

REPORT NUMBER: SideNCAPMDB-KAR-24-006

**NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**VINFAST TRADING AND PRODUCTION JSC.
2024 VINFAST VF8 ECO 5-DOOR SUV**

NHTSA No: M20244702

**PREPARED BY:
APPLUS+ IDIADA KARCO ENGINEERING, LLC.
9270 HOLLY ROAD
ADELANTO, CA 92301**



JULY 31, 2024

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NRM-100
1200 NEW JERSEY AVE, SE
WASHINGTON, D.C. 20590**

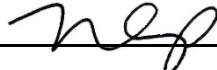
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Approval Date: July 31, 2024

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

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		15. Supplementary Notes																																																			
16. Abstract A 61.9 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2024 VinFast VF8 ECO 5-Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at the Applus IDIADA KARCO Engineering, LLC. facility in Adelanto, California on July 17, 2024. The impact velocity of the Moving Deformable Barrier was 61.88 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 36.1°C. The target vehicle's maximum post-test static crush was 216 mm located at level 3. The test vehicle's occupant performance data is as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (ES-2re)</th> </tr> <tr> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>67.090</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>44</td> <td>20.862</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>801.552</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>957.010</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>15.913</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82</td> <td>22.327</td> </tr> <tr> <td>Total Pelvic Force (Sum of Acetubular and Iliac Forces)</td> <td>N</td> <td>5525</td> <td>1957.890</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>11.055</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45*</td> <td>6.833</td> </tr> </tbody> </table>				Measurement Description	Driver ATD (ES-2re)			Units	IARV	Result	Head Injury Criteria (HIC ₃₆)		1000	67.090	Maximum Thoracic Rib Deflection	mm	44	20.862	Total Abdominal Force	N	2500	801.552	Pubic Symphysis Force	N	6000	957.010	Measurement Description	Passenger ATD (SID-IIs)			Units	IARV	Result	Head Injury Criteria (HIC ₃₆)		1000	15.913	Resultant Lower Spine Acceleration	g	82	22.327	Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	1957.890	Maximum Thoracic Rib Deflection	mm	38*	11.055	Maximum Abdominal Rib Deflection	mm	45*	6.833
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*Proposed IARV

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SECTION 1

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2024 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number 693JJ920D000015. The purpose of this test is to generate comparative side impact performance in a 2024 VinFast VF8 ECO 5-Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated March 2020.

SECTION 2

SUMMARY OF TEST RESULTS

A 2024 VinFast VF8 ECO 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 61.88 km/h (38.45 mph). 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 Applus IDIADA KARCO Engineering, LLC. in Adelanto, California, on July 17, 2024. Pre- and post-test photographs of the test vehicle, the MDB and the dummies (ES-2re and SID-IIs) are included in Appendix A of this report.

Dummies were placed in the driver and left rear designated seating position according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated March 2020. The side impact event was documented by 11 cameras. Camera locations are included in Data Sheet No. 5 of this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib and lower rib y-axis displacement potentiometers

Abdomen forward, middle, and rear y-axis load cells

Lower spine (12) tri-axial accelerometers

Pubic symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG tri-axial accelerometers

Head tri-axial 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 (12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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

Dummy injury readings were recorded as follows:

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	67.090
Maximum Thoracic Rib Deflection	mm	44	20.862
Combined Abdominal Force	N	2500	801.552
Pubic Symphysis Force	N	6000	957.010
Lower Spine (T12) Resultant Acceleration	G	82*	22.745

**Proposed IARV*

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	15.913
Lower Spine (T12) Resultant Acceleration	g	82	22.327
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1957.890
Maximum Thoracic Rib Deflection	mm	38*	11.055
Maximum Abdominal Rib Deflection	mm	45*	6.833

**Proposed IARV*

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Occupant Location 1		Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Air Bag	Yes	No		
Knee Air Bag	Yes	No		
Side Air Bag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Air Bag 2 (Torso/Pelvis)	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other - Front Center Side Air Bag (Center Air Bag)	Yes	Yes	No	

GENERAL COMMENTS:

None

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lbf/in ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20244702
Model Year	2024
Make	VinFast
Model	VF8 ECO
Body Style	5-Door SUV
VIN	RLLV1AEB0RH006565
Body Color	White
Odometer Reading (km / mi)	941/585
Engine Displacement (L)	N/A
Type / No. of Cylinders	N/A
Engine Placement	Dual Motor
Transmission Type	Automatic
Transmission Speeds	1
Overdrive	N/A
Final Drive	AWD
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	No
Driver Front Air Bag	Yes
Driver Curtain Air Bag	Yes
Driver Head/Torso Air Bag	No
Driver Torso Air Bag	No
Driver Torso/Pelvis Air Bag	Yes
Driver Pelvis Air Bag	No
Driver Knee Air Bag	Yes
Rear Pass. Curtain Air Bag	Yes
Rear Pass. Head/Torso Air Bag	No
Rear Pass. Torso Air Bag	No
Rear Pass. Torso/Pelvis Air Bag	Yes
Rear Pass. Pelvis Air Bag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other Safety Restraint	Yes, Driver Center Air Bag

Does Owner's Manual provide instructions to turn off automatic door locks?

No

DATA FROM CERTIFICATION LABEL

Manufactured By	VinFast Trading and Production Joint Stock Company
Date of Manufacture	09/23
Vehicle Type	MPV

GVWR (kg)	2905
GAWR Front (kg)	1425
GAWR Rear (kg)	1590

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				450.0
DSC x 68 (kg)				340.0
Cargo Weight (RCLW) (kg)				110.0

A

B

A-B*

**For trucks or MPVs, if A-B>136, RCLW=136 kg

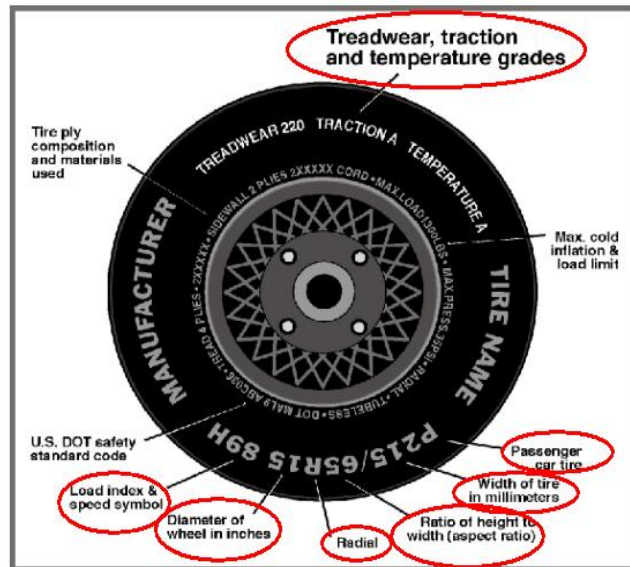
VEHICLE SEAT TYPE

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

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	340	340
Cold Pressure (kPa)	260	280
Recommended Tire Size	225/55 R19	225/55 R19
Tire Size on Vehicle	225/55 R19	225/55 R19
Tire Manufacturer	Goodyear	Goodyear
Tire Model	Eagle	Eagle
Treadware	400	400
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Polyamide	2 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	103H	103H
Tire Material	Rubber	Rubber
DOT Safety Code Left	TCEF JA3R 3322	TCEF JA3R 3322
DOT Safety Code Right	TCEF JA3R 3322	TCEF JA3R 3322

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	260	260	280	280
Tire Placard	kPa	260	260	280	280
Owner's Manual	kPa	260	260	280	280
As Tested	kPa	260	260	280	280

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21	220	220	220	220

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UWV)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	634.0	591.0		685.0	677.0		656.0	724.0	
Right	kg	608.0	617.0		608.0	707.5		604.0	699.0	
Ratio	%	50.7%	49.3%		48.3%	51.7%		47.0%	53.0%	
Total	kg	1242.0	1208.0	2450.0	1293.0	1384.5	2677.5	1260.0	1423.0	2683.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UWV)	kg	2450.0	A
Sum of Actual Weight of 2 P572 ATD Used	kg	125.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	110.0	C
Calculated Target Vehicle Test Weight (TVTW)	kg	2685.0	A+B+C

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e.

Calculated Test Vehicle Target Weight -4.5 kg to -9.0 kg)? ☒ Yes ☐ No

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement***
LF	mm	790	800	Yes
RF	mm	790	780	Yes
LR	mm	786	796	Yes
RR	mm	785	789	Yes
Vehicle CG (Aft of Front Axle)	mm	1564	1524	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	23	14	

***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. Indicate "Yes" or "No" for "Meets Requirement"

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

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

Test Height Adjustable Setting (If Applicable)	
--	--

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Rear Trim	2.5

TEST SURFACE MARKINGS

	Distance from 63° Impact Angle Line (mm)
Fore 25 mm target	0
Aft 25 mm target	0
Pre-Impact Angle Line	63°

Parallel Track Target	X Location (mm)	Y Location (mm)
A	0	0
B	1355	689
C	1355	3756
D	0	3059

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

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

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 rearmost, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	15.7	24.4	20.0
Front Passenger Seat	14.4	18.5	16.4
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 SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	20.0	813	Max	863	868	872
			Mid	834	842	843
			Min	804	813	818
Front Passenger Seat	16.4	815	Max			
			Mid	815	823	825
			Min			
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**

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

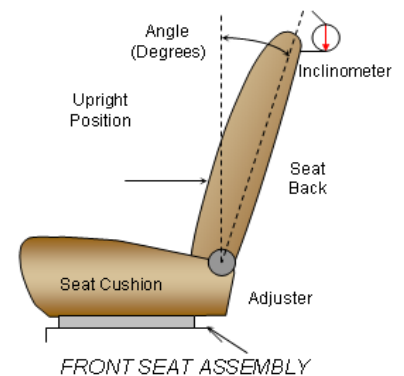
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240		120	
Front Passenger Seat	240		120	
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*Detent zero (0) is the forward most detent

SEAT BACK ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated design angle. The right front passenger's seat back is positioned in a similar manner as the driver's seat back. The struck side rear seat back is adjustable. 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 back angle is measured at the head rest post.

**SEAT BACK POSITION**

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/ Seated Dummy	70.8		4.3	
Front Passenger Seat	57.4		5.6	
Front Center Seat				
Struck Side Rear Seat w/ Seated Dummy	14.4	8	18.7	0
Non-Struck Side Rear Seat	14.4	8	18.7	0
Rear Center Seat	14.4	8	18.7	0

*Detent zero (0) is the forward most detent

DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. The positions are marked H, M2, M1, L from top to bottom.

	Total No. of Positions	Placed in Position
Driver Seat	Fixed	Fixed
Rear Seat	Fixed	Fixed

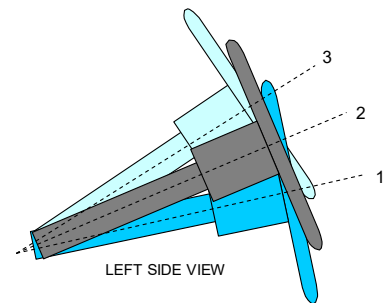
HEAD RESTRAINT ADJUSTMENT

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 No. of Positions	Placed in Position
Driver Seat	4	H
Rear Seat	Fixed	Fixed

STEERING COLUMN ADJUSTMENT

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



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	23.2	187
Geometric Center Position, No. 2	25.1	215
Uppermost Position, No. 3	26.9	243
Telescoping Steering Wheel Travel		56
Test Position	25.1	215

DATA SHEET NO. 2 ... (CONTINUED)

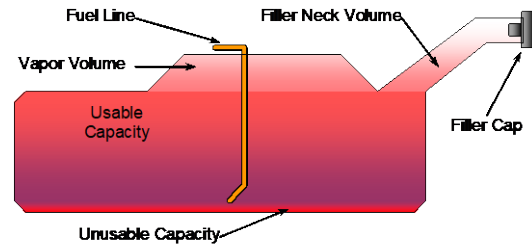
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702

Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

FUEL PUMP

The vehicle is an electric vehicle, does not have a fuel pump.



FUEL TANK CAPACITY

VEHICLE FUEL TANK ASSEMBLY

Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	
Actual Amount of Solvent Used in Test	
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 the Form No. 1? ☐ Yes ☐ No

DATA SHEET NO. 3

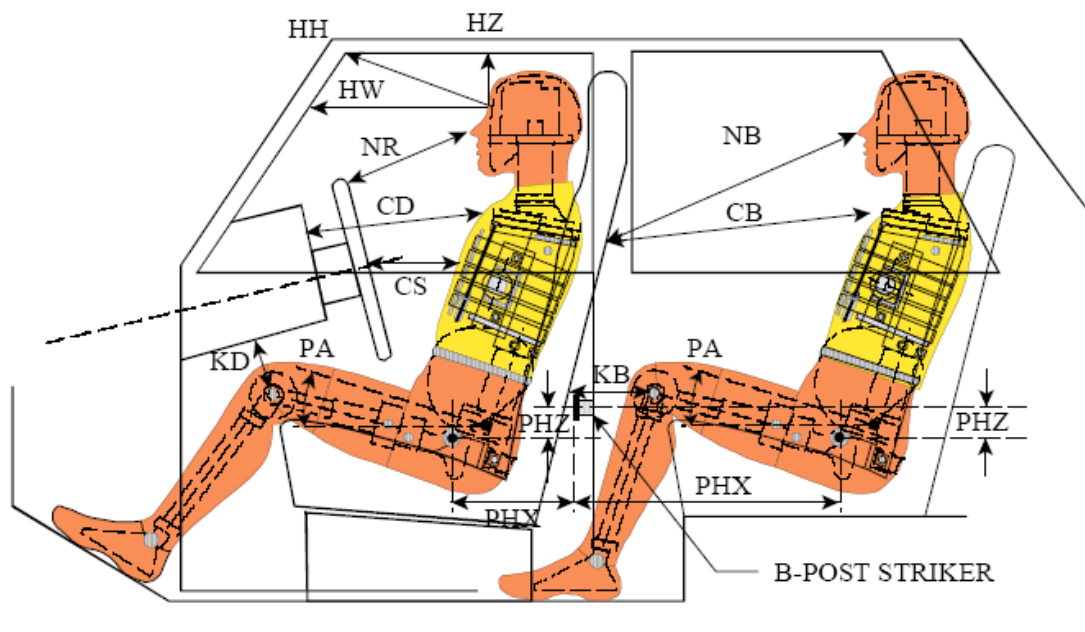
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV

NHTSA No. M20244702

Test Program: NCAP MDB Side Impact Test

Test Date: 7/17/24



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

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	440			
HW		Head to Windshield	746			
HZ	HZ	Head to Roof	223		312	
NR	NB	Nose to Rim/Seat Back	460		568	
CD	CB	Chest to Dash/Seat Back	695		533	
CS		Chest to Steering Wheel	301			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	205	29.4	297	32.1
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	172	44.9	298	28.4
PAX°	PAX°	Pelvic Tilt Angle X		9.9		21.6
	PAY°	Pelvic Tilt Angle Y		0.0		0.8
PHX	PHX	Hip Point to Striker (x-axis)	182		336	
PHZ	PHZ	Hip Point to Striker (z-axis)	145		276	

DATA SHEET NO. 4

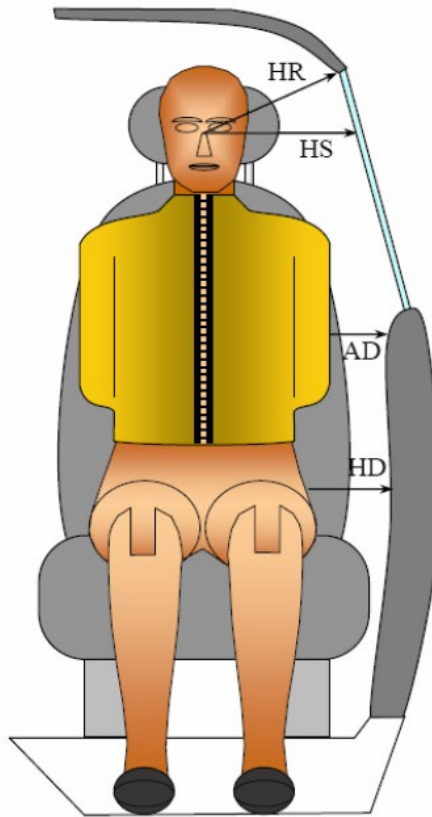
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV

NHTSA No. M20244702

Test Program: NCAP MDB Side Impact Test

Test Date: 7/17/24



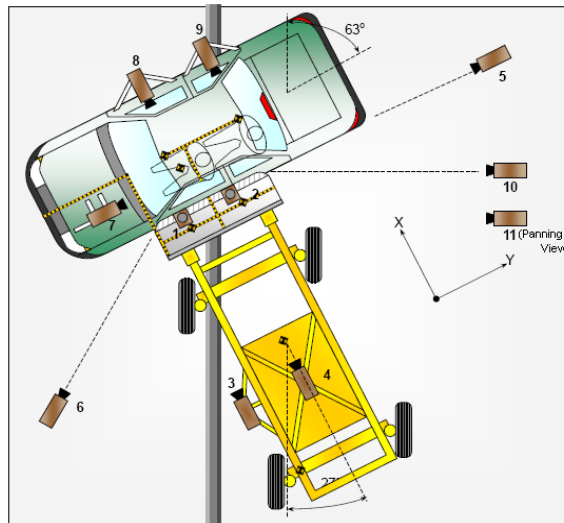
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	265	291
HS	Head to Side Window	mm	385	400
AD	Arm to Door	mm	134	175
HD	H-Point to Door	mm	170	168

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24



CAMERA LOCATIONS AND DATA

No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	1220	2287	-5486	14	1000
2	Overhead Close-Up	609	2287	-5102	35	1000
3	Left Impact Point (MDB)	-2134	0	-1143	25	1000
4	Side Overall (MDB)	-3912	838	-1829	12.5	1000
5	Rear	-64	2485	-1348	85	1000
6	Left Front	-2266	-3564	-1475	24	1000
7	Driver Front (On-Board)	572	-533	1461	8.5	1000
8	Driver Side (On-Board)	185	775	1245	8	1000
9	Passenger Side (On-Board)	1842	1727	1295	8	1000
10	Real Time Overall				Zoom	30
11	Real Time Inrun				Zoom	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

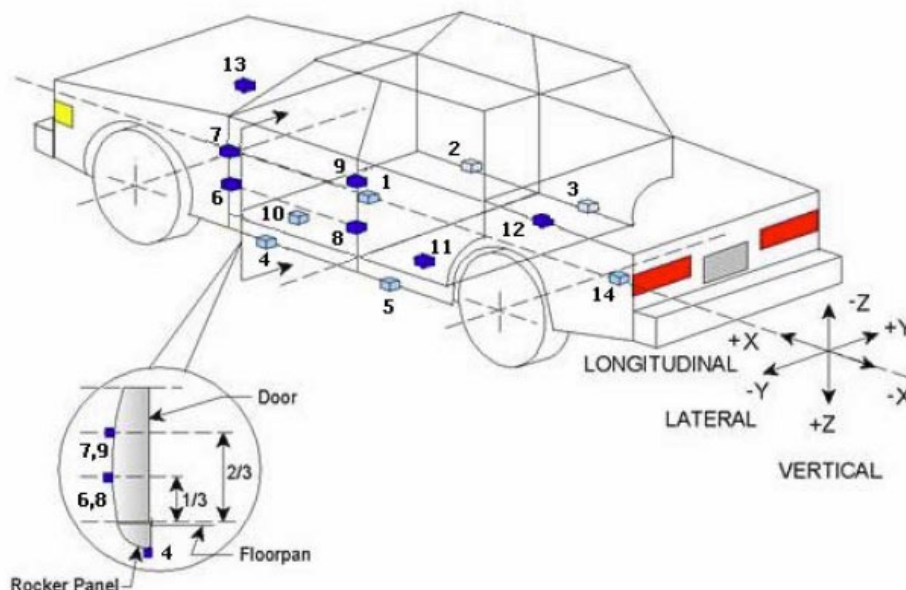
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	19
Vehicle Structure Accelerometers	23
MDB Channels	7
Total	65

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

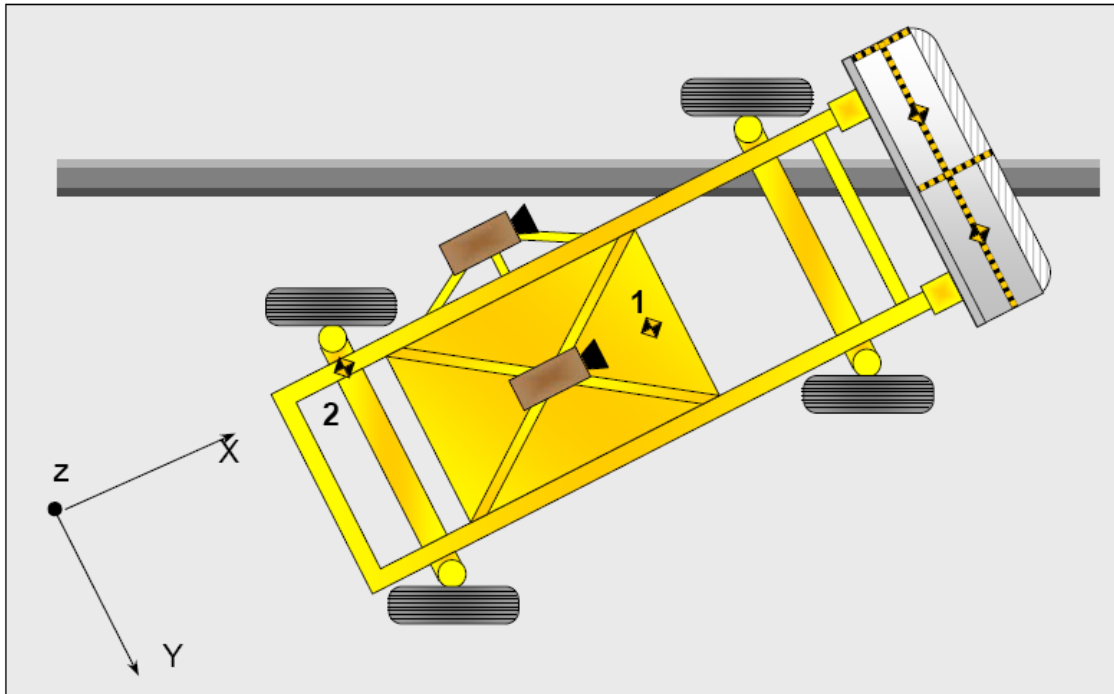
Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1980	0	-440
2	Right Sill at Front Seat	3050	800	-385
3	Right Sill at Rear Seat	1560	800	-385
4	Left Sill at Front Door	2010	800	-230
5	Left Sill at Rear Door	1510	800	-240
6	A-Pillar Lower	3250	-776	-730
7	A-Pillar Middle	3250	-776	-995
8	B-Pillar Lower	2100	-736	-710
9	B-Pillar Middle	2100	-736	-820
10	Front Seat Track	2530	-623	-456
11	Rear Seat Structure	1750	-382	-420
12	Right Rear Occupant Compartment	1840	402	-360
13	Engine Block	3850	0	-740
14	Rear Floorpan Above Axle	970	0	-570

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: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	-1195	0	-430
2	MDB Rear	-2642	-593	-608

Reference: X – Face of MDB (+ forward)
 Y – MDB centerline (+ to right)
 Z – Ground plane (+ down)

Width between left and right MDB contact switches	mm	1473
---	----	------

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	N/A	N/A
Top of Head	Curtain Air Bag, Headliner	Curtain Air Bag, Headrest
Left Side of Head	Curtain Air Bag	Curtain Air Bag
Back of Head	Headrest, Curtain Air Bag, Headliner	Headrest, Curtain Air Bag
Left Shoulder	Torso/Pelvis Air Bag, Curtain Air Bag, Door Panel	Torso/Pelvis Air Bag, Seat Bolster
Upper Torso	Torso/Pelvis Air Bag, Seatback	Torso/Pelvis Air Bag, Seat Bolster
Lower Torso	Torso/Pelvis Air Bag, Seatback	Torso/Pelvis Air Bag, Seat Bolster
Left Hip	Torso/Pelvis Air Bag, Seatback, Seat Pan	Seat Pan, Door Panel
Left Knee	N/A	N/A

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/Other
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge System 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)	N/A	N/A	N/A	N/A	N/A

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

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

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	Good
Sill Separation	None
Windshield Damage	None
Side Window Damage	None
Other Notable Effects	None

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

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side		Struck Side	
	Driver		Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Air Bag	Yes	No		
Knee Air Bag	Yes	No		
Side Air Bag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Air Bag 2 (Torso/Pelvis)	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other - Front Center Side Air Bag (Center Air Bag)	Yes	Yes	No	

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheelbase	mm		2948
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		506
Actual Impact Point (Aft of Front Axle)	mm		506
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	0
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	12

DATA SHEET NO. 9**MDB SUMMARY OF RESULTS**

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1251
Overall Length Including Honeycomb Face	4115
Wheelbase of Framework Carriage	2595
CG location aft of Front Axle	1118

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	402.0	297.5	699.5
Right	kg	377.0	290.0	667.0
Ratio	%	57.0%	43.0%	100.0%
Totals	kg	779.0	587.5	1366.5

SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.88
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.79
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.8
MDB Forw ard Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.6
MDB Crabbed Angle to MDB Forw ard Line of Motion	degrees	26.0 to 28.0	27.2

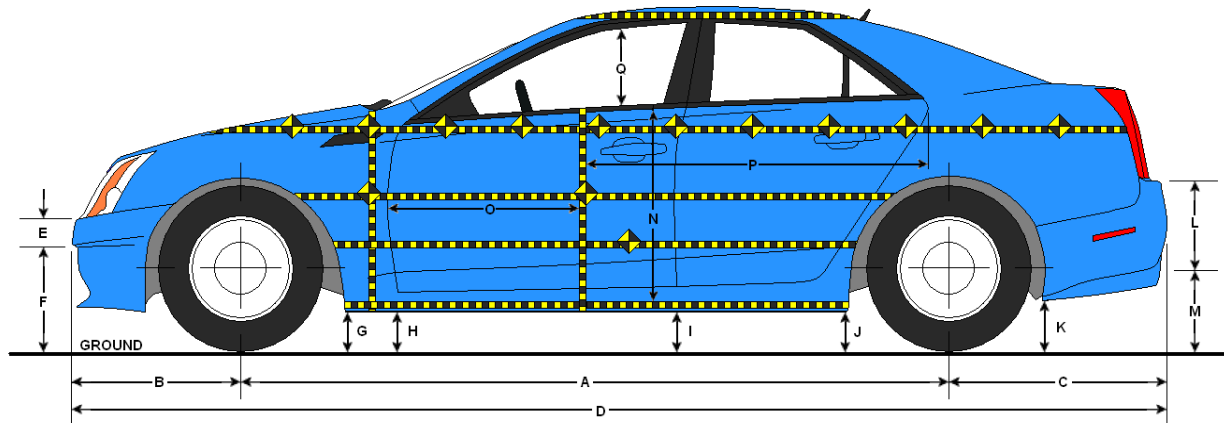
MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Left	321
B	Top of Bumper	533	800	Left	262
C	Mid Level	686	800	Left	212
D	Top of Stack	813	800	Left	236

DATA SHEET NO. 10

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

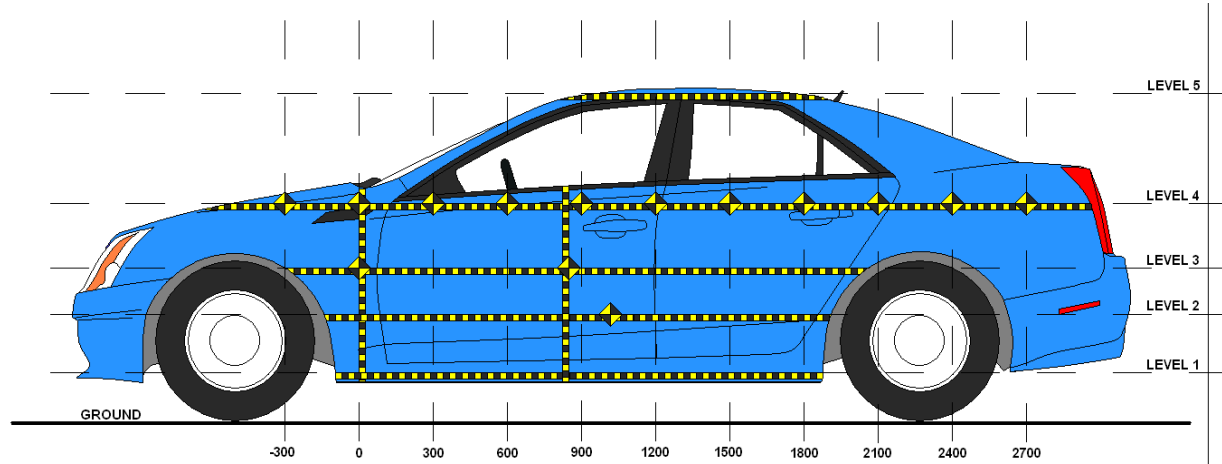
Code	Description	Pre-Test	Post-Test	Change
A	Wheelbase	2948	2952	4
B	Front Axle to FSOV	846	844	-2
C	Rear Axle to RSOV	948	947	-1
D	Total Length at Centerline	4741	4743	2
E	Front Bumper Thickness	145	144	-1
F	Front Bumper Bottom to Ground	484	481	-3
G	Sill Height at Front Wheel Well	276	277	1
H	Sill Height at Front Door Leading Edge	275	278	3
I	Sill Height at B-Pillar	254	263	9
J1	Sill Height at Rear Wheel Well	219	225	6
J2	Pinch Weld Height at Rear Wheel Well	189	191	2
K	Sill Height Aft of Rear Wheel Well	498	500	2
L	Rear Bumper Thickness	164	163	-1
M	Rear Bumper Bottom to Ground	351	352	1
N	Sill Height to Bottom of Front Window Sill	754	704	-50
O	Front Door Leading Edge to Impact CL	757	734	-23
P	Rear Door Trailing Edge to Impact CL	1538	1504	-34
Q	Front Window Opening	448	471	23
R	Right Side Length	3510	3509	-1
S	Left Side Length	3511	3511	0
T	Vehicle Width at B-Pillar	1842	1843	1

All measurements in mm with tolerance of ± 3 mm

DATA SHEET NO. 11

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24



LEFT SIDE VIEW

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	419	133	1650
2	Occupant H-Point	651	207	1650
3	Mid-Door	715	216	1650
4	Window Sill	1089	60	1950
5	Window Top	1600	2	2550

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test (mm)					Post-Test (mm)					Crush (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150			561	649				547	634				-14	-15	
0	584	567	564	644		572	556	553	629		-12	-11	-11	-15	
150	580	571	566	643		614	648	624	599		34	77	58	-44	
300	582	572	566	639		662	698	676	622		80	126	110	-17	
450	581	572	566	636		667	728	717	623		86	156	151	-13	
600	581	571	567	628		675	732	742	620		94	161	175	-8	
750	582	571	567	620	837	684	720	746	622	829	102	149	179	2	-8
900	582	571	568	614	835	690	719	749	623	830	108	148	181	9	-5
1050	583	572	568	609	842	682	714	738	626	837	99	142	170	17	-5
1200	584	573	569	605	851	695	719	720	627	848	111	146	151	22	-3
1350	587	572	569	604	857	714	743	759	630	856	127	171	190	26	-1
1500	592	571	569	602	862	721	761	776	636	860	129	190	207	34	-2
1650	588	569	567	603	867	721	776	783	642	864	133	207	216	39	-3
1800	578	566	564	604	872	682	740	758	649	871	104	174	194	45	-1
1950	571	560	560	606	878	577	651	671	666	878	6	91	111	60	0
2100				606	886				632	885				26	-1
2250				610	893				594	894				-16	1
2400				612	902				613	903				1	1
2550				616	916				618	918				2	2
2700				620					623					3	
2850															

DATA SHEET NO. 11 ... (CONTINUED)

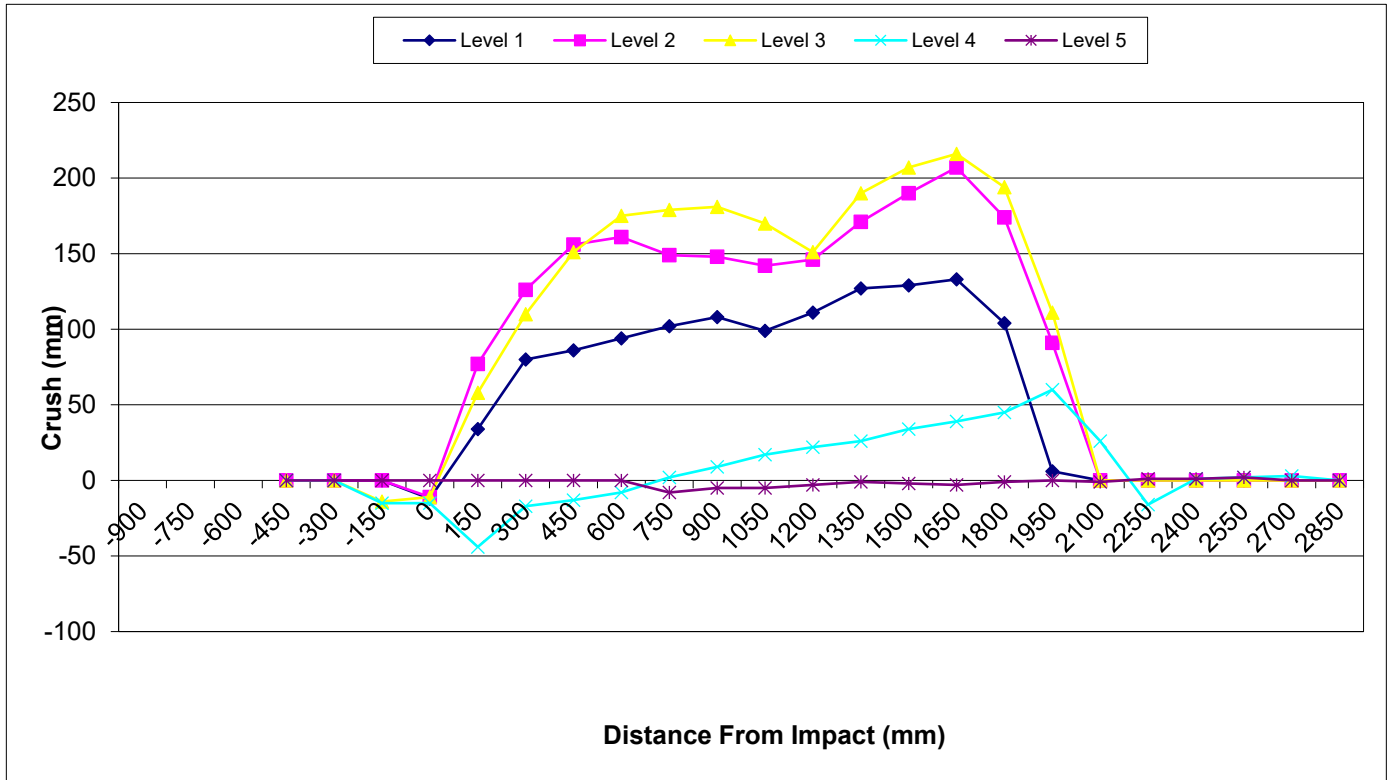
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV

NHTSA No. M20244702

Test Program: NCAP MDB Side Impact Test

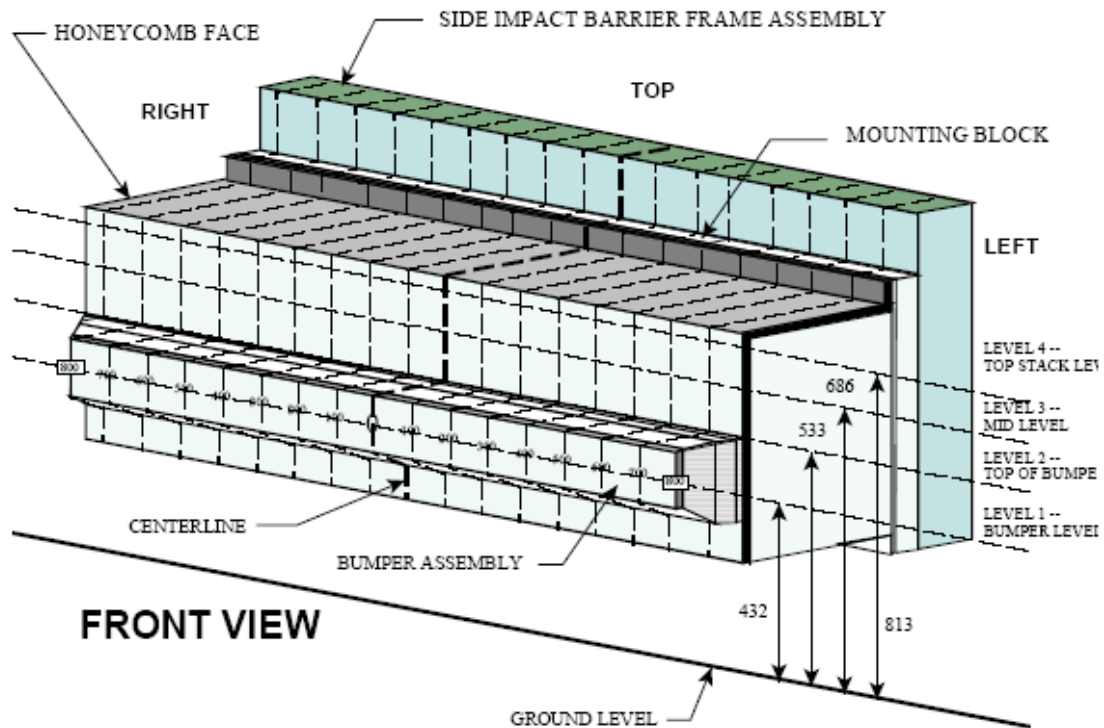
Test Date: 7/17/24



DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

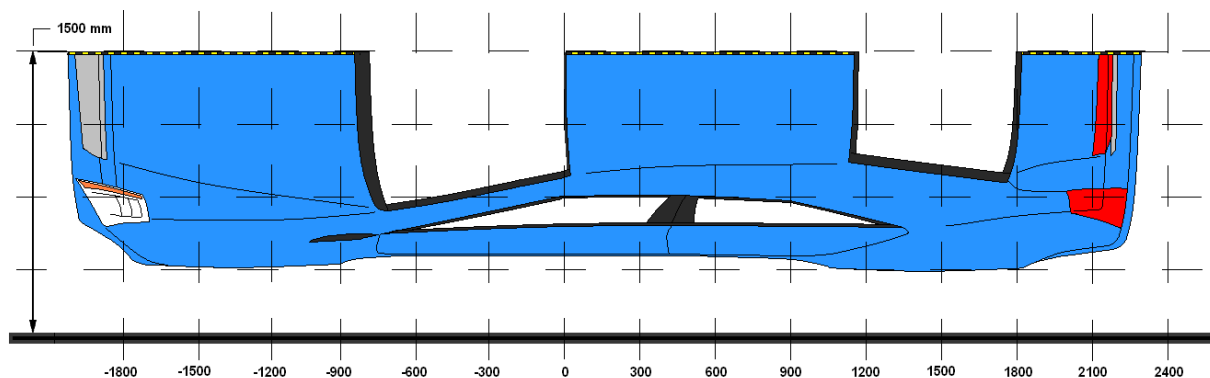
Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	311	305	307	306	311	306	306	307	299	297	292	293	292	292	292	295	321
2	208	189	187	190	183	192	204	198	178	179	181	181	179	178	180	186	262
3	128	101	99	99	96	125	128	120	100	95	95	96	98	110	131	164	212
4	98	96	95	99	108	123	133	146	115	99	94	97	107	123	156	186	236

All dimensions in millimeters.

DATA SHEET NO. 13

VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2700	4	620	623	3
2	2100	4	606	632	26
3	1500	3	569	776	207
4	900	3	568	749	181
5	300	2	572	698	126
6	-150	4	649	634	-15

MDB DAMAGE PROFILE DISTANCES

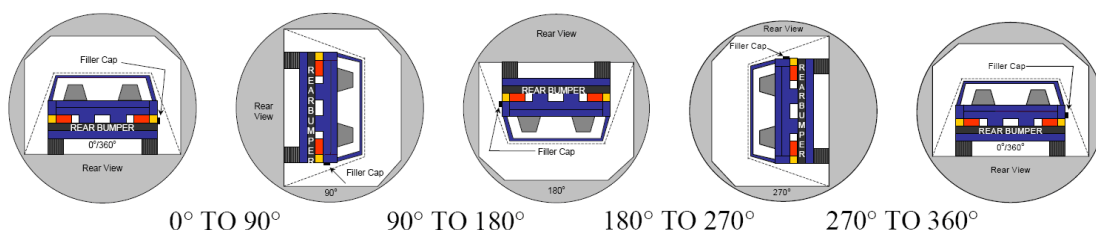
DPD	From MDB Centerline		Level	Crush (mm)
	Distance (mm)	Direction		
1	800	Left	1	321
2	500	Left	1	292
3	200	Left	1	292
4	200	Right	1	306
5	500	Right	1	306
6	800	Right	1	311

DATA SHEET NO. 14

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 7/17/24
 Temperature at Time of Impact: 36.1°C Test Time: 4:33 P.M.

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



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 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 15

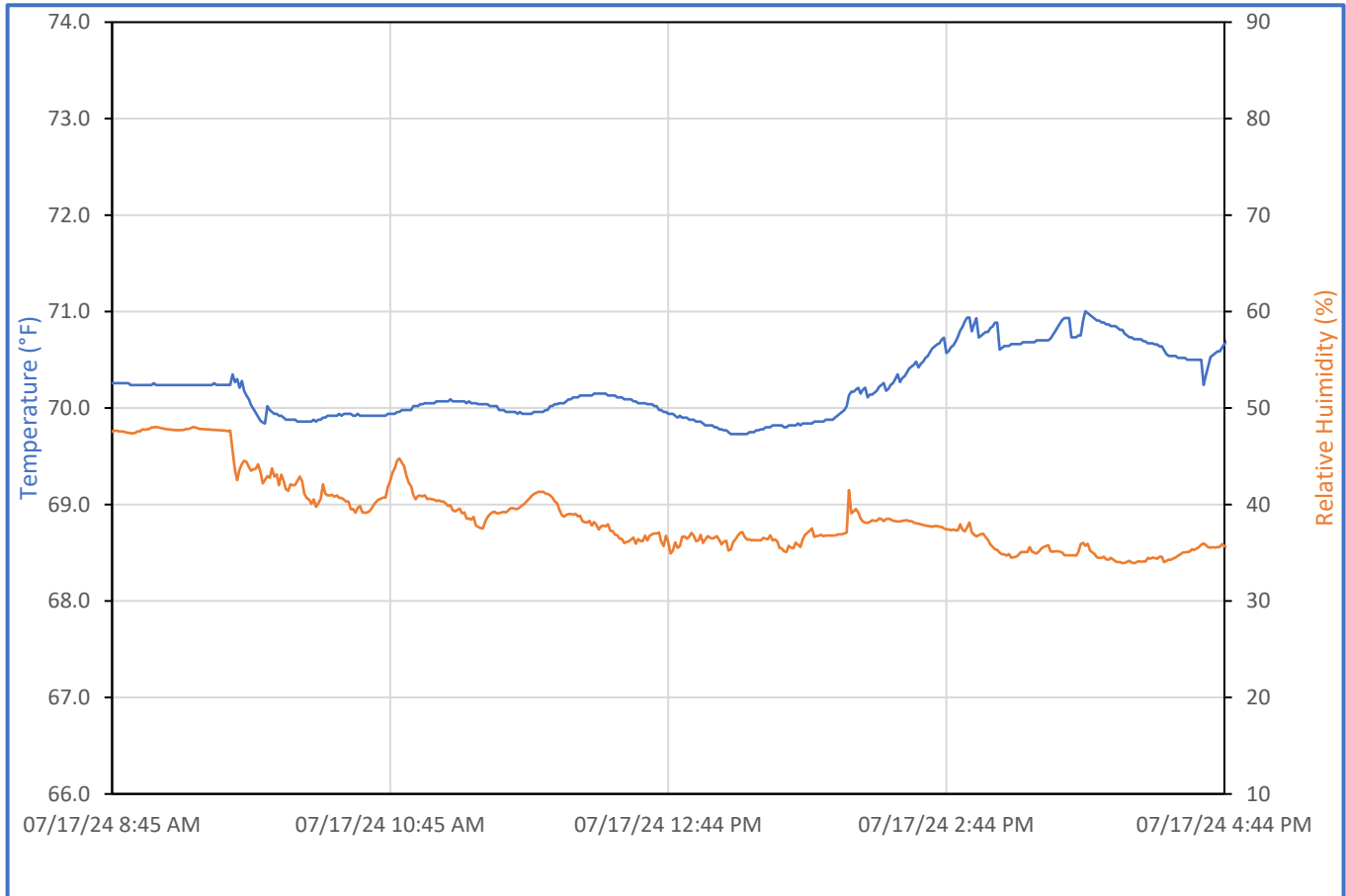
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV

NHTSA No. M20244702

Test Program: NCAP MDB Side Impact Test

Test Date: 7/17/24



DATA SHEET NO. 305-1**GENERAL TEST AND VEHICLE PARAMETER DATA FOR INDICANT FMVSS NO. 305****TESTING**Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702Test Program: NCAP MDB Side Impact Test Test Date: 07/17/24**TEST VEHICLE INFORMATION**

NHTSA Number	M20244702
Model Year	2024
Make	VinFast
Model	VF8 ECO
Body Style	5-Door SUV
Body Color	White
Odometer Reading (km / mi)	941/585

DATA FROM VEHICLE'S CERTIFICATION LABEL

Manufactured By	VinFast Trading and Production Joint Stock Company
Date of Manufacture	9/23
VIN	RLLV1AEB0RH006565
GVWR (kg)	2905

ELECTRIC VEHICLE PROPULSION SYSTEM

Type of Electrical Vehicle	Electric
Propulsion Battery Type	Lithium-Ion
Nominal Voltage (V)	400
Automatic Propulsion Battery Disconnect	Yes
Physical Location of Automatic Propulsion Battery Disconnect	Pyrofuse Internal of BMS/HV battery
Auxiliary Battery Type	12V Lead-Acid

PROPULSION BATTERY SYSTEM DATA

Electrolyte Fluid Type	E345
Electrolyte Fluid Specific Gravity (g/cc)	16%
Electrolyte Fluid Kinematic Viscosity (mm ² /s)	4.00
Electrolyte Fluid Color	Colorless and Transparent
Propulsion Battery Coolant Type	50% Glycol, 50% Water
Propulsion Battery Coolant Color	Light Green
Propulsion Battery Coolant Specific Gravity	

LOCATION OF BATTERY MODULES

Location	Outside Passenger Compartment
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DATA SHEET NO. 305-1...(CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA FOR INDICANT FMVSS NO. 305

TESTING

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 07/17/24

For all battery types:

Minimum Operating Voltage	270.0
Maximum Operating Voltage	469.8
95% of Maximum Operating Voltage	446.3
Test Voltage (no less than 95% of Maximum)*	459.0

For batteries that are rechargeable ONLY by an energy source on the vehicle:

Description	Volts
Minimum Operating Voltage	
Maximum Operating Voltage	
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: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 07/17/24

VEHICLE CHASSIS GROUND POINT(S) LOCATION(S)

DETAILS OF VEHICLE CHASSIS GROUND POINT(S) AND LOCATION(S):

The FMVSS 305 chassis ground point is located at the negative battery terminal

PROPULSION BATTERY SYSTEM

DETAILS OF PROPULSION BATTERY COMPONENTS:

The physical location of automatic propulsion battery disconnect is the contactor in the BDU,
which is inside the battery pack.

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

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
Test Program: NCAP MDB Side Impact Test Test Date: 07/17/24

VOLTMETER INFORMATION

Make	Fluke
Model	87V MAX
Serial No.	50790043
Internal Impedance Value	50 MΩ
Resolution	0.001

HV BATTERY ELECTRICAL ISOLATION DATA

Code	Units	Threshold	Pre-Test
V_b	V		459.20
V_1	V		313.50
V_2	V		313.00
R_o	Ω		194,000
V_1'	V		59.20
V_2'	V		59.10
R_{i1}	Ω		1,665,367
R_{i2}	Ω		1,668,221
R_i	Ω		1,665,367
R_i/V_b	Ω/V	500	3,627

Is the Measured Electrical Isolation Value $\geq$ 500 Ω/V?	Yes
--	-----

DATA SHEET NO. 305-4**POST-IMPACT DATA FOR INDICANT FMVSS NO. 305 TESTING**Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702Test Program: NCAP MDB Side Impact Test Test Date: 07/17/24**VOLTMETER INFORMATION**

Make	Fluke
Model	87V MAX
Serial No.	50790043
Internal Impedance Value	50 MΩ
Resolution	0.001

HV BATTERY ELECTRICAL ISOLATION DATA

Code	Units	Threshold	Post-Test
V_b	V		28.050
V_1	V		13.320
V_2	V		21.350
R_o	Ω		194,000
V_1'	V		0.920
V_2'	V		0.926
R_{i1}	Ω		6,805,894
R_{i2}	Ω		6,948,443
R_i	Ω		6,805,894
R_i/V_b	Ω/V	500	242,634

Is the Measured Electrical Isolation Value $\geq$ 500 Ω/V?	Yes
Is V_1 , V_2 , and $V_b \leq$ 60 VDC?	Yes

PROPULSION BATTERY SYSTEM COMPONENTS

Has the propulsion battery module moved within the passenger compartment?

NoDescribe any movement: There was no movement of the propulsion battery within the passenger compartment.

Has an outside propulsion battery component intruded into the passenger compartment?

NoDescribe any intrusion: There was no intrusion of the outside propulsion battery into the passenger compartment.

Is there propulsion battery electrolyte spillage visible in the passenger compartment?

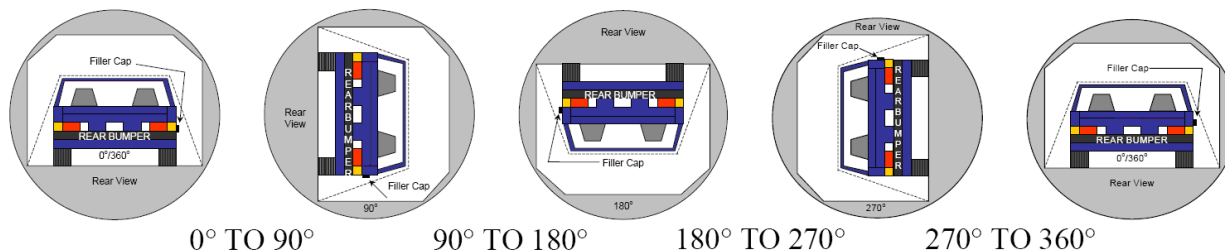
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DATA SHEET NO. 305-5

STATIC ROLLOVER TEST DATA FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702

Test Program: NCAP MDB Side Impact Test Test Date: 07/17/24



PROPULSION BATTERY ELECTROLYTE COLLECTION TIME PERIOD

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	82	300	382
90° To 180°	84	300	384
180° To 270°	81	300	381
270° To 360°	85	300	385

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°	0.0	N/A
90° To 180°	0.0	N/A
180° To 270°	0.0	N/A
270° To 360°	0.0	N/A

Is the Total Propulsion Battery Electrolyte Spillage Greater Than 5.0 Liters?	No spillage occurred
Is the Propulsion Battery Electrolyte Spillage Visible in the Passenger Compartment?	N/A

DATA SHEET NO. 305-5 (CONTINUED...)

STATIC ROLLOVER TEST DATA FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 VinFast VF8 ECO 5-Door SUV NHTSA No. M20244702
 Test Program: NCAP MDB Side Impact Test Test Date: 07/17/24

VOLTMETER INFORMATION

Make	Fluke
Model	87V MAX
Serial No.	50790043
Internal Impedance Value	50 MΩ
Resolution	0.001

HV BATTERY ELECTRICAL ISOLATION MEASUREMENTS AND CALCULATIONS

Code	Units	Threshold	0°	90°	180°	270°	360°
V_b	V		0.002	0.008	0.004	12.100	1.664
V_1	V		0.006	0.031	0.060	5.700	1.700
V_2	V		0.004	0.014	0.038	7.070	1.110
R_o	Ω		194,000	194,000	194,000	194,000	194,000
V_1'	V		0.001	0.001	0.004	0.403	0.049
V_2'	V		0.000	0.001	0.003	0.406	0.054
R_{i1}	Ω		1,616,667	8,448,387	4,436,133	5,712,717	10,804,636
R_{i2}	Ω		*Zero Volts	8,106,429	5,837,018	5,751,514	9,604,068
R_i	Ω		*Zero Volts	8,106,429	4,436,133	5,712,717	9,604,068
R_i/V_b	Ω/V	500	*Zero Volts	1,013,303,571	1,109,033,333	472,125	5,771,676

* "Zero Volts" is considered as being compliant.

Is the Measured Electrical Isolation Value $\geq$ 500 Ω/V?	Yes
Is V_1 , V_2 , and $V_b \leq$ 60 VDC?	Yes

APPENDIX A
PHOTOGRAPHS

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FIGURE 1. As-Delivered Right Front 3/4 View of Test Vehicle



FIGURE 2. As-Delivered Left Rear 3/4 View of Test Vehicle



FIGURE 3. Pre-Test Frontal View of Test Vehicle



FIGURE 4. Post-Test Frontal View of Test Vehicle



FIGURE 5. Pre-Test Left Front 3/4 View of Test Vehicle



FIGURE 6. Post-Test Left Front 3/4 View of Test Vehicle



FIGURE 7. Pre-Test Left Side View of Test Vehicle



FIGURE 8. Post-Test Left Side View of Test Vehicle



FIGURE 9. Pre-Test Left Rear 3/4 View of Test Vehicle



FIGURE 10. Post-Test Left Rear 3/4 View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



FIGURE 13. Pre-Test Right Side View of Test Vehicle



FIGURE 14. Post-Test Right Side View of Test Vehicle



FIGURE 15. Pre-Test Overhead View of Test Area

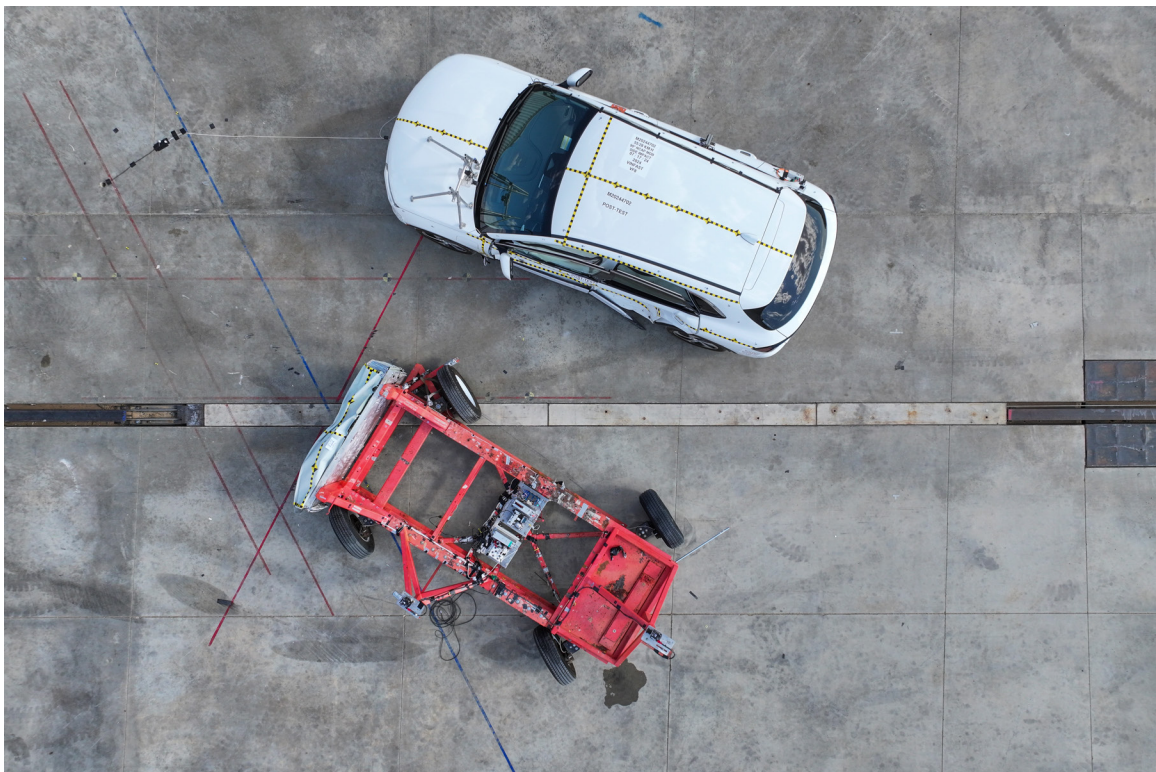


FIGURE 16. Post-Test Overhead View of Test Area



FIGURE 17. Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



FIGURE 18. Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle



FIGURE 19. Pre-Test Close-Up View of Impact Point Target



FIGURE 20. Post-Test Close-Up View of Impact Point Target



FIGURE 21. Pre-Test Left Front Door Latch Close-Up



FIGURE 22. Post-Test Left Front Door Latch Close-Up



FIGURE 23. Pre-Test Left Rear Door Latch Close-Up



FIGURE 24. Post-Test Left Rear Door Latch Close-Up



FIGURE 25. Pre-Test Front Close-Up View of Driver Dummy



FIGURE 26. Post-Test Front Close-Up View of Driver Dummy



FIGURE 27. Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



FIGURE 28. Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



FIGURE 29. Post-Test Left Side View of Driver Dummy Shoulder and Door Top View



FIGURE 30. Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



FIGURE 31. Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 32. Pre-Test Overhead View of Driver Seat Pan Prior to Dummy Positioning



FIGURE 33. Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



FIGURE 34. Pre-Test Placement of Driver Dummy's Feet



FIGURE 35. Pre-Test View of Belt Anchorage for Driver Dummy



FIGURE 36. Pre-Test Left Side View of Steering Wheel



FIGURE 37. View of Disengaged Parking Brake



FIGURE 38. Pre-Test View of Parking Brake



FIGURE 39. Pre-Test Close-Up Left Side View of Driver Seat Track



FIGURE 40. Pre-Test Close-Up Left Side View of Driver Seat Back



FIGURE 41. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 42. Pre-Test Driver Dummy and Door Clearance View



FIGURE 43. Post-Test Driver Dummy and Door Clearance View



FIGURE 44. Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



FIGURE 45. Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



FIGURE 46. Pre-Test Driver Inner Door Panel View



FIGURE 47. Post-Test Driver Inner Door Panel View



FIGURE 48. Post-Test Driver Dummy Close-Up Head Contact with Vehicle Interior View



FIGURE 49. Post-Test Driver Dummy Close-Up Head Contact with Side Air Bag View



FIGURE 50. Post-Test Driver Dummy Close-Up Torso Contact With Vehicle Interior View



FIGURE 51. Post-Test Driver Dummy Close-Up Torso Contact With Side Air Bag View



FIGURE 52. Post-Test Driver Dummy Close-Up Pelvis Contact With Vehicle Interior View



FIGURE 53. Post-Test Driver Dummy Close-Up Pelvis Contact With Side Air Bag View

Photograph Not Applicable
No Driver Dummy Close-Up Knee Contact

FIGURE 54. Post-Test Driver Dummy Close-Up Knee Contact View



FIGURE 55. Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking



FIGURE 56. Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



FIGURE 57. Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



FIGURE 58. Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning

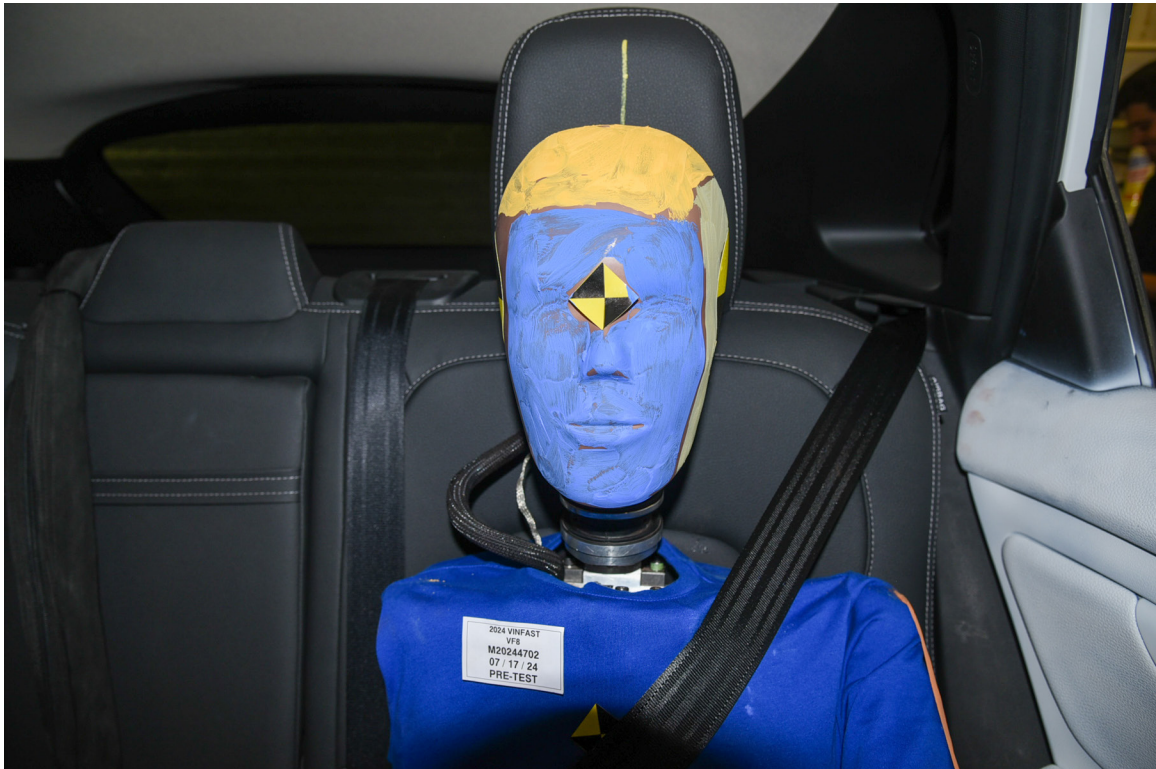


FIGURE 59. Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 60. Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



FIGURE 61. Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



FIGURE 62. Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



FIGURE 63. Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



FIGURE 64. Pre-Test Placement of Rear Passenger Dummy's Feet



FIGURE 65. Pre-Test View of Belt Anchorage for Rear Passenger Dummy



FIGURE 66. Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



FIGURE 67. Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



FIGURE 68. Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



FIGURE 69. Pre-Test Rear Passenger Dummy and Door Clearance View



FIGURE 70. Post-Test Rear Passenger Dummy and Door Clearance View



FIGURE 71. Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



FIGURE 72. Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



FIGURE 73. Pre-Test Rear Passenger Inner Door Panel View



FIGURE 74. Post-Test Rear Passenger Inner Door Panel View



FIGURE 75. Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle Interior View



FIGURE 76. Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Air Bag View

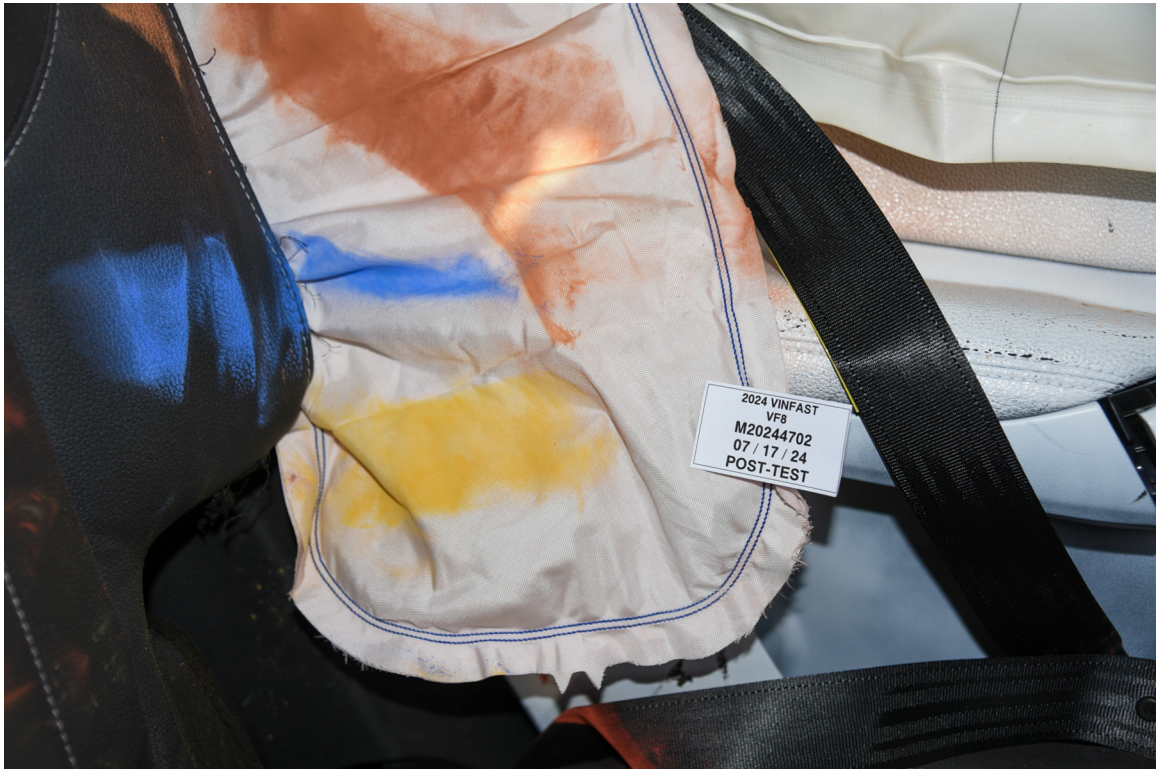


FIGURE 77. Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



FIGURE 78. Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Side Air Bag View



FIGURE 79. Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Vehicle Interior View

Photograph Not Applicable

No Post-Test Rear Passenger Dummy
Close-Up Pelvis Contact With Side Air Bag

FIGURE 80. Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Air Bag View

Photograph Not Applicable

No Passenger Dummy Close-Up Knee Contact

FIGURE 81. Post-Test Rear Passenger Dummy Close-Up Knee Contact View



FIGURE 82. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 83. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 84. Pre-Test Front View of MDB Impactor Face



FIGURE 85. Post-Test Front View of MDB Impactor Face



FIGURE 86. Pre-Test Top View of MDB Impactor Face



FIGURE 87. Post-Test Top View of MDB Impactor Face



FIGURE 88. Pre-Test Left View of MDB Impactor Face



FIGURE 89. Post-Test Left View of MDB Impactor Face



FIGURE 90. Pre-Test Right View of MDB Impactor Face



FIGURE 91. Post-Test Right View of MDB Impactor Face

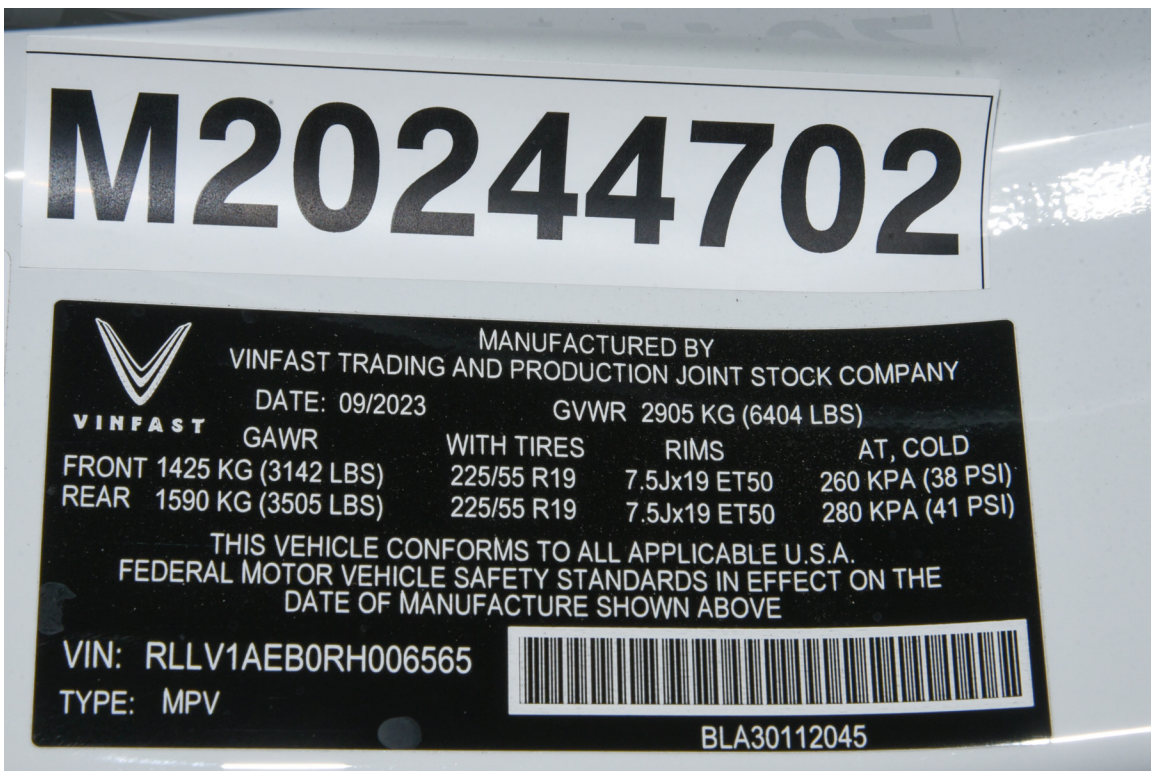


FIGURE 92. Close-Up View of Vehicle's Certification Label

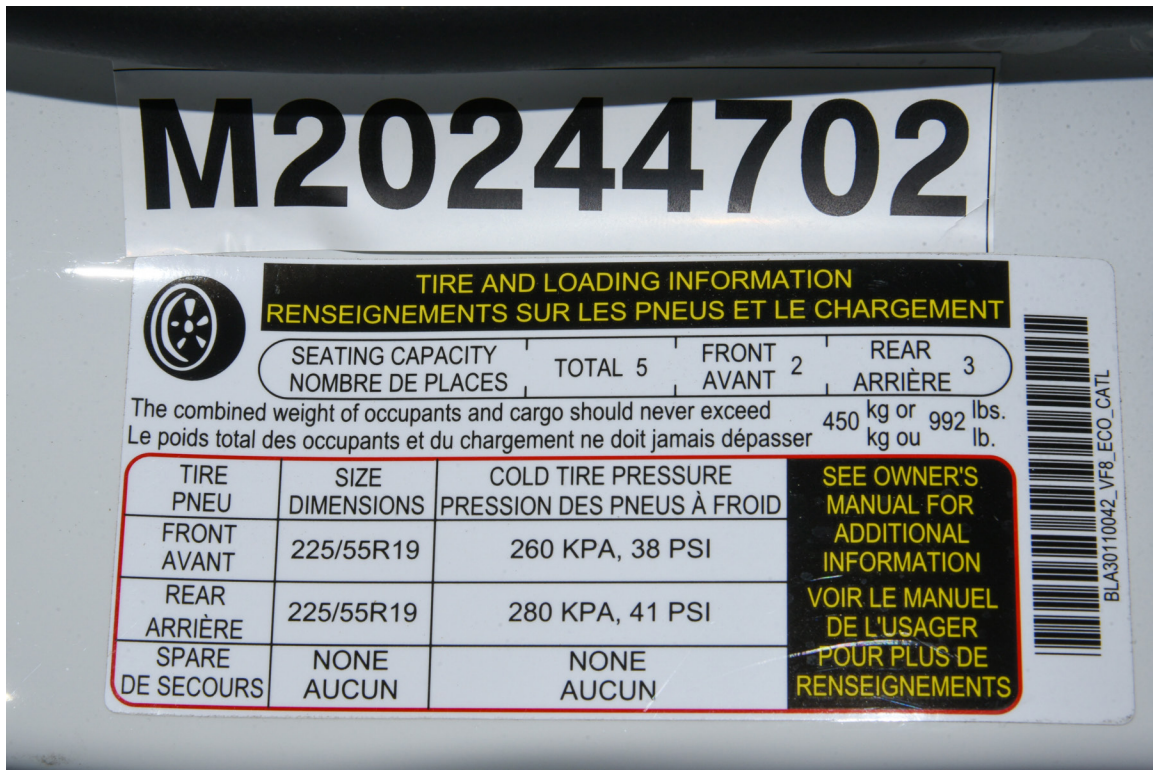


FIGURE 93. Close-Up View of Vehicle's Tire Information Placard or Label



FIGURE 94. Pre-Test Ballast View



FIGURE 95. Post-Test Primary and Redundant Speed Trap Read-Out



FIGURE 96. FMVSS No. 301 Static Rollover 0 Degrees



FIGURE 97. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 98. FMVSS No. 301 Static Rollover 180 Degrees

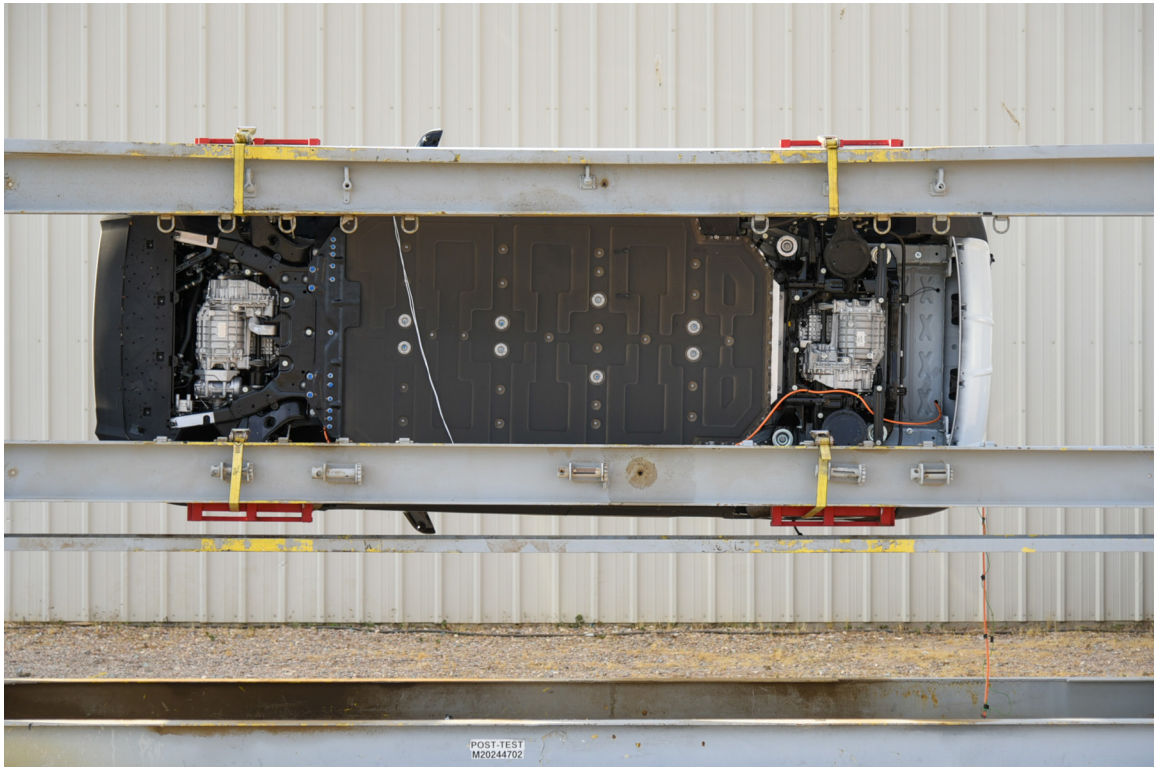




FIGURE 101. Impact Event

VF 8 Eco

Vehicle Identification Number: RLLV1AE08H006565

2024
87.7kWh Battery

Exterior: Brassy White
Interior: Granite Black

STANDARD EQUIPMENT

TECHNICAL

- Dual Motor with AWD
- Anti-lock braking system
- Electronic brakeforce distribution
- Brake Assist
- Electronic stability control
- Traction control system
- Hill start assist control
- Front parking sensor
- Blind spot monitoring
- Backup camera
- Automatic front windable wipers
- Adaptive cruise control
- The power window system

SAFETY

- 15.6 inch infotainment touchscreen
- Head-up display
- 8 speakers
- In-vehicle navigation
- 6-way power adjustable driver's seat
- 6-way power adjustable front passenger seat
- 60/40 split folding rear seat
- 2-zone HVAC with ionization
- ISOFIX LATCH
- USB charging ports

EXTERIOR

- LED headlights
- LED taillights
- V-shaped signature light, front and rear
- Dynamic turning lights
- Headlight auto high beams
- Power-folding mirrors/heating exterior mirrors
- 19 inch alloy wheels
- Rear Spoiler

FACTORY-INSTALLED OPTIONS

Option	Price
Base MSRP	\$40,000.00
Brassy White	\$0.00
Granite Black	\$0.00
19 inch	\$0.00
MSRP Advanced	\$0.00
Camel floor mat	\$10.00
Portable Charger	INCLUDED

Destination Fee \$1,200.00

Total MSRP \$47,200.00

SOLD TO	FINAL ASSEMBLY PLANT	Item Number	Date of Manufacture
Lotus Inc. 2880 Auto Park Blvd Oak Park, Illinois 60455 US	Haiphong		2024-10-01

This label is offered pursuant to the Federal Automobile Information Disclosure Act, Gasoline, License, and Title Fees, State and Local Taxes are not included. Dealer installed options or accessories are not included unless listed above.

RLLV1AE08H006565

BOUNDLESS TOGETHER

EPA DOT Fuel Economy and Environment Electric Vehicle

75 MPGe

combined city

Driving Range

When fully charged, vehicle can travel about:

Charge Time: 12 hours

MPGe

city 79 highway 71

MPG range from 13 to 122 MPGe. The best vehicle rates 122 MPGe.

45 MPGe per 100 miles

264 miles

You save \$3250 in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$950

Fuel Economy & Greenhouse Gas Rating (tailpipe only) Smog Rating (tailpipe only)

10 Best

This vehicle emits 6 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Does not include emissions from generating electricity, from where it is delivered to you.

fuelconomy.gov

Calculate personalized estimates and compare vehicles

PARTS CONTENT INFORMATION

FOR VEHICLES THIS CARLINE: U.S./CANADIAN PARTS CONTENT:

0%

MAJOR SOURCES OF FOREIGN PARTS CONTENT:

Vietnam: 61%
South Korea: 20%

FOR THIS VEHICLE:

FINAL ASSEMBLY POINT: **Haiphong City, Vietnam**

COUNTRY OF ORIGIN: **Vietnam**

ENGINE PARTS: **Vietnam**

TRANSMISSION PARTS: **Vietnam**

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

GOVERNMENT 5-STAR SAFETY RATINGS

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

Star ratings range from 1 to 5 stars (*****), with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA). www.safercar.gov or 1-888-327-4238

vinfastauto.us

FOLLOW US

FIGURE 102. Monroney Label

Photograph Not Available

FIGURE 103. Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Photograph Not Available

FIGURE 104. Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



FIGURE 305-01 Auxiliary Power Module Warning Label



FIGURE 305-02 Power Inverter Warning Label



FIGURE 305-03 First Responder Warning Label



FIGURE 305-04 First Responder Warning Location



FIGURE 305-05 Other Vehicle Label(s) Related to Electrical Propulsion System



FIGURE 305-06 Manual High Voltage Service Disconnect in Place



FIGURE 305-07 Manual High Voltage Service Disconnect Removed



FIGURE 305-08 Manual High Voltage Service Disconnect Removed

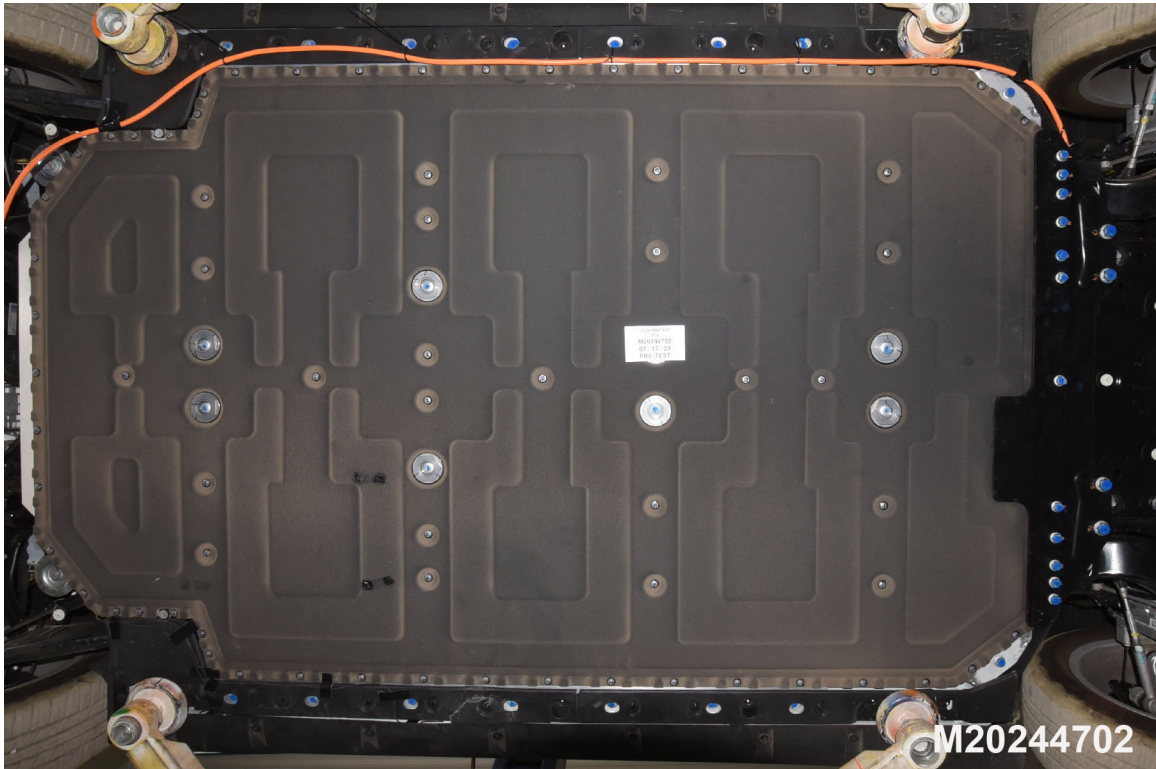


FIGURE 305-09 Pre-Impact View of Propulsion Battery

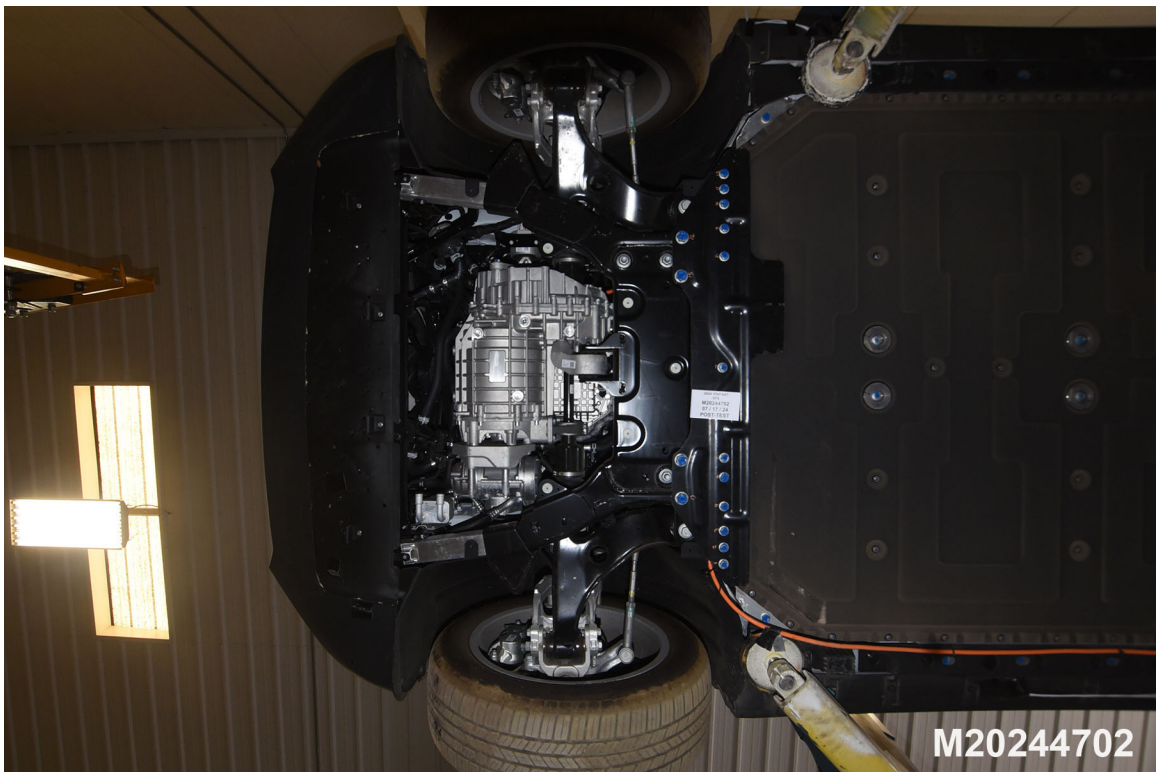


FIGURE 305-010 Post-Impact Front View of Propulsion Battery

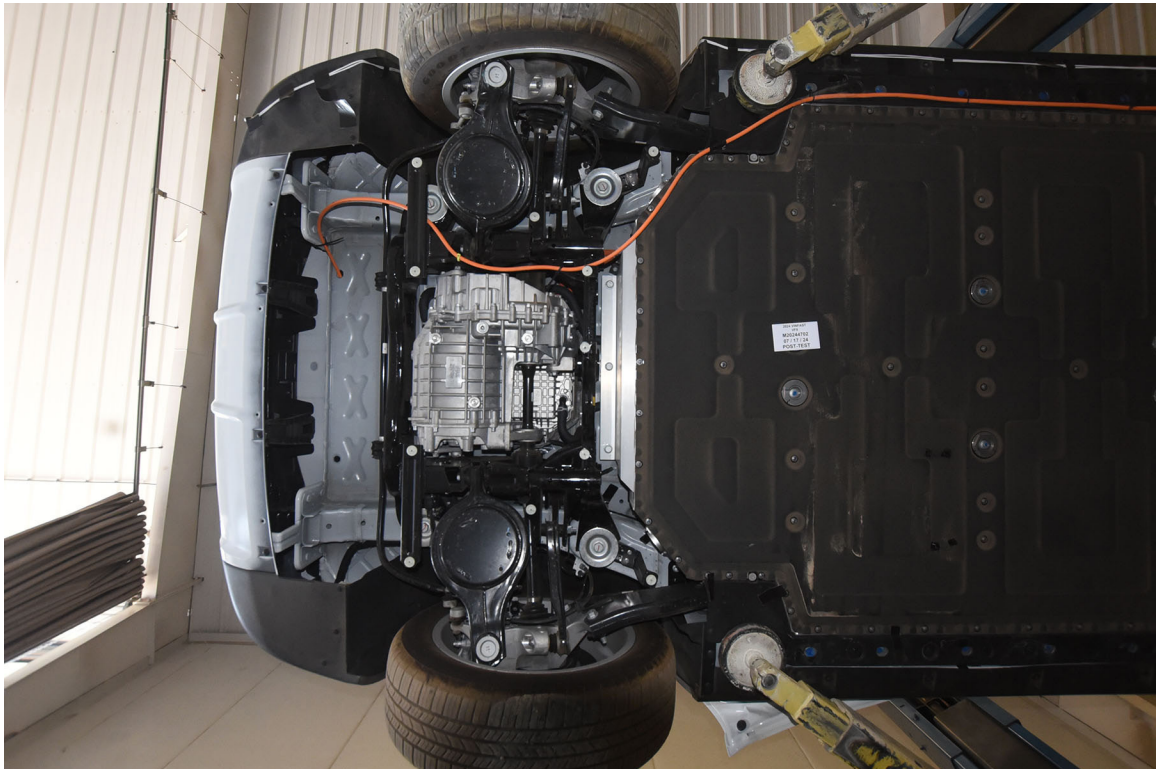


FIGURE 305-011 Post-Impact Rear View of Propulsion Battery



FIGURE 305-012 Pre-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules

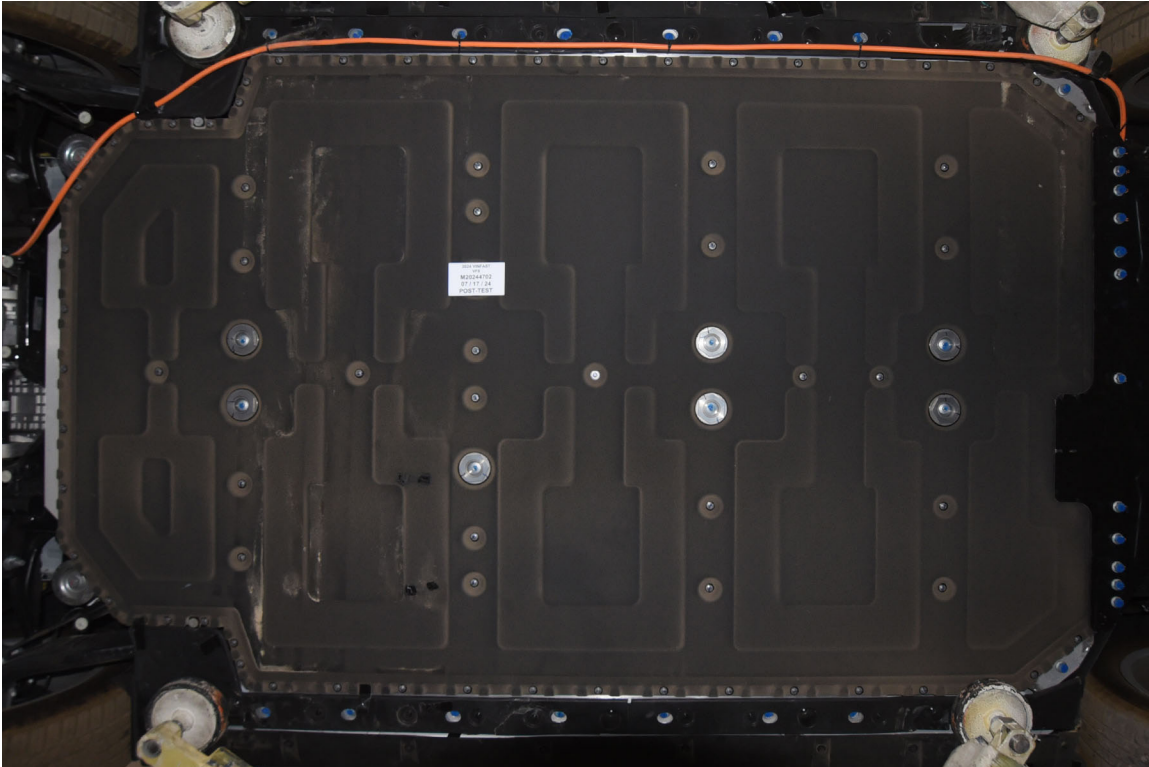


FIGURE 305-013 Post-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules

Photograph Not Applicable

Battery Not Removed
From Vehicle

FIGURE 305-014 Pre-Impact View of Propulsion Battery Module(s)

Photograph Not Applicable

Battery Not Removed From Vehicle

FIGURE 305-015 Post-Impact View of Propulsion Battery Module(s)

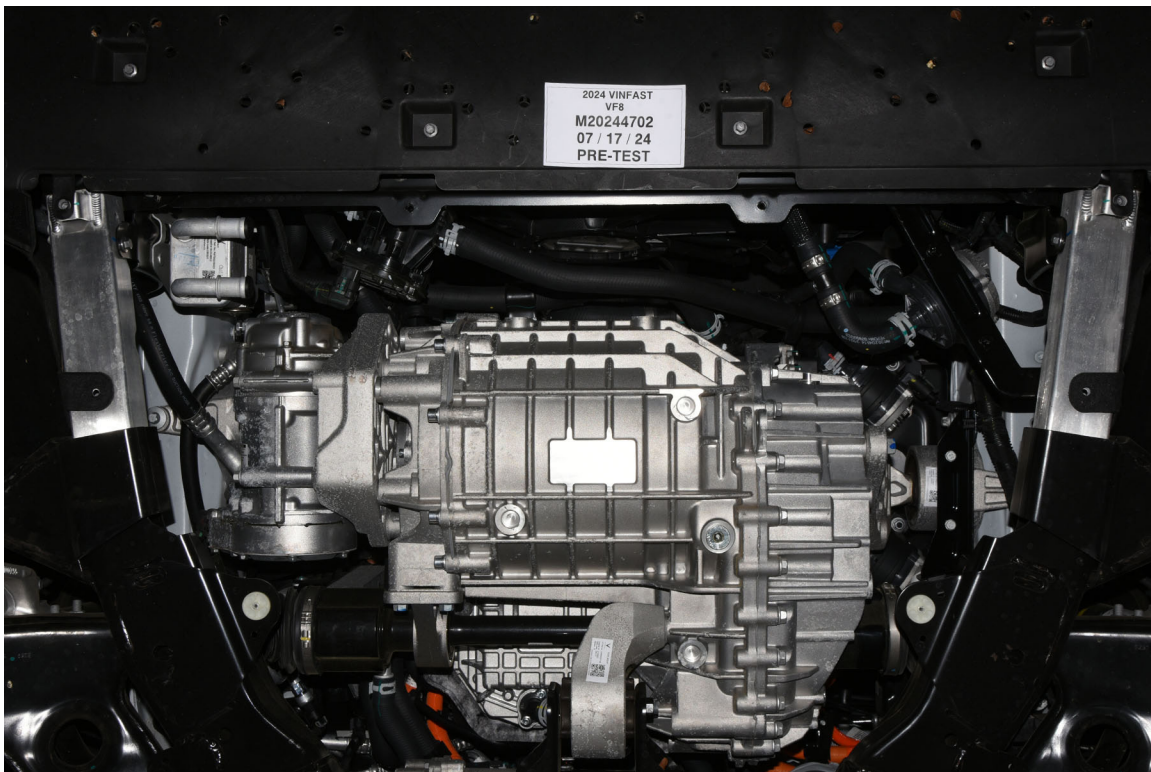


FIGURE 305-016 Pre-Impact View of Electric Propulsion Drive

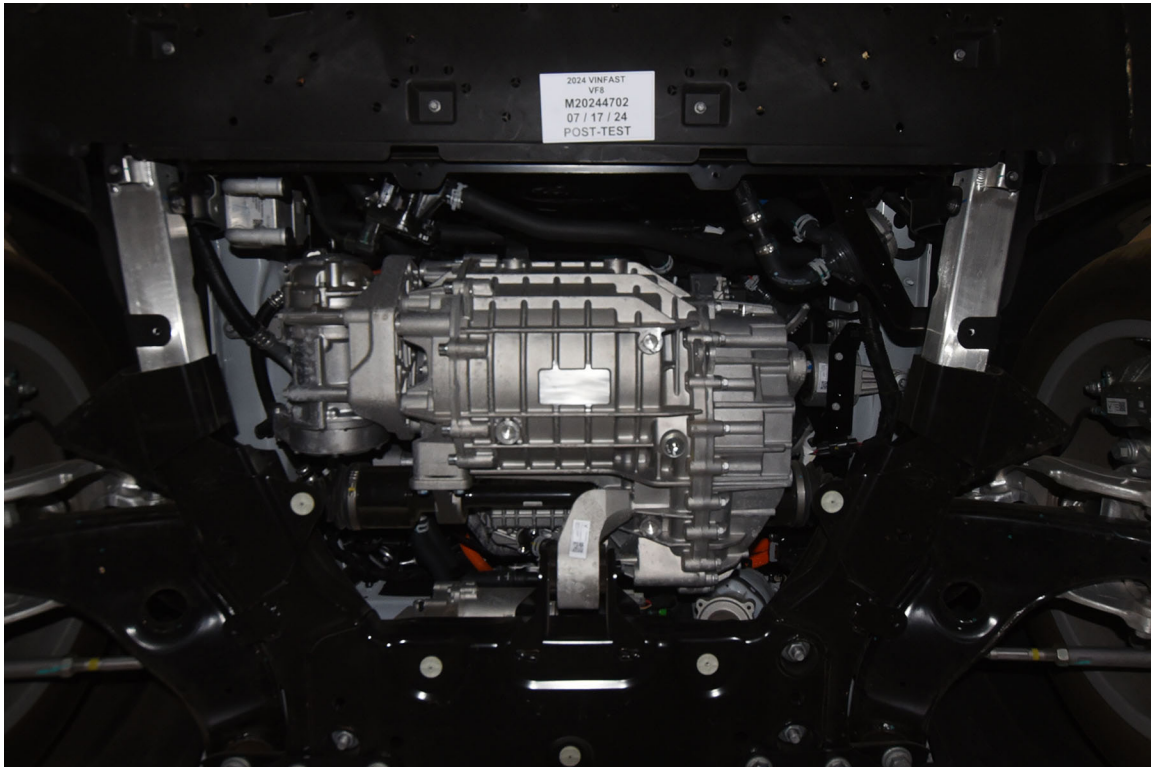


FIGURE 305-017 Post-Impact View of Electric Propulsion Drive

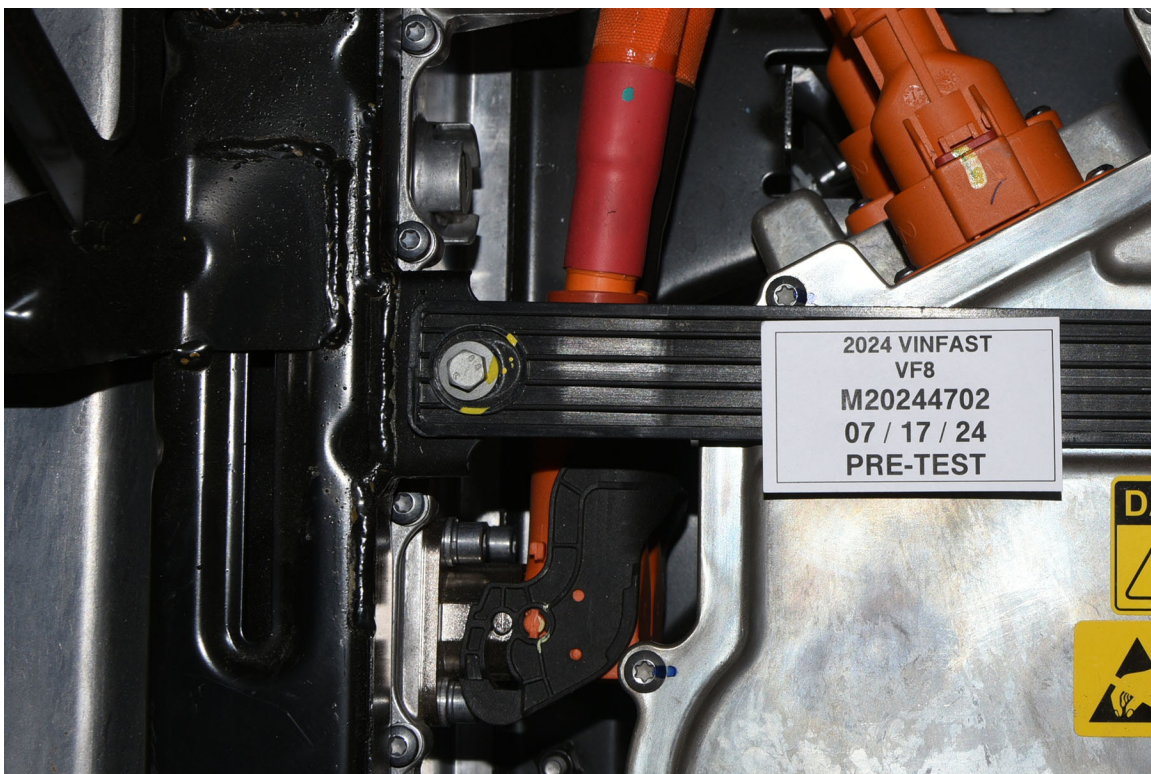


FIGURE 305-018 Pre-Impact View of High Voltage Interconnect(s)



FIGURE 305-019 Pre-Impact View Propulsion Battery Venting System(s)

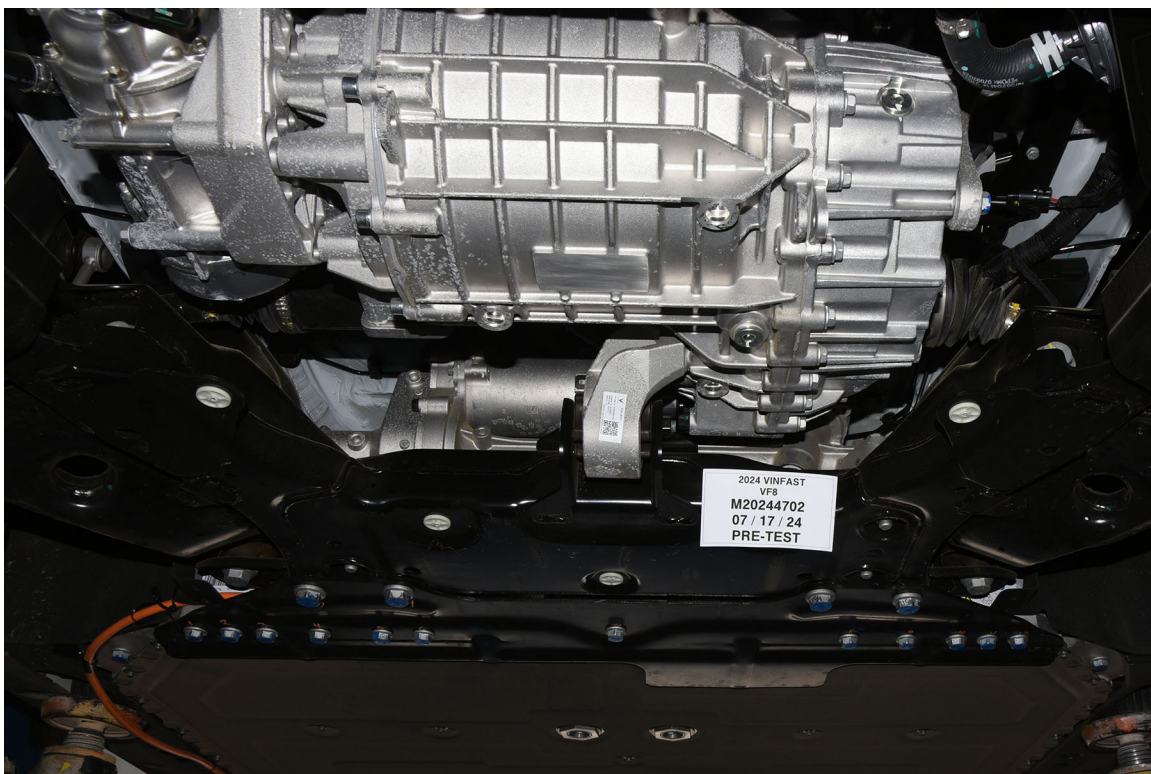


FIGURE 305-020 Pre-Impact View of Other Visible Electric Propulsion Components

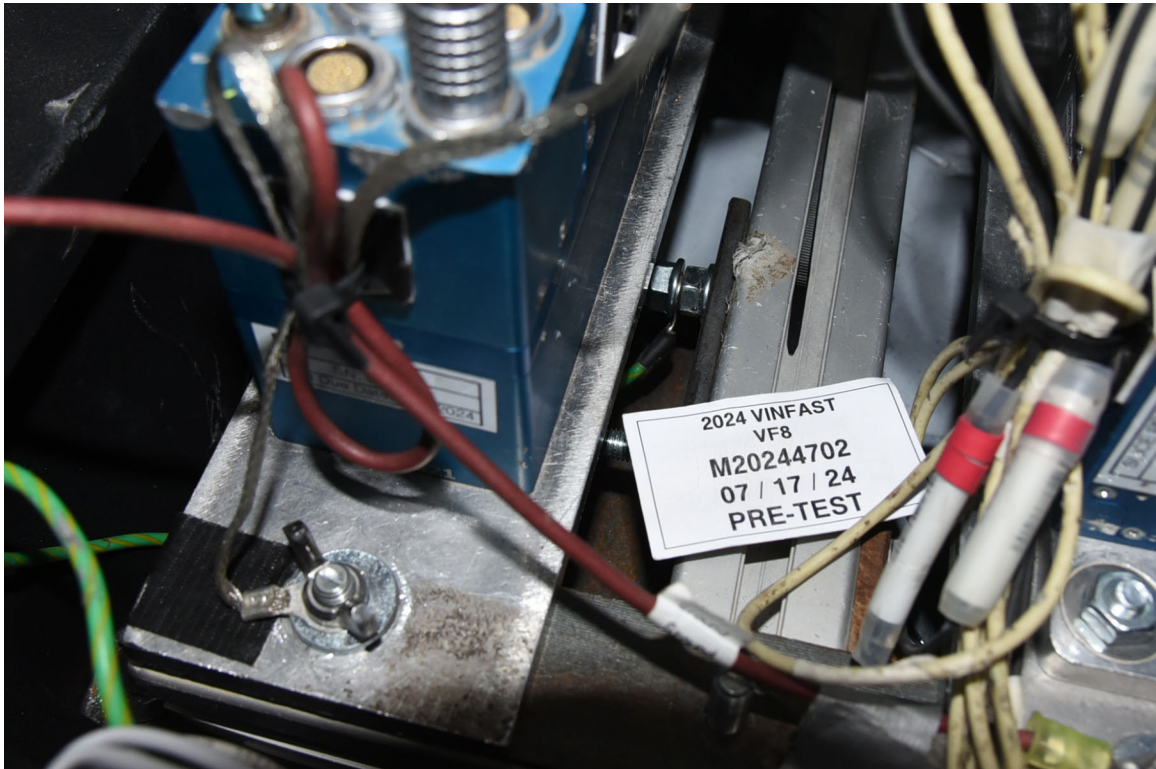


FIGURE 305-021 Pre-Impact View of Ground Lead Attached

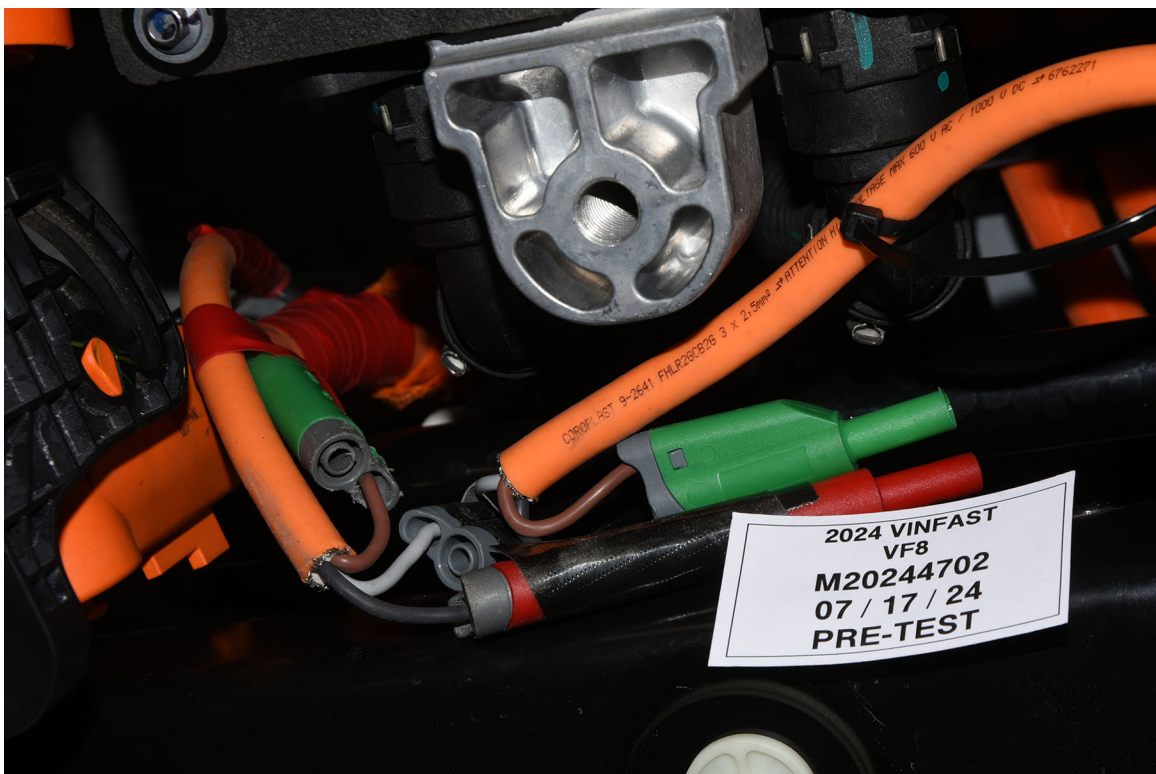


FIGURE 305-022 Pre-Impact View of High Voltage Leads Attached

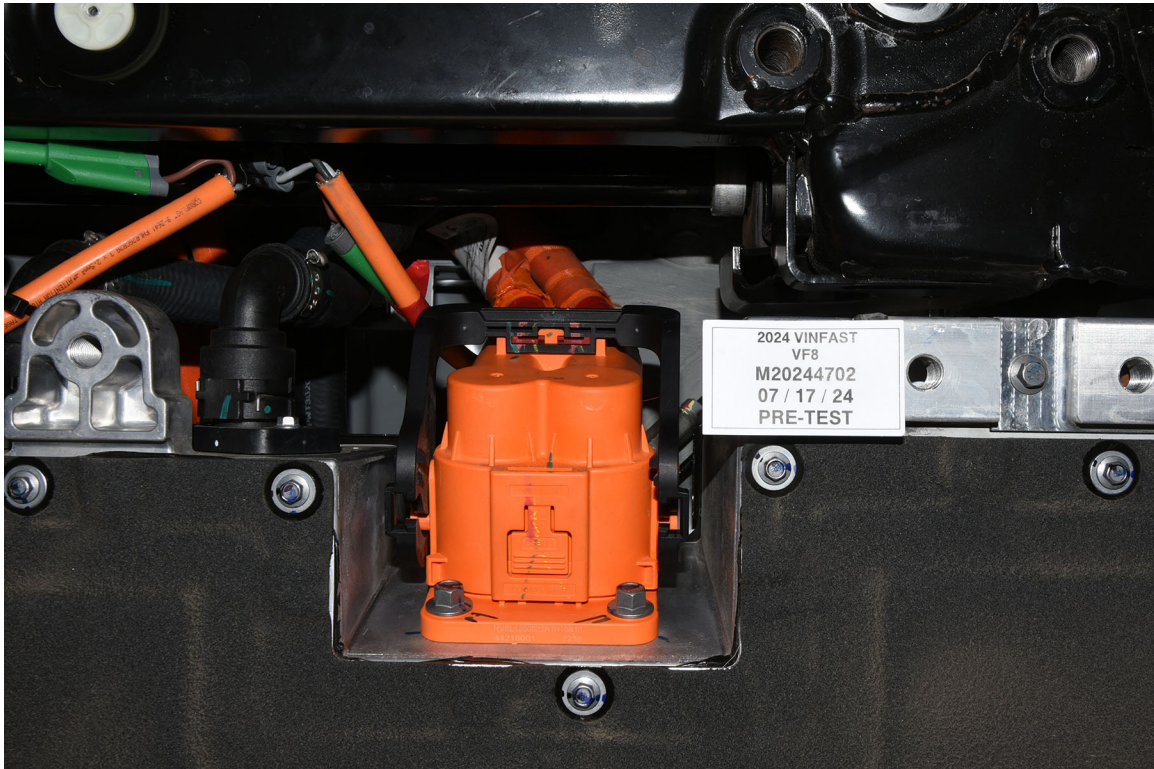


FIGURE 305-023 Pre-Impact Close-Up View of High Voltage Leads Attached

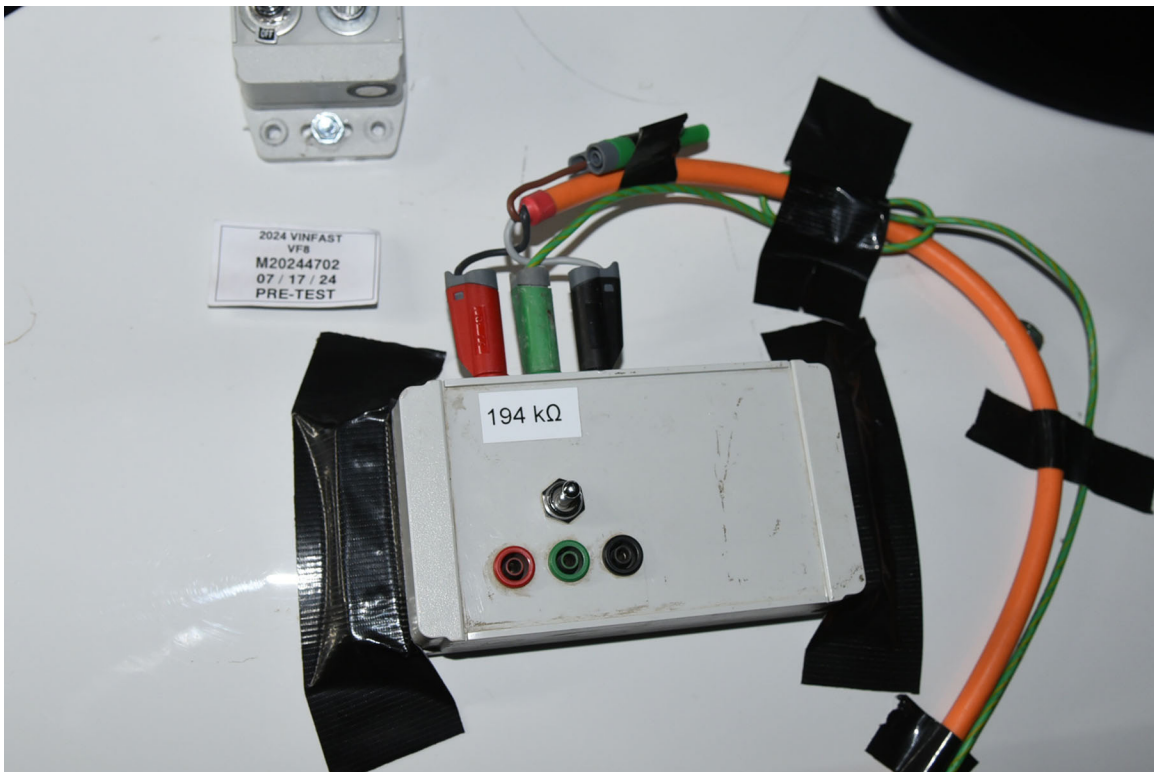


FIGURE 305-024 Pre-Impact View of Installed Test Interface Port



FIGURE 305-025 Post-Impact View of Installed Test Interface Port



FIGURE 305-026 Pre-Impact View of Other Test Devices

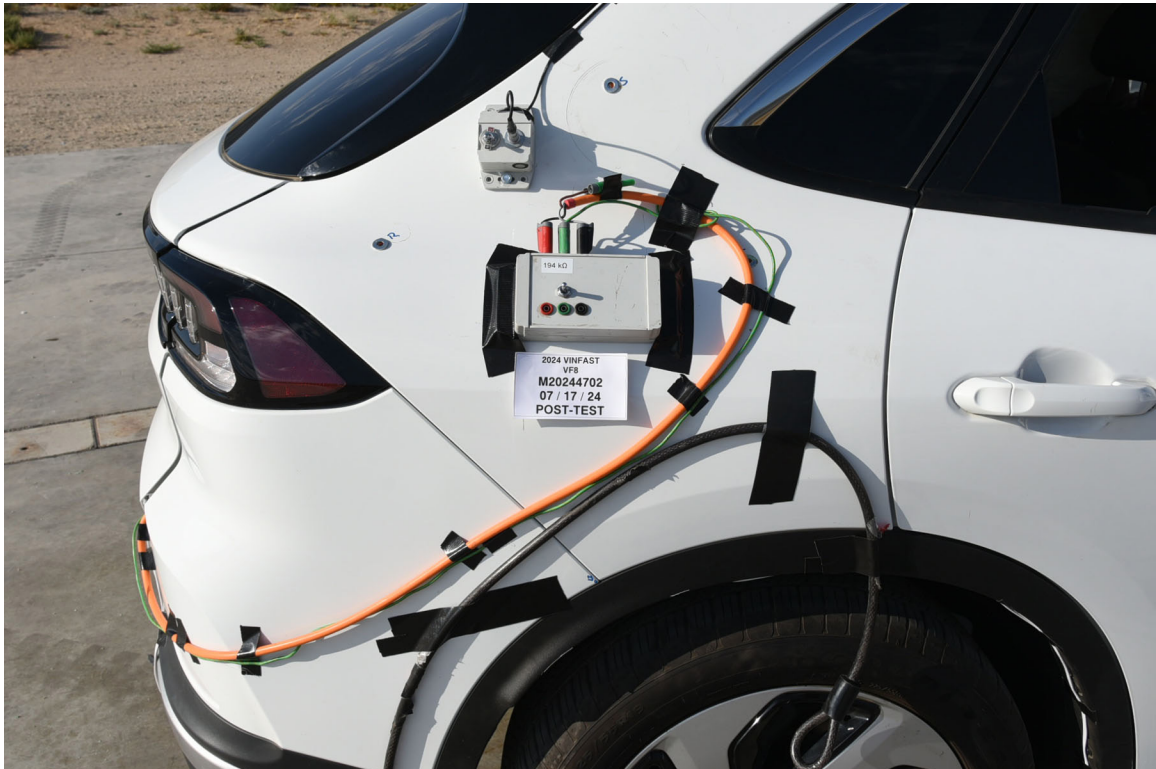


FIGURE 305-027 Post-Impact View of Other Test Devices

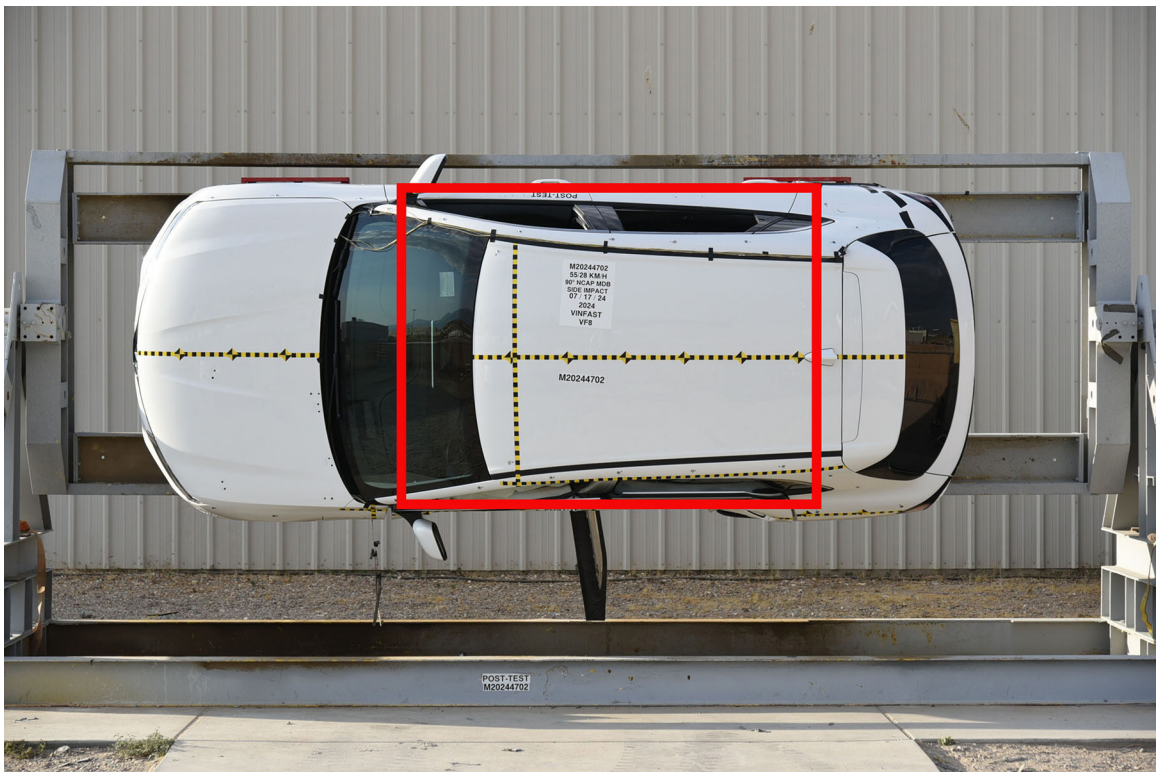


FIGURE 305-028 FMVSS No. 305 Static Rollover at 90°



FIGURE 305-029 FMVSS No. 305 Static Rollover at 180°

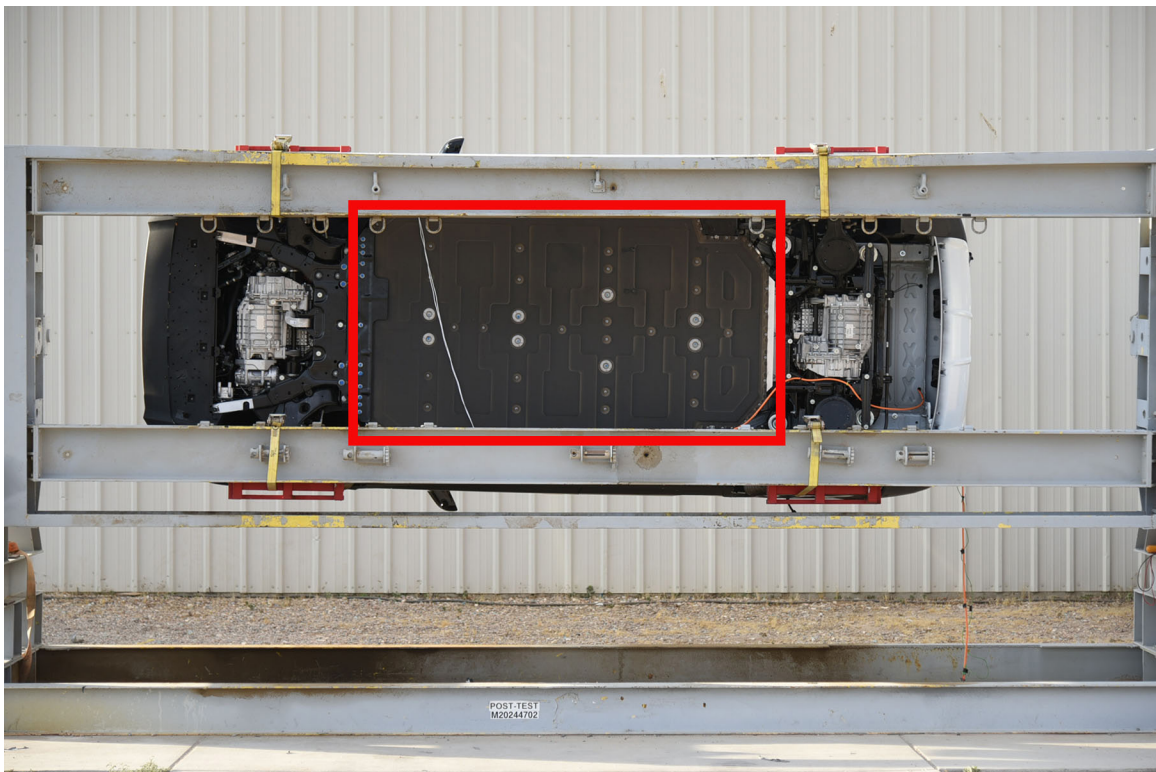


FIGURE 305-030 FMVSS No. 305 Static Rollover at 270°

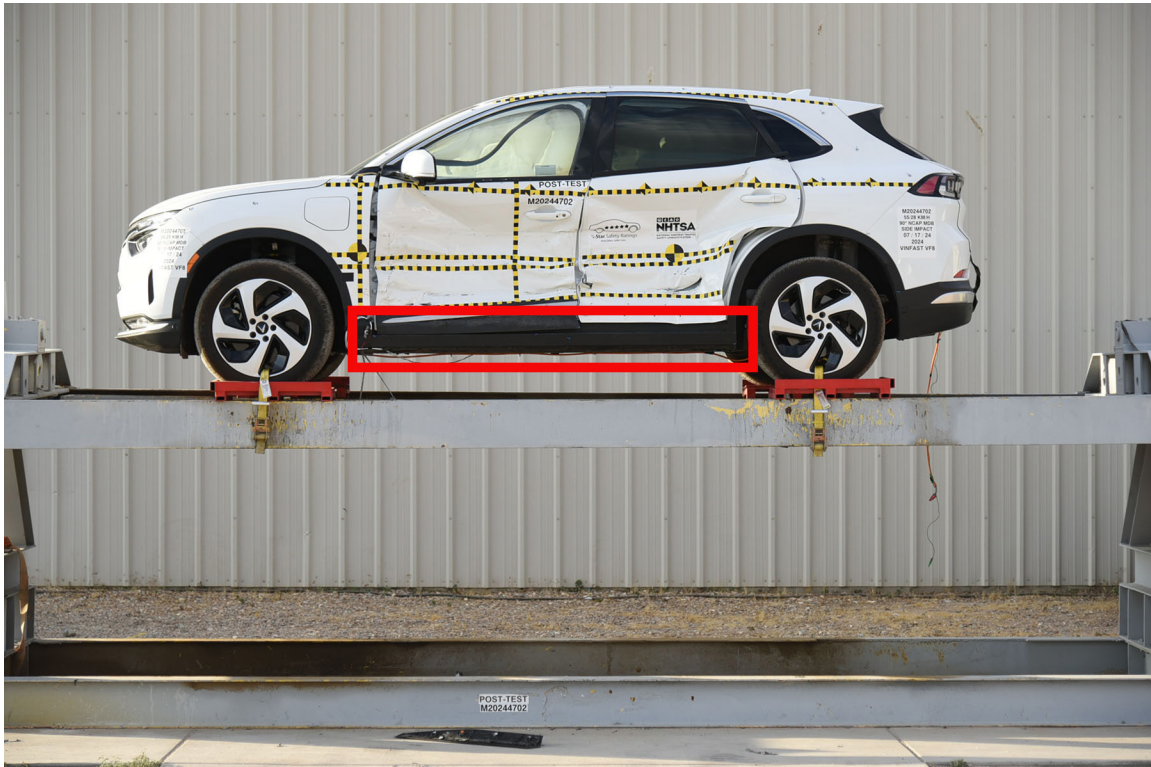


FIGURE 305-031 FMVSS No. 305 Static Rollover at 360°



FIGURE 305-032 Pre-Impact View of the Vehicle Passenger Compartment Adjacent to Propulsion Battery



FIGURE 305-033 Post-Impact View of the Vehicle Passenger Compartment Adjacent to Propulsion Battery

Photograph Not Applicable

No Propulsion Battery
Mounting and/or
Intrusion Failure

FIGURE 305-034 Post-Impact Propulsion Battery System Mounting and or Intrusion Failure(s)

Photograph Not Applicable

No Battery Component
Intrusion

FIGURE 305-035 Post-Impact View of Battery Component Intrusion

Photograph Not Applicable

No Propulsion
Battery Movement or
Retention loss

FIGURE 305-036 Post-Impact View of Battery Module Movement or Retention Loss

Photograph Not Applicable

No Propulsion Battery
Electrolyte Spillage

FIGURE 305-037 Post-Impact View of Propulsion Battery Electrolyte Spillage Location

Photograph Not Applicable

No Propulsion Battery
Electrolyte Spillage

FIGURE 305-038 Post-Test View of Propulsion Battery Electrolyte Spillage Location

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Plot		Page
1	Driver Head Acceleration (X) Primary vs. Time	B-1
2	Driver Head Acceleration (Y) Primary vs. Time	B-1
3	Driver Head Acceleration (Z) Primary vs. Time	B-1
4	Driver Head Resultant Acceleration Primary vs. Time Driver	B-1
5	Upper Thorax Rib Deflection (Y) vs. Time	B-2
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-2
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-2
8	Driver Thorax Rib Deflection Maximum vs. Time	B-2
9	Driver Anterior Abdominal Force (Y) vs. Time	B-3
10	Driver Middle Abdominal Force (Y) vs. Time	B-3
11	Driver Posterior Abdominal Force (Y) vs. Time	B-3
12	Driver Total Abdominal Force (Y) vs. Time	B-3
13	Driver Pubic Symphysis Force (Y) vs. Time	B-4
14	Passenger Head Acceleration (X) vs. Time Primary	B-5
15	Passenger Head Acceleration (Y) vs. Time Primary	B-5
16	Passenger Head Acceleration (Z) vs. Time Primary	B-5
17	Passenger Head Resultant Acceleration Primary vs. Time	B-5
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-6
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-6
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-6
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-6
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-7
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-7
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-7
25	Passenger Upper Thorax Rib Deflection (Y) vs. Time	B-8
26	Passenger Middle Thorax Rib Deflection (Y) vs. Time	B-8
27	Passenger Lower Thorax Rib Deflection (Y) vs. Time	B-8
28	Passenger Upper Abdomen Rib Deflection (Y) vs. Time	B-8
29	Passenger Lower Abdomen Rib Deflection (Y) vs. Time	B-9

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

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
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)
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)

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 Structure 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)

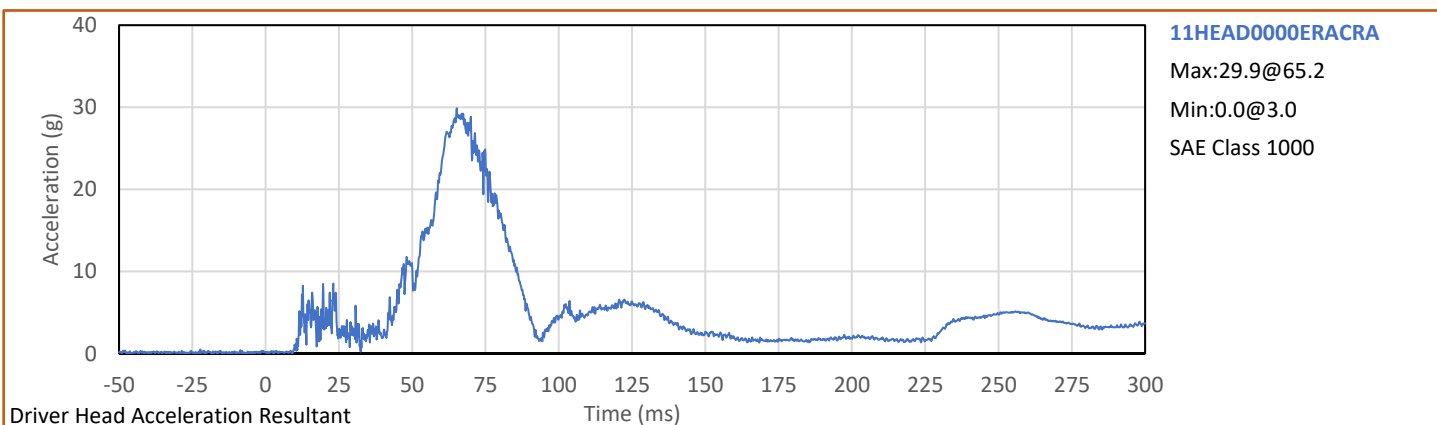
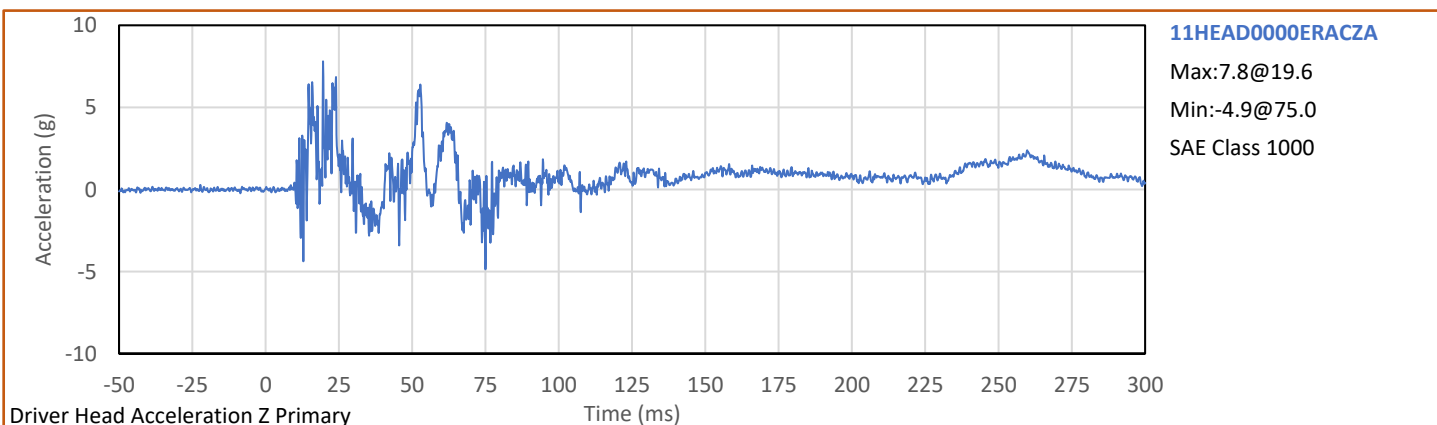
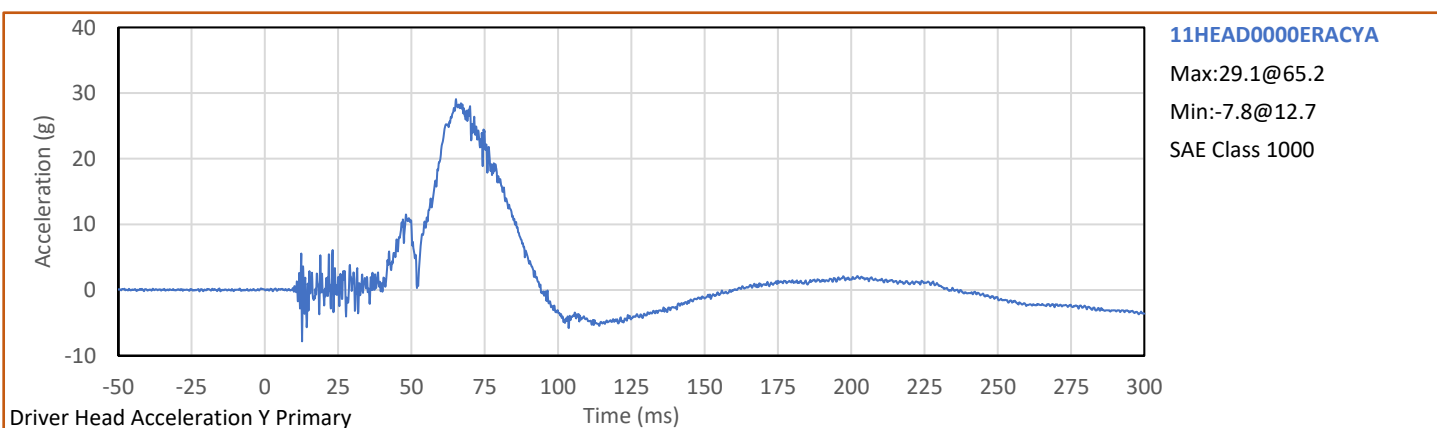
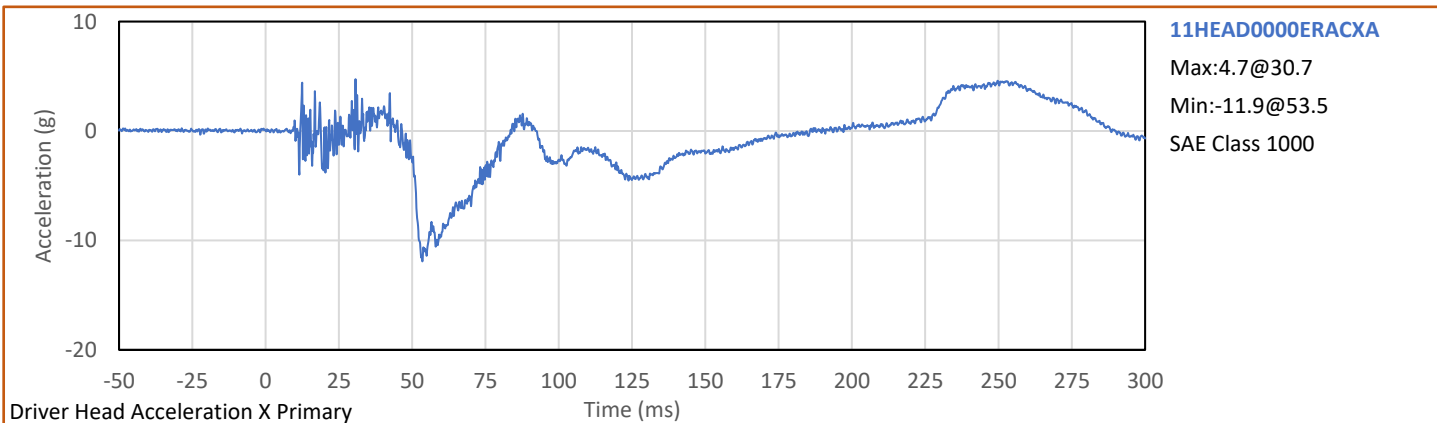
MDB Center of Gravity Acceleration (Z)

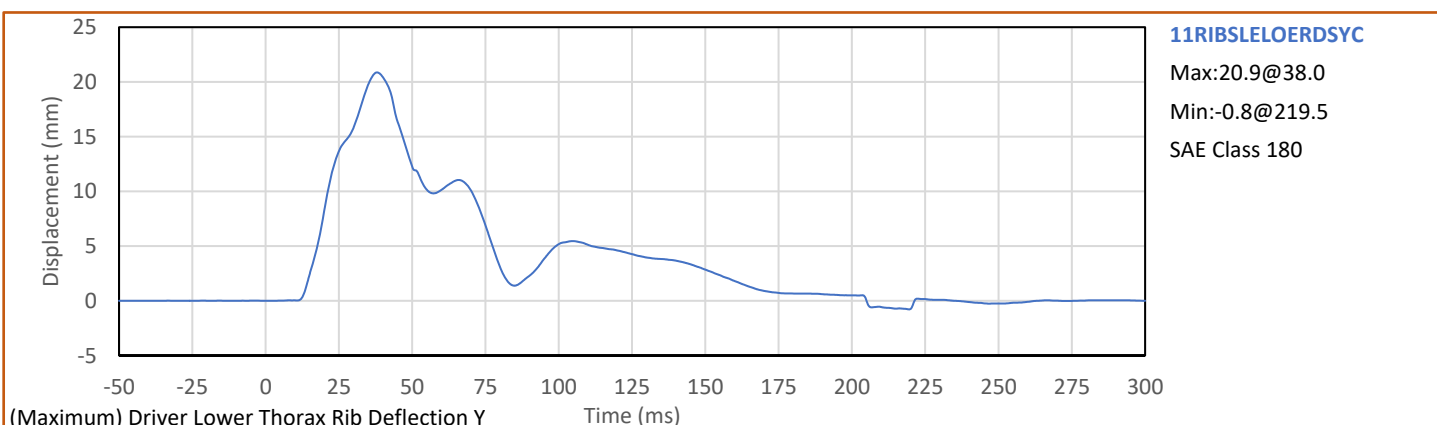
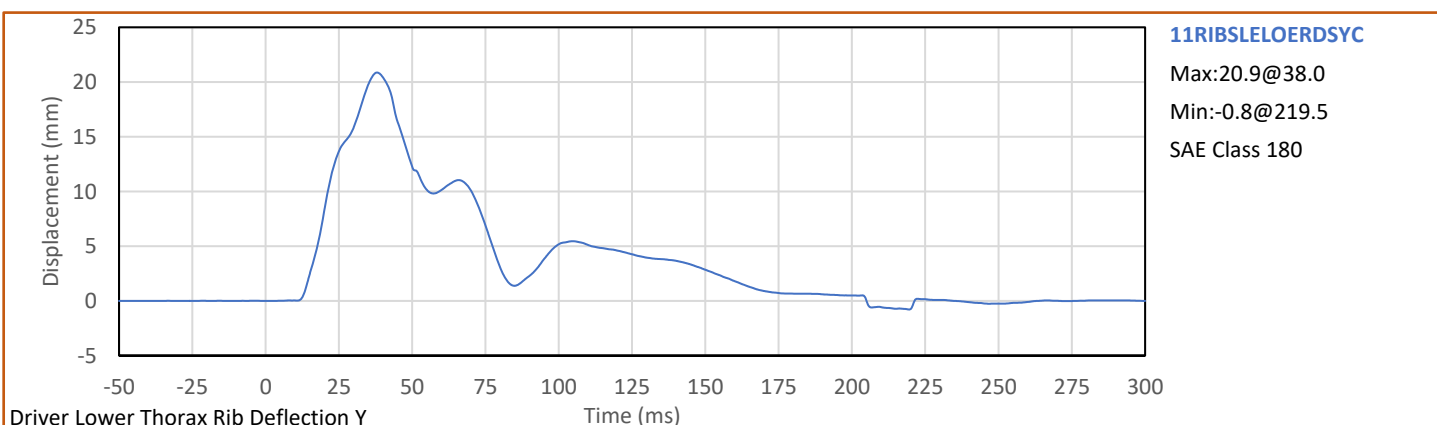
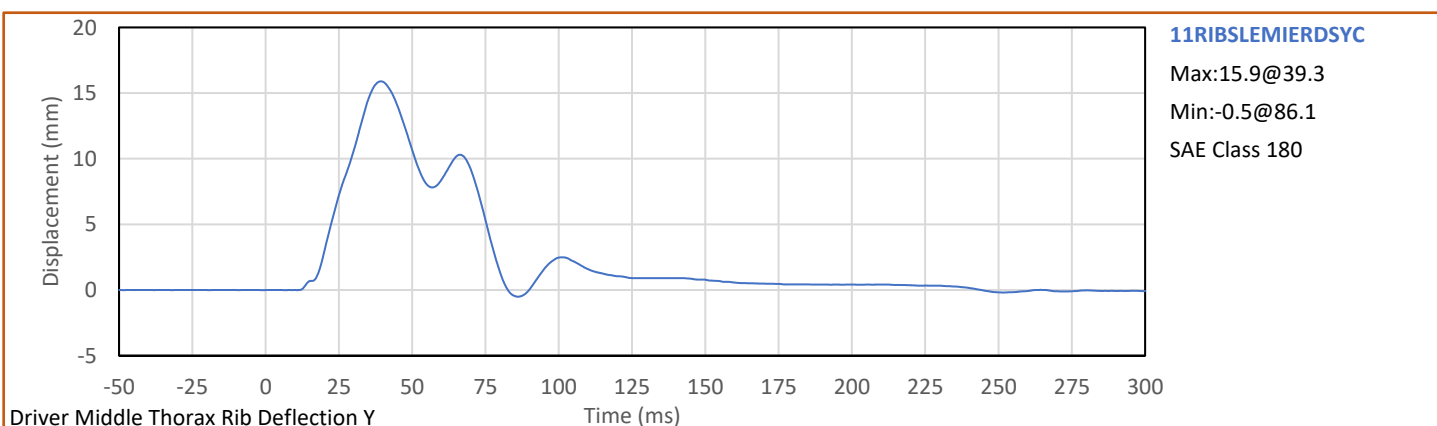
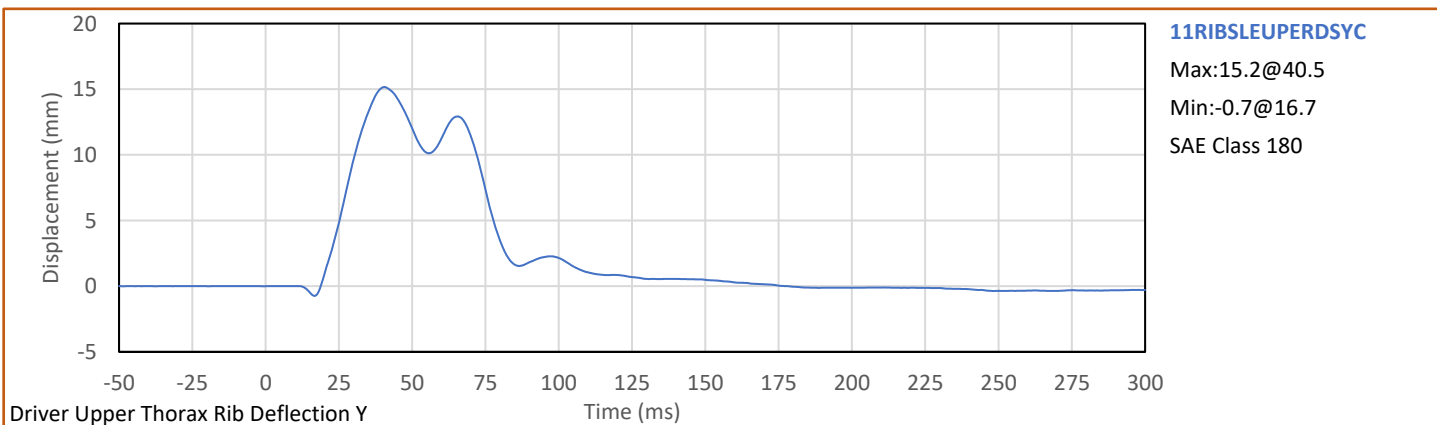
MDB Rear Acceleration (X)

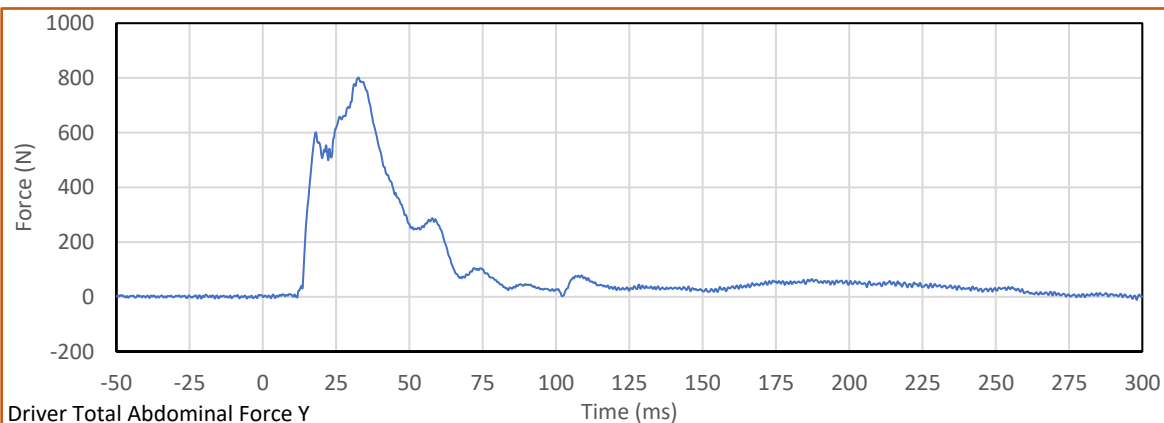
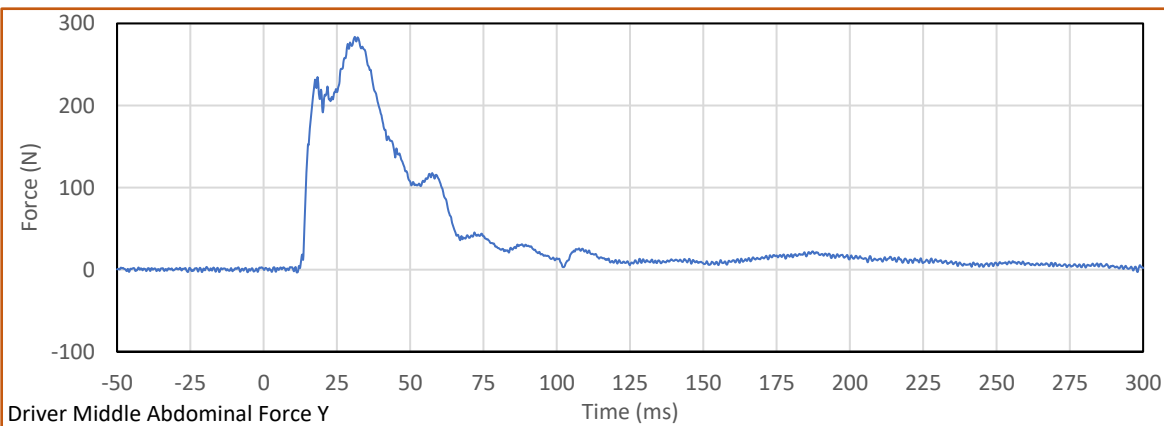
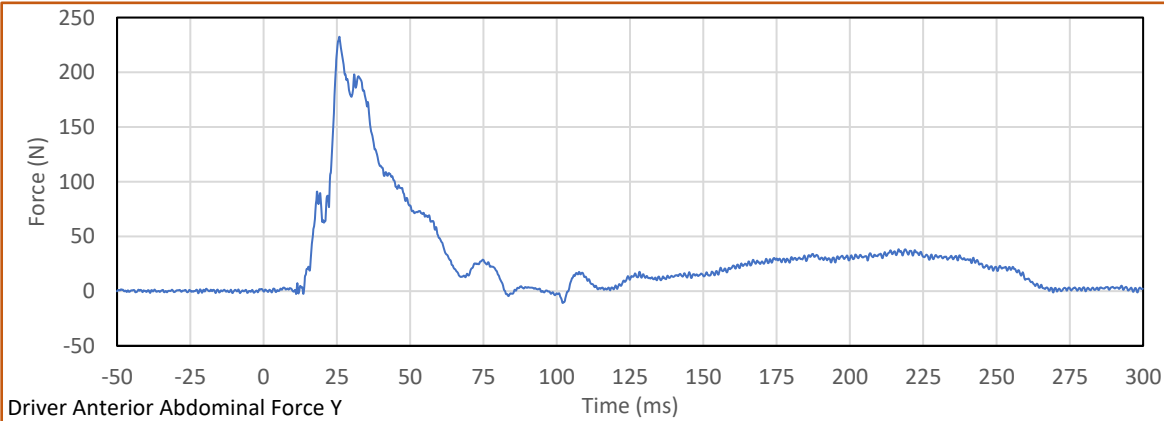
MDB Rear Acceleration (Y)

Left MDB Contact Switch

Right MDB Contact Switch

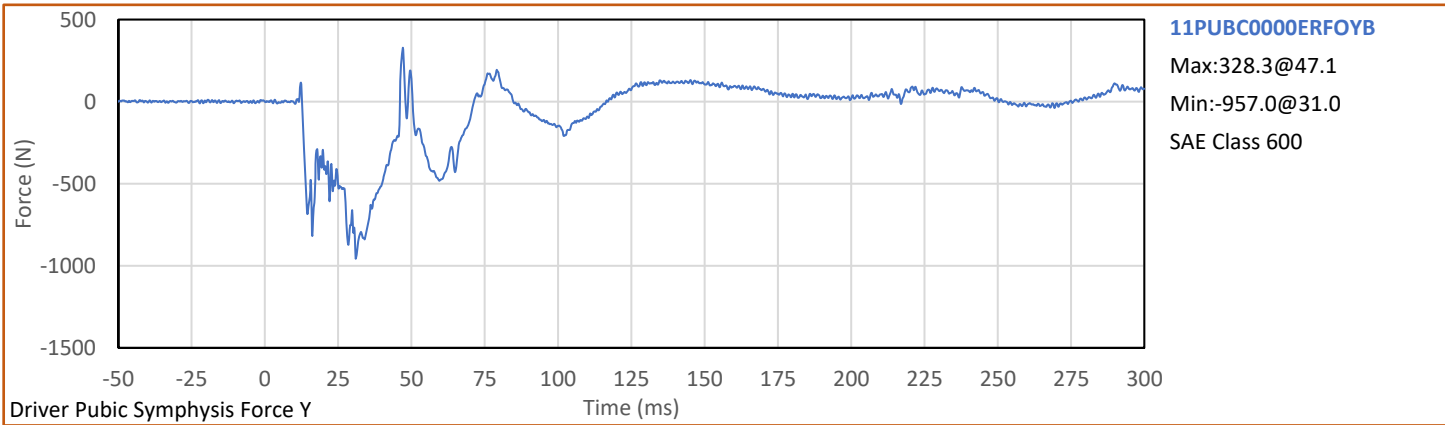


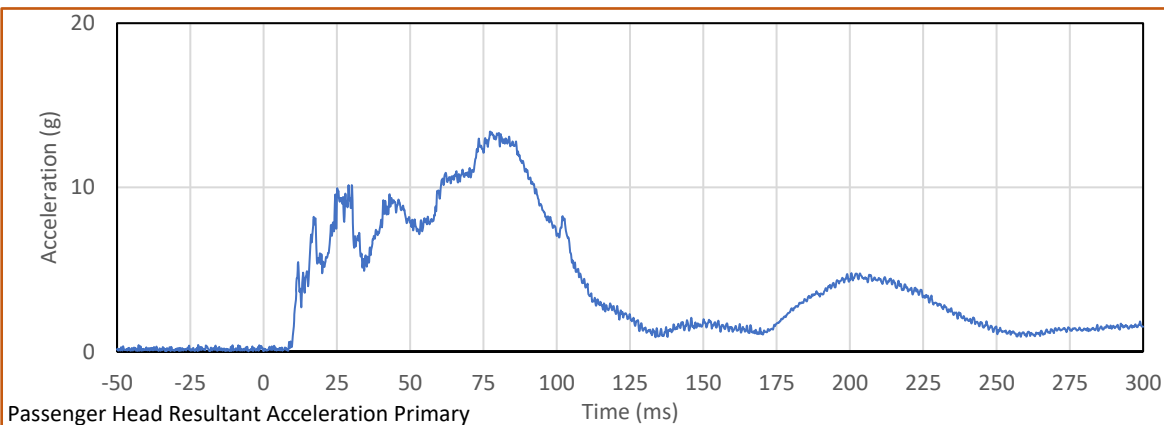
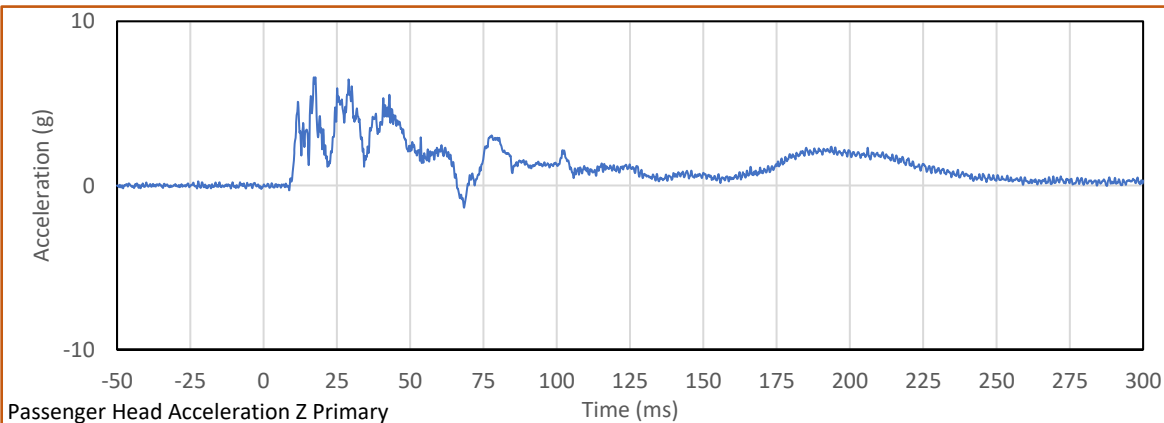
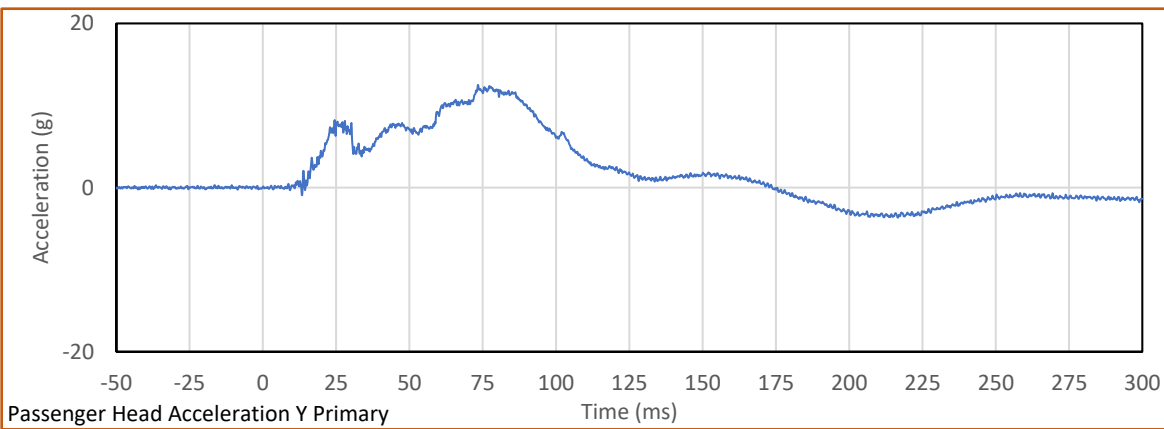
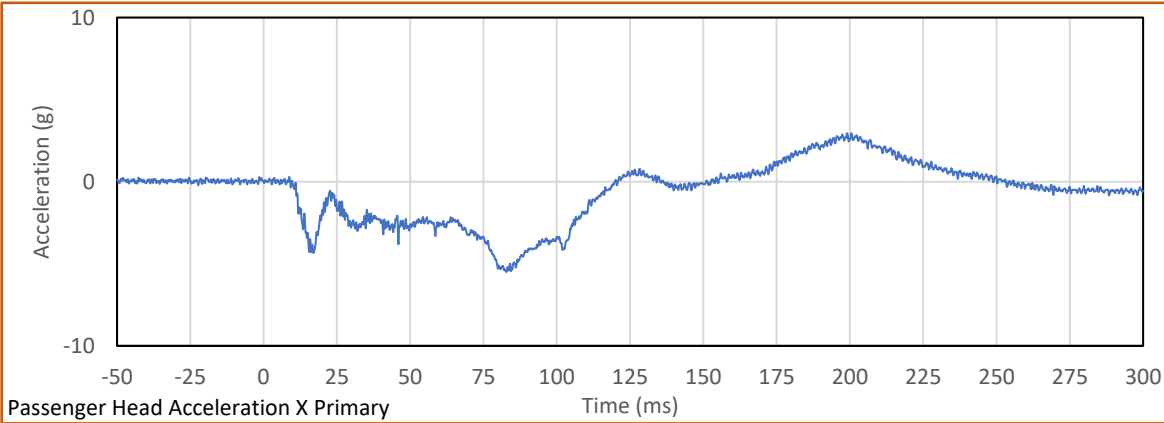


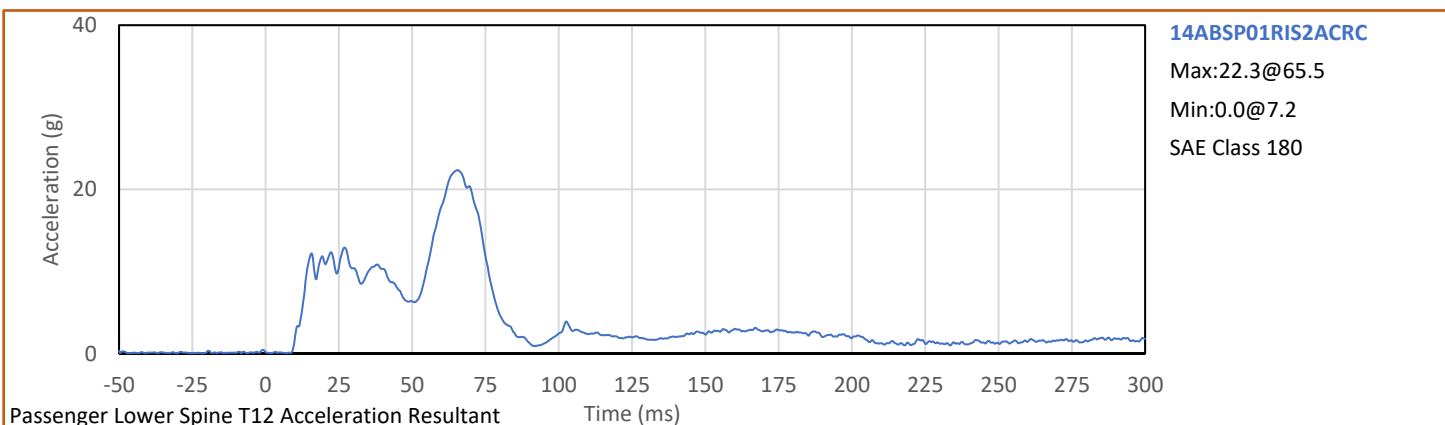
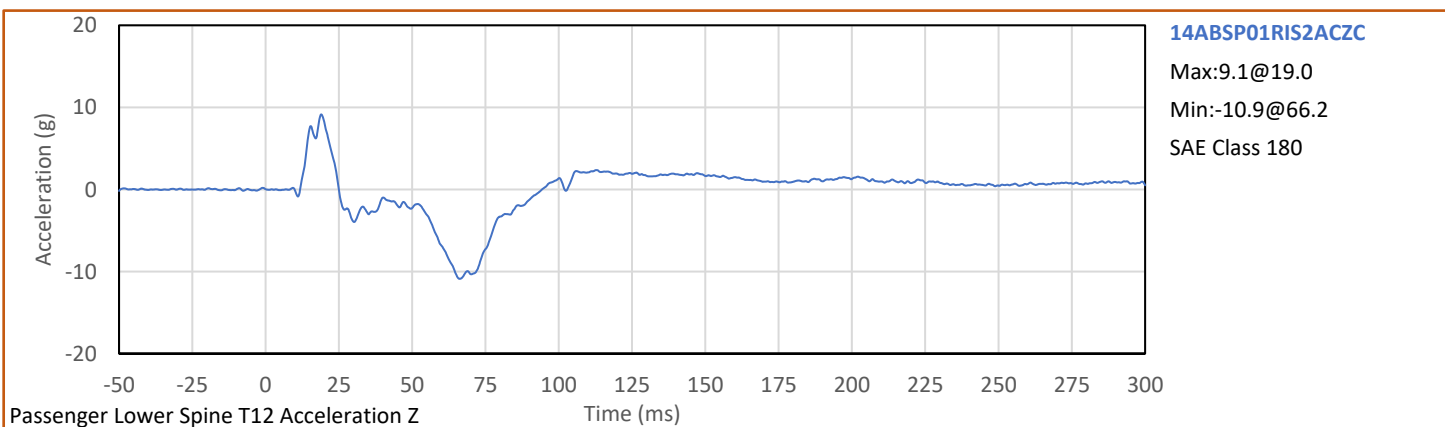
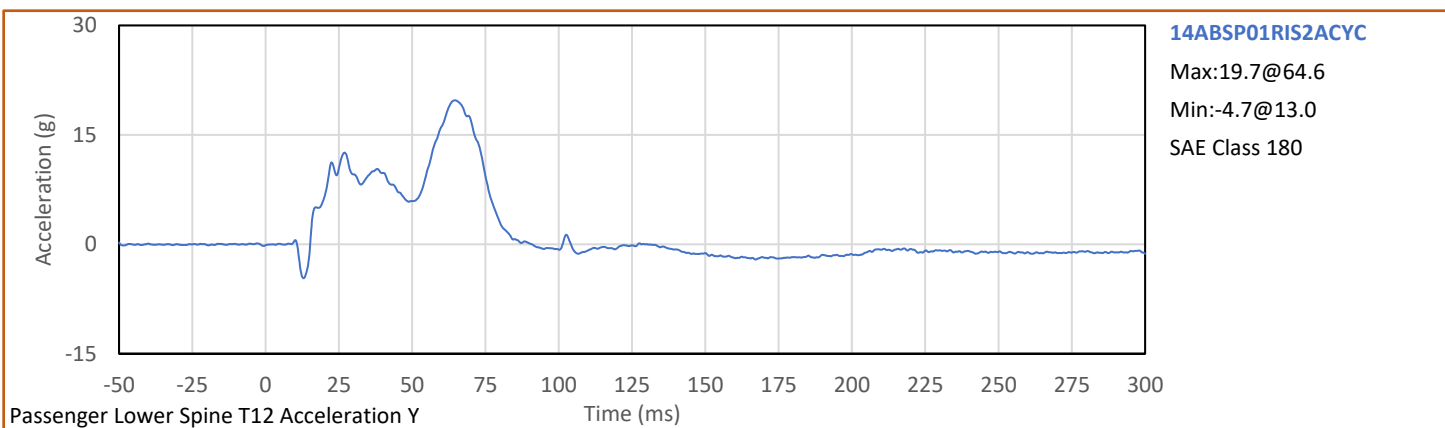
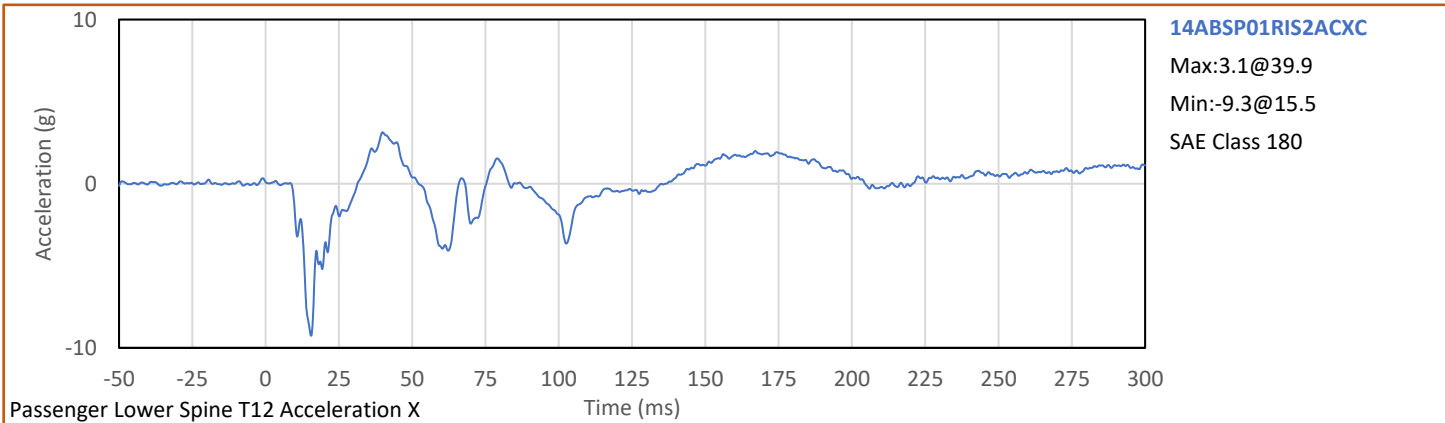


Test Vehicle: 2024 Vinfast VF8 5-Door SUV
Test Program: NCAP MDB Side Impact Test

NHTSA No.: M20244702
Test Date: 7/17/2024

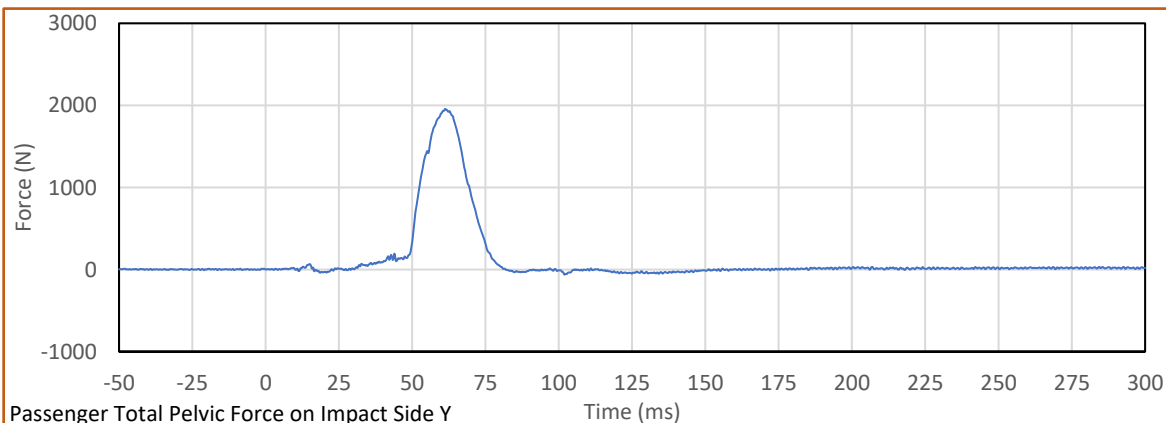
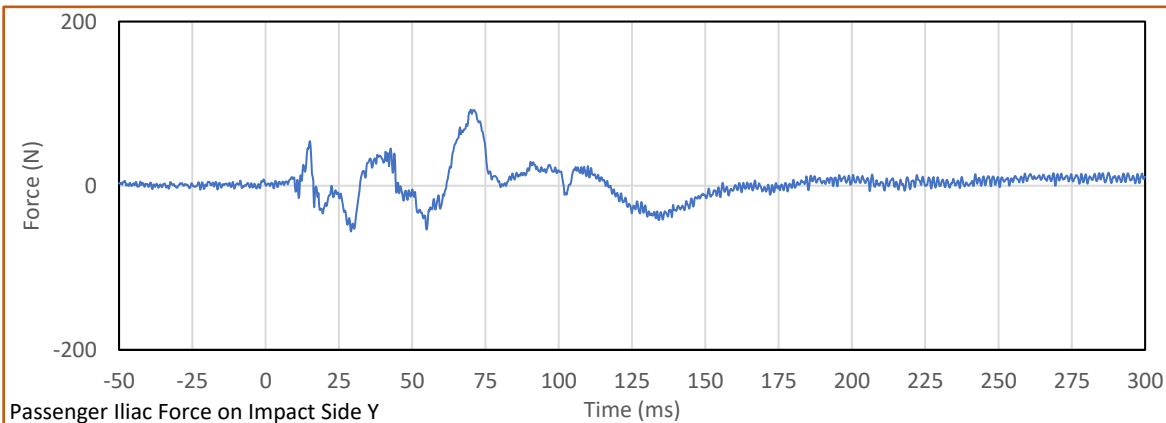


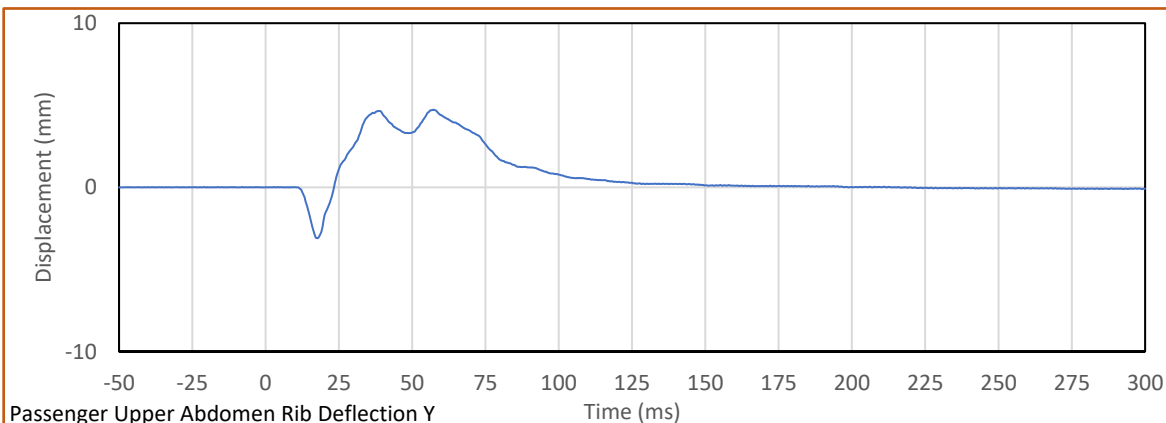
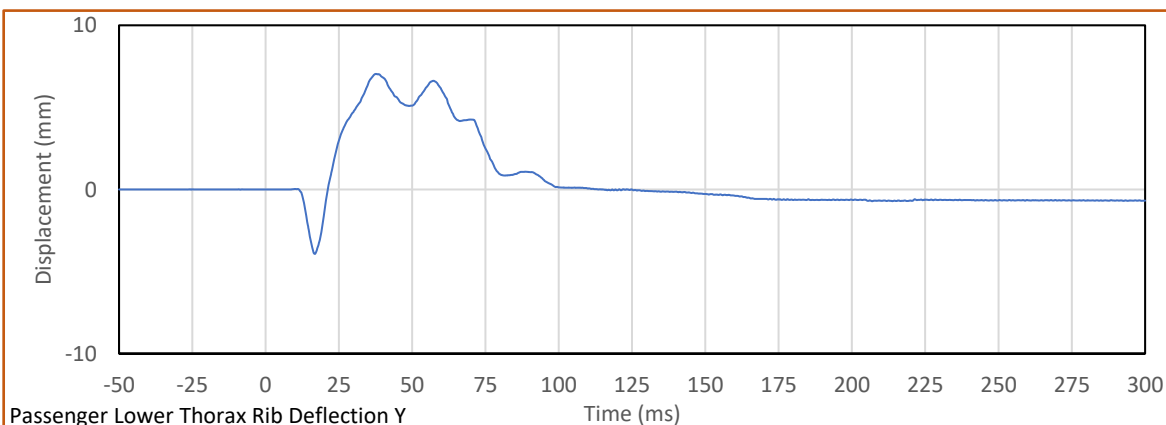
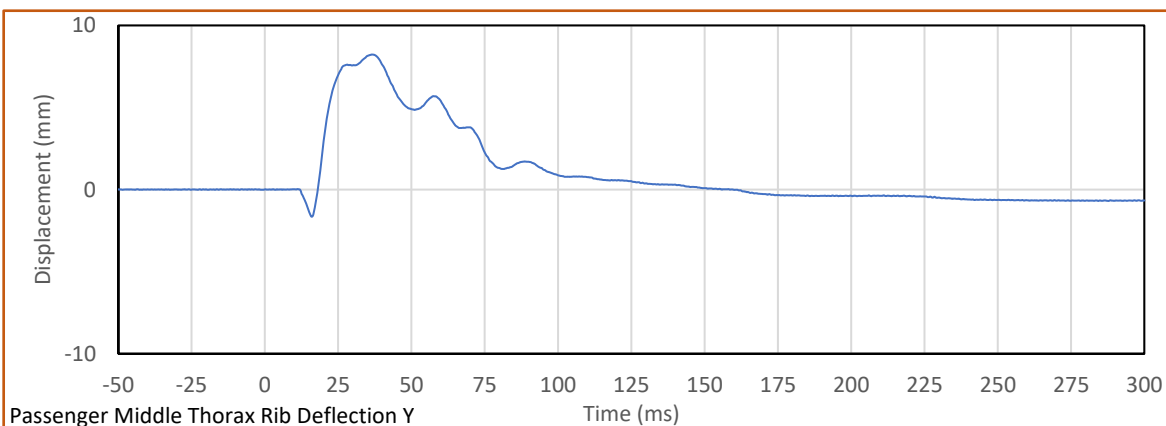
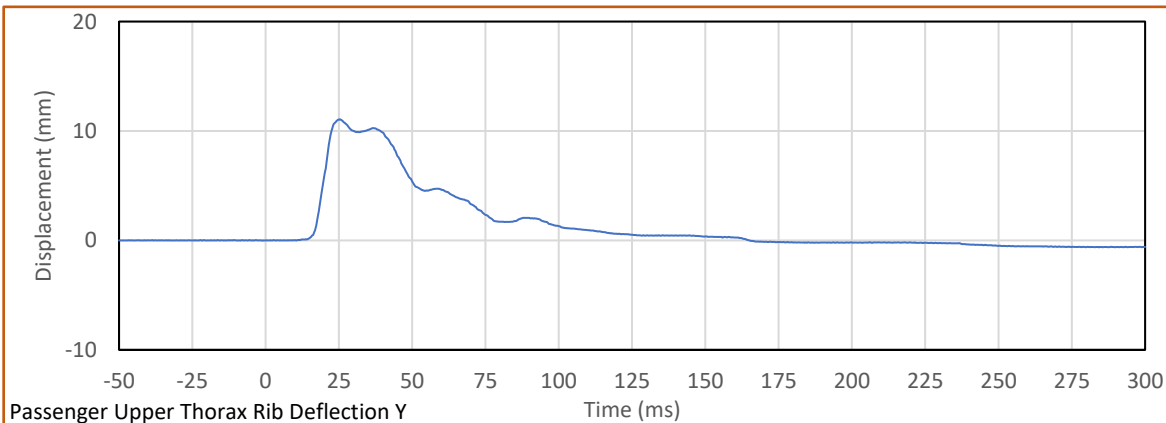




Test Vehicle: 2024 Vinfast VF8 5-Door SUV
Test Program: NCAP MDB Side Impact Test

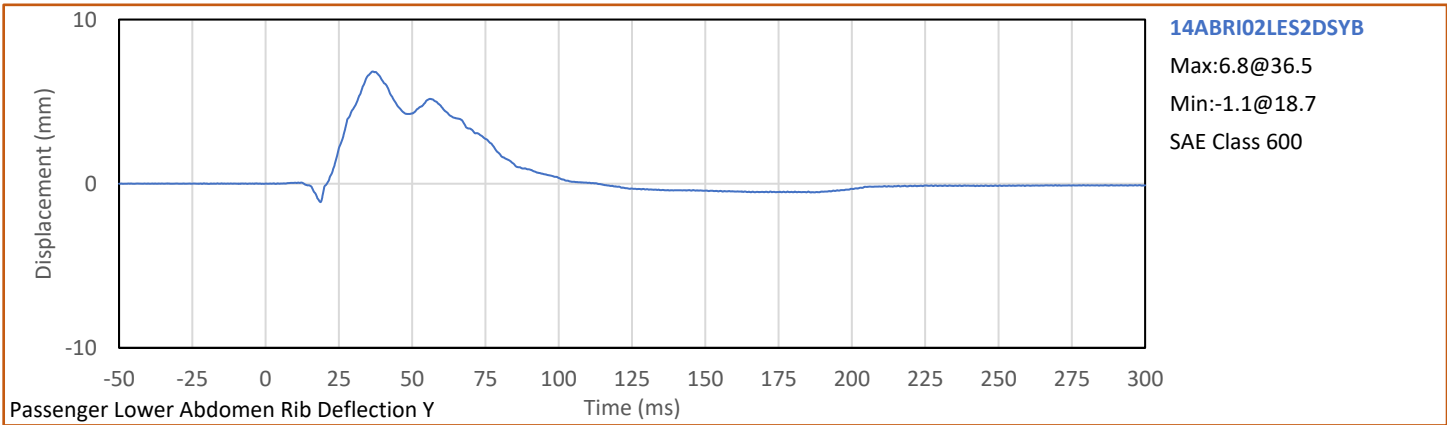
NHTSA No.: M20244702
Test Date: 7/17/2024





Test Vehicle: 2024 Vinfast VF8 5-Door SUV
Test Program: NCAP MDB Side Impact Test

NHTSA No.: M20244702
Test Date: 7/17/2024



APPENDIX C
ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C

**Pre-Test ATD Qualification and Performance Verification
ES-2re 50th Male Side Impact ATD, Left Side Configuration
S/N: F037**

ATD Serial No.: F037

Test Date: 2024-06-27

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	42	Pass
1 - Sitting Height	mm	900	918	912	Pass
2 - Seat to Shoulder Joint	mm	558	572	569	Pass
3 - Seat to Lower Face of Thoracic Spine Box	mm	346	356	351	Pass
4 - Seat to Hip Joint (bolt center)	mm	97	103	102	Pass
5 - Sole to Seat, Sitting	mm	433	451	438	Pass
6 - Head Width	mm	152	158	158	Pass
7 - Shoulder/Arm Width	mm	461	479	472	Pass
8 - Thorax Width	mm	322	332	327	Pass
9 - Abdomen Width	mm	273	287	283	Pass
10 - Pelvis Lap Width	mm	359	373	364	Pass
11 - Head Depth	mm	196	206	200	Pass
12 - Thorax Depth	mm	262	272	268	Pass
13 - Abdomen Depth	mm	194	204	199	Pass
14 - Pelvis Depth	mm	235	245	241	Pass
15 - Back of Buttocks to Hip Joint (bolt Center)	mm	150	160	152	Pass
16 - Back of Buttocks to Front Knee	mm	597	615	604	Pass
				Overall Test Results	Pass

Technician:



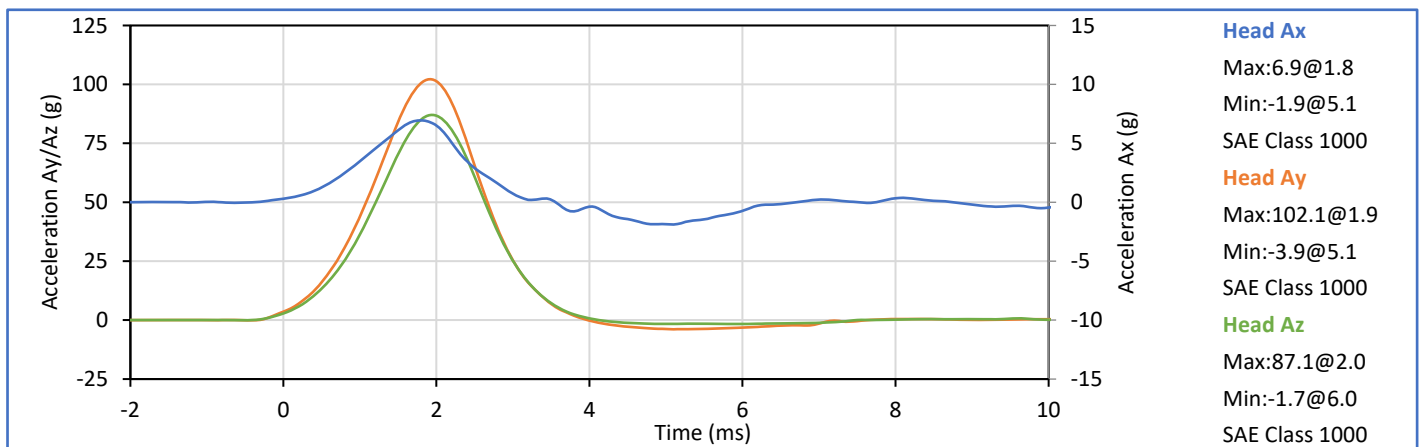
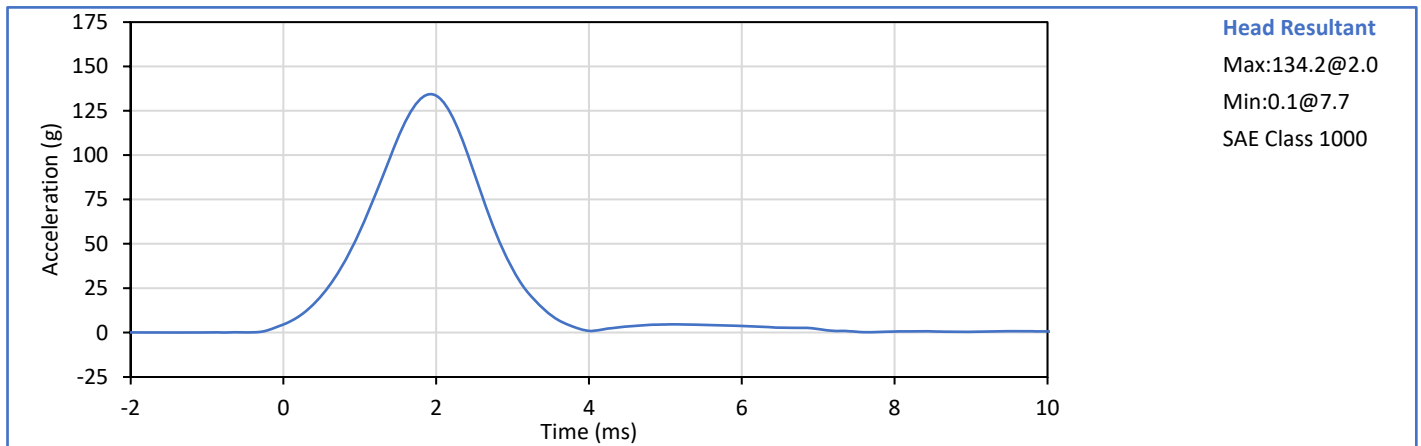
G. Fuentes

Approved By:



J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.4	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Peak Resultant Acceleration	g	125.0	155.0	134.2	Pass
Peak Head Ax	g	-15.0	15.0	6.9	Pass
Oscillations After Main Pulse	%	0.0	15.0	2.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



Technician:

G. Fuentes

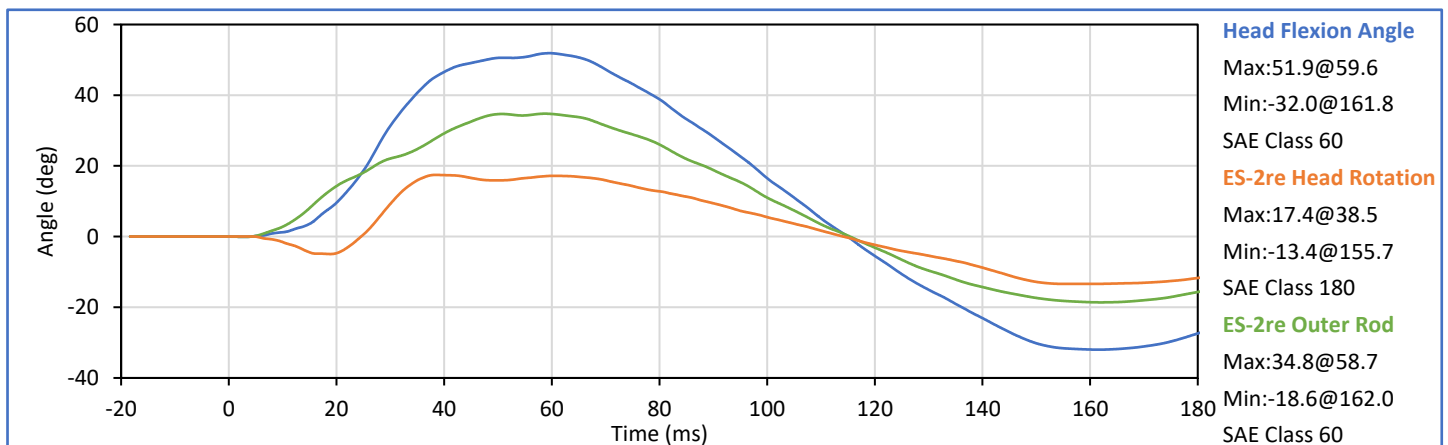
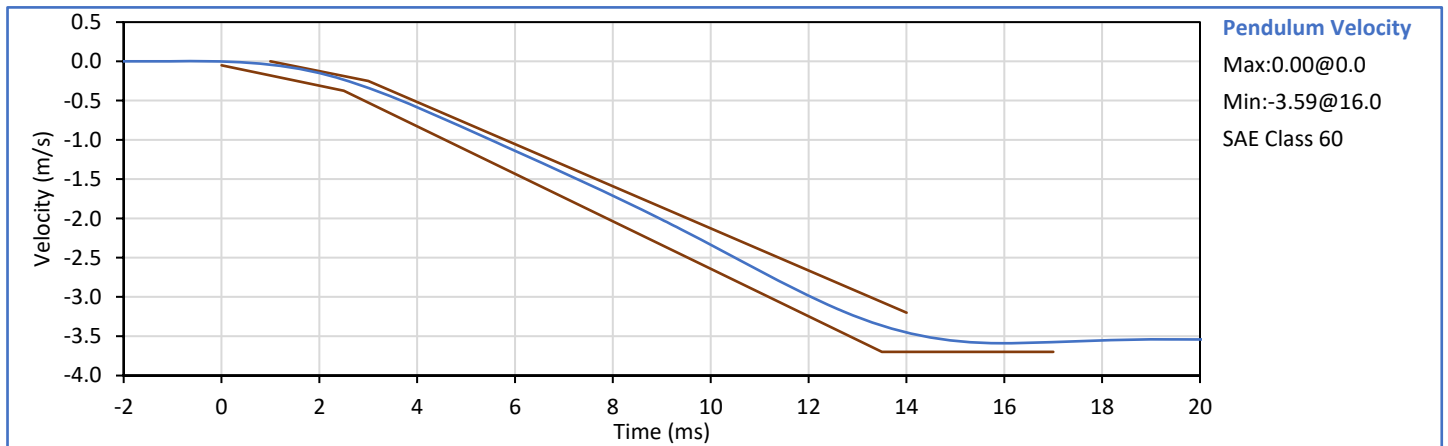
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Pendulum Velocity	m/s	3.30	3.50	3.43	Pass
Peak Headform Flexion	deg	49.0	59.0	51.9	Pass
Time of Peak Headform Flexion	ms	54.0	66.0	59.6	Pass
Flexion Decay (Peak to zero)	ms	53.0	88.0	55.4	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

G. Fuentes

Approved By:

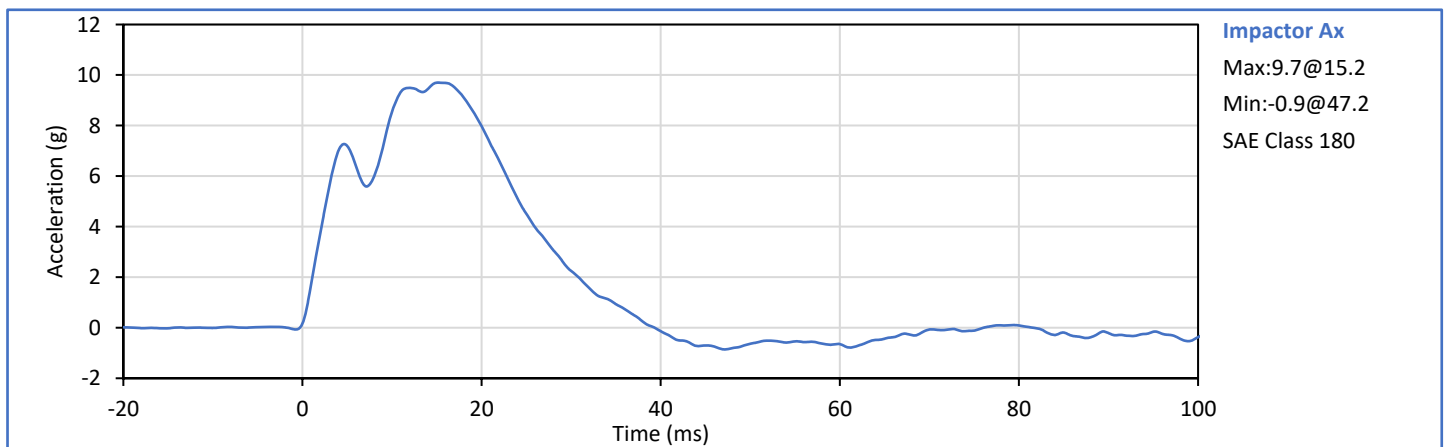
J. Hernandez

J. Hernandez

ATD Serial No.: F037

Test Date: 2024-06-27

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	46	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Impactor Ax	g	7.5	10.5	9.7	Pass
				Overall Test Results	Pass



Technician:

G. Fuentes

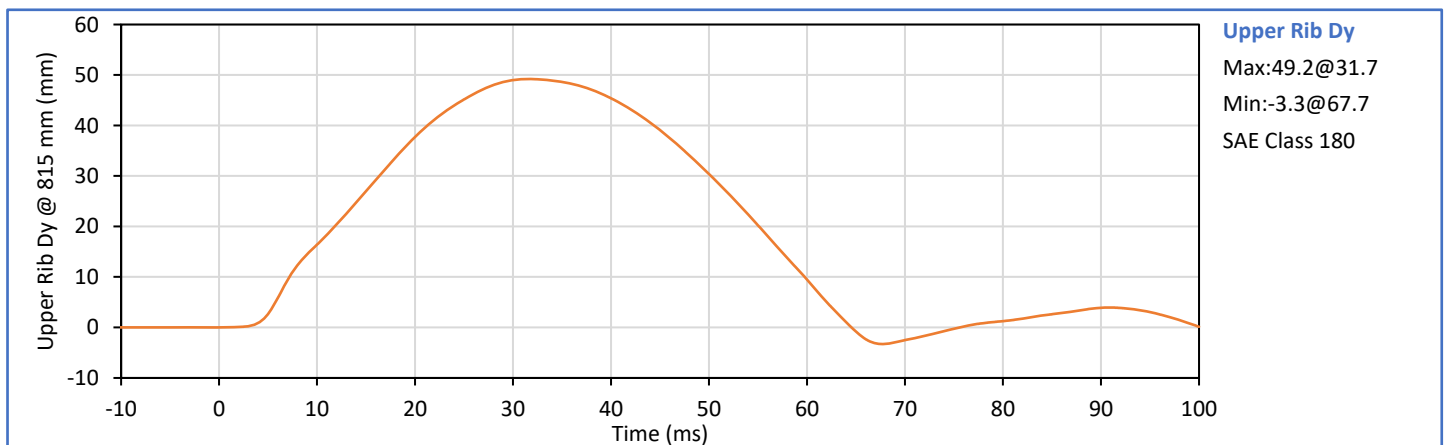
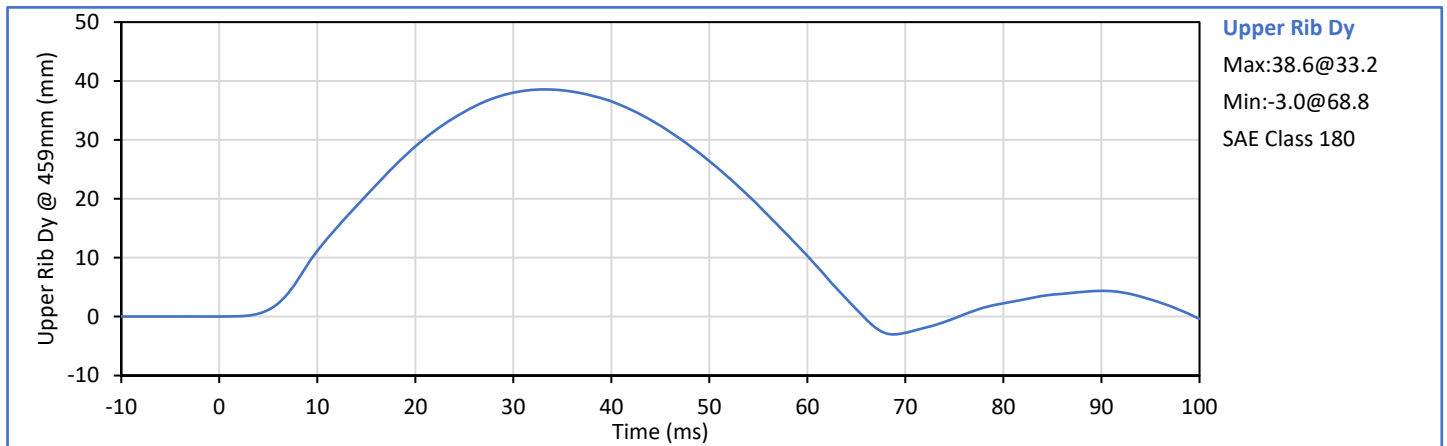
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Upper Rib Dy @ 459mm	mm	36.0	40.0	38.6	Pass
Upper Rib Dy @ 815mm	mm	46.0	51.0	49.2	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

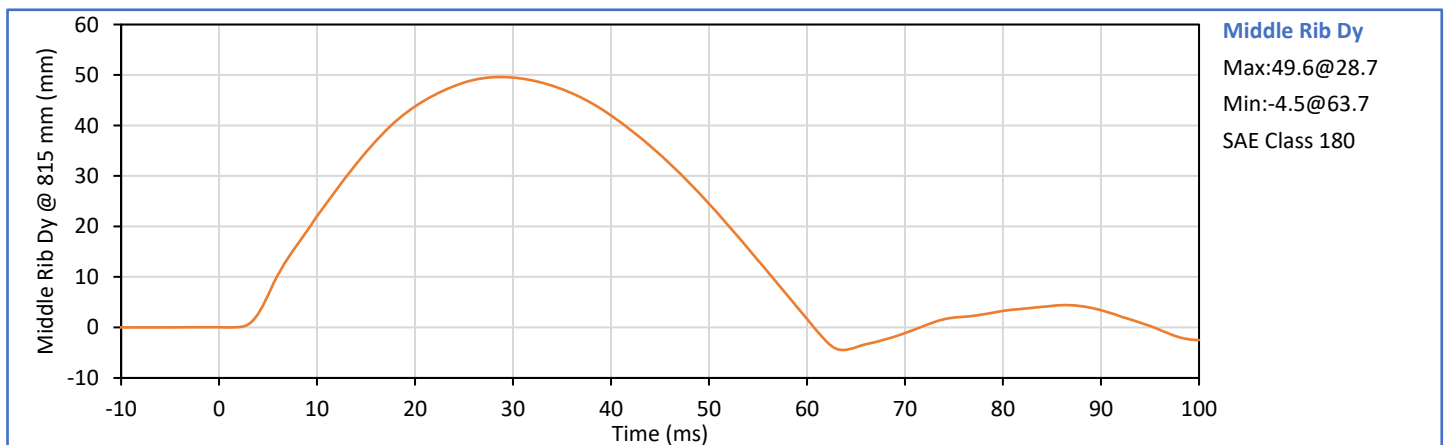
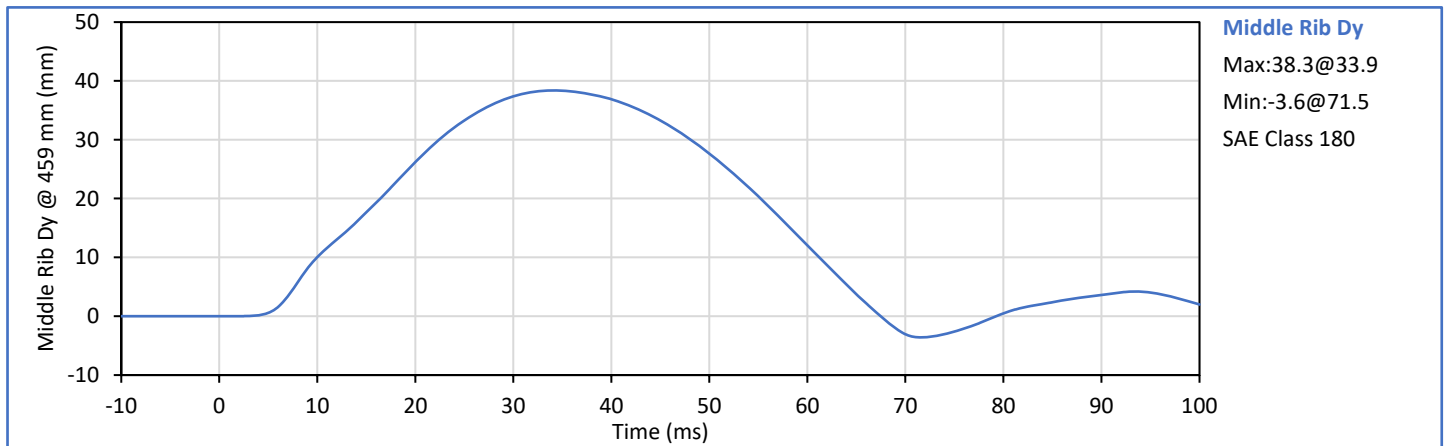
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Middle Rib Dy @ 459mm	mm	36.0	40.0	38.3	Pass
Middle Rib Dy @ 815mm	mm	46.0	51.0	49.6	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

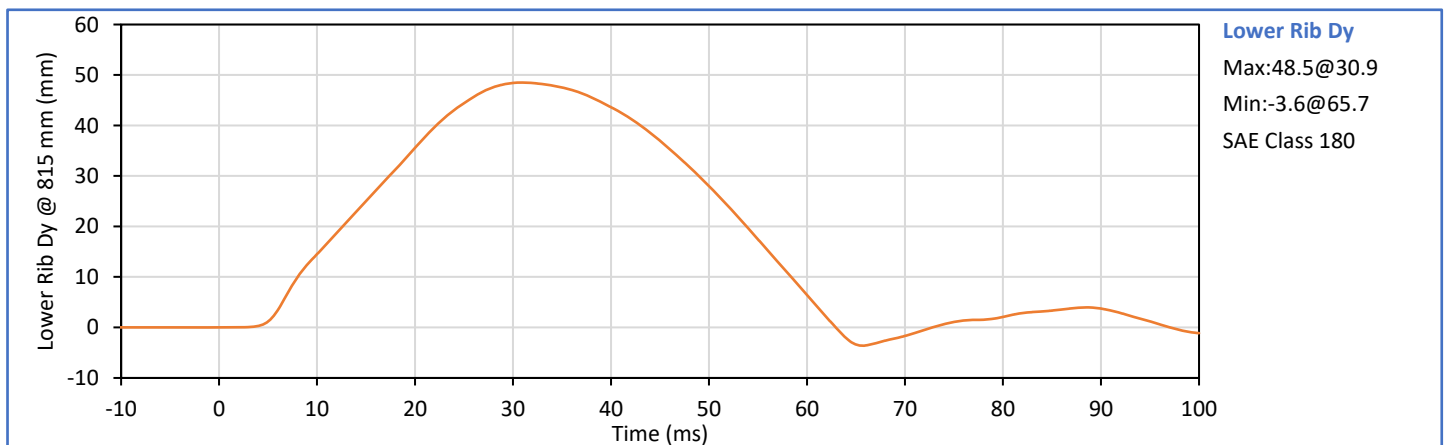
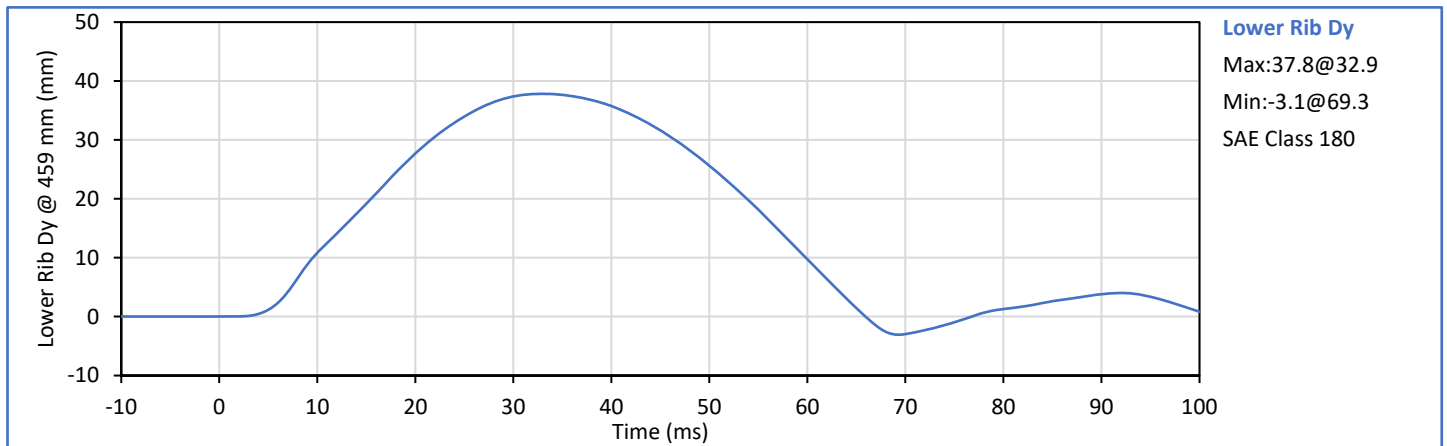
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Lower Rib Dy @ 459mm	mm	36.0	40.0	37.8	Pass
Lower Rib Dy @ 815mm	mm	46.0	51.0	48.5	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

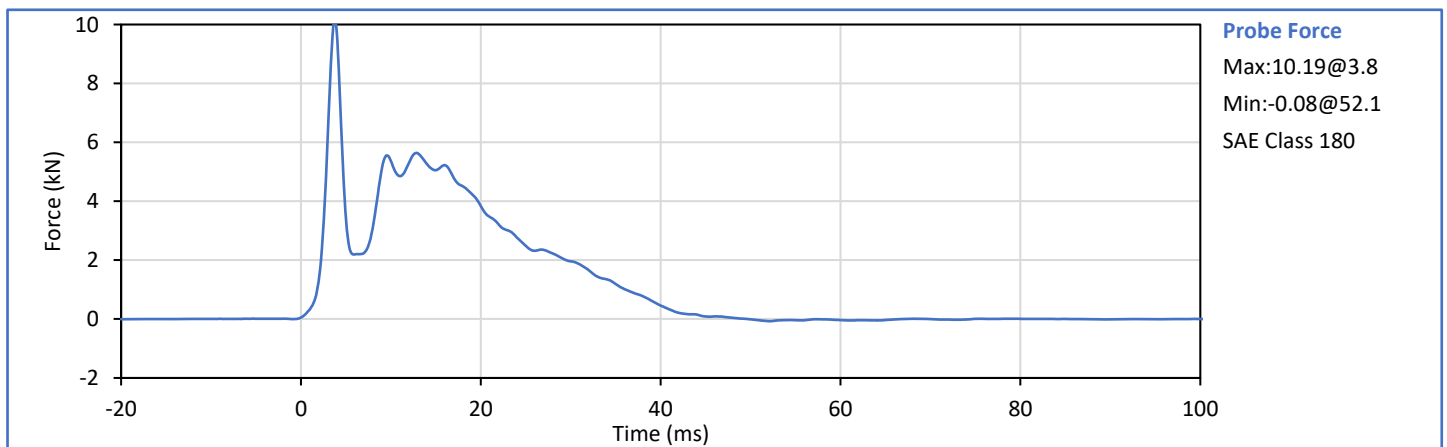
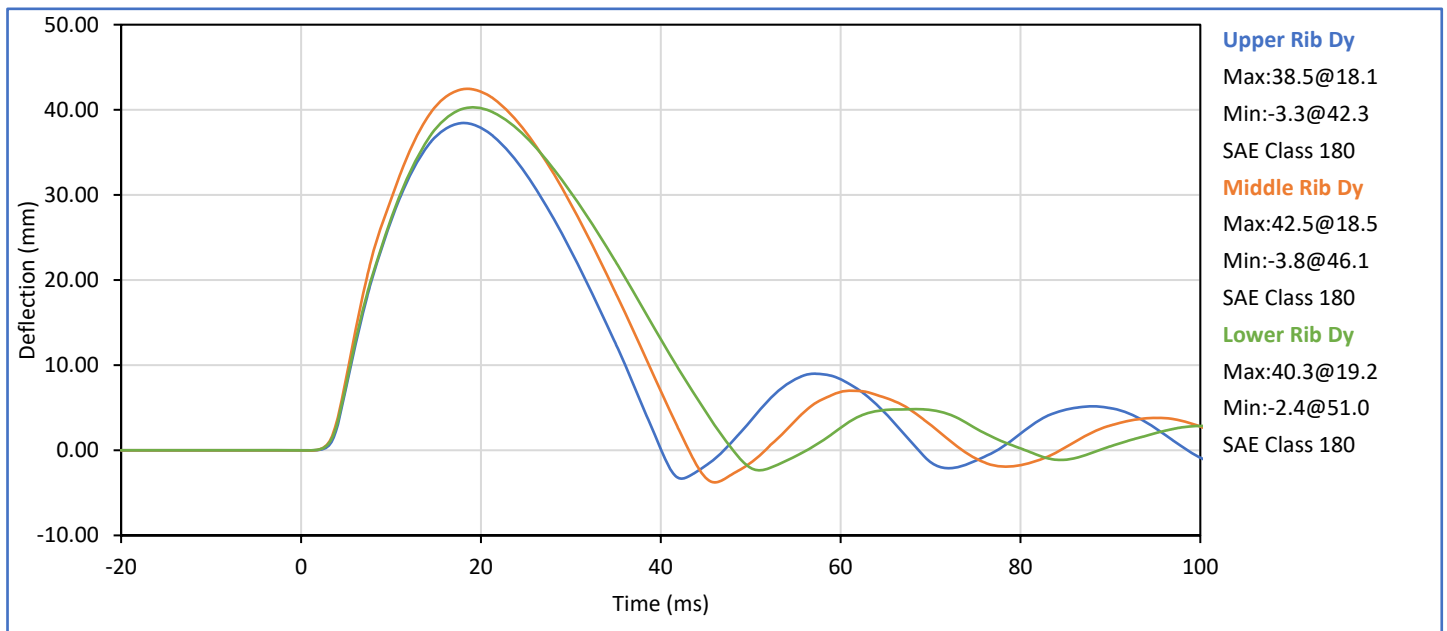
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	48	Pass
Impactor Velocity	m/s	5.40	5.60	5.51	Pass
Peak Upper Rib Dy	mm	34.0	41.0	38.5	Pass
Peak Middle Rib Dy	mm	37.0	45.0	42.5	Pass
Peak Lower Rib Dy	mm	37.0	44.0	40.3	Pass
Peak Impactor Force After 6 ms	kN	5.10	6.20	5.64	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

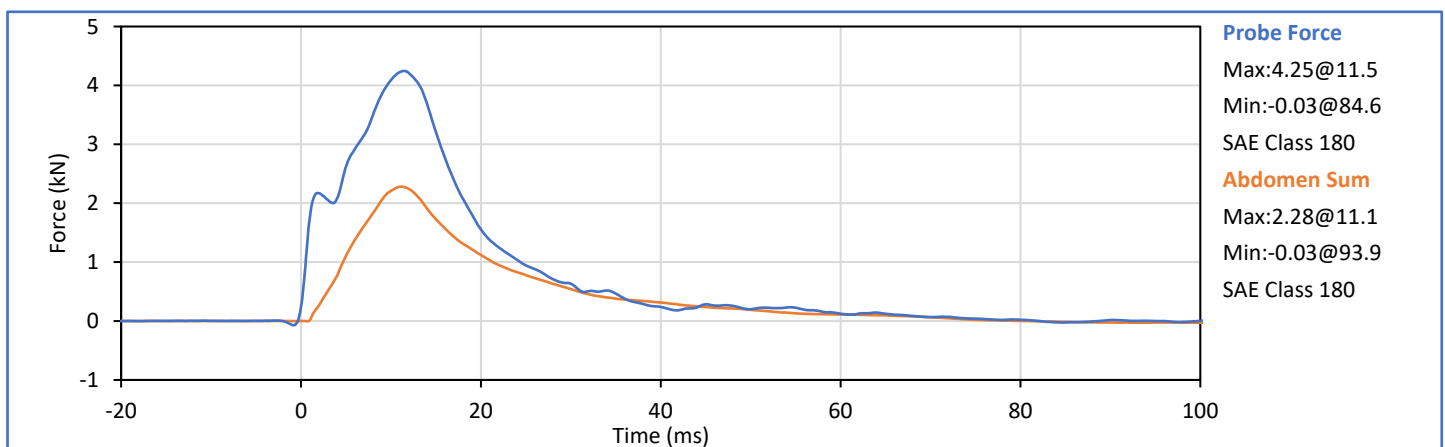
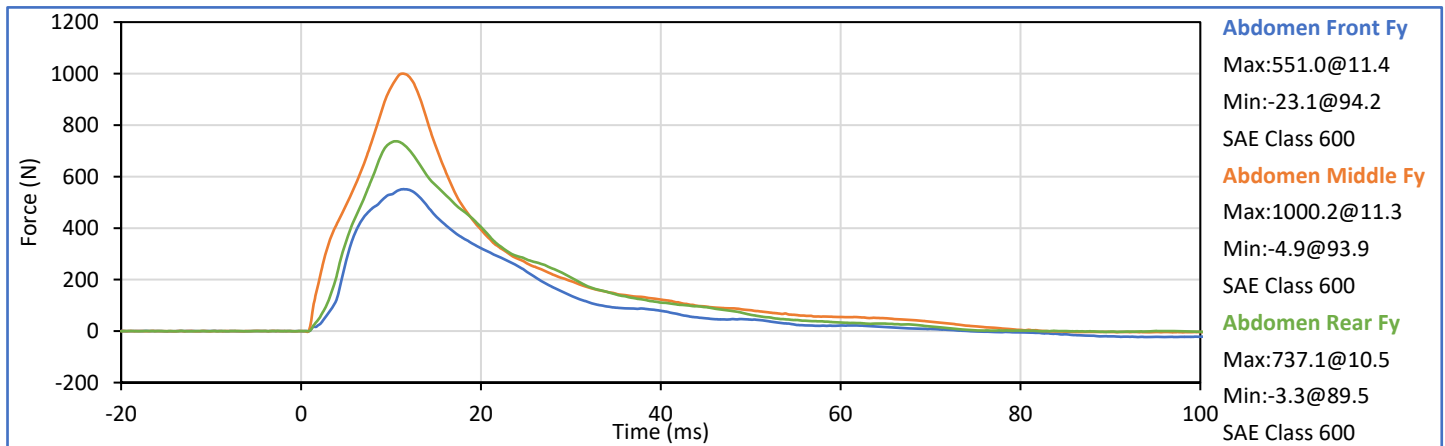
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	45	Pass
Impactor Velocity	m/s	3.90	4.10	3.96	Pass
Peak Impactor Force	kN	4.00	4.80	4.25	Pass
Time of Peak Impactor Force	ms	10.6	13.0	11.5	Pass
Sum of Abdomen Forces	kN	2.20	2.70	2.28	Pass
Time of Peak Sum Abdomen Force	ms	10.0	12.3	11.1	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

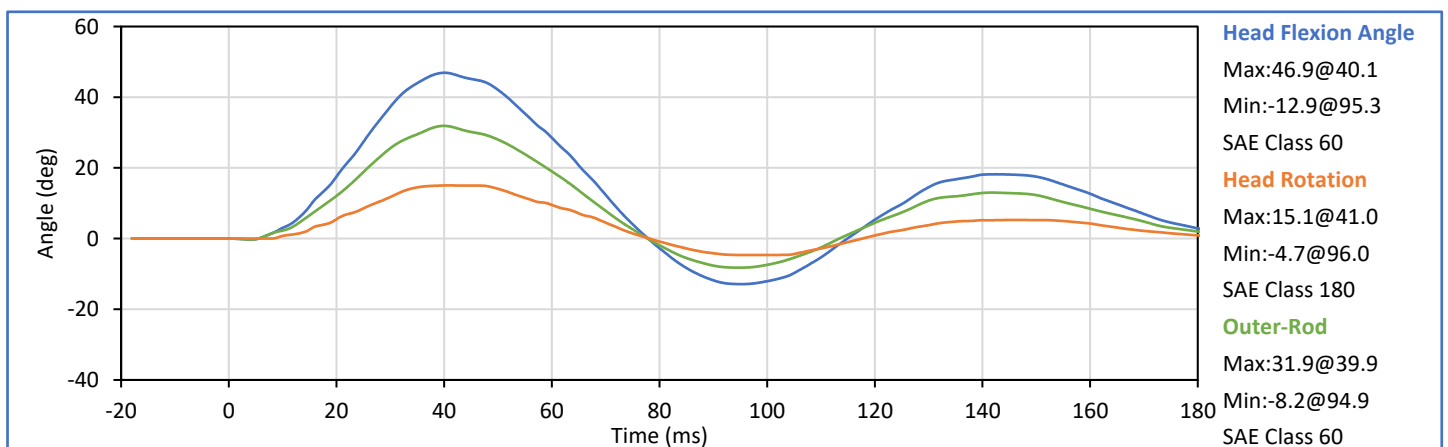
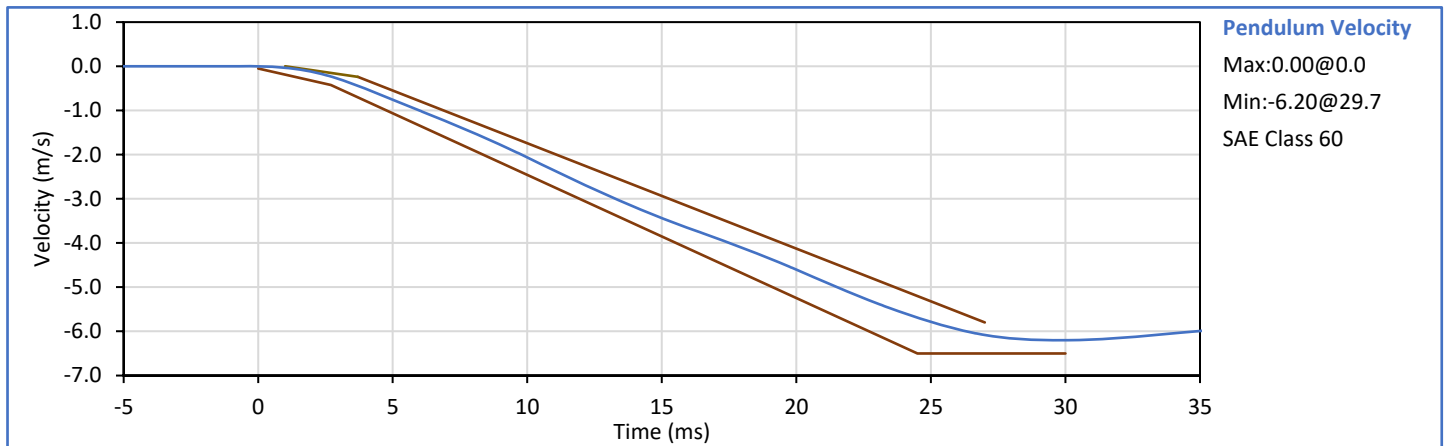
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	42	Pass
Pendulum Velocity	m/s	5.95	6.15	6.03	Pass
Peak Headform Flexion	deg	45.0	55.0	46.9	Pass
Time of Peak Headform Flexion	ms	39.0	53.0	40.1	Pass
Flexion Decay (Peak to zero)	ms	37.0	57.0	37.8	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

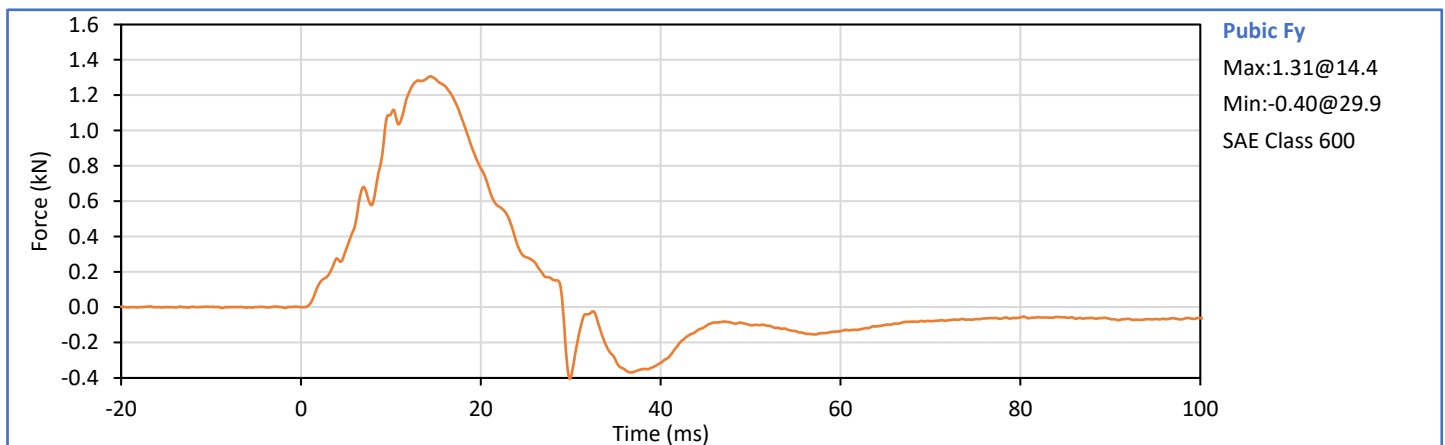
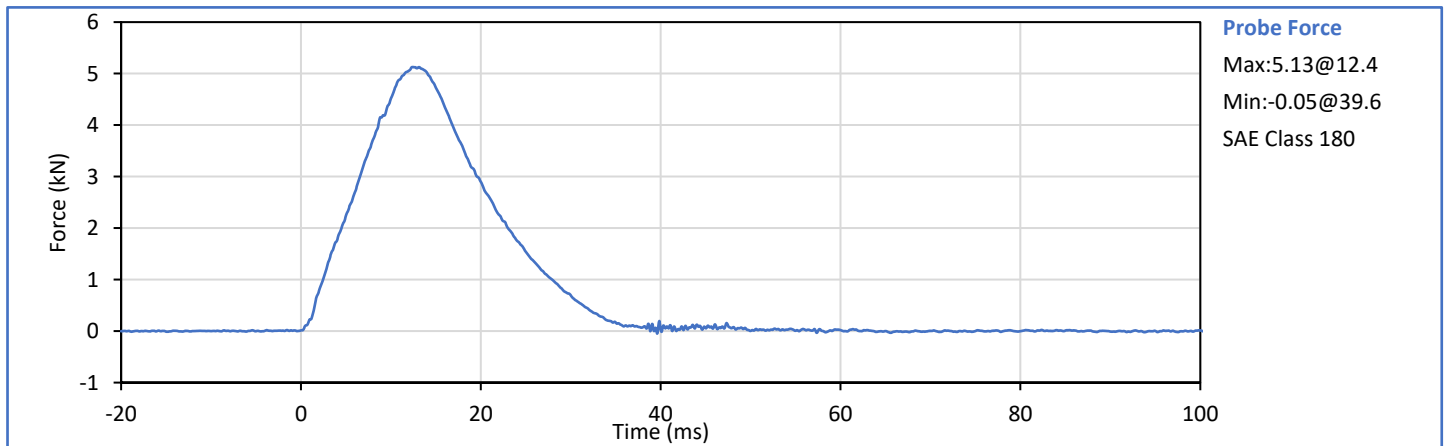
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Impactor Force	kN	4.70	5.40	5.13	Pass
Time of Peak Impactor Force	ms	11.8	16.1	12.4	Pass
Pubic Symphysis Fy	kN	1.23	1.59	1.31	Pass
Time of Peak Pubic Symphysis Fy	ms	12.2	17.0	14.4	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

APPENDIX C

Pre-Test ATD Qualification and Performance Verification

SID-IIs Small Side Impact ATD, Left Side Configuration

S/N: 299

ATD Serial No.: 299

Test Date: 2024-06-26

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	50	Pass
A - Sitting Height	mm	772	788	778	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	85	Pass
D - H Point From Seatback	mm	141	151	144	Pass
E - Shoulder Pivot From Backline	mm	97	107	106	Pass
F - Thigh Clearance	mm	119	135	130	Pass
G - Head Breadth	mm	140	148	146	Pass
H - Head Back From Backline	mm	40	46	44	Pass
I - Head Depth	mm	178	188	182	Pass
J - Head Circumference	mm	541	551	550	Pass
K - Buttock To Knee Length	mm	514	540	523	Pass
L - Popliteal Height	mm	343	369	356	Pass
K - Knee Pivot To Floor Height	mm	392	409	403	Pass
N - Buttock Popliteal Length	mm	416	442	429	Pass
O - Chest Depth W/O Jacket	mm	195	211	203	Pass
P - Foot Length	mm	216	232	220	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	321	Pass
R - Arm Length	mm	249	259	254	Pass
S - Knee Joint To Seatback	mm	477	493	489	Pass
V - Shoulder Width	mm	341	357	348	Pass
W - Foot Width	mm	78	94	88	Pass
Y - Chest Circumference W/Jacket	mm	851	881	859	Pass
Z - Waist Circumference	mm	761	791	771	Pass
				Overall Test Results	Pass

Technician:



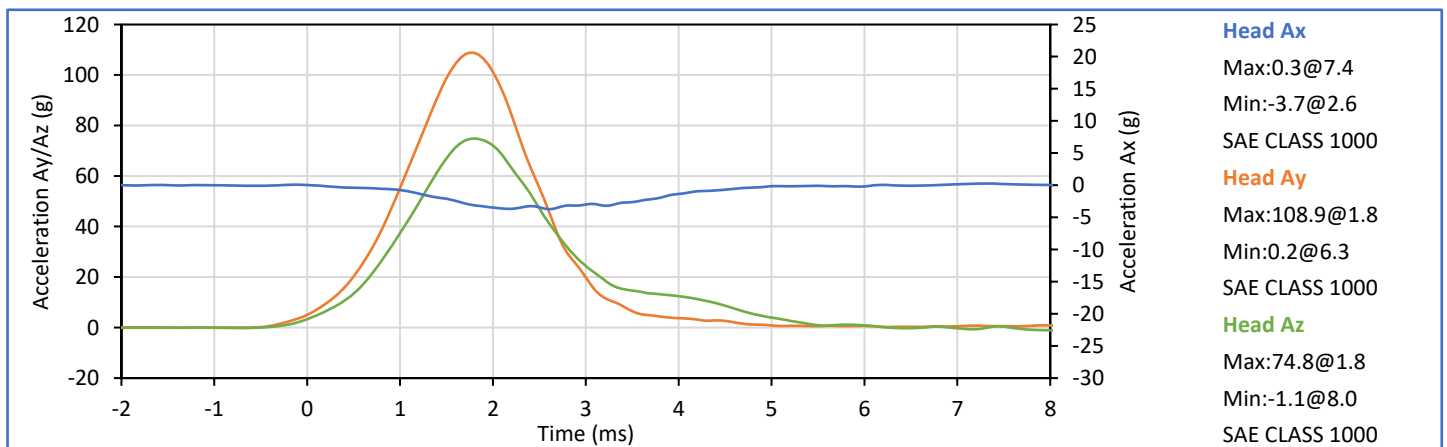
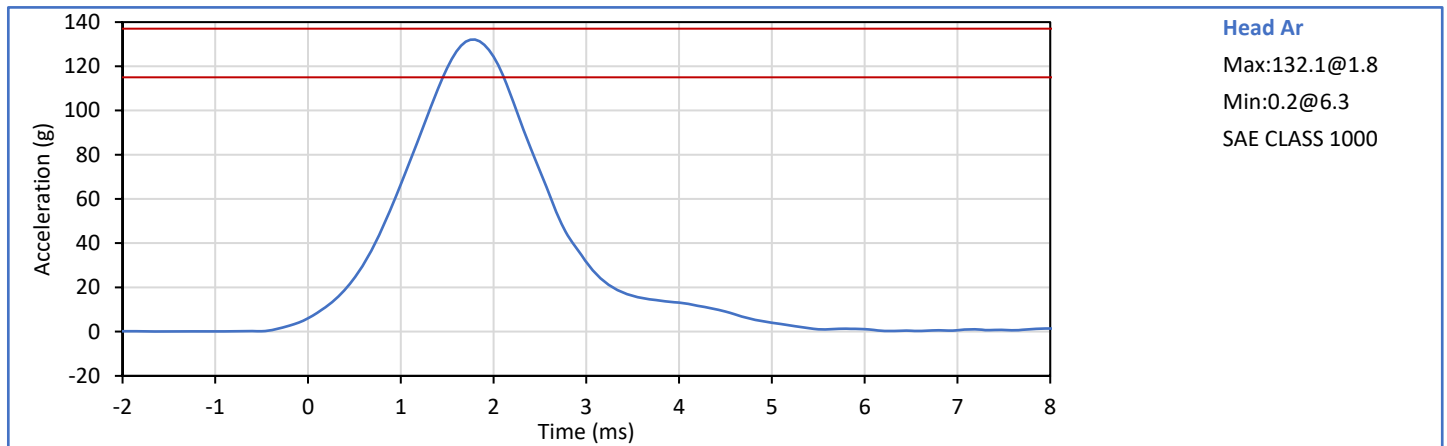
G. Fuentes

Approved By:



J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	20.6	Pass
Laboratory Relative Humidity	%	10	70	44	Pass
Peak Resultant Acceleration	g	115.0	137.0	132.1	Pass
Peak Head Ax	g	-15.0	15.0	-3.7	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



Technician:

G. Fuentes

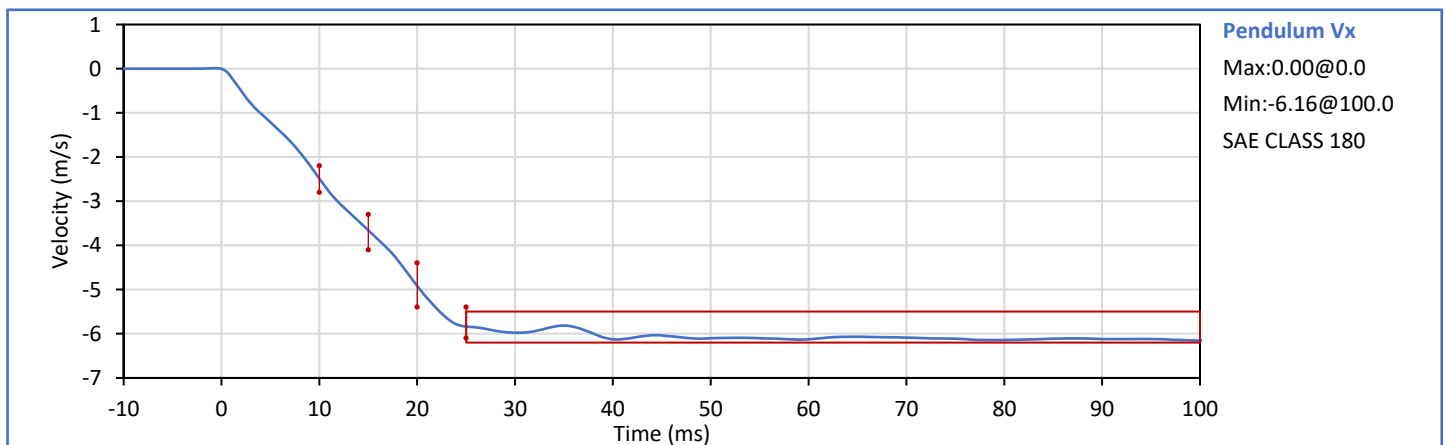
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	45	Pass
Pendulum Velocity	m/s	5.51	5.63	5.58	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.49	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.66	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-4.92	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-5.84	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-6.16/-5.82	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-74.4	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	60.2	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	39.4	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	113.7	Pass
				Overall Test Results	Pass



Technician:

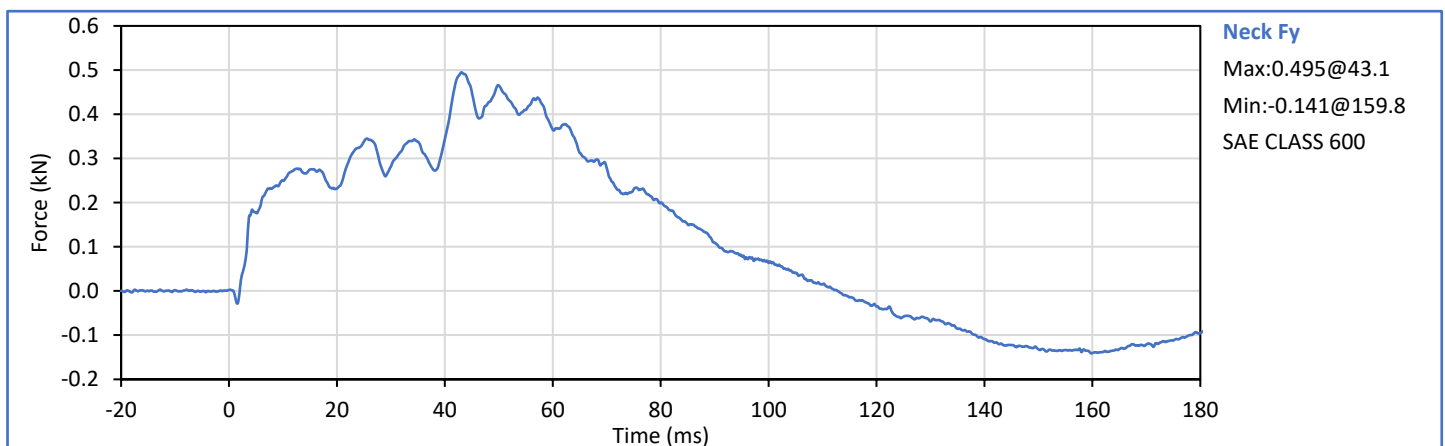
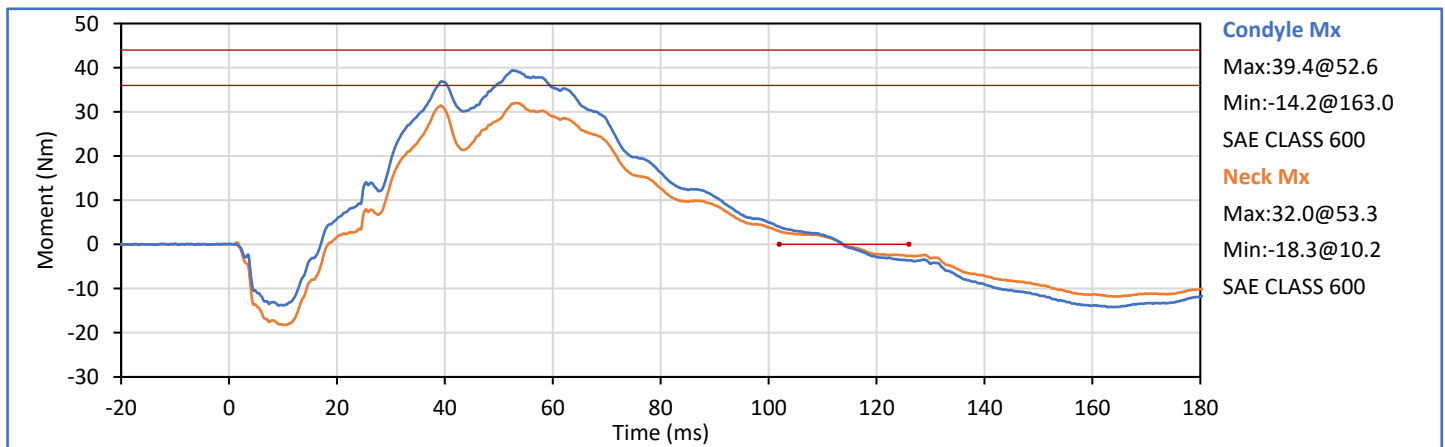
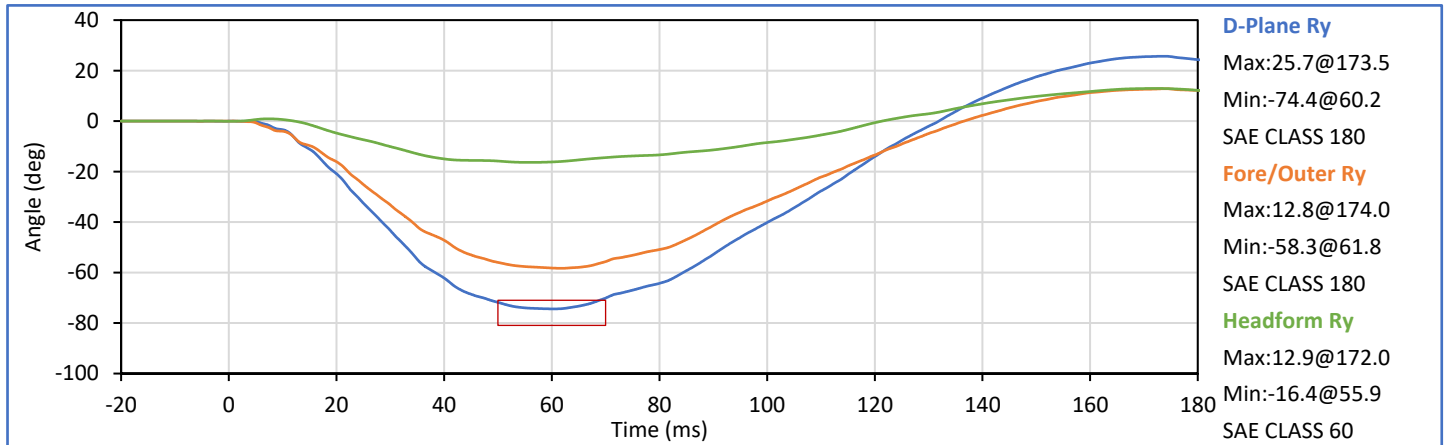
G. Fuentes

G. Fuentes

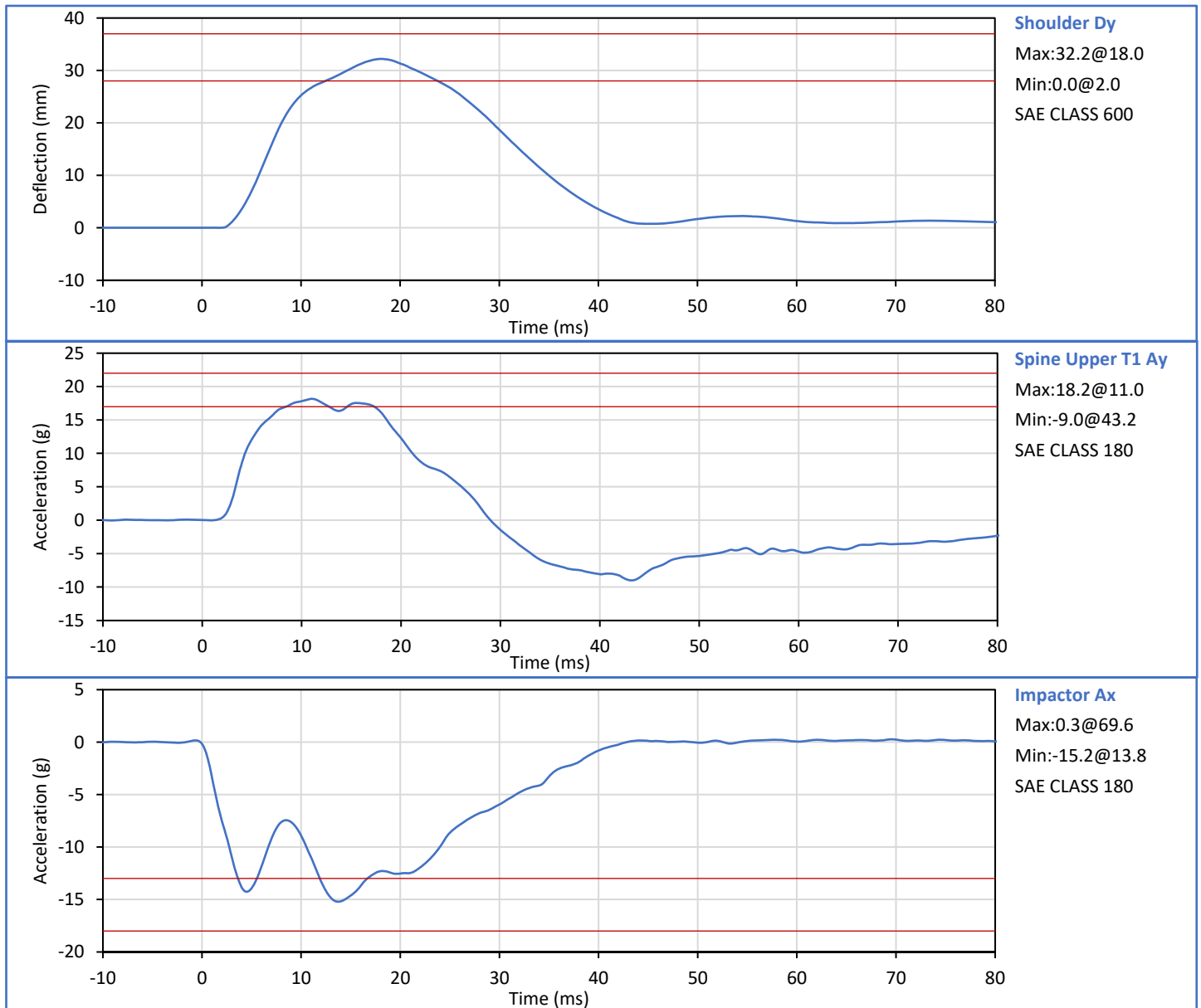
Approved By:

J. Hernandez

J. Hernandez



Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	42	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Shoulder Dy	mm	28.0	37.0	32.2	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	18.2	Pass
Peak Impactor Ax	g	-18.0	-13.0	-15.2	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

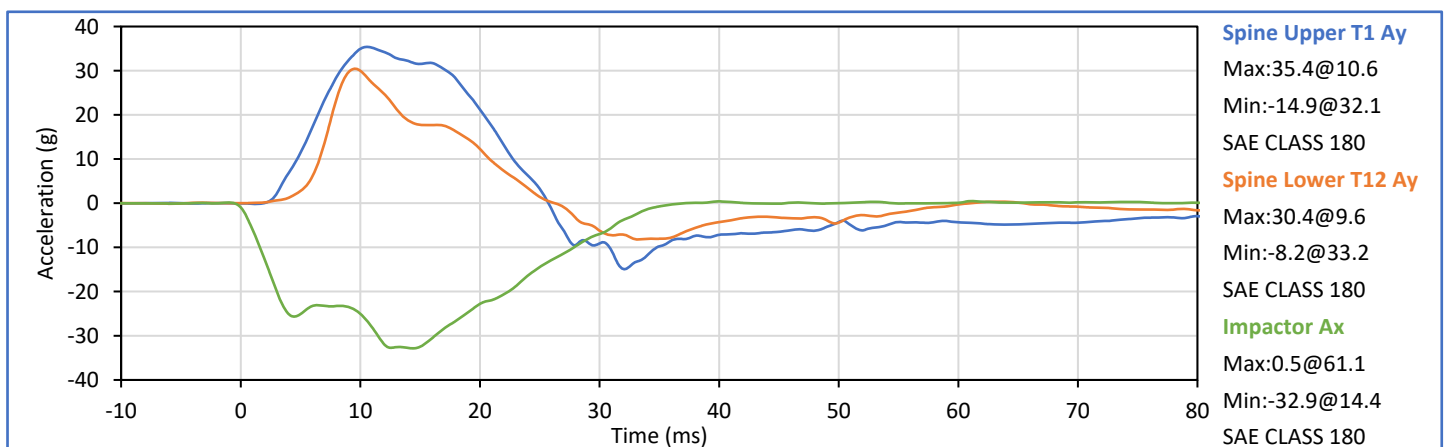
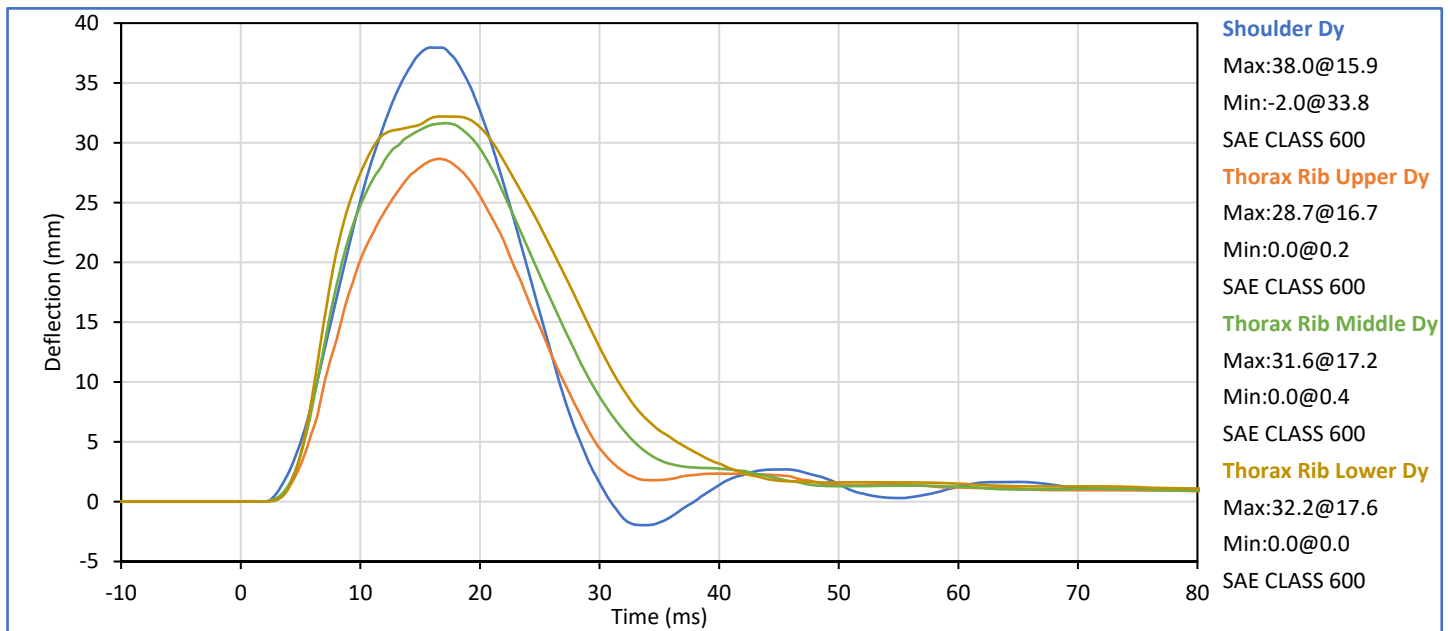
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	20.9	Pass
Laboratory Relative Humidity	%	10	70	44	Pass
Impactor Velocity	m/s	6.60	6.80	6.65	Pass
Peak Shoulder Dy	mm	31.0	40.0	38.0	Pass
Peak Upper Rib Dy	mm	25.0	32.0	28.7	Pass
Peak Middle Rib Dy	mm	30.0	36.0	31.6	Pass
Peak Lower Rib Dy	mm	32.0	38.0	32.2	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	35.4	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	30.4	Pass
Peak Impactor Ax	g	-36.0	-30.0	-32.9	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

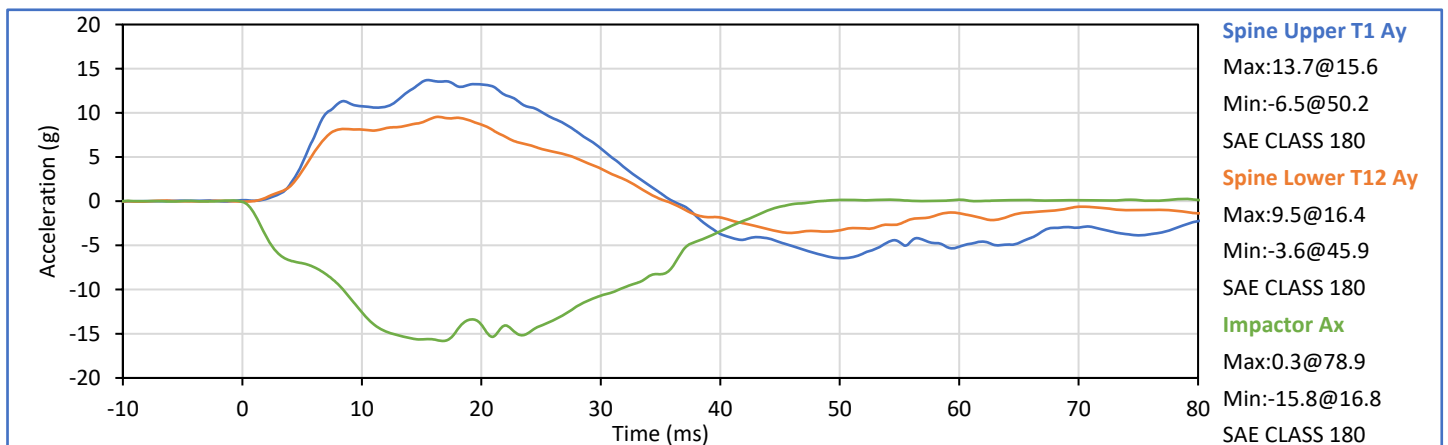
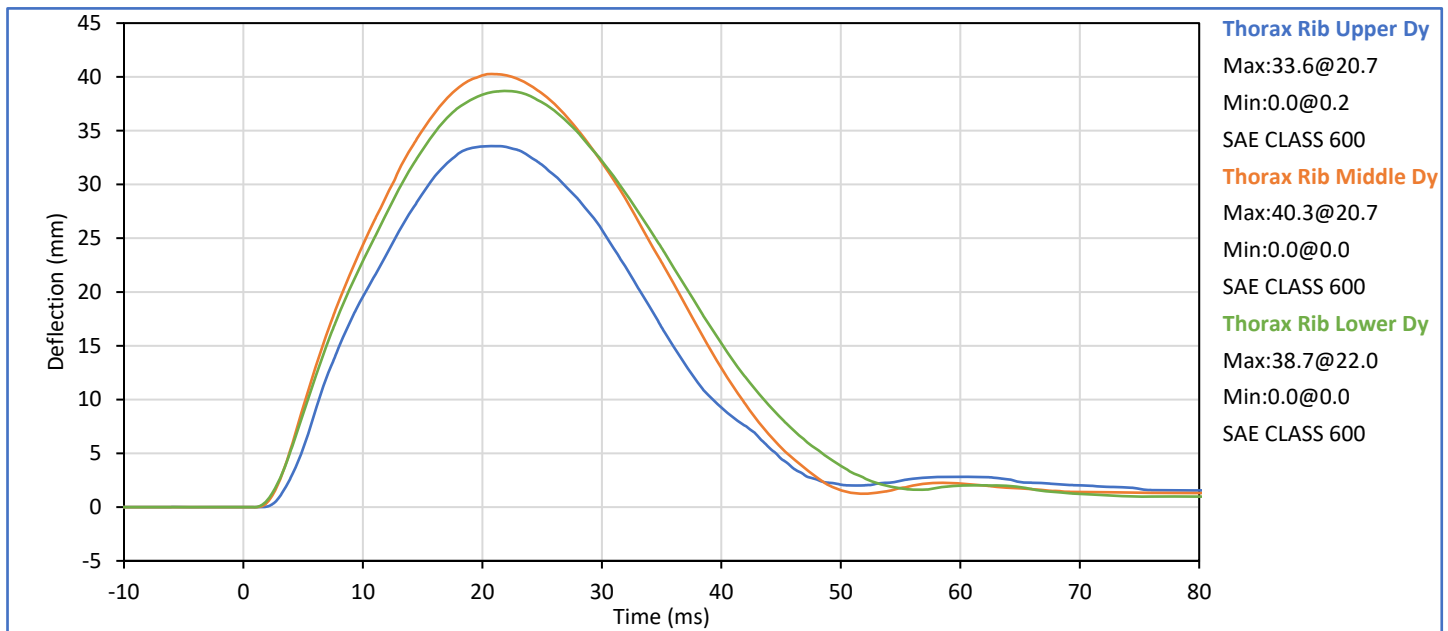
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	50	Pass
Impactor Velocity	m/s	4.20	4.40	4.30	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	33.6	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	40.3	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	38.7	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	13.7	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	9.5	Pass
Peak Impactor Ax	g	-18.0	-14.0	-15.8	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

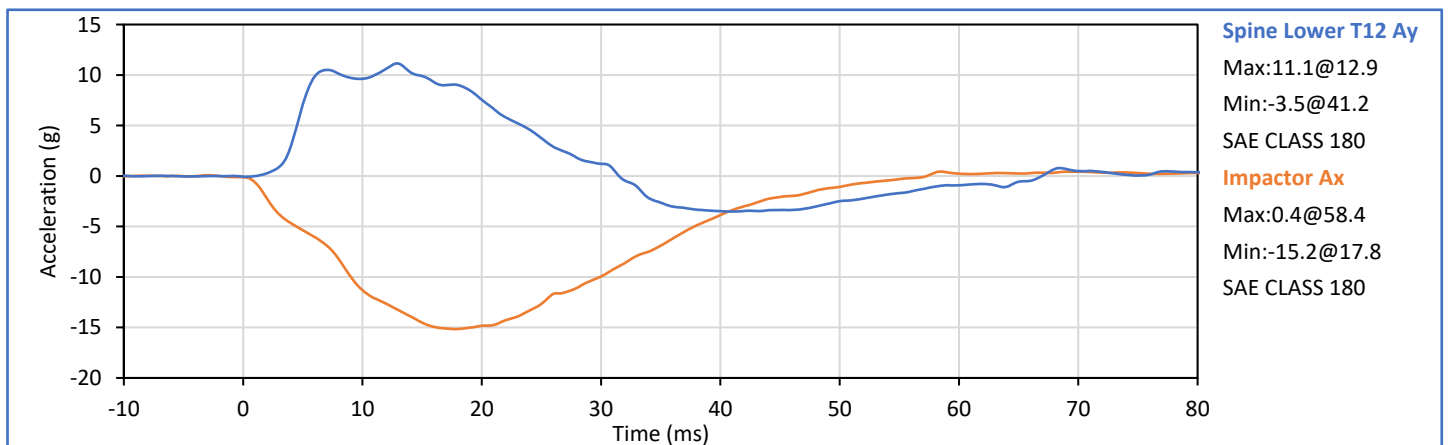
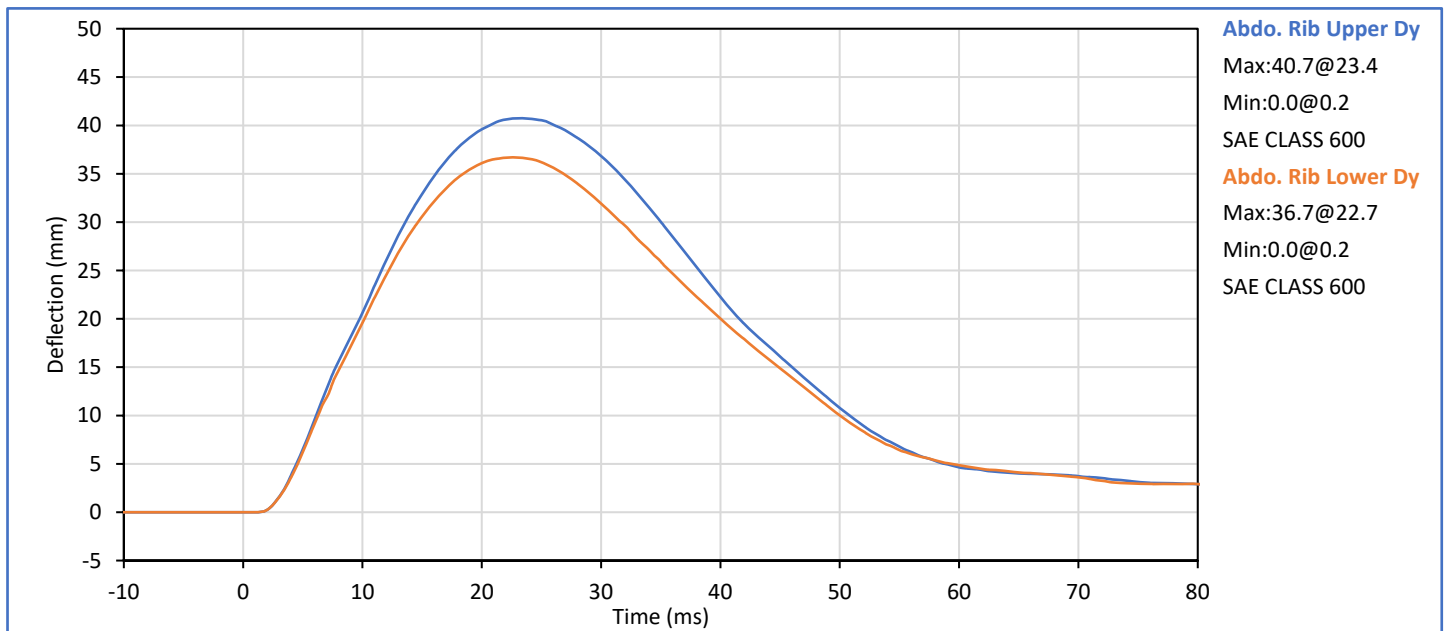
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	50	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	40.7	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	36.7	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	11.1	Pass
Peak Impactor Ax	g	-16.0	-12.0	-15.2	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

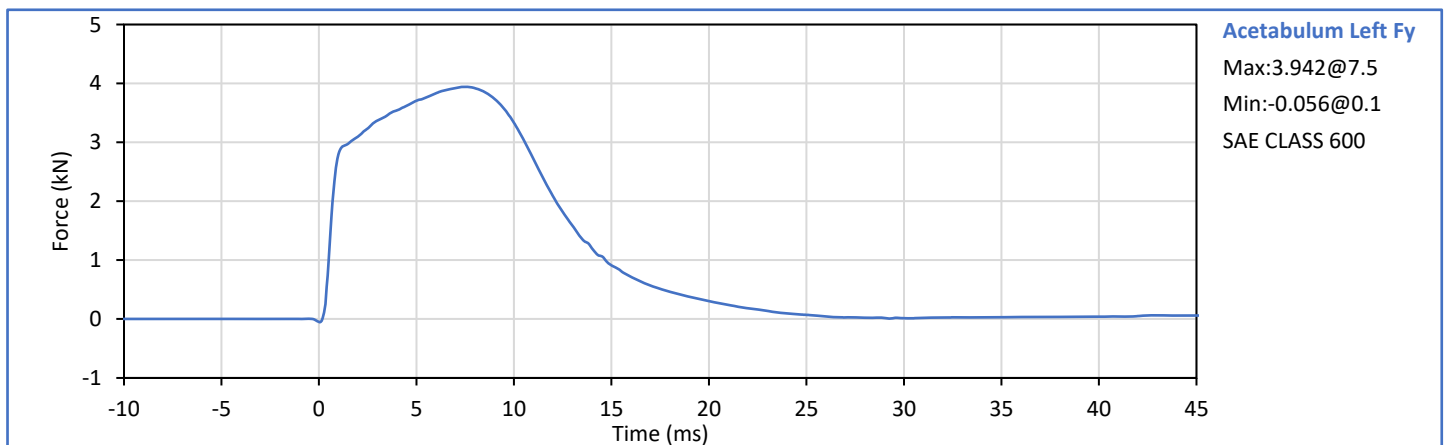
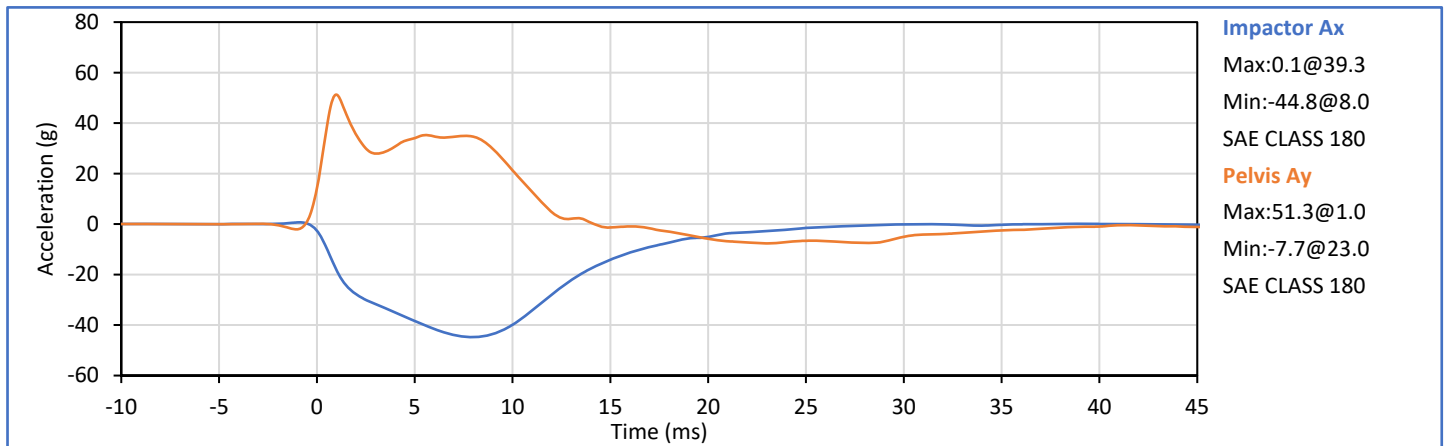
J. Hernandez

ATD Serial No.: 299

Test Date: 2024-06-26

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	50	Pass
Impactor Velocity	m/s	6.60	6.80	6.69	Pass
Peak Acetabulum Fy	kN	3.60	4.30	3.94	Pass
Pelvis Ay after 6ms	g	34.0	42.0	35.0	Pass
Peak Impactor Ax	g	-47.0	-38.0	-44.8	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 16756



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

J. Hernandez



SID-IIs Pelvis Plug Certification Test

Plug S/N 16756

Test Number 23559

Report Number 23616

Test Date 7/22/2022 1:46:52 PM

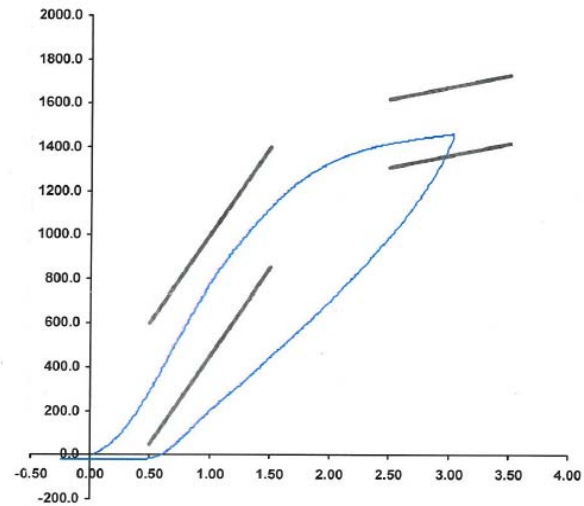
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	293	50	600
Force @ 1.5 mm (N)	1,123	850	1,400
Force @ 2.5 mm (N)	1,417	1,306	1,618
Force @ 3.0 mm (N)	1,459	1,361	1,673

Testing Machine STM-20 5965542
Load Cell S/N (F1360947), 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 22-Jul-22

SACO Research

By: De Date: 7/22/22

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

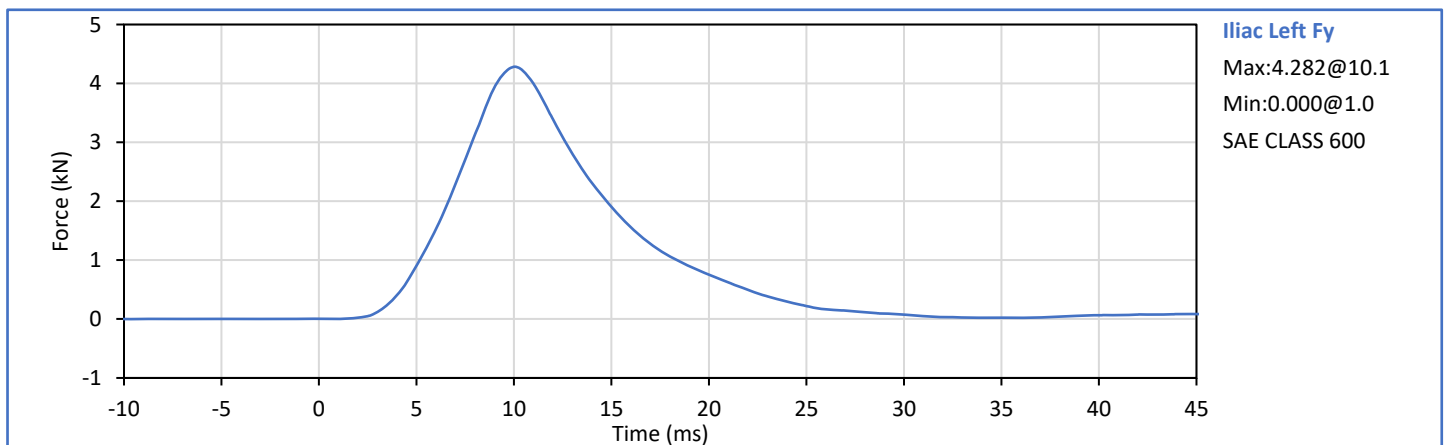
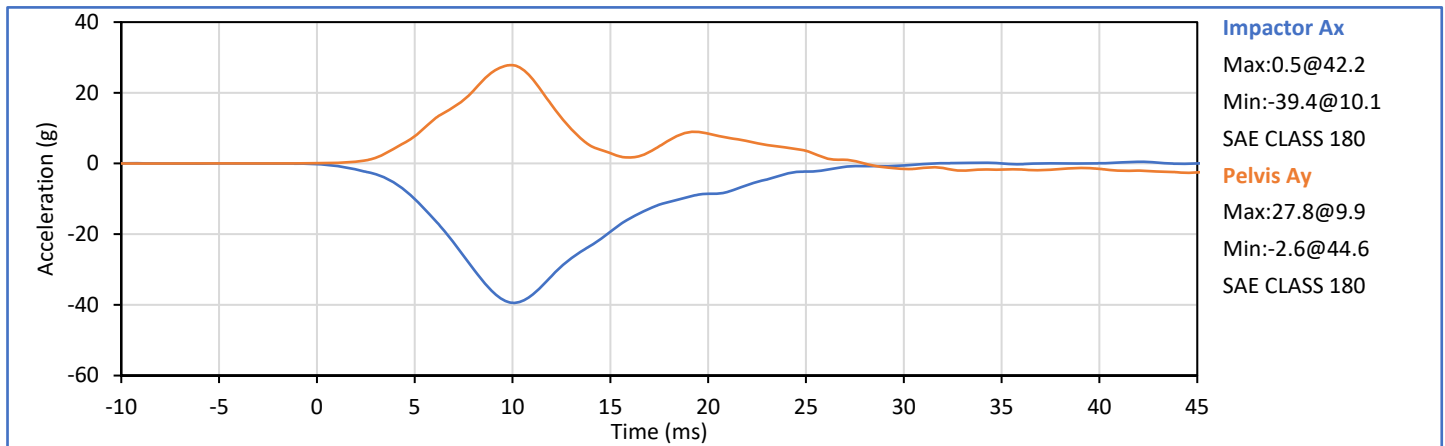
ATD Serial No.: 299

Test Date: 2024-07-01

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	43	Pass
Impactor Velocity	m/s	4.20	4.40	4.36	Pass
Peak Iliac Fy	kN	4.10	5.10	4.28	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-39.4	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 12228 *

* Plug is not impacted and remains certified



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

APPENDIX C

**Post-Test ATD Qualification and Performance Verification
ES-2re 50th Male Side Impact ATD, Left Side Configuration
S/N: F037**

ATD Serial No.: F037

Test Date: 2024-07-20

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
1 - Sitting Height	mm	900	918	908	Pass
2 - Seat to Shoulder Joint	mm	558	572	570	Pass
3 - Seat to Lower Face of Thoracic Spine Box	mm	346	356	351	Pass
4 - Seat to Hip Joint (bolt center)	mm	97	103	102	Pass
5 - Sole to Seat, Sitting	mm	433	451	439	Pass
6 - Head Width	mm	152	158	158	Pass
7 - Shoulder/Arm Width	mm	461	479	475	Pass
8 - Thorax Width	mm	322	332	325	Pass
9 - Abdomen Width	mm	273	287	284	Pass
10 - Pelvis Lap Width	mm	359	373	369	Pass
11 - Head Depth	mm	196	206	198	Pass
12 - Thorax Depth	mm	262	272	269	Pass
13 - Abdomen Depth	mm	194	204	197	Pass
14 - Pelvis Depth	mm	235	245	240	Pass
15 - Back of Buttocks to Hip Joint (bolt Center)	mm	150	160	153	Pass
16 - Back of Buttocks to Front Knee	mm	597	615	601	Pass
				Overall Test Results	Pass

Technician:



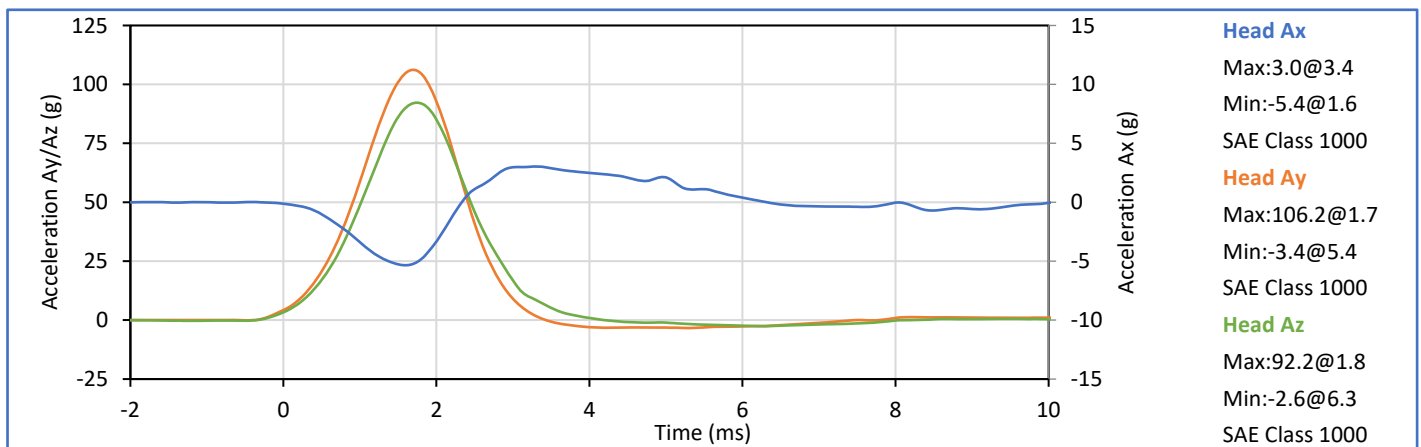
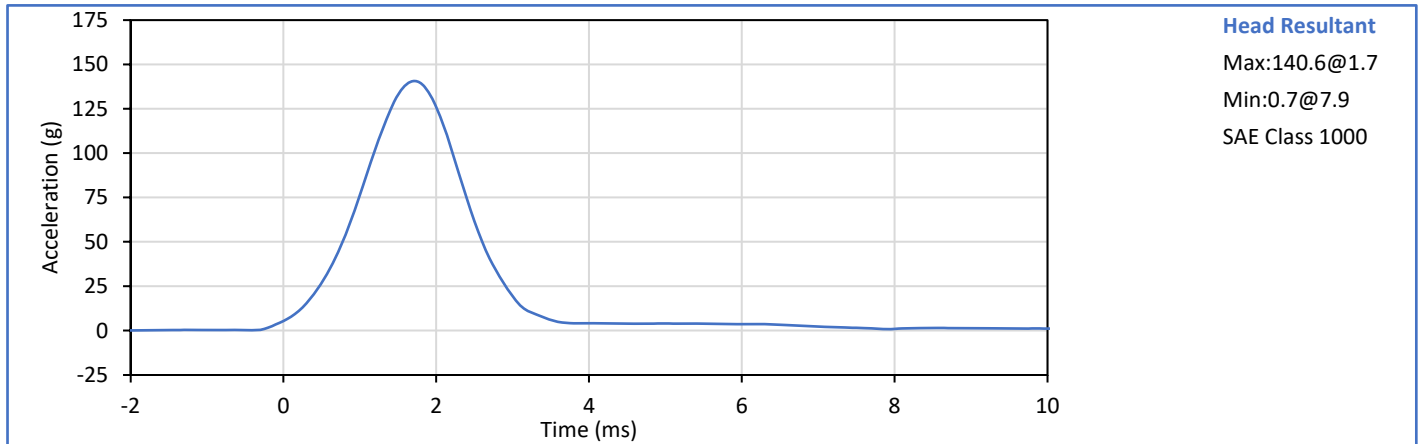
G. Fuentes

Approved By:



J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.4	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Peak Resultant Acceleration	g	125.0	155.0	140.6	Pass
Peak Head Ax	g	-15.0	15.0	3.0	Pass
Oscillations After Main Pulse	%	0.0	15.0	2.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



Technician:

G. Fuentes

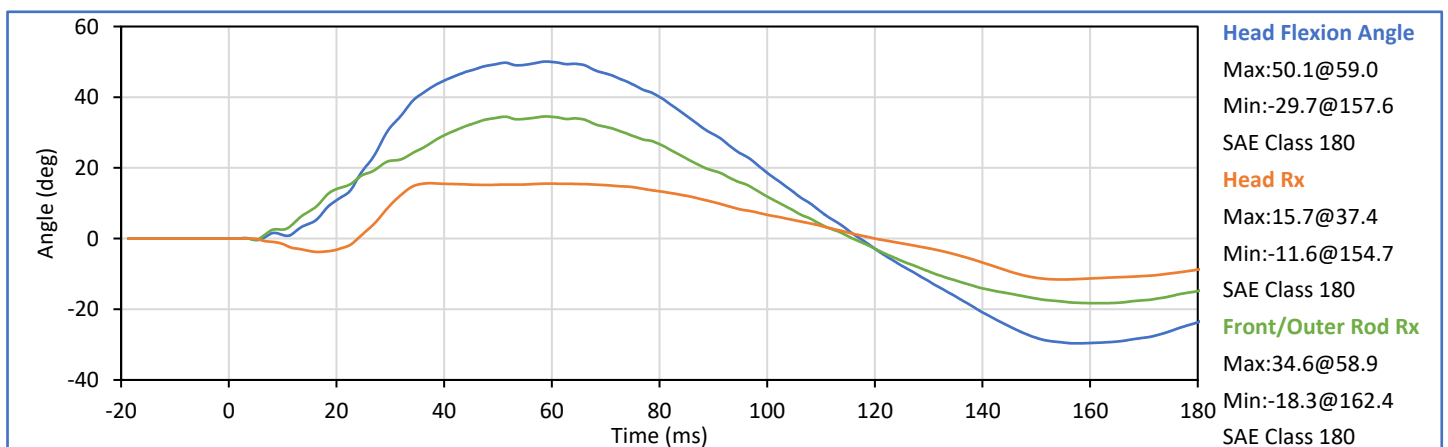
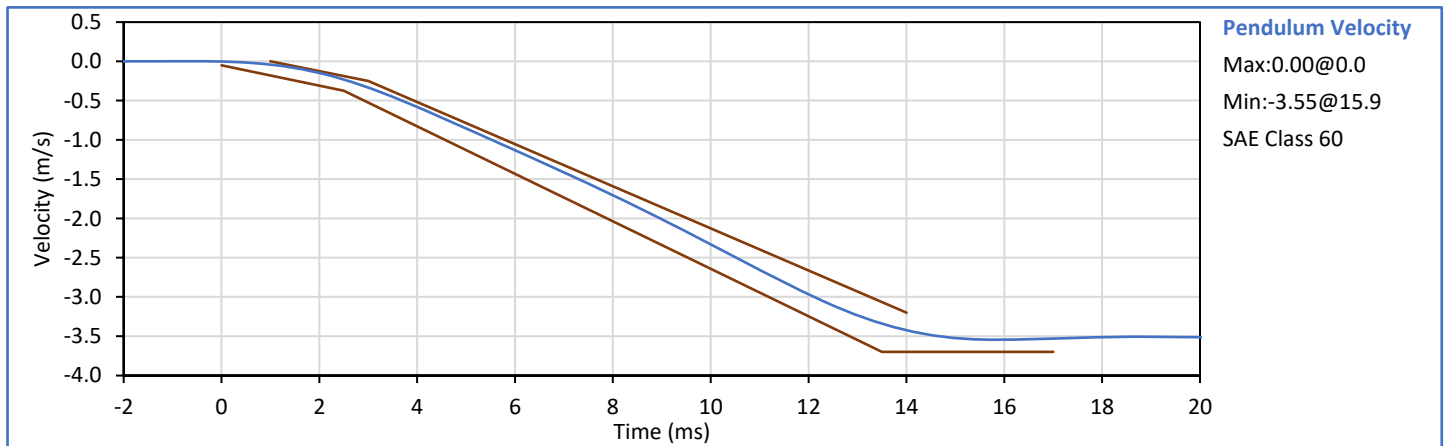
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	46	Pass
Pendulum Velocity	m/s	3.30	3.50	3.37	Pass
Peak Headform Flexion	deg	49.0	59.0	50.1	Pass
Time of Peak Headform Flexion	ms	54.0	66.0	59.0	Pass
Flexion Decay (Peak to zero)	ms	53.0	88.0	58.3	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

G. Fuentes

Approved By:

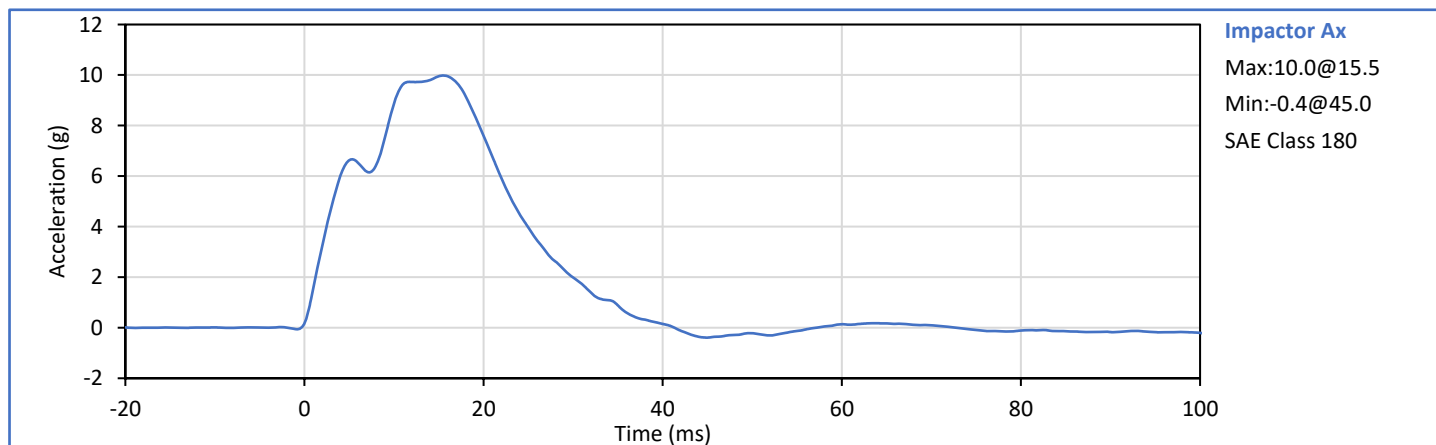
J. Hernandez

J. Hernandez

ATD Serial No.: F037

Test Date: 2024-07-20

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Impactor Velocity	m/s	4.20	4.40	4.37	Pass
Peak Impactor Ax	g	7.5	10.5	10.0	Pass
				Overall Test Results	Pass



Technician:

G. Fuentes

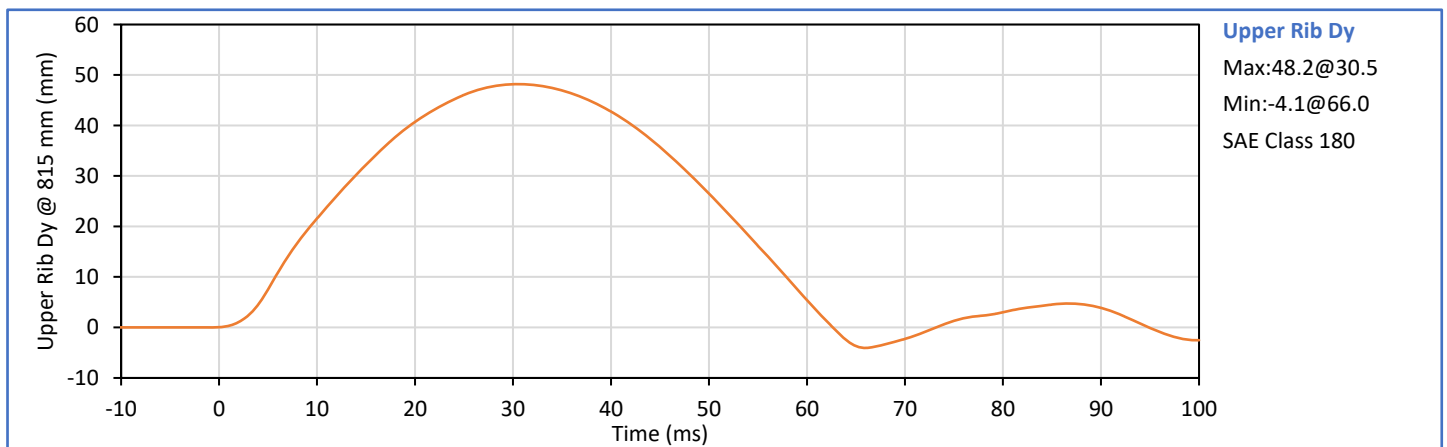
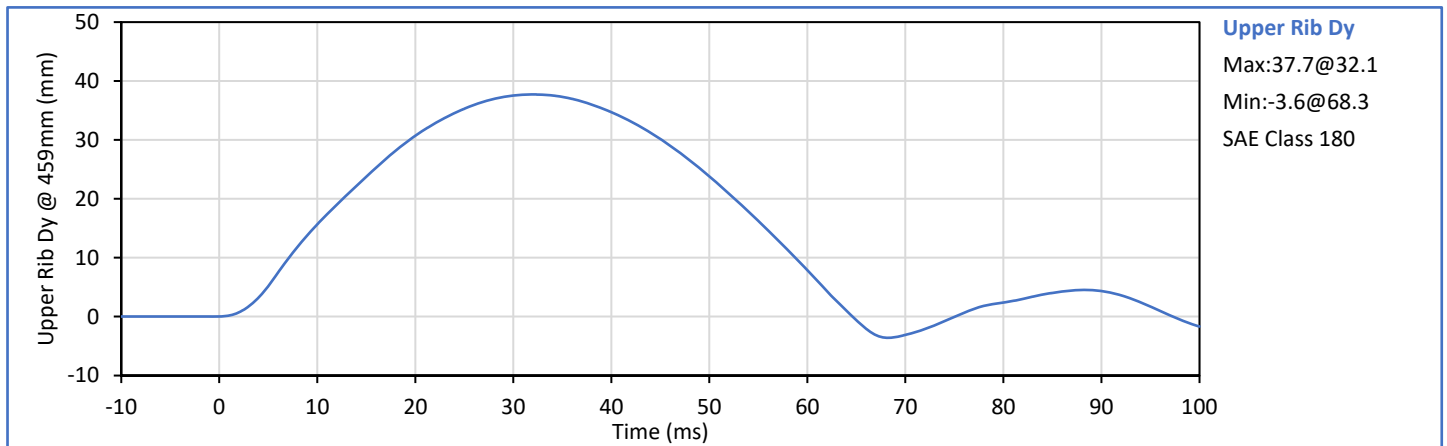
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Upper Rib Dy @ 459mm	mm	36.0	40.0	37.7	Pass
Upper Rib Dy @ 815mm	mm	46.0	51.0	48.2	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

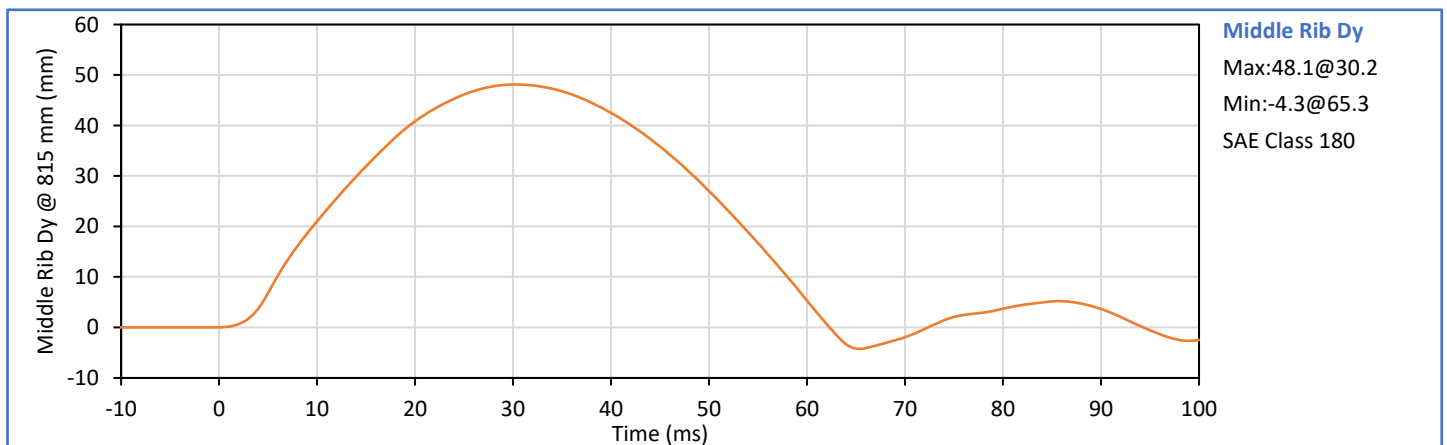
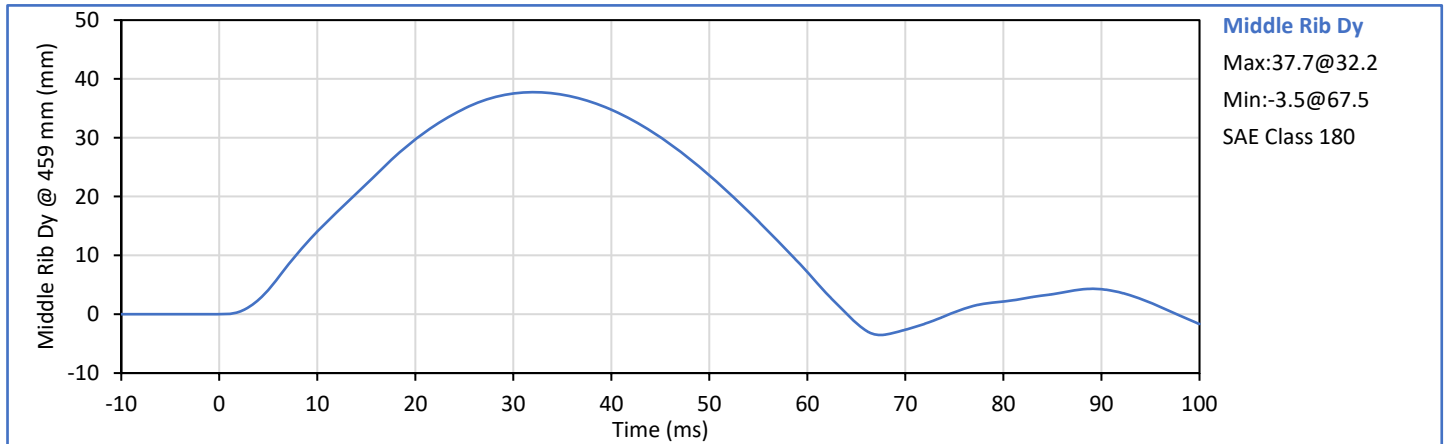
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Middle Rib Dy @ 459mm	mm	36.0	40.0	37.7	Pass
Middle Rib Dy @ 815mm	mm	46.0	51.0	48.1	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

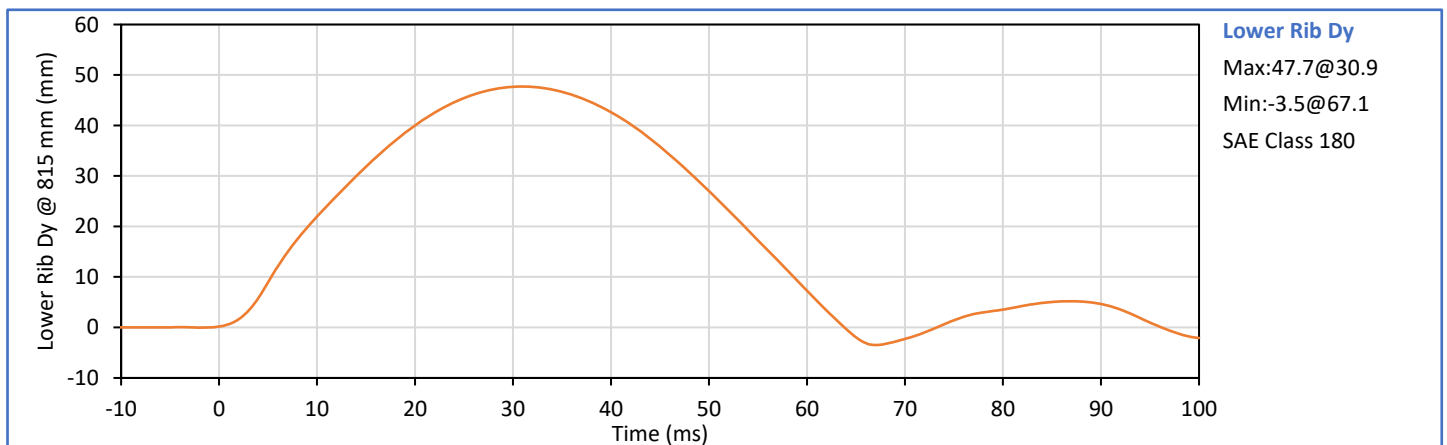
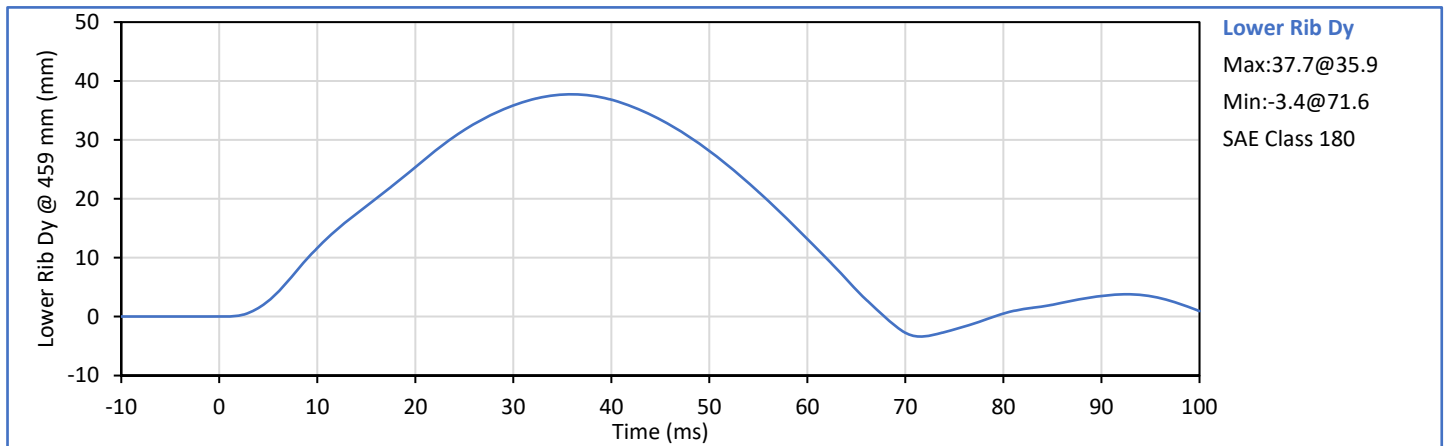
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Lower Rib Dy @ 459mm	mm	36.0	40.0	37.7	Pass
Lower Rib Dy @ 815mm	mm	46.0	51.0	47.7	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

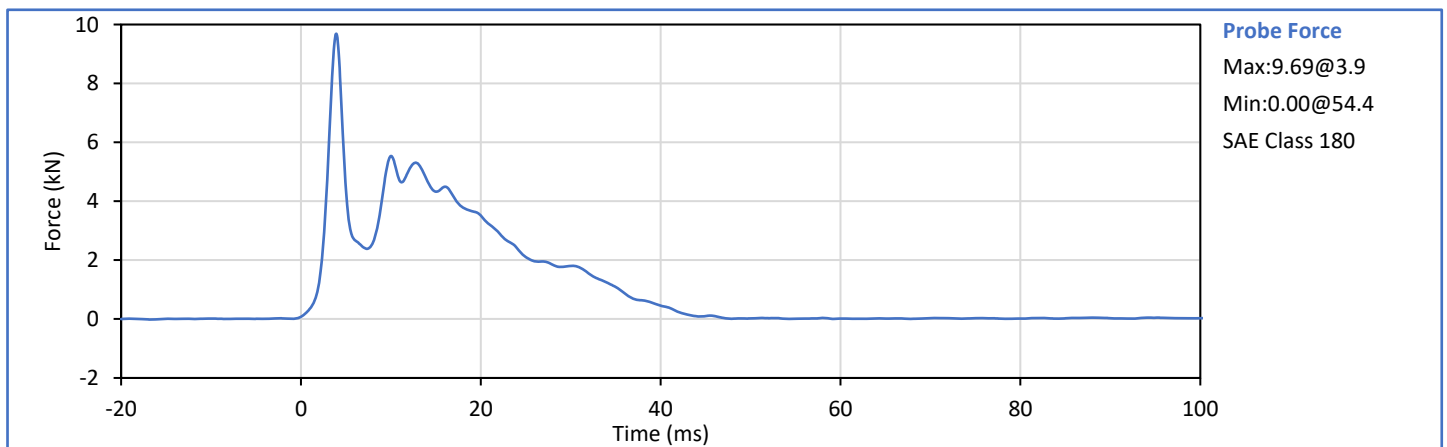
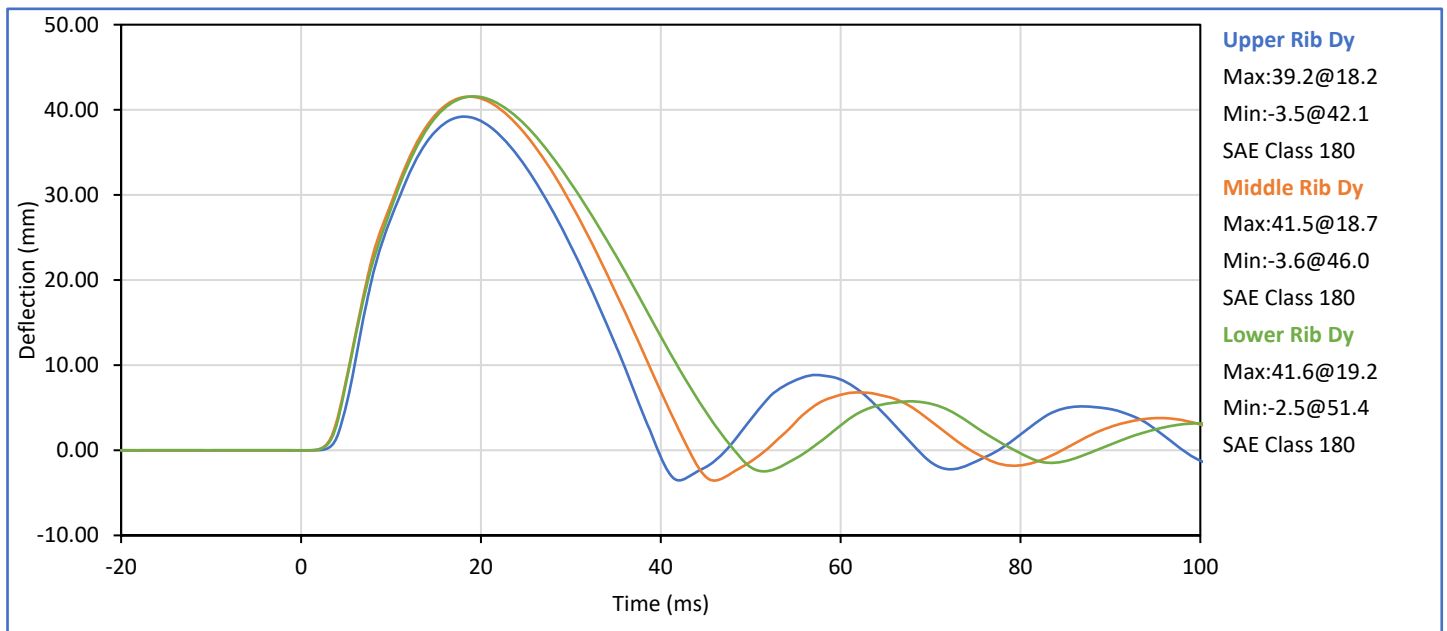
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	47	Pass
Impactor Velocity	m/s	5.40	5.60	5.48	Pass
Peak Upper Rib Dy	mm	34.0	41.0	39.2	Pass
Peak Middle Rib Dy	mm	37.0	45.0	41.5	Pass
Peak Lower Rib Dy	mm	37.0	44.0	41.6	Pass
Peak Impactor Force After 6 ms	kN	5.10	6.20	5.53	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

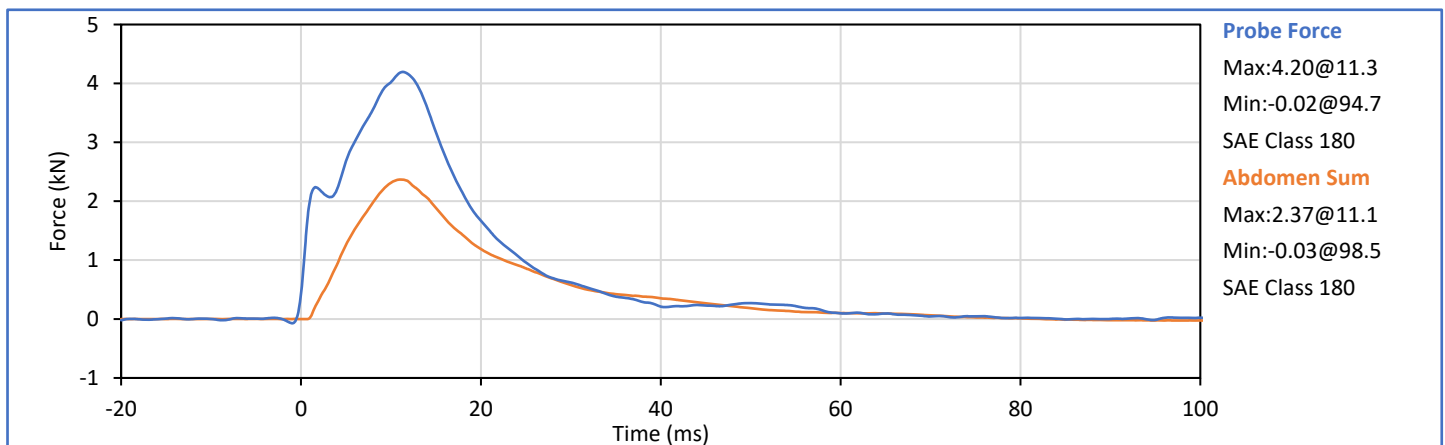
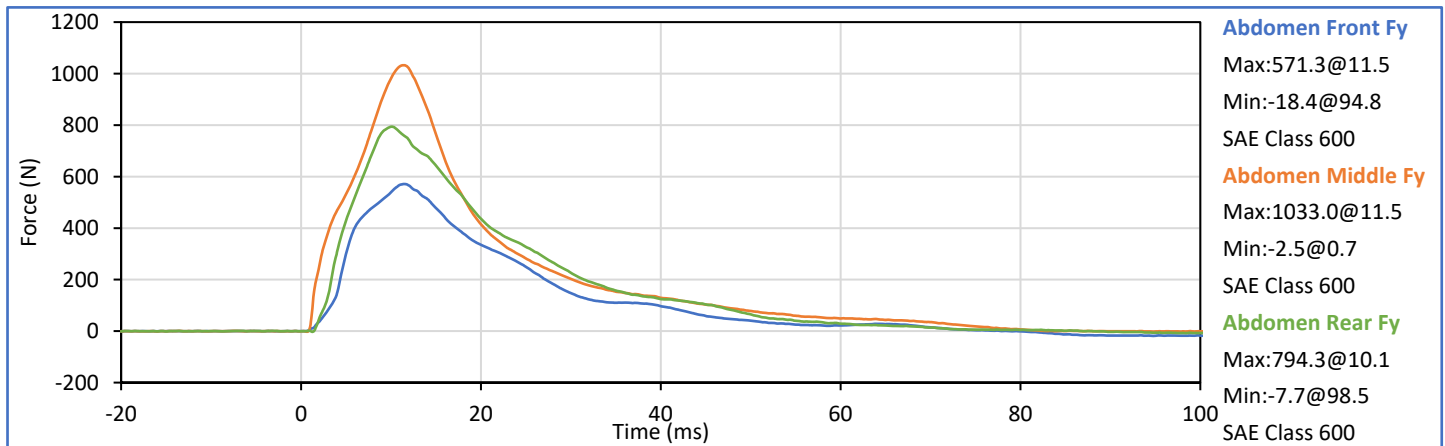
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	46	Pass
Impactor Velocity	m/s	3.90	4.10	3.96	Pass
Peak Impactor Force	kN	4.00	4.80	4.20	Pass
Time of Peak Impactor Force	ms	10.6	13.0	11.3	Pass
Sum of Abdomen Forces	kN	2.20	2.70	2.37	Pass
Time of Peak Sum Abdomen Force	ms	10.0	12.3	11.1	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

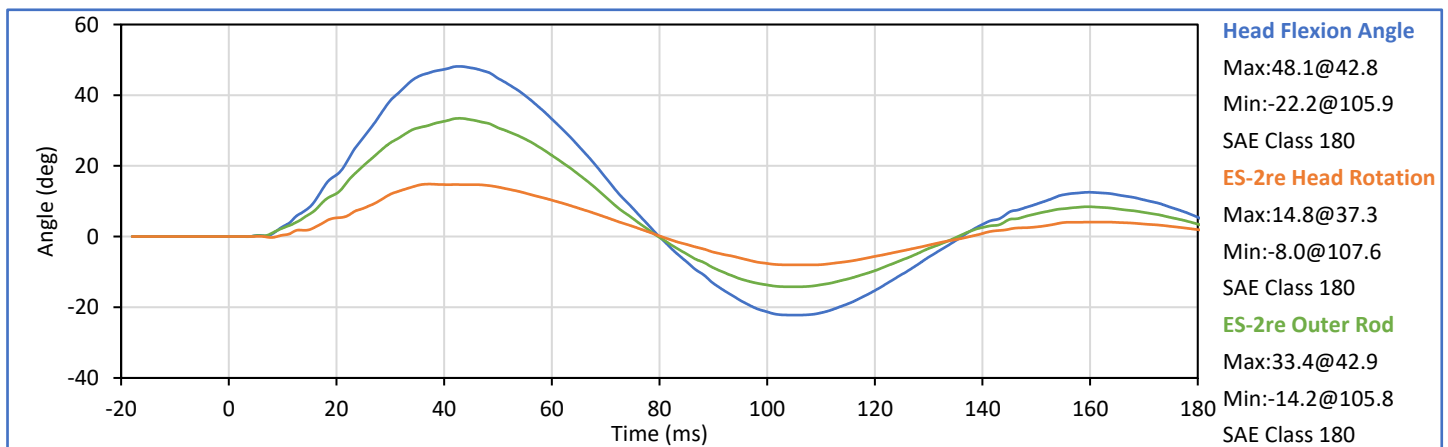
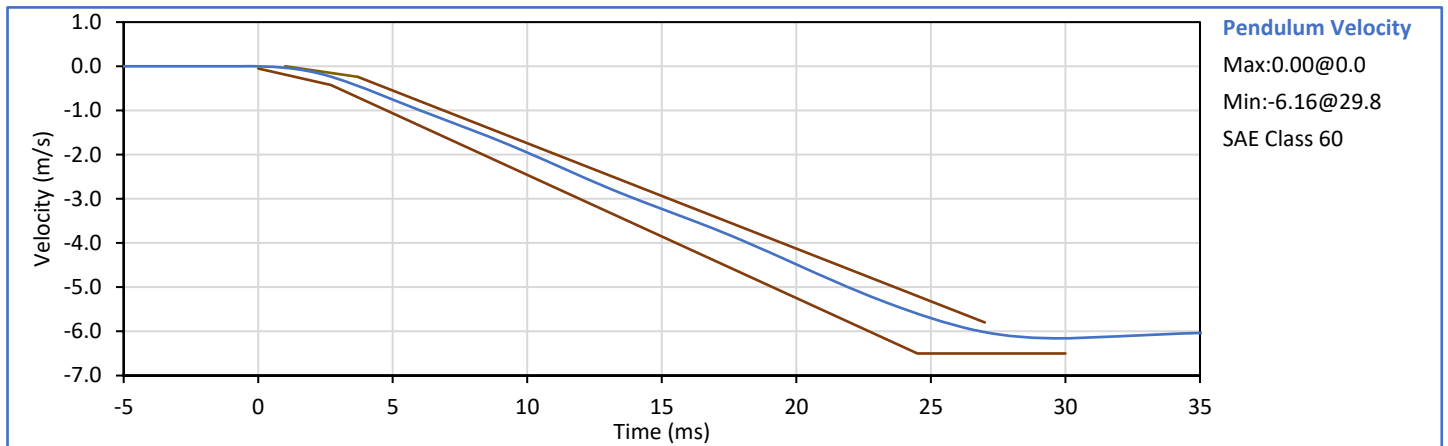
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Pendulum Velocity	m/s	5.95	6.15	6.02	Pass
Peak Headform Flexion	deg	45.0	55.0	48.1	Pass
Time of Peak Headform Flexion	ms	39.0	53.0	42.8	Pass
Flexion Decay (Peak to zero)	ms	37.0	57.0	37.2	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

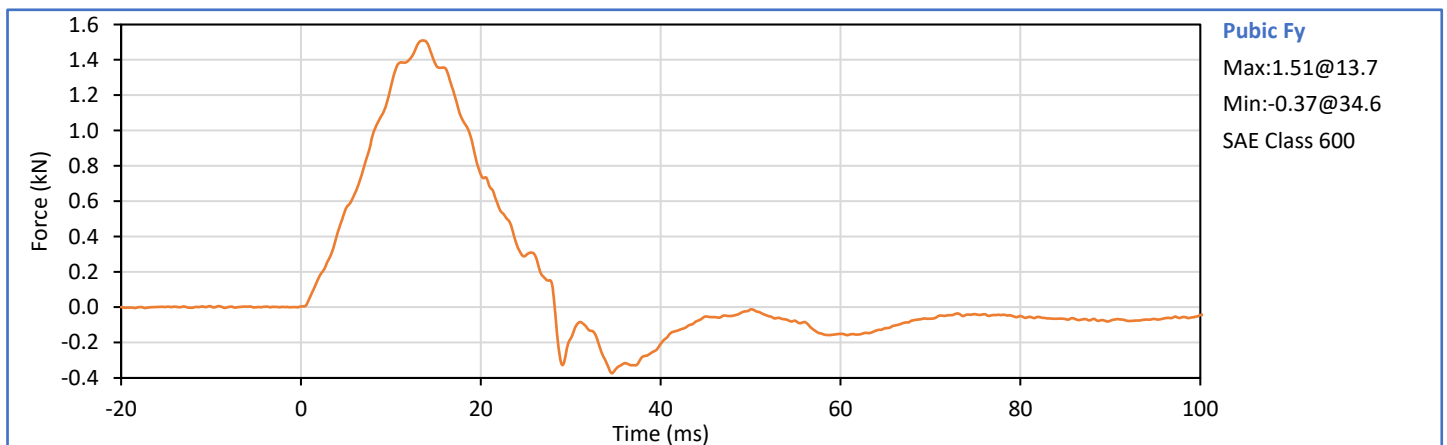
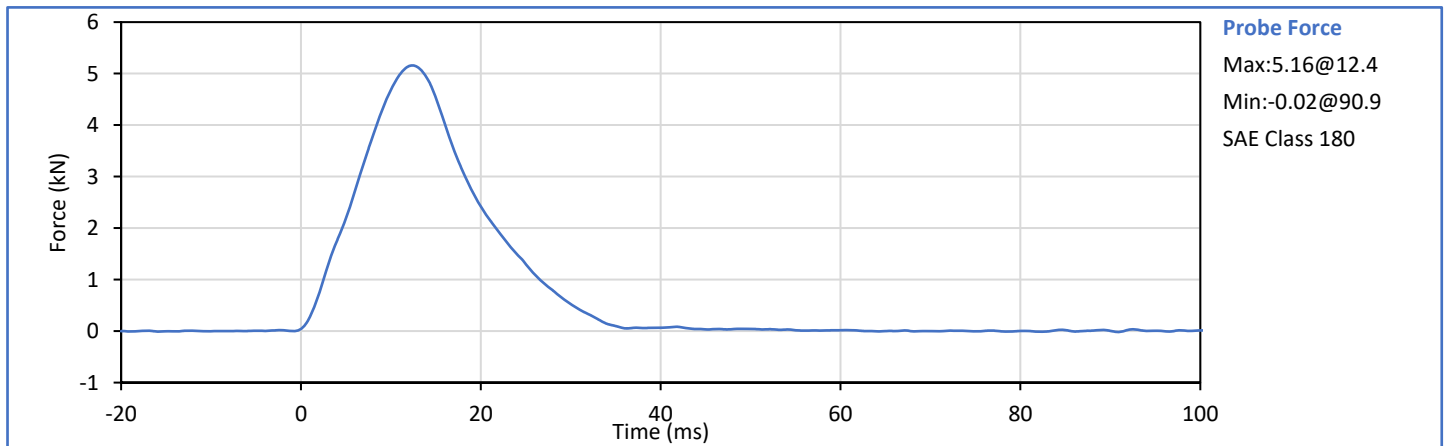
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Impactor Force	kN	4.70	5.40	5.16	Pass
Time of Peak Impactor Force	ms	11.8	16.1	12.4	Pass
Pubic Symphysis Fy	kN	1.23	1.59	1.51	Pass
Time of Peak Pubic Symphysis Fy	ms	12.2	17.0	13.7	Pass
Overall Test Results					Pass



Technician: Mill LLS III
G. Fuentes

Approved By: Santh
J. Hernandez

APPENDIX C
Post-Test ATD Qualification and Performance Verification
SID-IIs Small Side Impact ATD, Left Side Configuration
S/N: 299

ATD Serial No.: 299

Test Date: 2024-07-18

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	50	Pass
A - Sitting Height	mm	772	788	783	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	84	Pass
D - H Point From Seatback	mm	141	151	144	Pass
E - Shoulder Pivot From Backline	mm	97	107	106	Pass
F - Thigh Clearance	mm	119	135	126	Pass
G - Head Breadth	mm	140	148	146	Pass
H - Head Back From Backline	mm	40	46	43	Pass
I - Head Depth	mm	178	188	181	Pass
J - Head Circumference	mm	541	551	548	Pass
K - Buttock To Knee Length	mm	514	540	526	Pass
L - Popliteal Height	mm	343	369	356	Pass
K - Knee Pivot To Floor Height	mm	392	409	399	Pass
N - Buttock Popliteal Length	mm	416	442	436	Pass
O - Chest Depth W/O Jacket	mm	195	211	202	Pass
P - Foot Length	mm	216	232	223	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	321	Pass
R - Arm Length	mm	249	259	254	Pass
S - Knee Joint To Seatback	mm	477	493	490	Pass
V - Shoulder Width	mm	341	357	346	Pass
W - Foot Width	mm	78	94	86	Pass
Y - Chest Circumference W/Jacket	mm	851	881	866	Pass
Z - Waist Circumference	mm	761	791	769	Pass
				Overall Test Results	Pass

Technician:



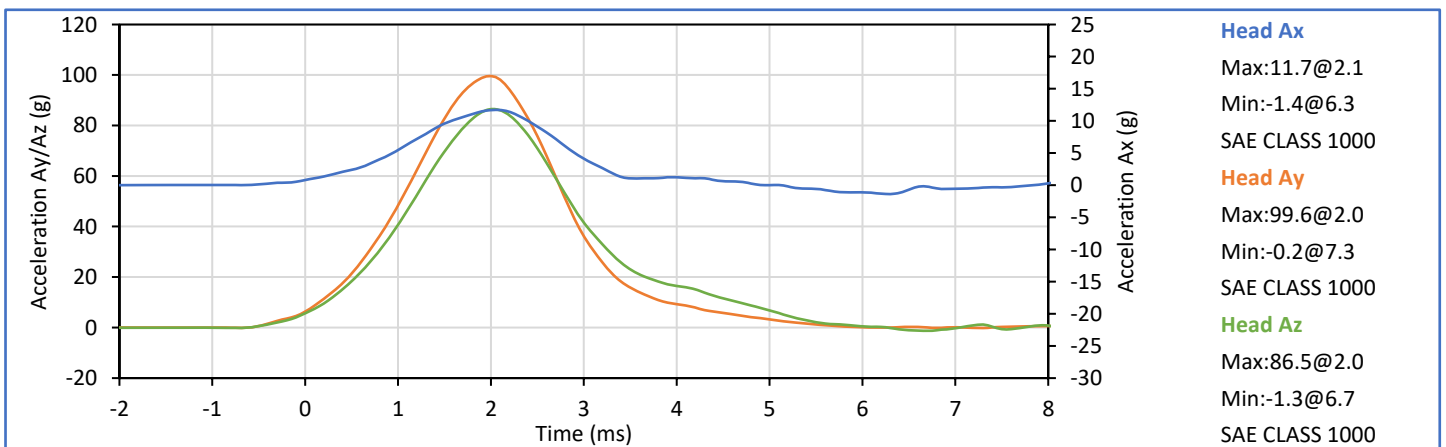
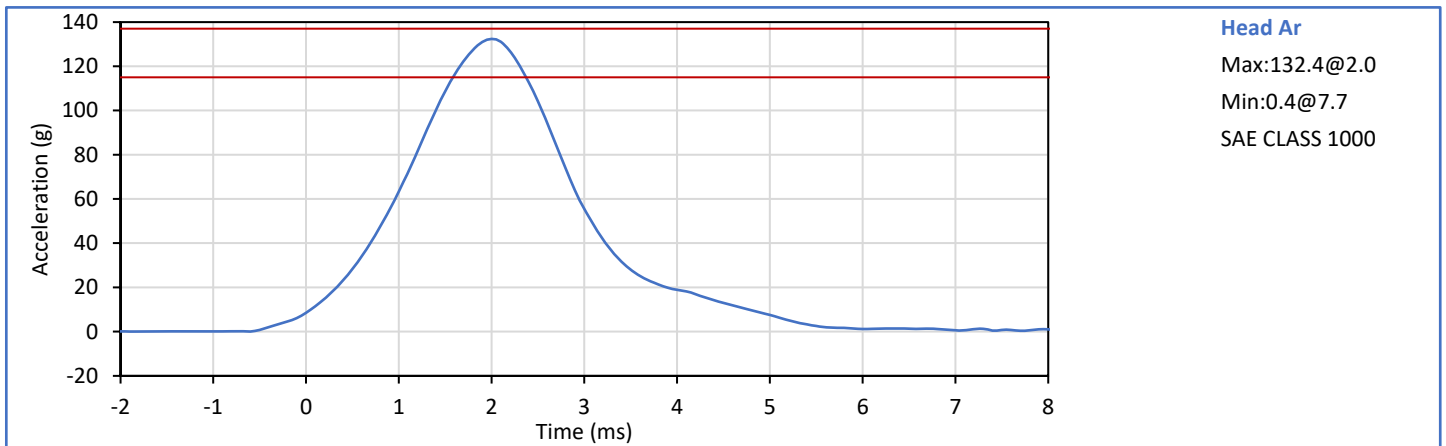
G. Fuentes

Approved By:



J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	20.6	Pass
Laboratory Relative Humidity	%	10	70	44	Pass
Peak Resultant Acceleration	g	115.0	137.0	132.4	Pass
Peak Head Ax	g	-15.0	15.0	11.7	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



Technician:

G. Fuentes

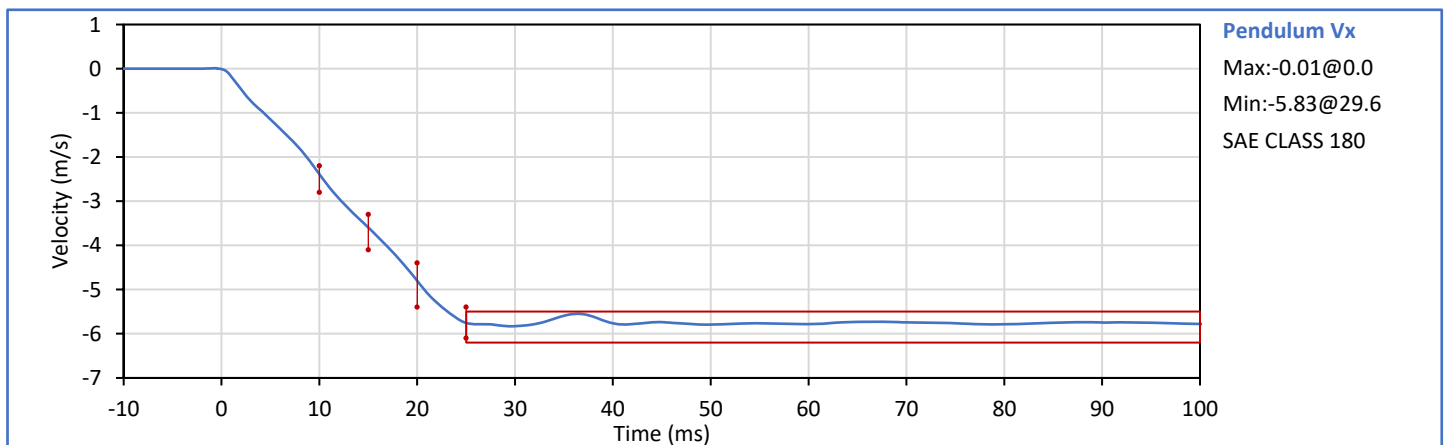
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	49	Pass
Pendulum Velocity	m/s	5.51	5.63	5.59	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.39	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.59	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-4.80	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-5.76	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-5.83/-5.55	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-73.9	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	58.5	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	43.2	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	111.9	Pass
				Overall Test Results	Pass



Technician:

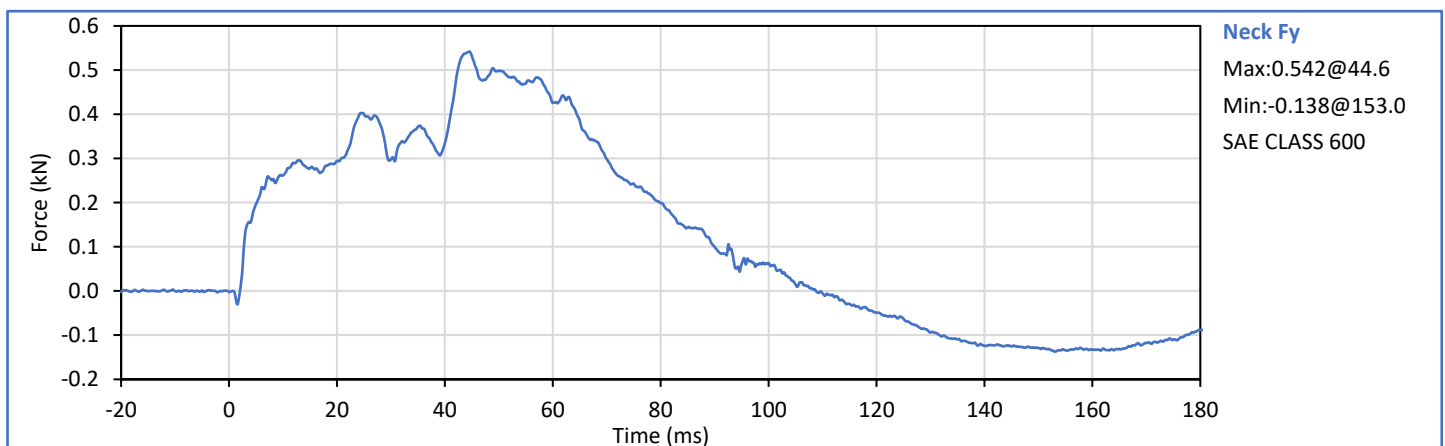
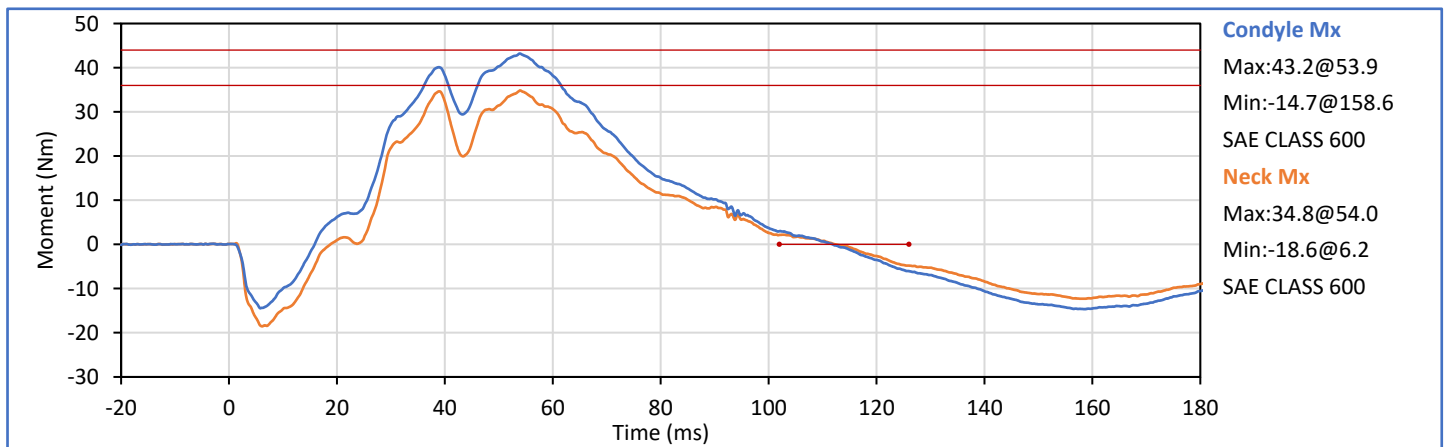
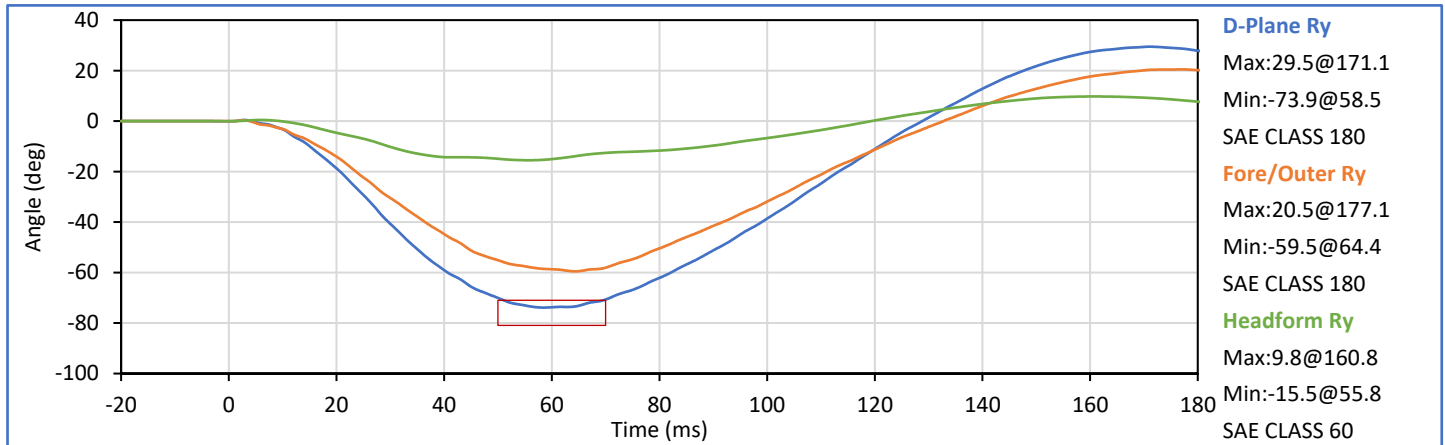
G. Fuentes

G. Fuentes

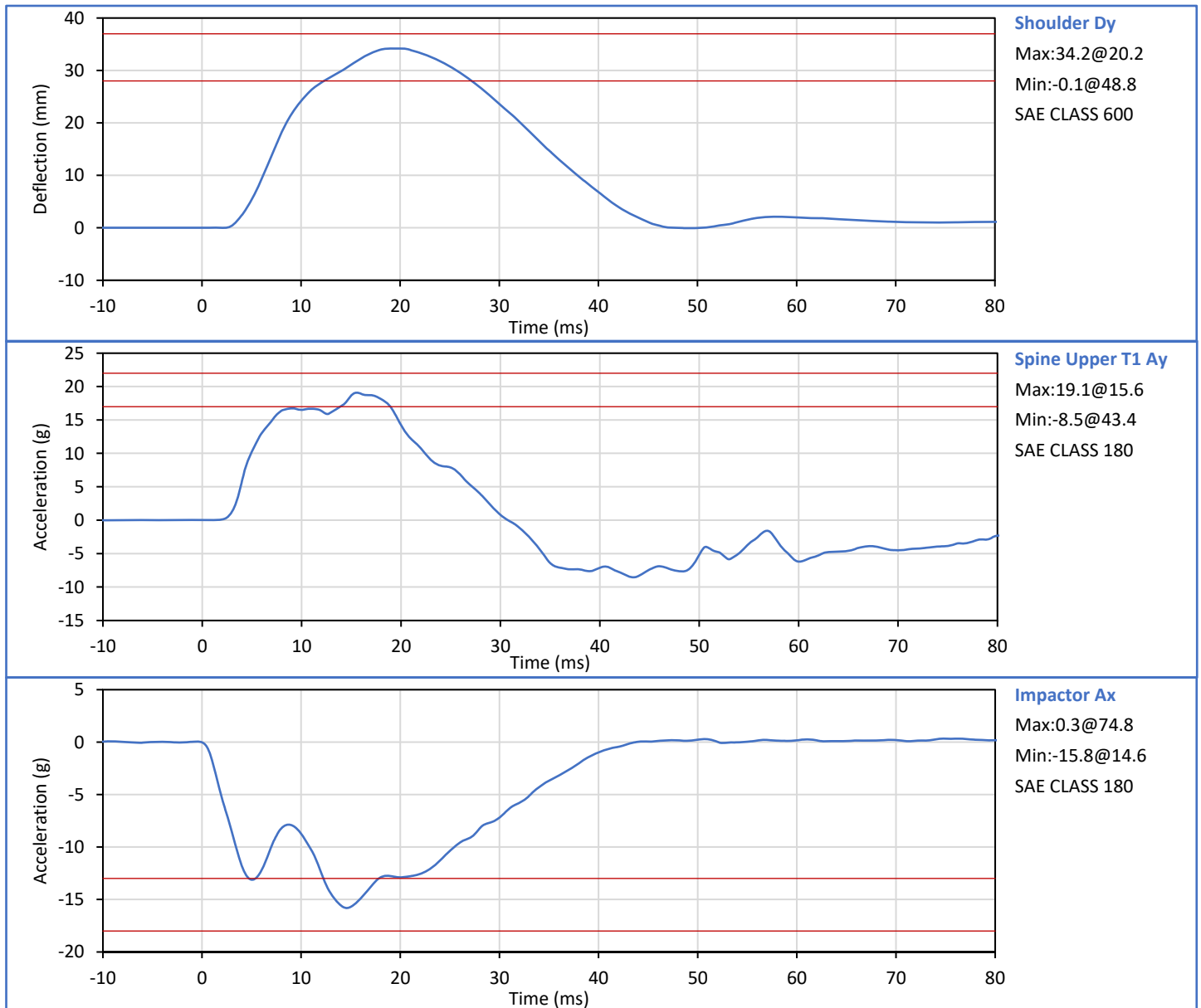
Approved By:

J. Hernandez

J. Hernandez



Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	20.9	Pass
Laboratory Relative Humidity	%	10	70	47	Pass
Impactor Velocity	m/s	4.20	4.40	4.37	Pass
Peak Shoulder Dy	mm	28.0	37.0	34.2	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	19.1	Pass
Peak Impactor Ax	g	-18.0	-13.0	-15.8	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

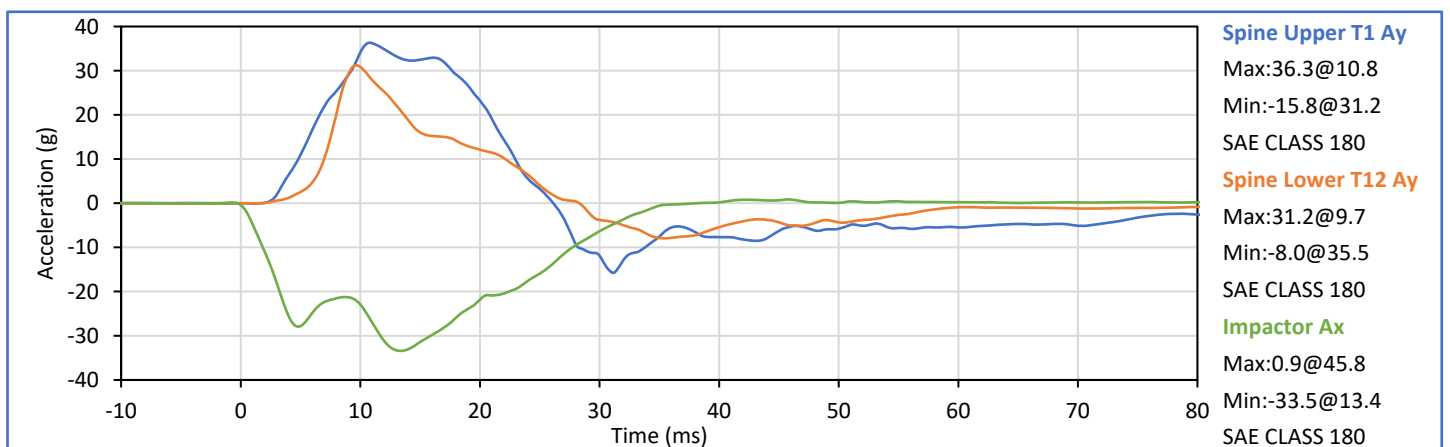
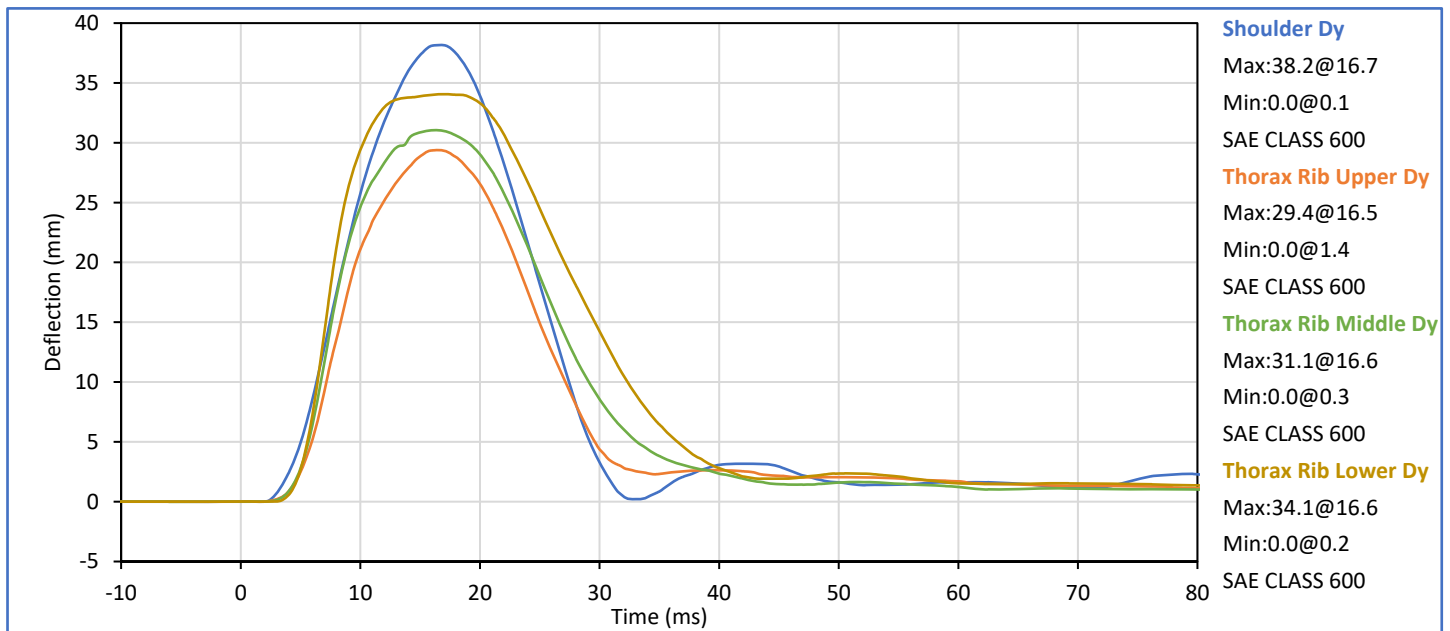
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	47	Pass
Impactor Velocity	m/s	6.60	6.80	6.65	Pass
Peak Shoulder Dy	mm	31.0	40.0	38.2	Pass
Peak Upper Rib Dy	mm	25.0	32.0	29.4	Pass
Peak Middle Rib Dy	mm	30.0	36.0	31.1	Pass
Peak Lower Rib Dy	mm	32.0	38.0	34.1	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	36.3	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	31.2	Pass
Peak Impactor Ax	g	-36.0	-30.0	-33.5	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

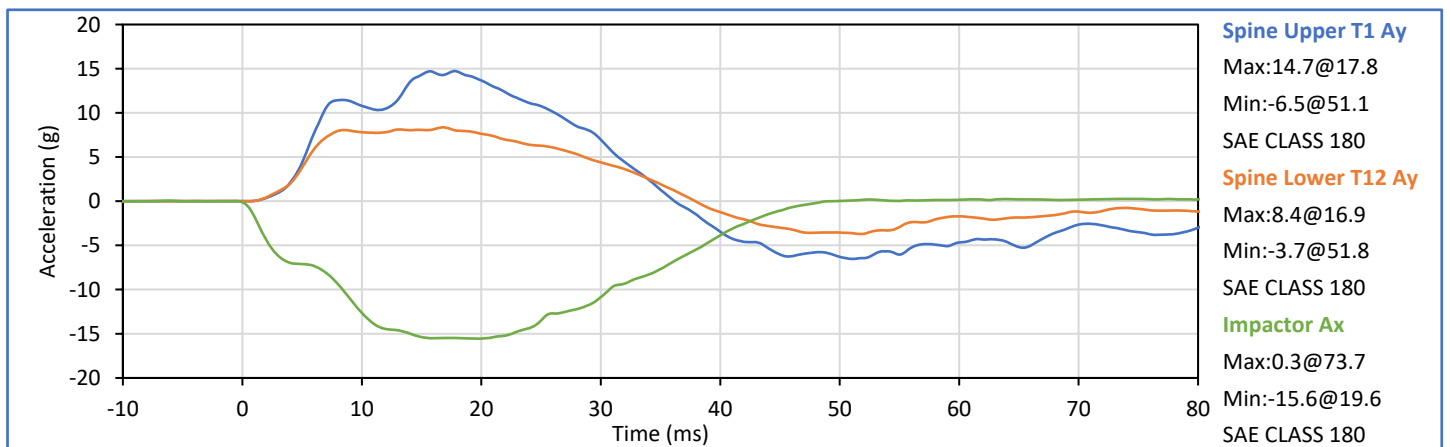
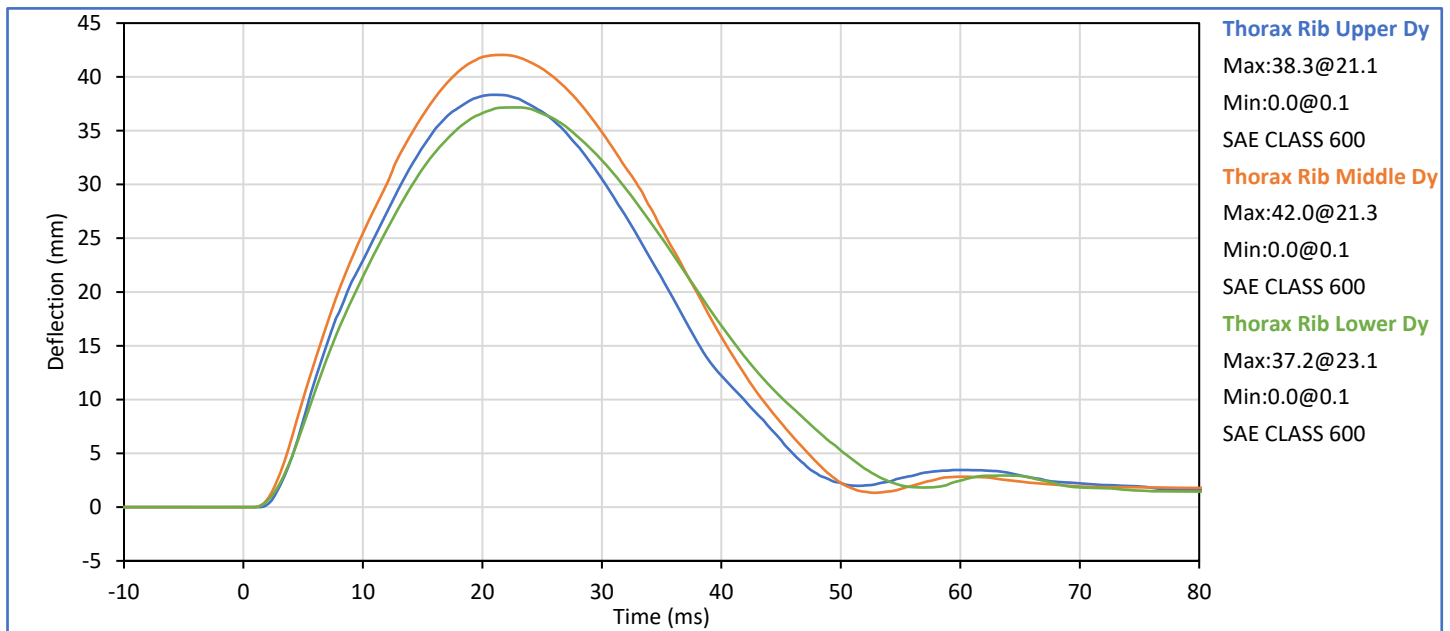
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	47	Pass
Impactor Velocity	m/s	4.20	4.40	4.35	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	38.3	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	42.0	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	37.2	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	14.7	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	8.4	Pass
Peak Impactor Ax	g	-18.0	-14.0	-15.6	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

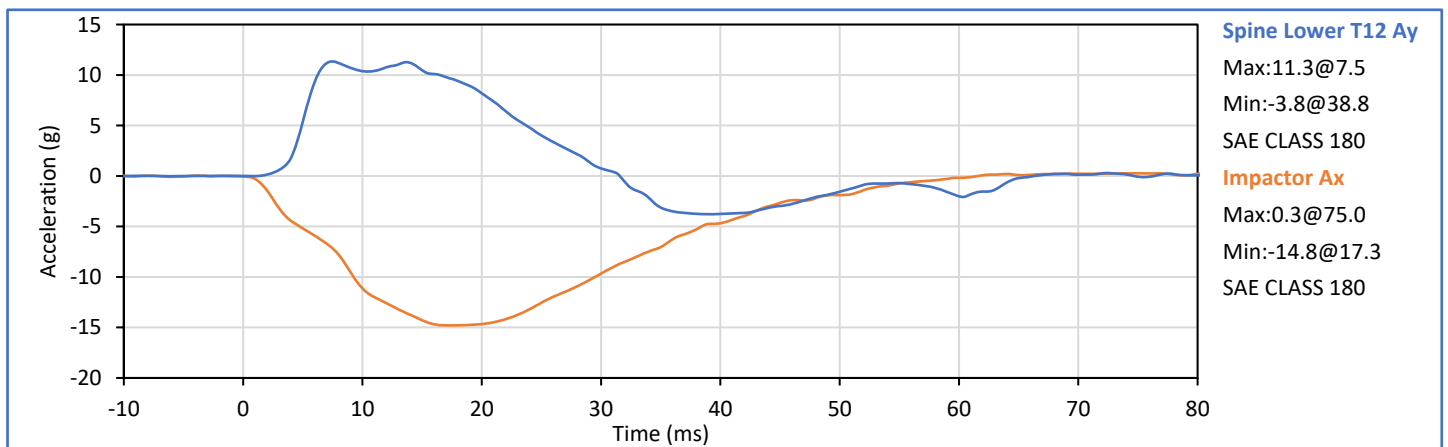
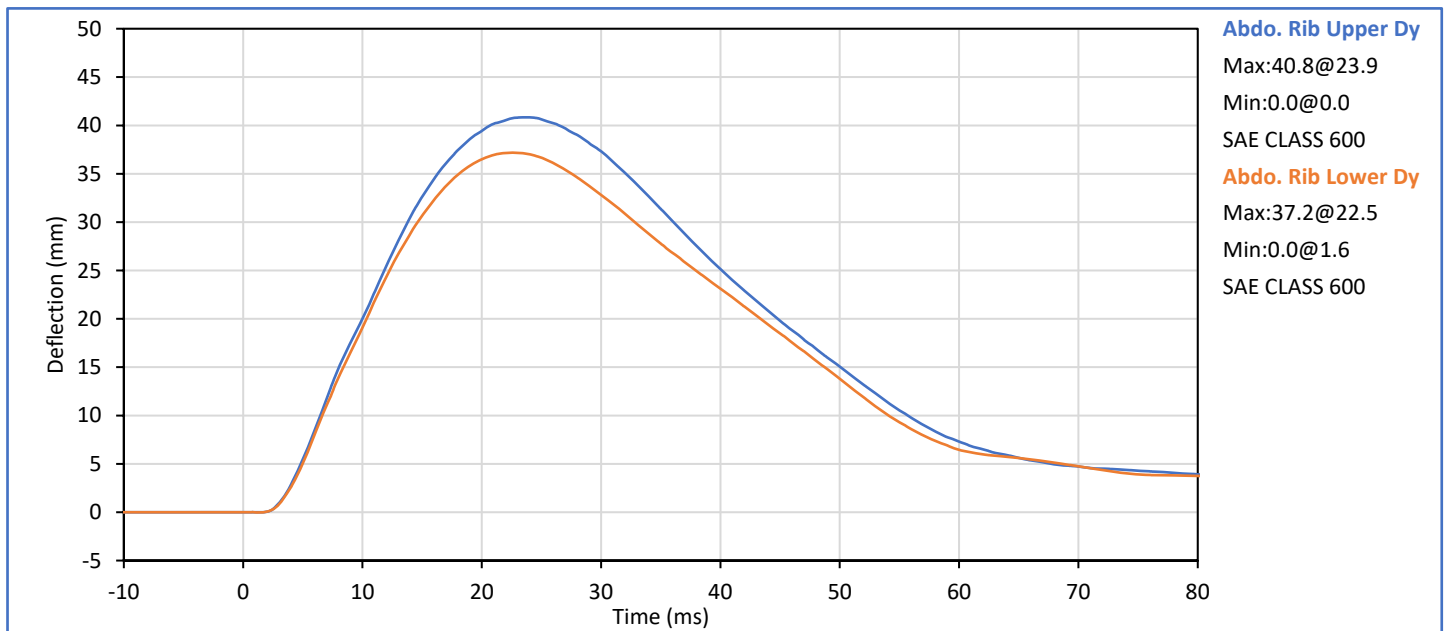
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	47	Pass
Impactor Velocity	m/s	4.20	4.40	4.37	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	40.8	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	37.2	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	11.3	Pass
Peak Impactor Ax	g	-16.0	-12.0	-14.8	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

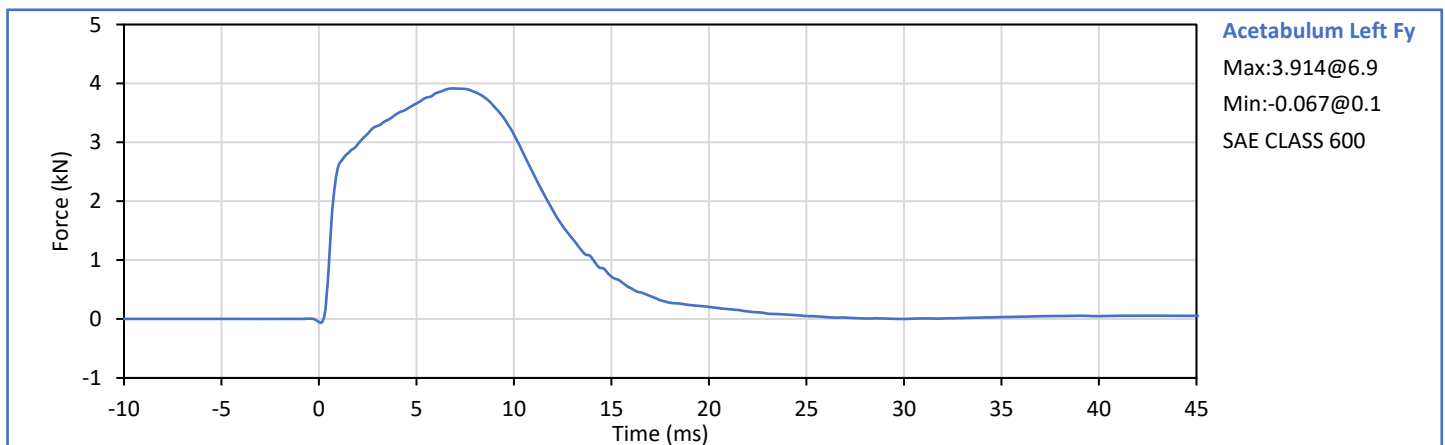
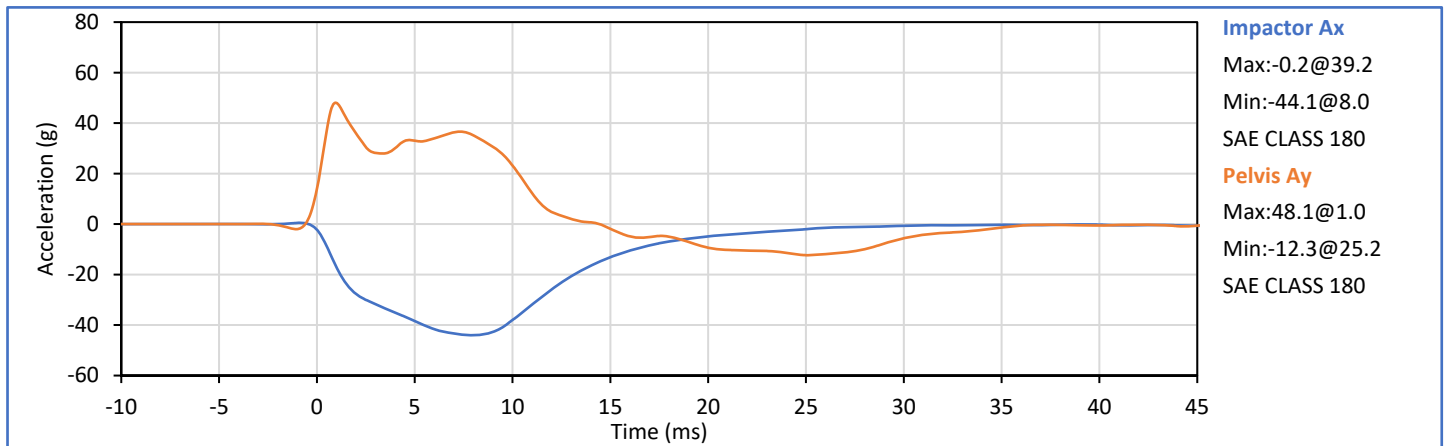
J. Hernandez

ATD Serial No.: 299

Test Date: 2024-07-19

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	49	Pass
Impactor Velocity	m/s	6.60	6.80	6.71	Pass
Peak Acetabulum Fy	kN	3.60	4.30	3.91	Pass
Pelvis Ay after 6ms	g	34.0	42.0	36.6	Pass
Peak Impactor Ax	g	-47.0	-38.0	-44.1	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 14702



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

ATD Serial No.: 299

Test Date: 2024-07-19

Pelvis Plug S/N: 14702



SID-IIs Pelvis Plug Certification Test

Plug S/N 14702

Test Number 16665

Report Number 16711

Test Date 12/22/2020 10:32:43 AM

	Test Results	Spec. Min	Spec. Max
Force @ 0.5 mm (N)	285.17	50.00	600.00
Force @ 1.5 mm (N)	1,132.36	850.00	1,400.00
Force @ 2.5 mm (N)	1,412.38	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,465.54	1,361.00	1,673.00

Testing Machine STM-20 5965542

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

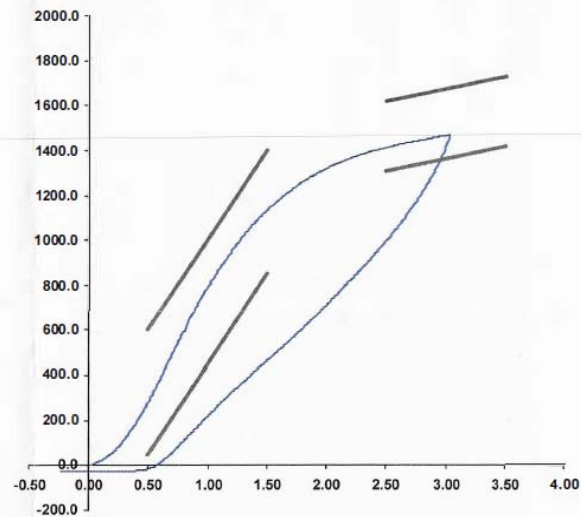
Preload Value (-N) 22.24

Crosshead Speed (mm / min) or Rate 12.7

Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator 146

Part Number 180-4450

Template No 107 22-Dec-20
SACO Research

By: DC Date: 12/22/20

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

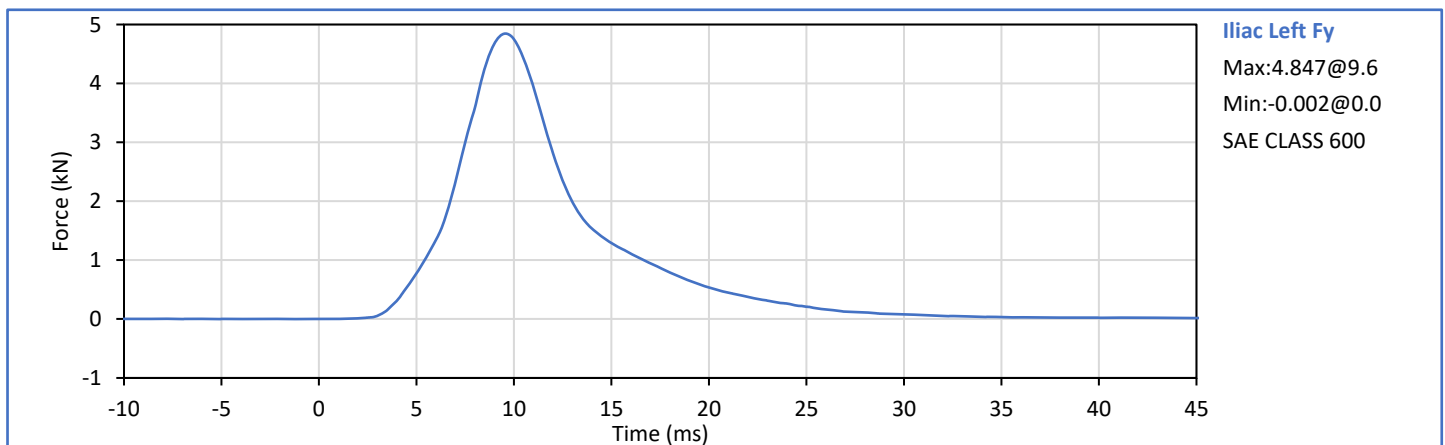
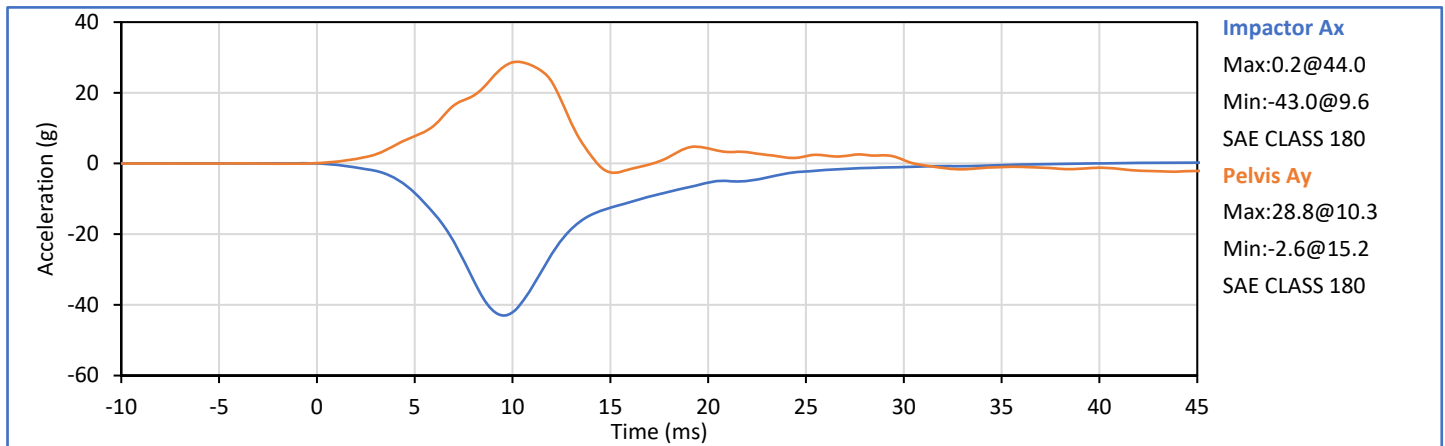
ATD Serial No.: 299

Test Date: 2024-07-18

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	43	Pass
Impactor Velocity	m/s	4.20	4.40	4.36	Pass
Peak Iliac Fy	kN	4.10	5.10	4.85	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-43.0	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 12228 *

* Plug is not impacted and remains certified



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 - Driver ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P58858	Endevco	7264C-2k	2024-06-04
Head Acceleration Y Primary	P58865	Endevco	7264C-2k	2024-06-04
Head Acceleration Z Primary	P58867	Endevco	7264C-2k	2024-06-04
Head Acceleration X Redundant	P58859	Endevco	7264C-2k	2024-06-04
Head Acceleration Y Redundant	P58866	Endevco	7264C-2k	2024-06-04
Head Acceleration Z Redundant	P58873	Endevco	7264C-2k	2024-06-04
Upper Thorax Rib Deflection Y	209 (ES-2 Rib)	Honeywell	F38000203	2024-02-15
Middle Thorax Rib Deflection Y	210 (ES-2 Rib)	Honeywell	F38000203	2024-02-15
Lower Thorax Rib Deflection Y	207 (ES-2 Rib)	Honeywell	F38000203	2024-02-15
Anterior Abdominal Force Y	1504 Fy	R.A. Denton	2631J	2024-05-28
Middle Abdominal Force Y	1505 Fy	R.A. Denton	2631J	2024-05-28
Posterior Abdominal Force Y	1506 Fy	R.A. Denton	2631J	2024-05-28
Lower Spine T12 Acceleration X	P63856	Endevco	7264C-2k	2024-06-04
Lower Spine T12 Acceleration Y	P50063	Endevco	7264C-2k	2024-06-04
Lower Spine T12 Acceleration Z	P51880	Endevco	7264C-2k	2024-06-04
Pubic Symphysis Force Y	DG6834 Fy	FTSS	IF-556	2024-05-24

Table 2 - Left Rear Passenger ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P51929	Endevco	7264C-2k	2024-06-05
Head Acceleration Y Primary	P50086	Endevco	7264C-2k	2024-06-05
Head Acceleration Z Primary	P51931	Endevco	7264C-2k	2024-06-05
Head Acceleration X Redundant	P68604	Endevco	7264C-2k	2024-06-05
Head Acceleration Y Redundant	P51934	Endevco	7264C-2k	2024-06-05
Head Acceleration Z Redundant	P58736	Endevco	7264C-2k	2024-06-05
Head Rotation Rate X	ARS11283	DTS	ARS PRO-18k (2kHz)	2023-11-15
Head Rotation Rate Y	ARS14935	DTS	ARS PRO-18k (2kHz)	2023-11-15
Head Rotation Rate Z	ARS4062	DTS	ARS PRO-18k (2kHz)	2023-11-15
Upper Thorax Rib Deflection Y	1143	Servo	08TCI-3725	2024-06-05
Middle Thorax Rib Deflection Y	1075	Servo	08TCI-3725	2024-06-05
Lower Thorax Rib Deflection Y	1213	Servo	08TCI-3725	2024-06-05
Upper Abdomen Rib Deflection Y	1218	Servo	08TCI-3725	2024-06-05
Lower Abdomen Rib Deflection Y	1177	Servo	08TCI-3725	2024-06-05
Lower Spine T12 Acceleration X	P58761	Endevco	7264C-2k	2024-06-06
Lower Spine T12 Acceleration Y	P50077	Endevco	7264C-2k	2024-06-06
Lower Spine T12 Acceleration Z	P58795	Endevco	7264C-2k	2024-06-06
Iliac Wing Impact Side Force Y	278 (Iliac)	R.A. Denton	3228J	2024-05-10
Acetabulum Impact Side Force Y	260 (Acetabulum)	R.A. Denton	3249J	2024-05-10

Table 3 - Vehicle Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Vehicle CG Ax	M13950	Endevco	758H-2k	2024-05-29
Vehicle CG Ay	M13961	Endevco	758H-2k	2024-05-29
Vehicle CG Az	M13968	Endevco	758H-2k	2024-05-29
Right Side Sill at Front Seat Ax	M11144	Endevco	758H-2k	2024-02-01
Right Side Sill at Front Seat Ay	M11101	Endevco	758H-2k	2024-02-10
Right Side Sill at Front Seat Az	M11137	Endevco	758H-2k	2024-02-01
Right Side Sill at Rear Seat Ax	M11239	Endevco	758H-2k	2024-02-05
Right Side Sill at Rear Seat Ay	M11082	Endevco	758H-2k	2024-02-01
Right Side Sill at Rear Seat Az	M11278	Endevco	758H-2k	2024-02-09
Left Side Sill at Front Seat Ay	220348	BST	11CF-2k	2024-02-15
Left Side Sill at Rear Seat Ay	223303	BST	11CF-2k	2024-02-06
Left Lower A-Pillar Ay	M11229	Endevco	758H-2k	2024-02-05
Left Middle A-Pillar Ay	M11294	Endevco	758H-2k	2024-02-05
Left Lower B-Pillar Ay	M11124	Endevco	758H-2k	2024-02-08
Left Middle B-Pillar Ay	M11246	Endevco	758H-2k	2024-02-07
Driver Seat Track at H-Point Ay	M11176	Endevco	758H-2k	2024-02-10
Rear Seat Structure Ay	M11048	Endevco	758H-2k	2024-02-05
Right Rear Occupant Comp. Ay	M11073	Endevco	758H-2k	2024-04-02
Engine Block Top Ax	M11169	Endevco	758H-2k	2024-02-08
Engine Block Top Ay	M11284	Endevco	758H-2k	2024-02-09
Rear Floopan Above Axle Ax	M11186	Endevco	758H-2k	2024-02-09
Rear Floopan Above Axle Ay	M13946	Endevco	758H-2k	2024-05-29
Rear Floopan Above Axle Az	M13948	Endevco	758H-2k	2024-05-29

Table 4 - Moving Deformable Barrier (MDB) Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
MDB CG Ax	M13975	Endevco	758H-2k	2024-05-29
MDB CG Ay	M13976	Endevco	758H-2k	2024-05-29
MDB CG Az	M13989	Endevco	758H-2k	2024-05-29
MDB Left Side at Rear Axle Ax	M13977	Endevco	758H-2k	2024-05-29
MDB Left Side at Rear Axle Ay	M13978	Endevco	758H-2k	2024-05-29