

REPORT NUMBER: SideNCAPMDB-MGA-25-028

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Moving Deformable Barrier Side Impact Test**

**VOLKSWAGEN AG
2025 Volkswagen ID.Buzz Pro S 5-Door SUV
NHTSA No.: O20255802**

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



Test Date: September 3, 2025

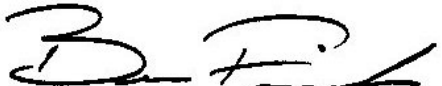
Final Report Date: May 26, 2026

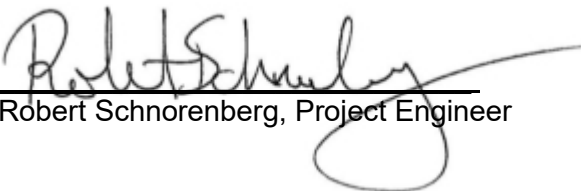
FINAL REPORT

**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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Robert Schnorenberg, Project Engineer

Approval Date: May 26, 2026

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

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4. Title and Subtitle Final Report of New Car Assessment Program Side Impact MDB Testing and FMVSS No. 305 Indicant Testing of 2025 Volkswagen ID.Buzz Pro S 5-Door SUV, NHTSA No.: O20255802		5. Report Date May 26, 2026																																																					
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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2025 Volkswagen ID.Buzz Pro S 5-Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP MDB Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at the MGA Research Corporation facility in Burlington, Wisconsin on September 3, 2025. The impact velocity of the Moving Deformable Barrier (MDB) was 61.97 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22.2°C. The target vehicle post-test maximum crush was 197 mm at level 2. The test vehicle's performance was as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD (ES-2re)</th> </tr> <tr> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>55.690</td> </tr> <tr> <td>Maximum Thorax Rib Deflection</td> <td>mm</td> <td>44</td> <td>20.136</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>322.358</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>1143.054</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82*</td> <td>22.172</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>55.732</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82</td> <td>25.843</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>1750.979</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>4.257</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>2.893</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 (ES-2re)		Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	55.690	Maximum Thorax Rib Deflection	mm	44	20.136	Total Abdominal Force	N	2500	322.358	Pubic Symphysis Force	N	6000	1143.054	Resultant Lower Spine Acceleration	g	82*	22.172	Measurement Description	Units	Passenger ATD (SID-IIs)		Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	55.732	Resultant Lower Spine Acceleration	g	82	25.843	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1750.979	Maximum Thoracic Rib Deflection	mm	38*	4.257	Maximum Abdomen Rib Deflection	mm	45*	2.893
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SECTION 1 PURPOSE AND SUMMARY OF TEST

PURPOSE

This moving deformable barrier side 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 Volkswagen ID.Buzz Pro S 5-Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Laboratory Test Procedure dated March 2020.

SUMMARY

A 2025 Volkswagen ID.Buzz Pro S 5-Door SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.97 km/h. The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin on September 3, 2025. Pre-test and post-test photographs of the test vehicle, the MDB, and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS NCAP Side Laboratory Test Procedure dated March 2020. The side impact event was documented by eleven (11) cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

- Primary and Redundant Head CG Triaxial Accelerometers
- Chest Upper Rib, Middle Rib, and Lower Rib Y-Axis Displacement Potentiometers
- Abdomen Forward, Middle, and Rear Y-Axis Load Cells
- Lower Spine (T12) Triaxial Accelerometers
- Pubic Symphysis Y-Axis Load Cell

PASSENGER ATD (SID-IIs)

- Primary and Redundant Head CG Triaxial Accelerometers
- Head Triaxial Angular Rate Sensors
- Chest Upper Rib, Middle Rib, and Lower Rib Y-Axis Displacement Potentiometers
- Abdomen Upper Rib and Lower Rib Y-Axis Displacement Potentiometers
- Lower Spine (T12) Triaxial Accelerometers
- Acetabulum and Iliac Wing Y-Axis Load Cells

Appendix B contains the 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.

Dummy Injury readings were recorded as follows:

DUMMY INJURY VALUES

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	55.690
Maximum Thorax Rib Deflection	mm	44	20.136
Total Abdominal Force	N	2500	322.358
Pubic Symphysis Force	N	6000	1143.054
Resultant Lower Spine Acceleration	g	82*	22.172

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	55.732
Resultant Lower Spine Acceleration	g	82	25.843
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1750.979
Maximum Thoracic Rib Deflection	mm	38*	4.257
Maximum Abdomen Rib Deflection	mm	45*	2.893

*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	No			
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	
Side Airbag (Other)				
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 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20255802	Traction Control System (TCS)	Yes
Model Year	2025	Auto-Leveling System	No
Make	Volkswagen	Automatic Door Locks (ADL)	Yes
Model	ID.Buzz Pro S	Power Window Auto-Reverse	Yes
Body Style	5-Door SUV	Other Optional Feature	No
VIN	WVGAWVEB6SH020246	Driver Front Airbag	Yes
Body Color	Deep Black Pearl	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	21 km / 13 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	NA	Driver Knee Airbag	No
Transmission Speeds		Rear Pass. Curtain Airbag	Yes
Overdrive	No	Rear Pass. Head/Torso Airbag	No
Final Drive	RWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	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	Driver	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	Yes
		Other Safety Restraint	N/A

Does owner's manual provide instruction to turn off automatic door locks?	No
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DATA FROM CERTIFICATION LABEL

Manufactured By	VOLKSWAGEN AG	GVWR (kg)	3360
Date of Manufacture	11/24	GAWR Front (kg)	1550
Vehicle Type	MPV	GAWR Rear (kg)	1860

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3	2	7	
Capacity Weight (VCW) (kg)				505	(A)
DSC x 68 kg				476	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				29	(A-B)

VEHICLE SEAT TYPE

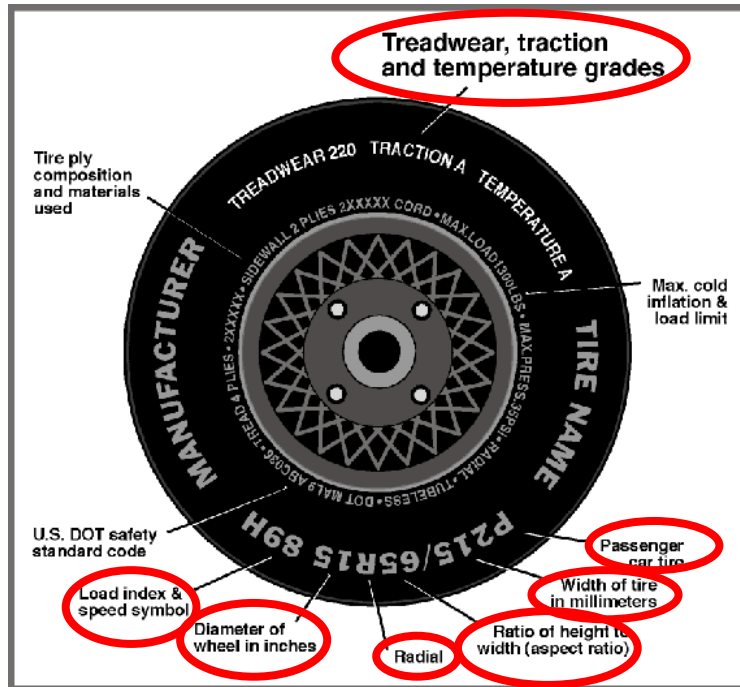
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						w/ Lever	w/ Knob
Front Seat	X					X	
Rear or Second Row			X			X	
Third Row Seat			X		X		

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
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VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	270	300
Recommended Tire Size	HL 235/50R20 XL	HL 265/45R20 XL
Tire Size on Vehicle	235/50R20	265/45R20
Tire Manufacturer	Continental	Continental
Tire Model	ProContact TX10	ProContact TX10
Treadwear	540	540
Traction	A	A
Temperature Grade	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Polyamide	1 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	107T	111T
Tire Material	Rubber	Rubber
DOT Safety Code Left	1HW0 33NT 4624	1HW0 33NW 4724
DOT Safety Code Right	1HW0 33NT 4624	1HW0 33NW 4724

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
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TEST VEHICLE TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	310	310	290	290
Tire Placard	kPa	270	270	300	300
Owner's Manual	kPa	270	270	300	300
As Tested	kPa	270	270	300	300

MDB TIRE SPECIFICATIONS

	Requirement	Units	LF	RF	LR	RR
Tire Size	P205/75R15	N/A	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	200 + 21	kPa	200	200	200	200

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	652.0	699.0		695.5	754.5		652.0	699.0	
Right	kg	659.5	684.0		678.5	716.5		659.5	684.0	
Ratio	%	48.7%	51.3%		48.3%	51.7%		48.7%	51.3%	
Totals	kg	1311.5	1383.0	2694.5	1374.0	1471.0	2845.0	1311.5	1383.0	2694.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2694.5	(A)
Sum of Actual Weight of 2 P572 ATDs Used	kg	129	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	29	(C)
Calculated Test Vehicle Target Weight (TVTW)	kg	2852.5	(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	Fully Loaded	As Tested	Meets Requirement*
Left Front	mm	805	800	Yes
Right Front	mm	800	796	Yes
Right Rear	mm	812	811	Yes
Left Rear	mm	808	798	Yes
Vehicle CG (Aft of Front Axle)	mm	1686	1676	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	22	16	

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

*** The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well.

Test height adjustable suspension setting, if applicable:	Not Applicable
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DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
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 Test Date: 9/3/2025

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Units	Weight
Weight of Ballast Added	kg	15
Components Removed: 3 rd row seats	kg	125

TEST SURFACE MARKINGS

	Units	Distance from 63° Impact Angle Line
Fore 25 mm Target	mm	962
Aft 25 mm Target	mm	974
Pre-Impact Angle Line	mm	100

Parallel Track Target	Units	X Location	Y Location
A	mm	0	0
B	mm	1520	3085
C	mm		
D	mm	3500	0

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
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NHTSA No.: O20255802
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SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, 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	21.3	10.5	15.9
Front Passenger Seat	22.6	11.3	17.0
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As-Tested SCRL Angle (Mid) (°)	As-Tested SCR Height (mm)	SCR Height Position	SCR Height (mm)		
				Rear-Most	Mid	Forward- Most
Driver Seat	15.9	0	Max	62	62	62
			Mid	31	31	31
			Min	0	0	0
Front Passenger Seat	17.0	0	Max	62	62	62
			Mid	31	31	31
			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	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

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

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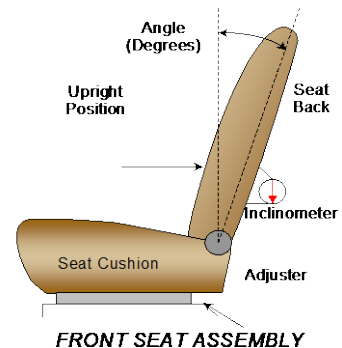
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SEAT FORE/AFT POSITIONS

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	254		127	
Front Passenger Seat	254		127	
Front Center Seat				
Struck Side Rear Seat	200	21	200	20
Non-Struck Side Rear Seat	200	21	200	20
Rear Center Seat	200	21	200	20

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated design angle. 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 seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as 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	62.3		17.0	
Front Passenger Seat	62.5		17.0	
Front Center Seat				
Struck Side Rear Seat	14.0	8	9.5	0
Non-Struck Side Rear Seat	14.0	8	9.5	0
Rear Center Seat	14	8	9.5	0

Driver and front passenger seatback angles measured on seatback center,
 rear seat seatback angles measured on outboard headrest post

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

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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)
Rear Seat	Fixed	

HEAD RESTRAINT ADJUSTMENT

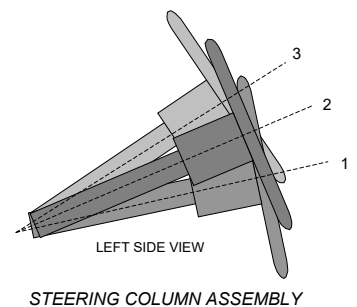
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	5	4 (Lowest as 0) / Fixed Fore-Aft
Rear Seat	3	0 (Lowest as 0) / Fixed Fore-Aft

STEERING COLUMN ADJUSTMENT

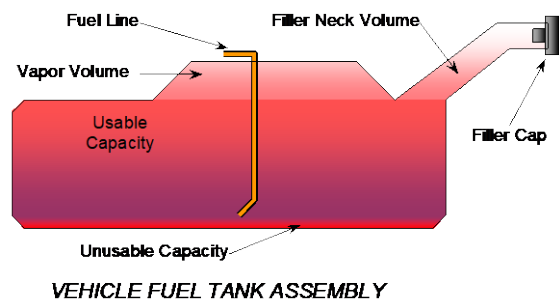
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

	Wheel Angle (°)	Fore/Aft Position (mm)
Lowermost, Position 1	63.5	
Geometric Center, Position 2	60.9	
Uppermost, Position 3	58.2	
Telescoping Steering Wheel Travel		58
Test Position	60.9	29



FUEL PUMP

Electric vehicle.



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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
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 Test Date: 9/3/2025

FUEL TANK CAPACITY DATA

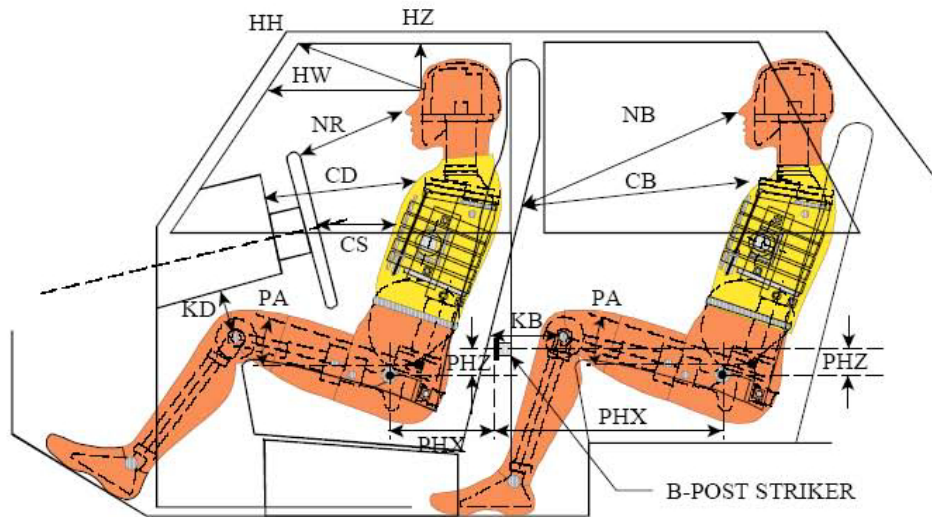
	Liters
Usable Capacity of Standard Tank (see S1 - Vehicle Setup Information)	
Usable Capacity of Optional Tank (see S1 - Vehicle Setup Information)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	
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 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025



LEFT SIDE VIEW

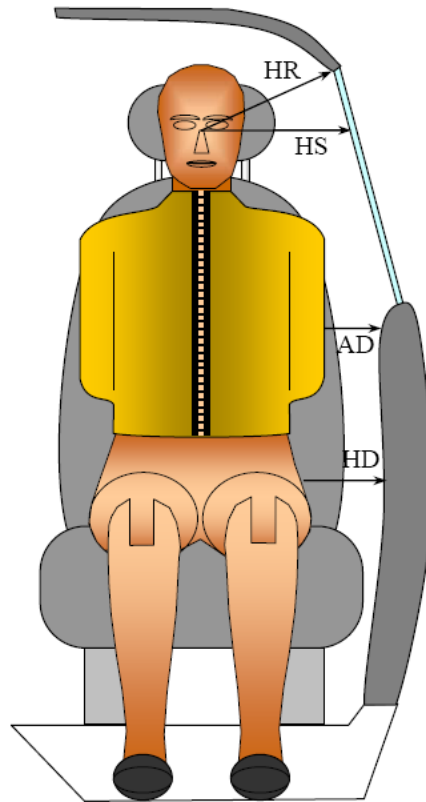
NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	502	16.3		
HW		Head to Windshield	954	0		
HZ	HZ	Head to Roof Liner	228	90	343	90
NR	NB	Nose to Rim/Seat Back	464	15.1	744	7.1
CD	CB	Chest to Dashboard/Seat Back	592	2.0	750	1.1
CS		Chest to Steering Wheel	393	9.4		
KDL	KBL	Left Knee to Dash/Seat Back	176	18.0	473	4.0
KDR	KBR	Right Knee to Dash/Seat Back	176	18.0	466	3.5
PAX	PAX	Pelvic Tilt Angle X		20.2		23.8
PAY	PAY	Pelvic Tilt Angle Y		-0.8		0.0
PHX	PHX	Hip Point to Striker (X-Axis)	184		372	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	70		118	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

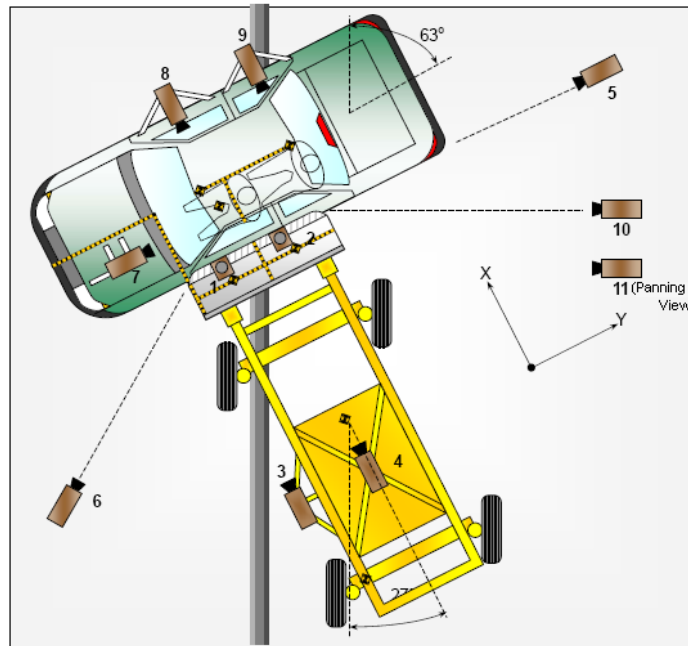


Code	Measurement Description	Driver	Passenger
		Length (mm)	
HR	Head to Side Header	252	292
HS	Head to Side Window	398	429
AD	Arm to Door	148	163
HD	Hip Point to Door	160	235

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates* (mm)			Lens (mm)	Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	585	1270	-4975	8	1000
2	Overhead Close-Up	0	790	-4940	20	1000
3	Left Impact Point (MDB)				50	1000
4	Side Overall (MDB)				16	1000
5	Rear	-45	7985	-1580	24	1000
6	Left Front	-1560	-4390	-1575	24	1000
7	Driver Front (OB)				16	1000
8	Driver Side (OB)				8	1000
9	Passenger Side (OB)				8	1000
10	Real Time Left Rear					30
11	Real Time Inrun					30

Reference: Impact Point projected to Ground; +X = To Front of MDB, +Y = To Right of MDB, +Z = Down

*All measurements accurate to ± 6 mm

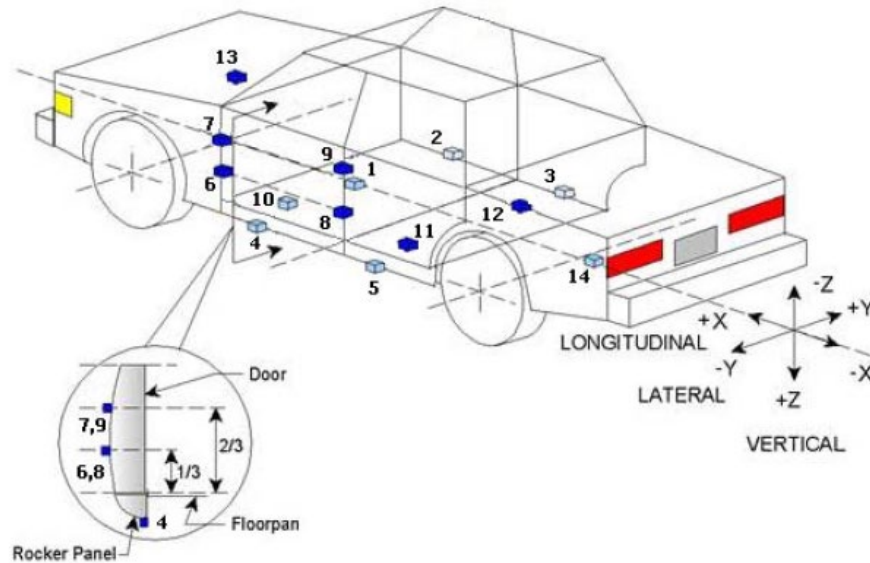
INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Passenger Dummy	19
Vehicle Structure	21
MDB Accelerometers	5
Total	61

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025



TEST VEHICLE ACCELEROMETER LOCATIONS

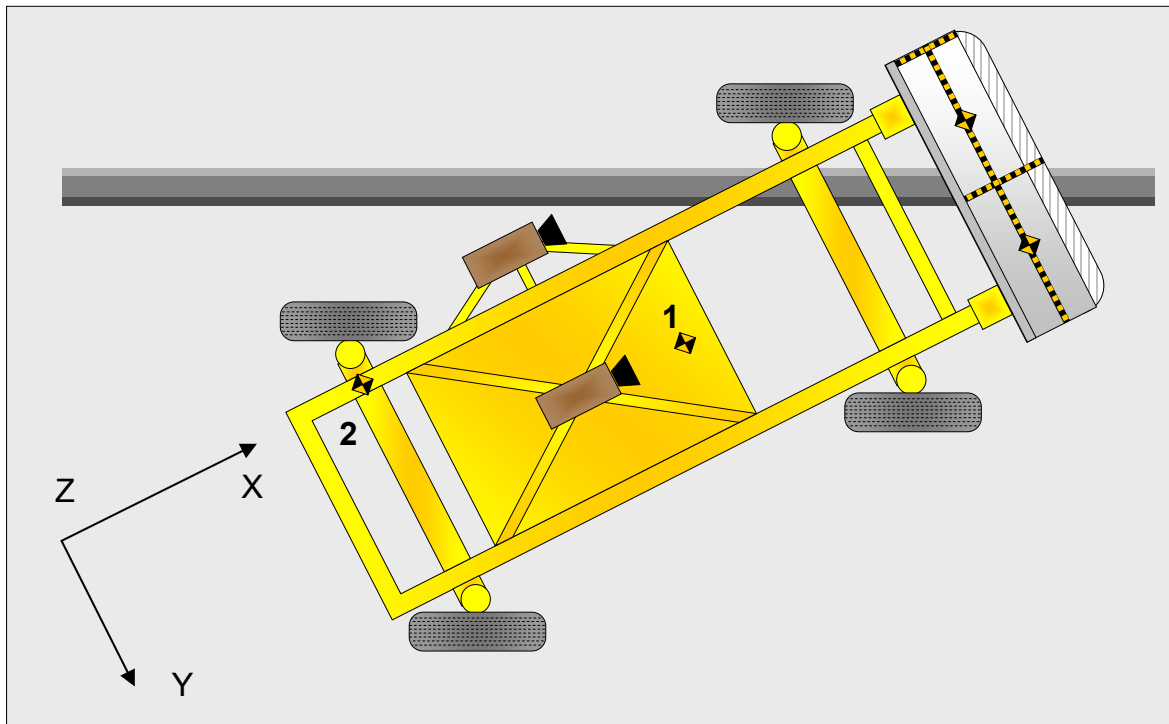
No.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2464	7	-185
2	Right Sill at Front Seat	3210	609	-176
3	Right Sill at Rear Seat	2056	616	-181
4	Left Sill at Front Door	3210	-646	-178
5	Left Sill at Rear Door	2055	-640	-183
6	Left Lower A-Post	3695	-875	-805
7	Left Middle A-Post	3688	-869	-987
8	Left Lower B-Post			
9	Left Middle B-Post			
10	Front Seat Track	2753	-405	-477
11	Rear Seat Structure	2192	-414	-508
12	Rt. Rear Occ. Compartment	2199	474	-512
13	Engine Block	4672	-54	-845
14	Rear Above Axle	692	-5	-597

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

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025



MDB ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	-1105	0	-330
2	MDB Rear	-2580	-650	-625

Reference: X – MDB Face (+ forward)
 Y – MDB Centerline (+ to right)
 Z – Ground Plane (+ down)

Width between left and right MDB contact switches	mm	1399
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DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	None	Headrest
Top of Head	Headliner	Curtain Airbag, Headrest
Left Side of Head	Curtain Airbag, Headliner	Curtain Airbag
Back of Head	Curtain Airbag, Headliner, Headrest	Headrest
Left Shoulder	Side Torso/Pelvis Airbag	Door Panel
Upper Torso	Side Torso/Pelvis Airbag, Seatback	Seatback, Door Panel
Lower Torso	Side Torso/Pelvis Airbag, Seatback	Seatback, Door Panel
Left Hip	Side Torso/Pelvis Airbag, Seat Cushion	Seat Cushion, Door Panel
Left Knee	None	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
Sill Separation	No
Windshield Damage	No
Side Window Damage	No
Other Notable Effects	None

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Left Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No			
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	
Side Airbag (Other)				
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes		Yes	
Other:				

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheelbase	mm		3241
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		508
Actual Impact Point (Aft of Front Axle)	mm		504
Horizontal Offset (+forward / -rearward)	mm	+/- 50 of intended impact point	4
Vertical Offset (+down / -up)	mm	+/- 20 of intended impact point	7

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Face	4119
Wheelbase of Framework Carriage	2588
CG Location aft of Front Axle	1125

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	393.4	297.1	
Right	kg	378.0	295.8	
Ratio	%	56.5	43.5	
Totals	kg	771.4	592.9	1364.4

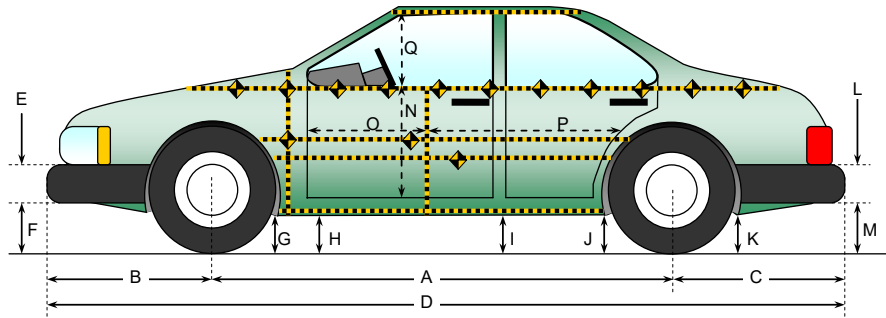
SPEED AND ANGLE AT IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.97
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.15
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.8
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.9
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	26.7

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025



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

LEFT SIDE VIEW

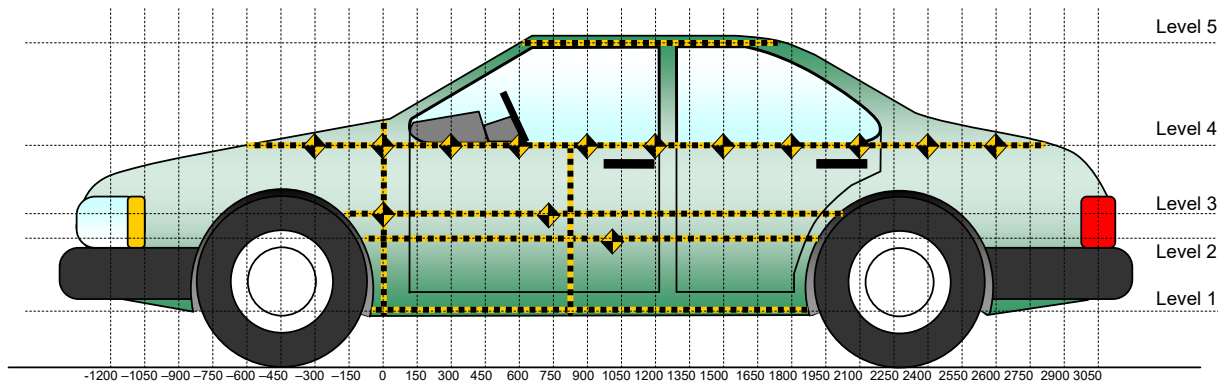
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	3241	3236	-5
B	Front Axle to FSOV	812	815	3
C	Rear Axle to RSOV	898	899	1
D	Total Length at Centerline	4951	4950	-1
E	Front Bumper Thickness	117	116	-1
F	Front Bumper Bottom to Ground	571	587	16
G	Sill Height at Front Wheel Well	196	204	8
H	Sill Height at Front Door Leading Edge	201	210	9
I	Sill Height at B Pillar	202	213	11
J1	Sill Height at Rear Wheel Well	211	224	13
J2	Pinch Weld Height at Rear Wheel Well	208	220	12
K	Sill Height Aft of Rear Wheel Well	236	241	5
L	Rear Bumper Thickness	124	124	0
M	Rear Bumper Bottom to Ground	527	531	4
N	Sill Height to Window Bottom Sill	980	840	-140
O	Front Door Leading Edge to Impact CL	968	910	-58
P	Rear Door Trailing Edge to Impact CL	1366	1302	-64
Q	Front Window Opening	520	523	3
R	Right Side Length	4353	4351	-2
S	Left Side Length	4357	4358	1
T	Vehicle Width at B Post	1956	1862	-94
U	Front Wheel Track Width	1674		
V	Rear Wheel Track Width	1653		

DATA SHEET NO. 11 **TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025



All Measurements Shown in mm

LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	333	16	450
2	Mid Door	783	197	1500
3	Occupant H-Point	872	178	1350
4	Window Sill	1218	58	2100
5	Window Top	1819	1	1050

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

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

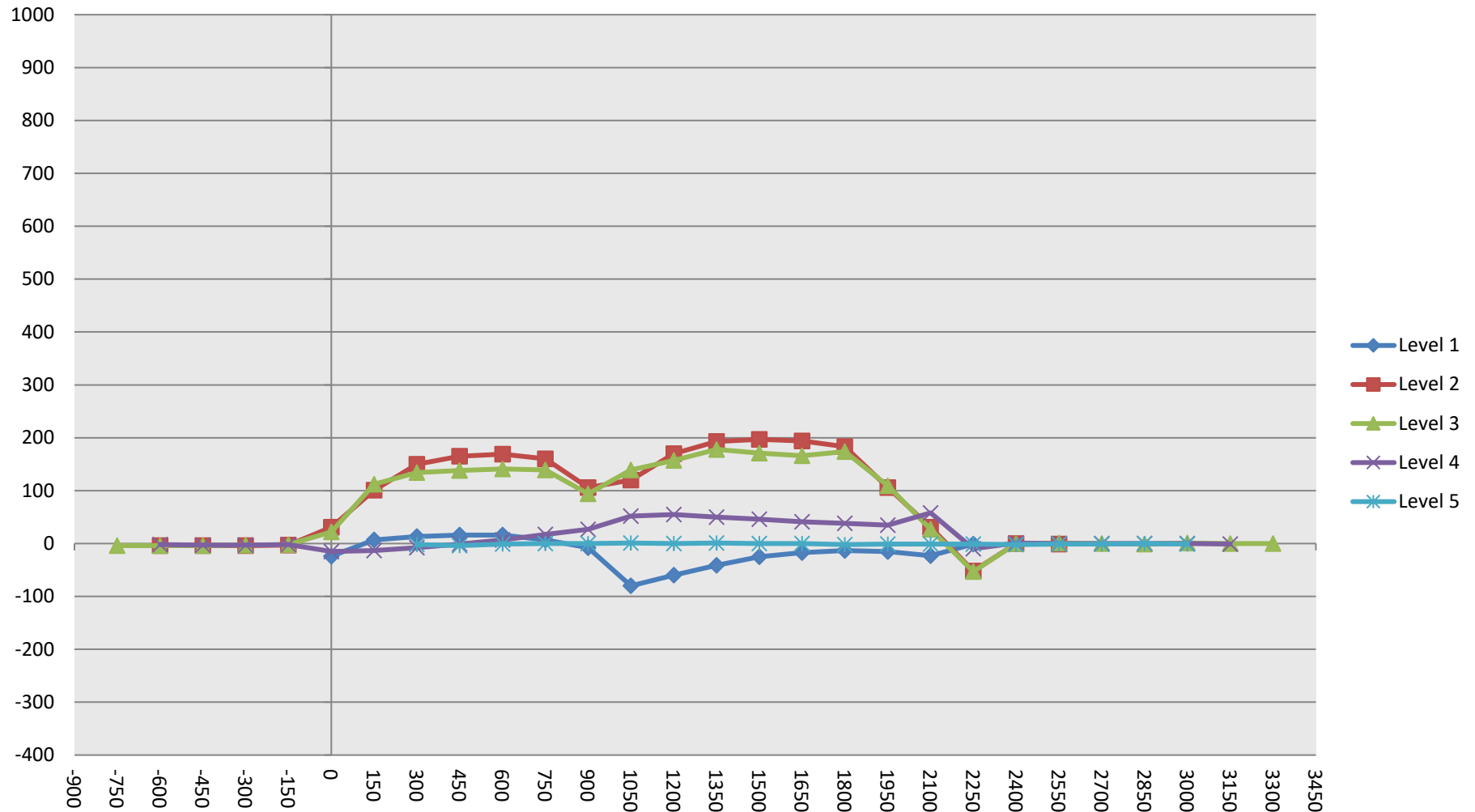
	Pre-Test					Post-Test					Exterior Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-2100															
-1950															
-1800															
-1650															
-1500															
-1350															
-1200															
-1050															
-900															
-750			956					960					-4		
-600		976	971	876			980	975	878			-4	-4	-2	
-450		977	973	895			981	977	898			-4	-4	-3	
-300		976	971	907			980	974	910			-4	-3	-3	
-150		972	970	915			975	972	917			-3	-2	-2	
0	957	969	970	921		981	938	948	936		-24	31	22	-15	
150	960	971	973	925		953	870	861	938		7	101	112	-13	
300	962	973	976	929	712	949	823	842	937	714	13	150	134	-8	-2
450	964	974	977	932	728	948	809	839	933	732	16	165	138	-1	-4
600	965	975	978	935	739	949	806	837	928	740	16	169	141	7	-1
750	966	975	978	936	747	959	815	839	919	747	7	160	139	17	0
900	966	974	978	937	751	974	868	884	910	751	-8	106	94	27	0
1050	966	975	978	936	754	1046	855	839	884	753	-80	120	139	52	1
1200	966	973	977	937	755	1026	803	820	882	755	-60	170	157	55	0
1350	965	973	976	938	758	1006	780	798	888	757	-41	193	178	50	1
1500	963	972	974	938	759	988	775	803	892	759	-25	197	171	46	0
1650	961	969	972	936	759	978	775	806	895	759	-17	194	166	41	0
1800	959	966	970	935	757	972	783	796	897	759	-13	183	174	38	-2
1950	956	963	966	932	756	971	857	857	897	757	-15	106	109	35	-1
2100	953	960	963	929	754	976	929	936	871	755	-23	31	27	58	-1
2250	949	962	961	924	750	950	1014	1014	934	751	-1	-52	-53	-10	-1
2400		972	964	920	746		972	964	919	748		0	0	1	-2
2550		975	971	914	740		976	970	914	741		-1	1	0	-1
2700			976	908	730			976	908	731			0	0	-1
2850			973	900	717			974	900	717			-1	0	0
3000			956	890	694			955	890	695			1	0	-1
3150			930	877				930	878				0	-1	
3300			904					904					0		
3450															
3600															
3750															
3900															

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

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

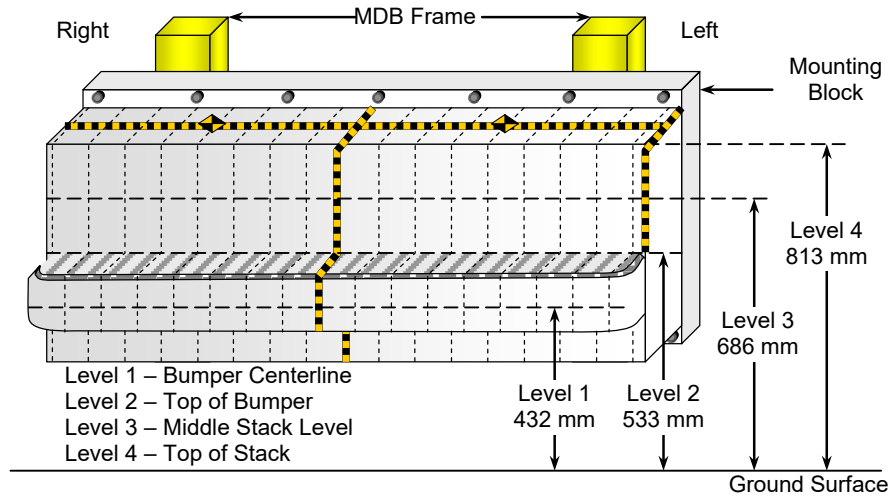
NHTSA No.: O20255802
Test Date: 9/3/2025



DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025



FRONT VIEW

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	100	Right	314
B	Top of Bumper	533	100	Left	179
C	Mid-Level	686	100	Left	157
D	Top of Stack	813	100	Left	172

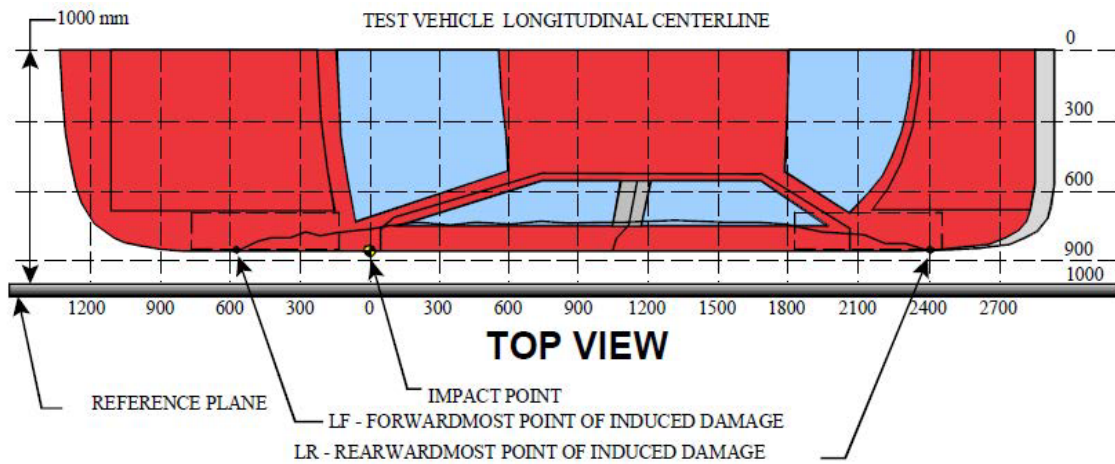
DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center (mm)								C _L	Distance Left of Center (mm)							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
4	129	114	97	79	67	83	89	114	156	172	130	121	121	126	126	137	155
3	110	100	93	87	84	85	94	116	152	157	148	117	107	102	102	117	154
2	157	153	156	158	159	159	163	170	173	179	167	175	170	171	169	157	164
1	293	303	299	300	300	301	305	314	304	299	298	294	293	291	288	287	281

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025



MEASUREMENT CONVENTIONS:
 Forward of the impact point (towards front of vehicle) is considered negative (—).
 Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Max. Static Crush (mm)
1	1800	3	204	30	174
2	1467	3	197	26	171
3	1128	3	189	23	166
4	810	3	152	22	130
5	478	3	161	23	138
6	150	3	139	27	112

MDB DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Max. Static Crush (mm)
1	800 mm right of center	1	769	476	293
2	480 mm right of center	1	766	463	303
3	160 mm right of center	1	769	463	306
4	160 mm left of center	1	760	463	297
5	480 mm left of center	1	756	463	293
6	800 mm left of center	1	757	476	281

DATA SHEET NO. 14
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

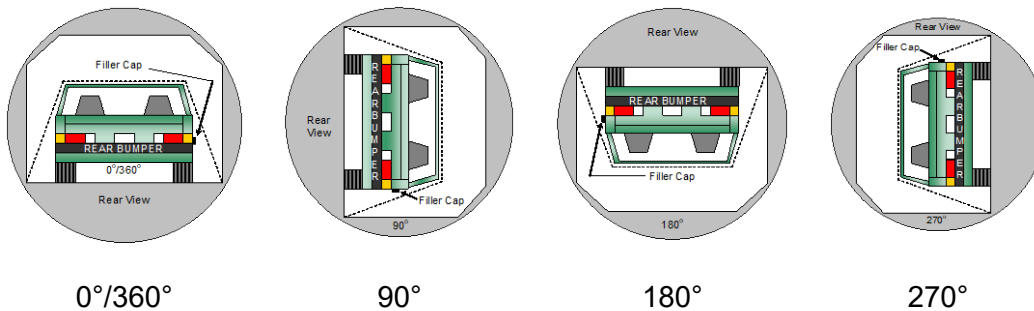
NHTSA No.: O20255802
Test Date: 9/3/2025

Test Time: 12:53 pm

Temperature: 22.2°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°			
90° to 180°			
180° to 270°			
270° to 360°			

FMVSS 301 ROLLOVER SPILLAGE TABLE (UNITS IN OUNCES)

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

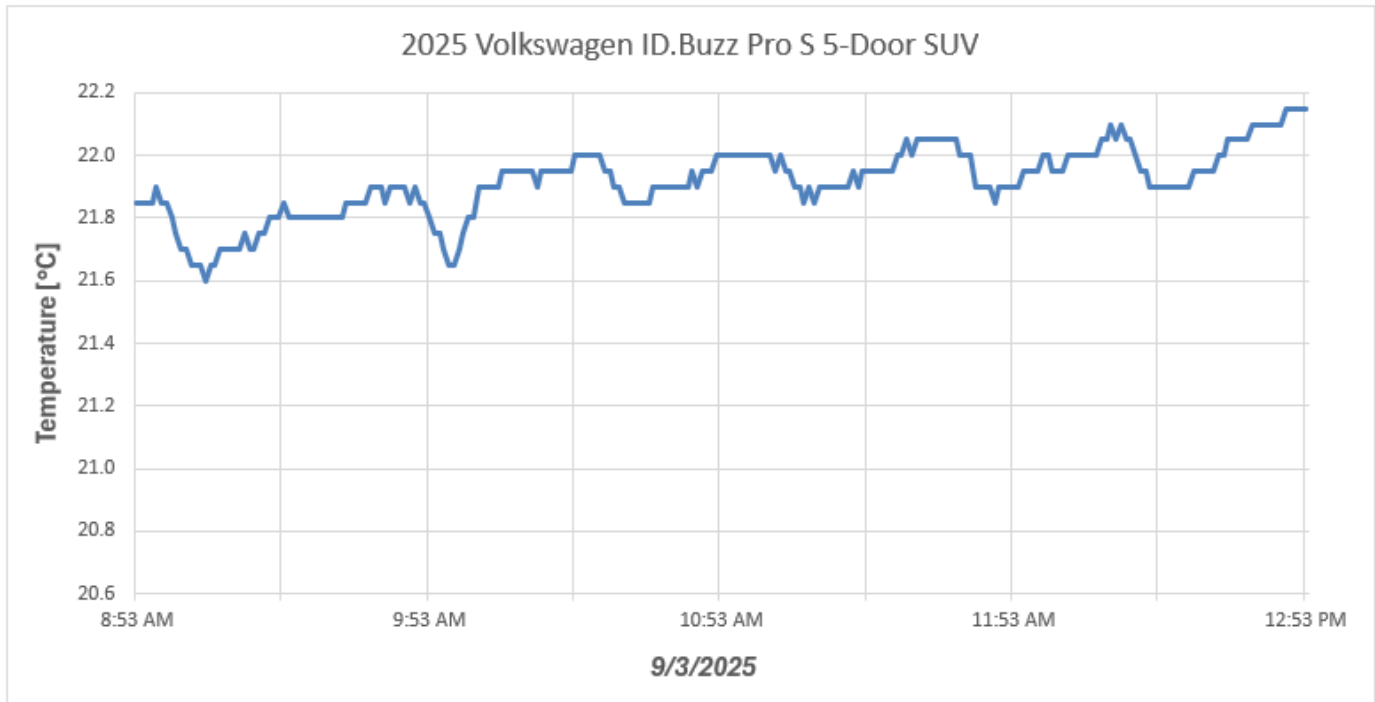
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 15
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025



Serial #	Description	Maximum	Average	Minimum	Units
W1443497	VSC North Hall - Temp (3016)	22.15	21.91	21.60	°C

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

ELECTRIC VEHICLE PROPULSION SYSTEM

	Units	Observations and Conclusions
Type of Electric Vehicle		Electric
Propulsion Battery Type		Lithium-Ion
Nominal Voltage	V	380
Physical Location of Automatic Propulsion Battery Disconnect		Inside the high-voltage battery housing
Auxiliary Battery Type		12V Lead

PROPULSION BATTERY SYSTEM DATA

	Units	Observations and Conclusions
Electrolyte Fluid Type		Liquid
Electrolyte Fluid Specific Gravity	g/L	1164-1224
Electrolyte Fluid Kinematic Viscosity	cSt	2.6-3.0
Electrolyte Fluid Color		Colorless
Propulsion Battery Coolant Type, Color, Specific Gravity (if applicable)		Liquid cooling (50% water / 50% glycol)
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	
Maximum State of Charge	442.0 V
95% of Maximum State of Charge	419.9 V
Test Voltage - No less than 95% of maximum State of Charge	428.0 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 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025

VEHICLE CHASSIS GROUND POINT(S) LOCATION(S)

Details of Vehicle Chassis Ground Point(s) & Location(s)	Center console mounting bolt
---	------------------------------

PROPULSION BATTERY SYSTEM

Details of Electric Energy Storage/Conversion System Test Points	Connected at + and – leads between HV battery and PTC (electric heater)
Additional Comments	None

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

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	428.0
----	---	-------

ELECTRIC ISOLATION MEASUREMENTS
PROPULSION BATTERY TO VEHICLE CHASSIS

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

V1	V	177.1
V2	V	200.8

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	15.5
V2' Pre-Impact	V	17.0

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

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	5,030,007
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$		
Ri2 Pre-Impact	Ω	4,600,556
$R_i = \text{The lesser of } R_{i1} \text{ and } R_{i2}$		
Ri Pre-Impact	Ω	4,600,556
$R_i / V_b = \text{Electrical Isolation Value} / \text{Nominal Battery Voltage}$		
Ri / Vb Pre-Impact	Ω/V	10,749

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 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

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	0.41
----------------	---	------

V1 Post-Impact	V	0.84	Impact Time	3	Minutes	16	Seconds
V2 Post-Impact	V	0.43		3	Minutes	19	Seconds
V1' Post-Impact	V	0.08		3	Minutes	32	Seconds
V2' Post-Impact	V	0.05		3	Minutes	24	Seconds

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

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	3,247,496	Impact Time	3	Minutes	32	Seconds
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$							
Ri2 Post-Impact	Ω	5,075,156	Impact Time	3	Minutes	24	Seconds
$R_i = \text{The lesser of } R_{i1} \text{ and } R_{i2}$							
Ri Post-Impact	Ω	3,247,496	Impact Time	3	Minutes	32	Seconds
$R_i / V_b = \text{Electrical Isolation Value} / \text{Nominal Battery Voltage}$							
Ri / Vb Post-Impact	Ω/V	7,920,722	Impact Time	3	Minutes	32	Seconds

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

	Yes	No (Fail)
Is the measured Electrical Isolation Value ≥ 500 Ω/V?	X	
Additional Comments	None	

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

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

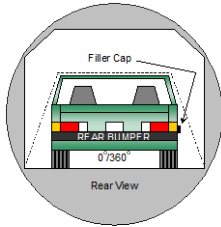
	Yes (Fail)	No
Is the Propulsion Battery Electrolyte Spillage visible in the passenger compartment?		X

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

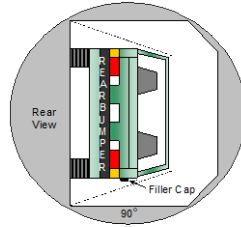
Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
Test Date: 9/3/2025

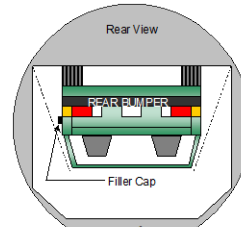
PROPULSION BATTERY SYSTEM COMPONENTS



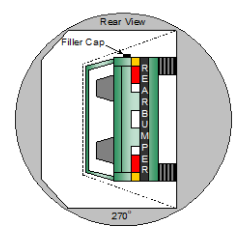
0°/360°



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	33	sec	5	min	6	min	33	sec	7	min
90° - 180°	1	min	32	sec	5	min	6	min	32	sec	7	min
180° - 270°	1	min	21	sec	5	min	6	min	21	sec	7	min
270° - 360°	1	min	27	sec	5	min	6	min	27	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 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

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	0.00
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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	0.01	V	0°		min		sec
	0.03		90°	2		45	
	0.03		180°	2		20	
	0.00		270°	2		36	
	0.00		360°	2		24	
V2	0.00	V	0°		min		sec
	0.02		90°	2		48	
	0.02		180°	2		23	
	0.00		270°	2		39	
	0.00		360°	2		28	
V1'	0.00	V	0°		min		sec
	0.00		90°	3		1	
	0.00		180°	2		33	
	0.00		270°	2		49	
	0.00		360°	2		39	
V2'	0.00	V	0°		min		sec
	0.00		90°	2		55	
	0.00		180°	2		28	
	0.00		270°	2		44	
	0.00		360°	2		34	

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

Test Vehicle: 2025 Volkswagen ID.Buzz Pro S 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: O20255802
 Test Date: 9/3/2025

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°	3		1	
	Zero Volts		180°	2		33	
	Zero Volts		270°	2		49	
	Zero Volts		360°	2		39	
Ri2 = Ro (1 + V1/V2) [(V2-V2')/V2']							
Ri2	Zero Volts	Ω	0°		min		sec
	Zero Volts		90°	2		55	
	Zero Volts		180°	2		28	
	Zero Volts		270°	2		44	
	Zero Volts		360°	2		34	
Ri = The lesser of Ri1 and Ri2							
Ri	Zero Volts	Ω	0°		min		sec
	Zero Volts		90°	2		55	
	Zero Volts		180°	2		28	
	Zero Volts		270°	2		44	
	Zero Volts		360°	2		34	
Ri / Vb = Electrical Isolation Value / Nominal Battery Voltage							
Ri / Vb	Zero Volts	Ω/V	0°		min		sec
	Zero Volts		90°	2		55	
	Zero Volts		180°	2		28	
	Zero Volts		270°	2		44	
	Zero Volts		360°	2		34	

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

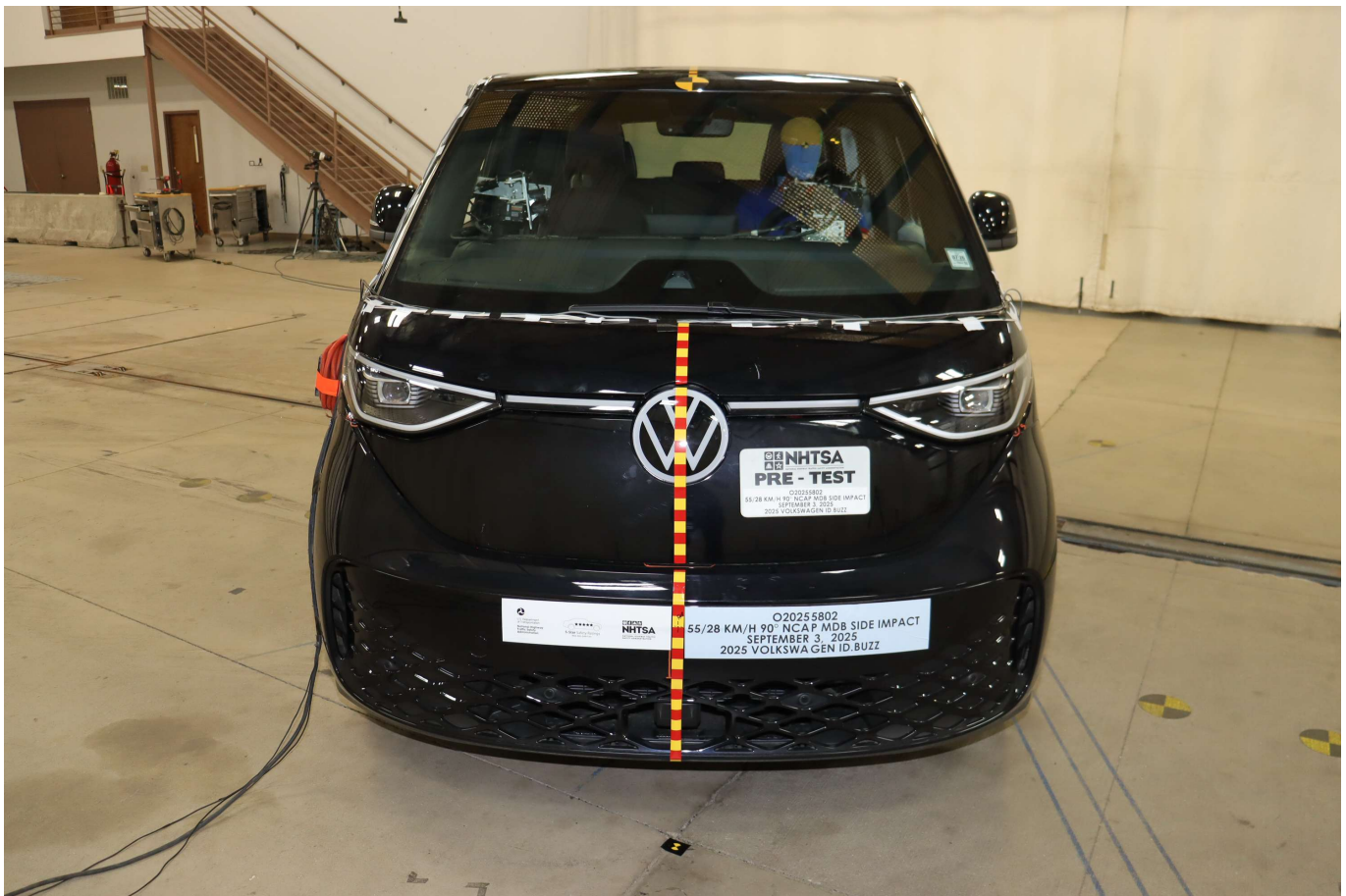


Photo No. 003 - Pre-Test Frontal View of Test Vehicle

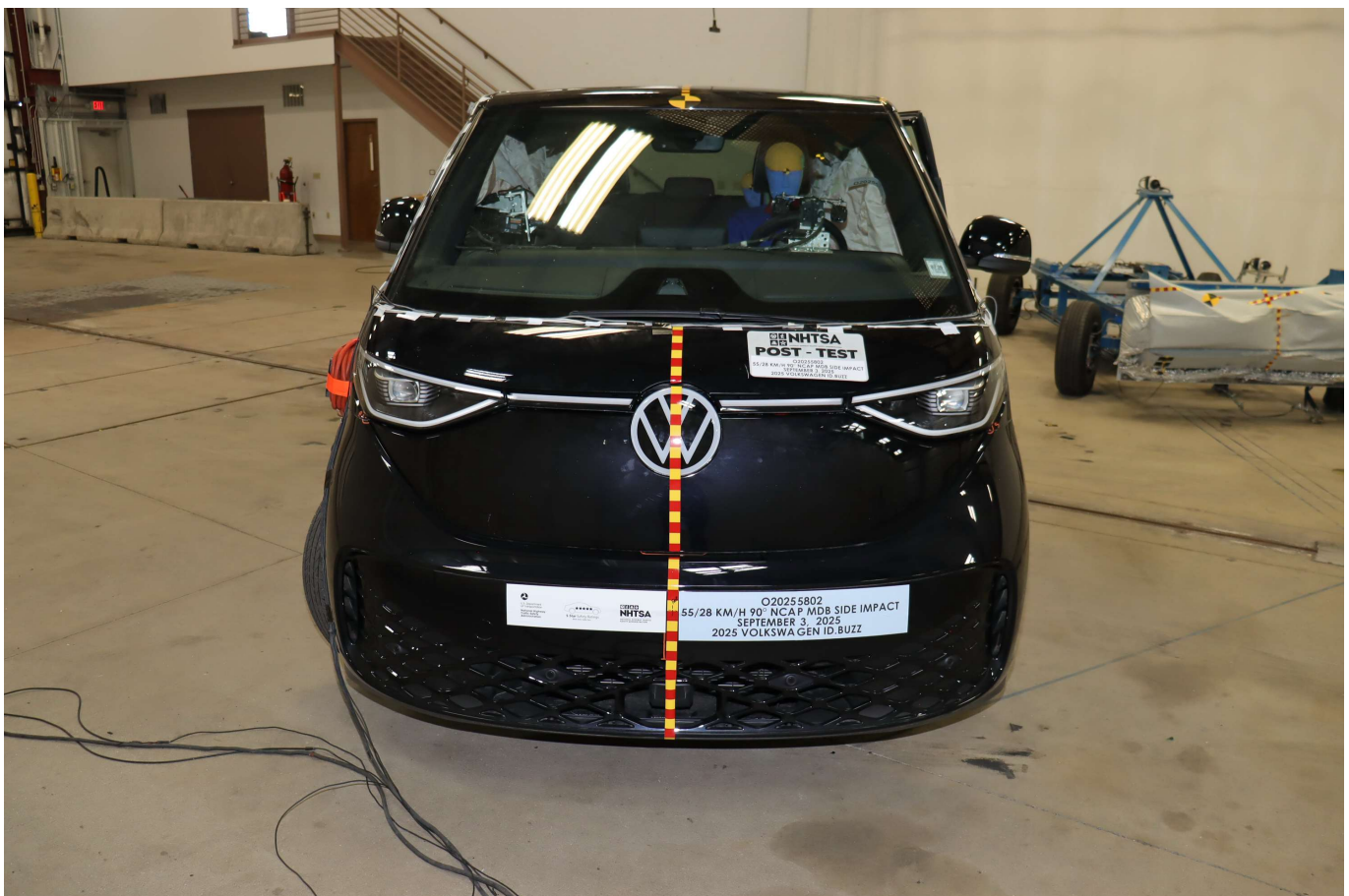


Photo No. 004 - Post-Test Frontal View of Test Vehicle



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 Three-Quarter Rear View of Test Vehicle



Photo No. 010 - Post-Test Left Three-Quarter Rear 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

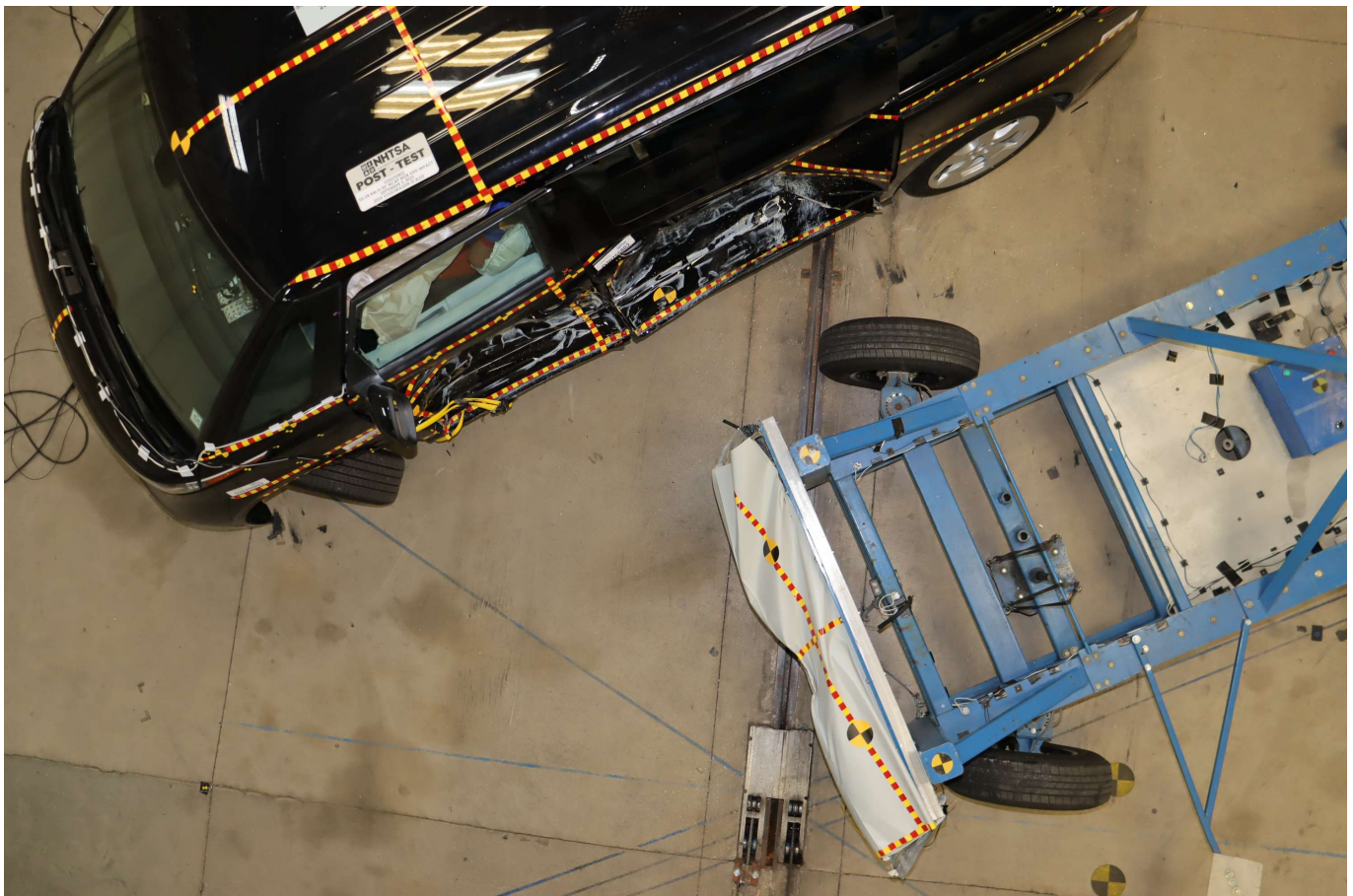


Photo No. 016 - Post-Test Overhead View of Test Area



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



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



Photo No. 021 - Pre-Test Left Front Door Latch Close-Up



Photo No. 022 - Post-Test Left Front Door Latch Close-Up



Photo No. 023 - Pre-Test Left Rear Door Latch Close-Up



Photo No. 024 - Post-Test Left Rear Door Latch Close-Up



Photo No. 025 - Pre-Test Front Close-Up View of Driver Dummy



Photo No. 026 - Post-Test Front Close-Up View of Driver Dummy



Photo No. 027 - Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



Photo No. 028 - Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



Photo No. 029 - Post-Test Left Side View of Driver Dummy Shoulder and Door Top View



Photo No. 030 - Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



Photo No. 031 - Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



Photo No. 032 - Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



Photo No. 033 - Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



Photo No. 034 - Pre-Test Placement of Driver Dummy's Feet



Photo No. 035 - Pre-Test View of Belt Anchorage for Driver Dummy



Photo No. 036 - Pre-Test Left Side View of Steering Wheel

PHOTOGRAPH NOT APPLICABLE

Photo No. 037 - Pre-Test View of Disengaged Parking Brake

PHOTOGRAPH NOT APPLICABLE

Photo No. 038 - Pre-Test View of Parking Brake



Photo No. 039 - Pre-Test Close-Up Left Side View of Driver Seat Track

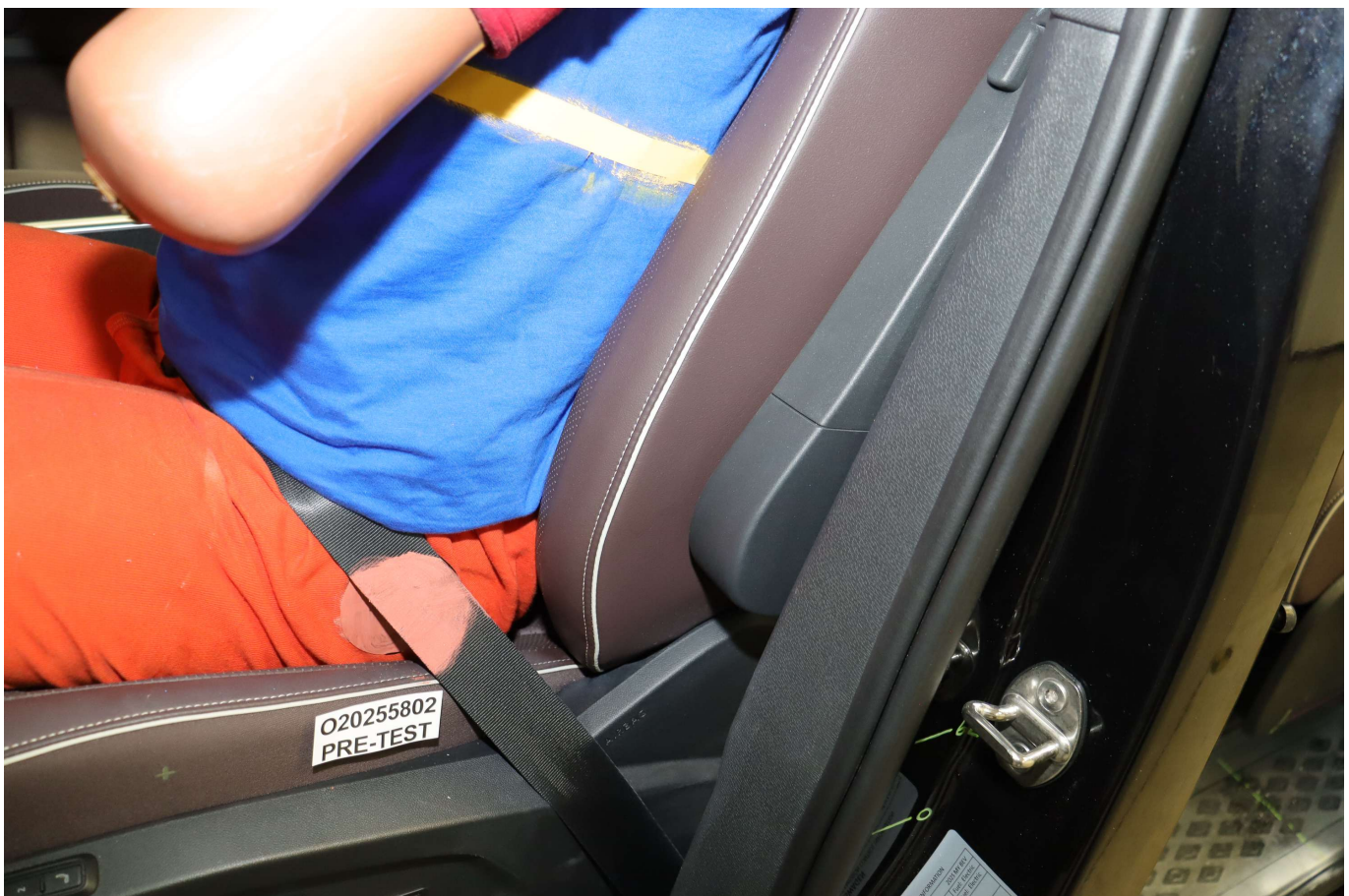


Photo No. 040 - Pre-Test Close-Up Left Side View of Driver Seat Back



Photo No. 041 - Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Photo No. 042 - Pre-Test Driver Dummy and Door Clearance View

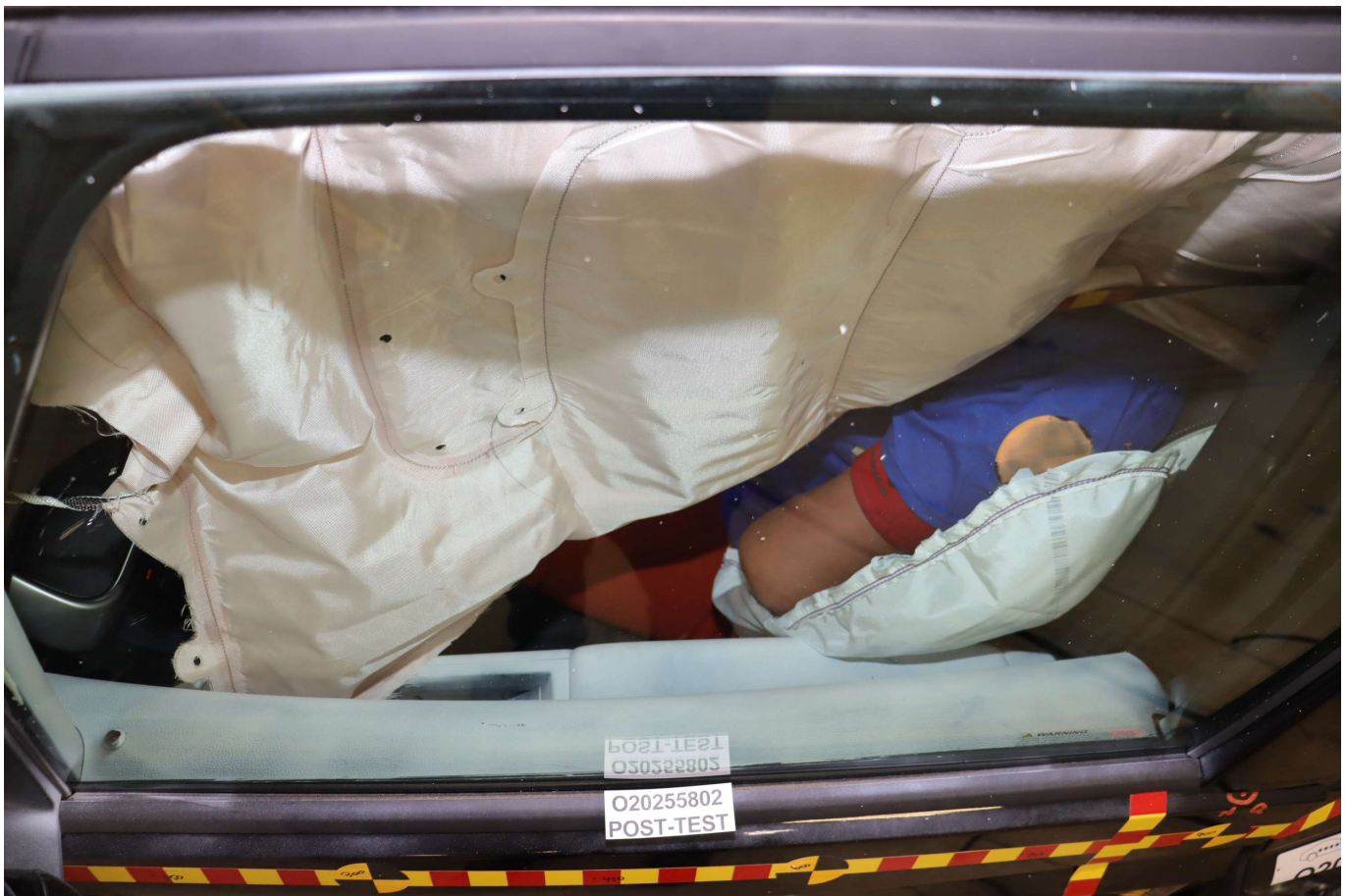


Photo No. 043 - Post-Test Driver Dummy and Door Clearance View



Photo No. 044 - Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Photo No. 045 - Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Photo No. 046 - Pre-Test Driver Inner Door Panel View



Photo No. 047 - Post-Test Driver Inner Door Panel View



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



Photo No. 049 - Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



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



Photo No. 051 - Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



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



Photo No. 053 - Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View

PHOTOGRAPH NOT APPLICABLE

Photo No. 054 - Post-Test Driver Dummy Close-Up Knee Contact View



Photo No. 055 - Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking



Photo No. 056 - Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



Photo No. 057 - Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



Photo No. 058 - Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



Photo No. 059 - Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head



Photo No. 060 - Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning

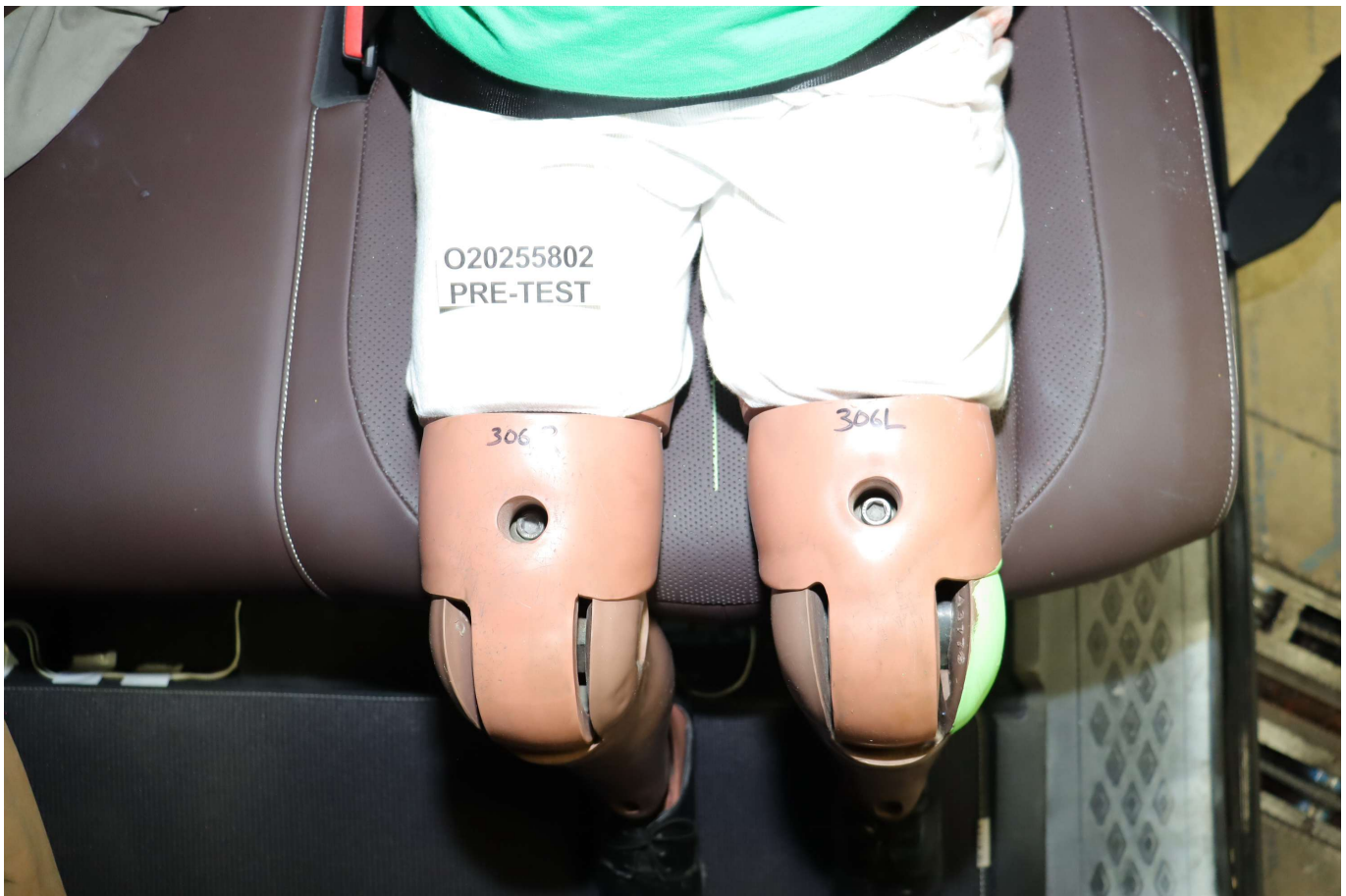


Photo No. 061 - Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



Photo No. 062 - Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



Photo No. 063 - Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



Photo No. 064 - Pre-Test Placement of Rear Passenger Dummy's Feet



Photo No. 065 - Pre-Test View of Belt Anchorage for Rear Passenger Dummy



Photo No. 066 - Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



Photo No. 067 - Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



Photo No. 068 - Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



Photo No. 069 - Pre-Test Rear Passenger Dummy and Door Clearance View



Photo No. 070 - Post-Test Rear Passenger Dummy and Door Clearance View



Photo No. 071 - Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Photo No. 072 - Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Photo No. 073 - Pre-Test Rear Passenger Inner Door Panel View



Photo No. 074 - Post-Test Rear Passenger Inner Door Panel View



Photo No. 075 - Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle Interior View



Photo No. 076 - Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



Photo No. 077 - Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View

PHOTOGRAPH NOT APPLICABLE

Photo No. 078 - Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



Photo No. 079 - Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Vehicle Interior View

PHOTOGRAPH NOT APPLICABLE

Photo No. 080 - Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View

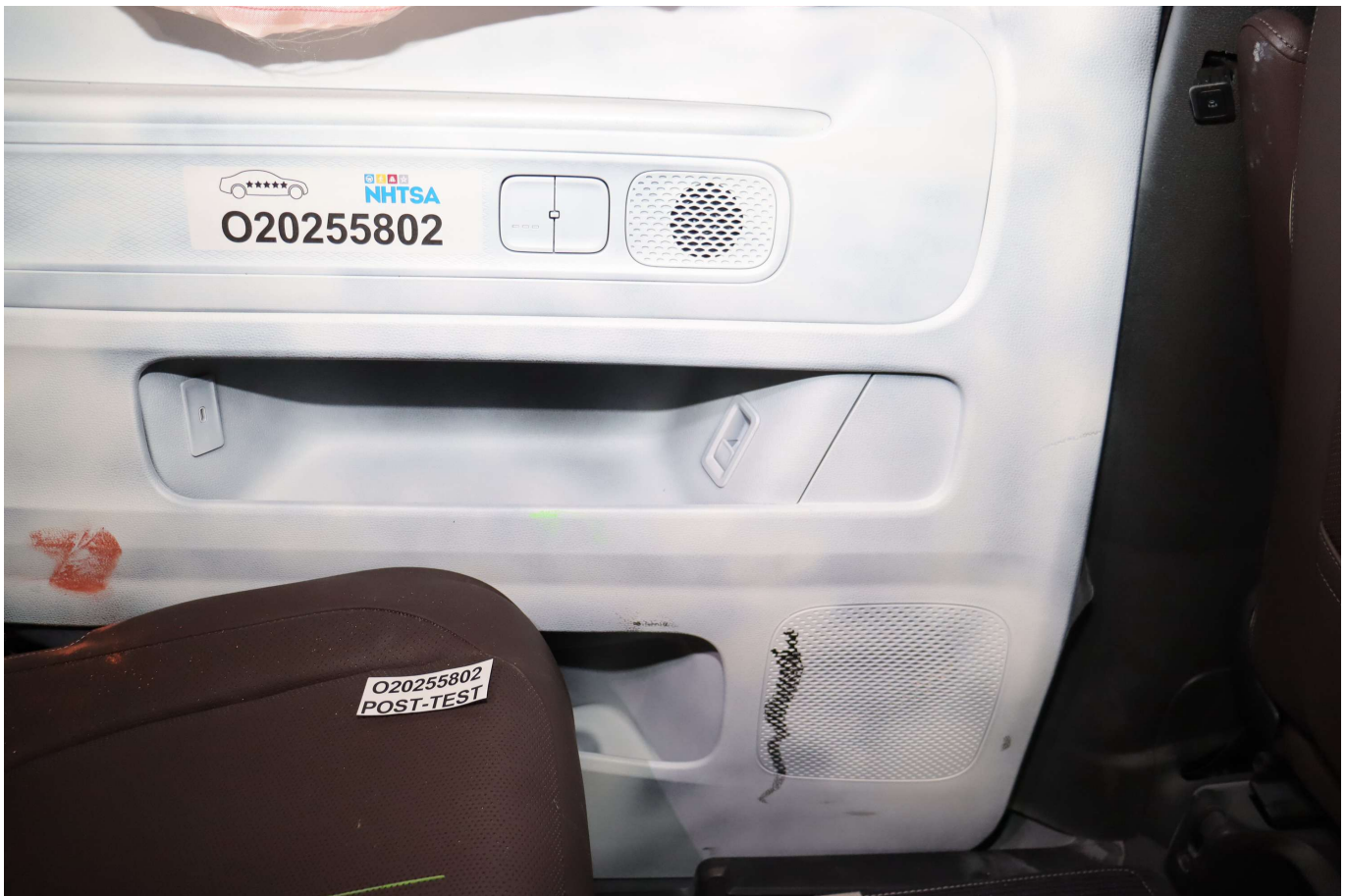


Photo No. 081 - Post-Test Rear Passenger Dummy Close-Up Knee Contact View

PHOTOGRAPH NOT APPLICABLE

Photo No. 082 - Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

PHOTOGRAPH NOT APPLICABLE

Photo No. 083 - Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Photo No. 084 - Pre-Test Front View of MDB Impactor Face

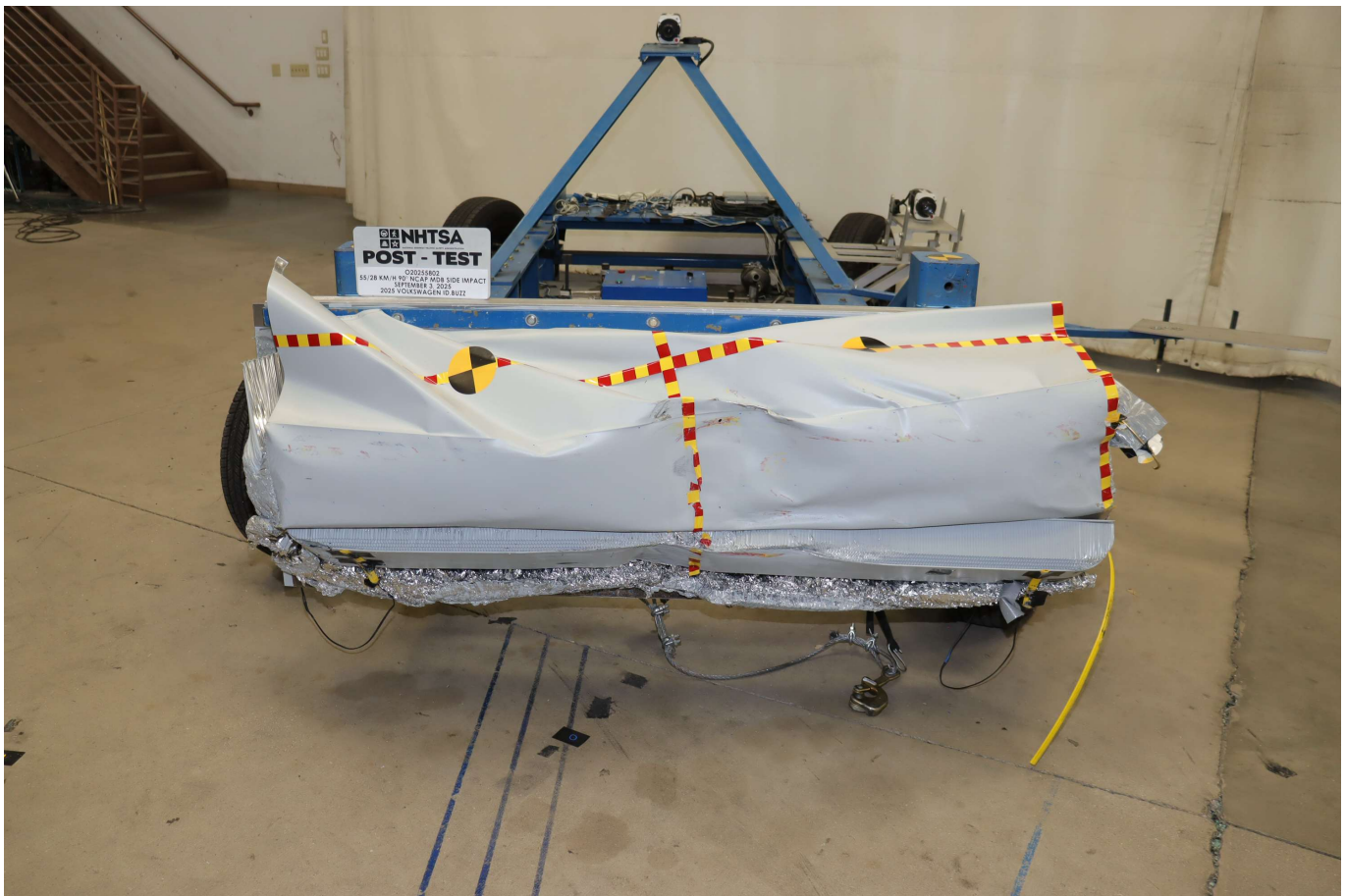


Photo No. 085 - Post-Test Front View of MDB Impactor Face

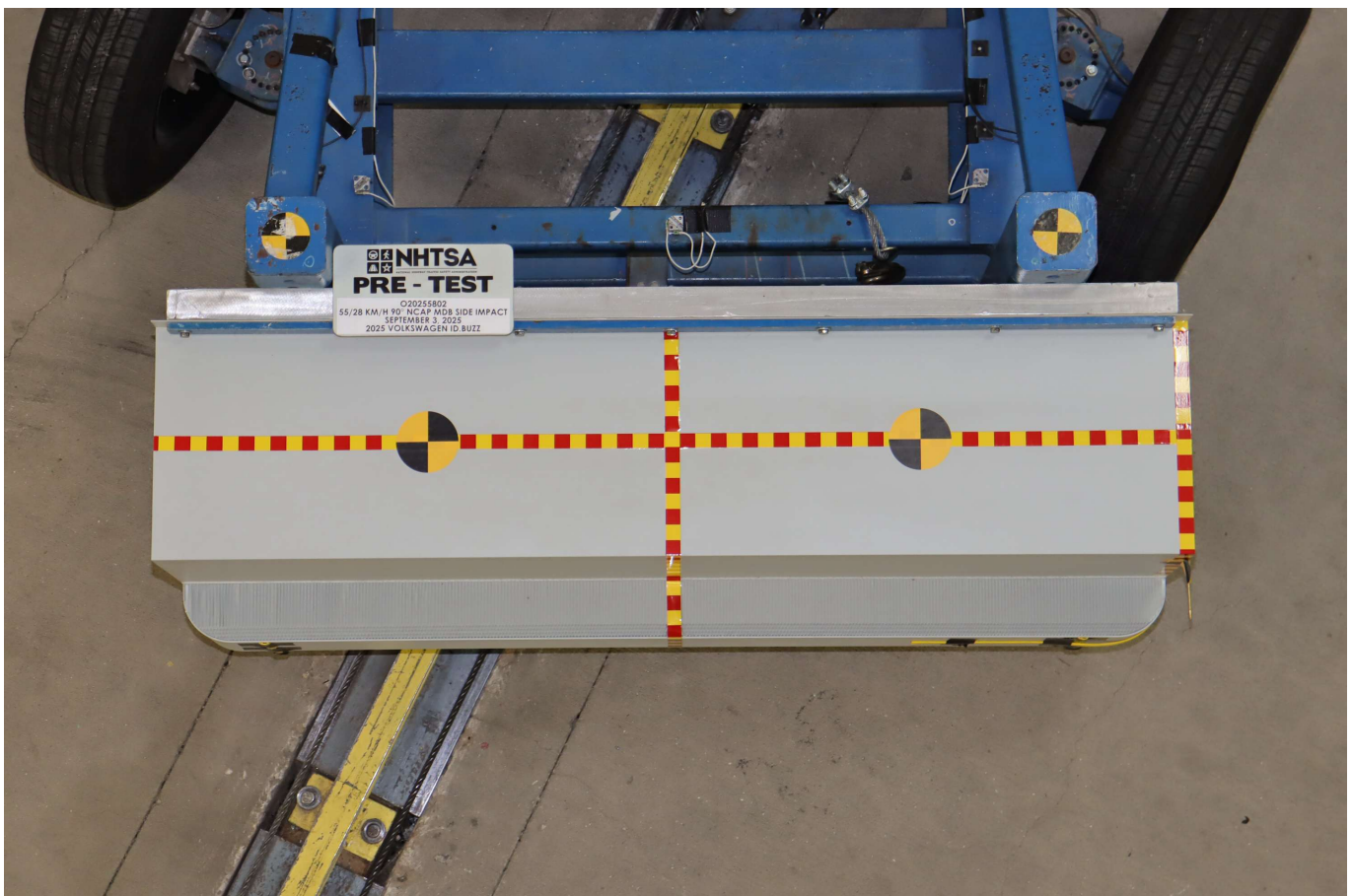


Photo No. 086 - Pre-Test Top View of MDB Impactor Face



Photo No. 087 - Post-Test Top View of MDB Impactor Face



Photo No. 088 - Pre-Test Left Side View of MDB Impactor Face



Photo No. 089 - Post-Test Left Side View of MDB Impactor Face



Photo No. 090 - Pre-Test Right Side View of MDB Impactor Face



Photo No. 091 - Post-Test Right Side View of MDB Impactor Face



Photo No. 092 - Close-Up View of Vehicle's Certification Label



Photo No. 093 - Close-Up View of Vehicle's Tire Information Placard or Label



Photo No. 094 - Pre-Test Ballast View



Photo No. 095 - Post-Test Primary and Redundant Speed Trap Read-Out

PHOTOGRAPH NOT APPLICABLE

Photo No. 096 - FMVSS Photo No. 301 Static Rollover 0 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 097 - FMVSS Photo No. 301 Static Rollover 90 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 098 - FMVSS Photo No. 301 Static Rollover 180 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 099 - FMVSS Photo No. 301 Static Rollover 270 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 100 - FMVSS Photo No. 301 Static Rollover 360 Degrees

Removing and installing front head restraints

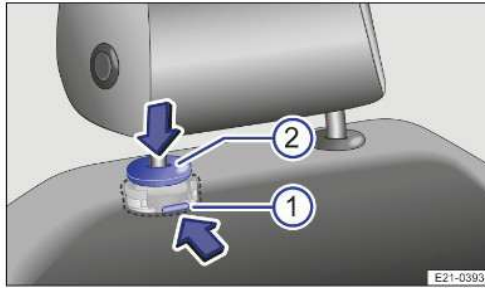


Fig. 1 On the front seats: mechanism for removing the head restraint.

Removing the front head restraints

The head restraint catch is located on the left-hand guide pin in the direction of travel under the seat cover in the seat padding and must be felt.

1. Press catch → Fig. 1 ⁽¹⁾ forward in the direction of the arrow and hold.
2. Press the ring ⁽²⁾ down to unlock the head restraint.
3. Pull the head restraint out upwards.

Installing the front head restraints

1. Position the head restraint correctly over the head restraint guides and then insert into the guides of the corresponding seat backrest.
2. Slide the head restraint all the way down until the guide pins click into place.
3. Adjust the head restraint so that a correct sitting position can be assumed ([→ Head restraints](#)).

Photo No. 103 - Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Removing and installing the rear head restraints

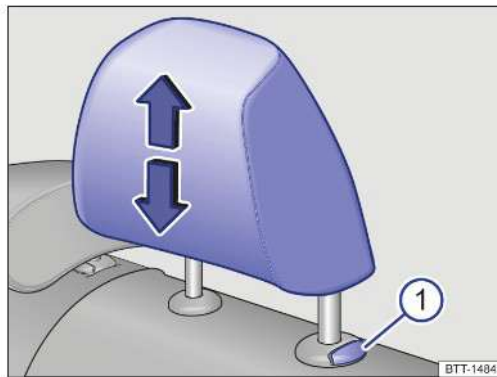


Fig. 1 Second row of seats: Removing the head restraint.

Removing head restraints in the second seat row

- If necessary, adjust the backrest so that the head restraint can be removed.
- Push the head restraint all the way up.
- Pull the head restraint out fully while pressing the button → Fig. 1 ⁽¹⁾.
- Fold the rear bench seat backrest back if necessary and allow it to engage securely.

Installing head restraints in the second seat row

- Position the head restraint correctly over the head restraint guides and then insert into the guides of the corresponding seat backrest.
- Slide the head restraint all the way down until the guide pins click into place.
- Adjust the head restraint so a correct sitting position can be assumed and allow it to engage.

Photo No. 104 - Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

PHOTOGRAPH NOT APPLICABLE

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



Photo No. 305-02 - Power Inverter Warning Label

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-03 - First Responder Warning Label

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-04 - First Responder Warning Location

PHOTOGRAPH NOT APPLICABLE

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

PHOTOGRAPH NOT AVAILABLE

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



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

PHOTOGRAPH NOT AVAILABLE

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

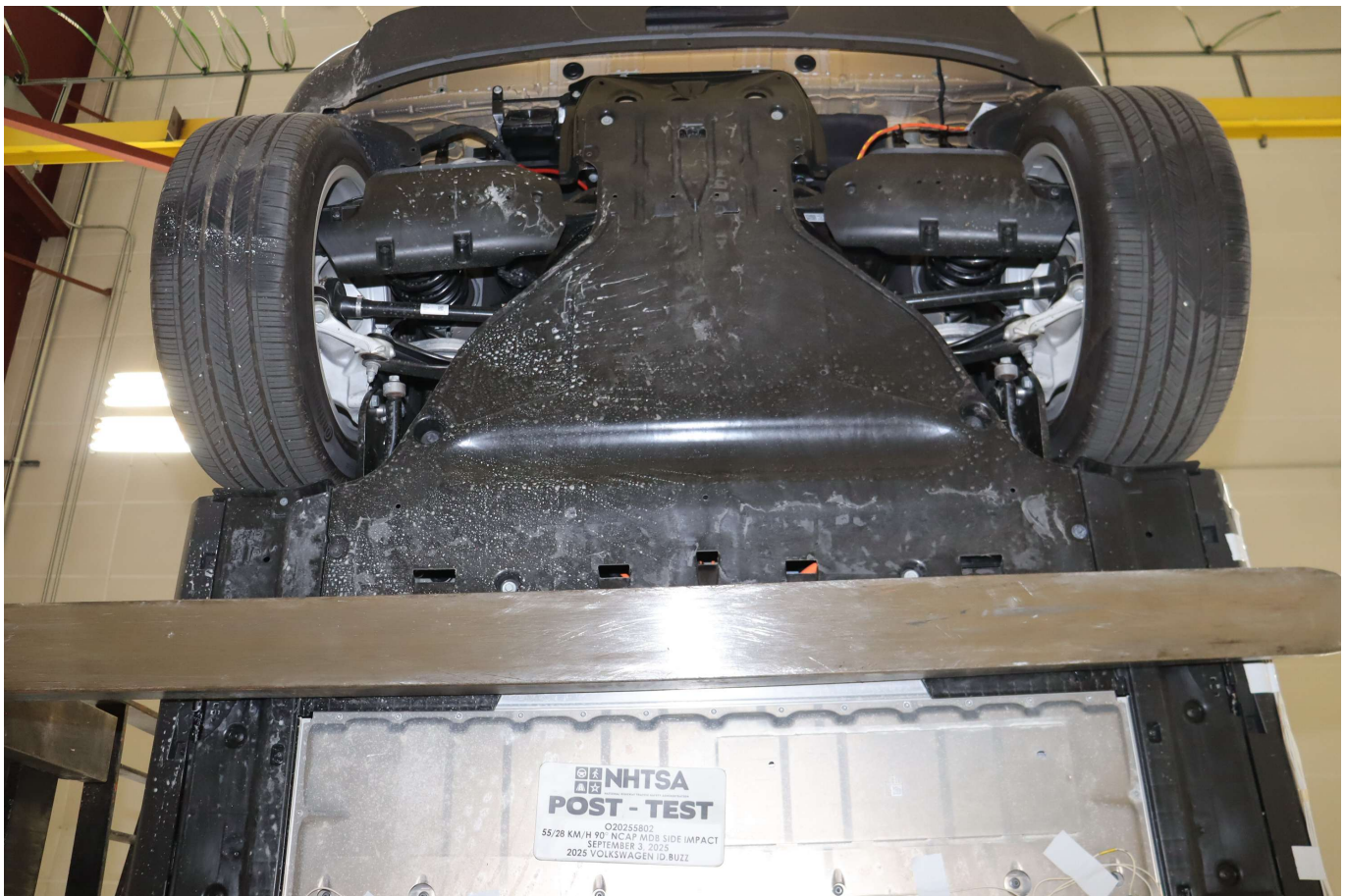


Photo No. 305-17 - Post-Impact View of Electric Propulsion Drive



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)

PHOTOGRAPH NOT APPLICABLE

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

PHOTOGRAPH NOT AVAILABLE

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

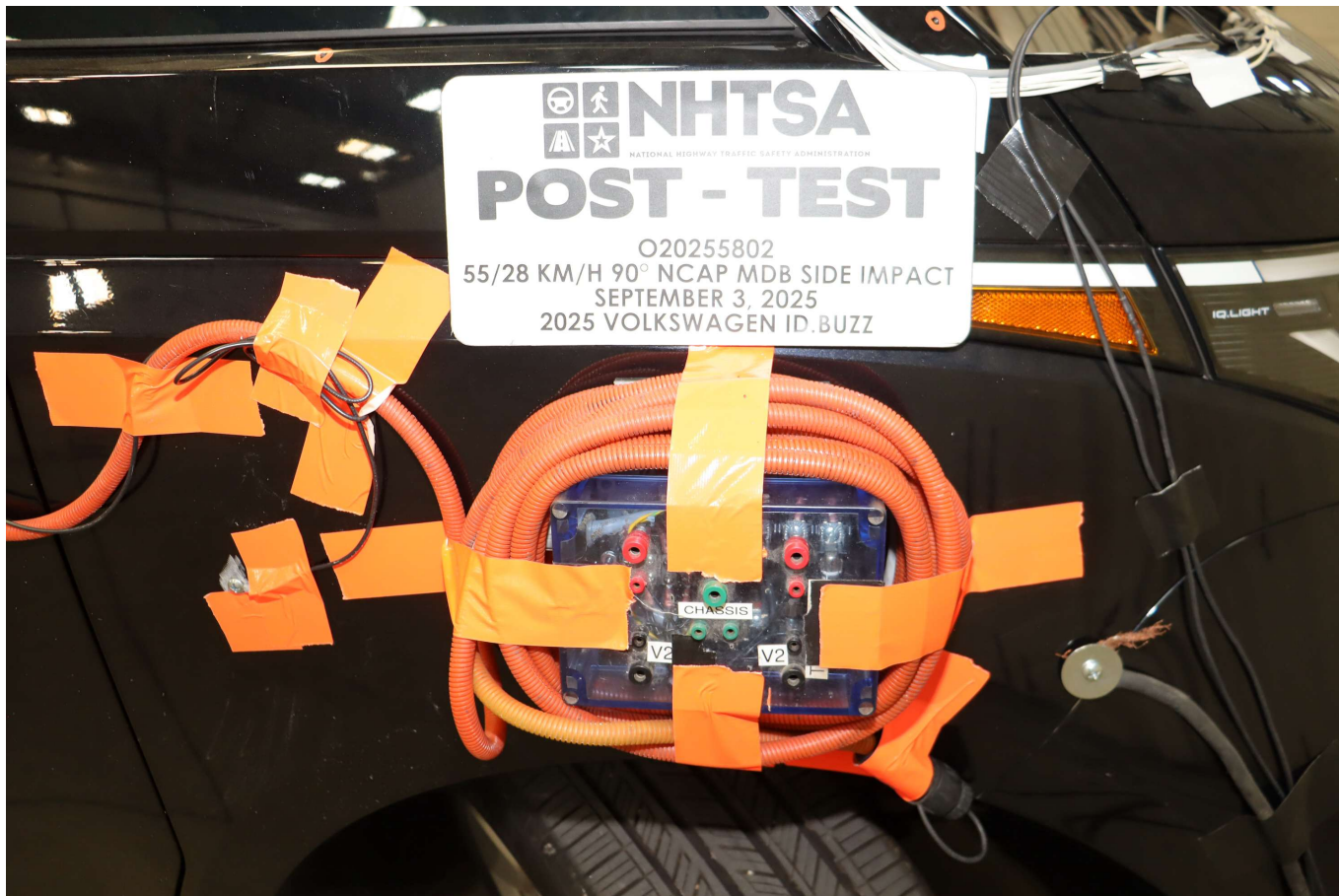


Photo No. 305-25 - Post-Impact View of Installed Test Interface Port



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

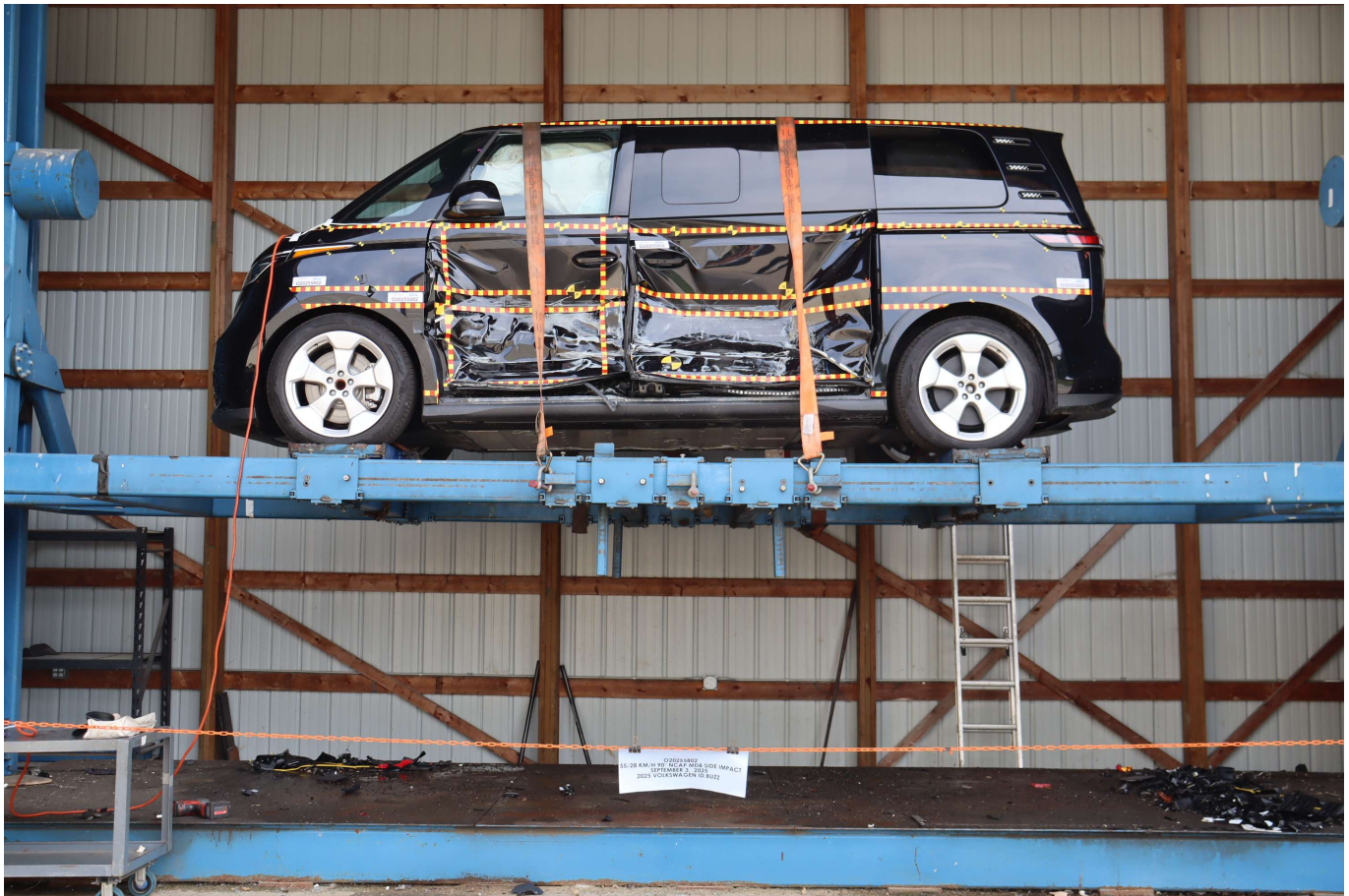


Photo No. 305-31 - FMVSS No. 305 Static Rollover at 360 Degrees



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

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Driver Dummy Instrumentation Plots

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Figure No. 18.	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-6
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Figure No. 20.	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-6
Figure No. 21.	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-6
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Figure No. 23.	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-7
Figure No. 24.	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-7

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 & Passenger Dummy Instrumentation Data

Passenger Head Angular Velocity (X)
Passenger Head Angular Velocity (Y)
Passenger Head Angular Velocity (Z)
Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

Right Side Sill at Front Seat Acceleration (X)

Right Side Sill at Front Seat Acceleration (Y)

Right Side Sill at Front Seat Acceleration (Z)

Right Side Sill at Rear Seat Acceleration (X)

Right Side Sill at Rear Seat Acceleration (Y)

Right Side Sill at Rear Seat Acceleration (Z)

Left Side Sill at Front Seat Acceleration (Y)

Left Side Sill at Rear Seat Acceleration (Y)

Lower A-Post Acceleration (Y)

Middle A-Post Acceleration (Y)

Lower B-Post Acceleration (Y)

Middle B-Post Acceleration (Y)

Front Seat Track Acceleration (Y)

Rear Seat Track Acceleration (Y)

Right Rear Occupant Compartment Acceleration (Y)

Engine Block (X)

Engine Block (Y)

Rear Floorpan Above Axle Acceleration (X)

Rear Floorpan Above Axle Acceleration (Y)

Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)

MDB Center of Gravity Acceleration (Y)

MDB Center of Gravity Acceleration (Z)

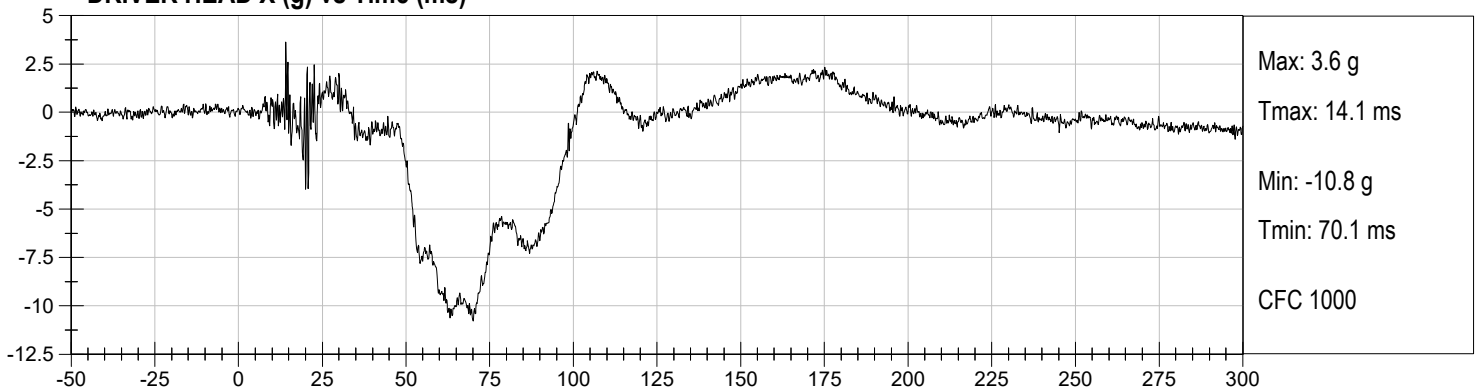
MDB Rear Acceleration (X)

MDB Rear Acceleration (Y)

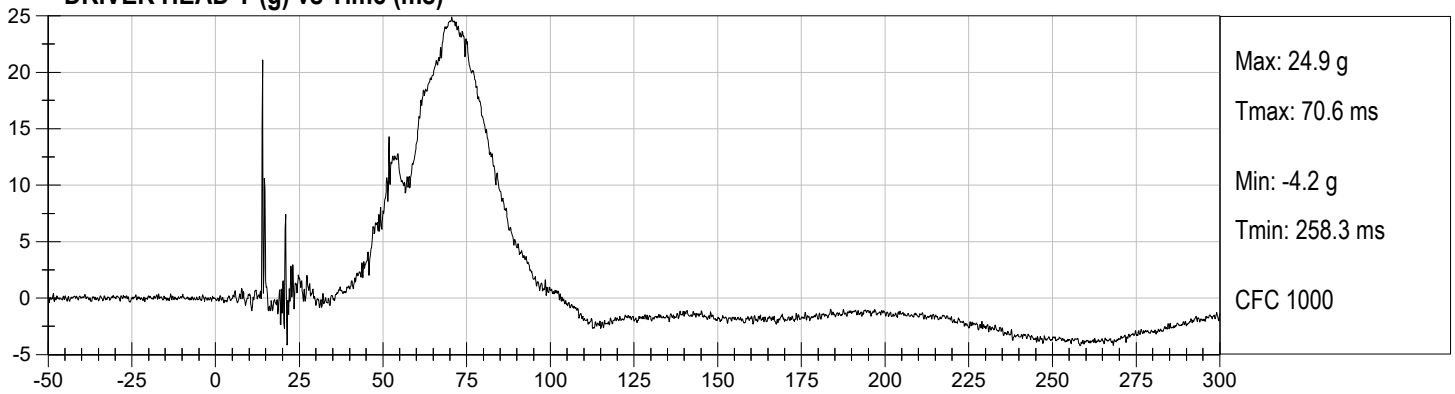
Left MDB Contact Switch

Right MDB Contact Switch

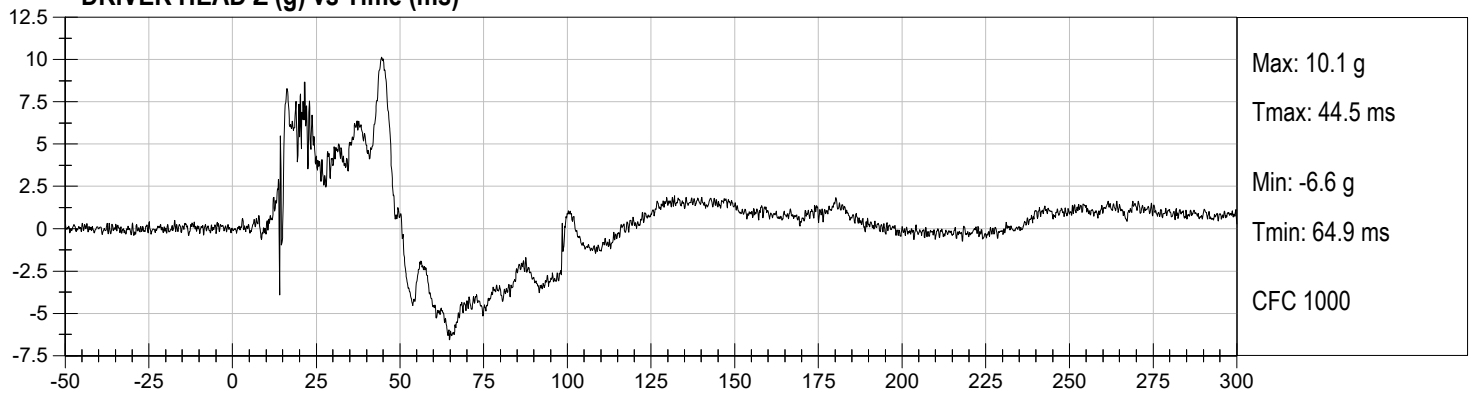
DRIVER HEAD X (g) vs Time (ms)



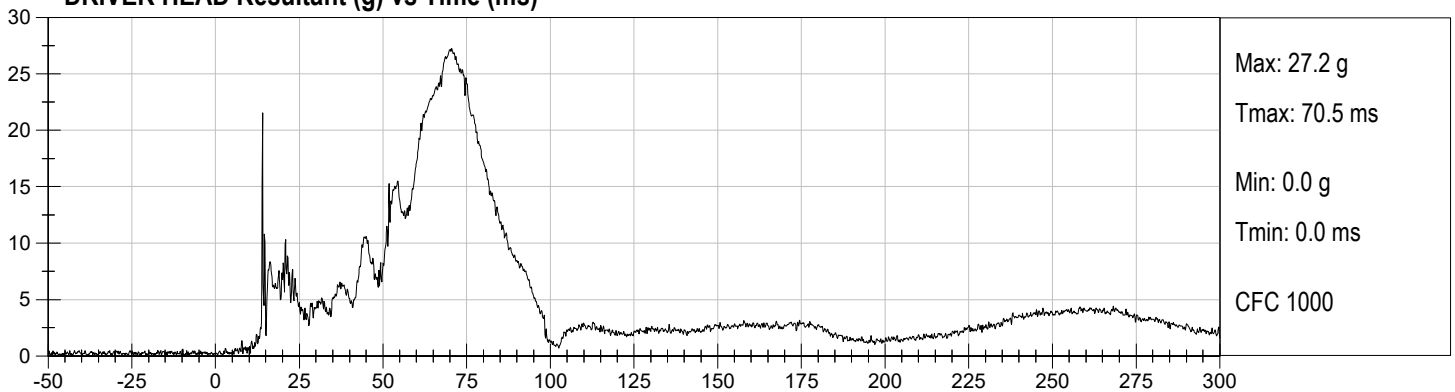
DRIVER HEAD Y (g) vs Time (ms)



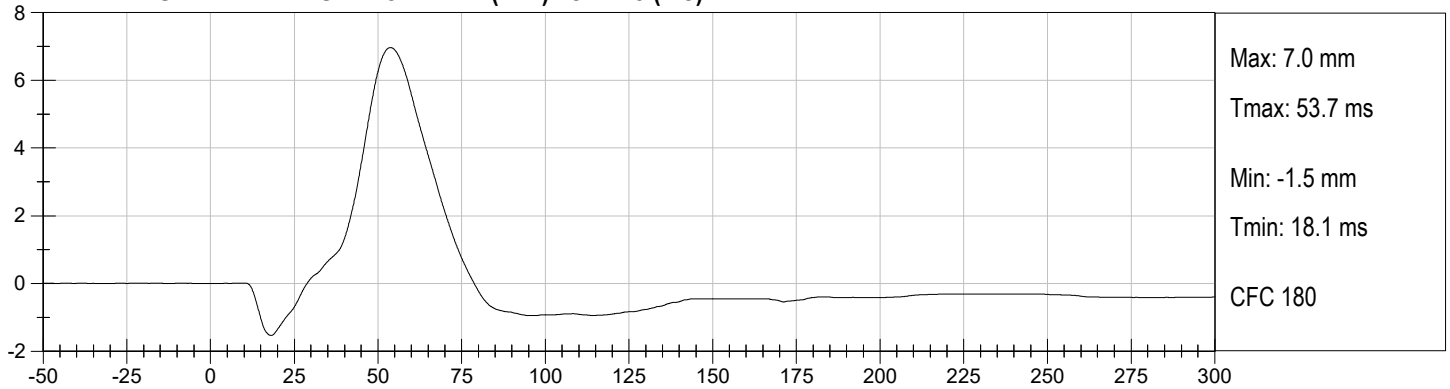
DRIVER HEAD Z (g) vs Time (ms)



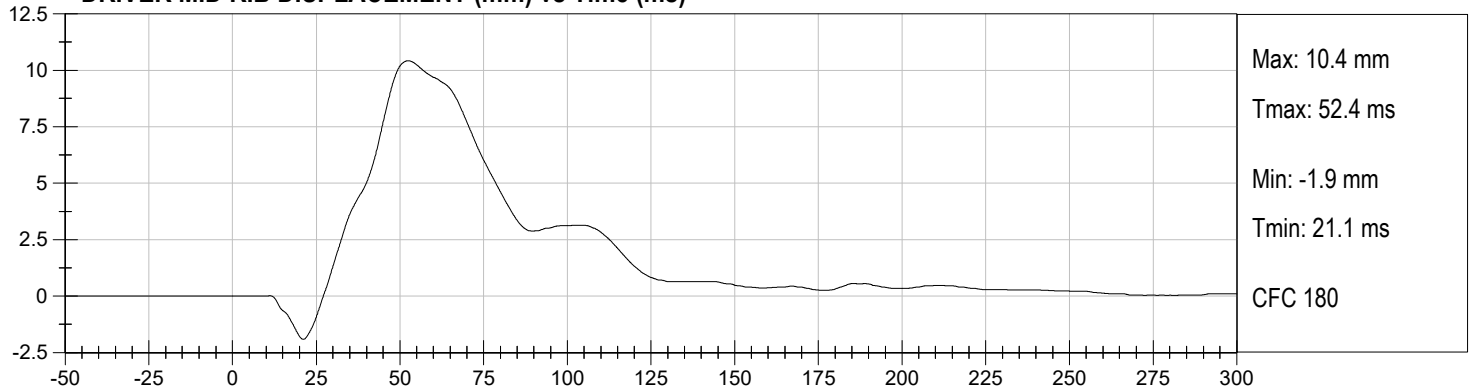
DRIVER HEAD Resultant (g) vs Time (ms)



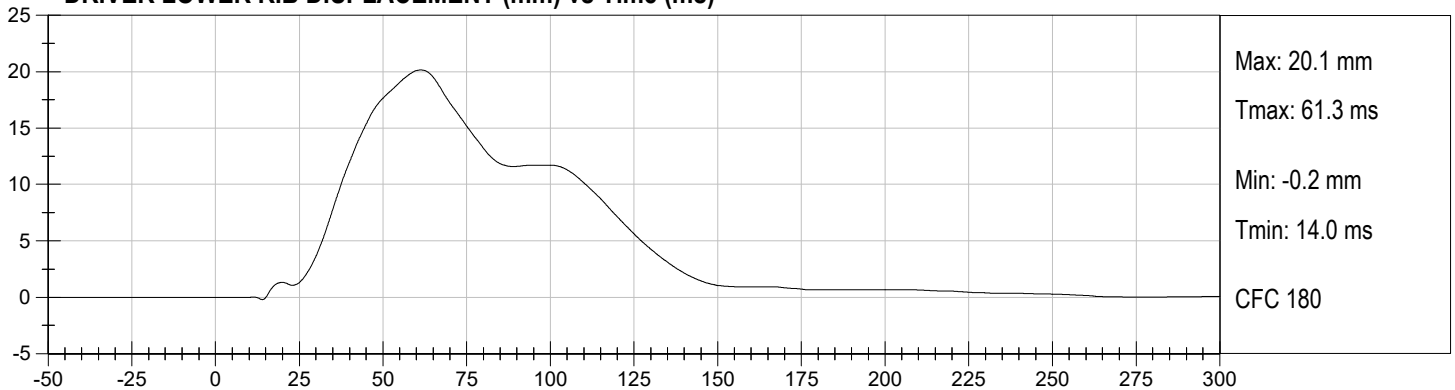
DRIVER UPPER RIB DISPLACEMENT (mm) vs Time (ms)



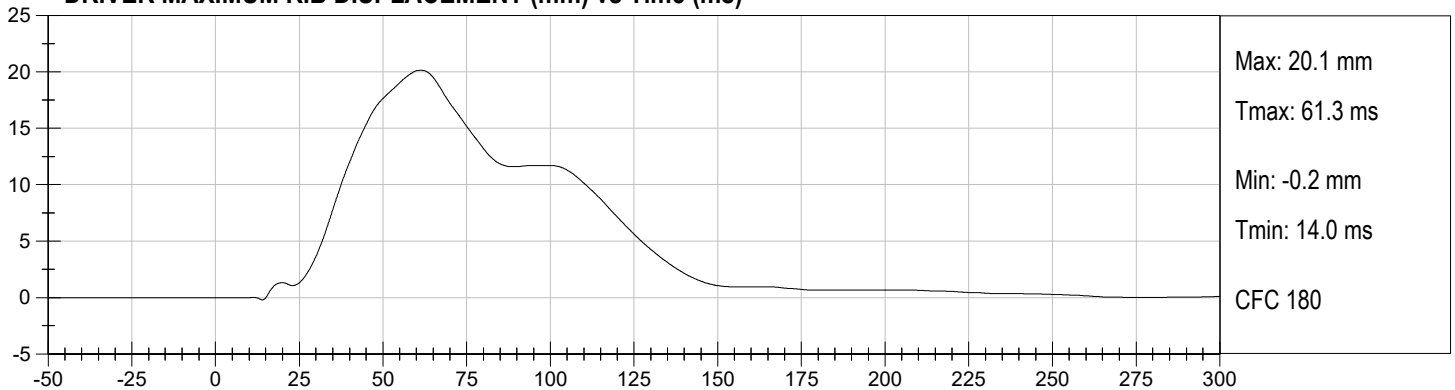
DRIVER MID RIB DISPLACEMENT (mm) vs Time (ms)



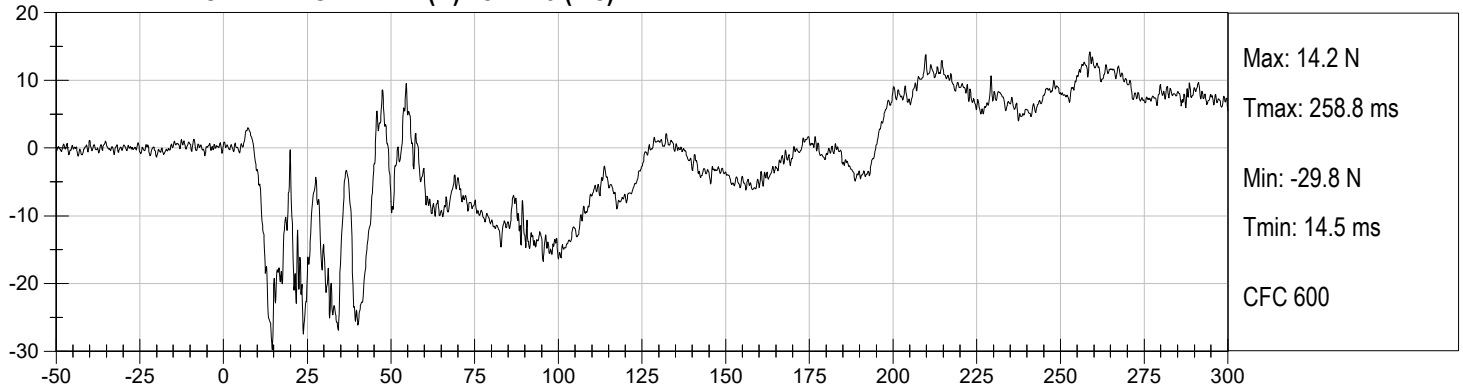
DRIVER LOWER RIB DISPLACEMENT (mm) vs Time (ms)



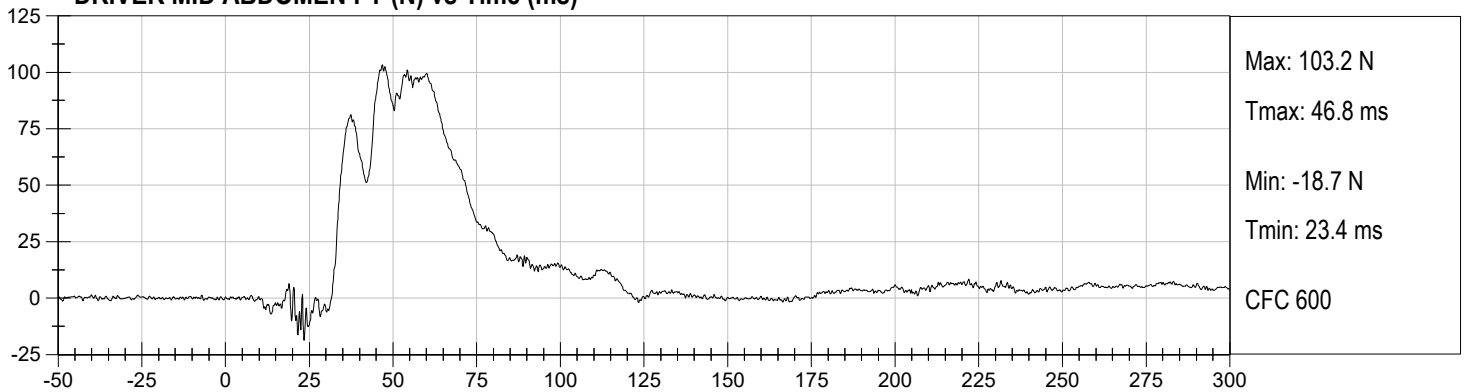
DRIVER MAXIMUM RIB DISPLACEMENT (mm) vs Time (ms)



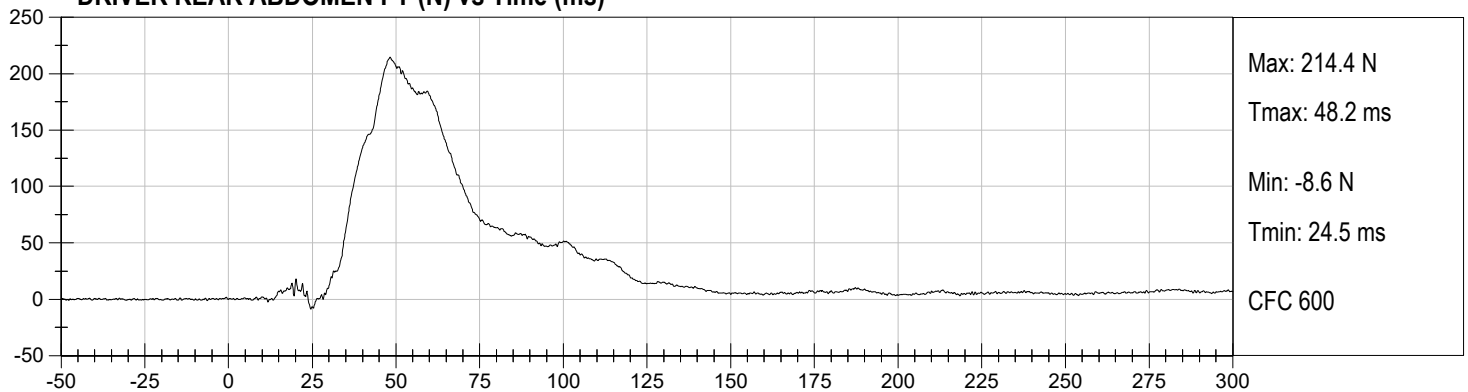
DRIVER FRONT ABDOMEN FY (N) vs Time (ms)



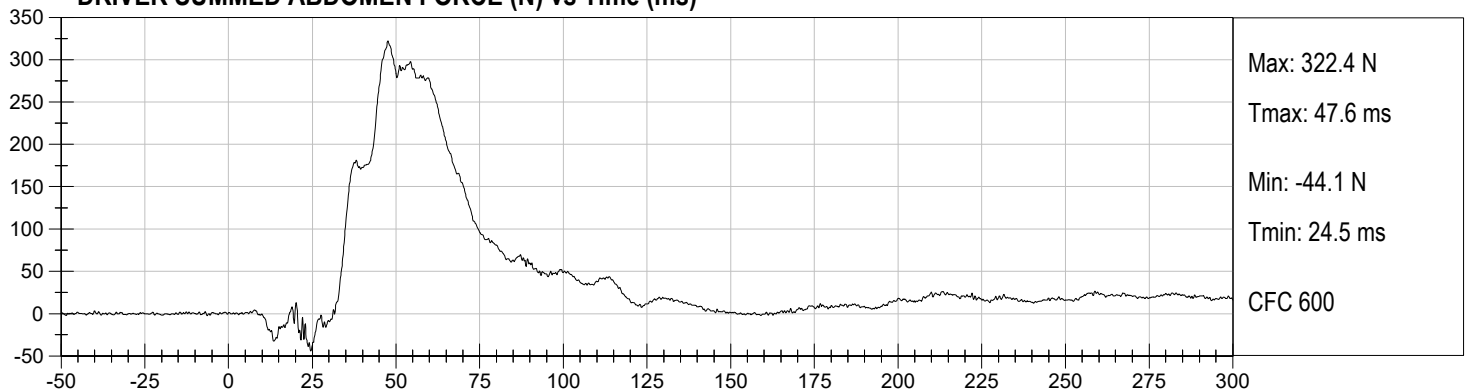
DRIVER MID ABDOMEN FY (N) vs Time (ms)

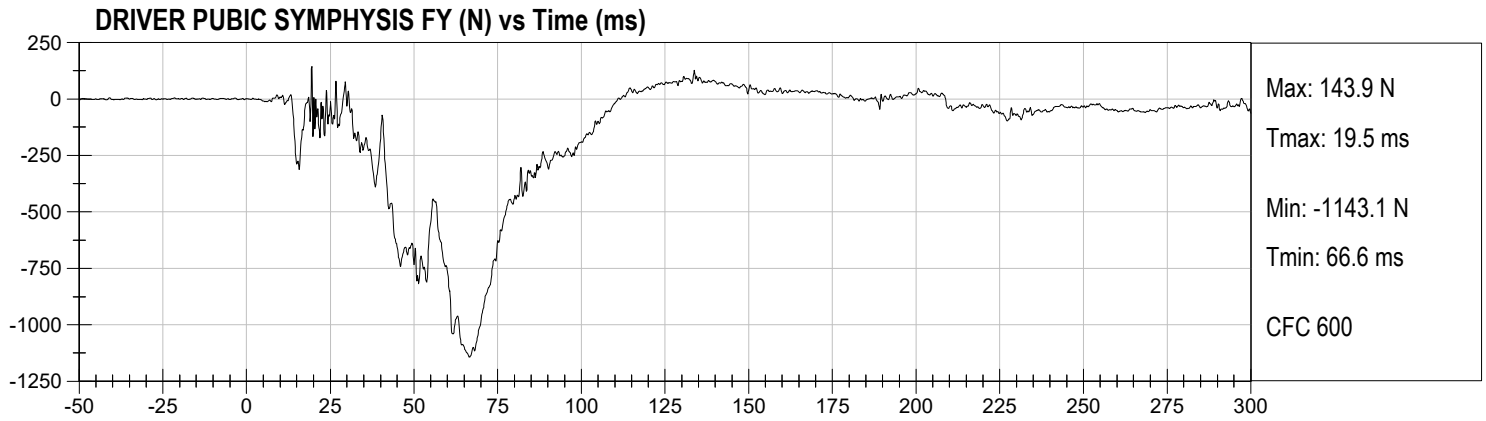


DRIVER REAR ABDOMEN FY (N) vs Time (ms)

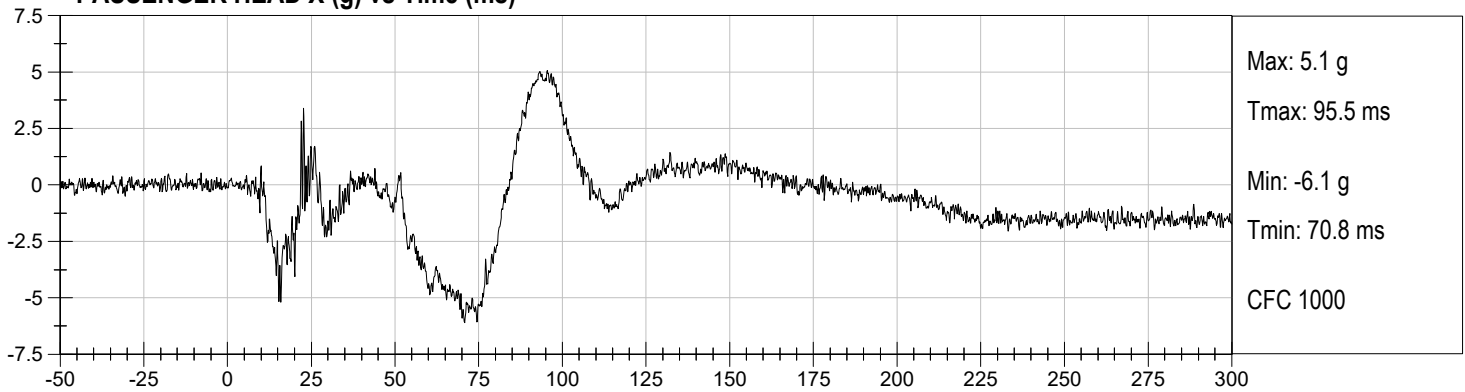


DRIVER SUMMED ABDOMEN FORCE (N) vs Time (ms)

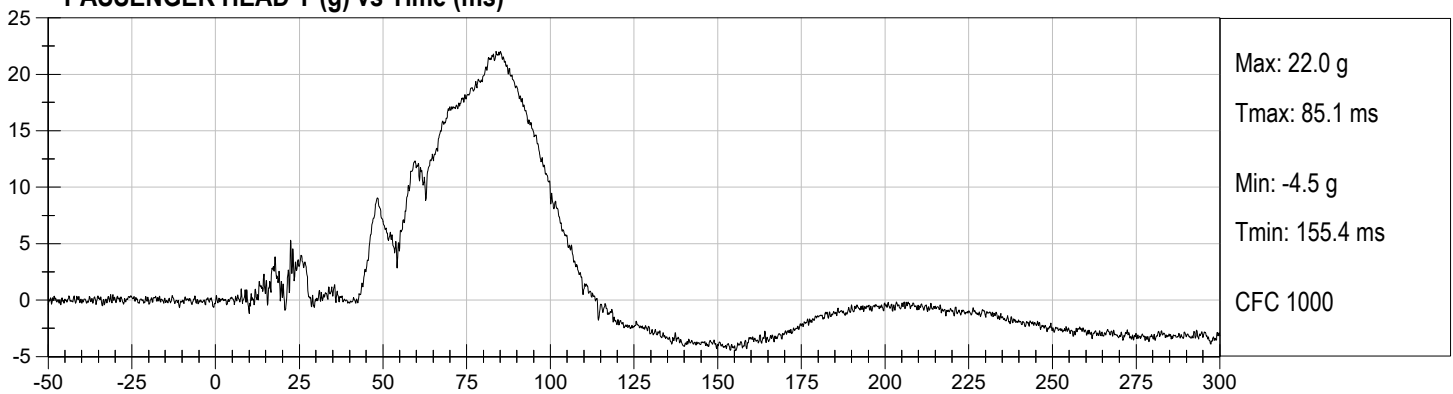




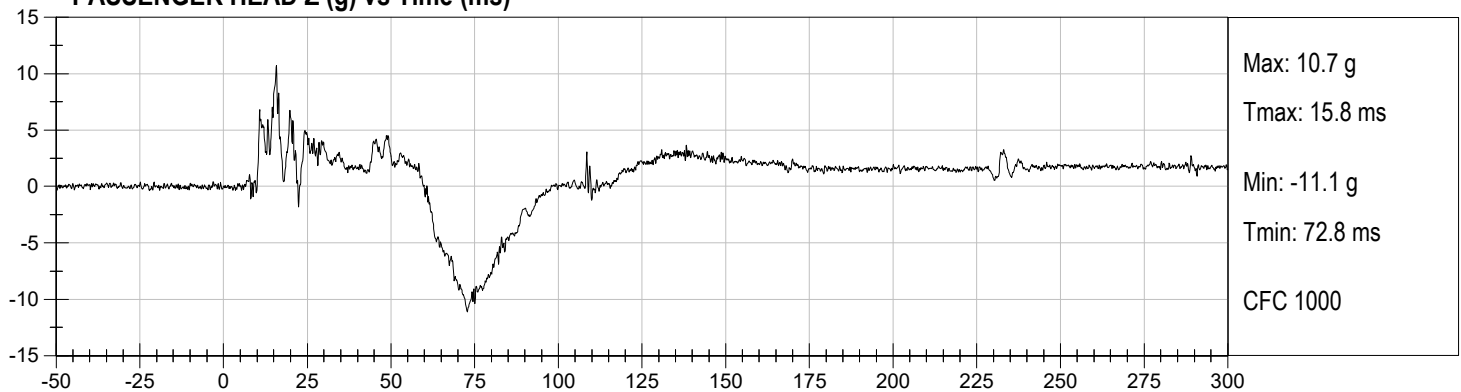
PASSENGER HEAD X (g) vs Time (ms)



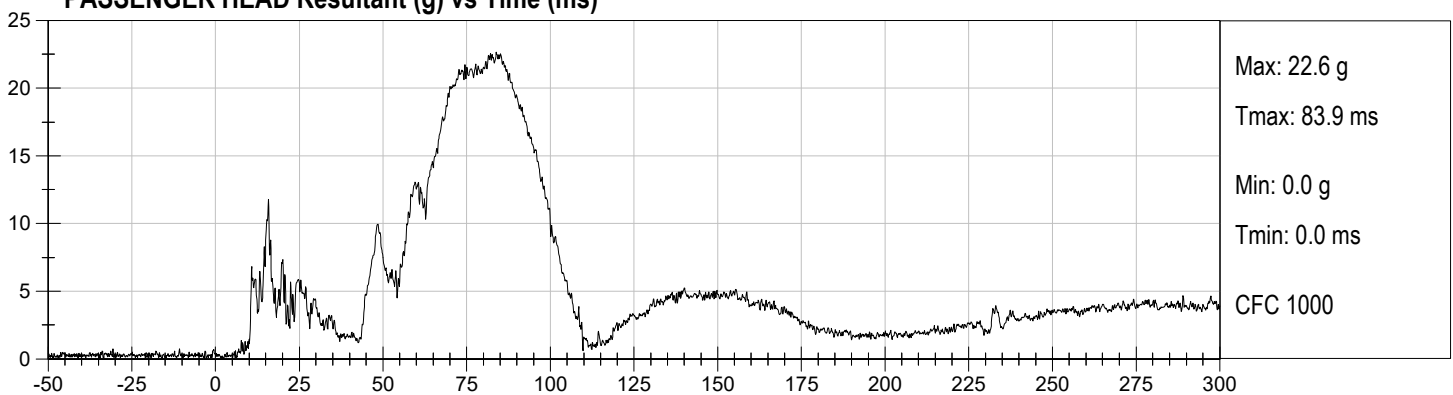
PASSENGER HEAD Y (g) vs Time (ms)



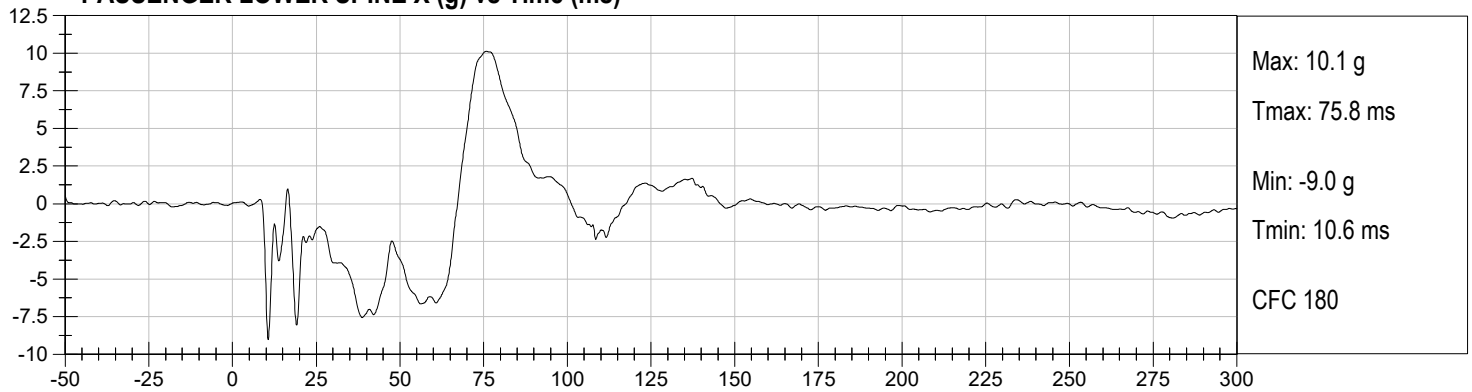
PASSENGER HEAD Z (g) vs Time (ms)



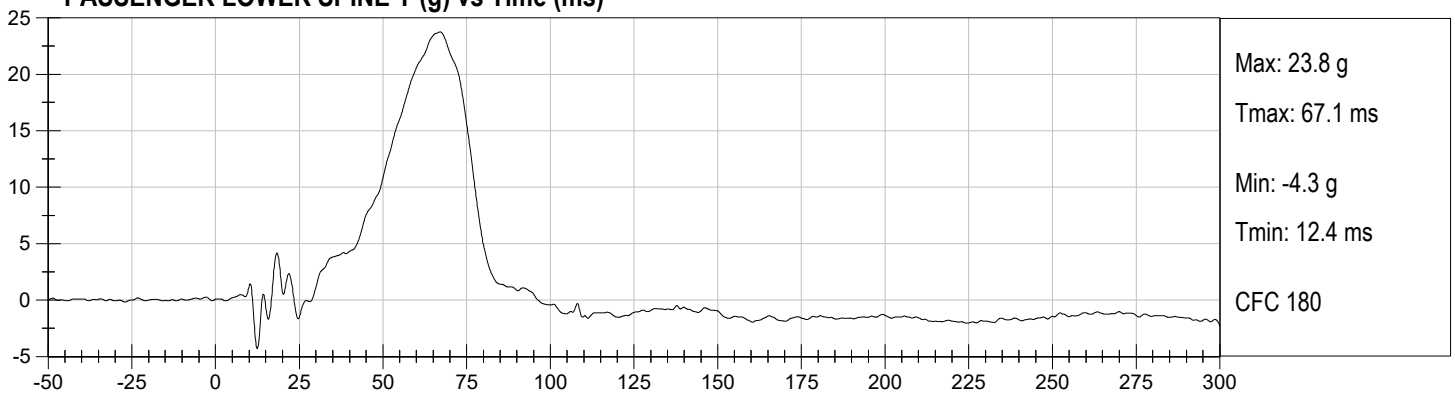
PASSENGER HEAD Resultant (g) vs Time (ms)



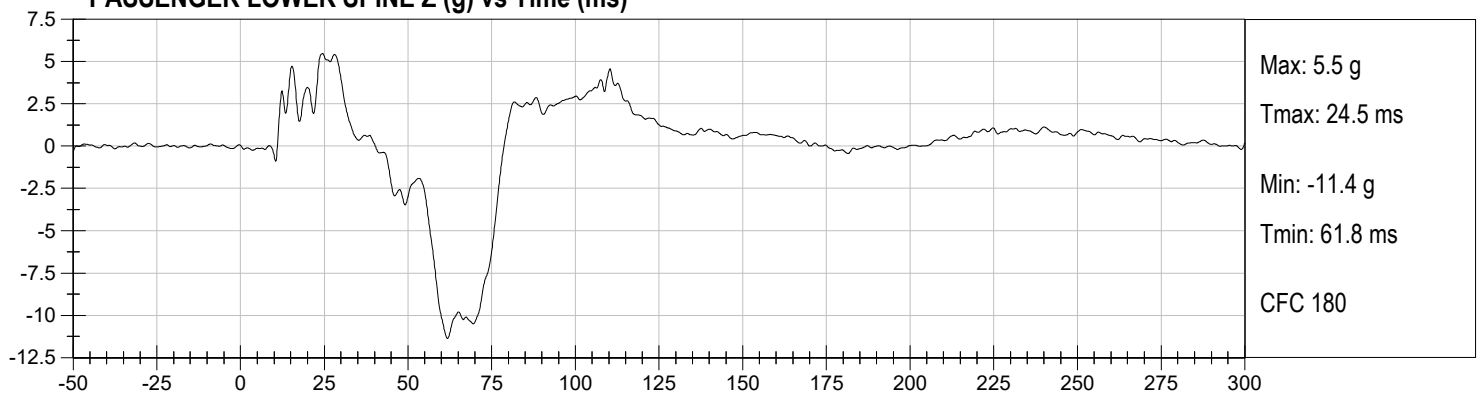
PASSENGER LOWER SPINE X (g) vs Time (ms)



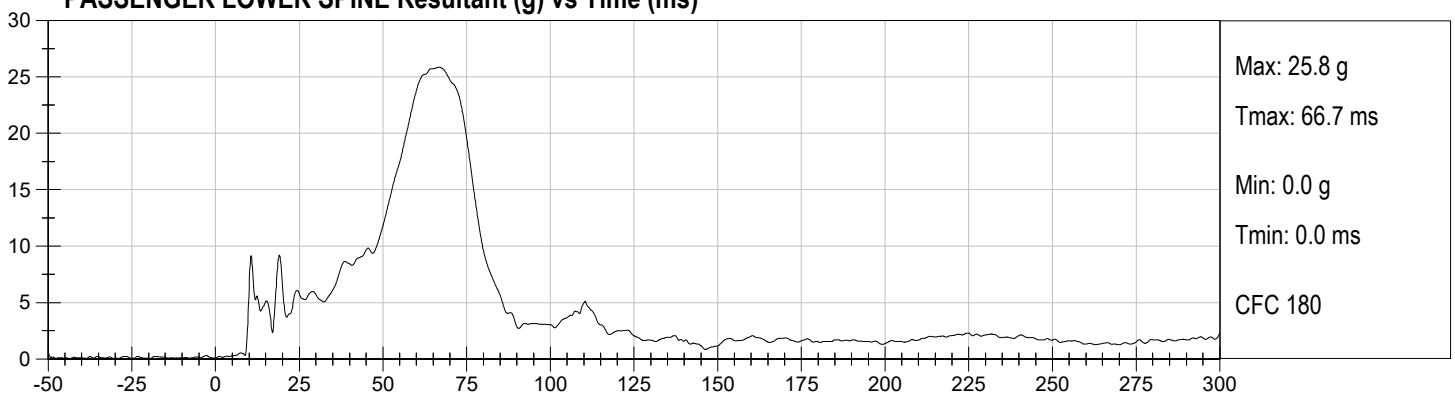
PASSENGER LOWER SPINE Y (g) vs Time (ms)



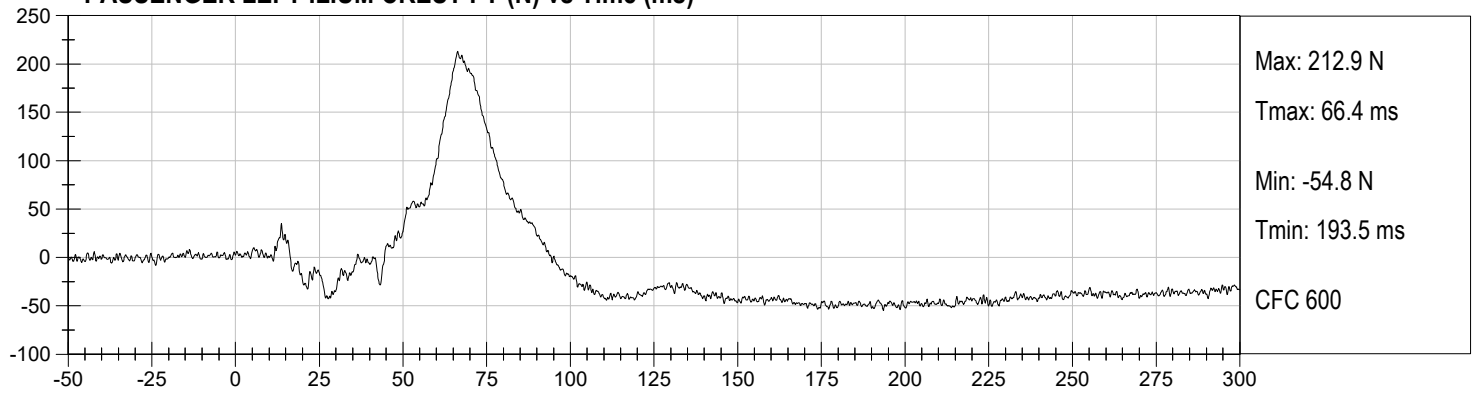
PASSENGER LOWER SPINE Z (g) vs Time (ms)



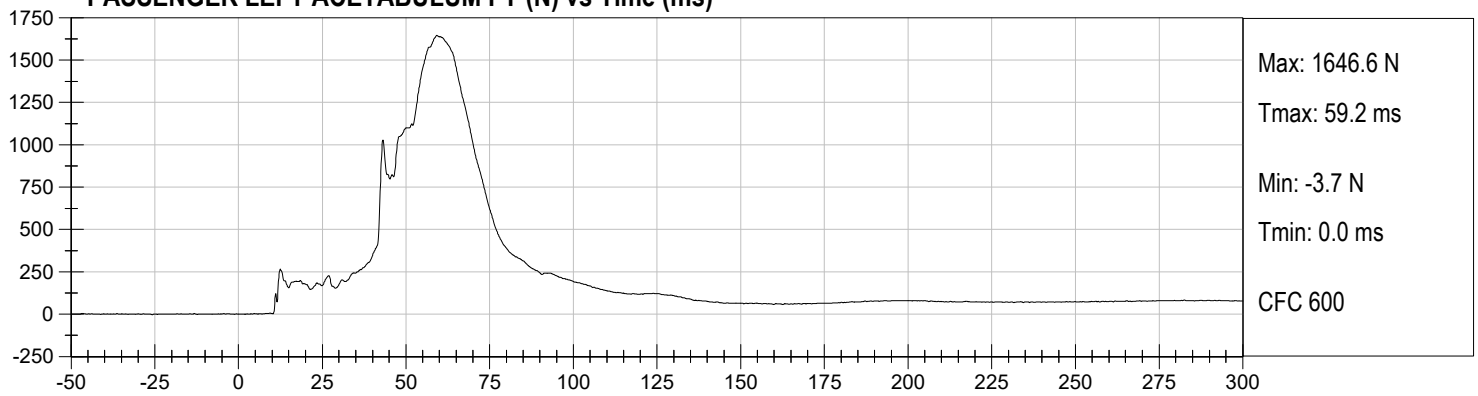
PASSENGER LOWER SPINE Resultant (g) vs Time (ms)



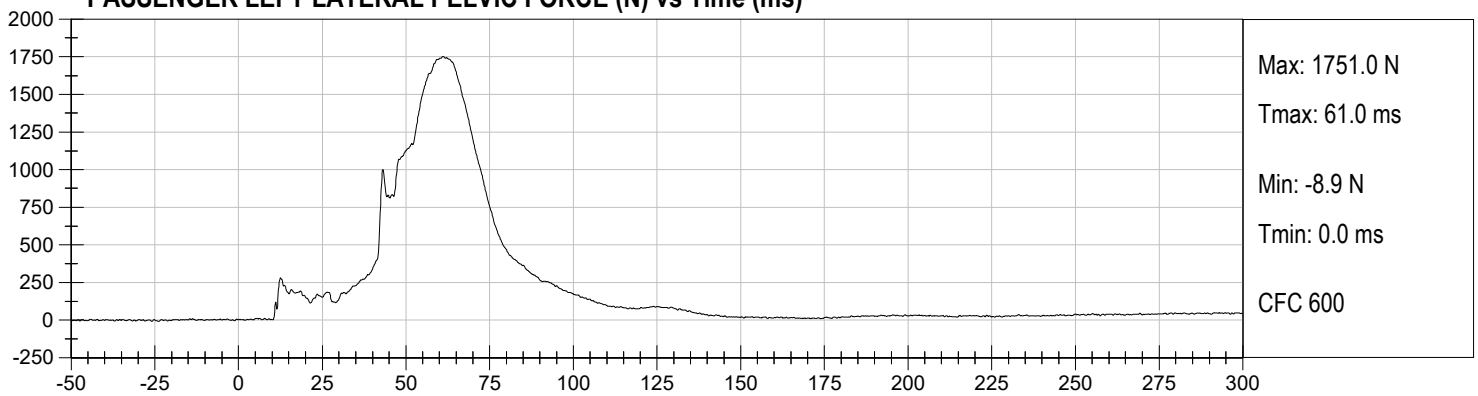
PASSENGER LEFT ILIUM CREST FY (N) vs Time (ms)



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



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



APPENDIX C
DUMMY QUALIFICATION AND PERFORMANCE VERIFICATION

QUALIFICATION TEST RESULTS

PRE-TEST

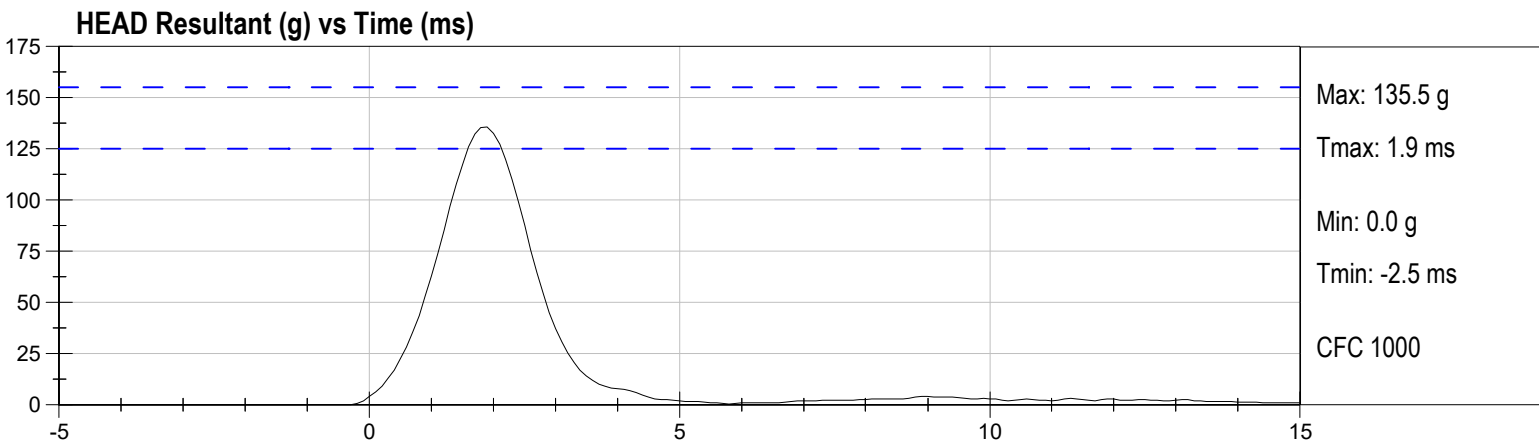
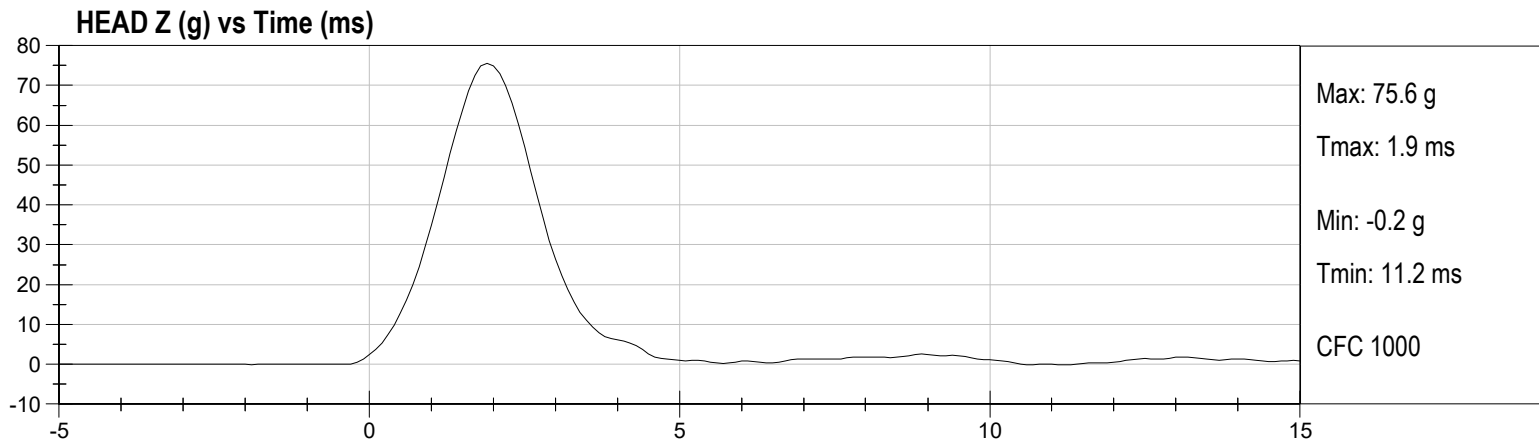
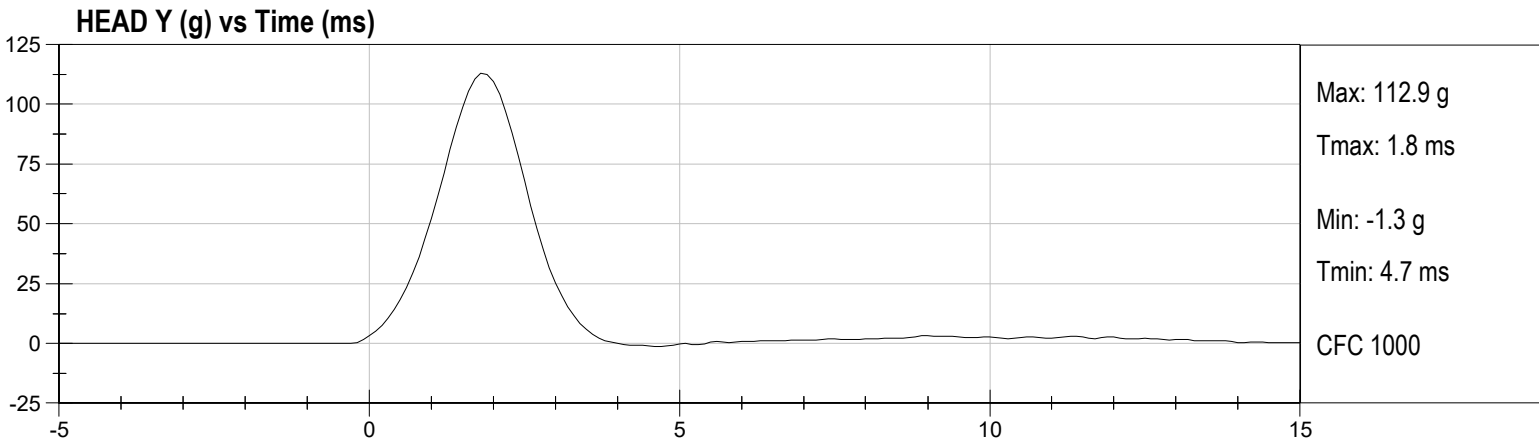
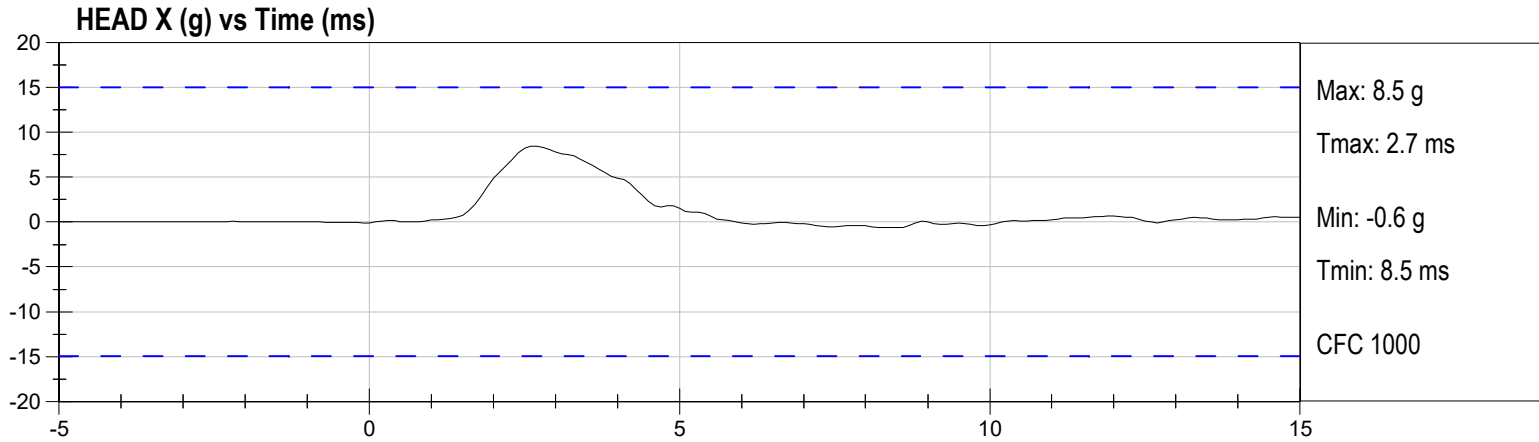
EUROSID 2 (ES-2RE) MALE – DRIVER ATD

ES-2re External Measurements
SN: F032

No.	Name	Spec. (mm)	Result	Pass/Fail
1	Sitting Height	900 - 918	915	Pass
2	Seat to Shoulder Joint	558 - 572	568	Pass
3	Seat to Lower Face of Thoracic Spine Box	346 - 356	355	Pass
4	Seat to Hip Joint (center of bolt)	97 - 103	98	Pass
5	Sole to Seat, Sitting	333 - 451	440	Pass
6	Head Width	152 - 158	157	Pass
7	Shoulder/Arm Width	461 - 479	464	Pass
8	Thorax Width	322 - 332	323	Pass
9	Abdomen Width	273 - 287	281	Pass
10	Pelvis Lap Width	359 - 373	370	Pass
11	Head Depth	196 - 206	203	Pass
12	Thorax Depth	262 - 272	264	Pass
13	Abdomen Depth	194 - 204	196	Pass
14	Pelvis Depth	235 - 245	236	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150 - 160	151	Pass
16	Back of Buttocks to Front Knee	597 - 615	607	Pass

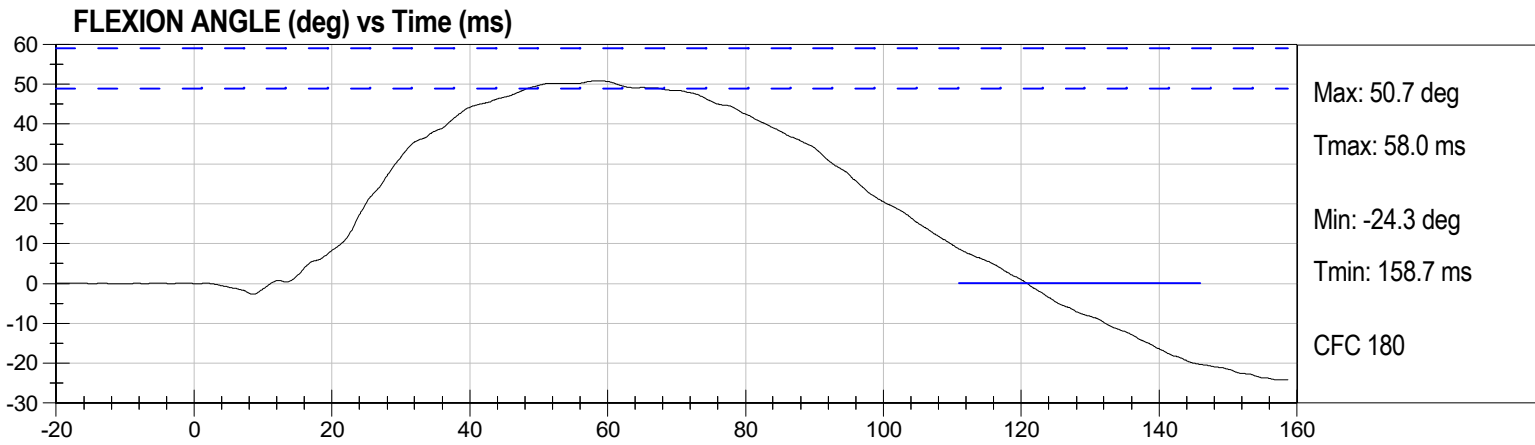
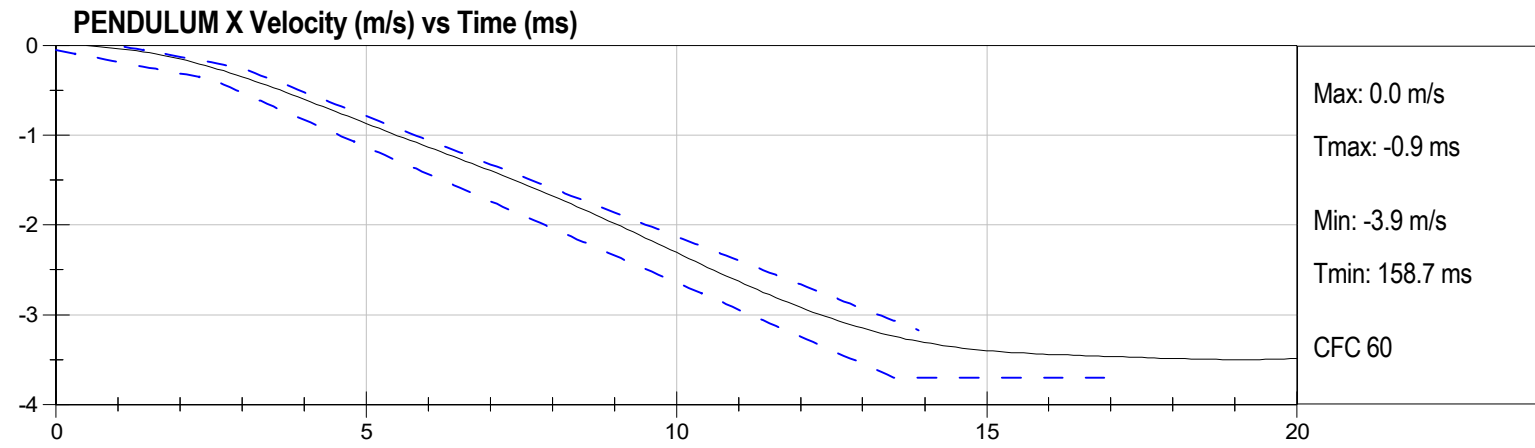
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Peak Resultant Acceleration	g	125 to 155	136	Pass
Peak Longitudinal Acceleration	g	-15 to 15	8.5	Pass
Unimodal	%	within 15% of peak	3	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
HEAD X	Endevco	P78728	02/24/2025	8/26/2025
HEAD Y	Endevco	P78732	02/24/2025	8/26/2025
HEAD Z	Endevco	P78739	02/24/2025	8/26/2025

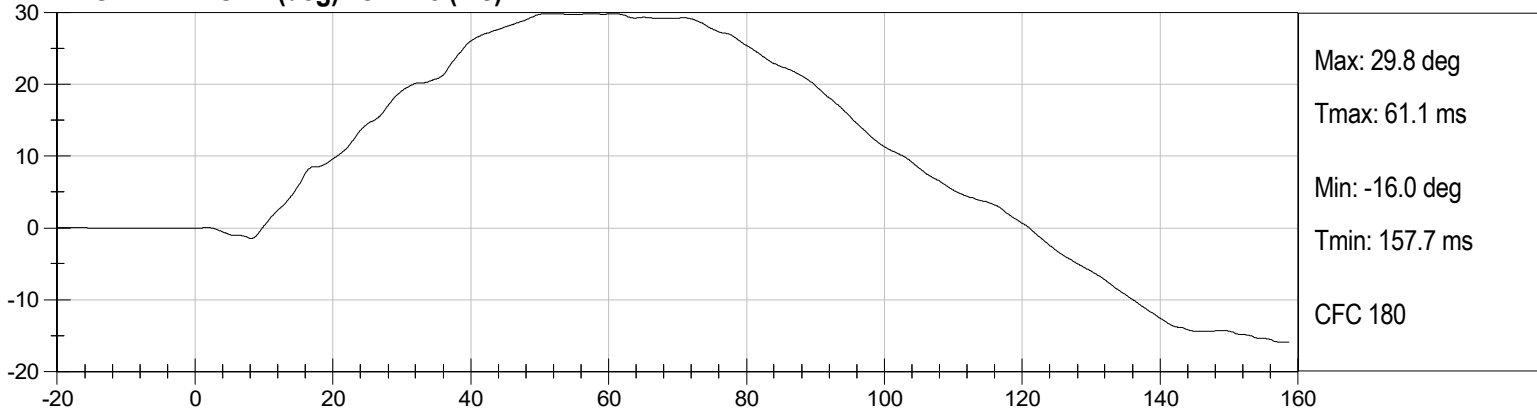


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	3.30 to 3.50	3.40	Pass
Pendulum Velocity Within Corridor	m/s	Within	Yes	Pass
Maximum Flexion Angle	deg	49 to 59	50.7	Pass
Time of Maximum Flexion Angle	ms	54 to 66	58.0	Pass
Decay Time to Zero Crossing	ms	53 to 88	63.0	Pass

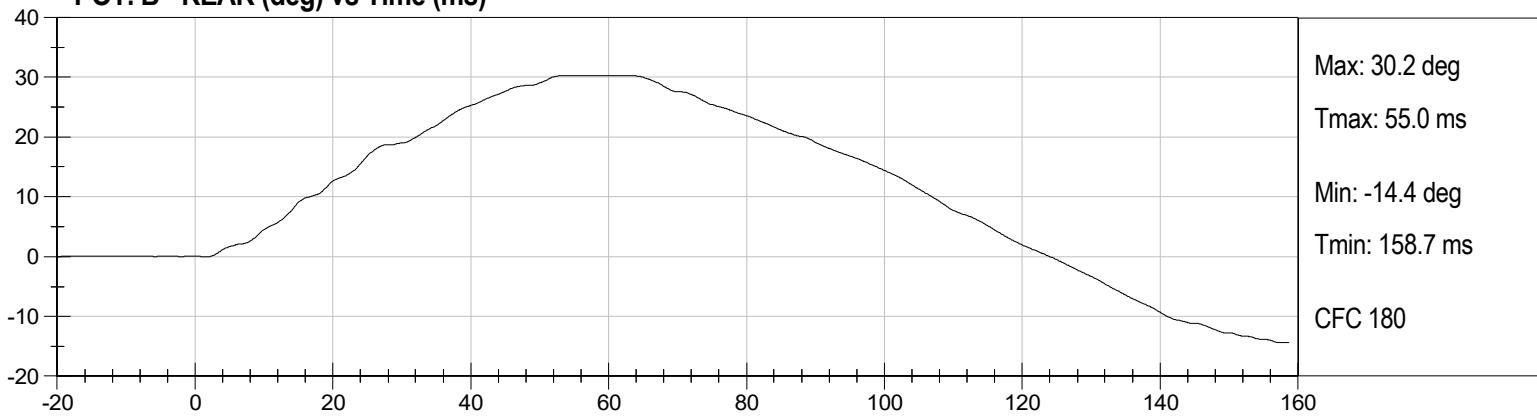
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PEND. ACCEL.	Endevco	C19538	05/19/2025	11/18/2025
POT. B - REAR	Spectrol	025_es2	07/15/2025	1/14/2026
POT. A - FRONT	Spectrol	027_es2	07/15/2025	1/14/2026
POT. C - HEADFORM	Spectrol	028_es2	07/15/2025	1/14/2026



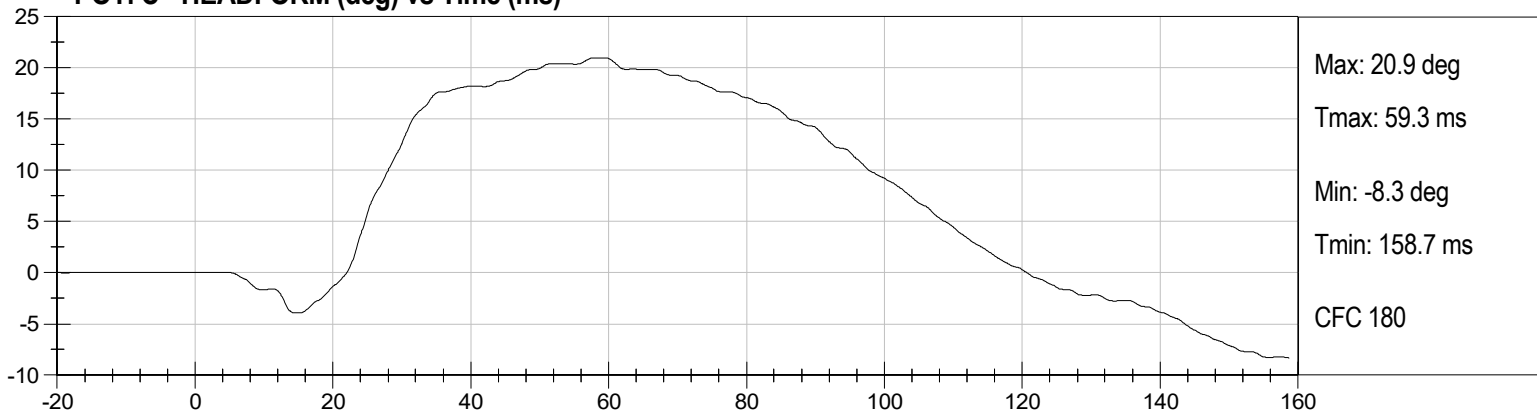
POT. A - FRONT (deg) vs Time (ms)



POT. B - REAR (deg) vs Time (ms)



POT. C - HEADFORM (deg) vs Time (ms)



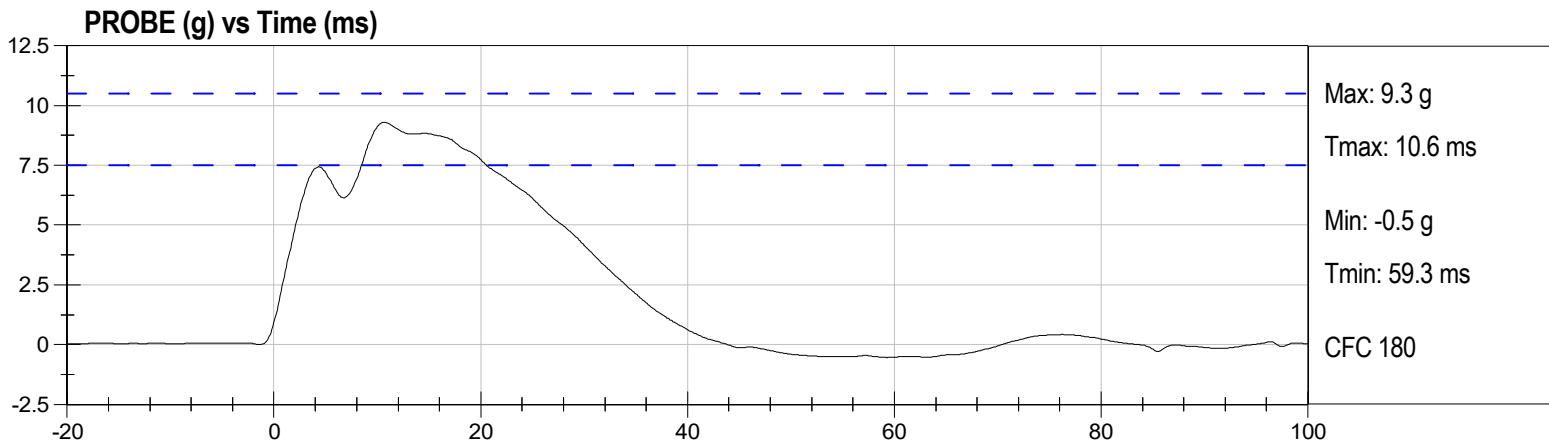


Shoulder Impact Test
ES2re
ATD Serial No: F032

Test Date: 08/07/2025
Test ID: D252323
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	48	Pass
Impact Velocity	m/s	4.2 to 4.4	4.2	Pass
Peak Probe Acceleration	G's	7.5 to 10.5	9.3	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025



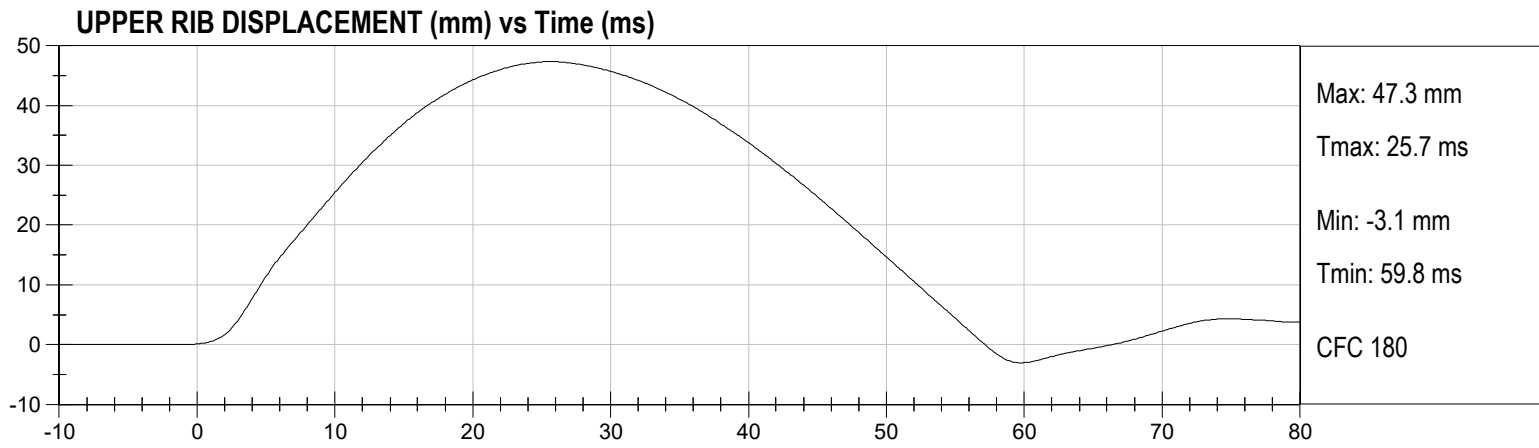


Upper Rib Drop Test - 815mm
ES2re
ATD Serial No: F032

Test Date: 08/07/2025
Test ID: D252324H
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Rib Deflection at 815 mm	mm	46 to 51	47.3	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
UPPER RIB DISPLACEMENT	Honeywell	G236	05/15/2025	11/14/2025



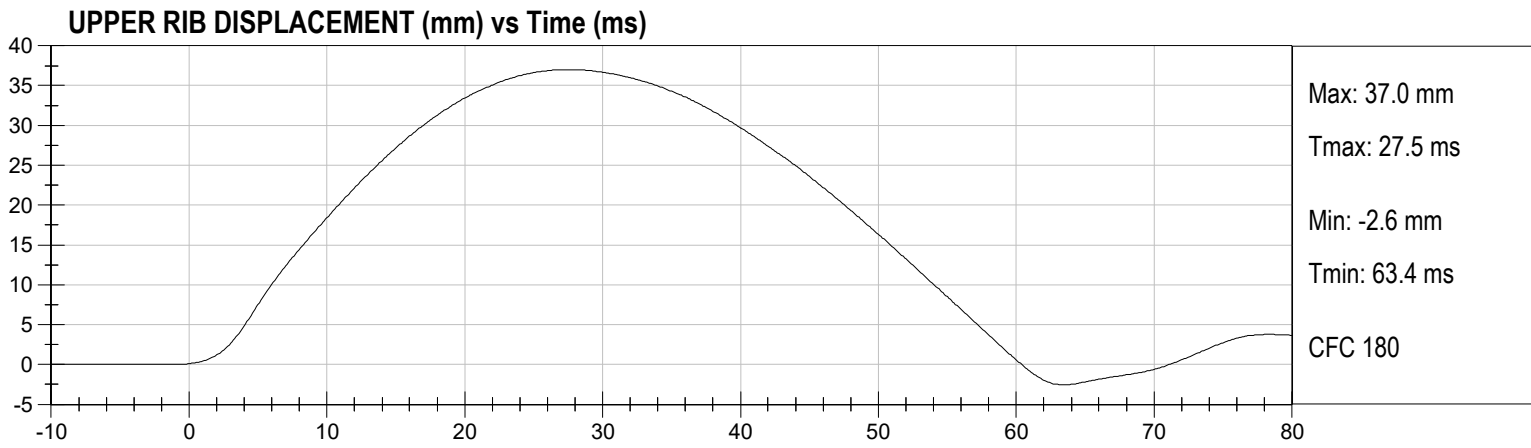


Upper Rib Drop Test - 459mm
ES2re
ATD Serial No: F032

Test Date: 08/07/2025
Test ID: D252324L
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Rib Deflection at 459 mm	mm	36 to 40	37.0	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
UPPER RIB DISPLACEMENT	Honeywell	G236	05/15/2025	11/14/2025



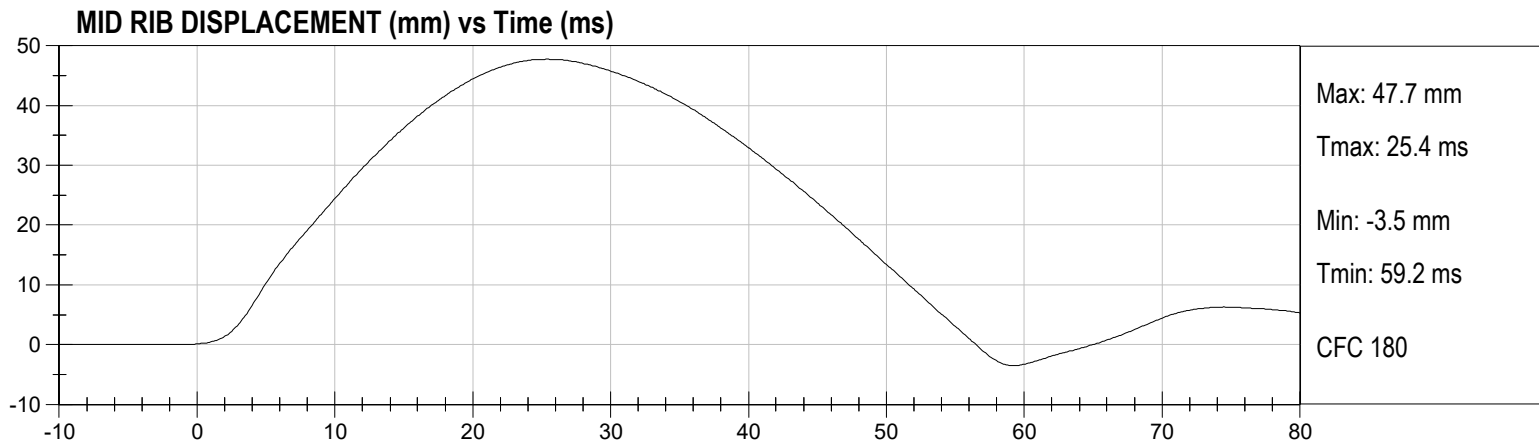


Middle Rib Drop Test - 815mm
ES2re
ATD Serial No: F032

Test Date: 08/07/2025
Test ID: D252325H
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Rib Deflection at 815 mm	mm	46 to 51	47.7	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
MID RIB DISPLACEMENT	Honeywell	G368	05/15/2025	11/14/2025



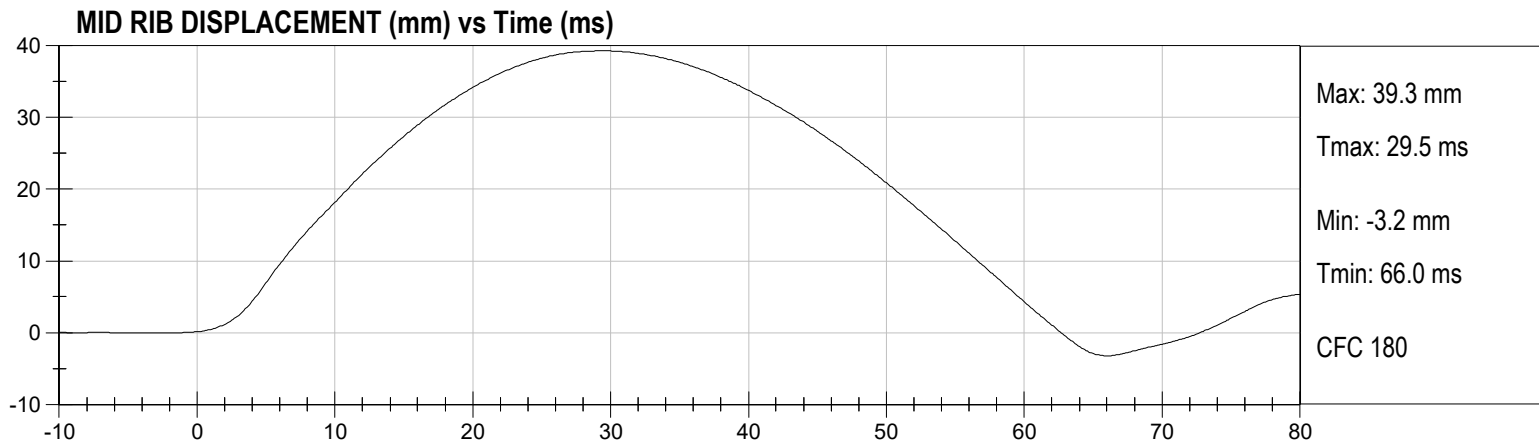


Middle Rib Drop Test - 459mm
ES2re
ATD Serial No: F032

Test Date: 08/07/2025
Test ID: D252325L
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Rib Deflection at 459 mm	mm	36 to 40	39.3	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
MID RIB DISPLACEMENT	Honeywell	G368	05/15/2025	11/14/2025



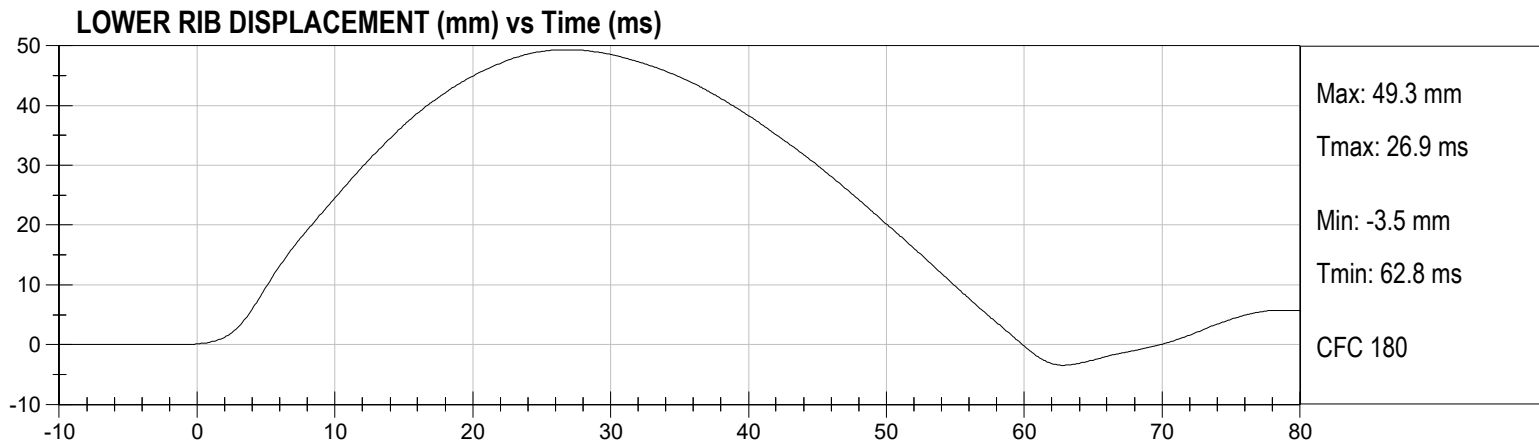


Lower Rib Drop Test - 815mm
ES2re
ATD Serial No: F032

Test Date: 08/07/2025
Test ID: D252326H
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Rib Deflection at 815 mm	mm	46 to 51	49.3	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
LOWER RIB DISPLACEMENT	Honeywell	G164	05/15/2025	11/14/2025



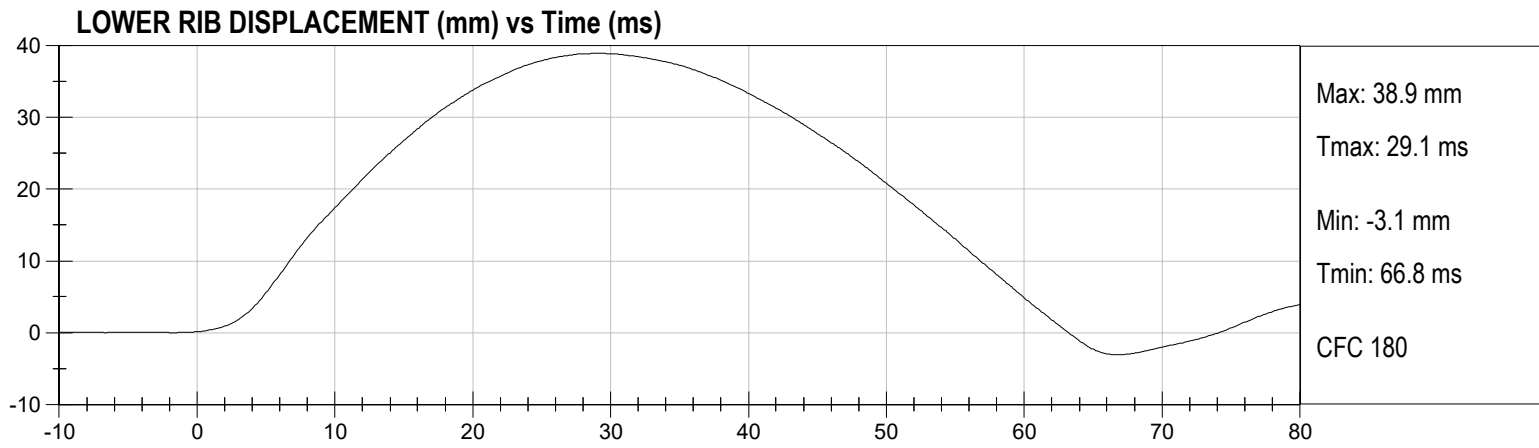


Lower Rib Drop Test - 459mm
ES2re
ATD Serial No: F032

Test Date: 08/07/2025
Test ID: D252326L
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Rib Deflection at 459 mm	mm	36 to 40	38.9	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
LOWER RIB DISPLACEMENT	Honeywell	G164	05/15/2025	11/14/2025



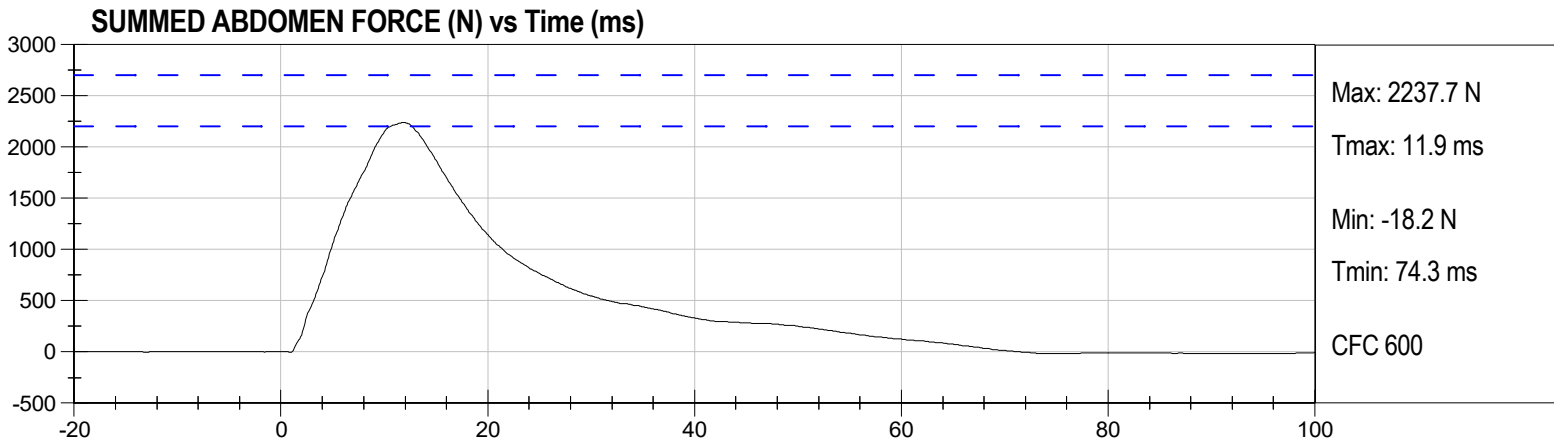
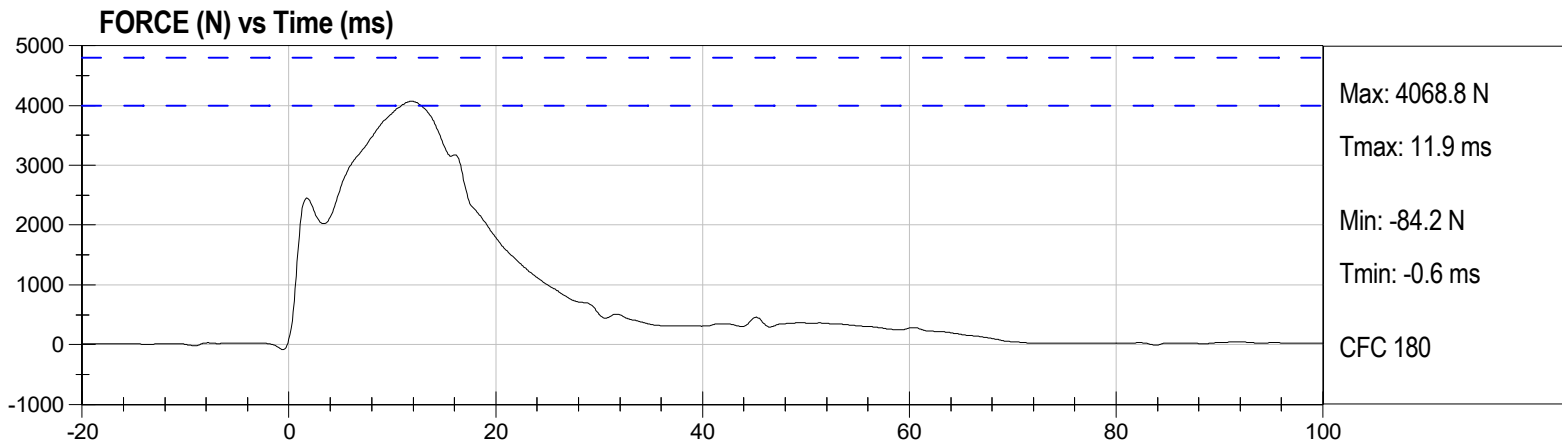


Abdomen Impact Test
ES2re
ATD Serial No: F032

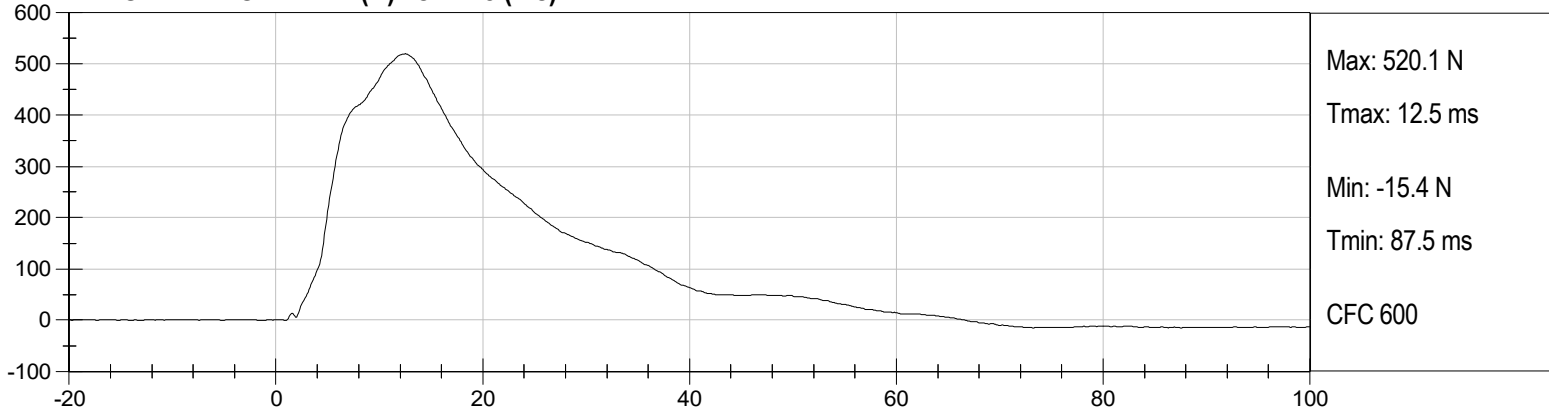
Test Date: 08/07/2025
Test ID: D252327
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	48	Pass
Impact Velocity	m/s	3.9 to 4.1	4.0	Pass
Peak Probe Force	N	4000 to 4800	4069	Pass
Time of Peak Probe Force	ms	10.6 to 13.0	11.9	Pass
Peak Abdomen Force	N	2200 to 2700	2238	Pass
Time of Peak Abdomen Force	ms	10.0 to 12.3	11.9	Pass

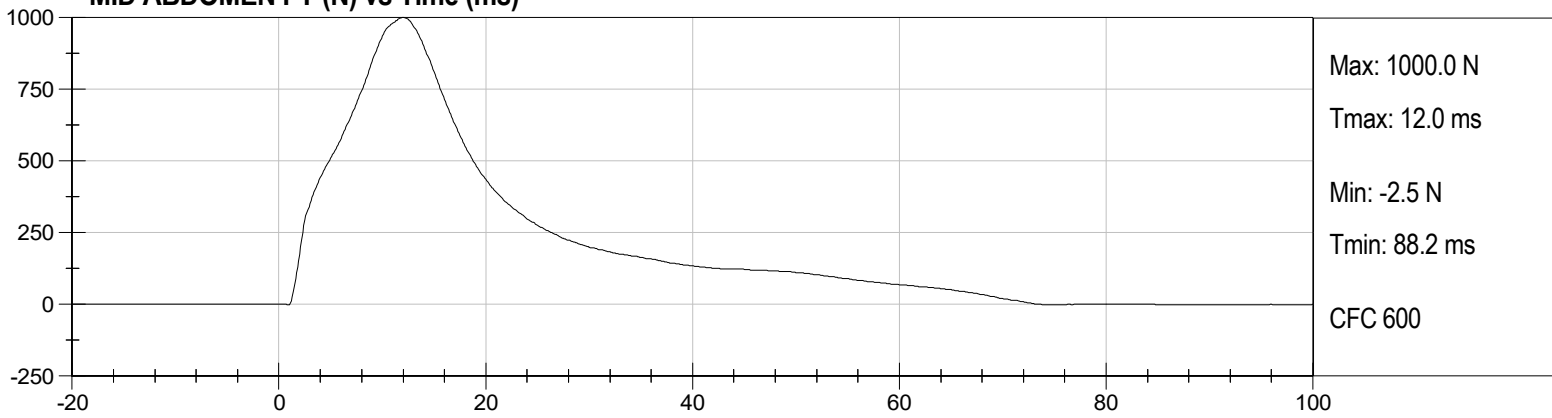
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
FRONT ABDOMEN FY	Denton	ABG1532FY	01/20/2025	1/20/2026
MID ABDOMEN FY	Denton	ABG1534FY	01/20/2025	1/20/2026
REAR ABDOMEN FY	Denton	ABG1535FY	01/20/2025	1/20/2026



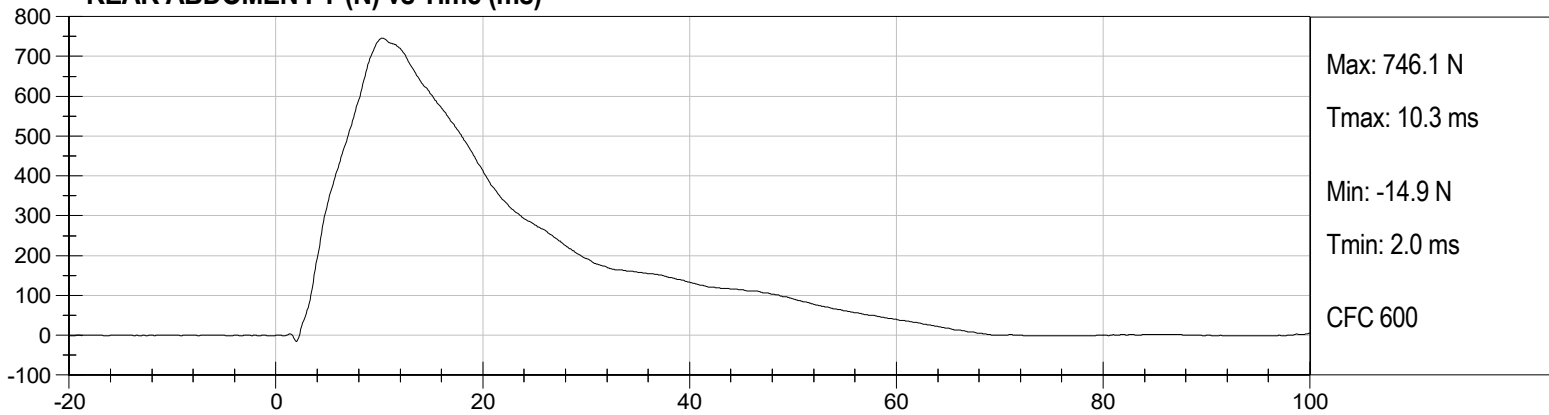
FRONT ABDOMEN FY (N) vs Time (ms)



MID ABDOMEN FY (N) vs Time (ms)

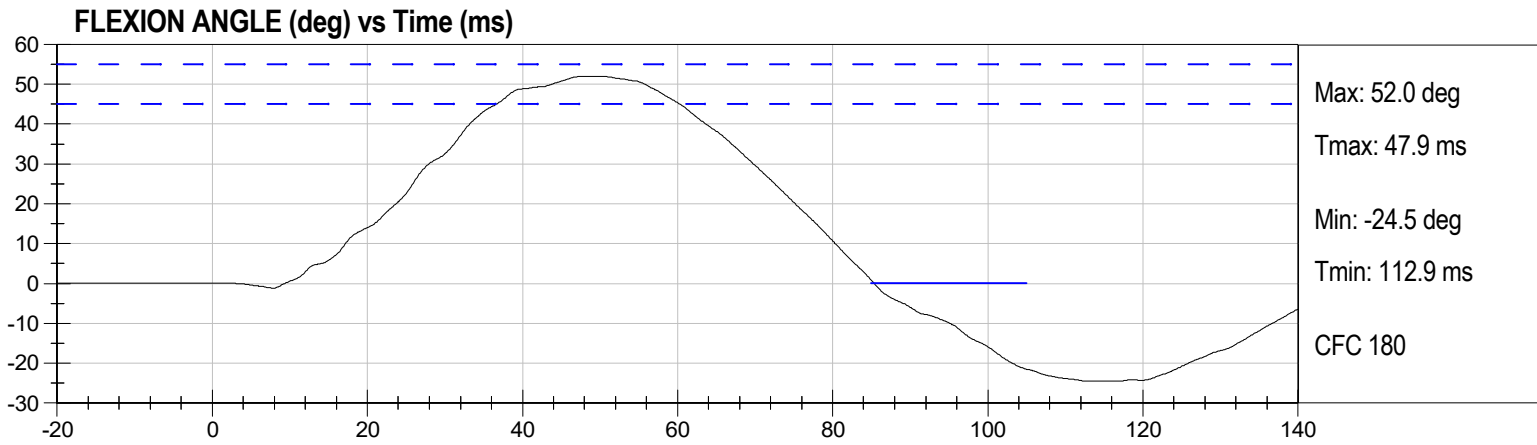
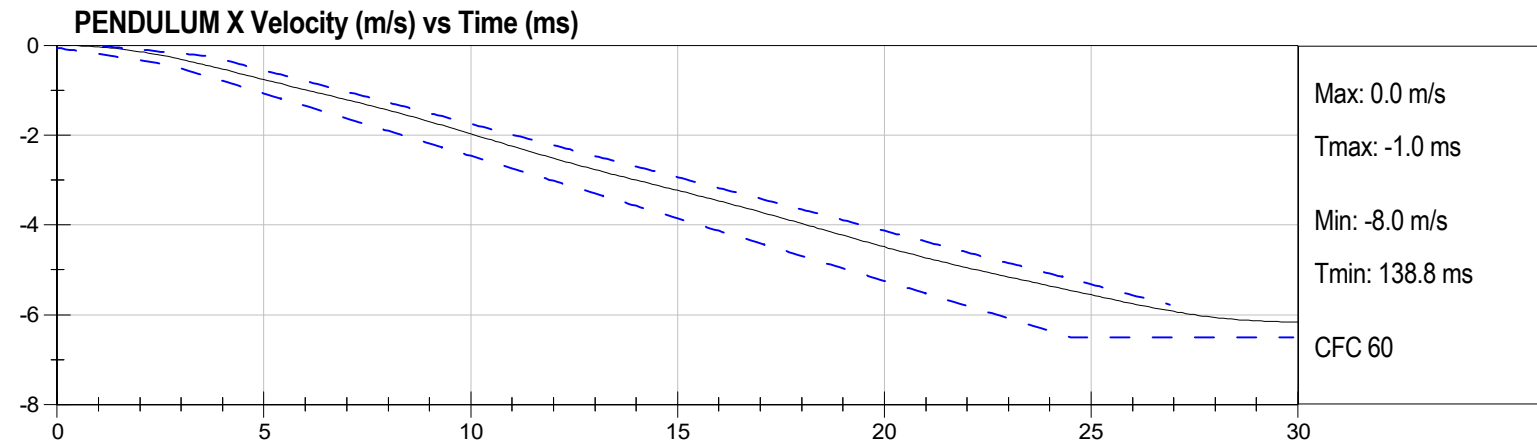


REAR ABDOMEN FY (N) vs Time (ms)

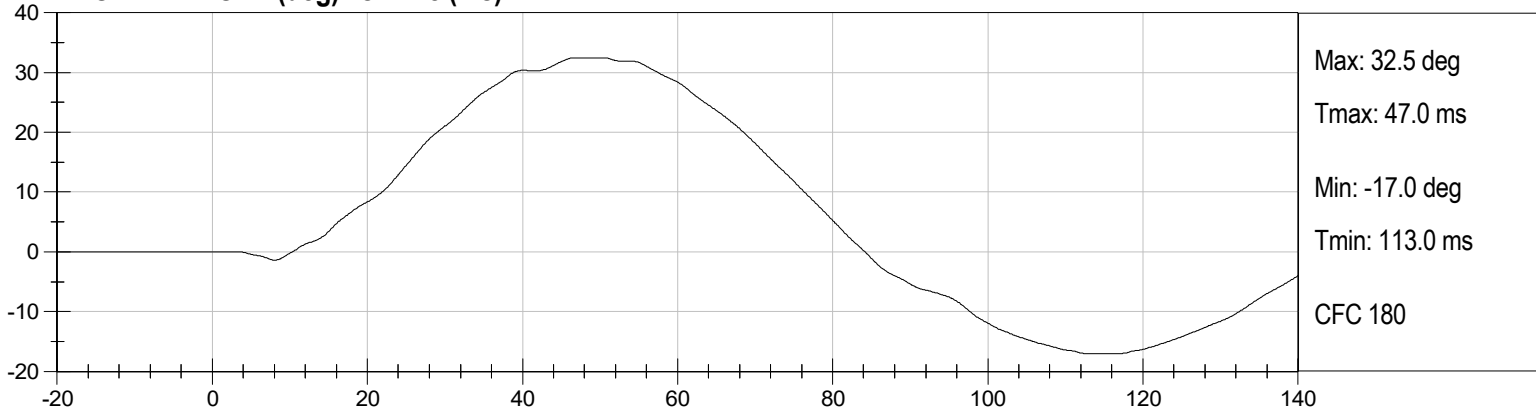


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	5.95 to 6.15	5.98	Pass
Pendulum Velocity Within Corridor	m/s	Within	Yes	Pass
Maximum Flexion Angle	deg	45 to 55	52	Pass
Time of Maximum Flexion Angle	ms	39 to 53	48	Pass
Decay Time to Zero Crossing from Peak	ms	37 to 57	38	Pass

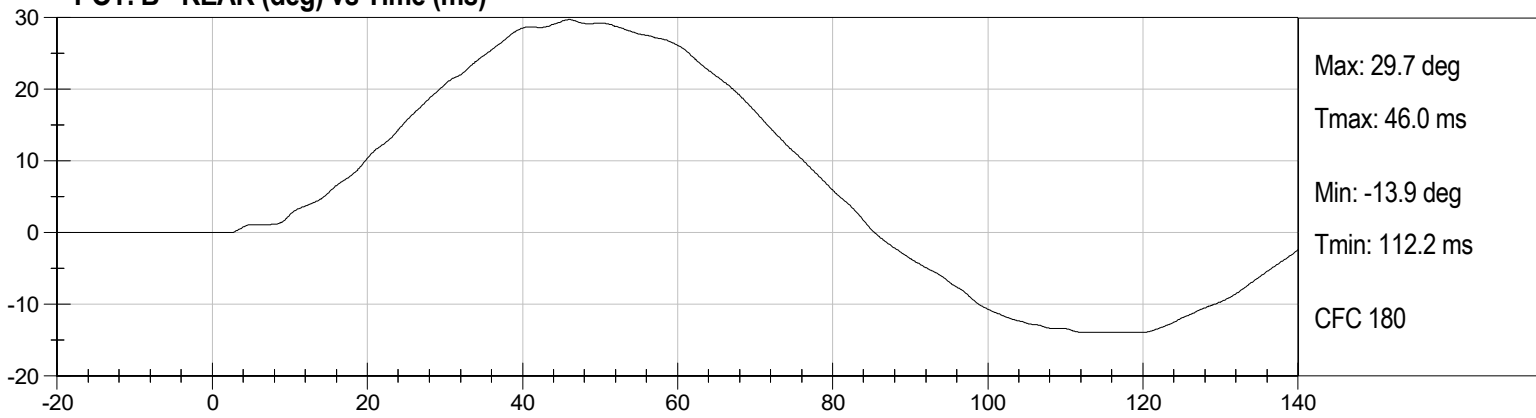
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PEND. ACCEL.	Endevco	C19538	05/19/2025	11/18/2025
POT. B - REAR	Spectrol	025_es2	07/15/2025	1/14/2026
POT. A - FRONT	Spectrol	027_es2	07/15/2025	1/14/2026
POT. C - HEADFORM	Spectrol	028_es2	07/15/2025	1/14/2026



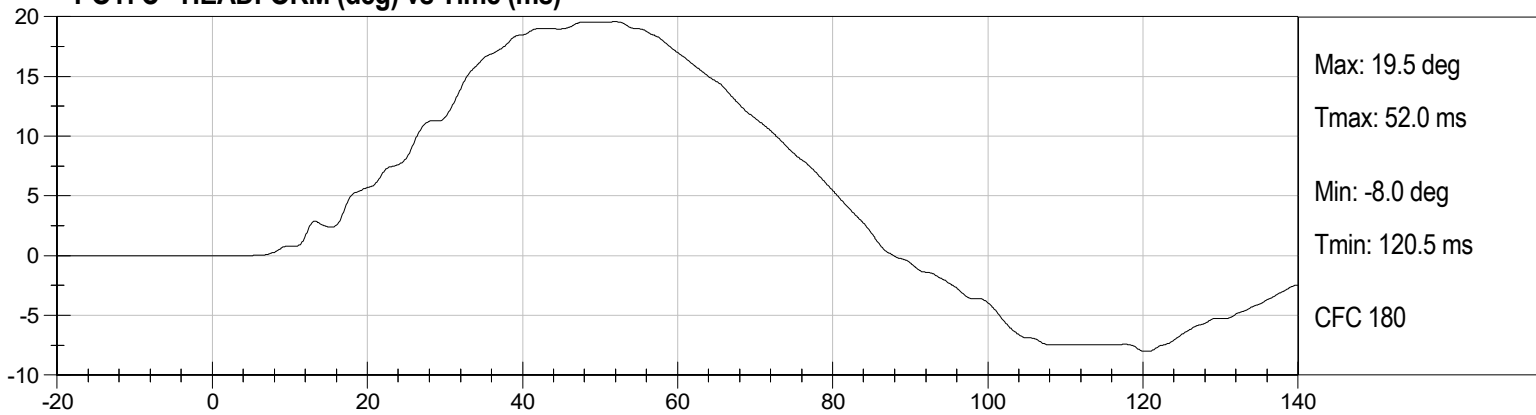
POT. A - FRONT (deg) vs Time (ms)



POT. B - REAR (deg) vs Time (ms)

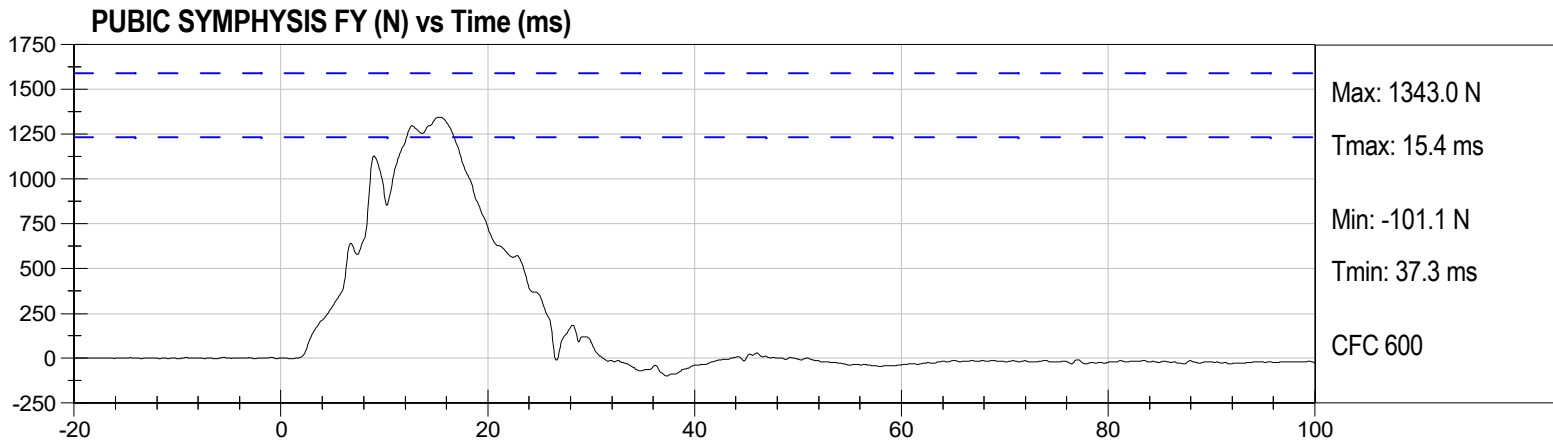
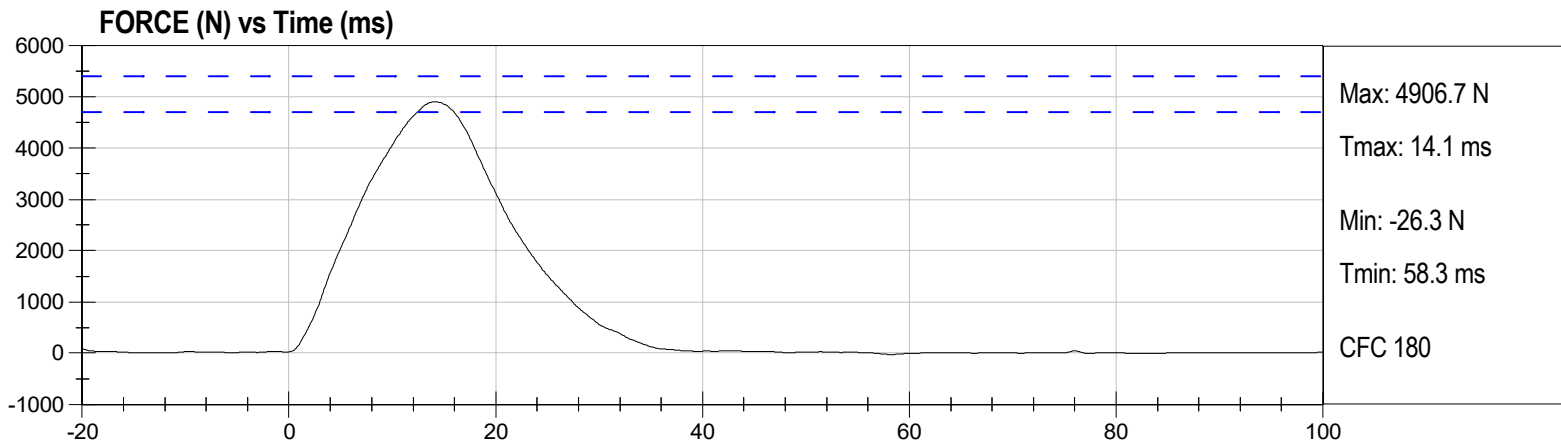


POT. C - HEADFORM (deg) vs Time (ms)



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.2 to 4.4	4.38	Pass
Peak Probe Force	N	4700 to 5400	4907	Pass
Time of Peak Probe Force	ms	11.8 to 16.1	14.1	Pass
Peak Pubic Force	N	1230 to 1590	1343	Pass
Time of Peak Pubic Force	ms	12.2 to 17.0	15.4	Pass

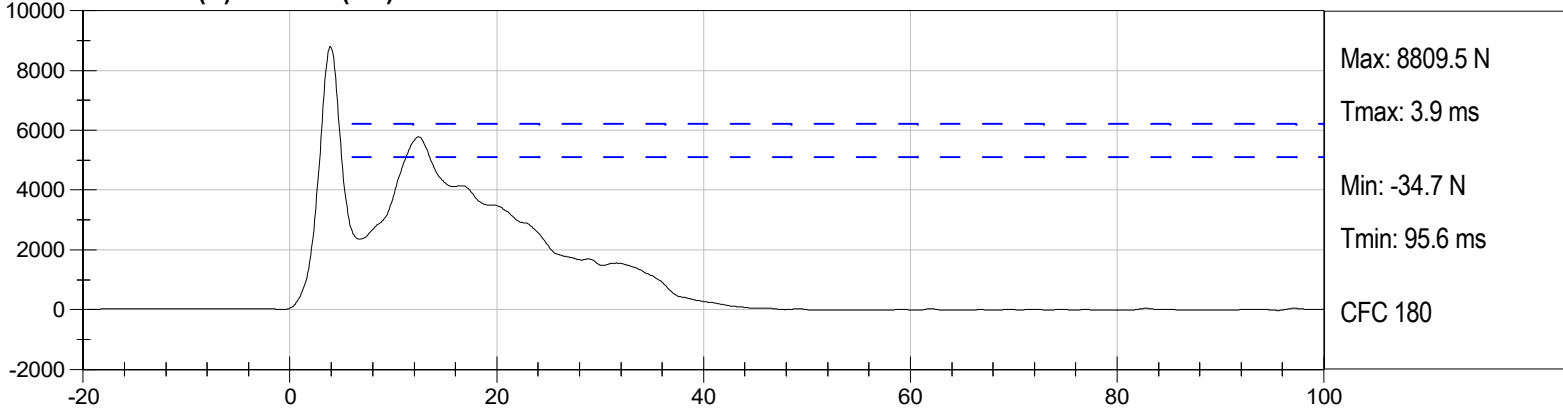
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
PUBIC SYMPHYSIS FY	Denton	PG461FY	01/20/2025	1/20/2026



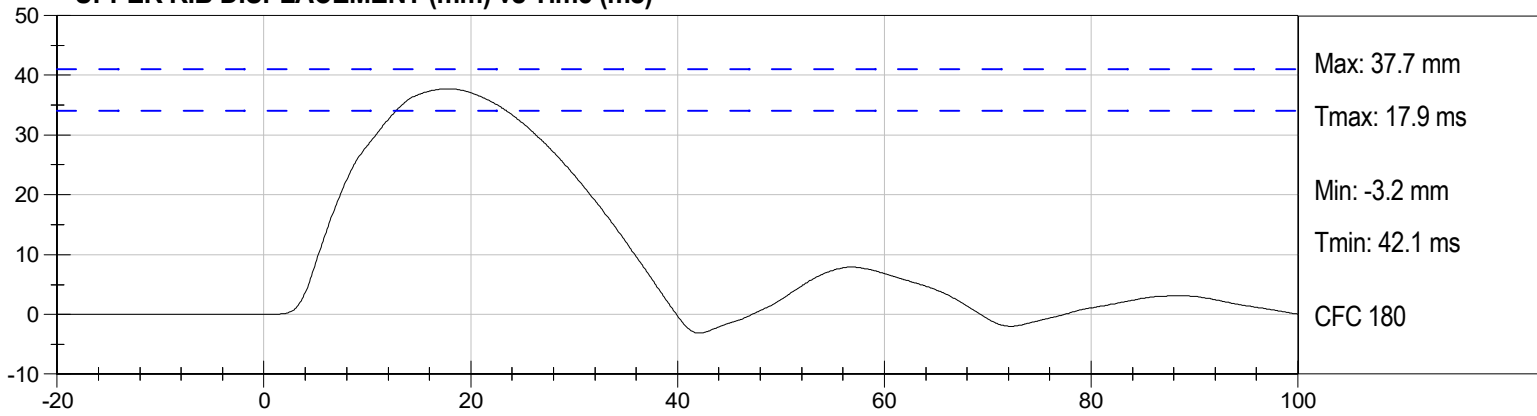
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	5.4 to 5.6	5.40	Pass
Peak Probe Force after 6 ms	N	5100 to 6200	5778	Pass
Maximum Upper Thorax Rib Displacement	mm	34 to 41	37.7	Pass
Maximum Middle Thorax Rib Displacement	mm	37 to 45	39.3	Pass
Maximum Lower Thorax Rib Displacement	mm	37 to 44	38.5	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
UPPER RIB DISPLACEMENT	Honeywell	G236	05/15/2025	11/14/2025
MID RIB DISPLACEMENT	Honeywell	G368	05/15/2025	11/14/2025
LOWER RIB DISPLACEMENT	Honeywell	G164	05/15/2025	11/14/2025

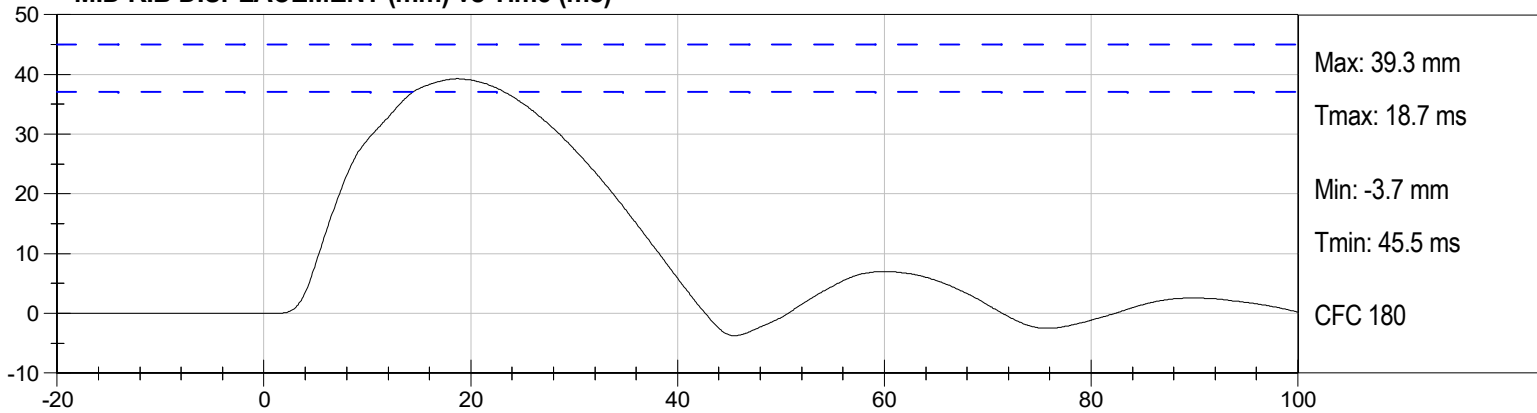
FORCE (N) vs Time (ms)



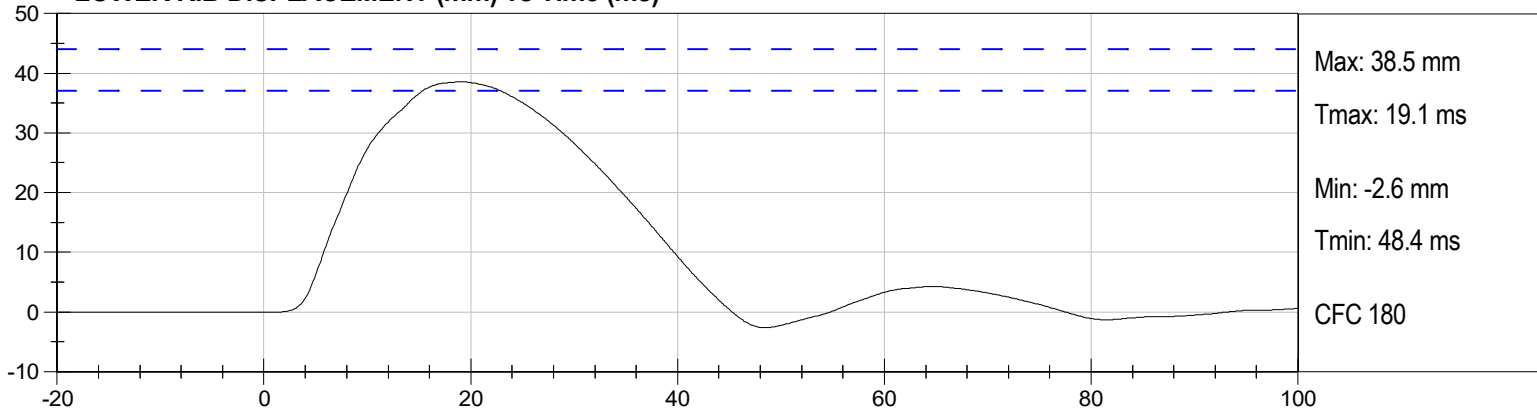
UPPER RIB DISPLACEMENT (mm) vs Time (ms)



MID RIB DISPLACEMENT (mm) vs Time (ms)



LOWER RIB DISPLACEMENT (mm) vs Time (ms)



QUALIFICATION TEST RESULTS

POST-TEST

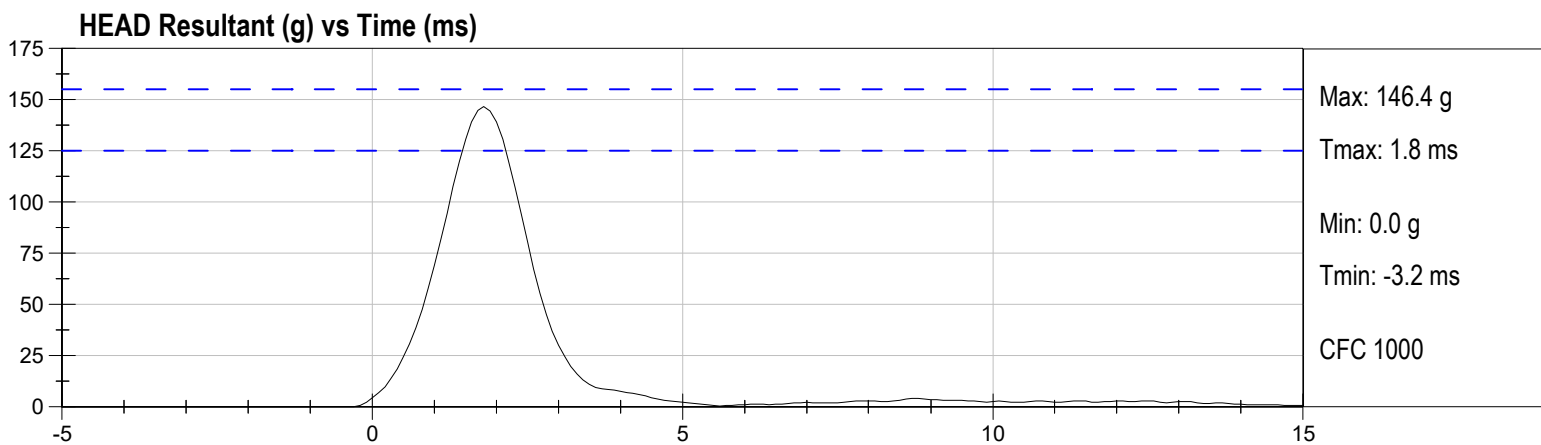
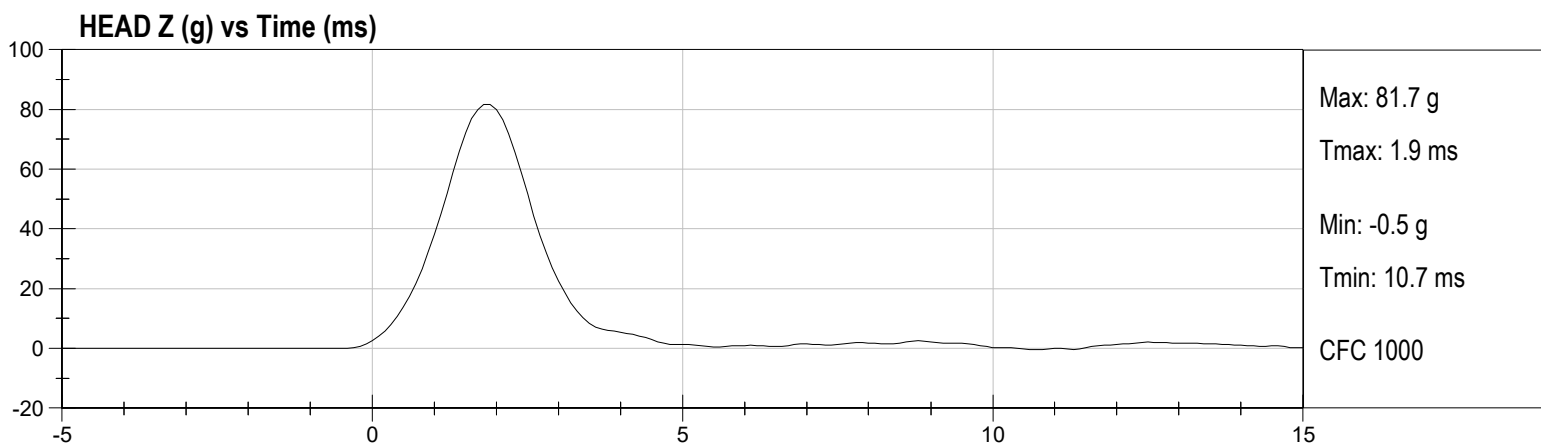
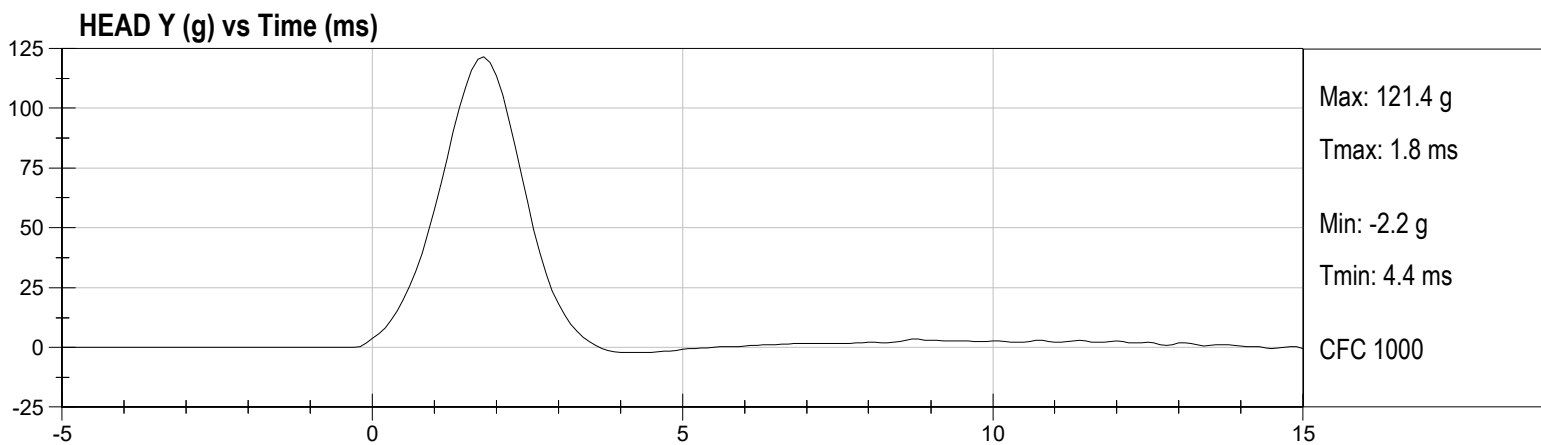
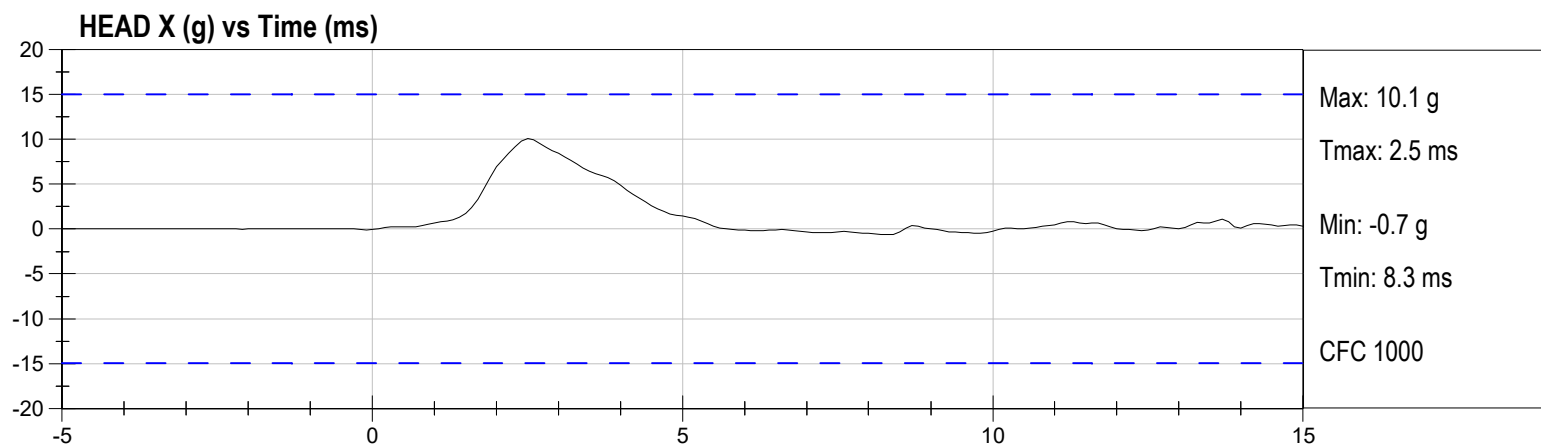
EUROSID 2 (ES-2RE) MALE – DRIVER ATD

ES-2re External Measurements
SN: F032

No.	Name	Spec. (mm)	Result	Pass/Fail
1	Sitting Height	900 - 918	915	Pass
2	Seat to Shoulder Joint	558 - 572	568	Pass
3	Seat to Lower Face of Thoracic Spine Box	346 - 356	355	Pass
4	Seat to Hip Joint (center of bolt)	97 - 103	98	Pass
5	Sole to Seat, Sitting	333 - 451	440	Pass
6	Head Width	152 - 158	157	Pass
7	Shoulder/Arm Width	461 - 479	464	Pass
8	Thorax Width	322 - 332	323	Pass
9	Abdomen Width	273 - 287	281	Pass
10	Pelvis Lap Width	359 - 373	370	Pass
11	Head Depth	196 - 206	203	Pass
12	Thorax Depth	262 - 272	264	Pass
13	Abdomen Depth	194 - 204	196	Pass
14	Pelvis Depth	235 - 245	236	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150 - 160	151	Pass
16	Back of Buttocks to Front Knee	597 - 615	607	Pass

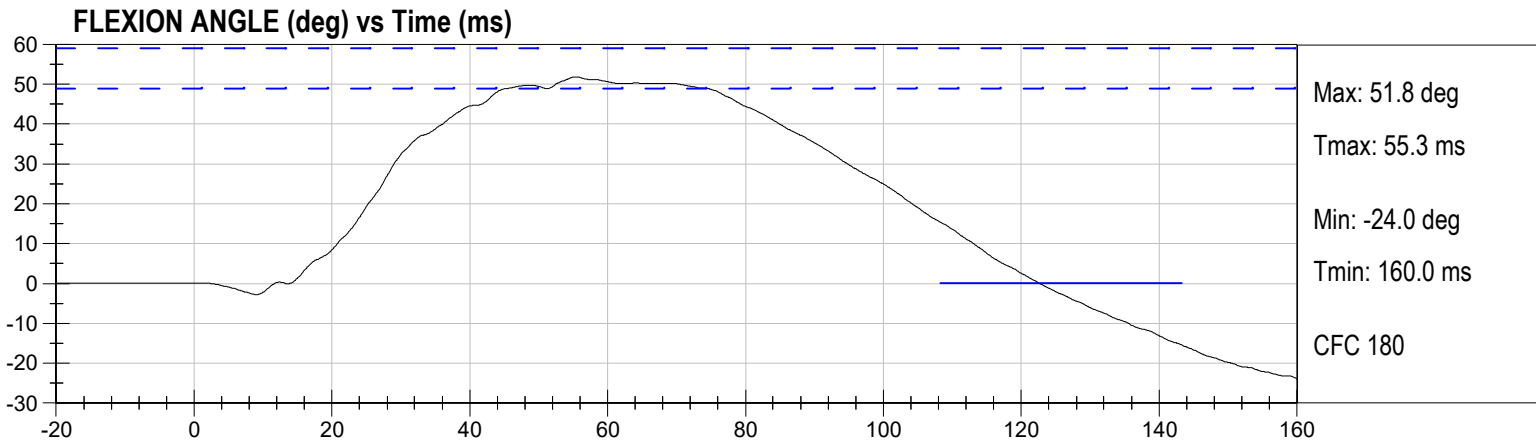
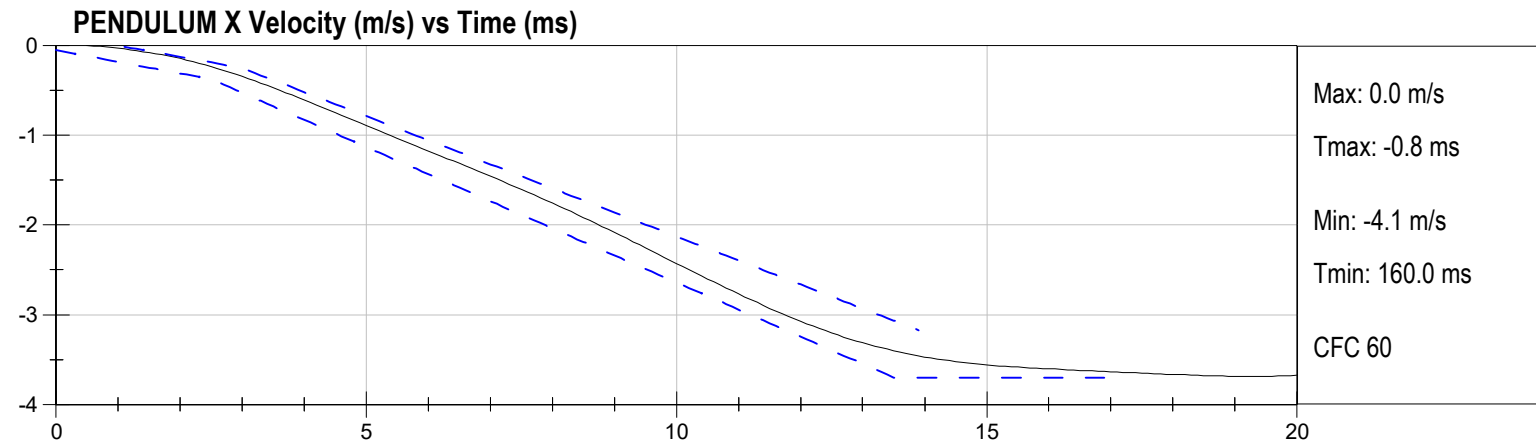
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Peak Resultant Acceleration	g	125 to 155	146	Pass
Peak Longitudinal Acceleration	g	-15 to 15	10.1	Pass
Unimodal	%	within 15% of peak	3	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
HEAD X	Endevco	P78728	08/14/2025	2/13/2026
HEAD Y	Endevco	P78732	08/14/2025	2/13/2026
HEAD Z	Endevco	P78739	08/14/2025	2/13/2026

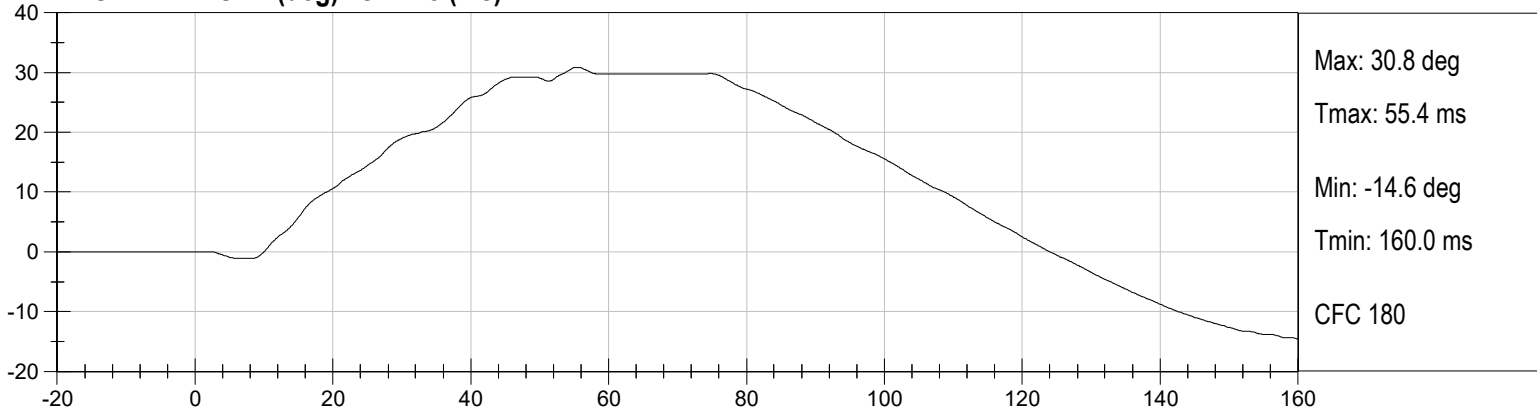


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	3.30 to 3.50	3.36	Pass
Pendulum Velocity Within Corridor	m/s	Within	Yes	Pass
Maximum Flexion Angle	deg	49 to 59	51.8	Pass
Time of Maximum Flexion Angle	ms	54 to 66	55.3	Pass
Decay Time to Zero Crossing	ms	53 to 88	67.5	Pass

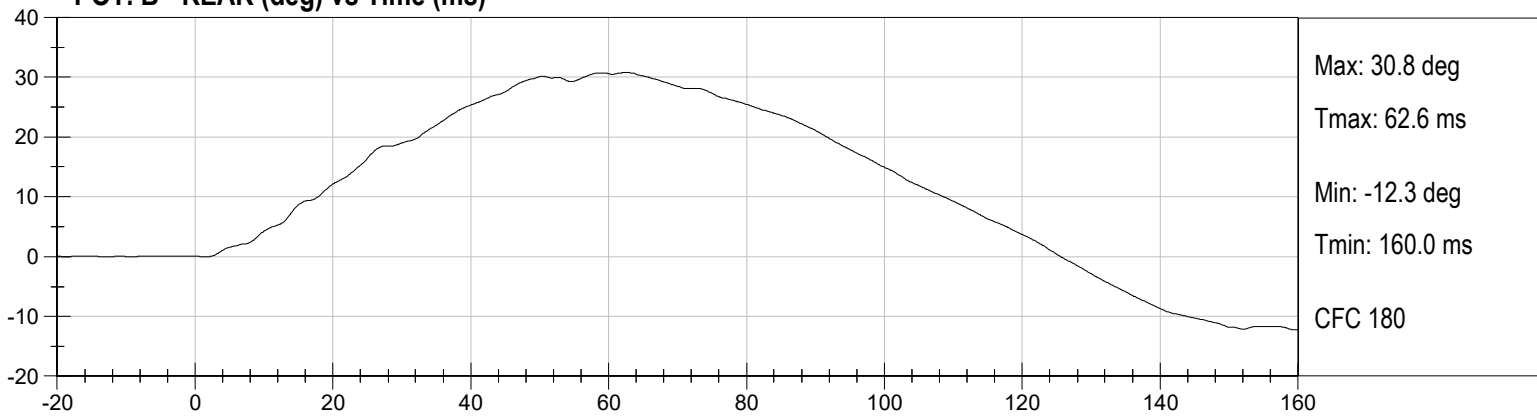
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PEND. ACCEL.	Endevco	AH5P1	07/09/2025	1/8/2026
POT. B - REAR	Spectrol	025_es2	07/15/2025	1/14/2026
POT. A - FRONT	Spectrol	027_es2	07/15/2025	1/14/2026
POT. C - HEADFORM	Spectrol	028_es2	07/15/2025	1/14/2026



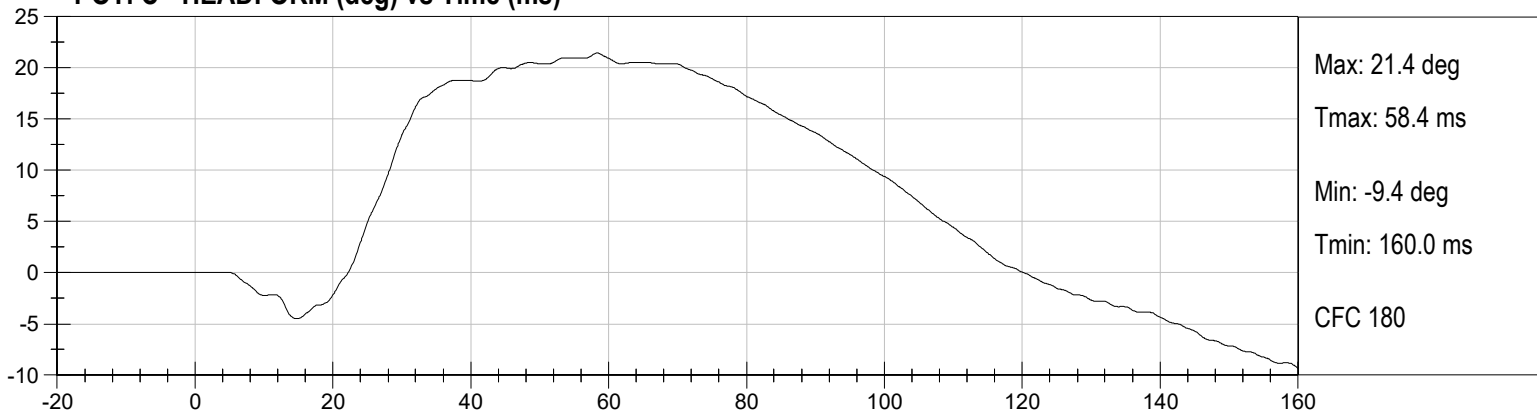
POT. A - FRONT (deg) vs Time (ms)



POT. B - REAR (deg) vs Time (ms)



POT. C - HEADFORM (deg) vs Time (ms)



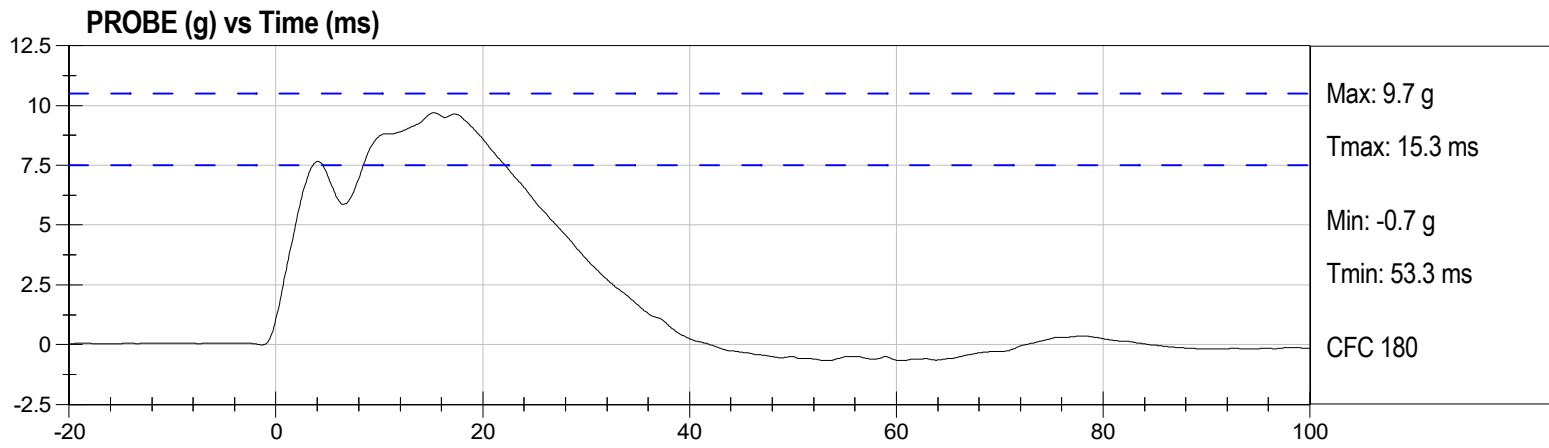


Shoulder Impact Test
ES2re
ATD Serial No: F032

Test Date: 09/04/2025
Test ID: D252543
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	4.2 to 4.4	4.3	Pass
Peak Probe Acceleration	G's	7.5 to 10.5	9.7	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025



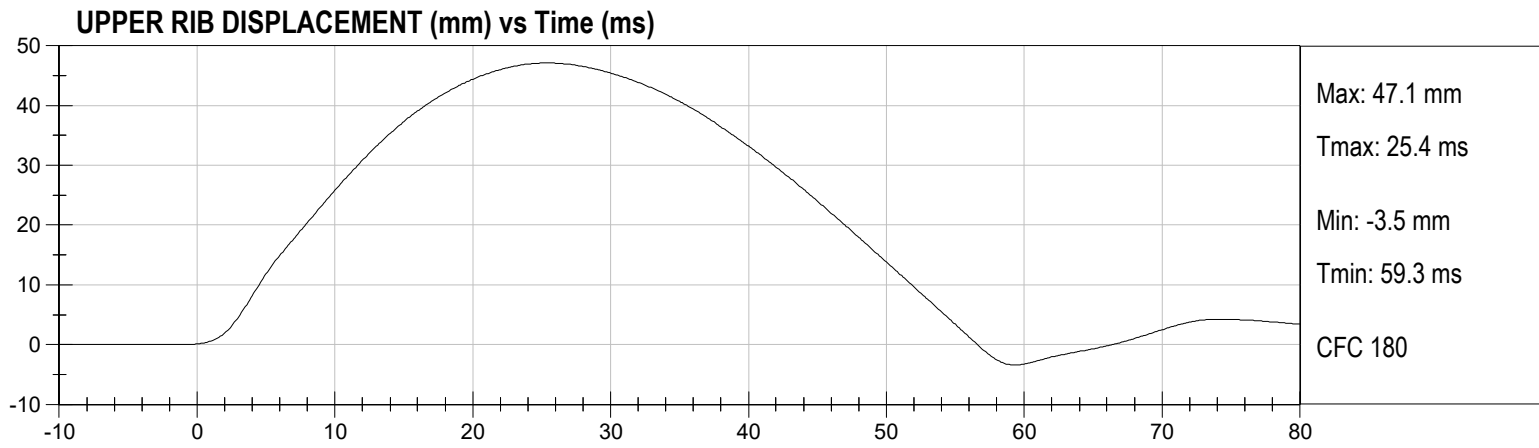


Upper Rib Drop Test - 815mm
ES2re
ATD Serial No: F032

Test Date: 09/04/2025
Test ID: D252544H
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Rib Deflection at 815 mm	mm	46 to 51	47.1	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
UPPER RIB DISPLACEMENT	Honeywell	G236	05/15/2025	11/14/2025



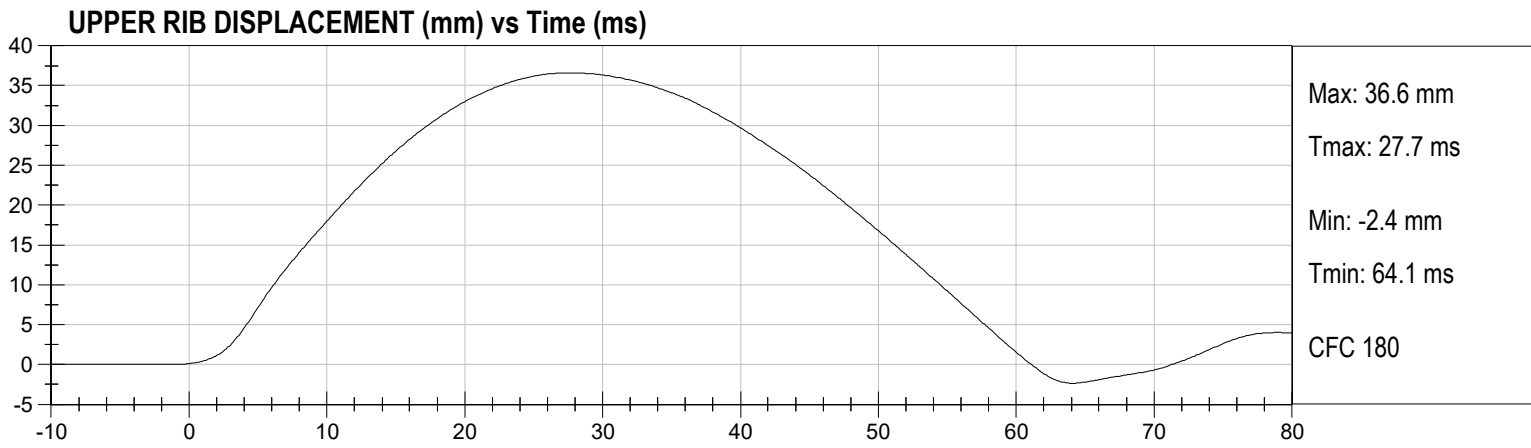


Upper Rib Drop Test - 459mm
ES2re
ATD Serial No: F032

Test Date: 09/04/2025
Test ID: D252544L
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Rib Deflection at 459 mm	mm	36 to 40	36.6	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
UPPER RIB DISPLACEMENT	Honeywell	G236	05/15/2025	11/14/2025



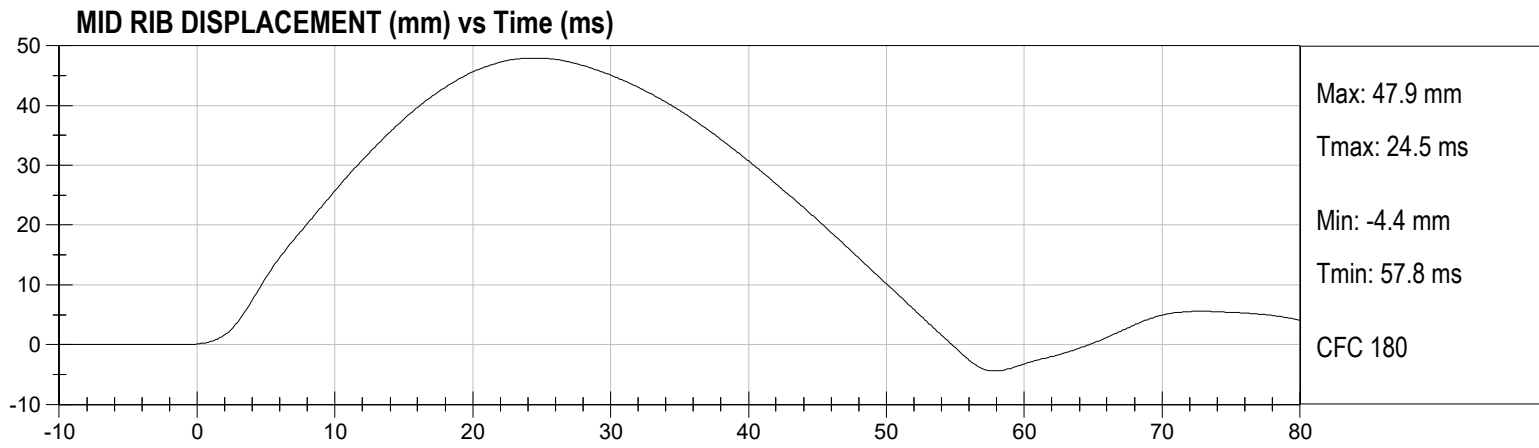


Middle Rib Drop Test - 815mm
ES2re
ATD Serial No: F032

Test Date: 09/04/2025
Test ID: D252545H
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Rib Deflection at 815 mm	mm	46 to 51	47.9	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
MID RIB DISPLACEMENT	Honeywell	G368	05/15/2025	11/14/2025



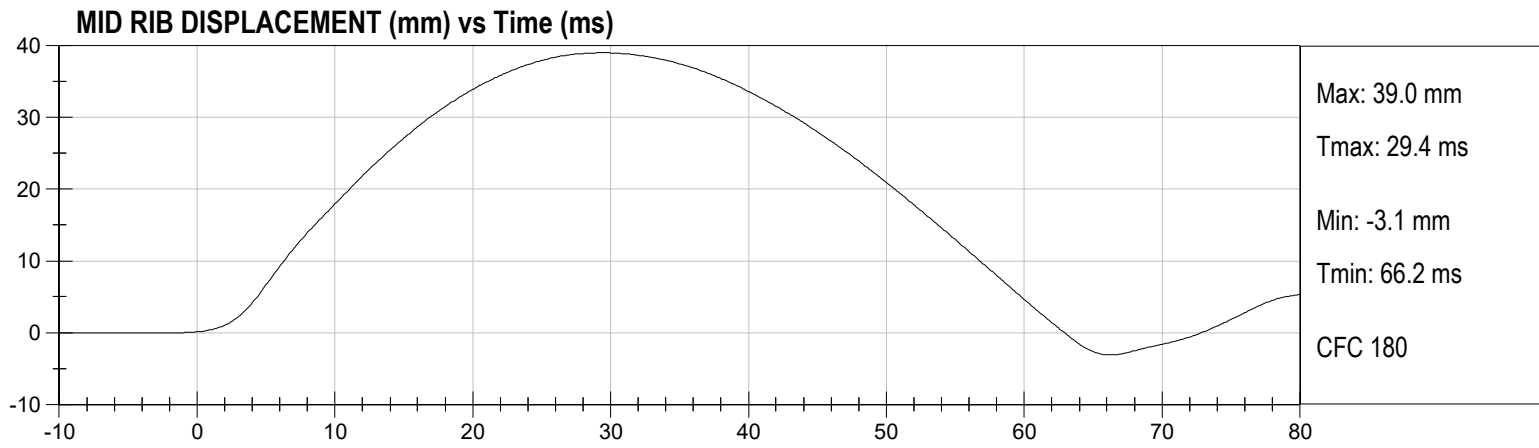


Middle Rib Drop Test - 459mm
ES2re
ATD Serial No: F032

Test Date: 09/04/2025
Test ID: D252545L
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Rib Deflection at 459 mm	mm	36 to 40	39.0	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
MID RIB DISPLACEMENT	Honeywell	G368	05/15/2025	11/14/2025



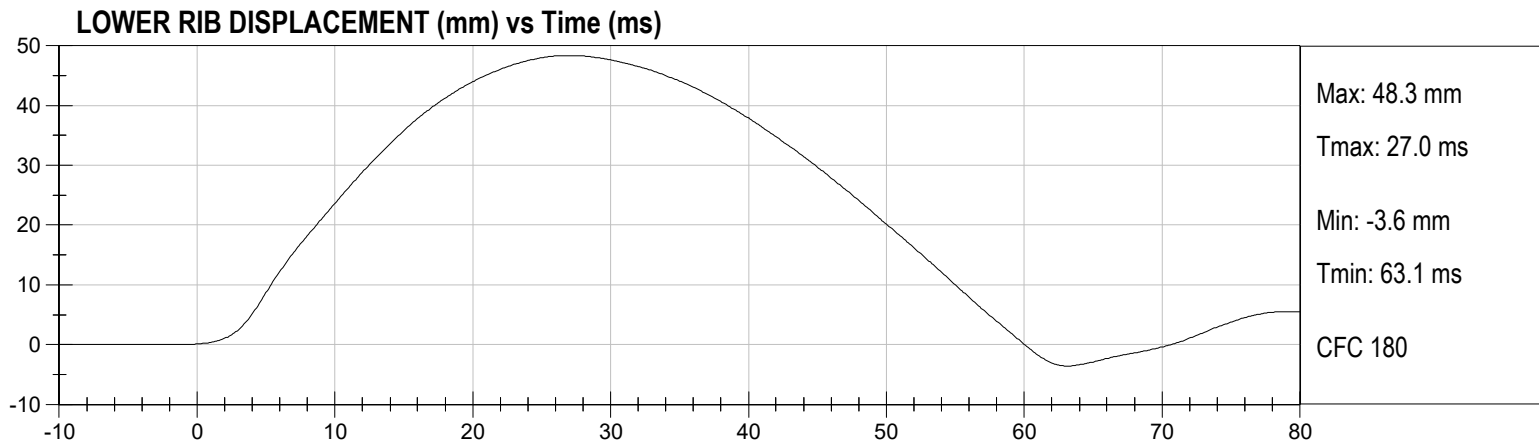


Lower Rib Drop Test - 815mm
ES2re
ATD Serial No: F032

Test Date: 09/04/2025
Test ID: D252546H
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Rib Deflection at 815 mm	mm	46 to 51	48.3	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
LOWER RIB DISPLACEMENT	Honeywell	G164	05/15/2025	11/14/2025



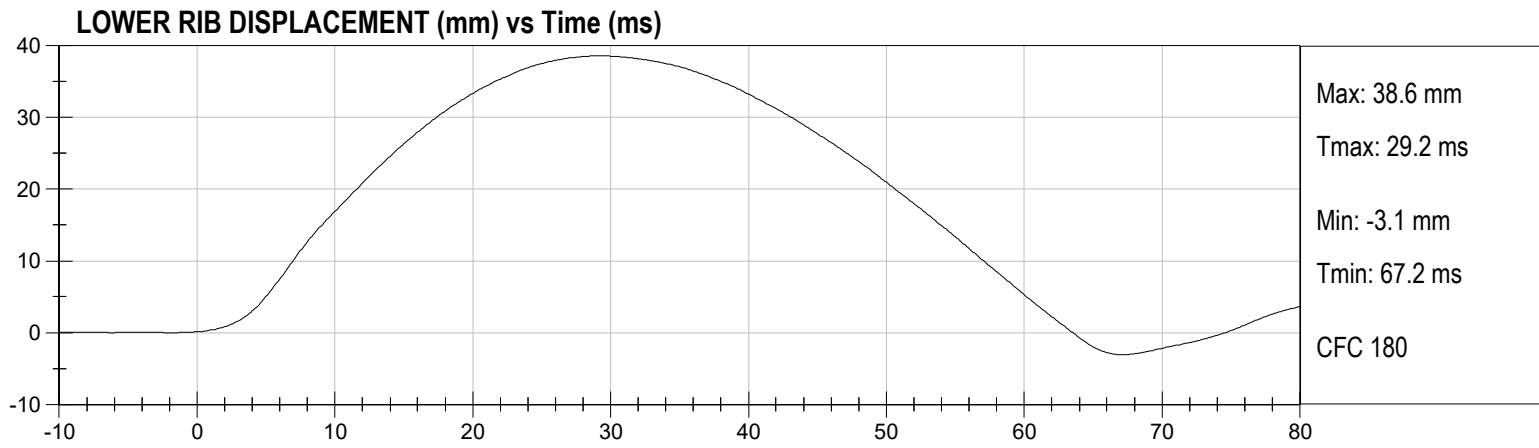


Lower Rib Drop Test - 459mm
ES2re
ATD Serial No: F032

Test Date: 09/04/2025
Test ID: D252546L
Test Technician: Jonah Pulokas

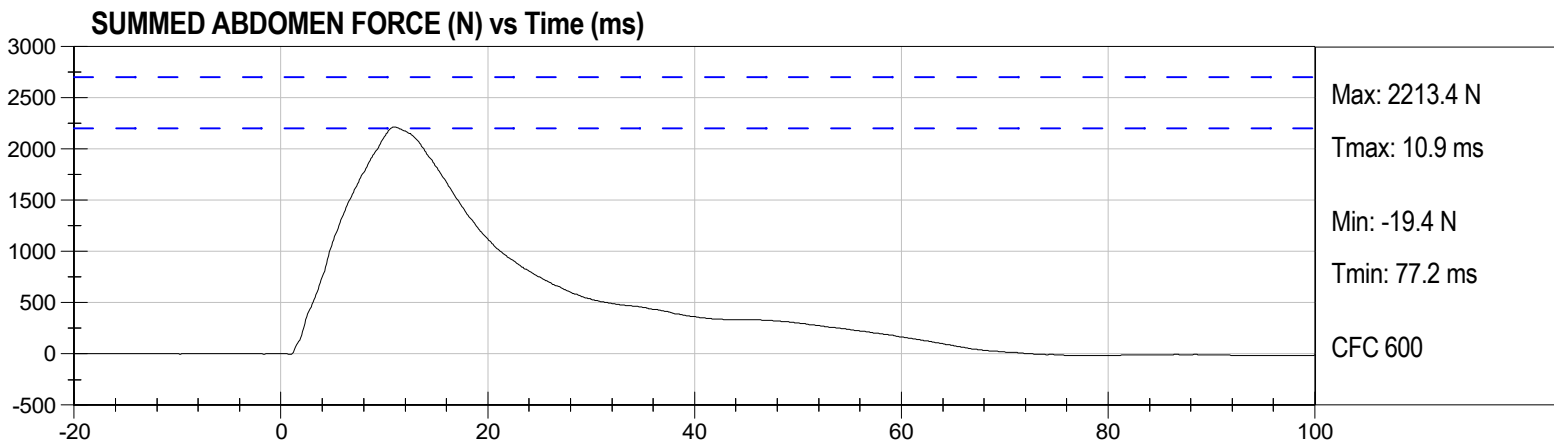
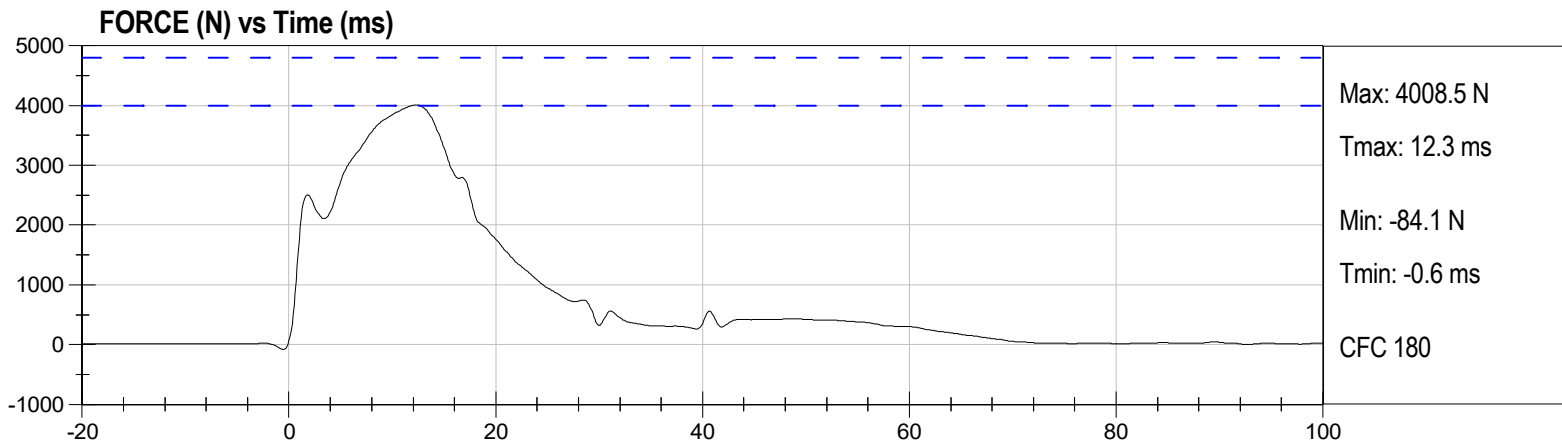
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Rib Deflection at 459 mm	mm	36 to 40	38.6	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
LOWER RIB DISPLACEMENT	Honeywell	G164	05/15/2025	11/14/2025

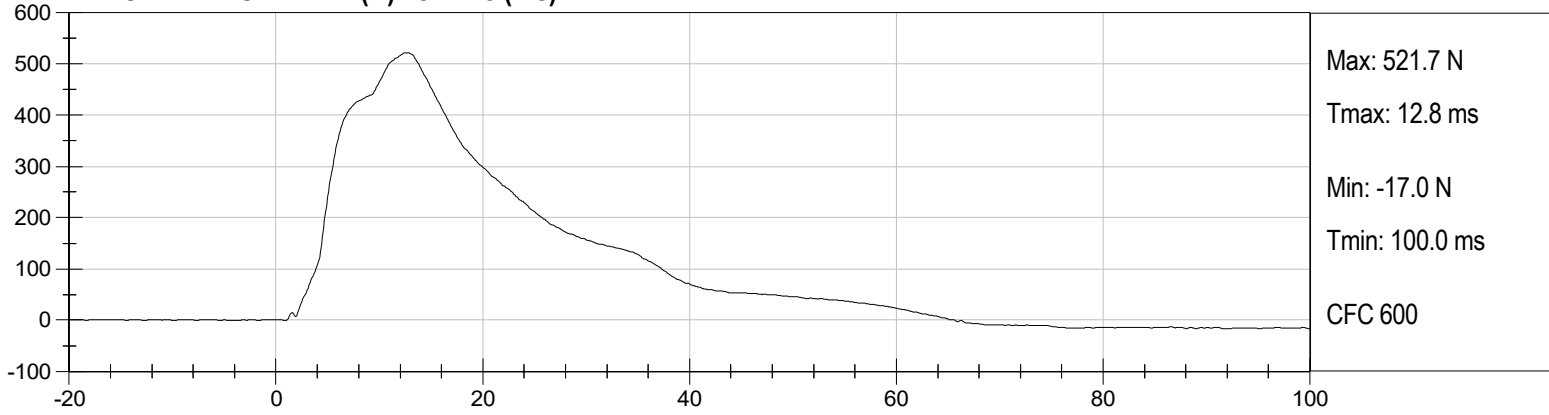


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	3.9 to 4.1	4.0	Pass
Peak Probe Force	N	4000 to 4800	4009	Pass
Time of Peak Probe Force	ms	10.6 to 13.0	12.3	Pass
Peak Abdomen Force	N	2200 to 2700	2213	Pass
Time of Peak Abdomen Force	ms	10.0 to 12.3	10.9	Pass

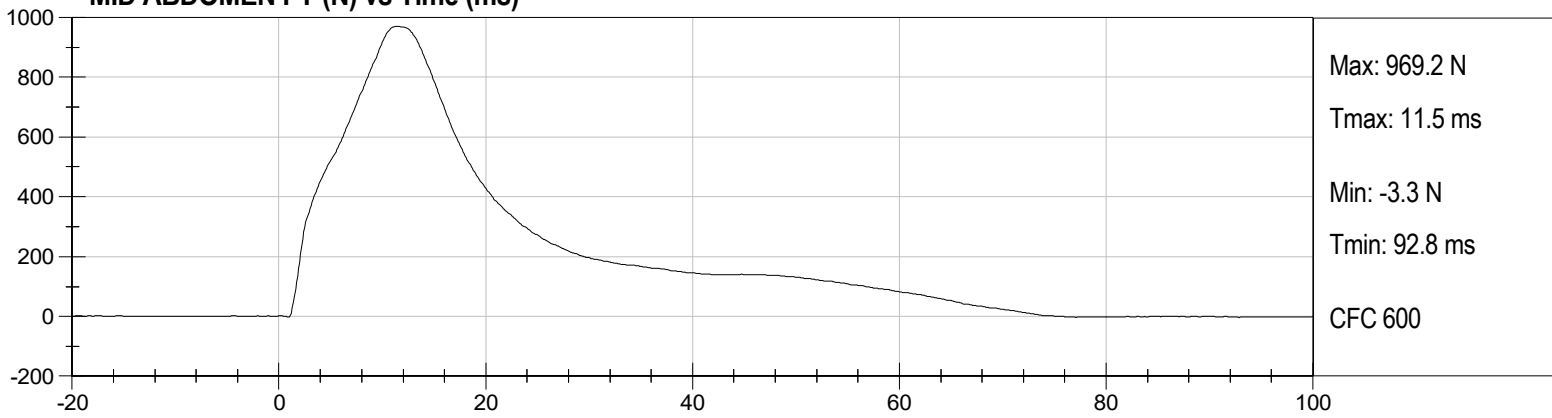
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
FRONT ABDOMEN FY	Denton	ABG1532FY	01/20/2025	1/20/2026
MID ABDOMEN FY	Denton	ABG1534FY	01/20/2025	1/20/2026
REAR ABDOMEN FY	Denton	ABG1535FY	01/20/2025	1/20/2026



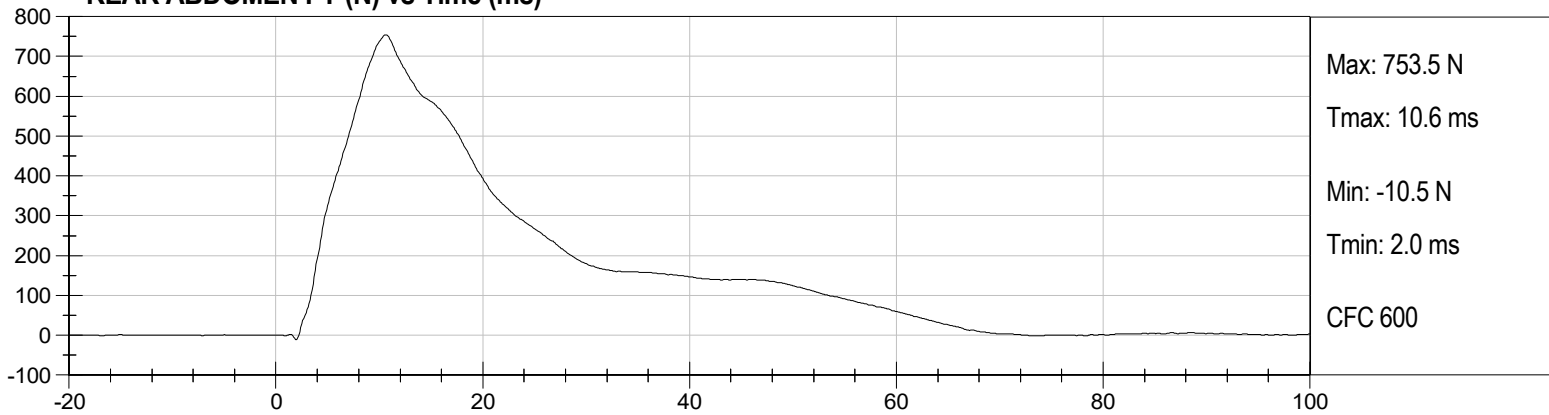
FRONT ABDOMEN FY (N) vs Time (ms)



MID ABDOMEN FY (N) vs Time (ms)

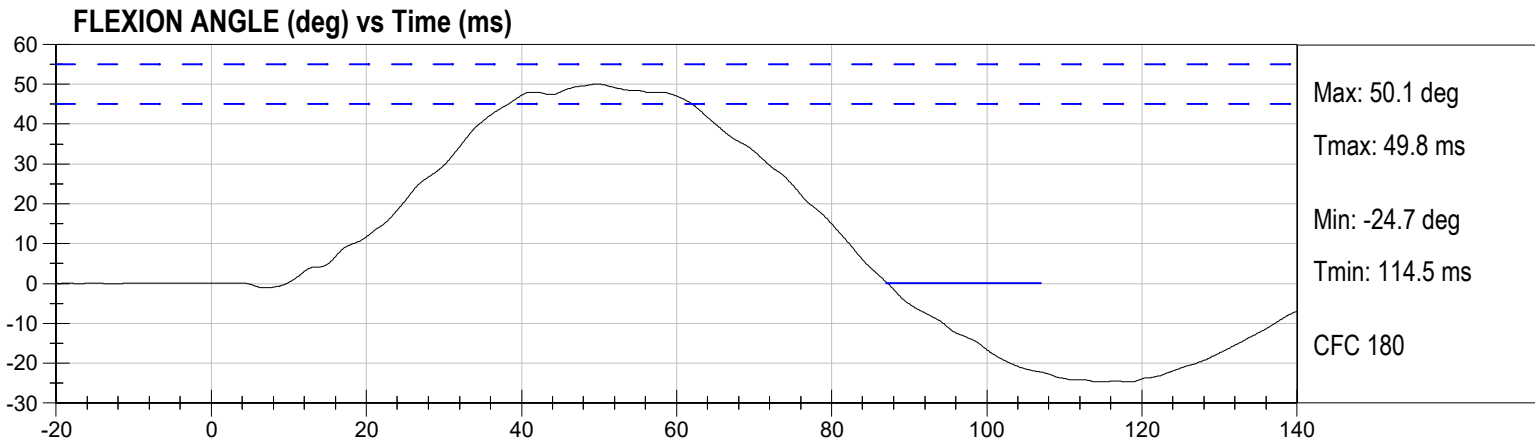
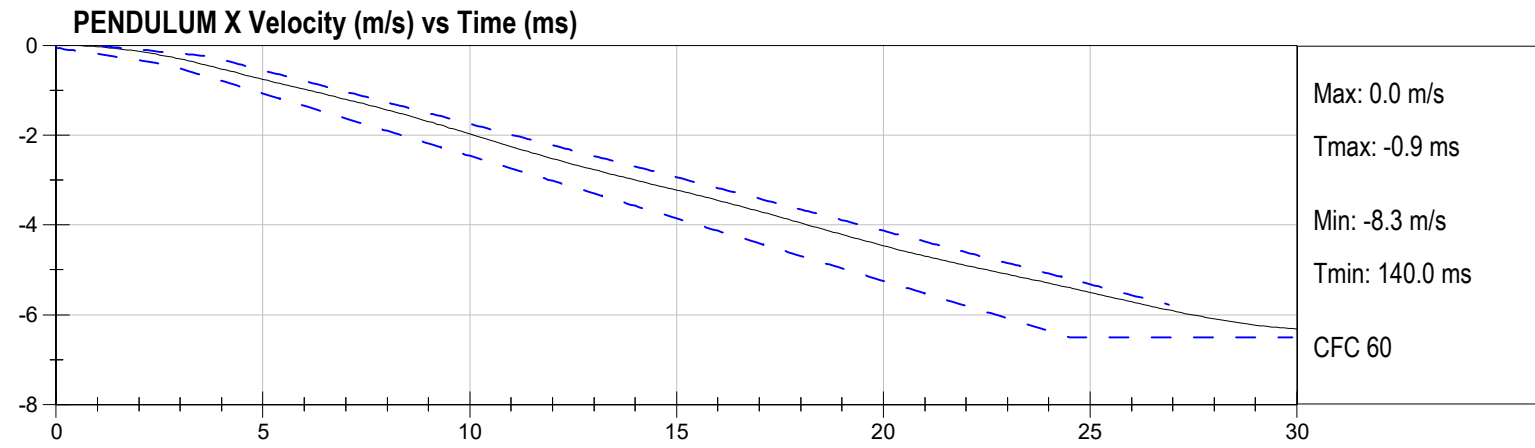


REAR ABDOMEN FY (N) vs Time (ms)

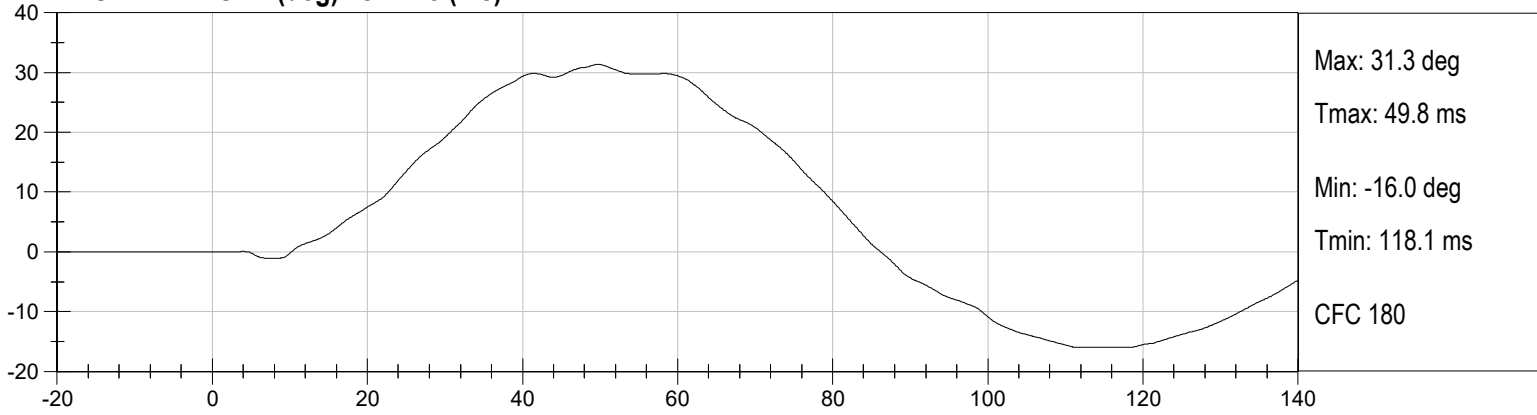


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	5.95 to 6.15	5.98	Pass
Pendulum Velocity Within Corridor	m/s	Within	Yes	Pass
Maximum Flexion Angle	deg	45 to 55	50	Pass
Time of Maximum Flexion Angle	ms	39 to 53	50	Pass
Decay Time to Zero Crossing from Peak	ms	37 to 57	37	Pass

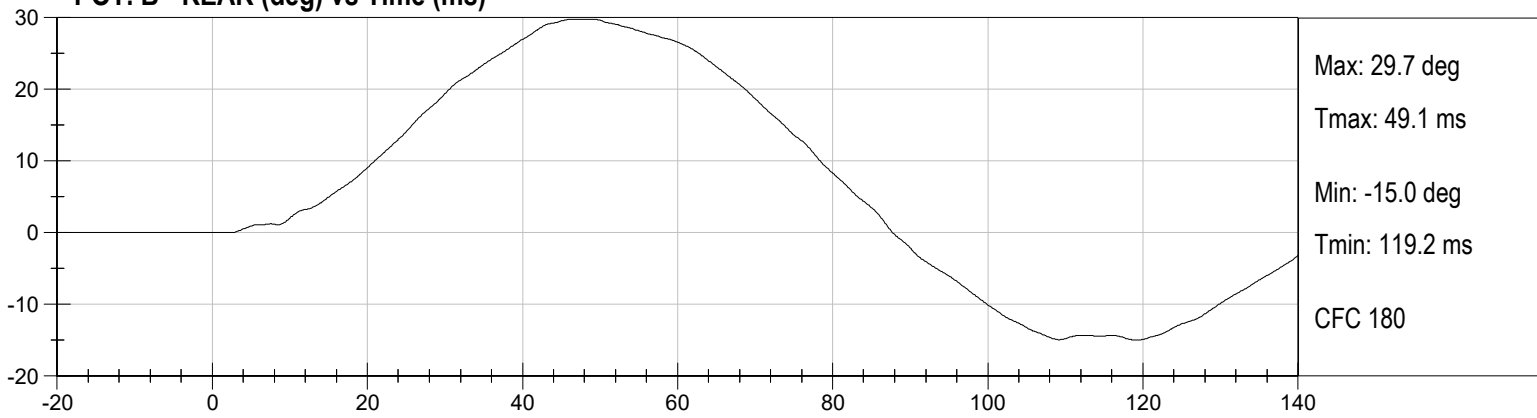
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PEND. ACCEL.	Endevco	AH5P1	07/09/2025	1/8/2026
POT. B - REAR	Spectrol	025_es2	07/15/2025	1/14/2026
POT. A - FRONT	Spectrol	027_es2	07/15/2025	1/14/2026
POT. C - HEADFORM	Spectrol	028_es2	07/15/2025	1/14/2026



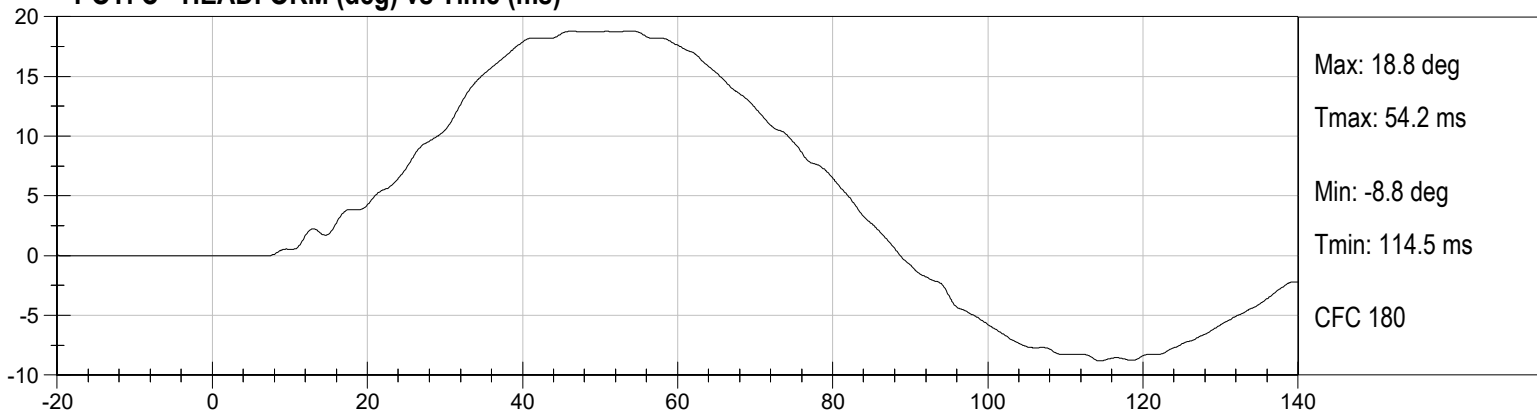
POT. A - FRONT (deg) vs Time (ms)



POT. B - REAR (deg) vs Time (ms)

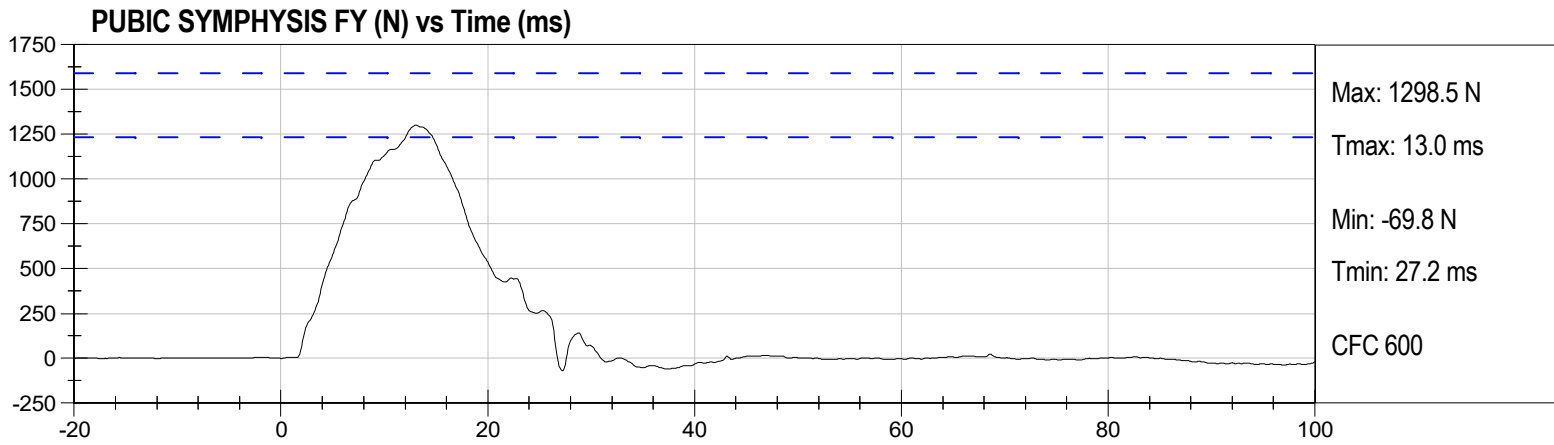
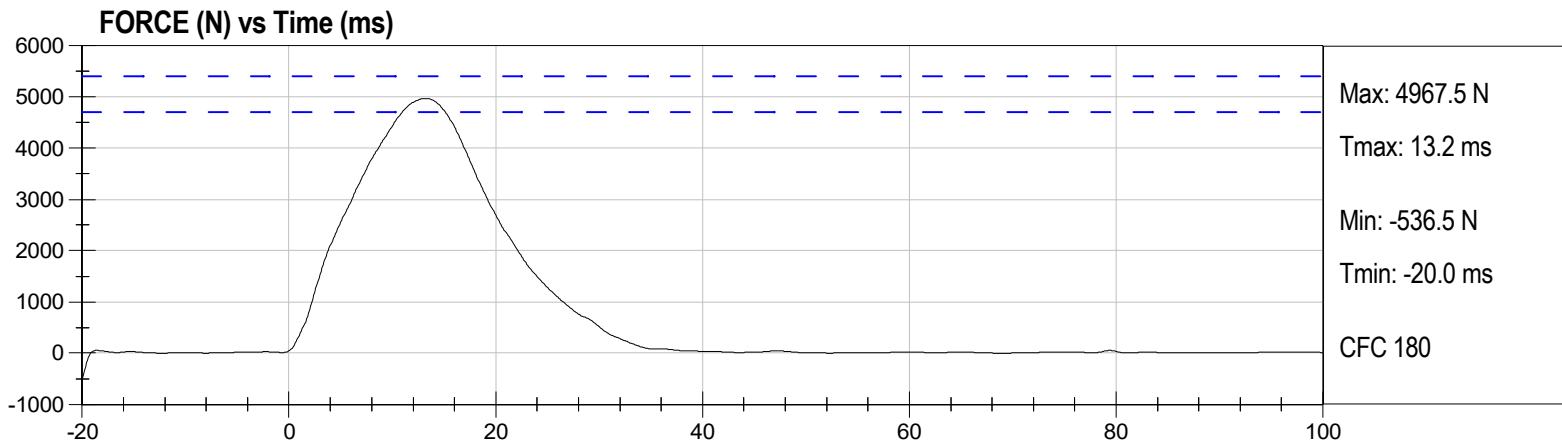


POT. C - HEADFORM (deg) vs Time (ms)



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	4.2 to 4.4	4.34	Pass
Peak Probe Force	N	4700 to 5400	4967	Pass
Time of Peak Probe Force	ms	11.8 to 16.1	13.2	Pass
Peak Pubic Force	N	1230 to 1590	1298	Pass
Time of Peak Pubic Force	ms	12.2 to 17.0	13.0	Pass

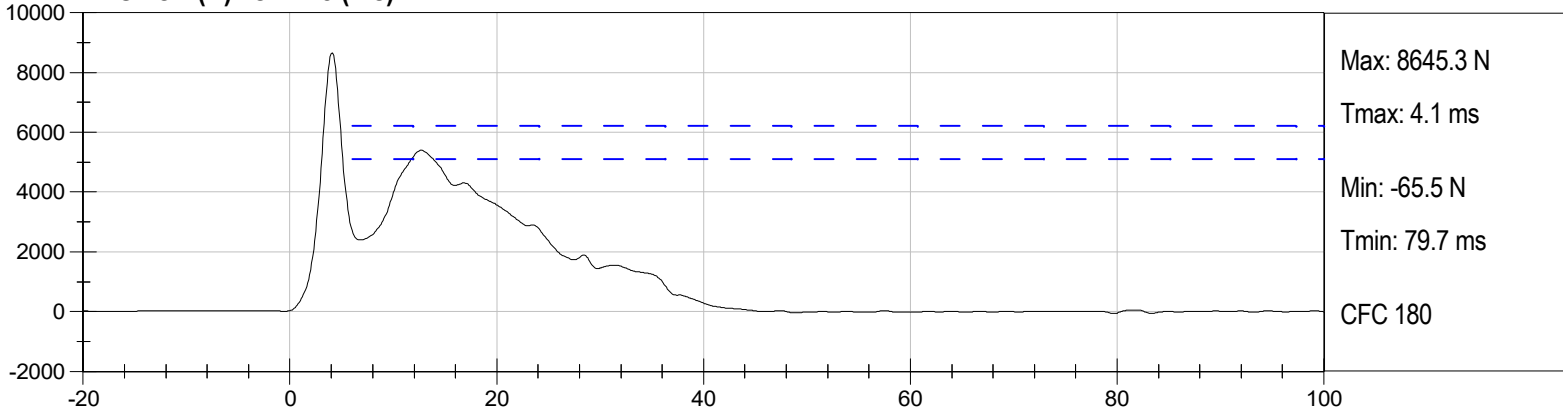
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
PUBIC SYMPHYSIS FY	Denton	PG461FY	01/20/2025	1/20/2026



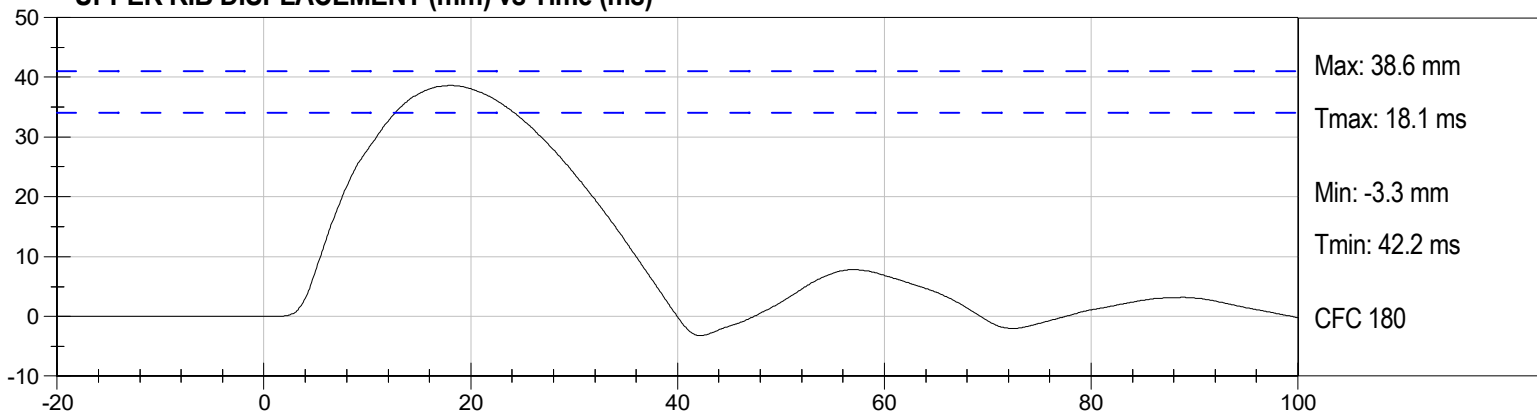
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	5.4 to 5.6	5.46	Pass
Peak Probe Force after 6 ms	N	5100 to 6200	5401	Pass
Maximum Upper Thorax Rib Displacement	mm	34 to 41	38.6	Pass
Maximum Middle Thorax Rib Displacement	mm	37 to 45	40.2	Pass
Maximum Lower Thorax Rib Displacement	mm	37 to 44	39.2	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
UPPER RIB DISPLACEMENT	Honeywell	G236	05/15/2025	11/14/2025
MID RIB DISPLACEMENT	Honeywell	G368	05/15/2025	11/14/2025
LOWER RIB DISPLACEMENT	Honeywell	G164	05/15/2025	11/14/2025

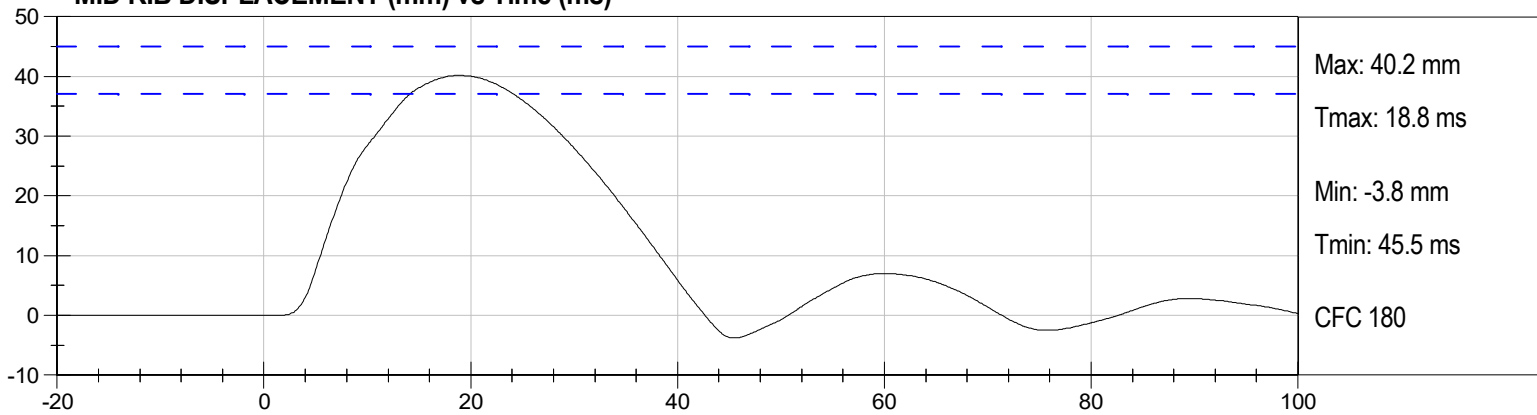
FORCE (N) vs Time (ms)



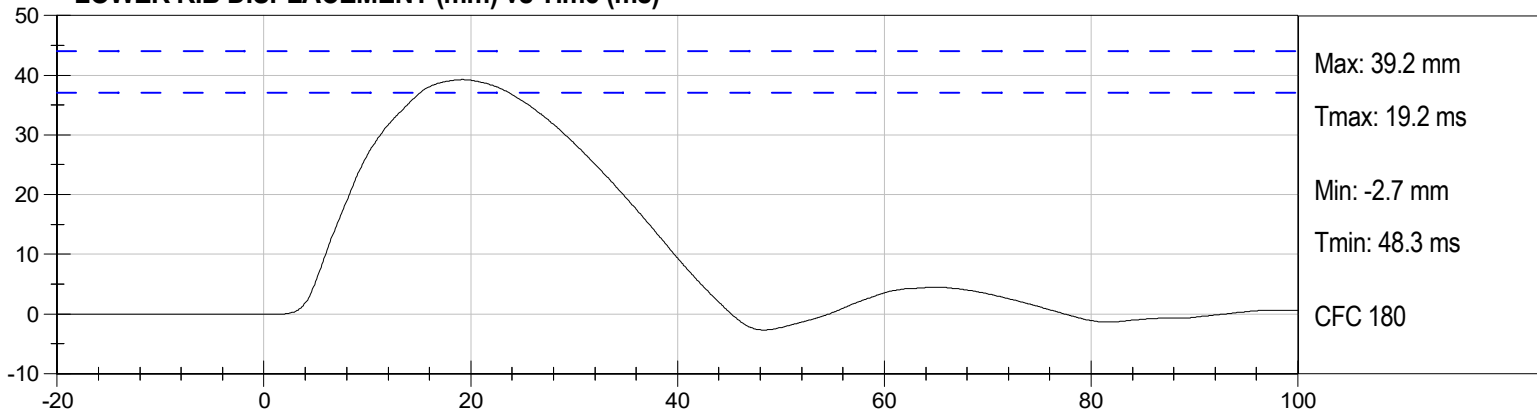
UPPER RIB DISPLACEMENT (mm) vs Time (ms)



MID RIB DISPLACEMENT (mm) vs Time (ms)



LOWER RIB DISPLACEMENT (mm) vs Time (ms)



QUALIFICATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER ATD

SID-IIsD External Measurements
SN: 306

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

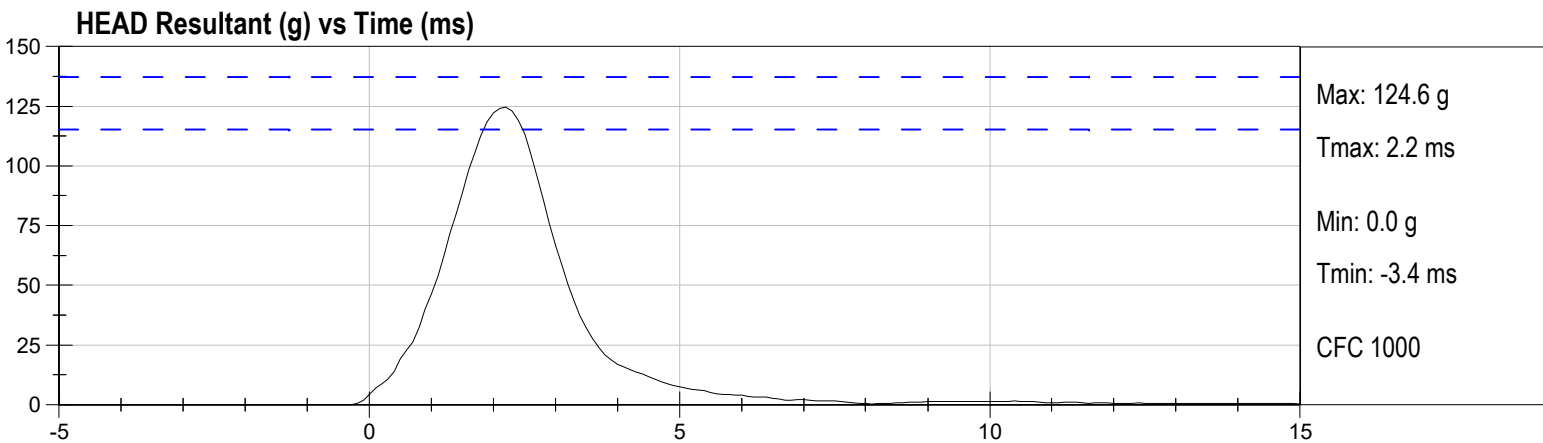
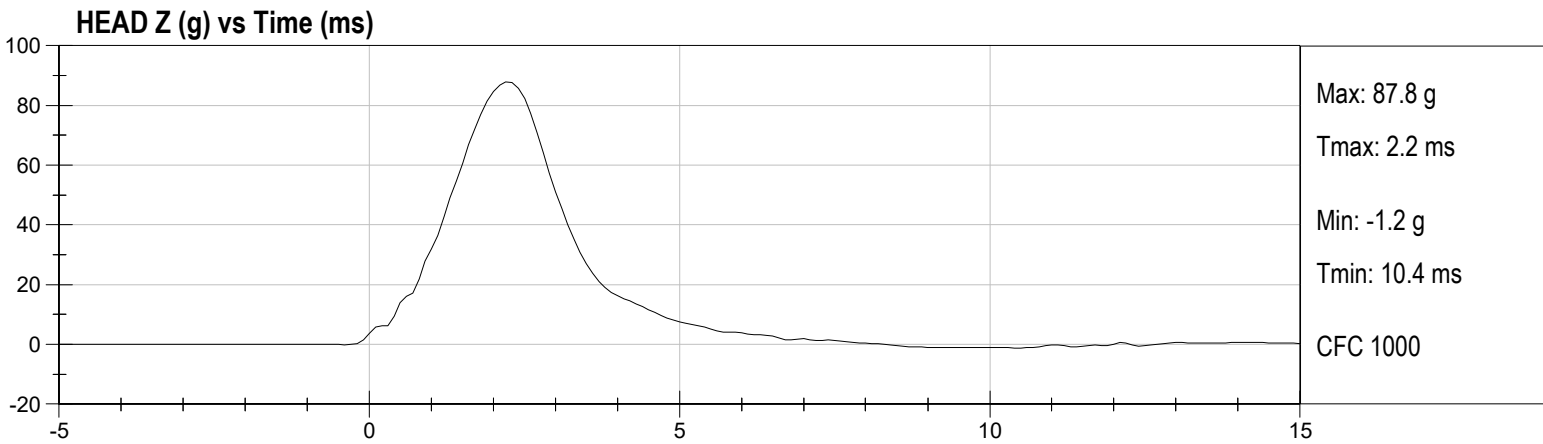
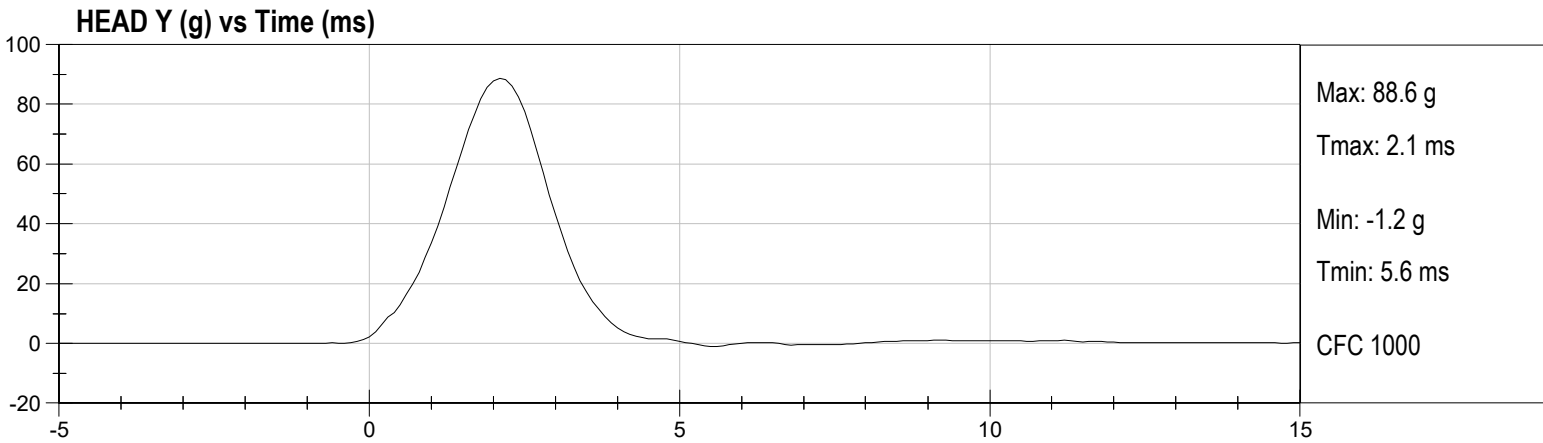
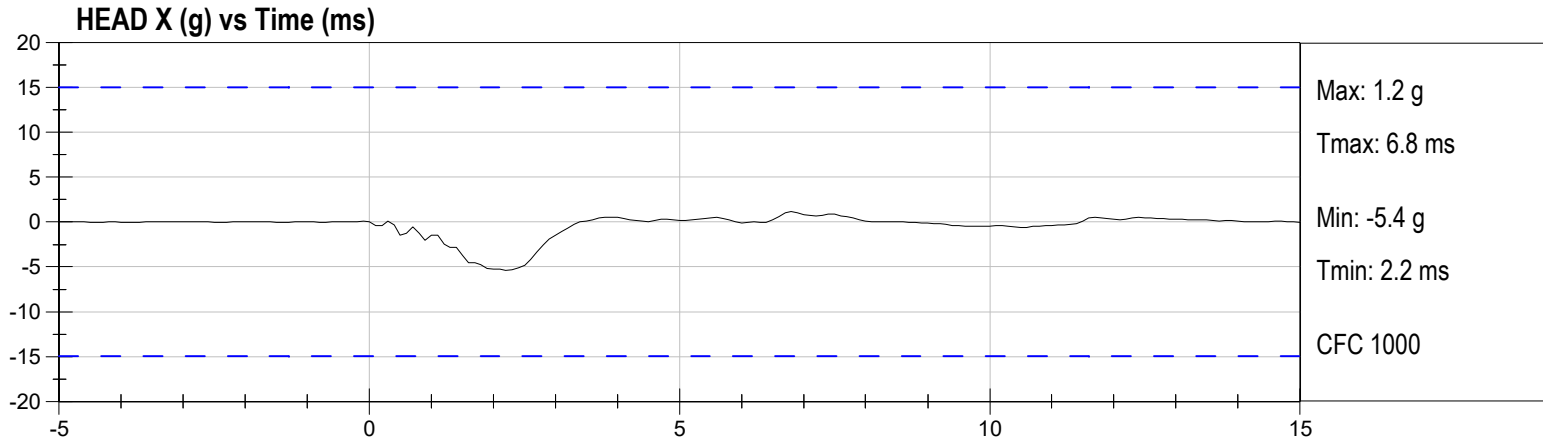


Lateral Head Drop Test
SID IIs
ATD Serial No: 306

Test Date: 08/07/2025
Test ID: D252311
Test Technician: Jonah Pulokas

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Peak Resultant Acceleration	g	115 to 137	125	Pass
Peak Longitudinal Acceleration	g	-15.0 to 15.0	-5.4	Pass
Unimodal	%	within 15% of peak	2	Pass

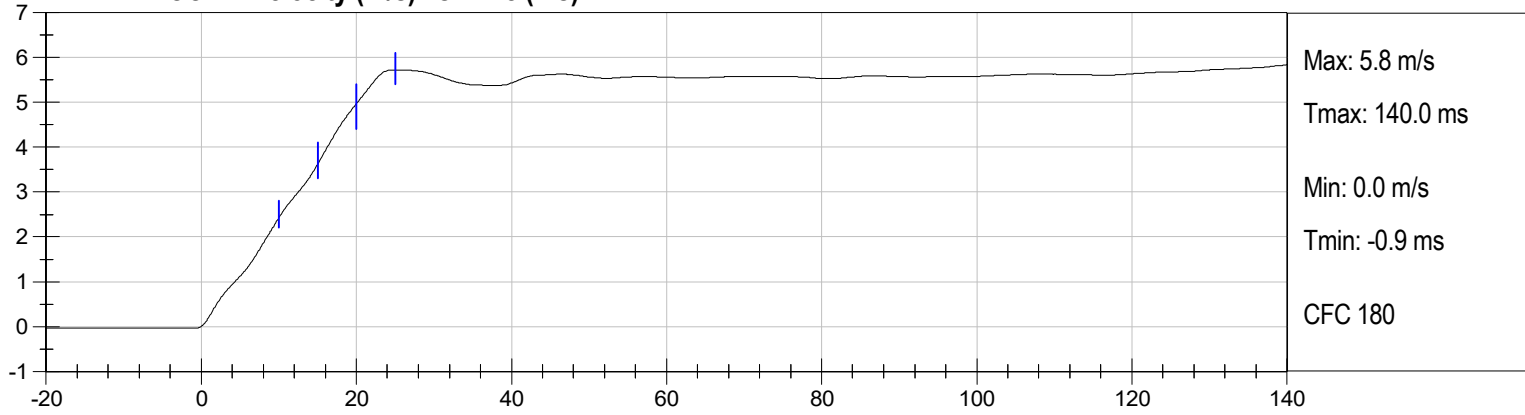
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
HEAD Y	Endevco	T30974	05/27/2025	11/26/2025
HEAD X	Endevco	T30975	05/27/2025	11/26/2025
HEAD Z	Endevco	T30976	05/27/2025	11/26/2025



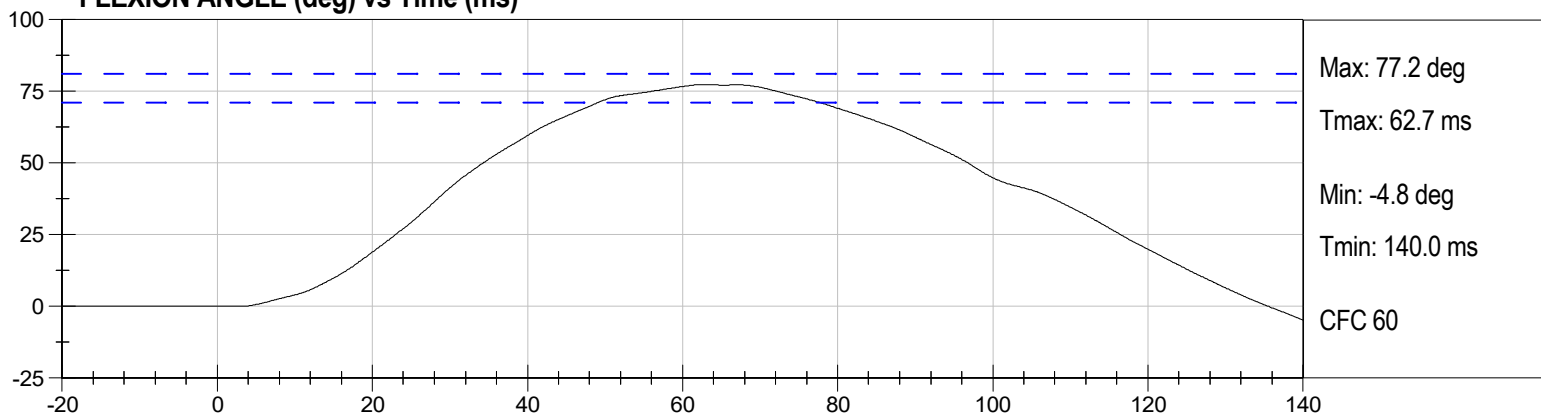
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	5.51 to 5.63	5.52	Pass
Pendulum Velocity at 10 ms	m/s	2.20 to 2.80	2.40	Pass
Pendulum Velocity at 15 ms	m/s	3.30 to 4.10	3.59	Pass
Pendulum Velocity at 20 ms	m/s	4.40 to 5.40	4.95	Pass
Pendulum Velocity at 25 ms	m/s	5.40 to 6.10	5.72	Pass
Peak Pendulum Velocity from 25 to 100 ms	m/s	5.50 to 6.20	5.72	Pass
Maximum "D" Plane Rotation	deg	71 to 81	77	Pass
Time of Maximum "D" Plane Rotation	ms	50 to 70	63	Pass
Maximum Moment About Occipital Condyle	Nm	-44 to -36	-41	Pass
Time of Moment Decay Time To 0 Nm	ms	102 to 126	119	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PEND. ACCEL.	Endevco	C19538	05/19/2025	11/18/2025
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

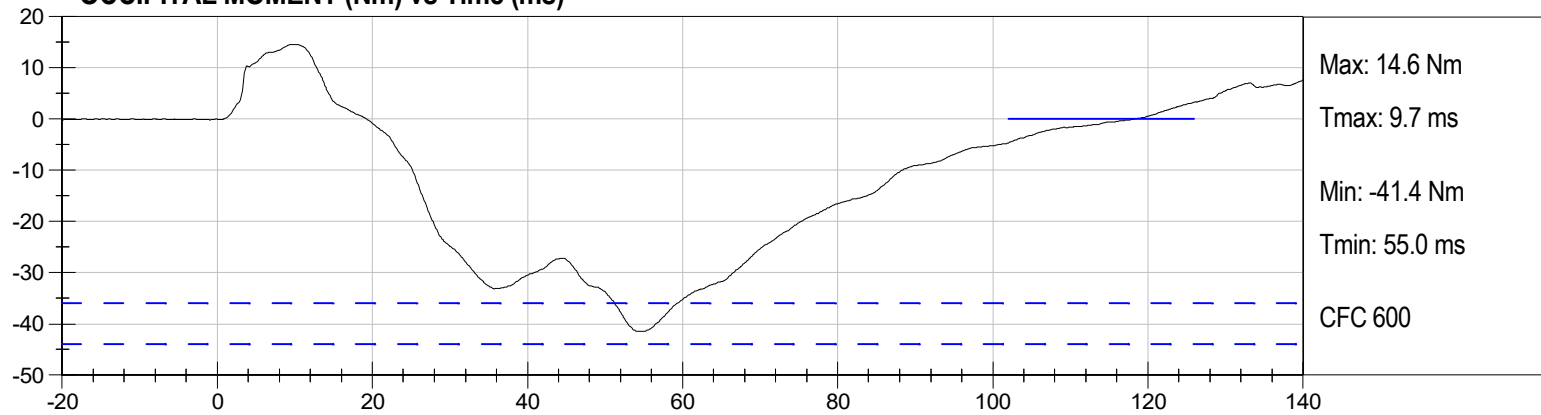
PEND. ACCEL. Velocity (m/s) vs Time (ms)



FLEXION ANGLE (deg) vs Time (ms)

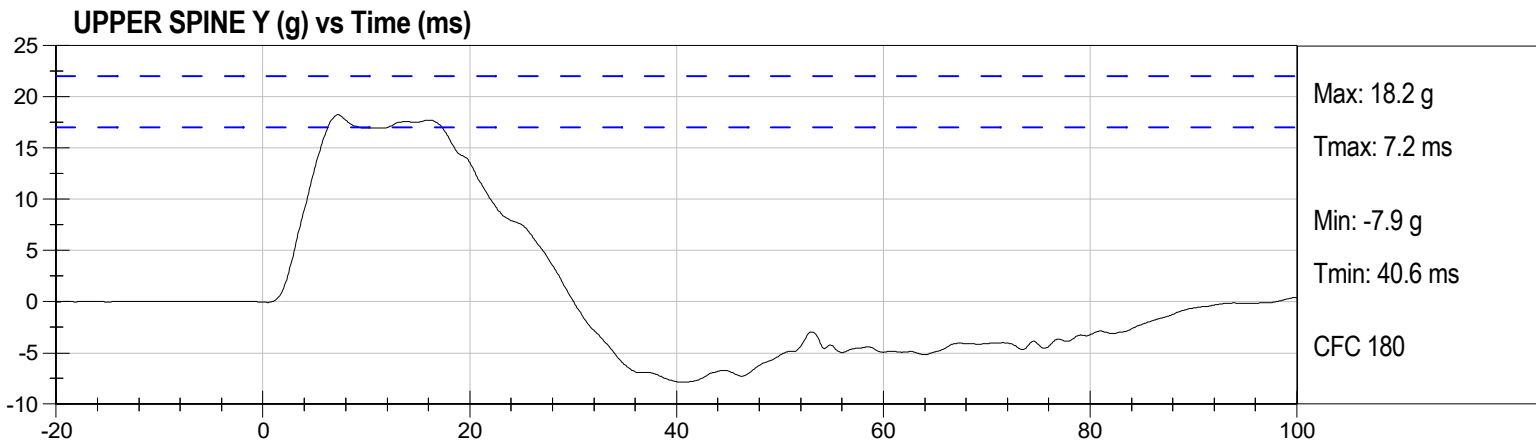
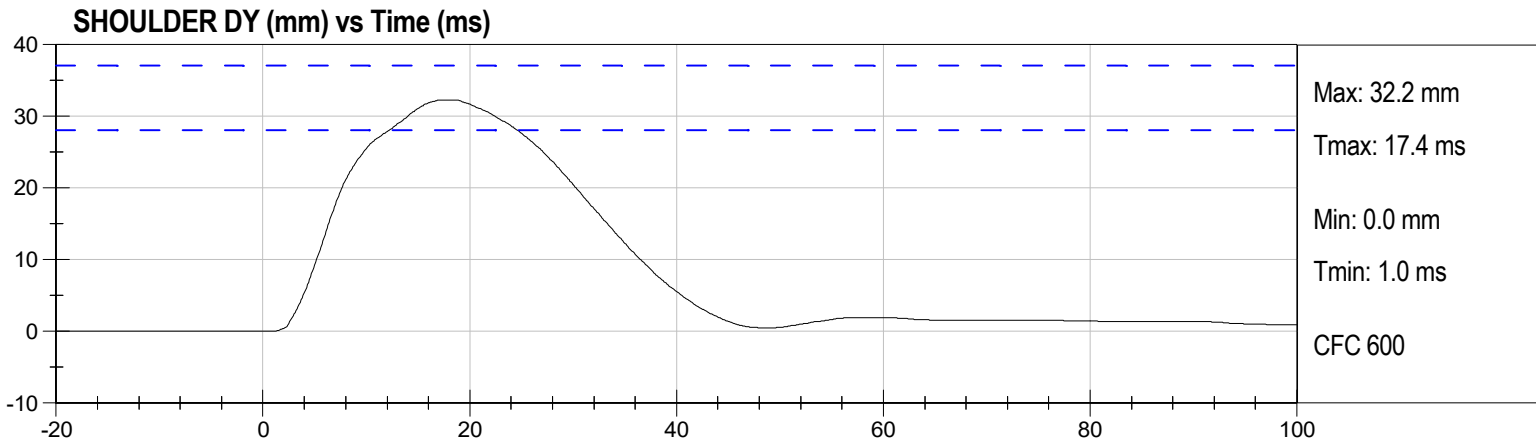
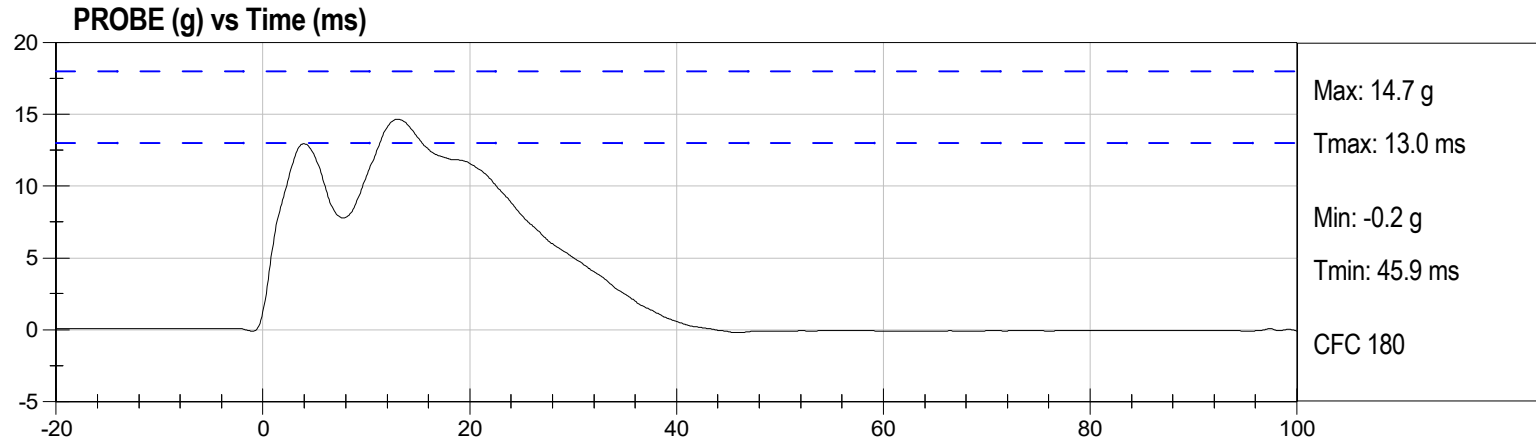


OCCIPITAL MOMENT (Nm) vs Time (ms)



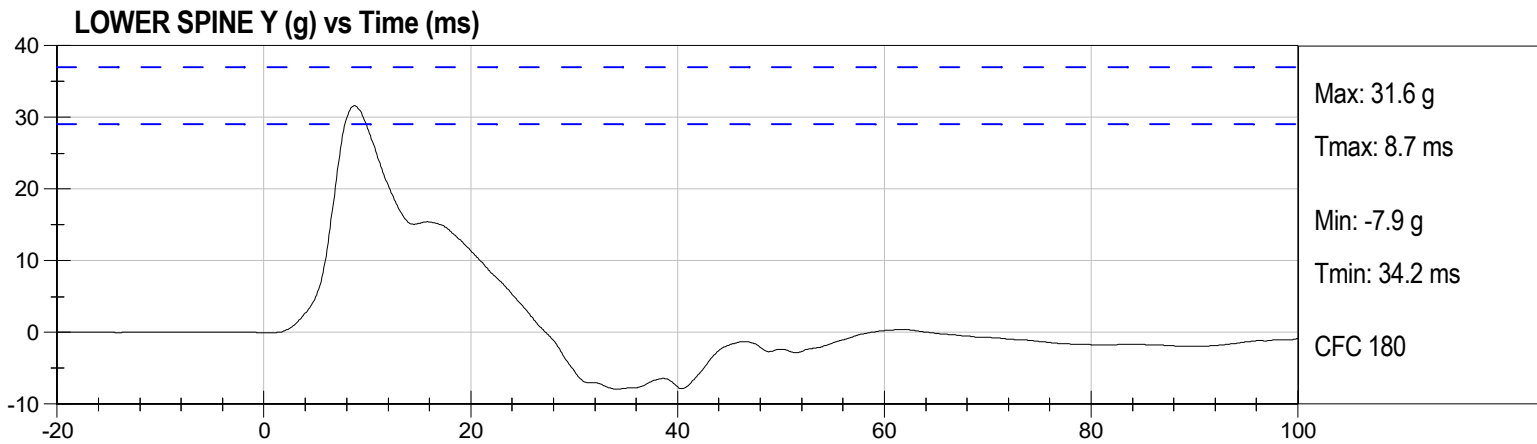
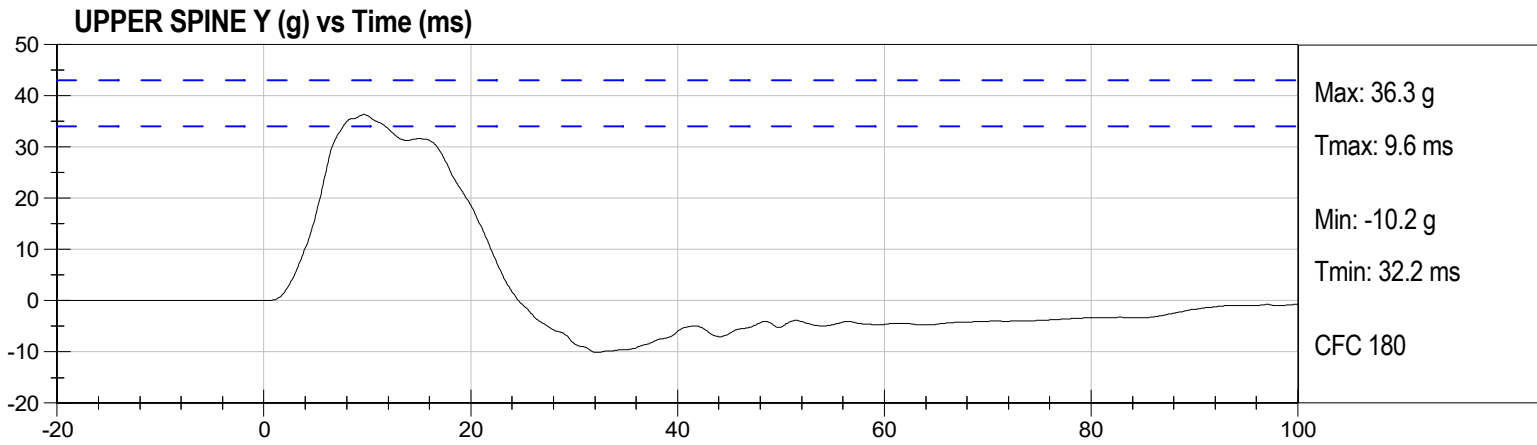
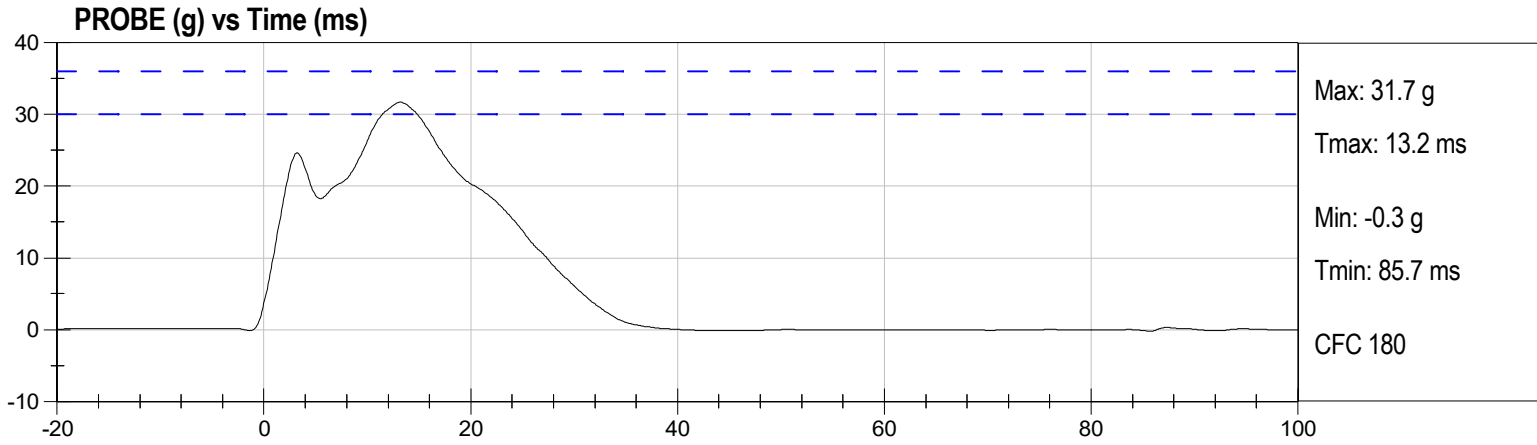
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	4.2 to 4.4	4.38	Pass
Peak Probe Acceleration	g	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	32	Pass
Upper Spine (T1) Y Acceleration	g	17 to 22	18	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
UPPER SPINE Y	Endevco	P82319	05/27/2025	11/26/2025
SHOULDER DY	FTSS	G050	05/28/2025	11/27/2025

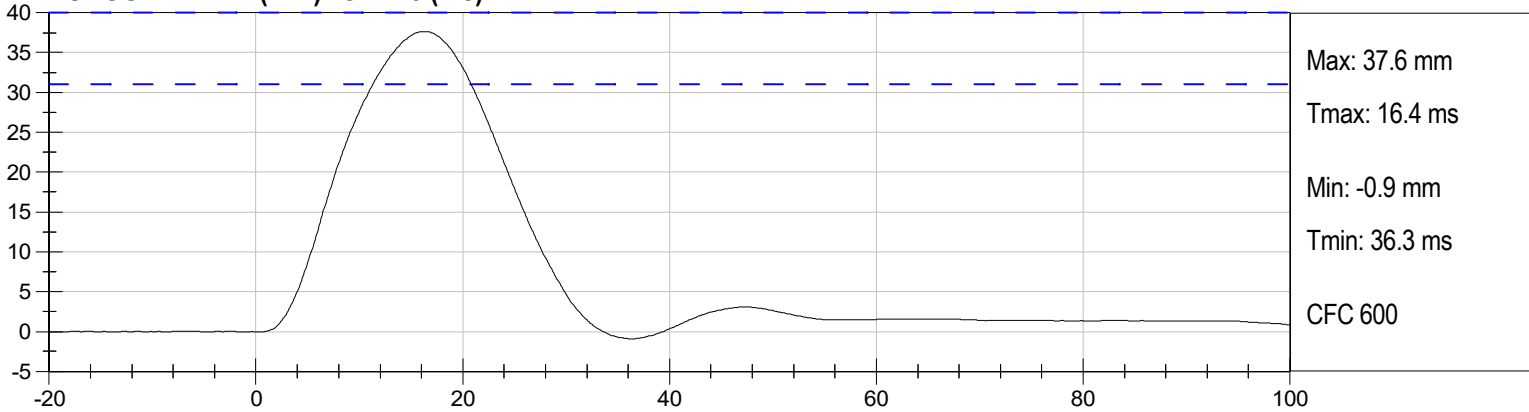


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	6.6 to 6.8	6.77	Pass
Peak Probe Acceleration after 5 ms	g	30 to 36	32	Pass
Upper Spine (T1) Y Acceleration	g	34 to 43	36	Pass
Lower Spine (T12) Y Acceleration	g	29 to 37	32	Pass
Shoulder Displacement	mm	31 to 40	38	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	36	Pass

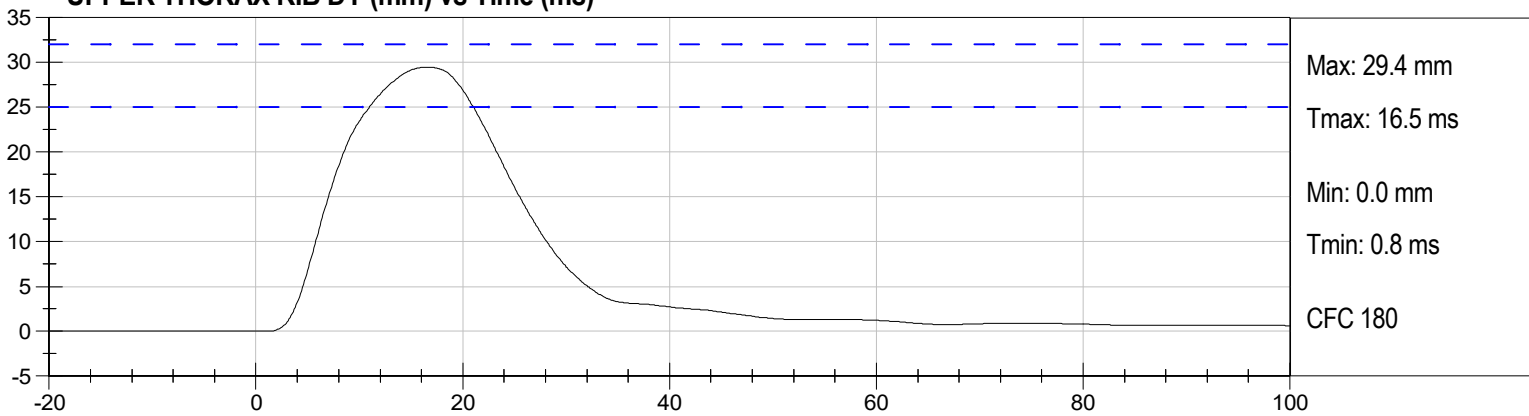
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
UPPER SPINE Y	Endevco	P82319	05/27/2025	11/26/2025
LOWER SPINE Y	Endevco	P96335	05/27/2025	11/26/2025
SHOULDER DY	FTSS	G050	05/28/2025	11/27/2025
UPPER THORAX RIB DY	FTSS	G033	05/28/2025	11/27/2025
MID THORAX RIB DY	Servo	G2403	05/28/2025	11/27/2025
LOWER THORAX RIB DY	FTSS	G1270	05/28/2025	11/27/2025



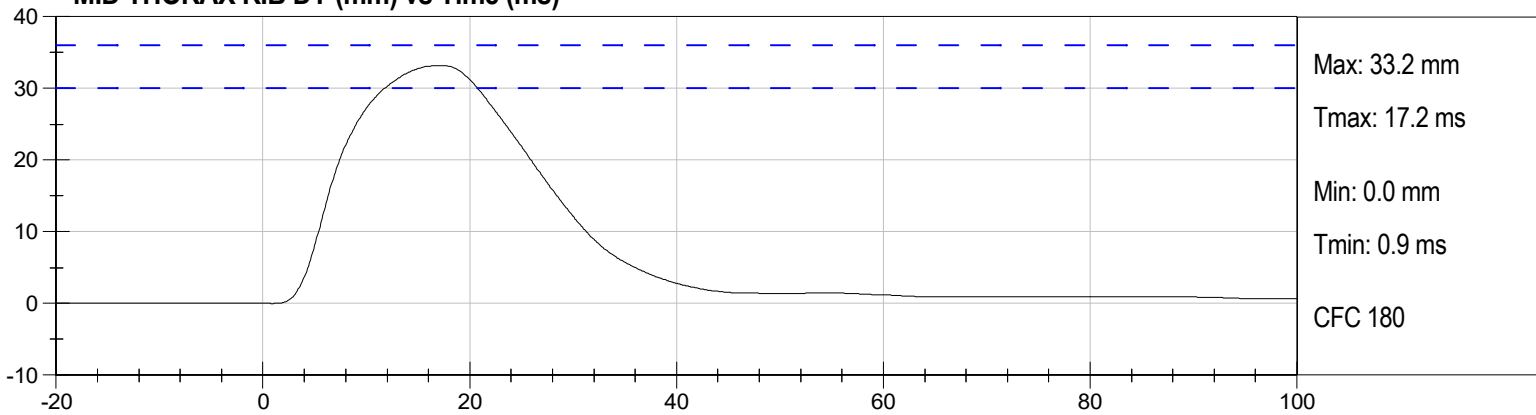
SHOULDER DY (mm) vs Time (ms)



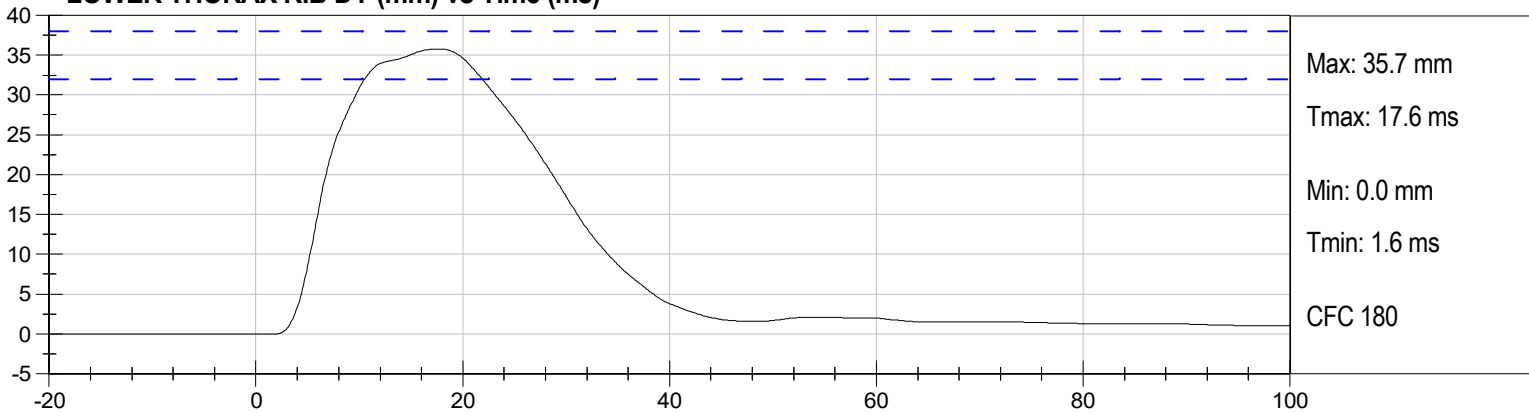
UPPER THORAX RIB DY (mm) vs Time (ms)



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



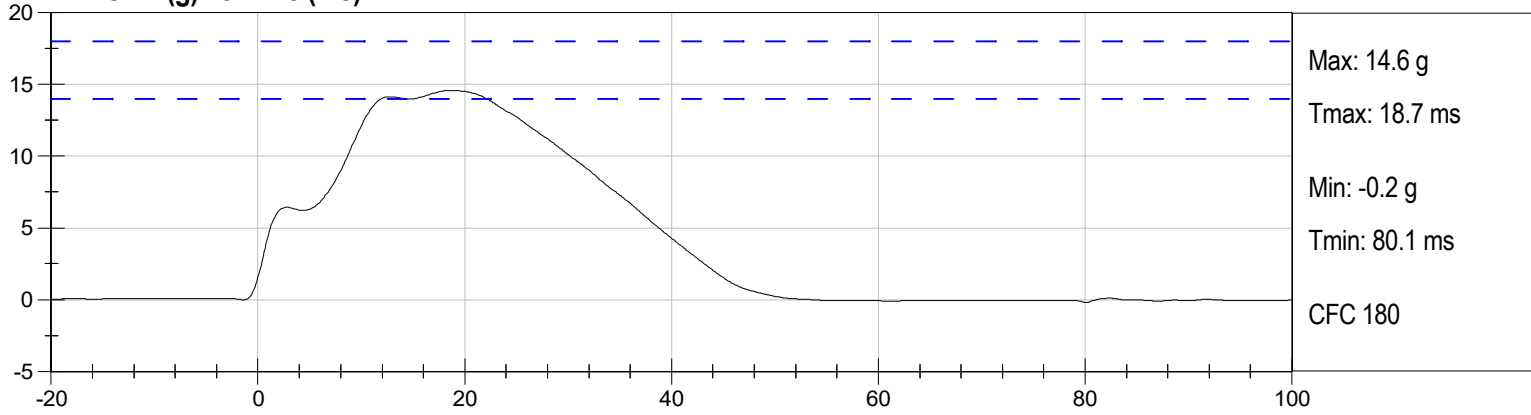
LOWER THORAX RIB DY (mm) vs Time (ms)



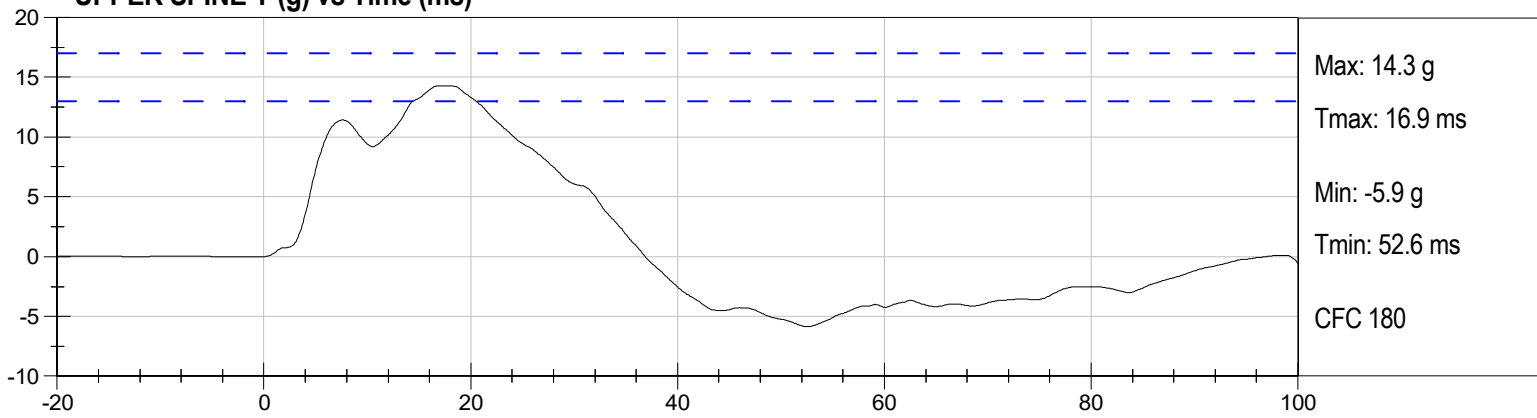
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	4.2 to 4.4	4.23	Pass
Peak Probe Acceleration	g	14 to 18	15	Pass
Upper Spine (T1) Y Acceleration	g	13 to 17	14	Pass
Lower Spine (T12) 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	41	Pass
Lower Thorax Rib Displacement	mm	35 to 43	39	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
UPPER SPINE Y	Endevco	P82319	05/27/2025	11/26/2025
LOWER SPINE Y	Endevco	P96335	05/27/2025	11/26/2025
UPPER THORAX RIB DY	FTSS	G033	05/28/2025	11/27/2025
MID THORAX RIB DY	Servo	G2403	05/28/2025	11/27/2025
LOWER THORAX RIB DY	FTSS	G1270	05/28/2025	11/27/2025

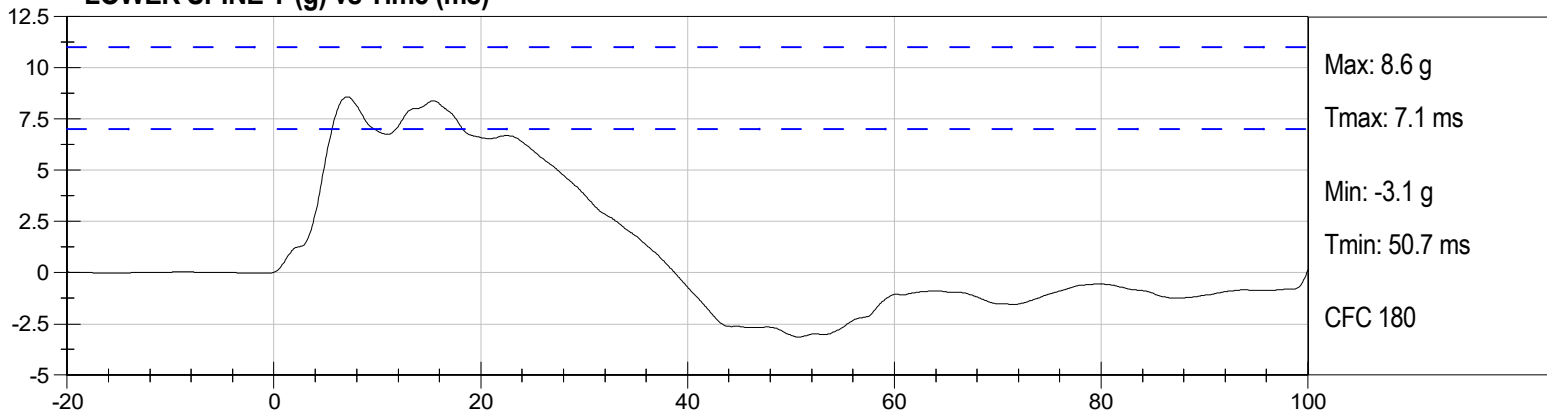
PROBE (g) vs Time (ms)



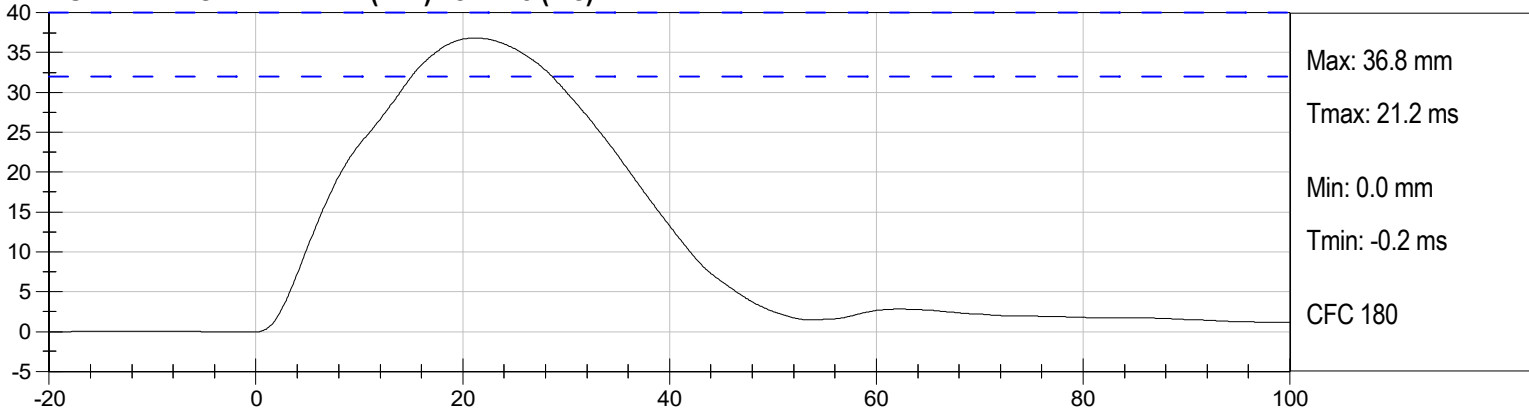
UPPER SPINE Y (g) vs Time (ms)



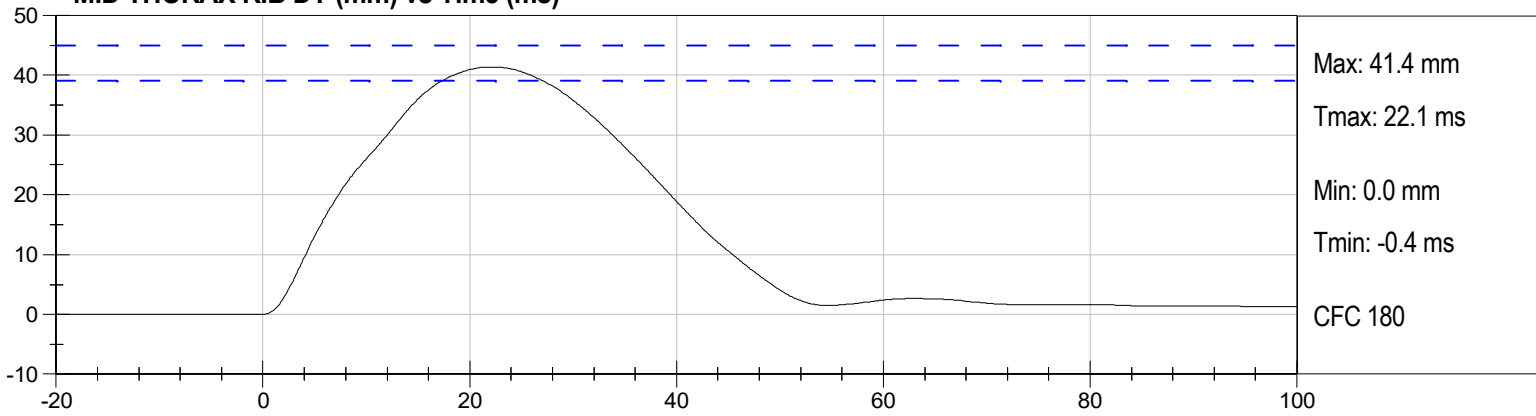
LOWER SPINE Y (g) vs Time (ms)



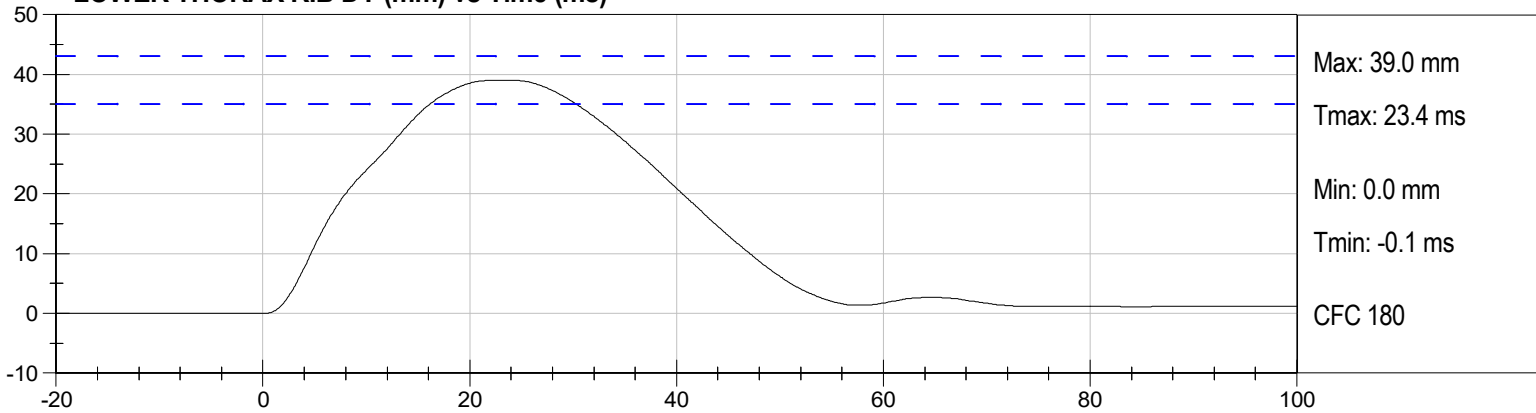
UPPER THORAX RIB DY (mm) vs Time (ms)



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



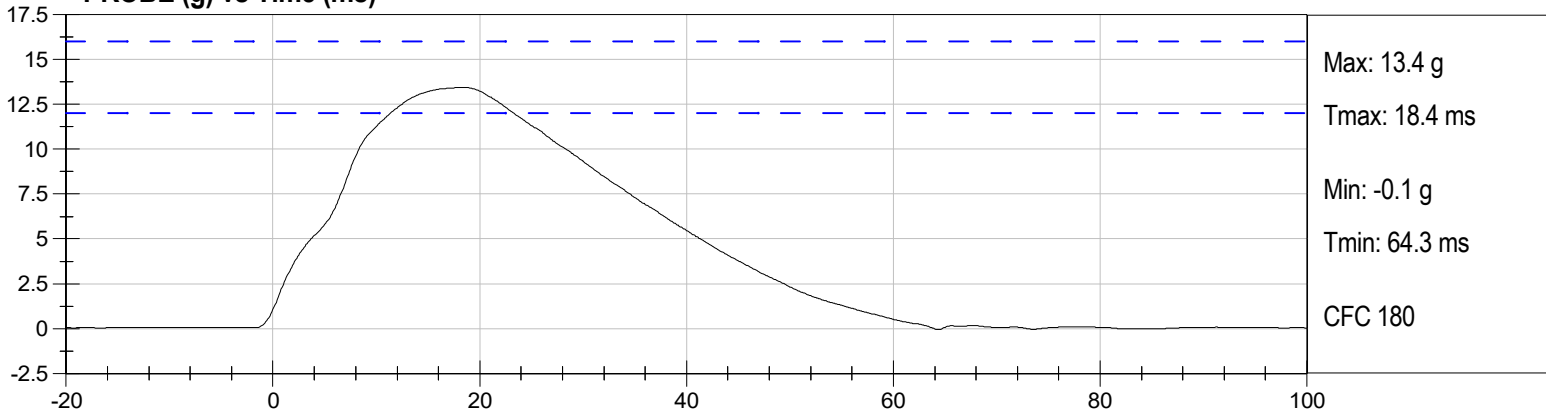
LOWER THORAX RIB DY (mm) vs Time (ms)



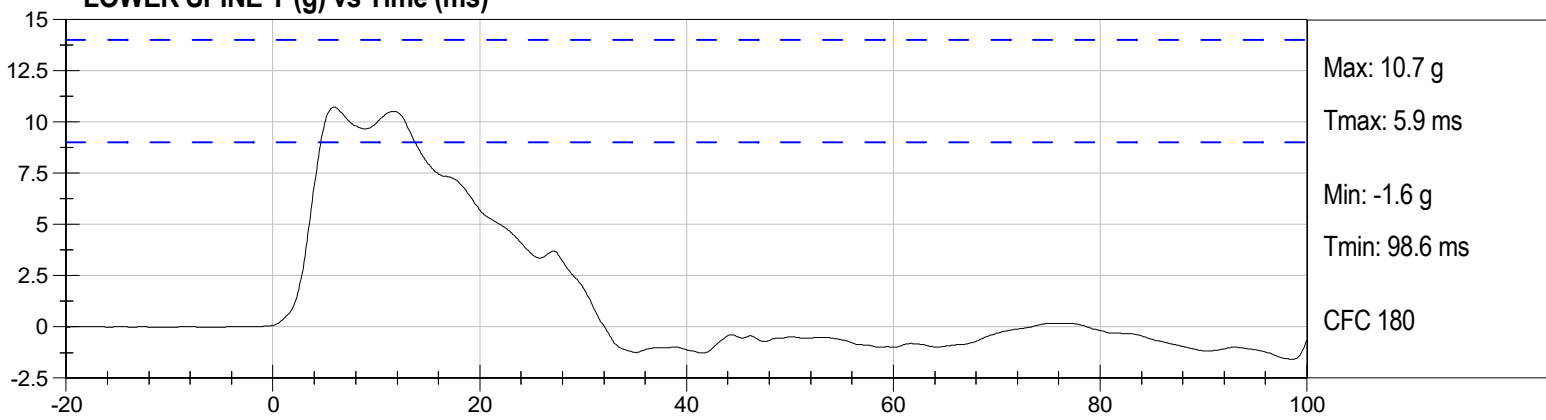
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	4.2 to 4.4	4.34	Pass
Peak Probe Acceleration	g	12 to 16	13	Pass
Lower Spine (T12) Y Acceleration	g	9 to 14	11	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	44	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	37	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
LOWER SPINE Y	Endevco	P96335	05/27/2025	11/26/2025
UPPER ABDOMINAL RIB DY	FTSS	G032	05/28/2025	11/27/2025
LOWER ABDOMINAL RIB DY	Medius	MJ5171	05/28/2025	11/27/2025

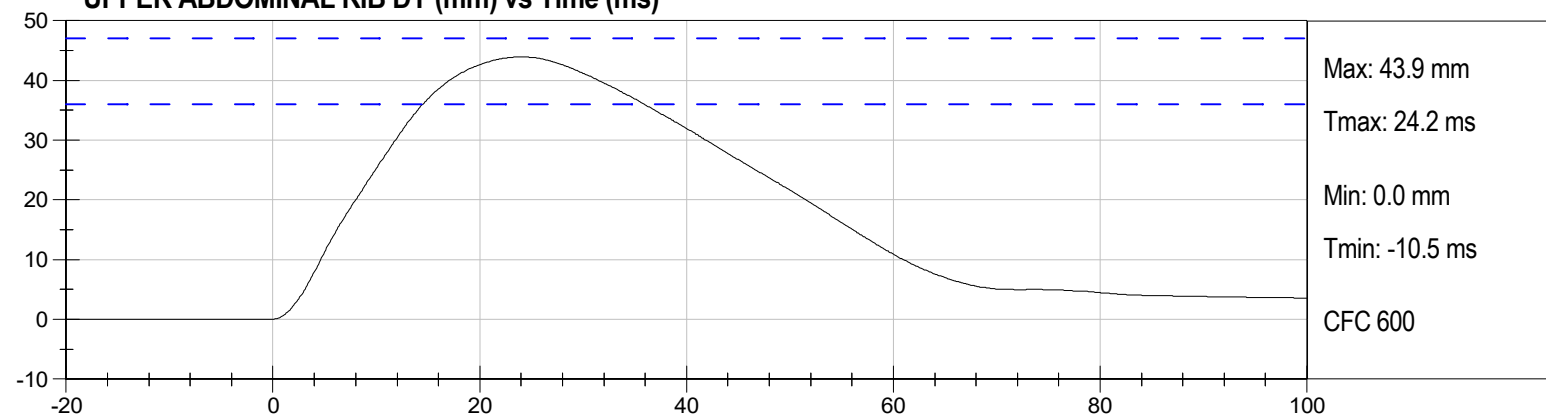
PROBE (g) vs Time (ms)



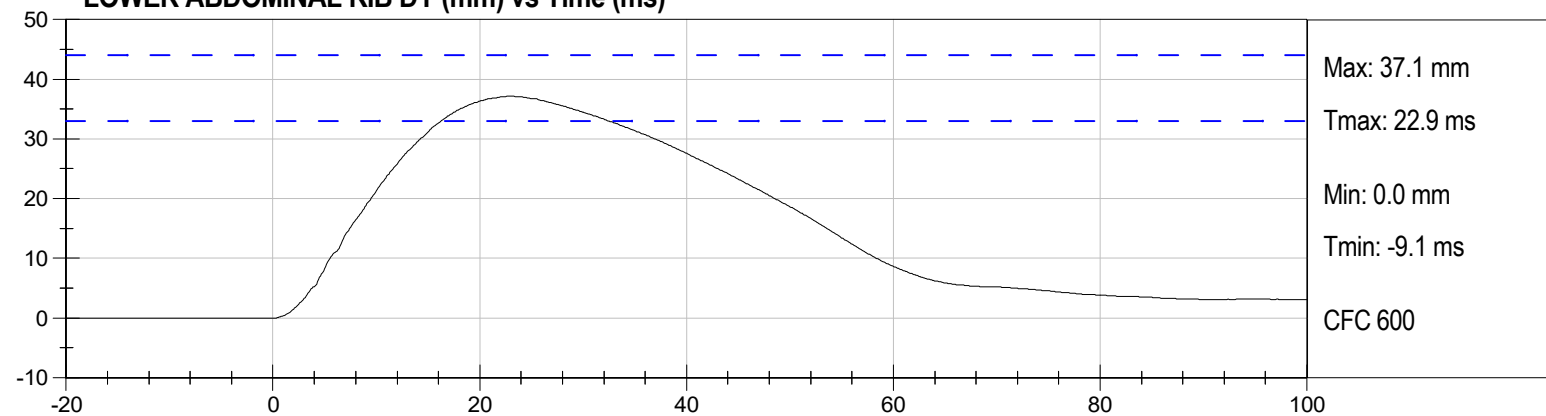
LOWER SPINE Y (g) vs Time (ms)



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



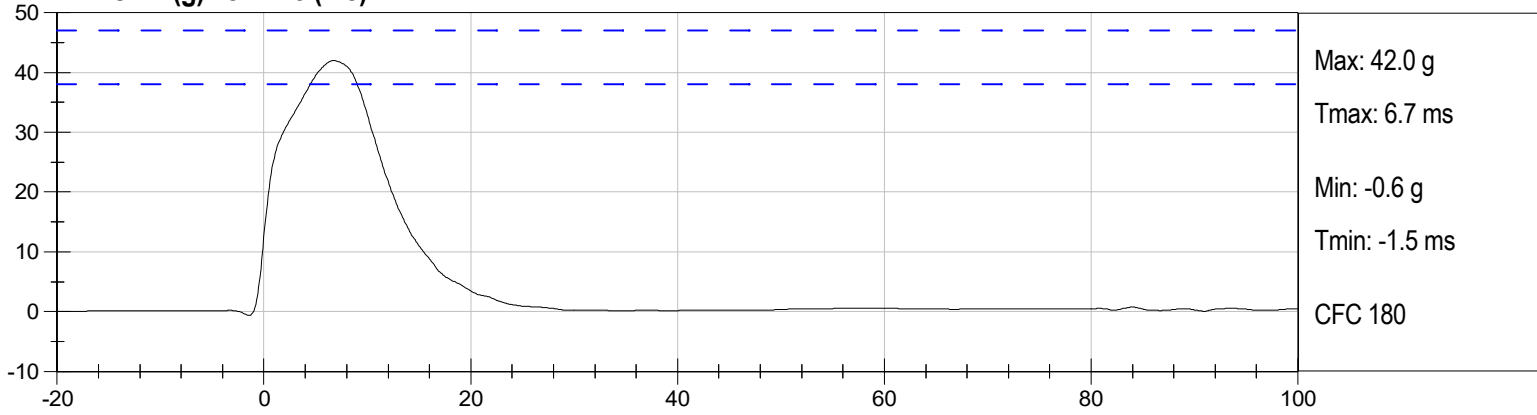
LOWER ABDOMINAL RIB DY (mm) vs Time (ms)



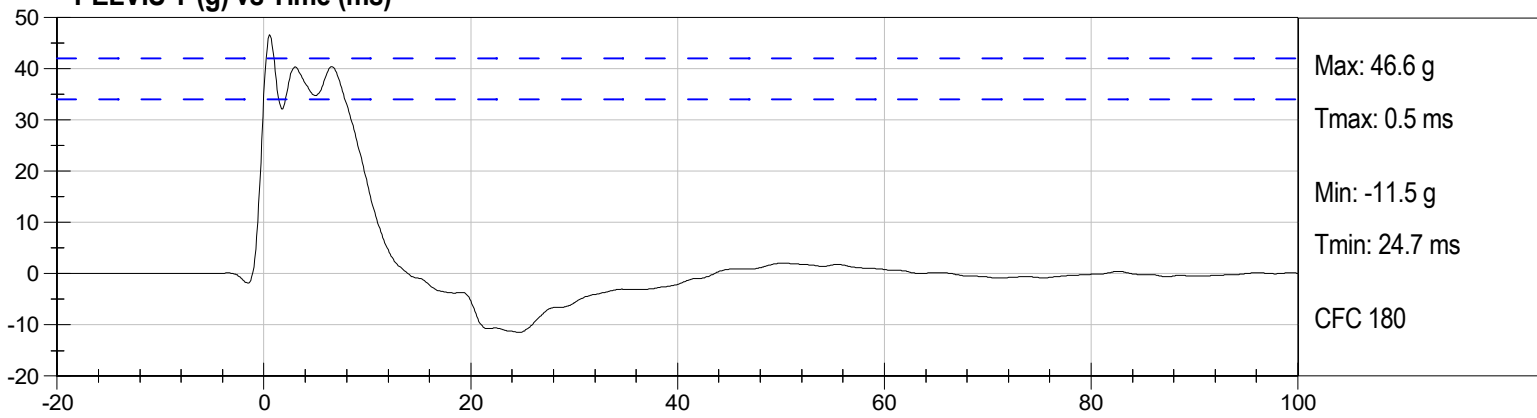
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	6.6 to 6.8	6.77	Pass
Peak Probe Acceleration	g	38 to 47	42	Pass
Peak Pelvis Y Acceleration after 6 ms	g	34 to 42	40.4	Pass
Acetabulum Force	N	3600 to 4300	3967	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
PELVIS Y	Endevco	P82673	05/27/2025	11/26/2025
ACETABULUM FY	FTSS	ACG4285FY	05/28/2025	5/28/2026

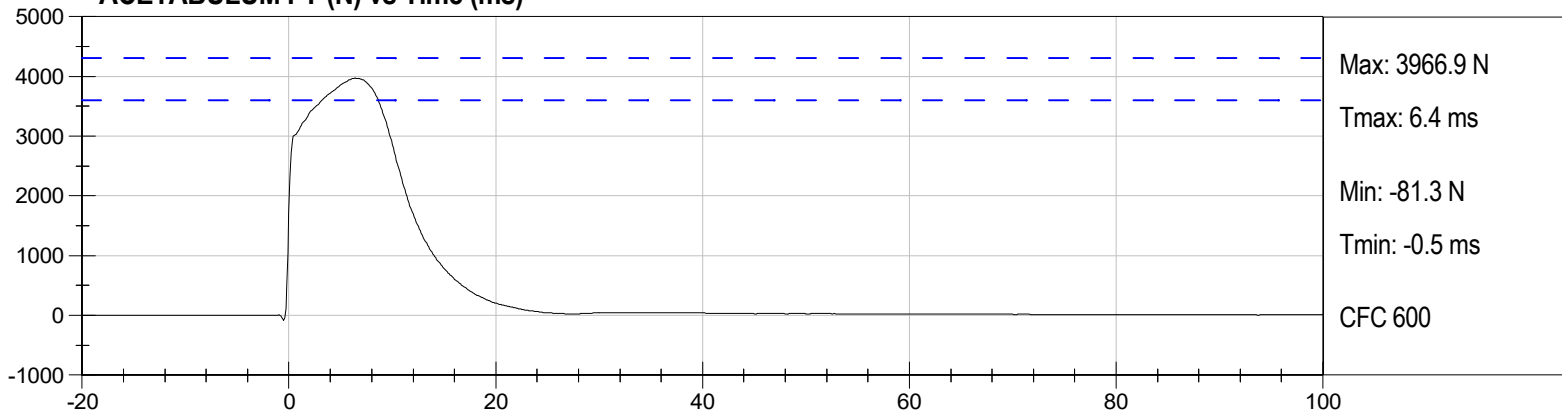
PROBE (g) vs Time (ms)



PELVIS Y (g) vs Time (ms)



ACETABULUM FY (N) vs Time (ms)





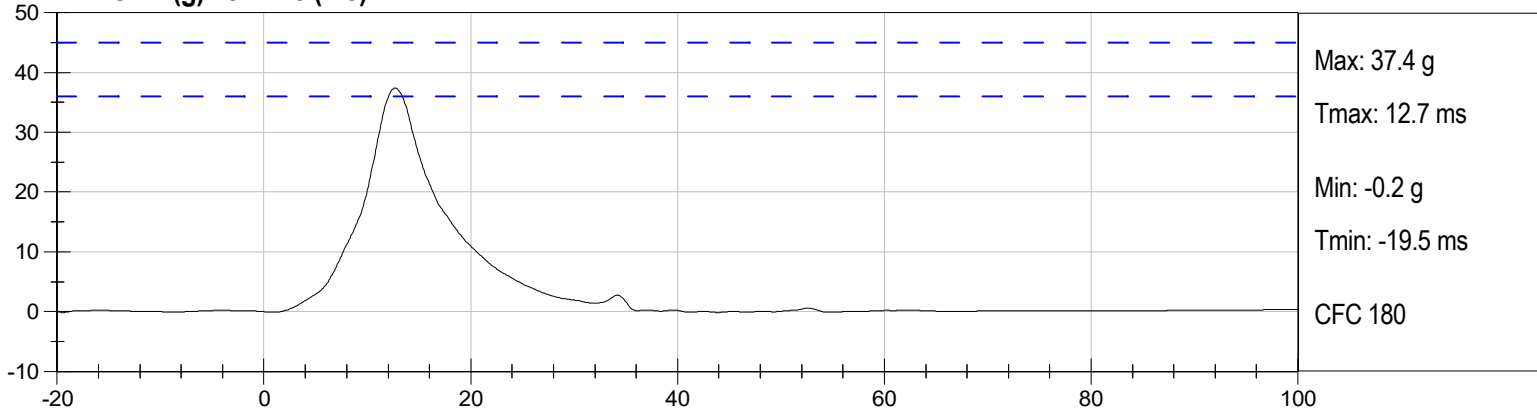
Iliac Impact Test
SID IIs
ATD Serial No: 306

Test Date: 08/07/2025
Test ID: D252318
Test Technician: Jonah Pulokas

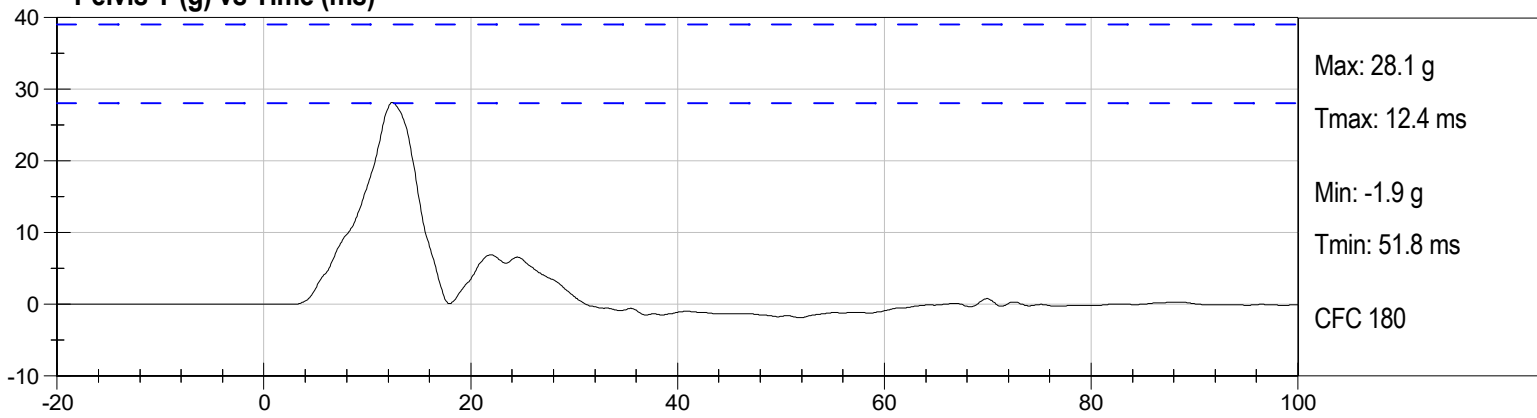
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Probe Acceleration	g	36 to 45	37	Pass
Peak Pelvis Y Acceleration	g	28 to 39	28	Pass
Iliac Force	N	4100 to 5100	4257	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
Pelvis Y	Endevco	P82673	05/27/2025	11/26/2025
ILIUM CREST FY	FTSS	IWG3023FY	05/28/2025	5/28/2026

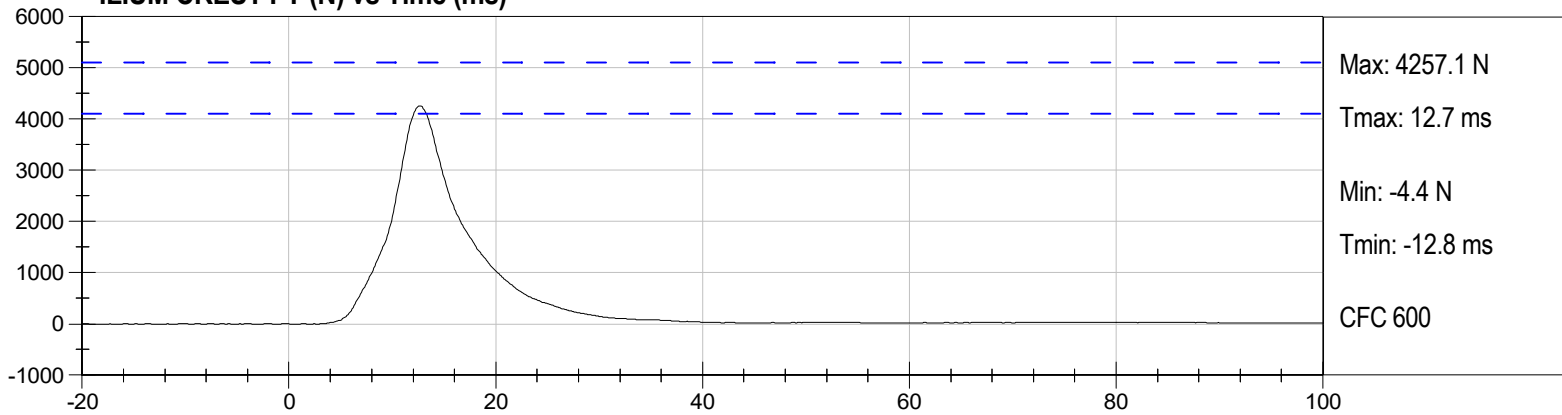
PROBE (g) vs Time (ms)



Pelvis Y (g) vs Time (ms)



ILIUM CREST FY (N) vs Time (ms)



QUALIFICATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER ATD

SID-IIsD External Measurements
SN: 306

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

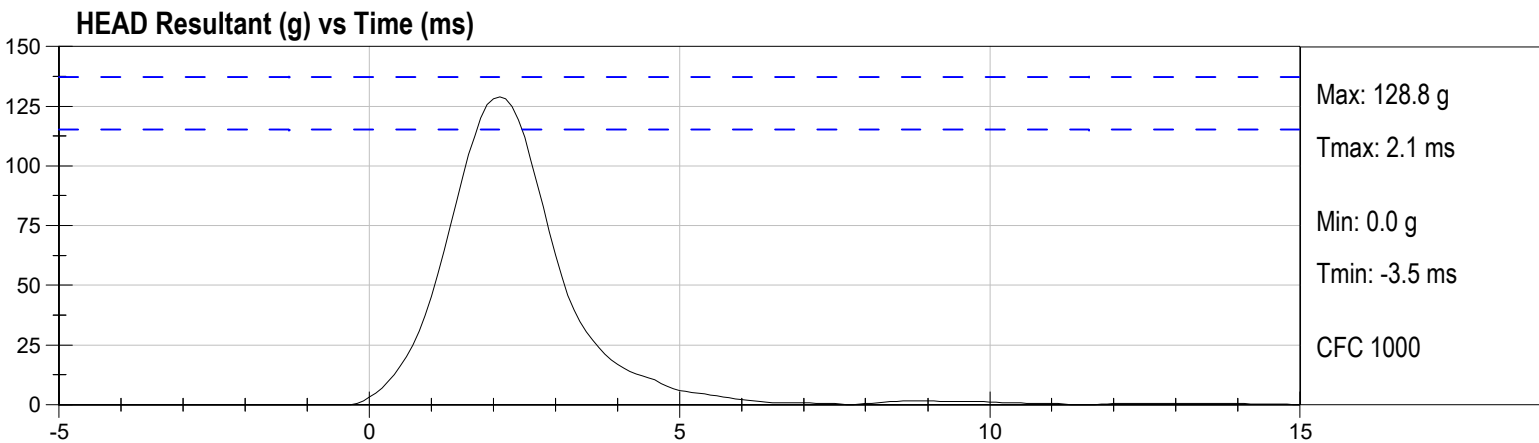
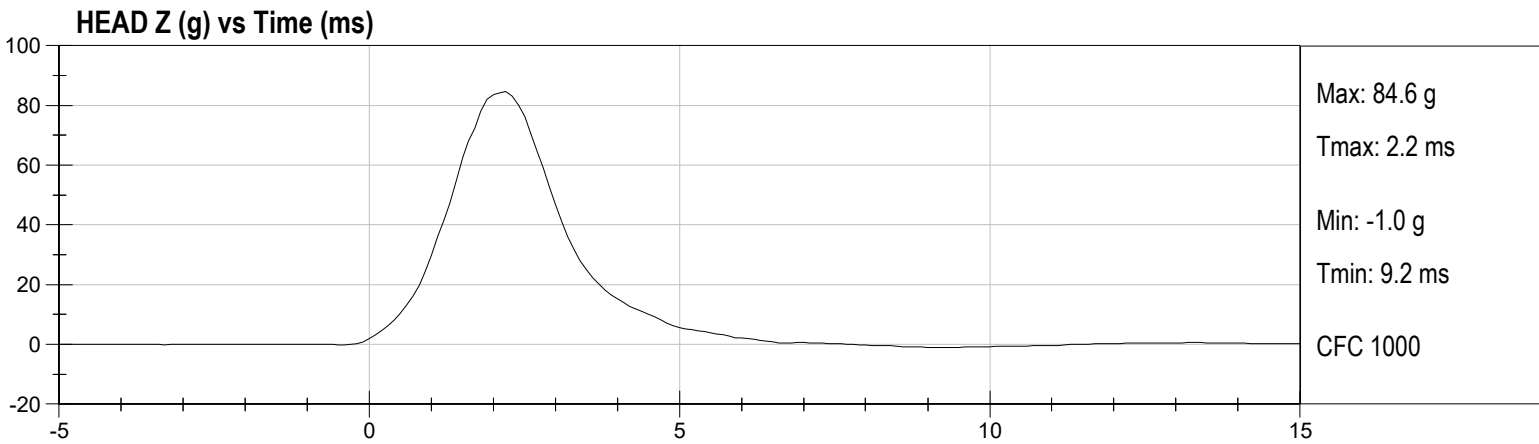
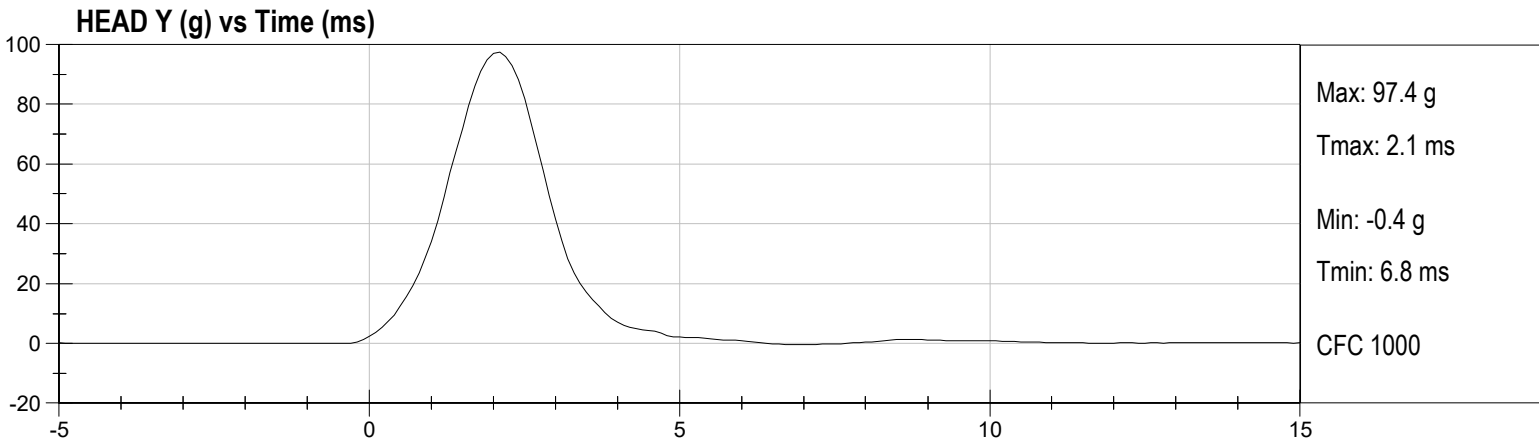
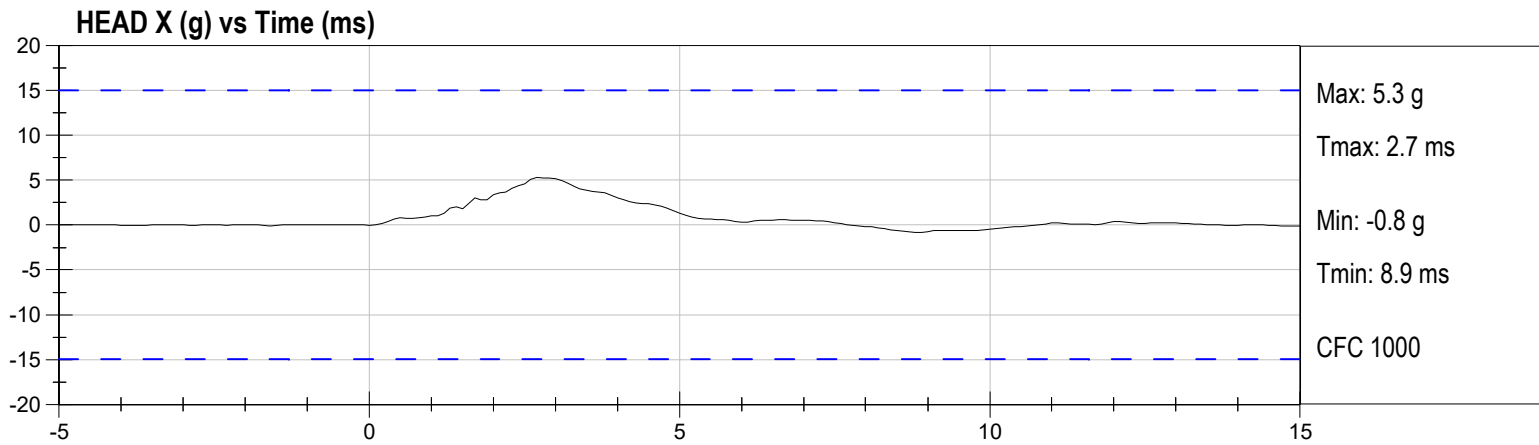


Lateral Head Drop Test
SID IIs
ATD Serial No: 306

Test Date: 09/04/2025
Test ID: D252531
Test Technician: Maggie LaRose

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Peak Resultant Acceleration	g	115 to 137	129	Pass
Peak Longitudinal Acceleration	g	-15.0 to 15.0	5.3	Pass
Unimodal	%	within 15% of peak	1	Pass

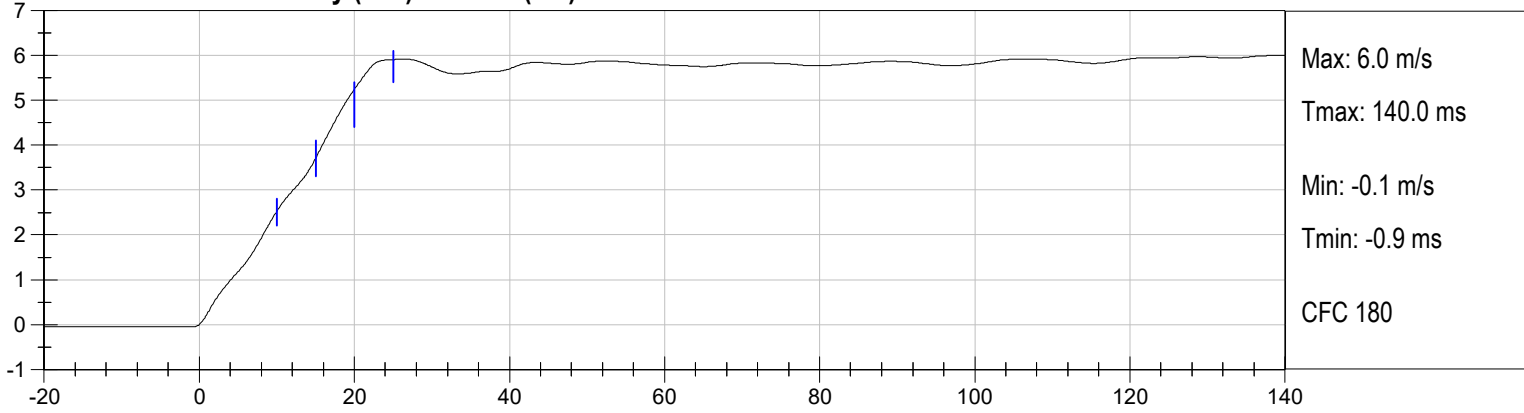
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
HEAD Y	Endevco	T30974	05/27/2025	11/26/2025
HEAD X	Endevco	T30975	05/27/2025	11/26/2025
HEAD Z	Endevco	T30976	05/27/2025	11/26/2025



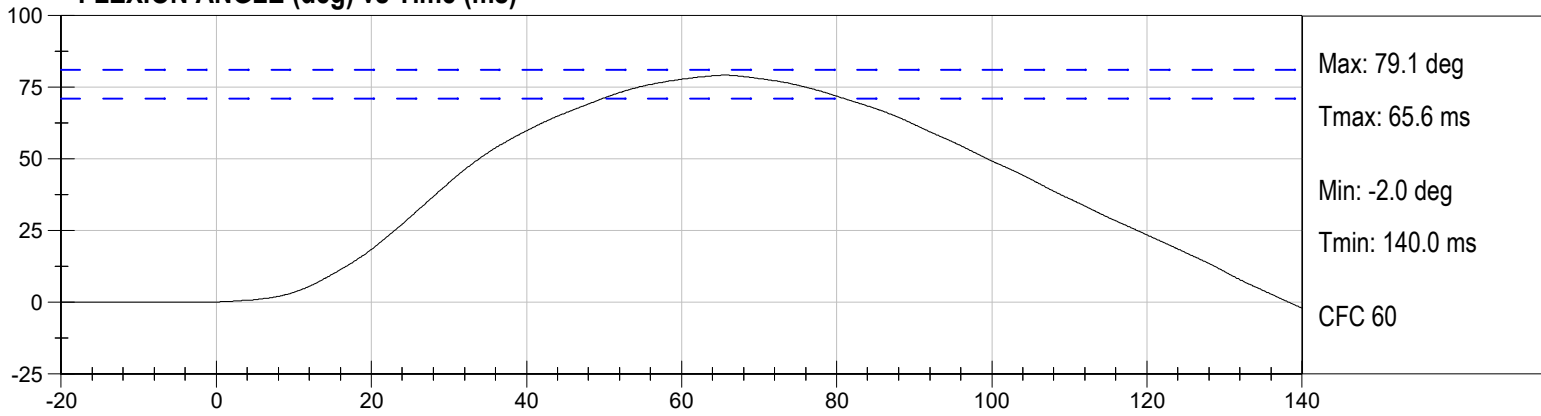
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	5.51 to 5.63	5.52	Pass
Pendulum Velocity at 10 ms	m/s	2.20 to 2.80	2.50	Pass
Pendulum Velocity at 15 ms	m/s	3.30 to 4.10	3.68	Pass
Pendulum Velocity at 20 ms	m/s	4.40 to 5.40	5.22	Pass
Pendulum Velocity at 25 ms	m/s	5.40 to 6.10	5.91	Pass
Peak Pendulum Velocity from 25 to 100 ms	m/s	5.50 to 6.20	5.92	Pass
Maximum "D" Plane Rotation	deg	71 to 81	79	Pass
Time of Maximum "D" Plane Rotation	ms	50 to 70	66	Pass
Maximum Moment About Occipital Condyle	Nm	-44 to -36	-36	Pass
Time of Moment Decay Time To 0 Nm	ms	102 to 126	122	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

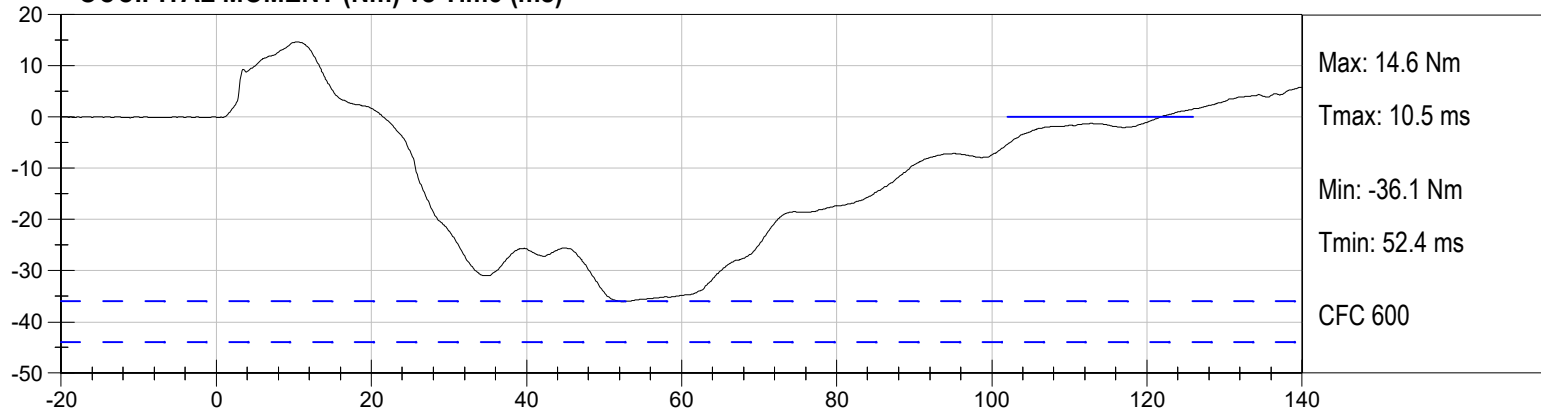
PEND. ACCEL. Velocity (m/s) vs Time (ms)



FLEXION ANGLE (deg) vs Time (ms)

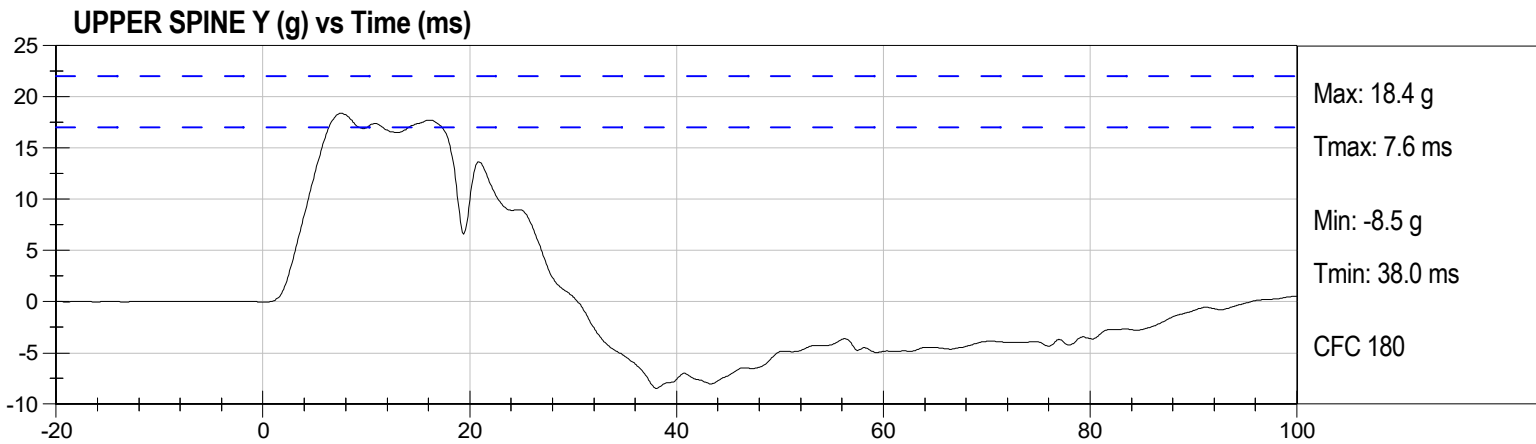
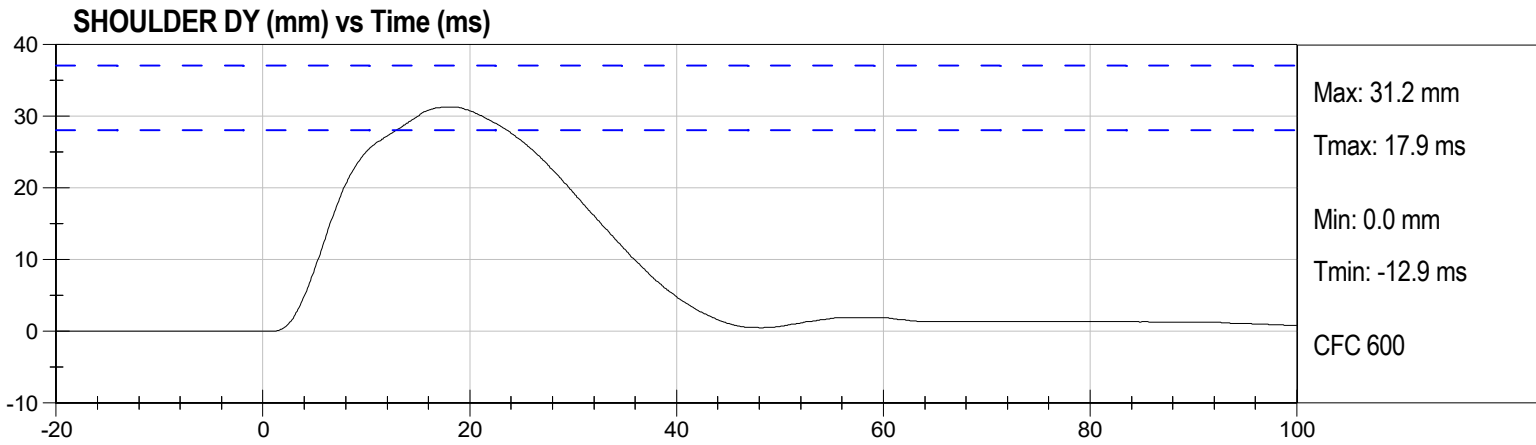
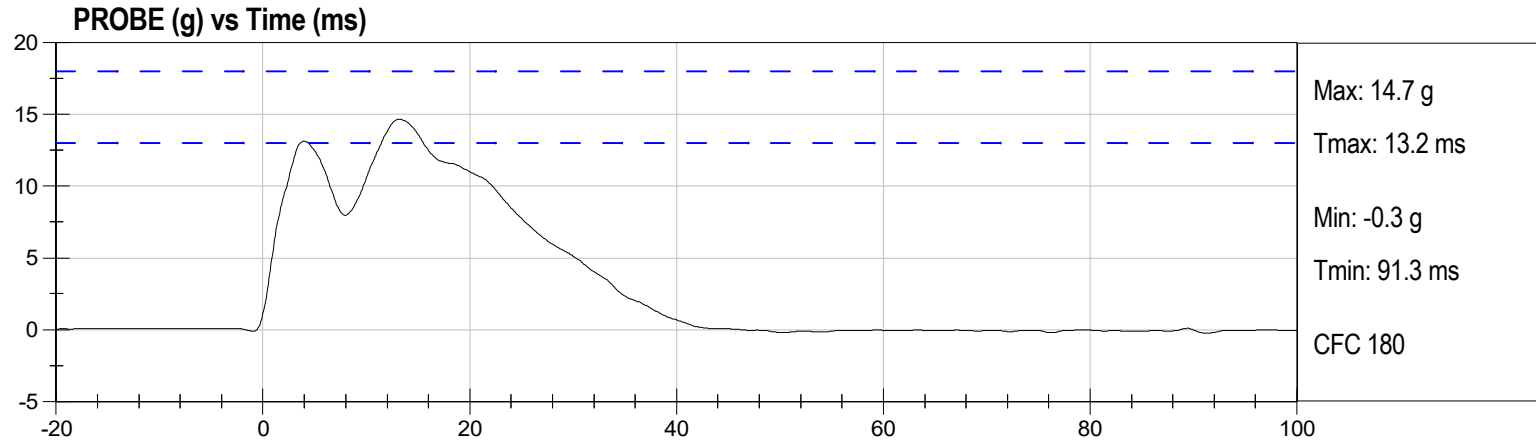


OCCIPITAL MOMENT (Nm) vs Time (ms)



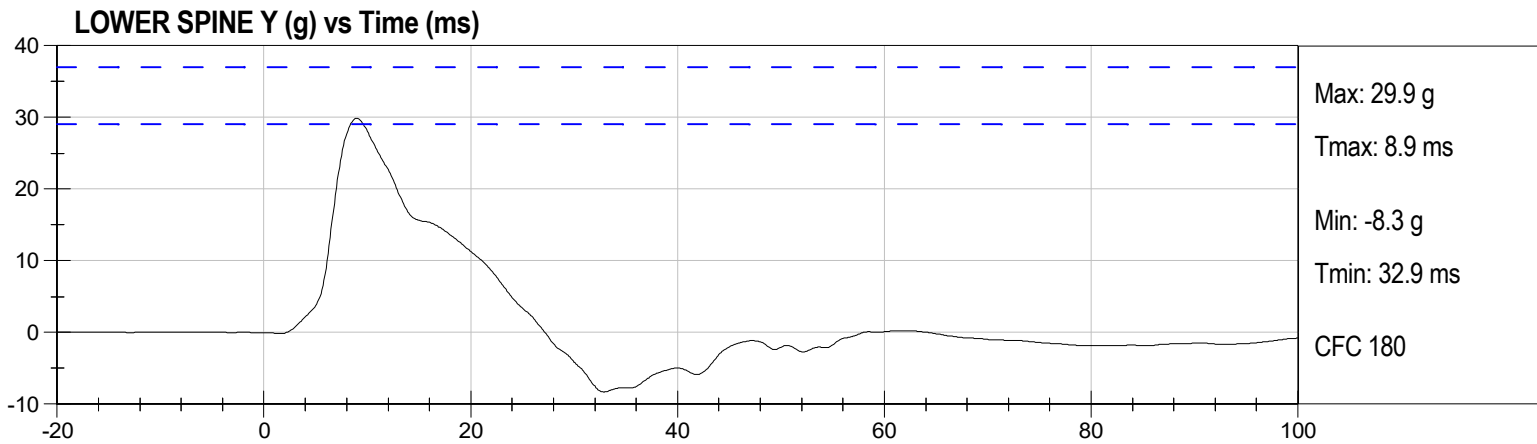
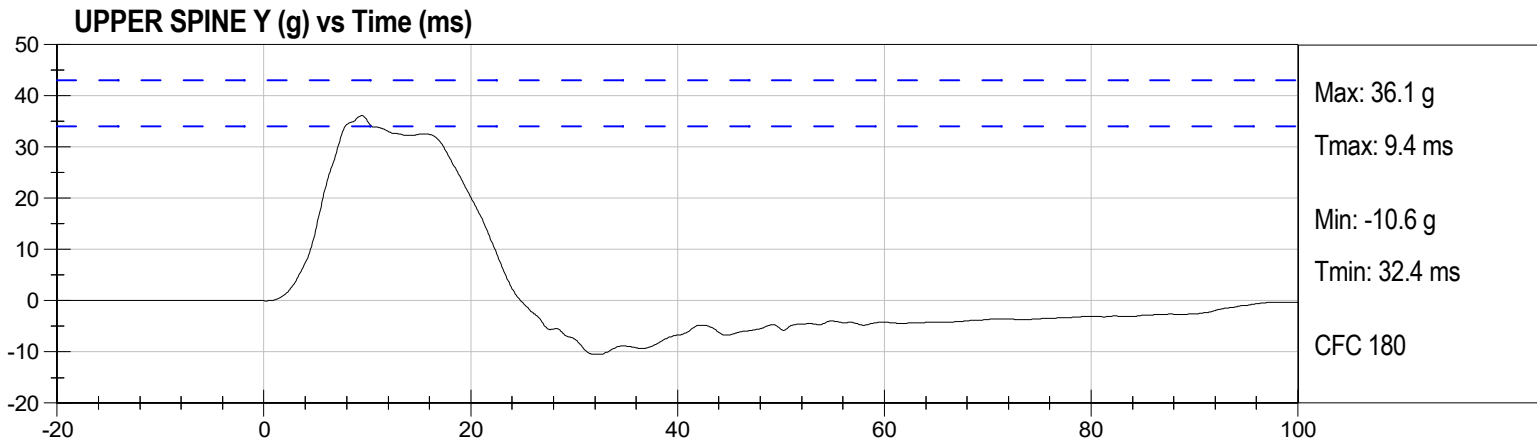
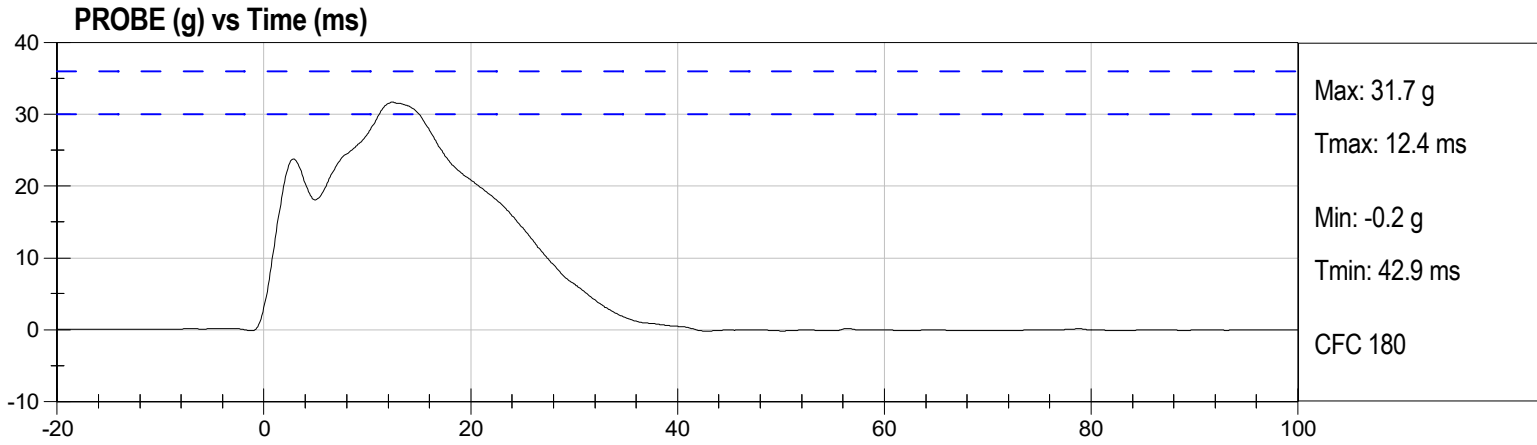
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	4.2 to 4.4	4.21	Pass
Peak Probe Acceleration	g	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	31	Pass
Upper Spine (T1) Y Acceleration	g	17 to 22	18	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
UPPER SPINE Y	Endevco	P82319	05/27/2025	11/26/2025
SHOULDER DY	FTSS	G050	05/28/2025	11/27/2025

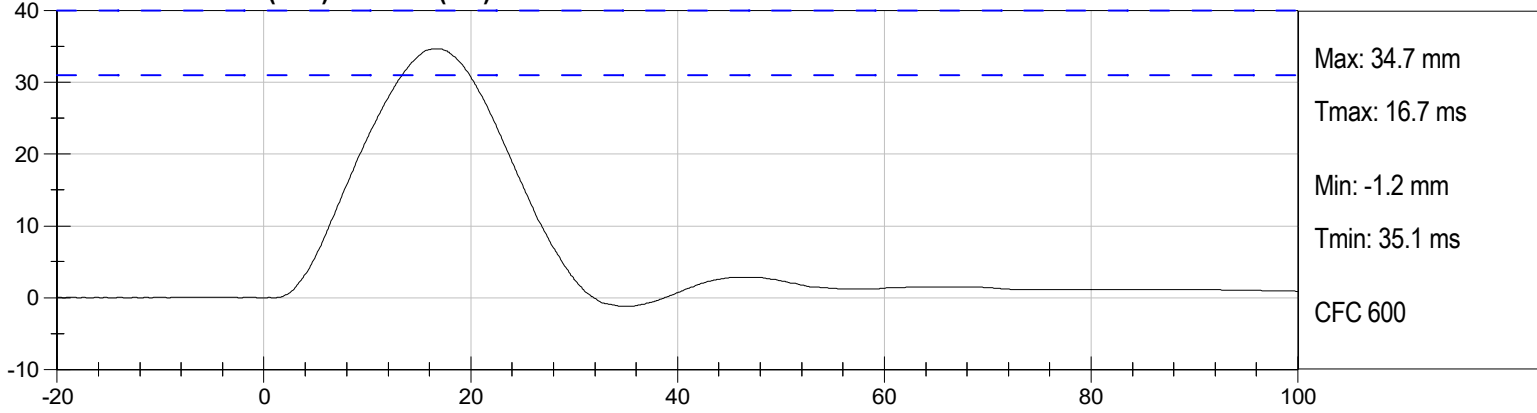


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Impact Velocity	m/s	6.6 to 6.8	6.77	Pass
Peak Probe Acceleration after 5 ms	g	30 to 36	32	Pass
Upper Spine (T1) Y Acceleration	g	34 to 43	36	Pass
Lower Spine (T12) Y Acceleration	g	29 to 37	30	Pass
Shoulder Displacement	mm	31 to 40	35	Pass
Upper Thorax Rib Displacement	mm	25 to 32	29	Pass
Middle Thorax Rib Displacement	mm	30 to 36	34	Pass
Lower Thorax Rib Displacement	mm	32 to 38	37	Pass

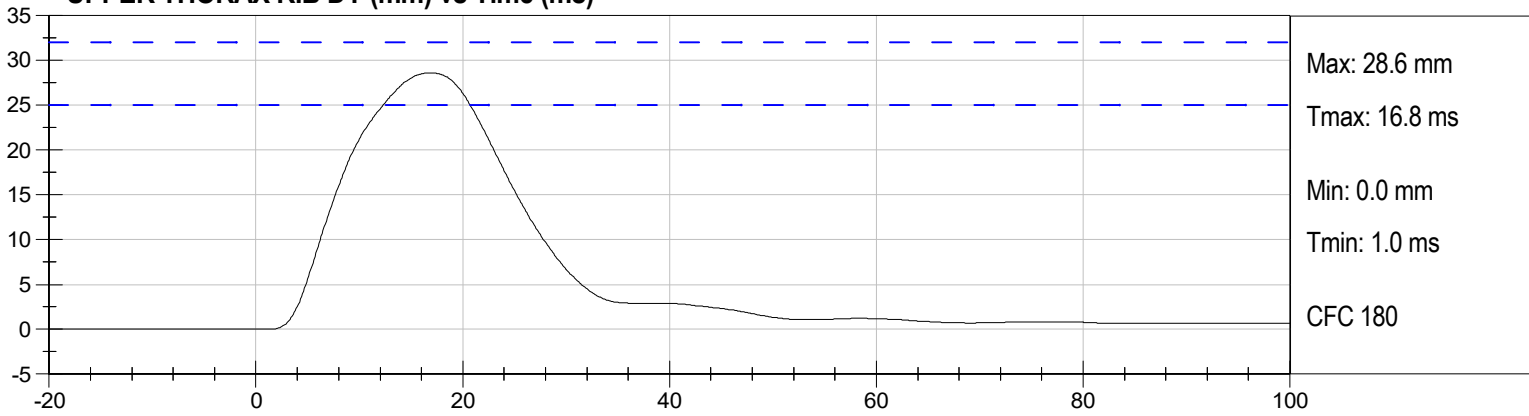
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
UPPER SPINE Y	Endevco	P82319	05/27/2025	11/26/2025
LOWER SPINE Y	Endevco	P96335	05/27/2025	11/26/2025
SHOULDER DY	FTSS	G050	05/28/2025	11/27/2025
UPPER THORAX RIB DY	FTSS	G033	05/28/2025	11/27/2025
MID THORAX RIB DY	Servo	G2403	05/28/2025	11/27/2025
LOWER THORAX RIB DY	FTSS	G1270	05/28/2025	11/27/2025



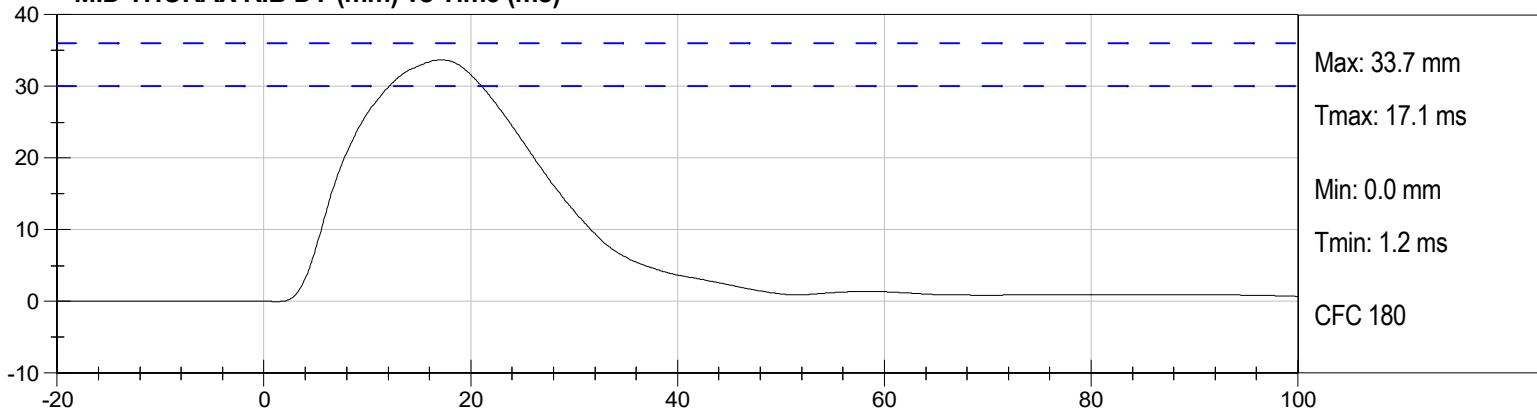
SHOULDER DY (mm) vs Time (ms)



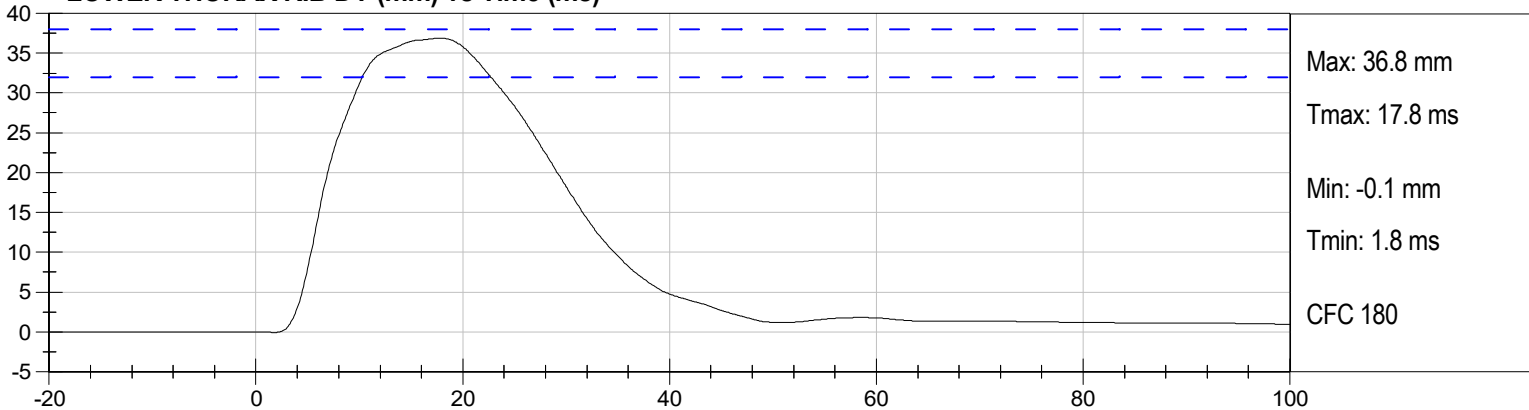
UPPER THORAX RIB DY (mm) vs Time (ms)



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



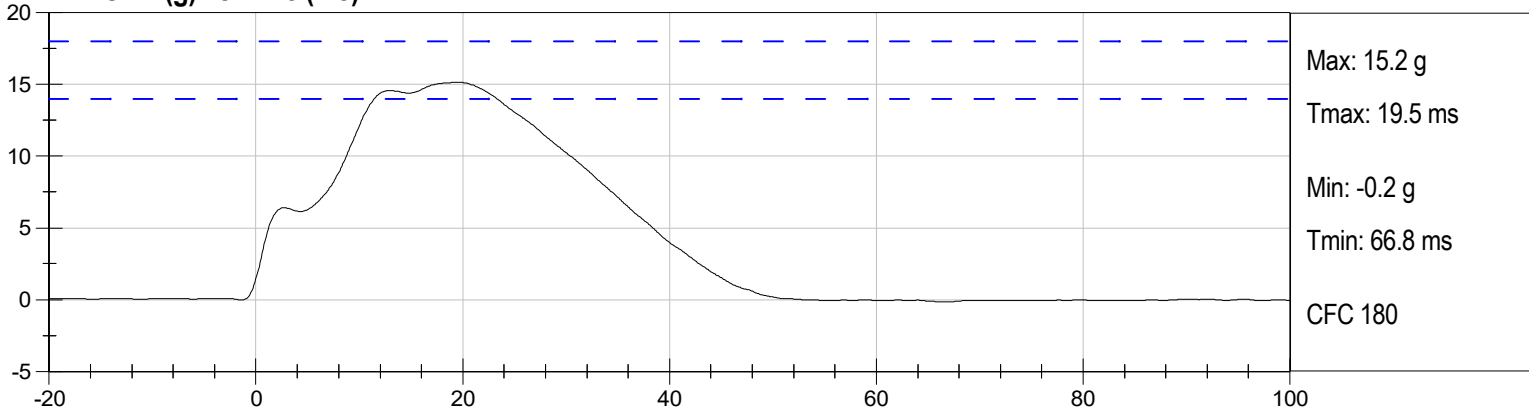
LOWER THORAX RIB DY (mm) vs Time (ms)



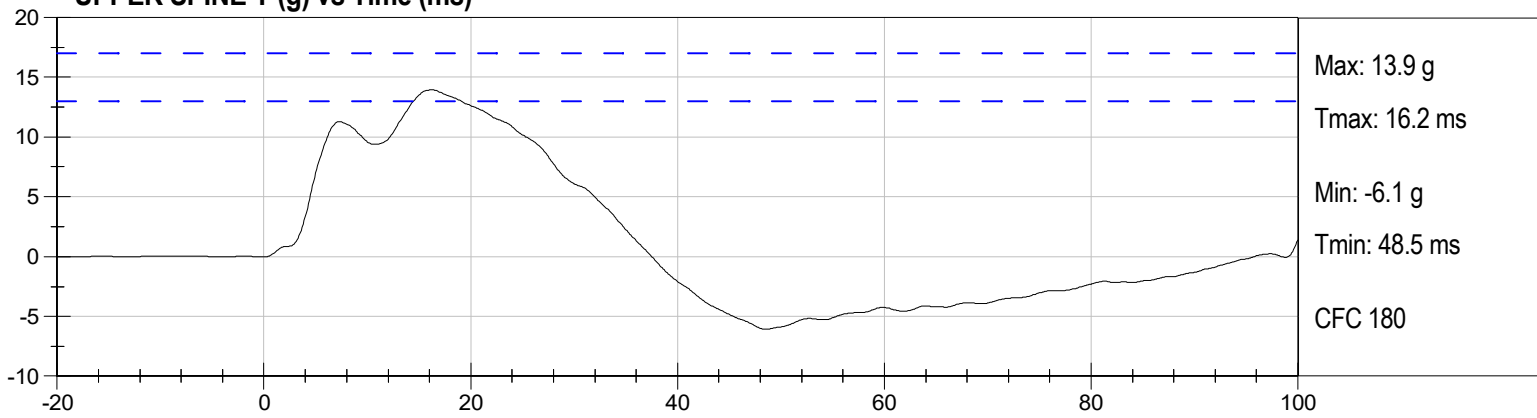
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	4.2 to 4.4	4.22	Pass
Peak Probe Acceleration	g	14 to 18	15	Pass
Upper Spine (T1) Y Acceleration	g	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	g	7 to 11	9	Pass
Upper Thorax Rib Displacement	mm	32 to 40	35	Pass
Middle Thorax Rib Displacement	mm	39 to 45	42	Pass
Lower Thorax Rib Displacement	mm	35 to 43	41	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
UPPER SPINE Y	Endevco	P82319	05/27/2025	11/26/2025
LOWER SPINE Y	Endevco	P96335	05/27/2025	11/26/2025
UPPER THORAX RIB DY	FTSS	G033	05/28/2025	11/27/2025
MID THORAX RIB DY	Servo	G2403	05/28/2025	11/27/2025
LOWER THORAX RIB DY	FTSS	G1270	05/28/2025	11/27/2025

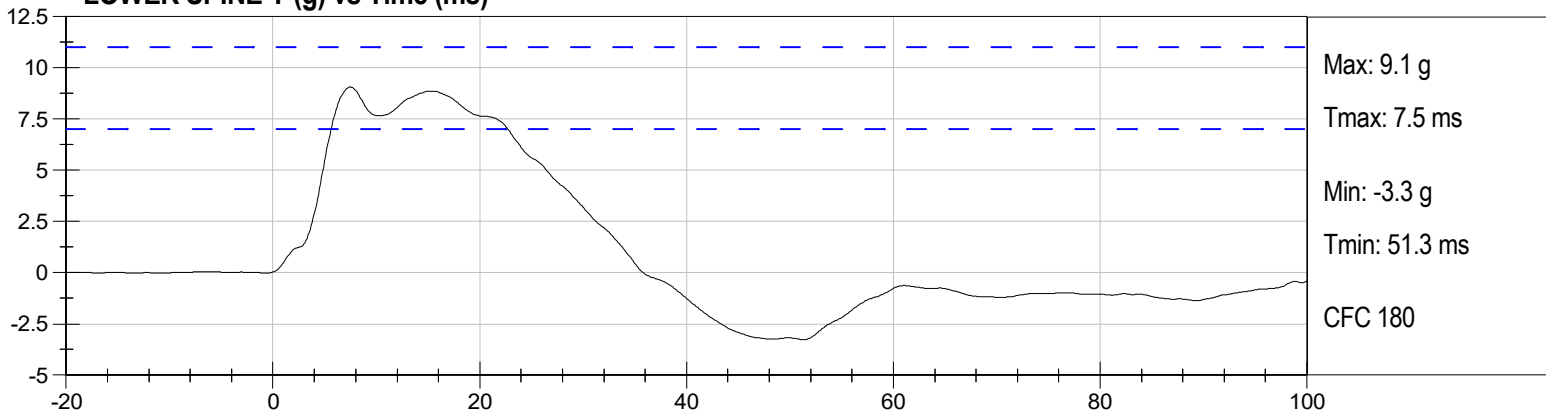
PROBE (g) vs Time (ms)



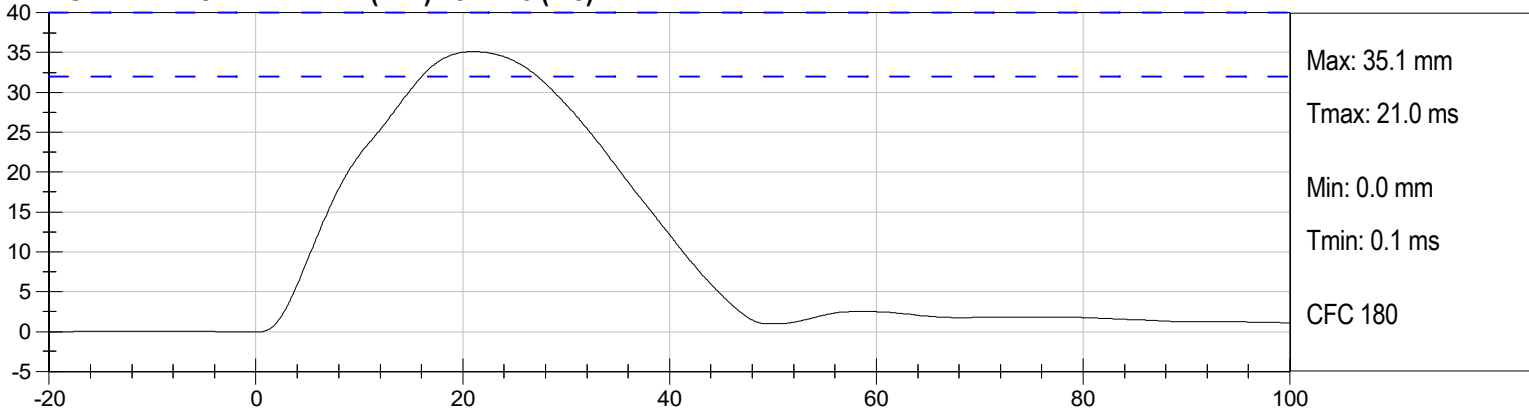
UPPER SPINE Y (g) vs Time (ms)



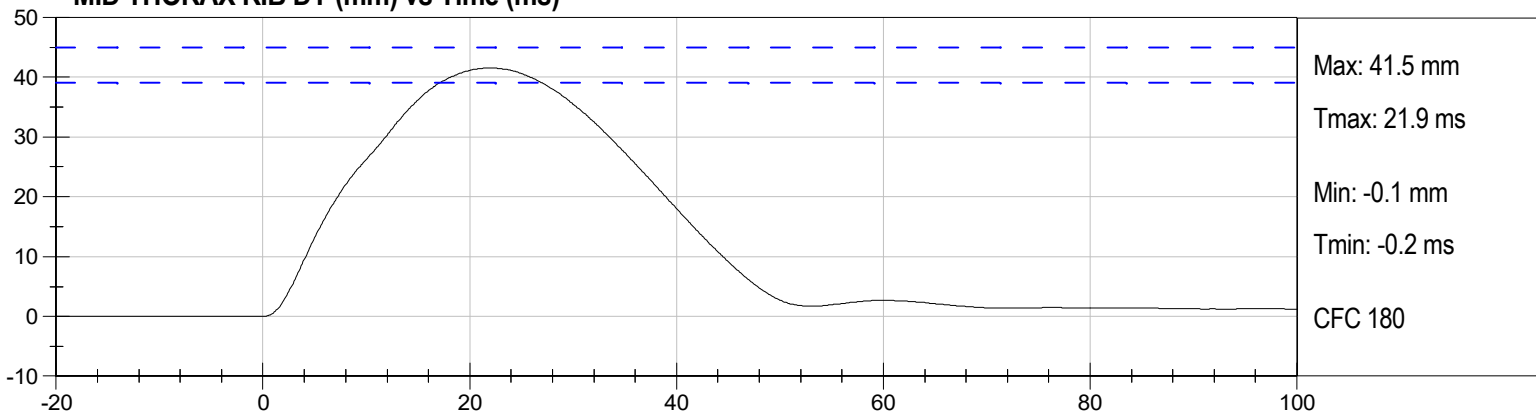
LOWER SPINE Y (g) vs Time (ms)



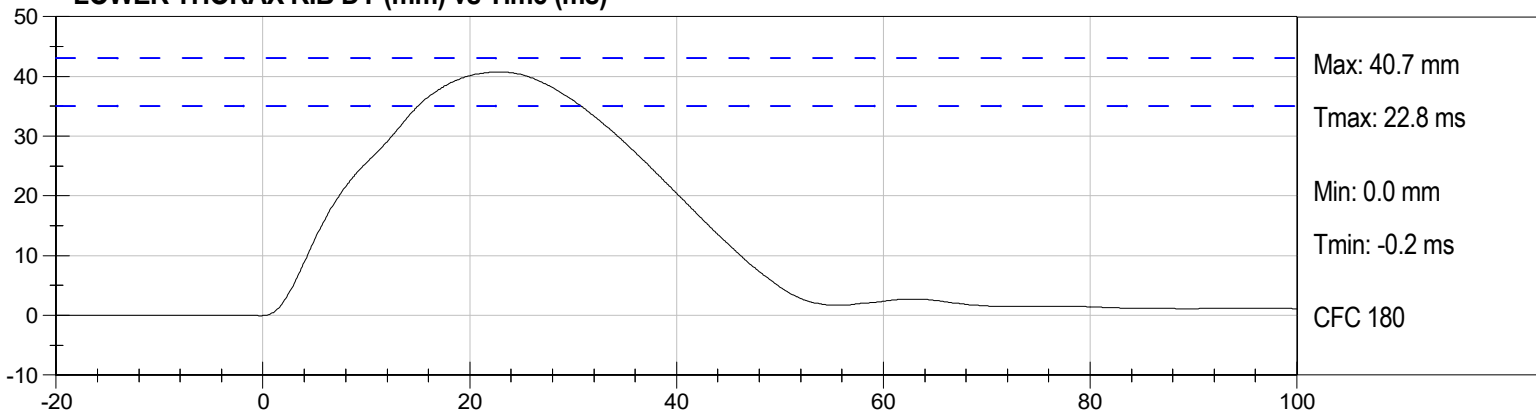
UPPER THORAX RIB DY (mm) vs Time (ms)



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



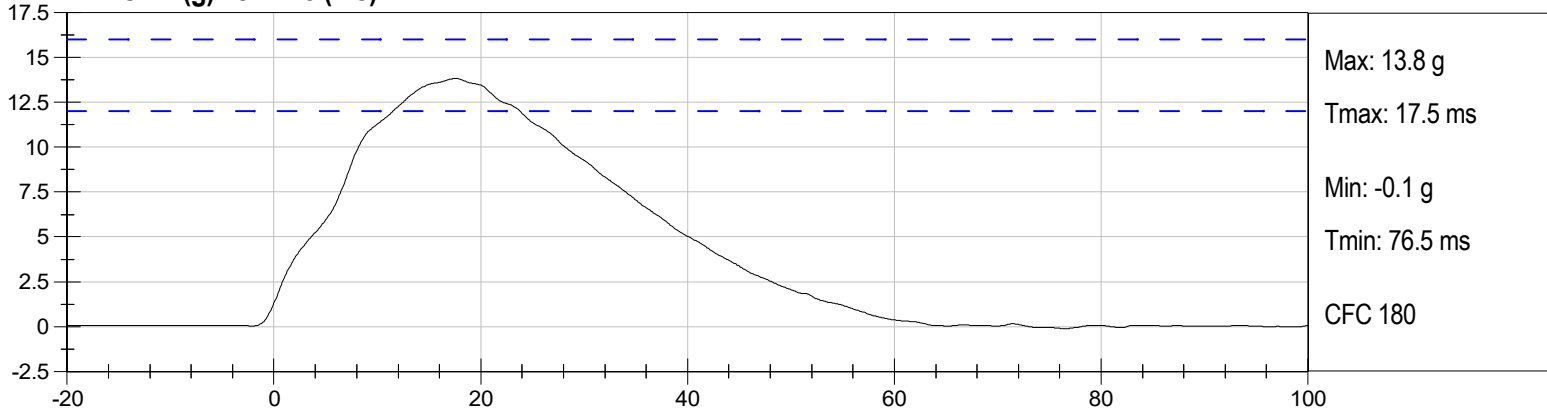
LOWER THORAX RIB DY (mm) vs Time (ms)



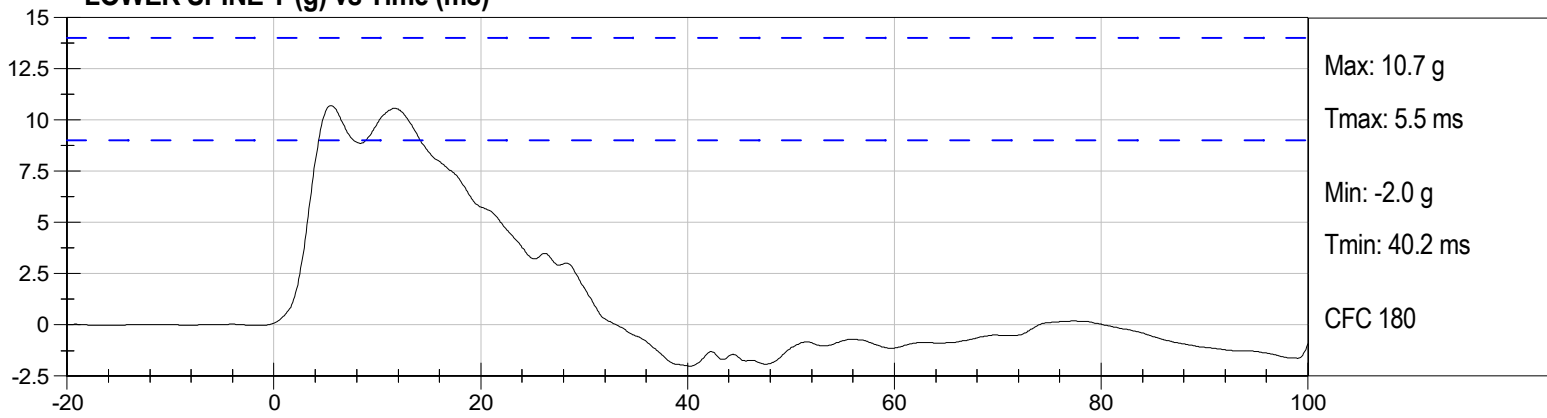
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Impact Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Probe Acceleration	g	12 to 16	14	Pass
Lower Spine (T12) Y Acceleration	g	9 to 14	11	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	43	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	42	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
LOWER SPINE Y	Endevco	P96335	05/27/2025	11/26/2025
UPPER ABDOMINAL RIB DY	FTSS	G032	05/28/2025	11/27/2025
LOWER ABDOMINAL RIB DY	Medius	MJ5171	05/28/2025	11/27/2025

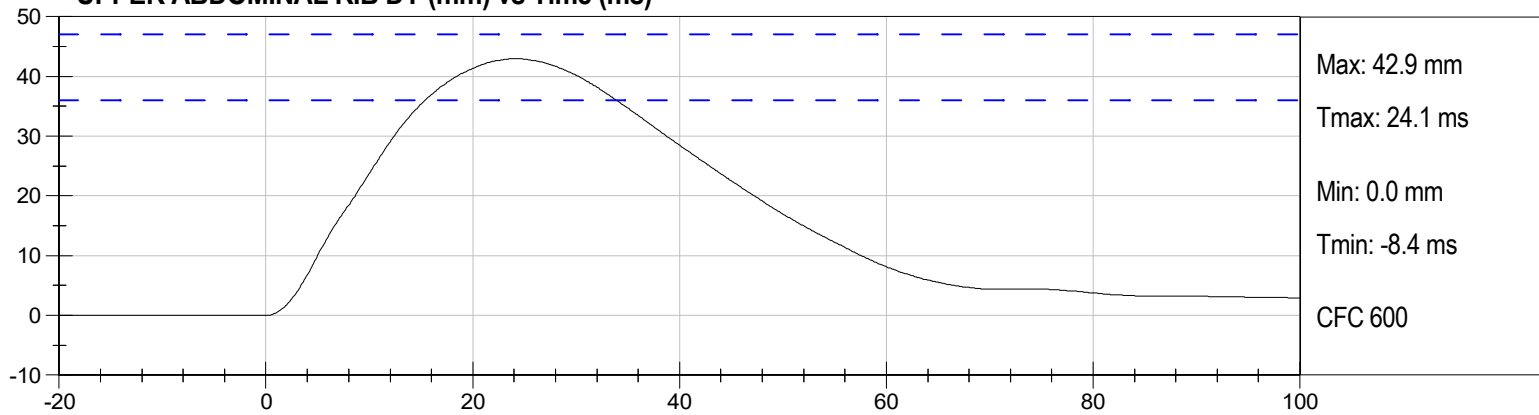
PROBE (g) vs Time (ms)



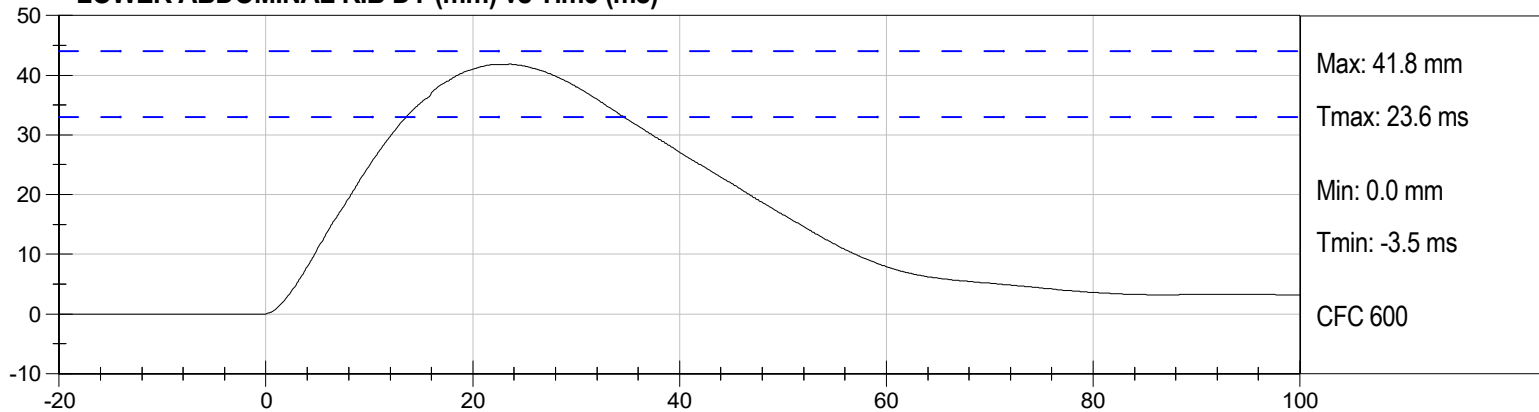
LOWER SPINE Y (g) vs Time (ms)



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



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





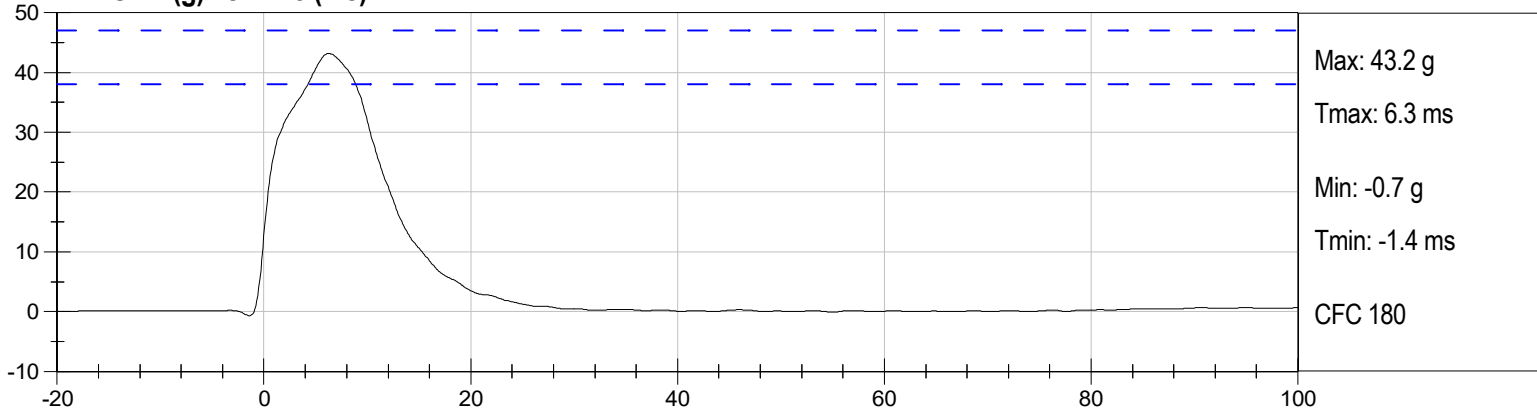
Acetabulum Impact Test
SID IIs
ATD Serial No: 306

Test Date: 09/04/2025
Test ID: D252537
Test Technician: Maggie LaRose

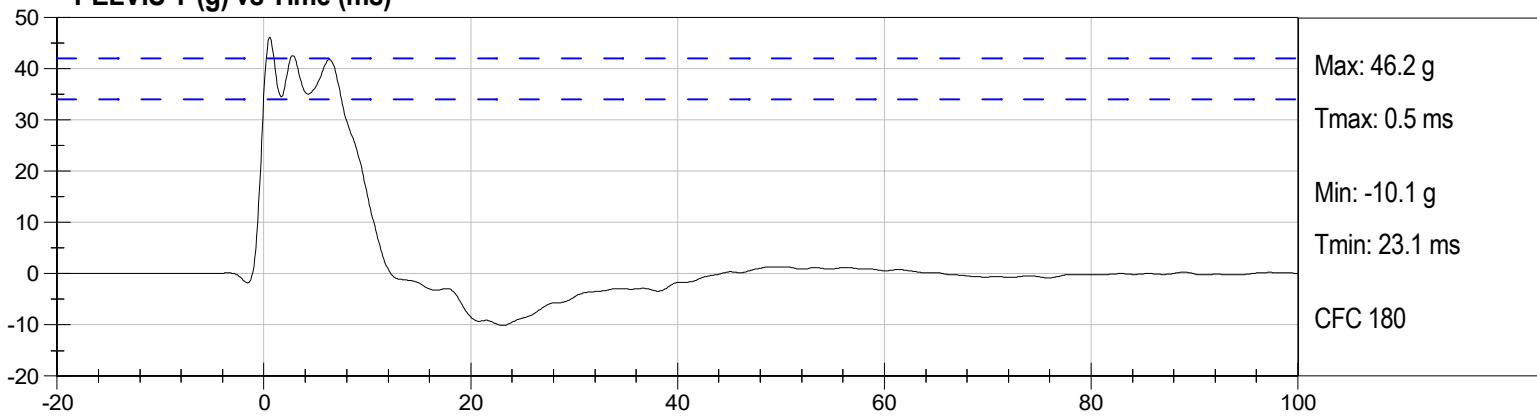
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Impact Velocity	m/s	6.6 to 6.8	6.77	Pass
Peak Probe Acceleration	g	38 to 47	43	Pass
Peak Pelvis Y Acceleration after 6 ms	g	34 to 42	41.8	Pass
Acetabulum Force	N	3600 to 4300	4013	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
PELVIS Y	Endevco	P82673	05/27/2025	11/26/2025
ACETABULUM FY	FTSS	ACG4285FY	05/28/2025	5/28/2026

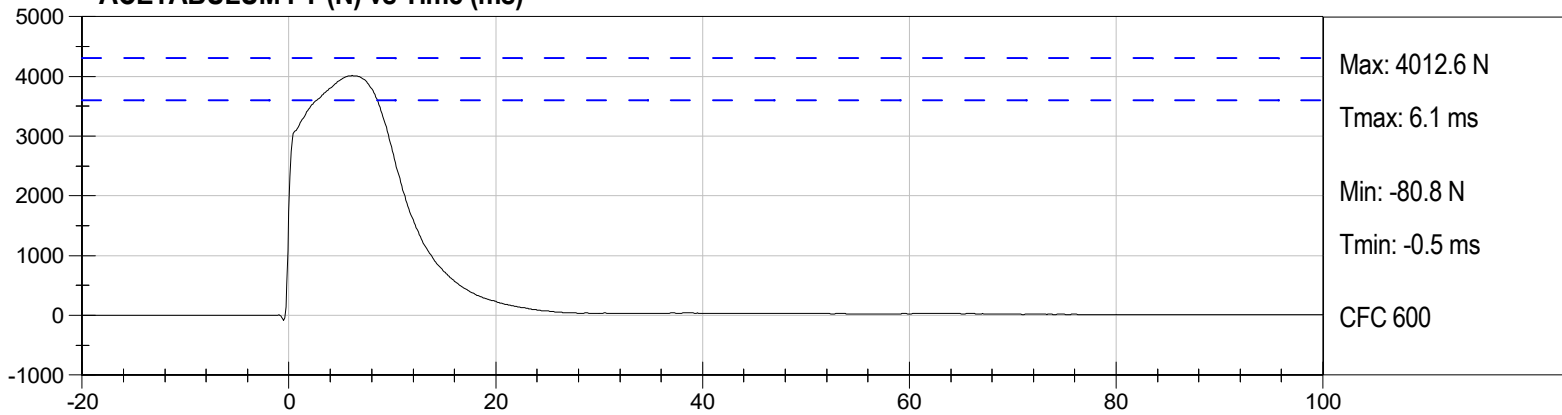
PROBE (g) vs Time (ms)



PELVIS Y (g) vs Time (ms)



ACETABULUM FY (N) vs Time (ms)





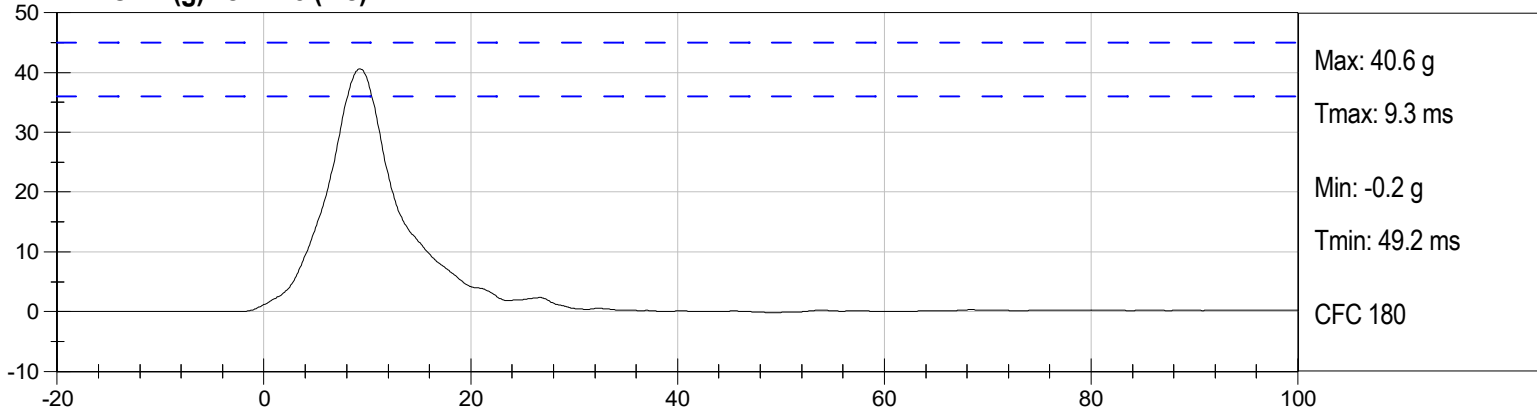
Iliac Impact Test
SID IIs
ATD Serial No: 306

Test Date: 09/04/2025
Test ID: D252538
Test Technician: Maggie LaRose

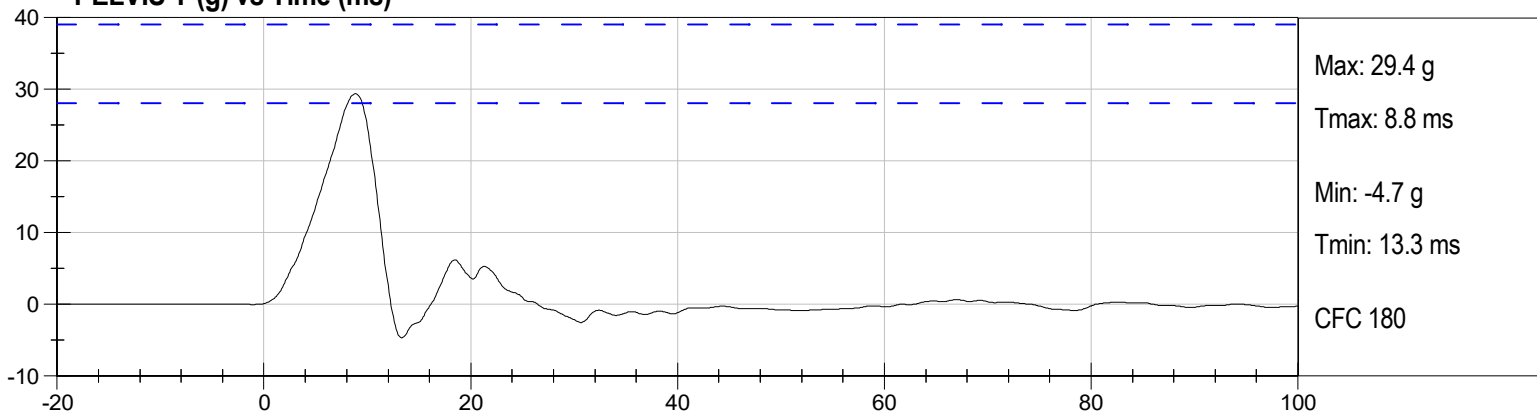
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Impact Velocity	m/s	4.2 to 4.4	4.21	Pass
Peak Probe Acceleration	g	36 to 45	41	Pass
Peak Pelvis Y Acceleration	g	28 to 39	29	Pass
Iliac Force	N	4100 to 5100	4699	Pass

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
PROBE	Endevco	P79577	03/21/2025	9/20/2025
PELVIS Y	Endevco	P82673	05/27/2025	11/26/2025
ILIUM CREST FY	FTSS	IWG3023FY	05/28/2025	5/28/2026

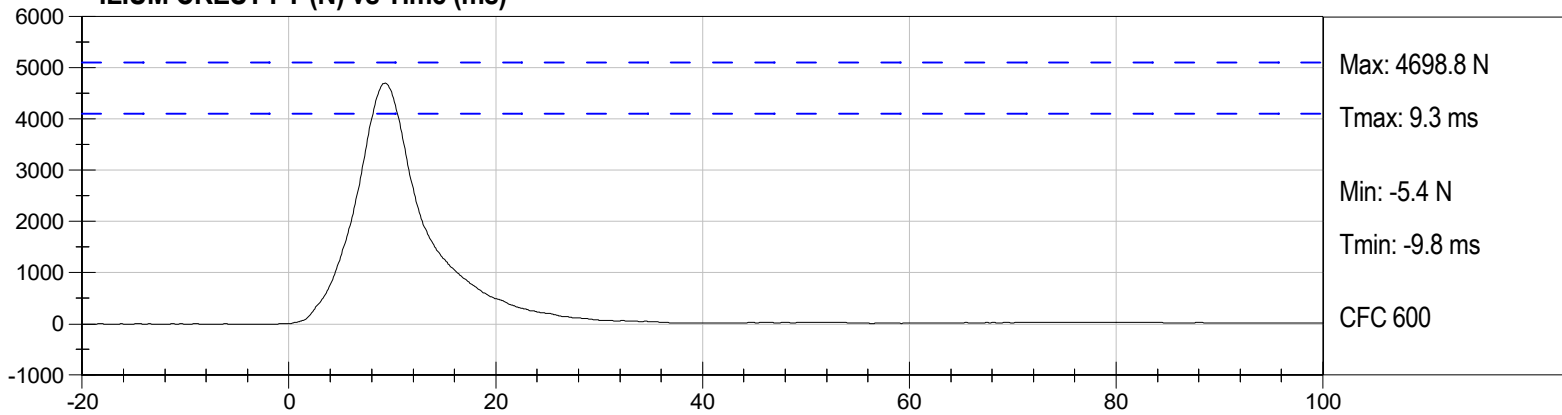
PROBE (g) vs Time (ms)



PELVIS Y (g) vs Time (ms)



ILIUM CREST FY (N) vs Time (ms)





SID-IIs Pelvis Plug Certification Test

Plug S/N 16414

Test Number 22983

Report Number 23041

Test Date 5/23/2022 10:15:29 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	302	50	600
Force @ 1.5 mm (N)	1,153	850	1,400
Force @ 2.5 mm (N)	1,428	1,306	1,618
Force @ 3.0 mm (N)	1,484	1,361	1,673

Testing Machine STM-20 5965542

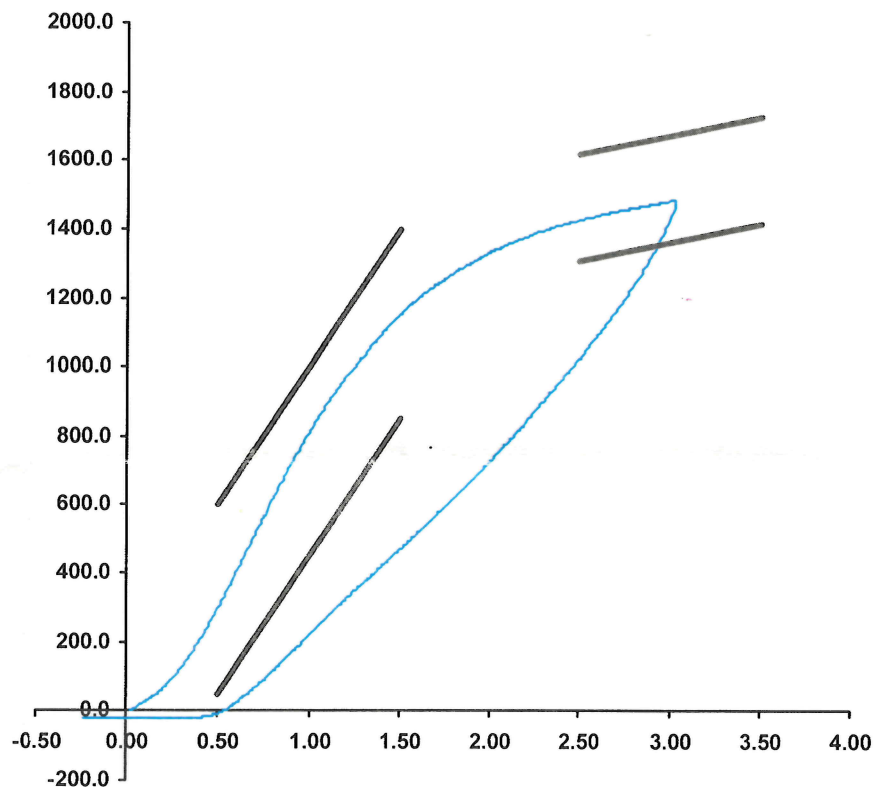
Load Cell S/N (FI360947), Units (LBS) 1000

Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107

23-May-22

SACO Research

By :

DC

Date :

5/23/2022



SID-IIs Pelvis Plug Certification Test

Plug S/N 16370

Test Number 22937

Report Number 22994

Test Date 5/20/2022 1:59:13 PM

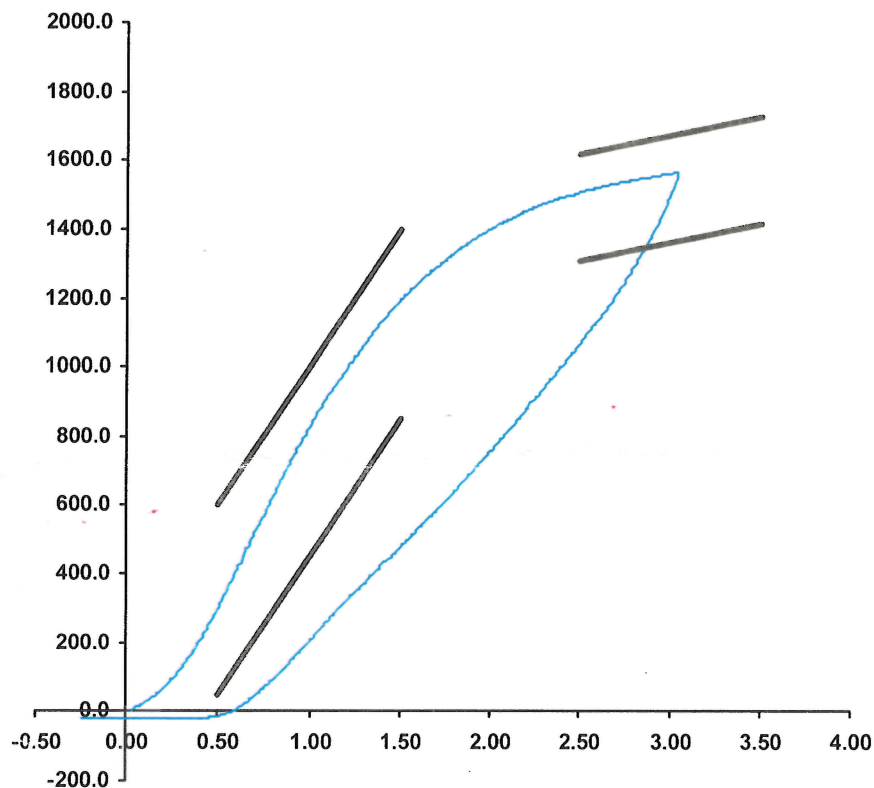
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	303	50	600
Force @ 1.5 mm (N)	1,195	850	1,400
Force @ 2.5 mm (N)	1,509	1,306	1,618
Force @ 3.0 mm (N)	1,564	1,361	1,673

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

20-May-22

SACO Research

By : DC Date : 5/20/2022

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

C-104

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

Table 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F032		
			Serial Number	Manufacturer	Calibration Date
Head CG Accelerometers		X	P79568	Endevco	05/16/2025
		Y	P79569	Endevco	05/16/2025
		Z	T30941	Endevco	05/16/2025
		Xr	P86797	Endevco	05/16/2025
		Yr	P94957	Endevco	05/16/2025
		Zr	P97381	Endevco	05/16/2025
Thorax Rib Displacement Potentiometers	Upper	Y	G236	Honeywell	05/15/2025
	Middle	Y	G368	Honeywell	05/15/2025
	Lower	Y	G164	Honeywell	05/15/2025
Abdomen Load Cells	Forward	Y	ABG1532	Denton	01/20/2025
	Middle	Y	ABG1534	Denton	01/20/2025
	Rear	Y	ABG1535	Denton	01/20/2025
Lower Spine Accelerometers (T12)		X	P79574	Endevco	05/16/2025
		Y	T14094	Endevco	05/16/2025
		Z	P82603	Endevco	05/16/2025
Public Symphysis Load Cell		Y	PG461	Denton	01/20/2025

Table 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 306			
				Serial Number	Manufacturer	Calibration Date	
Head CG Accelerometers				X	P79003	Endevco	05/27/2025
				Y	P79445	Endevco	05/27/2025
				Z	P79724	Endevco	05/27/2025
				Xr	P84999	Endevco	05/27/2025
				Yr	P85000	Endevco	05/27/2025
				Zr	P85001	Endevco	05/27/2025
Head Angular Rate Sensors				X	ARS7442	DTS	07/15/2025
				Y	ARS7475	DTS	07/15/2025
				Z	ARS7516	DTS	07/15/2025
Displacement Potentiometers	Thoracic Rib	Upper	Y	G033	FTSS	05/28/2025	
		Middle	Y	G2403	Servo	05/28/2025	
		Lower	Y	G1270	FTSS	05/28/2025	
	Abdominal Rib	Upper	Y	G032	FTSS	05/28/2025	
		Lower	Y	MJ5171	Medius	05/28/2025	
Lower Spine Accelerometers (T12)				X	P96332	Endevco	05/27/2025
				Y	P96335	Endevco	05/27/2025
				Z	P96341	Endevco	05/27/2025
Acetabulum Load Cell				Y	ACG4285	FTSS	05/28/2025
Iliac Wing Load Cell				Y	IWG3023	FTSS	05/28/2025
Pelvis Plug (struck side)					16414	SACO	05/23/2022
Pelvis Plug (non-struck side)					16370	SACO	05/20/2022

Table 3 – Vehicle Instrumentation

			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	A395038	MSI	08/26/2025
	Vehicle Center of Gravity	Y	T44001	Endevco	08/26/2025
	Vehicle Center of Gravity	Z	T43453	Endevco	08/26/2025
2	Right Sill at Front Seat	X	A383426	MSI	04/23/2025
	Right Sill at Front Seat	Y	T44805	Endevco	06/12/2025
	Right Sill at Front Seat	Z	T43452	Endevco	06/12/2025
3	Right Sill at Rear Seat	X	T42719	Endevco	06/12/2025
	Right Sill at Rear Seat	Y	A416931	MSI	06/13/2025
	Right Sill at Rear Seat	Z	A391120	MSI	06/16/2025
4	Left Sill at Front Door	Y	T23719	Endevco	06/12/2025
5	Left Sill at Rear Door	Y	T43465	Endevco	08/26/2025
6	Left A-Post Lower	Y	T42661	Endevco	04/10/2025
7	Left A-Post Middle	Y	T42812	Endevco	04/10/2025
8	Left B-Post Lower	Y			
9	Left B-Post Middle	Y			
10	Front Seat Track	Y	T45271	Endevco	08/27/2025
11	Rear Seat Track or Structure	Y	T45273	Endevco	02/05/2025
12	Right Rear Occ. Compartment	Y	T43736	Endevco	08/21/2025
13	Engine Block	X	T44019	Endevco	08/19/2025
	Engine Block	Y	T43940	Endevco	08/19/2025
14	Rear Floorpan Above Axle	X	T42702	Endevco	08/14/2025
	Rear Floorpan Above Axle	Y	T43471	Endevco	08/21/2025
	Rear Floorpan Above Axle	Z	T45078	Endevco	08/21/2025

Table 4 – MDB Instrumentation

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	PCB2151D	PCB	01/26/2025
MDB Center of Gravity	Y	PCB1280D	PCB	04/21/2025
MDB Center of Gravity	Z	PCB2128D	PCB	01/26/2025
Left Frame at Rear Axle Centerline	X	PCB1796D	PCB	04/21/2025
Left Frame at Rear Axle Centerline	Y	PCB1847D	PCB	04/21/2025