

**REPORT NUMBER: SideNCAPMDB-KAR-24-002
NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**SUBARU CORPORATION
2024 SUBARU IMPREZA 5-DOOR STATION WAGON**

NHTSA No: O20245503

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



AUGUST 21, 2023

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NRM-100
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Approval Date: August 21, 2023

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

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		15. Supplementary Notes																												
16. Abstract A 61.9 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2024 Subaru Impreza 5-Door Station Wagon 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 August 7, 2023. The impact velocity of the Moving Deformable Barrier was 61.77 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 35°C. The target vehicle's maximum post-test static crush was 212 mm located at level 2. The test vehicle's occupant performance data is as follows:																														
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Both struck side doors were jammed shut and did not separate from the body at the hinges or latches. The opposite side doors did not open during the side impact event.																														
17. Key Words New Car Assessment Program (NCAP) Side Impact Moving Deformable Barrier (MDB) ES-2re SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division 1200 New Jersey Ave., SE Washington, DC 20590																												
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SECTION 1
TEST PURPOSE AND PROCEDURE

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

SECTION 2

SUMMARY OF TEST RESULTS

A 2024 Subaru Impreza 5-Door Station Wagon 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 61.77 km/h (38.38 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 August 7, 2023. Pre- and post-test photographs of the test vehicle, the MDB and the dummy (ES-2re and SID-IIs) are included in Appendix A of this report.

The 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

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	194.396
Maximum Thoracic Rib Deflection	mm	44	23.079
Combined Abdominal Force	N	2500	641.205
Pubic Symphysis Force	N	6000	1300.619

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	290.949
Lower Spine (T12) Resultant Acceleration	g	82	58.503
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1881.496
Maximum Thoracic Rib Deflection	mm	38*	32.065
Maximum Abdominal Rib Deflection	mm	45*	28.205

*Proposed IARV

Supplemental restraint information is given below:

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

GENERAL COMMENTS:

None.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

CONVERSION FACTORS

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

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	O20245503
Model Year	2024
Make	Subaru
Model	Impreza
Body Style	5-Door Station Wagon
VIN	JF1GUABC8R8225013
Body Color	Gray
Odometer Reading (km / mi)	154 / 96
Engine Displacement (L)	2.0
Type / No. of Cylinders	4
Engine Placement	Longitudinal
Transmission Type	Automatic
Transmission Speeds	CVT
Overdrive	Yes
Final Drive	AWD
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
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 Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other Safety Restraint	Yes

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Subaru Corporation
Date of Manufacture	23-Apr
Vehicle Type	Passenger

GVWR (kg)	2185
GAWR Front (kg)	1165
GAWR Rear (kg)	1130

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				408.0
DSC x 68 (kg)				340.0
Cargo Weight (RCLW) (kg)				68.0

A
B
A-B*

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

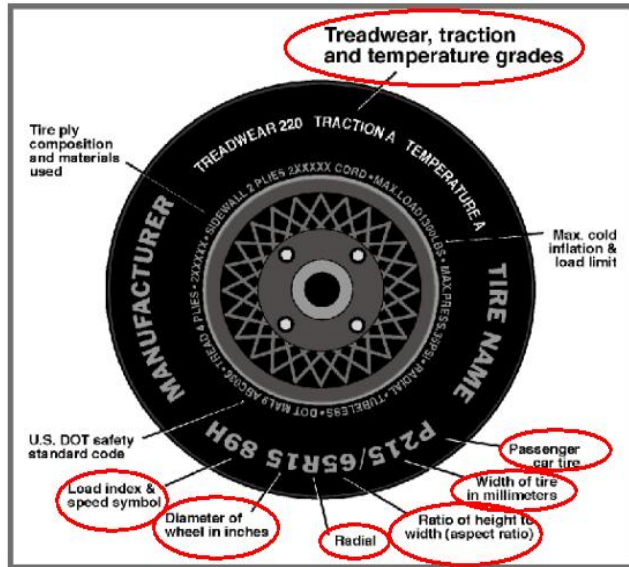
VEHICLE SEAT TYPE

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

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	205/55R16	205/55R16
Tire Size on Vehicle	205/55R16	205/55R16
Tire Manufacturer	Firestone	Firestone
Tire Model	FT140	FT140
Treadware	560	560
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Polyamide	1 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	89	89
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Left	1EP 8KOCBB 1423	1EP 8KOCBB 1423
DOT Safety Code Right	1EP 8KOCBB 1423	1EP 8KOCBB 1423

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	240	240	220	220
Tire Placard	kPa	240	240	220	220
Owner's Manual	kPa	240	240	220	220
As Tested	kPa	240	240	220	220

MDB TIRE SPECIFICATIONS

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

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	449.0	286.0		489.0	365.0		488.0	383.0	
Right	kg	417.0	282.0		421.0	346.0		420.0	343.0	
Ratio	%	60.4%	39.6%		56.1%	43.9%		55.6%	44.4%	
Total	kg	866.0	568.0	1434.0	910.0	711.0	1621.0	908.0	726.0	1634.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1434.0	A
Actual Weight of 2 P572 ATD Used	kg	125.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	68.0	C
Calculated Vehicle Target Wt (TVTW)	kg	1627.0	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	670	670	Yes
RF	mm	689	688	Yes
LR	mm	645	648	Yes
RR	mm	664	660	Yes
Vehicle CG (Aft of Front Axle)	mm	1185	1169	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	51	41	

***The "As Tested" vehicle attitude measurements must be equal to or within ±10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirement"

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

Test Height Adjustable Setting (If Applicable)	
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WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Amount of Ballast Added	97.0
Rear Trim	8.0
Spare Tire and Tools	21.0

TEST SURFACE MARKINGS

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

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

DATA SHEET NO. 2

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

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

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	4.2	0.0	2.1
Front Passenger Seat	Fixed	Fixed	Fixed
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	2.1	496	Max	513	518	522
			Mid	492	496	501
			Min	470	473	480
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

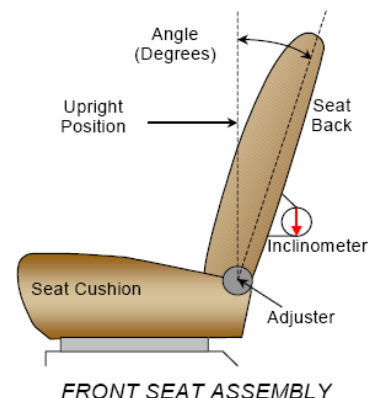
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	260	27	130	13
Front Passenger Seat	260	27	130	13
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 fixed. 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 with a straight edge on the seat back.



SEAT BACK POSITION

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/ Seated Dummy	72.2		4.7	
Front Passenger Seat	73.8		4.5	
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: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

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	4	M2
Rear Seat	Fixed	Fixed

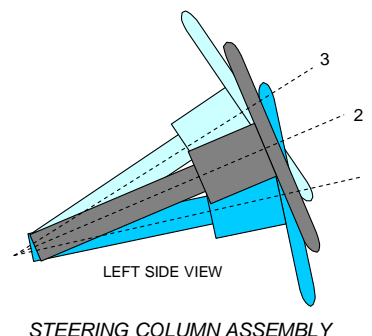
HEAD RESTRAINT ADJUSTMENT

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 POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	65.0	156
Geometric Center Position, No. 2	66.6	131
Uppermost Position, No. 3	68.2	106
Telescoping Steering Wheel Travel		50
Test Position	66.6	131

DATA SHEET NO. 2 ... (CONTINUED)

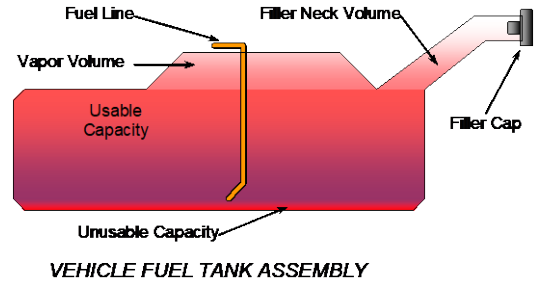
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Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

FUEL PUMP

The vehicle is equipped with an electric fuel pump. The fuel pump will operate for 5 seconds. After pressure has been built up the fuel pump switches to sleep mode until the engine will be started or the pressure decreases.



FUEL TANK CAPACITY

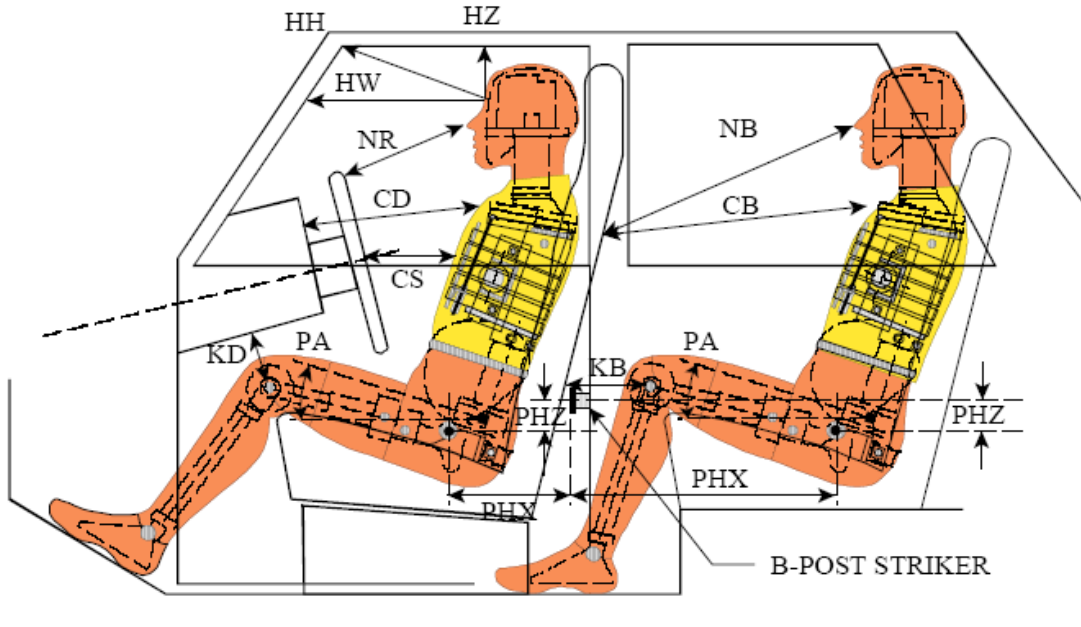
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	62.84
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	62.84
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	58.30
Actual amount of Solvent Used in Test	58.30
1/3 of Usable Capacity	20.95

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: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



LEFT SIDE VIEW

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

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	233			
HW		Head to Windshield	621			
HZ	HZ	Head to Roof	155		266	
NR	NB	Nose to Rim/Seat Back	435		582	
CD	CB	Chest to Dash/Seat Back	666		586	
CS		Chest to Steering Wheel	335			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	178	21.8	345	22.2
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	145	35.5	330	24.2
PAX°	PAX°	Pelvic Tilt Angle X		18.0		21.8
	PAY°	Pelvic Tilt Angle Y				0.0
PHX	PHX	Hip Point to Striker (x-axis)				
PHZ	PHZ	Hip Point to Striker (z-axis)				

DATA SHEET NO. 4

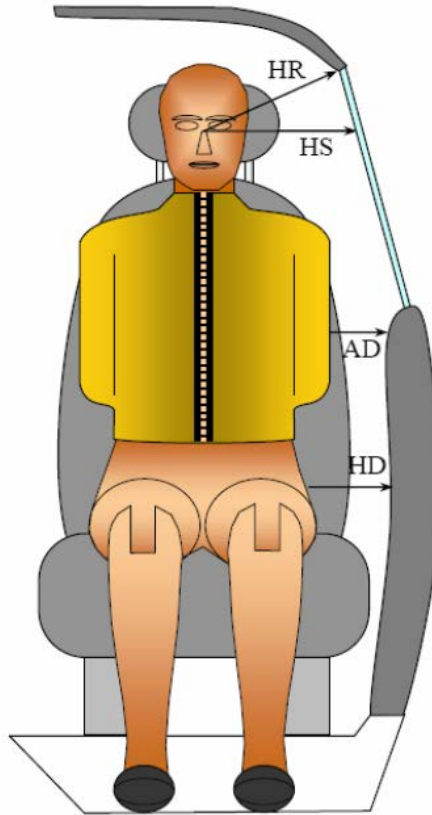
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon

NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test

Test Date: 8/7/23



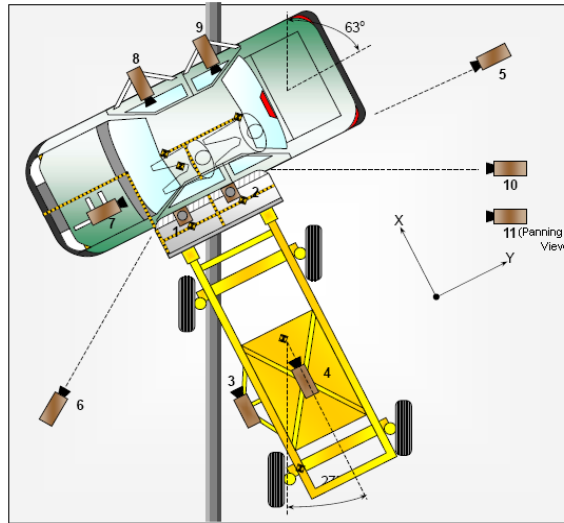
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	239	255
HS	Head to Side Window	mm	353	342
AD	Arm to Door	mm	109	140
HD	H-Point to Door	mm	179	209

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



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

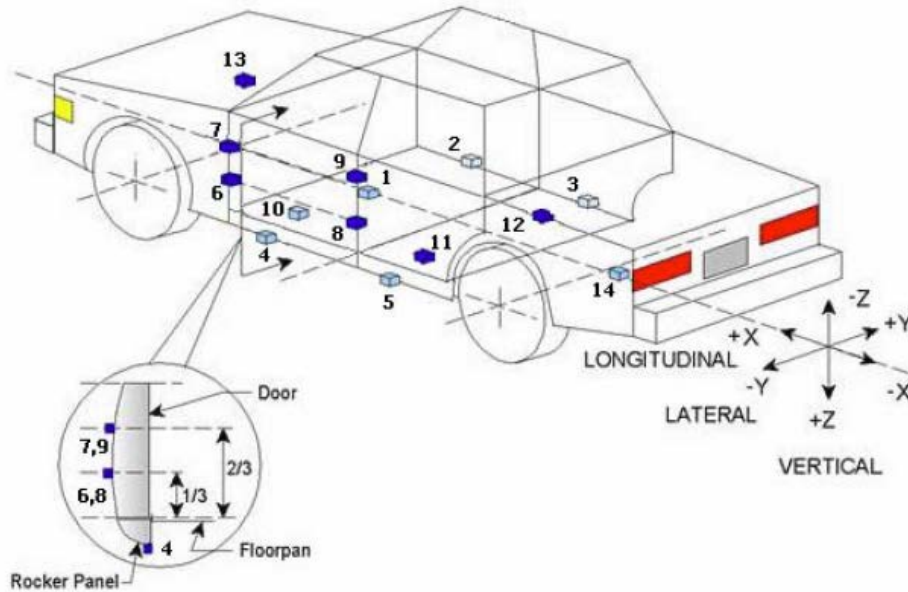
INSTRUMENTATION

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: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2541	0	-291
2	Right Sill at Front Seat	1798	753	-310
3	Right Sill at Rear Seat	2663	794	-314
4	Left Sill at Front Door	1864	-750	-312
5	Left Sill at Rear Door	2670	-789	-319
6	A-Pillar Lower	1281	-833	-457
7	A-Pillar Middle	1290	-827	-571
8	B-Pillar Lower	2351	-792	-373
9	B-Pillar Middle	2335	-790	-722
10	Front Seat Track	1998	-601	-441
11	Rear Seat Structure	2674	410	-311
12	Right Rear Occupant Compartment	2688	424	-201
13	Engine Block	747	170	-674
14	Rear Floorpan Above Axle	3515	-10	-528

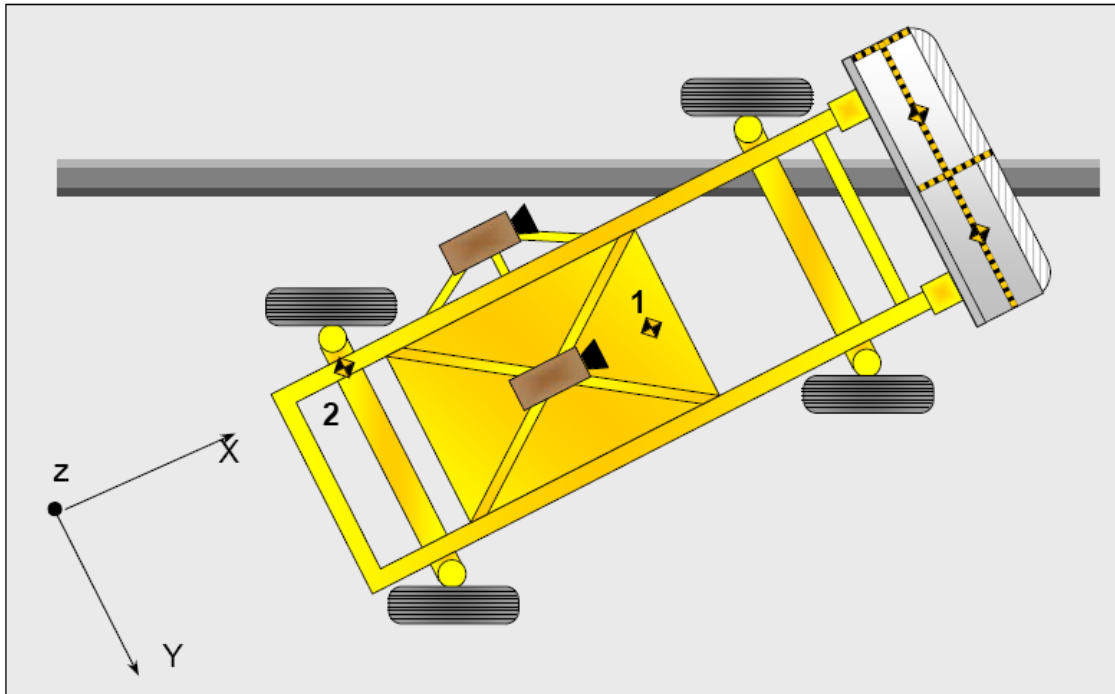
Reference: X – Rear surface of vehicle (+ forward)
 Y – Vehicle centerline (+ to right)
 Z – Ground plane (+ down)

DATA SHEET NO. 7

MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Measurement		
		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)

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag	Curtain Airbag
Top of Head	Curtain Airbag	Curtain Airbag
Left Side of Head	Curtain Airbag	Curtain Airbag
Back of Head	Headrest	Headrest
Left Shoulder	Curtain & T/P Airbag	Curtain Airbag, Door Panel
Upper Torso	T/P Airbag	Door Panel
Lower Torso	T/P Airbag	Door Panel
Left Hip	T/P Airbag, Door Trim	Door Panel
Left Knee	Knee Bolster	Door Panel

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	N/A
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	N/A
Latch or Hinge System Pulled Out of Their Anchorages	No	No	No	No	N/A
Disengaged from Latched Position	No	No	No	No	N/A
Latch Separated from Striker	No	No	No	No	N/A
Jammed Shut	Yes	Yes	No	No	N/A
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

DATA SHEET NO. 8 ... (CONTINUED)

POST-TEST OBSERVATIONS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

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	No separation
Windshield Damage	None
Side Window Damage	Broken
Other Notable Effects	None

DATA SHEET NO. 8 ... (CONTINUED)

POST-TEST OBSERVATIONS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side		Struck Side	
	Driver		Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	Yes	No	No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheelbase	mm		2666
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		393
Actual Impact Point (Aft of Front Axle)	mm		396
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	-3
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	13

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1251
Overall Length including Honeycomb Face	4115
Wheel Base 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	61.77
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.70
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.6
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.8
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.8

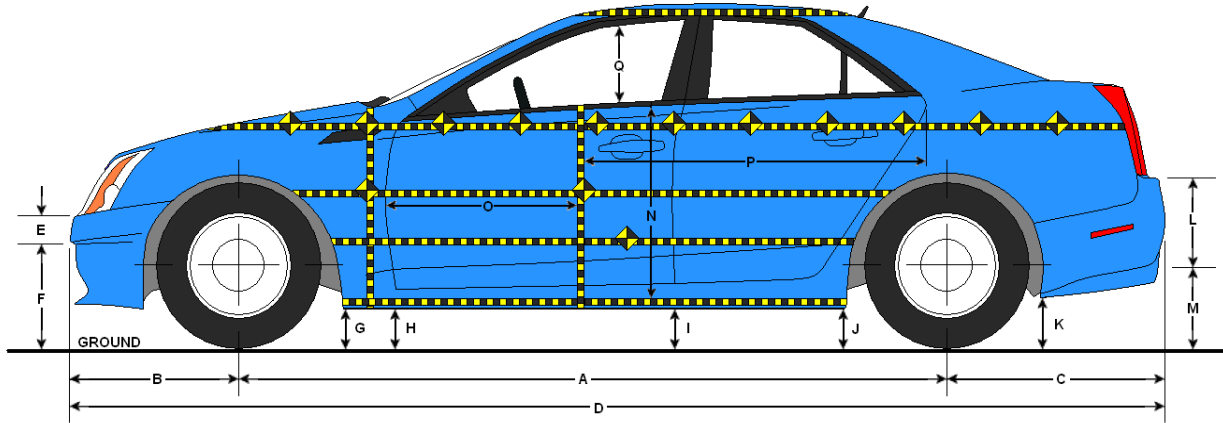
MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Right	251
B	Top of Bumper	533	800	Right	128
C	Mid Level	686	300	Left	100
D	Top of Stack	813	800	Right	113

DATA SHEET NO. 10

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Change
A	Wheelbase	2666	2658	-8
B	Front Axle to FSOV	971	968	-3
C	Rear Axle to RSOV	831	839	8
D	Total Length at Centerline	4467	4465	-2
E	Front Bumper Thickness	115	117	2
F	Front Bumper Bottom to Ground	374	379	5
G	Sill Height at Front Wheel Well	224	219	-5
H	Sill Height at Front Door Leading Edge	232	227	-5
I	Sill Height at B-Pillar	254	270	16
J1	Sill Height at Rear Wheel Well	268	268	0
J2	Pinch Weld Height at Rear Wheel Well	153	152	-1
K	Sill Height Aft of Rear Wheel Well	245	239	-6
L	Rear Bumper Thickness	167	166	-1
M	Rear Bumper Bottom to Ground	430	430	0
N	Sill Height to Bottom of Front Window Sill	665	623	-42
O	Front Door Leading Edge to Impact CL	766	789	23
P	Rear Door Trailing Edge to Impact CL	1382	1268	-114
Q	Front Window Opening	393	424	31
R	Right Side Length	3243	3245	2
S	Left Side Length	3246	3237	-9
T	Vehicle Width at B-Pillar	1766	1642	-124

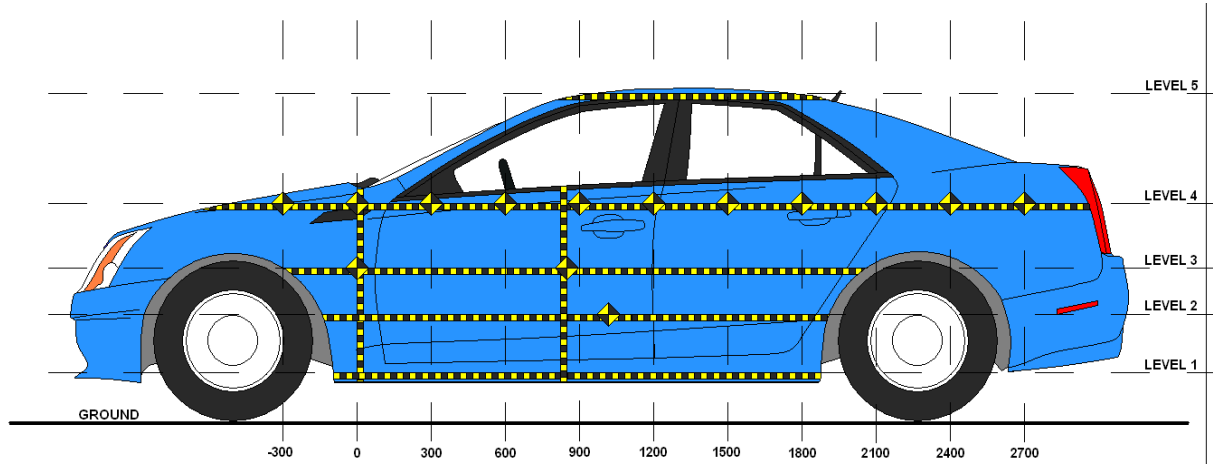
All measurements in mm with tolerance of ± 3 mm

DATA SHEET NO. 11

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



LEFT SIDE VIEW

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	231	33	1200
2	Occupant H-Point	517	212	1350
3	Mid-Door	619	205	1500
4	Window Sill	907	178	1650
5	Window Top	1390	8	1200

DATA SHEET NO. 11 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23

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				725					724					-1	
-150			614	708				617	710				3	2	
0	661	616	617	697		664	629	632	699		3	13	15	2	
150	670	625	622	692		685	714	703	704		15	89	81	12	
300	673	626	620	648		690	773	763	722		17	147	143	74	
450	671	624	618	688		689	792	784	773		18	168	166	85	
600	669	621	616	677		689	802	785	795		20	181	169	118	
750	668	620	615	672		692	798	789	794	878	24	178	174	122	
900	668	619	614	664	881	695	791	787	760	881	27	172	173	96	0
1050	668	619	614	661	886	696	803	787	750	889	28	184	173	89	3
1200	669	619	616	658	890	702	810	792	737	898	33	191	176	79	8
1350	669	622	618	659	893	698	834	821	782	901	29	212	203	123	8
1500	670	623	621	661	896	689	816	826	813	901	19	193	205	152	5
1650	664	624	624	666	901	675	795	819	844	905	11	171	195	178	4
1800	658	619	617	672	909	657	747	771	825	911	-1	128	154	153	2
1950		617	613	664	917		622	686	740	918		5	73	76	1
2100			613	689	929			613	703	928			0	14	-1
2250				687	942				692	942				5	0
2400															
2550															
2700															
2850															

DATA SHEET NO. 11 ... (CONTINUED)

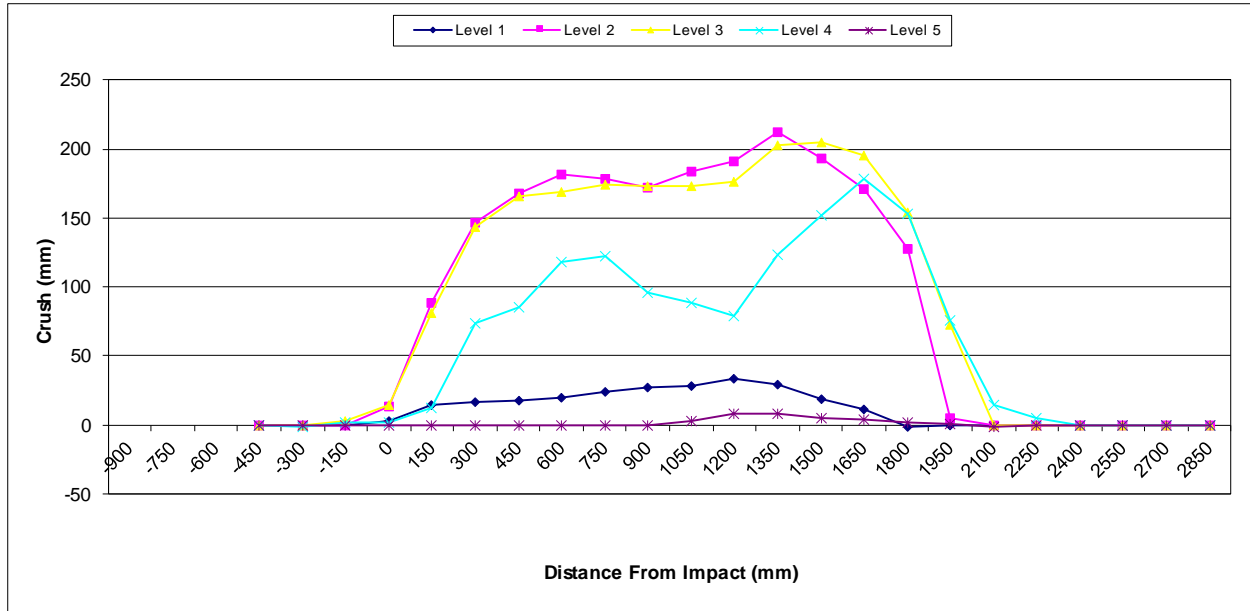
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon

NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test

Test Date: 8/7/23

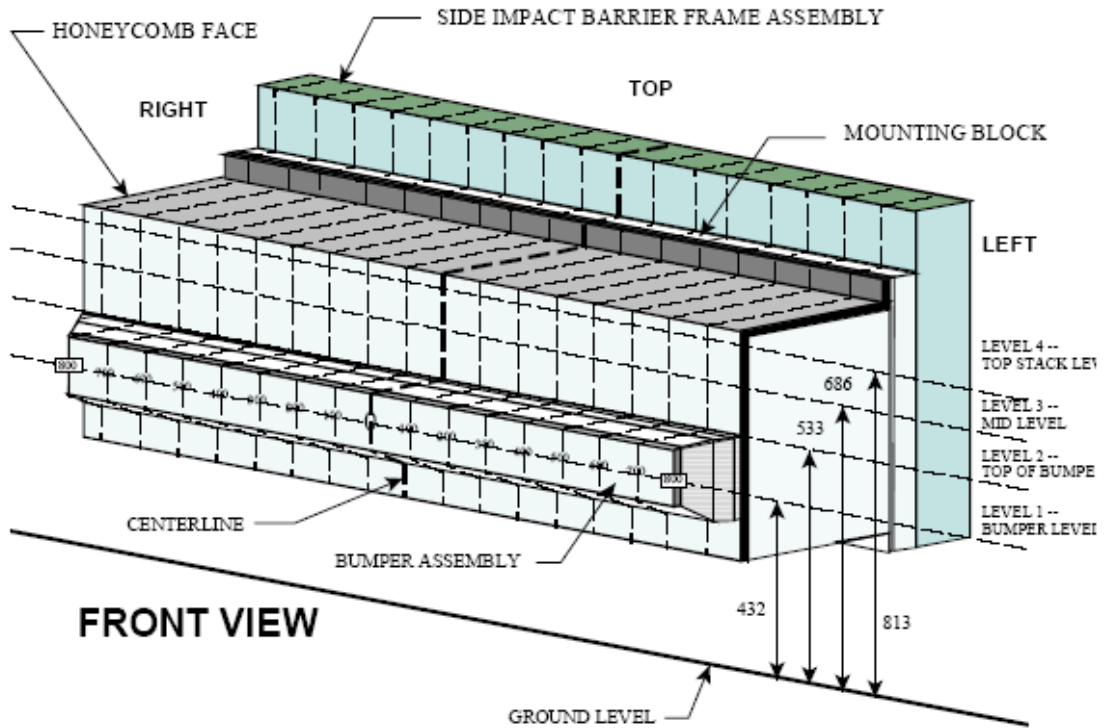


DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



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
1	251	239	209	192	183	172	166	158	143	147	118	117	113	107	108	133	174
2	128	119	106	97	85	79	76	68	67	61	46	41	42	39	43	79	145
3	50	27	13	17	24	49	74	56	34	26	6	2	4	10	20	50	100
4	26	-3	-1	9	36	82	113	86	51	15	-10	-7	-5	9	36	75	113

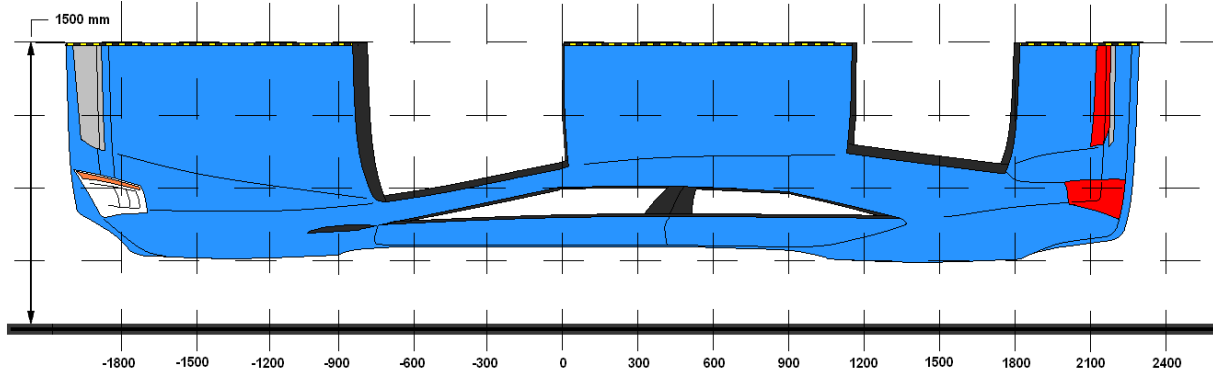
All dimensions in millimeters.

DATA SHEET NO. 13

VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2250	4	687	692	5
2	1650	3	624	819	195
3	1050	2	619	803	184
4	600	2	621	802	181
5	150	2	625	714	89
6	-300	4	725	724	-1

MDB DAMAGE PROFILE DISTANCES

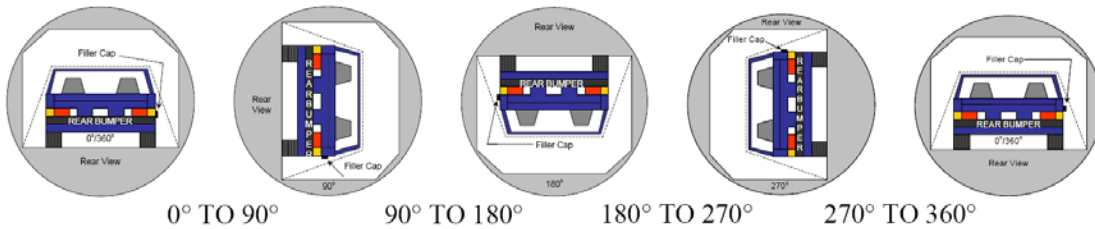
DPD	From MDB Centerline		Level	Crush (mm)
	Distance (mm)	Direction		
1	800	Left	1	174
2	500	Left	1	107
3	200	Left	1	118
4	200	Right	1	166
5	500	Right	1	192
6	800	Right	1	251

DATA SHEET NO. 14

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon NHTSA No. O20245503
 Test Program: NCAP MDB Side Impact Test Test Date: 8/7/23
 Temperature at Time of Impact: 35°C Test Time: 4:26 P.M.

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



SOLVENT COLLECTION TIME TABLE IN SECONDS

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

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 15

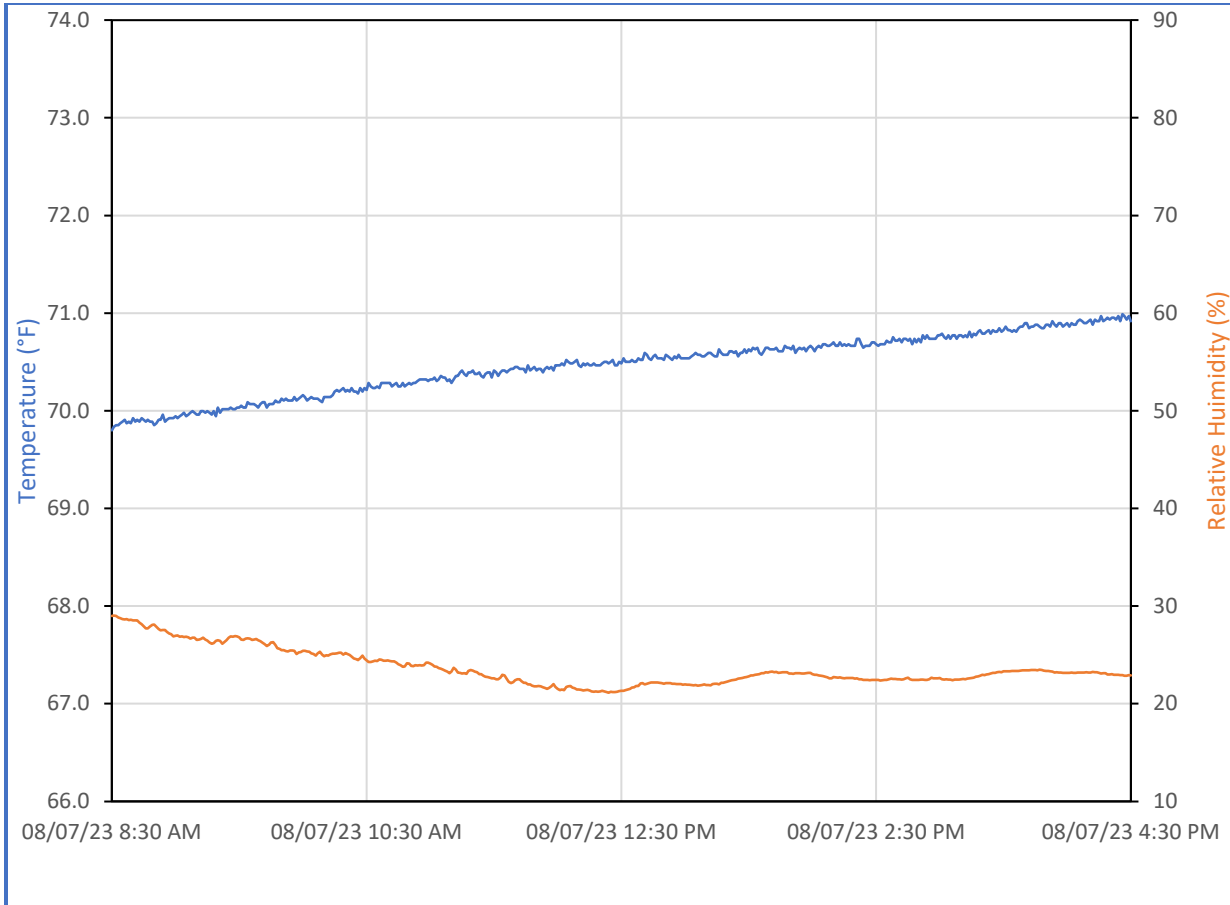
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon

NHTSA No. O20245503

Test Program: NCAP MDB Side Impact Test

Test Date: 8/7/23



**APPENDIX A
PHOTOGRAPHS**

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



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



FIGURE 3. Pre-Test Frontal View of Test Vehicle



FIGURE 4. Post-Test Frontal View of Test Vehicle



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



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



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



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



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



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



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



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



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



FIGURE 15. Pre-Test Overhead View of Test Area

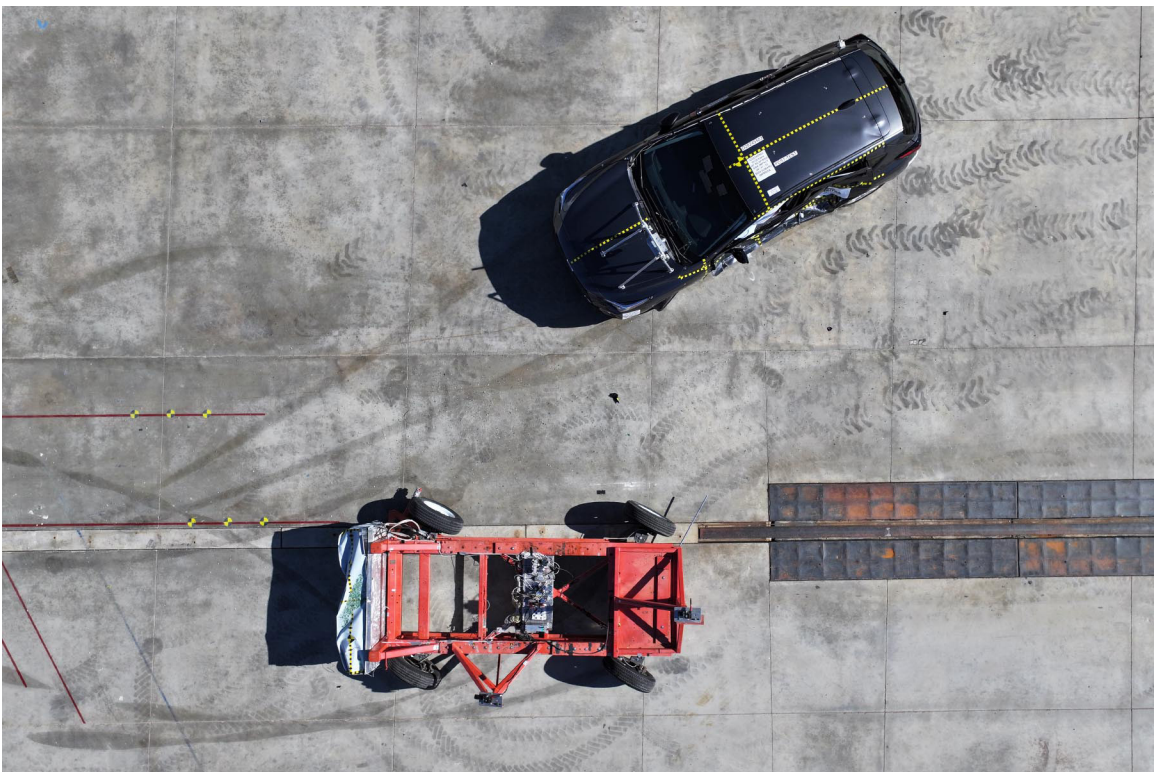


FIGURE 16. Post-Test Overhead View of Test Area



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



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



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

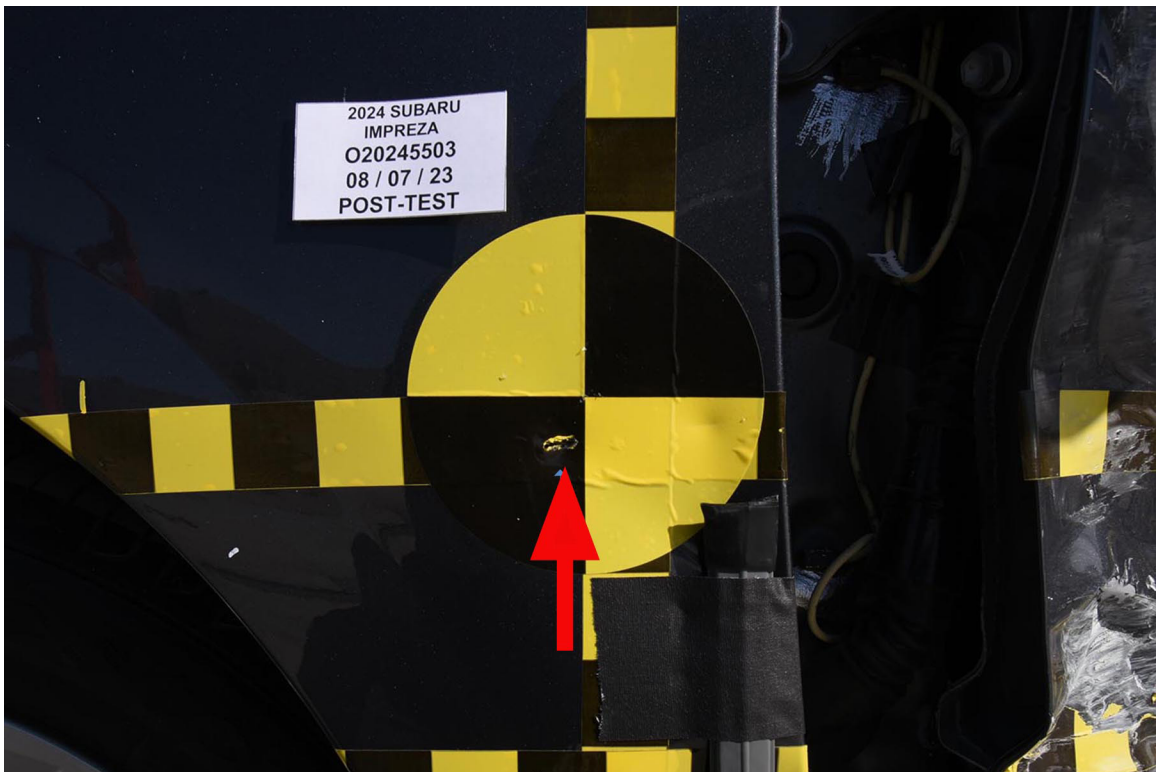


FIGURE 20. Post-Test Close-Up View of Impact Point Target



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



FIGURE 37. View of Disengaged Parking Brake



FIGURE 38. Pre-Test View of Parking Brake



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



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



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



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



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



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



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



FIGURE 46. Pre-Test Driver Inner Door Panel View



FIGURE 47. Post-Test Driver Inner Door Panel View



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



FIGURE 48a. 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 Airbag 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 Airbag View

Photograph Not Applicable

No Driver Dummy Close-Up Knee Contact

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



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



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



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



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



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



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



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

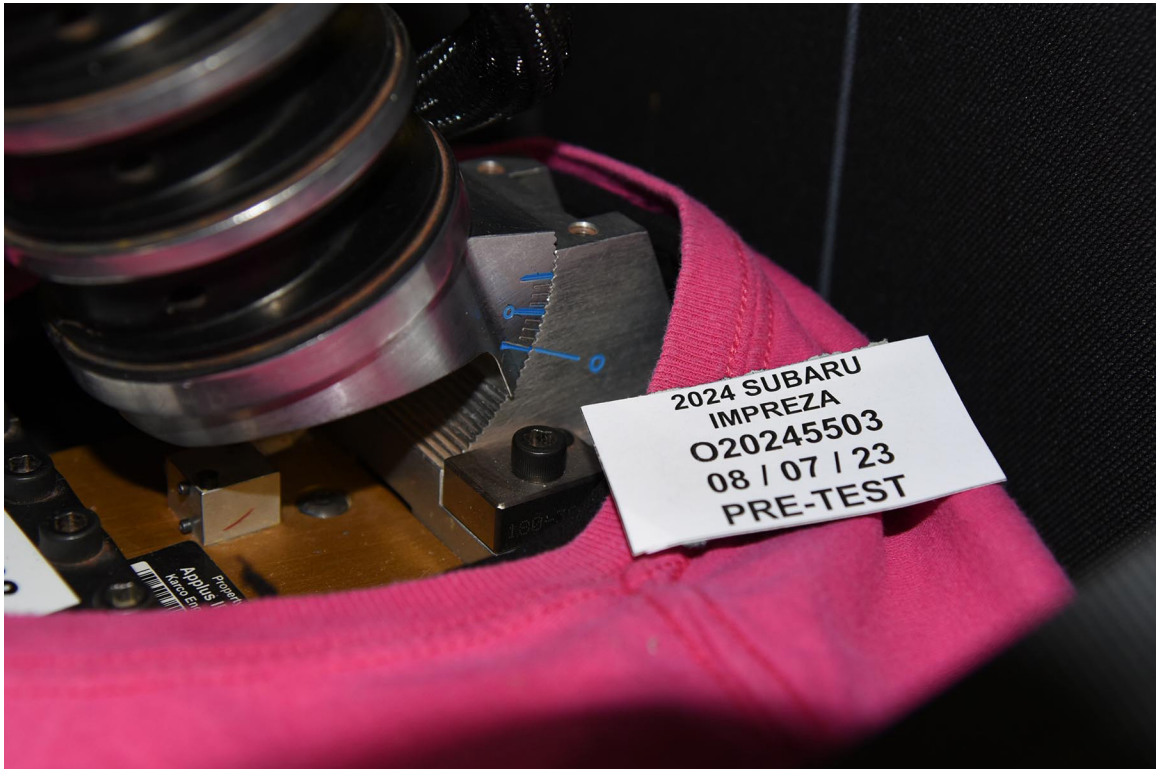


FIGURE 62. Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket

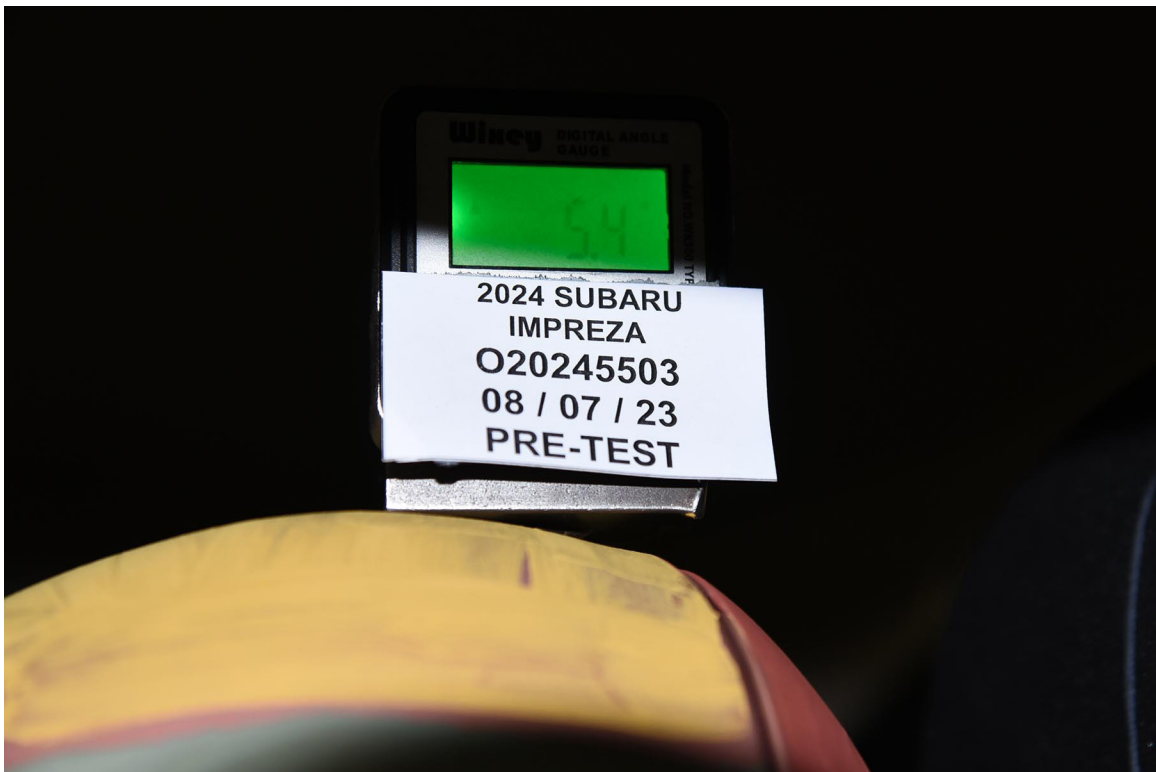


FIGURE 63. Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



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



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



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



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



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



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



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



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



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



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



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



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



FIGURE 76. Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag 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 Airbag

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



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



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



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



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

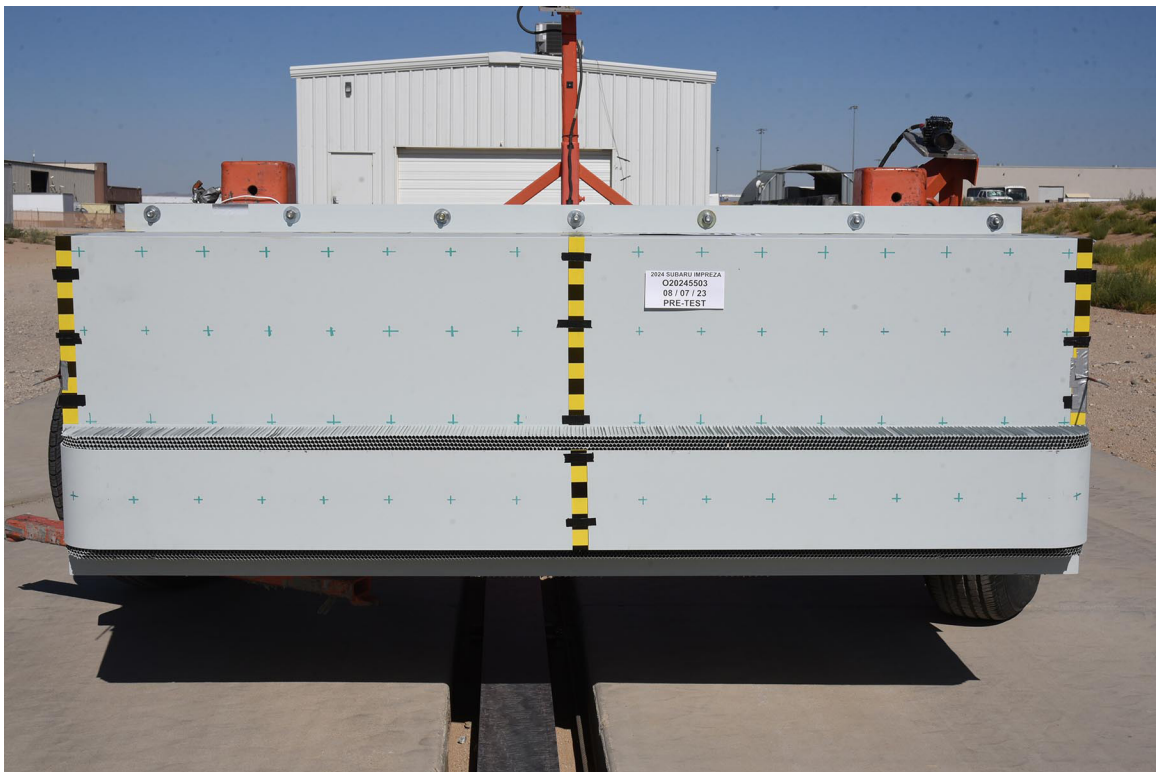


FIGURE 84. Pre-Test Front View of MDB Impactor Face



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

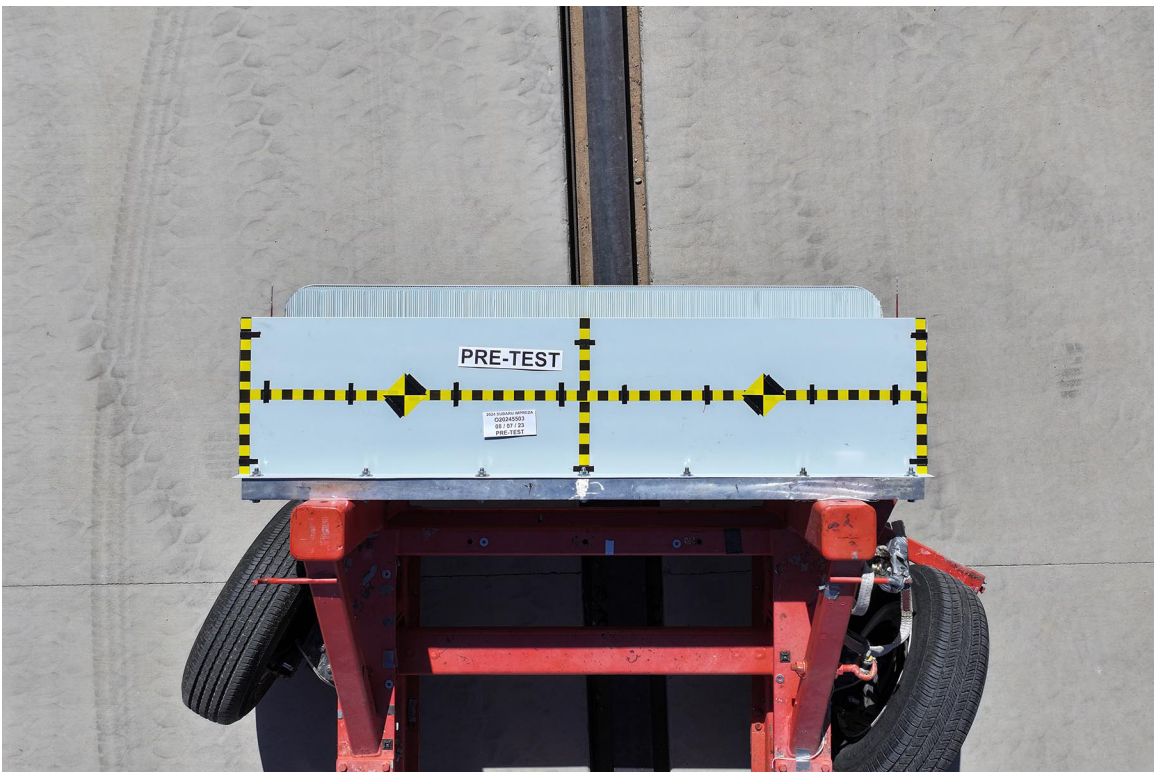


FIGURE 86. Pre-Test Top View of MDB Impactor Face



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



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



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



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



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



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



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

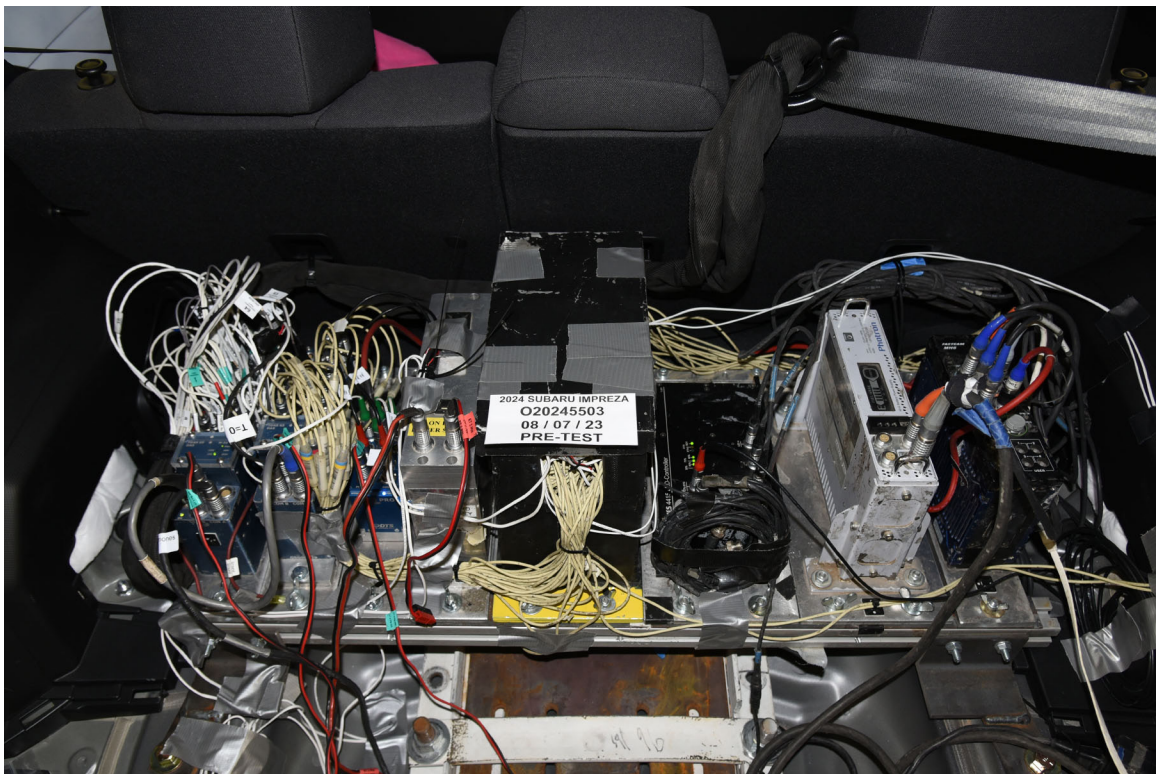


FIGURE 94. Pre-Test Ballast View



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

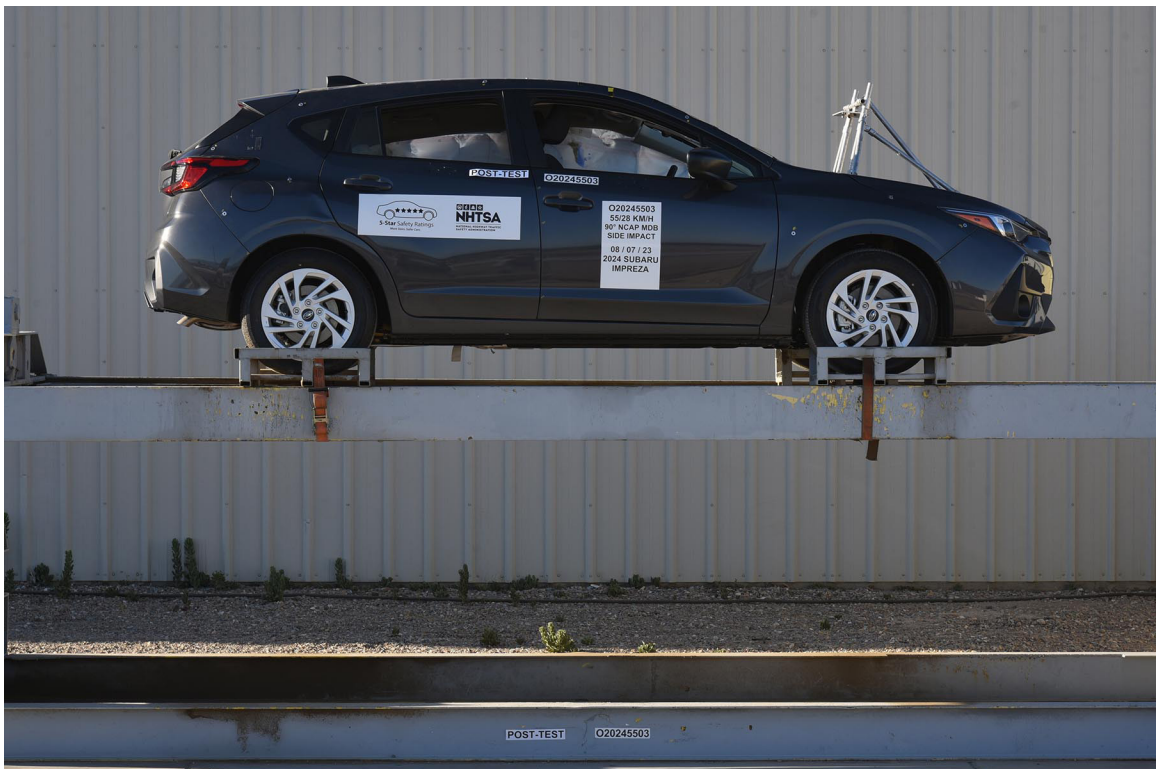


FIGURE 96. FMVSS No. 301 Static Rollover 0 Degrees

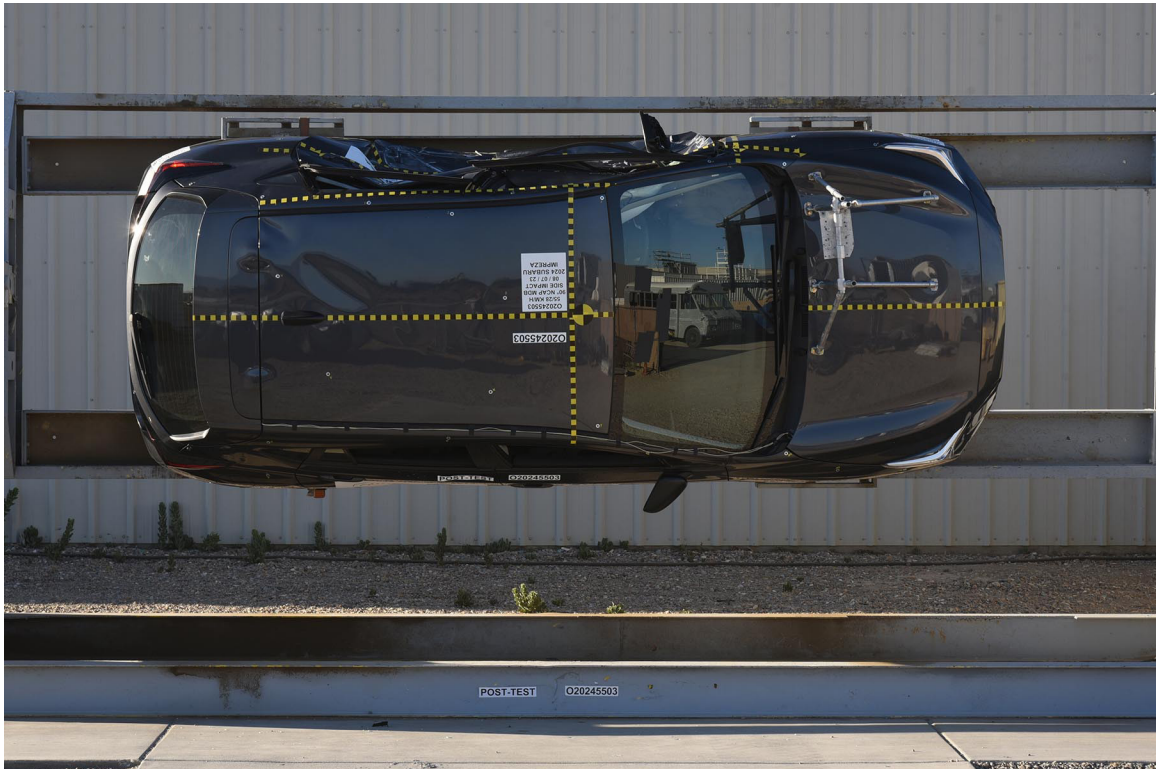


FIGURE 97. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 98. FMVSS No. 301 Static Rollover 180 Degrees

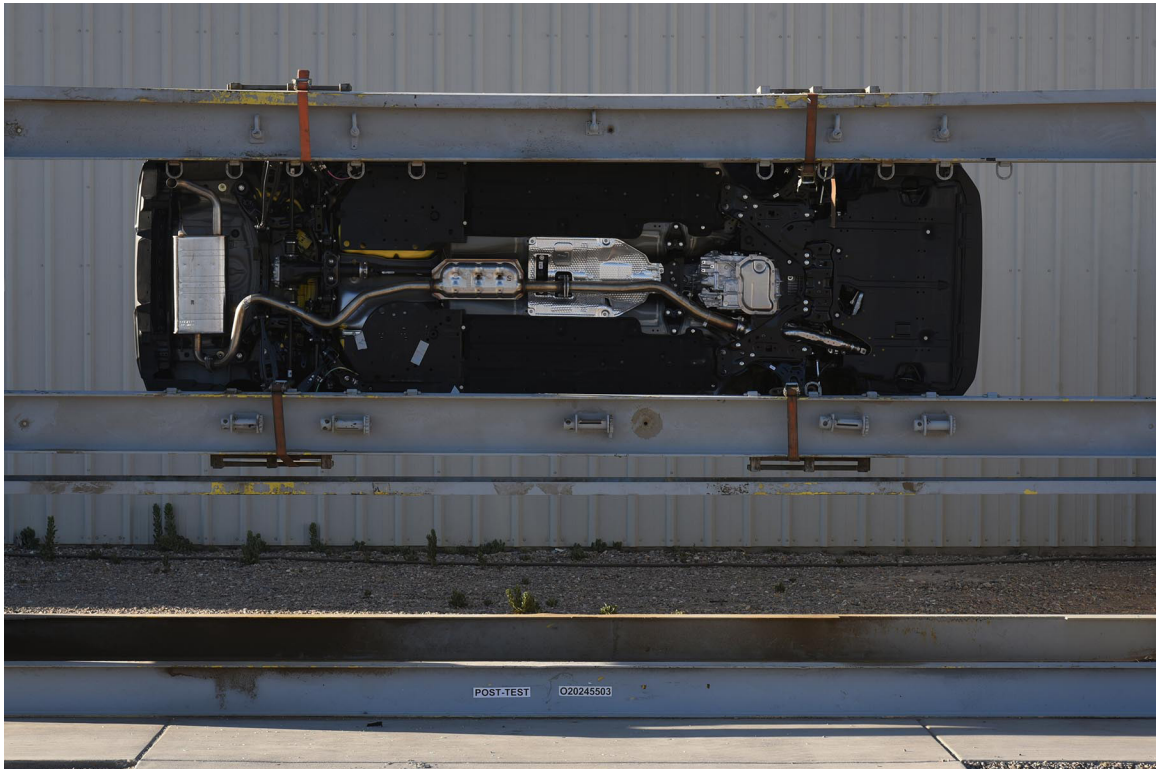


FIGURE 99. FMVSS No. 301 Static Rollover 270 Degrees

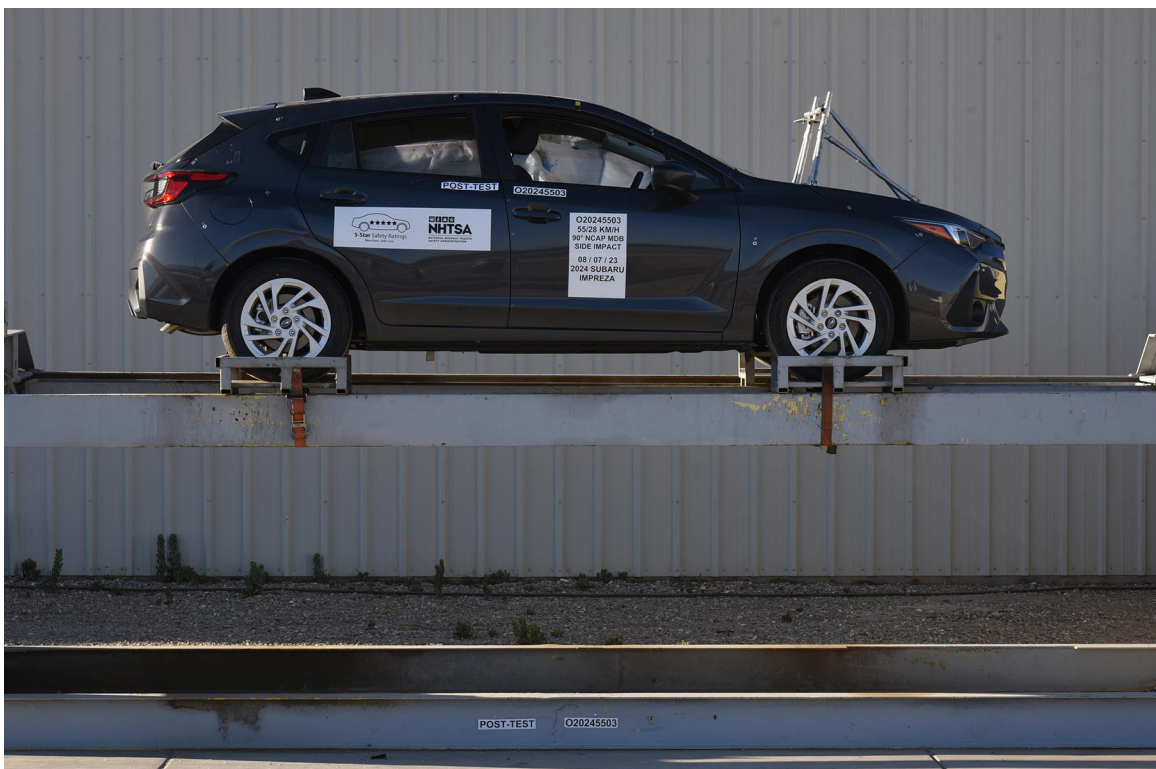


FIGURE 100. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 101. Impact Event

IMPREZA

VIN: JF1GUABC8R225013
 Model/Code: 2024 SUBARU IMPREZA/RLA
 Port/Assembly: HUEHNE
 Deliver by/Carrier: TRUCK / 456

SHIP TO: 090796
 SUBARU OF GLENDALE
 1208 S BRAND BLVD
 GLENDALE CA 91204

SOLD TO: 090796
 SUBARU OF GLENDALE
 1208 S BRAND BLVD
 GLENDALE CA 91204

SUBARU

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score			Not Rated
<small>Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.</small>			
Frontal Crash	Driver	Passenger	Not Rated
<small>Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.</small>			
Side Crash	Front seat	Rear seat	Not Rated
<small>Based on the risk of injury in a side impact.</small>			
Rollover			Not Rated
<small>Based on the risk of rollover in a single-vehicle crash.</small>			

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

Subaru Added Security™
The Only Limited Service Agreement Backed By Subaru™

- Protection designed to fit your driving needs, up to 10 years/100,000 miles of coverage
- We only use Genuine Subaru replacement parts
- We use Subaru-trained technicians - those who know your vehicle best
- Towing and rental car reimbursements during covered events
- Transferable coverage to the next owner

Scan the QR code or ask your sales representative for more details

STANDARD EQUIPMENT

SAFETY

- EyeSight Driver-Assist System
- Advanced Adaptive Cruise Control w/ Lane Centering Assist
- Driver's Side Knee Airbag
- Subaru Advanced Frontal Airbag System
- Side Curtain Airbags w/ Roll Over Sensor
- Front Seat Side (Pelvis/Torso) Airbags
- Front Passenger Seat Cushion Airbag
- Collision Detection Power Door Unlock Function
- Engine Immobilizer
- Vehicle Dynamics Control (VDC)
- 4-Wheel Disc Brakes
- Brake Assist
- Brake Override System
- Rear Seat Reminder
- Tire Puncture Repair Kit

PERFORMANCE & EXTERIOR

- 2.0L DOHC SUBARU BOXER Engine w/ Auto Start Stop
- Lineartronic CVT w/ Low Shift Mode
- 16" Steel Wheels w/ Full Wheel Covers
- 205/55 16 91V All Season Tires
- Anti-Lock Braking System (ABS)
- LED Steering Responsive Headlights (SRH)
- Automatic On/Off Headlights
- Automatic High Beam
- Fixed Crossbar Mounting Points

COMFORT, CONVENIENCE & INTERIOR

- SUBARU STARLINK Dual 7" Multimedia System
- SiriusXM Satellite Radio w/4 month trial
- Illuminated USB A Port
- Dual Zone Automatic Climate Control System w/ Dynamic Ventilation & Air Filtration
- 4.2" Color LCD Instrument Panel Display
- Electronic Parking Brake
- 12V Power Outlet
- Cargo Area Light
- Cargo Area Tie Down Hooks
- Cargo Area Grocery Bag Hooks
- Dual Center Console Cup Holders
- Front & Rear Door Bottle Holders
- Welcome Lighting

LIMITED WARRANTY/ROADSIDE ASSISTANCE

- 3 Years / 36,000 Miles Basic
- 5 Years / 60,000 Miles Powertrain
- 5 Years / Unlimited Mileage Rust Perforation
- 3 Years / 36,000 24/7 Roadside Assistance
- See Owner Info Kit & Warranty For Details

OPTIONAL EQUIPMENT AND OTHER ITEMS

Manufacturer's Suggested Retail Price	\$22,995.00
Exterior Color: Magnetite Gray Metallic	
Full Tank of Gas	INCLD
Option Package: 03	\$350.00
16" Alloy Wheels	
All-Weather Floor Liners	\$152.00
Cargo Tray	\$132.00
Sunshade - Windshield	\$76.00

Fuel Economy and Environment

Fuel Economy

30 MPG combined city/hwy

27 city 34 highway

3.3 gallons per 100 miles

Small Wagons range from 16 to 120 MPG. The best vehicle rates 140 MPG.

You save \$750 in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,800

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

1 2 3 4 5 6 7 8 9 10 Best

This vehicle emits 297 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions, learn more at fuelconomy.gov.

Smog Rating (tailpipe only)

1 2 3 4 5 6 7 8 9 10 Best

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 28 MPG and costs \$5,192 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.60 per gallon. MPGe is miles per gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov

Calculate personalized estimates and compare vehicles

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE: U.S./CANADIAN PARTS CONTENT: 5% MAJOR SOURCES OF FOREIGN PARTS CONTENT: JAPAN: 80%

FOR THIS VEHICLE: FINAL ASSEMBLY POINT: OTA, GUNMA, JAPAN COUNTRY OF ORIGIN: ENGINE: JAPAN TRANSMISSION: JAPAN

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

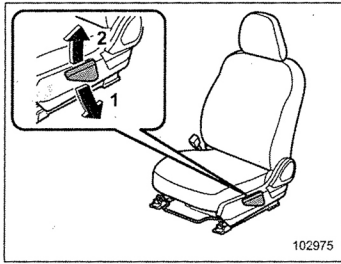
Destination and Delivery \$1,090.00

Total Suggested Retail Price \$24,775.00

Price does not include applicable PURCHASE TAX. FEDERAL TAXES DO NOT APPLY TO THE DELIVERY OF THE VEHICLE PURCHASE.

FIGURE 102. Monroney Label

▼ Seat height adjustment (driver's seat)



- 1 When the lever is pushed down, the seat is lowered.
- 2 When the lever is pulled up, the seat rises.

The height of the seat can be adjusted by moving the seat adjustment lever up and down.

■ Head Restraint Adjustment

WARNING

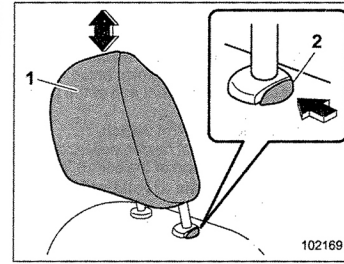
- Never drive the vehicle with the head restraints removed because they are designed to reduce the risk of serious neck injury in the event that the vehicle is struck from the rear. Also, never install

the head restraints backwards. Doing so will prevent the head restraints from functioning as intended. Therefore, when the head restraints are removed, all head restraints must be reinstalled properly to protect vehicle occupants.

- All occupants, including the driver, should not operate a vehicle or sit in a vehicle's seat until the head restraints are placed in their proper positions in order to minimize the risk of neck injury in the event of a crash.
- The front seat head restraints are designed to be installed into the front seats only. The rear seat head restraints are designed to be installed into the rear seats only. Do not attempt to install the front seat head restraints into the rear seats, or the rear seat head restraints into the front seats.

Both the driver's seat and front passenger's seat are equipped with head restraints. Both head restraints are adjustable in the following ways.

▼ Head restraint height adjustment



- 1 Head restraint
- 2 Release button

To raise:

Pull the head restraint up.

To lower:

Push the head restraint down while pressing the release button on the top of the seatback.

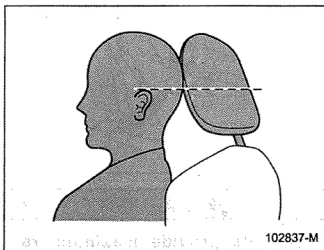
To remove:

While pressing the release button, pull out the head restraint.

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

To install:

Install the head restraint into the holes that are located on the top of the seatback until the head restraint locks. Press and hold the release button to lower the head restraint.



Each head restraint should be adjusted so that the center of the head restraint is closest to the top of the occupant's ears.

NOTE

It is not possible to remove or install the head restraint without reclining the front seatback. Reclining the front seatback and then remove or install the head restraint.

1-2. Seat Heater (If Equipped)

The seat heater is equipped in the front seats.

The seat heater operates when the ignition switch is either in the "ACC" or "ON" position.

CAUTION

- Do not put hard or heavy objects or ones with protrusions on the seat, and do not stab the seat with sharp objects, such as pins or needles.
- People with delicate skin may suffer slight burns even at low temperatures if they use the seat heater for a long period of time. When using the heater, always be sure to warn the persons concerned.
- Do not put anything on the seat which insulates against heat, such as a blanket, cushion, or similar items. This may cause the seat heater to overheat.
- When the seat is warmed enough or before you leave the vehicle, be sure to turn off the seat heater.

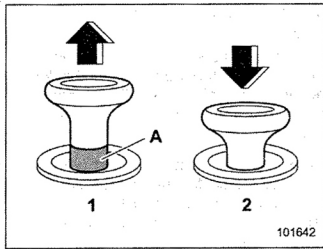
NOTE

Use of the seat heater for a long period of time while the engine is not running can cause battery discharge.

1 Seat, Seatbelt and SRS Airbags

- CONTINUED -

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



Lock release knob
 1 Unlocked
 2 Locked
 A Unlocking marker in red

To return the seatback to its original position, raise the seatback until it locks into place and make sure that the unlocking marker on the lock release knob is no longer visible.

WARNING

When you return the seatback to its original position, check that the unlocking marker on the lock release knob is not visible. Also, shake the seatback slightly to confirm that it is securely fixed in place. If the seatback is not securely fixed in place, the seatback may suddenly

fold down in the event of sudden braking, or objects may move out from the cargo area, which could cause serious injury or death.

Head Restraint Adjustment

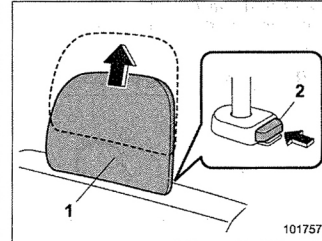
Both the rear window side seats and the rear center seat are equipped with head restraints.

WARNING

- Never drive the vehicle with the head restraints removed because they are designed to reduce the risk of serious neck injury in the event that the vehicle is struck from the rear. Therefore, when the head restraints are removed, all head restraints must be re-installed properly to protect vehicle occupants.
- All occupants, including the driver, should not operate a vehicle or sit in a vehicle's seat until the head restraints are placed in their proper positions in order to minimize the risk of neck injury in the event of a crash.
- The front seat head restraints are designed to be installed into the

front seats only. The rear seat head restraints are designed to be installed into the rear seats only. Do not attempt to install the front seat head restraints into the rear seats, or the rear seat head restraints into the front seats.

Rear windows side seating position



1 Head restraint
 2 Release button

To remove:

While pressing the release button, pull out the head restraint.

To install:

Install the head restraint into the holes that are located on the top of the seatback until the head restraint locks. Press and hold

Seat, Seatbelt and SRS Airbags

- CONTINUED -

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

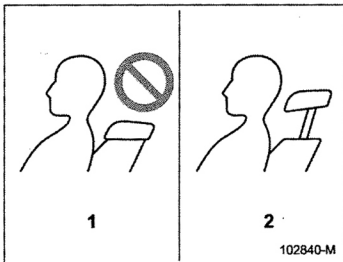
the release button to lower the head restraint.

After installing the head restraint, make sure it is securely locked.

NOTE

When the head restraint cannot be pulled out or installed due to insufficient clearance between the head restraint and the roof, tilt the seat and then perform the installation and removal tasks.

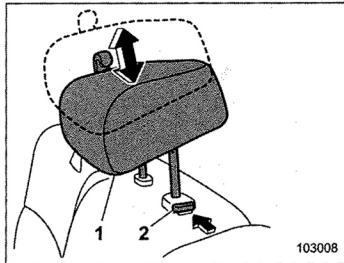
Rear center seating position



1 Incorrect (retracted position)
 2 Correct (extended position)

CAUTION

The head restraint is not intended to be used in the retracted position. Before sitting on the seat, raise the head restraint to the extended position.



1 Head restraint
 2 Release button

To raise:

Pull the head restraint up.

To lower:

Push the head restraint down while pressing the release button on the top of the seatback.

To remove:

While pressing the release button, pull out

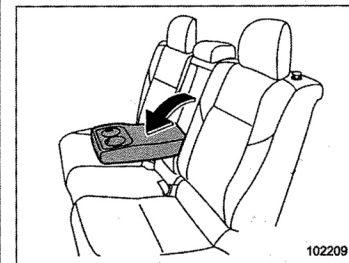
the head restraint.

To install:

Install the head restraint into the holes that are located on the top of the seatback until the head restraint locks. Press and hold the release button to lower the head restraint.

When the rear-center seating position is occupied, raise the head restraint to the extended position. When the rear center seating position is not occupied, lower the head restraint to improve rearward visibility.

Armrest (If Equipped)



To lower the armrest, pull the armrest's top edge.

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

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

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1	Driver Head Acceleration (X) Primary vs. Time	B-1
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21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-6
22	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-7
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24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-7

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

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)

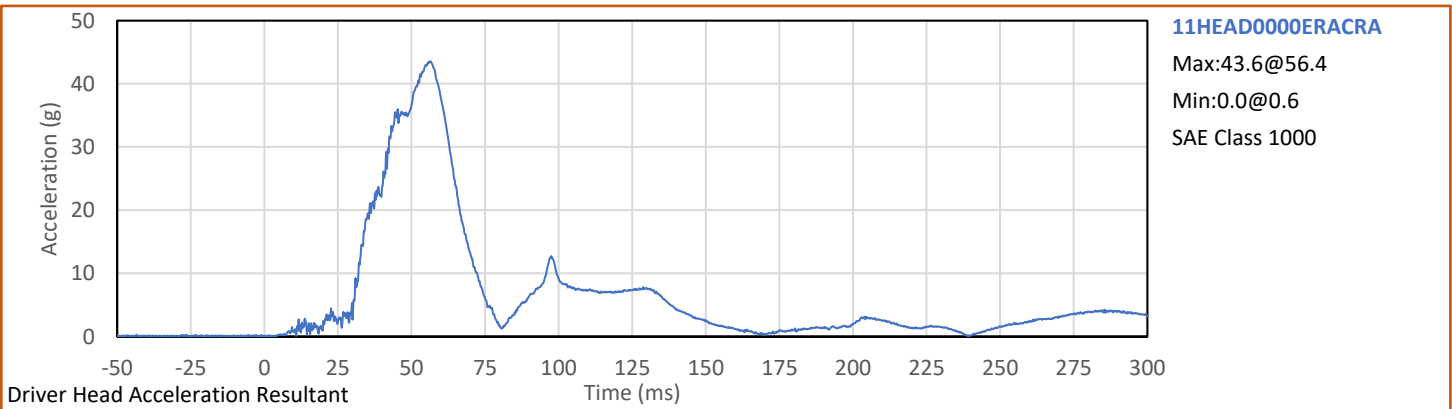
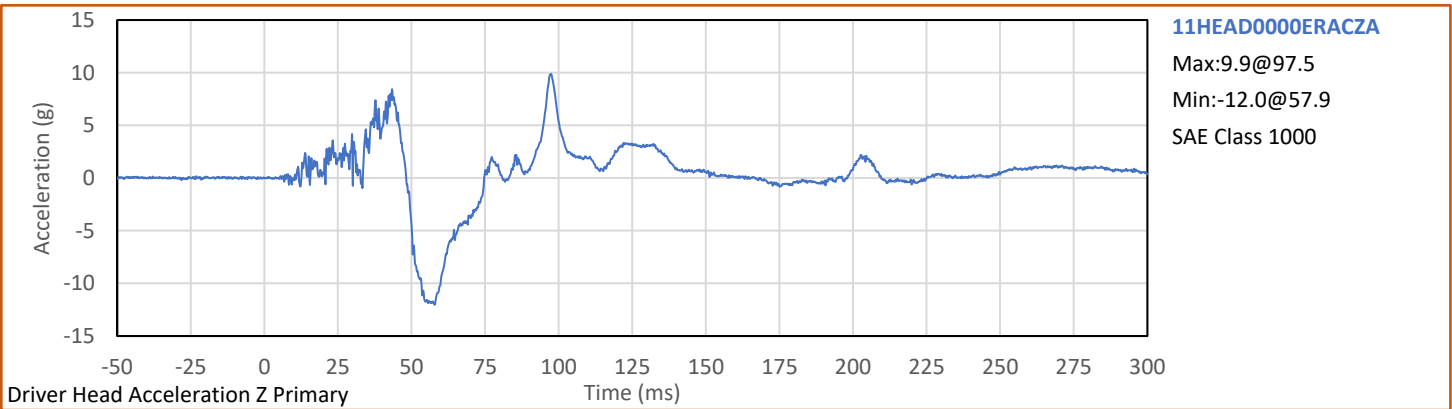
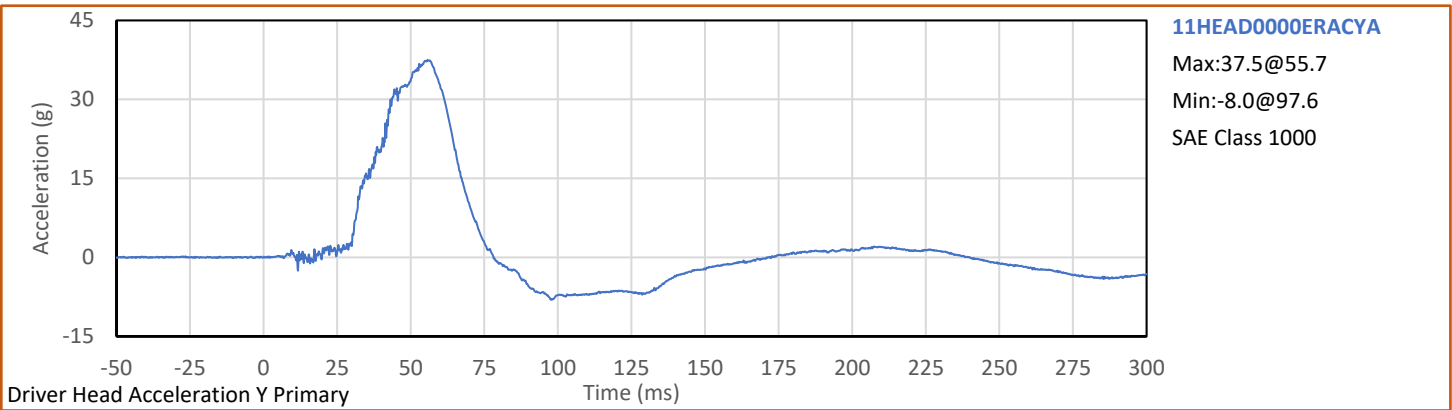
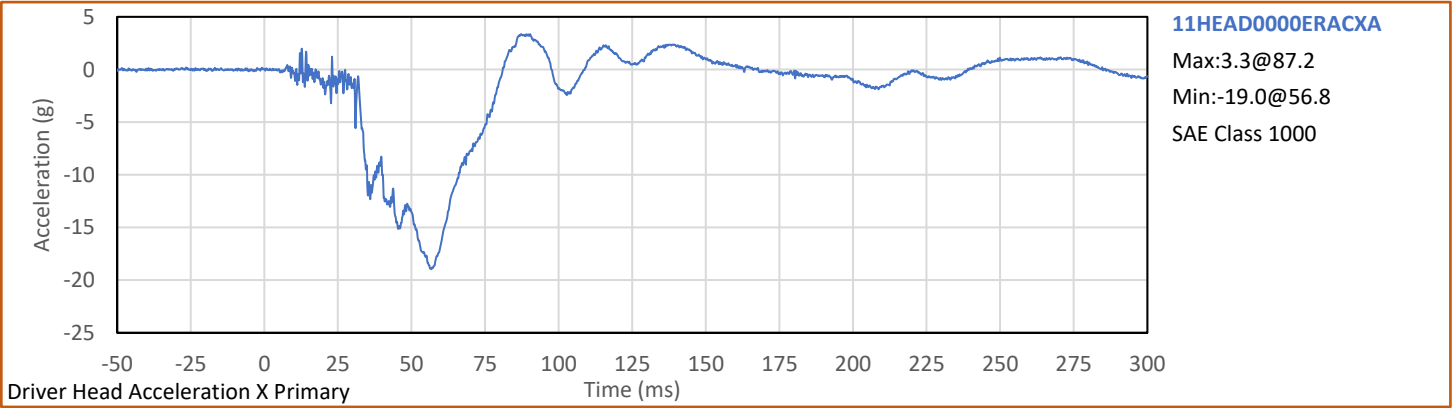
MDB Center of Gravity Acceleration (Z)

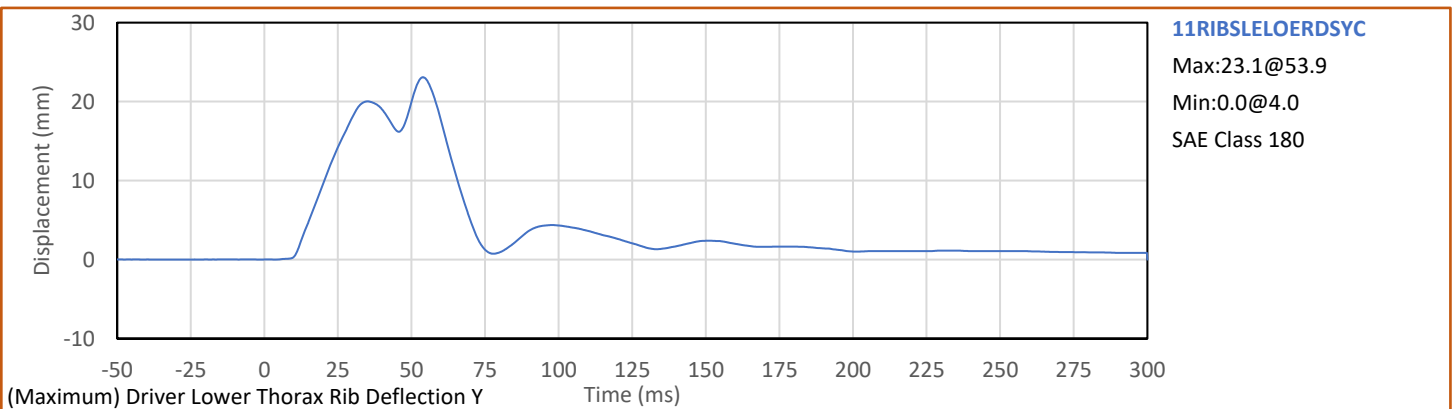
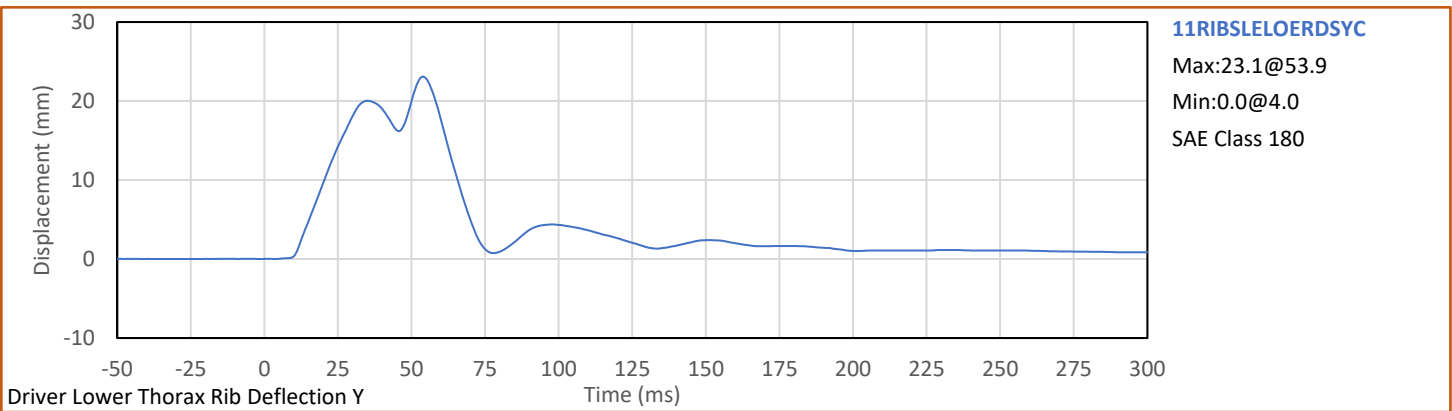
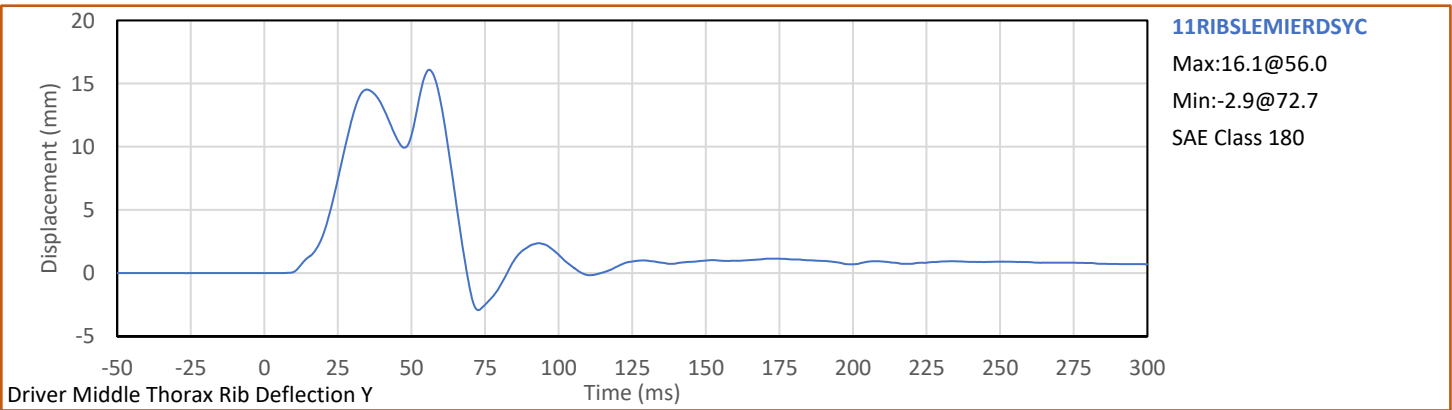
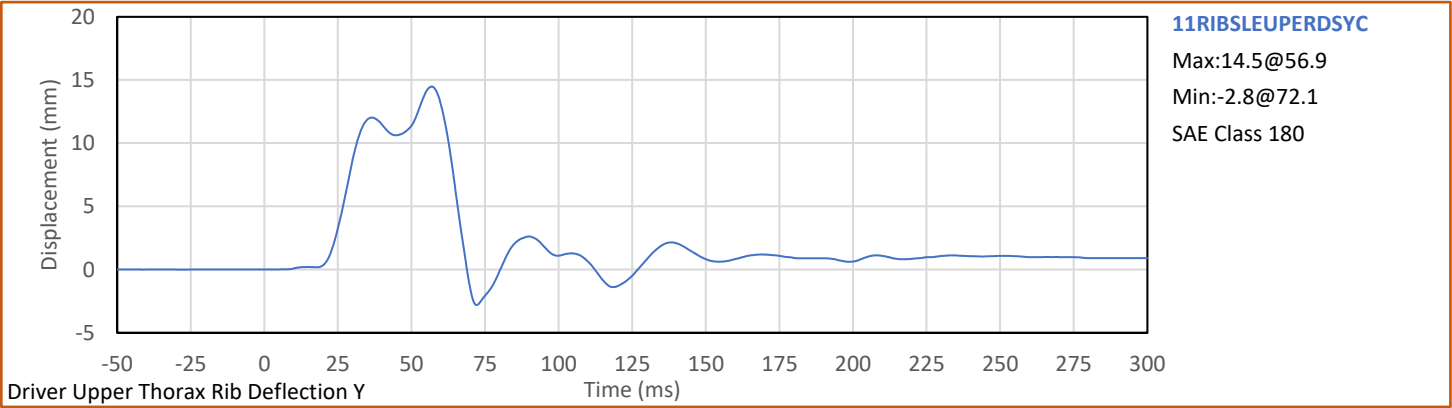
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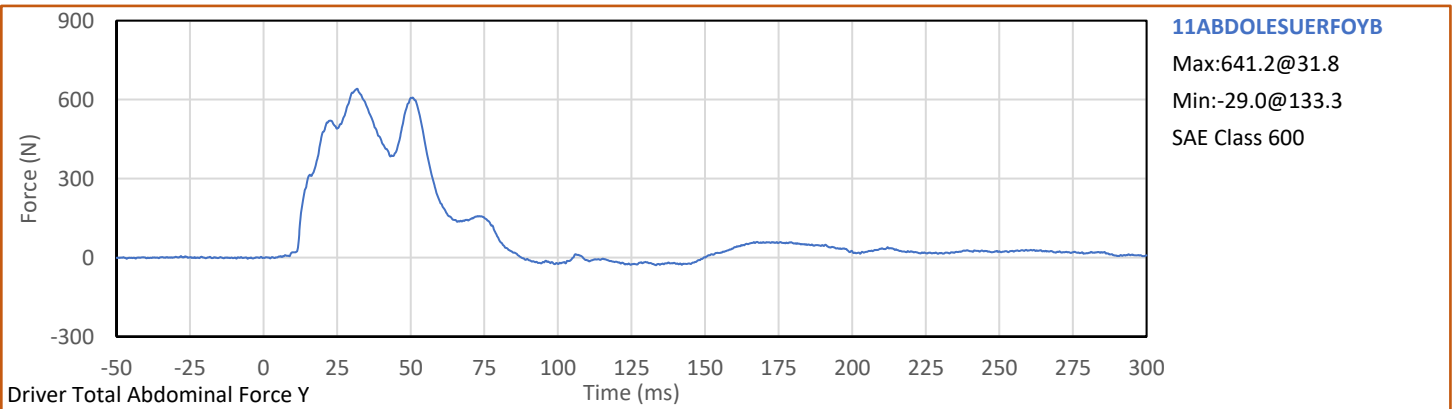
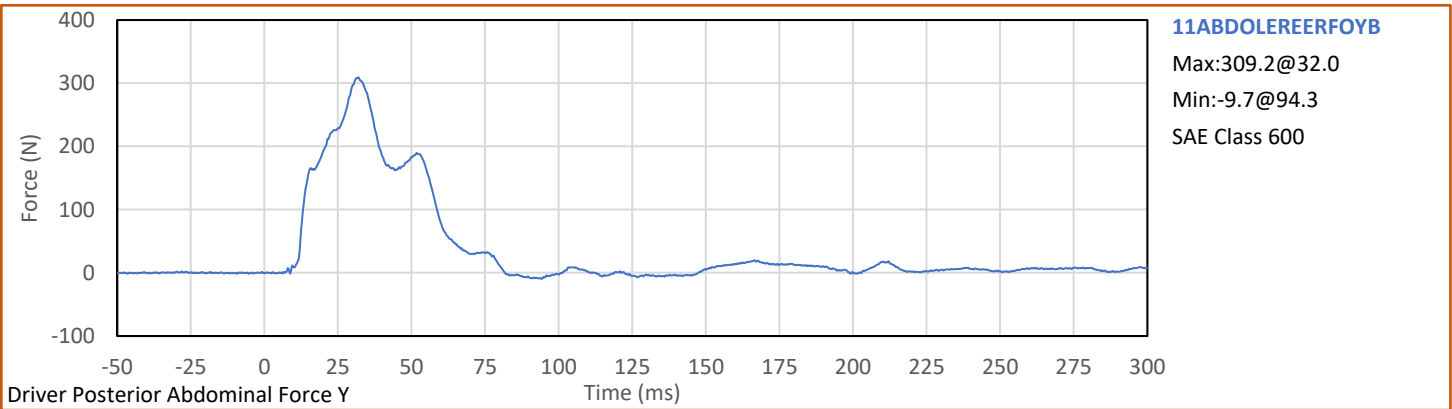
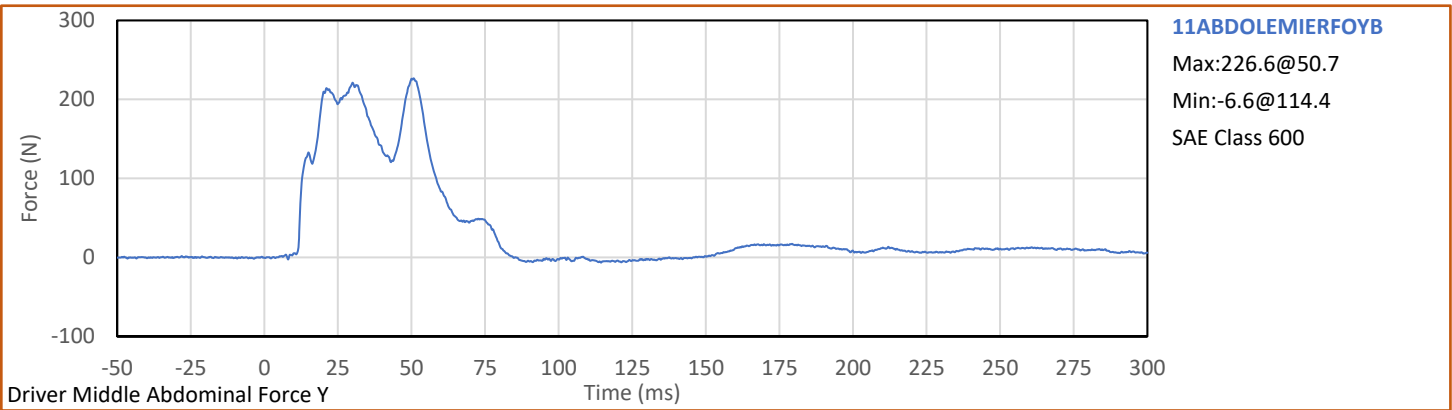
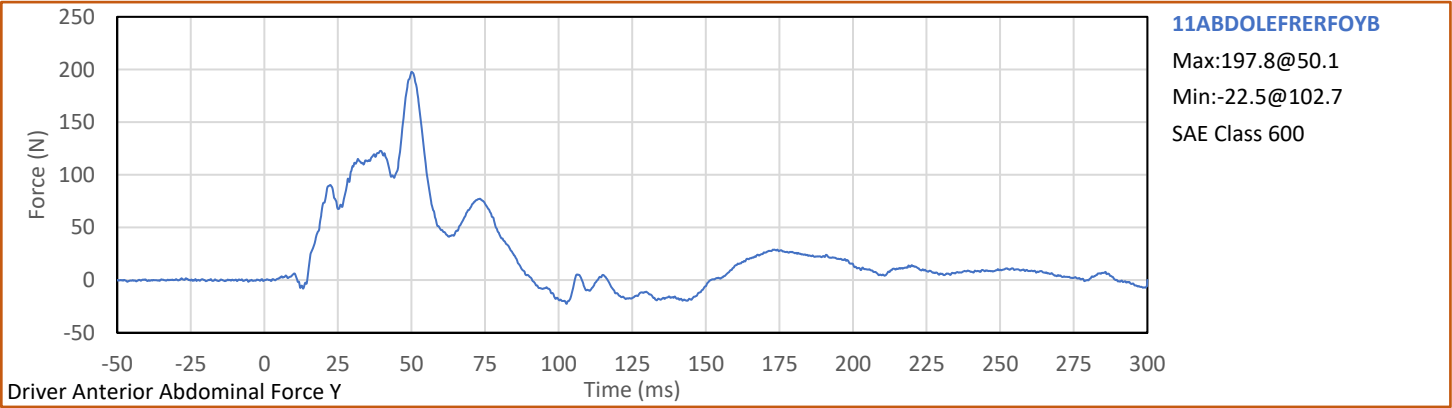
MDB Rear Acceleration (Y)

Left MDB Contact Switch

Right MDB Contact Switch







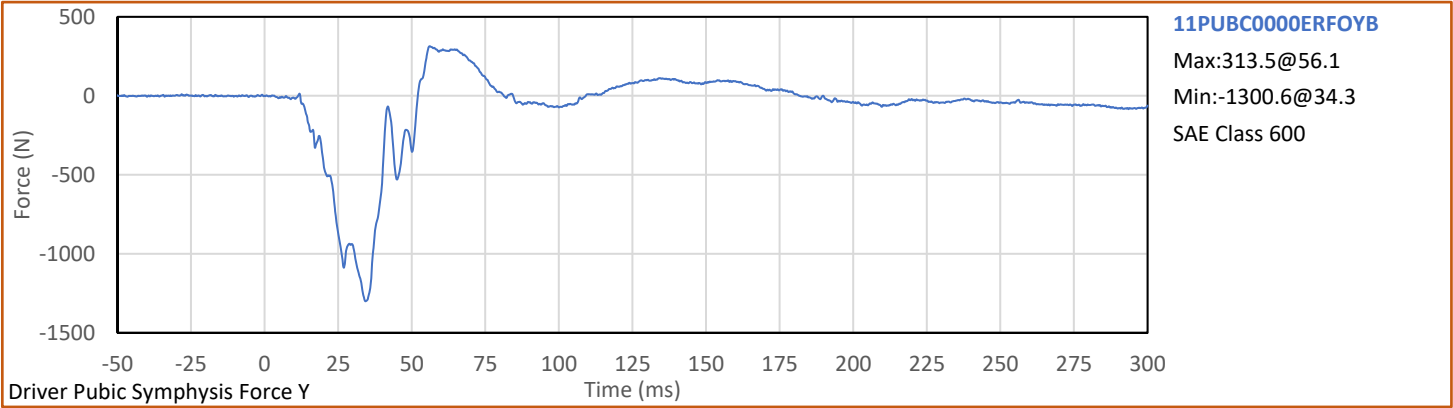
Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon

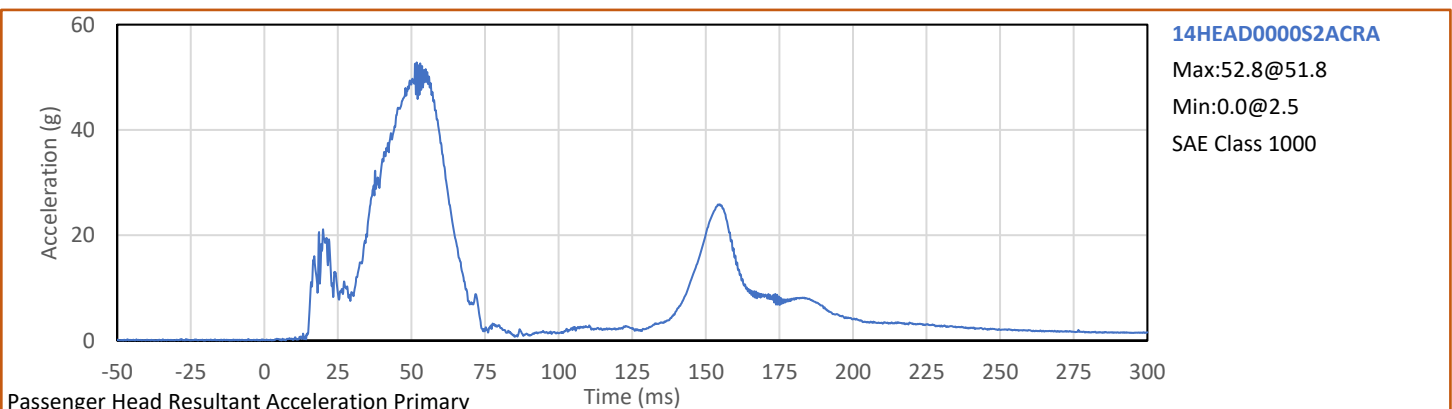
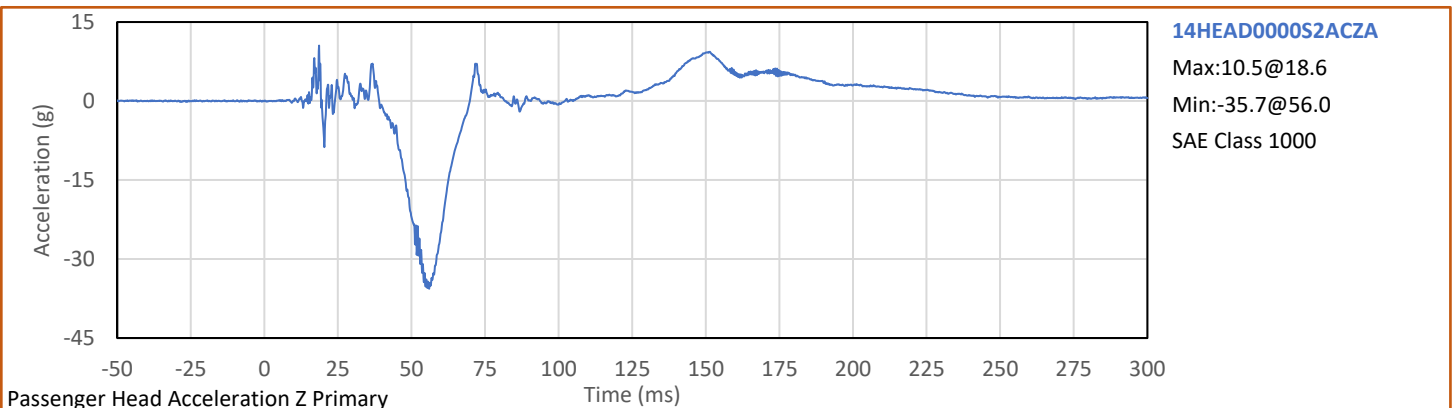
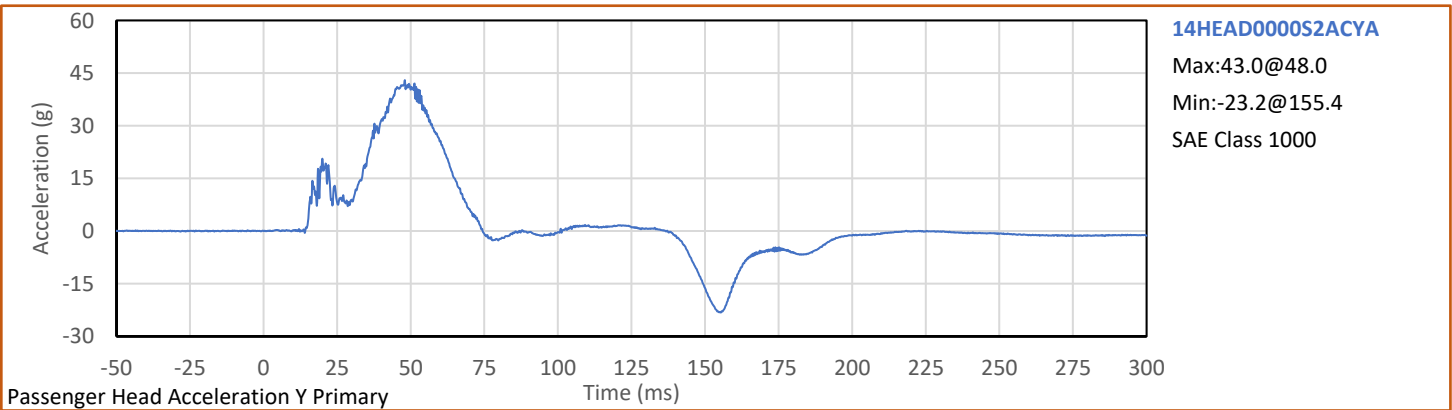
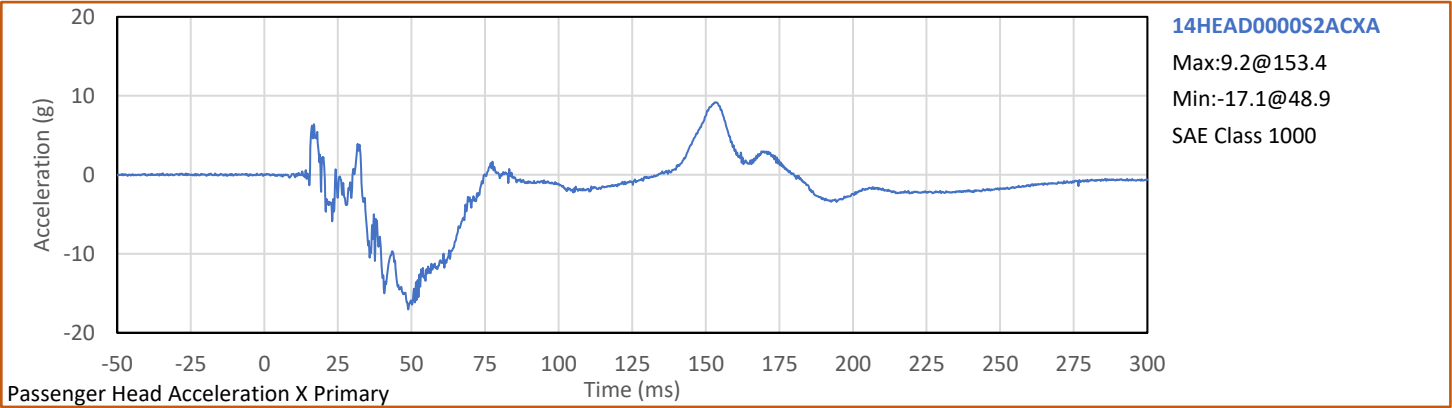
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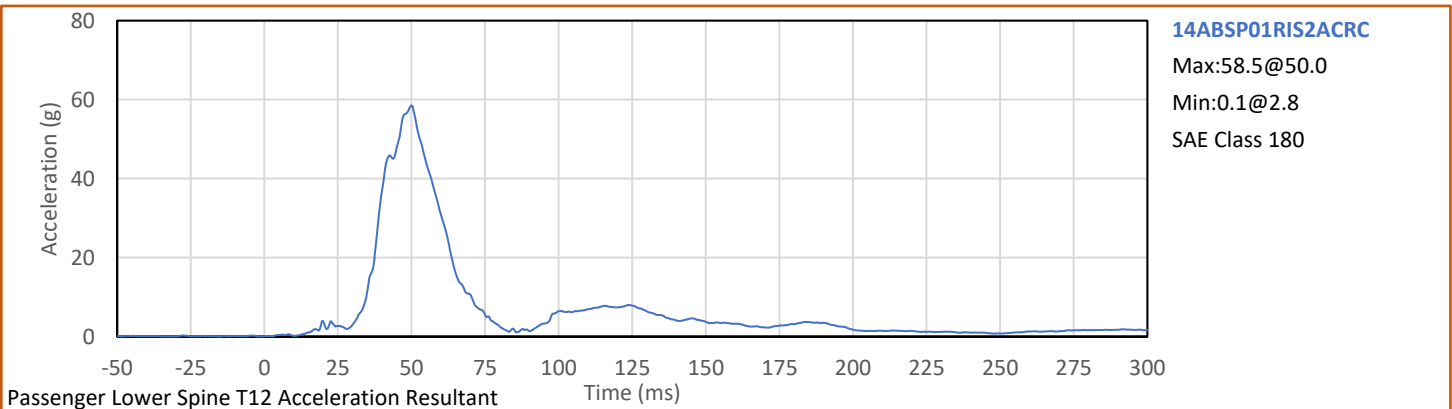
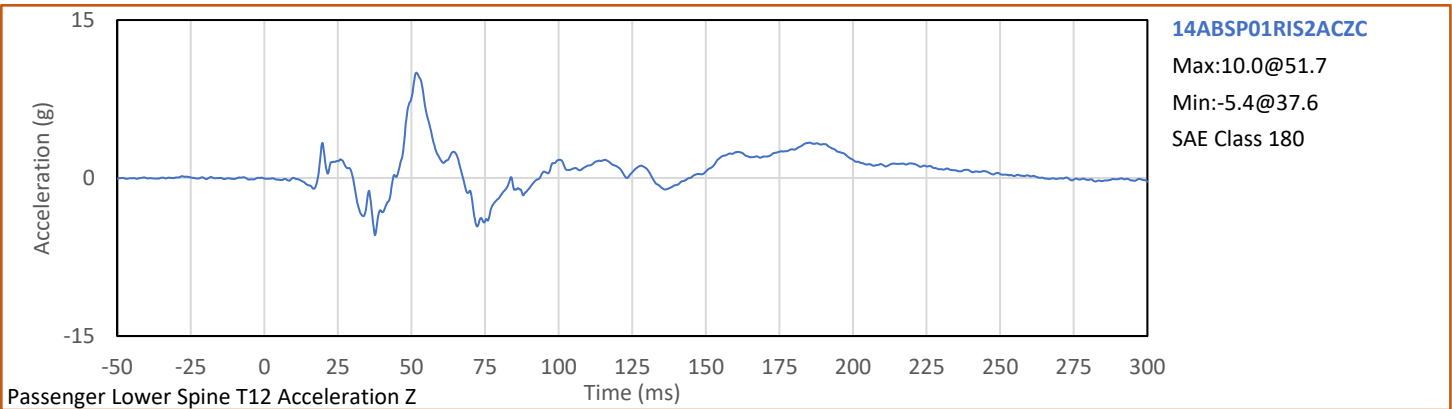
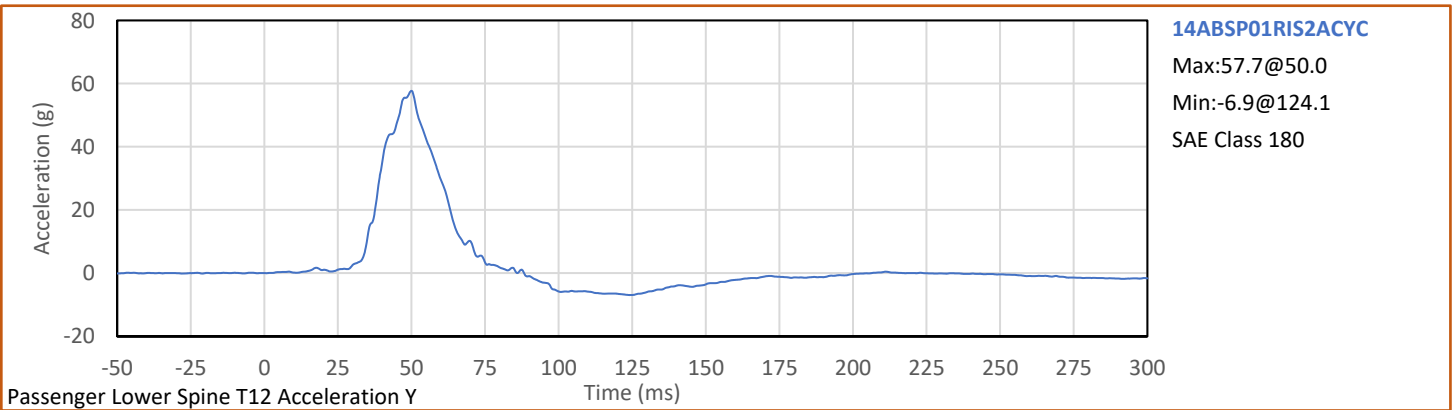
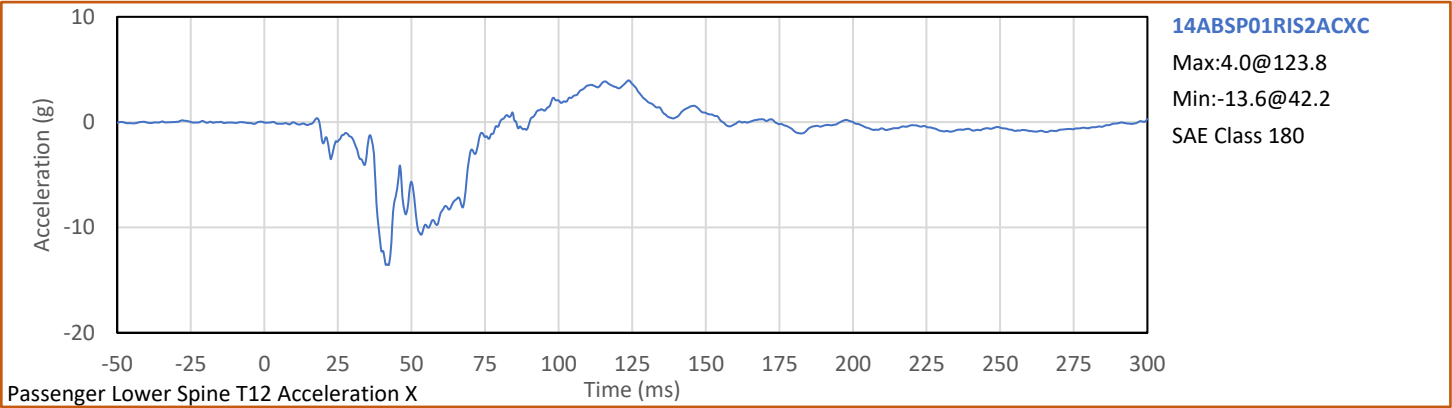


Test Program: NCAP MDB Side Impact Test

Test Date: 8/7/2023







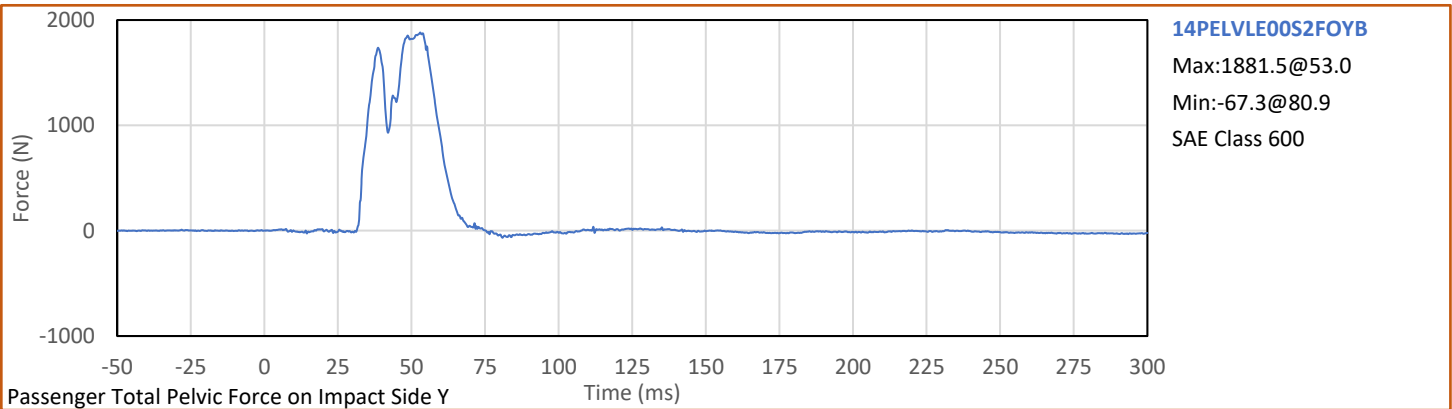
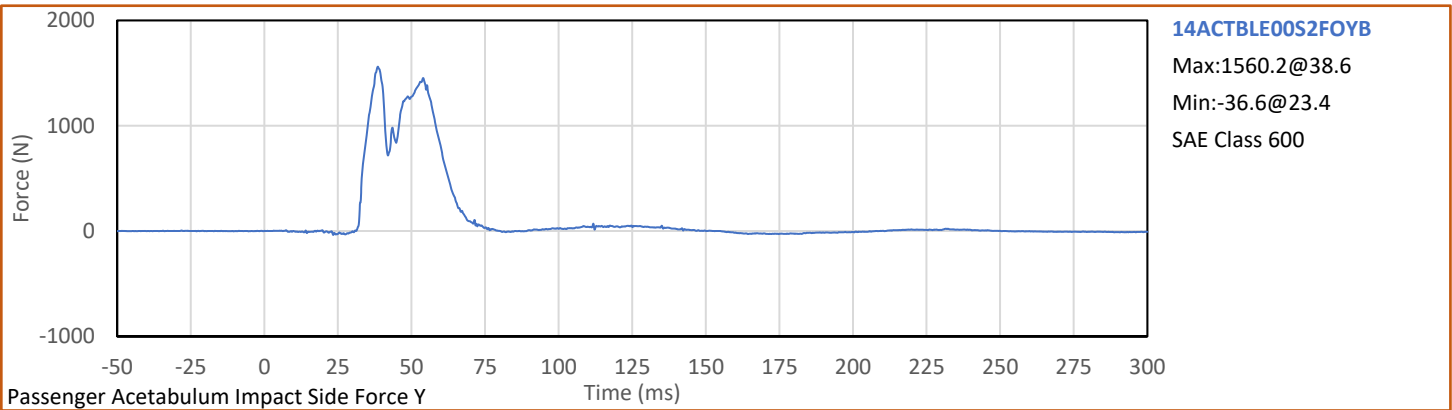
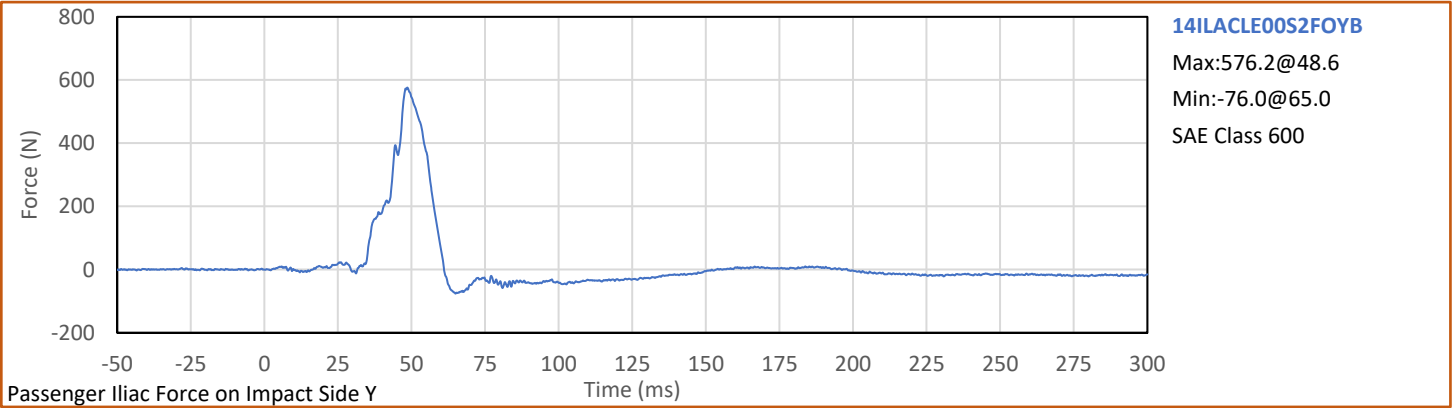
Test Vehicle: 2024 Subaru Impreza 5-Door Station Wagon

NHTSA No.: O20245503



Test Program: NCAP MDB Side Impact Test

Test Date: 8/7/2023



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

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	30	Pass
1 - Sitting Height	mm	900	918	913	Pass
2 - Seat to Shoulder Joint	mm	558	572	561	Pass
3 - Seat to Lower Face of Thoracic Spine Box	mm	346	356	354	Pass
4 - Seat to Hip Joint (bolt center)	mm	97	103	101	Pass
5 - Sole to Seat, Sitting	mm	433	451	435	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	285	Pass
10 - Pelvis Lap Width	mm	359	373	368	Pass
11 - Head Depth	mm	196	206	199	Pass
12 - Thorax Depth	mm	262	272	270	Pass
13 - Abdomen Depth	mm	194	204	200	Pass
14 - Pelvis Depth	mm	235	245	243	Pass
15 - Back of Buttocks to Hip Joint (bolt Center)	mm	150	160	154	Pass
16 - Back of Buttocks to Front Knee	mm	597	615	610	Pass
Overall Test Results					Pass

Technician: _____



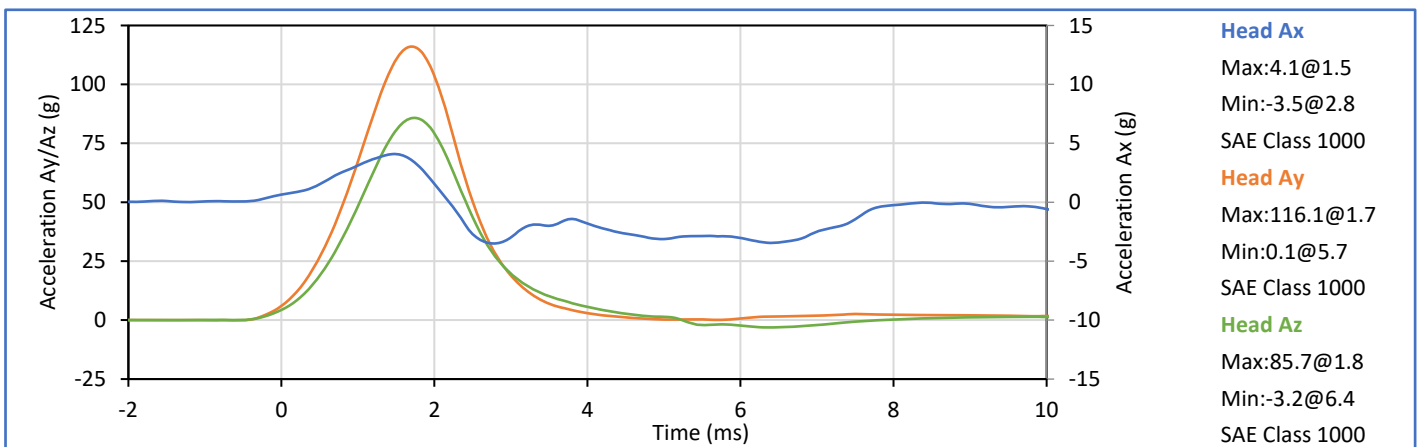
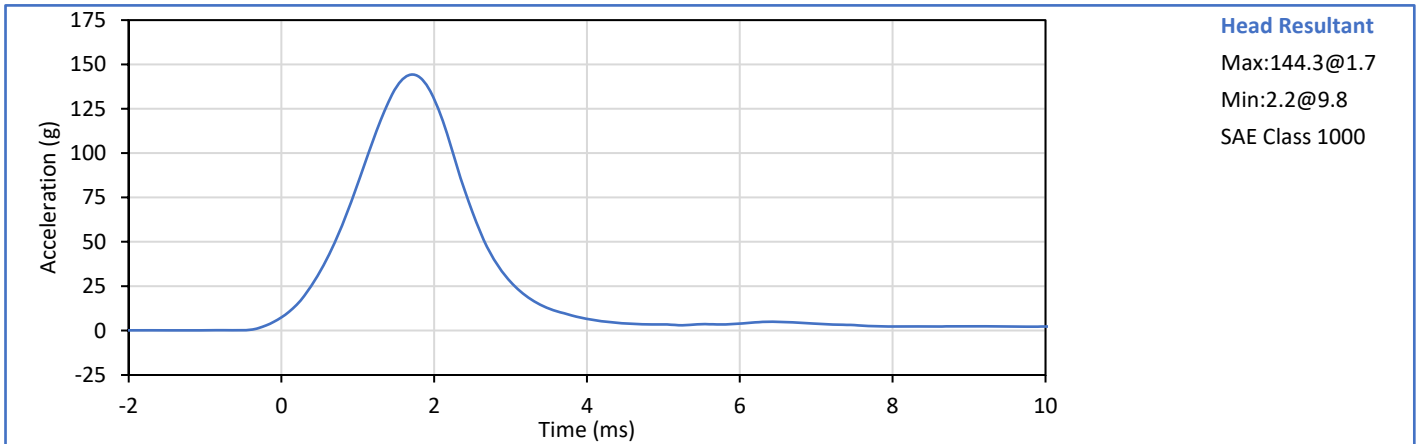
G. Fuentes

Approved By: _____



J. Hernandez

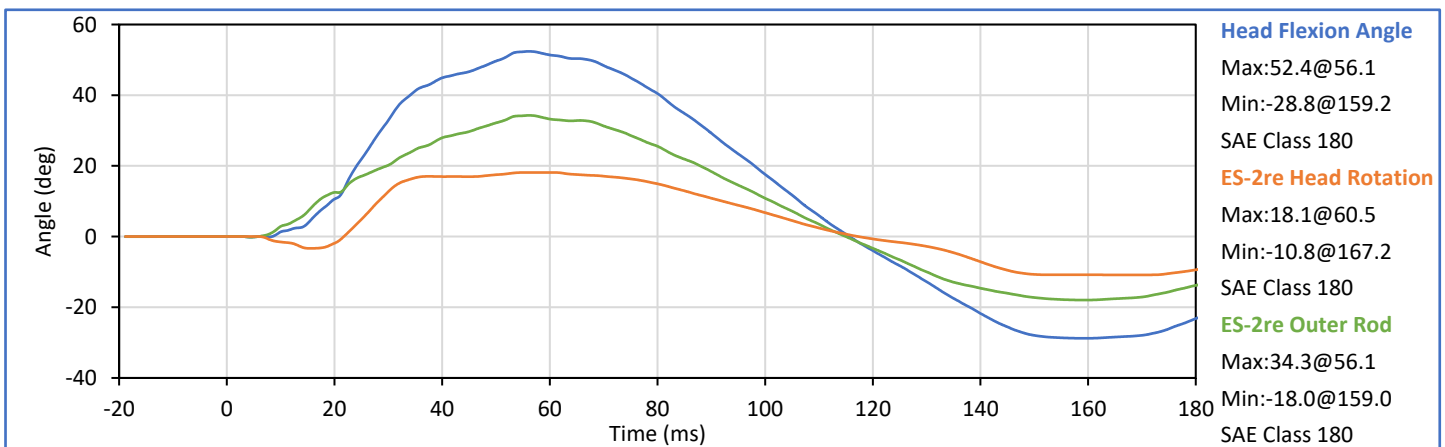
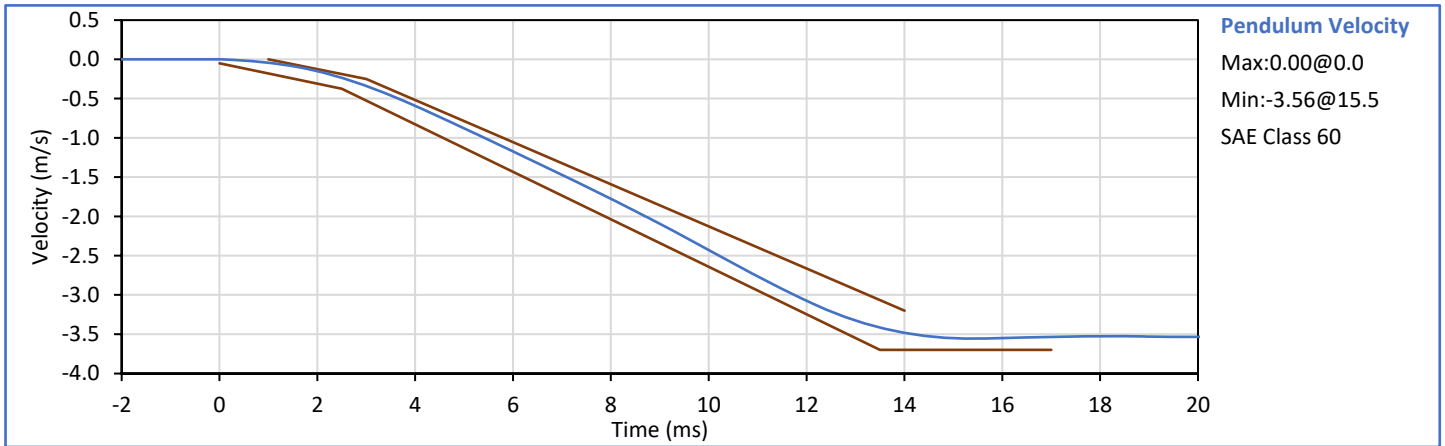
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.4	Pass
Laboratory Relative Humidity	%	10	70	32	Pass
Peak Resultant Acceleration	g	125.0	155.0	144.3	Pass
Peak Head Ax	g	-15.0	15.0	4.1	Pass
Oscillations After Main Pulse	%	0.0	15.0	3.4	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
				Overall Test Results	Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Smith*
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	31	Pass
Pendulum Velocity	m/s	3.30	3.50	3.44	Pass
Peak Headform Flexion	deg	49.0	59.0	52.4	Pass
Time of Peak Headform Flexion	ms	54.0	66.0	56.1	Pass
Flexion Decay (Peak to zero)	ms	53.0	88.0	59.7	Pass
Overall Test Results					Pass



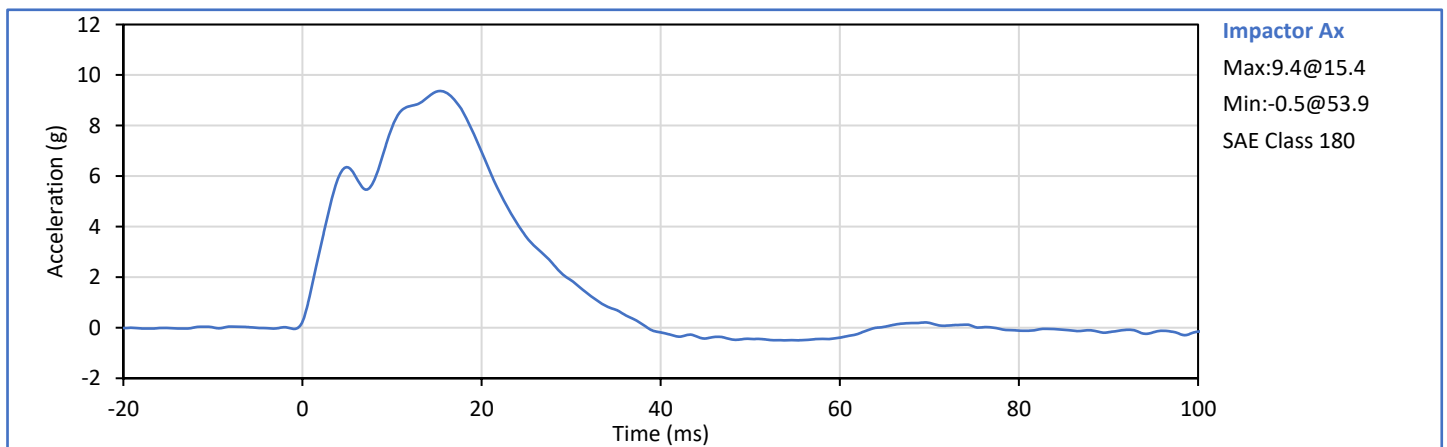
Technician: *Mill LGS III*
G. Fuentes

Approved By: *J. Hernandez*
J. Hernandez

ATD Serial No.: F037

Test Date: 2023-08-05

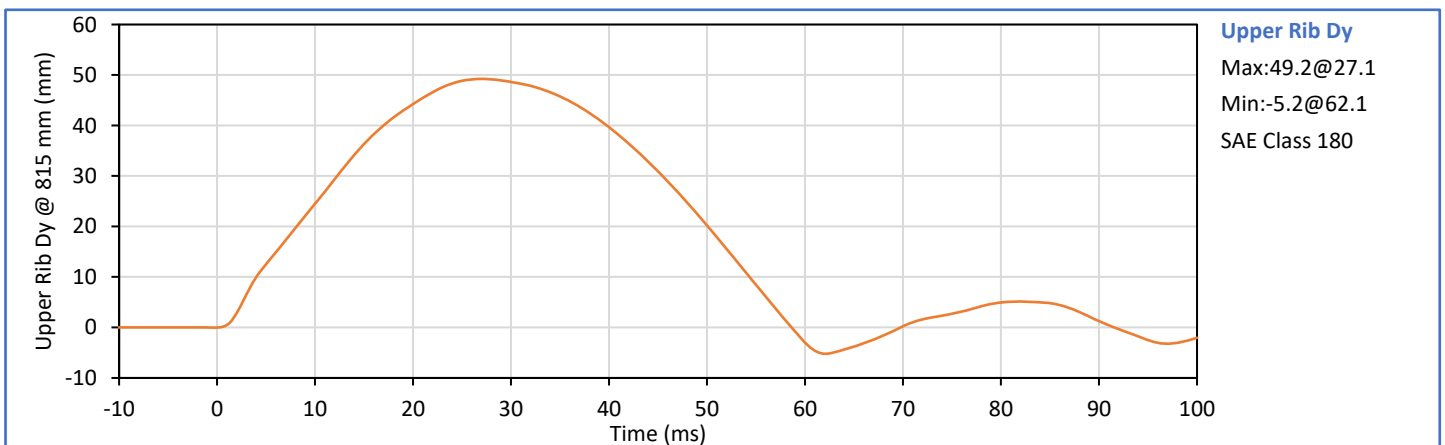
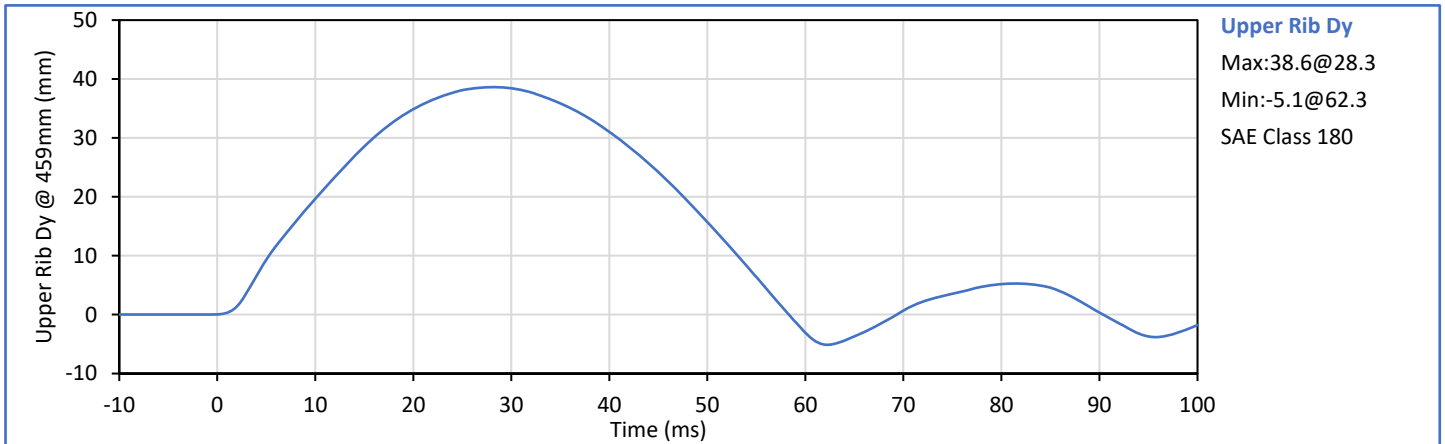
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.5	Pass
Laboratory Relative Humidity	%	10	70	38	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Impactor Ax	g	7.5	10.5	9.4	Pass
Overall Test Results					Pass



Technician: *Milli JG III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

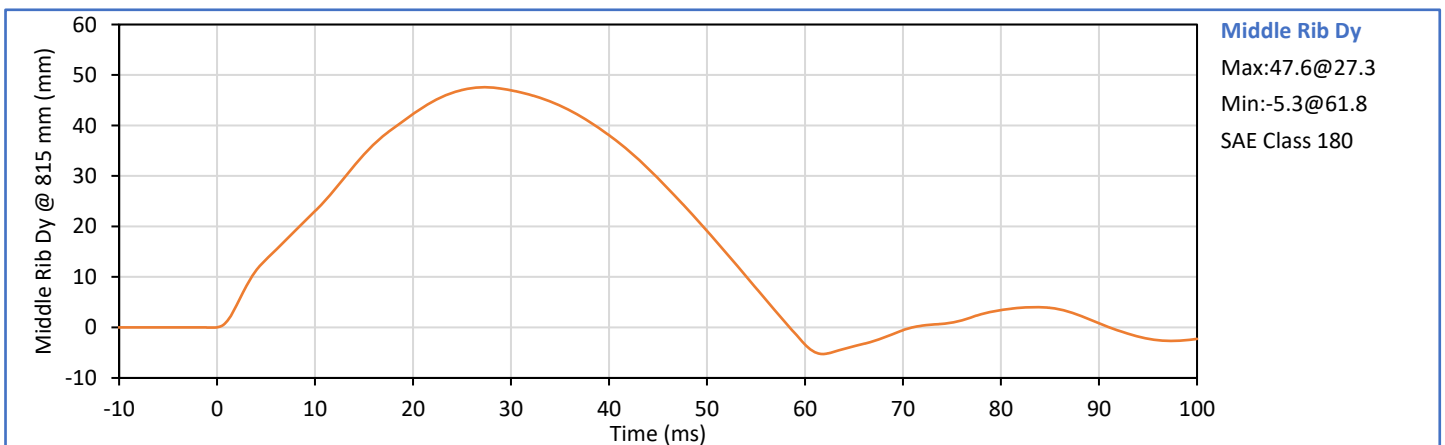
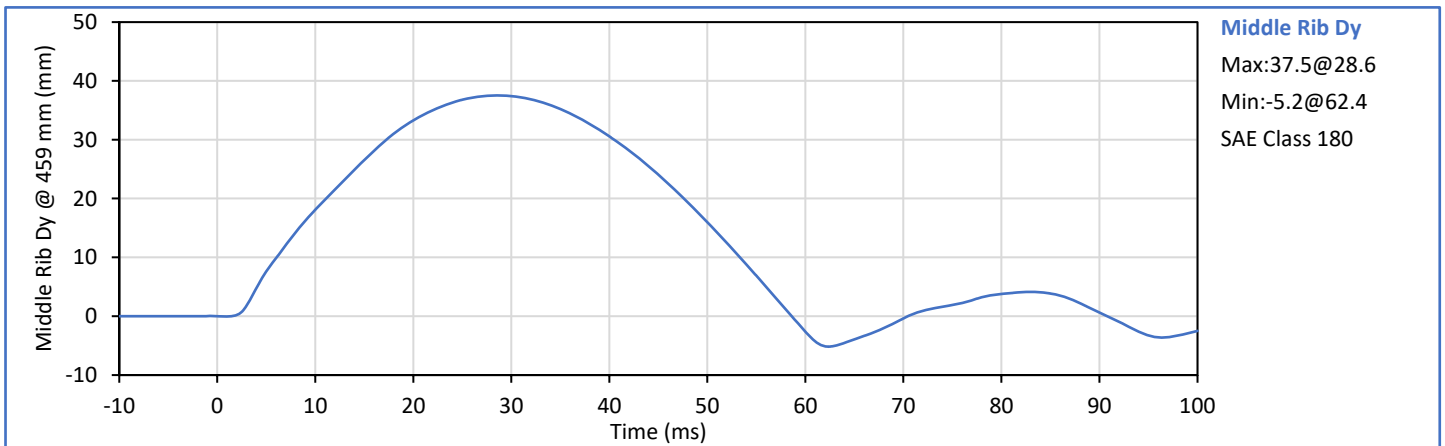
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Upper Rib Dy @ 459mm	mm	36.0	40.0	38.6	Pass
Upper Rib Dy @ 815mm	mm	46.0	51.0	49.2	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

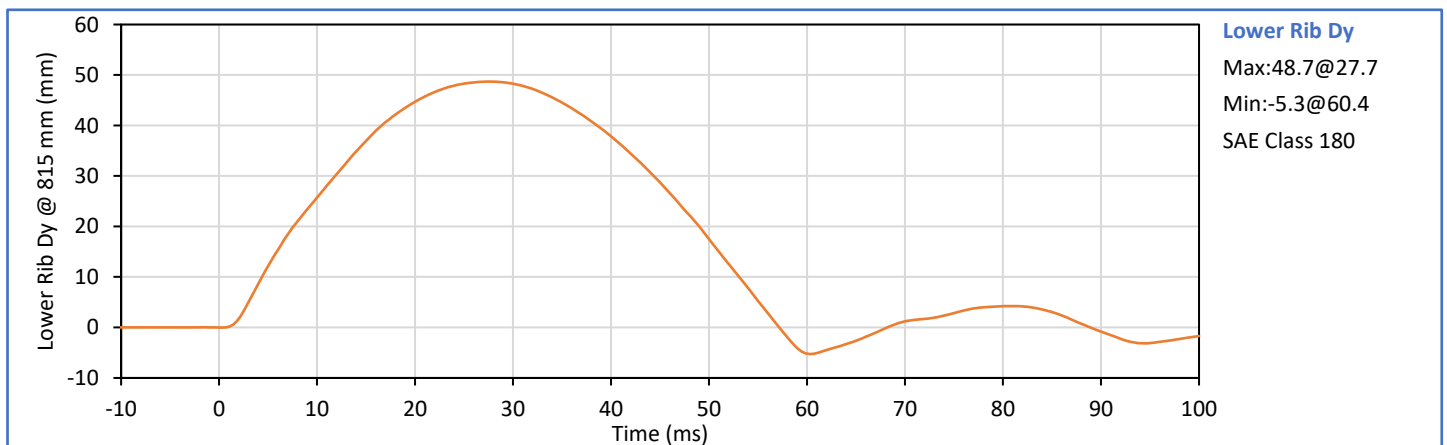
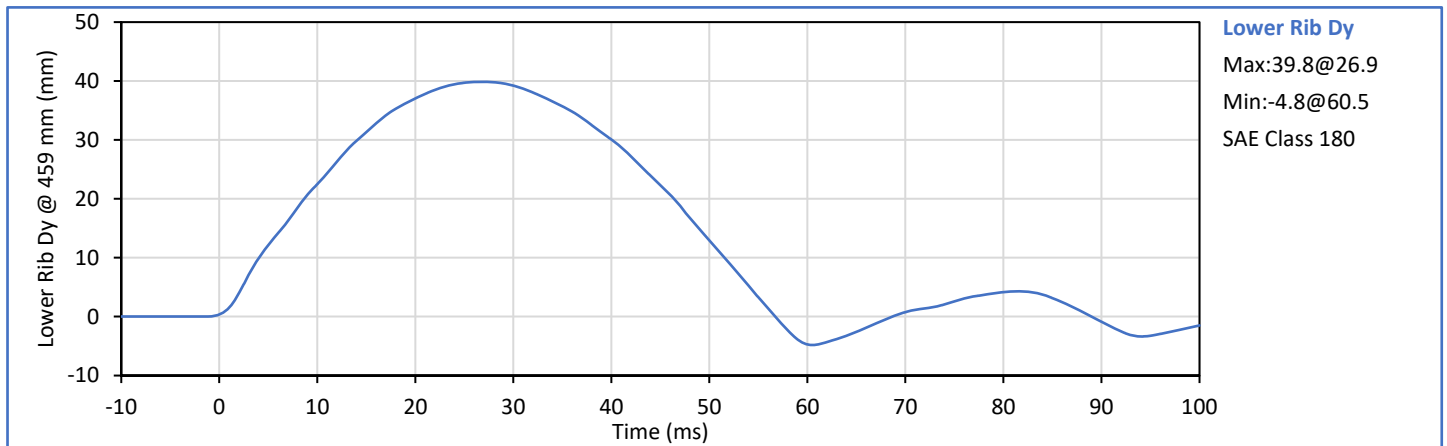
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Middle Rib Dy @ 459mm	mm	36.0	40.0	37.5	Pass
Middle Rib Dy @ 815mm	mm	46.0	51.0	47.6	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

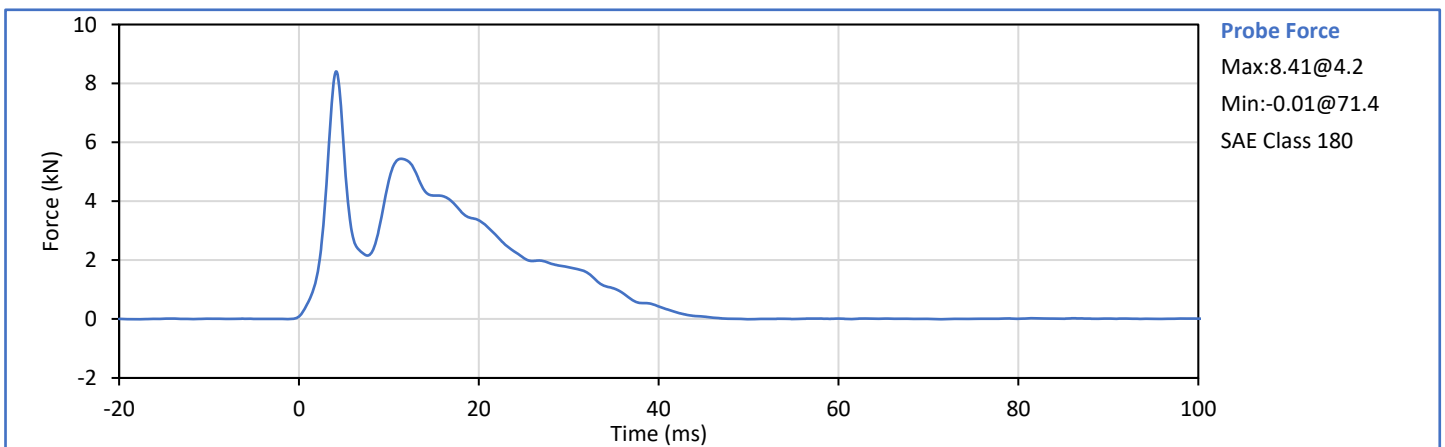
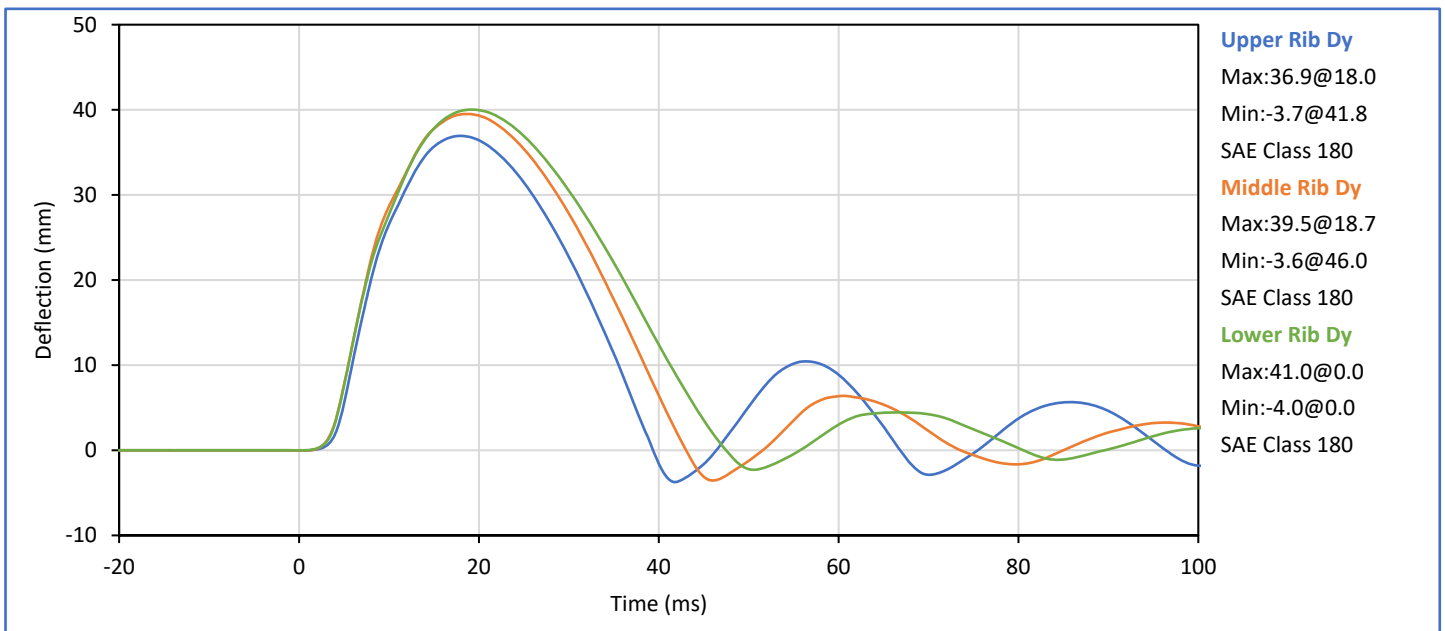
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Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Lower Rib Dy @ 459mm	mm	36.0	40.0	39.8	Pass
Lower Rib Dy @ 815mm	mm	46.0	51.0	48.7	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

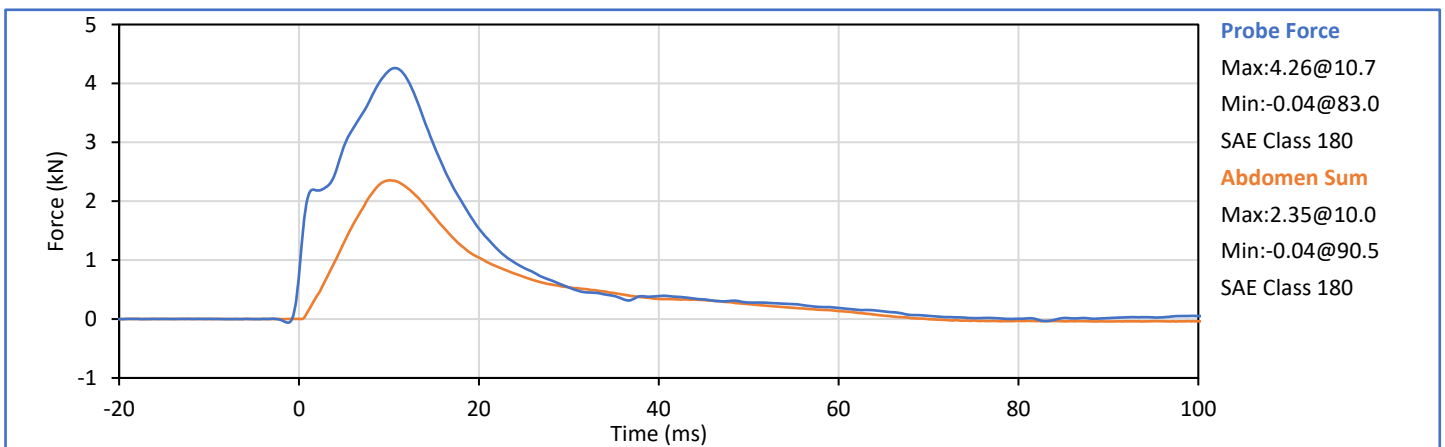
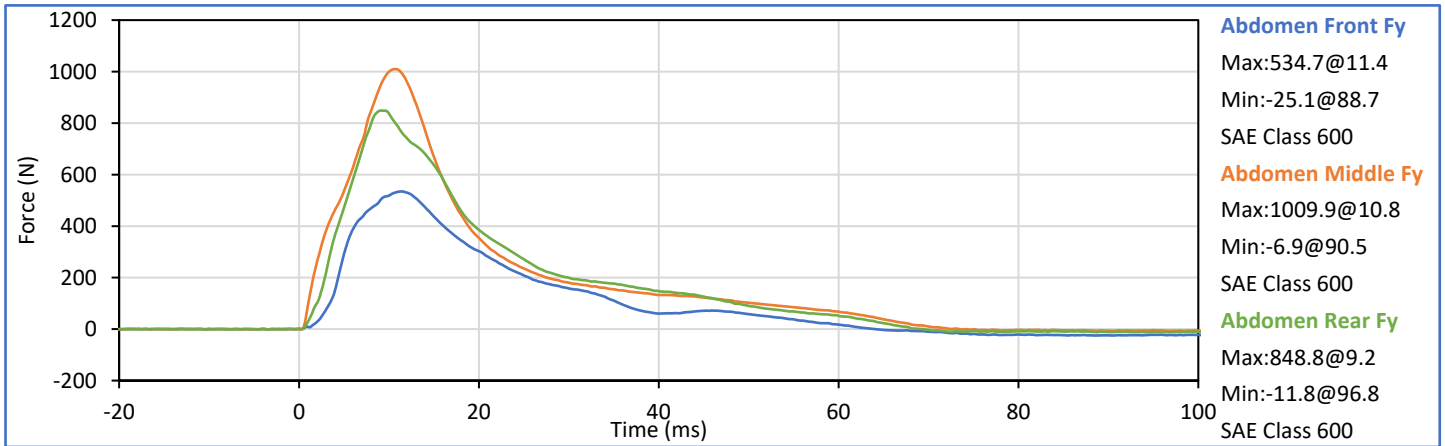
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	36	Pass
Impactor Velocity	m/s	5.40	5.60	5.55	Pass
Peak Upper Rib Dy	mm	34.0	41.0	36.9	Pass
Peak Middle Rib Dy	mm	37.0	45.0	39.5	Pass
Peak Lower Rib Dy	mm	37.0	44.0	40.0	Pass
Peak Impactor Force After 6 ms	kN	5.10	6.20	5.44	Pass
Overall Test Results					Pass



Technician: *Milli JG III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

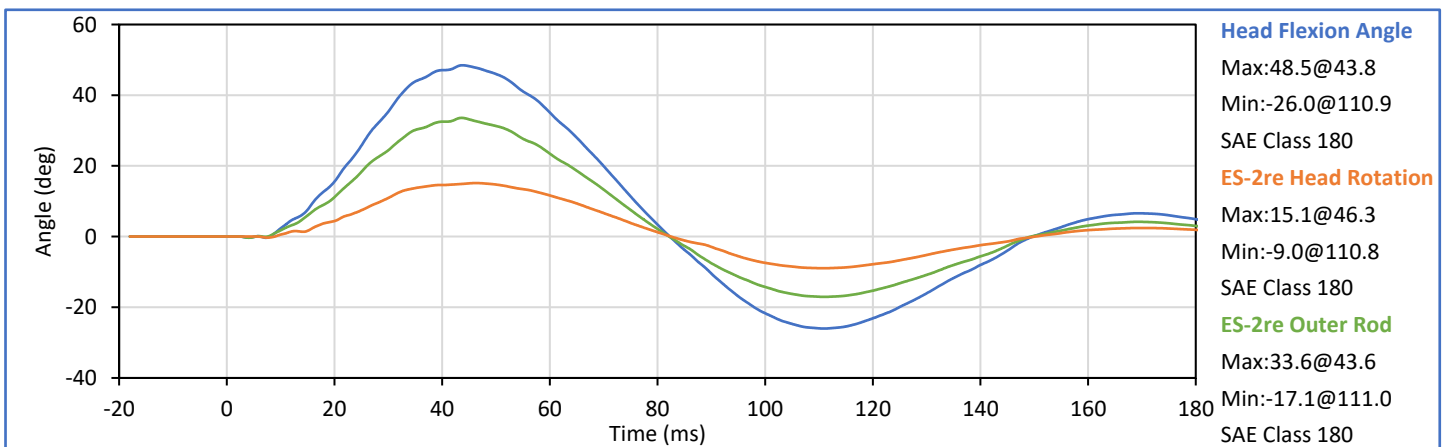
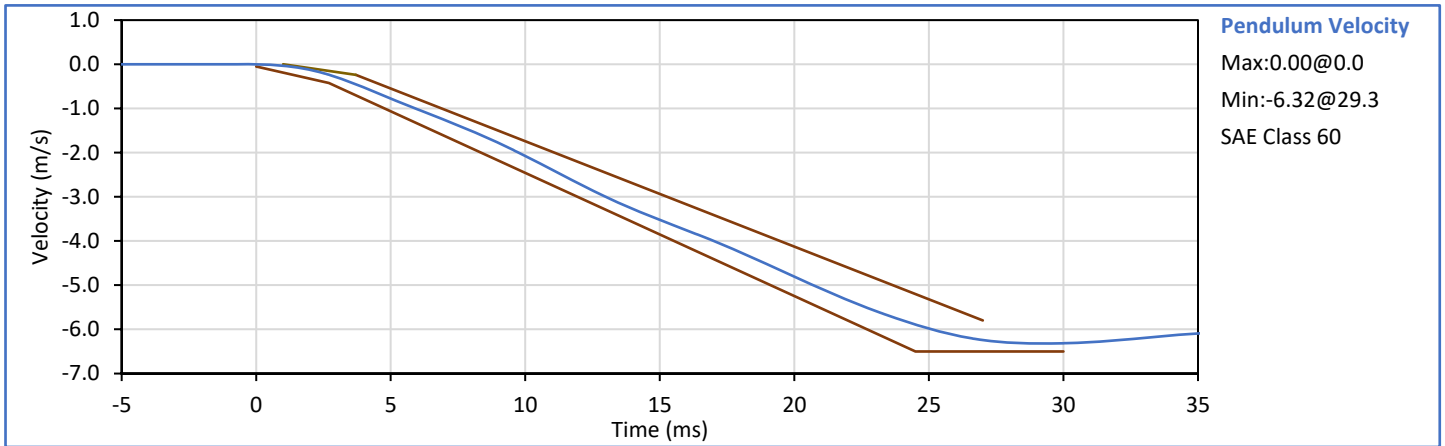
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Impactor Velocity	m/s	3.90	4.10	4.05	Pass
Peak Impactor Force	kN	4.00	4.80	4.26	Pass
Time of Peak Impactor Force	ms	10.6	13.0	10.7	Pass
Sum of Abdomen Forces	kN	2.20	2.70	2.35	Pass
Time of Peak Sum Abdomen Force	ms	10.0	12.3	10.0	Pass
Overall Test Results					Pass



Technician: *Milli JG III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

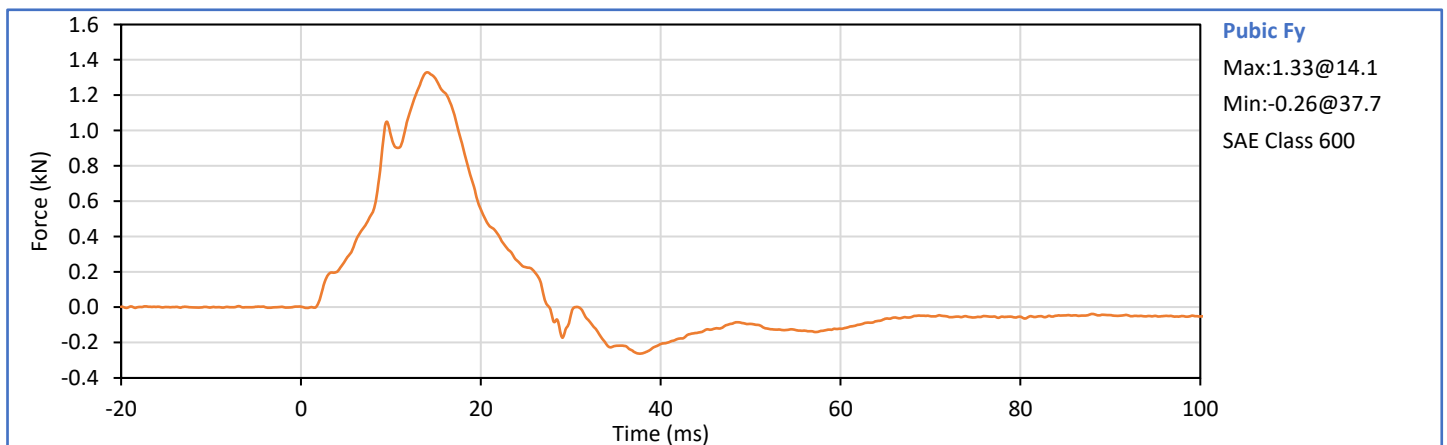
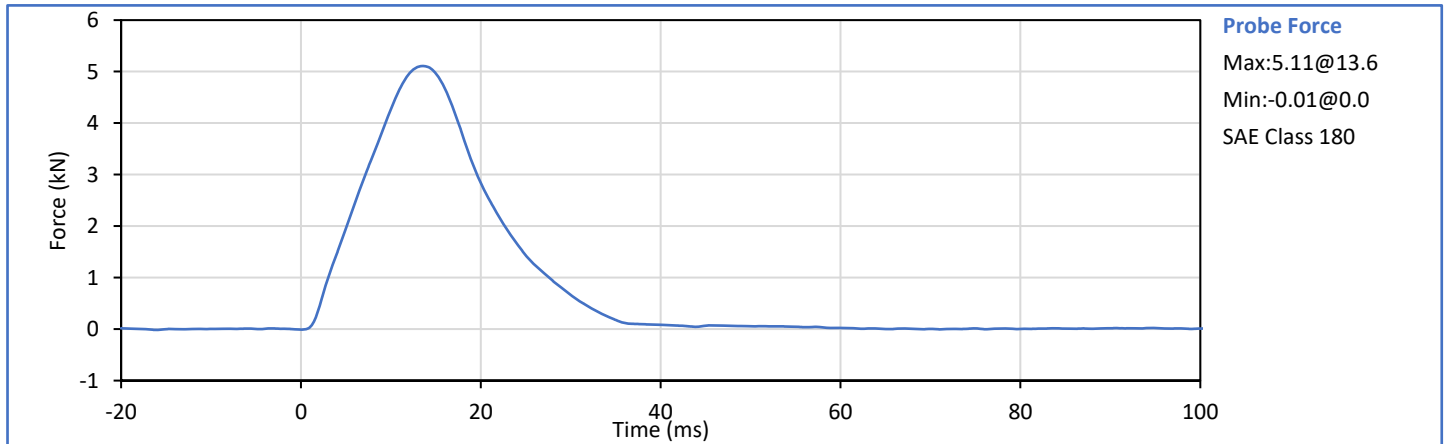
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Pendulum Velocity	m/s	5.95	6.15	6.11	Pass
Peak Headform Flexion	deg	45.0	55.0	48.5	Pass
Time of Peak Headform Flexion	ms	39.0	53.0	43.8	Pass
Flexion Decay (Peak to zero)	ms	37.0	57.0	38.6	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *J. Hernandez*
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Impactor Force	kN	4.70	5.40	5.11	Pass
Time of Peak Impactor Force	ms	11.8	16.1	13.6	Pass
Pubic Symphysis Fy	kN	1.23	1.59	1.33	Pass
Time of Peak Pubic Symphysis Fy	ms	12.2	17.0	14.1	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

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

ATD Serial No.: 308

Test Date: 2023-07-31

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	35	Pass
A - Sitting Height	mm	772	788	777	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	83	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	127	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	183	Pass
J - Head Circumference	mm	541	551	546	Pass
K - Buttock To Knee Length	mm	514	540	534	Pass
L - Popliteal Height	mm	343	369	356	Pass
K - Knee Pivot To Floor Height	mm	392	409	400	Pass
N - Buttock Popliteal Length	mm	416	442	430	Pass
O - Chest Depth W/O Jacket	mm	195	211	199	Pass
P - Foot Length	mm	216	232	221	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	318	Pass
R - Arm Length	mm	249	259	252	Pass
S - Knee Joint To Seatback	mm	477	493	483	Pass
V - Shoulder Width	mm	341	357	345	Pass
W - Foot Width	mm	78	94	84	Pass
Y - Chest Circumference W/Jacket	mm	851	881	867	Pass
Z - Waist Circumference	mm	761	791	773	Pass
				Overall Test Results	Pass

Technician:



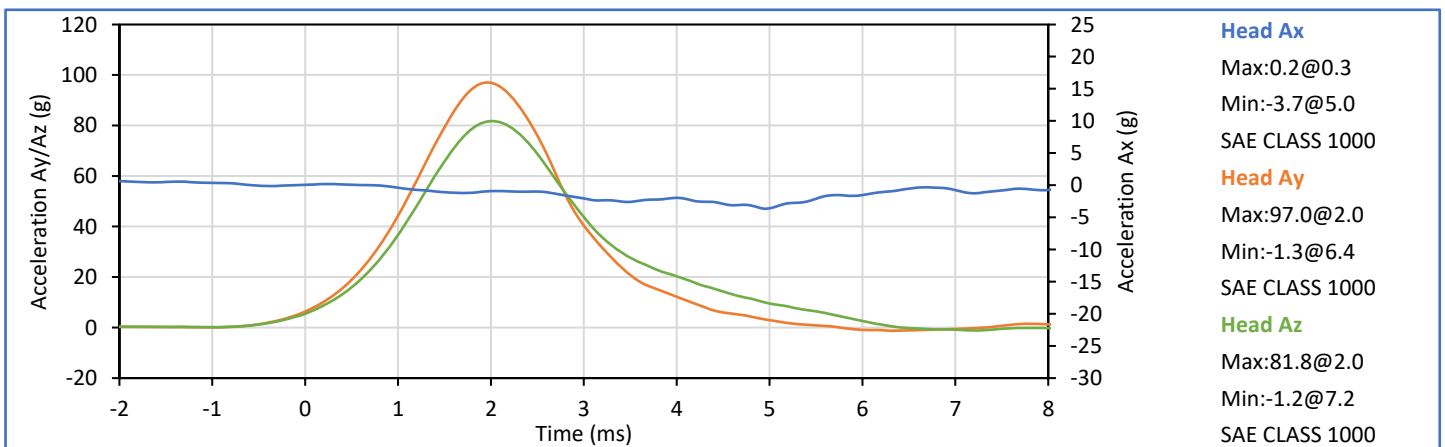
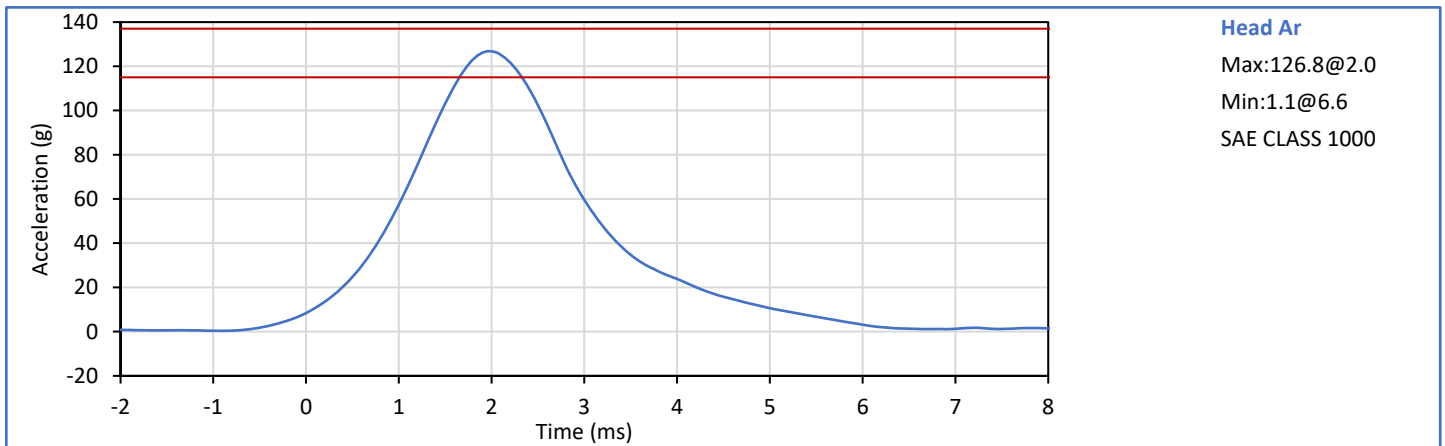
G. Fuentes

Approved By:



J. Hernandez

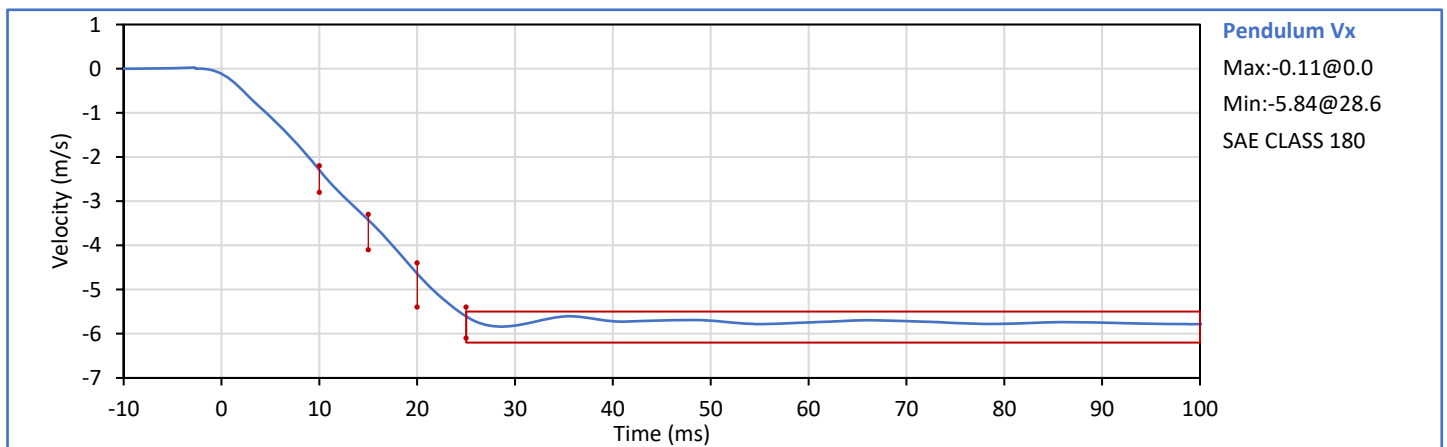
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.2	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Peak Resultant Acceleration	g	115.0	137.0	126.8	Pass
Peak Head Ax	g	-15.0	15.0	-3.7	Pass
Oscillations After Main Pulse	%	0.0	15.0	3.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

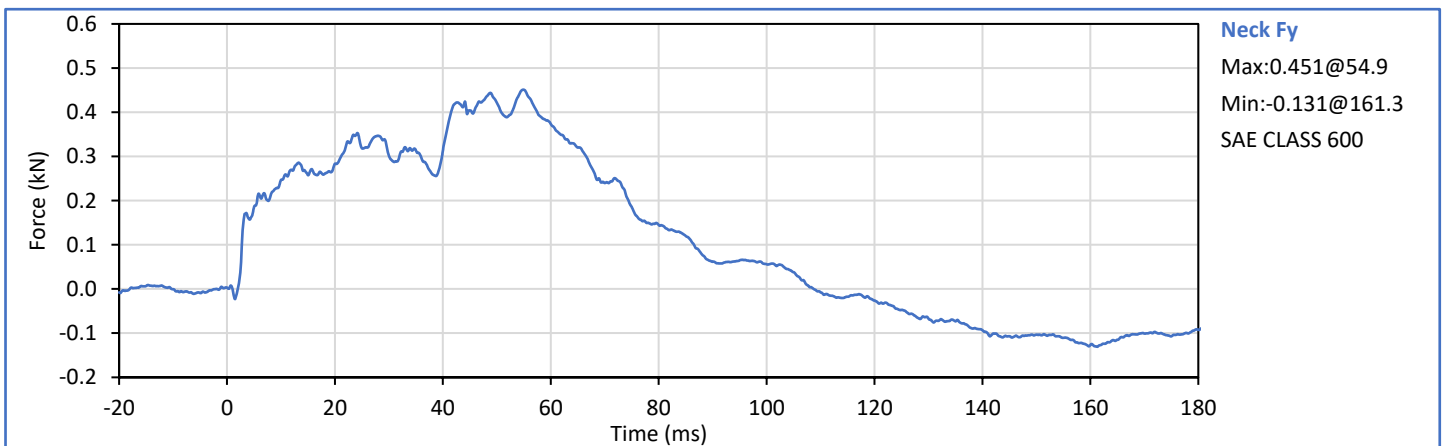
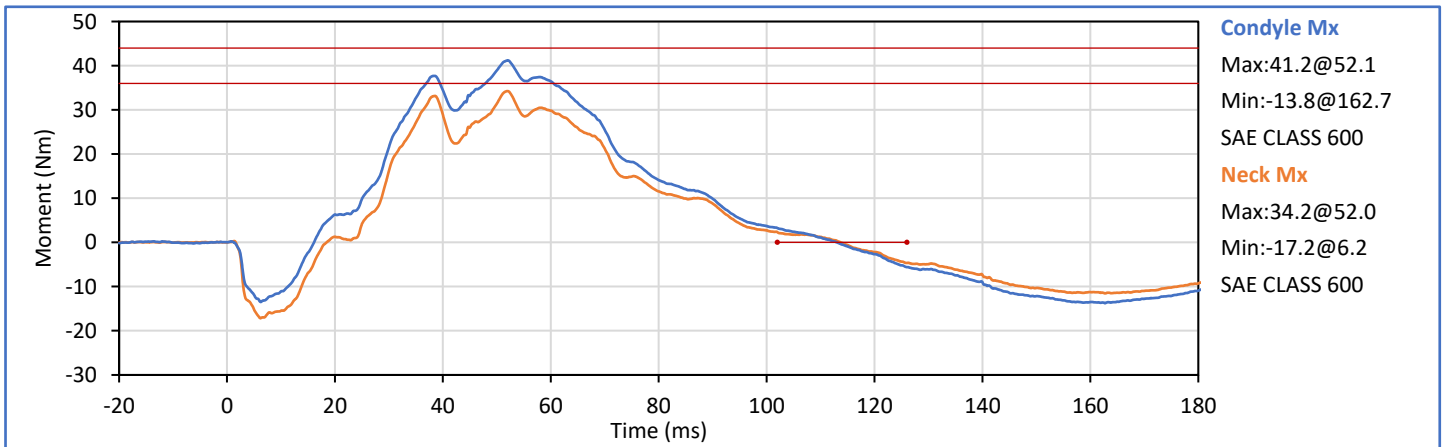
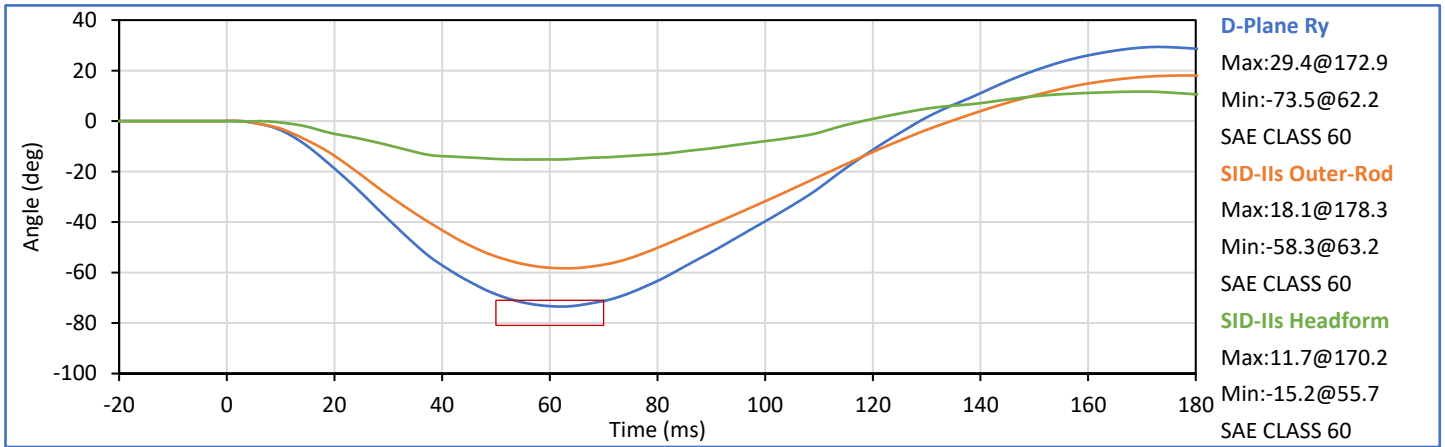
Approved By: *Smith*
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	31	Pass
Pendulum Velocity	m/s	5.51	5.63	5.58	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.30	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.42	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-4.64	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-5.61	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-5.84/-5.61	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-73.5	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	62.2	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	41.2	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	113.0	Pass
Overall Test Results					Pass

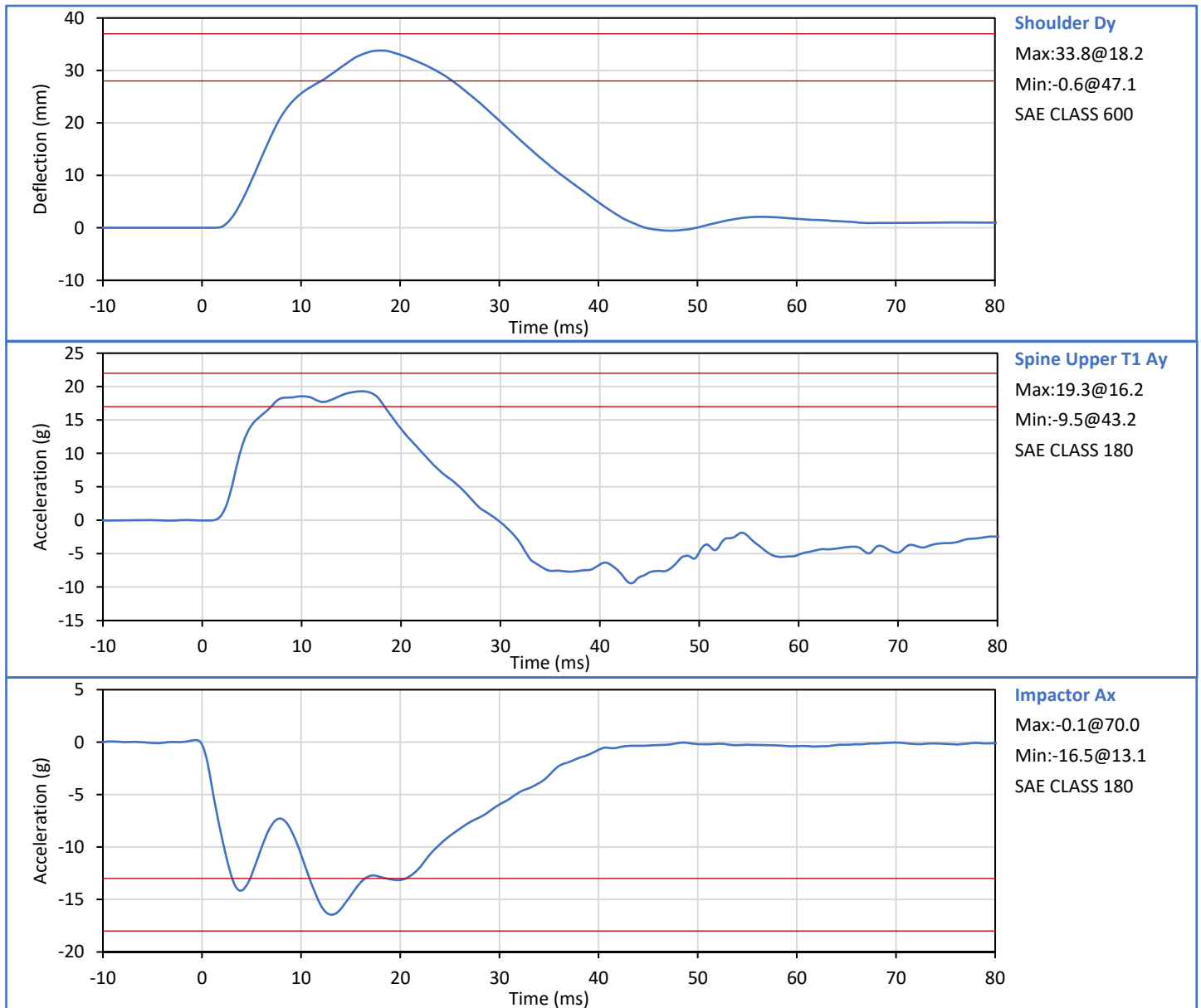


Technician: *Mill LGS III*
G. Fuentes

Approved By: *Smith*
J. Hernandez



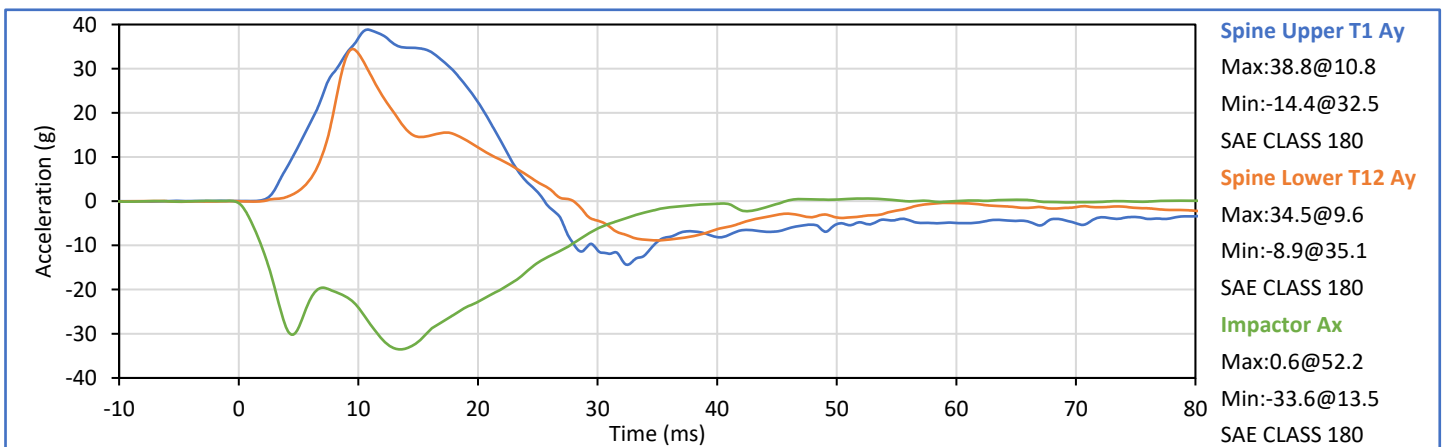
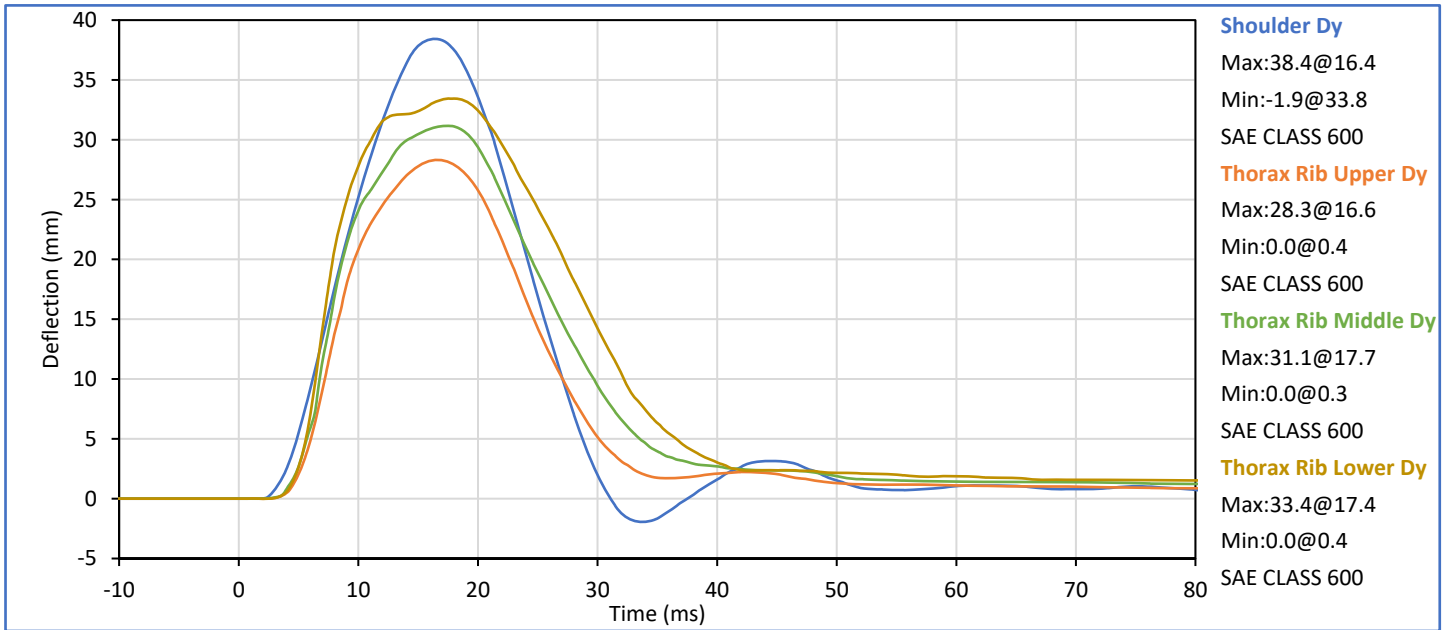
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Shoulder Dy	mm	28.0	37.0	33.8	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	19.3	Pass
Peak Impactor Ax	g	-18.0	-13.0	-16.5	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

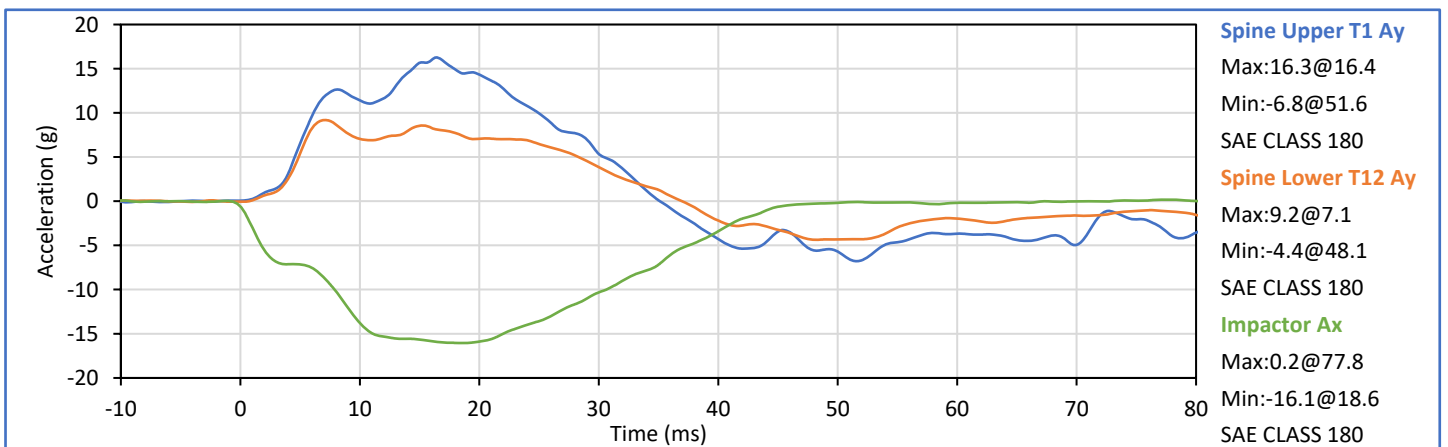
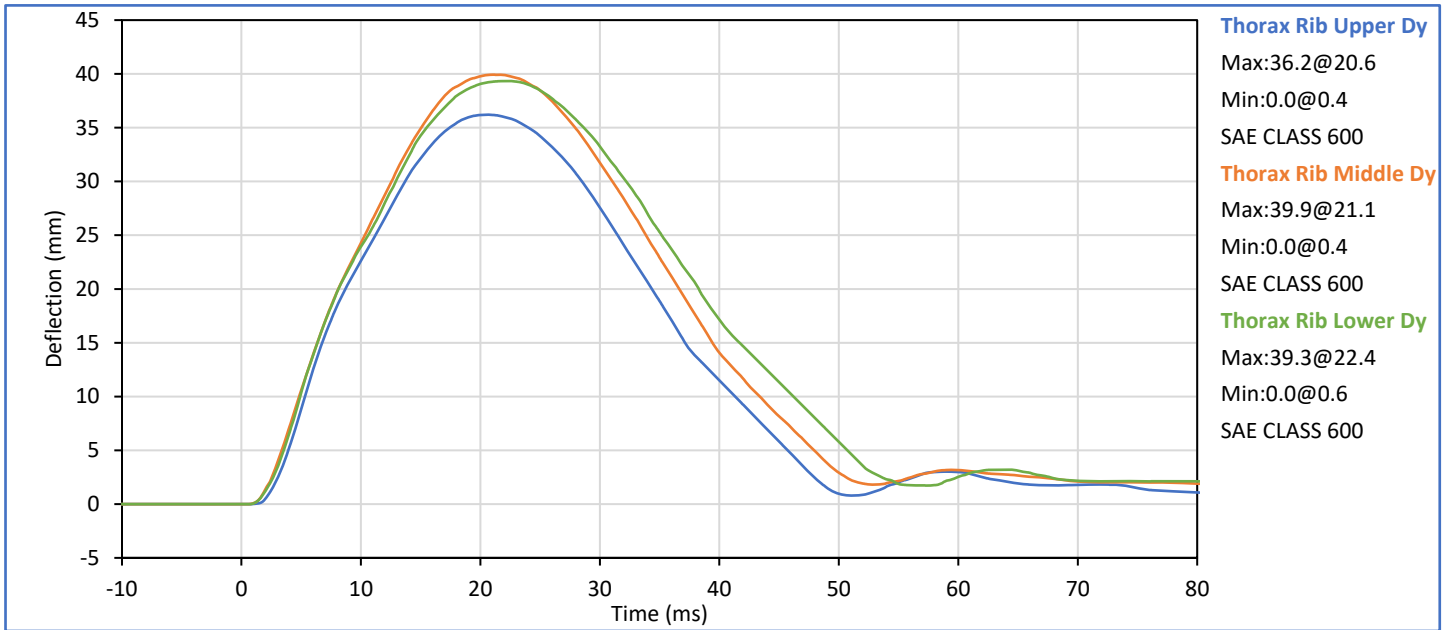
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Impactor Velocity	m/s	6.60	6.80	6.68	Pass
Peak Shoulder Dy	mm	31.0	40.0	38.4	Pass
Peak Upper Rib Dy	mm	25.0	32.0	28.3	Pass
Peak Middle Rib Dy	mm	30.0	36.0	31.1	Pass
Peak Lower Rib Dy	mm	32.0	38.0	33.4	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	38.8	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	34.5	Pass
Peak Impactor Ax	g	-36.0	-30.0	-33.6	Pass
Overall Test Results					Pass



Technician: Mill JTS III
G. Fuentes

Approved By: J. Hernandez
J. Hernandez

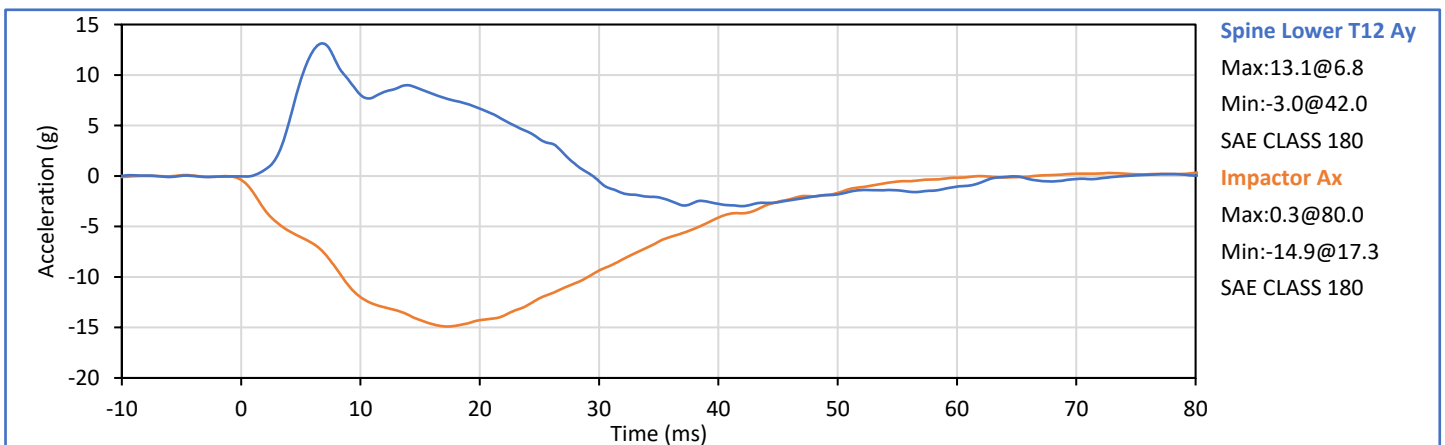
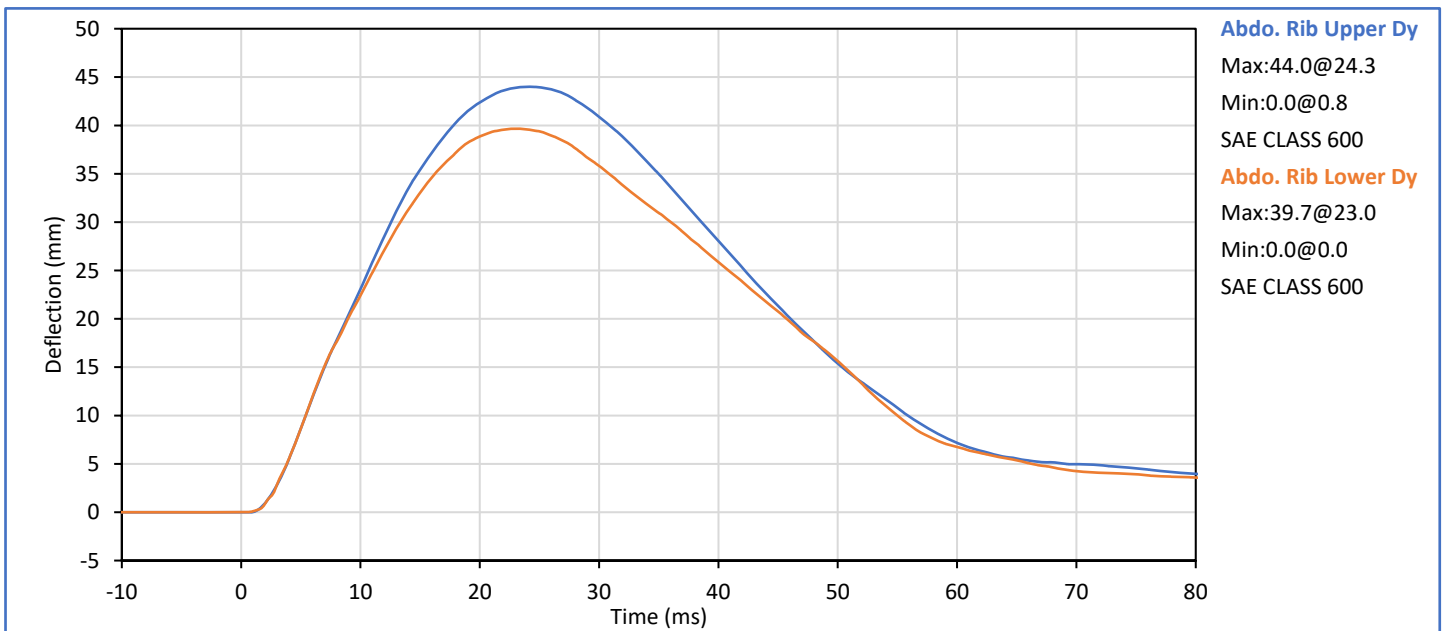
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	36.2	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	39.9	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	39.3	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	16.3	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	9.2	Pass
Peak Impactor Ax	g	-18.0	-14.0	-16.1	Pass
Overall Test Results					Pass



Technician: *Mill JG III*
G. Fuentes

Approved By: *Smith*
J. Hernandez

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	35	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	44.0	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	39.7	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	13.1	Pass
Peak Impactor Ax	g	-16.0	-12.0	-14.9	Pass
Overall Test Results					Pass

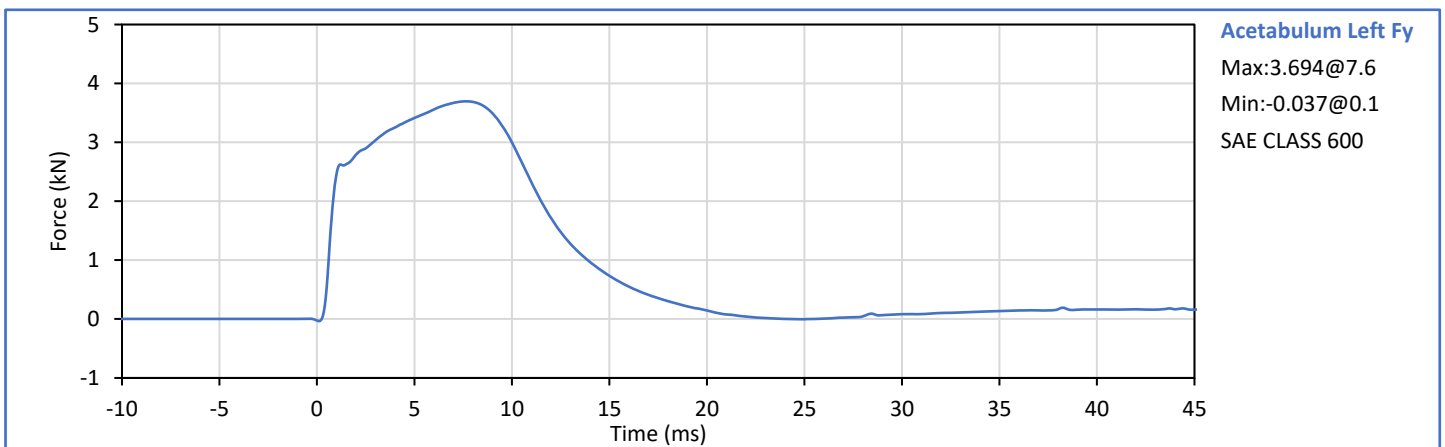
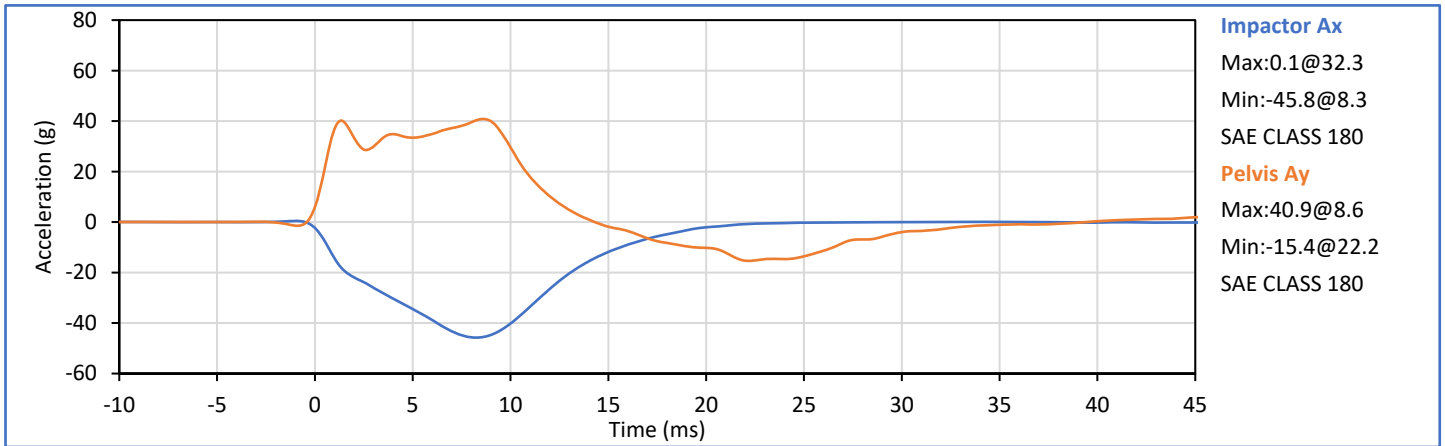


Technician: Mill JG III
G. Fuentes

Approved By: J. Hernandez
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Impactor Velocity	m/s	6.60	6.80	6.71	Pass
Peak Acetabulum Fy	kN	3.60	4.30	3.69	Pass
Pelvis Ay after 6ms	g	34.0	42.0	40.9	Pass
Peak Impactor Ax	g	-47.0	-38.0	-45.8	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 14772



Technician: *Mill JG III*
G. Fuentes

Approved By: *Smith*
J. Hernandez

ATD Serial No.: 308

Test Date: 2023-08-02

Pelvis Plug S/N: 14772



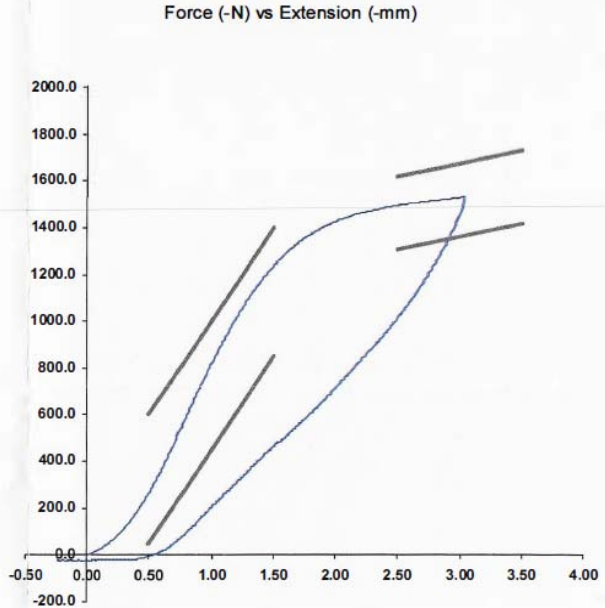
SID-IIs Pelvis Plug Certification Test

Plug S/N 14772
Test Number 16745
Report Number 16791
Test Date 12/29/2020 10:28:34 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	268.12	50.00	600.00
Force @ 1.5 mm (N)	1,235.53	850.00	1,400.00
Force @ 2.5 mm (N)	1,494.54	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,529.72	1,361.00	1,673.00

Testing Machine STM-20 5965542
Load Cell S/N (F1360947), Units (LBS) 1000
Preload Value (-N) 22.24
Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)

Notes:



Operator _____
Part Number 180-4450

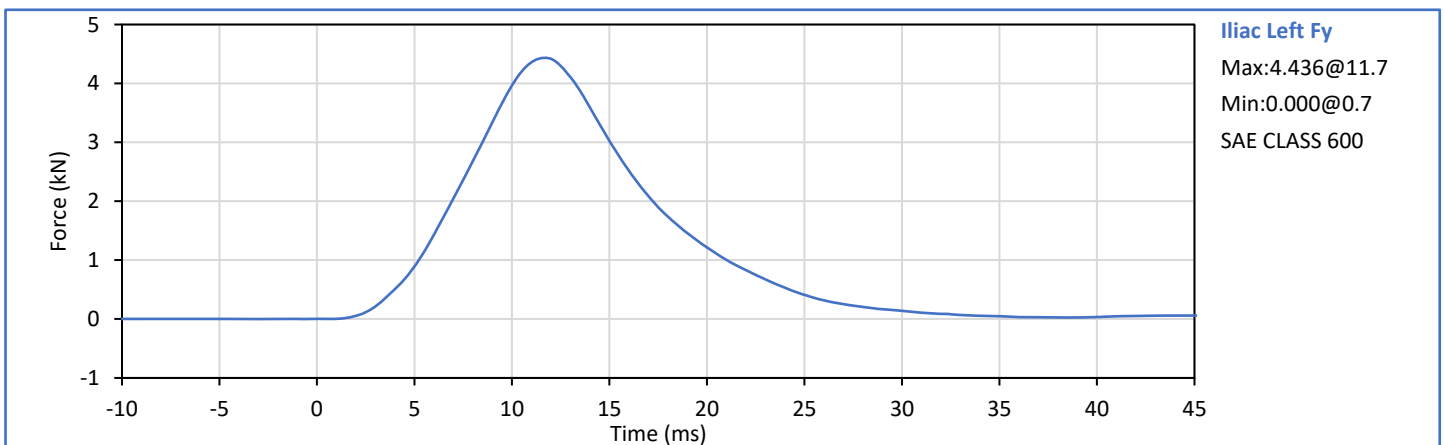
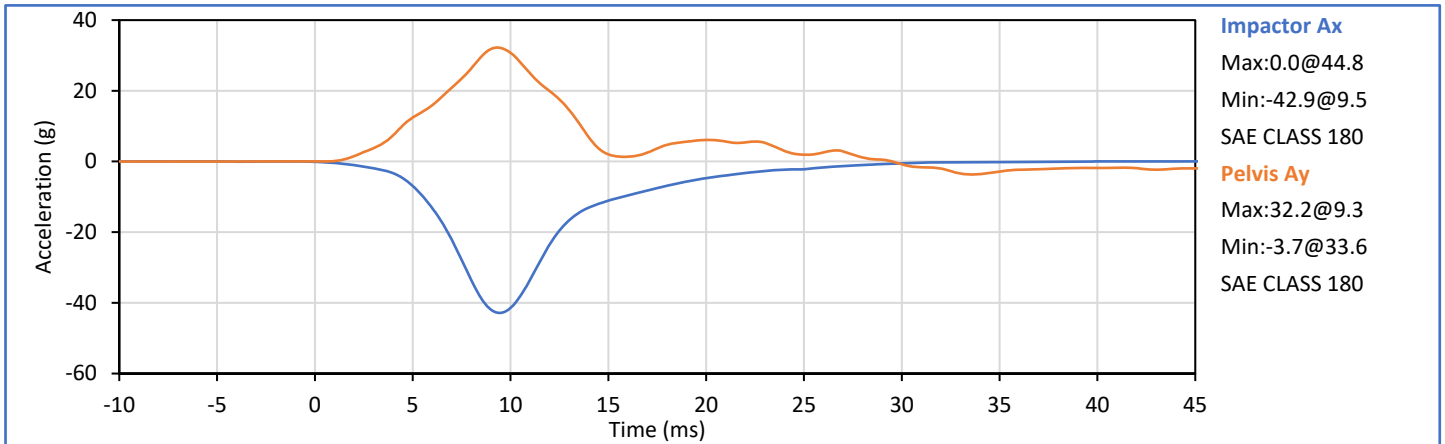
Template No 107 29-Dec-20
SACO Research

By : DC Date : 12/29/20

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	35	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Iliac Fy	kN	4.10	5.10	4.44	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-42.9	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 12228 *

* Plug is not impacted and remains certified



Technician: Mill LGS III
G. Fuentes

Approved By: J. Hernandez
J. Hernandez

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

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	31	Pass
1 - Sitting Height	mm	900	918	910	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	102	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	472	Pass
8 - Thorax Width	mm	322	332	328	Pass
9 - Abdomen Width	mm	273	287	285	Pass
10 - Pelvis Lap Width	mm	359	373	366	Pass
11 - Head Depth	mm	196	206	202	Pass
12 - Thorax Depth	mm	262	272	267	Pass
13 - Abdomen Depth	mm	194	204	200	Pass
14 - Pelvis Depth	mm	235	245	239	Pass
15 - Back of Buttocks to Hip Joint (bolt Center)	mm	150	160	152	Pass
16 - Back of Buttocks to Front Knee	mm	597	615	610	Pass
				Overall Test Results	Pass

Technician: _____



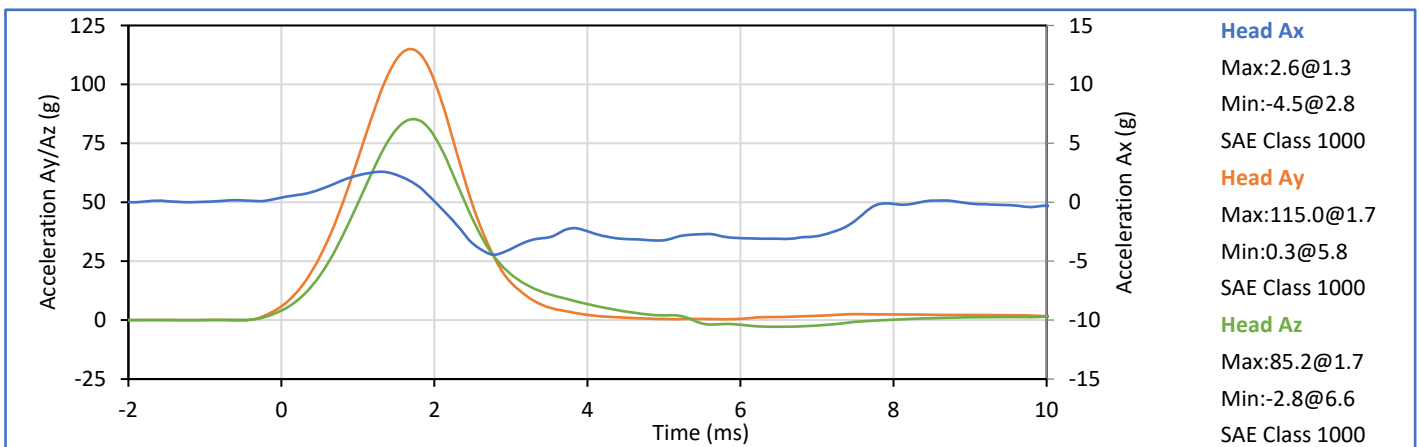
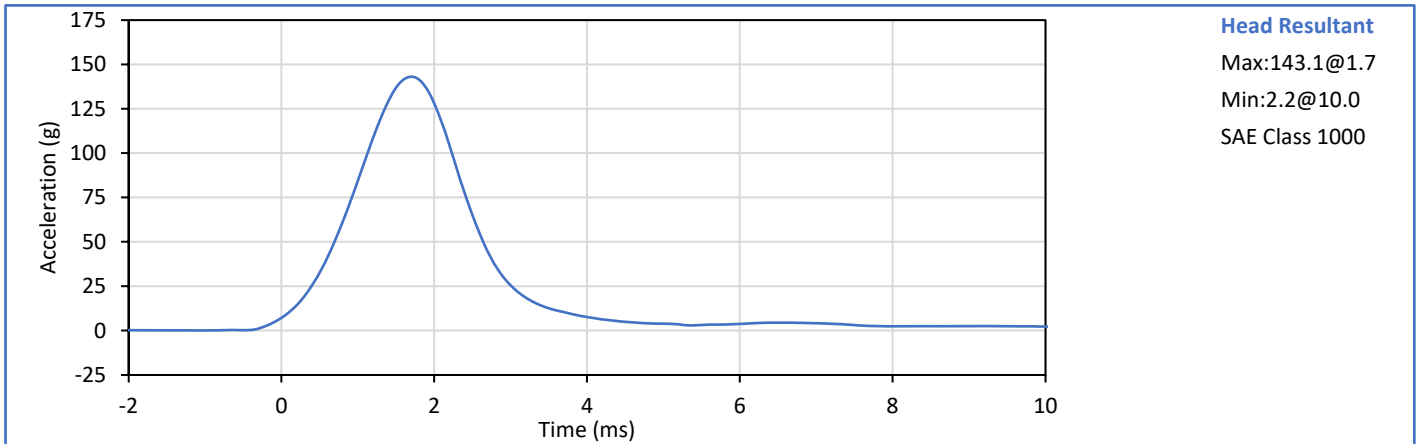
G. Fuentes

Approved By: _____



J. Hernandez

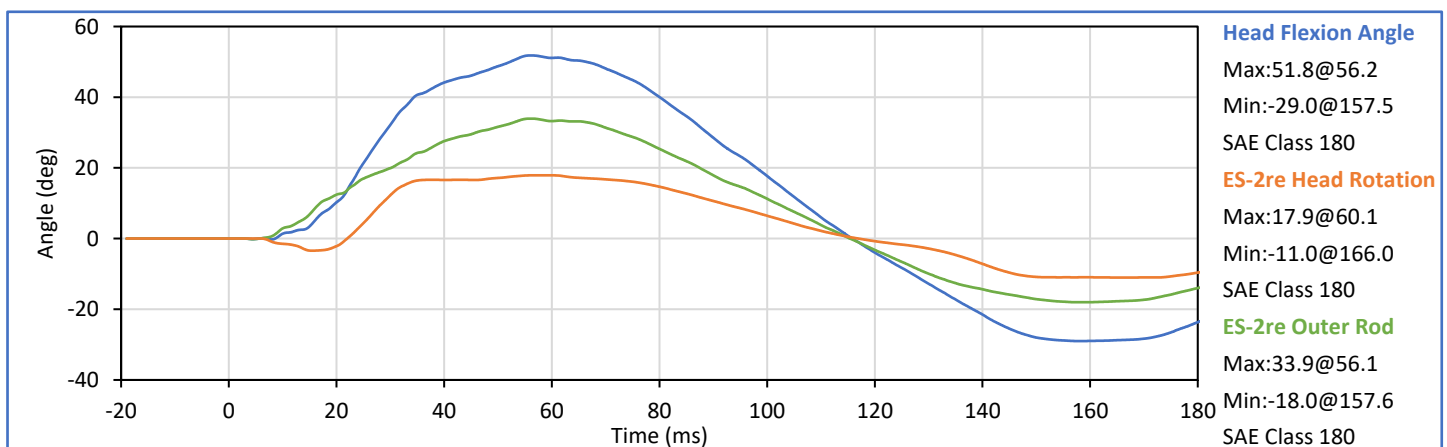
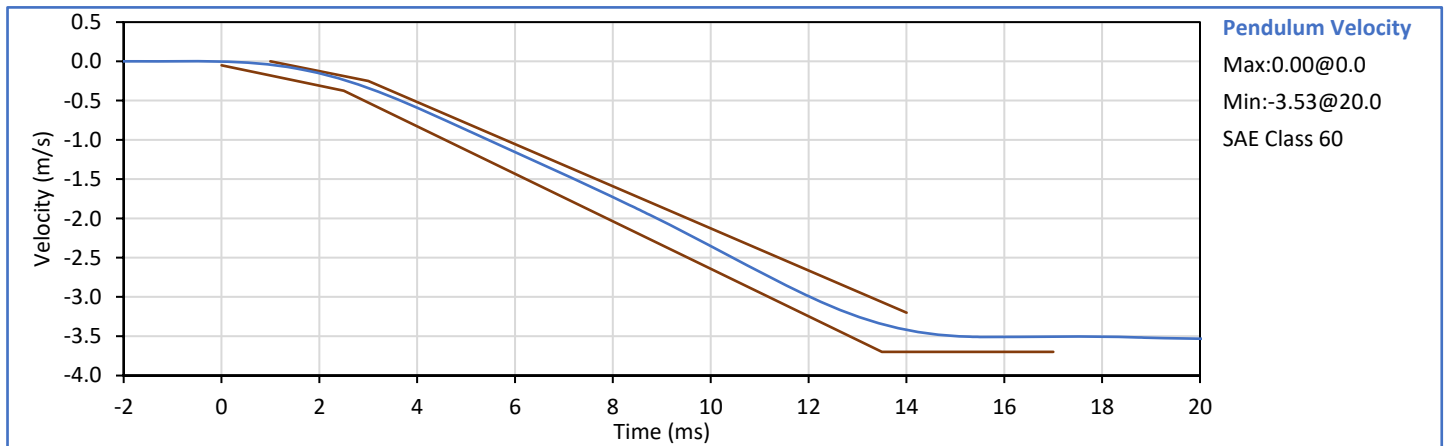
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.6	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Peak Resultant Acceleration	g	125.0	155.0	143.1	Pass
Peak Head Ax	g	-15.0	15.0	2.6	Pass
Oscillations After Main Pulse	%	0.0	15.0	3.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Smith*
J. Hernandez

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	37	Pass
Pendulum Velocity	m/s	3.30	3.50	3.40	Pass
Peak Headform Flexion	deg	49.0	59.0	51.8	Pass
Time of Peak Headform Flexion	ms	54.0	66.0	56.2	Pass
Flexion Decay (Peak to zero)	ms	53.0	88.0	59.6	Pass
Overall Test Results					Pass



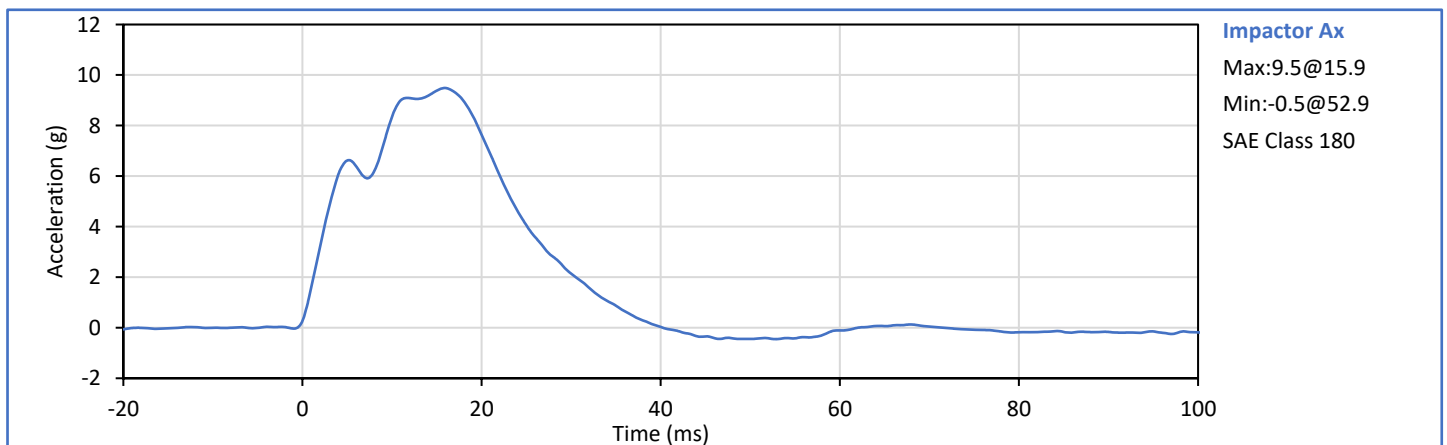
Technician: *Mill LGS III*
G. Fuentes

Approved By: *Smith*
J. Hernandez

ATD Serial No.: F037

Test Date: 2023-08-08

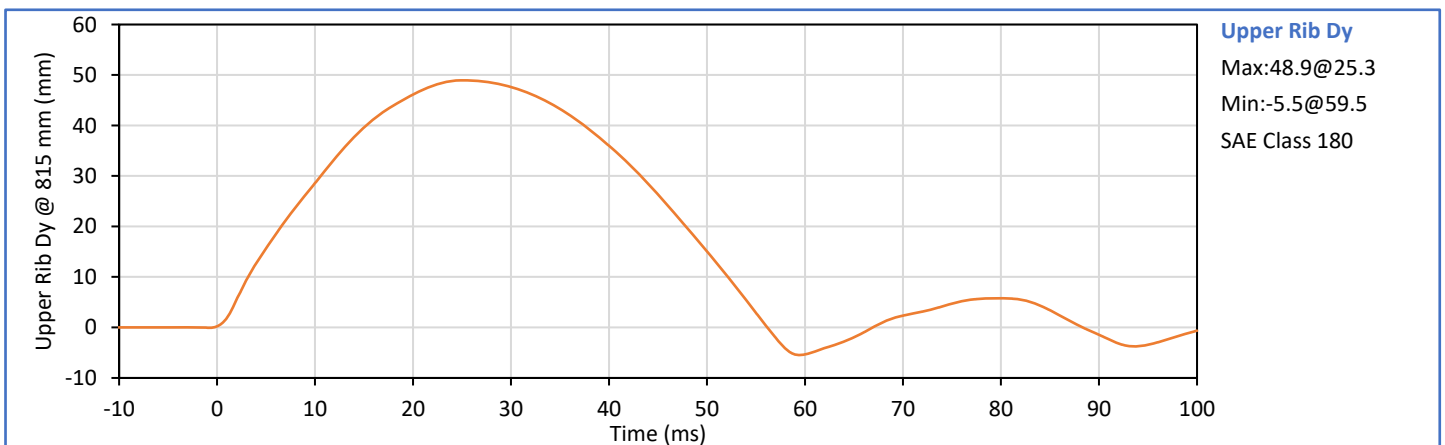
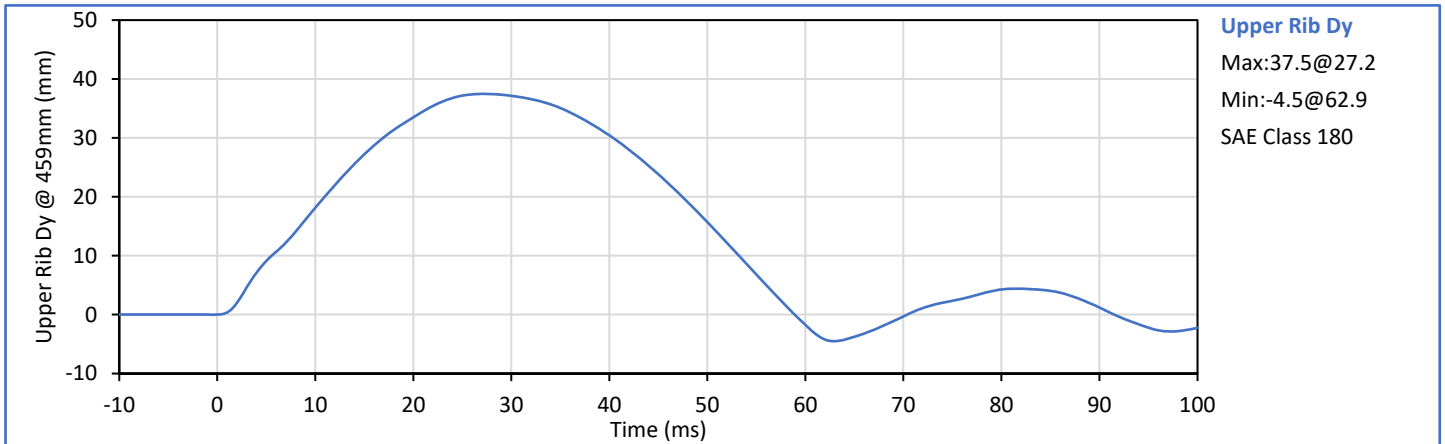
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Impactor Ax	g	7.5	10.5	9.5	Pass
Overall Test Results					Pass



Technician: *Milli JG III*
G. Fuentes

Approved By: *J. Hernandez*
J. Hernandez

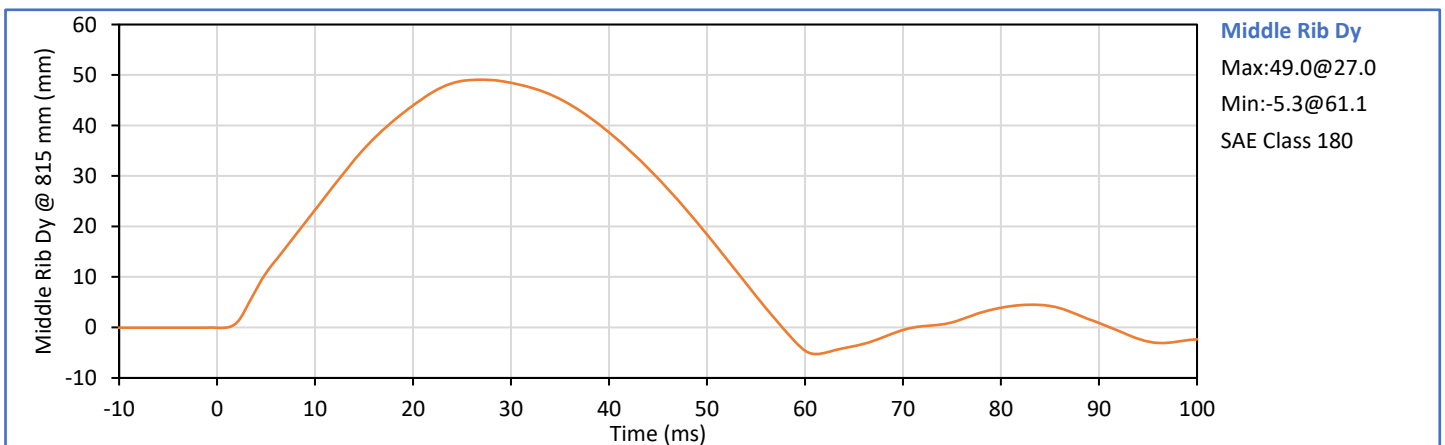
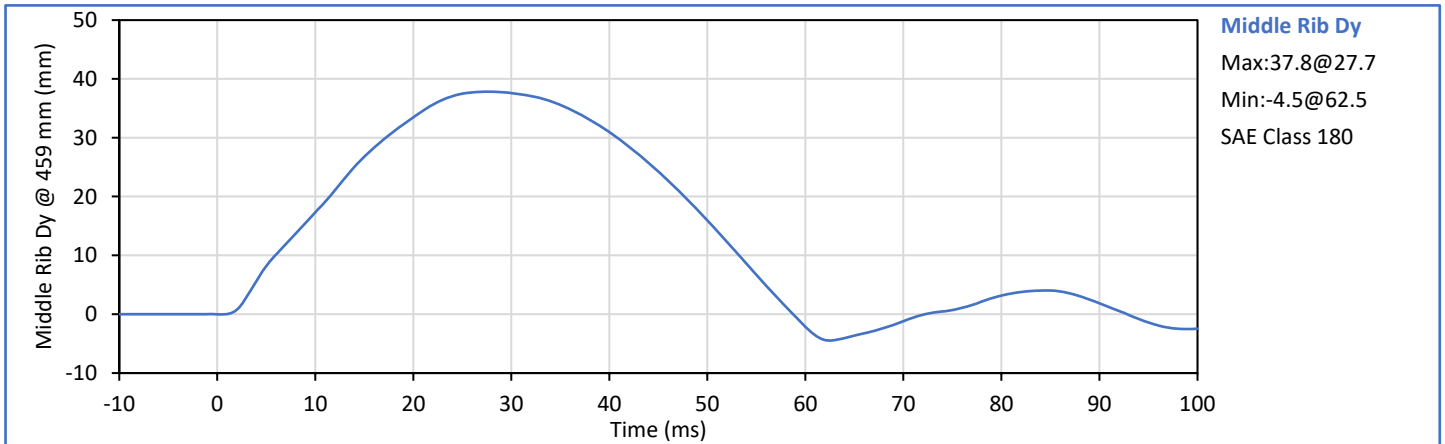
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Upper Rib Dy @ 459mm	mm	36.0	40.0	37.5	Pass
Upper Rib Dy @ 815mm	mm	46.0	51.0	48.9	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

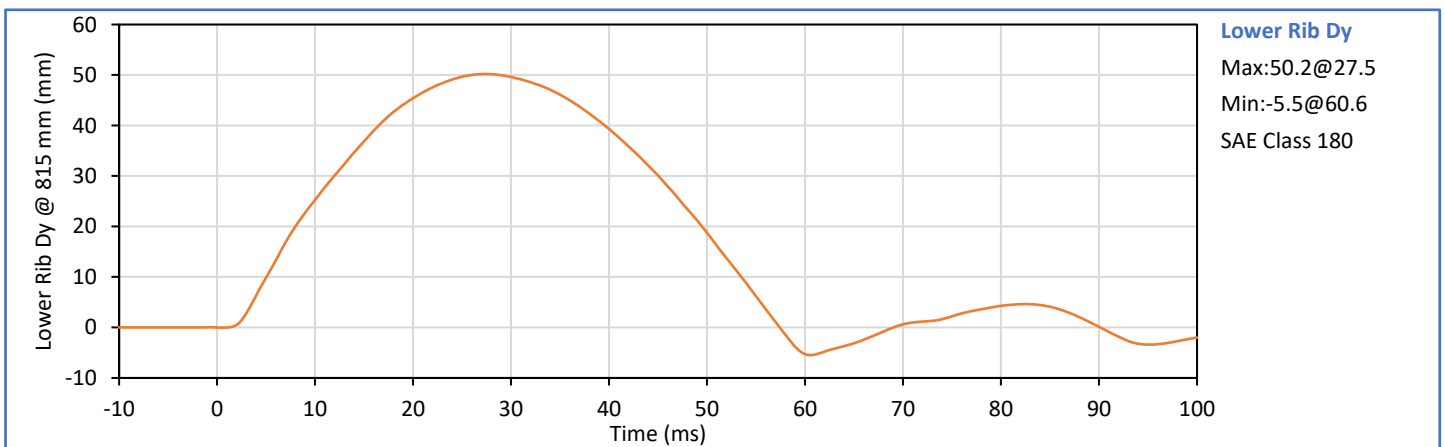
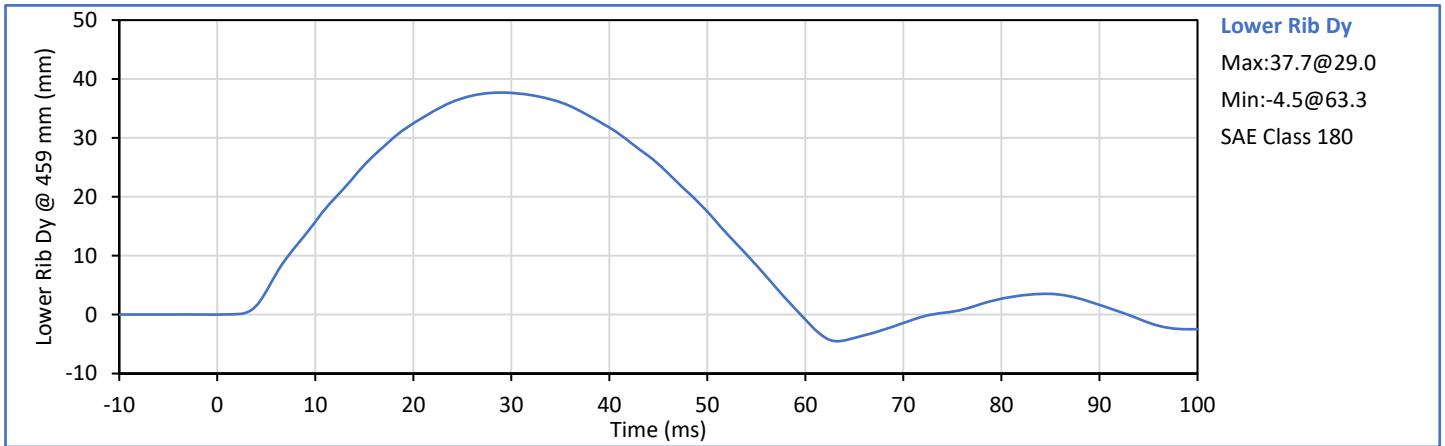
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Middle Rib Dy @ 459mm	mm	36.0	40.0	37.8	Pass
Middle Rib Dy @ 815mm	mm	46.0	51.0	49.0	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

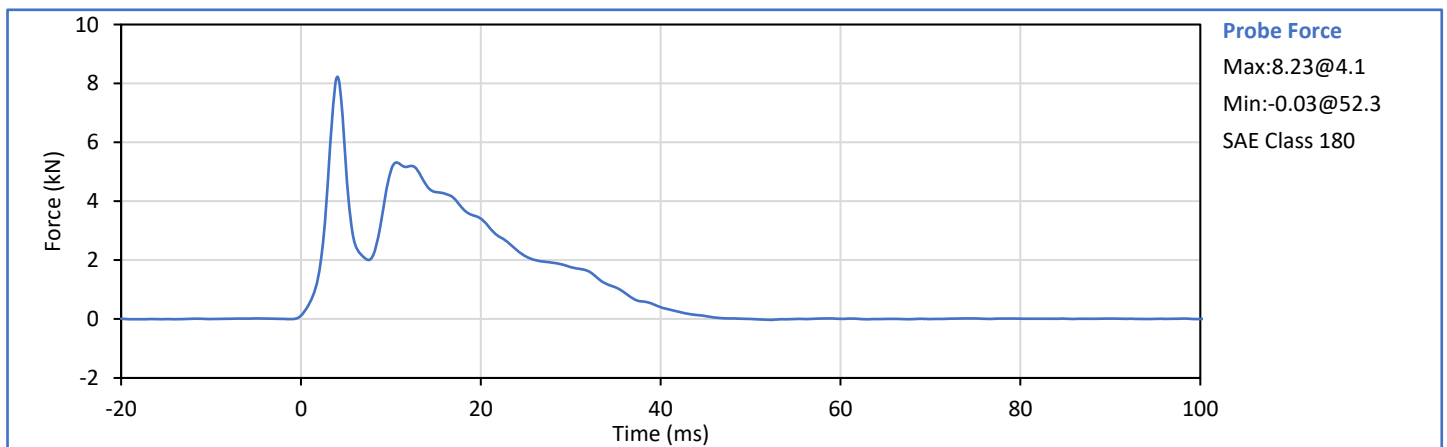
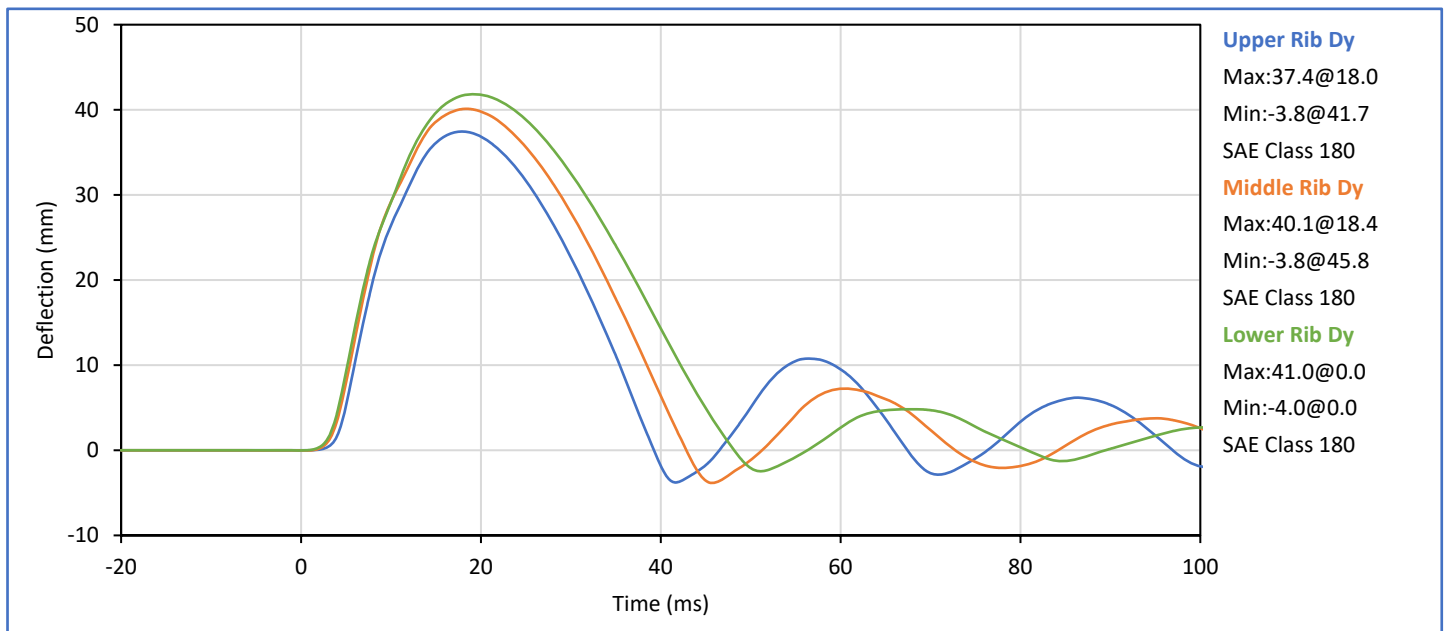
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Lower Rib Dy @ 459mm	mm	36.0	40.0	37.7	Pass
Lower Rib Dy @ 815mm	mm	46.0	51.0	50.2	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seuthy*
J. Hernandez

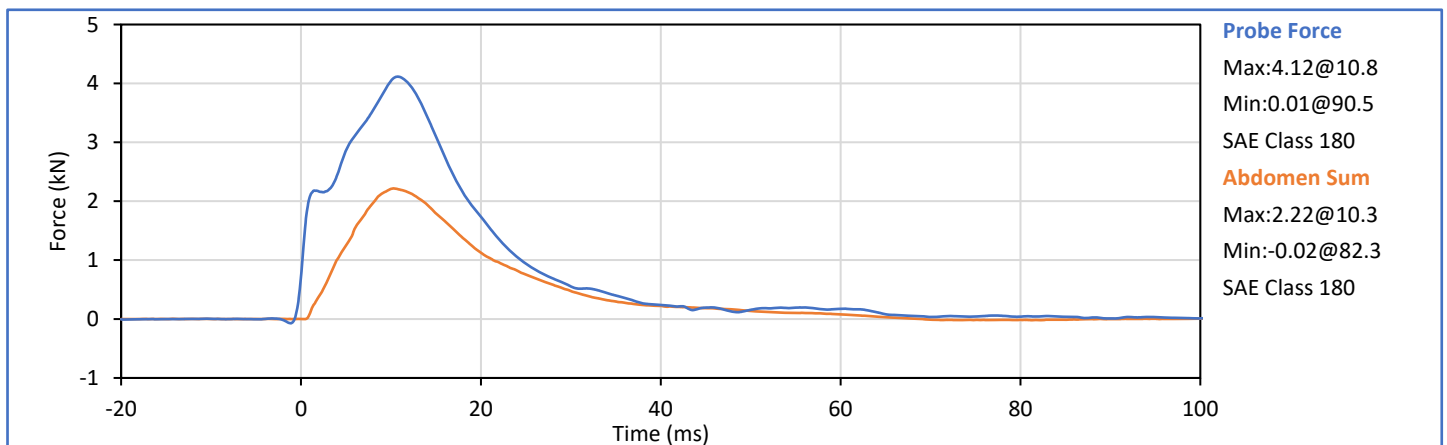
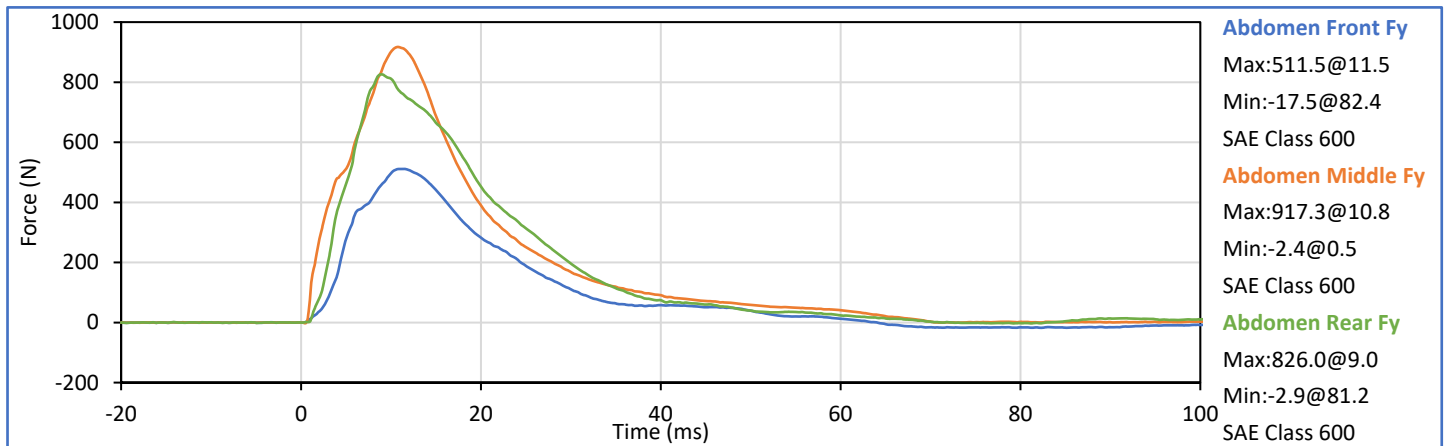
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Impactor Velocity	m/s	5.40	5.60	5.53	Pass
Peak Upper Rib Dy	mm	34.0	41.0	37.4	Pass
Peak Middle Rib Dy	mm	37.0	45.0	40.1	Pass
Peak Lower Rib Dy	mm	37.0	44.0	41.8	Pass
Peak Impactor Force After 6 ms	kN	5.10	6.20	5.31	Pass
Overall Test Results					Pass



Technician: *Milli JG III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

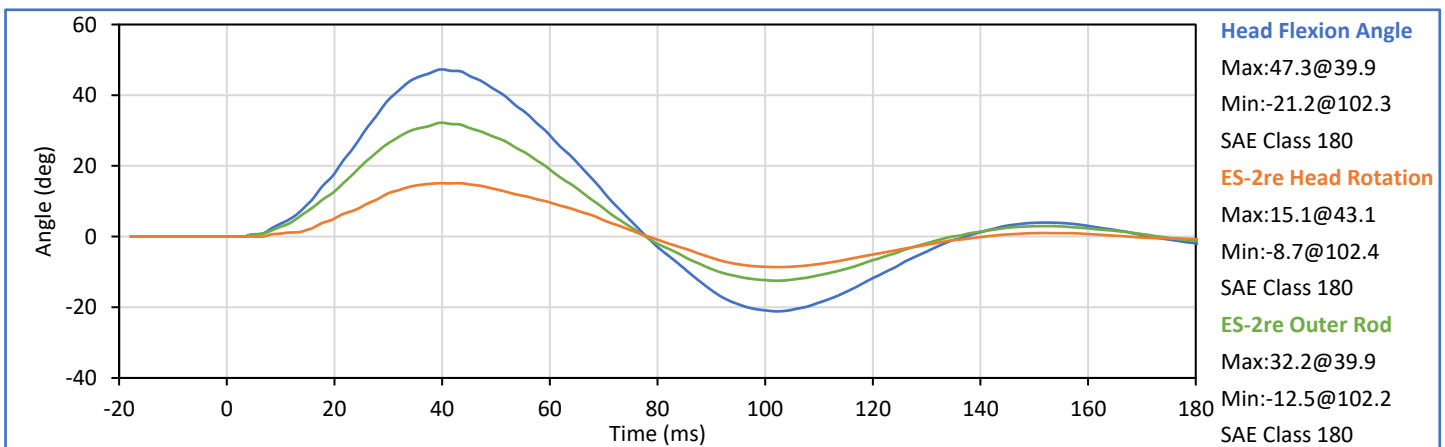
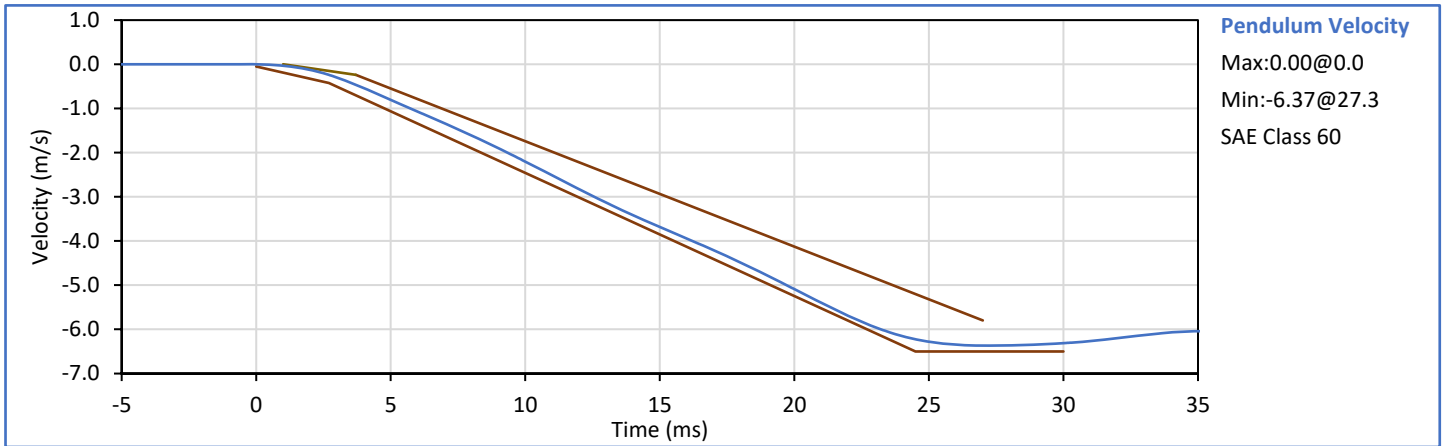
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Impactor Velocity	m/s	3.90	4.10	4.05	Pass
Peak Impactor Force	kN	4.00	4.80	4.12	Pass
Time of Peak Impactor Force	ms	10.6	13.0	10.8	Pass
Sum of Abdomen Forces	kN	2.20	2.70	2.22	Pass
Time of Peak Sum Abdomen Force	ms	10.0	12.3	10.3	Pass
Overall Test Results					Pass



Technician: *Milli JG III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

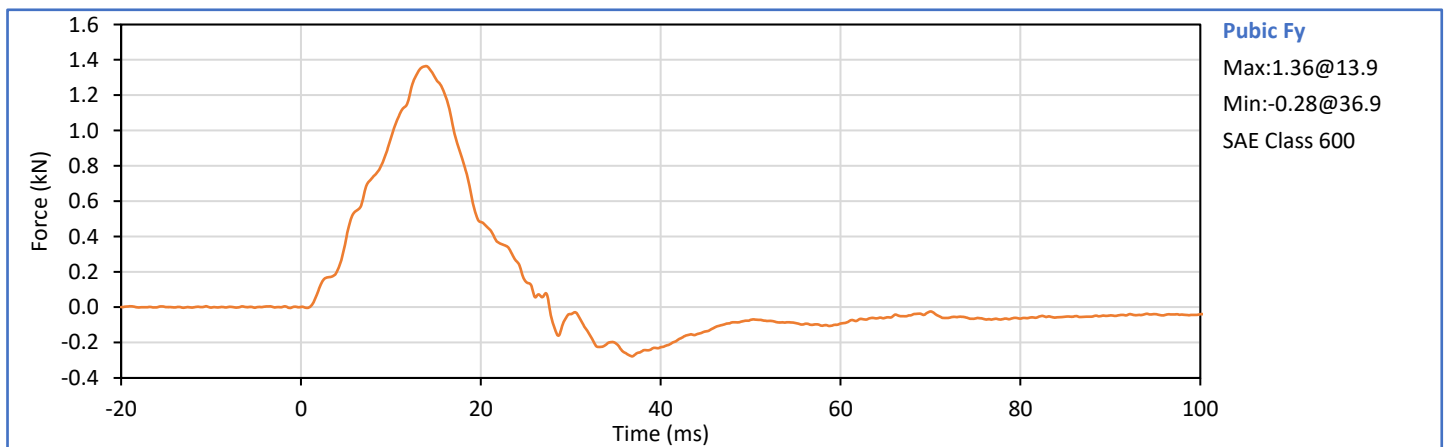
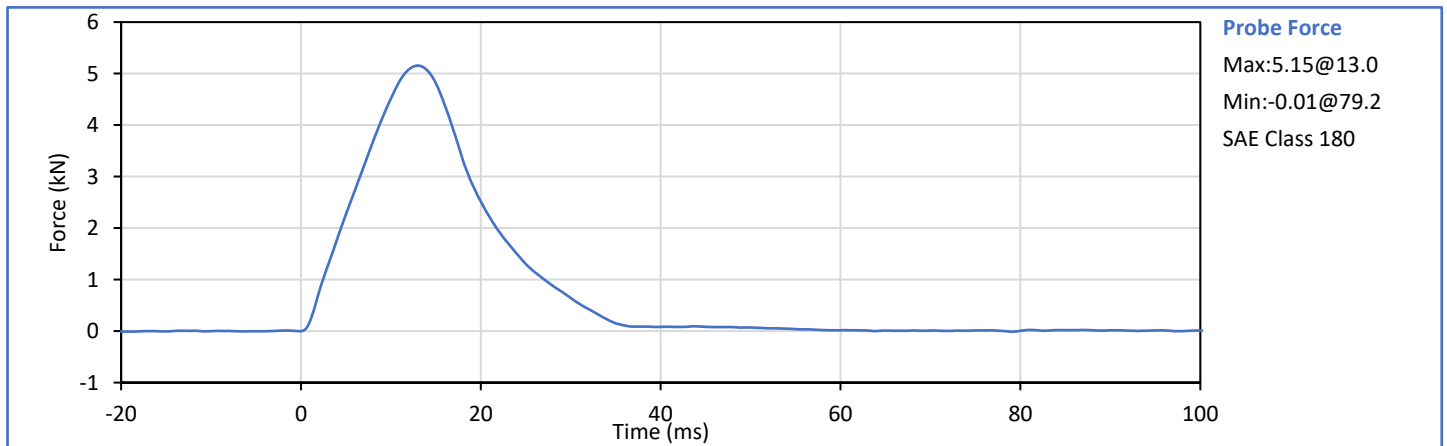
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Pendulum Velocity	m/s	5.95	6.15	6.08	Pass
Peak Headform Flexion	deg	45.0	55.0	47.3	Pass
Time of Peak Headform Flexion	ms	39.0	53.0	39.9	Pass
Flexion Decay (Peak to zero)	ms	37.0	57.0	38.1	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *J. Hernandez*
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	37	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Impactor Force	kN	4.70	5.40	5.15	Pass
Time of Peak Impactor Force	ms	11.8	16.1	13.0	Pass
Pubic Symphysis Fy	kN	1.23	1.59	1.36	Pass
Time of Peak Pubic Symphysis Fy	ms	12.2	17.0	13.9	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

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

ATD Serial No.: 308

Test Date: 2023-08-08

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	35	Pass
A - Sitting Height	mm	772	788	777	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	83	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	127	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	183	Pass
J - Head Circumference	mm	541	551	546	Pass
K - Buttock To Knee Length	mm	514	540	534	Pass
L - Popliteal Height	mm	343	369	356	Pass
K - Knee Pivot To Floor Height	mm	392	409	400	Pass
N - Buttock Popliteal Length	mm	416	442	430	Pass
O - Chest Depth W/O Jacket	mm	195	211	199	Pass
P - Foot Length	mm	216	232	221	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	318	Pass
R - Arm Length	mm	249	259	252	Pass
S - Knee Joint To Seatback	mm	477	493	483	Pass
V - Shoulder Width	mm	341	357	345	Pass
W - Foot Width	mm	78	94	84	Pass
Y - Chest Circumference W/Jacket	mm	851	881	867	Pass
Z - Waist Circumference	mm	761	791	773	Pass
				Overall Test Results	Pass

Technician:



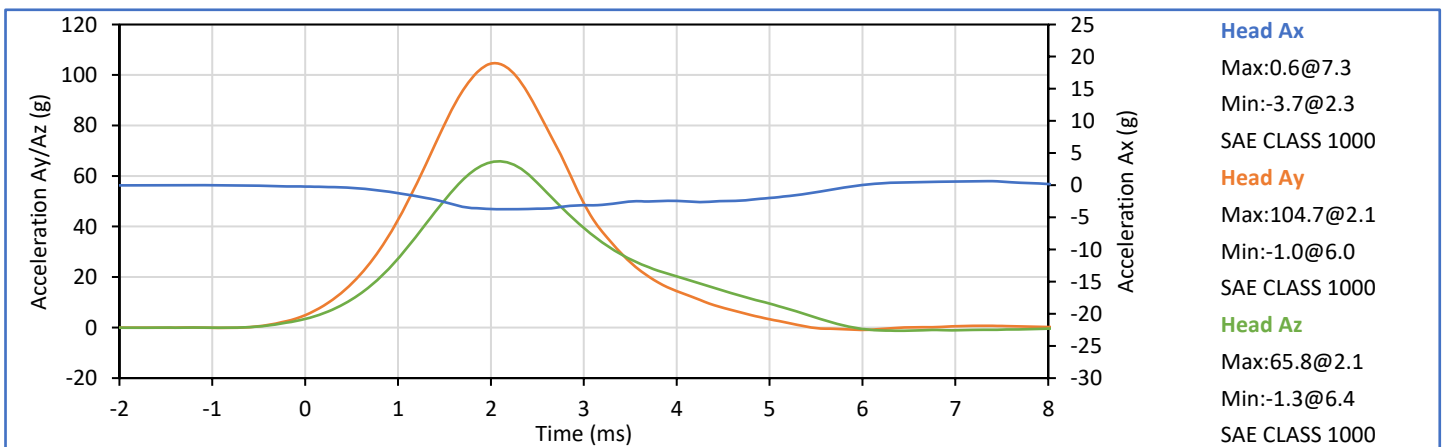
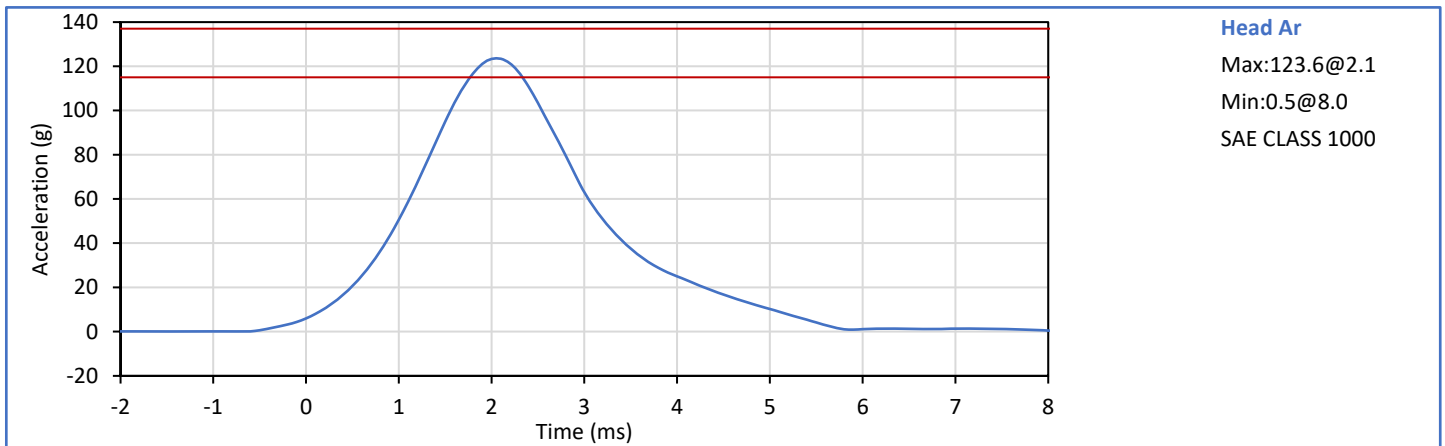
G. Fuentes

Approved By:



J. Hernandez

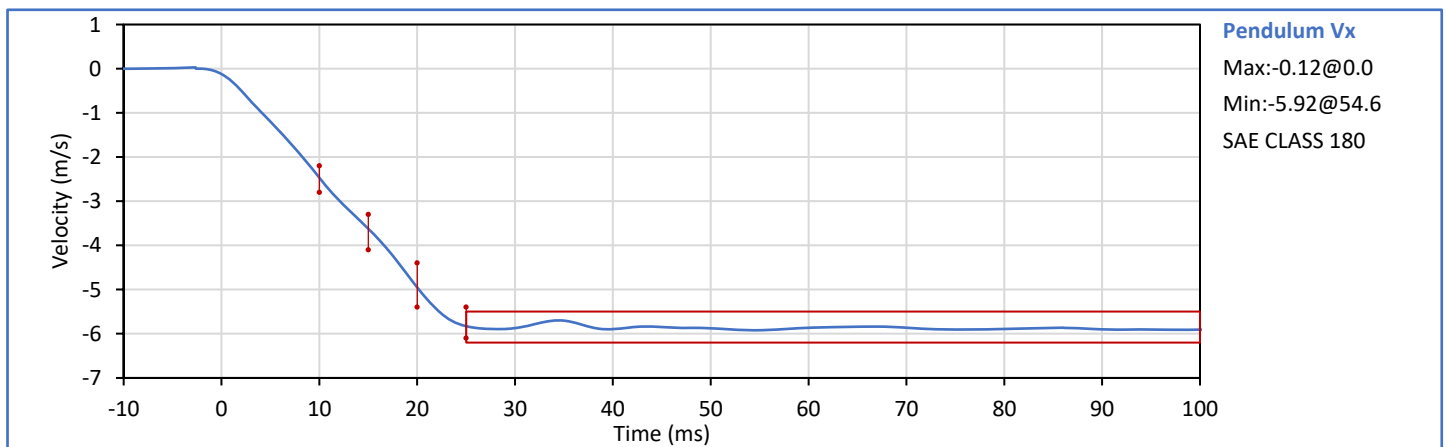
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Peak Resultant Acceleration	g	115.0	137.0	123.6	Pass
Peak Head Ax	g	-15.0	15.0	-3.7	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

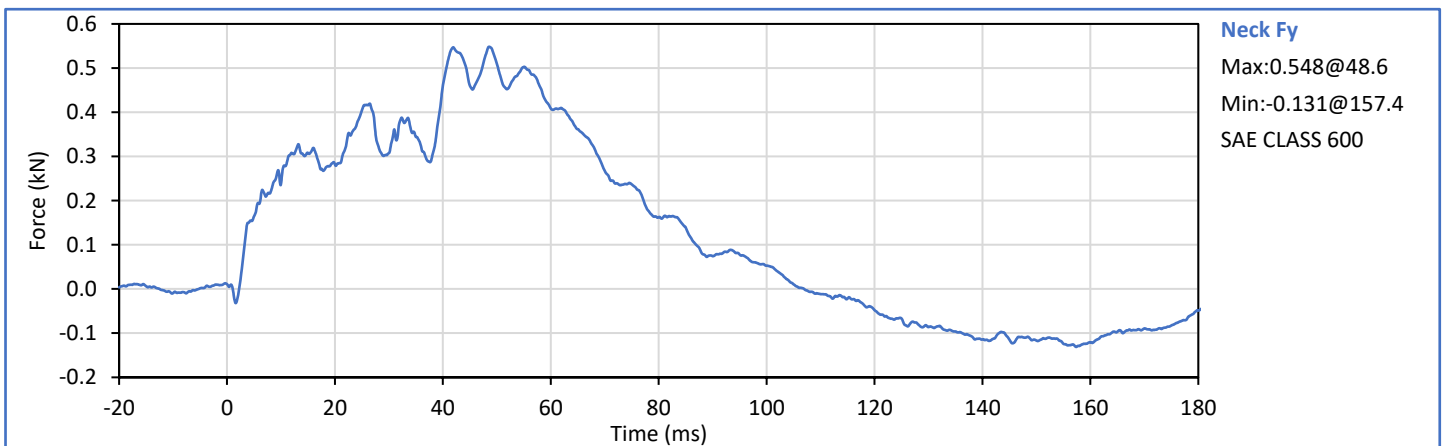
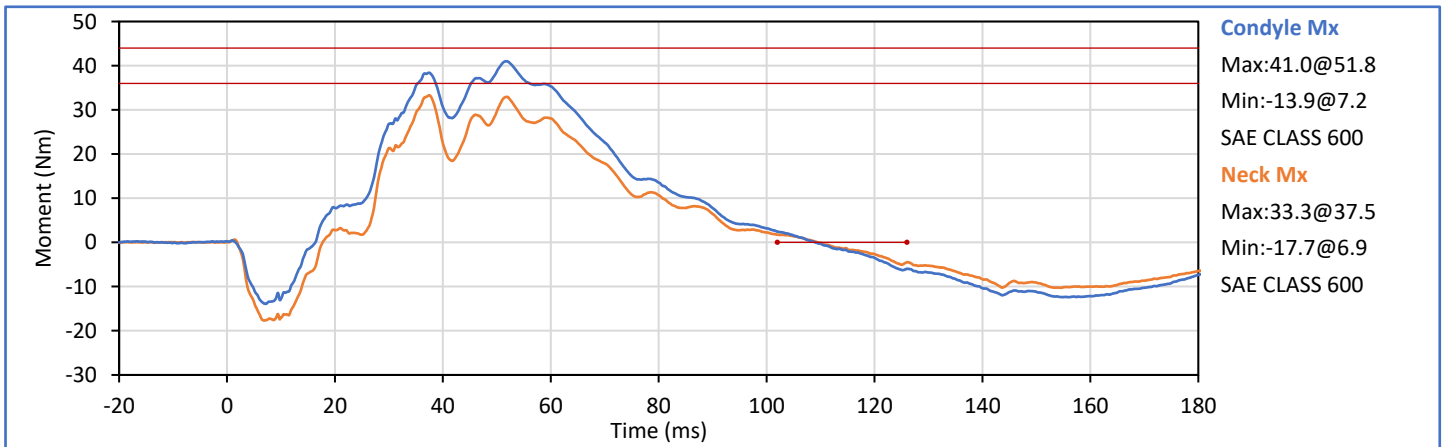
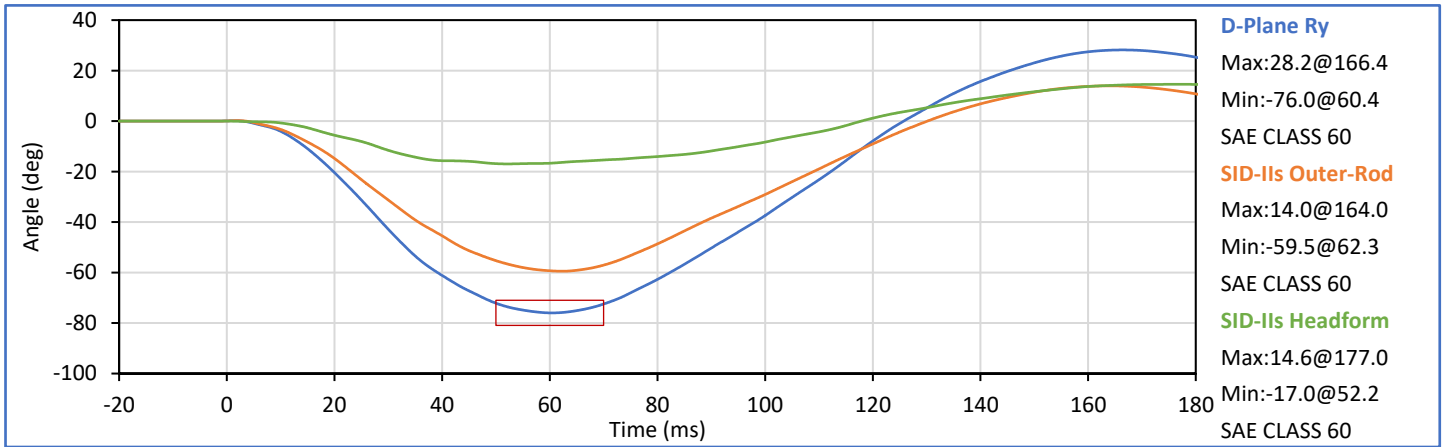
Approved By: *J. Hernandez*
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	32	Pass
Pendulum Velocity	m/s	5.51	5.63	5.59	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.47	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.62	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-4.95	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-5.83	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-5.92/-5.7	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-76.0	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	60.4	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	41.0	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	109.0	Pass
Overall Test Results					Pass

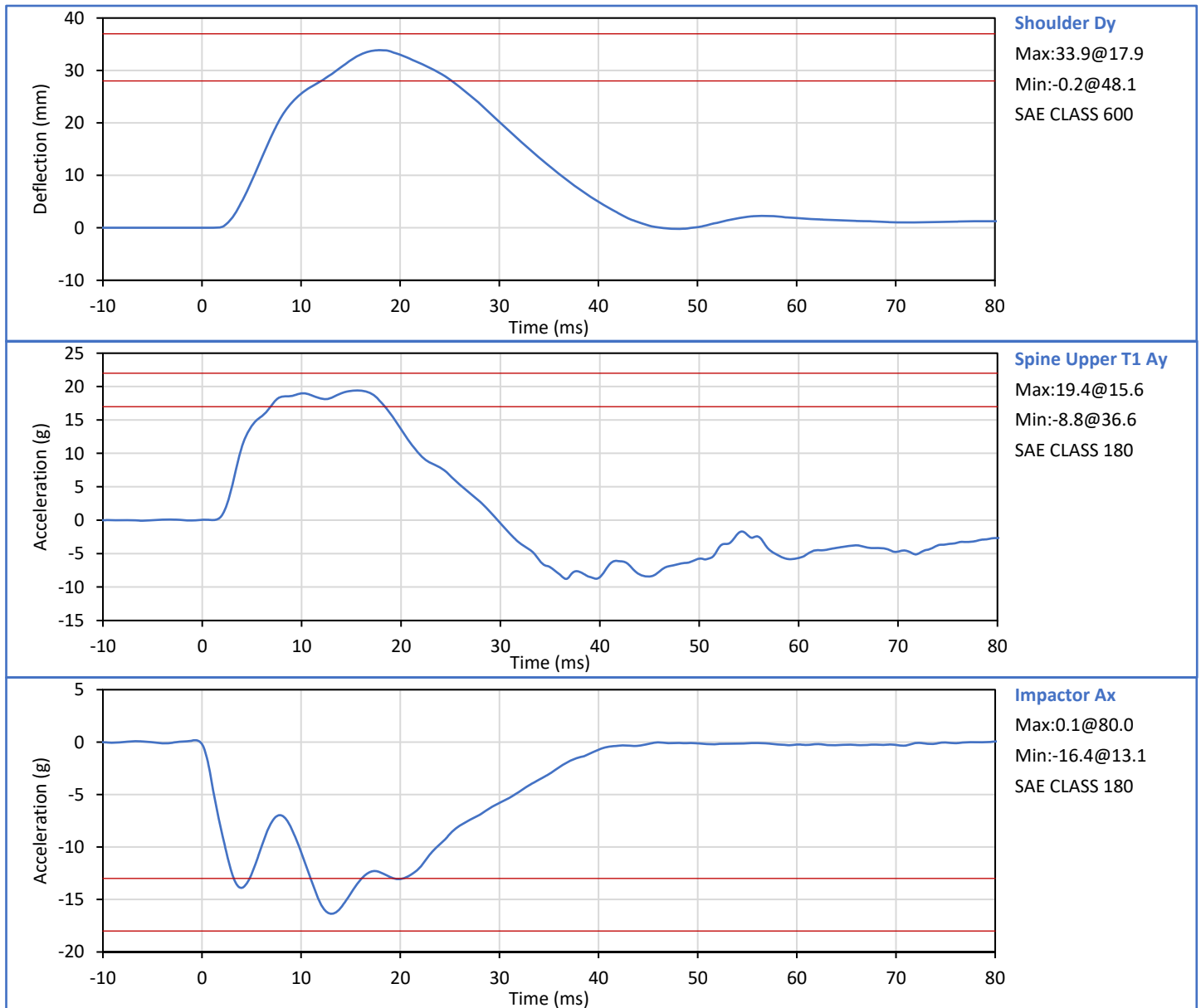


Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez



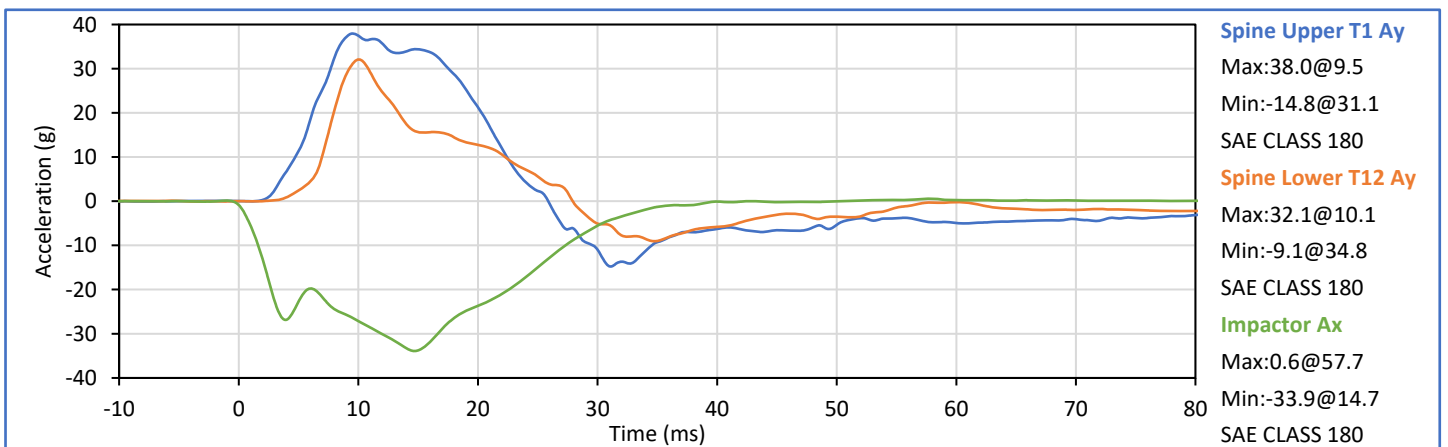
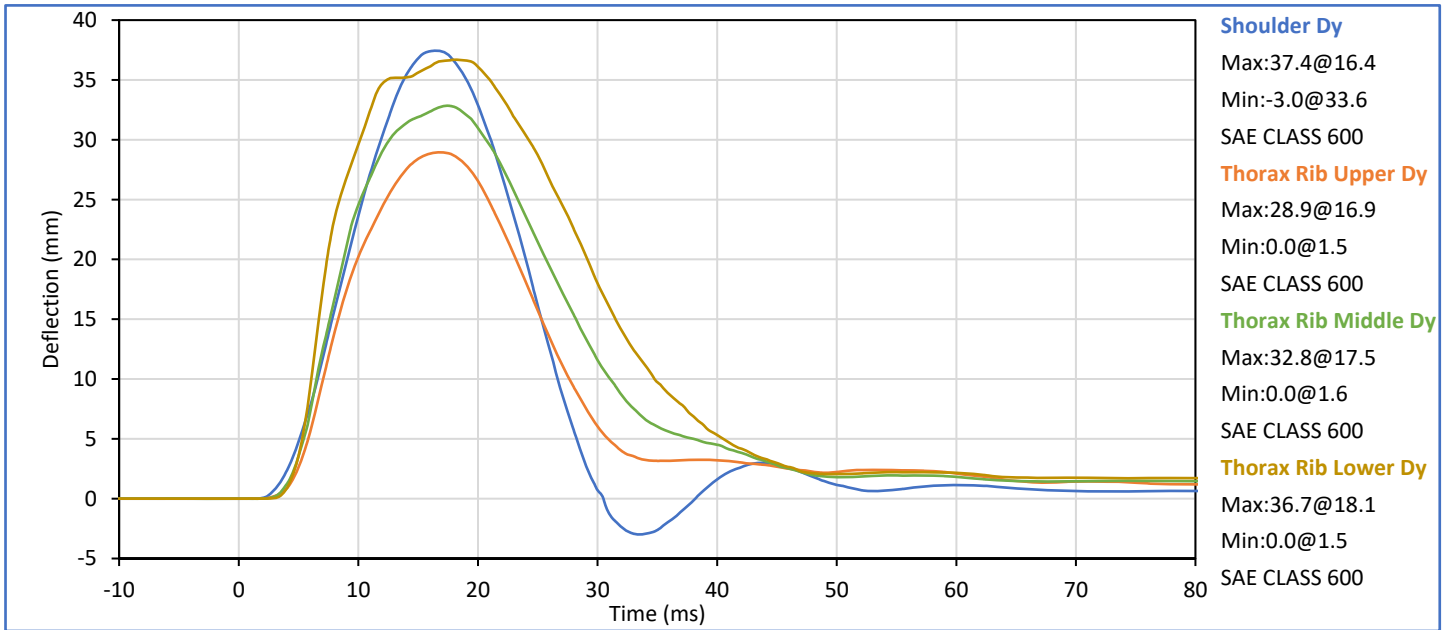
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Shoulder Dy	mm	28.0	37.0	33.9	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	19.4	Pass
Peak Impactor Ax	g	-18.0	-13.0	-16.4	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Seath*
J. Hernandez

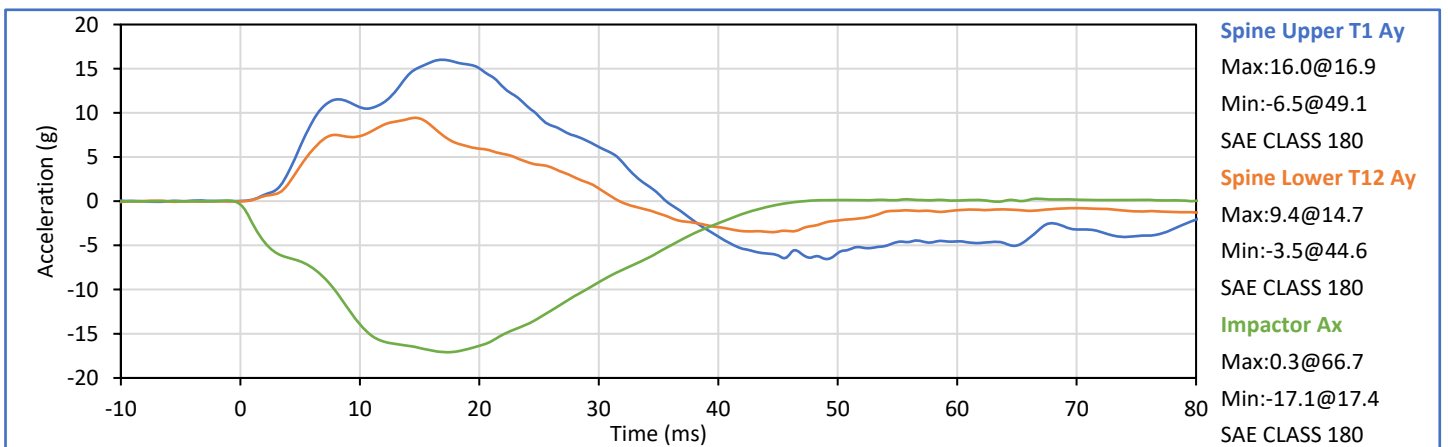
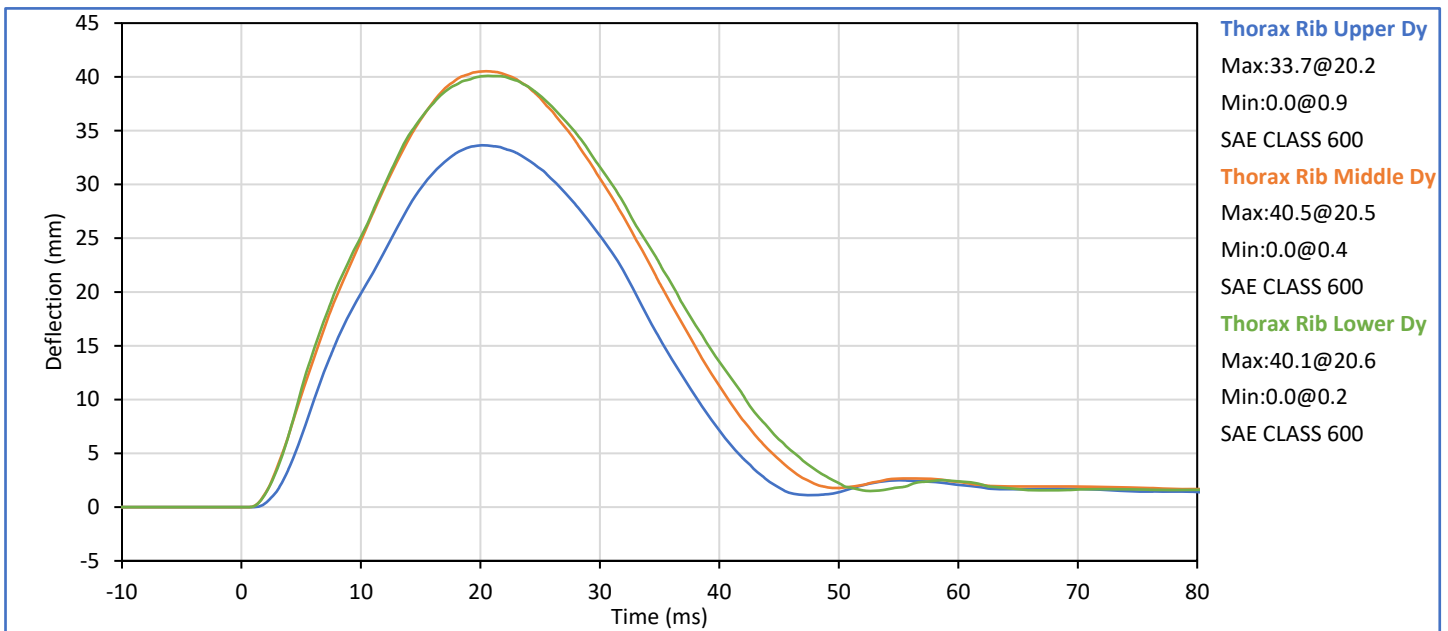
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	33	Pass
Impactor Velocity	m/s	6.60	6.80	6.70	Pass
Peak Shoulder Dy	mm	31.0	40.0	37.4	Pass
Peak Upper Rib Dy	mm	25.0	32.0	28.9	Pass
Peak Middle Rib Dy	mm	30.0	36.0	32.8	Pass
Peak Lower Rib Dy	mm	32.0	38.0	36.7	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	38.0	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	32.1	Pass
Peak Impactor Ax	g	-36.0	-30.0	-33.9	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*
G. Fuentes

Approved By: *J. Hernandez*
J. Hernandez

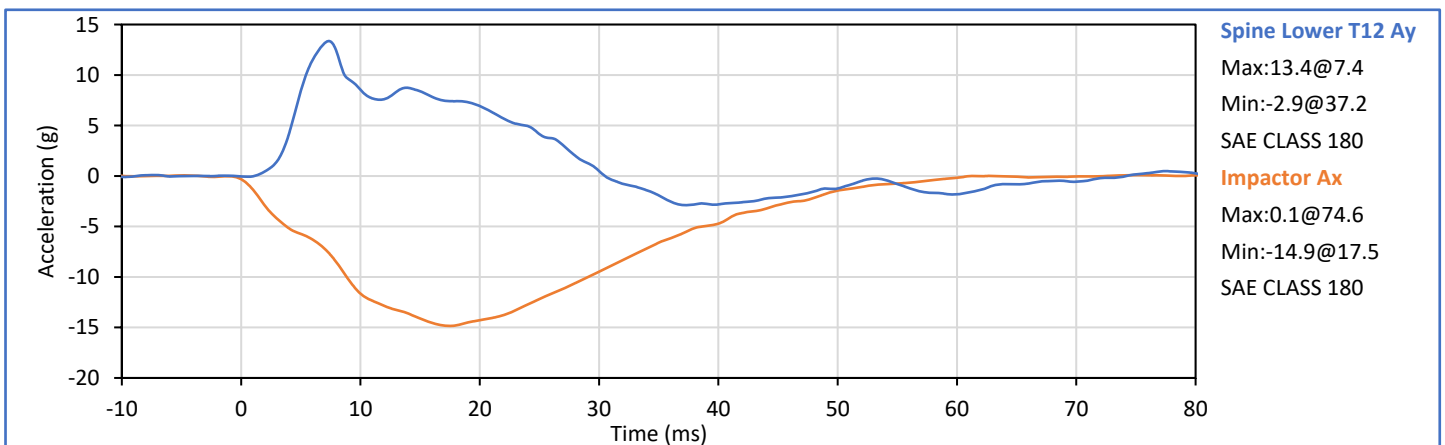
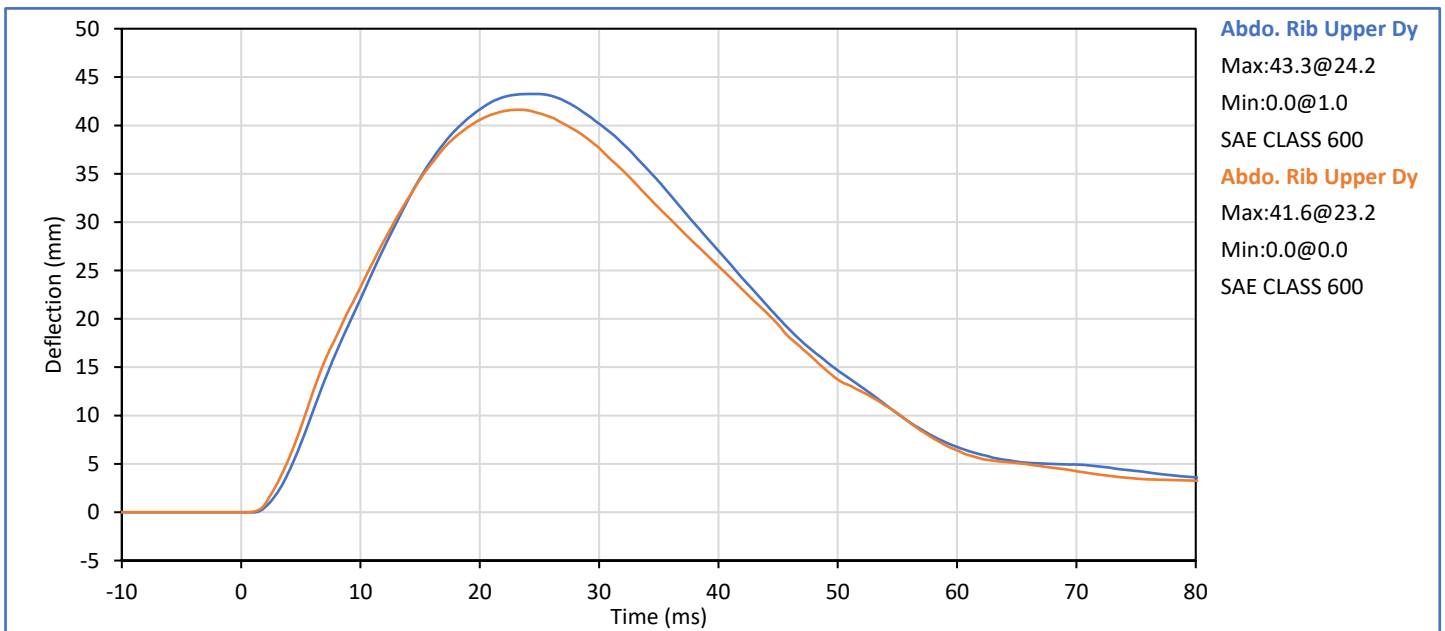
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	33	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	33.7	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	40.5	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	40.1	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	16.0	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	9.4	Pass
Peak Impactor Ax	g	-18.0	-14.0	-17.1	Pass
Overall Test Results					Pass



Technician: Milli JG III
G. Fuentes

Approved By: J. Hernandez
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	43.3	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	41.6	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	13.4	Pass
Peak Impactor Ax	g	-16.0	-12.0	-14.9	Pass
Overall Test Results					Pass

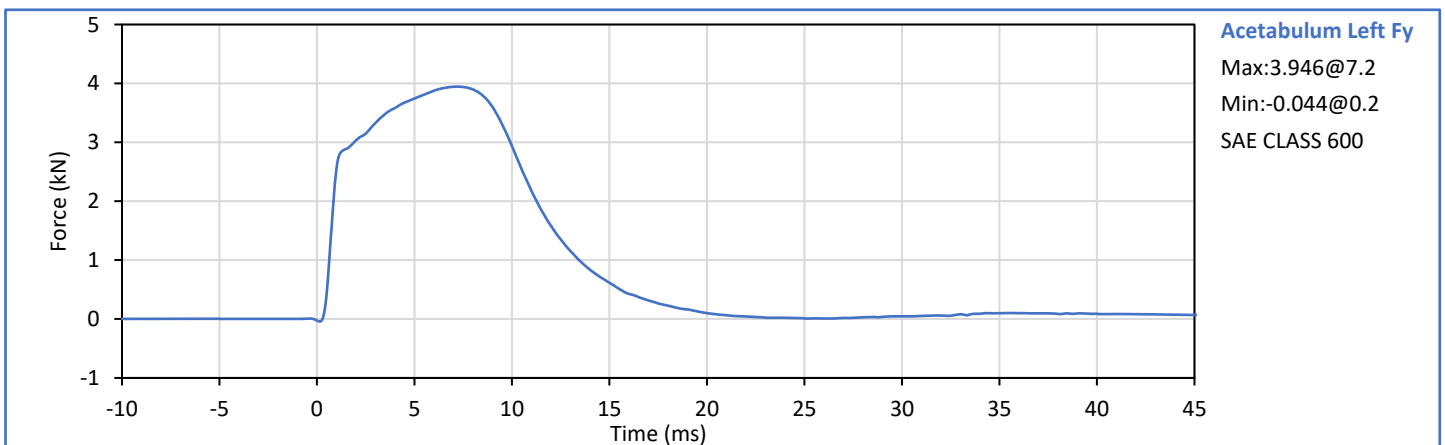
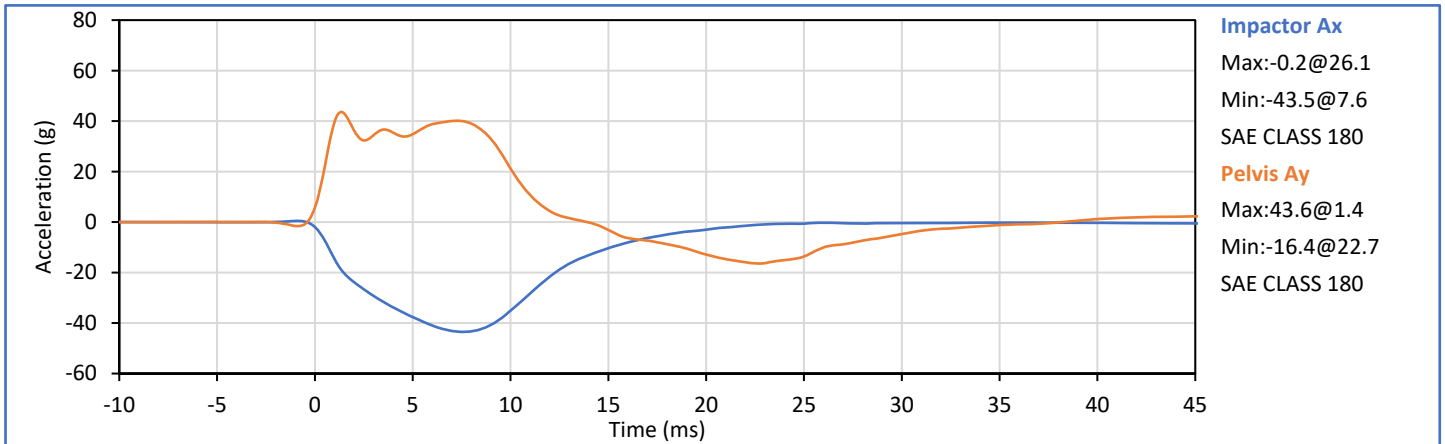


Technician: Mill JG III
G. Fuentes

Approved By: J. Hernandez
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Impactor Velocity	m/s	6.60	6.80	6.71	Pass
Peak Acetabulum Fy	kN	3.60	4.30	3.95	Pass
Pelvis Ay after 6ms	g	34.0	42.0	40.1	Pass
Peak Impactor Ax	g	-47.0	-38.0	-43.5	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 14656



Technician: *Mill JG III*
G. Fuentes

Approved By: *Smith*
J. Hernandez

ATD Serial No.: 308

Test Date: 2023-08-08

Pelvis Plug S/N: 14656



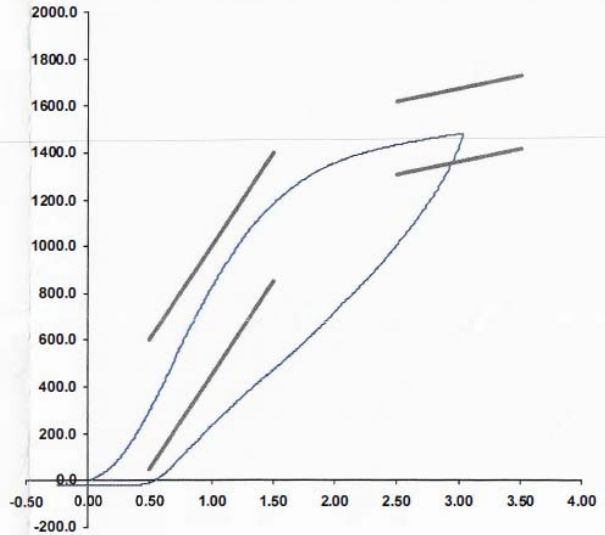
SID-IIs Pelvis Plug Certification Test

Plug S/N 14656
Test Number 16618
Report Number 16664
Test Date 12/22/2020 8:50:46 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	303.68	50.00	600.00
Force @ 1.5 mm (N)	1,182.32	850.00	1,400.00
Force @ 2.5 mm (N)	1,433.59	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,481.04	1,361.00	1,673.00

Testing Machine STM-20 5965542
Load Cell S/N (F1360947), Units (LBS) 1000
Crosshead Speed (mm / min) or Rate 12.7
Extension or Position Measured by XHD_100 (XHD100)
Notes:

Force (-N) vs Extension (-mm)



Operator 146
Part Number 180-4450

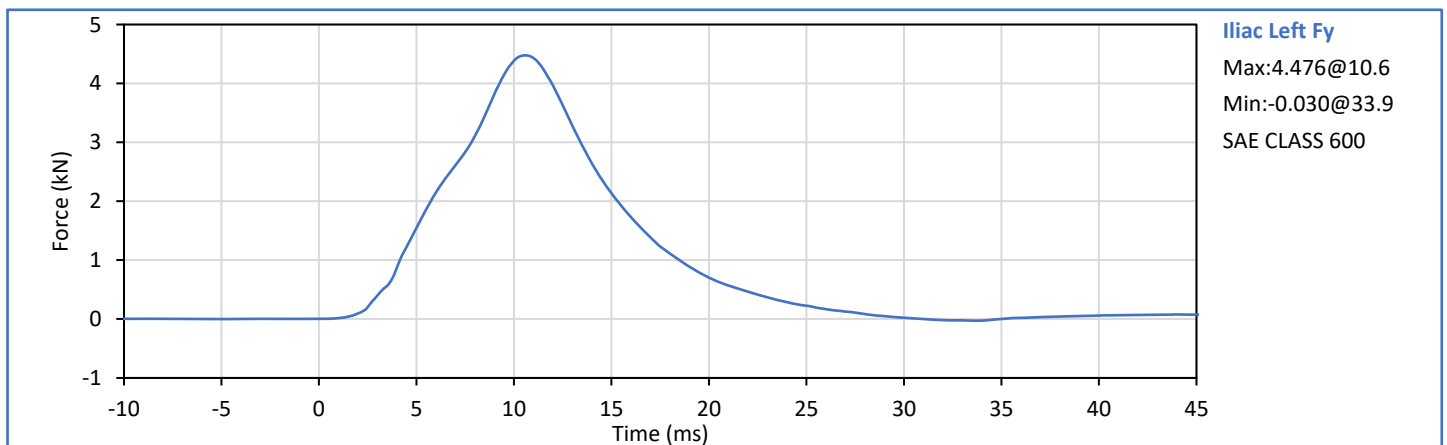
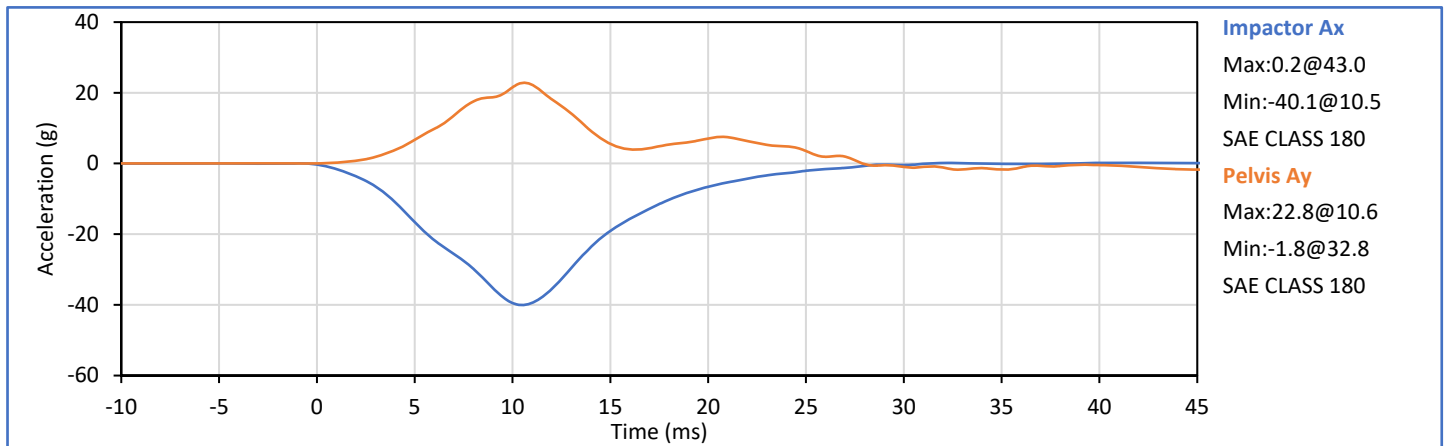
Template No 107 22-Dec-20
SACO Research

By: DC Date: 12/22/20

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	35	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Iliac Fy	kN	4.10	5.10	4.48	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-40.1	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 12228 *

* Plug is not impacted and remains certified



Technician: *Mill LGS III*
G. Fuentes

Approved By: *Smith*
J. Hernandez

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 - Driver ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P58858	Endevco	7264C-2k	2023-04-05
Head Acceleration Y Primary	P58865	Endevco	7264C-2k	2023-04-05
Head Acceleration Z Primary	P58867	Endevco	7264C-2k	2023-04-05
Head Acceleration X Redundant	P58859	Endevco	7264C-2k	2023-04-05
Head Acceleration Y Redundant	P58866	Endevco	7264C-2k	2023-04-05
Head Acceleration Z Redundant	P58873	Endevco	7264C-2k	2023-04-05
Upper Thorax Rib Deflection Y	209 (ES-2 Rib)	Honeywell	F38000203	2023-04-07
Middle Thorax Rib Deflection Y	210 (ES-2 Rib)	Honeywell	F38000203	2023-04-07
Lower Thorax Rib Deflection Y	207 (ES-2 Rib)	Honeywell	F38000203	2023-04-07
Anterior Abdominal Force Y	1504 Fy	R.A. Denton	2631J	2023-02-16
Middle Abdominal Force Y	1505 Fy	R.A. Denton	2631J	2023-02-16
Posterior Abdominal Force Y	1506 Fy	R.A. Denton	2631J	2023-02-16
Lower Spine T12 Acceleration X	P63856	Endevco	7264C-2k	2023-04-05
Lower Spine T12 Acceleration Y	P50063	Endevco	7264C-2k	2023-04-06
Lower Spine T12 Acceleration Z	P51880	Endevco	7264C-2k	2023-04-06
Pubic Symphysis Force Y	DG6834 Fy	FTSS	IF-556	2023-02-16

Table 2 - Left Rear Passenger ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P63980	Endevco	7264C-2k	2023-04-03
Head Acceleration Y Primary	P58861	Endevco	7264C-2k	2023-04-03
Head Acceleration Z Primary	P51261	Endevco	7264C-2k	2023-04-03
Head Acceleration X Redundant	P58808	Endevco	7264C-2k	2023-04-03
Head Acceleration Y Redundant	P63310	Endevco	7264C-2k	2023-04-03
Head Acceleration Z Redundant	P49189	Endevco	7264C-2k	2023-04-03
Head Rotation Rate X	ARS14944	DTS	ARS PRO-18k (2kHz)	2022-09-13
Head Rotation Rate Y	ARS14954	DTS	ARS PRO-18k (2kHz)	2022-09-07
Head Rotation Rate Z	ARS4062	DTS	ARS PRO-18k (2kHz)	2022-09-07
Upper Thorax Rib Deflection Y	1249	Servo	08TCI-3725	2023-03-28
Middle Thorax Rib Deflection Y	1219	Servo	08TCI-3725	2023-03-28
Lower Thorax Rib Deflection Y	1221	Servo	08TCI-3725	2023-03-28
Upper Abdomen Rib Deflection Y	1252	Servo	08TCI-3725	2023-03-28
Lower Abdomen Rib Deflection Y	1233	Servo	08TCI-3725	2023-03-28
Lower Spine T12 Acceleration X	P52108	Endevco	7264C-2k	2023-04-04
Lower Spine T12 Acceleration Y	P63970	Endevco	7264C-2k	2023-04-03
Lower Spine T12 Acceleration Z	P51712	Endevco	7264C-2k	2023-04-03
Iliac Wing Impact Side Force Y	289 (Iliac)	R.A. Denton	3228J	2023-05-18
Acetabulum Impact Side Force Y	277 (Acetabulum)	R.A. Denton	3249J	2023-05-18

Table 3 - Vehicle Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Vehicle CG Ax	M11091	Endevco	758H-2k	2023-08-01
Vehicle CG Ay	M11096	Endevco	758H-2k	2023-06-26
Vehicle CG Az	M11123	Endevco	758H-2k	2023-06-21
Right Side Sill at Front Seat Ax	M11049	Endevco	758H-2k	2023-06-27
Right Side Sill at Front Seat Ay	M10903	Endevco	758H-2k	2023-06-28
Right Side Sill at Front Seat Az	M11189	Endevco	758H-2k	2023-08-01
Right Side Sill at Rear Seat Ax	M11087	Endevco	758H-2k	2023-06-25
Right Side Sill at Rear Seat Ay	M11287	Endevco	758H-2k	2023-08-02
Right Side Sill at Rear Seat Az	M11208	Endevco	758H-2k	2023-06-26
Left Side Sill at Front Seat Ay	M11231	Endevco	758H-2k	2023-06-25
Left Side Sill at Rear Seat Ay	M11114	Endevco	758H-2k	2023-06-14
Left Lower A-Pillar Ay	M11251	Endevco	758H-2k	2023-06-30
Left Middle A-Pillar Ay	M11168	Endevco	758H-2k	2023-06-25
Left Lower B-Pillar Ay	M11127	Endevco	758H-2k	2023-06-26
Left Middle B-Pillar Ay	M11090	Endevco	758H-2k	2023-06-29
Driver Seat Track at H-Point Ay	M11151	Endevco	758H-2k	2023-06-27
Rear Seat Structure Ay	M11100	Endevco	758H-2k	2023-06-29
Right Rear Occupant Comp. Ay	M11183	Endevco	758H-2k	2023-06-26
Engine Block Top Ax	M10908	Endevco	758H-2k	2023-06-30
Engine Block Top Ay	M11147	Endevco	758H-2k	2023-06-26
Rear Floopan Above Axle Ax	M11113	Endevco	758H-2k	2023-06-29
Rear Floopan Above Axle Ay	M11278	Endevco	758H-2k	2023-06-27
Rear Floopan Above Axle Az	M11202	Endevco	758H-2k	2023-03-07

Table 4 - Moving Deformable Barrier (MDB) Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
MDB CG Ax	M11284	Endevco	758H-2k	2023-03-08
MDB CG Ay	M11203	Endevco	758H-2k	2023-08-03
MDB CG Az	M11244	Endevco	758H-2k	2023-08-01
MDB Left Side at Rear Axle Ax	M11126	Endevco	758H-2k	2023-06-23
MDB Left Side at Rear Axle Ay	M11259	Endevco	758H-2k	2023-06-22