

REPORT NUMBER: 214P-CAL-25-009

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

**Volkswagen
2025 Audi A5 Sportback
5 Door Hatchback**

NHTSA No: C20255802

**PREPARED BY:
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August 1, 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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16. Abstract A 31.00 km/h (19.3 mph), 75° oblique compliance test was conducted on the subject 2025 Audi A5 Sportback 5 Door Hatchback 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 July 21, 2025. The impact velocity of the vehicle was 31.09 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 337 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>318.757</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>44</td> <td>23.986</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>1141.627</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>2991.470</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	318.757	Maximum Thoracic Rib Deflection	mm	44	23.986	Total Abdominal Force	N	2500	1141.627	Pubic Symphysis Force	N	6000	2991.470
Measurement Description	Driver ATD (ES-2re)																											
	Units	IARV	Result																									
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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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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 Audi A5 Sportback 5 Door Hatchback. 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 Audi A5 Sportback 5 Door Hatchback. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 31.09 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on July 21, 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	318.757
Upper Rib Deflection	mm	44	23.986
Mid Rib Deflection	mm	44	16.286
Lower Rib Deflection	mm	44	16.196
Abdominal Load (front)	N		471.946
Abdominal Load (mid)	N		369.502
Abdominal Load (rear)	N		301.898
Total Abdominal Force	N	2500	1141.627
Pubic Symphysis Force	N	6000	2991.470

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 Audi A5 Sportback 5 Door Hatchback

NHTSA No.: C20255802

Test Facility: Calspan

Test Date: 07/21/2025

TEST VEHICLE INFORMATION AND OPTIONS

Make	Audi	Anti-Lock Brakes (ABS)	Yes
Model	A5 Sportback	All-Wheel Drive (AWD)	Yes
Body Style	Hatchback	Traction Control System (TCS)	Yes
VIN	WAUDACF57SA011316	Electric Stability Control (ECS)	Yes
Body Color	Arkona White	Curtain Airbags	Yes
Engine Displacement (L)	2.0L	Torso Airbags – Front Seats	Yes
Type / No. Cylinders	I4	Torso Airbags – Rear Seats	No
Engine Placement	Inline	Combination/Head Torso Bag	No
Transmission Type	Automatic	Pelvic Airbag – Front Seats	No
Transmission Speeds	7-Speed	Pelvis Airbag – Rear Seats	No
Overdrive	Yes	Knee Airbag – Driver	No
Final Drive	All-Wheel Drive	Knee Airbag – Front Passenger	No
Odometer Reading (mi)	18 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	N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	Audi AG	GVWR (kg)	2260
Date of Manufacture	10/24	GAWR Front (kg)	1150
Vehicle Type	Passenger Car	GAWR Rear (kg)	1200

VEHICLE SEATING AND WEIGHT CAPACITY DATA

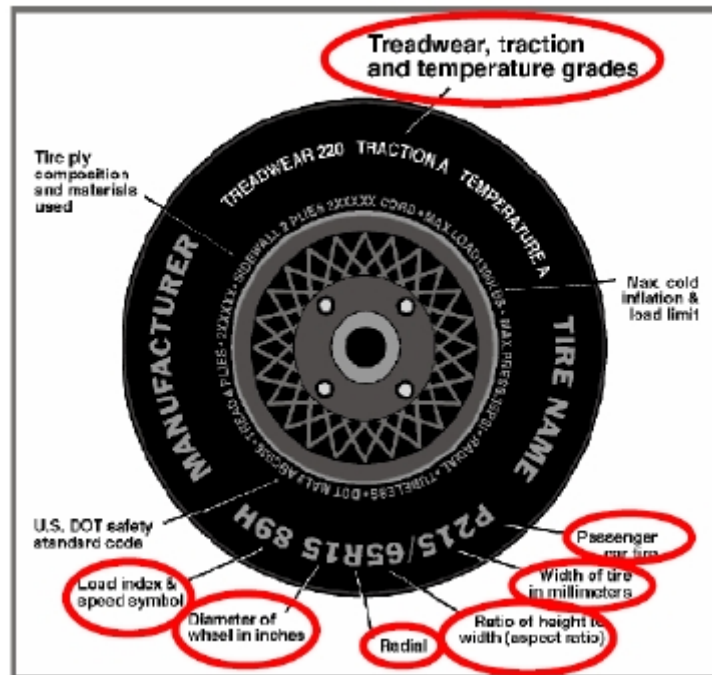
Measured Parameter	Front	Rear	Third	Total
Type of Seats (Bench or Bucket)	Bucket	Split Bench	N/A	
Designated Seating Capacity (DSC)	2	3	N/A	5
Capacity Weight (VCW) (kg)				480
Cargo Weight (RCLW) (kg)				136

DATA SHEET NO. 2 VEHICLE TIRE INFORMATION

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
Test Facility: Calspan

NHTSA No.: C20255802
Test Date: 07/21/2025

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)	260	280
Recommended Tire Size	255/35R19	255/35R19
Tire Sidewall	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Tire Size on Vehicle	255/35R19	255/35R19
Tire Manufacturer Model	Continental	Continental
Tire Name	ProContact GX	ProContact GX
Tire Type	Rubber	Rubber
Tire Width	255	255
Aspect Ratio	35	35
Radial	Yes	Yes
Wheel Diameter	19"	19"
Load Index / Speed Symbol	96H	96H
Treadwear	500	500
Traction Grade	A	A
Temperature Grades	A	A

DATA SHEET NO. 3
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
Test Facility: Calspan

NHTSA No.: C20255802
Test Date: 07/21/2025

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	257	257	277	276
Tire Placard	kPa	260	260	280	280

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			Fully Loaded			As Tested		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	467	385		489	488		483	492	
Right	kg	470	390		476	482		474	472	
Ratio	%	54.7	45.3		49.9	50.1		49.8	50.2	
Totals	kg	937	775	1712	965	970	1935	957	964	1921

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1712	(A)
Weight of Test Dummy	kg	81	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	136	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1929	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	As Delivered	Fully Loaded	As Tested
Driver Door Sill Angle	Deg	+0.35	+0.70	+0.70
Front Passenger Sill Angle	Deg	+0.25	+0.80	+0.50
Front Bumper-Line Angle	Deg	-0.20	-0.20	-0.20
Rear Bumper-Line Angle	Deg	+0.20	-0.10	-0.05

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	2822
Vertical Impact Reference Line Aft of Front Axle	mm	1404

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	15
Spare Tire	17
Jack	7
Rear Speaker	2
Right Passenger Rear Window	3
Ballast (if any)	123

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

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
Test Facility: Calspan

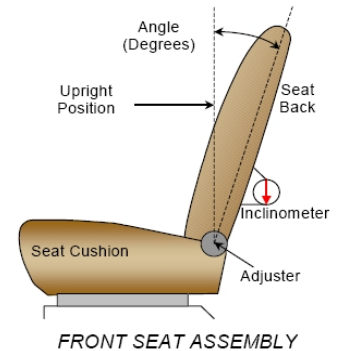
NHTSA No.: C20255802
Test Date: 07/21/2025

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	71.7
Front Passenger Seat	Degrees	71.7

**Measurement taken on seatback per Form1.*



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	19.4	Max	73	84.5	95.5
		Mid	38	49.5	61
		Min	1.5	13	24
Front Passenger Seat	20.3	Max	73.5	85	95.5
		Mid	38	49	60.5
		Min	2	12	23.5

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Placed in Position #	
	mm	Detents*	mm	Detents*
Driver Seat	244	Power	122	Power
Front Passenger Seat	246	Power	123	Power

SEAT BELT ANCHORAGE ADJUSTMENT

Seat	Total # of Positions	Placed in Position #
Driver Seat	4 (0-3)	1

HEAD RESTRAINT ADJUSTMENT

Seat	Total # of Positions	Placed in Position #
Driver Seat	5 (0-4)	Uppermost

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

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
 Test Facility: Calspan

NHTSA No.: C20255802
 Test Date: 07/21/2025

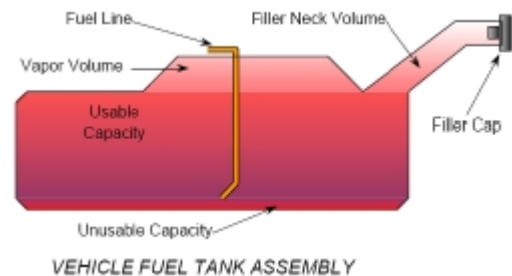
FUEL TANK CAPACITY DATA

Description	Liters
Usable Capacity of (Form No.1)	57
Usable Capacity of (Owner's Manual)	56
92 - 94% of Usable Capacity	52.4 - 53.6
Actual Amount of Solvent Used in Test	52.5

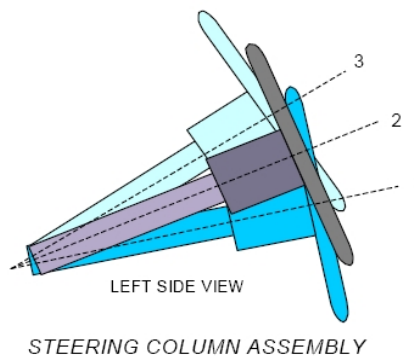
FUEL PUMP

Describe the operation of the fuel pump.

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



STEERING COLUMN POSITIONS

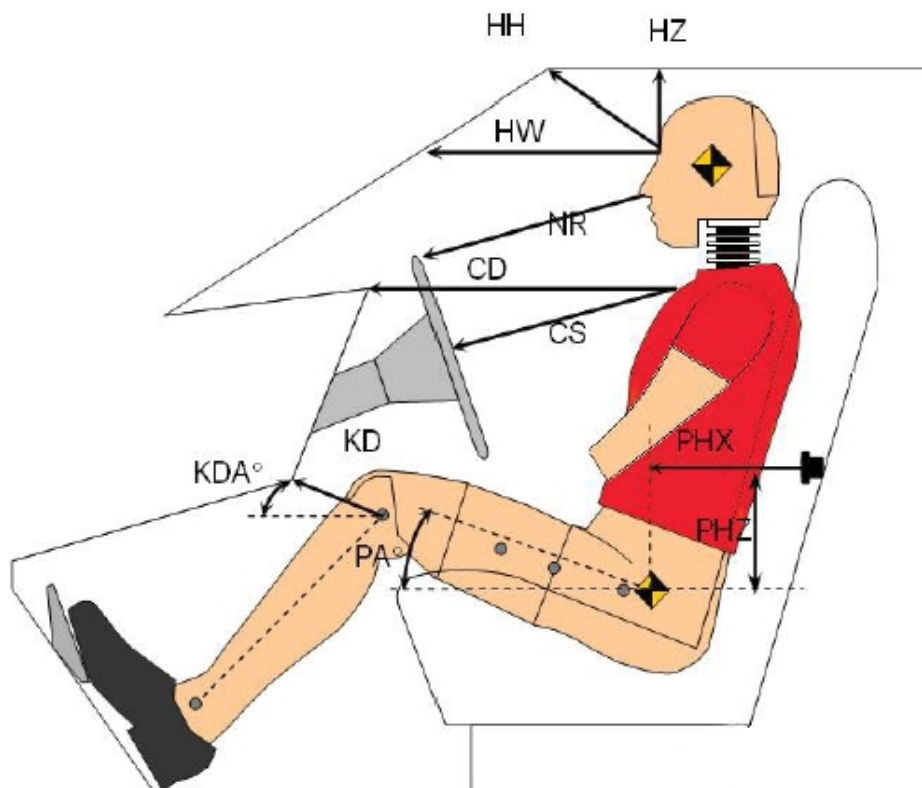


	Degrees	Fore / Aft Position (mm)
Lowermost - Position No. 1	18.8	
Geometric center - Position No. 2	21.3	
Uppermost - Position No. 3	23.8	
Telescoping Steering Wheel Travel		64
Test Position	21.3	32

DATA SHEET NO. 6
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
 Test Facility: Calspan

NHTSA No.: C20255802
 Test Date: 07/21/2025



Left Side View

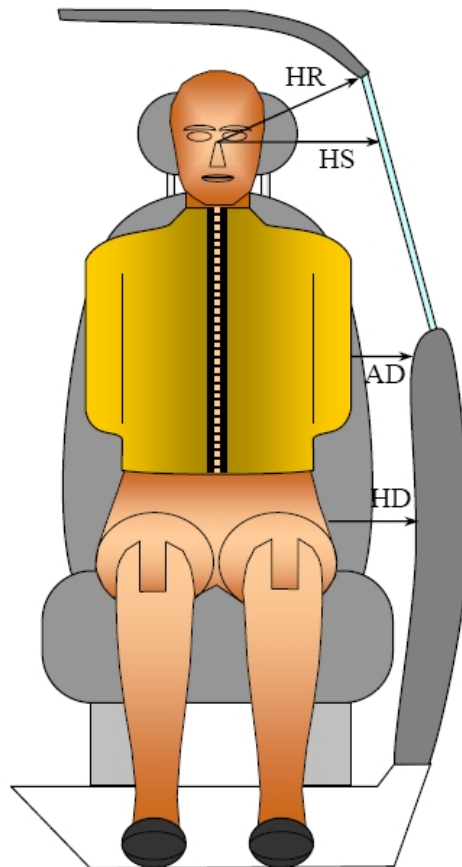
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	346	
HW	Head to Windshield	595	
HZ	Head to Roof Liner	150	
NR	Nose to Rim	418	
CD	Chest to Dash	553	
CS	Chest to Steering Wheel	378	
KD(L) / KDA(L)°	Left Knee to Dash	254	27.7
KD(R) / KDA(R)°	Right Knee to Dash	265	26.4
PAX°	Pelvic Tilt Angle (X-Axis)		22.7
PAY°	Pelvic Tilt Angle (Y-Axis)		0.5
PHX	Hip Point to Striker (X-Axis)	117	
PHZ	Hip Point to Striker (Z-Axis)	197	

DATA SHEET NO. 7
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
Test Facility: Calspan

NHTSA No.: C20255802
Test Date: 07/21/2025



FRONT VIEW OF DUMMY

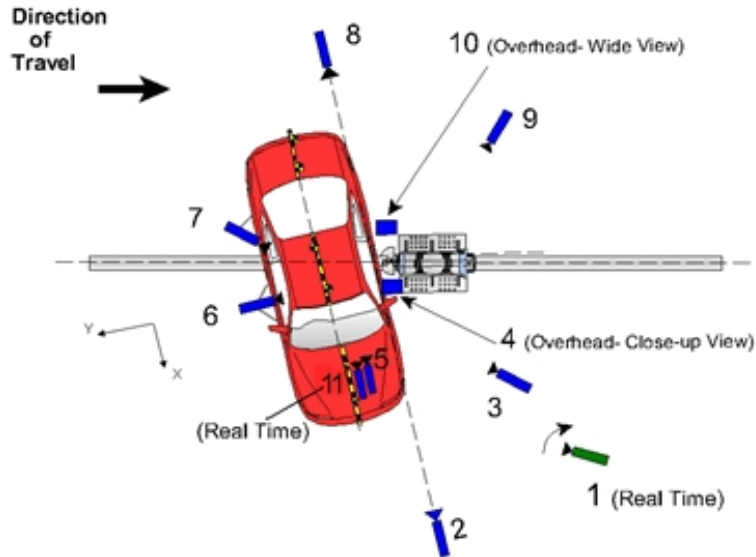
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	191
HS	Head to Side Window	mm	311
AD	Arm to Door	mm	102
HD	H-Point to Door	mm	151

DATA SHEET NO. 8 LOCATION OF CAMERA

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
Test Facility: Calspan

NHTSA No.: C20255802
Test Date: 07/21/2025



CAMERA LOCATIONS AND DATA

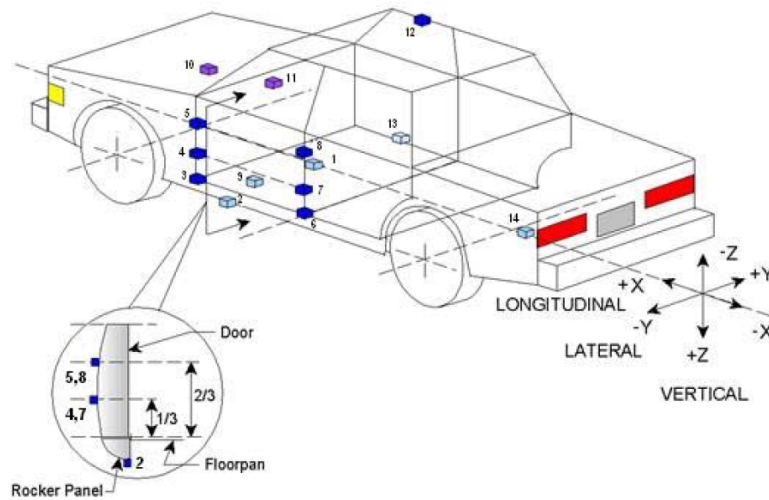
No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real-time (24 - 30 fps) pan view of impact					60
2	Front ground level - impact view	7760	0	-1490	28	1000
3	Impact side 45° - forward pole view	5032	-720	-1410	24	1000
4	Overhead Close-up view of impact	0	0	-8375	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	-8901	0	-1482	28	1000
9	Impact side 45° - rearward pole view	-3924	-4104	-1532	24	1000
10	Overhead wide - view of impact	0	0	-8375	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 Audi A5 Sportback 5 Door Hatchback
 Test Facility: Calspan

NHTSA No.: C20255802
 Test Date: 07/21/2025



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2398	0	-49
2	Left Floor Sill	2805	-670	141
3	A-Pillar Sill	3231	-626	147
4	A-Pillar Low	3235	-628	-119
5	A-Pillar Mid	3160	-641	-510
6	B-Pillar Sill	2239	-690	108
7	B-Pillar Low	2171	-692	-166
8	B-Pillar Mid	2090	-666	-444
9	Seat	2450	-613	181
10	Engine	4260	87	-351
11	Firewall	3719	56	-388
12	Roof	2040	592	-872
13	Right Floor Sill	2759	669	142
14	Rear Deck	853	-6	91

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 Audi A5 Sportback 5Dr Hatchback NHTSA No.: C20255802
Test Facility: Calspan Test Date: 07/21/2025

Loc. No	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Max	Time (ms)
1	Vehicle CG	X	g	3.68	15.30	-7.42	20.60
	Vehicle CG	Y	g	45.13	31.75	-2.51	37.65
	Vehicle CG	Z	g	20.03	43.70	-20.83	27.95
	Vehicle CG Resultant	N/A	g	45.44	31.85	0.01	-37.95
2	Floor Sill (Left)	Y	g	62.69	15.65	-46.33	19.20
3	A Pillar Sill	Y	g	116.01	20.45	-103.34	69.85
4	A Pillar Low	Y	g	28.44	47.65	-5.45	34.60
5	A Pillar Mid	Y	g	71.58	24.05	-19.49	28.70
6	B Pillar Sill	Y	g	102.64	14.75	-93.57	18.45
7	B Pillar Low	Y	g	46.92	41.75	-121.02	14.30
8	B Pillar Mid	Y	g	125.53	20.35	-30.55	28.85
9	Seat	Y	g	46.62	24.35	-10.83	56.10
10	Engine Top	X	g	2.37	100.50	-8.63	52.65
	Engine Top	Y	g	19.29	62.30	-16.44	25.85
11	Firewall	Y	g	15.66	43.95	-0.88	3.75
12	Roof	Y	g	41.30	56.65	-25.76	61.30
13	Floor Sill (Right)	Y	g	12.64	37.30	-1.83	210.80
14	Rear Deck	X	g	5.31	25.30	-6.52	15.65
	Rear Deck	Y	g	13.99	32.10	-3.20	161.15

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

Test Vehicle: 2025 Audi A5 Sportback 5Dr Hatchback NHTSA No.: C20255802
Test Facility: Calspan Test Date: 07/21/2025

Dummy Serial No. D037

Description	Axes	Positive Direction		Negative Direction	
		Max	Time (ms)	Max	Time (ms)
HEAD ACCELERATION (g)					
Longitudinal	X	2.79	159.55	-19.47	51.75
Lateral	Y	53.41	58.45	-15.10	99.90
Vertical	Z	21.15	49.20	-6.24	85.85
Resultant	N/A	57.98	57.90		
HIC36 (t1, t2)	N/A	318.76		t1 = 39.45	t2 = 68.55
THORAX DEFLECTION (mm)					
Upper Rib	Y	23.99	52.35	-4.74	23.95
Middle Rib	Y	16.29	47.25	-1.70	157.25
Lower Rib	Y	16.20	45.40	0.00	-13.10
ABDOMINAL FORCES (N)					
Front	Y	471.95	48.65	-30.57	26.85
Middle	Y	369.50	47.20	-10.76	205.90
Rear	Y	301.90	47.60	-8.11	144.50
SUM	N/A	1141.63	48.60		
PELVIS FORCES (N)					
Pubic Symphysis	Y	49.33	22.40	-2991.47	56.90

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

DATA SHEET NO. 12
POST-TEST OBSERVATIONS

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
Test Facility: Calspan

NHTSA No.: C20255802
Test Date: 07/21/2025

IMPACT POINT DATA

Measured Parameter	Units	Value
Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt	mm	1404
Actual Impact Point - Aft of Front Axle	mm	1408
Difference	mm	4

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver Seat Dummy (ES2-re)
Head Contact	Curtain Airbag, Side Header & Head Rest
Upper Torso Contact	Torso/Pelvis Airbag & Seatback
Lower Torso Contact	Torso/Pelvis Airbag & Seatback
Left Knee Contact	Doortrim
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	A-Pillar, B-Pillar, & C-Pillar Buckled
Sill Separation	Separation at Impact Location
Windshield Damage	Cracked Throughout
Side Window Damage	Driver Window Shattered & Sunroof Shattered
Other Notable Effects	None

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

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
Test Facility: Calspan

NHTSA No.: C20255802
Test Date: 07/21/2025

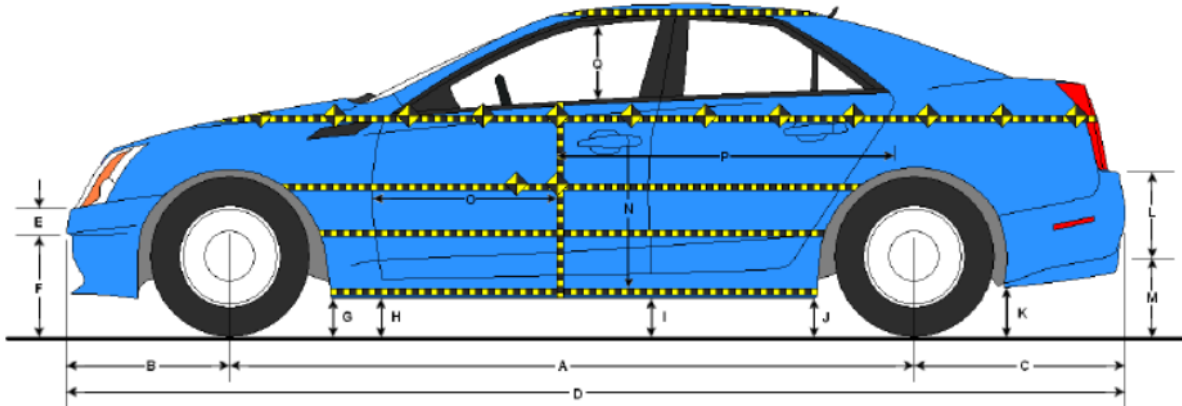
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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 Audi A5 Sportback 5 Door Hatchback
 Test Facility: Calspan

NHTSA No.: C20255802
 Test Date: 07/21/2025



LEFT SIDE VIEW

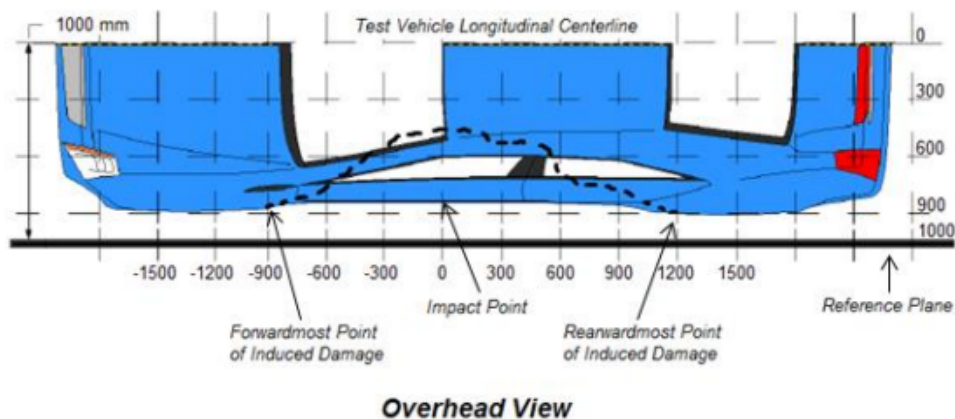
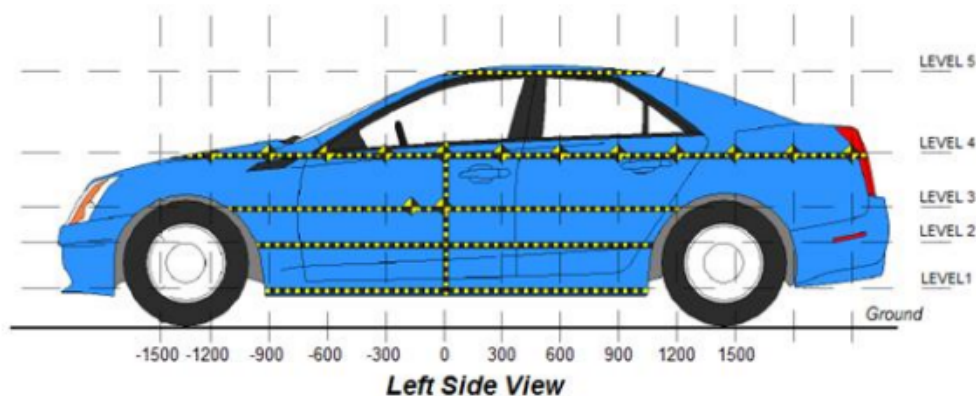
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

No.	Measurement Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2822	2773	-49
B	Front Axle to FSOV	911	939	29
C	Rear Axle to RSOV	1037	1042	4
D	Total Vehicle Length at Centerline	4770	4755	-15
E	Front Bumper Thickness	135	135	0
F	Front Bumper Bottom to Ground	404	416	12
G	Sill Height at Front Wheel Well	148	153	5
H	Sill Height at Front Door Leading Edge	152	160	8
I	Sill Height at B Pillar	155	133	-22
J1	Sill Height at Rear Wheel Well	150	169	19
J2	Pinch Weld Height at Rear Wheel Well	142	148	6
K	Sill Height Aft of Rear Wheel Well	185	182	-3
L	Rear Bumper Thickness	135	135	0
M	Rear Bumper Bottom to Ground	415	412	-3
N	Sill Height to Window Bottom Sill	739	746	7
O	Front Door Leading Edge to Impact CL	789	748	-42
P	Rear Door Trailing Edge to Impact CL	1238	1165	-73
Q	Front Window Opening	323	330	7
R	Right Side Length	4684	4682	-1
S	Left Side Length	4685	4644	-41
T	Vehicle Width at B-Pillars	1837	1669	-169

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

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
 Test Facility: Calspan

NHTSA No.: C20255802
 Test Date: 07/21/2025



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	348	311	0
2	Occupant H-Point	mm	474	323	0
3	Mid-Door	mm	623	337	0
4	Window Sill	mm	927	252	0
5	Window Top	mm	1317	87	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 Audi A5 Sportback 5 Door Hatchback
 Test Facility: Calspan

NHTSA No.: C20255802
 Test Date: 07/21/2025

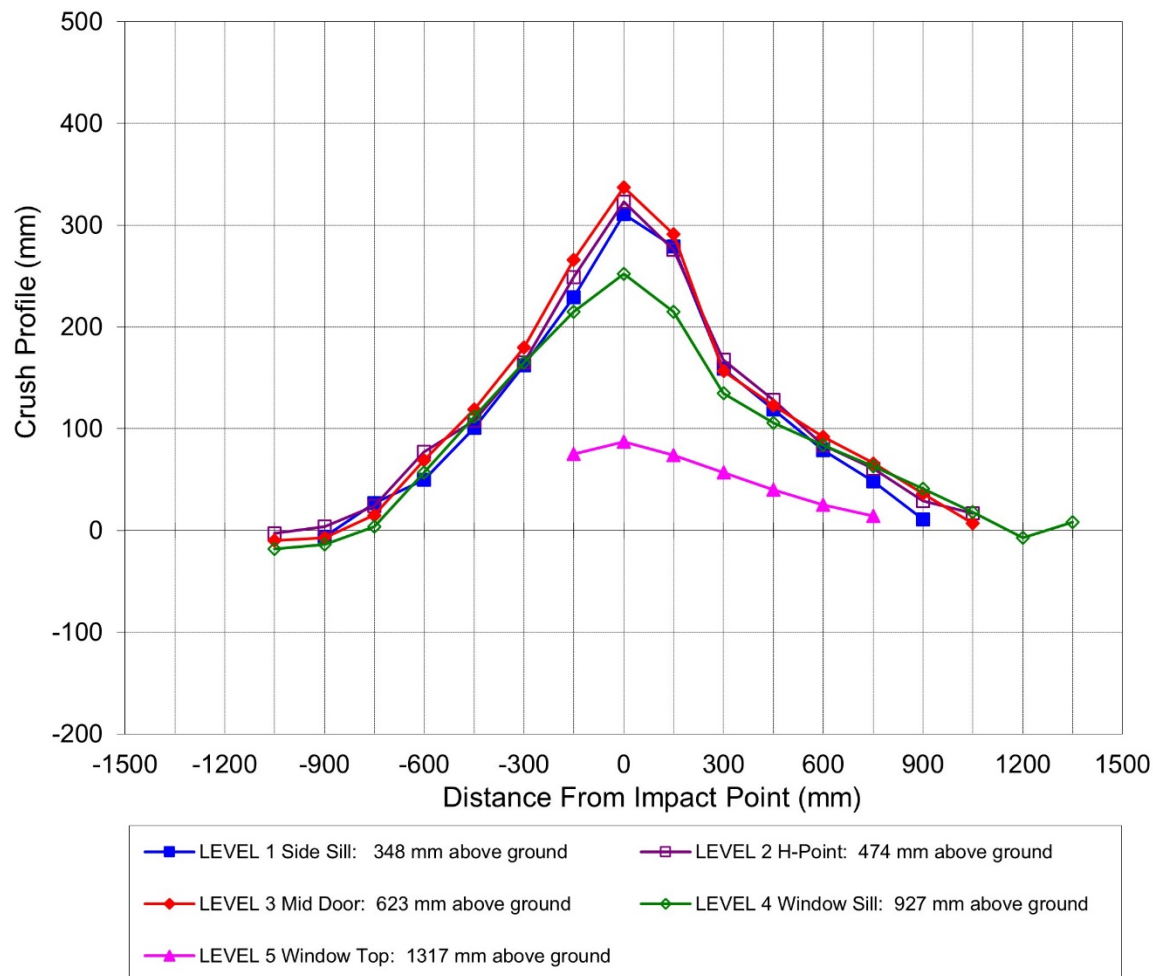
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500															
-1350															
-1200															
-1050		918	916	732			921	926	750			-3	-10	-18	
-900	890	903	909	773		896	899	916	787		-6	4	-7	-14	
-750	884	901	911	791		857	877	896	787		27	24	15	4	
-600	885	903	914	799		835	826	845	742		50	77	69	57	
-450	891	906	917	807		790	798	798	695		101	108	119	112	
-300	897	908	919	815		735	743	739	650		162	165	180	165	
-150	902	909	921	821	583	673	660	655	606	508	229	249	266	215	75
0	906	909	921	826	605	595	586	584	574	518	311	323	337	252	87
150	909	908	920	831	608	630	632	629	616	534	279	276	291	215	74
300	911	905	918	834	608	752	737	761	699	551	159	168	157	135	57
450	914	903	915	835	606	795	775	792	729	566	119	128	123	106	40
600	913	898	911	835	602	834	814	819	751	577	79	84	92	84	25
750	908	896	908	834	586	860	835	842	771	572	48	61	66	63	14
900	901	900	907	833		890	871	871	792		11	29	36	41	
1050		911	912	836			894	905	818			17	7	18	
1200				848					855					-7	
1350				849					841					8	
1500															

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

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
 Test Facility: Calspan

NHTSA No.: C20255802
 Test Date: 07/21/2025



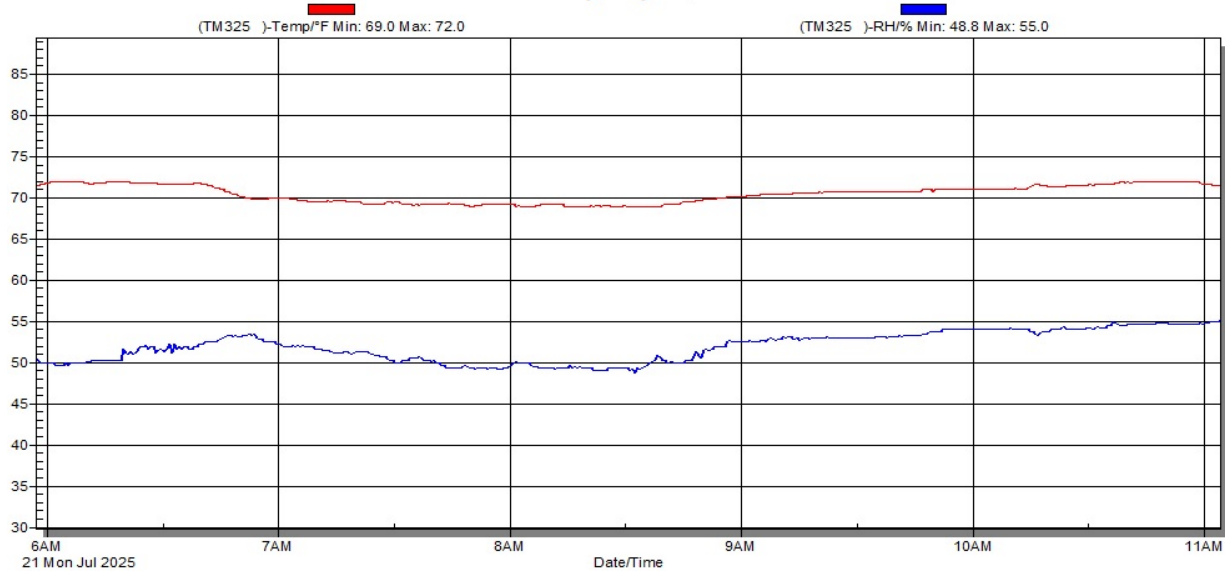
Vehicle Exterior Crush Measurements - Visual Representation

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

Test Vehicle: 2025 Audi A5 Sportback 5 Door Hatchback
Test Facility: Calspan

NHTSA No.: C20255802
Test Date: 07/21/2025

Monday, July 21, 2025



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

APPENDIX I
PHOTOGRAPHS

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5	Pre-Test Impacted Side View of Test Vehicle	I-5
6	Post-Test Impacted Side View of Test Vehicle	I-5
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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

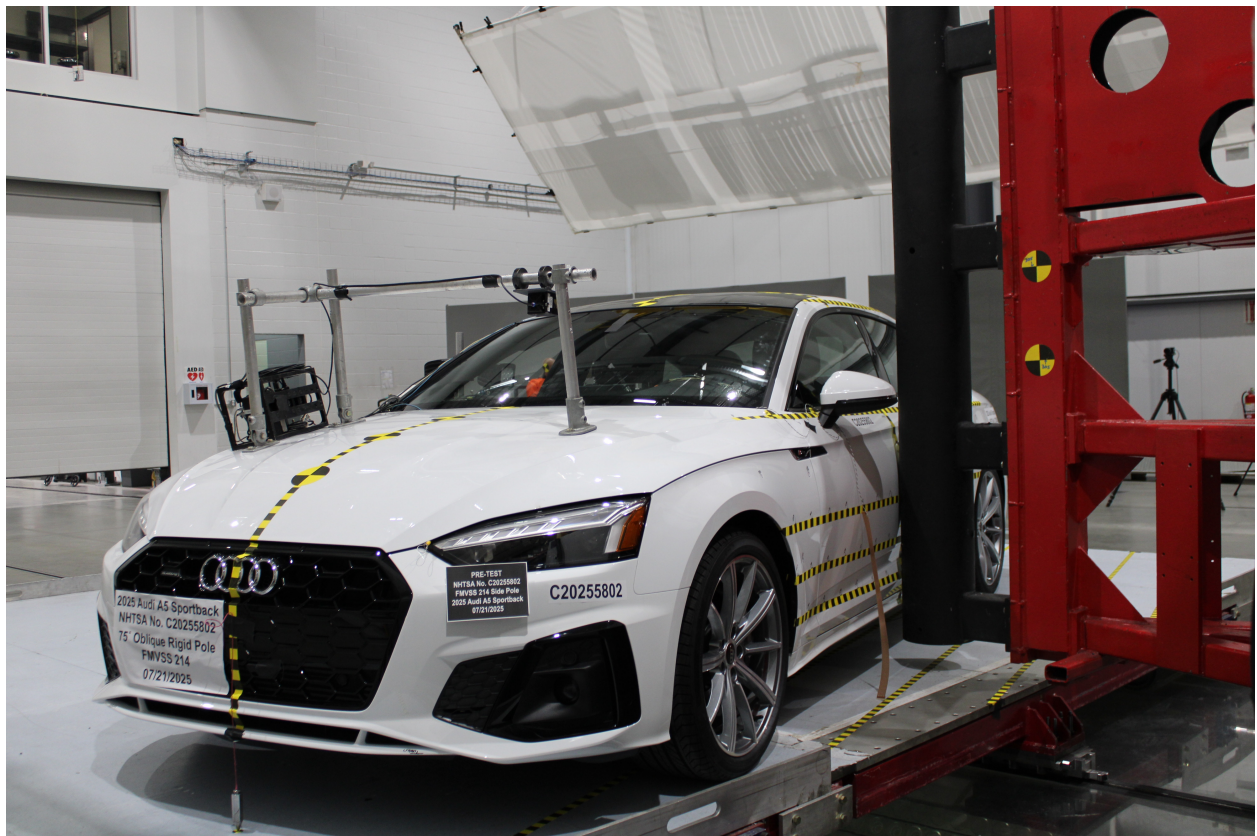


Figure A-7: Pre-Test Left $\frac{3}{4}$ Front View of Vehicle and Pole



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

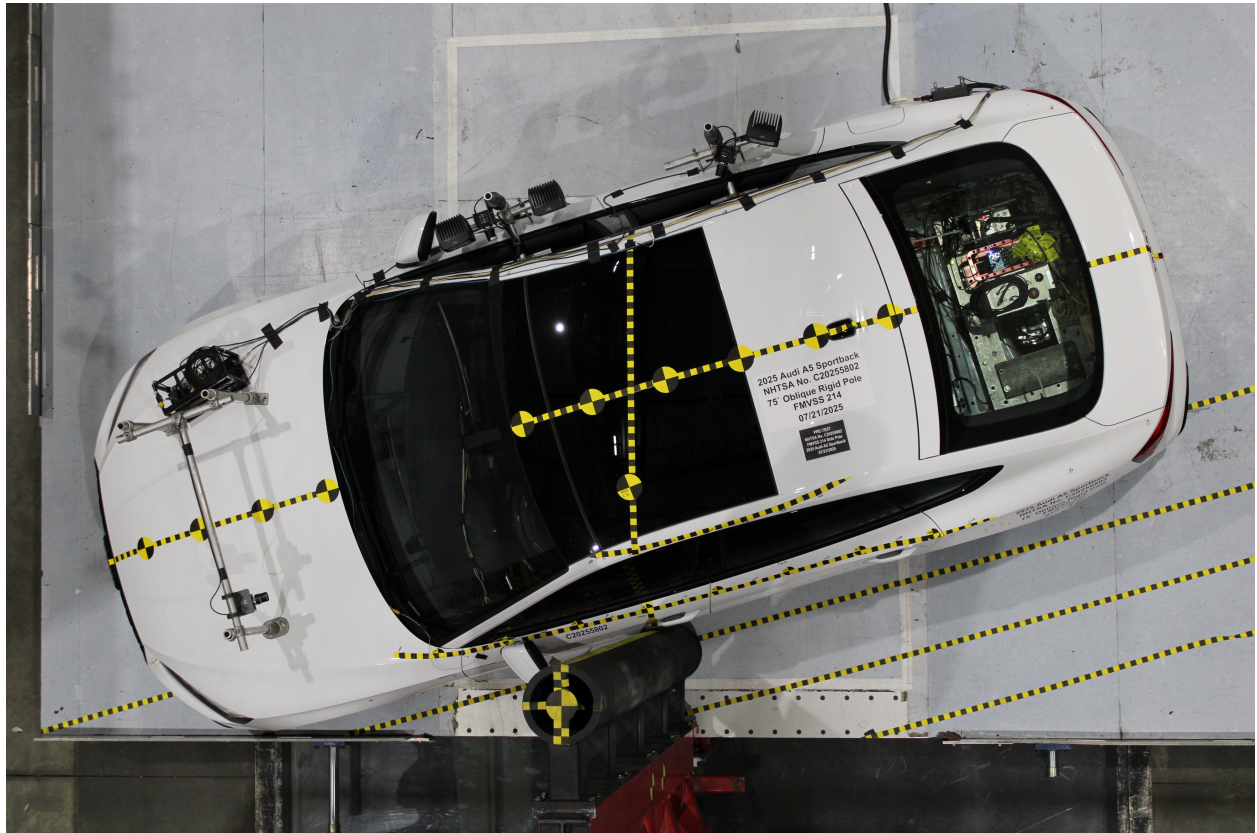


Figure A-9: Pre-Test Overhead View of Test Vehicle

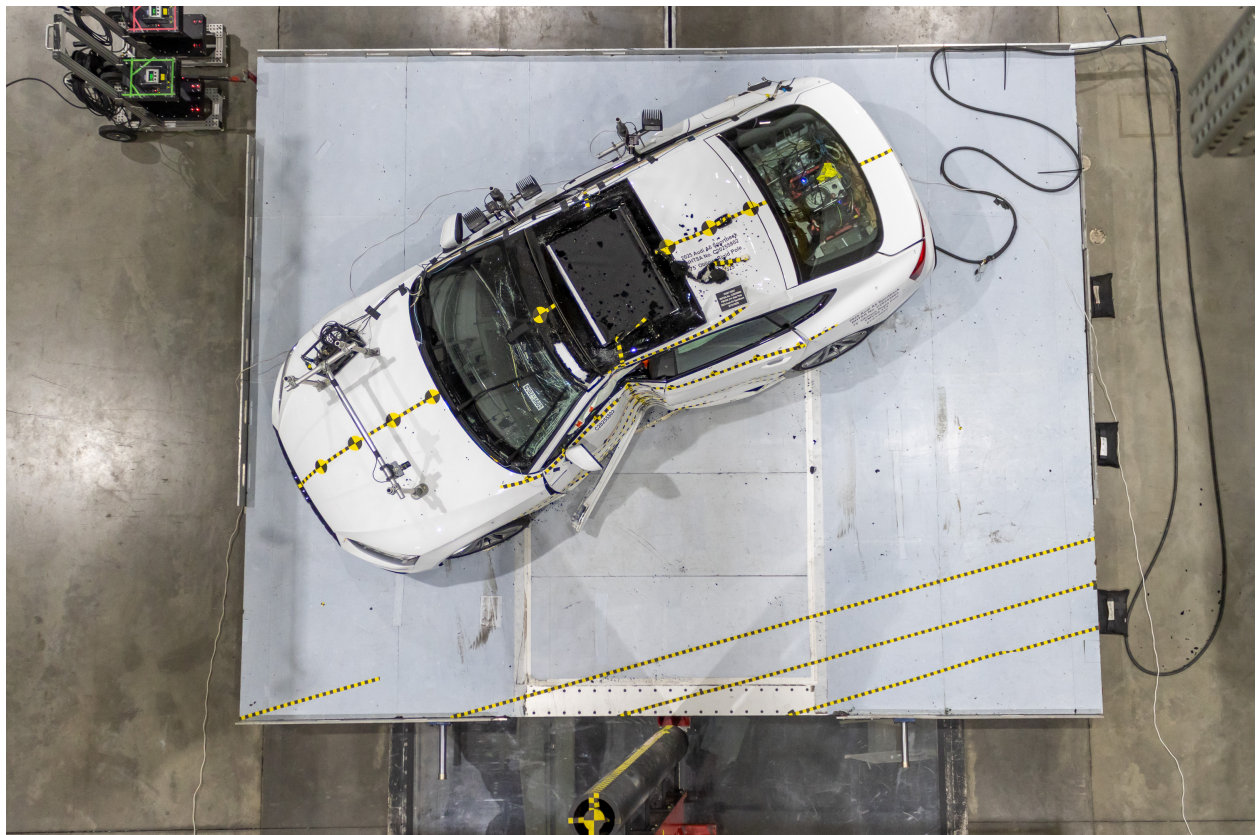


Figure A-10: Post-Test Overhead View of Test Vehicle



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

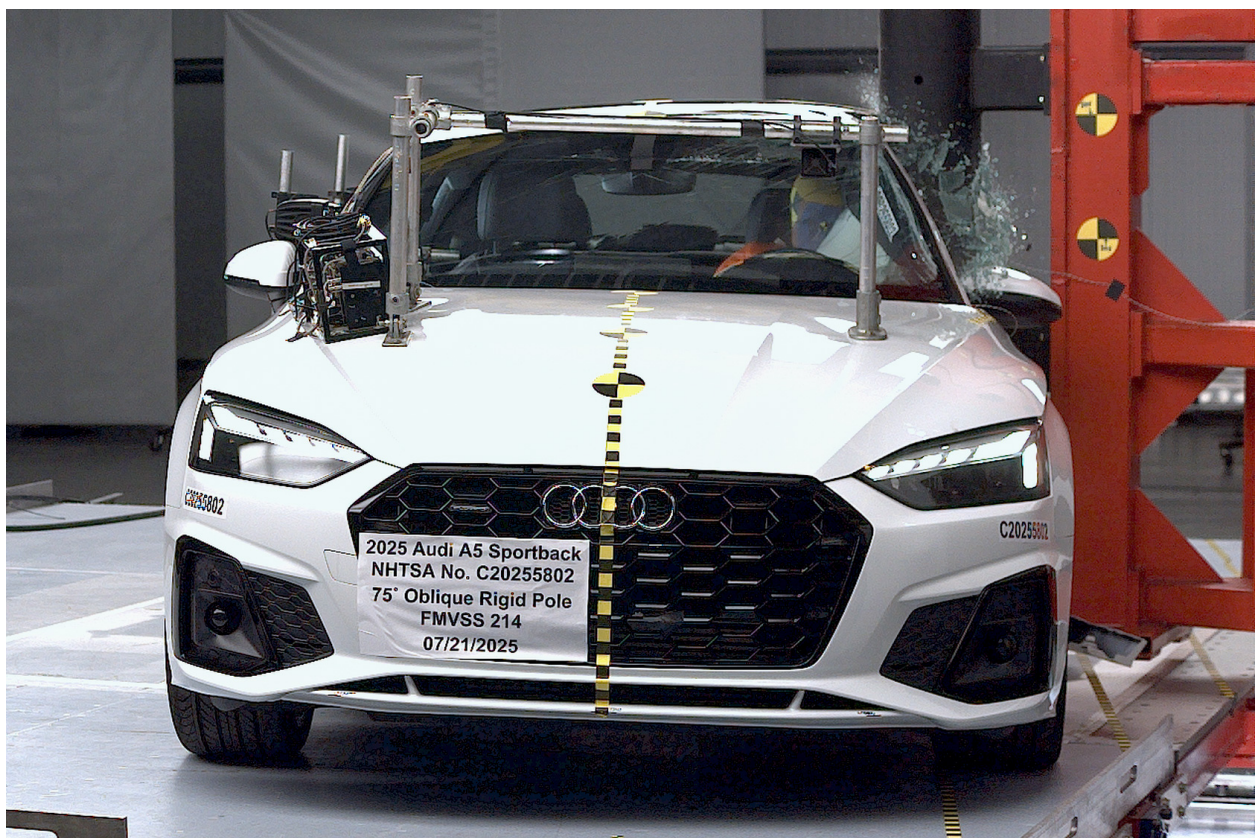


Figure A-20: Impact Event



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

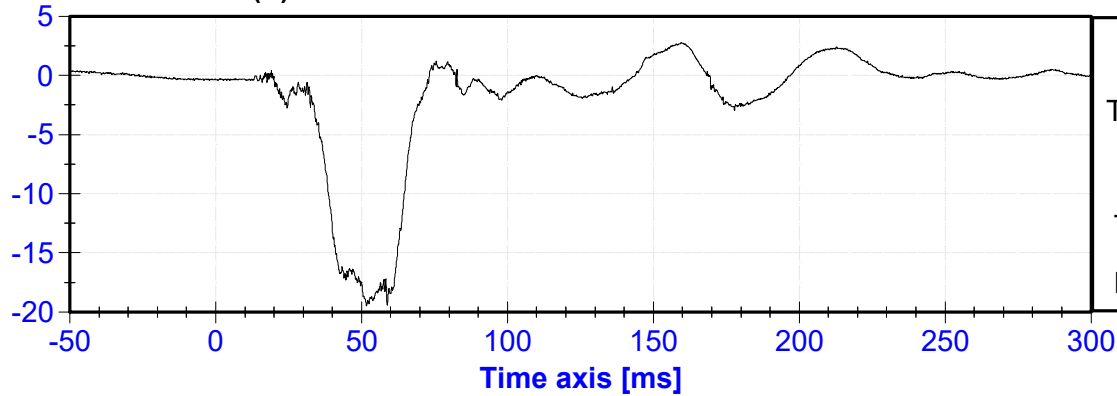
APPENDIX II
ES-2re DUMMY RESPONSE DATA TRACES

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

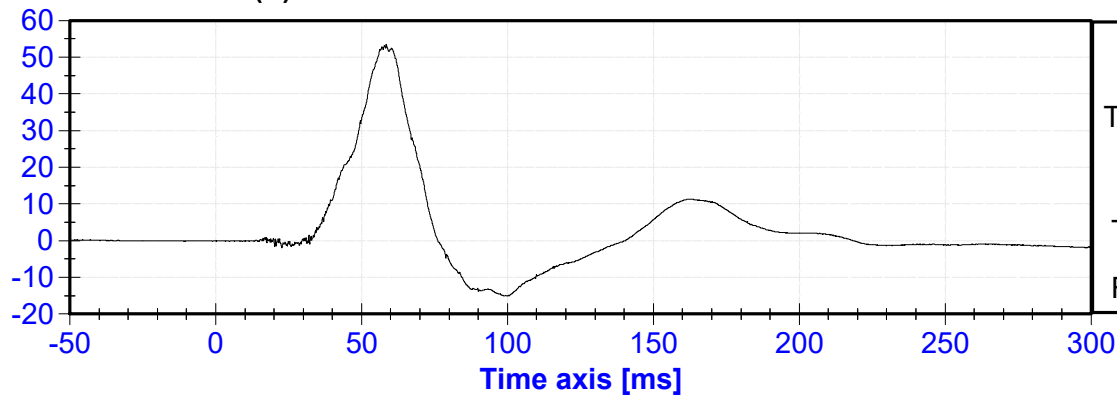
ACCELERATION [g's]

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



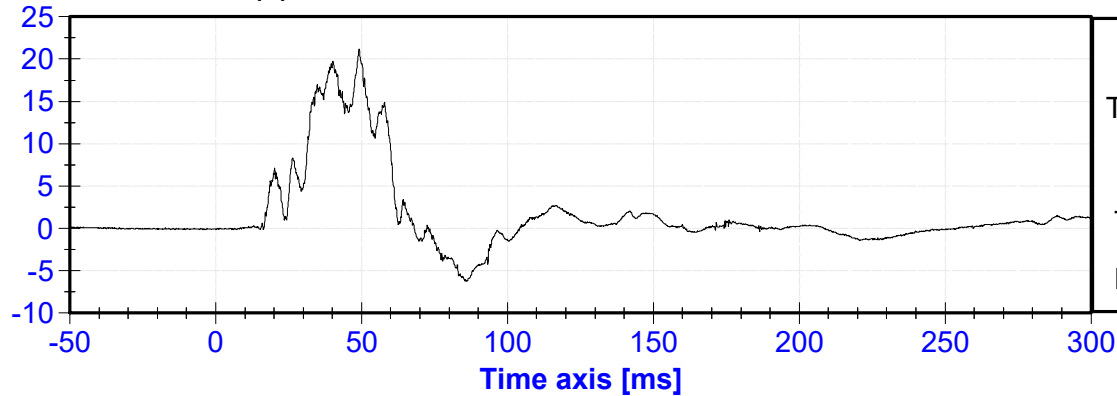
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ES-2re Head (Y) Acceleration vs. Time



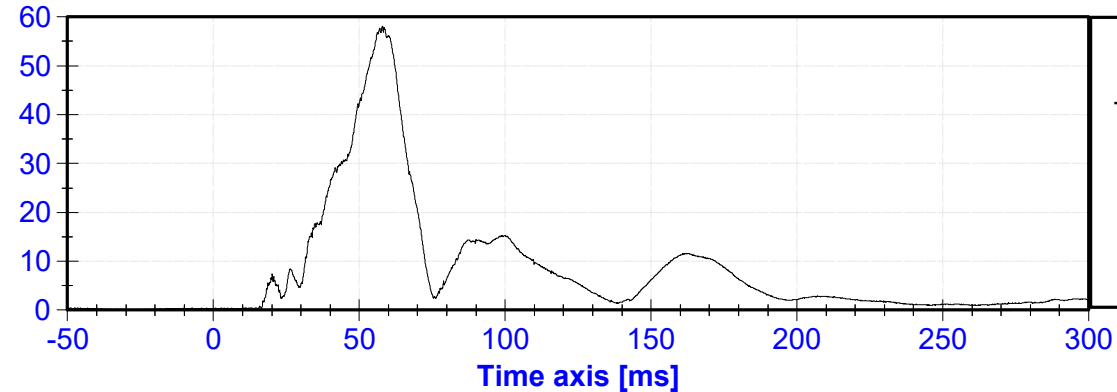
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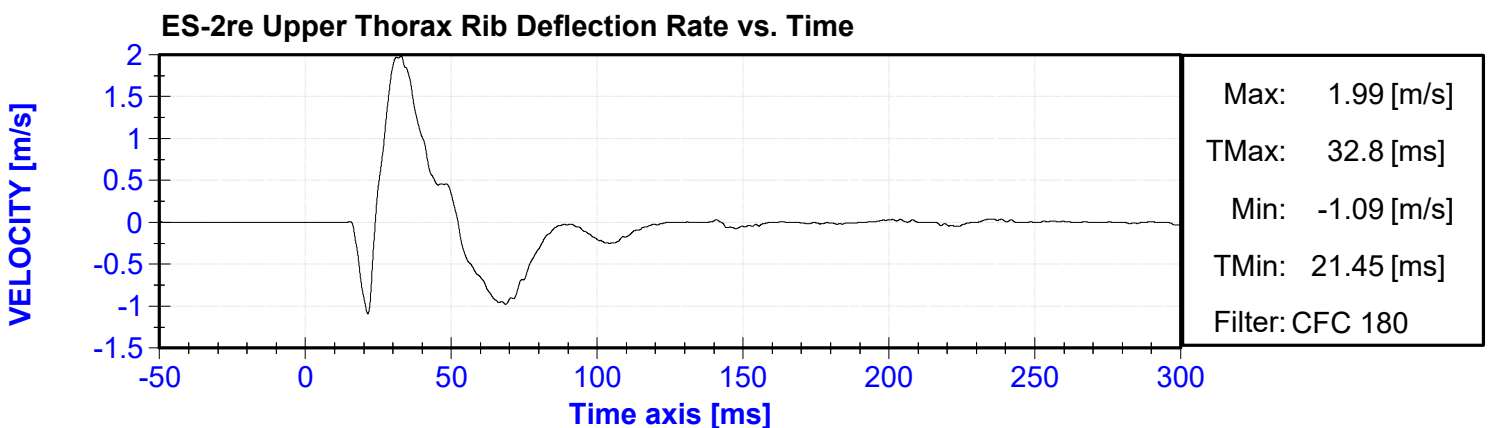
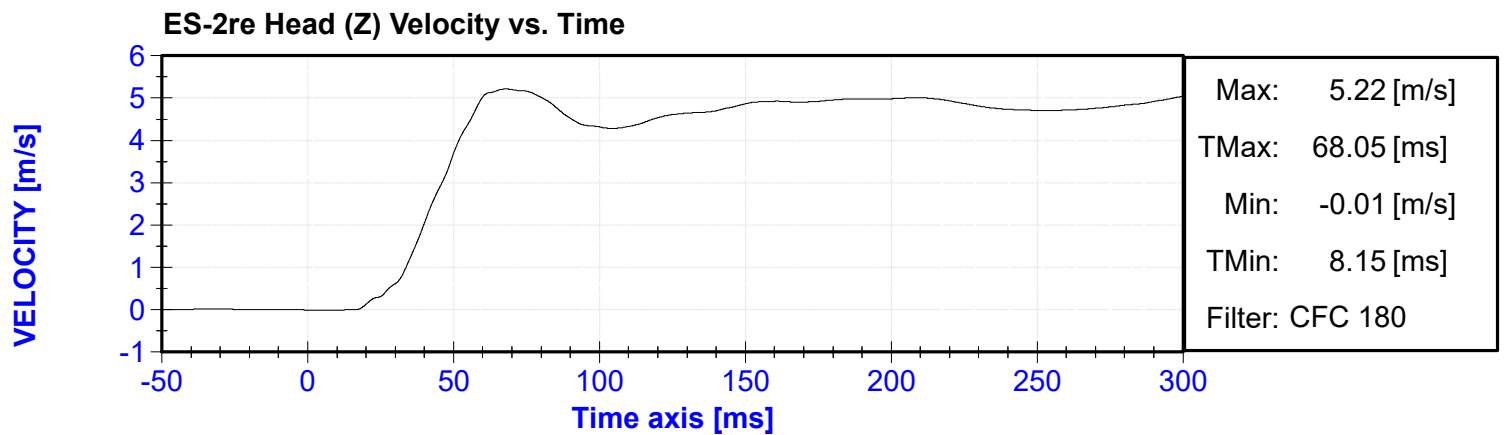
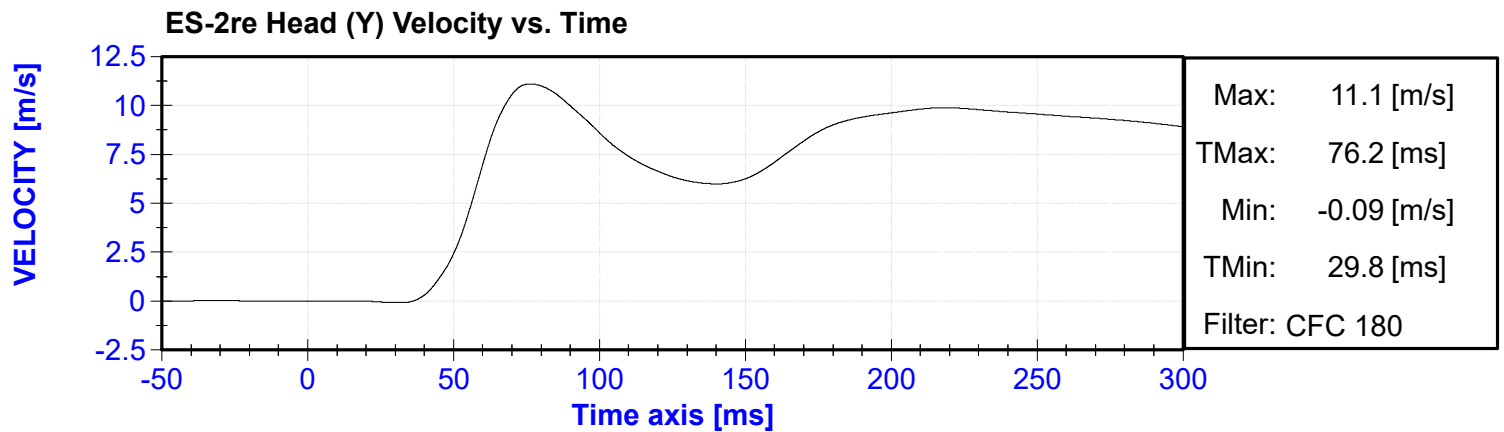
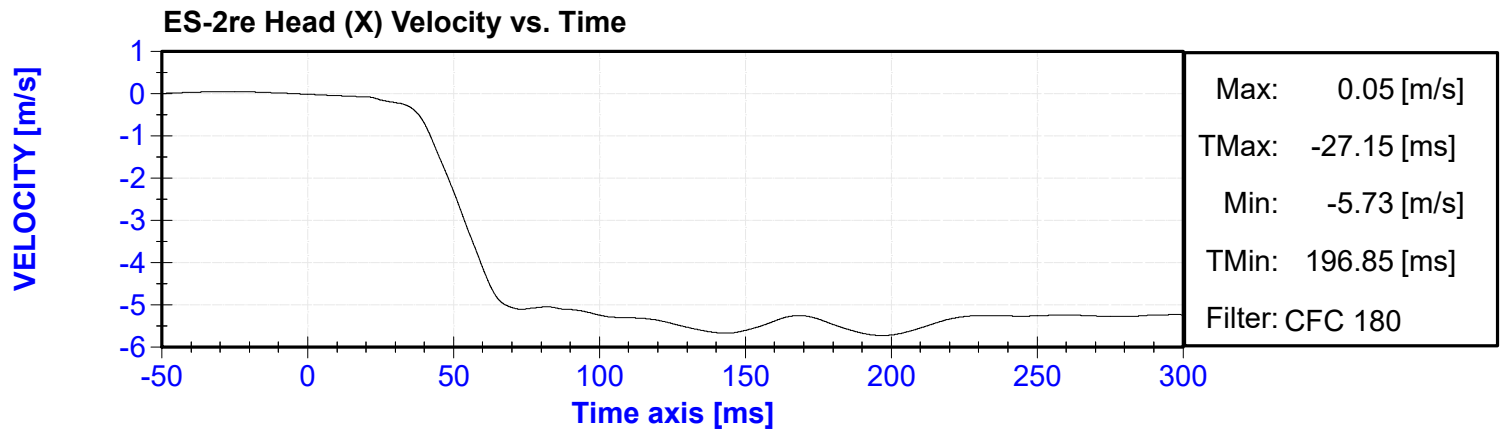
ES-2re Head (Z) Acceleration vs. Time



ACCELERATION [g's]

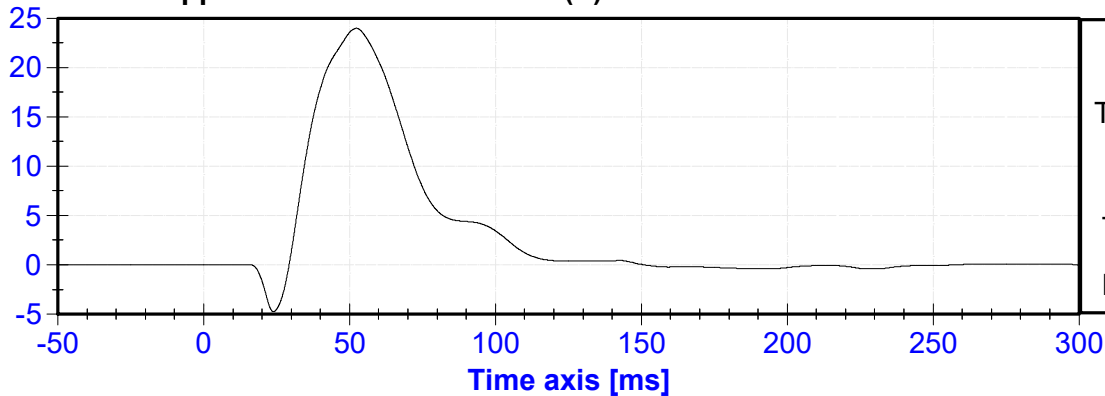
ES-2re Head Resultant Acceleration vs. Time





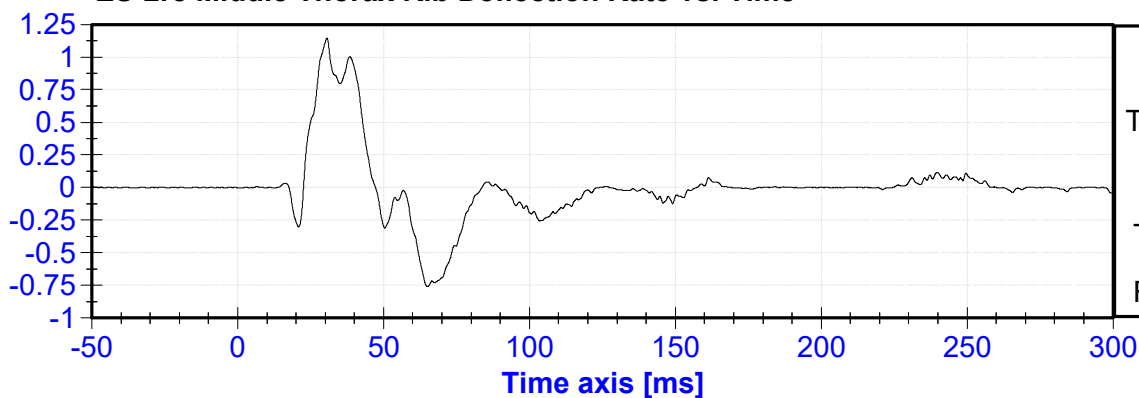
ES-2re Upper Thorax Rib Deflection (Y) vs. Time

DISPLACEMENT [mm]



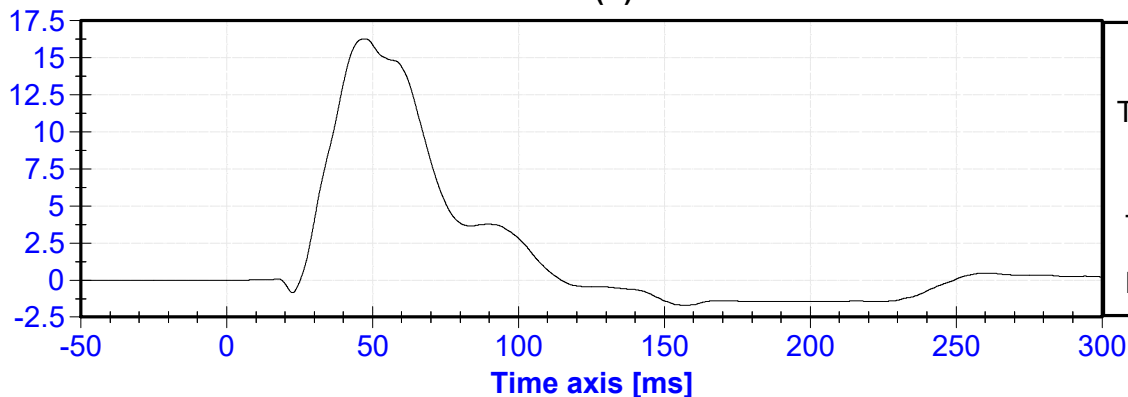
ES-2re Middle Thorax Rib Deflection Rate vs. Time

VELOCITY [m/s]



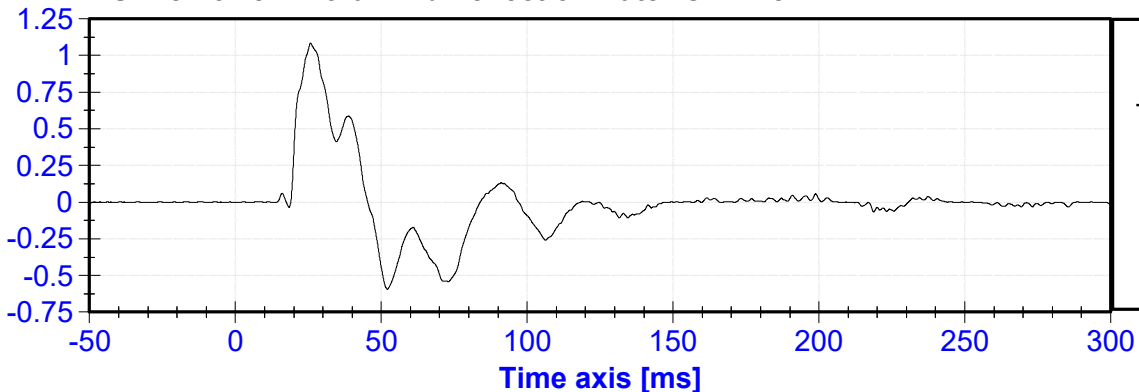
ES-2re Middle Thorax Rib Deflection (Y) vs. Time

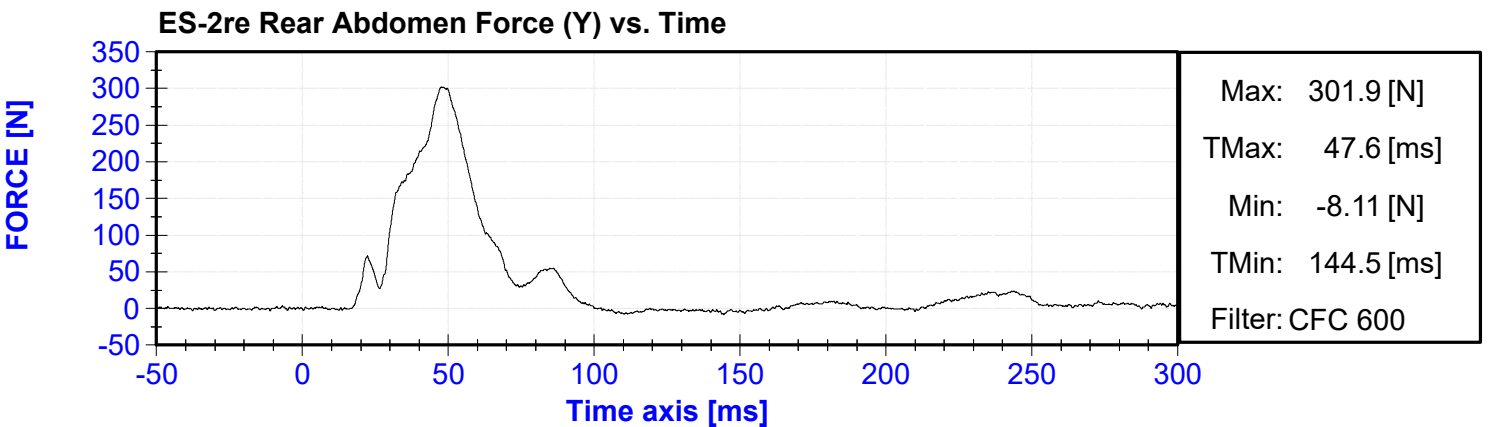
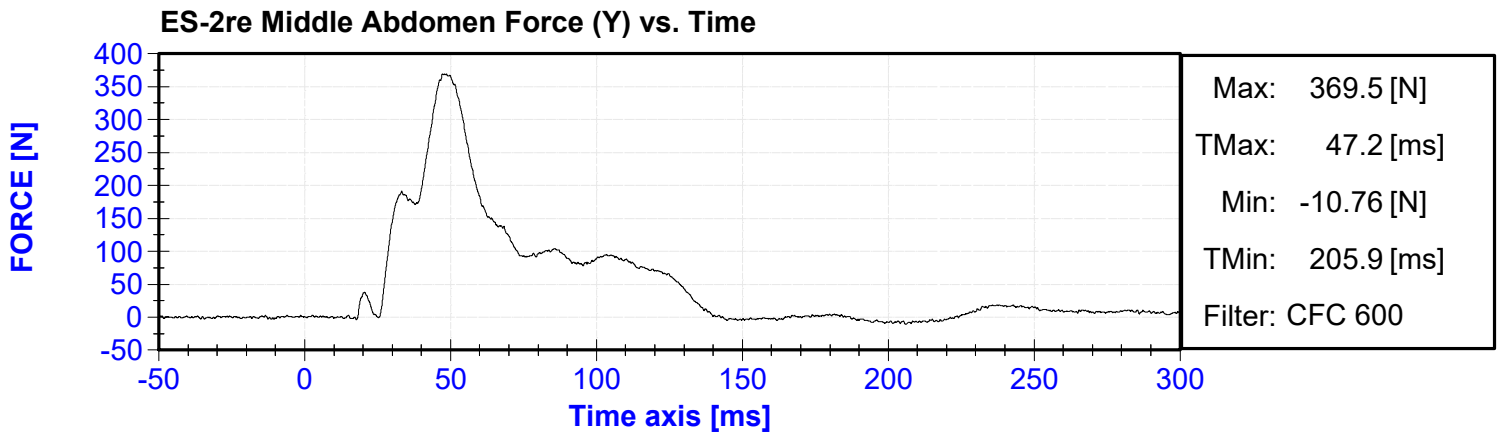
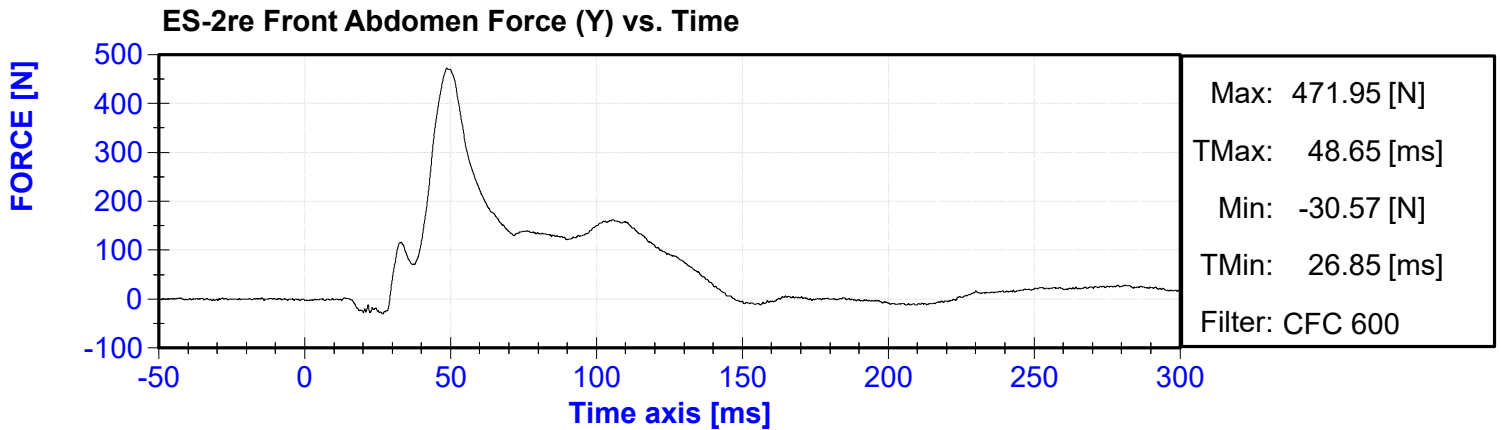
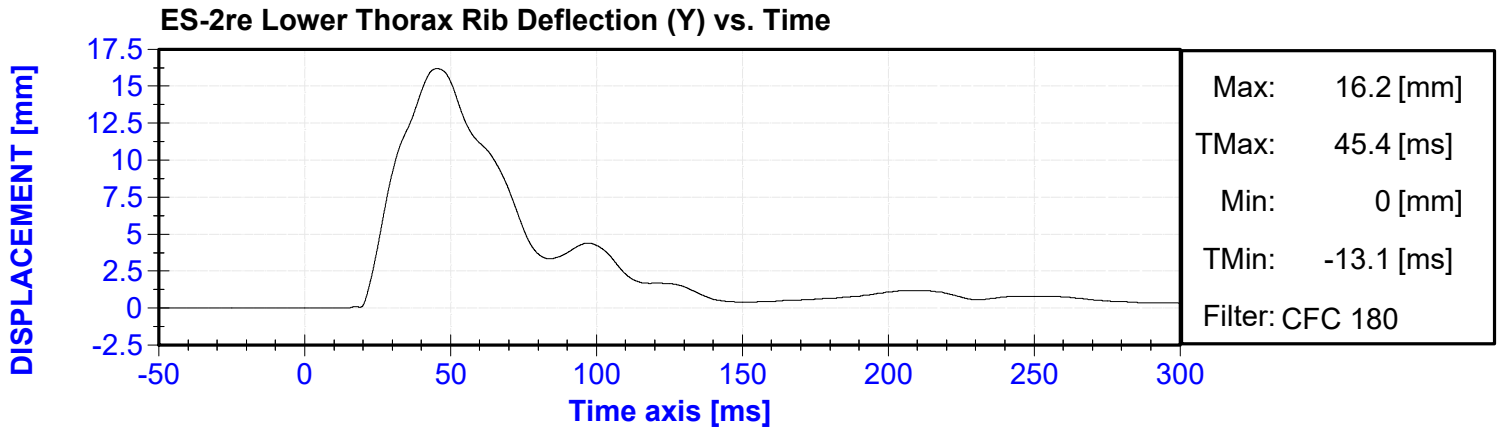
DISPLACEMENT [mm]

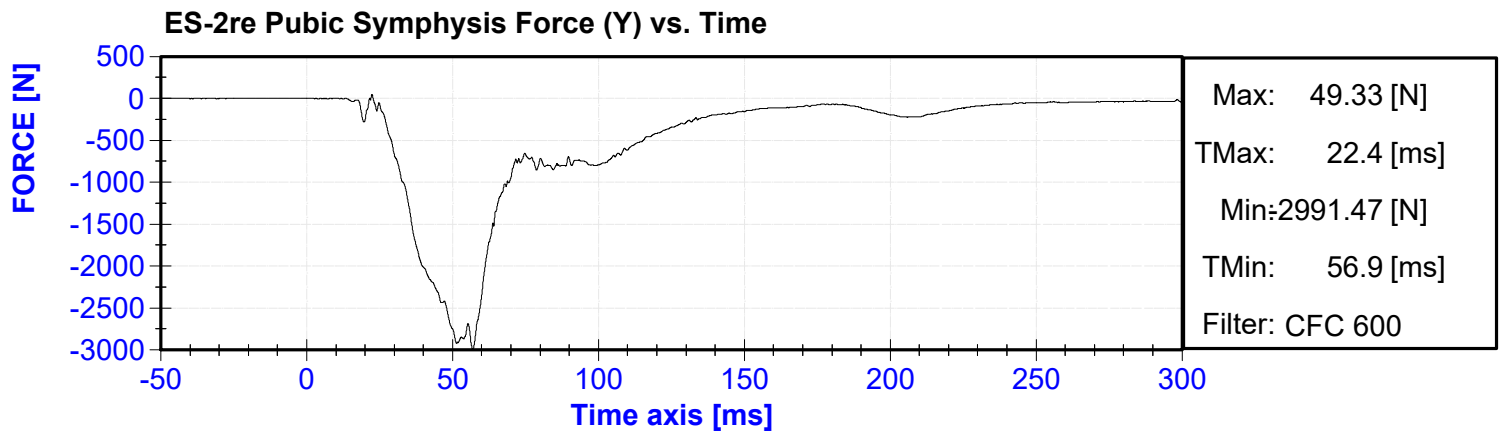
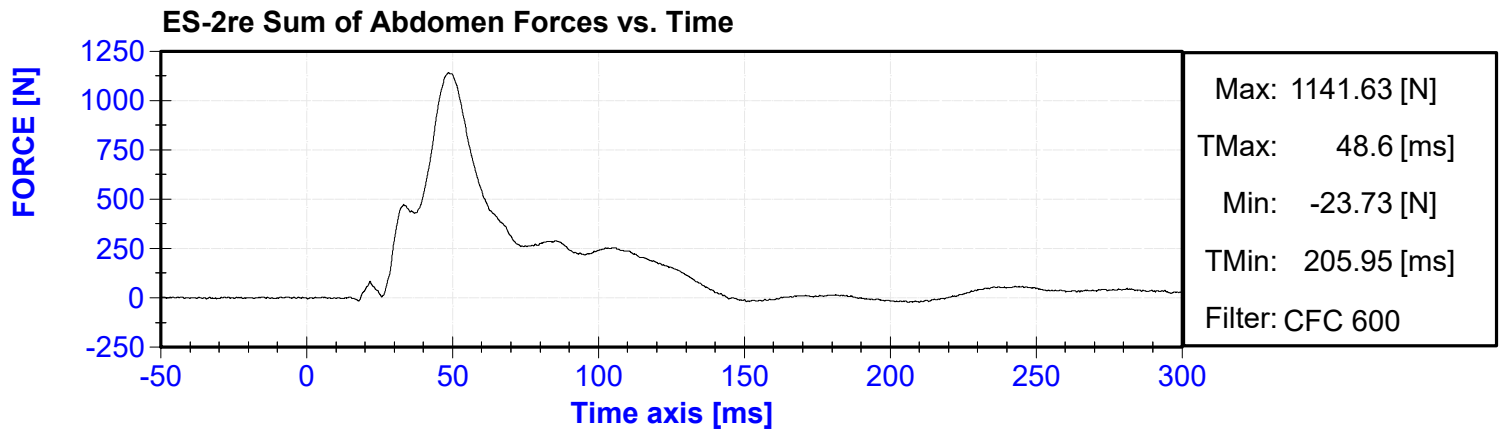


ES-2re Lower Thorax Rib Deflection Rate vs. Time

VELOCITY [m/s]





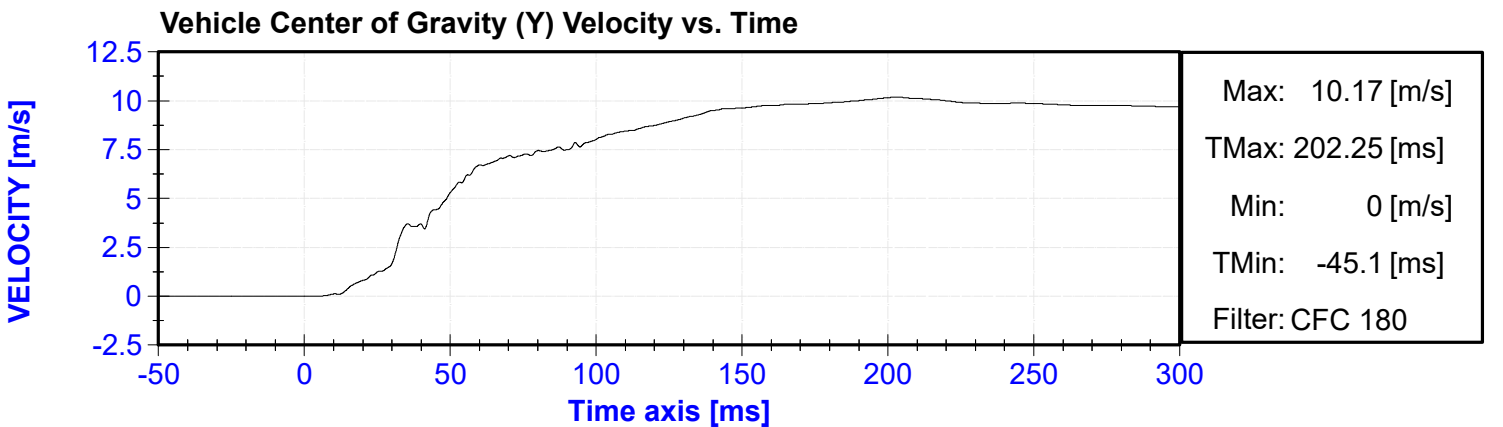
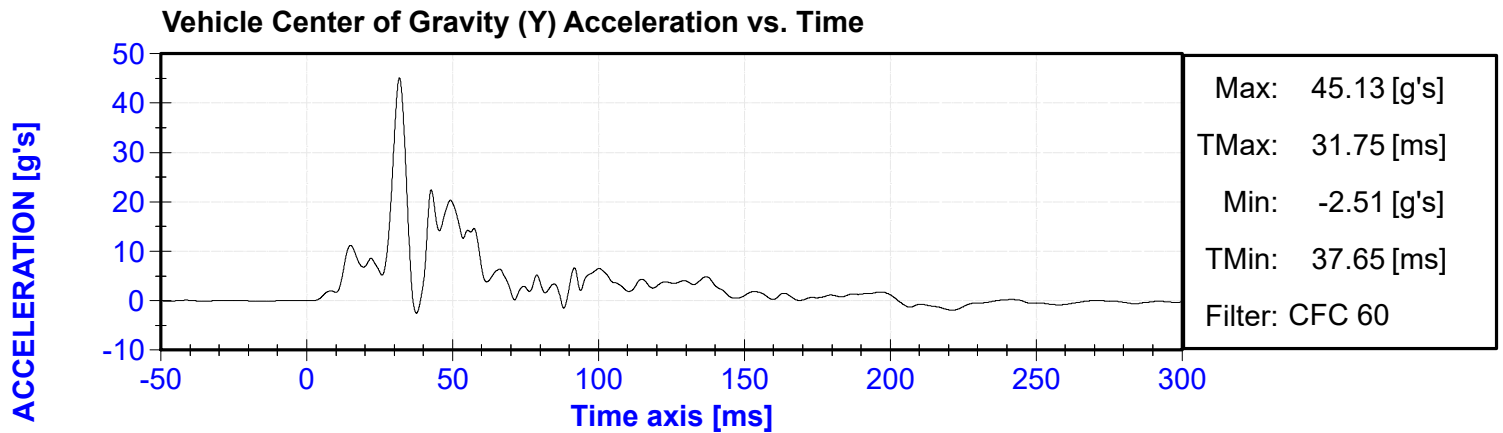
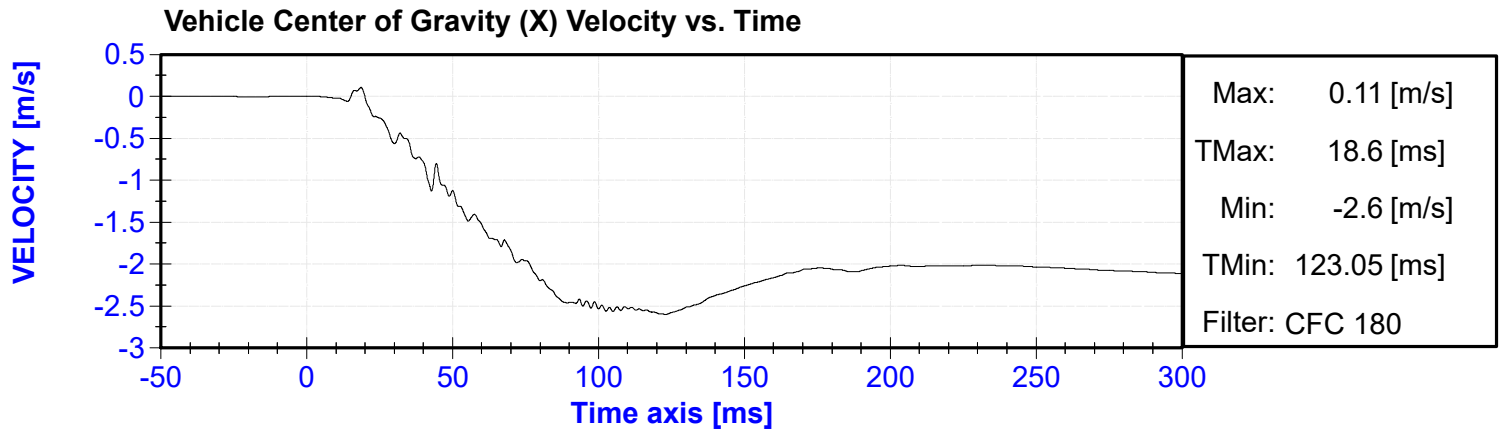
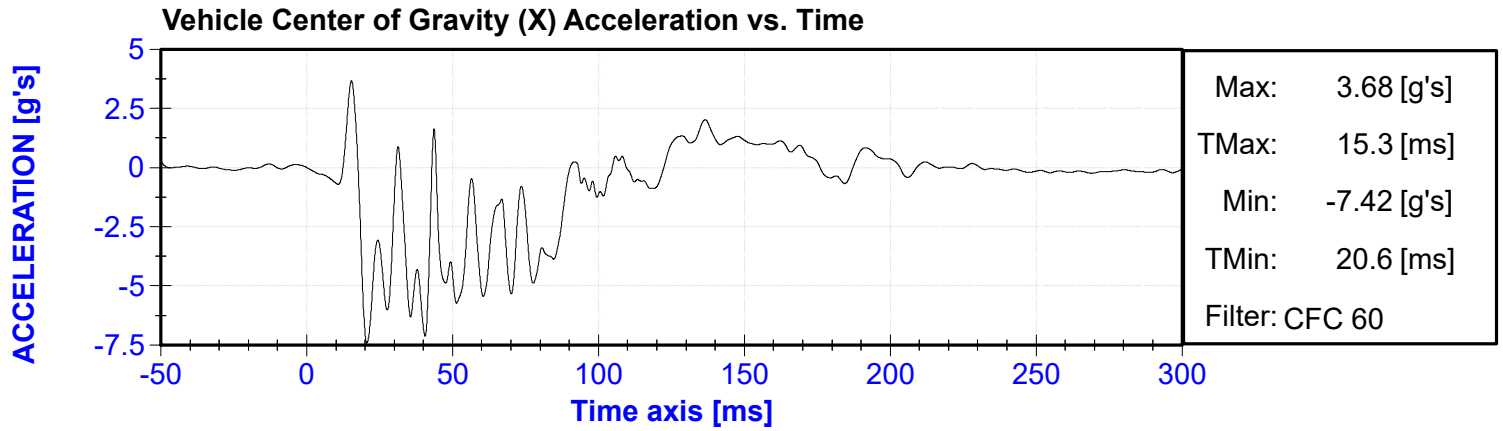


APPENDIX III

VEHICLE ACCELEROMETER RESPONSE DATA

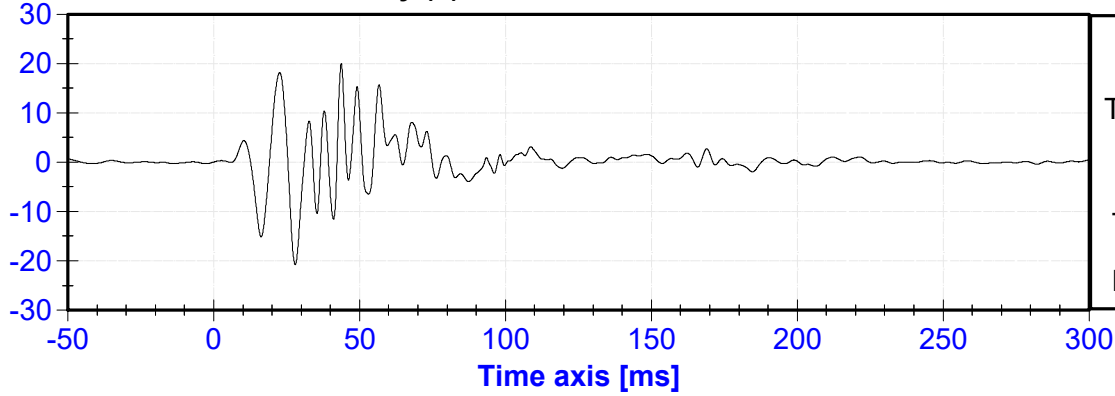
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44	Rear Deck (Y) Acceleration vs. Time	III-13
45	Rear Deck (Y) Velocity vs. Time	III-14



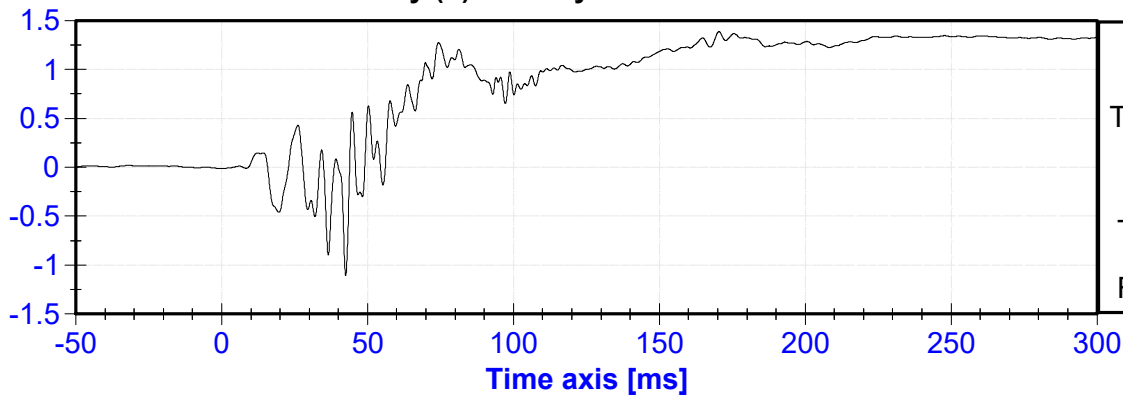
ACCELERATION [g's]

Vehicle Center of Gravity (Z) Acceleration vs. Time



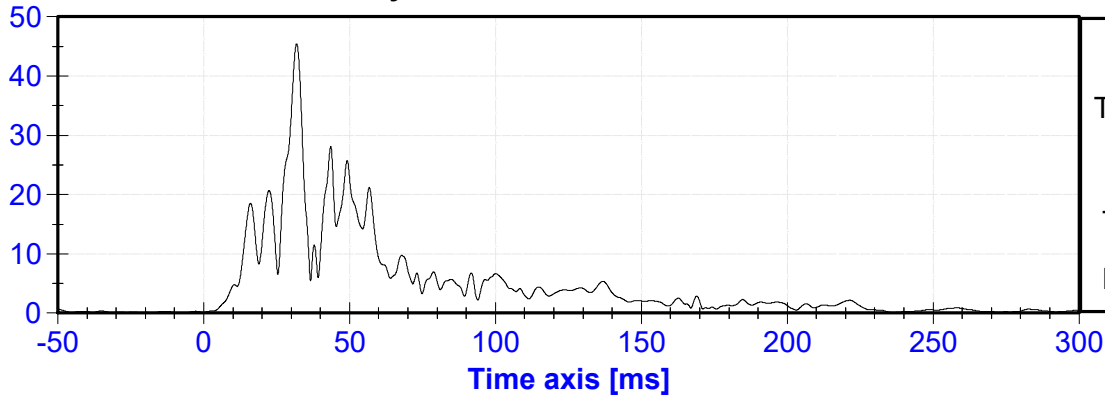
VELOCITY [m/s]

Vehicle Center of Gravity (Z) Velocity vs. Time



ACCELERATION [g's]

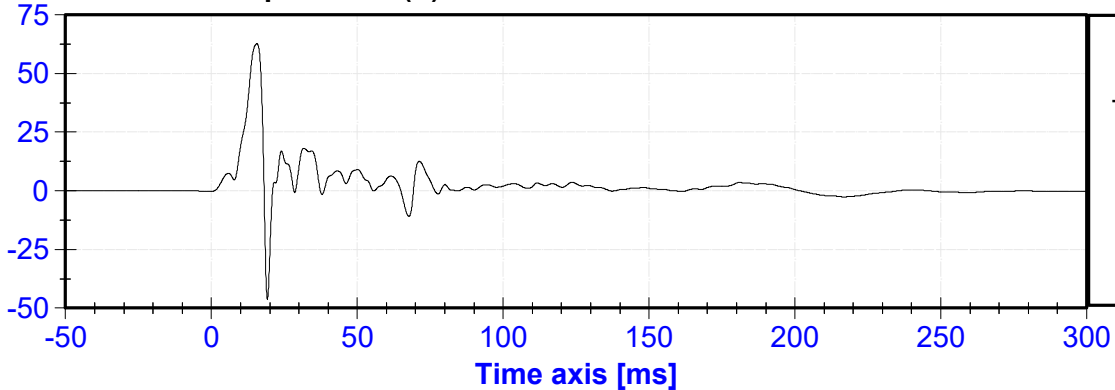
Vehicle Center of Gravity Resultant Acceleration vs. Time



Exceeded calibration range at 17.6 ms

ACCELERATION [g's]

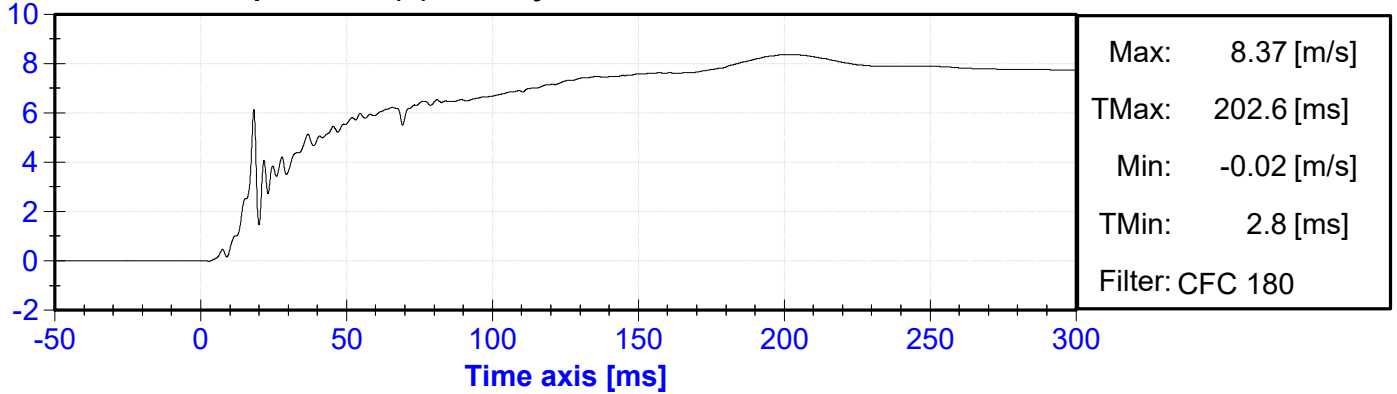
Floor Sill – Impact Side (Y) Acceleration vs. Time



VELOCITY [m/s]

Floor Sill – Impact Side (Y) Velocity vs. Time

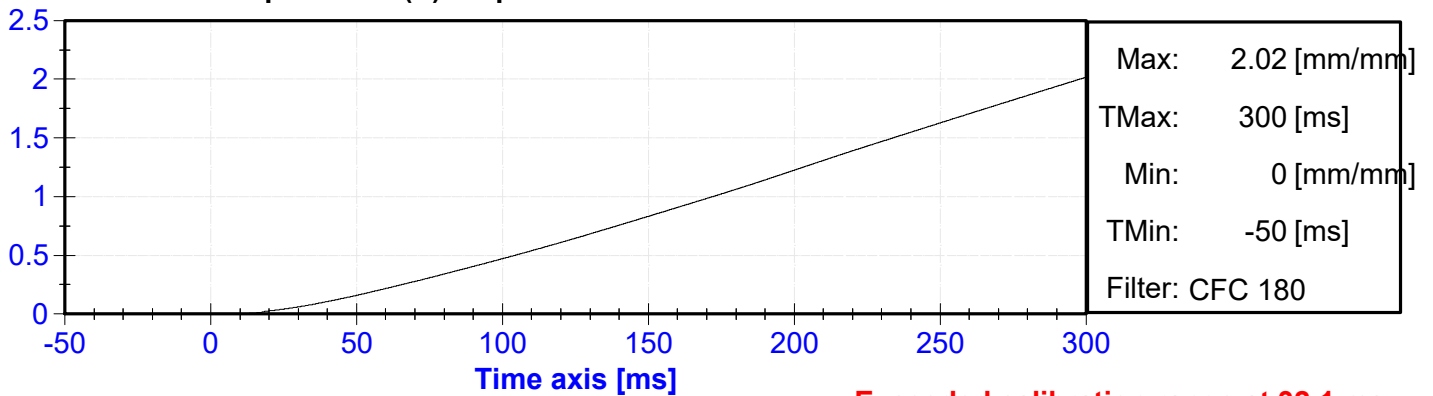
Exceeded calibration range at 17.6 ms



ACCELERATION [g's]

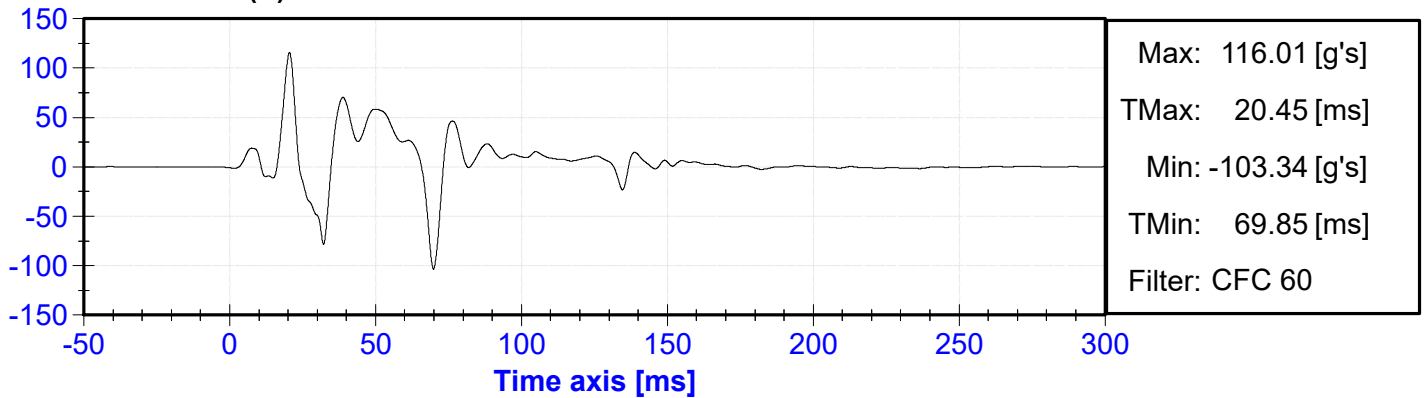
Floor Sill – Impact Side (Y) Displacement vs. Time

Exceeded calibration range at 17.6 ms



A-Pillar Sill (Y) Acceleration vs. Time

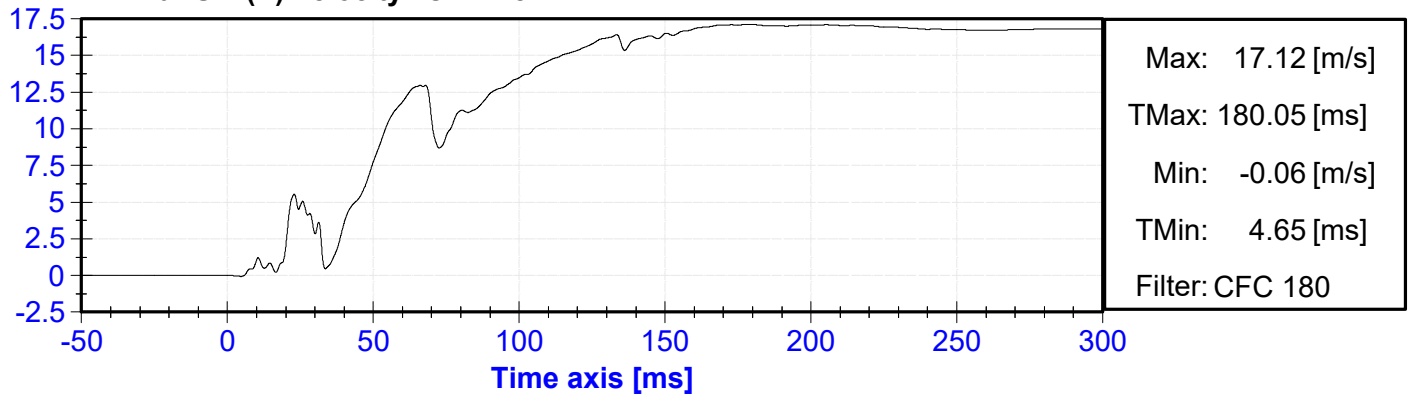
Exceeded calibration range at 32.1 ms



VELOCITY [m/s]

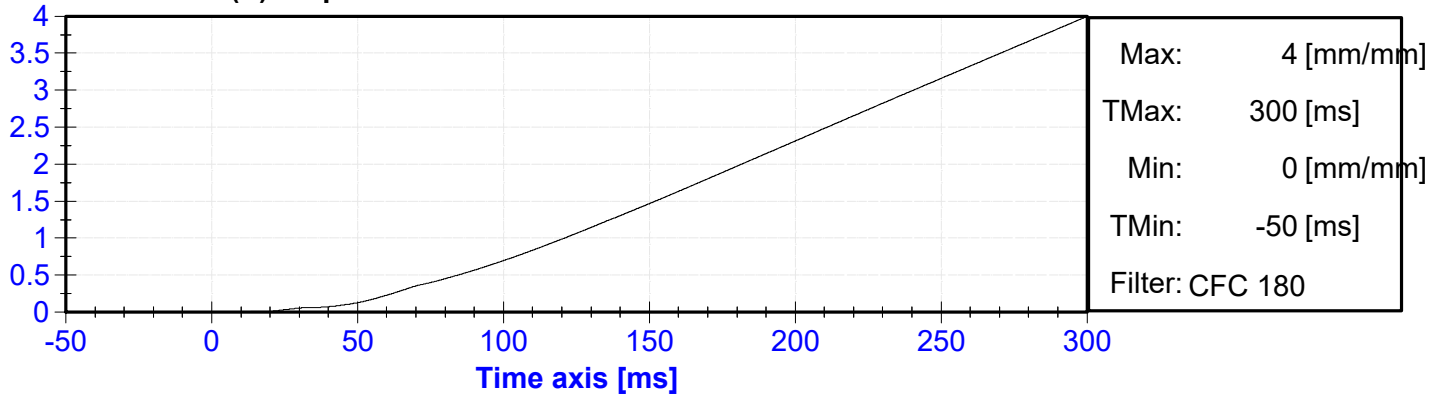
A-Pillar Sill (Y) Velocity vs. Time

Exceeded calibration range at 32.1 ms

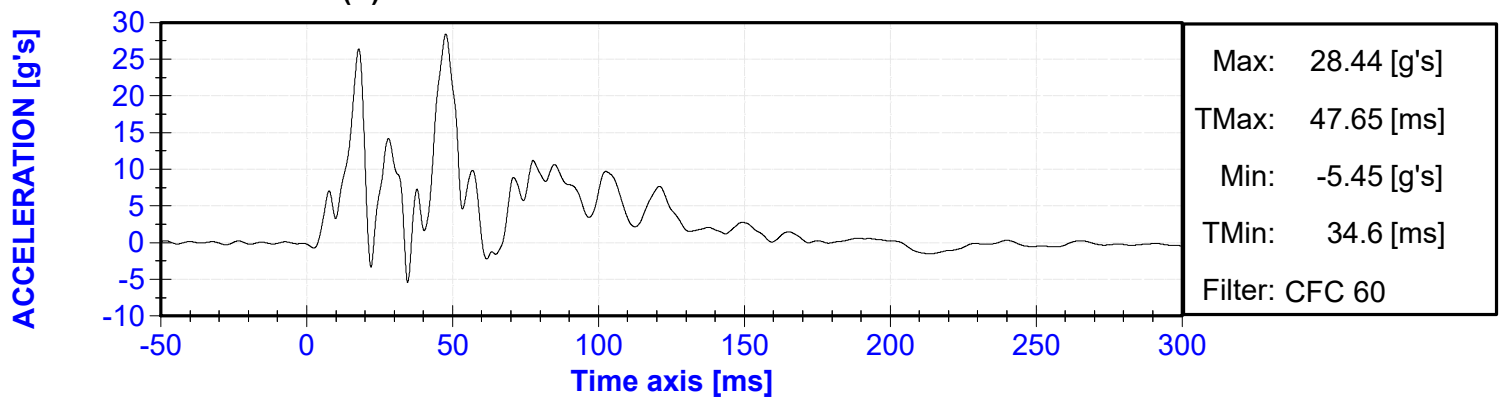


Exceeded calibration range at 32.1 ms

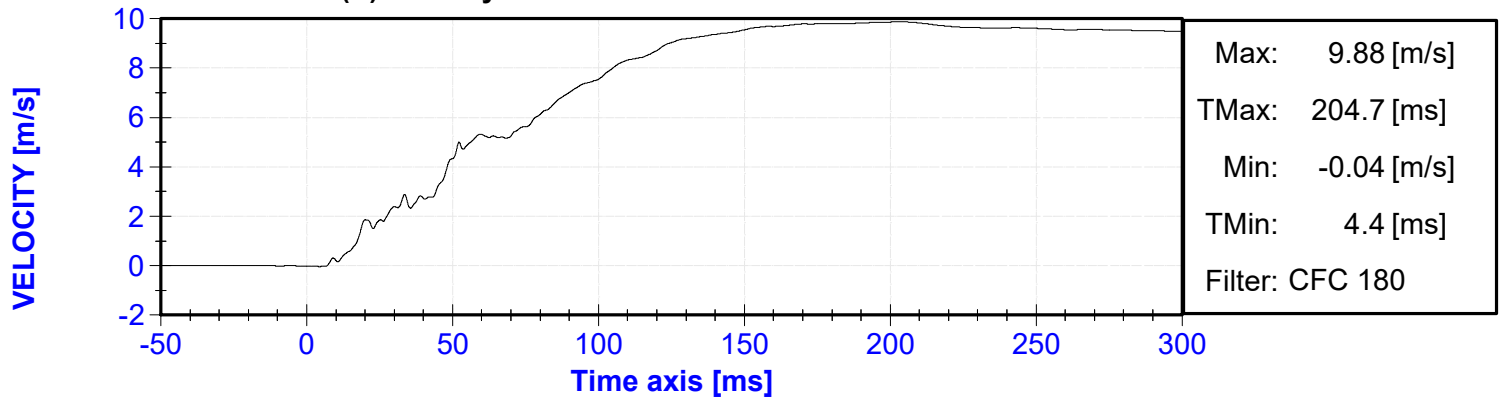
A-Pillar Sill (Y) Displacement vs. Time



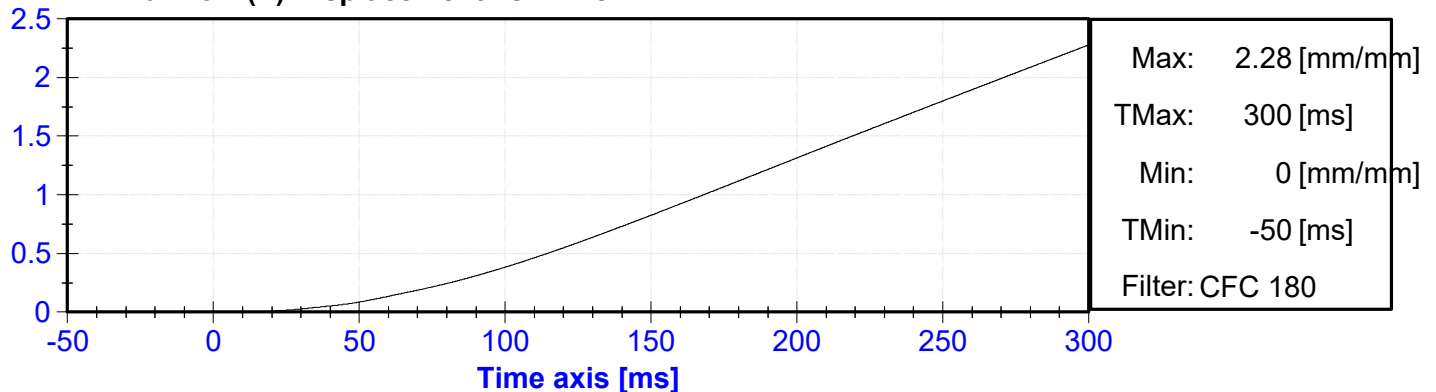
A-Pillar Low (Y) Acceleration vs. Time

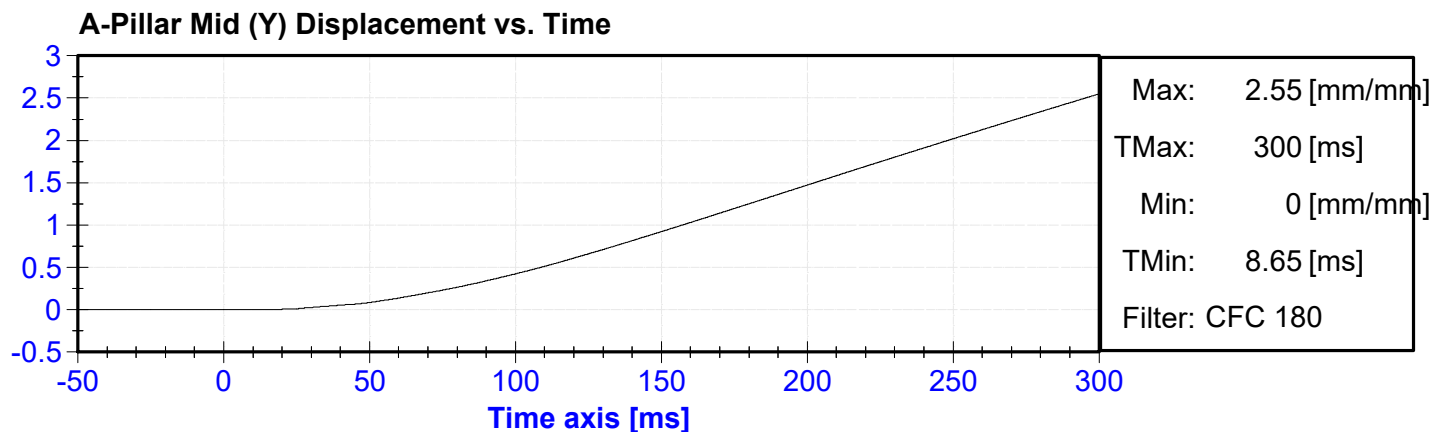
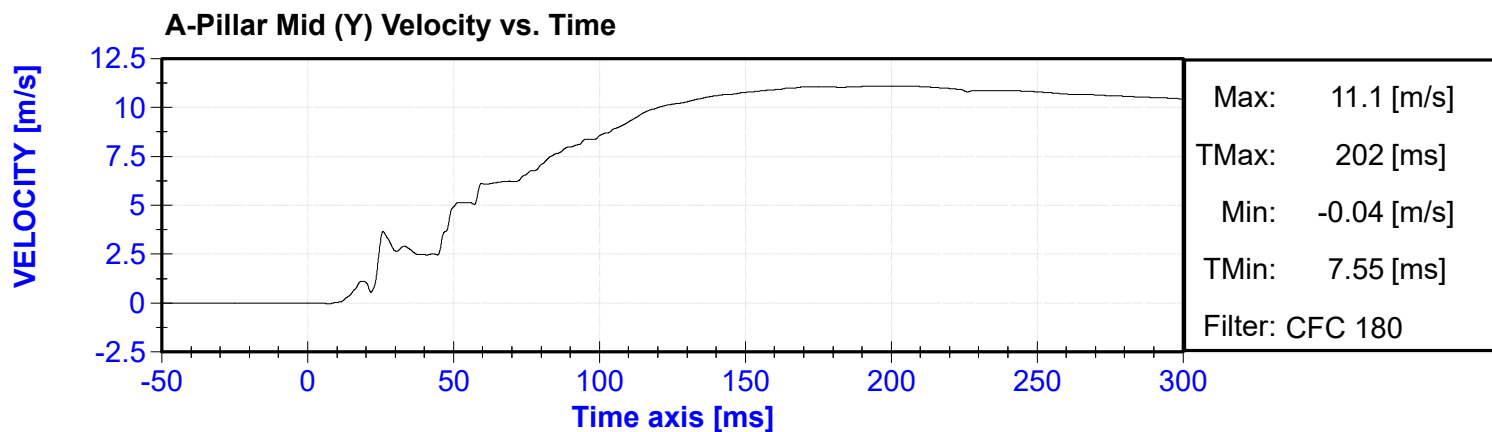
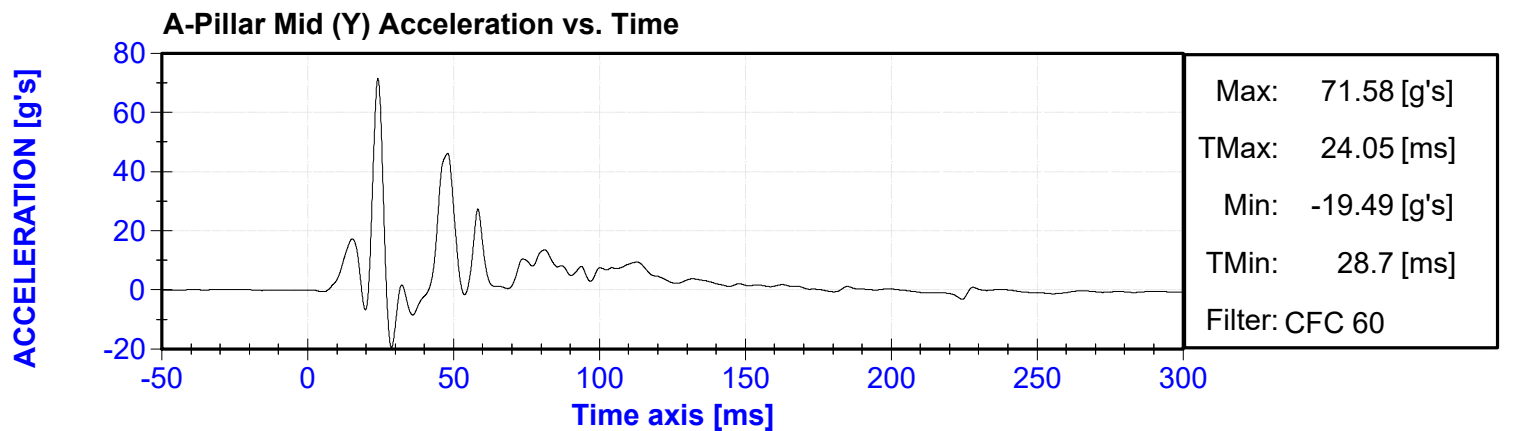


A-Pillar Low (Y) Velocity vs. Time

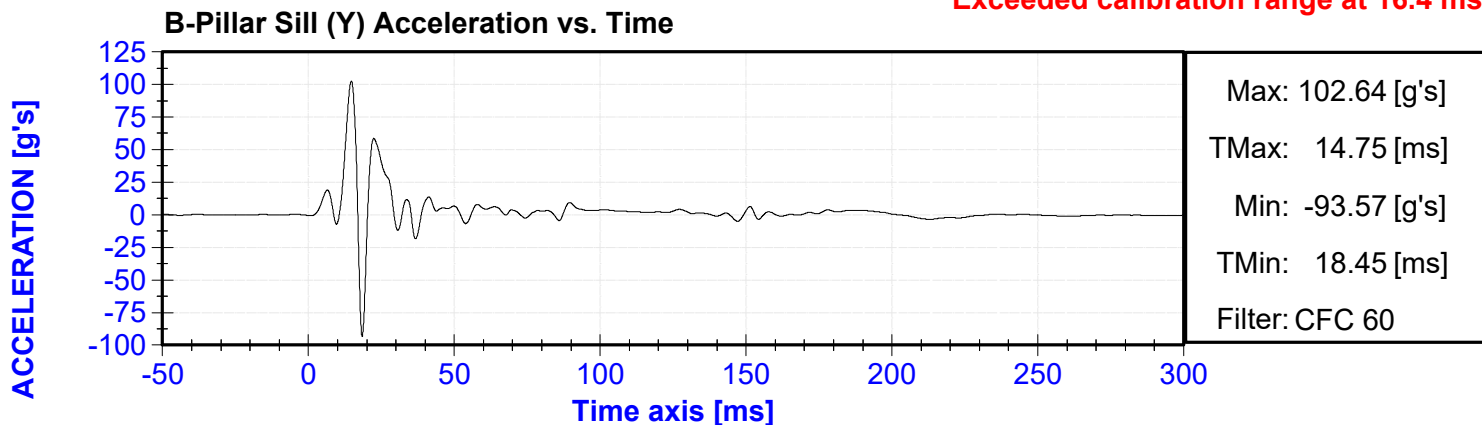


A-Pillar Low (Y) Displacement vs. Time





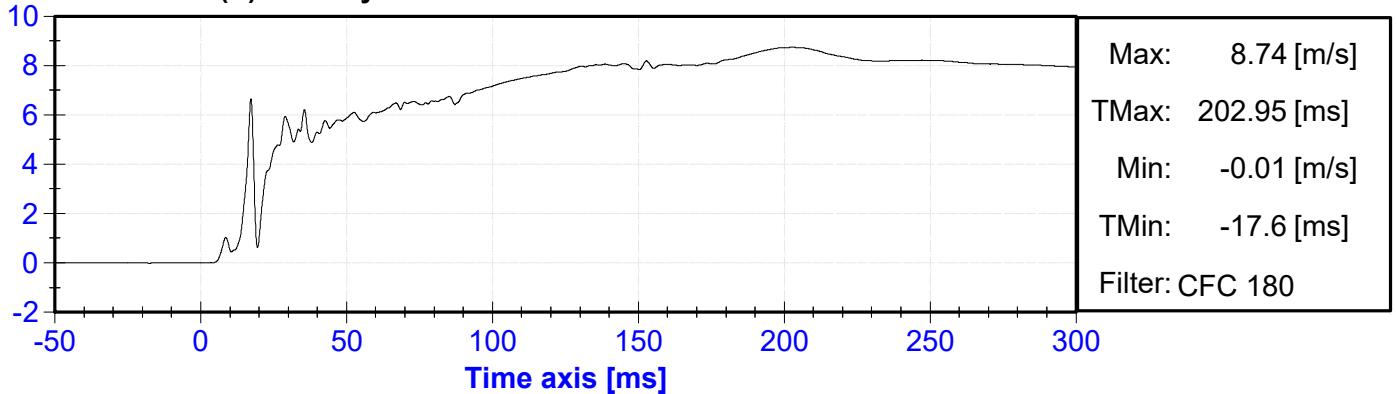
Exceeded calibration range at 16.4 ms



VELOCITY [m/s]

B-Pillar Sill (Y) Velocity vs. Time

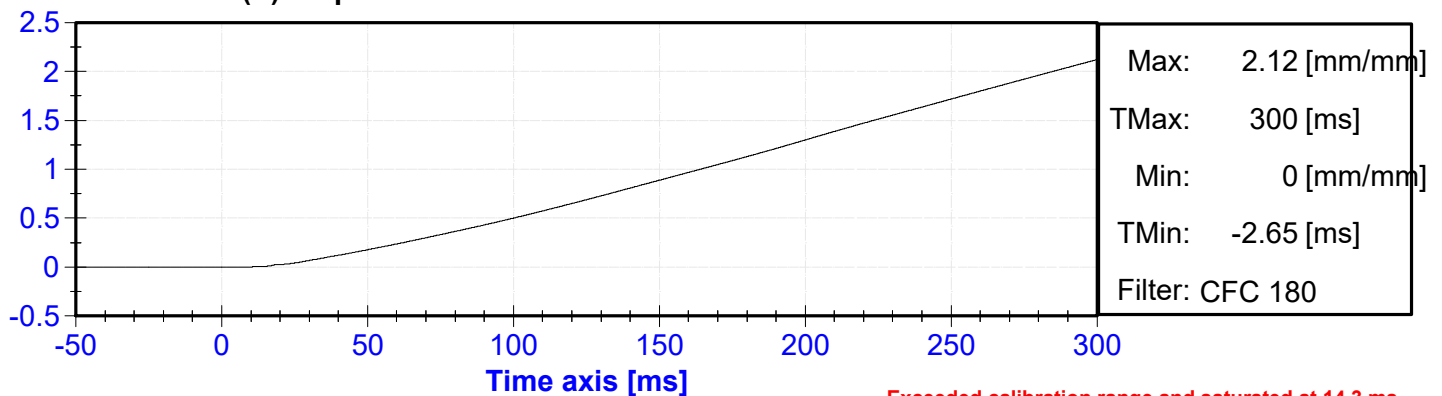
Exceeded calibration range at 16.4 ms



ACCELERATION [g's]

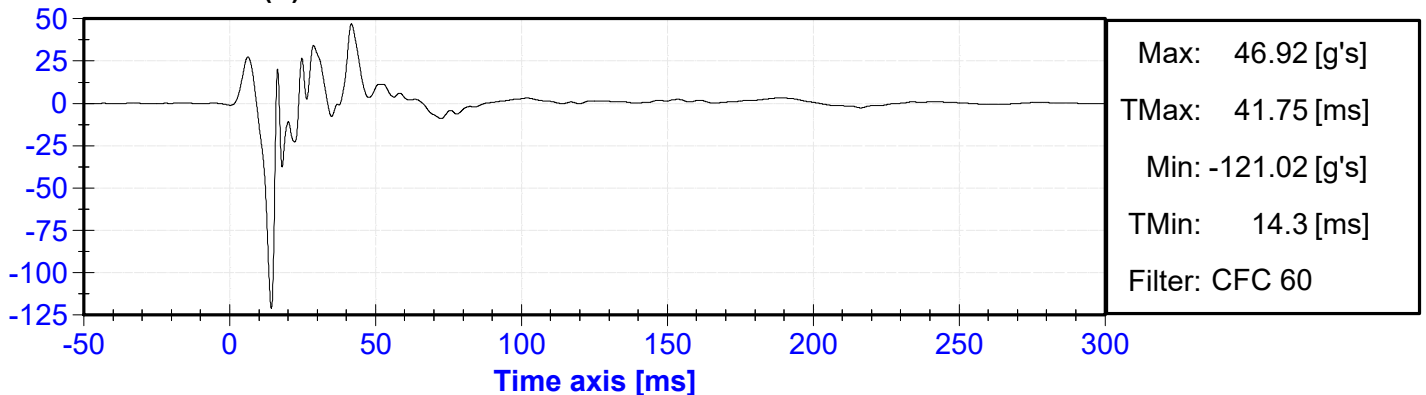
B-Pillar Sill (Y) Displacement vs. Time

Exceeded calibration range at 16.4 ms



B-Pillar Low (Y) Acceleration vs. Time

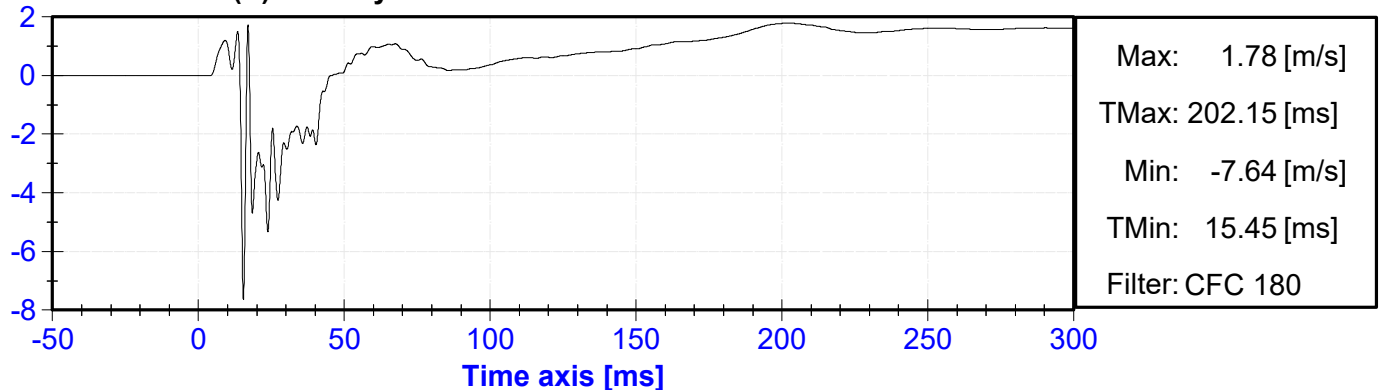
Exceeded calibration range and saturated at 14.3 ms



VELOCITY [m/s]

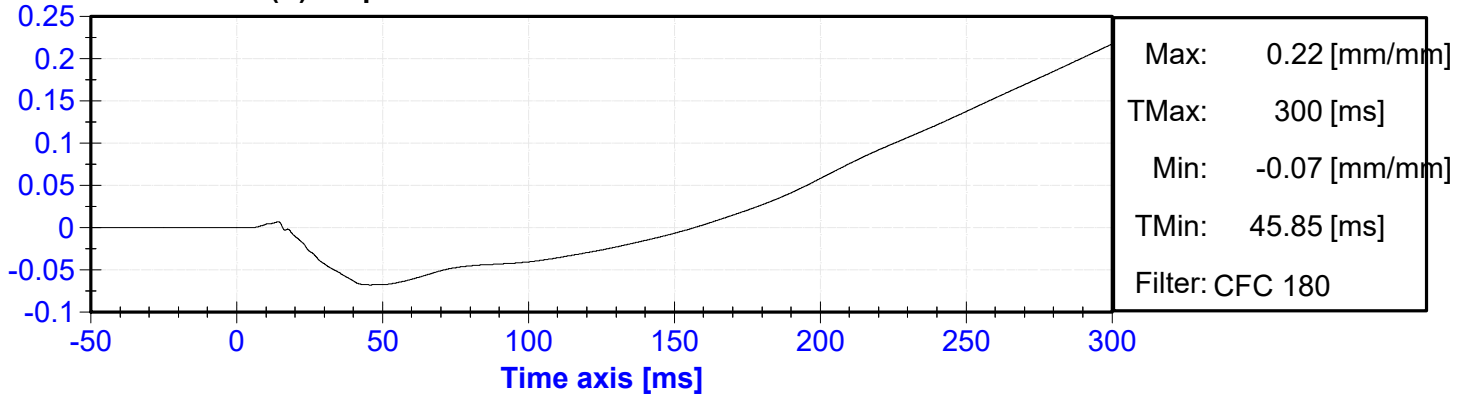
B-Pillar Low (Y) Velocity vs. Time

Exceeded calibration range and saturated at 14.3 ms



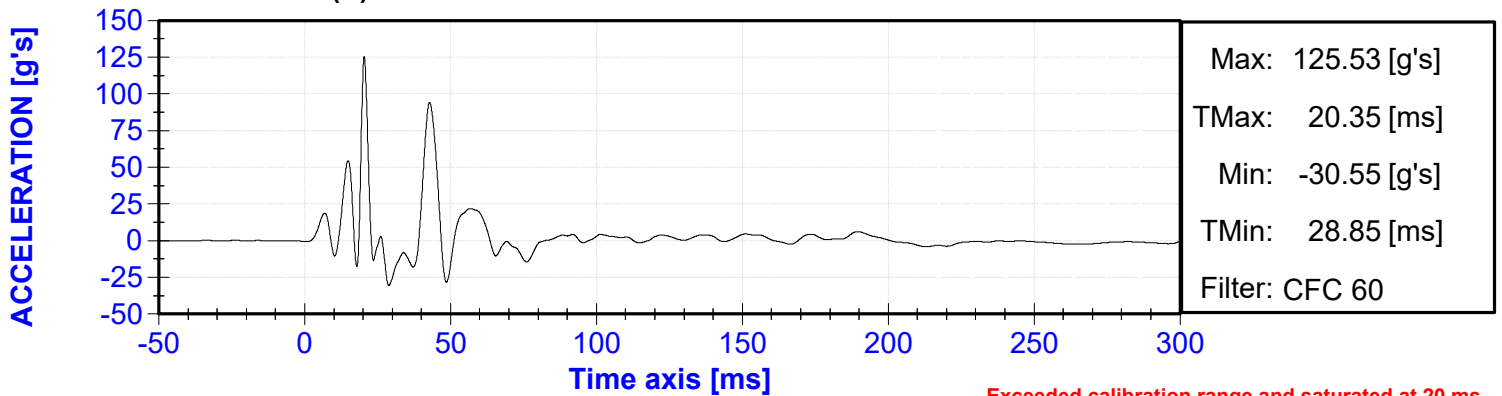
Exceeded calibration range and saturated at 14.3 ms

B-Pillar Low (Y) Displacement vs. Time



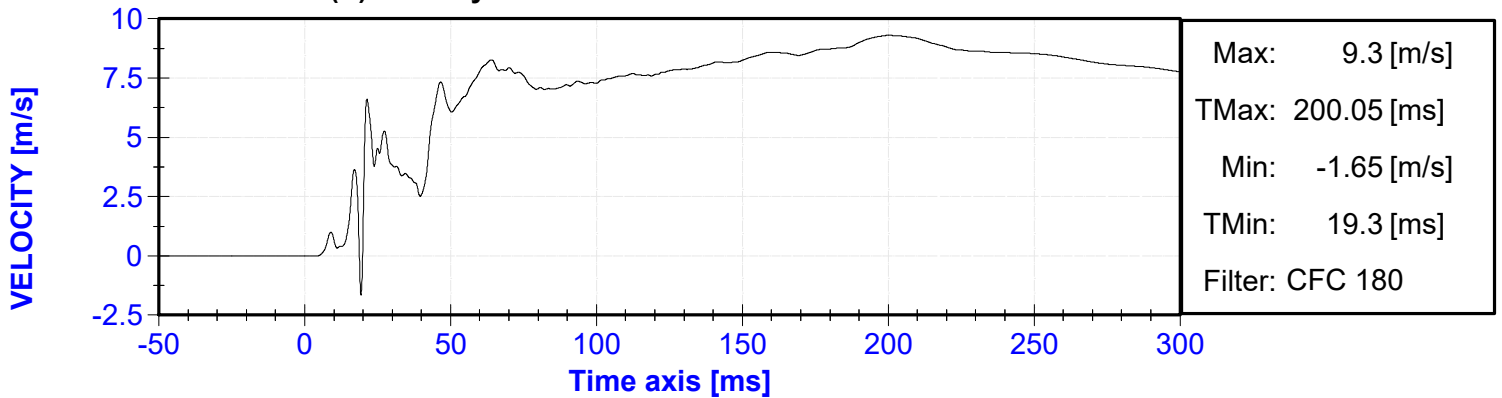
Exceeded calibration range and saturated at 20 ms

B-Pillar Mid (Y) Acceleration vs. Time



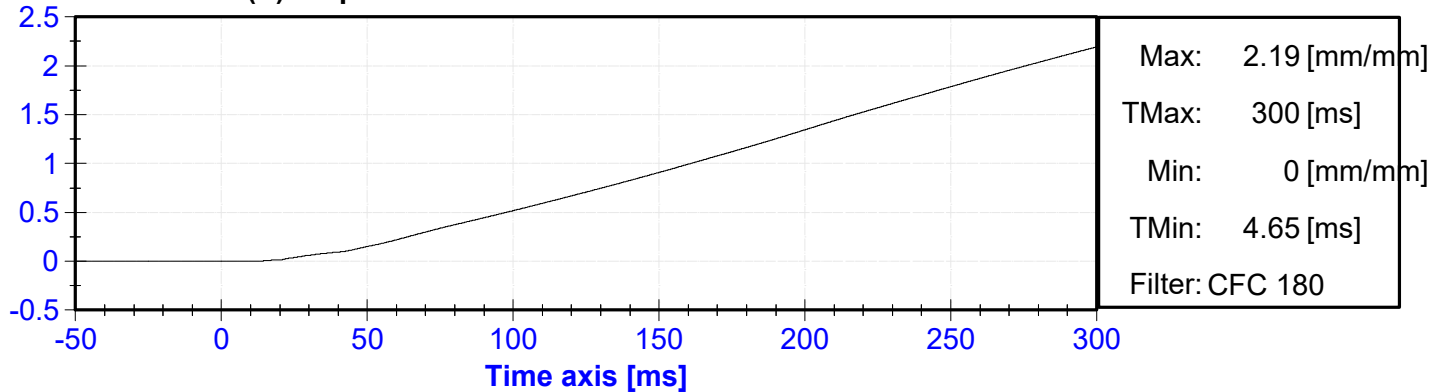
Exceeded calibration range and saturated at 20 ms

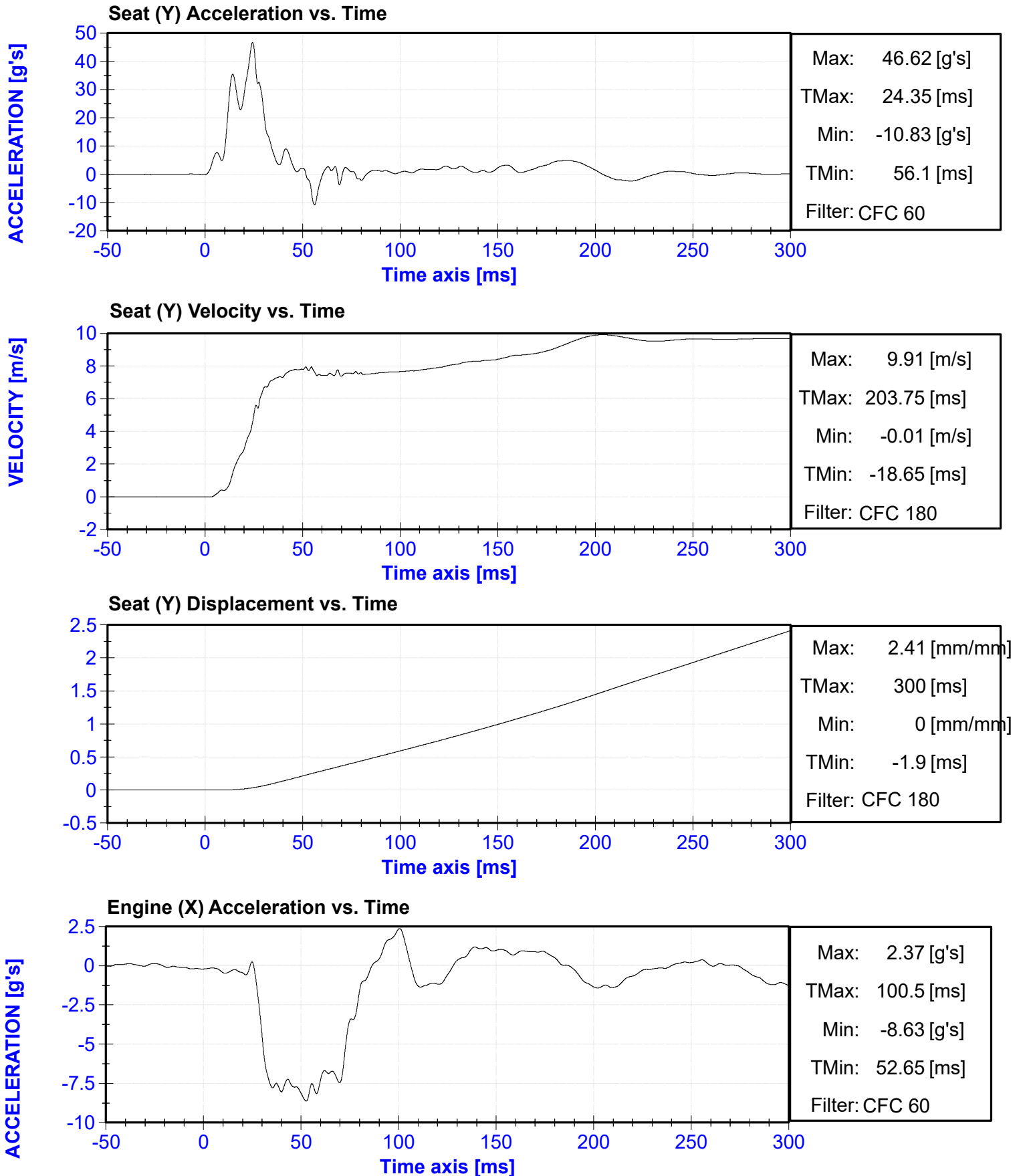
B-Pillar Mid (Y) Velocity vs. Time

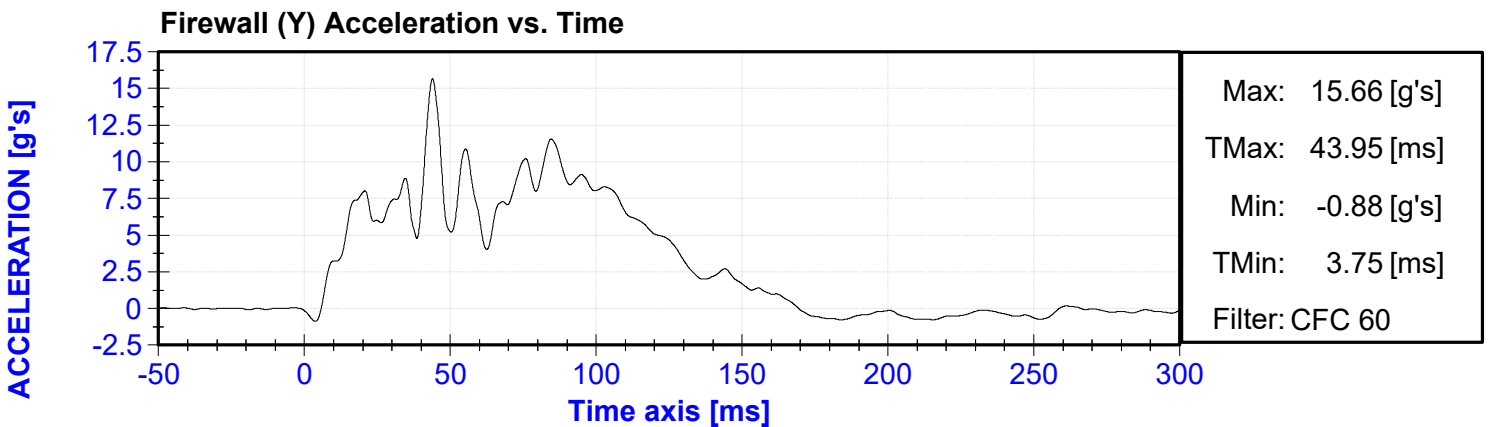
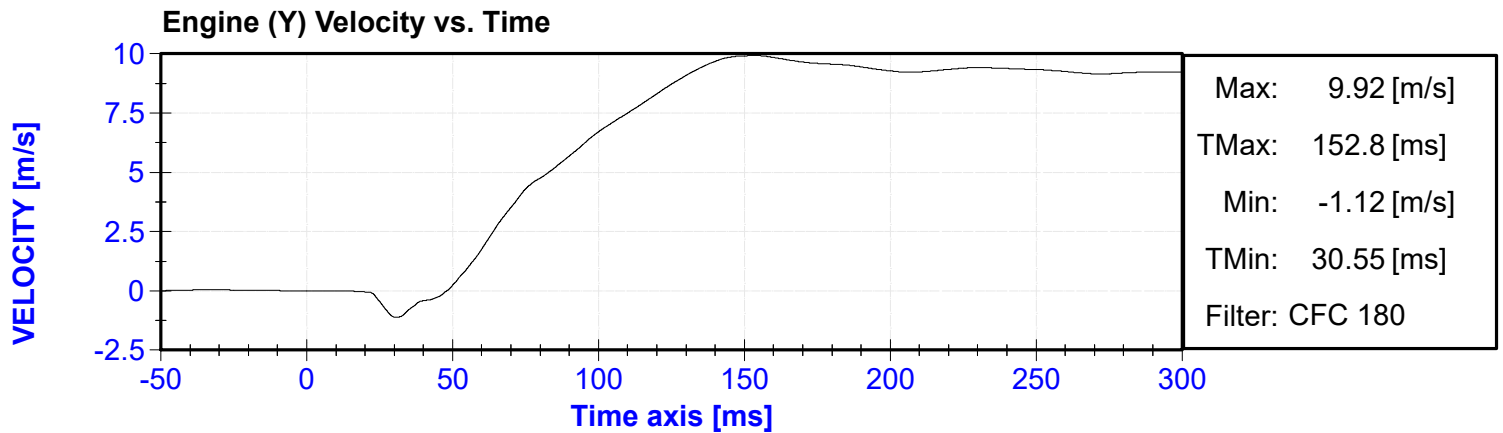
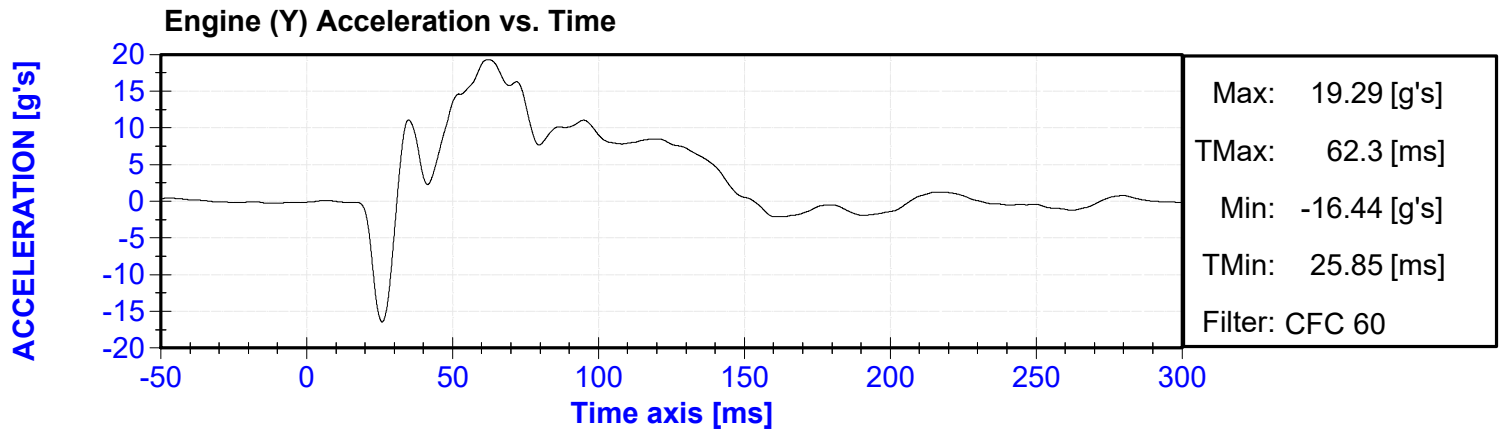
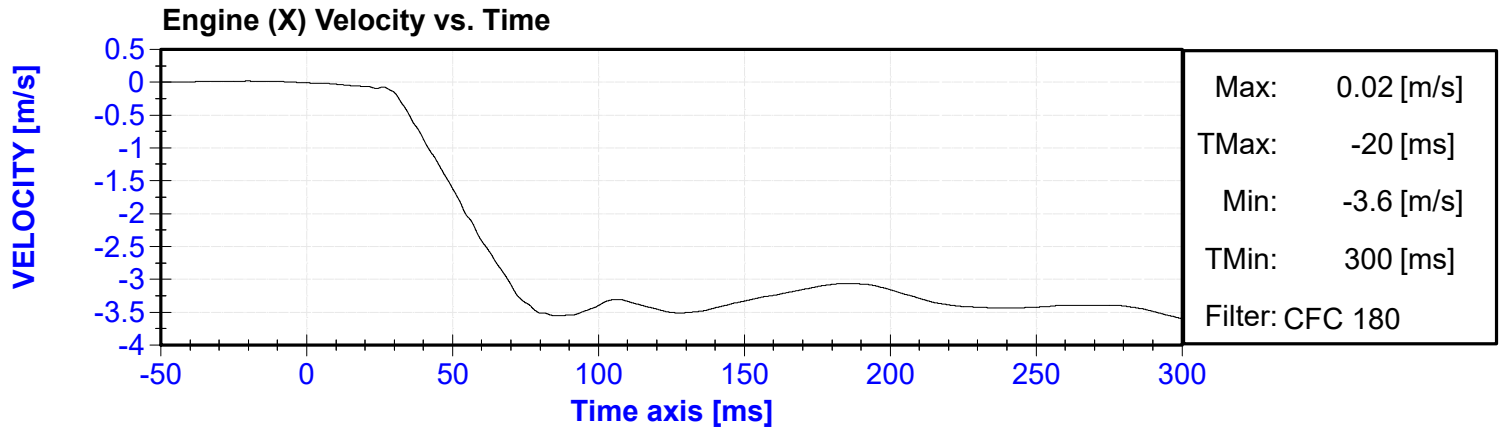


Exceeded calibration range and saturated at 20 ms

B-Pillar Mid (Y) Displacement vs. Time

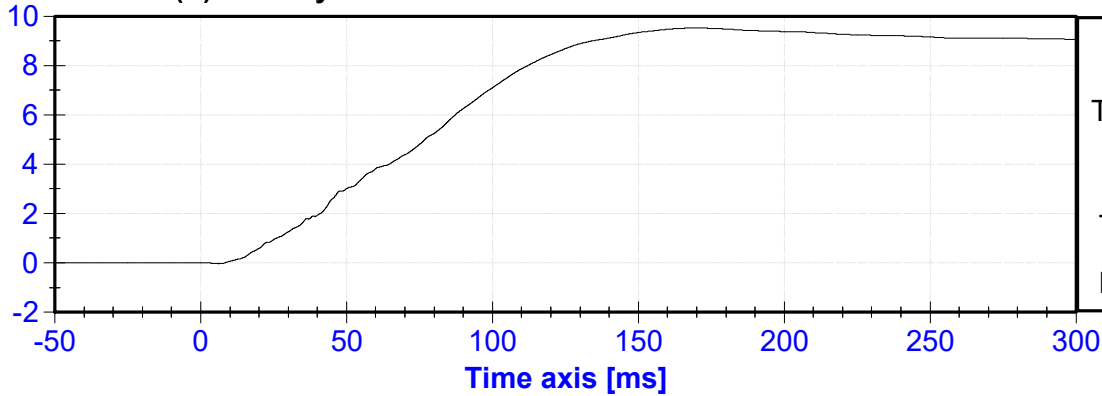






VELOCITY [m/s]

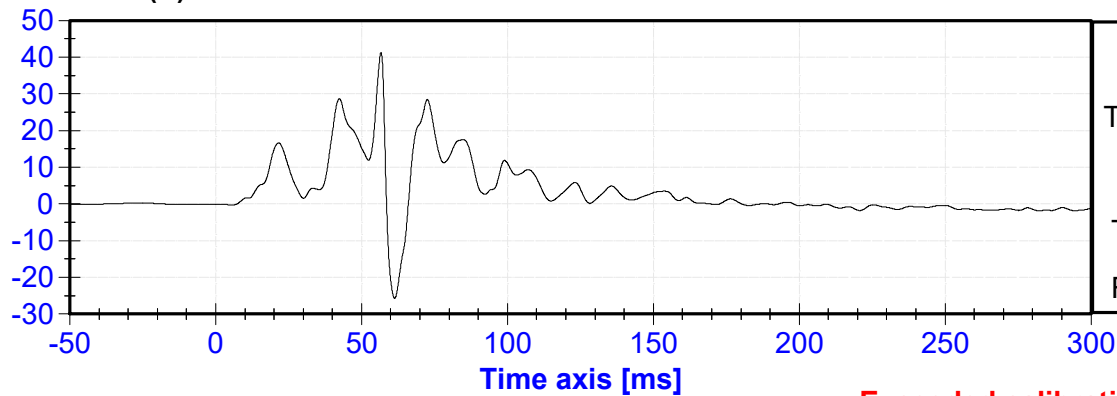
Firewall (Y) Velocity vs. Time



ACCELERATION [g's]

Roof (Y) Acceleration vs. Time

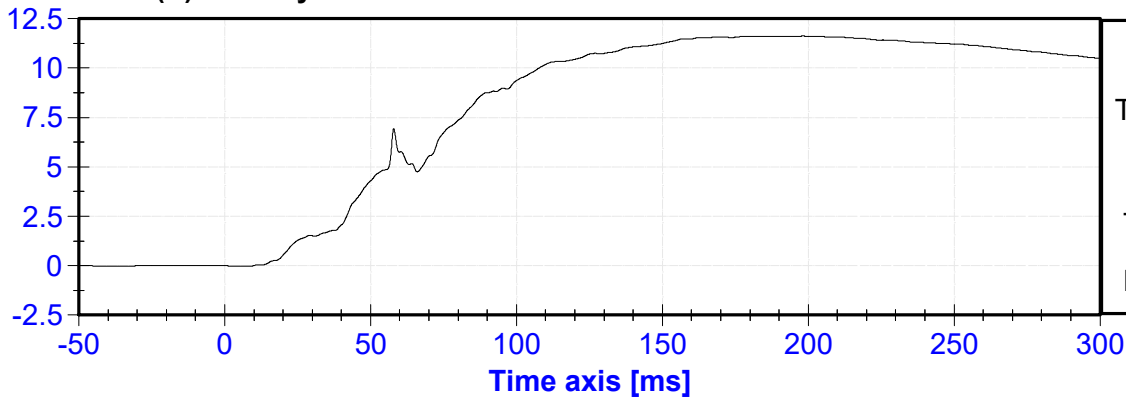
Exceeded calibration range at 57.3 ms



VELOCITY [m/s]

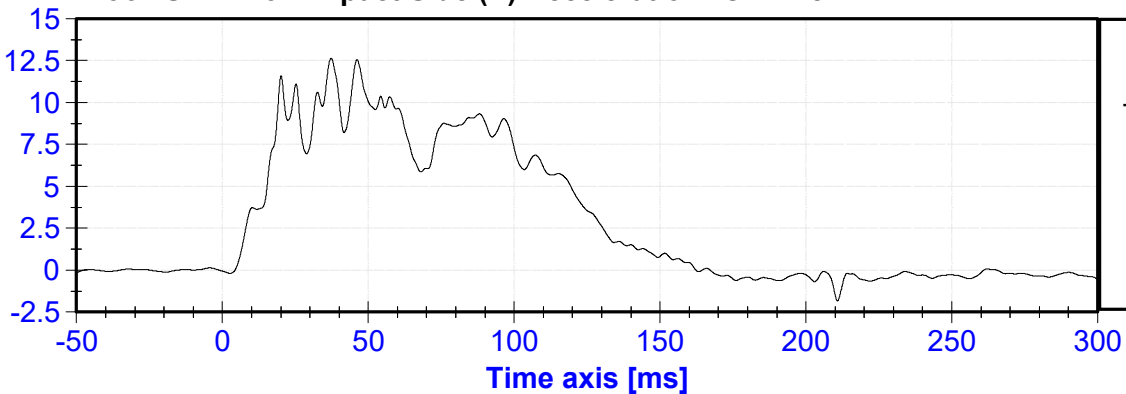
Roof (Y) Velocity vs. Time

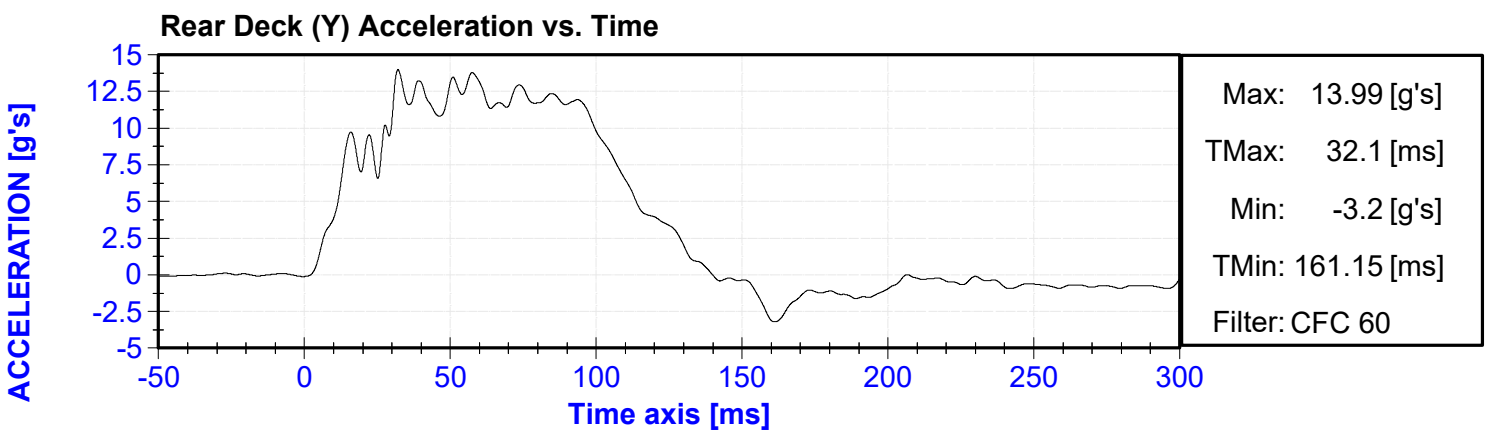
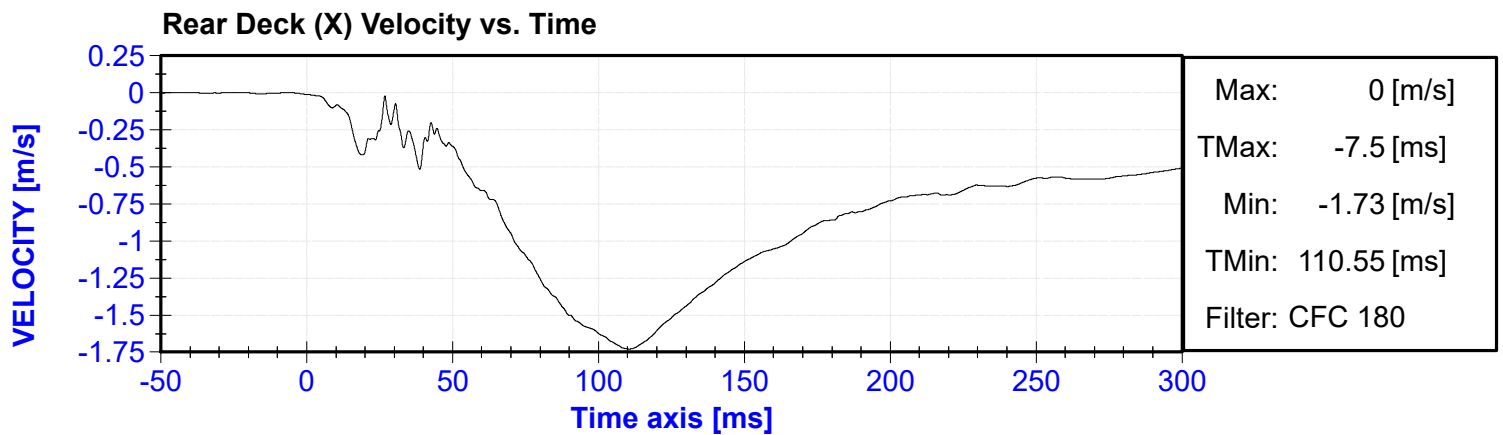
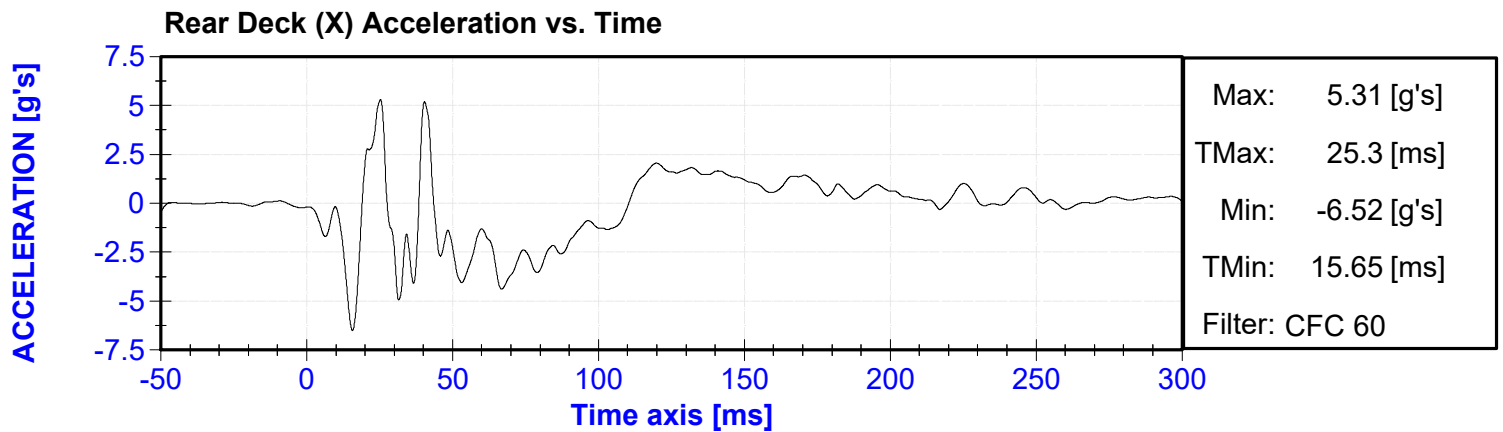
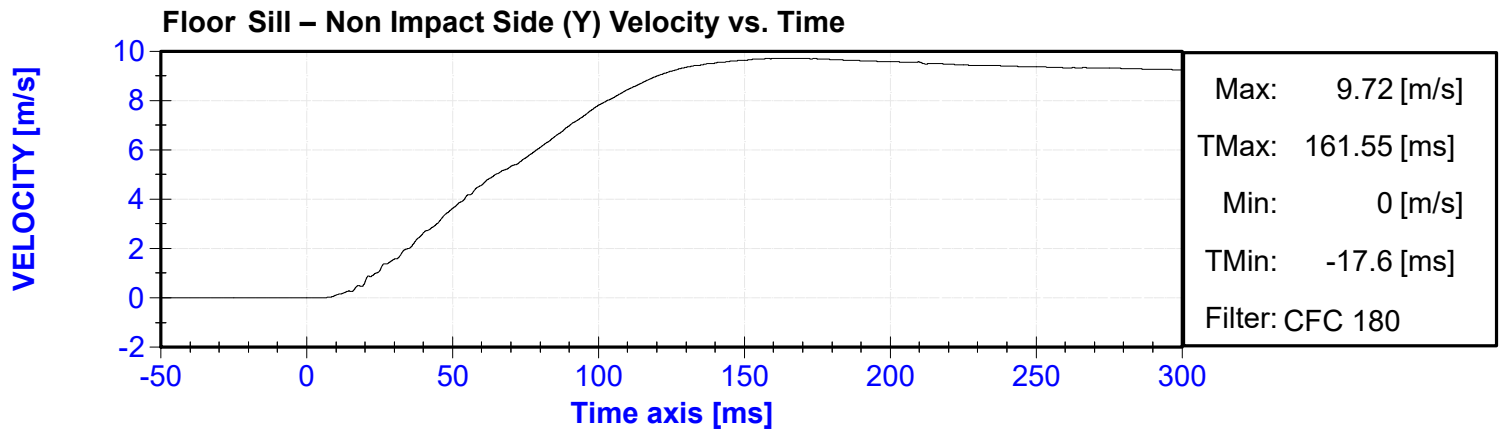
Exceeded calibration range at 57.3 ms

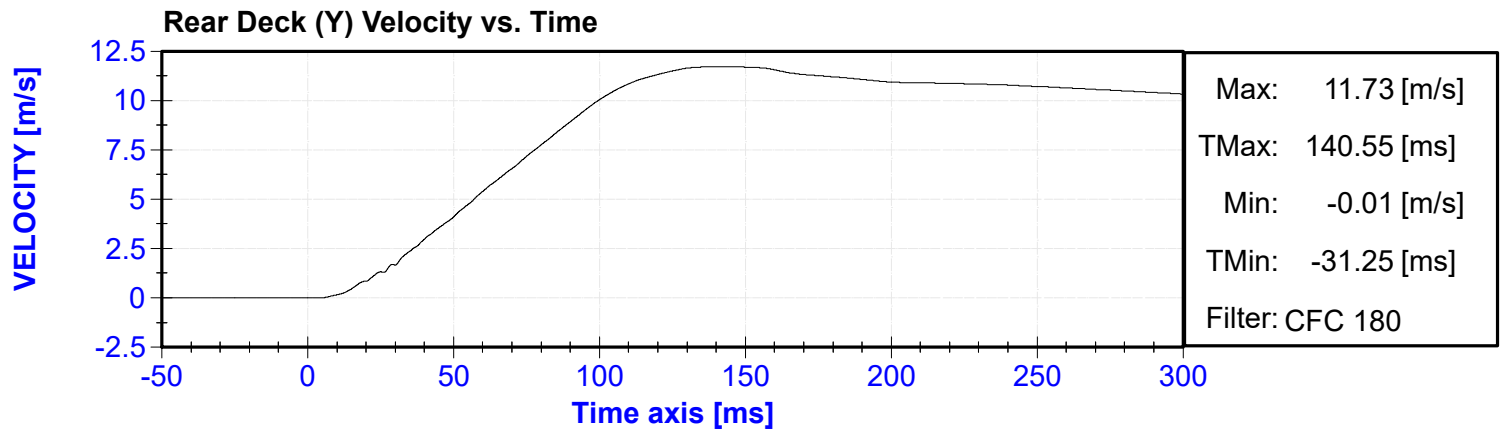


ACCELERATION [g's]

Floor Sill – Non Impact Side (Y) Acceleration vs. Time







APPENDIX IV

PRE-TEST DUMMY PERFORMANCE CALIBRATION TEST DATA

(Subpart U, ES-2re)

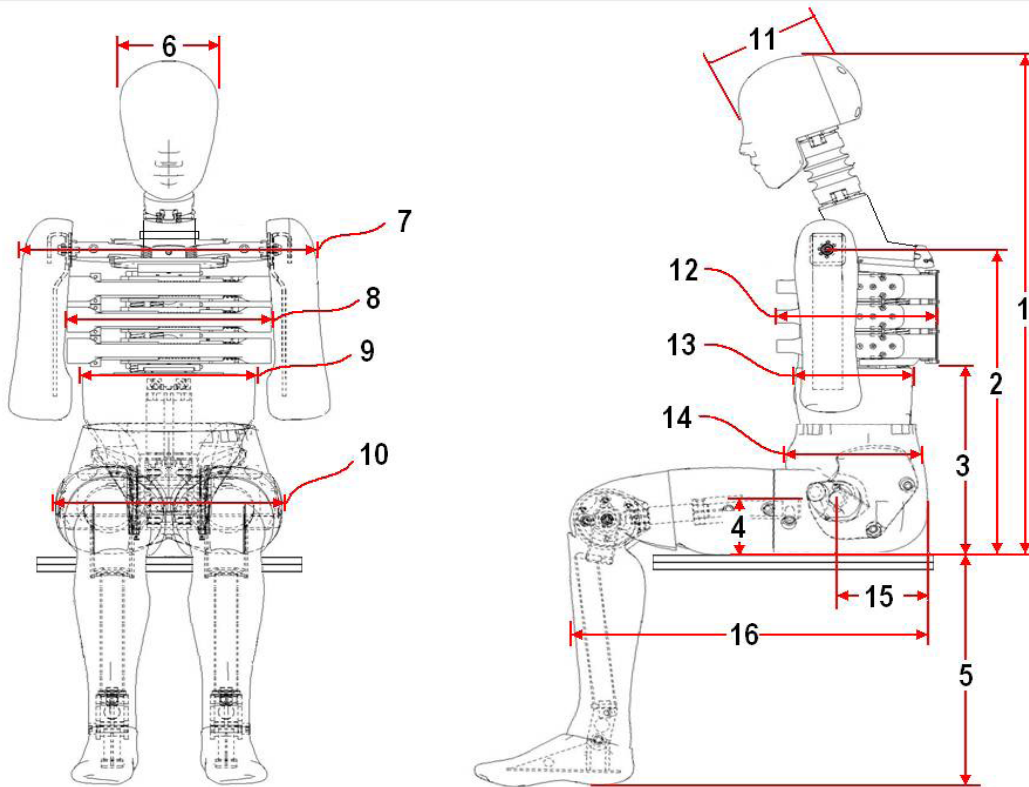


External Measurements - EuroSID-2re

Technician: J. Rios

Date: 7/14/2025

Dummy Serial Number: D037



FRONT VIEW

SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	910	Pass
2	Seat to Shoulder Joint	558	572	562	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	352	Pass
4	Seat to Hip Joint (center of bolt)	97	103	100	Pass
5	Sole to Seat, Sitting	333	451	416	Pass
6	Head Width	152	158	156	Pass
7	Shoulder/Arm Width	461	479	472	Pass
8	Thorax Width	322	332	328	Pass
9	Abdomen Width	273	287	282	Pass
10	Pelvis Lap Width	359	373	363	Pass
11	Head Depth	196	206	201	Pass
12	Thorax Depth	262	272	267	Pass
13	Abdomen Depth	194	204	198	Pass
14	Pelvis Depth	235	245	241	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	155	Pass
16	Back of Buttocks to Front Knee	597	615	605	Pass

ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

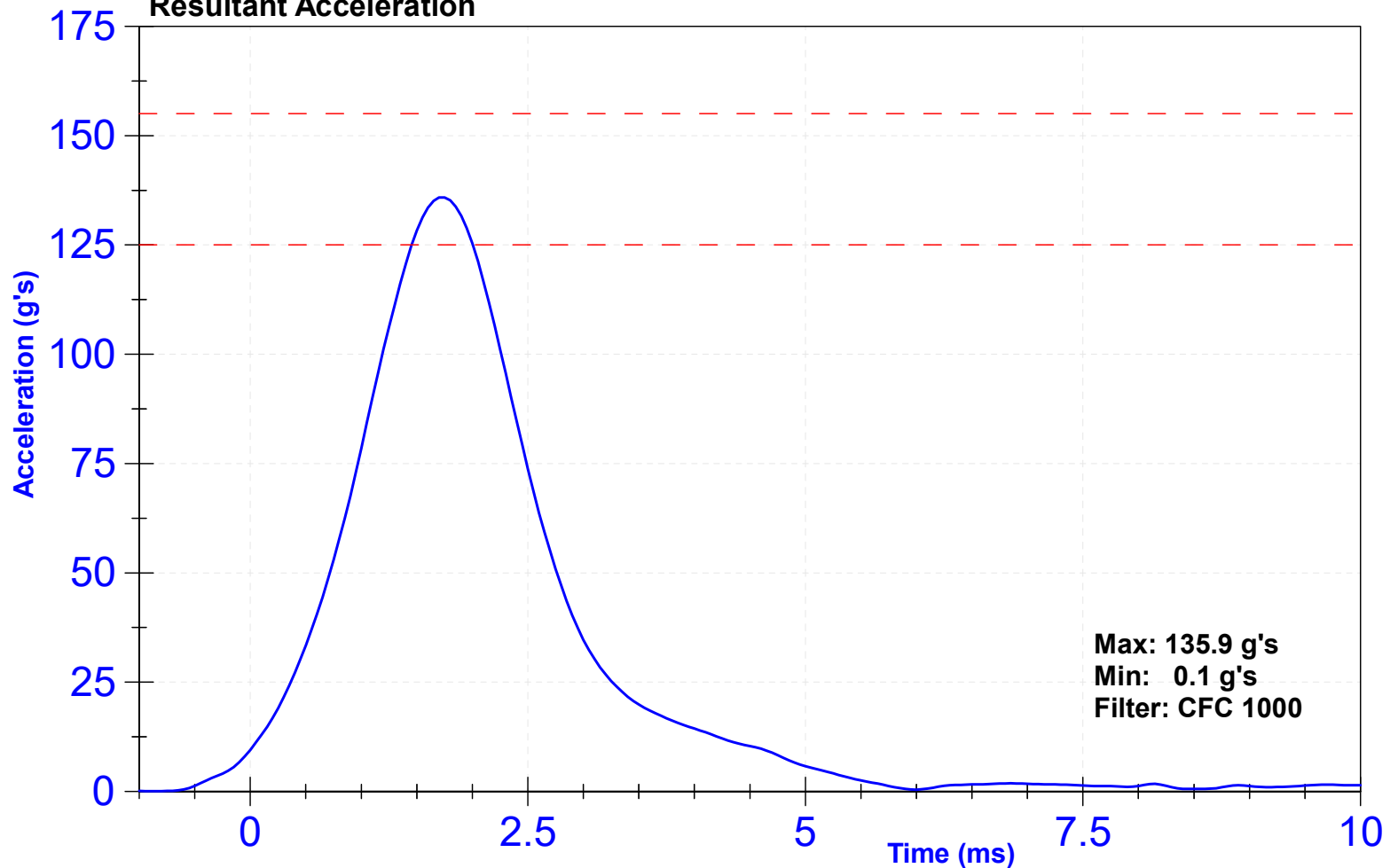
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	59	Pass
Resultant Acceleration	125	155	g's	135.9	Pass
Oscillation	0	15	%	1.36	Pass
Fore-Aft Acceleration	-15	15	g's	8.6	Pass

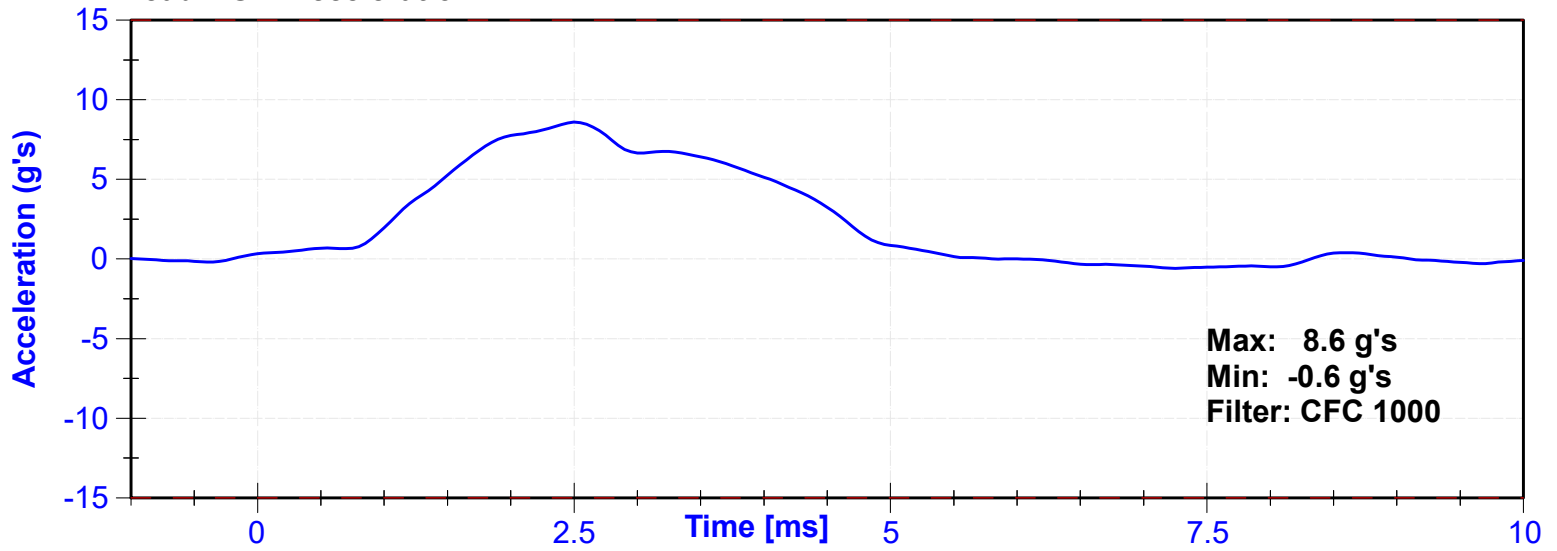
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	T21724	4/21/2025	10/18/2025
Y Accelerometer	Endevco	T22281	4/21/2025	10/18/2025
Z Accelerometer	Endevco	T26050	4/21/2025	10/18/2025

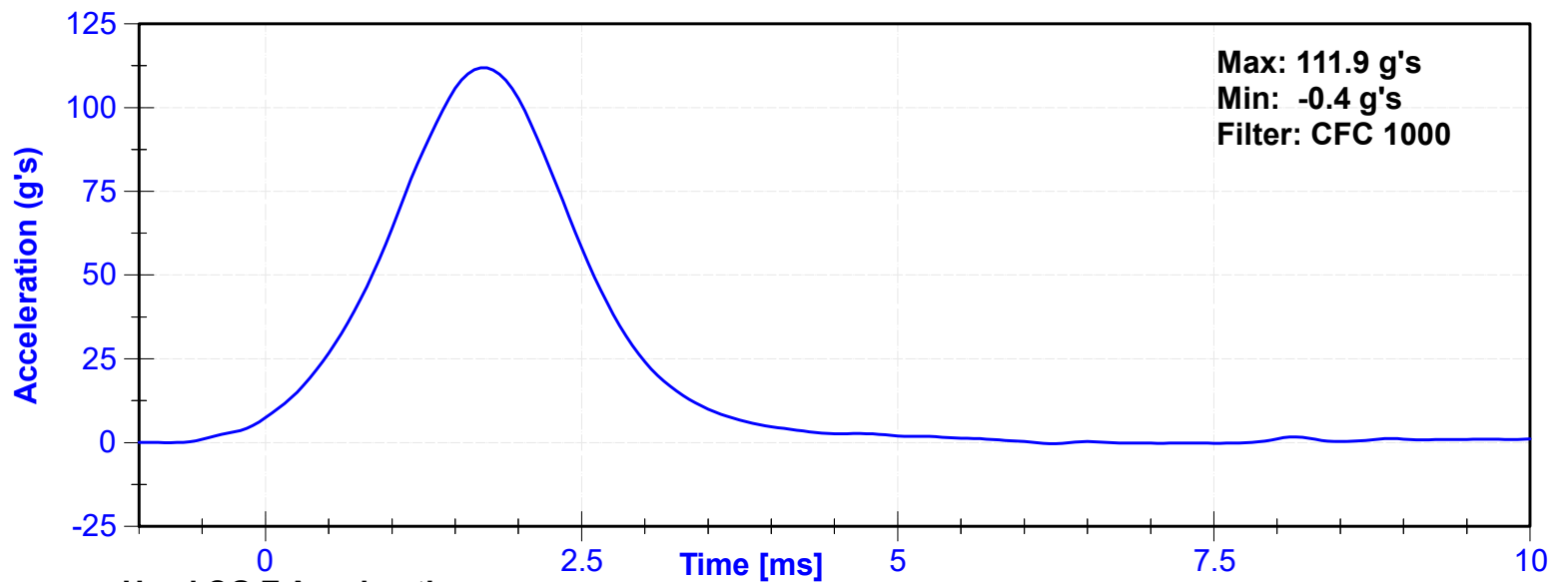
Resultant Acceleration



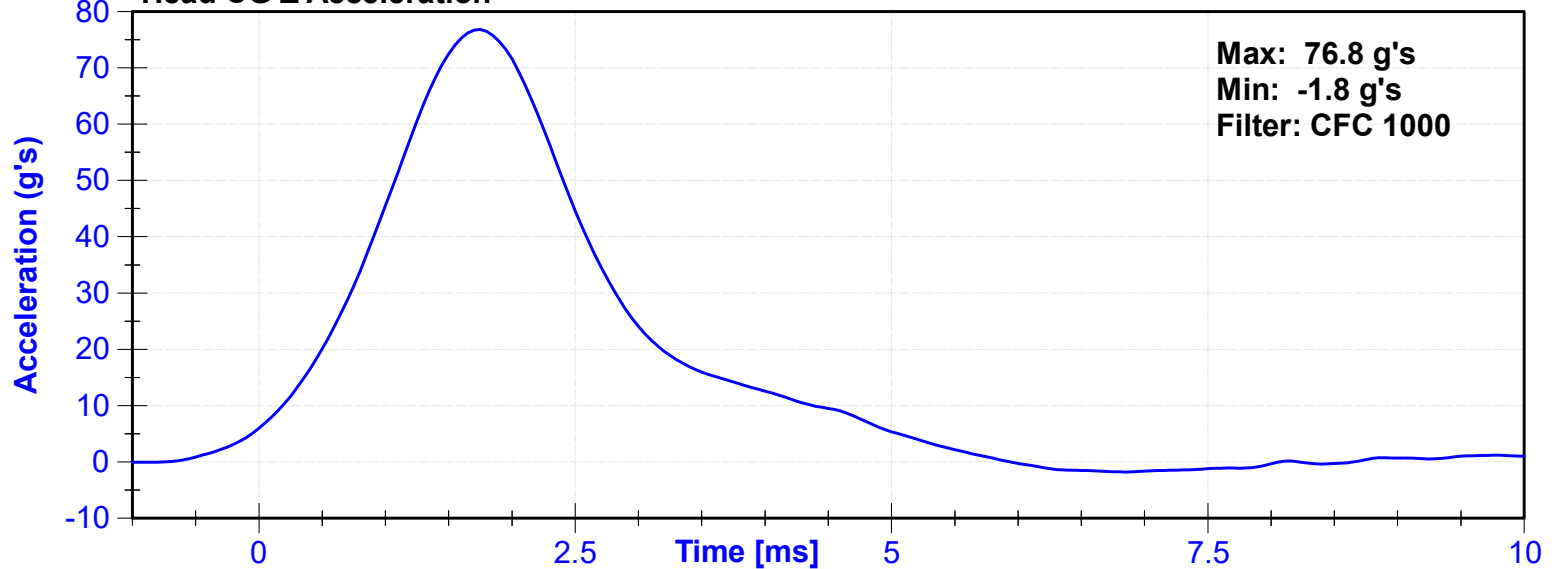
Head CG X Acceleration



Head CG Y Acceleration



Head CG Z Acceleration



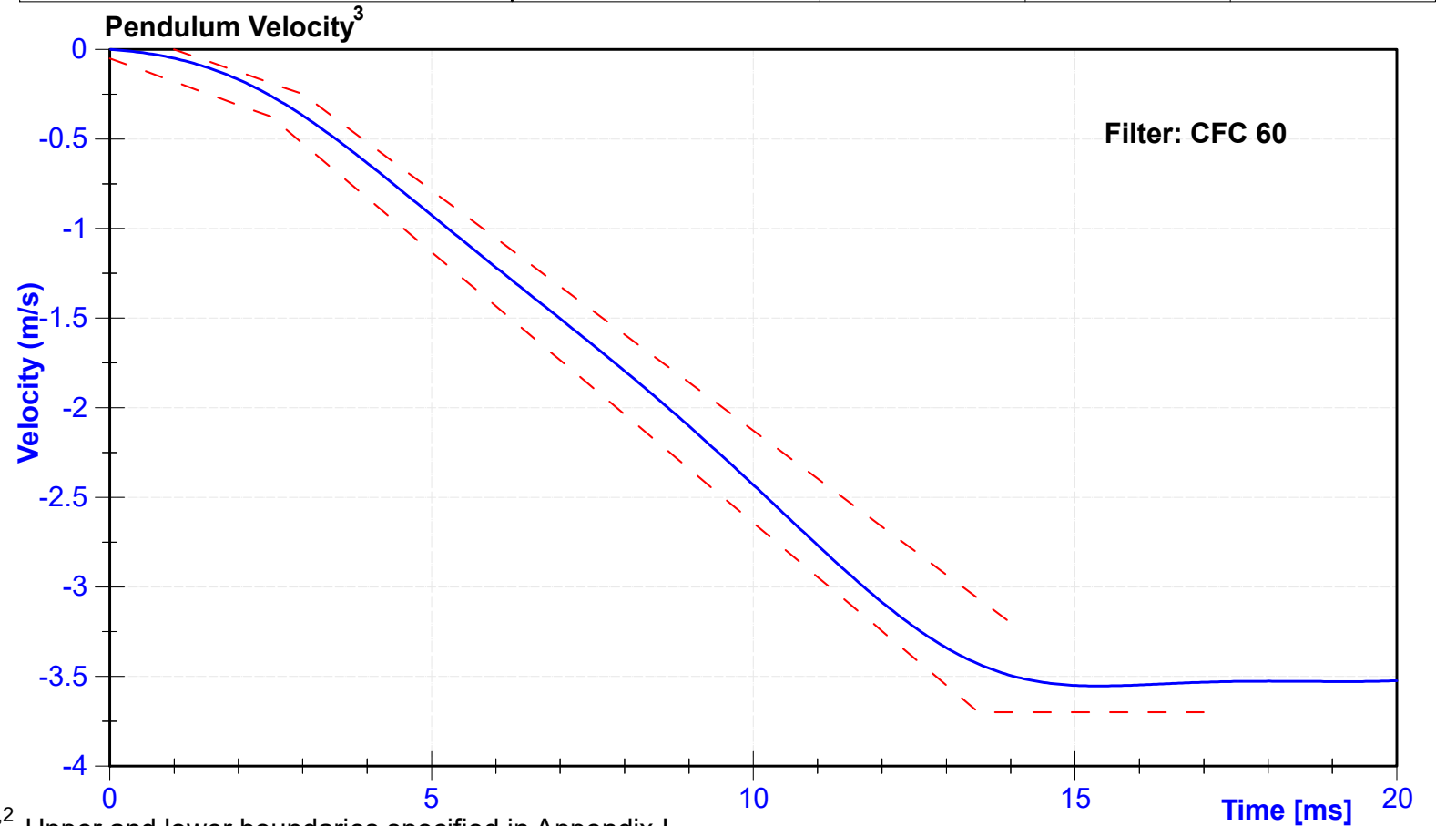
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

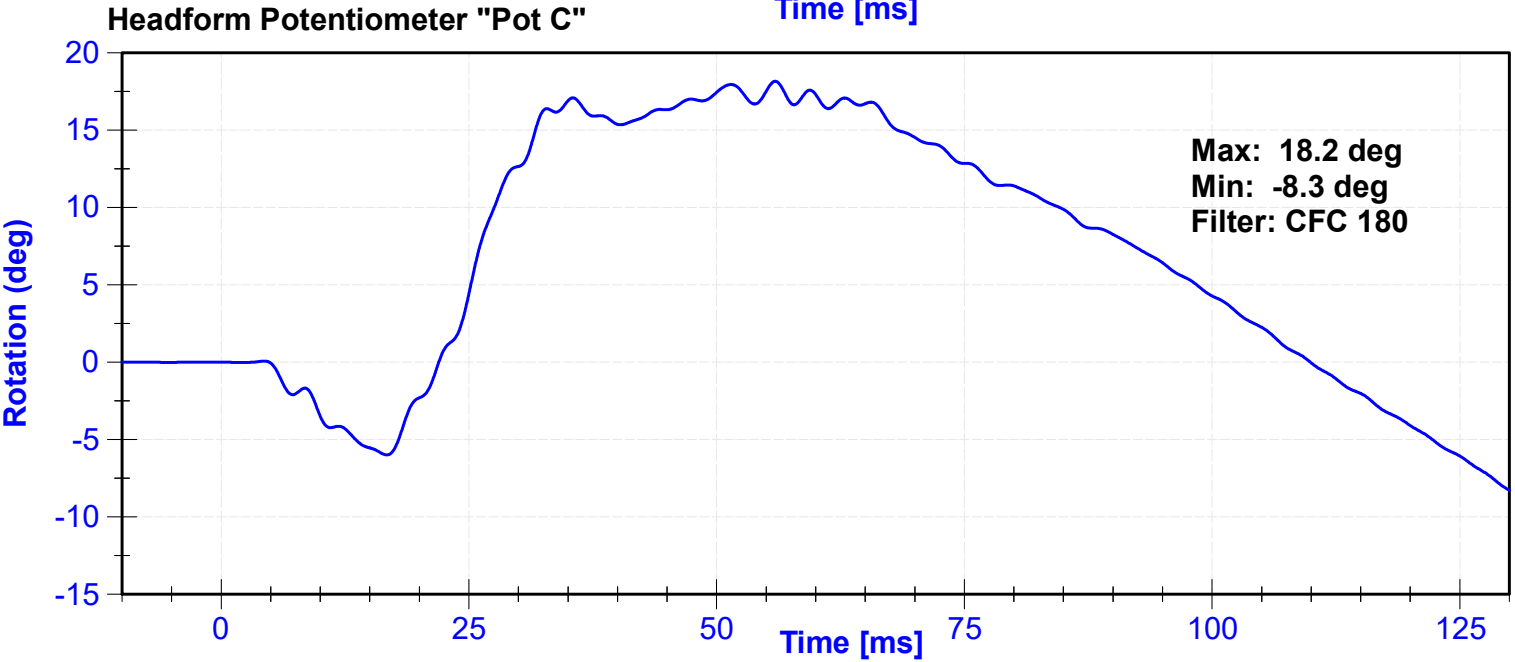
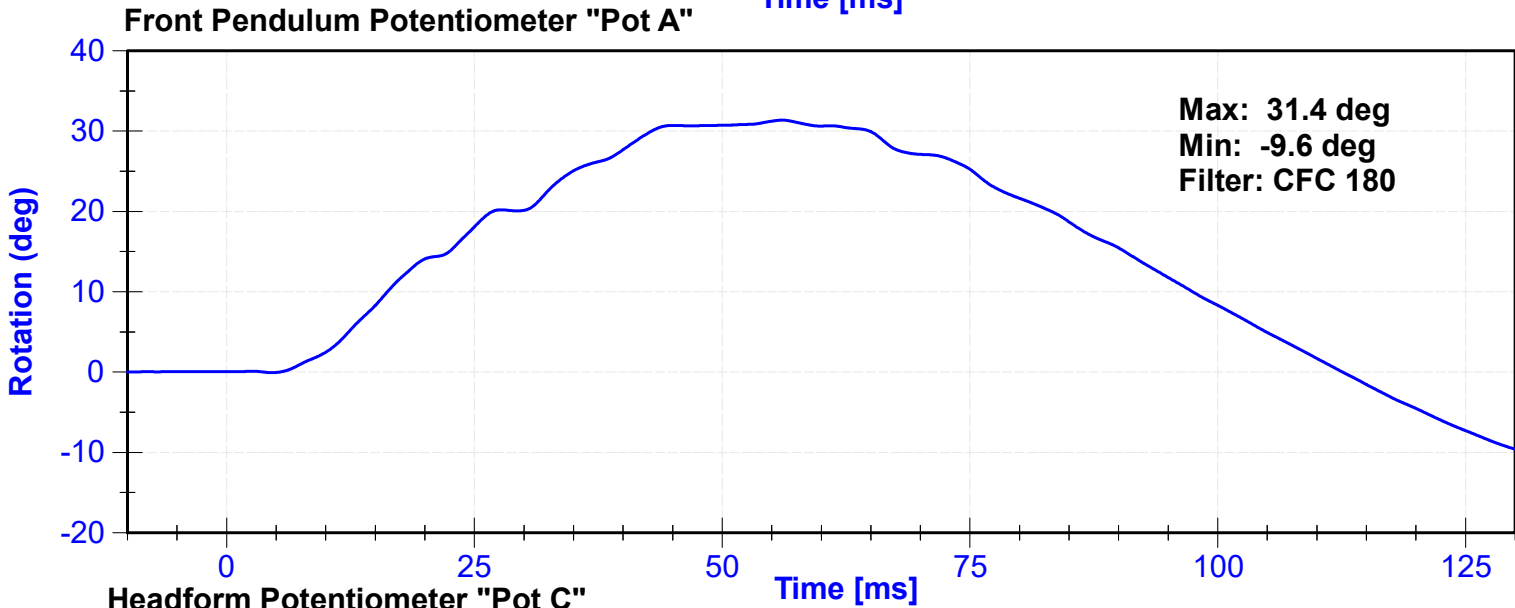
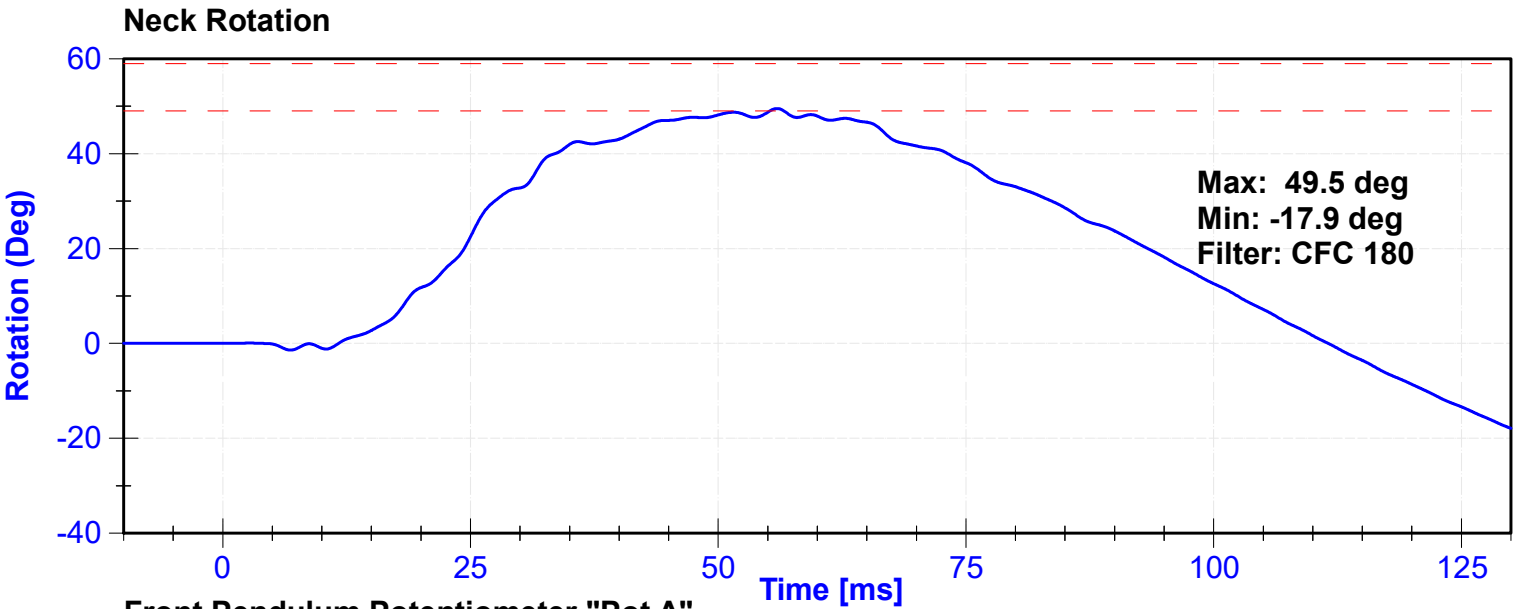
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	52	Pass
Velocity	3.3	3.5	m/s	3.38	Pass
Lateral Neck Rotation	49	59	deg	49.5	Pass
Time at Maximum Rotation	54	66	ms	55.9	Pass
Time of Rotation Decay from Maximum	53	88	ms	55.7	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





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

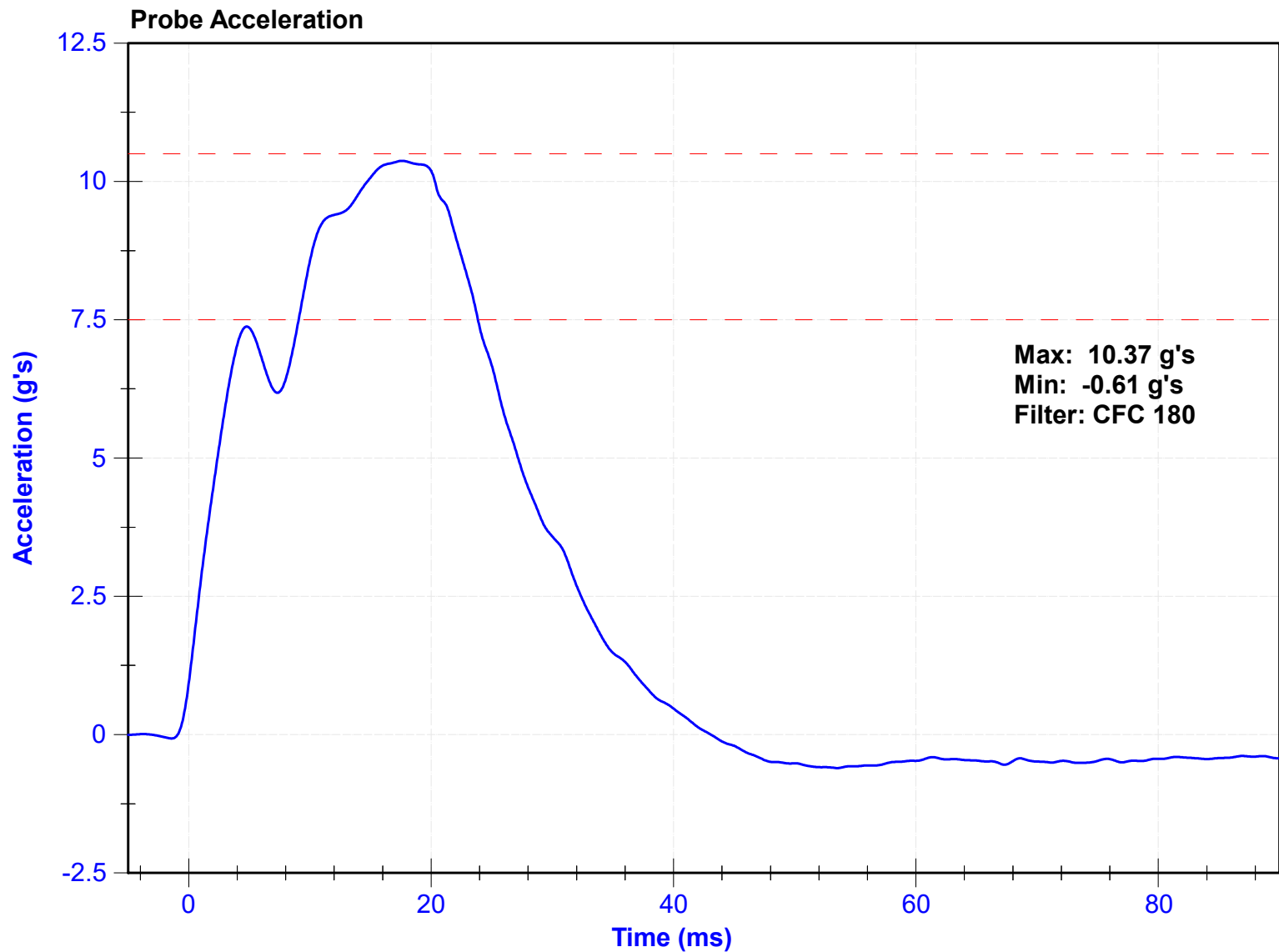
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	57	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Probe Acceleration	7.5	10.5	g's	10.37	Pass

Transducer Calibrations

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



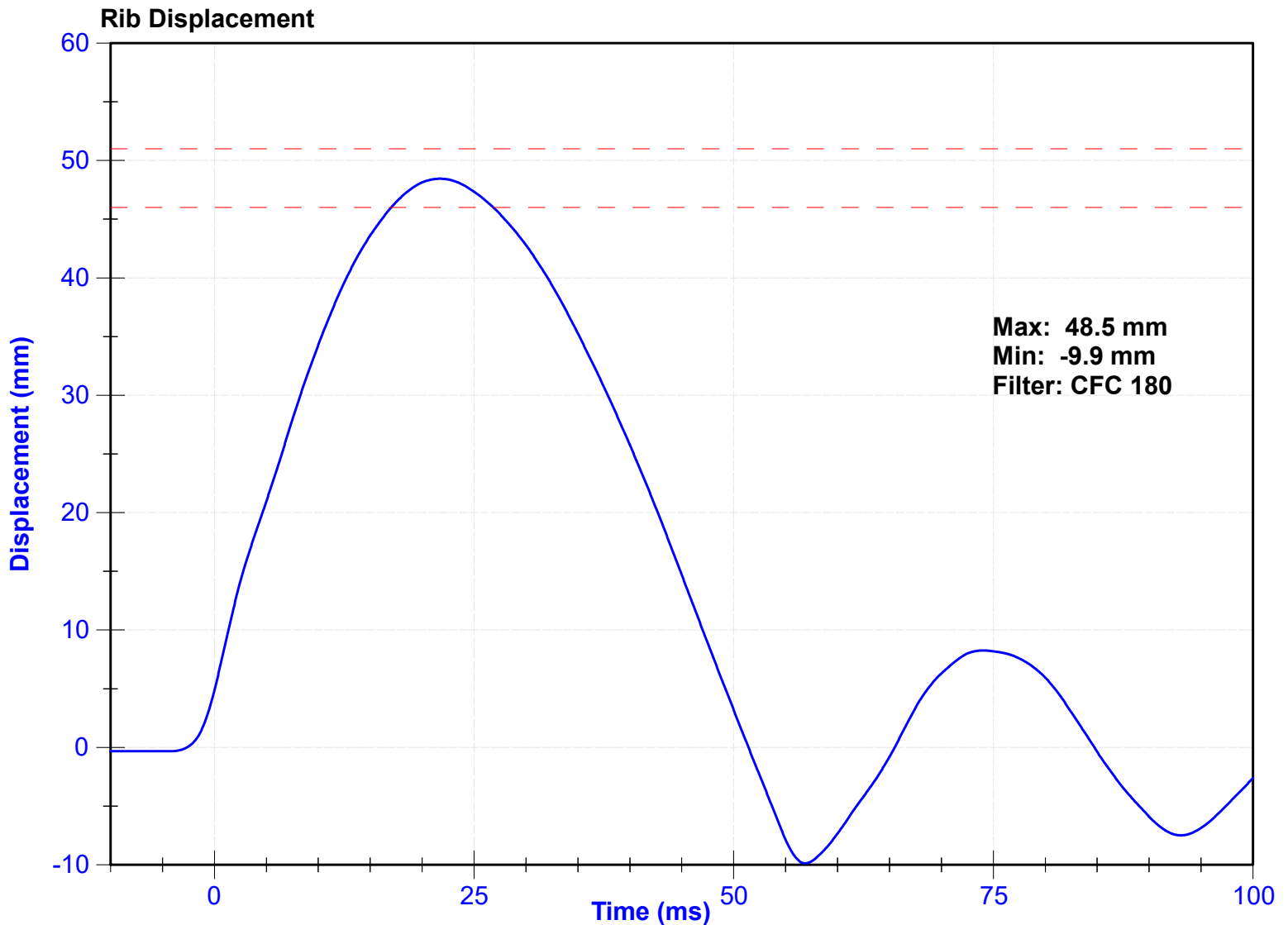
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	57	Pass
Rib Displacement	46	51	mm	48.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	0552-01	4/21/2025	10/20/2025



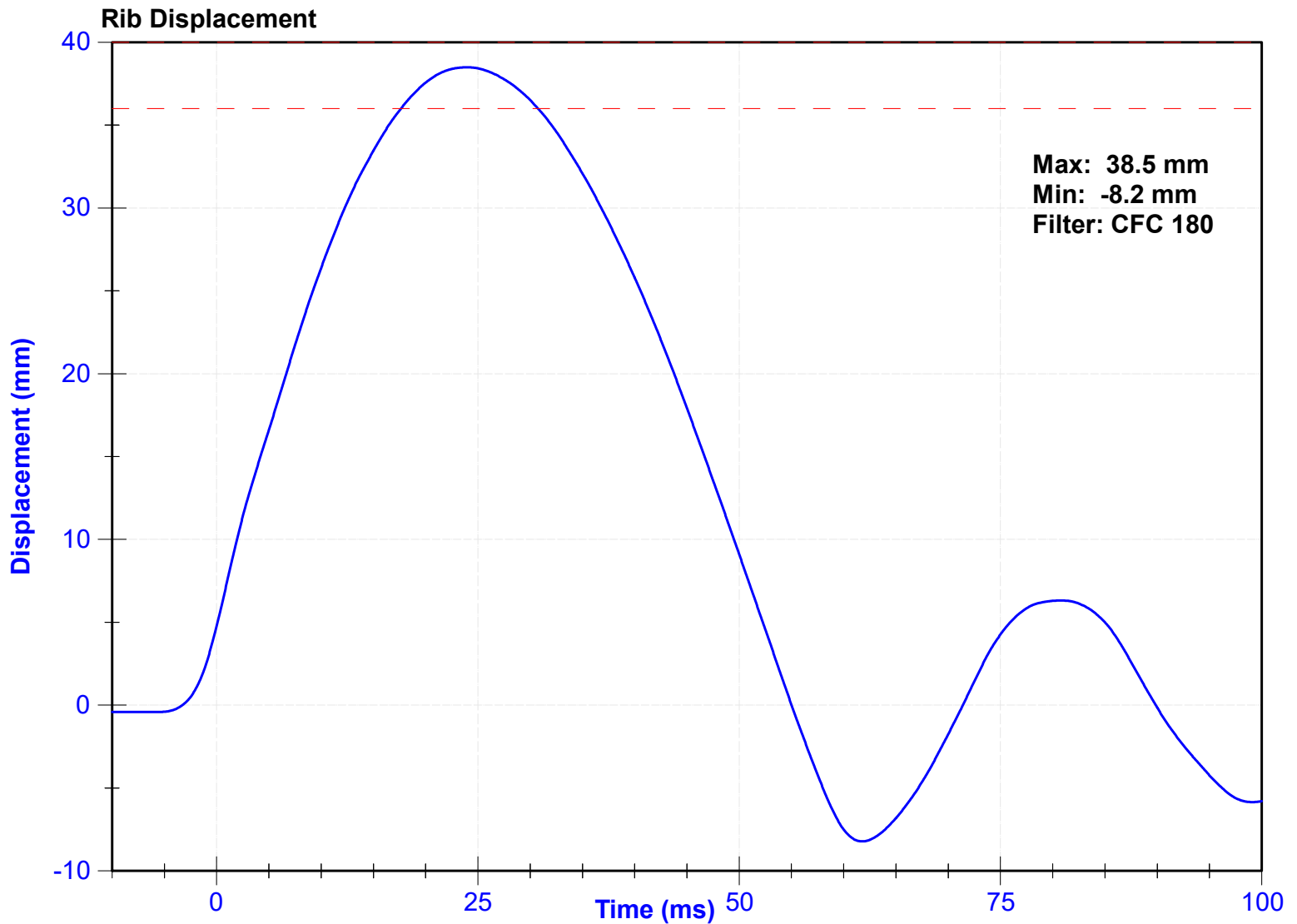
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	57	Pass
Rib Displacement	36	40	mm	38.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	0552-01	4/21/2025	10/20/2025



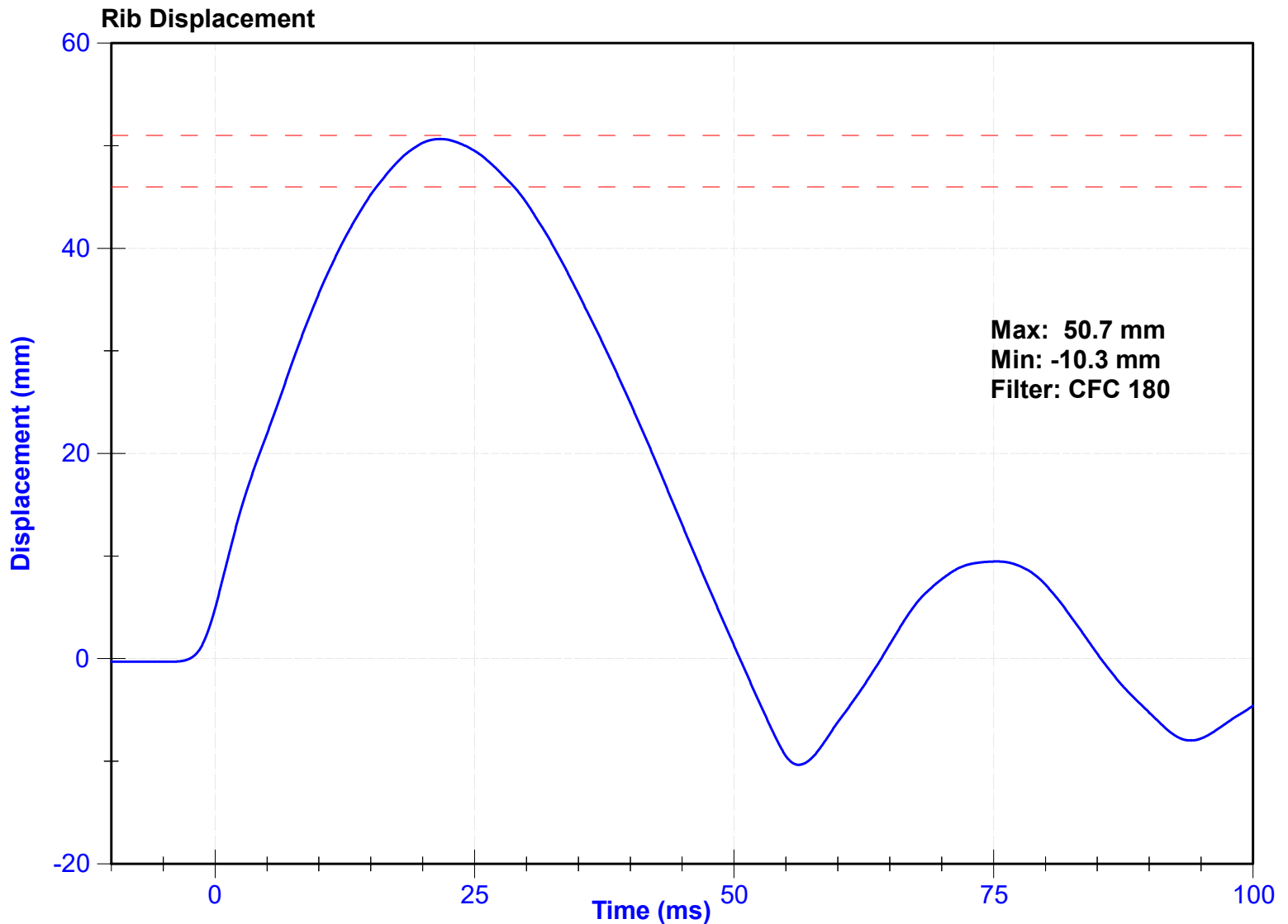
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	57	Pass
Rib Displacement	46	51	mm	50.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	807	4/21/2025	10/20/2025



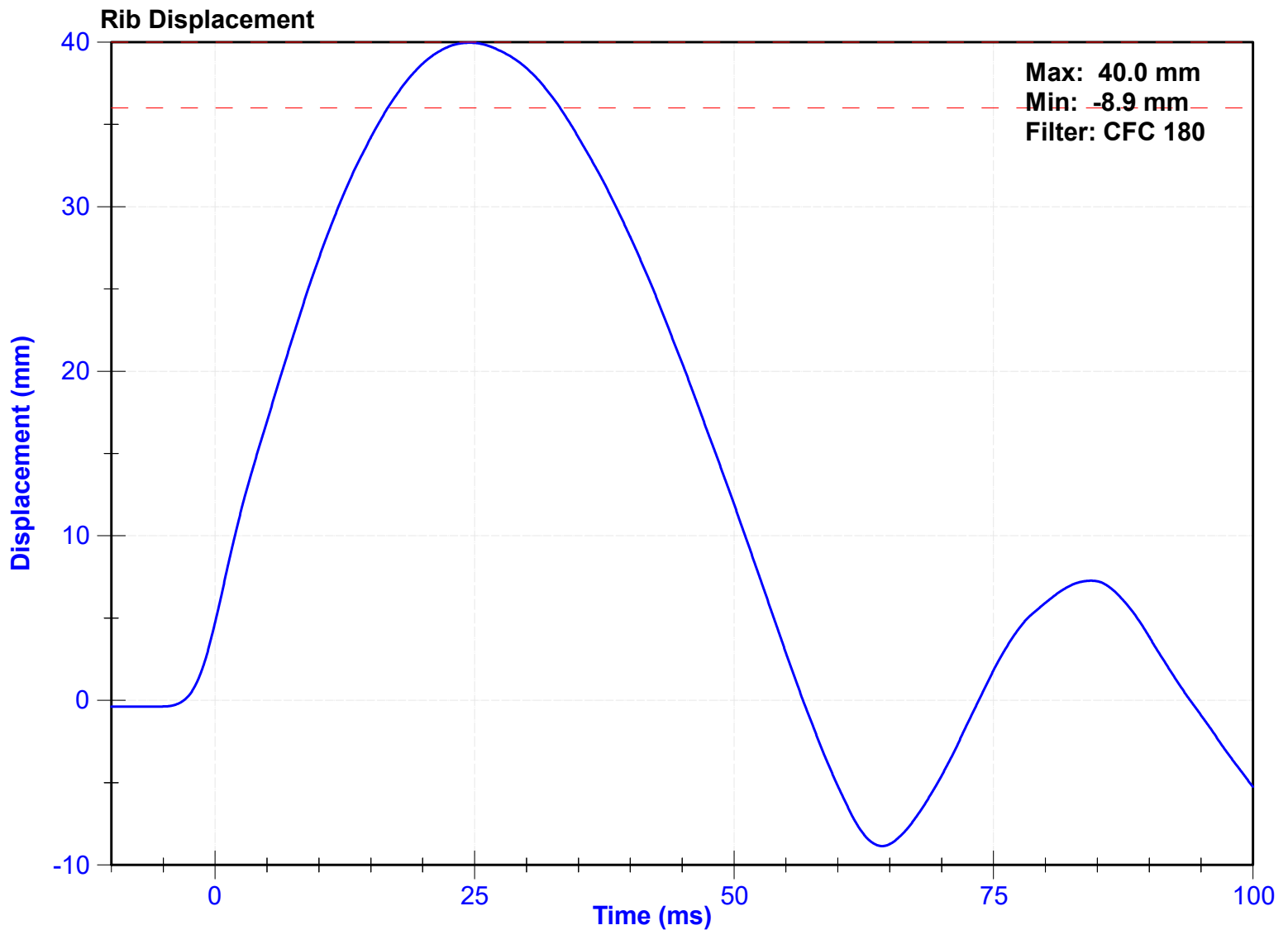
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	57	Pass
Rib Displacement	36	40	mm	40.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	807	4/21/2025	10/20/2025



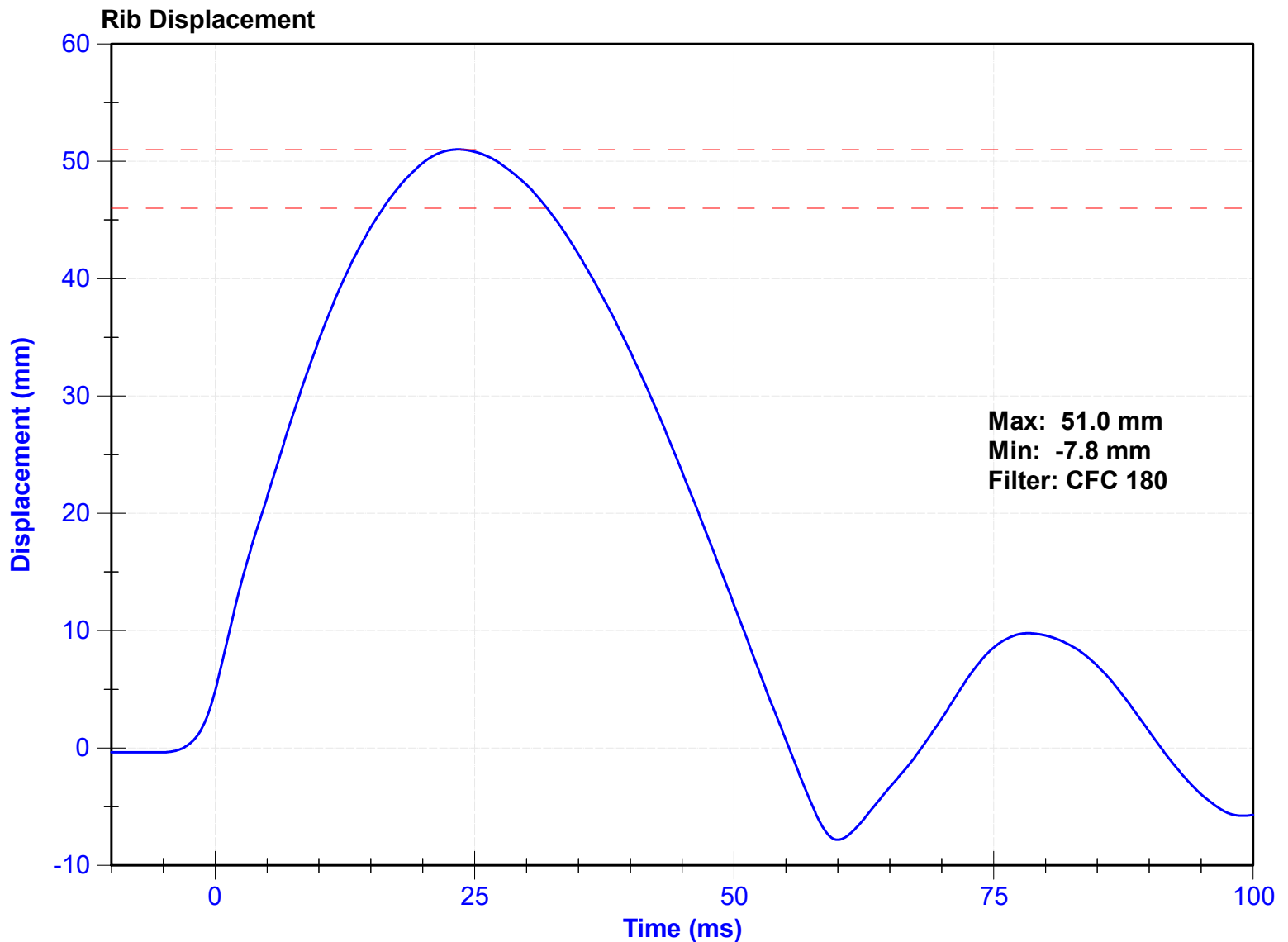
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	57	Pass
Rib Displacement	46	51	mm	51.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	0552-03	4/21/2025	10/20/2025



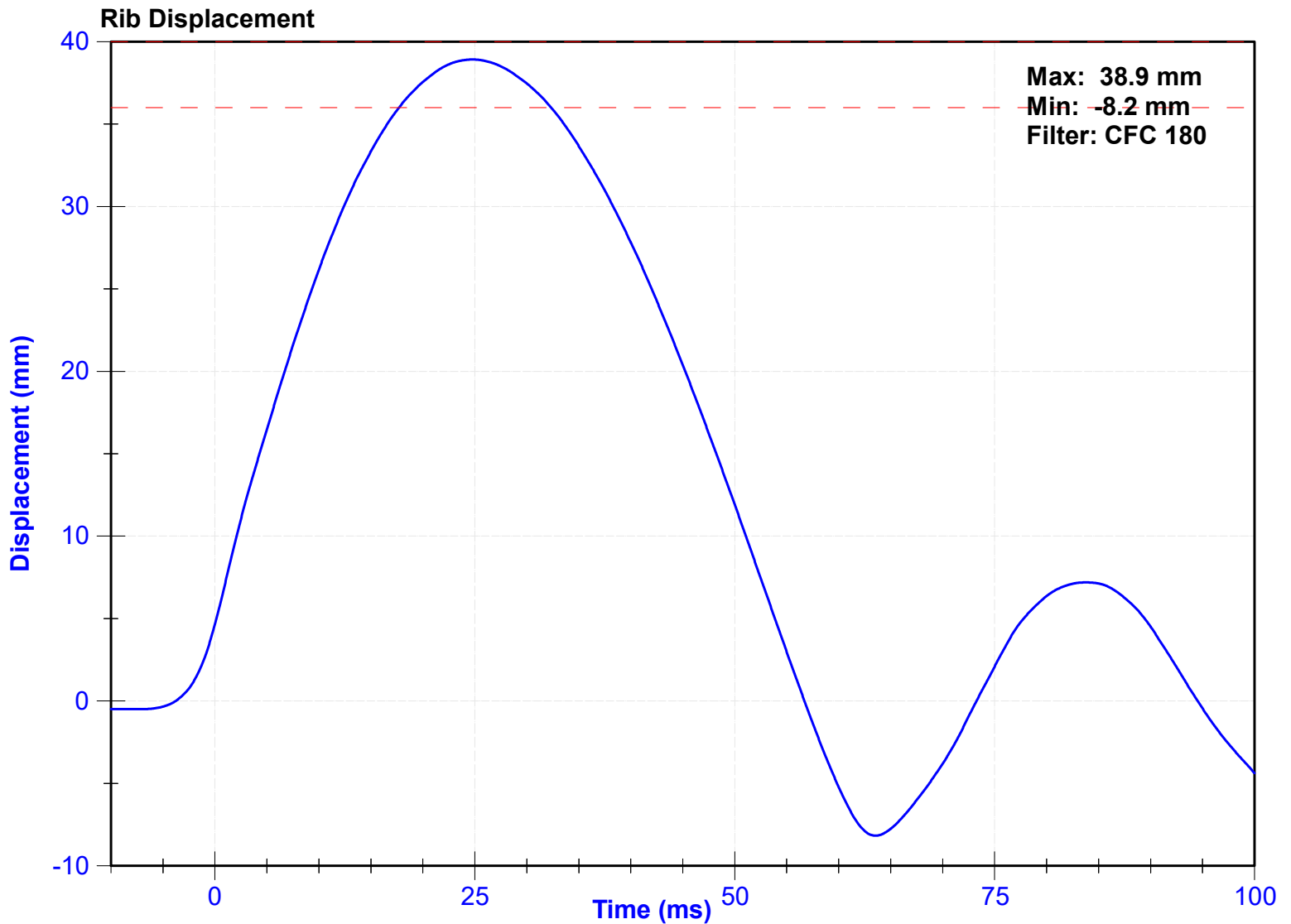
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	57	Pass
Rib Displacement	36	40	mm	38.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	0552-03	4/21/2025	10/20/2025



ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

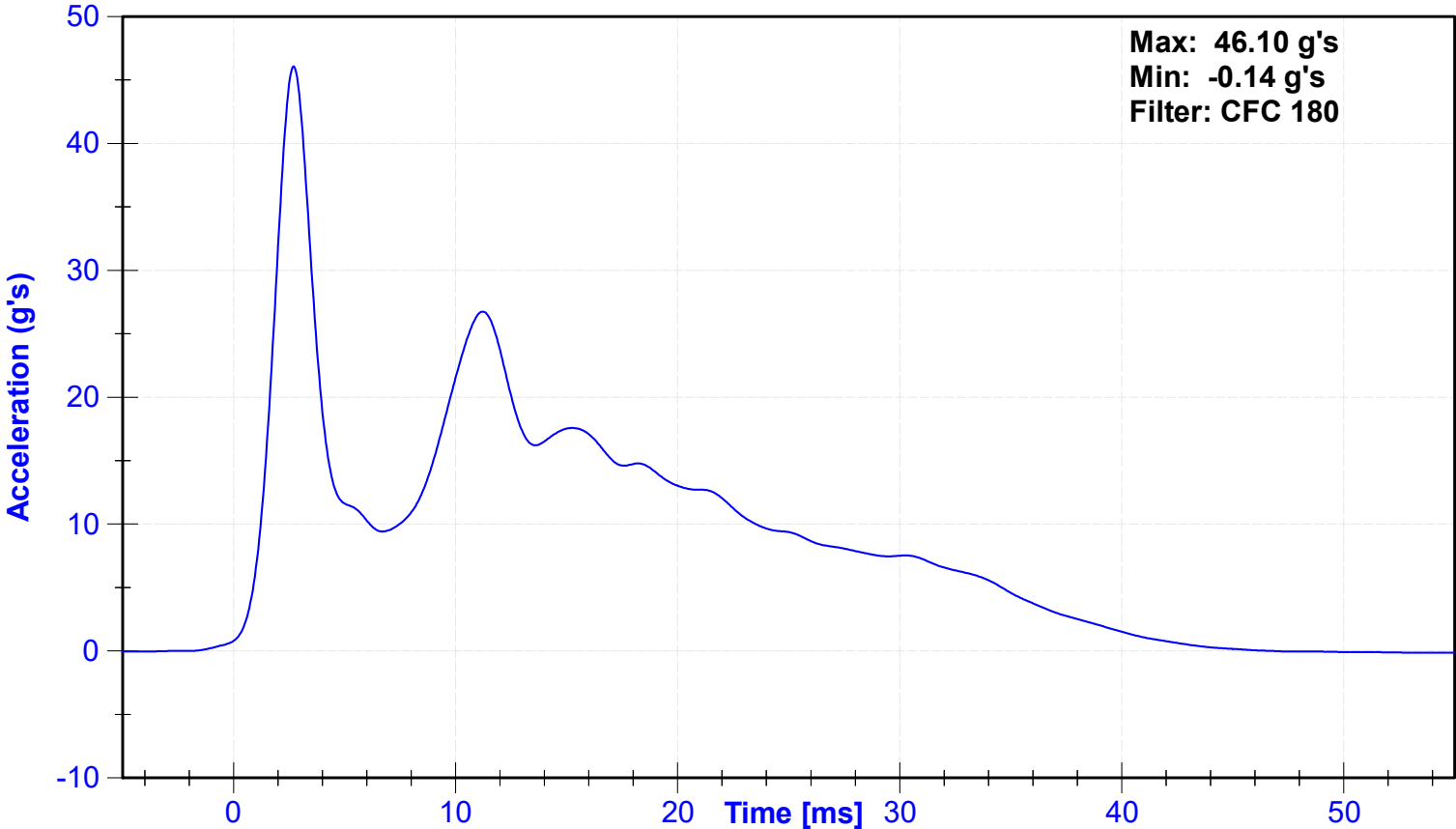
Results

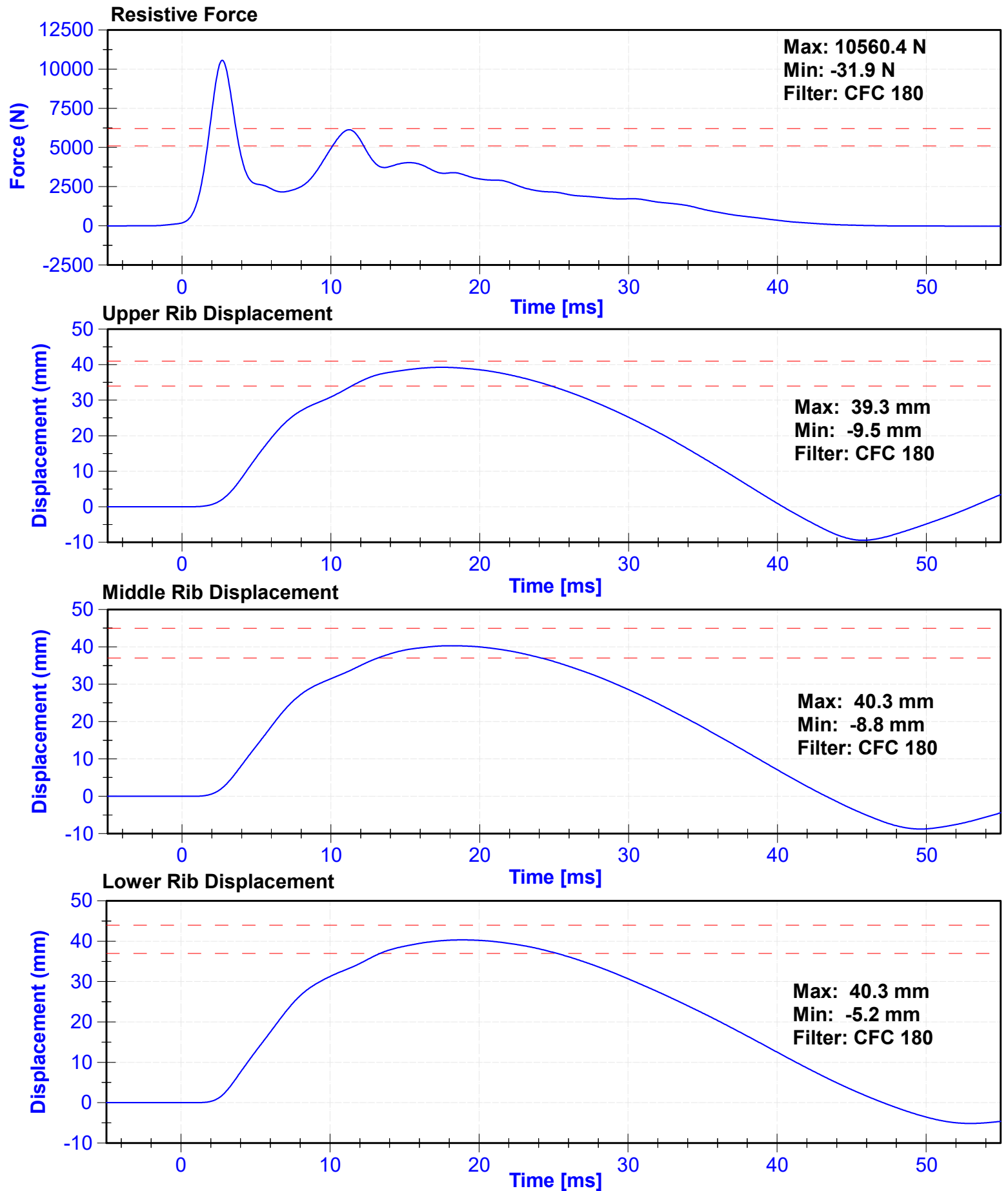
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	57	Pass
Velocity	5.4	5.6	m/s	5.45	Pass
Resistive Force after 6ms	5100	6200	N	6128.2	Pass
Upper Thorax Rib Deflection	34	41	mm	39.3	Pass
Mid Thorax Rib Deflection	37	45	mm	40.3	Pass
Lower Thorax Rib Deflection	37	44	mm	40.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	P40997	5/7/2025	11/3/2025
Upper Thorax Rib Potentiometer	Honeywell	0552-01	4/21/2025	10/20/2025
Middle Thorax Rib Potentiometer	Honeywell	807	4/21/2025	10/20/2025
Lower Thorax Rib Potentiometer	Honeywell	0552-03	4/21/2025	10/20/2025

Probe Acceleration





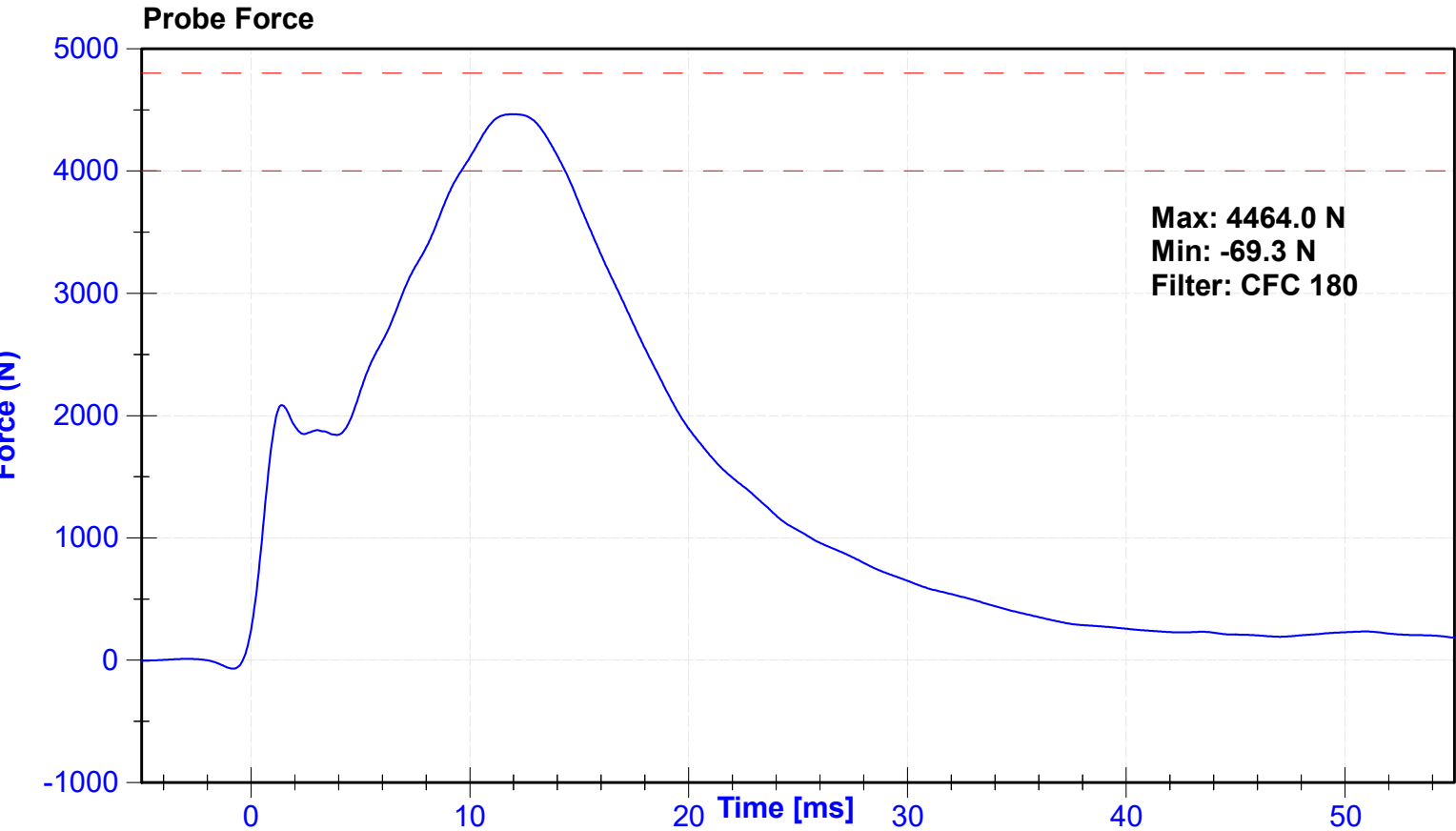
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

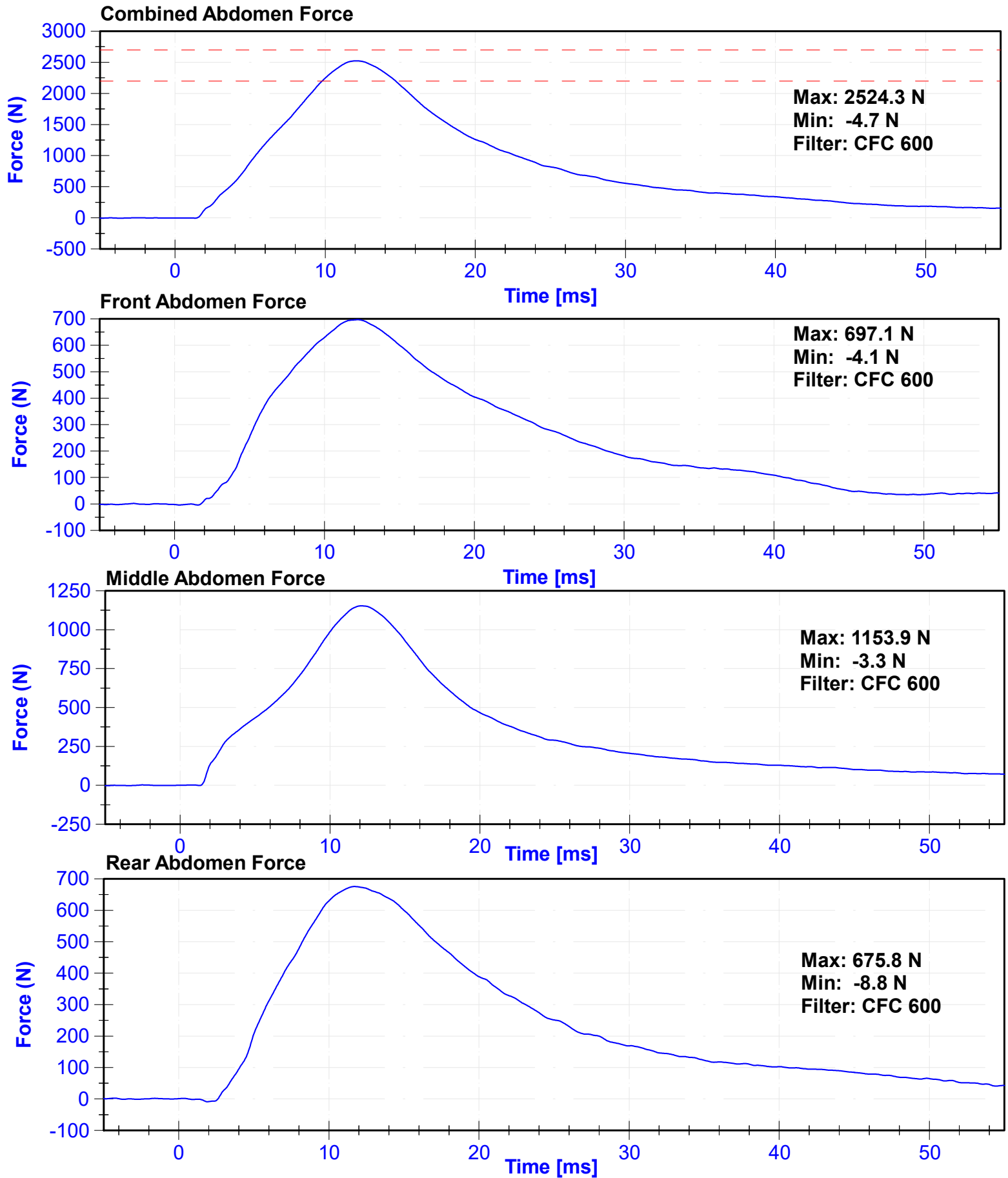
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	57	Pass
Velocity	3.9	4.1	m/s	4.01	Pass
Combined Abdomen Force	2200	2700	N	2524.3	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	12.05	Pass
Resistive Probe Force	4000	4800	N	4464.0	Pass
Time at Peak Resistive Force	10.6	13.0	ms	11.95	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Front Abdomen Load Cell	Denton	1512	9/16/2024	9/16/2025
Middle Abdomen Load Cell	Denton	1526	9/16/2024	9/16/2025
Rear Abdomen Load Cell	Denton	1516	9/16/2024	9/16/2025





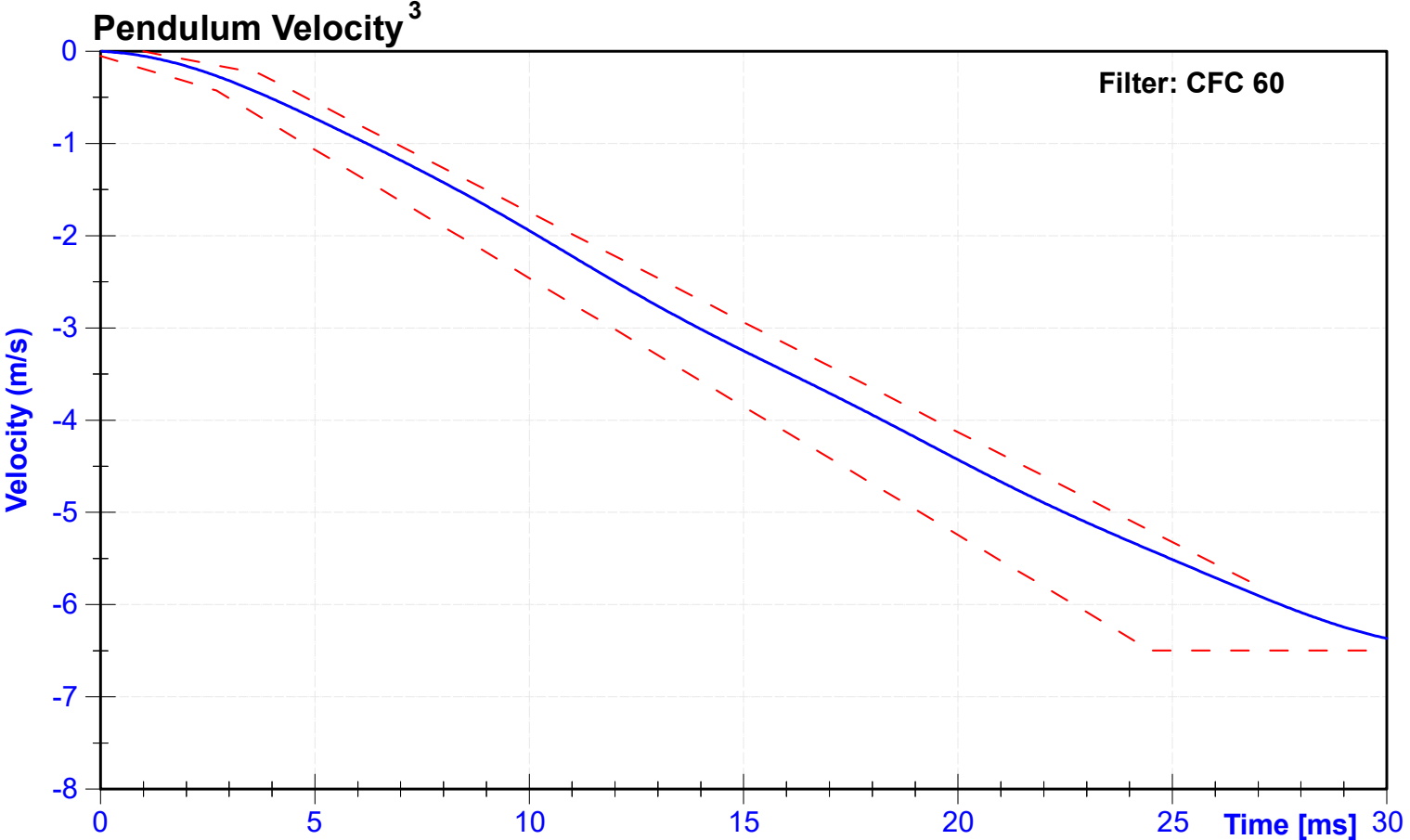
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

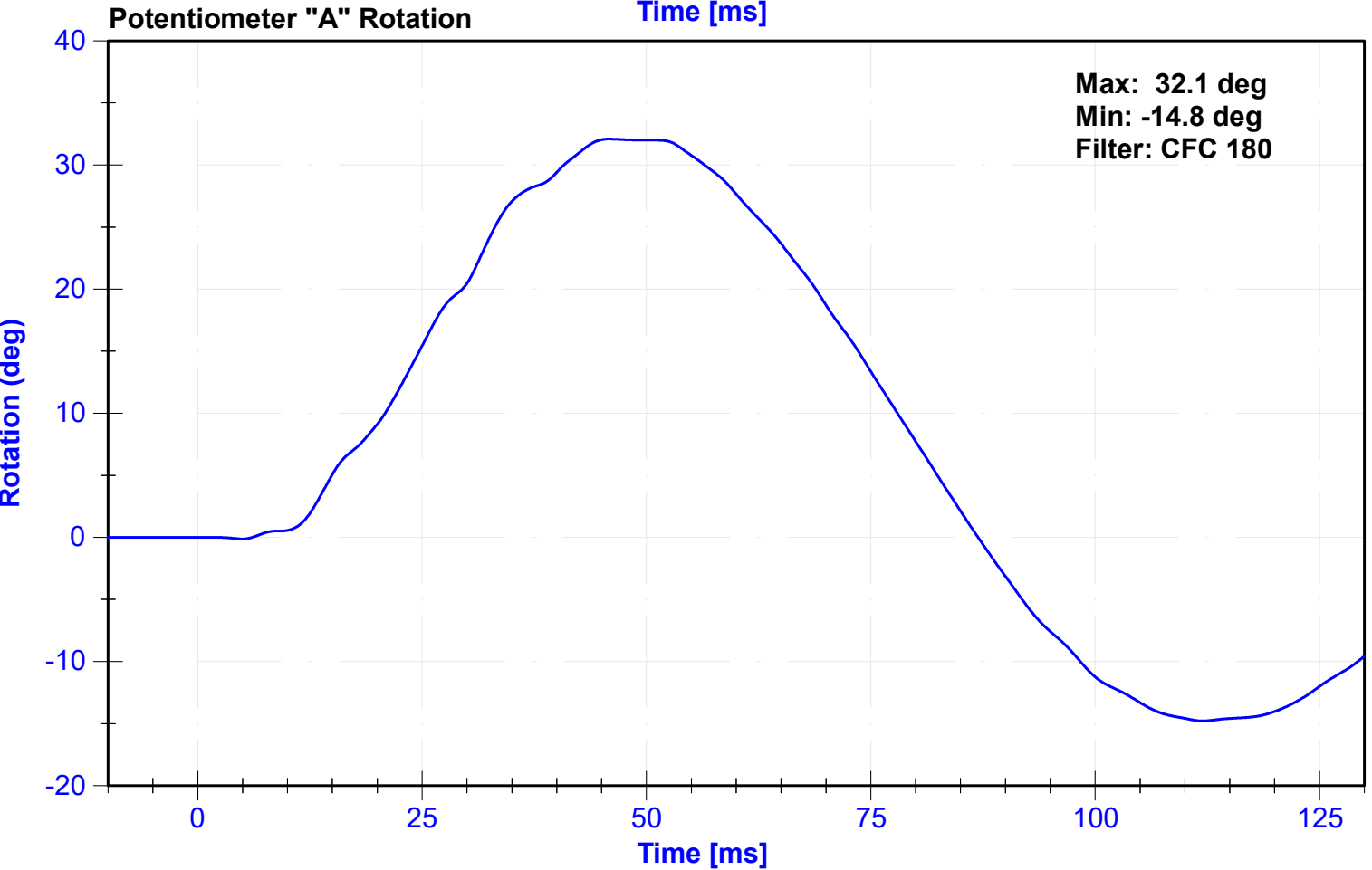
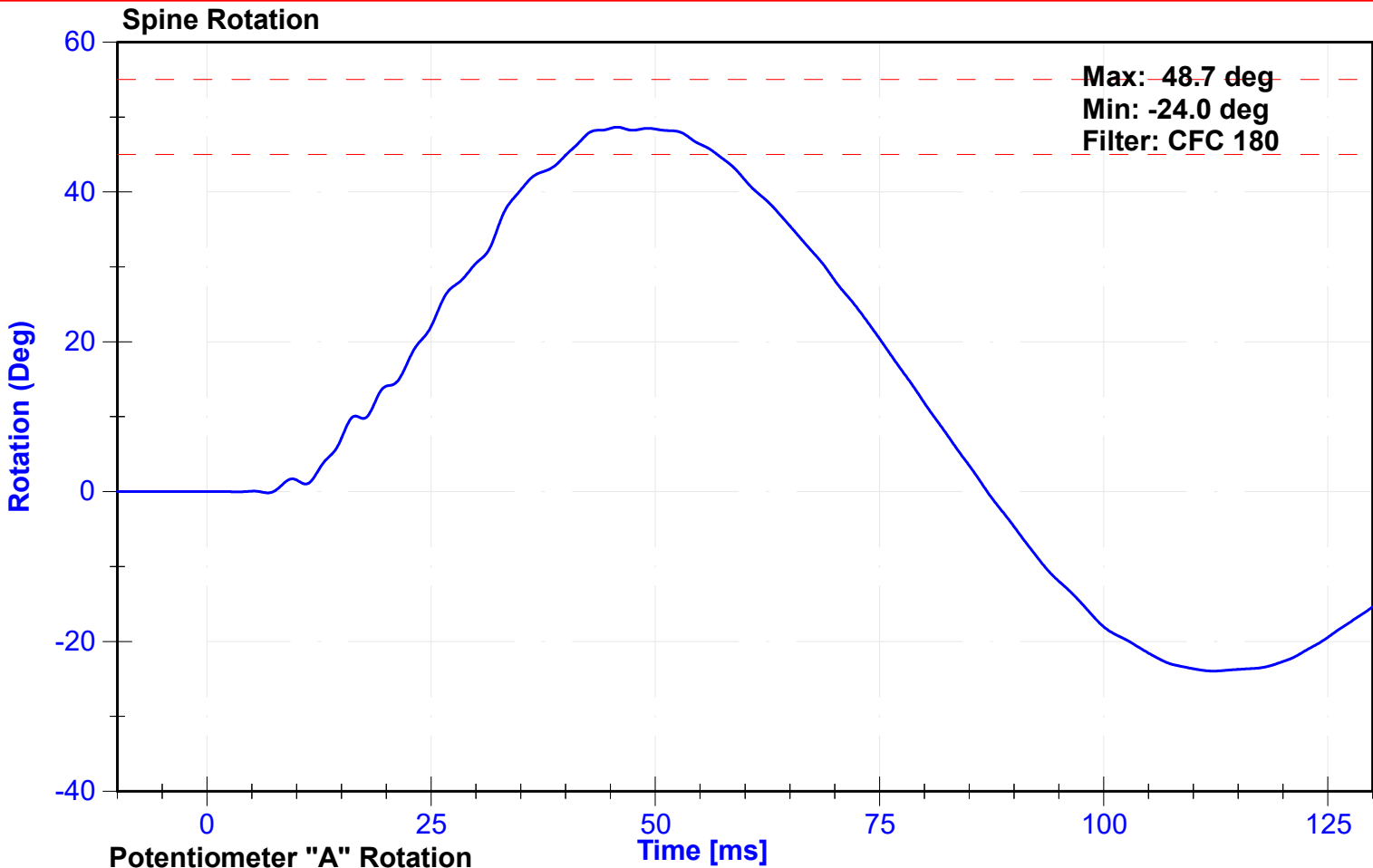
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	52	Pass
Velocity	5.95	6.15	m/s	6.095	Pass
Lateral Spine Rotation	45	55	deg	48.7	Pass
Time at Maximum Rotation	39	53	ms	45.7	Pass
Time of Decay to Zero Degrees	37	57	ms	41.3	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

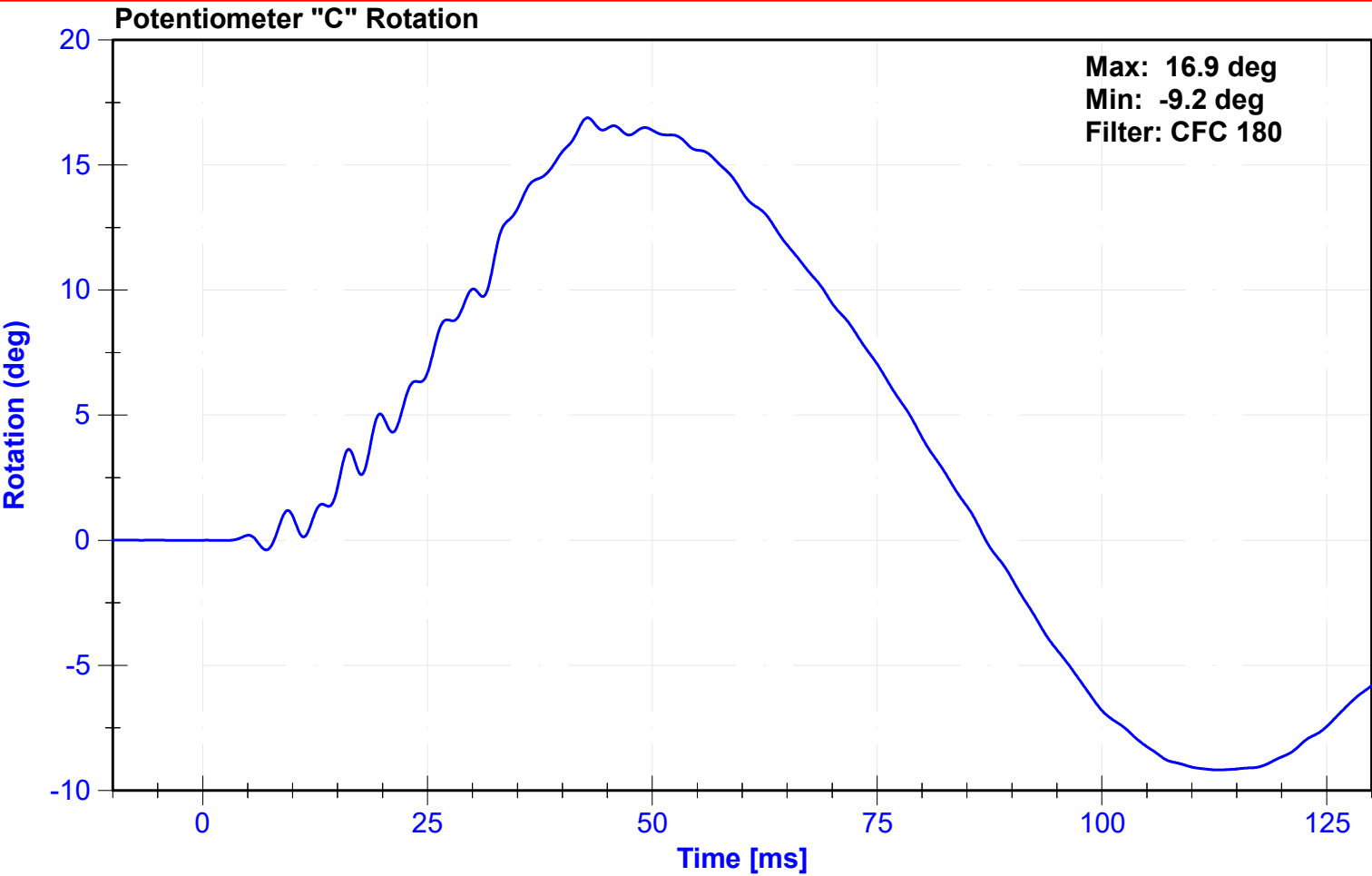
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	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-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	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

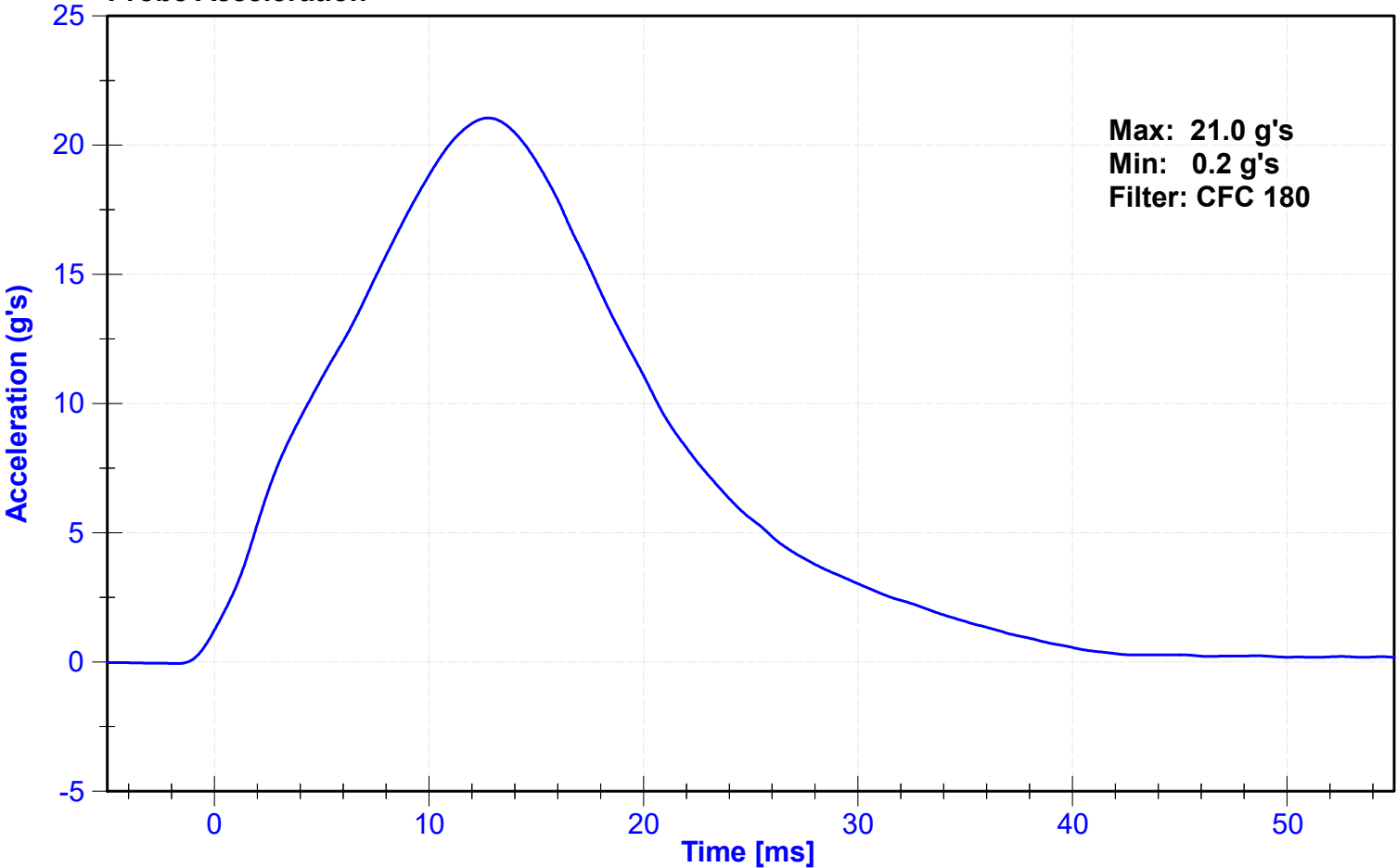
Results

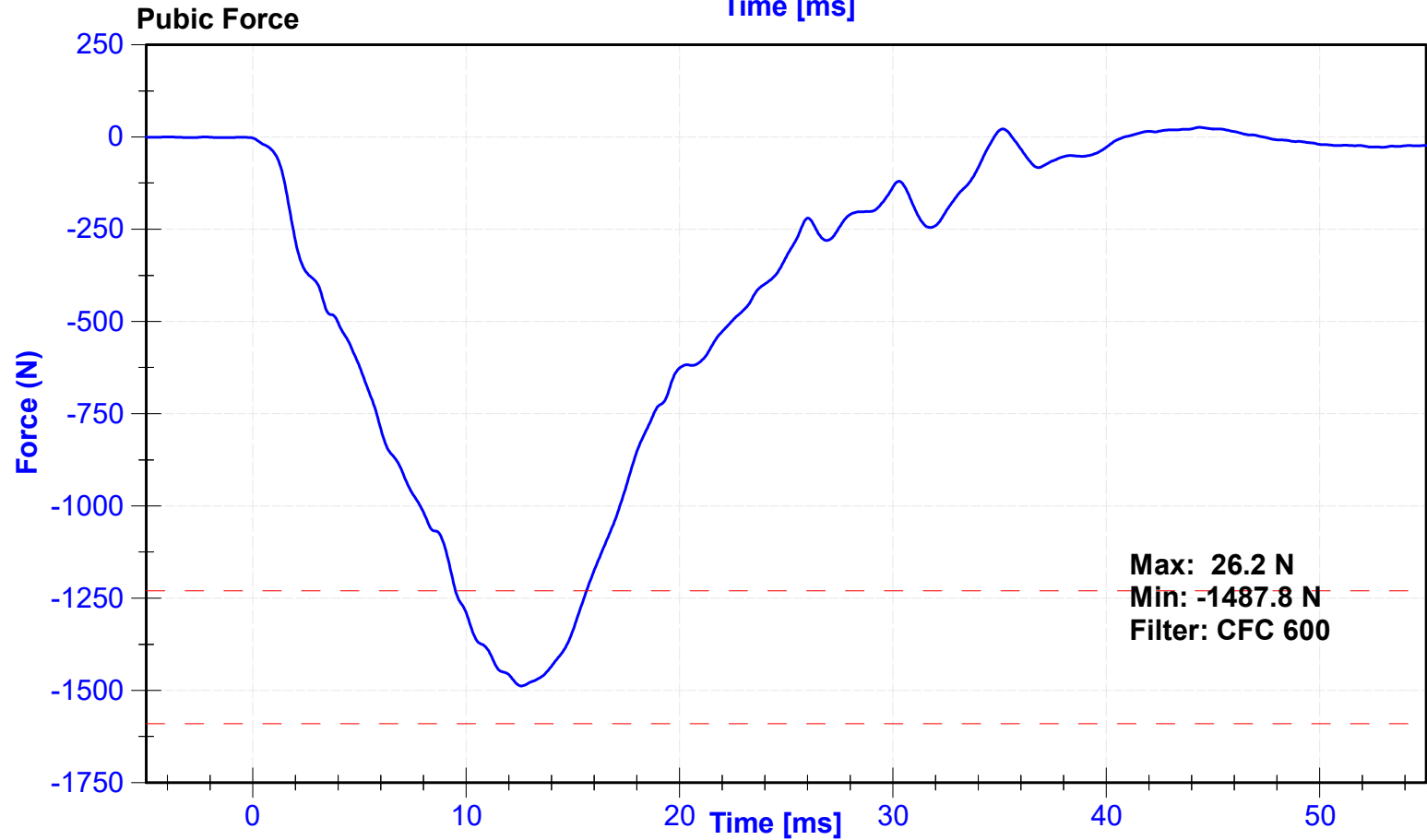
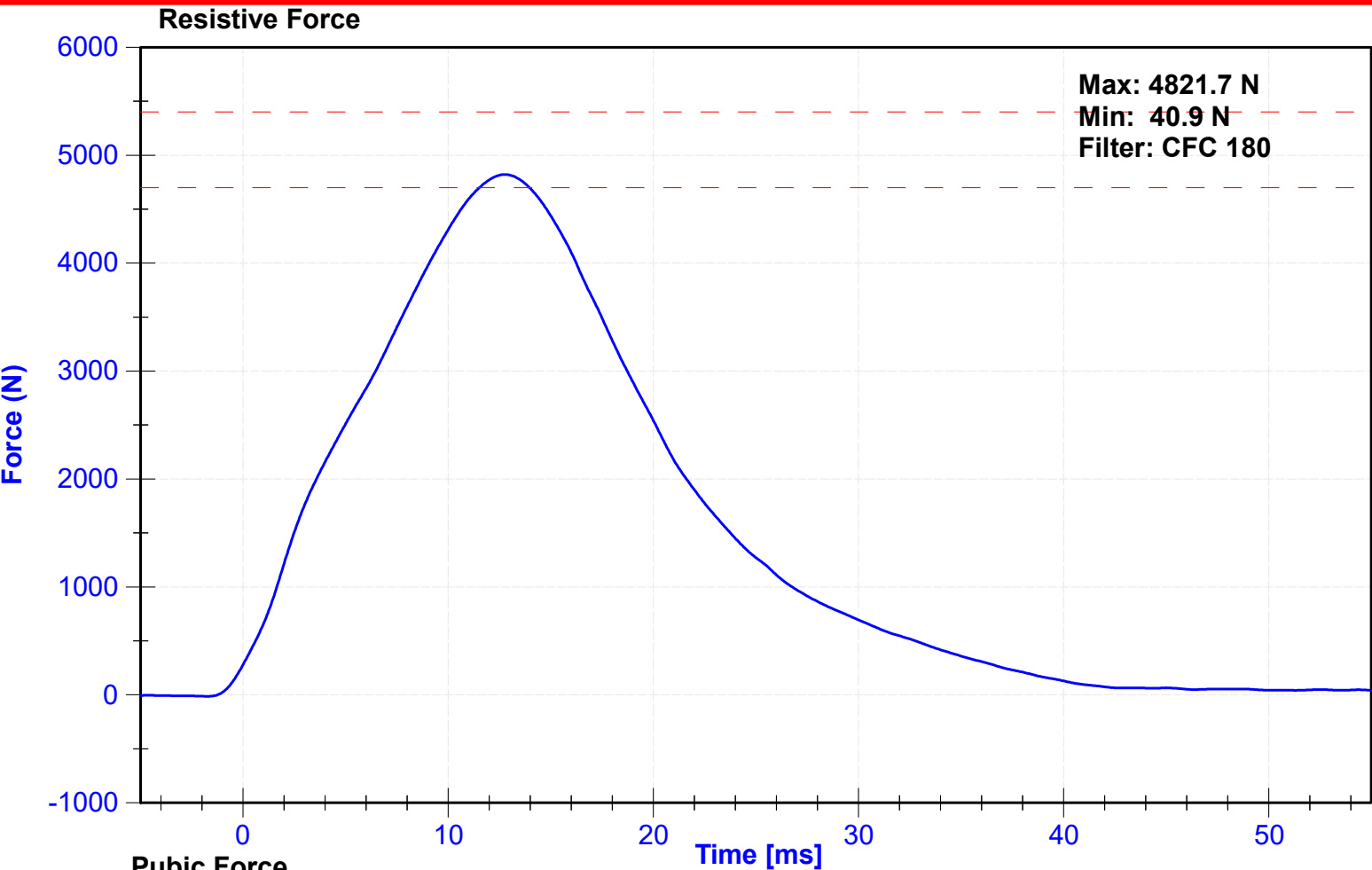
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	57	Pass
Velocity	4.2	4.4	m/s	4.27	Pass
Resistive Force	4700	5400	N	4821.7	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.75	Pass
Pubic Force	-1590	-1230	N	-1487.8	Pass
Time at Peak Pubic Force	12.2	17.0	ms	12.60	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Pubic Load Cell	Denton	464-FY	9/16/2024	9/16/2025

Probe Acceleration





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

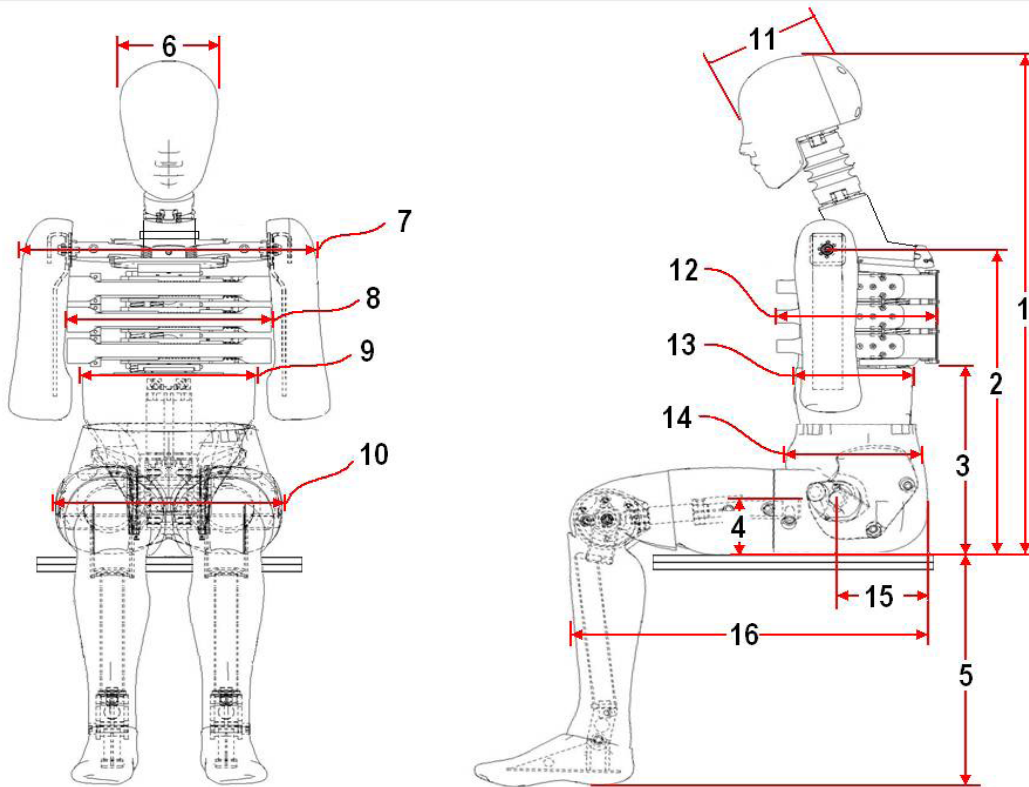


External Measurements - EuroSID-2re

Technician: J. Rios

Date: 7/23/2025

Dummy Serial Number: D037



FRONT VIEW

SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	911	Pass
2	Seat to Shoulder Joint	558	572	562	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	349	Pass
4	Seat to Hip Joint (center of bolt)	97	103	101	Pass
5	Sole to Seat, Sitting	333	451	425	Pass
6	Head Width	152	158	155	Pass
7	Shoulder/Arm Width	461	479	470	Pass
8	Thorax Width	322	332	328	Pass
9	Abdomen Width	273	287	280	Pass
10	Pelvis Lap Width	359	373	362	Pass
11	Head Depth	196	206	202	Pass
12	Thorax Depth	262	272	266	Pass
13	Abdomen Depth	194	204	196	Pass
14	Pelvis Depth	235	245	239	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	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

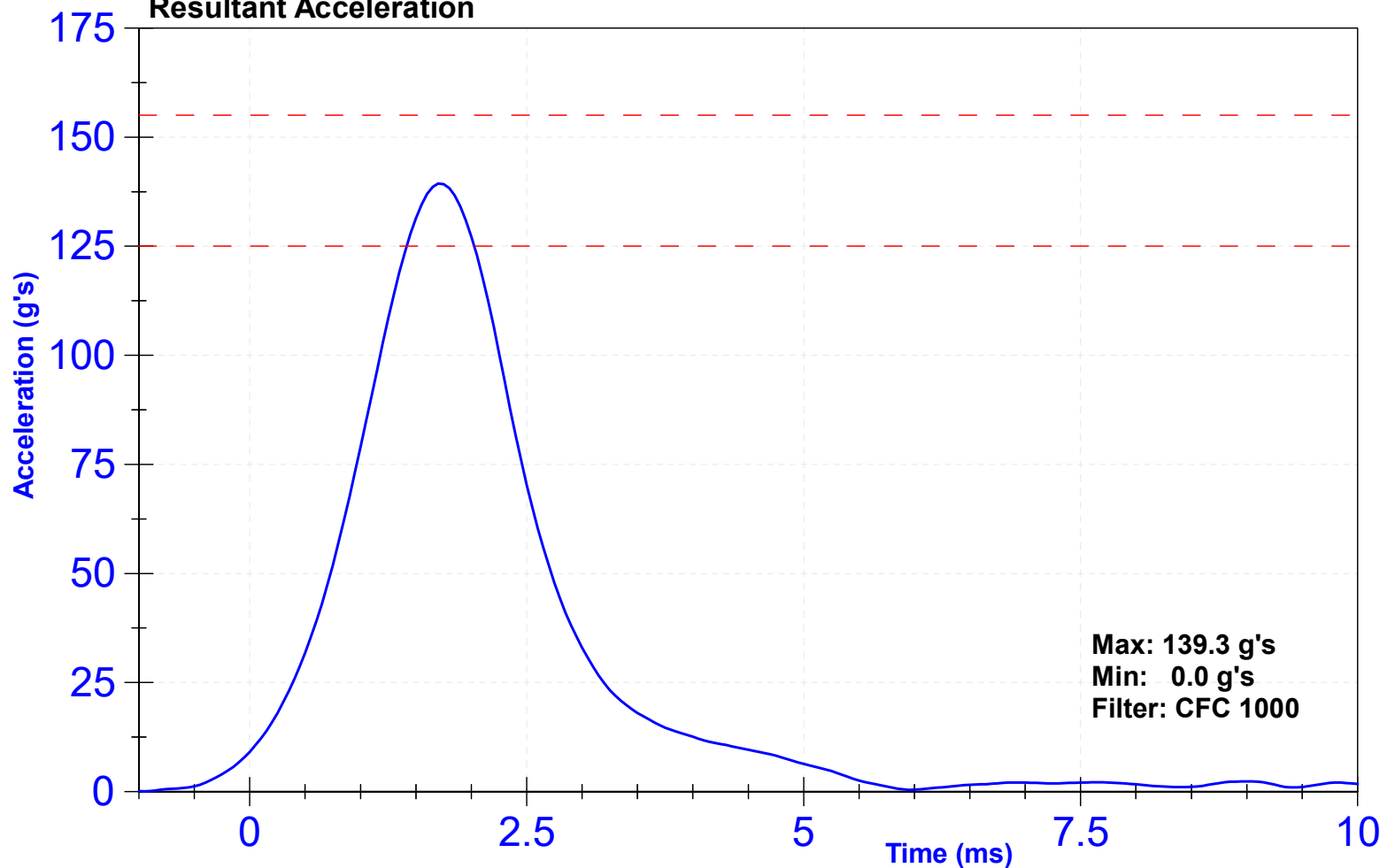
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	40	Pass
Resultant Acceleration	125	155	g's	139.3	Pass
Oscillation	0	15	%	1.68	Pass
Fore-Aft Acceleration	-15	15	g's	7.5	Pass

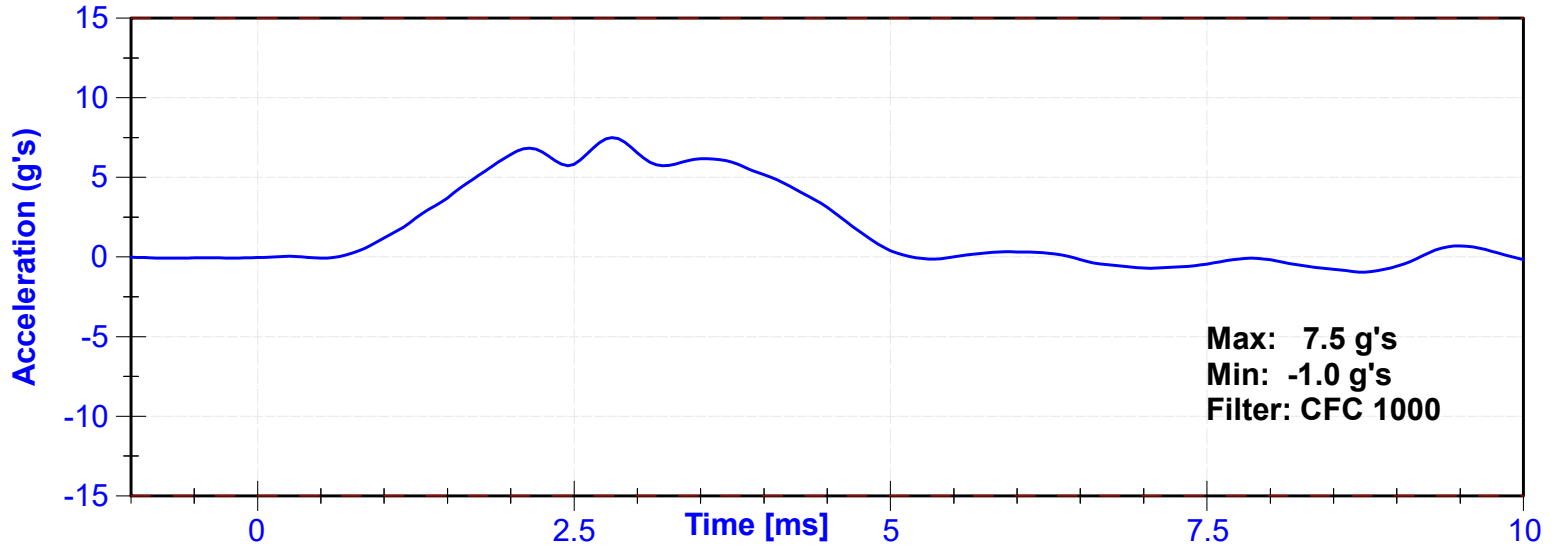
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	T21724	4/21/2025	10/18/2025
Y Accelerometer	Endevco	T22281	4/21/2025	10/18/2025
Z Accelerometer	Endevco	T26050	4/21/2025	10/18/2025

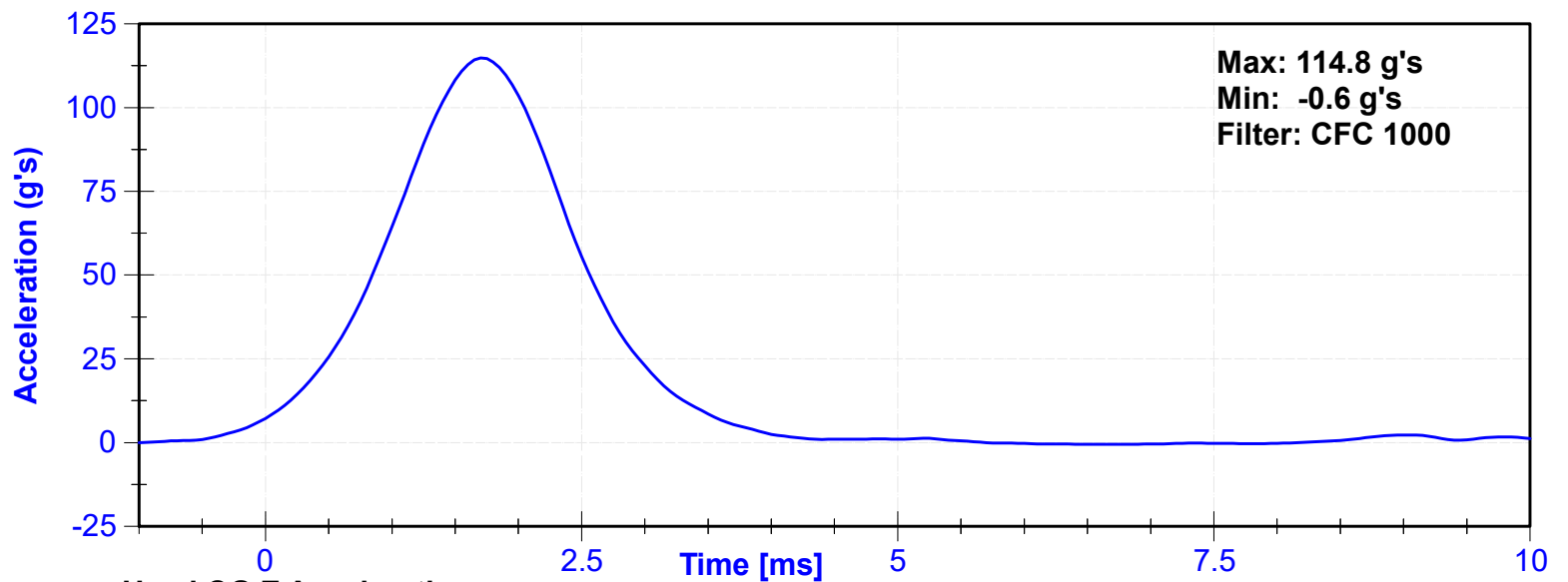
Resultant Acceleration



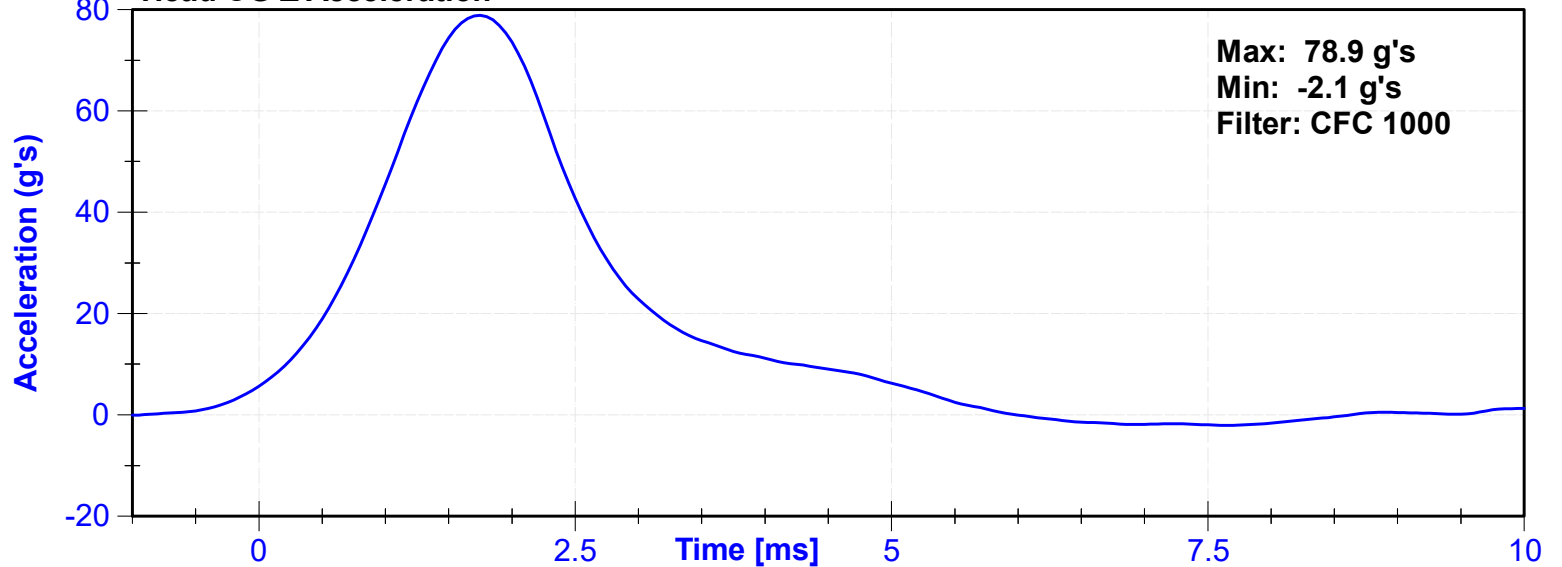
Head CG X Acceleration



Head CG Y Acceleration



Head CG Z Acceleration



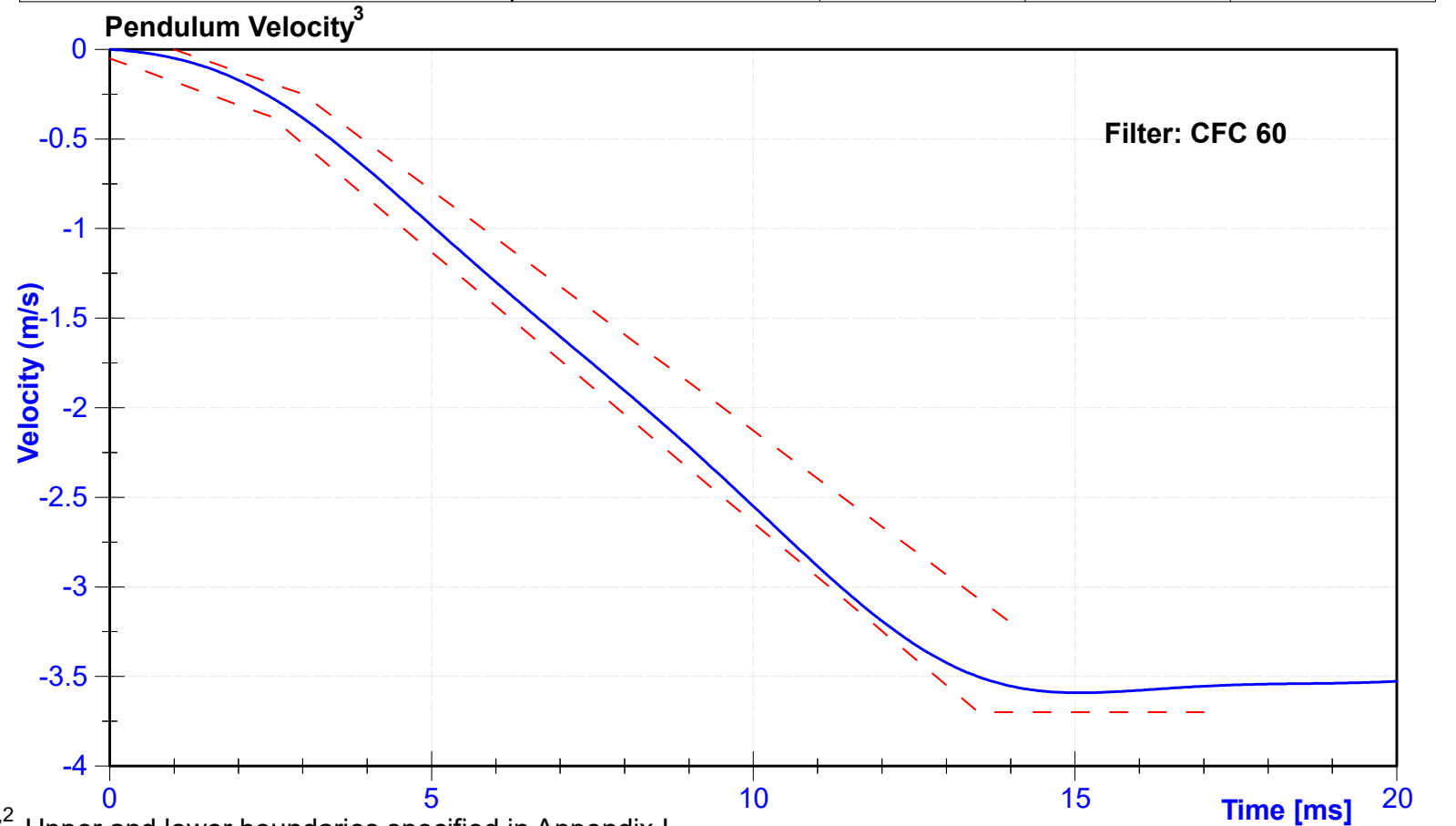
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

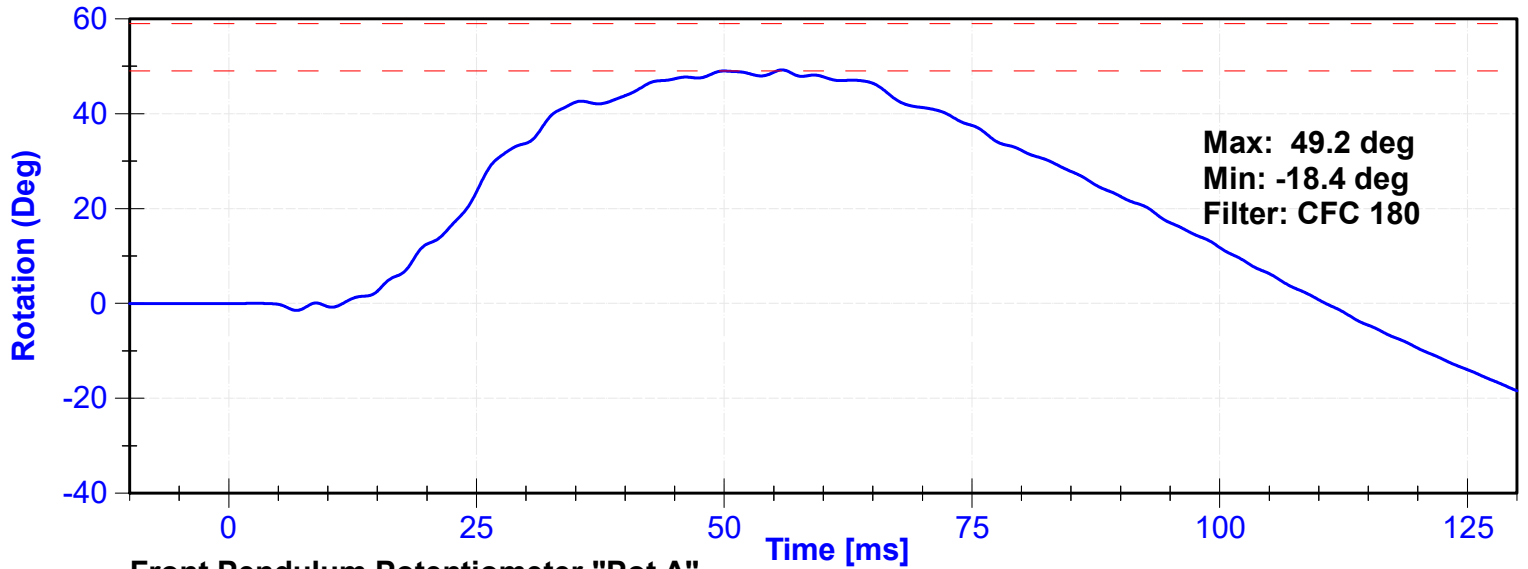
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	46	Pass
Velocity	3.3	3.5	m/s	3.42	Pass
Lateral Neck Rotation	49	59	deg	49.2	Pass
Time at Maximum Rotation	54	66	ms	55.8	Pass
Time of Rotation Decay from Maximum	53	88	ms	54.9	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

Transducer Calibrations

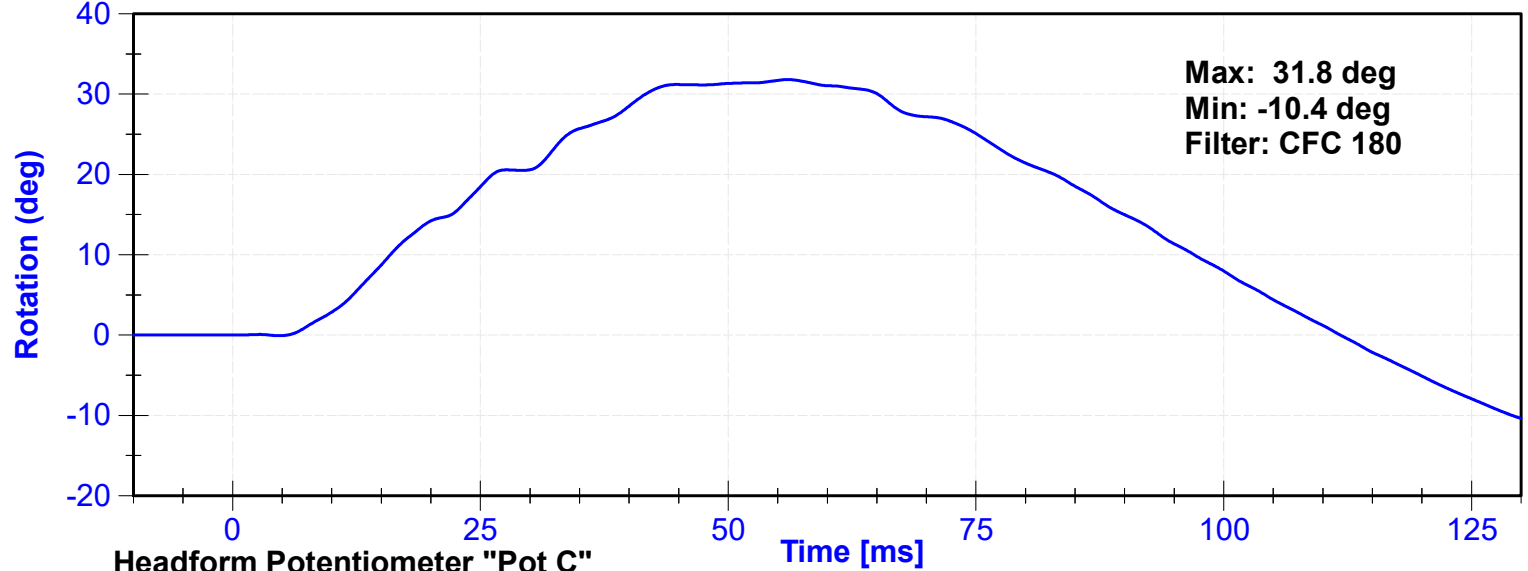
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	10/17/2025
Front Pendulum Potentiometer	Sfernice	2247	9/13/2024	9/13/2025
Headform Potentiometer	Sfernice	095	9/13/2024	9/13/2025



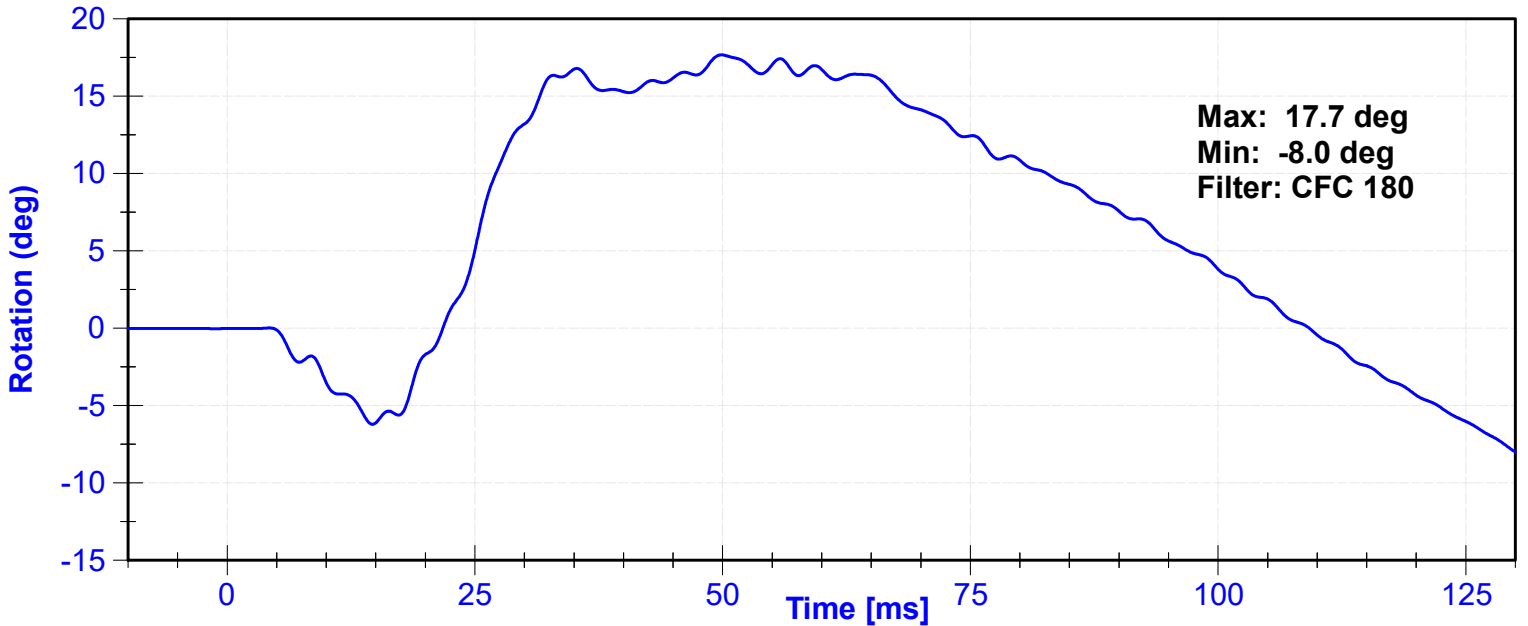
Neck Rotation



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	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

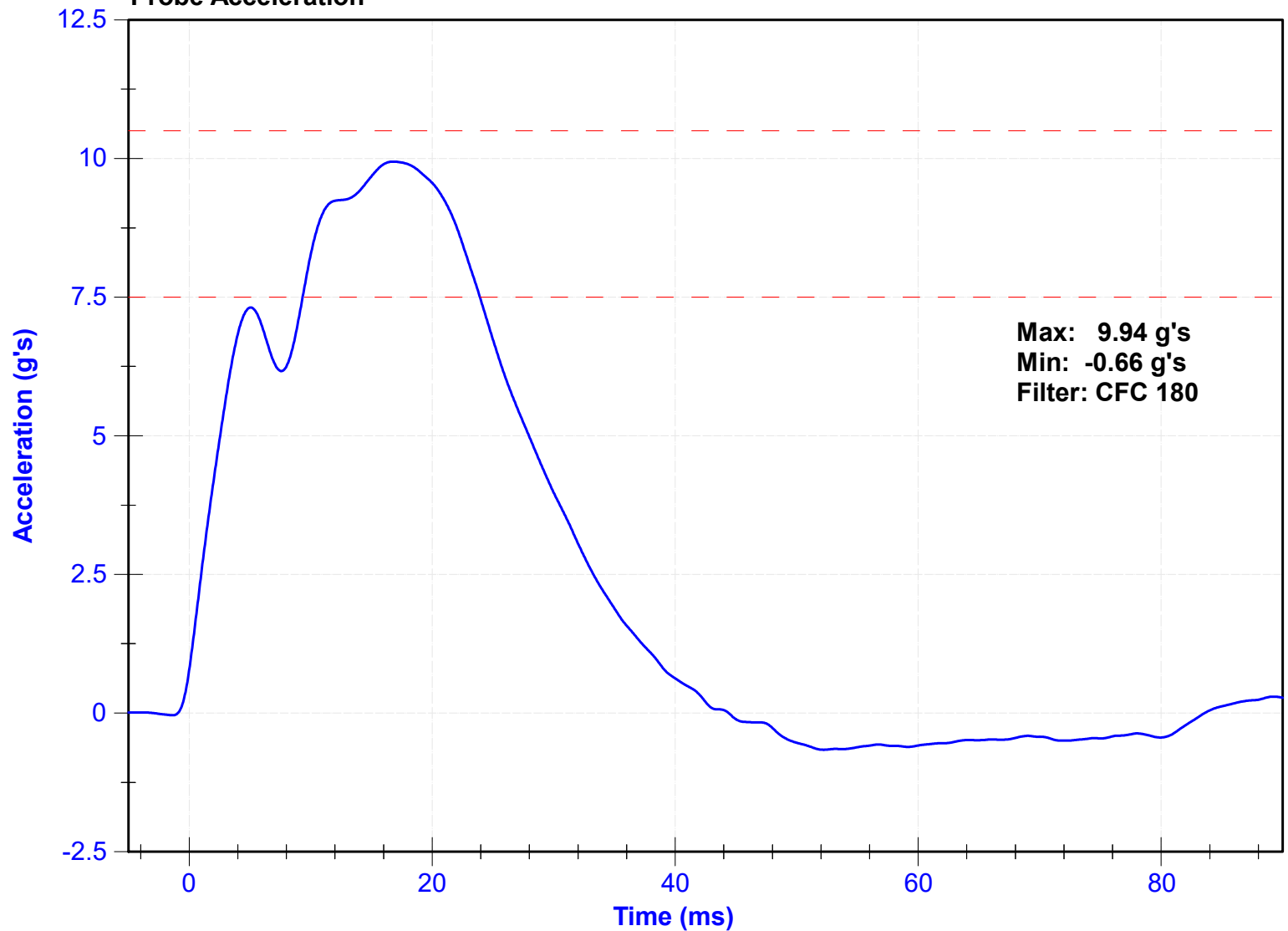
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	53	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Probe Acceleration	7.5	10.5	g's	9.94	Pass

Transducer Calibrations

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

Probe Acceleration



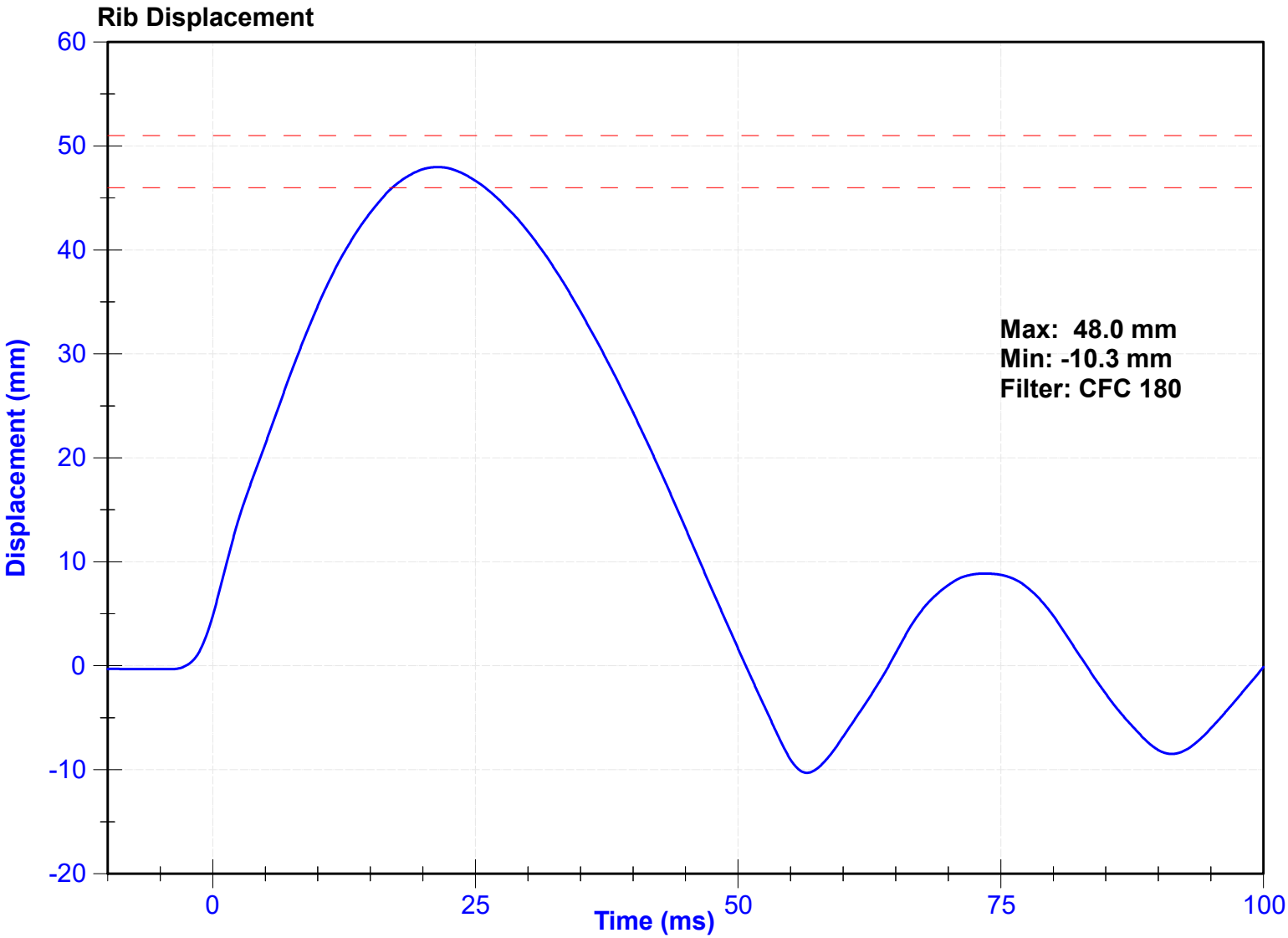
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	40	Pass
Rib Displacement	46	51	mm	48.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	0552-01	4/21/2025	10/20/2025



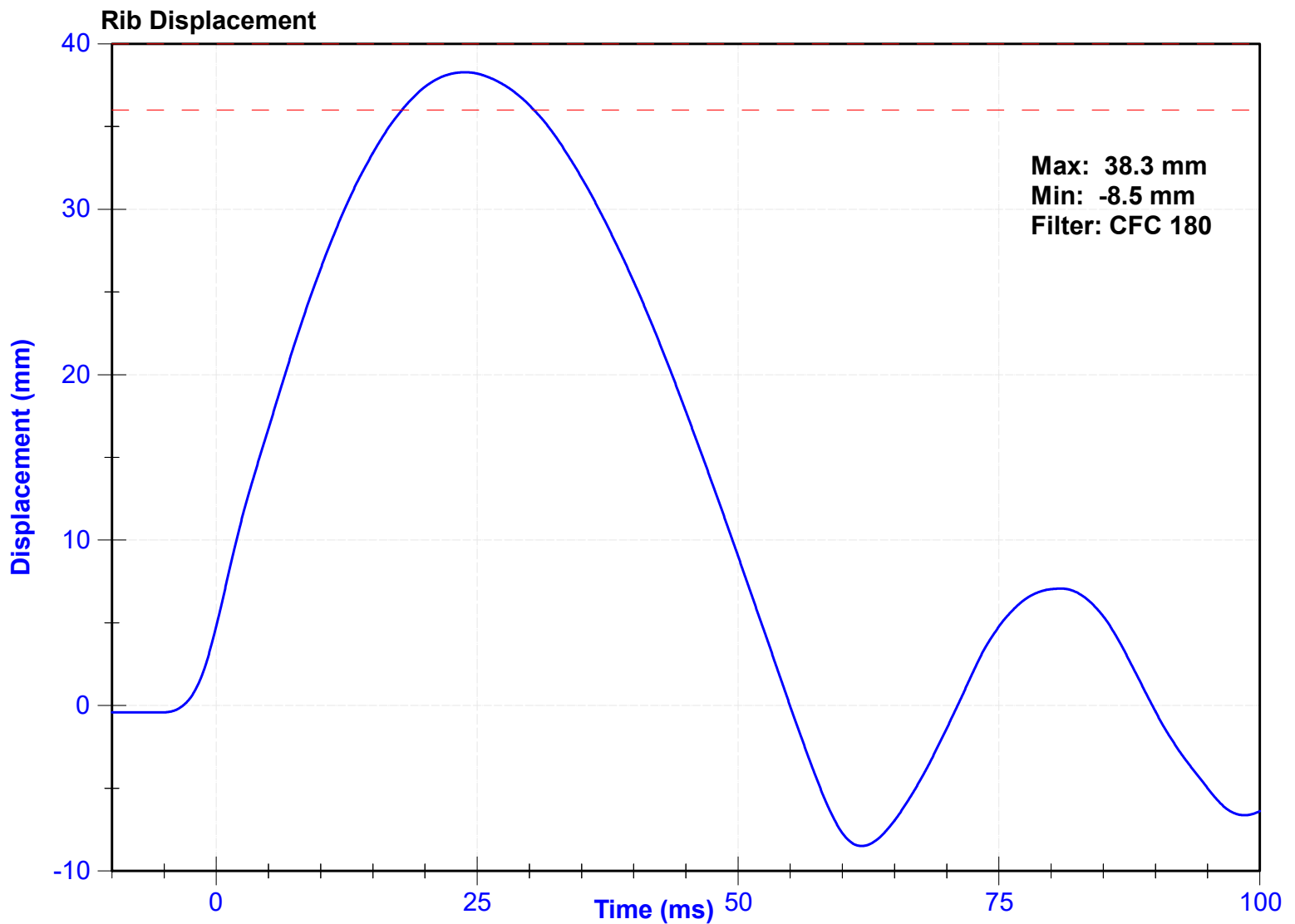
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	40	Pass
Rib Displacement	36	40	mm	38.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	0552-01	4/21/2025	10/20/2025



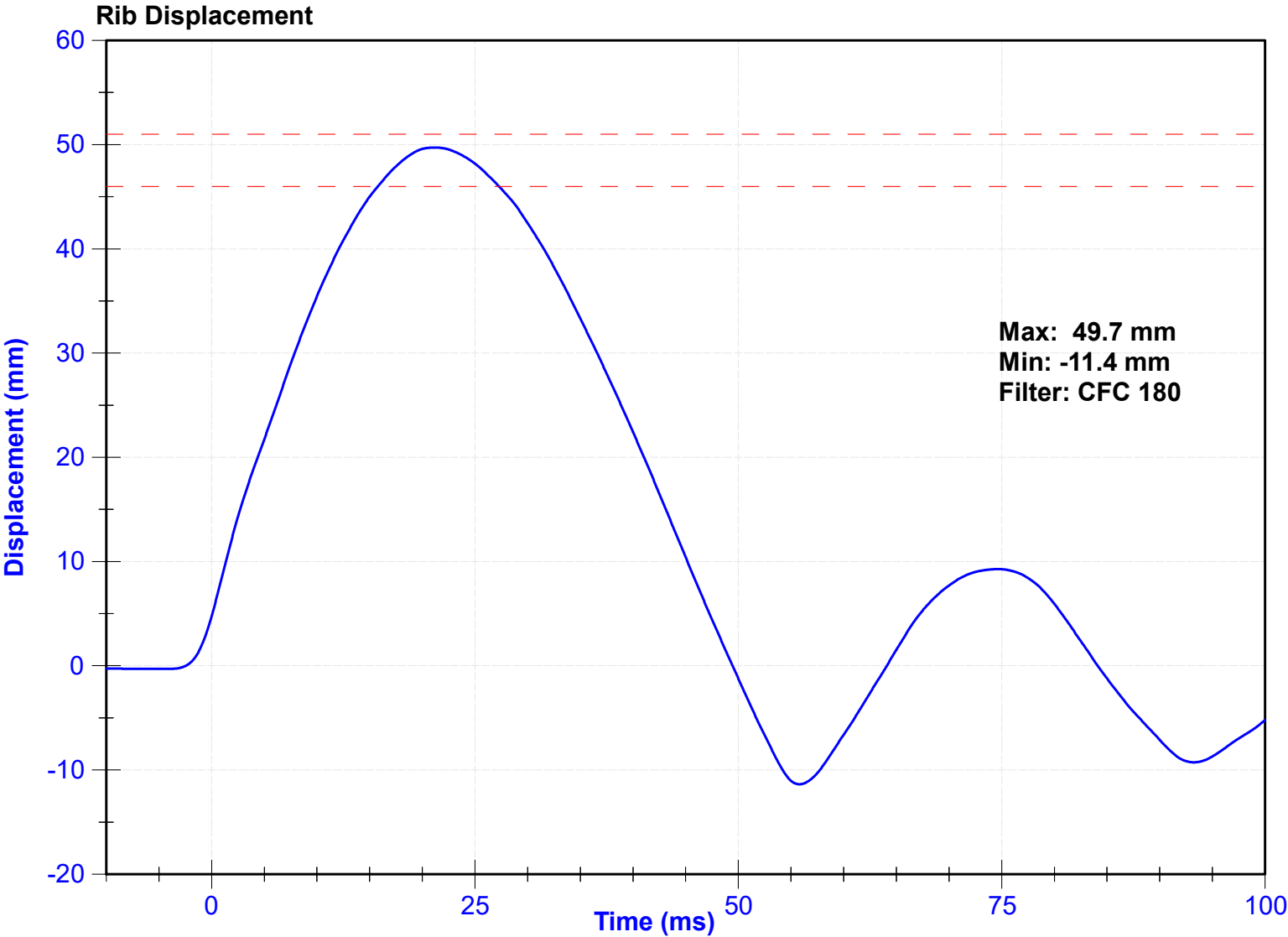
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	40	Pass
Rib Displacement	46	51	mm	49.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	807	4/21/2025	10/20/2025



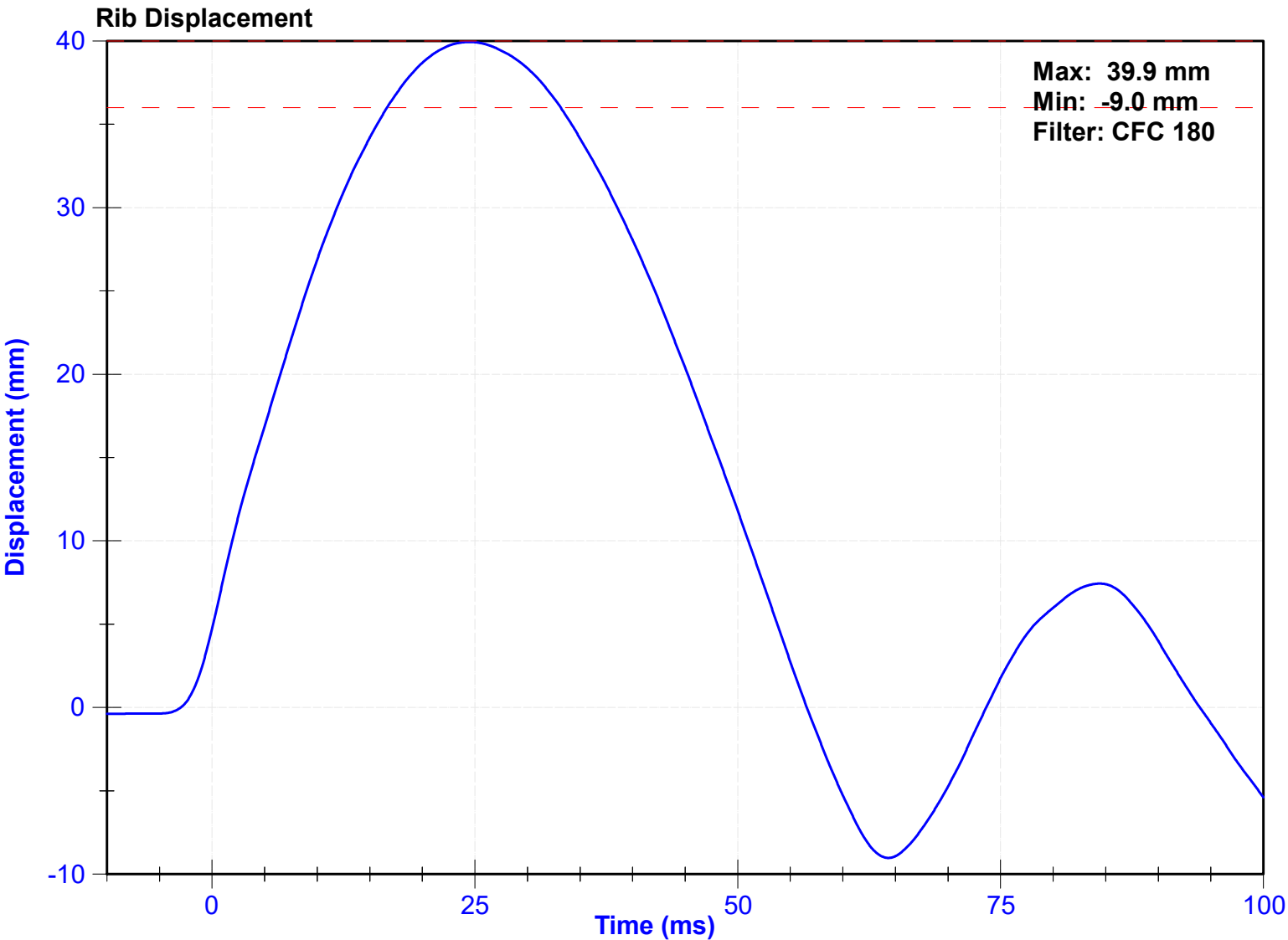
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	40	Pass
Rib Displacement	36	40	mm	39.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	807	4/21/2025	10/20/2025



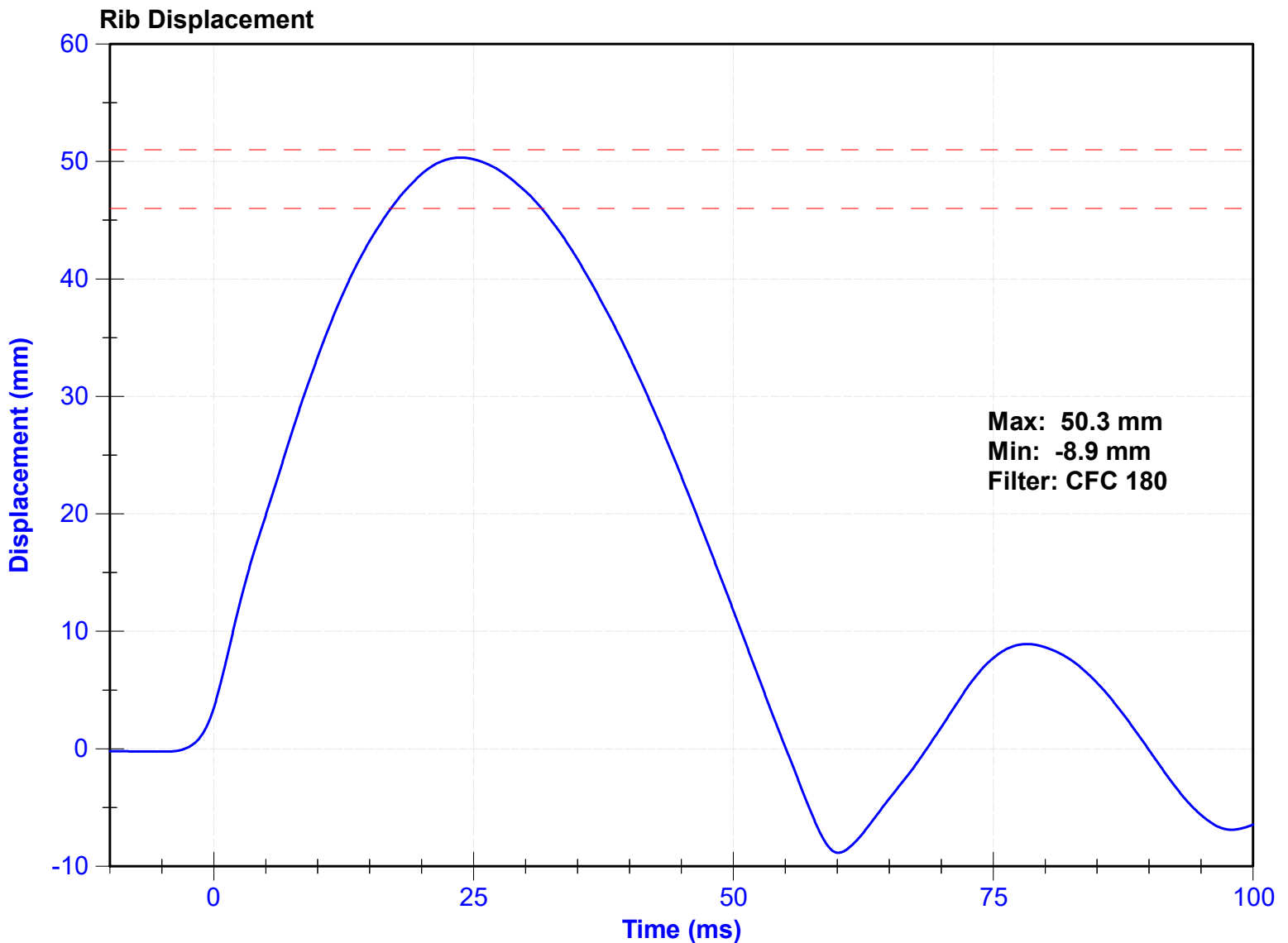
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	40	Pass
Rib Displacement	46	51	mm	50.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	0552-03	4/21/2025	10/20/2025



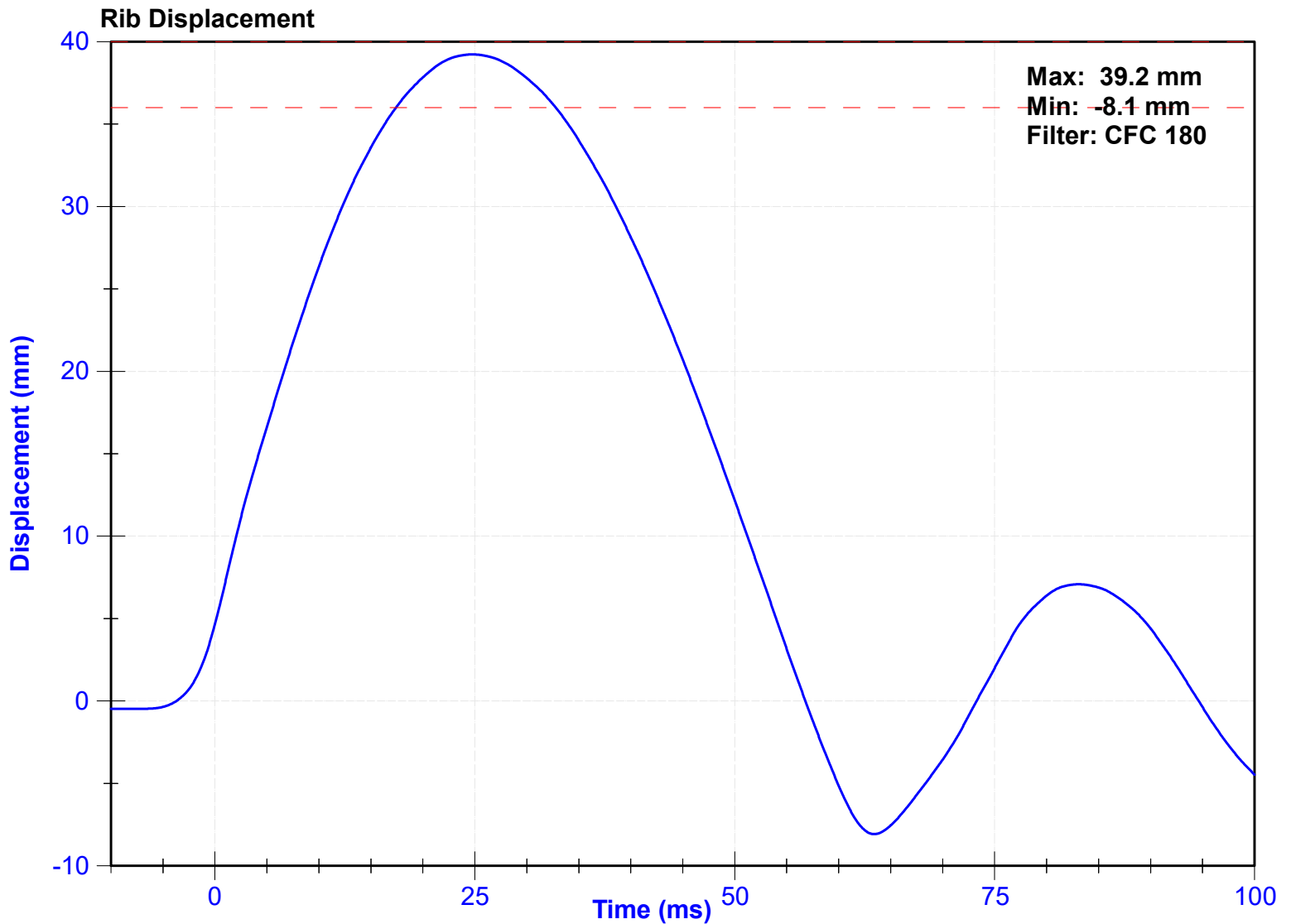
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	40	Pass
Rib Displacement	36	40	mm	39.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	0552-03	4/21/2025	10/20/2025



ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

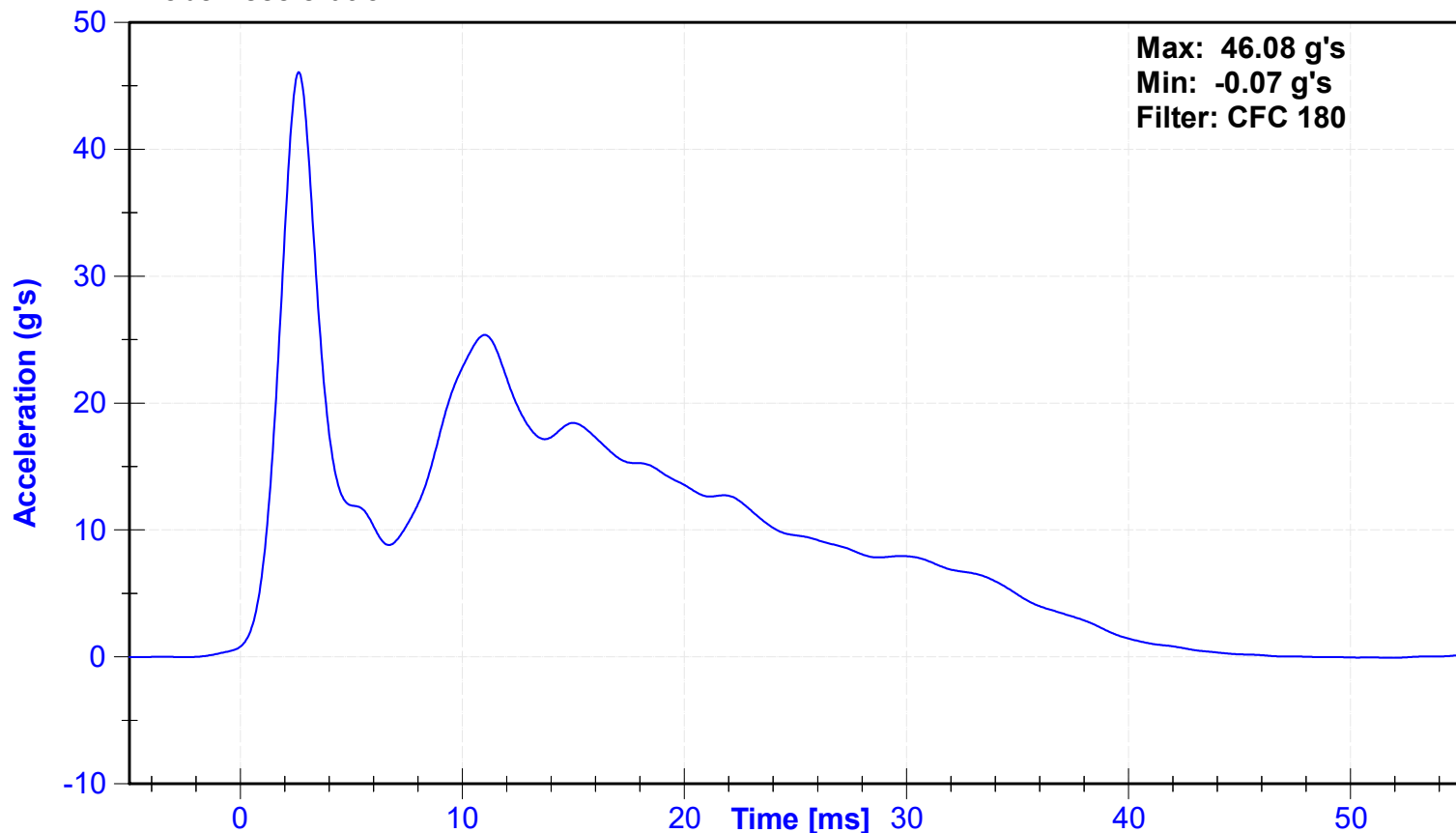
Results

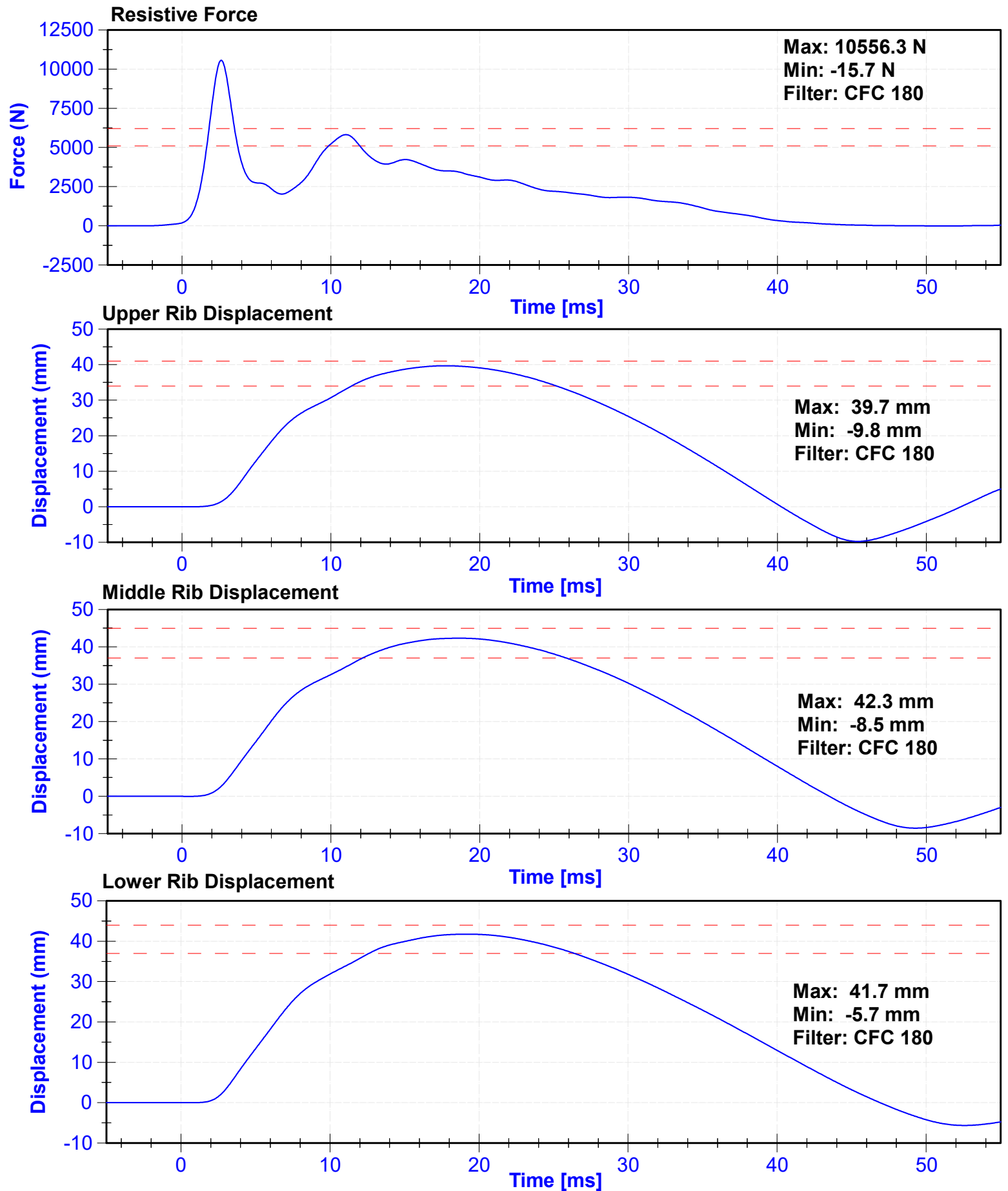
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	53	Pass
Velocity	5.4	5.6	m/s	5.52	Pass
Resistive Force after 6ms	5100	6200	N	5814.0	Pass
Upper Thorax Rib Deflection	34	41	mm	39.7	Pass
Mid Thorax Rib Deflection	37	45	mm	42.3	Pass
Lower Thorax Rib Deflection	37	44	mm	41.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Upper Thorax Rib Potentiometer	Honeywell	0552-01	4/21/2025	10/20/2025
Middle Thorax Rib Potentiometer	Honeywell	807	4/21/2025	10/20/2025
Lower Thorax Rib Potentiometer	Honeywell	0552-03	4/21/2025	10/20/2025

Probe Acceleration





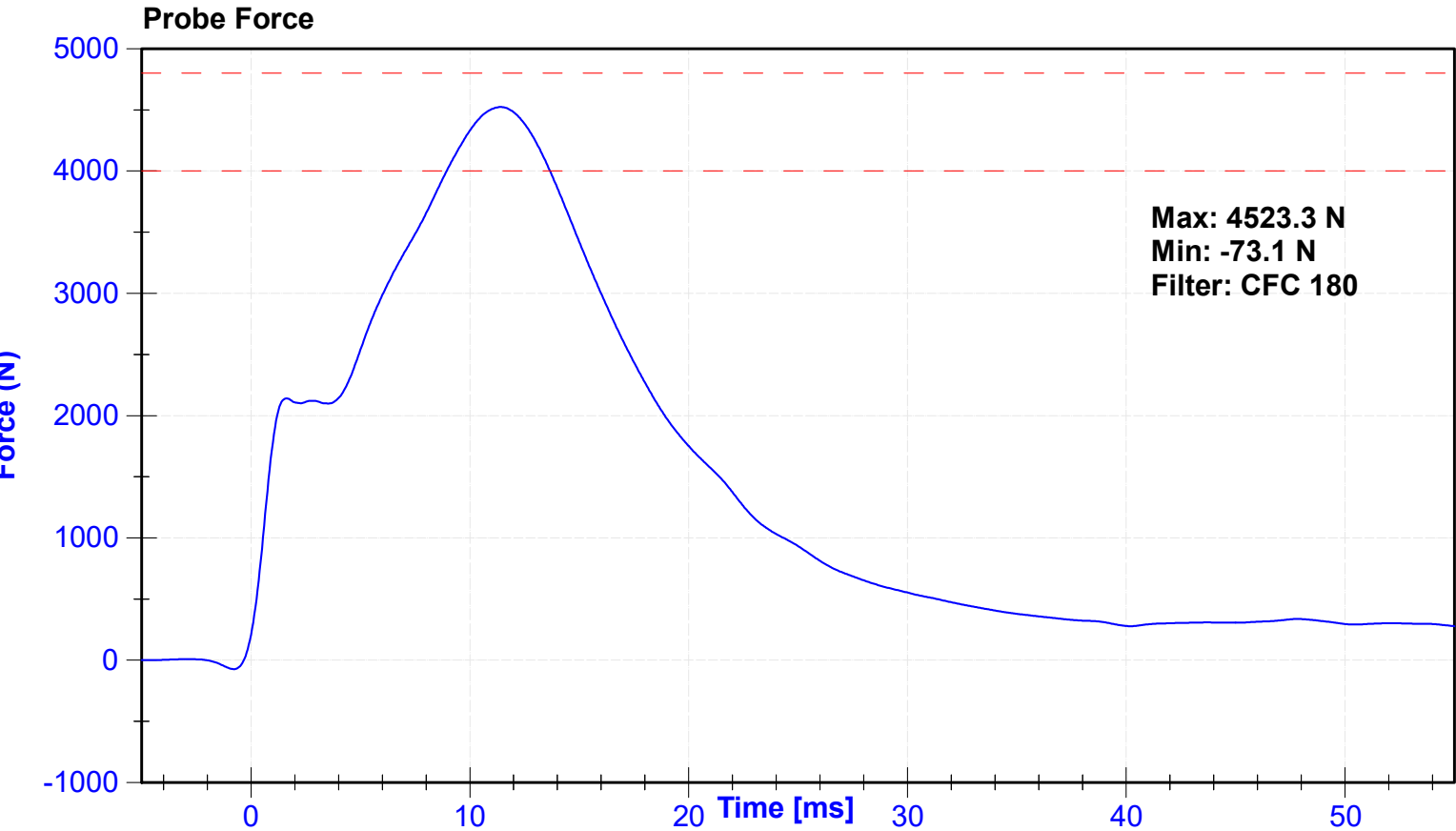
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

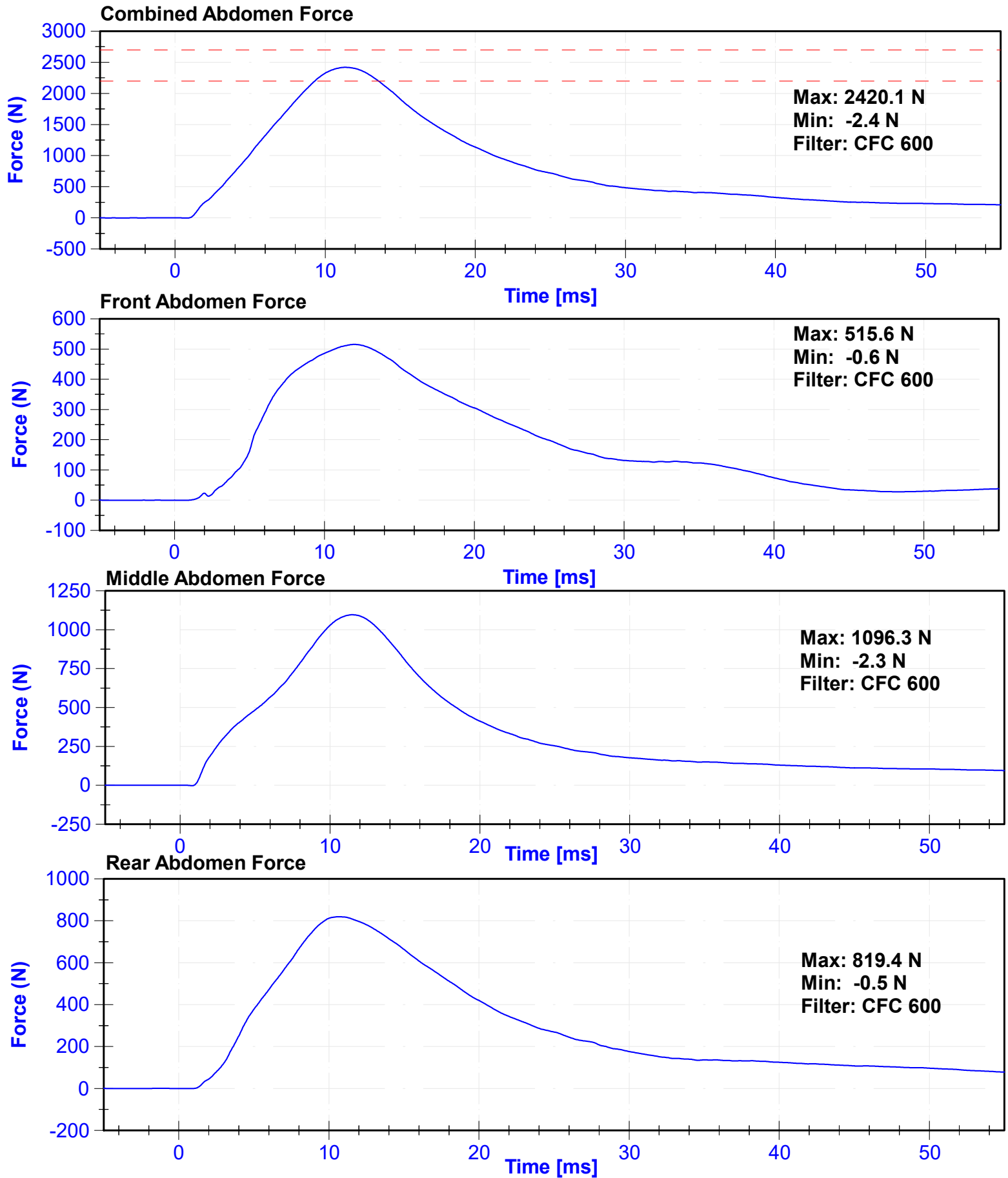
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	53	Pass
Velocity	3.9	4.1	m/s	4.03	Pass
Combined Abdomen Force	2200	2700	N	2420.1	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	11.35	Pass
Resistive Probe Force	4000	4800	N	4523.3	Pass
Time at Peak Resistive Force	10.6	13.0	ms	11.40	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Front Abdomen Load Cell	Denton	1512	9/16/2024	9/16/2025
Middle Abdomen Load Cell	Denton	1526	9/16/2024	9/16/2025
Rear Abdomen Load Cell	Denton	1516	9/16/2024	9/16/2025





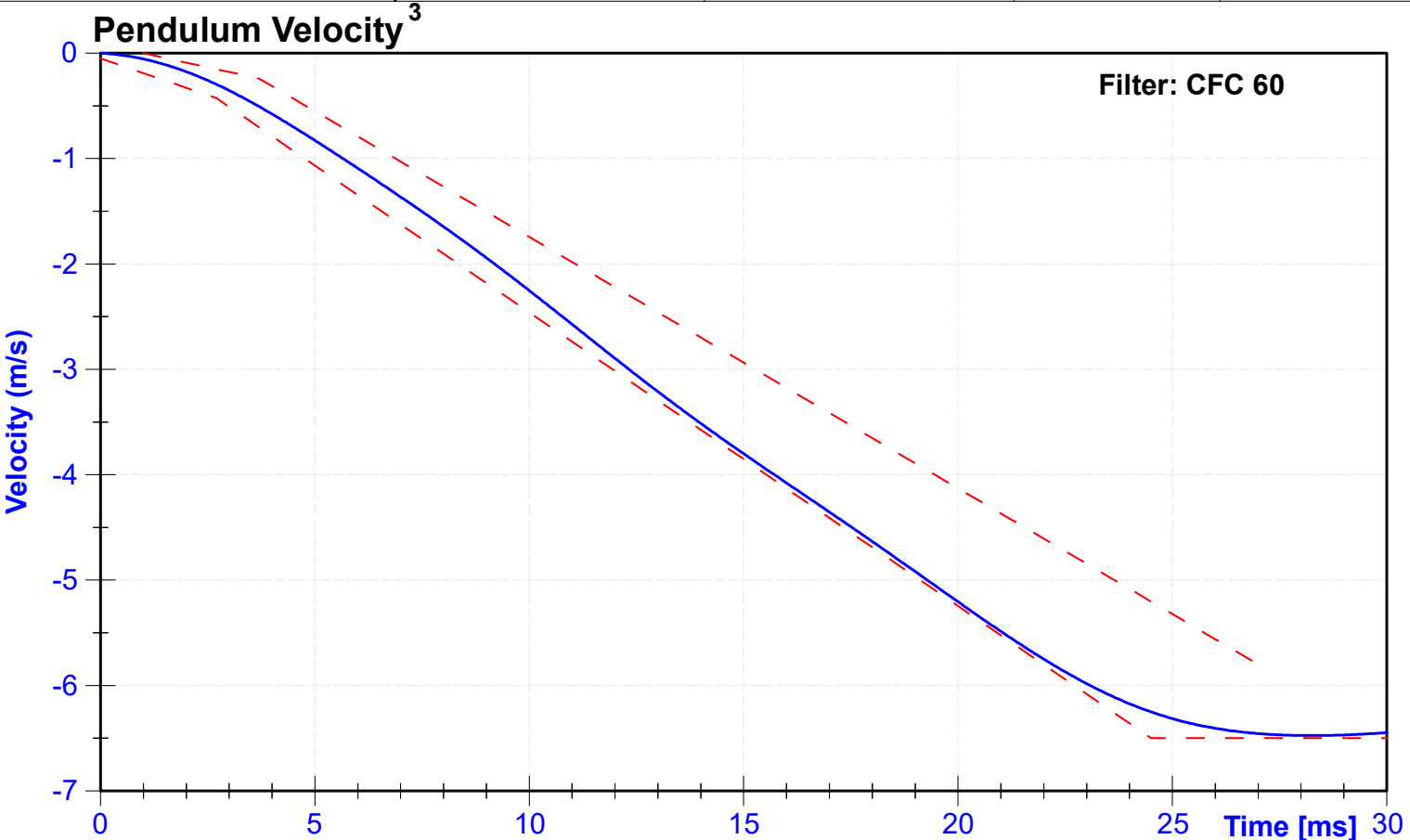
ATD Manufacturer	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

Results

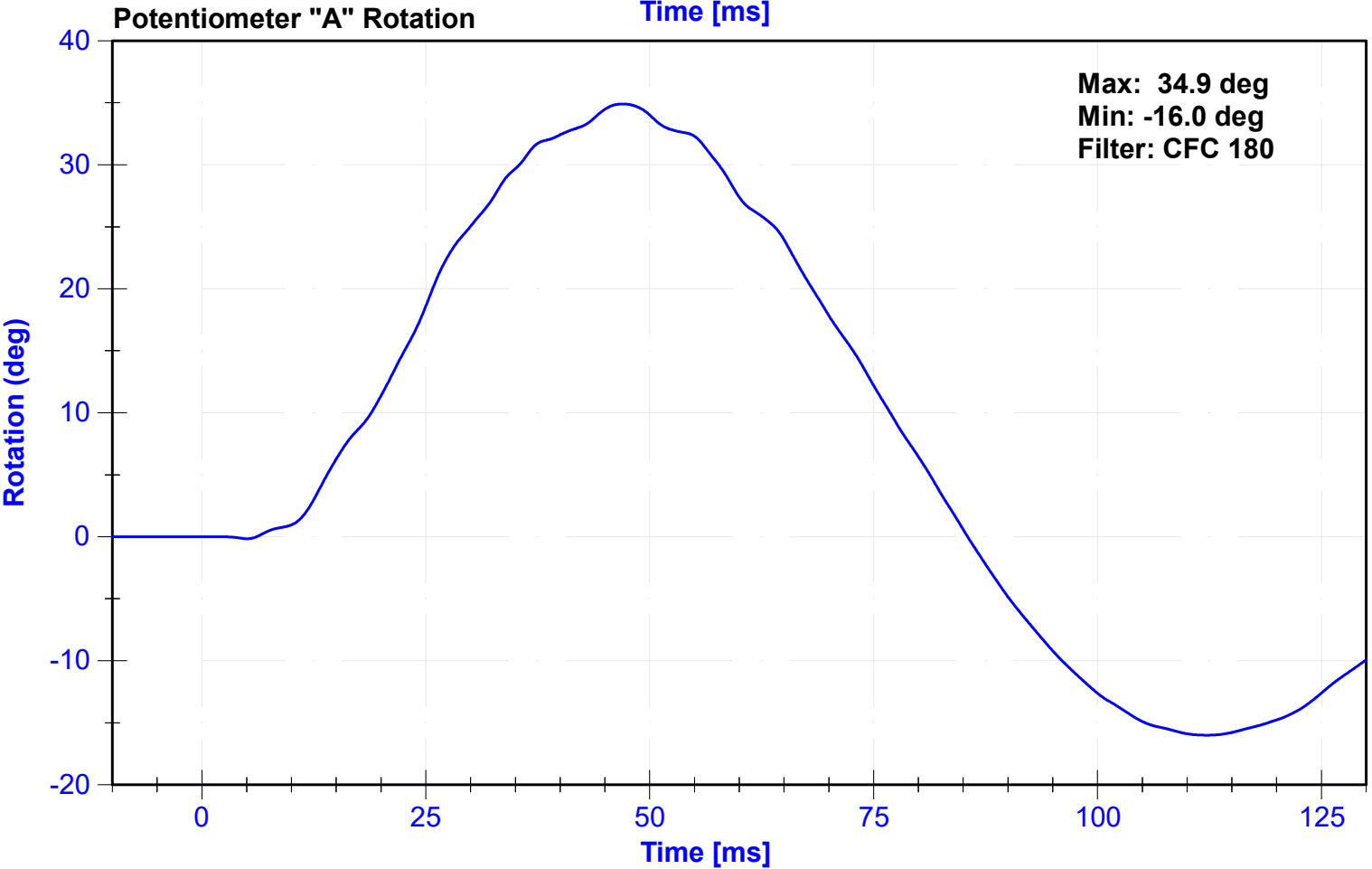
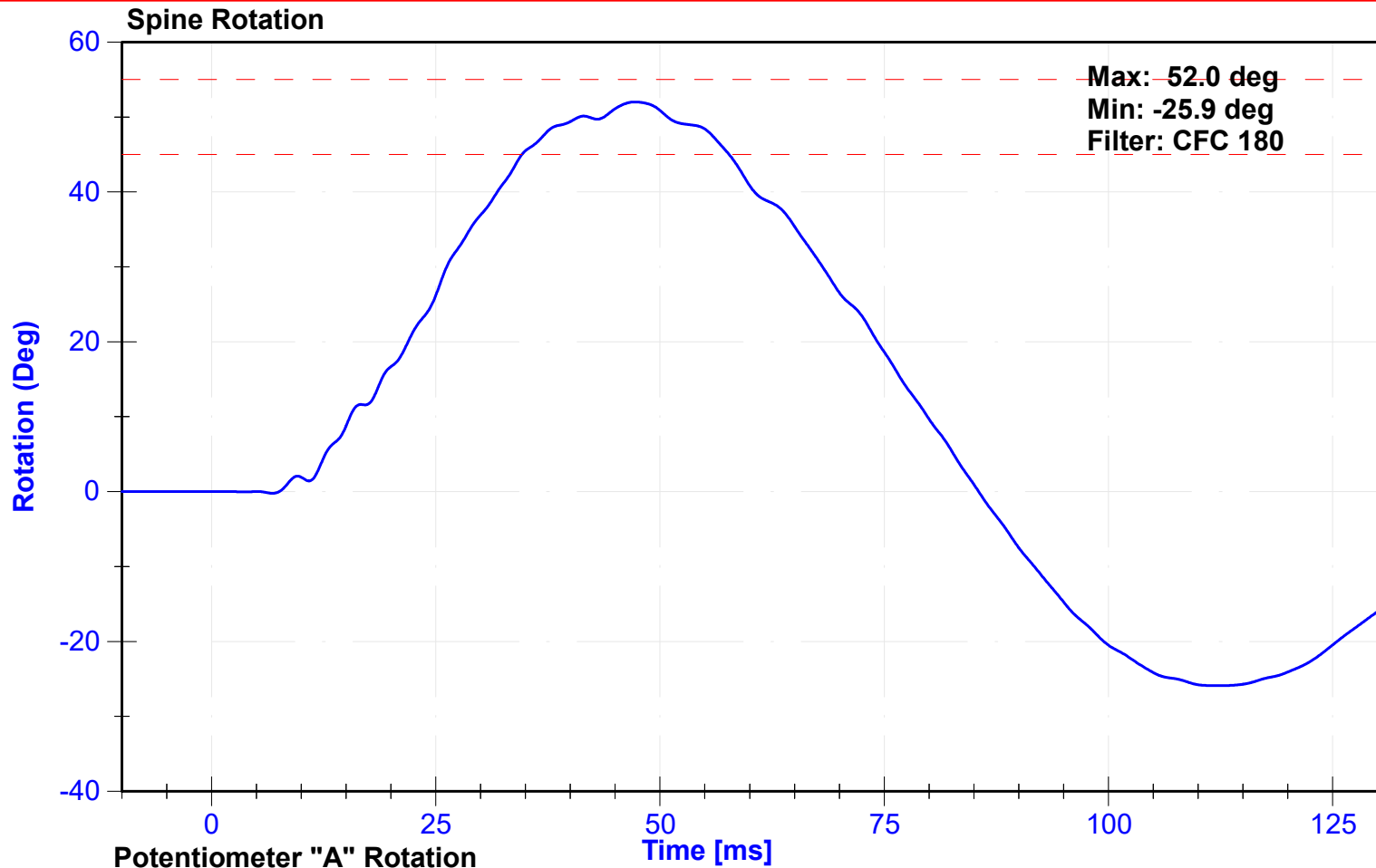
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	46	Pass
Velocity	5.95	6.15	m/s	6.061	Pass
Lateral Spine Rotation	45	55	deg	52.0	Pass
Time at Maximum Rotation	39	53	ms	47.2	Pass
Time of Decay to Zero Degrees	37	57	ms	38.4	Pass
Pendulum Velocity Overall Corridor	Lower Boundary ¹	Upper Boundary ²	m/s	See Plot ³	Pass

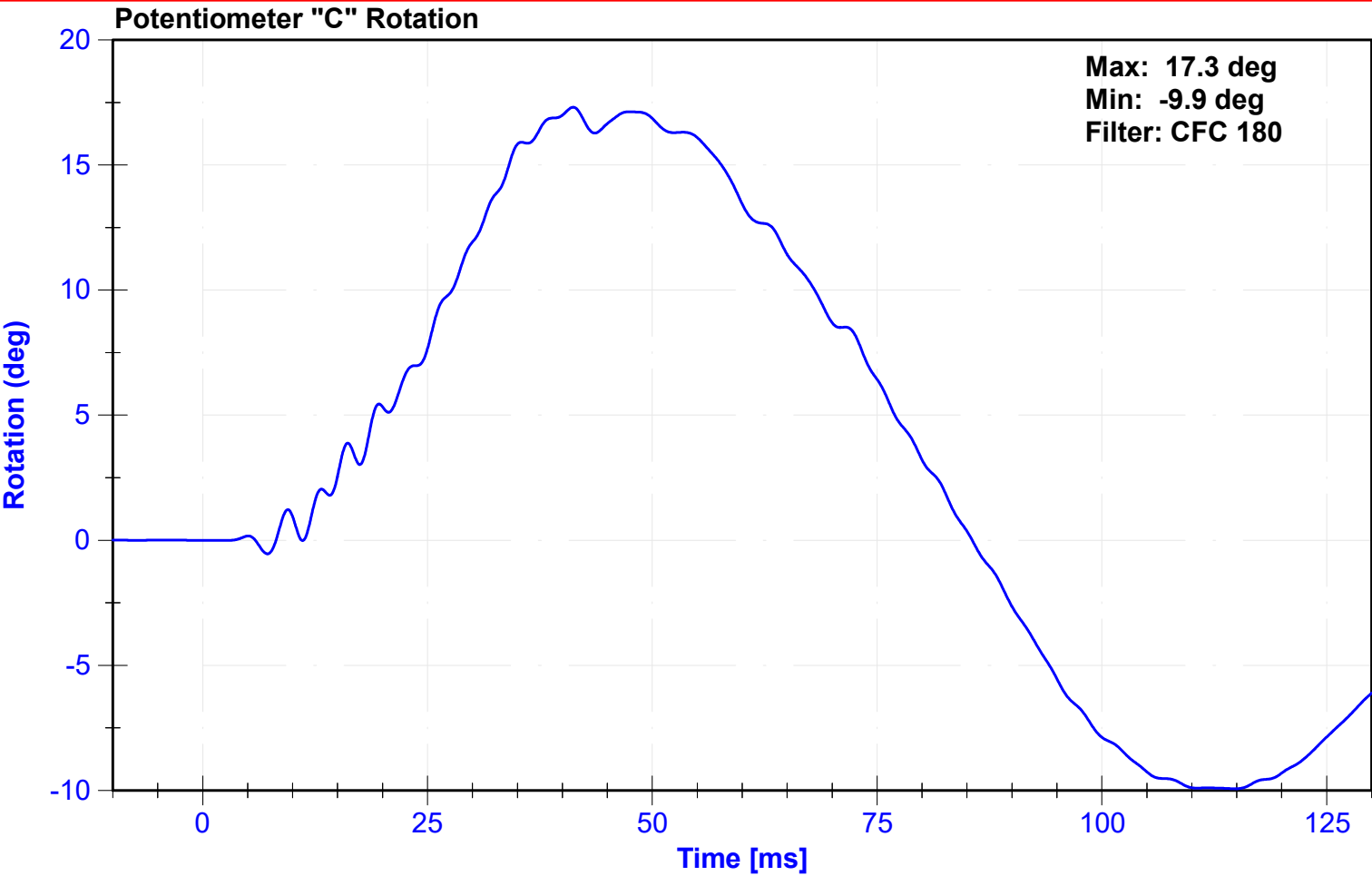
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	C16646	10/17/2024	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	Denton	Test Technician	Z. Nyhart
ATD Serial Number	D037	Laboratory Supervisor	J. Kinderman

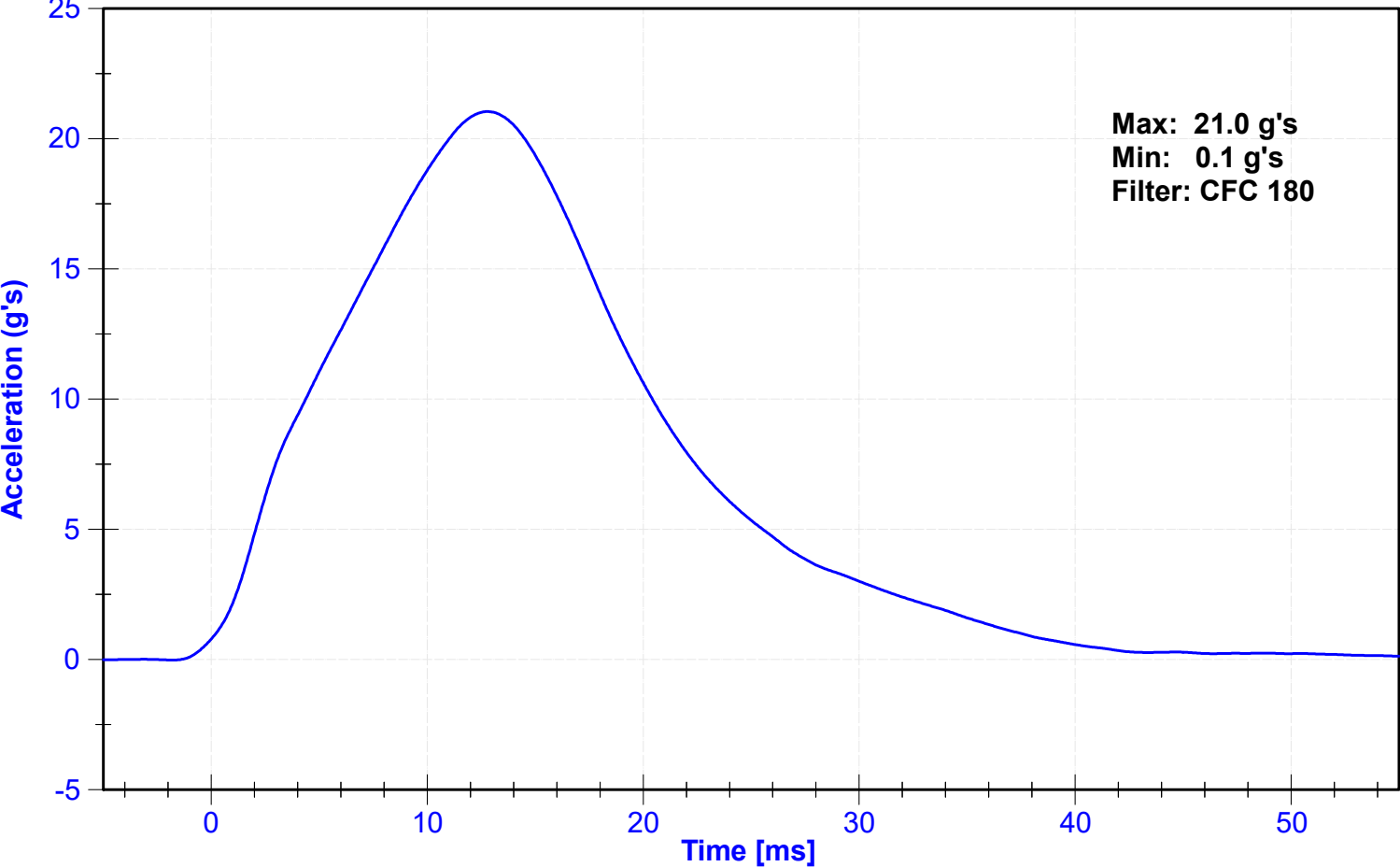
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	53	Pass
Velocity	4.2	4.4	m/s	4.28	Pass
Resistive Force	4700	5400	N	4819.9	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.80	Pass
Pubic Force	-1590	-1230	N	-1451.4	Pass
Time at Peak Pubic Force	12.2	17.0	ms	13.75	Pass

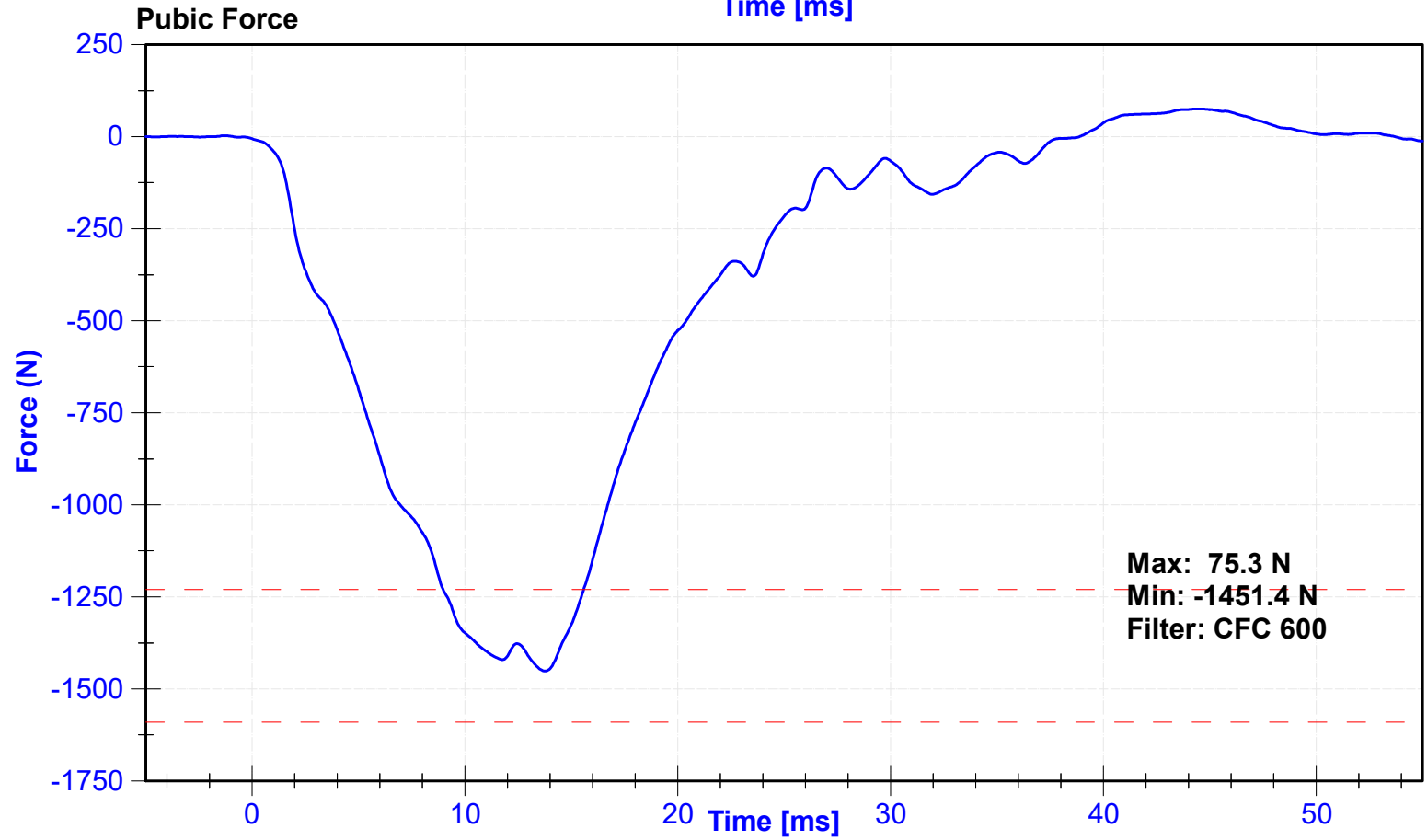
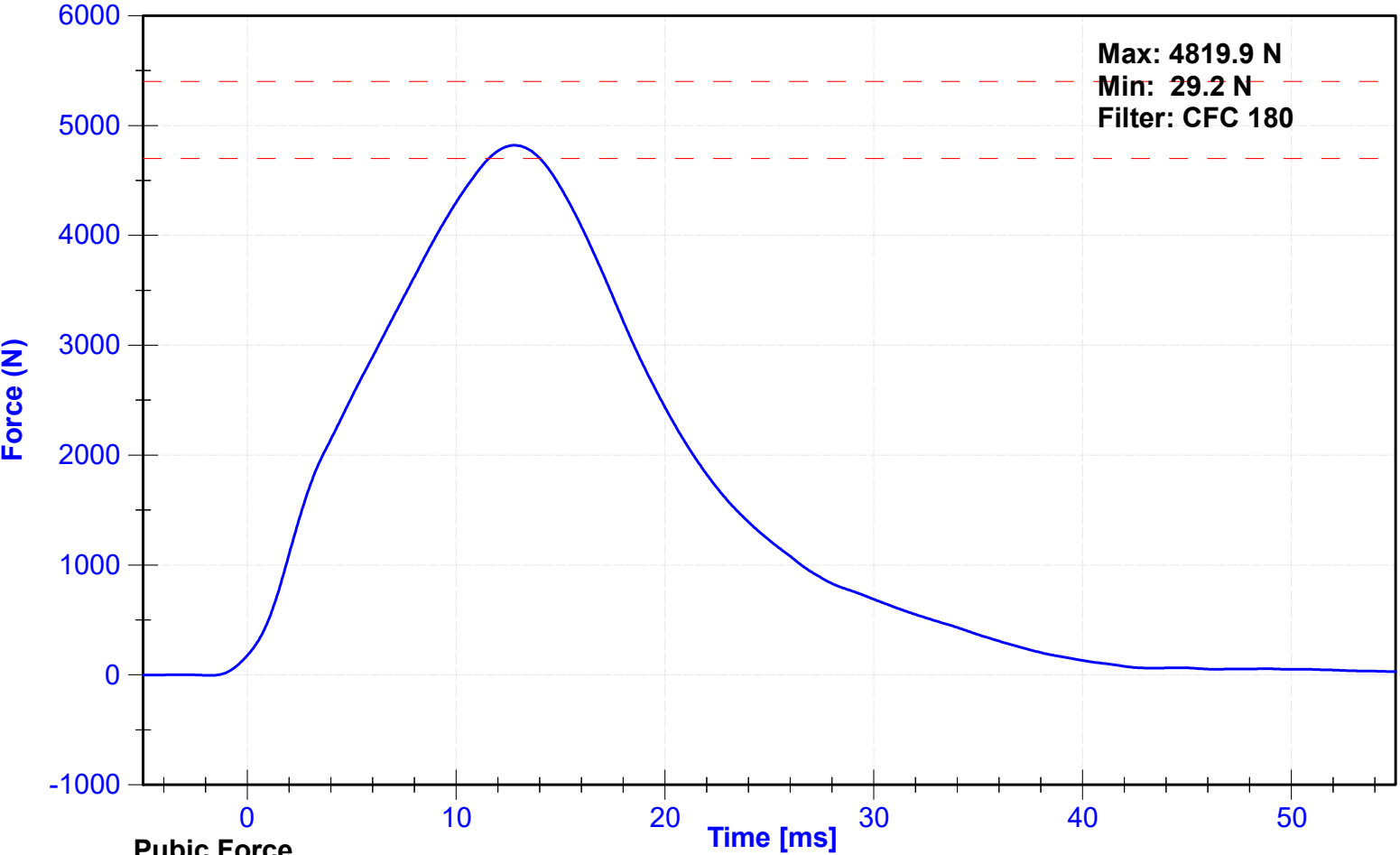
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	Endevco	18566	5/7/2025	11/3/2025
Pubic Load Cell	Denton	464-FY	9/16/2024	9/16/2025

Probe Acceleration



Resistive Force



APPENDIX V

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N D037		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers	Primary	X	T21724	Endevco	04/21/2025
		Y	T22281	Endevco	04/21/2025
		Z	T26050	Endevco	04/21/2025
	Redundant	X	T21682	Endevco	04/21/2025
		Y	T25989	Endevco	04/21/2025
		Z	T25864	Endevco	04/21/2025
Thorax Rib Displacement Potentiometers	Upper	Y	0552-01	Honeywell	04/21/2025
	Middle	Y	807	Honeywell	04/21/2025
	Lower	Y	0552-03	Honeywell	04/21/2025
Abdomen Load Cells	Forward	Y	1512	Denton	09/16/2024
	Middle	Y	1526	Denton	09/16/2024
	Rear	Y	1516	Denton	09/16/2024
Lower Spine Accelerometers (T12)		X	P71278	Endevco	04/21/2025
		Y	18595	Endevco	04/21/2025
		Z	T29729	Endevco	04/21/2025
Pubic Symphysis Load Cell		Y	464-FY	Denton	09/16/2024

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	G24325	Endevco	06/24/2025
Vehicle Center of Gravity	Y	G25978	Endevco	06/24/2025
Vehicle Center of Gravity	Z	A400017	Measurement Specialties	06/24/2025
Left Floor Sill	Y	A282707	Measurement Specialties	07/11/2025
A-Pillar Sill	Y	G22714	Endevco	04/11/2025
A-Pillar Low	Y	G23705	Endevco	07/11/2025
A-Pillar Mid	Y	A413612	Measurement Specialties	04/04/2025
B-Pillar Sill	Y	A315096	Measurement Specialties	07/11/2025
B-Pillar Low	Y	A431359	Measurement Specialties	02/20/2025
B-Pillar Mid	Y	G23414	Endevco	07/11/2025
Driver Seat	Y	G25573	Endevco	07/11/2025
Engine Top	X	A274260	Measurement Specialties	05/16/2025
Engine Top	Y	A372854	Measurement Specialties	05/19/2025
Firewall	Y	G25398	Endevco	06/25/2025
Right Roof	Y	G24600	Endevco	06/23/2025
Right Floor Sill	Y	G25862	Endevco	02/12/2025
Rear Floorpan	X	A372818	Measurement Specialties	07/08/2025
Rear Floorpan	Y	A400032	Measurement Specialties	07/08/2025