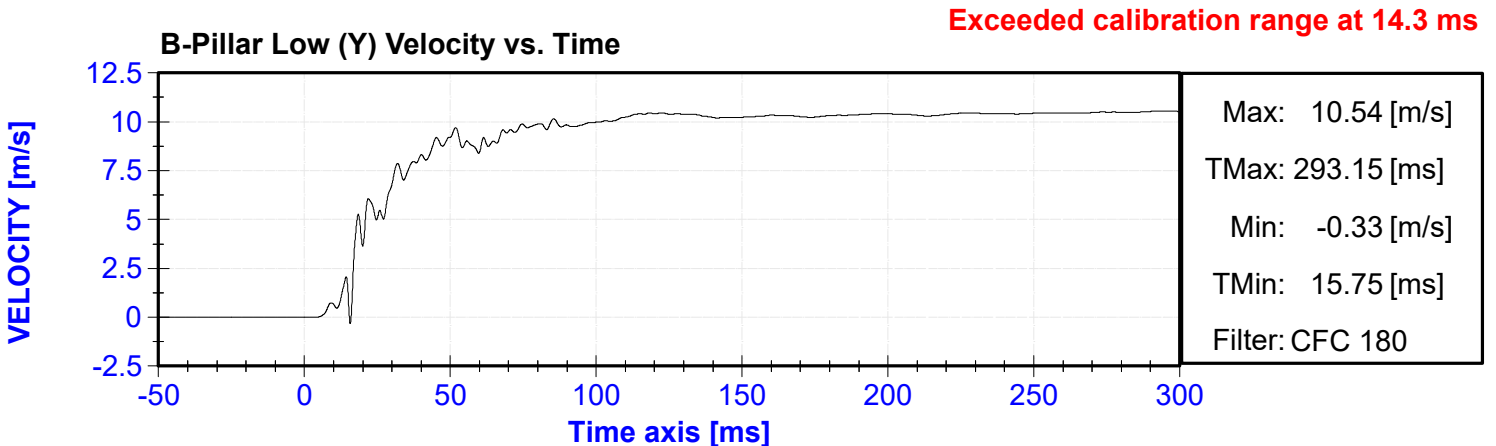
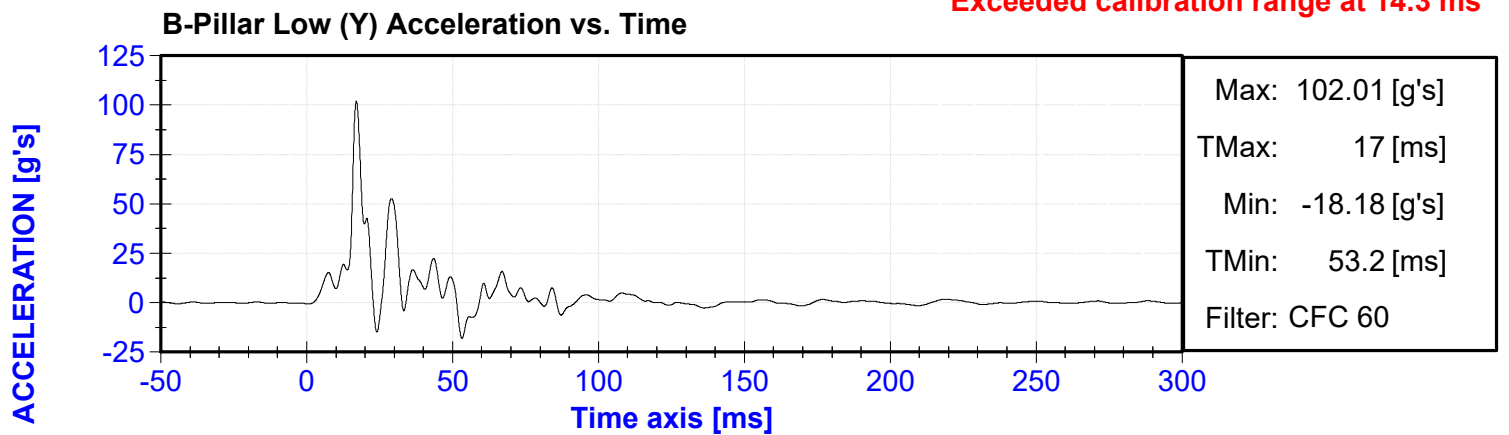
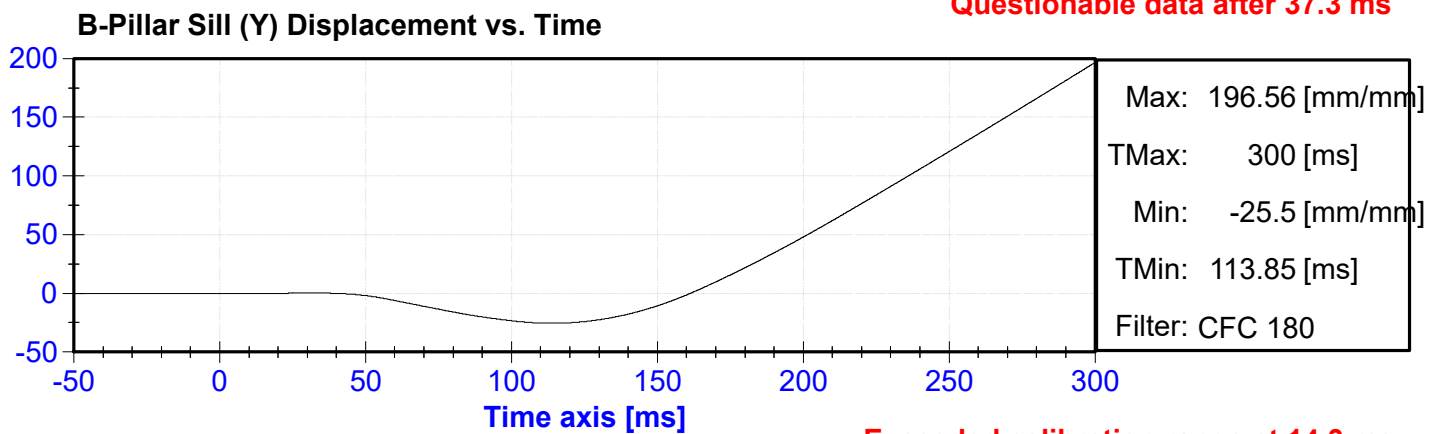
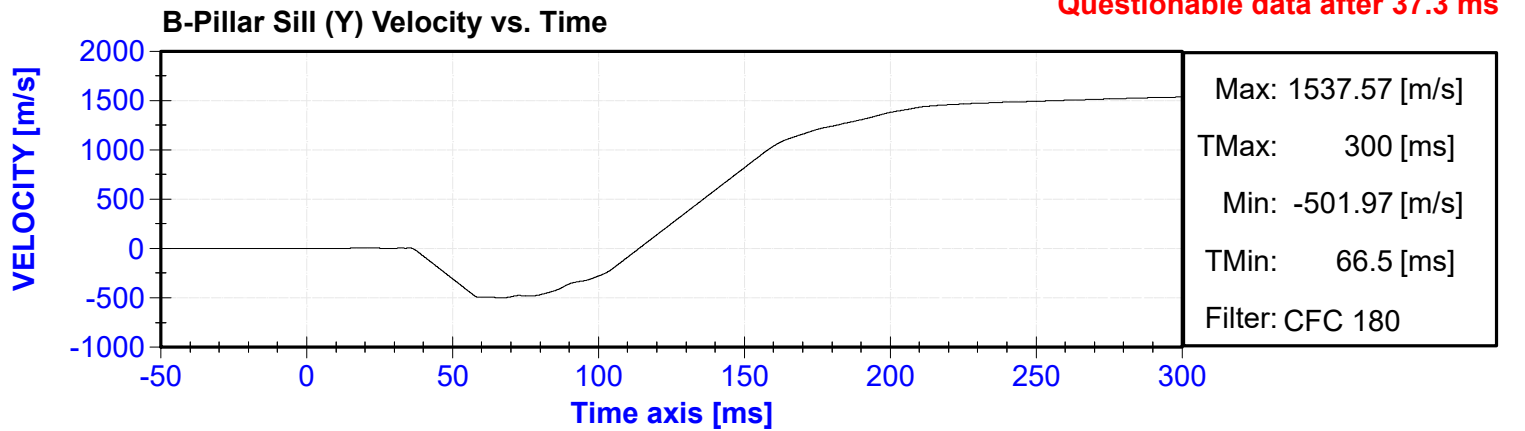
A-Pillar Low (Y) Displacement vs. Time





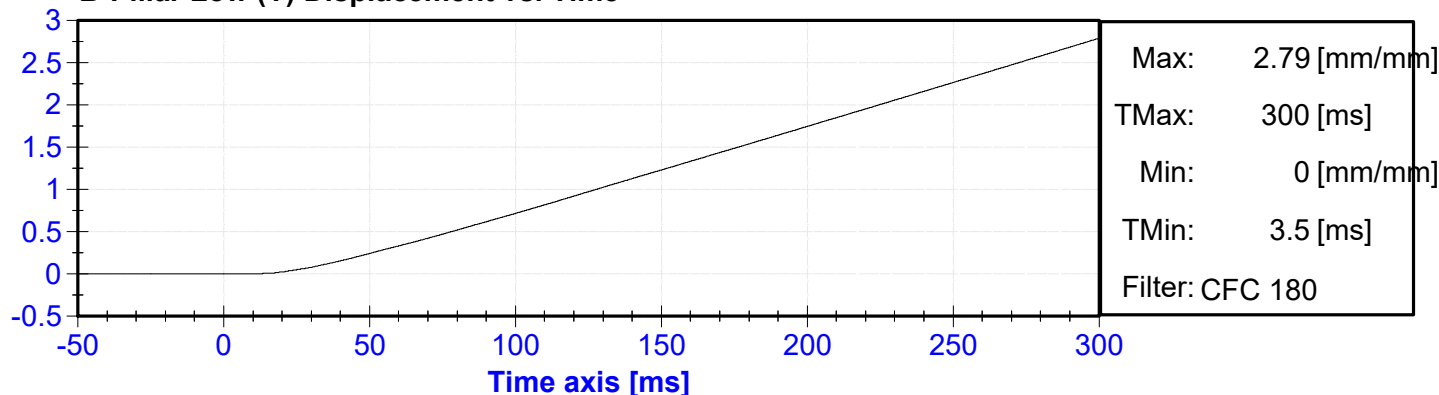
Questionable data after 37.3 ms





B-Pillar Low (Y) Displacement vs. Time

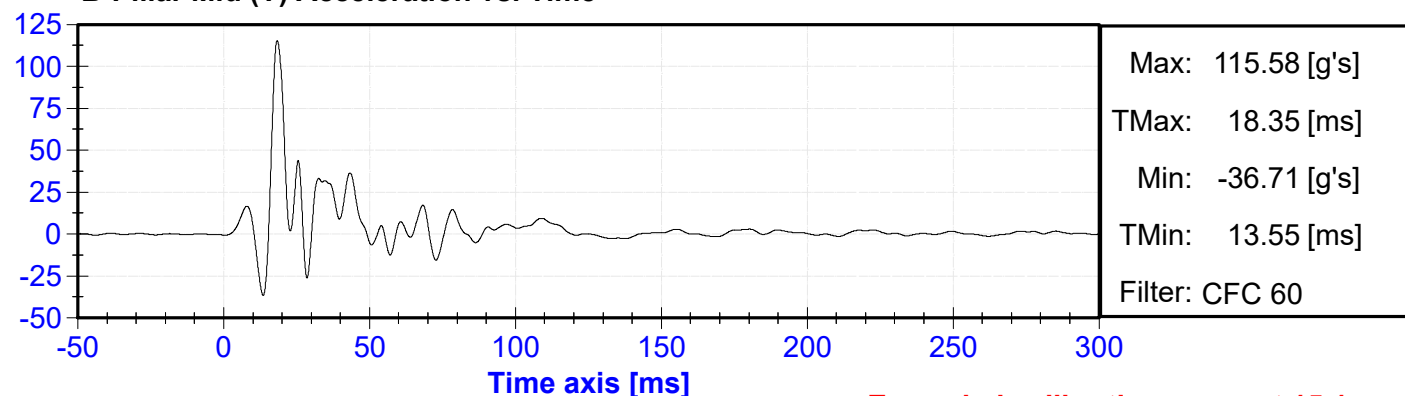
Exceeded calibration range at 14.3 ms



B-Pillar Mid (Y) Acceleration vs. Time

Exceeded calibration range at 15.1 ms

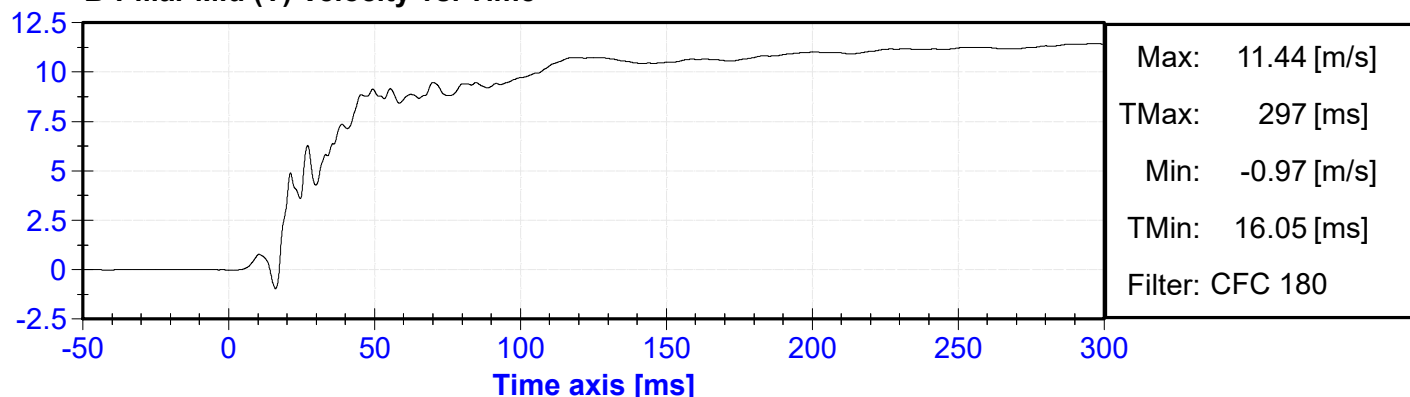
ACCELERATION [g's]



B-Pillar Mid (Y) Velocity vs. Time

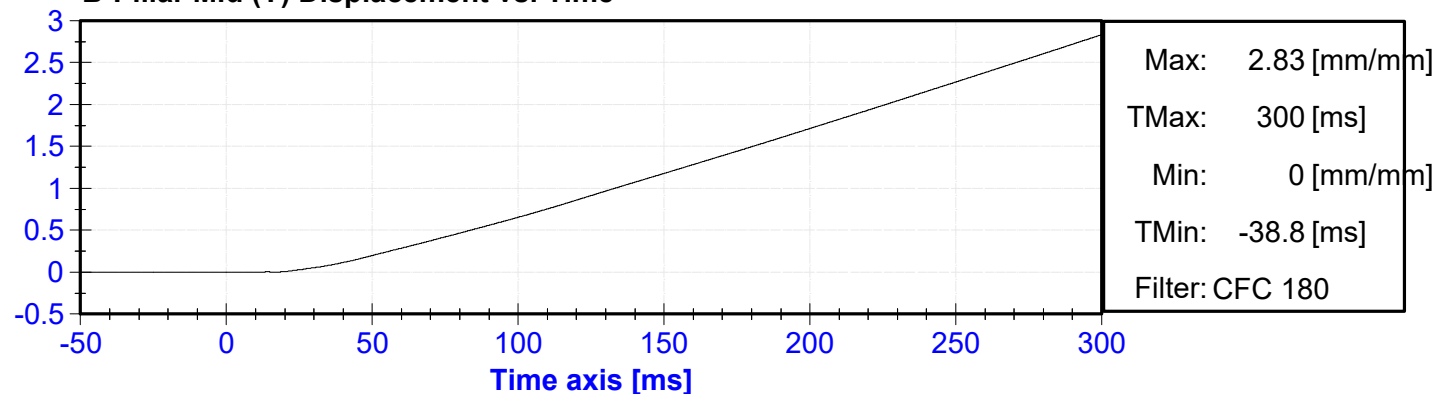
Exceeded calibration range at 15.1 ms

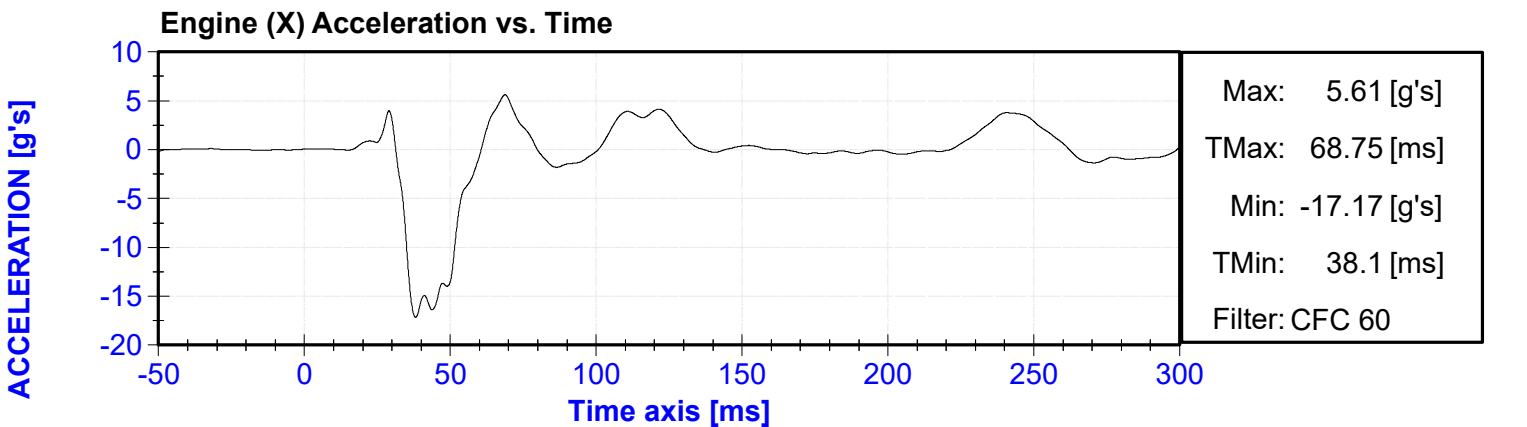
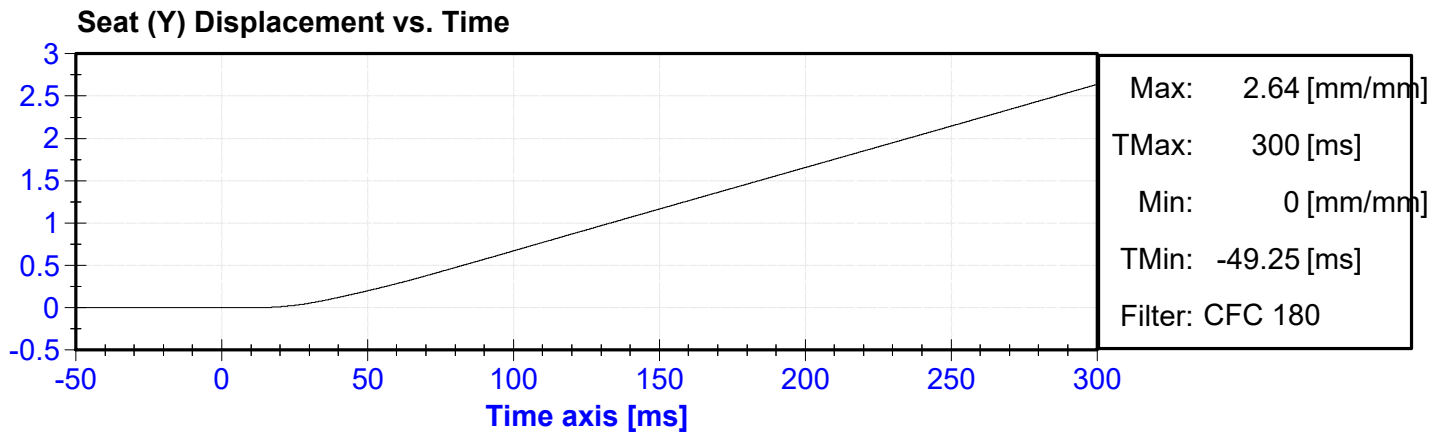
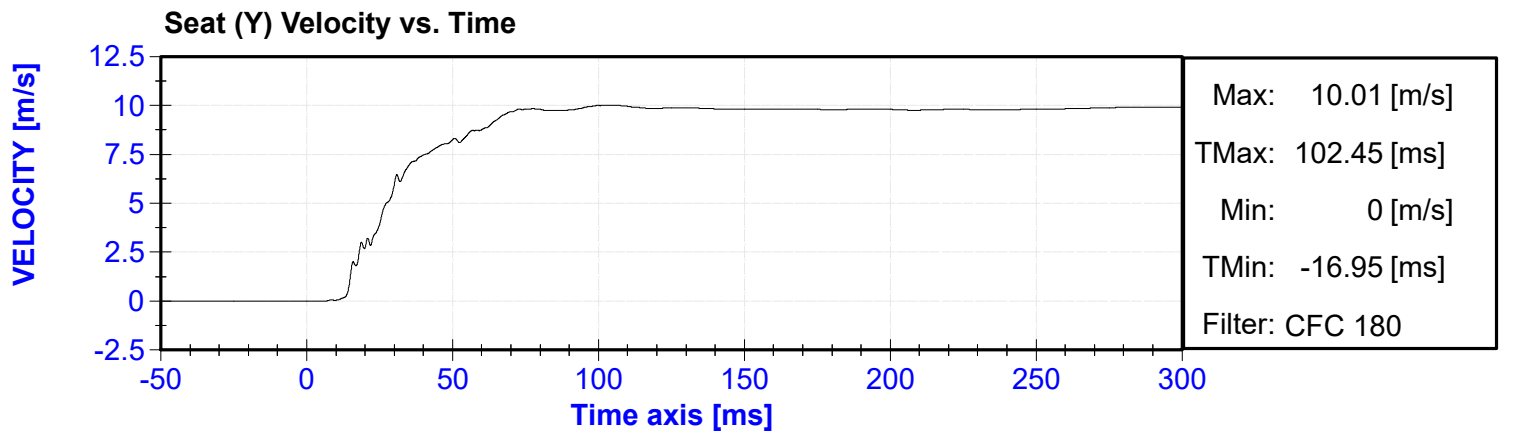
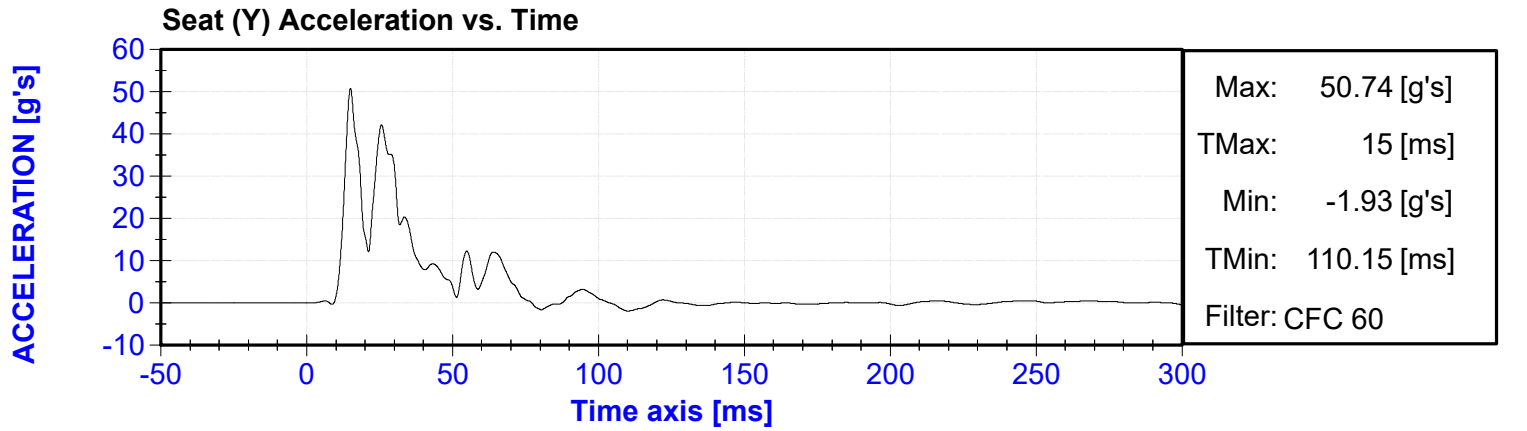
VELOCITY [m/s]

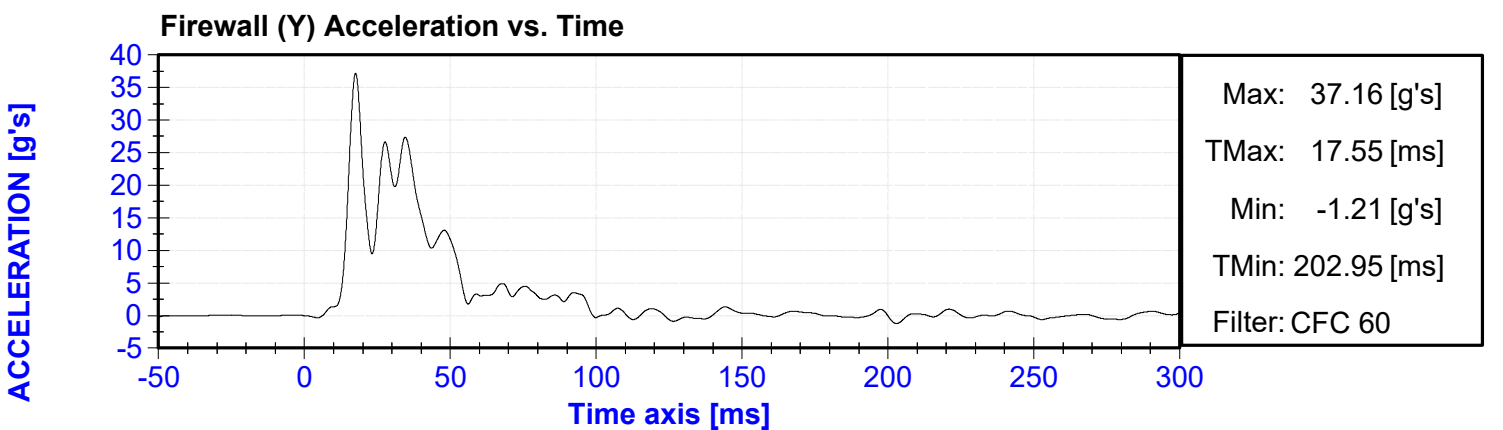
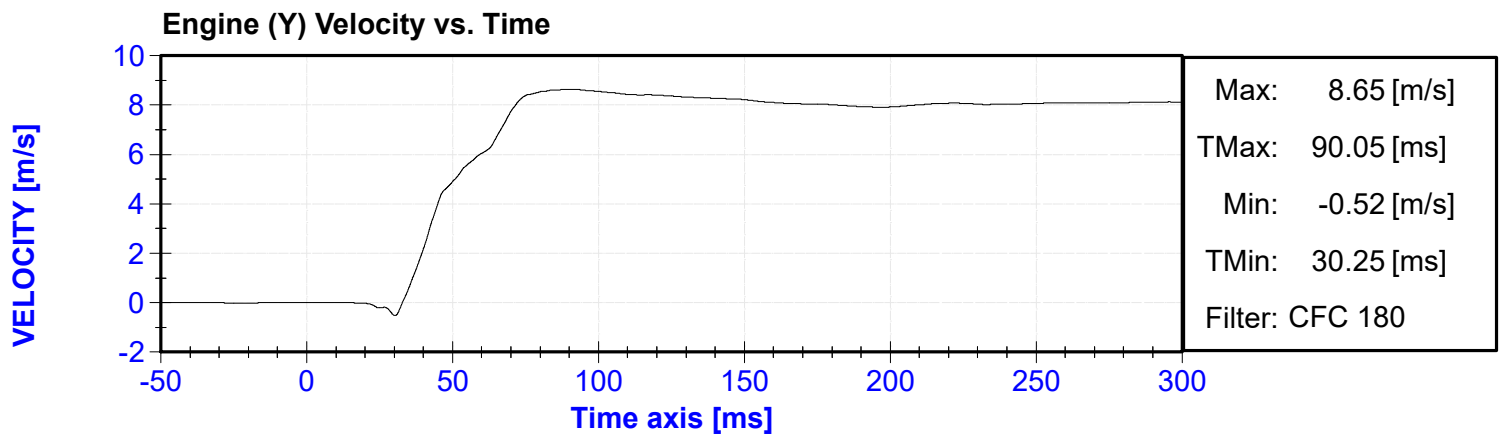
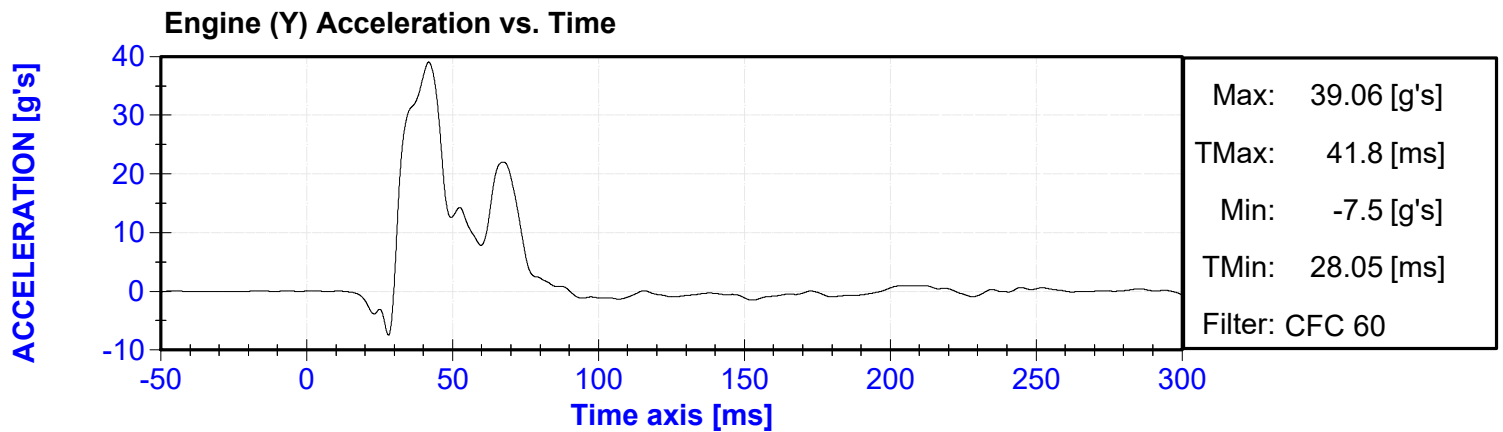
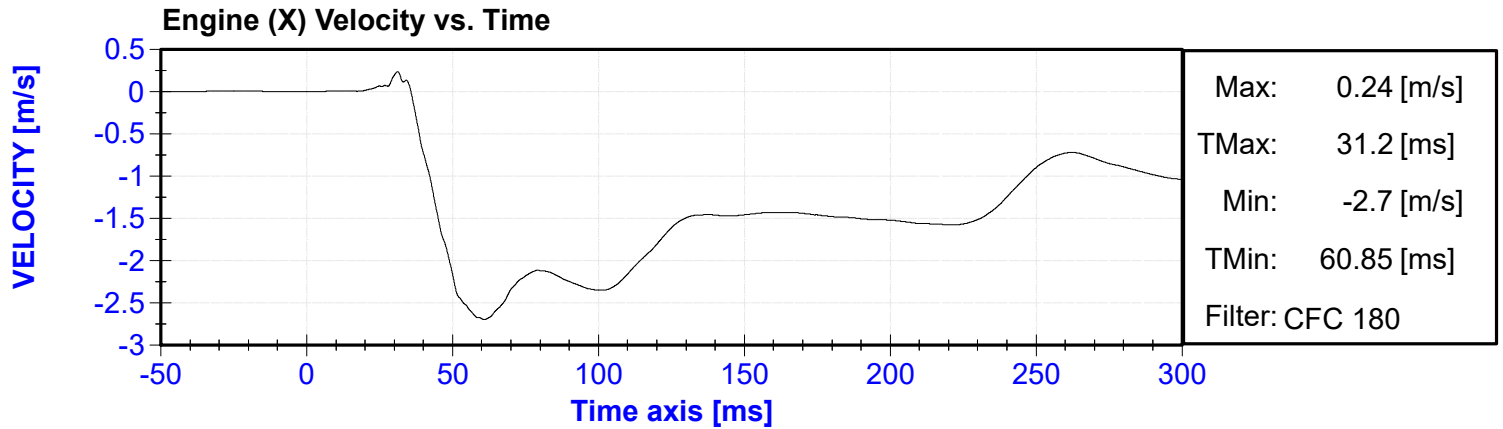


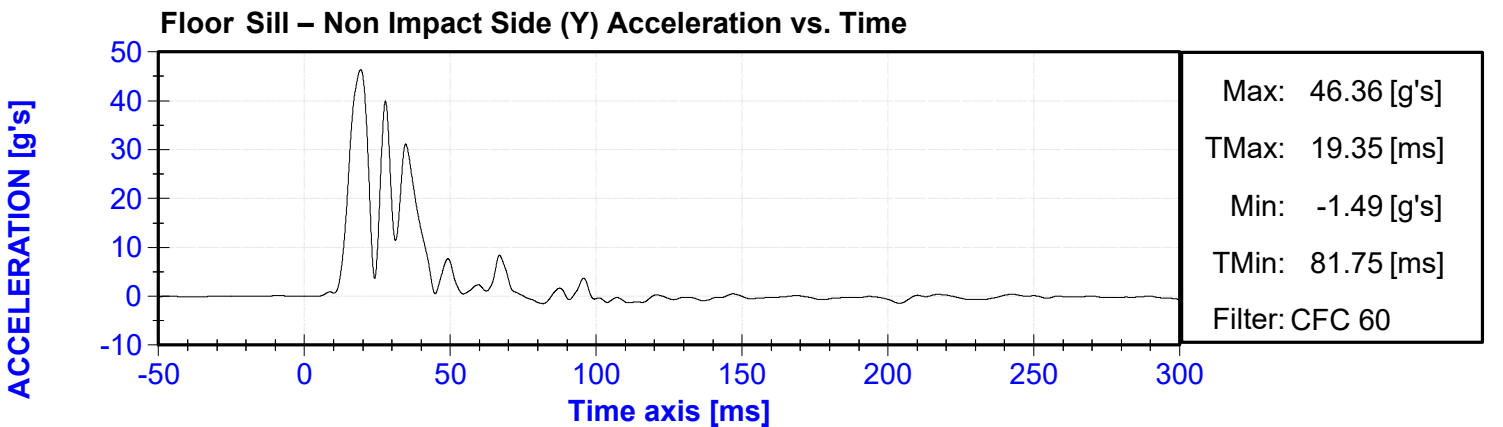
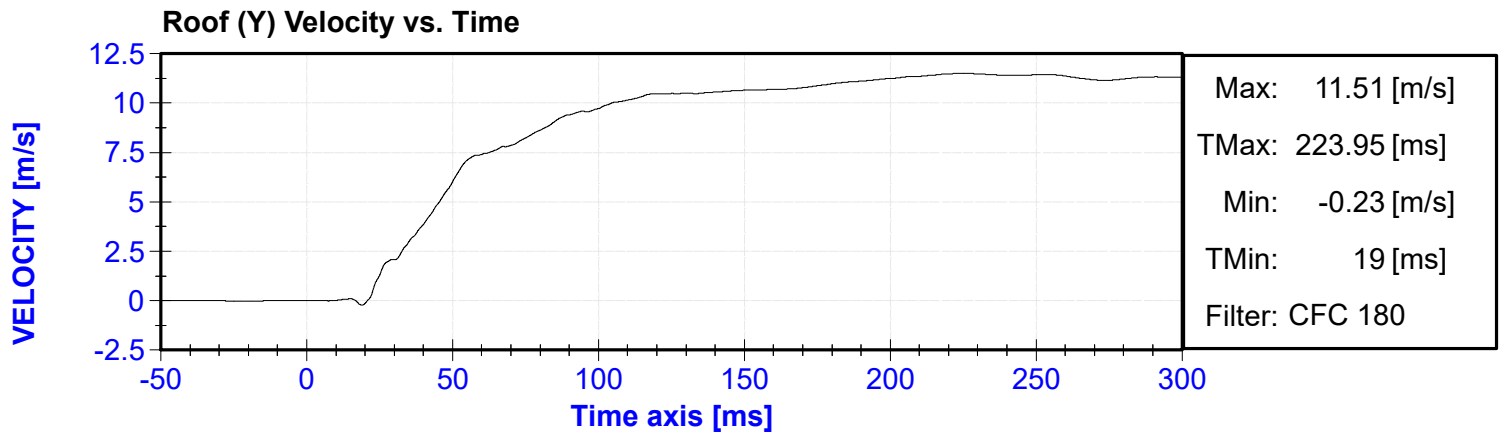
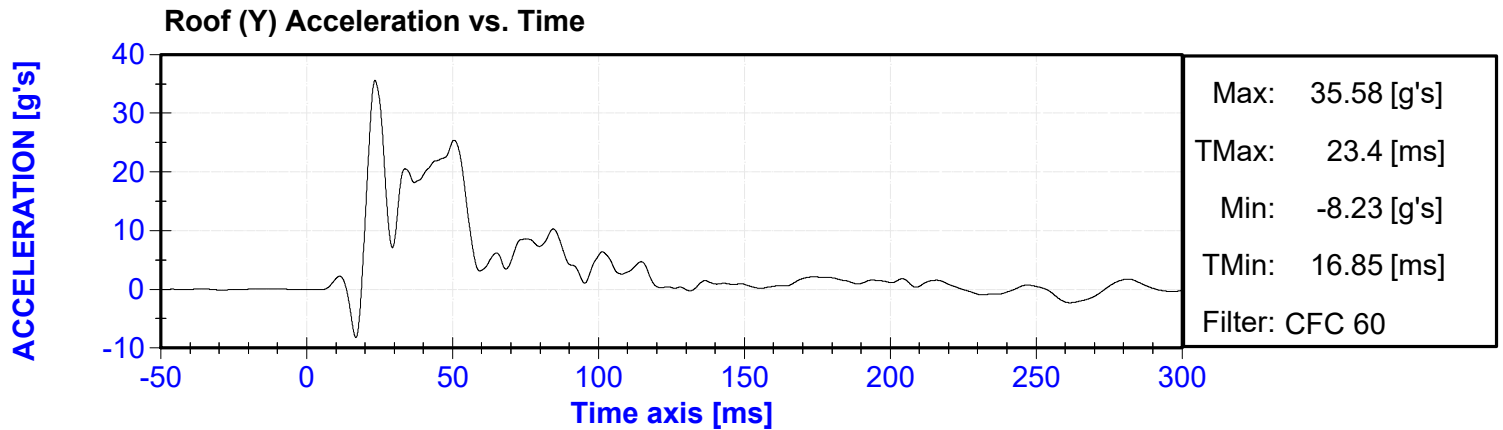
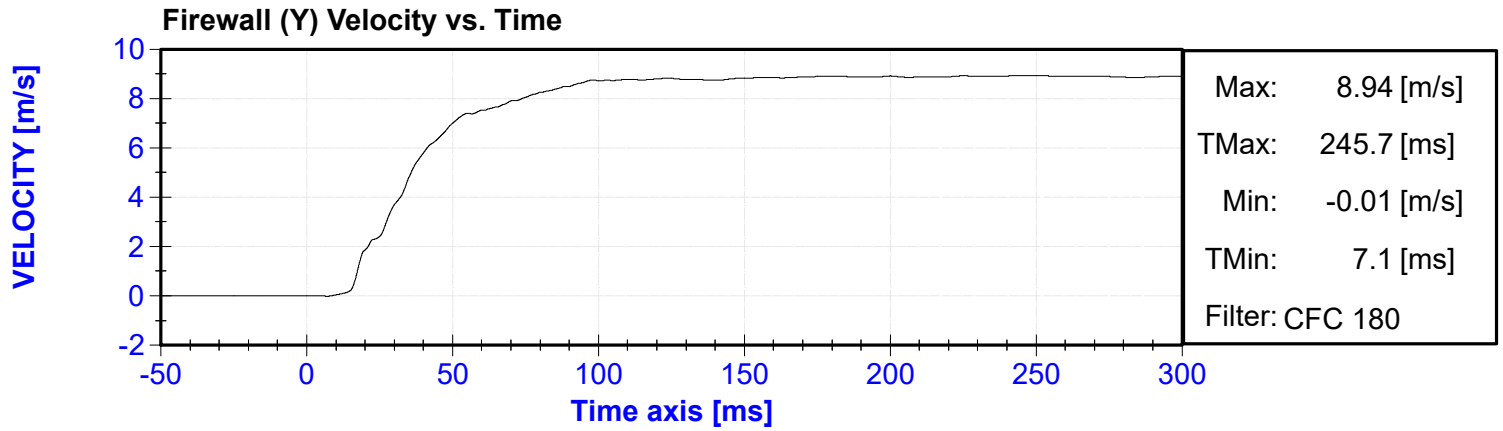
B-Pillar Mid (Y) Displacement vs. Time

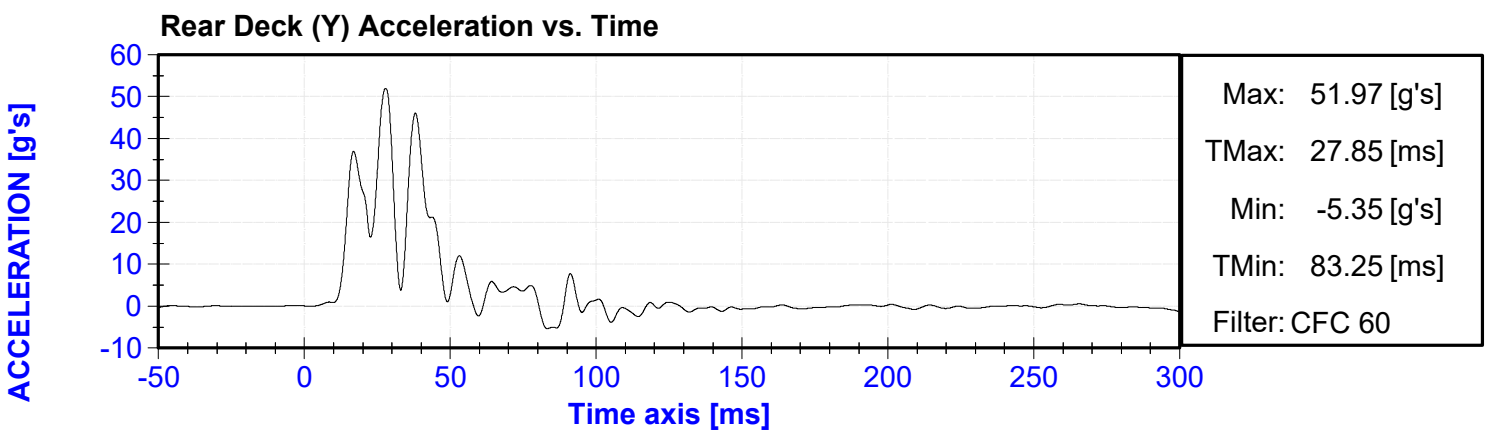
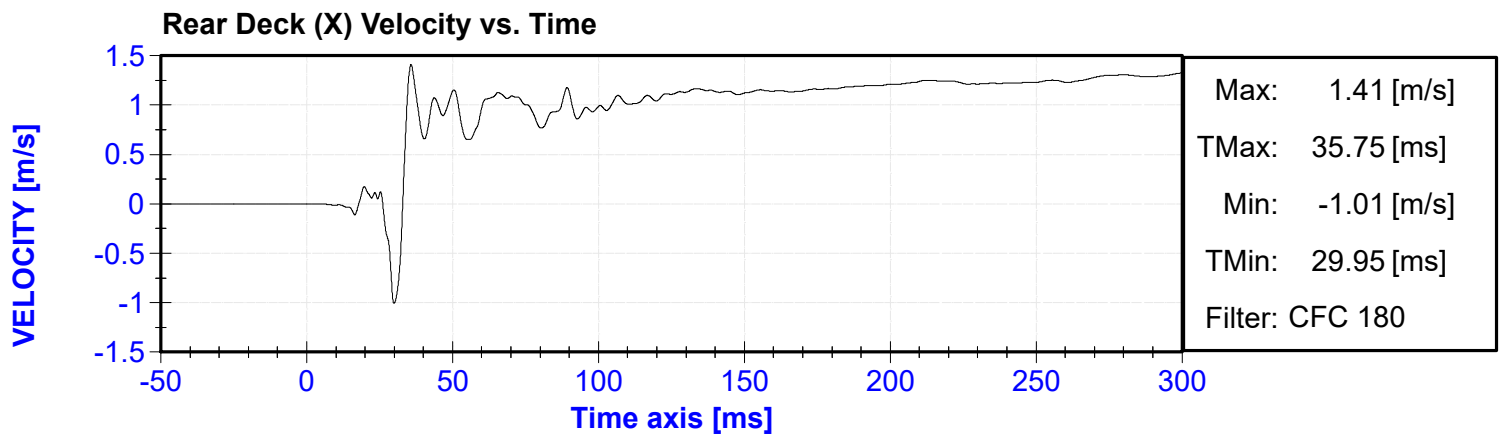
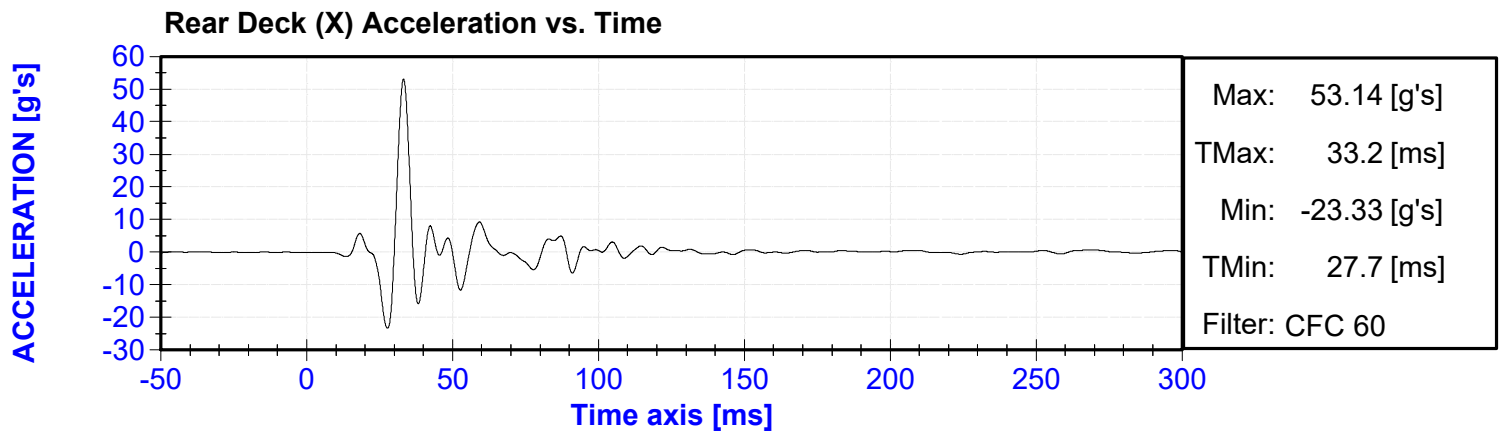
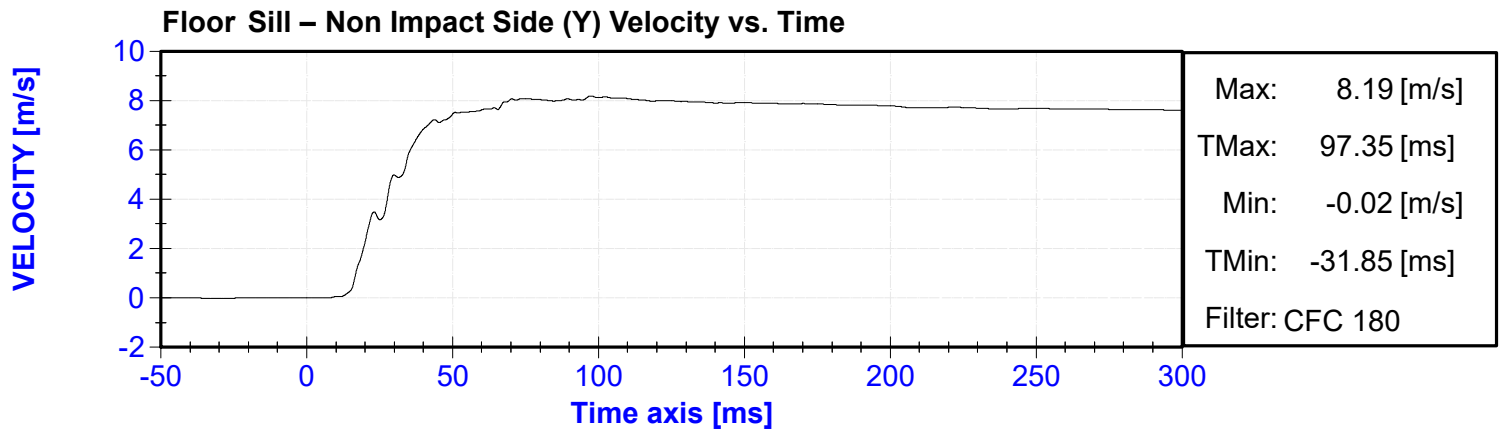
Exceeded calibration range at 15.1 ms

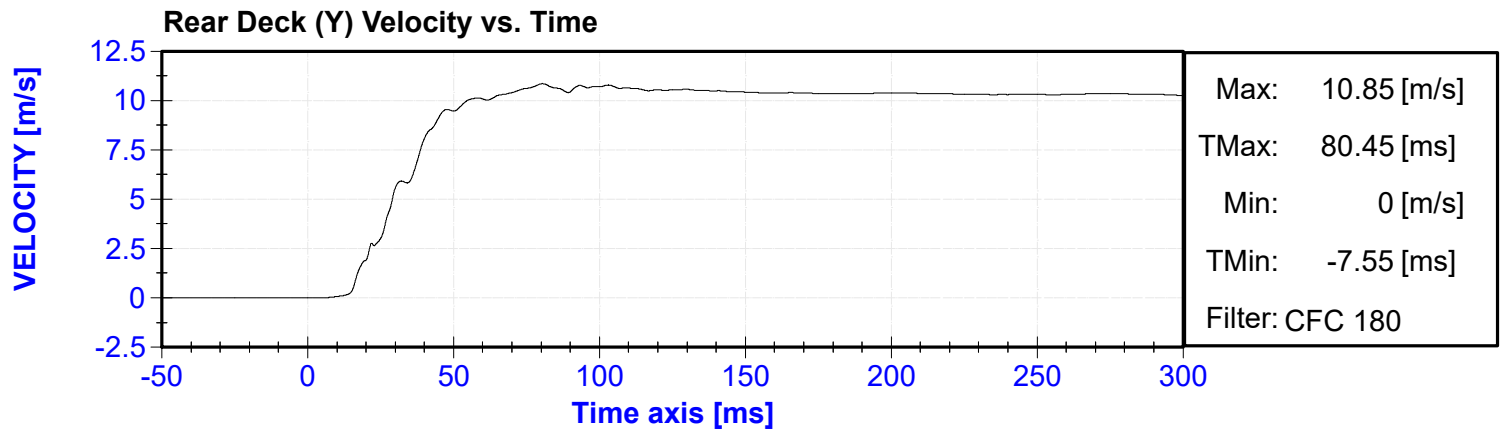












APPENDIX IV

PRE-TEST DUMMY PERFORMANCE CALIBRATION TEST DATA

(Subpart U, ES-2re)

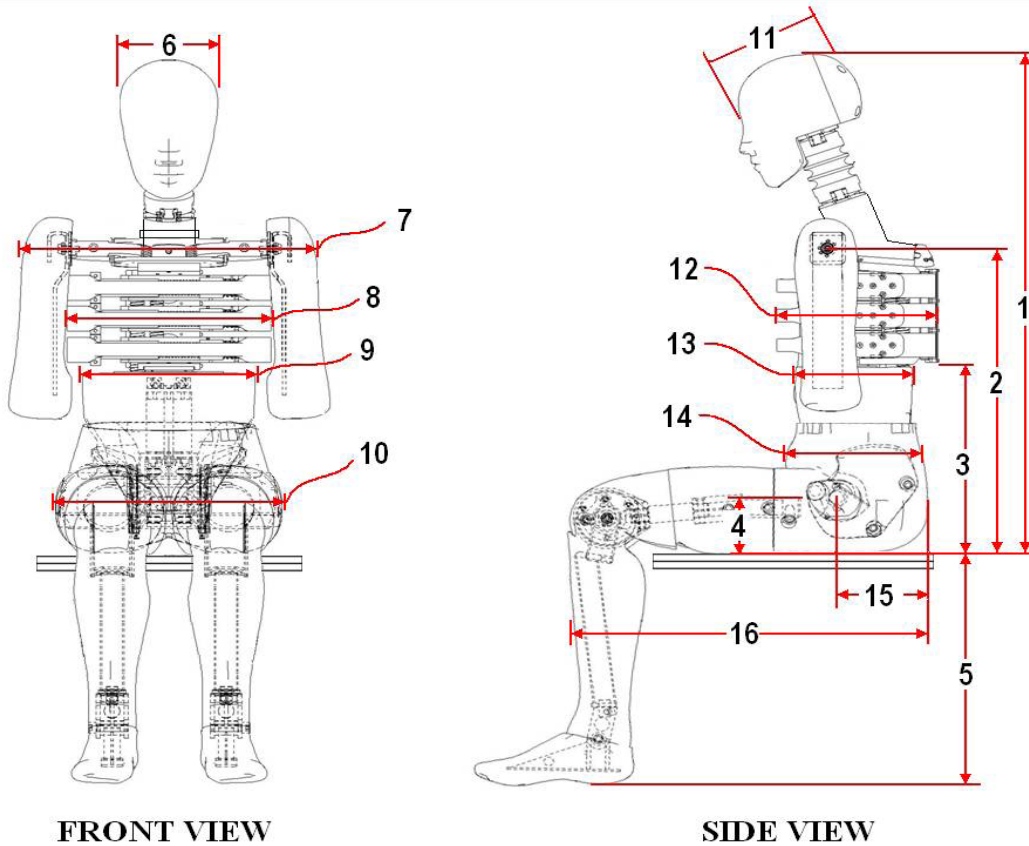


External Measurements - EuroSID-2re

Technician: J. Rios

Date: 4/8/2025

Dummy Serial Number: DG5348



Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	912	Pass
2	Seat to Shoulder Joint	558	572	562	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	351	Pass
4	Seat to Hip Joint (center of bolt)	97	103	100	Pass
5	Sole to Seat, Sitting	333	451	404	Pass
6	Head Width	152	158	155	Pass
7	Shoulder/Arm Width	461	479	472	Pass
8	Thorax Width	322	332	327	Pass
9	Abdomen Width	273	287	276	Pass
10	Pelvis Lap Width	359	373	365	Pass
11	Head Depth	196	206	204	Pass
12	Thorax Depth	262	272	268	Pass
13	Abdomen Depth	194	204	200	Pass
14	Pelvis Depth	235	245	240	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	155	Pass
16	Back of Buttocks to Front Knee	597	615	604	Pass

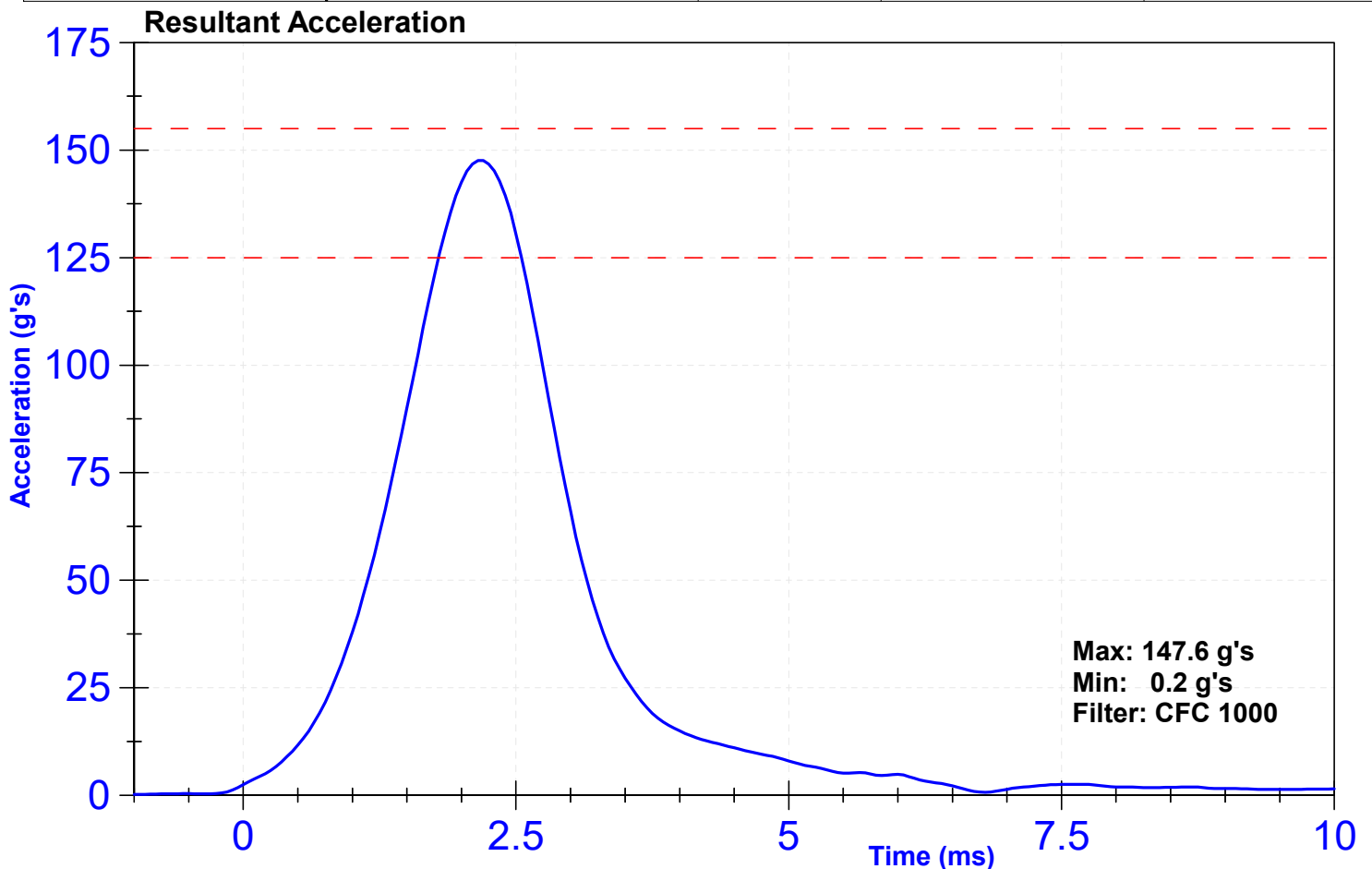
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

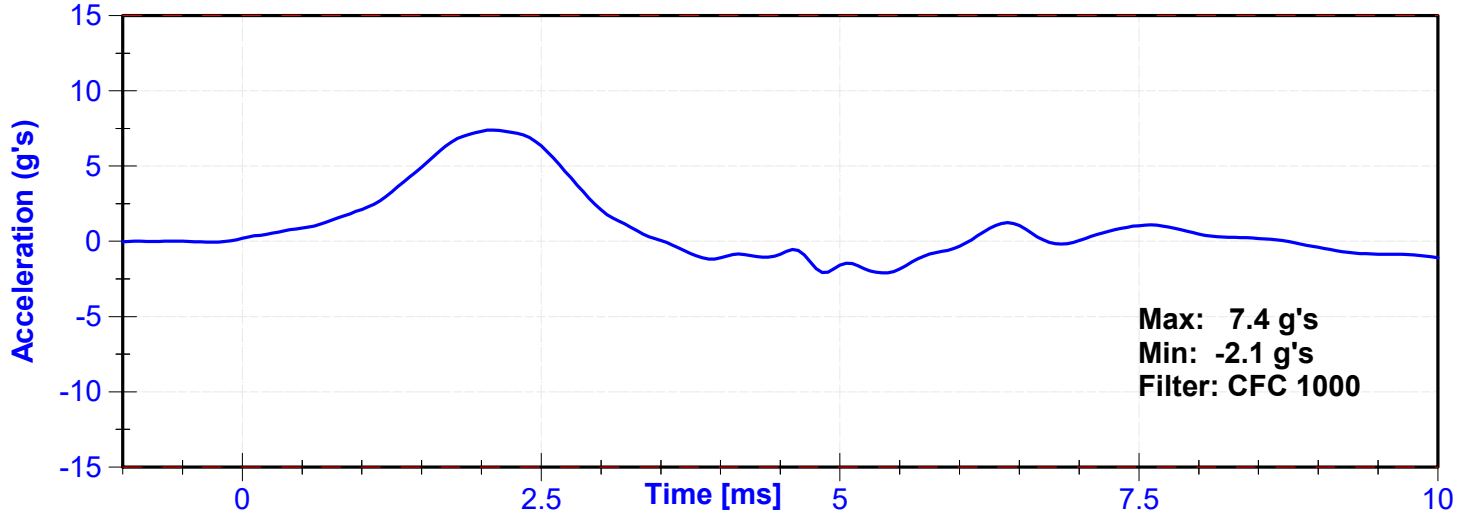
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Resultant Acceleration	125	155	g's	147.6	Pass
Oscillation	0	15	%	3.58	Pass
Fore-Aft Acceleration	-15	15	g's	7.4	Pass

Transducer Calibrations

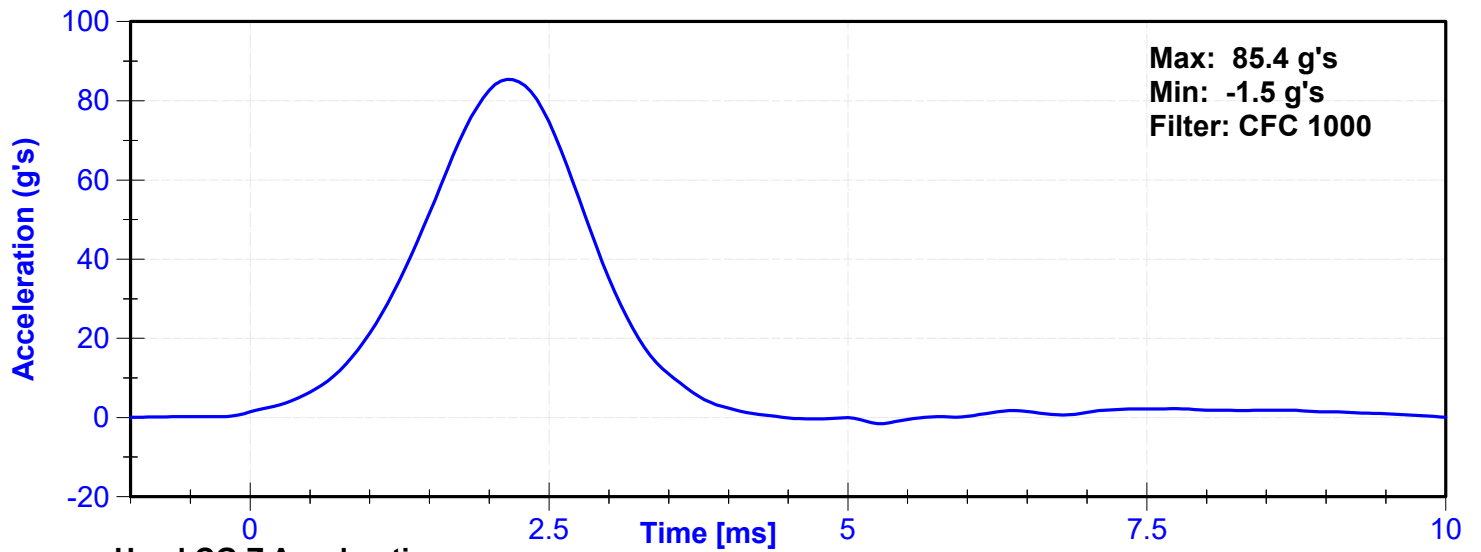
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	18613	1/17/2025	7/16/2025
Y Accelerometer	Endevco	18472	1/17/2025	7/16/2025
Z Accelerometer	Endevco	18663	1/17/2025	7/16/2025



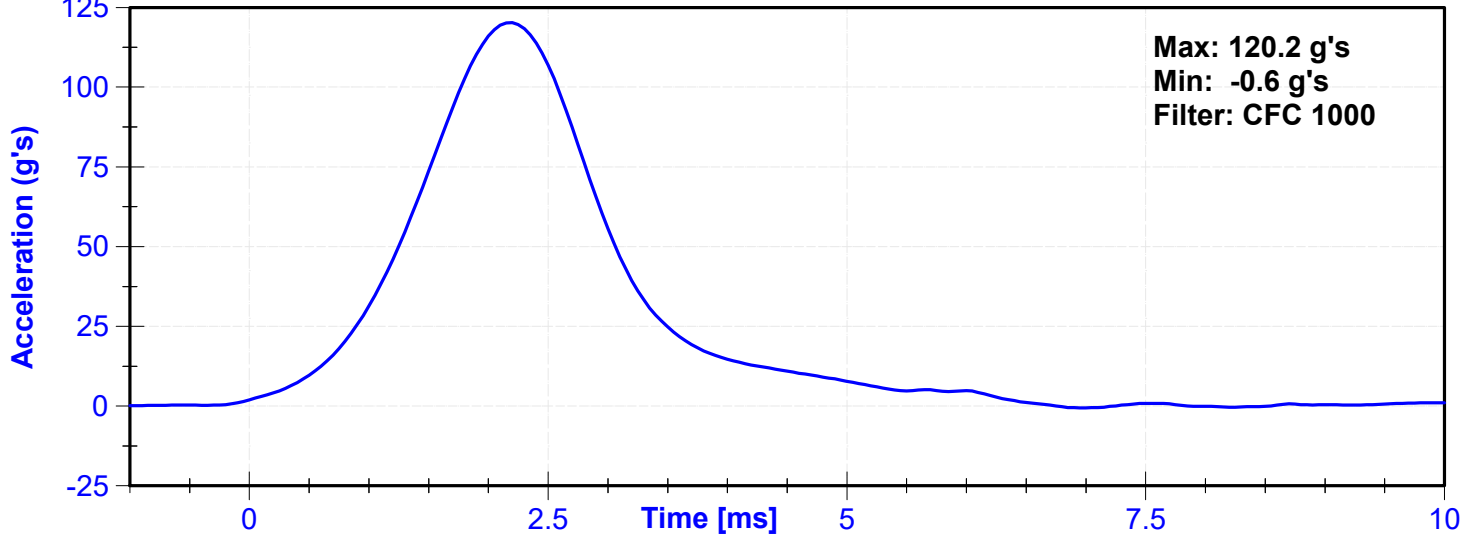
Head CG X Acceleration



Head CG Y Acceleration



Head CG Z Acceleration



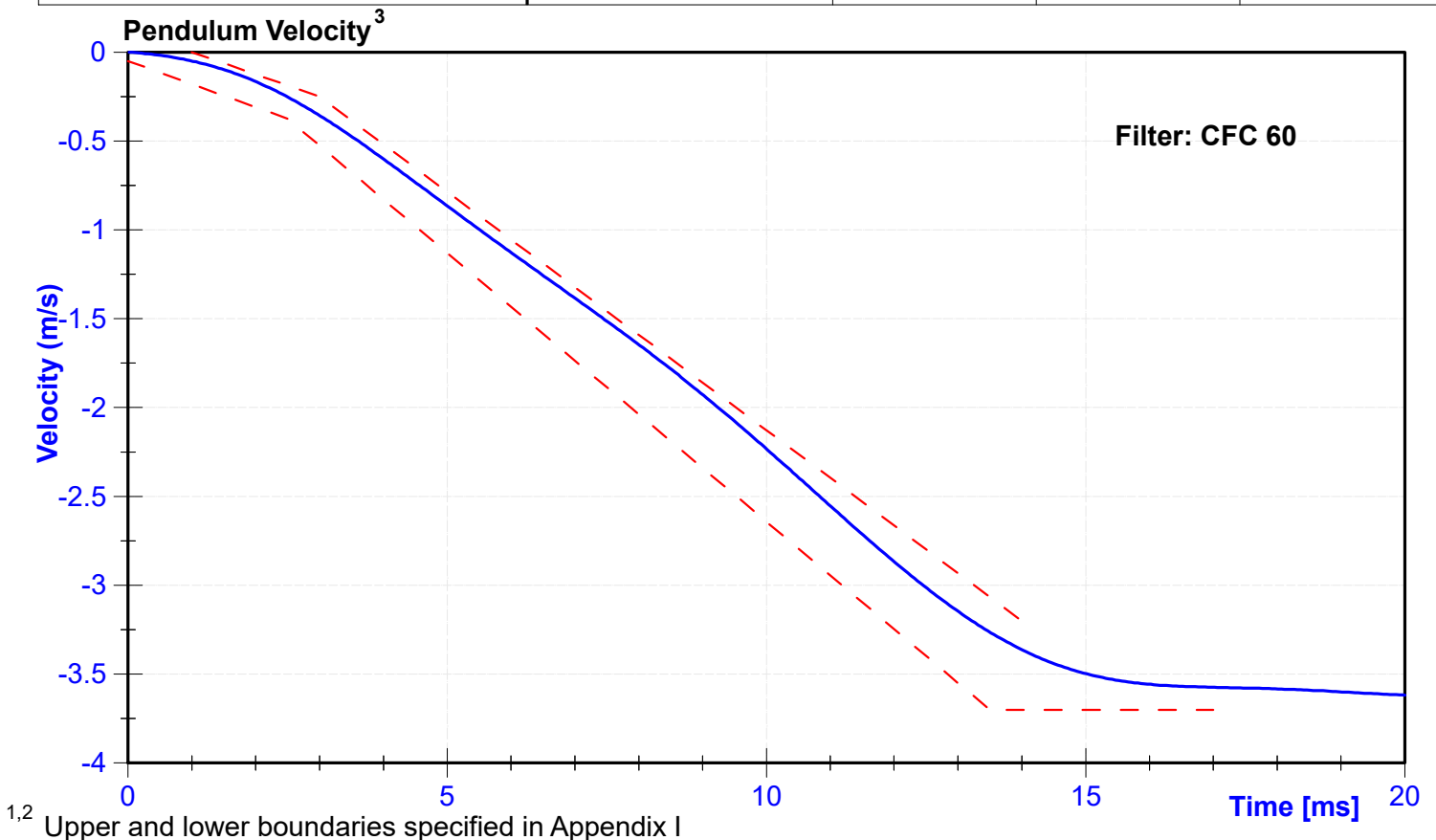
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

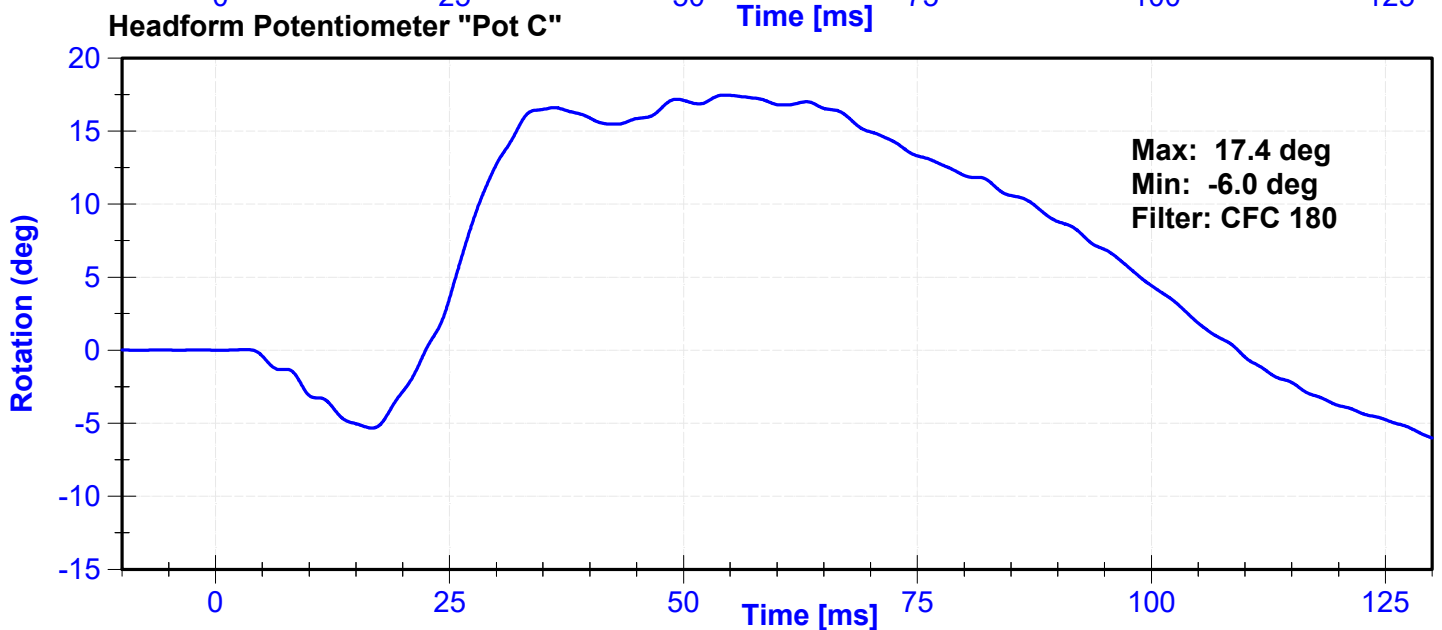
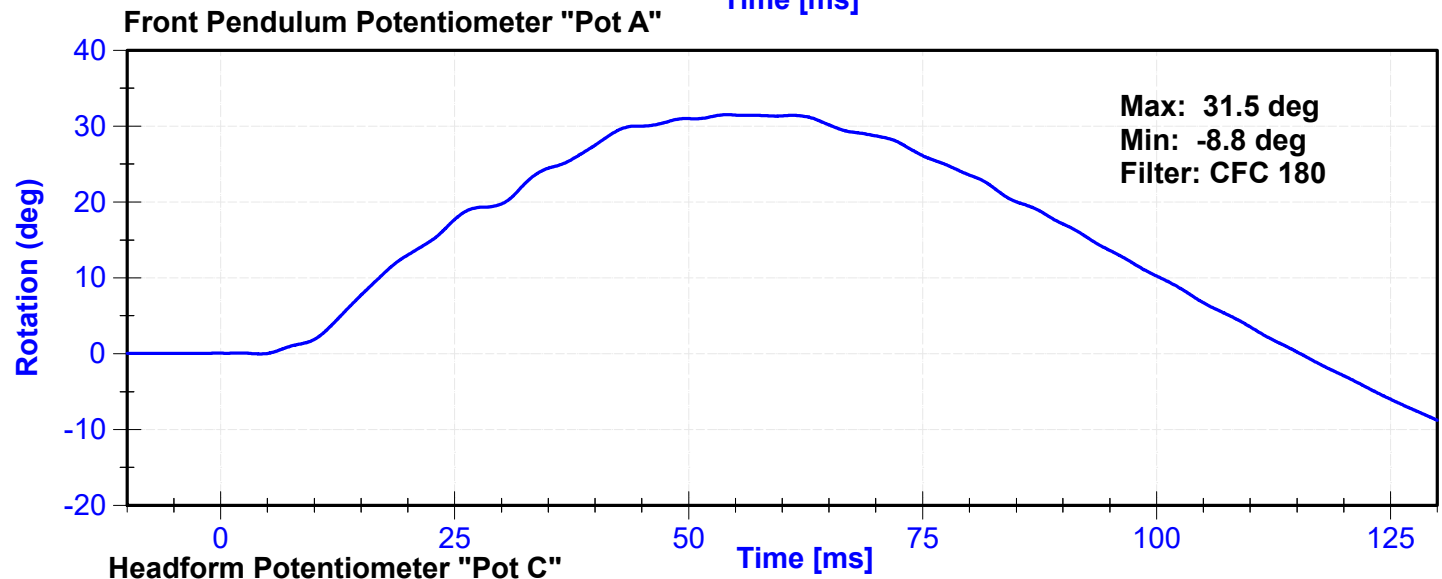
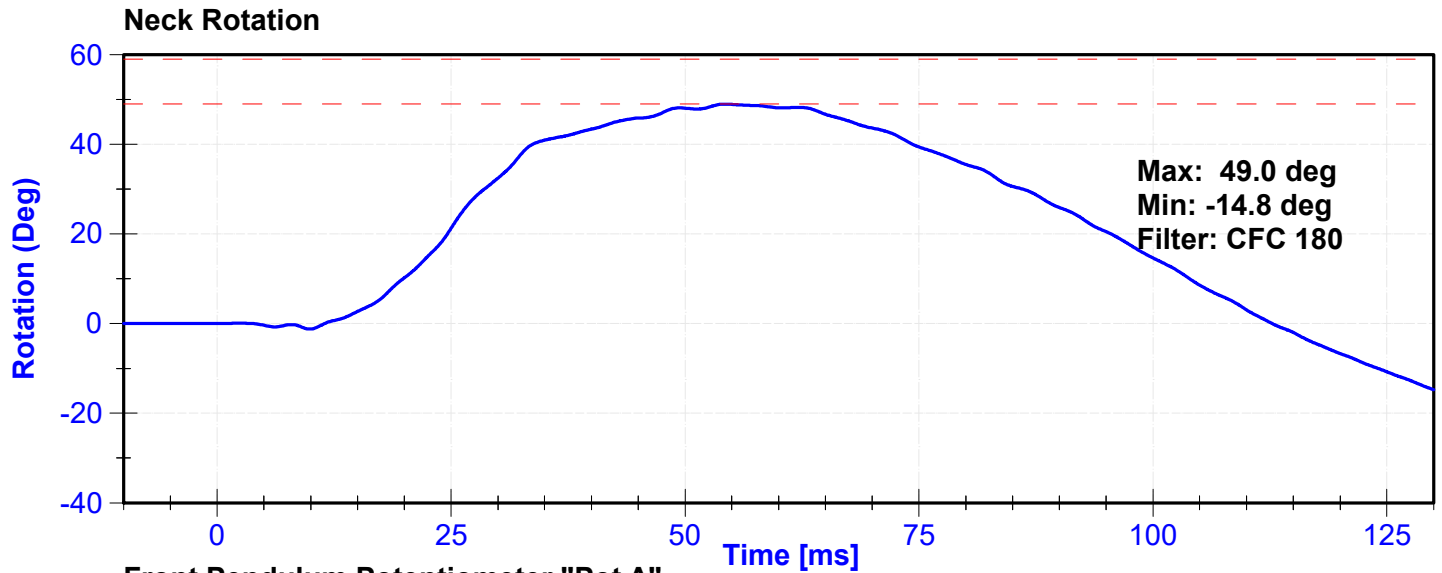
Results

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

Transducer Calibrations

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





Appendix I

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

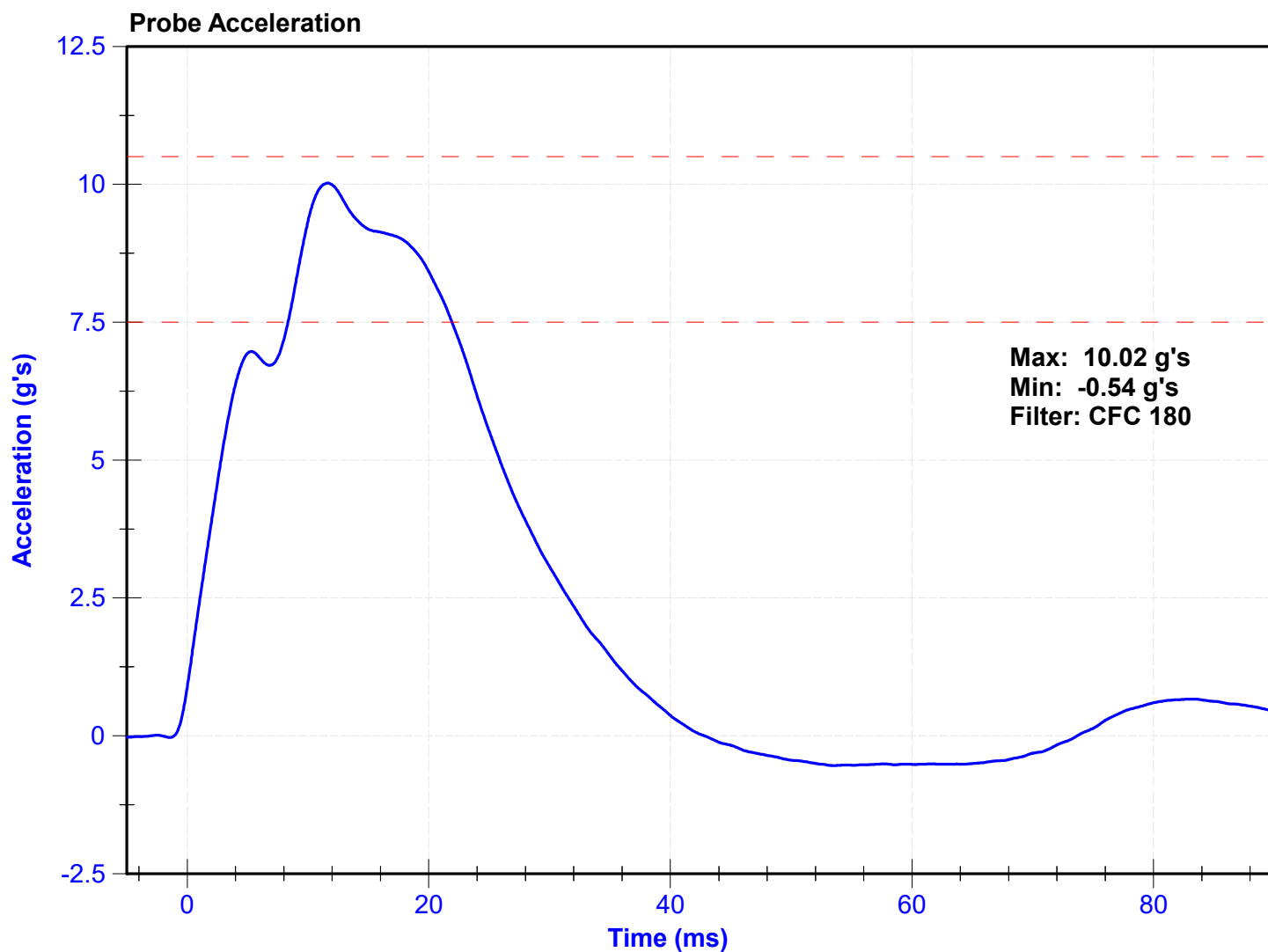
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

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

Transducer Calibrations

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



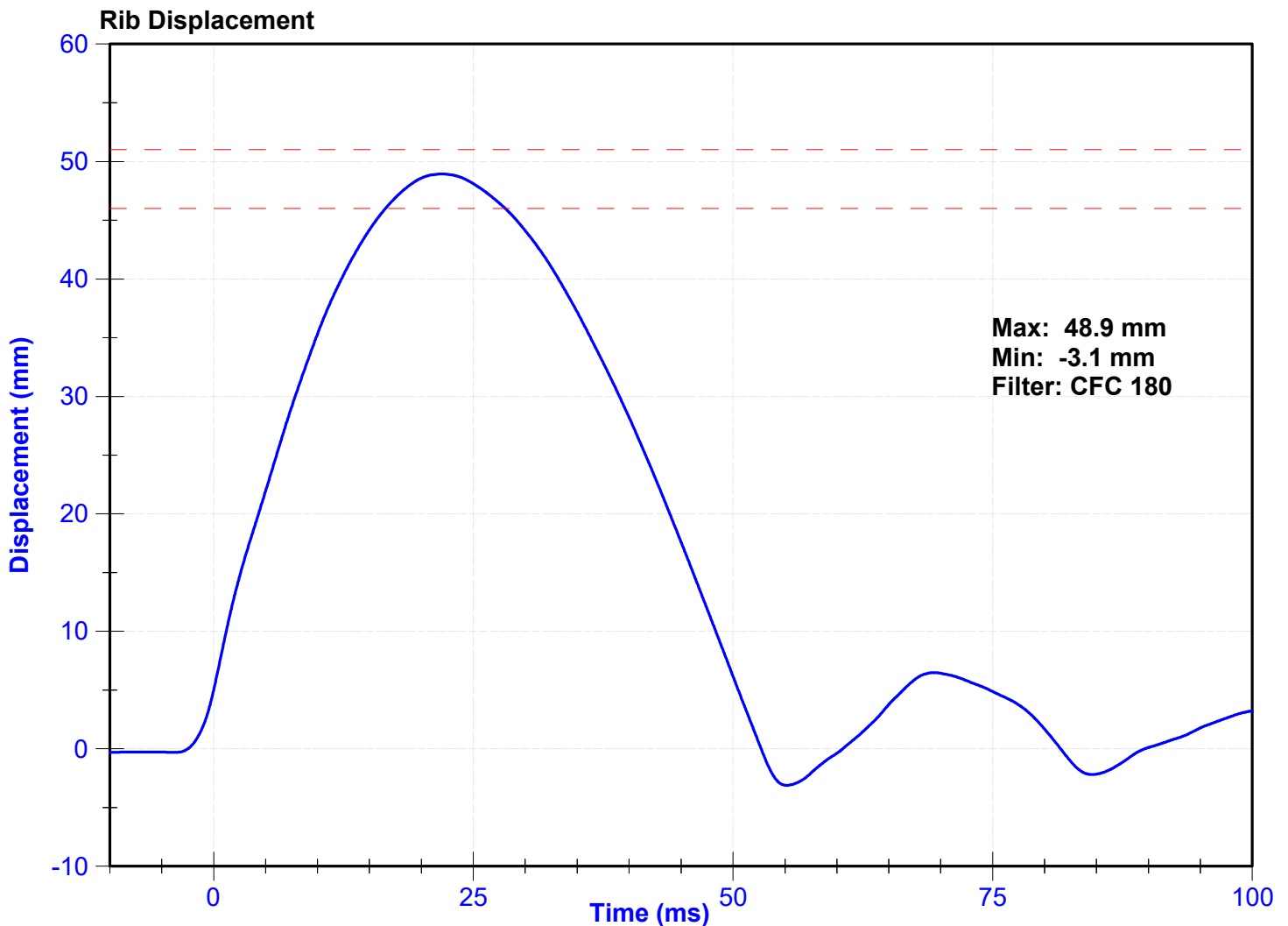
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

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

Transducer Calibrations

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



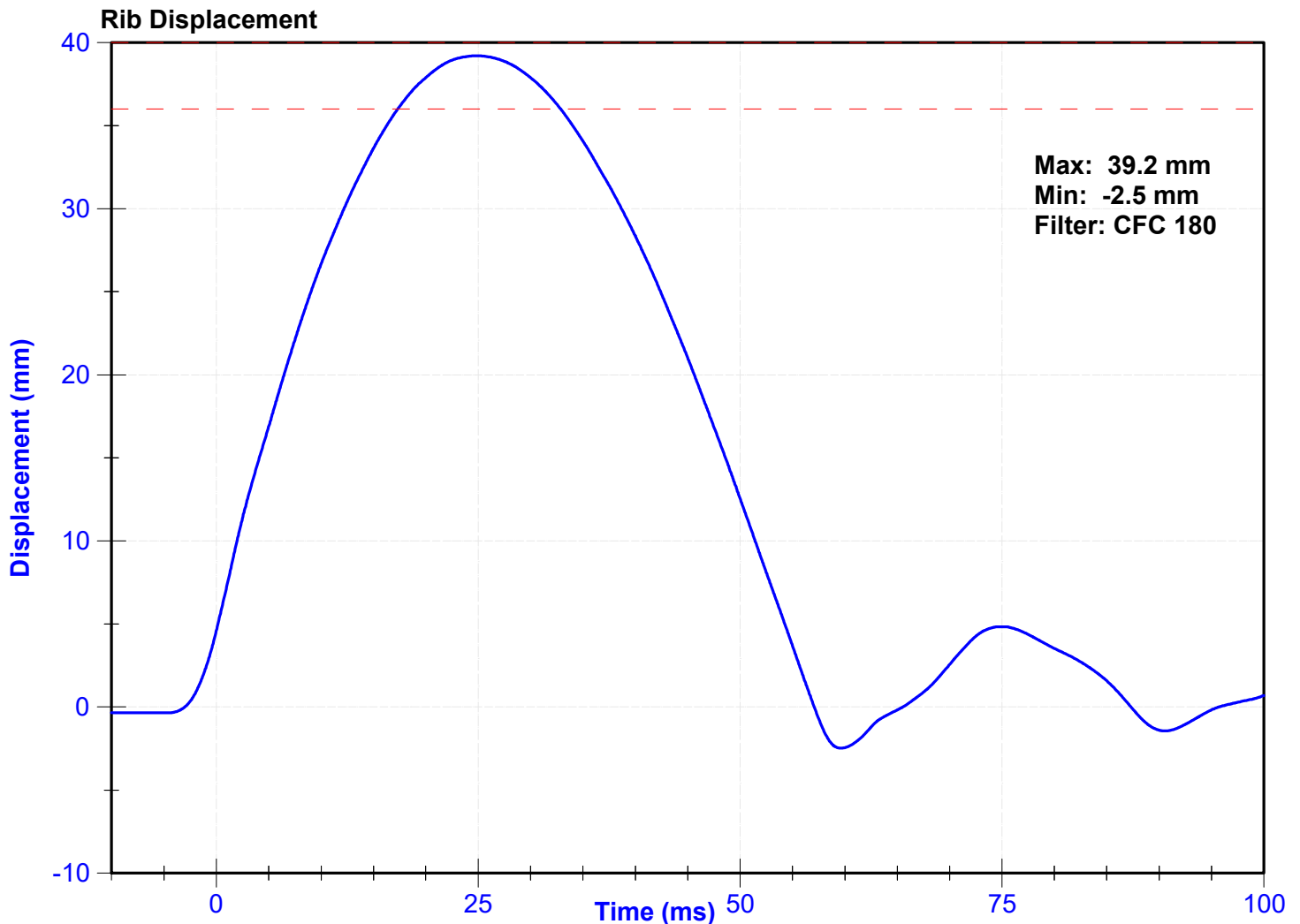
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

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

Transducer Calibrations

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



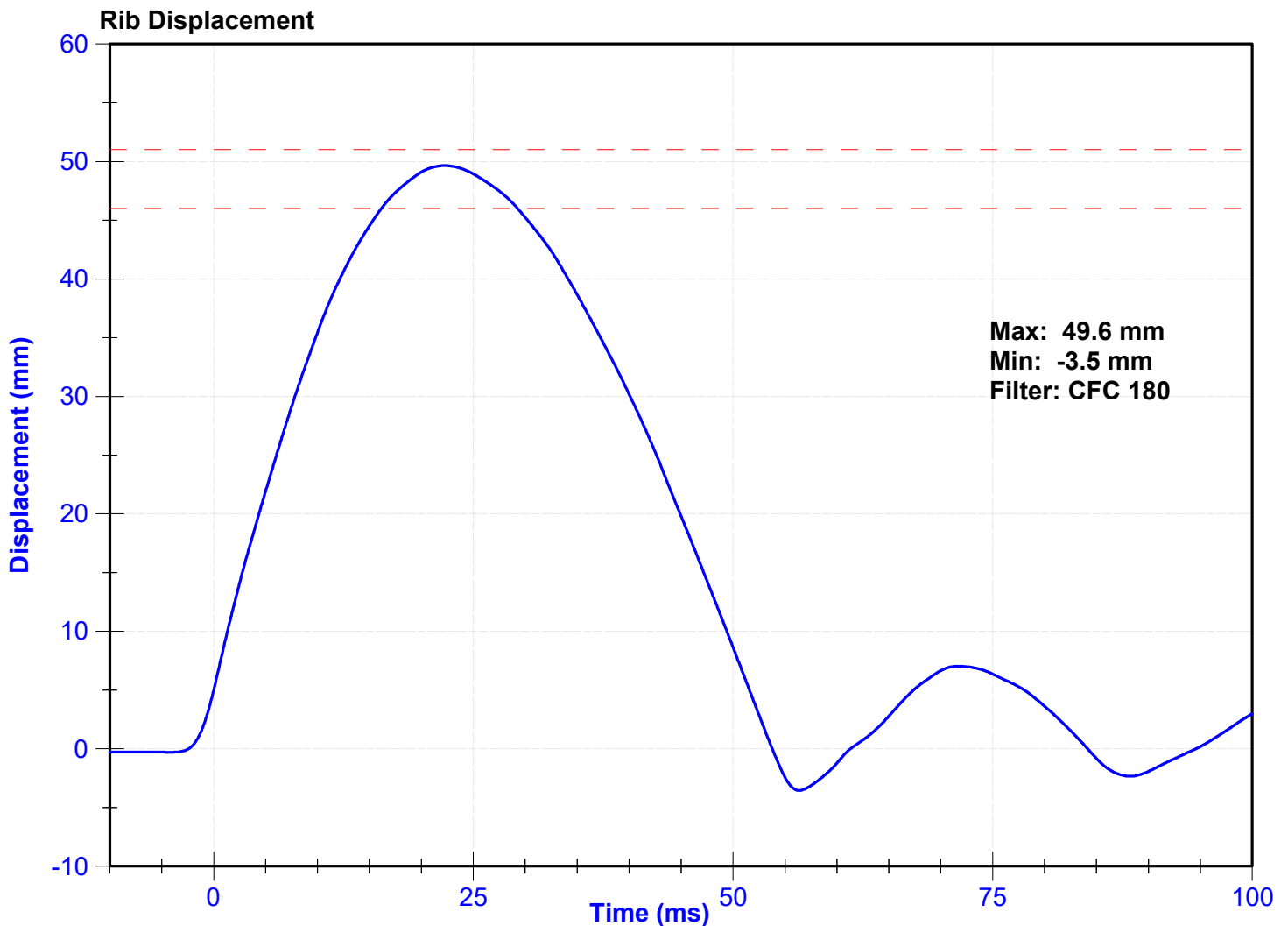
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

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

Transducer Calibrations

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



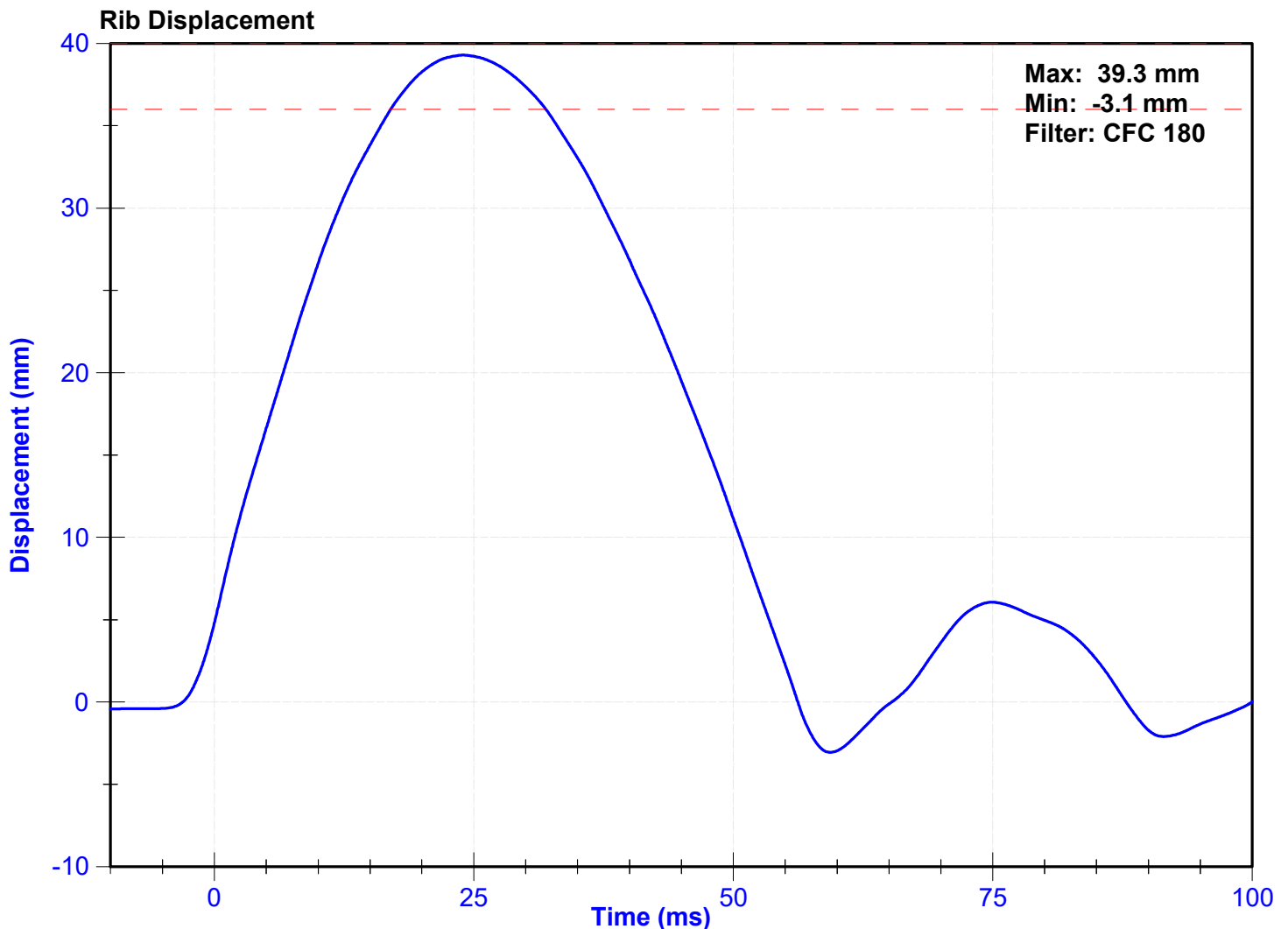
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

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

Transducer Calibrations

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



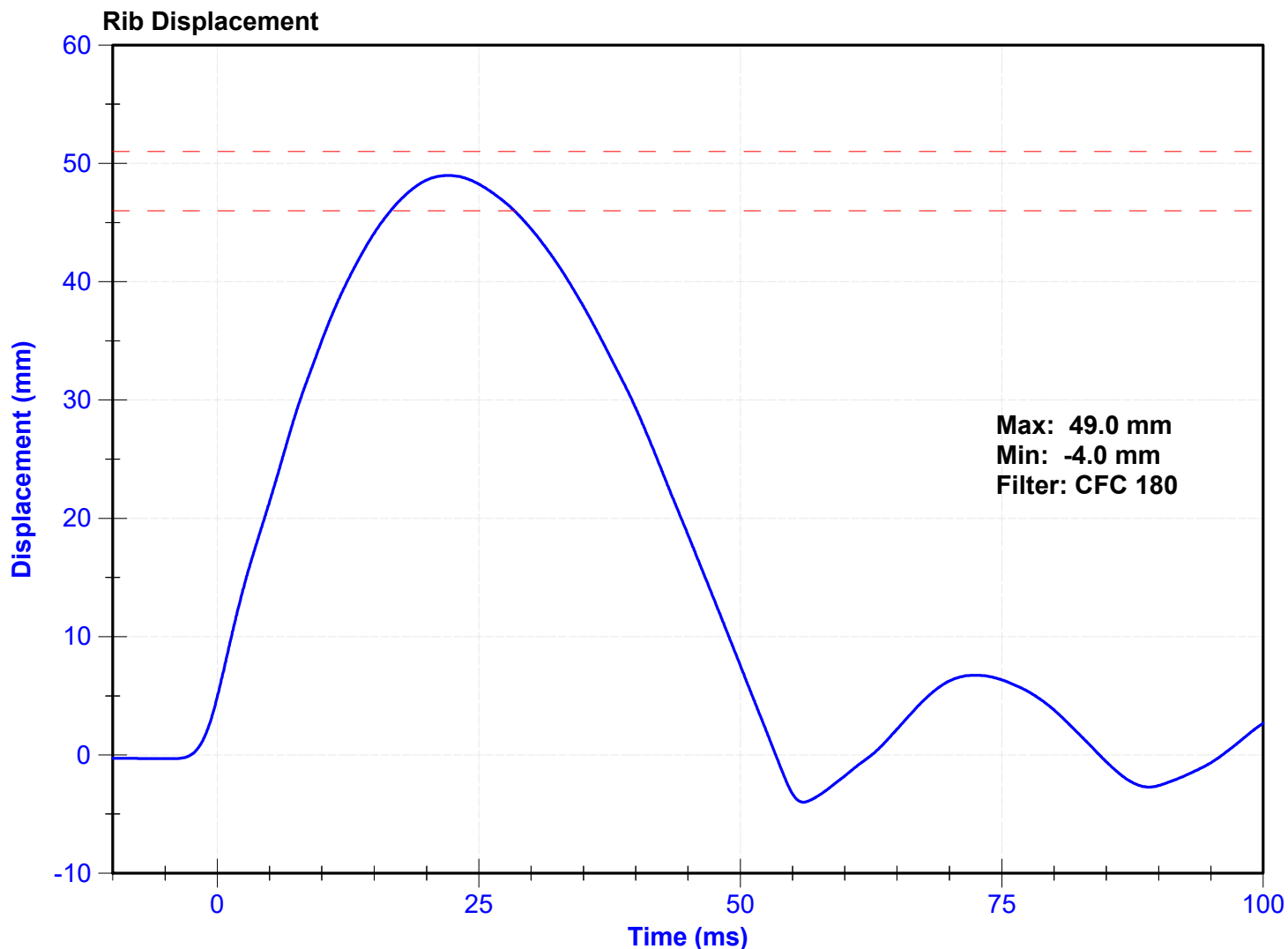
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

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

Transducer Calibrations

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



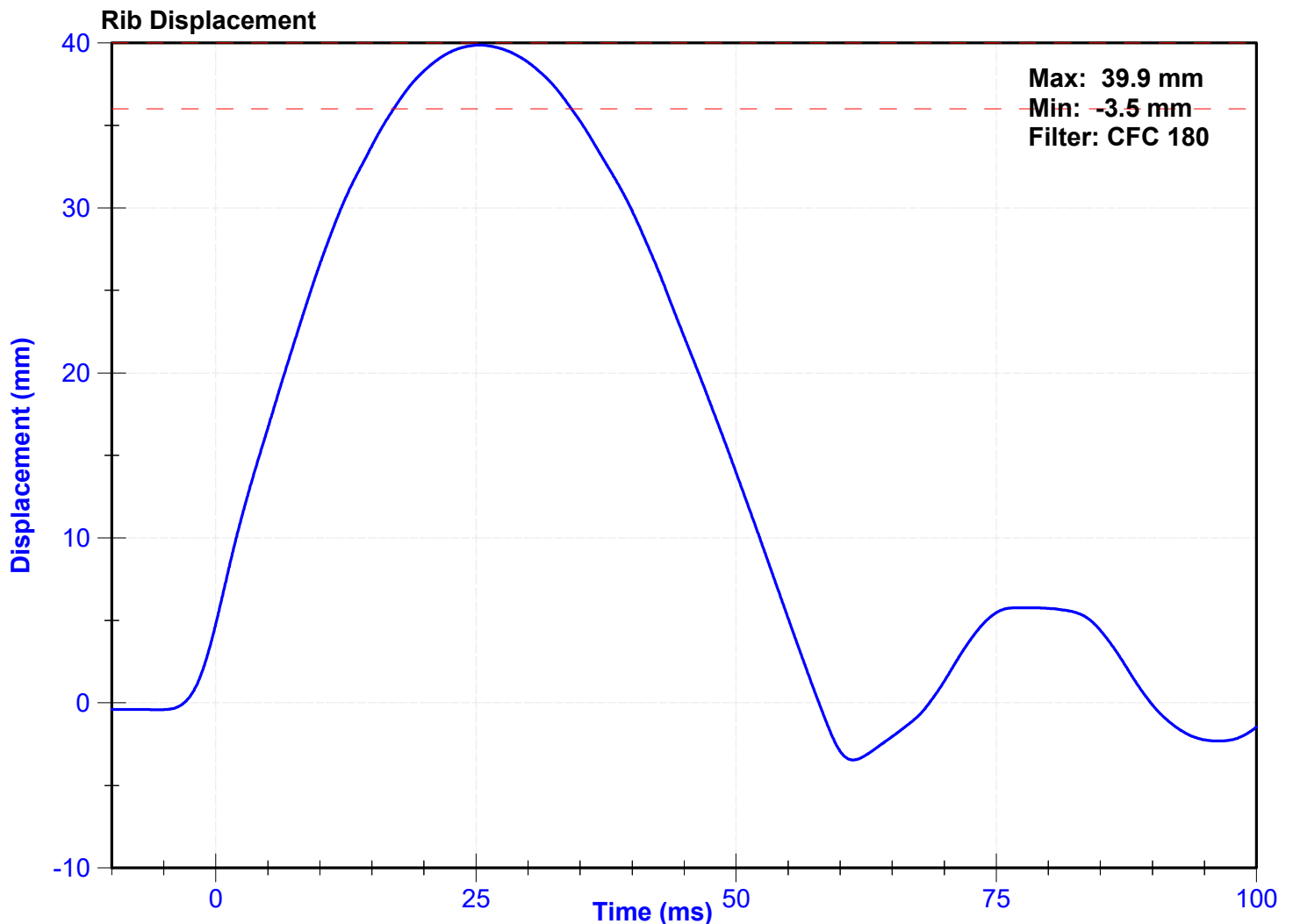
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

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

Transducer Calibrations

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



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

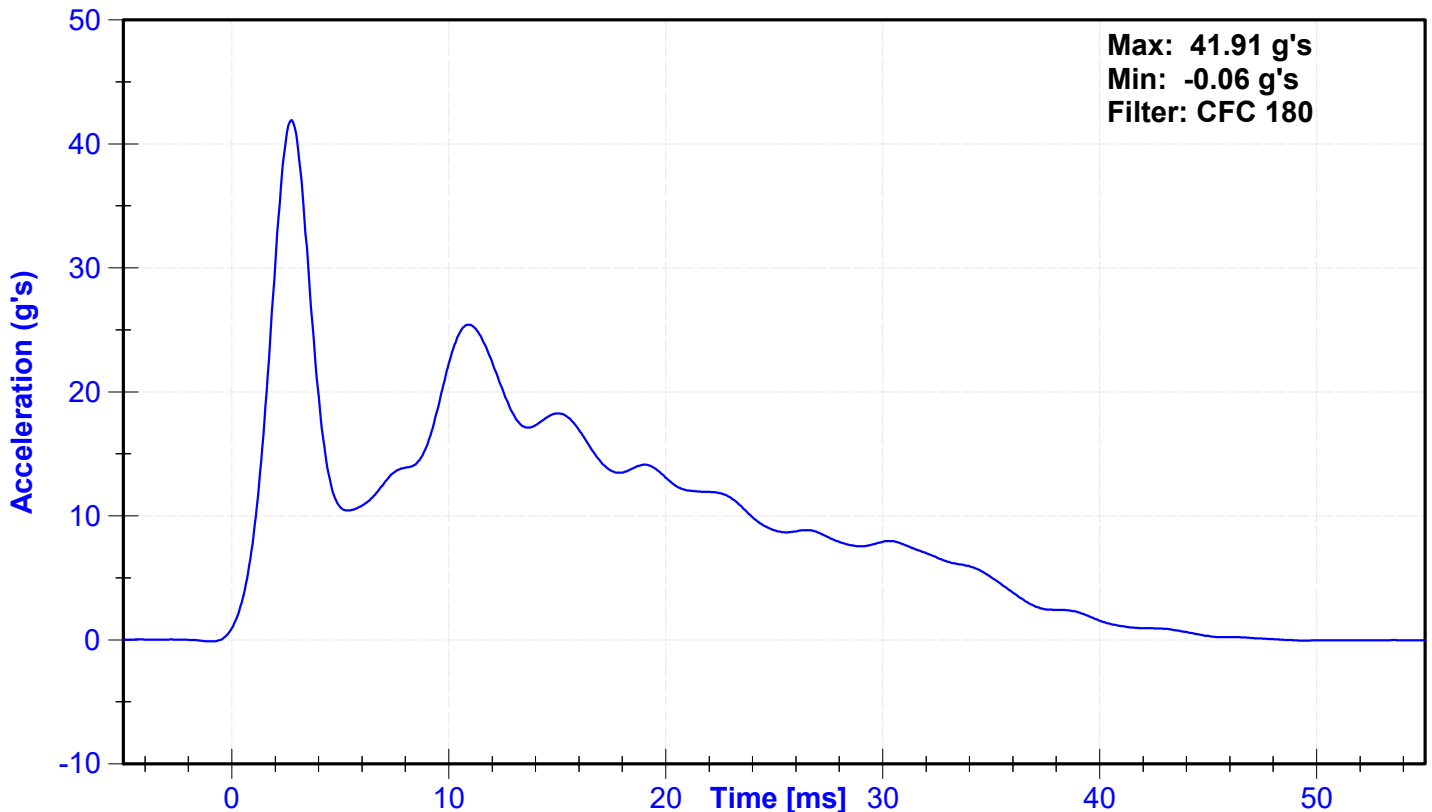
Results

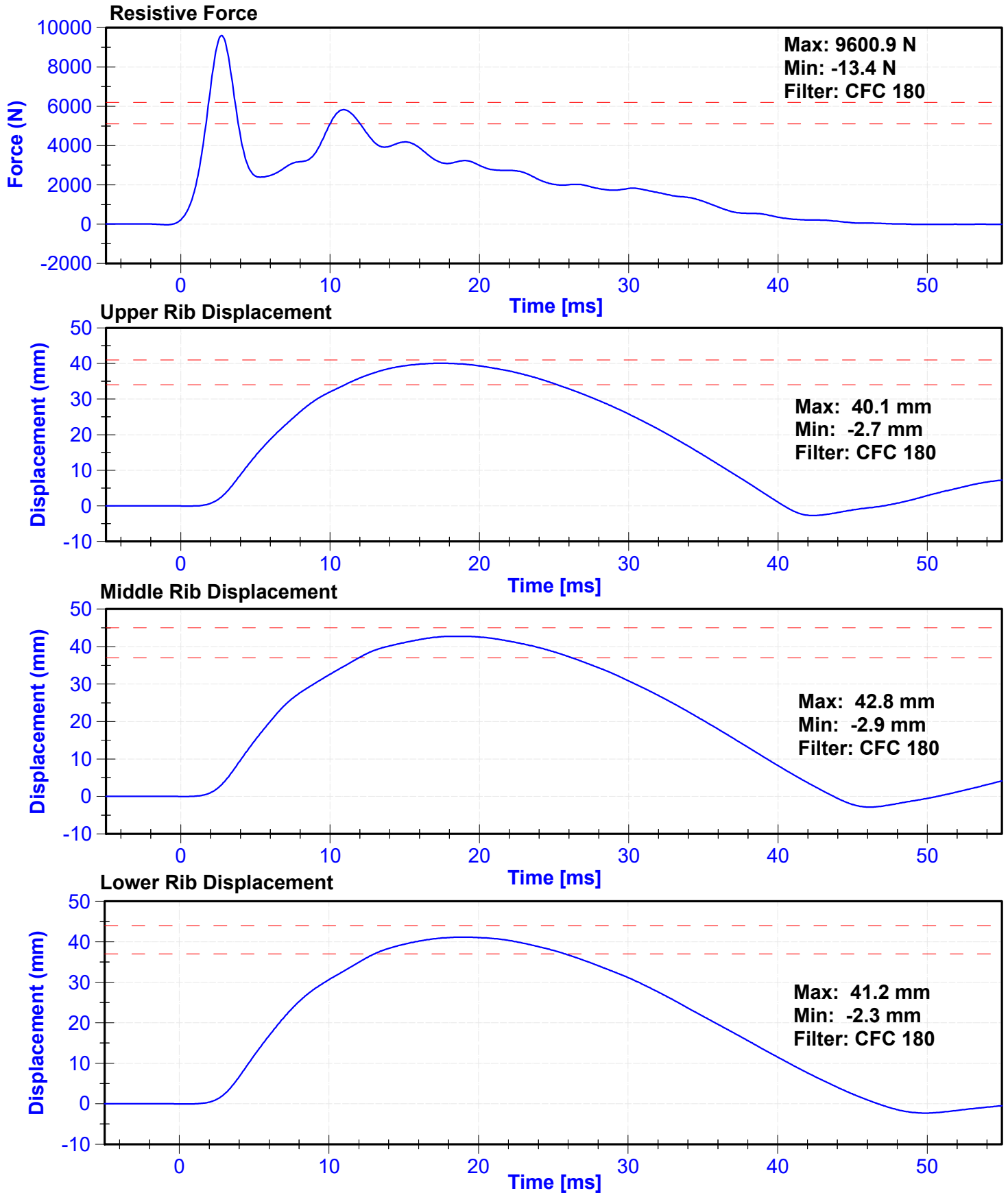
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	19	Pass
Velocity	5.4	5.6	m/s	5.55	Pass
Resistive Force after 6ms	5100	6200	N	5823.8	Pass
Upper Thorax Rib Deflection	34	41	mm	40.1	Pass
Mid Thorax Rib Deflection	37	45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

Transducer Calibrations

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

Probe Acceleration





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

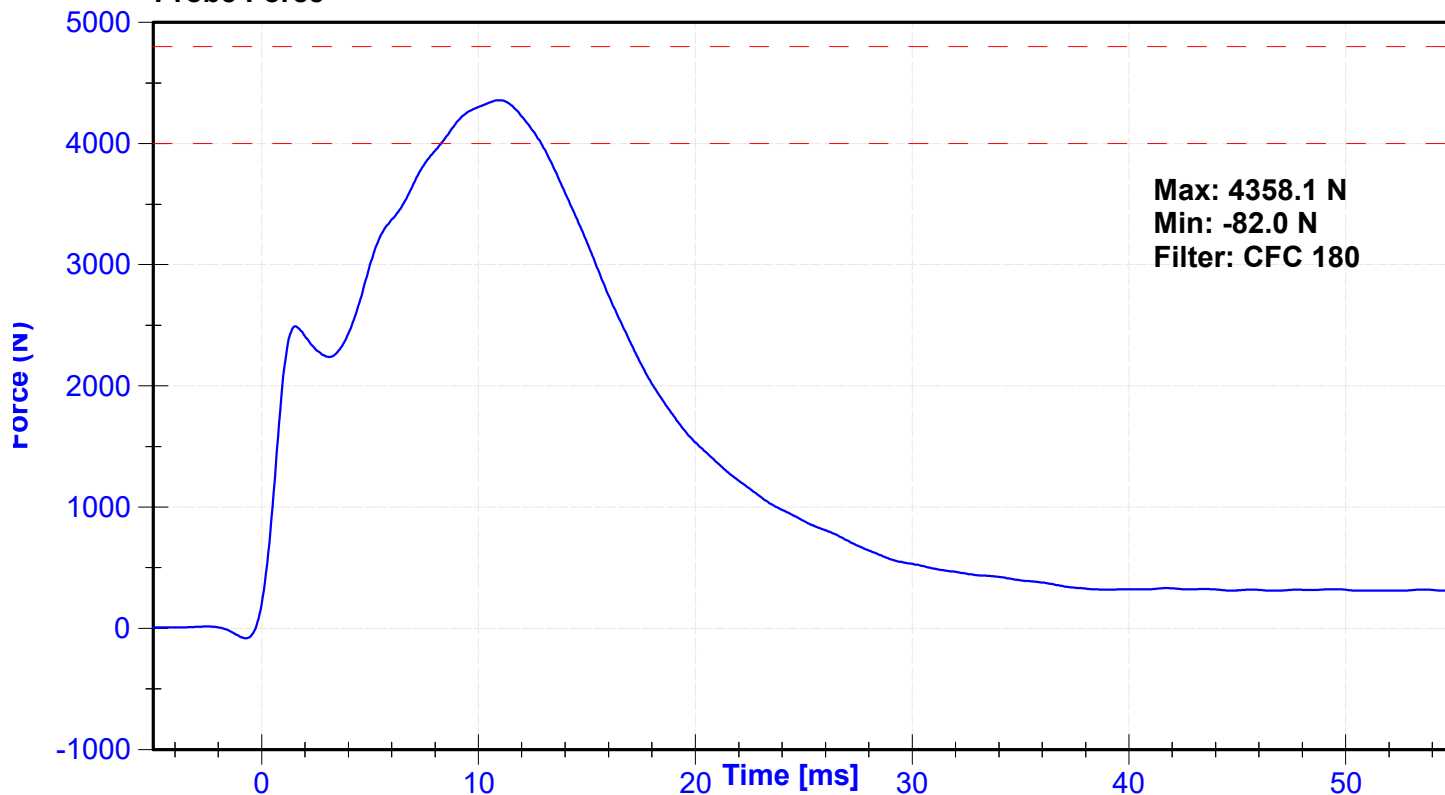
Results

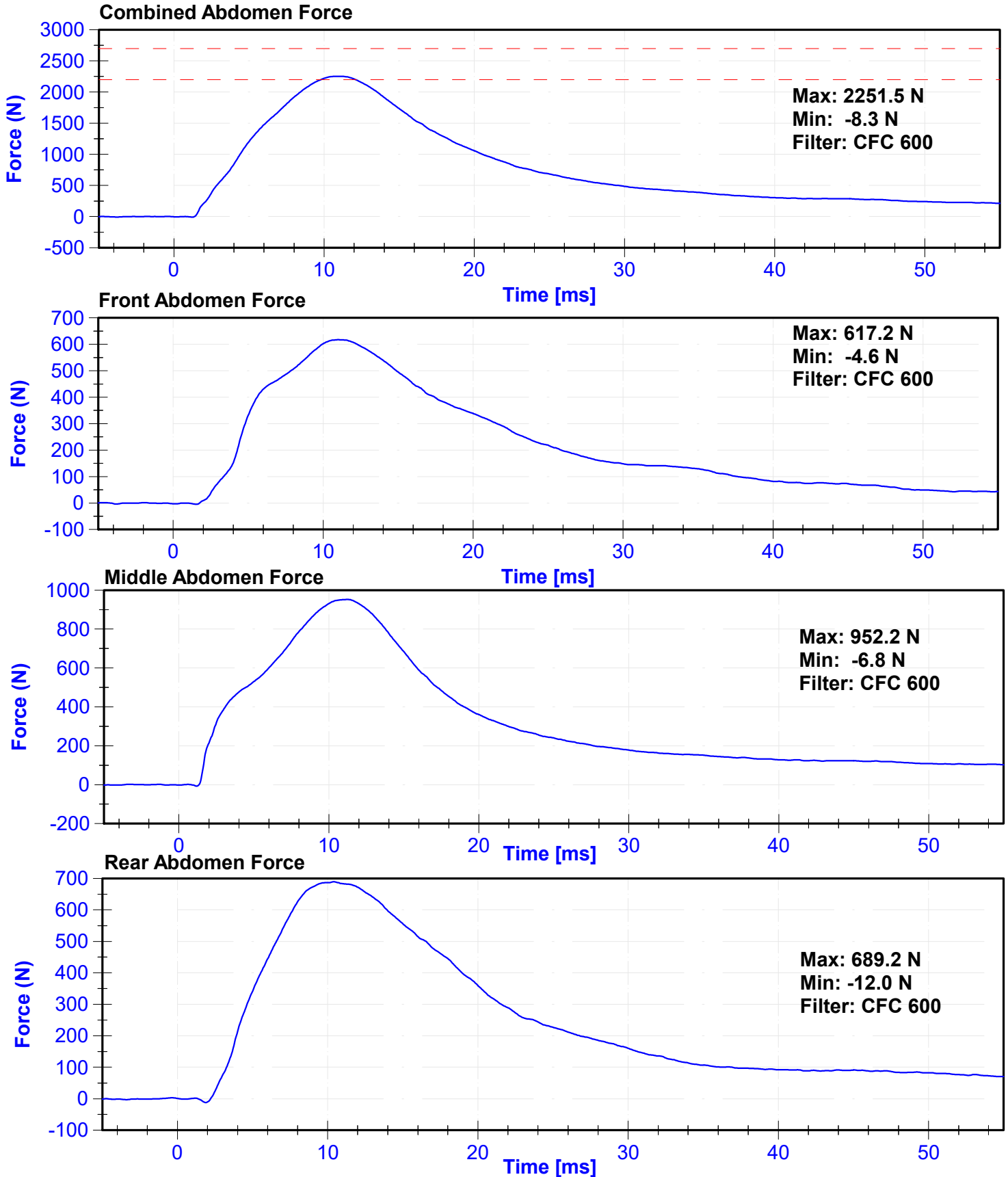
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	19	Pass
Velocity	3.9	4.1	m/s	4.01	Pass
Combined Abdomen Force	2200	2700	N	2251.5	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	11.20	Pass
Resistive Probe Force	4000	4800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

Transducer Calibrations

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

Probe Force





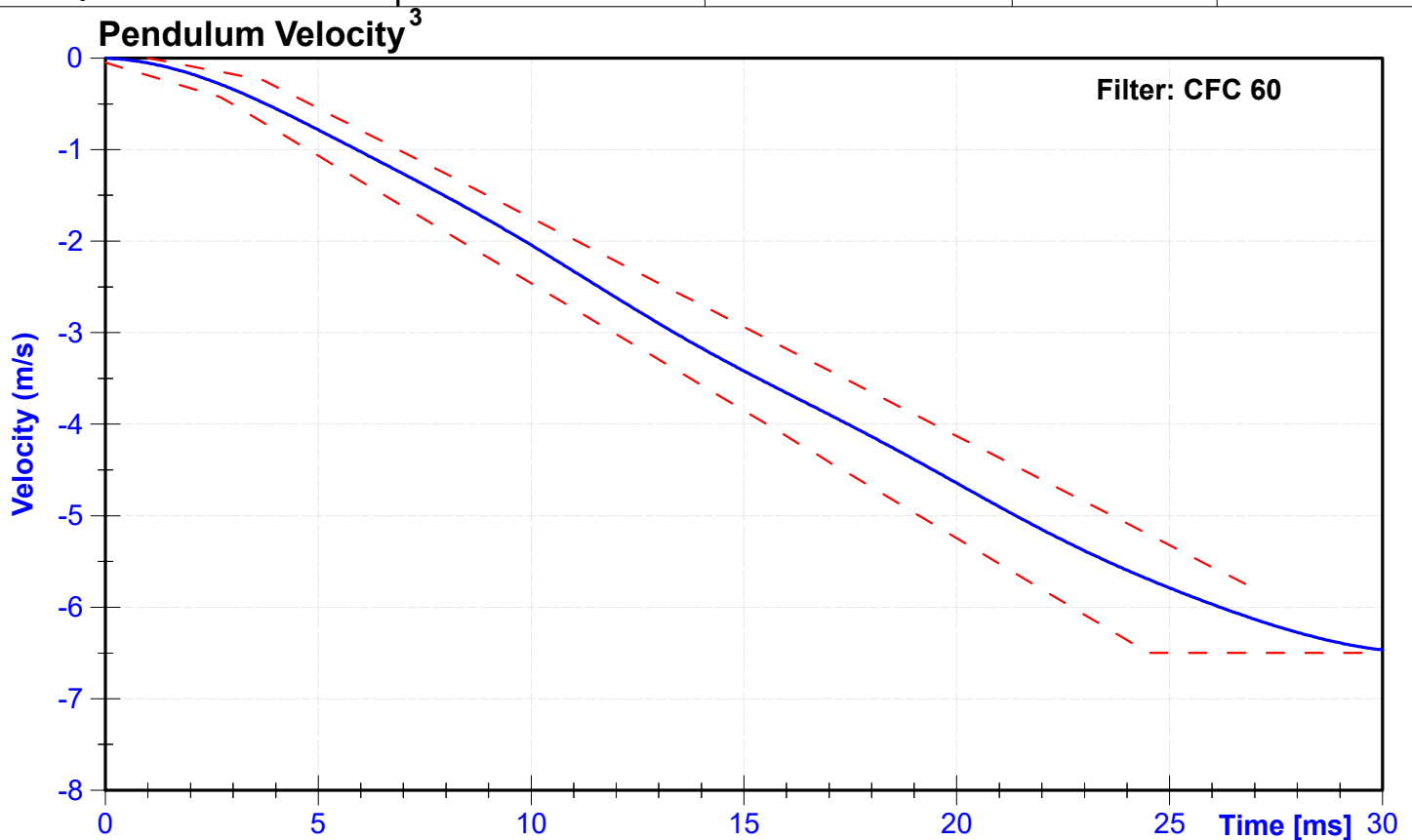
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

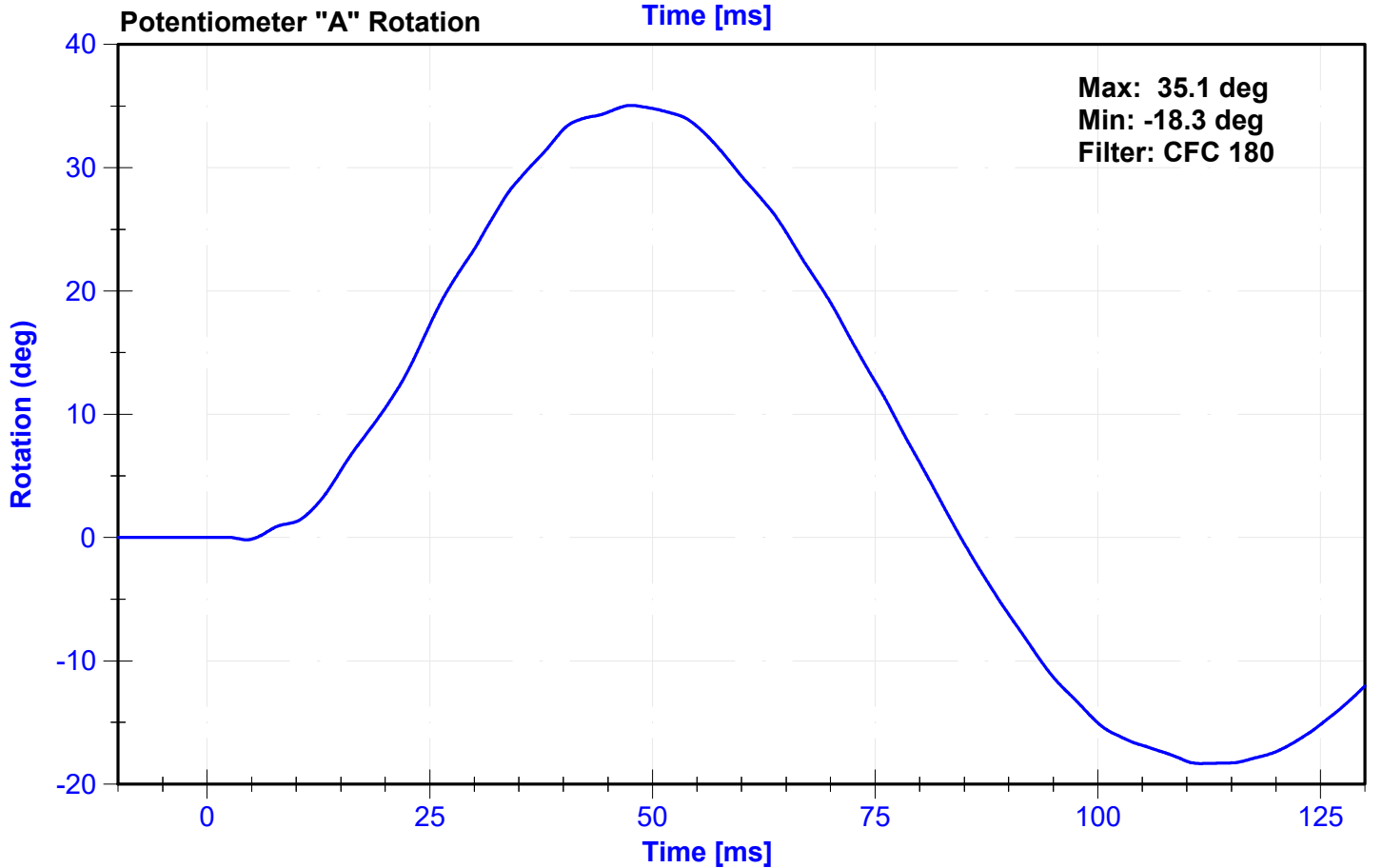
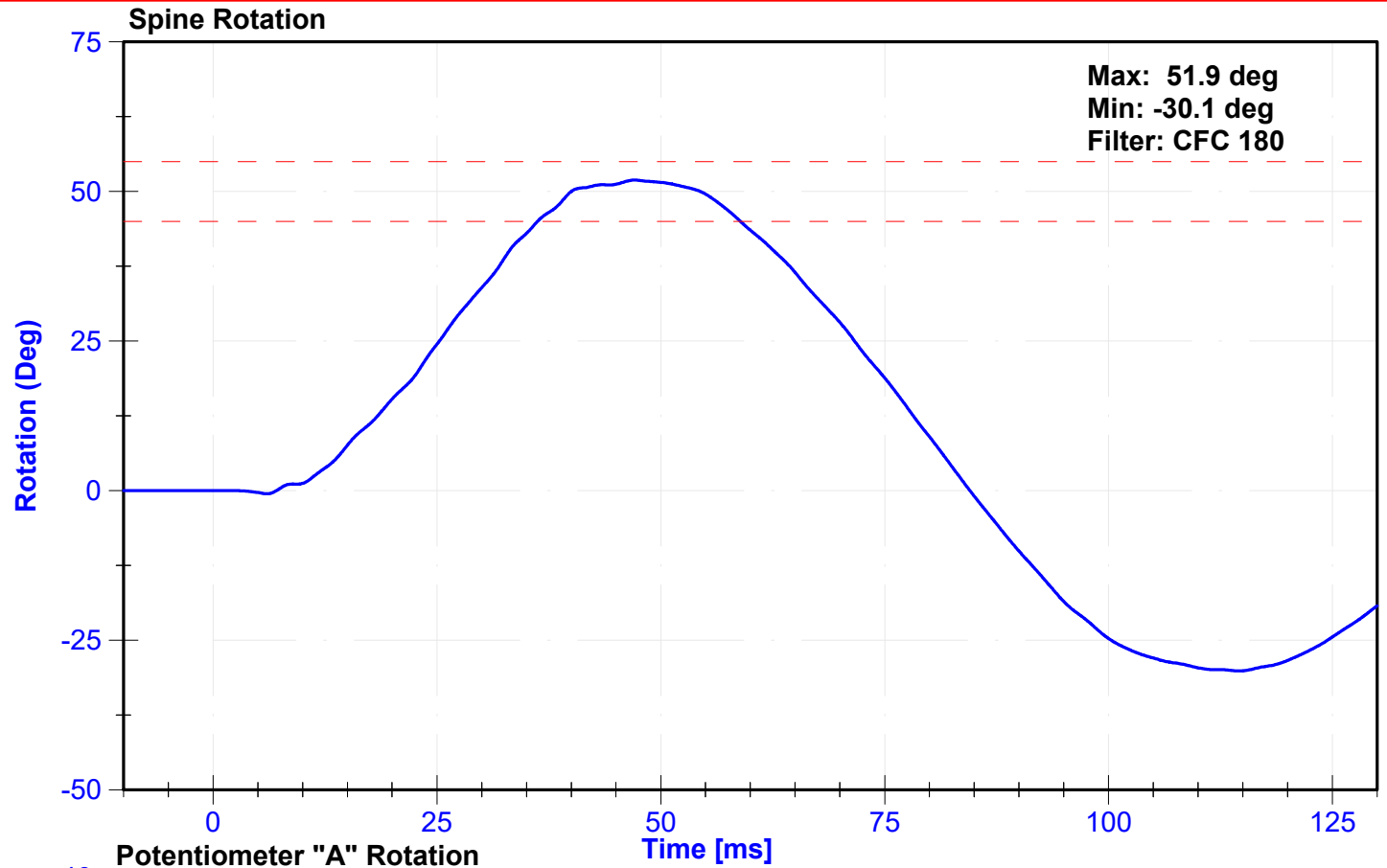
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	25	Pass
Velocity	5.95	6.15	m/s	6.133	Pass
Lateral Spine Rotation	45	55	deg	51.9	Pass
Time at Maximum Rotation	39	53	ms	47.0	Pass
Time of Decay to Zero Degrees	37	57	ms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

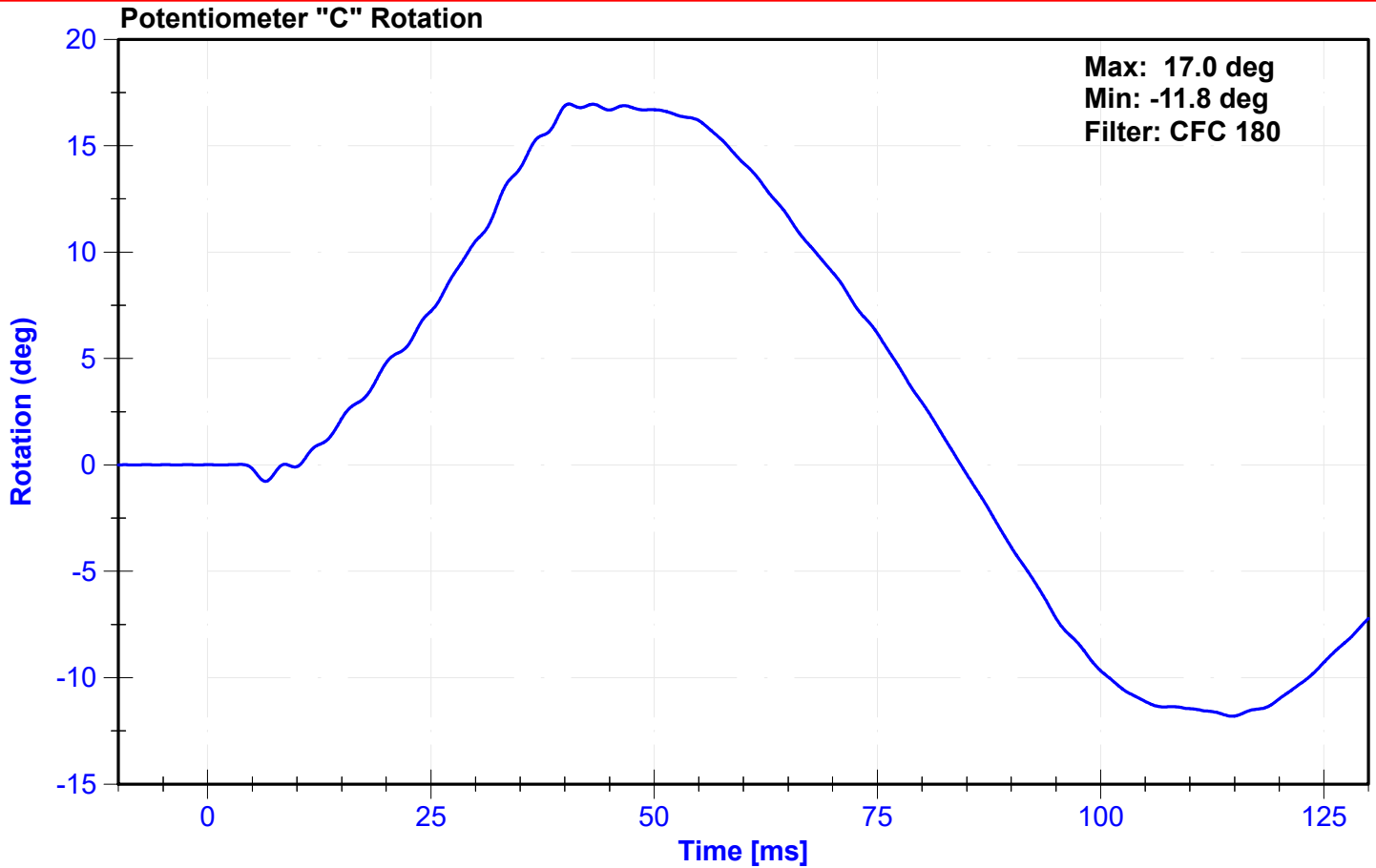
Transducer Calibrations

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



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





Appendix I

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

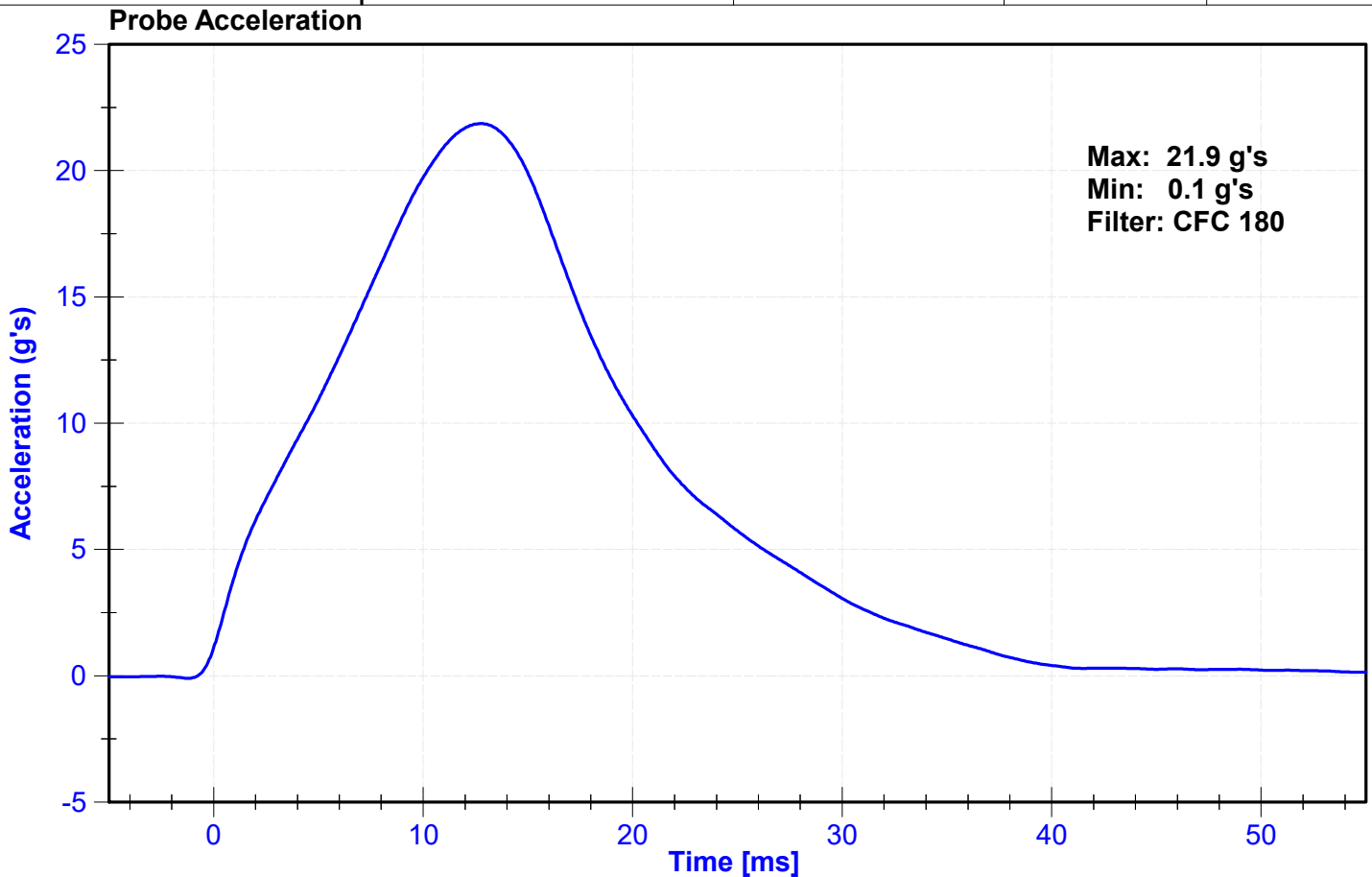
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

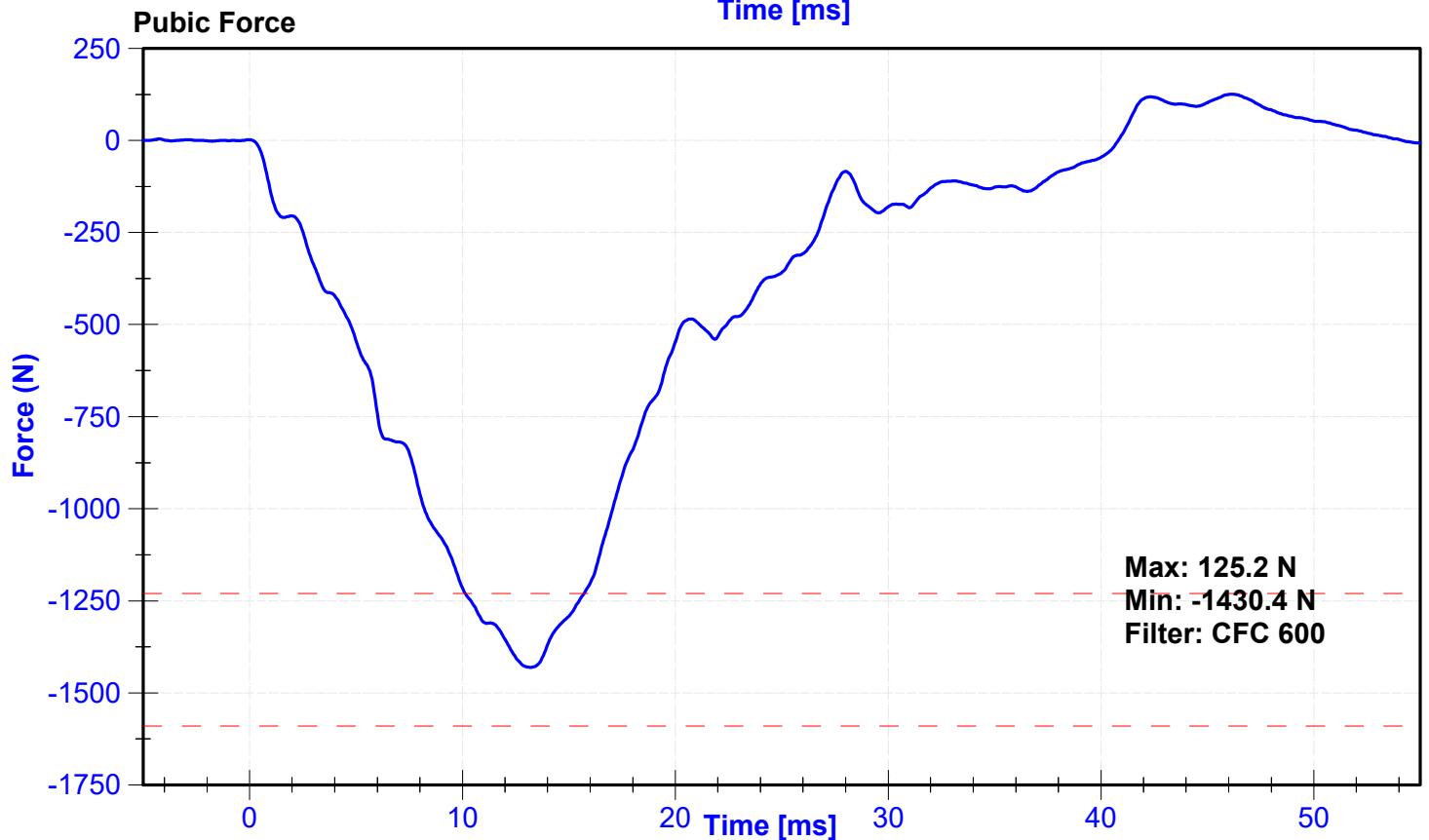
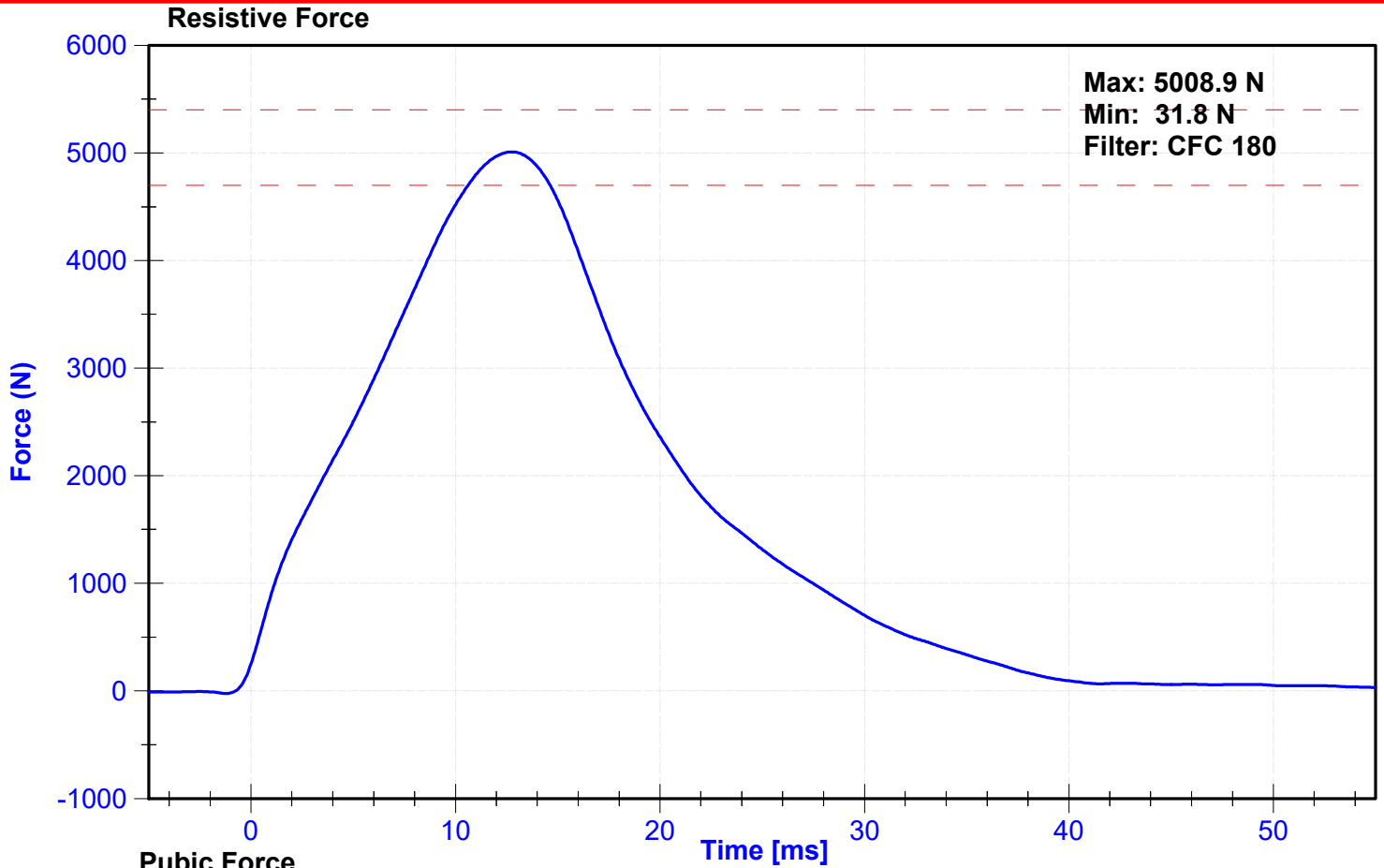
Results

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

Transducer Calibrations

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





POST-TEST DUMMY PERFORMANCE CALIBRATION TEST DATA
(Subpart U, ES-2re)

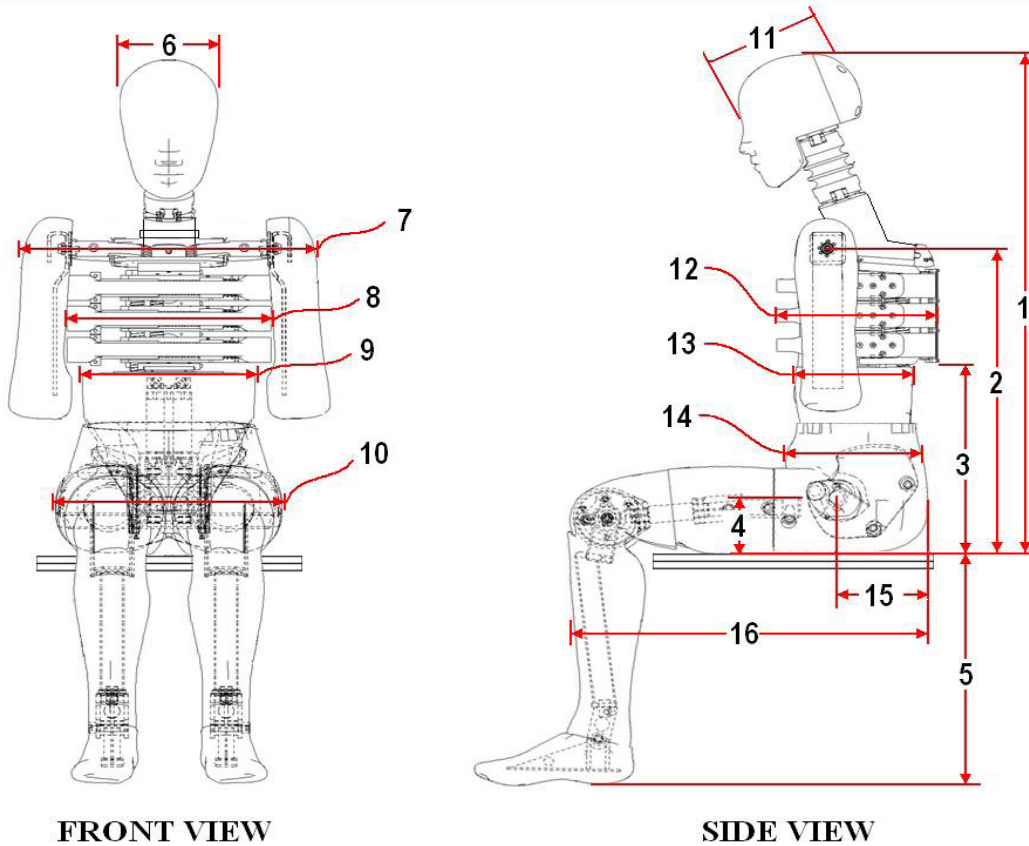


External Measurements - EuroSID-2re

Technician: J. Rios

Date: 4/18/2025

Dummy Serial Number: DG5348



FRONT VIEW

SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	907	Pass
2	Seat to Shoulder Joint	558	572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	351	Pass
4	Seat to Hip Joint (center of bolt)	97	103	101	Pass
5	Sole to Seat, Sitting	333	451	404	Pass
6	Head Width	152	158	154	Pass
7	Shoulder/Arm Width	461	479	472	Pass
8	Thorax Width	322	332	326	Pass
9	Abdomen Width	273	287	276	Pass
10	Pelvis Lap Width	359	373	366	Pass
11	Head Depth	196	206	204	Pass
12	Thorax Depth	262	272	265	Pass
13	Abdomen Depth	194	204	200	Pass
14	Pelvis Depth	235	245	241	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	153	Pass
16	Back of Buttocks to Front Knee	597	615	601	Pass

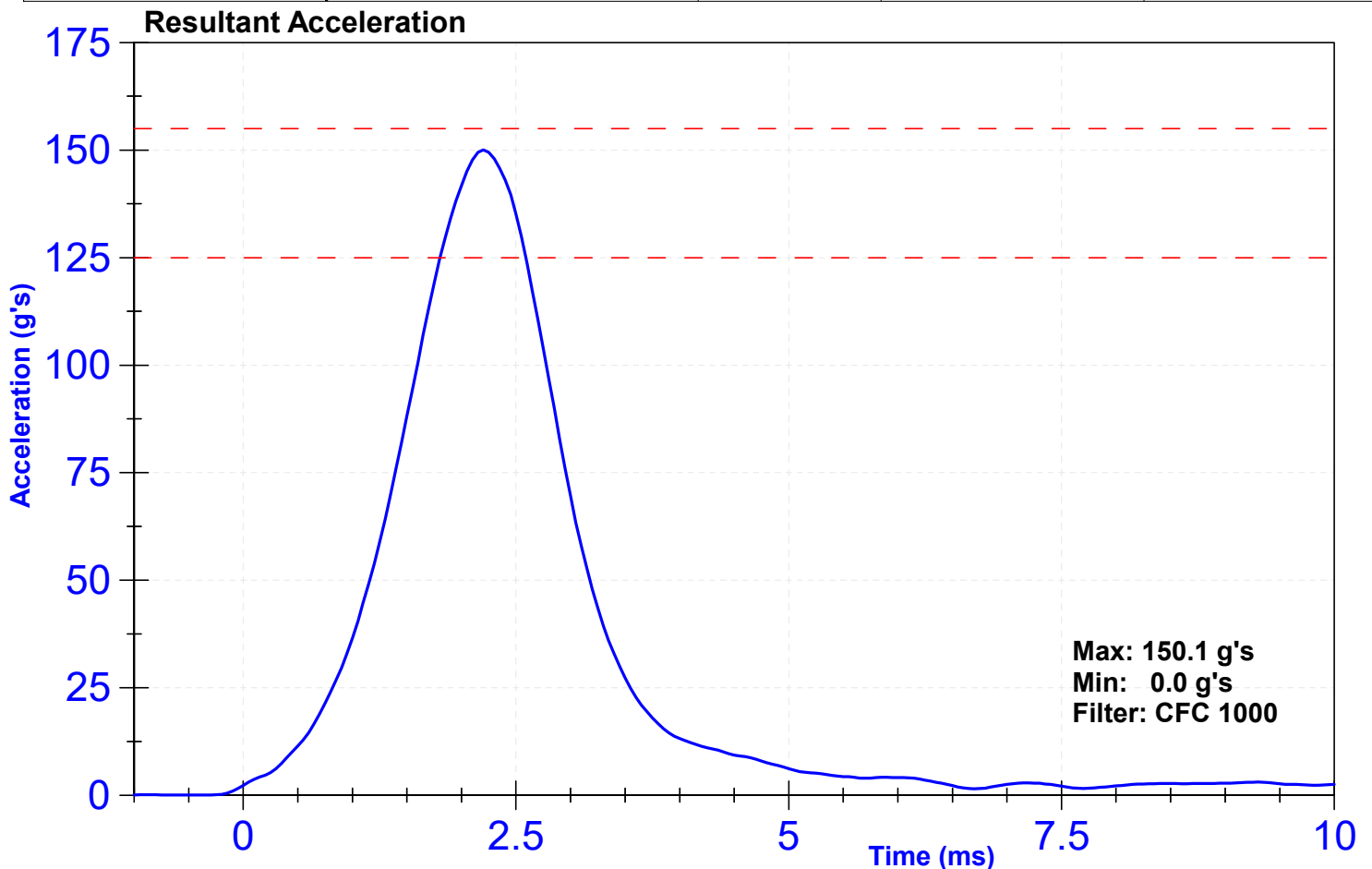
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

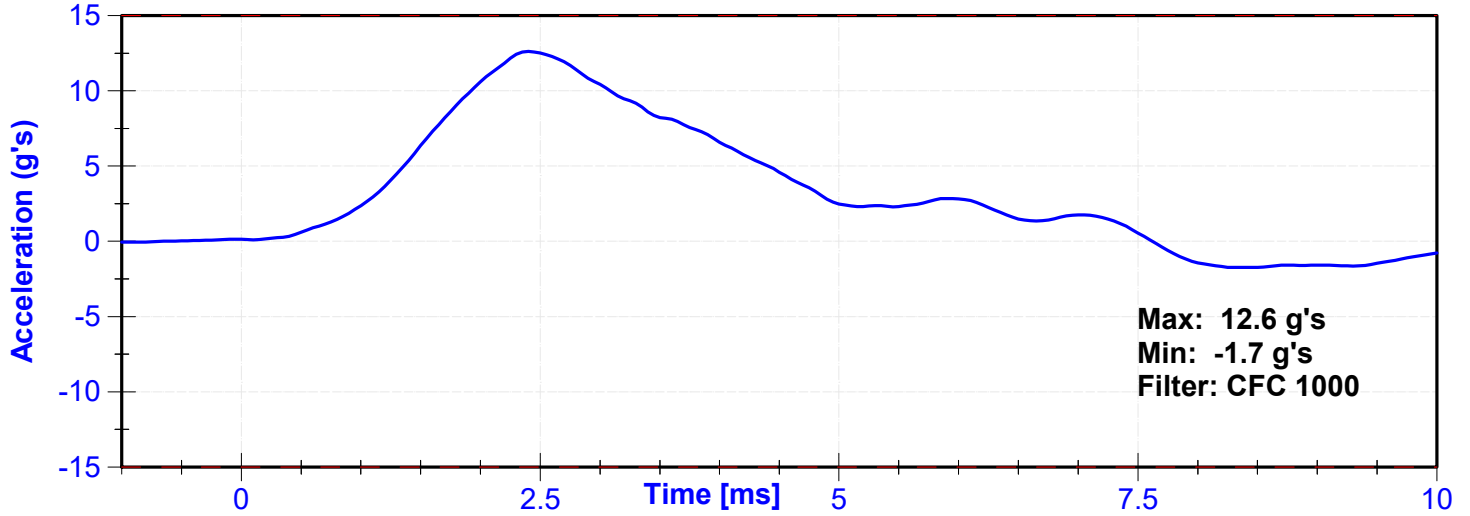
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	21	Pass
Resultant Acceleration	125	155	g's	150.1	Pass
Oscillation	0	15	%	2.78	Pass
Fore-Aft Acceleration	-15	15	g's	12.6	Pass

Transducer Calibrations

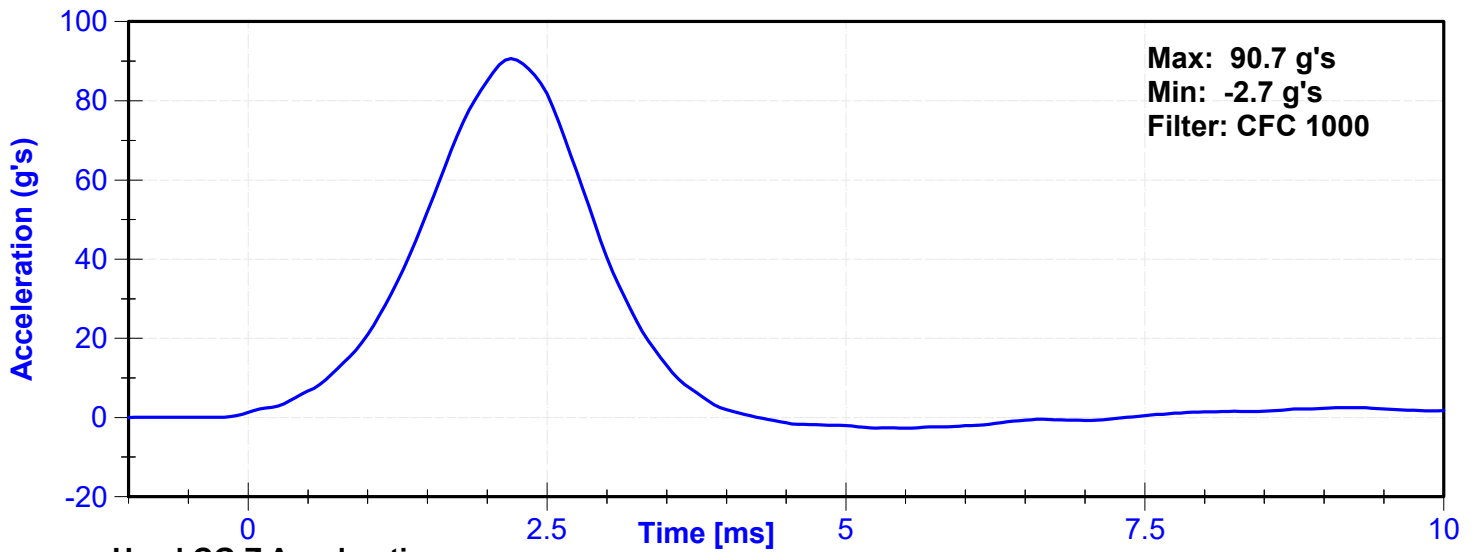
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	18613	1/17/2025	7/16/2025
Y Accelerometer	Endevco	18472	1/17/2025	7/16/2025
Z Accelerometer	Endevco	18663	1/17/2025	7/16/2025



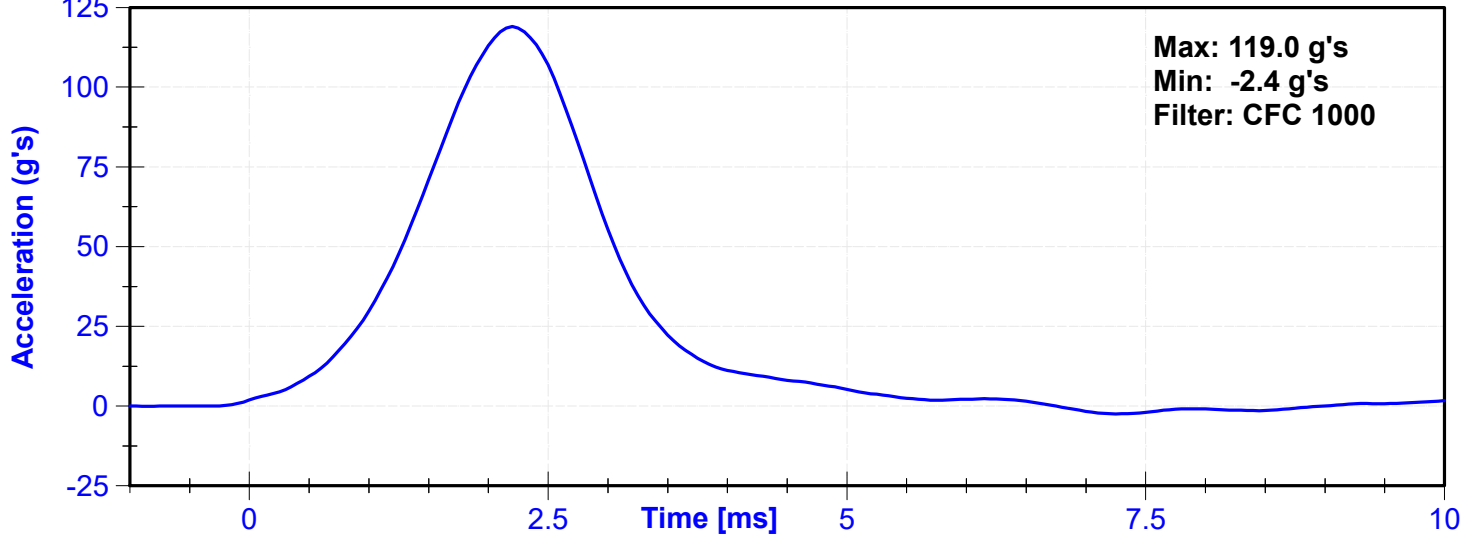
Head CG X Acceleration



Head CG Y Acceleration



Head CG Z Acceleration



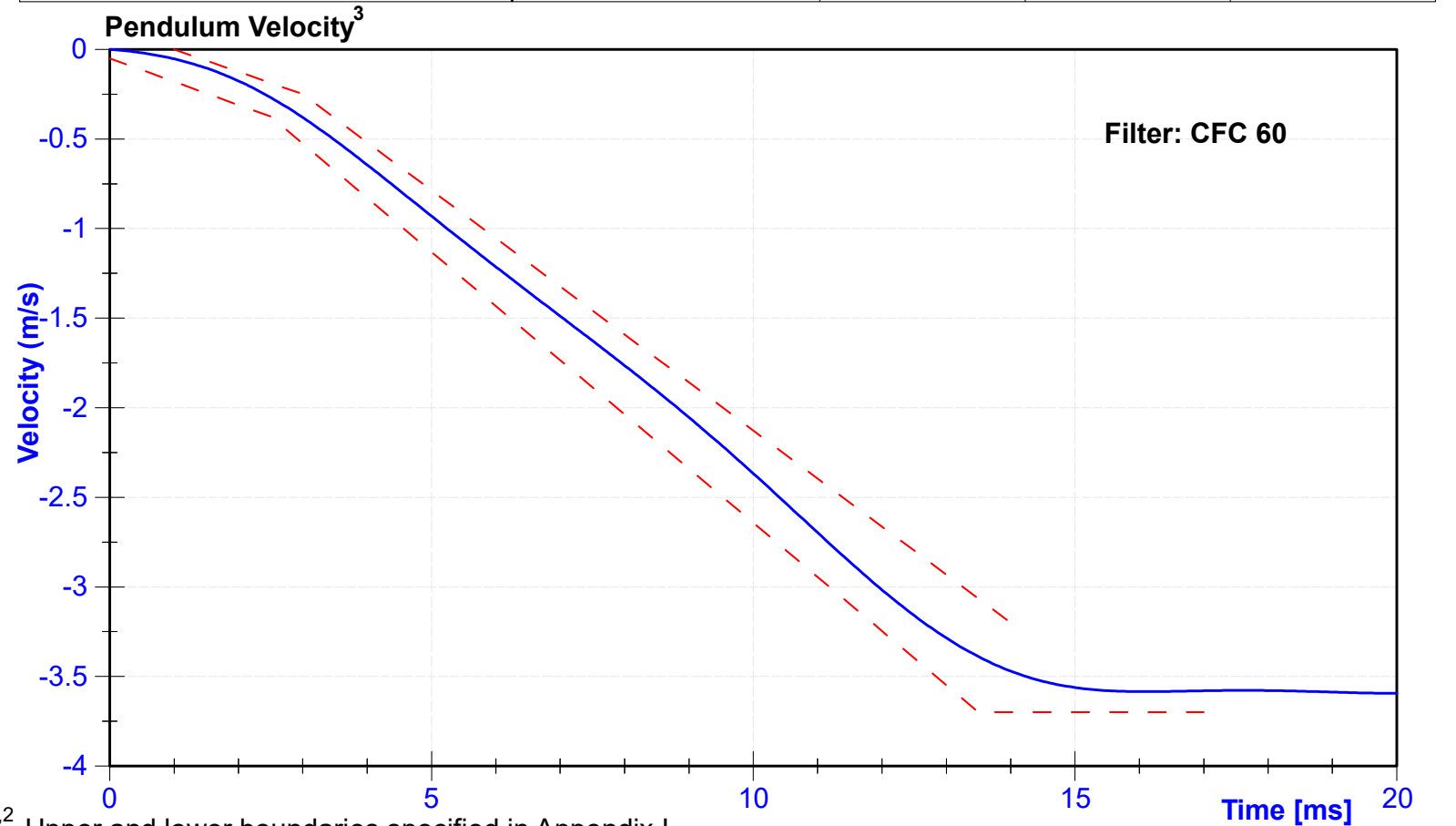
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

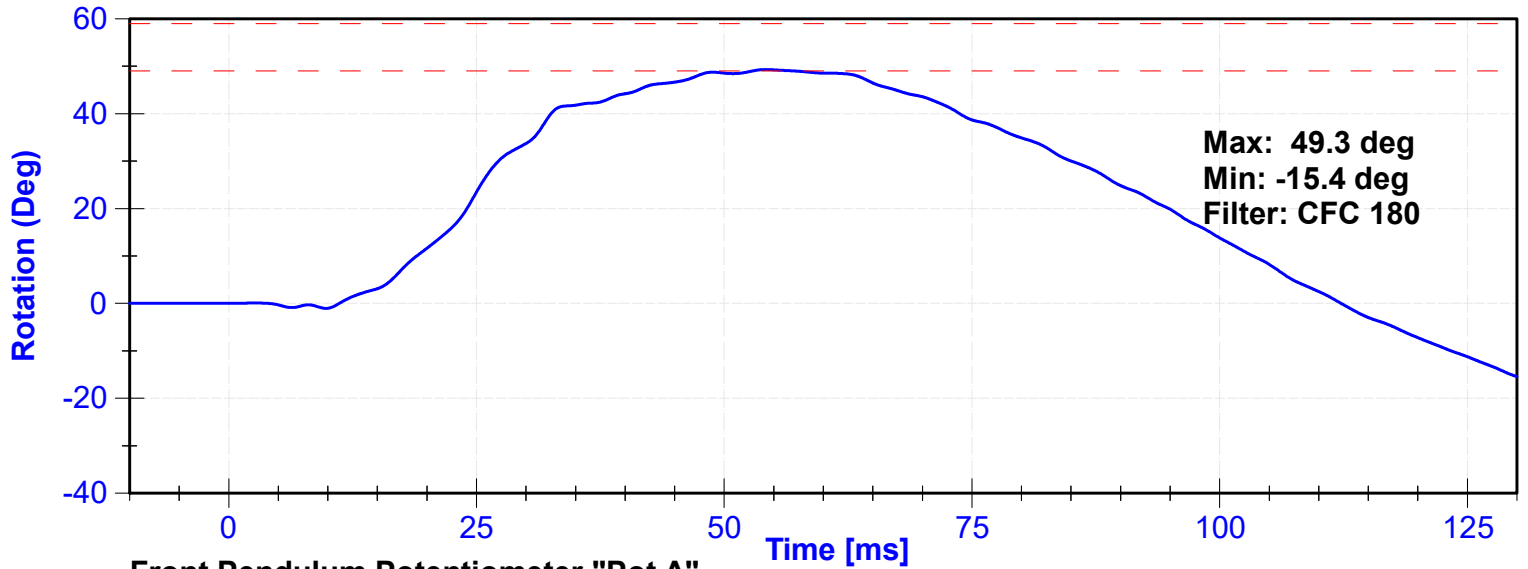
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	22	Pass
Velocity	3.3	3.5	m/s	3.44	Pass
Lateral Neck Rotation	49	59	deg	49.3	Pass
Time at Maximum Rotation	54	66	ms	54.2	Pass
Time of Rotation Decay from Maximum	53	88	ms	58.1	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

Transducer Calibrations

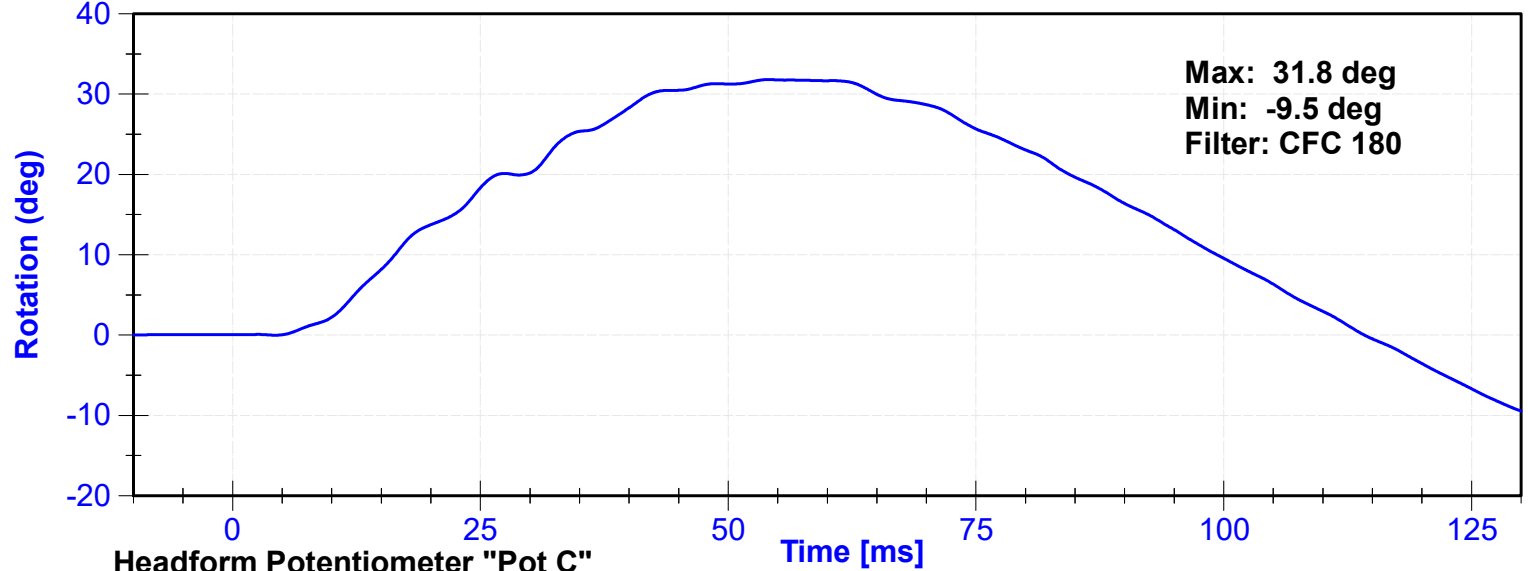
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Front Pendulum Potentiometer	Sfernice	2247	9/13/2024	9/13/2025
Headform Potentiometer	Sfernice	095	9/13/2024	9/13/2025



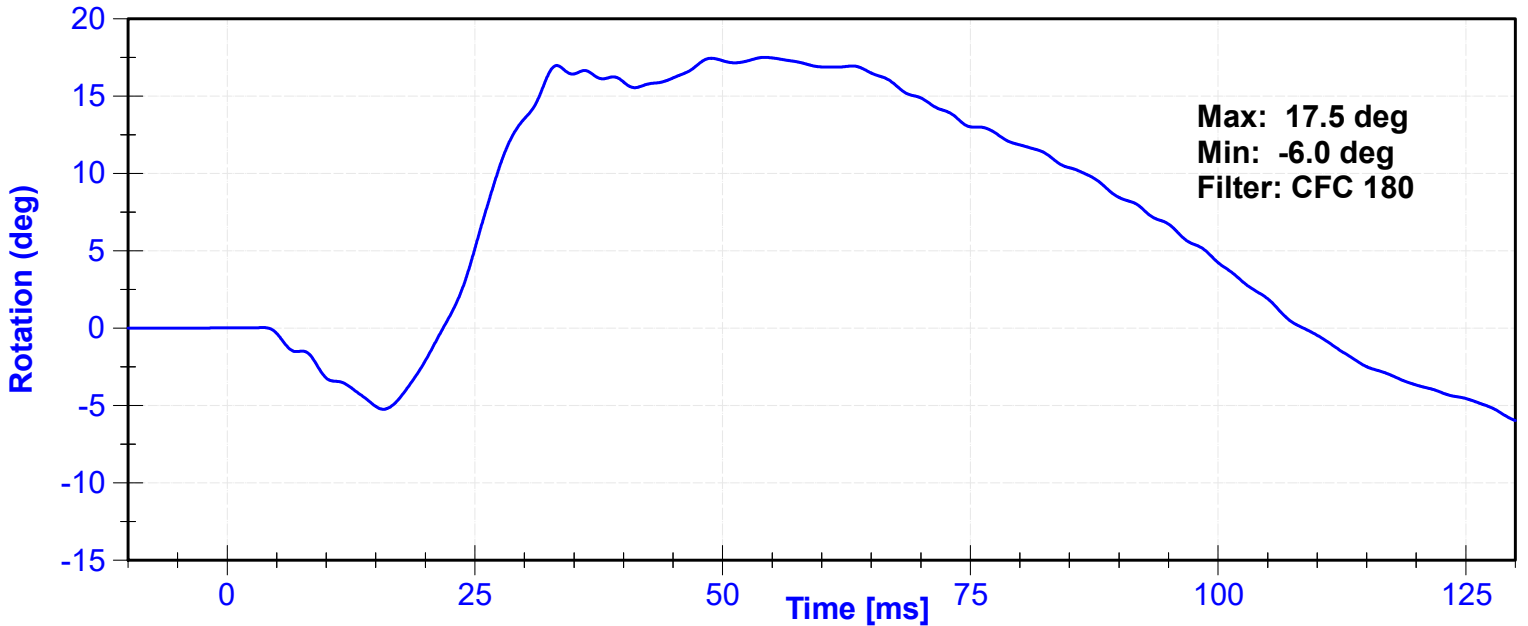
Neck Rotation



Front Pendulum Potentiometer "Pot A"



Headform Potentiometer "Pot C"



Appendix I

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

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

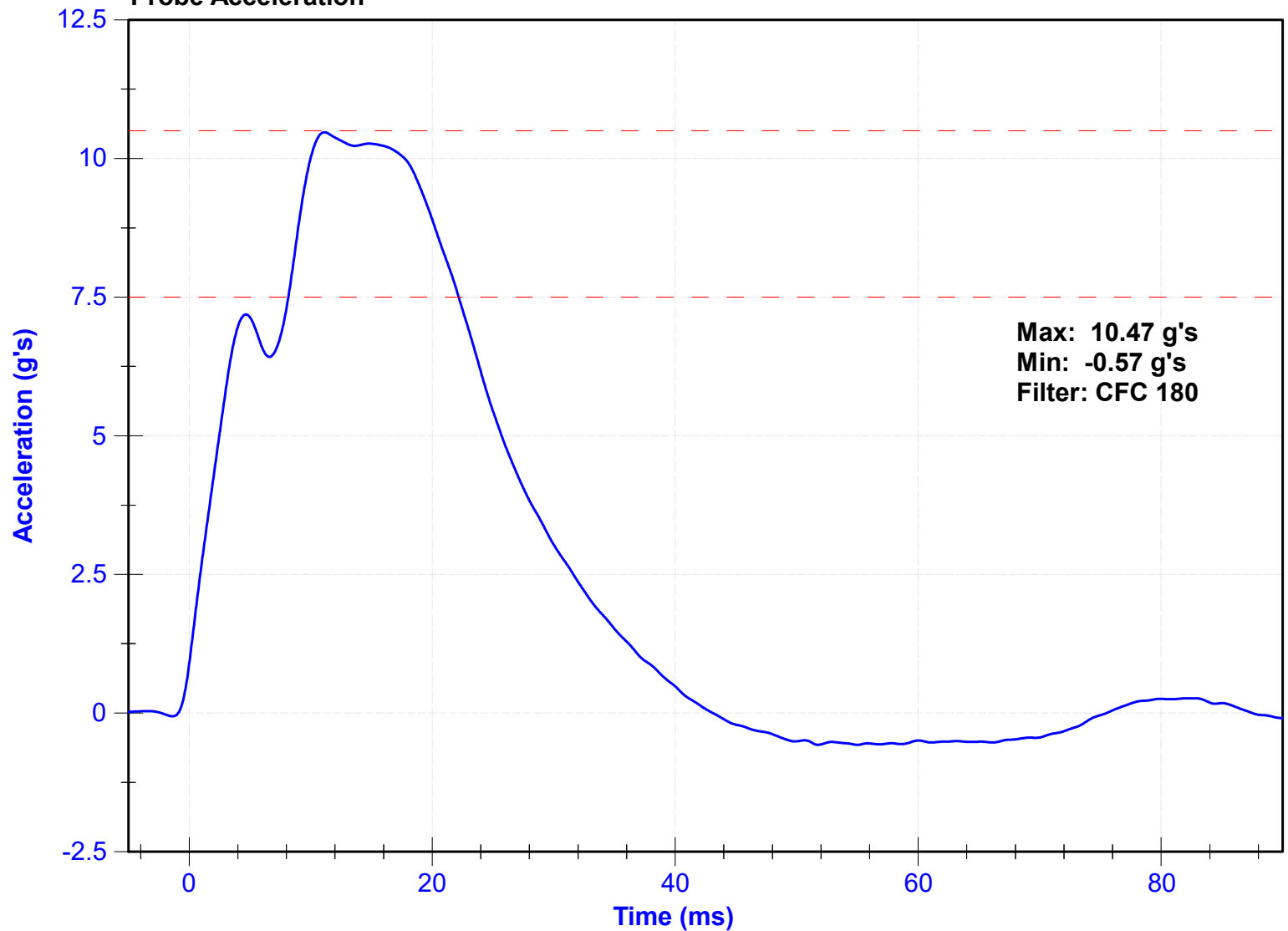
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.23	Pass
Probe Acceleration	7.5	10.5	g's	10.47	Pass

Transducer Calibrations

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

Probe Acceleration



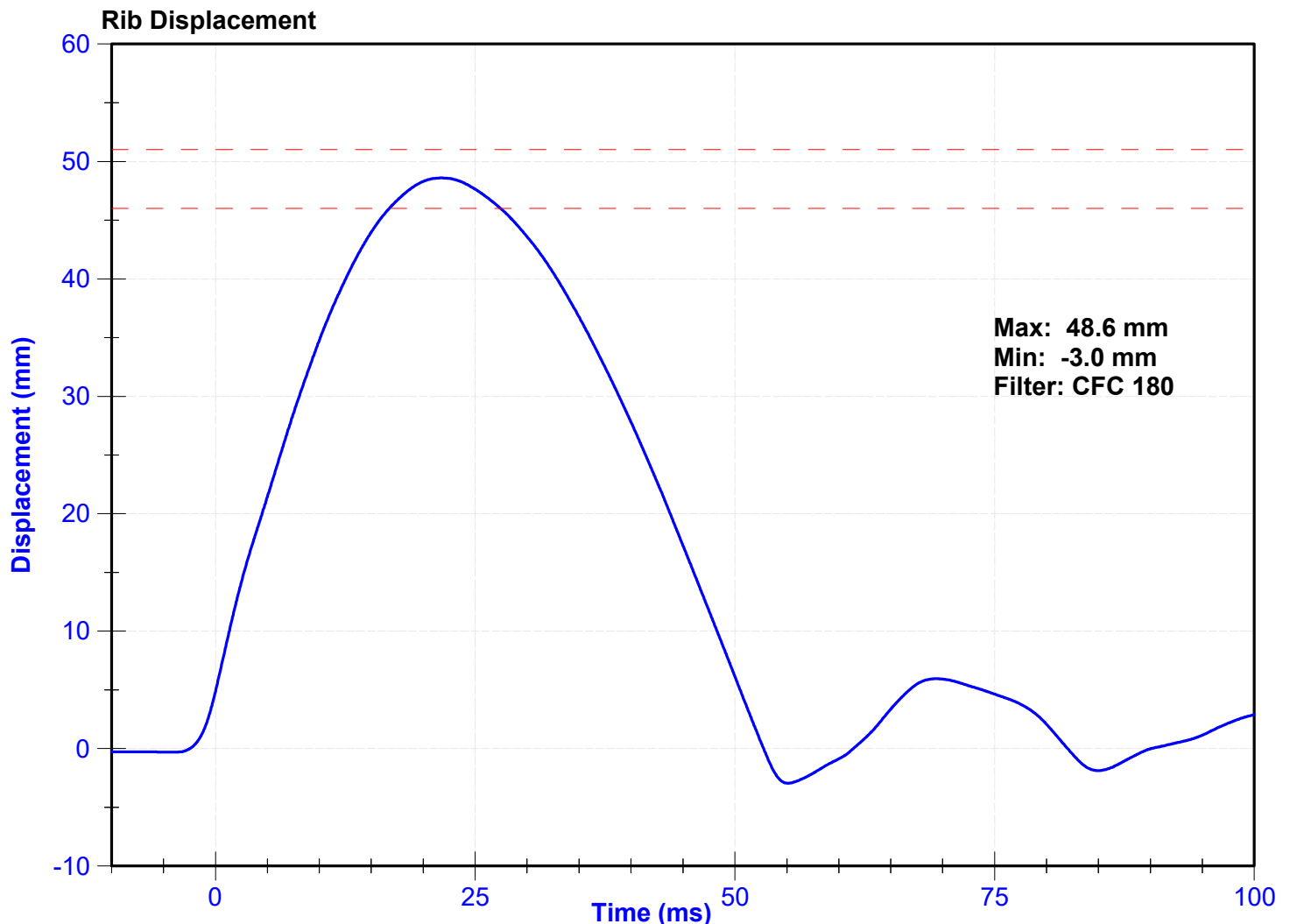
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	21	Pass
Rib Displacement	46	51	mm	48.6	Pass

Transducer Calibrations

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



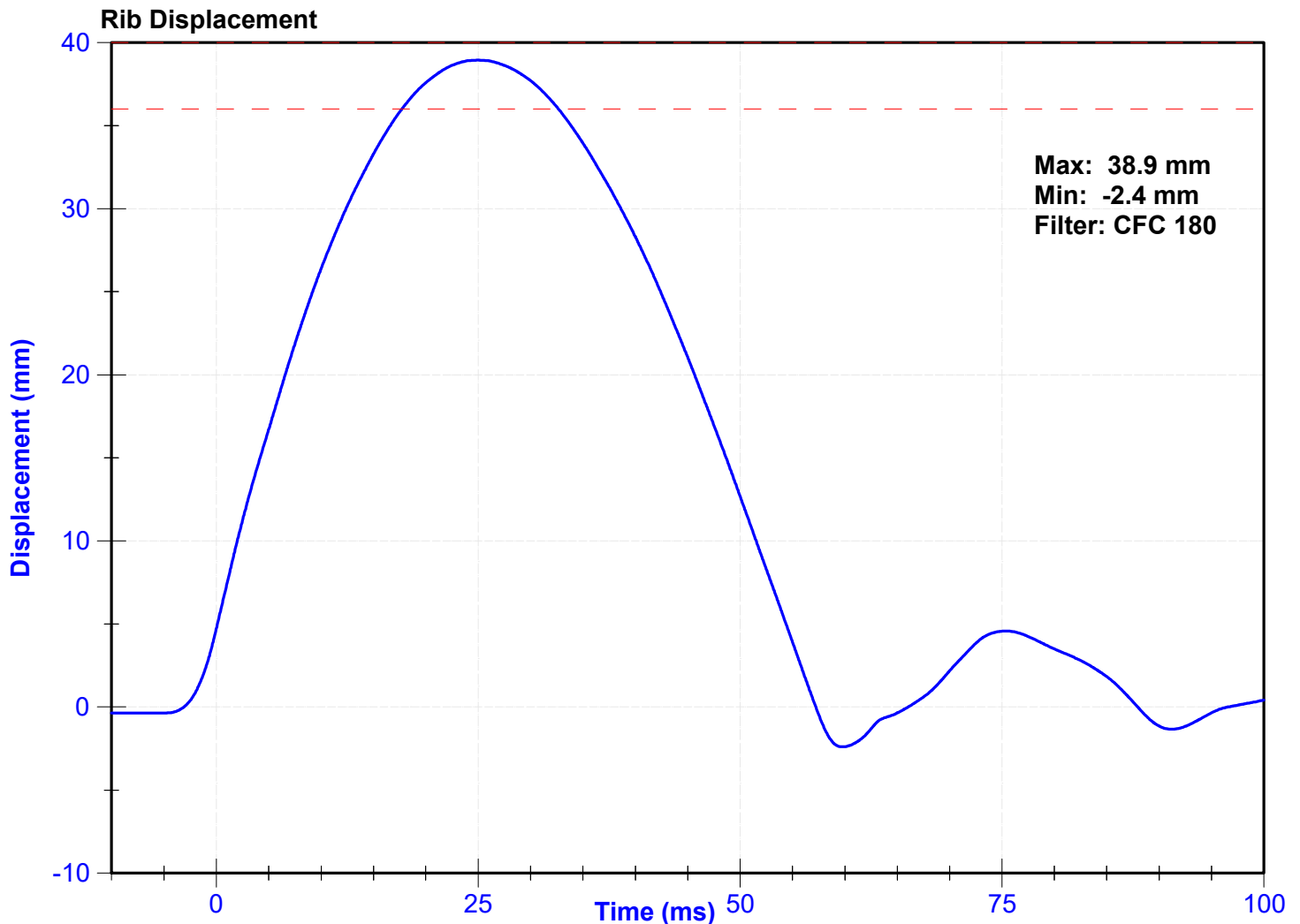
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	21	Pass
Rib Displacement	36	40	mm	38.9	Pass

Transducer Calibrations

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



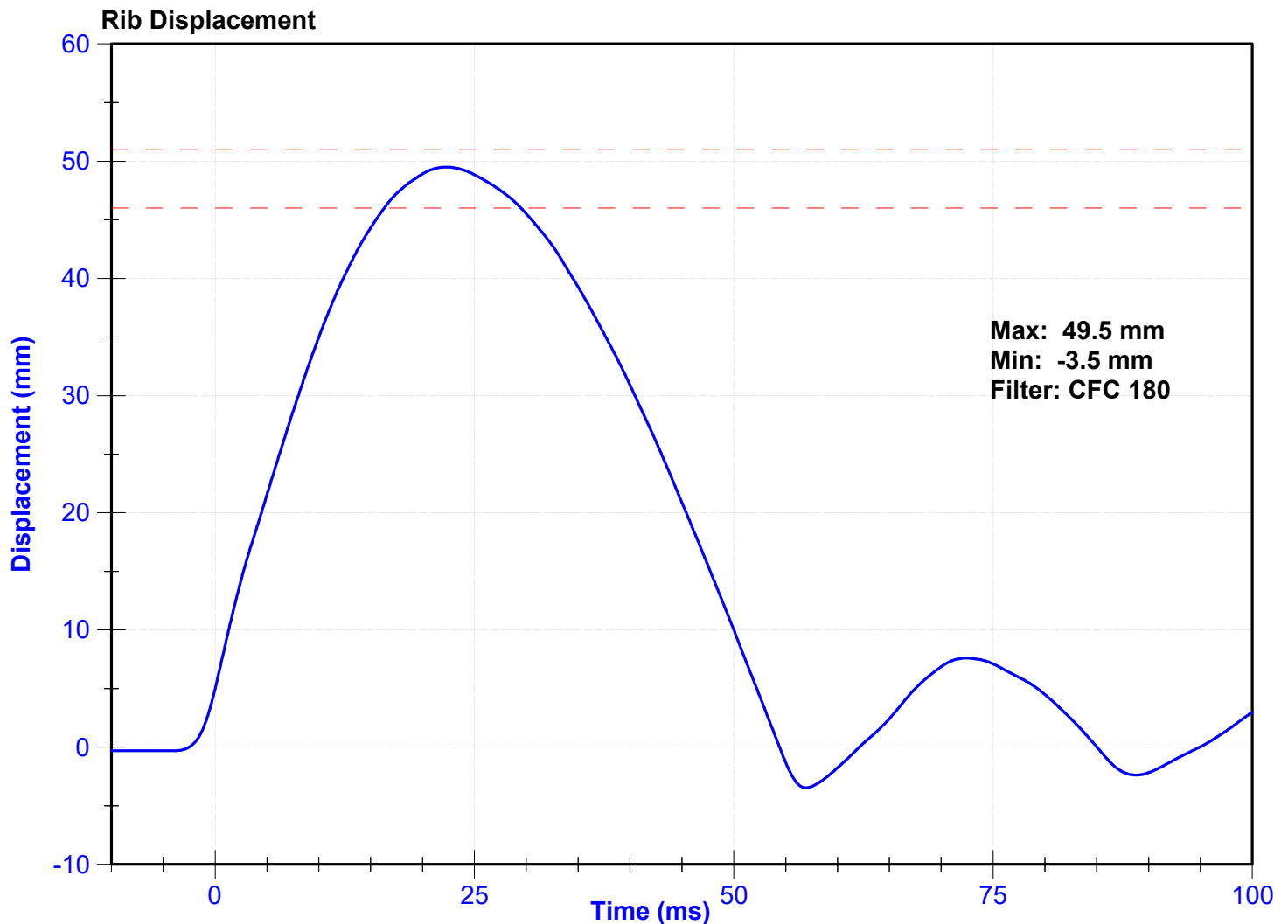
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	21	Pass
Rib Displacement	46	51	mm	49.5	Pass

Transducer Calibrations

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



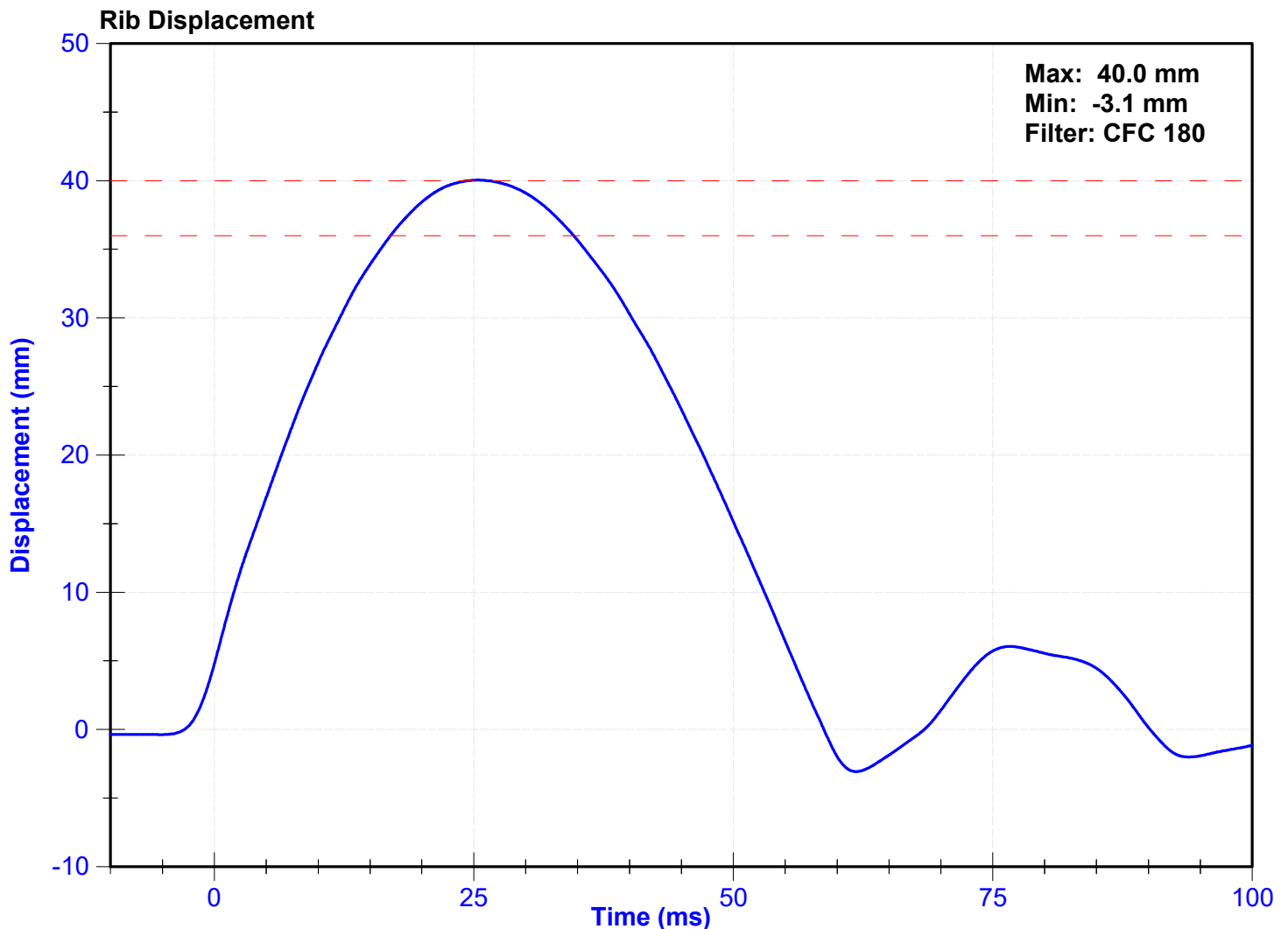
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	21	Pass
Rib Displacement	36	40	mm	40.0	Pass

Transducer Calibrations

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



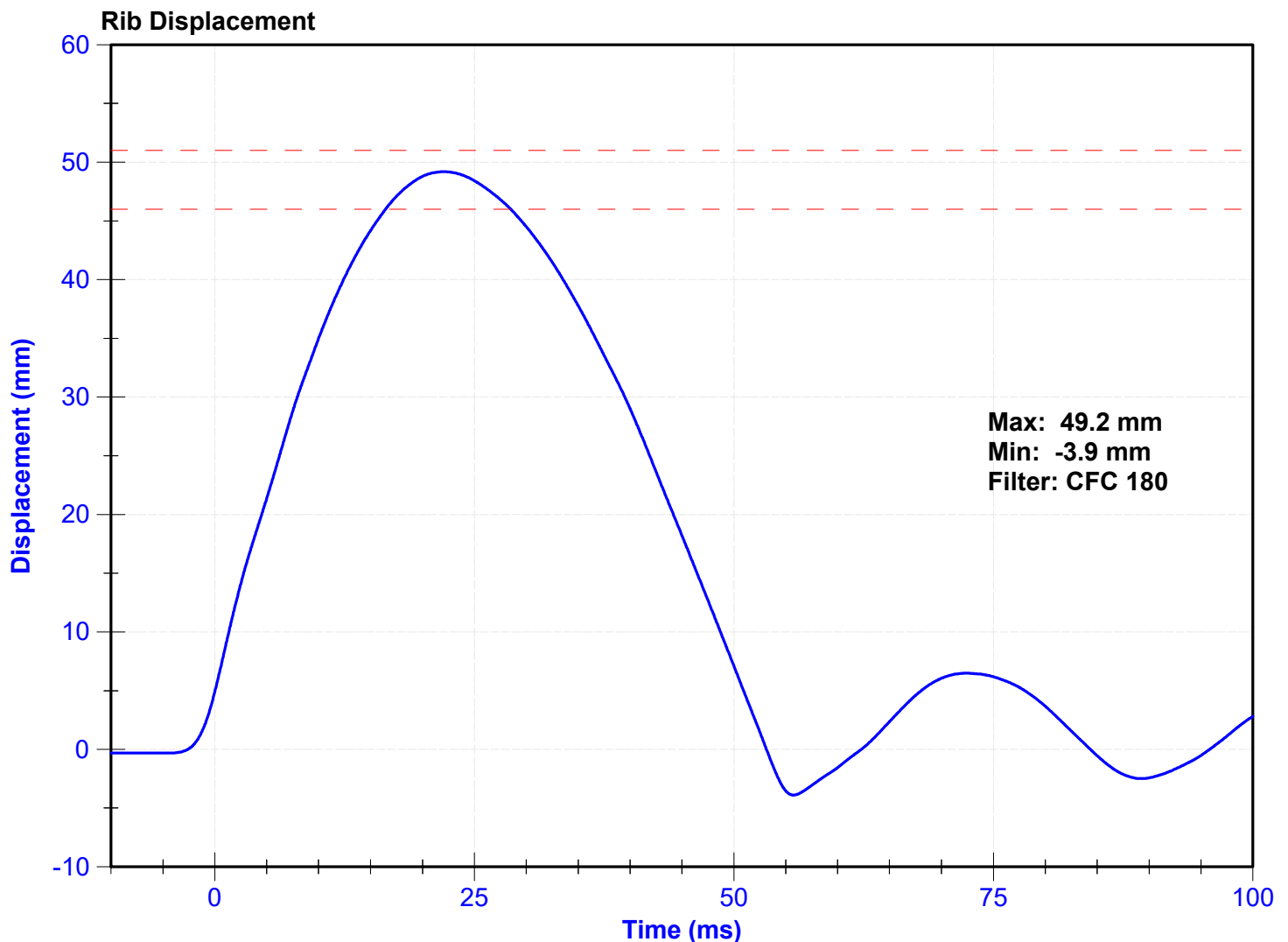
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	21	Pass
Rib Displacement	46	51	mm	49.2	Pass

Transducer Calibrations

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



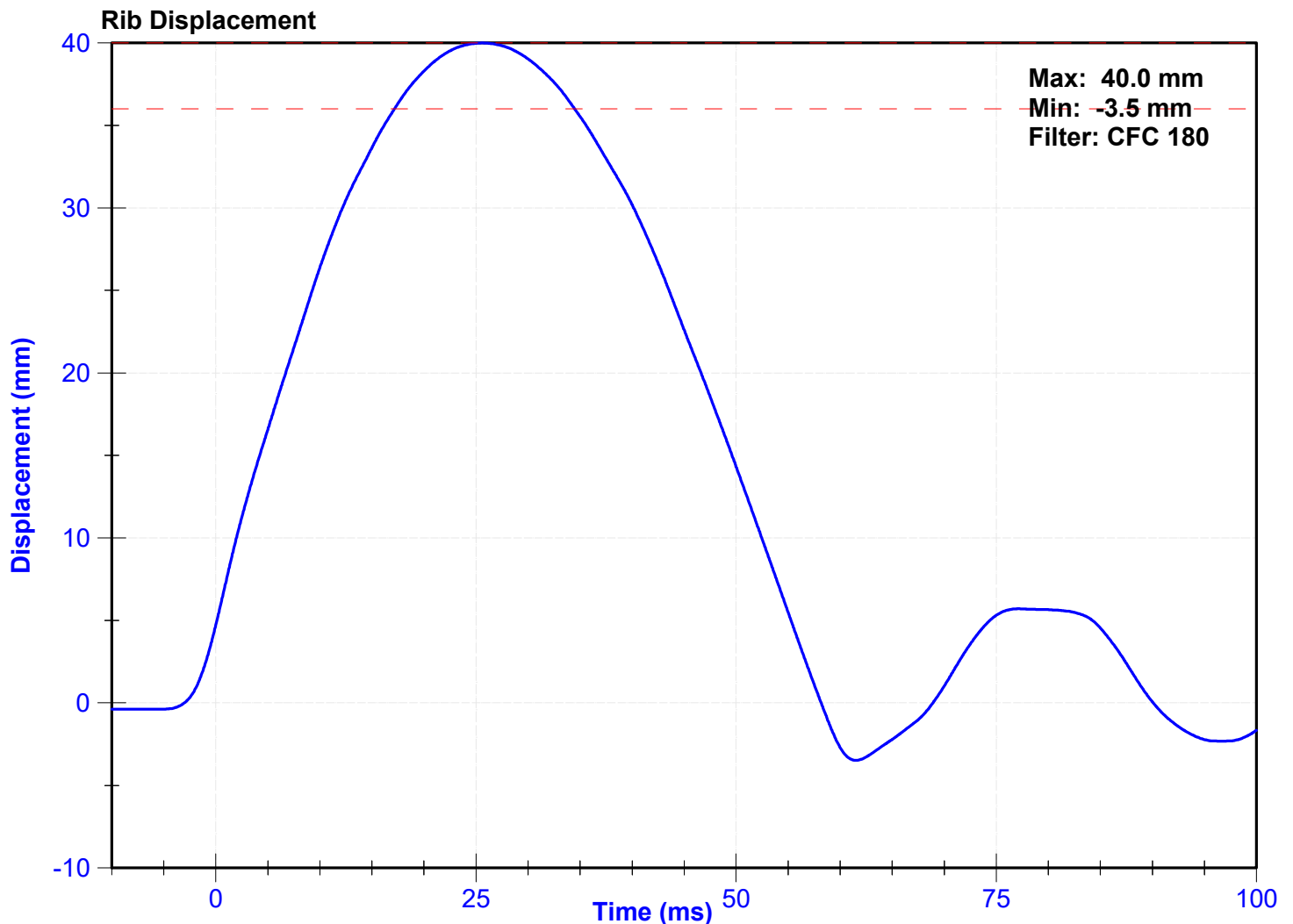
ATD Manufacturer	FTSS	Test Technician	W. Brokx
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	21	Pass
Rib Displacement	36	40	mm	40.0	Pass

Transducer Calibrations

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



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

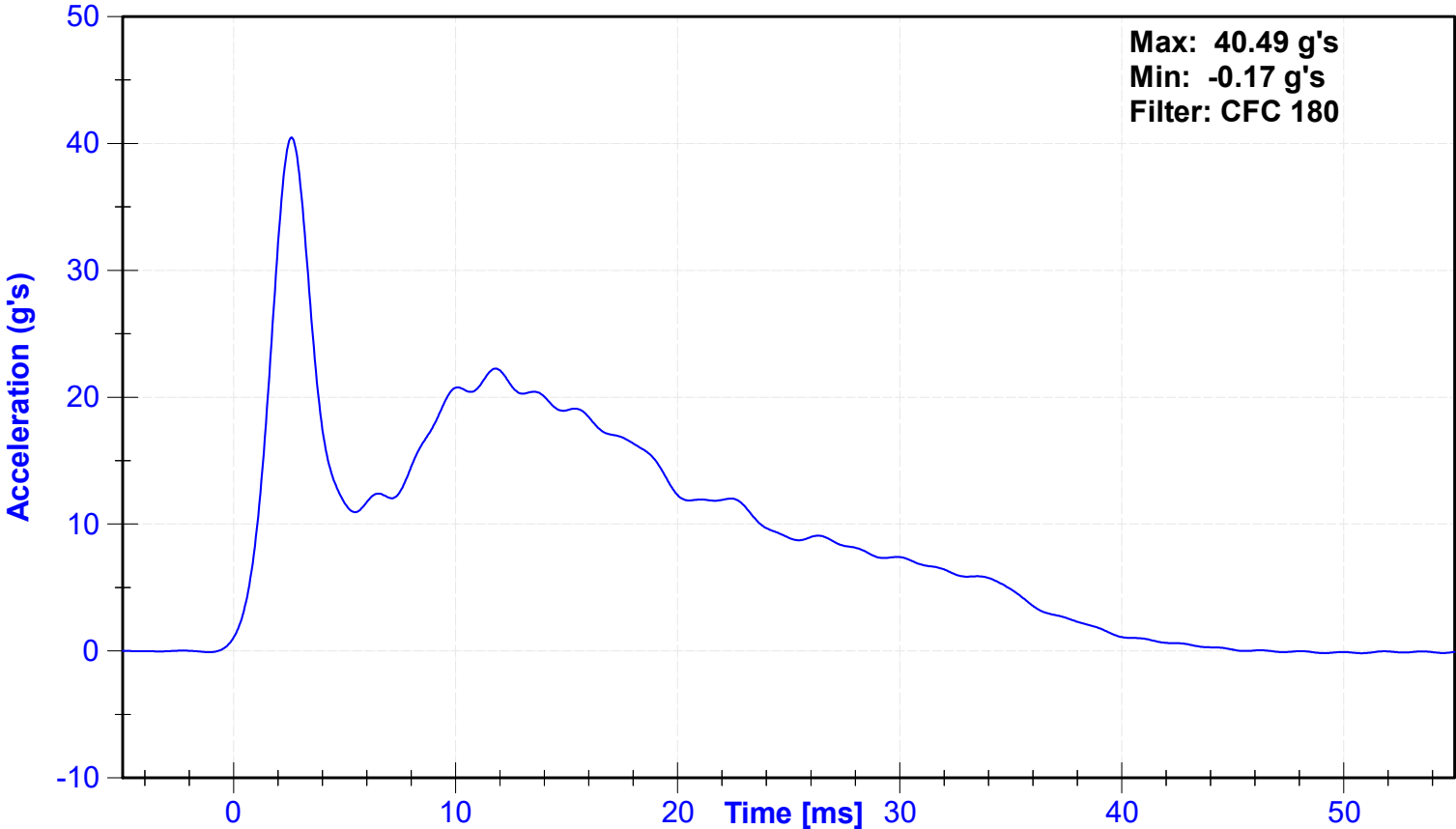
Results

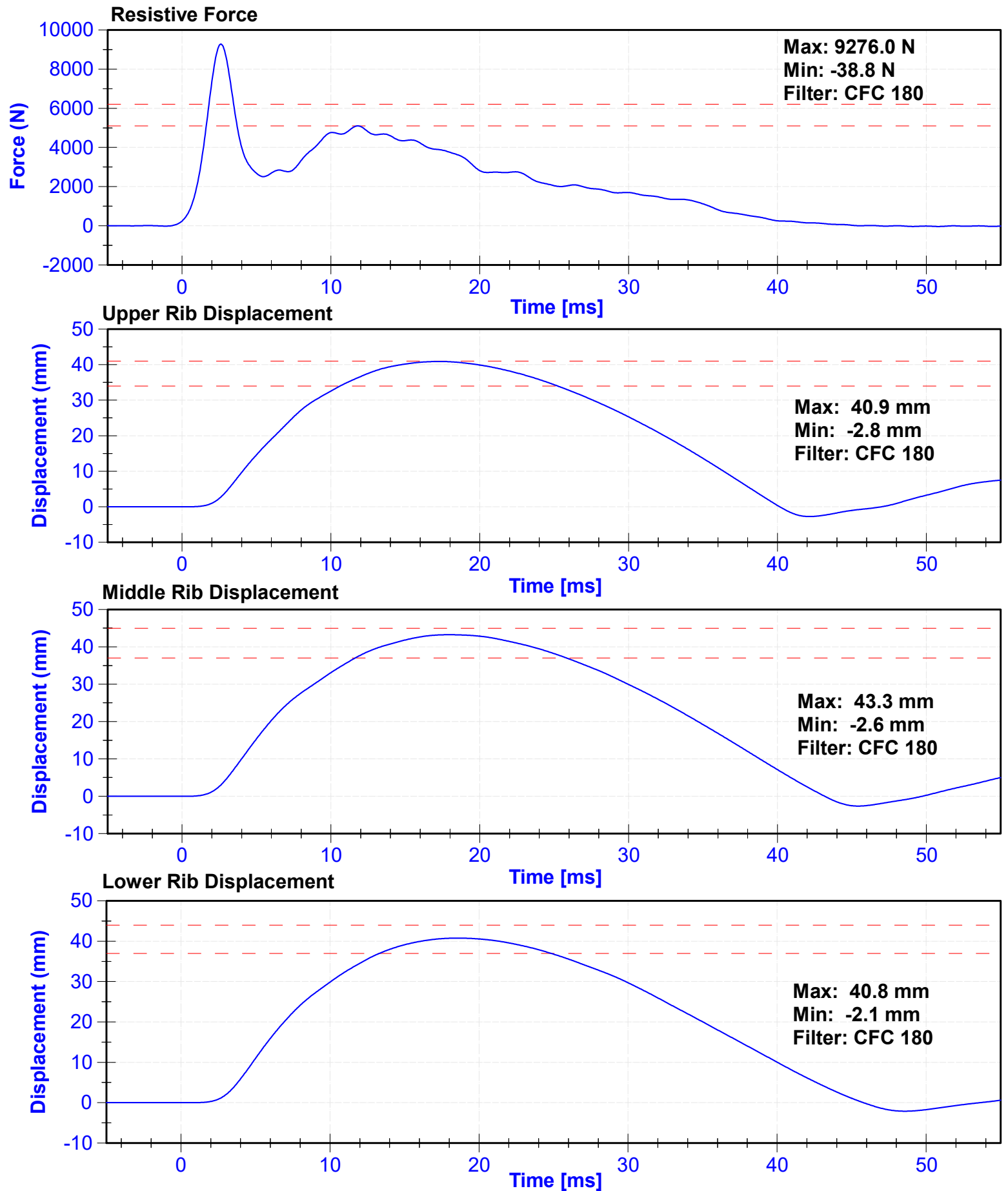
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	25	Pass
Velocity	5.4	5.6	m/s	5.46	Pass
Resistive Force after 6ms	5100	6200	N	5100.0	Pass
Upper Thorax Rib Deflection	34	41	mm	40.9	Pass
Mid Thorax Rib Deflection	37	45	mm	43.3	Pass
Lower Thorax Rib Deflection	37	44	mm	40.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/26/2024	5/25/2025
Upper Thorax Rib Potentiometer	Honeywell	268GFE	1/21/2025	7/22/2025
Middle Thorax Rib Potentiometer	Honeywell	269GFE	1/21/2025	7/22/2025
Lower Thorax Rib Potentiometer	Honeywell	270GFE	1/22/2025	7/23/2025

Probe Acceleration





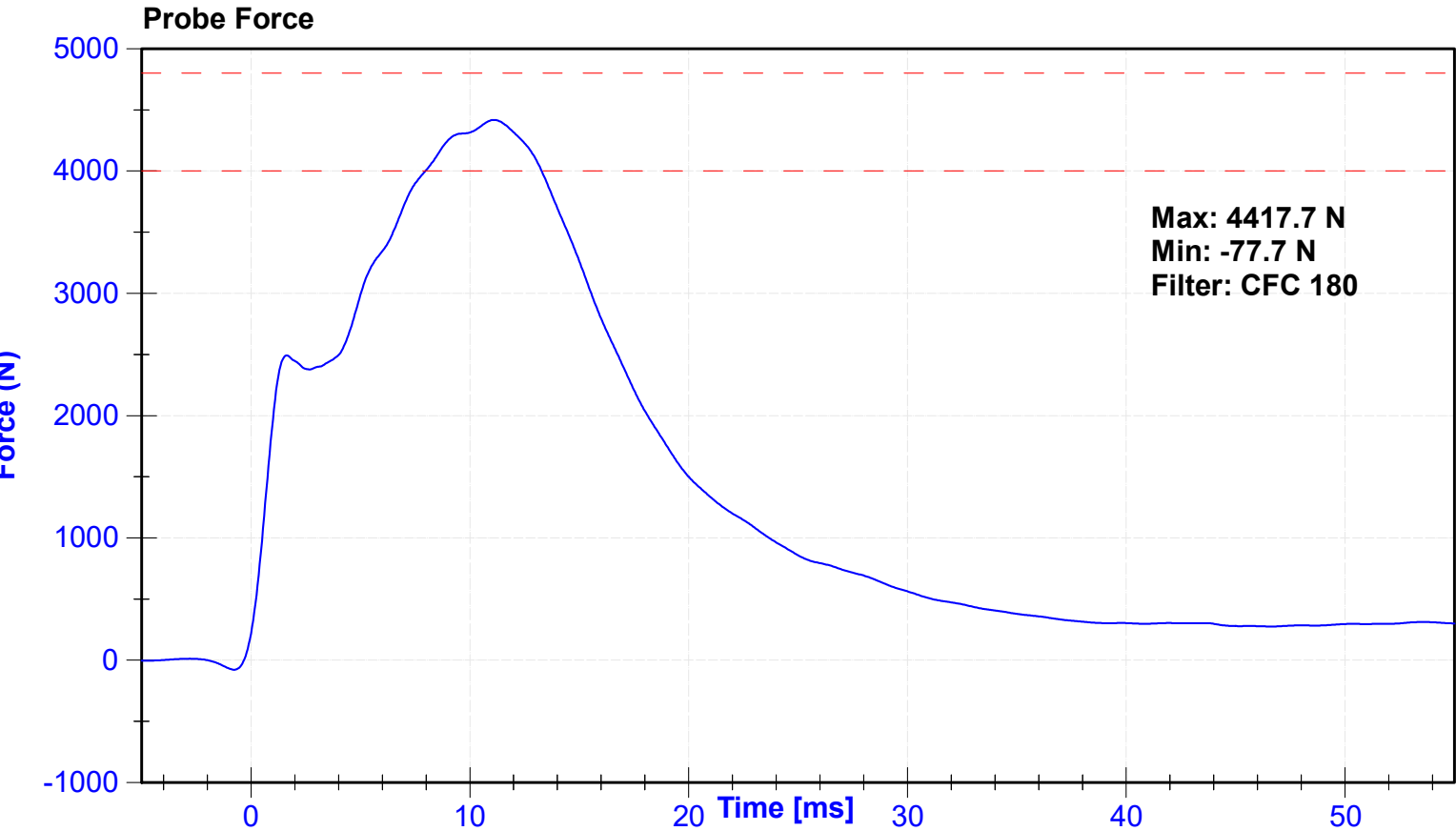
ATD Manufacturer	Humanetics	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

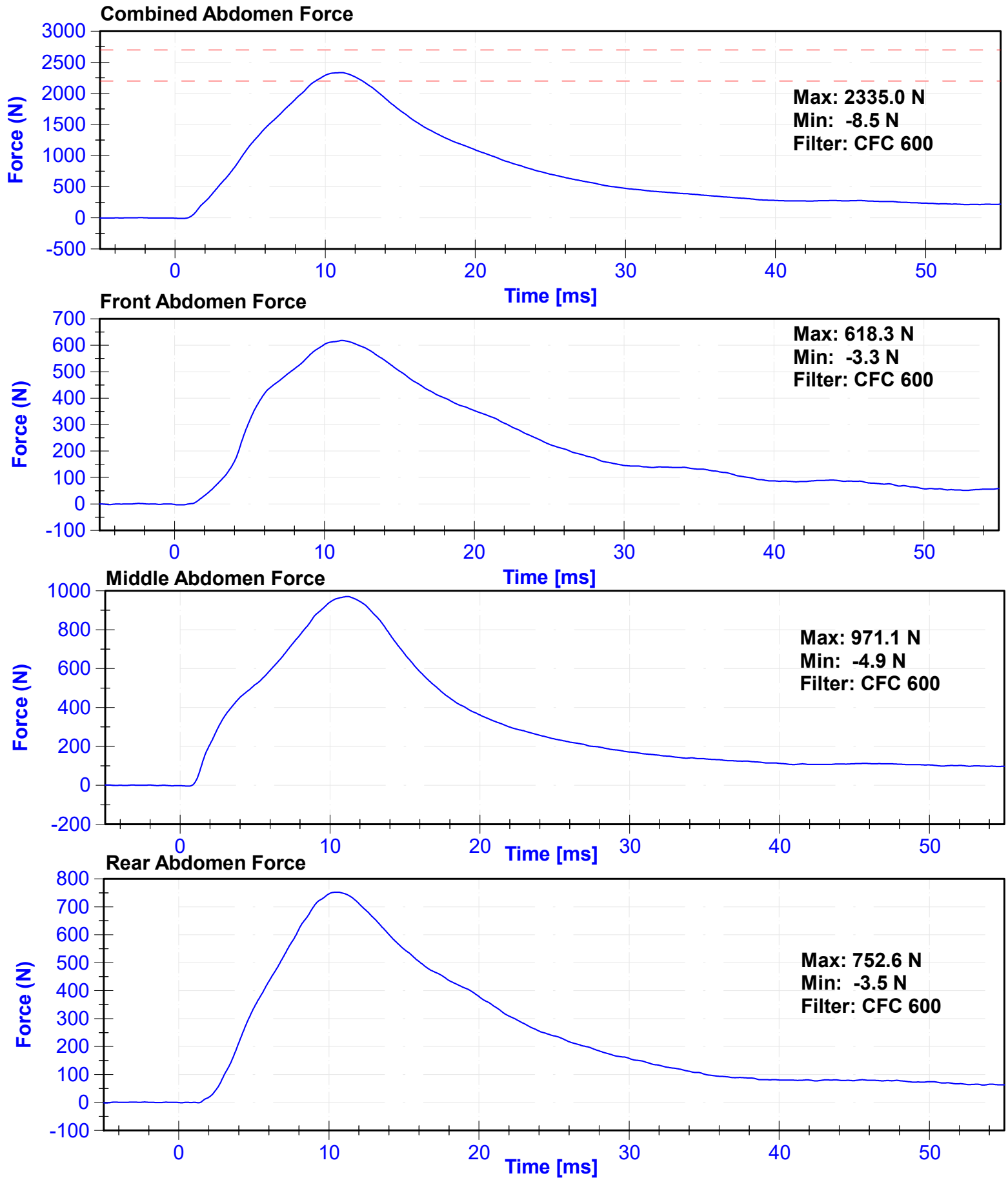
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	25	Pass
Velocity	3.9	4.1	m/s	4.02	Pass
Combined Abdomen Force	2200	2700	N	2335.0	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	11.10	Pass
Resistive Probe Force	4000	4800	N	4417.7	Pass
Time at Peak Resistive Force	10.6	13.0	ms	11.10	Pass

Transducer Calibrations

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





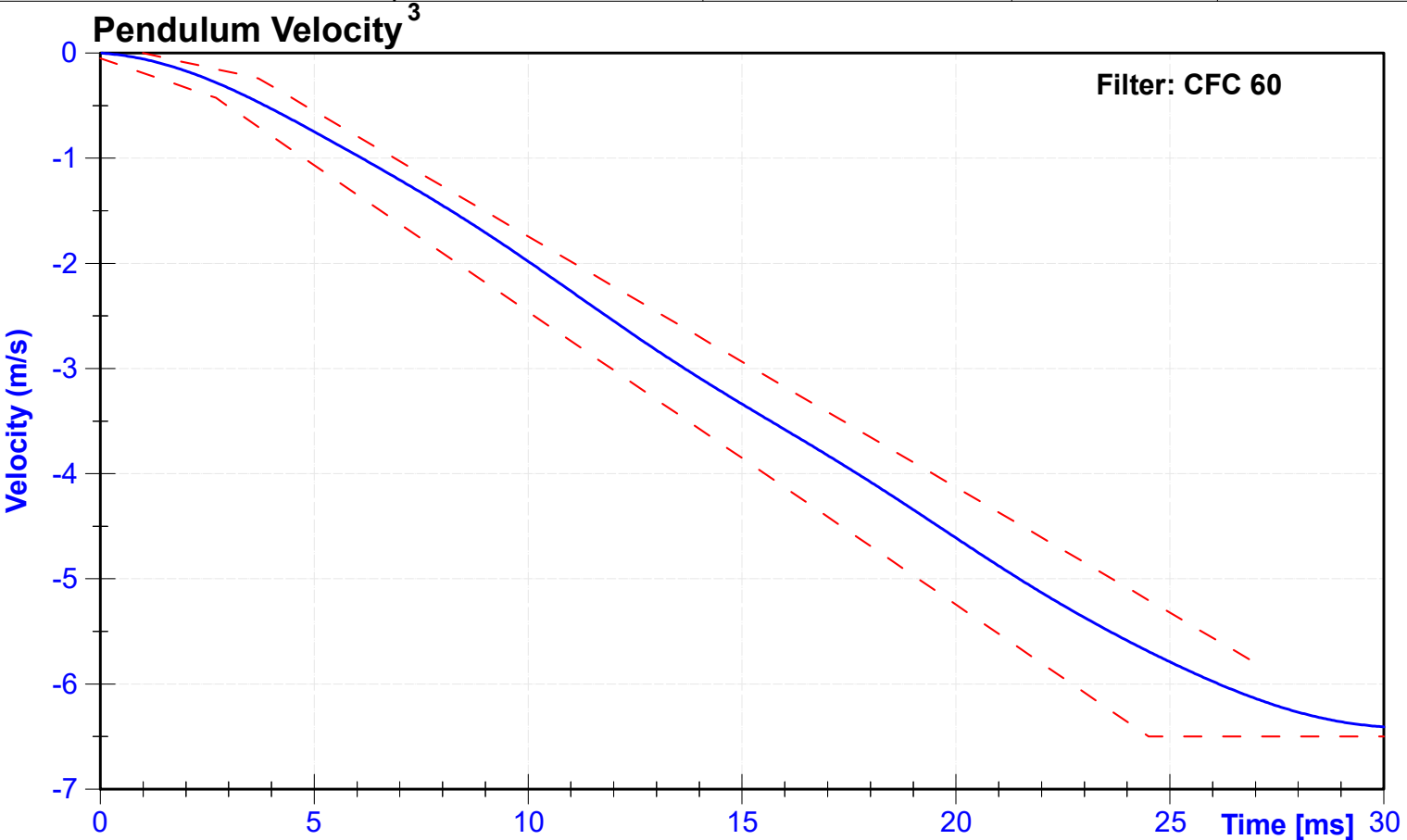
ATD Manufacturer	FTSS	Test Technician	Z. Nyhart
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

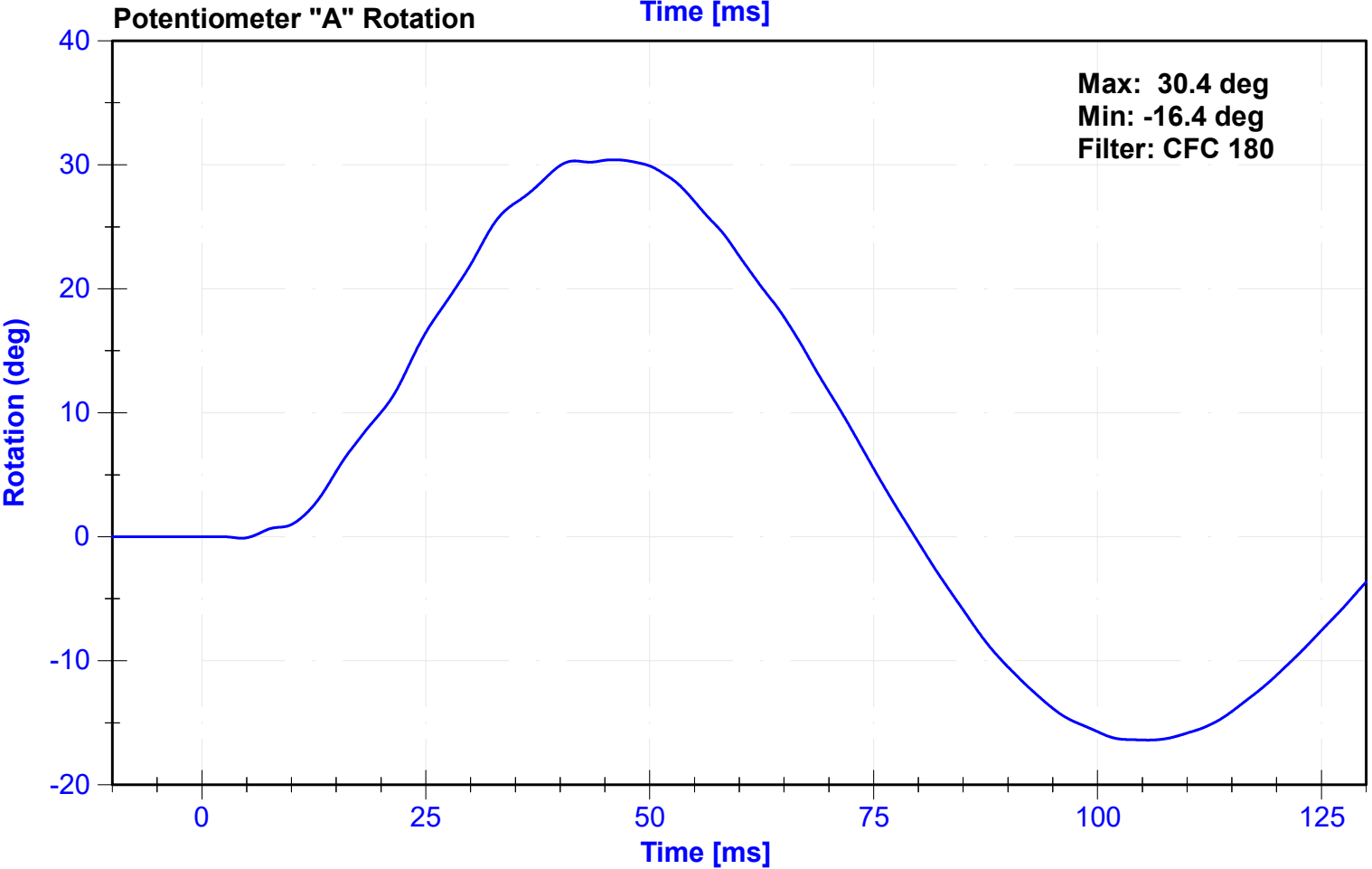
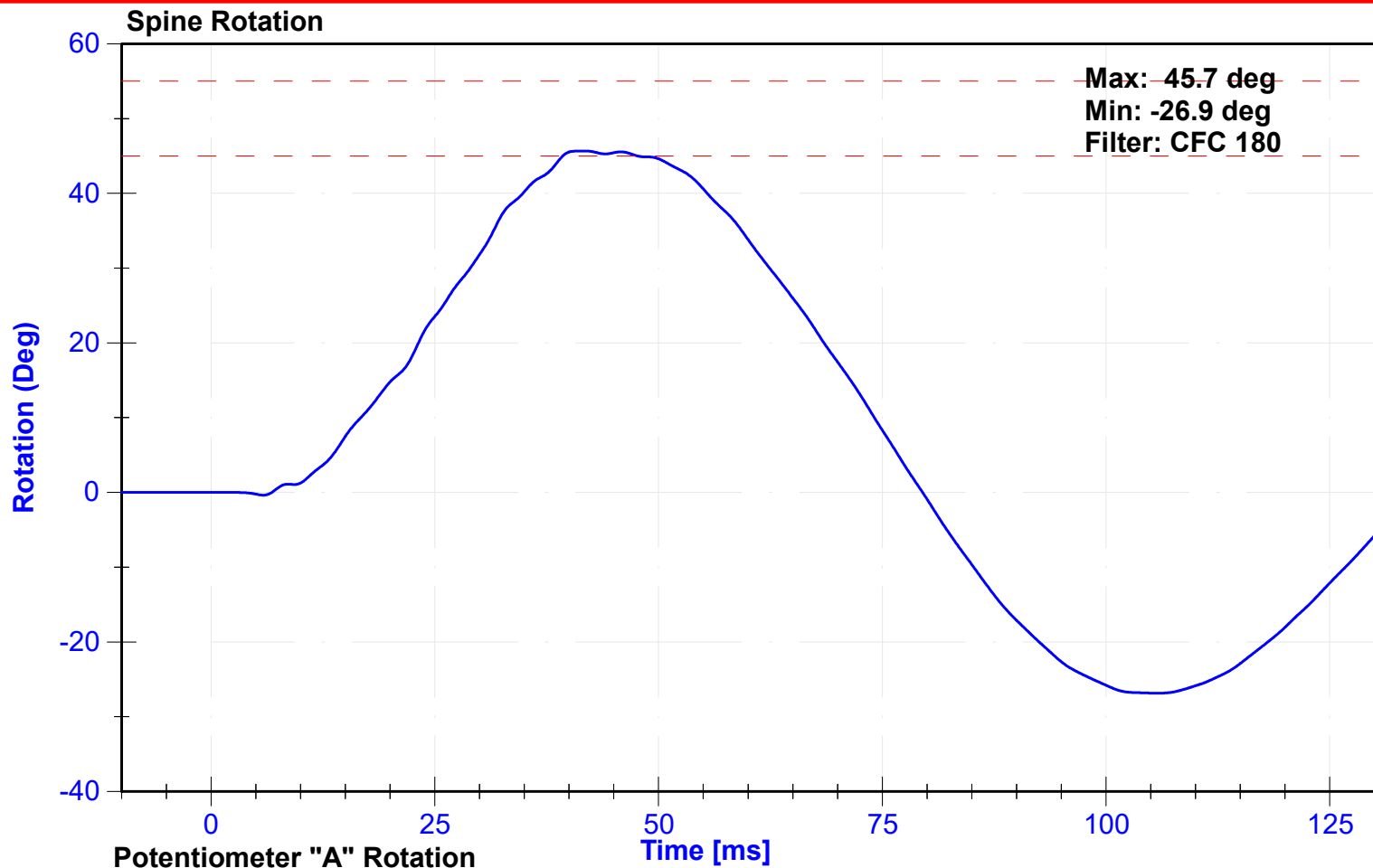
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	22	Pass
Velocity	5.95	6.15	m/s	6.107	Pass
Lateral Spine Rotation	45	55	deg	45.7	Pass
Time at Maximum Rotation	39	53	ms	41.7	Pass
Time of Decay to Zero Degrees	37	57	ms	37.8	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

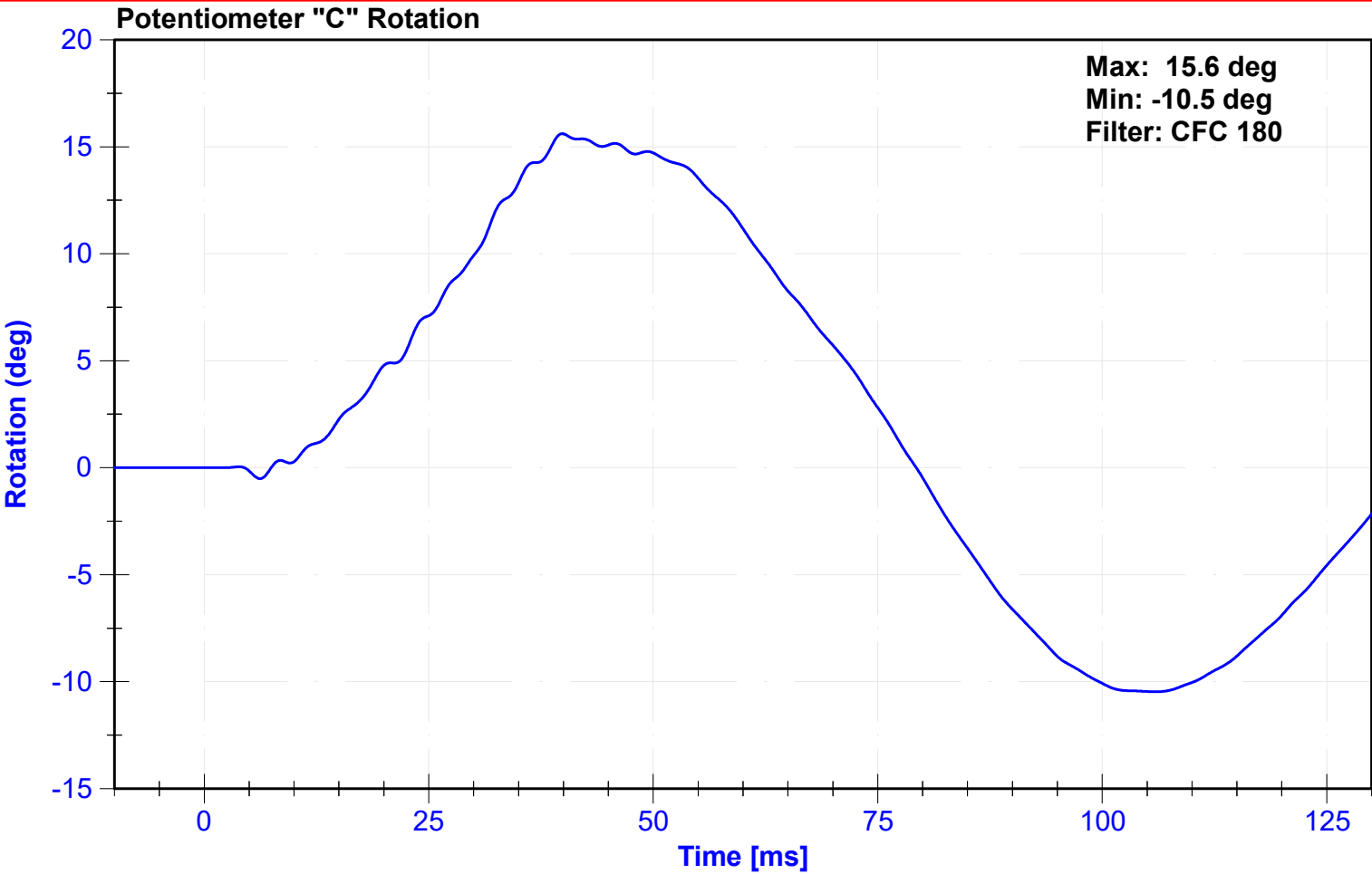
Transducer Calibrations

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



^{1,2} Upper and lower boundaries specified in Appendix I
IV-42





Appendix I

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

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

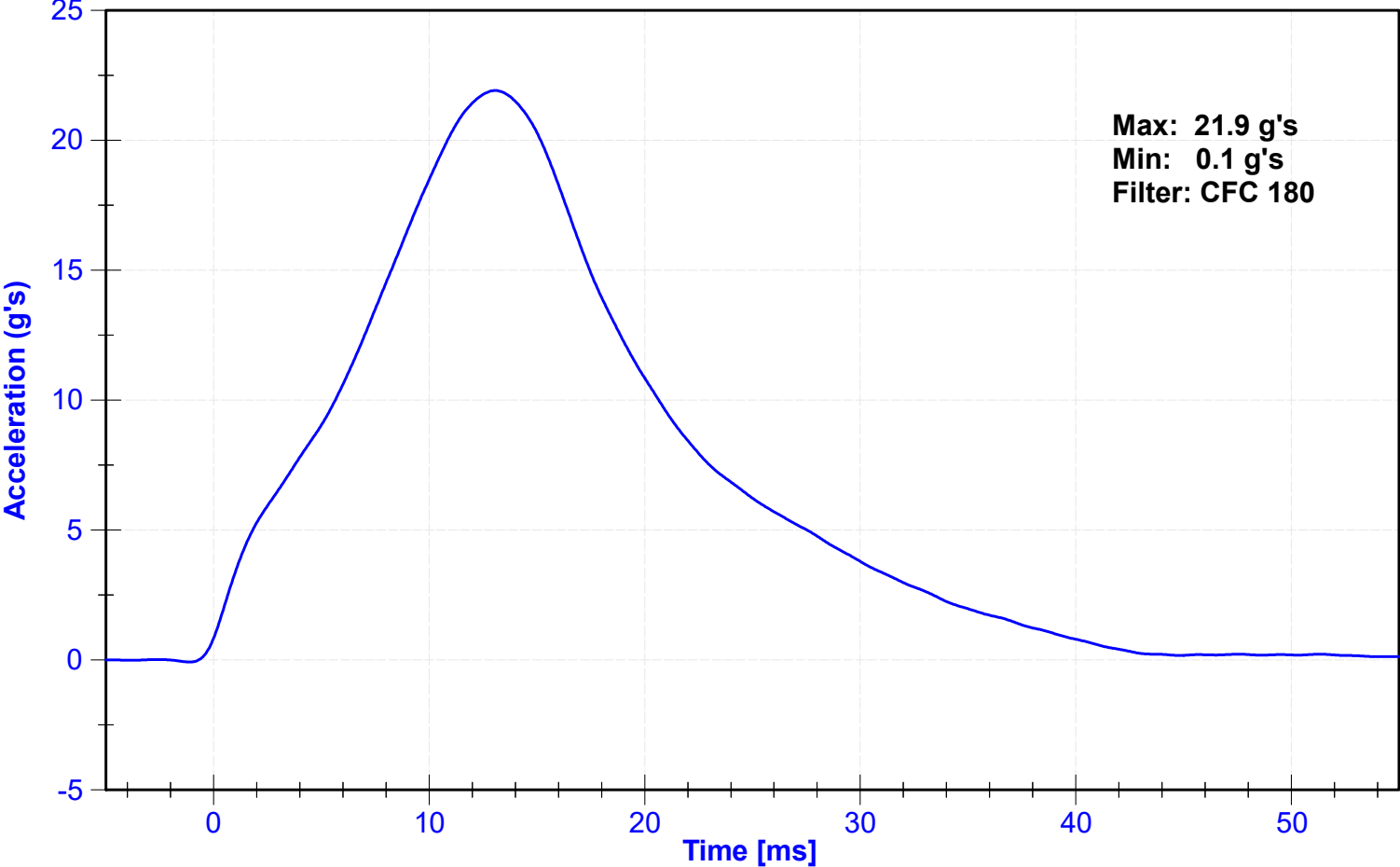
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.26	Pass
Resistive Force	4700	5400	N	5019.7	Pass
Time at Peak Resistive Force	11.8	16.1	ms	13.05	Pass
Pubic Force	-1590	-1230	N	-1314.1	Pass
Time at Peak Pubic Force	12.2	17.0	ms	13.00	Pass

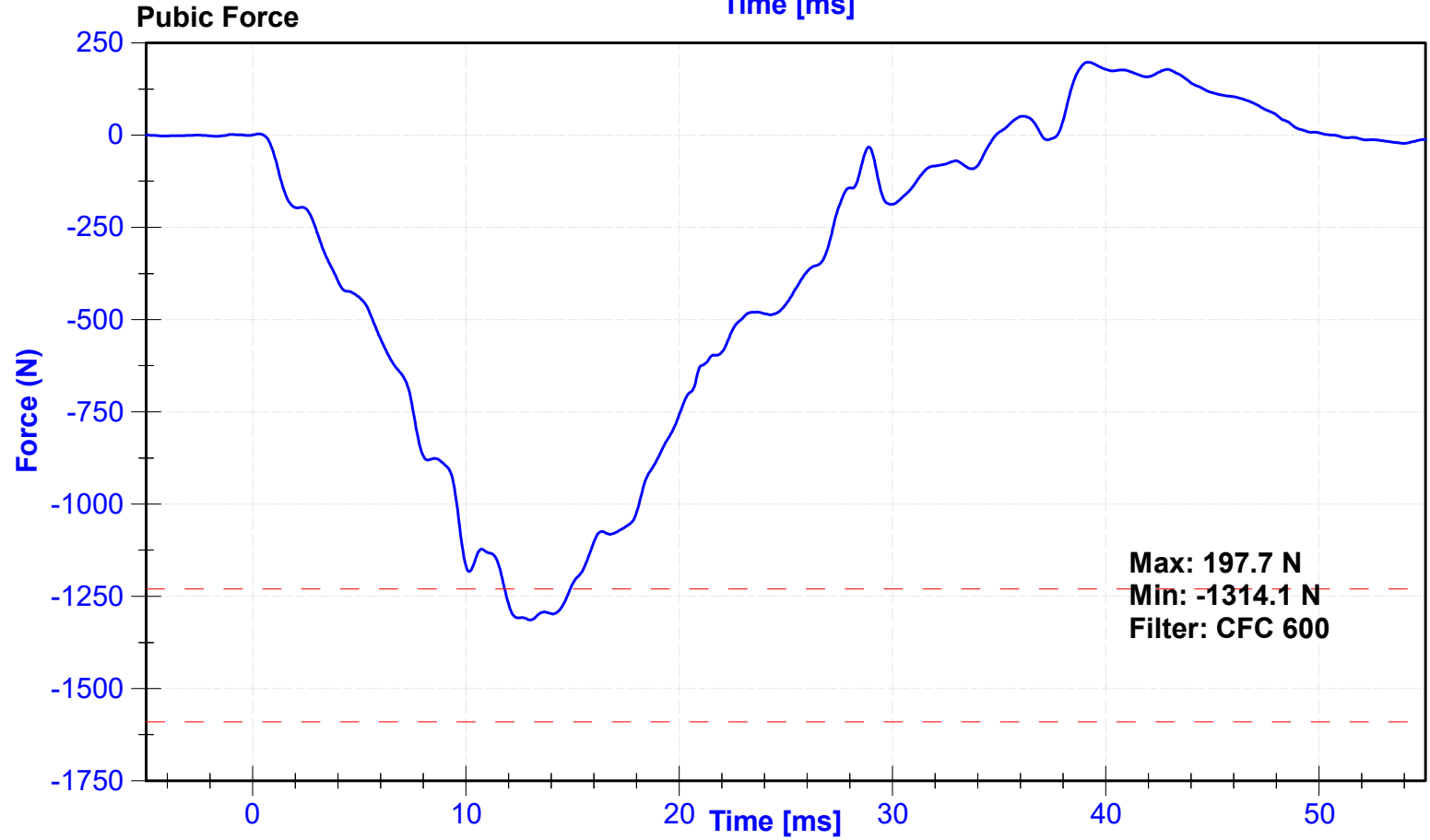
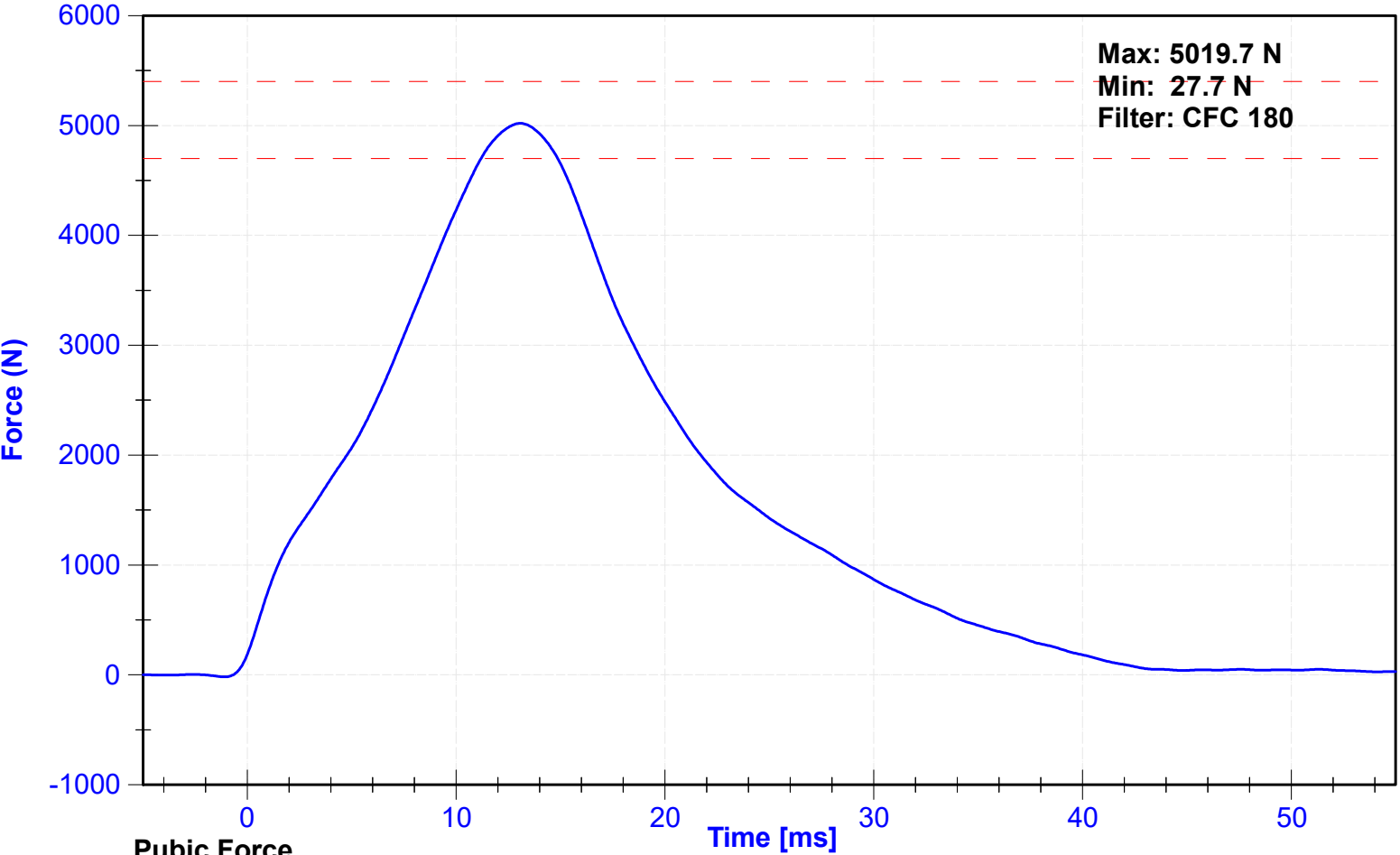
Transducer Calibrations

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

Probe Acceleration



Resistive Force



APPENDIX V

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (ES-2re)

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

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	G22431	Endevco	11/22/2024
Vehicle Center of Gravity	Y	G24234	Endevco	11/22/2024
Vehicle Center of Gravity	Z	G25256	Endevco	11/22/2024
Left Floor Sill	Y	G25875	Endevco	11/18/2024
A-Pillar Sill	Y	G26621	Endevco	01/14/2025
A-Pillar Low	Y	G23843	Endevco	12/14/2024
A-Pillar Mid	Y	G22780	Endevco	02/18/2025
B-Pillar Sill	Y	A335462	Measurement Specialties	01/13/2025
B-Pillar Low	Y	A280002	Measurement Specialties	02/11/2025
B-Pillar Mid	Y	A398653	Measurement Specialties	01/07/2025
Driver Seat	Y	G25851	Endevco	11/26/2024
Engine Top	X	G25568	Endevco	11/19/2024
Engine Top	Y	G25861	Endevco	11/19/2024
Firewall	Y	G26351	Endevco	12/30/2024
Right Roof	Y	G25024	Endevco	11/12/2024
Right Floor Sill	Y	G25266	Endevco	02/17/2025
Rear Floorpan	X	G26355	Endevco	12/30/2024
Rear Floorpan	Y	G26378	Endevco	12/30/2024