

**REPORT NUMBER: SideNCAPMDB-KAR-24-005**

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

**HYUNDAI MOTOR COMPANY  
2024 GENESIS G80 4-DOOR SEDAN**

**NHTSA No: O20244201**

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



**NOVEMBER 09, 2023**

**FINAL REPORT**

**PREPARED FOR:  
U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
OFFICE OF CRASHWORTHINESS STANDARDS  
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Approval Date: November 09, 2023

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\_\_\_\_\_  
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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		<b>6. Performing Organization Code</b> KAR																												
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<b>12. Sponsoring Agency Name and Address</b> U. S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NRM-100) 1200 New Jersey Ave., SE Washington, D.C. 20590		<b>13. Type of Report and Period Covered</b> Final Test Report, October 26 - November 9, 2023																												
		<b>14. Sponsoring Agency Code</b> NRM-100																												
<b>15. Supplementary Notes</b>																														
<b>16. Abstract</b> A 61.9 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2024 Genesis G80 4-Door Sedan 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 October 26, 2023.  The impact velocity of the Moving Deformable Barrier was 62.04 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 21.4°C. The target vehicle's maximum post-test static crush was 116 mm located at level 2. The test vehicle's occupant performance data is as follows:																														
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<b>17. Key Words</b> New Car Assessment Program (NCAP) Side Impact Moving Deformable Barrier (MDB) ES-2re SID-IIs		<b>18. Distribution Statement</b> 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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\*Proposed IARV

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**SECTION 1**  
**TEST PURPOSE AND PROCEDURE**

This moving deformable barrier side impact test is part of the MY 2024 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number 693JJ920D000015. The purpose of this test is to generate comparative side impact performance in a 2024 Genesis G80 4-Door Sedan. 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 Genesis G80 4-Door Sedan 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 62.04 km/h (38.55 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 October 26, 2023. Pre- and post-test photographs of the test vehicle, the MDB and the dummies (ES-2re and SID-IIs) are included in Appendix A of this report.

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

The dummies were instrumented in the following manner:

#### DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

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

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

Lower spine (12) tri-axial accelerometers

Pubic symphysis y-axis load cell

#### PASSENGER ATD (SID-IIs)

Primary and redundant head CG tri-axial accelerometers

Head triaxial angular rate sensors

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

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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

Dummy injury readings were recorded as follows:

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	111.407
Maximum Thoracic Rib Deflection	mm	44	20.244
Combined Abdominal Force	N	2500	697.816
Pubic Symphysis Force	N	6000	709.668
Lower Spine (T12) Resultant Acceleration	G	82*	18.826

*\*Proposed IARV*

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC <sub>36</sub> )		1000	98.090
Lower Spine (T12) Resultant Acceleration	g	82	24.770
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1350.712
Maximum Thoracic Rib Deflection	mm	38*	17.208
Maximum Abdominal Rib Deflection	mm	45*	9.765

*\*Proposed IARV*

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	Yes	Yes
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 Genesis G80 4-Door Sedan NHTSA No. O20244201

Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

#### 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 <sup>2</sup>	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 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA Number	O20244201
Model Year	2024
Make	Hyundai
Model	Genesis G80
Body Style	4-Door Sedan
VIN	KMTGA4SCXRU208095
Body Color	Capri Blue
Odometer Reading (km / mi)	53/33
Engine Displacement (L)	2.5
Type / No. of Cylinders	4 Cylinder
Engine Placement	Longitudinal
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
Final Drive	AWD
Roof Rack	No
Sunroof / T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	Yes
Driver Front 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	No
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	Yes
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? No

**DATA FROM CERTIFICATION LABEL**

Manufactured By	Hyundai Motor Company
Date of Manufacture	23-Jul
Vehicle Type	Sedan

GVWR (kg)	2385
GAWR Front (kg)	1300
GAWR Rear (kg)	1405

**VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION**

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				400.0	A
DSC x 68 (kg)				340.0	B
Cargo Weight (RCLW) (kg)				60.0	A-B*

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

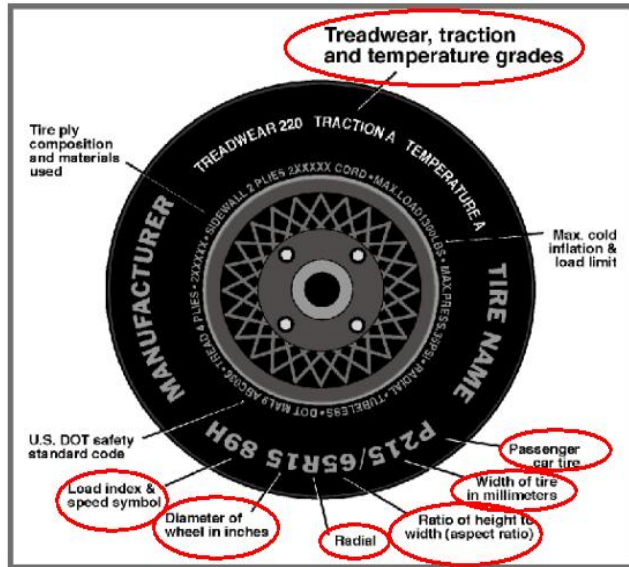
**VEHICLE SEAT TYPE**

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 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	340	340
Cold Pressure (kPa)	250	250
Recommended Tire Size	250	250
Tire Size on Vehicle	245/45 R19	275/40 R19
Tire Manufacturer	Michelin	Michelin
Tire Model	Primacy Tour	Primacy Tour
Treadware	500	500
Traction Grade	AA	AA
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Polyamide	2 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	102 W	105 W
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Left	F3YP 02XX 3622	IF3 YY 01KX 4822
DOT Safety Code Right	F3YP 02XX 3622	IF3 YY 01KX 4822

**DATA SHEET NO. 1 ... (CONTINUED)**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**TIRE PRESSURES**

	Units	LF	RF	LR	RR
As Delivered	kPa	250	250	250	250
Tire Placard	kPa	250	250	250	250
Owner's Manual	kPa	250	250	250	250
As Tested	kPa	250	250	250	250

**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	521.0	465.0		562.0	548.0		553.0	554.0	
Right	kg	502.0	475.0		508.0	522.0		500.0	542.0	
Ratio	%	52.1%	47.9%		50.0%	50.0%		49.0%	51.0%	
Total	kg	1023.0	940.0	1963.0	1070.0	1070.0	2140.0	1053.0	1096.0	2149.0

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1963.0	A
Sum of Actual Weight of 2 P572 ATD Used	kg	125.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	59.8	C
Calculated Target Vehicle Test Weight (TVTW)	kg	2147.8	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	733	732	Yes
RF	mm	741	743	Yes
LR	mm	724	733	Yes
RR	mm	731	741	Yes
Vehicle CG (Aft of Front Axle)	mm	1534	1504	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	25	31	

\*\*\*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 Genesis G80 4-Door Sedan NHTSA No. O20244201  
Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

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

Component Description	Weight (kg)
Spare Tire and Tools Removed	24.0
Rear Trim Removed	4.0

**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 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**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	3.8	0.0	1.9
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	518	Max	525	531	536
			Mid	512	518	522
			Min	498	505	508
Front Passenger Seat	1.9	518	Max	520	531	541
			Mid	510	518	528
			Min	499	505	515
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 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

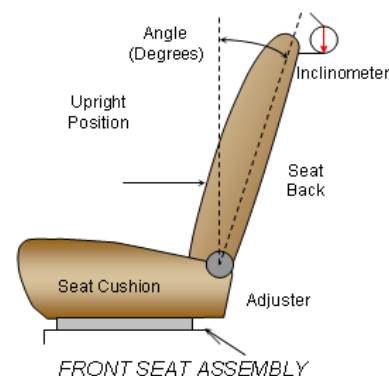
**SEAT FORE/AFT POSITION**

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	336		168	
Front Passenger Seat	304		152	
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 at the head rest post.



**SEAT BACK POSITION**

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/ Seated Dummy	67.5		0.5	
Front Passenger Seat	67.1		0.5	
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 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

#### 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	H
Rear Seat	Fixed	Fixed

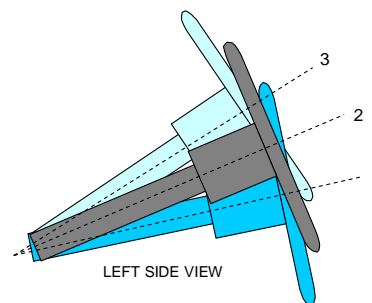
#### HEAD RESTRAINT ADJUSTMENT

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	6	H
Rear Seat	3	L

#### 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.



LEFT SIDE VIEW  
STEERING COLUMN ASSEMBLY

#### STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	18.9	88
Geometric Center Position, No. 2	21.0	112
Uppermost Position, No. 3	23.0	135
Telescoping Steering Wheel Travel		47
Test Position	21.0	112

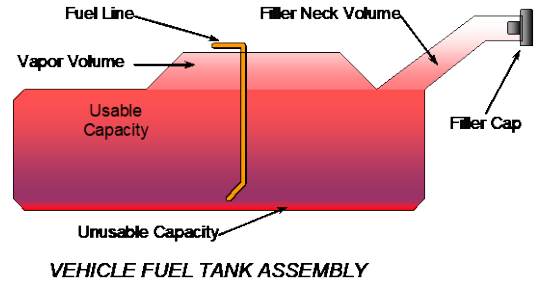
**DATA SHEET NO. 2 ... (CONTINUED)**

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

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**FUEL PUMP**

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



**FUEL TANK CAPACITY**

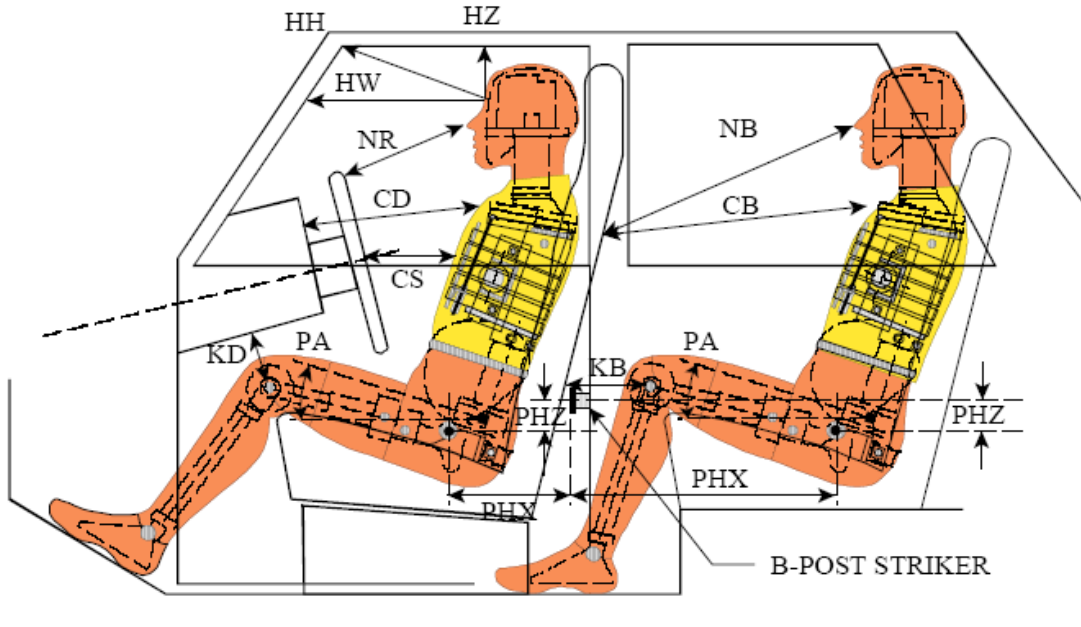
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	65.11
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	65.11
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	60.55
Actual amount of Solvent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

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

**DATA SHEET NO. 3**

**DUMMY LONGITUDINAL CLEARANCE DIMENSIONS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



**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

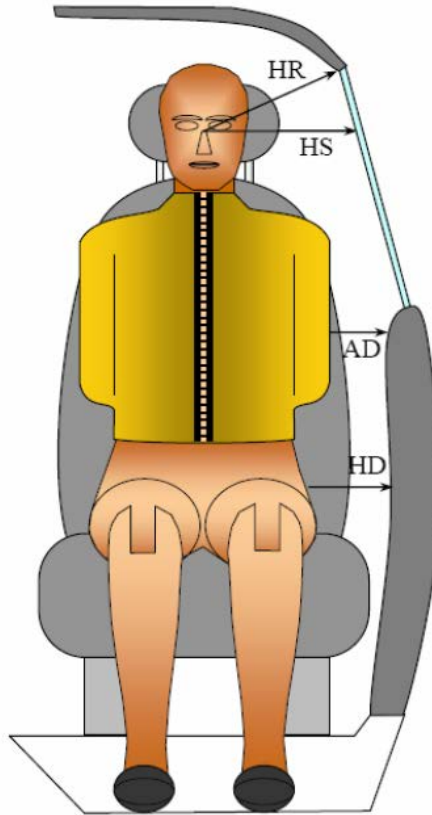
**DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION**

Driver Code	Pass. Code	Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	363			
HW		Head to Windshield	619			
HZ	HZ	Head to Roof	138		263	
NR	NB	Nose to Rim/Seat Back	429		628	
CD	CB	Chest to Dash/Seat Back	606		587	
CS		Chest to Steering Wheel	400			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	231	22.8	282	18.4
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	196	18.8	276	17.4
PAX°	PAX°	Pelvic Tilt Angle X		14.9		26.0
	PAY°	Pelvic Tilt Angle Y		0.0		0.0
PHX	PHX	Hip Point to Striker (x-axis)	111		229	
PHZ	PHZ	Hip Point to Striker (z-axis)	214		249	

**DATA SHEET NO. 4**

**DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



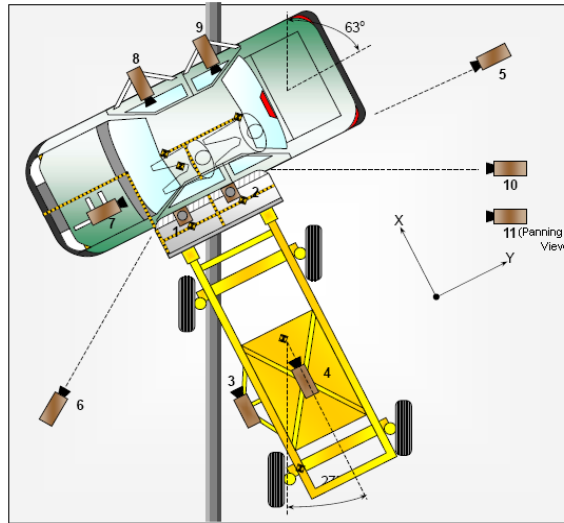
**DUMMY LATERAL CLEARANCE DIMENSION INFORMATION**

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	192	249
HS	Head to Side Window	mm	332	372
AD	Arm to Door	mm	125	156
HD	H-Point to Door	mm	178	202

**DATA SHEET NO. 5**

**CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



**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

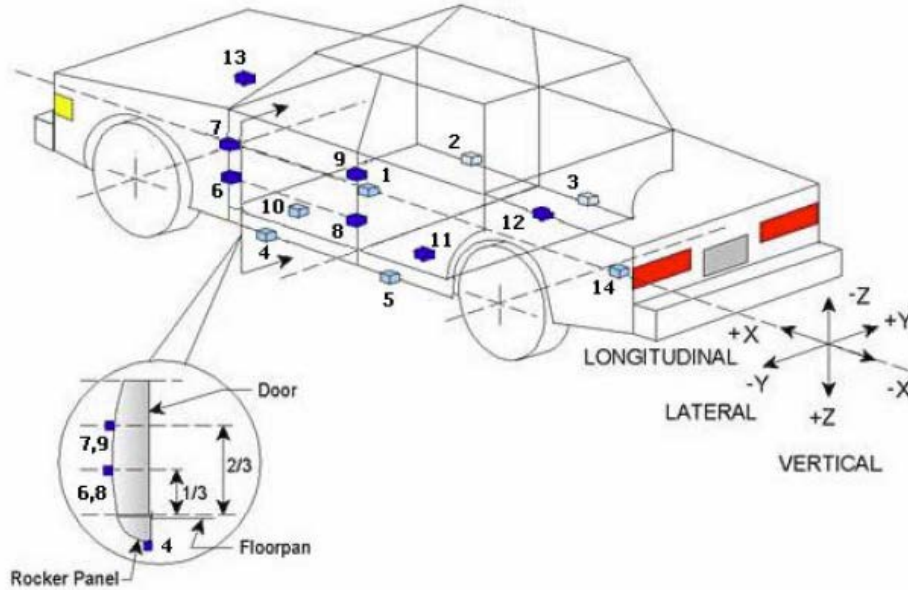
**INSTRUMENTATION**

Driver Dummy Channels	16
Passenger Dummy Channels	19
Vehicle Structure Accelerometers	23
MDB Channels	5
<b>Total</b>	<b>63</b>

**DATA SHEET NO. 6**

**TEST VEHICLE ACCELEROMETER LOCATIONS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



**VEHICLE ACCELEROMETER PRE-TEST LOCATIONS**

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2800	0	-450
2	Right Sill at Front Seat	2060	760	-370
3	Right Sill at Rear Seat	3030	760	-370
4	Left Sill at Front Door	2080	760	-370
5	Left Sill at Rear Door	3030	760	-370
6	A-Pillar Lower	1600	790	-630
7	A-Pillar Middle	1600	790	-750
8	B-Pillar Lower	2603	-760	-600
9	B-Pillar Middle	2603	-760	-850
10	Front Seat Track	2300	-603	-310
11	Rear Seat Structure	2970	-306	-280
12	Right Rear Occupant Compartment	2780	402	-370
13	Engine Block	700	160	-820
14	Rear Floorpan Above Axle	3800	0	-560

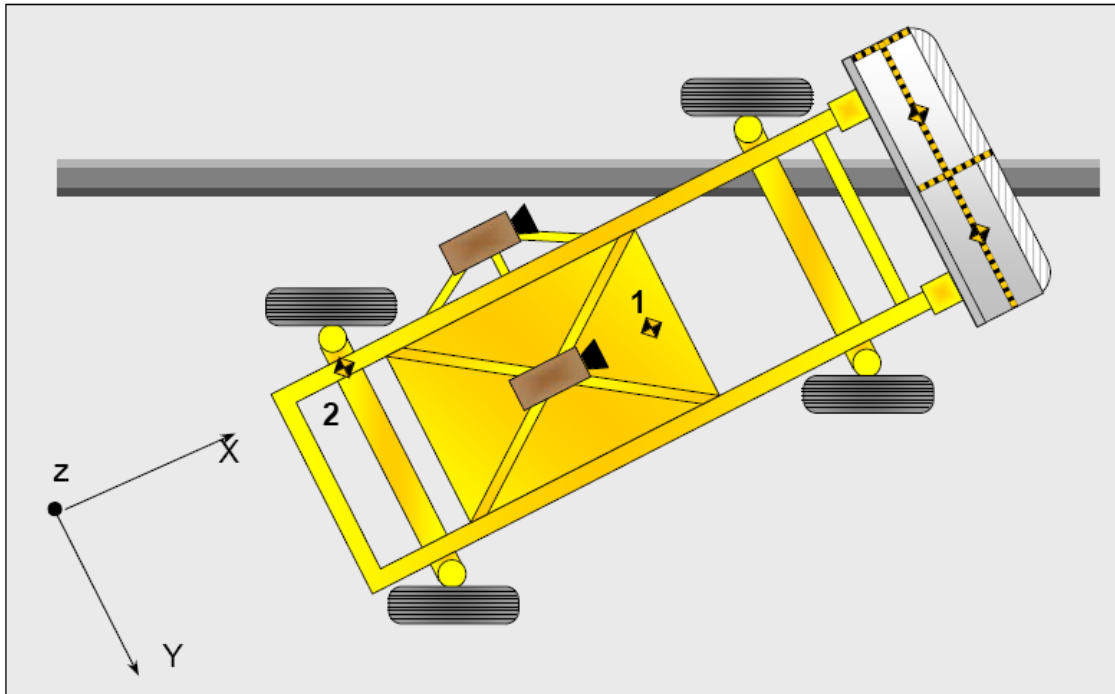
Reference: X – Rear surface of vehicle (+ forward)  
 Y – Vehicle centerline (+ to right)  
 Z – Ground plane (+ down)

**DATA SHEET NO. 7**

**MDB ACCELEROMETER LOCATIONS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201

Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



**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 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**TEST DUMMY INFORMATION AND CONTACT POINTS**

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Air Bag	Curtain Air Bag
Top of Head	Curtain Air Bag, Headliner	Curtain Air Bag
Left Side of Head	Curtain Air Bag, Headliner	Curtain Air Bag
Back of Head	Headrest, Curtain Air Bag, Headliner	Headrest
Left Shoulder	Curtain Air Bag	Torso/Pelvis Air Bag, Seat Bolster
Upper Torso	Pelvis/Torso Air Bag, Seat Bolster	Torso/Pelvis Air Bag, Seat Bolster
Lower Torso	Pelvis/Torso Air Bag, Seat Bolster	Seat Bolster
Left Hip	Side Air Bag, Seat Bolster	Seat Cushion
Left Knee	Door Panel	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	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge System Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

**DATA SHEET NO. 8 ... (CONTINUED)**

**POST-TEST OBSERVATIONS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**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	None
Windshield Damage	None
Side Window Damage	None
Other Notable Effects	None

**DATA SHEET NO. 8 ... (CONTINUED)**

**POST-TEST OBSERVATIONS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

Restraint Type	Struck Side		Struck Side	
	Driver		Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	Yes	Yes
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		3007
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		505
Actual Impact Point (Aft of Front Axle)	mm		519
Horizontal Offset (+ forward / - rearward)	mm	± 50 of Intended Impact Point	-14
Vertical Offset (+ down / - up)	mm	± 20 of Intended Impact Point	14

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

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**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	62.04
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.14
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.6
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.6
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.0

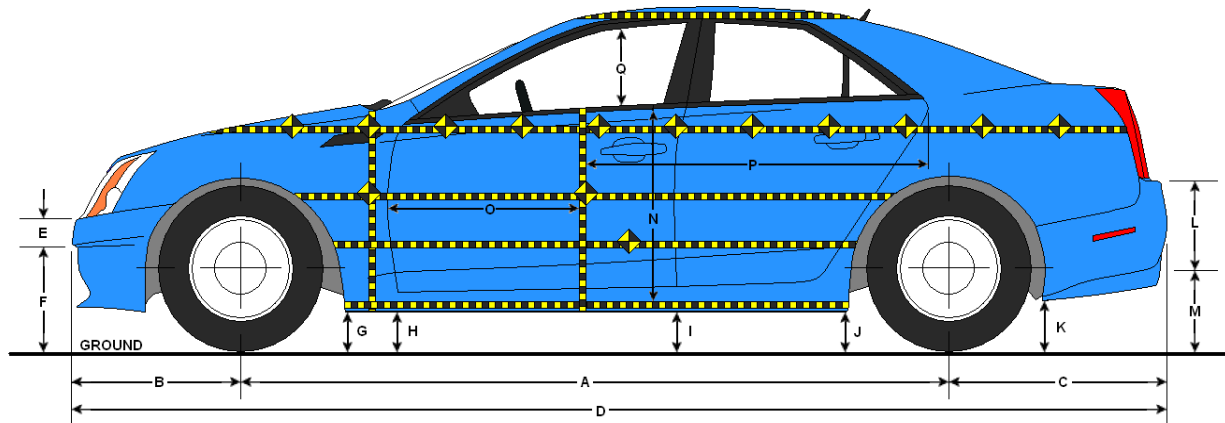
**MAXIMUM STATIC CRUSH OF HONEYCOMB FACE**

Vertical Location			From Centerline		Max. Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Left	258
B	Top of Bumper	533	800	Left	214
C	Mid Level	686	800	Left	215
D	Top of Stack	813	800	Left	230

**DATA SHEET NO. 10**

**TEST VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



**LEFT SIDE VIEW**

**VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION**

Code	Description	Pre-Test	Post-Test	Change
A	Wheelbase	3007	3008	1
B	Front Axle to FSOV	844	832	-12
C	Rear Axle to RSOV	1142	1149	7
D	Total Length at Centerline	4993	4989	-4
E	Front Bumper Thickness	98	97	-1
F	Front Bumper Bottom to Ground	434	443	9
G	Sill Height at Front Wheel Well	314	315	1
H	Sill Height at Front Door Leading Edge	319	333	14
I	Sill Height at B-Pillar	297	283	-14
J1	Sill Height at Rear Wheel Well	342	314	-28
J2	Pinch Weld Height at Rear Wheel Well	206	181	-25
K	Sill Height Aft of Rear Wheel Well	405	413	8
L	Rear Bumper Thickness	80	81	1
M	Rear Bumper Bottom to Ground	520	525	5
N	Sill Height to Bottom of Front Window Sill	709	706	-3
O	Front Door Leading Edge to Impact CL	649	643	-6
P	Rear Door Trailing Edge to Impact CL	1543	1510	-33
Q	Front Window Opening	366	387	21
R	Right Side Length	3510	3513	3
S	Left Side Length	3493	3493	0
T	Vehicle Width at B-Pillar	1879	1843	-36

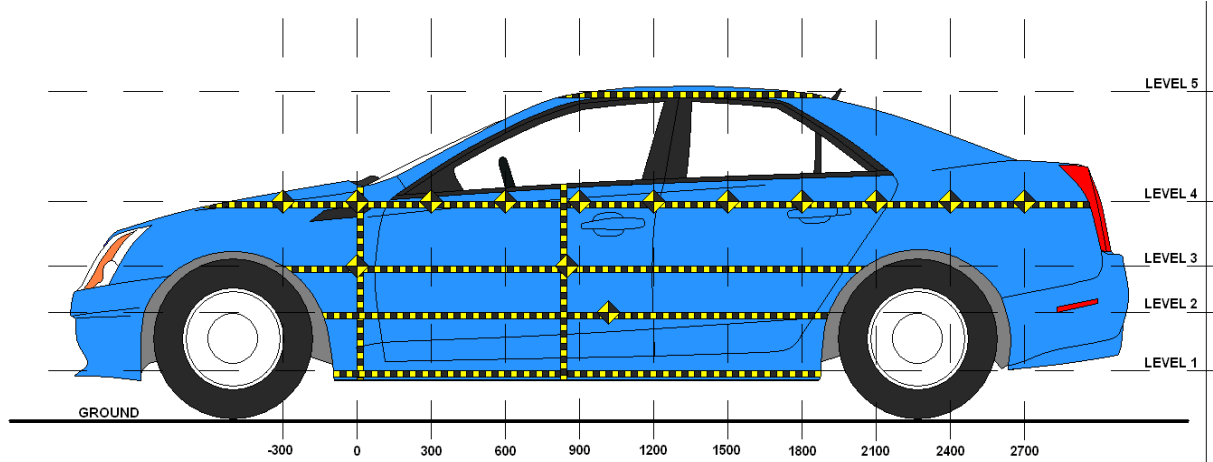
All measurements in mm with tolerance of  $\pm 3$ mm

**DATA SHEET NO. 11**

**TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201

Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



**LEFT SIDE VIEW**

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	274	3	1200
2	Occupant H-Point	513	116	1650
3	Mid-Door	679	104	1650
4	Window Sill	987	29	1500
5	Window Top	1443	15	1500

**DATA SHEET NO. 11 ... (CONTINUED)**

**TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23

**EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL**

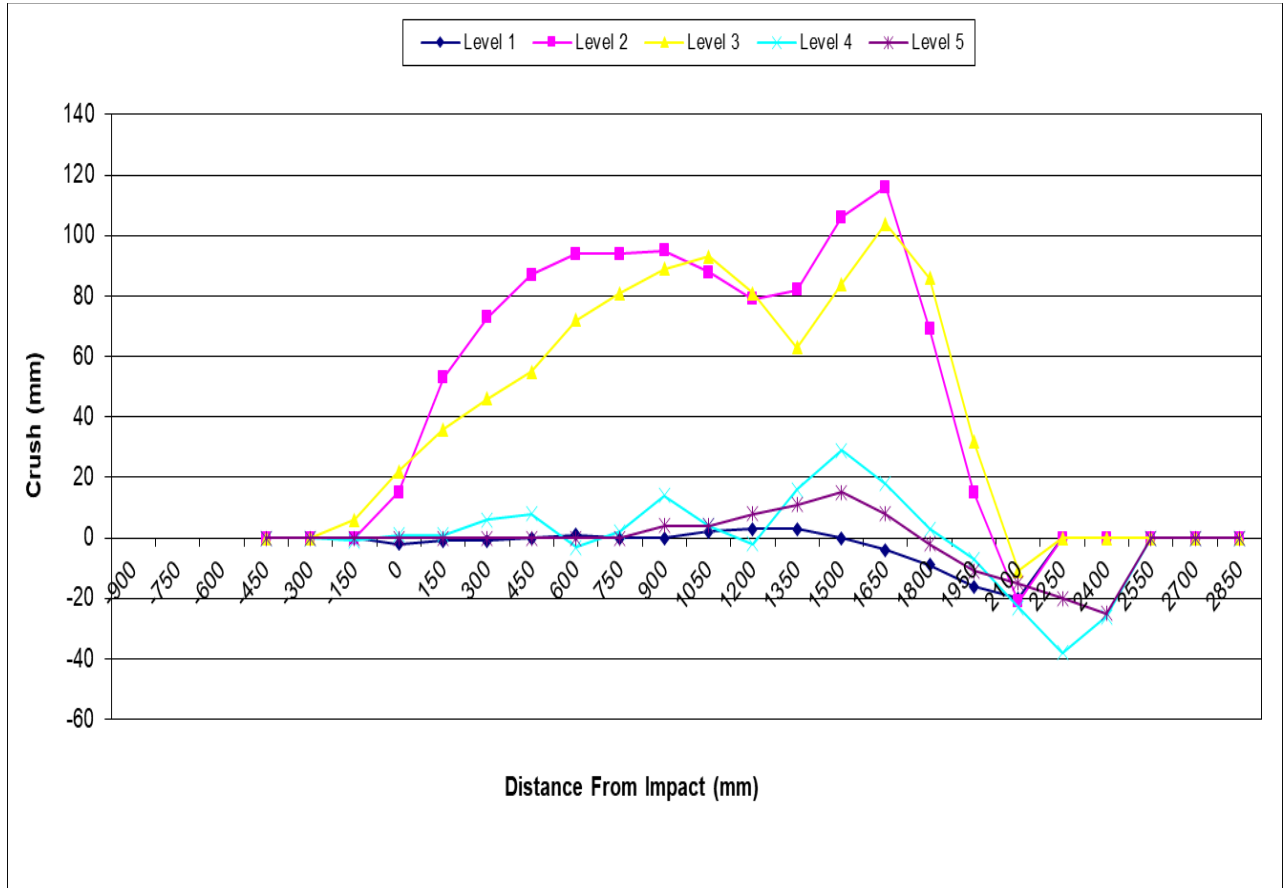
	Pre-Test (mm)					Post-Test (mm)					Crush (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150			554	715				560	714				6	-1	
0	589	563	561	695		587	578	583	696		-2	15	22	1	
150	596	575	563	679		595	628	599	680		-1	53	36	1	
300	601	581	566	662		600	654	612	668		-1	73	46	6	
450	602	583	566	600		602	670	621	608		0	87	55	8	
600	602	584	565	642		603	678	637	639		1	94	72	-3	
750	603	584	564	637		603	678	645	639		0	94	81	2	
900	604	583	562	635	872	604	678	651	649	876	0	95	89	14	4
1050	603	583	561	634	876	605	671	654	638	880	2	88	93	4	4
1200	602	583	561	635	882	605	662	642	633	890	3	79	81	-2	8
1350	601	585	565	637	889	604	667	628	653	900	3	82	63	16	11
1500	601	587	568	638	895	601	693	652	667	910	0	106	84	29	15
1650	600	586	570	642	894	596	702	674	660	902	-4	116	104	18	8
1800	597	580	568	646	897	588	649	654	649	895	-9	69	86	3	-2
1950	594	570	563	650	901	578	585	595	643	890	-16	15	32	-7	-11
2100	576	554	554	655	902	556	533	543	632	887	-20	-21	-11	-23	-15
2250				662	910				624	890				-38	-20
2400				669	927				643	902				-26	-25
2550															
2700															
2850															

**DATA SHEET NO. 11 ... (CONTINUED)**

**TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201

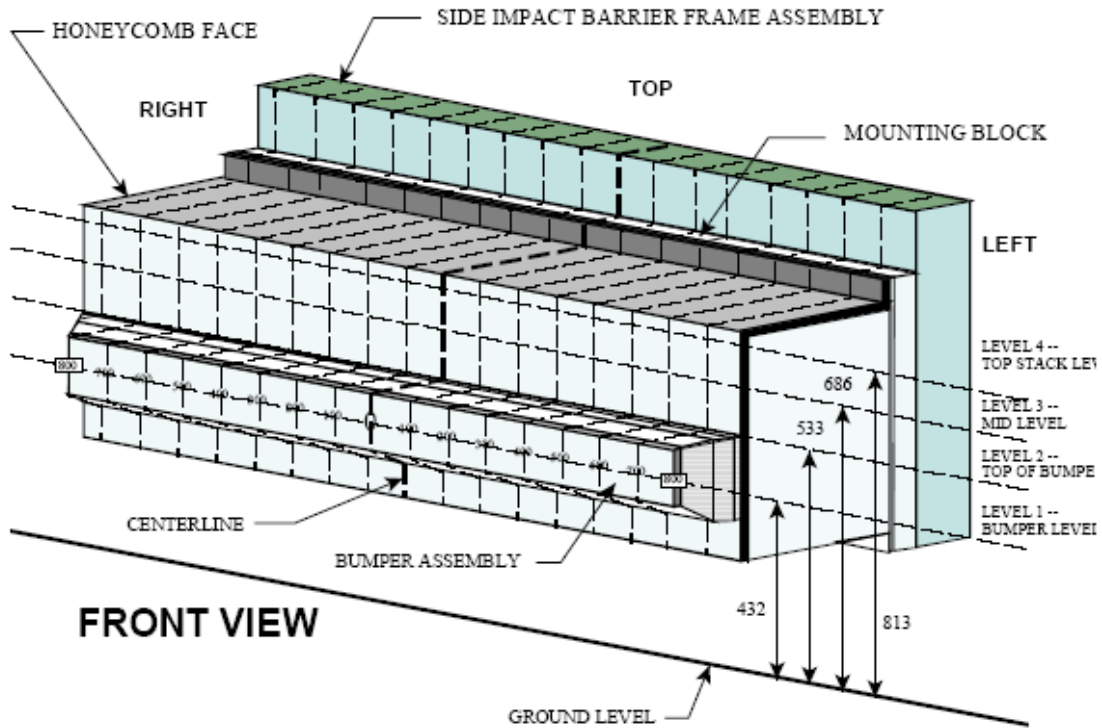
Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



**DATA SHEET NO. 12**

**MDB EXTERIOR STATIC CRUSH MEASUREMENTS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



NOTE: Dimensions are shown in millimeters, mm

**DEFORMABLE BARRIER STATIC CRUSH**

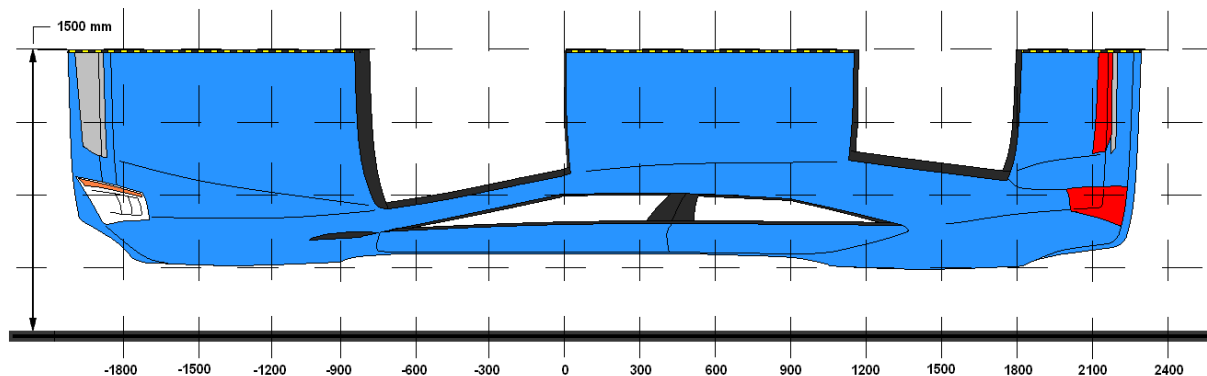
Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		0	100	200	300	400	500	600	700
1	225	216	223	226	232	223	224	213	214	210	211	212	213	221	228	252	258
2	152	162	161	157	161	172	169	158	160	160	162	167	167	173	184	196	214
3	111	115	126	132	157	145	116	98	97	94	96	106	123	146	178	209	215
4	117	105	113	143	166	156	124	101	72	69	84	125	128	150	181	219	230

All dimensions in millimeters.

### DATA SHEET NO. 13

#### VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



#### VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2400	5	927	902	-25
2	1950	3	563	595	32
3	1350	2	585	667	82
4	750	2	584	678	94
5	300	2	581	654	73
6	-150	3	554	560	6

#### MDB DAMAGE PROFILE DISTANCES

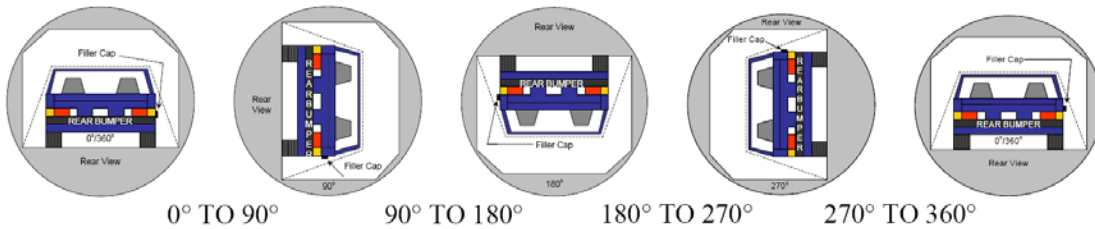
DPD	From MDB Centerline		Level	Crush (mm)
	Distance (mm)	Direction		
1	800	Left	1	258
2	500	Left	1	221
3	200	Left	1	211
4	200	Right	1	224
5	500	Right	1	226
6	800	Right	1	225

**DATA SHEET NO. 14**

**FMVSS NO. 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201  
 Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23  
 Temperature at Time of Impact: 21.4°C Test Time: 4:38 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°	80	300	380
90° To 180°	81	300	381
180° To 270°	80	300	380
270° To 360°	83	300	383

**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**

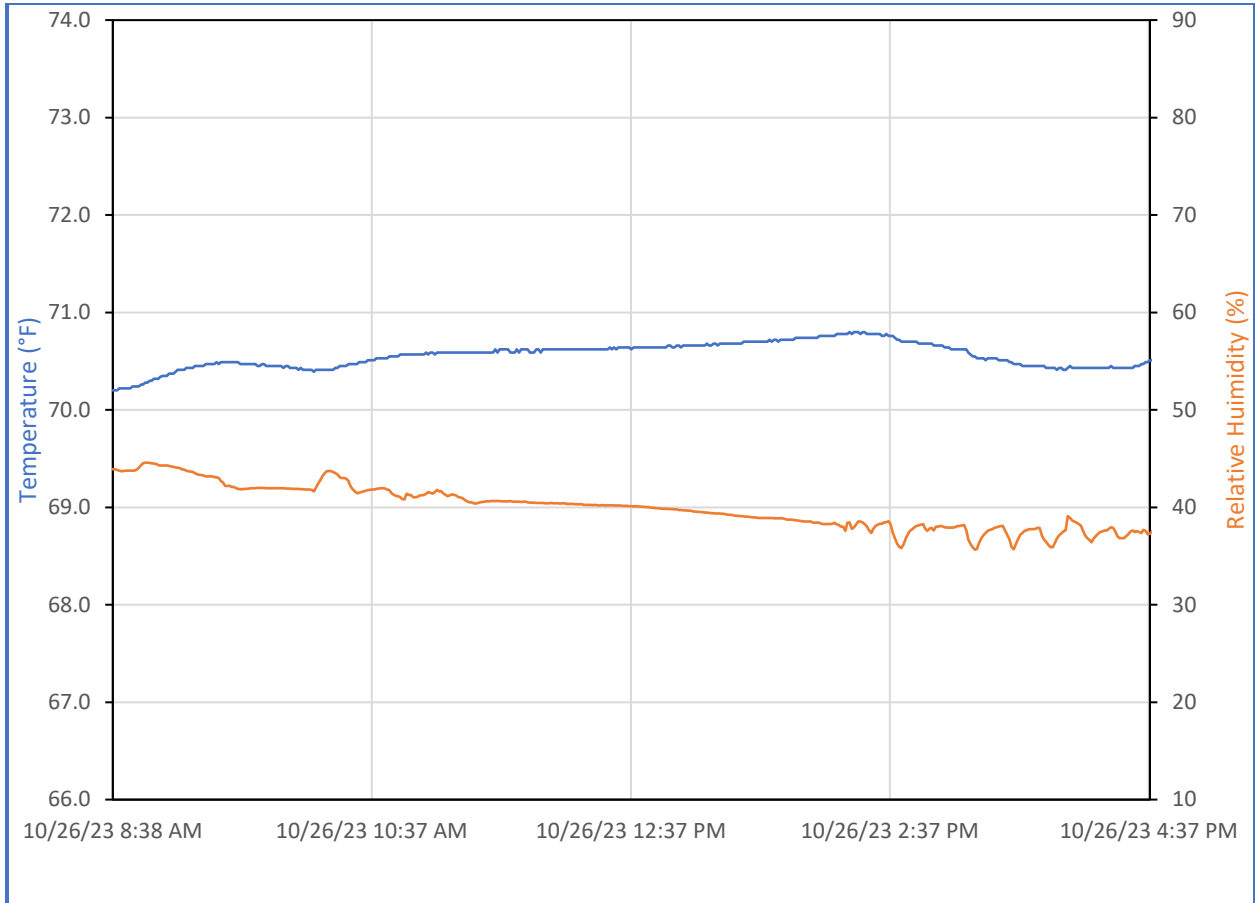
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

**DATA SHEET NO. 15**

**DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION**

Test Vehicle: 2024 Genesis G80 4-Door Sedan NHTSA No. O20244201

Test Program: NCAP MDB Side Impact Test Test Date: 10/26/23



**APPENDIX A  
PHOTOGRAPHS**

## TABLE OF PHOTOGRAPHS

Figure		Page
1	As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-1
2	As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-1
3	Pre-Test Frontal View of Test Vehicle	A-2
4	Post-Test Frontal View of Test Vehicle	A-2
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
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8	Post-Test Left Side View of Test Vehicle	A-4
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10	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
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13	Pre-Test Right Side View of Test Vehicle	A-7
14	Post-Test Right Side View of Test Vehicle	A-7
15	Pre-Test Overhead View of Test Area	A-8
16	Post-Test Overhead View of Test Area	A-8
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FIGURE 1. As-Delivered Right Front  $\frac{3}{4}$  View of Test Vehicle



FIGURE 2. As-Delivered Left Rear  $\frac{3}{4}$  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  $\frac{3}{4}$  View of Test Vehicle



FIGURE 6. Post-Test Left Front  $\frac{3}{4}$  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  $\frac{3}{4}$  View of Test Vehicle



FIGURE 10. Post-Test Left Rear  $\frac{3}{4}$  View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle

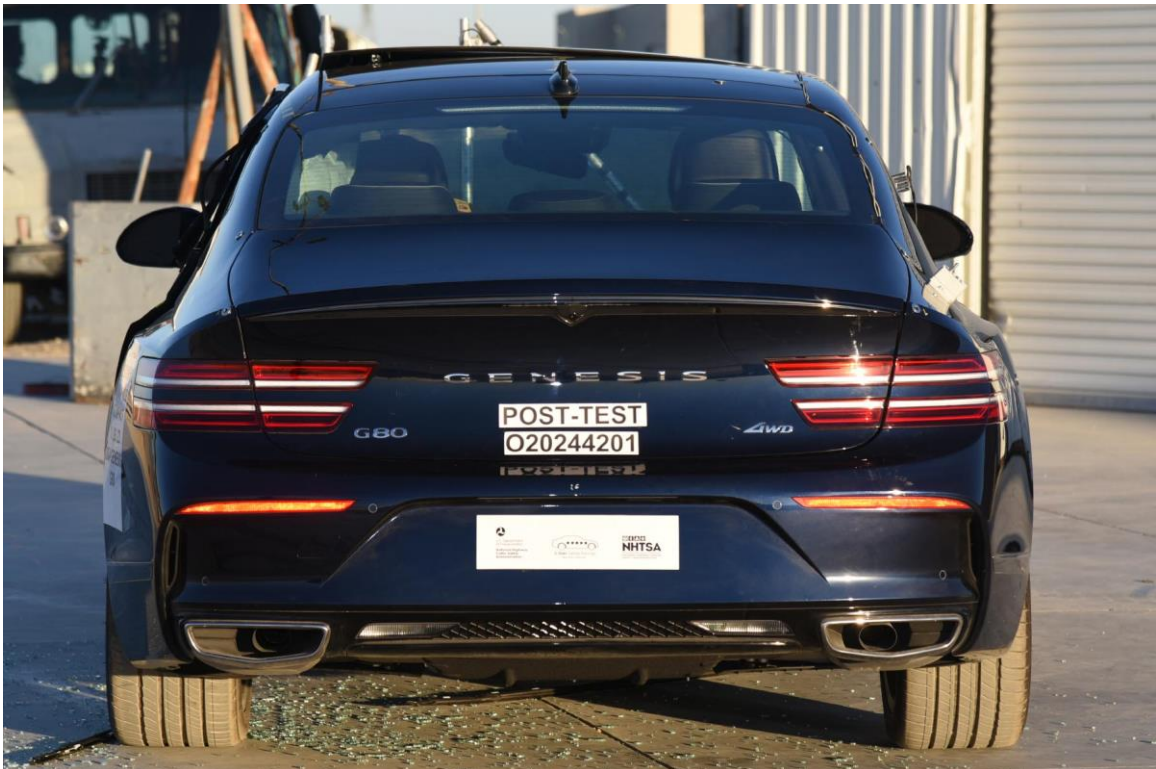


FIGURE 12. Post-Test Rear View of Test Vehicle



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

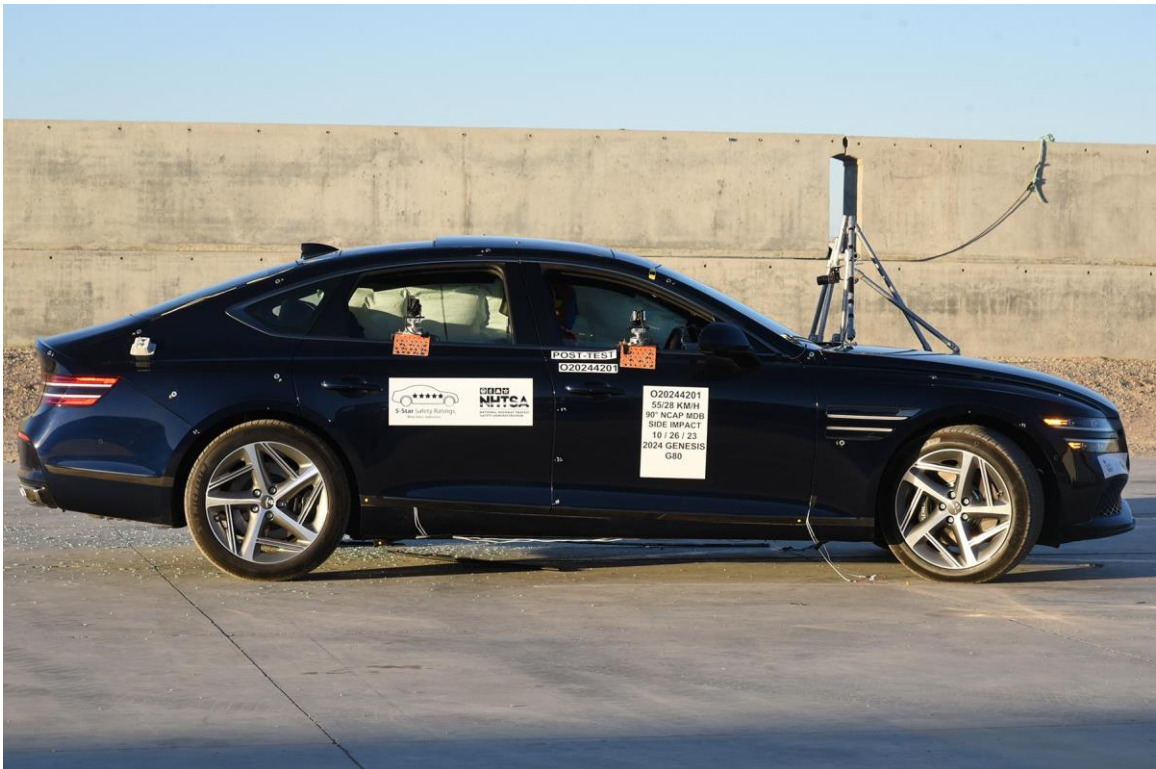


FIGURE 14. Post-Test Right Side View of Test Vehicle



FIGURE 15. Pre-Test Overhead View of Test Area

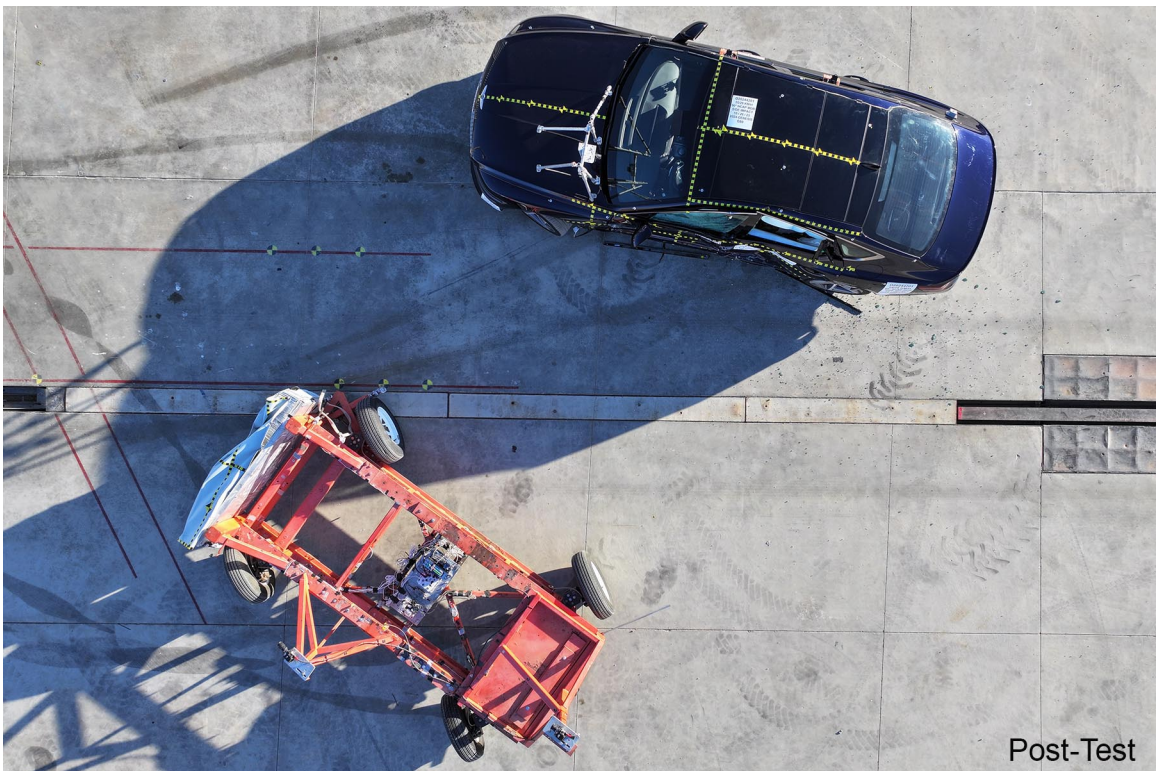


FIGURE 16. Post-Test Overhead View of Test Area



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

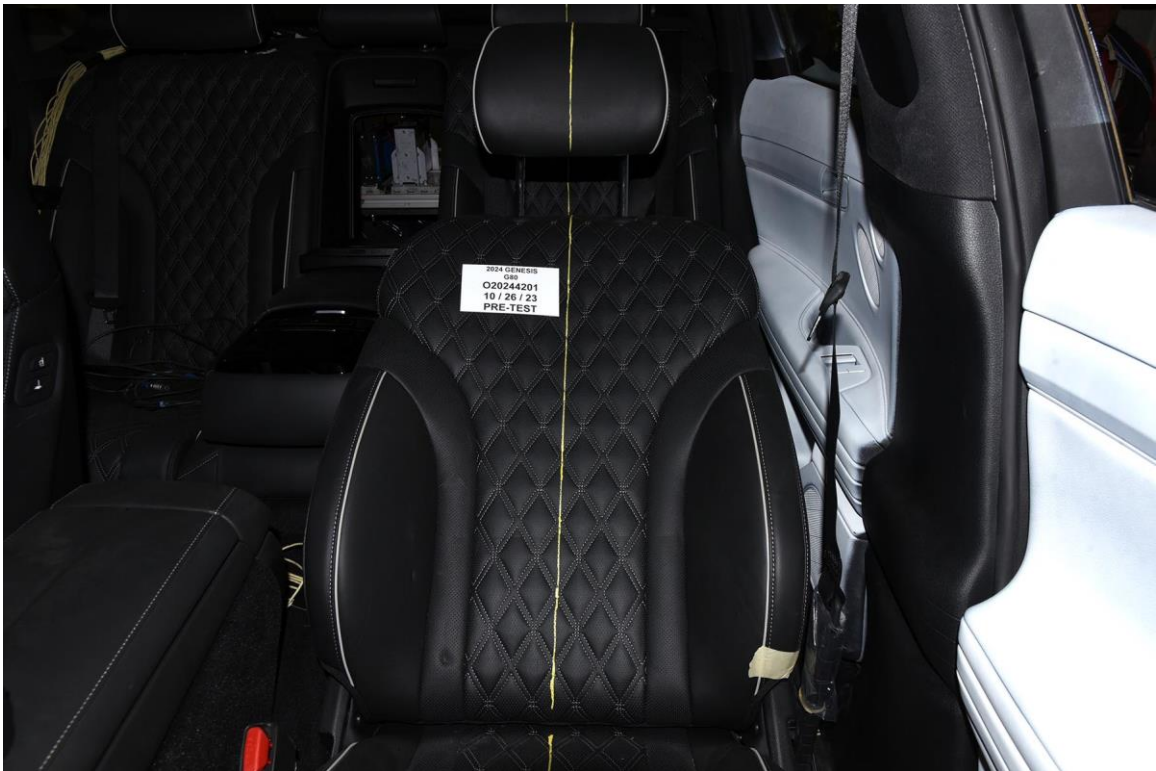


FIGURE 30. Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



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

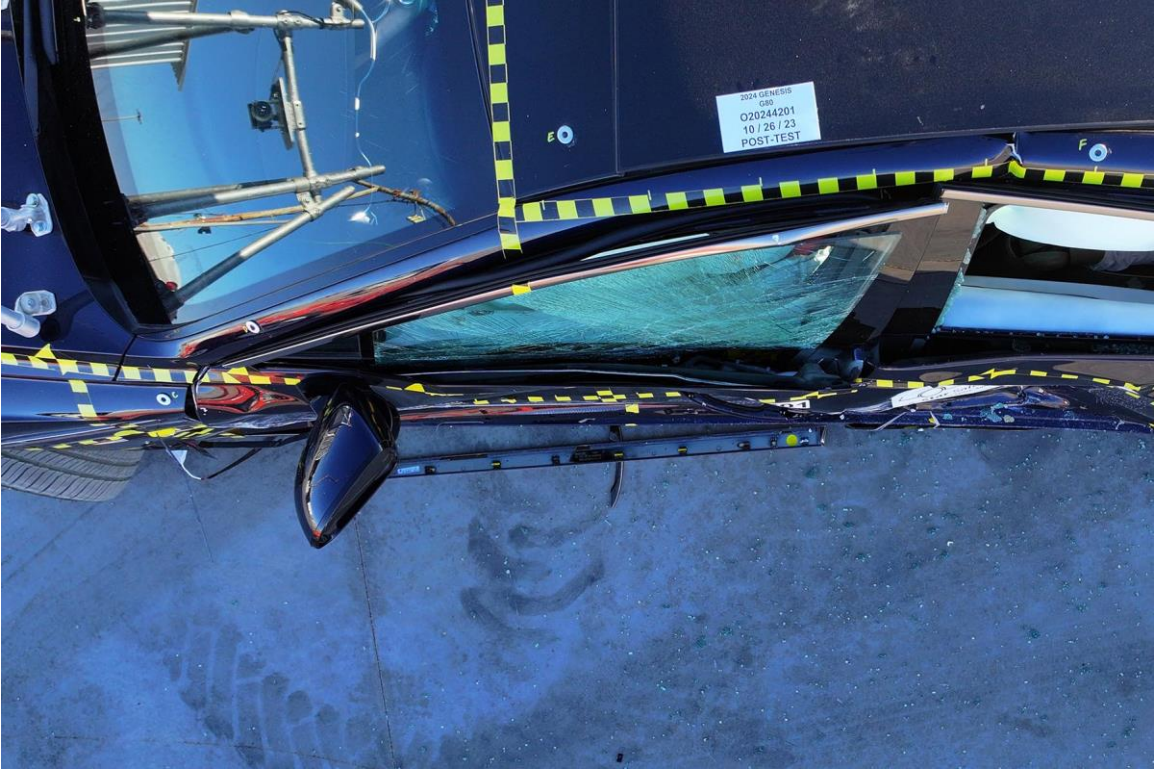


FIGURE 43. Post-Test Driver Dummy and Door Clearance View



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



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



FIGURE 46. Pre-Test Driver Inner Door Panel View



FIGURE 47. Post-Test Driver Inner Door Panel View  
Showing Driver Dummy Contact Locations



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



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



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

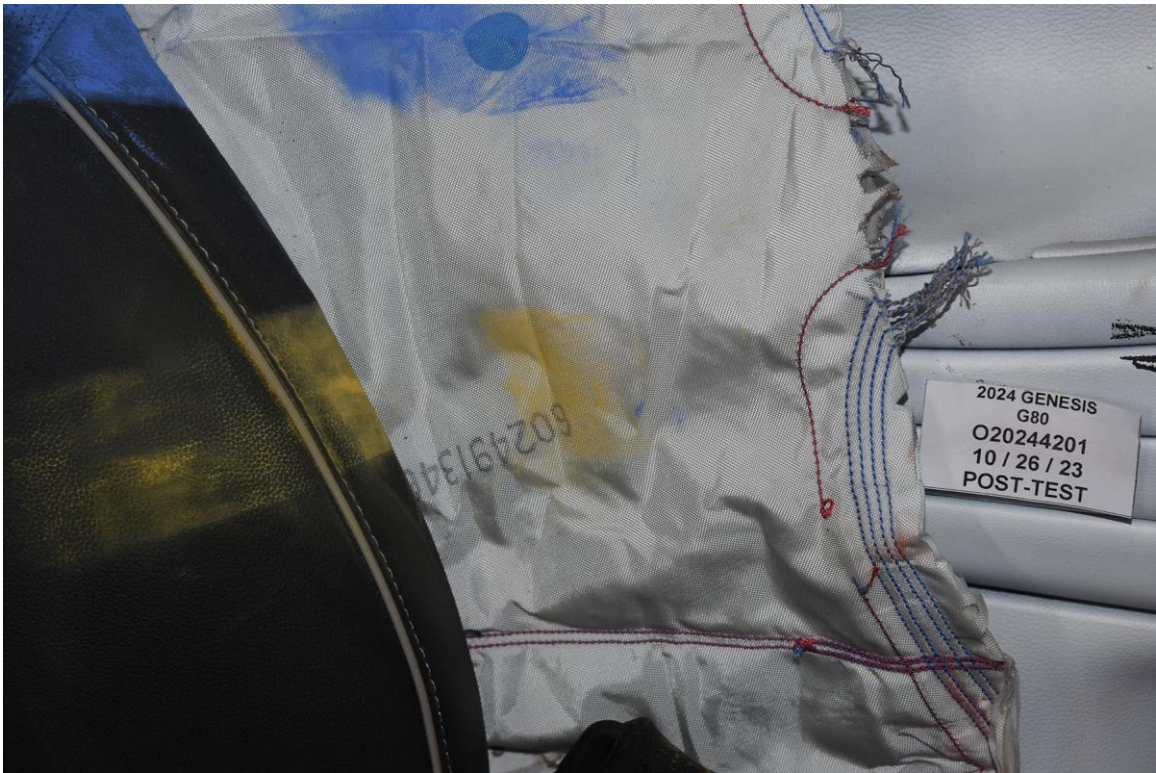


FIGURE 51. Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



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

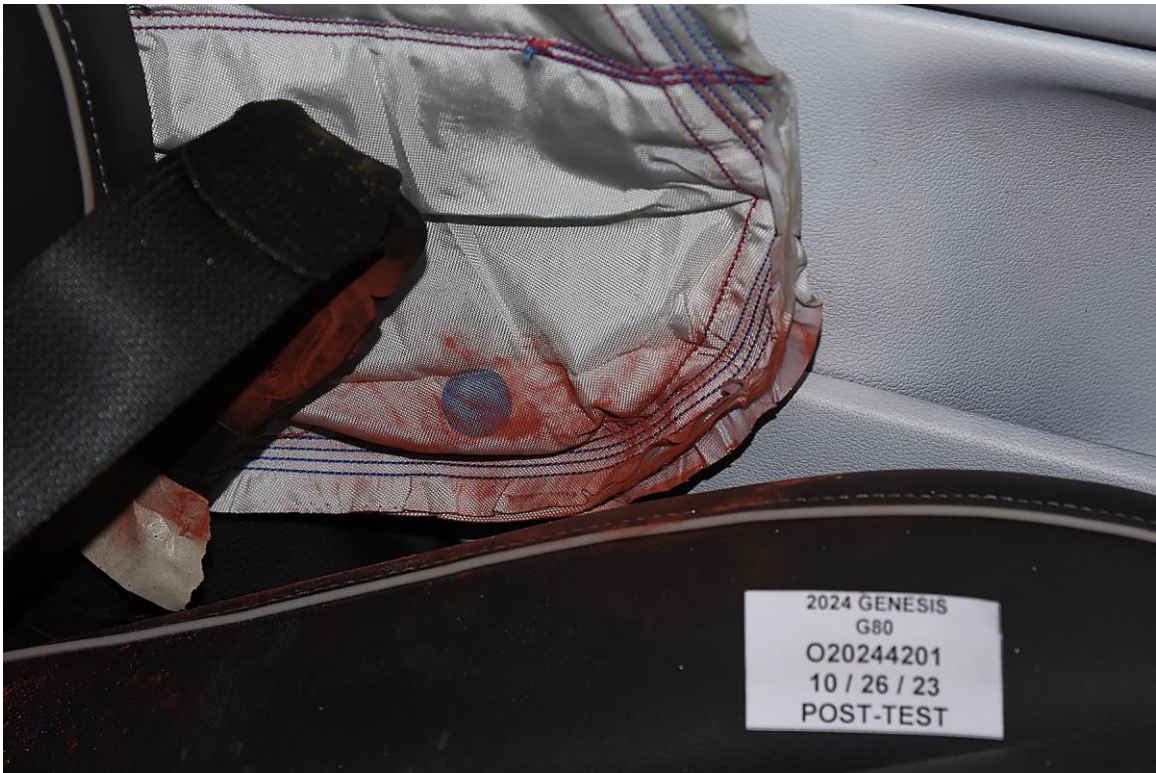


FIGURE 53. Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



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

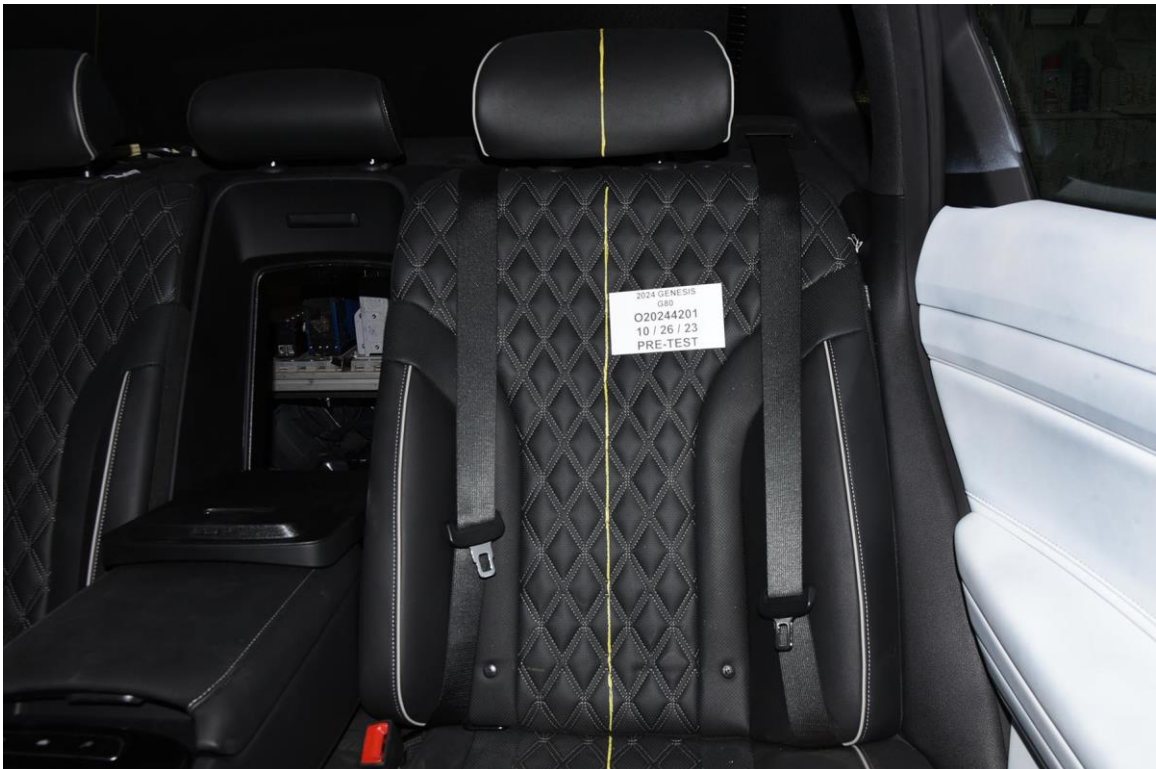


FIGURE 58. Pre-Test Frontal View of Rear Passenger Seat Back  
Prior to Dummy Positioning



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  
Showing Rear Passenger Dummy Contact Locations



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



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



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

# Photograph Not Applicable

No Pelvis Contact With Rear Passenger Side Airbag

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

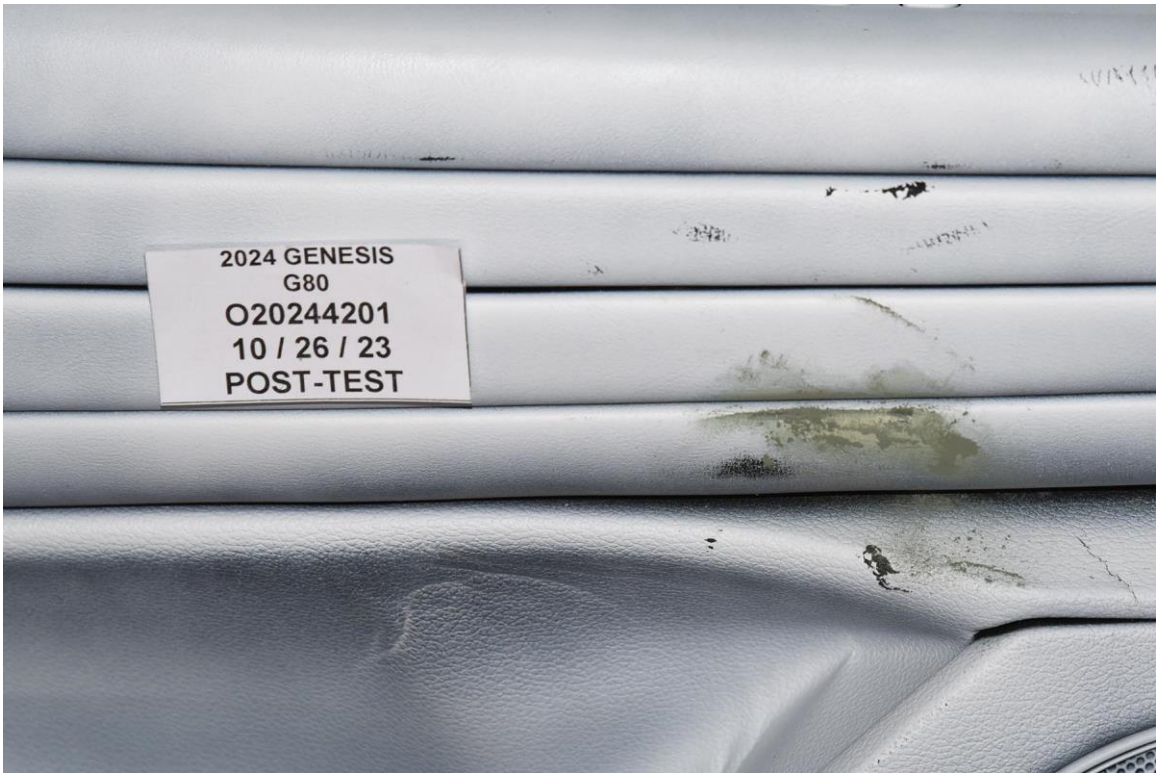


FIGURE 81. Post-Test Rear Passenger Dummy Close-Up Knee Contact View



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 Side View of MDB Impactor Face



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



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



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



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

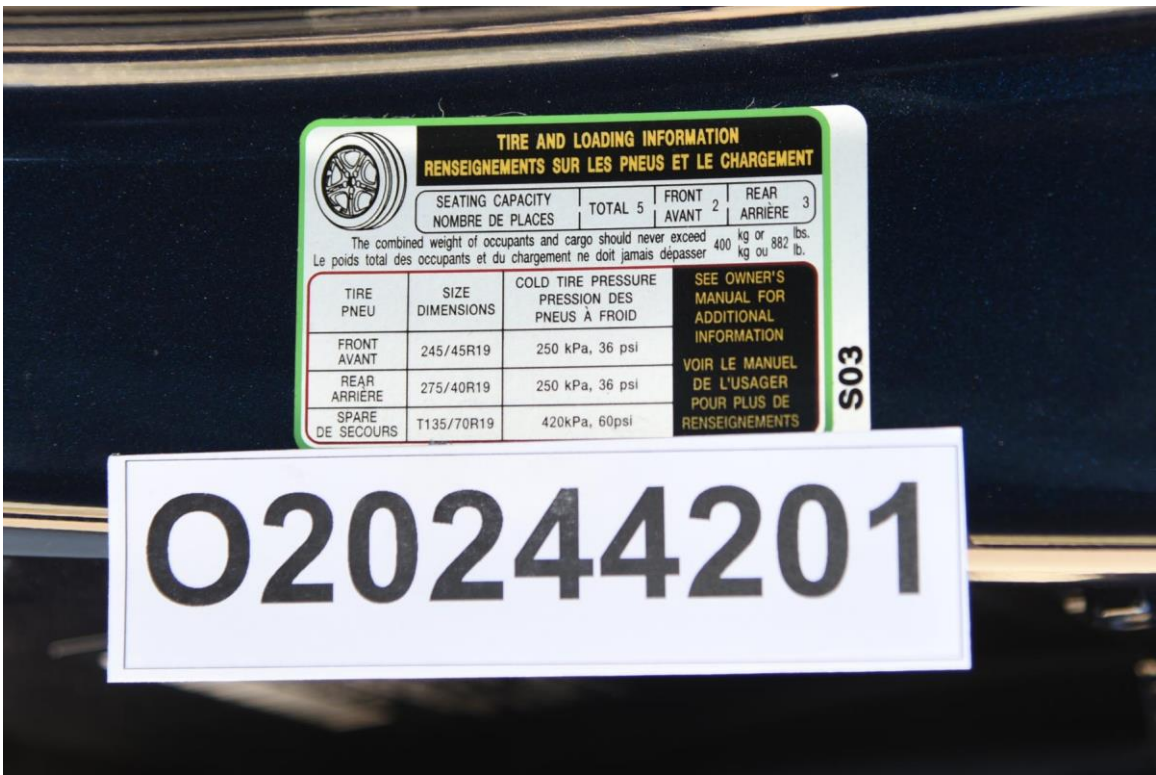


FIGURE 93. Close-Up View of Vehicle's Tire Information Placard or Label

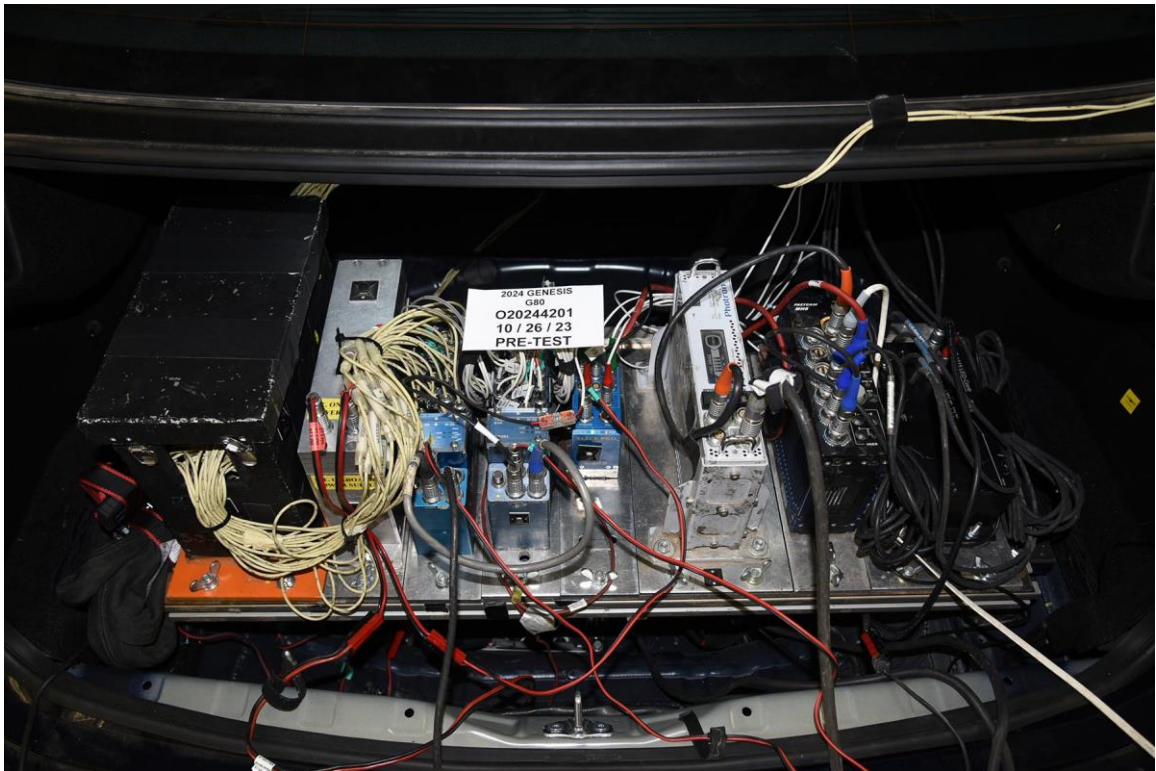


FIGURE 94. Pre-Test Ballast View



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



FIGURE 96. FMVSS No. 301 Static Rollover 0 Degrees

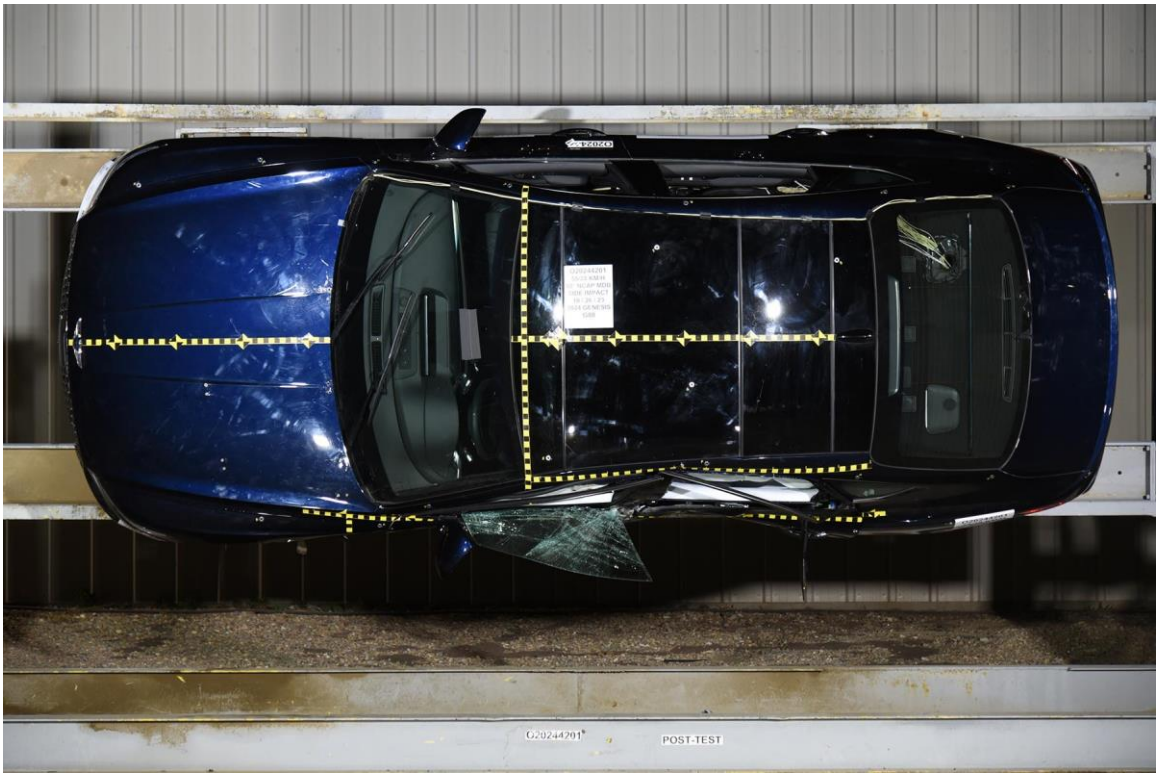


FIGURE 97. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 98. FMVSS No. 301 Static Rollover 180 Degrees

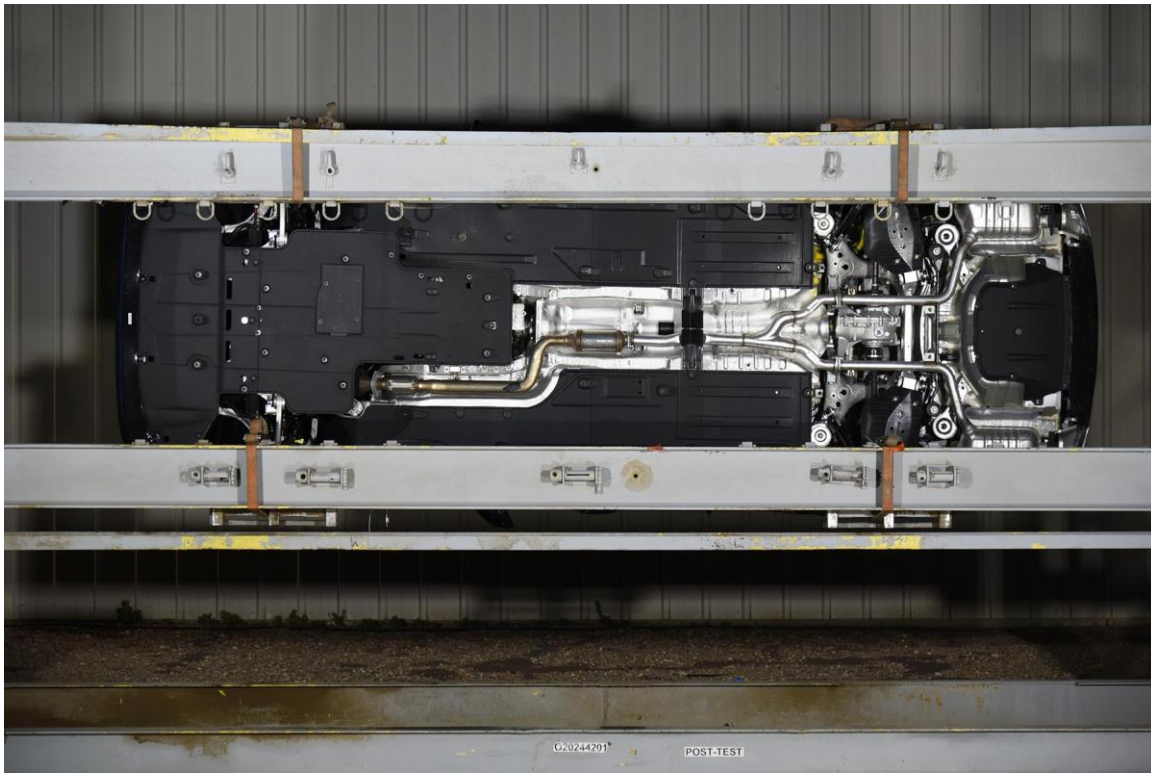


FIGURE 99. FMVSS No. 301 Static Rollover 270 Degrees

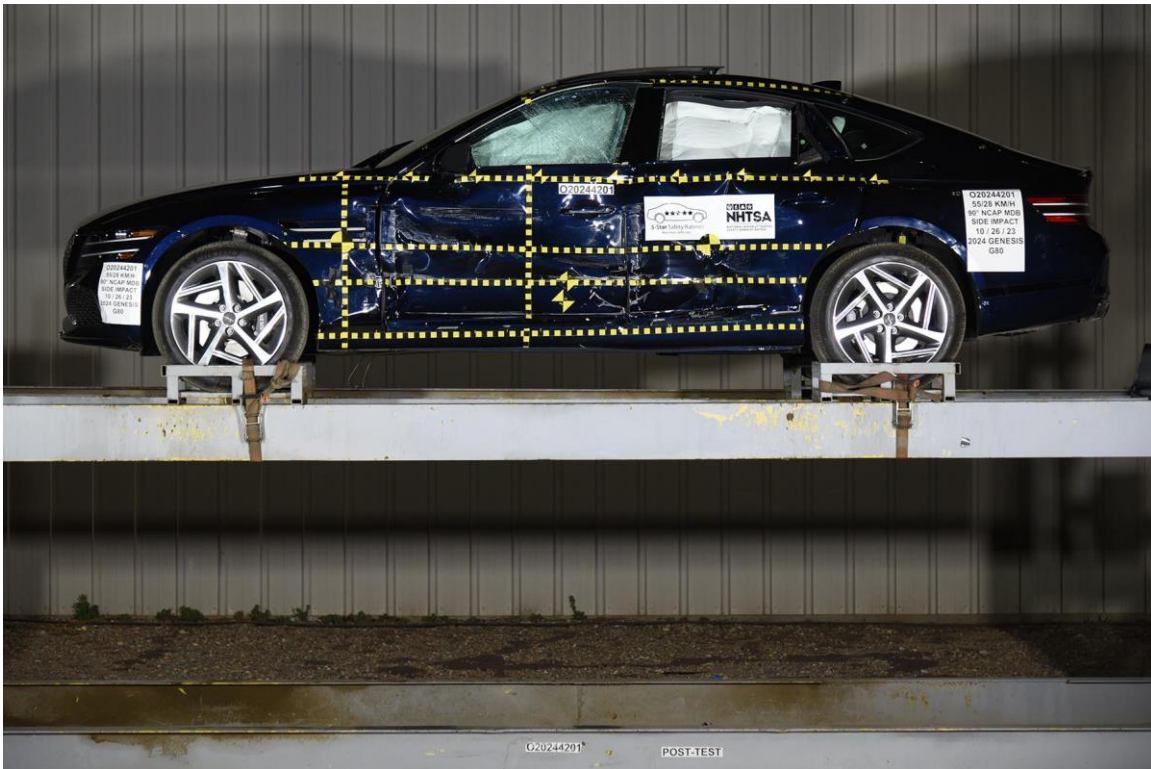


FIGURE 100. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 101. Impact Event

<p><b>2024 GV80 AWD 2.5T SPORT PRESTIGE</b></p>		<p><b>THE GENESIS EXPERIENCE</b></p> <ul style="list-style-type: none"> <li>• 3 Yr / 36K Complimentary Maintenance</li> <li>• *CAPRI BLUE(NRB) Paint</li> <li>• 3 Yr / 36K Complimentary Service Valet**</li> <li>• 3 Yr Complimentary Car Care</li> <li>• Complimentary Genesis Connected Services*</li> </ul> <p>*Exclusions may apply, see retailer for details</p>
<p><b>STANDARD FEATURES:</b></p> <p><b>ADVANCED SAFETY TECHNOLOGY</b></p> <ul style="list-style-type: none"> <li>• Forward Collision-Avoidance Assist</li> <li>• Lane Keeping Assist</li> <li>• Lane Following Assist</li> <li>• Driver Attention Warning</li> <li>• Blind-Spot Collision-Avoidance Assist</li> <li>• Rear Cross-Traffic Collision-Avoidance Assist</li> <li>• Parking Distance Warning</li> <li>• Rearview Camera</li> <li>• Safe Exit Assist</li> </ul> <p><b>POWERTRAIN TECHNOLOGY</b></p> <ul style="list-style-type: none"> <li>• 2.5L I4 T-GDI (300 HP / 311 lb-ft)</li> <li>• 8-Speed Automatic Transmission</li> <li>• Multi-link Front &amp; Rear Suspension</li> </ul> <p><b>EXTERIOR</b></p> <ul style="list-style-type: none"> <li>• 18-inch Alloy Wheels</li> <li>• Hands-Free Smart Trunk w/ Auto Open</li> <li>• Power-folding ECM Outside Mirrors w/ Genesis Logo Puddle Lamps</li> <li>• High Beam Assist</li> </ul> <p><b>COMFORT &amp; CONVENIENCE</b></p> <ul style="list-style-type: none"> <li>• Leatherette Seating Surfaces</li> <li>• Piano Black Gloss Trim</li> <li>• Leatherette Wrapped Upper Instrument Panel</li> <li>• Power Front Seats with 4-Way Power Lumbar</li> <li>• Heated Front &amp; Rear Seats</li> <li>• Heated Power Tilt &amp; Telescoping Steering Wheel</li> </ul>	<p><b>COMFORT &amp; CONVENIENCE(cont.)</b></p> <ul style="list-style-type: none"> <li>• Intelligent Speed Limit Assist</li> <li>• Highway Driving Assist</li> <li>• 8" Digital Cluster + Analog Gauges</li> </ul> <p><b>MULTIMEDIA &amp; CONNECTIVITY</b></p> <ul style="list-style-type: none"> <li>• 14.5" Navigation System w/ AM/FM/HD Radio*</li> <li>• SiriusXM Radio** w/90-day trial subscription; Not Available in AK &amp; HI</li> <li>• Apple CarPlay* &amp; Android Auto (TM)</li> <li>• Genesis Connected Services</li> </ul> <p><b>Additional Standard Features</b></p> <ul style="list-style-type: none"> <li>• Carpeted Floor Mats</li> <li>• Full Tank of Gas</li> </ul> <p><b>GENESIS WARRANTY</b></p> <ul style="list-style-type: none"> <li>• 5-year/50,000-mile New Vehicle Warranty*</li> <li>• 10-year/100,000-mile Powertrain Warranty**</li> <li>• 7-year/Unlimited-mile Anti-rust/perforation Warranty*</li> <li>• Limited warranties, see dealer for details</li> </ul>	<p>Manufacturer's Suggested Retail Price: <b>\$54,150.00</b></p> <p><b>ADDED FEATURES:</b></p> <ul style="list-style-type: none"> <li>*Advanced Package <b>\$4,700.00</b></li> <li>• 19-inch Alloy Wheels</li> <li>• Matte Finish Wood Trim</li> <li>• Ventilated Front Seats</li> <li>• Power Rear Sunshades</li> <li>• 3-Zone Climate Control</li> <li>• Power Trunk</li> <li>• Lexicon® Premium Audio</li> <li>• Panoramic Sunroof</li> </ul> <p>*Sport Prestige Package <b>\$4,850.00</b></p> <ul style="list-style-type: none"> <li>• 19-inch Sport Alloy Wheels</li> <li>• Electronically Controlled Suspension w/ Road Preview</li> <li>• Leather Seating Surfaces</li> <li>• 12.3" 3D Digital Instrument Cluster</li> <li>• Surround View Monitor</li> <li>• Blind-Spot View Monitor</li> <li>• Remote Smart Parking Assist</li> <li>• Parking Collision-Avoidance Assist - Reverse</li> <li>• Advanced Rear Occupant Alert</li> <li>• Wireless Phone Charger</li> <li>• Genesis Digital Key</li> <li>• Sport Aluminum Trim</li> <li>• Power Cushion Extension, Bolster, and Ergo Motion (Driver)</li> <li>• Forward Attention Warning</li> </ul> <p><b>Accessories</b></p> <ul style="list-style-type: none"> <li>• *Cargo Tray, Reversible <b>\$160.00</b></li> <li>• **First Aid Kit <b>\$45.00</b></li> <li>• *All Season Fitted Liners <b>\$220.00</b></li> <li>• **Wheel Locks <b>\$85.00</b></li> </ul> <p>Inland Freight &amp; Handling: <b>\$1,195.00</b></p>
<p><b>SOLD TO: NY710</b> GENESIS OF ITHACA 320 ELMIRA ROAD ITHACA NY 14850</p>	<p><b>SHIPPED TO: NY710</b></p>	<p><b>TOTAL PRICE: \$65,980.00</b></p> <p>235 A 2324QTOMBA</p>
<p><b>VIN:</b> KMTGA45CXRJ208095</p> <p><b>ENGINE:</b> 04KRPA500976</p> <p><b>MODEL:</b> S422A45</p> <p><b>EMISSIONS:</b> This vehicle is certified to meet emission requirements in all 50 states</p>	<p><b>EXTERIOR COLOR:</b> CAPRI BLUE</p> <p><b>PORT OF ENTRY:</b> PH</p> <p><b>TRANSPORT:</b> TRUCK</p> <p><b>ACCESSORY WEIGHT:</b> 0 lbs./ 0 kgs.</p>	<p><b>THE GENESIS EXPERIENCE</b></p> <p><b>ADDED FEATURES:</b></p> <p><b>Accessories</b></p>

<p><b>EPA DOT Fuel Economy and Environment</b> Gasoline Vehicle</p> <p><b>Fuel Economy</b></p> <p><b>25</b> MPG combined city/hwy</p> <p><b>22</b> city</p> <p><b>30</b> highway</p> <p>4.0 gallons per 100 miles</p> <p>Large Cars range from 14 to 140 MPG. The best vehicle rates 140 MPG.</p> <p><b>You spend \$3,250 more in fuel costs over 5 years compared to the average new vehicle.</b></p> <p><b>Annual fuel cost \$2,600</b></p> <p><b>Fuel Economy &amp; Greenhouse Gas Rating</b> (tailpipe only) Smog Rating (tailpipe only)</p> <p>1 5 10 Best</p> <p>This vehicle emits 261 grams CO<sub>2</sub> per mile. The best emits 0 grams per mile (tailpipe only). Producing and delivering fuel also create emissions; learn more at fueleconomy.gov</p> <p>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 \$3,250 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$ 4.30 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.</p> <p>fueleconomy.gov Calculate personalized estimates and compare vehicles</p>	<p><b>GOVERNMENT 5-STAR SAFETY RATINGS</b></p> <p><b>Overall Vehicle Score Not Rated</b></p> <p>Based on the combined rating of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.</p> <p><b>Frontal Driver</b> ★★★★★</p> <p><b>Crash Passenger</b> ★★★★★</p> <p>Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.</p> <p><b>Side Front seat</b> Not Rated</p> <p><b>Crash Rear seat</b> Not Rated</p> <p>Based on the risk of injury in a side impact.</p> <p><b>Rollover</b> ★★★★★</p> <p>Based on the risk of rollover in a single-vehicle crash.</p> <p>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</p> <p>Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. Gasoline license and title fees state and local taxes and dealer installed accessories are not included in this manufacturer's suggested retail price. This label has been affixed to this vehicle by Genesis Motor America, pursuant to the requirements of 16 U.S.C. 1231 et seq, which prohibits its removal or alteration prior to delivery to the ultimate purchaser.</p> <p>Scan this QR code for general model information and options</p>
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<p><b>FOR VEHICLES IN THIS CARLINE:</b></p> <p><b>MAJOR SOURCES OF FOREIGN PARTS CONTENT:</b></p> <p><b>FOR THIS VEHICLE:</b></p> <p><b>ENGINE: KOREA</b></p> <p>Note: Parts content does not include final assembly, distribution, or other non-parts costs.</p>	<p><b>PARTS CONTENT INFORMATION</b></p> <p><b>U.S./CANADIAN PARTS CONTENT:</b> 2 %</p> <p><b>FINAL ASSEMBLY POINT:</b> ULSAN, KOREA</p> <p><b>COUNTRY OF ORIGIN:</b> KOREA</p> <p><b>TRANSMISSION: KOREA</b></p>
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FIGURE 102. Monroney Label

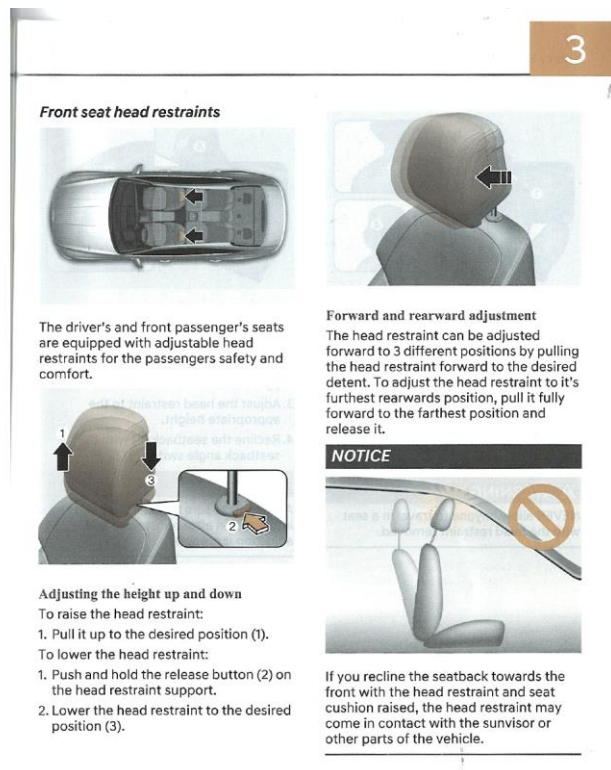


FIGURE 103. Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

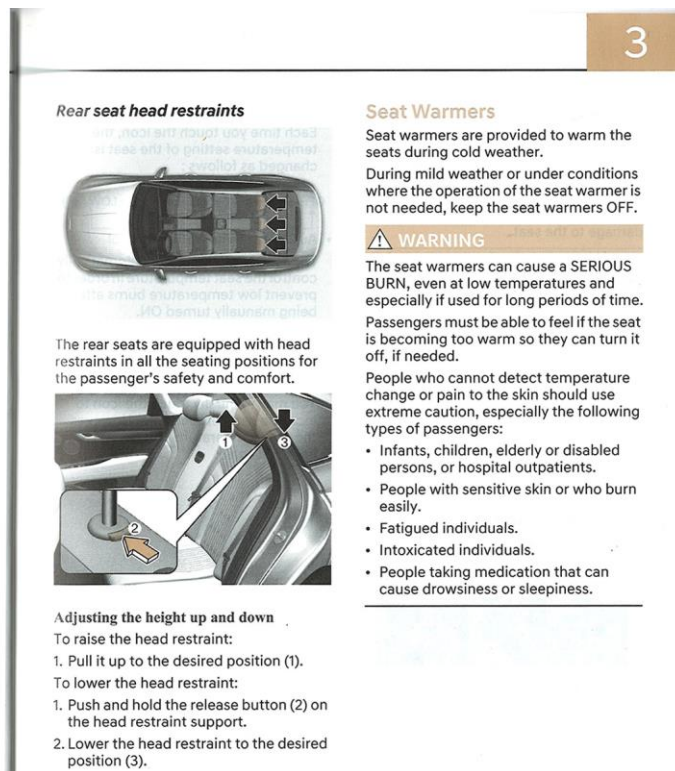


FIGURE 104. Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

**APPENDIX B**  
**VEHICLE AND DUMMY RESPONSE DATA PLOTS**

## TABLE OF DATA PLOTS

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1	Driver Head Acceleration (X) Primary vs. Time	B-1
2	Driver Head Acceleration (Y) Primary vs. Time	B-1
3	Driver Head Acceleration (Z) Primary vs. Time	B-1
4	Driver Head Resultant Acceleration Primary vs. Time	B-1
5	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-2
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-2
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-2
8	Driver Thorax Rib Deflection Maximum vs. Time	B-2
9	Driver Anterior Abdominal Force (Y) vs. Time	B-3
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11	Driver Posterior Abdominal Force (Y) vs. Time	B-3
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16	Passenger Head Acceleration (Z) vs. Time Primary	B-5
17	Passenger Head Resultant Acceleration Primary vs. Time	B-5
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-6
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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](http://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)

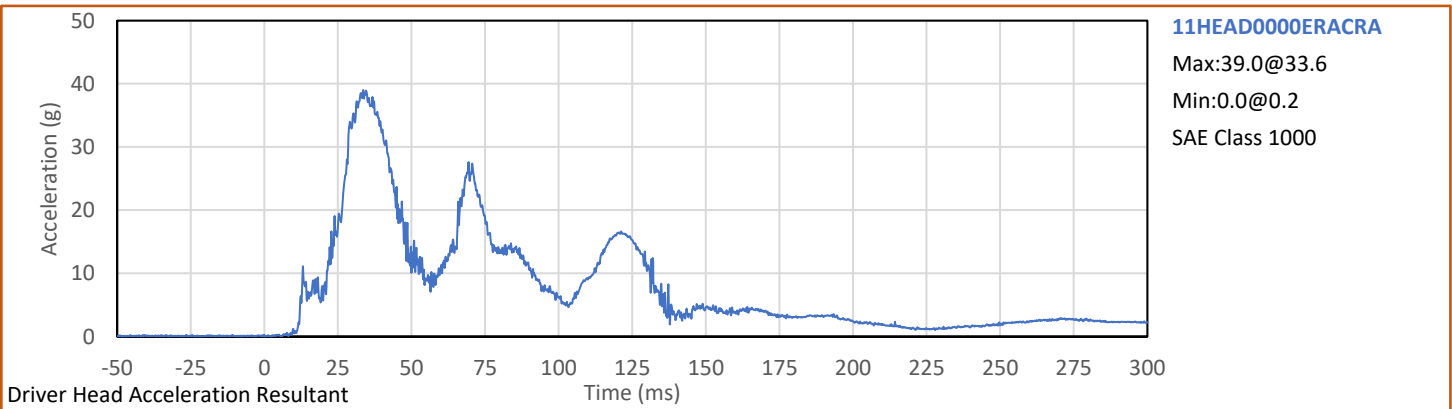
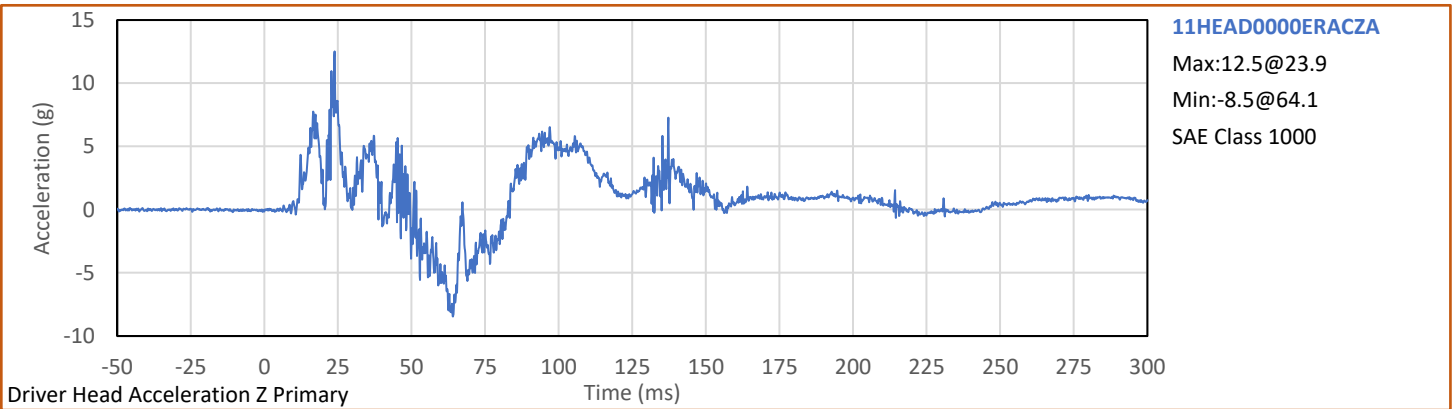
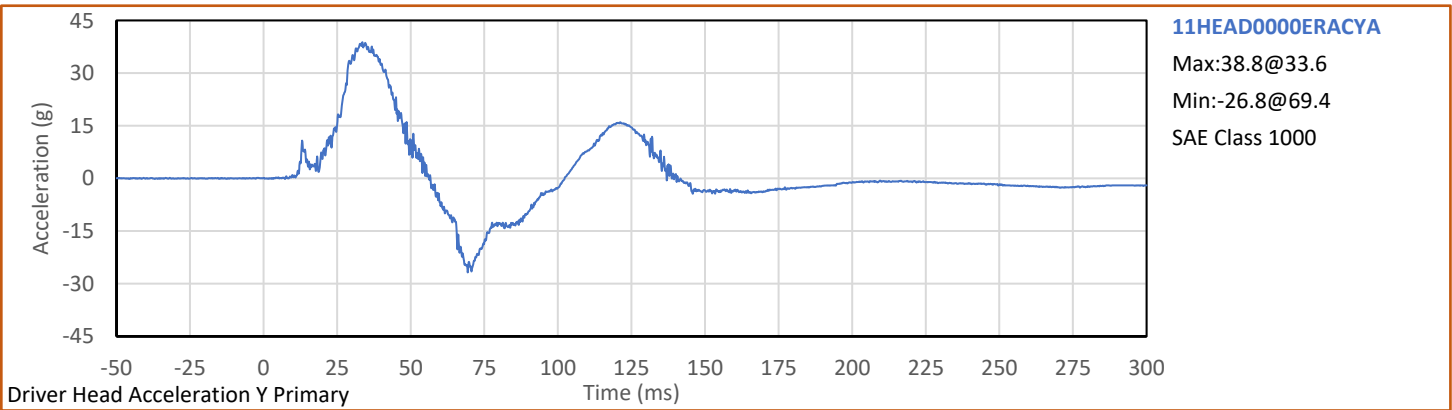
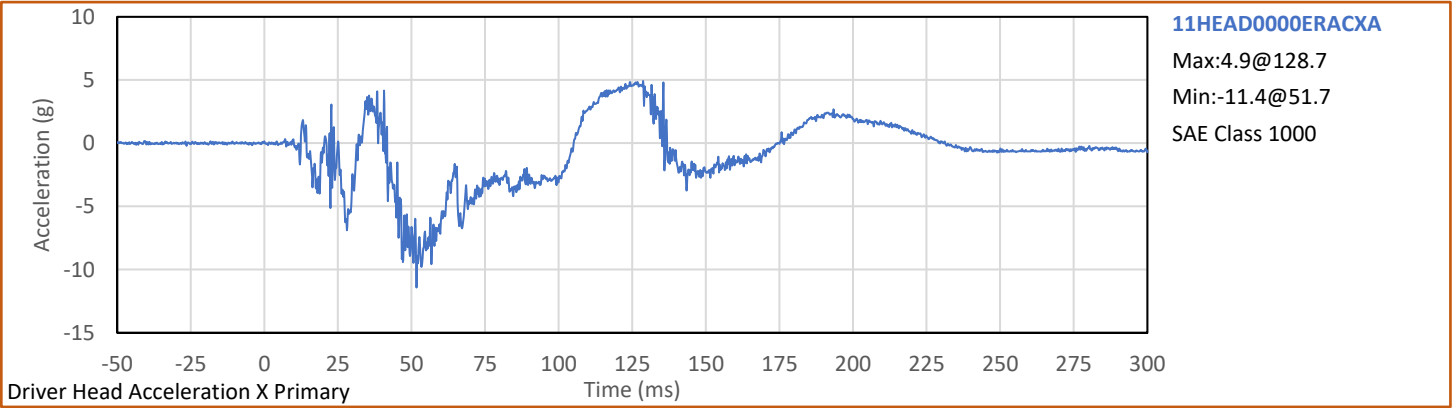
MDB Center of Gravity Acceleration (Z)

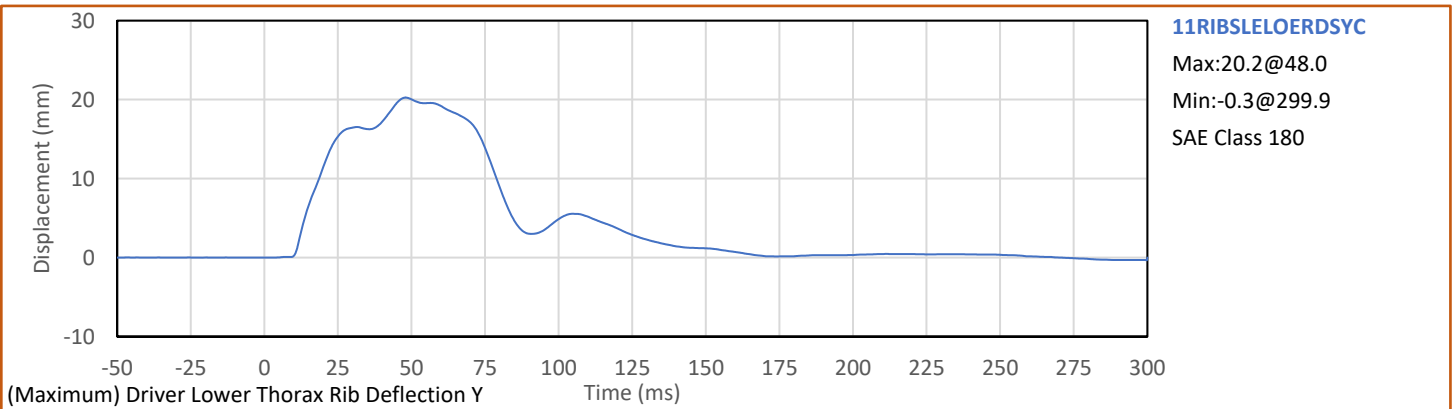
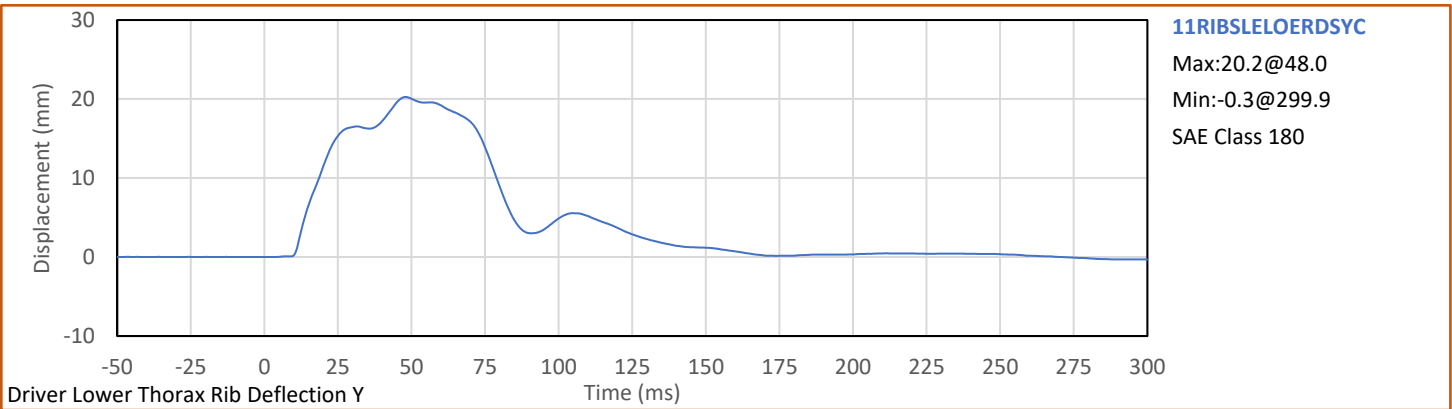
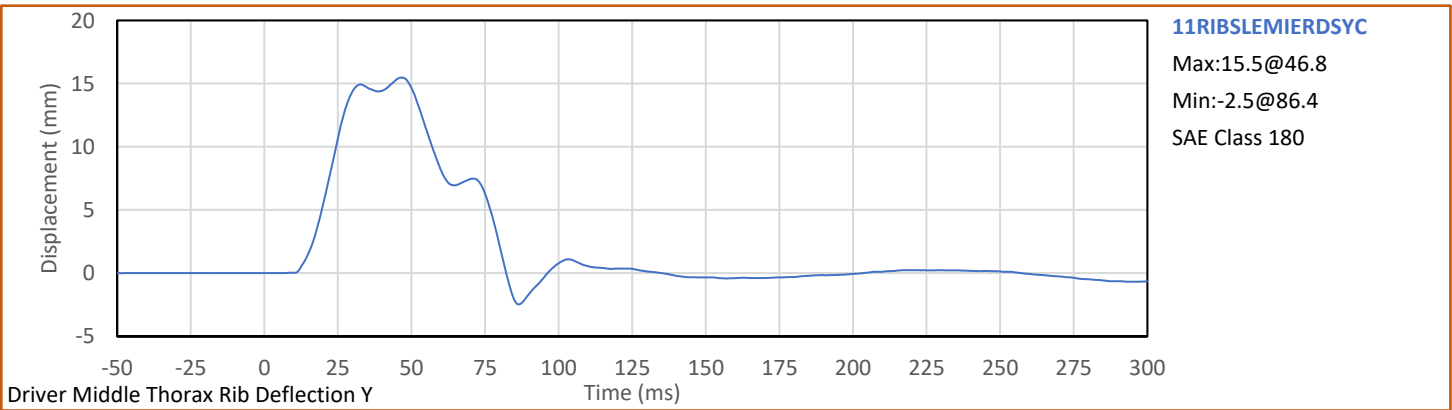
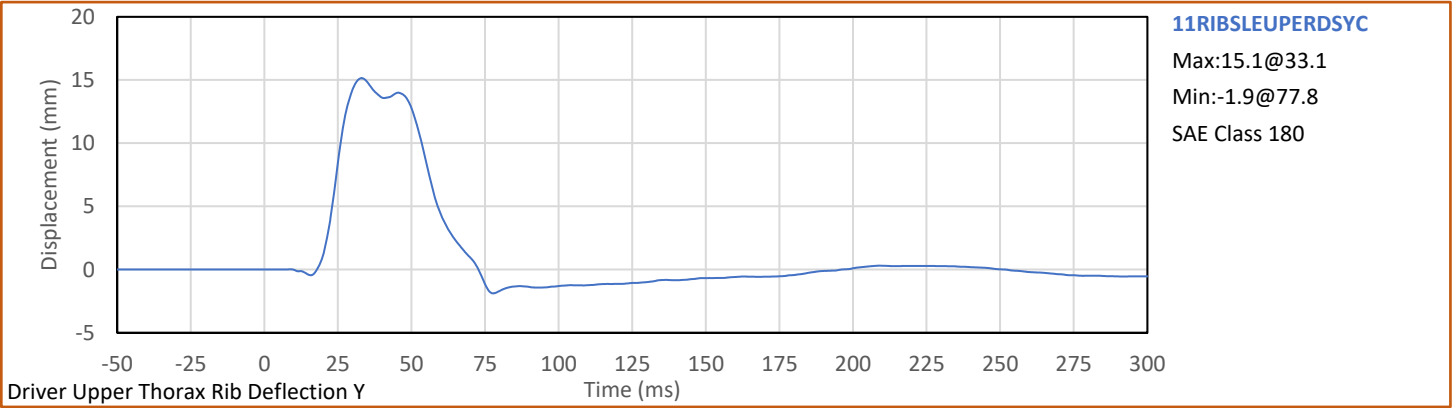
MDB Rear Acceleration (X)

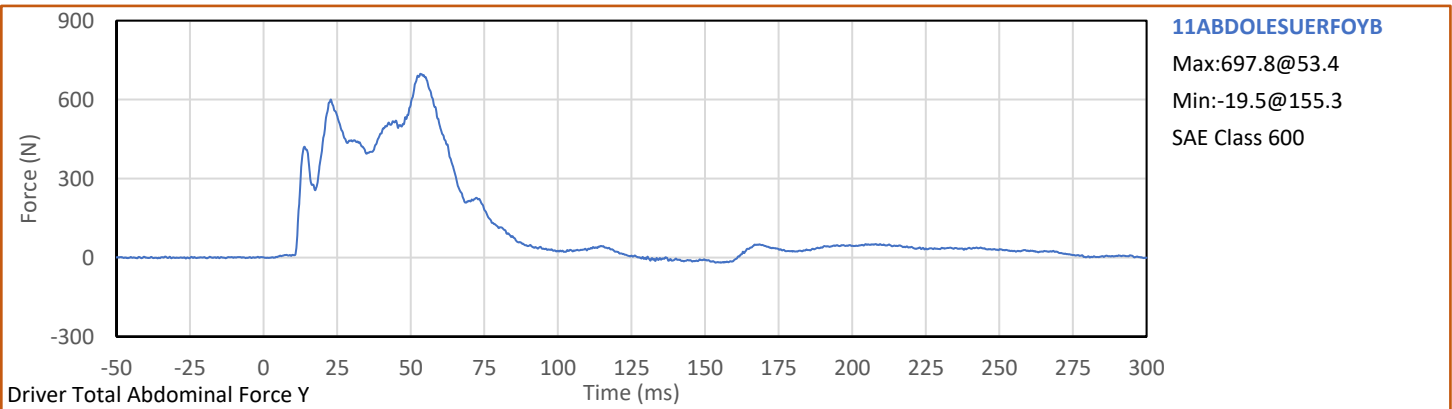
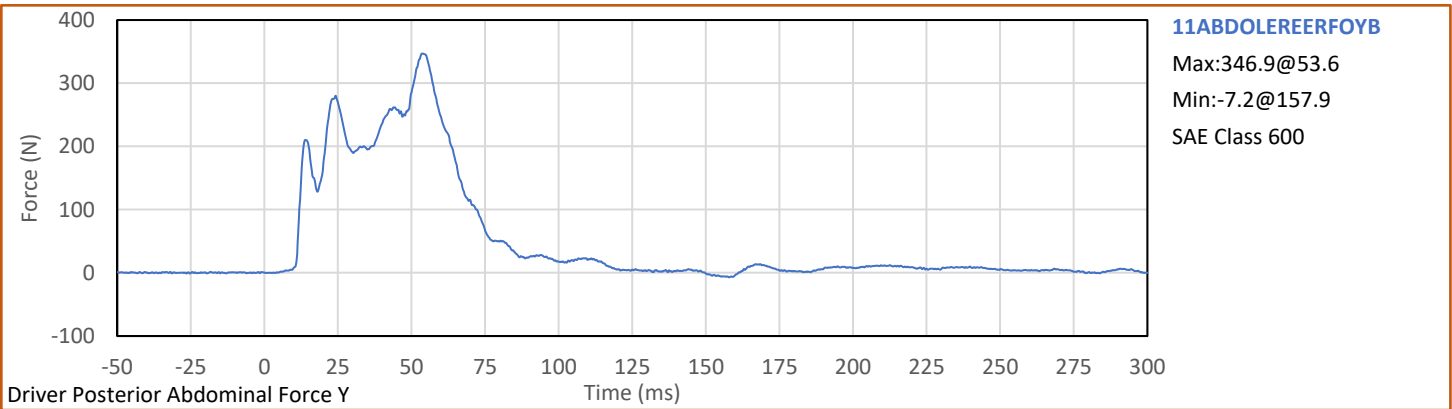
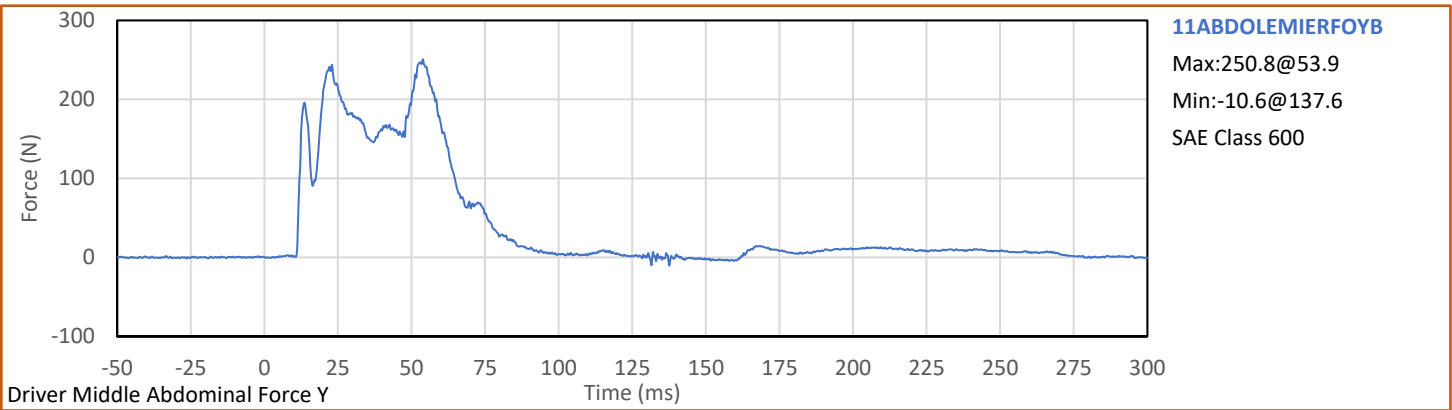
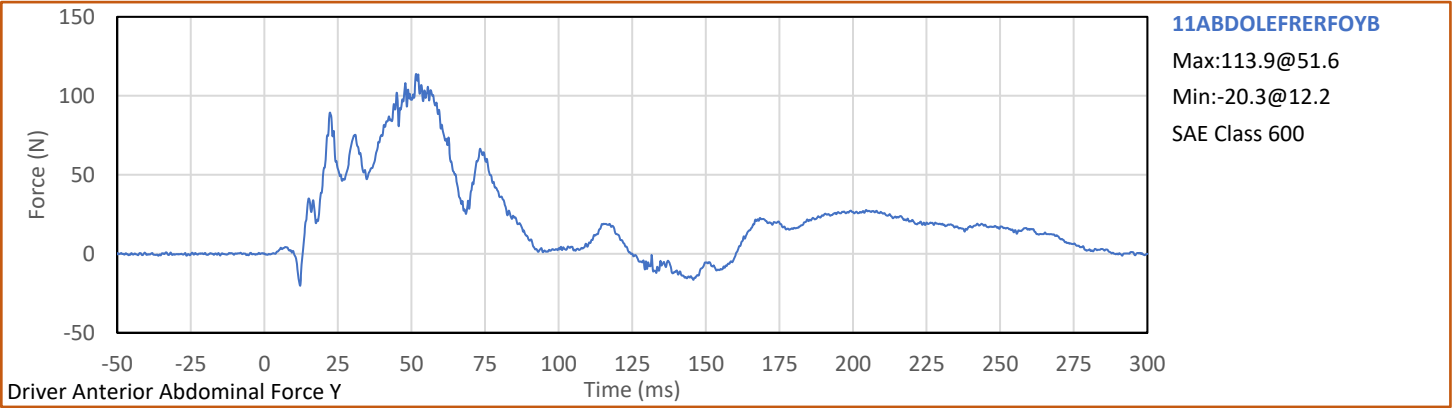
MDB Rear Acceleration (Y)

Left MDB Contact Switch

Right MDB Contact Switch

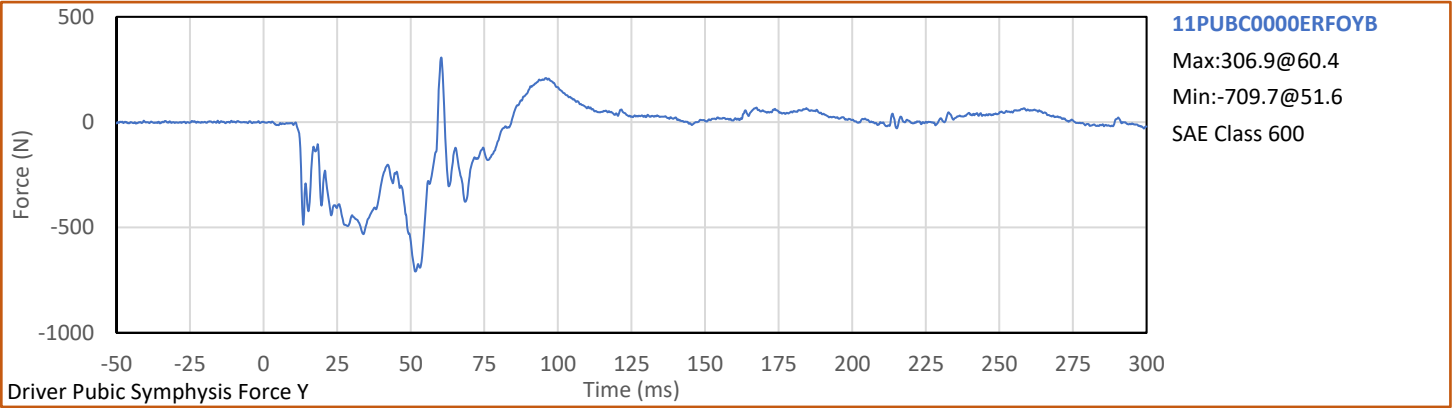


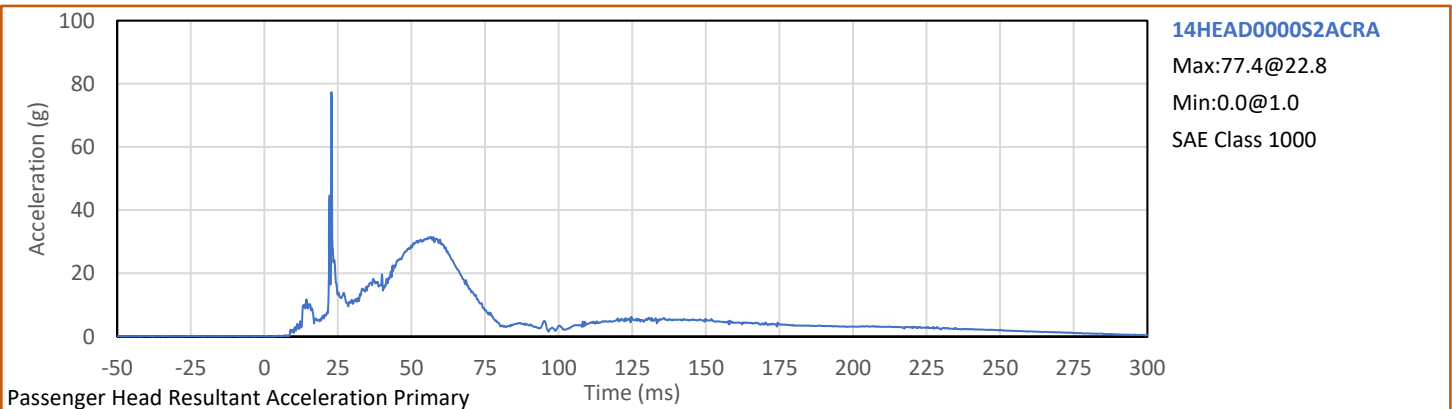
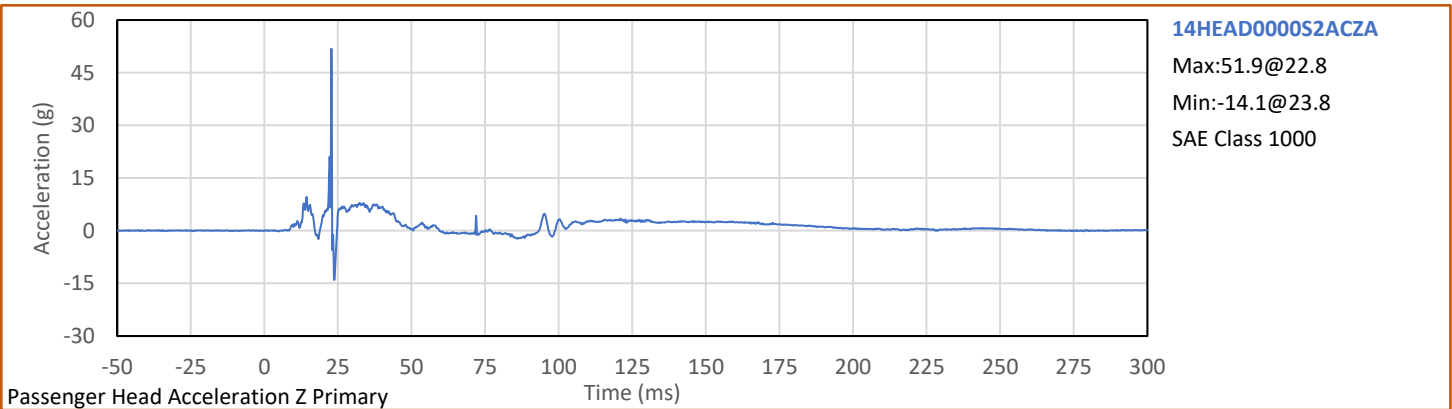
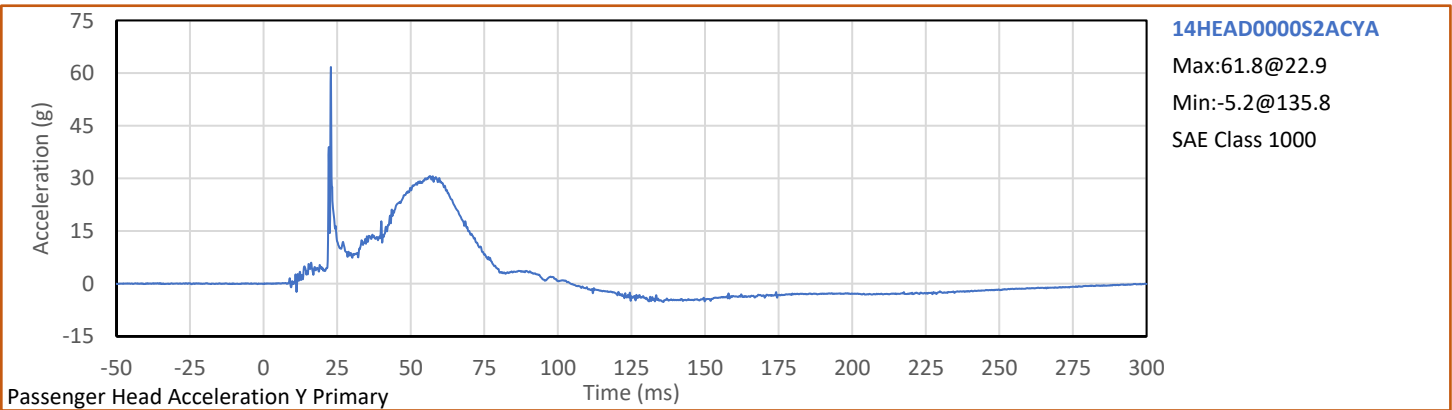
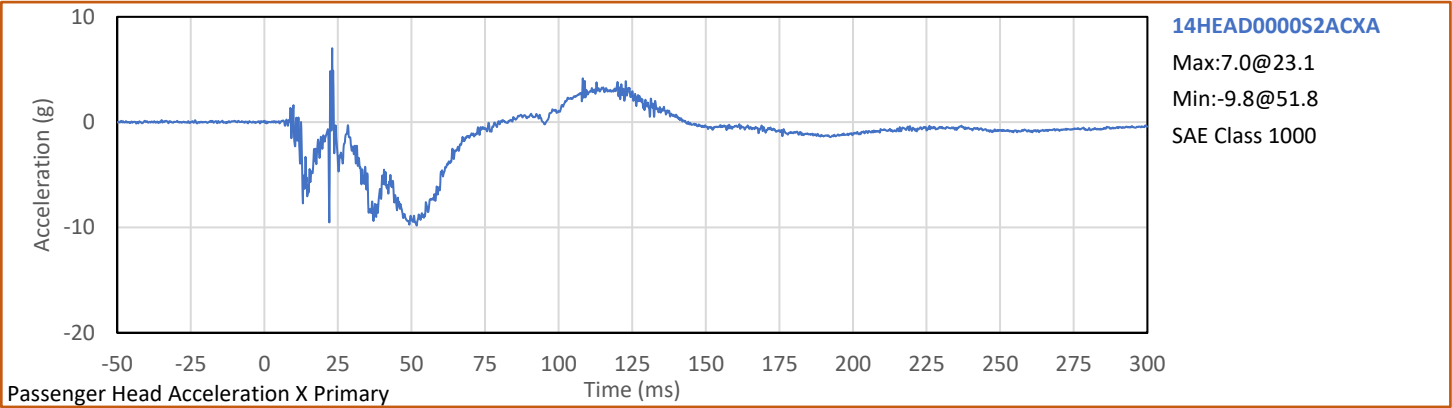


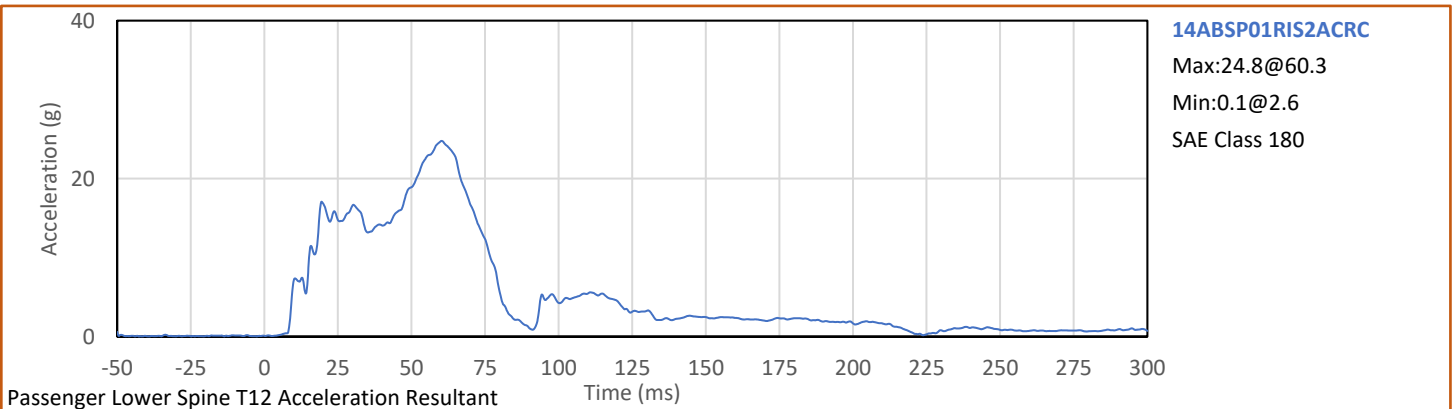
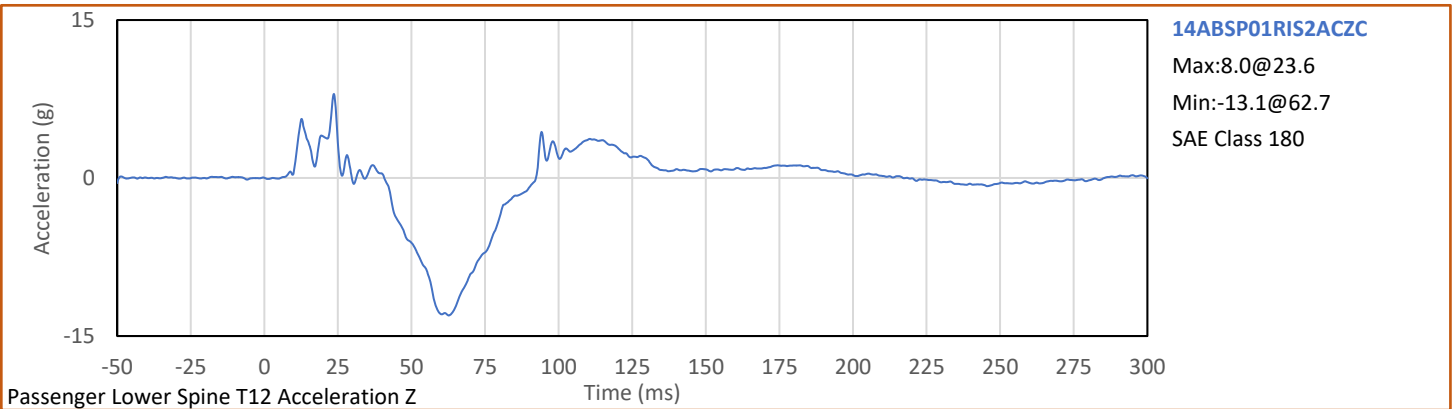
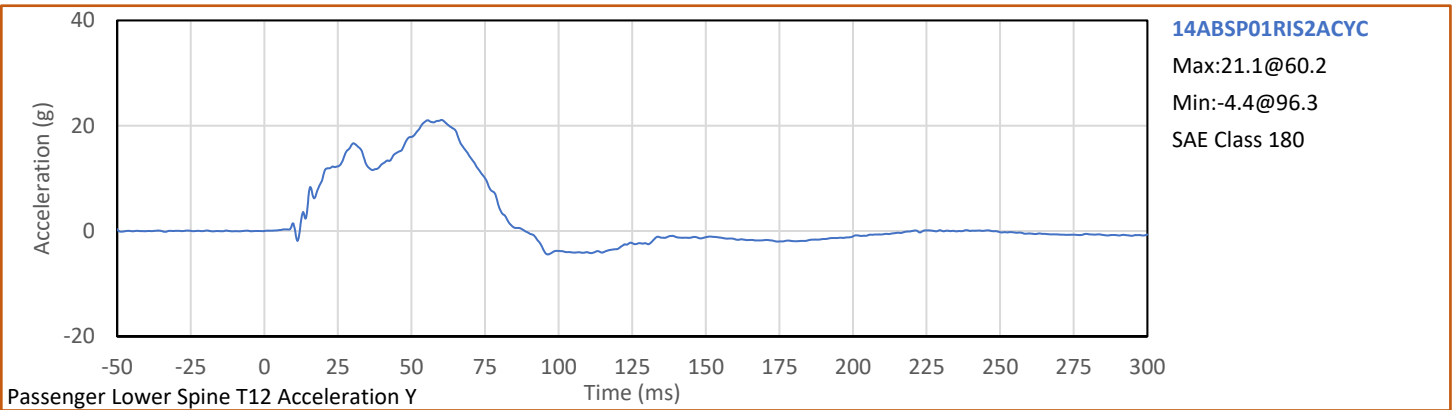
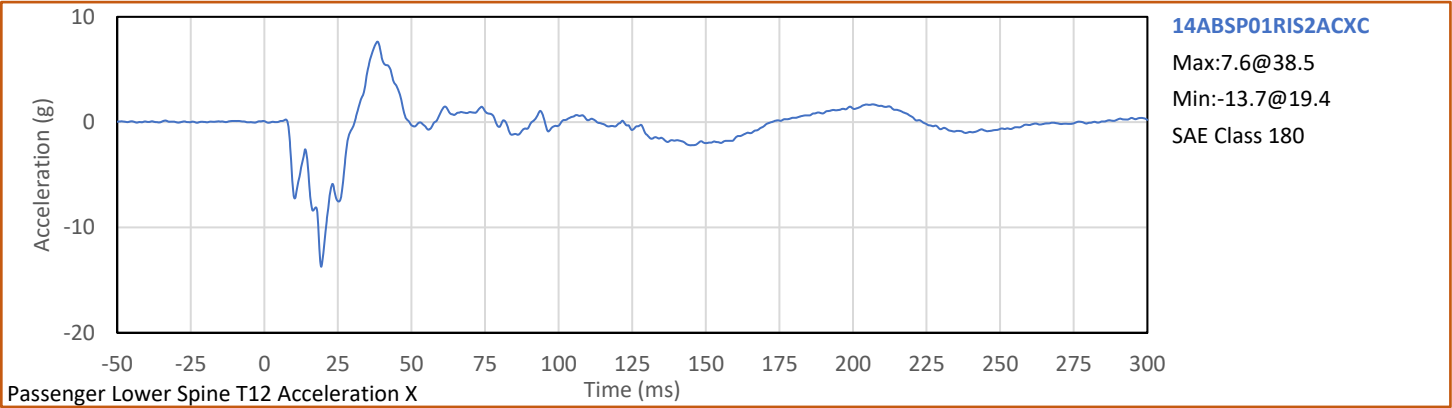


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Test Program: NCAP MDB Side Impact Test

NHTSA No.: O20244201  
Test Date: 10/26/2023







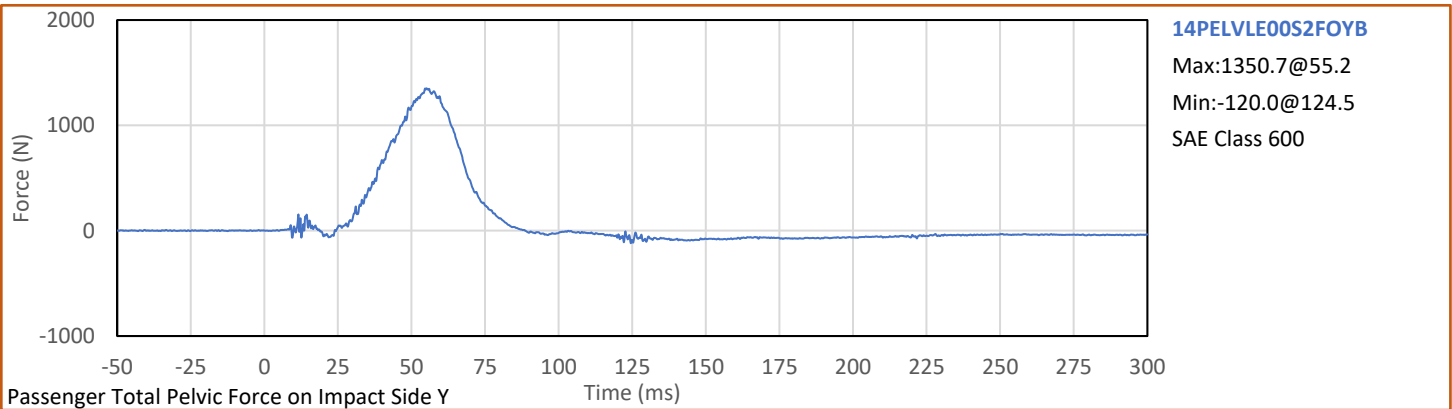
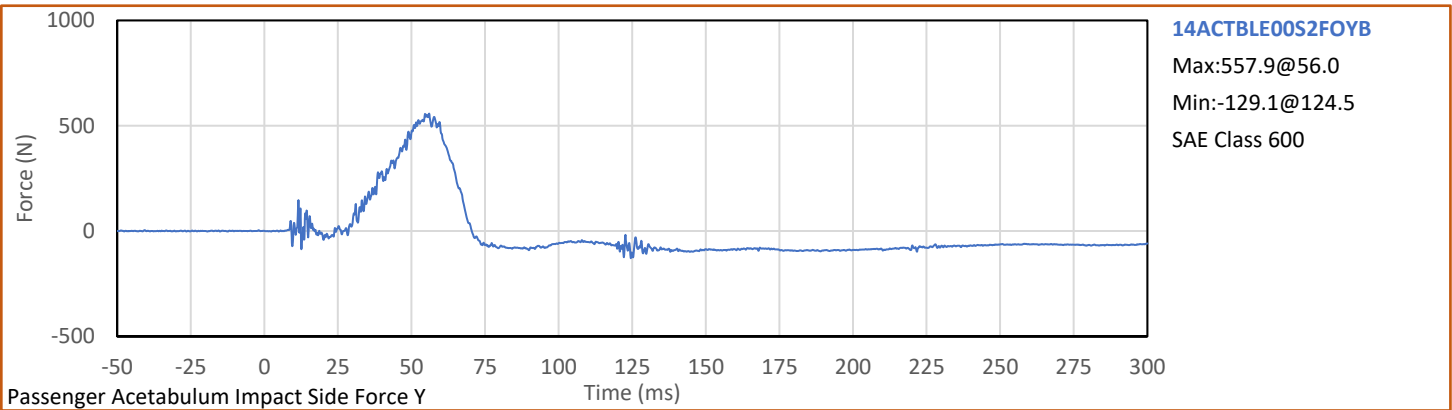
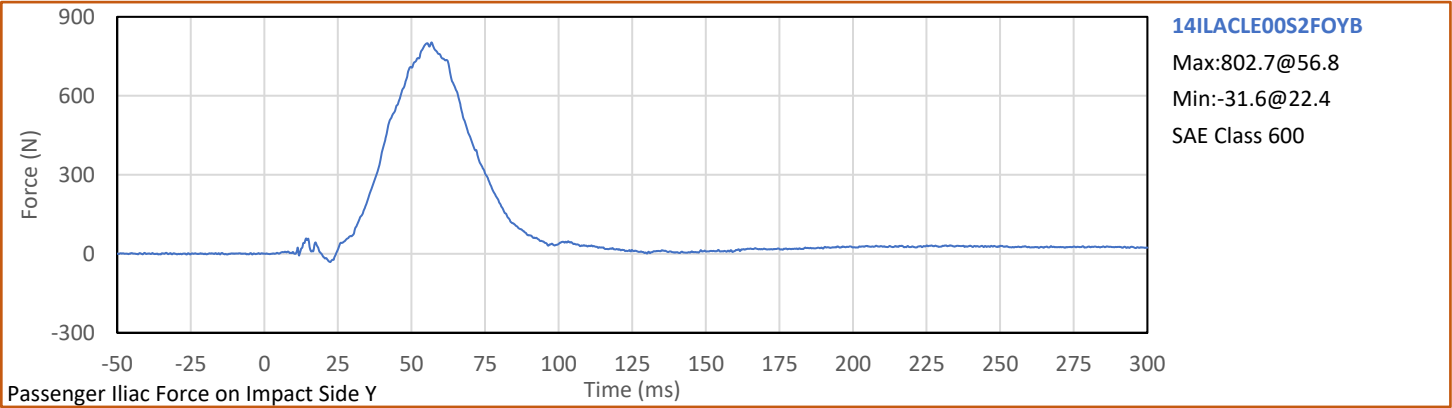
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NHTSA No.: O20244201



Test Program: NCAP MDB Side Impact Test

Test Date: 10/26/2023



**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	21.4	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
1 - Sitting Height	mm	900	918	916	Pass
2 - Seat to Shoulder Joint	mm	558	572	565	Pass
3 - Seat to Lower Face of Thoracic Spine Box	mm	346	356	353	Pass
4 - Seat to Hip Joint (bolt center)	mm	97	103	100	Pass
5 - Sole to Seat, Sitting	mm	433	451	445	Pass
6 - Head Width	mm	152	158	158	Pass
7 - Shoulder/Arm Width	mm	461	479	475	Pass
8 - Thorax Width	mm	322	332	326	Pass
9 - Abdomen Width	mm	273	287	284	Pass
10 - Pelvis Lap Width	mm	359	373	368	Pass
11 - Head Depth	mm	196	206	200	Pass
12 - Thorax Depth	mm	262	272	270	Pass
13 - Abdomen Depth	mm	194	204	199	Pass
14 - Pelvis Depth	mm	235	245	244	Pass
15 - Back of Buttocks to Hip Joint (bolt Center)	mm	150	160	156	Pass
16 - Back of Buttocks to Front Knee	mm	597	615	612	Pass
Overall Test Results					Pass

Technician:



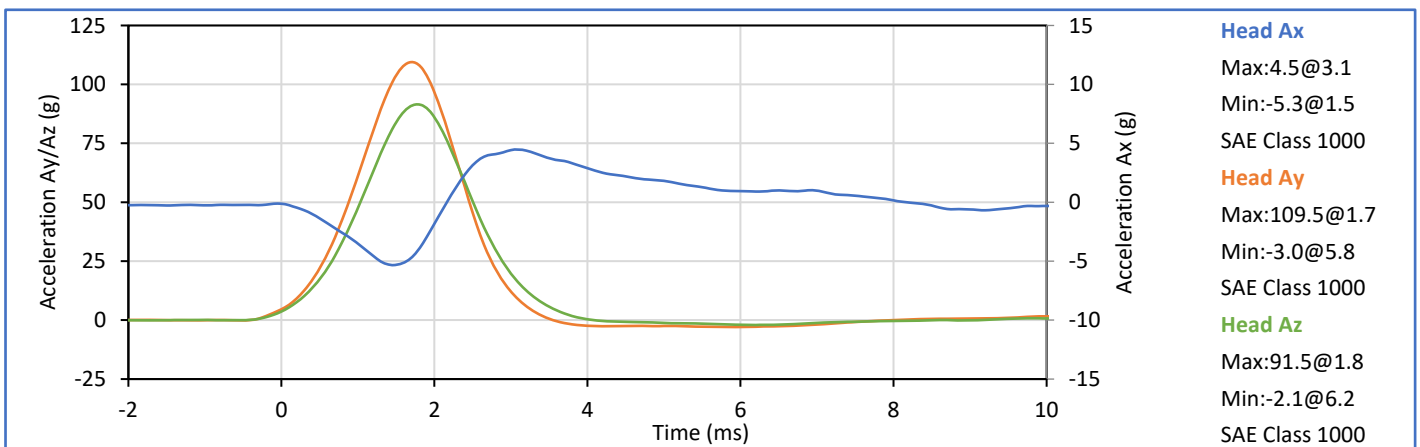
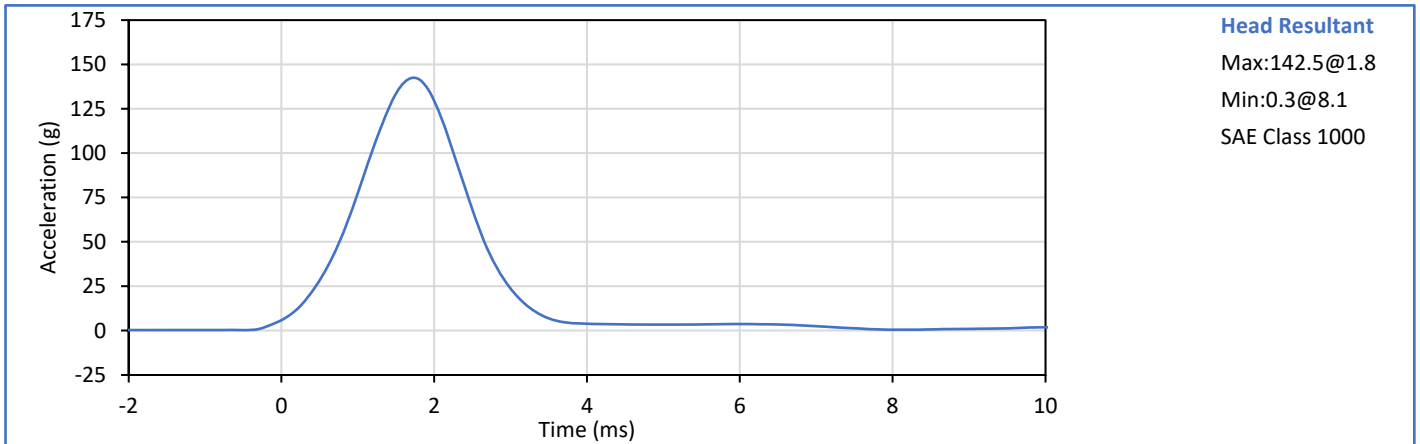
G. Fuentes

Approved By:



J. Hernandez

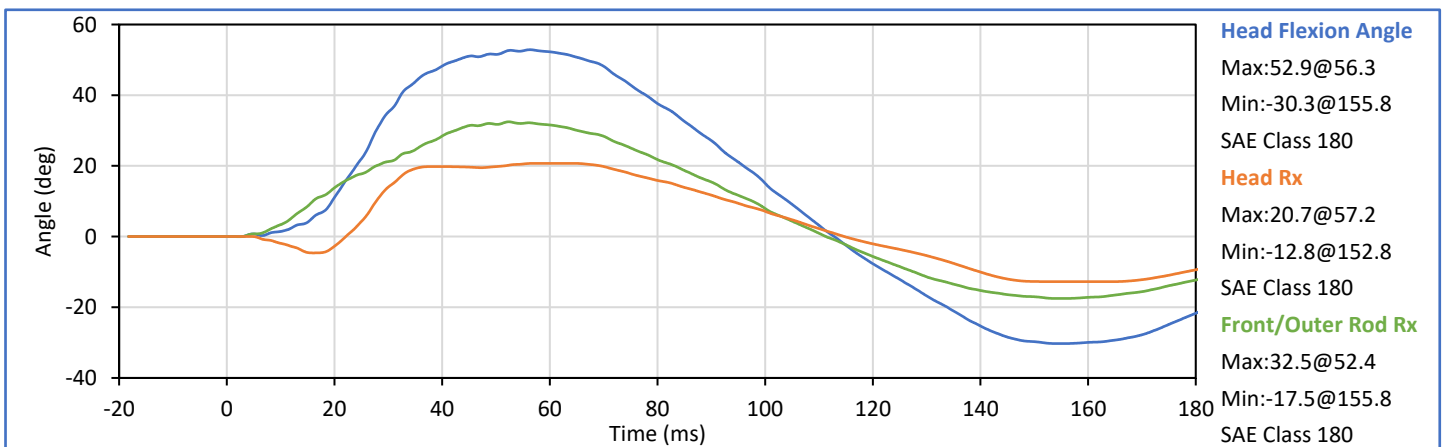
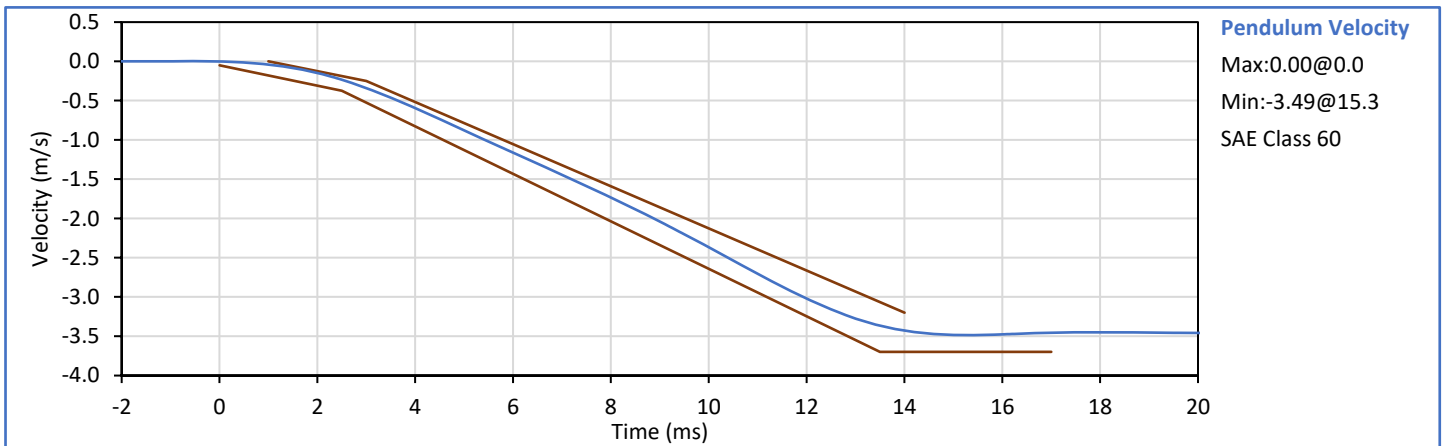
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.6	Pass
Laboratory Relative Humidity	%	10	70	42	Pass
Peak Resultant Acceleration	g	125.0	155.0	142.5	Pass
Peak Head Ax	g	-15.0	15.0	4.5	Pass
Oscillations After Main Pulse	%	0.0	15.0	2.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
<b>Overall Test Results</b>					<b>Pass</b>



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	41	Pass
Pendulum Velocity	m/s	3.30	3.50	3.44	Pass
Peak Headform Flexion	deg	49.0	59.0	52.9	Pass
Time of Peak Headform Flexion	ms	54.0	66.0	56.3	Pass
Flexion Decay (Peak to zero)	ms	53.0	88.0	56.6	Pass
Overall Test Results					Pass



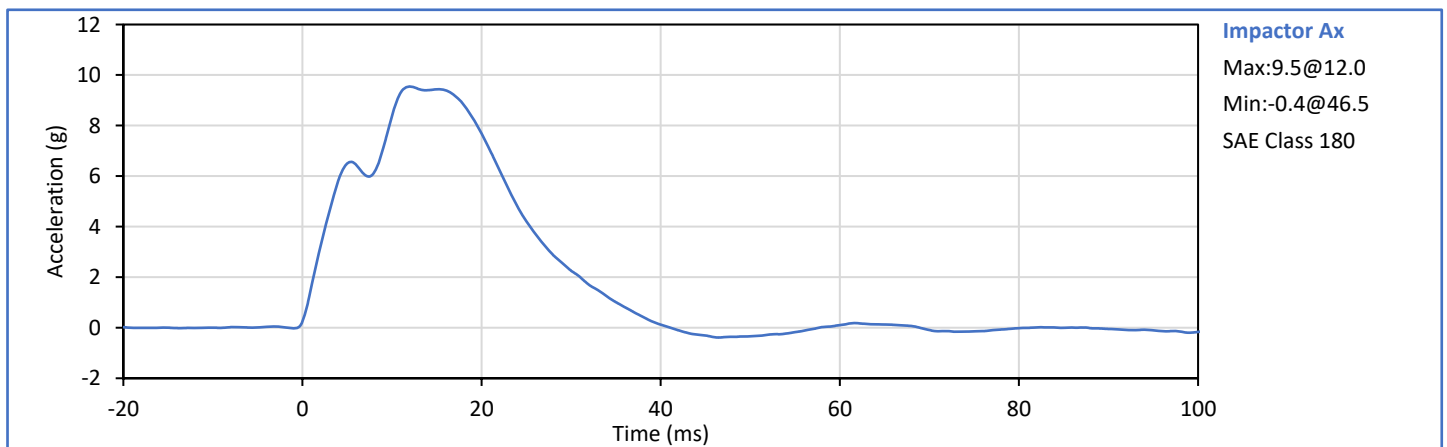
Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Smith*  
J. Hernandez

ATD Serial No.: F037

Test Date: 2023-10-23

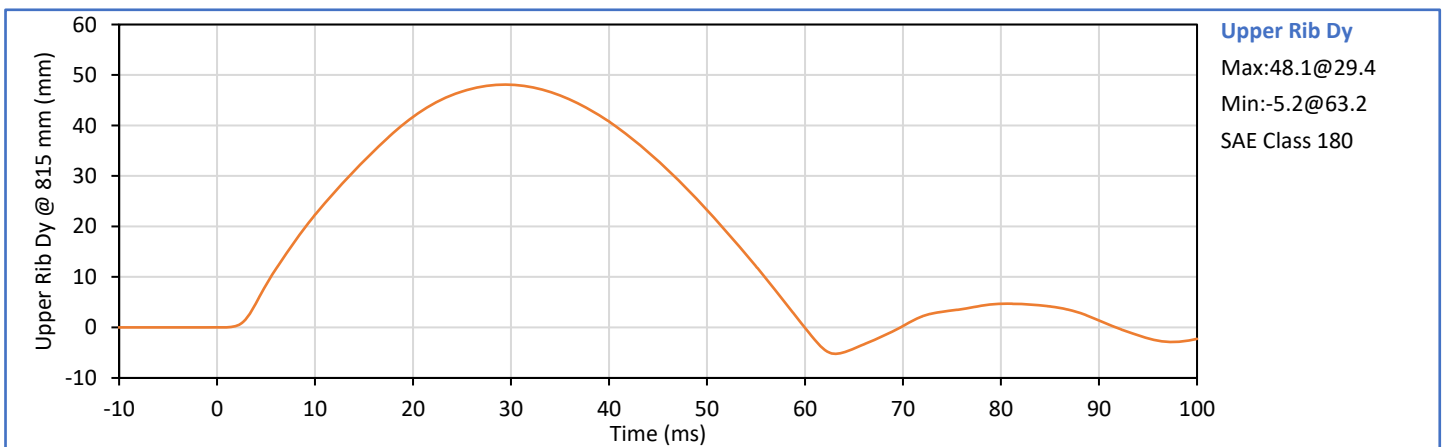
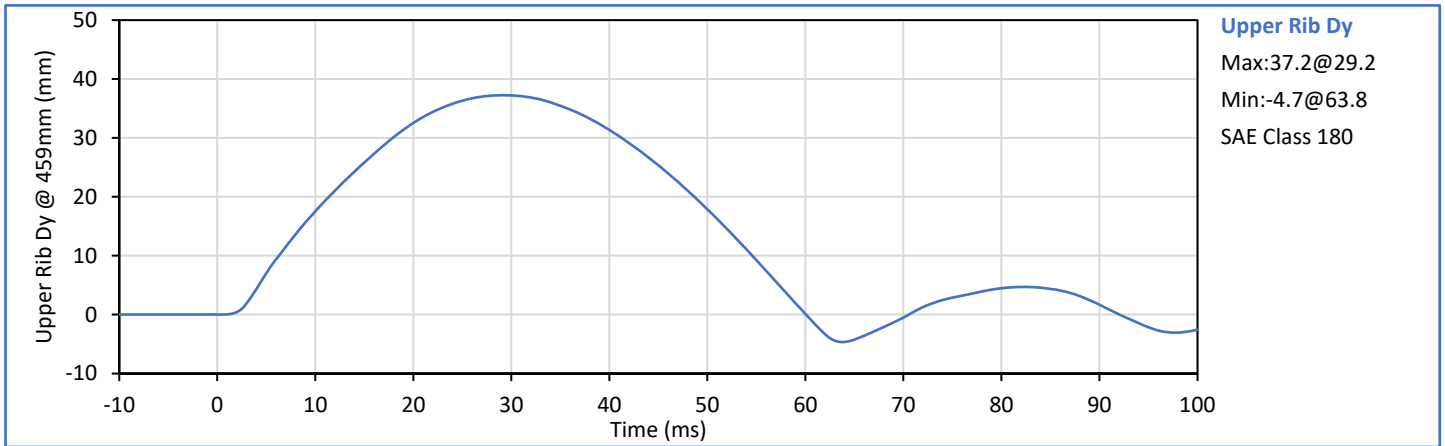
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Impactor Ax	g	7.5	10.5	9.5	Pass
Overall Test Results					Pass



Technician: *Mill JG III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

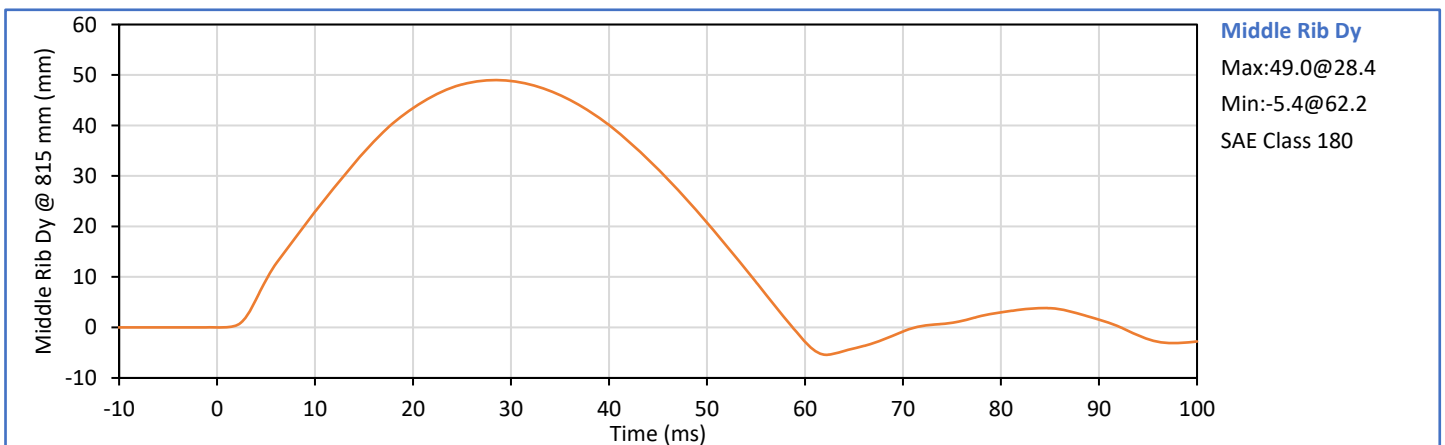
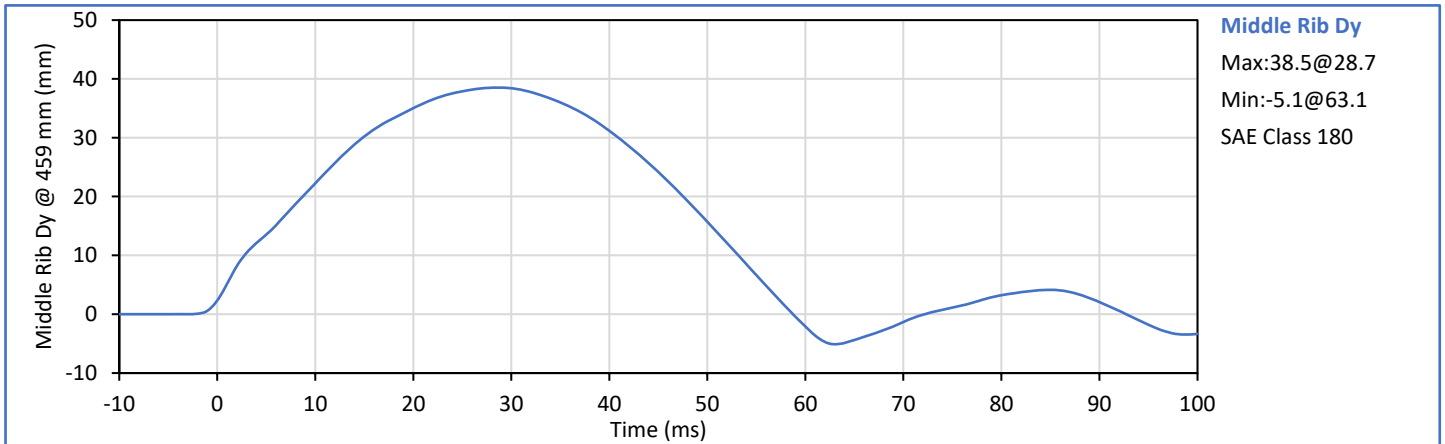
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Upper Rib Dy @ 459mm	mm	36.0	40.0	37.2	Pass
Upper Rib Dy @ 815mm	mm	46.0	51.0	48.1	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seuth*  
J. Hernandez

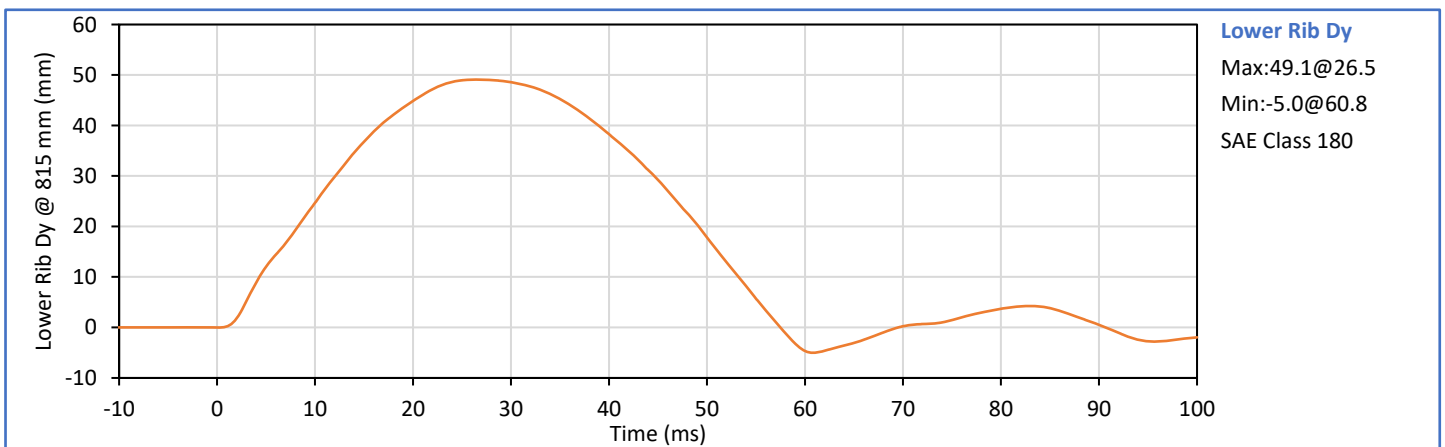
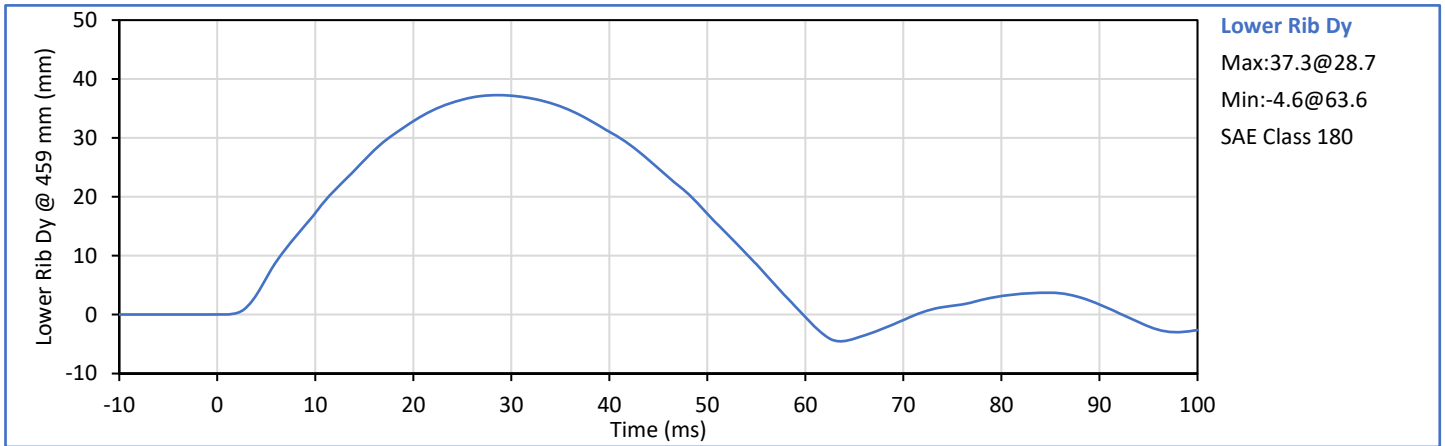
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Middle Rib Dy @ 459mm	mm	36.0	40.0	38.5	Pass
Middle Rib Dy @ 815mm	mm	46.0	51.0	49.0	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

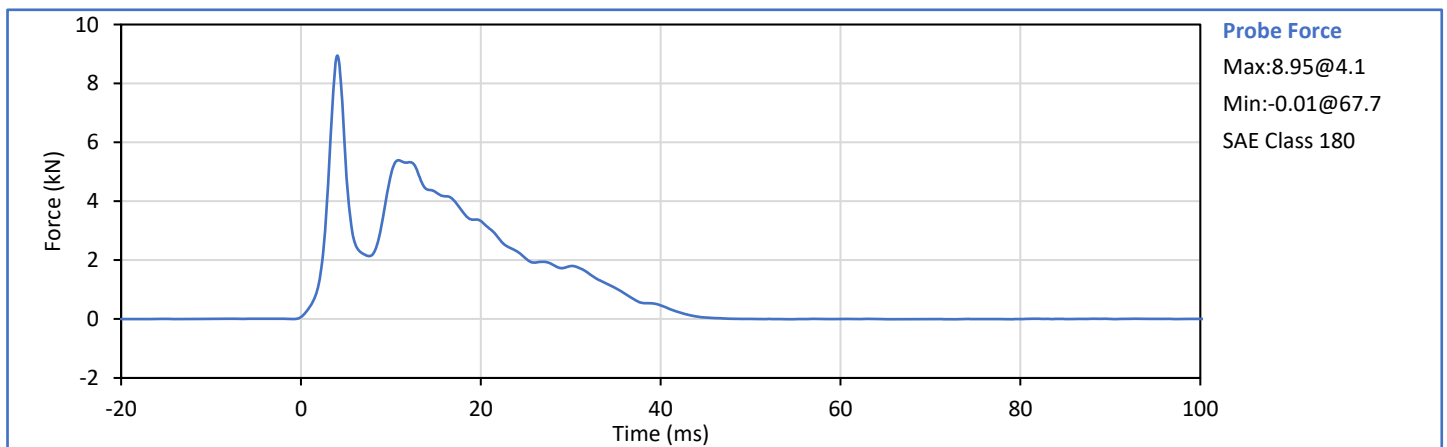
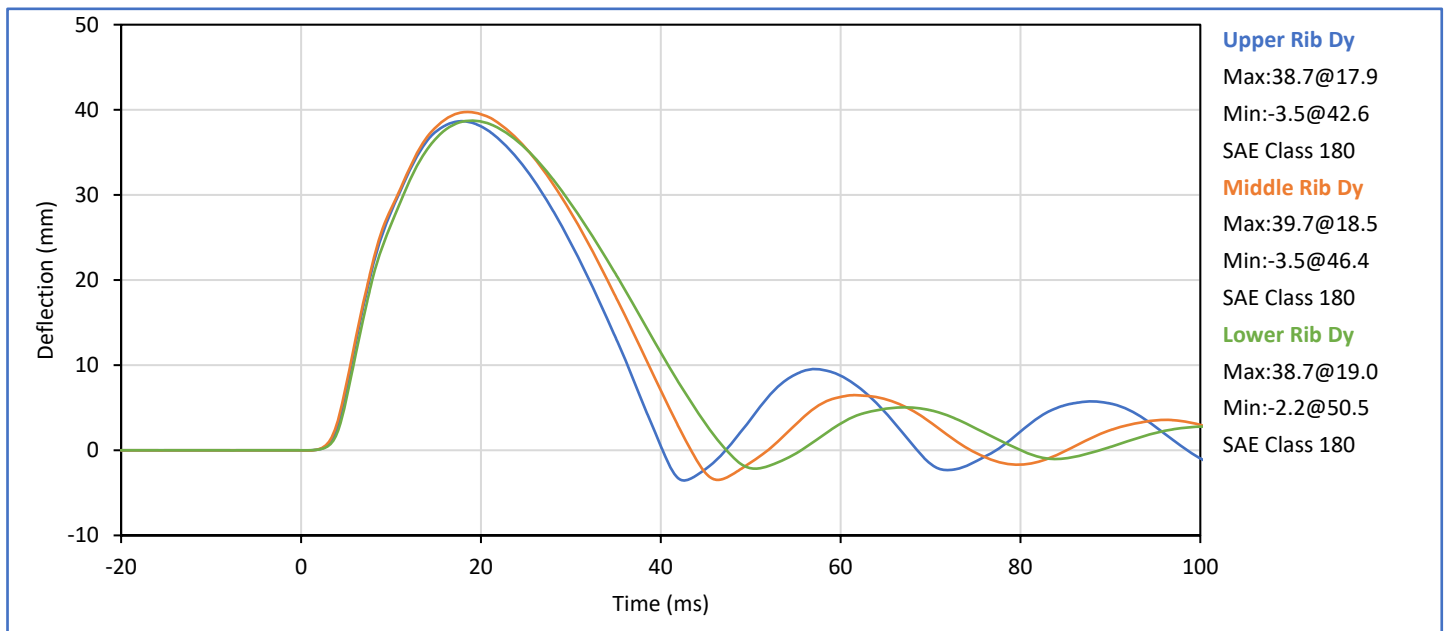
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Lower Rib Dy @ 459mm	mm	36.0	40.0	37.3	Pass
Lower Rib Dy @ 815mm	mm	46.0	51.0	49.1	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seuth*  
J. Hernandez

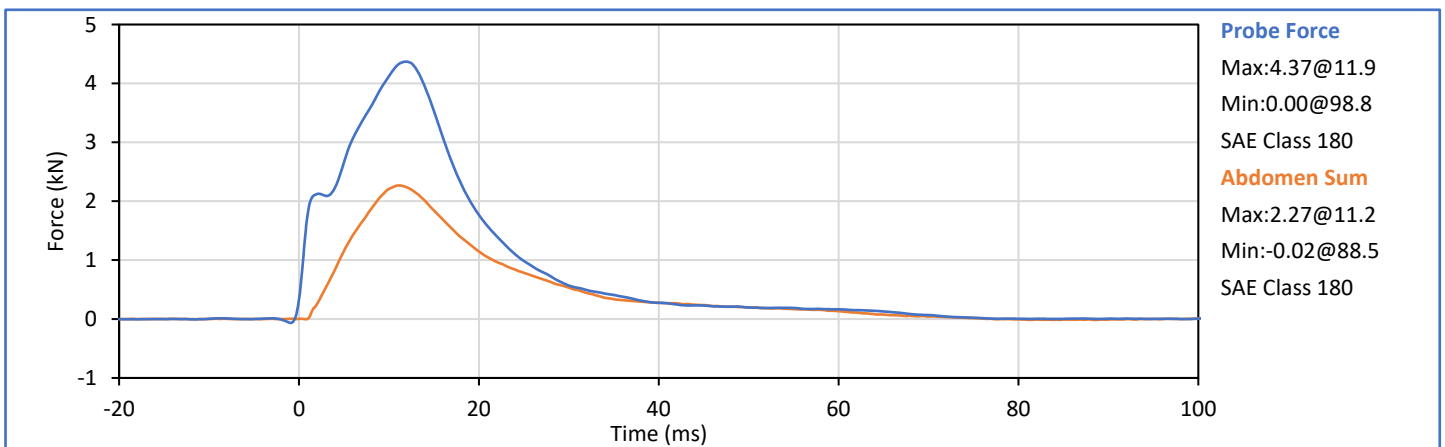
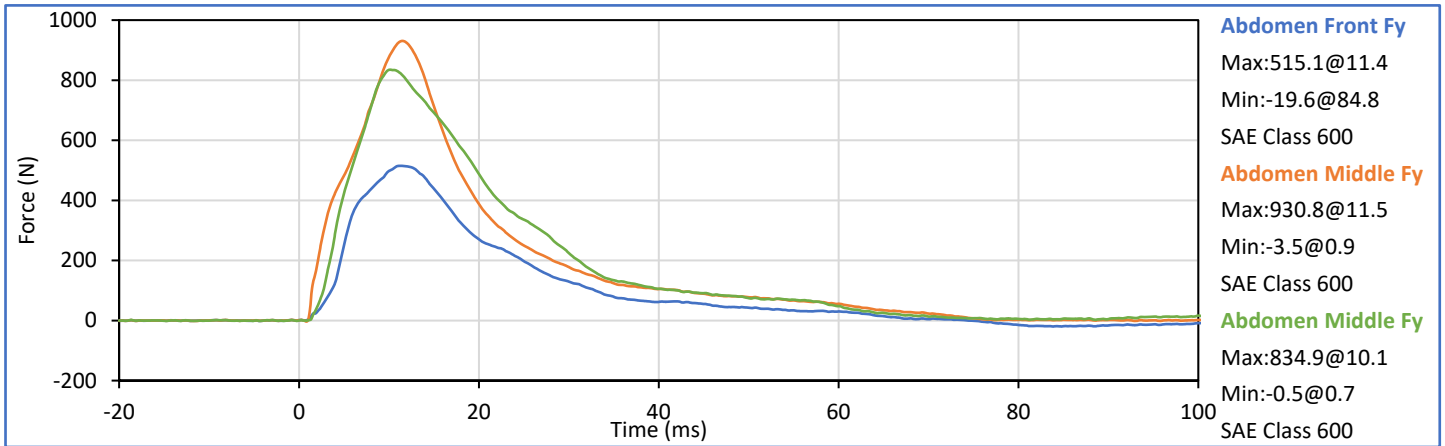
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	5.40	5.60	5.52	Pass
Peak Upper Rib Dy	mm	34.0	41.0	38.7	Pass
Peak Middle Rib Dy	mm	37.0	45.0	39.7	Pass
Peak Lower Rib Dy	mm	37.0	44.0	38.7	Pass
Peak Impactor Force After 6 ms	kN	5.10	6.20	5.39	Pass
<b>Overall Test Results</b>					<b>Pass</b>



Technician: *Milli JG III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

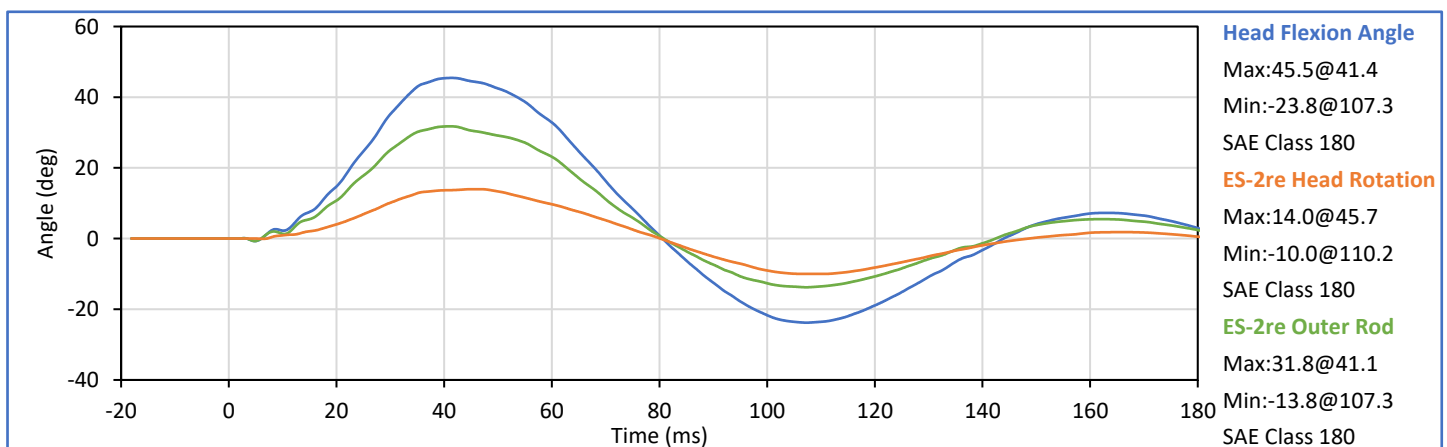
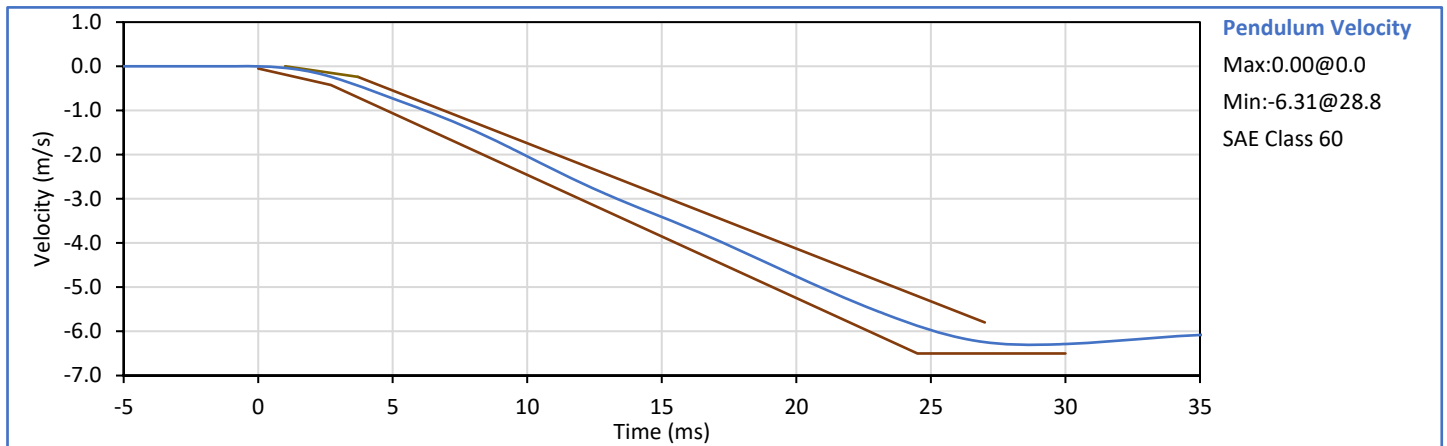
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	3.90	4.10	4.02	Pass
Peak Impactor Force	kN	4.00	4.80	4.37	Pass
Time of Peak Impactor Force	ms	10.6	13.0	11.9	Pass
Sum of Abdomen Forces	kN	2.20	2.70	2.27	Pass
Time of Peak Sum Abdomen Force	ms	10.0	12.3	11.2	Pass
<b>Overall Test Results</b>					<b>Pass</b>



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

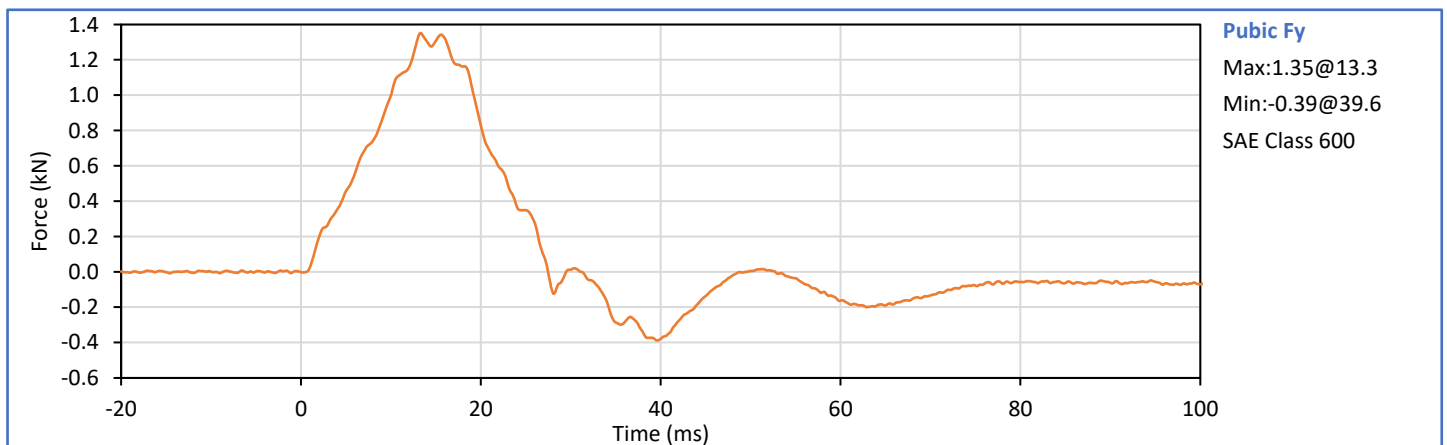
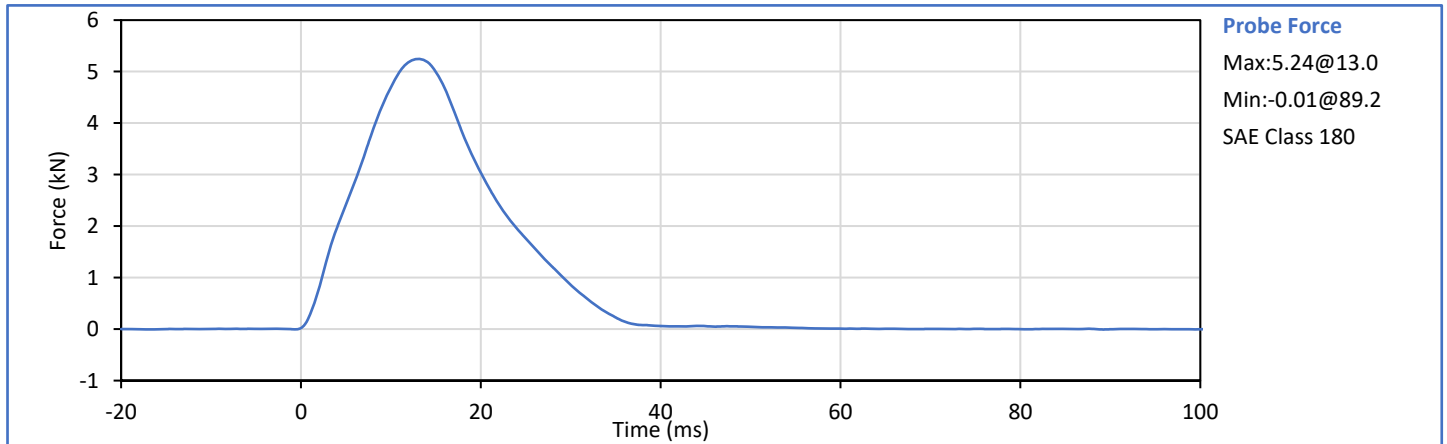
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Pendulum Velocity	m/s	5.95	6.15	6.10	Pass
Peak Headform Flexion	deg	45.0	55.0	45.5	Pass
Time of Peak Headform Flexion	ms	39.0	53.0	41.4	Pass
Flexion Decay (Peak to zero)	ms	37.0	57.0	39.2	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Santh*  
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	45	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Impactor Force	kN	4.70	5.40	5.24	Pass
Time of Peak Impactor Force	ms	11.8	16.1	13.0	Pass
Pubic Symphysis Fy	kN	1.23	1.59	1.35	Pass
Time of Peak Pubic Symphysis Fy	ms	12.2	17.0	13.3	Pass
<b>Overall Test Results</b>					<b>Pass</b>



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Smith*  
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: 2023-10-17

Tested Parameter	Units	Spec Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
A - Sitting Height	mm	772	788	778	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	85	Pass
D - H Point From Seatback	mm	141	151	147	Pass
E - Shoulder Pivot From Backline	mm	97	107	103	Pass
F - Thigh Clearance	mm	119	135	126	Pass
G - Head Breadth	mm	140	148	142	Pass
H - Head Back From Backline	mm	40	46	43	Pass
I - Head Depth	mm	178	188	181	Pass
J - Head Circumference	mm	541	551	549	Pass
K - Buttock To Knee Length	mm	514	540	528	Pass
L - Popliteal Height	mm	343	369	363	Pass
K - Knee Pivot To Floor Height	mm	392	409	404	Pass
N - Buttock Popliteal Length	mm	416	442	430	Pass
O - Chest Depth W/O Jacket	mm	195	211	202	Pass
P - Foot Length	mm	216	232	227	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	317	Pass
R - Arm Length	mm	249	259	258	Pass
S - Knee Joint To Seatback	mm	477	493	485	Pass
V - Shoulder Width	mm	341	357	352	Pass
W - Foot Width	mm	78	94	84	Pass
Y - Chest Circumference W/Jacket	mm	851	881	872	Pass
Z - Waist Circumference	mm	761	791	775	Pass
				Overall Test Results	Pass

Technician:



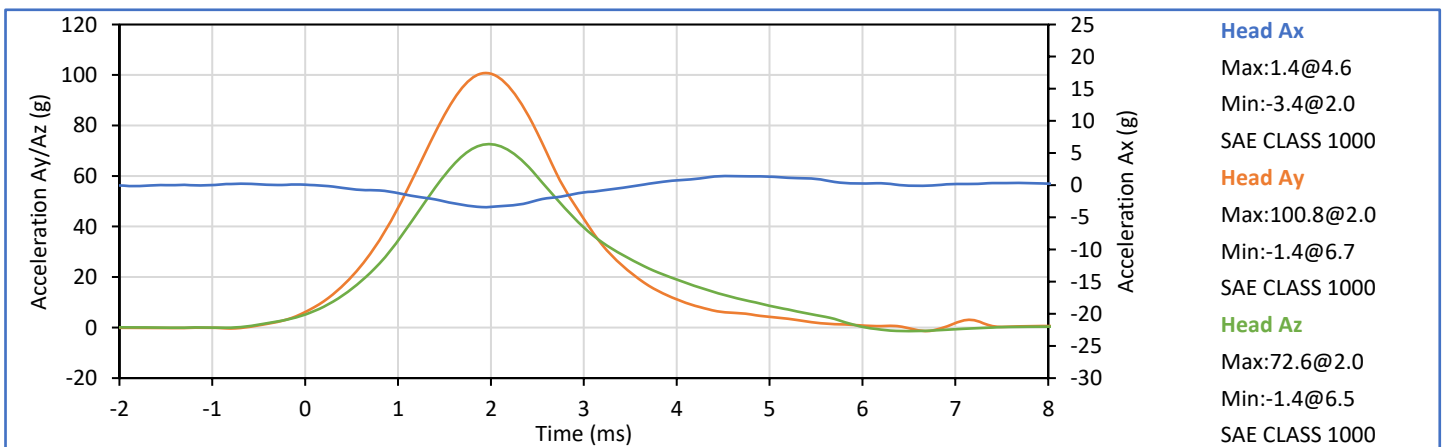
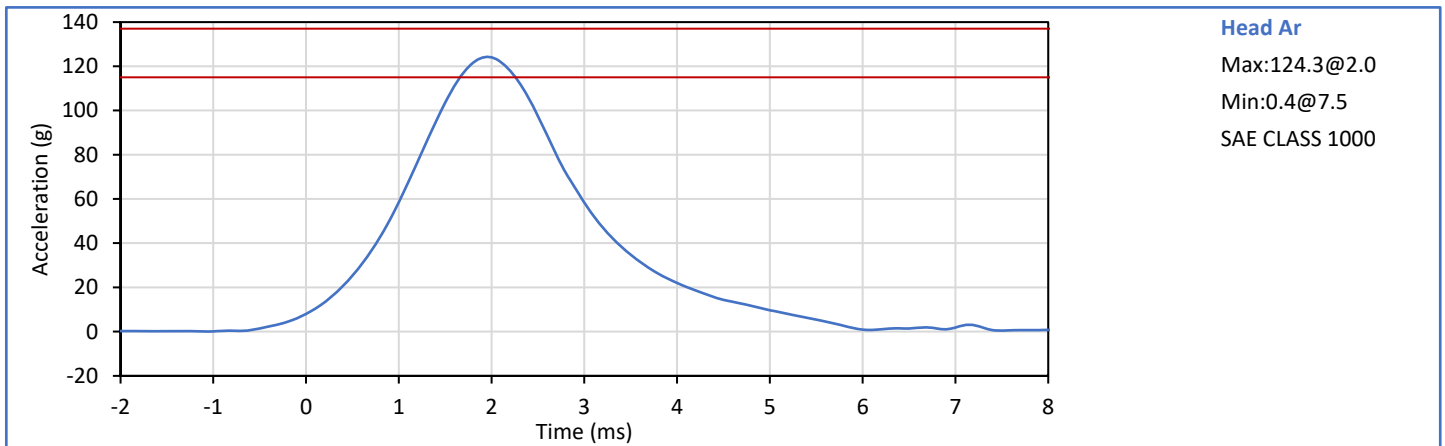
G. Fuentes

Approved By:



J. Hernandez

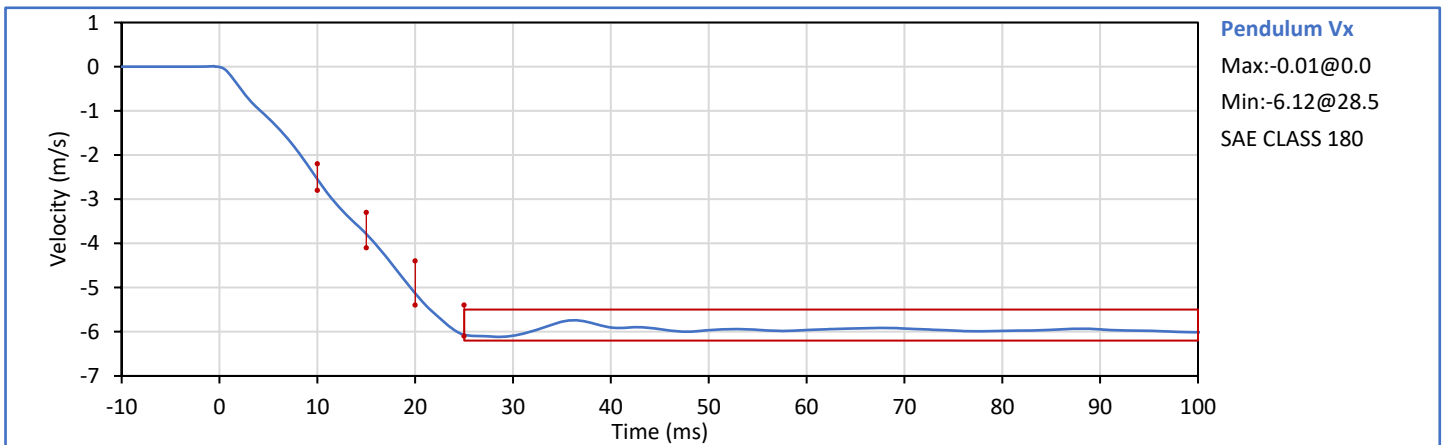
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.4	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Peak Resultant Acceleration	g	115.0	137.0	124.3	Pass
Peak Head Ax	g	-15.0	15.0	-3.4	Pass
Oscillations After Main Pulse	%	0.0	15.0	2.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
<b>Overall Test Results</b>					<b>Pass</b>



Technician: *Mill LGS III*  
G. Fuentes

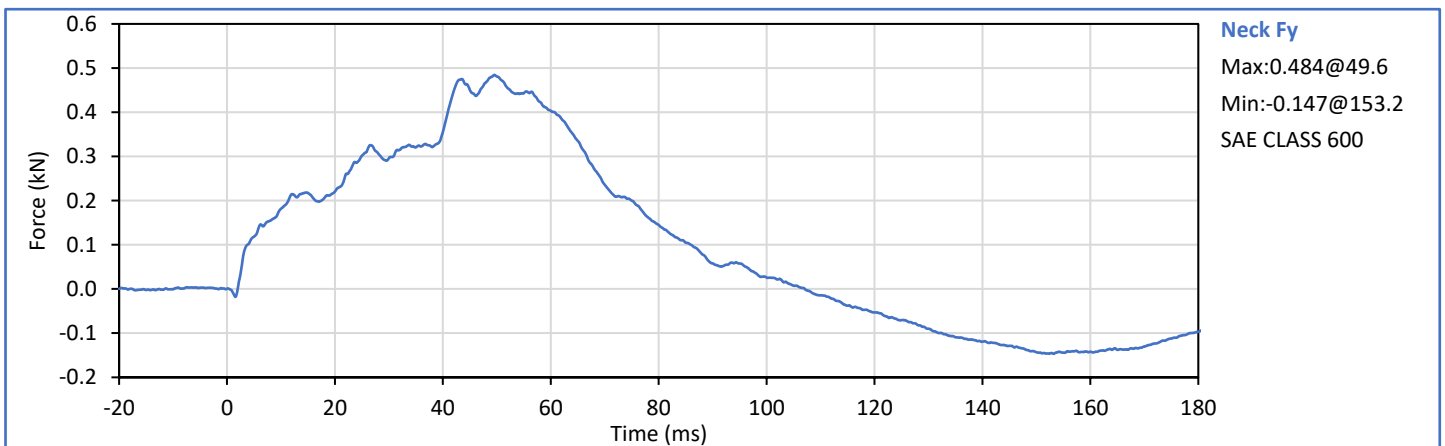
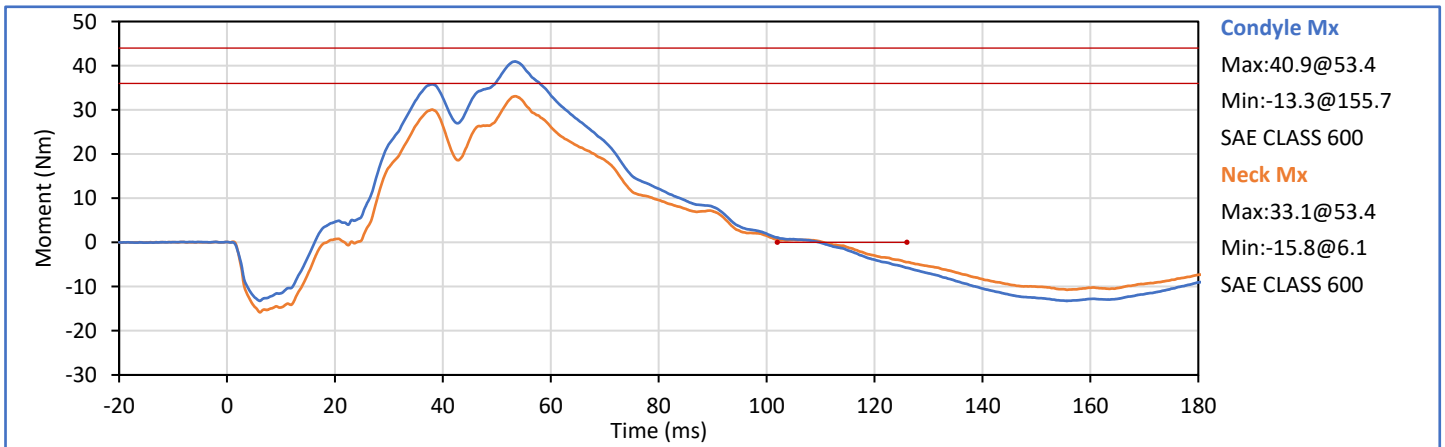
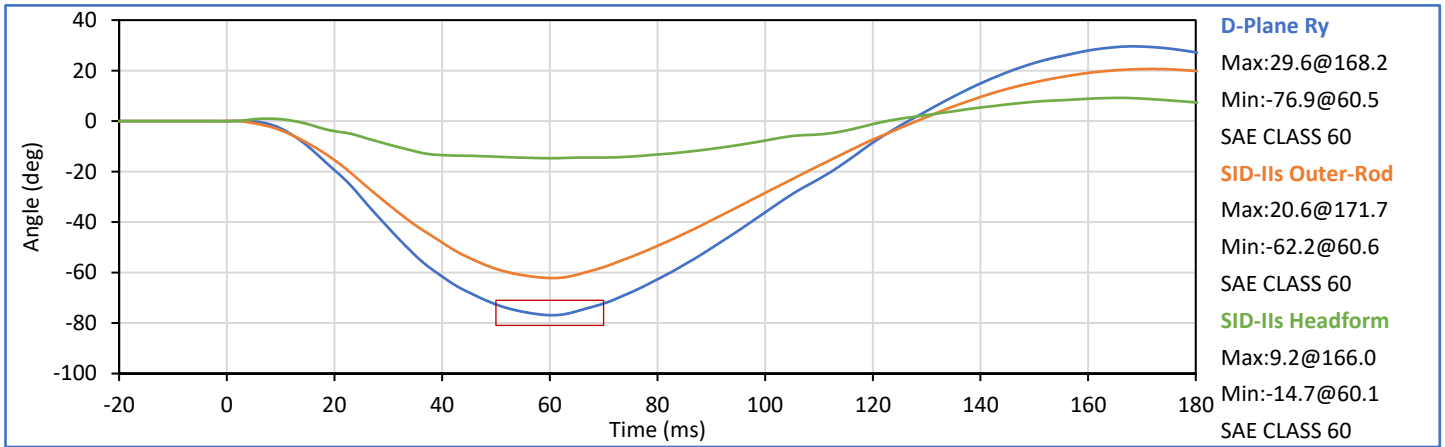
Approved By: *Smith*  
J. Hernandez

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	41	Pass
Pendulum Velocity	m/s	5.51	5.63	5.58	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.54	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.79	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-5.14	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-6.07	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-6.12/-5.74	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-76.9	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	60.5	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	40.9	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	109.8	Pass
Overall Test Results					Pass

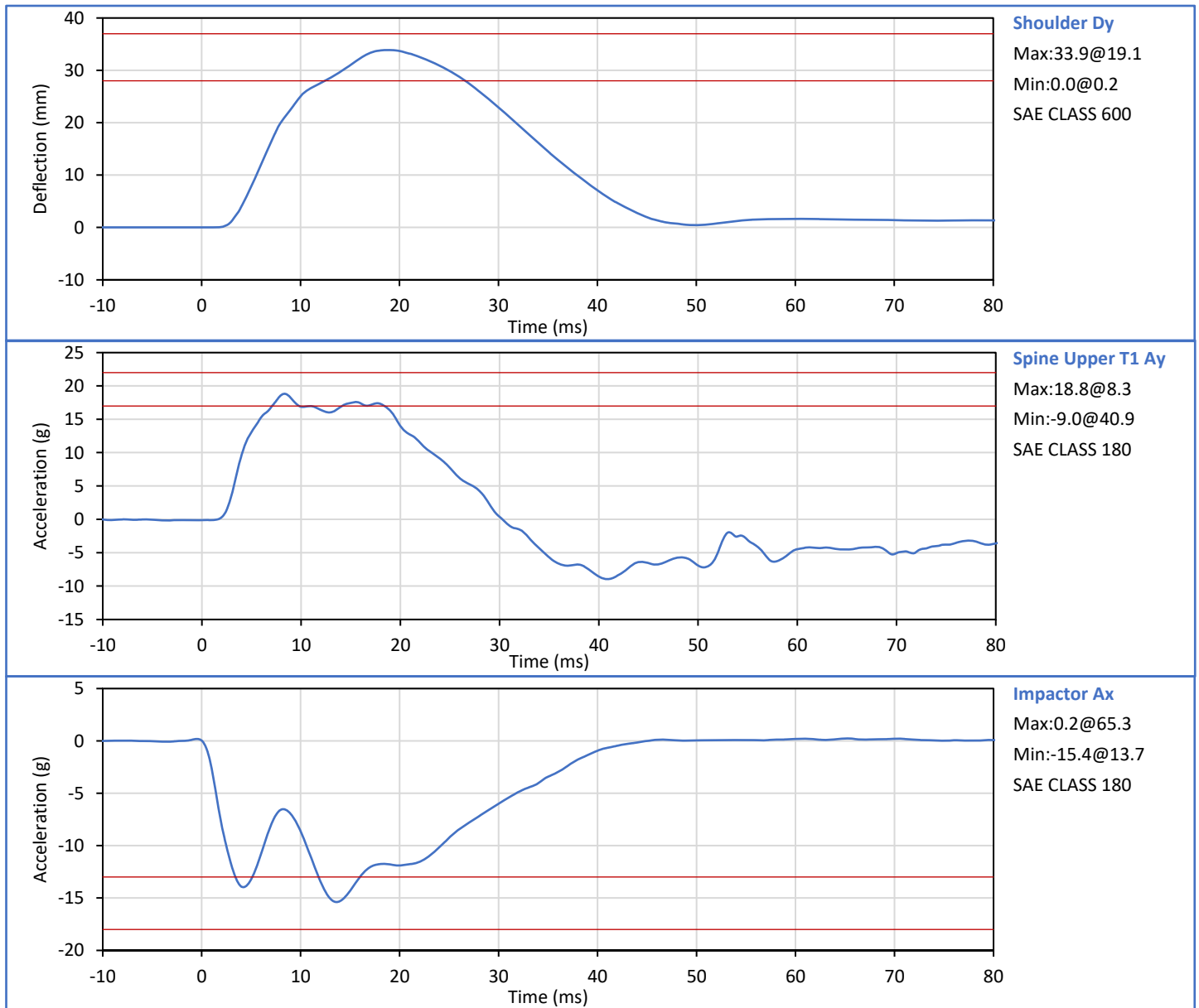


Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez



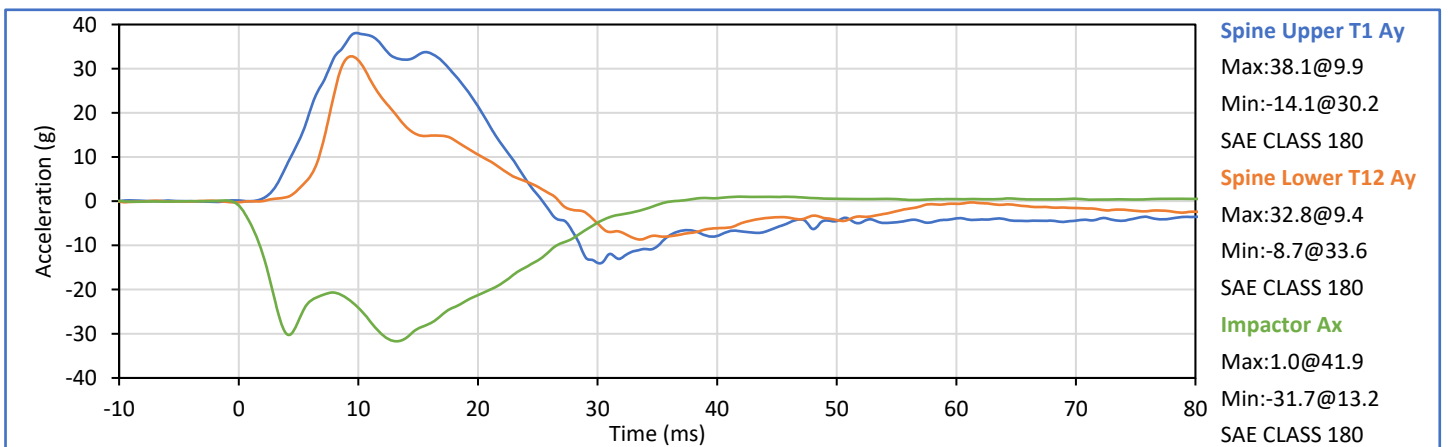
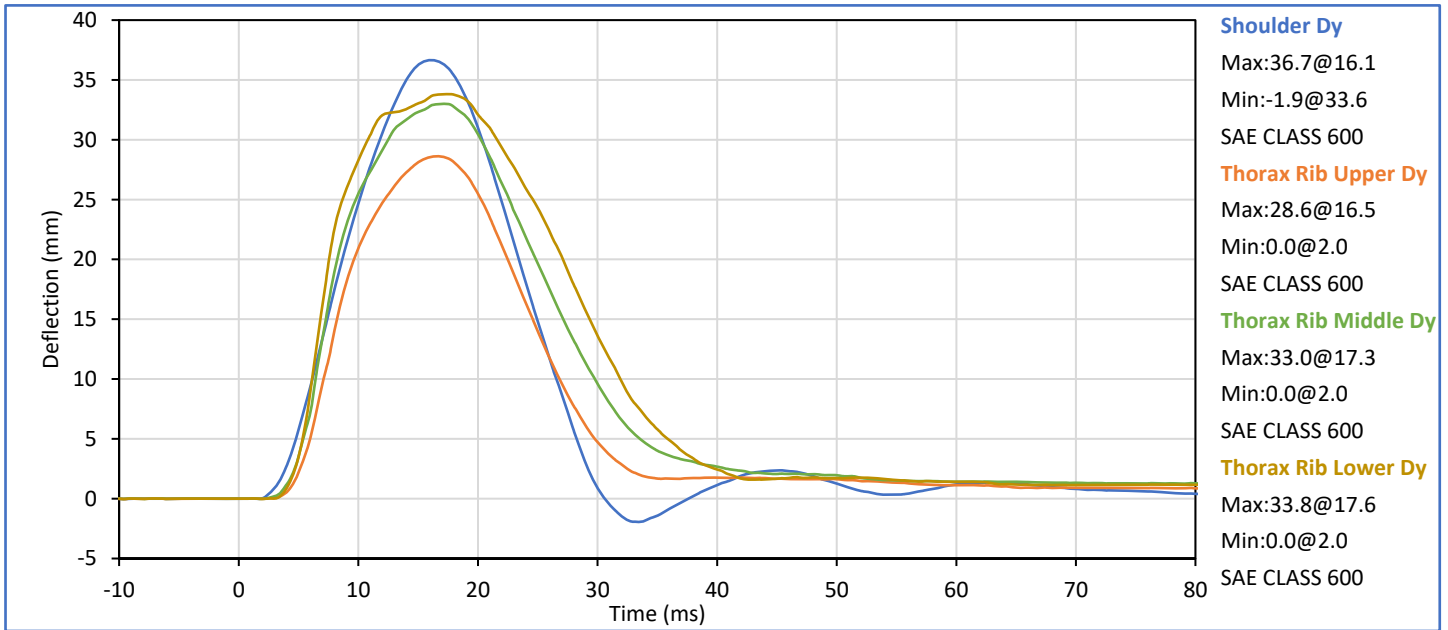
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Shoulder Dy	mm	28.0	37.0	33.9	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	18.8	Pass
Peak Impactor Ax	g	-18.0	-13.0	-15.4	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Smith*  
J. Hernandez

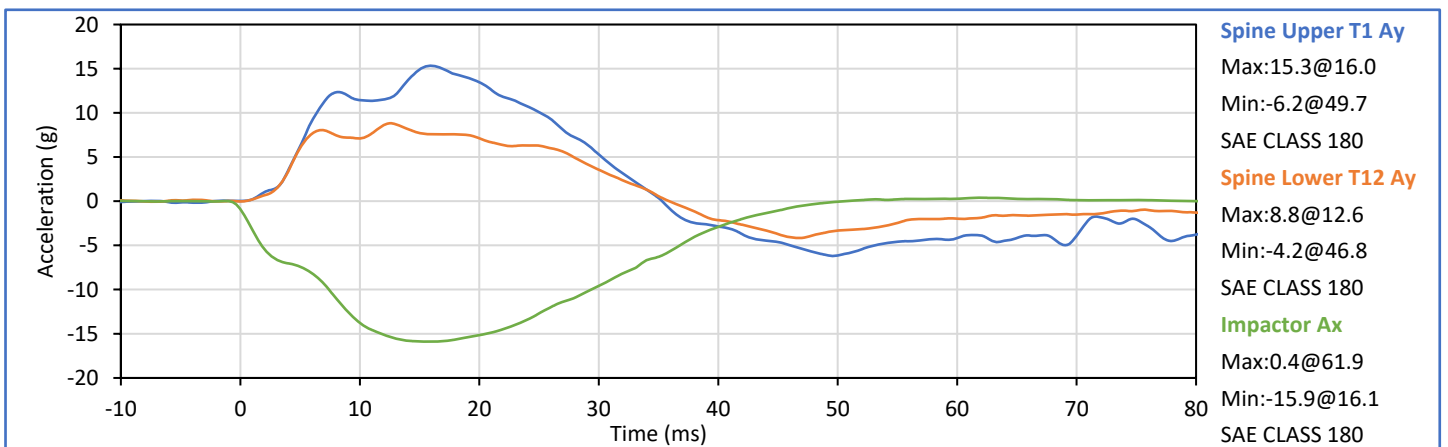
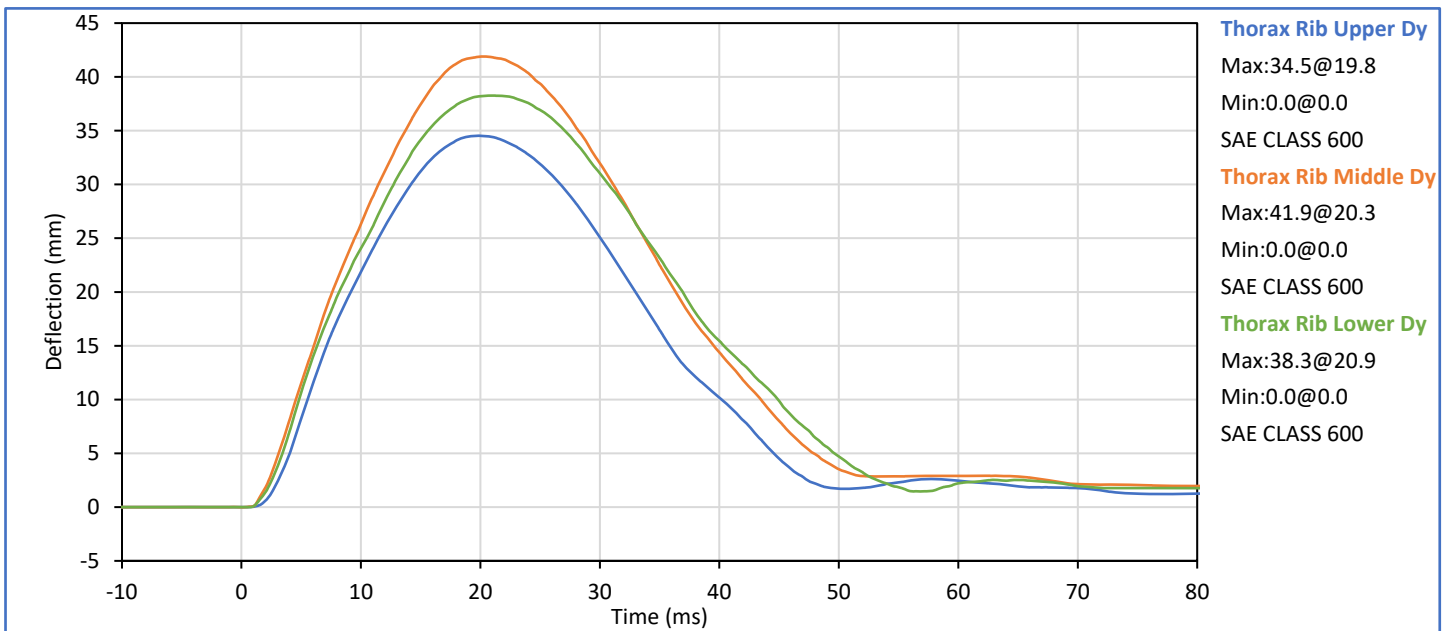
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	6.60	6.80	6.71	Pass
Peak Shoulder Dy	mm	31.0	40.0	36.7	Pass
Peak Upper Rib Dy	mm	25.0	32.0	28.6	Pass
Peak Middle Rib Dy	mm	30.0	36.0	33.0	Pass
Peak Lower Rib Dy	mm	32.0	38.0	33.8	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	38.1	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	32.8	Pass
Peak Impactor Ax	g	-36.0	-30.0	-31.7	Pass
Overall Test Results					Pass



Technician: Mill JTS III  
G. Fuentes

Approved By: J. Hernandez  
J. Hernandez

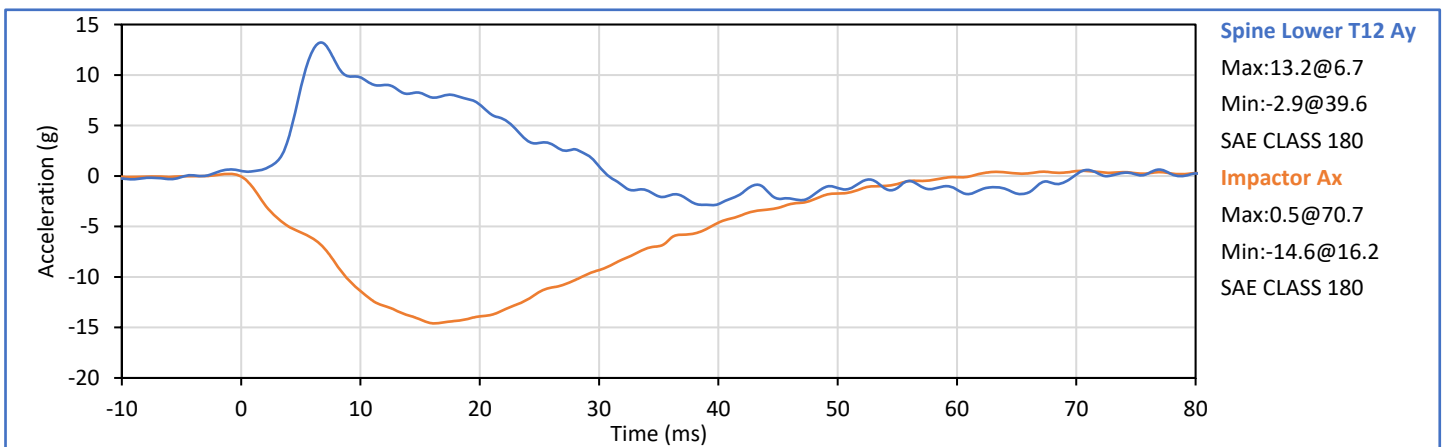
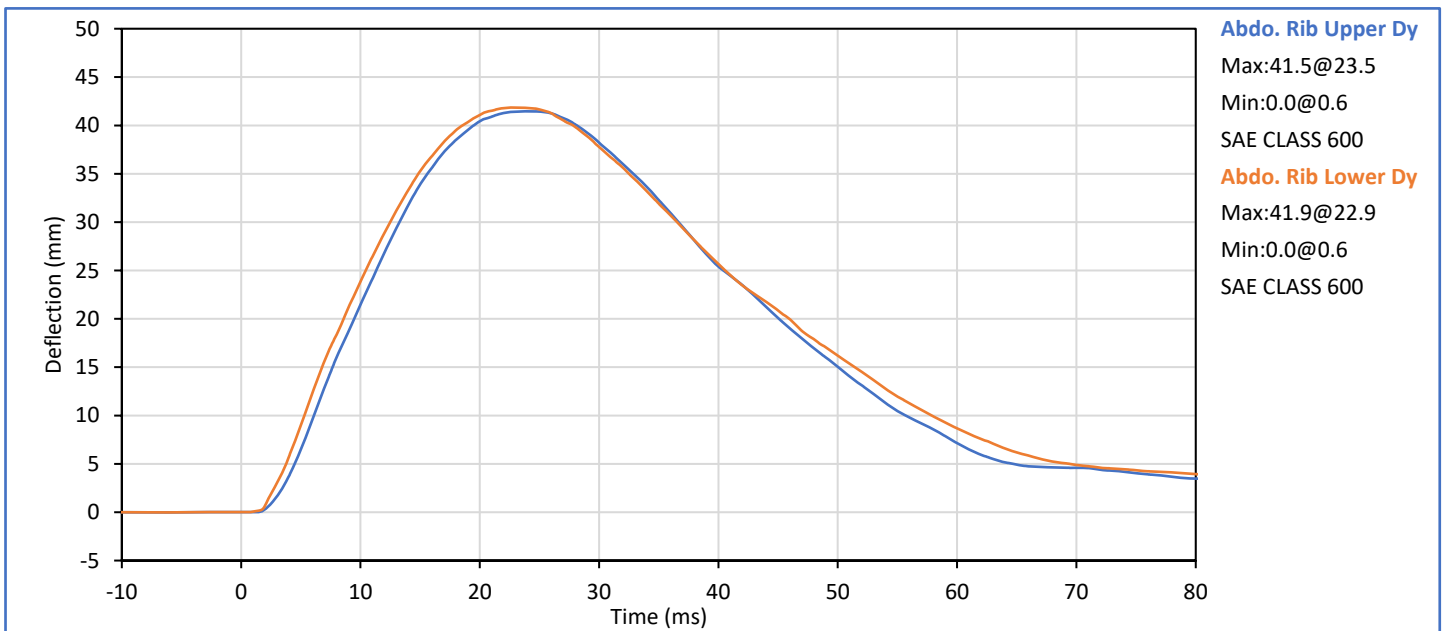
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	34.5	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	41.9	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	38.3	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	15.3	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	8.8	Pass
Peak Impactor Ax	g	-18.0	-14.0	-15.9	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	21.4	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	41.5	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	41.9	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	13.2	Pass
Peak Impactor Ax	g	-16.0	-12.0	-14.6	Pass
<b>Overall Test Results</b>					<b>Pass</b>

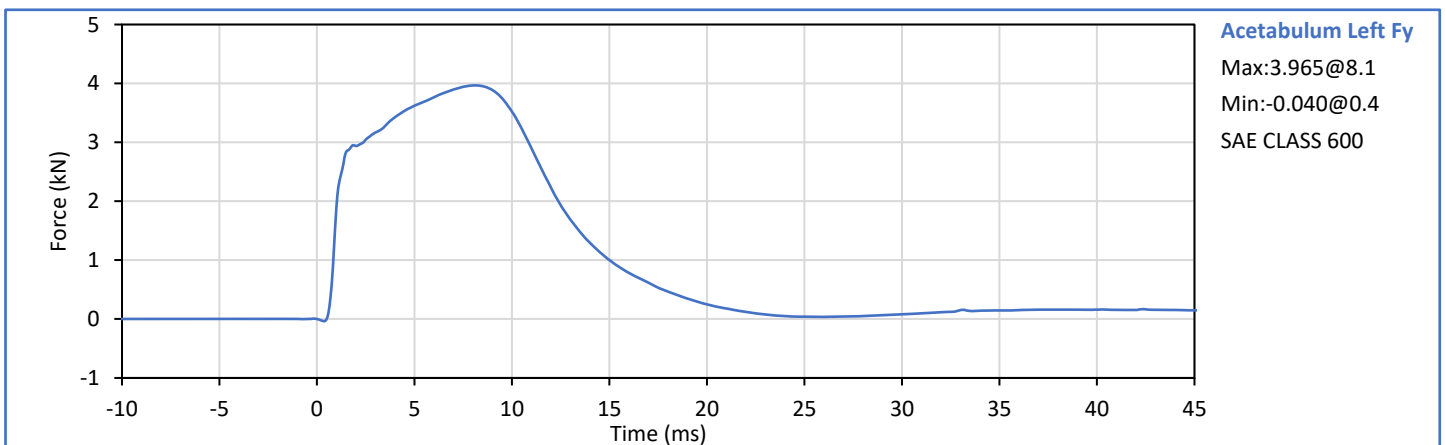
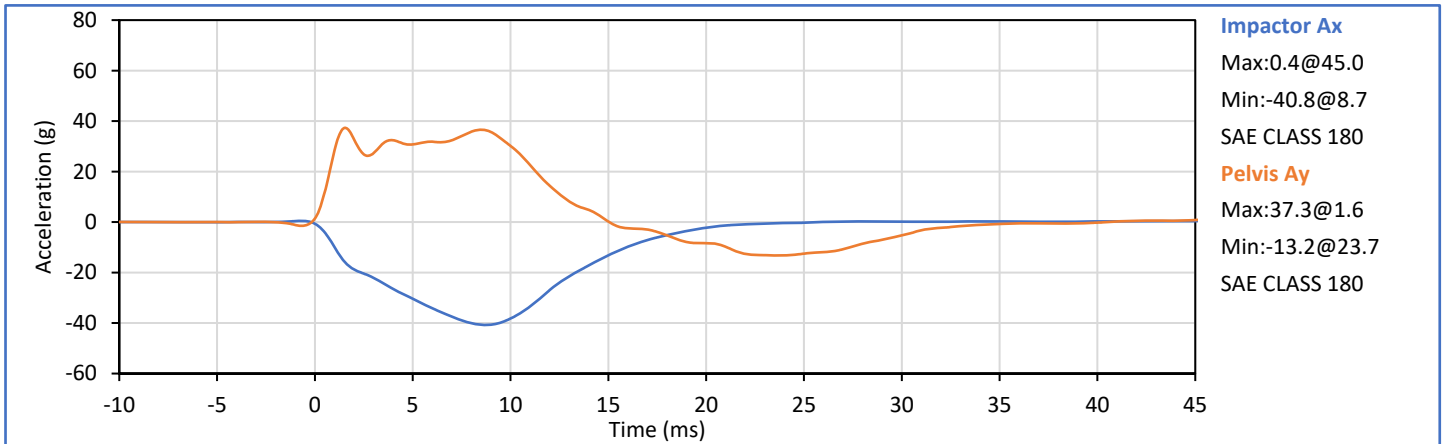


Technician: *Mill JG III*  
G. Fuentes

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	44	Pass
Impactor Velocity	m/s	6.60	6.80	6.73	Pass
Peak Acetabulum Fy	kN	3.60	4.30	3.96	Pass
Pelvis Ay after 6ms	g	34.0	42.0	36.6	Pass
Peak Impactor Ax	g	-47.0	-38.0	-40.8	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 14818



Technician: *Mill JG III*  
G. Fuentes

Approved By: *Smith*  
J. Hernandez

ATD Serial No.: 308

Test Date: 2023-10-23

Pelvis Plug S/N: 14818



**SID-IIs Pelvis Plug Certification Test**

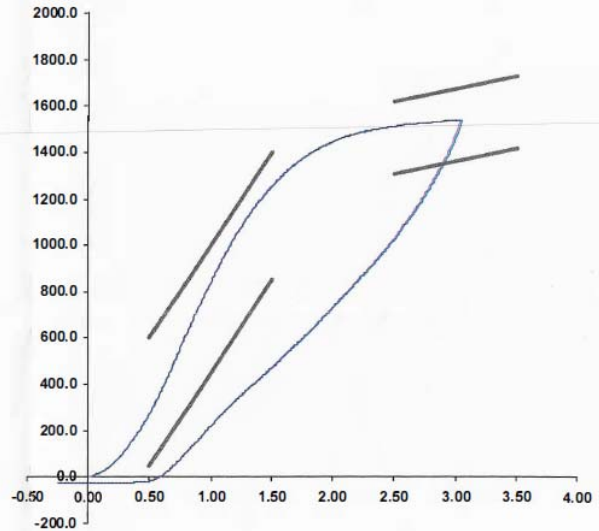
Plug S/N 14818  
Test Number 16791  
Report Number 16837  
Test Date 12/29/2020 1:14:13 PM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	280.15	50.00	600.00
Force @ 1.5 mm (N)	1,258.09	850.00	1,400.00
Force @ 2.5 mm (N)	1,511.41	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,538.38	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:

Force (-N) vs Extension (-mm)



Operator \_\_\_\_\_  
Part Number 180-4450

Template No 107 29-Dec-20  
SACO Research

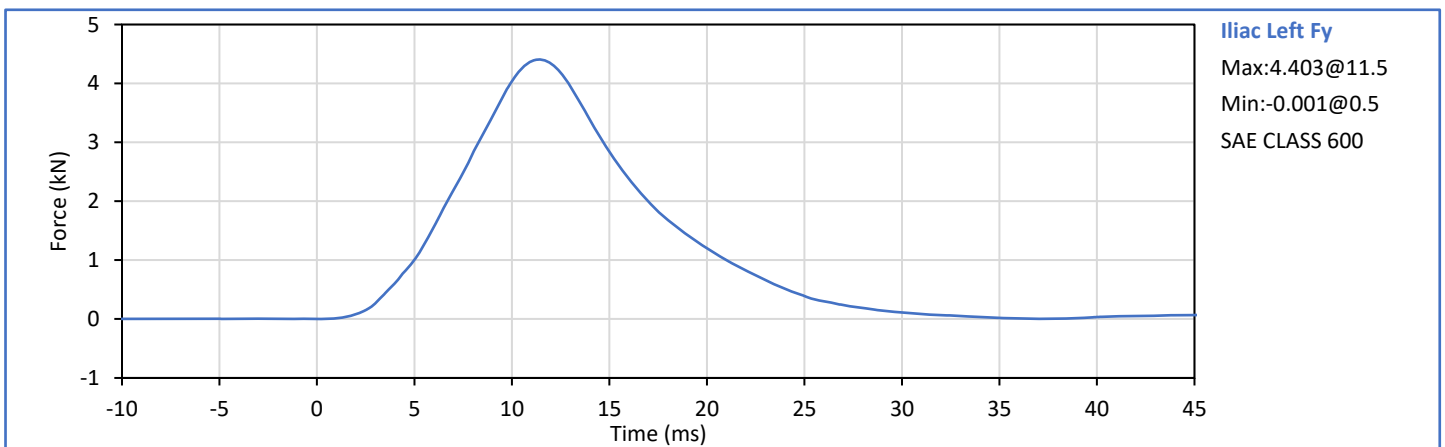
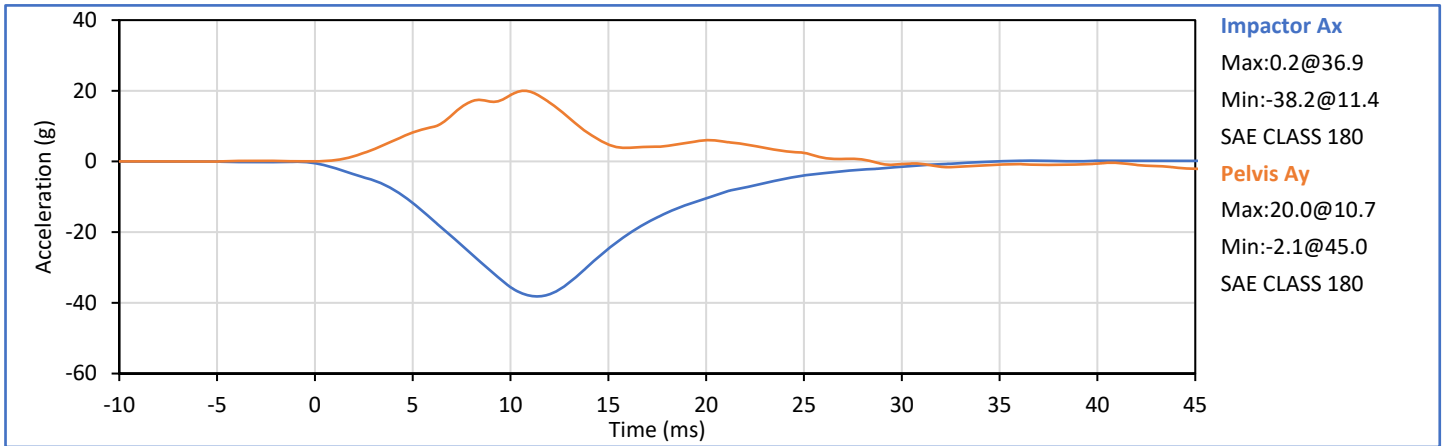
By: DC Date: 12/29/20

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

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	42	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Iliac Fy	kN	4.10	5.10	4.40	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-38.2	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: *Seuth*  
J. Hernandez

**APPENDIX C**  
**Post-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	21.6	Pass
Laboratory Relative Humidity	%	10	70	42	Pass
1 - Sitting Height	mm	900	918	916	Pass
2 - Seat to Shoulder Joint	mm	558	572	565	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	100	Pass
5 - Sole to Seat, Sitting	mm	433	451	441	Pass
6 - Head Width	mm	152	158	157	Pass
7 - Shoulder/Arm Width	mm	461	479	468	Pass
8 - Thorax Width	mm	322	332	326	Pass
9 - Abdomen Width	mm	273	287	284	Pass
10 - Pelvis Lap Width	mm	359	373	363	Pass
11 - Head Depth	mm	196	206	201	Pass
12 - Thorax Depth	mm	262	272	269	Pass
13 - Abdomen Depth	mm	194	204	199	Pass
14 - Pelvis Depth	mm	235	245	239	Pass
15 - Back of Buttocks to Hip Joint (bolt Center)	mm	150	160	155	Pass
16 - Back of Buttocks to Front Knee	mm	597	615	612	Pass
				Overall Test Results	Pass

Technician: \_\_\_\_\_



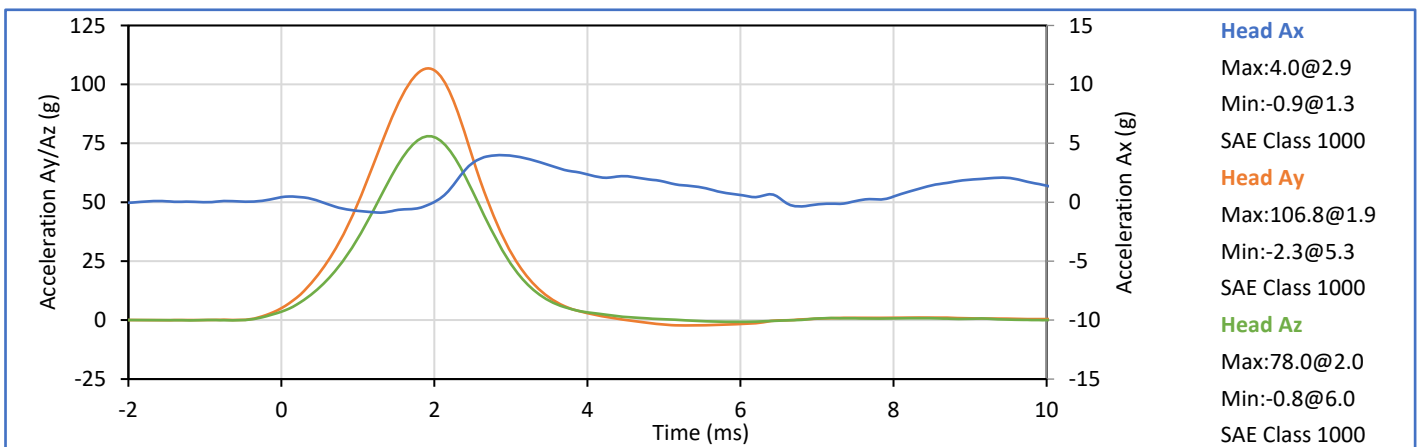
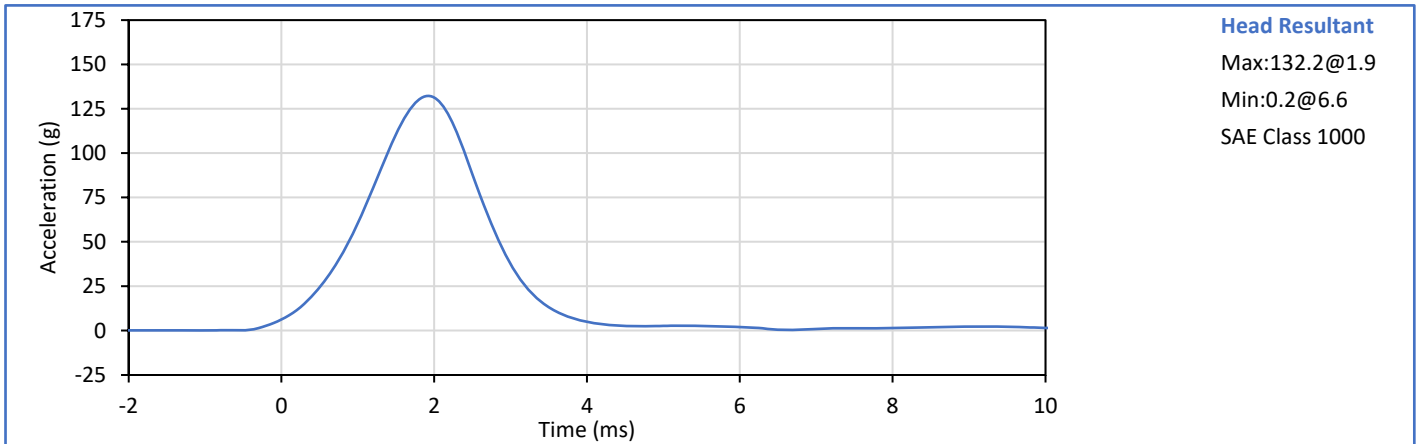
G. Fuentes

Approved By: \_\_\_\_\_



J. Hernandez

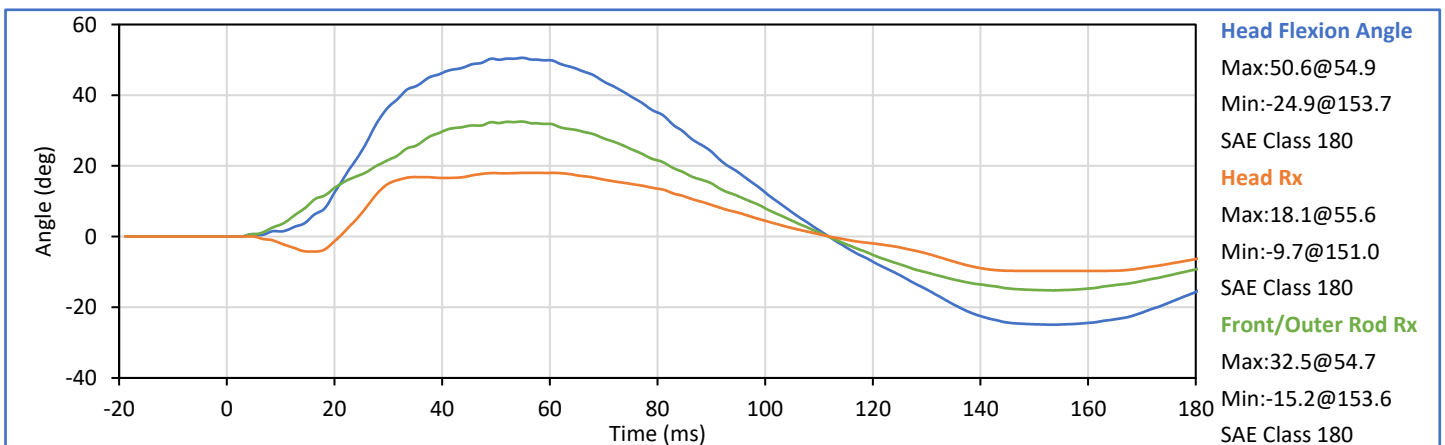
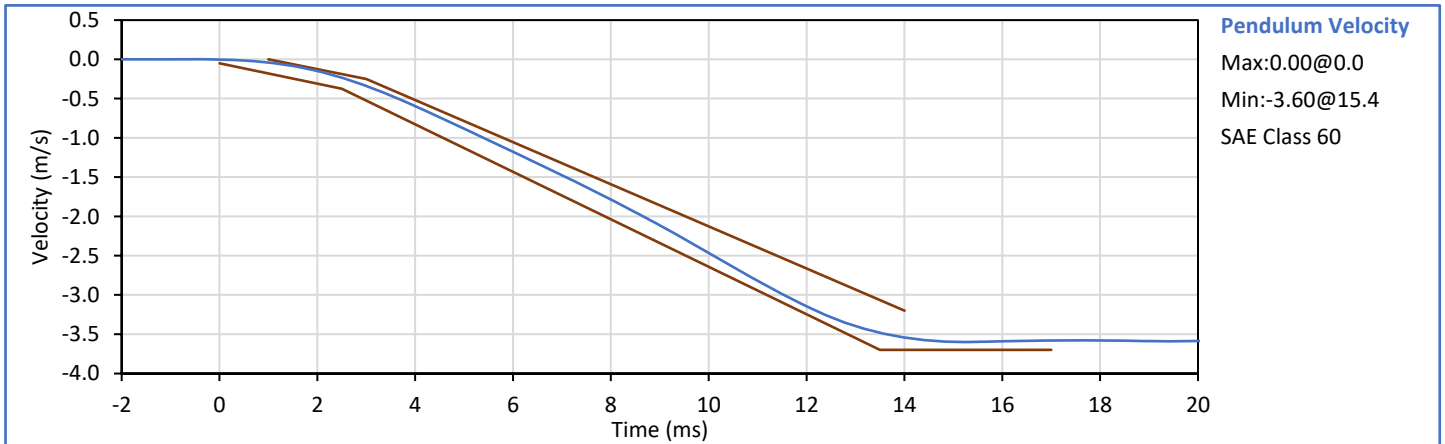
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.4	Pass
Laboratory Relative Humidity	%	10	70	42	Pass
Peak Resultant Acceleration	g	125.0	155.0	132.2	Pass
Peak Head Ax	g	-15.0	15.0	4.0	Pass
Oscillations After Main Pulse	%	0.0	15.0	1.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
<b>Overall Test Results</b>					<b>Pass</b>



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	21.6	Pass
Laboratory Relative Humidity	%	10	70	42	Pass
Pendulum Velocity	m/s	3.30	3.50	3.43	Pass
Peak Headform Flexion	deg	49.0	59.0	50.6	Pass
Time of Peak Headform Flexion	ms	54.0	66.0	54.9	Pass
Flexion Decay (Peak to zero)	ms	53.0	88.0	57.0	Pass
Overall Test Results					Pass



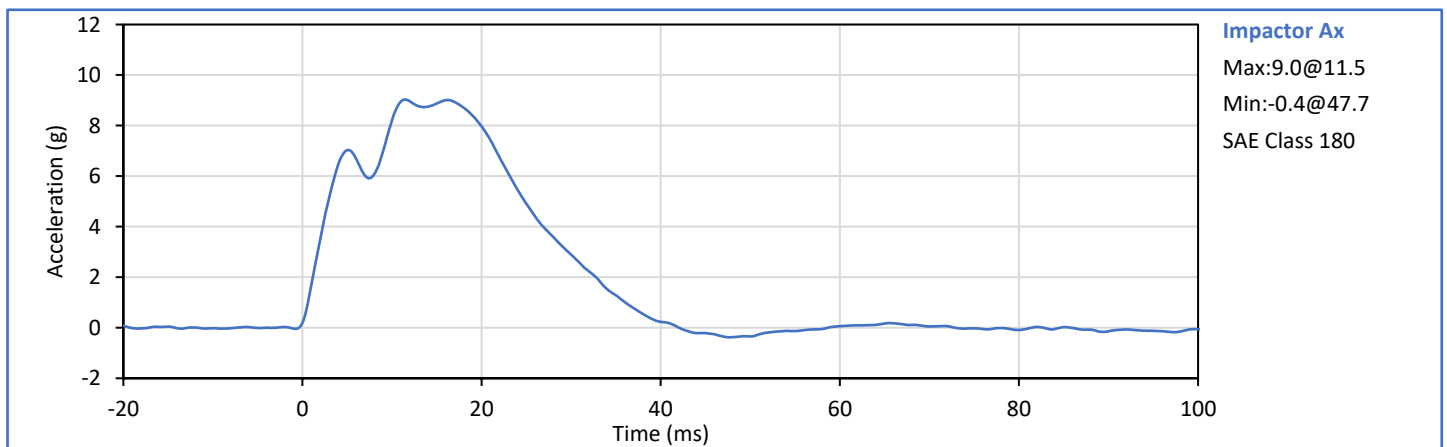
Technician: *Mill LGS III*  
G. Fuentes

Approved By: *J. Hernandez*  
J. Hernandez

ATD Serial No.: F037

Test Date: 2023-11-01

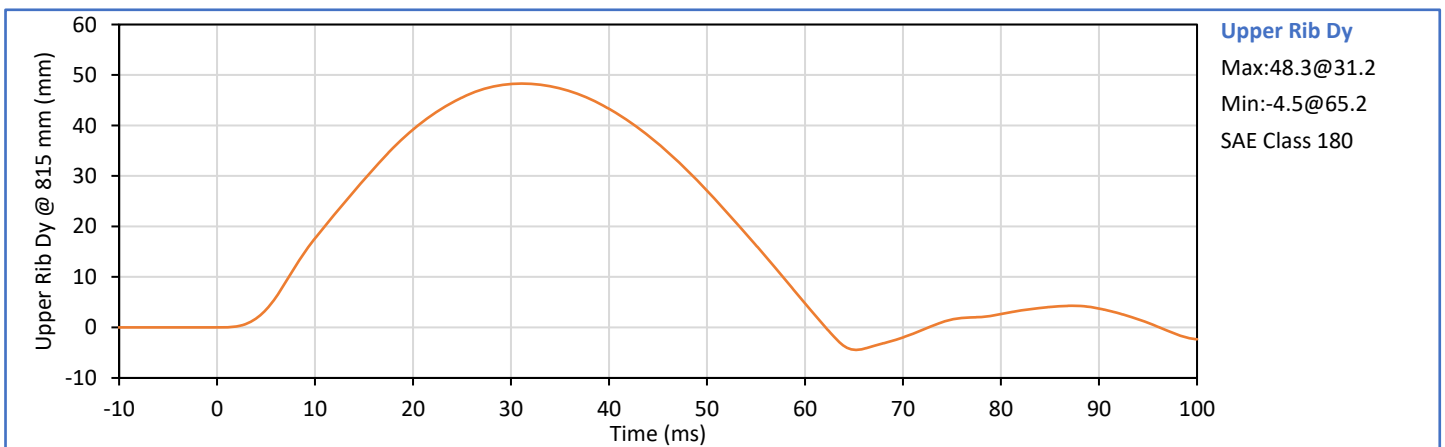
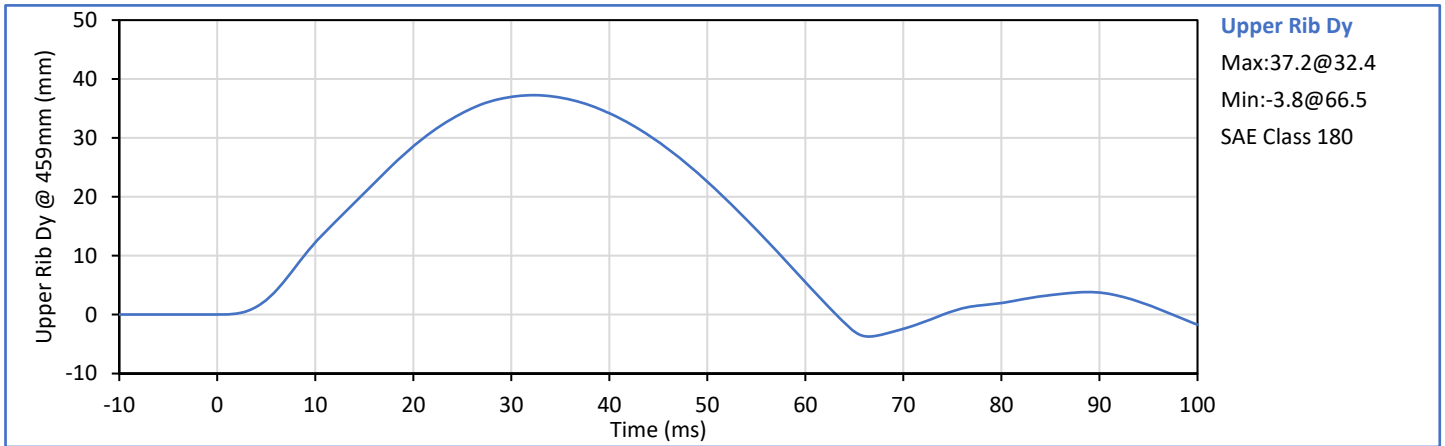
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	45	Pass
Impactor Velocity	m/s	4.20	4.40	4.31	Pass
Peak Impactor Ax	g	7.5	10.5	9.0	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seuth*  
J. Hernandez

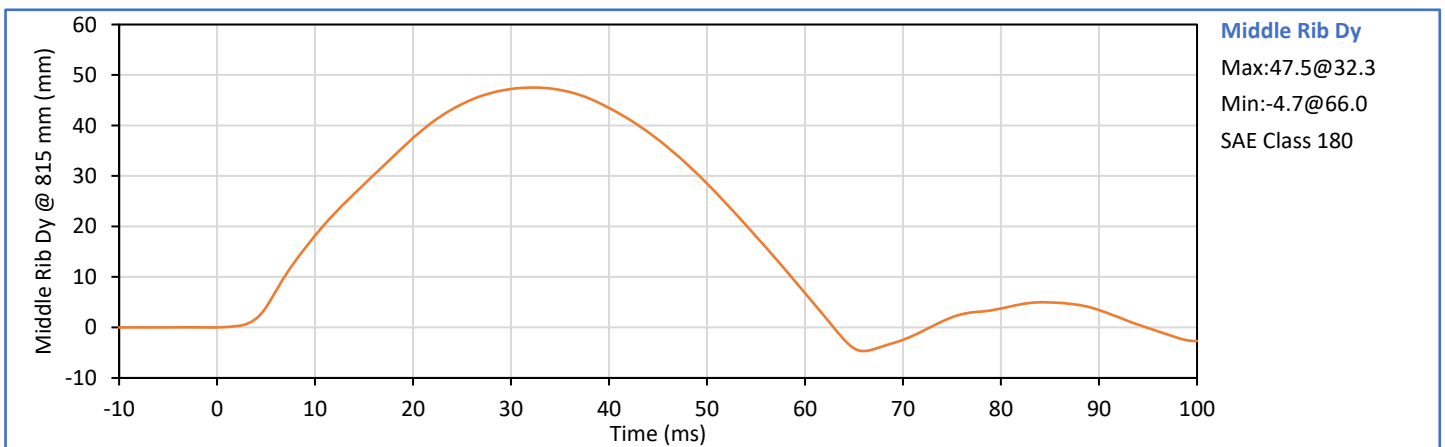
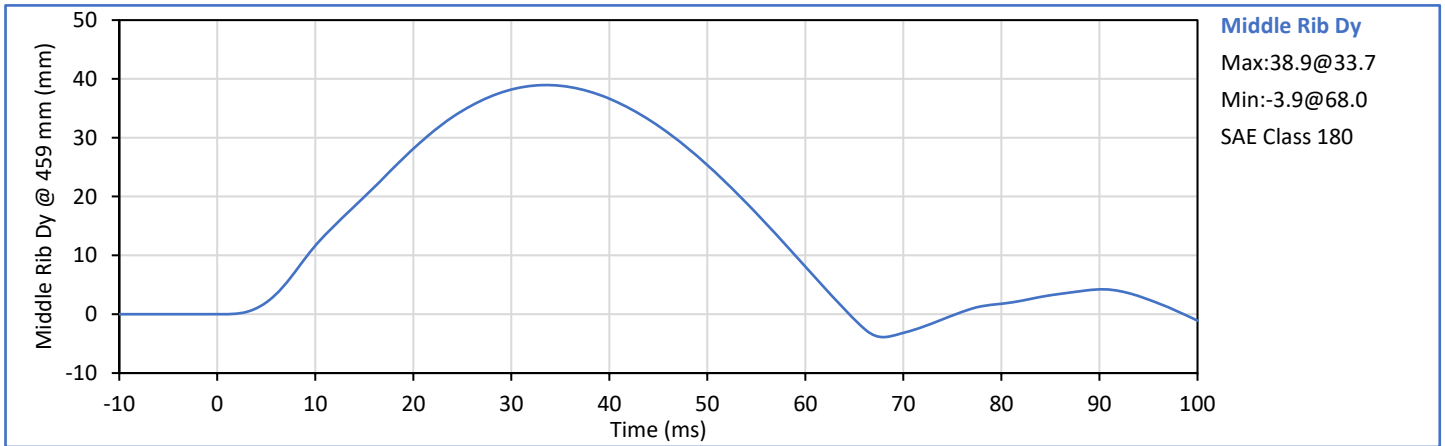
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Upper Rib Dy @ 459mm	mm	36.0	40.0	37.2	Pass
Upper Rib Dy @ 815mm	mm	46.0	51.0	48.3	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

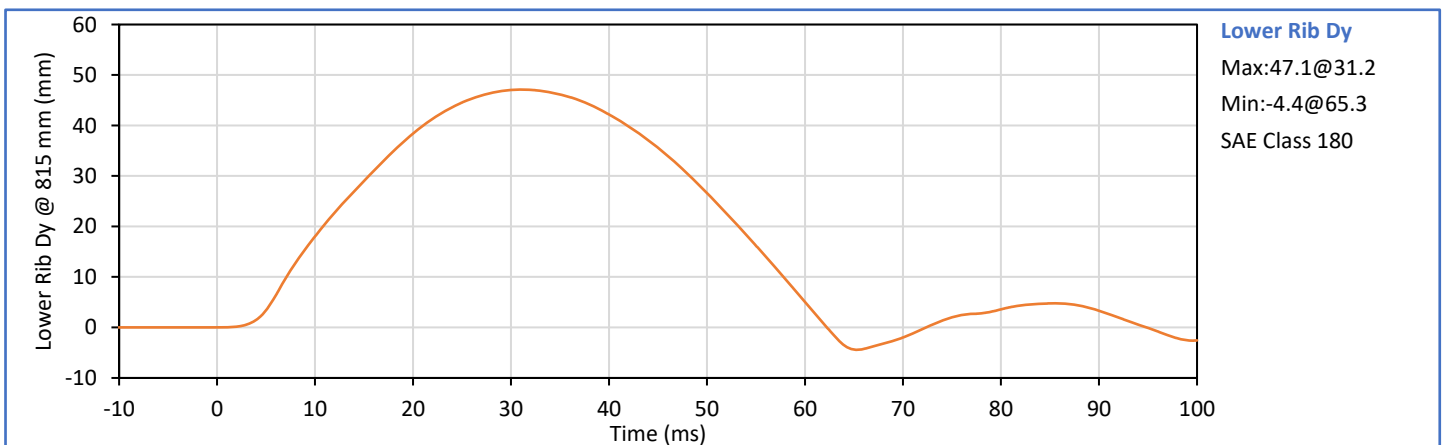
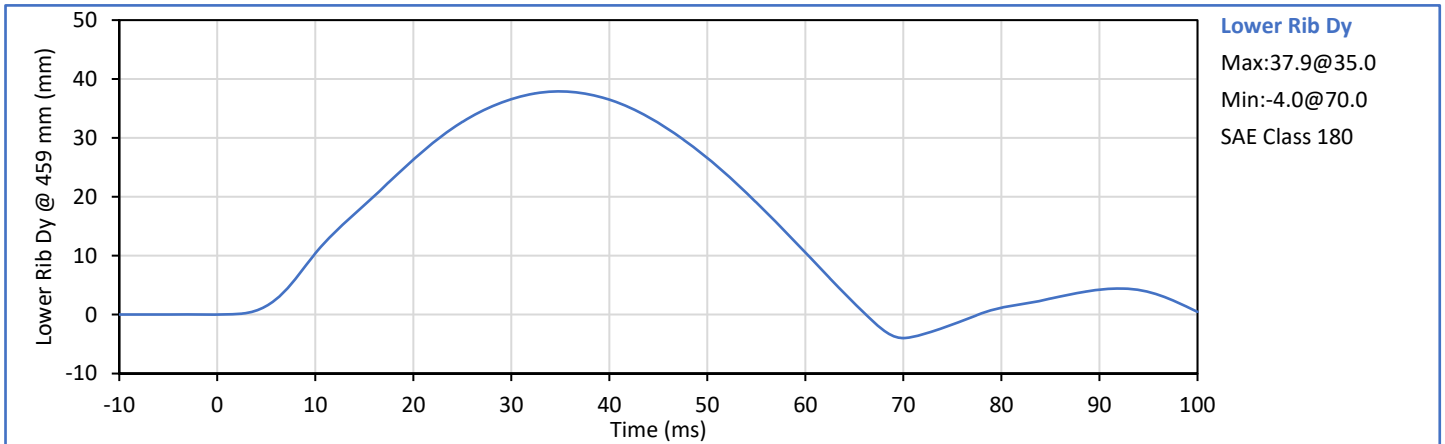
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Middle Rib Dy @ 459mm	mm	36.0	40.0	38.9	Pass
Middle Rib Dy @ 815mm	mm	46.0	51.0	47.5	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

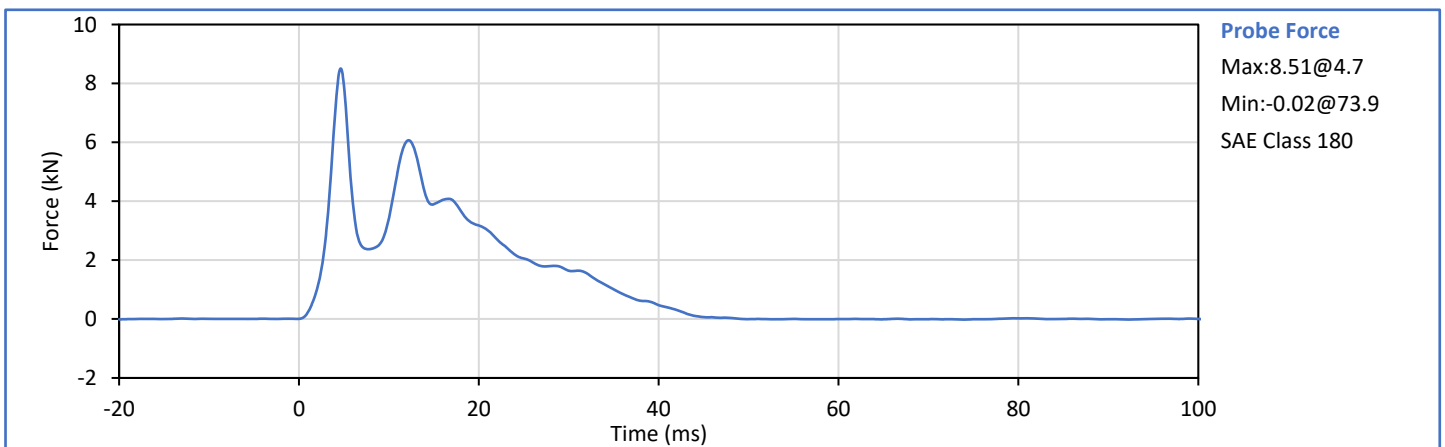
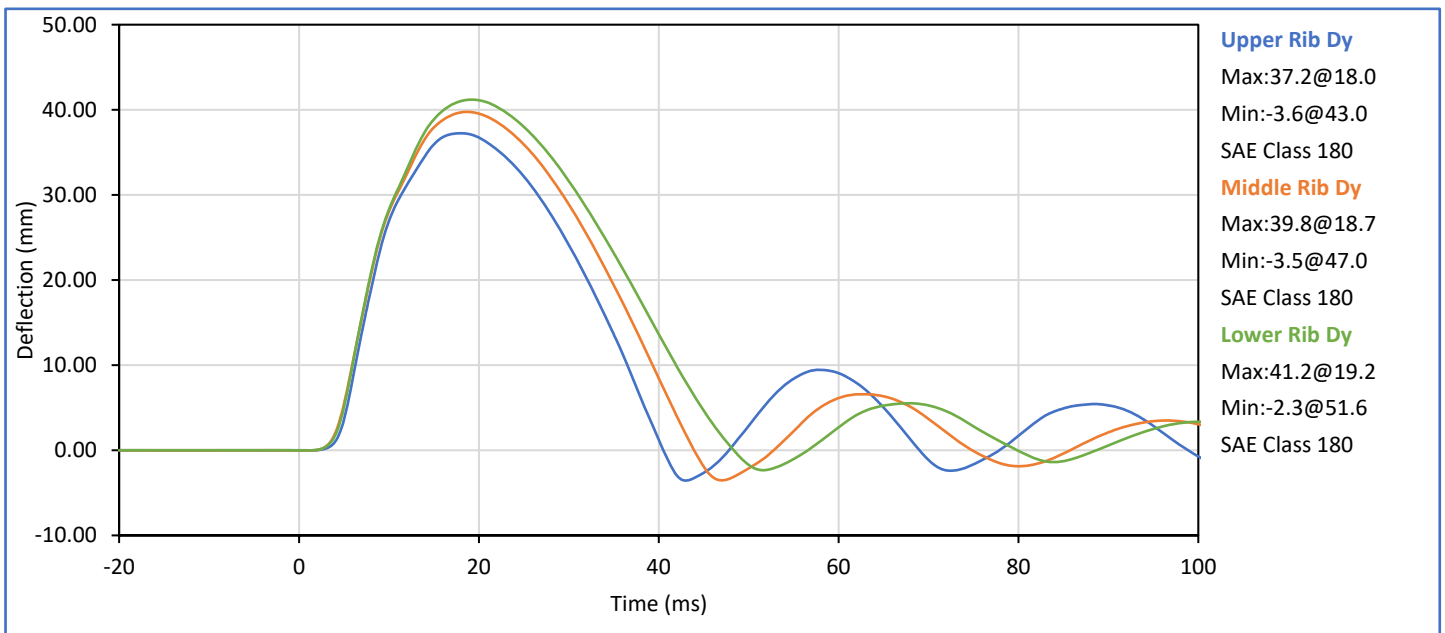
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Lower Rib Dy @ 459mm	mm	36.0	40.0	37.9	Pass
Lower Rib Dy @ 815mm	mm	46.0	51.0	47.1	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

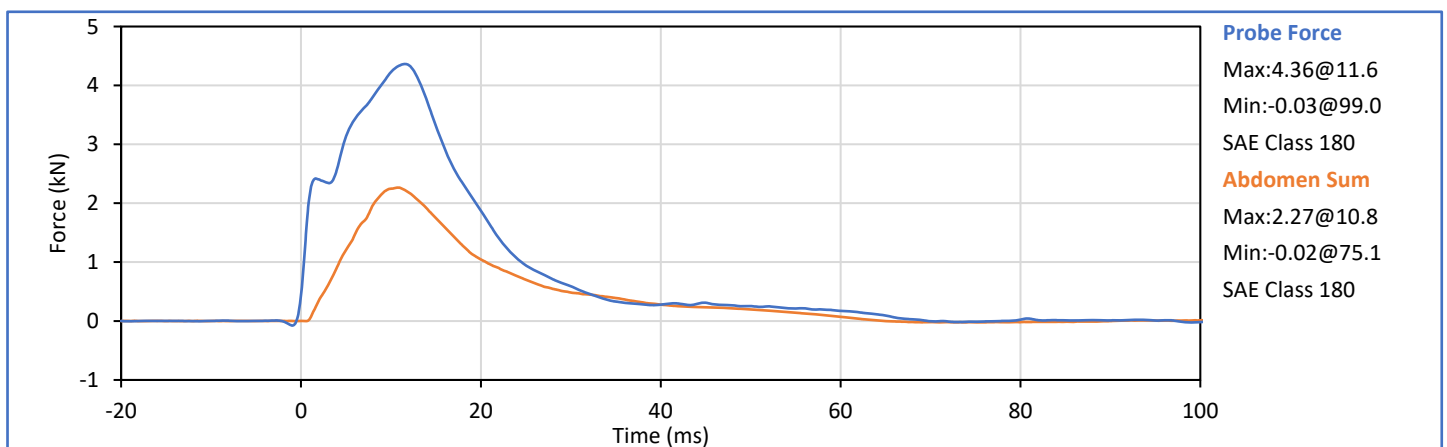
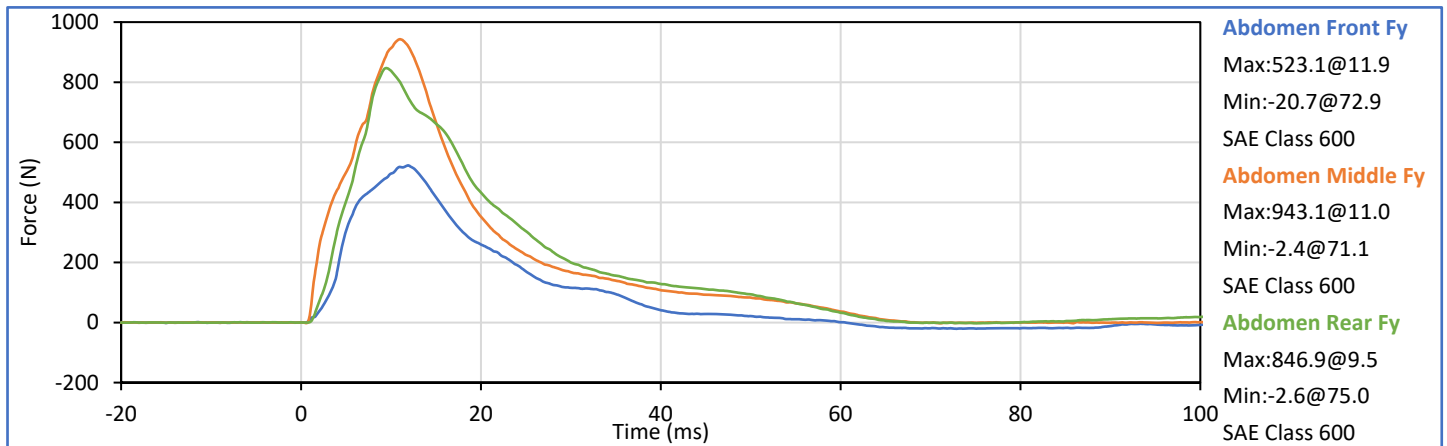
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	5.40	5.60	5.52	Pass
Peak Upper Rib Dy	mm	34.0	41.0	37.2	Pass
Peak Middle Rib Dy	mm	37.0	45.0	39.8	Pass
Peak Lower Rib Dy	mm	37.0	44.0	41.2	Pass
Peak Impactor Force After 6 ms	kN	5.10	6.20	6.07	Pass
<b>Overall Test Results</b>					<b>Pass</b>



Technician: *Milli JG III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

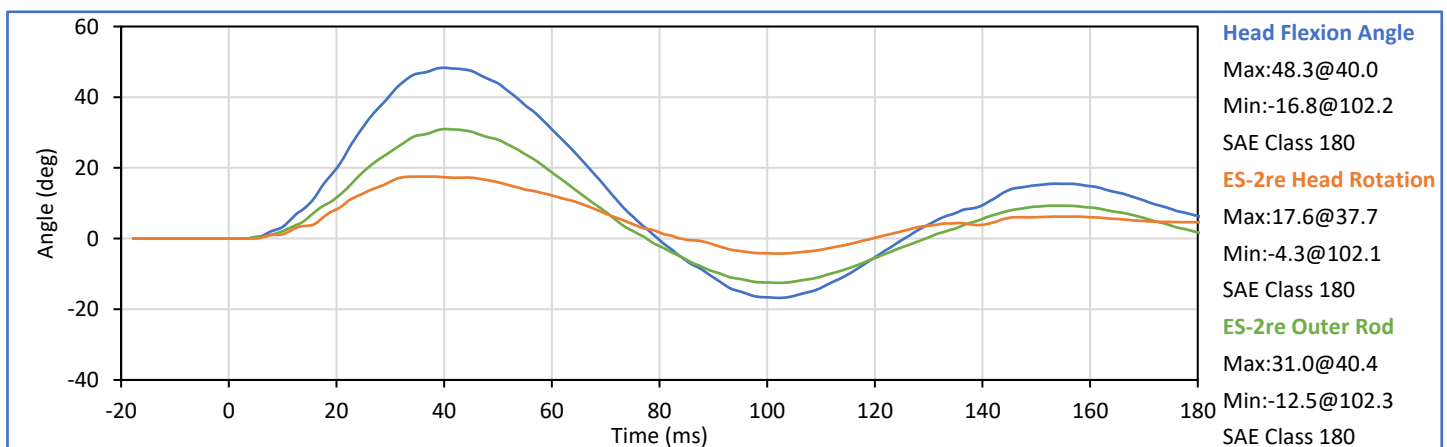
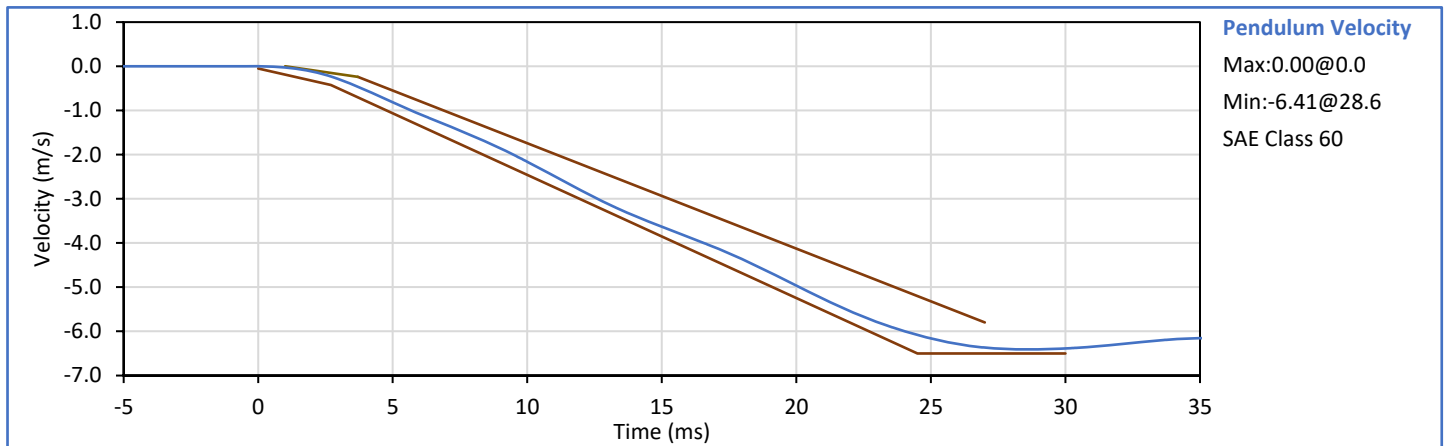
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	3.90	4.10	4.04	Pass
Peak Impactor Force	kN	4.00	4.80	4.36	Pass
Time of Peak Impactor Force	ms	10.6	13.0	11.6	Pass
Sum of Abdomen Forces	kN	2.20	2.70	2.27	Pass
Time of Peak Sum Abdomen Force	ms	10.0	12.3	10.8	Pass
<b>Overall Test Results</b>					<b>Pass</b>



Technician: *Milli JG III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

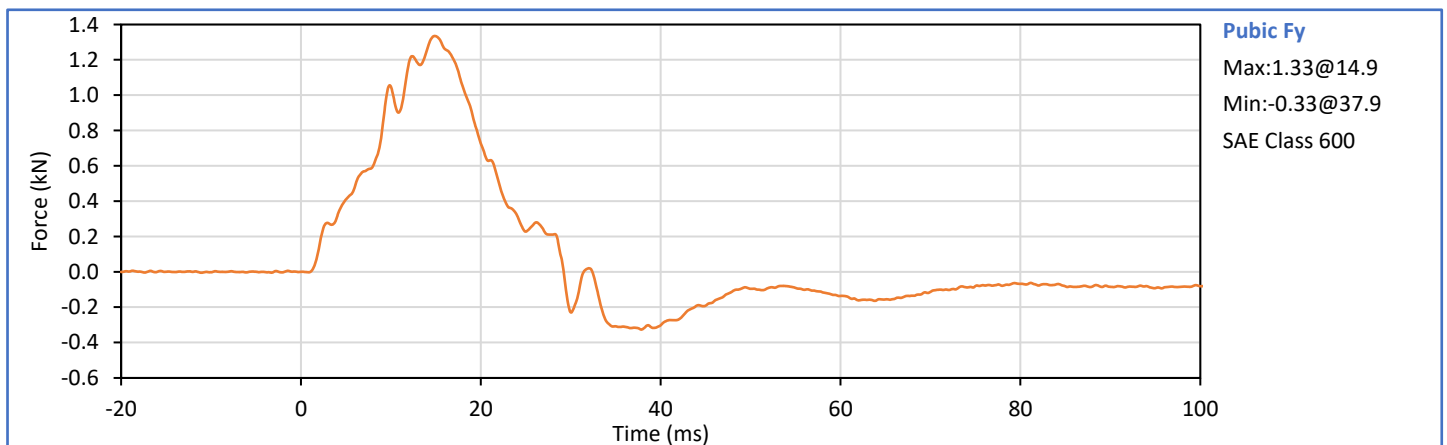
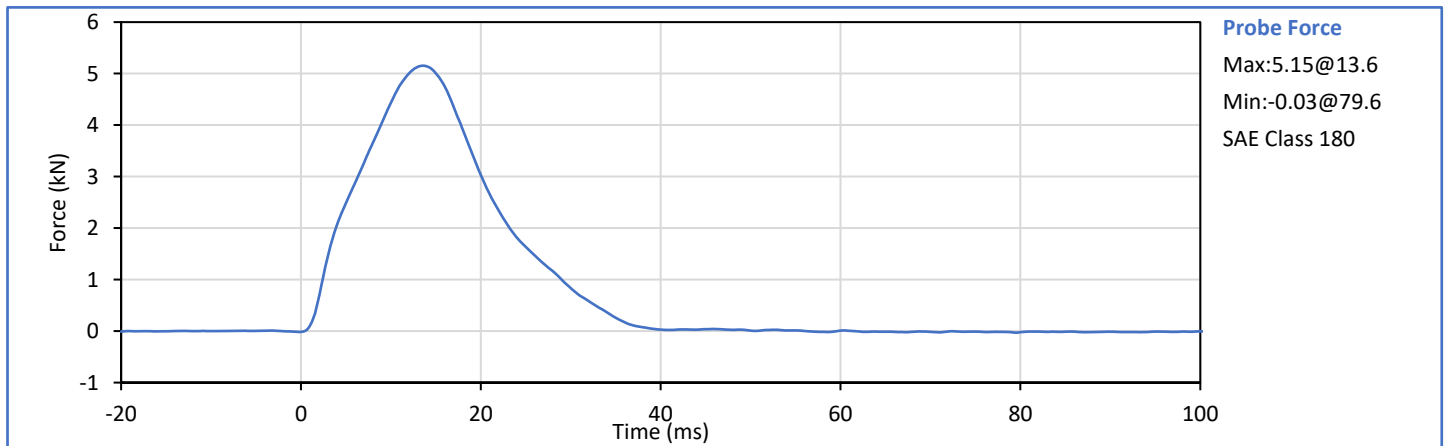
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Pendulum Velocity	m/s	5.95	6.15	6.09	Pass
Peak Headform Flexion	deg	45.0	55.0	48.3	Pass
Time of Peak Headform Flexion	ms	39.0	53.0	40.0	Pass
Flexion Decay (Peak to zero)	ms	37.0	57.0	39.7	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	41	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	13.6	Pass
Pubic Symphysis Fy	kN	1.23	1.59	1.33	Pass
Time of Peak Pubic Symphysis Fy	ms	12.2	17.0	14.9	Pass
<b>Overall Test Results</b>					<b>Pass</b>



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Seath*  
J. Hernandez

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

ATD Serial No.: 308

Test Date: 2023-10-27

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	41	Pass
A - Sitting Height	mm	772	788	780	Pass
B - Shoulder Pivot Height	mm	437	453	450	Pass
C - Hpoint Height	mm	79	89	84	Pass
D - H Point From Seatback	mm	141	151	146	Pass
E - Shoulder Pivot From Backline	mm	97	107	103	Pass
F - Thigh Clearance	mm	119	135	125	Pass
G - Head Breadth	mm	140	148	143	Pass
H - Head Back From Backline	mm	40	46	43	Pass
I - Head Depth	mm	178	188	180	Pass
J - Head Circumference	mm	541	551	544	Pass
K - Buttock To Knee Length	mm	514	540	528	Pass
L - Popliteal Height	mm	343	369	357	Pass
K - Knee Pivot To Floor Height	mm	392	409	404	Pass
N - Buttock Popliteal Length	mm	416	442	426	Pass
O - Chest Depth W/O Jacket	mm	195	211	201	Pass
P - Foot Length	mm	216	232	222	Pass
Q - Hip Breadth (W/Pelvic Plugs)	mm	313	323	316	Pass
R - Arm Length	mm	249	259	256	Pass
S - Knee Joint To Seatback	mm	477	493	485	Pass
V - Shoulder Width	mm	341	357	348	Pass
W - Foot Width	mm	78	94	89	Pass
Y - Chest Circumference W/Jacket	mm	851	881	861	Pass
Z - Waist Circumference	mm	761	791	770	Pass
				Overall Test Results	Pass

Technician:



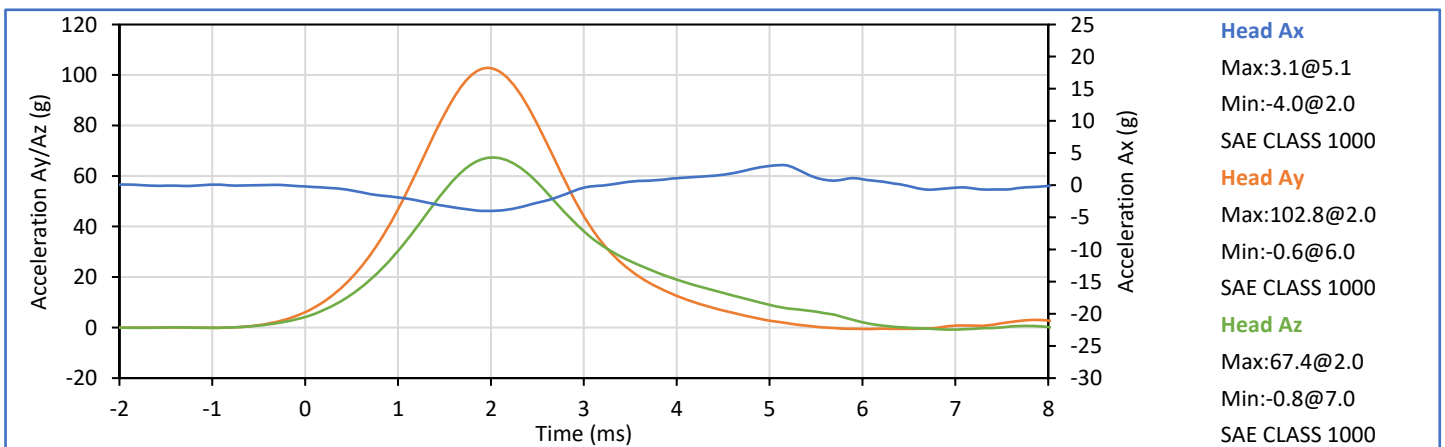
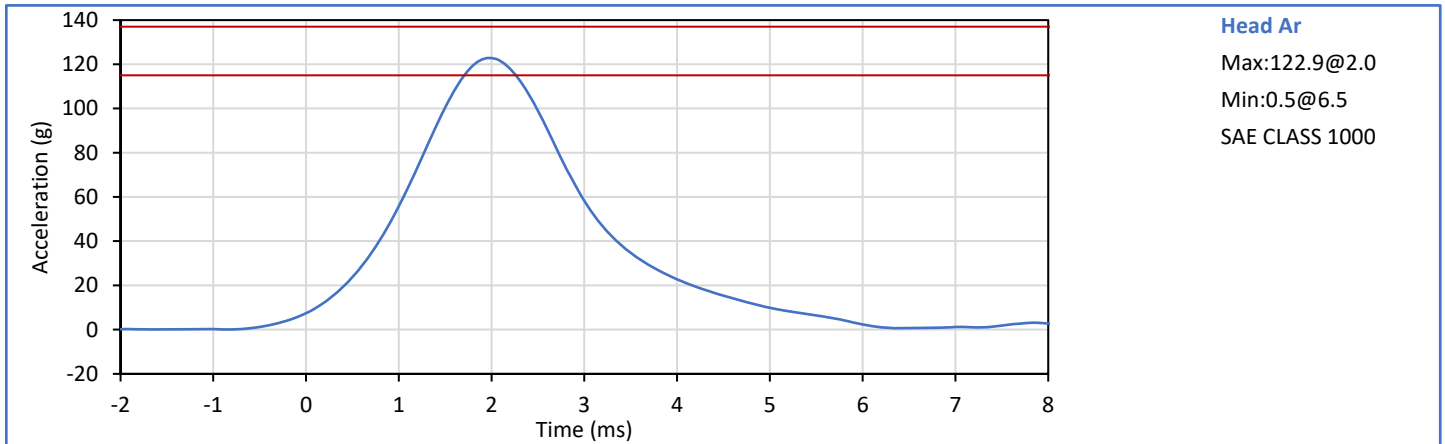
G. Fuentes

Approved By:



J. Hernandez

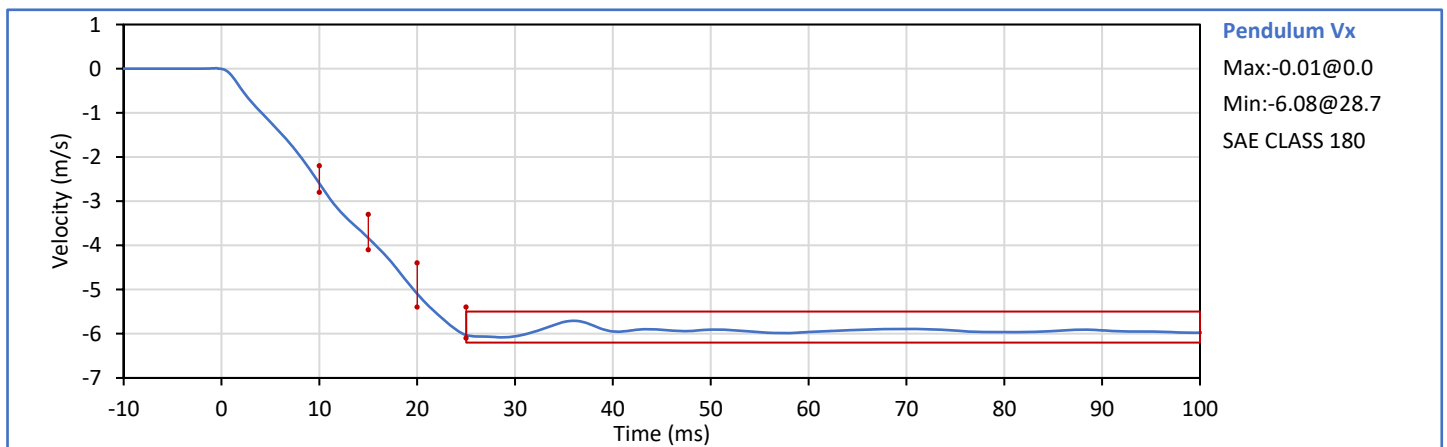
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Peak Resultant Acceleration	g	115.0	137.0	122.9	Pass
Peak Head Ax	g	-15.0	15.0	-4.0	Pass
Oscillations After Main Pulse	%	0.0	15.0	2.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
<b>Overall Test Results</b>					<b>Pass</b>



Technician: *Mill LGS III*  
G. Fuentes

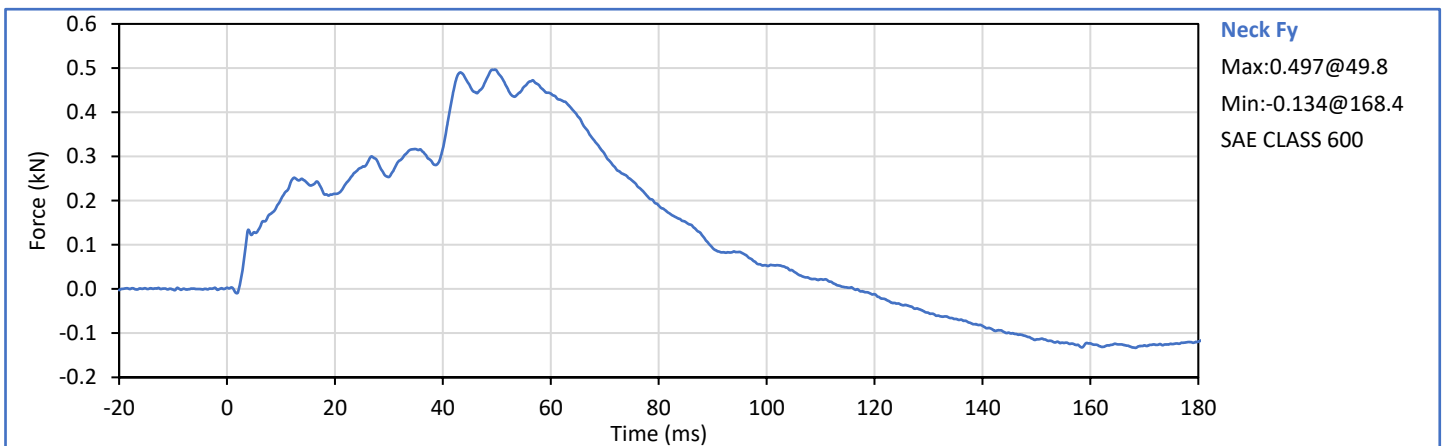
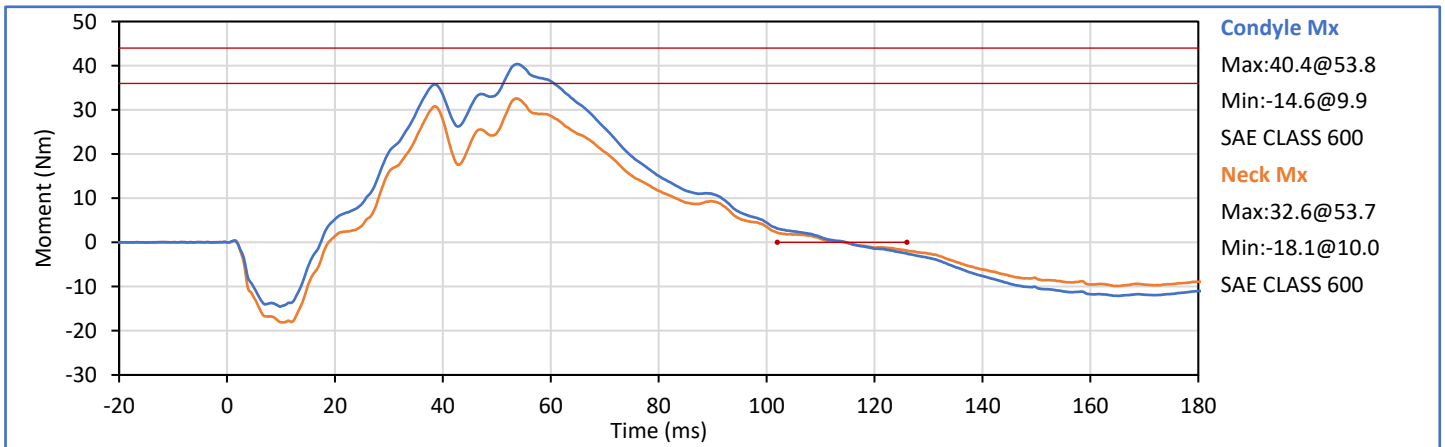
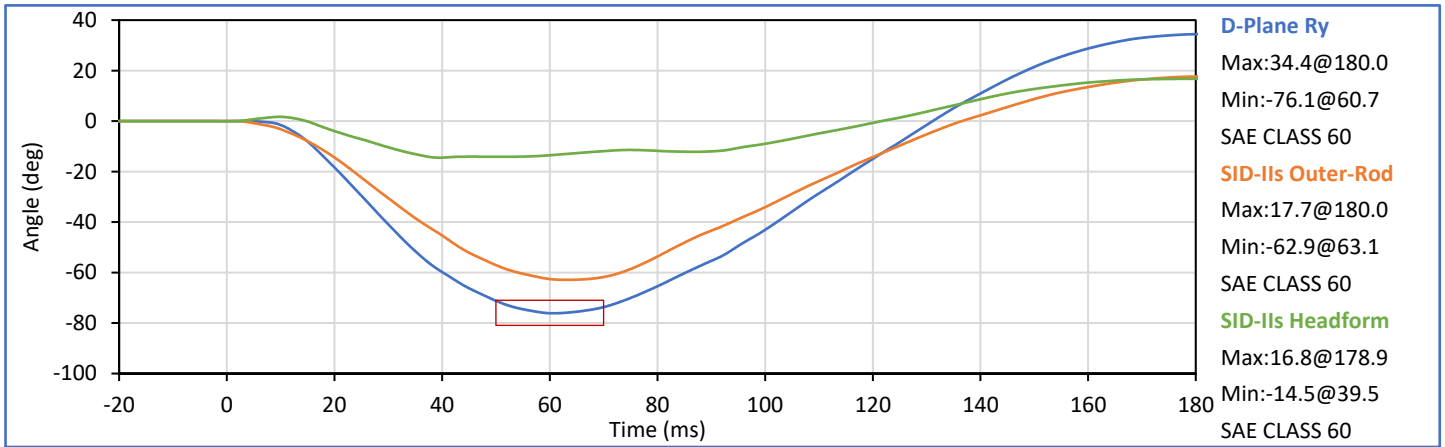
Approved By: *Smith*  
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Pendulum Velocity	m/s	5.51	5.63	5.58	Pass
Pendulum Decel at 10 ms	m/s	-2.80	-2.20	-2.60	Pass
Pendulum Decel at 15 ms	m/s	-4.10	-3.30	-3.84	Pass
Pendulum Decel at 20 ms	m/s	-5.40	-4.40	-5.10	Pass
Pendulum Decel at 25 ms	m/s	-6.10	-5.40	-6.03	Pass
Pendulum Decel from 25-100 ms	m/s	-6.20	-5.50	-6.08/-5.71	Pass
Peak "D" Plane Rotation	deg	-81.0	-71.0	-76.1	Pass
Time of Peak "D" Plane Rotation	ms	50.0	70.0	60.7	Pass
Peak Occ. Condyle Moment	Nm	36.0	44.0	40.4	Pass
Time of Moment Decay to 0 Nm	ms	102.0	126.0	114.8	Pass
Overall Test Results					Pass

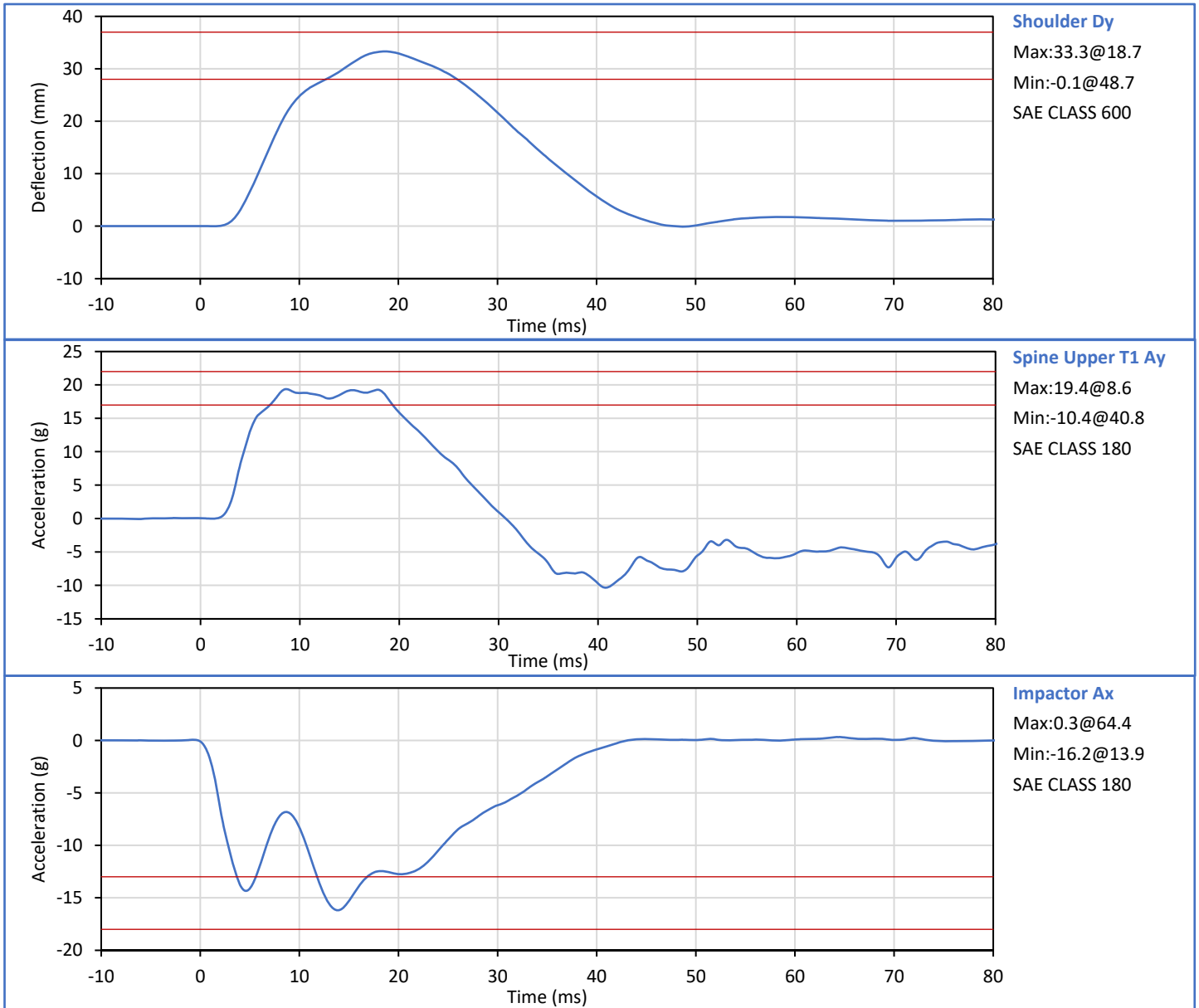


Technician: *Mill LGS III*  
G. Fuentes

Approved By: *Smith*  
J. Hernandez



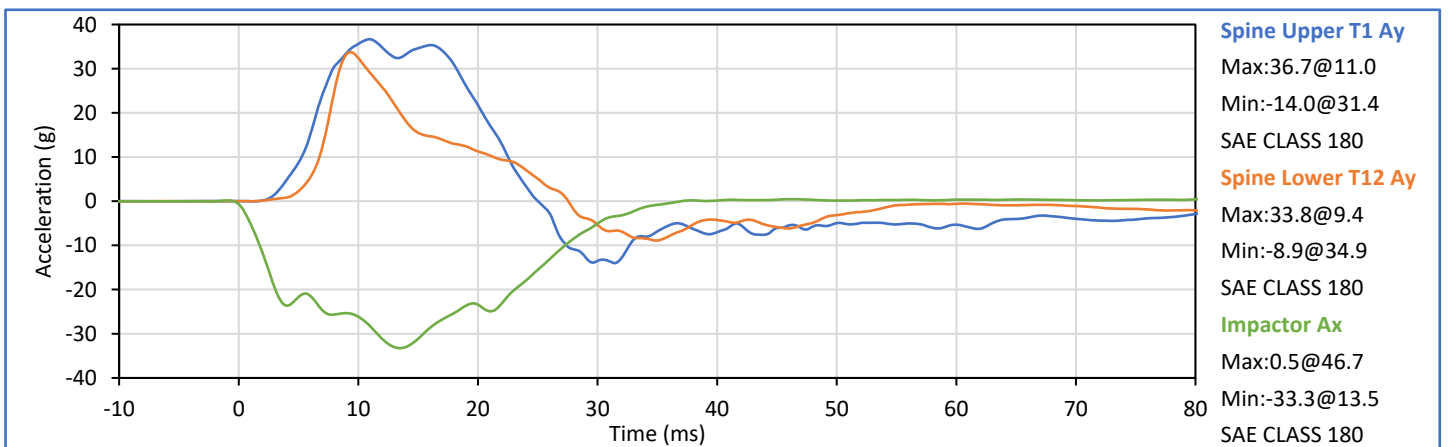
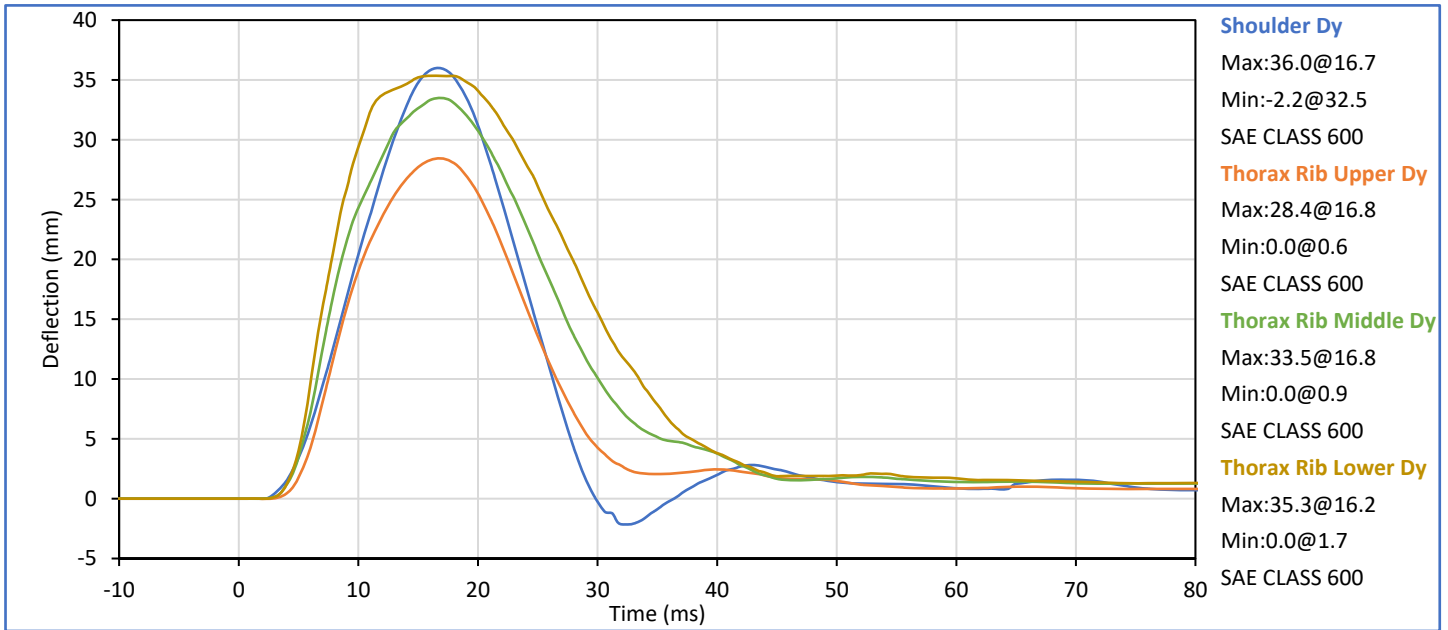
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	4.20	4.40	4.33	Pass
Peak Shoulder Dy	mm	28.0	37.0	33.3	Pass
Peak Upper Spine (T1) Ay	g	17.0	22.0	19.4	Pass
Peak Impactor Ax	g	-18.0	-13.0	-16.2	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *J. Hernandez*  
J. Hernandez

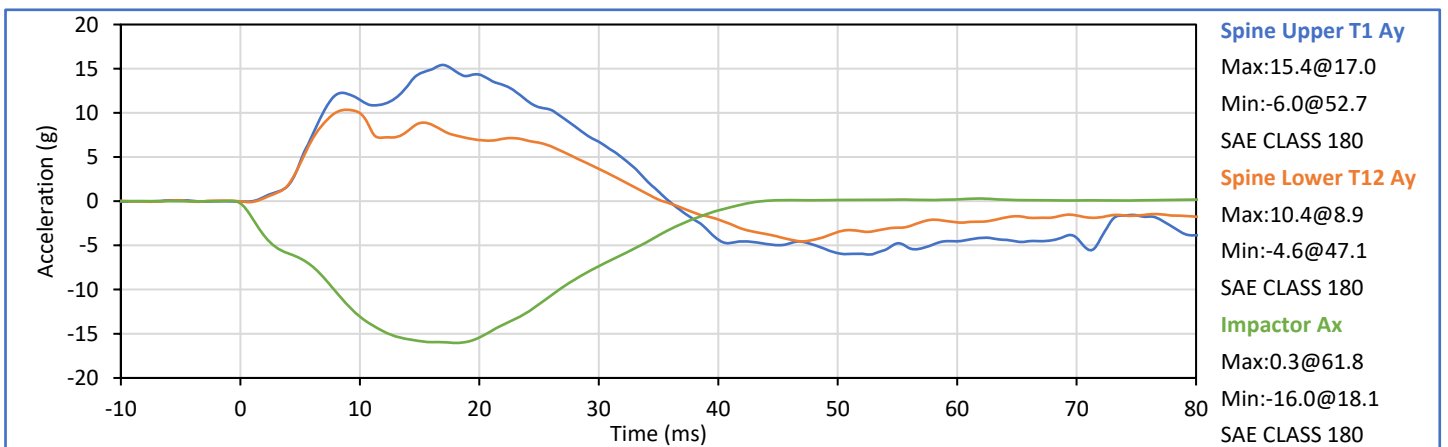
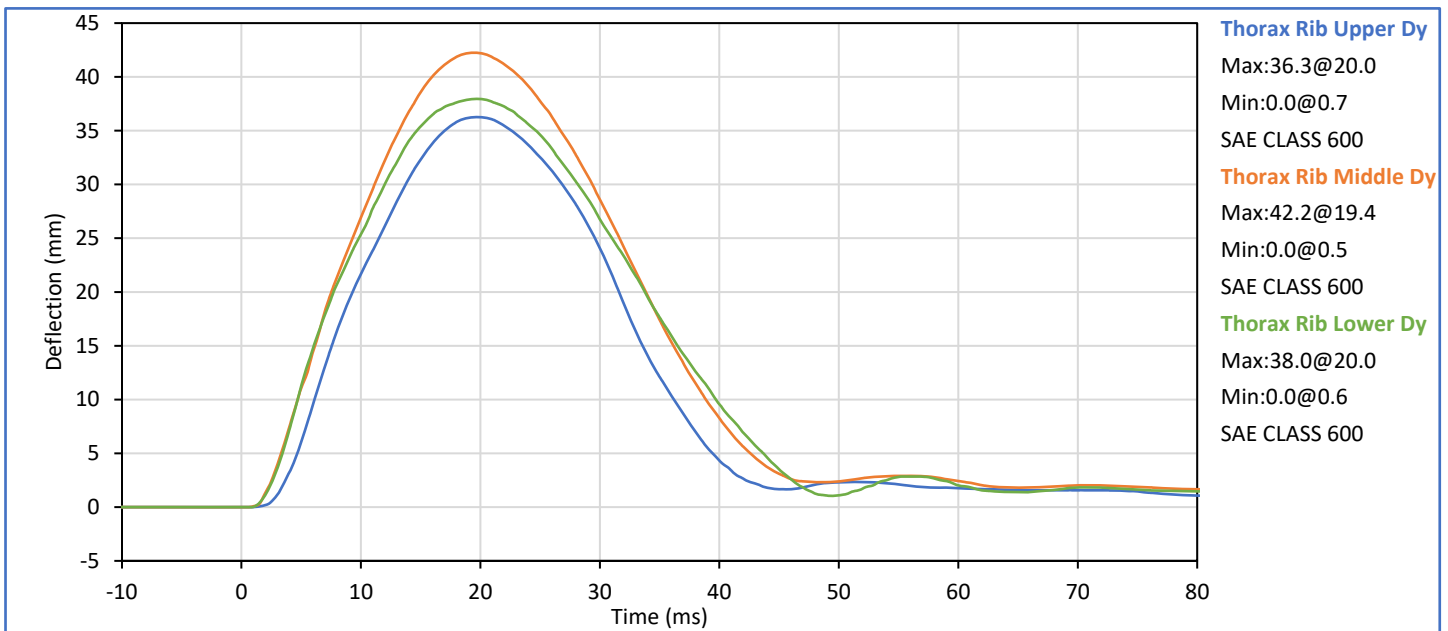
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	42	Pass
Impactor Velocity	m/s	6.60	6.80	6.71	Pass
Peak Shoulder Dy	mm	31.0	40.0	36.0	Pass
Peak Upper Rib Dy	mm	25.0	32.0	28.4	Pass
Peak Middle Rib Dy	mm	30.0	36.0	33.5	Pass
Peak Lower Rib Dy	mm	32.0	38.0	35.3	Pass
Peak Upper Spine (T1) Ay	g	34.0	43.0	36.7	Pass
Peak Lower Spine (T12) Ay	g	29.0	37.0	33.8	Pass
Peak Impactor Ax	g	-36.0	-30.0	-33.3	Pass
Overall Test Results					Pass



Technician: *Mill LGS III*  
G. Fuentes

Approved By: *J. Hernandez*  
J. Hernandez

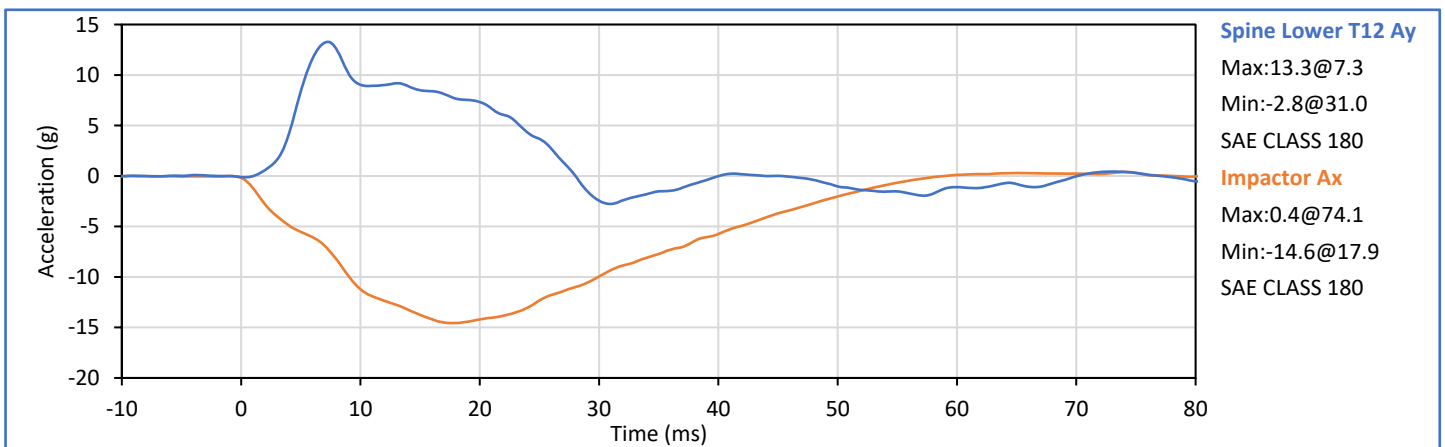
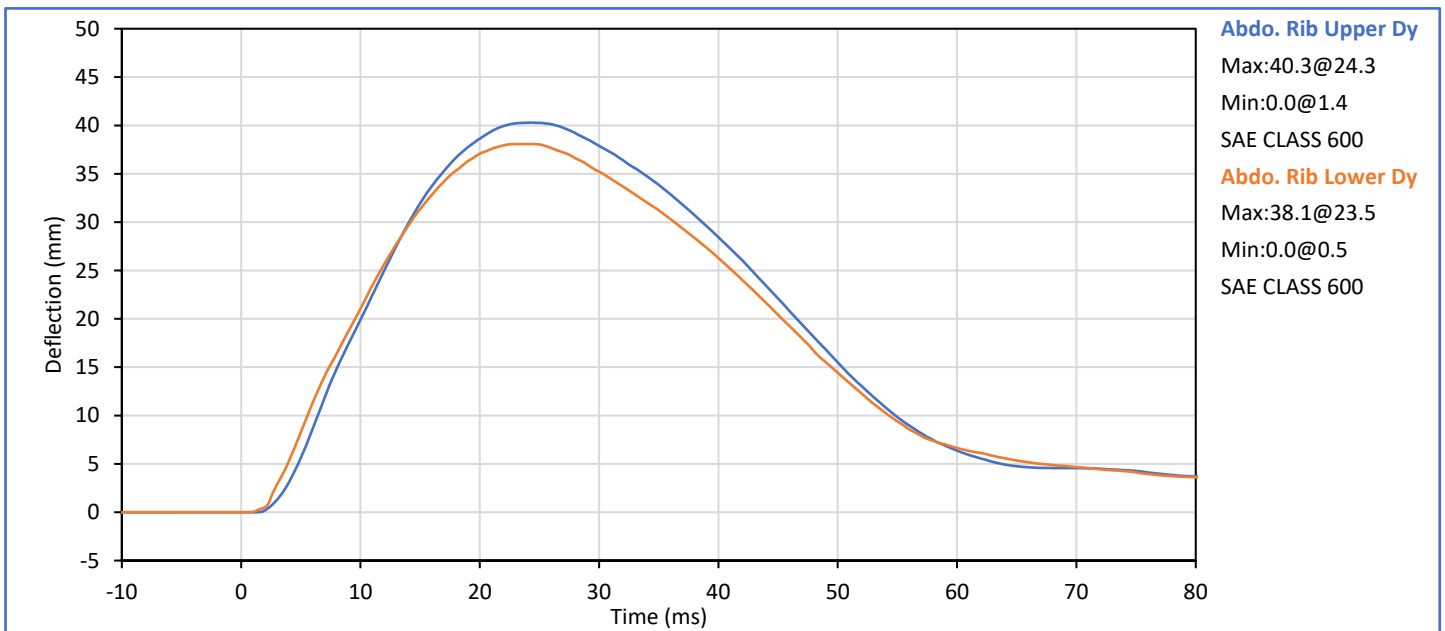
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	45	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Thorax Rib Upper Dy	mm	32.0	40.0	36.3	Pass
Peak Thorax Rib Middle Dy	mm	39.0	45.0	42.2	Pass
Peak Thorax Rib Lower Dy	mm	35.0	43.0	38.0	Pass
Peak Spine Upper T1 Ay	g	13.0	17.0	15.4	Pass
Peak Spine Lower T12 Ay	g	7.0	11.0	10.4	Pass
Peak Impactor Ax	g	-18.0	-14.0	-16.0	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	21.2	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Upper Abdomen Rib Dy	mm	36.0	47.0	40.3	Pass
Peak Lower Abdomen Rib Dy	mm	33.0	44.0	38.1	Pass
Peak Lower Spine T12 Ay	mm	9.0	14.0	13.3	Pass
Peak Impactor Ax	g	-16.0	-12.0	-14.6	Pass
<b>Overall Test Results</b>					<b>Pass</b>

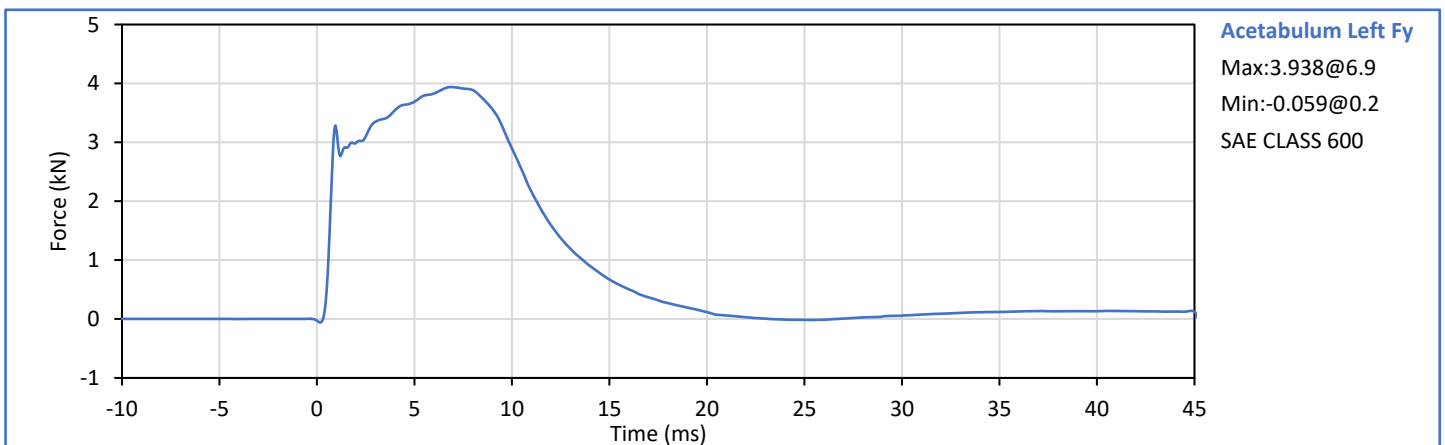
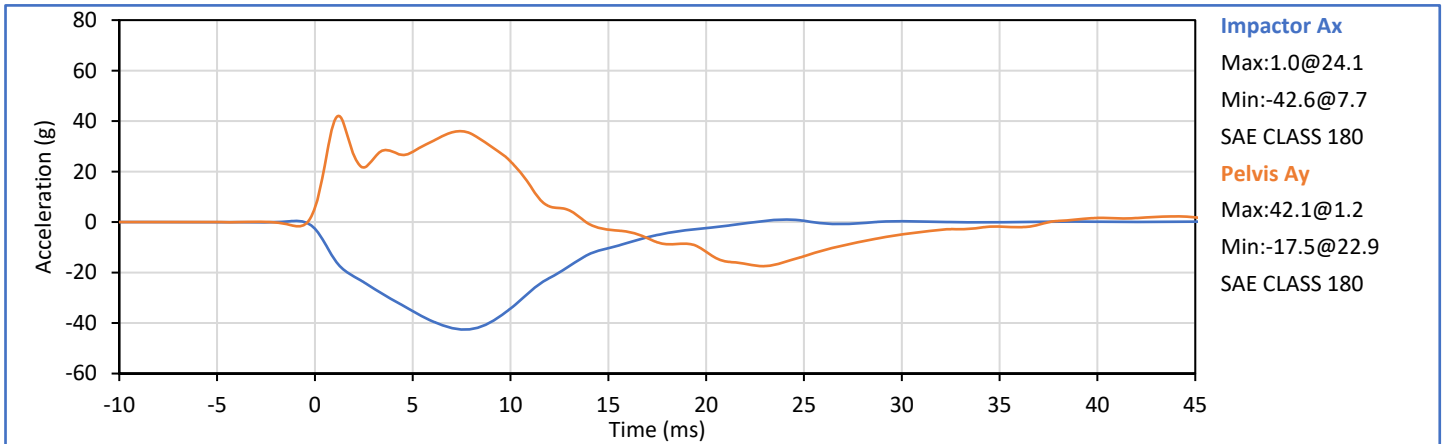


Technician: *Mill JG III*  
G. Fuentes

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	41	Pass
Impactor Velocity	m/s	6.60	6.80	6.72	Pass
Peak Acetabulum Fy	kN	3.60	4.30	3.94	Pass
Pelvis Ay after 6ms	g	34.0	42.0	36.0	Pass
Peak Impactor Ax	g	-47.0	-38.0	-42.6	Pass
Overall Test Results					Pass

Pelvis Plug S/N: 14801



Technician: *Mill JG III*  
G. Fuentes

Approved By: *Smith*  
J. Hernandez

ATD Serial No.: 308

Test Date: 2023-10-31

Pelvis Plug S/N: 14801



**SID-IIs Pelvis Plug Certification Test**

Plug S/N 14801

Test Number 16774

Report Number 16820

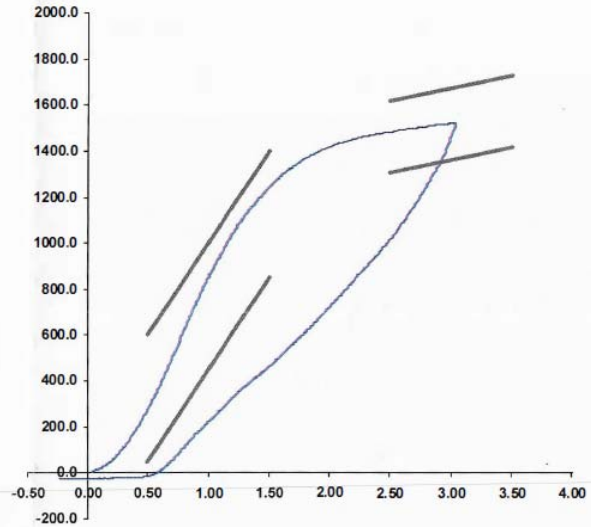
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	Test Results	Spec. Min	Spec. Max
Force @ 0.5 mm (N)	282.54	50.00	600.00
Force @ 1.5 mm (N)	1,243.94	850.00	1,400.00
Force @ 2.5 mm (N)	1,482.89	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,521.01	1,361.00	1,673.00

Testing Machine STM-20 5965542  
 Load Cell S/N (FI360947), Units (LBS) 1000  
 Preload Value (-N) 22.24  
 Crosshead Speed ( mm / min ) or Rate 12.7  
 Extension or Position Measured by XHD\_100 ( XHD100 )

Notes:

Force (-N) vs Extension (-mm)



Operator \_\_\_\_\_  
 Part Number 180-4450

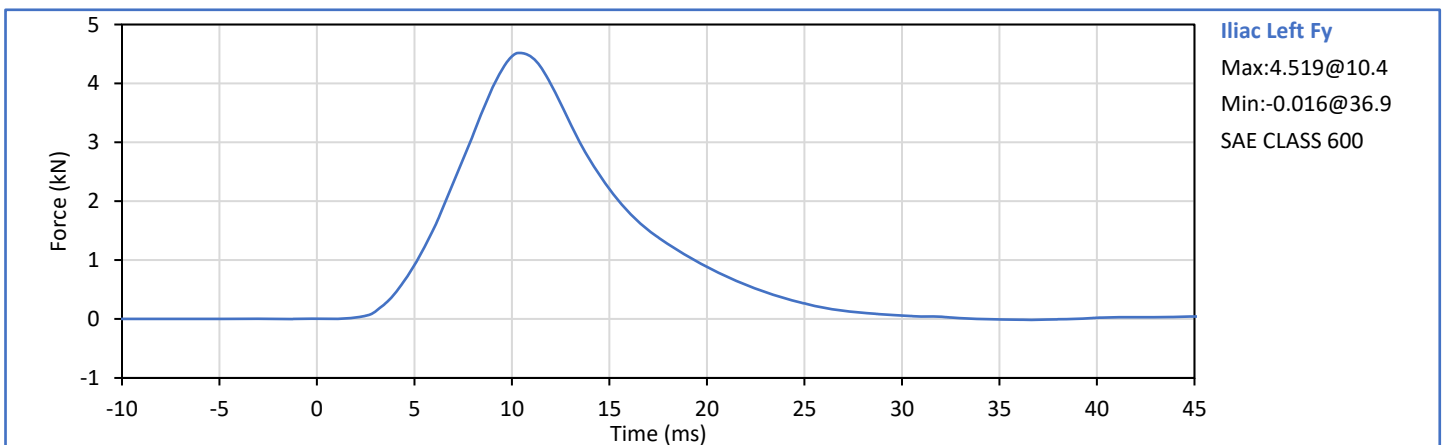
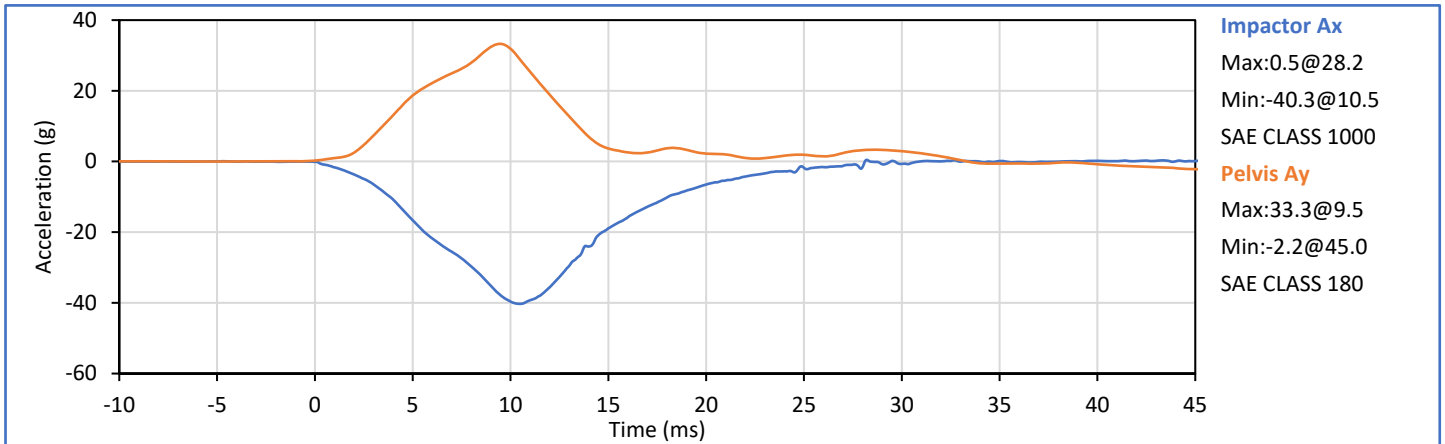
Template No 107 29-Dec-20  
 SACO Research

By : \_\_\_\_\_ Date : \_\_\_\_\_

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	41	Pass
Impactor Velocity	m/s	4.20	4.40	4.32	Pass
Peak Iliac Fy	kN	4.10	5.10	4.52	Pass
Peak Pelvis Ay	g	28.0	39.0	34.7	Pass
Peak Impactor Ax	g	-45.0	-36.0	-40.3	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	2023-10-20
Head Acceleration Y Primary	P58865	Endevco	7264C-2k	2023-10-20
Head Acceleration Z Primary	P58867	Endevco	7264C-2k	2023-10-20
Head Acceleration X Redundant	P58859	Endevco	7264C-2k	2023-10-20
Head Acceleration Y Redundant	P58866	Endevco	7264C-2k	2023-10-20
Head Acceleration Z Redundant	P58873	Endevco	7264C-2k	2023-10-20
Upper Thorax Rib Deflection Y	209 (ES-2 Rib)	Honeywell	F38000203	2023-10-16
Middle Thorax Rib Deflection Y	210 (ES-2 Rib)	Honeywell	F38000203	2023-10-16
Lower Thorax Rib Deflection Y	207 (ES-2 Rib)	Honeywell	F38000203	2023-10-16
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	2023-10-19
Lower Spine T12 Acceleration Y	P50063	Endevco	7264C-2k	2023-10-20
Lower Spine T12 Acceleration Z	P51880	Endevco	7264C-2k	2023-10-19
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	2023-10-16
Head Acceleration Y Primary	P58861	Endevco	7264C-2k	2023-10-16
Head Acceleration Z Primary	P51261	Endevco	7264C-2k	2023-10-16
Head Acceleration X Redundant	P58808	Endevco	7264C-2k	2023-10-16
Head Acceleration Y Redundant	P63310	Endevco	7264C-2k	2023-10-16
Head Acceleration Z Redundant	P49189	Endevco	7264C-2k	2023-10-16
Head Rotation Rate X	ARS7367	DTS	ARS PRO-8k (2kHz)	2023-04-07
Head Rotation Rate Y	ARS7377	DTS	ARS PRO-8k (2kHz)	2023-04-07
Head Rotation Rate Z	ARS7498	DTS	ARS PRO-8k (2kHz)	2023-04-07
Upper Thorax Rib Deflection Y	1249	Servo	08TCI-3725	2023-10-16
Middle Thorax Rib Deflection Y	1219	Servo	08TCI-3725	2023-10-16
Lower Thorax Rib Deflection Y	1221	Servo	08TCI-3725	2023-10-16
Upper Abdomen Rib Deflection Y	1252	Servo	08TCI-3725	2023-10-16
Lower Abdomen Rib Deflection Y	1233	Servo	08TCI-3725	2023-10-16
Lower Spine T12 Acceleration X	P52108	Endevco	7264C-2k	2023-10-16
Lower Spine T12 Acceleration Y	P63970	Endevco	7264C-2k	2023-10-16
Lower Spine T12 Acceleration Z	P51712	Endevco	7264C-2k	2023-10-16
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	M10908	Endevco	758H-2k	2023-06-30
Vehicle CG Ay	M11205	Endevco	758H-2k	2023-10-17
Vehicle CG Az	M11291	Endevco	758H-2k	2023-07-11
Right Side Sill at Front Seat Ax	M11099	Endevco	758H-2k	2023-07-05
Right Side Sill at Front Seat Ay	M11261	Endevco	758H-2k	2023-09-11
Right Side Sill at Front Seat Az	M11247	Endevco	758H-2k	2023-08-27
Right Side Sill at Rear Seat Ax	M11037	Endevco	758H-2k	2023-06-25
Right Side Sill at Rear Seat Ay	M11171	Endevco	758H-2k	2023-07-10
Right Side Sill at Rear Seat Az	M11257	Endevco	758H-2k	2023-06-29
Left Side Sill at Front Seat Ay	M11114	Endevco	758H-2k	2023-06-14
Left Side Sill at Rear Seat Ay	M11282	Endevco	758H-2k	2023-10-10
Left Lower A-Pillar Ay	M11140	Endevco	758H-2k	2023-07-07
Left Middle A-Pillar Ay	M11195	Endevco	758H-2k	2023-07-09
Left Lower B-Pillar Ay	M11152	Endevco	758H-2k	2023-10-18
Left Middle B-Pillar Ay	M11292	Endevco	758H-2k	2023-05-01
Driver Seat Track at H-Point Ay	M11210	Endevco	758H-2k	2023-08-01
Rear Seat Structure Ay	M11242	Endevco	758H-2k	2023-07-06
Right Rear Occupant Comp. Ay	M11151	Endevco	758H-2k	2023-06-27
Engine Block Top Ax	M11118	Endevco	758H-2k	2023-06-26
Engine Block Top Ay	M11100	Endevco	758H-2k	2023-06-29
Rear Floopan Above Axle Ax	M11278	Endevco	758H-2k	2023-06-27
Rear Floopan Above Axle Ay	M11254	Endevco	758H-2k	2023-05-11
Rear Floopan Above Axle Az	M11206	Endevco	758H-2k	2023-06-25

**Table 4 - Moving Deformable Barrier (MDB) Instrumentation**

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
MDB CG Ax	M11194	Endevco	758H-2k	2023-10-18
MDB CG Ay	M11216	Endevco	758H-2k	2023-10-18
MDB CG Az	M11182	Endevco	758H-2k	2023-07-31
MDB Left Side at Rear Axle Ax	M10904	Endevco	758H-2k	2023-07-07
MDB Left Side at Rear Axle Ay	M11293	Endevco	758H-2k	2023-06-21