

REPORT NUMBER: SideNCAPPole-MGA-25-033

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Side Impact Pole Test**

**VOLVO CAR CORPORATION
2025 Volvo EX90 Ultra 5-Door SUV
NHTSA No.: O20255901**

**MGA RESEARCH CORPORATION
5000 Warren Road
Burlington, WI 53105**



Test Date: December 12, 2025

Final Report Date: May 29, 2026

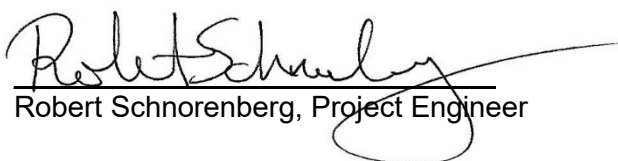
FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NRM-100
1200 New Jersey Ave, SE
Washington, DC 20590**

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Approval Date: May 29, 2026

FINAL REPORT ACCEPTANCE BY OCWS:

Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

COR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards

TECHNICAL REPORT DOCUMENTATION PAGE

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		6. Performing Organization Code MGA																											
7. Author(s) Ben Fischer, Program Manager		8. Performing Organization Report No. SideNCAPPole-MGA-25-033																											
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12. Sponsoring Agency Name and Address United States Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NRM-100 1200 New Jersey Ave, SE Washington, DC 20590		13. Type of Report and Period Covered: Final Test Report December 12, 2025 to May 29, 2026																											
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15. Supplementary Notes																													
16. Abstract A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2025 Volvo EX90 Ultra 5-Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at the MGA Research Corporation facility in Burlington, Wisconsin on December 12, 2025. The impact velocity was 32.37 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.8°C. The test vehicle post-test maximum crush was 258 mm at level 3. The test vehicle's performance was as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th rowspan="2" style="text-align: center;">Measurement Description</th> <th rowspan="2" style="text-align: center;">Units</th> <th colspan="2" style="text-align: center;">Driver ATD (SID-IIs)</th> </tr> <tr> <th style="text-align: center;">Threshold</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td style="text-align: center;">1000</td> <td style="text-align: center;">275.632</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">g</td> <td style="text-align: center;">82</td> <td style="text-align: center;">40.769</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">3012.641</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">38*</td> <td style="text-align: center;">24.916</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">45*</td> <td style="text-align: center;">18.905</td> </tr> </tbody> </table> *Proposed IARV The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door(s) did not open during the side impact event.				Measurement Description	Units	Driver ATD (SID-IIs)		Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	275.632	Resultant Lower Spine Acceleration	g	82	40.769	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3012.641	Maximum Thoracic Rib Deflection	mm	38*	24.916	Maximum Abdomen Rib Deflection	mm	45*	18.905
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave, SE Washington, DC 20590																											
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SECTION 1 PURPOSE AND SUMMARY OF TEST

PURPOSE

This side pole impact test is part of the MY 2025 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ920D000017. The purpose of this test is to generate comparative side impact performance in a 2025 Volvo EX90 Ultra 5-Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated March 2020.

SUMMARY

A rigid pole side impact test was conducted on a 2025 Volvo EX90 Ultra 5-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.37 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin on December 12, 2025. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure dated March 2020. Camera locations and other pertinent camera information are included in this report.

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

- Primary and Redundant Head CG Triaxial Accelerometers
- Head Triaxial Angular Rate Sensors
- Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
- Abdomen Upper Rib and Lower Rib Displacement Potentiometers
- Lower Spine (T12) Triaxial Accelerometers
- Iliac Load Cell
- Acetabulum Load Cell

Appendix B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D contains the test equipment and instrumentation calibration data.

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

Measurement Description	Units	Driver ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	275.632
Resultant Lower Spine Acceleration	g	82	40.769
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3012.641
Maximum Thoracic Rib Deflection	mm	38*	24.916
Maximum Abdomen Rib Deflection	mm	45*	18.905

*Proposed IARV

Supplemental restraint information is given below:

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

The test data can be found on the NHTSA website at www.nhtsa.gov

GENERAL COMMENTS

None.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20255901	Traction Control System (TCS)	Yes
Model Year	2025	Auto-Leveling System	Yes
Make	Volvo	Automatic Door Locks (ADL)	Yes
Model	EX90 Ultra	Power Window Auto-Reverse	Yes
Body Style	5-Door SUV	Other Optional Feature	No
VIN	7JDE23KLXSG001439	Driver Front Airbag	Yes
Body Color	Mulberry Red	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	137 km / 85 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)		Driver Torso Airbag	No
Type/No. Cylinders	Electric	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	1	Rear Pass. Curtain Airbag	Yes
Overdrive	No	Rear Pass. Head/Torso Airbag	No
Final Drive	AWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	Yes	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	Yes
Power Seats	Yes	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	Yes
		Far-Side Seat Airbag	Yes

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

DATA FROM CERTIFICATION LABEL

Manufactured By	VOLVO CAR CORPORATION	GVWR (kg)	3298
Date of Manufacture	07/24	GAWR Front (kg)	1497
Vehicle Type	MPV	GAWR Rear (kg)	1901

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	2	2	6	
Capacity Weight (VCW) (kg)				484	(A)
DSC x 68 kg				408	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				76	(A-B)

VEHICLE SEAT TYPE

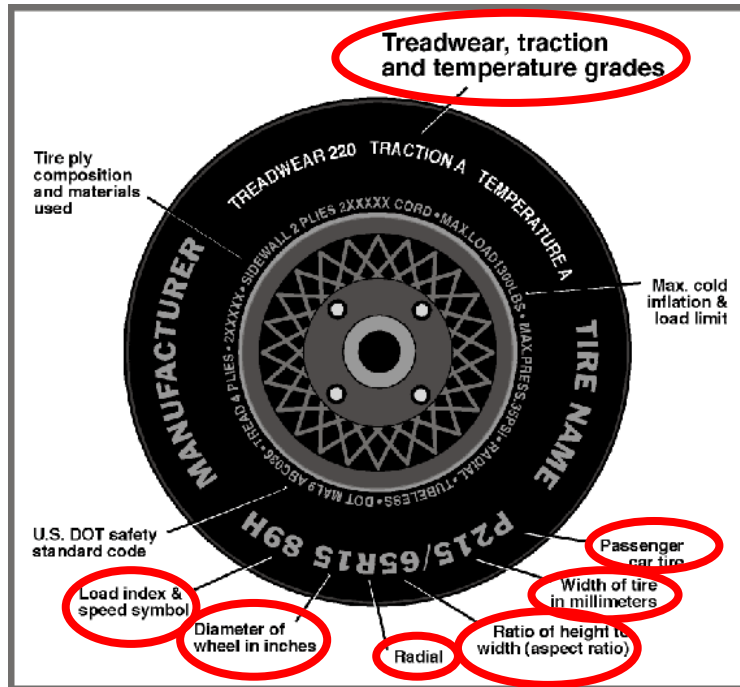
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						w/ Lever	w/ Knob
Front Seat	X					X	
Rear or Second Row	X					X	
Third Row Seat			X		X		

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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	280	280
Recommended Tire Size	265/40R22	295/35R22
Tire Size on Vehicle	265/40R22	295/35R22
Tire Manufacturer	Pirelli	Pirelli
Tire Model	Scorpion MS	Scorpion MS
Treadwear	500	500
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Polyamide	2 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	106H	111H
Tire Material	Rubber	Rubber
DOT Safety Code Left	1UN WD472U 2424	1UN AT3550 4824
DOT Safety Code Right	1UN WD472U 2324	1UN XH4730 2424

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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	290	290	255	290
Tire Placard	kPa	280	280	280	280
Owner's Manual	kPa	285	285	285	285
As Tested	kPa	285	285	285	285

TEST AXLE VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	669.5	700.5		693.5	741.5		684.0	763.5	
Right	kg	661.5	716.5		678.0	755.0		658.5	769.5	
Ratio	%	48.4%	51.6%		47.8%	52.2%		46.7%	53.3%	
Totals	kg	1331.0	1417.0	2748.0	1371.5	1496.5	2868.0	1342.5	1533.0	2875.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2748.0	(A)
Actual Weight of 1 P572 ATD (SID-IIs) Used	kg	52	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	76	(C)
Calculated Test Vehicle Target Weight (TVTW)	kg	2876.0	(A+B+C)

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

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement
Driver Door Sill Angle (front-to-back)*	deg	-1.5	-1.3	-1.3	Yes
Front Pass. Door Sill Angle (front-to-back)*	deg	-1.6	-1.5	-1.5	Yes
Front Bumper Angle (left-to-right)**	deg	0.0	-0.1	-0.2	Yes
Rear Bumper Angle (left-to-right)**	deg	0.0	-0.1	-0.2	Yes
Vehicle CG (Aft of Front Axle)	mm	1538	1557	1591	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	-2	1	6	

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

*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements.

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Units	Weight
Weight of Ballast Added	kg	5
Components Removed: none	kg	

Test height adjustable suspension setting, if applicable:	Default
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DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025

TEST SURFACE MARKINGS

	Distance from 75° Impact Location Line (mm)
Fore 25 mm Target	970
Aft 25 mm Target	973

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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	18.9	8.7	13.8
Front Passenger Seat	18.4	7.7	13.1
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat			

SEAT HEIGHT AND ANGLE

Seat	As-Tested SCRL Angle (Mid) (°)	As-Tested SCRIP Height (mm)	SCRIP Height Position	SCRIP Height (mm)		
				Rear-Most	Mid	Forward-Most
Driver Seat	13.8	35	Max	70	70	70
			Mid	35	35	35
			Min	0	0	0
Front Passenger Seat	13.1	34	Max	68	68	68
			Mid	34	34	34
			Min	0	0	0
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat			Max			
			Mid			
			Min			

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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

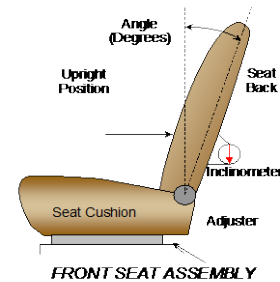
NHTSA No.: O20255901
 Test Date: 12/12/2025

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-Most Position	
	mm	Detents (1 st as 1)	mm	Detent (1 st as 0)
Driver Seat	260		0	
Front Passenger Seat	242		0	
Front Center Seat				
Struck Side Rear Seat	120	13	120	12
Non-Struck Side Rear Seat	120	13	120	12
Rear Center Seat				

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on S1 – Vehicle Setup Information for the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents (1 st as 1)	Degrees	Detent (1 st as 0)
Driver Seat	92.3		11.9	
Front Passenger Seat	76.6		11.9	
Front Center Seat				
Struck Side Rear Seat	9.6	6	18.7	0
Non-Struck Side Rear Seat	9.6	6	18.7	0
Rear Center Seat				

All seat back angles measured on seatback.

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on S1 – Vehicle Setup Information.

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

HEAD RESTRAINT ADJUSTMENT

Head restraints are adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	Fixed	

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

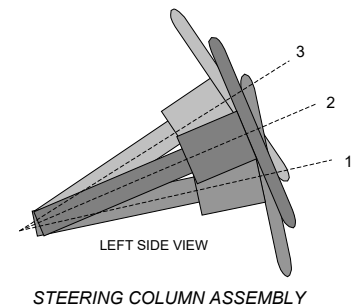
Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
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STEERING COLUMN ADJUSTMENT

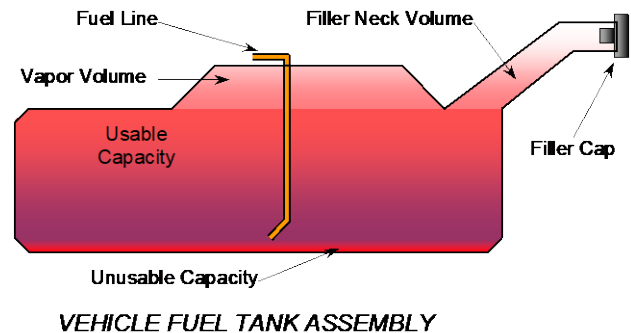
Steering wheel and column adjustments are made so that the steering wheel geometric locus is described when it moves through its full range of motion.

	Wheel Angle (°)	Fore/Aft Position (mm)
Lowermost, Position 1	68.5	
Geometric Center, Position 2	66.1	
Uppermost, Position 3	63.7	
Telescoping Steering Wheel Travel		46
Test Position	66.1	23



FUEL PUMP

Electric vehicle.



FUEL TANK CAPACITY DATA

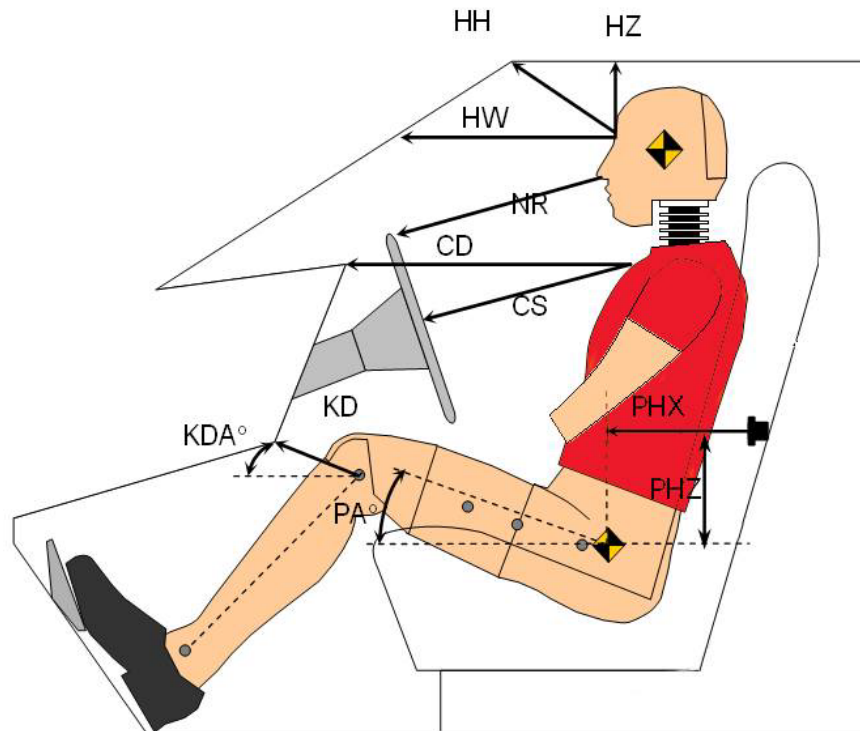
	Liters
Usable Capacity of Standard Tank (see S1 – Vehicle Setup Information)	
Usable Capacity of Optional Tank (see S1 – Vehicle Setup Information)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	
Actual Amount of Solvent Used	
1/3 of Usable Capacity	

Is the actual amount of solvent used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in S1 – Vehicle Setup Information? **N/A**

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025



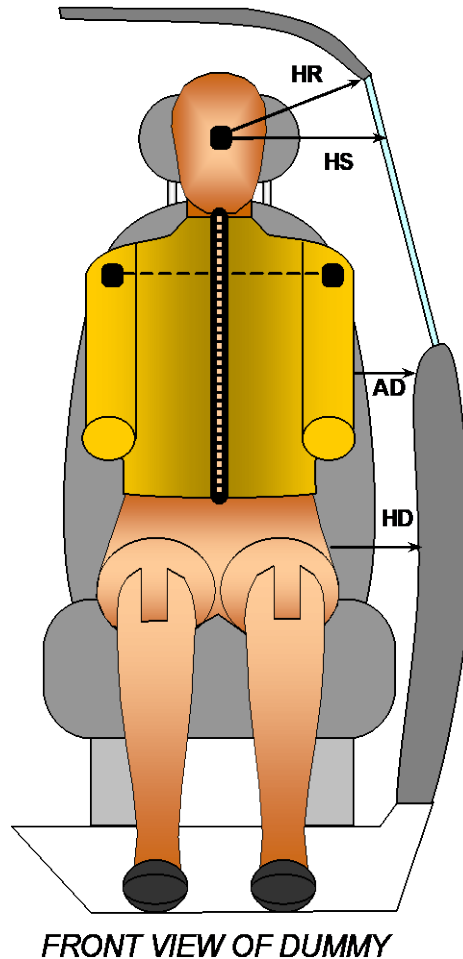
LEFT SIDE VIEW

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	296	
HW	Head to Windshield	598	
HZ	Head to Roof Liner	193	
NR	Nose to Rim/Seat Back	254	
CD	Chest to Dashboard/Seat Back	518	
CS	Chest to Steering Wheel	198	
KDL / KDAL	Left Knee to Dash/Seat Back	175	41.7
KDR / KDAL	Right Knee to Dash/Seat Back	171	36.3
PAX	Pelvic Tilt Angle X		22.0
PAY	Pelvic Tilt Angle Y		-1.1
PHX	Hip Point to Striker (X-Axis)	283	
PHZ	Hip Point to Striker (Z-Axis)	136	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
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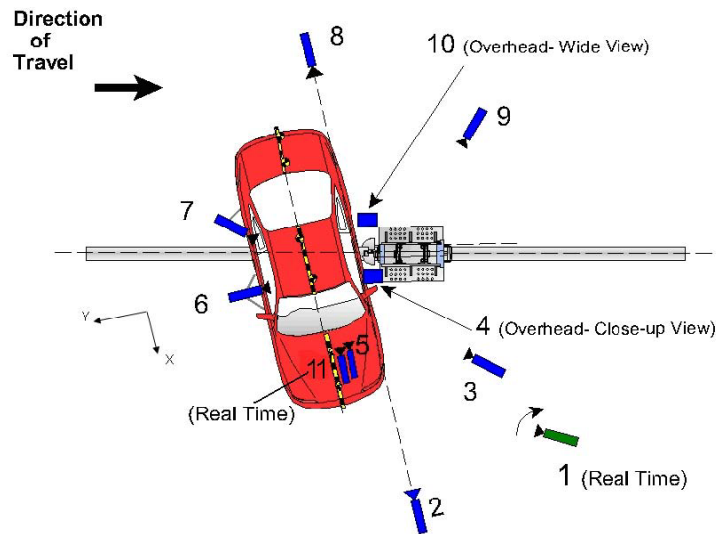


Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	241
HS	Head to Side Window	371
AD	Arm to Door	190
HD	Hip Point to Door	206

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025



Reference: (from Point of Impact for X and Y; from Ground for Z):
+X = Forward of Impact, + Y = Right of Impact, +Z = Down

No.	Camera View	Coordinates* (mm)			Lens (mm)	Frame Rate (fps)
		X	Y	Z		
1	Real-Time Pan View					30
2	Front Ground Level	5805	0	-1670	24	1000
3	Impact Side 45° Forward	4550	-2000	-1695	12	1000
4	Overhead Closeup	0	0	-6700	85	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	-6795	-40	-1745	24	1000
9	Impact Side 45° Rearward	-3105	-3620	-1725	12	1000
10	Overhead Wide View	85	510	-6700	12	1000
11	Real-Time Dummy Front View					30

*All measurements accurate to ± 6 mm

Note: Vehicle was positioned at a 75° angle to the rigid pole.

Explain why camera(s) did not operate as intended: None

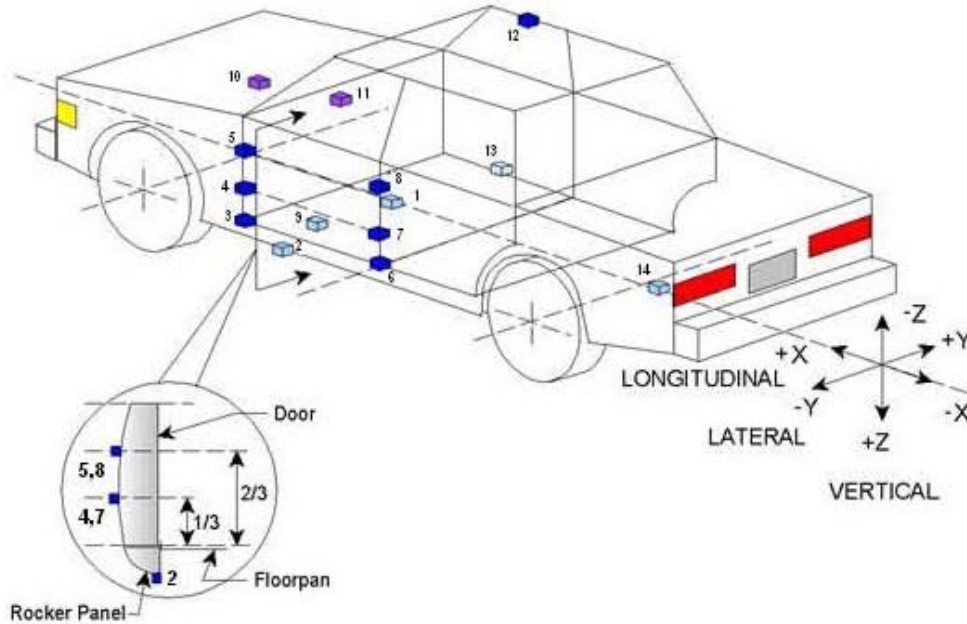
INSTRUMENTATION

	Number of Channels
Driver Dummy	19
Vehicle Structure	16
Pole Load Cells	8
Total	43

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025



TEST VEHICLE ACCELEROMETER LOCATIONS

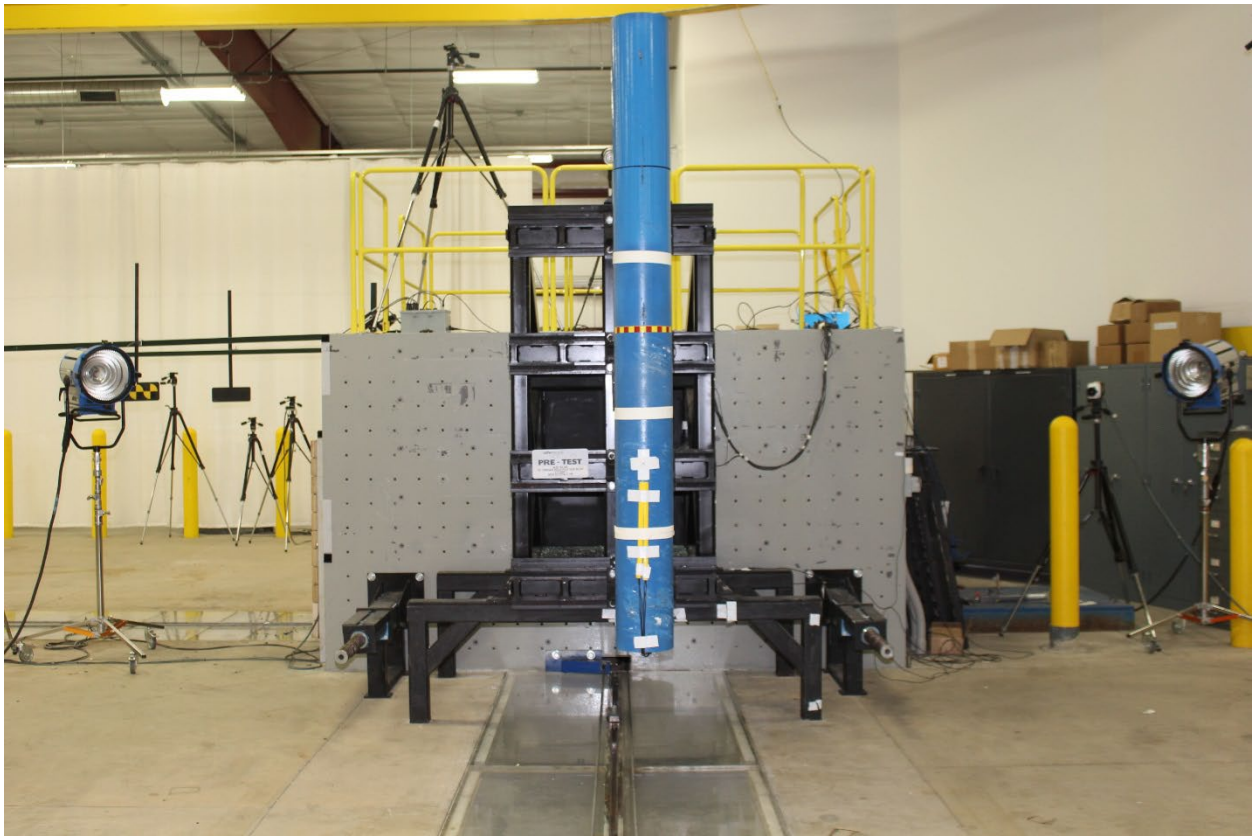
No.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2603	-35	-194
2	Left Floor Sill	3353	-461	-201
3	A Pillar Sill	3525	-464	-200
4	A Pillar Low	3449	-857	-586
5	A Pillar Mid	3447	-846	-867
6	B Pillar Sill	2430	-644	-204
7	B Pillar Low			
8	B Pillar Mid			
9	Driver Seat Track	2487	-387	-399
10	Engine Top	4281	54	-625
11	Firewall	3996	-2	-948
12	Right Roof	2326	624	-1695
13	Right Sill	3357	466	-199
14	Rear Floorpan	743	10	-540

Reference: X – Test Vehicle Rear Bumper (+forward)
Y – Test Vehicle Centerline (+ to right)
Z – Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025



254 mm Diameter Rigid Pole

Load Cell Locations	
ID	Height from Test Surface (mm)
1	182
2	470
3	698
4	986
5	1212
6	1641
7	1854
8	2053

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver Dummy (SID-IIs)
Face	None
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag, Headrest
Back of Head	Curtain Airbag, Headrest, Seatback
Left Shoulder	Side Torso/Pelvis Airbag, Seatback
Upper Torso	Side Torso/Pelvis Airbag
Lower Torso	Side Torso/Pelvis Airbag, Seatback
Left Hip	Side Torso/Pelvis Airbag, Seat Cushion
Left Knee	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch
	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, Record Width of Opening at Striker (mm)					

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	No Separation
Windshield Damage	Cracked
Side Window Damage	LF window cracked
Other Notable Effects	Windshield separated from struck-side a-pillar

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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

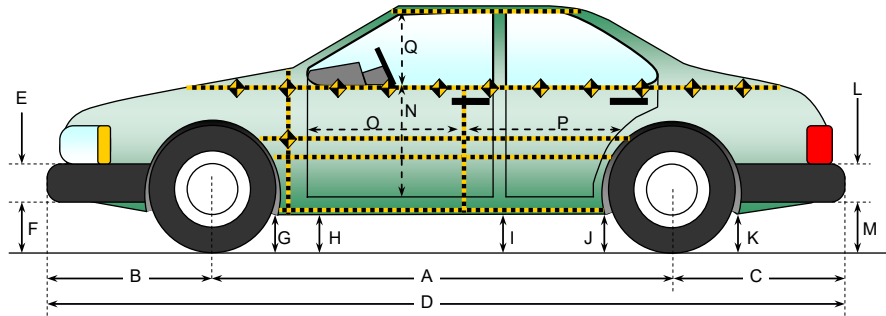
SPEED, ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1284
Actual Impact Point (Aft of Front Axle)	mm		1285
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	-1
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	degrees	75 +/- 3	74.7
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.37
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.39

DATA SHEET NO. 9
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025



All measurements in (mm) with tolerance of ± 3 mm

LEFT SIDE VIEW

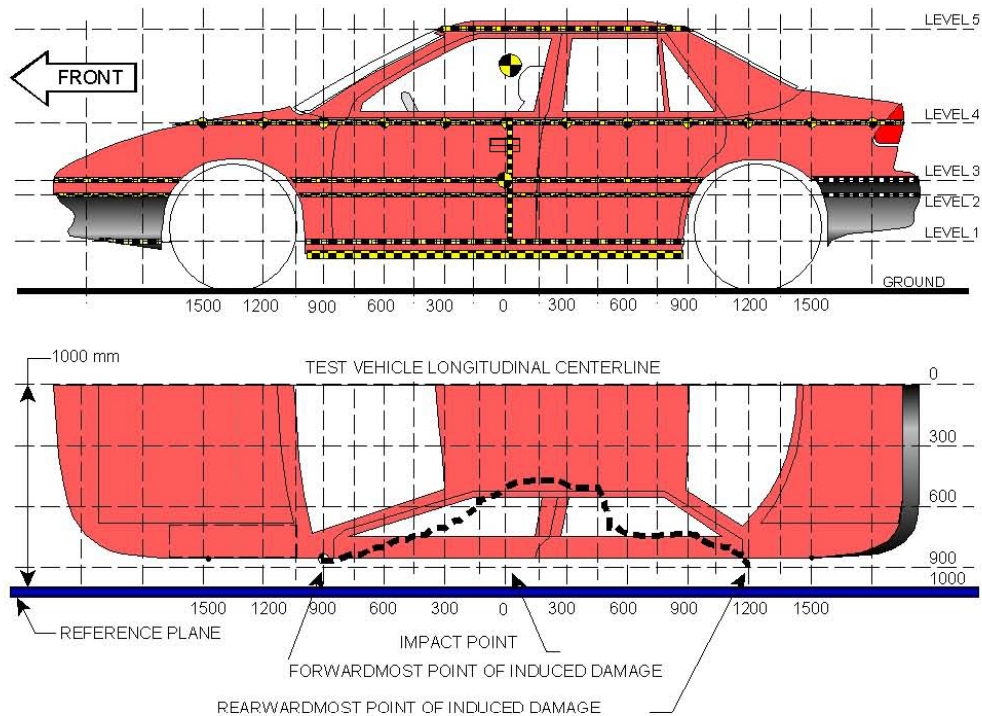
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2984	2967	-17
B	Front Axle to FSOV	918	927	9
C	Rear Axle to RSOV	1133	1127	-6
D	Total Vehicle Length at Centerline	5034	5021	-13
E	Front Bumper Thickness	157	154	-3
F	Front Bumper Bottom to Ground	444	472	28
G	Sill Height at Front Wheel Well	238	272	34
H	Sill Height at Front Door Leading Edge	227	280	53
I	Sill Height at B-Pillar	234	157	-77
J1	Sill Height at Rear Wheel Well	272	172	-100
J2	Pinch Weld Height at Rear Wheel Well	238	175	-63
K	Sill Height Aft of Rear Wheel Well	286	151	-135
L	Rear Bumper Thickness	126	129	3
M	Rear Bumper Bottom to Ground	446	298	-148
N	Sill Height to Bottom of Front Window Sill	762	776	14
O	Front Door Leading Edge to Impact CL	649	538	-111
P	Rear Door Trailing Edge to Impact CL	1475	1428	-47
Q	Front Window Opening	385	359	-26
R	Right Side Length	4337	4341	4
S	Left Side Length	4337	4303	-34
T	Vehicle Width at B-Pillars	1922	1834	-88
U	Front Wheel Track Width	1644		
V	Rear Wheel Track Width	1635		

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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025



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

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	436	222	75
2	Mid Door	728	254	75
3	Occupant H-Point	751	258	75
4	Window Sill	1122	202	75
5	Window Top	1669	31	225

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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

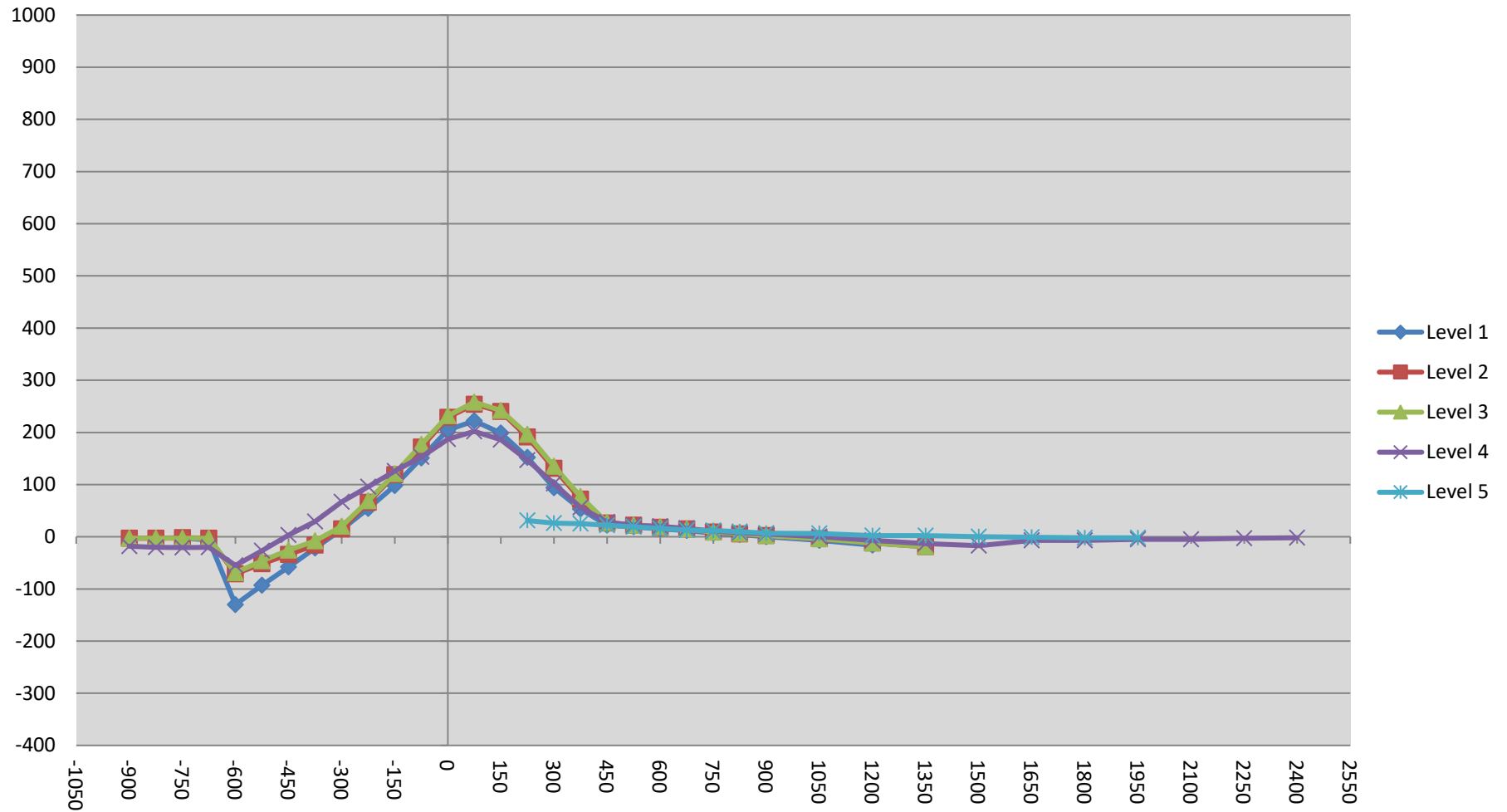
Pre-test measurements are taken when the vehicle is in the “As Tested” weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point.

	Pre-Test					Post-Test					Exterior Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-2700															
-2550															
-2400															
-2250															
-2100															
-1950															
-1800															
-1650															
-1500															
-1350															
-1200															
-1050															
-900		978	977	807			981	980	825			-3	-3	-18	
-825		972	971	815			975	974	835			-3	-3	-20	
-750	956	967	966	822		959	969	969	843		-3	-2	-3	-21	
-675	951	963	963	828		957	966	966	848		-6	-3	-3	-20	
-600	949	961	961	835		1079	1032	1030	890		-130	-71	-69	-55	
-525	947	959	960	838		1040	1011	1006	865		-93	-52	-46	-27	
-450	944	958	960	845		1002	992	986	842		-58	-34	-26	3	
-375	942	958	960	838		964	974	968	809		-22	-16	-8	29	
-300	942	958	961	865		928	943	941	798		14	15	20	67	
-225	941	959	961	872		887	893	892	776		54	66	69	96	
-150	941	959	962	880		843	840	841	754		98	119	121	126	
-75	941	959	962	888		790	787	785	735		151	172	177	153	
0	939	959	962	896		734	730	730	709		205	229	232	187	
75	940	959	962	899		718	705	704	697		222	254	258	202	
150	939	959	962	903		740	719	720	717		199	240	242	186	
225	938	958	962	907	612	786	767	766	760	581	152	191	196	147	31
300	937	957	961	908	619	843	826	826	806	593	94	131	135	102	26
375	937	956	961	910	627	884	884	884	854	602	53	72	77	56	25
450	936	955	960	912	631	914	929	933	884	609	22	26	27	28	22
525	934	953	959	912	634	915	931	937	890	615	19	22	22	22	19
600	932	952	959	913	636	917	934	940	893	620	15	18	19	20	16
675	930	952	958	913	637	918	937	943	897	624	12	15	15	16	13
750	928	950	956	914	639	921	941	947	903	627	7	9	9	11	12
825	927	949	955	915	641	923	944	949	907	631	4	5	6	8	10
900	927	950	955	914	640	927	948	953	909	633	0	2	2	5	7
1050	939	956	958	914	640	946	960	962	914	634	-7	-4	-4	0	6
1200	952	966	967	913	639	968	978	979	920	637	-16	-12	-12	-7	2
1350		979	978	911	637		998	997	924	635		-19	-19	-13	2
1500				911	633				928	633				-17	0
1650				907	624				914	625				-7	-1
1800				904	613				911	615				-7	-2
1950				896	596				901	598				-5	-2
2100				887					892					-5	
2250				873					876					-3	
2400				854					856					-2	
2550															
2700															

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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

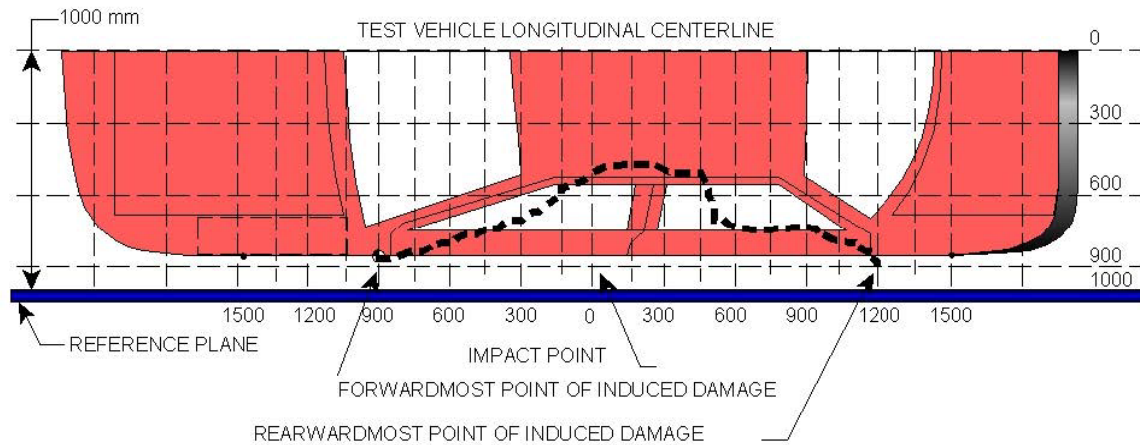
NHTSA No.: O20255901
Test Date: 12/12/2025



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

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	450	3	67	40	27
2	217	3	242	38	204
3	-35	3	249	38	211
4	-333	3	44	39	5
5	-557	3	-15	40	-55
6	-675	3	34	37	-3

DATA SHEET NO. 11
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

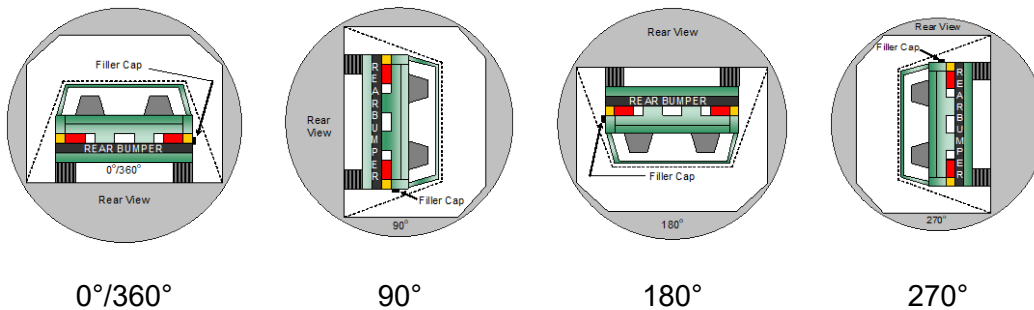
NHTSA No.: O20255901
 Test Date: 12/12/2025

Test Time: 12:39 pm

Temperature: 21.8°C

- A. From impact until vehicle motion ceases: (Maximum Allowable = 1 ounce) N/A oz.
 B. For the 5 minute period after motion ceases: (Maximum Allowable = 5 ounces) N/A oz.
 C. For the following 25 minutes: (Maximum Allowable = 1 ounce / minute) N/A
 D. Spillage Details: N/A

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	0	0	0
90° to 180°	0	0	0
180° to 270°	0	0	0
270° to 360°	0	0	0

FMVSS 301 ROLLOVER SPILLAGE TABLE (UNITS IN OUNCES)

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0.0	0.0	0.0	
90° to 180°	0.0	0.0	0.0	
180° to 270°	0.0	0.0	0.0	
270° to 360°	0.0	0.0	0.0	

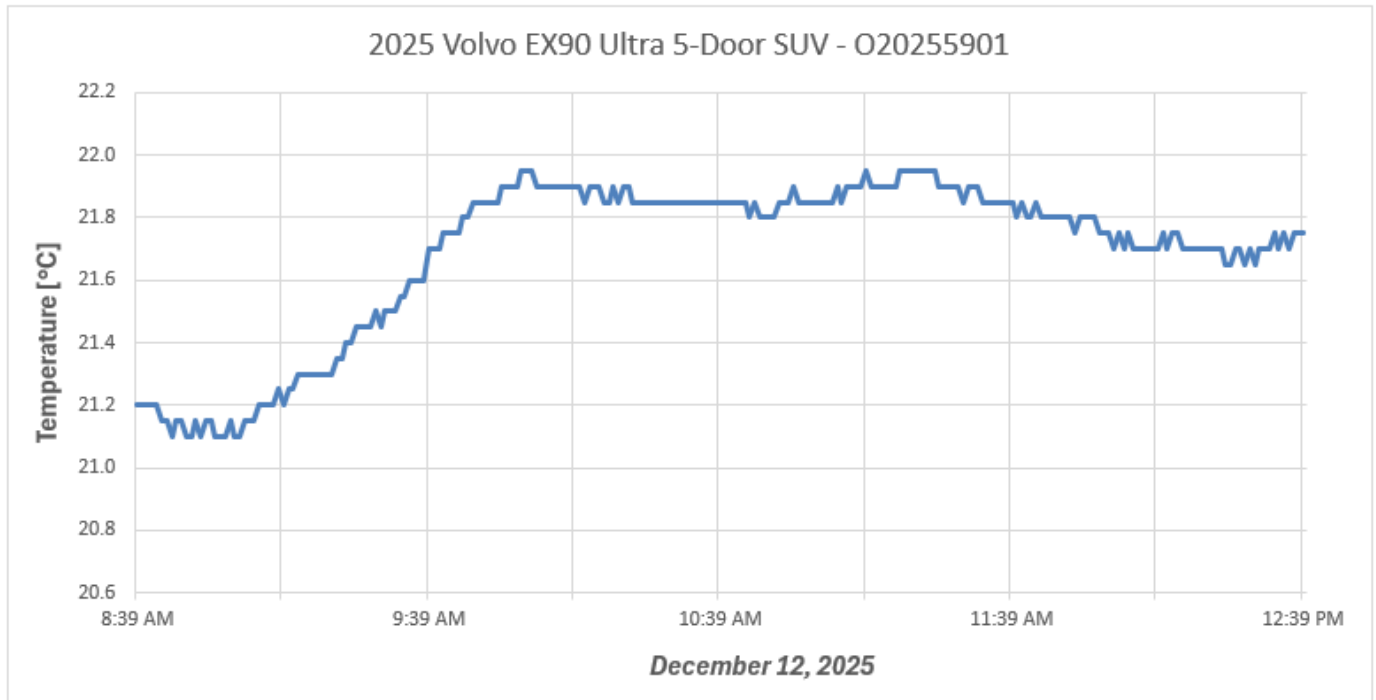
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	
90° to 180°	
180° to 270°	
270° to 360°	

DATA SHEET NO. 12
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025



Serial #	Description	Maximum	Average	Minimum	Units
W2425691	VSC South Hall - Temp (3018)	21.95	21.69	21.10	°C

DATA SHEET NO. 305-1
GENERAL TEST AND VEHICLE PARAMETER DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

ELECTRIC VEHICLE PROPULSION SYSTEM

	Units	Observations and Conclusions
Type of Electric Vehicle		Electric
Propulsion Battery Type		Lithium Ion Cells
Nominal Voltage	V	400
Physical Location of Automatic Propulsion Battery Disconnect		Inside the Battery Distribution Unit (BDU)
Auxiliary Battery Type		12V Lead

PROPULSION BATTERY SYSTEM DATA

	Units	Observations and Conclusions
Electrolyte Fluid Type		Dry Cells
Electrolyte Fluid Specific Gravity	g/L	N/A
Electrolyte Fluid Kinematic Viscosity	cSt	N/A
Electrolyte Fluid Color		Neutral
Propulsion Battery Coolant Type, Color, Specific Gravity (if applicable)		Glycol, Green
Location of Battery Modules		Inside Passenger Compartment
	X	Outside Passenger Compartment
		The high-voltage battery is located below the occupant compartment.

PROPULSION BATTERY STATE OF CHARGE

<i>For all battery types:</i>	
Voltage range corresponding to useable energy of the battery:	
Minimum State of Charge	286 V
Maximum State of Charge	434 V
95% of Maximum State of Charge	412.3 V
Test Voltage - No less than 95% of maximum State of Charge	419.3 V
<i>For batteries that are rechargeable ONLY by an energy source on the vehicle:</i>	
Voltage range corresponding to useable energy of the battery:	
Minimum State of Charge	
Maximum State of Charge	
Test Voltage – Maximum practicable State of Charge within Normal Operating Range	

**DATA SHEET NO. 305-2
PRE-IMPACT DATA
FOR INDICANT FMVSS NO. 305 TESTING**

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
Test Date: 12/12/2025

VEHICLE CHASSIS GROUND POINT(S) LOCATION(S)

Details of Vehicle Chassis Ground Point(s) & Location(s)	Cargo area grounding plate shared with 12V auxiliary battery ground
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PROPULSION BATTERY SYSTEM

Details of Electric Energy Storage/Conversion System Test Points	Connected at + and – terminal ends of propulsion system
Additional Comments	Connected via OEM supplied breakout harness

DATA SHEET NO. 305-3
PRE-IMPACT ELECTRICAL ISOLATION MEASUREMENTS AND CALCULATIONS
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		Fluke
Model		177
Serial Number		62100018
Internal Impedance Value	MΩ	> 10 MΩ < 100 pF
Resolution	V	0.001
Last Calibration Date		8/1/2025

PROPULSION BATTERY VOLTAGE

Measurement shall be made with Energy Storage/Conversion System connected to the vehicle propulsion system, and the vehicle in the “ready-to-drive” (propulsion system energized) position.
NOTE: If voltage measurement is not at the voltage or within the normal operating voltage range specified by the manufacturer, the battery must be charged.

Vb	V	419.3
----	---	-------

ELECTRIC ISOLATION MEASUREMENTS
PROPULSION BATTERY TO VEHICLE CHASSIS

Vehicle chassis point(s) determined and supplied to contractor by COR.
--

V1	V	16.7
V2	V	399.0

PROPULSION BATTERY TO VEHICLE CHASSIS ACROSS RESISTOR

The known resistance Ro (in ohms) should be approximately 500 times the normal operating voltage of the vehicle (in volts) per SAE J1766.

Ro	Ω	226,100
----	---	---------

V1' Pre-Impact	V	1.3
V2' Pre-Impact	V	124.4

DATA SHEET NO. 305-3 (CONTINUED)
PRE-IMPACT ELECTRICAL ISOLATION MEASUREMENTS AND CALCULATIONS
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

ELECTRICAL ISOLATION CALCULATIONS

NOTE: If measured voltage is zero and results in a division by zero, record "Zero Volts".
 This "zero voltage" condition is considered as being compliant.

$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$		
Ri1 Pre-Impact	Ω	66,671,693
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$		
Ri2 Pre-Impact	Ω	519,981
$R_i = \text{The lesser of } R_{i1} \text{ and } R_{i2}$		
Ri Pre-Impact	Ω	519,981
$R_i / V_b = \text{Electrical Isolation Value} / \text{Nominal Battery Voltage}$		
Ri / Vb Pre-Impact	Ω/V	1,240

NOTE: The minimum Electrical Isolation Value is 500 Ω/V .

	Yes	No (Fail)
Is the measured Electrical Isolation Value $\geq 500 \Omega/V$?	X	
Additional Comments	None	

DATA SHEET NO. 305-4
POST-IMPACT DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		Fluke
Model		177
Serial Number		62100018
Internal Impedance Value	MΩ	> 10 MΩ < 100 pF
Resolution	V	0.001
Last Calibration Date		8/1/2025

ELECTRICAL ISOLATION MEASUREMENTS

Vb Post-Impact	V	6.73
----------------	---	------

V1 Post-Impact	V	0.62	Impact Time	3	Minutes	17	Seconds
V2 Post-Impact	V	6.61		3	Minutes	21	Seconds
V1' Post-Impact	V	0.02		3	Minutes	33	Seconds
V2' Post-Impact	V	0.07		3	Minutes	26	Seconds

DATA SHEET NO. 305-4 (CONTINUED)
POST-IMPACT DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

ELECTRICAL ISOLATION CALCULATIONS

NOTE: If measured voltage is zero and results in a division by zero, record "Zero Volts".
 This "zero voltage" condition is considered as being compliant.

$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$							
Ri1 Post-Impact	Ω	79,098,532	Impact Time	3	Minutes	33	Seconds
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$							
Ri2 Post-Impact	Ω	23,105,592	Impact Time	3	Minutes	26	Seconds
$R_i = \text{The lesser of } R_{i1} \text{ and } R_{i2}$							
Ri Post-Impact	Ω	23,105,592	Impact Time	3	Minutes	26	Seconds
$R_i / V_b = \text{Electrical Isolation Value} / \text{Nominal Battery Voltage}$							
Ri / Vb Post-Impact	Ω/V	3,433,223	Impact Time	3	Minutes	26	Seconds

NOTE: The minimum Electrical Isolation Value is 500 Ω/V.

	Yes	No (Fail)
Is the measured Electrical Isolation Value $\geq 500 \Omega/V$?	X	
Additional Comments	None	

DATA SHEET NO. 305-4 (CONTINUED)
POST-IMPACT DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

PROPULSION BATTERY SYSTEM COMPONENTS

Describe any Propulsion Battery Module movement within the passenger compartment [Supply photographs as appropriate]:
Not Applicable

	Yes (Fail)	No
Has the Propulsion Battery Module moved within the passenger compartment?		X

Describe intrusion of an outside Propulsion Battery Component into the passenger compartment [Supply photographs as appropriate]:
No Intrusion

	Yes (Fail)	No
Has an outside Propulsion Battery Component intruded into the passenger compartment?		X

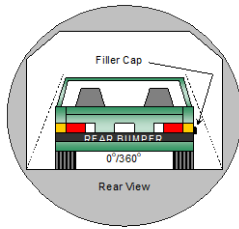
	Yes (Fail)	No
Is the Propulsion Battery Electrolyte Spillage visible in the passenger compartment?		X

DATA SHEET NO. 305-5
STATIC ROLLOVER TEST DATA
FOR INDICANT FMVSS NO. 305 TESTING

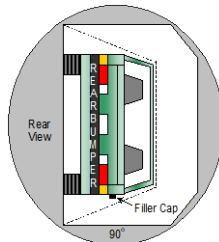
Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

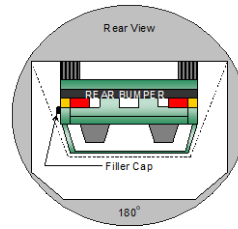
PROPULSION BATTERY SYSTEM COMPONENTS



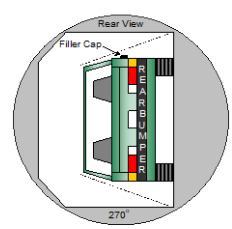
0°/360°



90°



180°



270°

PROPULSION BATTERY ELECTROLYTE COLLECTION TIME PERIOD

Test Phase	Rotation Time (spec. 1-3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	min	1	sec	5	min	6	min	1	sec	7	min
90° - 180°	1	min	2	sec	5	min	6	min	2	sec	7	min
180° - 270°	1	min	3	sec	5	min	6	min	3	sec	7	min
270° - 360°	1	min	4	sec	5	min	6	min	4	sec	7	min

TEST VEHICLE PROPULSION BATTERY ELECTROLYTE SPILLAGE

NOTE: The maximum allowable Propulsion Battery Electrolyte Spillage is 5.0 Liters.

Test Phase	Propulsion Battery Electrolyte Spillage (L)	Spillage Location
0° to 90°	0	Not Applicable
90° to 180°	0	Not Applicable
180° to 270°	0	Not Applicable
270° to 360°	0	Not Applicable
Total Spillage	0	

	Yes (Fail)	No
Is the total Propulsion Battery Electrolyte Spillage greater than 5.0 Liters?		X
Is the Propulsion Battery Electrolyte Spillage visible in the passenger compartment?		X

DATA SHEET NO. 305-5 (CONTINUED)
STATIC ROLLOVER TEST DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		Fluke
Model		177
Serial Number		62100018
Internal Impedance Value	MΩ	> 10 MΩ < 100 pF
Resolution	V	0.001
Last Calibration Date		8/1/2025

ELECTRICAL ISOLATION MEASUREMENTS

Vb Post-Impact	V	0.11
----------------	---	------

Record V1, V2, V1', V2' voltage measurements at the start of each successive increment of 90°, 180°, 270°, and 360° of the static rollover test.

	Voltage	Units	Test Phase	Time			
V1	0.62	V	0°		min		sec
	0.46		90°	2		35	
	0.60		180°	2		18	
	0.58		270°	2		27	
	0.36		360°	2		29	
V2	0.58	V	0°		min		sec
	0.33		90°	2		39	
	0.44		180°	2		22	
	0.44		270°	2		31	
	0.24		360°	2		33	
V1'	0.00	V	0°		min		sec
	0.00		90°	2		51	
	0.00		180°	2		33	
	0.00		270°	2		41	
	0.00		360°	2		43	
V2'	0.00	V	0°		min		sec
	0.00		90°	2		45	
	0.00		180°	2		26	
	0.00		270°	2		35	
	0.00		360°	2		37	

DATA SHEET NO. 305-5 (CONTINUED)
STATIC ROLLOVER TEST DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Volvo EX90 Ultra 5-Door SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: O20255901
 Test Date: 12/12/2025

ELECTRICAL ISOLATION CALCULATIONS

NOTE: If measured voltage is zero and results in a division by zero, record "Zero Volts".
 This "zero voltage" condition is considered as being compliant.

	Voltage	Units	Test Phase	Time			
Ri1 = Ro (1 + V2/V1) [(V1-V1')/V1']							
Ri1	Zero Volts	Ω	0°		min		sec
	Zero Volts		90°	2		51	
	Zero Volts		180°	2		33	
	Zero Volts		270°	2		41	
	Zero Volts		360°	2		43	
Ri2 = Ro (1 + V1/V2) [(V2-V2')/V2']							
Ri2	Zero Volts	Ω	0°		min		sec
	Zero Volts		90°	2		45	
	Zero Volts		180°	2		26	
	Zero Volts		270°	2		35	
	Zero Volts		360°	2		37	
Ri = The lesser of Ri1 and Ri2							
Ri	Zero Volts	Ω	0°		min		sec
	Zero Volts		90°	2		45	
	Zero Volts		180°	2		26	
	Zero Volts		270°	2		35	
	Zero Volts		360°	2		37	
Ri / Vb = Electrical Isolation Value / Nominal Battery Voltage							
Ri / Vb	Zero Volts	Ω/V	0°		min		sec
	Zero Volts		90°	2		45	
	Zero Volts		180°	2		26	
	Zero Volts		270°	2		35	
	Zero Volts		360°	2		37	

NOTE: The minimum Electrical Isolation Value is 500 Ω/V .

	Yes	No (Fail)
Is the measured Electrical Isolation Value $\geq 500 \Omega/V$?	X	
Additional Comments	None	

APPENDIX A
PHOTOGRAPHS

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Photo No. 001 - As Delivered Right Front Three-Quarter View of Test Vehicle



Photo No. 002 - As Delivered Left Rear Three-Quarter View of Test Vehicle



Photo No. 003 - Pre-Test Frontal View of Test Vehicle



Photo No. 004 - Post-Test Frontal View of Test Vehicle



Photo No. 005 - Pre-Test Left Front Three-Quarter View of Test Vehicle



Photo No. 006 - Post-Test Left Front Three-Quarter View of Test Vehicle



Photo No. 007 - Pre-Test Left Side View of Test Vehicle



Photo No. 008 - Post-Test Left Side View of Test Vehicle

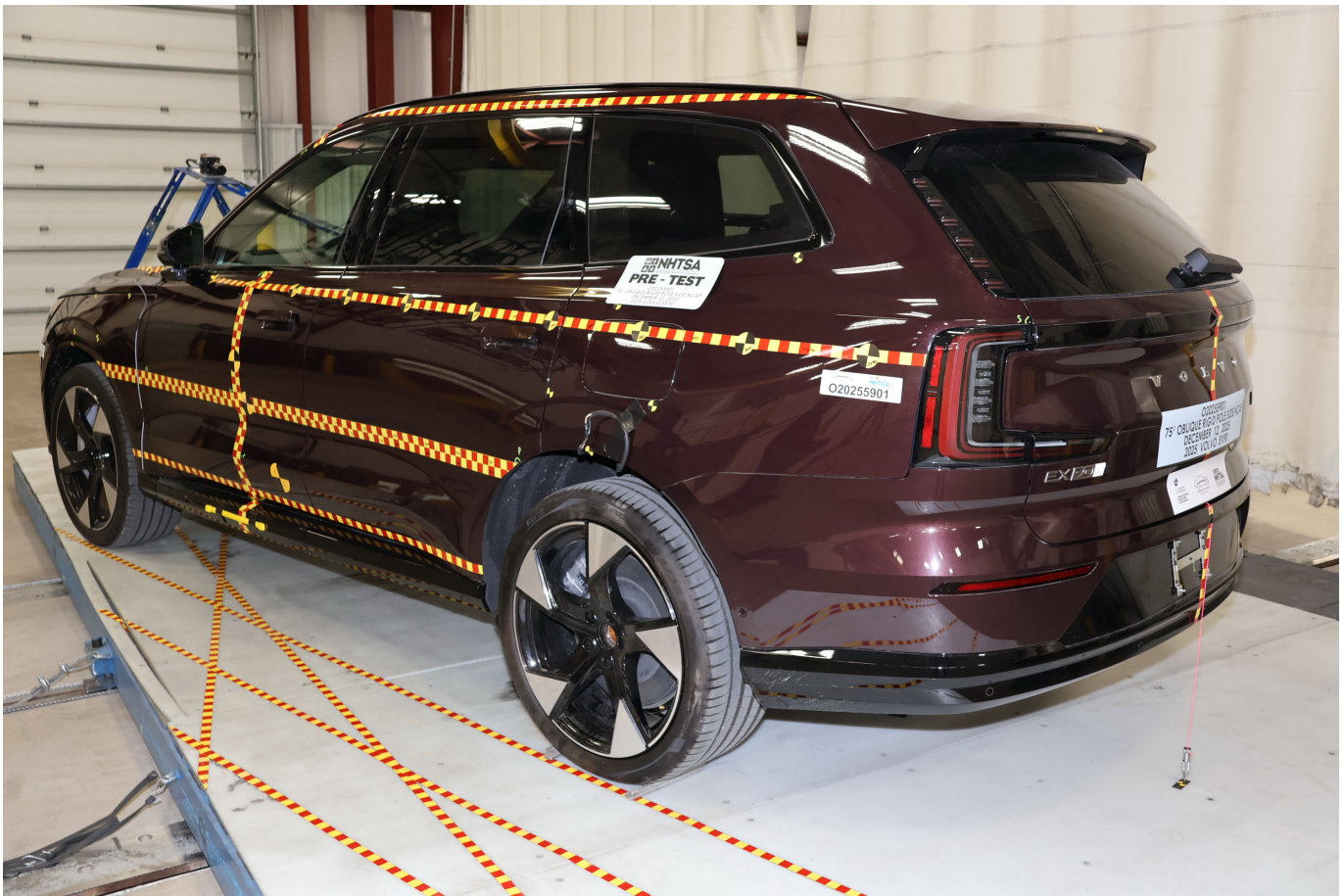


Photo No. 009 - Pre-Test Left Rear Three-Quarter View of Test Vehicle



Photo No. 010 - Post-Test Left Rear Three-Quarter View of Test Vehicle



Photo No. 011 - Pre-Test Rear View of Test Vehicle



Photo No. 012 - Post-Test Rear View of Test Vehicle



Photo No. 013 - Pre-Test Right Side View of Test Vehicle



Photo No. 014 - Post-Test Right Side View of Test Vehicle

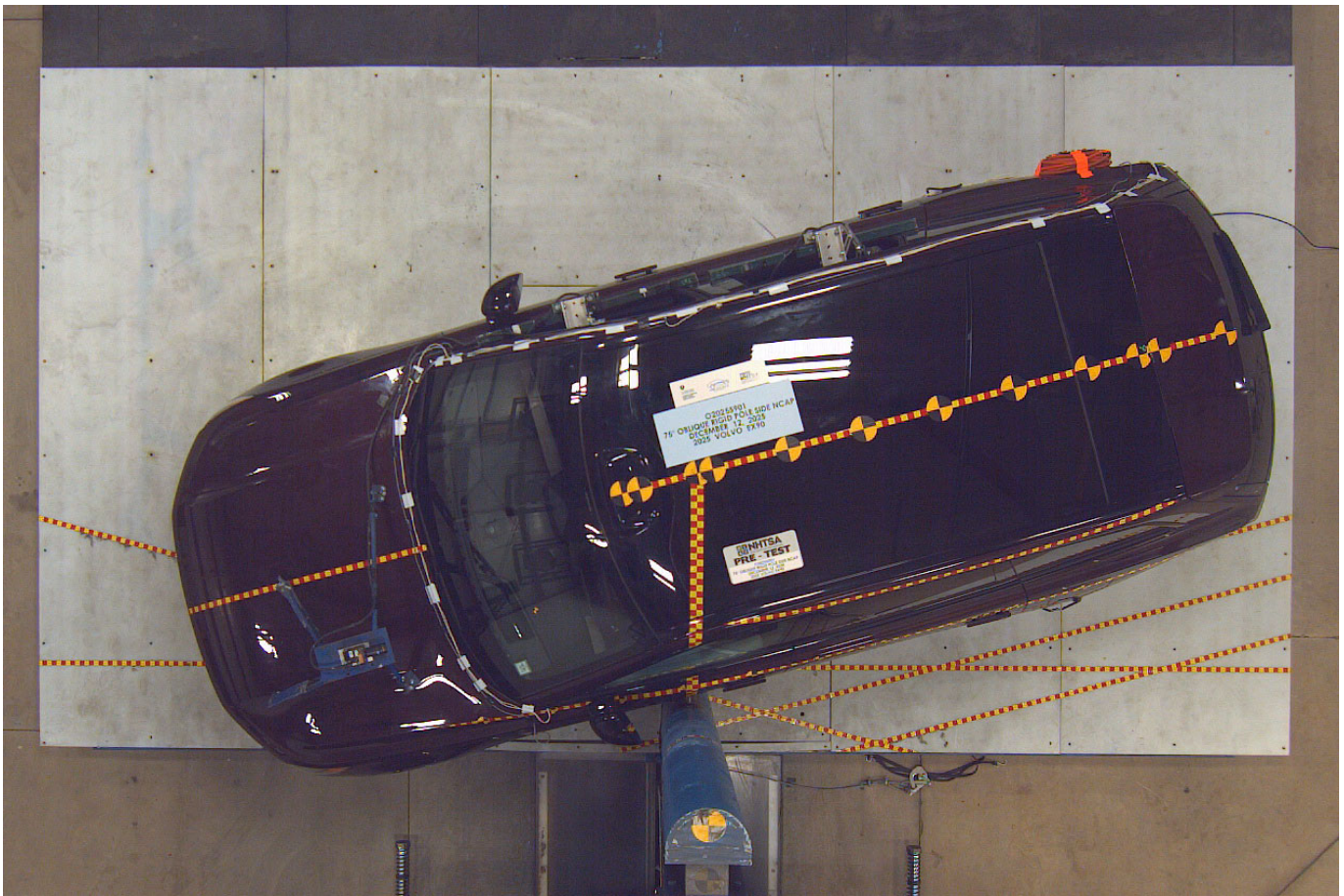


Photo No. 015 - Pre-Test Overhead View of Test Area

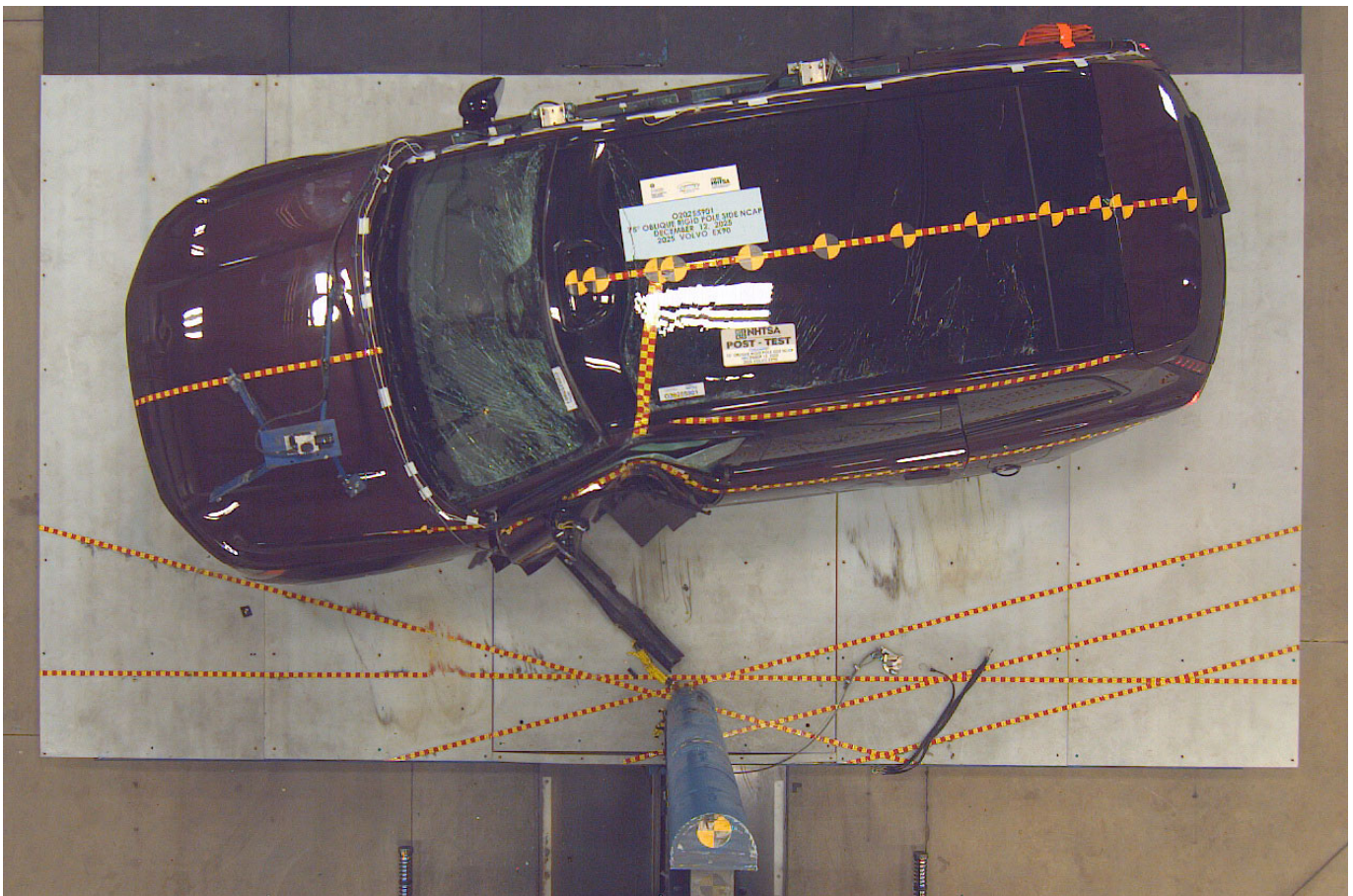


Photo No. 016 - Post-Test Overhead View of Test Area



Photo No. 017 - Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



Photo No. 018 - Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



Photo No. 019 - Pre-Test Close-Up View of Impact Point Target



Photo No. 020 - Post-Test Close-Up View of Impact Point Target Showing Impact Location



Photo No. 021 - Pre-Test Front Close-Up View of Dummy Head and Chest



Photo No. 022 - Post-Test Front Close-Up View of Dummy



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Photo No. 024 - Pre-Test Left Side View of Dummy Shoulder and Door Top View



Photo No. 025 - Post-Test Left Side View of Dummy Shoulder and Door Top View



Photo No. 026 - Pre-Test Front View of Seat Back Prior to Dummy Positioning



Photo No. 027 - Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



Photo No. 028 - Pre-Test Front View of Seat Pan Prior to Dummy Positioning



Photo No. 029 - Pre-Test Overhead View of Dummy Thighs on Seat Pan



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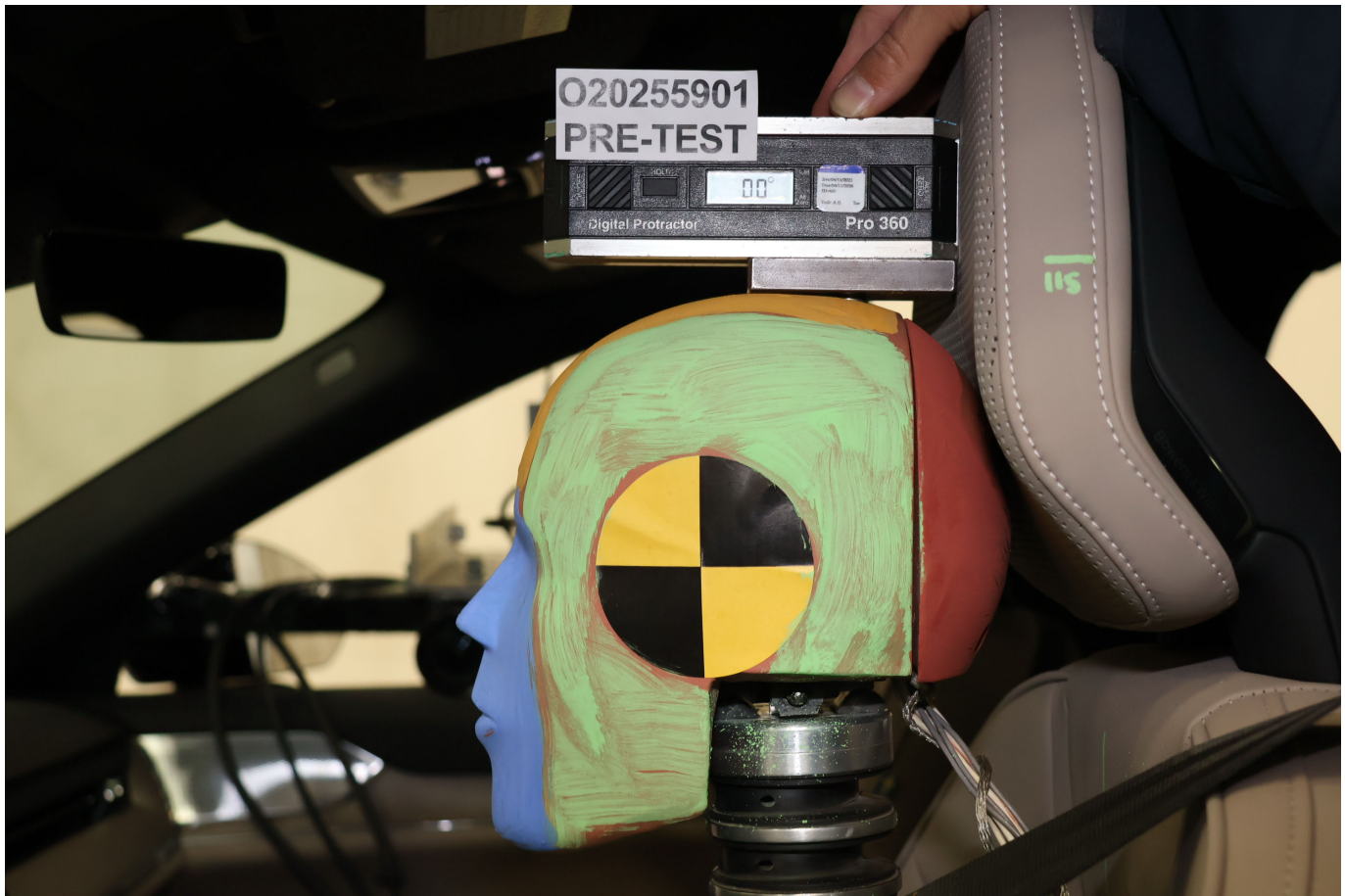


Photo No. 031 - Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level



Photo No. 032 - Pre-Test Placement of Dummy's Feet



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Photo No. 035 - Pre-Test View of Disengaged Parking Brake



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Photo No. 040 - Pre-Test Dummy and Door Clearance View



Photo No. 041 - Post-Test Dummy and Door Clearance View



Photo No. 042 - Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Photo No. 043 - Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Photo No. 044 - Pre-Test Inner Door Panel View



Photo No. 045 - Post-Test Inner Door Panel View Showing Dummy Contact Location



Photo No. 046 - Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



Photo No. 047 - Post-Test Dummy Close-Up Head Contact with Side Air Bag View



Photo No. 048 - Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Photo No. 049 - Post-Test Dummy Close-Up Torso Contact with Side Air Bag View

PHOTOGRAPH NOT APPLICABLE

Photo No. 050 - Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



Photo No. 051 - Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View



Photo No. 052 - Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



Photo No. 053 - Post-Test Right Side View of Dummy and Rear Seat of Occupant Compartment

PHOTOGRAPH NOT APPLICABLE

Photo No. 054 - Post-Test Inner Rear Passenger Torso Air Bag Deployment View

PHOTOGRAPH NOT APPLICABLE

Photo No. 055 - Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

PHOTOGRAPH NOT APPLICABLE

Photo No. 056 - Post-Test View of Fuel Filler Cap or Fuel Filler Neck

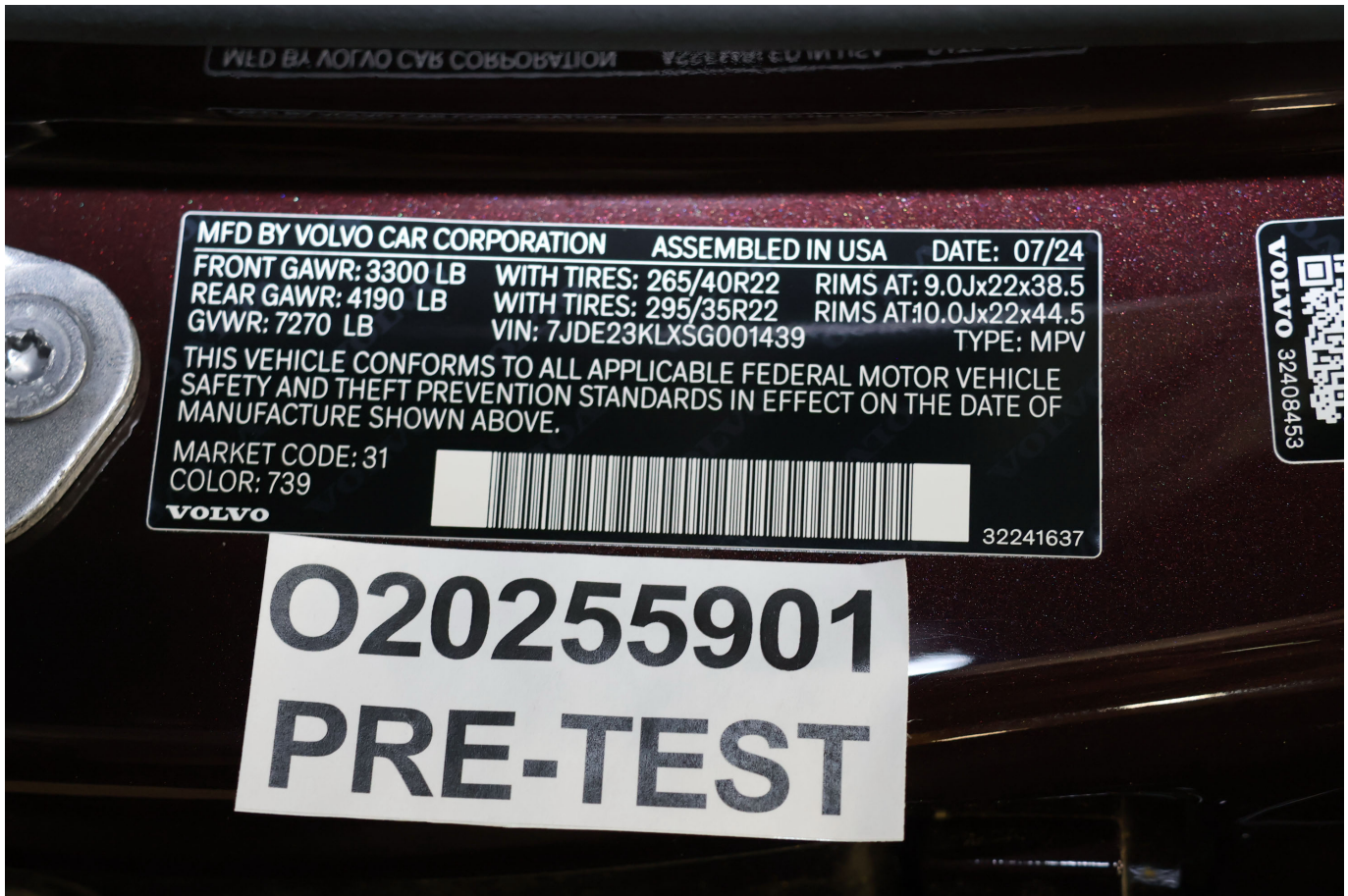


Photo No. 057 - Close-Up View of Vehicle's Certification Label

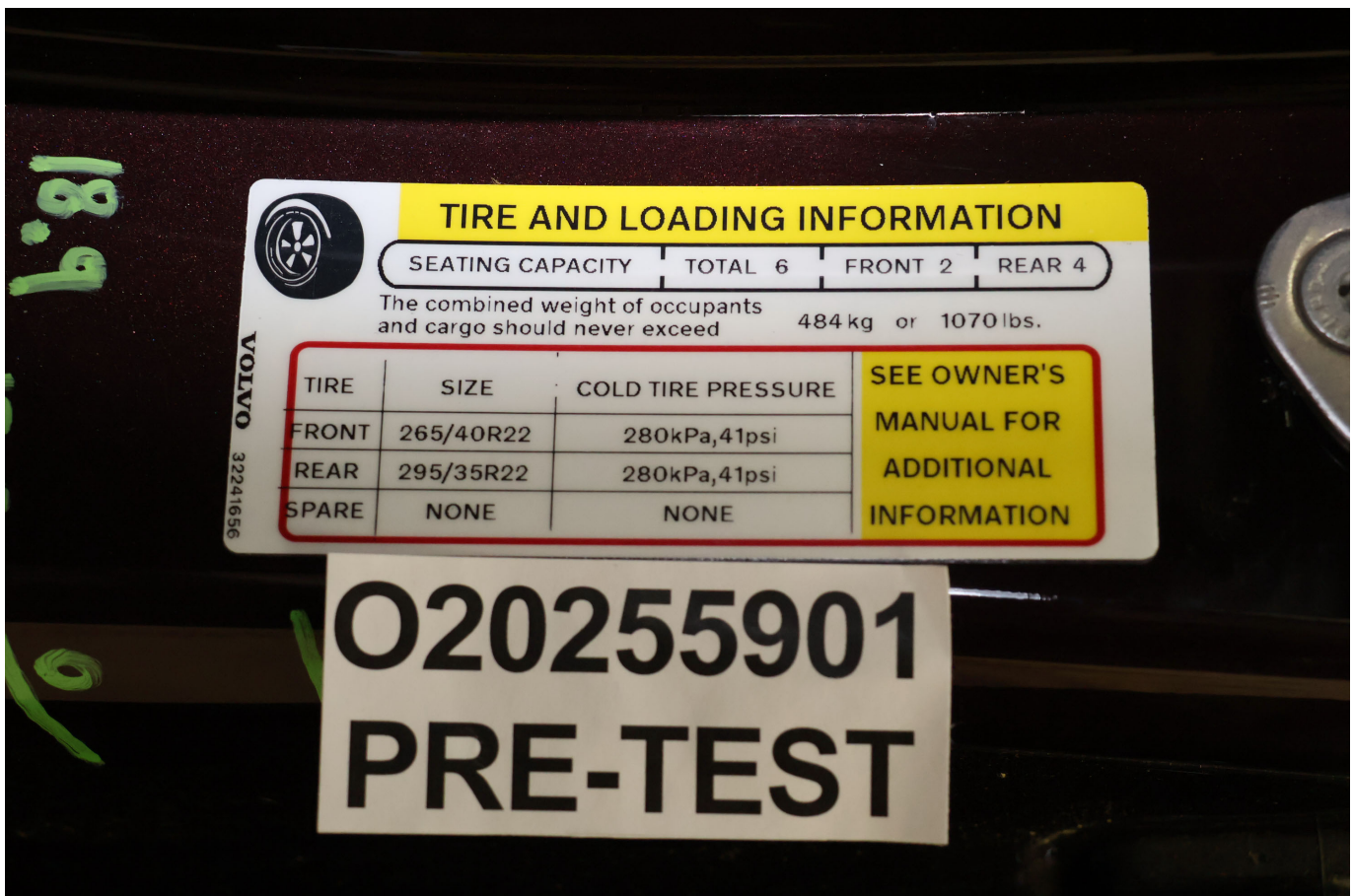


Photo No. 058 - Close-Up View of Vehicle's Tire Information Placard or Label



Photo No. 059 - Pre-Test Pole Barrier Front View



Photo No. 060 - Post-Test Pole Barrier Front View



Photo No. 061 - Pre-Test Pole Barrier Side View



Photo No. 062 - Post-Test Pole Barrier Side View



Photo No. 063 - Pre-Test Ballast View



Photo No. 064 - Post-Test Primary and Redundant Speed Trap Read-Out

PHOTOGRAPH NOT APPLICABLE

Photo No. 065 - FMVSS Photo No. 301 Static Rollover 0 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 066 - FMVSS Photo No. 301 Static Rollover 90 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 067 - FMVSS Photo No. 301 Static Rollover 180 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 068 - FMVSS Photo No. 301 Static Rollover 270 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 069 - FMVSS Photo No. 301 Static Rollover 360 Degrees



Photo No. 070 - Impact Event

EX90 TWIN MOTOR PERF ELECTRIC ULTRA

6-PASSENGER WITH CAPTAINS CHAIRS

Volvo Cars USA LLC
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Electric Power Assisted Steering
All-Wheel-Drive
One Pedal Drive
21" Alloy Wheels

AUDIO & TECHNOLOGY

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14.5" Center Screen Display
USB-C Ports, 2 Front + 2 middle + 2 rear seat
Digital Services Package 4-Yr Subscription includes:
Google built-in with Google Maps,
Google Play Store & Google Assistant
Volvo Cars Remote App Services
Remote Start and Remote Lock/Unlock
Inductive Smartphone Charging
Over-the-Air Updates
SiriusXM Radio including 360L with Trial Subscription
Bose Premium Sound
Heads Up Display

SAFETY & SECURITY

LED Headlights with AHB, DRL & Cornering function
Blind Spot Information System with Steer Assist
and Cross Traffic Alert
Collision Avoidance:
Low & High Speed Collision Mitigation
Detects Vehicle/Pedestrian/Cyclist
Driver Understanding System
Occupant Sensing
Automatic Braking After Collision
Run-off Road Protection & Run-off Road Mitigation
Lane Departure Warning / Lane Keeping Aid
Front, Far Side & Curtain Airbags
with Driver Side Knee Airbag
Whiplash Protection System (WHIPS) in Front Seats
Park Assist Front, Rear and Side
Adaptive Cruise Control
Tire Repair Kit

LUXURY & CONVENIENCE

Fixed Laminated Panoramic Roof
Nordico Interior
Backlit FSC Certified Wood Decor
Power Front Seat with Driver Seat Memory
4-Zone Automatic Climate Control
Keyless Entry and Drive w/ Power Operated Tailgate
4-Way Power Lumbar Support, Front Seats
Mechanical Cushion Extensions, Front Seats
Heated Front & Rear Seats incl. Steering Wheel
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Power Folding 3rd row
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Pilot Assist
360 Camera

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8135 MAIN ST
WILLIAMSVILLE, NY US 14221

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Enrich the styling, integrate technology, boost performance,
or simply carry more cargo - from
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WARRANTY

48 Month/50,000 Mile Limited Warranty Coverage
96 Month/100,000 Mile Hybrid Battery Warranty
144 Month Corrosion Protection "Unlimited Mileage"
Refer to Warranty Info Book for Specific Limitations.

Volvo Roadside Assistance Plus valid through 48
Month/50,000 Mile Limited Warranty Coverage

Visit <https://www.volvocars.com/us/roadside-assistance/>
for more information

Volvo Increased Protection: Ask Your Volvo Retailer
About an Extended Service Contract

MAINTENANCE

Complimentary Factory Scheduled Maintenance for the
First 4 Years or 40,000 Miles, for your first two
full diagnostic checks of all Passive and
a comprehensive assessment of your vehicle and
regularly scheduled maintenance services. Includes
Active Safety Systems by our factory-trained technicians

The price shown does not include License and Title
Fees, State and Local Taxes and Dealer Installed
Options and Accessories. The factory reserves the right
to modify prices, designs and equipment without
previous notice.

PRICING

Manufacturer's Suggested Retail
Price: **\$89,845.00**

Ultra Features:

Air Suspension
Active Chassis
Massage Front Seats
Power Adjustable Side Support
Soft Close Doors
Puddle Lights
Laminated Glass, Side Windows
21" Diamond Cut Wheel

22-inch 5-Spoke Aero Wheels **800.00**

Bowers & Wilkins with Dolby Atmos **3,200.00**

Destination Charge **1,295.00**

Total Suggested Retail Price: **\$95,140.00**

Fuel Economy and Environment

Electric Vehicle

Fuel Economy

81 **MPGe**

83 **78** **42**

Standard Sport Utility Vehicle range from 11 to 100
MPGe. The best vehicle rates 140 MPGe.

You save

\$4500

in fuel costs over 5

years

compared to the average new
vehicle.

Driving Range

When fully charged, vehicle can travel about

0 60 120 180 240 300 miles

Charge Time: 10 hours (240V)

Annual Fuel Cost

\$1000

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The
average new vehicle gets 28 MPG and costs \$9,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per
year at \$4.25 per gallon and \$0.16 per kWh. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a
significant cause of climate change and smog.

fuelconomy.gov

Calculate personalized estimates and compare vehicles

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

1 10 10 10 10

Best

This vehicle emits 0 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only).

Producing and distributing fuel also create emissions; learn more at fuelconomy.gov.

Smog Rating (tailpipe only)

1 10 10 10 10

Best

This vehicle emits 0 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only).

Producing and distributing fuel also create emissions; learn more at fuelconomy.gov.



PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS
CARLINE: EX90 ULTRA

U.S./CANADIAN PARTS
CONTENT: 25%

MAJOR SOURCES OF
FOREIGN PARTS CONTENT:
MEXICO: 30%
CHINA: 30%

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
RIDGEVILLE, SOUTH CAROLINA, USA

COUNTRY OF ORIGIN:
ENGINE PARTS:
SWEDEN

TRANSMISSION PARTS:
SWEDEN

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

GOVERNMENT 5-STAR SAFETY RATINGS

This vehicle has not been rated by the government for overall vehicle
score, frontal crash, or rollover risk

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

VEHICLE IDENTIFICATION
Type & Chassis: S56 001439
Model Year: 2025
Ext: Mulberry Red
Int: Cardamom Quilted Nordico
VIN: JDE23KLXSG001439

Port of Importation: CHARLESTON, SC, SOUTH CAROLINA
Delivered By: Truck
DELIVERY ADDRESS
NORTHTOWN VOLVO 3710
8135 MAIN ST
WILLIAMSVILLE, NY US 14221



7JDE23KLXSG001439

Photo No. 071 - Monroney Label

PHOTOGRAPH NOT APPLICABLE

Photo No. 072 - Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



Photo No. 073 - Post-Test View of Shattered Vehicle Inner Door Panel

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-01 - Auxiliary Power Module Warning Label



Photo No. 305-02 - Power Inverter Warning Label



Photo No. 305-03 - First Responder Warning Label

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-04 - First Responder Warning Location

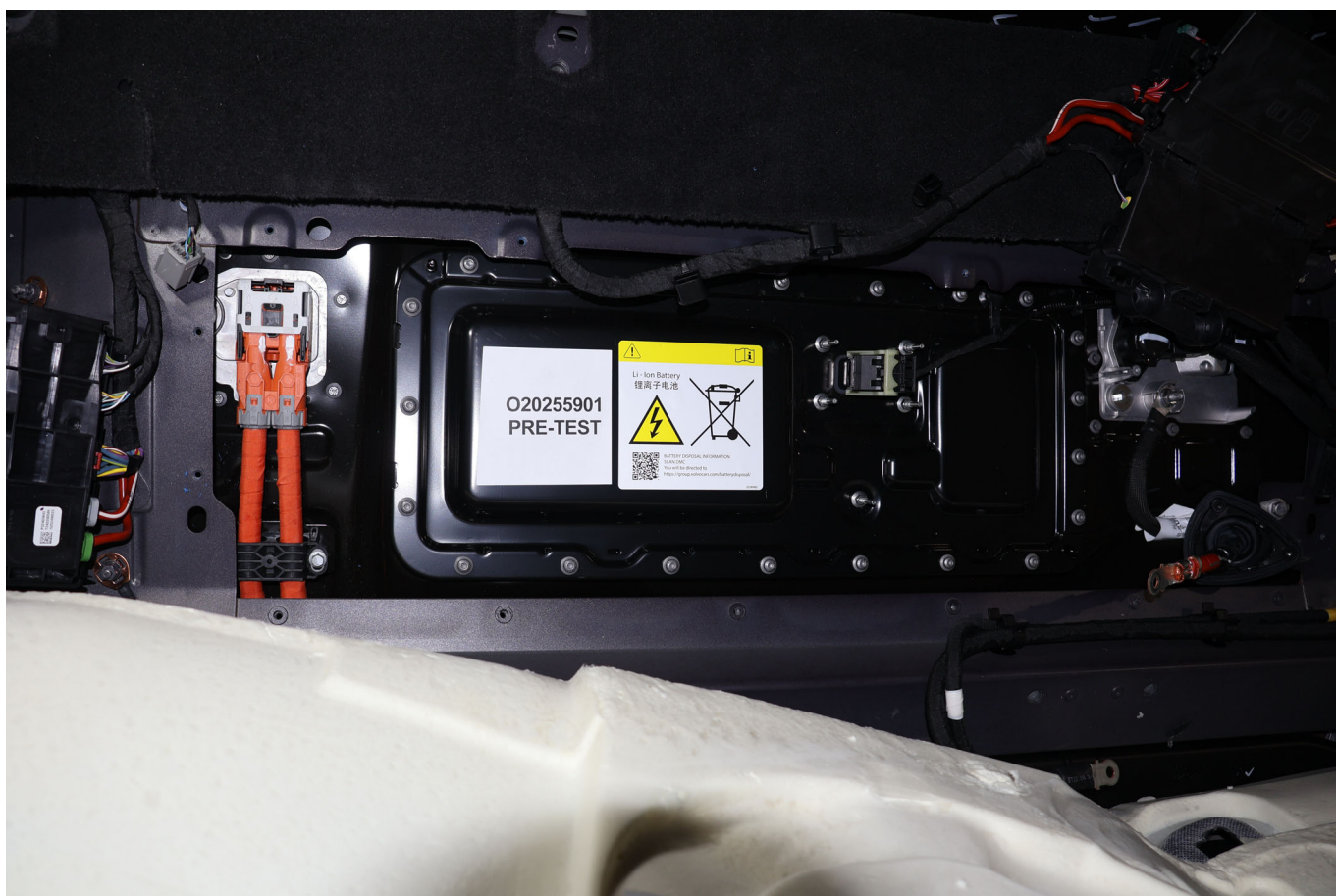


Photo No. 305-05 - Other Vehicle Label(s) Related to Electrical Propulsion System

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-06 - Manual High Voltage Service Disconnect in Place

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-07 - Manual High Voltage Service Disconnect Removed

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-08 - Manual High Voltage Service Disconnect Removed

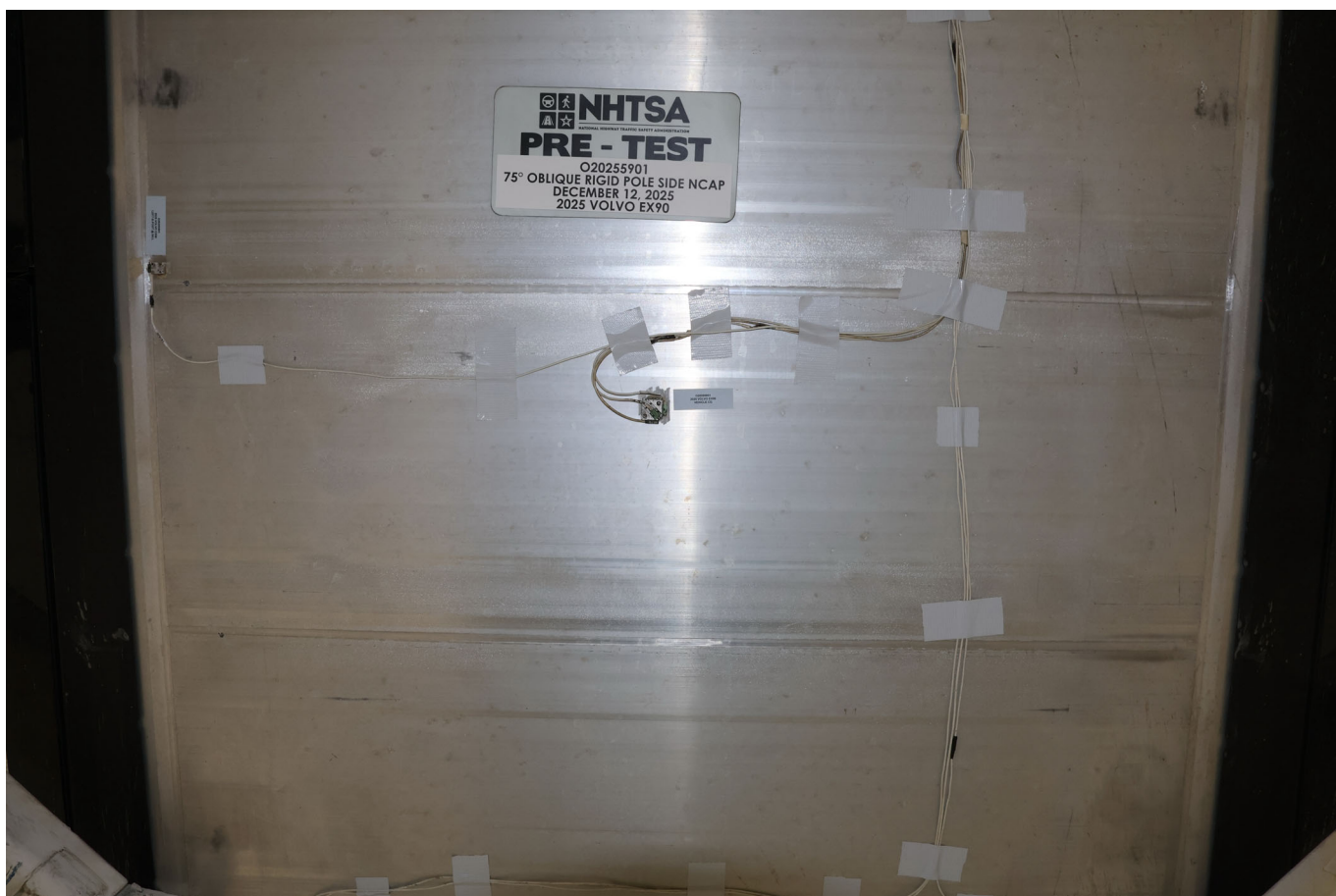


Photo No. 305-09 - Pre-Impact View of Propulsion Battery



Photo No. 305-10 - Post-Impact Front View of Propulsion Battery

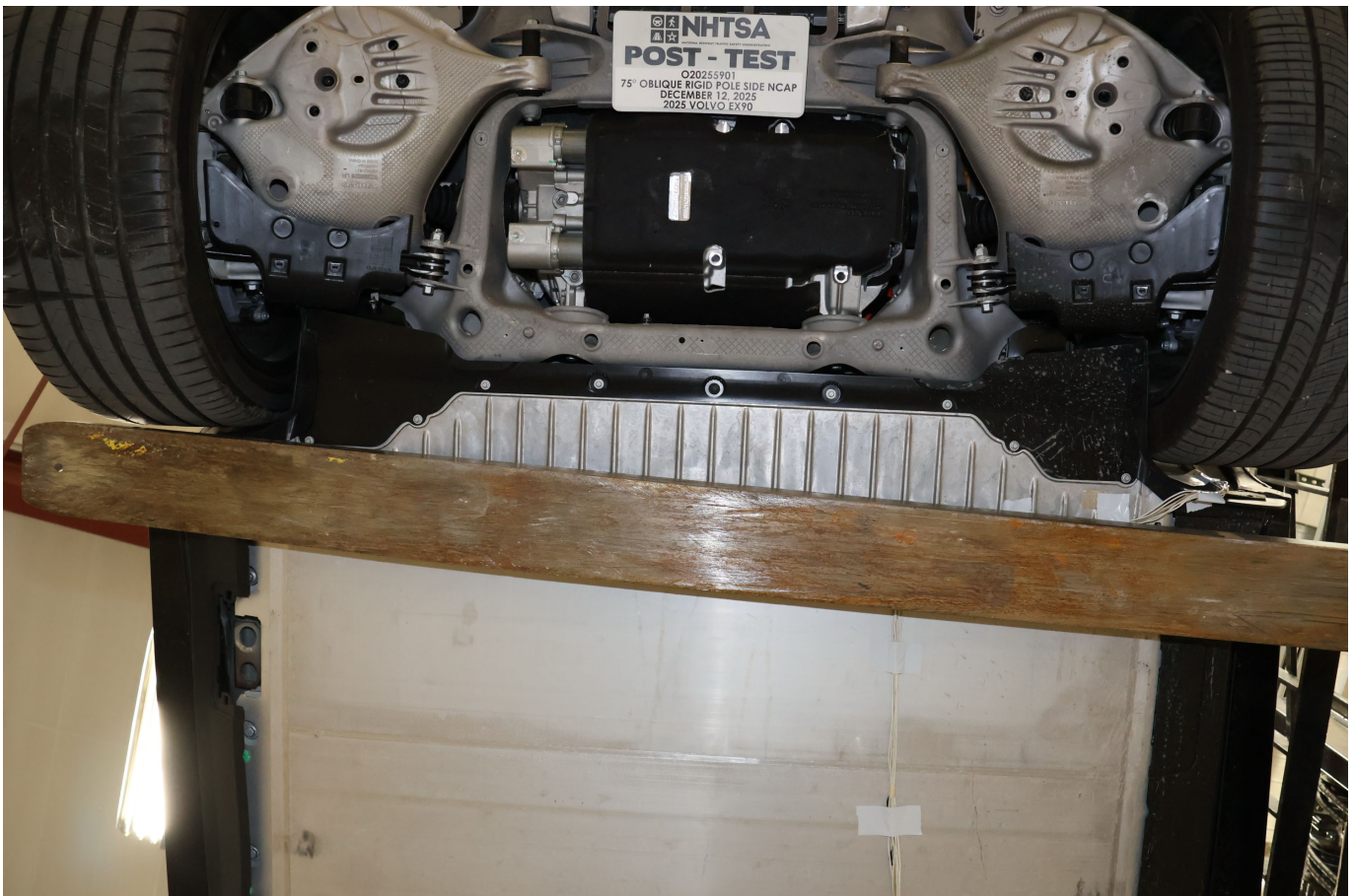


Photo No. 305-11 - Post-Impact Rear View of Propulsion Battery

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-12 - Pre-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-13 - Post-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-14 - Pre-Impact View of Propulsion Battery Module(s)

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-15 - Post-Impact View of Propulsion Battery Module(s)

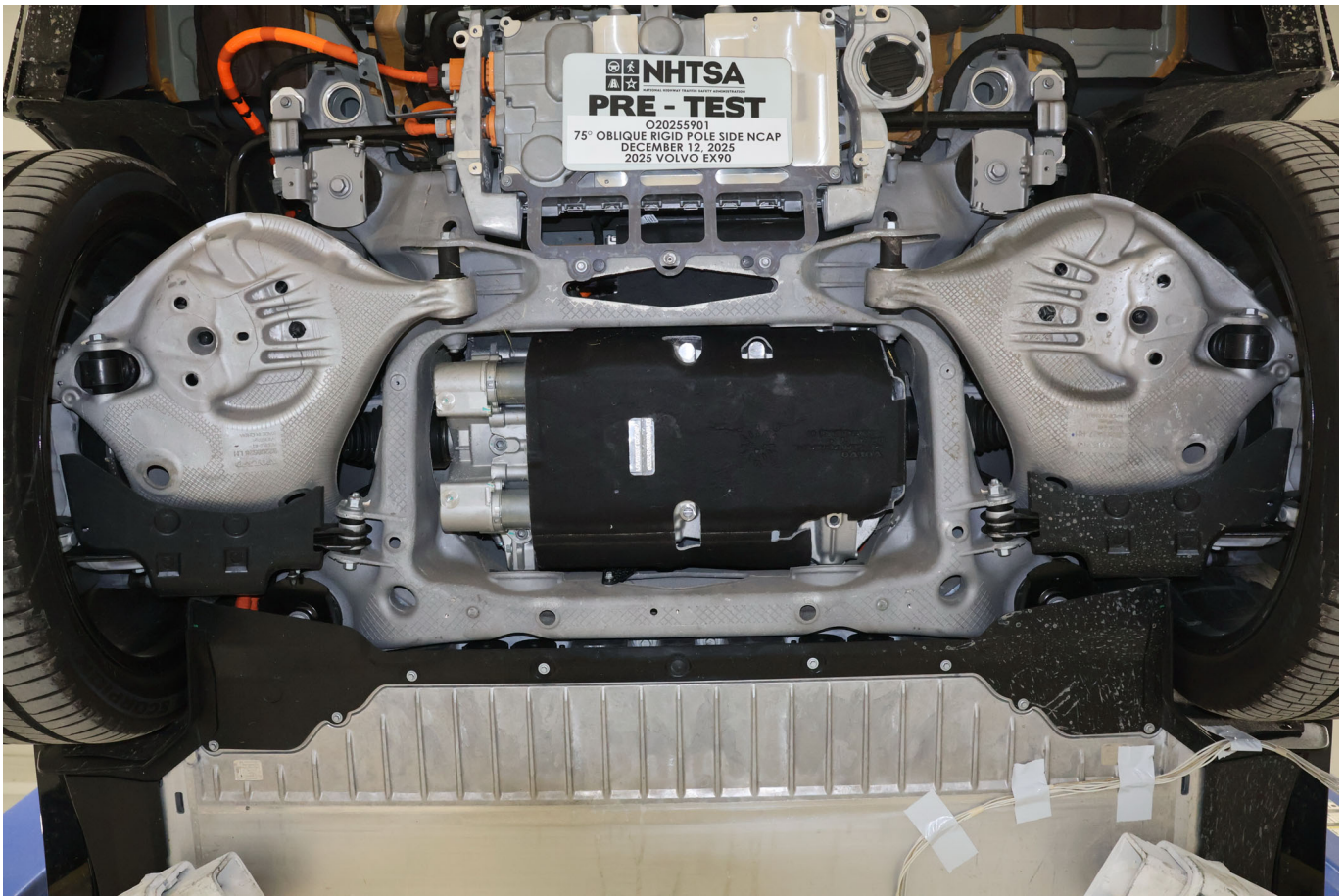


Photo No. 305-16 - Pre-Impact View of Electric Propulsion Drive



Photo No. 305-17 - Post-Impact View of Electric Propulsion Drive



Photo No. 305-18 - Pre-Impact View of High Voltage Interconnect(s)

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-19 - Pre-Impact View Propulsion Battery Venting System(s)



Photo No. 305-20 - Pre-Impact View of Other Visible Electric Propulsion Components



Photo No. 305-21 - Pre-Impact View of Ground Lead Attached

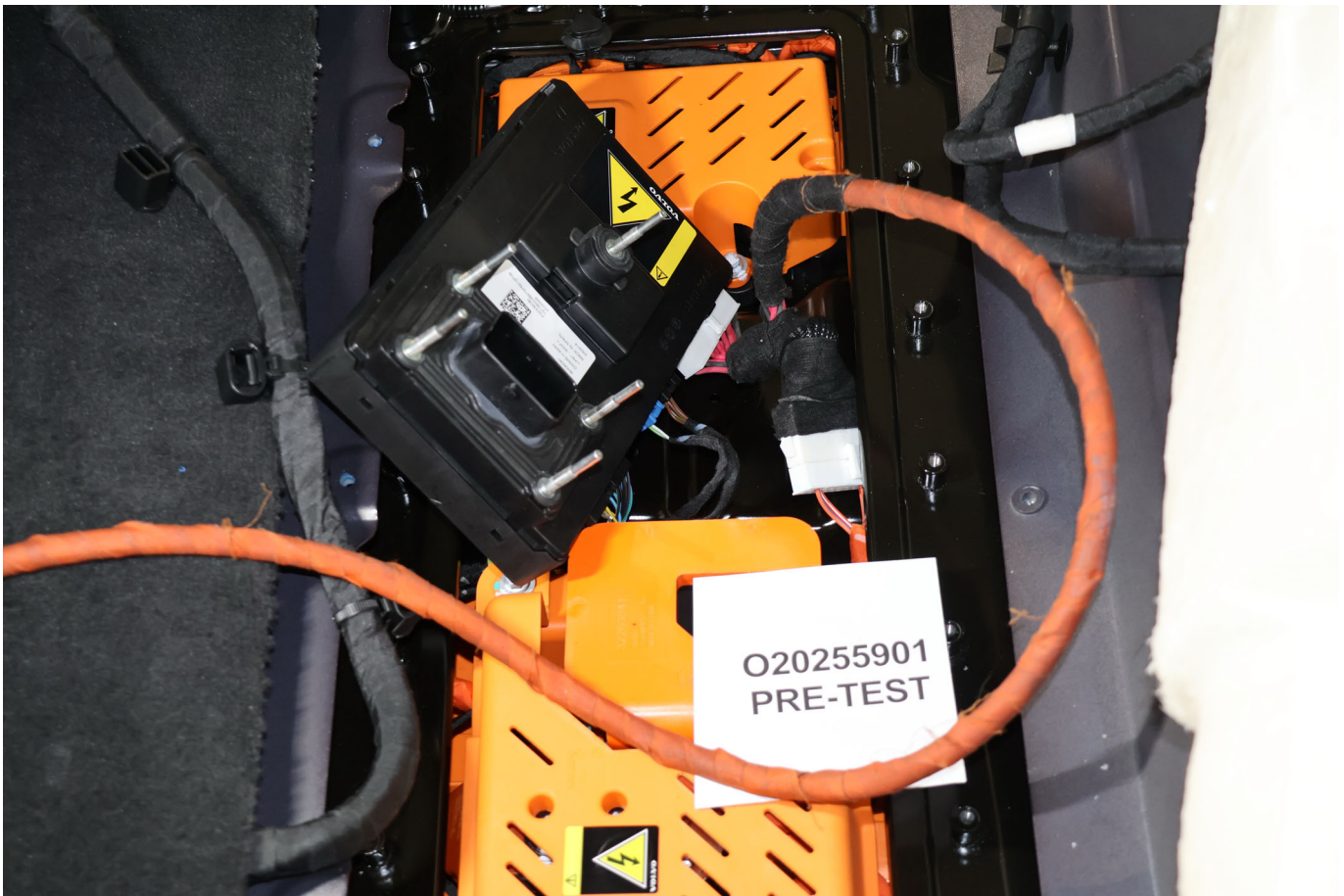


Photo No. 305-22 - Pre-Impact View of High Voltage Leads Attached

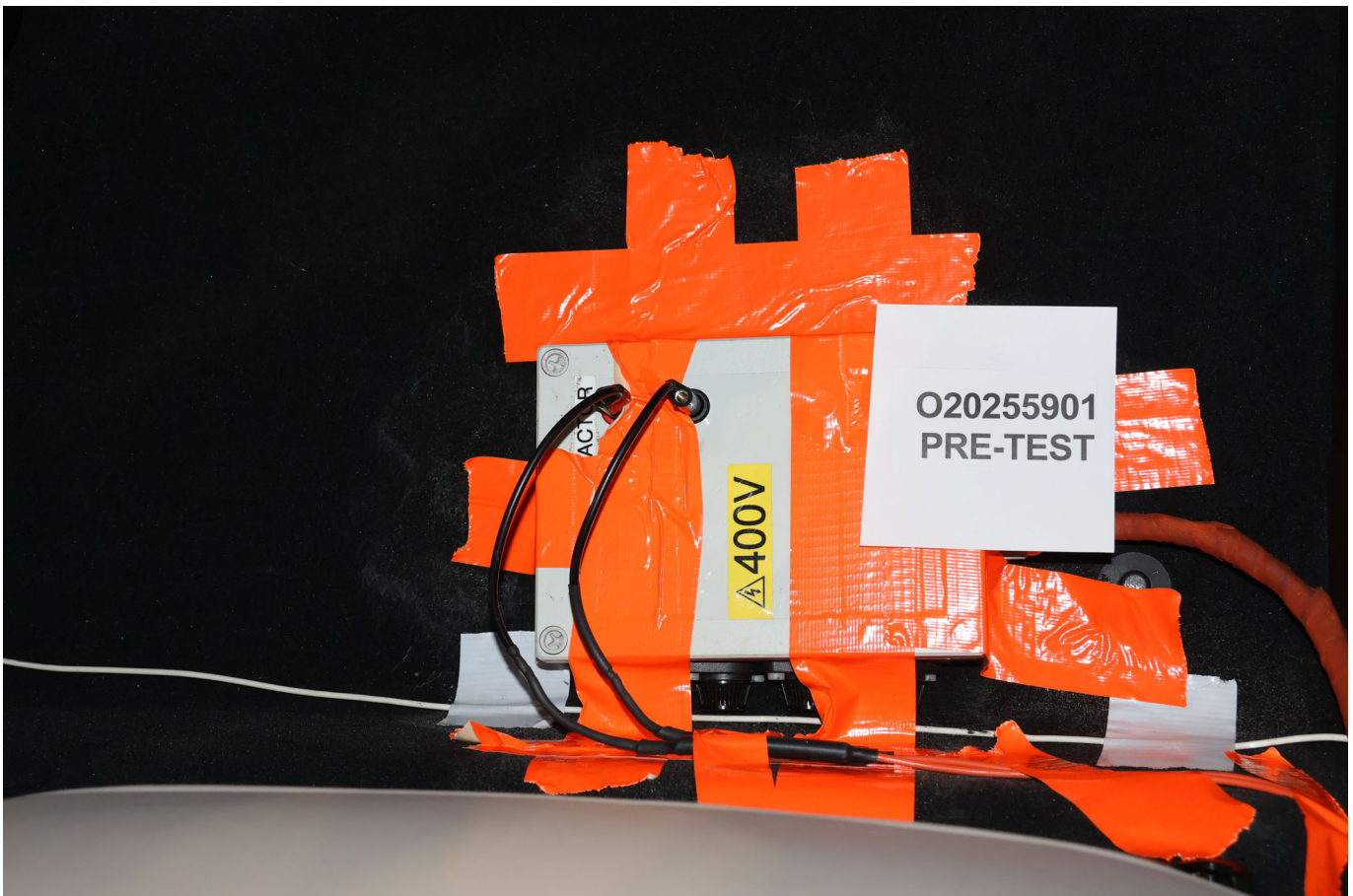


Photo No. 305-23 - Pre-Impact Close-Up View of High Voltage Leads Attached



Photo No. 305-24 - Pre-Impact View of Installed Test Interface Port



Photo No. 305-25 - Post-Impact View of Installed Test Interface Port



Photo No. 305-26 - Pre-Impact View of Other Test Devices



Photo No. 305-27 - Post-Impact View of Other Test Devices



Photo No. 305-28 - FMVSS No. 305 Static Rollover at 90 Degrees



Photo No. 305-29 - FMVSS No. 305 Static Rollover at 180 Degrees



Photo No. 305-30 - FMVSS No. 305 Static Rollover at 270 Degrees



Photo No. 305-31 - FMVSS No. 305 Static Rollover at 360 Degrees



Photo No. 305-32 - Pre-Impact View of the Vehicle Passenger Compartment Adjacent to Propulsion Battery



Photo No. 305-33 - Post-Impact View of the Vehicle Passenger Compartment Adjacent to Propulsion Battery

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-34 - Post-Impact Propulsion Battery System Mounting and-or Intrusion Failure(s)

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-35 - Post-Impact View of Battery Component Intrusion

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-36 - Post-Impact View of Battery Module Movement or Retention Loss

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-37 - Post-Impact View of Propulsion Battery Electrolyte Spillage Location

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-38 - Post-Test View of Propulsion Battery Electrolyte Spillage Location

APPENDIX B

DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

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Figure No. 1.	Driver Head CG Acceleration (X) vs. Time	B-1
Figure No. 2.	Driver Head CG Acceleration (Y) vs. Time	B-1
Figure No. 3.	Driver Head CG Acceleration (Z) vs. Time	B-1
Figure No. 4.	Driver Head CG Resultant Acceleration (X) vs. Time	B-1
Figure No. 5.	Driver Lower Spine T12 Acceleration (X) vs. Time	B-2
Figure No. 6.	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-2
Figure No. 7.	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-2
Figure No. 8.	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-2
Figure No. 9.	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-3
Figure No. 10.	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-3
Figure No. 11.	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-3

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at www.nhtsa.gov

Additional Driver Dummy Instrumentation Data

Driver Head CG Redundant Acceleration (X) vs. Time
Driver Head CG Redundant Acceleration (Y) vs. Time
Driver Head CG Redundant Acceleration (Z) vs. Time
Driver Head Angular Velocity X (Deg/Sec) vs. Time
Driver Head Angular Velocity Y (Deg/Sec) vs. Time
Driver Head Angular Velocity Z (Deg/Sec) vs. Time
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

Left Floor Sill Acceleration (Y)

Left A-Pillar Sill Acceleration (Y)

Left Lower A-Pillar Acceleration (Y)

Left Mid A-Pillar Acceleration (Y)

Left B-Pillar Sill Acceleration (Y)

Left Lower B-Pillar Acceleration (Y)

Left Mid B-Pillar Acceleration (Y)

Driver Seat Track at Dummy Hip Point Acceleration (Y)

Engine Top Acceleration (X)

Engine Top Acceleration (Y)

Firewall Center Acceleration (Y)

Right Roof at Vertical Impact Reference Line Acceleration (Y)

Right Sill at Vertical Impact Reference Line Acceleration (Y)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)

Load Cell Pole Barrier #2 Force (Y)

Load Cell Pole Barrier #3 Force (Y)

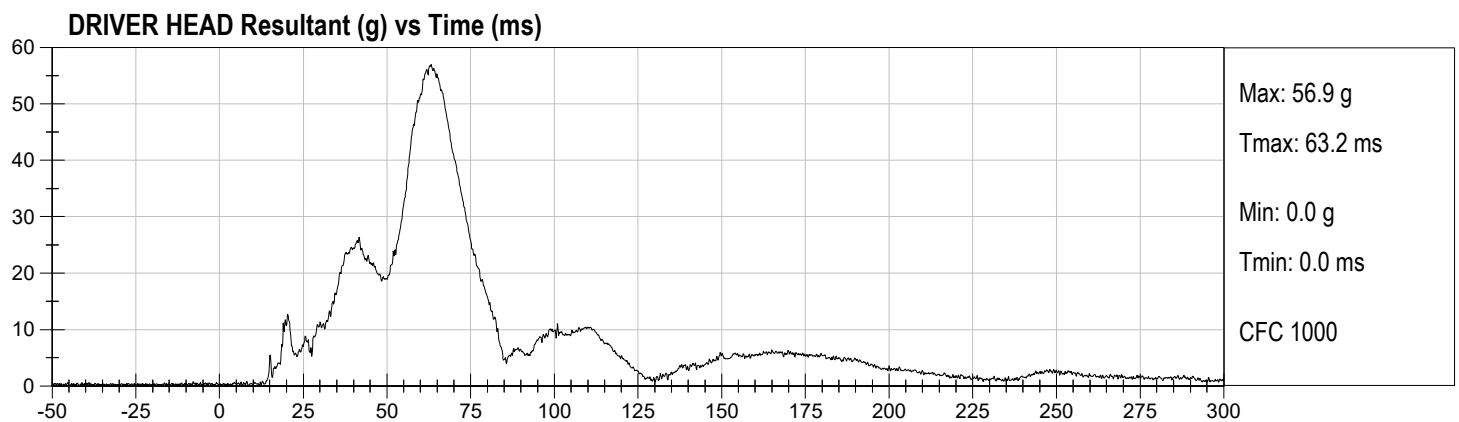
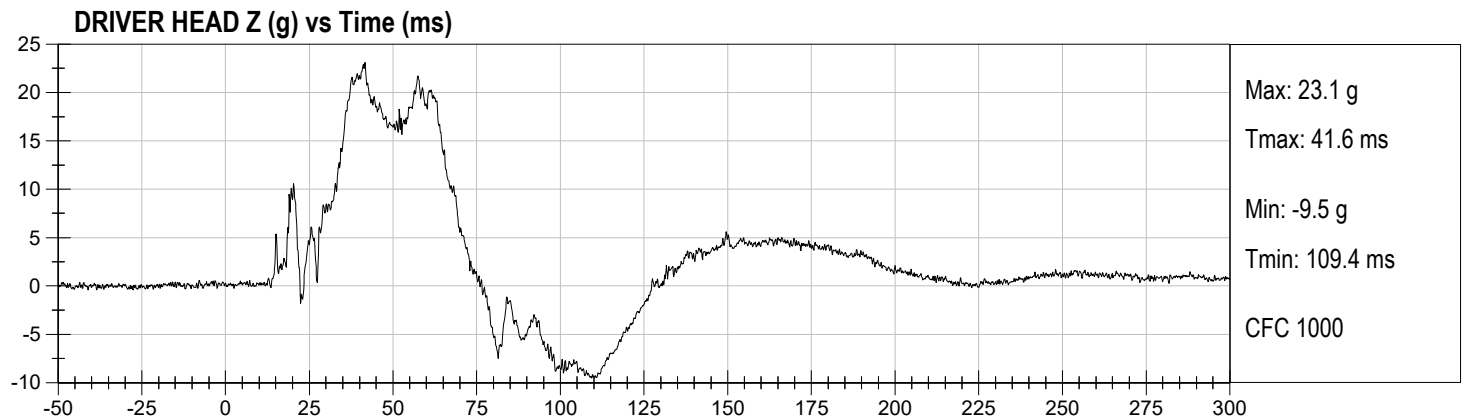
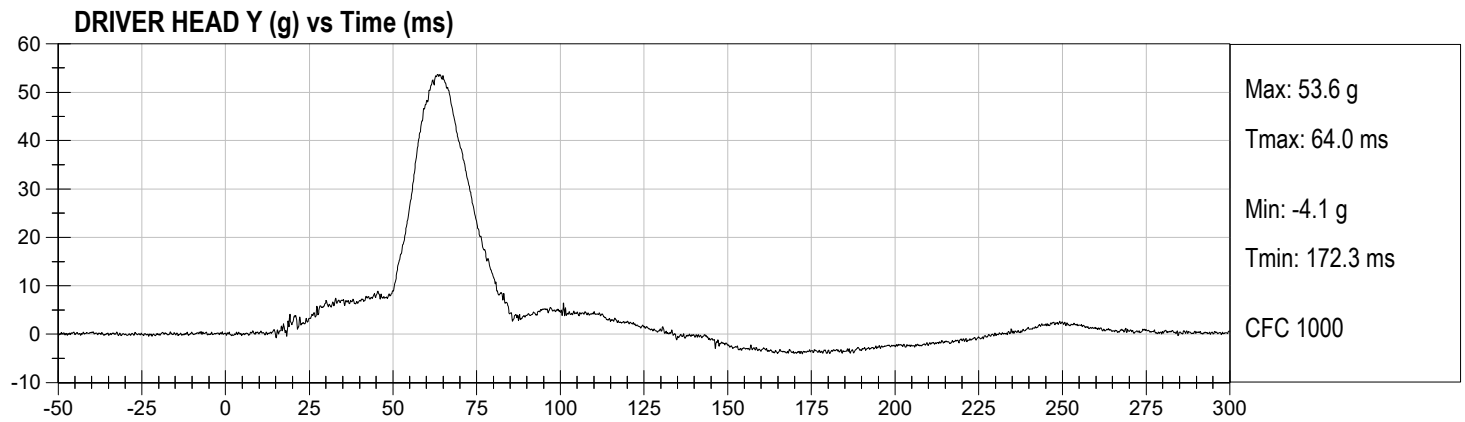
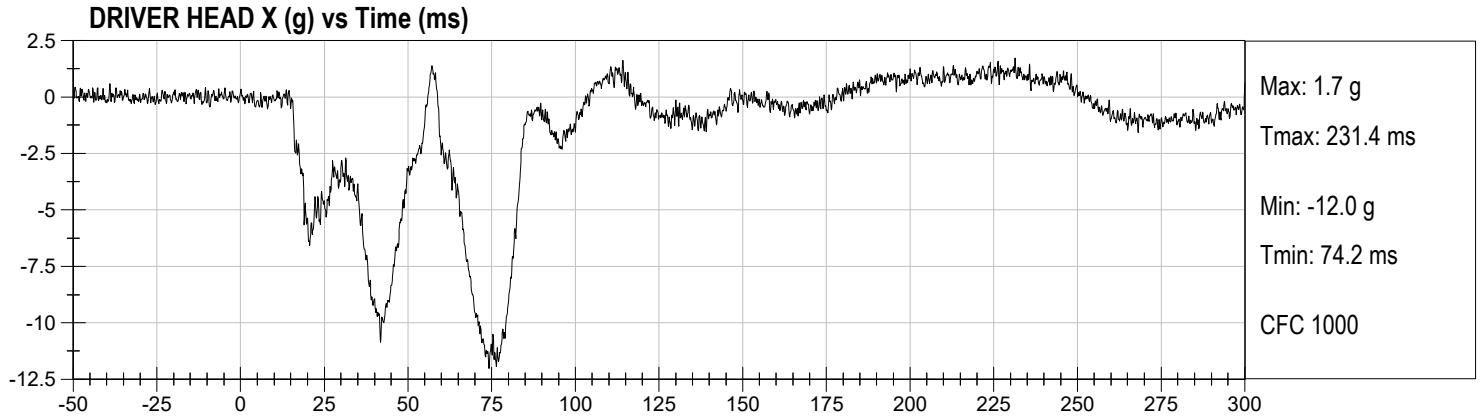
Load Cell Pole Barrier #4 Force (Y)

Load Cell Pole Barrier #5 Force (Y)

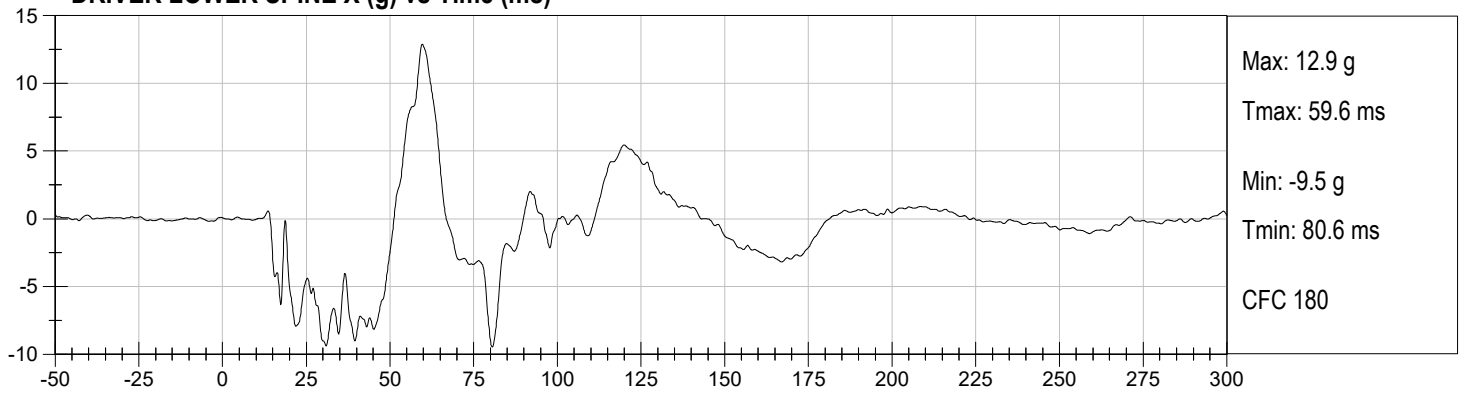
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

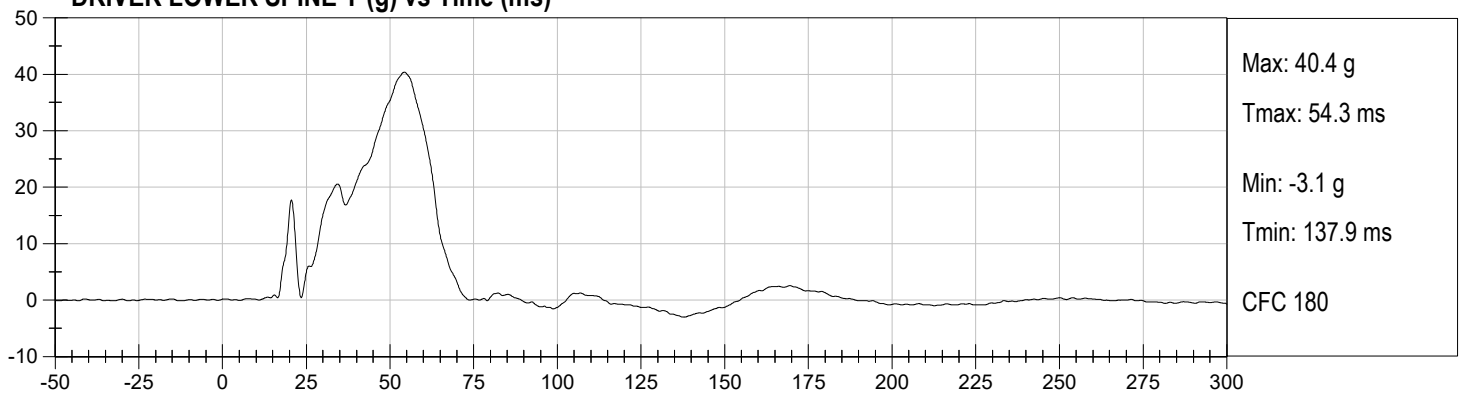
Load Cell Pole Barrier #8 Force (Y)



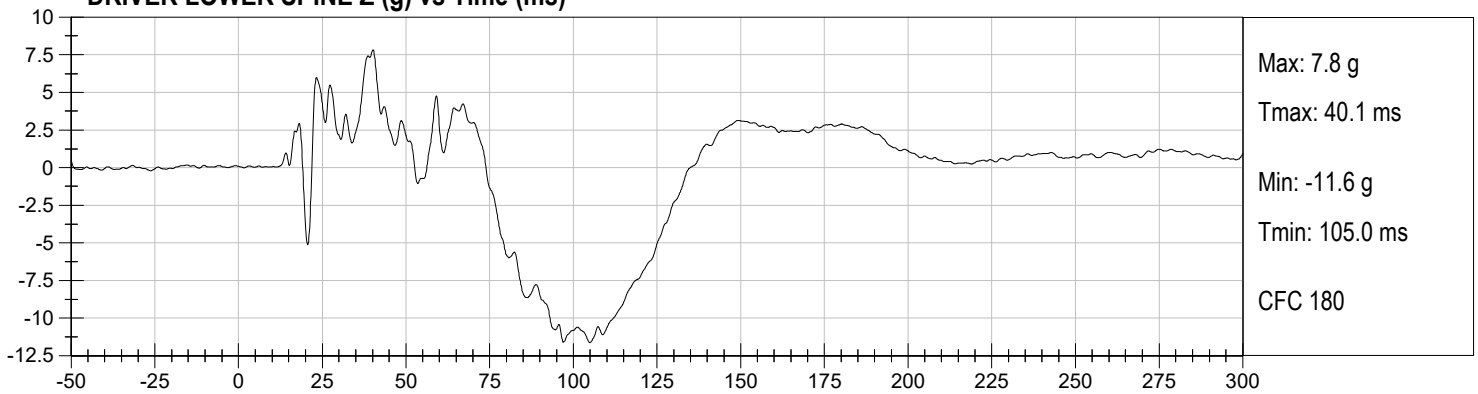
DRIVER LOWER SPINE X (g) vs Time (ms)



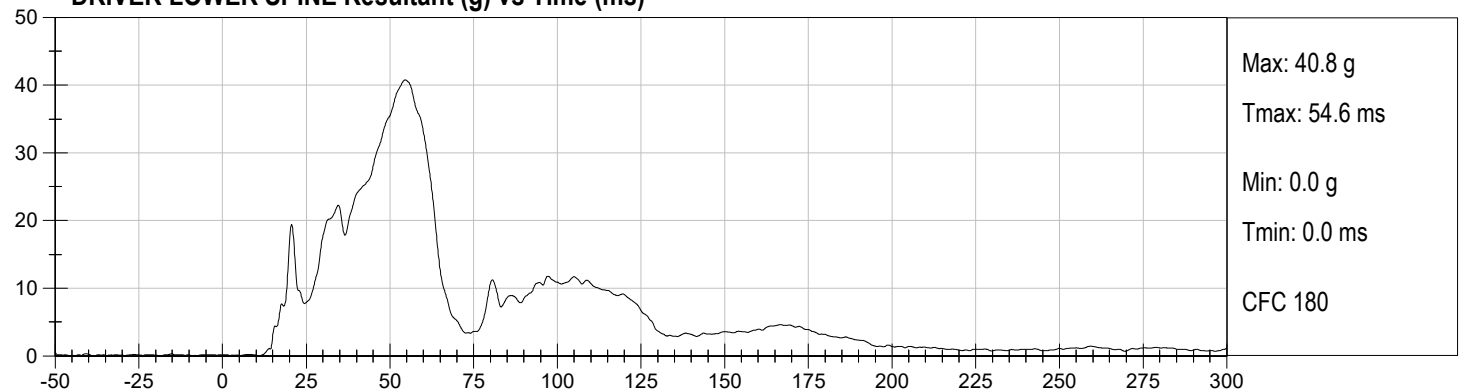
DRIVER LOWER SPINE Y (g) vs Time (ms)



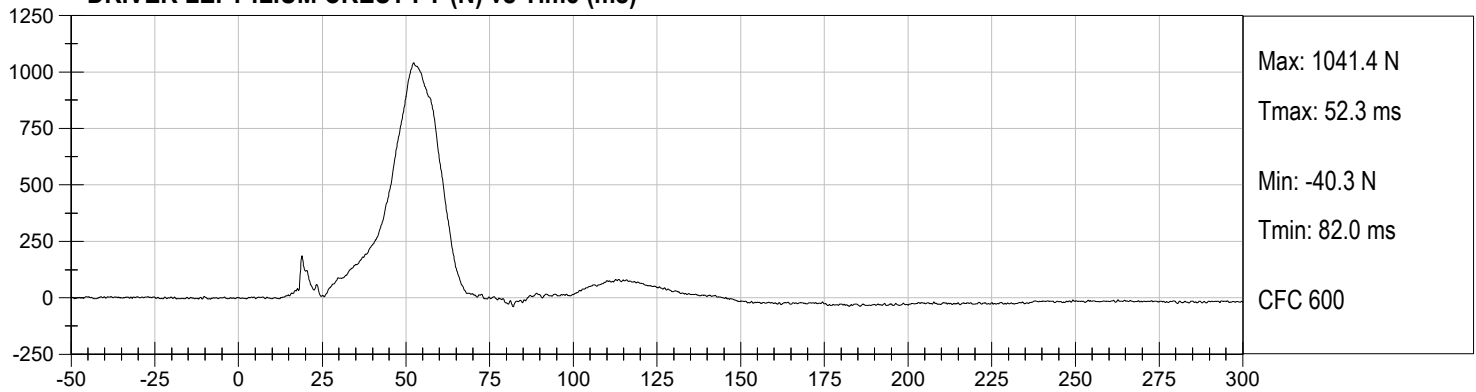
DRIVER LOWER SPINE Z (g) vs Time (ms)



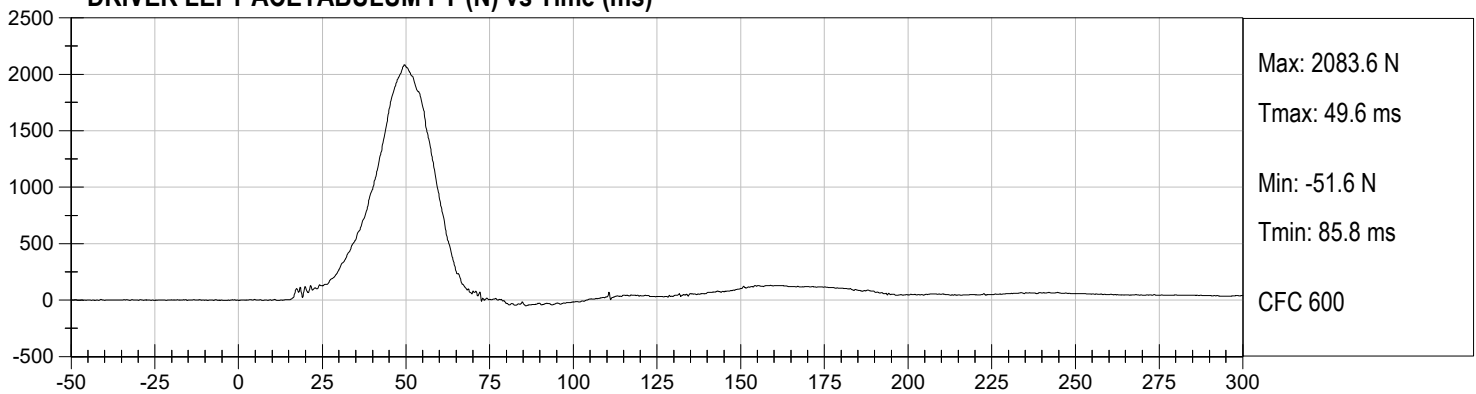
DRIVER LOWER SPINE Resultant (g) vs Time (ms)



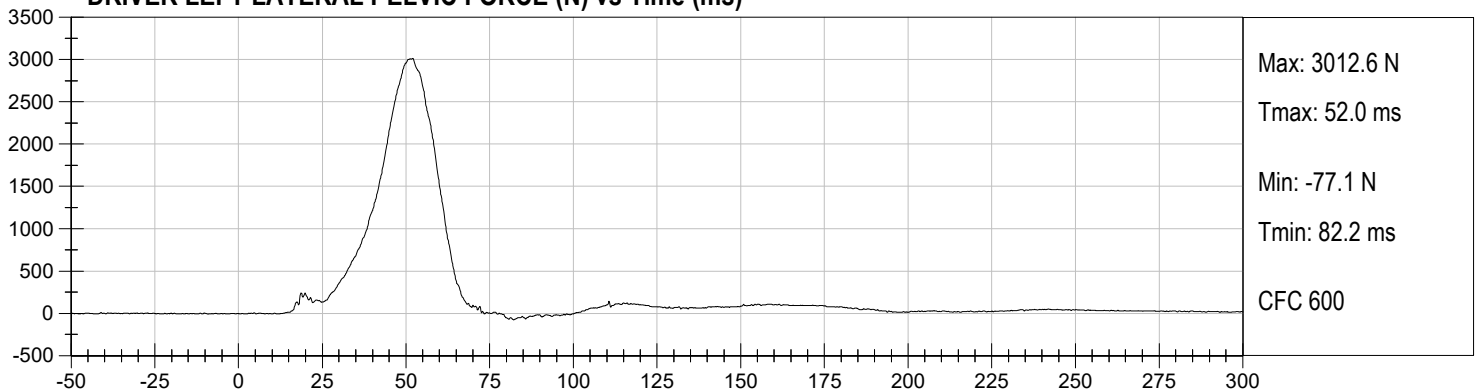
DRIVER LEFT ILIUM CREST FY (N) vs Time (ms)



DRIVER LEFT ACETABULUM FY (N) vs Time (ms)



DRIVER LEFT LATERAL PELVIC FORCE (N) vs Time (ms)



APPENDIX C
DUMMY QUALIFICATION AND PERFORMANCE VERIFICATION

QUALIFICATION TEST RESULTS

PRE-TEST

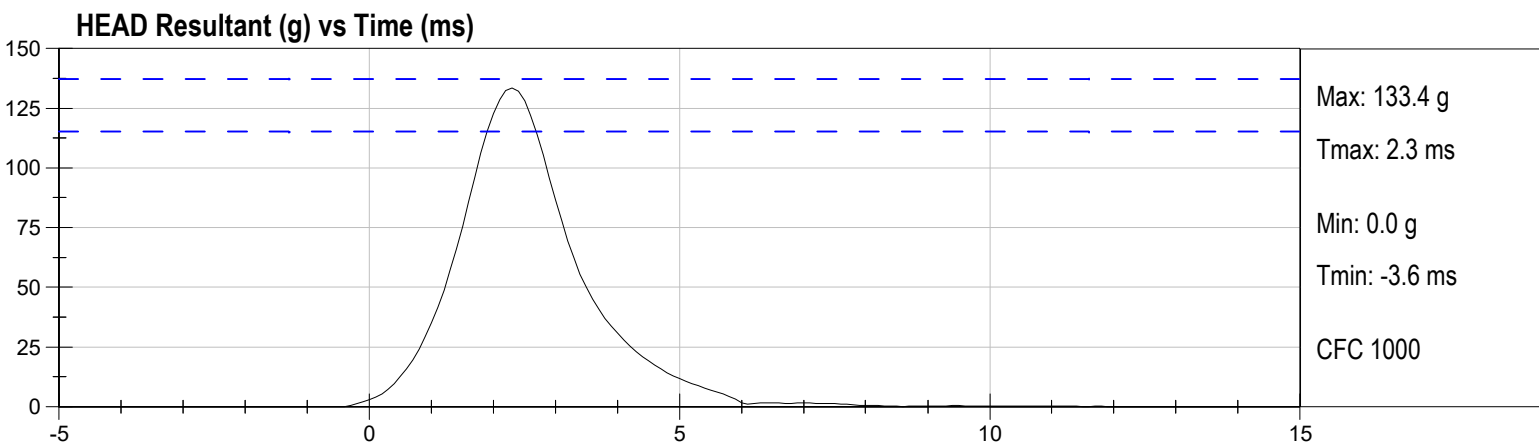
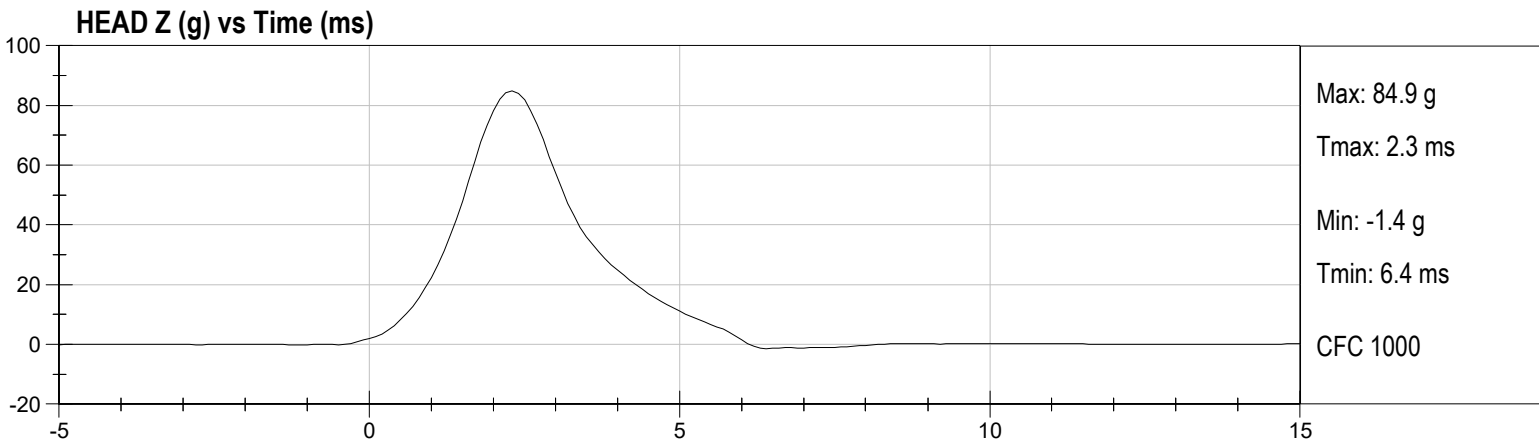
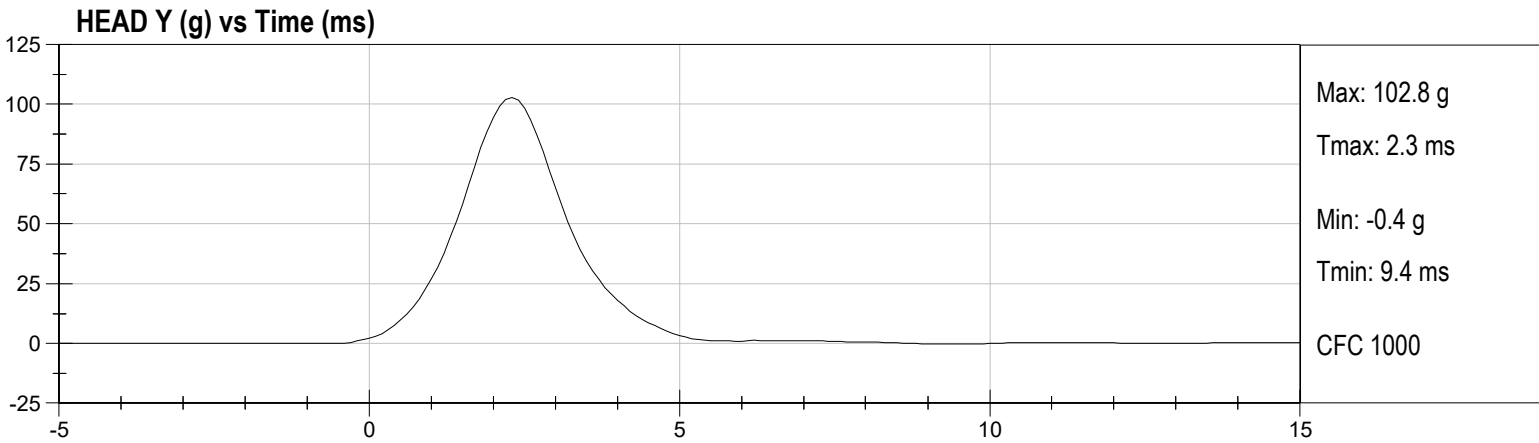
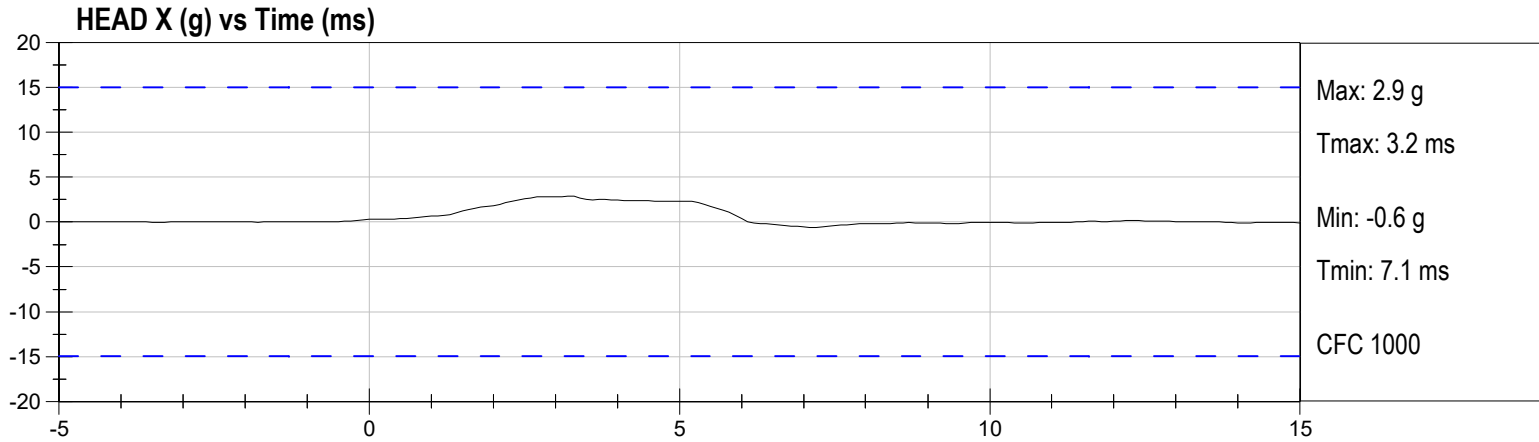
SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SID-IIsD External Measurements
SN: 296

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	784	Pass
B	Shoulder Pivot Height	437 - 453	442	Pass
C	H-point Height	79 - 89	83	Pass
D	H-point from Seatback	141 - 151	145	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	121	Pass
G	Head Breadth	140 - 148	142	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	180	Pass
J	Head Circumference	541 - 551	548	Pass
K	Buttock to Knee Length	514 - 540	535	Pass
L	Popliteal Height	343 - 369	358	Pass
M	Knee Pivot to Floor Height	392 - 409	404	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	206	Pass
P	Foot Length	216 - 232	219	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	316	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	481	Pass
V	Shoulder Width	341 - 357	346	Pass
W	Foot Width	78 - 94	85	Pass
Y	Chest Circumference w/ jacket	851 - 881	870	Pass
Z	Waist Circumference	761 - 791	772	Pass

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Peak Resultant Acceleration	g	115 to 137	133	Pass
Peak Longitudinal Acceleration	g	-15.0 to 15.0	2.9	Pass
Unimodal	%	within 15% of peak	1	Pass

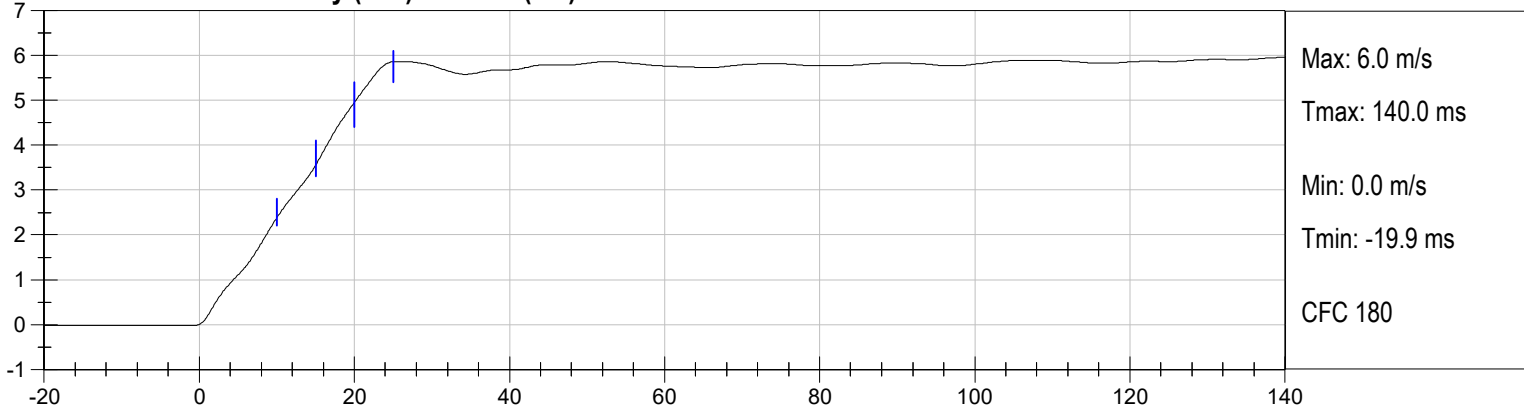
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
HEAD Y	Endevco	T30974	05/27/2025	11/26/2025
HEAD X	Endevco	T30975	05/27/2025	11/26/2025
HEAD Z	Endevco	T30976	05/27/2025	11/26/2025



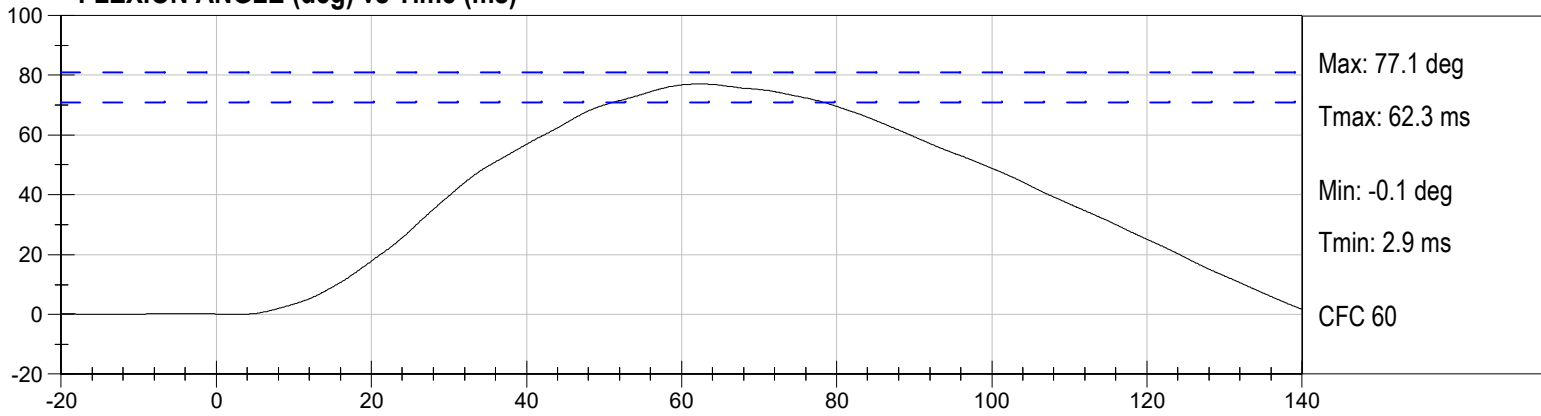
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Impact Velocity	m/s	5.51 to 5.63	5.53	Pass
Pendulum Velocity at 10 ms	m/s	2.20 to 2.80	2.36	Pass
Pendulum Velocity at 15 ms	m/s	3.30 to 4.10	3.53	Pass
Pendulum Velocity at 20 ms	m/s	4.40 to 5.40	4.93	Pass
Pendulum Velocity at 25 ms	m/s	5.40 to 6.10	5.86	Pass
Peak Pendulum Velocity from 25 to 100 ms	m/s	5.50 to 6.20	5.86	Pass
Maximum "D" Plane Rotation	deg	71 to 81	77	Pass
Time of Maximum "D" Plane Rotation	ms	50 to 70	62	Pass
Maximum Moment About Occipital Condyle	Nm	-44 to -36	-38	Pass
Time of Moment Decay Time To 0 Nm	ms	102 to 126	125	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PEND. ACCEL.	Endevco	AH5P1	07/09/2025	1/8/2026
NECK FORCE Y	Denton	N1021FY	02/19/2025	2/19/2026
NECK MOMENT X	Denton	N1021MX	02/19/2025	2/19/2026
POT. A - FRONT	Servo	2732	07/16/2025	1/15/2026
POT. C - HEADFORM	Servo	2204	07/16/2025	1/15/2026

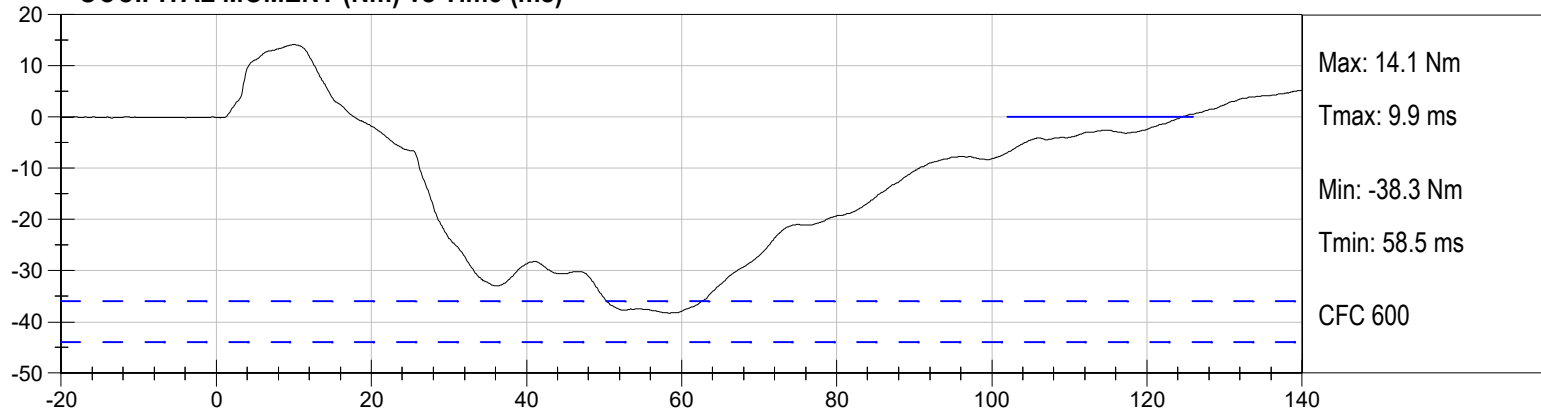
PEND. ACCEL. Velocity (m/s) vs Time (ms)



FLEXION ANGLE (deg) vs Time (ms)



OCCIPITAL MOMENT (Nm) vs Time (ms)



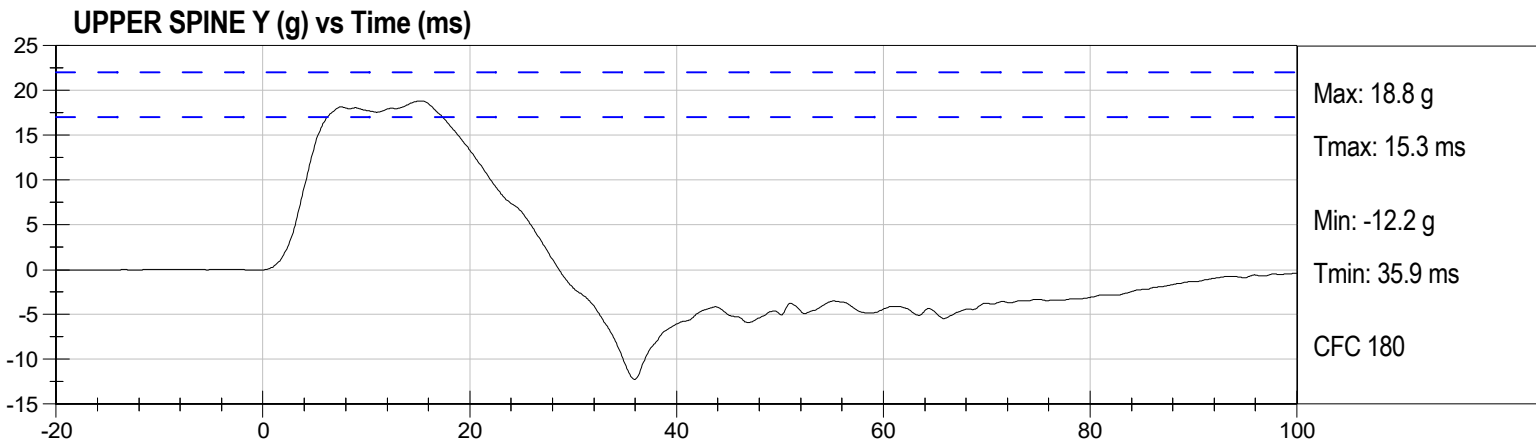
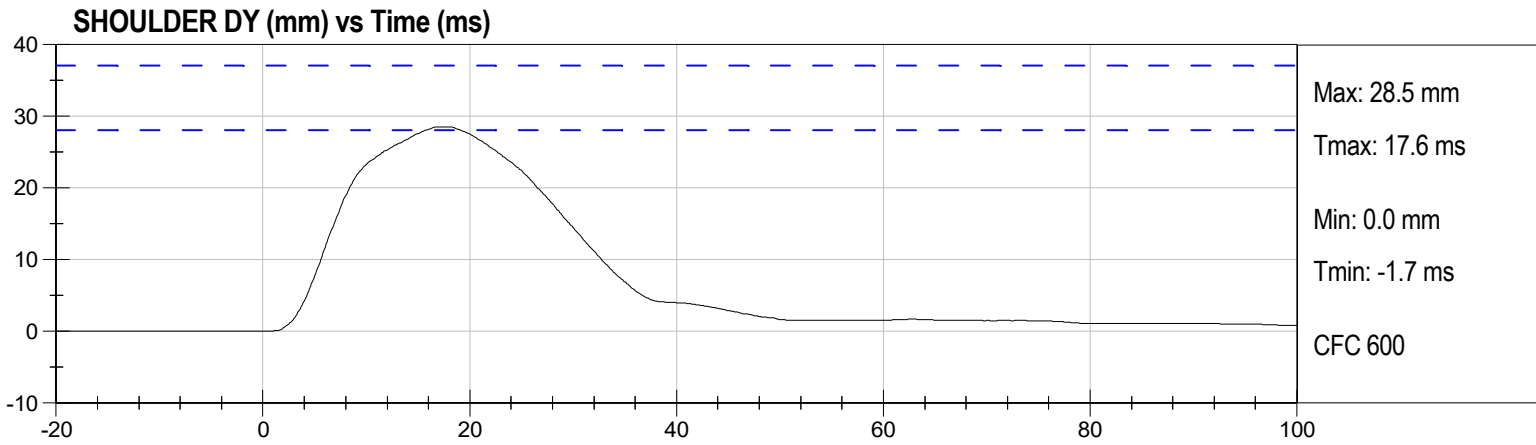
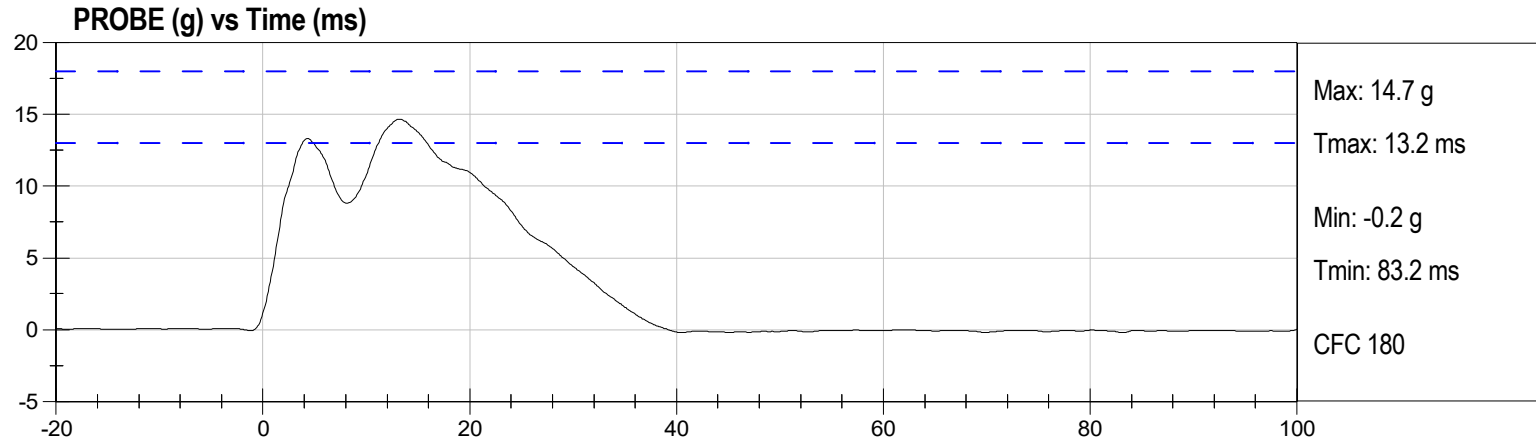


Shoulder Impact Test
SID IIs
ATD Serial No: 296

Test Date: 11/20/2025
Test ID: D253443
Test Technician: Maggie LaRose

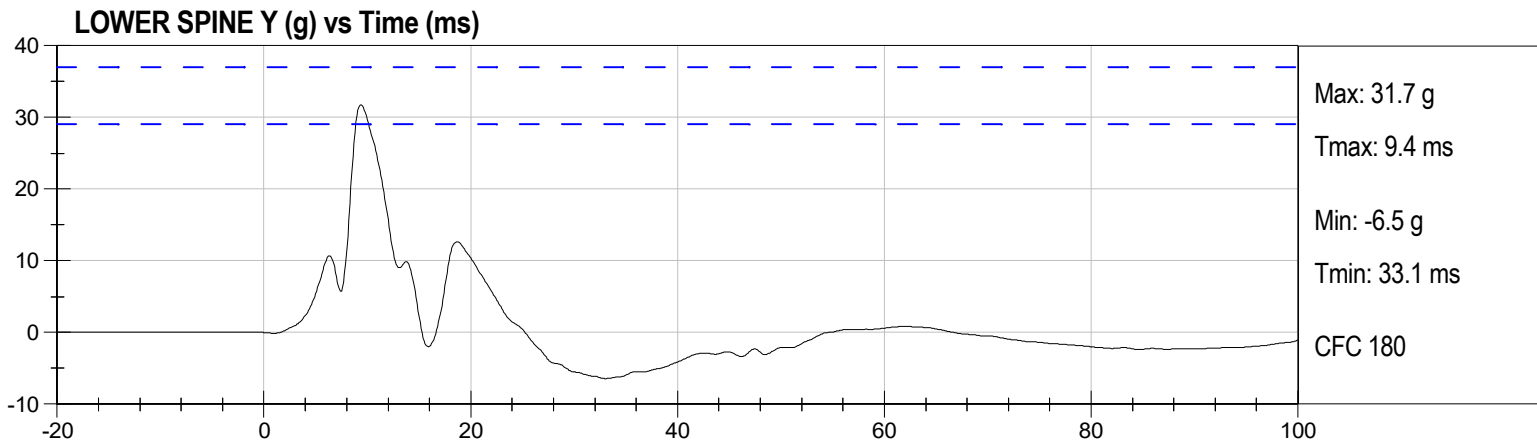
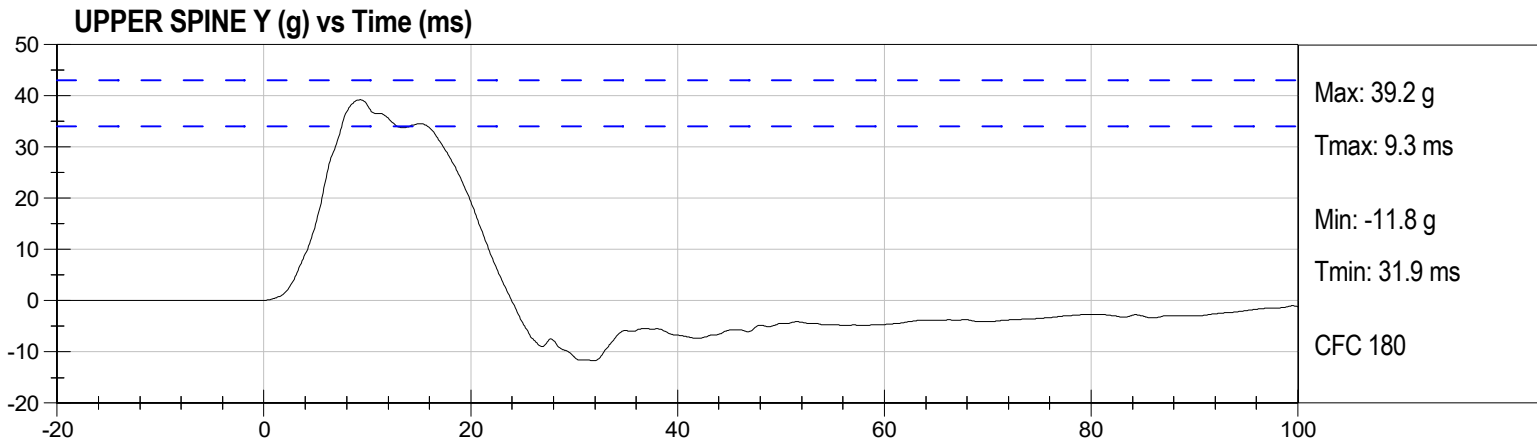
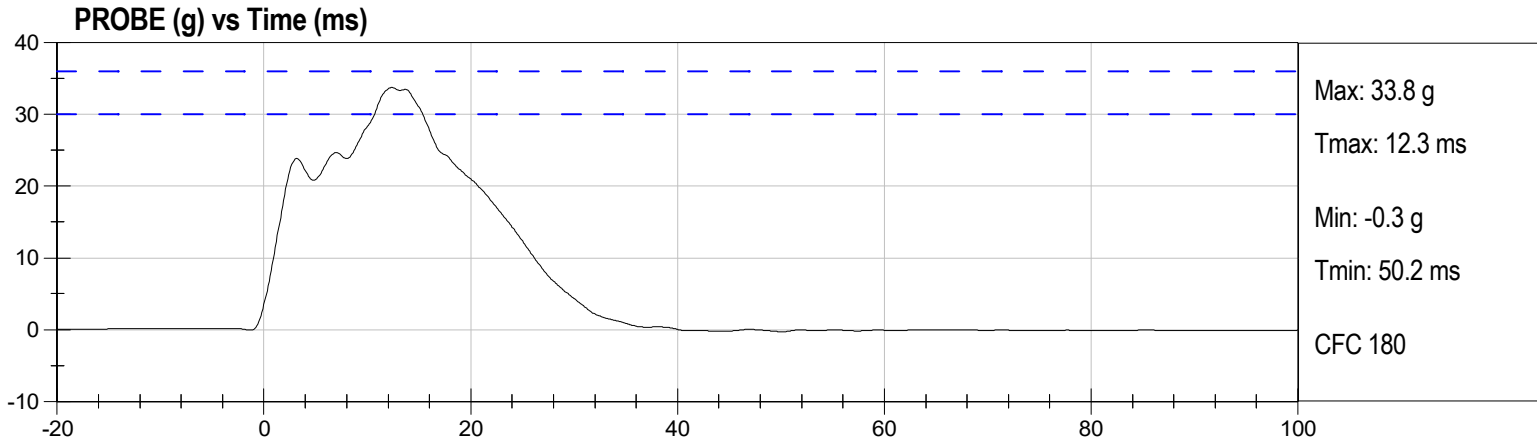
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Impact Velocity	m/s	4.2 to 4.4	4.21	Pass
Peak Probe Acceleration	g	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	g	17 to 22	19	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
UPPER SPINE Y	Endevco	P88675	10/23/2025	4/24/2026
SHOULDER DY	FTSS	G1223	10/23/2025	4/24/2026

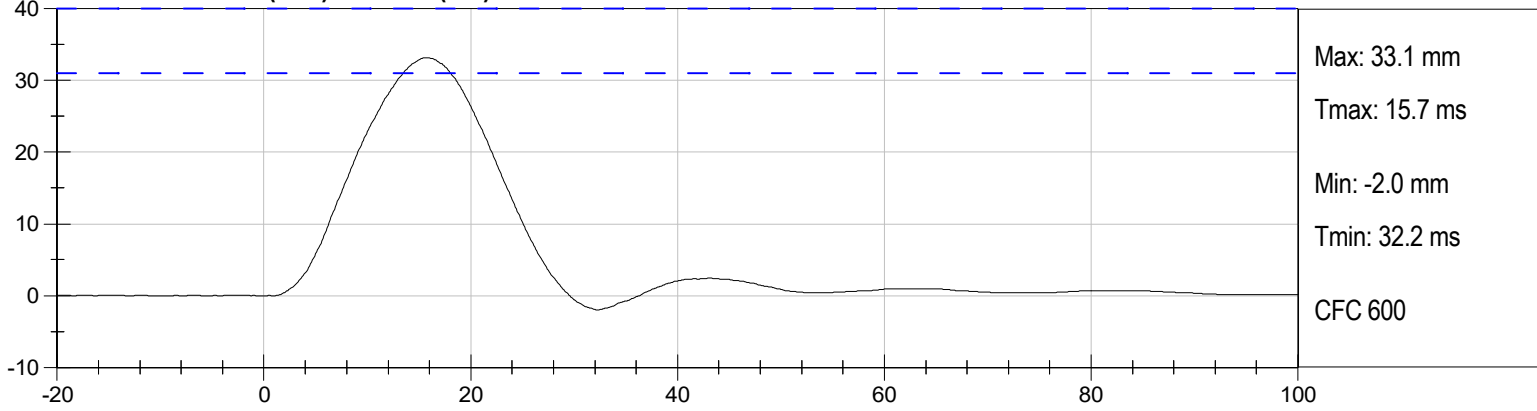


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	6.6 to 6.8	6.78	Pass
Peak Probe Acceleration after 5 ms	g	30 to 36	34	Pass
Upper Spine (T1) Y Acceleration	g	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	g	29 to 37	32	Pass
Shoulder Displacement	mm	31 to 40	33	Pass
Upper Thorax Rib Displacement	mm	25 to 32	27	Pass
Middle Thorax Rib Displacement	mm	30 to 36	32	Pass
Lower Thorax Rib Displacement	mm	32 to 38	36	Pass

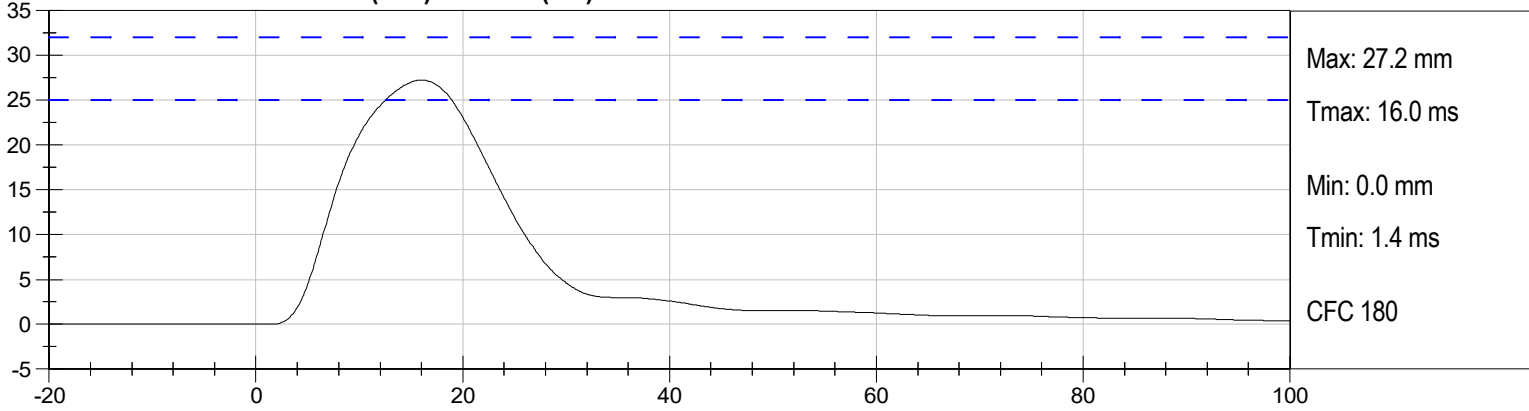
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
UPPER SPINE Y	Endevco	P88675	10/23/2025	4/24/2026
LOWER SPINE Y	Endevco	P96869	10/15/2025	4/16/2026
SHOULDER DY	FTSS	G1223	10/23/2025	4/24/2026
UPPER THORAX RIB DY	Servo	G012	10/23/2025	4/24/2026
MID THORAX RIB DY	FTSS	G1163	10/23/2025	4/24/2026
LOWER THORAX RIB DY	FTSS	G1158	10/23/2025	4/24/2026



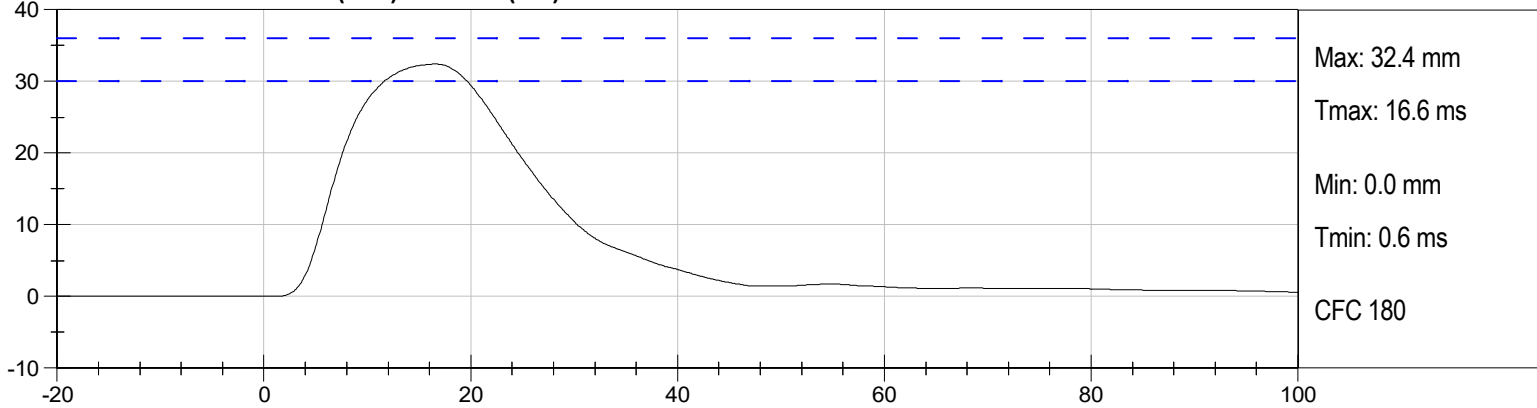
SHOULDER DY (mm) vs Time (ms)



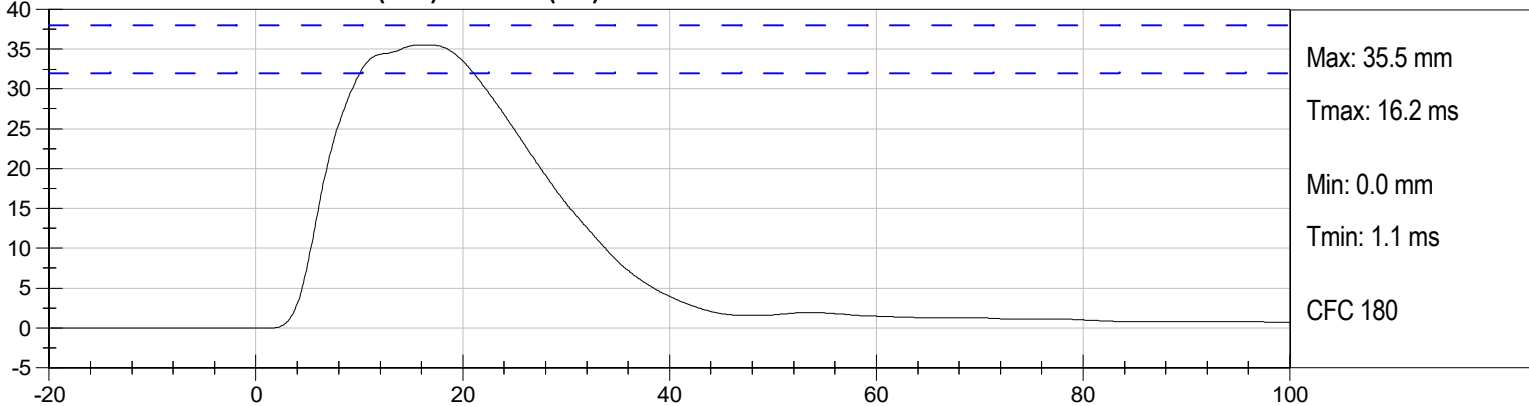
UPPER THORAX RIB DY (mm) vs Time (ms)



MID THORAX RIB DY (mm) vs Time (ms)



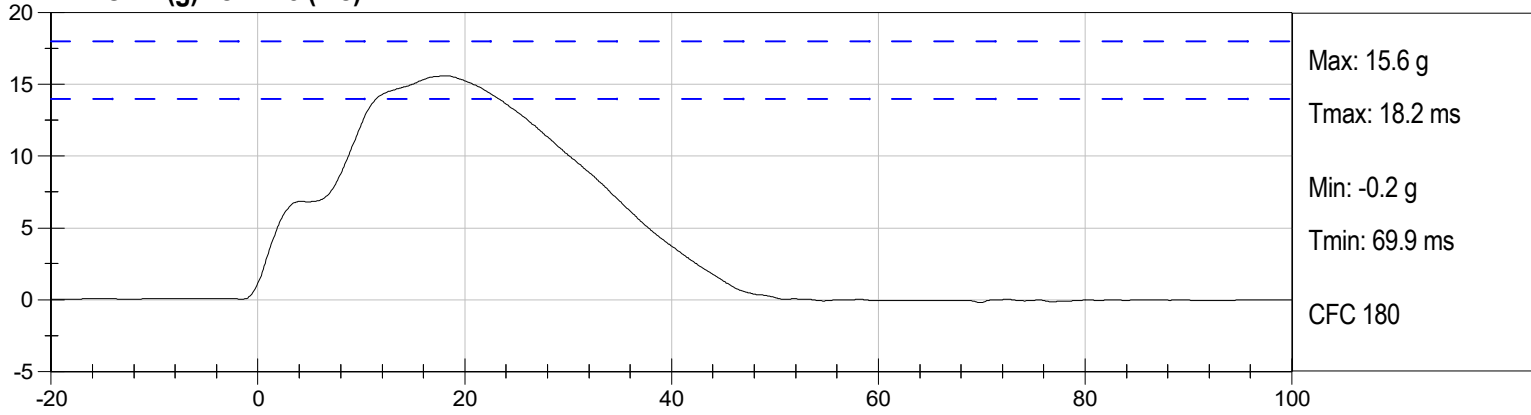
LOWER THORAX RIB DY (mm) vs Time (ms)



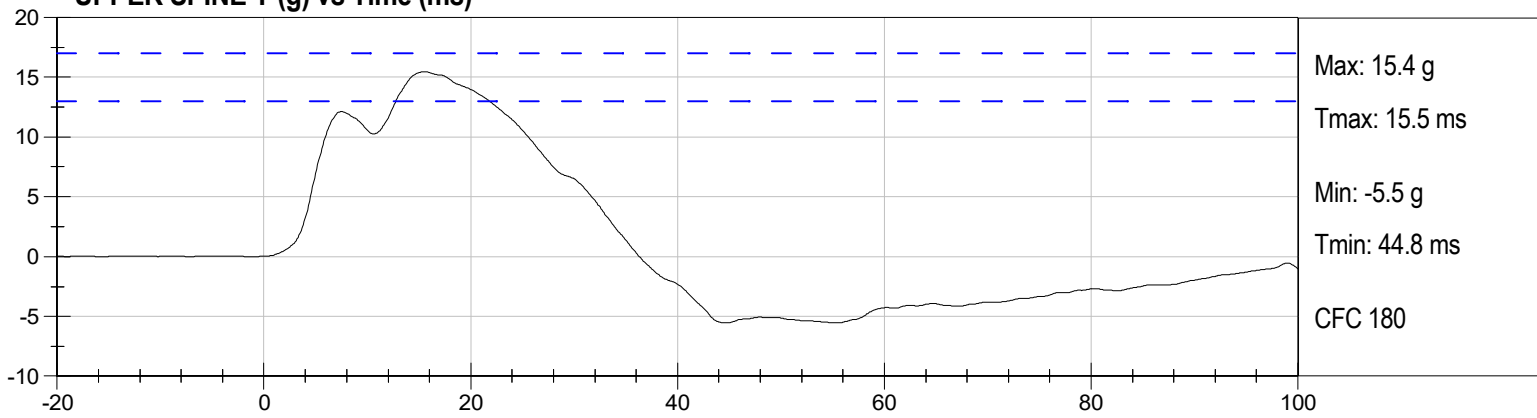
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Probe Acceleration	g	14 to 18	16	Pass
Upper Spine (T1) Y Acceleration	g	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	g	7 to 11	8	Pass
Upper Thorax Rib Displacement	mm	32 to 40	37	Pass
Middle Thorax Rib Displacement	mm	39 to 45	43	Pass
Lower Thorax Rib Displacement	mm	35 to 43	39	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
UPPER SPINE Y	Endevco	P88675	10/23/2025	4/24/2026
LOWER SPINE Y	Endevco	P96869	10/15/2025	4/16/2026
UPPER THORAX RIB DY	Servo	G012	10/23/2025	4/24/2026
MID THORAX RIB DY	FTSS	G1163	10/23/2025	4/24/2026
LOWER THORAX RIB DY	FTSS	G1158	10/23/2025	4/24/2026

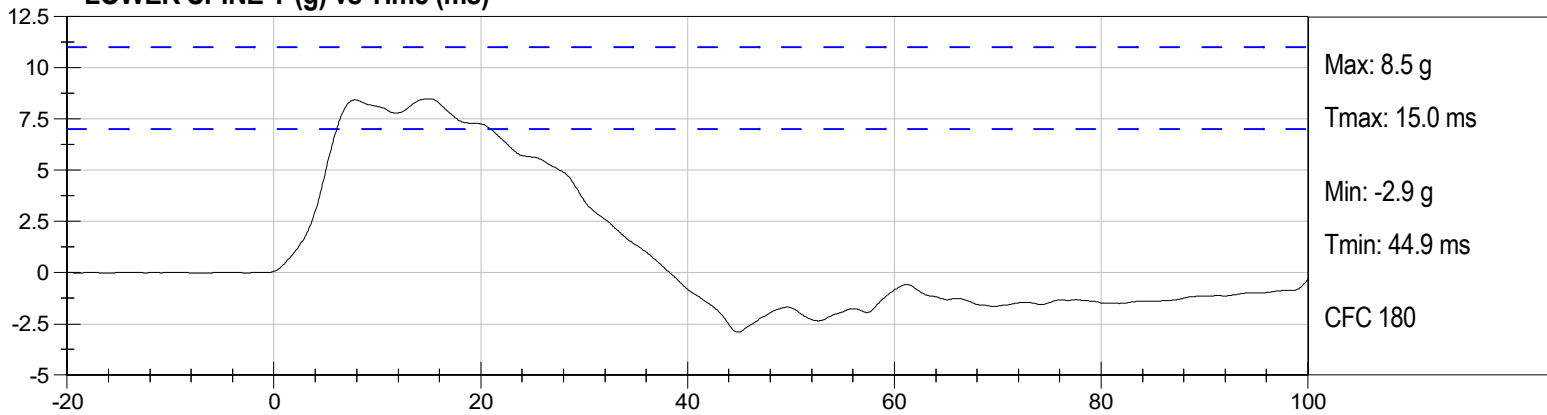
PROBE (g) vs Time (ms)



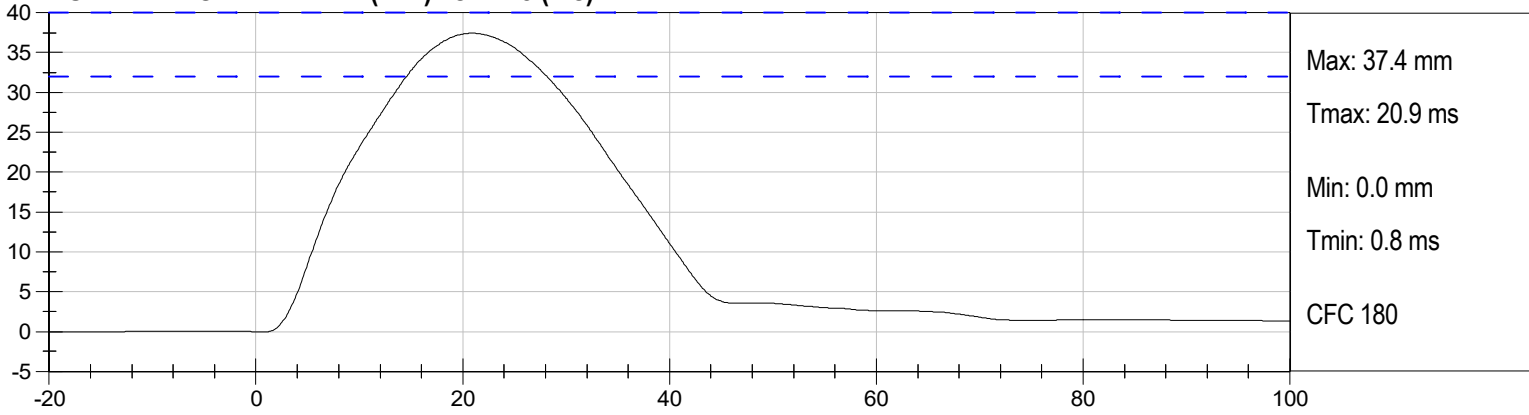
UPPER SPINE Y (g) vs Time (ms)



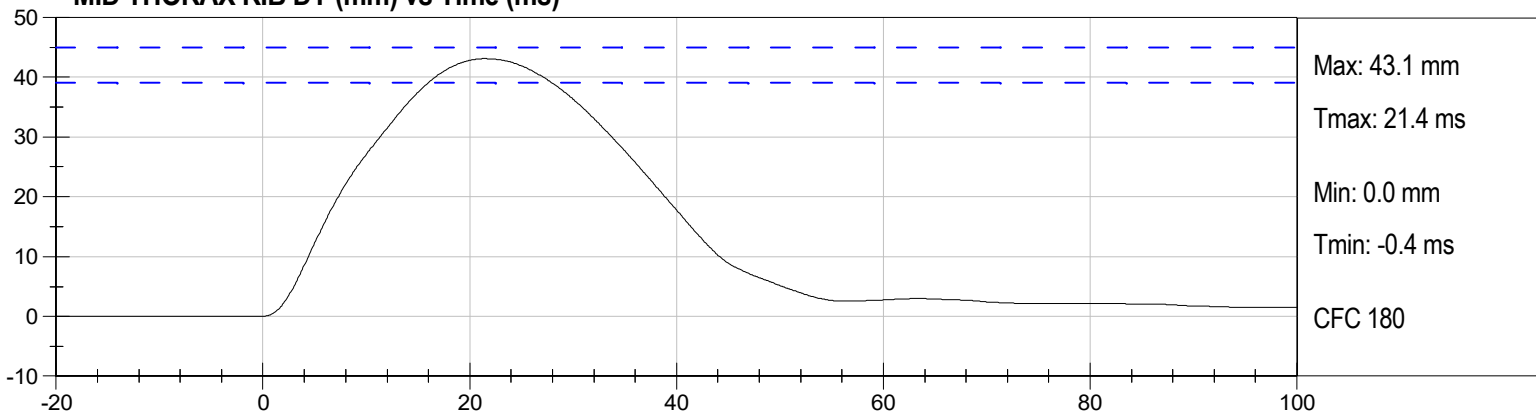
LOWER SPINE Y (g) vs Time (ms)



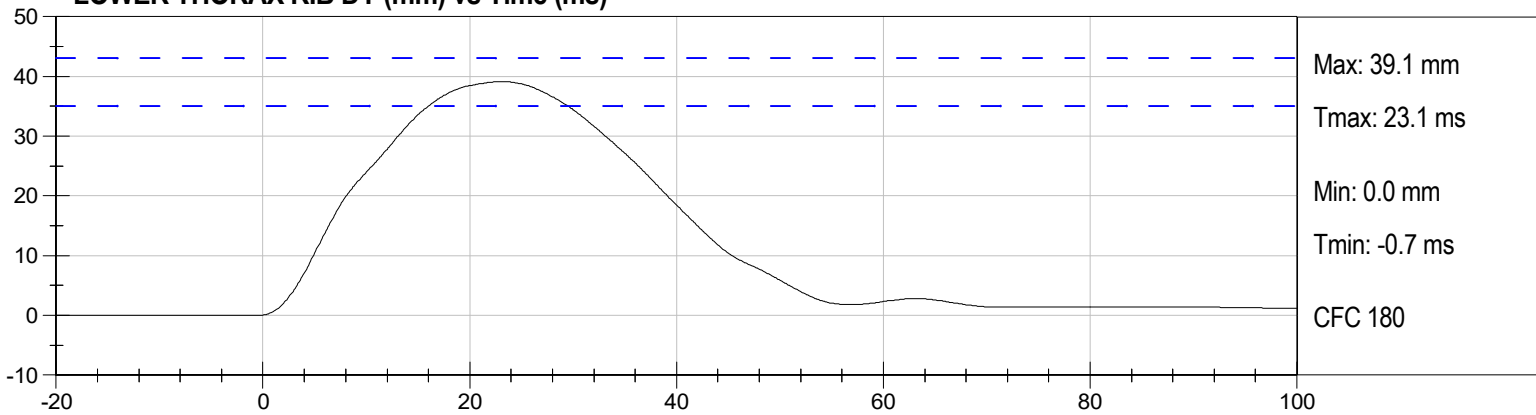
UPPER THORAX RIB DY (mm) vs Time (ms)



MID THORAX RIB DY (mm) vs Time (ms)



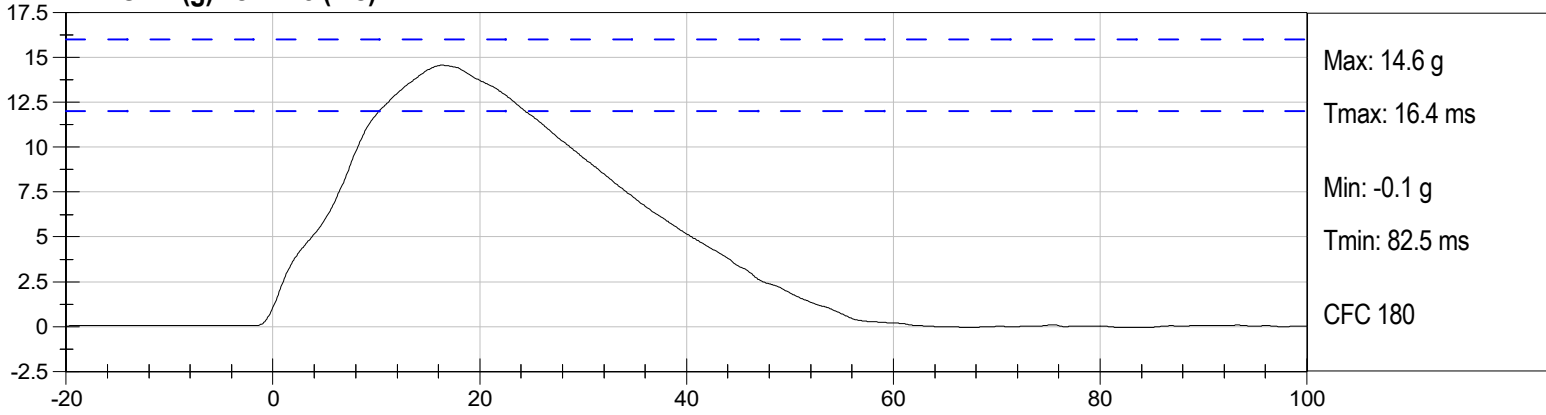
LOWER THORAX RIB DY (mm) vs Time (ms)



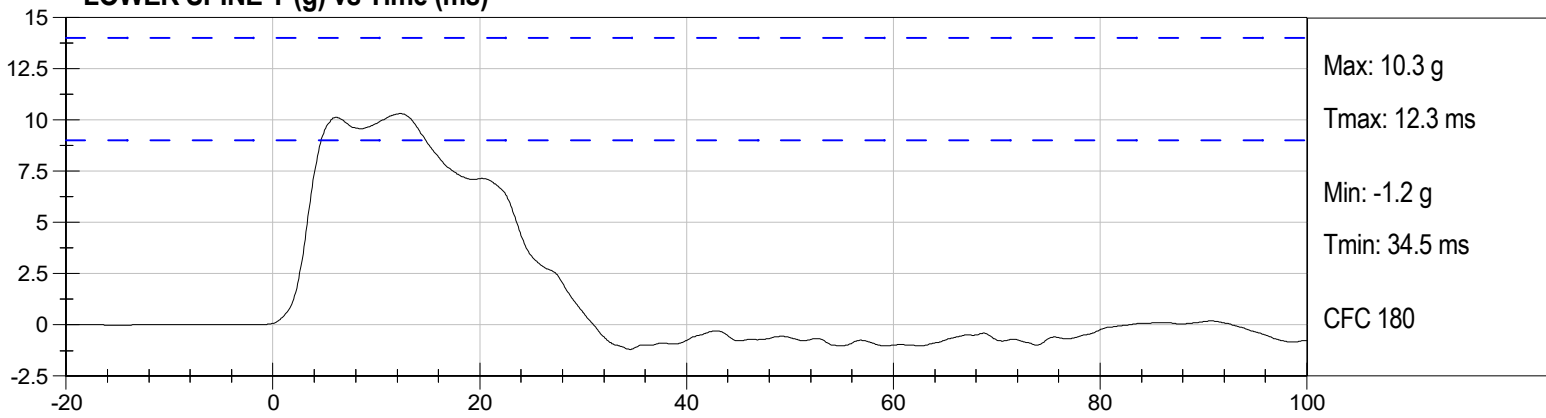
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	37	Pass
Impact Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Probe Acceleration	g	12 to 16	15	Pass
Lower Spine (T12) Y Acceleration	g	9 to 14	10	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	40	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	42	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
LOWER SPINE Y	Endevco	P96869	10/15/2025	4/16/2026
UPPER ABDOMINAL RIB DY	FTSS	G1146	10/23/2025	4/24/2026
LOWER ABDOMINAL RIB DY	FTSS	G1126	10/23/2025	4/24/2026

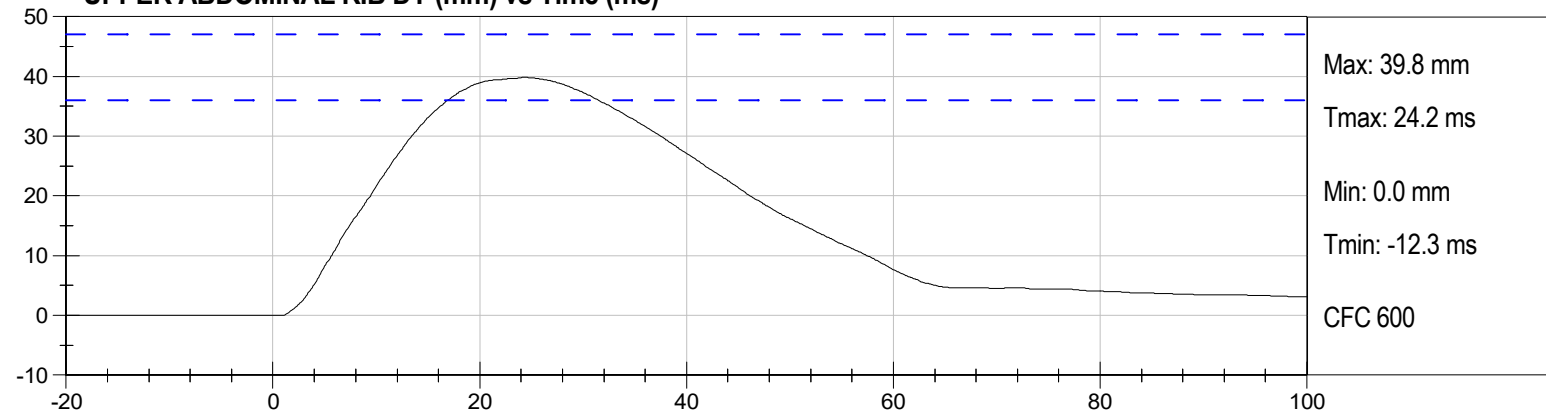
PROBE (g) vs Time (ms)



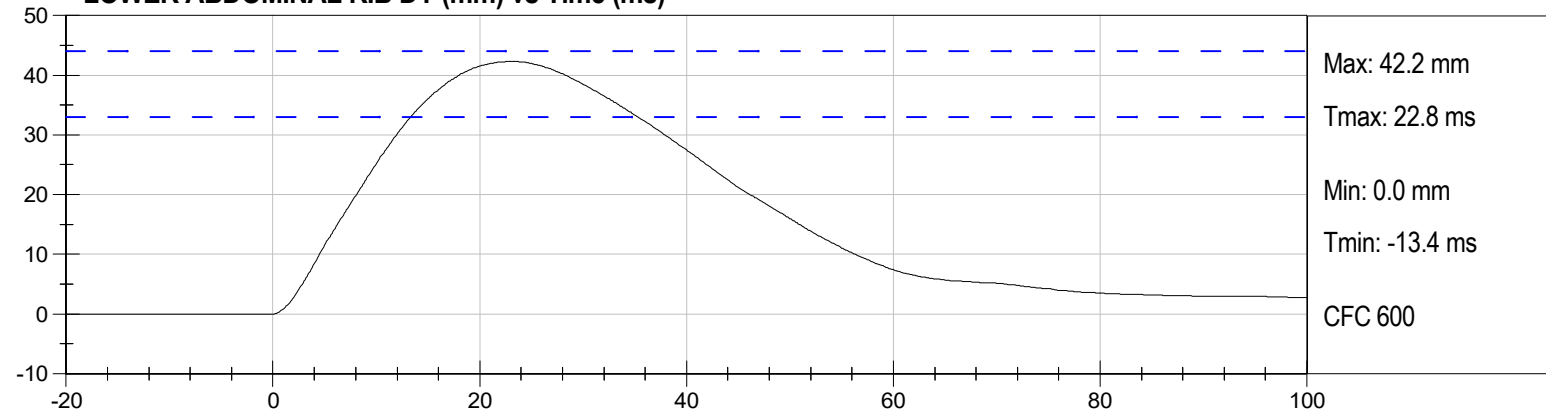
LOWER SPINE Y (g) vs Time (ms)



UPPER ABDOMINAL RIB DY (mm) vs Time (ms)



LOWER ABDOMINAL RIB DY (mm) vs Time (ms)





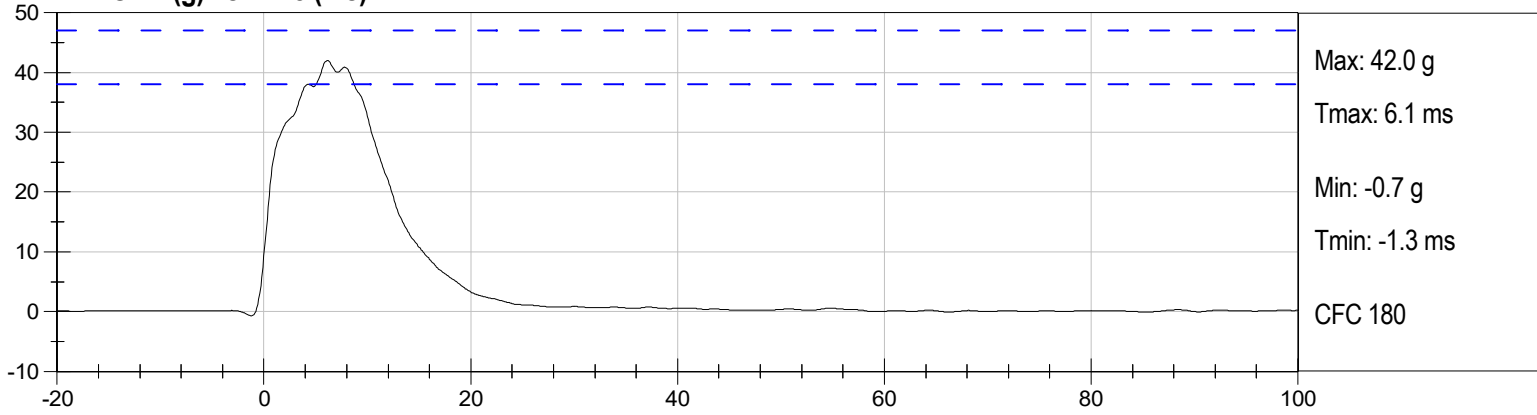
Acetabulum Impact Test
SID IIs
ATD Serial No: 296

Test Date: 11/20/2025
Test ID: D253447
Test Technician: Maggie LaRose

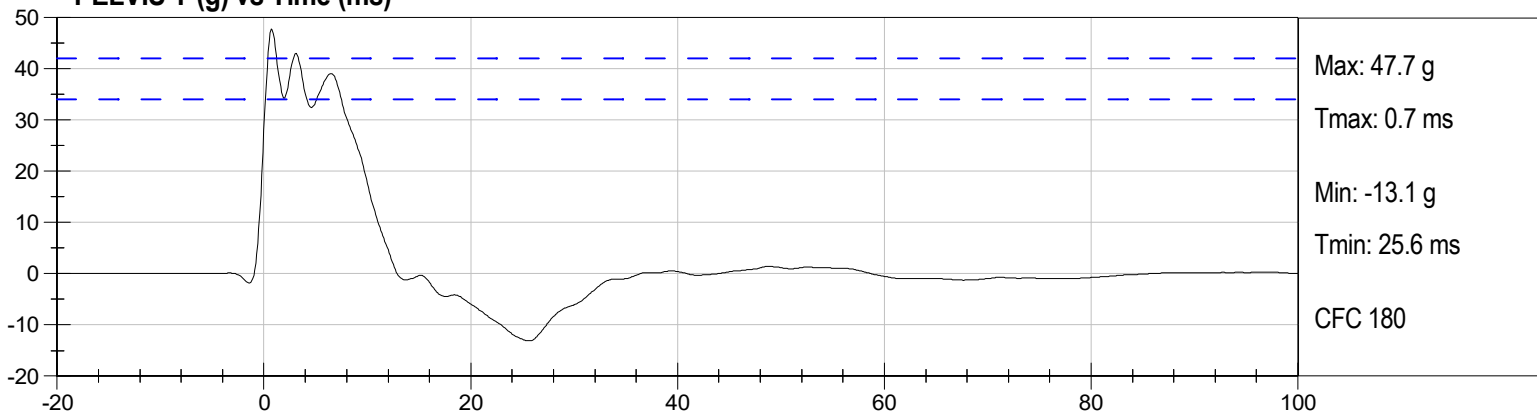
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Impact Velocity	m/s	6.6 to 6.8	6.61	Pass
Peak Probe Acceleration	g	38 to 47	42	Pass
Peak Pelvis Y Acceleration after 6 ms	g	34 to 42	39.0	Pass
Acetabulum Force	N	3600 to 4300	4176	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
PELVIS Y	Endevco	T22504	10/23/2025	4/24/2026
ACETABULUM FY	Denton	ACG259FY	05/28/2025	5/28/2026

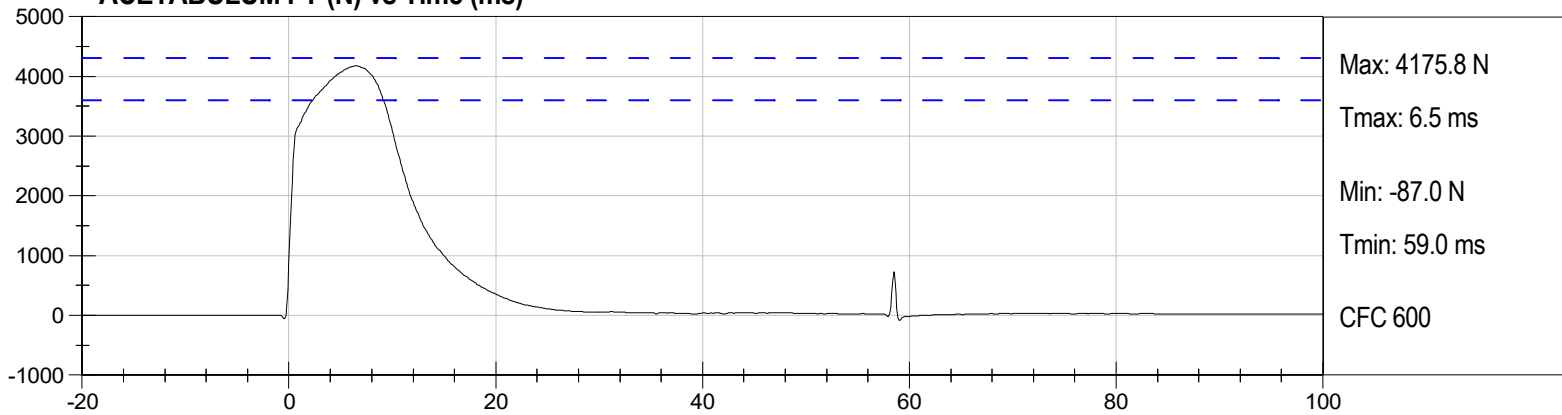
PROBE (g) vs Time (ms)



PELVIS Y (g) vs Time (ms)



ACETABULUM FY (N) vs Time (ms)





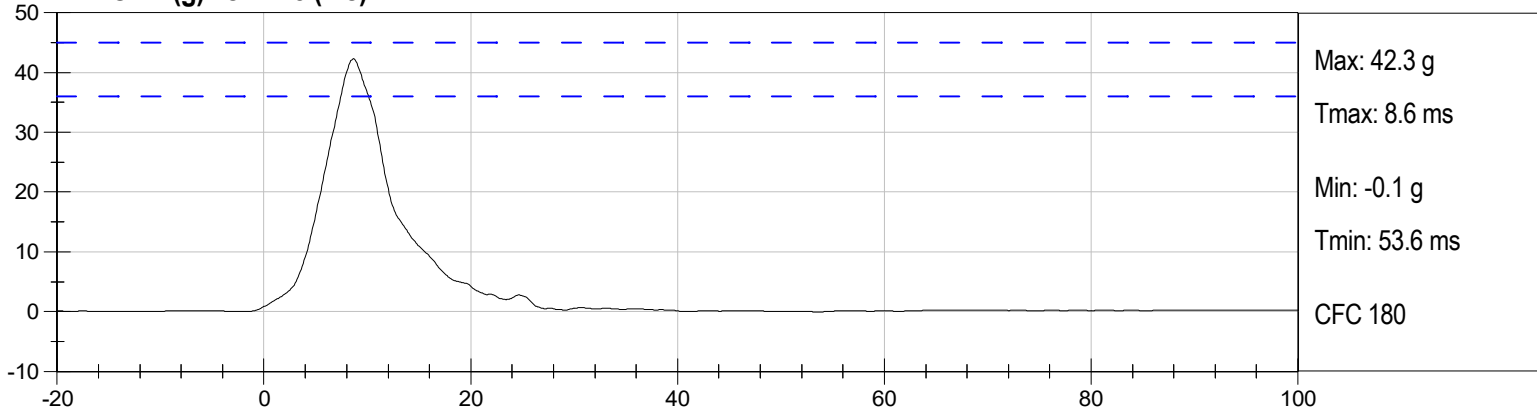
Iliac Impact Test
SID IIs
ATD Serial No: 296

Test Date: 11/20/2025
Test ID: D253448
Test Technician: Maggie LaRose

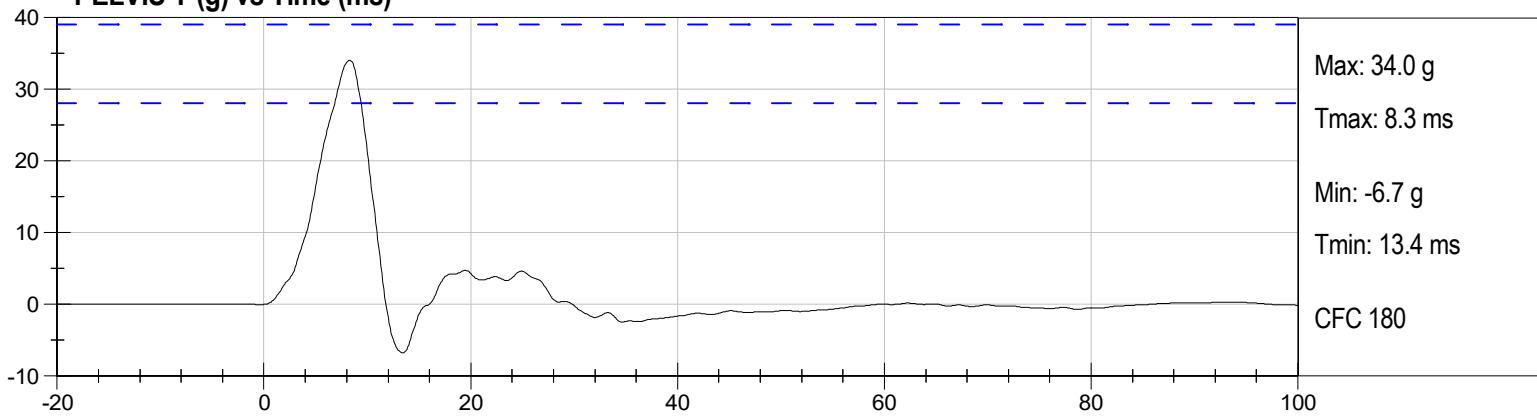
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Impact Velocity	m/s	4.2 to 4.4	4.23	Pass
Peak Probe Acceleration	g	36 to 45	42	Pass
Peak Pelvis Y Acceleration	g	28 to 39	34	Pass
Iliac Force	N	4100 to 5100	4778	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
PELVIS Y	Endevco	T22504	10/23/2025	4/24/2026
ILIUM CREST FY	Denton	IWG286FY	05/28/2025	5/28/2026

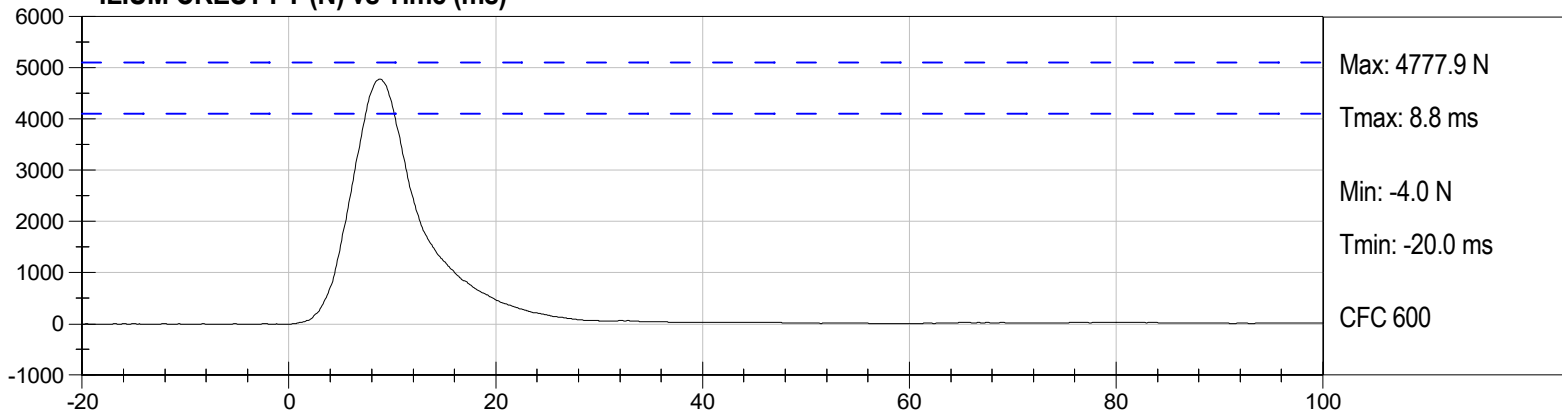
PROBE (g) vs Time (ms)



PELVIS Y (g) vs Time (ms)



ILIUM CREST FY (N) vs Time (ms)



QUALIFICATION TEST RESULTS

POST-TEST

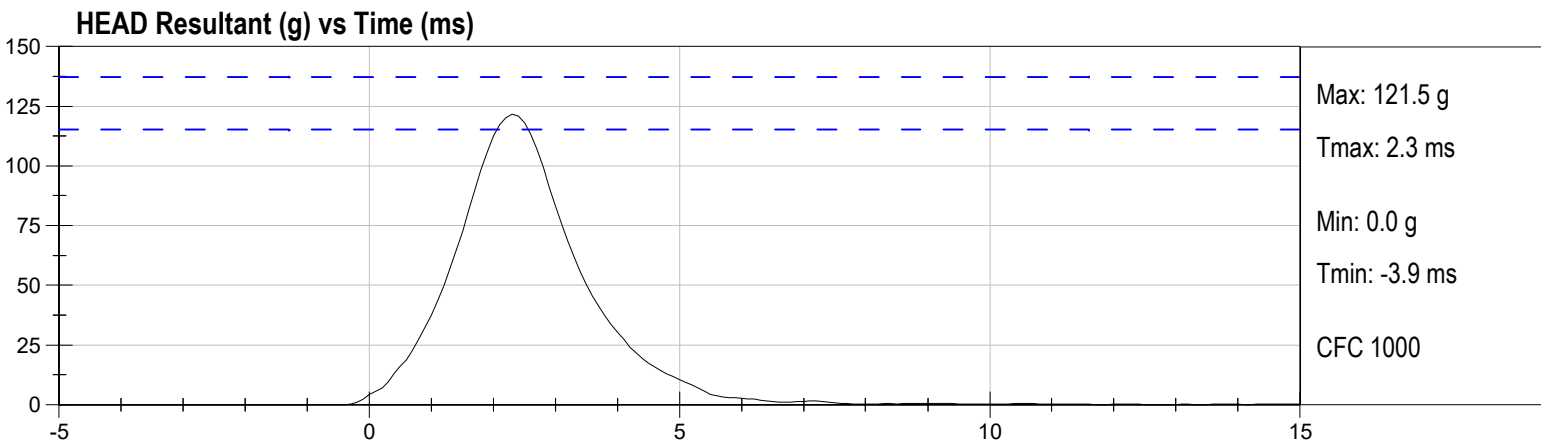
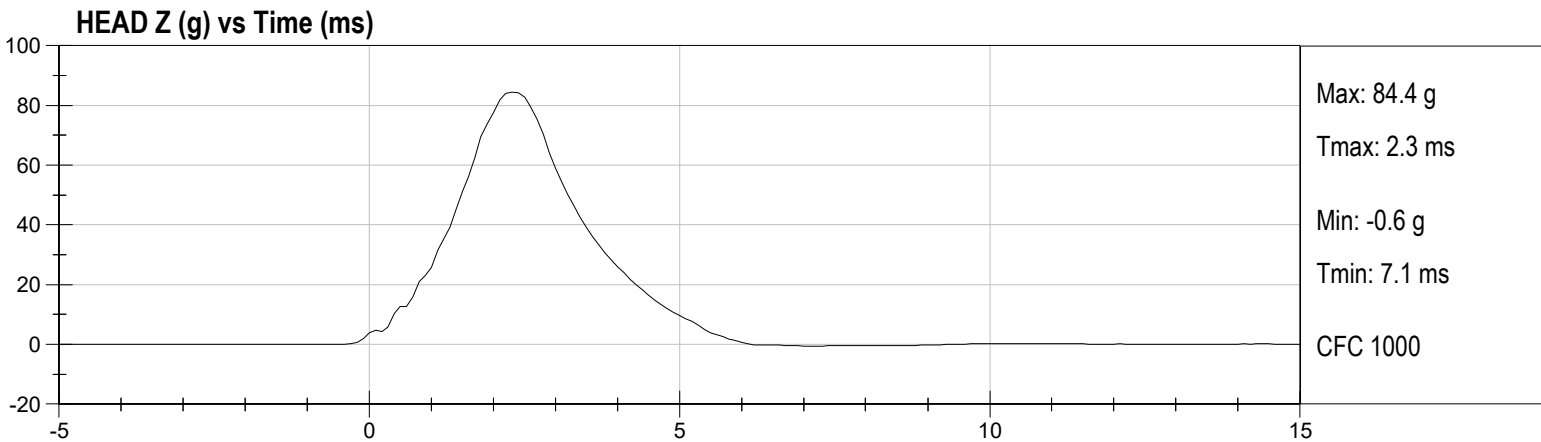
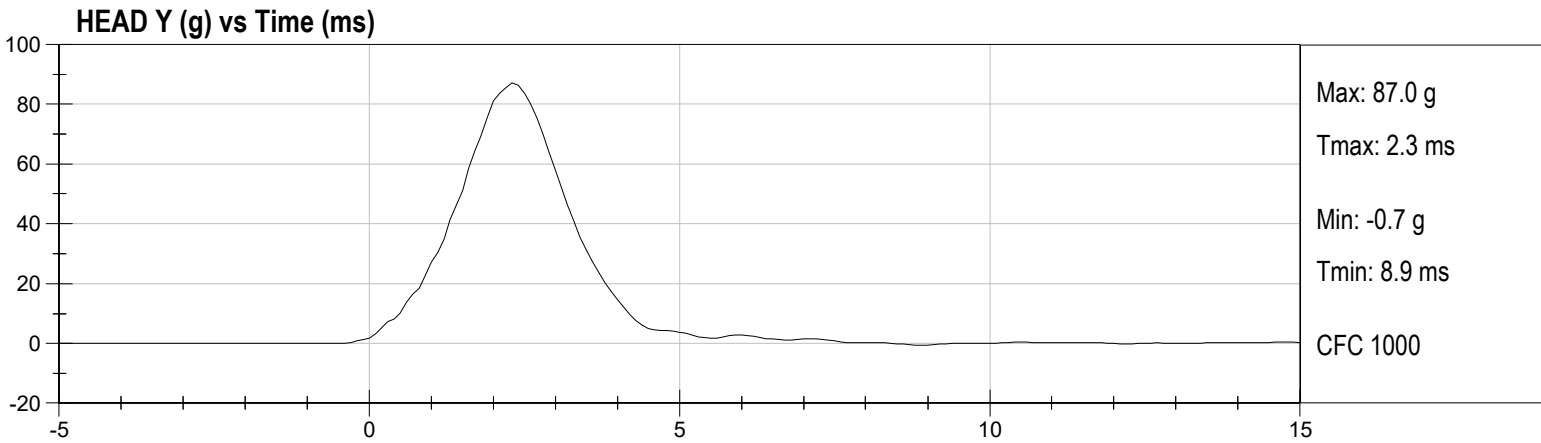
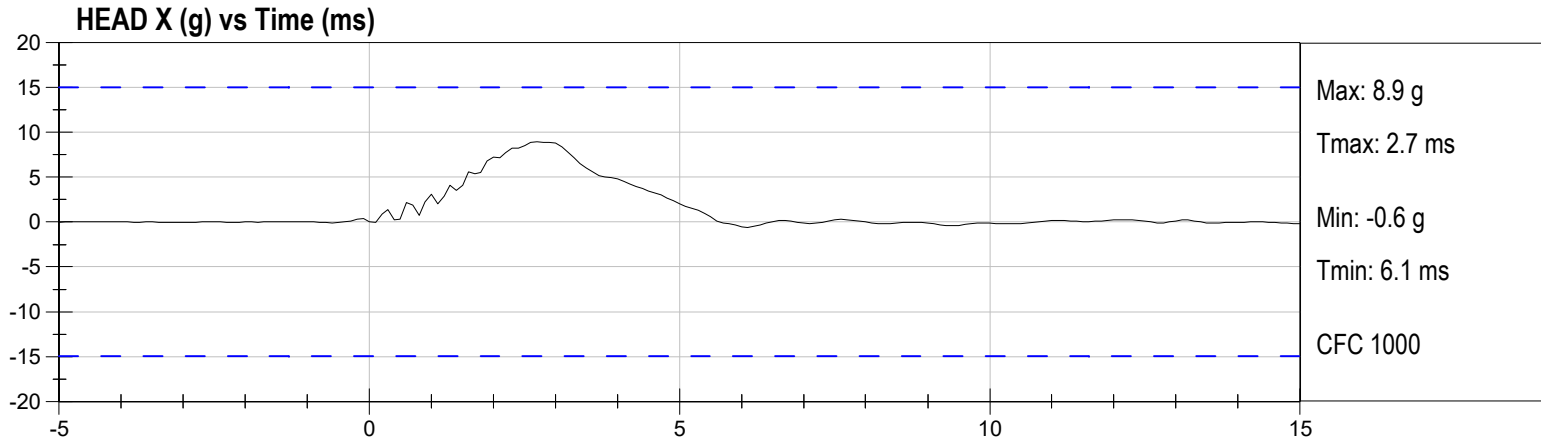
SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SID-IIsD External Measurements
SN: 296

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	784	Pass
B	Shoulder Pivot Height	437 - 453	442	Pass
C	H-point Height	79 - 89	83	Pass
D	H-point from Seatback	141 - 151	145	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	121	Pass
G	Head Breadth	140 - 148	142	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	180	Pass
J	Head Circumference	541 - 551	548	Pass
K	Buttock to Knee Length	514 - 540	535	Pass
L	Popliteal Height	343 - 369	358	Pass
M	Knee Pivot to Floor Height	392 - 409	404	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	206	Pass
P	Foot Length	216 - 232	219	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	316	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	481	Pass
V	Shoulder Width	341 - 357	346	Pass
W	Foot Width	78 - 94	85	Pass
Y	Chest Circumference w/ jacket	851 - 881	870	Pass
Z	Waist Circumference	761 - 791	772	Pass

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Peak Resultant Acceleration	g	115 to 137	121	Pass
Peak Longitudinal Acceleration	g	-15.0 to 15.0	8.9	Pass
Unimodal	%	within 15% of peak	1	Pass

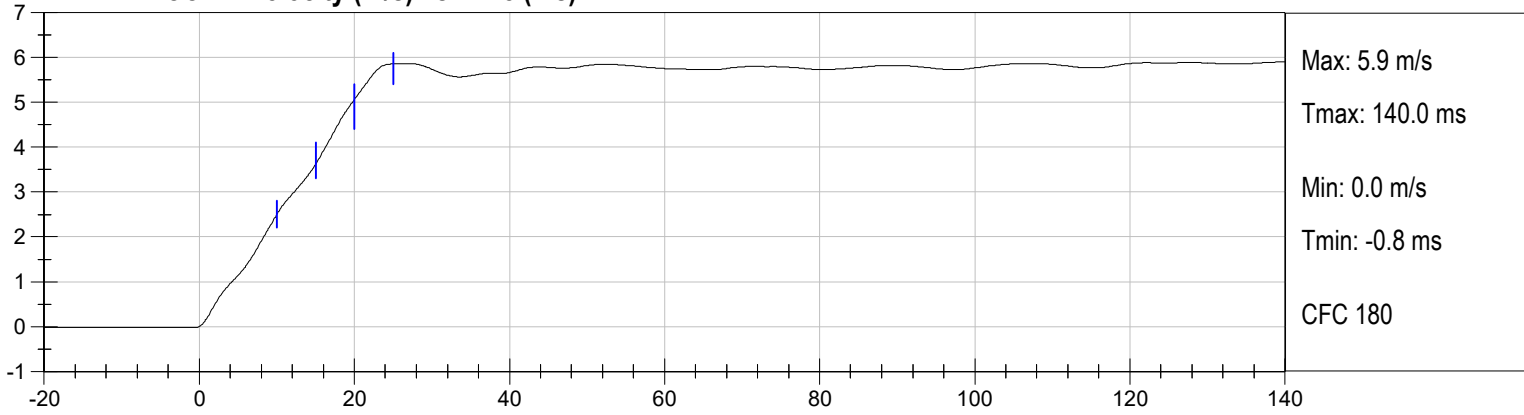
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
HEAD Y	Endevco	T30974	12/03/2025	6/4/2026
HEAD X	Endevco	T30975	12/03/2025	6/4/2026
HEAD Z	Endevco	T30976	12/03/2025	6/4/2026



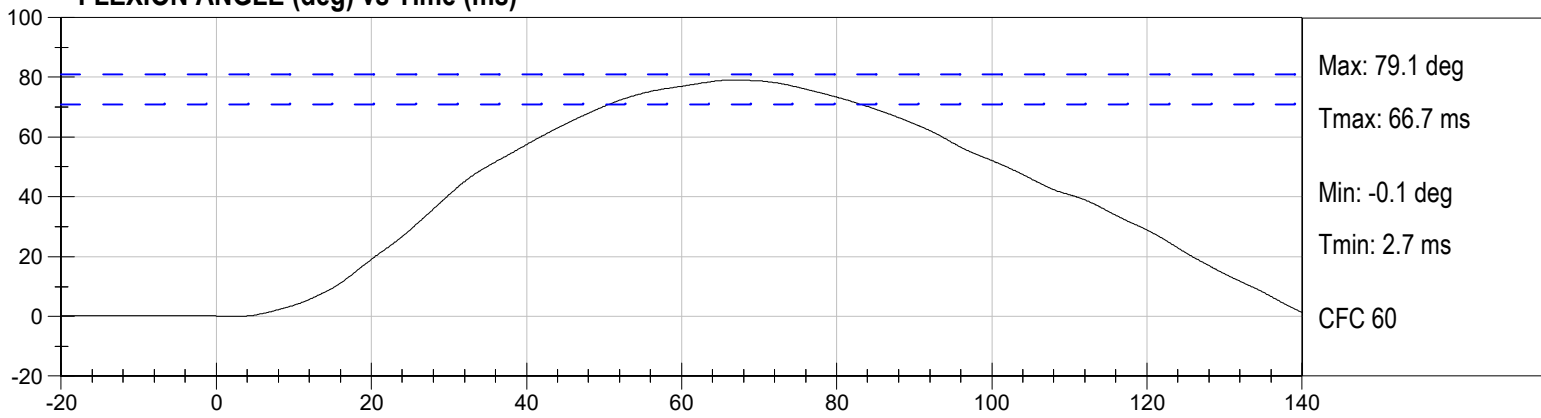
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	26	Pass
Impact Velocity	m/s	5.51 to 5.63	5.52	Pass
Pendulum Velocity at 10 ms	m/s	2.20 to 2.80	2.47	Pass
Pendulum Velocity at 15 ms	m/s	3.30 to 4.10	3.59	Pass
Pendulum Velocity at 20 ms	m/s	4.40 to 5.40	5.04	Pass
Pendulum Velocity at 25 ms	m/s	5.40 to 6.10	5.85	Pass
Peak Pendulum Velocity from 25 to 100 ms	m/s	5.50 to 6.20	5.86	Pass
Maximum "D" Plane Rotation	deg	71 to 81	79	Pass
Time of Maximum "D" Plane Rotation	ms	50 to 70	67	Pass
Maximum Moment About Occipital Condyle	Nm	-44 to -36	-36	Pass
Time of Moment Decay Time To 0 Nm	ms	102 to 126	123	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PEND. ACCEL.	Endevco	AH5P1	07/09/2025	1/8/2026
NECK FORCE Y	Denton	N1021FY	02/19/2025	2/19/2026
NECK MOMENT X	Denton	N1021MX	02/19/2025	2/19/2026
POT. A - FRONT	Servo	2732	07/16/2025	1/15/2026
POT. C - HEADFORM	Servo	2204	07/16/2025	1/15/2026

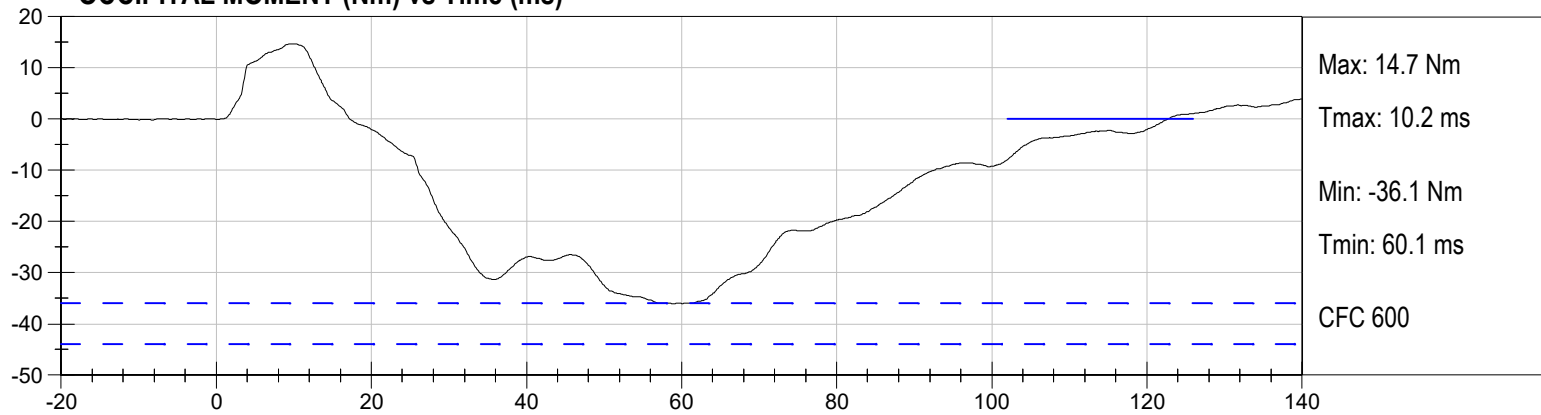
PEND. ACCEL. Velocity (m/s) vs Time (ms)



FLEXION ANGLE (deg) vs Time (ms)



OCCIPITAL MOMENT (Nm) vs Time (ms)



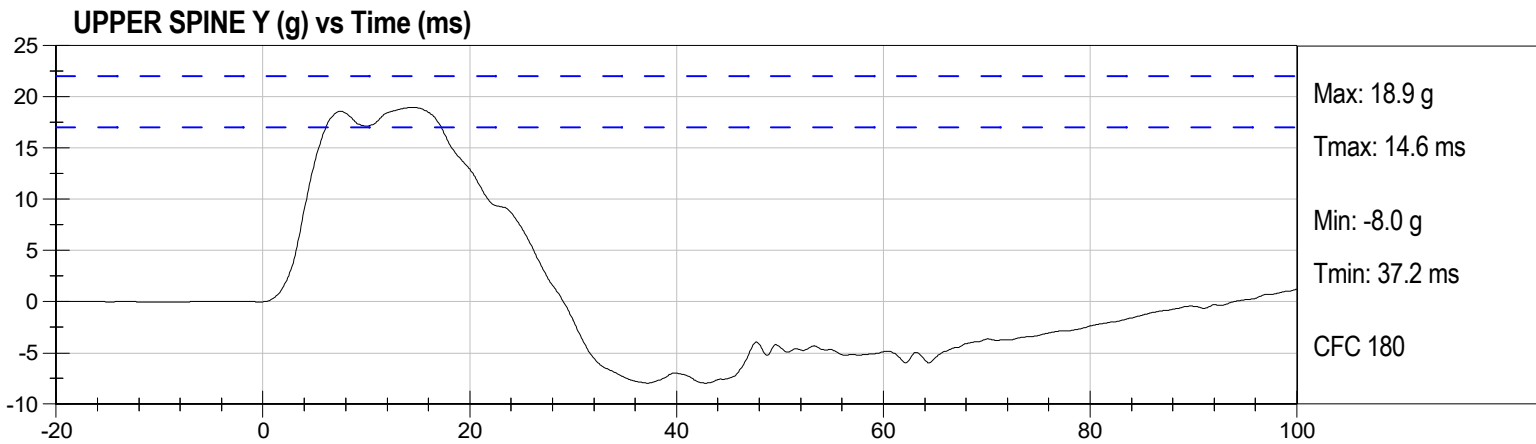
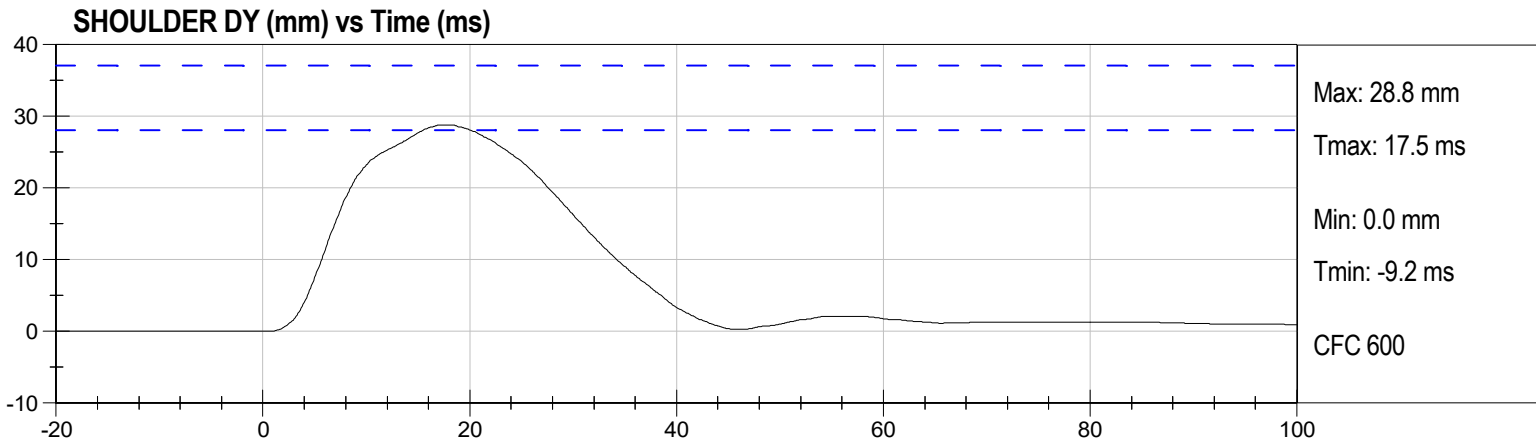
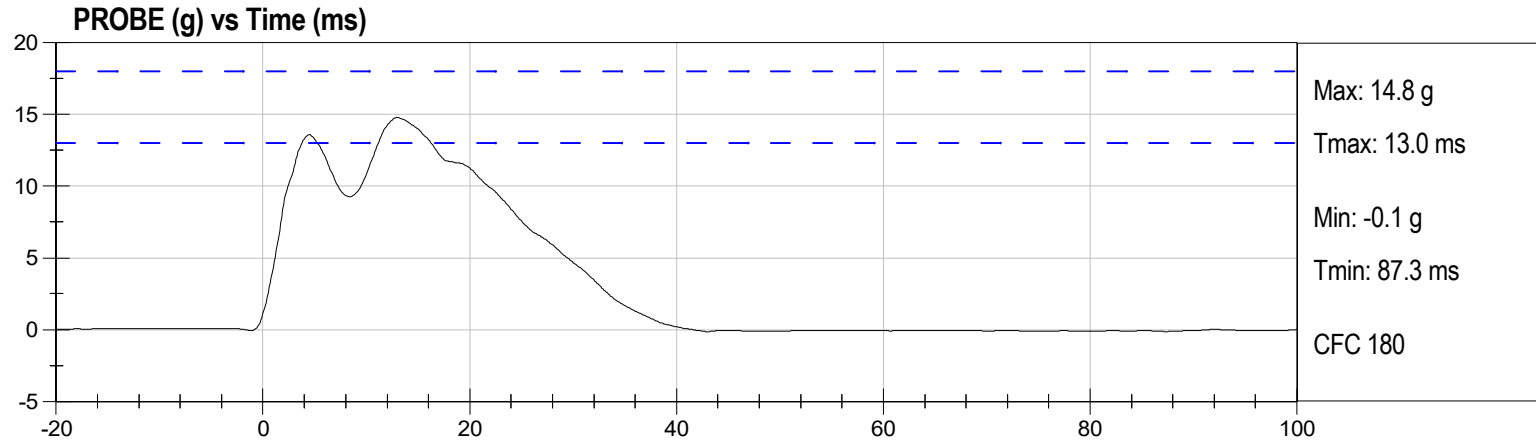


Shoulder Impact Test
SID IIs
ATD Serial No: 296

Test Date: 12/15/2025
Test ID: D253613
Test Technician: Maggie LaRose

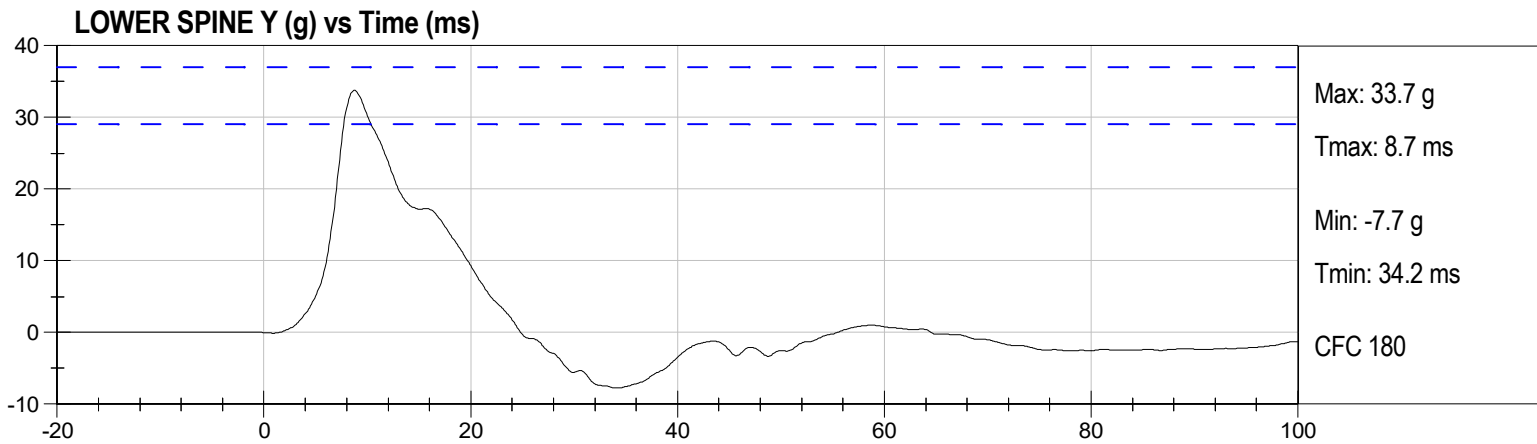
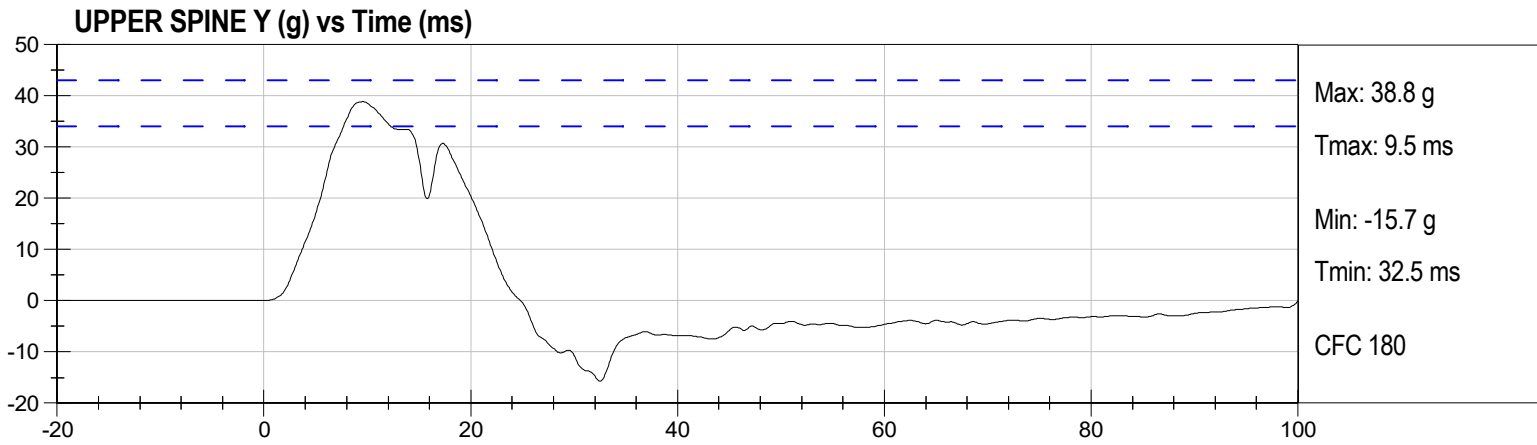
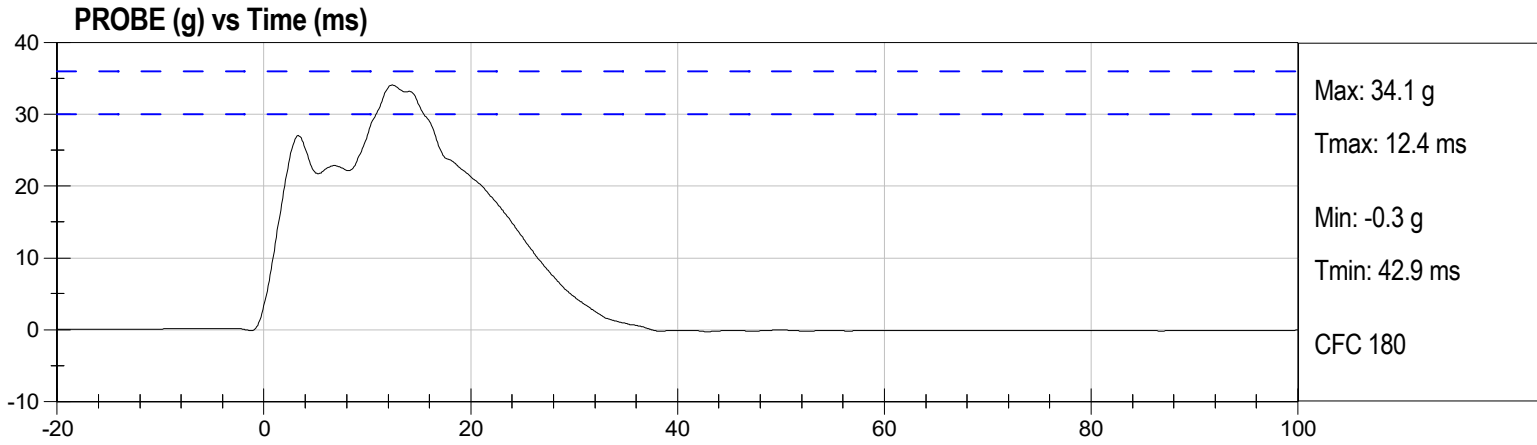
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	4.2 to 4.4	4.23	Pass
Peak Probe Acceleration	g	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	g	17 to 22	19	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
UPPER SPINE Y	Endevco	P88675	10/23/2025	4/24/2026
SHOULDER DY	FTSS	G1223	10/23/2025	4/24/2026

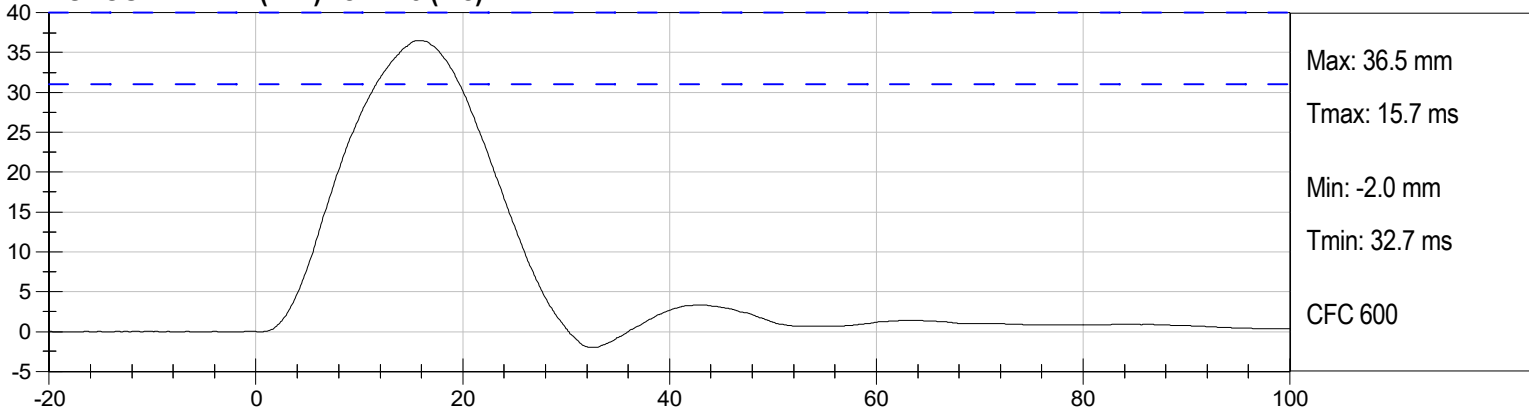


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	6.6 to 6.8	6.80	Pass
Peak Probe Acceleration after 5 ms	g	30 to 36	34	Pass
Upper Spine (T1) Y Acceleration	g	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	g	29 to 37	34	Pass
Shoulder Displacement	mm	31 to 40	36	Pass
Upper Thorax Rib Displacement	mm	25 to 32	29	Pass
Middle Thorax Rib Displacement	mm	30 to 36	33	Pass
Lower Thorax Rib Displacement	mm	32 to 38	35	Pass

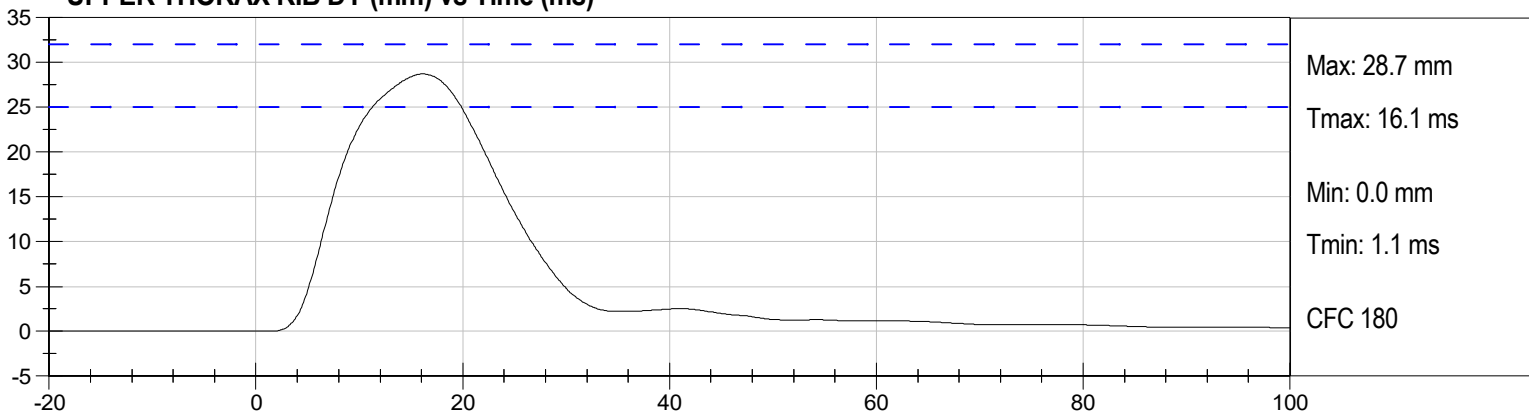
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
UPPER SPINE Y	Endevco	P88675	10/23/2025	4/24/2026
LOWER SPINE Y	Endevco	P96869	10/15/2025	4/16/2026
SHOULDER DY	FTSS	G1223	10/23/2025	4/24/2026
UPPER THORAX RIB DY	Servo	G012	10/23/2025	4/24/2026
MID THORAX RIB DY	FTSS	G1163	10/23/2025	4/24/2026
LOWER THORAX RIB DY	FTSS	G1158	10/23/2025	4/24/2026



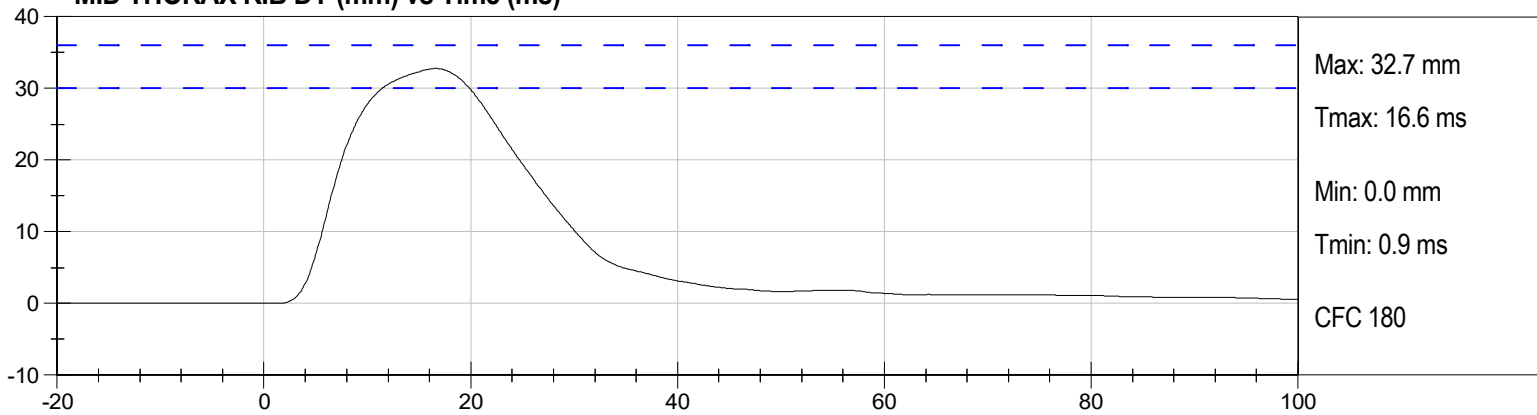
SHOULDER DY (mm) vs Time (ms)



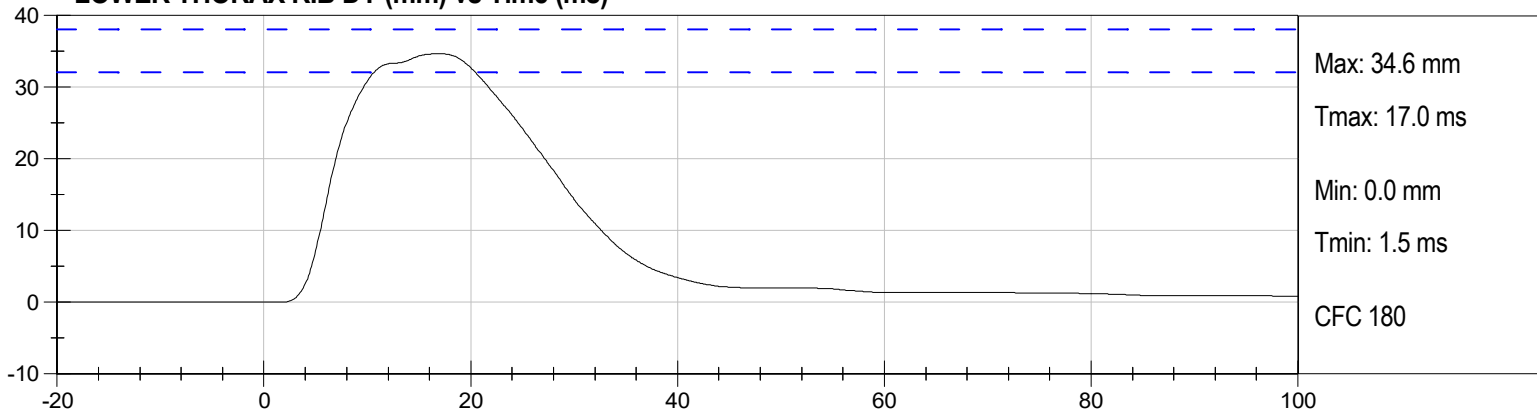
UPPER THORAX RIB DY (mm) vs Time (ms)



MID THORAX RIB DY (mm) vs Time (ms)



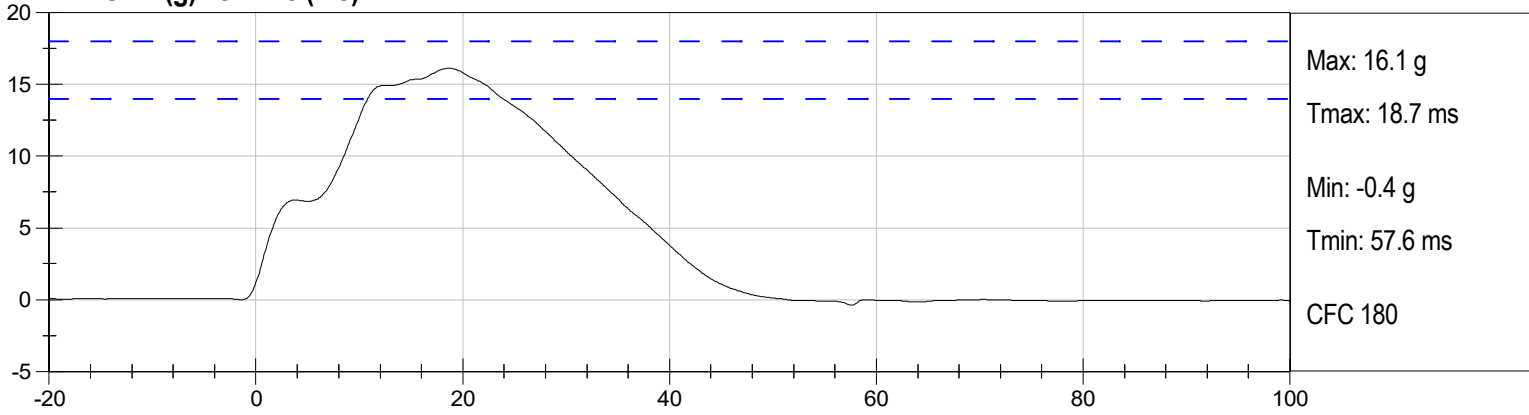
LOWER THORAX RIB DY (mm) vs Time (ms)



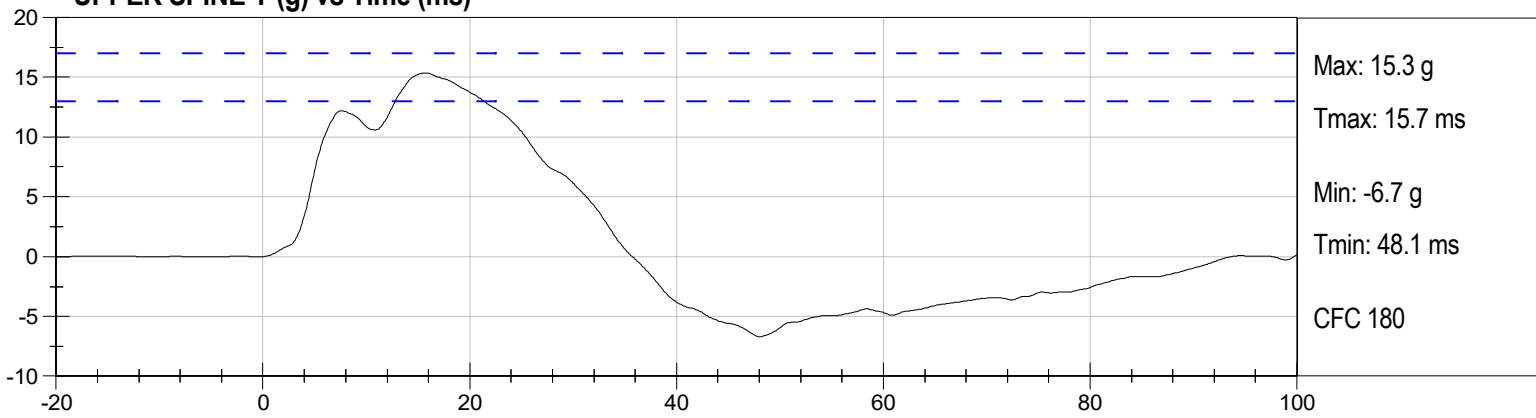
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Probe Acceleration	g	14 to 18	16	Pass
Upper Spine (T1) Y Acceleration	g	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	g	7 to 11	9	Pass
Upper Thorax Rib Displacement	mm	32 to 40	37	Pass
Middle Thorax Rib Displacement	mm	39 to 45	43	Pass
Lower Thorax Rib Displacement	mm	35 to 43	42	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
UPPER SPINE Y	Endevco	P88675	10/23/2025	4/24/2026
LOWER SPINE Y	Endevco	P96869	10/15/2025	4/16/2026
UPPER THORAX RIB DY	Servo	G012	10/23/2025	4/24/2026
MID THORAX RIB DY	FTSS	G1163	10/23/2025	4/24/2026
LOWER THORAX RIB DY	FTSS	G1158	10/23/2025	4/24/2026

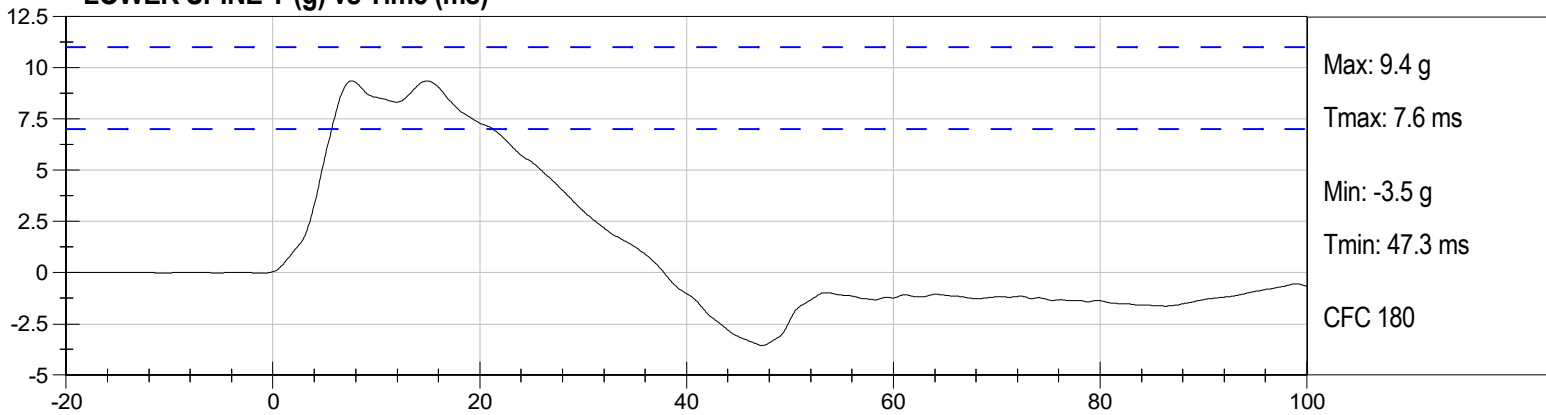
PROBE (g) vs Time (ms)



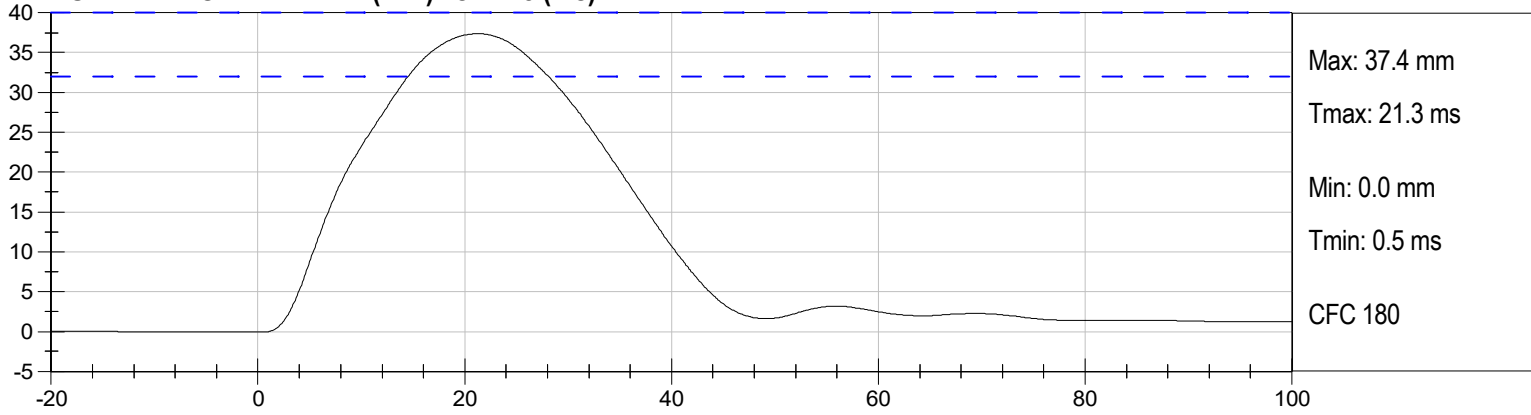
UPPER SPINE Y (g) vs Time (ms)



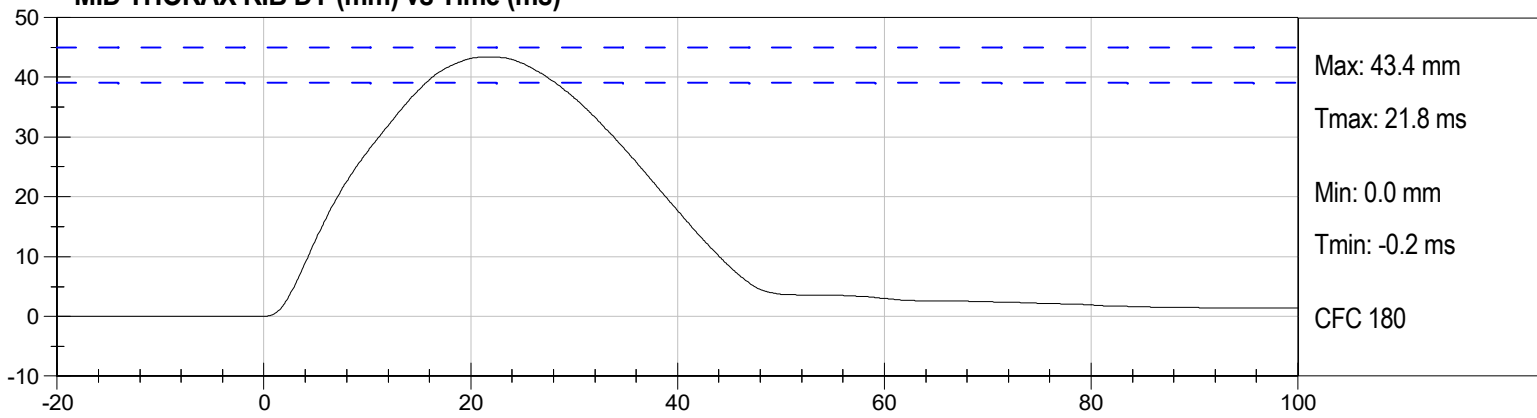
LOWER SPINE Y (g) vs Time (ms)



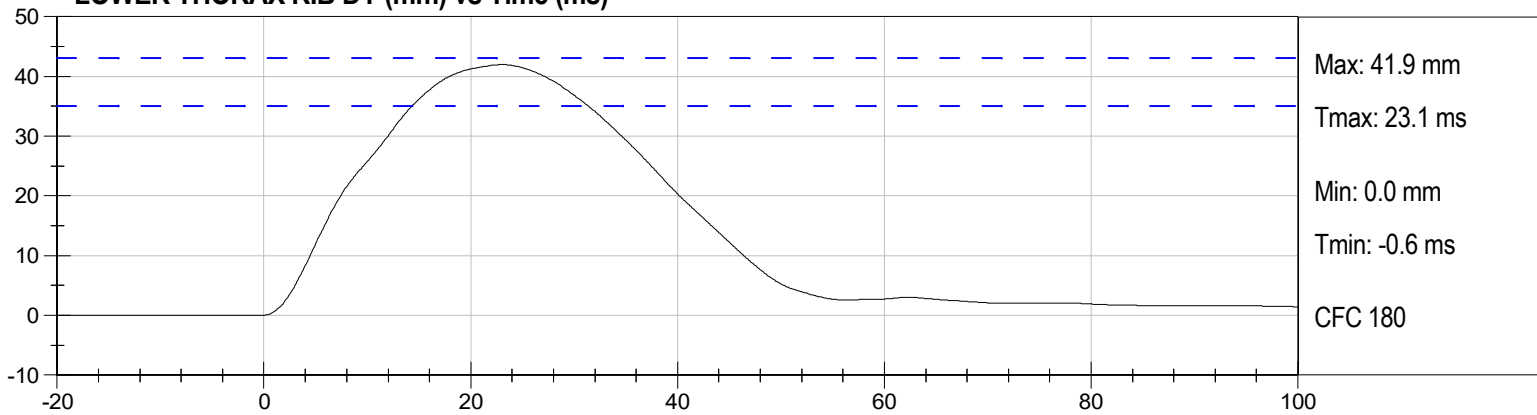
UPPER THORAX RIB DY (mm) vs Time (ms)



MID THORAX RIB DY (mm) vs Time (ms)



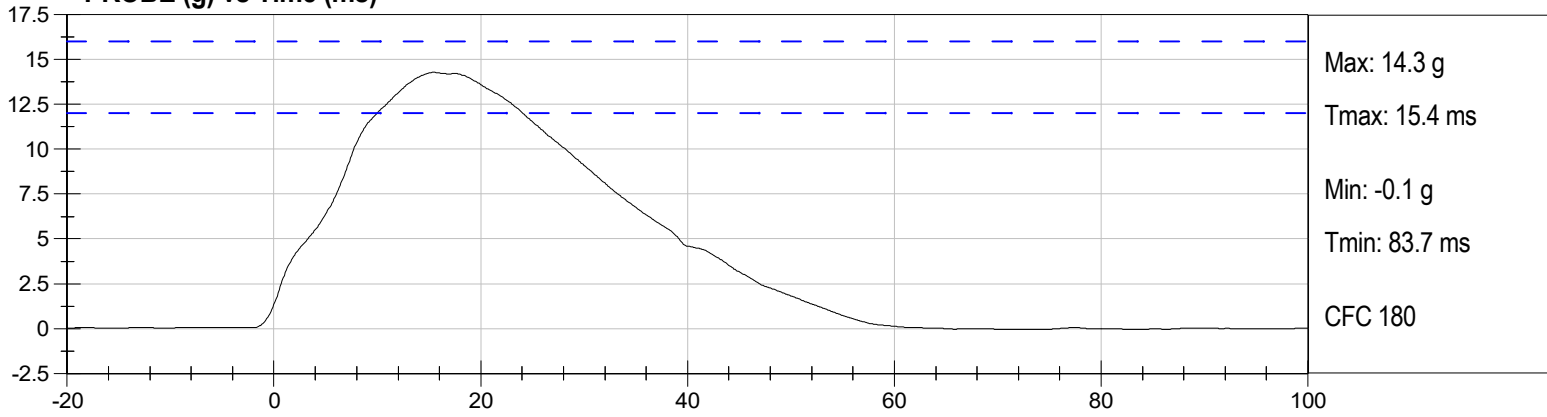
LOWER THORAX RIB DY (mm) vs Time (ms)



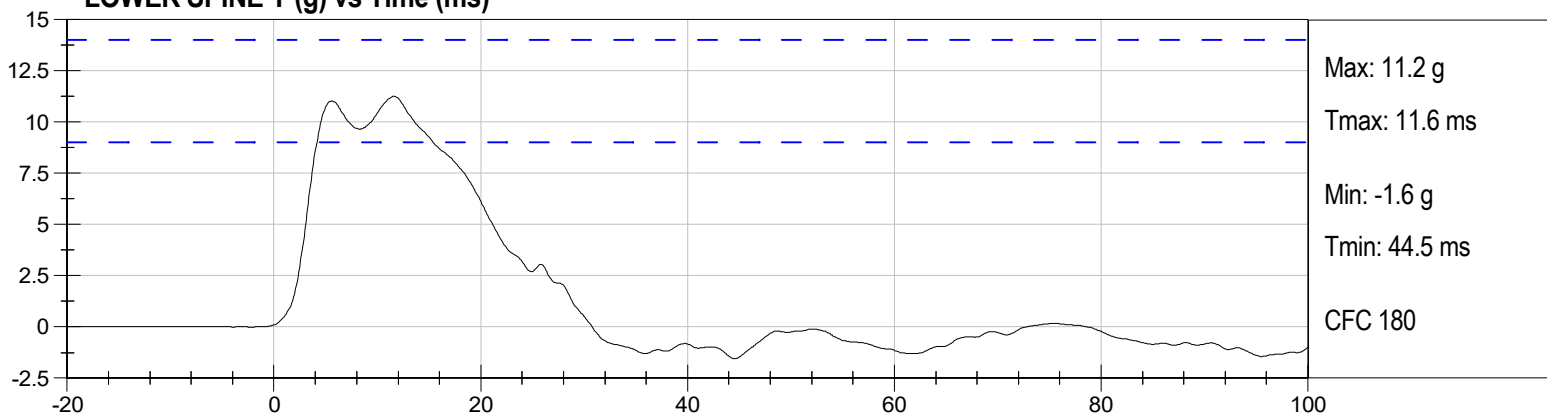
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Probe Acceleration	g	12 to 16	14	Pass
Lower Spine (T12) Y Acceleration	g	9 to 14	11	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	41	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	39	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
LOWER SPINE Y	Endevco	P96869	10/15/2025	4/16/2026
UPPER ABDOMINAL RIB DY	FTSS	G1146	10/23/2025	4/24/2026
LOWER ABDOMINAL RIB DY	FTSS	G1126	10/23/2025	4/24/2026

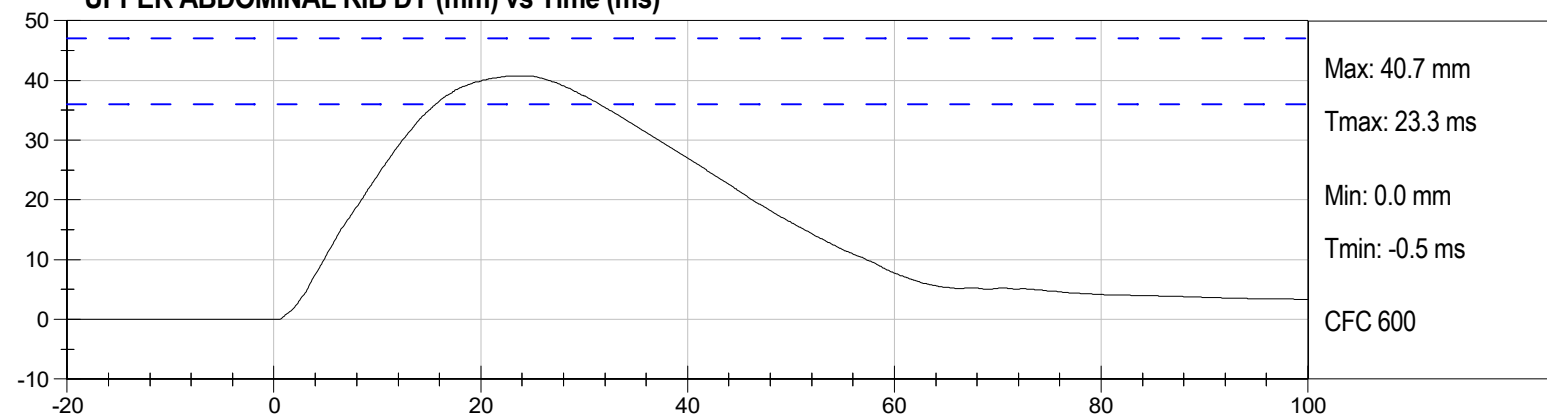
PROBE (g) vs Time (ms)



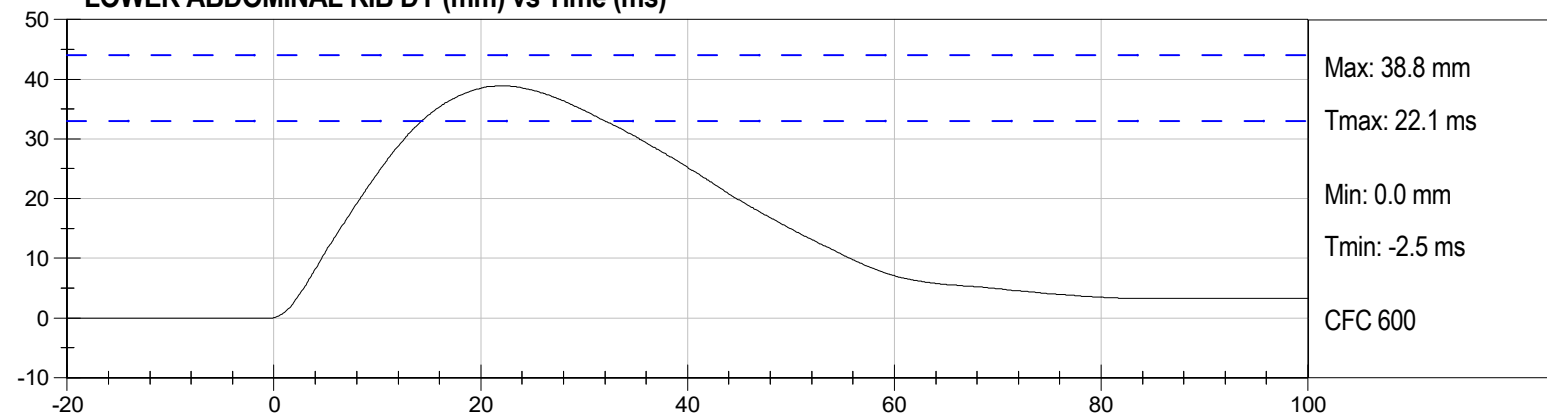
LOWER SPINE Y (g) vs Time (ms)



UPPER ABDOMINAL RIB DY (mm) vs Time (ms)



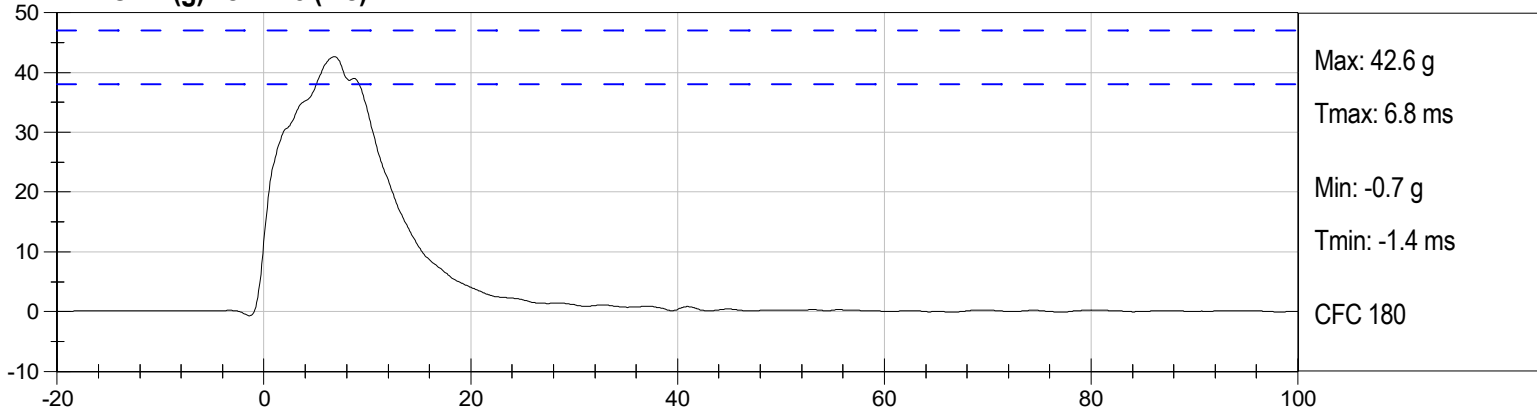
LOWER ABDOMINAL RIB DY (mm) vs Time (ms)



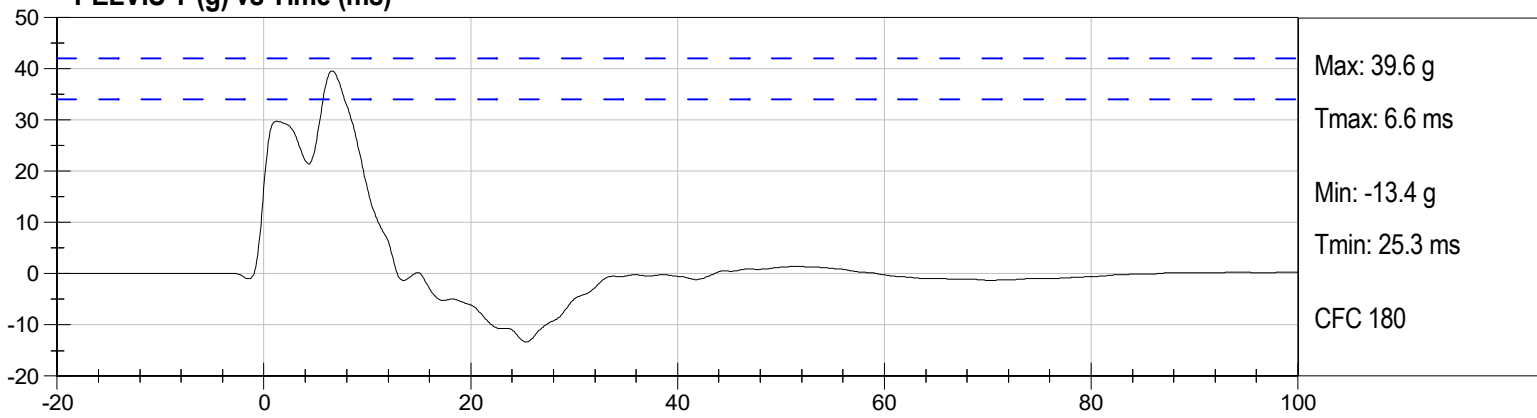
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Impact Velocity	m/s	6.6 to 6.8	6.77	Pass
Peak Probe Acceleration	g	38 to 47	43	Pass
Peak Pelvis Y Acceleration after 6 ms	g	34 to 42	39.6	Pass
Acetabulum Force	N	3600 to 4300	4019	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
PELVIS Y	Endevco	T22504	10/23/2025	4/24/2026
ACETABULUM FY	Denton	ACG259FY	05/28/2025	5/28/2026

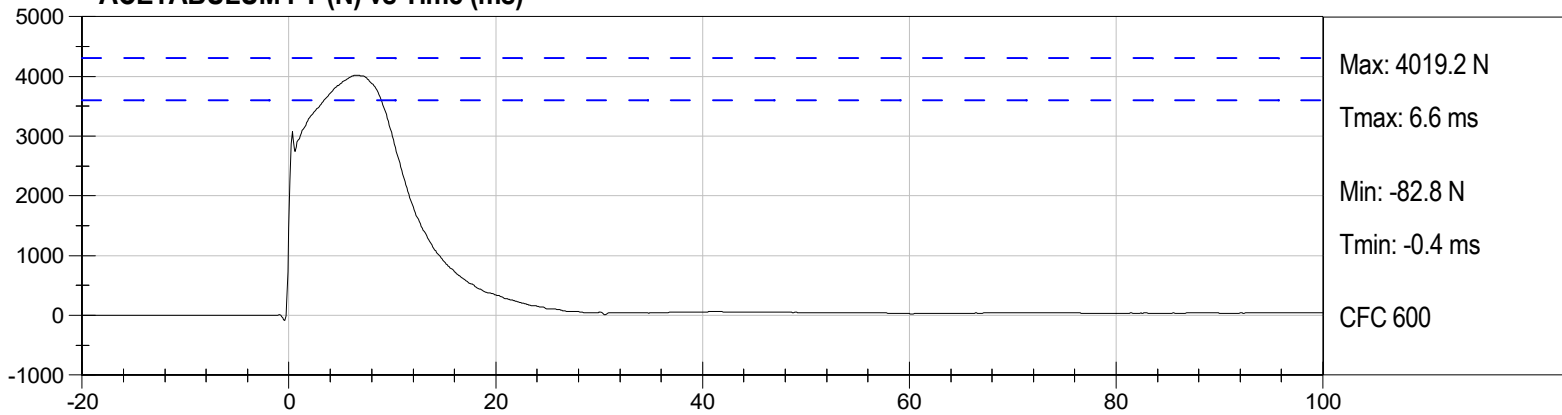
PROBE (g) vs Time (ms)



PELVIS Y (g) vs Time (ms)



ACETABULUM FY (N) vs Time (ms)





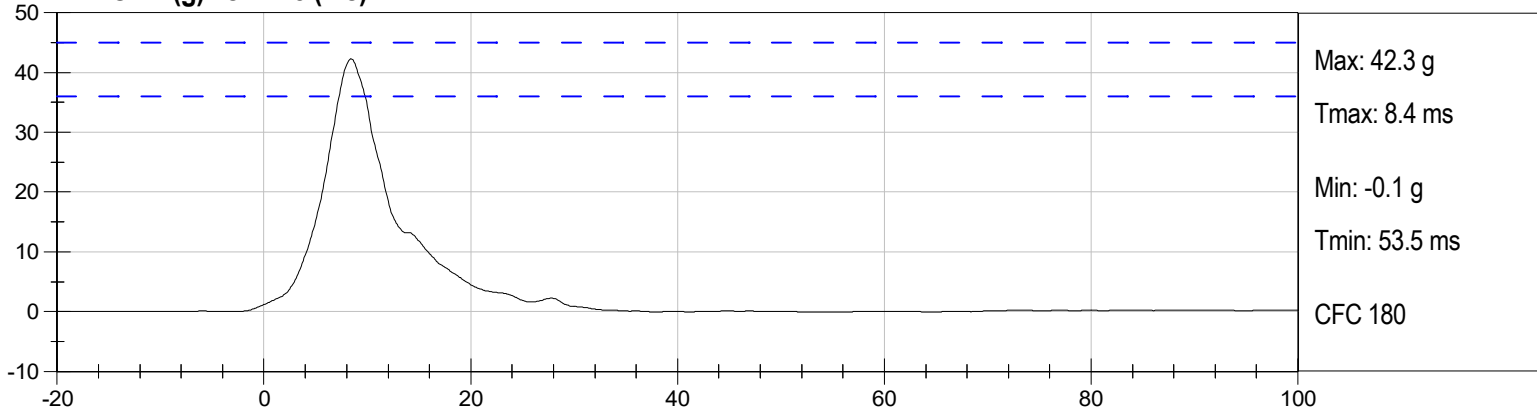
Iliac Impact Test
SID IIs
ATD Serial No: 296

Test Date: 12/16/2025
Test ID: D253618
Test Technician: Jonah Pulokas

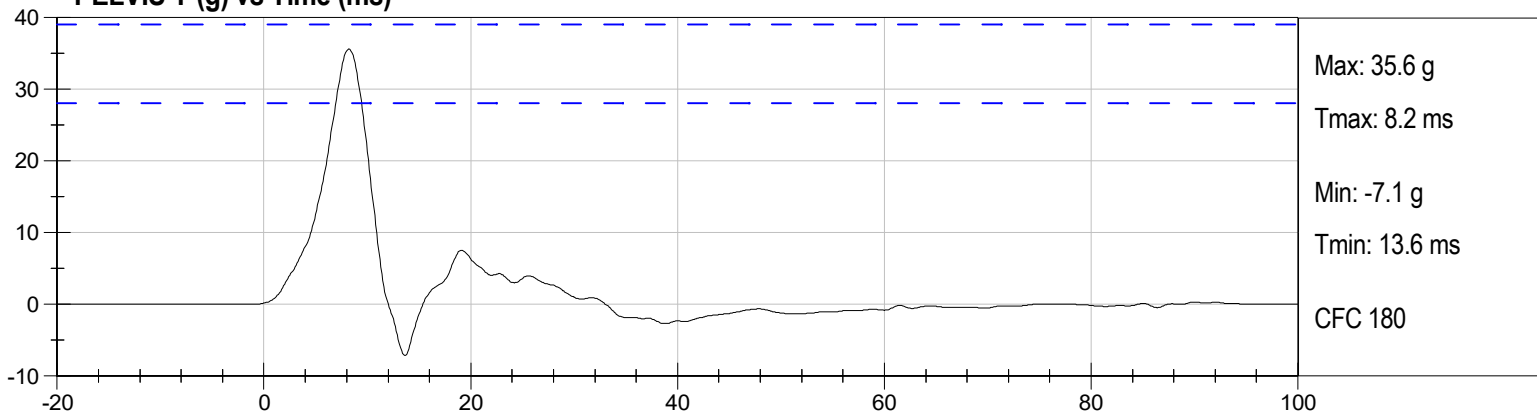
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	16	Pass
Impact Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Probe Acceleration	g	36 to 45	42	Pass
Peak Pelvis Y Acceleration	g	28 to 39	36	Pass
Iliac Force	N	4100 to 5100	4937	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	09/23/2025	3/25/2026
PELVIS Y	Endevco	T22504	10/23/2025	4/24/2026
ILIUM CREST FY	Denton	IWG286FY	05/28/2025	5/28/2026

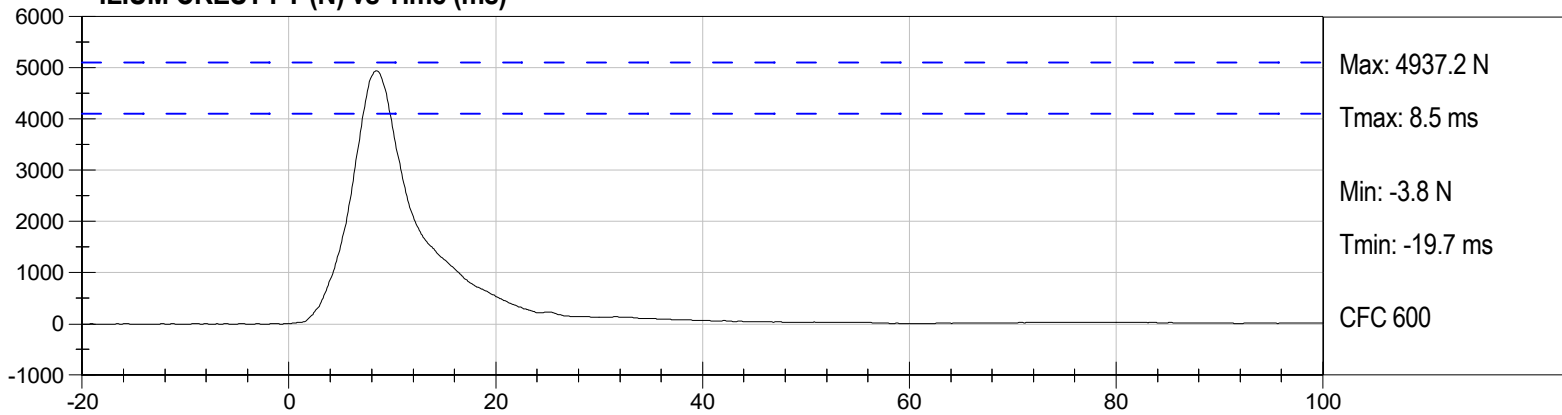
PROBE (g) vs Time (ms)



PELVIS Y (g) vs Time (ms)



ILIUM CREST FY (N) vs Time (ms)





SID-IIs Pelvis Plug Certification Test

Plug S/N 16817

Test Number 23628

Report Number 23685

Test Date 7/25/2022 9:37:00 AM

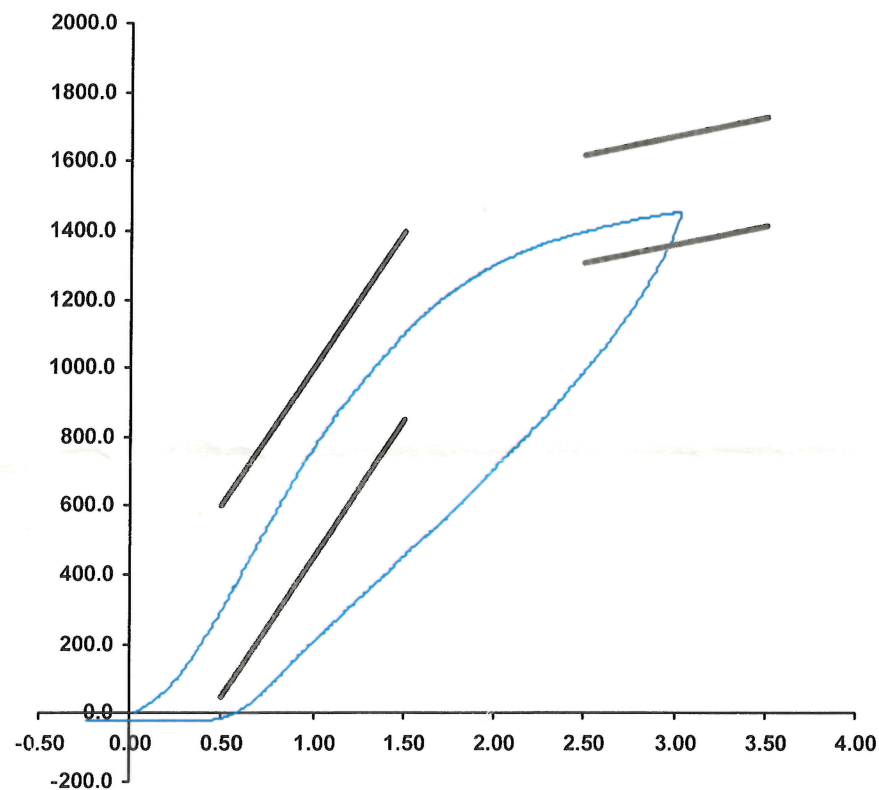
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	304	50	600
Force @ 1.5 mm (N)	1,105	850	1,400
Force @ 2.5 mm (N)	1,402	1,306	1,618
Force @ 3.0 mm (N)	1,456	1,361	1,673

Testing Machine STM-20 5965542
Load Cell S/N (FI360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107

25-Jul-22

SACO Research

By : DC

Date : 7/25/22

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

C-41



SID-IIs Pelvis Plug Certification Test

Plug S/N 16994

Test Number 23891

Report Number 23948

Test Date 8/18/2022 12:24:15 PM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	259	50	600
Force @ 1.5 mm (N)	1,058	850	1,400
Force @ 2.5 mm (N)	1,348	1,306	1,618
Force @ 3.0 mm (N)	1,386	1,361	1,673

Testing Machine STM-20 5965542

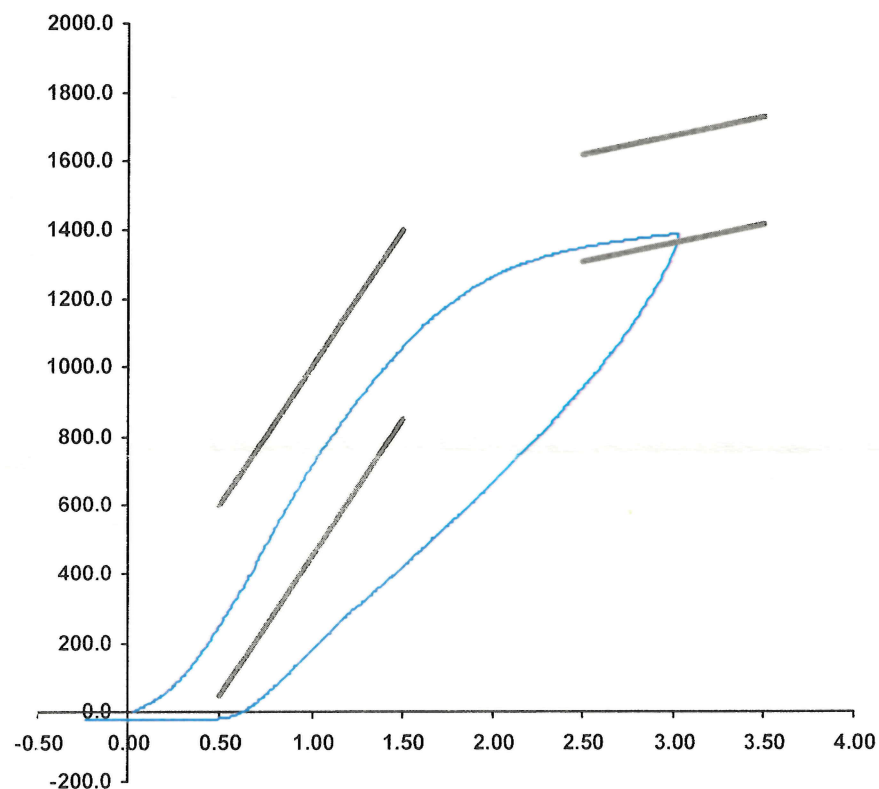
Load Cell S/N (FI360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107

18-Aug-22

SACO Research

By :

DC

Date :

8/18/22

SACO Research 41735 Elm St, #401 Murrieta, CA 92562

Tel 310-694-2082 FAX

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

Table 1 – Dummy Instrumentation

				SID-IIs S/N 296			
				Serial Number	Manufacturer	Calibration Date	
Head CG Accelerometers				X	P82109	Endevco	10/23/2025
				Y	P94783	Endevco	10/23/2025
				Z	P94786	Endevco	10/23/2025
				Xr	P94938	Endevco	10/23/2025
				Yr	P96854	Endevco	10/23/2025
				Zr	P97386	Endevco	10/23/2025
Head Angular Rate Sensors				X	ARS7391	DTS	07/15/2025
				Y	ARS7402	DTS	07/15/2025
				Z	ARS7416	DTS	07/15/2025
Displacement Potentiometers	Thoracic Rib	Upper	Y	G012	Servo	10/23/2025	
		Middle	Y	G1163	FTSS	10/23/2025	
		Lower	Y	G1158	FTSS	10/23/2025	
	Abdominal Rib	Upper	Y	G1146	FTSS	10/23/2025	
		Lower	Y	G1126	FTSS	10/23/2025	
Lower Spine Accelerometers (T12)				X	P79614	Endevco	10/23/2025
				Y	P96869	Endevco	10/15/2025
				Z	P79418	Endevco	10/23/2025
Acetabulum Load Cell				Y	ACG259	Denton	05/28/2025
Iliac Wing Load Cell				Y	IWG286	Denton	05/28/2025
Pelvis Plug (struck side)					16817	SACO	07/25/2022
Pelvis Plug (non-struck side)					16994	SACO	08/18/2022

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A395038	MSI	08/26/2025
Vehicle Center of Gravity	Y	T43453	Endevco	08/26/2025
Vehicle Center of Gravity	Z	T44001	Endevco	08/26/2025
Left Floor Sill	Y	A618978	MSI	11/07/2025
A-Pillar Sill	Y	T45558	Endevco	09/17/2025
A-Pillar Low	Y	T47366	Endevco	10/21/2025
A-Pillar Mid	Y	T47373	Endevco	10/21/2025
B-Pillar Sill	Y	T47430	Endevco	11/14/2025
B-Pillar Low	Y			
B-Pillar Mid	Y			
Driver Seat	Y	T45287	Endevco	11/07/2025
Engine Top	X	T42775	Endevco	06/19/2025
Engine Top	Y	T47364	Endevco	10/20/2025
Firewall	Y	T47050	Endevco	11/13/2025
Right Roof	Y	T43421	Endevco	11/11/2025
Right Floor Sill	Y	T47250	Endevco	10/03/2025
Rear Floorpan	X	T43484	Endevco	10/14/2025
Rear Floorpan	Y	A391096	MSI	12/08/2025

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	07/30/2018
Load Cell 2	DG6278	FTSS	07/30/2018
Load Cell 3	DG6279	FTSS	07/30/2018
Load Cell 4	DG6280	FTSS	07/30/2018
Load Cell 5	DG6281	FTSS	07/30/2018
Load Cell 6	DG6283	FTSS	07/30/2018
Load Cell 7	DG6284	FTSS	07/30/2018
Load Cell 8	DG6582	FTSS	07/30/2018