REPORT NUMBER: SideNCAPMDB-KAR-25-002

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

BAYERISCHE MOTOREN WERKE AG

2025 BMW X3 XDRIVE30i 5-DOOR MPV

NHTSA No: M20254102

PREPARED BY:

APPLUS+ IDIADA KARCO ENGINEERING, LLC.

9270 HOLLY ROAD

ADELANTO, CA 92301

JANUARY 27, 2025

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

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By: 

Mr. Rushlan Amin, Project Engineer
Applus+ IDIADA KARCO Engineering, LLC.

Reviewed By: 

Mr. René Molina Serrano, Laboratory Manager
Applus+ IDIADA KARCO Engineering, LLC.

Approved By: 

Mr. Michael L. Dunlap, Director of Operations
Applus+ IDIADA KARCO Engineering, LLC.

Approval Date: January 27, 2025

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

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
SideNCAPMDB-KAR-25-002		

4. Title and Subtitle	5. Report Date
Final Report of New Car Assessment Program Side Impact MDB Testing of a 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102	January 27, 2025
	6. Performing Organization Code KAR
7. Authors Mr. Rushlan Amin, Project Engineer, Applus+ IDIADA KARCO Engineering, LLC Mr. René Molina Serrano, Laboratory Manager, Applus+ IDIADA KARCO Engineering, LLC	**8. Performing Organization Report No.** TR-P44403-01-NC
9. Performing Organization Name and Address Applus+ IDIADA KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA 92301	**10. Work Unit No.** **11. Contract or Grant No.** 693JJ920D000015
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NRM-100) 1200 New Jersey Ave., SE Washington, D.C. 20590	**13. Type of Report and Period Covered** Final Test Report, January 14 - January 27, 2025 **14. Sponsoring Agency Code** NRM-100

15. Supplementary Notes

16. Abstract

A 61.9 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2025 BMW X3 xDrive30i 5-Door MPV 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 January 14, 2025.

The impact velocity of the Moving Deformable Barrier was 61.66 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 7.2°C. The target vehicle's maximum post-test static crush was 199 mm located at level 3. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (ES-2re)		
	Units	IARV	Result
Head Injury Criteria (HIC_{36})		1000	59.756
Maximum Thoracic Rib Deflection	mm	44	16.282
Total Abdominal Force	N	2500	657.729
Pubic Symphysis Force	N	6000	951.974

Measurement Description	Passenger ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC_{36})		1000	108.468
Resultant Lower Spine Acceleration	g	82	47.712
Total Pelvic Force (Sum of Acetubular and Iliac Forces)	N	5525	3853.853
Maximum Thoracic Rib Deflection	mm	38*	11.448
Maximum Abdominal Rib Deflection	mm	45*	16.418

17. Key Words	18. Distribution Statement
New Car Assessment Program (NCAP) Side Impact Moving Deformable Barrier (MDB) ES-2re SID-IIs	Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division 1200 New Jersey Ave., SE Washington, DC 20590

19. Security Classification of this report	20. Security Classification of this page	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED	152	

**Proposed IARV*

TABLE OF CONTENTS

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 2025 BMW X3 xDrive30i 5-Door MPV. 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 2025 BMW X3 xDrive30i 5-Door MPV 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 61.66 km/h (38.31 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 January 14, 2025. 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 triaxial angular rate sensors
Chest upper rib, middle rib and lower rib y-axis displacement potentiometers
Abdomen upper rib and lower rib y-axis displacement potentiometers
Lower spine (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	59.756
Maximum Thoracic Rib Deflection	mm	44	16.282
Combined Abdominal Force	N	2500	657.729
Pubic Symphysis Force	N	6000	951.974
Lower Spine (T12) Resultant Acceleration	g	82*	14.455

**Proposed IARV*

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC_{36})		1000	108.468
Lower Spine (T12) Resultant Acceleration	g	82	47.712
Total Pelvic Force (sum of acetabular and iliac forces	N	5525	3853.853
Maximum Thoracic Rib Deflection	mm	38*	11.448
Maximum Abdominal Rib Deflection	mm	45*	16.418

**Proposed IARV*

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal 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		
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

GENERAL COMMENTS:

None.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

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	^oF	^oC	=(Tf -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: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20254102
Model Year	2025
Make	BMW
Model	X3 xDrive30i
Body Style	5-Door MPV
VIN	5UX53GP04S9Y42719
Body Color	Black Sapphire Metallic
Odometer Reading (km / mi)	35/22
Engine Displacement (L)	2.0
Type / No. of Cylinders	4-Cylinder
Engine Placement	Inline
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
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	Yes
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	No
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	None

Does Owner's Manual provide instructions to turn off automatic door locks? No

DATA FROM CERTIFICATION LABEL

Manufactured By	Bayerische Motoren Werke AG
Date of Manufacture	10/24
Vehicle Type	MPV

GVWR (kg)	2500
GAWR Front (kg)	1175
GAWR Rear (kg)	1465

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				502.0	*A*
DSC x 68 (kg)				340.0	*B*
Cargo Weight (RCLW) (kg)				136.0	

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

VEHICLE SEAT TYPE

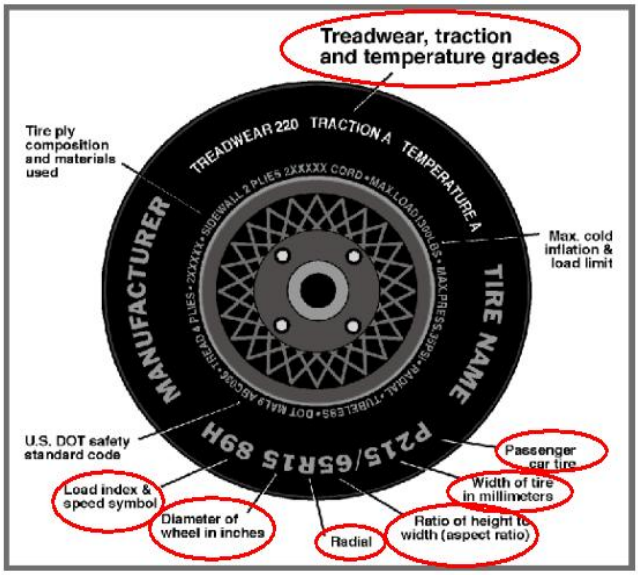
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable w/ Lever	Adjustable w/ Knob
Front Seat	Yes					Yes	
Rear or Second Row Seat			Yes		Yes		
Third Row Seat							

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	240	270
Recommended Tire Size	245/50 R19	245/50 R19
Tire Size on Vehicle	245/50 R19	245/50 R19
Tire Manufacturer	Pirelli	Pirelli
Tire Model	P-Zero All Season	P-Zero All Season
Treadware	500	500
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	105	105
Tire Material	Rubber	Rubber
DOT Safety Code Left	193 OF483T 2324	193 OF483T 2324
DOT Safety Code Right	193 OF483T 2324	193 OF483T 2324

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	240	240	270	270
Tire Placard	kPa	240	240	270	270
Owner's Manual	kPa	240	240	270	270
As Tested	kPa	240	240	270	270

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

		As Delivered Weights (UVW)			As Tested Weights (ATW)		
	Units	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	483.5	464.0		482.0	581.0	
Right	kg	475.5	461.0		509.5	565.5	
Ratio	%	50.9%	49.1%	100.0%	46.4%	53.6%	100.0%
Total	kg	959.0	925.0	1884.0	991.5	1146.5	2138.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1884.0	A
Sum of Actual Weight of 2 P572 ATD Used	kg	125.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	136.0	C
Calculated Target Vehicle Test Weight (TVTW)	kg	2145.0	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	793	798	Yes
RF	mm	785	795	Yes
LR	mm	792	796	Yes
RR	mm	790	797	Yes
Vehicle CG (Aft of Front Axle)	mm	1478	1535	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	20	-5	

***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: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

Test Height Adjustable Setting (If Applicable)	

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Rear Trim Removed	3.5

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: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

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	23.3	14.7	19.0
Front Passenger Seat	22.8	14.7	18.8
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	19.0	720	Max	737	746	763
			Mid	708	720	732
			Min	680	694	704
Front Passenger Seat	18.8	714	Max	729	737	746
			Mid	705	714	723
			Min	681	691	699
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: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

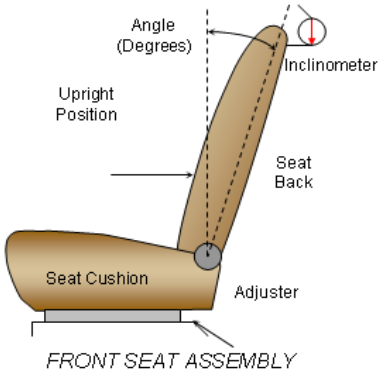
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	248		124	
Front Passenger Seat	220	23	110	11
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 not 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	67.9		6.4	
Front Passenger Seat	69.7		6.8	
Front Center Seat				
Struck Side Rear Seat w/ Seated Dummy	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

DATA SHEET NO. 2 … (CONTINUED)

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

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

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

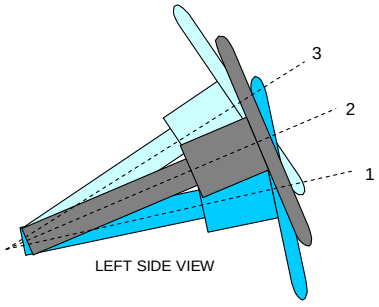
HEAD RESTRAINT ADJUSTMENT

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	21.5	0
Geometric Center Position, No. 2	23.2	40
Uppermost Position, No. 3	24.9	80
Telescoping Steering Wheel Travel		80
Test Position	23.2	40

DATA SHEET NO. 2 … (CONTINUED)

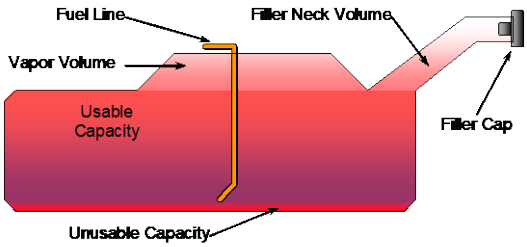
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

FUEL PUMP

The vehicle is equipped with an electric fuel pump. The pump will work at “ignition on” until pressure in the system has reached working pressure in the system; then it will stop pumping fuel until the engine has been started.



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	65.11
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	65.11
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	60.55
Actual Amount of Solvent Used in Test	60.55
1/3 of Usable Capacity	21.70

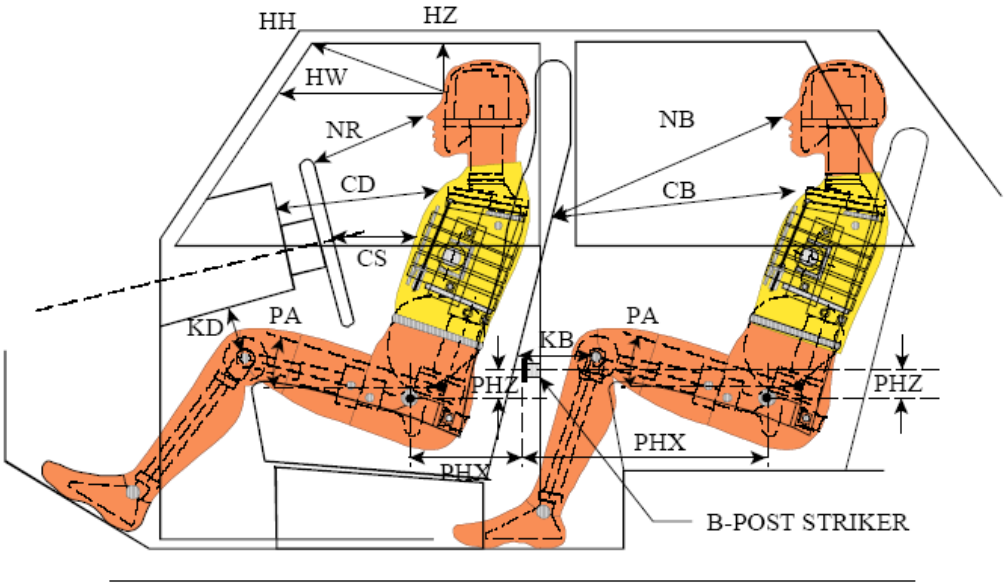
Is the Actual Amount of Solvent Used in the test equal to 93% ± 1% of the Usable Capacity stated in the Form No. 1? ☒ **Yes** ☐ **No**

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



LEFT SIDE VIEW

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

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

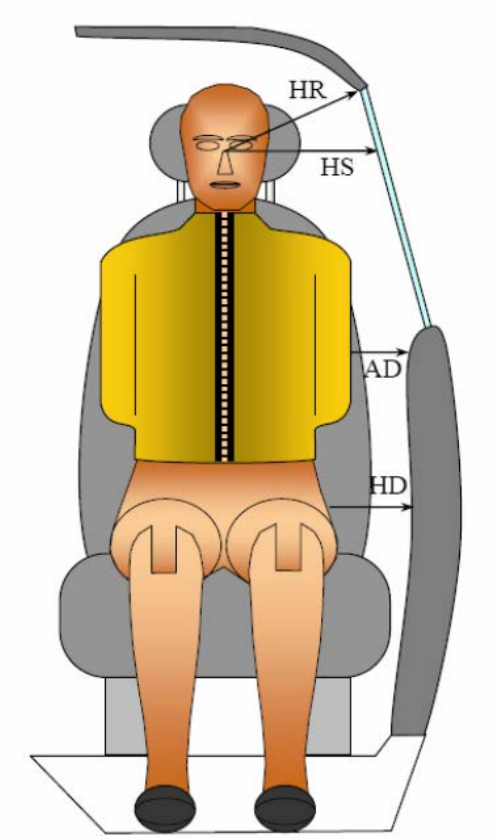
Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (º)	Length (mm)	Angle (º)
HH		Head to Header	396			
HW		Head to Windshield	605			
HZ	HZ	Head to Roof	209		301	
NR	NB	Nose to Rim/Seat Back	399		564	
CD	CB	Chest to Dash/Seat Back	625		533	
CS		Chest to Steering Wheel	345			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	168	2.0	227	0.8
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	179		225	1.2
PAX°	PAX°	Pelvic Tilt Angle X		24.8		22.4
	PAY°	Pelvic Tilt Angle Y		0.0		0.0
PHX	PHX	Hip Point to Striker (x-axis)	145		203	
PHZ	PHZ	Hip Point to Striker (z-axis)	188		232	

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

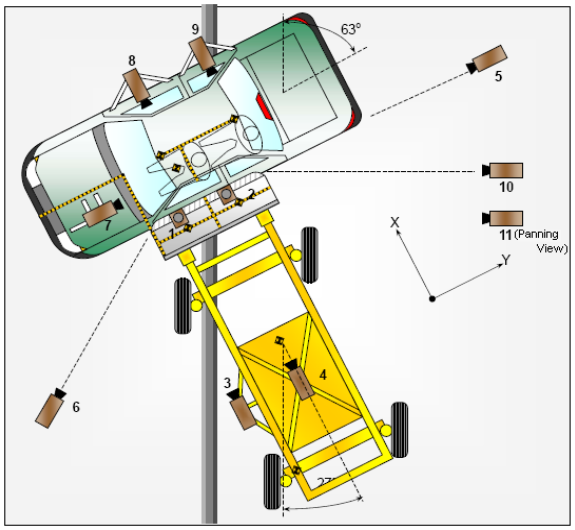
Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	293	523
HS	Head to Side Window	mm	356	375
AD	Arm to Door	mm	118	151
HD	H-Point to Door	mm	143	206

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



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)	316	-1424	608	8.5	1000
8	Driver Side (On-Board)	435	-1451	576	8	1000
9	Passenger Side (On-Board)	342	-1418	650	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

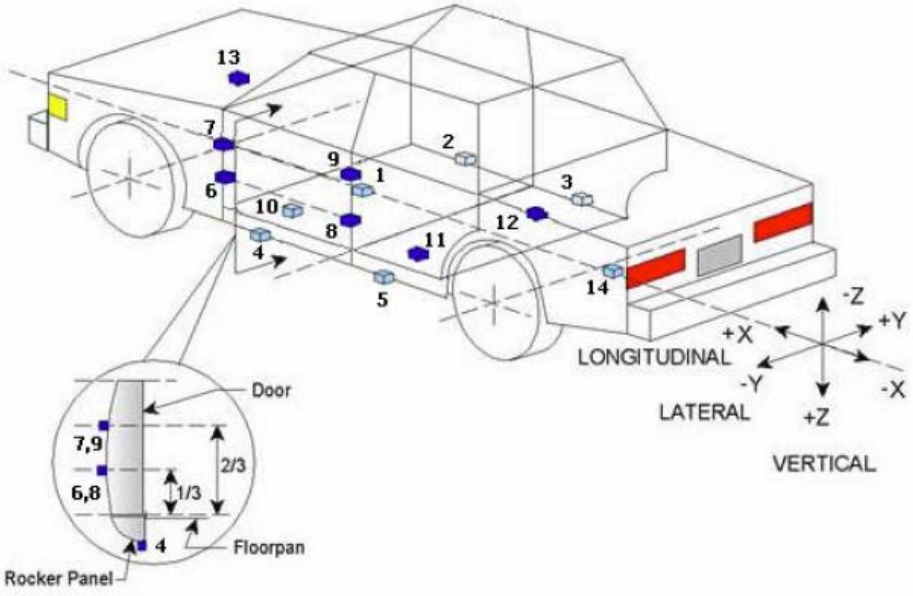
Driver Dummy Channels	16
Passenger Dummy Channels	19
Vehicle Structure Accelerometers	23
MDB Channels	5
Total	63

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1872	0	-550
2	Right Sill at Front Seat	2441	727	-450
3	Right Sill at Rear Seat	1631	727	-450
4	Left Sill at Front Door	2273	-850	-284
5	Left Sill at Rear Door	1982	-850	-284
6	A-Pillar Lower	3042	-893	-825
7	A-Pillar Middle	3042	-893	-1070
8	B-Pillar Lower	1919	-757	-825
9	B-Pillar Middle	1919	-757	-1070
10	Front Seat Track	2236	-560	-670
11	Rear Seat Structure	1731	-317	-440
12	Right Rear Occupant Compartment	1776	417	-340
13	Engine Block	3591	-215	-1060
14	Rear Floorpan Above Axle	827	0	-650

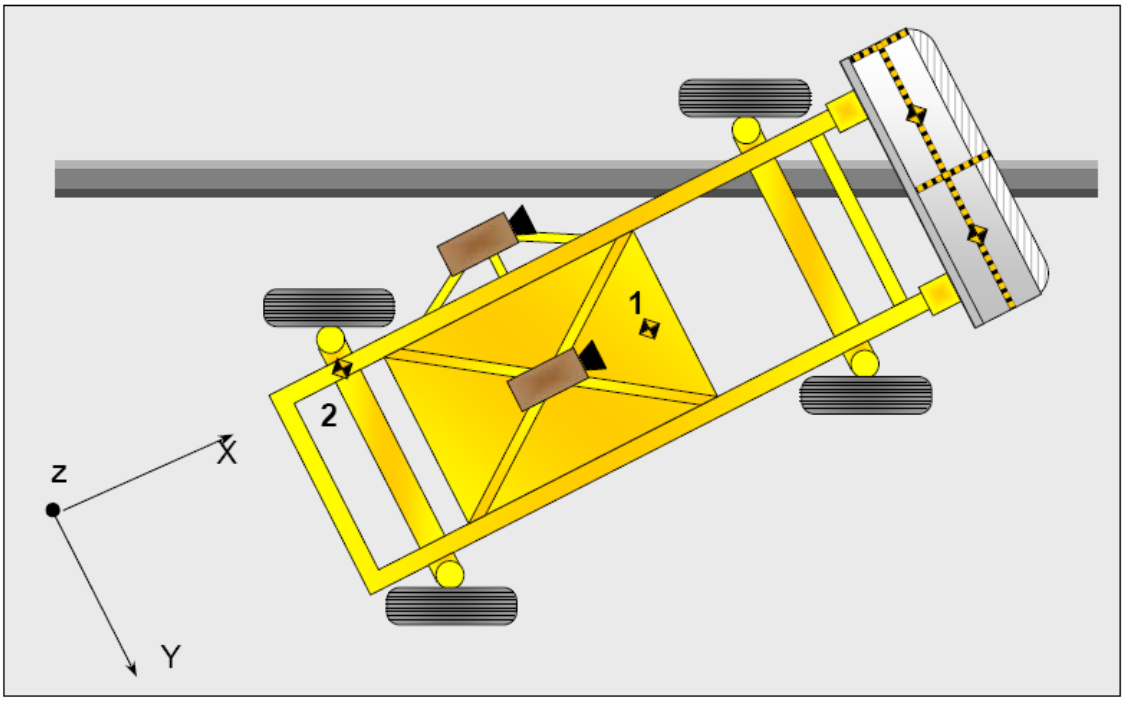
Reference: X – Rear surface of vehicle (+ forward)
Y – Vehicle centerline (+ to right)
Z – Ground plane (+ down)

DATA SHEET NO. 7

MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



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	1530

DATA SHEET NO. 8

POST-TEST OBSERVATIONS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Air Bag	Curtain Air Bag
Top of Head	Curtain Air Bag, Headliner	Curtain Air Bag
Left Side of Head	Curtain Air Bag, Headliner	Curtain Air Bag
Back of Head	Headrest	Seatback, Center Seat Headrest
Left Shoulder	Curtain Air Bag	Door Panel
Upper Torso	Torso/Pelvis Air Bag	Door Panel
Lower Torso	Torso/Pelvis Air Bag	Door Panel
Left Hip	Torso/Pelvis Air Bag	Seatback, Door Panel
Left Knee	None	None

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: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

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: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side 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		
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheelbase	mm		2862
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		496
Actual Impact Point (Aft of Front Axle)	mm		494
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	2
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	18

DATA SHEET NO. 9

MDB SUMMARY OF RESULTS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

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	61.66
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.75
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.0
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.1
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	26.9

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

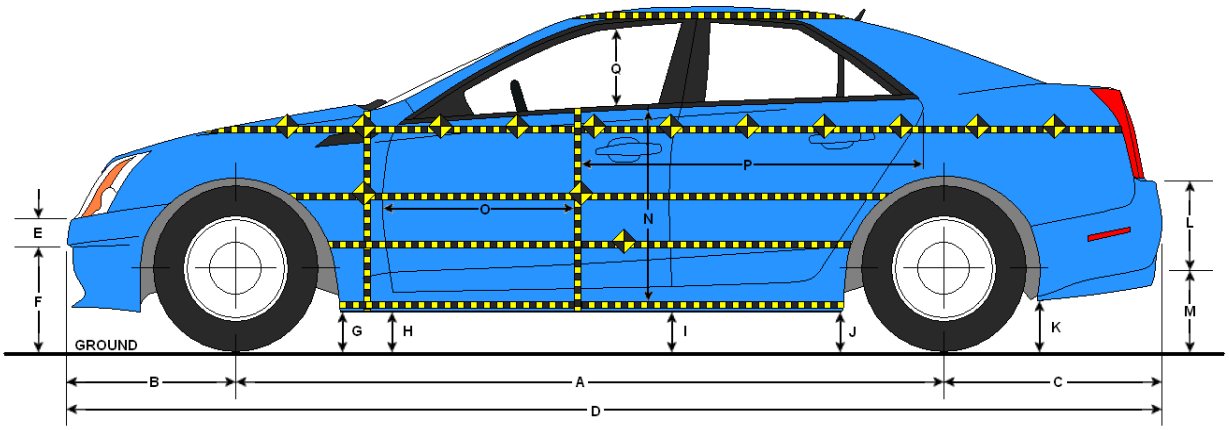
Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Right	250
B	Top of Bumper	533	800	Left	186
C	Mid Level	686	800	Left	174
D	Top of Stack	813	800	Left	223

DATA SHEET NO. 10

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Change
A	Wheelbase	2862	2865	3
B	Front Axle to FSOV	833	814	-19
C	Rear Axle to RSOV	939	939	0
D	Total Length at Centerline	4634	4631	-3
E	Front Bumper Thickness	142	143	1
F	Front Bumper Bottom to Ground	467	475	8
G	Sill Height at Front Wheel Well	256	257	1
H	Sill Height at Front Door Leading Edge	347	377	30
I	Sill Height at B-Pillar	391	396	5
J1	Sill Height at Rear Wheel Well	266	254	-12
J2	Pinch Weld Height at Rear Wheel Well	249	251	2
K	Sill Height Aft of Rear Wheel Well	297	297	0
L	Rear Bumper Thickness	380	381	1
M	Rear Bumper Bottom to Ground	359	358	-1
N	Sill Height to Bottom of Front Window Sill	686	674	-12
O	Front Door Leading Edge to Impact CL	639	638	-1
P	Rear Door Trailing Edge to Impact CL	1424	1413	-11
Q	Front Window Opening	456	482	26
R	Right Side Length	3985	3986	1
S	Left Side Length	3987	3982	-5
T	Vehicle Width at B-Pillar	1870	1769	-101

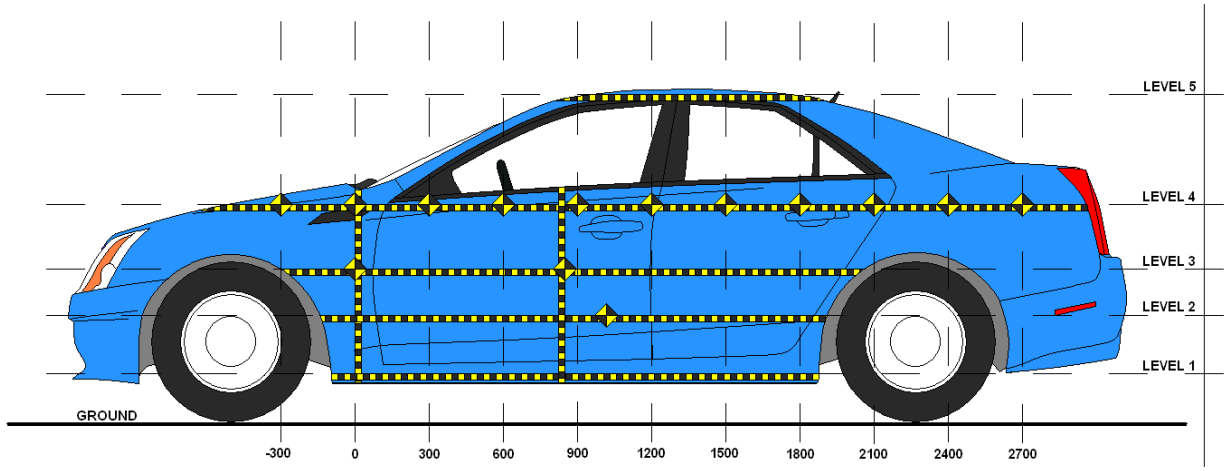
*All measurements in mm with tolerance of ± 3mm

DATA SHEET NO. 11

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



LEFT SIDE VIEW

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	372	116	1650
2	Occupant H-Point	683	195	1650
3	Mid-Door	749	199	1800
4	Window Sill	1070	38	1350
5	Window Top	1610	6	1950

DATA SHEET NO. 11 … (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

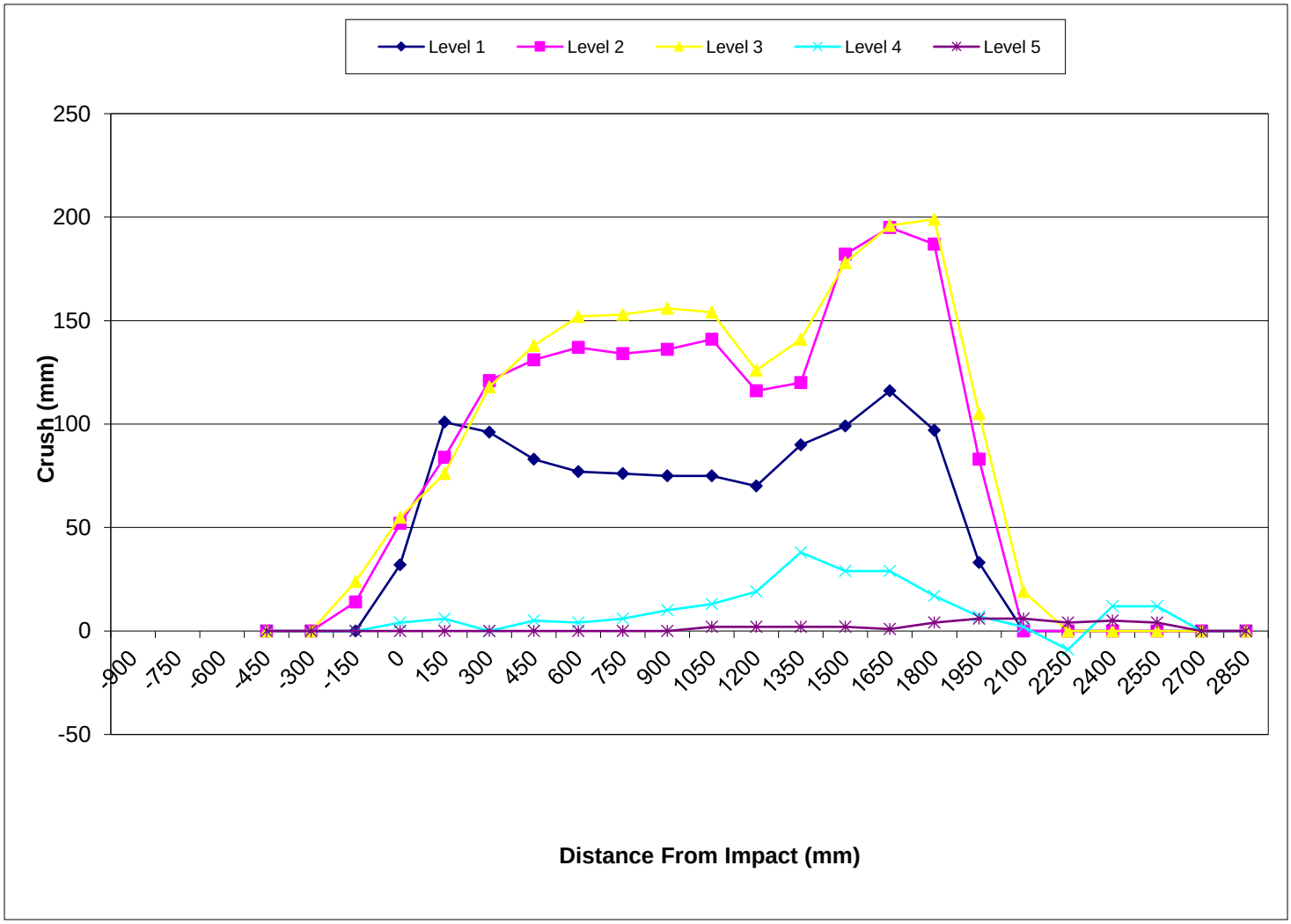
	Pre-Test (mm)					Post-Test (mm)					Crush (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150		553	553				567	577				14	24		
0	574	555	555	655		606	607	610	659		32	52	55	4	
150	571	554	555	649		672	638	631	655		101	84	76	6	
300	576	553	555	642		672	674	673	642		96	121	118	0	
450	591	554	557	633		674	685	695	638		83	131	138	5	
600	598	557	559	624		675	694	711	628		77	137	152	4	
750	602	559	560	615		678	693	713	621		76	134	153	6	
900	603	562	561	607	852	678	698	717	617	852	75	136	156	10	0
1050	605	563	560	601	856	680	704	714	614	858	75	141	154	13	2
1200	605	563	559	593	860	675	679	685	612	862	70	116	126	19	2
1350	605	563	559	590	865	695	683	700	628	867	90	120	141	38	2
1500	602	562	559	588	866	701	744	737	617	868	99	182	178	29	2
1650	589	558	557	588	869	705	753	753	617	870	116	195	196	29	1
1800	574	550	550	590	870	671	737	749	607	874	97	187	199	17	4
1950	565	545	543	594	871	598	628	648	601	877	33	83	105	7	6
2100			539	596	872			558	598	878			19	2	6
2250				598	874				589	878				-9	4
2400				603	874				615	879				12	5
2550				609	878				621	882				12	4
2700															
2850															

DATA SHEET NO. 11 … (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

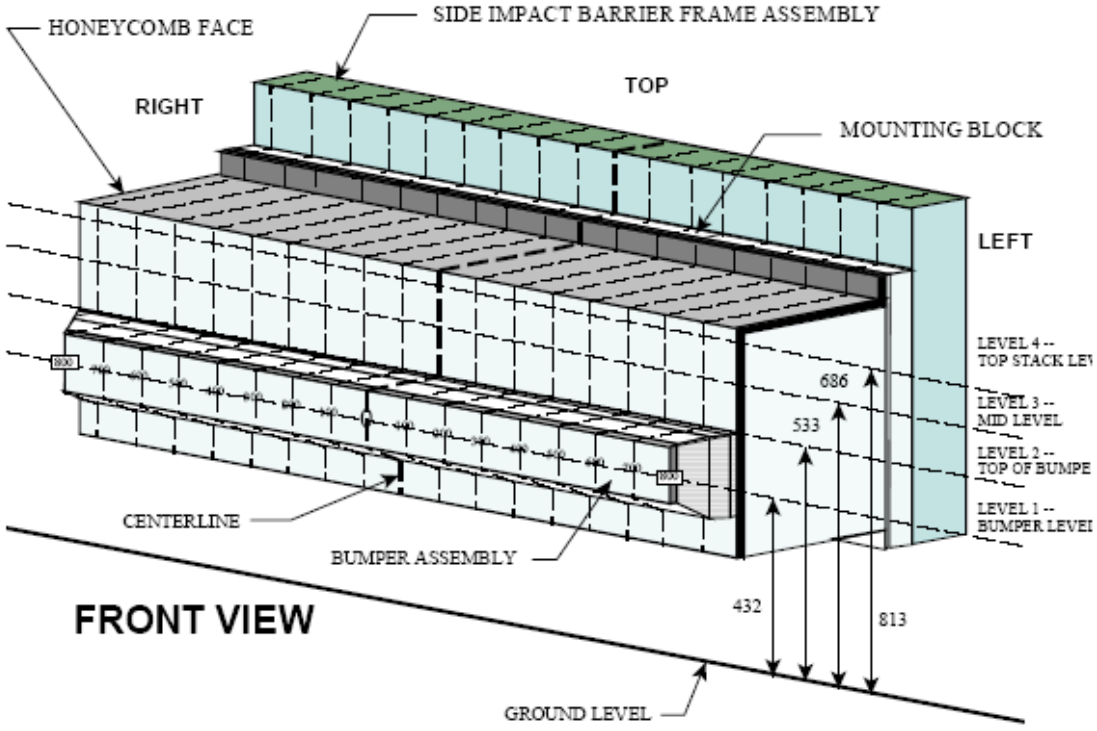


DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



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	0	100	200	300	400	500	600	700	800
1	250	236	231	232	230	228	225	225	222	221	220	221	220	221	227	227	236
2	166	164	161	158	148	144	126	125	146	148	147	151	151	154	159	171	186
3	93	92	86	114	146	149	136	106	103	100	93	98	86	96	130	146	174
4	107	96	96	119	141	151	122	105	98	97	91	94	99	114	142	185	223

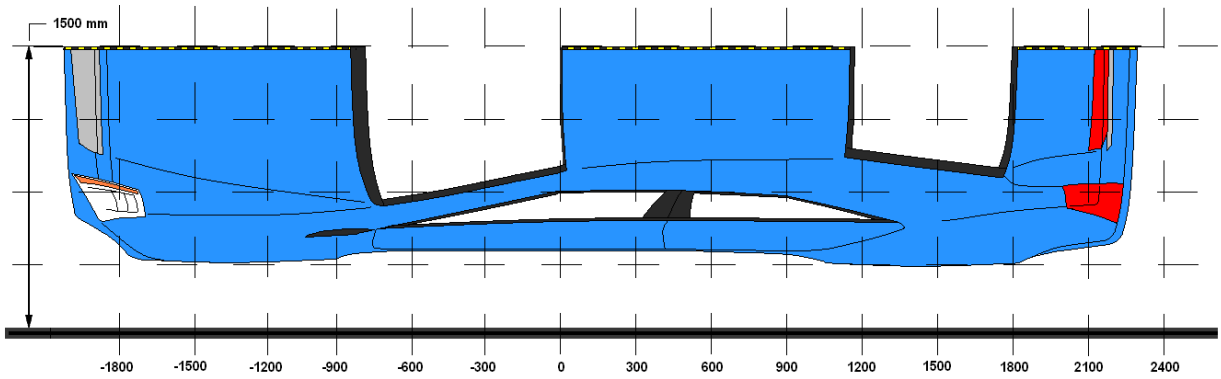
*All dimensions in millimeters.

DATA SHEET NO. 13

VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2550	4	609	621	12
2	1950	3	543	648	105
3	1350	3	559	700	141
4	900	3	561	717	156
5	450	3	557	695	138
6	-150	3	553	577	24

MDB DAMAGE PROFILE DISTANCES

DPD	From MDB Centerline		Level	Crush (mm)
	Distance (mm)	Direction		
1	800	Left	1	250
2	500	Left	1	221
3	200	Left	1	220
4	200	Right	1	225
5	500	Right	1	232
6	800	Right	1	250

DATA SHEET NO. 14

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025

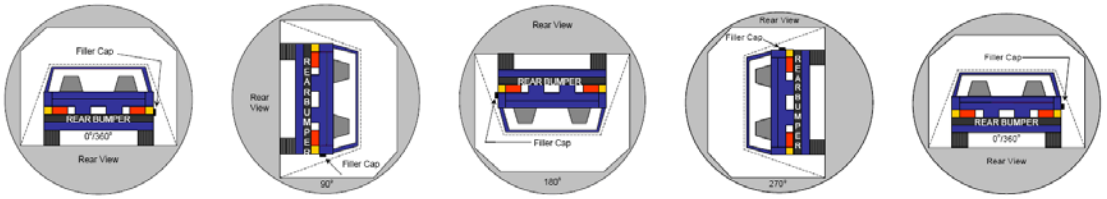
Temperature at Time of Impact: 7.2 °C Test Time: 1:55 P.M.

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: No spillage.



0° TO 90° 90° TO 180° 180° TO 270° 270° TO 360°

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	83	300	383
90° To 180°	81	300	381
180° To 270°	80	300	380
270° To 360°	85	300	385

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

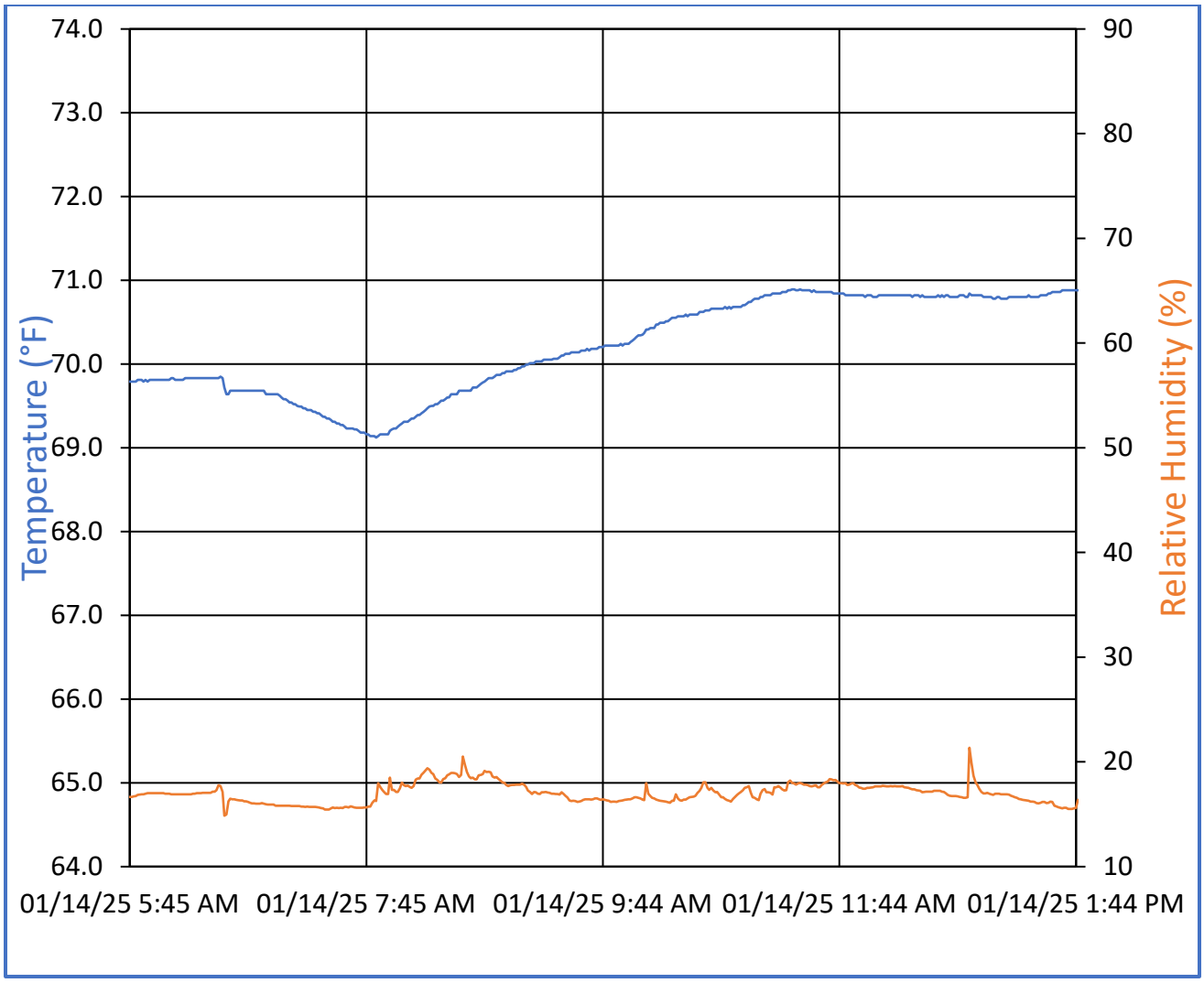
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

DATA SHEET NO. 15

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2025 BMW X3 xDrive30i 5-Door MPV NHTSA No. M20254102

Test Program: NCAP MDB Side Impact Test Test Date: 01/14/2025



APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS … (CONTINUED)

TABLE OF PHOTOGRAPHS … (CONTINUED)

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

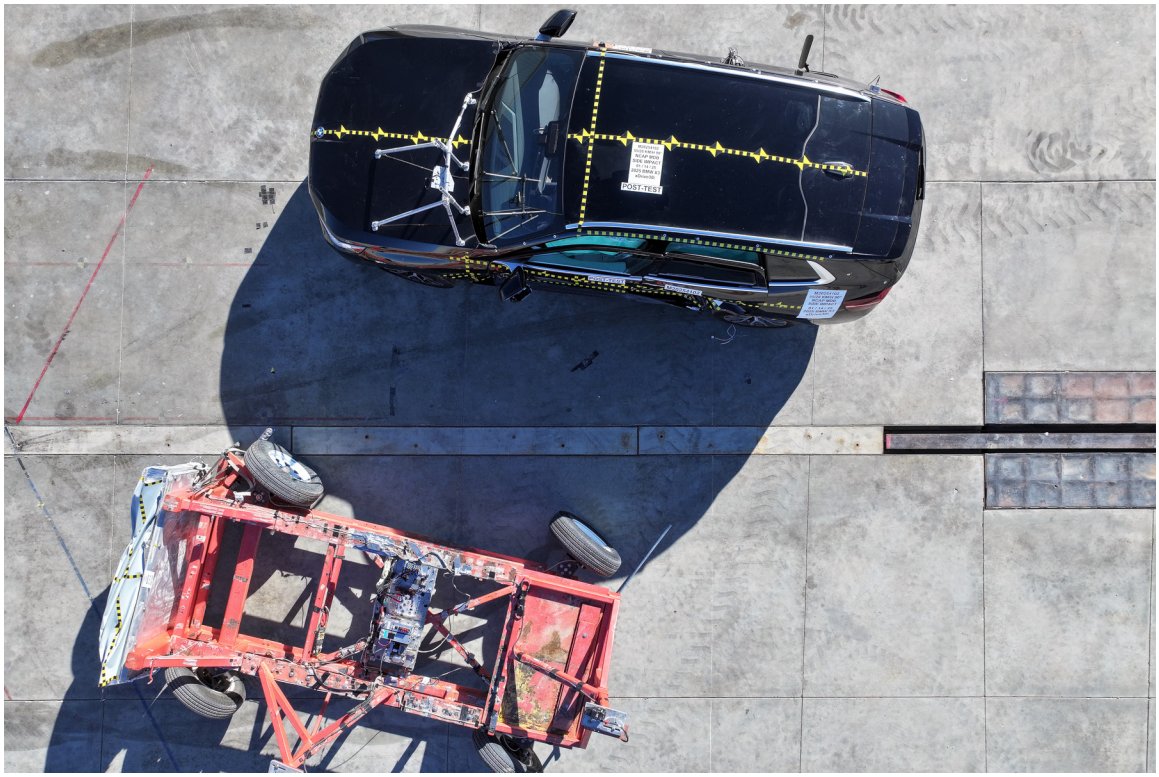


FIGURE 16. Post-Test Overhead View of Test Area

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

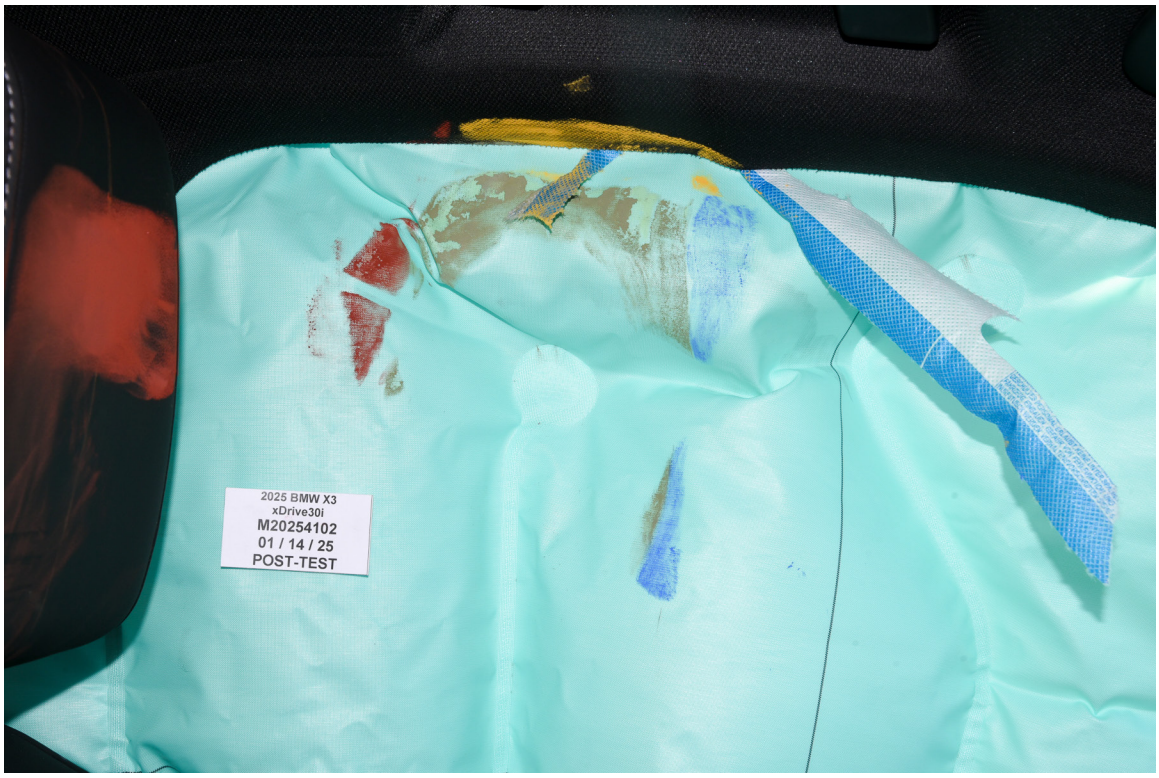


FIGURE 49. Post-Test Driver Dummy Close-Up Head Contact with Side Air Bag View

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

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

Photograph Not Applicable

No Rear Passenger Head Contact With Vehicle Interior

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

Photograph Not Applicable

Vehicle Not Equipped With Rear Passenger Side Air Bag

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

Vehicle Not Equipped With Rear Passenger 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

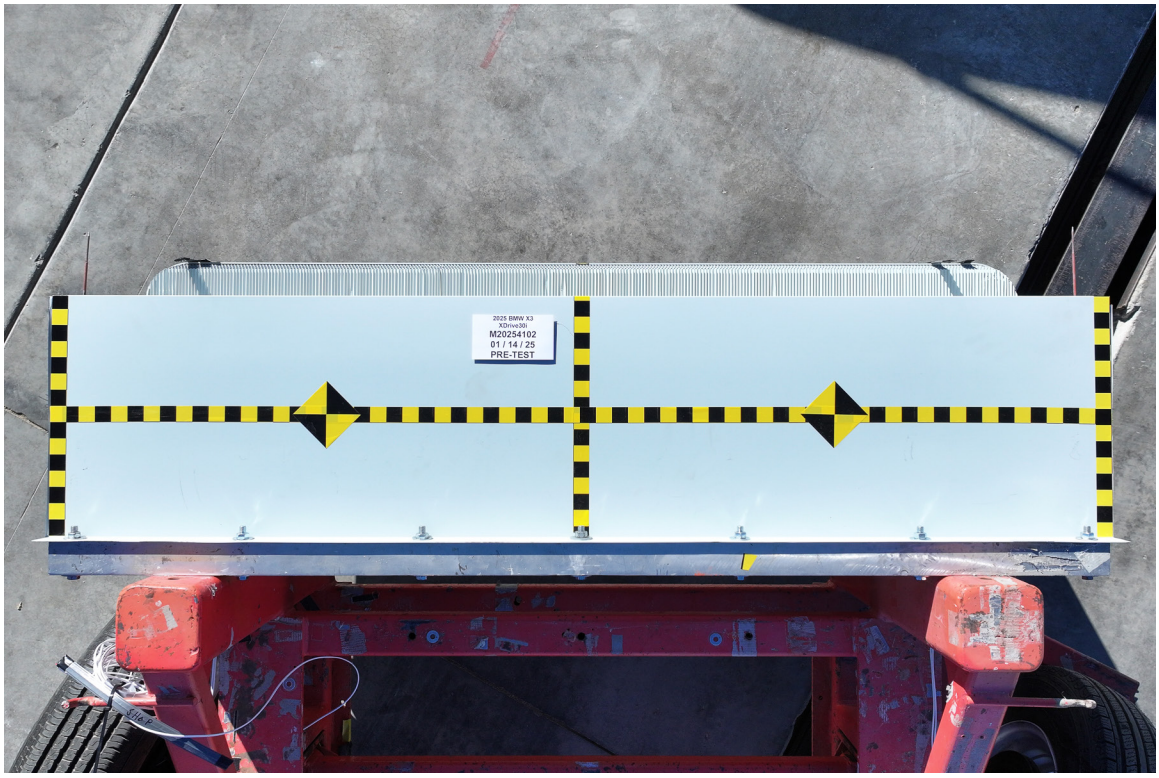


FIGURE 86. Pre-Test Top View of MDB Impactor Face

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

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

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

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

FIGURE 91. Post-Test Right Side 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

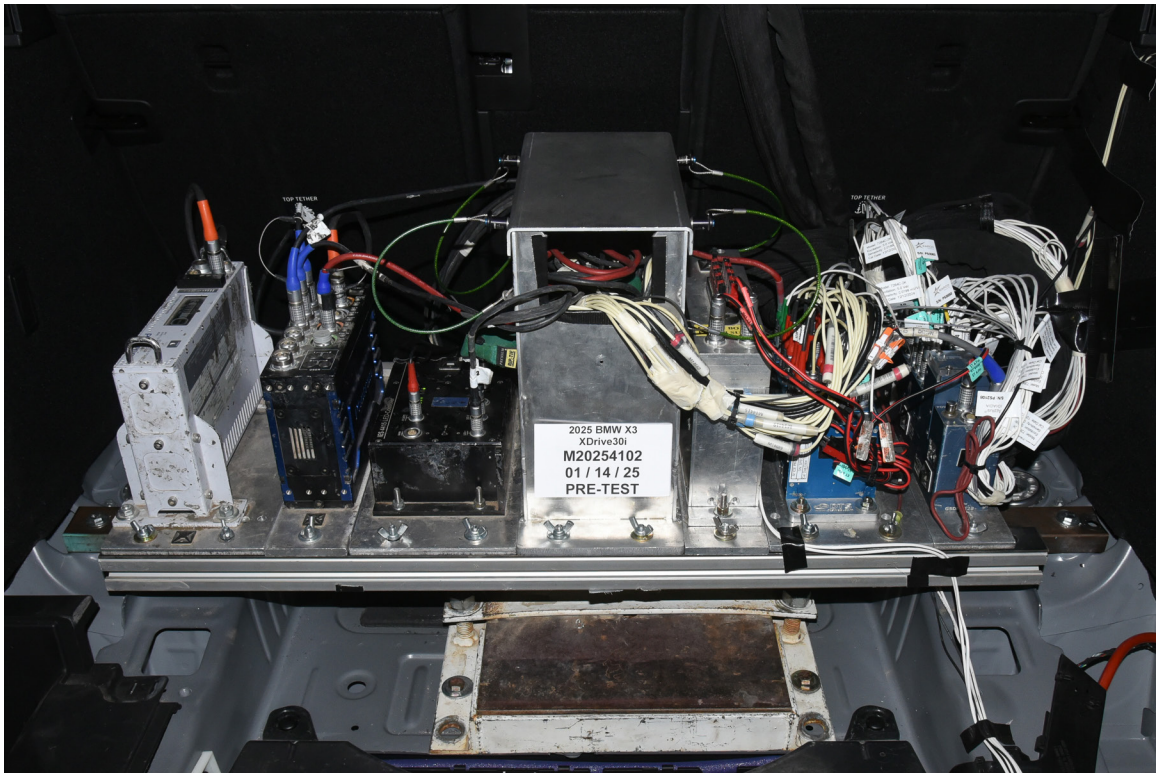


FIGURE 94. Pre-Test Ballast View

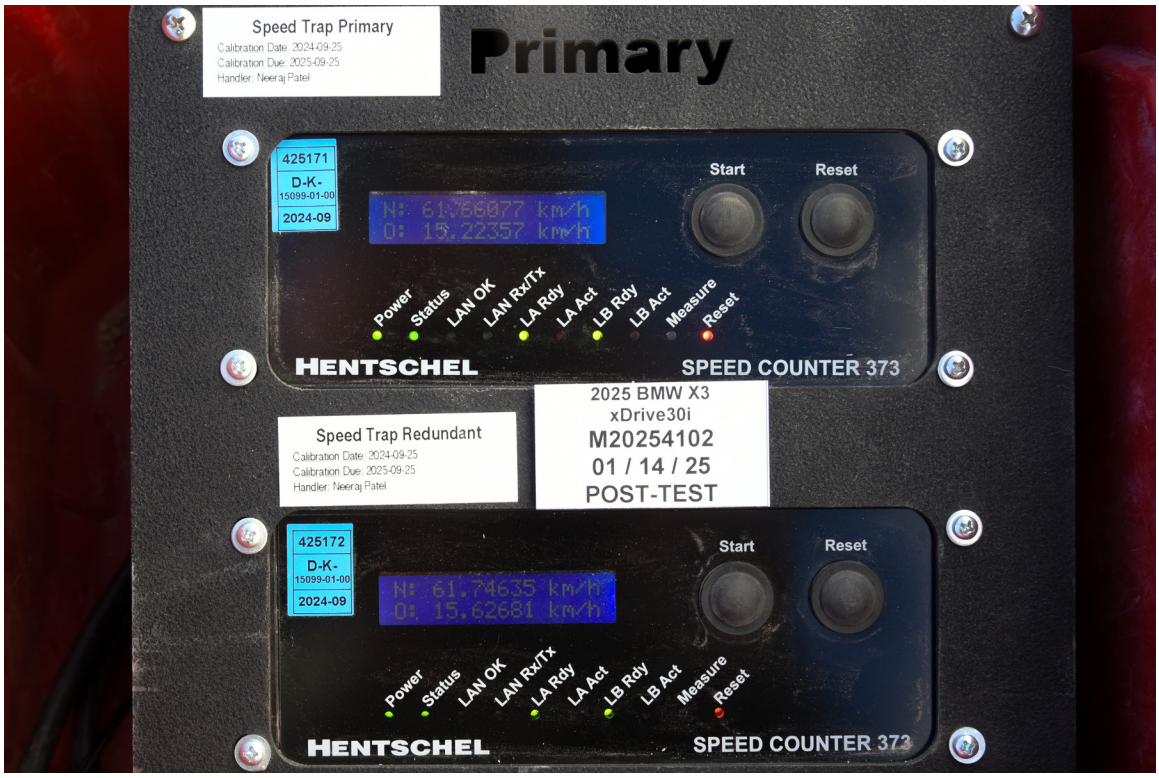


FIGURE 95. Post-Test Primary and Redundant Speed Trap Read-Out

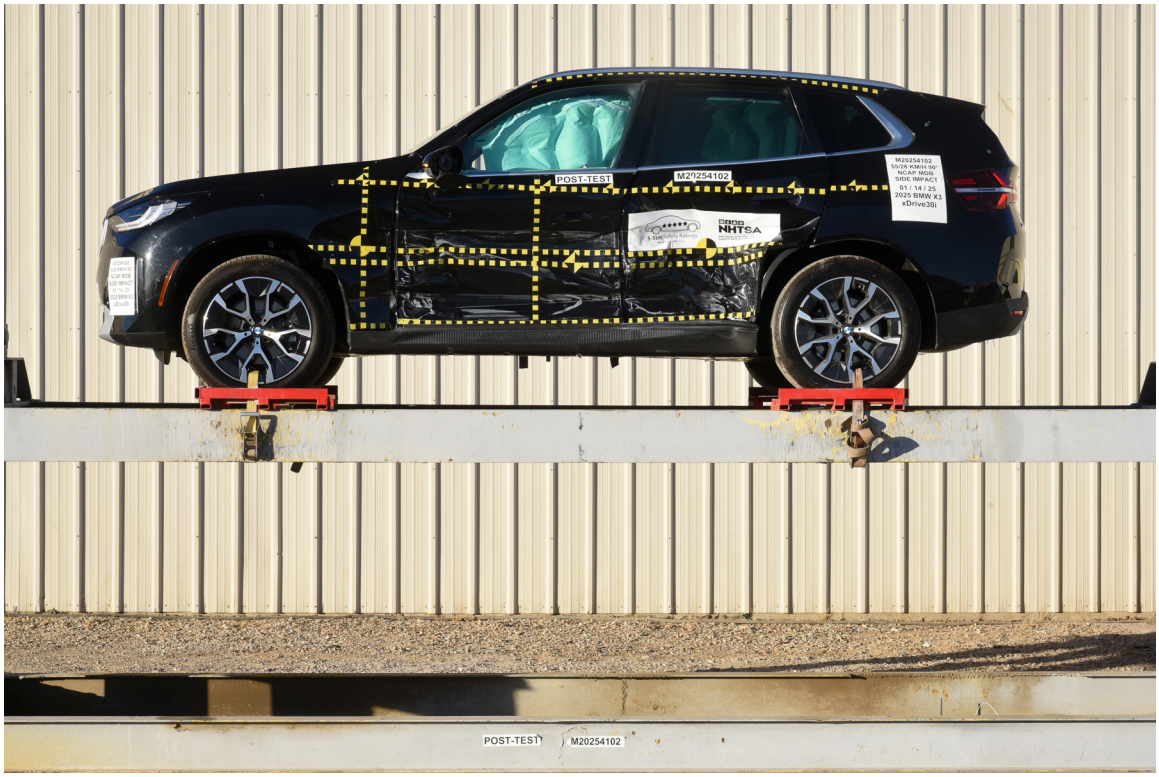


FIGURE 96. FMVSS No. 301 Static Rollover 0 Degrees

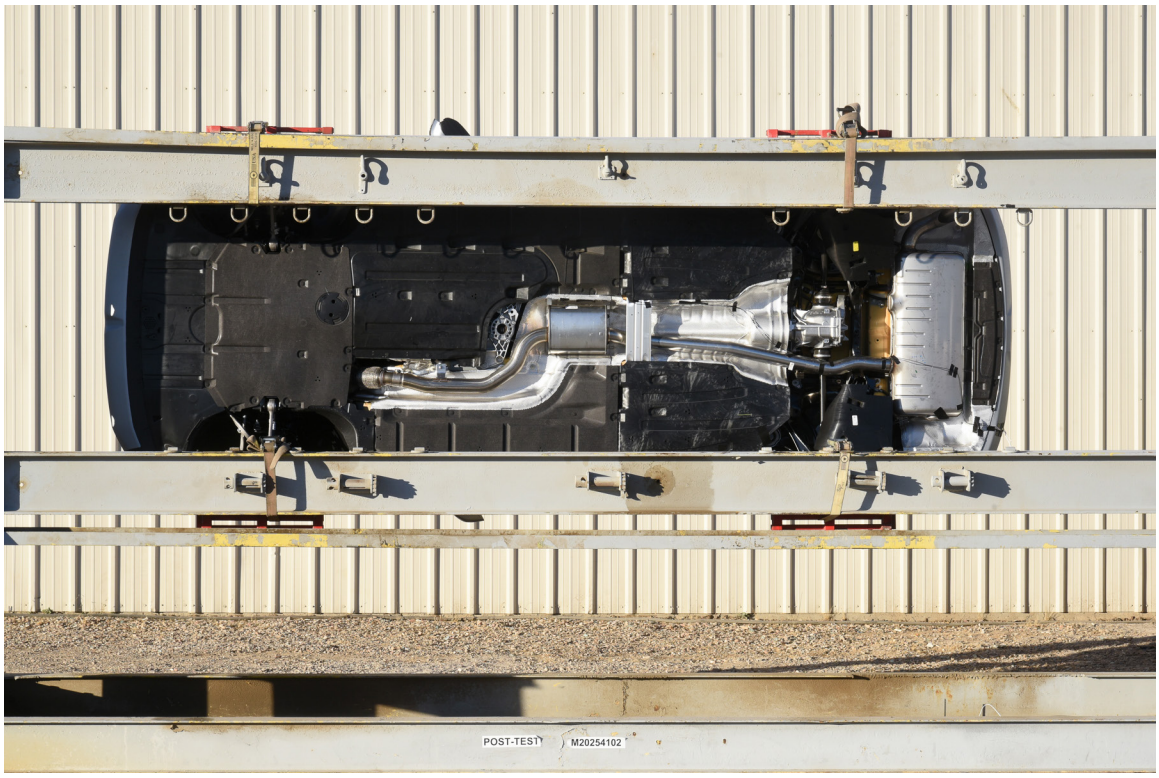


FIGURE 97. FMVSS No. 301 Static Rollover 90 Degrees

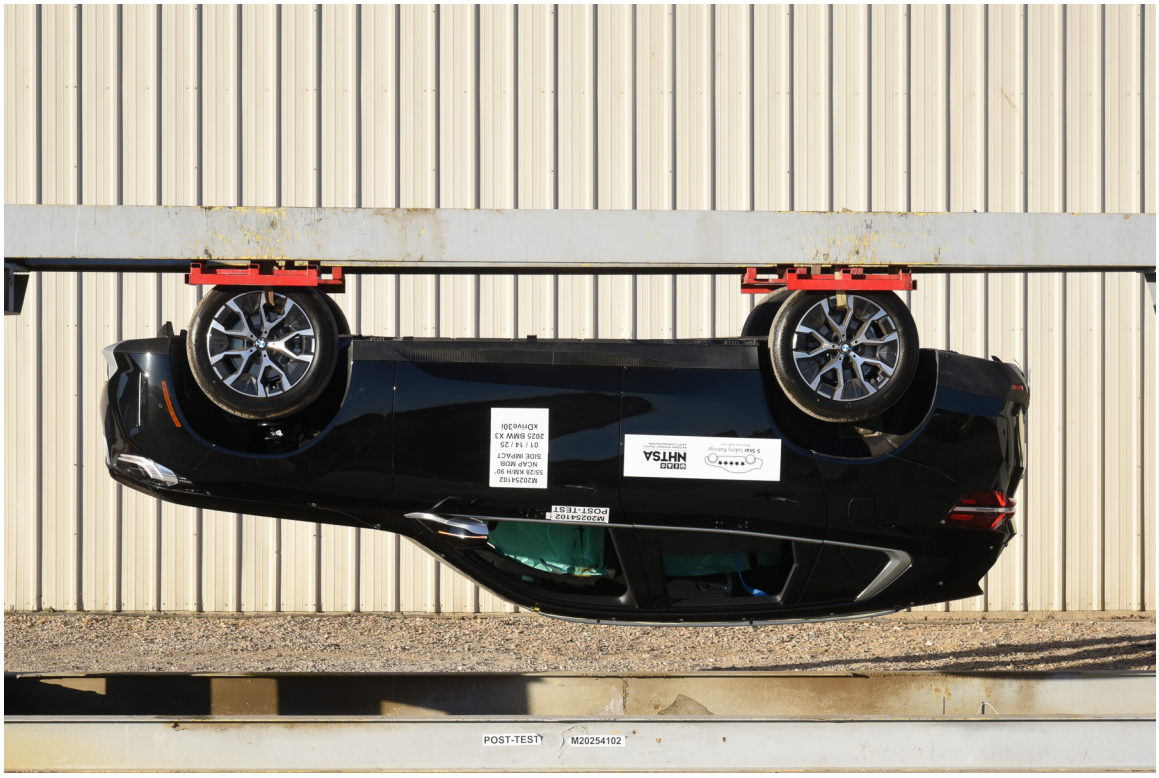


FIGURE 98. FMVSS No. 301 Static Rollover 180 Degrees

FIGURE 99. FMVSS No. 301 Static Rollover 270 Degrees

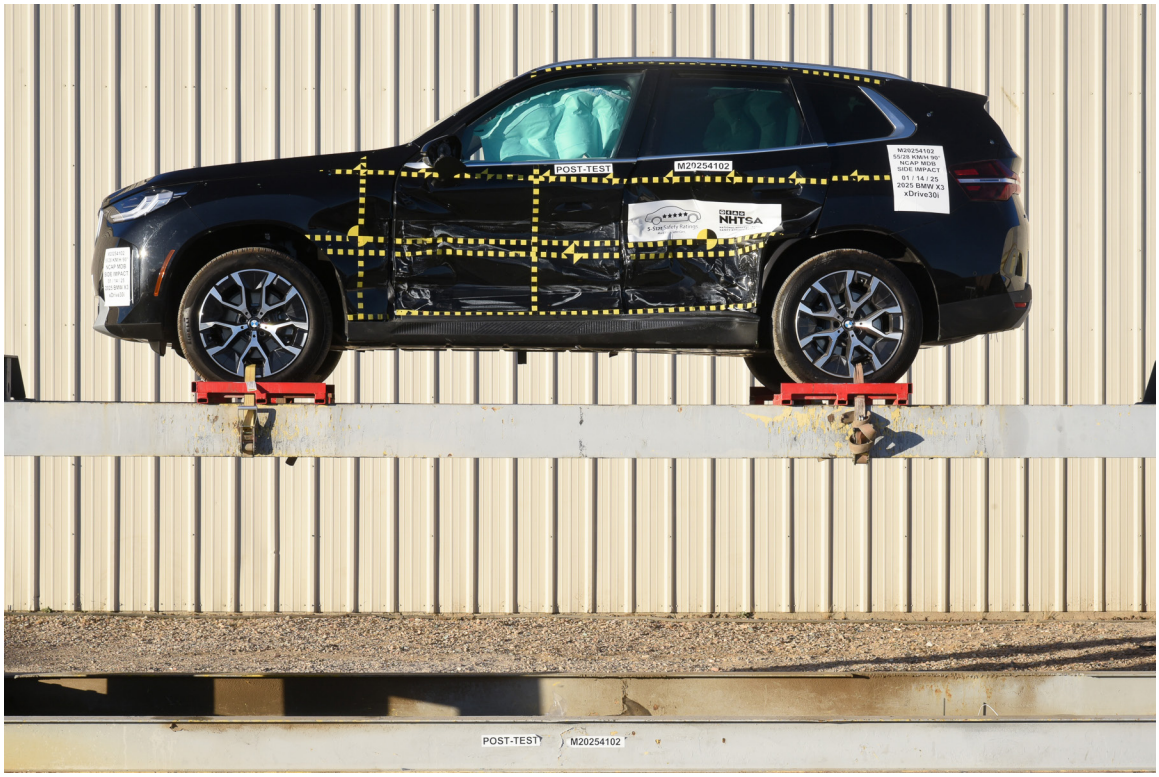


FIGURE 100. FMVSS No. 301 Static Rollover 360 Degrees

FIGURE 101. Impact Event

The Ultimate Driving Machine®

2025 BMW X3 xDrive30i

Manufacturer's Suggested Retail Price	$	49,500.00
Options and Additional Charges: (Optional equipment may supercede standard equipment; check with your authorized BMW center).		
Black Sapphire Metallic	$	650.00
Black Perforated Veganza		Included
Convenience Package	$	1,400.00
- Heated Steering Wheel		
- Panoramic moonroof		
- Remote Engine Start		
- Travel and Comfort System		
Speed Limit Info		Included
AG Standard Trim		Included
48V Mild Hybrid System		Included
Exhaust tech SULEV20 PM.		Included
STEPTRONIC auto w/shift paddle		Included
Mobility Kit		Included
Standard suspension		Included
19" Aero Midnight Grey Bicolor		Included
Satin aluminum exterior trim		Included
Comfort Access keyless entry		Included
Ambient Lighting		Included
Dark Graphite Interior Trim		Included
Sport seats		Included
Lumbar support		Included
Heated front seats		Included
Active Driving Assistant		Included
Parking Assistant		Included
Dual Zone Auto Climate Control	$	200.00
BMW Assist eCall		Included
Wireless Device Charging		Included
Personal eSIM 5G		Included
SiriusXM Satellite Radio with		Included
Hi-fi sound system		Included
Anthracite headliner		Included
Refrigerant		Included
5AT Preparation for FOD		Included
Destination Charge	$	1,175.00
Total Suggested Retail Price	$	52,925.00

Standard Features

Performance and efficiency
- 2.0-liter BMW TwinPower Turbo inline 4-cylinder, 16-valve engine with variable valve control (Double-VANOS and Valvetronic) and high-precision direct injection
- 48V mild hybrid system
- Driving Dynamics Control with selectable drive modes
- 8-speed STEPTRONIC Automatic transmission

Handling, ride and braking
- Dynamic Stability Control (DSC) with Dynamic Traction Control (DTC)
- Front and rear anti-roll (stabilizer) bars
- xDrive all-wheel-drive system

Connectivity
- ConnectedDrive Services with My BMW App
- Apple CarPlay and Android Auto compatibility
- Remote Software Upgrade capable
- Wireless Device Charging

Exterior
- Satin Aluminum line exterior trim
- Power-folding, heated side mirrors

Audio system
- HiFi Sound System
- SiriusXM with 360L + 1 year Platinum Plan subscription

Instrumentation and controls
- BMW Curved Display features Navigation operated by voice, touchscreen, or iDrive Controller
- Sport steering wheel
- My Modes includes Personal, Sport, and Efficient

Comfort and convenience
- Dual Zone Automatic Climate Control
- Rain-sensing windshield wipers
- Comfort Access keyless entry
- Heated, power front sport seats with lumbar support

Safety and security
- Front and rear Head Protection System (HPS)
- Parking Assistant with trailer and reversing assist
- Seat-mounted front side-impact airbags
- LATCH attachments for child-restraint safety installation
- BMW Assist eCall notification
- Forward Collision Mitigation, Active Blind Spot Detection, and Lane Keeping Assistant

Warranty
- 4-year/50,000-mile New Vehicle Limited Warranty for Passenger Cars and Light Trucks 2025 Models
- 12-year Unlimited Mileage Rust Perforation Limited Warranty
- 4-year Unlimited Mileage Roadside Assistance Program

BMW Ultimate Care™

$0 **Maintenance Program** For the first 3 years or 36,000 miles, whichever comes first on scheduled maintenance.

Your Maintenance Costs.

Engine Oil Services:	$0	Air Filter:	$0
Cabin Microfilter:	$0	Spark Plugs:	$0
Vehicle Checks:	$0	Brake Fluid:	$0

EPA DOT Fuel Economy and Environment — Gasoline Vehicle

Fuel Economy

29 MPG combined city/hwy — 27 city — 33 highway

3.4 gallons per 100 miles

Small SUVs range from 14 to 118 MPG. The best vehicle rates 140 MPGe.

You **spend** **$1,500** more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel **cost** **$2,200**

Fuel Economy & Greenhouse Gas Rating (tailpipe only): 6 (1 — 10 Best)

Smog Rating (tailpipe only): 7 (1 — 10 Best)

This vehicle emits 299 grams CO_2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fueleconomy.gov.

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

fueleconomy.gov

Calculate personalized estimates and compare vehicles

Smartphone QR Code™

PARTS CONTENT INFORMATION

For Vehicles in this Car Line:
US/Canadian Parts Content: **9%**

Major Source of Foreign Parts Content:
GERMANY: **15%**

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

For this Vehicle:
Final Assembly Point: **SPARTANBURG, SC, USA**

Country of Origin:
Engine: **UNITED KINGDOM**
Transmission: **GERMANY**

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score **Not Rated**
Based on the combined ratings of frontal, side and rollover.
Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash	Driver	**Not Rated**
	Passenger	**Not Rated**

Based on the risk of injury in a frontal impact.
Should ONLY be compared to other vehicles of similar size and weight.

Side Crash	Front seat	**Not Rated**
	Rear seat	**Not Rated**

Based on the risk of injury in a side impact.

Rollover **Not Rated**
Based on the risk of rollover in a single-vehicle crash.

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

This vehicle is equipped with bumpers that can withstand an impact of 2.5 miles per hour with no damage to the vehicle's body and safety systems, although the bumper and related components may sustain damage. The bumper system on this vehicle conforms to the current federal bumper standard of 2.5 miles per hour.

BMW of North America, LLC
Woodcliff Lake, NJ 07677

VPC Location: Plant Spartanburg

Port of Entry: GREENVILLE-SPARTANBURG

Sold To:
Century West BMW
PO Box 978
North Hollywood CA
(818) 432-5800 91603-0978

Ship To:
Century West BMW
4245 Lankershim Blvd
North Hollywood CA
(818) 432-5800 91602-2802

(20241018)

PN 01 00 0 039 673

VIN: 5UX53GP04S9Y42719

Peel Here

FIGURE 102. Monroney Label

Activating/deactivating the Rear Occupant Alert

To activate or deactivate the Rear Occupant Alert, proceed as follows:

1. Go through the menu as follows: Apps menu / "Vehicle" / "Rear Occupant Alert".
2. Select the desired setting.

Safety mode

Depending on vehicle equipment, the driver and front passenger seat belt straps are automatically tightened once after driving off, if the seat belt is fastened.

If necessary, in critical driving situations, e.g., during emergency braking, the front seat belts are automatically pretensioned.

After a critical driving situation without an accident, the front seat belts are loosened again. If the belt tension does not loosen automatically, stop the vehicle and unbuckle the seat belt using the red button in the buckle. Fasten the seat belt before continuing to drive.

Front head restraints

Safety information

Warning

Removal or incorrect adjustment of head restraints can cause injuries in the head and neck area. There is a risk of injury.

- Before driving, install the removed head restraints on the occupied seats.
- Adjust the head restraint so its center supports the back of the head at as close to eye level as possible.
- Adjust the distance so that the head restraint is as close as possible to the back of the head. Adjust the distance via the backrest tilt as needed.
- For manually adjustable head restraints: After adjusting, make sure that the head restraint is correctly engaged.

Warning

Body parts can be jammed when moving the head restraint. There is a risk of injury. Make sure that the area of movement is clear when moving the head restraint.

Warning

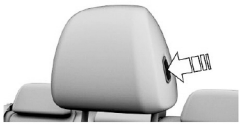
Objects on the head restraint reduce the protective effect in the head and neck area. There is a risk of injury.

- Do not use seat or head restraint covers.
- Do not hang objects, for instance clothes hangers, directly on the head restraint.
- Only use accessories that have been determined to be safe for attachment to a head restraint.
- Do not use any accessories, for instance pillows, while driving.

Adjusting the height

- To lower the height of the head restraint, press the release button on the backrest, arrow 1, then push the head restraint downward.
- To raise the height of the head restraint, push the head restraint upward.

Adjusting the distance



- To move the head restraint backward, press the button on the side of the head restraint, then push the head restraint backward.
- To move the head restraint forward, press the button on the side of the head restraint, then pull the head restraint forward.

Removing/attaching head restraints

Only remove the head restraint if no one will be sitting in the seat in question.

1. Raise the head restraint to the resistance point.
2. Press the release button on the backrest, arrow 1, then pull the head restraint completely out.

Proceed in the reverse order to install the head restraint.

Rear head restraints

Safety information

Warning

Removal or incorrect adjustment of head restraints can cause injuries in the head and neck area. There is a risk of injury.

- Before driving, install the removed head restraints on the occupied seats.
- Adjust the head restraint so its center supports the back of the head at as close to eye level as possible.
- Adjust the distance so that the head restraint is as close as possible to the back of the head. Adjust the distance via the backrest tilt as needed.
- For manually adjustable head restraints: After adjusting, make sure that the head restraint is correctly engaged.

Warning

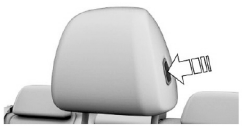
Body parts can be jammed when moving the head restraint. There is a risk of injury. Make sure that the area of movement is clear when moving the head restraint.

Warning

Objects on the head restraint reduce the protective effect in the head and neck area. There is a risk of injury.

- Do not use seat or head restraint covers.
- Do not hang objects, for instance clothes hangers, directly on the head restraint.
- Only use accessories that have been determined to be safe for attachment to a head restraint.
- Do not use any accessories, for instance pillows, while driving.

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



- To move the head restraint backward, press the button on the side of the head restraint, then push the head restraint backward.
- To move the head restraint forward, press the button on the side of the head restraint, then pull the head restraint forward.

Removing/attaching head restraints

Only remove the head restraint if no one will be sitting in the seat in question.

1. Raise the head restraint to the resistance point.
2. Press the release button on the backrest, arrow 1, then pull the head restraint completely out.

Proceed in the reverse order to install the head restraint.

Outer head restraints: Adjusting the height

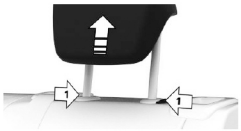
- To lower the head restraint, press the release button on the backrest, arrow 1, then push the head restraint downward.
- To raise the head restraint, push the head restraint upward.

Removing/attaching head restraints

Only remove the head restraint if no one will be sitting in the seat in question.

1. Fold down the corresponding rear seat backrest.

   To fold down the rear seat backrest, follow the steps for enlarging the cargo area.
2. Raise the head restraint to the resistance point.
3. Press both release buttons on the backrest, arrows 1, simultaneously then pull the head restraint completely out.



Additional information:

Enlarging the cargo area, refer to page 301.

Proceed in the reverse order to install the head restraint.

Exterior mirrors

Principle

Exterior mirror settings are saved to the active BMW ID or driver profile. If the BMW ID or driver profile is reactivated later, the saved position is brought up automatically.

Depending on vehicle equipment, the driver's side exterior mirror also dims automatically. Photocells in the interior mirror are used to control this.

Depending on vehicle equipment, both exterior mirrors are heated automatically as necessary and when drive-ready state is on.

General information

The front passenger's side exterior mirror is more curved than the driver's side mirror.

The current exterior mirror adjustment can be stored using the memory function.

Safety information

Warning

Objects in the mirror are closer than they appear. The distance to the road users behind could be incorrectly estimated, for instance while changing lanes. There is a risk of accident, injury, and property damage. Estimate the distance to the traffic behind by looking over your shoulder.

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

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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)

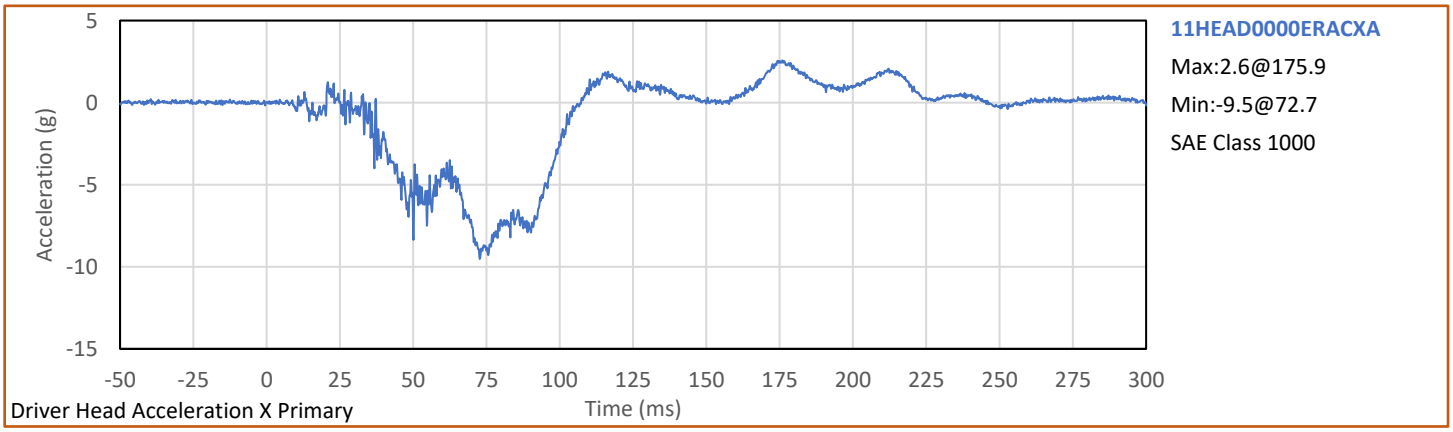
MDB Center of Gravity Acceleration (Y)

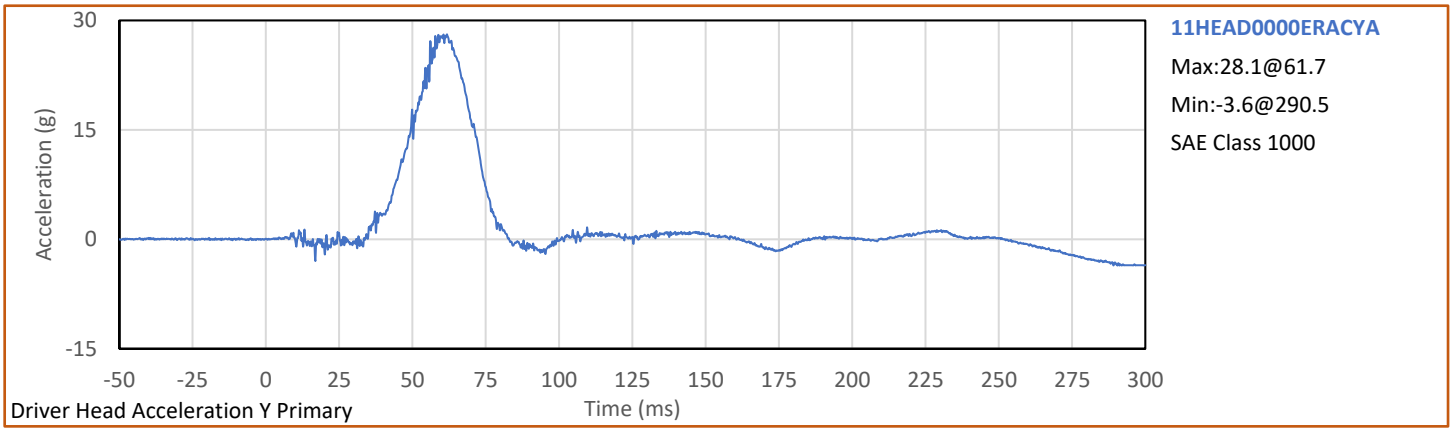
MDB Center of Gravity Acceleration (Z)

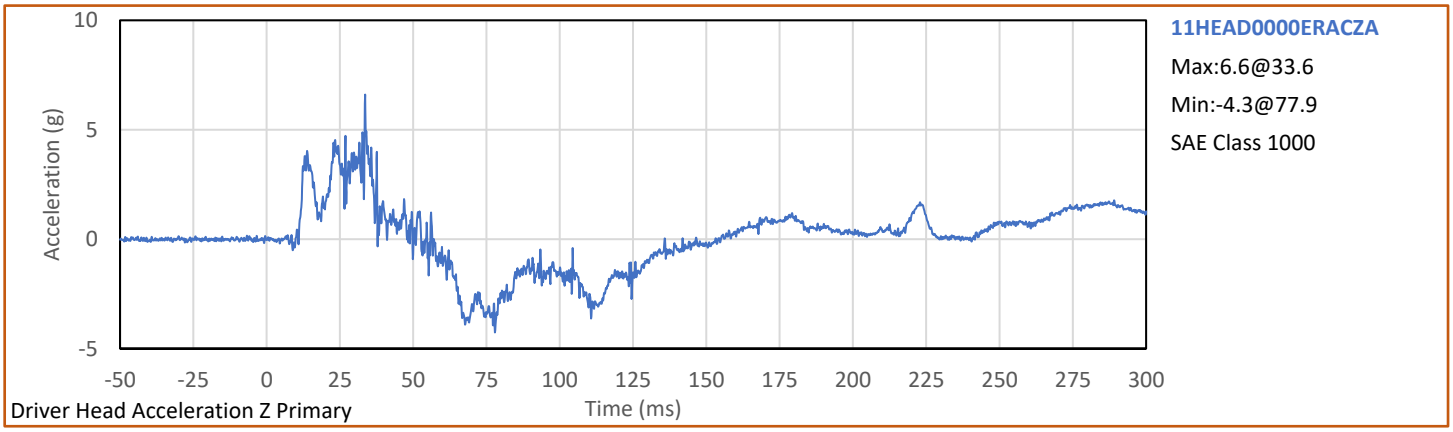
MDB Rear Acceleration (X)

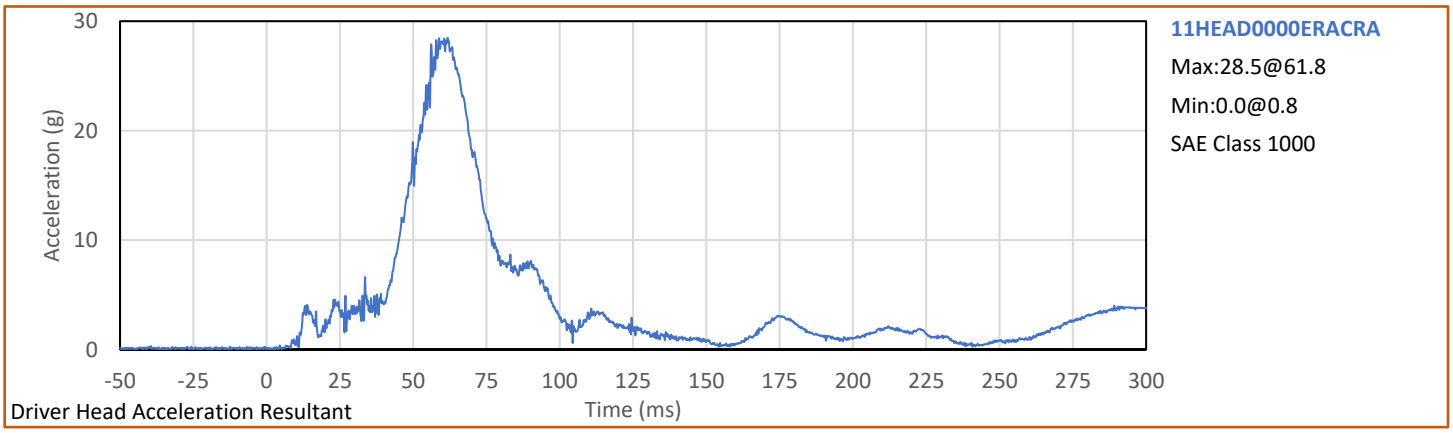
MDB Rear Acceleration (Y)

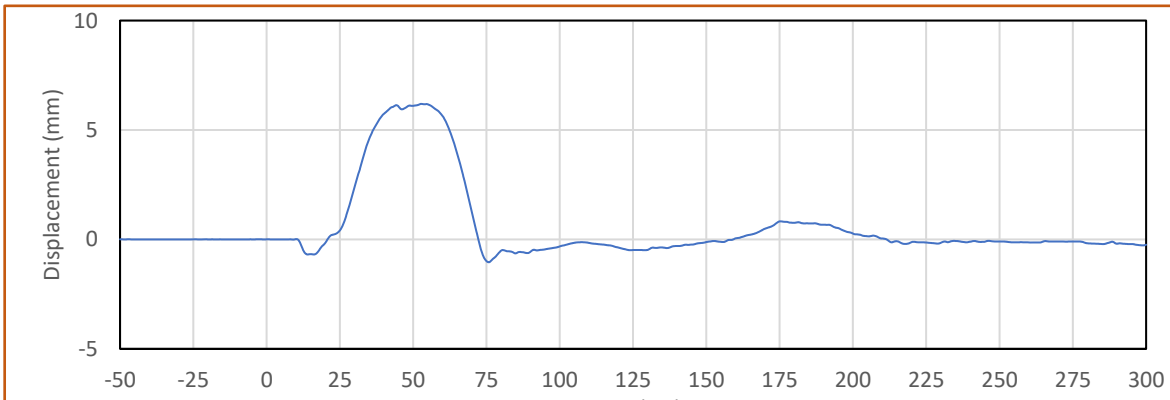
Test Vehicle:	2025 BMW X3 xDrive30i 5-Door MPV	NHTSA No.:	M20254102
Test Program:	NCAP MDB Side Impact Test	Test Date:	1/14/2025





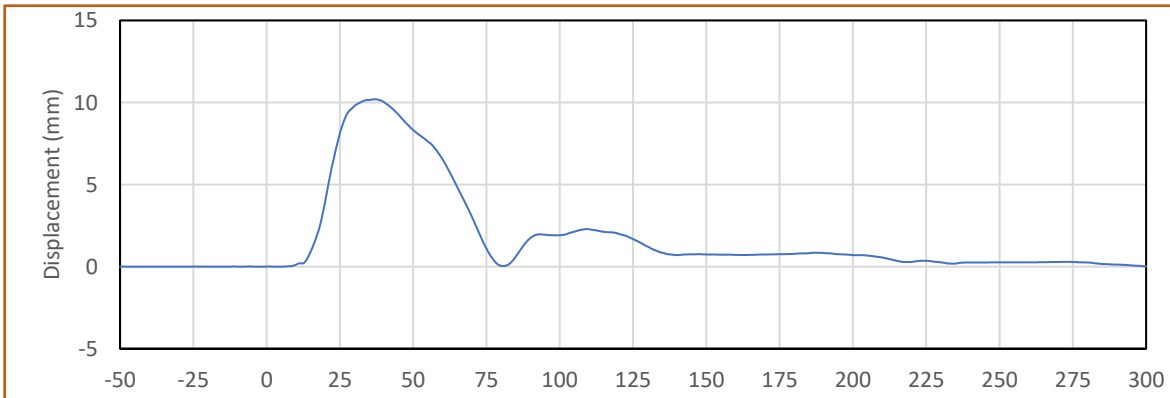






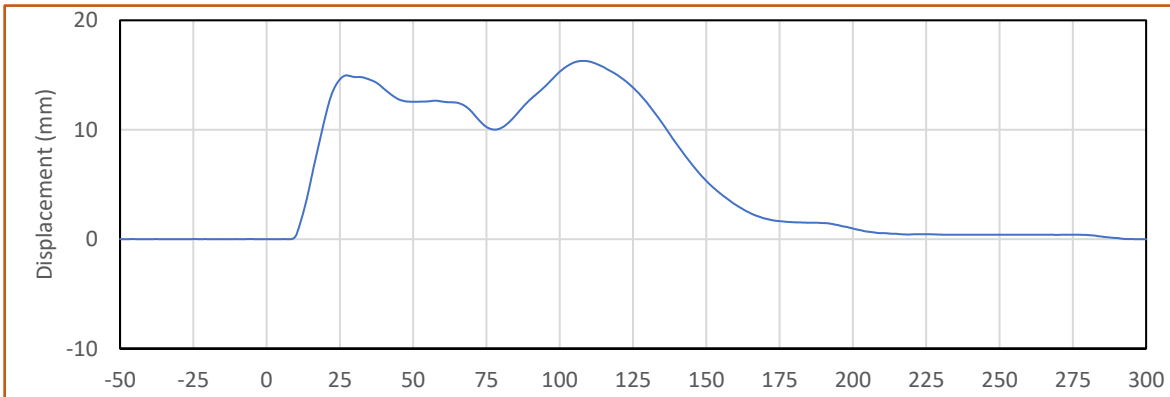
11RIBSLEUPERDSYC
Max:6.2@52.7
Min:-1.0@75.8
SAE Class 180

Driver Upper Thorax Rib Deflection Y



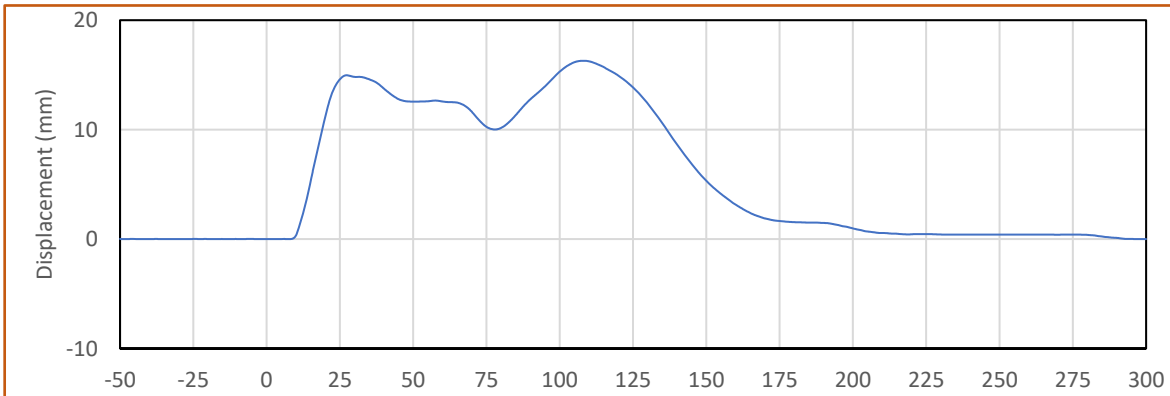
11RIBSLEMIERDSYC
Max:10.2@36.9
Min:0.0@4.7
SAE Class 180

Driver Middle Thorax Rib Deflection Y



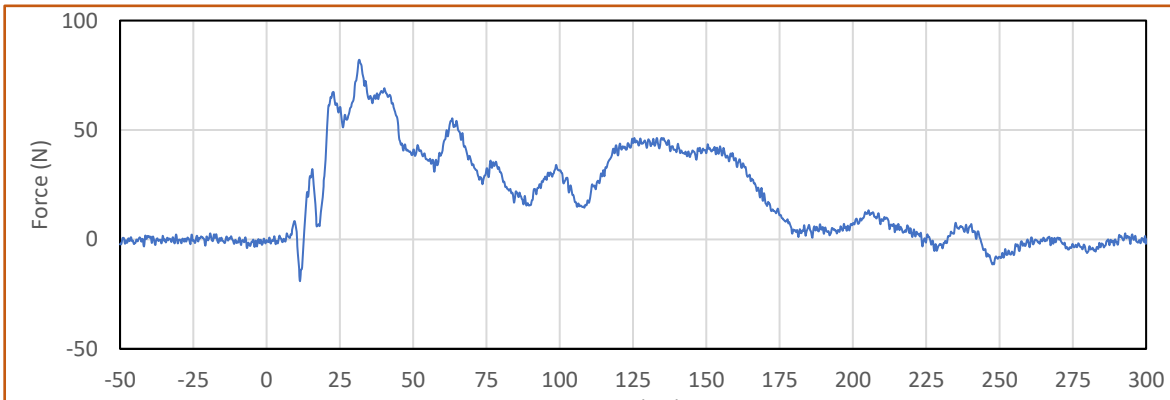
11RIBSLELOERDSYC
Max:16.3@108.1
Min:0.0@7.8
SAE Class 180

Driver Lower Thorax Rib Deflection Y



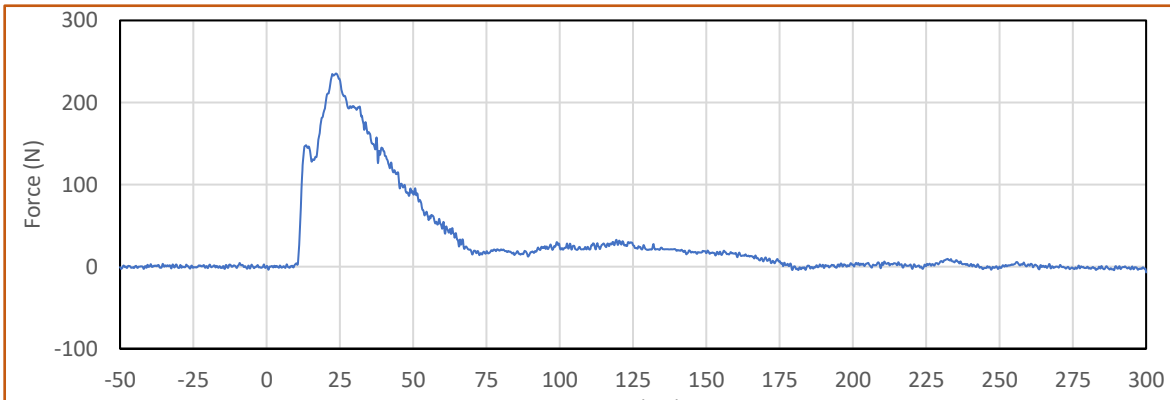
11RIBSLELOERDSYC
Max:16.3@108.1
Min:0.0@7.8
SAE Class 180

(Maximum) Driver Lower Thorax Rib Deflection Y



Driver Anterior Abdominal Force Y

11ABDOLEFRERFOYB
Max:82.1@31.6
Min:-19.1@11.4
SAE Class 600



Driver Middle Abdominal Force Y

11ABDOLEMIERFOYB
Max:235.3@23.7
Min:-4.3@299.9
SAE Class 600

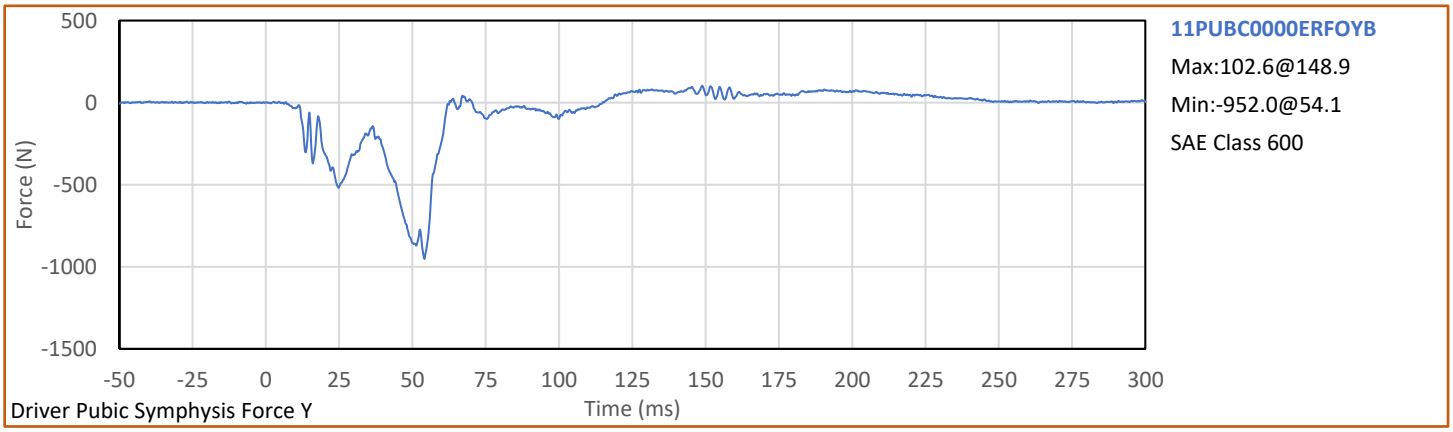
Driver Posterior Abdominal Force Y

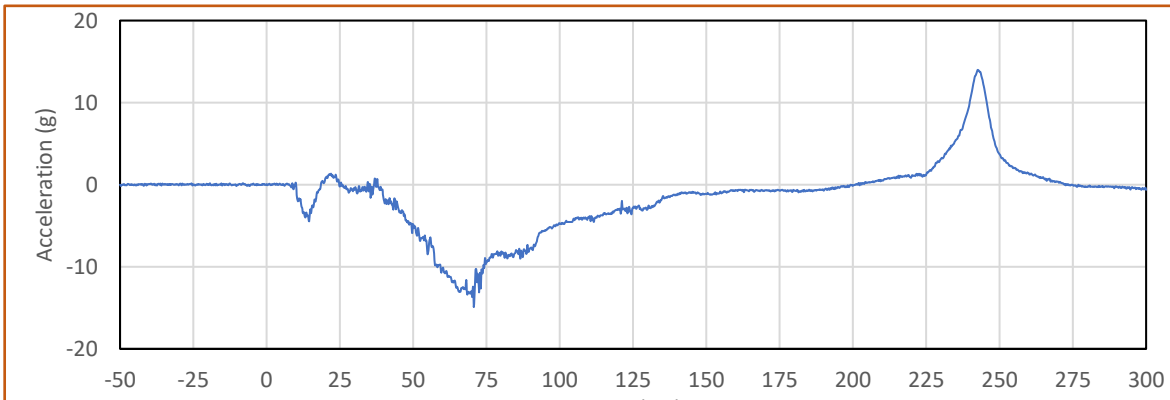
11ABDOLEREERFOYB
Max:359.9@24.0
Min:-5.3@279.4
SAE Class 600

Driver Total Abdominal Force Y

11ABDOLESUERFOYB
Max:657.7@23.0
Min:-12.9@247.3
SAE Class 600

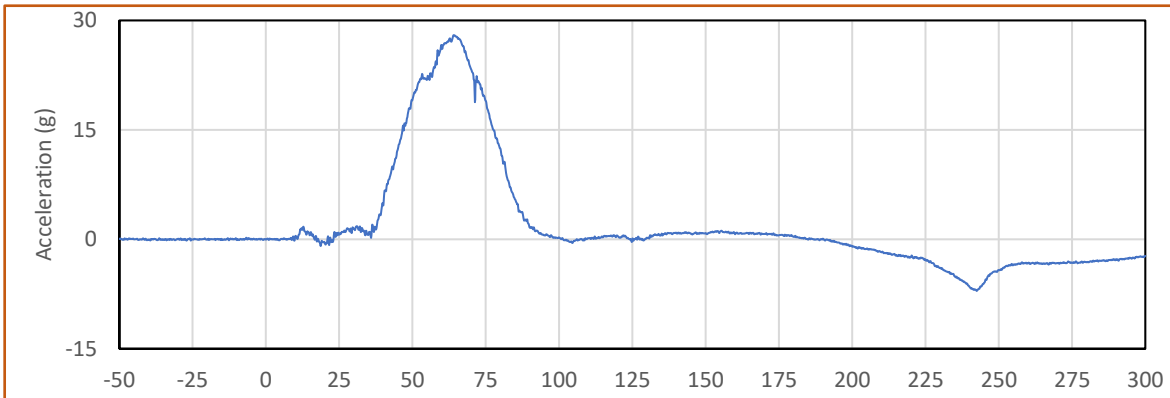
Test Vehicle:	2025 BMW X3 xDrive30i 5-Door MPV	NHTSA No.:	M20254102
Test Program:	NCAP MDB Side Impact Test	Test Date:	1/14/2025





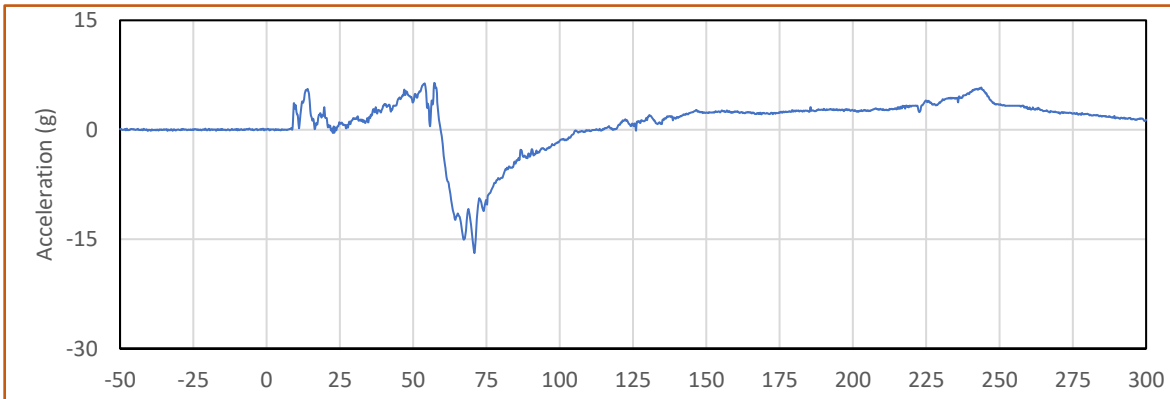
14HEAD0000S2ACXA
Max:14.0@242.6
Min:-14.9@70.7
SAE Class 1000

Passenger Head Acceleration X Primary



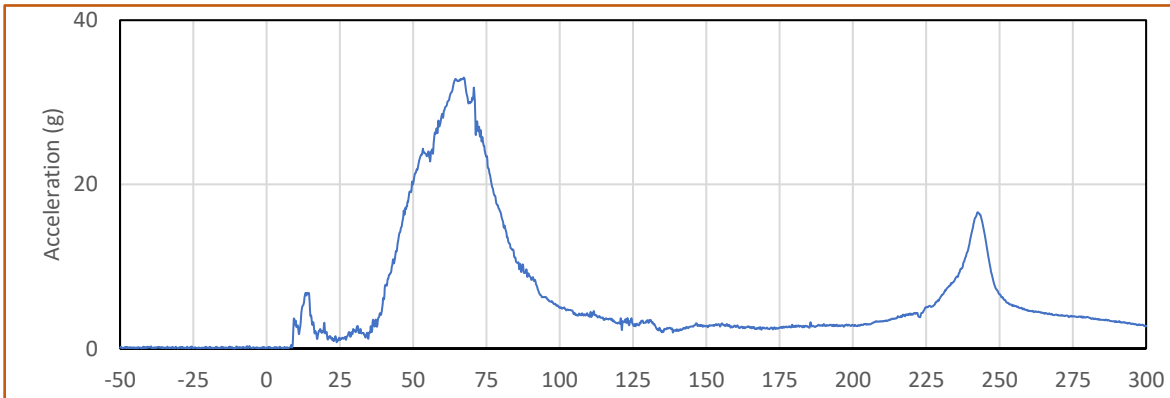
14HEAD0000S2ACYA
Max:28.0@64.0
Min:-7.1@242.5
SAE Class 1000

Passenger Head Acceleration Y Primary



14HEAD0000S2ACZA
Max:6.4@57.3
Min:-16.9@70.9
SAE Class 1000

Passenger Head Acceleration Z Primary

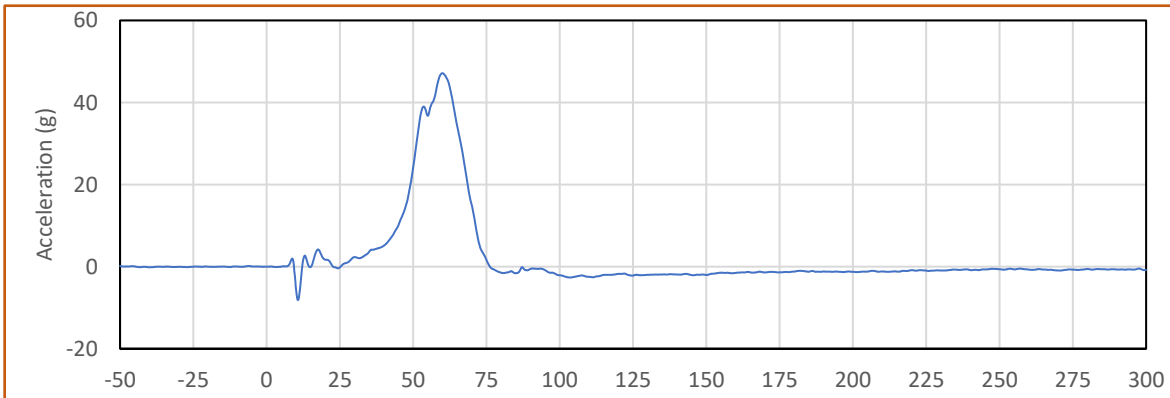


14HEAD0000S2ACRA
Max:33.0@67.3
Min:0.0@5.7
SAE Class 1000

Passenger Head Resultant Acceleration Primary

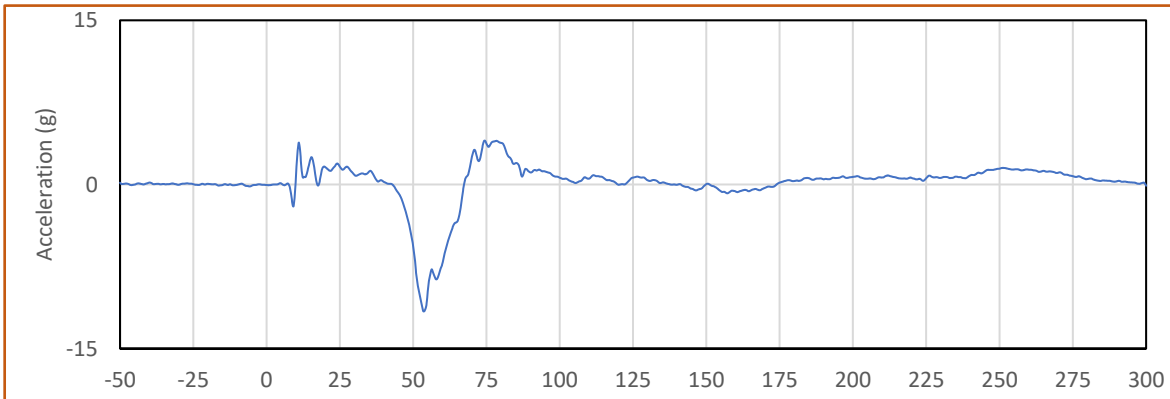
14ABSP01RIS2ACXC
Max:17.3@67.5
Min:-12.0@9.2
SAE Class 180

Passenger Lower Spine T12 Acceleration X



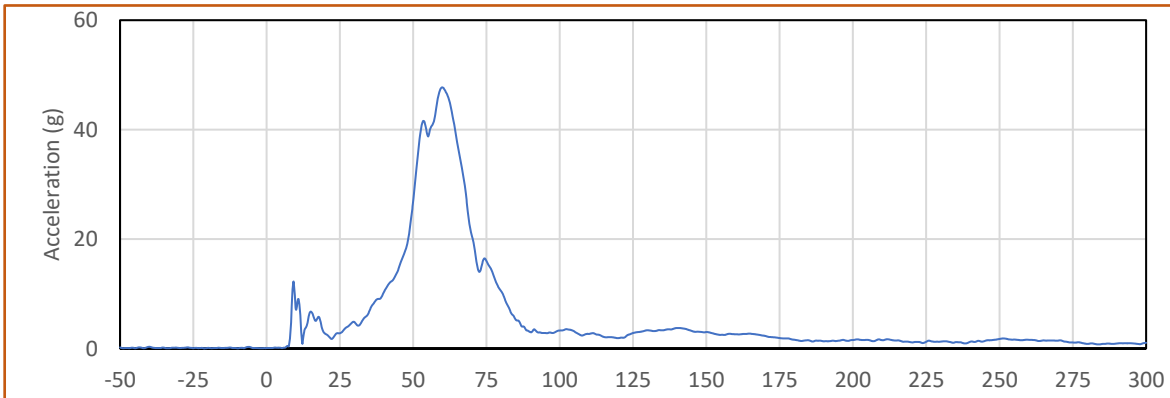
14ABSP01RIS2ACYC
Max:47.1@60.0
Min:-8.1@10.7
SAE Class 180

Passenger Lower Spine T12 Acceleration Y



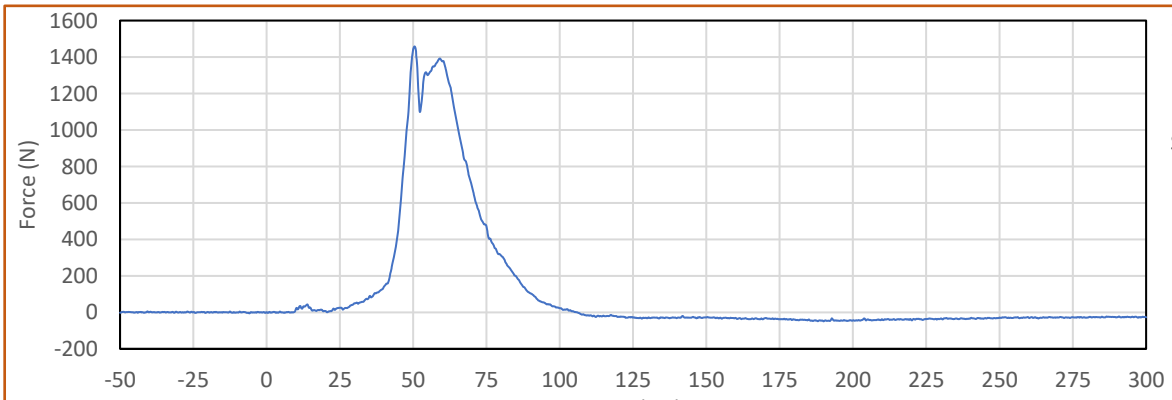
14ABSP01RIS2ACZC
Max:4.0@74.4
Min:-11.6@53.6
SAE Class 180

Passenger Lower Spine T12 Acceleration Z



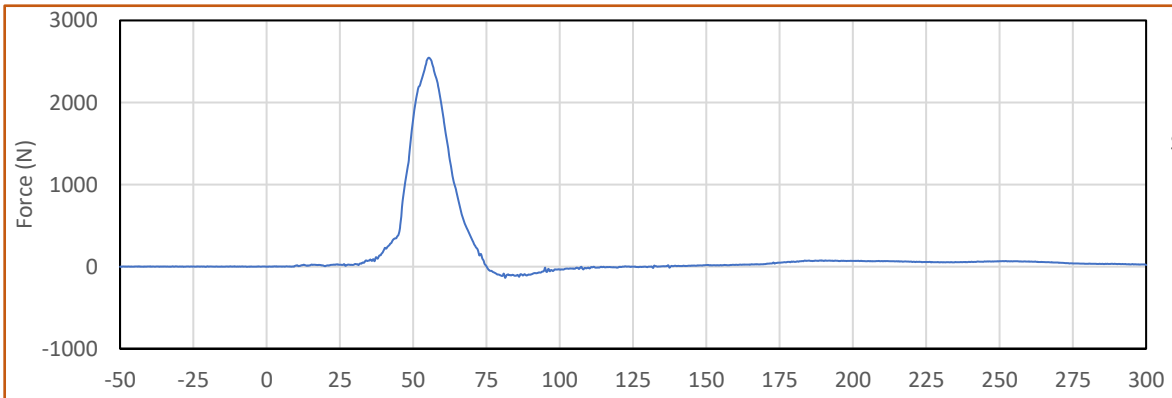
14ABSP01RIS2ACRC
Max:47.7@59.9
Min:0.1@0.1
SAE Class 180

Passenger Lower Spine T12 Acceleration Resultant



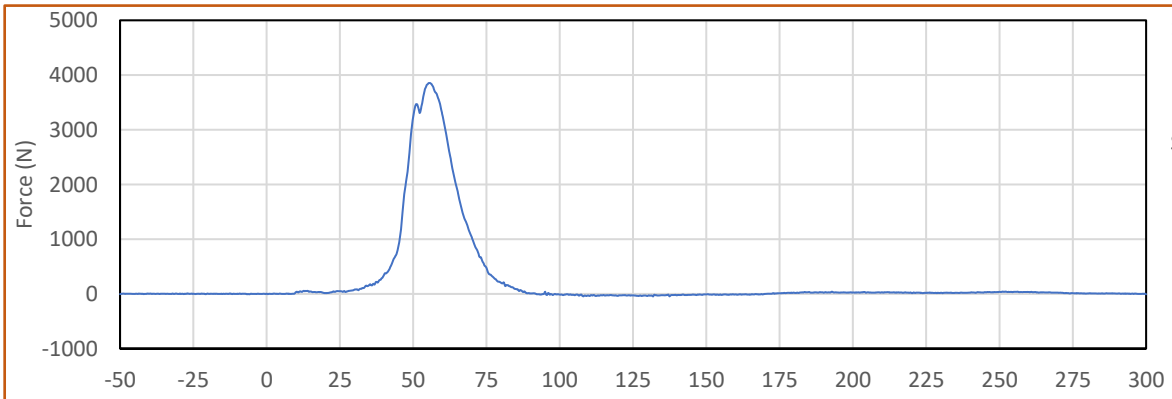
14ILACLE00S2FOYB
Max:1457.6@50.5
Min:-49.0@190.0
SAE Class 600

Passenger Iliac Force on Impact Side Y



14ACTBLE00S2FOYB
Max:2545.1@55.3
Min:-137.2@81.4
SAE Class 600

Passenger Acetabulum Impact Side Force Y



14PELVLE00S2FOYB
Max:3853.9@55.5
Min:-46.0@131.8
SAE Class 600

Passenger Total Pelvic Force on Impact Side Y

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

Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
External Measurements

ATD Serial No.: F037 Test Date: 2025-01-08

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.5	Pass
Laboratory Relative Humidity	%	10	70	28	Pass
1 - Sitting Height	mm	900	918	906	Pass
2 - Seat to Shoulder Joint	mm	558	572	566	Pass
3 - Seat to Lower Face of Thoracic Spine Box	mm	346	356	350	Pass
4 - Seat to Hip Joint (bolt center)	mm	97	103	101	Pass
5 - Sole to Seat, Sitting	mm	433	451	443	Pass
6 - Head Width	mm	152	158	157	Pass
7 - Shoulder/Arm Width	mm	461	479	466	Pass
8 - Thorax Width	mm	322	332	330	Pass
9 - Abdomen Width	mm	273	287	282	Pass
10 - Pelvis Lap Width	mm	359	373	368	Pass
11 - Head Depth	mm	196	206	201	Pass
12 - Thorax Depth	mm	262	272	271	Pass
13 - Abdomen Depth	mm	194	204	200	Pass
14 - Pelvis Depth	mm	235	245	244	Pass
15 - Back of Buttocks to Hip Joint (bolt Center)	mm	150	160	159	Pass
16 - Back of Buttocks to Front Knee	mm	597	615	608	Pass
			Overall Test Results		Pass

Technician: J. Coronel

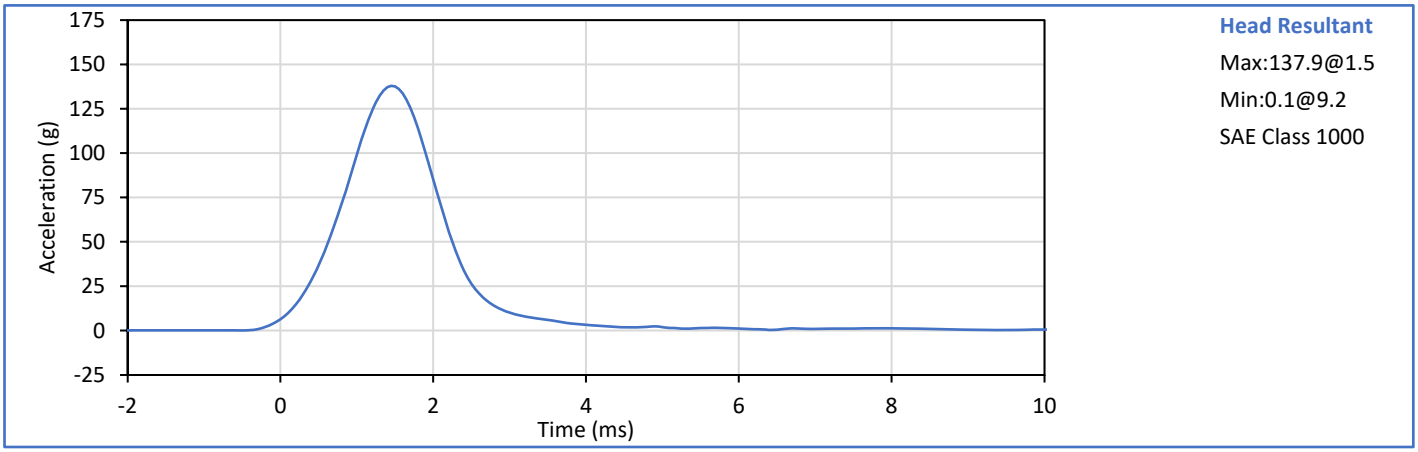
Approved By: J. Hernandez

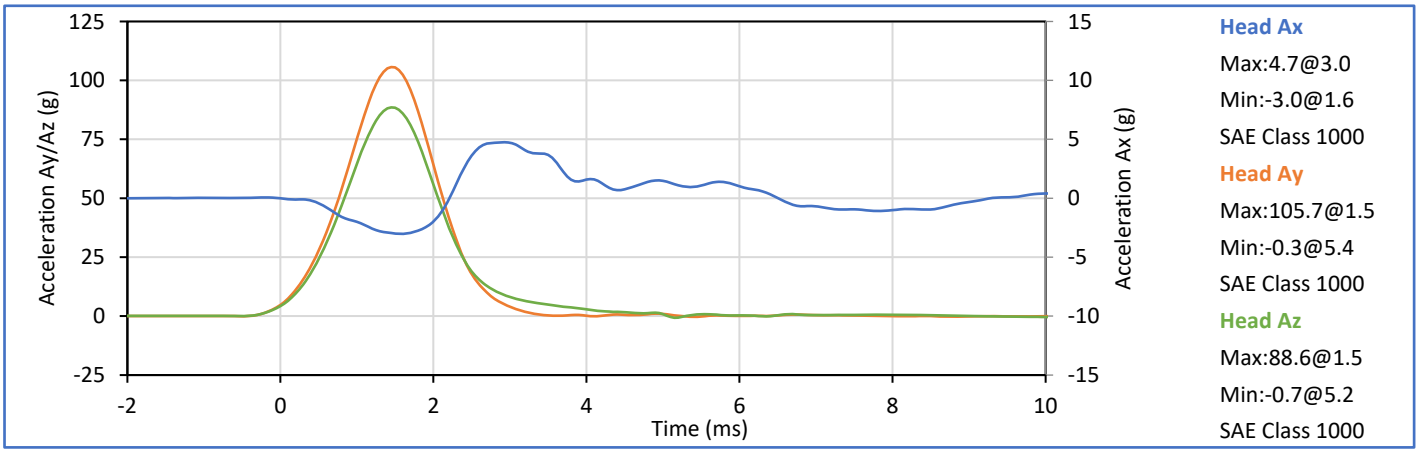
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Head Drop

ATD Serial No.: F037 Test Date: 2025-01-10

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	20	Pass
Peak Resultant Acceleration	g	125.0	155.0	137.9	Pass
Peak Head Ax	g	-15.0	15.0	4.7	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: J. Coronel

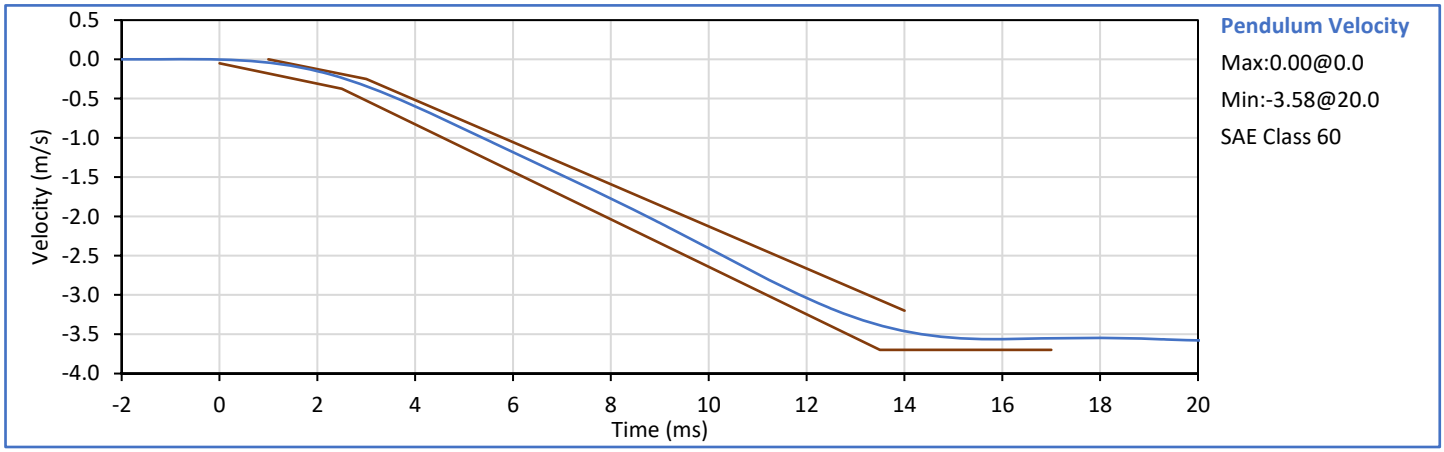
Approved By: J. Hernandez

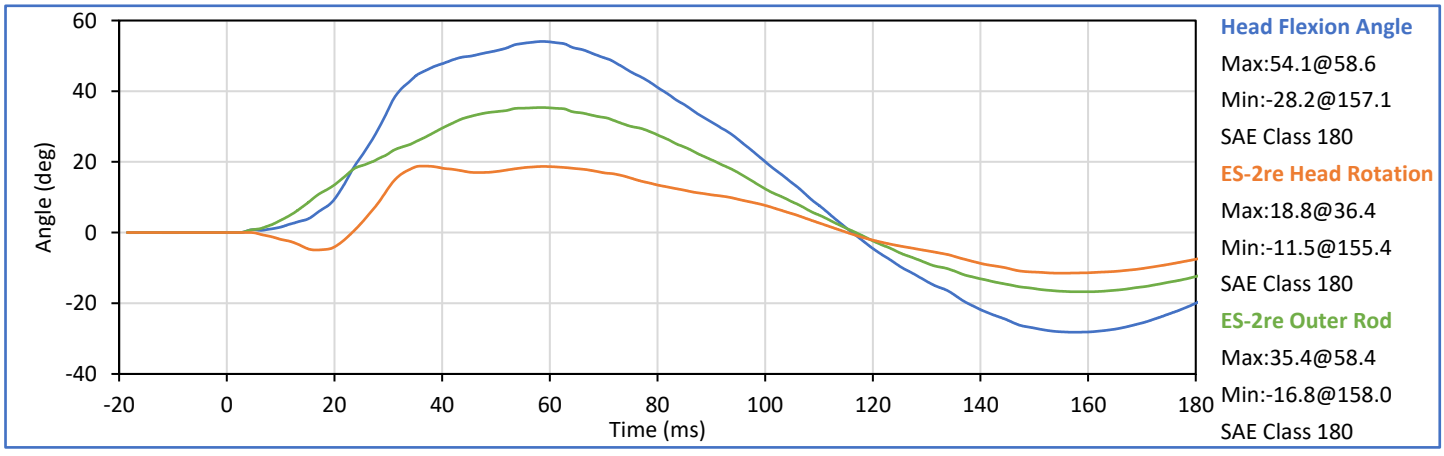
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Neck Flexion

ATD Serial No.: F037 Test Date: 2025-01-10

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	28	Pass
Pendulum Velocity	m/s	3.30	3.50	3.41	Pass
Peak Headform Flexion	deg	49.0	59.0	54.1	Pass
Time of Peak Headform Flexion	ms	54.0	66.0	58.6	Pass
Flexion Decay (Peak to zero)	ms	53.0	88.0	57.6	Pass
			Overall Test Results		Pass





Technician: J. Coronel

Approved By: J. Hernandez

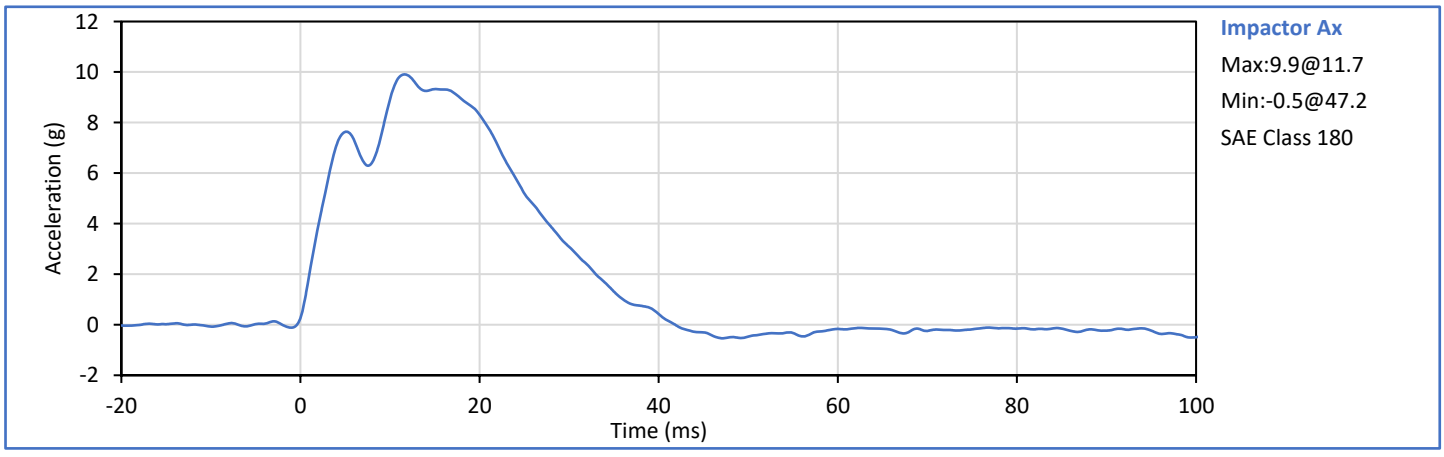
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Shoulder Impact Test

ATD Serial No.: F037

Test Date: 2025-01-08

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	30	Pass
Impactor Velocity	m/s	4.20	4.40	4.34	Pass
Peak Impactor Ax	g	7.5	10.5	9.9	Pass
			Overall Test Results		Pass



Technician: J. Coronel

Approved By: J. Hernandez

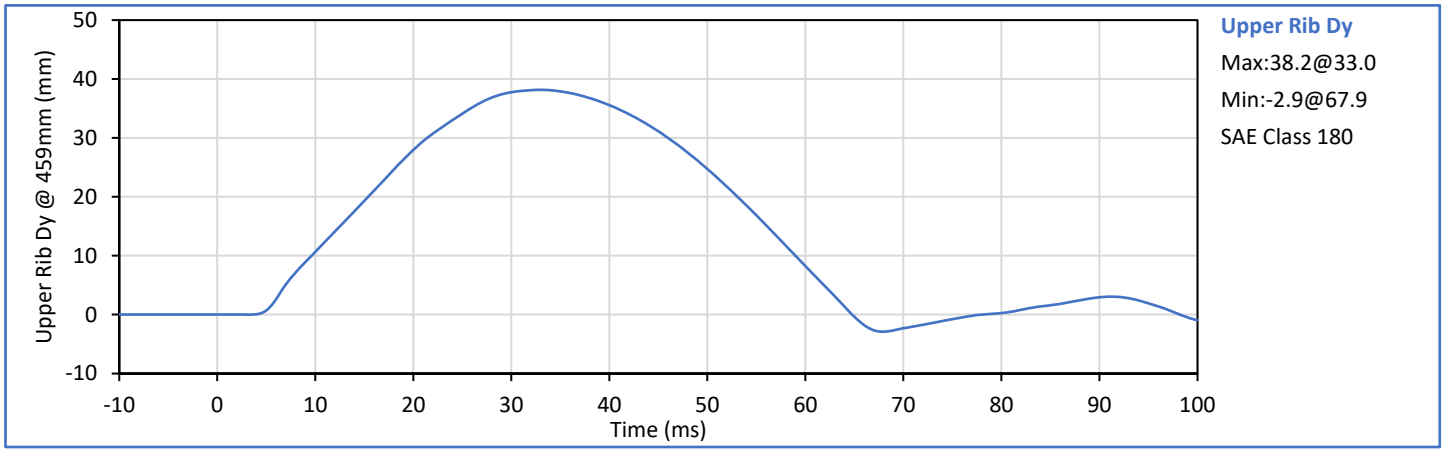
Applus IDIADA KARCO

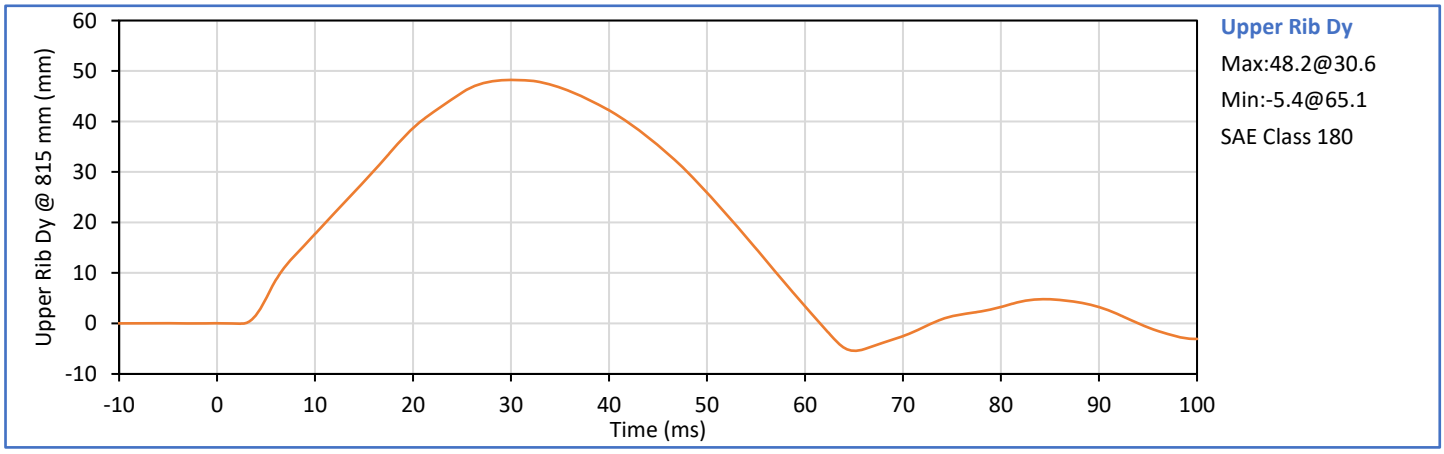
ES-2re 50th Male Side Impact ATD
Upper Rib Drop Test

ATD Serial No.: F037

Test Date: 2025-01-10

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	21	Pass
Upper Rib Dy @ 459mm	mm	36.0	40.0	38.2	Pass
Upper Rib Dy @ 815mm	mm	46.0	51.0	48.2	Pass
			Overall Test Results		Pass





Technician: J. Coronel

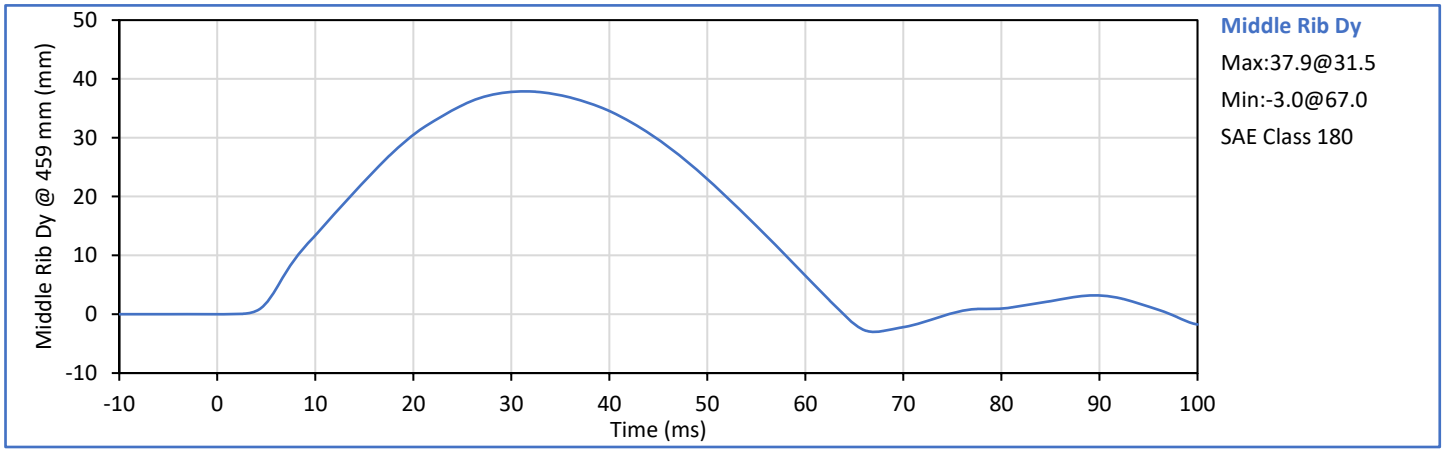
Approved By: J. Hernandez

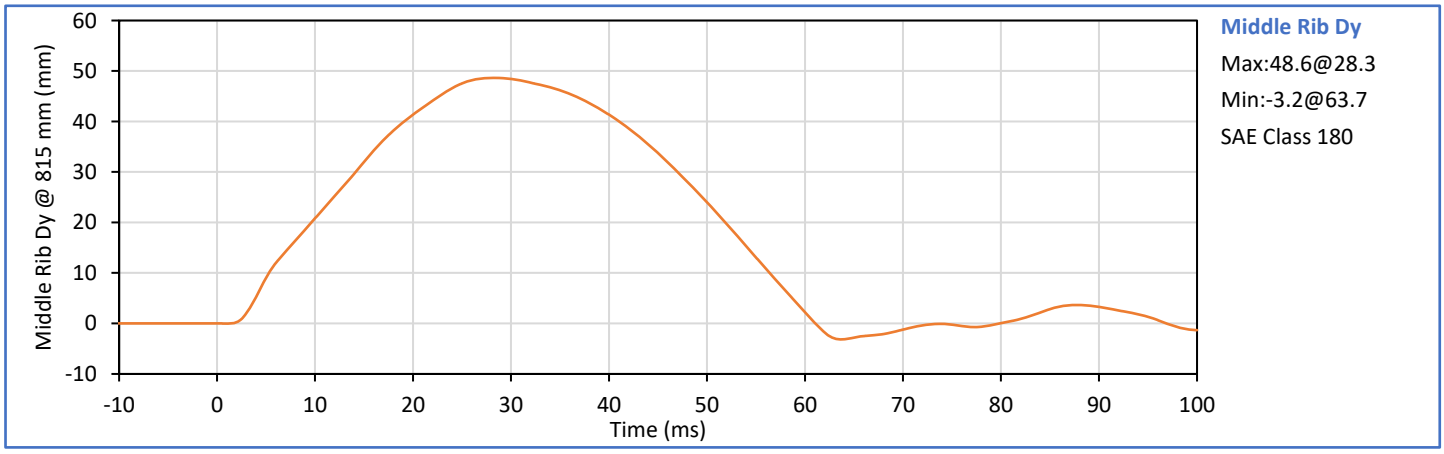
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Middle Rib Drop Test

ATD Serial No.: F037 Test Date: 2025-01-10

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	20	Pass
Middle Rib Dy @ 459mm	mm	36.0	40.0	37.9	Pass
Middle Rib Dy @ 815mm	mm	46.0	51.0	48.6	Pass
			Overall Test Results		Pass





Technician: J. Coronel

Approved By: J. Hernandez

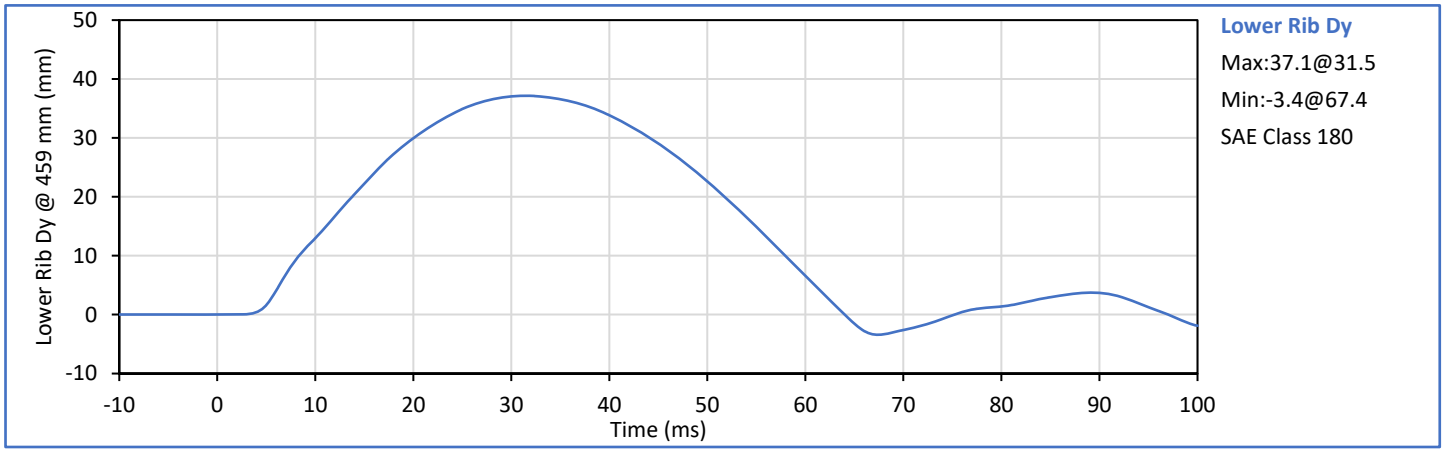
Applus IDIADA KARCO

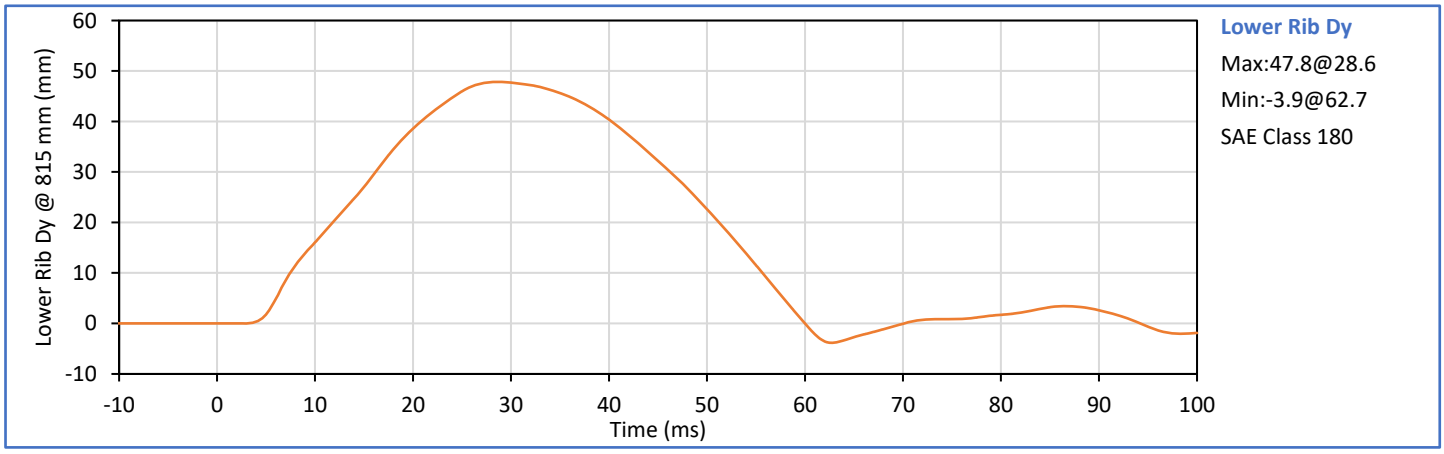
ES-2re 50th Male Side Impact ATD
Lower Rib Drop Test

ATD Serial No.: F037

Test Date: 2025-01-10

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	20	Pass
Lower Rib Dy @ 459mm	mm	36.0	40.0	37.1	Pass
Lower Rib Dy @ 815mm	mm	46.0	51.0	47.8	Pass
			Overall Test Results		Pass





Technician: J. Coronel

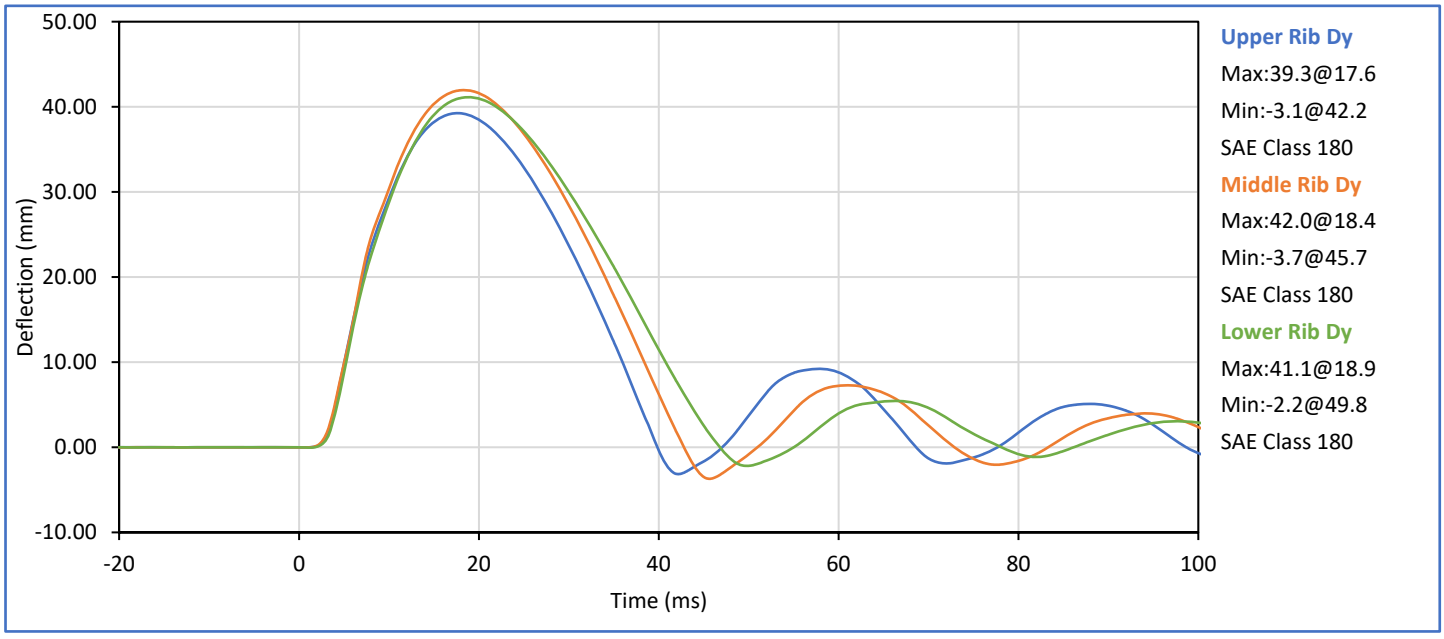
Approved By: J. Hernandez

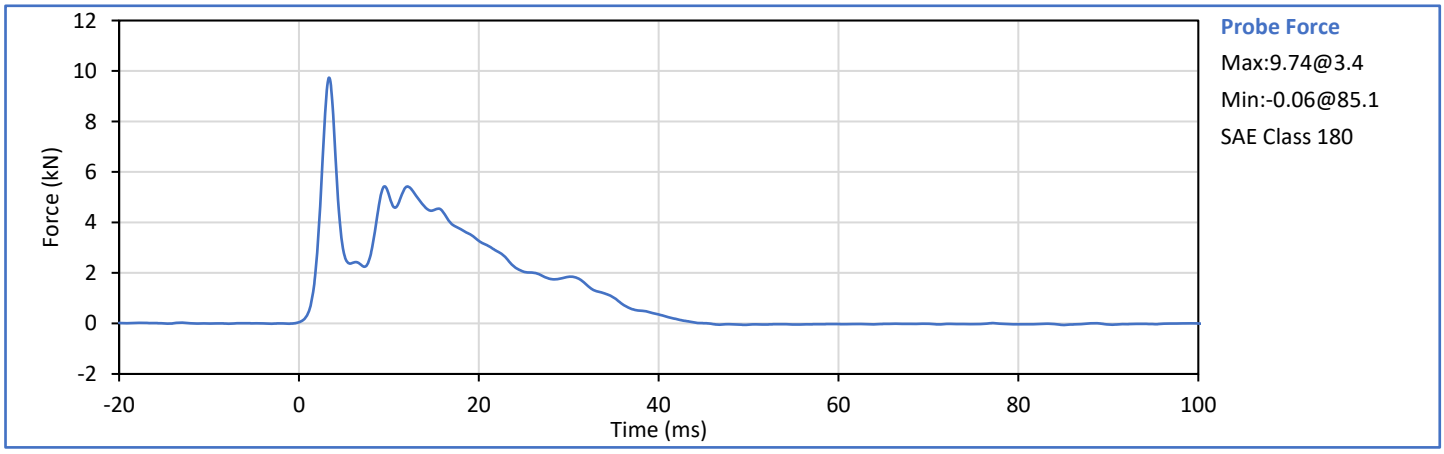
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Thorax Impact (Full Body)

ATD Serial No.: F037 Test Date: 2025-01-08

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	21	Pass
Impactor Velocity	m/s	5.40	5.60	5.48	Pass
Peak Upper Rib Dy	mm	34.0	41.0	39.3	Pass
Peak Middle Rib Dy	mm	37.0	45.0	42.0	Pass
Peak Lower Rib Dy	mm	37.0	44.0	41.1	Pass
Peak Impactor Force After 6 ms	kN	5.10	6.20	5.43	Pass
			Overall Test Results		Pass





Technician: J. Coronel

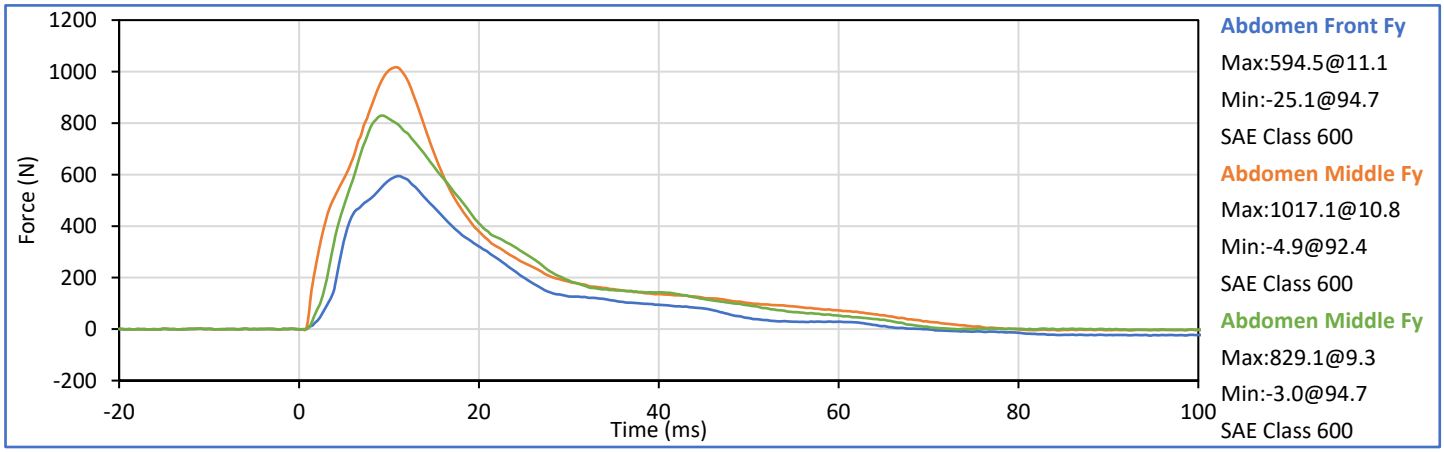
Approved By: J. Hernandez

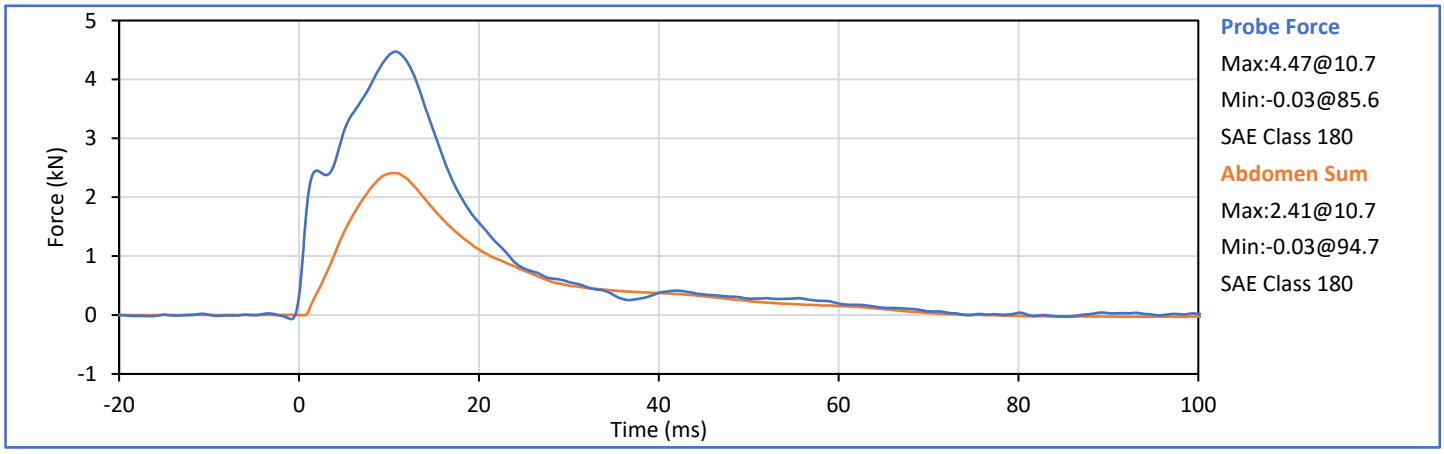
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Abdomen Impact

ATD Serial No.: F037 Test Date: 2025-01-08

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	21	Pass
Impactor Velocity	m/s	3.90	4.10	4.00	Pass
Peak Impactor Force	kN	4.00	4.80	4.47	Pass
Time of Peak Impactor Force	ms	10.6	13.0	10.7	Pass
Sum of Abdomen Forces	kN	2.20	2.70	2.41	Pass
Time of Peak Sum Abdomen Force	ms	10.0	12.3	10.7	Pass
			Overall Test Results		Pass





Technician: J. Coronel

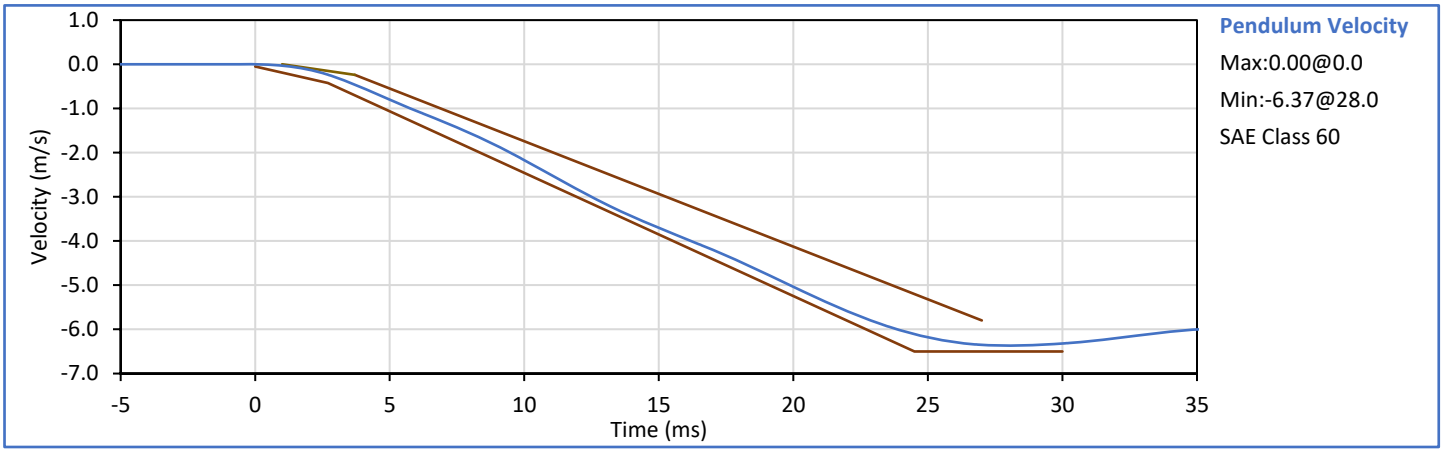
Approved By: J. Hernandez

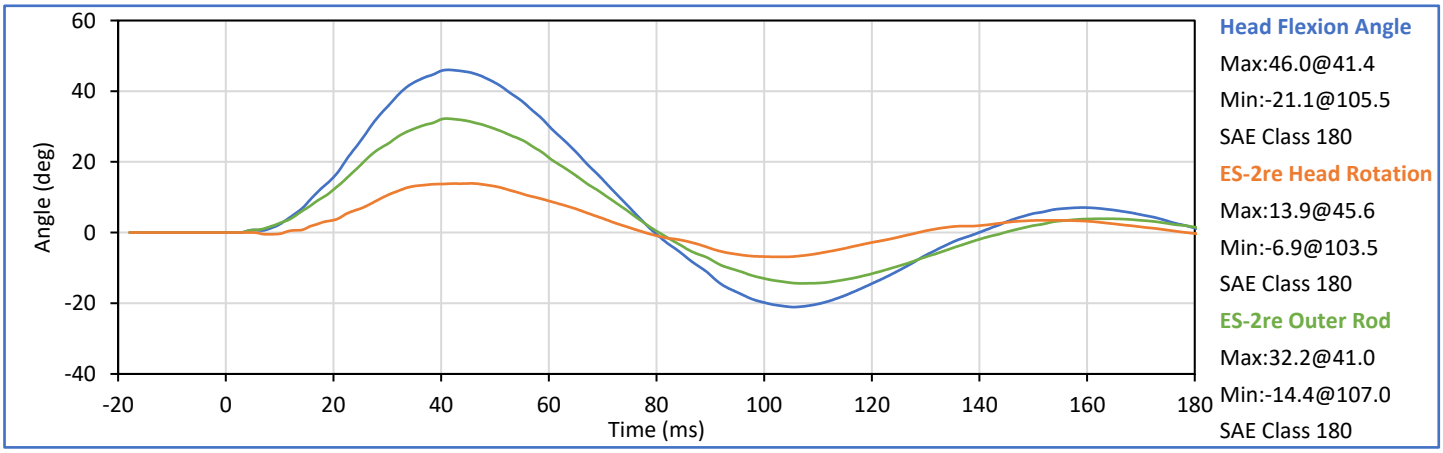
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Lumbar Spine Flexion

ATD Serial No.: F037 Test Date: 2025-01-10

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	29	Pass
Pendulum Velocity	m/s	5.95	6.15	6.12	Pass
Peak Headform Flexion	deg	45.0	55.0	46.0	Pass
Time of Peak Headform Flexion	ms	39.0	53.0	41.4	Pass
Flexion Decay (Peak to zero)	ms	37.0	57.0	38.3	Pass
			Overall Test Results		Pass





Technician: J. Coronel

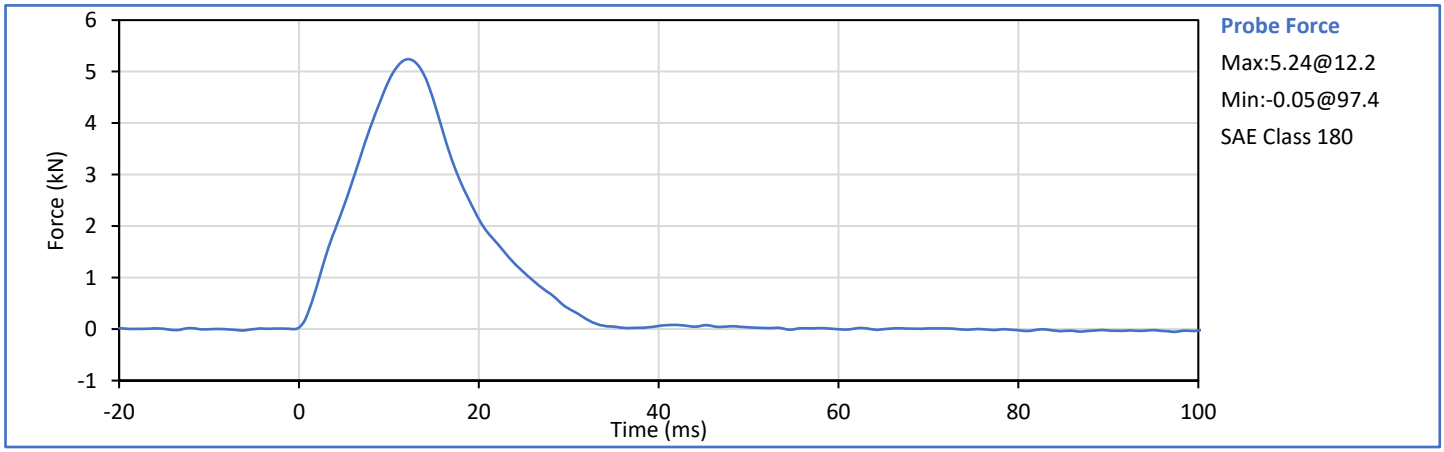
Approved By: J. Hernandez

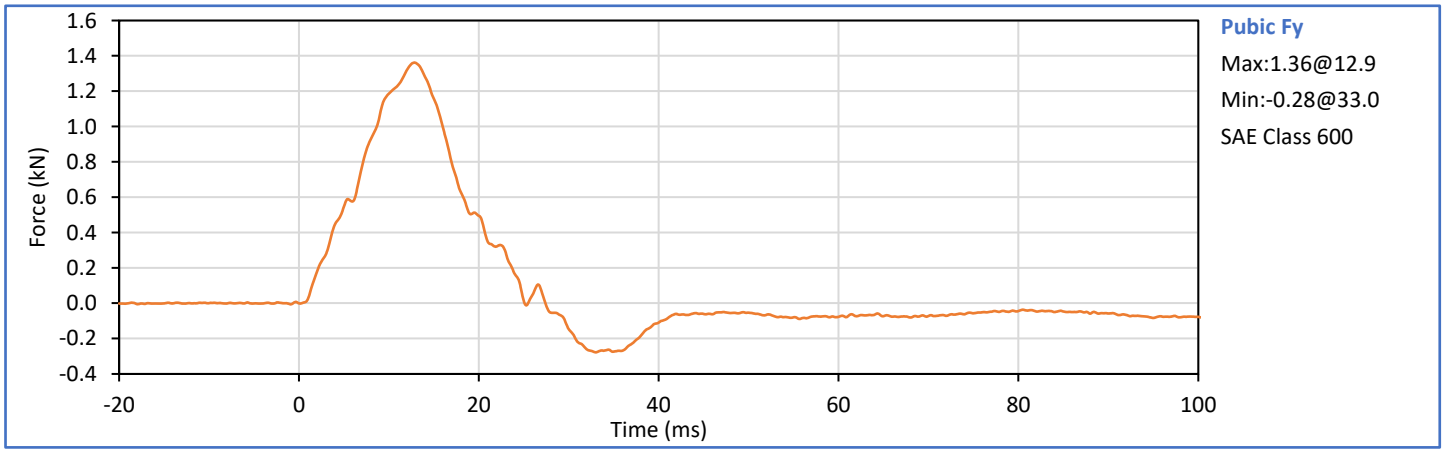
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Pelvis Impact

ATD Serial No.: F037 Test Date: 2025-01-08

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	20	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Impactor Force	kN	4.70	5.40	5.24	Pass
Time of Peak Impactor Force	ms	11.8	16.1	12.2	Pass
Pubic Symphysis Fy	kN	1.23	1.59	1.36	Pass
Time of Peak Pubic Symphysis Fy	ms	12.2	17.0	12.9	Pass
			Overall Test Results		Pass





Technician: J. Coronel

Approved By: J. Hernandez

APPENDIX C
Pre-Test ATD Qualification and Performance Verification
SID-IIs Small Side Impact ATD, Left Side Configuration
S/N: 308

Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
External Measurements

ATD Serial No.: 308 Test Date: 2025-01-07

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	22	Pass
A - Sitting Height	mm	772	788	779	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	86	Pass
D - H Point From Seatback	mm	141	151	146	Pass
E - Shoulder Pivot From Backline	mm	97	107	103	Pass
F - Thigh Clearance	mm	119	135	132	Pass
G - Head Breadth	mm	140	148	144	Pass
H - Head Back From Backline	mm	40	46	44	Pass
I - Head Depth	mm	178	188	184	Pass
J - Head Circumference	mm	541	551	548	Pass
K - Buttock To Knee Length	mm	514	540	533	Pass
L - Popliteal Height	mm	343	369	353	Pass
K - Knee Pivot To Floor Height	mm	392	409	397	Pass
N - Buttock Popliteal Length	mm	416	442	430	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	320	Pass
R - Arm Length	mm	249	259	253	Pass
S - Knee Joint To Seatback	mm	477	493	487	Pass
V - Shoulder Width	mm	341	357	352	Pass
W - Foot Width	mm	78	94	83	Pass
Y - Chest Circumference W/Jacket	mm	851	881	867	Pass
Z - Waist Circumference	mm	761	791	786	Pass
			Overall Test Results		Pass

Technician: J. Coronel

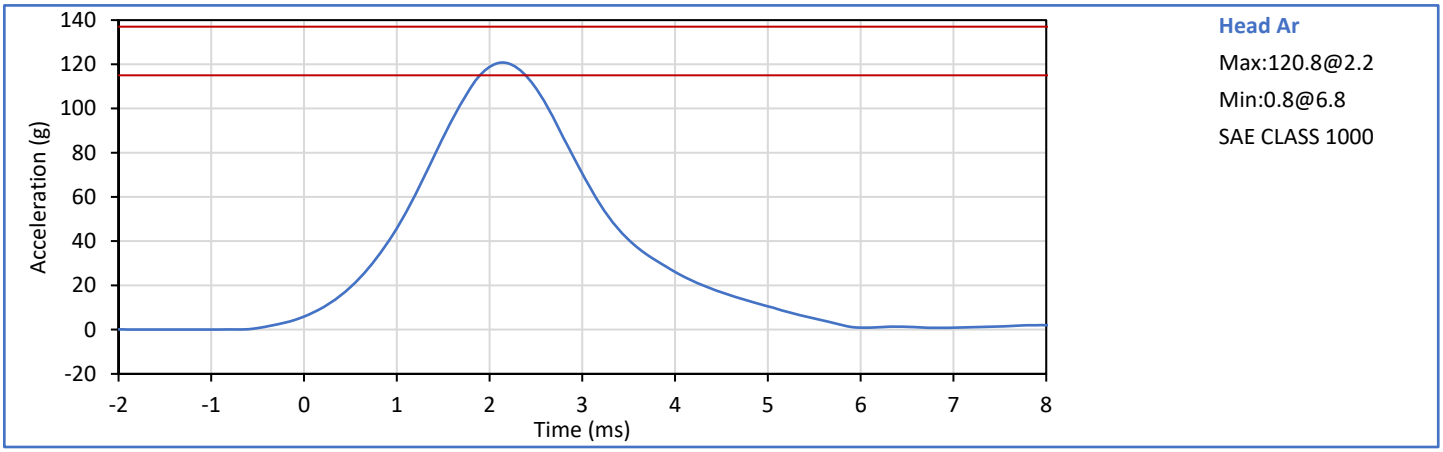
Approved By: J. Hernandez

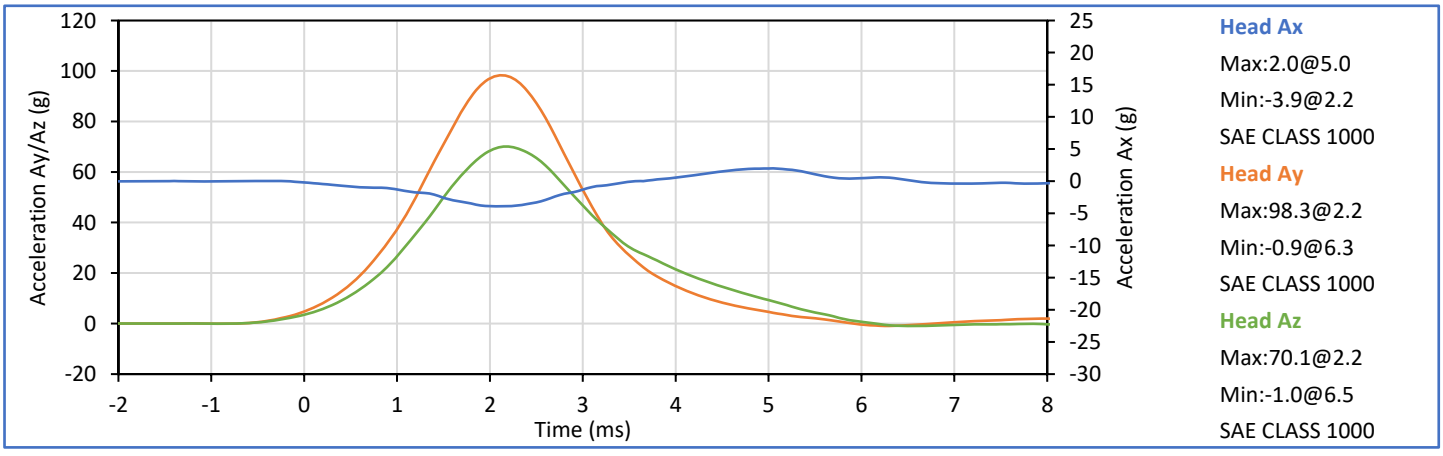
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Head Drop

ATD Serial No.: 308 Test Date: 2025-01-10

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.1	Pass
Laboratory Relative Humidity	%	10	70	19	Pass
Peak Resultant Acceleration	g	115.0	137.0	120.8	Pass
Peak Head Ax	g	-15.0	15.0	-3.9	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results		Pass





Technician: J. Coronel

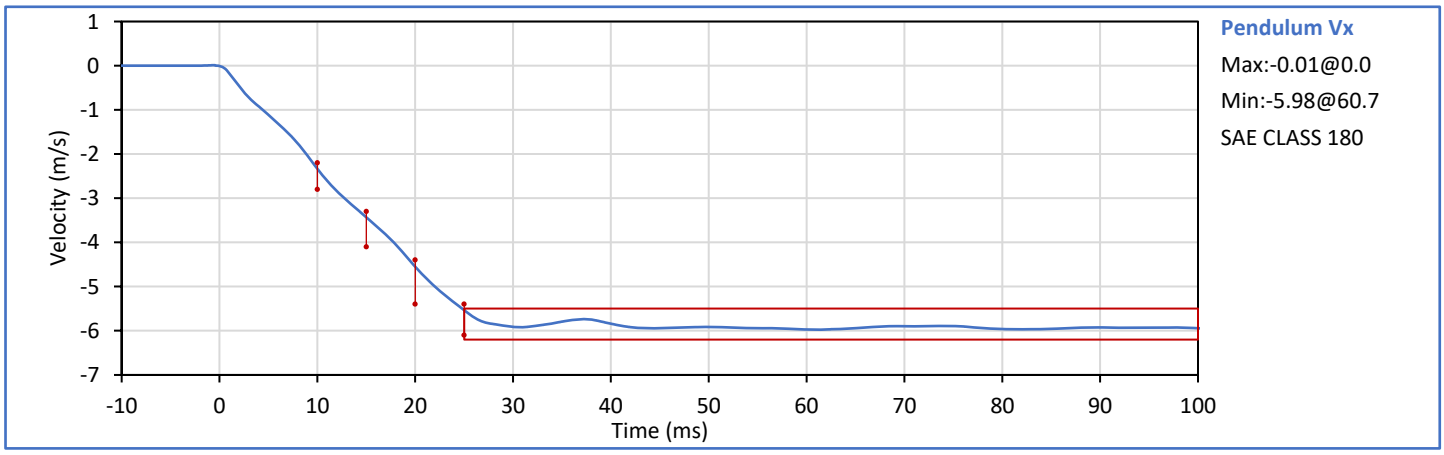
Approved By: J. Hernandez

Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Neck Flexion

ATD Serial No.: 308 Test Date: 2025-01-10

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	19	Pass
Pendulum Velocity	m/s	5.51	5.63	5.59	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.34	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.43	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-4.55	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-5.54	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-5.98/-5.54	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-76.3	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	61.2	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	39.9	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	113.2	Pass
			Overall Test Results		Pass



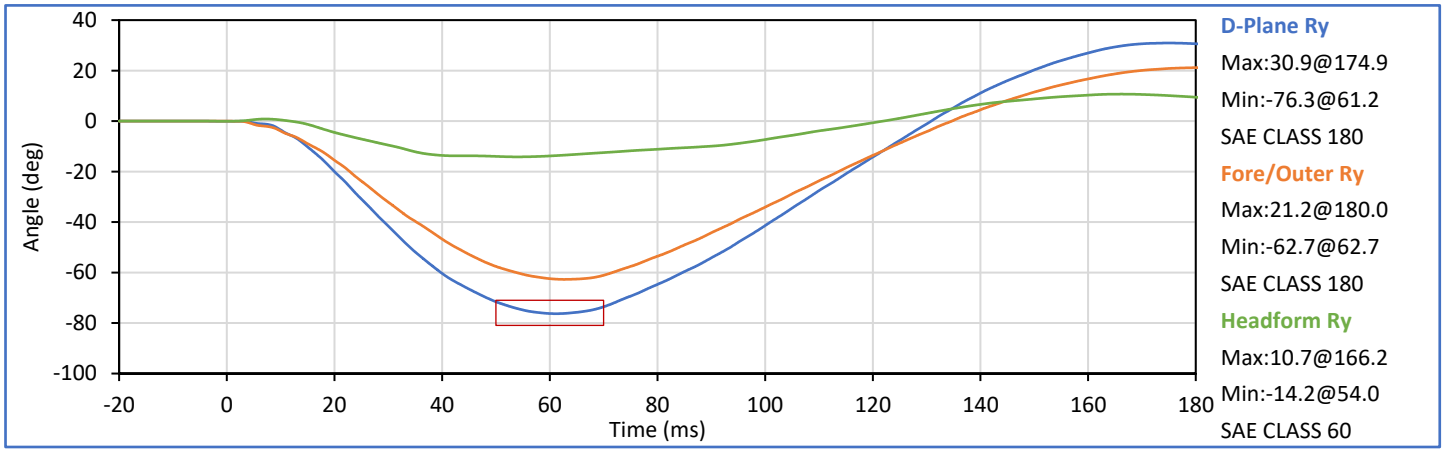
Technician: J. Coronel

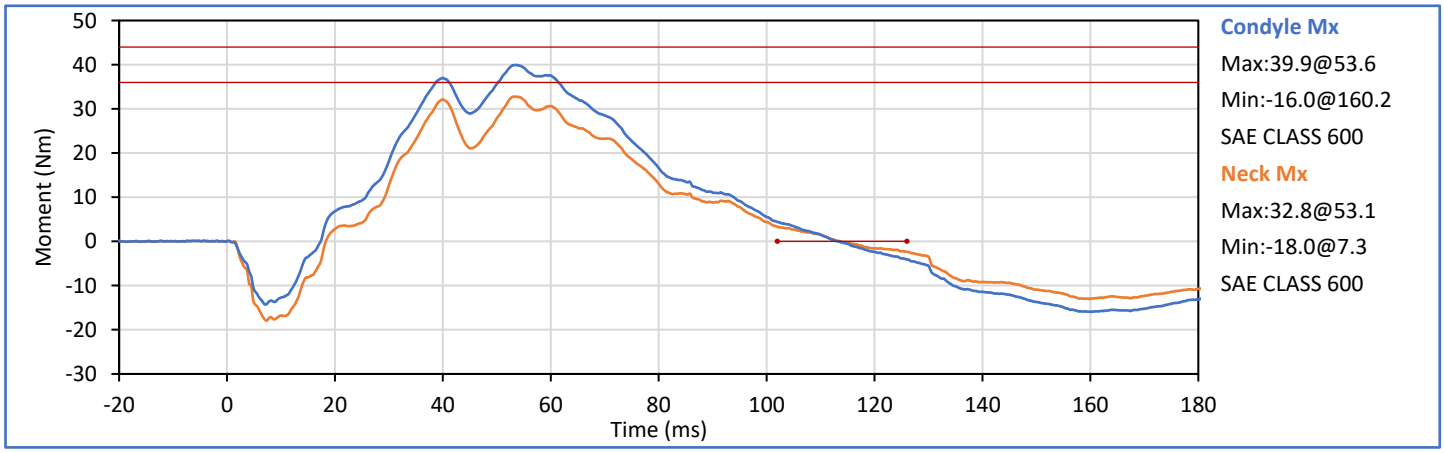
Approved By: J. Hernandez

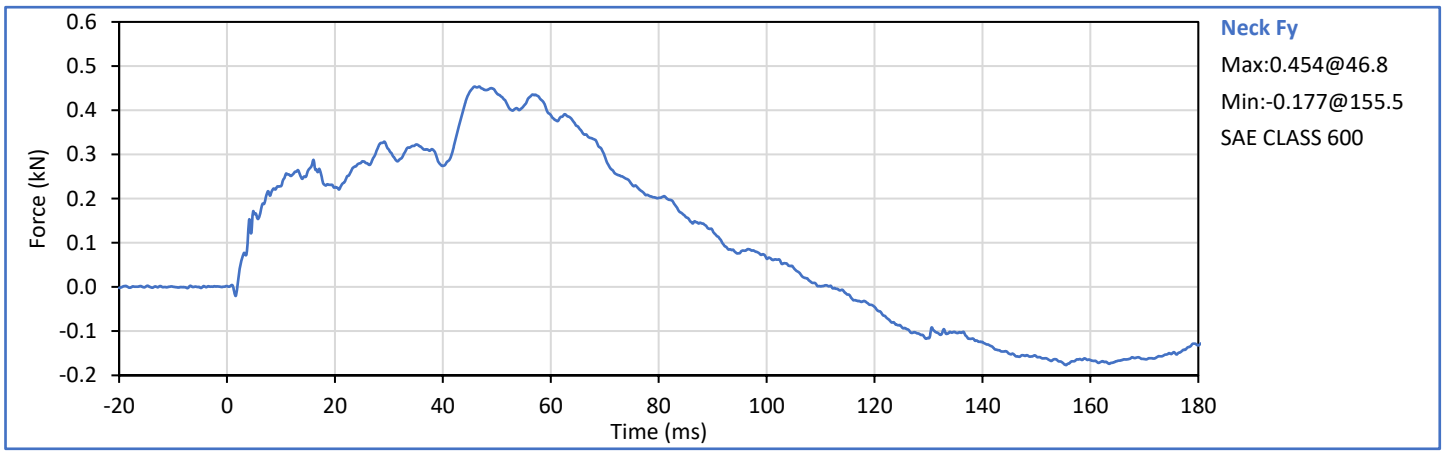
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Neck Flexion

ATD Serial No.: 308 Test Date: 2025-01-10





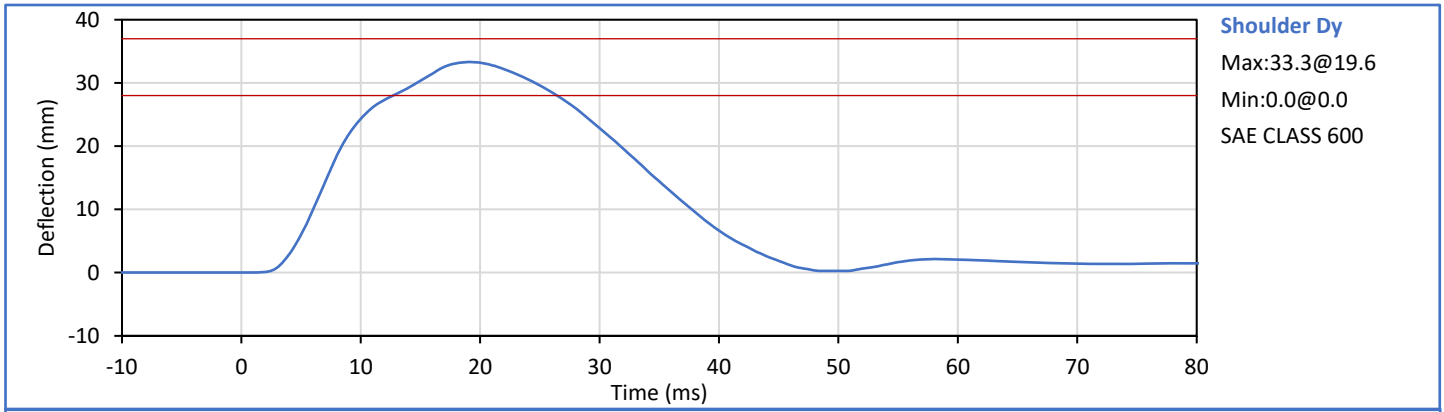


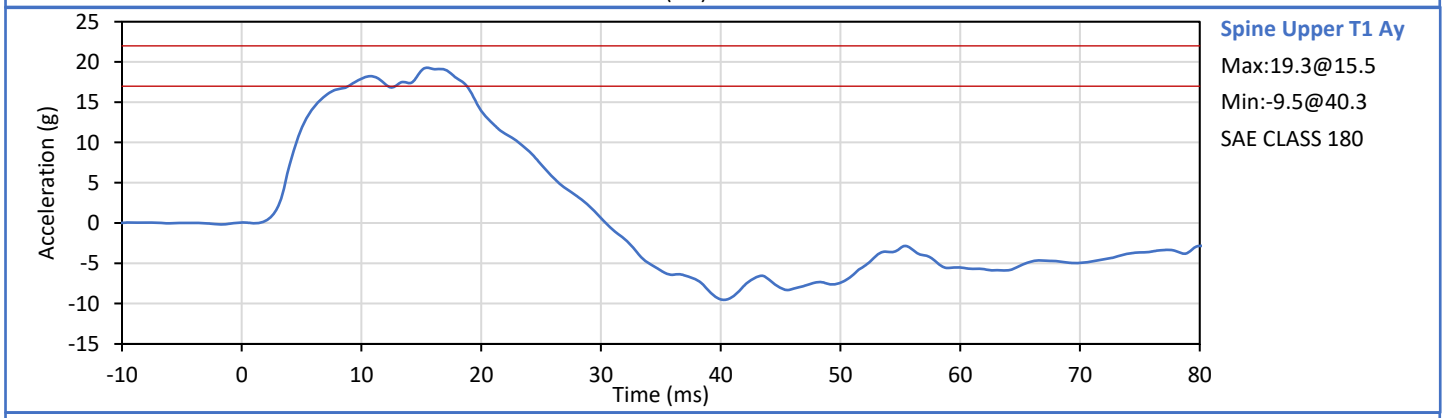
Applus IDIADA KARCO

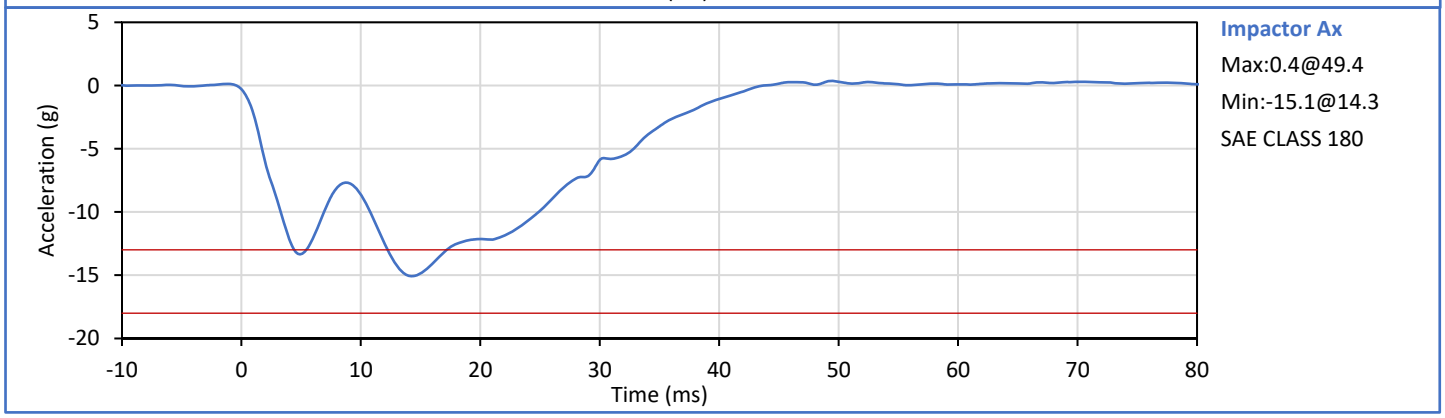
SID-IIs Small Side Impact ATD
Shoulder Impact Test

ATD Serial No.: 308 Test Date: 2025-01-06

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	20	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Shoulder Dy	mm	28.0	37.0	33.3	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	19.3	Pass
Peak Impactor Ax	g	-18.0	-13.0	-15.1	Pass
			Overall Test Results		Pass







Technician: J. Coronel

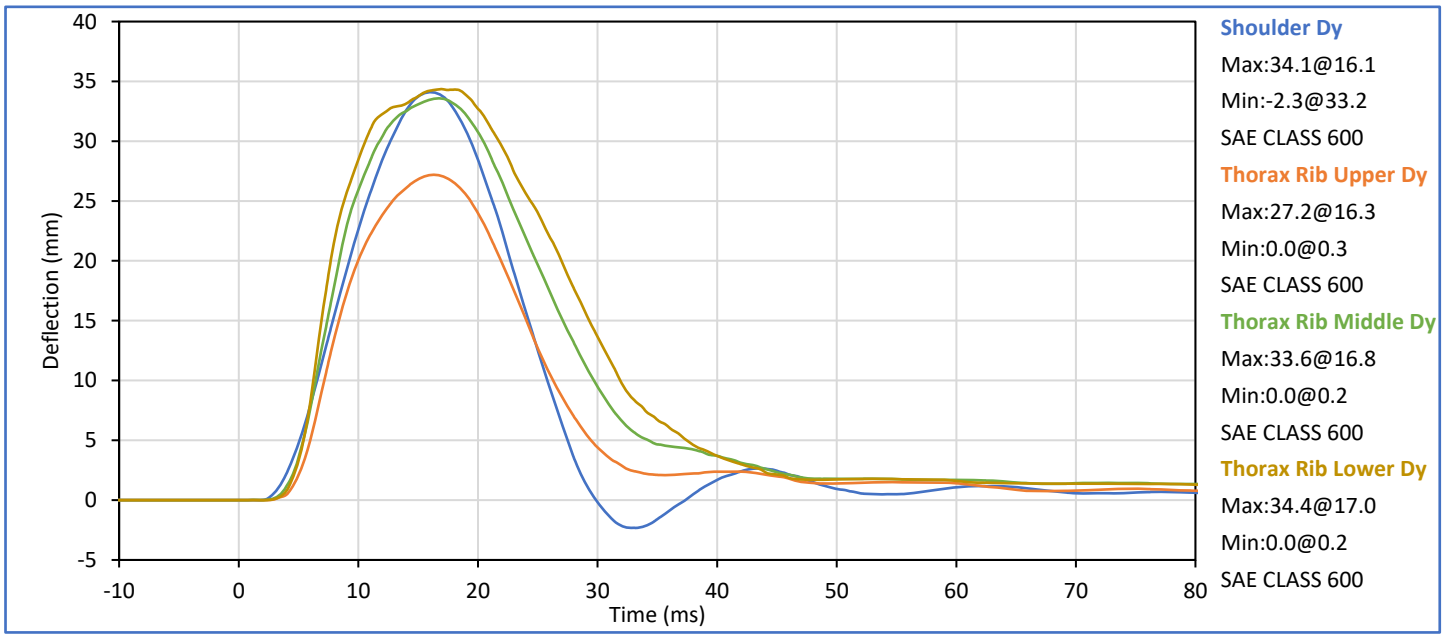
Approved By: J. Hernandez

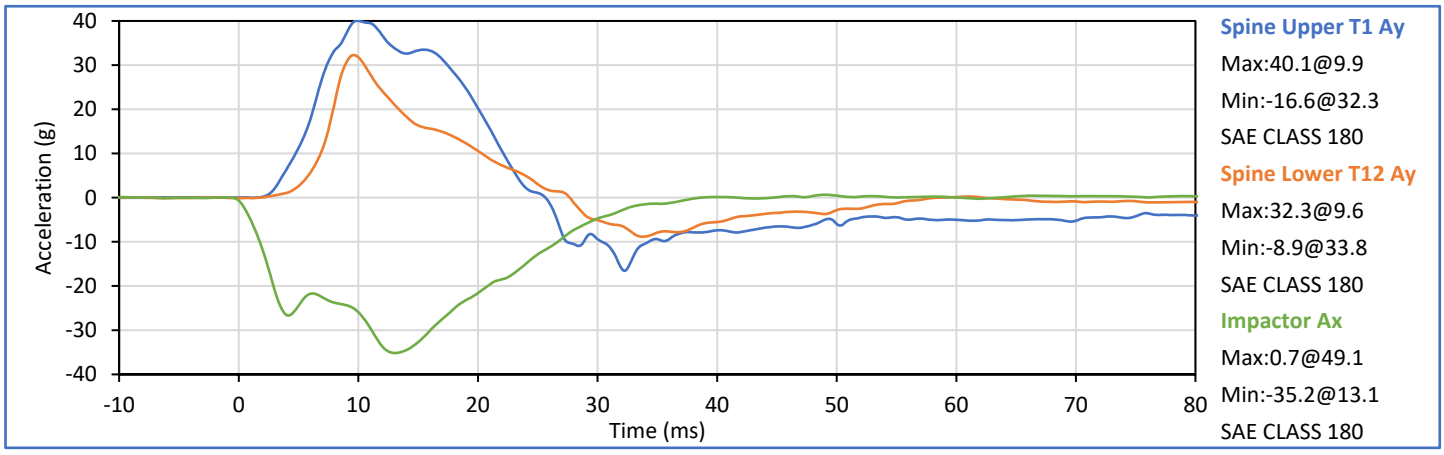
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Thorax (With Arm)

ATD Serial No.: 308 Test Date: 2025-01-07

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	24	Pass
Impactor Velocity	m/s	6.60	6.80	6.68	Pass
Peak Shoulder Dy	mm	31.0	40.0	34.1	Pass
Peak Upper Rib Dy	mm	25.0	32.0	27.2	Pass
Peak Middle Rib Dy	mm	30.0	36.0	33.6	Pass
Peak Lower Rib Dy	mm	32.0	38.0	34.4	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	40.1	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	32.3	Pass
Peak Impactor Ax	g	-36.0	-30.0	-35.2	Pass
			Overall Test Results		Pass





Technician: J. Coronel

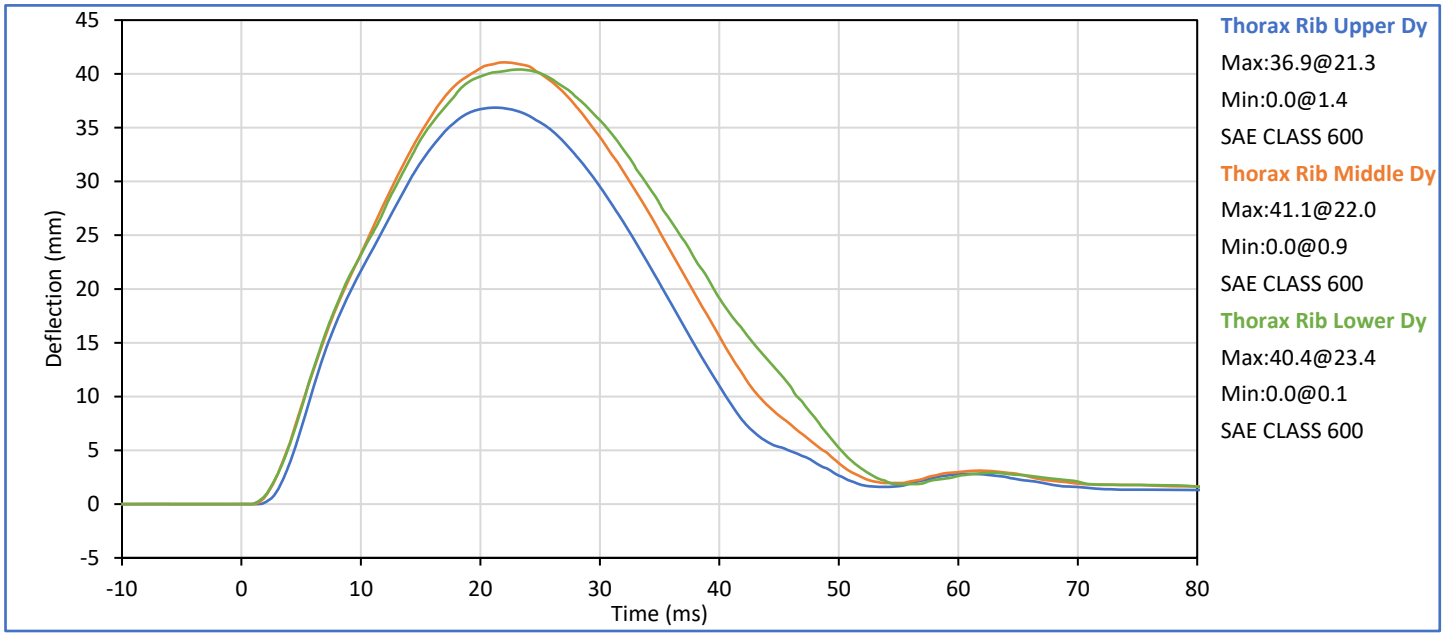
Approved By: J. Hernandez

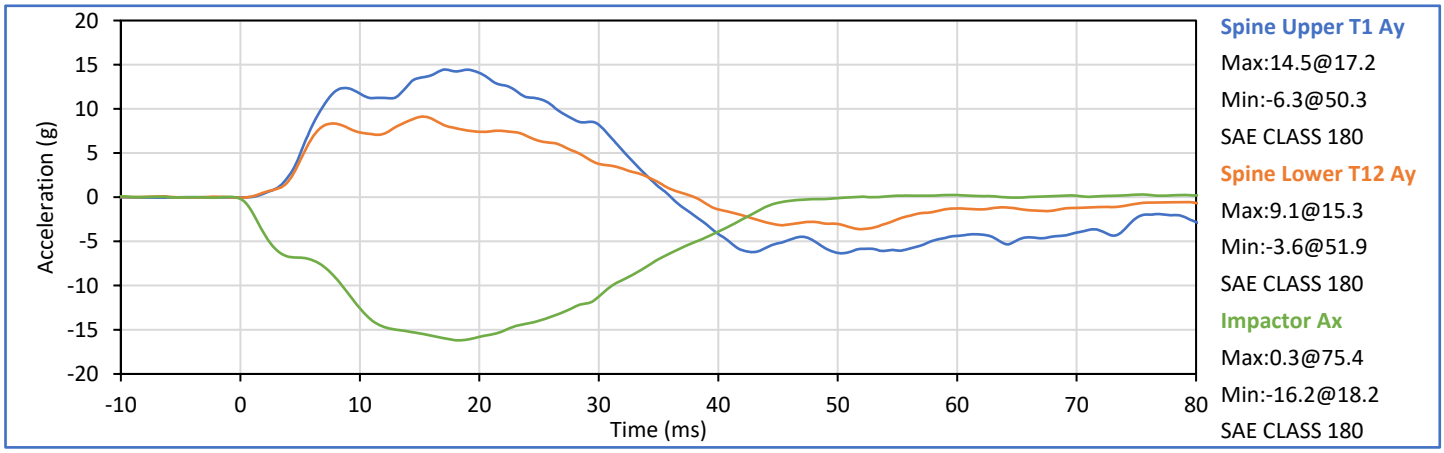
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Thorax (No Arm)

ATD Serial No.: 308 Test Date: 2025-01-07

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	21	Pass
Impactor Velocity	m/s	4.20	4.40	4.34	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	36.9	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	41.1	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	40.4	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	14.5	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	9.1	Pass
Peak Impactor Ax	g	-18.0	-14.0	-16.2	Pass
			Overall Test Results		Pass





Technician: J. Coronel

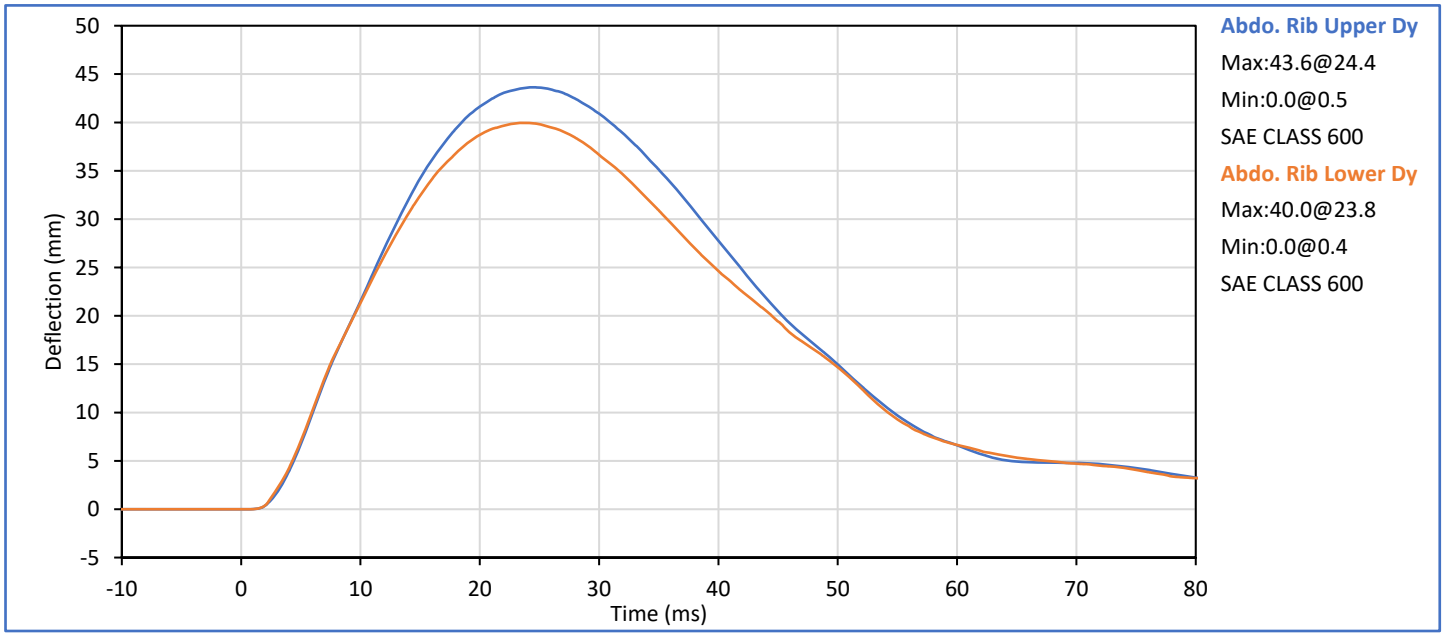
Approved By: J. Hernandez

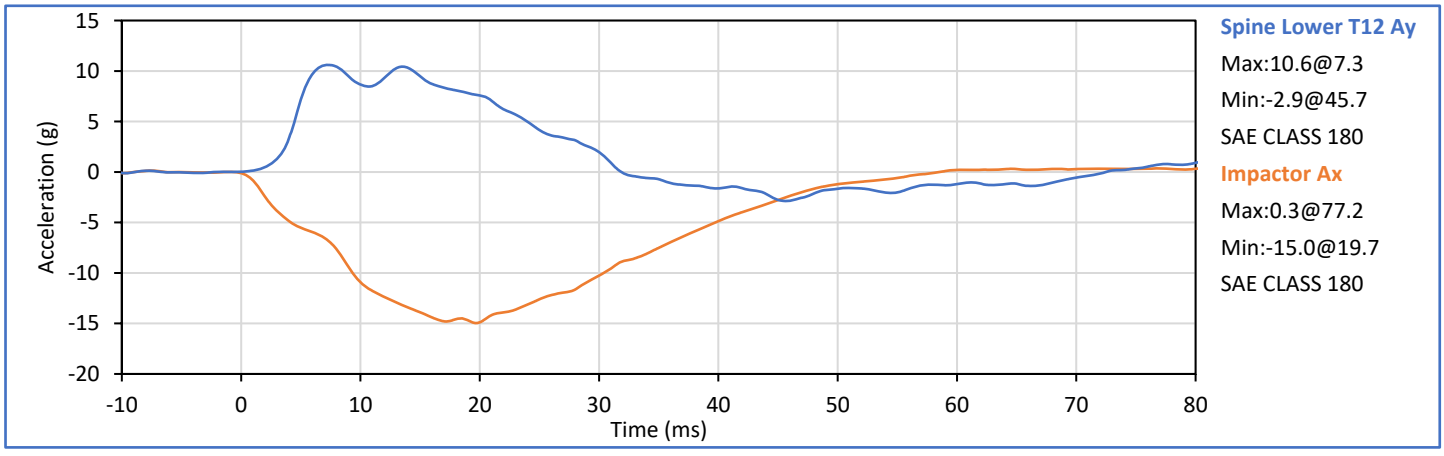
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Abdomen Impact

ATD Serial No.: 308 Test Date: 2025-01-07

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.5	Pass
Laboratory Relative Humidity	%	10	70	23	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	43.6	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	40.0	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	10.6	Pass
Peak Impactor Ax	g	-16.0	-12.0	-15.0	Pass
			Overall Test Results		Pass





Technician: J. Coronel

Approved By: J. Hernandez

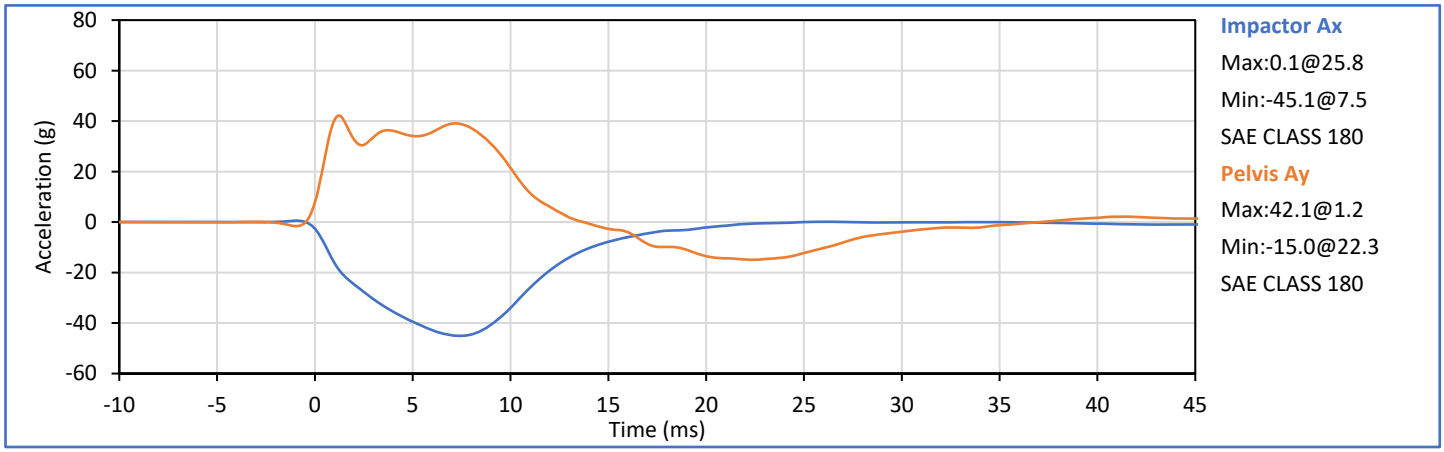
Applus IDIADA KARCO

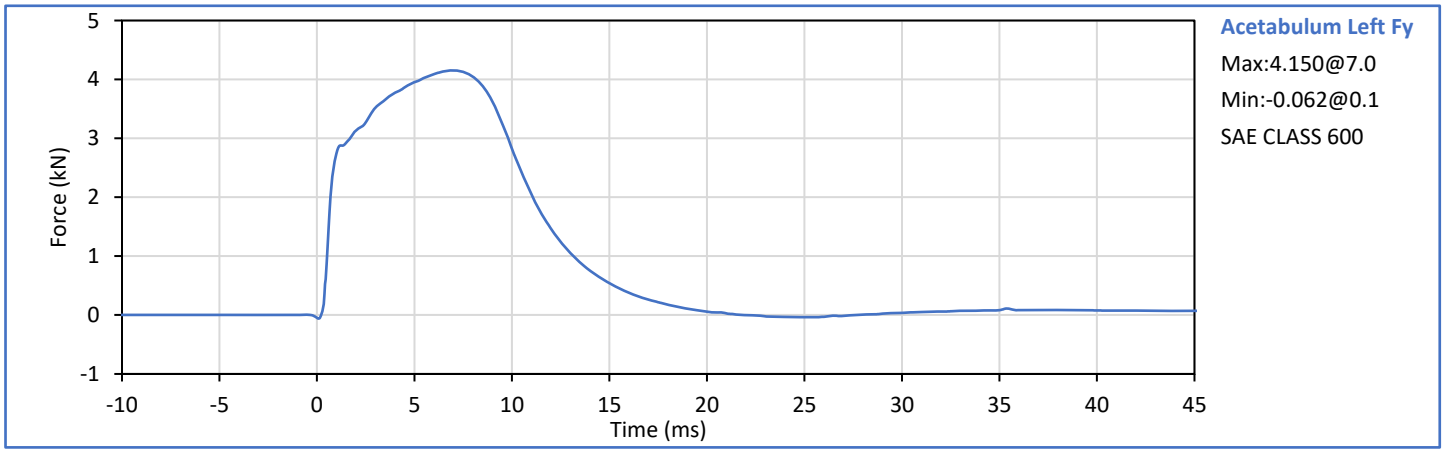
SID-IIs Small Side Impact ATD
Pelvis Acetabulum Impact

ATD Serial No.: 308 Test Date: 2025-01-08

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	23	Pass
Impactor Velocity	m/s	6.60	6.80	6.69	Pass
Peak Acetabulum Fy	kN	3.60	4.30	4.15	Pass
Pelvis Ay after 6ms	g	34.0	42.0	39.1	Pass
Peak Impactor Ax	g	-47.0	-38.0	-45.1	Pass
			Overall Test Results		Pass

Pelvis Plug S/N: 14661





Technician: J. Coronel

Approved By: J. Hernandez

ATD Serial No.: 308 Test Date: 2025-01-08

Pelvis Plug S/N: 14661

SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 14661
Test Number 16623
Report Number 16669
Test Date 12/22/2020 9:01:10 AM

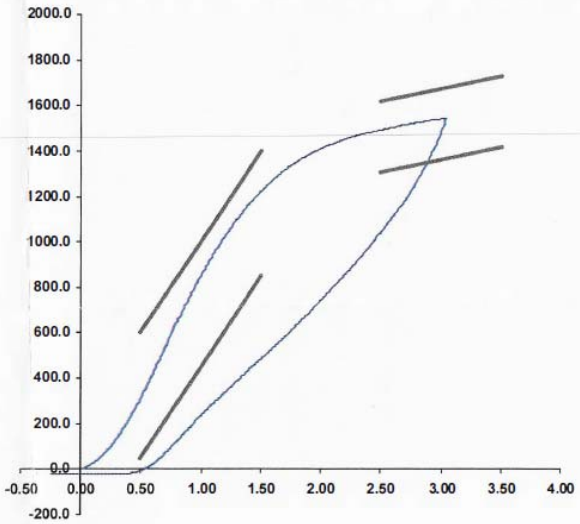
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	315.92	50.00	600.00
Force @ 1.5 mm (N)	1,223.01	850.00	1,400.00
Force @ 2.5 mm (N)	1,493.34	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,544.03	1,361.00	1,673.00

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

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

Notes:

Force (-N) vs Extension (-mm)



Operator 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

Applus IDIADA KARCO

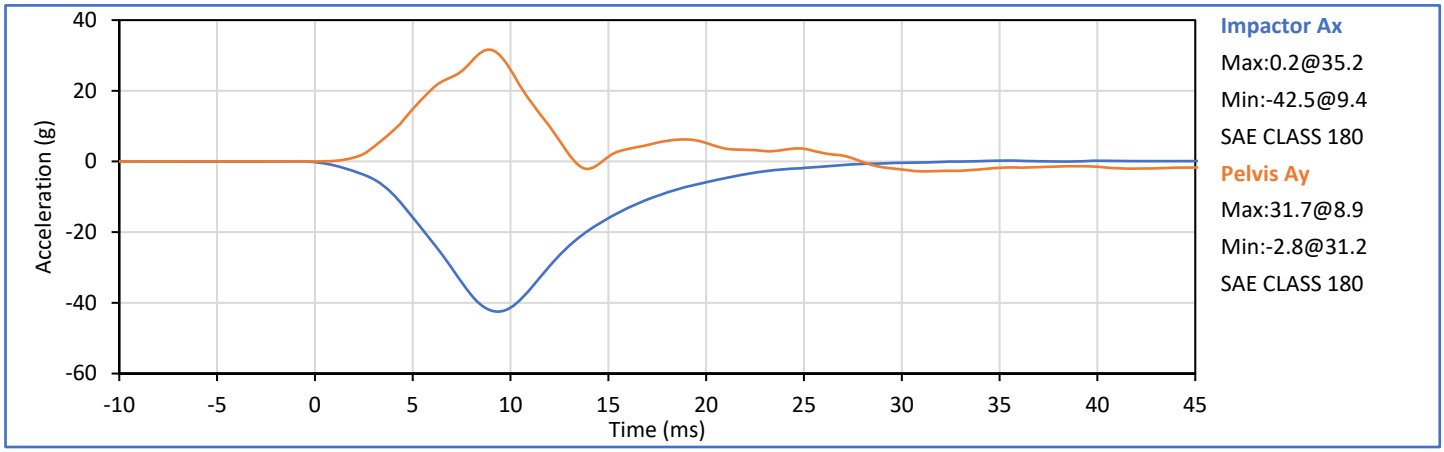
SID-IIs Small Side Impact ATD
Pelvis Iliac Impact

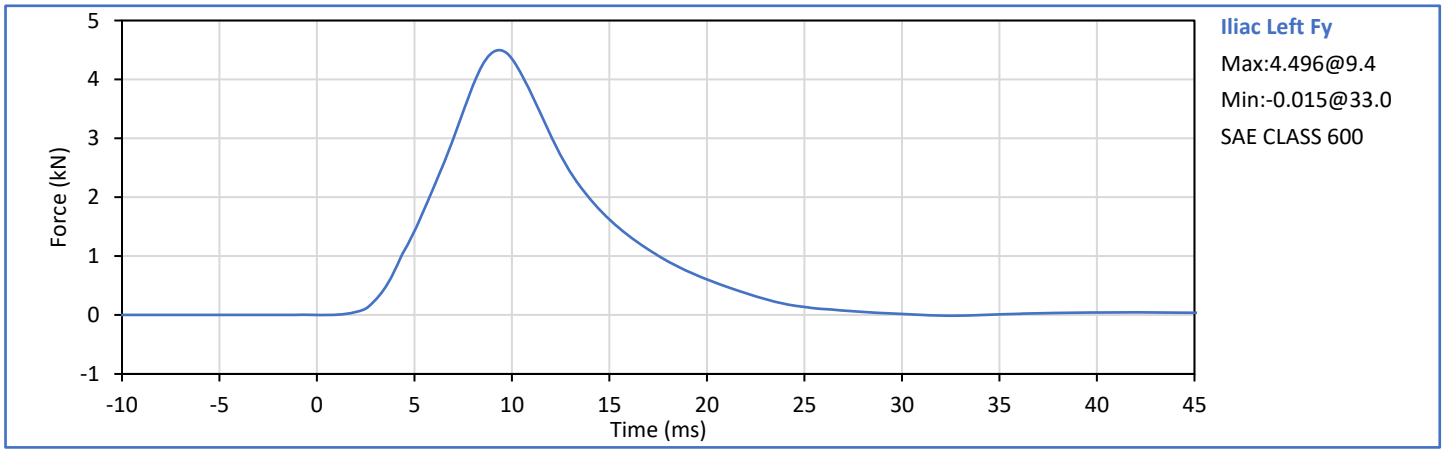
ATD Serial No.: 308 Test Date: 2025-01-09

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	20	Pass
Impactor Velocity	m/s	4.20	4.40	4.34	Pass
Peak Iliac Fy	kN	4.10	5.10	4.50	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-42.5	Pass
			Overall Test Results		Pass

Pelvis Plug S/N: 16490 *

* Plug is not impacted and remains certified





Technician: J. Coronel

Approved By: J. Hernandez

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

Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
External Measurements

ATD Serial No.: F037 Test Date: 2025-01-15

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	21	Pass
1 - Sitting Height	mm	900	918	910	Pass
2 - Seat to Shoulder Joint	mm	558	572	565	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	100	Pass
5 - Sole to Seat, Sitting	mm	433	451	440	Pass
6 - Head Width	mm	152	158	155	Pass
7 - Shoulder/Arm Width	mm	461	479	469	Pass
8 - Thorax Width	mm	322	332	331	Pass
9 - Abdomen Width	mm	273	287	282	Pass
10 - Pelvis Lap Width	mm	359	373	369	Pass
11 - Head Depth	mm	196	206	203	Pass
12 - Thorax Depth	mm	262	272	272	Pass
13 - Abdomen Depth	mm	194	204	201	Pass
14 - Pelvis Depth	mm	235	245	240	Pass
15 - Back of Buttocks to Hip Joint (bolt Center)	mm	150	160	156	Pass
16 - Back of Buttocks to Front Knee	mm	597	615	609	Pass
			Overall Test Results		Pass

Technician: J. Coronel

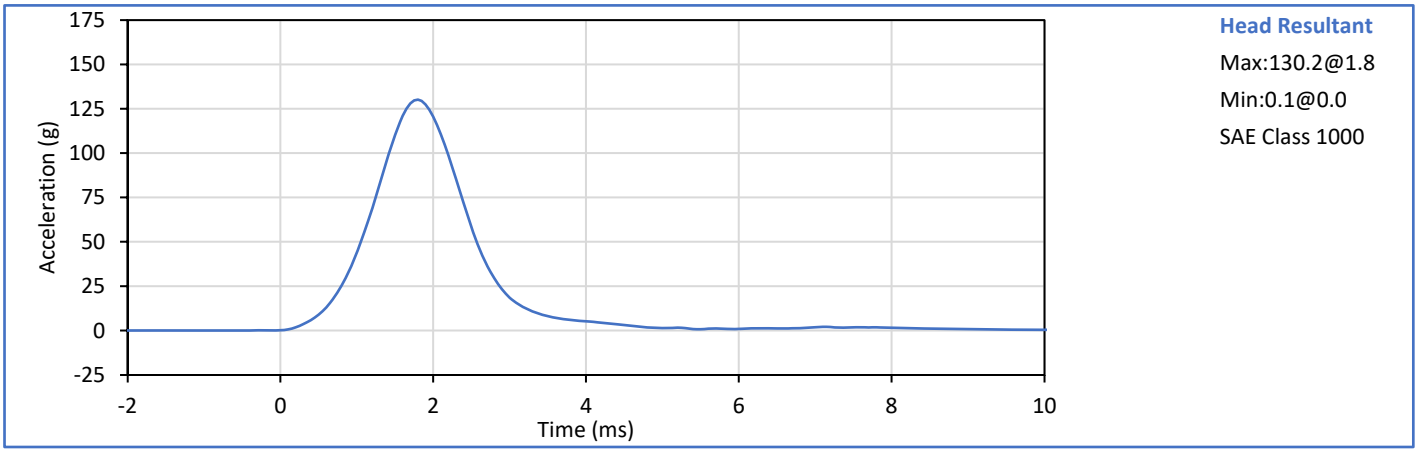
Approved By: J. Hernandez

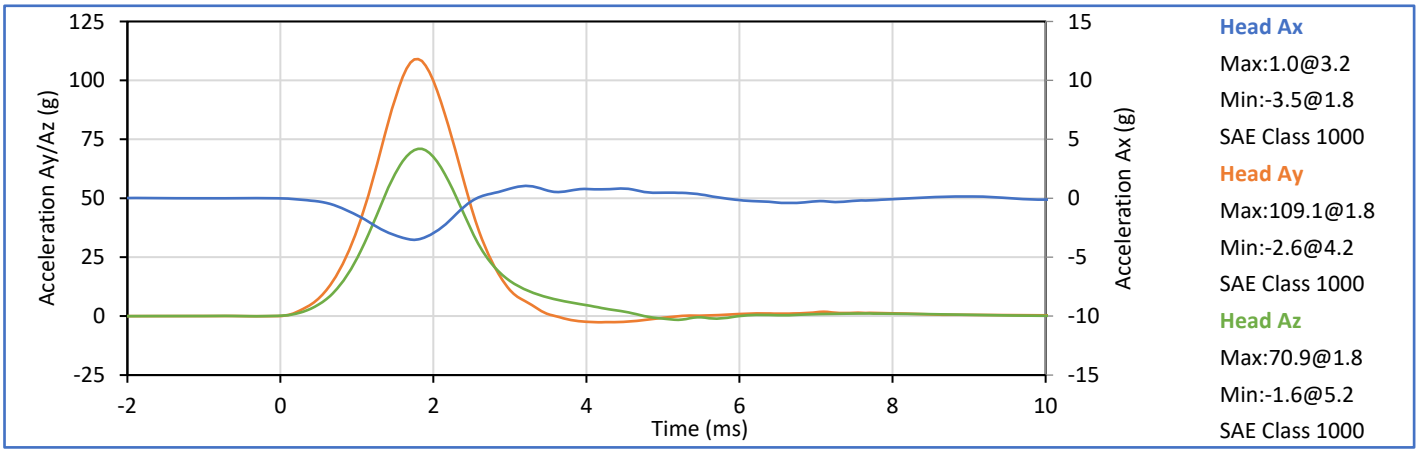
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Head Drop

ATD Serial No.: F037 Test Date: 2025-01-17

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.6	Pass
Laboratory Relative Humidity	%	10	70	21	Pass
Peak Resultant Acceleration	g	125.0	155.0	130.2	Pass
Peak Head Ax	g	-15.0	15.0	1.0	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results		Pass





Technician: J. Coronel

Approved By: J. Hernandez

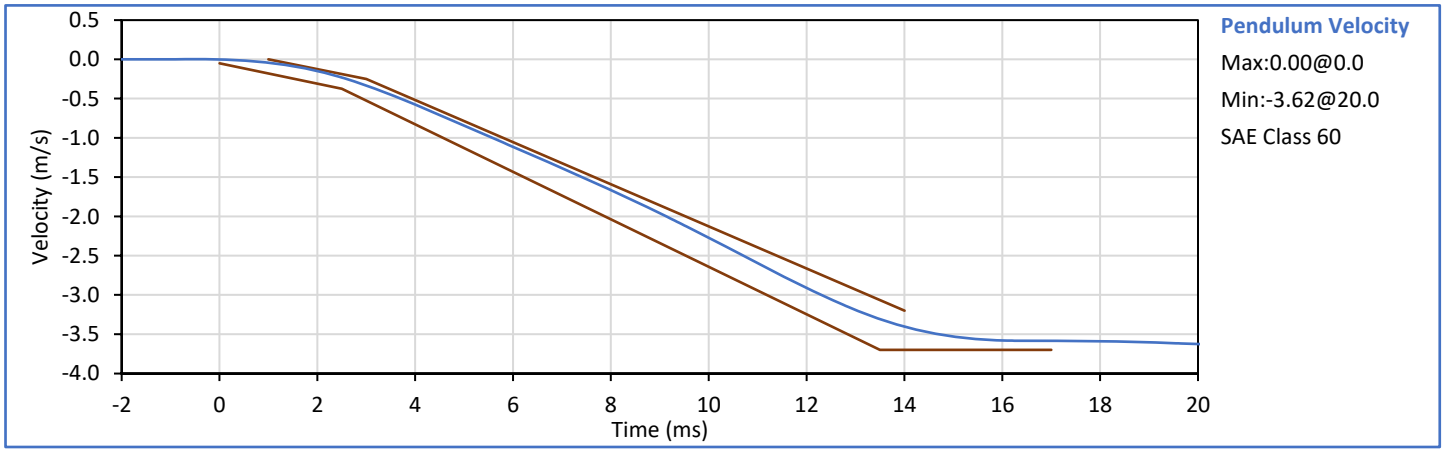
Applus IDIADA KARCO

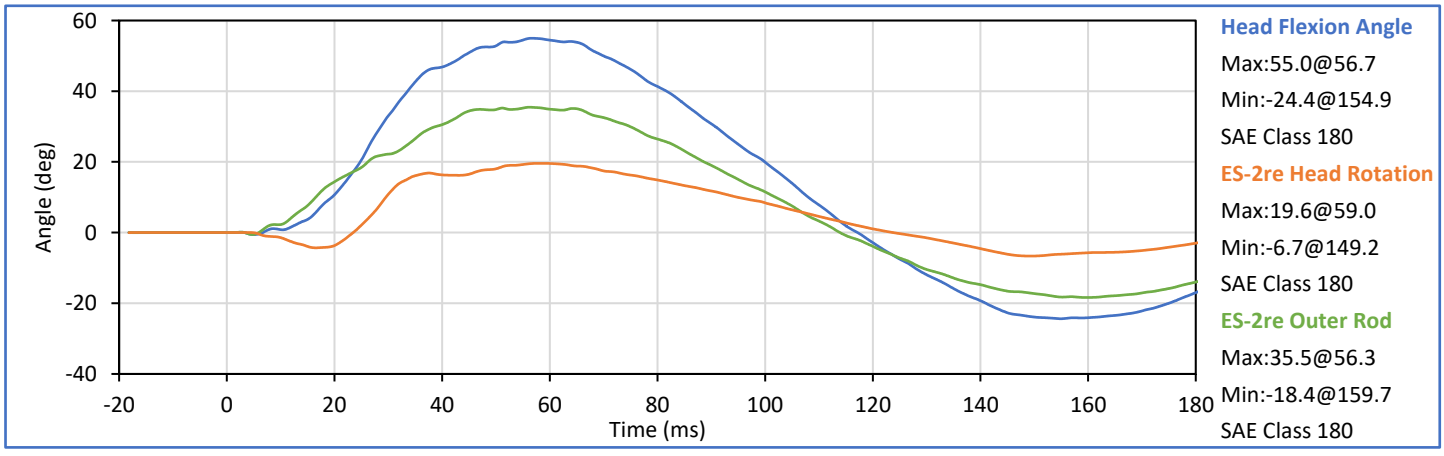
ES-2re 50th Male Side Impact ATD
Neck Flexion

ATD Serial No.: F037

Test Date: 2025-01-16

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	20	Pass
Pendulum Velocity	m/s	3.30	3.50	3.42	Pass
Peak Headform Flexion	deg	49.0	59.0	55.0	Pass
Time of Peak Headform Flexion	ms	54.0	66.0	56.7	Pass
Flexion Decay (Peak to zero)	ms	53.0	88.0	60.5	Pass
			Overall Test Results		Pass





Technician: J. Coronel

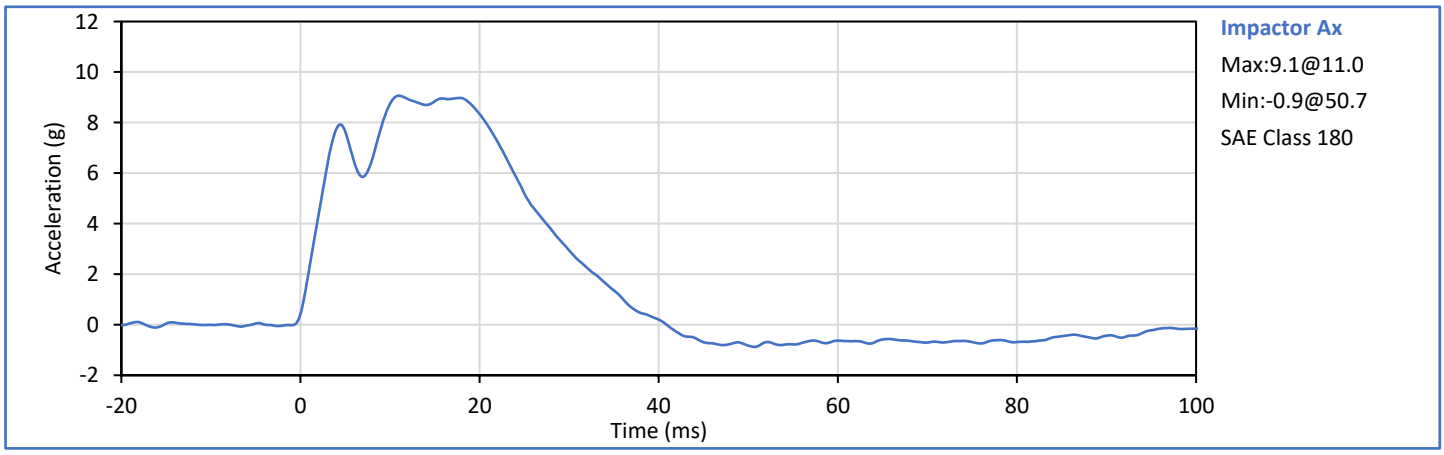
Approved By: J. Hernandez

Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Shoulder Impact Test

ATD Serial No.: F037 Test Date: 2025-01-16

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	20	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Impactor Ax	g	7.5	10.5	9.1	Pass
			Overall Test Results		Pass



Technician: J. Coronel

Approved By: J. Hernandez

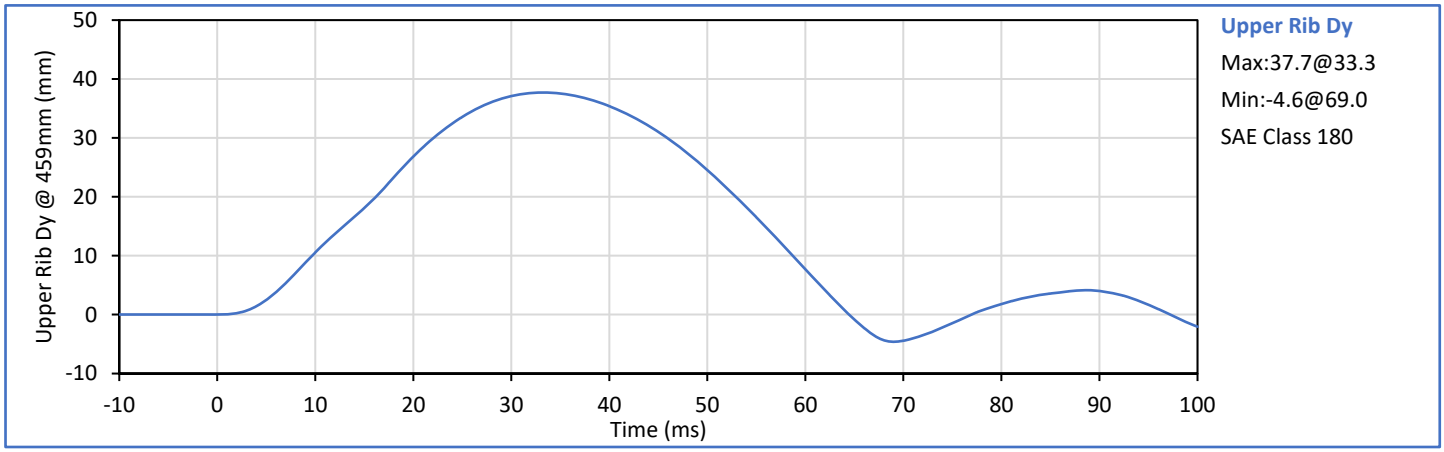
Applus IDIADA KARCO

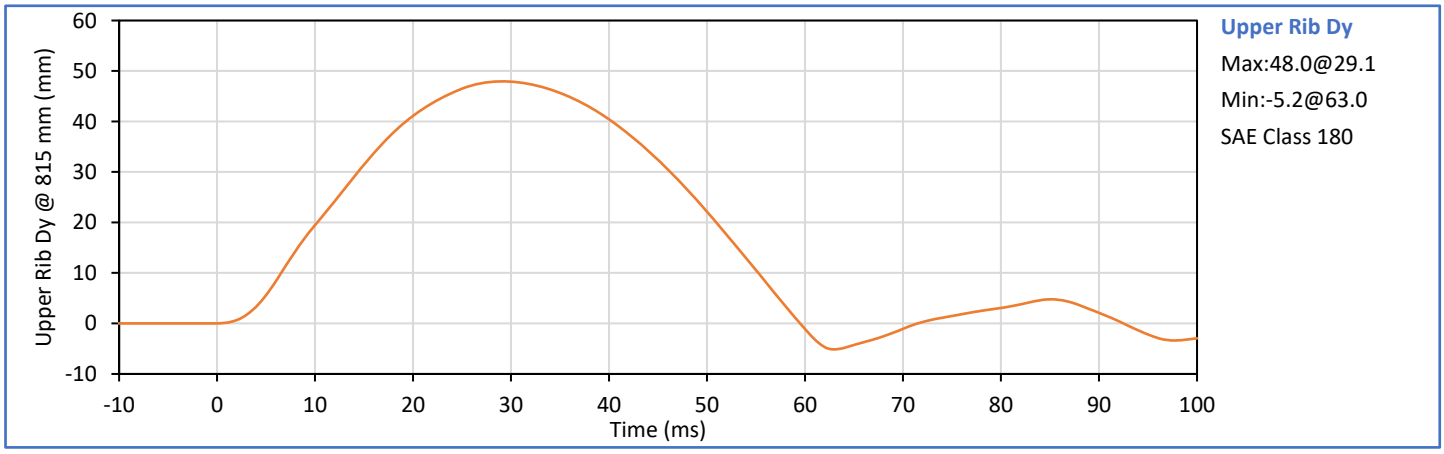
ES-2re 50th Male Side Impact ATD
Upper Rib Drop Test

ATD Serial No.: F037

Test Date: 2025-01-15

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	20	Pass
Upper Rib Dy @ 459mm	mm	36.0	40.0	37.7	Pass
Upper Rib Dy @ 815mm	mm	46.0	51.0	48.0	Pass
			Overall Test Results		Pass





Technician: J. Coronel

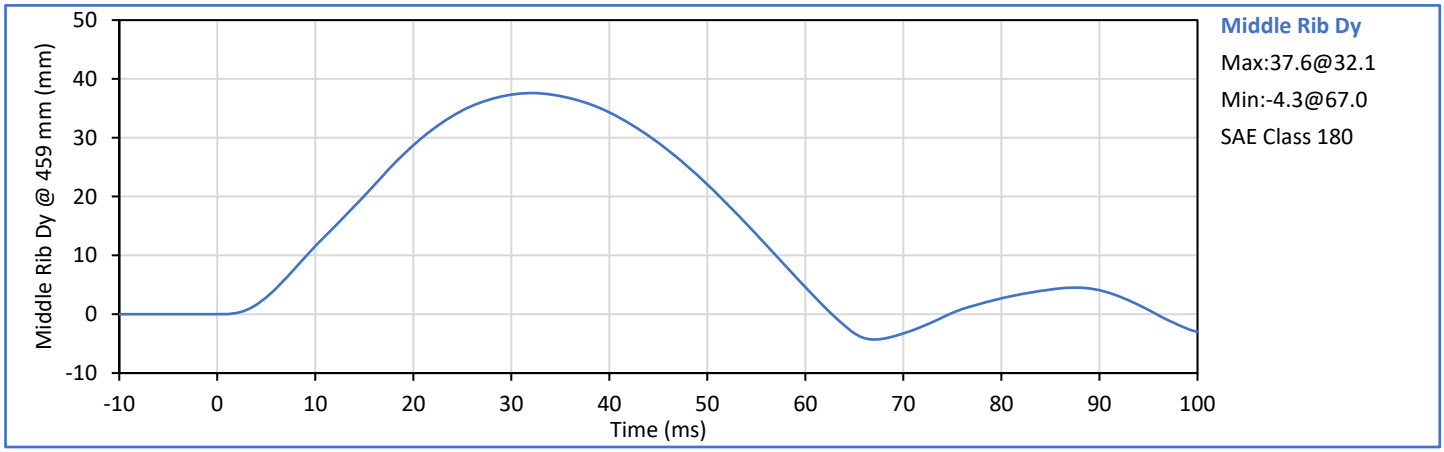
Approved By: J. Hernandez

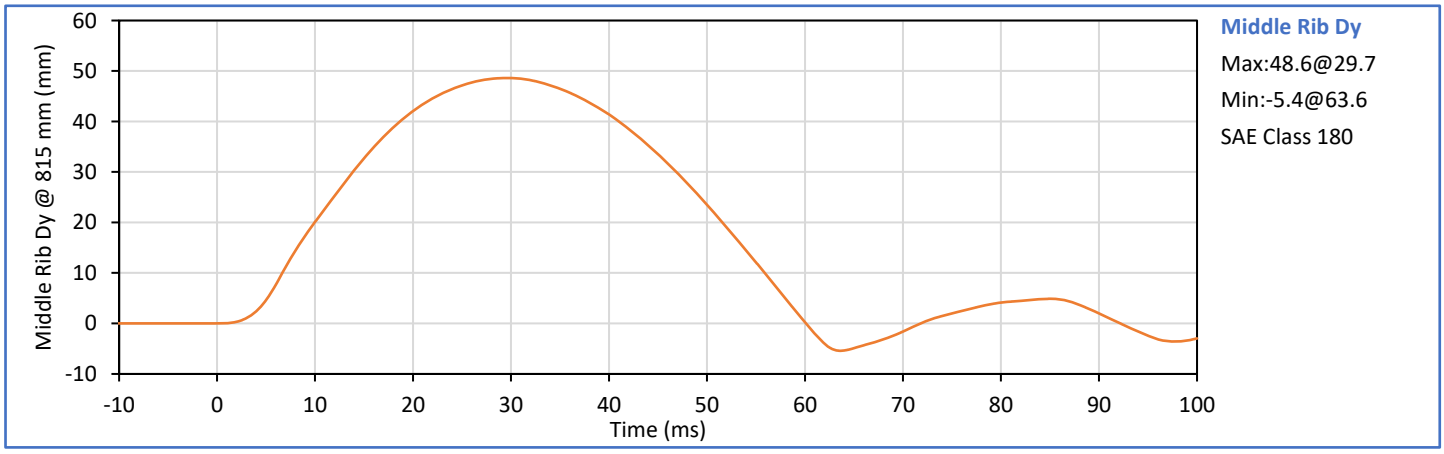
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Middle Rib Drop Test

ATD Serial No.: F037 Test Date: 2025-01-15

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	21	Pass
Middle Rib Dy @ 459mm	mm	36.0	40.0	37.6	Pass
Middle Rib Dy @ 815mm	mm	46.0	51.0	48.6	Pass
			Overall Test Results		Pass





Technician: J. Coronel

Approved By: J. Hernandez

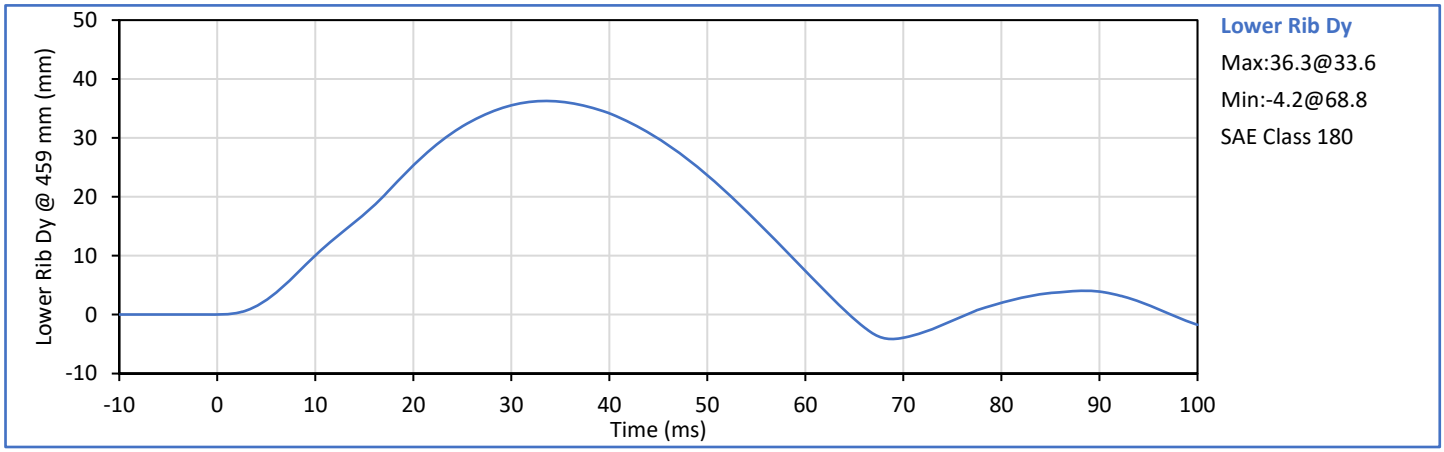
Applus IDIADA KARCO

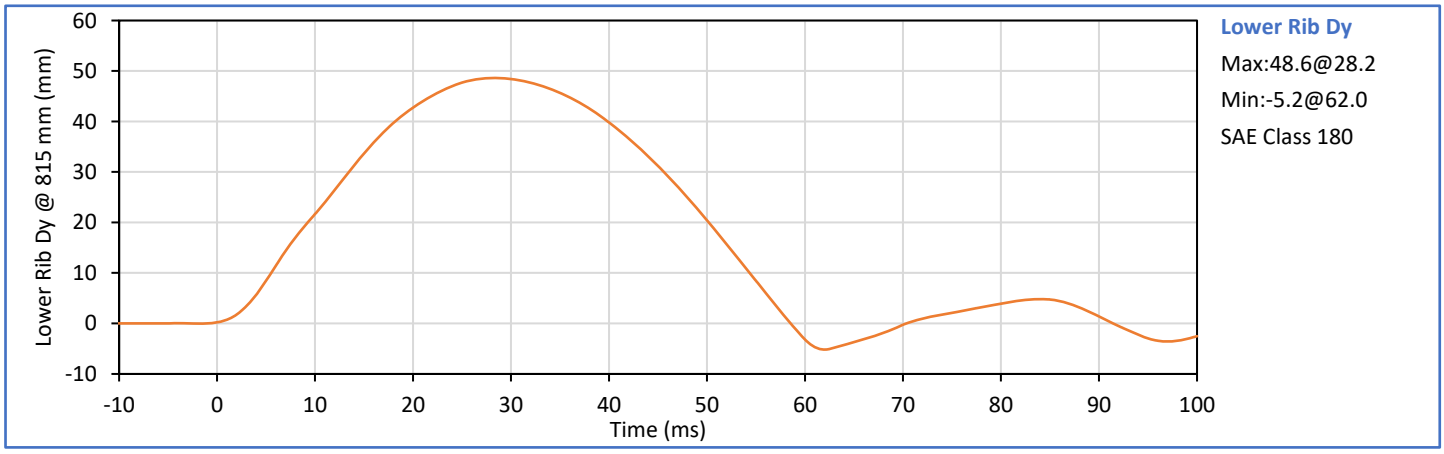
ES-2re 50th Male Side Impact ATD
Lower Rib Drop Test

ATD Serial No.: F037

Test Date: 2025-01-15

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	21	Pass
Lower Rib Dy @ 459mm	mm	36.0	40.0	36.3	Pass
Lower Rib Dy @ 815mm	mm	46.0	51.0	48.6	Pass
			Overall Test Results		Pass





Technician: J. Coronel

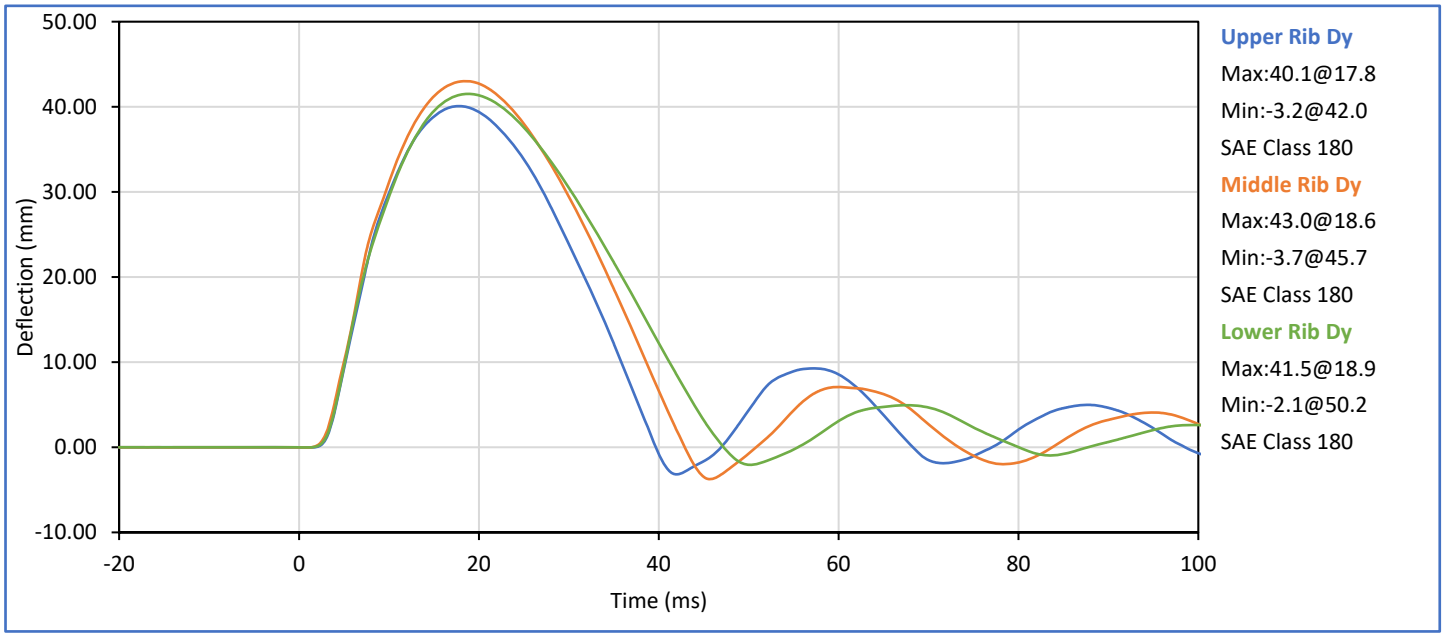
Approved By: J. Hernandez

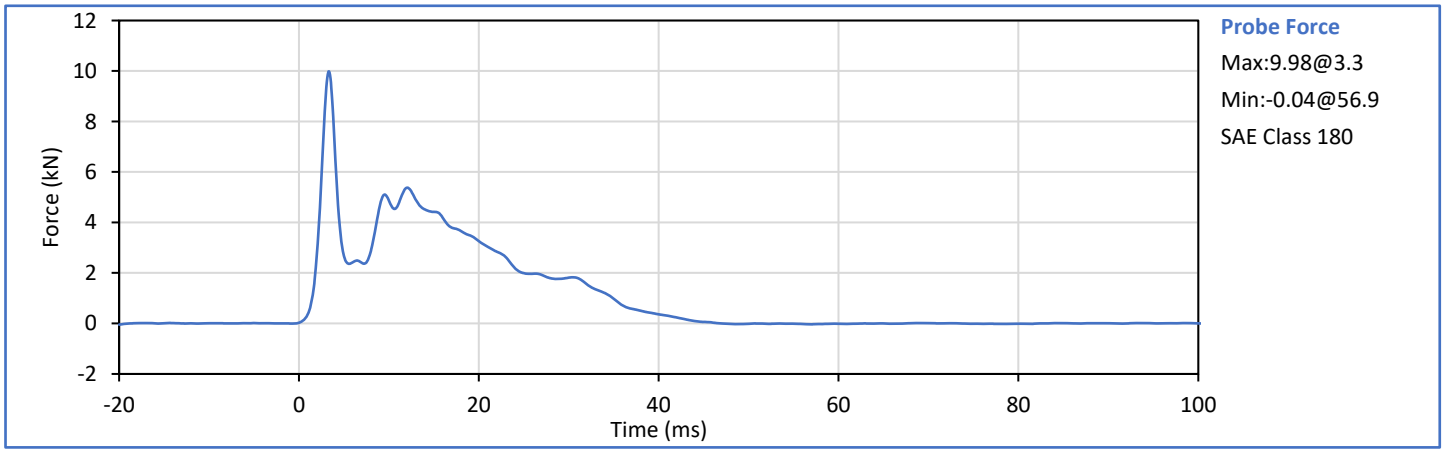
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Thorax Impact (Full Body)

ATD Serial No.: F037 Test Date: 2025-01-15

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	22	Pass
Impactor Velocity	m/s	5.40	5.60	5.51	Pass
Peak Upper Rib Dy	mm	34.0	41.0	40.1	Pass
Peak Middle Rib Dy	mm	37.0	45.0	43.0	Pass
Peak Lower Rib Dy	mm	37.0	44.0	41.5	Pass
Peak Impactor Force After 6 ms	kN	5.10	6.20	5.38	Pass
			Overall Test Results		Pass





Technician: J. Coronel

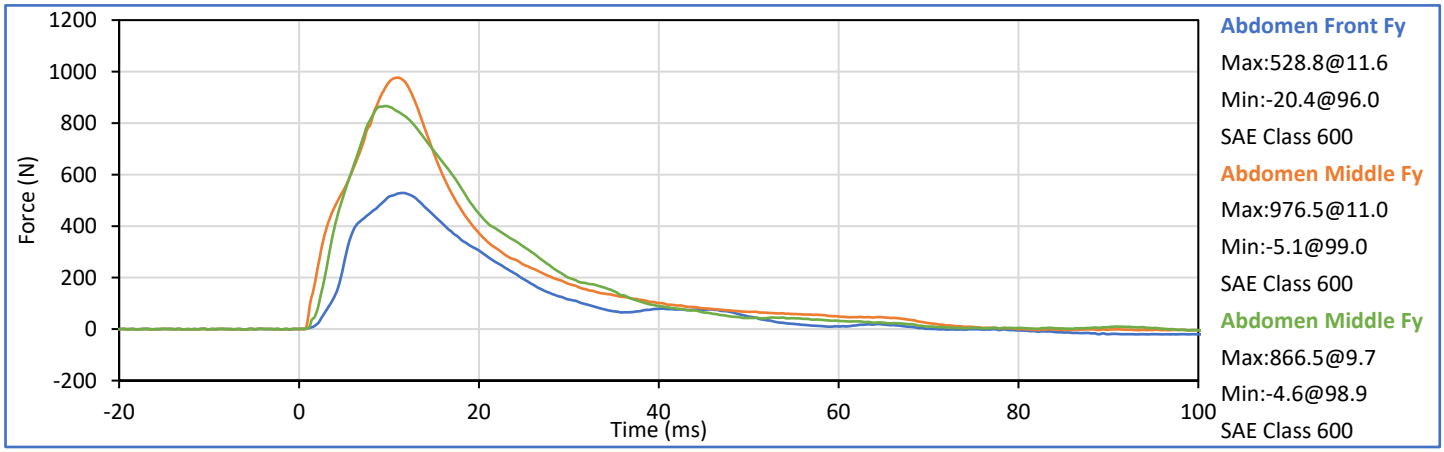
Approved By: J. Hernandez

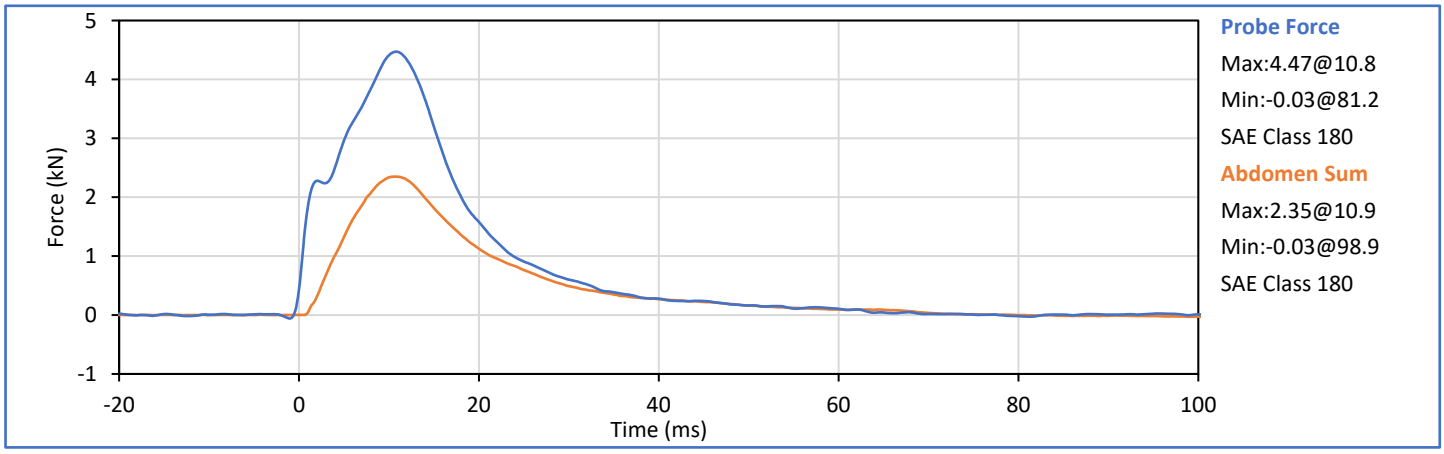
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Abdomen Impact

ATD Serial No.: F037 Test Date: 2025-01-16

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	20	Pass
Impactor Velocity	m/s	3.90	4.10	4.01	Pass
Peak Impactor Force	kN	4.00	4.80	4.47	Pass
Time of Peak Impactor Force	ms	10.6	13.0	10.8	Pass
Sum of Abdomen Forces	kN	2.20	2.70	2.35	Pass
Time of Peak Sum Abdomen Force	ms	10.0	12.3	10.9	Pass
			Overall Test Results		Pass





Technician: J. Coronel

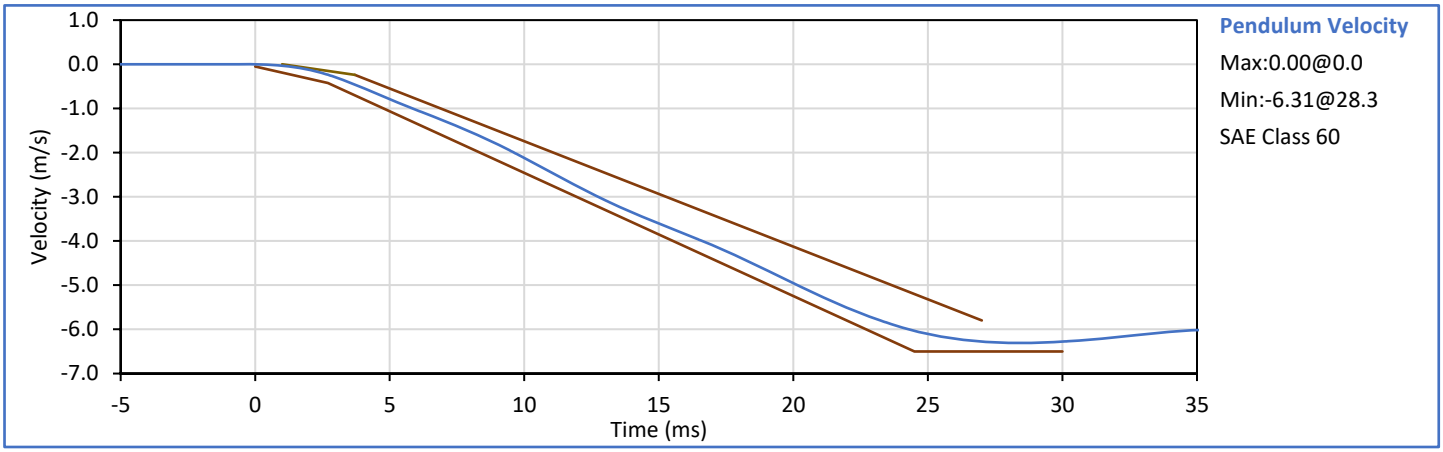
Approved By: J. Hernandez

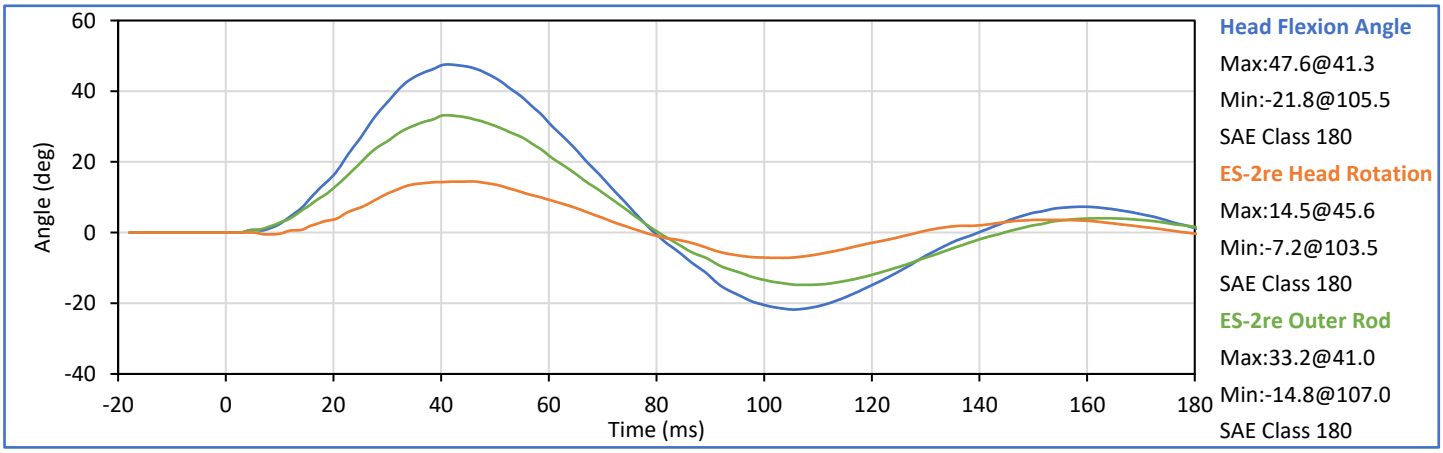
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Lumbar Spine Flexion

ATD Serial No.: F037 Test Date: 2025-01-15

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	21	Pass
Pendulum Velocity	m/s	5.95	6.15	6.12	Pass
Peak Headform Flexion	deg	45.0	55.0	47.6	Pass
Time of Peak Headform Flexion	ms	39.0	53.0	41.3	Pass
Flexion Decay (Peak to zero)	ms	37.0	57.0	38.3	Pass
			Overall Test Results		Pass





Technician: J. Coronel

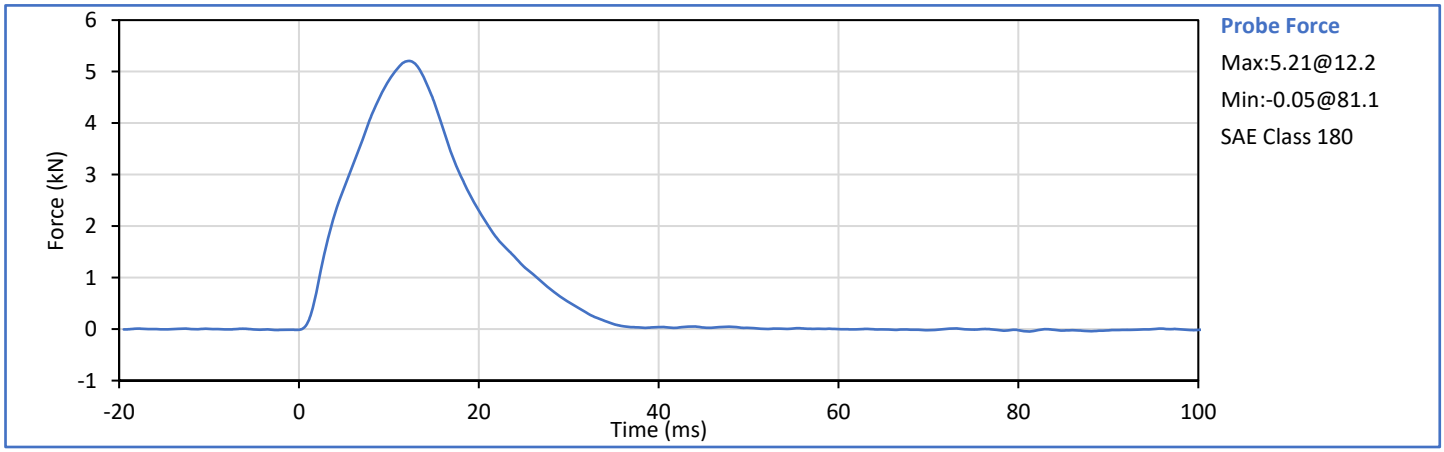
Approved By: J. Hernandez

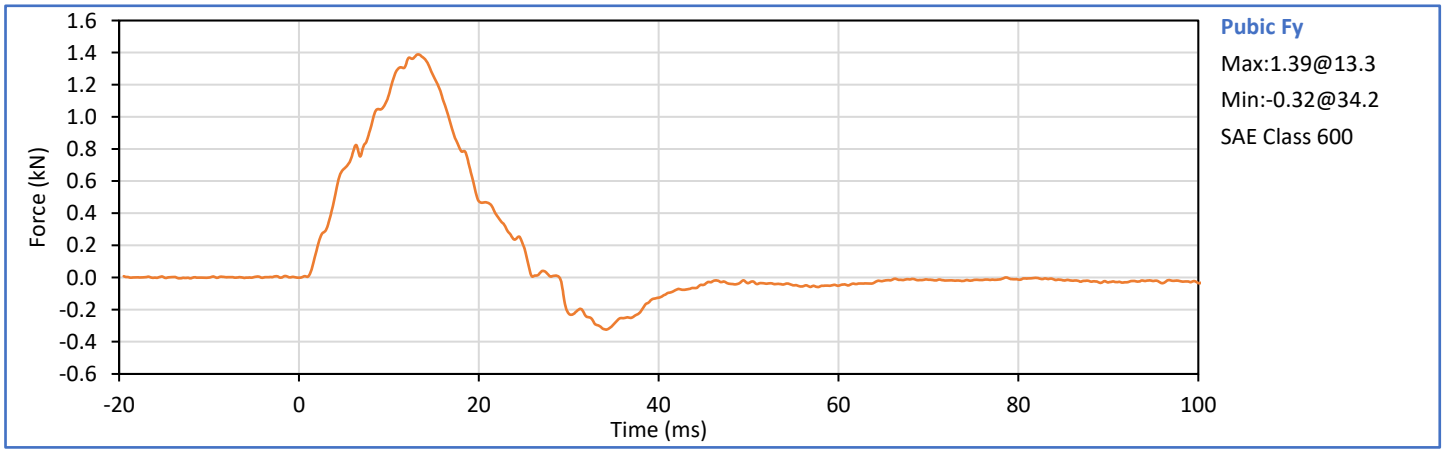
Applus IDIADA KARCO

ES-2re 50th Male Side Impact ATD
Pelvis Impact

ATD Serial No.: F037 Test Date: 2025-01-16

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	21	Pass
Impactor Velocity	m/s	4.20	4.40	4.30	Pass
Peak Impactor Force	kN	4.70	5.40	5.21	Pass
Time of Peak Impactor Force	ms	11.8	16.1	12.2	Pass
Pubic Symphysis Fy	kN	1.23	1.59	1.39	Pass
Time of Peak Pubic Symphysis Fy	ms	12.2	17.0	13.3	Pass
			Overall Test Results		Pass





Technician: J. Coronel

Approved By: J. Hernandez

APPENDIX C
Post-Test ATD Qualification and Performance Verification
SID-IIs Small Side Impact ATD, Left Side Configuration
S/N: 308

Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
External Measurements

ATD Serial No.: 308 Test Date: 2025-01-15

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	19	Pass
A - Sitting Height	mm	772	788	783	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	82	Pass
D - H Point From Seatback	mm	141	151	149	Pass
E - Shoulder Pivot From Backline	mm	97	107	106	Pass
F - Thigh Clearance	mm	119	135	128	Pass
G - Head Breadth	mm	140	148	145	Pass
H - Head Back From Backline	mm	40	46	44	Pass
I - Head Depth	mm	178	188	184	Pass
J - Head Circumference	mm	541	551	548	Pass
K - Buttock To Knee Length	mm	514	540	530	Pass
L - Popliteal Height	mm	343	369	355	Pass
K - Knee Pivot To Floor Height	mm	392	409	397	Pass
N - Buttock Popliteal Length	mm	416	442	434	Pass
O - Chest Depth W/O Jacket	mm	195	211	203	Pass
P - Foot Length	mm	216	232	226	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	486	Pass
V - Shoulder Width	mm	341	357	353	Pass
W - Foot Width	mm	78	94	89	Pass
Y - Chest Circumference W/Jacket	mm	851	881	864	Pass
Z - Waist Circumference	mm	761	791	772	Pass
			Overall Test Results		Pass

Technician: J. Coronel

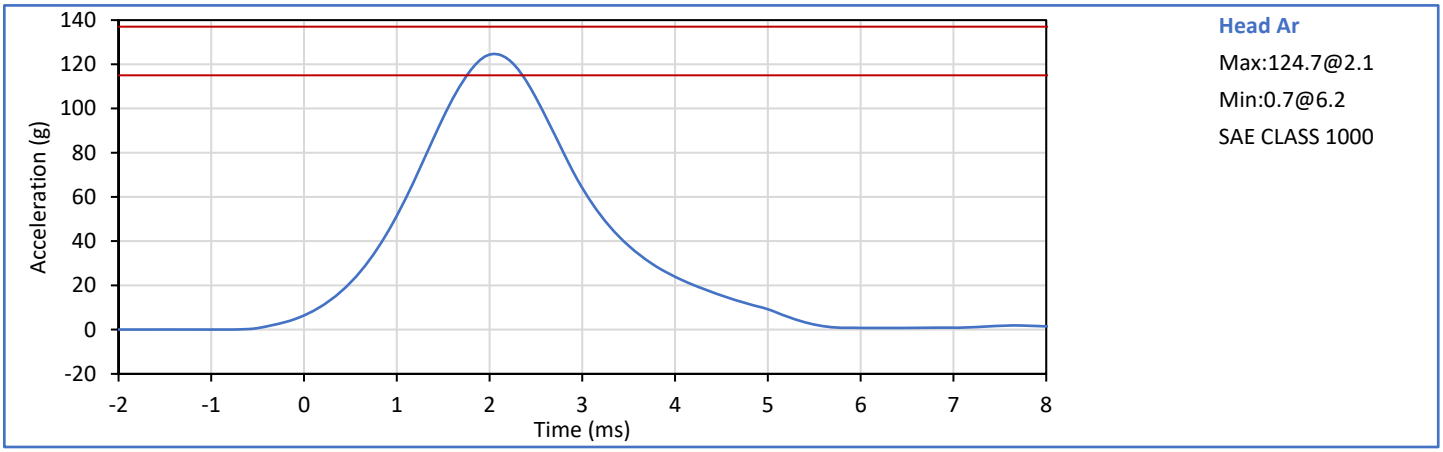
Approved By: J. Hernandez

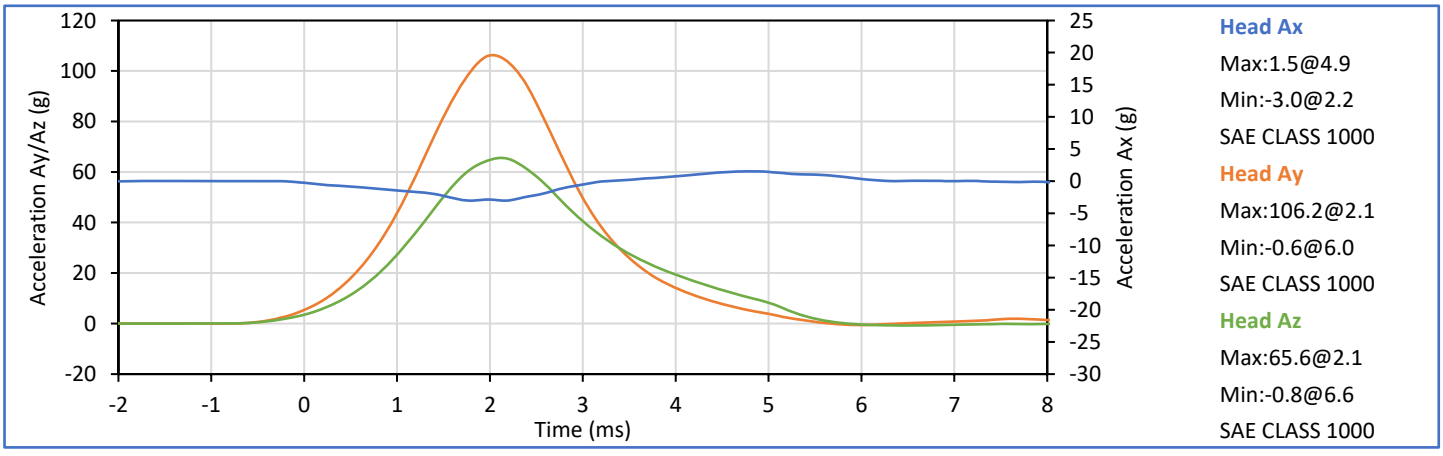
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Head Drop

ATD Serial No.: 308 Test Date: 2025-01-15

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.2	Pass
Laboratory Relative Humidity	%	10	70	20	Pass
Peak Resultant Acceleration	g	115.0	137.0	124.7	Pass
Peak Head Ax	g	-15.0	15.0	-3.0	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results		Pass





Technician: J. Coronel

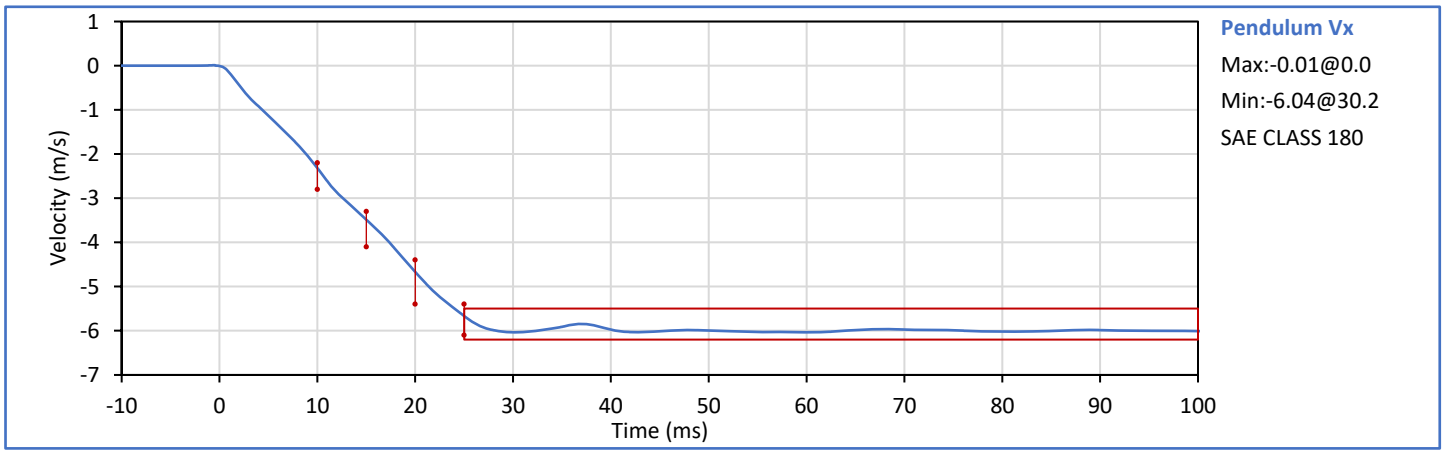
Approved By: J. Hernandez

Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Neck Flexion

ATD Serial No.: 308 Test Date: 2025-01-16

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
Pendulum Velocity	m/s	5.51	5.63	5.59	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.32	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.49	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-4.67	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-5.67	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-6.04/-5.67	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-76.4	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	58.6	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	43.1	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	111.8	Pass
			Overall Test Results		Pass



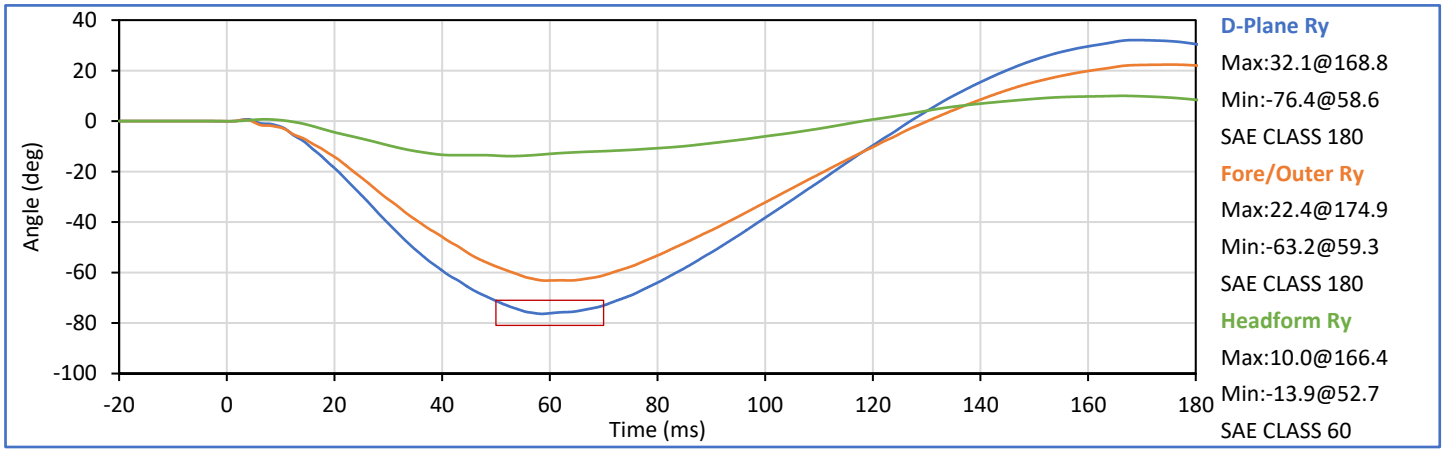
Technician: J. Coronel

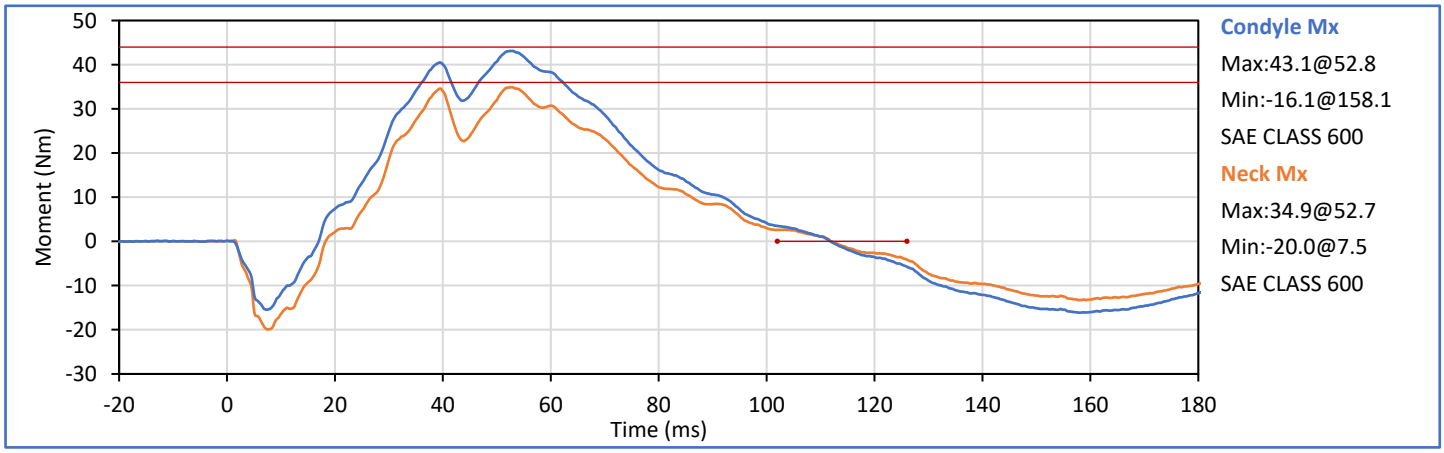
Approved By: J. Hernandez

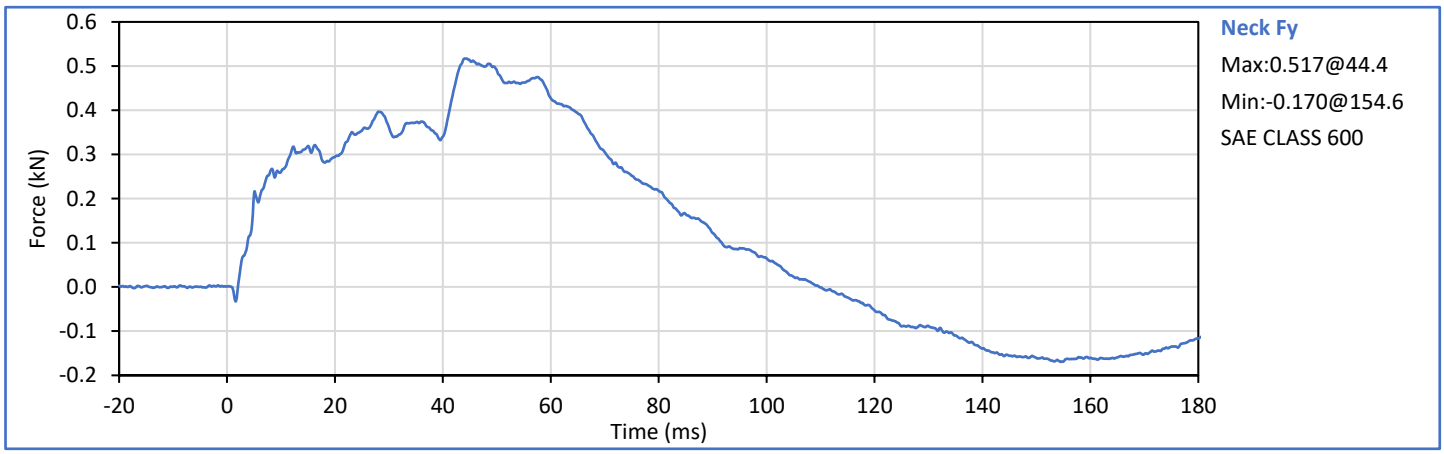
Applus IDIADA
KARCO

SID-IIs Small Side Impact ATD
Neck Flexion

ATD Serial No.: 308 Test Date: 2025-01-16





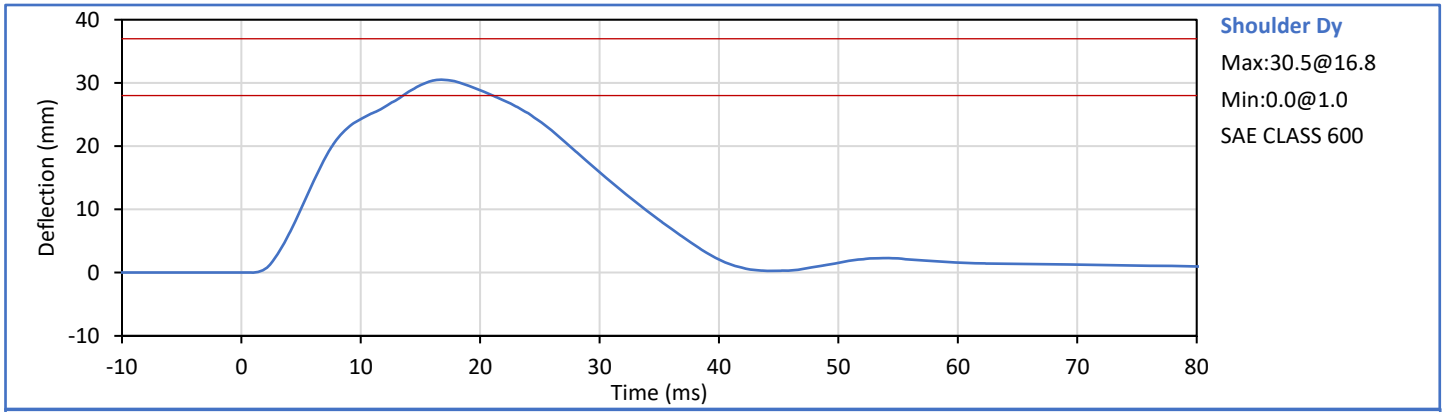


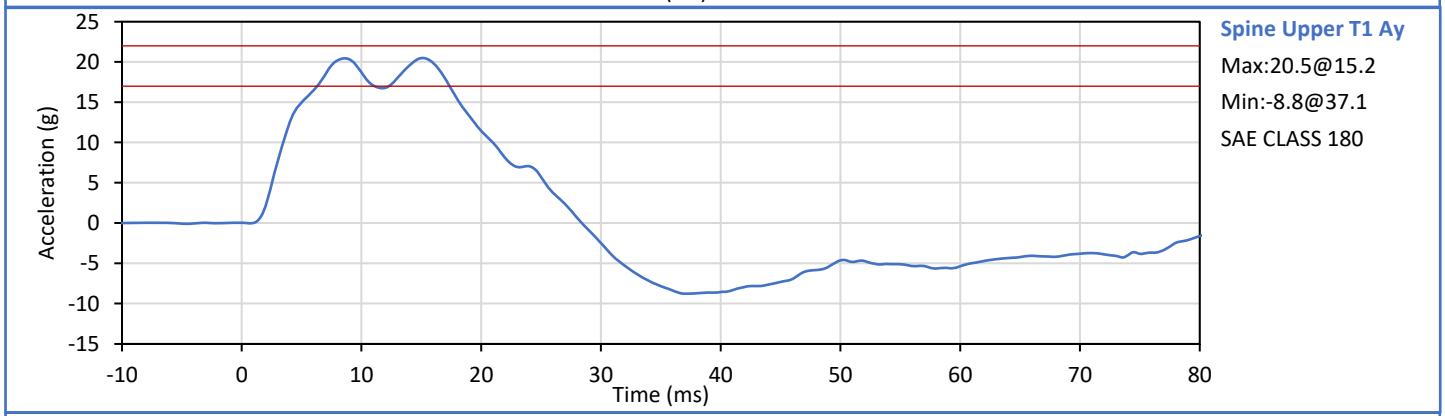
Applus IDIADA KARCO

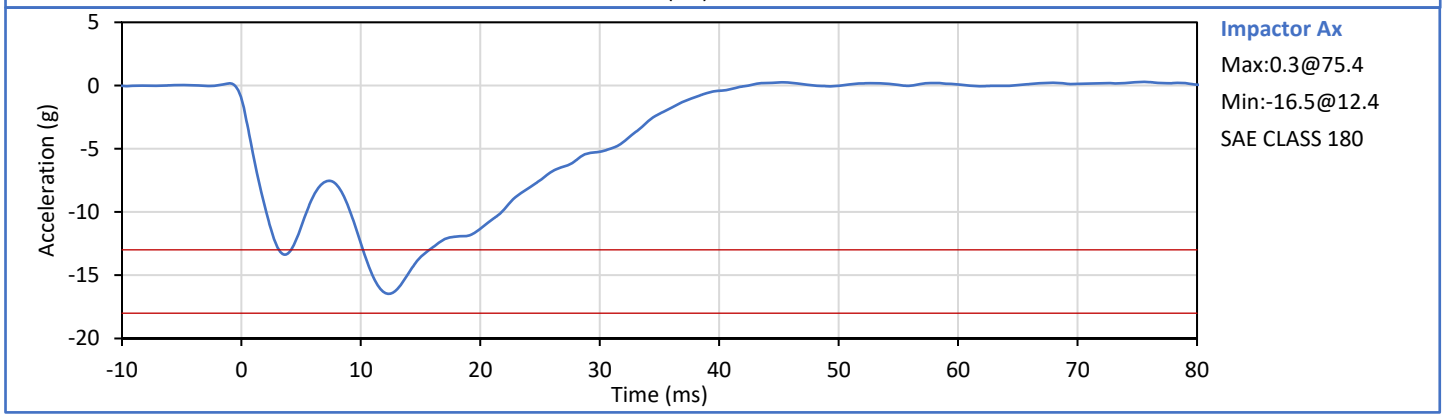
SID-IIs Small Side Impact ATD
Shoulder Impact Test

ATD Serial No.: 308 Test Date: 2025-01-15

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	21	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Shoulder Dy	mm	28.0	37.0	30.5	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	20.5	Pass
Peak Impactor Ax	g	-18.0	-13.0	-16.5	Pass
			Overall Test Results		Pass







Technician: J. Coronel

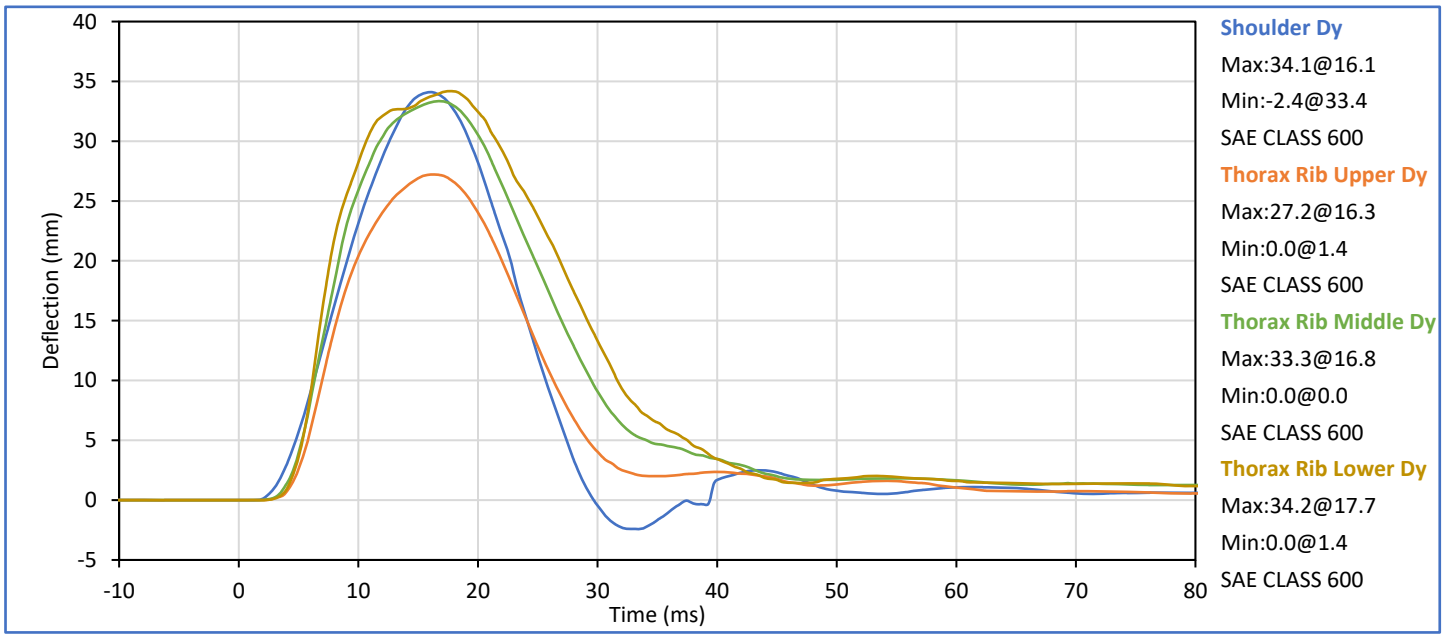
Approved By: J. Hernandez

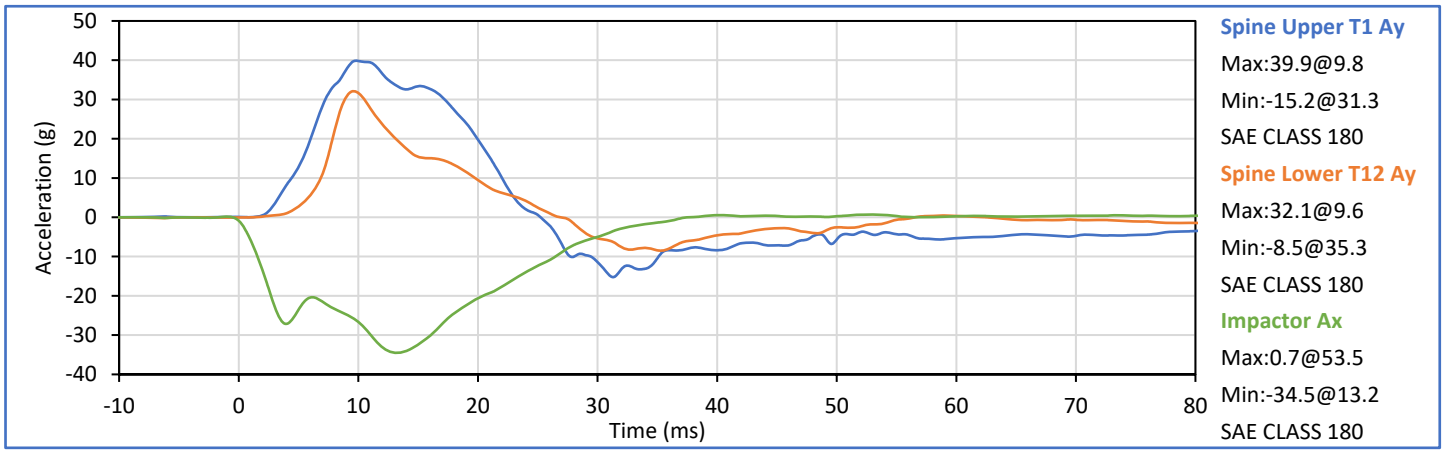
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Thorax (With Arm)

ATD Serial No.: 308 Test Date: 2025-01-15

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	19	Pass
Impactor Velocity	m/s	6.60	6.80	6.70	Pass
Peak Shoulder Dy	mm	31.0	40.0	34.1	Pass
Peak Upper Rib Dy	mm	25.0	32.0	27.2	Pass
Peak Middle Rib Dy	mm	30.0	36.0	33.3	Pass
Peak Lower Rib Dy	mm	32.0	38.0	34.2	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	39.9	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	32.1	Pass
Peak Impactor Ax	g	-36.0	-30.0	-34.5	Pass
			Overall Test Results		Pass





Technician: J. Coronel

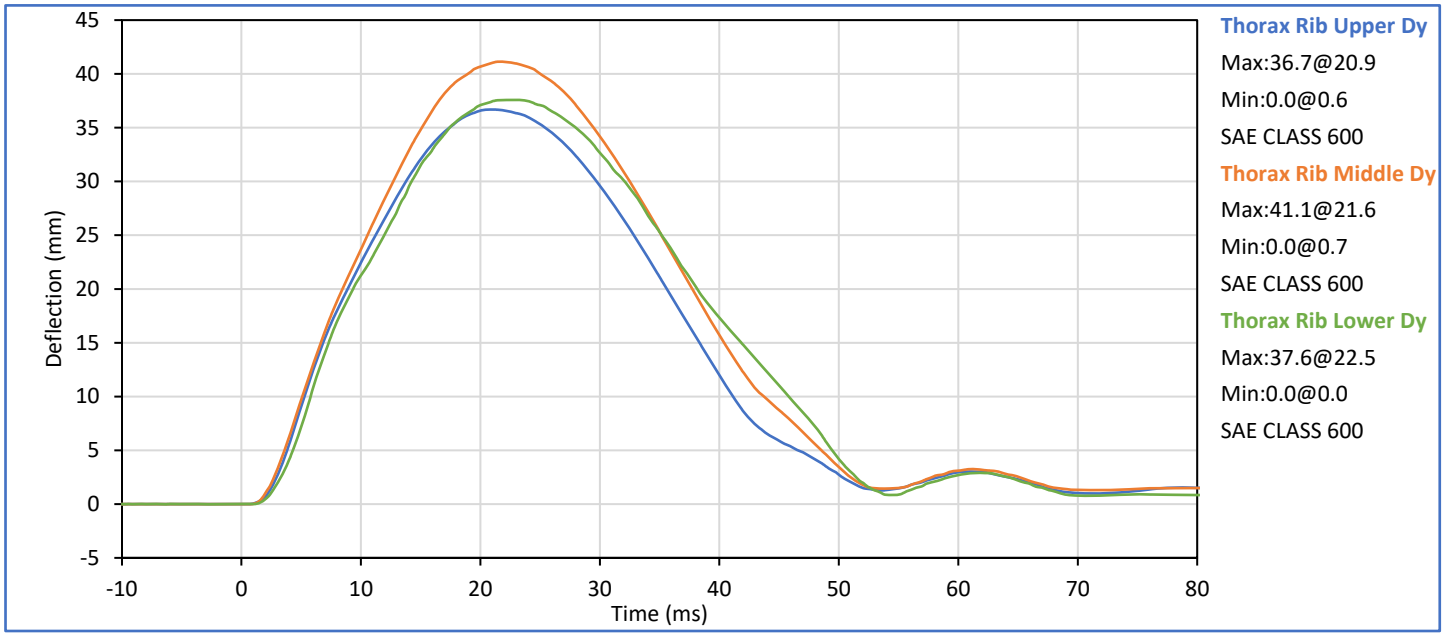
Approved By: J. Hernandez

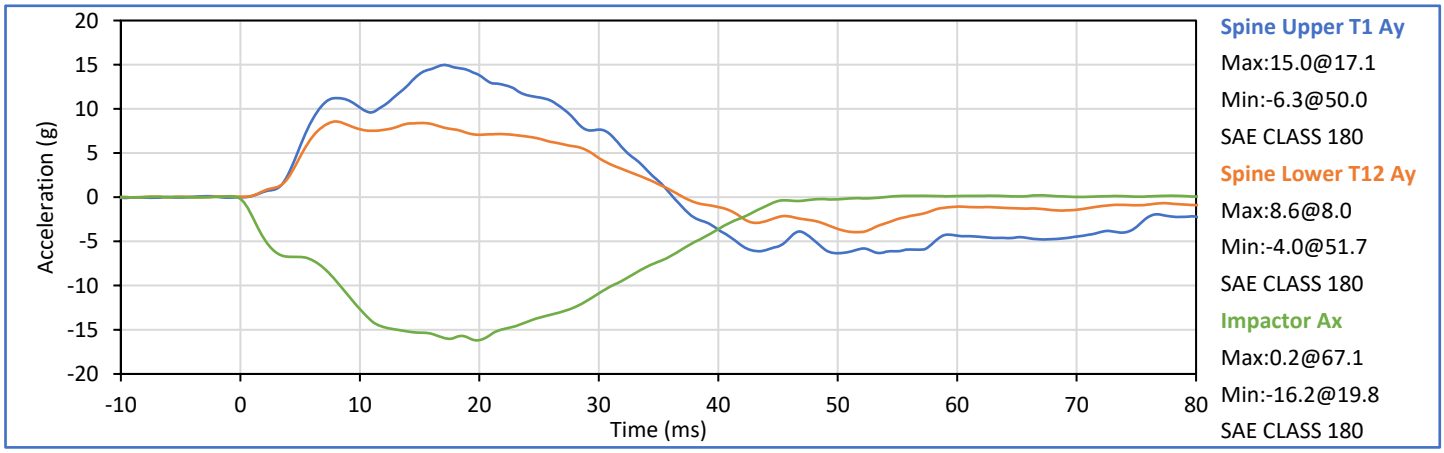
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Thorax (No Arm)

ATD Serial No.: 308 Test Date: 2025-01-15

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	20	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	36.7	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	41.1	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	37.6	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	15.0	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	8.6	Pass
Peak Impactor Ax	g	-18.0	-14.0	-16.2	Pass
			Overall Test Results		Pass





Technician: J. Coronel

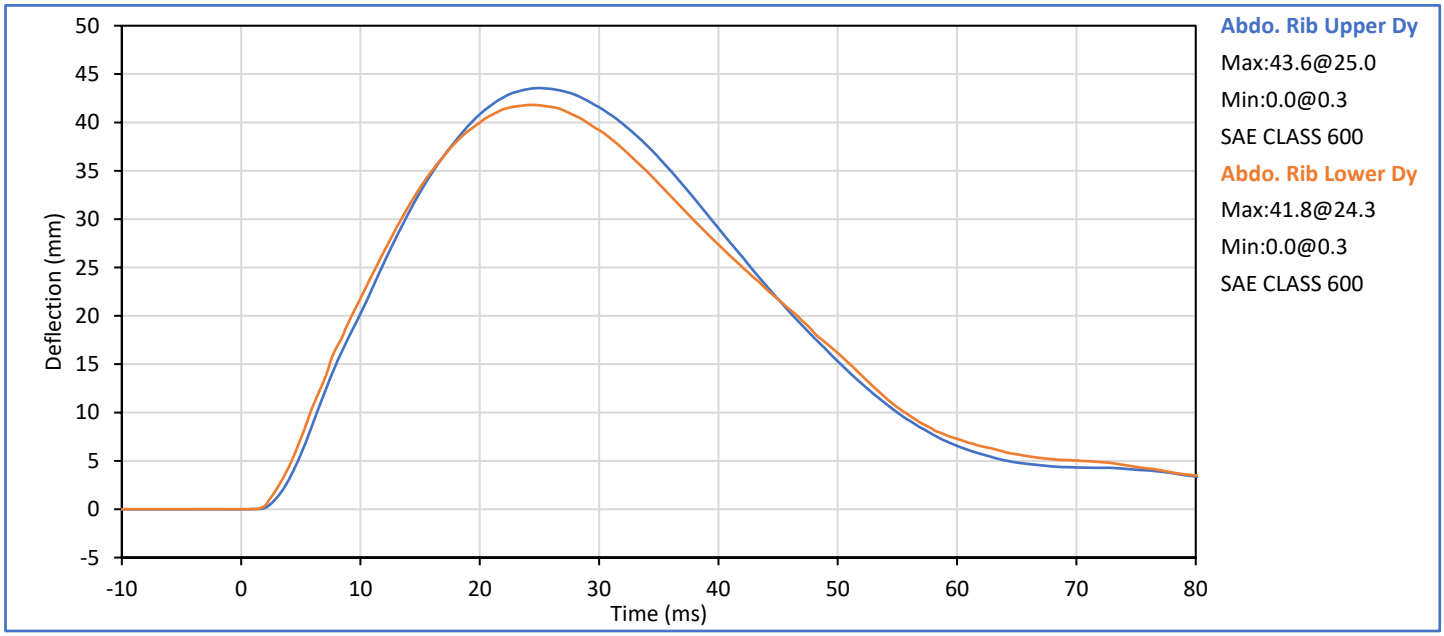
Approved By: J. Hernandez

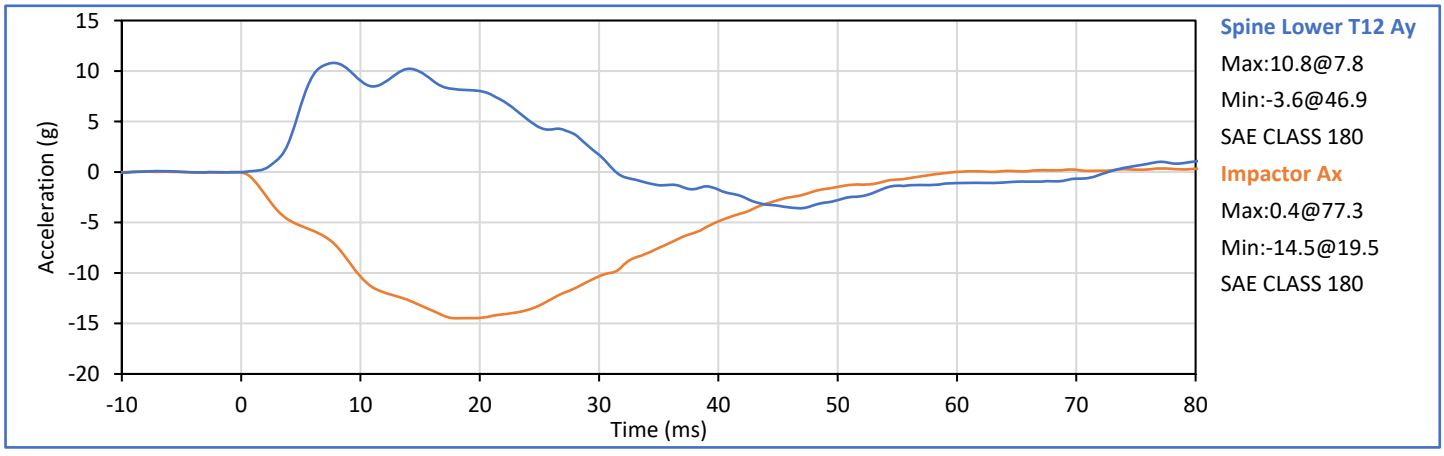
Applus IDIADA KARCO

SID-IIs Small Side Impact ATD
Abdomen Impact

ATD Serial No.: 308 Test Date: 2025-01-15

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	22	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	43.6	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	41.8	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	10.8	Pass
Peak Impactor Ax	g	-16.0	-12.0	-14.5	Pass
			Overall Test Results		Pass





Technician: J. Coronel

Approved By: J. Hernandez

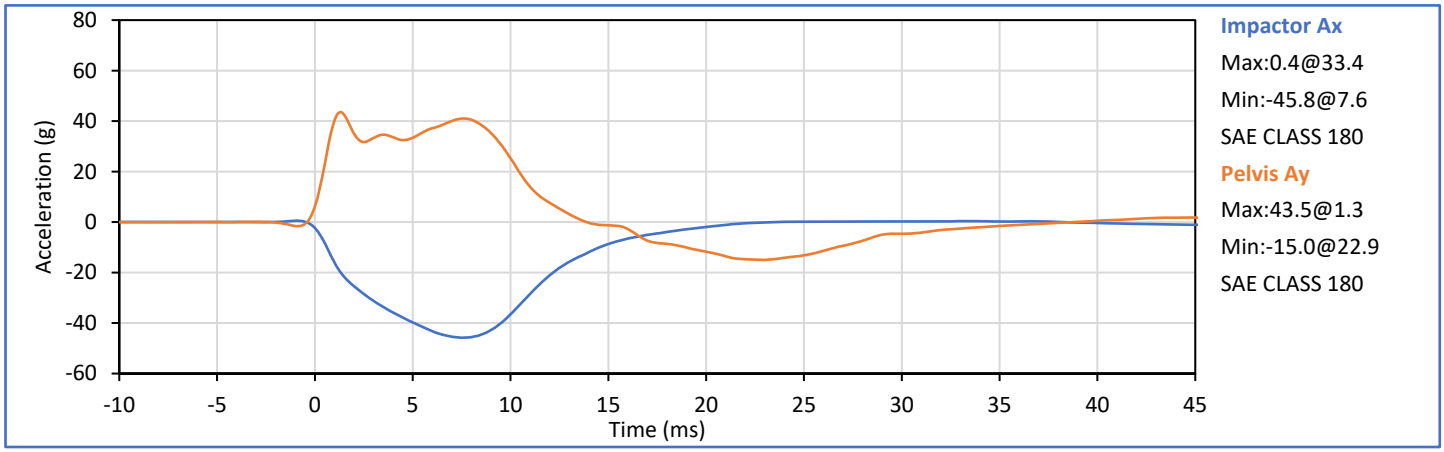
Applus IDIADA KARCO

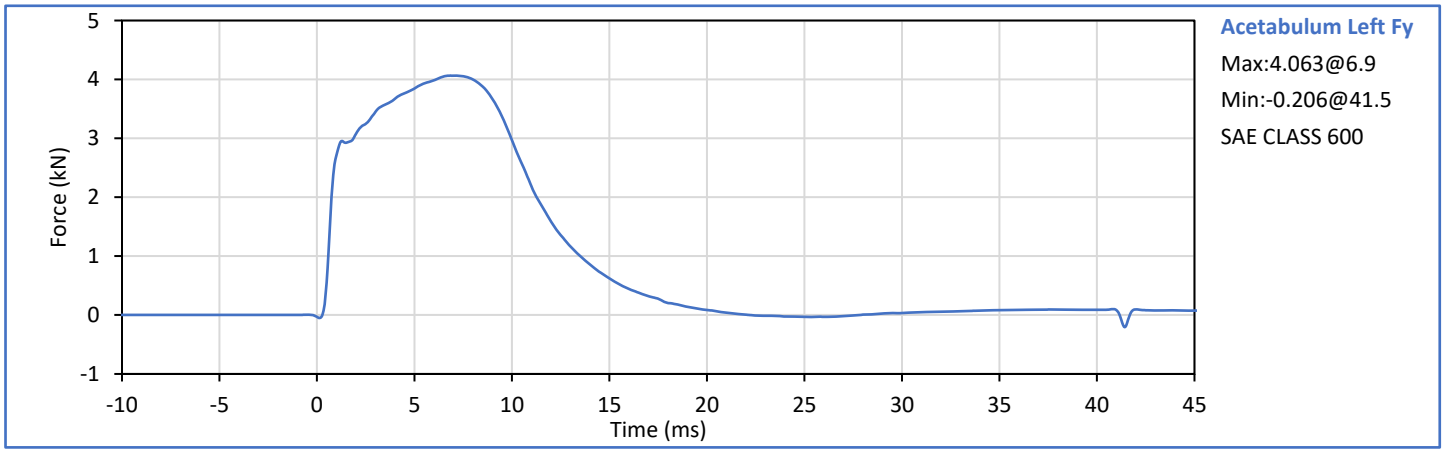
SID-IIs Small Side Impact ATD
Pelvis Acetabulum Impact

ATD Serial No.: 308 Test Date: 2025-01-15

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	20	Pass
Impactor Velocity	m/s	6.60	6.80	6.72	Pass
Peak Acetabulum Fy	kN	3.60	4.30	4.06	Pass
Pelvis Ay after 6ms	g	34.0	42.0	41.0	Pass
Peak Impactor Ax	g	-47.0	-38.0	-45.8	Pass
			Overall Test Results		Pass

Pelvis Plug S/N: 17746





Technician: J. Coronel

Approved By: J. Hernandez

ATD Serial No.: 308 Test Date: 2025-01-15

Pelvis Plug S/N: 17746

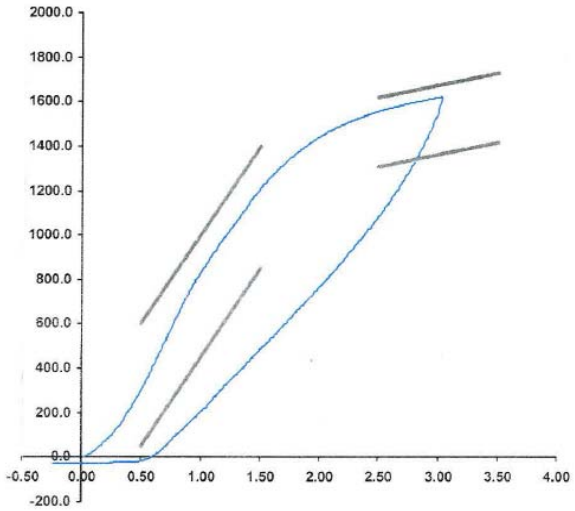
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 17746
Test Number 25033
Report Number 25090
Test Date 12/9/2022 2:28:42 PM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	308	50	600
Force @ 1.5 mm (N)	1,214	850	1,400
Force @ 2.5 mm (N)	1,560	1,306	1,618
Force @ 3.0 mm (N)	1,621	1,361	1,673

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 09-Dec-22
SACO Research

By : DC Date : 12/9/22

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

Applus IDIADA KARCO

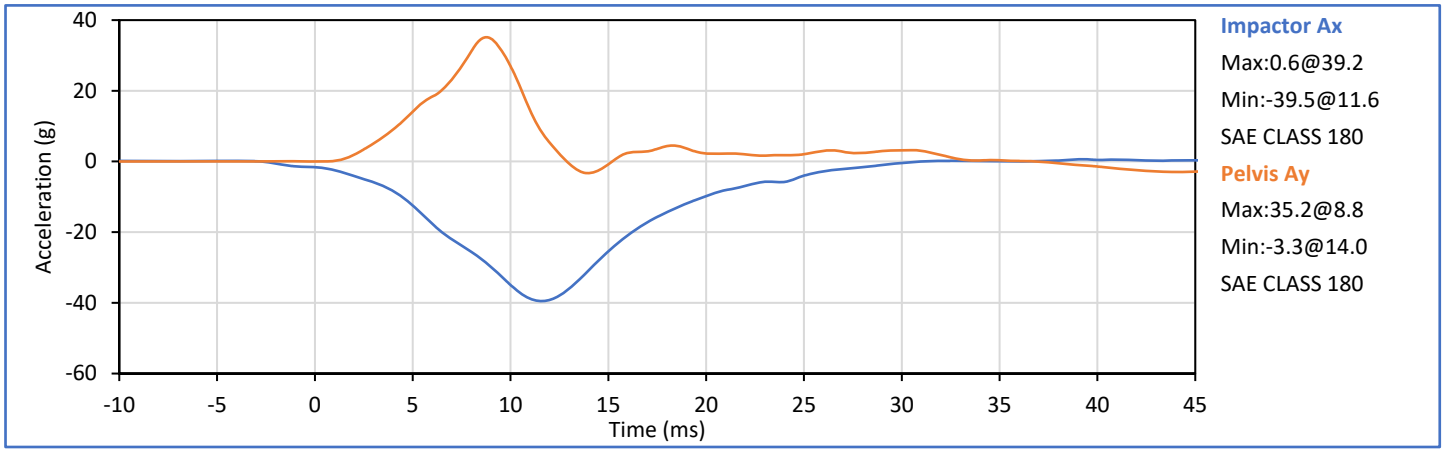
SID-IIs Small Side Impact ATD
Pelvis Iliac Impact

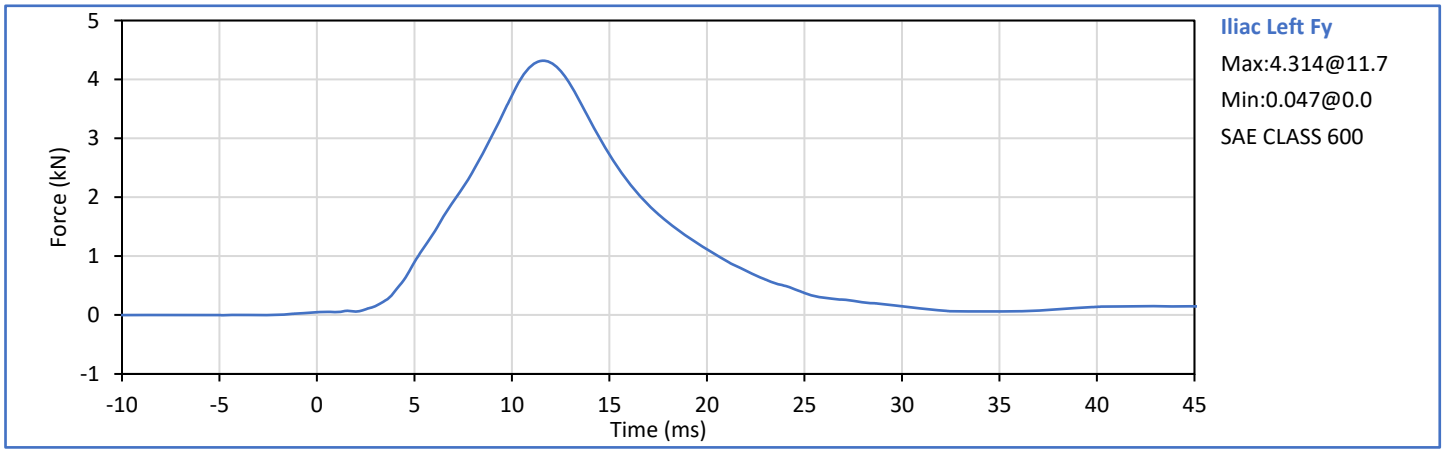
ATD Serial No.: 308 Test Date: 2025-01-15

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	21	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Iliac Fy	kN	4.10	5.10	4.31	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-39.5	Pass
			Overall Test Results		Pass

Pelvis Plug S/N: 16490 *

* Plug is not impacted and remains certified





Technician: J. Coronel

Approved By: J. Hernandez

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

ES-2re ATD S/N: F037

Table 1 - Driver ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P58858	Endevco	7264C-2k	2024-12-12
Head Acceleration Y Primary	P58865	Endevco	7264C-2k	2024-12-12
Head Acceleration Z Primary	P58867	Endevco	7264C-2k	2024-12-12
Head Acceleration X Redundant	P58859	Endevco	7264C-2k	2024-12-12
Head Acceleration Y Redundant	P58866	Endevco	7264C-2k	2024-12-12
Head Acceleration Z Redundant	P58873	Endevco	7264C-2k	2024-12-12
Upper Thorax Rib Deflection Y	209 (ES-2 Rib)	Honeywell	F38000203	2024-10-09
Middle Thorax Rib Deflection Y	210 (ES-2 Rib)	Honeywell	F38000203	2024-10-09
Lower Thorax Rib Deflection Y	207 (ES-2 Rib)	Honeywell	F38000203	2024-10-09
Anterior Abdominal Force Y	1514 Fy	R.A. Denton	2631J	2024-07-25
Middle Abdominal Force Y	1510 Fy	R.A. Denton	2631J	2024-07-25
Posterior Abdominal Force Y	1515 Fy	R.A. Denton	2631J	2024-07-25
Lower Spine T12 Acceleration X	P63856	Endevco	7264C-2k	2024-12-12
Lower Spine T12 Acceleration Y	P50063	Endevco	7264C-2k	2024-12-12
Lower Spine T12 Acceleration Z	P51880	Endevco	7264C-2k	2024-12-12
Pubic Symphysis Force Y	DG6834 Fy	FTSS	IF-556	2024-05-24

SID-IIs ATD S/N: 308

Table 2 - Left Rear Passenger ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P63980	Endevco	7264C-2k	2024-12-13
Head Acceleration Y Primary	P58861	Endevco	7264C-2k	2024-12-13
Head Acceleration Z Primary	P51261	Endevco	7264C-2k	2024-12-13
Head Acceleration X Redundant	P58808	Endevco	7264C-2k	2024-12-13
Head Acceleration Y Redundant	P63310	Endevco	7264C-2k	2024-12-13
Head Acceleration Z Redundant	P49189	Endevco	7264C-2k	2024-12-13
Head Rotation Rate X	ARS7367	DTS	ARS PRO-8k (2kHz)	2024-07-31
Head Rotation Rate Y	ARS7377	DTS	ARS PRO-8k (2kHz)	2024-07-31
Head Rotation Rate Z	ARS7498	DTS	ARS PRO-8k (2kHz)	2024-07-31
Upper Thorax Rib Deflection Y	1249	Servo	08TCI-3725	2024-12-14
Middle Thorax Rib Deflection Y	1219	Servo	08TCI-3725	2024-12-14
Lower Thorax Rib Deflection Y	1221	Servo	08TCI-3725	2024-12-14
Upper Abdomen Rib Deflection Y	1252	Servo	08TCI-3725	2024-12-14
Lower Abdomen Rib Deflection Y	1233	Servo	08TCI-3725	2024-12-14
Lower Spine T12 Acceleration X	P52108	Endevco	7264C-2k	2024-12-13
Lower Spine T12 Acceleration Y	P63970	Endevco	7264C-2k	2024-12-13
Lower Spine T12 Acceleration Z	P51712	Endevco	7264C-2k	2024-12-13
Iliac Wing Impact Side Force Y	289 (Iliac)	R.A. Denton	3228J	2024-05-24
Acetabulum Impact Side Force Y	277 (Acetabulum)	R.A. Denton	3249J	2024-05-24

Table 3 - Vehicle Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Vehicle CG Ax	M14419	Endevco	7264C-2KTZ-2-360	2024-08-10
Vehicle CG Ay	M14418	Endevco	7264C-2KTZ-2-360	2024-08-10
Vehicle CG Az	M14422	Endevco	7264HM6-2k-360	2024-08-10
Right Side Sill at Front Seat Ax	M14671	Endevco	7264HM6-2k-360	2024-09-15
Right Side Sill at Front Seat Ay	M14684	Endevco	7264HM6-2k-360	2024-09-15
Right Side Sill at Front Seat Az	M14689	Endevco	7264HM6-2k-360	2024-09-15
Right Side Sill at Rear Seat Ax	M14657	Endevco	7264HM6-2k-360	2024-09-15
Right Side Sill at Rear Seat Ay	M14405	Endevco	7264C-2KTZ-2-360	2024-08-10
Right Side Sill at Rear Seat Az	M14415	Endevco	7264C-2KTZ-2-360	2024-08-10
Left Side Sill at Front Seat Ay	A354825	MSI	52F-2k	2024-10-02
Left Side Sill at Rear Seat Ay	223255	BST	11CF-2k	2024-10-02
Left Lower A-Pillar Ay	220313	BST	11CF-2k	2024-10-23
Left Middle A-Pillar Ay	A298319	MSI	52F-2k	2024-10-08
Left Lower B-Pillar Ay	A298568	MSI	52F-2k	2024-10-24
Left Middle B-Pillar Ay	A383355	MSI	52F-2k	2024-10-08
Driver Seat Track at H-Point Ay	A331789	MSI	52F-2k	2024-10-02
Rear Seat Structure Ay	M14424	Endevco	7264HM6-2k-360	2024-08-10
Right Rear Occupant Comp. Ay	M10906	Endevco	758H-2k	2024-10-12
Engine Block Top Ax	M14659	Endevco	7264HM6-2k-360	2024-09-15
Engine Block Top Ay	M14660	Endevco	7264HM6-2k-360	2024-09-15
Rear Floopan Above Axle Ax	M14576	Endevco	7264C-2KTZ-2-360	2024-08-15
Rear Floopan Above Axle Ay	M14658	Endevco	7264HM6-2k-360	2024-09-15
Rear Floopan Above Axle Az	M14685	Endevco	7264HM6-2k-360	2024-09-15

Table 4 - Moving Deformable Barrier (MDB) Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
MDB CG Ax	M14686	Endevco	7264HM6-2k-360	2024-09-15
MDB CG Ay	M14683	Endevco	7264HM6-2k-360	2024-09-15
MDB CG Az	M14672	Endevco	7264HM6-2k-360	2024-09-15
MDB Left Side at Rear Axle Ax	M14688	Endevco	7264HM6-2k-360	2024-09-15
MDB Left Side at Rear Axle Ay	M14674	Endevco	7264HM6-2k-360	2024-09-15