

REPORT NUMBER: NCAP-KAR-22-010

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

**SUBARU CORPORATION
2022 SUBARU WRX 4-DOOR SEDAN**

NHTSA NUMBER: O20225500

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



DECEMBER 27, 2022

FINAL REPORT

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

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Approval Date: December 27, 2022

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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: _____

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16. Abstract A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2022 Subaru WRX 4-door Sedan in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. The test was conducted at the Applus+ IDIADA KARCO Engineering, LLC. facility in Adelanto, California on December 06, 2022. The impact velocity of the vehicle was 56.12 km/h and the ambient temperature at the barrier face at the time of impact was 11.1°C. The target vehicle's post-test maximum crush was 438 mm at the vehicle's centerline. The test vehicle's performance is as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700</td> <td>249.954</td> <td>700</td> <td>155.888</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-19.113</td> <td>52</td> <td>-12.188</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.245</td> <td>1</td> <td>0.344</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>1549.508</td> <td>2620</td> <td>1010.470</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>-288.391</td> <td>2520</td> <td>-672.675</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10000</td> <td>-1265.269</td> <td>6800</td> <td>-901.228</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10000</td> <td>-2329.115</td> <td>6800</td> <td>-1265.696</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700	249.954	700	155.888	Maximum Chest Compression	mm	63	-19.113	52	-12.188	Nij	N/A	1	0.245	1	0.344	Neck Tension	N	4170	1549.508	2620	1010.470	Neck Compression	N	4000	-288.391	2520	-672.675	Left Femur Force	N	10000	-1265.269	6800	-901.228	Right Femur Force	N	10000	-2329.115	6800	-1265.696
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56.3 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program, sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number 693JJ919D000004. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Procedure dated May 2018 for NCAP Full Frontal Rigid Barrier Impact Testing.

SUMMARY

A load cell barrier consisting of 176 load cells was impacted by a 2022 Subaru WRX 4-door Sedan at a velocity of 56.12 km/h. The test was performed at Applus+ IDIADA KARCO Engineering, LLC. on December 6, 2022. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A of this report.

One (1) real-time cameras and sixteen (16) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in Data Sheet 6 of this report.

One Part III 50th percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part III 5th percentile female ATD was placed in the right-front passenger seating position according to dummy placement instructions specified in the Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing.

Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck force transducers, right / left femur load cells, and lower leg instrumentation.

The driver (position 1) ATD (Serial No. 360) and the right-front passenger (position 2) ATD (Serial No. DH1644) were qualified prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 102 channels of dummy and vehicle response data were recorded on an on-board data acquisition system. Appendix B contains the dummy response data traces. Appendix D contains a complete list of instrumentation used for dummies and the vehicle.

There was 100 percent windshield retention and intrusion into the protected zone of the windshield during the event. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the test vehicle was 438 mm at the vehicle's centerline. Both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: the driver ATD's head contacted the frontal airbag and headrest. The upper and lower torso contacted the frontal airbag. Both left and right knees contacted the knee airbag.

The passenger's visible contact points were as follows: the passenger ATD's head contacted the frontal airbag and headrest. The upper and lower torso contacted the frontal airbag. Both left and right knees contacted the knee bolster.

The occupant data is summarized below:

ATD Position	HIC ₁₅	Nij	Neck Tension (N)	Neck Comp. (N)	3ms Chest Clip (g)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)
Driver (50th Male)	249.954	0.245	1549.508	-288.391	49.598	-19.113	-1265.269	-2329.115
Passenger (5th Female)	155.888	0.344	1010.469	-672.676	48.059	-12.188	-901.228	-1265.696

GENERAL COMMENTS:

Engine Top AX Failed at 36.9 ms

Engine Bottom AX Failed at 32.4 ms

SECTION 2

OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

CONVERSION FACTORS

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

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	O20225500
Model Year	2022
Make	Subaru
Model	WRX
Body Style	4-Door Sedan
VIN	JF1VBAA64N9018163
Body Color	Ice Silver Metallic
Odometer Reading (km / mi)	164 / 102
Engine Displacement (L)	2.4
Type / No. of Cylinders	Opposed 4
Engine Placement	Longitudinal
Transmission Type	Manual
Transmission Speeds	6
Overdrive	No
Final Drive	AWD
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

Traction Control System	Yes
Power Steering	Yes
Power Window Auto-Reverse	Yes
Driver Frontal 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
Front Pass. Frontal Airbag	Yes
Front Pass. Curtain Airbag	Yes
Front Pass. Head/Torso Airbag	No
Front Pass. Torso Airbag	No
Front Pass. Torso/Pelvis Airbag	Yes
Front Pass. Pelvis Airbag	No
Front Pass. Knee Airbag	No
Driver Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Front Pass. Seat Belt Pretensioner	Yes
Front Pass. Load Limiter	Yes
Other Safety Restraint	No

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Subaru Corporation
Date of Manufacture	Aug-22

GVWR (kg)	2100
GAWR Front (kg)	1140
GAWR Rear (kg)	1100

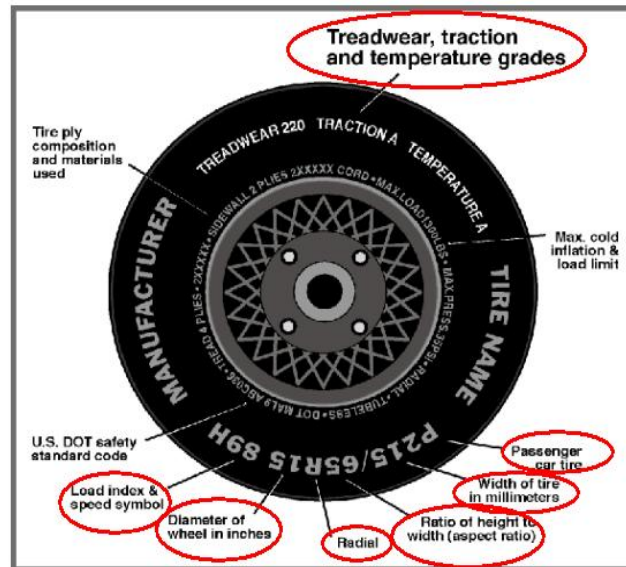
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Type of Seats	Bucket	Split Bench			
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				385.0	A
DSC x 68.04 (kg)				340.2	B
Cargo Weight (RCLW) (kg)				44.8	A-B

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	340	340
Cold Pressure (kPa)	230	230
Recommended Tire Size	235/45 R17	235/45 R17
Tire Size on Vehicle	235/45 R17	235/45 R17
Tire Manufacturer	Dunlop	Dunlop
Tire Model	SP Sport MAXX GT 600A	SP Sport MAXX GT 600A
Treadwear	200	200
Traction	A	A
Temperature Grades	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	97W	97W
Tire Material	Polyester, Steel, Polyamide	Polyester, Steel, Polyamide
DOT Safety Code Left	1420L AVYR 2522	1420L AVYR 2522
DOT Safety Code Right	1420L AVYR 2522	1420L AVYR 2522

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

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	462.5	309.0		496.5	367.5	
Right	kg	447.5	289.5		470.5	352.0	
Ratio	%	60.3%	39.7%	100.0%	57.3%	42.7%	100.0%
Total	kg	910.0	598.5	1508.5	967.0	719.5	1686.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1508.5	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	44.8	C
Calculated Vehicle Target Weight (TVTW)	kg	1694.3	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	681	686	690	690	1058
As Tested	mm	673	682	670	681	1138
Post-Test	mm	715	715	682	668	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheelbase	mm	2666
Total Vehicle Length at Left Side	mm	4416
Total Vehicle Length at Centerline	mm	4675
Total Vehicle Length at Right Side	mm	4429
Weight of Ballast in Cargo Area	kg	49.2
Weight of Vehicle Components Removed	kg	36.0
Amount of Stoddard Solvent in Fuel Tank	L	58.30

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Repair Kit (6.0kg), Trunk Lid (10.0kg), Taillights (3.0kg), Rear Bumper and Fascia (12.0kg)

Rear Seat Cushions (5.0 kg)

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

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test
1	Total Length	4675
2	Total Width	1828
3	Bumper Top Height	510
4	Bumper Bottom Height	390
5	Longitudinal Member Top Height	595
6	Distance Between Longitudinal Members	1233
7	Longitudinal Member Width	105
8	Engine Top Height	825
9	Engine Bottom Height	220
10	Engine and Gearbox Width	905
11	Front Bumper to Engine Distance	452
12	Front Shock Absorber Fixing Height	885
13	Bonnet Leading Edge Height	482
14	Front Shock Absorber Fixing Width	1235
15	Front Bumper to Front Axle Distance	920
16	Front Axle to A-Pillar Distance	528
17	A-Pillar to B-Pillar Distance	1039
18	B-Pillar to Rear Axle Distance	1091
19	B-Pillar to C-Pillar Distance	928
20	Roof Sill Bottom Height	1450
21	Roof Sill Top Height	1495
22	Floor Sill Bottom Height	215
23	Floor Sill Top Height	340

All measurements in millimeters.

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2022 Subaru WRX 4-Door Sedan

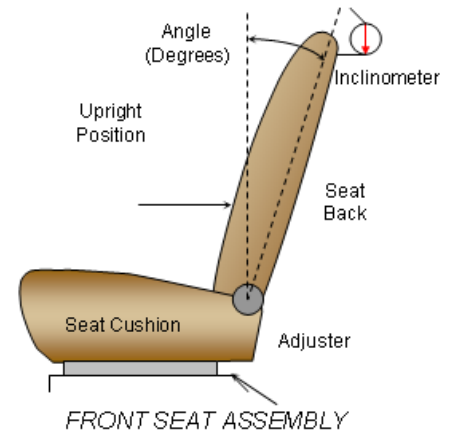
NHTSA No.: O20225500

Test Program: 56.3 km/h Frontal Impact NCAP Test

Test Date: 12/06/2022

NOMINAL DESIGN RIDING POSITION

The procedure for the driver is as follows: the seat back is set to the manufacturer's designated angle. The procedure for the passenger is as follows: the seat back is set to position the transverse instrumentation platform of the dummy's head at $0^\circ \pm 0.5^\circ$. Seat back angle is measured with a flat edge along the seat back.

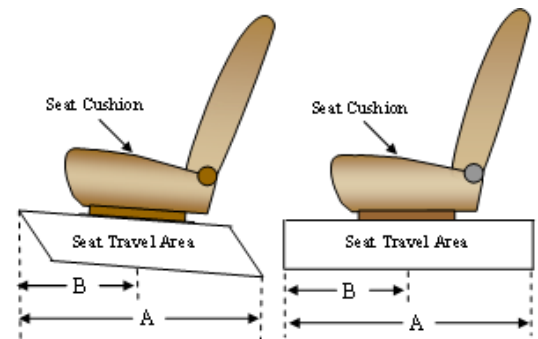


SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	6.8
Passenger Seat Back Angle	7.9

SEAT FORE / AFT POSITIONING

The total seat travel is measured from the forward most possible position to the rear most possible position. The driver's seat is set to the middle of the fore-aft travel. The passenger's seat is set to the forward most position where the ATD will not contact any interior panels.



SEAT FORE/AFT POSITIONS

Seating Position	Total Fore-Aft Travel	Placed in Position
Driver Seat	300 mm	150 mm
Passenger Seat	270 mm	0 mm

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50th percentile adult male ATD for the driver, and a 5th percentile adult female ATD for the passenger. Position "L" is the lowermost position, followed by position "M1". Position "H" is the uppermost position.

SEAT BELT UPPER ANCHORAGES

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	M2
Passenger Seat	4	H

DATA SHEET NO. 2 ... (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2022 Subaru WRX 4-Door Sedan

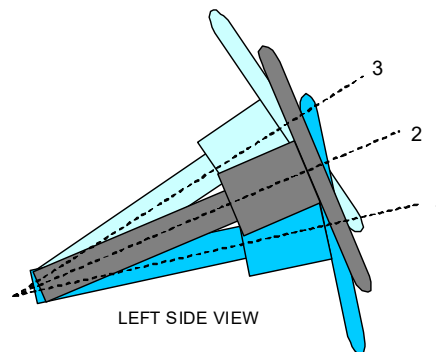
NHTSA No.: O20225500

Test Program: 56.3 km/h Frontal Impact NCAP Test

Test Date: 12/06/2022

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. A digital inclinometer is used to measure a plate which is placed across the rim of the steering wheel for angular measurements.



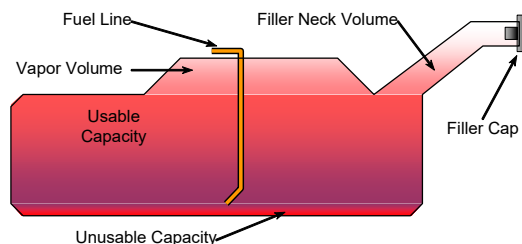
STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	68.4	112
Geometric Center Position, No. 2	66.7	138
Uppermost Position, No. 3	64.9	163
Telescoping Steering Wheel Travel		51
Test Position	66.7	138

FUEL PUMP

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



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	62.84
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	62.84
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	58.44
Actual amount of Solvent Used in Test	58.44
1/3 of Usable Capacity	20.95

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

DATA SHEET NO. 3

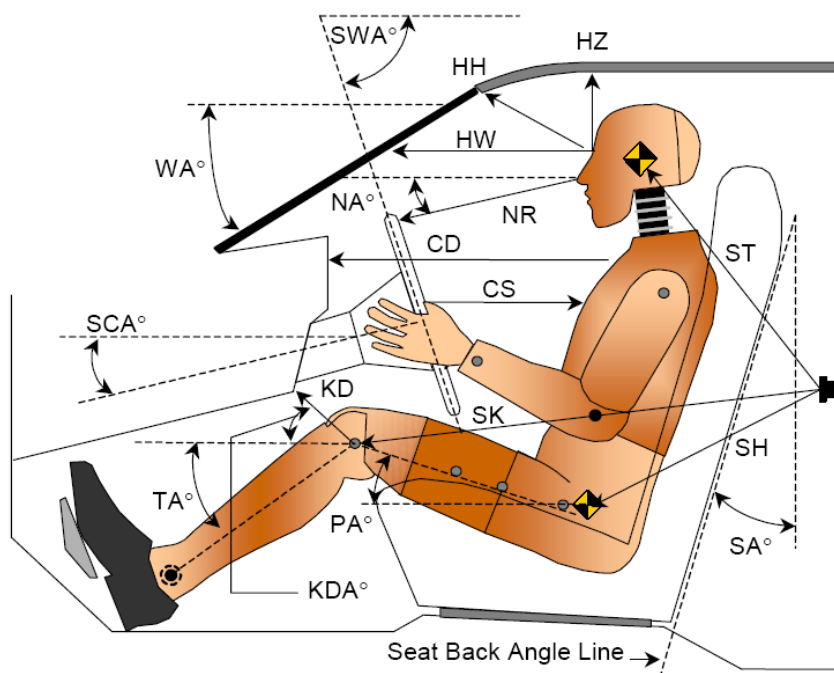
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2022 Subaru WRX 4-Door Sedan

NHTSA No.: O20225500

Test Program: 56.3 km/h Frontal Impact NCAP Test

Test Date: 12/06/2022



LEFT SIDE VIEW

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		63.6		
SWA°	Steering Wheel Angle		66.7		
SCA°	Steering Column Angle		23.3		
SA°	Seat Back Angle (On Seatback Post)		6.8		7.9
HZ	Head to Roof	223	90.0	264	90.0
HH	Head to Header	296	20.5	279	38.6
HW	Head to Windshield	618	0.0	636	0.0
NR	Nose to Rim	406	7.4	480	28.2
CD	Chest to Dash	550	11.3	408	0.0
CS	Chest to Steering Hub	293	0.0		
RA	Rim to Abdomen	208	17.3		
KDL	Left Knee to Dash	202	30.9	117	48.5
KDR	Right Knee to Dash	162	25.0	114	39.3
PA°	Pelvic Angle		21.6		20.7
TA°	Tibia Angle		42.8		47.2
SK	Striker to Knee	616		717	
ST	Striker to Head	434		438	
SH	Striker to H-Point	340		435	

DATA SHEET NO. 4

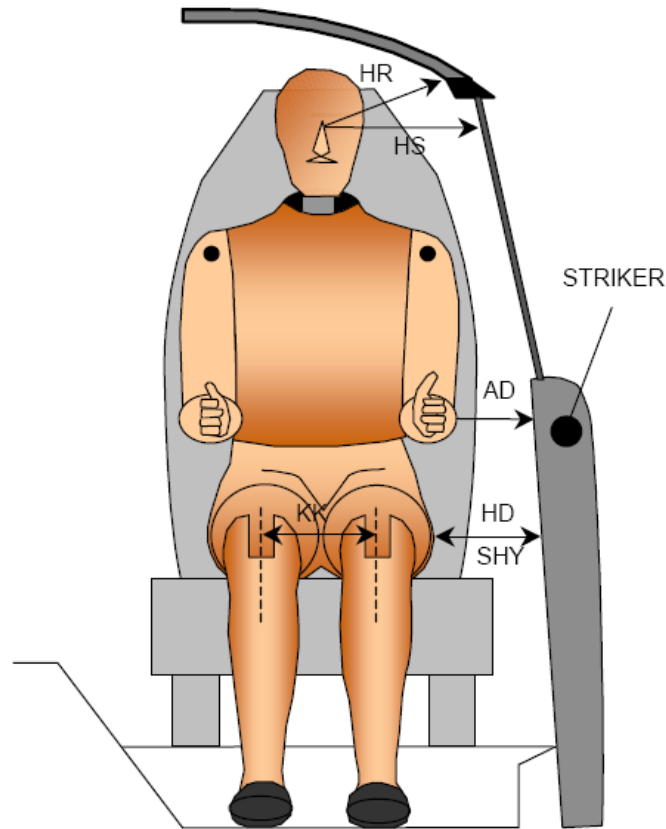
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2022 Subaru WRX 4-Door Sedan

NHTSA No.: O20225500

Test Program: 56.3 km/h Frontal Impact NCAP Test

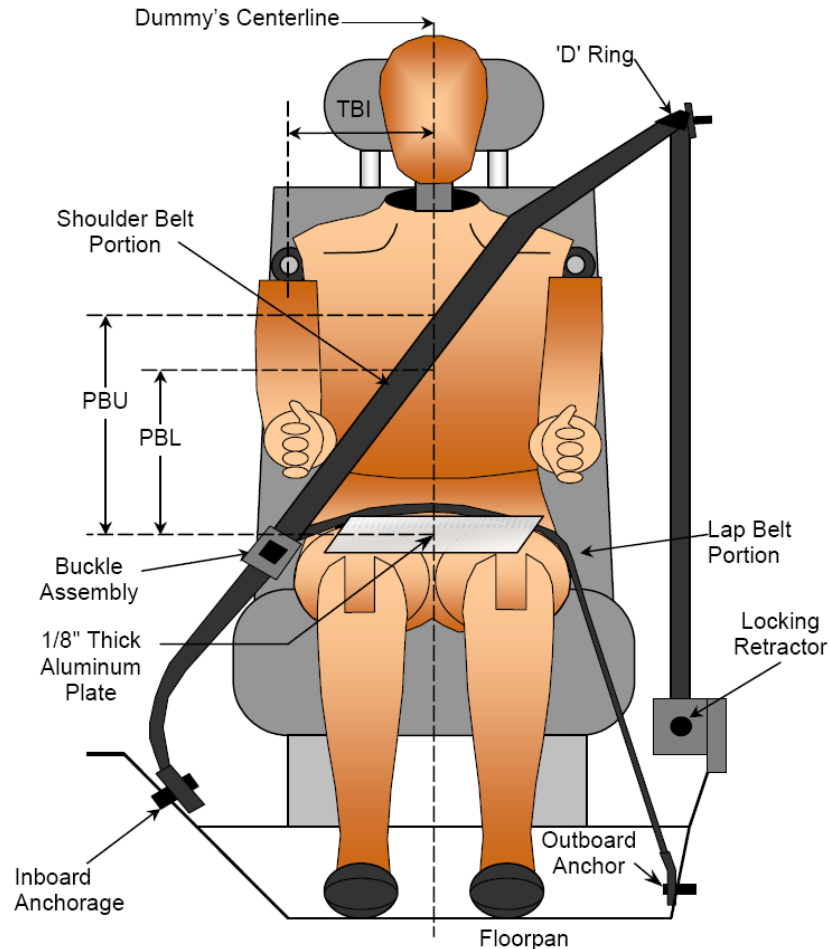
Test Date: 12/06/2022



Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	139	167
HD	H-Point to Door	194	197
HR	Head to Side Header	208	270
HS	Head to Side Window	385	380
KK	Knee to Knee	240	160
SHY	Striker to H-Point (Y-Direction)	152	169
AA	Ankle to Ankle	300	160

DATA SHEET NO. 5
SEAT BELT POSITIONING DATA

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	344	327
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	244	222

BELT LENGTH DATA

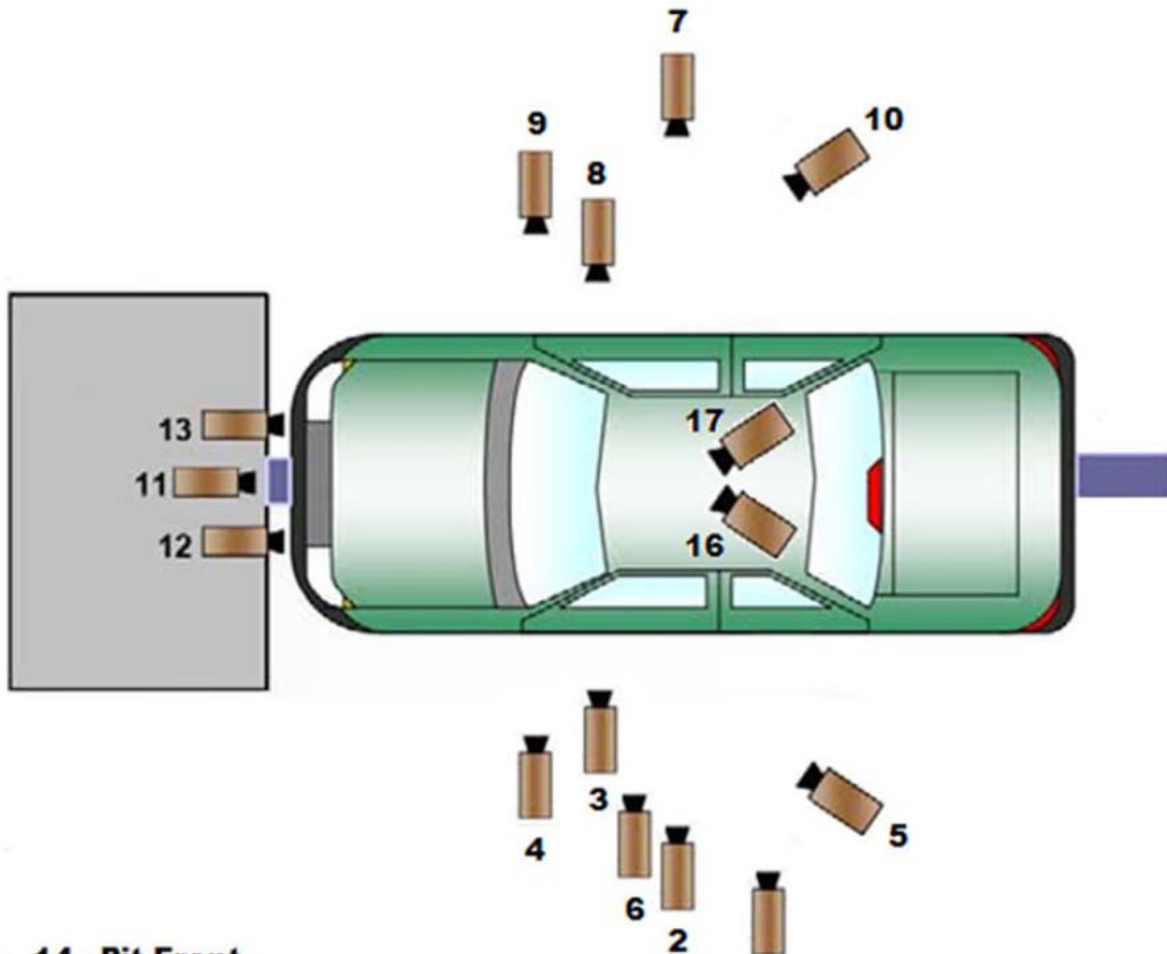
Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	835	980
Lap Belt Length as Measured on ATD	mm	760	909
Remainder of Belt on Reel	mm	910	676
Total Belt Length for Continuous Webbing Systems	mm	2505	2565

DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

CAMERA POSITIONS FOR FRONTAL IMPACTS



14 - Pit Front

15 - Pit Rear

16 & 17 - Driver and Passenger Onboard

1- Real Time Camera

***Camera locations are approximate and not to scale*

DATA SHEET NO. 6 ... (CONTINUED)**HIGH-SPEED CAMERA LOCATIONS AND DATA**Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022**CAMERA LOCATIONS**

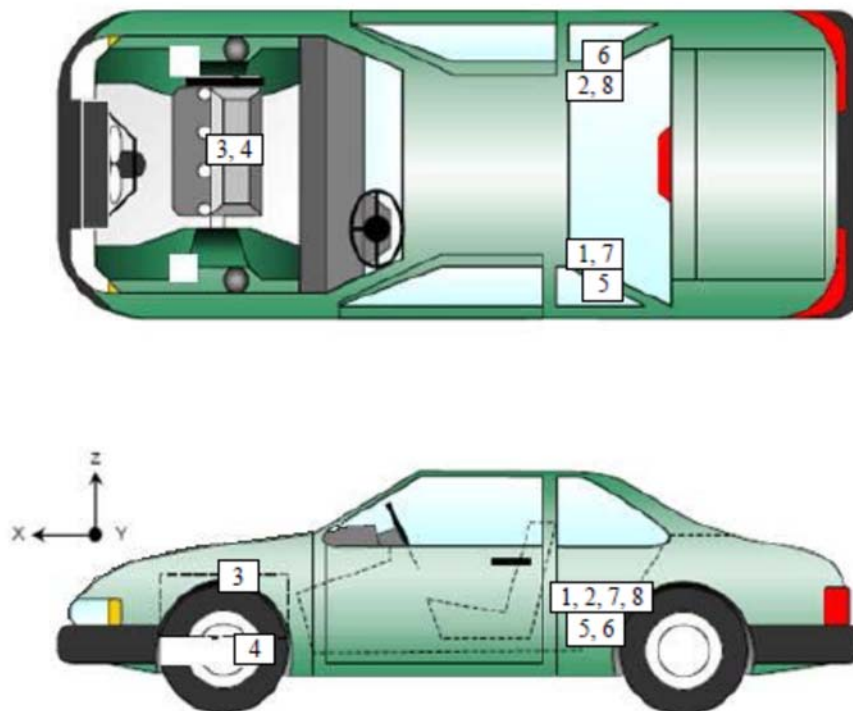
No.	Description	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-11412	-8150	-1484		30
2	Left Overall	-2456	-7975	-1025	20	1000
3	Driver Close-Up	-2590	-7950	-1371	50	1000
4	Left Front Half	-1701	-6197	-1701	35	1000
5	Left Angle	-6696	-10308	-3211	105	1000
6	Steering Column	-1966	-10412	-3688	35	1000
7	Right Overall	-2336	7569	-1012	20	1000
8	Passenger Close-Up	-1733	7581	-1408	50	1000
9	Right Front Half	-1600	8214	-1811	35	1000
10	Right Angle	-6217	9516	-4830	85	1000
11	Windshield	-354	0	-5749	28	1000
12	Driver Windshield	297	-366	-2460	24	1000
13	Passenger Windshield	297	366	-2460	24	1000
14	Pit Front	-756	0	1495	21	1000
15	Pit Rear	-3398	0	1495	15	1000
16	Driver Onboard	-2796	-247	-1721	8	1000
17	Passenger Onboard	-2796	247	-1721	8	1000

Coordinates: +X = forward impact plane
 +Y = right of monorail center
 +Z = into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Accelerometer X-Direction	2955	-805	335
2	Right Rear Accelerometer X-Direction	2907	810	332
3	Engine Top X	725	46	740
4	Engine Bottom X	695	-24	255
5	Left Rear Accelerometer Z-Direction	2955	-805	335
6	Right Rear Accelerometer Z-Direction	2907	810	332
7	Left Rear Accelerometer X-Direction Redundant	2955	-805	335
8	Right Rear Accelerometer X-Direction Redundant	2907	810	332

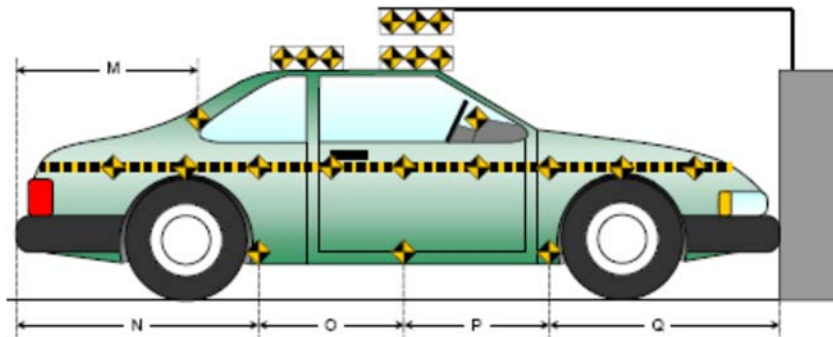
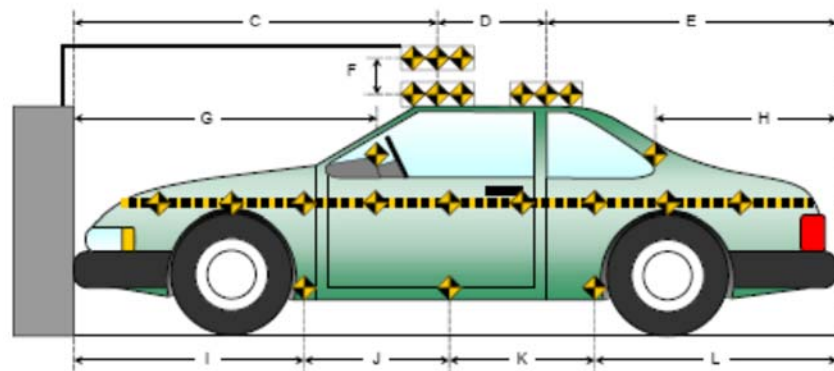
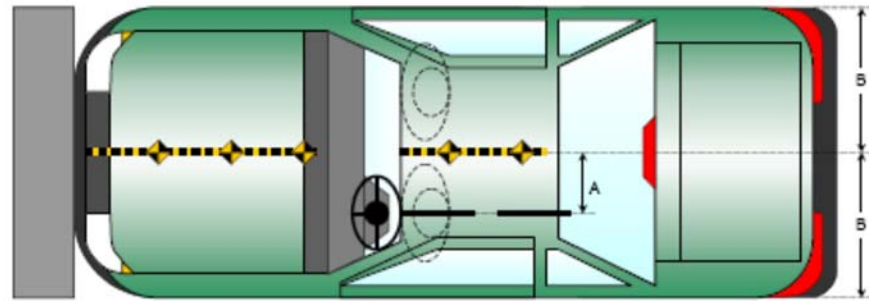
Reference Points: X – Rear Surface of Vehicle (+ forward)
 Y – Vehicle Centerline (+ to right)
 Z – Ground Plane (+ down)

DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

Item	Value
A	305
B	895
C	2550
D	610
E	1369
F	305
G	1615
H	912
I	1557
J	834
K	850
L	1434
M	903
N	1435
O	841
P	825
Q	1574

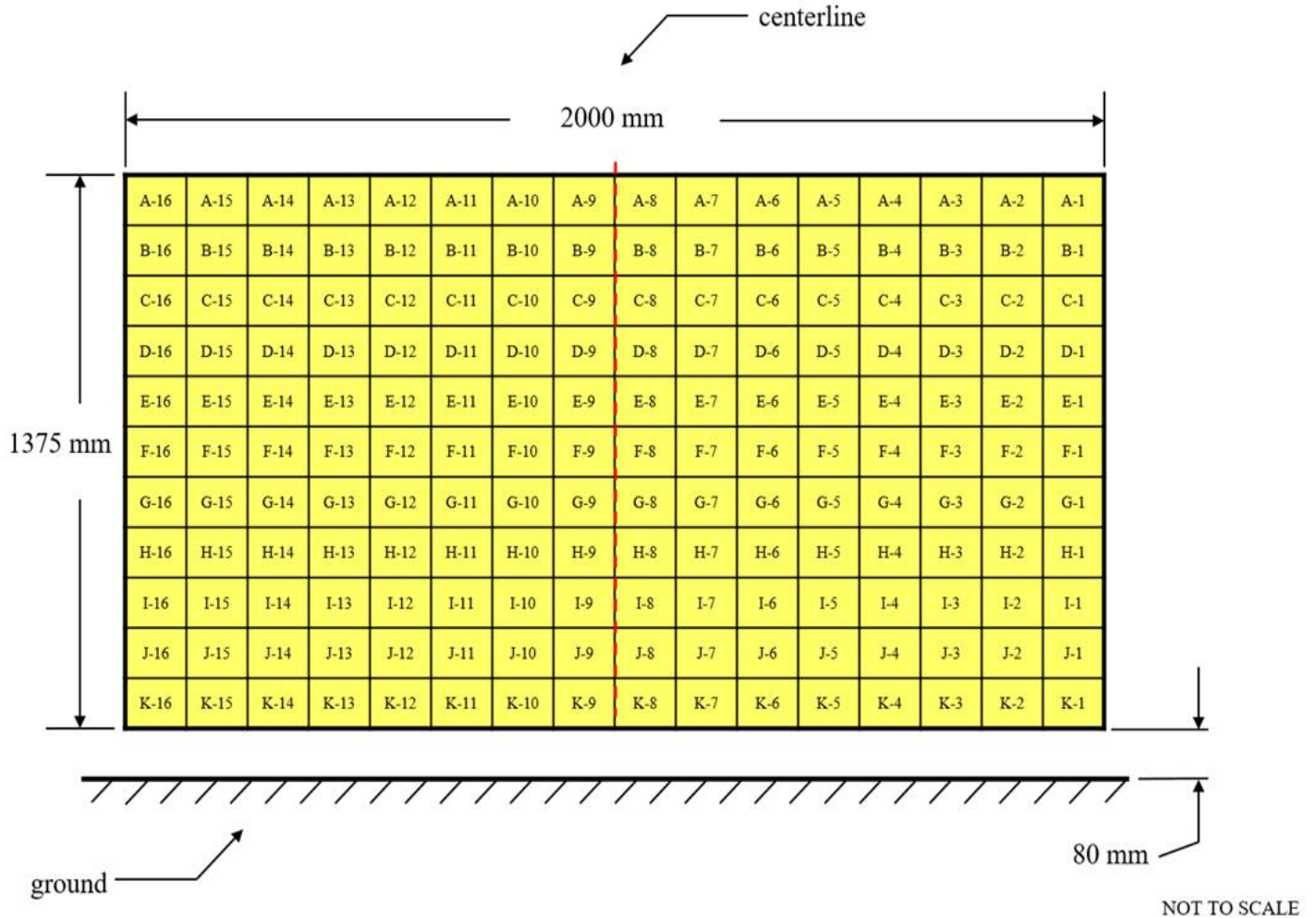


All measurements in millimeters.

DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022



DATA SHEET NO. 10**TEST VEHICLE SUMMARY OF RESULTS**

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

INSTRUMENTATION

Driver Dummy Sensors	47
Passenger Dummy Sensors	47
Vehicle Structure Accelerometers	8
Seat Belt Load Cells	0
Load Cell Barrier	528
Total	630

CAMERA COVERAGE

High-Speed Vehicle On Board	2
High-Speed Off Board	14
Real Time	1
Total	17

DATA SHEET NO. 11
POST-TEST OBSERVATIONS

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

TEST DUMMY INFORMATION AND CONTACT LOCATIONS

Description	Driver	Passenger
Dummy Type/Serial No.	HIII 50th Percentile Male ATD / 360	HIII 5th Percentile Female ATD / DH1644
Head Contact	Frontal Airbag, Headrest	Frontal Airbag, Headrest
Upper Torso Contact	Frontal Airbag	Frontal Airbag
Lower Torso Contact	Frontal Airbag	Frontal Airbag
Left Knee Contact	Knee Airbag	Knee Bolster
Right Knee Contact	Knee Airbag	Knee Bolster

DOOR OPENING, TRUNK OPENING, AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Remained closed, latched, and operational	Remained closed, latched, and operational
Rear Door Opening	Remained closed, latched, and operational	Remained closed, latched, and operational
Trunk/Hatch/Tailgate Opening	None	
Seat Track Shift (mm)	0	0
Seat Back Movement from Initial Position	None	None

OTHER VEHICLE POST-TEST OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Broken
Window Damage	None
Other Notable Effects	None

VEHICLE REBOUND FROM BARRIER

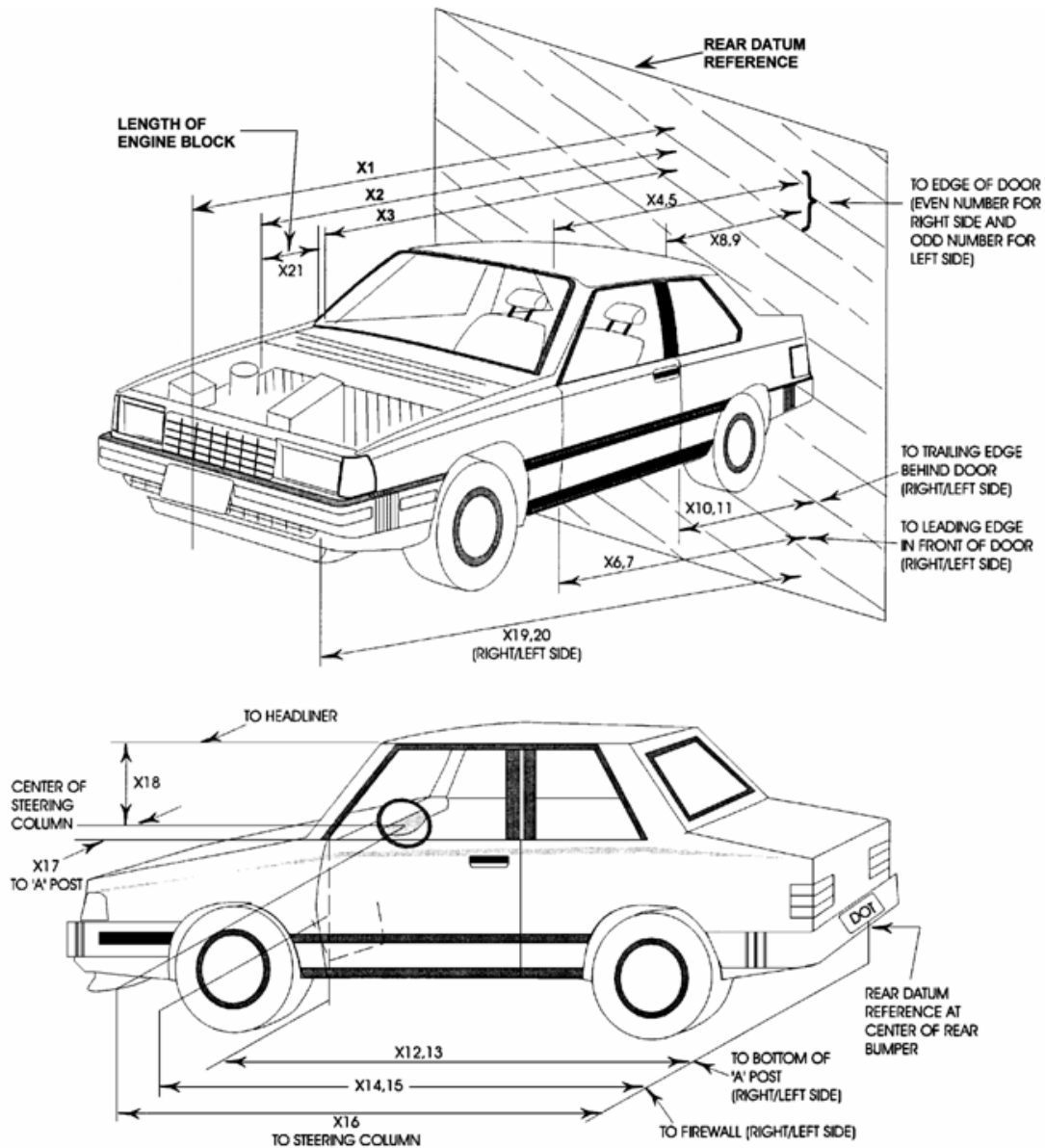
Measured Parameter	Units	Value
Left Side	mm	2426
Center	mm	1859
Right Side	mm	2485
Average	mm	2257

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Side Airbag 1 (Curtain)	Yes	No	Yes	No
Side Airbag 2 (Torso/Pelvis)	Yes	No	Yes	No
Knee Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes

DATA SHEET NO. 12
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022



DATA SHEET NO. 12 ... (CONTINUED)**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

No.	Description	Pre-Test	Post-Test	Change
1	Total Length of Vehicle at Centerline	4675	4237	-438
2	Rear Surface of Vehicle to Front of Engine	3777	3636	-141
3	RSOV to Firewall	3500	3498	-2
4	RSOV to Upper Leading Edge of Right Door	3150	3149	-1
5	RSOV to Upper Leading Edge of Left Door	3159	3160	1
6	RSOV to Lower Leading Edge of Right Door	3127	3126	-1
7	RSOV to Lower Leading Edge of Left Door	3126	3127	1
8	RSOV to Upper Trailing Edge of Right Door	2020	2017	-3
9	RSOV to Upper Trailing Edge of Left Door	2037	2037	0
10	RSOV to Lower Trailing Edge of Right Door	2058	2059	1
11	RSOV to Lower Trailing Edge of Left Door	2072	2074	2
12	RSOV to Bottom of A-Pillar, Right Side	3113	3114	1
13	RSOV to Bottom of A-Pillar, Left Side	3109	3111	2
14	RSOV to Firewall, Right Side	3500	3499	-1
15	RSOV to Firewall, Left Side	3503	3498	-5
16	RSOV to Steering Column	2649	2727	78
17	Center of Steering Column to A-Pillar	464	384	-80
18	Center of Steering Column to Headliner	489	485	-4
19	RSOV to Right Side of Front Bumper	3967	3960	-7
20	RSOV to Left Side of Front Bumper	3942	3939	-3
21	Length of Engine Block	365	355	-10
RD	RSOV to Right Side of Dash Panel	2984	2986	2
CD	RSOV to Center of Dash Panel	2938	2941	3
LD	RSOV to Left Side of Dash Panel	2985	2989	4

All measurements in millimeters.

DATA SHEET NO. 13**ACCIDENT INVESTIGATION DIVISION DATA**

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

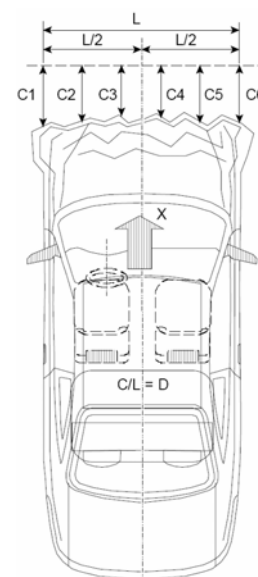
VEHICLE INFORMATION

VIN: JF1VBAA64N9018163 Wheelbase (mm): 2666
Vehicle Size Category: Passenger Car Test Weight (kg): 1686.5

ACCELEROMETER DATA

Accelerometer Locations: Left Rear Crossmember
Cal. Procedure/Interval: Vibration Test / 6 months
Integration Algorithm: NHTSA Standard
Impact Velocity (km/h): 56.12
Velocity Change (km/h): 60.4
Time of Separation (msec): 68.2

Linearity: Good

**CRUSH PROFILE**

Collision Deformation Classification: 12FDEW2
Midpoint of Damage: Vehicle Centerline
Damage Region Length (mm): 1439
Impact Mode: Full Frontal

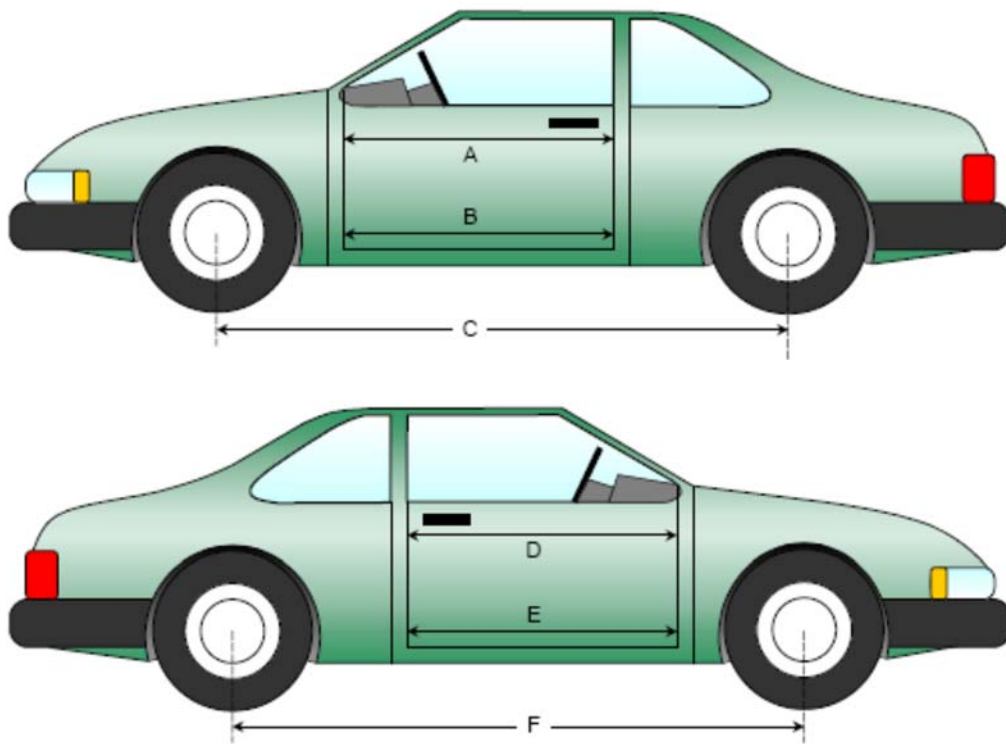
No.	Measurement Description	Units	Pre-Test	Post-Test	Crush
C1	Crush Zone 1 at Left Side	mm	4416	4151	265
C2	Crush Zone 2 at Left Side	mm	4558	4191	367
C3	Crush Zone 3 at Left Side	mm	4622	4242	380
C4	Crush Zone 4 at Right Side	mm	4624	4237	387
C5	Crush Zone 5 at Right Side	mm	4573	4167	406
C6	Crush Zone 6 at Right Side	mm	4429	4146	283
L	C1 to C6	mm	1439		

DATA SHEET NO. 14**VEHICLE INTRUSION MEASUREMENTS**Test Vehicle: 2022 Subaru WRX 4-Door SedanNHTSA No.: O20225500Test Program: 56.3 km/h Frontal Impact NCAP TestTest Date: 12/06/2022**DOOR OPENING WIDTH**

Item	Description	Units	Pre-Test	Post-Test	Change
A	Left Side Upper	mm	1122	1123	1
B	Left Side Lower	mm	1054	1053	-1
D	Right Side Upper	mm	1130	1132	2
E	Right Side Lower	mm	1069	1067	-2

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Change
C	Left Side Wheelbase	mm	2666	2666	0
F	Right Side Wheelbase	mm	2665	2650	-15



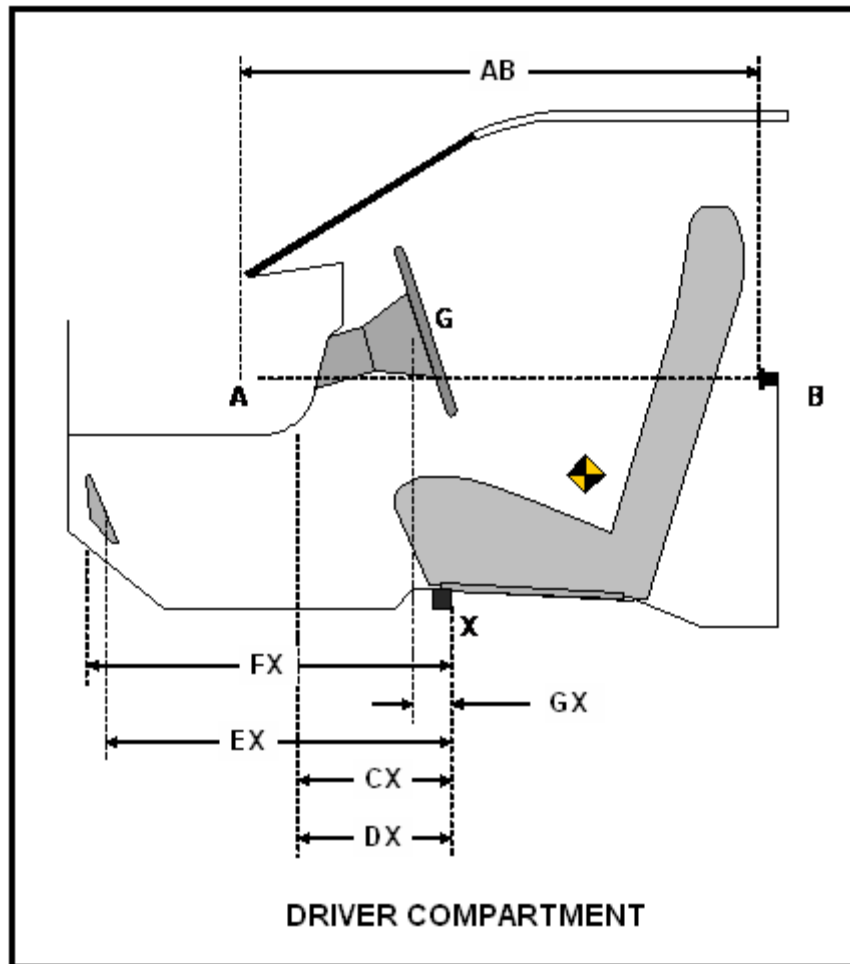
DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Change
AB	Door Opening (Inside Window Jam)	mm	1010	1007	-3
CX	Left Knee Bolster to X	mm	295	292	-3
DX	Right Knee Bolster to X	mm	309	307	-2
EX	Brake Pedal to X	mm	605	611	6
FX	Foot Rest to X	mm	606	599	-7
GX	Center of Steering Wheel Hub to X	mm	61	140	79

X = Front of Seat Track (Stationary)



DATA SHEET NO. 15

SUMMARY OF INDICANT FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

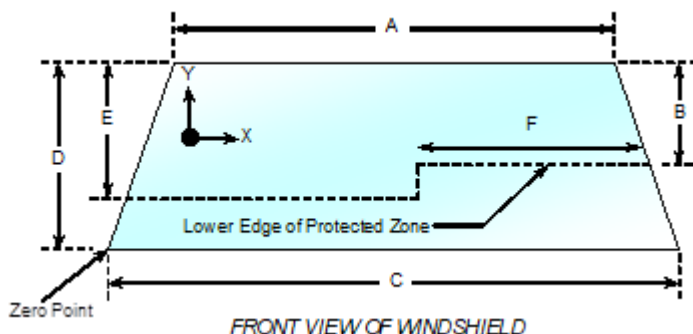
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with rubber molding and rubber cement.

The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurement for vehicles not equipped with occupant passive restraints and 50% for each side of the windshield for vehicles which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.9°C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2308	2308	100.0%
Right Side	2308	2308	100.0%
Total	4616	4616	100.0%



Item	Units	Value
A	mm	1231
B	mm	440
C	mm	1425
D	mm	980
E	mm	575
F	mm	530

AREAS OF PROTECTED ZONE

FAILURES

- A. Provide Coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one that is normally in contact with the windshield.

X	Y

- B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component.

X	Y

DATA SHEET NO. 16

FMVSS 301 BARRIER IMPACT AND STATIC ROLLOVER RESULTS

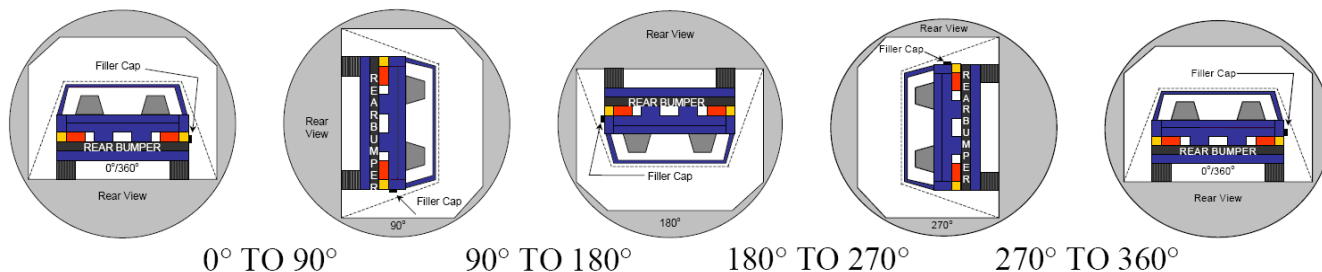
Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
 Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 11.1°C Test Time: 2:00PM

Stoddard Solvent Spillage Measurements

- 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: _____



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard solvent spillage: N/A

SOLVENT COLLECTION TIME TABLE IN SECONDS

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

DATA SHEET NO. 16 ... (CONTINUED)**FMVSS 301 BARRIER IMPACT AND STATIC ROLLOVER RESULTS**

Test Vehicle: 2022 Subaru WRX 4-Door Sedan NHTSA No.: O20225500
Test Program: 56.3 km/h Frontal Impact NCAP Test Test Date: 12/06/2022

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. 17

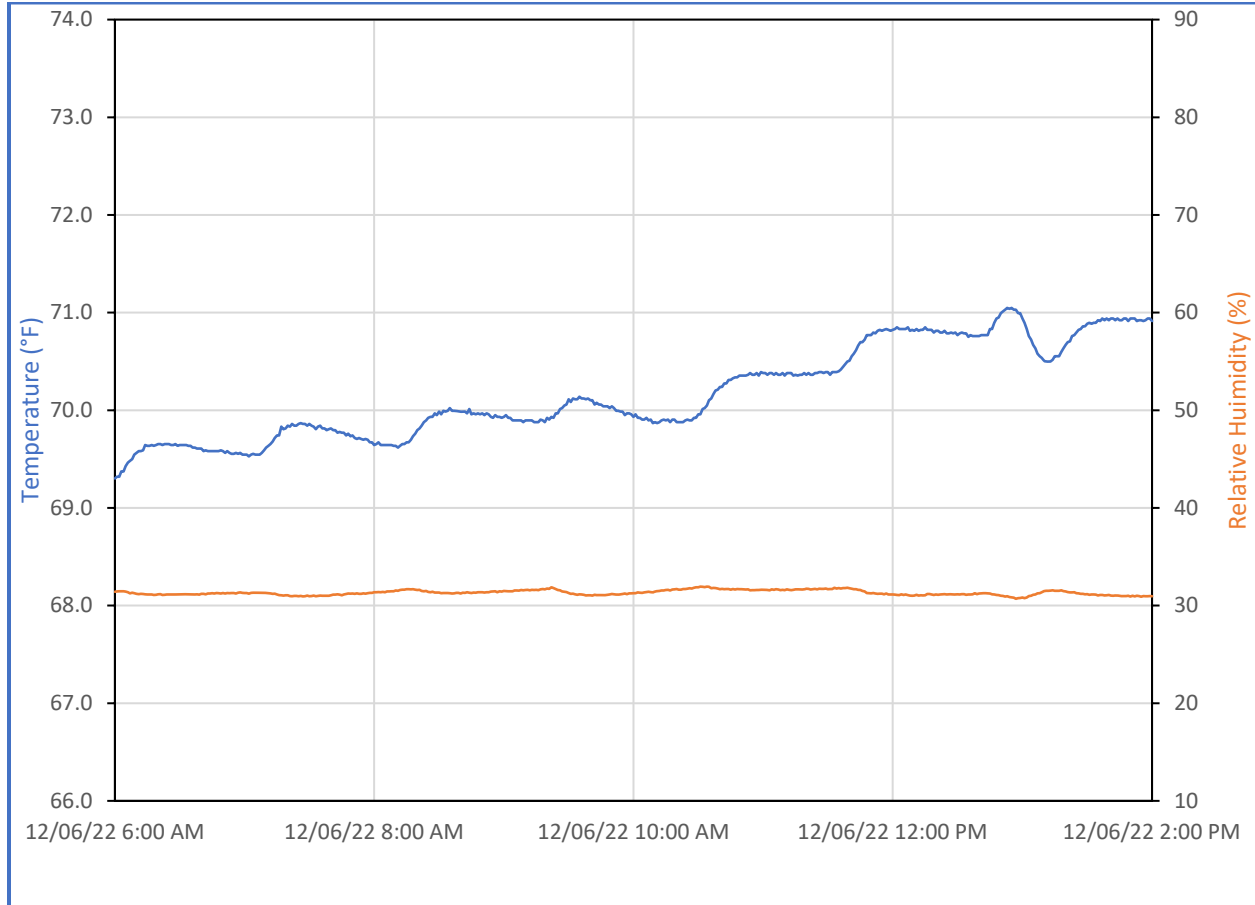
DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2022 Subaru WRX 4-Door Sedan

NHTSA No.: O20225500

Test Program: 56.3 km/h Frontal Impact NCAP Test

Test Date: 12/06/2022



APPENDIX A
PHOTOGRAPHIC DOCUMENTATION

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FIGURE 1. Load Cell Location

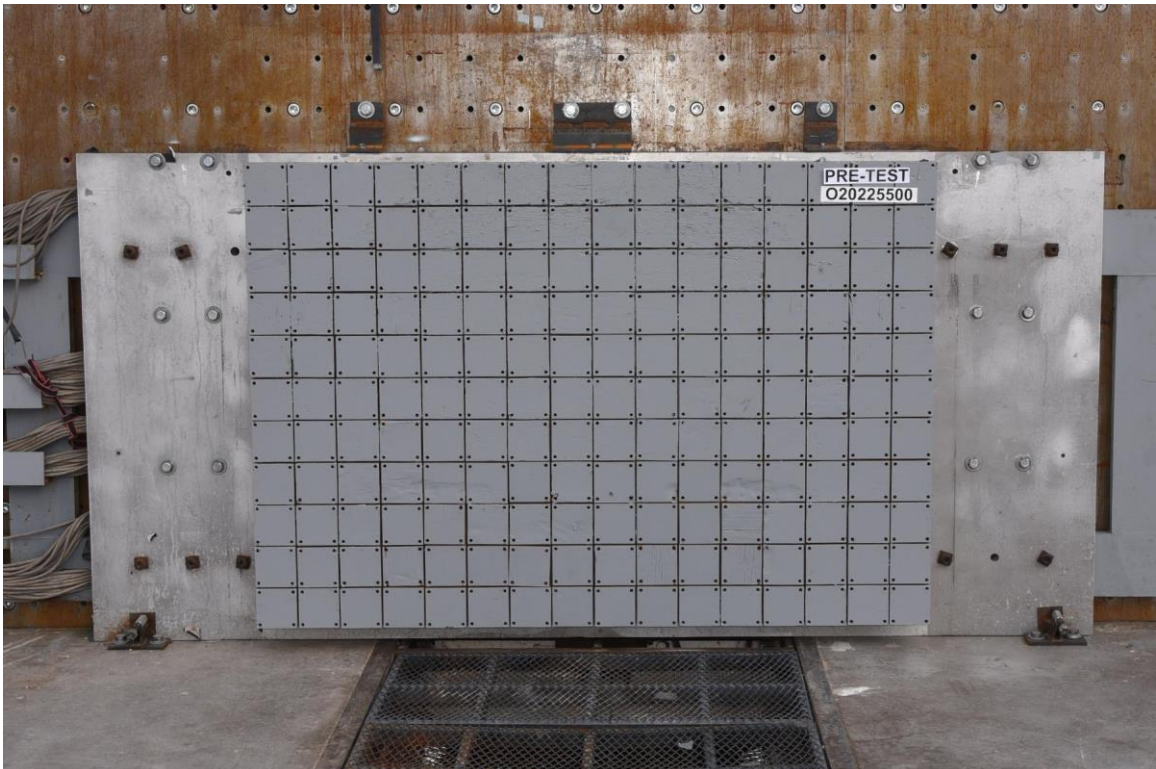


FIGURE 2. Pre-Test Load Cell Wall

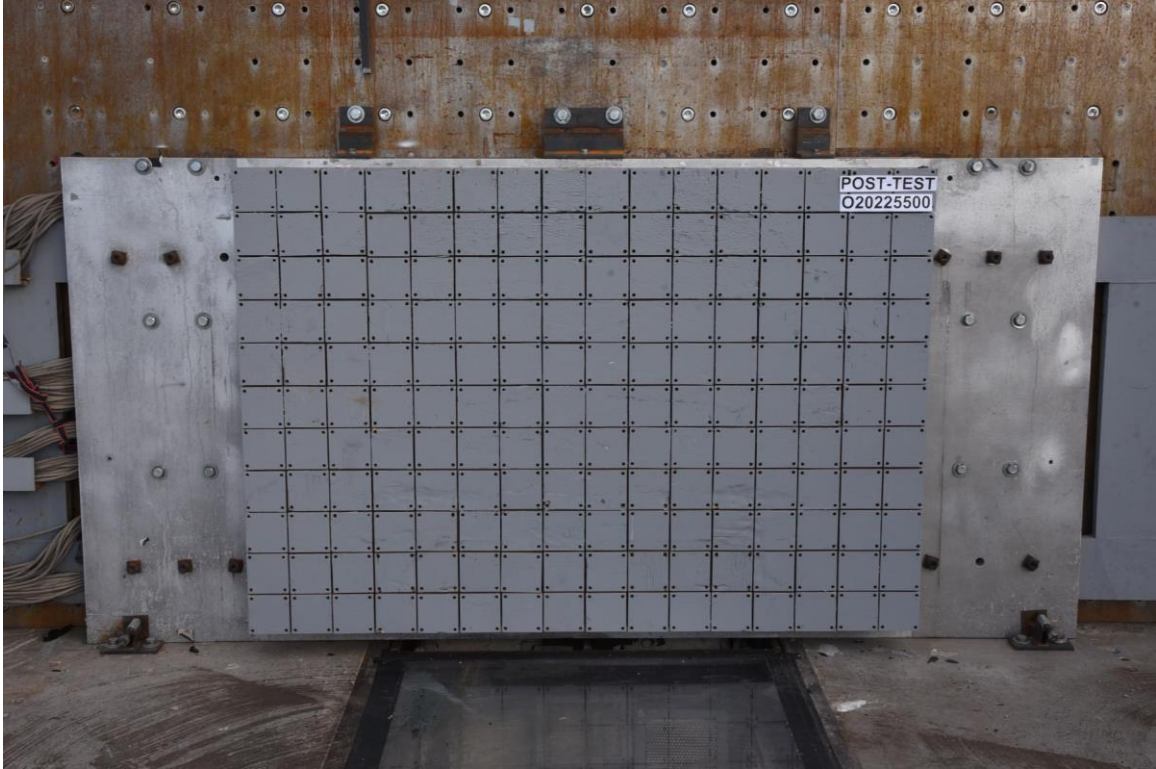


FIGURE 3. Post-Test Load Cell Wall



FIGURE 4. Manufacturer's Label



FIGURE 5. Tire Placard



FIGURE 6. 2022 Subaru WRX Frontal as Delivered



FIGURE 7. Left Rear $\frac{3}{4}$ View, as Received



FIGURE 8. Pre-Test Front View of Test Vehicle



FIGURE 9. Post-Test Front View of Test Vehicle



FIGURE 10. Pre-Test Left View of Test Vehicle



FIGURE 11. Post-Test Left View of Test Vehicle



FIGURE 12. Pre-Test Right View of Test Vehicle



FIGURE 13. Post-Test Right View of Test Vehicle



FIGURE 14. Pre-Test Right Front $\frac{3}{4}$ View



FIGURE 15. Post-Test Right Front $\frac{3}{4}$ View



FIGURE 16. Pre-Test Left Rear $\frac{3}{4}$ View



FIGURE 17. Post-Test Left Rear $\frac{3}{4}$ View



FIGURE 18. Pre-Test Windshield View



FIGURE 19. Post-Test Windshield View



FIGURE 20. Pre-Test Engine Compartment View



FIGURE 21. Post-Test Engine Compartment View



FIGURE 22. Pre-Test Fuel Filler Cap View



FIGURE 23. Post-Test Fuel Filler Cap View



FIGURE 24. Pre-Test Front Underbody View



FIGURE 25. Post-Test Front Underbody View

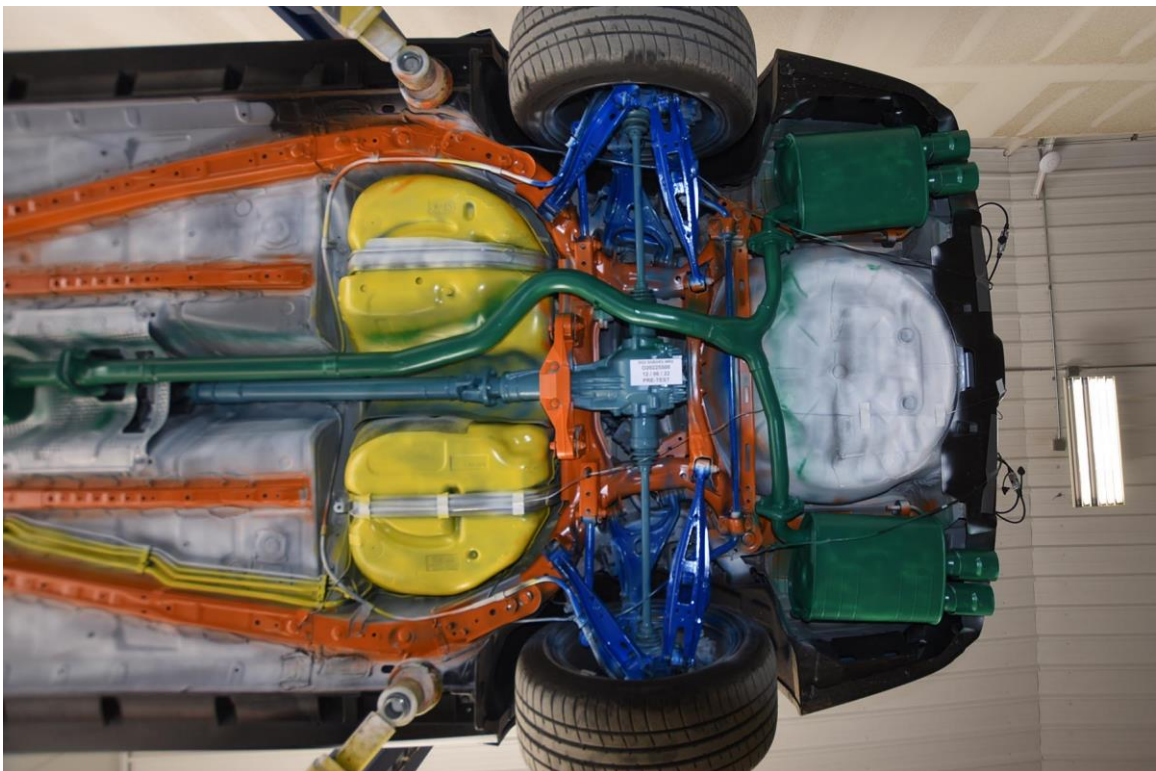


FIGURE 26. Pre-Test Rear Underbody View

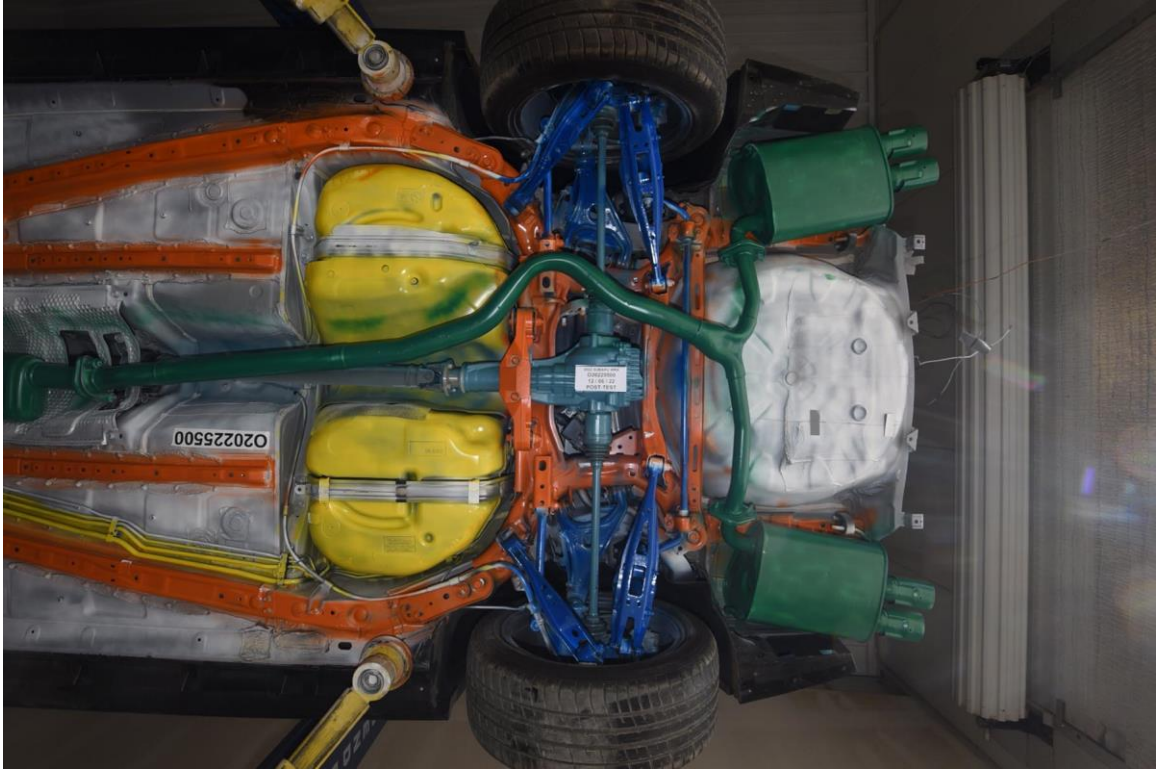


FIGURE 27. Post-Test Rear Underbody View



FIGURE 28. Pre-Test Dummy Cable Routing



FIGURE 29. Post-Test Dummy Cable Routing



FIGURE 30. Pre-Test Driver Dummy Front View



FIGURE 31. Post-Test Driver Dummy Front View



FIGURE 32. Pre-Test Driver Dummy Window View



FIGURE 33. Post-Test Driver Dummy Window View



FIGURE 34. Pre-Test Driver Dummy and Vehicle Interior View



FIGURE 35. Post-Test Driver Dummy and Vehicle Interior View



FIGURE 36. Pre-Test Driver's Seat Fore-Aft Markings



FIGURE 37. Post-Test Driver's Seat Fore-Aft Markings



FIGURE 38. Pre-Test View of Belt Anchorage for Driver Dummy



FIGURE 39. Post-Test View of Belt Anchorage for Driver Dummy



FIGURE 40. Pre-Test View of Belt Buckle and Latch Plate for Driver Dummy



FIGURE 41. Post-Test View of Belt Buckle and Latch Plate for Driver Dummy



FIGURE 42. Pre-Test Driver Dummy Feet



FIGURE 43. Post-Test Driver Dummy Feet



FIGURE 44. Pre-Test Driver's Side Knee Bolster



FIGURE 45. Post-Test Driver's Side Knee Bolster



FIGURE 46. Pre-Test Driver's Side Floorpan



FIGURE 47. Post-Test Driver's Side Floorpan



FIGURE 48. Post-Test Driver Dummy Face



FIGURE 49. Post-Test Driver Dummy Contact with Airbag



FIGURE 50. Post-Test Driver Dummy Contact with Headrest



FIGURE 50a. Post-Test Driver Dummy Contact with Knee Airbag



FIGURE 51. Pre-Test View of the Steering Wheel



FIGURE 52. Post-Test View of the Steering Wheel



FIGURE 53. Pre-Test Passenger Dummy Front View



FIGURE 54. Post-Test Passenger Dummy Front View



FIGURE 55. Pre-Test Passenger Dummy Window View



FIGURE 56. Post-Test Passenger Dummy Window View



FIGURE 57. Pre-Test Passenger Dummy and Vehicle Interior View



FIGURE 58. Post-Test Passenger Dummy and Vehicle Interior View

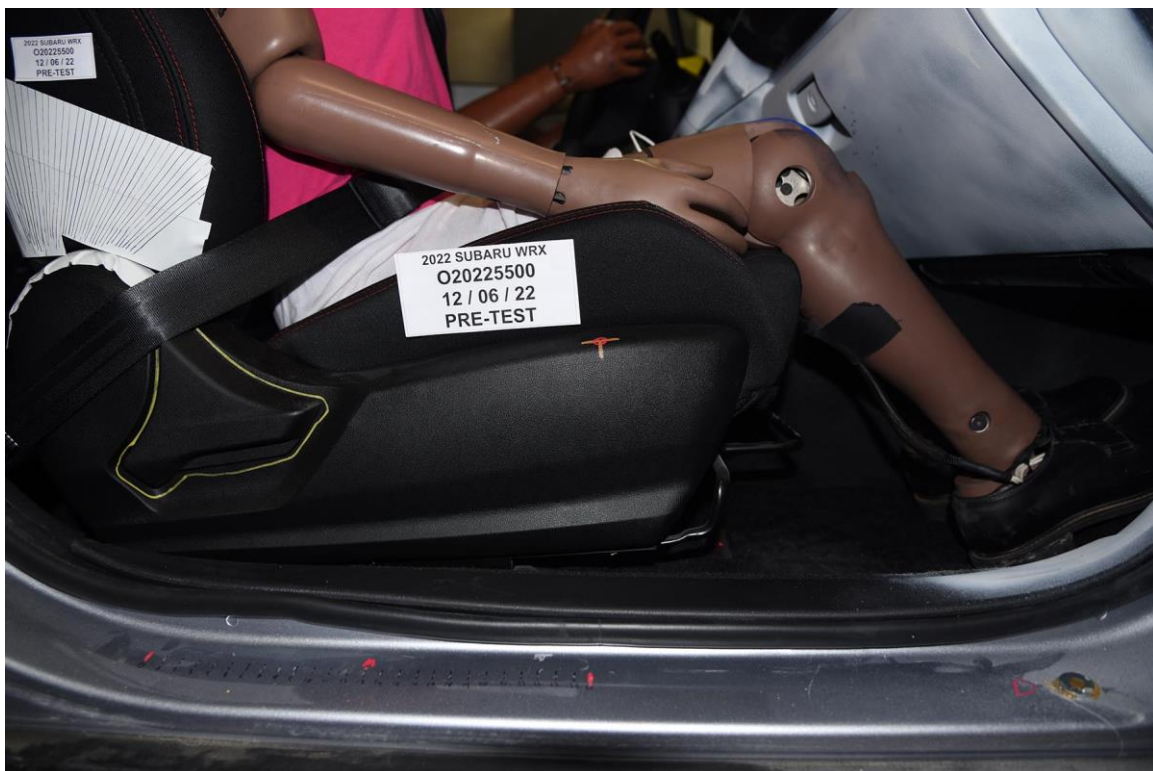


FIGURE 59. Pre-Test Passenger's Seat Fore-Aft Markings



FIGURE 60. Post-Test Passenger's Seat Fore-Aft Markings



FIGURE 61. Pre-Test View of Belt Anchorage for Passenger Dummy



FIGURE 62. Post-Test View of Belt Anchorage for Passenger Dummy

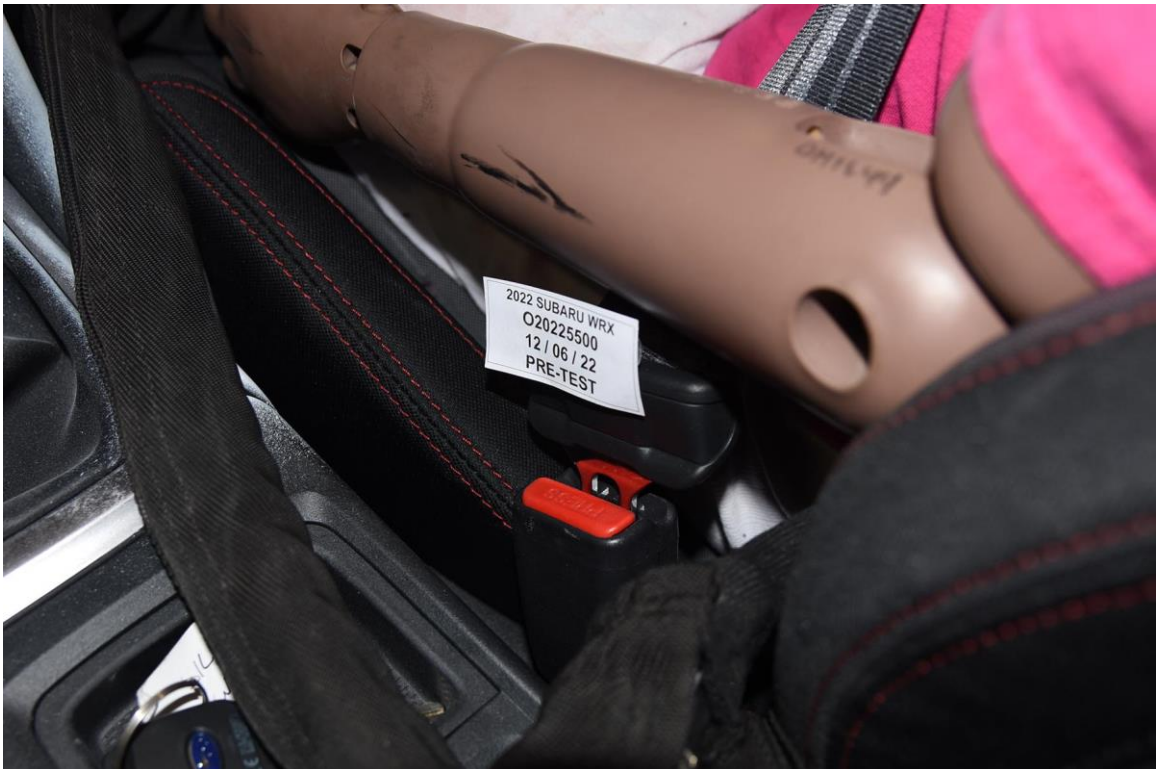


FIGURE 63. Pre-Test View of Belt Buckle and Latch Plate for Passenger Dummy



FIGURE 64. Post-Test View of Belt Buckle and Latch Plate for Passenger Dummy



FIGURE 65. Pre-Test Passenger Dummy Feet



FIGURE 66. Post-Test Passenger Dummy Feet



FIGURE 67. Pre-Test Passenger's Side Knee Bolster



FIGURE 68. Post-Test Passenger's Side Knee Bolster



FIGURE 69. Pre-Test Passenger's Side Floorpan



FIGURE 70. Post-Test Passenger's Side Floorpan



FIGURE 71. Post-Test Passenger Dummy Face



FIGURE 72. Post-Test Passenger Dummy Contact with Airbag



FIGURE 73. Post-Test Passenger Dummy Contact with Headrest



FIGURE 73a. Post-Test Passenger Dummy Contact with Knee Bolster

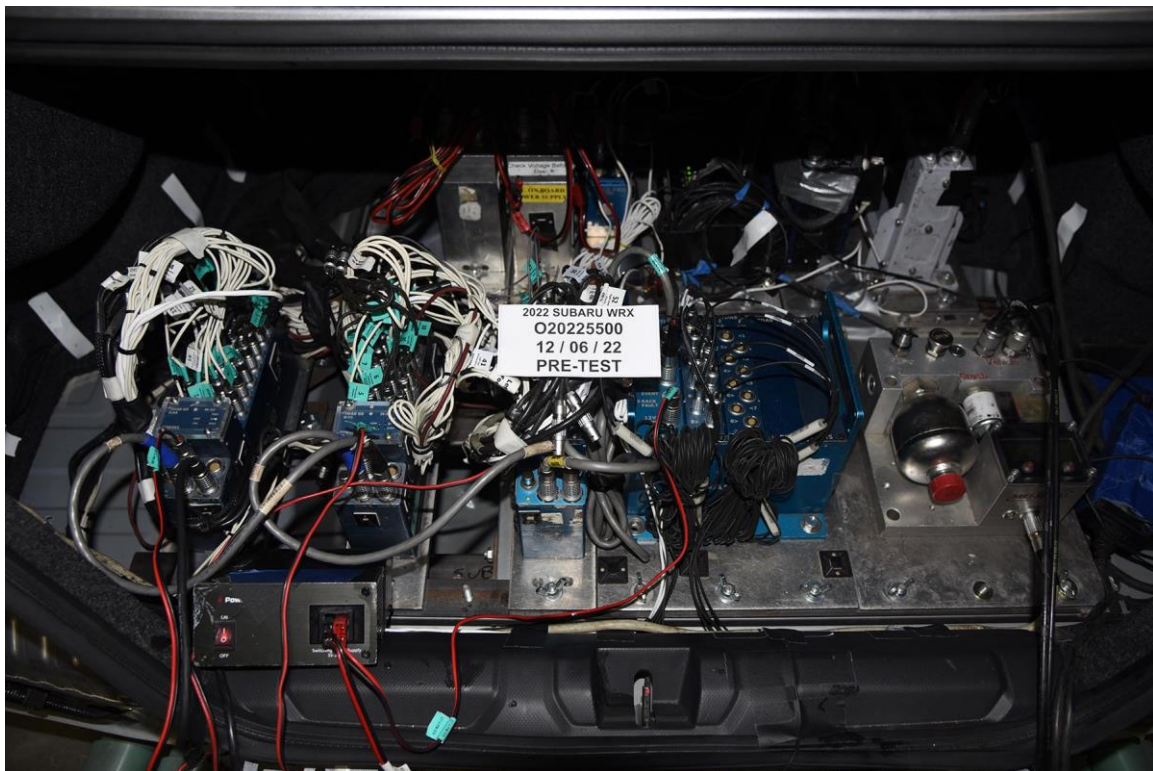


FIGURE 74. Photograph of Ballast Installed in Vehicle

Photograph Not Applicable

No Stoddard Solvent Spillage

FIGURE 75. Post-Test Stoddard Solvent Spillage Location View



FIGURE 76. Post-Test Speed Trap Read-Out



FIGURE 77. Vehicle at 0° on Static Rollover Device

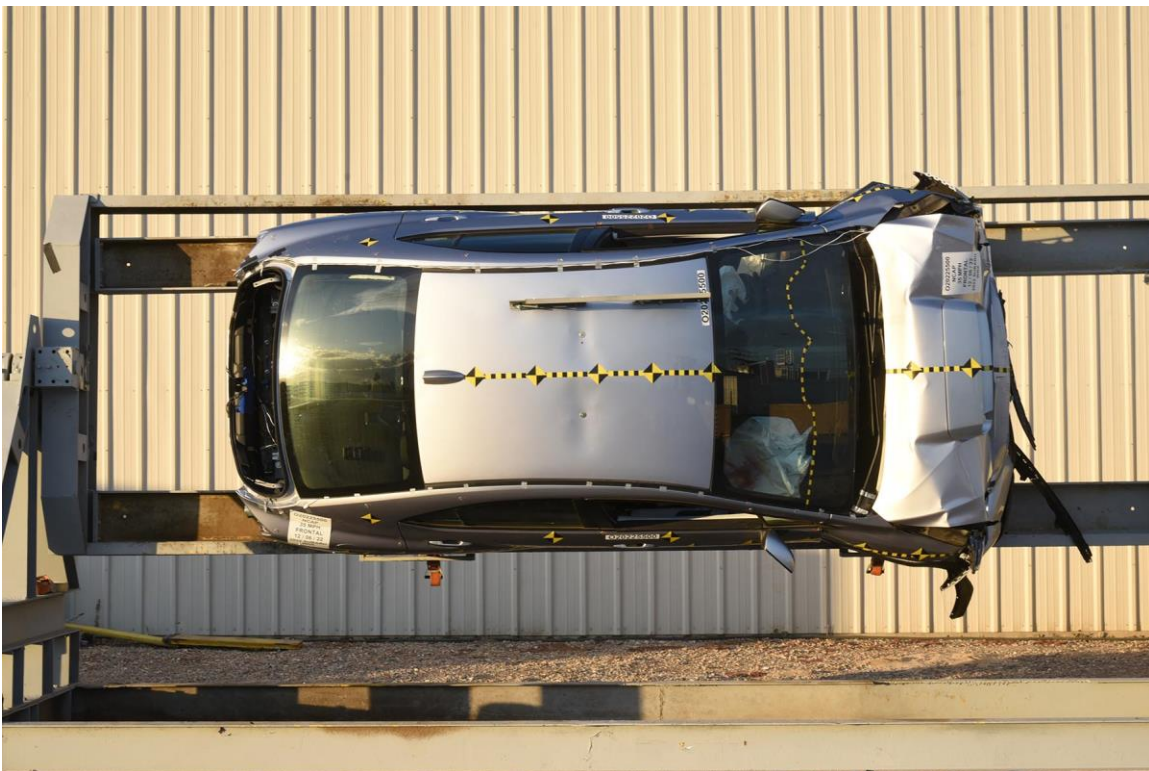


FIGURE 78. Vehicle at 90° on Static Rollover Device



FIGURE 79. Vehicle at 180° on Static Rollover Device

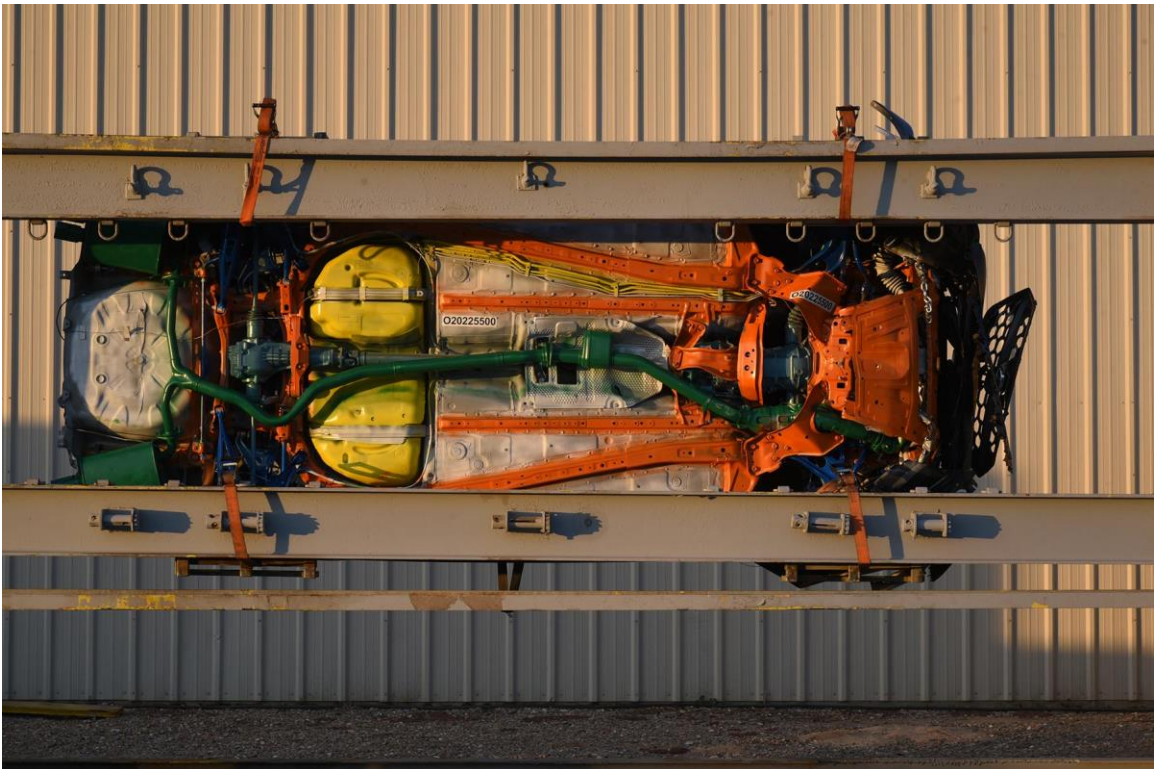


FIGURE 80. Vehicle at 270° on Static Rollover Device



FIGURE 81. Vehicle at 360° on Static Rollover Device



FIGURE 82. 2022 Subaru WRX Frontal Impact Event

APPENDIX B
DUMMY RESPONSE DATA TRACES

TABLE OF DATA PLOTS

Plot		Page
1	Driver Head Acceleration X Primary	B-1
2	Driver Head Acceleration Y Primary	B-1
3	Driver Head Acceleration Z Primary	B-1
4	Driver Head Resultant Acceleration Primary	B-1
5	Driver Chest X Deflection	B-2
6	Driver Upper Neck Force X	B-3
7	Driver Upper Neck Force Z	B-3
8	Driver Upper Neck Moment Y	B-3
9	Driver Nij	B-3
10	Driver Chest Acceleration X Primary	B-4
11	Driver Chest Acceleration Y Primary	B-4
12	Driver Chest Acceleration Z Primary	B-4
13	Driver Chest Resultant Acceleration Primary	B-4
14	Driver Left Femur Force Z	B-5
15	Driver Right Femur Force Z	B-5
16	Passenger Head Acceleration X Primary	B-6
17	Passenger Head Acceleration Y Primary	B-6
18	Passenger Head Acceleration Z Primary	B-6
19	Passenger Head Resultant Acceleration Primary	B-6
20	Passenger Chest X Deflection	B-7
21	Passenger Upper Neck Force X	B-8
22	Passenger Upper Neck Force Z	B-8
23	Passenger Upper Neck Moment Y	B-8
24	Passenger Nij	B-8
25	Passenger Chest Acceleration X Primary	B-9
26	Passenger Chest Acceleration Y Primary	B-9
27	Passenger Chest Acceleration Z Primary	B-9
28	Passenger Chest Resultant Acceleration Primary	B-9
29	Passenger Left Femur Force Z	B-10
30	Passenger Right Femur Force Z	B-10

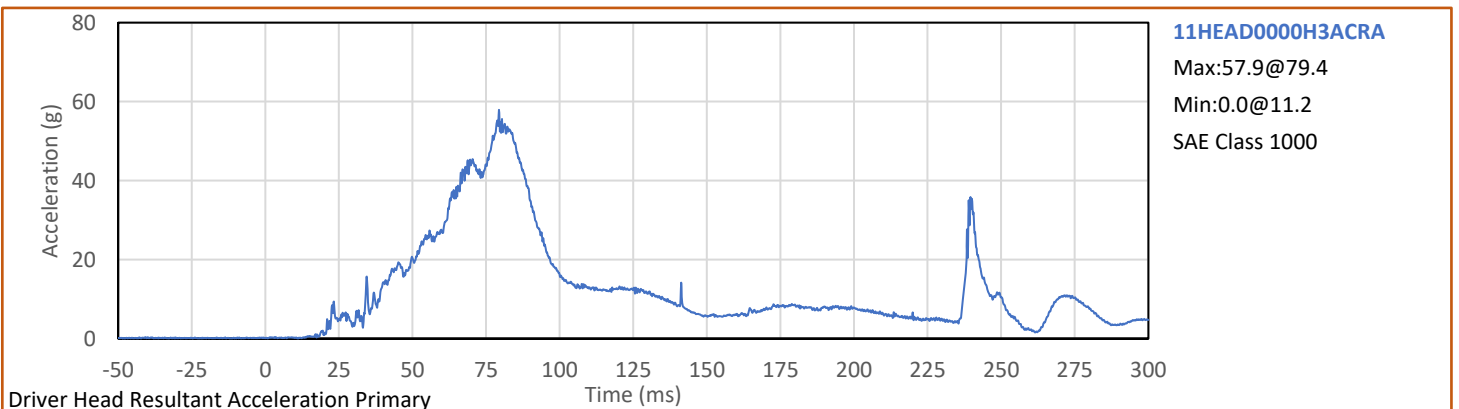
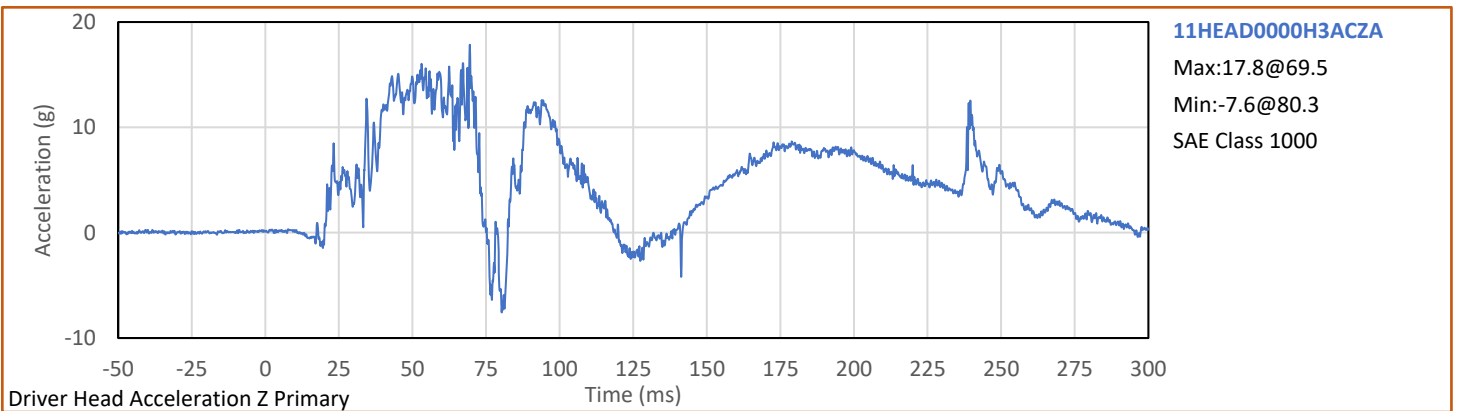
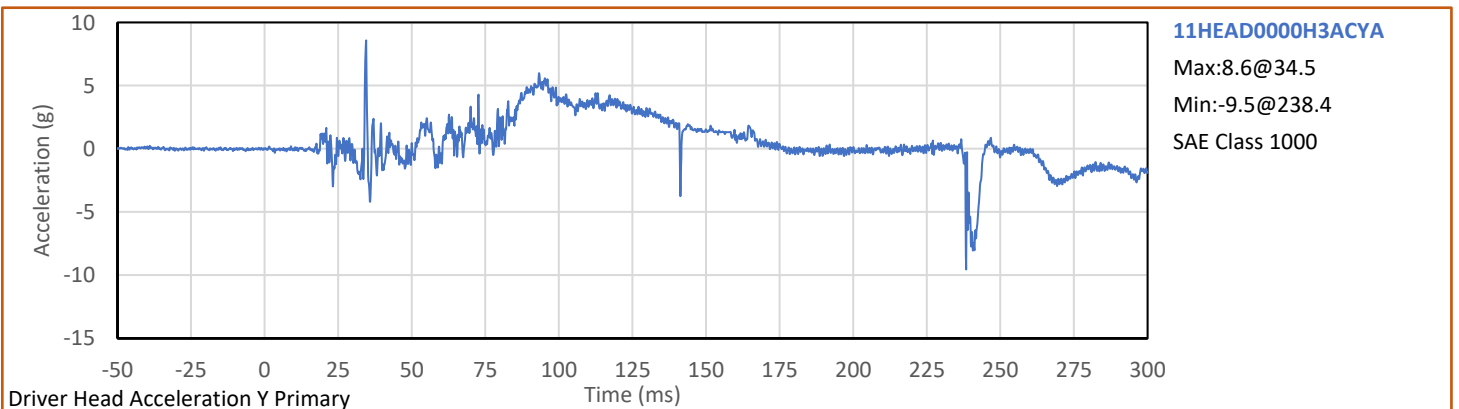
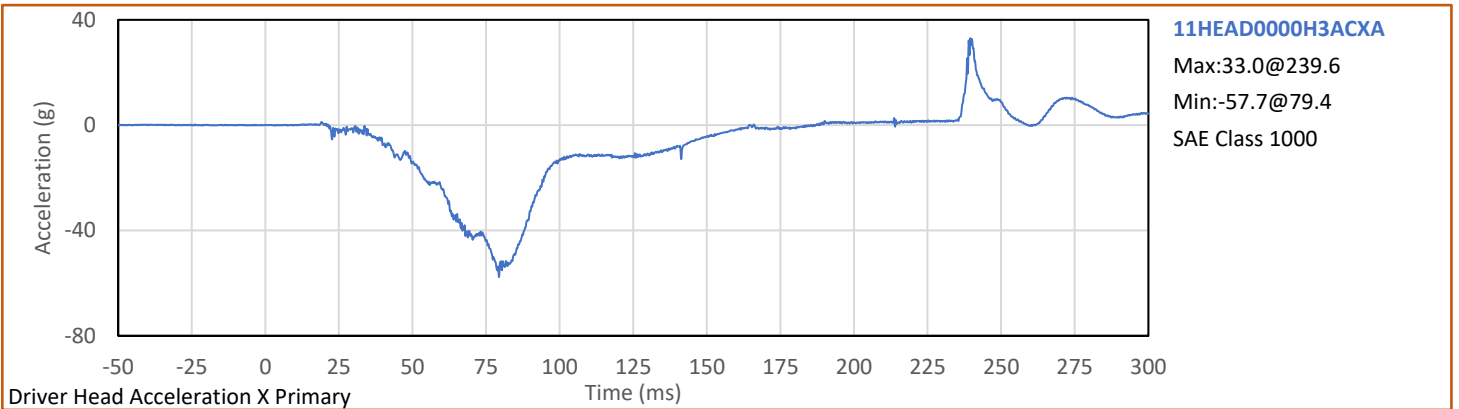
The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.gov

Driver Head X Acceleration Redundant
Driver Head Y Acceleration Redundant
Driver Head Z Acceleration Redundant
Driver Upper Neck Force Y
Driver Upper Neck Moment X
Driver Upper Neck Moment Z
Driver Chest X Acceleration Redundant
Driver Chest Y Acceleration Redundant
Driver Chest Z Acceleration Redundant
Driver Pelvis X
Driver Pelvis Y
Driver Pelvis Z
Driver Left Femur Force Z Redundant
Driver Right Femur Force Z Redundant
Driver Left Upper Tibia Moment X
Driver Left Upper Tibia Moment Y
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Driver Shoulder Belt Force
Driver Lap Belt Force
Driver Head Angular Velocity X
Driver Head Angular Velocity Y
Driver Head Angular Velocity Z
Passenger Head X Acceleration Redundant
Passenger Head Y Acceleration Redundant
Passenger Head Z Acceleration Redundant
Passenger Upper Neck Force X
Passenger Upper Neck Force Z
Passenger Upper Neck Moment Y

Passenger Chest X Acceleration Redundant
Passenger Chest Y Acceleration Redundant
Passenger Chest Z Acceleration Redundant
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z
Passenger Left Femur Force Redundant
Passenger Right Femur Force Redundant
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Passenger Shoulder Belt Force
Passenger Lap Belt Force
Passenger Head Angular Velocity X
Passenger Head Angular Velocity Y
Passenger Head Angular Velocity Z
Left Rear Seat Crossmember X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
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Right Rear Seat Crossmember X Redundant
Vehicle Engine Top X
Vehicle Engine Bottom X
Load Cell Barrier Forces and Moments

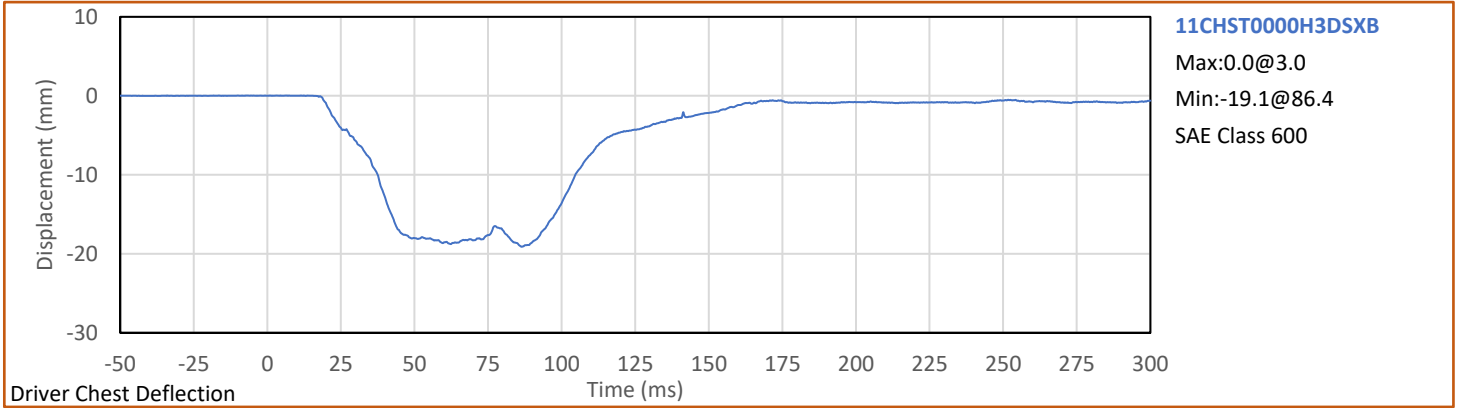
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Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



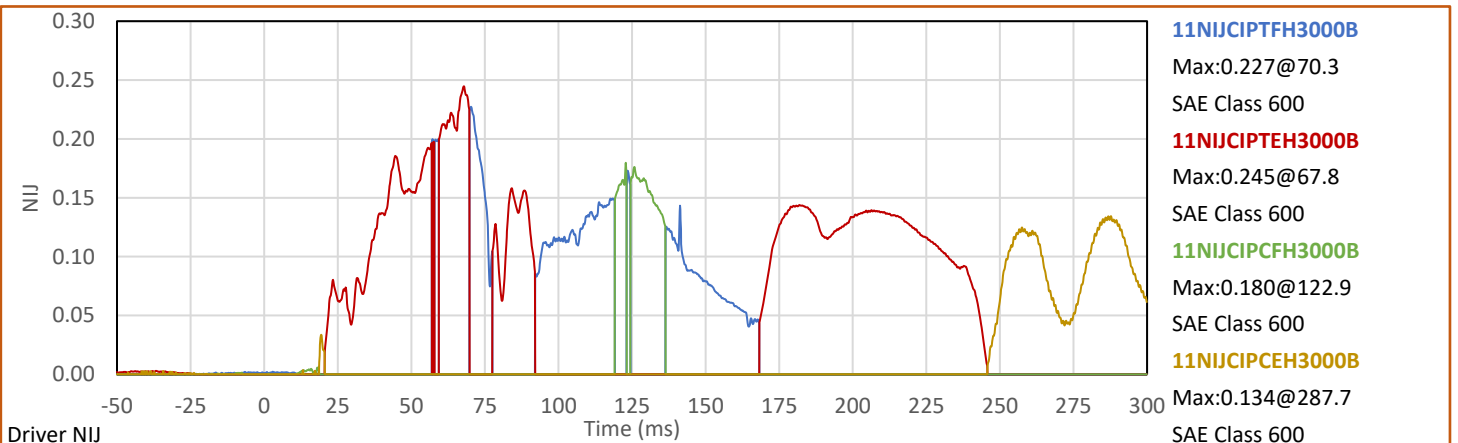
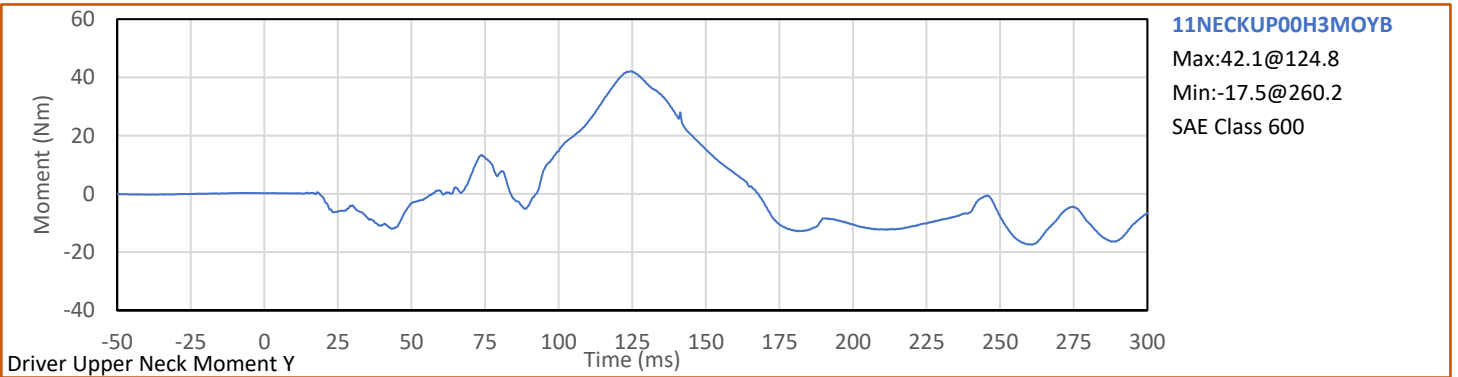
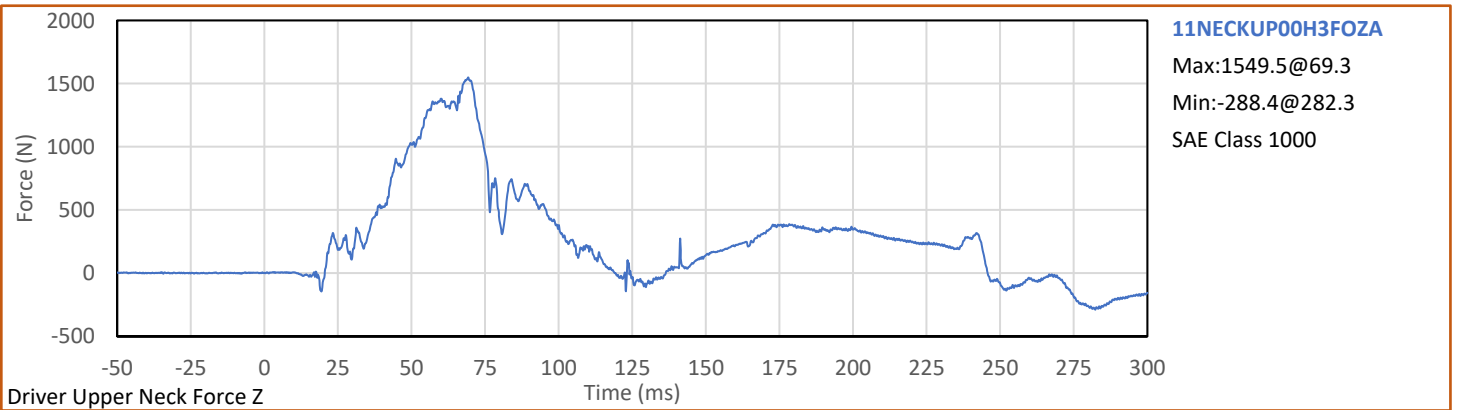
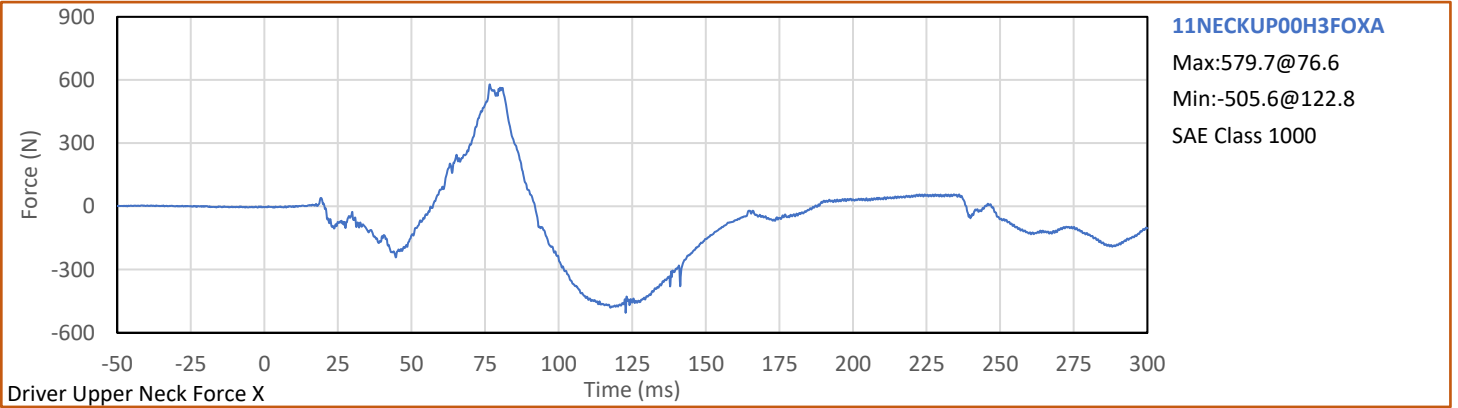
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Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



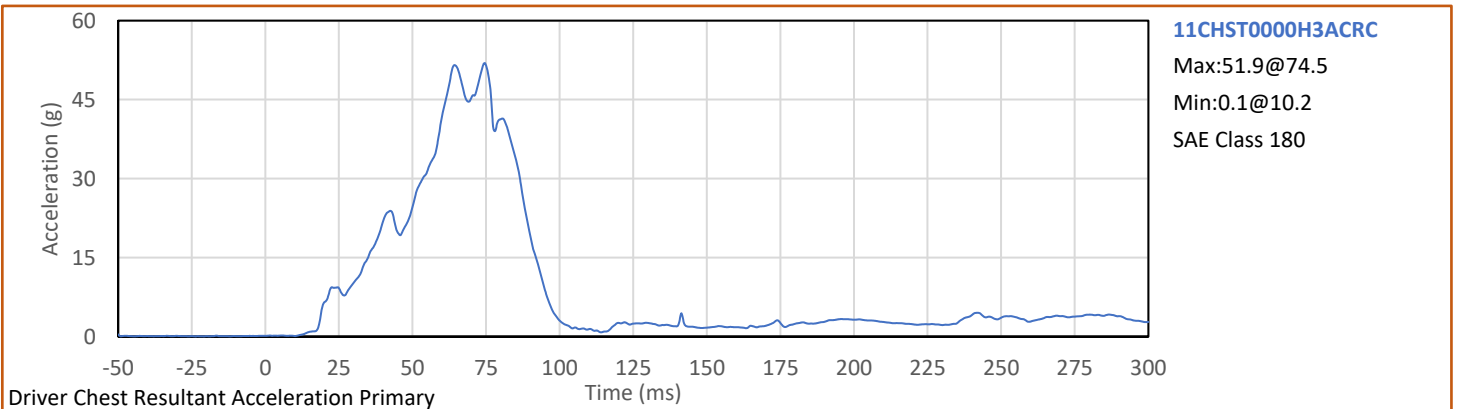
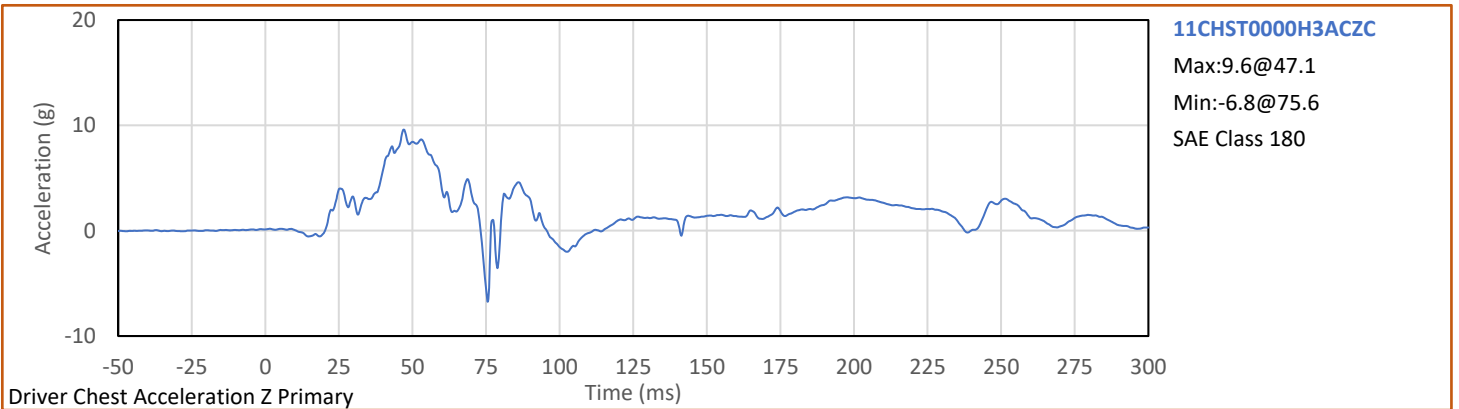
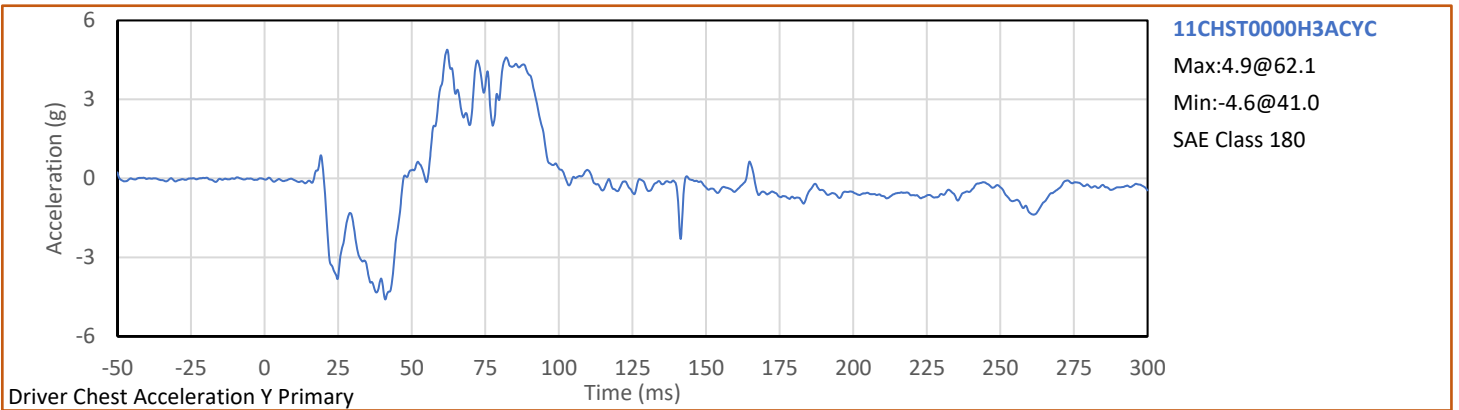
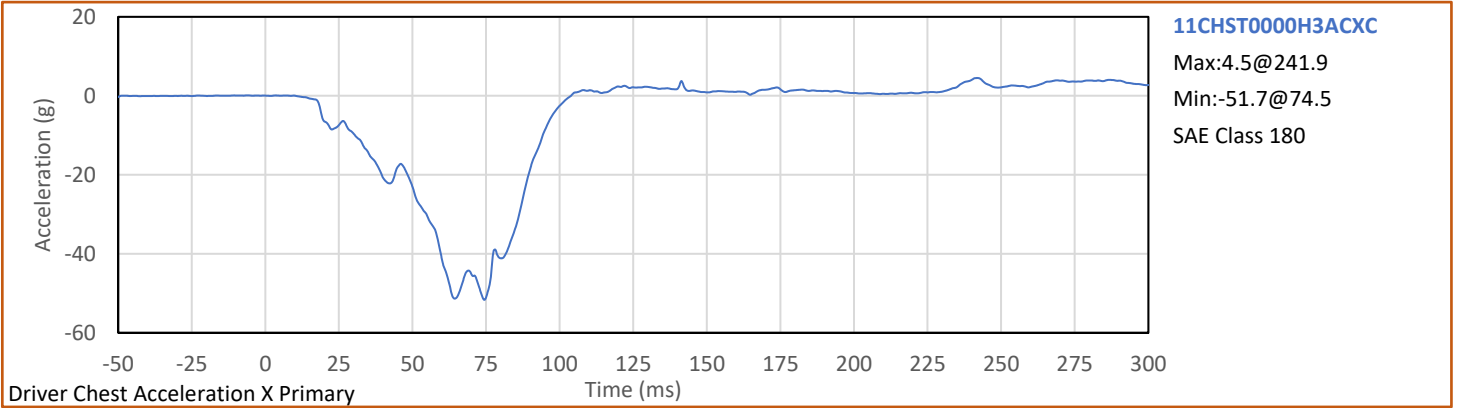
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Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



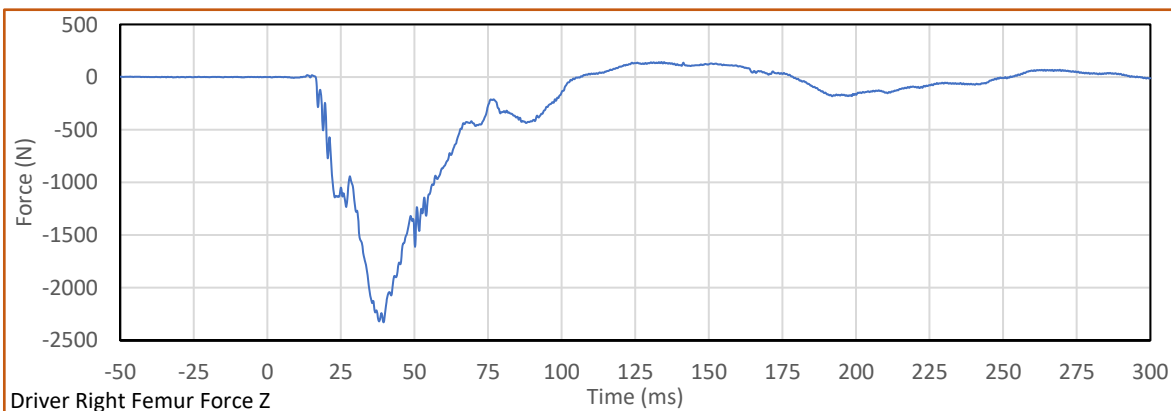
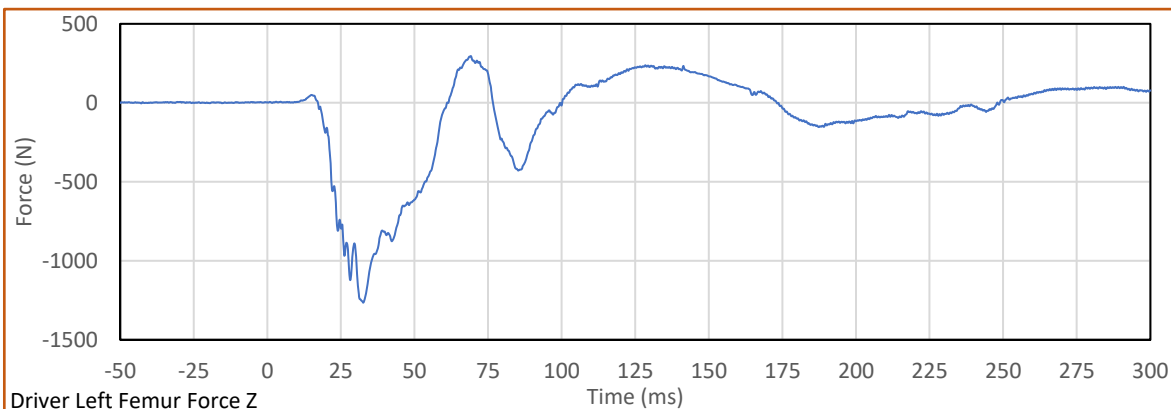
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Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



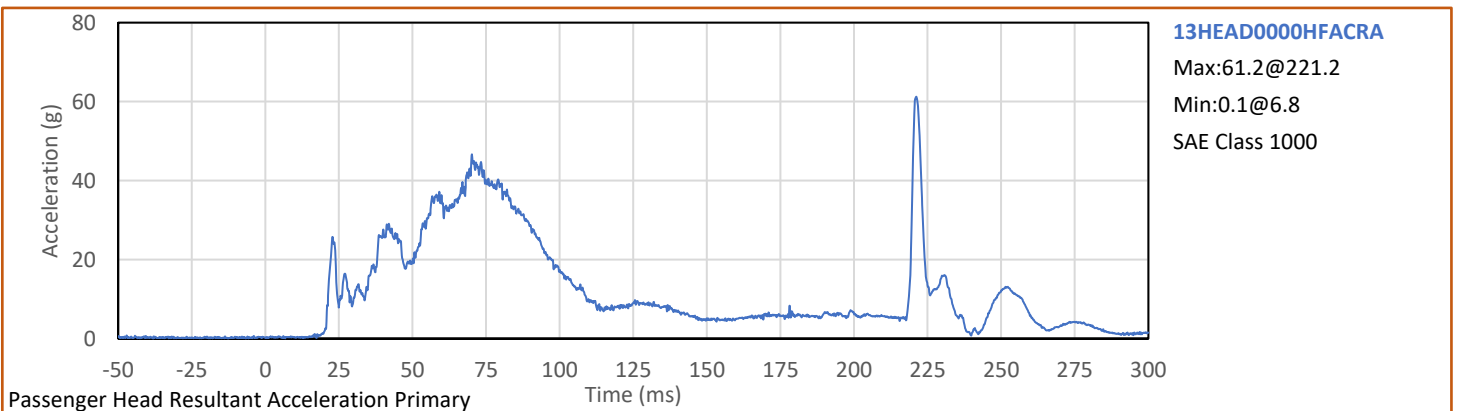
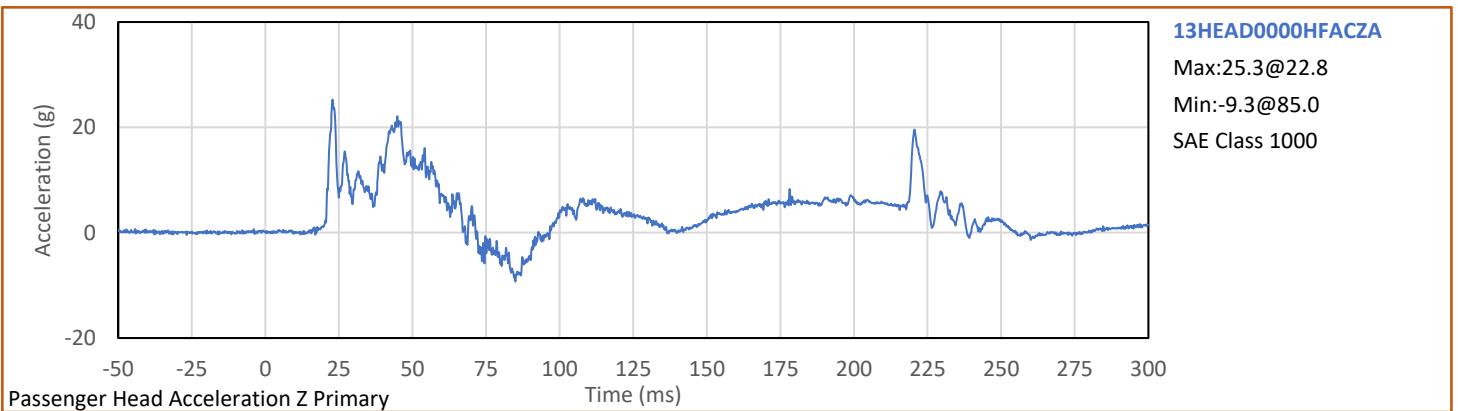
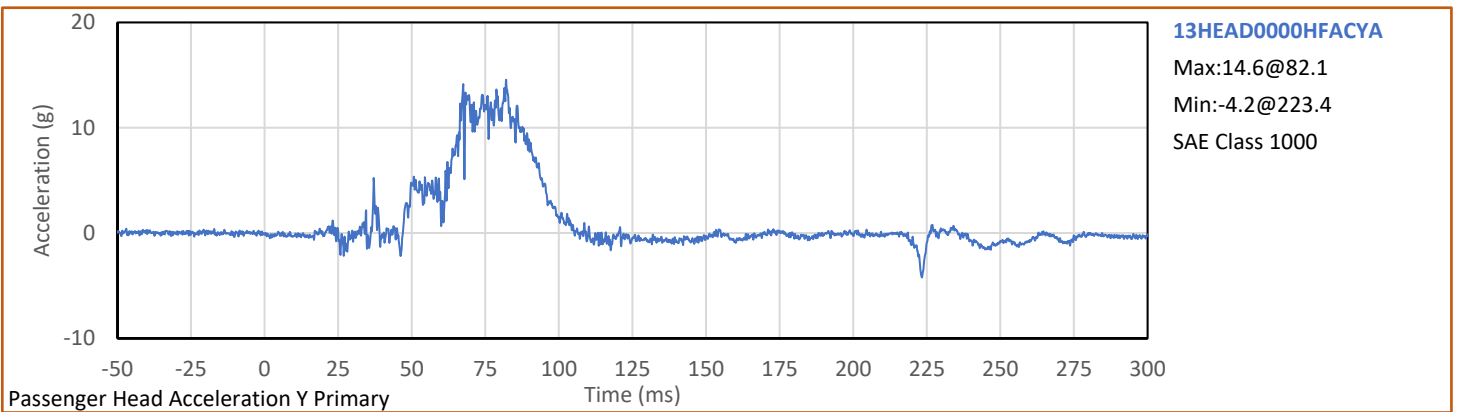
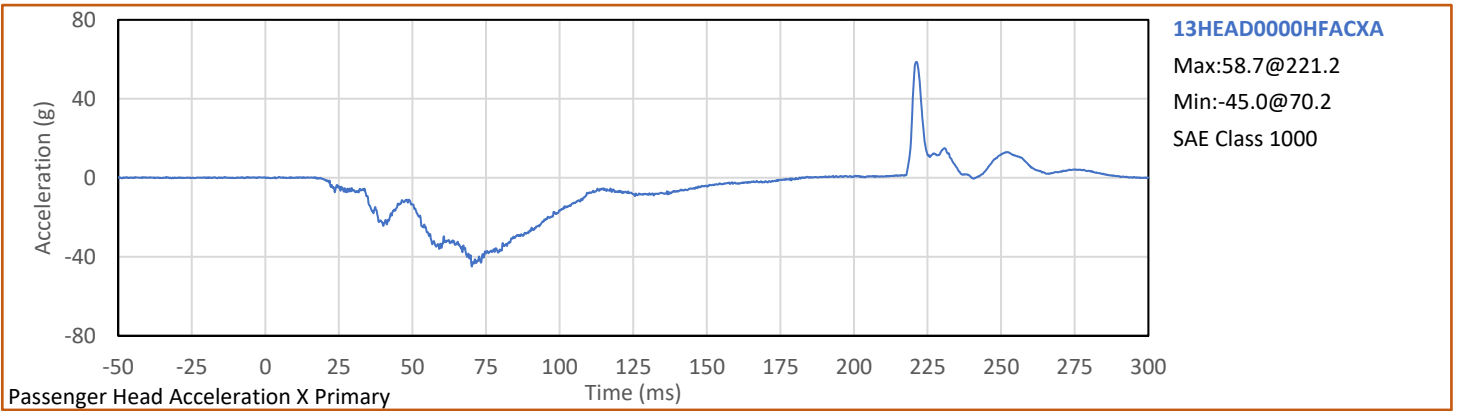
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Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



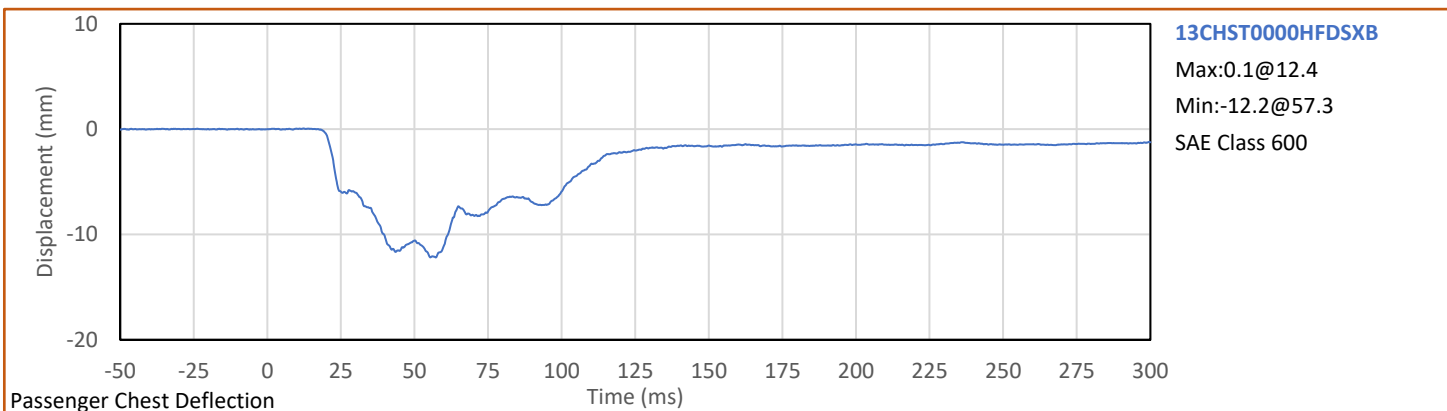
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Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



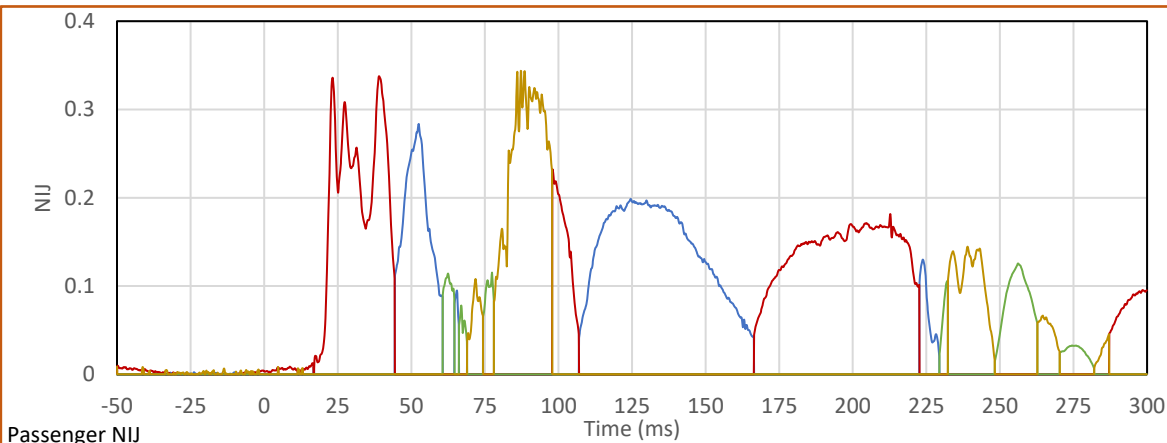
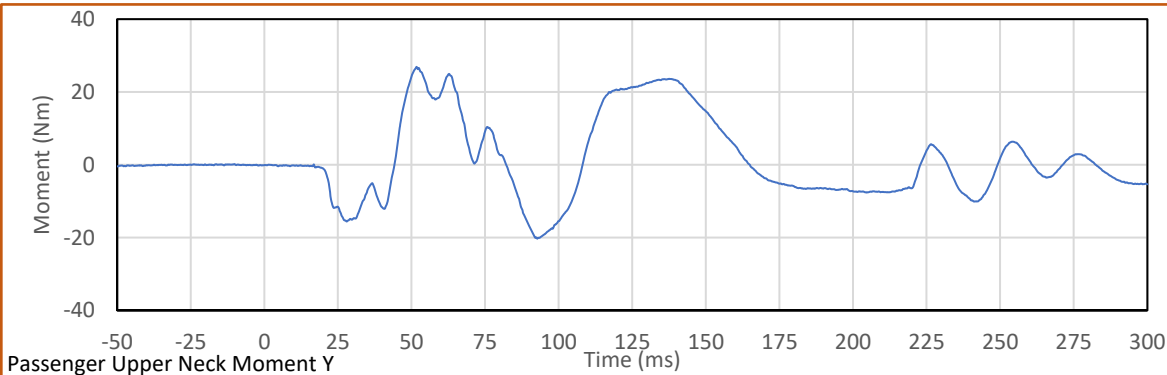
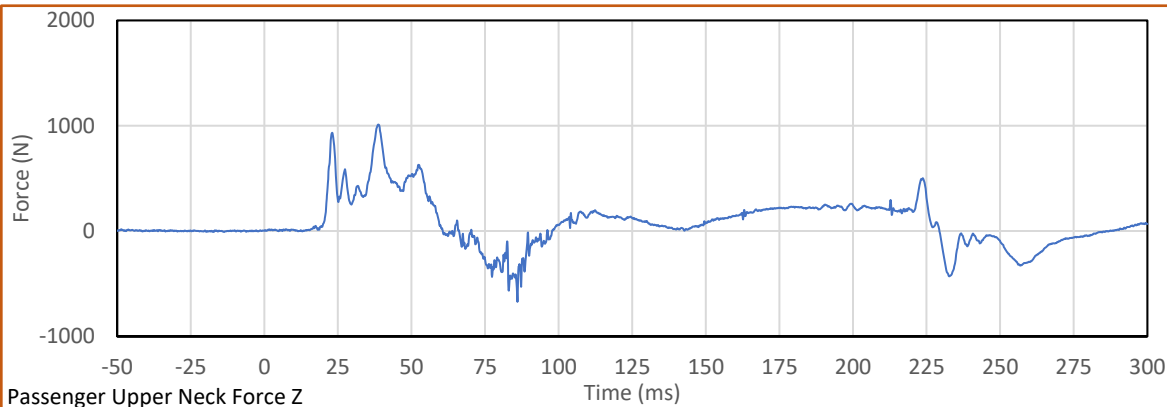
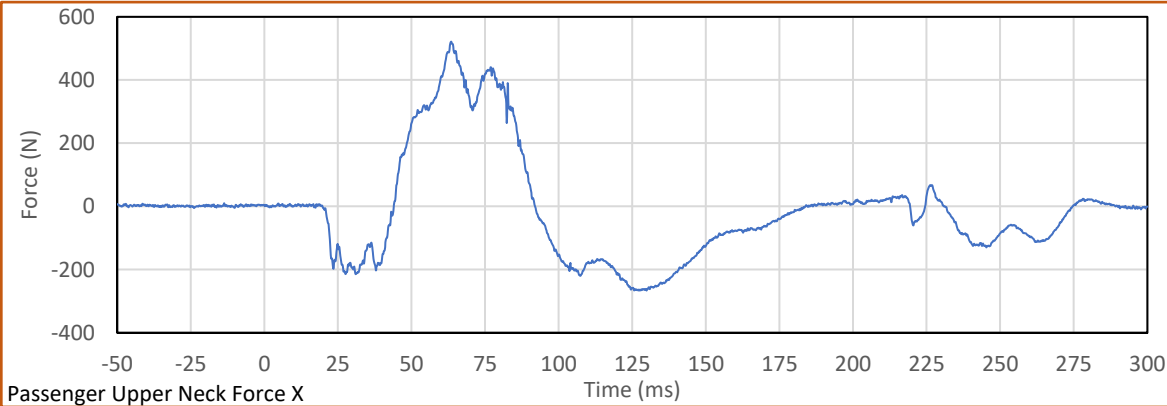
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Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



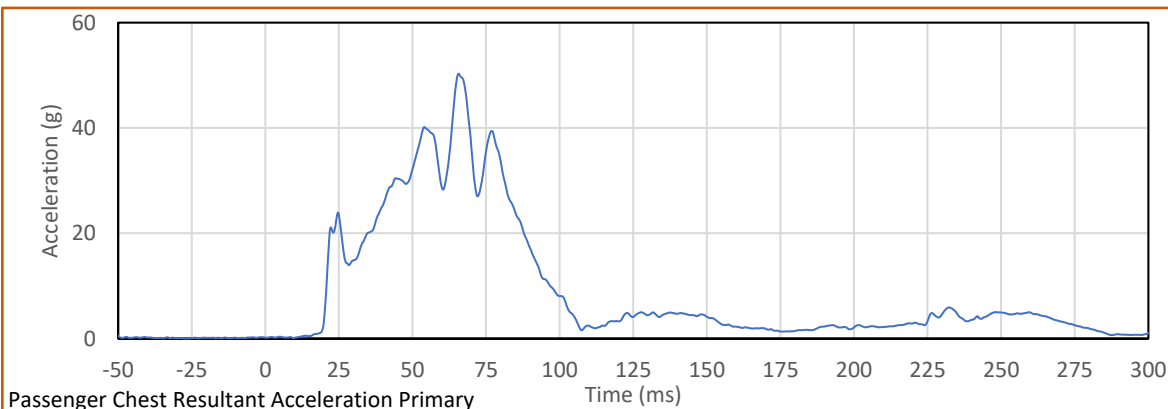
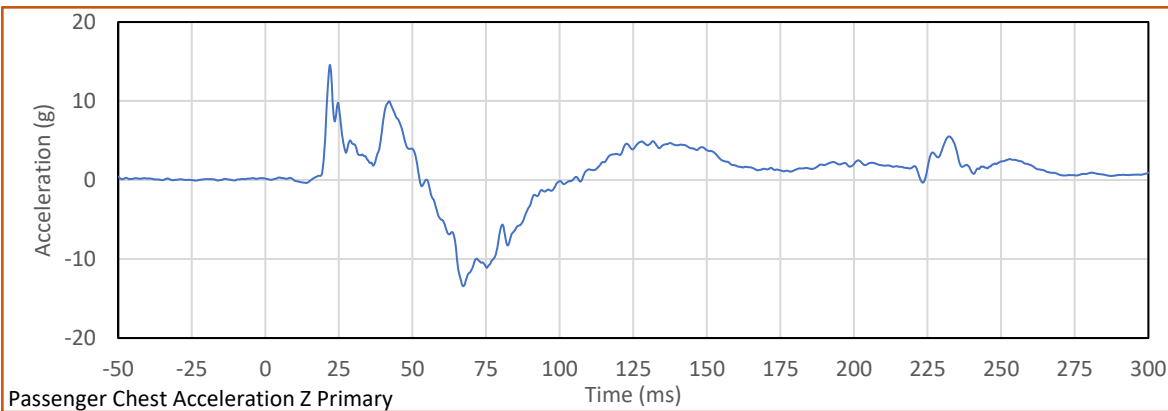
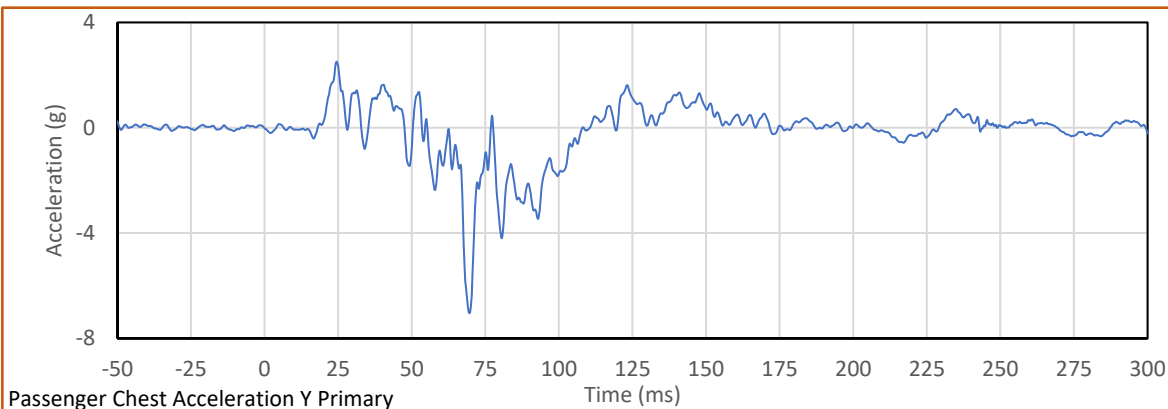
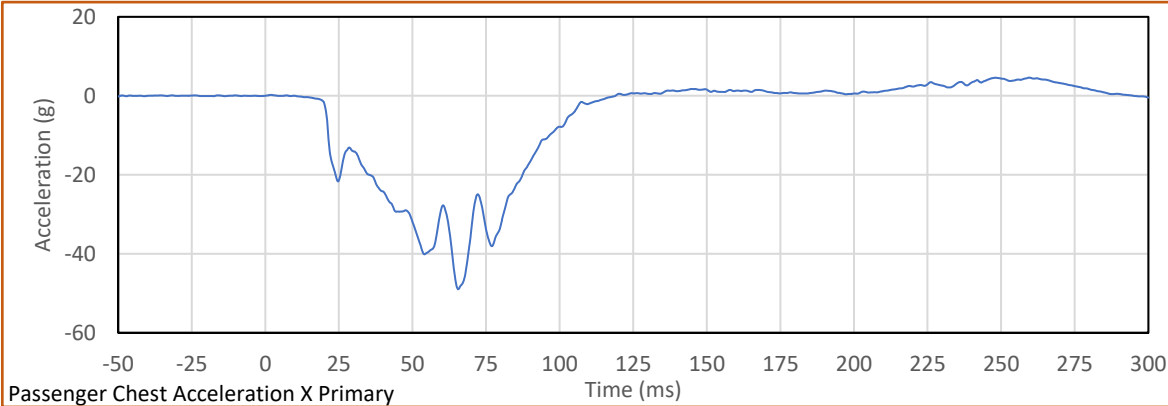
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Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



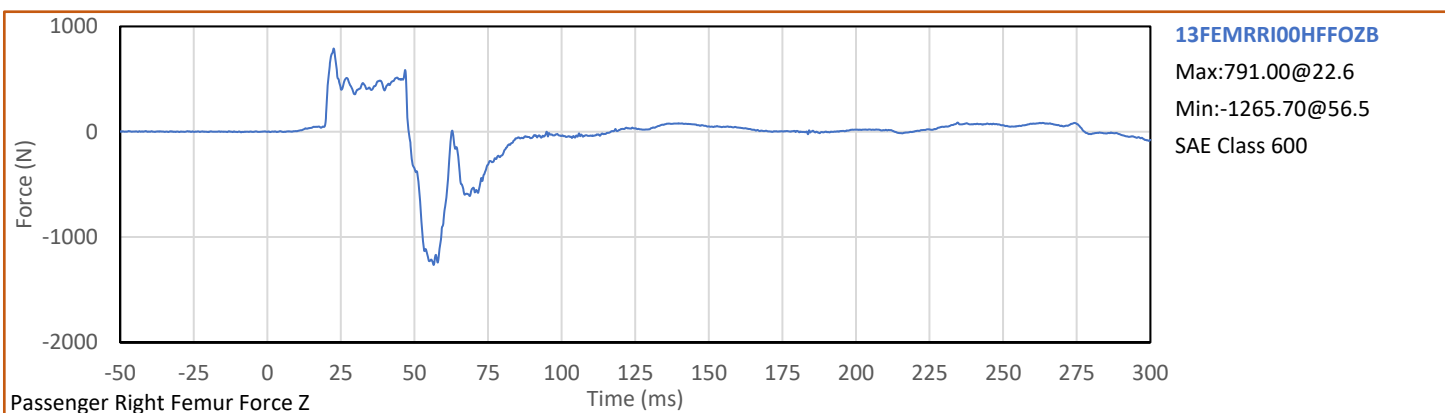
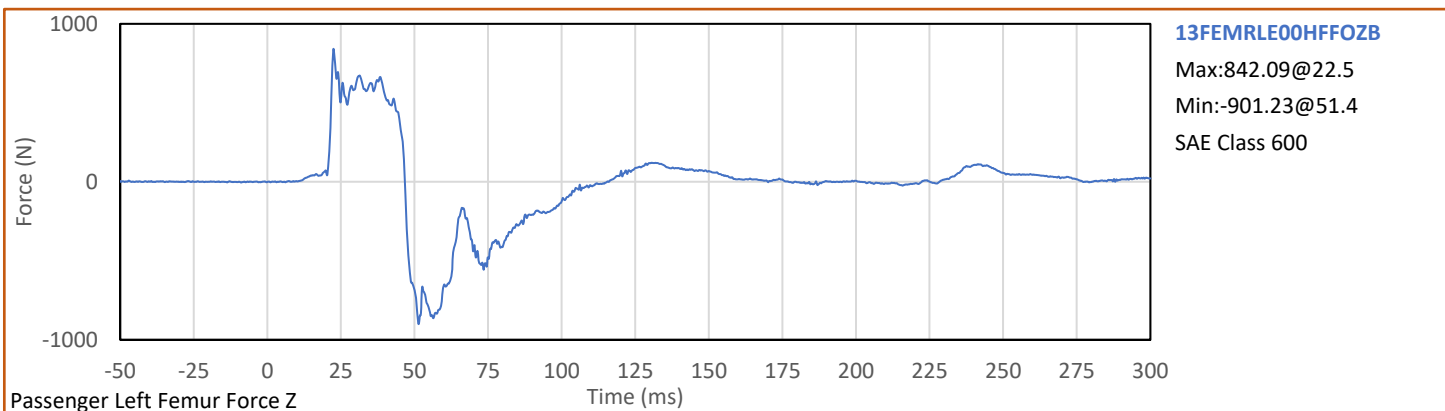
Test Vehicle: 2022 Subaru WRX 4-Door Sedan
Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



Test Vehicle: 2022 Subaru WRX 4-Door Sedan
Test Program: 56.3 km/h Frontal Impact NCAP Test

NHTSA No.: O20225500
Test Date: 12/6/2022



APPENDIX C
DUMMY QUALIFICATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
Pre-Test ATD Qualification and Performance Verification
Hybrid III 50th Percentile Male ATD
S/N: 360

ATD Serial No.: 360

Test Date: 2022-11-21

Dummy Item	Inspect for	Comments	Damage	OK
Entire ATD	Perform general cleaning			✓
Outer Skin	Gashes, rips, cracks			✓
Head	Ballast secure			✓
	General appearance			✓
Neck bracket	Upper neck firmly attached to lower bracket			✓
Neck	Broken or cracked rubber			✓
	Looseness at the condyle joint			✓
Nodding block	Cracked or out of position			✓
Lumbar Spine	Broken or cracked rubber			✓
Ribs	Broken or bent ribs			✓
	Broken or bent rib supports			✓
	Damping material separated or cracked			✓
	Rubber bumpers in place			✓
Chest Displ. Assembly	Bent shaft			✓
	Slider arm riding in track			✓
Sensors	Check cables for cuts, tears			✓
	Check for damaged insulation			✓
Accelerometer Mounting	Head mounting secure			✓
	Chest mounting secure			✓
Knees	Skin condition			✓
	Insert (do not remove)			✓
	Casting			✓
Limbs	Normal movement and adjustment			✓
Knee Sliders	Wires intact			✓
	Rubber returned to "resting" position			✓
Pelvis	Broken			✓
Other	Describe below as needed			✓

Describe any repairs or replacement of parts or other findings:

No Problems Found

Technician: 
G. Fuentes

Approved By: 
J. Hernandez

ATD Serial No.: 360

Test Date: 2022-11-21

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
A - Total sitting height	mm	879	889	881	Pass
B - Shoulder pivot height	mm	505	521	508	Pass
C - 'H' point height	mm	84	89	87	Pass
D - 'H' point location from backline	mm	135	140	139	Pass
E - Shoulder pivot from backline	mm	84	94	89	Pass
F - Thigh clearance	mm	140	155	145	Pass
G - Back of elbow to wrist pivot	mm	290	305	297	Pass
H - Head back to backline	mm	41	46	44	Pass
I - Shoulder to elbow length	mm	330	345	339	Pass
J - Elbow rest height	mm	190	211	209	Pass
K - Buttock to knee length	mm	579	604	590	Pass
L - Popliteal length	mm	429	455	444	Pass
M - Knee pivot height	mm	485	500	494	Pass
N - Buttock popliteal length	mm	452	477	466	Pass
O - Chest depth without jacket	mm	213	229	226	Pass
P - Foot length	mm	251	267	262	Pass
V - Shoulder breadth	mm	422	437	431	Pass
W - Foot breadth	mm	91	107	98	Pass
Y - Chest circum. (w/chest jacket)	mm	970	1001	989	Pass
Z - Waist circum.	mm	836	866	853	Pass
AA - Location for chest circum.	mm	429	434	431	Pass
BB - Location for waist circum.	mm	226	231	230	Pass
			Overall Test Results		Pass

Technician:



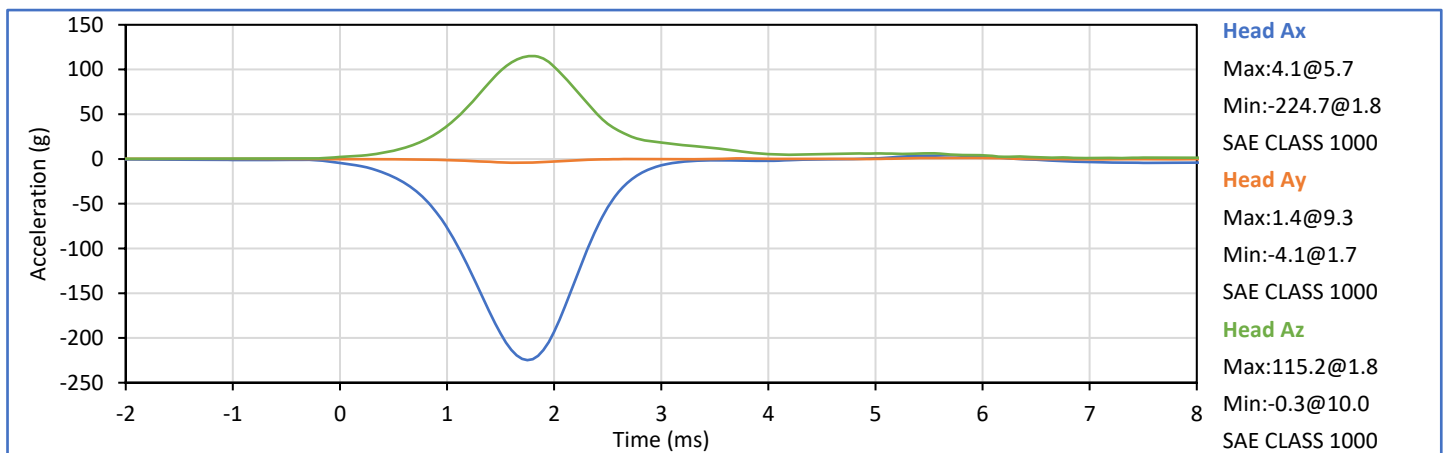
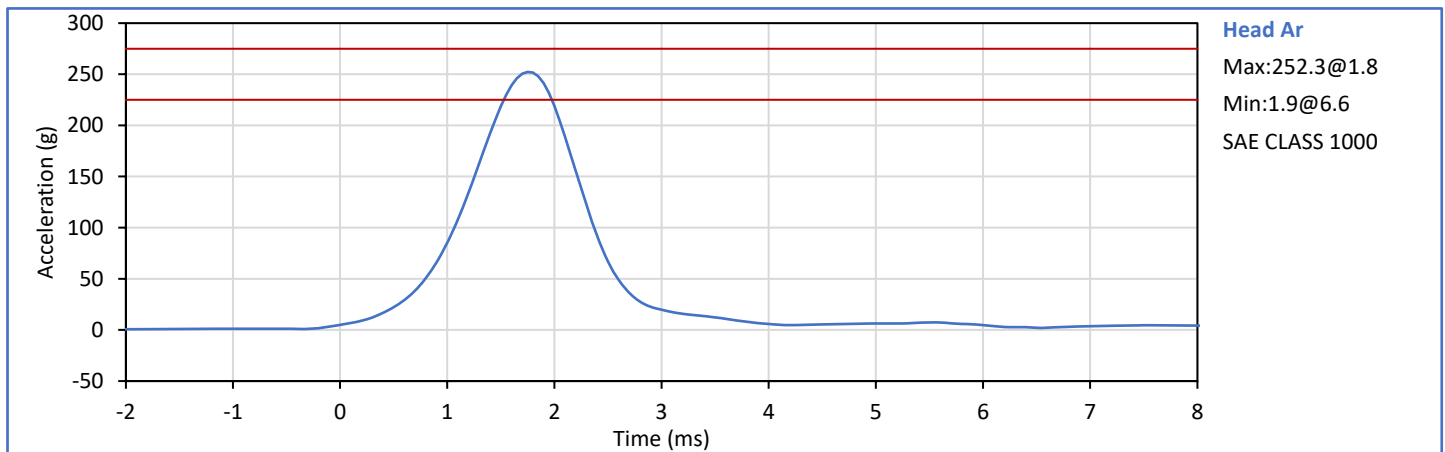
G. Fuentes

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	29	Pass
Peak Resultant Acceleration	g	225.0	275.0	252.3	Pass
Peak Lateral Acceleration	g	-15.0	15.0	-4.1	Pass
Oscillations After Main Pulse	%	0.0	10.0	0.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



Technician:

G. Fuentes

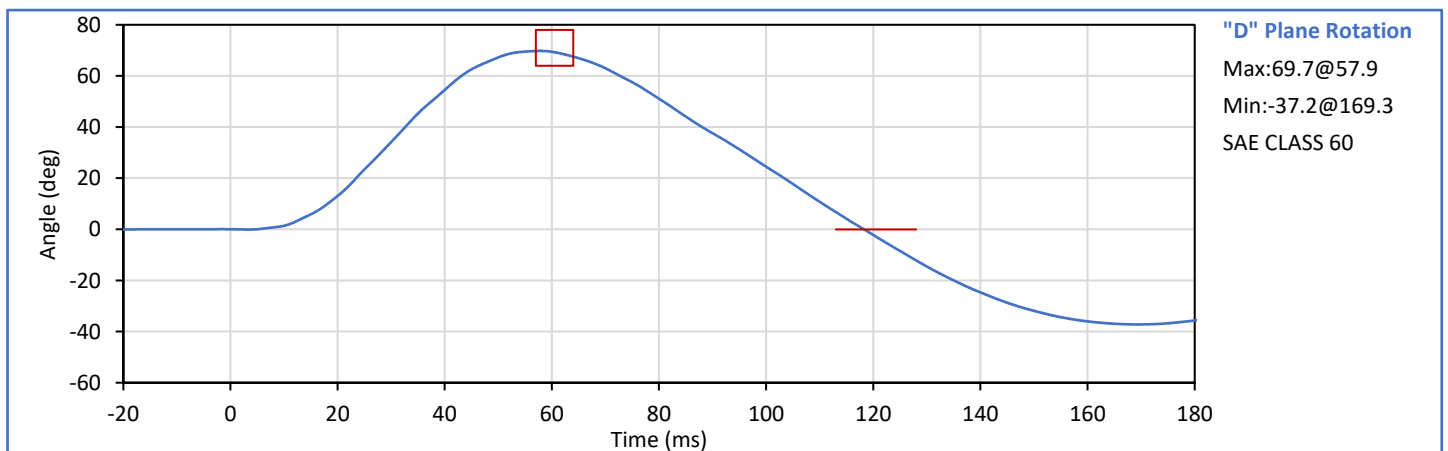
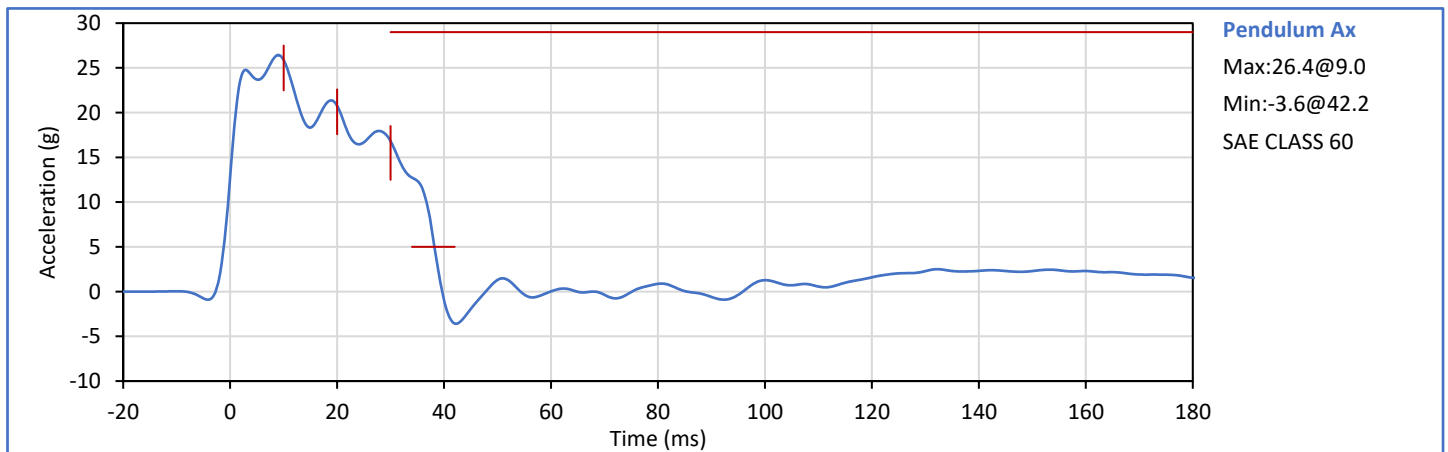
G. Fuentes

Approved By:

J. Hernandez

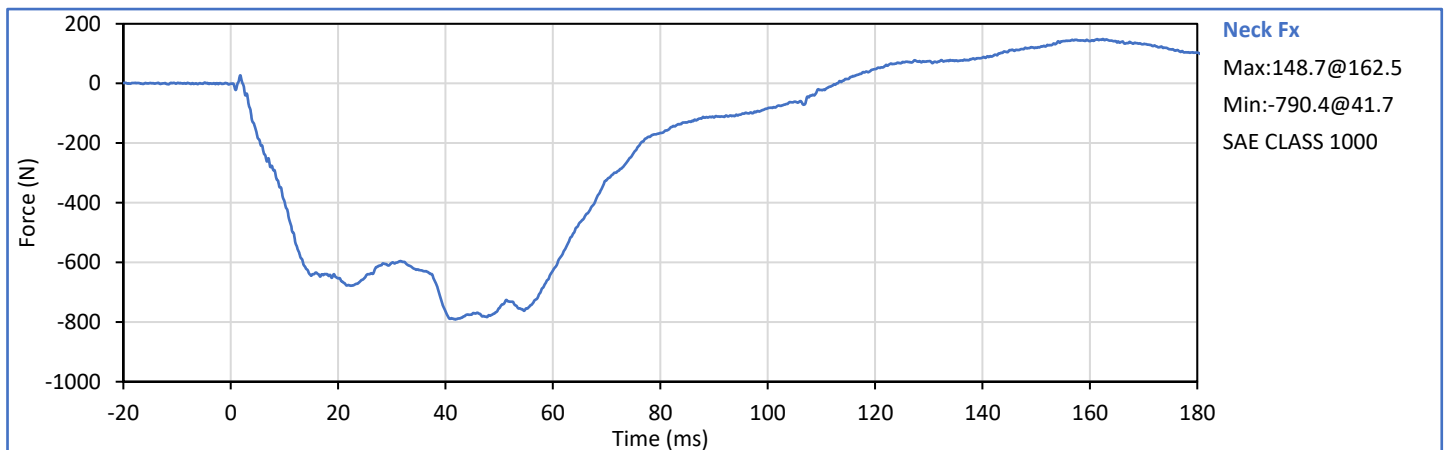
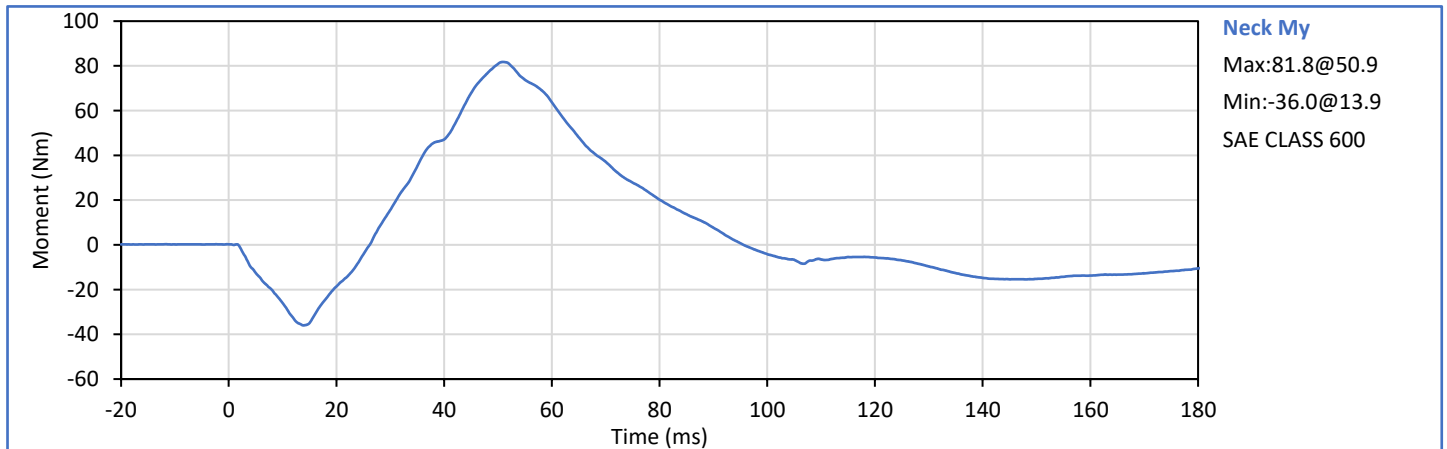
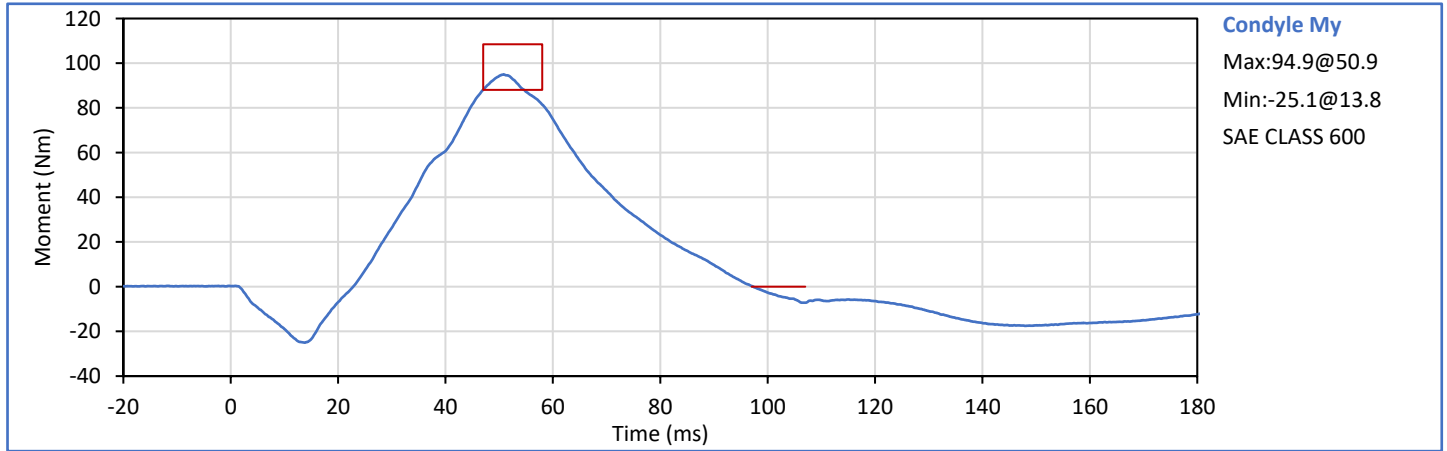
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Pendulum Velocity	m/s	6.89	7.13	6.94	Pass
Pendulum Deceleration at 10 ms	g	22.5	27.5	25.9	Pass
Pendulum Deceleration at 20 ms	g	17.6	22.6	20.8	Pass
Pendulum Deceleration at 30 ms	g	12.5	18.5	16.8	Pass
Peak Pendulum Decel After 30 ms	g	0.0	29.0	16.8	Pass
Deceleration Decay to Cross 5g	ms	34.0	42.0	38.2	Pass
"D" Plane Rotation peak	deg	64.0	78.0	69.7	Pass
	ms	57.0	64.0	57.9	Pass
"D" Plane Rotation Decay to Zero	ms	113.0	128.0	118.3	Pass
Moment About Occipital Condyle	Nm	88.1	108.5	94.9	Pass
	ms	47.0	58.0	50.9	Pass
Moment Decay, Peak to Zero	ms	97.0	107.0	97.3	Pass
Overall Test Results				Pass	

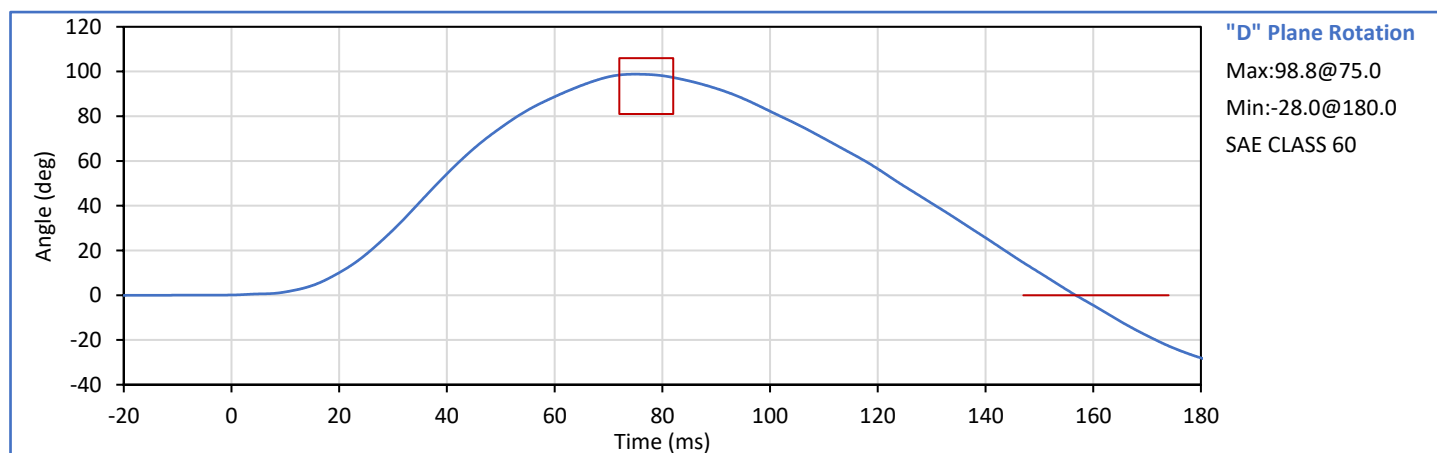
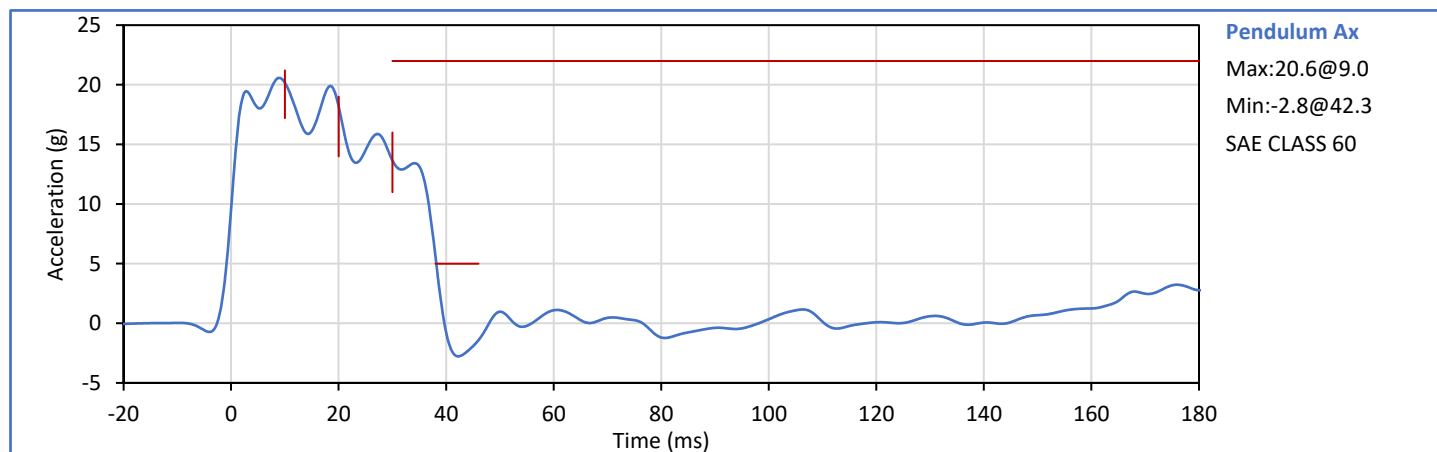


Technician: G. Fuentes

Approved By: J. Hernandez

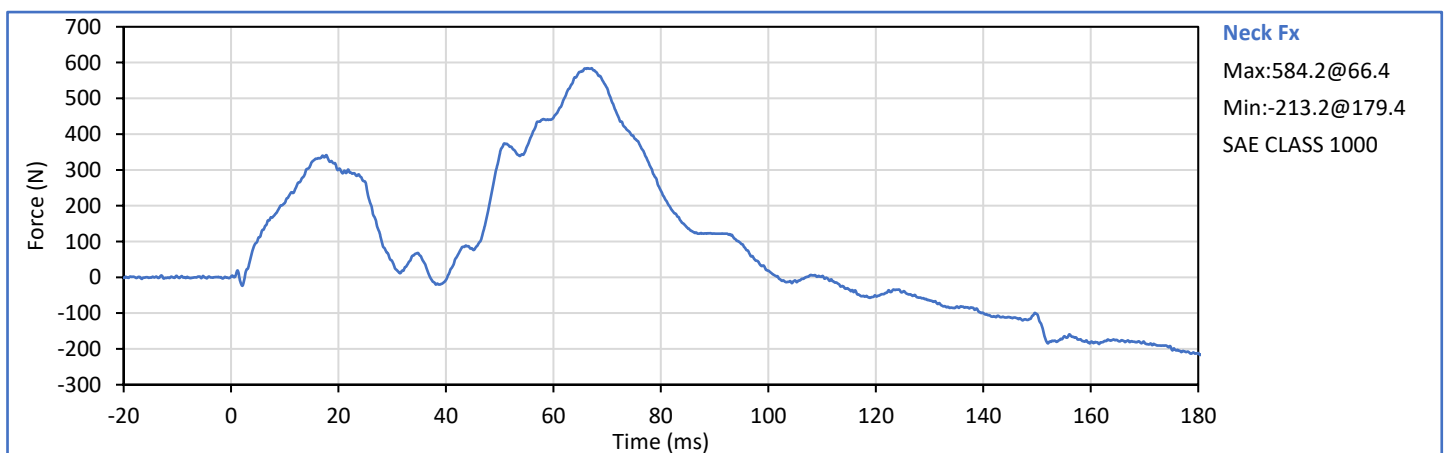
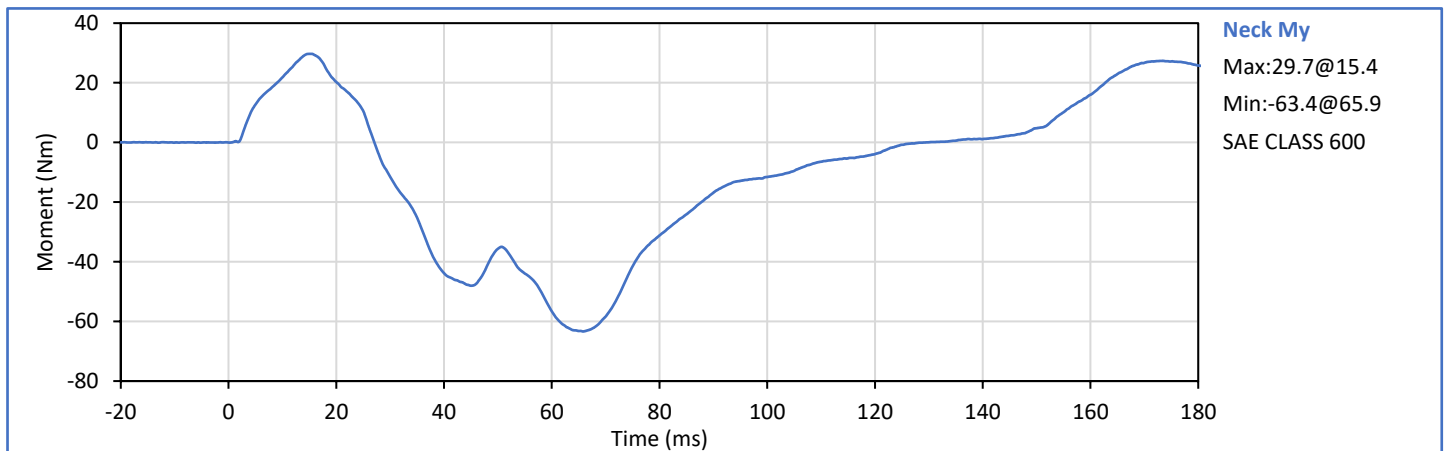
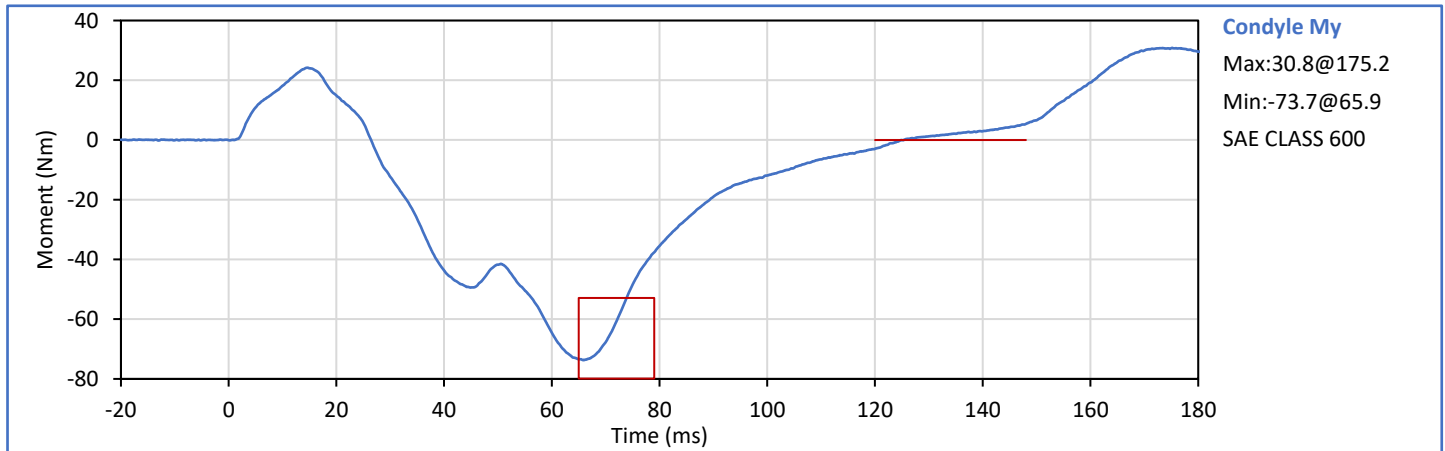


Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	31	Pass
Pendulum Velocity	m/s	5.94	6.19	6.11	Pass
Pendulum Deceleration at 10 ms	g	17.2	21.2	20.2	Pass
Pendulum Deceleration at 20 ms	g	14.0	19.0	18.2	Pass
Pendulum Deceleration at 30 ms	g	11.0	16.0	13.7	Pass
Peak Pendulum Decel After 30 ms	g	0.0	22.0	13.7	Pass
Deceleration Decay to Cross 5g	ms	38.0	46.0	38.2	Pass
"D" Plane Rotation peak	deg	81.0	106.0	98.8	Pass
	ms	72.0	82.0	75.0	Pass
"D" Plane Rotation Decay to Zero	ms	147.0	174.0	156.8	Pass
Moment About Occipital Condyle	Nm	-79.9	-52.9	-73.7	Pass
	ms	65.0	79.0	65.9	Pass
Moment Decay, Peak to Zero	ms	120.0	148.0	125.4	Pass
Overall Test Results				Pass	

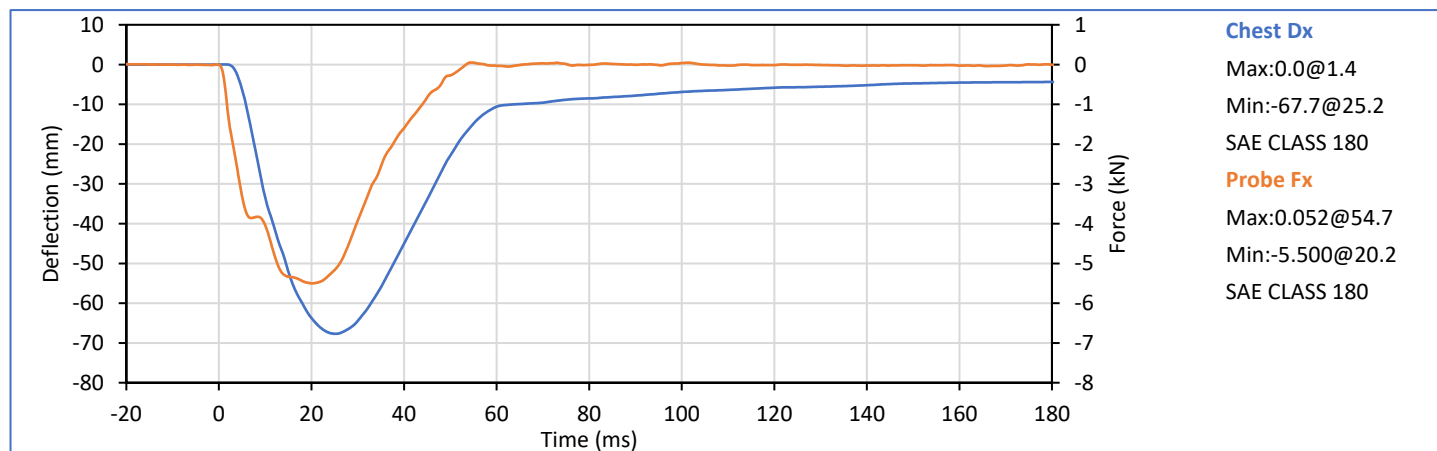
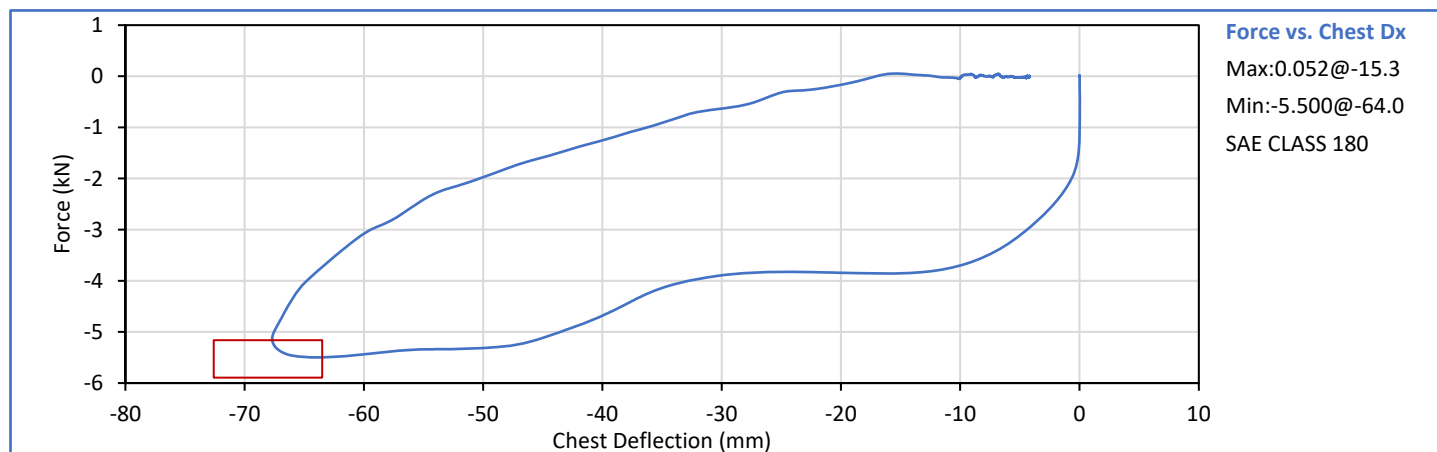


Technician: G. Fuentes

Approved By: J. Hernandez



Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	32	Pass
Probe Velocity	m/s	6.58	6.82	6.72	Pass
Peak Chest Deflection	mm	-72.6	-63.5	-67.7	Pass
Peak Probe Force	kN	-5.893	-5.159	-5.500	Pass
Internal Hysteresis	%	69.0	85.0	71.6	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

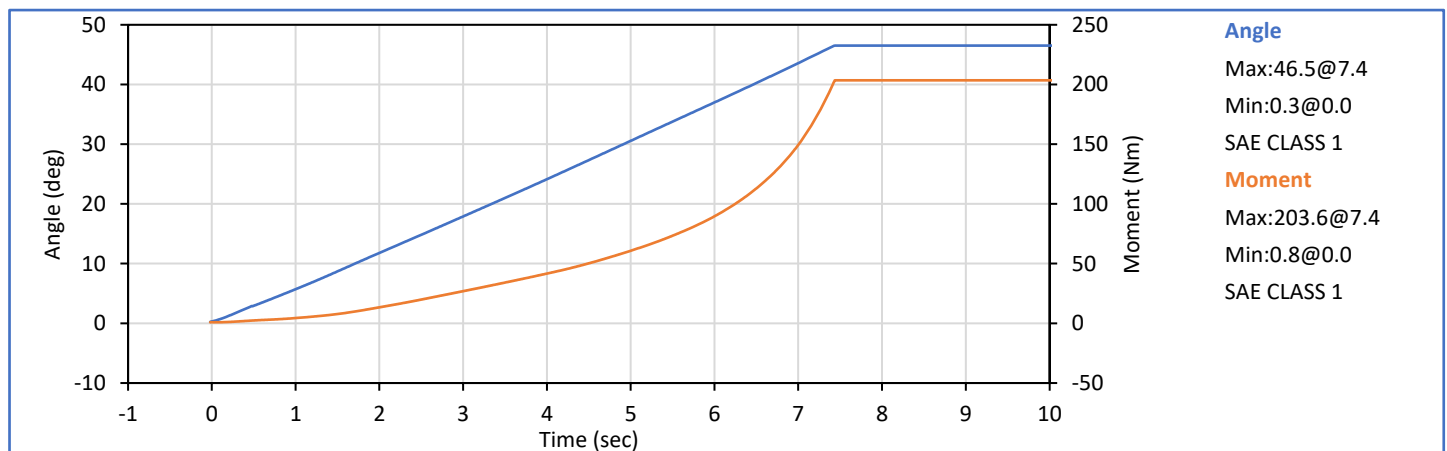
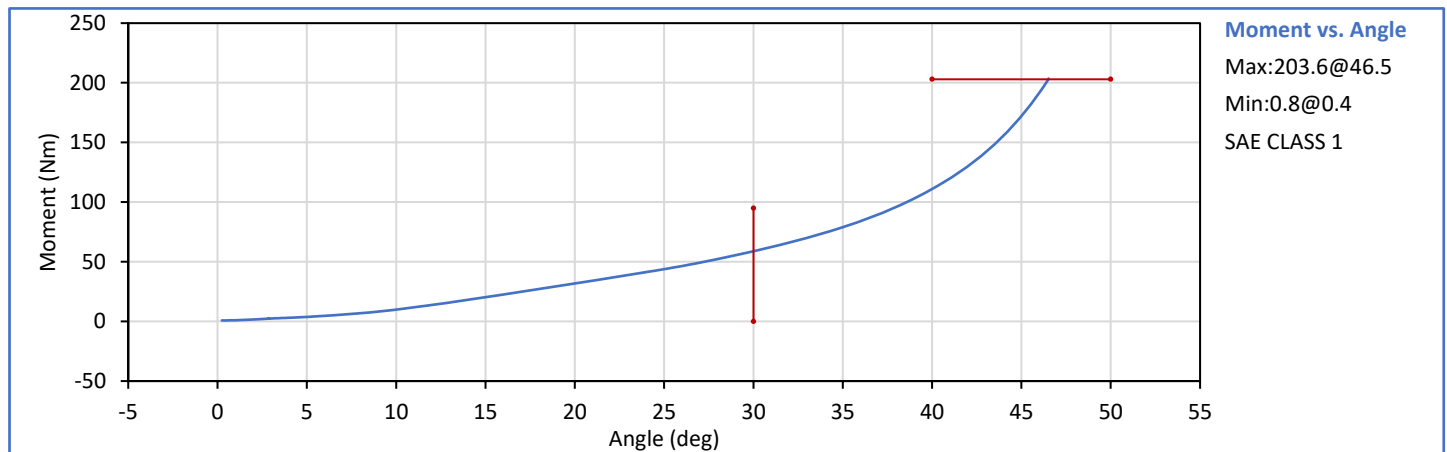
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.9	Pass
Laboratory Relative Humidity	%	10	70	33	Pass
Left Hip Rotation Rate	deg/s	5.0	10.0	6.2	Pass
Left Femur Torque at 30°	Nm	0.0	95.0	58.8	Pass
Left Hip Rotation at 203 Nm	deg	40.0	50.0	46.5	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

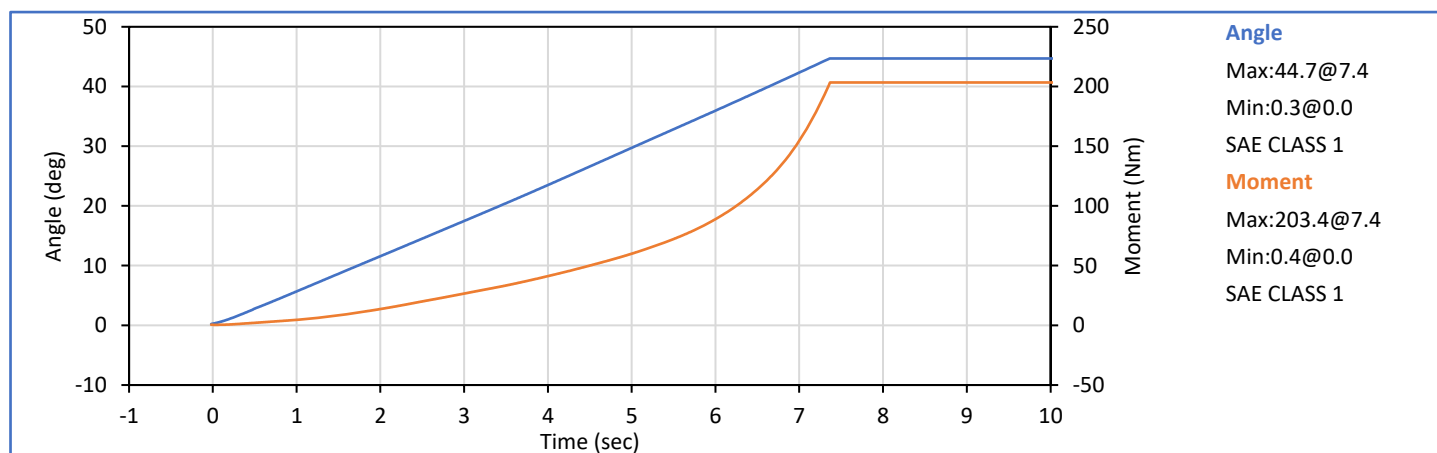
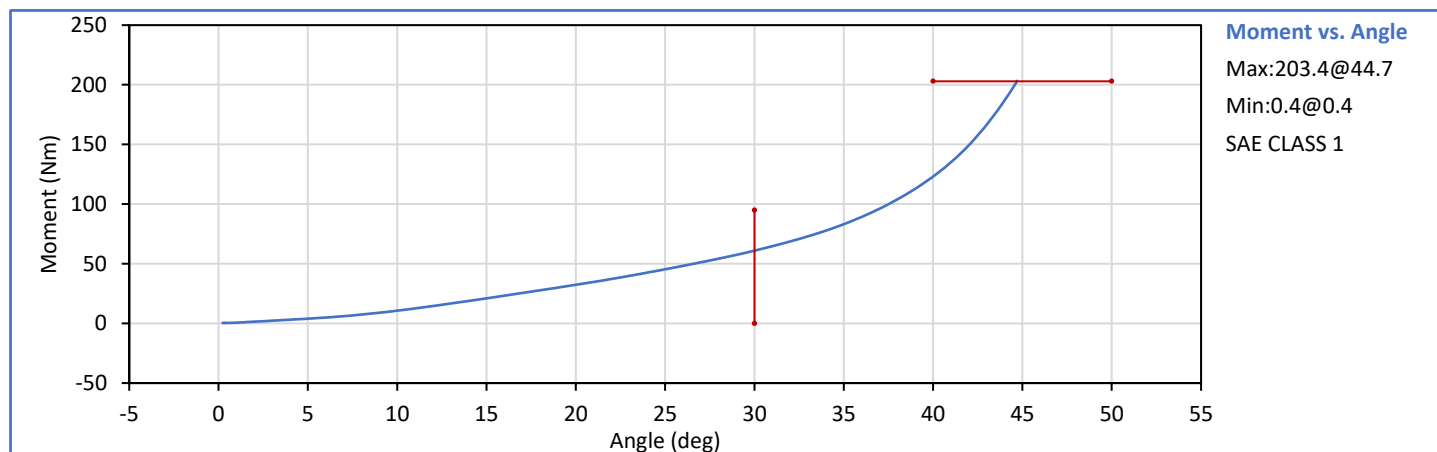
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	22.1	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Right Hip Rotation Rate	deg/s	5.0	10.0	6.0	Pass
Right Femur Torque at 30°	Nm	0.0	95.0	60.9	Pass
Right Hip Rotation at 203 Nm	deg	40.0	50.0	44.7	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

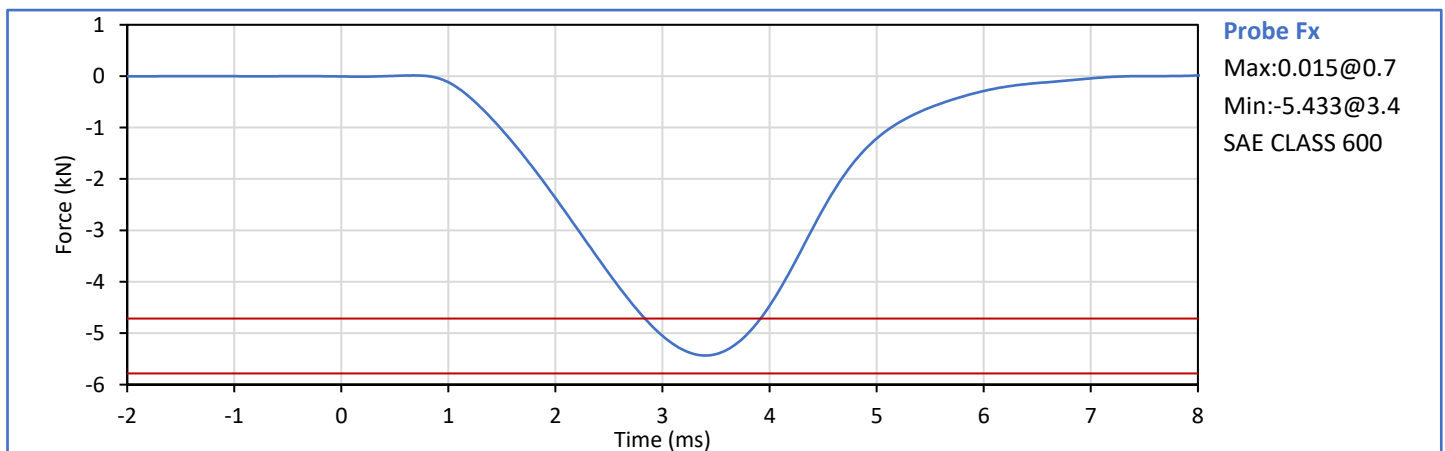
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Relative Humidity	%	10	70	33	Pass
Probe Velocity	m/s	2.070	2.130	2.107	Pass
Peak Resistive Force	kN	-5.782	-4.715	-5.433	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

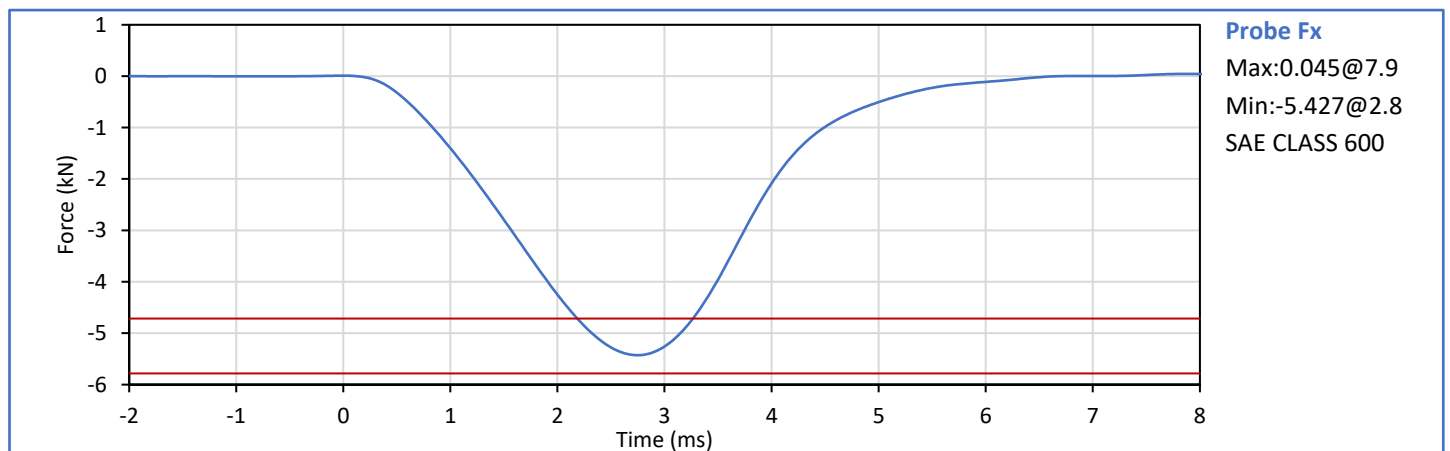
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Probe Velocity	m/s	2.070	2.130	2.105	Pass
Peak Resistive Force	kN	-5.782	-4.715	-5.427	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

APPENDIX C
Pre-Test ATD Qualification and Performance Verification
Hybrid III 5th Percentile Female ATD
S/N: DH1644

ATD Serial No.: DH1644

Test Date: 2022-11-21

Dummy Item	Inspect for	Comments	Damage	Okay
Entire ATD	Perform general cleaning			✓
Outer Skin	Gashes, rips, cracks			✓
Head	Ballast secure			✓
	General appearance			✓
Neck bracket	Upper neck firmly attached to lower bracket			✓
Neck	Broken or cracked rubber			✓
	Looseness at the condyle joint			✓
Nodding block	Cracked or out of position			✓
Lumbar Spine	Broken or cracked rubber			✓
Ribs	Broken or bent ribs			✓
	Broken or bent rib supports			✓
	Damping material separated or cracked			✓
	Rubber bumpers in place			✓
Chest Displ.	Bent shaft			✓
Assembly	Slider arm riding in track			✓
Sensors	Check cables for cuts, tears			✓
	Check for damaged insulation			✓
Accelerometer	Head mounting secure			✓
Mounting	Chest mounting secure			✓
Knees	Skin condition			✓
	Insert (do not remove)			✓
	Casting			✓
Limbs	Normal movement and adjustment			✓
Knee Sliders	Wires intact			✓
	Rubber returned to "resting" position			✓
Pelvis	Broken			✓
Other	Describe below as needed			✓

Describe any repairs or replacement of parts or other findings:

No Problems Found

Technician:

Bill 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	31	Pass
A - Total sitting height	mm	775	800	788	Pass
B - Shoulder pivot height	mm	432	457	450	Pass
C - 'H' point height	mm	81	86	86	Pass
D - 'H' point location from backline	mm	145	150	147	Pass
E - Shoulder pivot from backline	mm	69	84	74	Pass
F - Thigh clearance	mm	119	135	128	Pass
G - Back of elbow to wrist pivot	mm	244	259	257	Pass
H - Head back to backline	mm	41	46	43	Pass
I - Shoulder to elbow length	mm	277	297	291	Pass
J - Elbow rest height	mm	183	203	191	Pass
K - Buttock to knee length	mm	521	546	538	Pass
L - Popliteal length	mm	356	376	369	Pass
M - Knee pivot height	mm	394	419	403	Pass
N - Buttock popliteal length	mm	414	439	424	Pass
O - Chest depth without jacket	mm	175	191	184	Pass
P - Foot length	mm	219	234	232	Pass
R - Buttock to Knee Pivot Length	mm	457	483	469	Pass
S - Head Breadth	mm	137	147	142	Pass
T - Head Depth	mm	178	188	185	Pass
U - Hip Breadth	mm	300	315	302	Pass
V - Shoulder breadth	mm	351	366	356	Pass
W - Foot breadth	mm	79	94	86	Pass
X - Head circum.	mm	528	549	535	Pass
Y - Chest circum. (w/chest jacket)	mm	851	881	873	Pass
Z - Waist circum.	mm	760	790	772	Pass
AA - Location for chest circum.	mm	333	358	341	Pass
BB - Location for waist circum.	mm	160	170	167	Pass
			Overall Test Results		Pass

Technician:



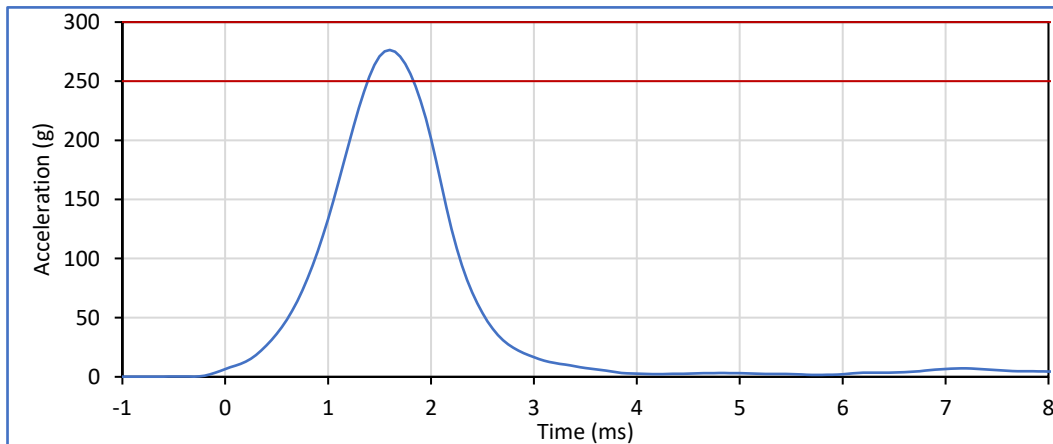
G. Fuentes

Approved By:

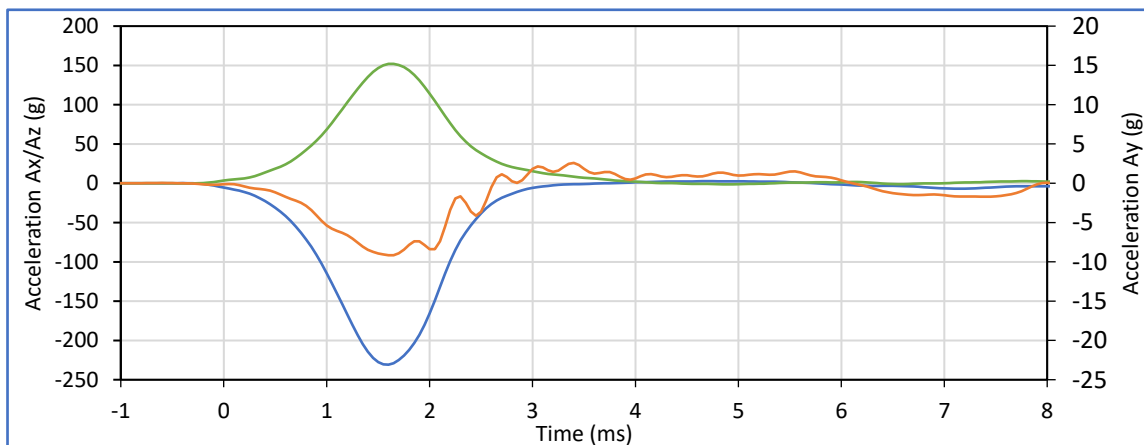


J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.4	Pass
Laboratory Humidity	%	10	70	33	Pass
Peak Resultant Acceleration	g	250.0	300.0	276.5	Pass
Peak Lateral Acceleration	g	-15.0	15.0	-9.2	Pass
Oscillations After Main Pulse	%	0.0	10.0	2.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



Head Resultant
Max:276.5@1.6
Min:1.6@5.8
SAE CLASS 1000



Head Ax
Max:2.8@4.7
Min:-230.8@1.6
SAE CLASS 1000
Head Ay
Max:2.6@3.4
Min:-9.2@1.6
SAE CLASS 1000
Head Az
Max:152.0@1.7
Min:-1.4@4.9
SAE CLASS 1000

Technician:

G. Fuentes

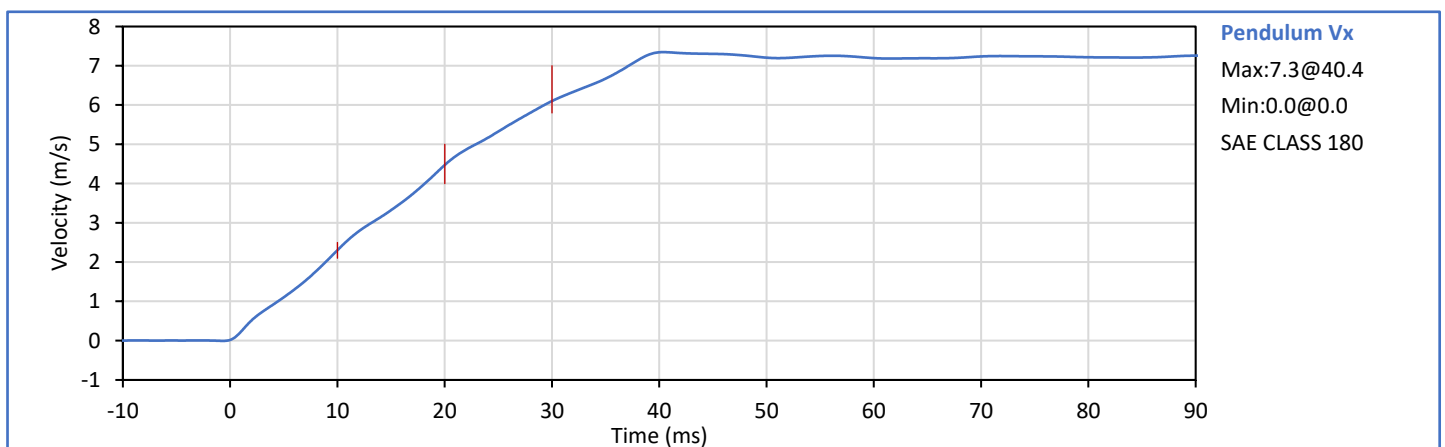
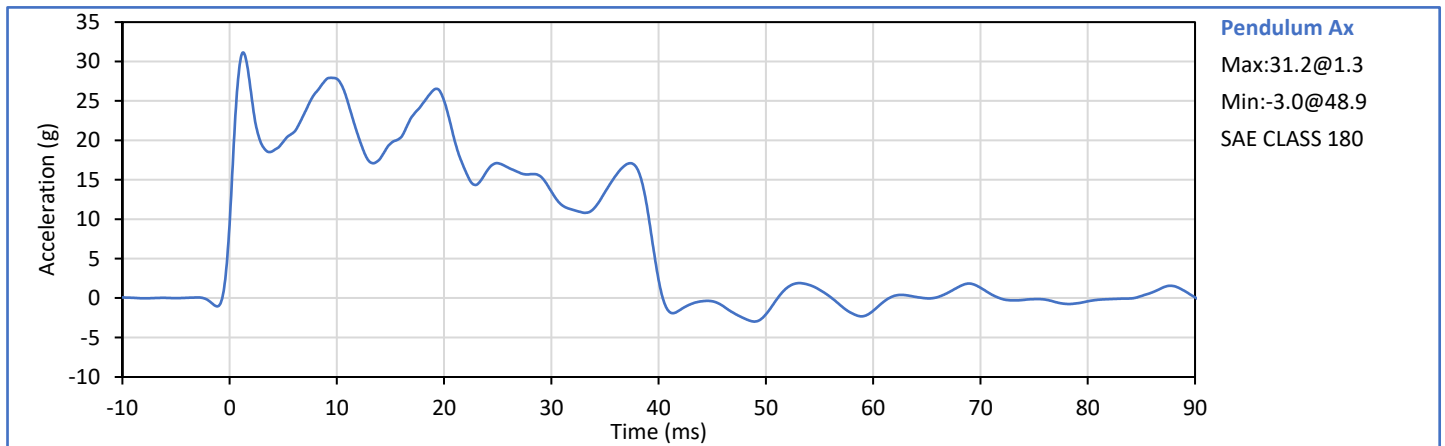
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Humidity	%	10	70	29	Pass
Pendulum Velocity	m/s	6.89	7.13	6.98	Pass
Pendulum Velocity at 10 ms	m/s	2.10	2.50	2.30	Pass
Pendulum Velocity at 20 ms	m/s	4.00	5.00	4.47	Pass
Pendulum Velocity at 30 ms	m/s	5.80	7.00	6.10	Pass
Peak "D" Plane Rotation	deg	77.0	91.0	88.4	Pass
Peak Moment in Rotation	Nm	69.0	83.0	76.5	Pass
Positive Moment Decay to 10 Nm	ms	80.0	100.0	85.7	Pass
Overall Test Results					Pass



Technician:

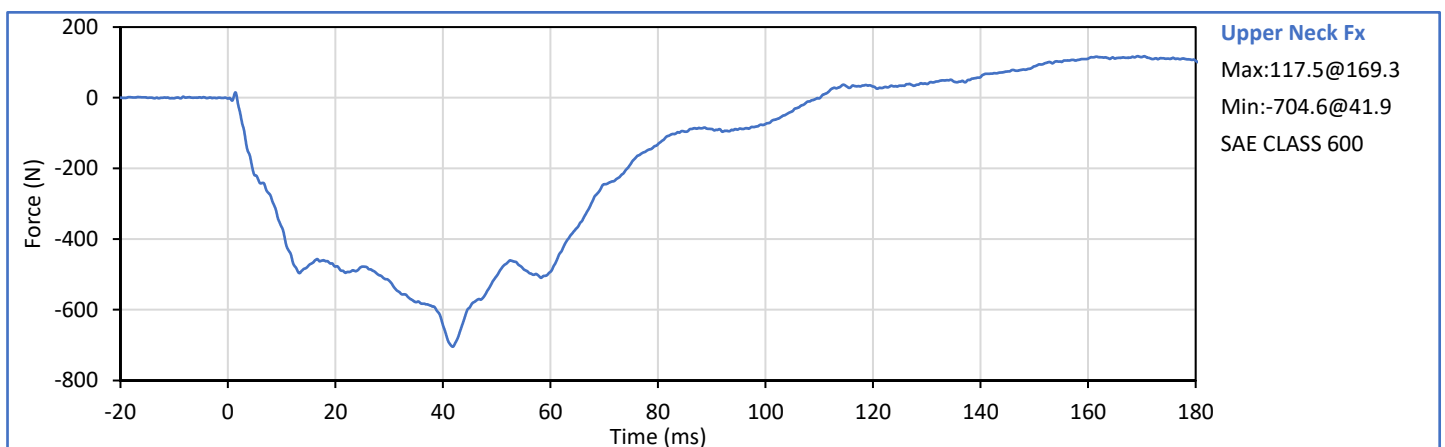
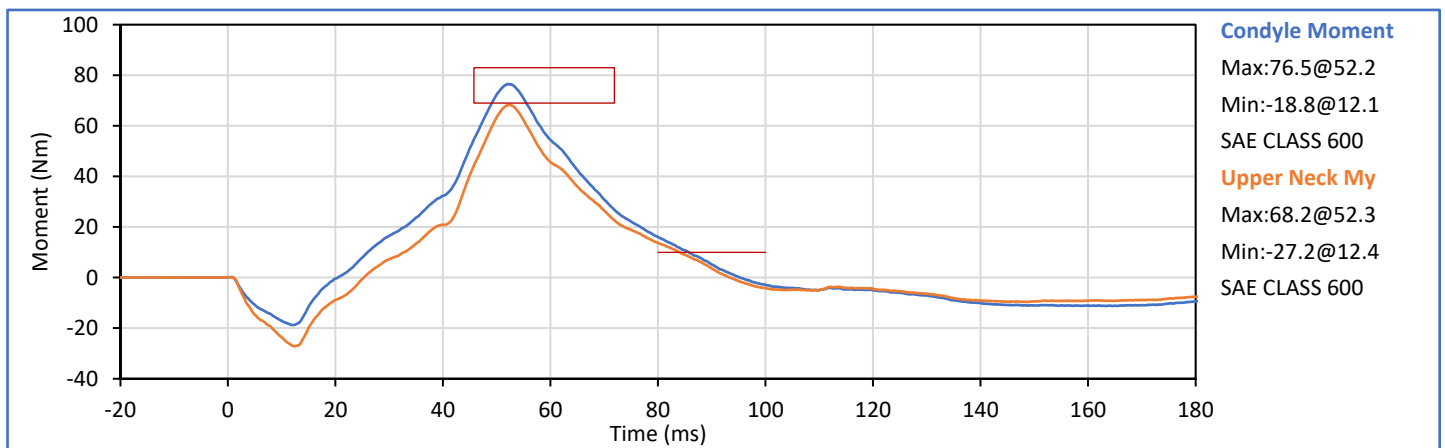
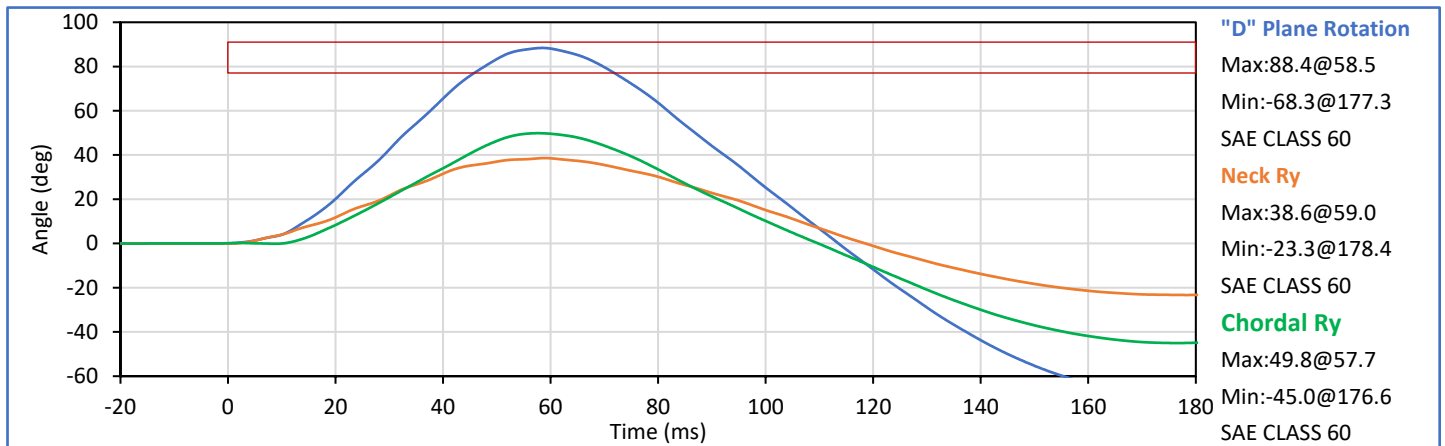
G. Fuentes

G. Fuentes

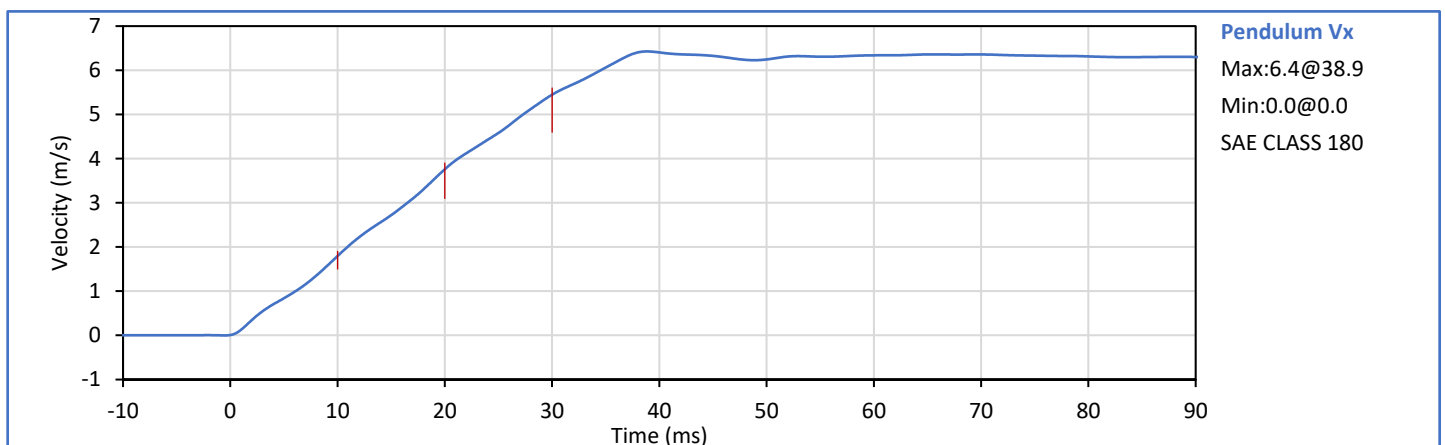
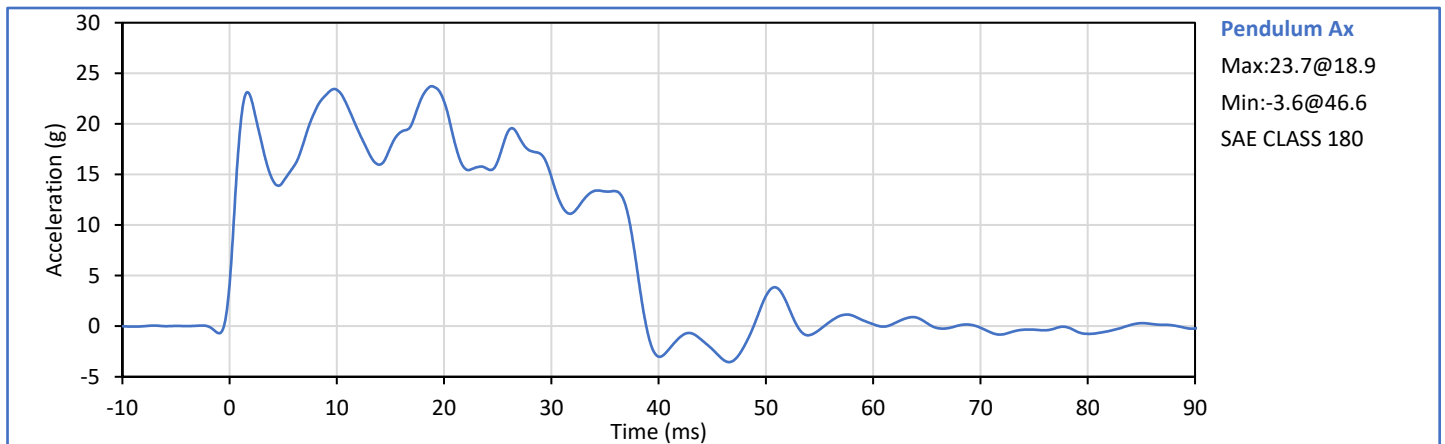
Approved By:

J. Hernandez

J. Hernandez



Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Pendulum Velocity	m/s	5.95	6.19	6.08	Pass
Pendulum Velocity at 10 ms	m/s	1.50	1.90	1.79	Pass
Pendulum Velocity at 20 ms	m/s	3.10	3.90	3.76	Pass
Pendulum Velocity at 30 ms	m/s	4.60	5.60	5.45	Pass
Peak "D" Plane Rotation	deg	99.0	114.0	108.3	Pass
Peak Moment in Rotation	Nm	-65.0	-53.0	-60.0	Pass
Negative Moment Decay to -10 Nm	ms	94.0	114.0	97.6	Pass
Overall Test Results					Pass



Technician:

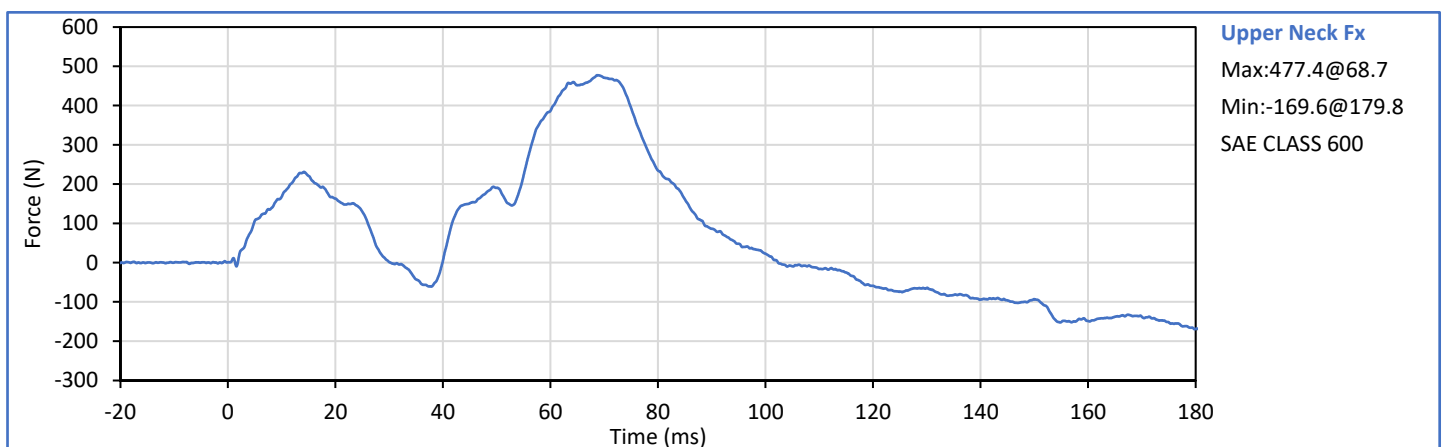
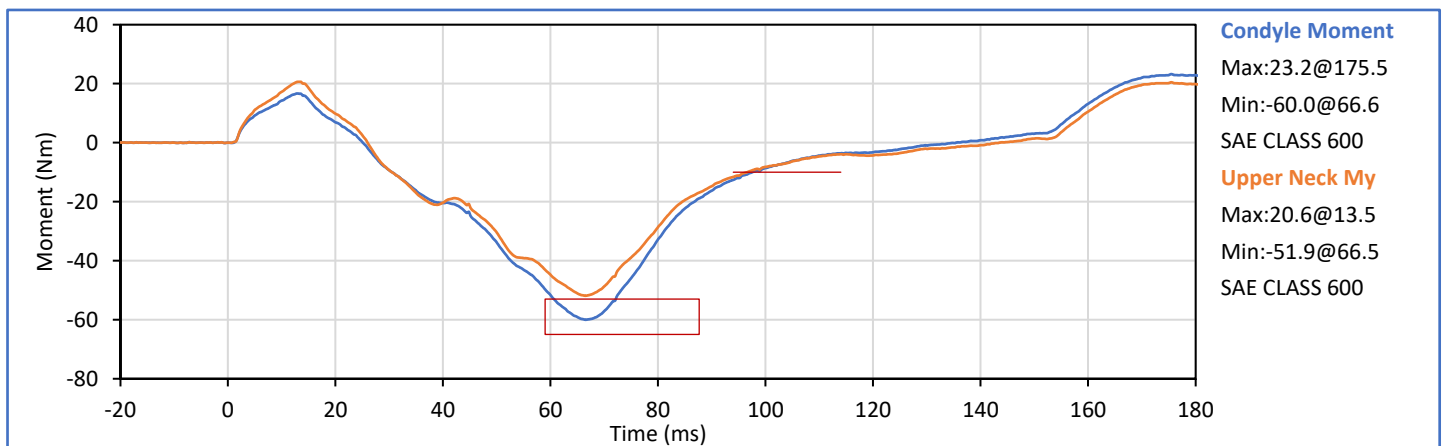
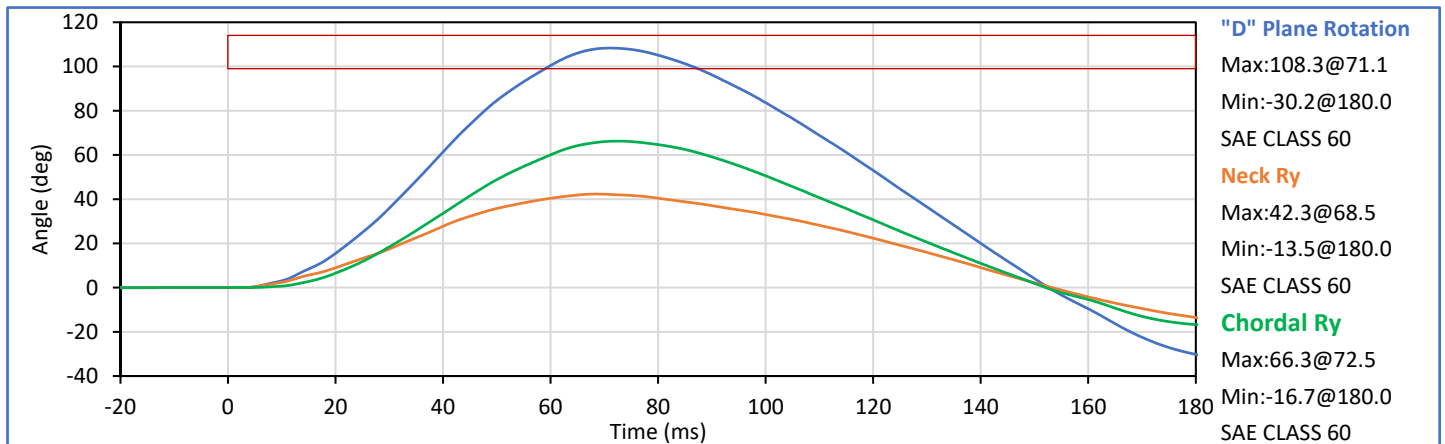
G. Fuentes

G. Fuentes

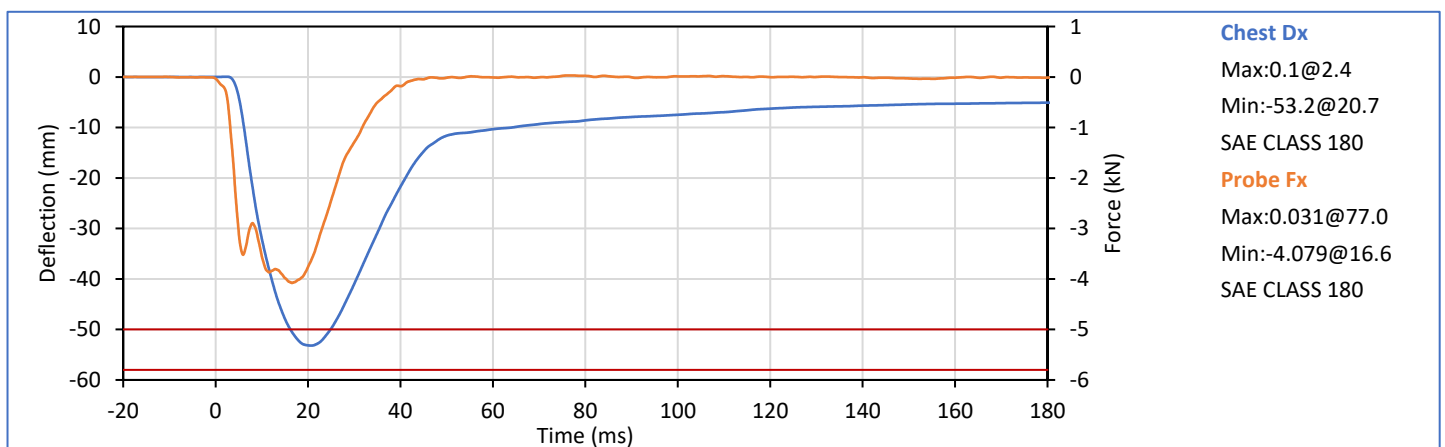
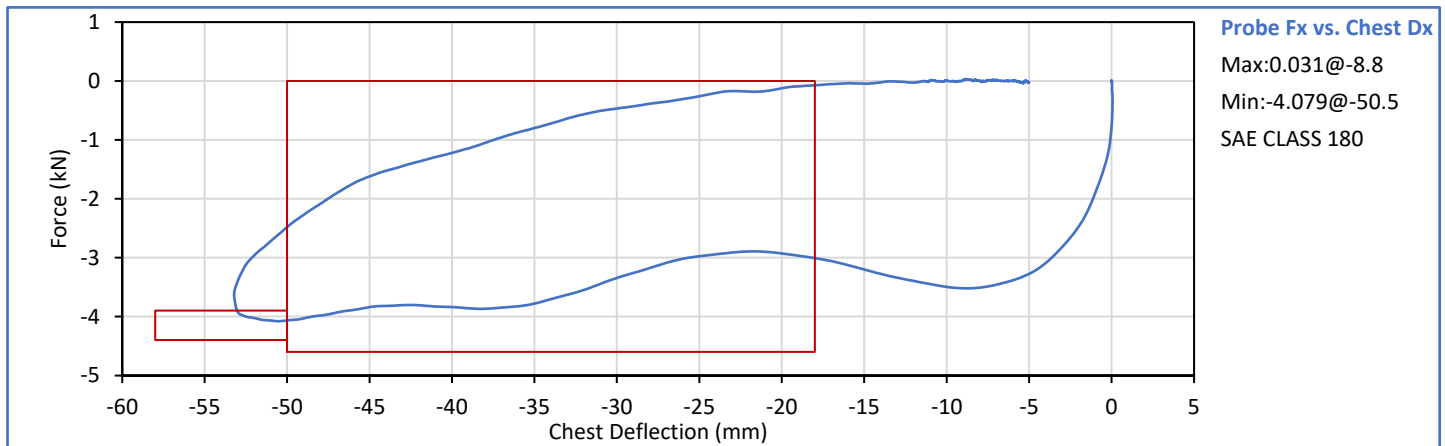
Approved By:

J. Hernandez

J. Hernandez



Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory RelativeHumidity	%	10	70	31	Pass
Probe Velocity	m/s	6.59	6.83	6.70	Pass
Peak Chest Deflection	mm	-58.0	-50.0	-53.2	Pass
Peak Probe Force, 50 and 58 mm	kN	-4.400	-3.900	-4.064	Pass
Peak Probe Force, 18 and 50 mm	kN	-4.600	0.000	-4.064	Pass
Internal Hysteresis	%	69.0	85.0	79.2	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

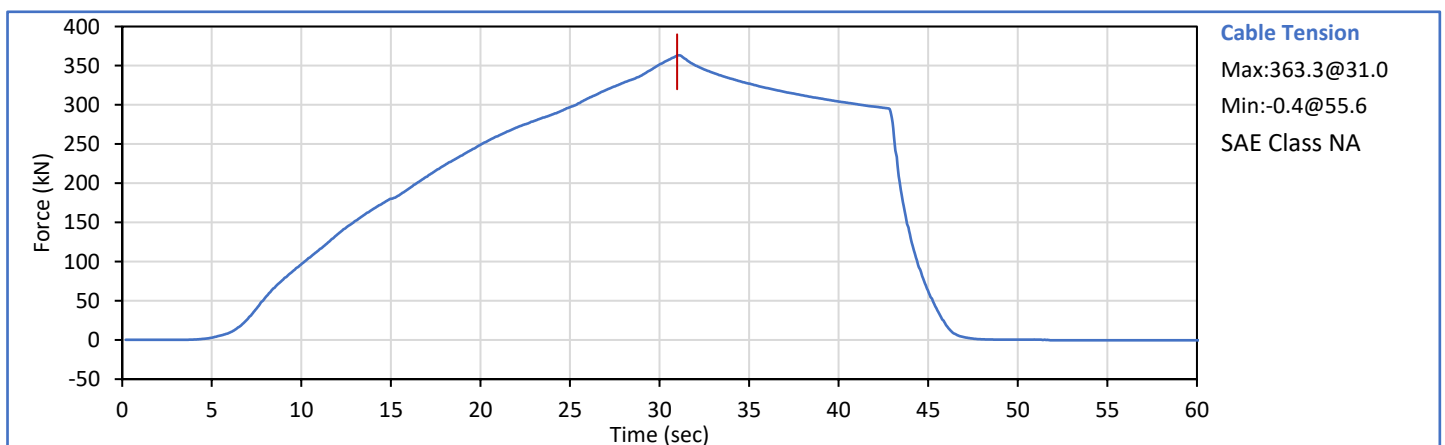
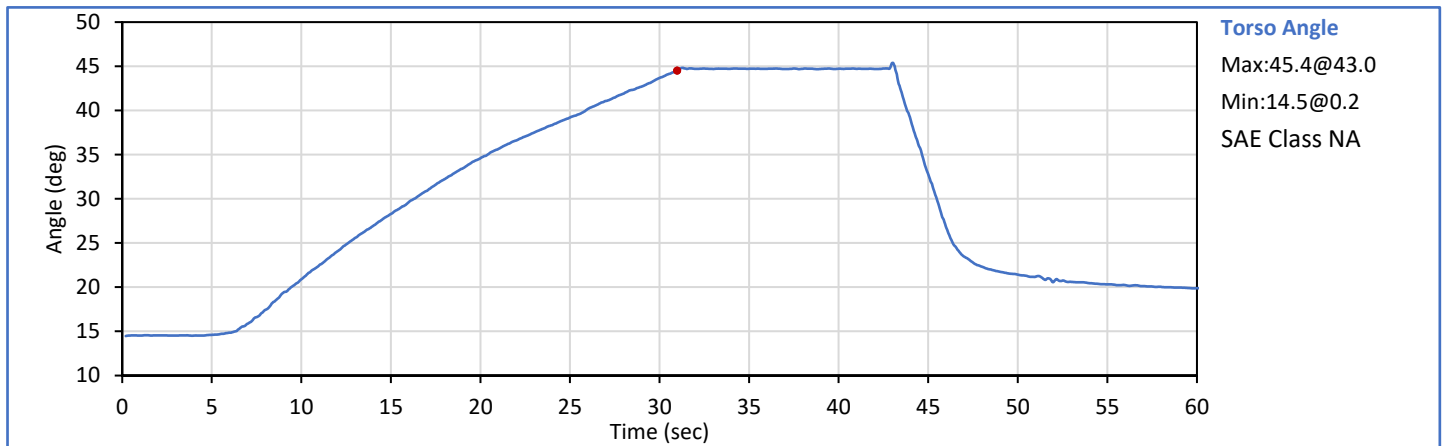
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Humidity	%	10	70	32	Pass
Orientation Angle	deg	0.0	20.0	14.9	Pass
Test Initial Angle	deg	11.0	19.0	14.5	Pass
Peak Force at 45° (+/-0.5°)	N	320.0	390.0	362.8	Pass
Torso Flexion Rate	deg/s	0.50	1.50	1.21	Pass
Final Reference Plane Angle	deg	-8.0	8.0	3.3	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

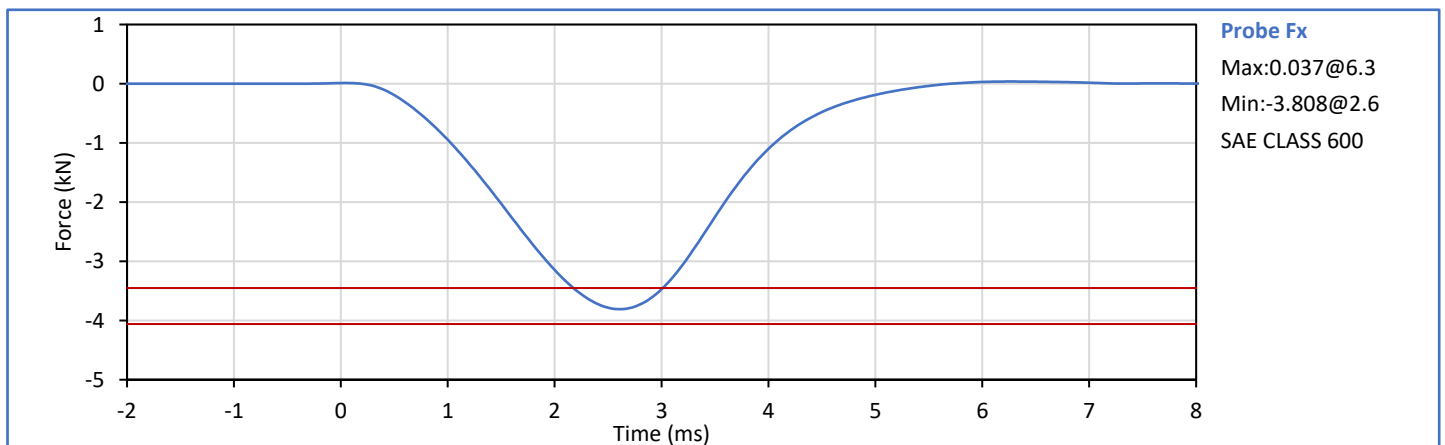
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Relative Humidity	%	10	70	31	Pass
Probe Velocity	m/s	2.070	2.130	2.107	Pass
Peak Resistive Force	kN	-4.060	-3.450	-3.808	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

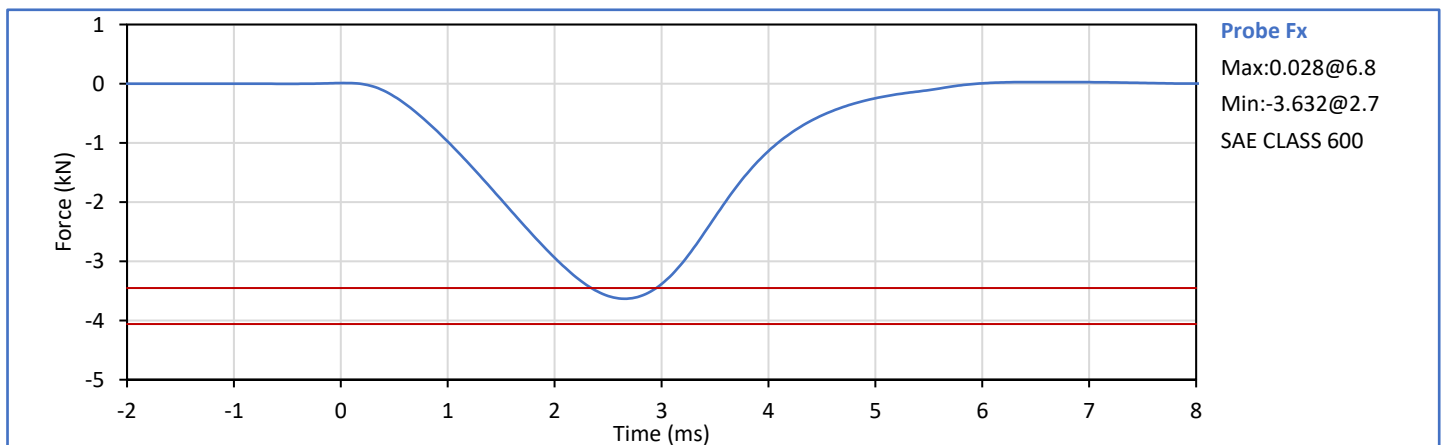
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Probe Velocity	m/s	2.070	2.130	2.103	Pass
Peak Resistive Force	kN	-4.060	-3.450	-3.632	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

APPENDIX C
Post-Test ATD Qualification and Performance Verification
Hybrid III 50th Percentile Male ATD
S/N: 360

ATD Serial No.: 360

Test Date: 2022-12-08

Dummy Item	Inspect for	Comments	Damage	OK
Entire ATD	Perform general cleaning			✓
Outer Skin	Gashes, rips, cracks			✓
Head	Ballast secure			✓
	General appearance			✓
Neck bracket	Upper neck firmly attached to lower bracket			✓
Neck	Broken or cracked rubber			✓
	Looseness at the condyle joint			✓
Nodding block	Cracked or out of position			✓
Lumbar Spine	Broken or cracked rubber			✓
Ribs	Broken or bent ribs			✓
	Broken or bent rib supports			✓
	Damping material separated or cracked			✓
	Rubber bumpers in place			✓
Chest Displ. Assembly	Bent shaft			✓
	Slider arm riding in track			✓
Sensors	Check cables for cuts, tears			✓
	Check for damaged insulation			✓
Accelerometer Mounting	Head mounting secure			✓
	Chest mounting secure			✓
Knees	Skin condition			✓
	Insert (do not remove)			✓
	Casting			✓
Limbs	Normal movement and adjustment			✓
Knee Sliders	Wires intact			✓
	Rubber returned to "resting" position			✓
Pelvis	Broken			✓
Other	Describe below as needed			✓

Describe any repairs or replacement of parts or other findings:

No Problems Found

Technician:



G. Fuentes

Approved By:



J. Hernandez

ATD Serial No.: 360

Test Date: 2022-12-08

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
A - Total sitting height	mm	879	889	881	Pass
B - Shoulder pivot height	mm	505	521	508	Pass
C - 'H' point height	mm	84	89	87	Pass
D - 'H' point location from backline	mm	135	140	139	Pass
E - Shoulder pivot from backline	mm	84	94	89	Pass
F - Thigh clearance	mm	140	155	145	Pass
G - Back of elbow to wrist pivot	mm	290	305	297	Pass
H - Head back to backline	mm	41	46	44	Pass
I - Shoulder to elbow length	mm	330	345	339	Pass
J - Elbow rest height	mm	190	211	209	Pass
K - Buttock to knee length	mm	579	604	590	Pass
L - Popliteal length	mm	429	455	444	Pass
M - Knee pivot height	mm	485	500	494	Pass
N - Buttock popliteal length	mm	452	477	466	Pass
O - Chest depth without jacket	mm	213	229	226	Pass
P - Foot length	mm	251	267	262	Pass
V - Shoulder breadth	mm	422	437	431	Pass
W - Foot breadth	mm	91	107	98	Pass
Y - Chest circum. (w/chest jacket)	mm	970	1001	989	Pass
Z - Waist circum.	mm	836	866	853	Pass
AA - Location for chest circum.	mm	429	434	431	Pass
BB - Location for waist circum.	mm	226	231	230	Pass
			Overall Test Results		Pass

Technician:



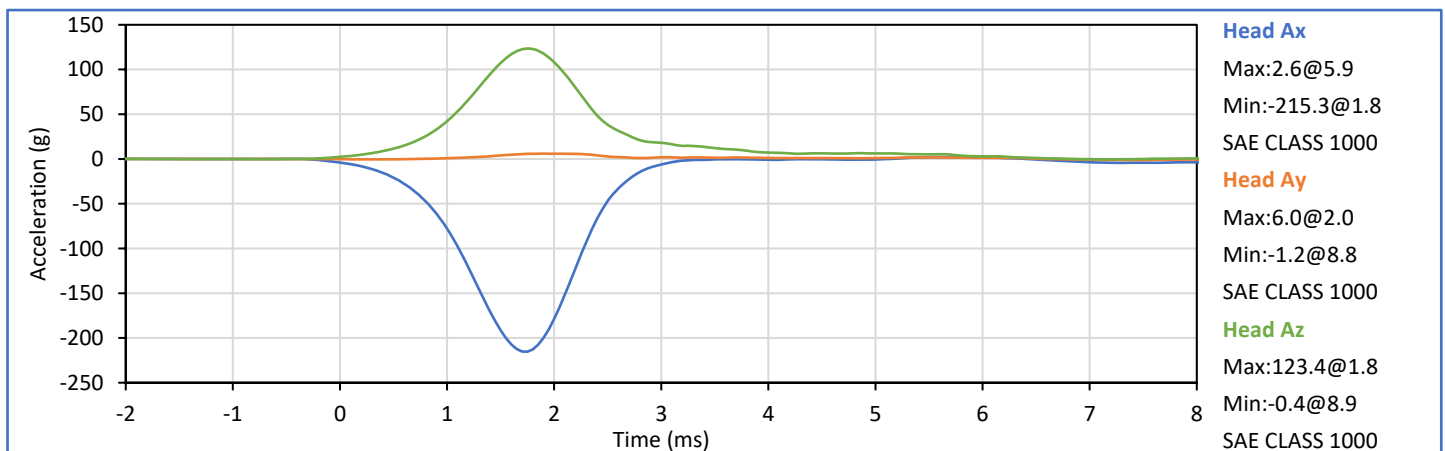
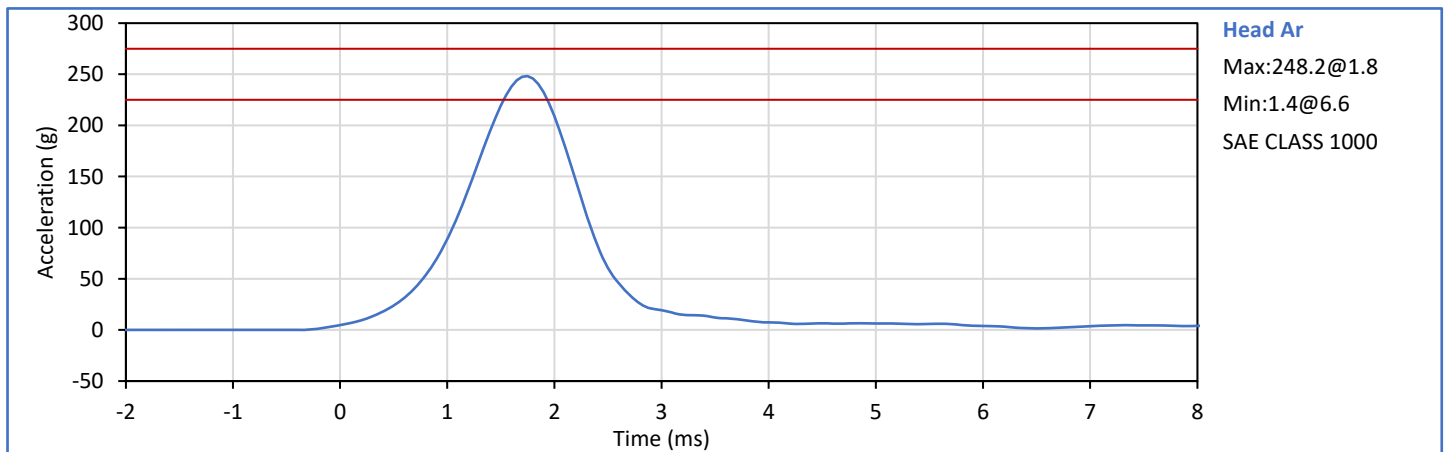
G. Fuentes

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	30	Pass
Peak Resultant Acceleration	g	225.0	275.0	248.2	Pass
Peak Lateral Acceleration	g	-15.0	15.0	6.0	Pass
Oscillations After Main Pulse	%	0.0	10.0	0.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



Technician:

G. Fuentes

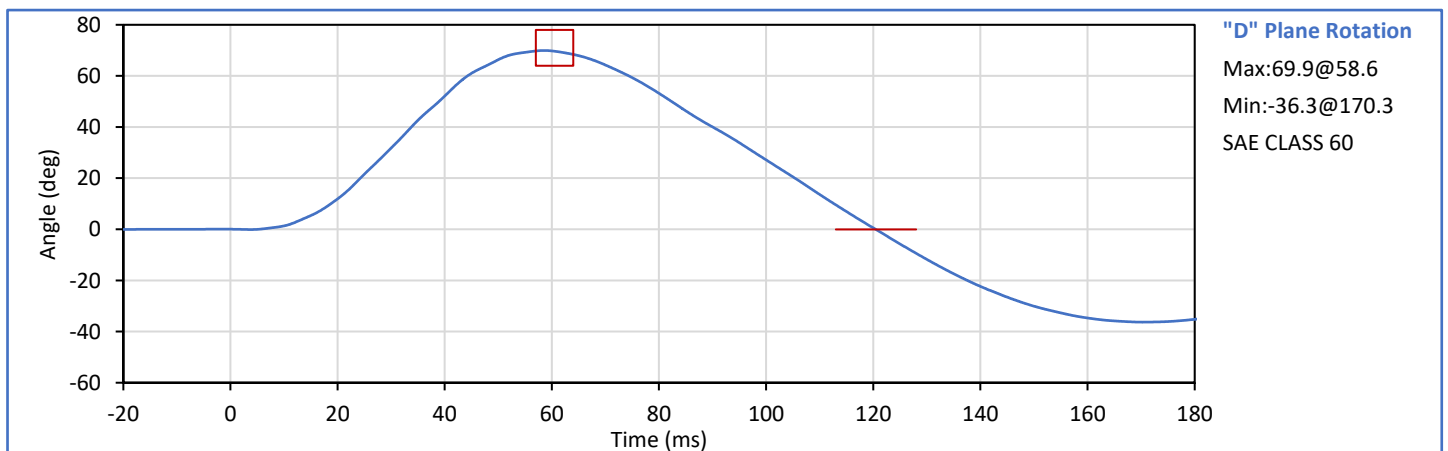
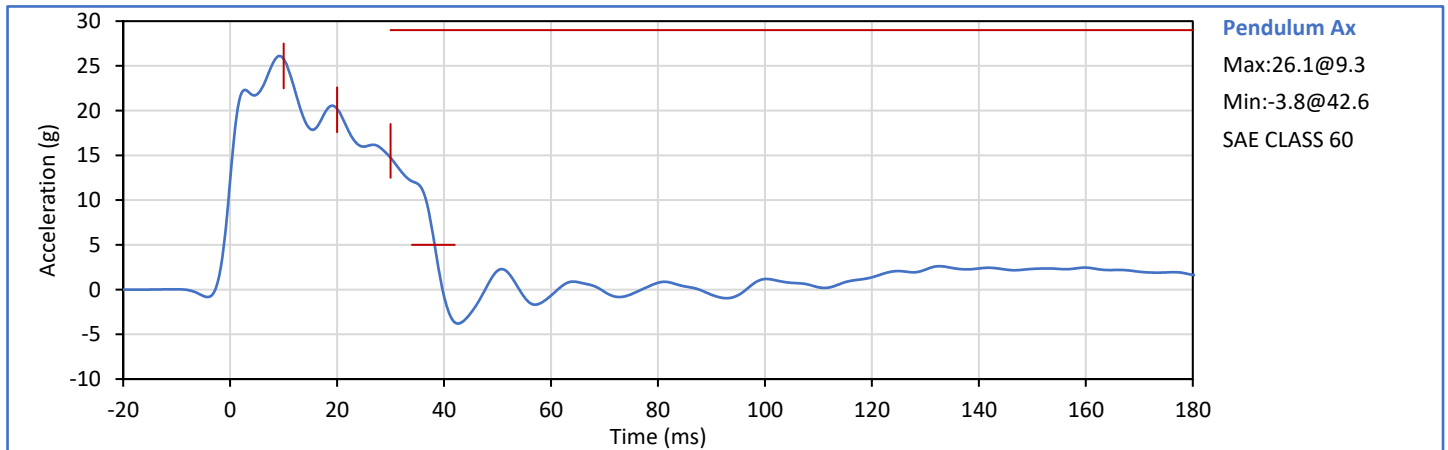
G. Fuentes

Approved By:

J. Hernandez

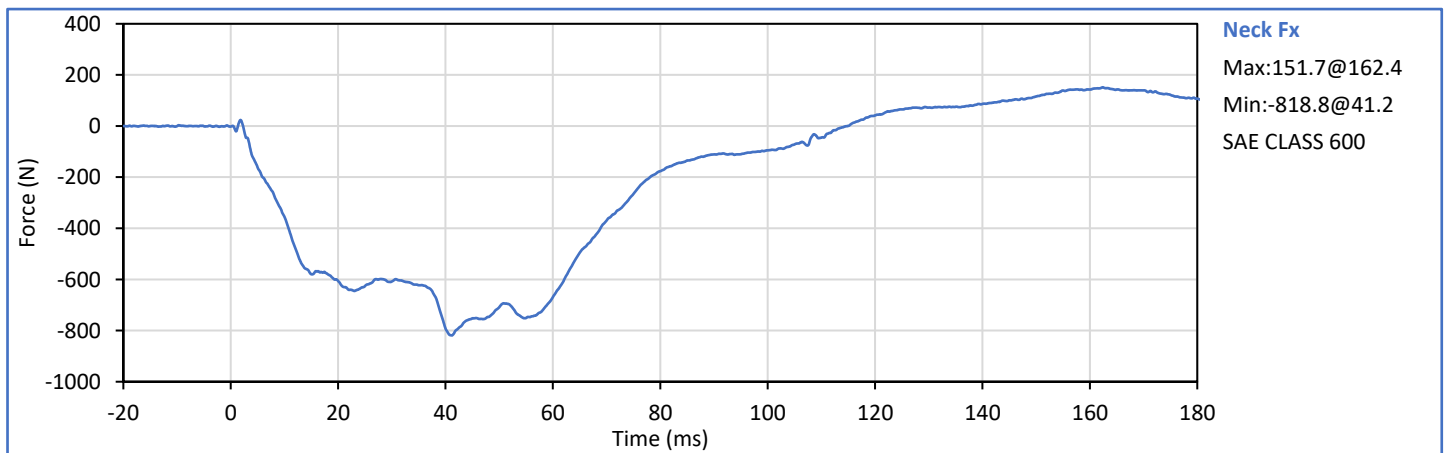
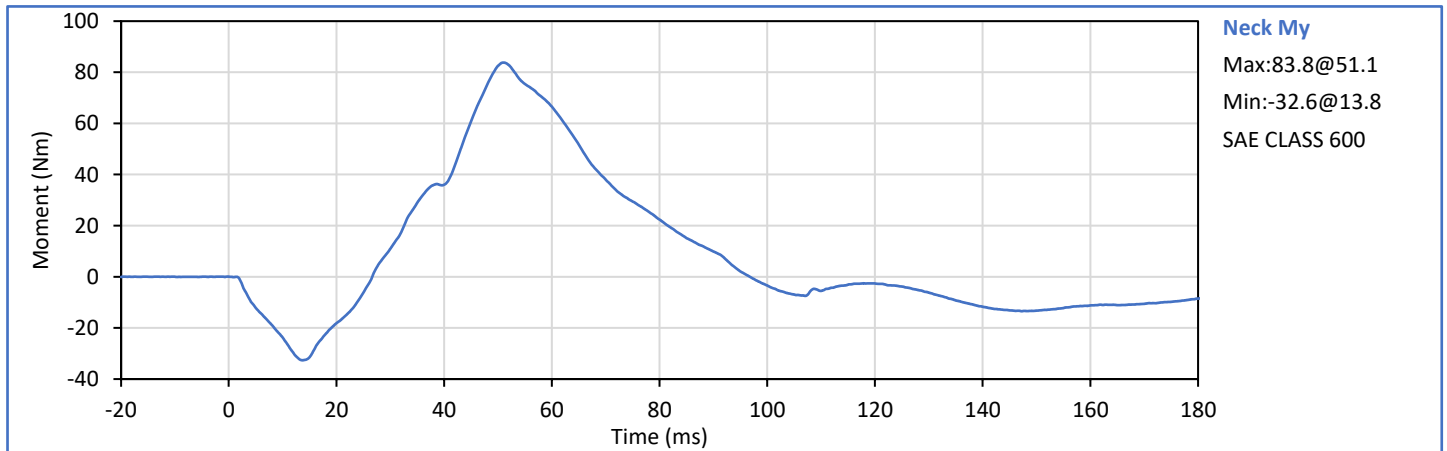
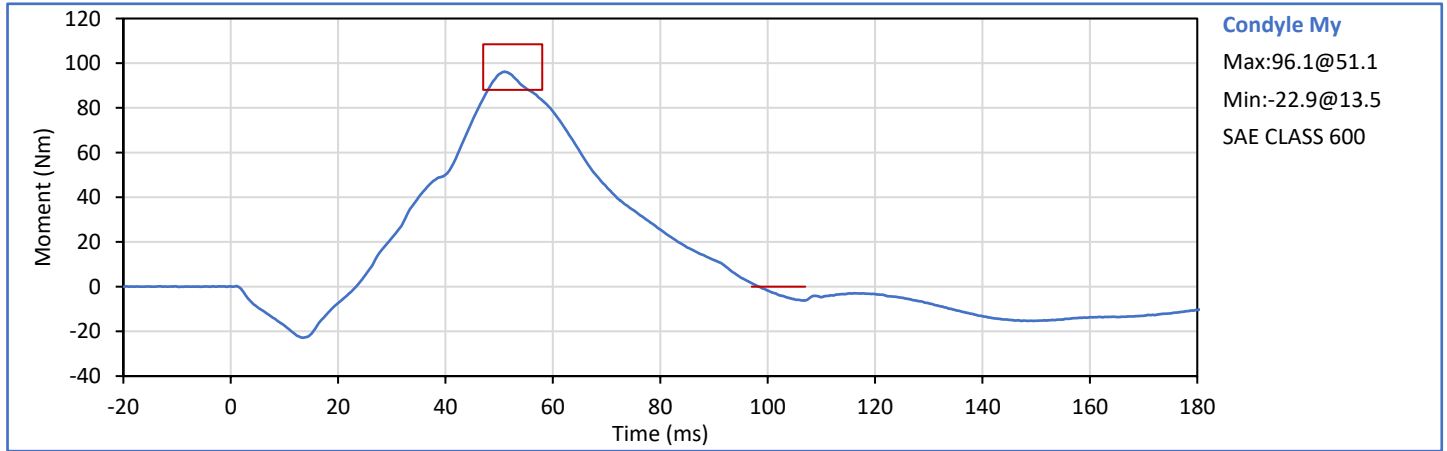
J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Pendulum Velocity	m/s	6.89	7.13	6.98	Pass
Pendulum Deceleration at 10 ms	g	22.5	27.5	25.8	Pass
Pendulum Deceleration at 20 ms	g	17.6	22.6	20.2	Pass
Pendulum Deceleration at 30 ms	g	12.5	18.5	14.7	Pass
Peak Pendulum Decel After 30 ms	g	0.0	29.0	14.7	Pass
Deceleration Decay to Cross 5g	ms	34.0	42.0	38.2	Pass
"D" Plane Rotation peak	deg	64.0	78.0	69.9	Pass
	ms	57.0	64.0	58.6	Pass
"D" Plane Rotation Decay to Zero	ms	113.0	128.0	120.5	Pass
Moment About Occipital Condyle	Nm	88.1	108.5	96.1	Pass
	ms	47.0	58.0	51.1	Pass
Moment Decay, Peak to Zero	ms	97.0	107.0	98.4	Pass
Overall Test Results				Pass	

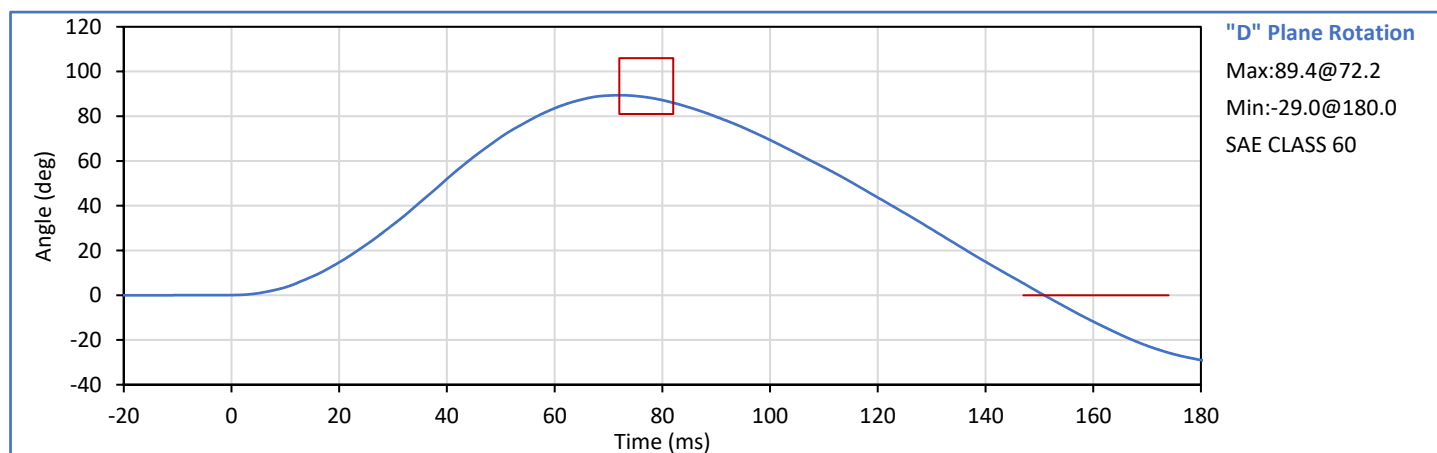
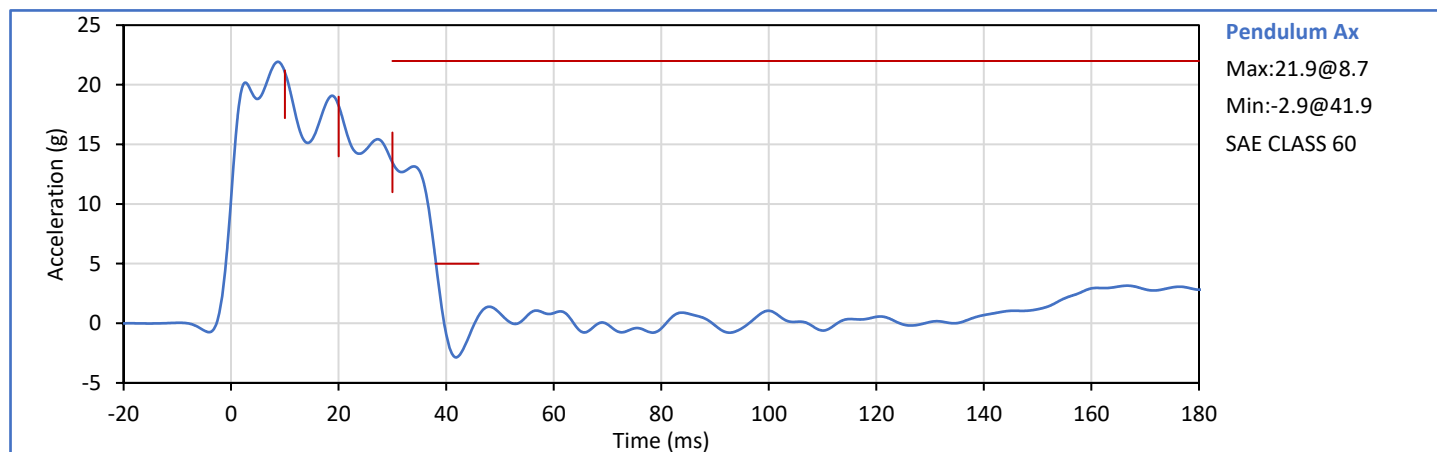


Technician: G. Fuentes

Approved By: J. Hernandez



Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	40	Pass
Pendulum Velocity	m/s	5.94	6.19	6.04	Pass
Pendulum Deceleration at 10 ms	g	17.2	21.2	21.1	Pass
Pendulum Deceleration at 20 ms	g	14.0	19.0	18.3	Pass
Pendulum Deceleration at 30 ms	g	11.0	16.0	13.5	Pass
Peak Pendulum Decel After 30 ms	g	0.0	22.0	13.5	Pass
Deceleration Decay to Cross 5g	ms	38.0	46.0	38.1	Pass
"D" Plane Rotation peak	deg	81.0	106.0	89.4	Pass
	ms	72.0	82.0	72.2	Pass
"D" Plane Rotation Decay to Zero	ms	147.0	174.0	151.0	Pass
Moment About Occipital Condyle	Nm	-79.9	-52.9	-67.2	Pass
	ms	65.0	79.0	66.4	Pass
Moment Decay, Peak to Zero	ms	120.0	148.0	128.0	Pass
Overall Test Results				Pass	



Technician:

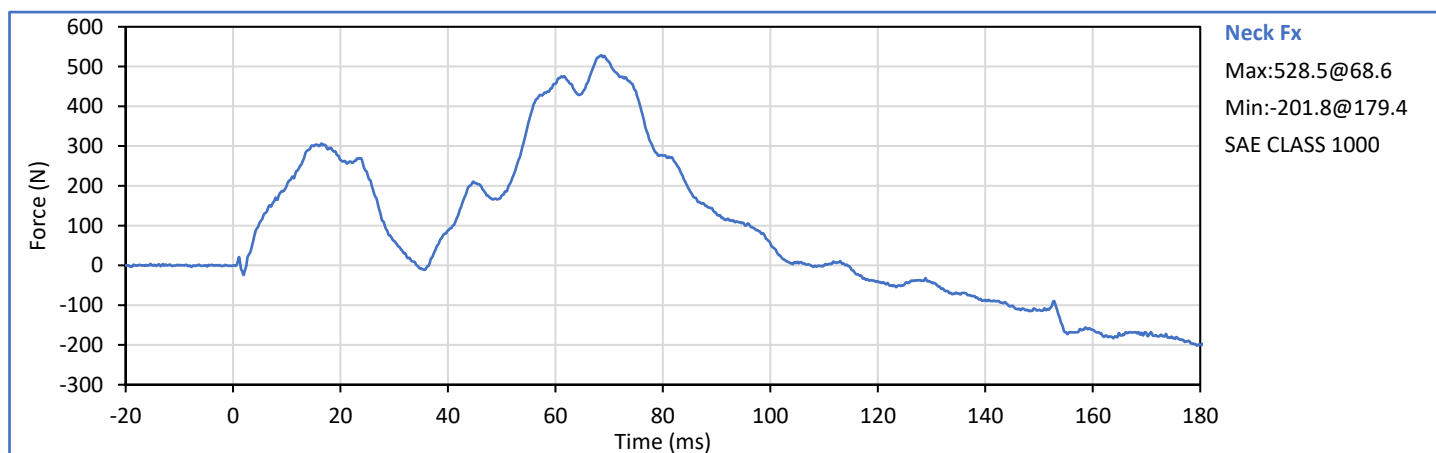
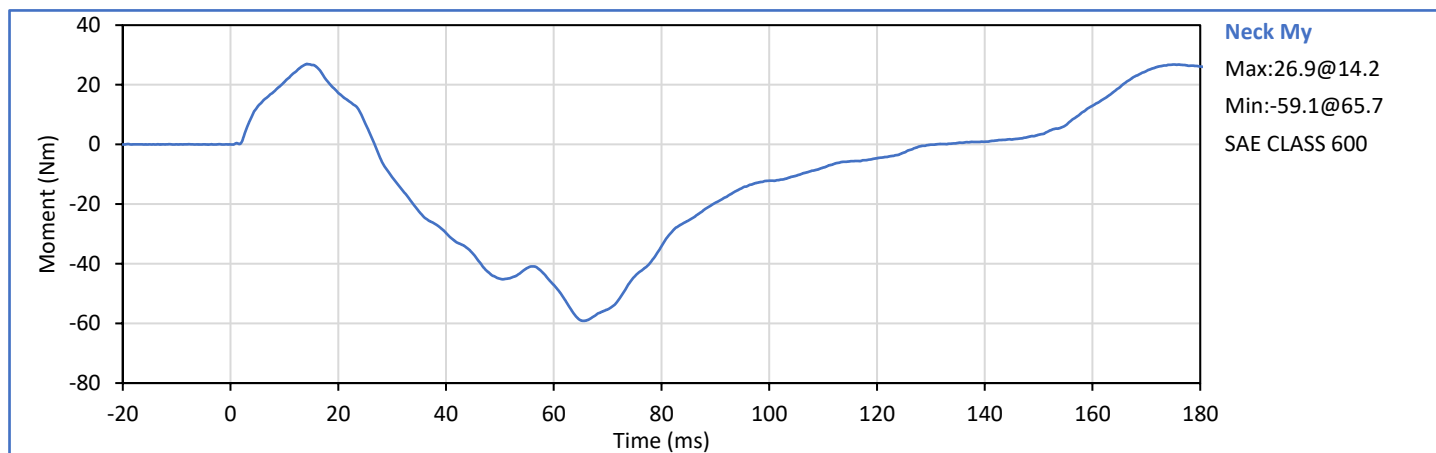
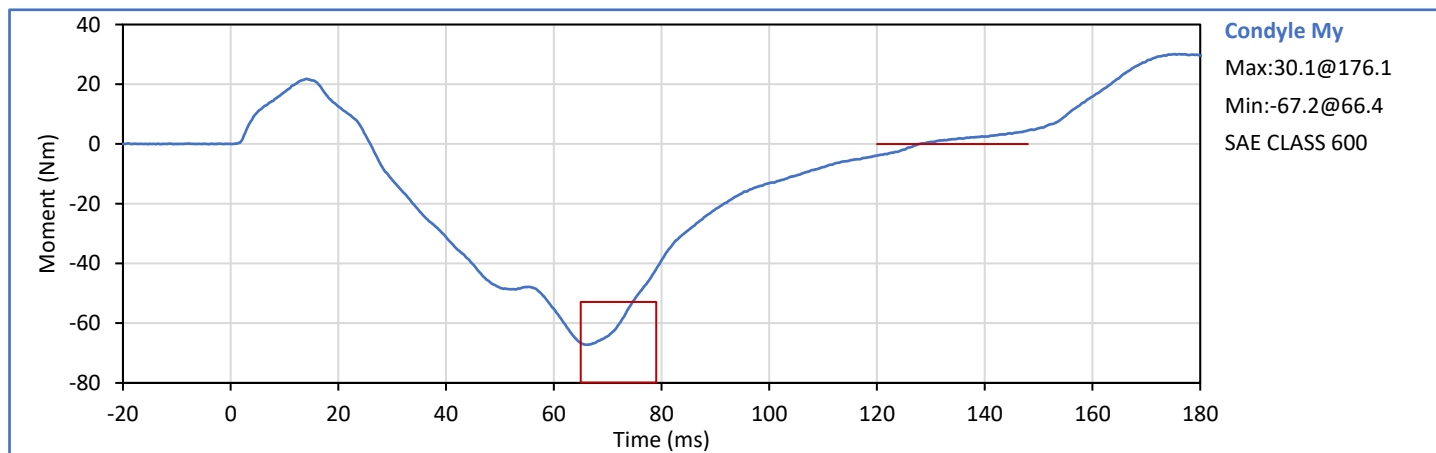
G. Fuentes

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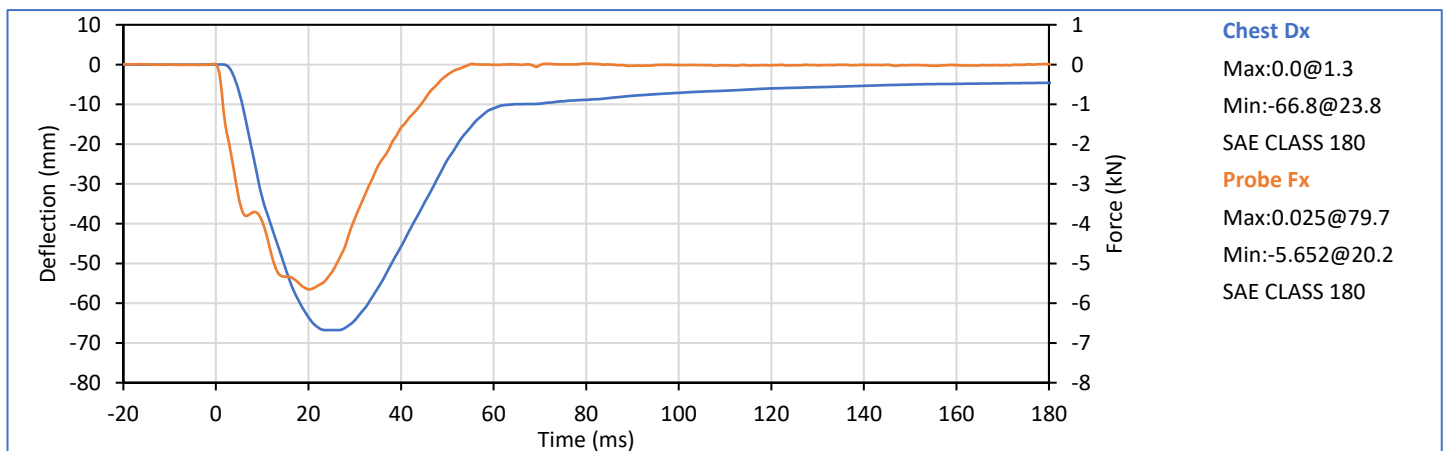
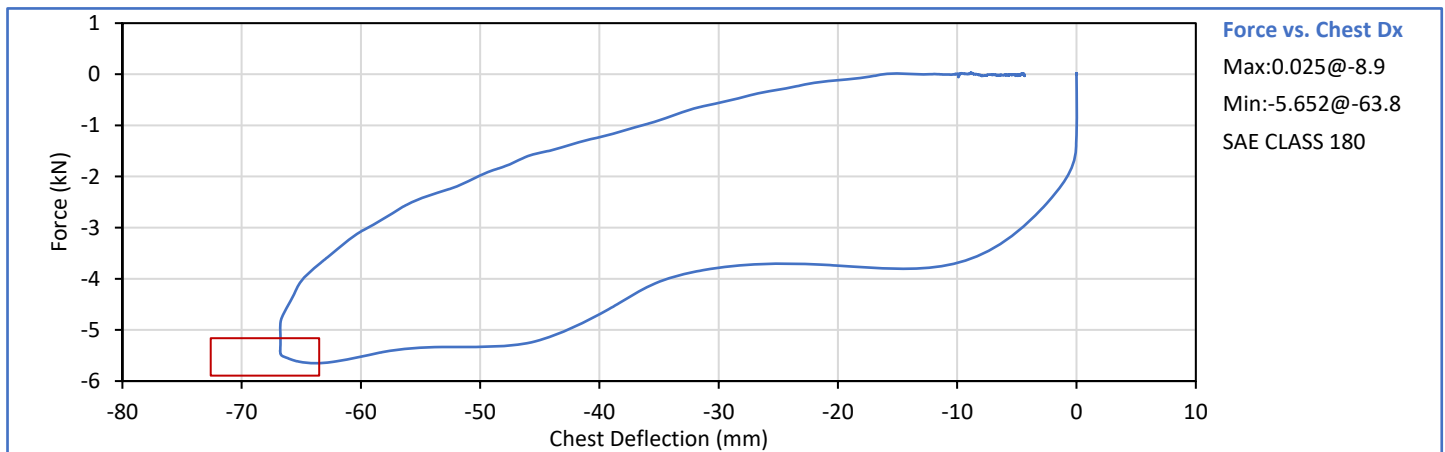
Approved By:

J. Hernandez

J. Hernandez



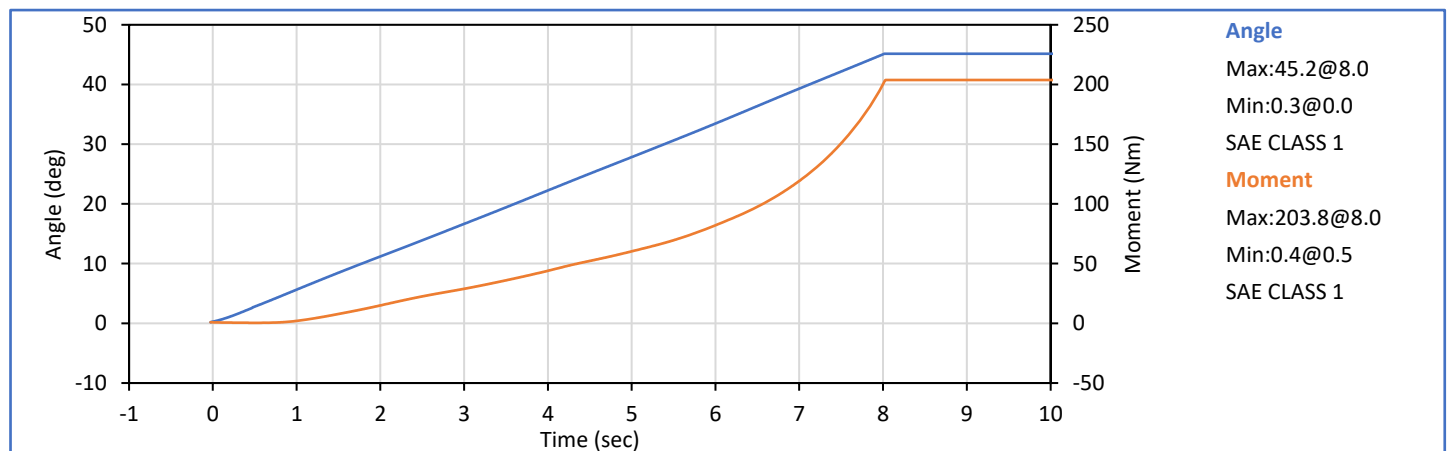
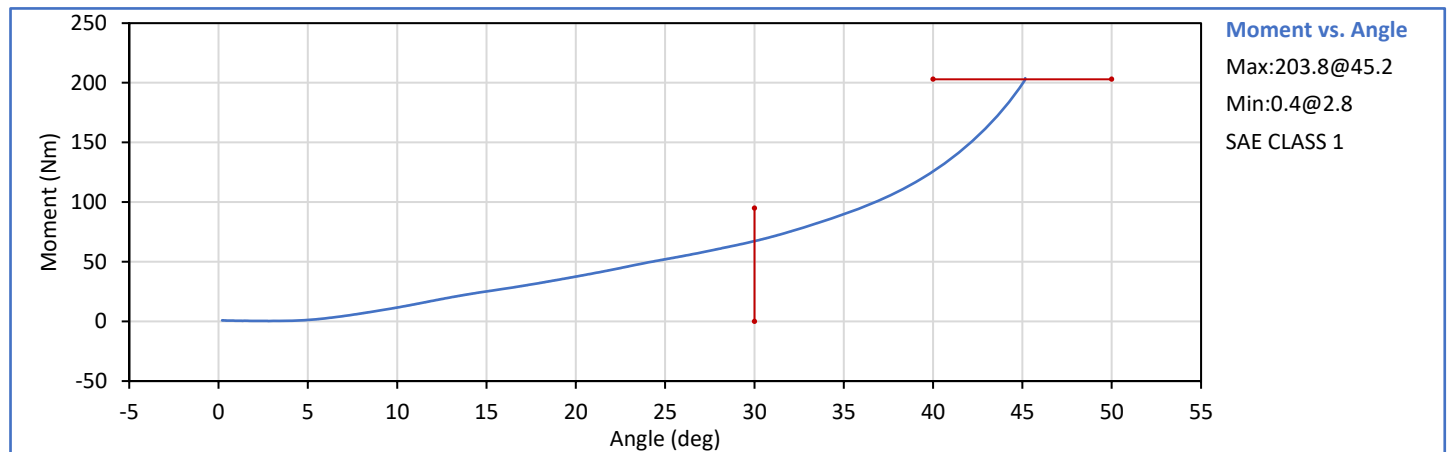
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.9	Pass
Laboratory Relative Humidity	%	10	70	33	Pass
Probe Velocity	m/s	6.58	6.82	6.71	Pass
Peak Chest Deflection	mm	-72.6	-63.5	-66.8	Pass
Peak Probe Force	kN	-5.893	-5.159	-5.652	Pass
Internal Hysteresis	%	69.0	85.0	72.9	Pass
Overall Test Results				Pass	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	34	Pass
Left Hip Rotation Rate	deg/s	5.0	10.0	5.6	Pass
Left Femur Torque at 30°	Nm	0.0	95.0	67.2	Pass
Left Hip Rotation at 203 Nm	deg	40.0	50.0	45.2	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

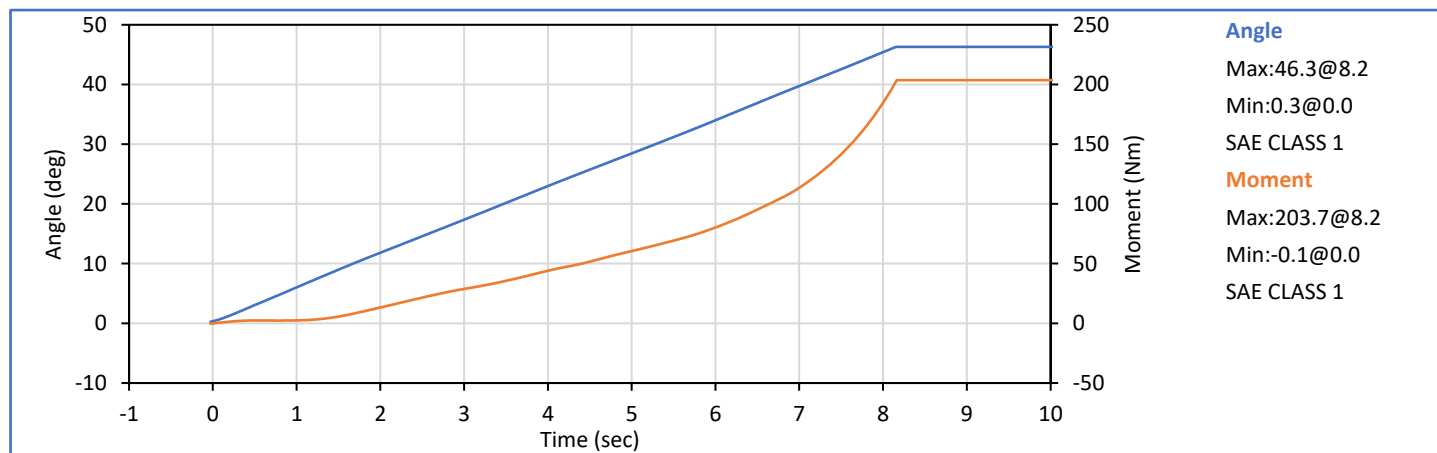
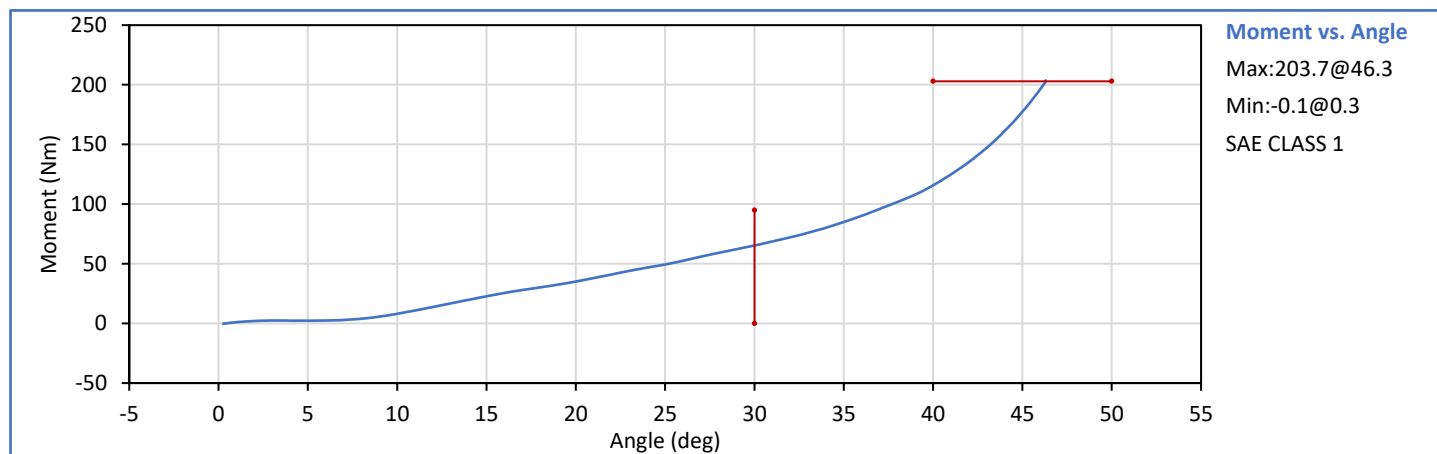
G. Fuentes

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Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	22.1	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Right Hip Rotation Rate	deg/s	5.0	10.0	5.7	Pass
Right Femur Torque at 30°	Nm	0.0	95.0	65.3	Pass
Right Hip Rotation at 203 Nm	deg	40.0	50.0	46.3	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

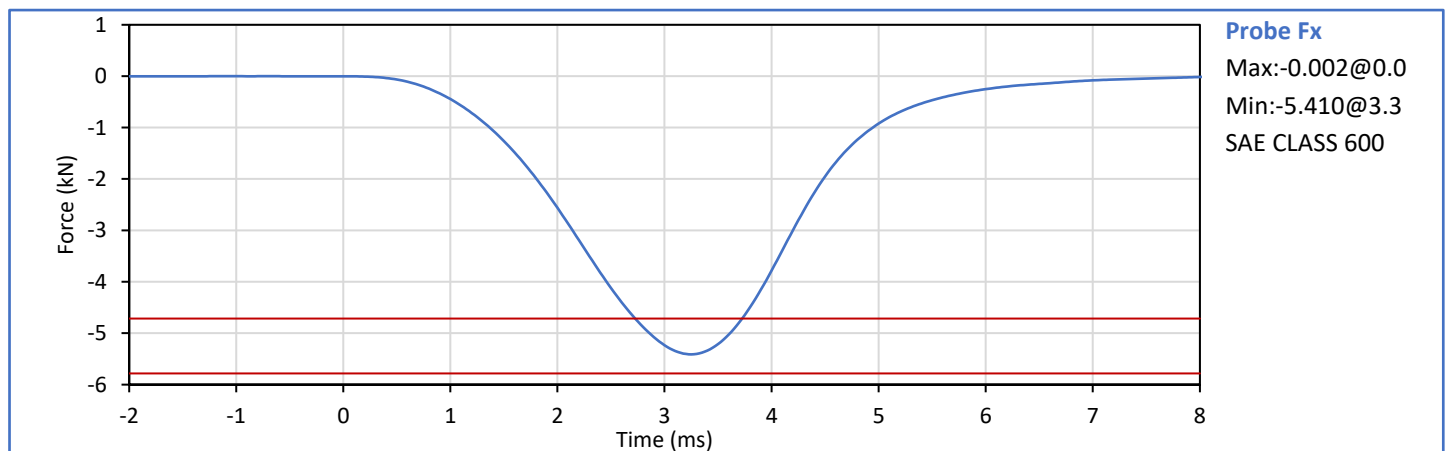
G. Fuentes

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J. Hernandez

J. Hernandez

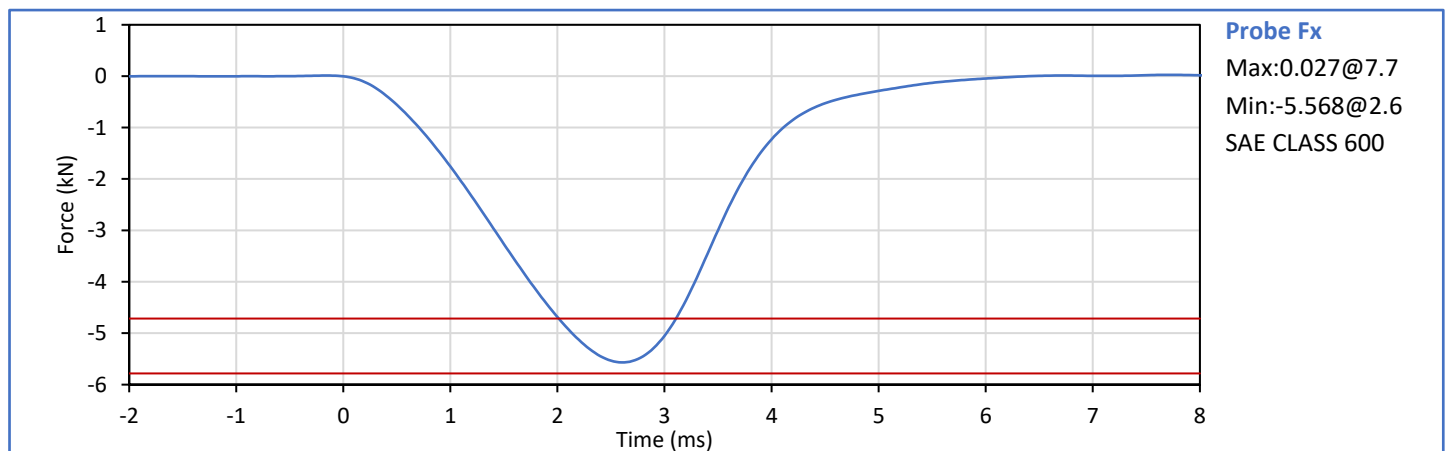
Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Probe Velocity	m/s	2.070	2.130	2.105	Pass
Peak Resistive Force	kN	-5.782	-4.715	-5.410	Pass
Overall Test Results					Pass



Technician: G. Fuentes

Approved By: J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.3	Pass
Laboratory Relative Humidity	%	10	70	34	Pass
Probe Velocity	m/s	2.070	2.130	2.103	Pass
Peak Resistive Force	kN	-5.782	-4.715	-5.568	Pass
Overall Test Results					Pass



Technician: G. Fuentes

Approved By: J. Hernandez

APPENDIX C
Post-Test ATD Qualification and Performance Verification
Hybrid III 5th Percentile Female ATD
S/N: DH1644

ATD Serial No.: DH1644

Test Date: 2022-12-07

Dummy Item	Inspect for	Comments	Damage	Okay
Entire ATD	Perform general cleaning			✓
Outer Skin	Gashes, rips, cracks			✓
Head	Ballast secure			✓
	General appearance			✓
Neck bracket	Upper neck firmly attached to lower bracket			✓
Neck	Broken or cracked rubber			✓
	Looseness at the condyle joint			✓
Nodding block	Cracked or out of position			✓
Lumbar Spine	Broken or cracked rubber			✓
Ribs	Broken or bent ribs			✓
	Broken or bent rib supports			✓
	Damping material separated or cracked			✓
	Rubber bumpers in place			✓
Chest Displ.	Bent shaft			✓
Assembly	Slider arm riding in track			✓
Sensors	Check cables for cuts, tears			✓
	Check for damaged insulation			✓
Accelerometer	Head mounting secure			✓
Mounting	Chest mounting secure			✓
Knees	Skin condition			✓
	Insert (do not remove)			✓
	Casting			✓
Limbs	Normal movement and adjustment			✓
Knee Sliders	Wires intact			✓
	Rubber returned to "resting" position			✓
Pelvis	Broken			✓
Other	Describe below as needed			✓

Describe any repairs or replacement of parts or other findings:

No Problems Found

Technician: _____

G. Fuentes

Approved By: _____

J. Hernandez

ATD Serial No.: DH1644

Test Date: 2022-12-07

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.1	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
A - Total sitting height	mm	775	800	784	Pass
B - Shoulder pivot height	mm	432	457	444	Pass
C - 'H' point height	mm	81	86	86	Pass
D - 'H' point location from backline	mm	145	150	148	Pass
E - Shoulder pivot from backline	mm	69	84	73	Pass
F - Thigh clearance	mm	119	135	126	Pass
G - Back of elbow to wrist pivot	mm	244	259	255	Pass
H - Head back to backline	mm	41	46	43	Pass
I - Shoulder to elbow length	mm	277	297	288	Pass
J - Elbow rest height	mm	183	203	189	Pass
K - Buttock to knee length	mm	521	546	535	Pass
L - Popliteal length	mm	356	376	371	Pass
M - Knee pivot height	mm	394	419	405	Pass
N - Buttock popliteal length	mm	414	439	422	Pass
O - Chest depth without jacket	mm	175	191	183	Pass
P - Foot length	mm	219	234	231	Pass
R - Buttock to Knee Pivot Length	mm	457	483	473	Pass
S - Head Breadth	mm	137	147	144	Pass
T - Head Depth	mm	178	188	187	Pass
U - Hip Breadth	mm	300	315	303	Pass
V - Shoulder breadth	mm	351	366	359	Pass
W - Foot breadth	mm	79	94	91	Pass
X - Head circum.	mm	528	549	540	Pass
Y - Chest circum. (w/chest jacket)	mm	851	881	871	Pass
Z - Waist circum.	mm	760	790	772	Pass
AA - Location for chest circum.	mm	333	358	344	Pass
BB - Location for waist circum.	mm	160	170	165	Pass
			Overall Test Results		Pass

Technician:



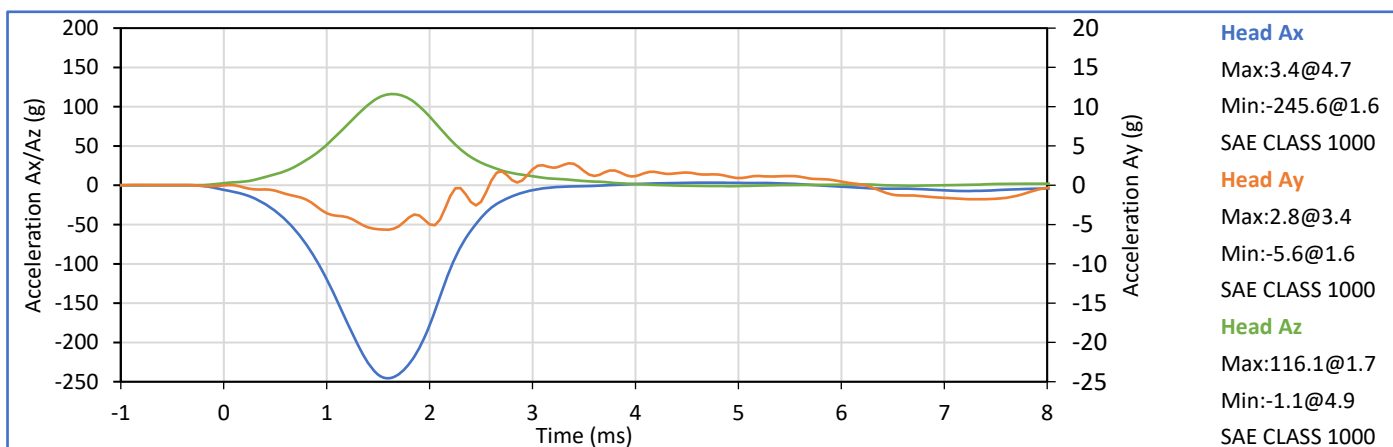
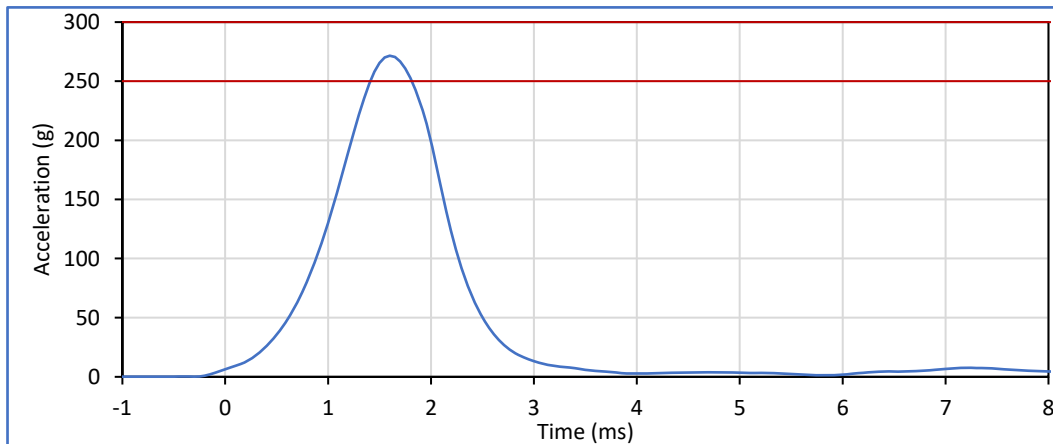
G. Fuentes

Approved By:



J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.5	Pass
Laboratory Humidity	%	10	70	33	Pass
Peak Resultant Acceleration	g	250.0	300.0	271.6	Pass
Peak Lateral Acceleration	g	-15.0	15.0	-5.6	Pass
Oscillations After Main Pulse	%	0.0	10.0	2.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results	Pass	



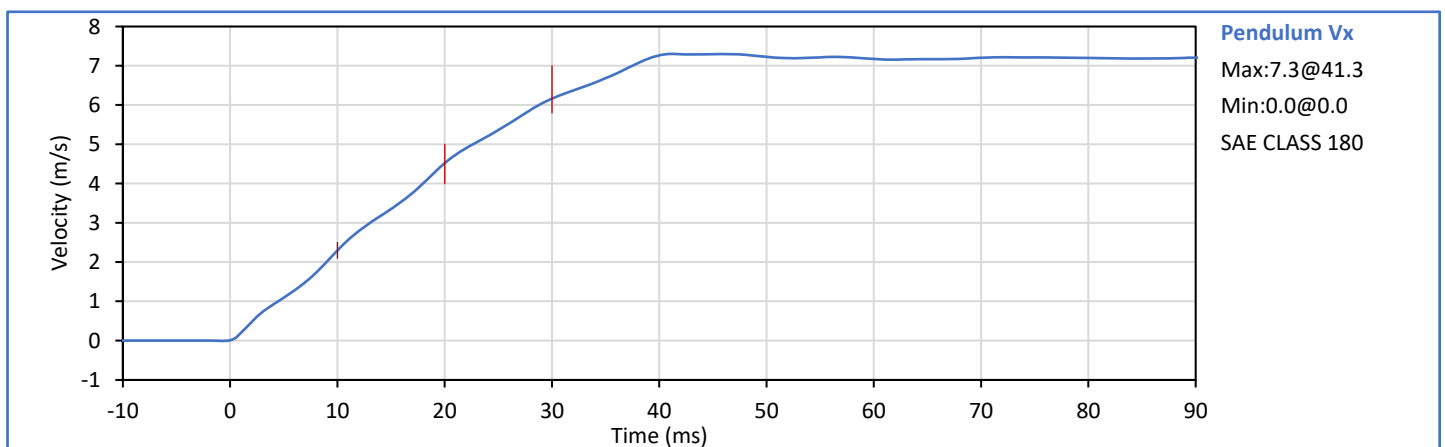
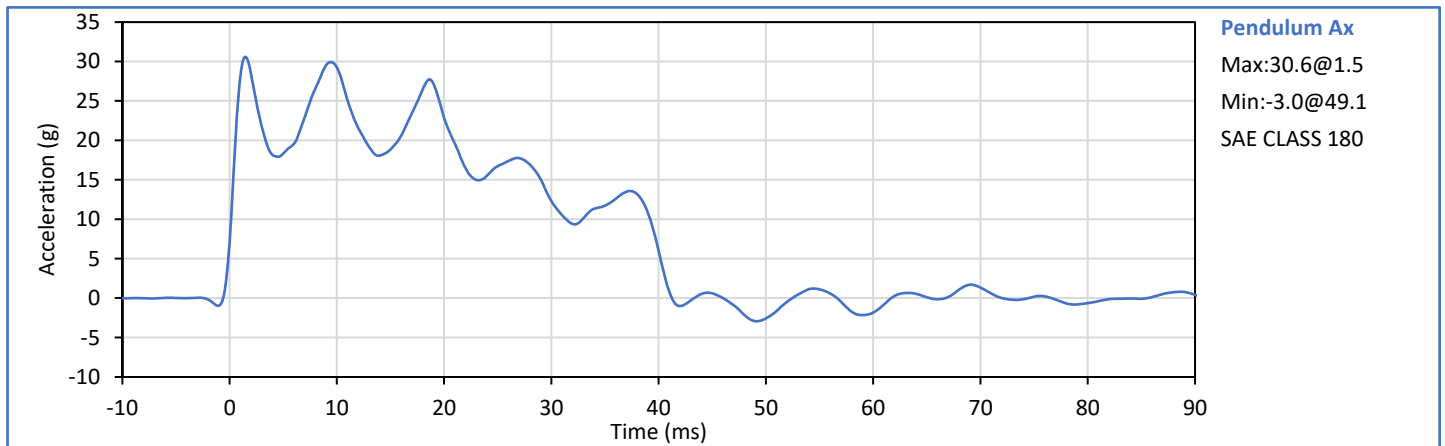
Technician:

G. Fuentes

Approved By:

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Humidity	%	10	70	30	Pass
Pendulum Velocity	m/s	6.89	7.13	6.95	Pass
Pendulum Velocity at 10 ms	m/s	2.10	2.50	2.29	Pass
Pendulum Velocity at 20 ms	m/s	4.00	5.00	4.52	Pass
Pendulum Velocity at 30 ms	m/s	5.80	7.00	6.16	Pass
Peak "D" Plane Rotation	deg	77.0	91.0	88.2	Pass
Peak Moment in Rotation	Nm	69.0	83.0	77.0	Pass
Positive Moment Decay to 10 Nm	ms	80.0	100.0	85.0	Pass
Overall Test Results					Pass



Technician:

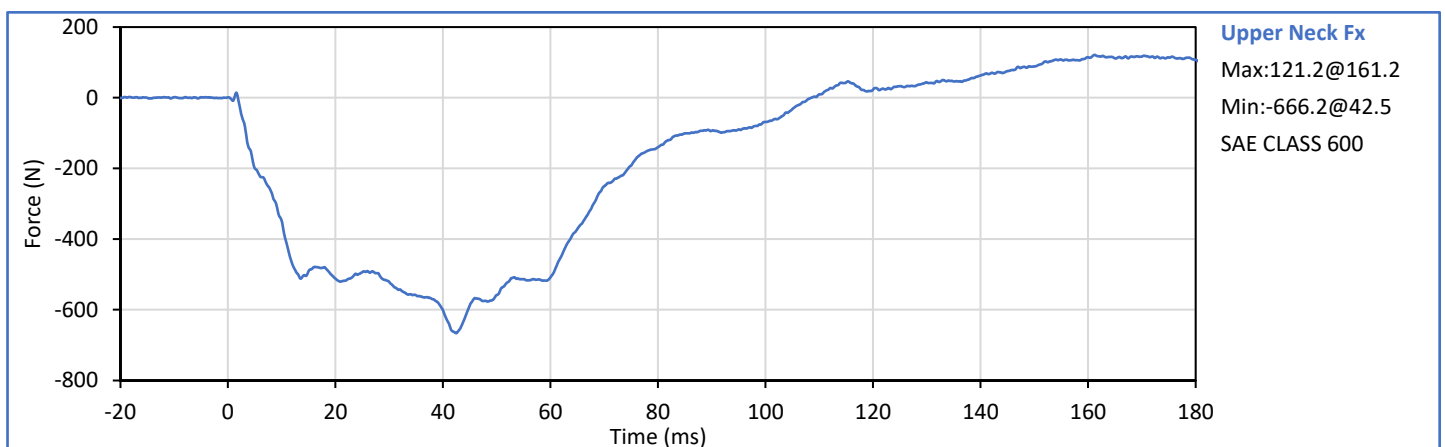
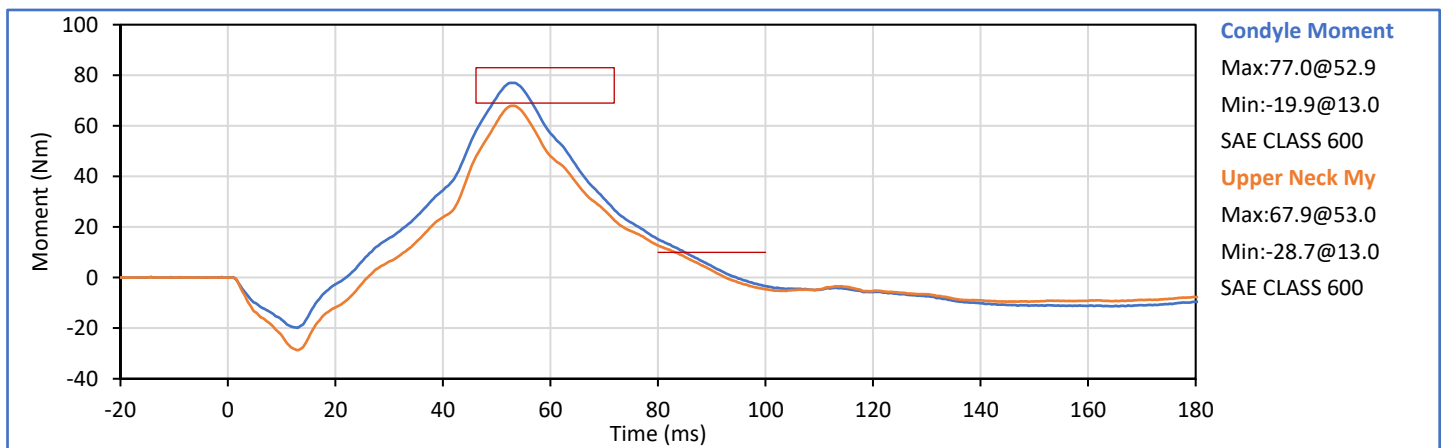
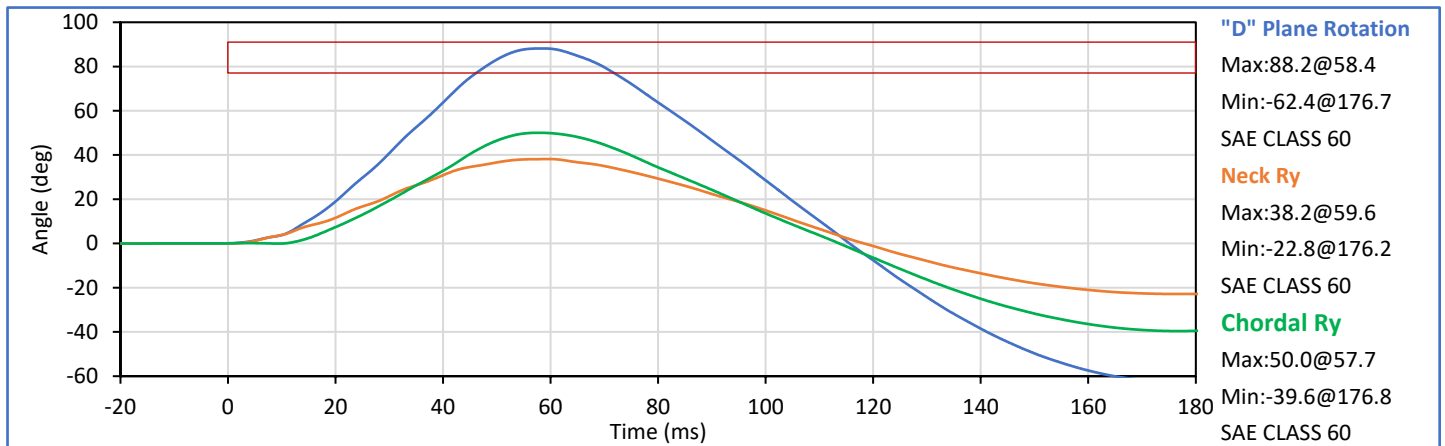
G. Fuentes

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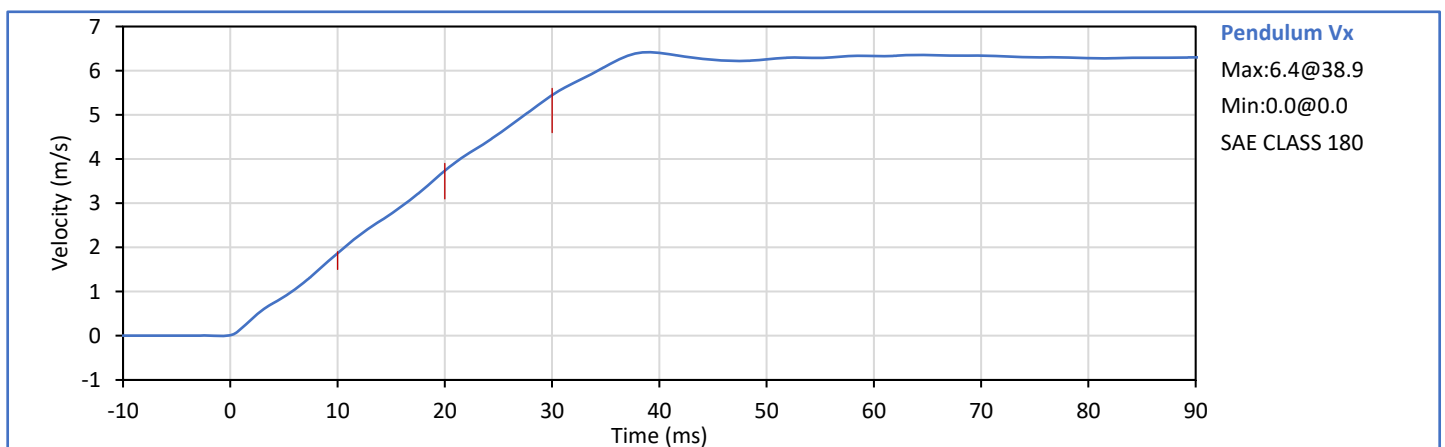
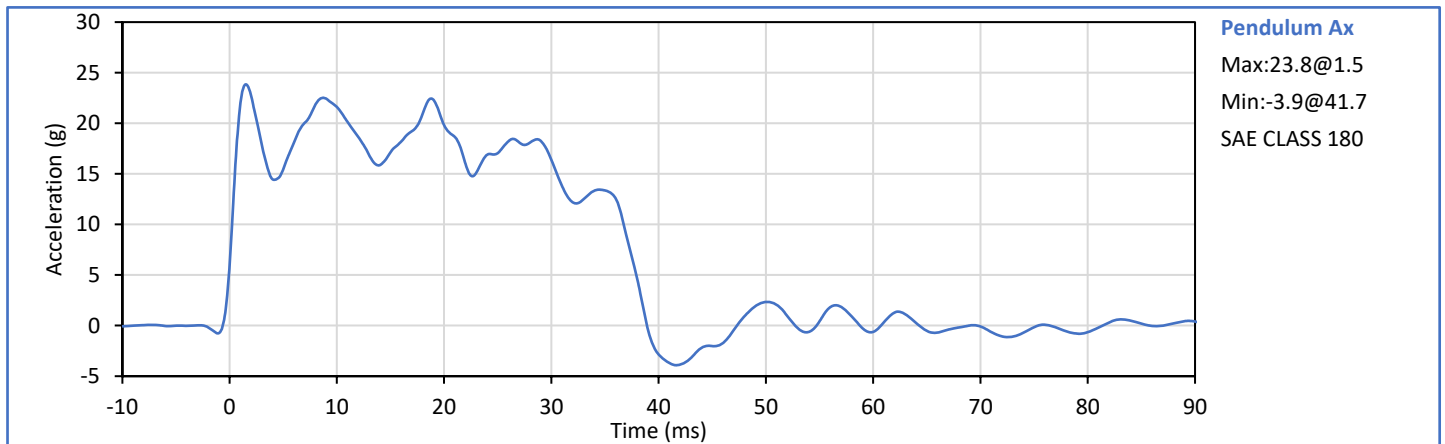
Approved By:

J. Hernandez

J. Hernandez



Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.2	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Pendulum Velocity	m/s	5.95	6.19	6.08	Pass
Pendulum Velocity at 10 ms	m/s	1.50	1.90	1.87	Pass
Pendulum Velocity at 20 ms	m/s	3.10	3.90	3.73	Pass
Pendulum Velocity at 30 ms	m/s	4.60	5.60	5.44	Pass
Peak "D" Plane Rotation	deg	99.0	114.0	102.0	Pass
Peak Moment in Rotation	Nm	-65.0	-53.0	-61.5	Pass
Negative Moment Decay to -10 Nm	ms	94.0	114.0	97.5	Pass
Overall Test Results					Pass



Technician:

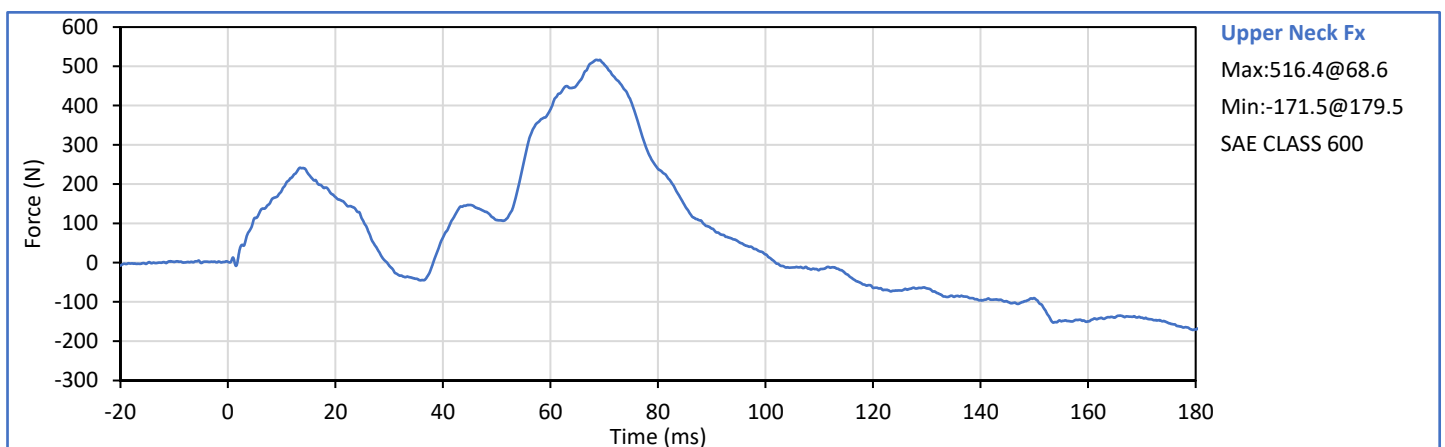
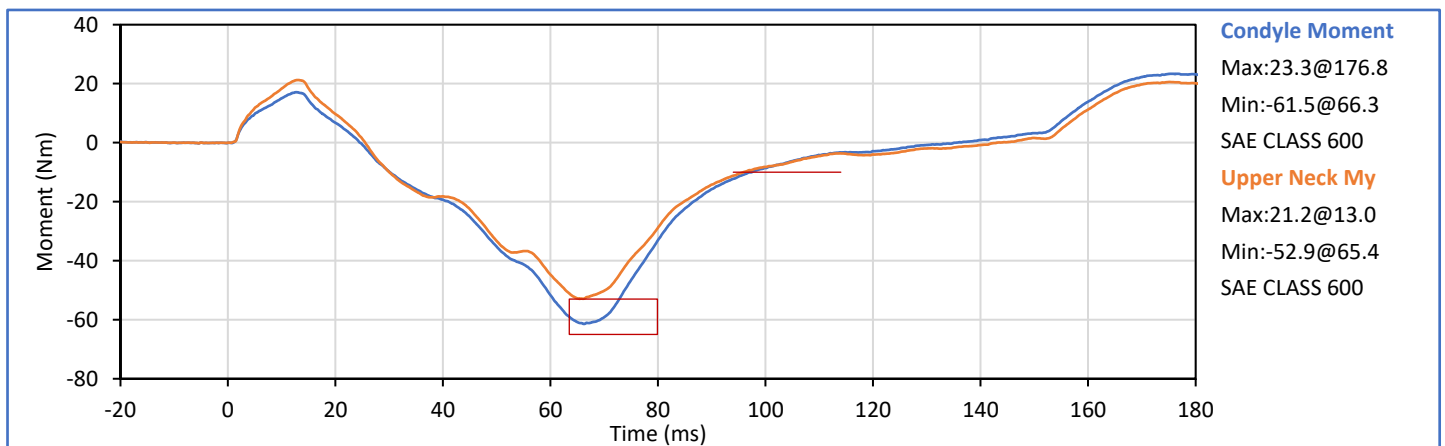
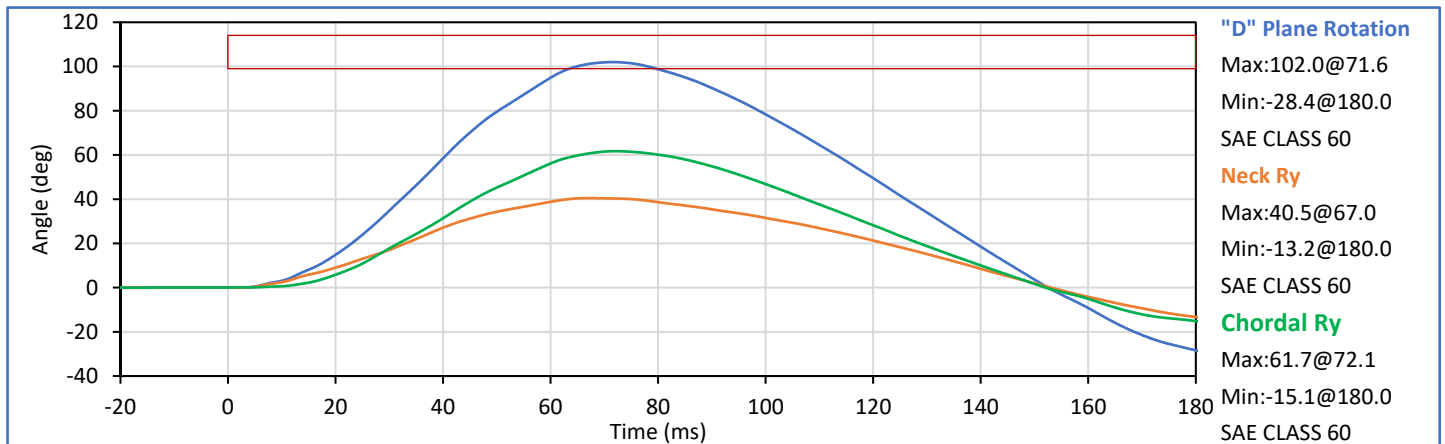
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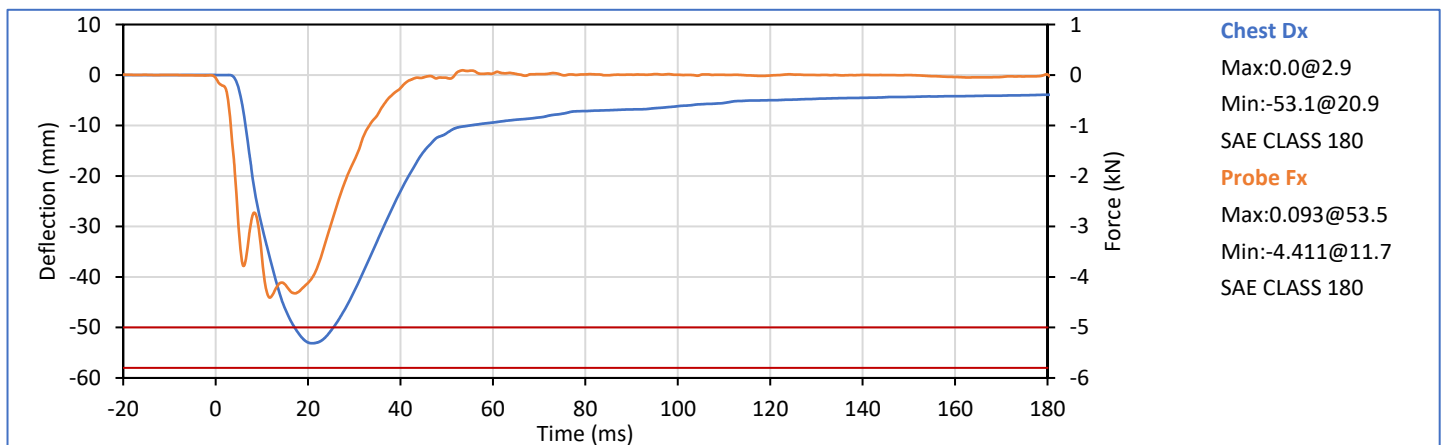
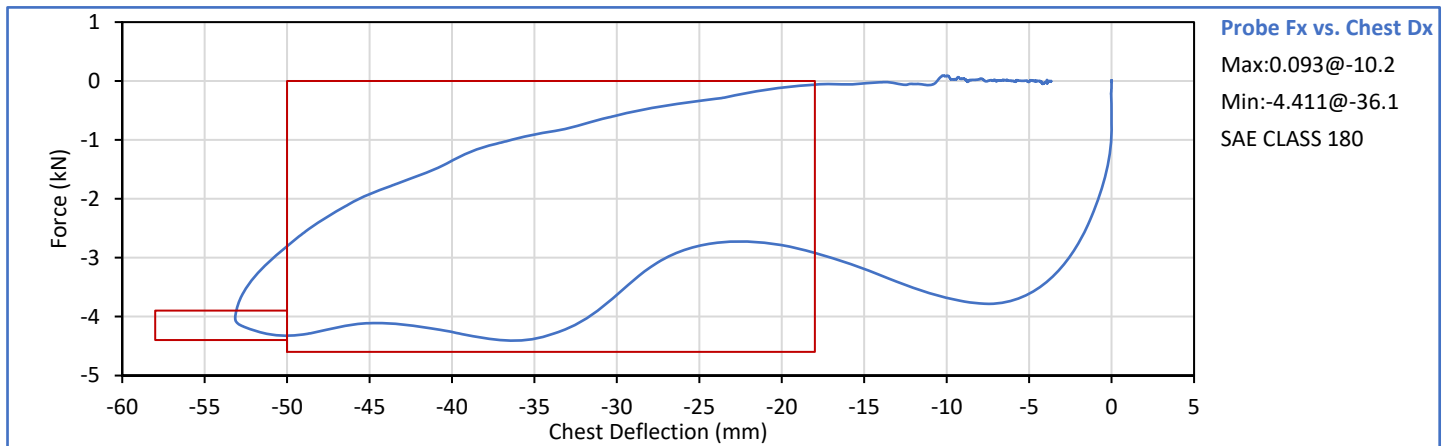
Approved By:

J. Hernandez

J. Hernandez



Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory RelativeHumidity	%	10	70	33	Pass
Probe Velocity	m/s	6.59	6.83	6.71	Pass
Peak Chest Deflection	mm	-58.0	-50.0	-53.1	Pass
Peak Probe Force, 50 and 58 mm	kN	-4.400	-3.900	-4.325	Pass
Peak Probe Force, 18 and 50 mm	kN	-4.600	0.000	-4.411	Pass
Internal Hysteresis	%	69.0	85.0	77.4	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

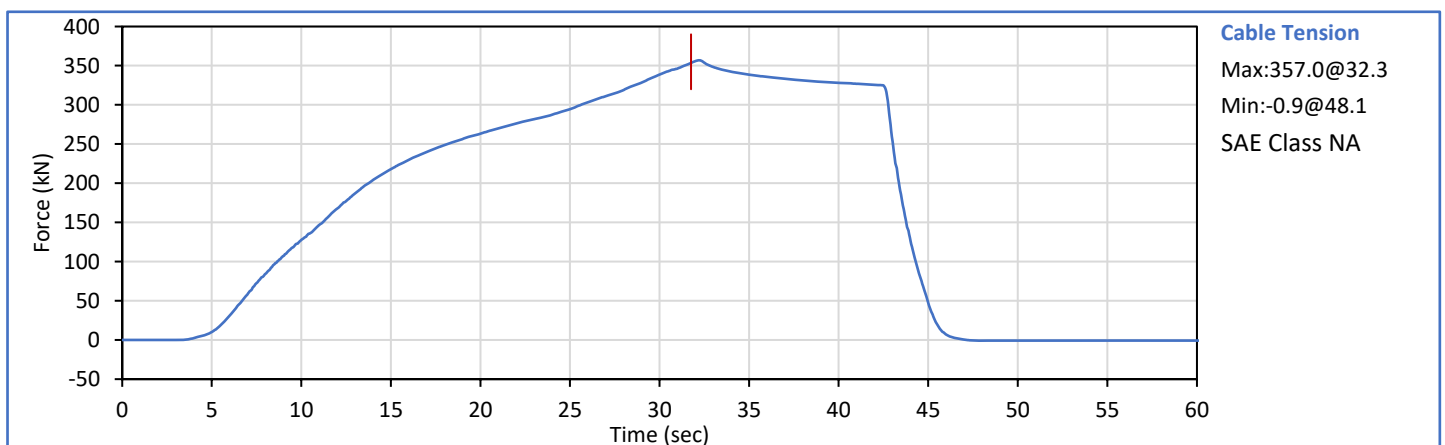
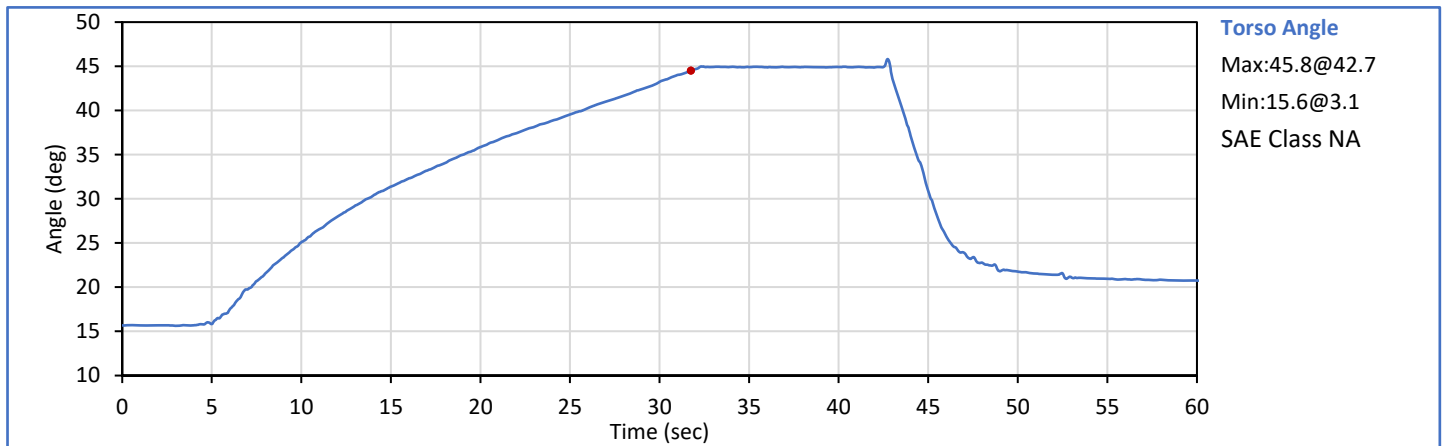
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.2	Pass
Laboratory Humidity	%	10	70	34	Pass
Orientation Angle	deg	0.0	20.0	14.2	Pass
Test Initial Angle	deg	11.0	19.0	15.7	Pass
Peak Force at 45° (+/-0.5°)	N	320.0	390.0	353.5	Pass
Torso Flexion Rate	deg/s	0.50	1.50	1.08	Pass
Final Reference Plane Angle	deg	-8.0	8.0	4.5	Pass
Overall Test Results				Pass	Pass



Technician:

G. Fuentes

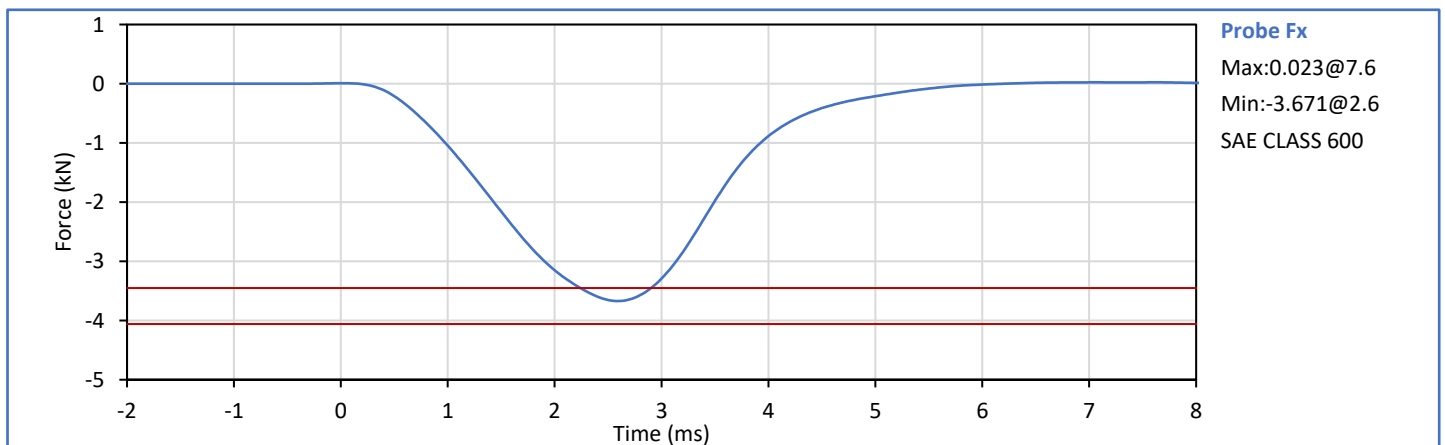
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.0	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Probe Velocity	m/s	2.070	2.130	2.109	Pass
Peak Resistive Force	kN	-4.060	-3.450	-3.671	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

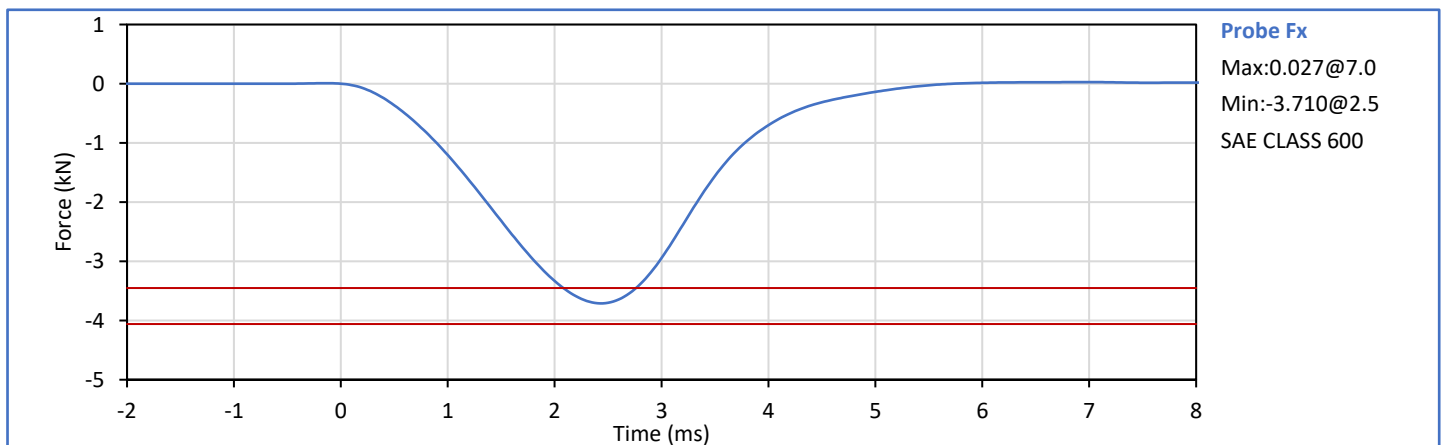
G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	20.9	Pass
Laboratory Relative Humidity	%	10	70	35	Pass
Probe Velocity	m/s	2.070	2.130	2.107	Pass
Peak Resistive Force	kN	-4.060	-3.450	-3.710	Pass
Overall Test Results					Pass



Technician:

G. Fuentes

G. Fuentes

Approved By:

J. Hernandez

J. Hernandez

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

Table 1 - Driver ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P49209	Endevco	7264C-2k	2022-11-17
Head Acceleration Y Primary	P49228	Endevco	7264C-2k	2022-11-17
Head Acceleration Z Primary	P50101	Endevco	7264C-2k	2022-11-17
Head Acceleration X Redundant	P50103	Endevco	7264C-2k	2022-11-17
Head Acceleration Y Redundant	P49210	Endevco	7264C-2k	2022-11-17
Head Acceleration Z Redundant	P58713	Endevco	7264C-2k	2022-11-17
Head Rotation Rate X	ARS7587	DTS	ARS PRO-8k (2kHz)	2022-03-15
Head Rotation Rate Y	ARS7426	DTS	ARS PRO-8k (2kHz)	2022-03-15
Head Rotation Rate Z	ARS7480	DTS	ARS PRO-8k (2kHz)	2022-03-15
Upper Neck Force X	782 Fx	R.A. Denton	1716A	2022-03-30
Upper Neck Force Y	782 Fy	R.A. Denton	1716A	2022-03-30
Upper Neck Force Z	782 Fz	R.A. Denton	1716A	2022-03-30
Upper Neck Moment X	782 Mx	R.A. Denton	1716A	2022-03-30
Upper Neck Moment Y	782 My	R.A. Denton	1716A	2022-03-30
Upper Neck Moment Z	782 Mz	R.A. Denton	1716A	2022-03-30
Chest Acceleration X Primary	P52112	Endevco	7264C-2k	2022-11-18
Chest Acceleration Y Primary	P49208	Endevco	7264C-2k	2022-11-18
Chest Acceleration Z Primary	P51264	Endevco	7264C-2k	2022-11-18
Chest Acceleration X Redundant	P49461	Endevco	7264C-2k	2022-11-18
Chest Acceleration Y Redundant	P58774	Endevco	7264C-2k	2022-11-18
Chest Acceleration Z Redundant	P49168	Endevco	7264C-2k	2022-11-18
Chest Deflection	0606 (H3)	Servo	14CBI-3615	2022-11-21
Pelvis Acceleration X	P49238	Endevco	7264C-2k	2022-11-21
Pelvis Acceleration Y	P58877	Endevco	7264C-2k	2022-11-21
Pelvis Acceleration Z	P50087	Endevco	7264C-2k	2022-11-21
Left Femur Force Z	107 (pri)	R.A. Denton	3821JTF	2022-03-29
Right Femur Force Z	DS4139 (pri)	Humanetics	3821JLN2	2022-04-29
Left Femur Force Z Redundant	107 (red)	R.A. Denton	3821JTF	2022-03-29
Right Femur Force Z Redundant	DS4139 (red)	Humanetics	3821JLN2	2022-04-29
Left Upper Tibia Moment X	DH3054 Mx	R.A. Denton	IF-857	2022-03-28
Left Upper Tibia Moment Y	DH3054 My	R.A. Denton	IF-857	2022-03-28
Left Upper Tibia Force Z	DH3054 Fz	R.A. Denton	IF-857	2022-03-28
Left Lower Tibia Moment X	497 Mx	R.A. Denton	3644	2022-03-29
Left Lower Tibia Moment Y	497 My	R.A. Denton	3644	2022-03-29
Left Lower Tibia Force Z	497 Fz	R.A. Denton	3644	2022-03-29
Right Upper Tibia Moment X	DH3302 Mx	FTSS	IF-857	2022-03-29
Right Upper Tibia Moment Y	DH3302 My	FTSS	IF-857	2022-03-29
Right Upper Tibia Force Z	DH3302 Fz	FTSS	IF-857	2022-03-29
Right Lower Tibia Moment X	494 Mx	R.A. Denton	3644	2022-03-29
Right Lower Tibia Moment Y	494 My	R.A. Denton	3644	2022-03-29
Right Lower Tibia Force Z	494 Fz	R.A. Denton	3644	2022-03-29
Left Ankle Acceleration X	03E20-N09	Entran	EGEB6Q-2k	2022-11-22
Left Ankle Acceleration Z	03D30-N13	Entran	EGEB6Q-2k	2022-11-23
Left Toe Acceleration Z	03H07-Z10	Entran	EGEB6Q-2k	2022-11-23
Right Ankle Acceleration X	03E29-N20	Entran	EGEB6Q-2k	2022-11-23
Right Ankle Acceleration Z	P68602	Endevco	7264C-2k	2022-11-23
Right Toe Acceleration Z	03D09-N01	Entran	EGEB6Q-2k	2022-11-21
Seat Belt Outside Lap Force	313	FTSS	IF-964	2021-09-06
Seat Belt Upper Diagonal Force	315	FTSS	IF-964	2021-09-06

Table 2 - Right Front Passenger ATD Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Head Acceleration X Primary	P51889	Endevco	7264C-2k	2022-11-17
Head Acceleration Y Primary	P51861	Endevco	7264C-2k	2022-11-17
Head Acceleration Z Primary	P52077	Endevco	7264C-2k	2022-11-17
Head Acceleration X Redundant	P58835	Endevco	7264C-2k	2022-11-17
Head Acceleration Y Redundant	P51703	Endevco	7264C-2k	2022-11-17
Head Acceleration Z Redundant	P52096	Endevco	7264C-2k	2022-11-17
Head Rotation Rate X	ARS7367	DTS	ARS PRO-8k (2kHz)	2022-03-15
Head Rotation Rate Y	ARS7377	DTS	ARS PRO-8k (2kHz)	2022-03-15
Head Rotation Rate Z	ARS7498	DTS	ARS PRO-8k (2kHz)	2022-03-15
Upper Neck Force X	452 Fx	R.A. Denton	1716A	2022-03-30
Upper Neck Force Y	452 Fy	R.A. Denton	1716A	2022-03-30
Upper Neck Force Z	452 Fz	R.A. Denton	1716A	2022-03-30
Upper Neck Moment X	452 Mx	R.A. Denton	1716A	2022-03-30
Upper Neck Moment Y	452 My	R.A. Denton	1716A	2022-03-30
Upper Neck Moment Z	452 Mz	R.A. Denton	1716A	2022-03-30
Chest Acceleration X Primary	P58860	Endevco	7264C-2k	2022-11-16
Chest Acceleration Y Primary	P51876	Endevco	7264C-2k	2022-11-16
Chest Acceleration Z Primary	P58711	Endevco	7264C-2k	2022-11-16
Chest Acceleration X Redundant	P52049	Endevco	7264C-2k	2022-11-16
Chest Acceleration Y Redundant	P51862	Endevco	7264C-2k	2022-11-16
Chest Acceleration Z Redundant	P52048	Endevco	7264C-2k	2022-11-16
Chest Deflection	0724 (HF)	Servo	14CBI-3615	2022-11-21
Pelvis Acceleration X	P52090	Endevco	7264C-2k	2022-11-28
Pelvis Acceleration Y	P58849	Endevco	7264C-2k	2022-11-28
Pelvis Acceleration Z	P58756	Endevco	7264C-2k	2022-11-28
Left Femur Force Z	110 (pri)	R.A. Denton	3821JTF	2022-03-29
Right Femur Force Z	113 (pri)	R.A. Denton	3821JTF	2022-03-29
Left Femur Force Z Redundant	110 (red)	R.A. Denton	3821JTF	2022-03-29
Right Femur Force Z Redundant	113 (red)	R.A. Denton	3821JTF	2022-03-29
Left Upper Tibia Moment X	468 Mx	R.A. Denton	3643	2022-03-29
Left Upper Tibia Moment Y	468 My	R.A. Denton	3643	2022-03-29
Left Upper Tibia Force Z	468 Fz	R.A. Denton	3643	2022-03-29
Left Lower Tibia Moment X	399 Mx	R.A. Denton	3644	2022-03-29
Left Lower Tibia Moment Y	399 My	R.A. Denton	3644	2022-03-29
Left Lower Tibia Force Z	399 Fz	R.A. Denton	3644	2022-03-29
Right Upper Tibia Moment X	482 Mx	R.A. Denton	3643	2022-03-29
Right Upper Tibia Moment Y	482 My	R.A. Denton	3643	2022-03-29
Right Upper Tibia Force Z	482 Fz	R.A. Denton	3643	2022-03-29
Right Lower Tibia Moment X	499 Mx	R.A. Denton	3644	2022-03-29
Right Lower Tibia Moment Y	499 My	R.A. Denton	3644	2022-03-29
Right Lower Tibia Force Z	499 Fz	R.A. Denton	3644	2022-03-29
Left Ankle Acceleration X	P52057	Endevco	7264C-2k	2022-11-28
Left Ankle Acceleration Z	03E18-F07	Entran	EGEB6Q-2k	2022-11-28
Left Toe Acceleration Z	P49224	Endevco	7264C-2k	2022-11-28
Right Ankle Acceleration X	P52019	Endevco	7264C-2k	2022-11-28
Right Ankle Acceleration Z	P58755	Endevco	7264C-2k	2022-11-28
Right Toe Acceleration Z	P52076	Endevco	7264C-2k	2022-11-28
Seat Belt Outside Lap Force	251	FTSS	IF-964	2021-09-06
Seat Belt Upper Diagonal Force	263	FTSS	IF-964	2021-11-06

Table 3 - Vehicle Instrumentation

Sensor Location	Sensor S\N	Mfr	Model	Cal Date
Left Rear Primary Ax	220341	BST	11CF-2k	2022-07-21
Right Rear Primary Ax	220349	BST	11CF-2k	2022-07-21
Engine Top Ax	220348	BST	11CF-2k	2022-07-21
Engine Bottom Ax	220340	BST	11CF-2k	2022-07-21
Left Rear Az	220345	BST	11CF-2k	2022-07-21
Right Rear Az	220343	BST	11CF-2k	2022-07-21
Left Rear Redundant Ax	220347	BST	11CF-2k	2022-07-21
Right Rear Redundant Ax	220344	BST	11CF-2k	2022-07-21