

REPORT NUMBER: 214D-CAL-25-005

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

**KIA Corporation
2025 KIA Seltos
5 Door SUV**

NHTSA No: C20254204

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



February 27, 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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Prepared by: Matthew Pronko
Matthew Pronko, Test Engineer

Date: February 27, 2025

Approved by: Vanessa Hansen
Vanessa Hansen, Operations Manager

Date: February 27, 2025

FINAL REPORT ACCEPTANCE BY OVSC:

EDWARD E CHAN

Digitally signed by EDWARD E
CHAN

Date: 2025.08.01 15:58:28 -04'00'

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16. Abstract A 31.00 km/h (19.3 mph), 75° oblique compliance test was conducted on the subject 2025 KIA Seltos 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 February 12, 2025. The impact velocity of the vehicle was 31.03 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 317 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>294.678</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>44</td> <td>31.729</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>1321.237</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>2831.720</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	294.678	Maximum Thoracic Rib Deflection	mm	44	31.729	Total Abdominal Force	N	2500	1321.237	Pubic Symphysis Force	N	6000	2831.720
Measurement Description	Driver ATD (ES-2re)																											
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Pubic Symphysis Force	N	6000	2831.720																									
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Form DOT F1700.7 (8-72)

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1	Test Purpose and Summary of the Test	1-1
2	Occupant and Vehicle Information	2-1
 <u>Data Sheet</u>		 <u>Page</u>
1	Test Vehicle Information and Options	2-2
2	Vehicle Tire Information	2-3
3	General Test and Vehicle Parameter Data	2-4
4	Seat and Seat Belt Adjustment Data	2-5
5	Fuel Systems and Steering Wheel Position Data	2-6
6	Dummy Longitudinal Clearance Dimensions	2-7
7	Dummy Lateral Clearance Dimensions	2-8
8	Location of Cameras	2-9
9	Test Vehicle Accelerometer Location	2-10
10	Test Vehicle Accelerometer Summary	2-11
11	Dummy Injury Response Data	2-12
12	Post Test Observations	2-13
13	Vehicle Pre-test and Post-test Measurements	2-15
14	Exterior Crush Measurements	2-16
15	Vehicle Exterior Crush Profiles	2-17
16	Temperature and Humidity Trace	2-19
 <u>Appendix</u>		 <u>Page</u>
I	Photographs	I-1
II	Dummy Response Data	II-1
III	Vehicle Accelerometer Response Data Plots	III-1
IV	Dummy Performance Calibration Test Data	IV-1
V	Test Equipment and Instrumentation Calibration	V-1

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 KIA Seltos 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 KIA Seltos 5 Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 31.03 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on February 12, 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
- Pubic 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	294.678
Upper Rib Deflection	mm	44	31.729
Mid Rib Deflection	mm	44	28.800
Lower Rib Deflection	mm	44	27.202
Abdominal Load (front)	N		285.113
Abdominal Load (mid)	N		431.044
Abdominal Load (rear)	N		625.383
Total Abdominal Force	N	2500	1321.237
Pubic Symphysis Force	N	6000	2831.720

SECTION 2

OCCUPANT AND VEHICLE INFORMATION

This section contains information reporting for the following Data Sheets:

<u>Data Sheet</u>	<u>Page</u>
1 Test Vehicle Information and Options	2-2
2 Vehicle Tire Information	2-3
3 General Test and Vehicle Parameter Data	2-4
4 Seat and Seat Belt Adjustment Data	2-5
5 Fuel Systems and Steering Wheel Position Data	2-6
6 Dummy Longitudinal Clearance Dimensions	2-7
7 Dummy Lateral Clearance Dimensions	2-8
8 Location of Cameras	2-9
9 Test Vehicle Accelerometer Location	2-10
10 Test Vehicle Accelerometer Summary	2-11
11 Dummy Injury Response Data	2-12
12 Post Test Observations	2-13
13 Vehicle Pre-test and Post-test Measurements	2-15
14 Exterior Crush Measurements	2-16
15 Vehicle Exterior Crush Profiles	2-17
16 Temperature and Humidity Trace	2-19

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 KIA Seltos 5 Door SUV

NHTSA No.: C20254204

Test Facility: Calspan

Test Date: 02/12/2025

TEST VEHICLE INFORMATION AND OPTIONS

Make	KIA	Anti-Lock Brakes (ABS)	Yes
Model	Seltos	All-Wheel Drive (AWD)	Yes
Body Style	5 Door SUV	Traction Control System (TCS)	Yes
VIN	KNDEPCAAXS7674497	Electric Stability Control (ECS)	Yes
Body Color	Dark Ocean Blue	Curtain Airbags	Yes
Engine Displacement (L)	2.0L	Torso Airbags – Front Seats	Yes
Type / No. Cylinders	I4	Torso Airbags – Rear Seats	No
Engine Placement	Transverse	Combination/Head Torso Bag	No
Transmission Type	Automatic	Pelvic Airbag – Front Seats	No
Transmission Speeds	CVT	Pelvis Airbag – Rear Seats	No
Overdrive	Yes	Knee Airbag – Driver	No
Final Drive	All Wheel Drive	Knee Airbag – Front Passenger	No
Odometer Reading (mi)	756 miles	Seat Belt Pretensioners – Front Seats	Yes
		Seat Belt Pretensioners – Rear Seats	No
		Seat Belt Load Limiter – Front Seats	Yes
		Seat Belt Load Limiter – Rear Seats	No
		Tire Pressure Monitoring System (TPMS)	Yes
		Tilt Steering Wheel	Yes
		Automatic Door Locks (ADL)	Yes
		Power Window Auto-reverse	Yes
		Power Seats	No
		Other Safety Restraint	N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	KIA Corporation	GVWR (kg)	1911
Date of Manufacture	05/24	GAWR Front (kg)	1040
Vehicle Type	MPV	GAWR Rear (kg)	960

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)				390
Cargo Weight (RCLW) (kg)				49.8

DATA SHEET NO. 2 VEHICLE TIRE INFORMATION

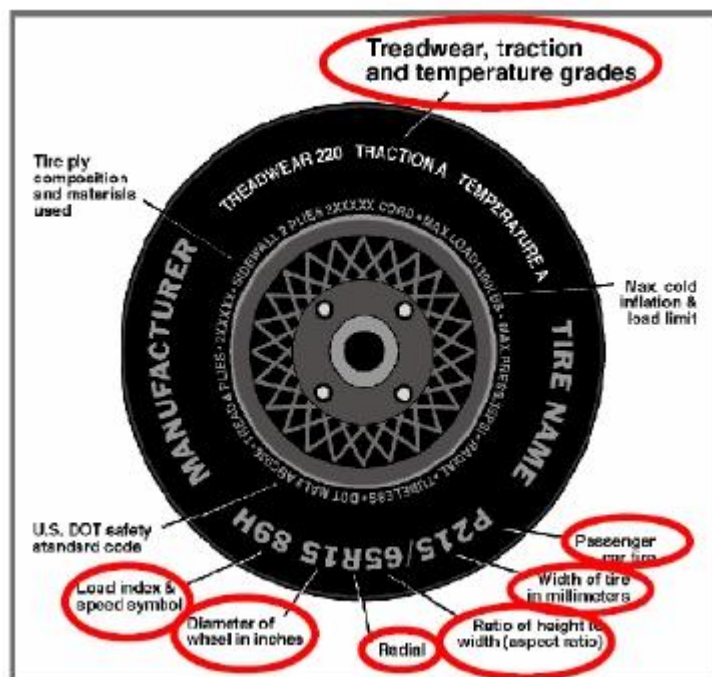
Test Vehicle: 2025 KIA Seltos 5 Door SUV

NHTSA No.: C20254204

Test Facility: Calspan

Test Date: 02/12/2025

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)	240	230
Recommended Tire Size	215/55R17	215/55R17
Tire Sidewall	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Tire Size on Vehicle	215/55R17	215/55R17
Tire Manufacturer Model	Kumho	Kumho
Tire Name	Solus TA31+	Solus TA31+
Tire Type	All Season	AIL Season
Tire Width	215	215
Aspect Ratio	55	55
Radial	Yes	Yes
Wheel Diameter	17"	17"
Load Index / Speed Symbol	94V	94V
Treadwear	500	500
Traction Grade	A	A
Temperature Grades	A	A

DATA SHEET NO. 3
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 KIA Seltos 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254204
Test Date: 02/12/2025

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	240	240	230	230
Tire Placard	kPa	240	240	230	230

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			Fully Loaded			As Tested		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	412	307		444	363		440	349	
Right	kg	407	286		420	319		428	318	
Ratio	%	58.0	42.0		55.9	44.1		56.5	43.5	
Totals	kg	819	593	1412	864	682	1546	868	667	1535

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1412	(A)
Weight of Test Dummy	kg	81	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	49.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1542.8	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	As Delivered	Fully Loaded	As Tested
Driver Door Sill Angle	Deg	-0.35	-0.60	-0.35
Front Passenger Sill Angle	Deg	-0.60	-0.50	-0.55
Front Bumper-Line Angle	Deg	-0.20	-0.30	-0.20
Rear Bumper-Line Angle	Deg	-0.45	-0.80	-0.75

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	2630
Vertical Impact Reference Line Aft of Front Axle	mm	1269

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	10
Spare Tire	12
Jack	3
Passenger Right Rear Window	2
Ballast (if any)	0

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

Test Vehicle: 2025 KIA Seltos 5 Door SUV
Test Facility: Calspan

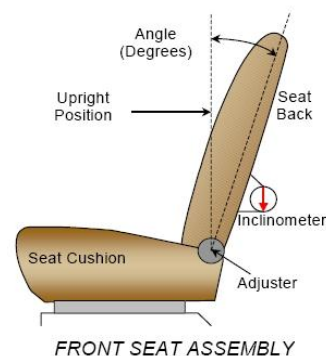
NHTSA No.: C20254204
Test Date: 02/12/2025

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	1.9
Front Passenger Seat	Degrees	2.2

**Measurement taken on headrest post*



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	-	-	-
		Mid	-	-	-
		Min	12.5	14.5	16.8
Front Passenger Seat	Fixed	Max	Fixed	Fixed	Fixed
		Mid	Fixed	Fixed	Fixed
		Min	Fixed	Fixed	Fixed

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Placed in Position #	
	mm	Detents*	mm	Detents*
Driver Seat	240	38 (0-37)	123	19
Front Passenger Seat	220	35 (0-34)	110.5	17

SEAT BELT ANCHORAGE ADJUSTMENT

Seat	Total # of Positions	Placed in Position #
Driver Seat	3 (0-2)	Uppermost

HEAD RESTRAINT ADJUSTMENT

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

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

Test Vehicle: 2025 KIA Seltos 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254204
 Test Date: 02/12/2025

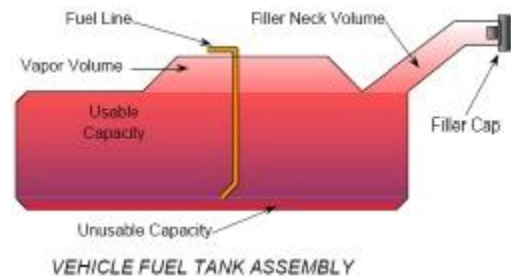
FUEL TANK CAPACITY DATA

Description	Liters
Usable Capacity of (Form No.1)	50.0
Usable Capacity of (Owner's Manual)	50.0
92 - 94% of Usable Capacity	46.0 - 47.0
Actual Amount of Solvent Used in Test	46.2

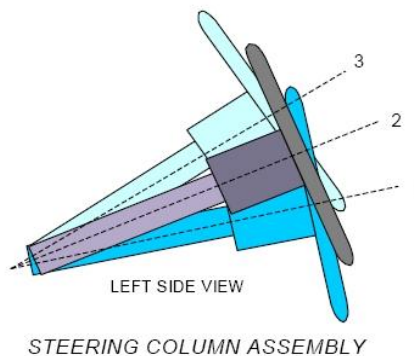
FUEL PUMP

Describe the operation of the fuel pump.

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



STEERING COLUMN POSITIONS

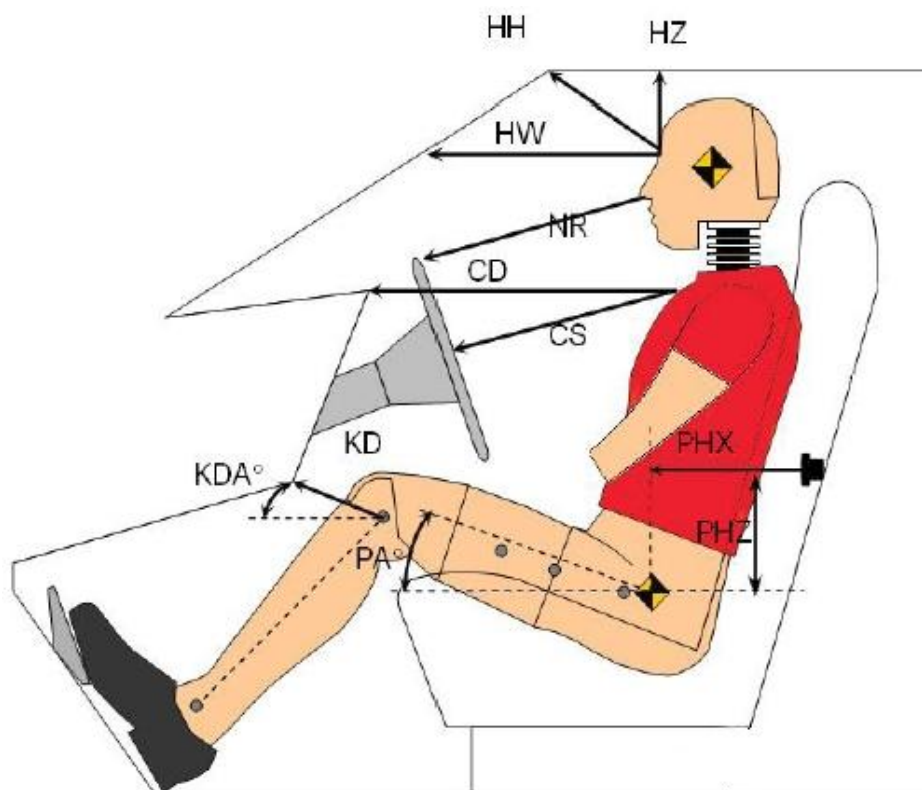


	Degrees	Fore / Aft Position (mm)
Lowermost - Position No. 1	23.8	
Geometric center - Position No. 2	26.5	
Uppermost - Position No. 3	29.1	
Telescoping Steering Wheel Travel		50
Test Position	26.4	25

DATA SHEET NO. 6
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 KIA Seltos 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254204
 Test Date: 02/12/2025



Left Side View

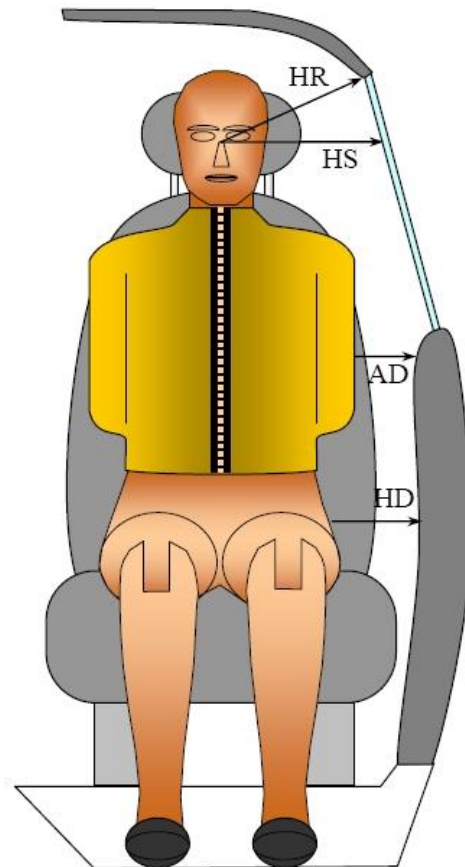
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	382	
HW	Head to Windshield	638	
HZ	Head to Roof Liner	180	
NR	Nose to Rim	461	
CD	Chest to Dash	640	
CS	Chest to Steering Wheel	359	
KD(L) / KDA(L)°	Left Knee to Dash	158	31.7
KD(R) / KDA(R)°	Right Knee to Dash	158	3.4
PAX°	Pelvic Tilt Angle (X-Axis)		24.4
PAY°	Pelvic Tilt Angle (Y-Axis)		-0.3
PHX	Hip Point to Striker (X-Axis)	173	
PHZ	Hip Point to Striker (Z-Axis)	226	

DATA SHEET NO. 7
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 KIA Seltos 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254204
Test Date: 02/12/2025



FRONT VIEW OF DUMMY

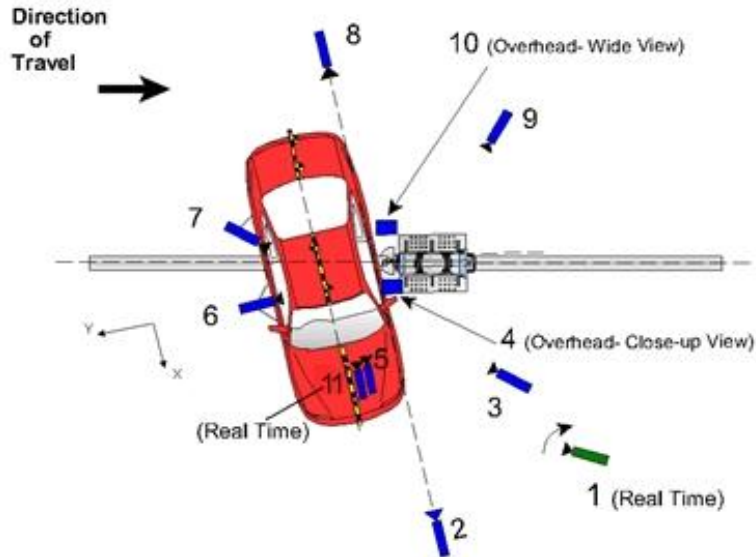
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	198
HS	Head to Side Window	mm	325
AD	Arm to Door	mm	84
HD	H-Point to Door	mm	150

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

Test Vehicle: 2025 KIA Seltos 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254204
Test Date: 02/12/2025



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	60
2	Front ground level - impact view	7762	0	-1493	28	1000
3	Impact side 45° - forward pole view	-3032	-731	-1423	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	-8902	0	-1481	28	1000
9	Impact side 45° - rearward pole view	-3920	-4102	-1539	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.

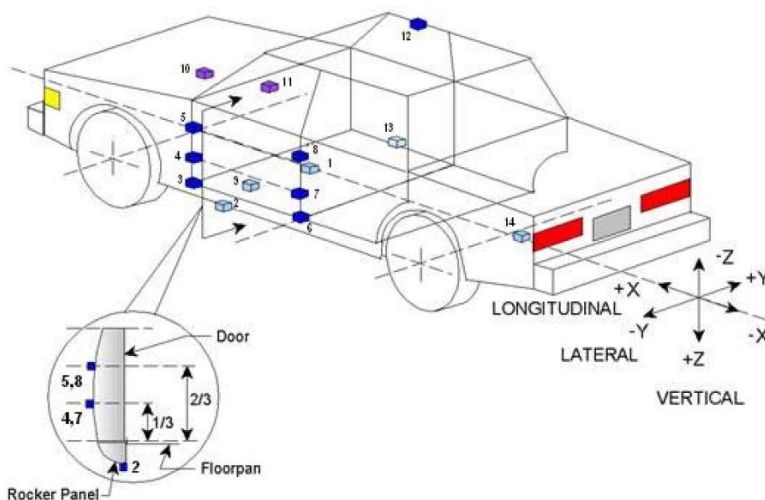
DATA SHEET NO. 9 TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2025 KIA Seltos 5 Door SUV

NHTSA No.: C20254204

Test Facility: Calspan

Test Date: 02/12/2025



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1939	25	76
2	Left Floor Sill	2725	-659	115
3	A-Pillar Sill	3006	-635	102
4	A-Pillar Low	3103	-637	-98
5	A-Pillar Mid	2963	-650	-602
6	B-Pillar Sill	1854	-617	159
7	B-Pillar Low	2011	-670	-135
8	B-Pillar Mid	1955	-649	-612
9	Seat	2144	-557	88
10	Engine	3682	156	-362
11	Firewall	3472	219	-410
12	Roof	2062	576	-1093
13	Right Floor Sill	2632	666	106
14	Rear Deck	962	-4	36

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 KIA Seltos 5 Door SUV NHTSA No.: C20254204
Test Facility: Calspan Test Date: 02/12/2025

Loc. No	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Max	Time (ms)
1	Vehicle CG	X	g	2.98	33.30	-9.29	57.55
	Vehicle CG	Y	g	22.69	49.70	-1.89	161.40
	Vehicle CG	Z	g	10.49	65.40	-17.21	34.35
	Vehicle CG Resultant	N/A	g	24.36	50.10	0.00	-24.95
2	Floor Sill (Left)	Y	g	67.12	20.65	-64.11	16.65
3	A Pillar Sill	Y	g	21.02	43.35	-2.27	35.65
4	A Pillar Low	Y	g	79.99	48.45	-76.41	52.80
5	A Pillar Mid	Y	g	32.84	21.65	-10.88	29.90
6	B Pillar Sill	Y	g	114.93	21.00	-84.95	30.70
7	B Pillar Low	Y	g	139.63	20.20	-128.10	15.75
8	B Pillar Mid	Y	g	80.79	24.15	-50.04	16.65
9	Seat	Y	g	96.99	32.10	-28.43	35.70
10	Engine Top	X	g	5.59	112.65	-10.24	38.05
	Engine Top	Y	g	13.39	46.60	-6.87	204.55
11	Firewall	Y	g	18.59	42.20	-3.07	35.70
12	Roof	Y	g	26.83	37.25	-4.04	77.90
13	Floor Sill (Right)	Y	g	17.93	44.15	-1.58	242.15
14	Rear Deck	X	g	3.05	134.75	-5.64	33.15
	Rear Deck	Y	g	18.00	55.75	-1.55	161.60

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

Test Vehicle: 2025 KIA Seltos 5 Door SUV

NHTSA No.: C20254204

Test Facility: Calspan

Test Date: 02/12/2025

Dummy Serial No. DG5348

Description	Axes	Positive Direction		Negative Direction	
		Max	Time (ms)	Max	Time (ms)
HEAD ACCELERATION (g)					
Longitudinal	X	5.64	231.95	-21.29	57.65
Lateral	Y	46.78	50.95	-11.85	86.95
Vertical	Z	11.51	37.95	-14.80	64.15
Resultant	N/A	49.90	51.00		
HIC36 (t1, t2)	N/A	294.68		t1 = 38.15	t2 = 65.45
THORAX DEFLECTION (mm)					
Upper Rib	Y	31.73	58.70	-1.48	83.65
Middle Rib	Y	28.80	57.75	-1.97	83.95
Lower Rib	Y	27.20	56.60	-1.04	85.75
ABDOMINAL FORCES (N)					
Front	Y	285.11	46.65	-22.17	16.05
Middle	Y	431.04	49.20	-16.00	249.40
Rear	Y	625.38	48.25	-6.87	144.35
SUM	N/A	1321.24	48.20		
PELVIS FORCES (N)					
Pubic Symphysis	Y	39.24	258.85	-2831.72	51.35

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

**DATA SHEET NO. 12
POST-TEST OBSERVATIONS**

Test Vehicle: 2025 KIA Seltos 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254204
Test Date: 02/12/2025

IMPACT POINT DATA

Measured Parameter	Units	Value
Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt	mm	1269
Actual Impact Point - Aft of Front Axle	mm	1271
Difference	mm	2

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver Seat Dummy (ES2-re)
Head Contact	Curtain Airbag, Side Header, and Head Restraint
Upper Torso Contact	Torso/Pelvis Airbag and Seat Back
Lower Torso Contact	Seat Back
Left Knee Contact	None
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	N/A	No	N/A
Seat Disengagement from Floor Pan	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	B-Pillar and C-Pillar Buckled
Sill Separation	None
Windshield Damage	Cracked Throughout
Side Window Damage	Driver Window Shattered Completely
Other Notable Effects	None

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

Test Vehicle: 2025 KIA Seltos 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254204
 Test Date: 02/12/2025

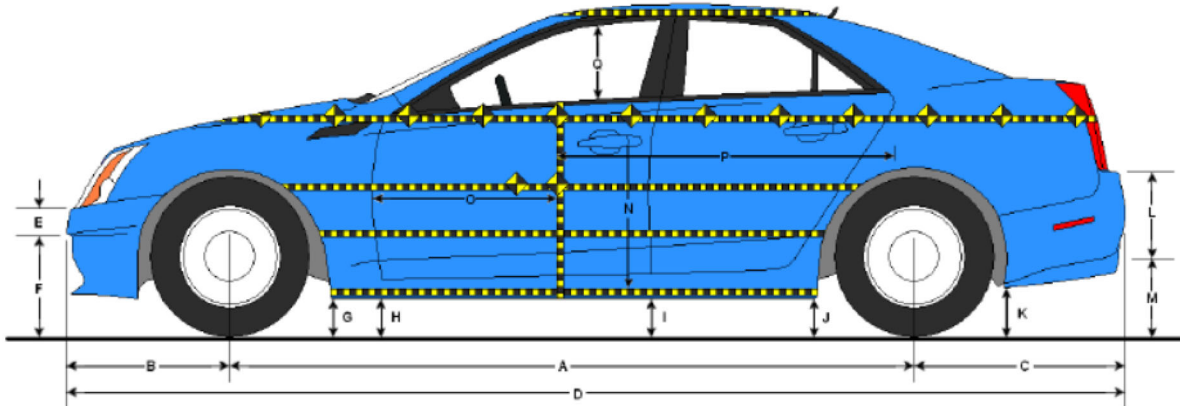
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

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

Test Vehicle: 2025 KIA Seltos 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254204
 Test Date: 02/12/2025



LEFT SIDE VIEW

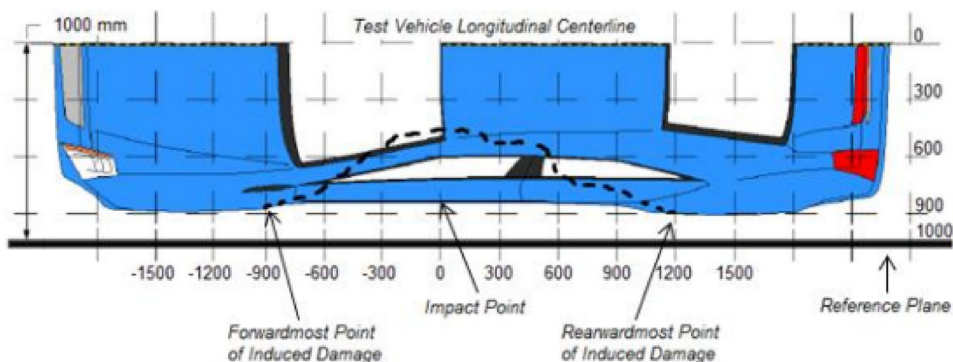
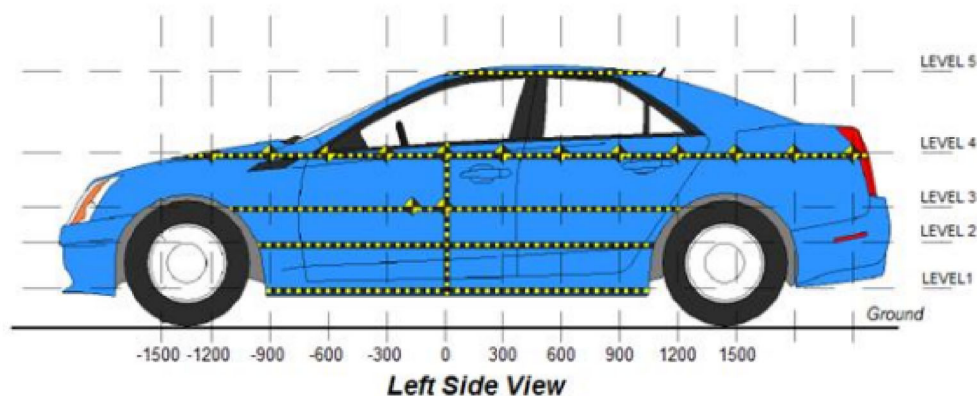
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

No.	Measurement Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2630	2578	-52
B	Front Axle to FSOV	868	897	29
C	Rear Axle to RSOV	888	885	-3
D	Total Vehicle Length at Centerline	4385	4360	-25
E	Front Bumper Thickness	95	95	0
F	Front Bumper Bottom to Ground	449	513	64
G	Sill Height at Front Wheel Well	225	226	1
H	Sill Height at Front Door Leading Edge	226	228	2
I	Sill Height at B Pillar	233	184	-49
J1	Sill Height at Rear Wheel Well	234	226	-8
J2	Pinch Weld Height at Rear Wheel Well	219	239	20
K	Sill Height Aft of Rear Wheel Well	265	263	-2
L	Rear Bumper Thickness	80	80	0
M	Rear Bumper Bottom to Ground	552	544	-8
N	Sill Height to Window Bottom Sill	766	781	15
O	Front Door Leading Edge to Impact CL	765	705	-61
P	Rear Door Trailing Edge to Impact CL	1250	1172	-78
Q	Front Window Opening	360	362	1
R	Right Side Length	4274	4267	-7
S	Left Side Length	4276	4229	-47
T	Vehicle Width at B-Pillars	1774	1598	-176

DATA SHEET NO. 14 **TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2025 KIA Seltos 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254204
 Test Date: 02/12/2025



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	305	263	0
2	Occupant H-Point	mm	665	308	0
3	Mid-Door	mm	769	317	0
4	Window Sill	mm	1068	270	0
5	Window Top	mm	1548	129	0

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 KIA Seltos 5 Door SUV

NHTSA No.: C20254204

Test Facility: Calspan

Test Date: 02/12/2025

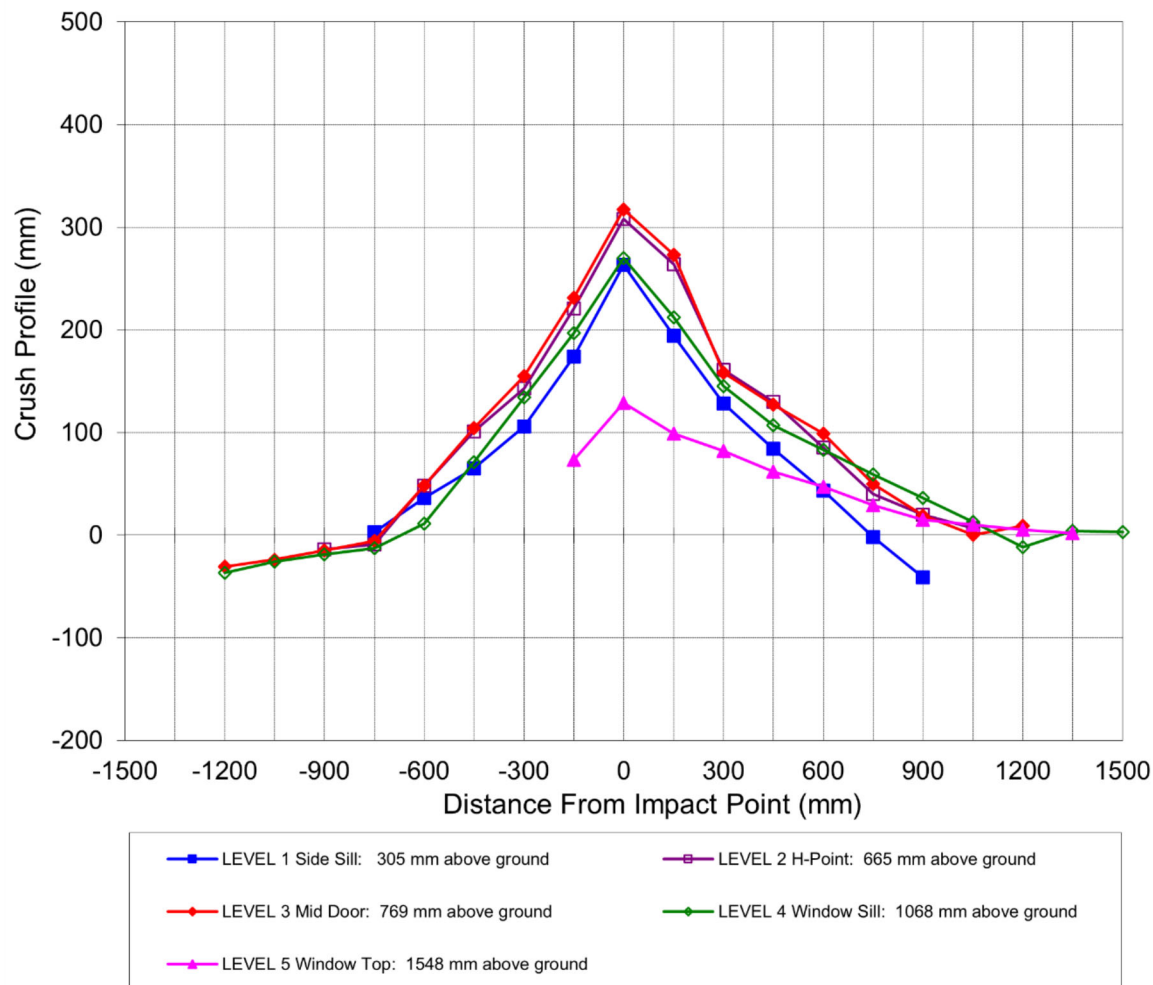
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500															
-1350															
-1200			902	745				933	782				-31	-37	
-1050			901	765				925	791				-24	-26	
-900		898	900	781			912	915	800			-14	-15	-19	
-750	850	892	891	791		847	901	897	804		3	-9	-6	-13	
-600	842	878	884	796		806	830	836	785		36	48	48	11	
-450	839	873	882	804		774	772	778	733		65	101	104	71	
-300	838	871	881	810		732	728	726	676		106	143	155	134	
-150	835	870	879	814	611	661	649	648	617	538	174	221	231	197	73
0	834	870	878	819	620	571	562	561	549	491	263	308	317	270	129
150	831	870	876	822	621	637	606	603	610	522	194	264	273	212	99
300	827	870	874	826	621	699	709	716	681	539	128	161	158	145	82
450	823	872	872	826	618	739	742	745	719	556	84	130	127	107	62
600	817	874	871	828	616	774	789	772	745	569	43	85	99	83	47
750	820	878	873	831	611	822	838	823	772	582	-2	40	50	59	29
900	840	894	890	833	605	881	874	871	797	590	-41	20	19	36	15
1050		899	894	833	597		892	894	820	587		7	0	13	10
1200			901	833	585			892	845	580			9	-12	5
1350				830	570				826	568				4	2
1500				825					822					3	

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

Test Vehicle: 2025 KIA Seltos 5 Door SUV
 Test Facility: Calspan

NHTSA No.: C20254204
 Test Date: 02/12/2025



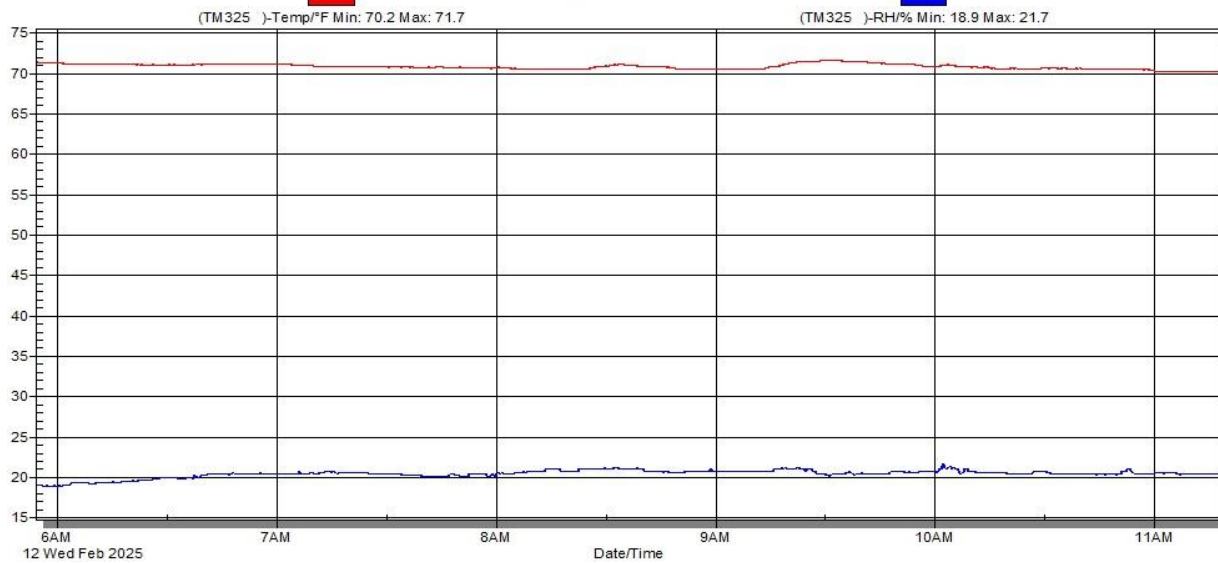
Vehicle Exterior Crush Measurements - Visual Representation

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

Test Vehicle: 2025 KIA Seltos 5 Door SUV
Test Facility: Calspan

NHTSA No.: C20254204
Test Date: 02/12/2025

Wednesday, February 12, 2025



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

APPENDIX I
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Fig.	Description	Page
1	Pre-Test Frontal View of Test Vehicle	I-3
2	Post Test Frontal View of Test Vehicle	I-3
3	Pre-Test Rear View of Test Vehicle	I-4
4	Post-Test Rear View of Test Vehicle	I-4
5	Pre-Test Impacted Side View of Test Vehicle	I-5
6	Post-Test Impacted Side View of Test Vehicle	I-5
7	Pre-Test Left $\frac{3}{4}$ Front View of Vehicle and Pole	I-6
8	Pre-Test Left $\frac{3}{4}$ Rear View of Vehicle and Pole	I-6
9	Pre-Test Overhead View of Test Vehicle	I-7
10	Post-Test Overhead View of Test Vehicle	I-7
11	Pre-Test Dummy Through Opposite Window	I-8
12	Post-Test Dummy Through Opposite Window	I-8
13	Pre-Test Close-Up of Dummy with Door Closed (Impact Side)	I-9
14	Post-Test Close-Up of Dummy with Door Closed (Impact Side)	I-9
15	Pre-Test Dummy with Door Open	I-10
16	Pre-Test Dummy Shoulder and Door Top View	I-10
17	Post-Test Dummy Shoulder and Door Top View	I-11
18	Pre-Test Interior of Front Door Closed (through opposite window)	I-11
19	Post-Test Interior of Front Door Showing Dummy Impact Locations	I-12
20	Impact Event	I-12
21	Post-Test Impact Zone Close-Up View	I-13
22	Post-Test $\frac{3}{4}$ Front View of Impact Zone	I-13
23	Post-Test $\frac{3}{4}$ Rear View of Impact Zone	I-14
24	Post-Test Close-Up View of Impact Point Target	I-14
25	Close-Up View of Vehicle's Certification Label	I-15
26	Close-Up View of Vehicle's Tire Placard Label	I-15



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

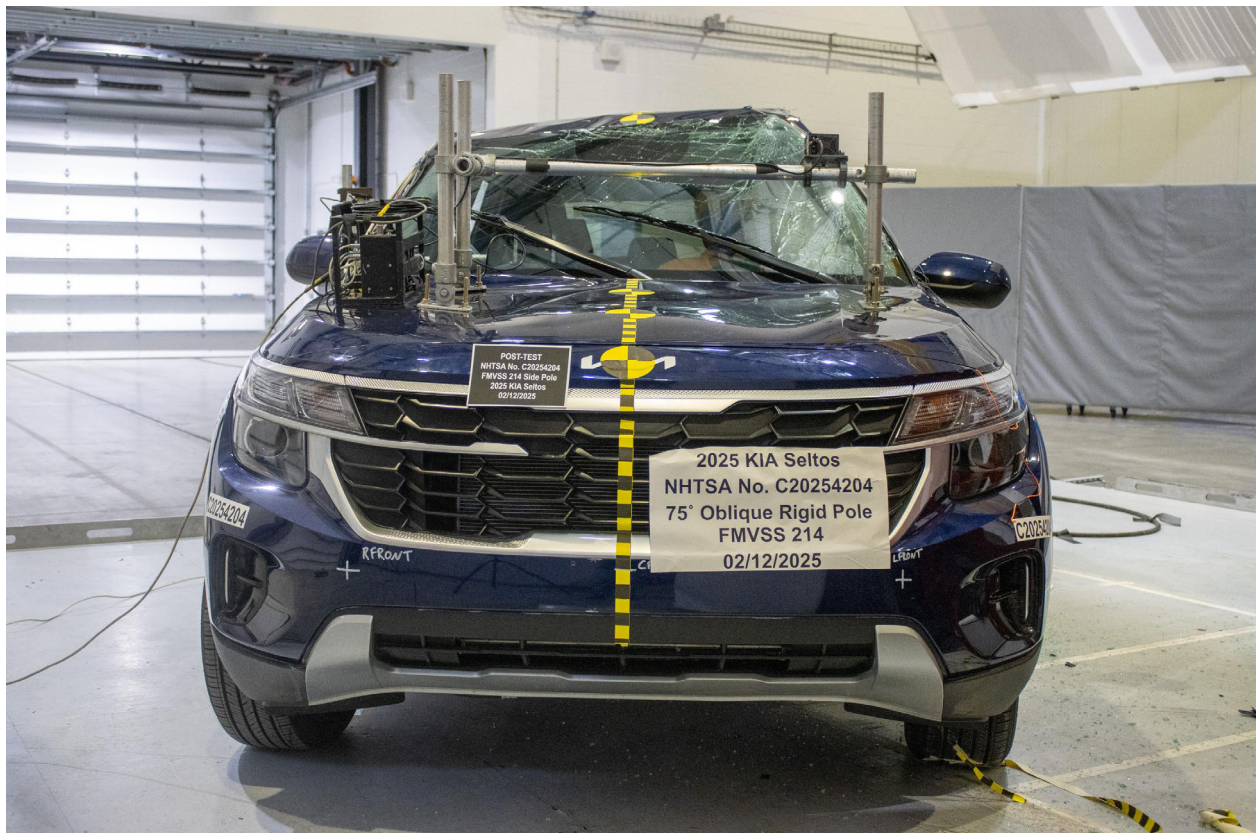


Figure A-2: Post Test Frontal View of Test Vehicle

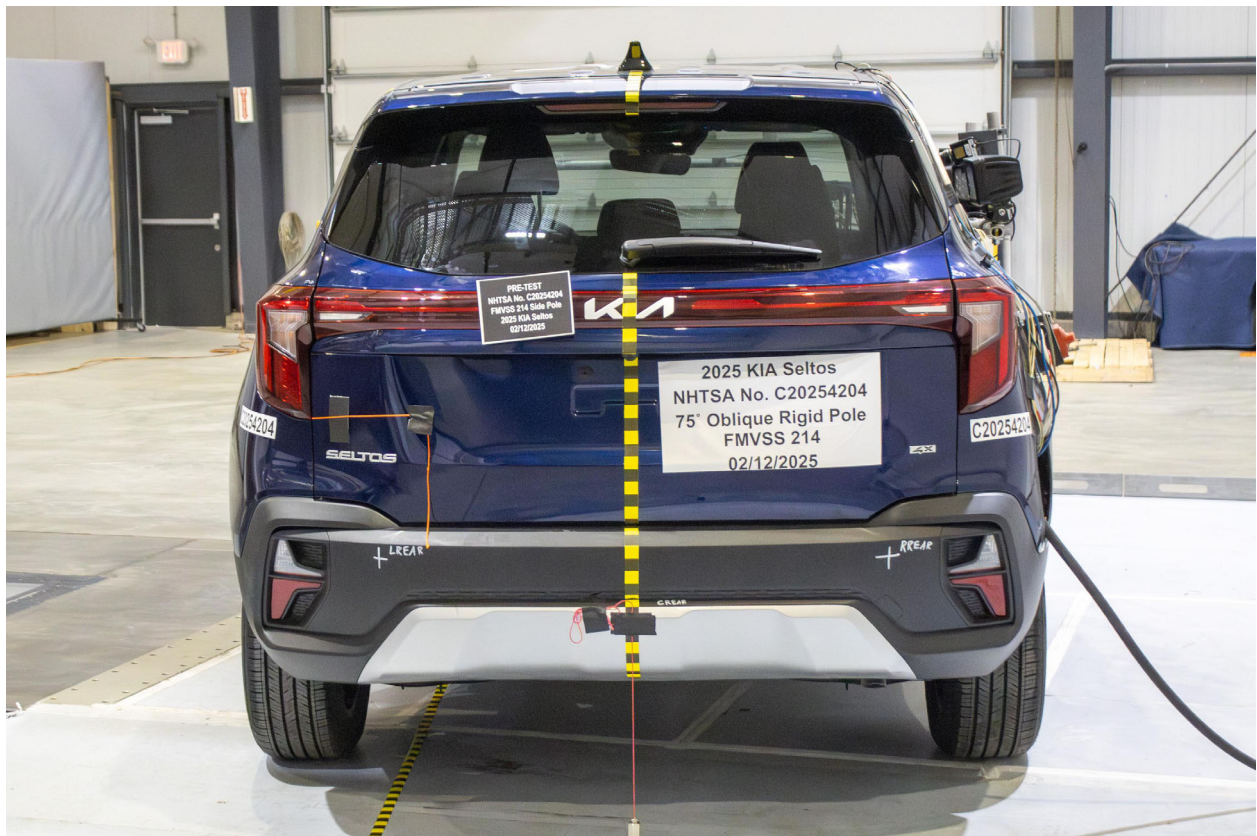


Figure A-3: Pre-Test Rear View of Test Vehicle

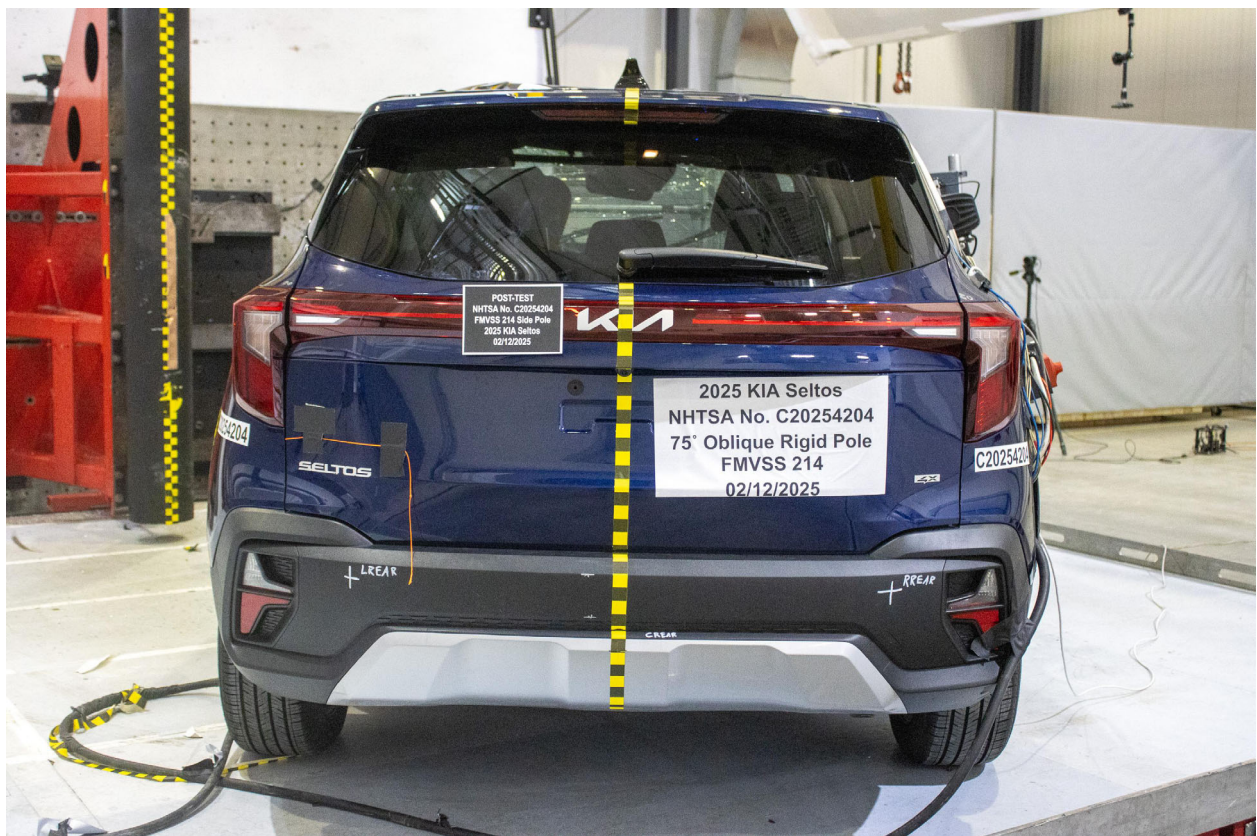


Figure A-4: Post-Test Rear View of Test Vehicle



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

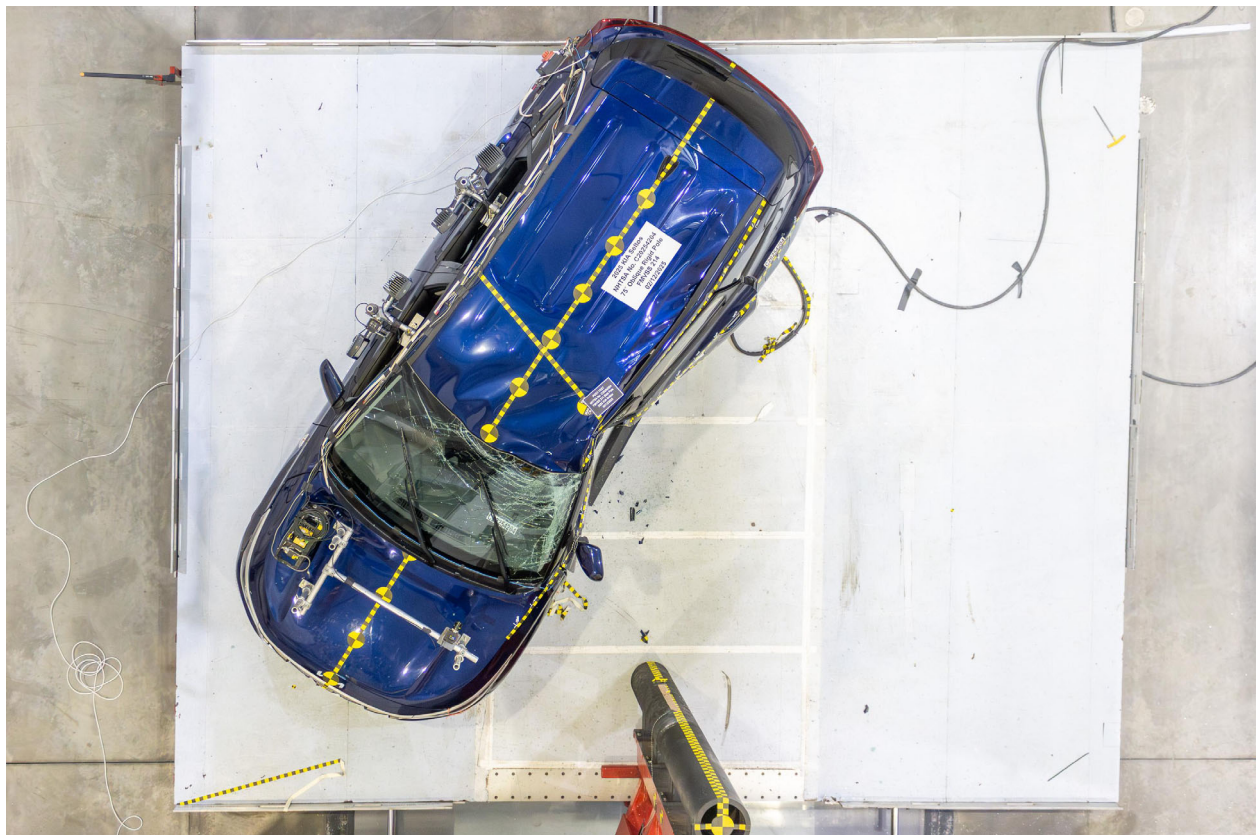


Figure A-10: Post-Test Overhead View of Test Vehicle



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

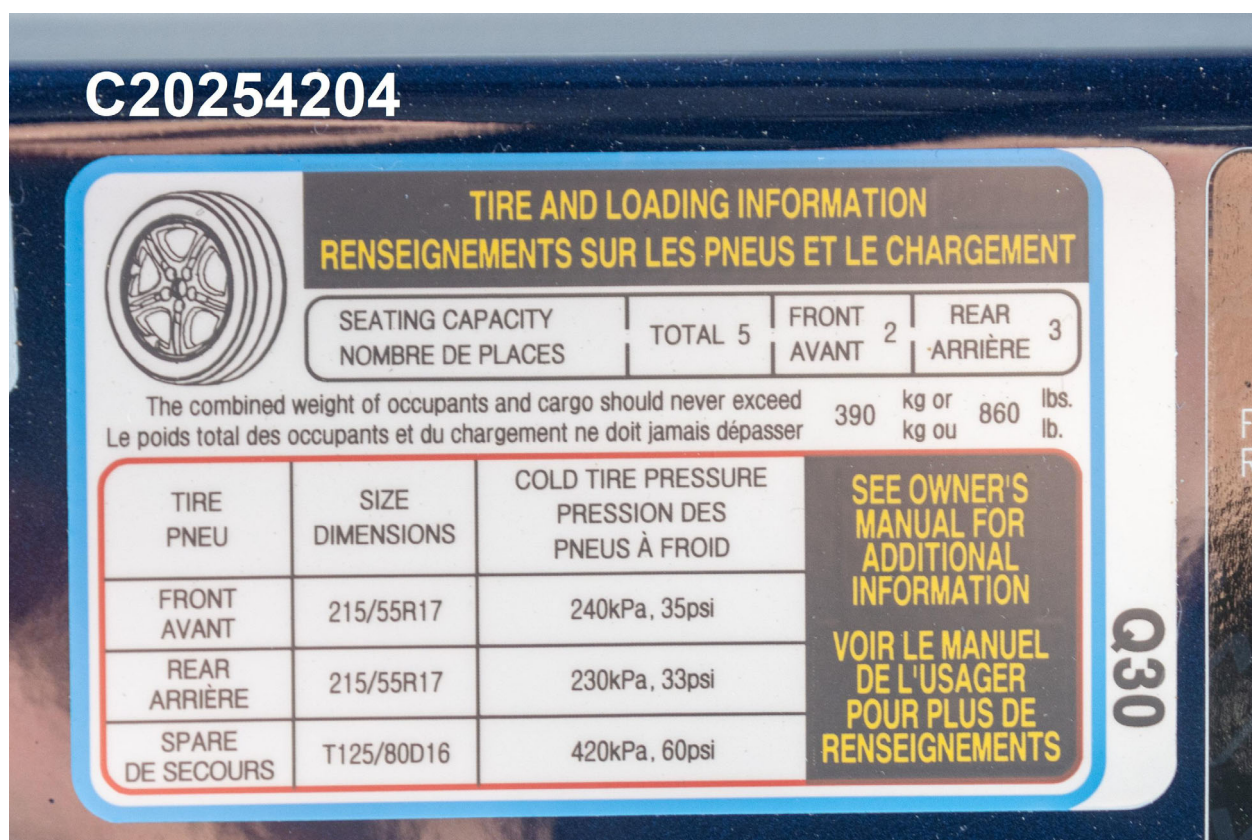


Figure A-26: Close-Up View of Vehicle's Tire Placard Label

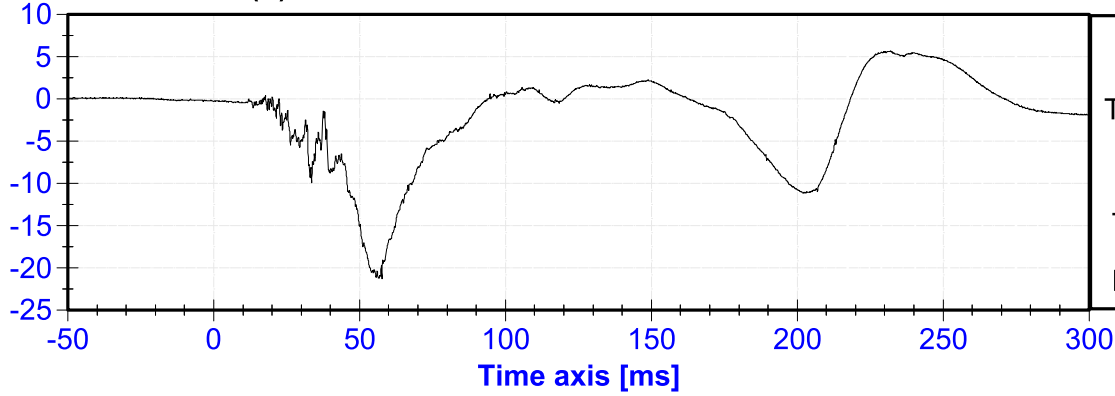
APPENDIX II
ES-2re DUMMY RESPONSE DATA TRACES

Table of Data Plots

No.	Description	Page
1	ES-2re Head (X) Acceleration vs. Time	II-3
2	ES-2re Head (Y) Acceleration vs. Time	II-3
3	ES-2re Head (Z) Acceleration vs. Time	II-3
4	ES-2re Head Resultant Acceleration vs. Time	II-3
5	ES-2re Head (X) Velocity vs. Time	II-4
6	ES-2re Head (Y) Velocity vs. Time	II-4
7	ES-2re Head (Z) Velocity vs. Time	II-4
8	ES-2re Upper Thorax Rib Deflection Rate vs. Time	II-4
9	ES-2re Upper Thorax Rib Deflection (Y) vs. Time	II-5
10	ES-2re Middle Thorax Rib Deflection Rate vs. Time	II-5
11	ES-2re Middle Thorax Rib Deflection (Y) vs. Time	II-5
12	ES-2re Lower Thorax Rib Deflection Rate vs. Time	II-5
13	ES-2re Lower Thorax Rib Deflection (Y) vs. Time	II-6
14	ES-2re Front Abdomen Force (Y) vs. Time	II-6
15	ES-2re Middle Abdomen Force (Y) vs. Time	II-6
16	ES-2re Rear Abdomen Force (Y) vs. Time	II-6
17	ES-2re Sum of Abdomen Forces vs. Time	II-7
18	ES-2re Pubic Symphysis Force (Y) vs. Time	II-7

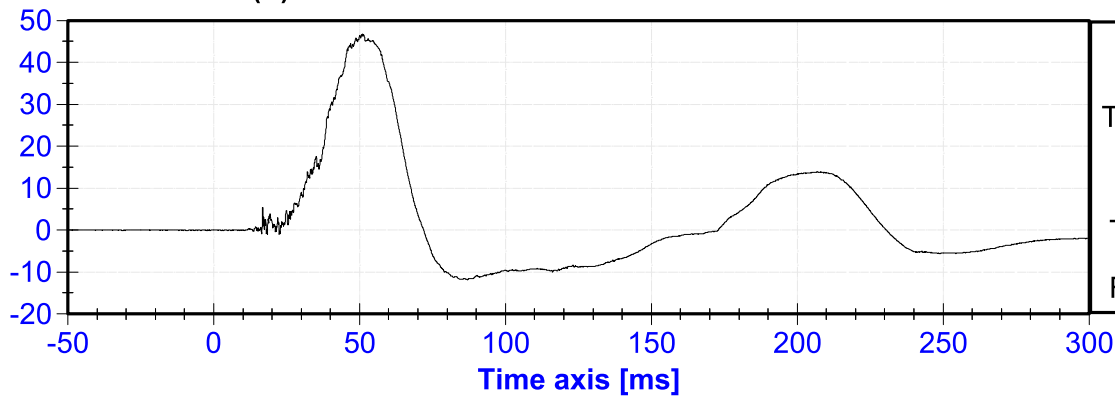
ACCELERATION [g's]

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



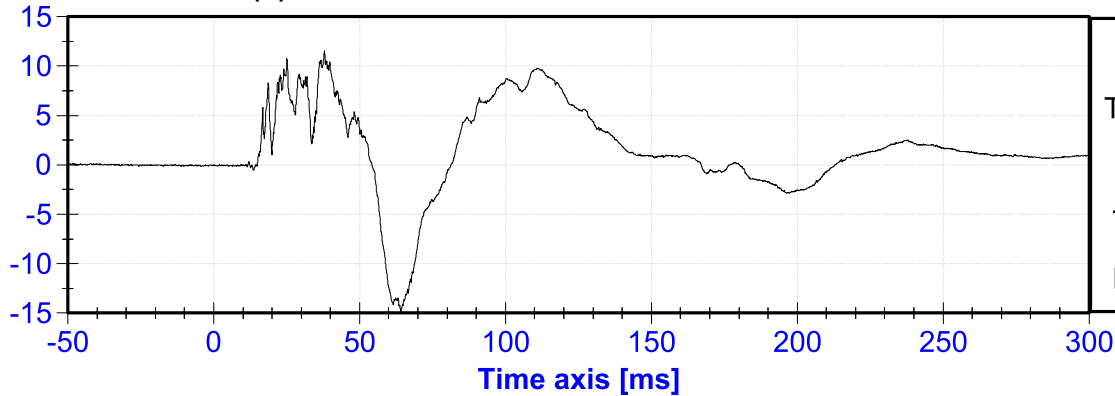
ACCELERATION [g's]

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



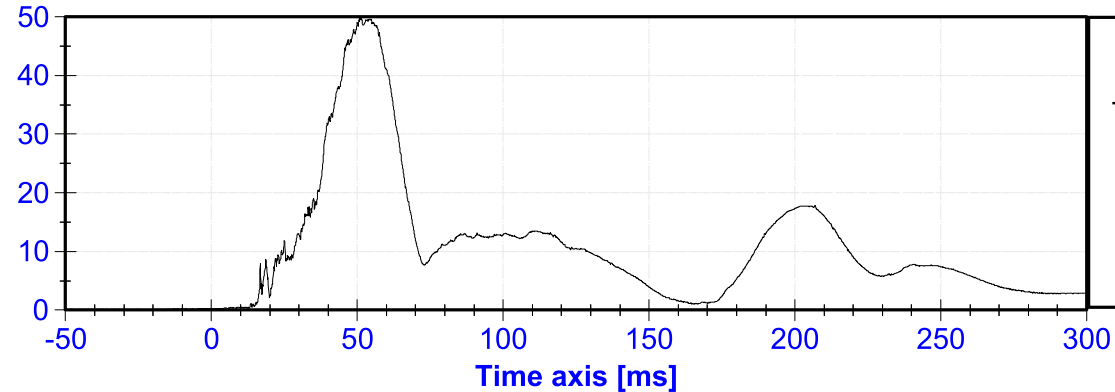
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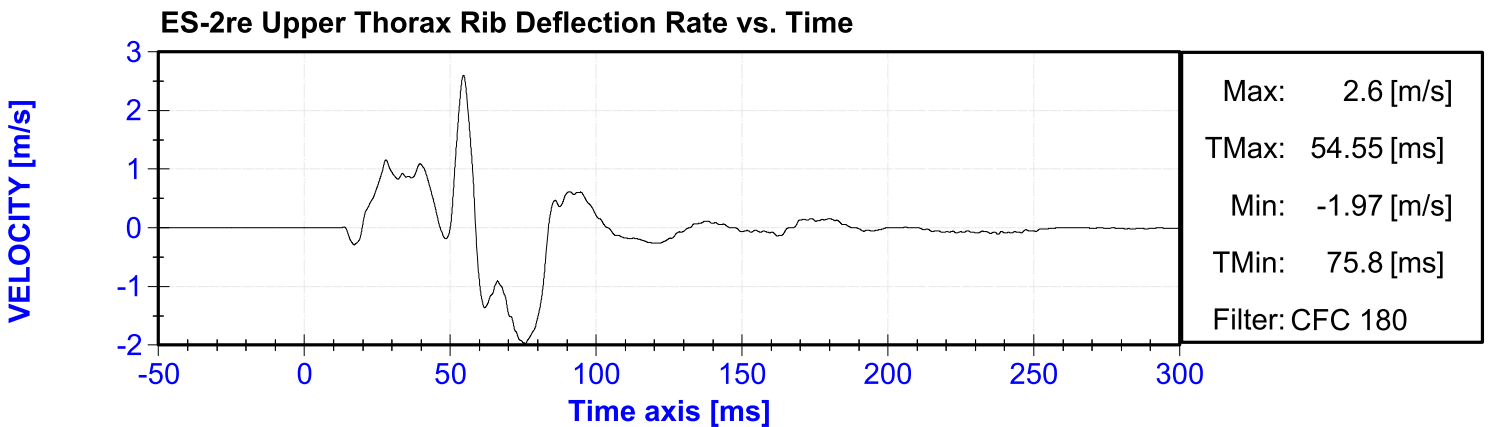
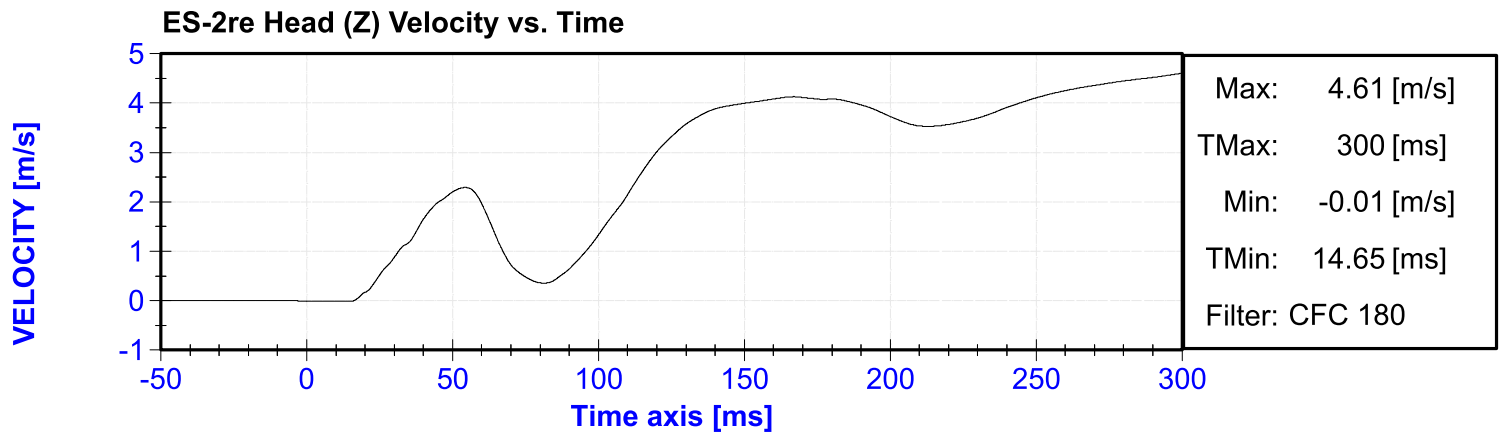
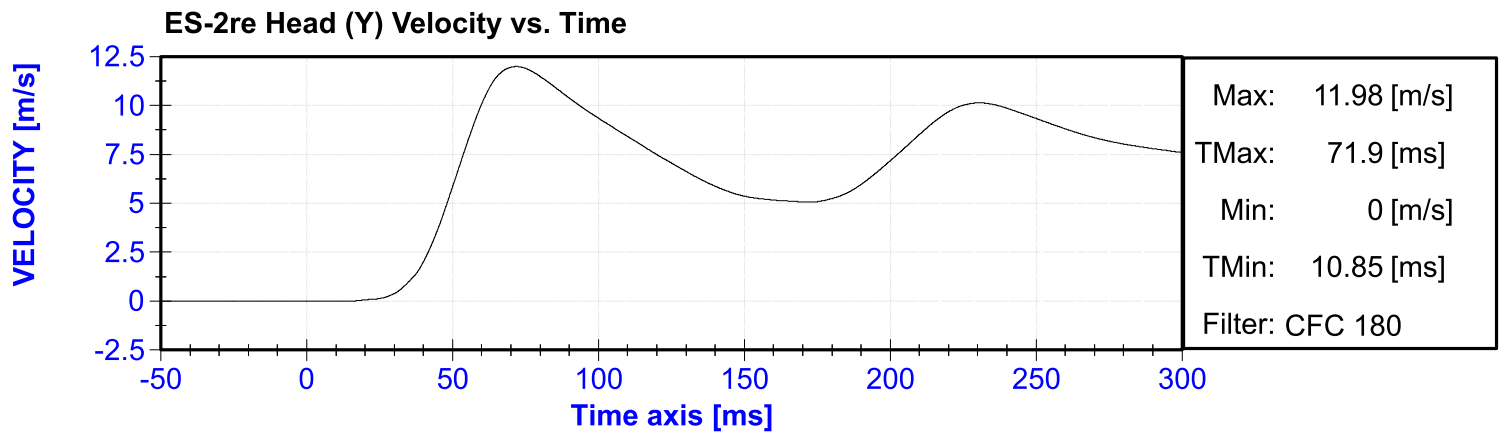
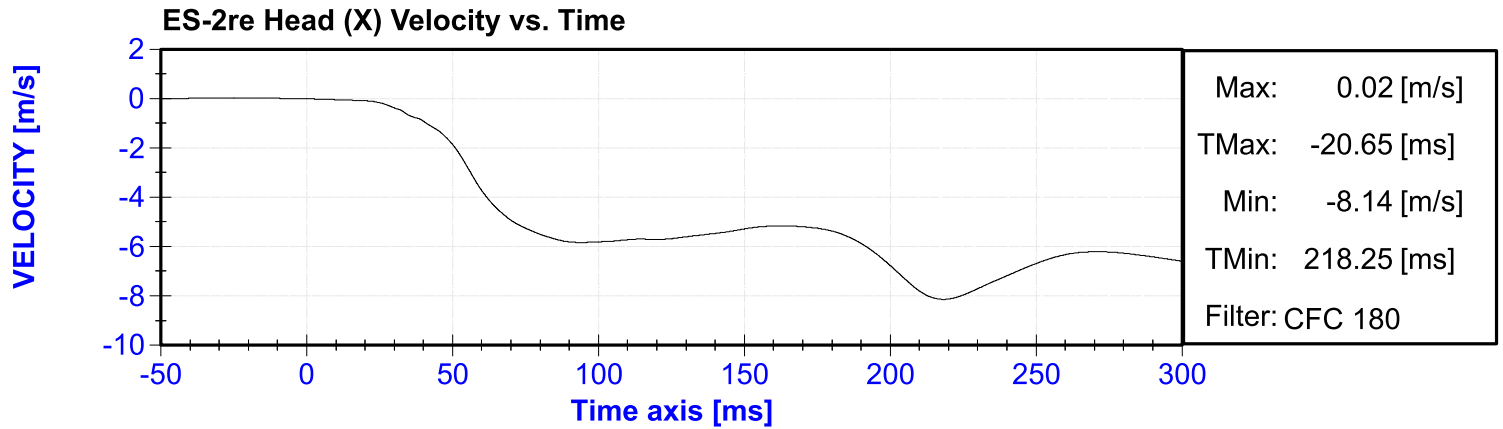
ES-2re Head (Z) Acceleration vs. Time



ACCELERATION [g's]

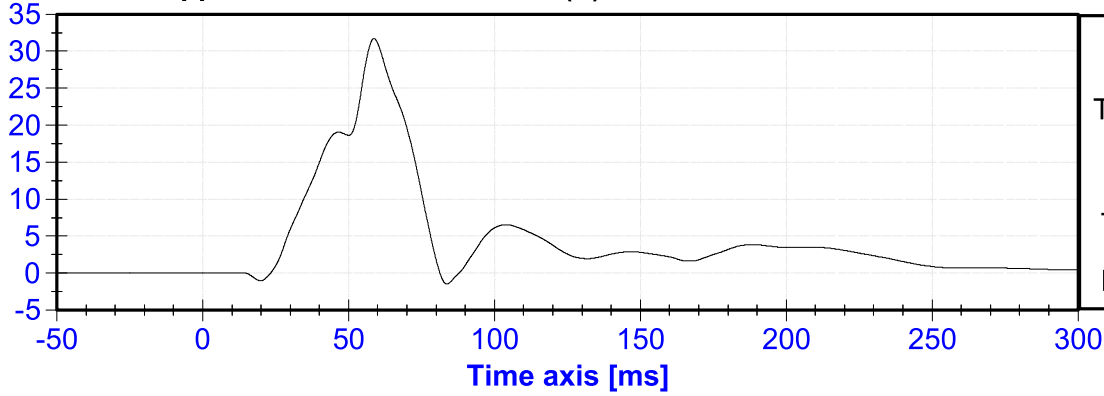
ES-2re Head Resultant Acceleration vs. Time





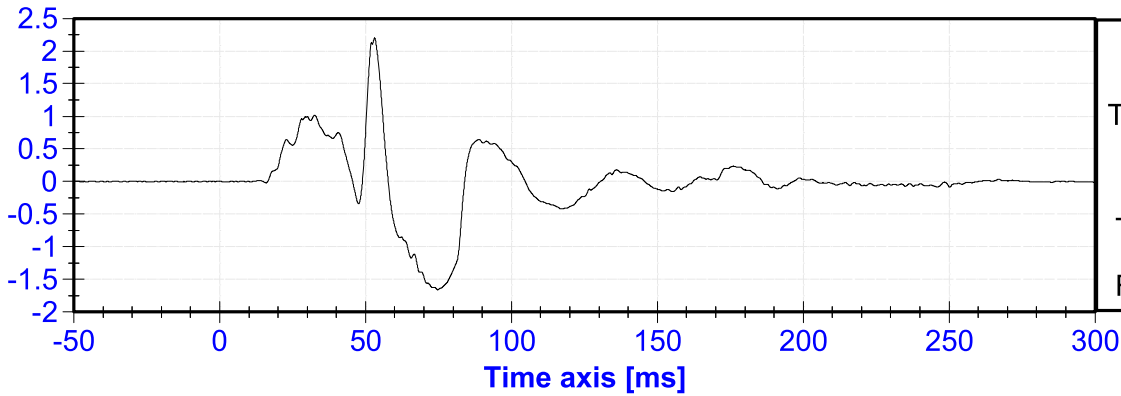
DISPLACEMENT [mm]

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



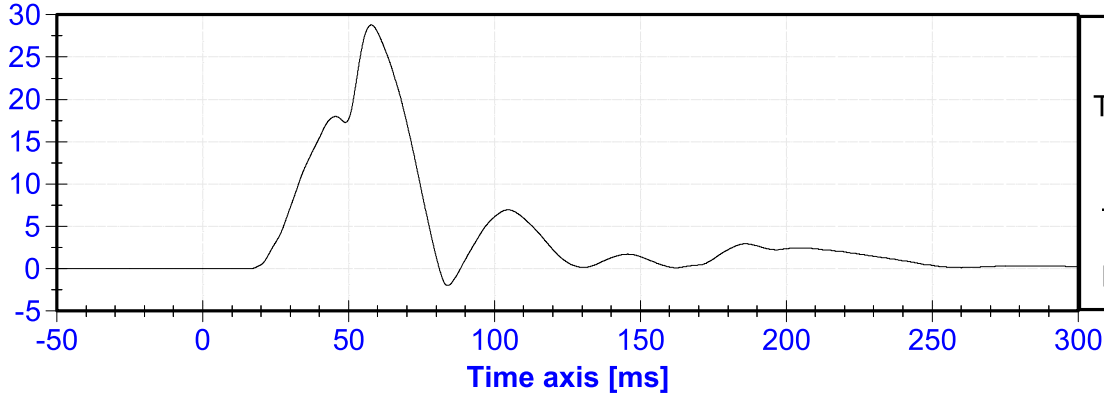
VELOCITY [m/s]

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



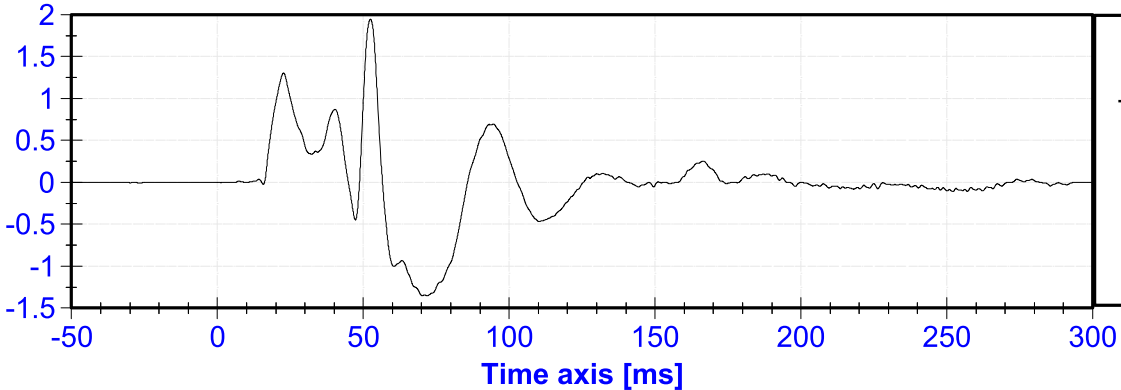
DISPLACEMENT [mm]

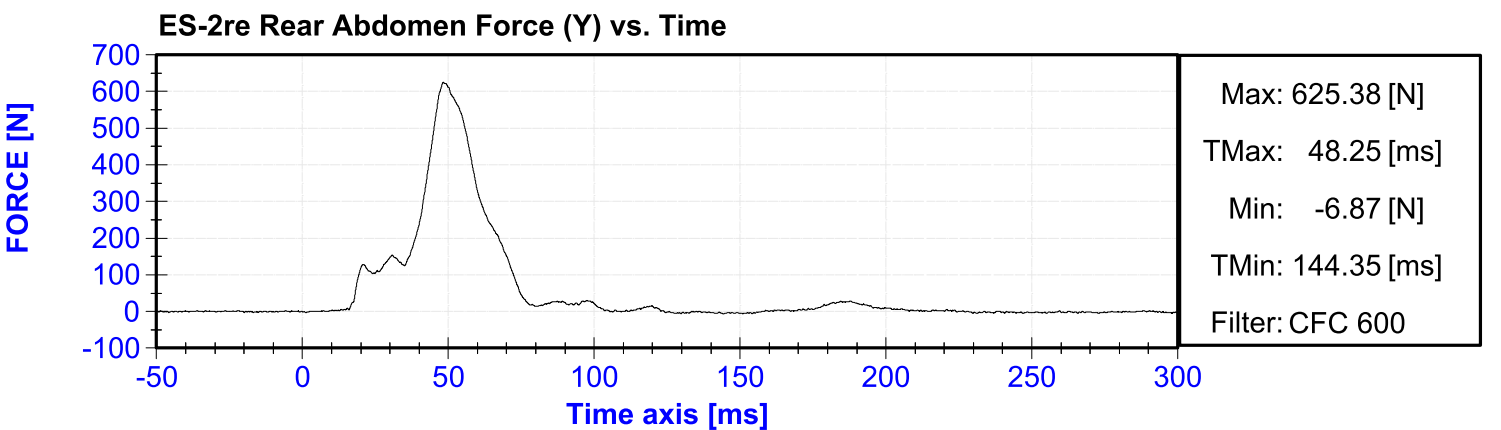
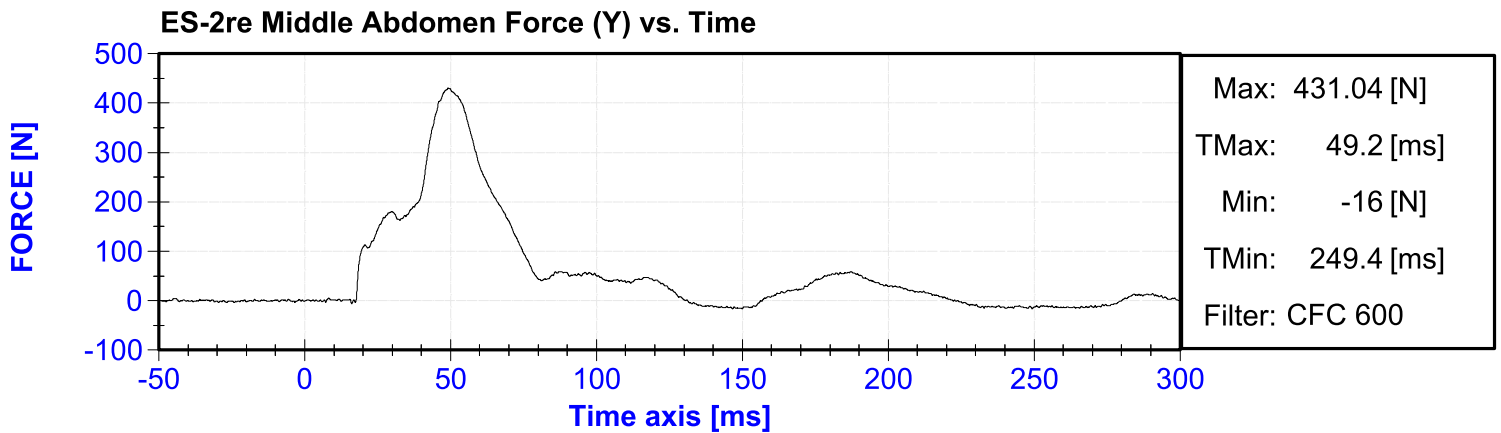
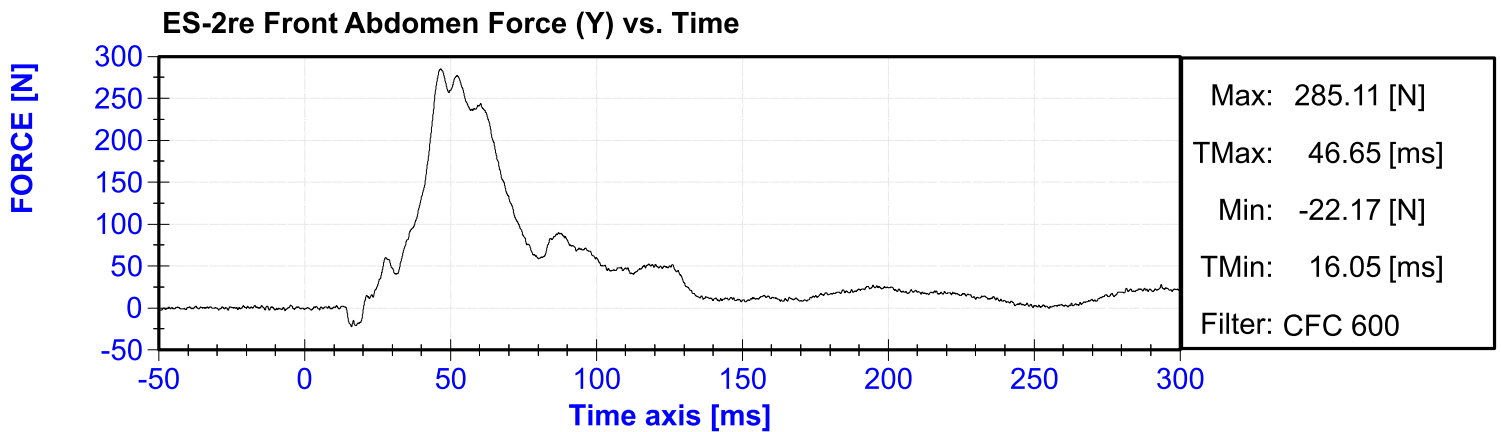
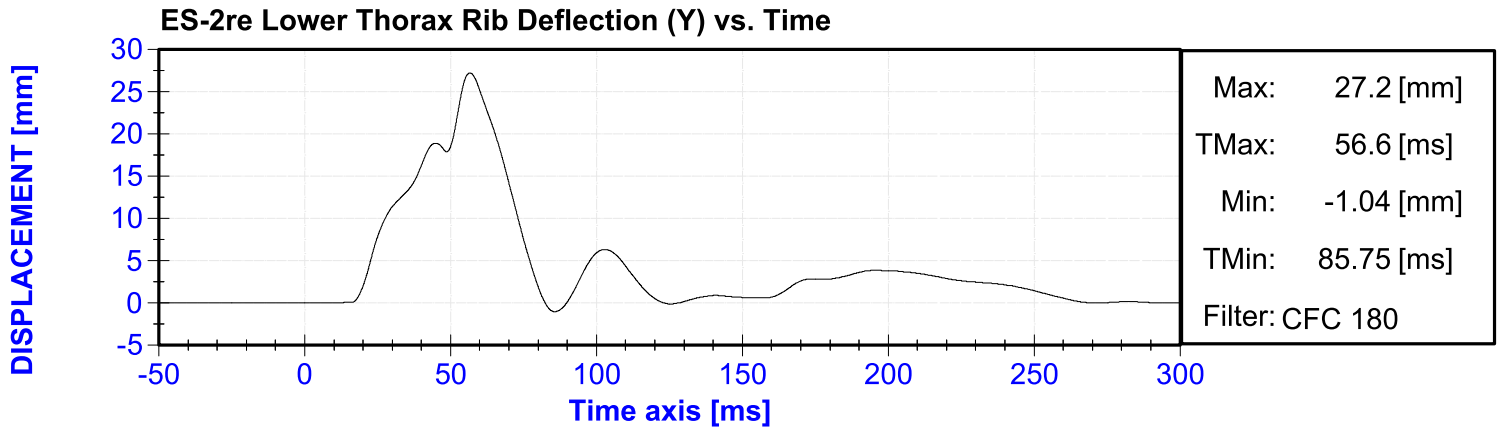
ES-2re Middle Thorax Rib Deflection (Y) vs. Time

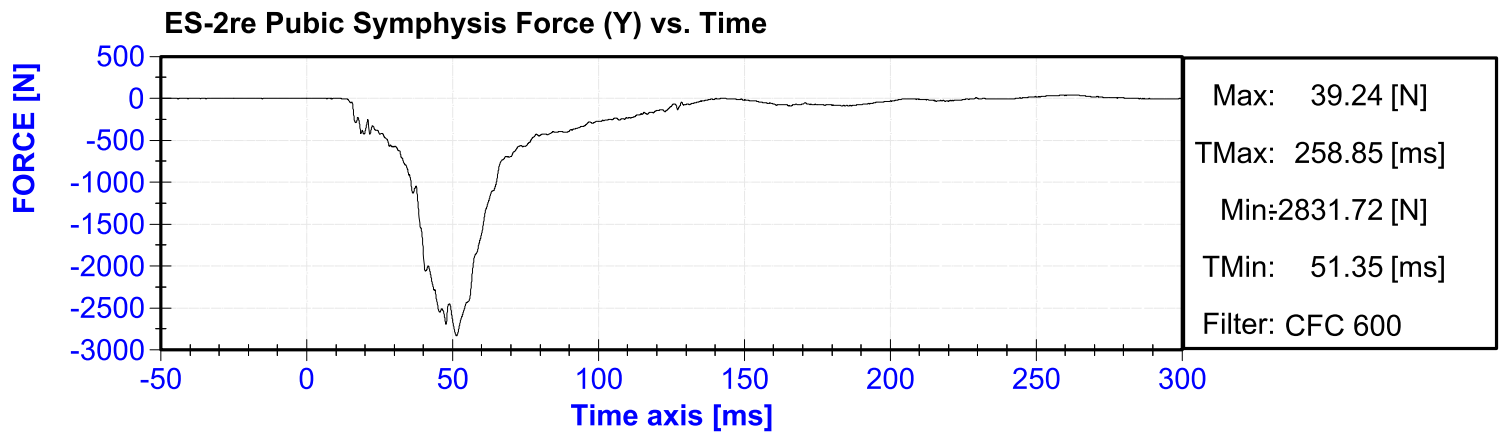
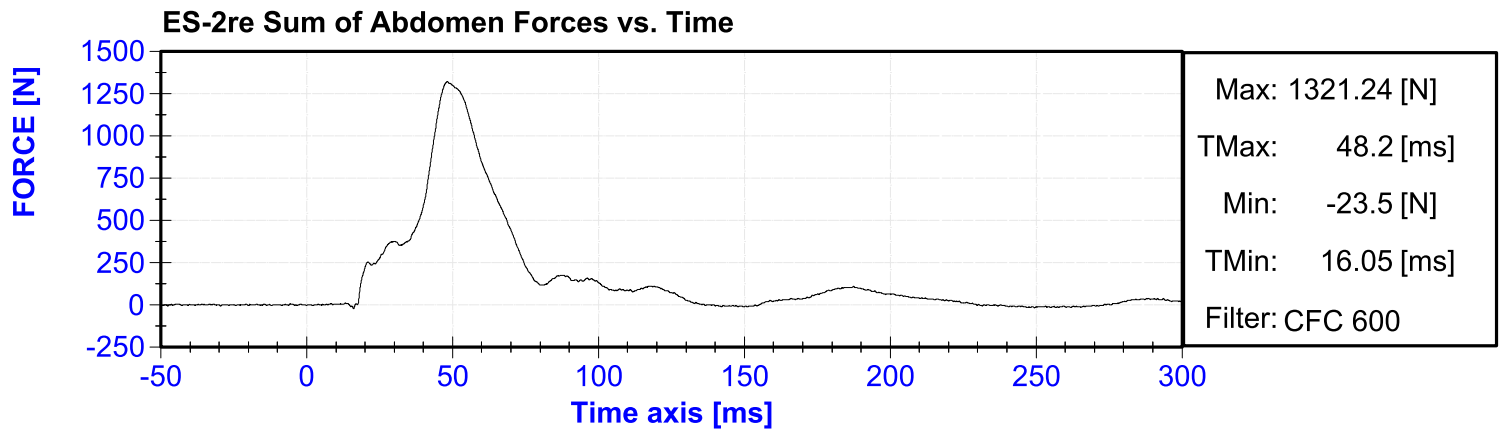


VELOCITY [m/s]

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





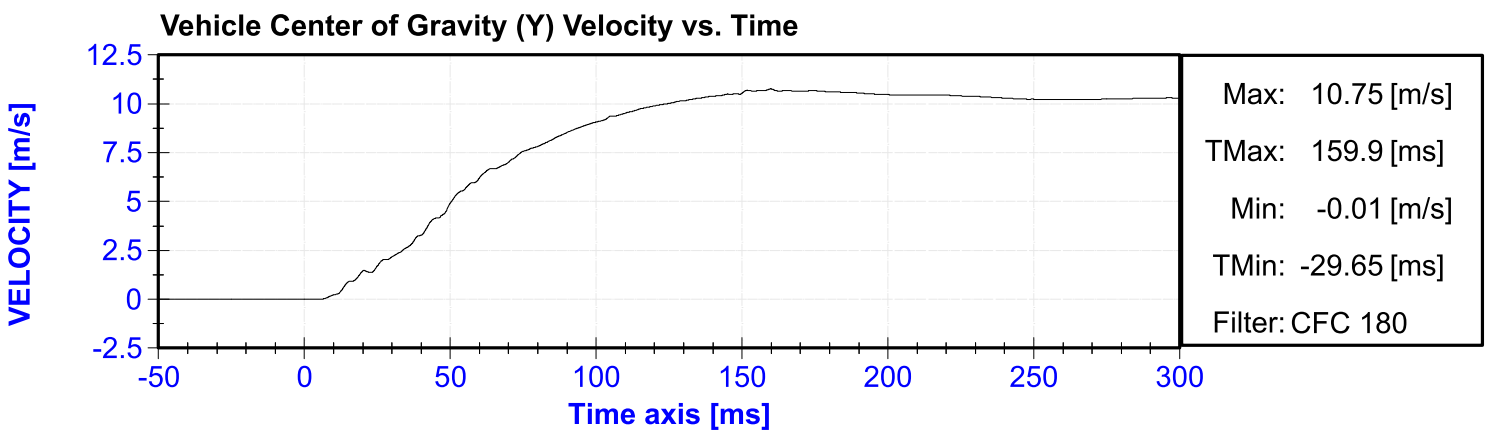
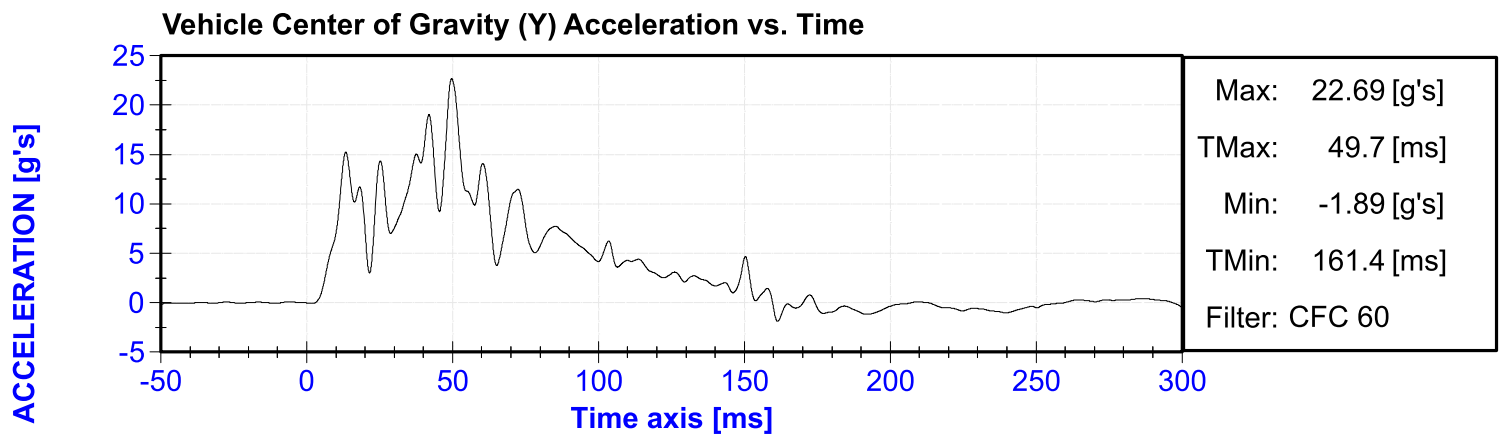
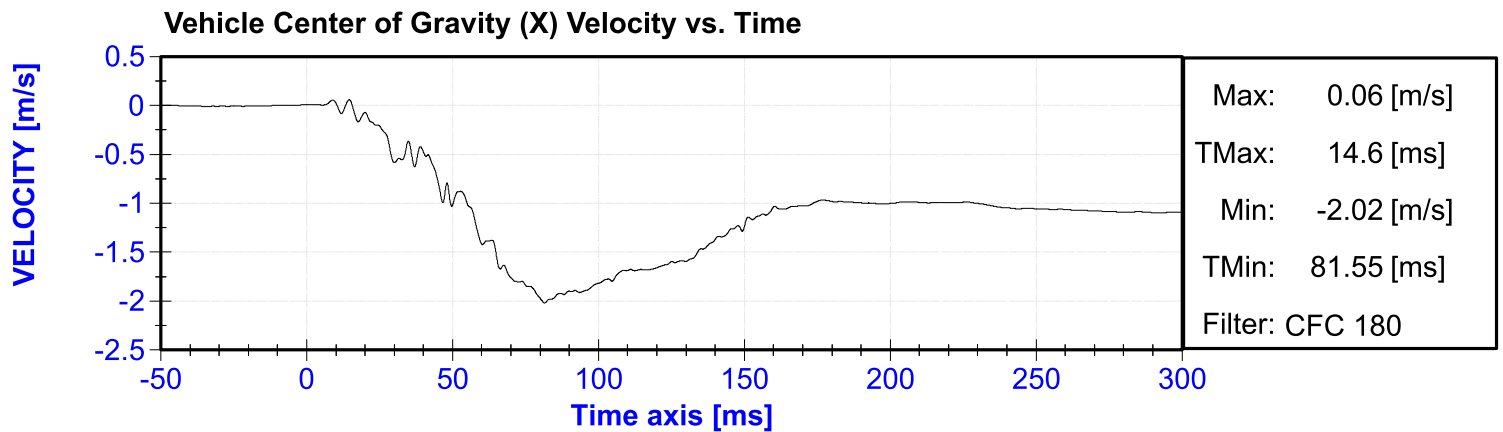
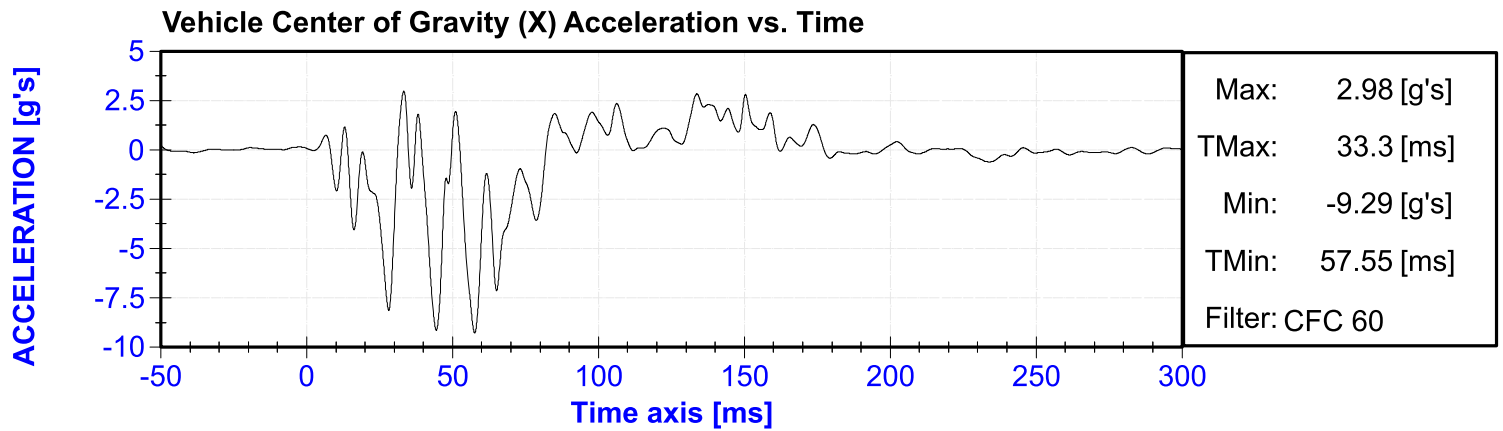


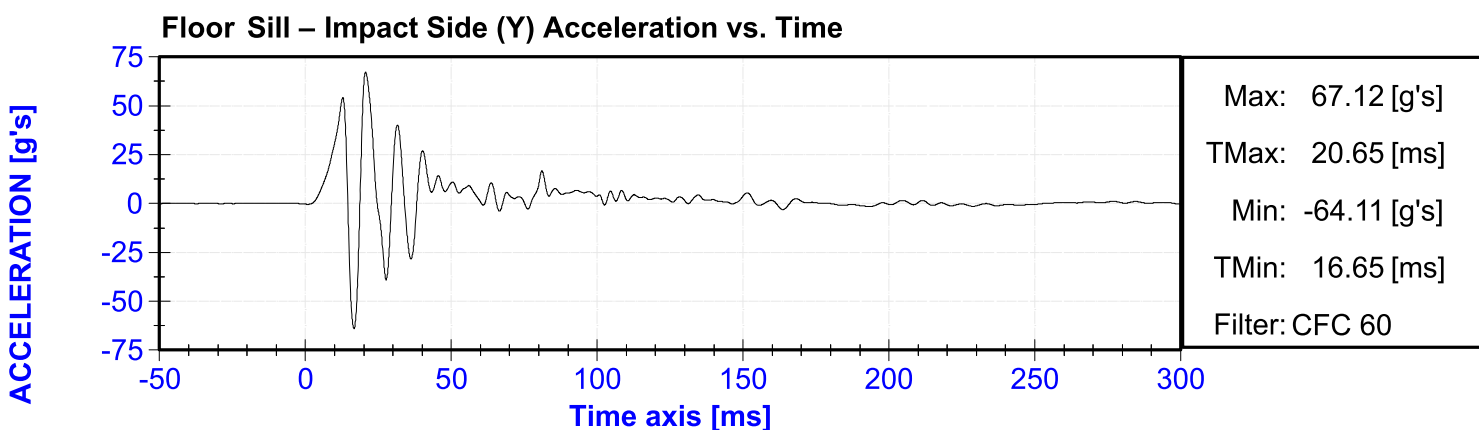
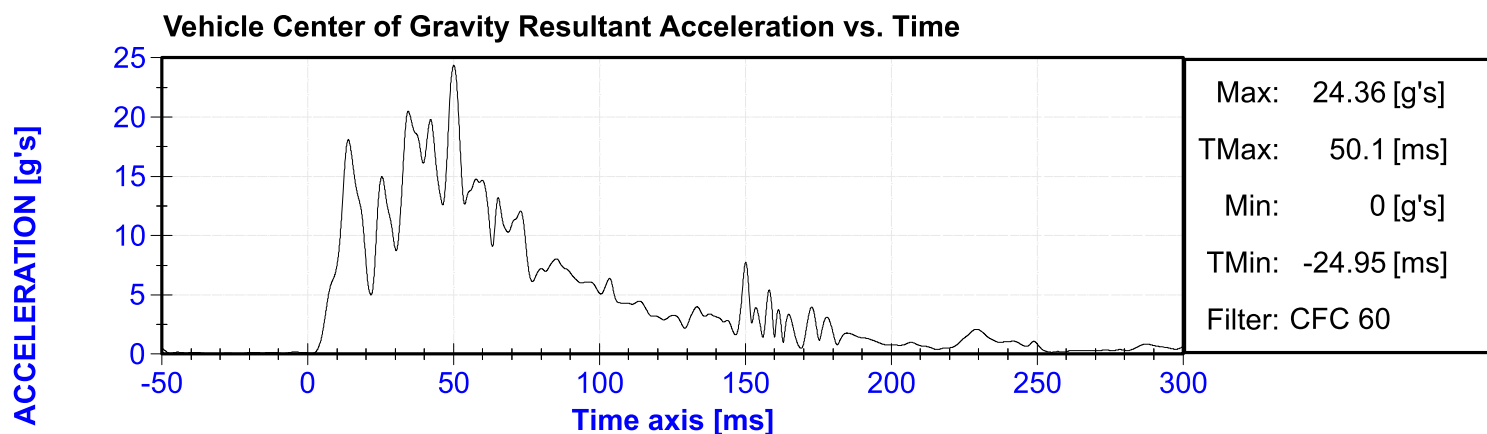
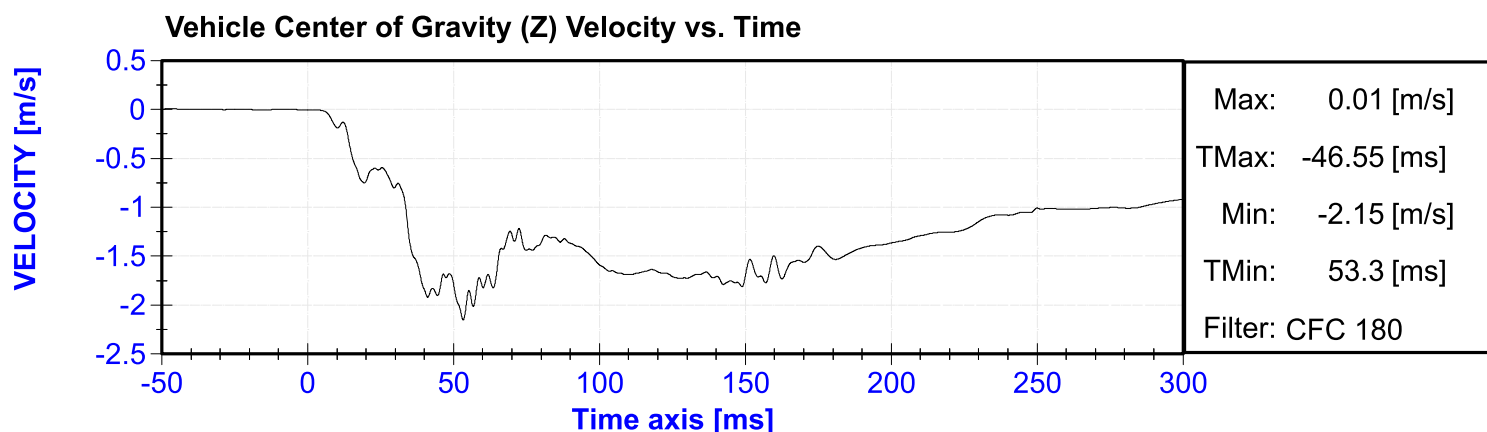
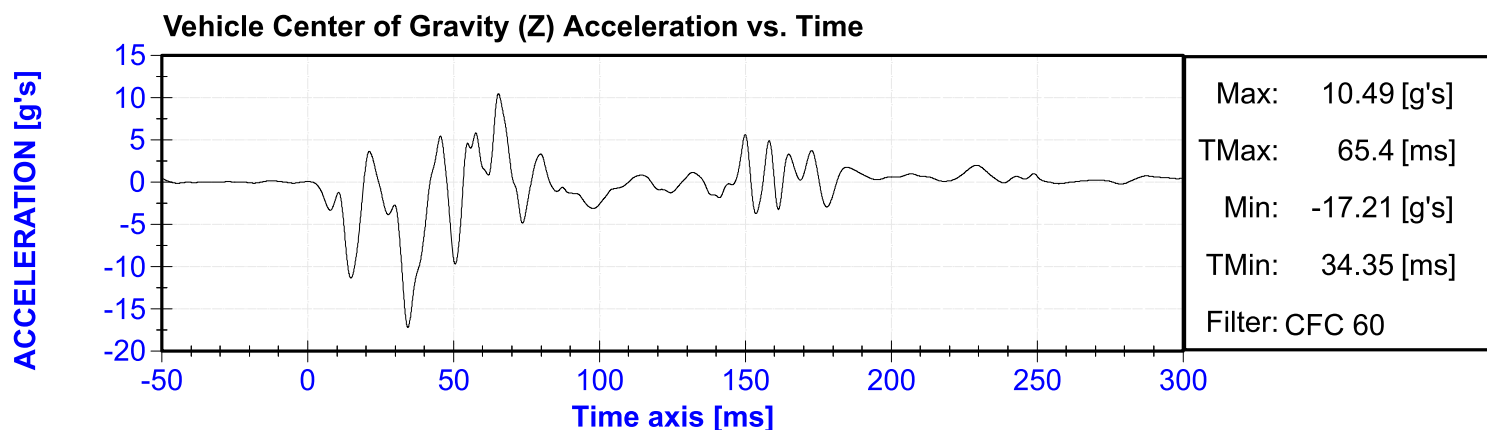
APPENDIX III

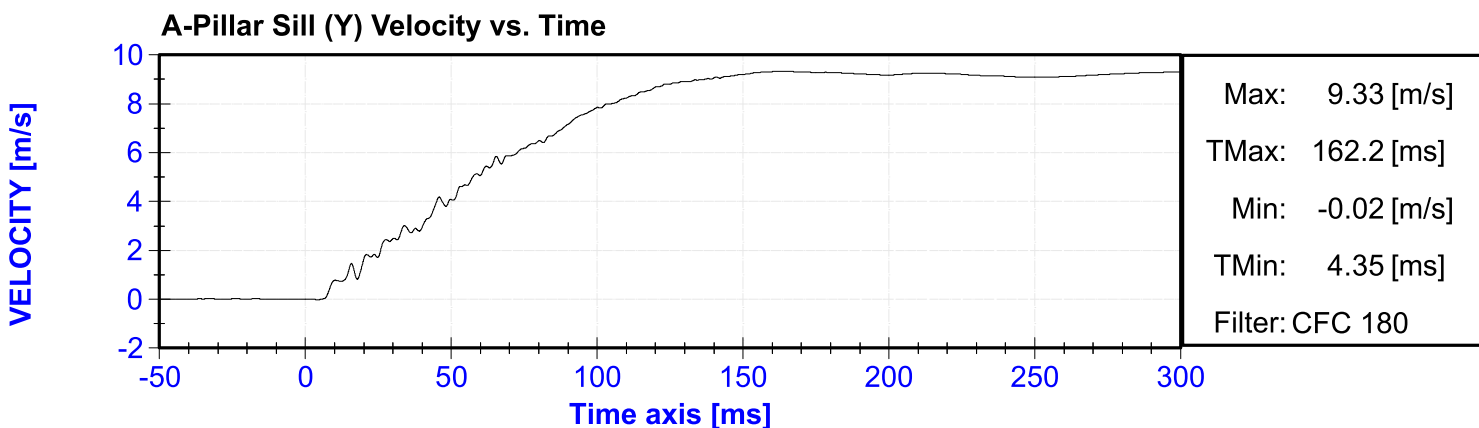
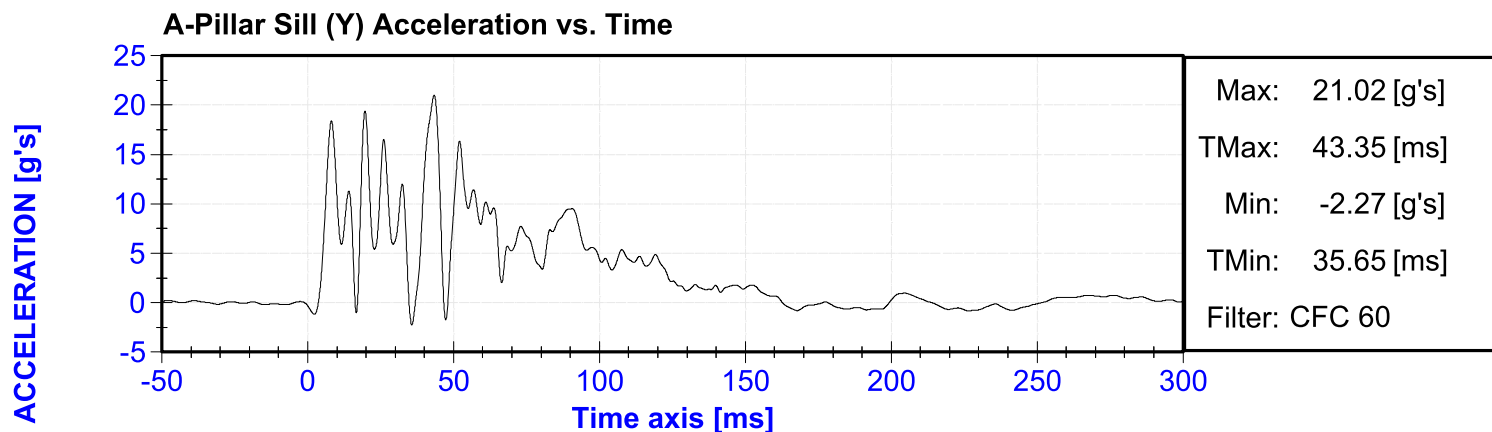
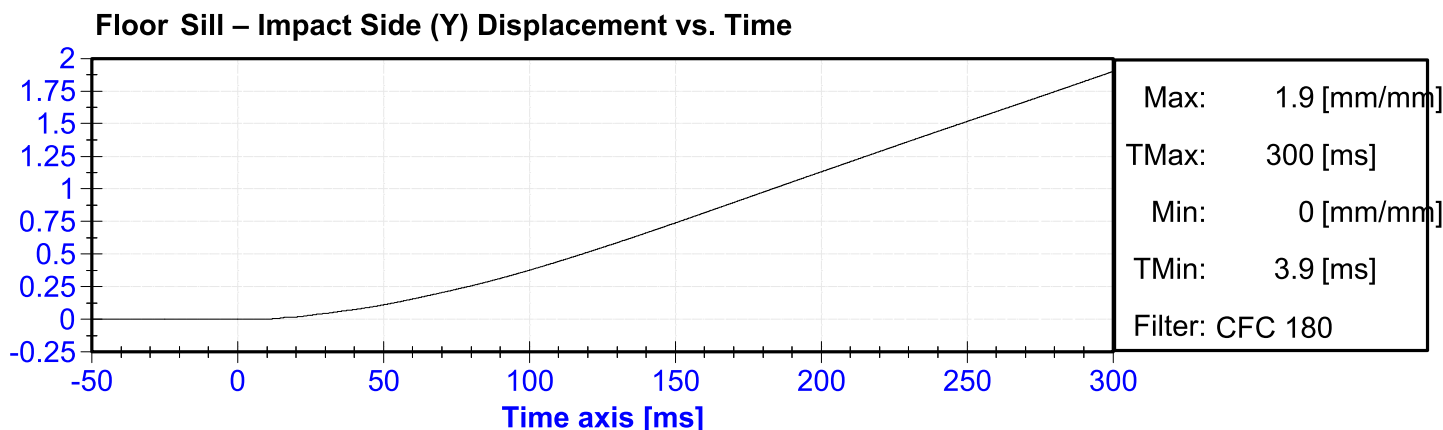
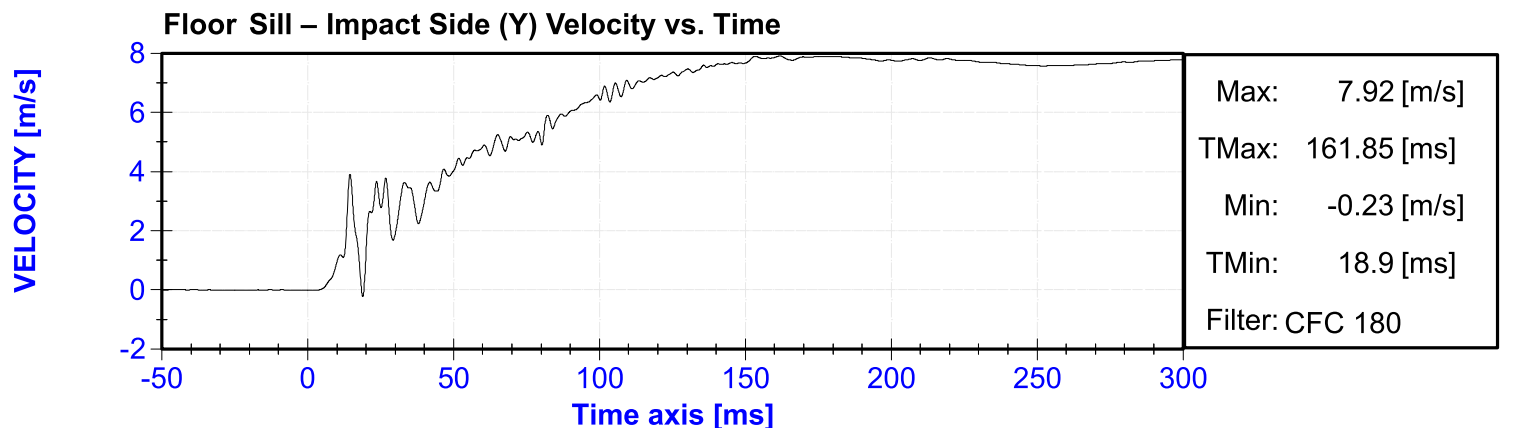
VEHICLE ACCELEROMETER RESPONSE DATA

Table of Data Plots

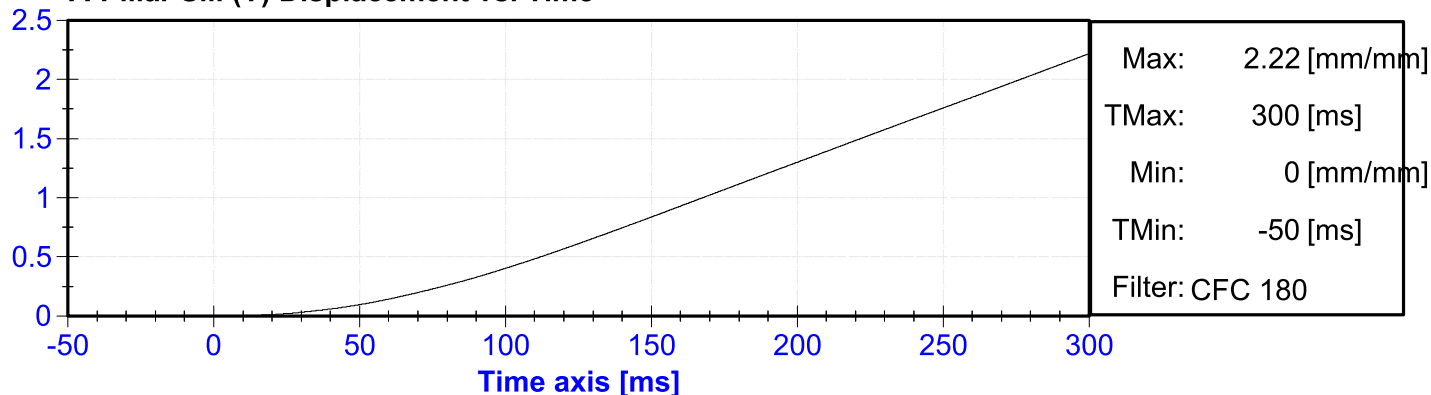
No.	Description	Page
1	Vehicle Center of Gravity (X) Acceleration vs. Time	III-3
2	Vehicle Center of Gravity (X) Velocity vs. Time	III-3
3	Vehicle Center of Gravity (Y) Acceleration vs. Time	III-3
4	Vehicle Center of Gravity (Y) Velocity vs. Time	III-3
5	Vehicle Center of Gravity (Z) Acceleration vs. Time	III-4
6	Vehicle Center of Gravity (Z) Velocity vs. Time	III-4
7	Vehicle Center of Gravity Resultant Acceleration vs. Time	III-4
8	Floor Sill – Impact Side (Y) Acceleration vs. Time	III-4
9	Floor Sill – Impact Side (Y) Velocity vs. Time	III-5
10	Floor Sill – Impact Side (Y) Displacement vs. Time	III-5
11	A-Pillar Sill (Y) Acceleration vs. Time	III-5
12	A-Pillar Sill (Y) Velocity vs. Time	III-5
13	A-Pillar Sill (Y) Displacement vs. Time	III-6
14	A-Pillar Low (Y) Acceleration vs. Time	III-6
15	A-Pillar Low (Y) Velocity vs. Time	III-6
16	A-Pillar Low (Y) Displacement vs. Time	III-6
17	A-Pillar Mid (Y) Acceleration vs. Time	III-7
18	A-Pillar Mid (Y) Velocity vs. Time	III-7
19	A-Pillar Mid (Y) Displacement vs. Time	III-7
20	B-Pillar Sill (Y) Acceleration vs. Time	III-7
21	B-Pillar Sill (Y) Velocity vs. Time	III-8
22	B-Pillar Sill (Y) Displacement vs. Time	III-8
23	B-Pillar Low (Y) Acceleration vs. Time	III-8
24	B-Pillar Low (Y) Velocity vs. Time	III-8
25	B-Pillar Low (Y) Displacement vs. Time	III-9
26	B-Pillar Mid (Y) Acceleration vs. Time	III-9
27	B-Pillar Mid (Y) Velocity vs. Time	III-9
28	B-Pillar Mid (Y) Displacement vs. Time	III-9
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



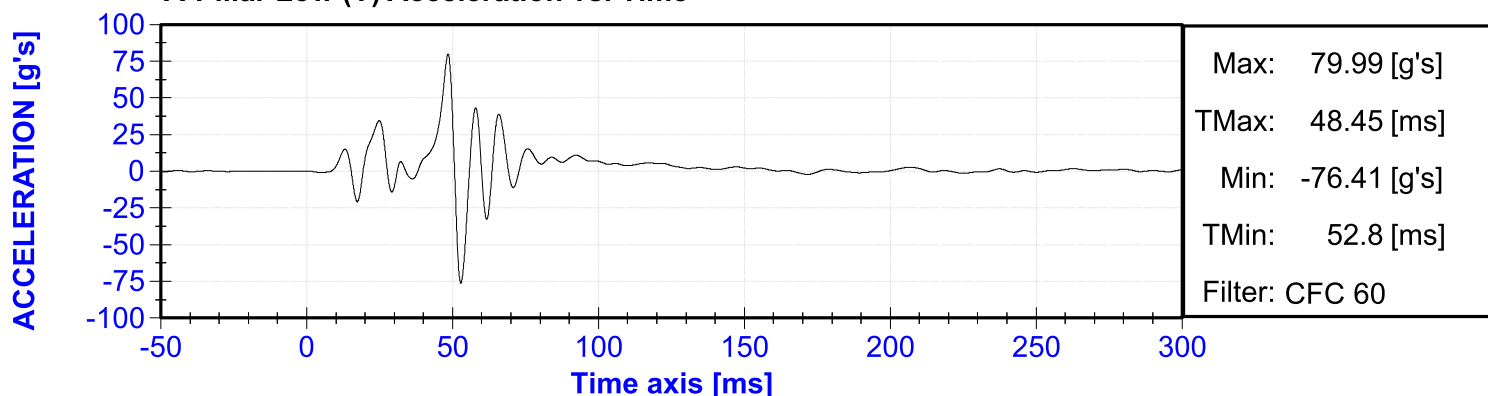




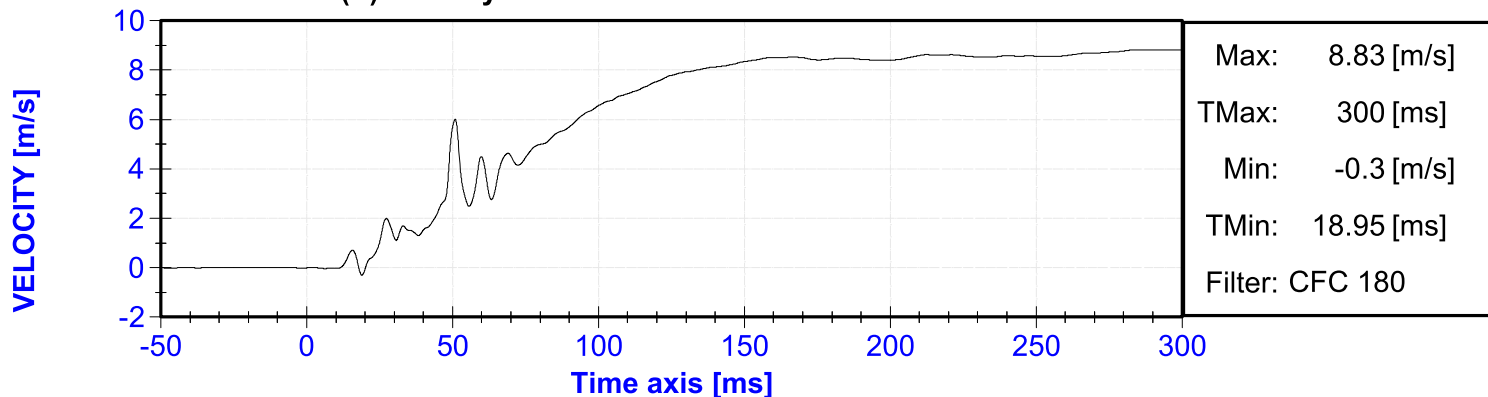
A-Pillar Sill (Y) Displacement vs. Time



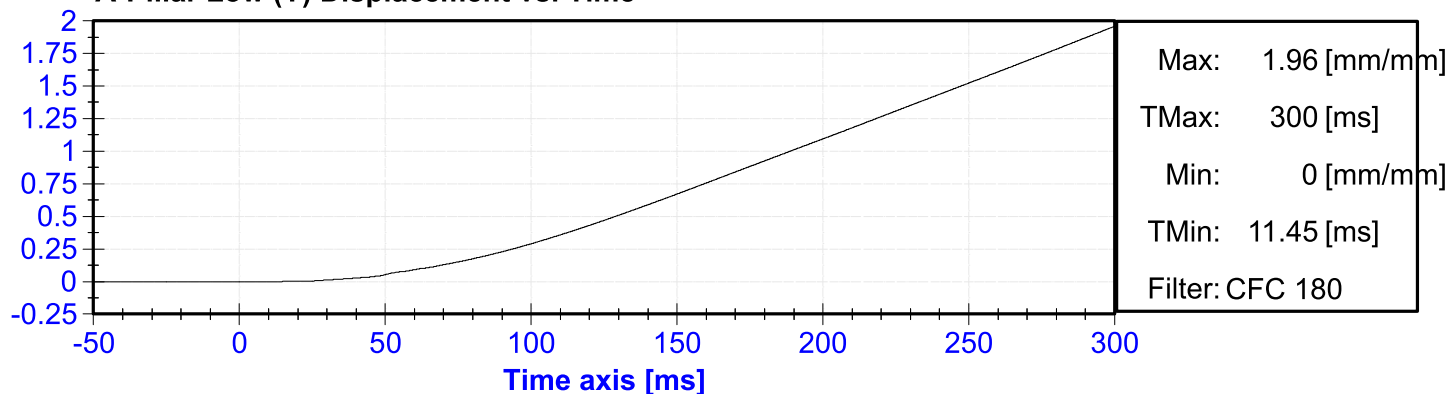
A-Pillar Low (Y) Acceleration vs. Time

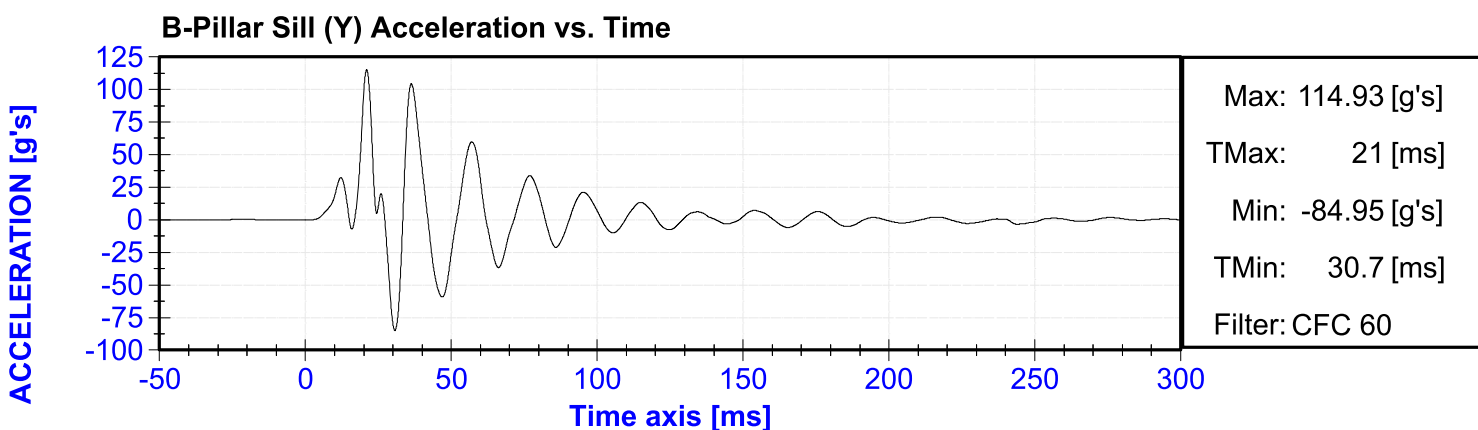
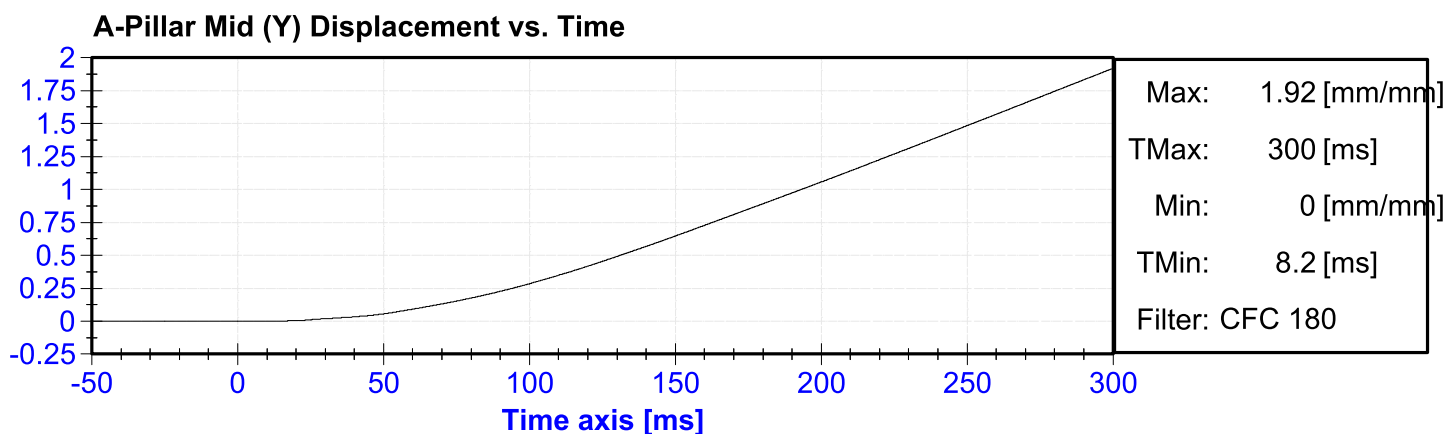
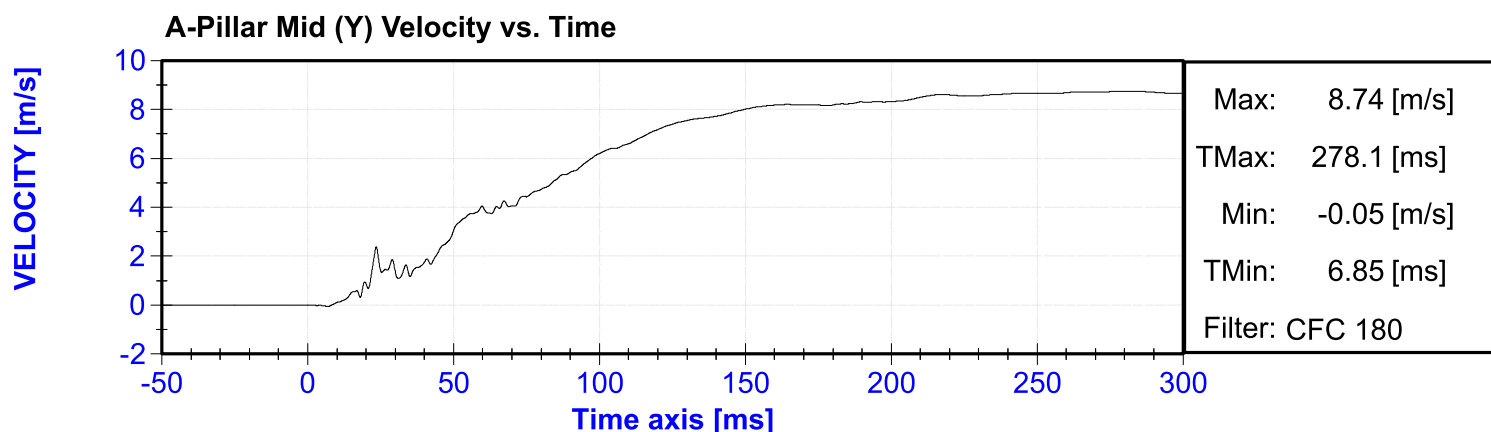
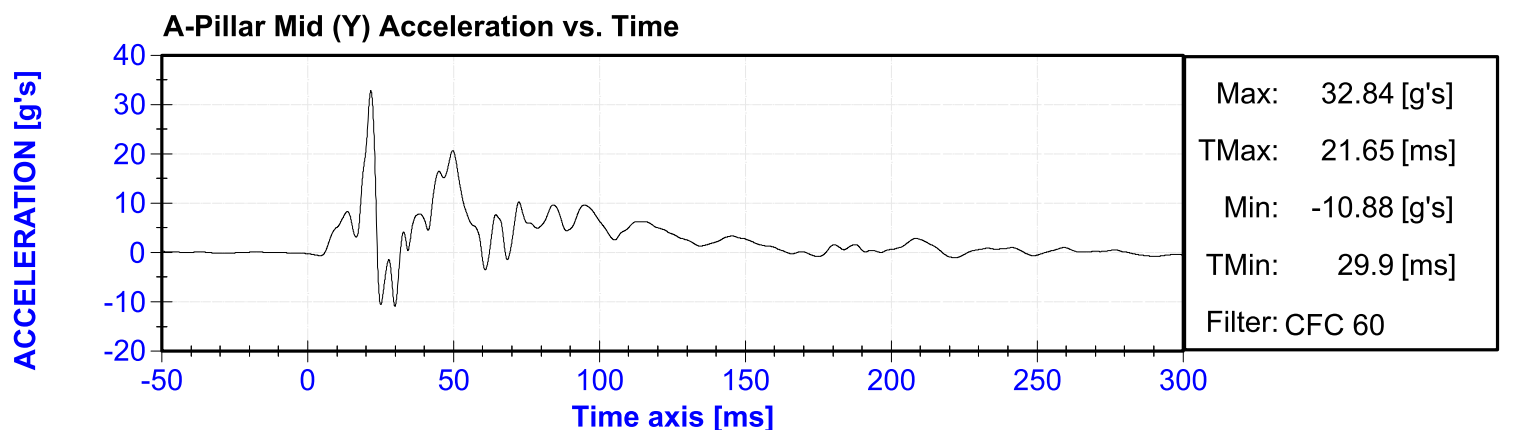


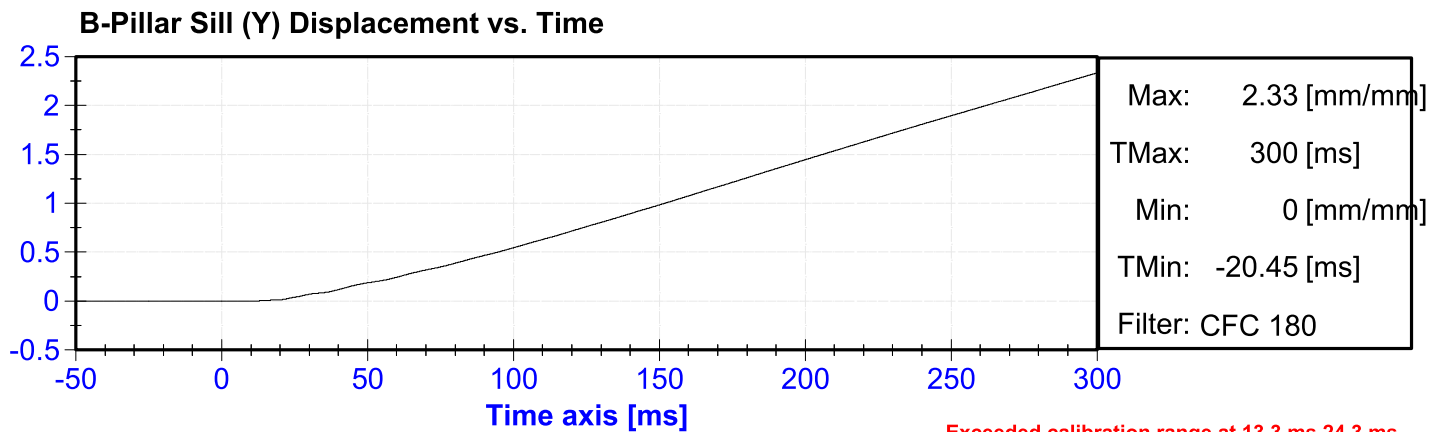
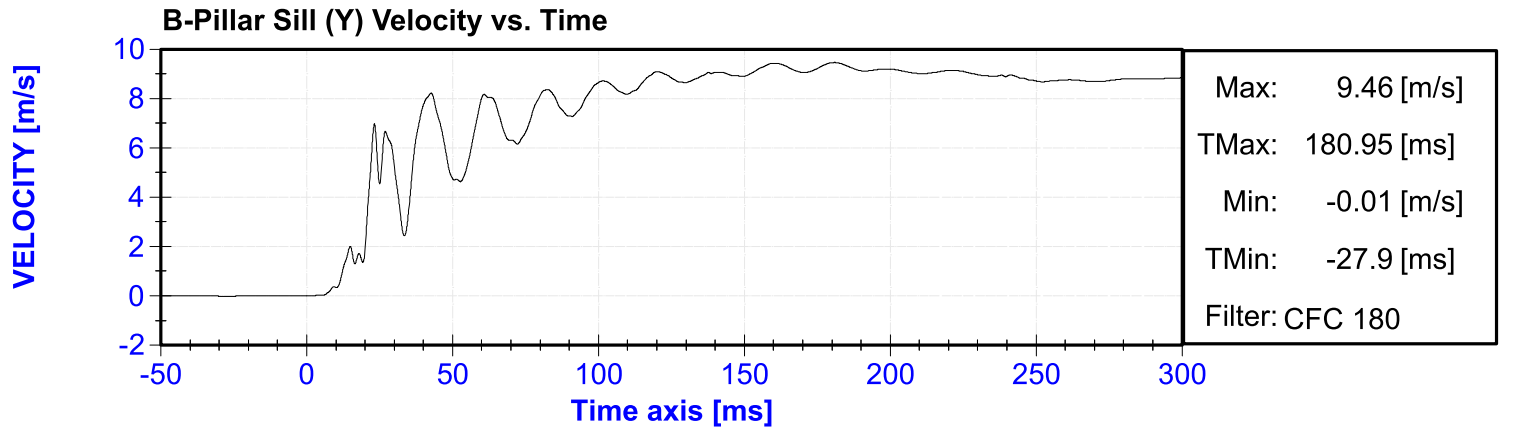
A-Pillar Low (Y) Velocity vs. Time



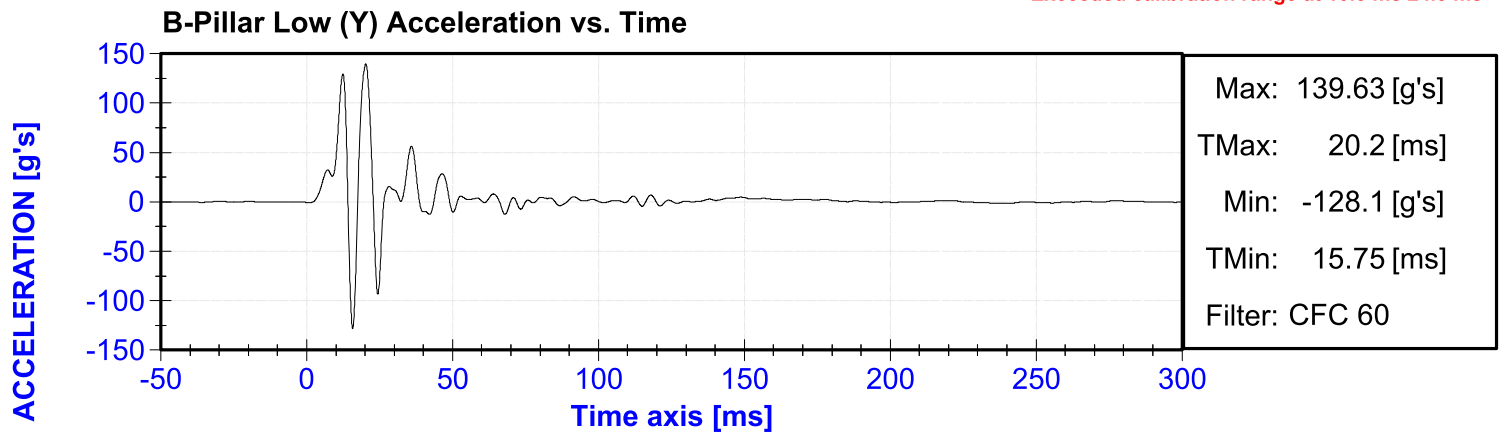
A-Pillar Low (Y) Displacement vs. Time



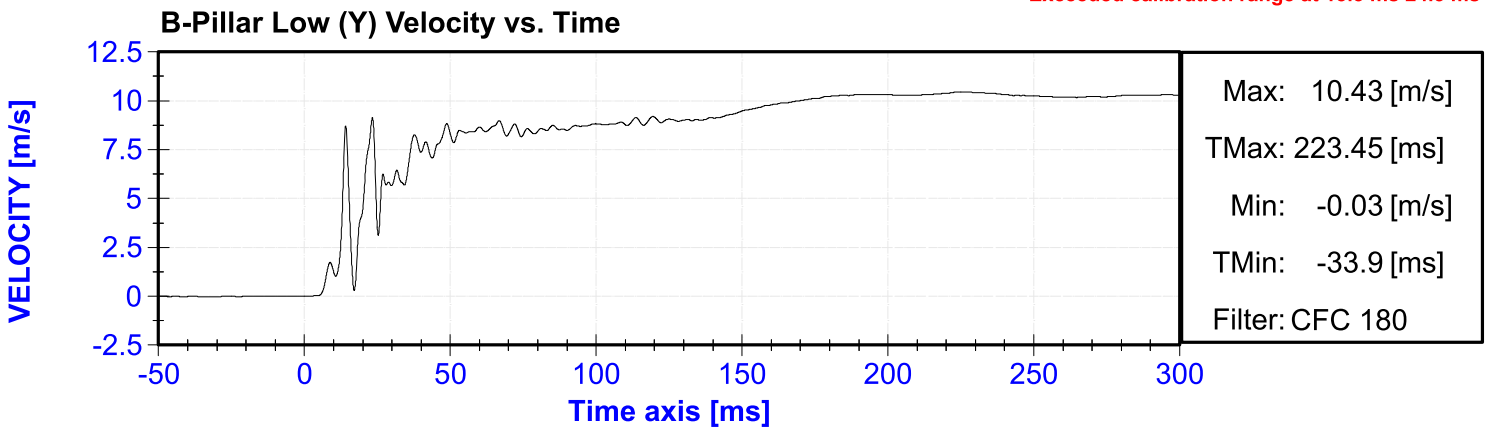




Exceeded calibration range at 13.3 ms 24.3 ms

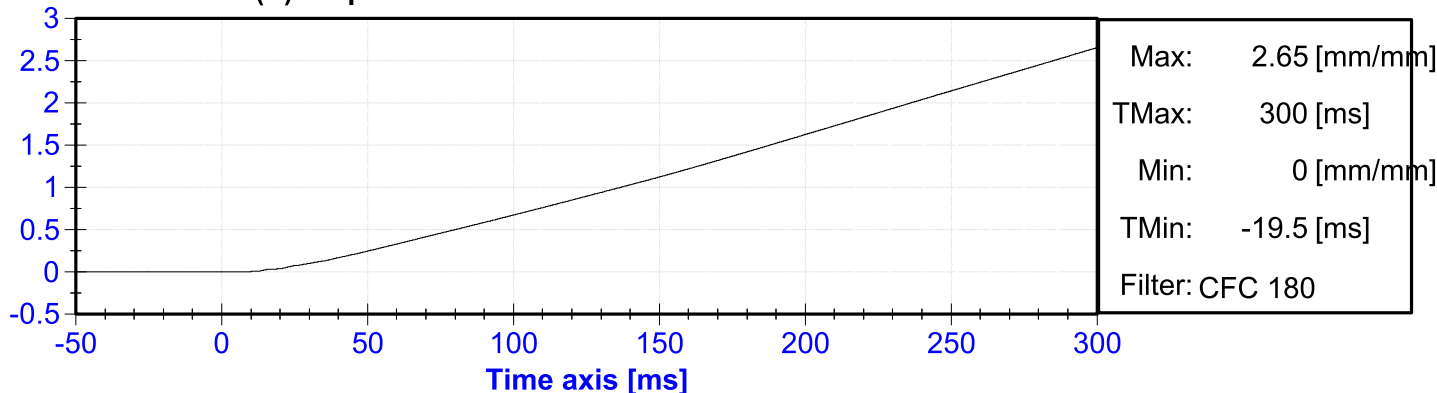


Exceeded calibration range at 13.3 ms 24.3 ms



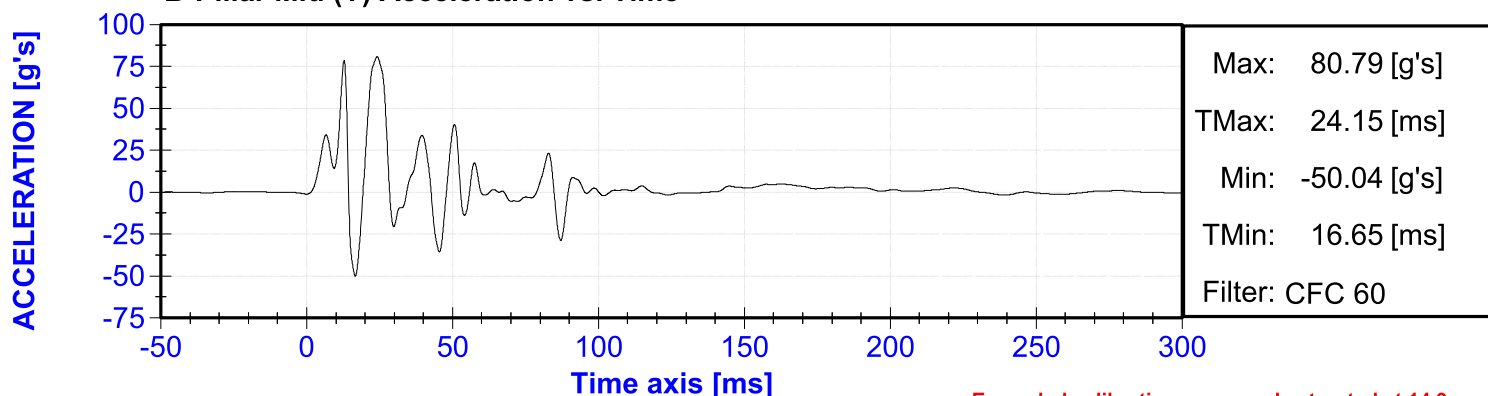
Exceeded calibration range at 13.3 ms 24.3 ms

B-Pillar Low (Y) Displacement vs. Time



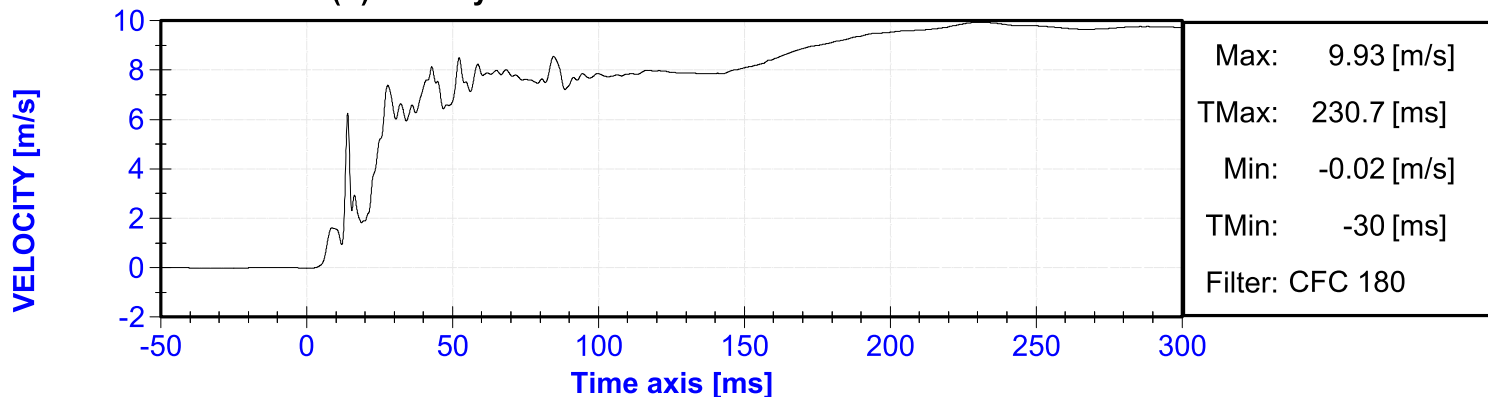
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B-Pillar Mid (Y) Acceleration vs. Time



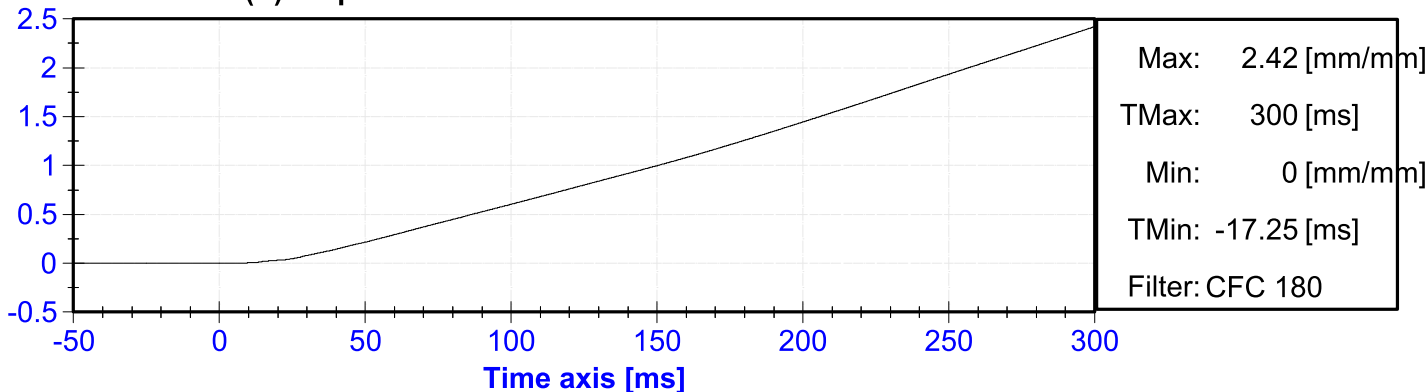
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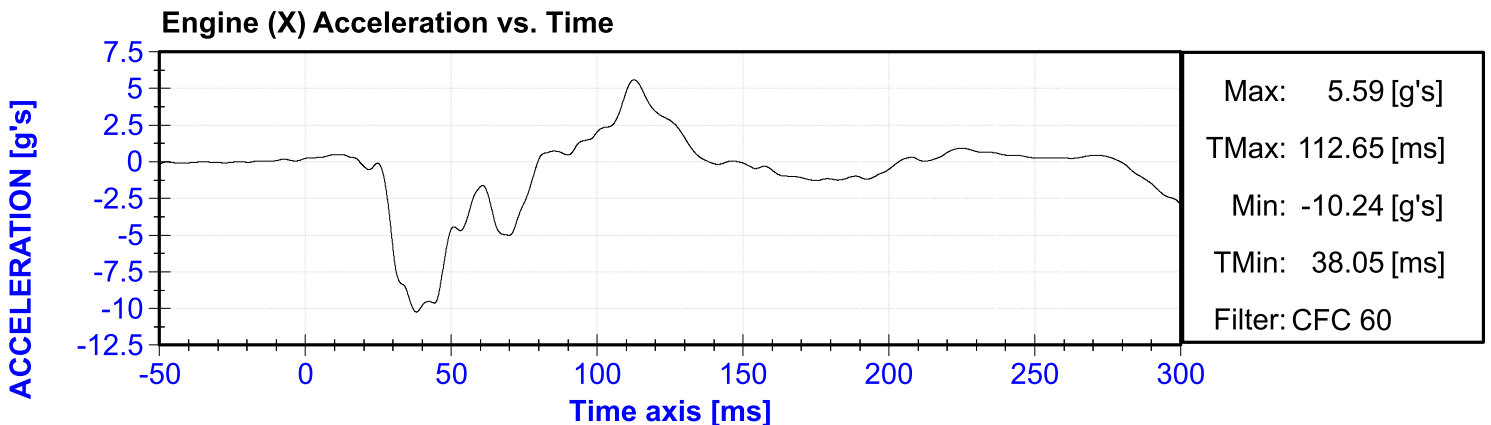
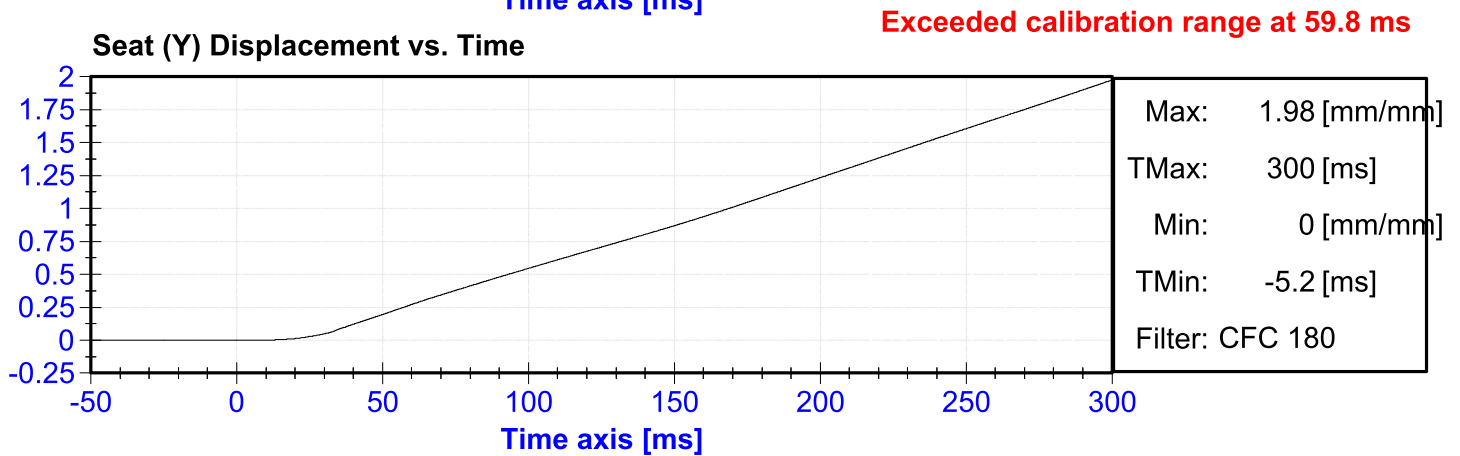
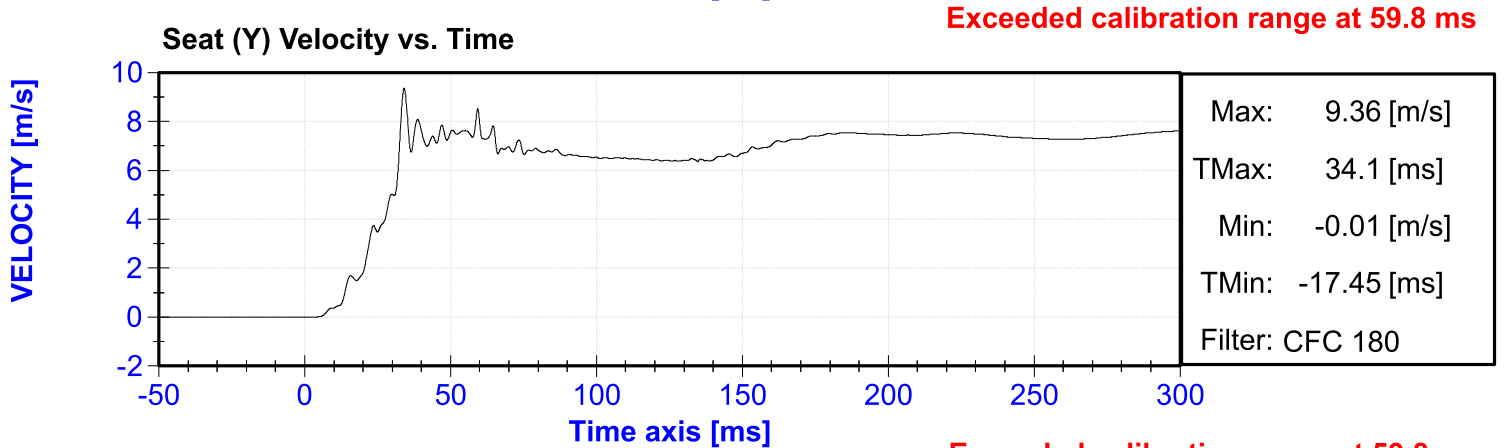
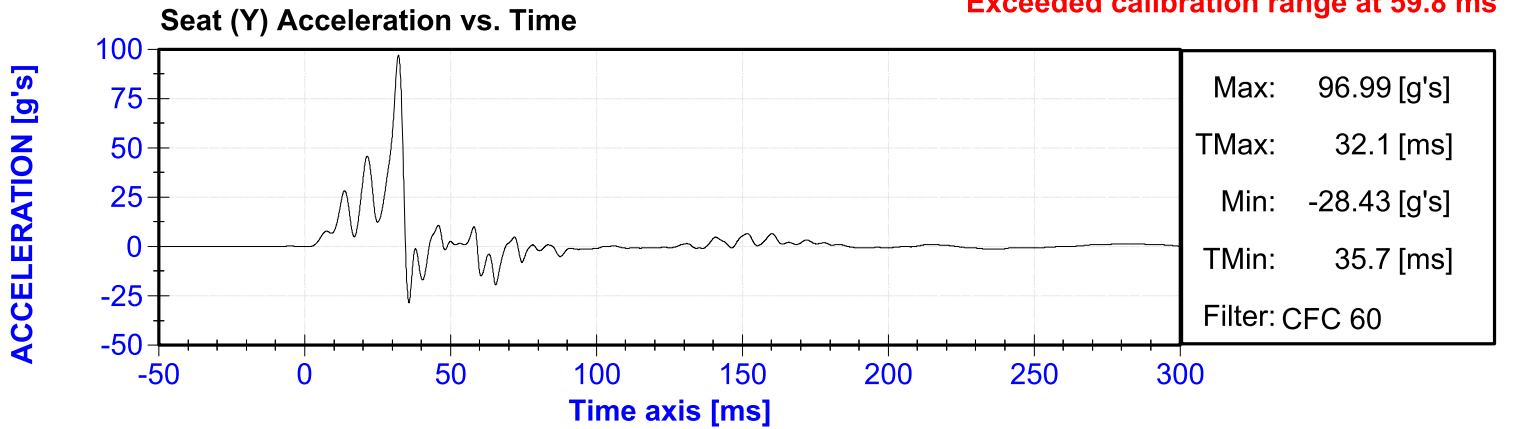
B-Pillar Mid (Y) Velocity vs. Time

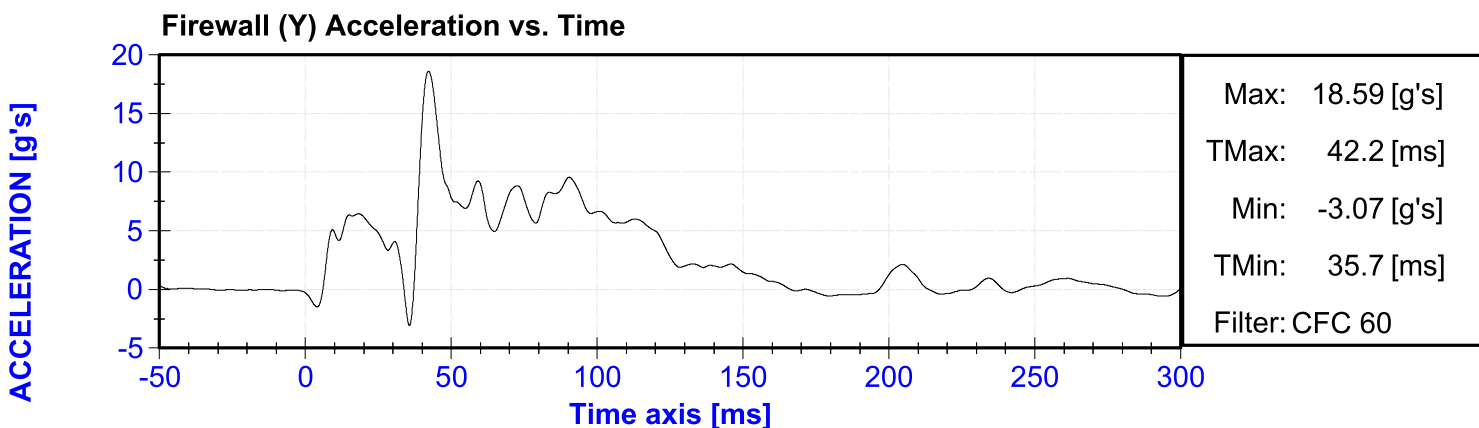
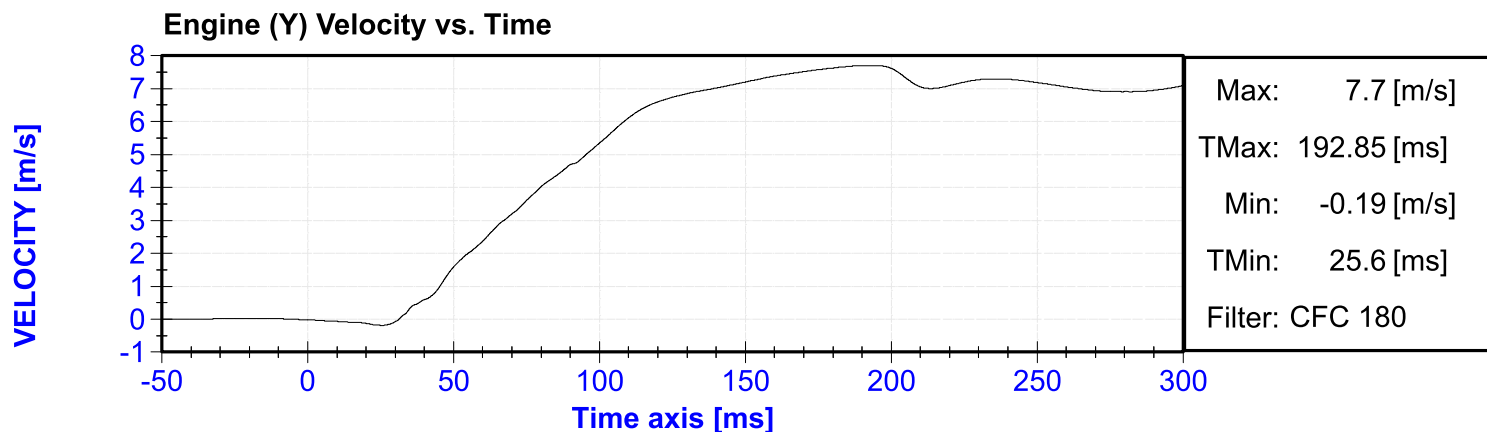
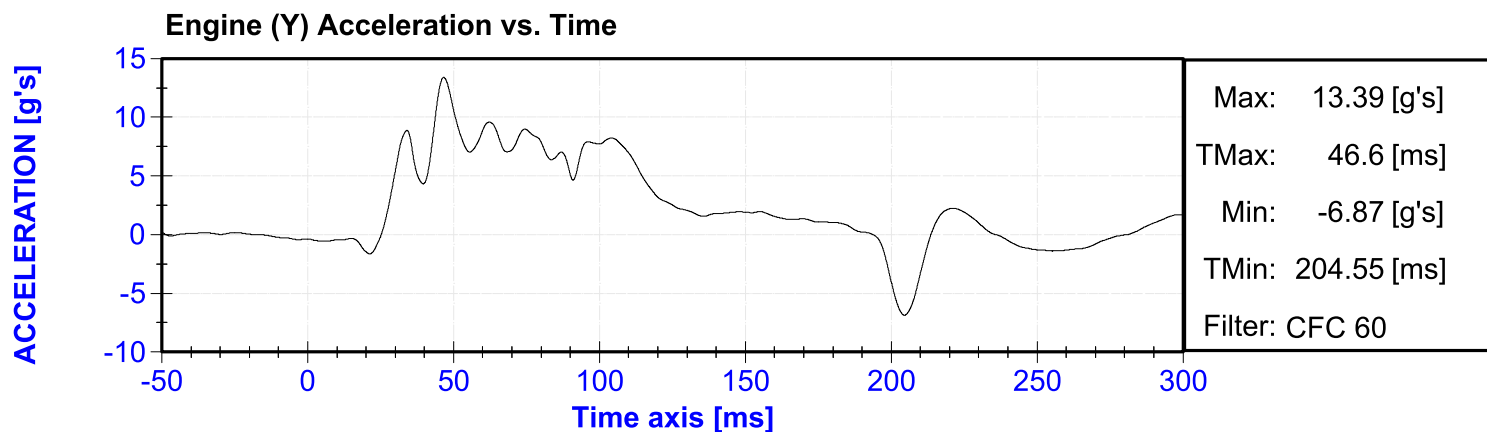
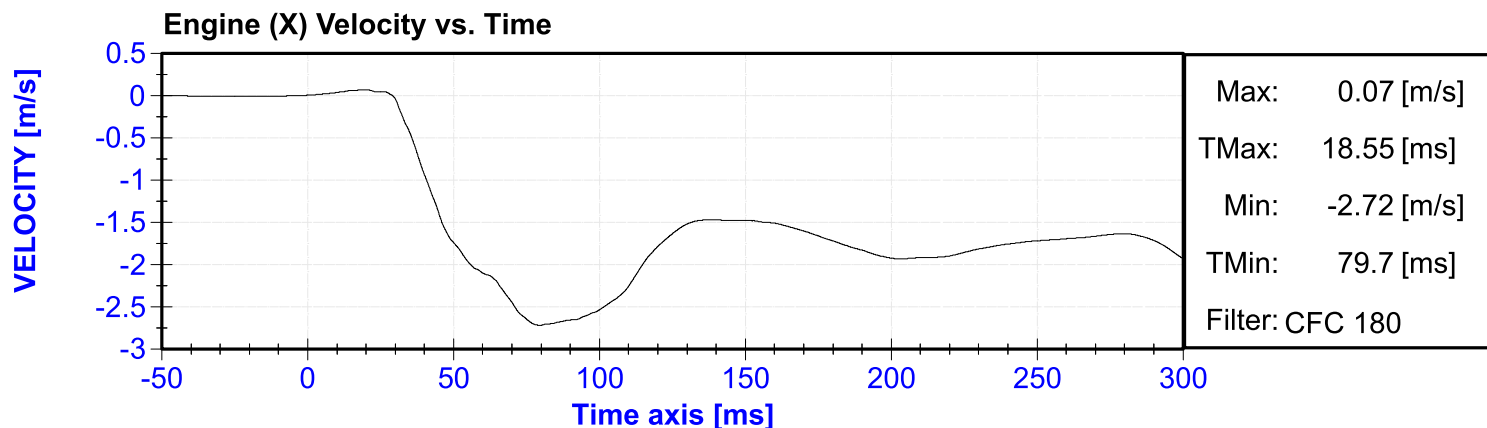


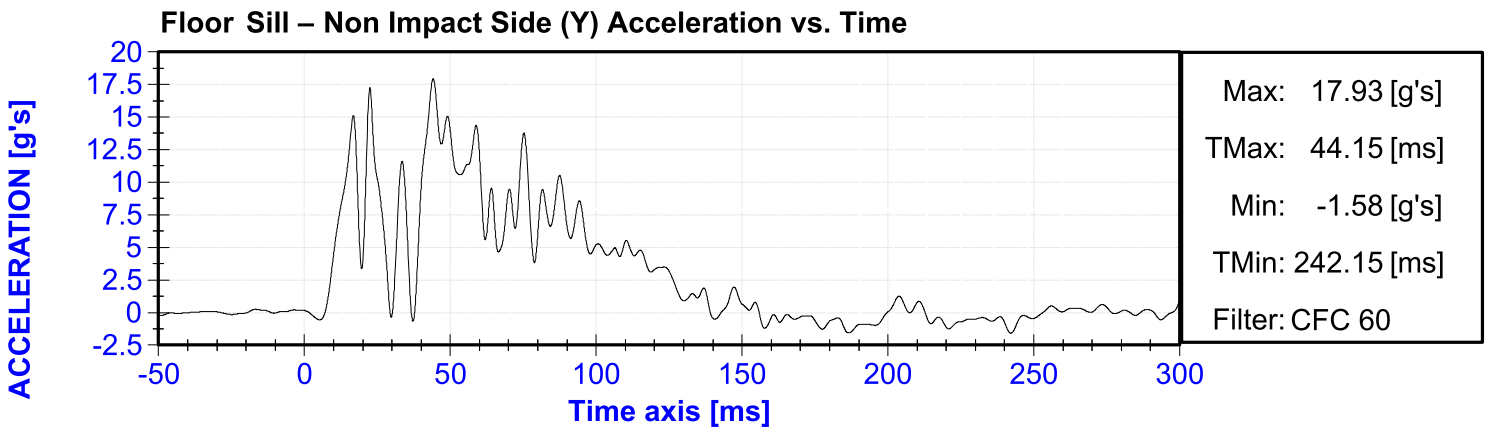
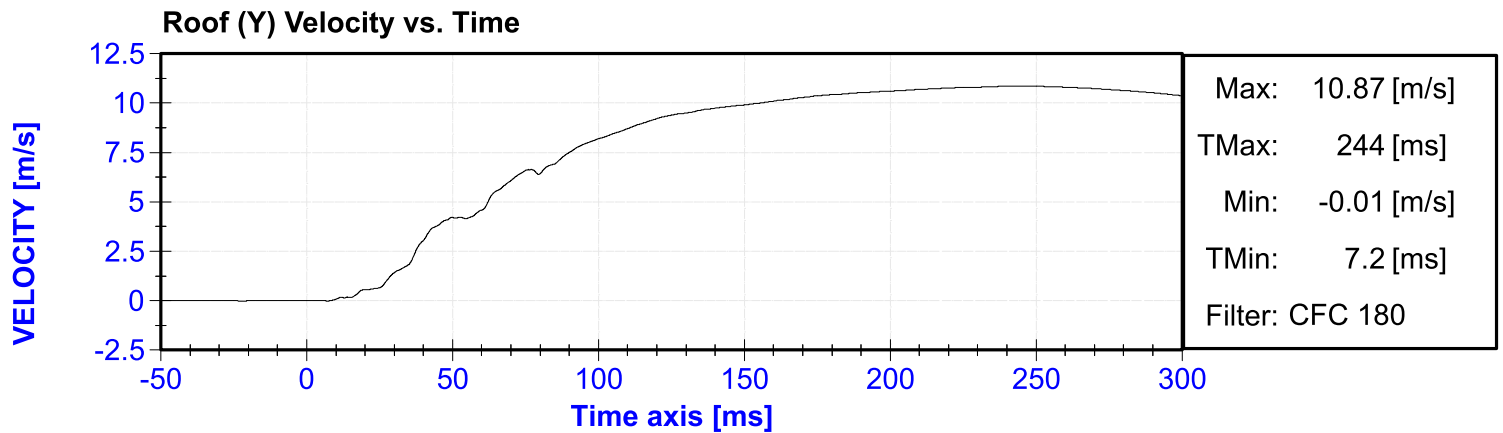
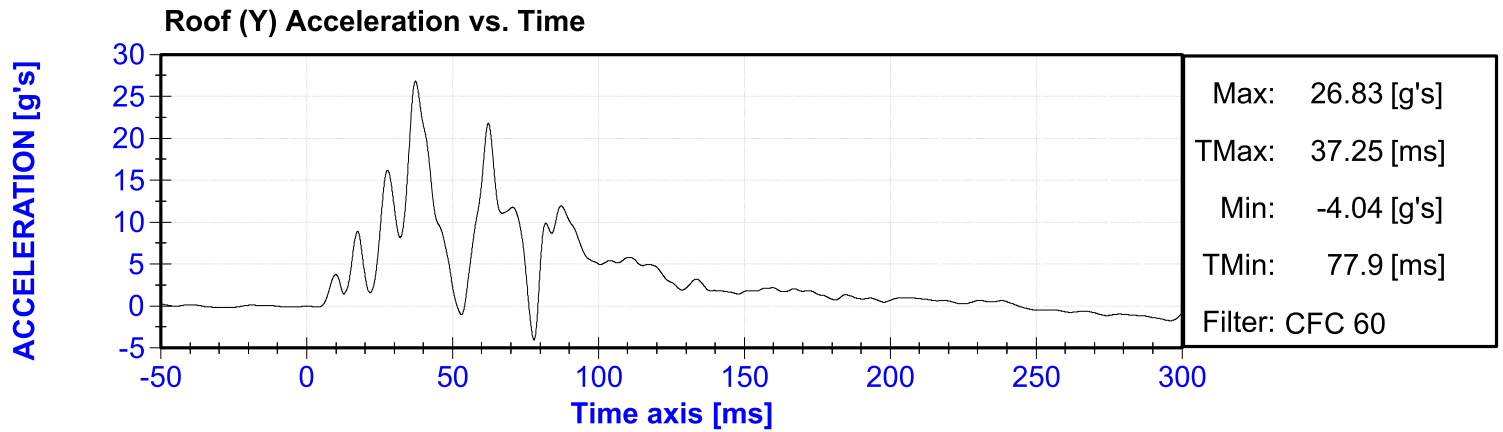
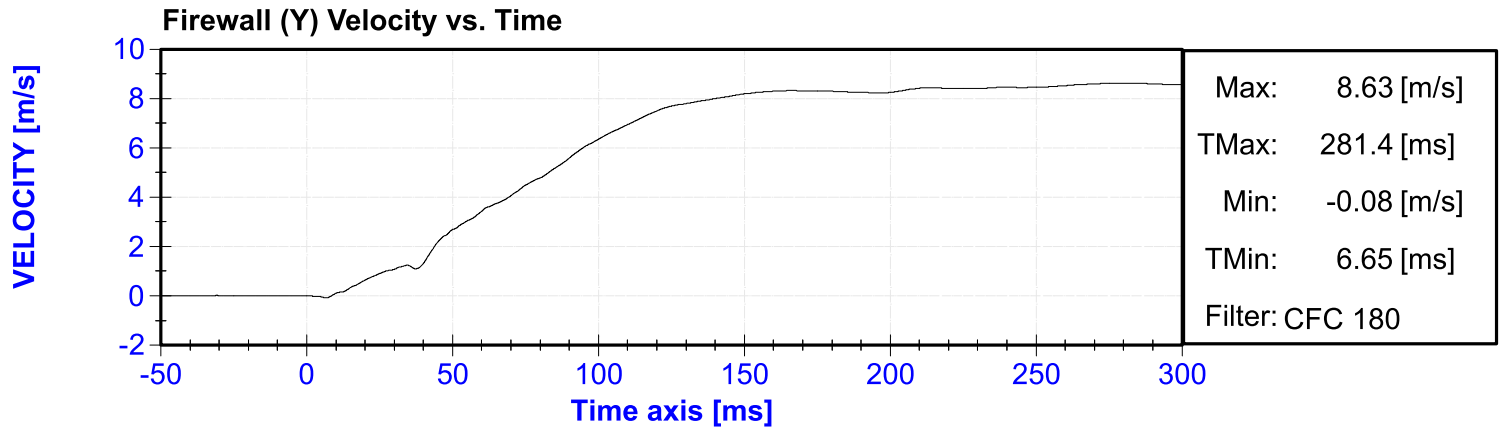
Exceeded calibration range and saturated at 14.9 ms

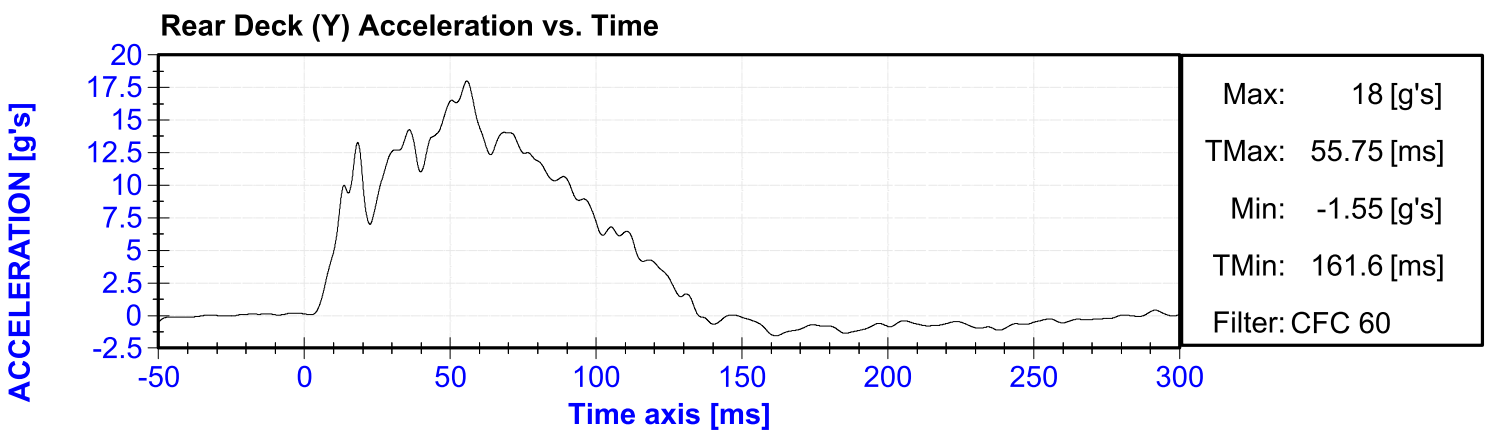
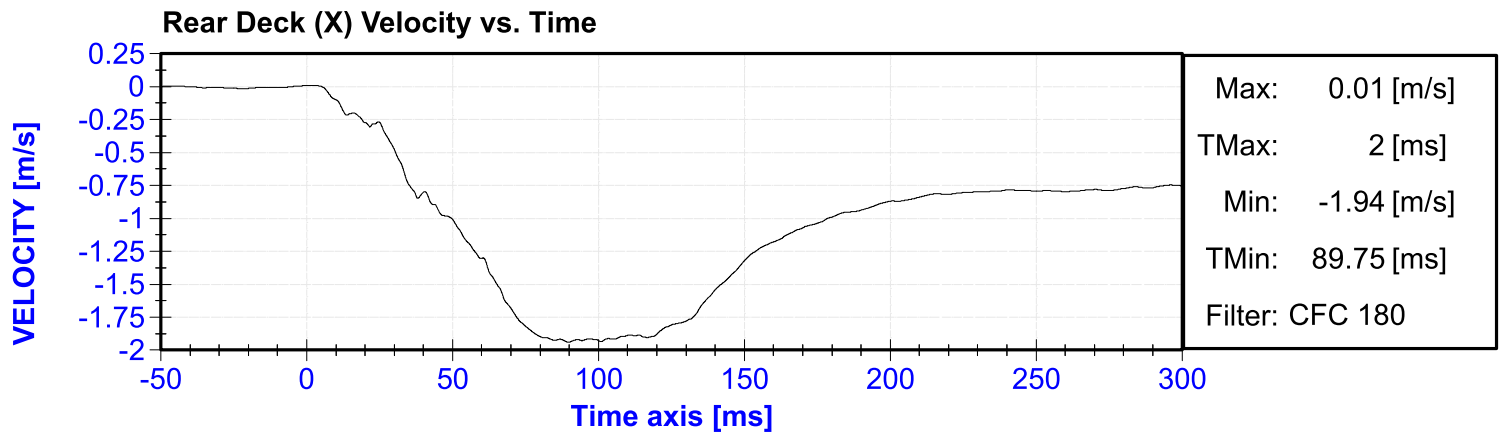
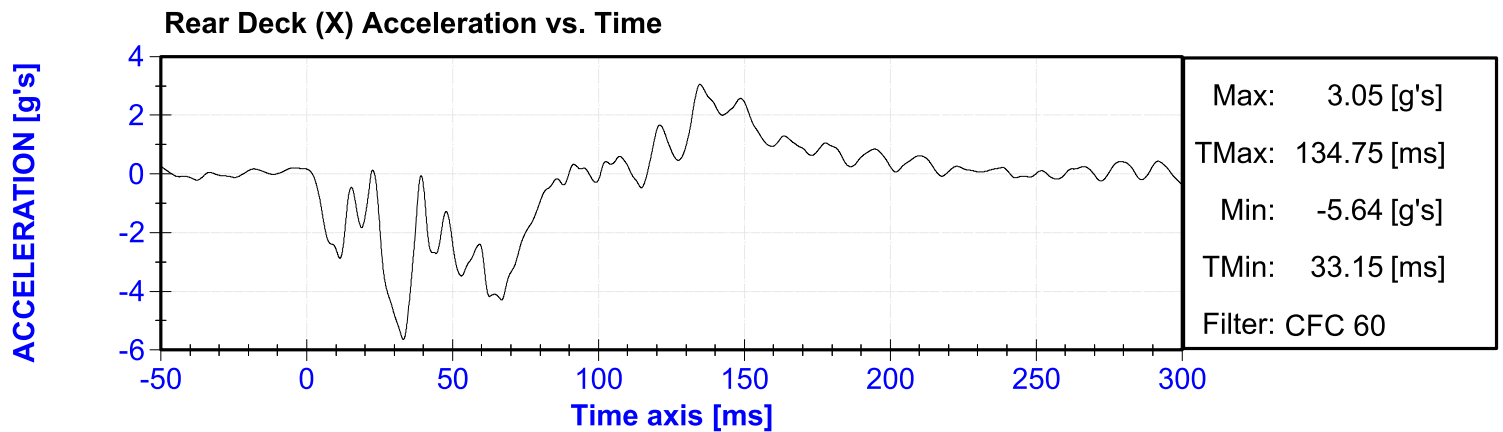
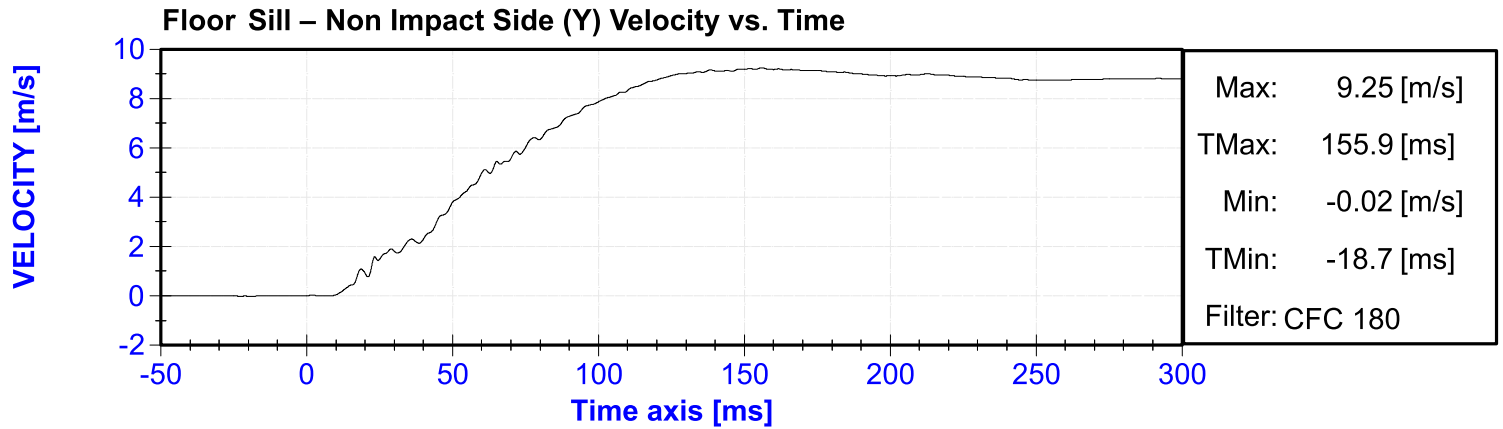
B-Pillar Mid (Y) Displacement vs. Time

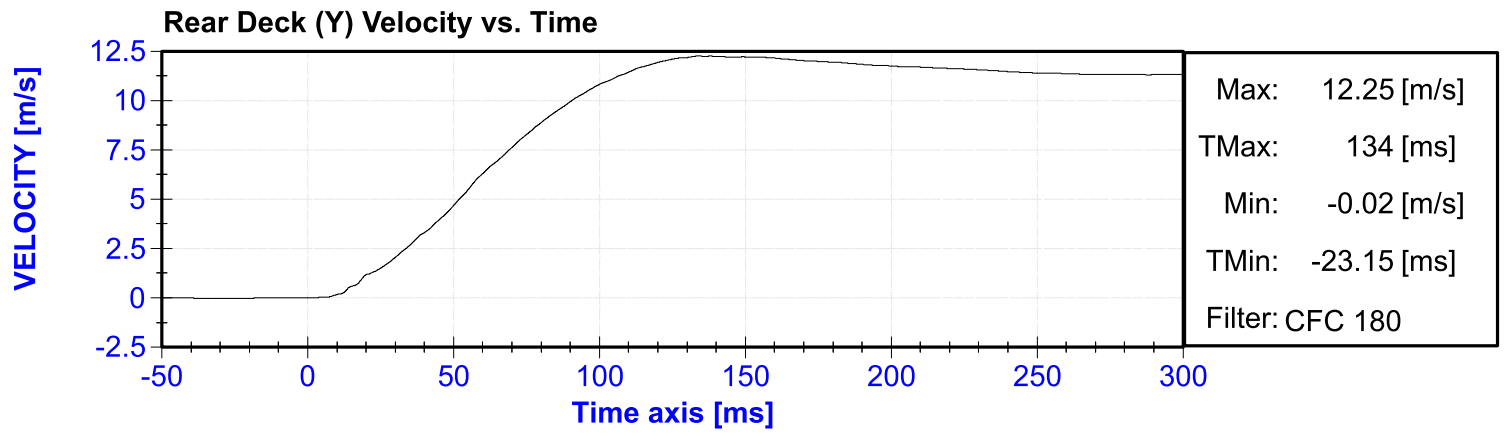












APPENDIX IV

PRE-TEST DUMMY PERFORMANCE CALIBRATION TEST DATA

(Subpart U, ES-2re)

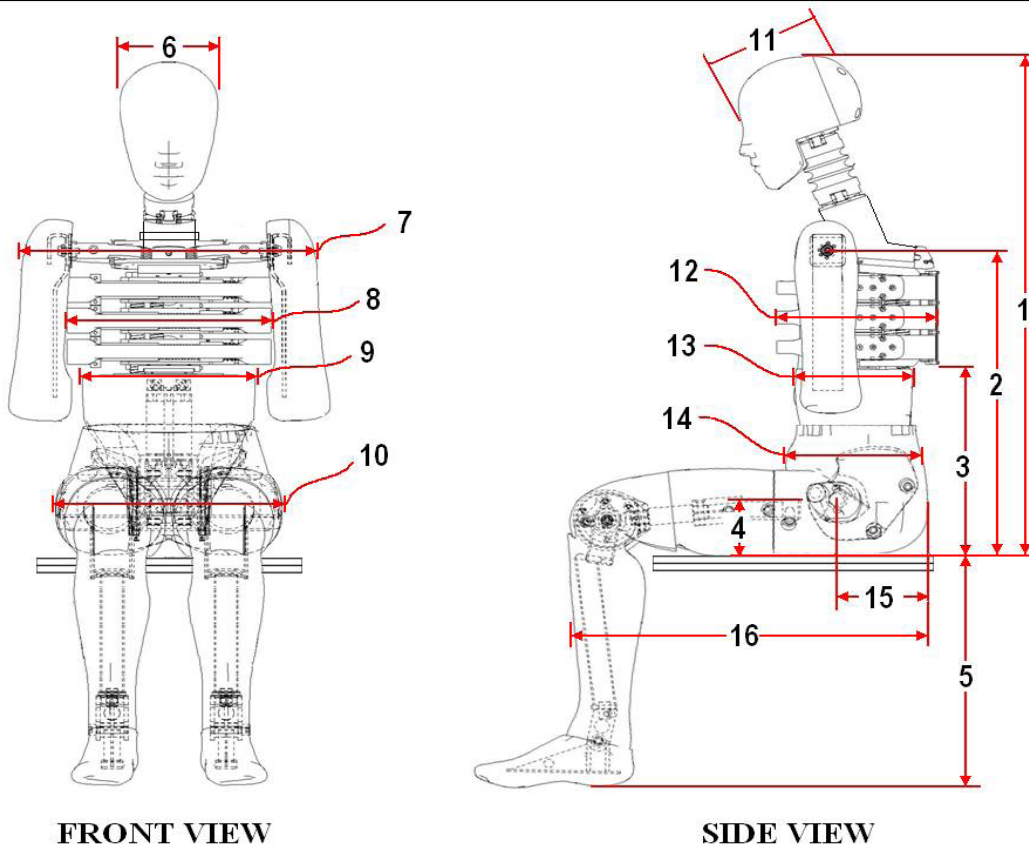


External Measurements - EuroSID-2re

Technician: J. Rios

Date: 2/7/2025

Dummy Serial Number: DG5348



FRONT VIEW

SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	912	Pass
2	Seat to Shoulder Joint	558	572	567	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	352	Pass
4	Seat to Hip Joint (center of bolt)	97	103	99	Pass
5	Sole to Seat, Sitting	333	451	425	Pass
6	Head Width	152	158	154	Pass
7	Shoulder/Arm Width	461	479	469	Pass
8	Thorax Width	322	332	328	Pass
9	Abdomen Width	273	287	281	Pass
10	Pelvis Lap Width	359	373	359	Pass
11	Head Depth	196	206	200	Pass
12	Thorax Depth	262	272	268	Pass
13	Abdomen Depth	194	204	202	Pass
14	Pelvis Depth	235	245	239	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	157	Pass
16	Back of Buttocks to Front Knee	597	615	604	Pass

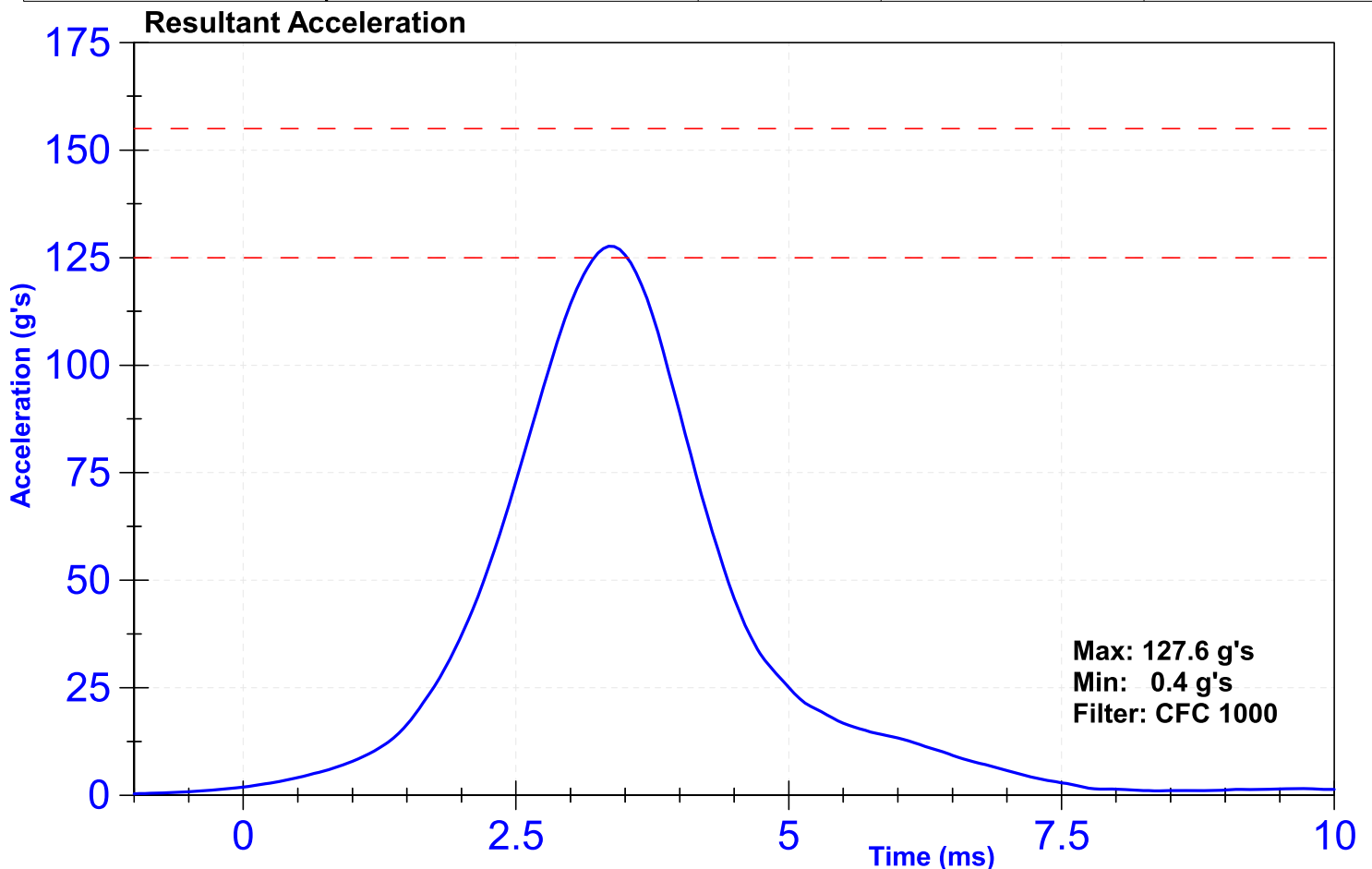
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

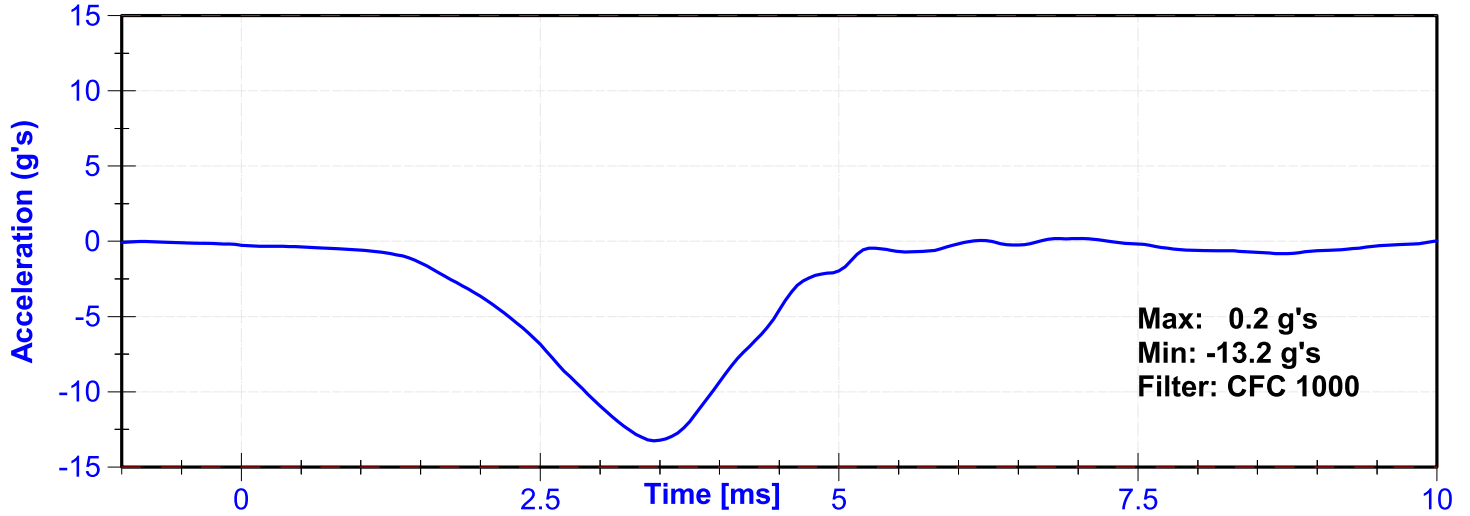
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Resultant Acceleration	125	155	g's	127.6	Pass
Oscillation	0	15	%	1.21	Pass
Fore-Aft Acceleration	-15	15	g's	-13.2	Pass

Transducer Calibrations

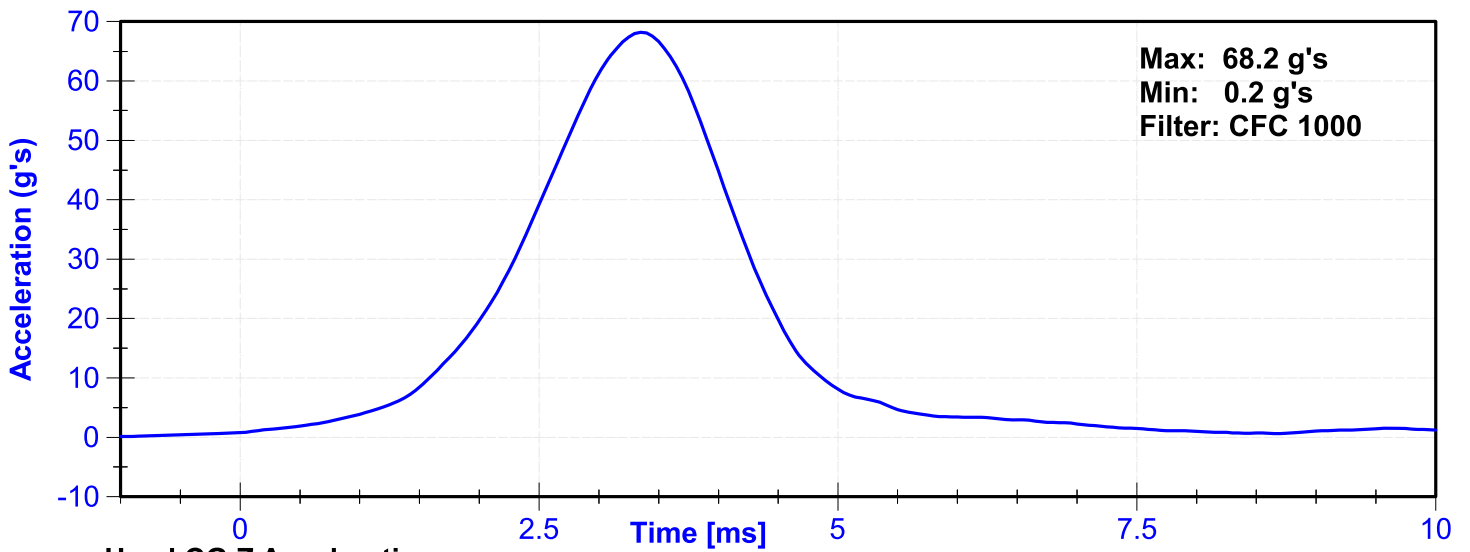
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	18613	1/17/2025	7/16/2025
Y Accelerometer	Endevco	18472	1/17/2025	7/16/2025
Z Accelerometer	Endevco	18663	1/17/2025	7/16/2025



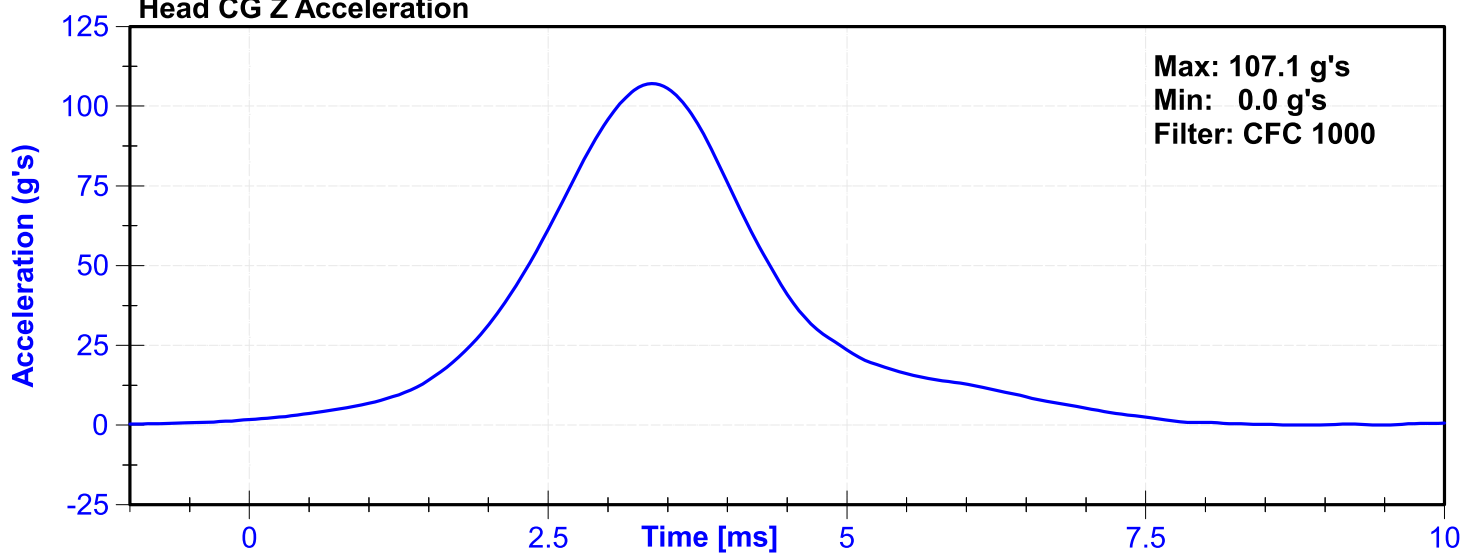
Head CG X Acceleration



Head CG Y Acceleration



Head CG Z Acceleration



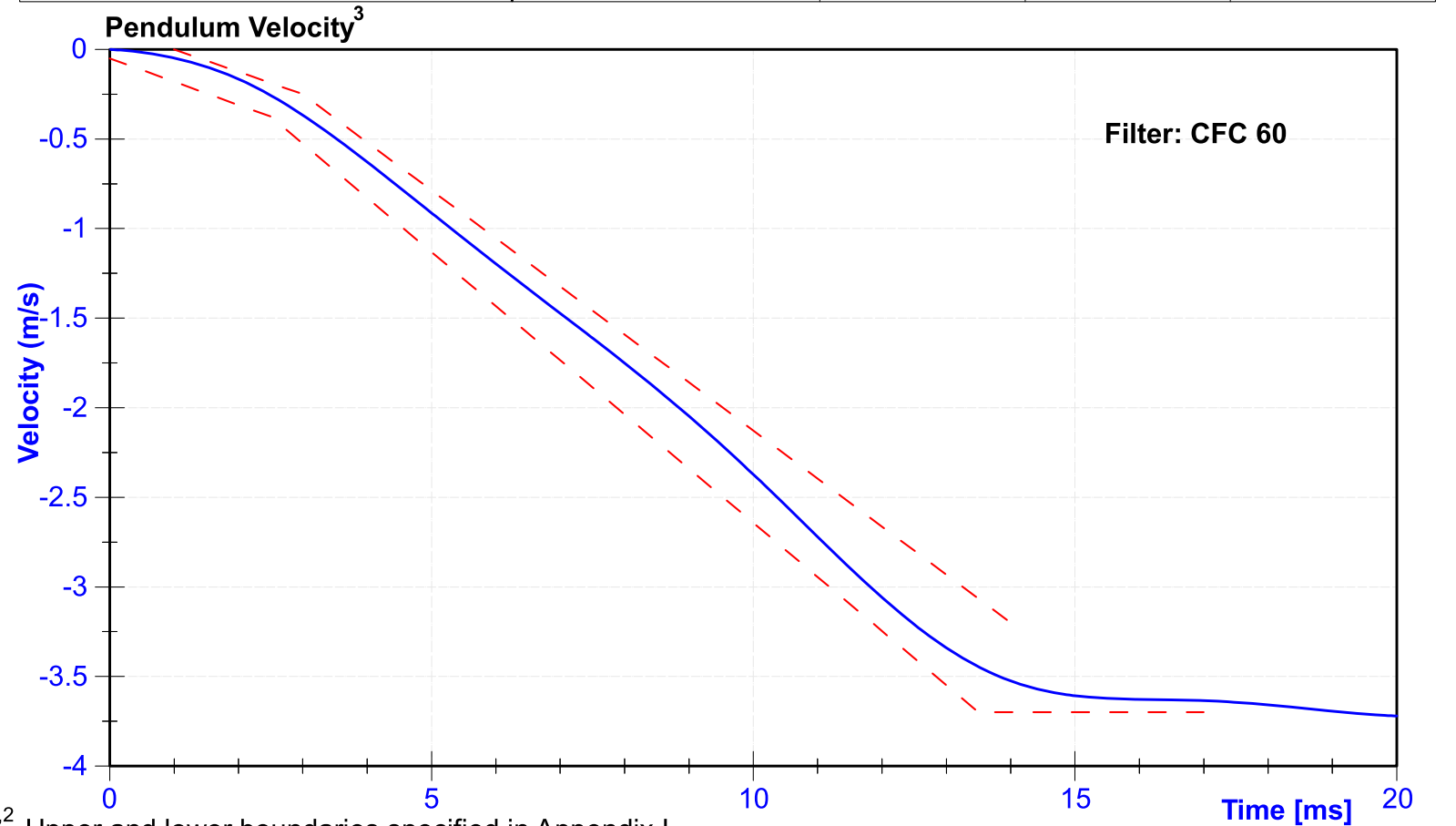
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

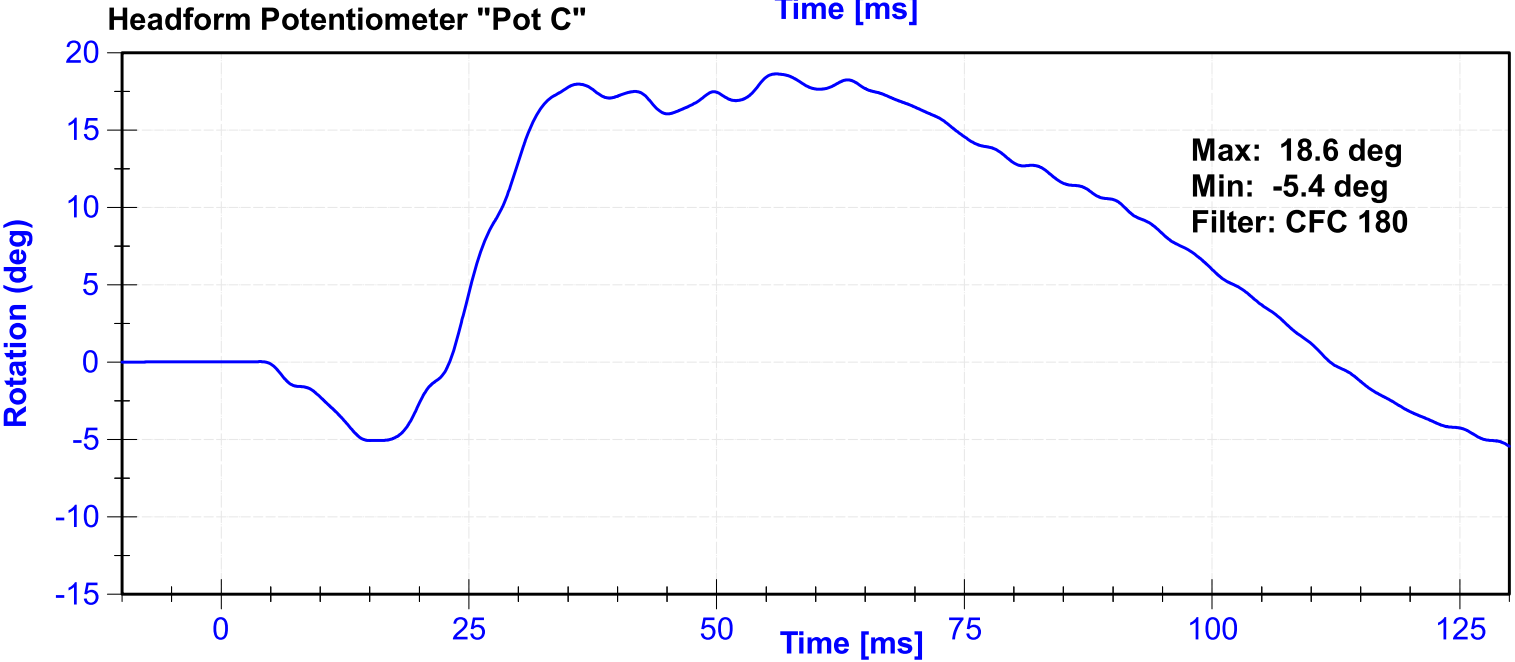
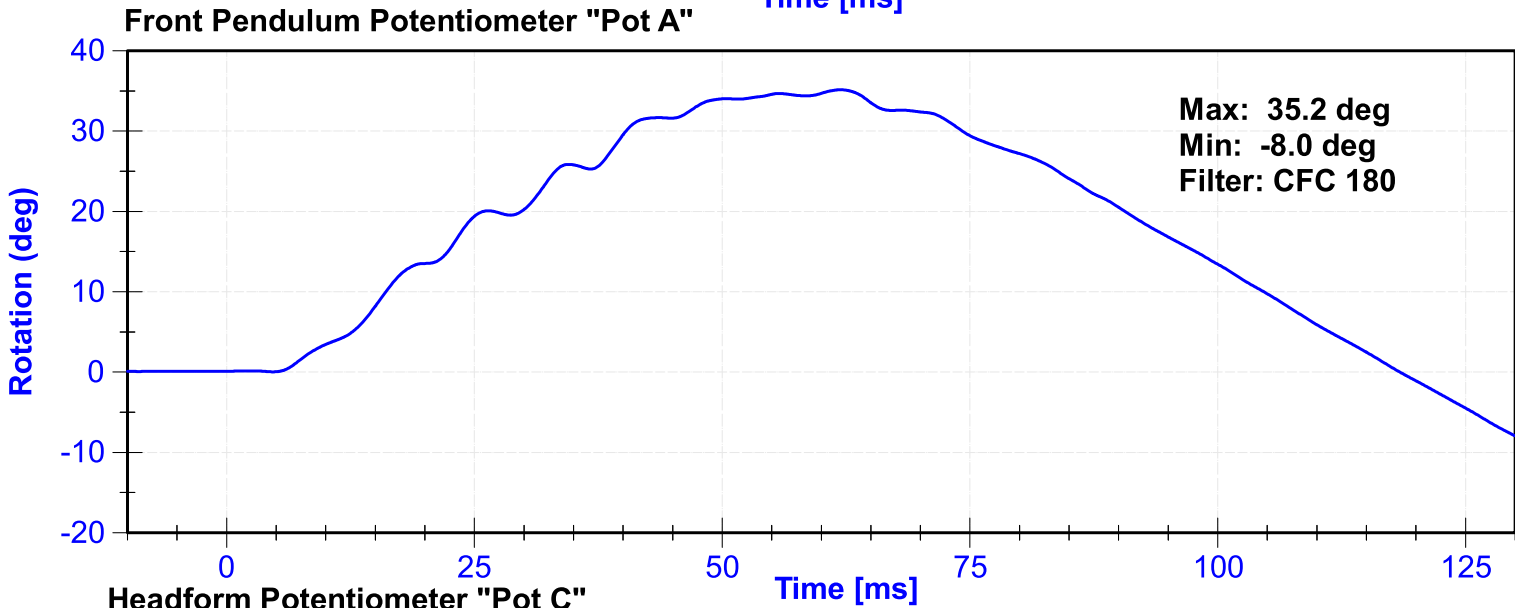
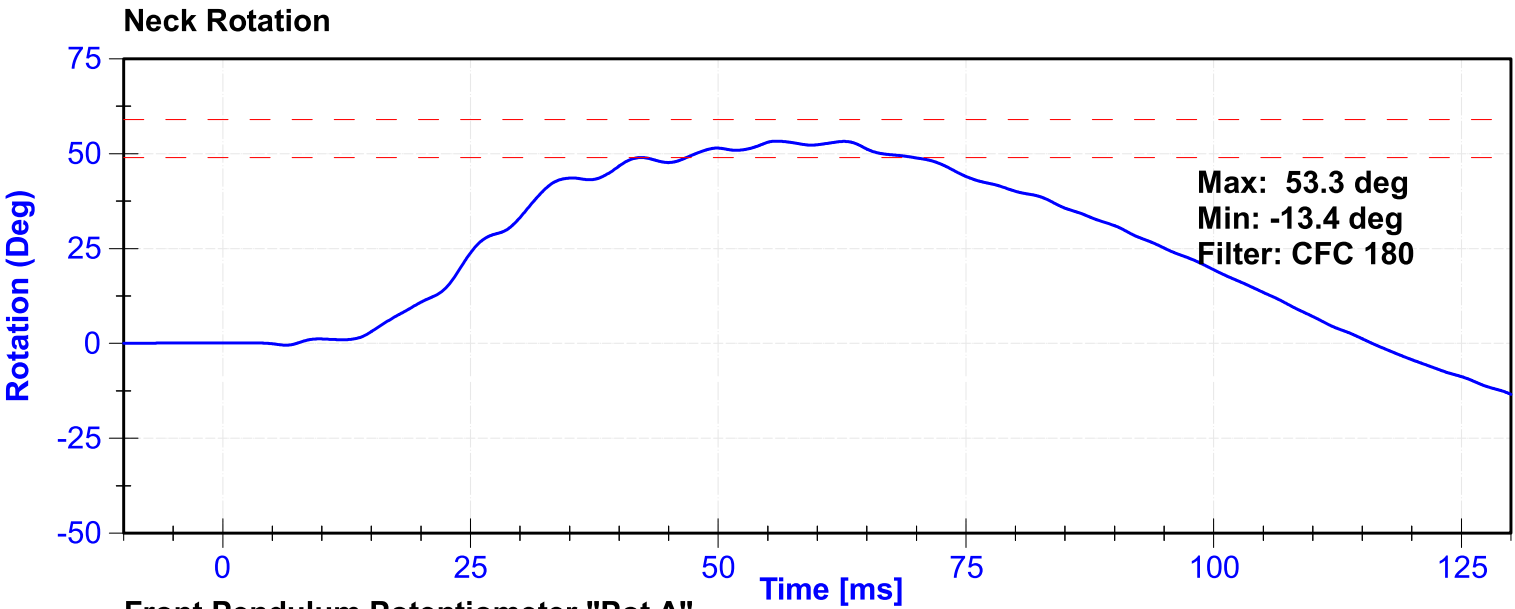
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	3.3	3.5	m/s	3.45	Pass
Lateral Neck Rotation	49	59	deg	53.3	Pass
Time at Maximum Rotation	54	66	ms	55.9	Pass
Time of Rotation Decay from Maximum	53	88	ms	60.2	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	C16650	11/1/2024	11/1/2025
Front Pendulum Potentiometer	Sfernice	2247	9/13/2024	9/13/2025
Headform 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
3.0	-0.25	2.5	-0.375
14.0	-3.20	13.5	-3.7
		17.0	-3.7

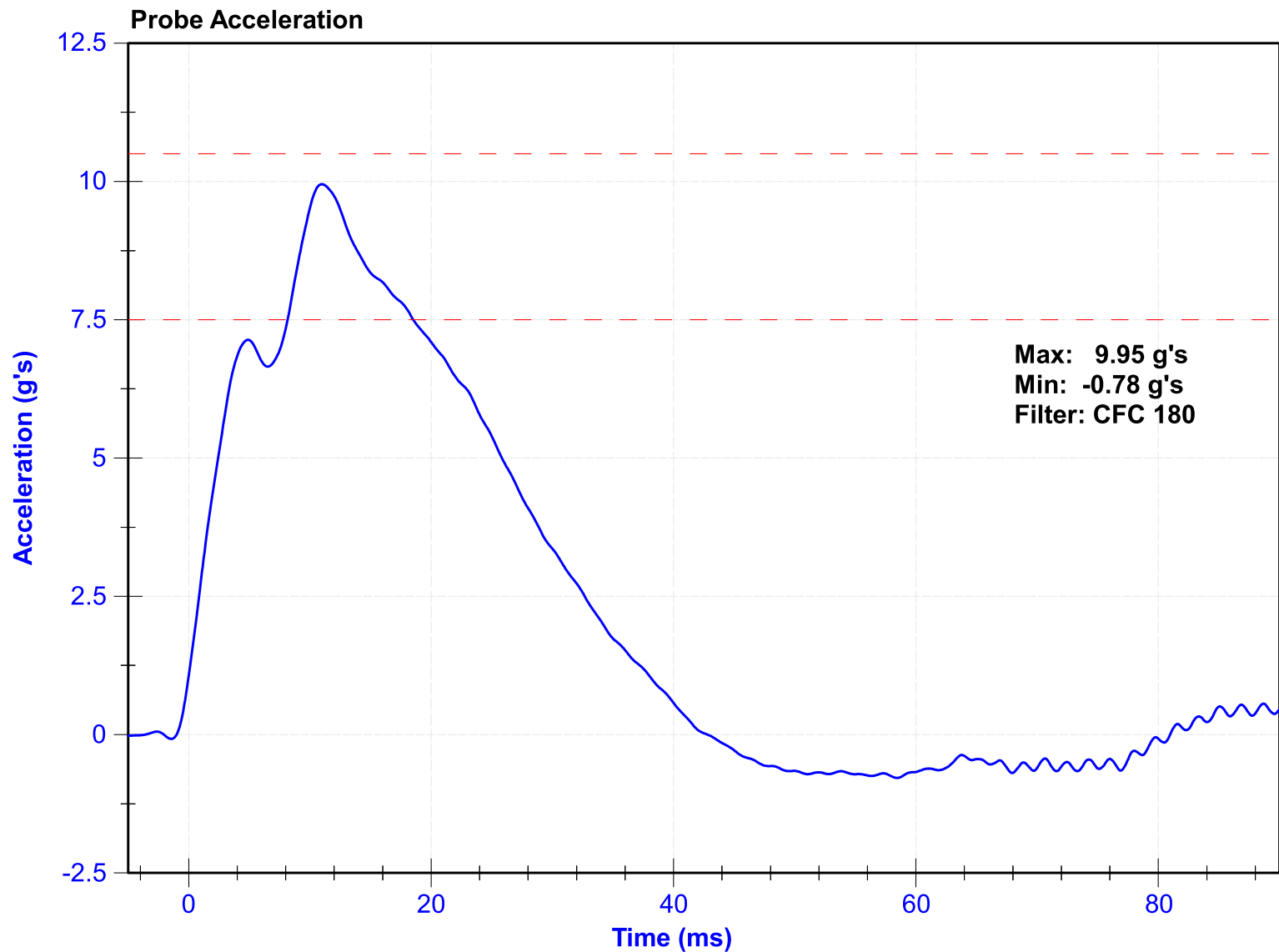
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	7.5	10.5	g's	9.95	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/26/2024	5/25/2025



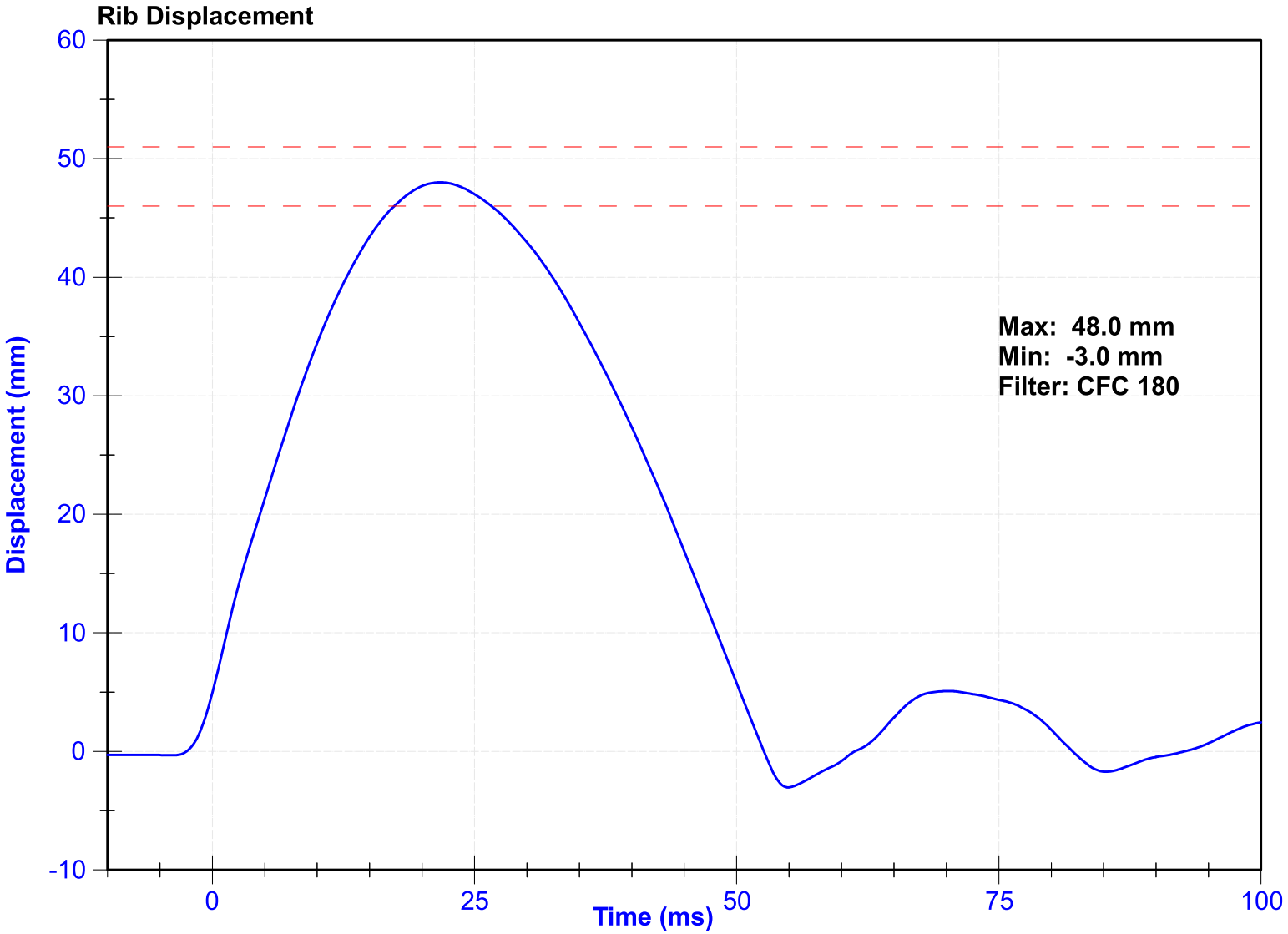
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J.Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	46	51	mm	48.0	Pass

Transducer Calibrations

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



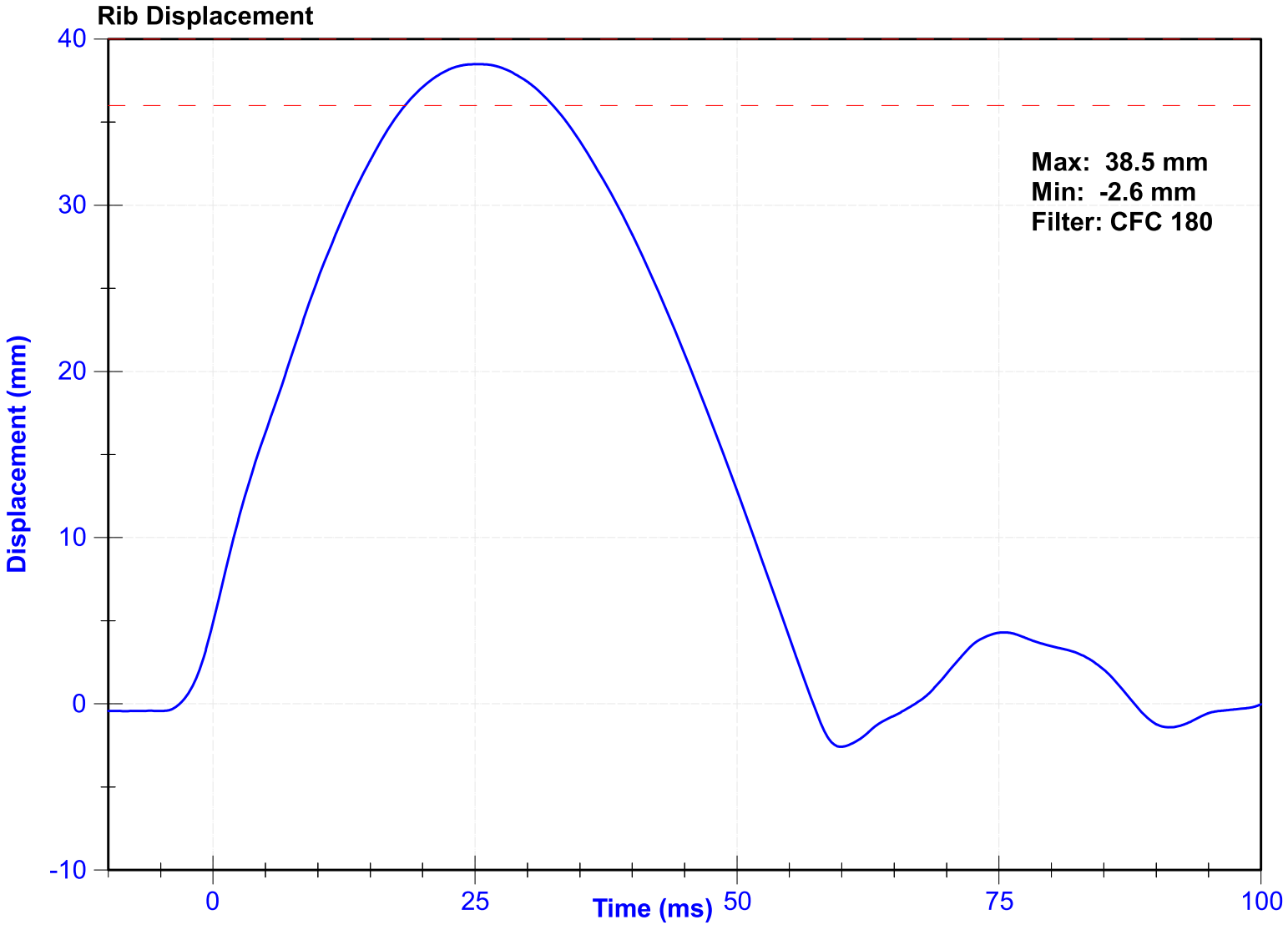
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J.Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	36	40	mm	38.5	Pass

Transducer Calibrations

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



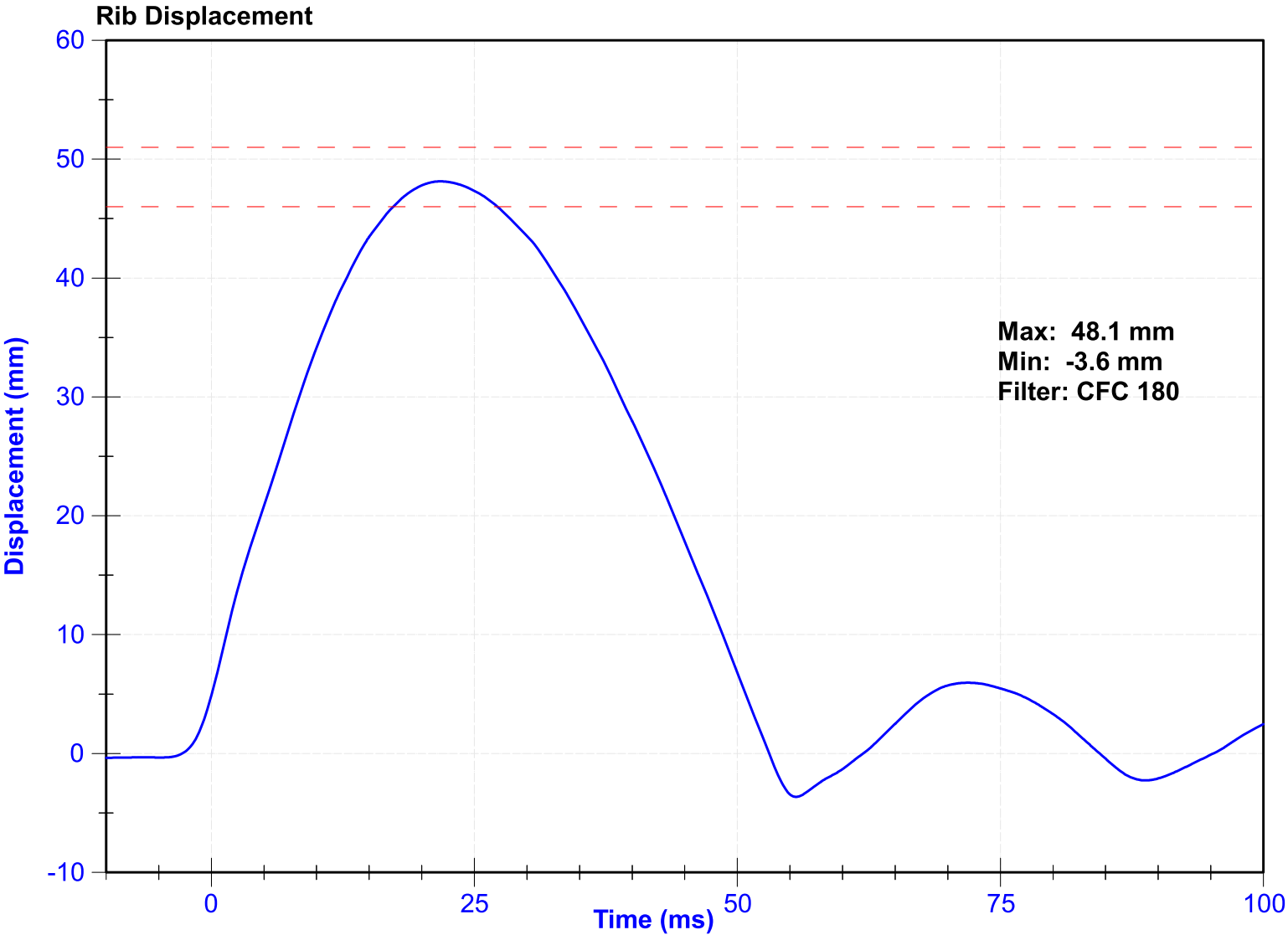
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J.Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	46	51	mm	48.1	Pass

Transducer Calibrations

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



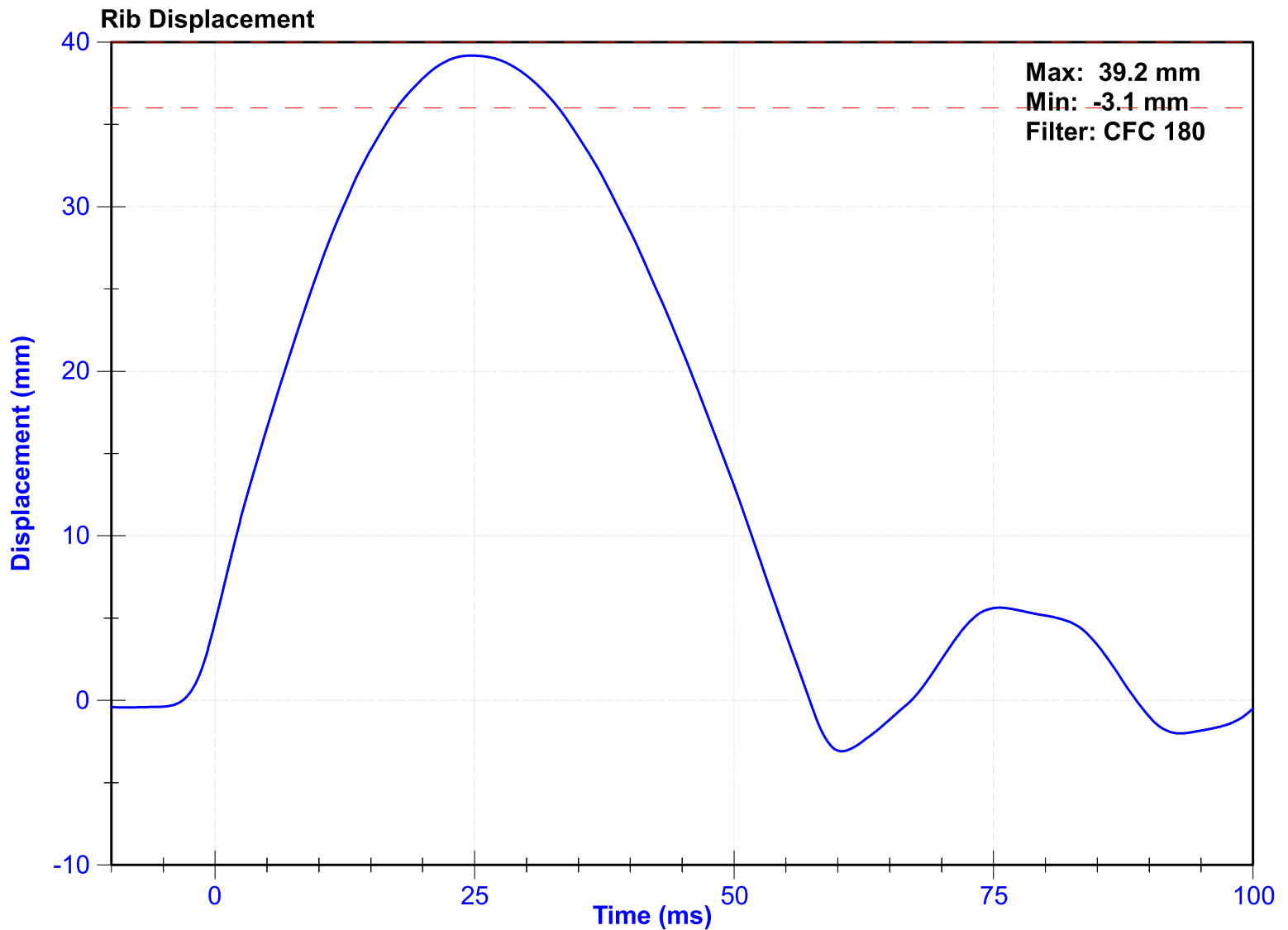
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J.Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	36	40	mm	39.2	Pass

Transducer Calibrations

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



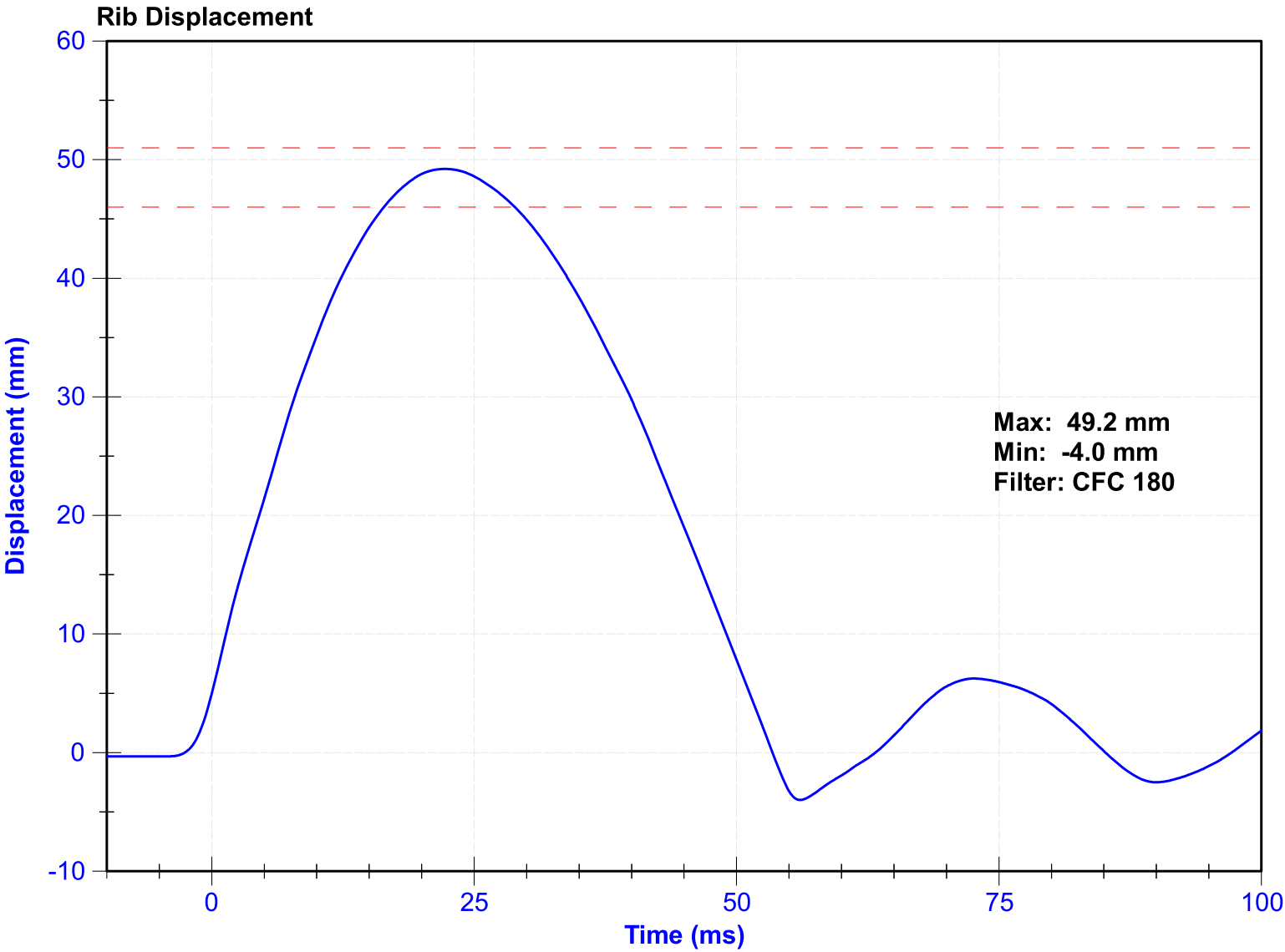
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J.Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
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



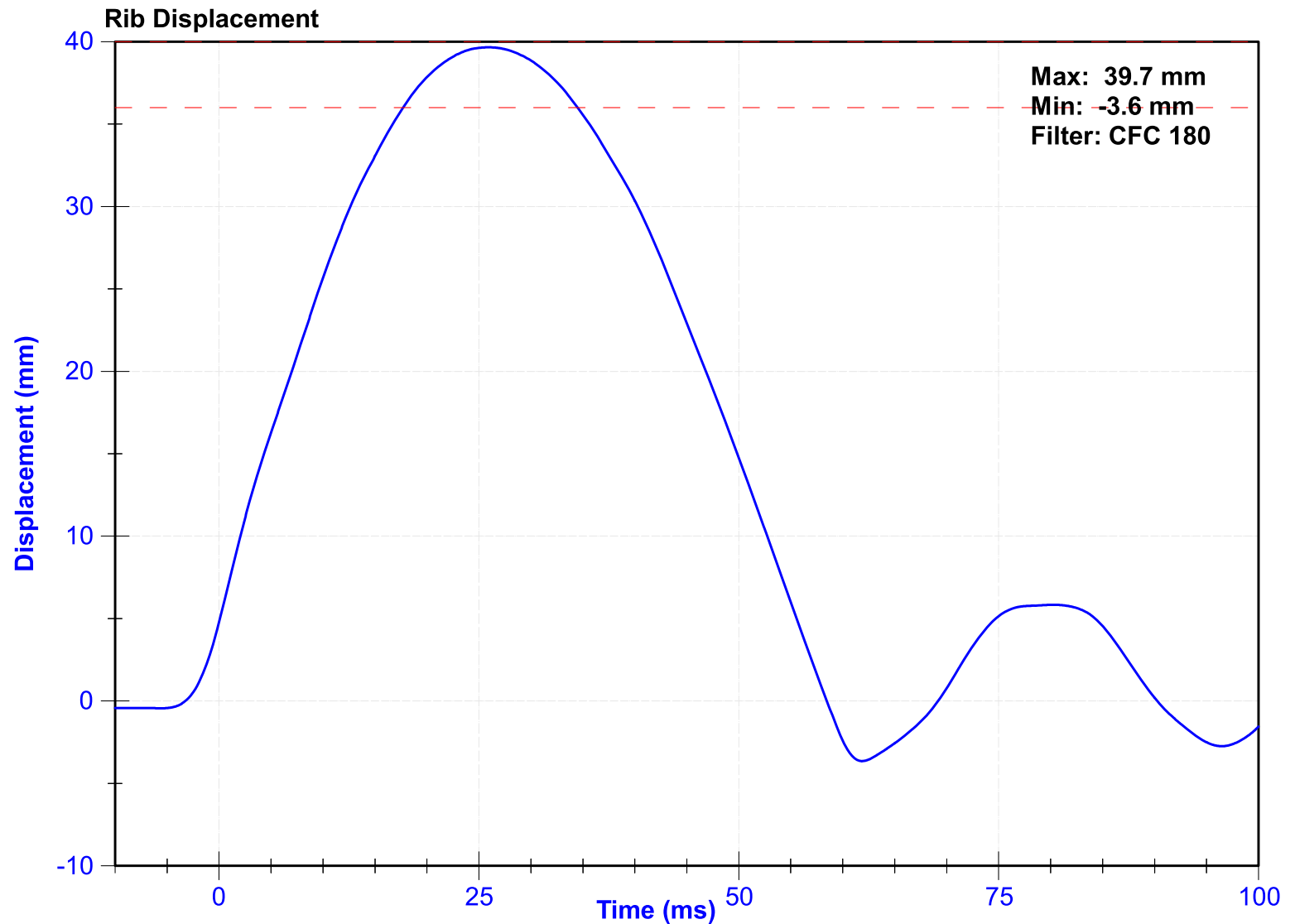
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	36	40	mm	39.7	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	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

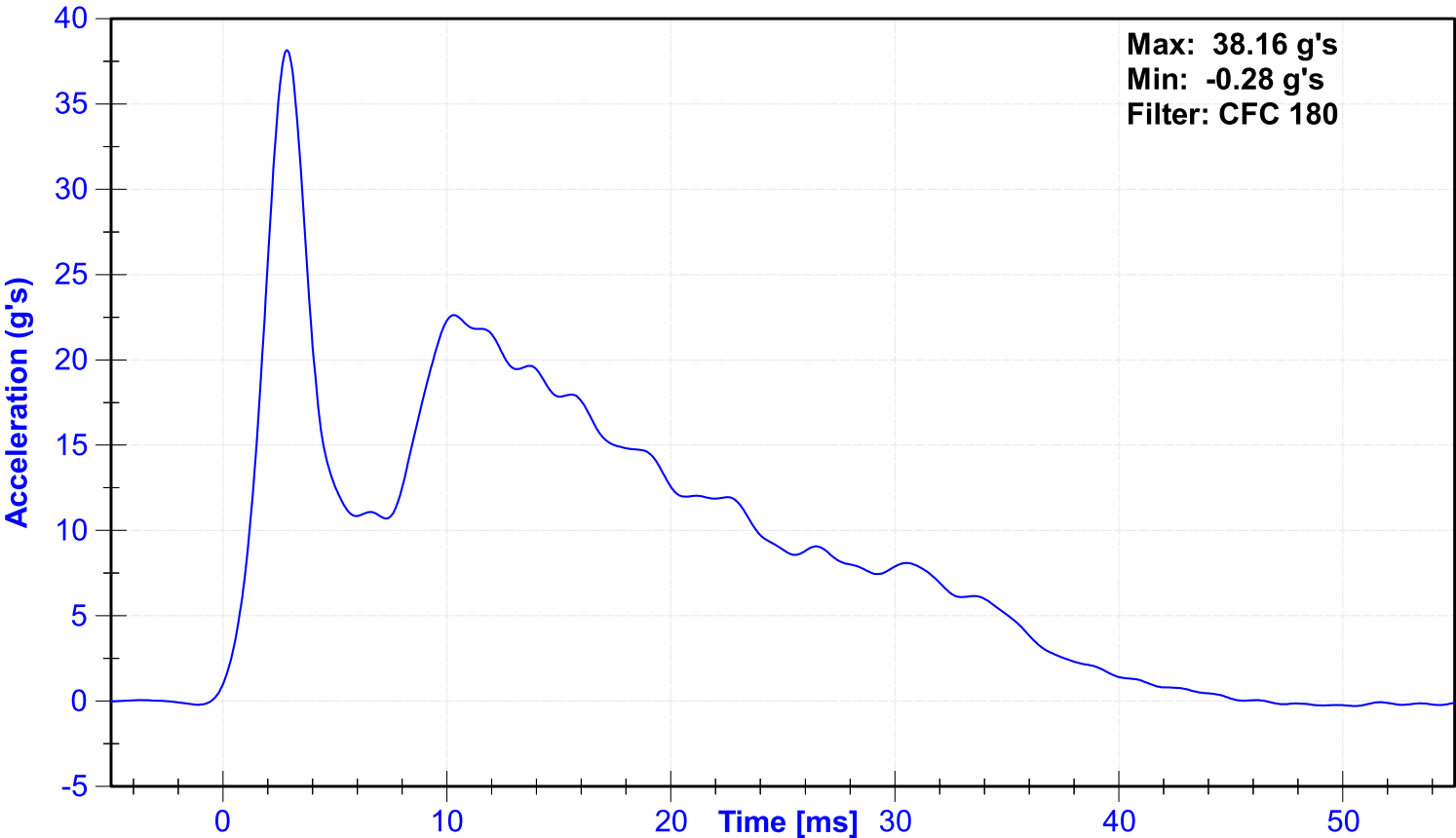
Results

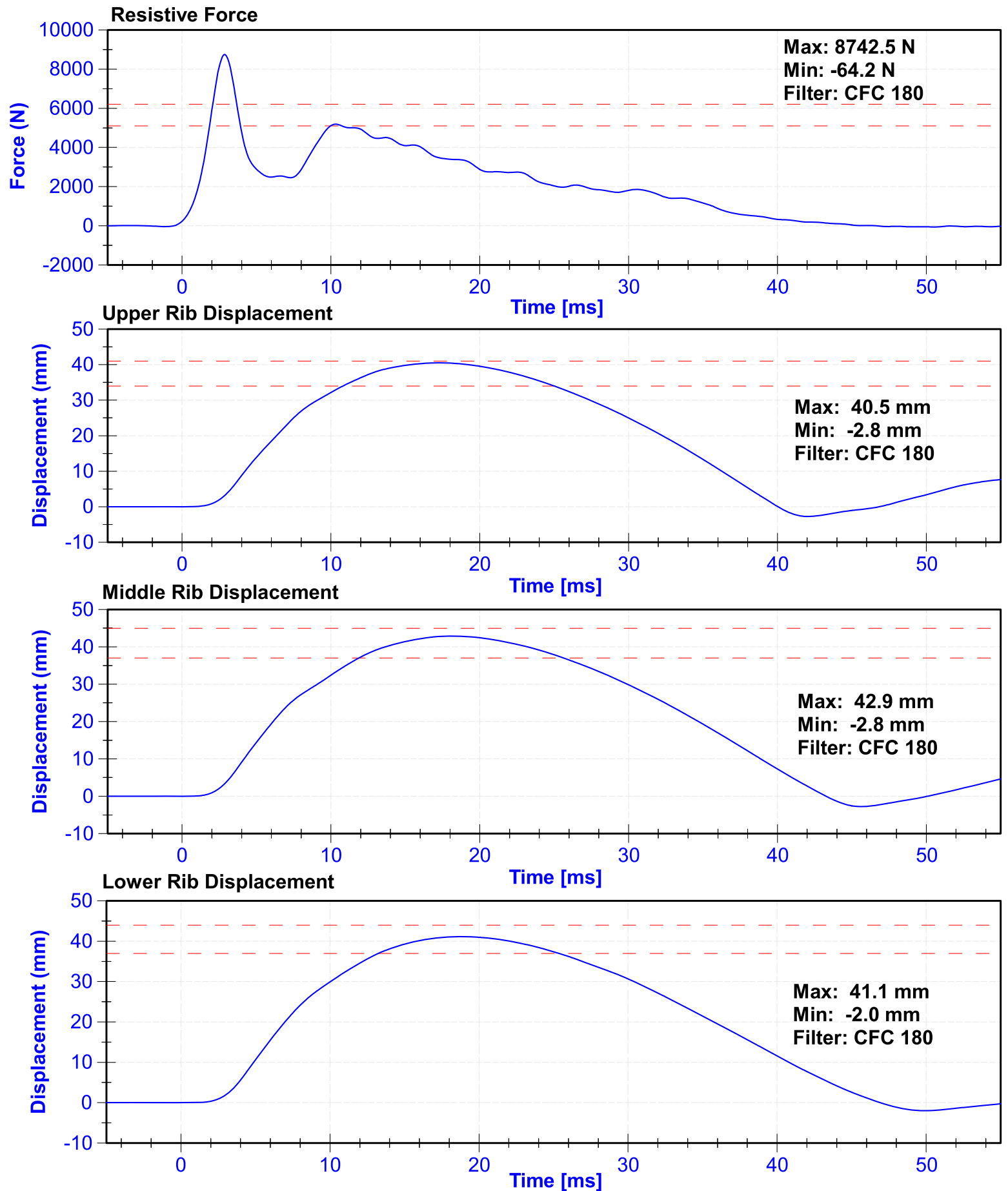
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	5.4	5.6	m/s	5.52	Pass
Resistive Force after 6ms	5100	6200	N	5185.4	Pass
Upper Thorax Rib Deflection	34	41	mm	40.5	Pass
Mid Thorax Rib Deflection	37	45	mm	42.9	Pass
Lower Thorax Rib Deflection	37	44	mm	41.1	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





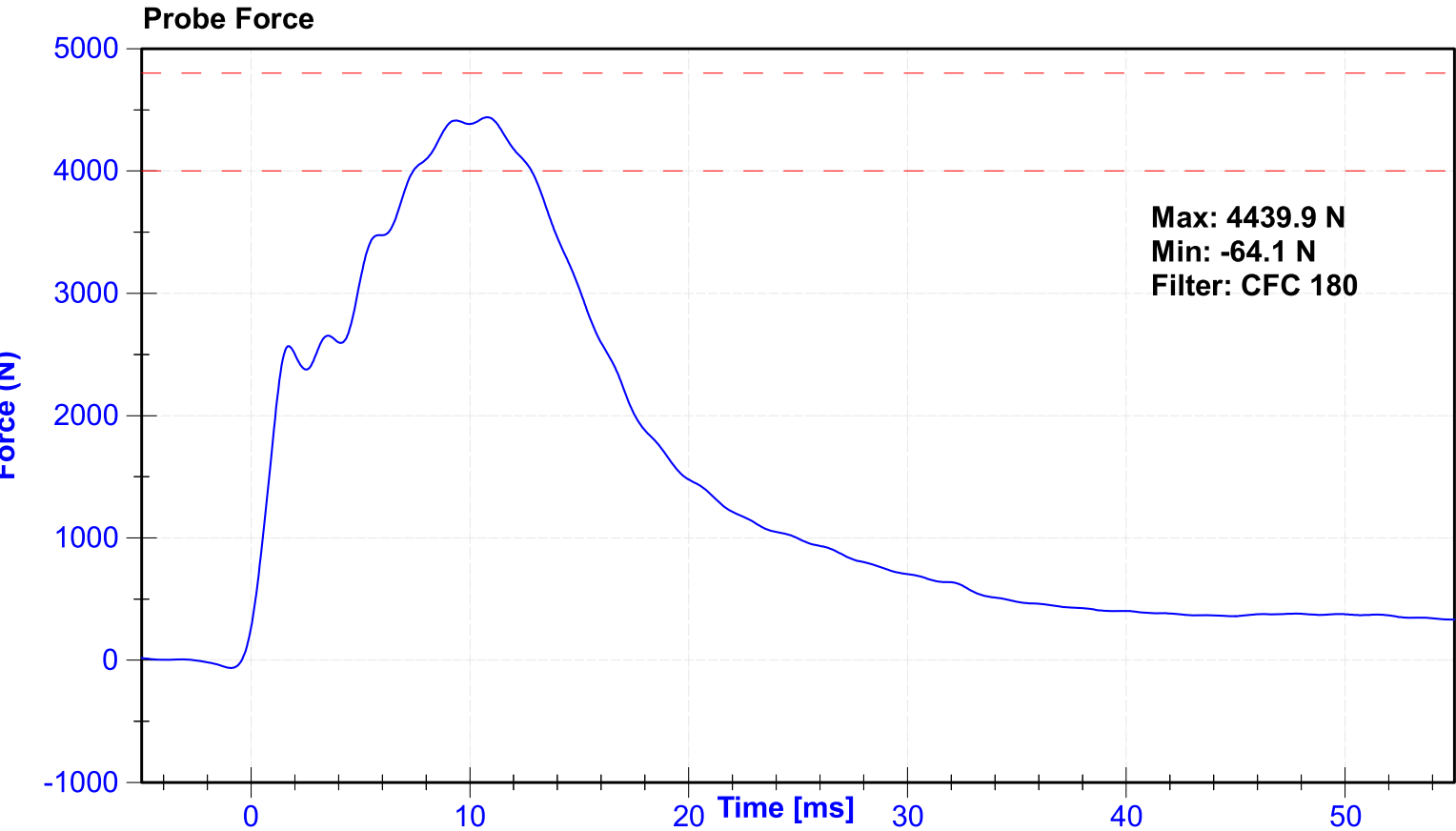
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

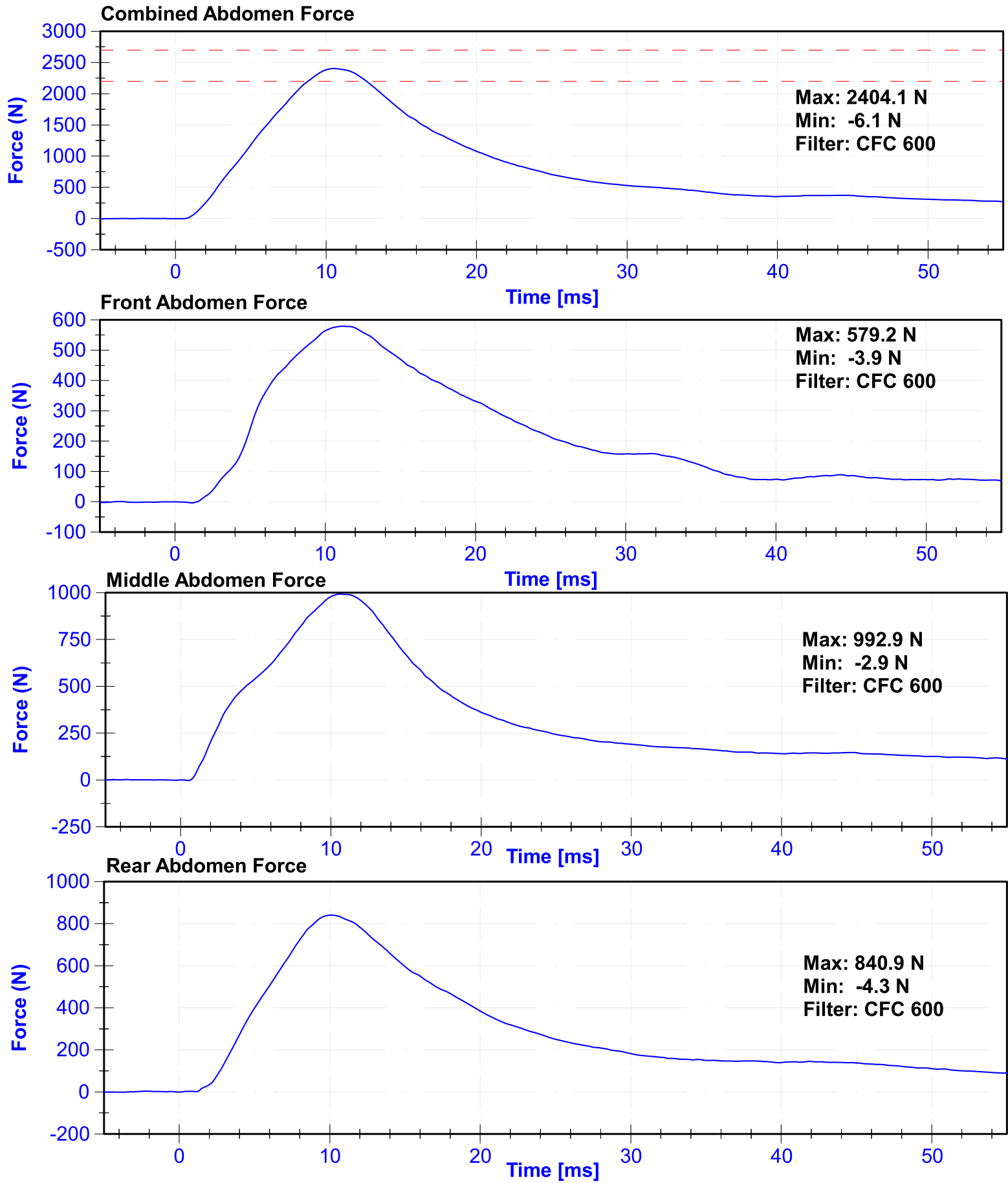
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	3.9	4.1	m/s	4.02	Pass
Combined Abdomen Force	2200	2700	N	2404.1	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	10.55	Pass
Resistive Probe Force	4000	4800	N	4439.9	Pass
Time at Peak Resistive Force	10.6	13.0	ms	10.80	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/26/2024	5/25/2025
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





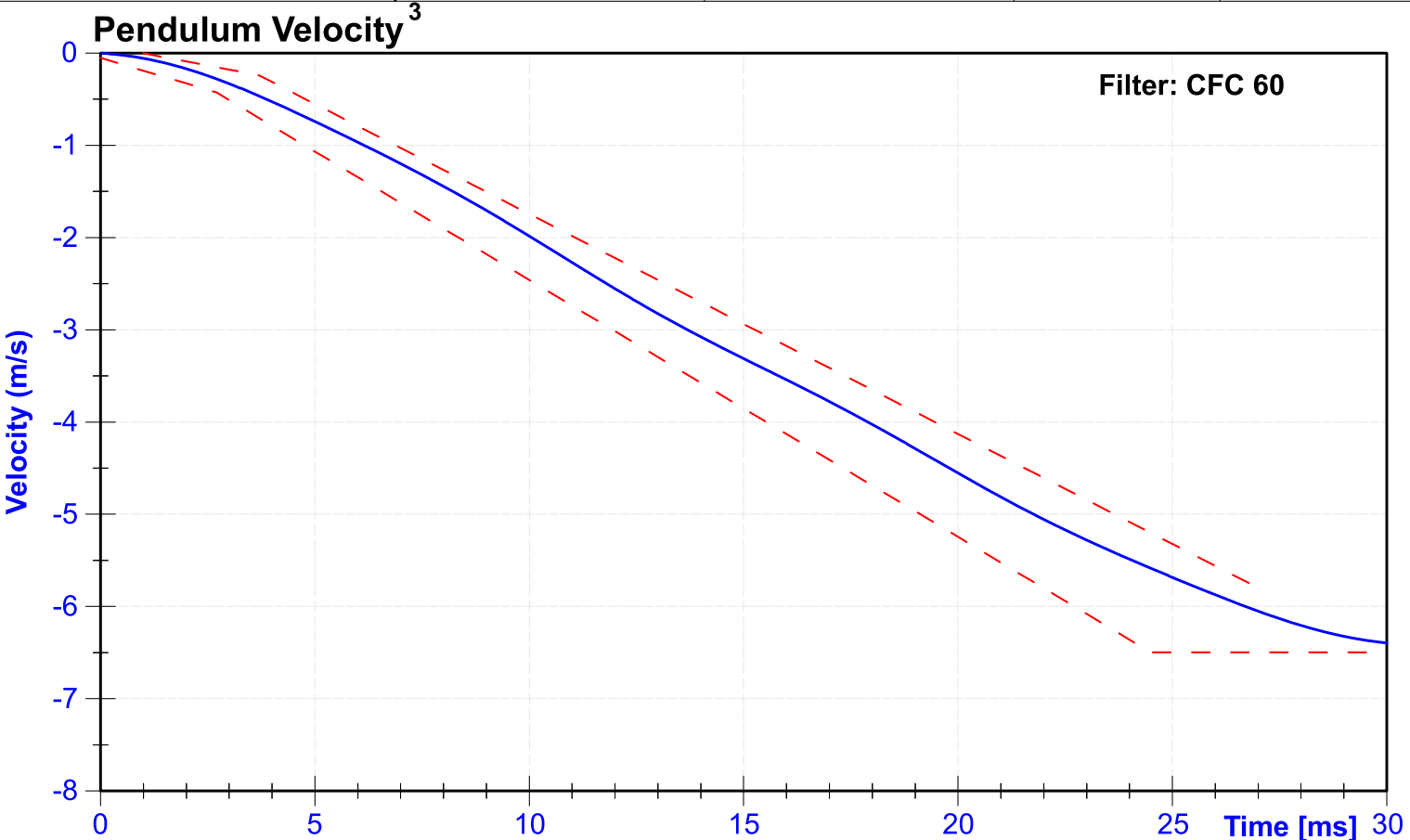
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

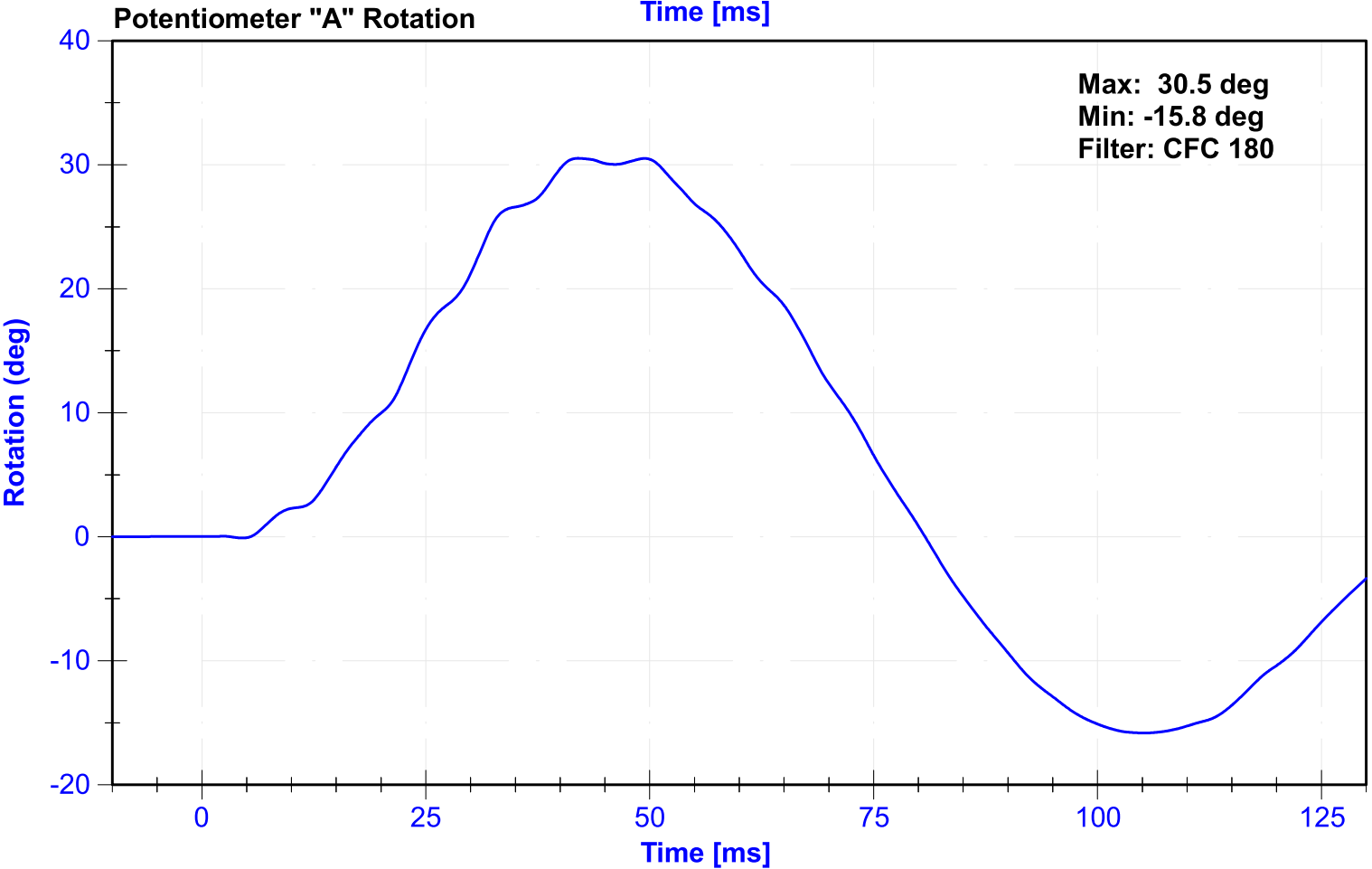
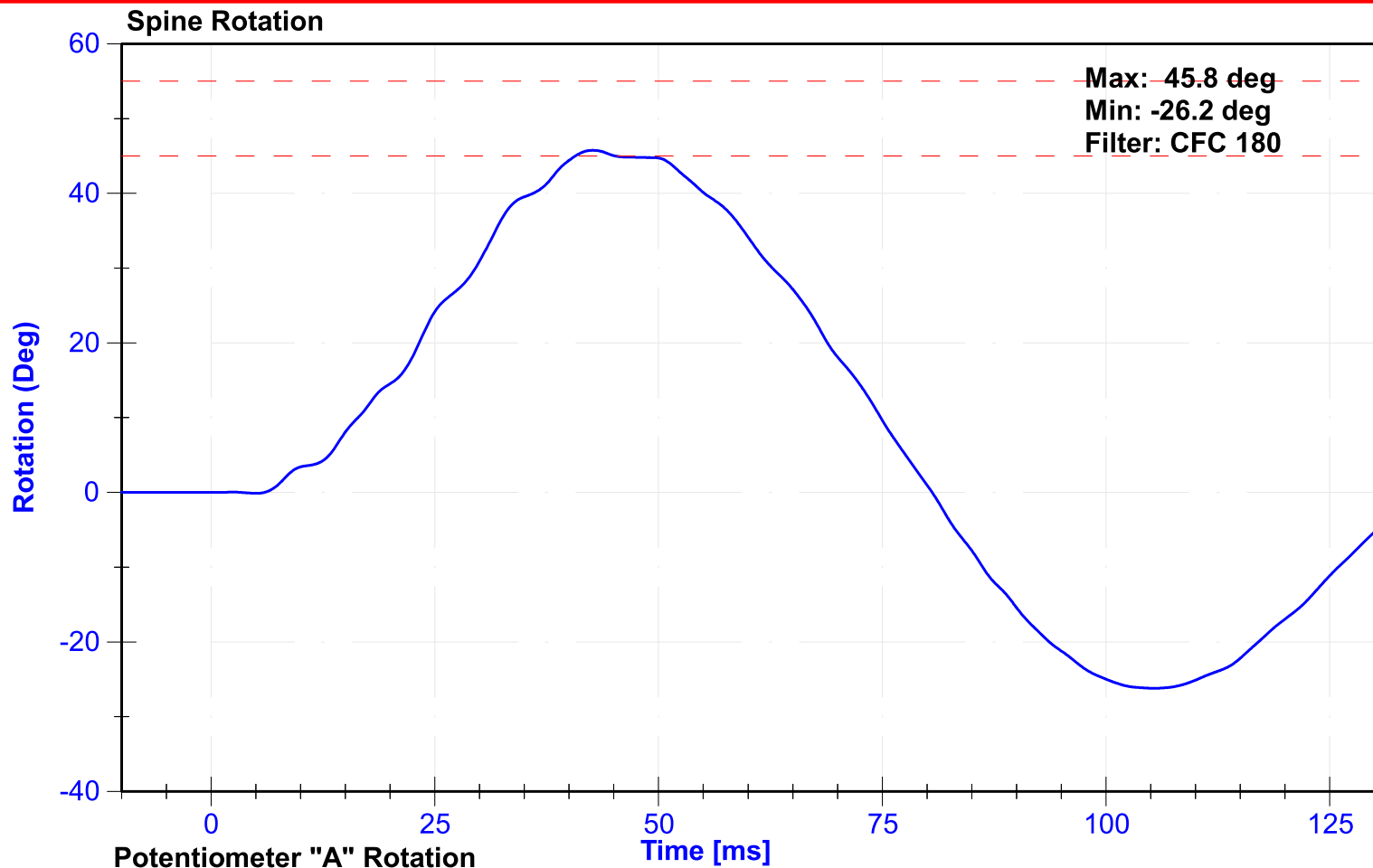
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	5.95	6.15	m/s	6.124	Pass
Lateral Spine Rotation	45	55	deg	45.8	Pass
Time at Maximum Rotation	39	53	ms	42.6	Pass
Time of Decay to Zero Degrees	37	57	ms	37.9	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

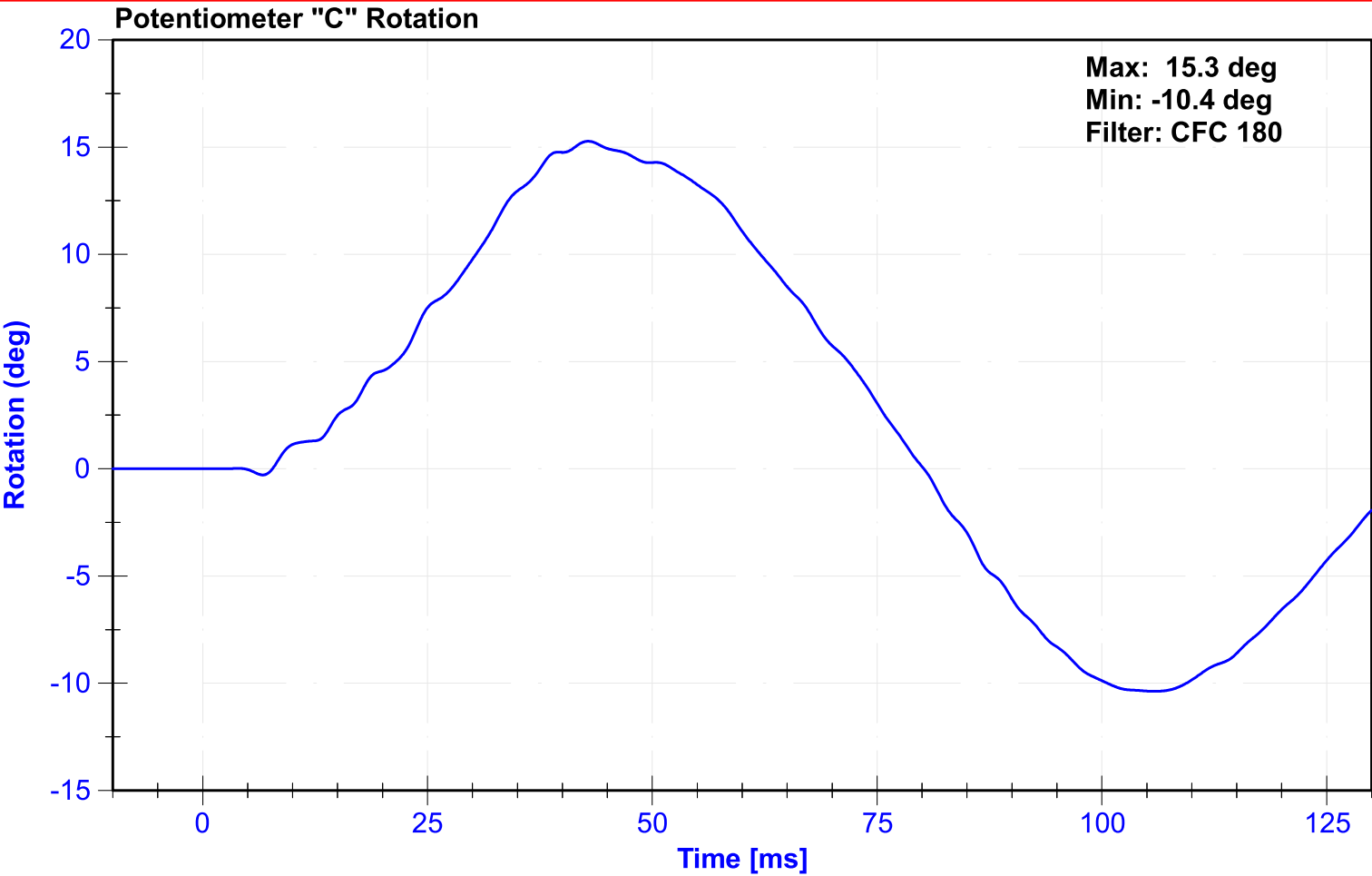
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16650	11/1/2024	11/1/2025
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-19





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	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

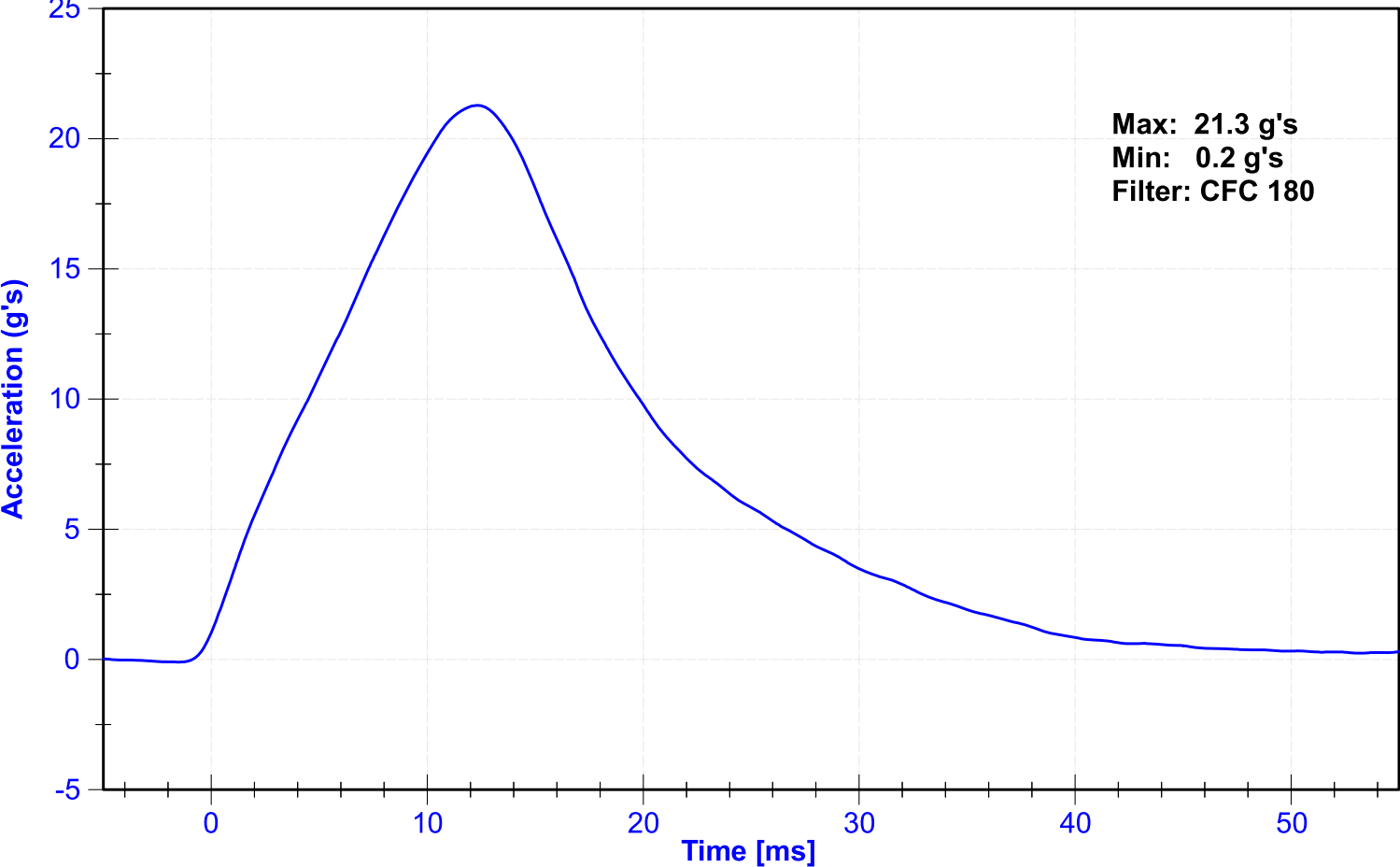
Results

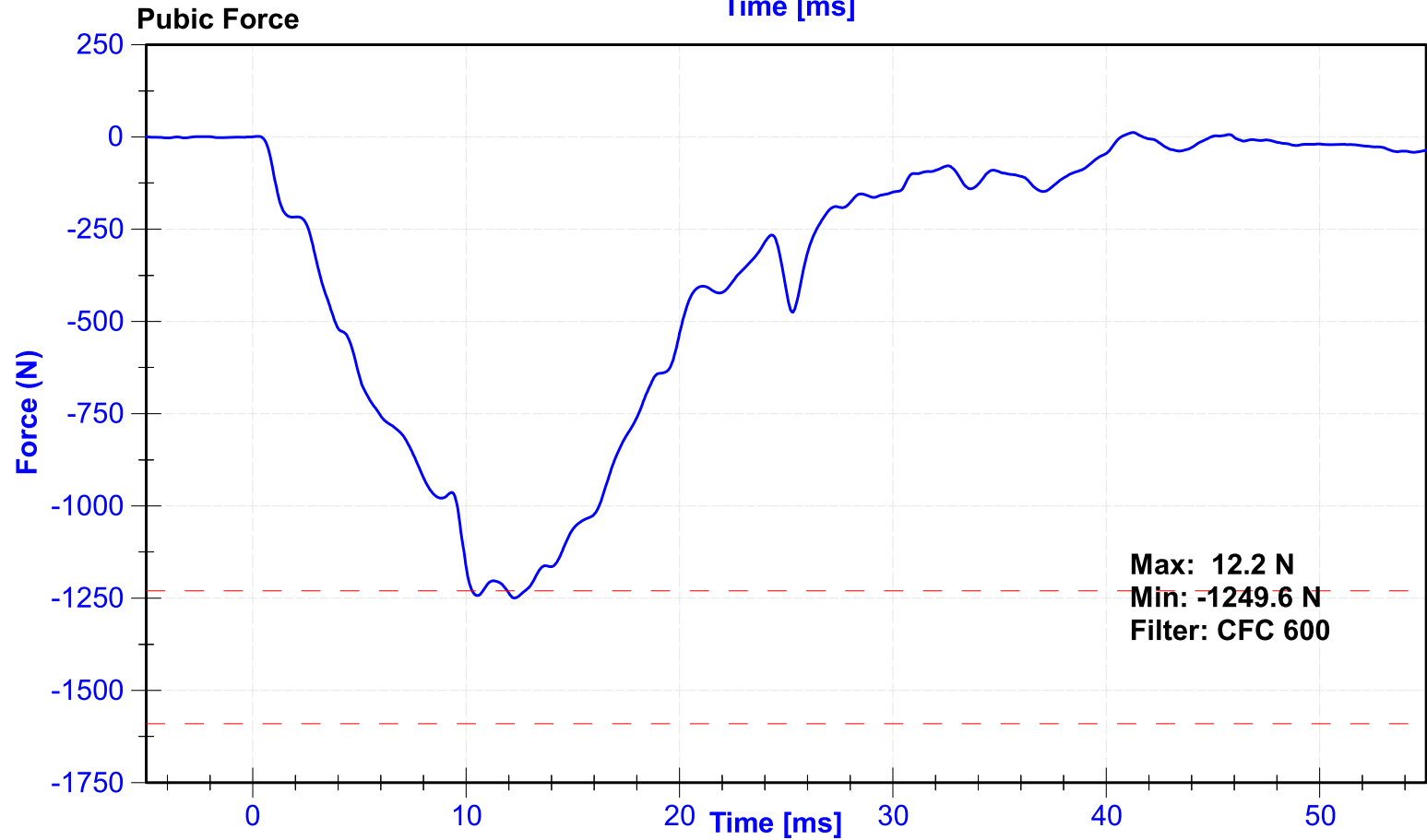
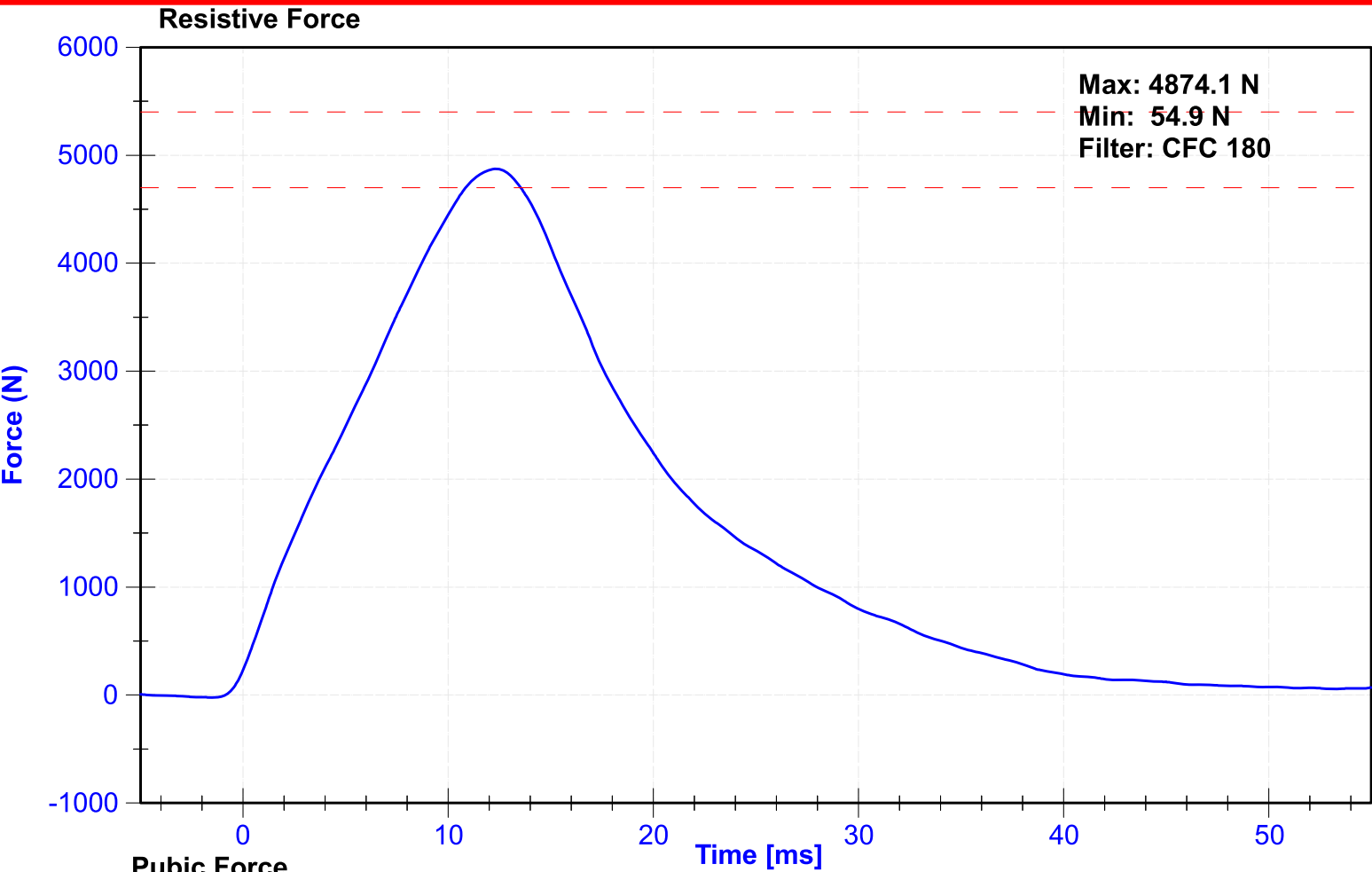
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Resistive Force	4700	5400	N	4874.1	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.30	Pass
Pubic Force	-1590	-1230	N	-1249.6	Pass
Time at Peak Pubic Force	12.2	17.0	ms	12.25	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/26/2024	5/25/2025
Pubic Load Cell	Denton	459-FY	7/12/2024	7/12/2025

Probe Acceleration





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

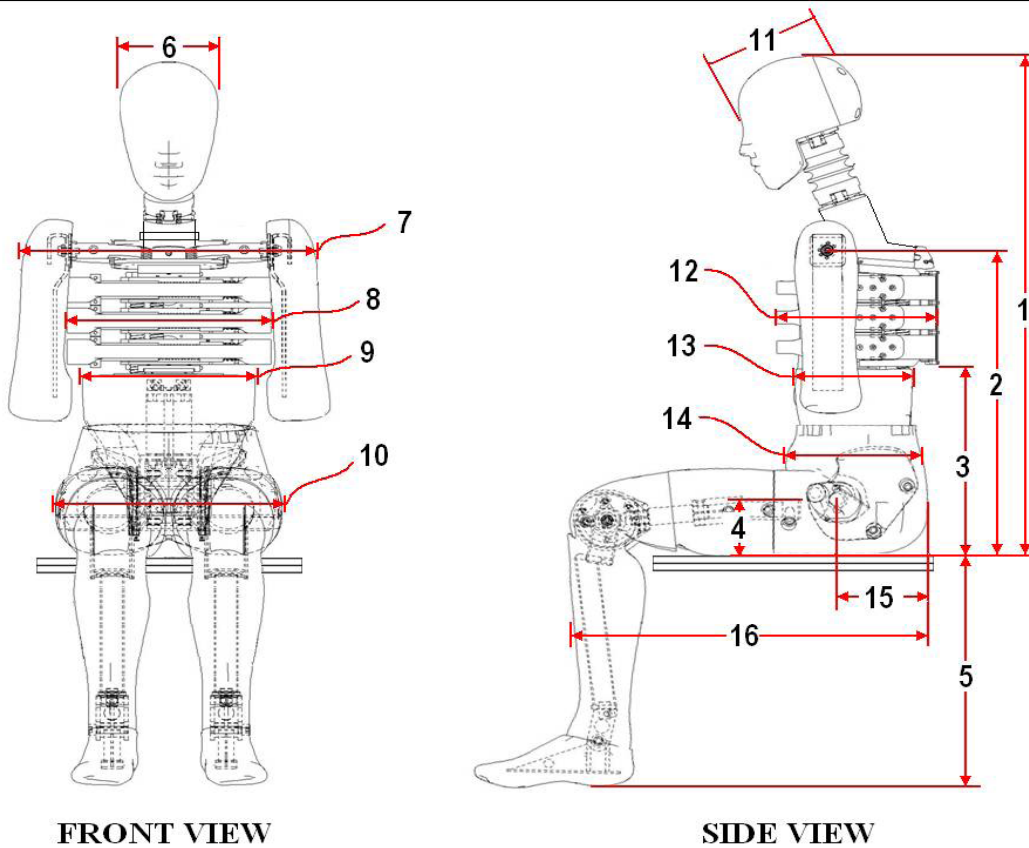


External Measurements - EuroSID-2re

Technician: J. Rios

Date: 2/19/2025

Dummy Serial Number: DG5348



FRONT VIEW

SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	917	Pass
2	Seat to Shoulder Joint	558	572	564	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	352	Pass
4	Seat to Hip Joint (center of bolt)	97	103	102	Pass
5	Sole to Seat, Sitting	333	451	418	Pass
6	Head Width	152	158	154	Pass
7	Shoulder/Arm Width	461	479	472	Pass
8	Thorax Width	322	332	328	Pass
9	Abdomen Width	273	287	278	Pass
10	Pelvis Lap Width	359	373	368	Pass
11	Head Depth	196	206	202	Pass
12	Thorax Depth	262	272	271	Pass
13	Abdomen Depth	194	204	203	Pass
14	Pelvis Depth	235	245	239	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	152	Pass
16	Back of Buttocks to Front Knee	597	615	599	Pass

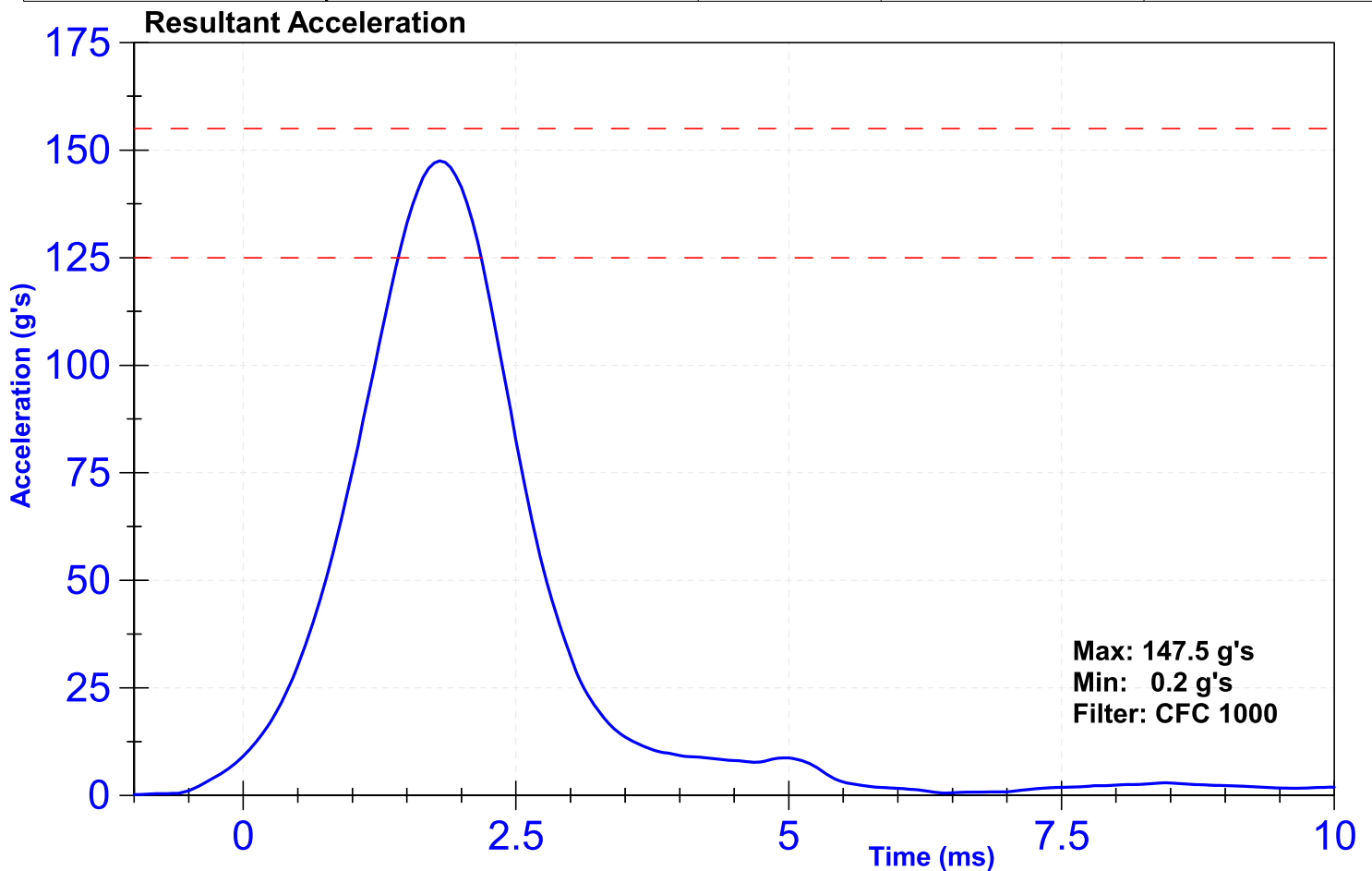
ATD Manufacturer	Denton	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

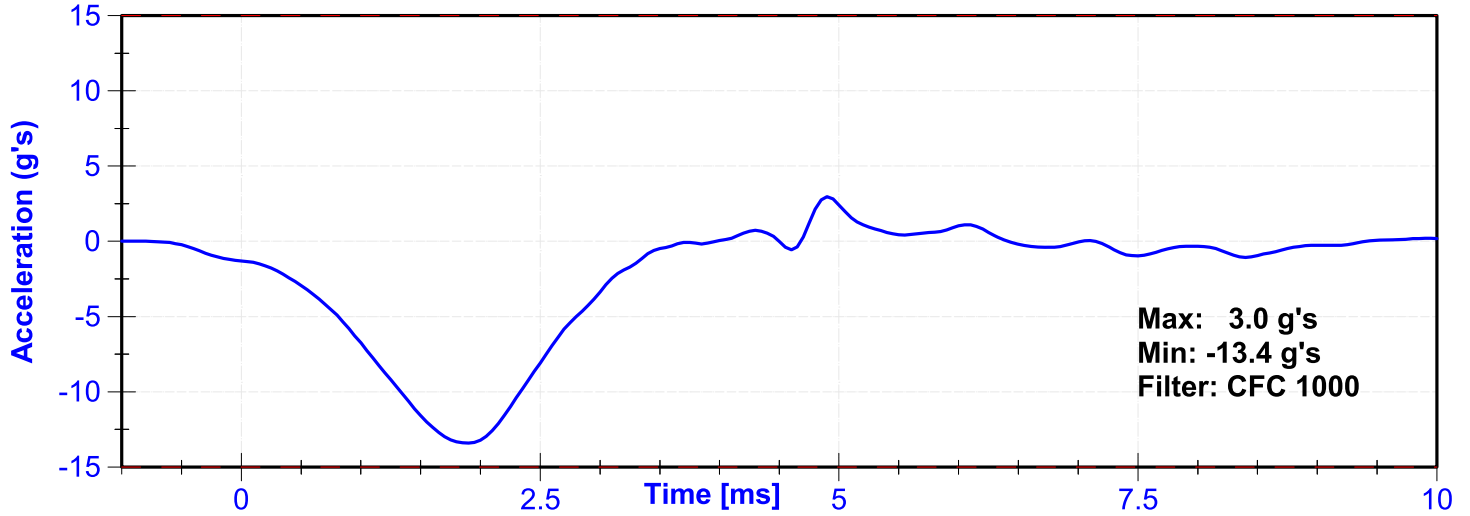
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Resultant Acceleration	125	155	g's	147.5	Pass
Oscillation	0	15	%	5.90	Pass
Fore-Aft Acceleration	-15	15	g's	-13.4	Pass

Transducer Calibrations

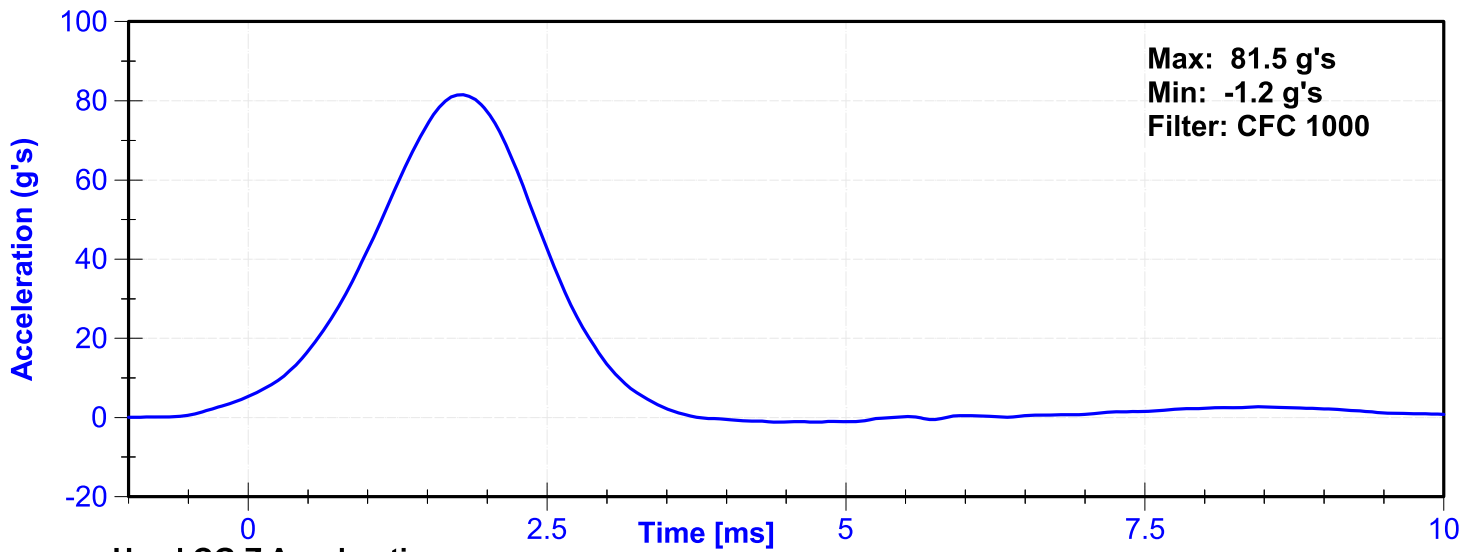
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	18613	1/17/2025	7/16/2025
Y Accelerometer	Endevco	18472	1/17/2025	7/16/2025
Z Accelerometer	Endevco	18663	1/17/2025	7/16/2025



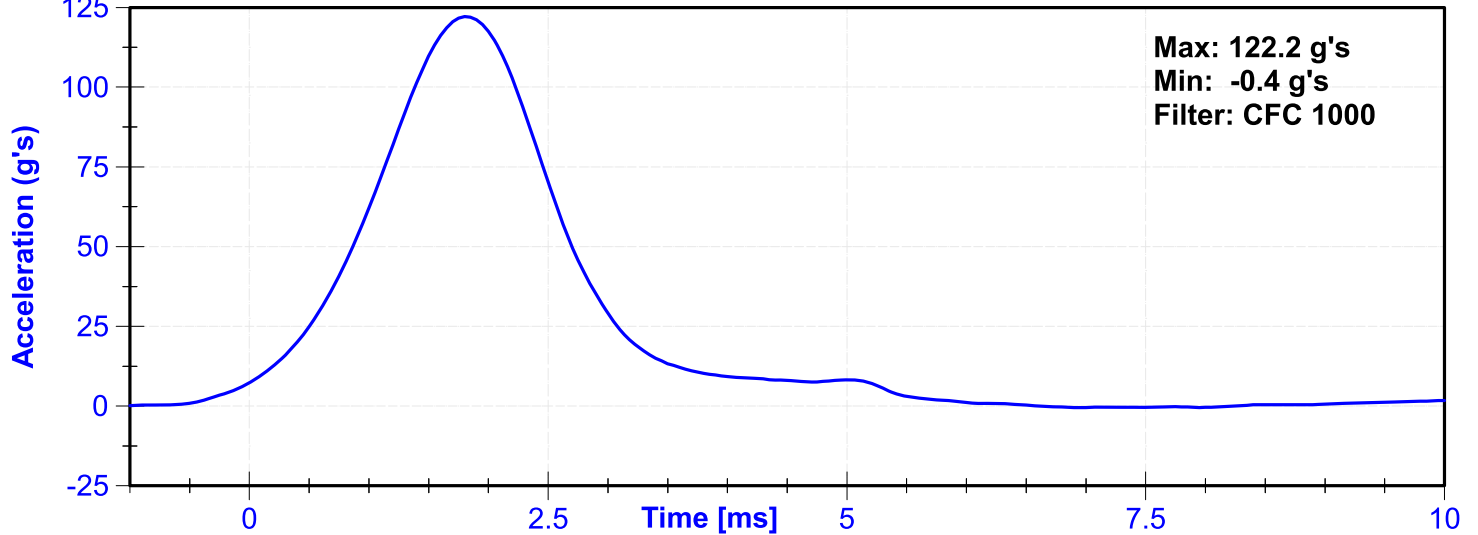
Head CG X Acceleration



Head CG Y Acceleration



Head CG Z Acceleration



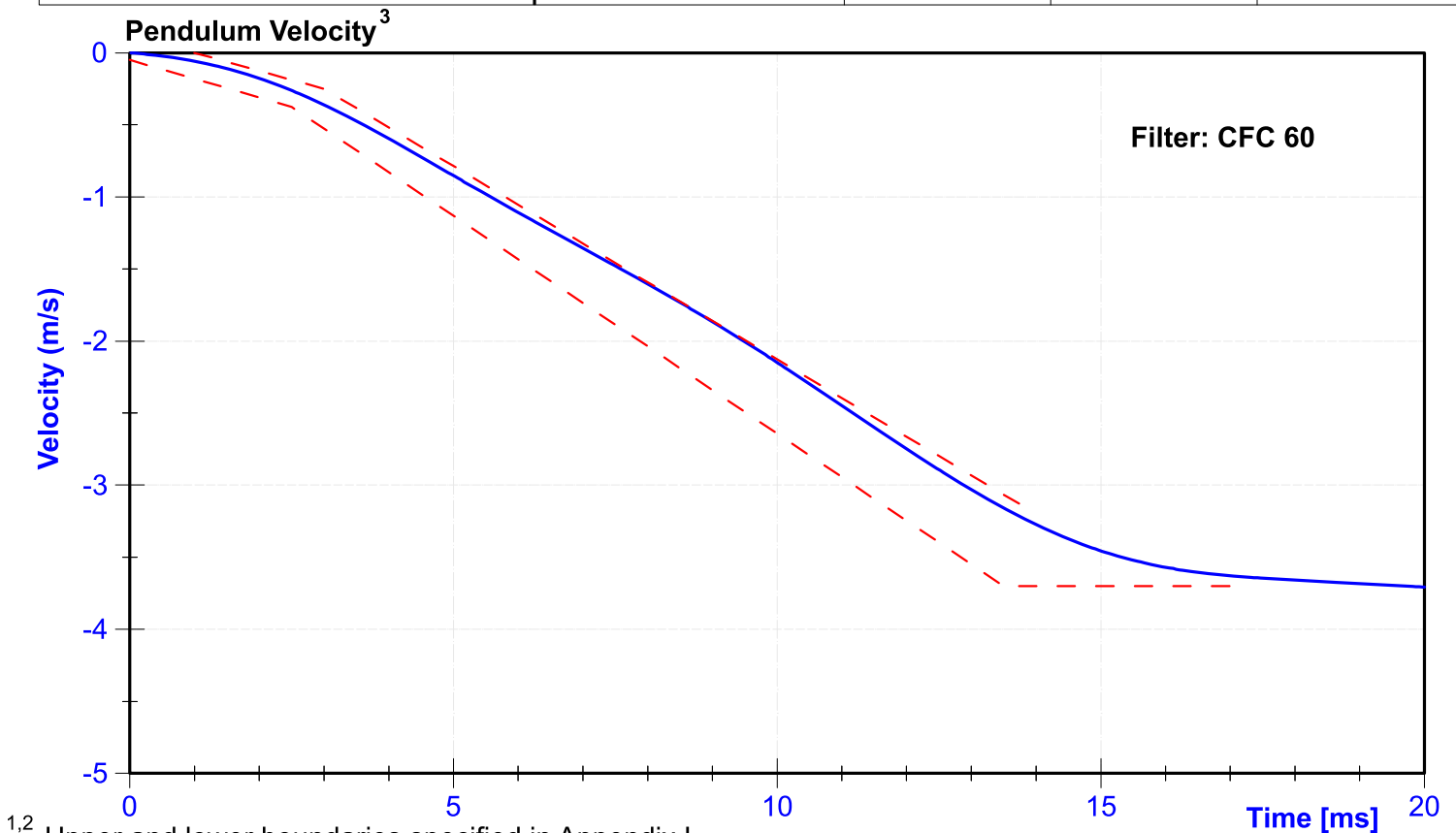
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

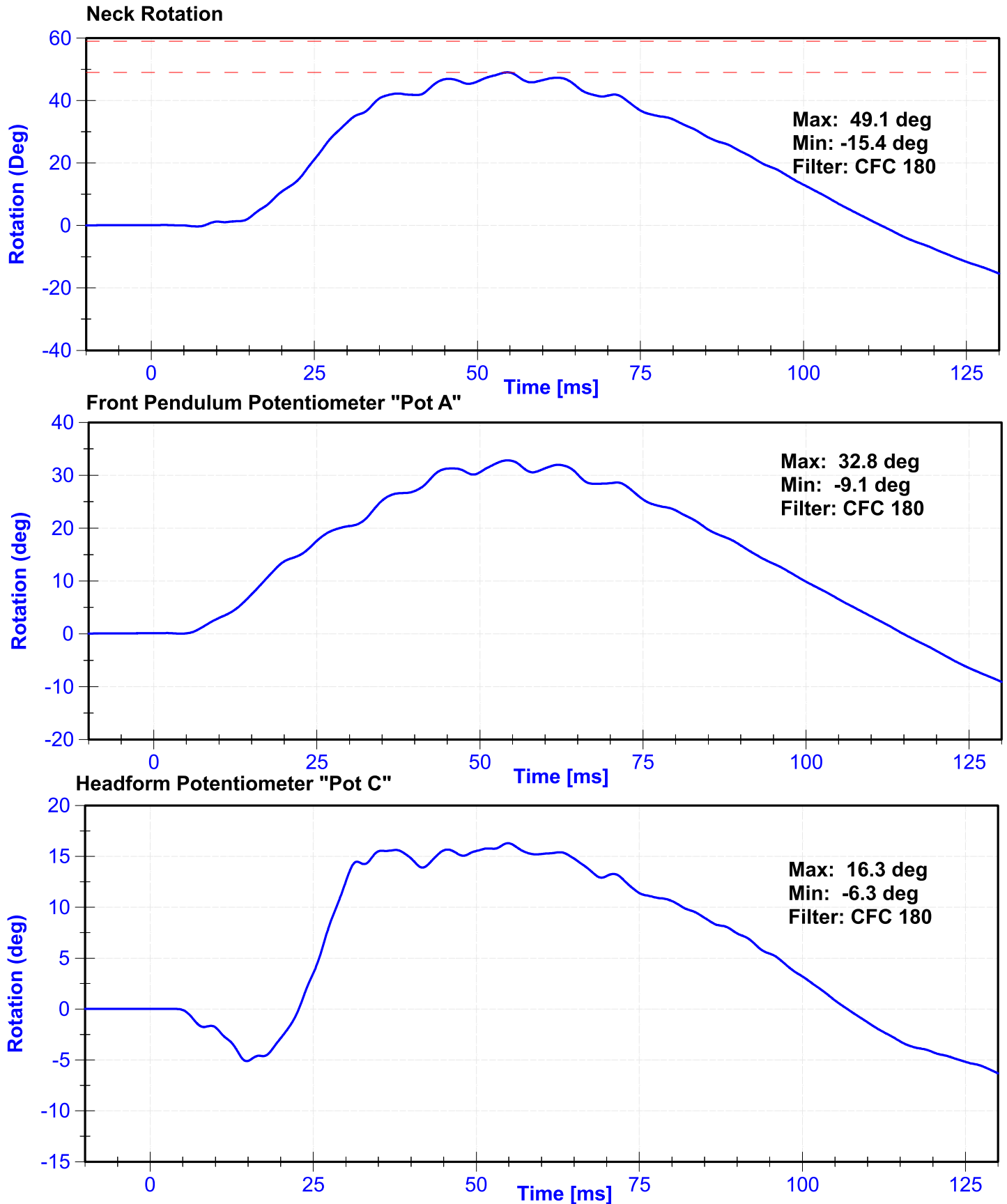
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	3.3	3.5	m/s	3.40	Pass
Lateral Neck Rotation	49	59	deg	49.1	Pass
Time at Maximum Rotation	54	66	ms	54.6	Pass
Time of Rotation Decay from Maximum	53	88	ms	57.3	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	4/15/2025
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

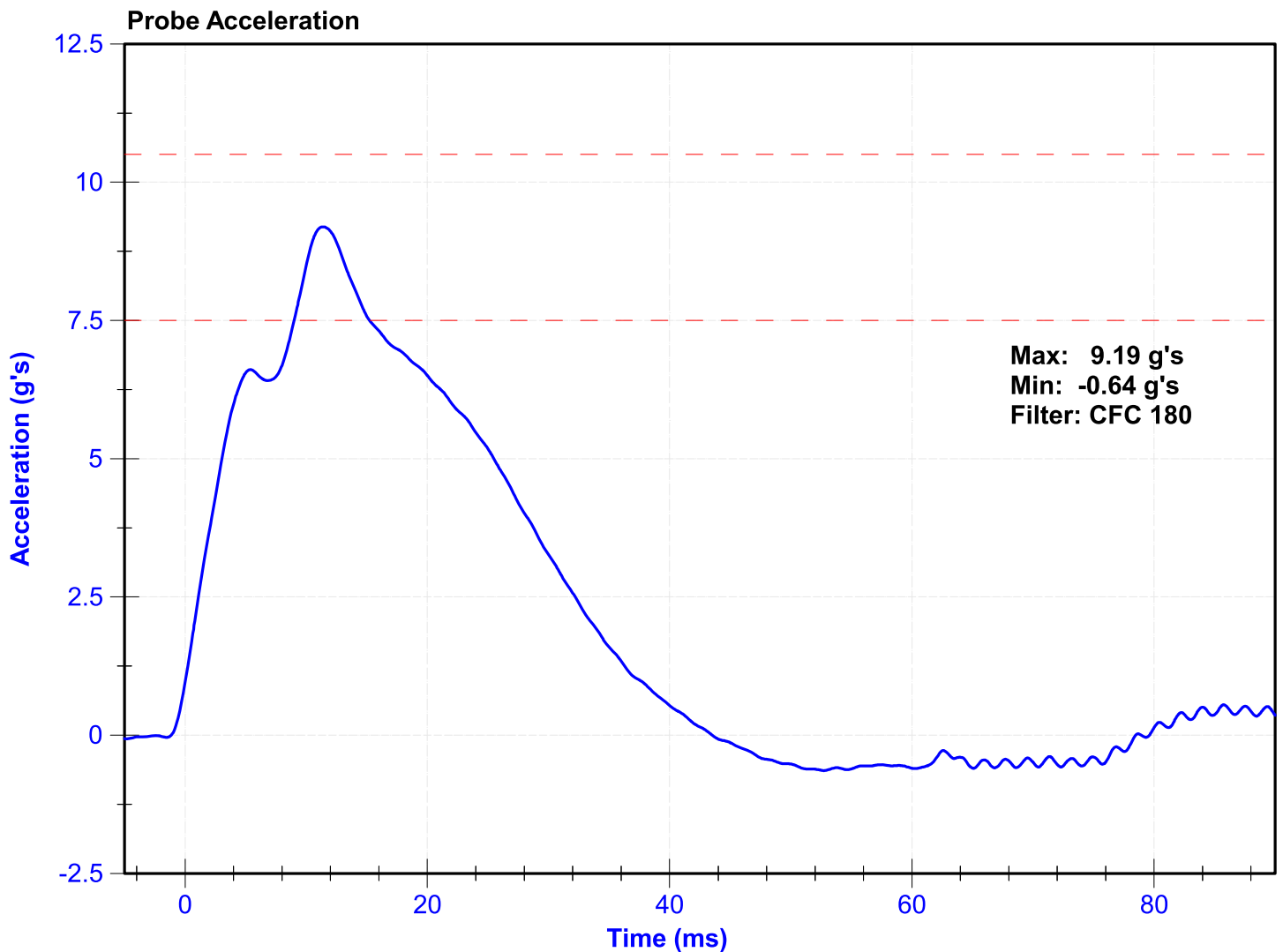
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	7.5	10.5	g's	9.19	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	11/26/2024	5/25/2025



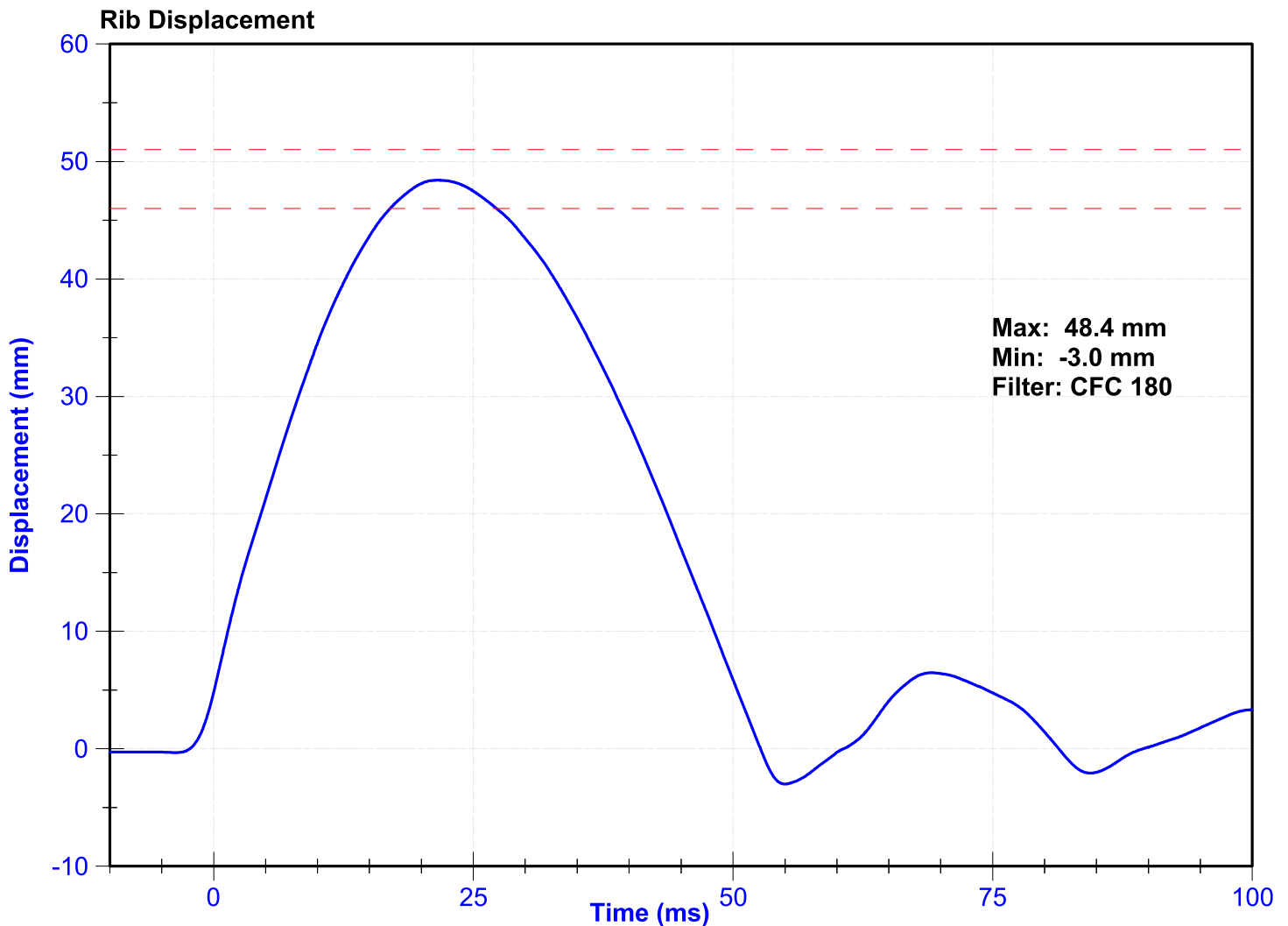
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	46	51	mm	48.4	Pass

Transducer Calibrations

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



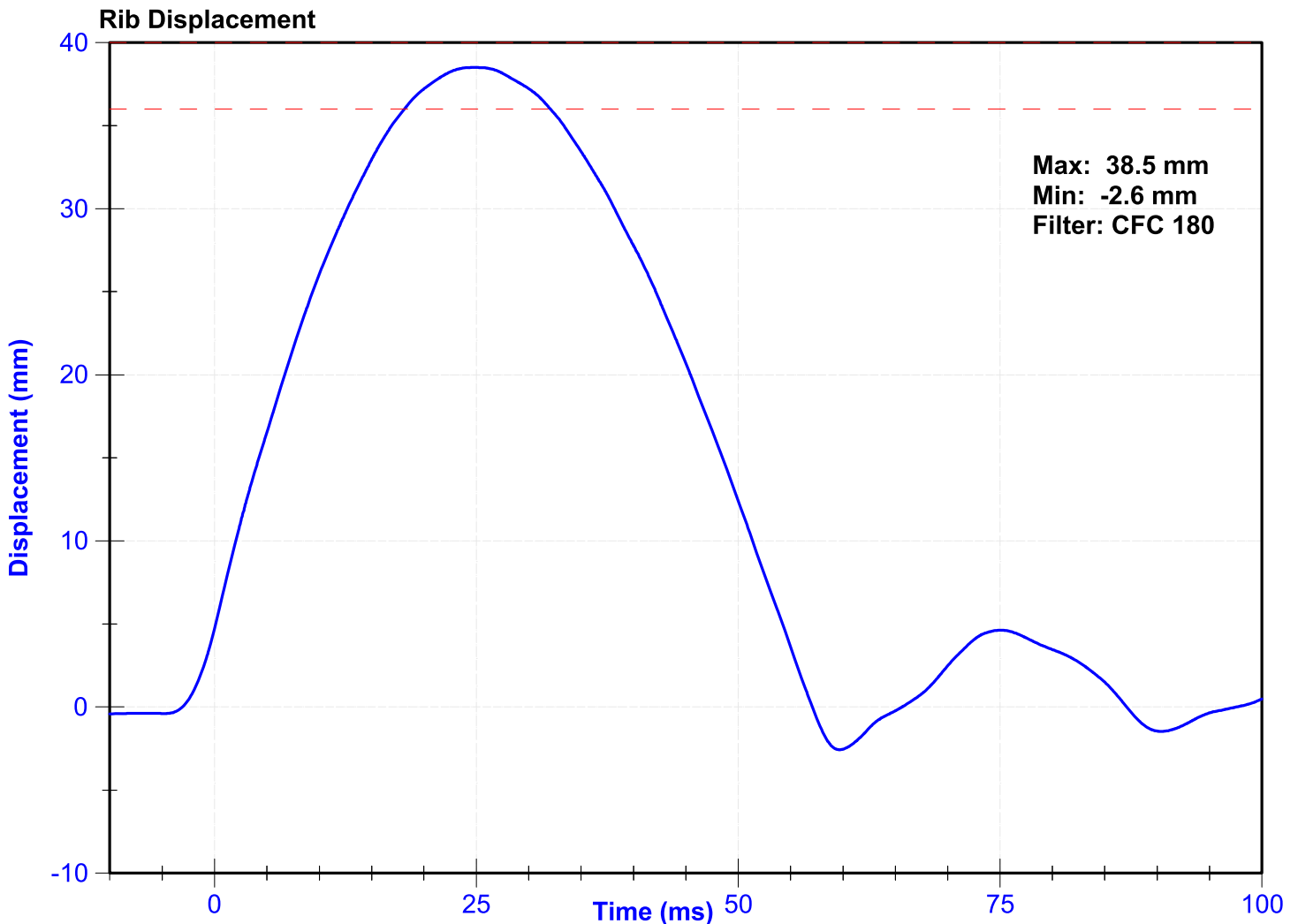
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	36	40	mm	38.5	Pass

Transducer Calibrations

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



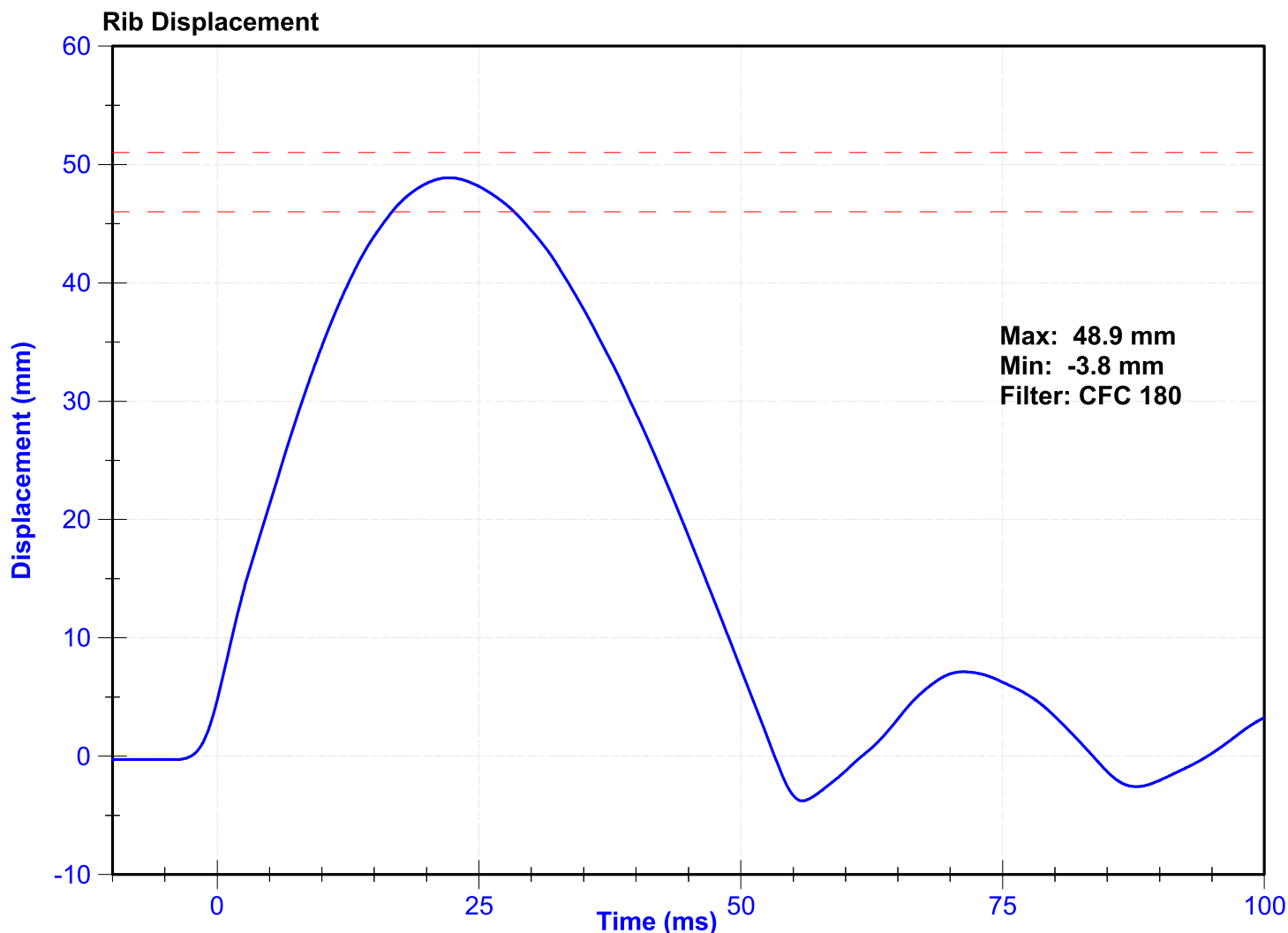
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	46	51	mm	48.9	Pass

Transducer Calibrations

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



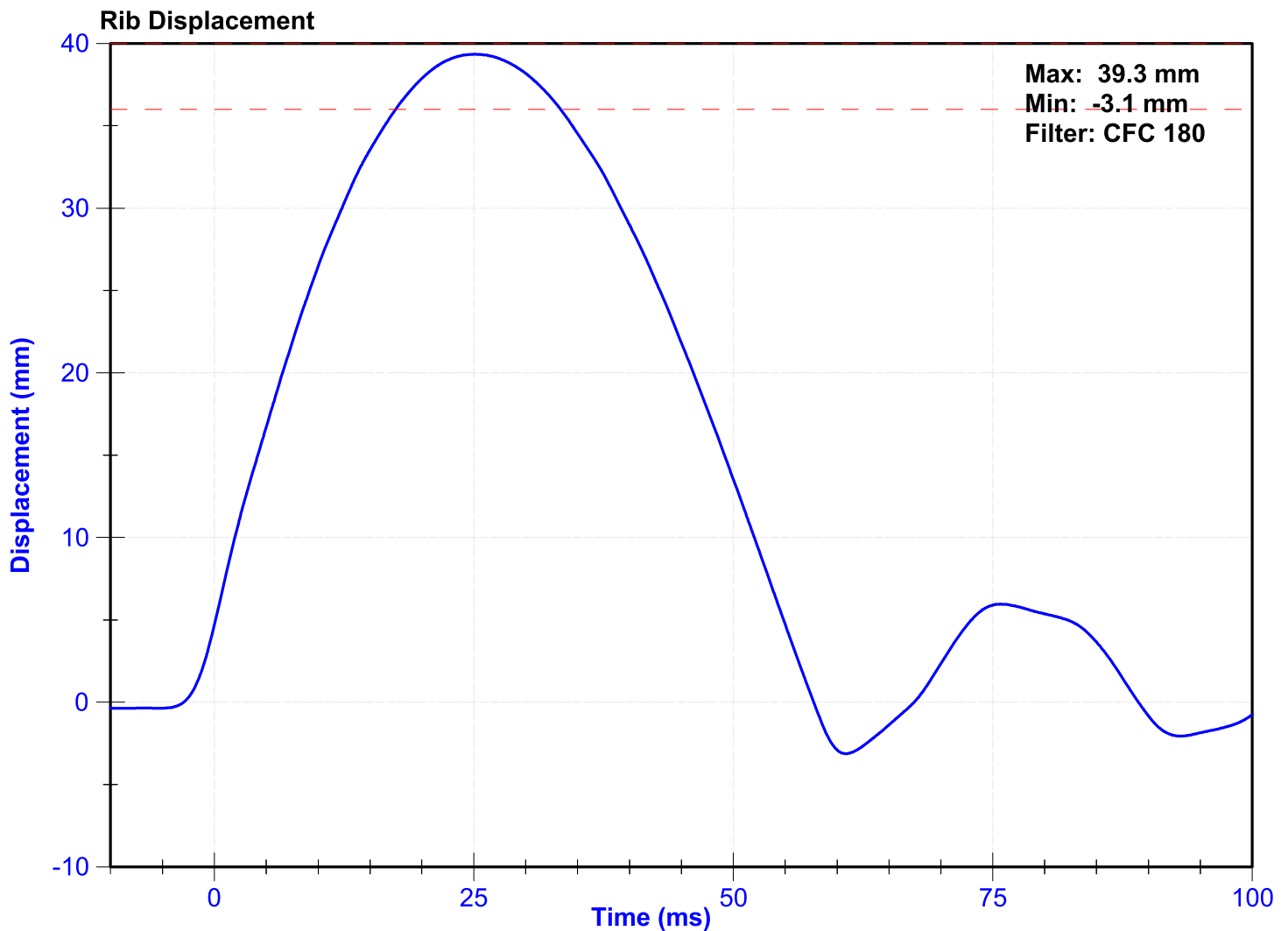
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
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



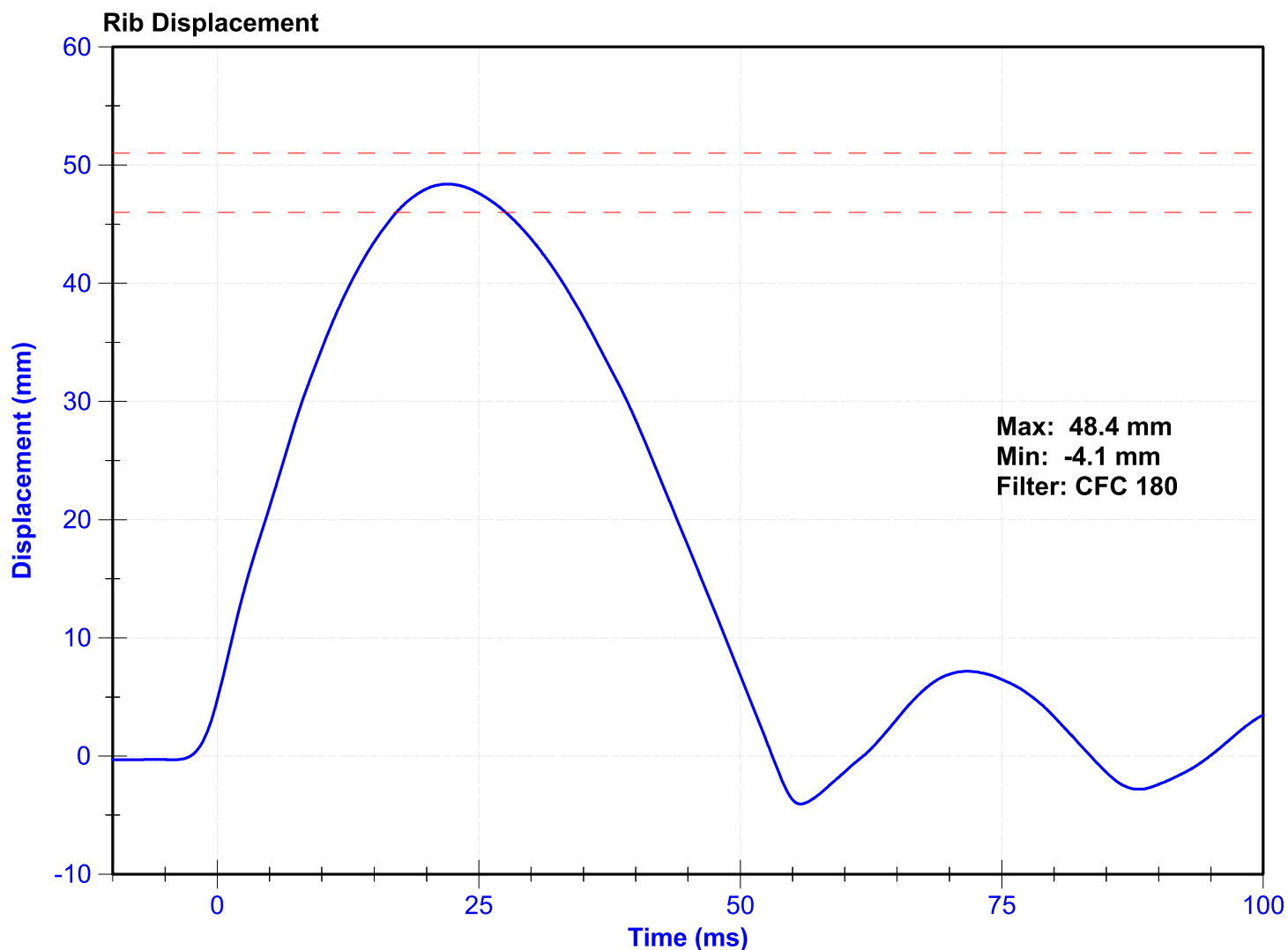
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	46	51	mm	48.4	Pass

Transducer Calibrations

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



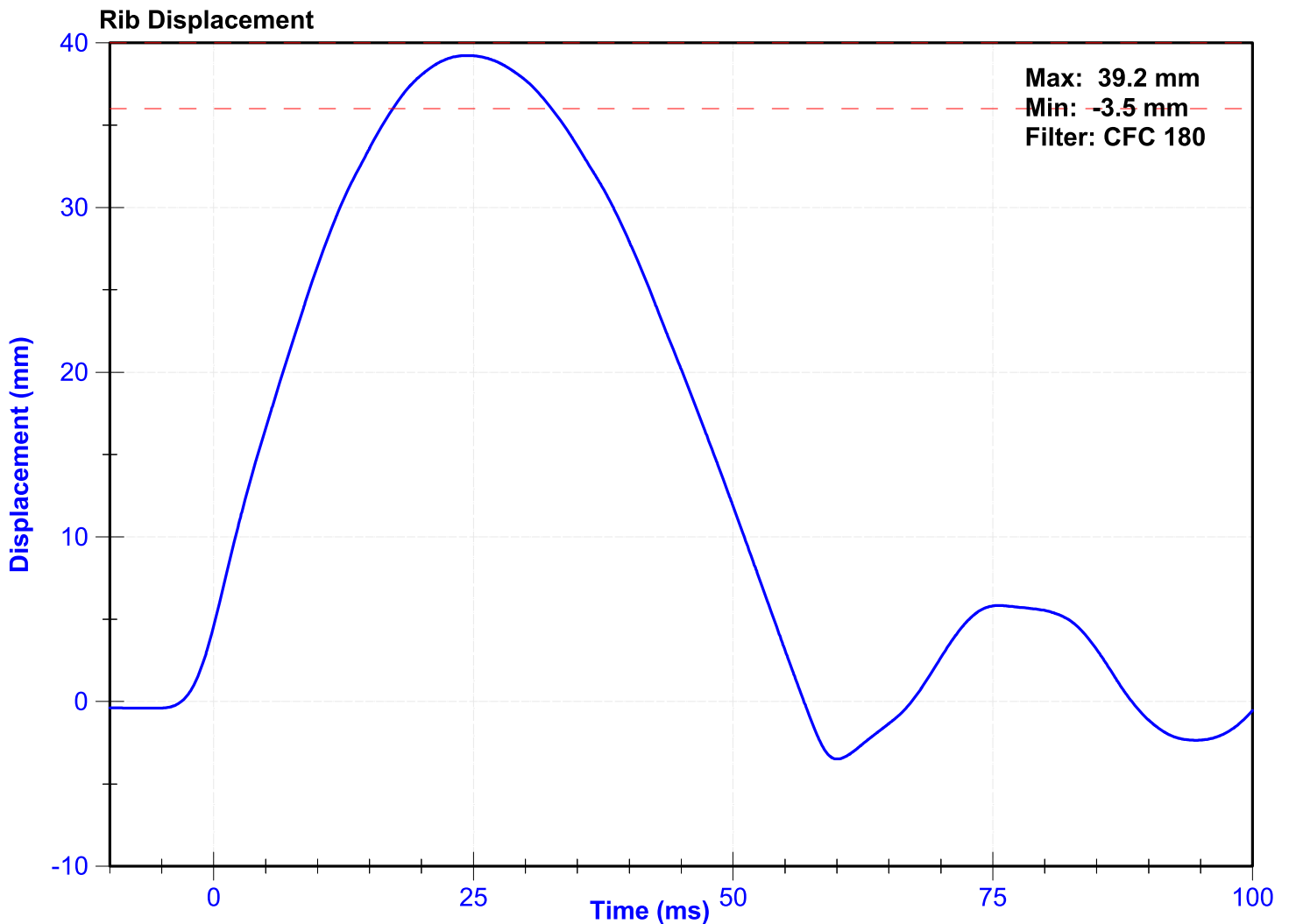
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Rib Displacement	36	40	mm	39.2	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	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

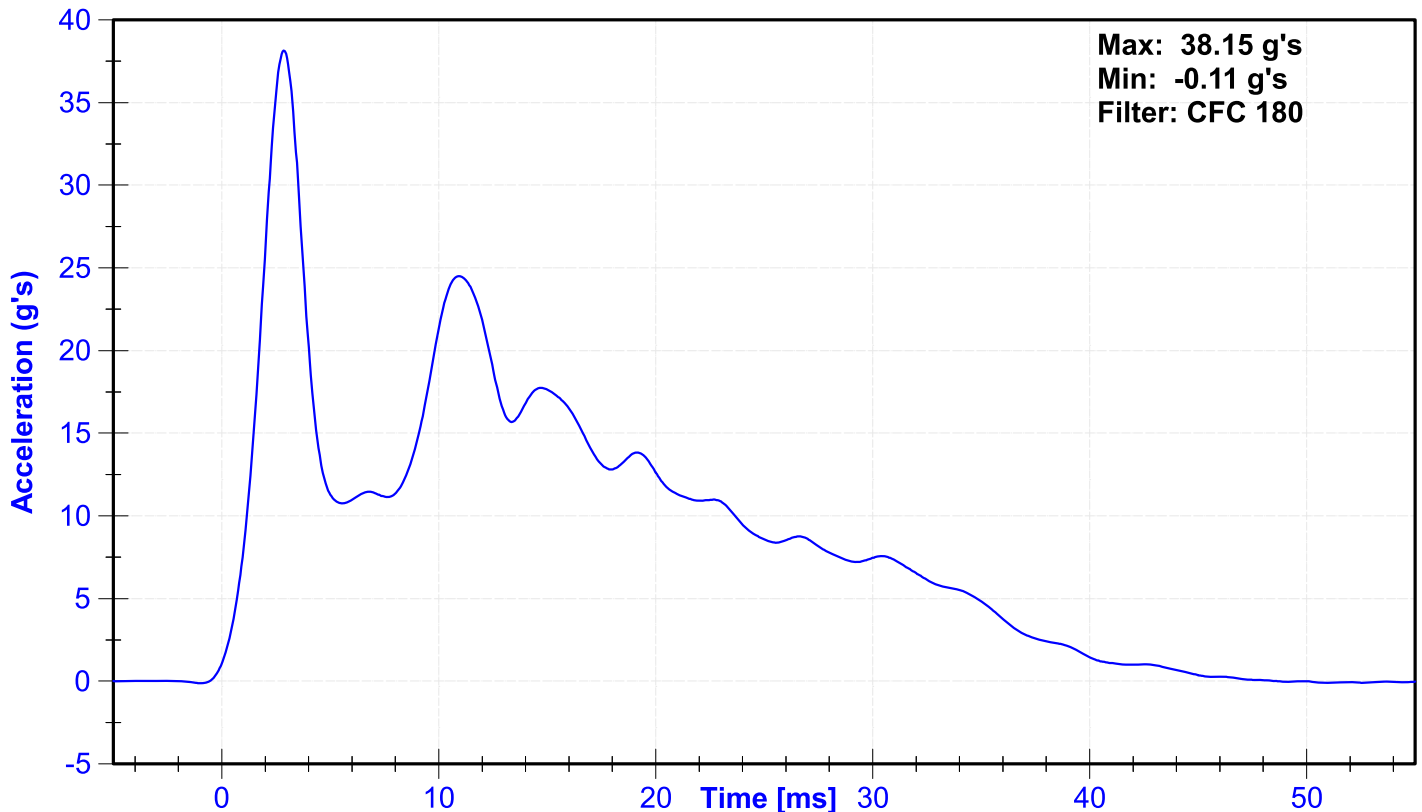
Results

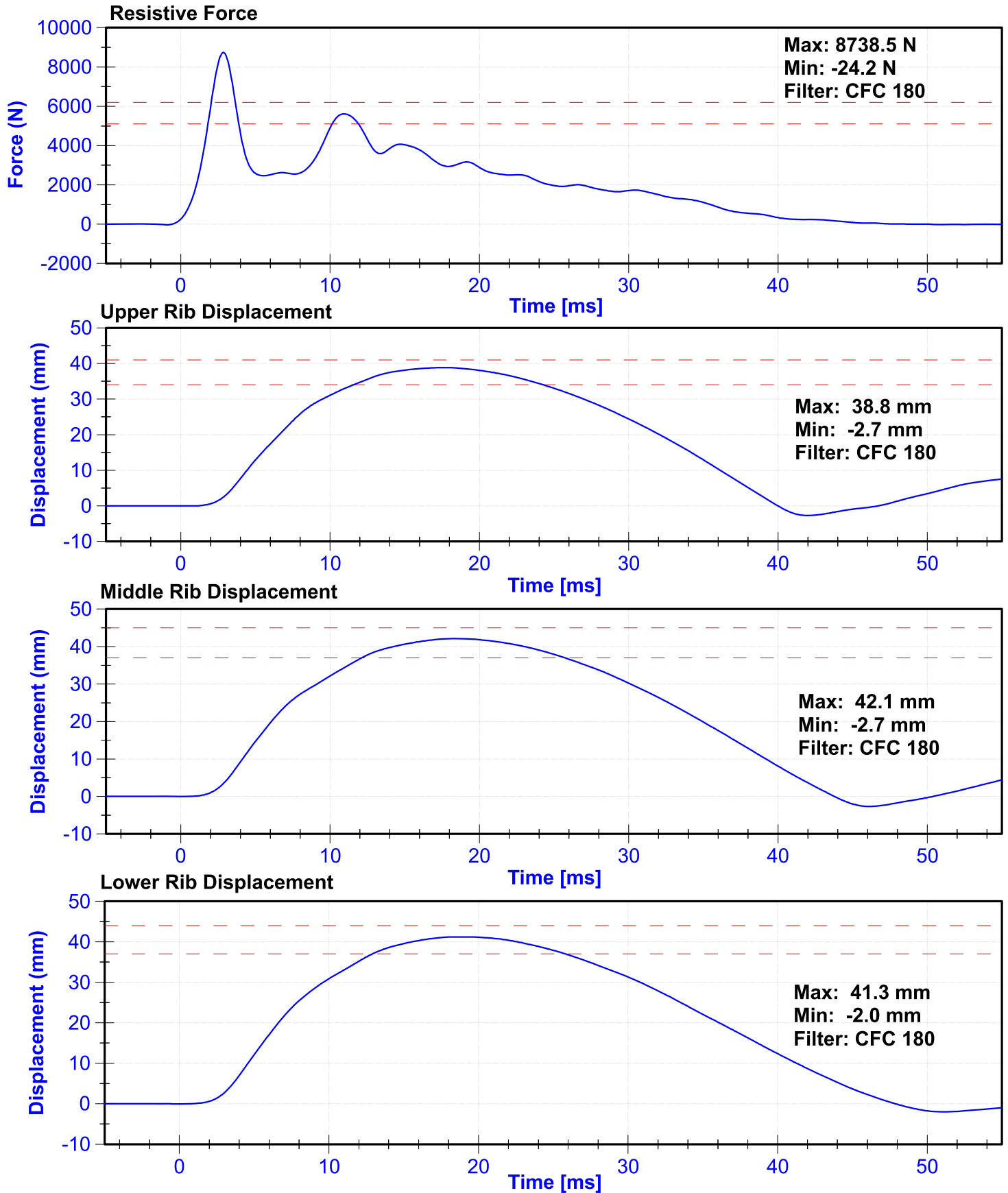
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	5.4	5.6	m/s	5.53	Pass
Resistive Force after 6ms	5100	6200	N	5611.1	Pass
Upper Thorax Rib Deflection	34	41	mm	38.8	Pass
Mid Thorax Rib Deflection	37	45	mm	42.1	Pass
Lower Thorax Rib Deflection	37	44	mm	41.3	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	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

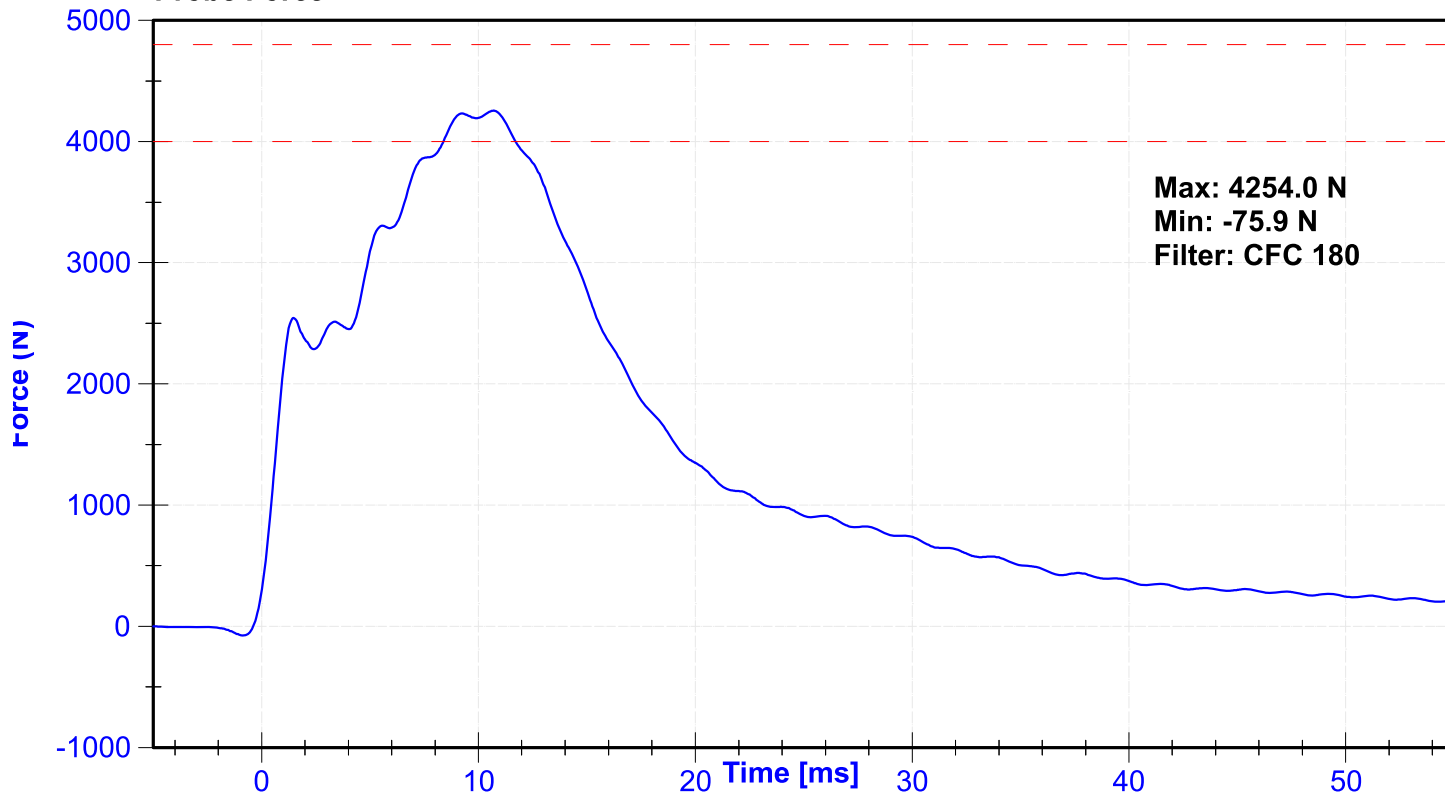
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	3.9	4.1	m/s	4.02	Pass
Combined Abdomen Force	2200	2700	N	2434.5	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	10.50	Pass
Resistive Probe Force	4000	4800	N	4254.0	Pass
Time at Peak Resistive Force	10.6	13.0	ms	10.70	Pass

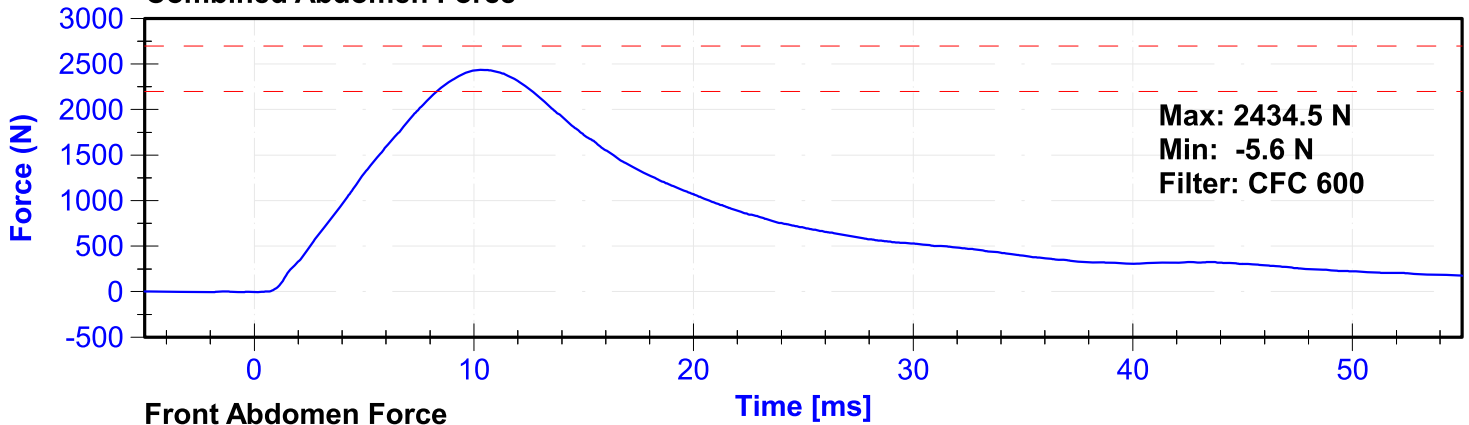
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/26/2024	5/25/2025
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

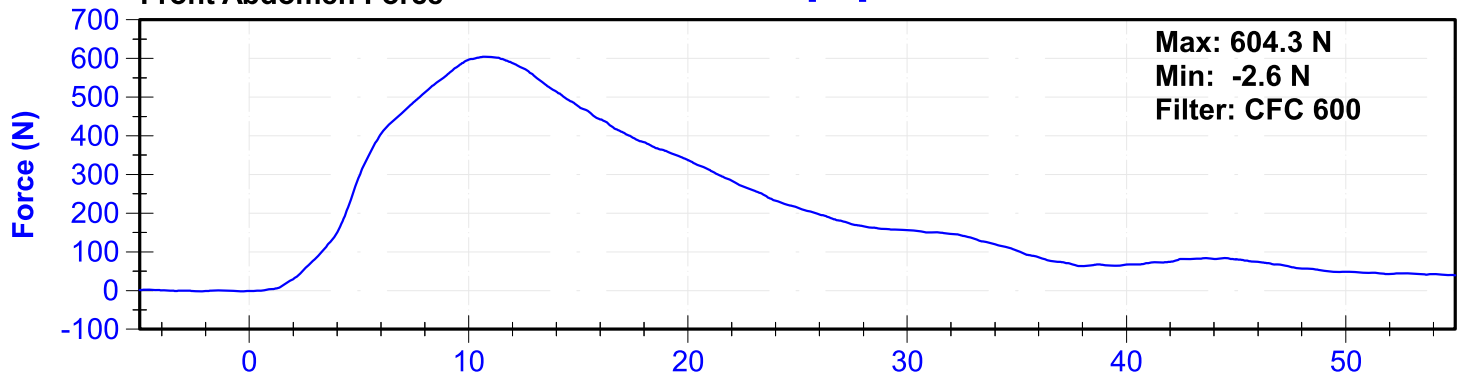
Probe Force



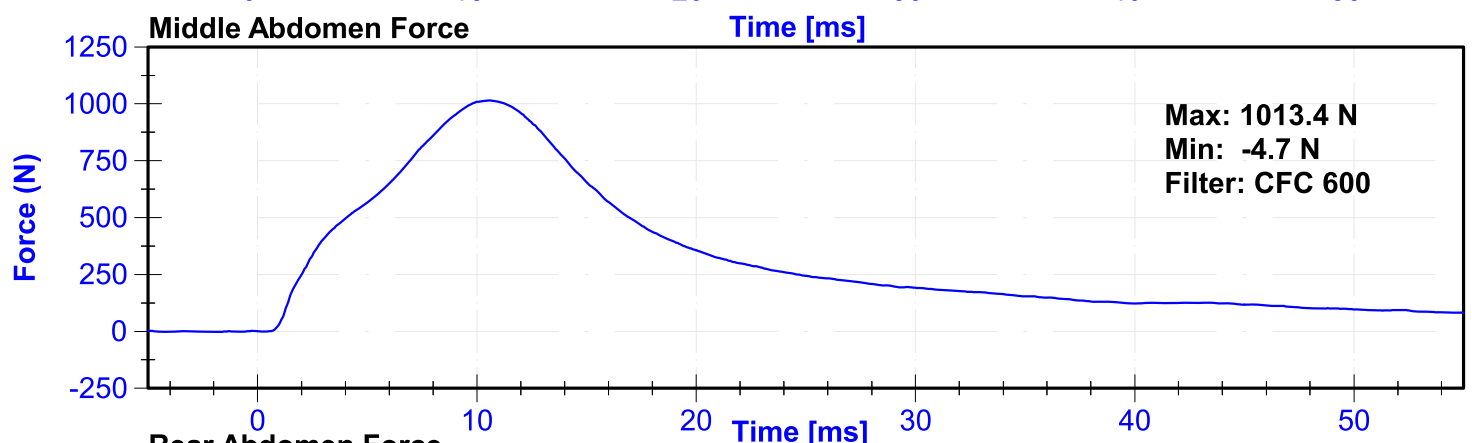
Combined Abdomen Force



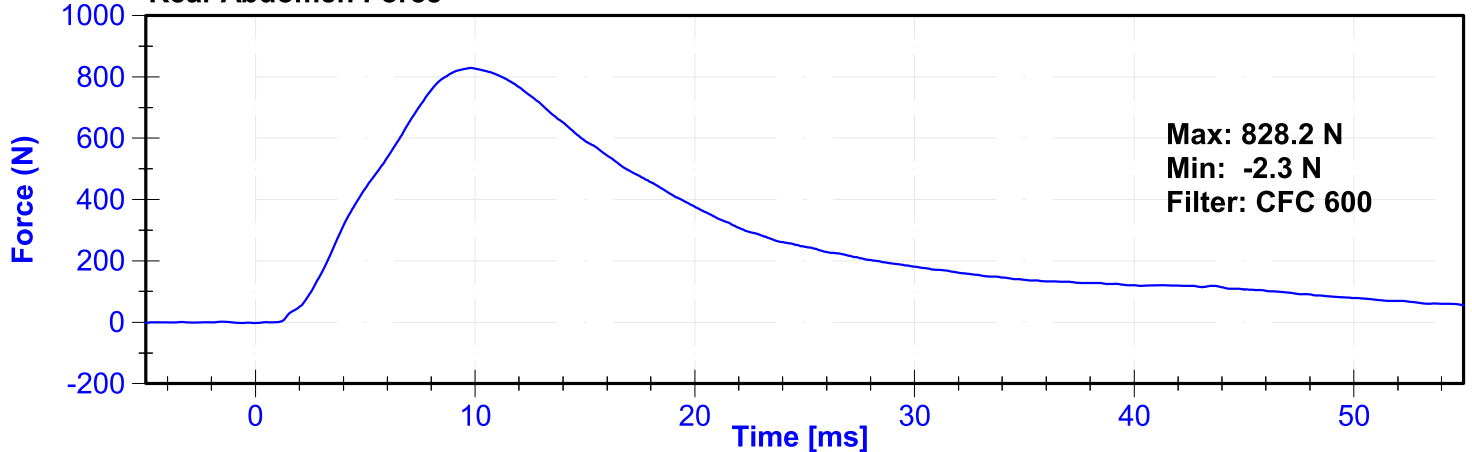
Front Abdomen Force



Middle Abdomen Force



Rear Abdomen Force



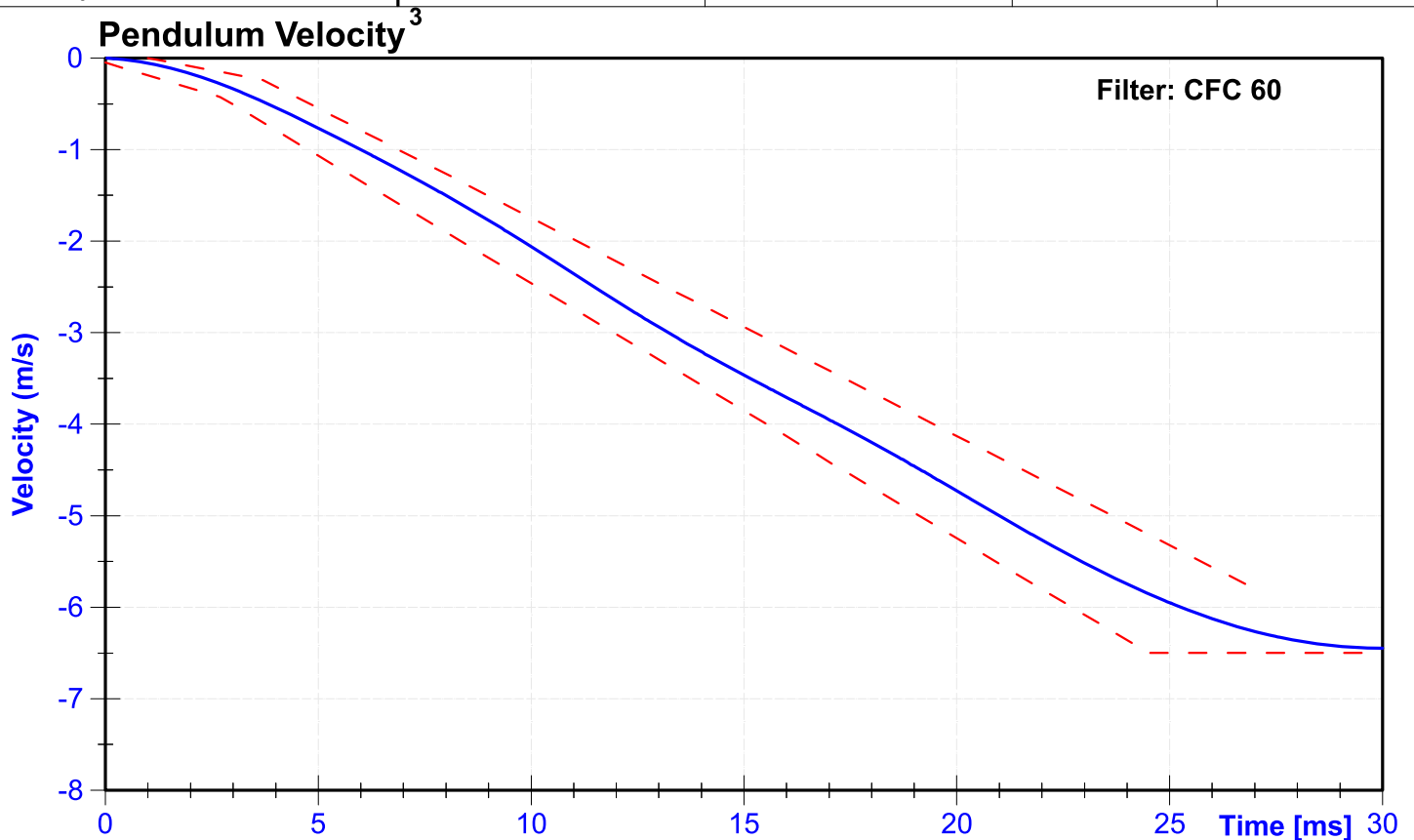
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

Results

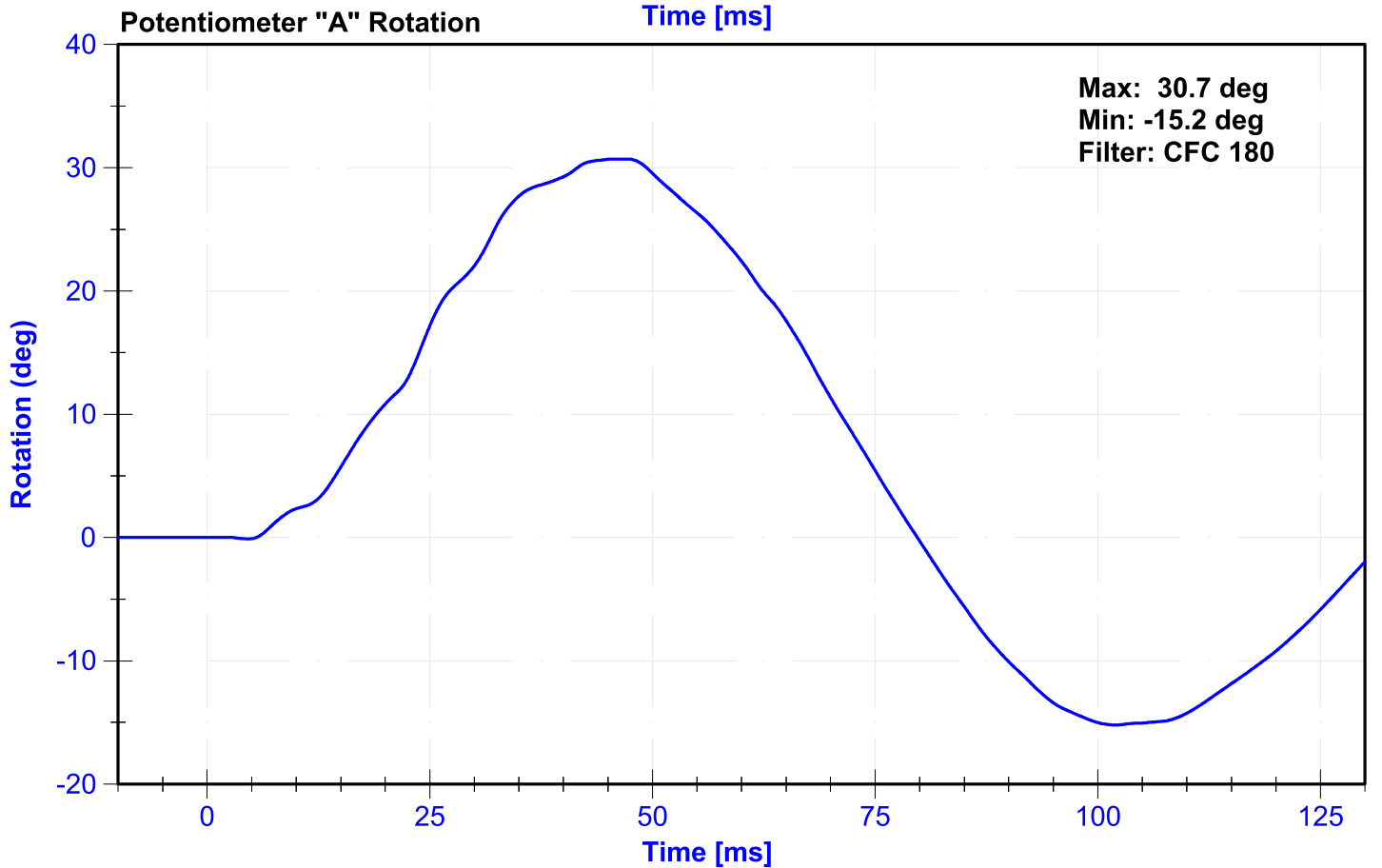
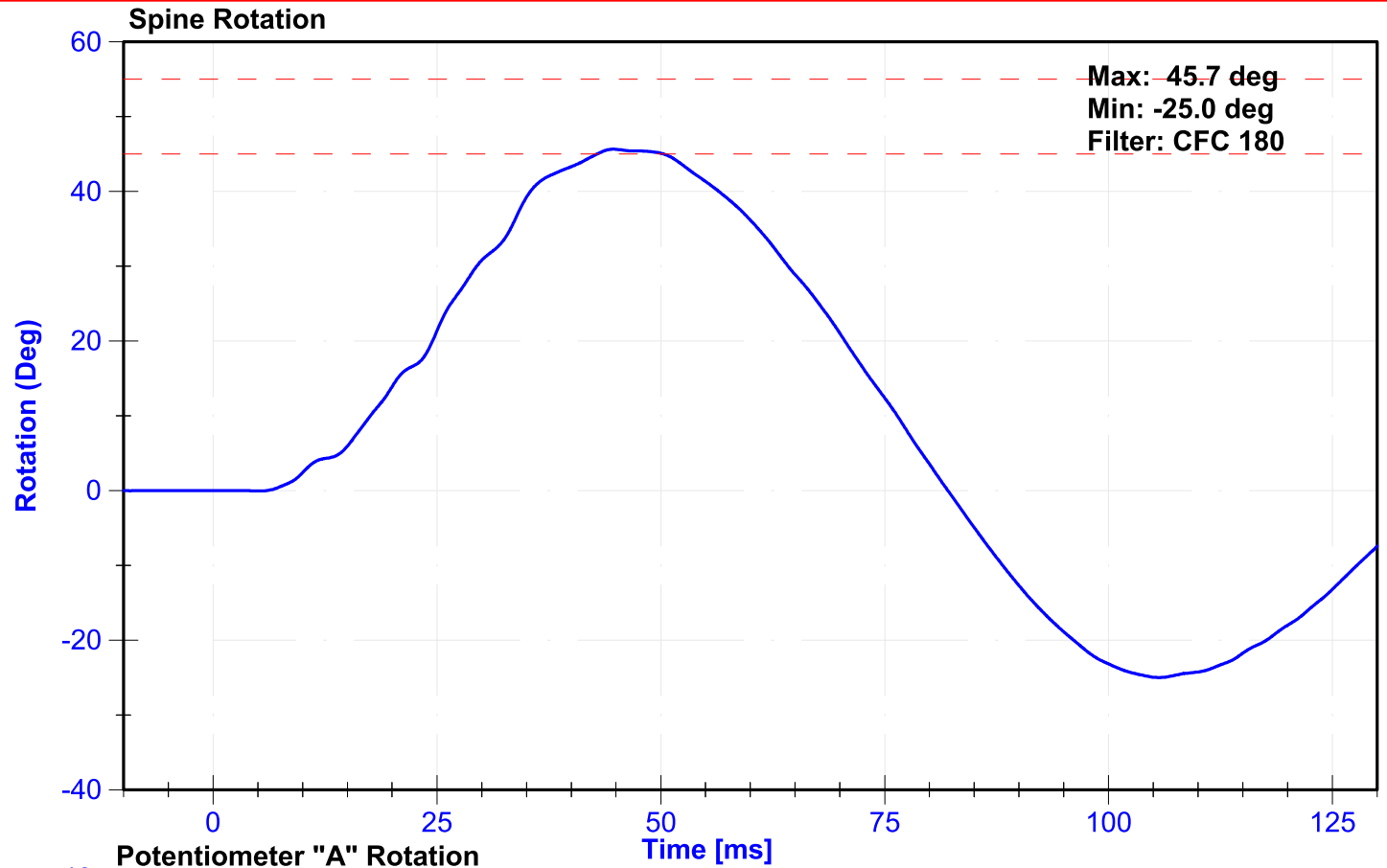
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	5.95	6.15	m/s	6.063	Pass
Lateral Spine Rotation	45	55	deg	45.7	Pass
Time at Maximum Rotation	39	53	ms	44.7	Pass
Time of Decay to Zero Degrees	37	57	ms	37.4	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

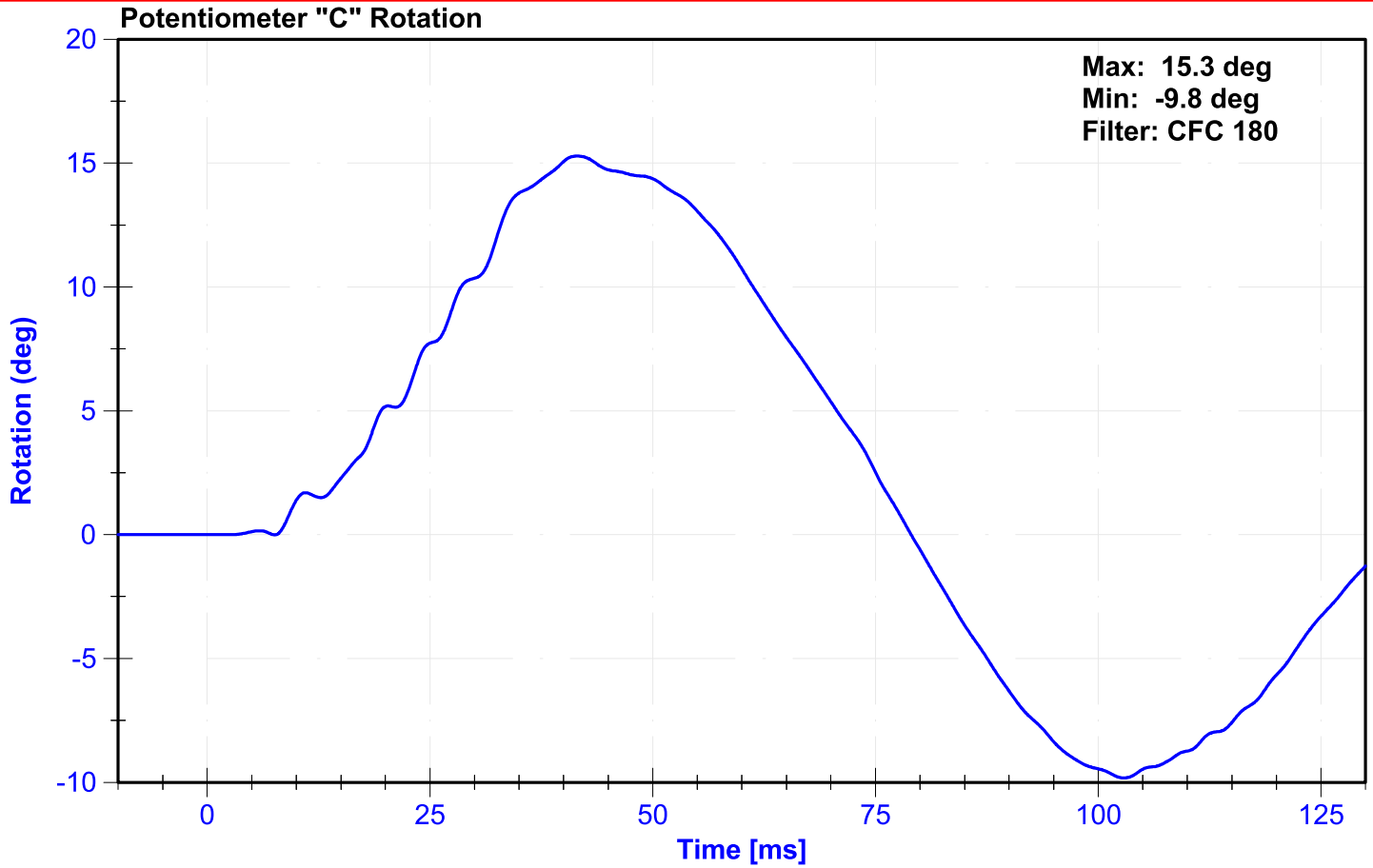
Transducer Calibrations

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

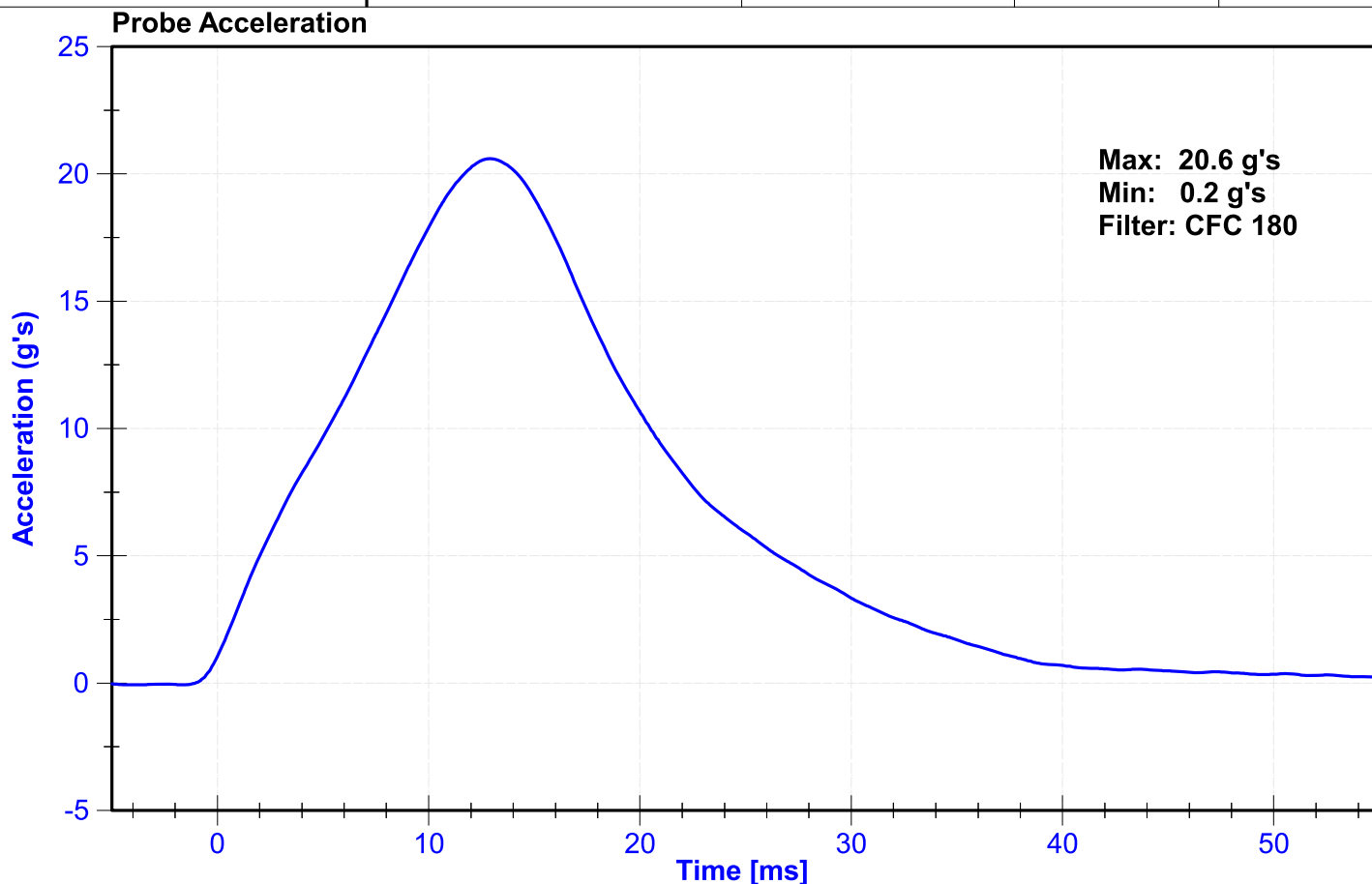
ATD Manufacturer	FTSS	Test Technician	E. Andruczyk
ATD Serial Number	DG5348	Laboratory Supervisor	J. Kinderman

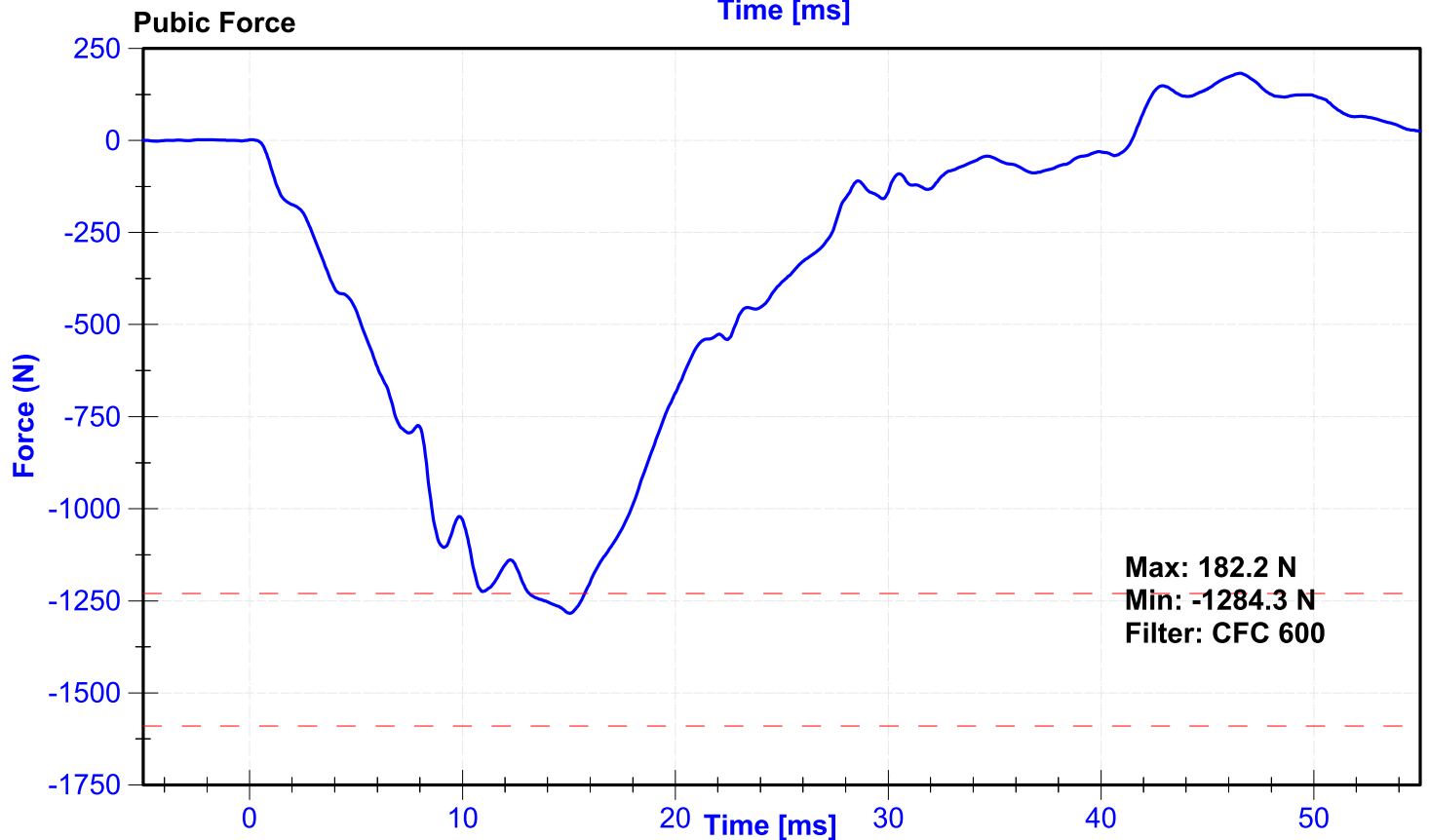
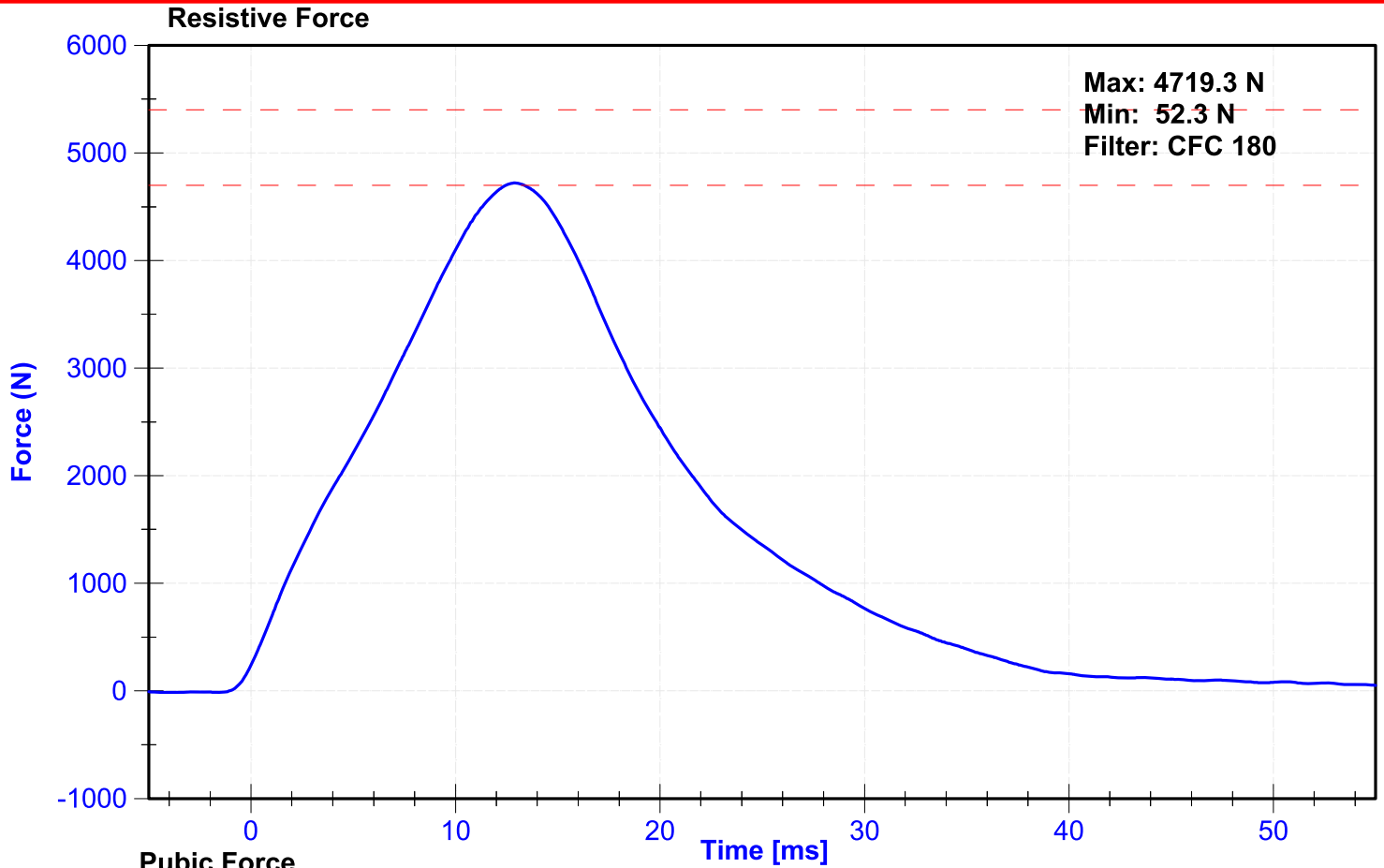
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	20	Pass
Velocity	4.2	4.4	m/s	4.29	Pass
Resistive Force	4700	5400	N	4719.3	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.90	Pass
Pubic Force	-1590	-1230	N	-1284.3	Pass
Time at Peak Pubic Force	12.2	17.0	ms	15.05	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	11/26/2024	5/25/2025
Pubic Load Cell	Denton	459-FY	7/12/2024	7/12/2025





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	G22419	Endevco	12/14/2024
Vehicle Center of Gravity	Y	G23665	Endevco	12/14/2024
Vehicle Center of Gravity	Z	A431371	Measurement Specialties	12/14/2024
Left Floor Sill	Y	G22731	Endevco	09/11/2024
A-Pillar Sill	Y	A413570	Measurement Specialties	01/07/2025
A-Pillar Low	Y	A428017	Measurement Specialties	08/21/2024
A-Pillar Mid	Y	A431219	Measurement Specialties	11/04/2024
B-Pillar Sill	Y	A290902	Measurement Specialties	01/07/2025
B-Pillar Low	Y	A427998	Measurement Specialties	09/27/2024
B-Pillar Mid	Y	A405595	Measurement Specialties	11/11/2024
Driver Seat	Y	G23465	Endevco	11/21/2024
Engine Top	X	A280354	Measurement Specialties	09/17/2024
Engine Top	Y	A280858	Measurement Specialties	09/17/2024
Firewall	Y	A374344	Measurement Specialties	09/26/2024
Right Roof	Y	G25275	Endevco	11/04/2024
Right Floor Sill	Y	A400761	Measurement Specialties	12/18/2024
Rear Floorpan	X	A400745	Measurement Specialties	10/02/2024
Rear Floorpan	Y	A413582	Measurement Specialties	10/02/2024