REPORT NUMBER: R&D-KAR-20-005

VEHICLE TO RIGID BARRIER CRASH TEST IN SUPPORT OF NHTSA'S FRONTAL RESEARCH CRASH TEST PROGRAM FULL FRONTAL RIGID BARRIER IMPACT

HONDA OF AMERICA MFG., INC.
2020 HONDA ACCORD 4-DOOR SEDAN

NHTSA No: R20205382

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

FEBURARY 26, 2021

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
VEHICLE SAFETY RESEARCH
1200 NEW JERSEY AVE, SE, ROOM W46-446
WASHINGTON, D.C. 20590

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Prepared By: _____

Mr. Amjad A. Jadallah, Project Manager
Applus IDIADA KARCO Engineering, LLC.

Reviewed By: _____

Mr. Steven D. Matsusaka, Engineering Manager
Applus IDIADA KARCO Engineering, LLC.

Approved By: _____

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

Approval Date: February 26, 2021

FINAL REPORT ACCEPTANCE BY VEHICLE SAFETY RESEARCH,
OFFICE OF STRUCTURAL AND RESTRAINTS RESEARCH DIVISION:

_____

TOM, Vehicle Crash Testing
NHTSA, Office of Structures and Restraints Research

Date: _____

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9. Performing Organization Name and Address Applus IDIADA KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA 92301	**10. Work Unit No.**
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15. Supplementary Notes

16. Abstract

A 40.0 km/h Full Frontal Rigid Barrier Impact Test was conducted on a 2020 Honda Accord 4-door Sedan in accordance with Contract DTNH22-14-D-00360L, Task Order #693JJ918F000199. The test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and foot well intrusion performance. The test was conducted at the Applus IDIADA KARCO Engineering, LLC. facility in Adelanto, California on January 8, 2021.

The impact velocity of the vehicle was 39.34 km/h and the ambient temperature at the barrier face at the time of impact was 16.7°C. The vehicle's post-test maximum crush was 291 mm measured at the vehicle centerline. The test vehicle's performance was as follows:

Measurement Description	Units	Driver THOR	Passenger THOR
		Result	Result
Head Injury Criteria (HIC_{15})		146.30	179.80
Brain Injury Criteria (BrIC)		0.48	1.16
Nij			
Peak Neck Tension	N	975.40	516.40
Peak Neck Compression	N	-2243.10	-546.10
Peak Chest Deflection	mm	24.60	27.90
Peak Abdomen Deflection	mm	-7.60	-16.30
Peak Resultant Acetabulum Force	N	3085.30	3076.30
Peak Femur Force	N	-5318.20	-4720.00
Peak Tibia Index		0.32	0.26

17. Key Words	18. Distribution Statement
Full Frontal Rigid Barrier Impact Frontal Research Crash Test THOR (Driver) THOR (Passenger)	Copies of this report are available from: National Highway Traffic Safety Administration Technical Reference Division 1200 New Jersey Ave., SE Washington, D.C. 20590

19. Security Classification of this report	20. Security Classification of this page	21. No. of Pages	22. Price
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SECTION 1

TEST PURPOSE AND PROCEDURE

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

This 40.0 km/h (24.85 mph) Full Frontal Rigid Barrier Impact Test is part of the Frontal Research Crash Test Program outlined in Contract No. DTNH22-14-D-00360L, Task Order #693JJ918F000199. The purpose of this test is to obtain vehicle crashworthiness and occupant restraint system performance data for research purposes.

This test was conducted in accordance with the instructions set forth for a 40.0 km/h Full Frontal Rigid Barrier Impact, outlined in Contract No. DTNH22-14-D-00360L, Task Order #693JJ918F000199. Data indicant of Federal Motor Vehicle Safety Standard FMVSS 208 - Occupant Crash Protection, FMVSS 212 – Windshield Mounting, FMVSS 219 (partial) – Windshield Zone Intrusion, and FMVSS 301 – Fuel System Integrity was obtained, in addition to the data required by Contract No. DTNH22-14-D-00360L, Task Order #693JJ918F000199.

SECTION 2
SUMMARY OF TEST RESULTS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

A 40.0 km/h Full Frontal Rigid Barrier Impact Test was conducted on a 2020 Honda Accord 4-Door Sedan. The test was performed at Applus IDIADA KARCO Engineering, LLC. on January 8, 2021.

The test was documented by one (1) real-time and eighteen (18) high-speed video cameras. Pre- and post-test photographs of the test vehicle and test setup were taken using a digital still camera. Photographic documentation of the test is presented in Appendix A of this report.

One (1) 50th percentile adult male THOR anthropomorphic test device (ATD) (Serial No. DO9799) was seated in the left front seating position (P1 – Driver) and one (1) 50th percentile adult male THOR anthropomorphic test device (ATD) (Serial No. EG2595) was seated in the right front passenger seating position (P2 - Passenger). The driver was positioned according to instructions specified in the THOR 50th Percentile Male Dummy Seating & Positioning Procedures: Driver Position. The passenger was positioned according to instructions specified in the THOR 50th Percentile Male Dummy Seating & Positioning Procedures: Right Front Passenger Position.

The driver was restrained with frontal and knee airbags. The passenger was restrained with frontal and knee airbags. Both ATDs were unbelted for this test.

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382
Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

Two hundred forty-seven (247) channels of data from the two (2) ATD's and the test vehicle were collected using Diversified Technical Systems, Inc. data acquisition systems. Appendix B contains dummy data plots, as well as vehicle response data plots.

The windshield was broken during impact but there was no separation recorded. There was no intrusion into the protected zone of the windshield during any portion of the impact event. The maximum static crush of the vehicle was 291.4 mm measured at the vehicle's centerline.

All four vehicle doors remained closed and latched during the test. All doors remained operational after the impact event.

Structural observations include the following:

- The front end including the bumper, grille, and hood were crushed
- The windshield was broken at the top left and right corners due to an impact with the driver and passenger ATD's head, respectively.

The driver ATD's visible contact points were:

- Head contacted the front airbag, headliner, sun visor, windshield, and A-pillar
- Upper torso contacted the front airbag
- Lower torso contacted the front airbag
- Left leg contacted the knee airbag, knee bolster, and steering column
- Right leg contacted the knee airbag and knee bolster

The right front passenger ATD's visible contact points were:

- Head contacted the front airbag, windshield, A-pillar
- Torso contacted the front airbag
- Left leg contacted the knee airbag and knee bolster
- Right leg contacted the knee airbag and knee bolster

SECTION 2 … (CONTINUED)

SUMMARY OF TEST RESULTS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Impact Velocity	km/h	39.34
Test Vehicle Weight	kg	1642.0
Maximum Static Crush	mm	291
Number of Data Channels		209
Number of Real-Time Cameras		1
Number of High-Speed Cameras		18

DUMMY CONTACTS

Description	Driver	Picture Ref.	Passenger	Picture Ref.
Dummy Type	THOR, S/N: DO9799		Hybrid III, S/N: EG2595	
Head Contact	Front Airbag, Headliner, Sun Visor, Windshield, A-Pillar	A-89, A-91a	Front Airbag, Windshield, A-Pillar	A-93, A-95, A-97, A-136a, A136b
Upper Torso Contact	Front Airbag	A-89	Front Airbag	A-103
Lower Torso Contact	Front Airbag	A-89	Front Airbag	A-105
Left Leg Contact	Knee Airbag, Knee Bolster, Steering Column	A-91	Knee Airbag and Knee Bolster	A-109
Right Leg Contact	Knee Airbag, Knee Bolster	A-91	Knee Airbag and Knee Bolster	A-109

SECTION 2 … (CONTINUED)

SUMMARY OF TEST RESULTS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

DATA ANOMALIES

Channel Description	Explanation
T1 Ax (Dummy S/N: DO9799)	No data recorded during the test. The problem was intermittent and the exact cause could not be determined for repair. NHTSA approved running the test without recording this channel.
Mid Tibia Left Ax (Dummy S/N: DO9799)	No data recorded during the test. The cable was found to be damaged upon receipt of the ATD and the damage was deemed to cloose to the accelerometer head to repair. NHTSA approved running the test without recording this channel.
Mid Tibia Right Ax (Dummy S/N: DO9799)	No data recorded during the test. The cable was found to the accelerometer head to repair. NHTSA approved running the test without recording this channel.
Right Acetabulum Fx (Dummy S/N: EG2595)	No data recorded during the test. The ATD was received with a bad channel and upon investigation it was found that it was not repairable without replacement of the load cell. NHTSA approved running the test without recording this channel.
Occipital Condyle Potentiometer (Dummy S/N: EG2595)	No data recorded during the test. NHTSA approved running the test without recording this channel.

SECTION 2 … (CONTINUED)

SUMMARY OF TEST RESULTS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

Driver, THOR S/N DO9799					
LOCATION	**DESCRIPTION**	**UNIT**	**SOURCE**	**MAX**	**MIN**
Head	HIC 15ms		Compute	146.3	
	Brain Injury Criteria (BrIC)		Compute	0.482	
	Head Rotational Velocity X	Deg/s	60	166.8	-144.9
	Head Rotational Velocity Y	Deg/s	60	559.1	-1485.0
	Head Rotational Velocity Z	Deg/s	60	344.7	-86.1
Neck	Upper Neck Z-axis Force	N	1000	975.4	-2243.1
	Upper Neck Y-axis Moment	Nm	600	13.4	-25.4
Chest	Upper Left Resultant Chest Deflection	mm	Compute	24.6	
	Upper Right Resultant Chest Deflection	mm	Compute	23.4	
	Lower Left Resultant Chest Deflection	mm	Compute	22.4	
	Lower Right Resultant Chest Deflection	mm	Compute	11.2	
Abdomen	Lower Left X-axis Deflection	mm	Compute	1.9	-7.6
	Lower Right X-axis Deflection	mm	Compute	6.4	-3.1
Acetabulum	Left Acetabulum Resultant Force	N	Compute	2657.1	
	Right Acetabulum Resultant Force	N	Compute	3085.3	
Femur	Left Femur Force, FZ	N	600	252.2	-4458.8
	Right Femur Force, FZ	N	600	245.5	-5318.2
Tibia	Left Upper Tibia, FZ	N	600	121.2	-1953.2
	Left Upper Tibia Index		Compute	0.310	
	Right Upper Tibia, FZ	N	600	137.3	-3224.5
	Right Upper Tibia Index		Compute	0.216	
	Left Lower Tibia, FZ	N	600	146.3	-2583.8
	Left Lower Tibia Index		Compute	0.317	
	Right Lower Tibia, FZ	N	600	165.0	-4628.7
	Right Lower Tibia Index		Compute	0.138	
Ankle	Left Ankle Rotation, RX	Deg	180	34.7	-0.1
	Left Ankle Rotation, RY	Deg	180	21.0	-13.4
	Left Ankle Dorsiflexion Moment, MY	Nm	Compute	75.9	-39.1
	Left Ankle In/Eversion Moment, MX	Nm	Compute	103.3	-3.6
	Right Ankle Rotation, RX	Deg	180	18.1	0.0
	Right Ankle Rotation, RY	Deg	180	11.3	-25.4
	Right Ankle Dorsiflexion Moment, MY	Nm	Compute	14.8	-24.1
	Right Ankle In/Eversion Moment, MX	Nm	Compute	28.6	-9.5

Anomalies:

None

SECTION 2 … (CONTINUED)

SUMMARY OF TEST RESULTS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

Passenger, THOR S/N EG2595					
LOCATION	**DESCRIPTION**	**UNIT**	**SOURCE**	**MAX**	**MIN**
Head	HIC 15ms		Compute	179.8	
	Brain Injury Criteria (BrIC)		Compute	1.161	
	Head Rotational Velocity X	Deg/s	60	813.5	-207.2
	Head Rotational Velocity Y	Deg/s	60	258.0	-2412.5
	Head Rotational Velocity Z	Deg/s	60	653.8	-2122.3
Neck	Upper Neck Z-axis Force	N	1000	516.4	-546.1
	Upper Neck Y-axis Moment	Nm	600	23.5	-15.9
Chest	Upper Left Resultant Chest Deflection	mm	Compute	22.3	
	Upper Right Resultant Chest Deflection	mm	Compute	27.9	
	Lower Left Resultant Chest Deflection	mm	Compute	23.7	
	Lower Right Resultant Chest Deflection	mm	Compute	25.1	
Abdomen	Lower Left X-axis Deflection	mm	Compute	6.3	-15.9
	Lower Right X-axis Deflection	mm	Compute	5.5	-16.3
Acetabulum	Left Acetabulum Resultant Force	N	Compute	3076.3	
	Right Acetabulum Resultant Force	N	Compute	1819.4	
Femur	Left Femur Force, FZ	N	600	427.6	-4720.0
	Right Femur Force, FZ	N	600	472.0	-4243.8
Tibia	Left Upper Tibia, FZ	N	600	249.4	-3588.8
	Left Upper Tibia Index		Compute	0.261	
	Right Upper Tibia, FZ	N	600	559.2	-2400.5
	Right Upper Tibia Index		Compute	0.213	
	Left Lower Tibia, FZ	N	600	162.6	-3903.8
	Left Lower Tibia Index		Compute	0.239	
	Right Lower Tibia, FZ	N	600	110.2	-3170.5
	Right Lower Tibia Index		Compute	0.112	
Ankle	Left Ankle Rotation, RX	Deg	180	1.9	-7.9
	Left Ankle Rotation, RY	Deg	180	8.4	-26.6
	Left Ankle Dorsiflexion Moment, MY	Nm	Compute	107.2	-43.0
	Left Ankle In/Eversion Moment, MX	Nm	Compute	14.4	-17.5
	Right Ankle Rotation, RX	Deg	180	5.6	-16.6
	Right Ankle Rotation, RY	Deg	180	1.8	-23.1
	Right Ankle Dorsiflexion Moment, MY	Nm	Compute	65.7	-57.6
	Right Ankle In/Eversion Moment, MX	Nm	Compute	2.9	-19.0

Anomalies:

Right Acetabulum Fx is not functioning

SECTION 3

OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

CONVERSION FACTORS

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

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	R20205382	Traction Control System	Yes
Model Year	2020	Power Steering	Yes
Make	Honda	Power Window Auto-Reverse	Yes
Model	Accord	Driver Frontal Airbag	Yes
Body Style	4-Door Sedan	Driver Curtain Airbag	Yes
VIN	1HGCV1F13LA085419	Driver Head/Torso Airbag	No
Body Color	Modern Steel Metallic	Driver Torso Airbag	No
Odometer Reading (km / mi)	14 / 9	Driver Torso/Pelvis Airbag	Yes
Engine Displacement (L)	1.5	Driver Pelvis Airbag	No
Type / No. of Cylinders	Inline 4-Cylinder	Driver Knee Airbag	Yes
Engine Placement	Transverse	Front Pass. Frontal Airbag	Yes
Transmission Type	Automatic	Front Pass. Curtain Airbag	Yes
Transmission Speeds	CVT	Front Pass. Head/Torso Airbag	No
Overdrive	Yes	Front Pass. Torso Airbag	No
Final Drive	FWD	Front Pass. Torso/Pelvis Airbag	Yes
Roof Rack	No	Front Pass. Pelvis Airbag	No
Sunroof / T-Top	No	Front Pass. Knee Airbag	Yes
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Driver Load Limiter	Yes
Power Seats	No	Front Pass. Seat Belt Pretensioner	Yes
Anti-Lock Brakes (ABS)	Yes	Front Pass. Load Limiter	Yes
Automatic Door Locks (ADLs)	Yes	Other Safety Restraint	Np

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda of America MFG. Inc.	GVWR (kg)	1950
Date of Manufacture	May-20	GAWR Front (kg)	1070
		GAWR Rear (kg)	960

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Type of Seats	Bucket	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*

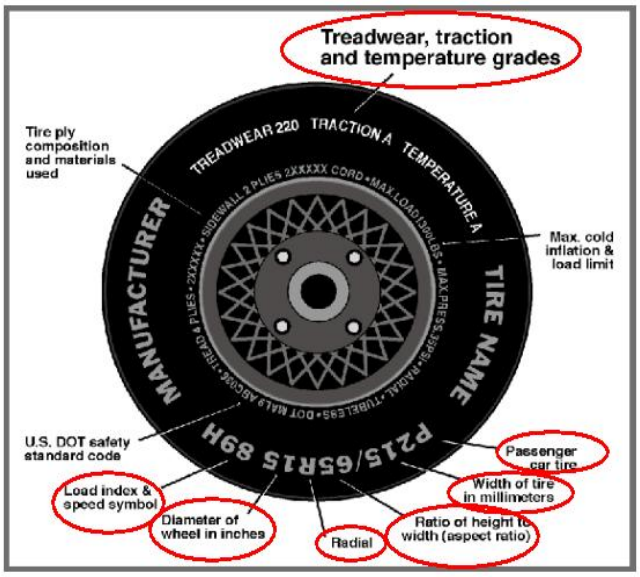
*A maximum RCLW of 136.0 kg is used for a truck, MPV, or bus

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	220	220
Recommended Tire Size	P225/50R17	P225/50R17
Tire Size on Vehicle	P225/50R17	P225/50R17
Tire Manufacturer	Hankook	Hankook
Tire Model	Kinergy GT	Kinergy GT
Treadware	500	500
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	2 Steel, 1 Polyester, 1 Nylon	2 Steel, 1 Polyester, 1 Nylon
Load Index/Speed Symbol	94V	94V
Tire Material	Steel, Polyester, Nylon	Steel, Polyester, Nylon
DOT Safety Code Left	1T7AB 1BHO 3819	1T7AB 1BHO 3819
DOT Safety Code Right	1T7AB 1BHO 3819	1T7AB 1BHO 3819

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	422.5	293.5		475.5	353.0	
Right	kg	435.0	268.5		472.0	341.5	
Ratio	%	60.4%	39.6%	100.0%	57.7%	42.3%	100.0%
Total	kg	857.5	562.0	1419.5	947.5	694.5	1642.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1419.5	A
Weight of THOR-50M and THOR-50M	kg	186.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	44.8	C
Calculated Vehicle Target Weight (TVTW)	kg	1650.3	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	708	705	745	736	1115
As Tested	mm	690	687	724	717	1191
Post-Test	mm	736	739	680	679	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2815
Total Vehicle Length at Left Side	mm	4700
Total Vehicle Length at Centerline	mm	4886
Total Vehicle Length at Right Side	mm	4704
Weight of Ballast/Equipment in Cargo Area	kg	67.0
Weight of Vehicle Components Removed	kg	57.0
Amount of Stoddard Solvent in Fuel Tank	L	52.08

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Rear bumper fascia, spare tire and tools, rear trim, tail lights, trunk lid, rear seat assembly

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Units	Pre-Test
1	Total Length	mm	4886
2	Total Width	mm	1860
3*	Bumper Top Height	mm	599
4*	Bumper Bottom Height	mm	434
5*	Longitudinal Member Top Height	mm	599
6	Distance Between Longitudinal Members	mm	945
7	Longitudinal Member Width	mm	92
8*	Engine Top Height	mm	930
9*	Engine Bottom Height	mm	219
10	Engine and Gearbox Width	mm	606
11	Front Bumper to Engine Distance	mm	421
12*	Front Shock Absorber Fixing Height	mm	1020
13*	Bonnet Leading Edge Height	mm	900
14	Front Shock Absorber Fixing Width	mm	588
15	Front Bumper to Front Axle Distance	mm	933
16	Front Axle to A-Pillar Distance	mm	546
17	A-Pillar to B-Pillar Distance	mm	1070
18	B-Pillar to Rear Axle Distance	mm	1218
19	B-Pillar to C-Pillar Distance	mm	912
20*	Roof Sill Bottom Height	mm	1555
21*	Roof Sill Top Height	mm	1665
22*	Floor Sill Bottom Height	mm	330
23*	Floor Sill Top Height	mm	420

*Note: Height measurements are in reference to the ground.

DATA SHEET NO. 2

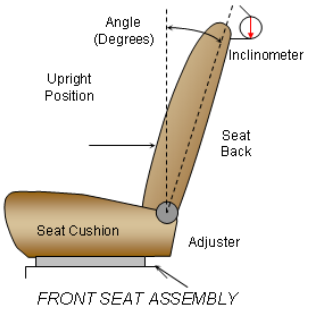
SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

NOMINAL DESIGN RIDING POSITION

The driver seat back was initially set to the manufacturer's designated angle listed in FORM 208 but was moved rearward per THOR seating procedure to level the head. The passenger seat back was set to the manufacturer's designated angle listed in FORM 208.

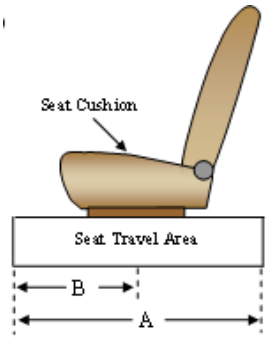


SEAT BACK ANGLE

Seating Position	Unit	FORM 208 Position	After ATD Positioning
Driver Seat Back Angle	Degrees	2.7	3.3
Passenger Seat Back Angle	Degrees	2.7	6.0

SEAT FORE / AFT POSITIONING

The driver seat travel is measured from the forward most position to the rear most position with the seat cushion set at mid angle. The driver seat was initially positioned 25 mm rearward of mid-track before being moved as far forward as possible where the ATD did not contact any interior panels, up to mid-track. The passenger seat travel is measured from the forward most possible position to the rear most possible position. The passenger seat is set to the middle of the fore-aft travel.



SEAT FORE/AFT POSITIONS

Seating Position	Total Fore/Aft Travel (mm)	Placed in Position (mm)
Driver Seat	240	120
Passenger Seat	238	120

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 passenger. Position "H" is the uppermost position, followed by position "M1" and "M2." Position "L" is the lowermost position.

SEAT BELT UPPER ANCHORAGES

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

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

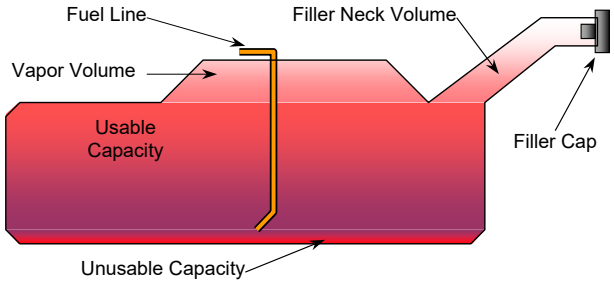
Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	56.02
Usable Capacity of "Optional Tank"	
93% of Usable Capacity	52.10
Actual Amount of Stoddard Solvent Used	52.10
1/3 of Usable Capacity	18.67

FUEL PUMP

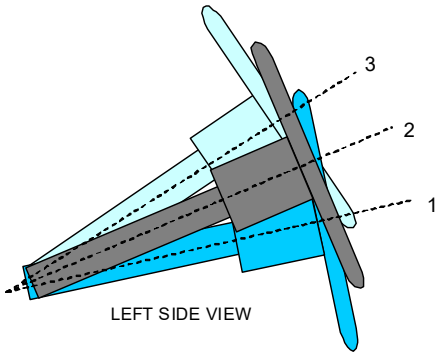
Fuel was evacuated according to the specifications provided by the manufacturer in Form 208. The electric fuel pump operates when the electrical system is activated.



VEHICLE FUEL TANK ASSEMBLY

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. A tape measure is used to measure telescoping steering wheel travel.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

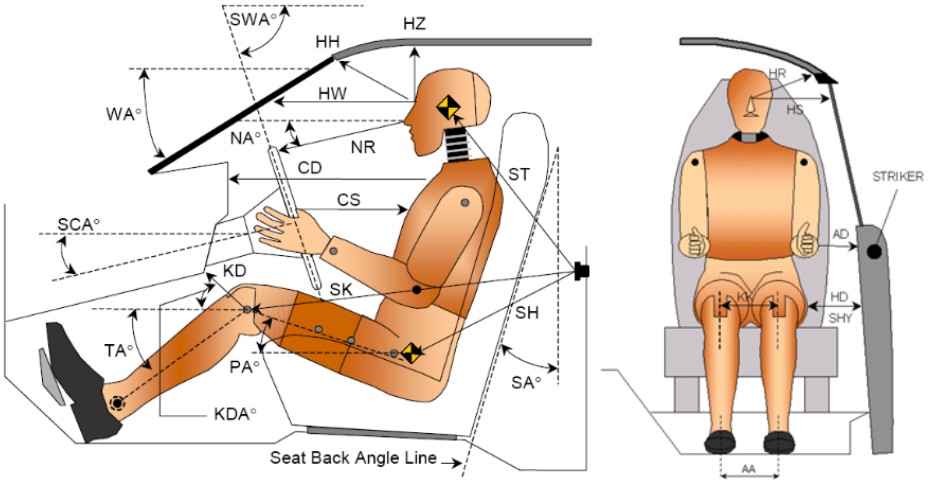
	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	22.9	105
Geometric Center Position, No. 2	25.4	130
Uppermost Position, No. 3	27.9	155
Telescoping Steering Wheel Travel		50
Test Position	25.4	130

DATA SHEET NO. 3

DUMMY CLEARANCE DIMENSIONS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21



LEFT SIDE VIEW

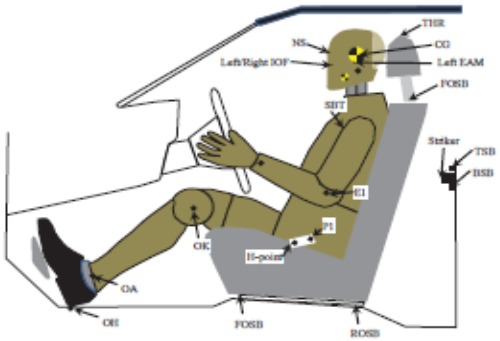
Code	Measurement Description	Driver S/N# DO9799		Passenger S/N# EG2595	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
HZ	Nasion to Roof (Z Distance)	185		186	
HH	Nasion to Header (3D Distance)	406		393	
HW	Nasion to Windshield Point 1 Inside (X Distance)	631		629	
NR	Tip of Nose to Top of Steering Wheel (3D Distance)	497			
CD	Chest Point 1 to Dash Point 1 (3D Distance)	581		525	
CS	Chest Point 2 to Center of Steering Wheel (X Distance)	343			
CBS	Chest Point 3 to Bottom of Steering Wheel (X Distance)	217			
IKD	Inboard Knee to Dash Point 3 (3D Distance)			114	
OKD	Outboard Knee to Dash Point 2 (3D Distance)	124		115	
HR	Nasion to Side Header (3D Distance)	210		199	
HS	Nasion to Side Window Distance (Y Distance)	353		338	
AD	Elbow to Door (Y Distance)	180		54	
HD	H-Point to Door (Y Distance)	290		126	
HLHL	Inboard Heel to Outboard Heel (Y Distance)	366		259	
KK	Inboard Knee to Outboard Knee (Y Distance)			265	
SH	Striker to H-Point (3D Distance)	420		424	
HRA	Head Restraint Post Angle		3.3		6.0
	H-Point Tool Angle		23.8		17.8
	Torso Angle		18.0		18.0
	Windshield Angle		59.8		60.0
	Head Angle (X)		0.5		0.5
	Head Angle (Y)		-0.3		0.4
	T1 Angle (X)		-0.5		
	T1 Angle (Y)		2.7		
	T6 Angle (X)		-0.4		0.5
	T6 Angle (Y)		22.7		18.6
	T12 Angle (X)		0.0		
	T12 Angle (Y)		31.6		
	Pelvis Angle (X)		-0.7		-0.2
	Pelvis Angle (Y)		31.7		35.3

DATA SHEET NO. 4

DUMMY CMM MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21



Description	Units	Driver S/N# DO9799			Passenger S/N# EG2595		
		X	Y	Z	X	Y	Z
Center of Upper Striker Bolt	mm	2311	-809	-169	2314	807	-169
Center of Lower Striker Bolt	mm	2315	-810	-133	2318	808	-134
Center of Striker Bar	mm	2346	-810	-155	2349	809	-155
Front Outboard Seat Bolt	mm	2843	-606	342	2852	605	334
Rear Outboard Seat Bolt	mm				2444	601	348
Center of Steering Wheel Hub	mm	2910	-377	-256			
Outer Head Restraint Post	mm	2204	-455	-432	2194	459	-422
Right Head CG	mm	2405	-297	-559	2407	466	-551
Left Head CG	mm	2405	-447	-560	2404	314	-553
Right EAM	mm	2407	-298	-530	2416	463	-523
Left EAM	mm	2411	-444	-533	2416	317	-524
Nasion	mm	2492	-370	-567	2496	386	-564
Right IOF	mm	2491	-335	-530	2499	418	-525
Left IOF	mm	2493	-399	-532	2496	354	-526
Tip of Nose	mm	2495	-367	-533	2500	384	-523
Tip of Chin	mm	2489	-373	-429	2497	383	-426
Chest Point 1	mm	2541	-356	-315	2552	382	-310
Chest Point 2	mm	2567	-377	-254			
Chest Point 3	mm	2646	-375	-92			
Shoulder Point 1	mm	2418	-574	-331	2416	594	-321
Shoulder Point 2	mm	2471	-557	-306	2467	571	-292
Elbow	mm	2643	-599	-88	2547	638	-21
Center of H-Point Tool	mm	2540	-633	69	2544	649	77
H-Point on H-Point Tool	mm	2622	-628	105	2619	606	101
H-Point on ATD Skin	mm	2622	-578	106	2619	575	100
Outboard Knee	mm	3012	-556	-35	3034	557	-24
Inboard Knee	mm				3033	293	-18
Outboard Ankle	mm	3328	-576	241	3350	573	245
Inboard Ankle	mm	3331	-227	247	3364	305	243
Outboard Heel	mm	3347	-560	376	3352	520	381
Inboard Heel	mm	3350	-194	377	3377	262	366

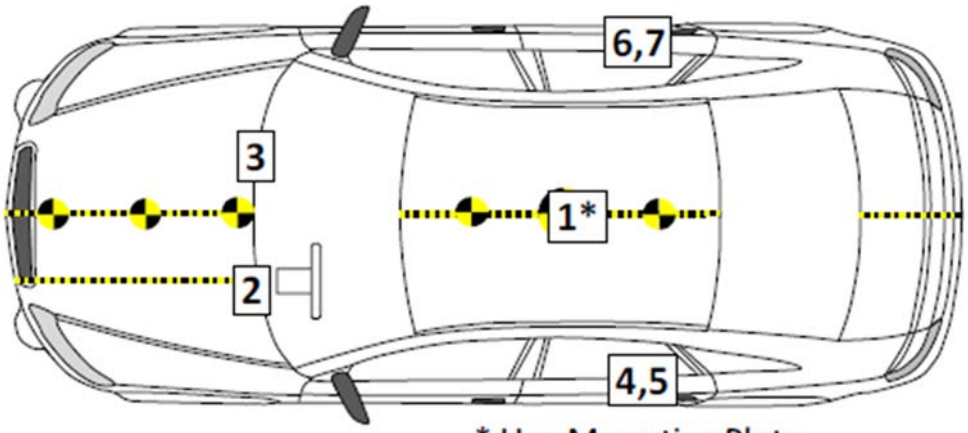
Reference Point:
+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO. 5

VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS RELATIVE TO VCS

No.	Instrumentation Location	Axes	Units	Coordinates (mm)		
				X	Y	Z
1	Vehicle CG (Acceleration and Angular Rate)	x, y, z	g, °/s	2106	-1	221
2	Driver Floor Pan	x, y, z	°/s	3671	-348	143
3	Passenger Floor Pan	x, y, z	g	3660	347	156
4	Door Sill LR	x, y	g	1885	-732	268
5	Door Sill LR Redundant	x, y	g	1860	-730	268
6	Door Sill RR	x, y	g	1900	732	267
7	Door Sill RR Redundant	x, y	g	1875	734	267

Reference Point:

+X – From the rear of the vehicle to the front of the vehicle

+Y – From the left side of the vehicle to the right side of the vehicle

+Z – From the top of the vehicle to the bottom of the vehicle

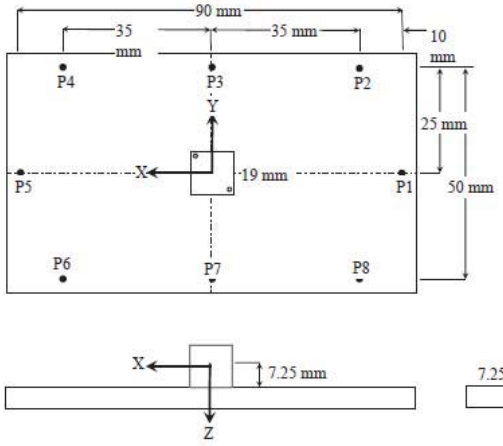
DATA SHEET NO. 5 … (CONTINUED)

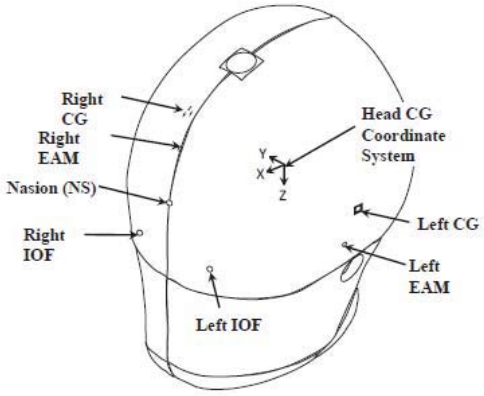
VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

ANGULAR RATE SENSOR MOUNTING PLATE & THOR HEAD POINT DEFINITIONS





CG ARS MOUNTING PLATE - VEHICLE COORDINATE SYSTEM

No.	Description	Units	X	Y	Z
P1	Plate Point 1	mm	2145	0	230
P2	Plate Point 2	mm	2155	26	230
P3	Plate Point 3	mm	2190	26	230
P4	Plate Point 4	mm	2224	27	230
P5	Plate Point 5	mm	2235	2	230
P6	Plate Point 6	mm	2225	-23	229
P7	Plate Point 7	mm	2190	-24	229
P8	Plate Point 8	mm	2155	-24	230

DRIVER HEAD POINTS IN RELATION TO HEAD CG COORDINATE SYSTEM

Description	Units	x	y	z
Left CG	mm	64	-41	45
Left EAM	mm	71	-37	71
Left IOF	mm	155	3	72
Right IOF	mm	155	66	73
Nasion	mm	156	34	35
Right EAM	mm	71	107	71
Right CG	mm	65	111	45

DATA SHEET NO. 5 … (CONTINUED)

VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

Location No.	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Min	Time (ms)
1	Vehicle CG	x	g	1.9	104.8	-37.3	29.1
		y	g	5.9	33.7	-6.7	44.3
		z	g	15.9	41.4	-20.3	36.5
	Vehicle CG Rotation	x	°/s	33.2	54.1	-44.2	57.7
		y	°/s	57.1	89.4	-66.4	52.1
		z	°/s	6.9	41.4	-15.4	21.2
2	Driver Floor Pan	x	g	14.8	36.4	-43.5	29.4
		y	g	10.4	50.5	-11.2	35.7
		z	g	12.5	35.2	-18.4	39.6
3	Passenger Floor Pan	x	g	3.1	83.2	-31.1	28.4
		y	g	10.0	31.8	-9.4	43.8
		z	g	21.7	22.7	-3.4	105.6
4	Door Sill LR	x	g	2.1	104.8	-28.8	29.5
		y	g	8.1	32.3	-3.9	25.2
5	Door Sill LR Redundant	x	g	1.6	104.1	-29.6	29.6
		y	g	5.1	32.8	-5.4	25.3
6	Door Sill RR	x	g	2.3	100.8	-30.1	30.1
		y	g	2.6	51.3	-5.8	45.5
7	Door Sill RR Redundant	x	g	2.5	101.3	-29.8	30.1
		y	g	5.2	51.4	-5.2	45.6

Note: See Appendix B for all vehicle data plots

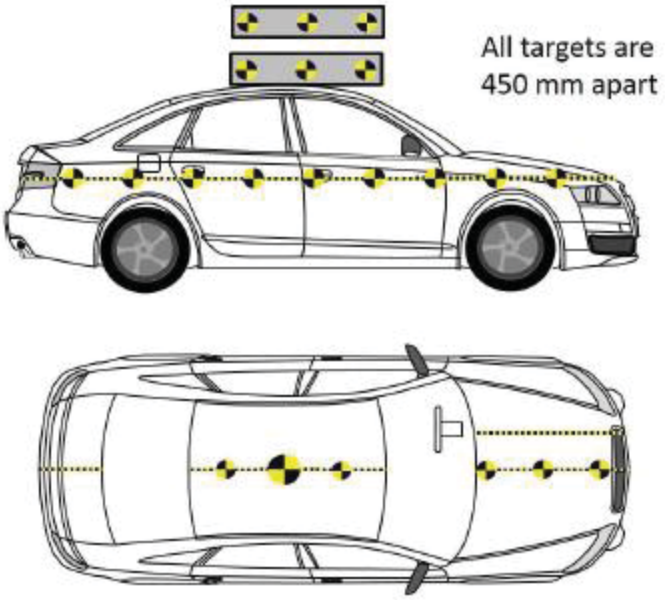
DATA SHEET NO. 6

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

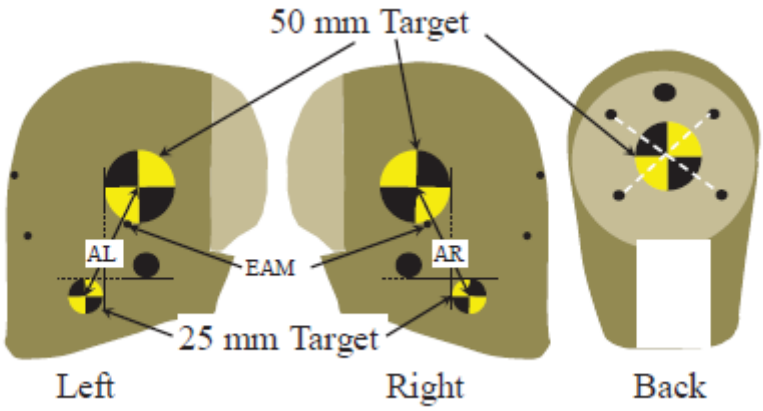
Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

VEHICLE TARGETS



ATD HEAD TARGETS



Driver

Target	Units	Measurement
AL	mm	97
AR	mm	98

DATA SHEET NO. 7

TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Sensors	118
Passenger Dummy Sensors	99
Vehicle Structure Sensors	20
Airbag Timing Sensors	10
Total	247

CAMERA COVERAGE

Type of Camera	Number of Cameras Collected
High-Speed Vehicle Onboard	4
High-Speed Off-Board	14
Real-Time Panning	1
Total	19

DATA SHEET NO. 8

POST TEST OBSERVATIONS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

TEST DUMMY INFORMATION AND CONTACT

Description	Driver	Passenger
Dummy Type/Serial No.	THOR-50M / DO9799	THOR-50M / EG2595
Lower Leg Type	LX	LX
Lower Leg Serial No.		
Head Contact	Front Airbag, Headliner, Sun Visor, Windshield, A-Pillar	Front Airbag, Windshield, A-Pillar
Upper Torso Contact	Front Airbag	Front Airbag
Lower Torso Contact	Front Airbag	Front Airbag
Left Knee Contact	Knee Airbag, Knee Bolster, Steering Column	Knee Airbag, Knee Bolster
Right Knee Contact	Knee Airbag, Knee Bolster	Knee Airbag, Knee Bolster

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Rear Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Seat Track Shift (mm)	1 mm	0 mm
Seat Back Failure	None	None
Glazing Damage	None	

POST TEST STRUCTURAL OBSERVATIONS

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

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	Yes	Yes
Seat Belt Pretensioner	Yes	N/A	Yes	N/A
Seat Belt Load Limiter	Yes	N/A	Yes	N/A

DATA SHEET NO. 9

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4886	4595	-291
2	Rear Surface of Vehicle to Front of Engine	4465	4373	-93
3	RSOV to Firewall	3859	3857	-2
4	RSOV to Upper Leading Edge of Right Door	3484	3484	0
5	RSOV to Upper Leading Edge of Left Door	3480	3482	1
6	RSOV to Lower Leading Edge of Right Door	3457	3457	0
7	RSOV to Lower Leading Edge of Left Door	3457	3460	3
8	RSOV to Upper Trailing Edge of Right Door	2300	2302	2
9	RSOV to Upper Trailing Edge of Left Door	2298	2299	1
10	RSOV to Lower Trailing Edge of Right Door	2288	2289	1
11	RSOV to Lower Trailing Edge of Left Door	2285	2286	1
12	RSOV to Bottom of A-Pillar, Right Side	3408	3408	0
13	RSOV to Bottom of A-Pillar, Left Side	3407	3408	1
14	RSOV to Firewall, Right Side	4021	4019	-2
15	RSOV to Firewall, Left Side	4027	4024	-3
16	RSOV to Steering Column	2938	2986	48
17	Center of Steering Column to A-Pillar	469	422	-47
18	Center of Steering Column to Headliner	456	435	-21
19	RSOV to Right Side of Front Bumper	4704	4534	-171
20	RSOV to Left Side of Front Bumper	4700	4573	-127
21	Length of Engine Block	569	536	-33
RD	RSOV to Right Side of Dash Panel	3115	3120	5
CD	RSOV to Center of Dash Panel	3071	3083	12
LD	RSOV to Left Side of Dash Panel	3112	3117	5

All measurements in millimeters.

DATA SHEET NO. 10

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

VEHICLE INFORMATION

VIN: 1HGCV1F13LA085419 Wheelbase (mm): 2815

Vehicle Size Category: 4-Door Sedan Test Weight (kg): 1642.0

ACCELEROMETER DATA

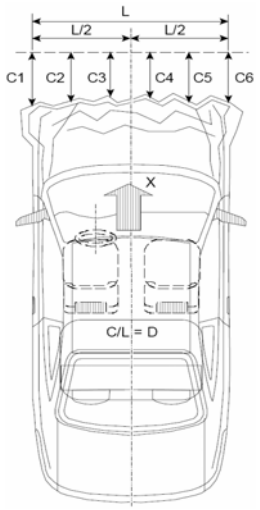
Accelerometer Locations: Vehicle CG_x

Cal. Procedure/Interval: Vibration Test / 6 months

Integration Algorithm: NHTSA Standard

Linearity: Good

Impact Velocity (km/h): 39.34



CRUSH PROFILE

Collision Deformation Classification: 12FDEW2

Midpoint of Damage: 686

Damage Region Length (mm): 1372

Impact Mode: Full Frontal

Crush Measurements

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	4672	4545	-127
C2	Crush Zone 2 at Left Side	mm	4836	4571	-265
C3	Crush Zone 3 at Left Side	mm	4832	4568	-264
C4	Crush Zone 4 at Right Side	mm	4833	4564	-269
C5	Crush Zone 5 at Right Side	mm	4837	4555	-282
C6	Crush Zone 6 at Right Side	mm	4677	4505	-171
L	C1 to C6	mm	1372		

DATA SHEET NO. 11

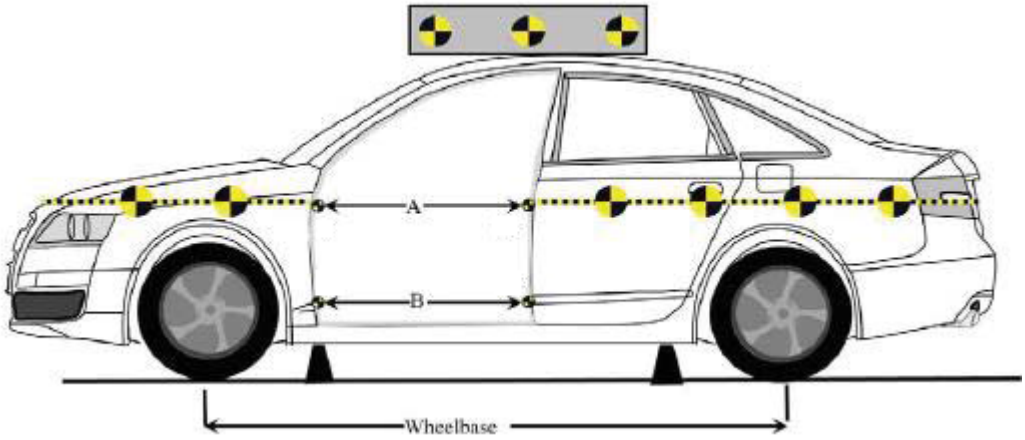
VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Driver Side Upper	mm	916	917	0
B	Driver Side Lower	mm	798	800	-2
D	Passenger Side Upper	mm	915	913	2
E	Passenger Side Lower	mm	797	797	0



DATA SHEET NO. 11 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

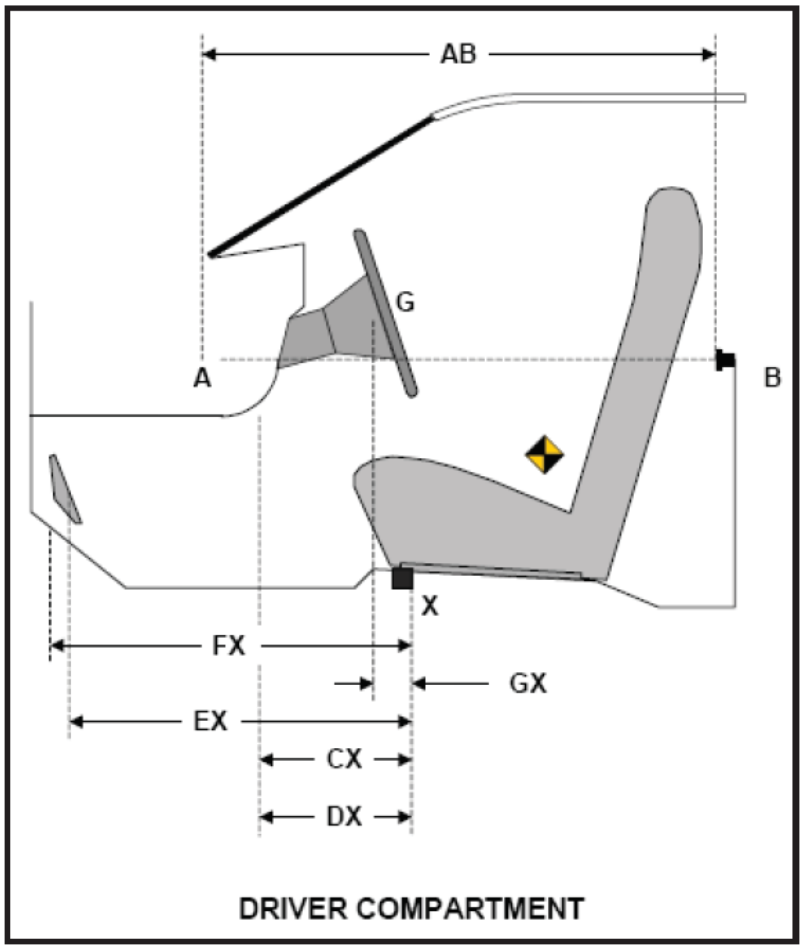
Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	884	885	-1
CX	Left Knee Bolster to X	mm	267	256	11
DX	Right Knee Bolster to X	mm	255	276	-21
EX	Brake Pedal to X	mm	577	575	2
FX	Footrest to X	mm	681	684	-2
GX	Center of Steering Column Wheel Hub to X	mm	59	111	-53

X = Front of Seat Track (Stationary)



DRIVER COMPARTMENT

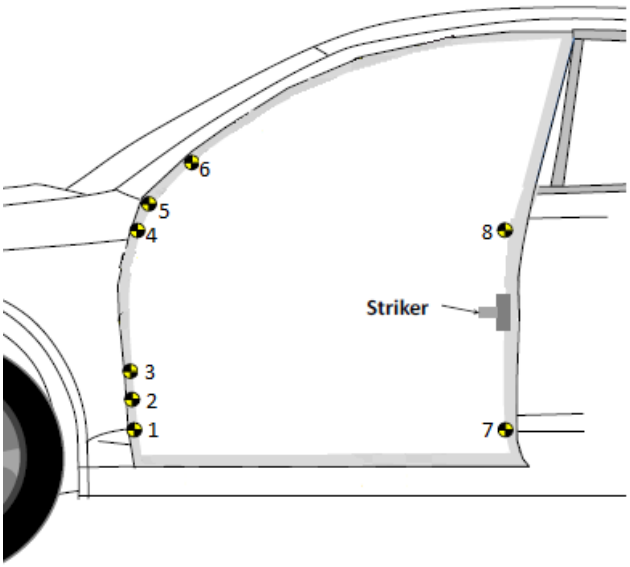
DATA SHEET NO. 11 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

DRIVER SIDE DOOR SILL INTRUSIONS



+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

Point	Pre-Test			Post-Test			Difference		
	x	y	z	x	y	z	x	y	z
1	3312	-772	204	3313	-770	204	0	2	1
2	3335	-770	131	3334	-768	133	0	2	2
3	3325	-768	56	3326	-766	57	1	2	2
4	3264	-759	-249	3263	-758	-248	-1	1	1
5	3238	-745	-325	3240	-744	-323	2	1	1
6	3154	-726	-400	3151	-726	-399	-3	0	1
7	2514	-774	199	2512	-772	198	-2	2	0
8	2348	-758	-248	2346	-757	-247	-2	1	1

All measurements in millimeters.

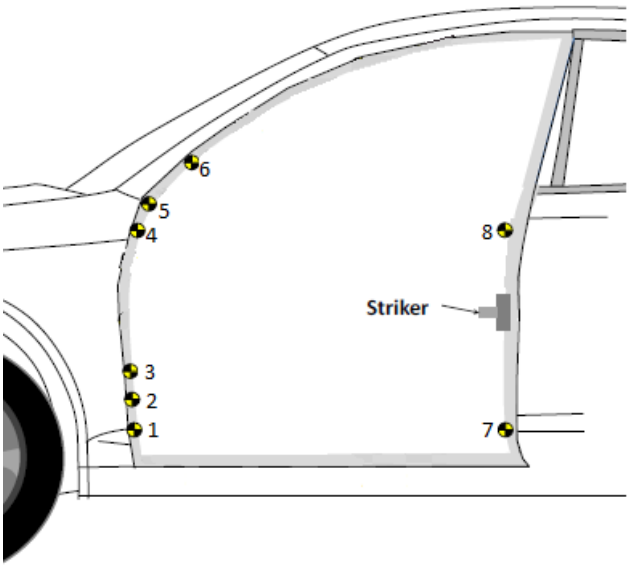
DATA SHEET NO. 11 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

PASSENGER SIDE DOOR SILL INTRUSIONS



+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

Point	Pre-Test			Post-Test			Difference		
	x	y	z	x	y	z	x	y	z
1	3311	767	204	3311	764	207	0	-3	3
2	3336	765	132	3337	762	131	1	-3	-1
3	3328	763	55	3328	761	55	0	-2	0
4	3264	756	-247	3264	755	-247	1	-2	0
5	3237	742	-324	3237	741	-323	0	-1	1
6	3159	723	-398	3159	722	-396	0	-1	2
7	2514	771	202	2514	768	203	0	-3	1
8	2348	758	-249	2351	756	-252	3	-2	-3

All measurements in millimeters.

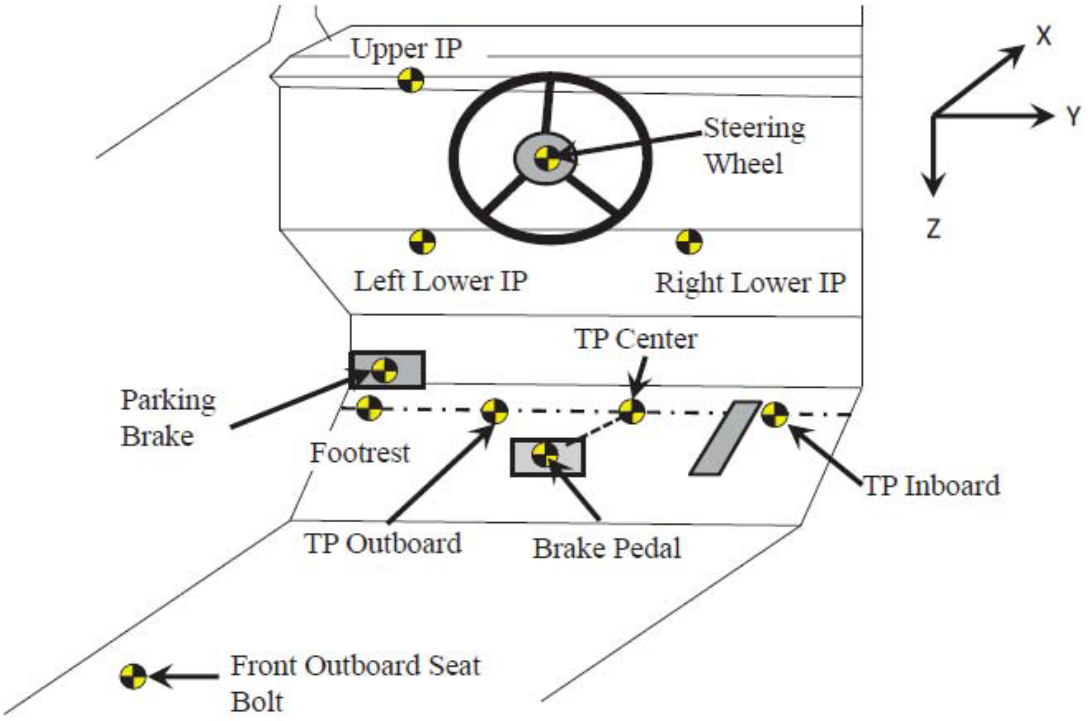
DATA SHEET NO. 11 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

DRIVER FLOOR PAN MEASUREMENTS



Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	x	y	z	x	y	z	x	y	z
TP Inboard	3644	-188	200	3644	-191	201	0	-3	1
TP Center	3667	-338	199	3664	-339	199	-4	-1	0
TP Outboard	3619	-489	199	3614	-490	198	-5	-1	-1
TP Footrest	3533	-598	204	3530	-599	204	-3	-1	-1
Brake Pedal	3428	-338	199	3421	-338	195	-8	1	-4
Left Lower IP	3119	-528	-98	3113	-523	-99	-6	4	-2
Right Lower IP	3107	-227	-98	3125	-228	-107	18	-1	-9
Upper IP	3075	-532	-150	3082	-527	-160	7	5	-10
Steering Wheel	2910	-377	-256	2957	-369	-278	47	7	-21
Front Outboard Bolt	2852	605	334	2846	603	342	-6	-2	8
Emergency Brake									

Reference point:
+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

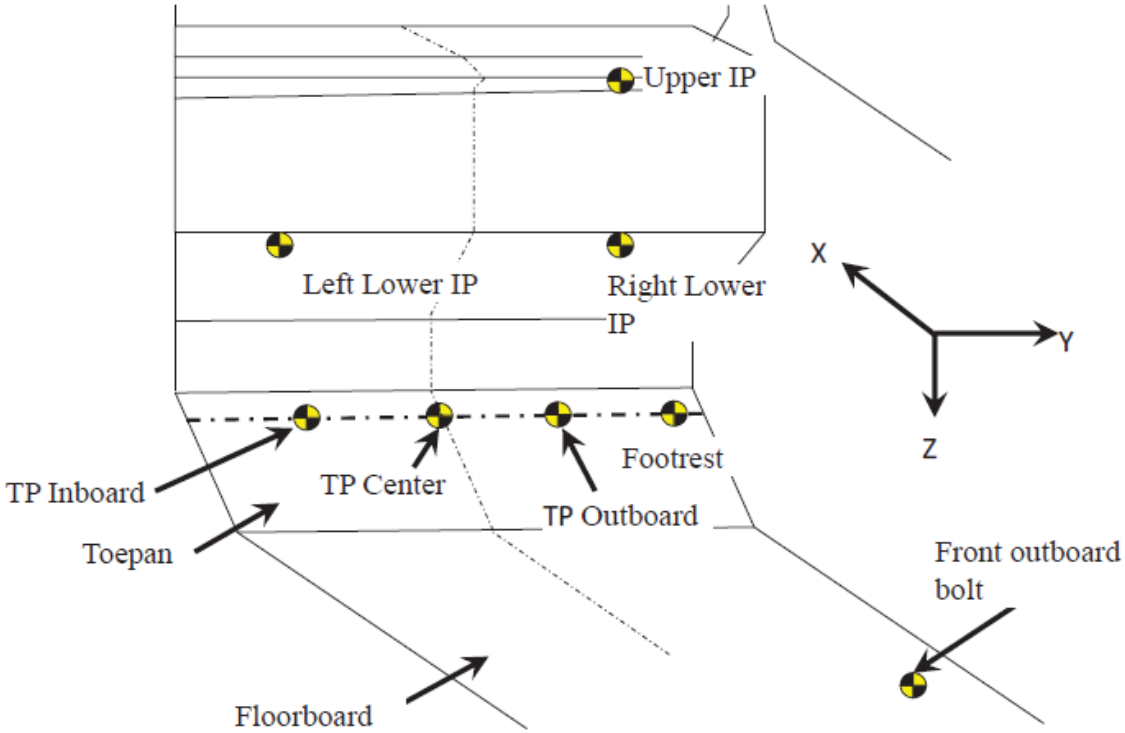
DATA SHEET NO. 11 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

PASSENGER FLOOR PAN MEASUREMENTS



Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	x	y	z	x	y	z	x	y	z
TP Inboard	3640	223	209	3640	221	208	1	-1	-1
TP Center	3656	373	206	3651	372	208	-5	-1	2
TP Outboard	3576	524	209	3575	519	209	-2	-4	0
TP Footrest	3519	624	205	3518	622	205	-2	-2	1
Left Lower IP	3090	218	-99	3102	213	-105	12	-5	-6
Right Lower IP	3118	527	-98	3122	521	-102	5	-5	-4
Upper IP	3065	524	-173	3071	521	-179	6	-3	-6
Front Outboard Seat Bolt	2852	605	334	2848	600	334	-4	-5	0

Reference point:
+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO. 12

SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

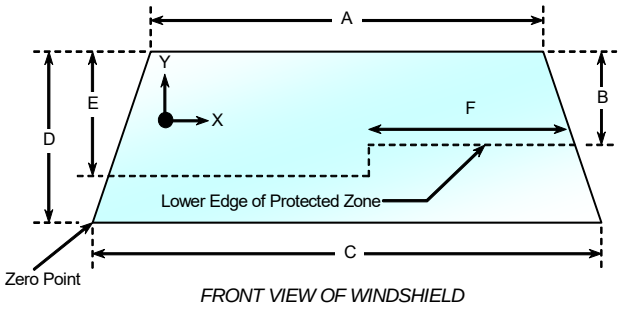
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with plastic molding and rubber cement.

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: 21.1°C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	1305	1305	100.0%
Right Side	1305	1305	100.0%
Total	2610	2610	100.0%



FRONT VIEW OF WINDSHIELD

Item	Units	Value
A	mm	620
B	mm	680
C	mm	750
D	mm	620
E	mm	680
F	mm	750

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. 12 … (CONTINUED)

SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 16.7°C Test Time: 2:18 PM

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable = 1 oz.)

B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable = 5 oz.)

C. For the following 25 minutes: 0 oz.
(Maximum allowable = 1 oz./minute)

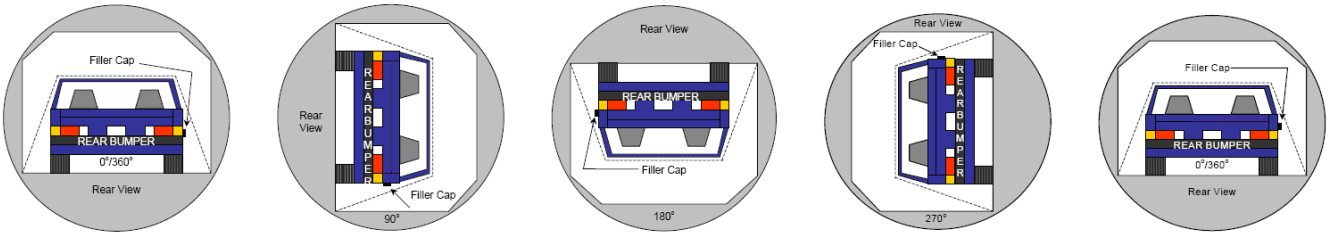
D. Spillage: There was no Stoddard solvent spillage.

DATA SHEET NO. 13

FMVSS 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2020 Honda Accord 4-Door Sedan NHTSA No. R20205382

Test Program: Frontal Rigid Barrier Impact Test Date: 01/08/21



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

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: There was no Stoddard solvent spillage.

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	83	300	383
90° To 180°	82	300	382
180° To 270°	81	300	381
270° To 360°	82	300	382

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

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

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS … (CONTINUED)

TABLE OF PHOTOGRAPHS … (CONTINUED)

TABLE OF PHOTOGRAPHS … (CONTINUED)

TABLE OF PHOTOGRAPHS … (CONTINUED)

FIGURE 1. Test Vehicle Certification Label

FIGURE 2. Test Vehicle Tire Placard

FIGURE 3. Right Front ¾ View, As Received

Photograph Not Available

FIGURE 4. Left Rear ¾ View, As Received

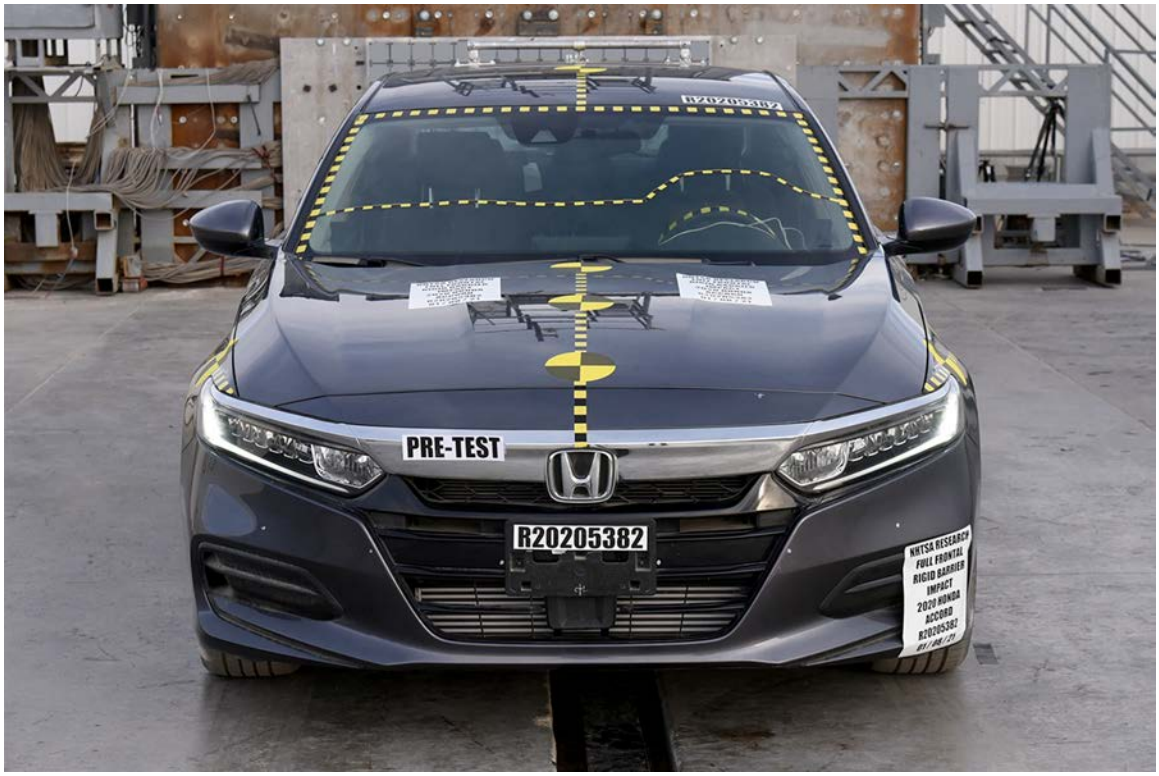


FIGURE 5. Pre-Test Front View of Test Vehicle

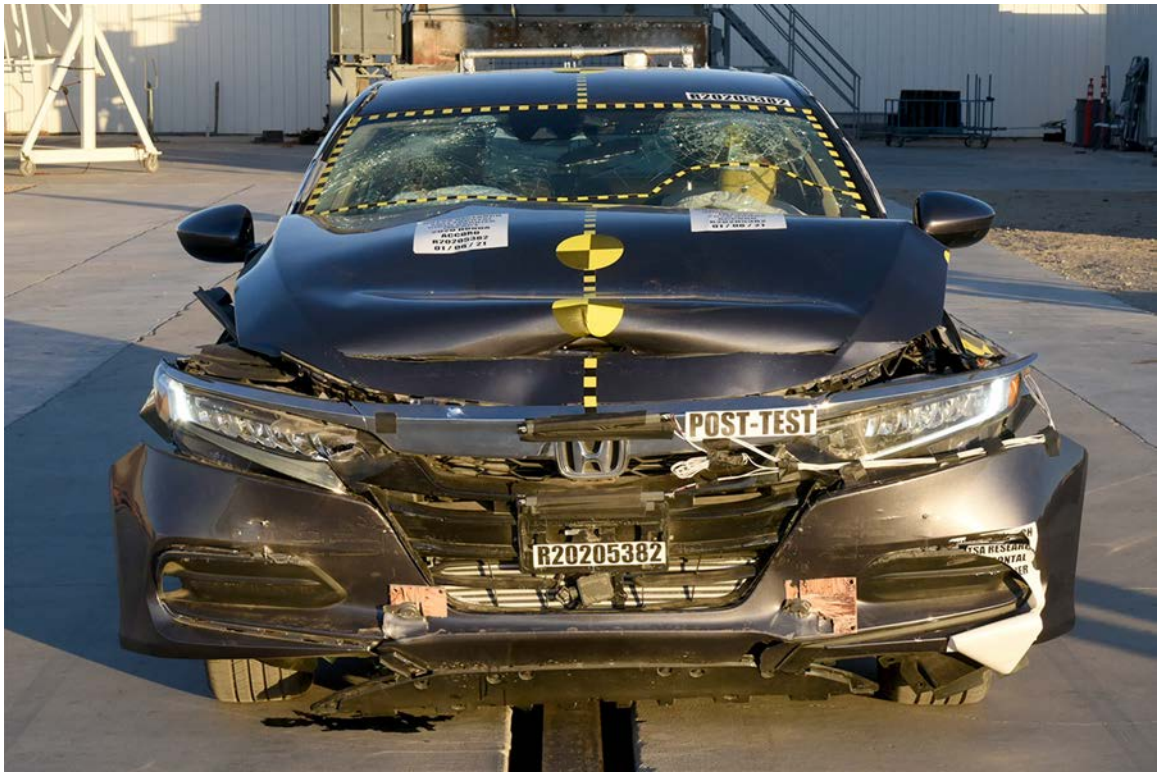


FIGURE 6. Post-Test Front View of Test Vehicle

FIGURE 7. Pre-Test Left View of Test Vehicle

FIGURE 8. Post-Test Left View of Test Vehicle

FIGURE 9. Pre-Test Right View of Test Vehicle

FIGURE 10. Post-Test Right View of Test Vehicle

FIGURE 11. Pre-Test Left Front ¾ View of Test Vehicle

FIGURE 12. Post-Test Left Front ¾ View of Test Vehicle

FIGURE 13. Pre-Test Right Front ¾ View of Test Vehicle

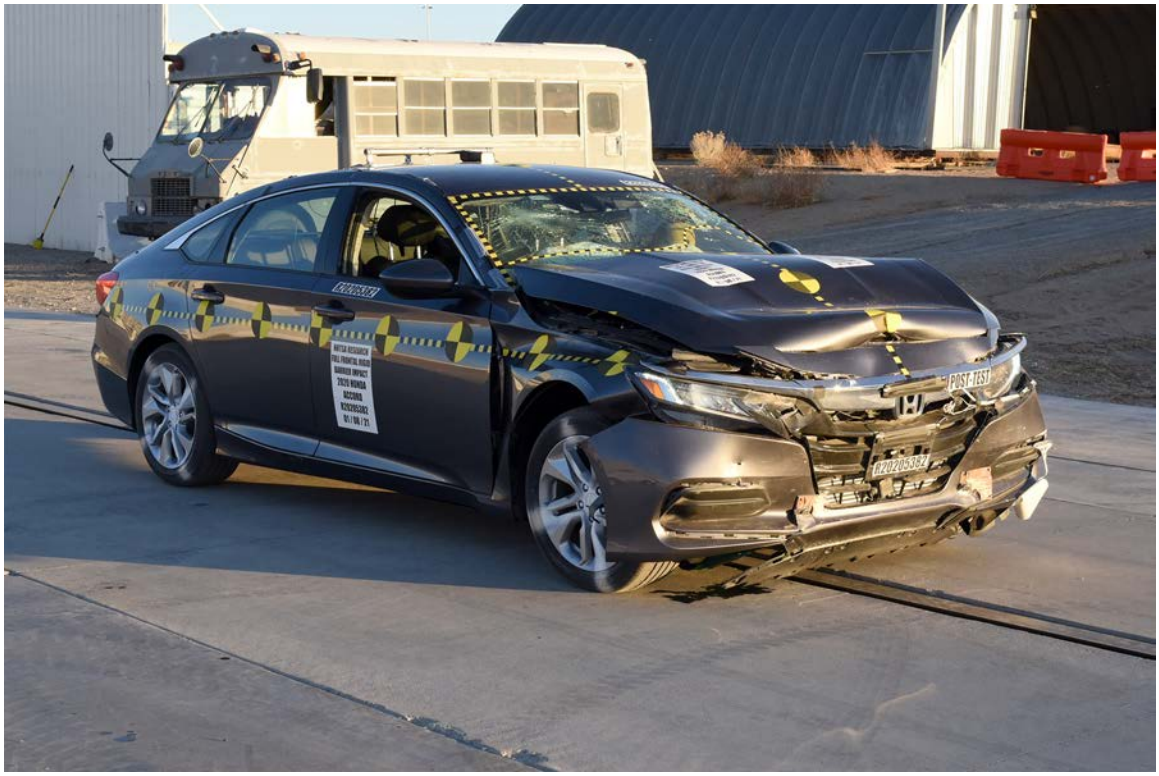


FIGURE 14. Post-Test Right Front ¾ View of Test Vehicle

FIGURE 15. Pre-Test Right Rear ¾ View of Test Vehicle

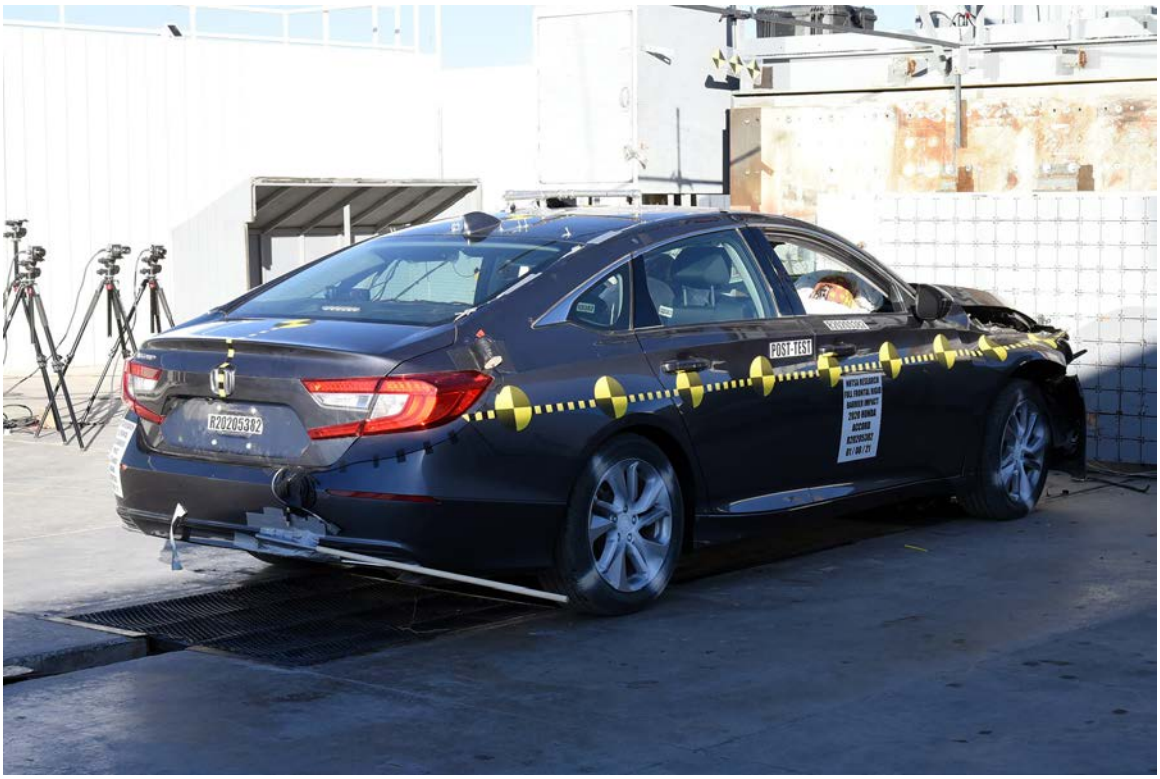


FIGURE 16. Post-Test Right Rear ¾ View of Test Vehicle

FIGURE 17. Pre-Test Rear View of Test Vehicle

FIGURE 18. Post-Test Rear View of Test Vehicle

FIGURE 19. Pre-Test Left Rear ¾ View of Test Vehicle

FIGURE 20. Post-Test Left Rear ¾ View of Test Vehicle

FIGURE 21. Pre-Test Windshield View

FIGURE 22. Post-Test Windshield View

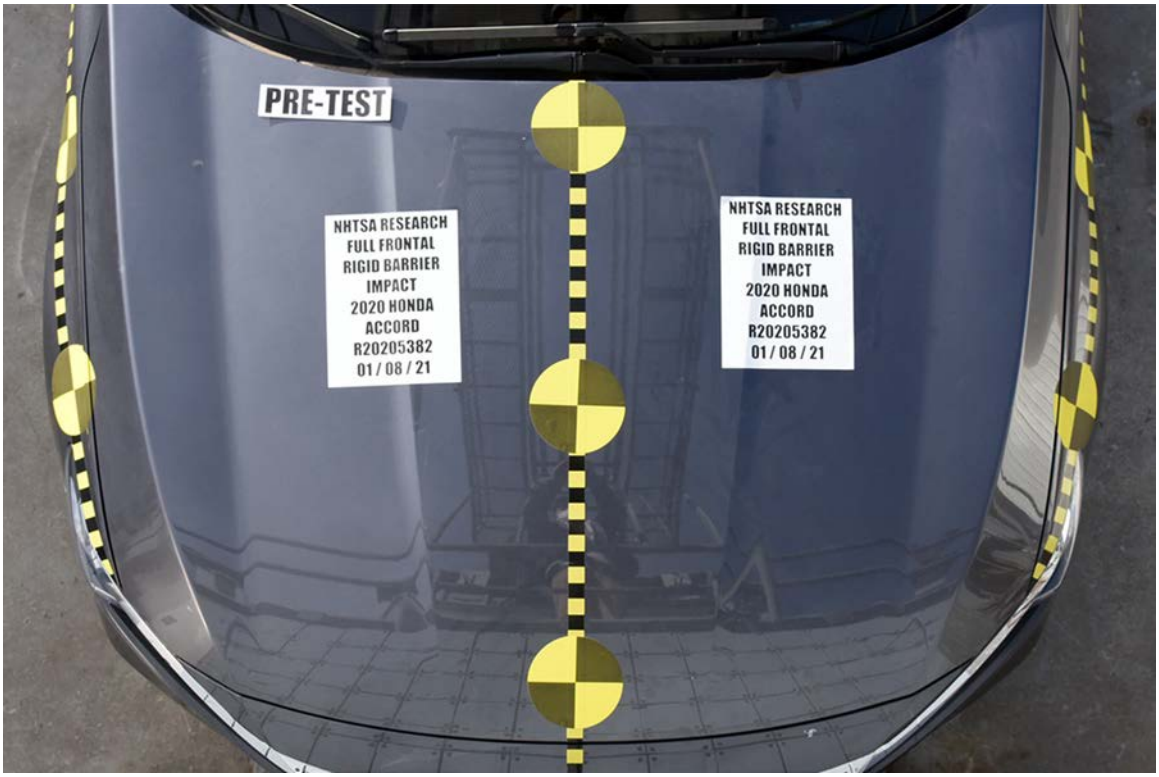


FIGURE 23. Pre-Test Engine Compartment View

FIGURE 24. Post-Test Engine Compartment View

FIGURE 25. Pre-Test Fuel Filler Cap View

FIGURE 26. Post-Test Fuel Filler Cap View

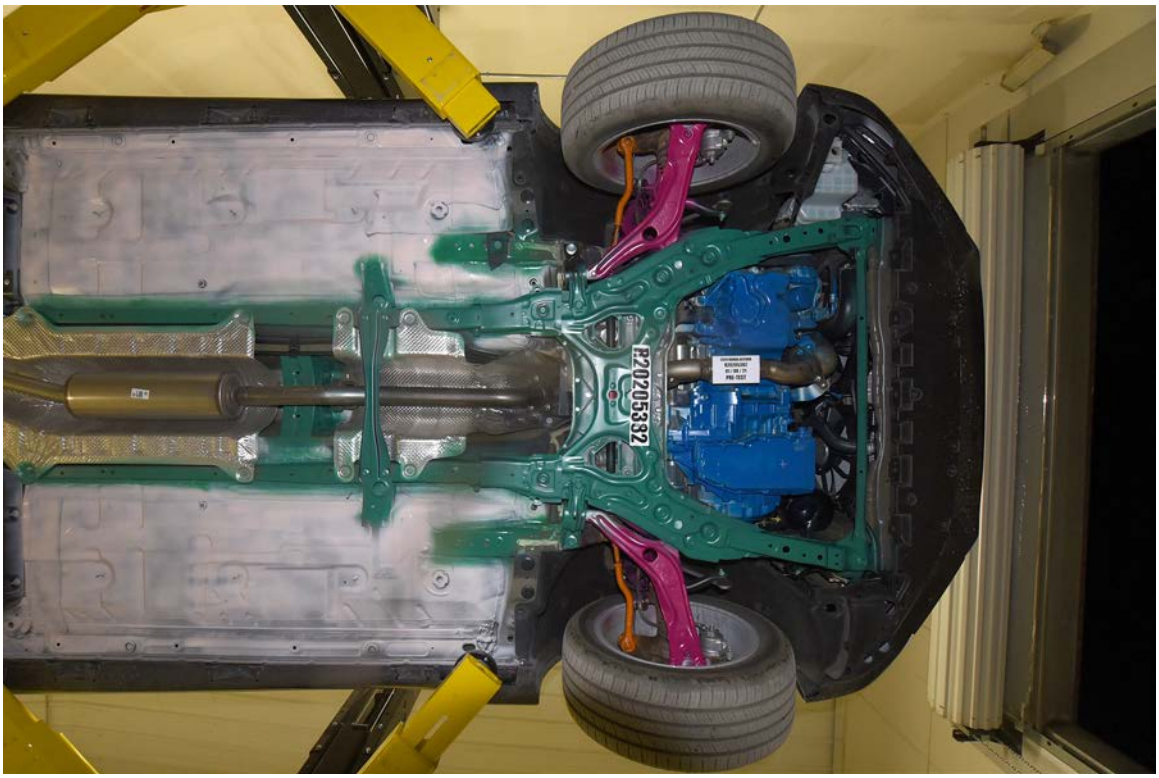


FIGURE 27. Pre-Test Front Underbody View

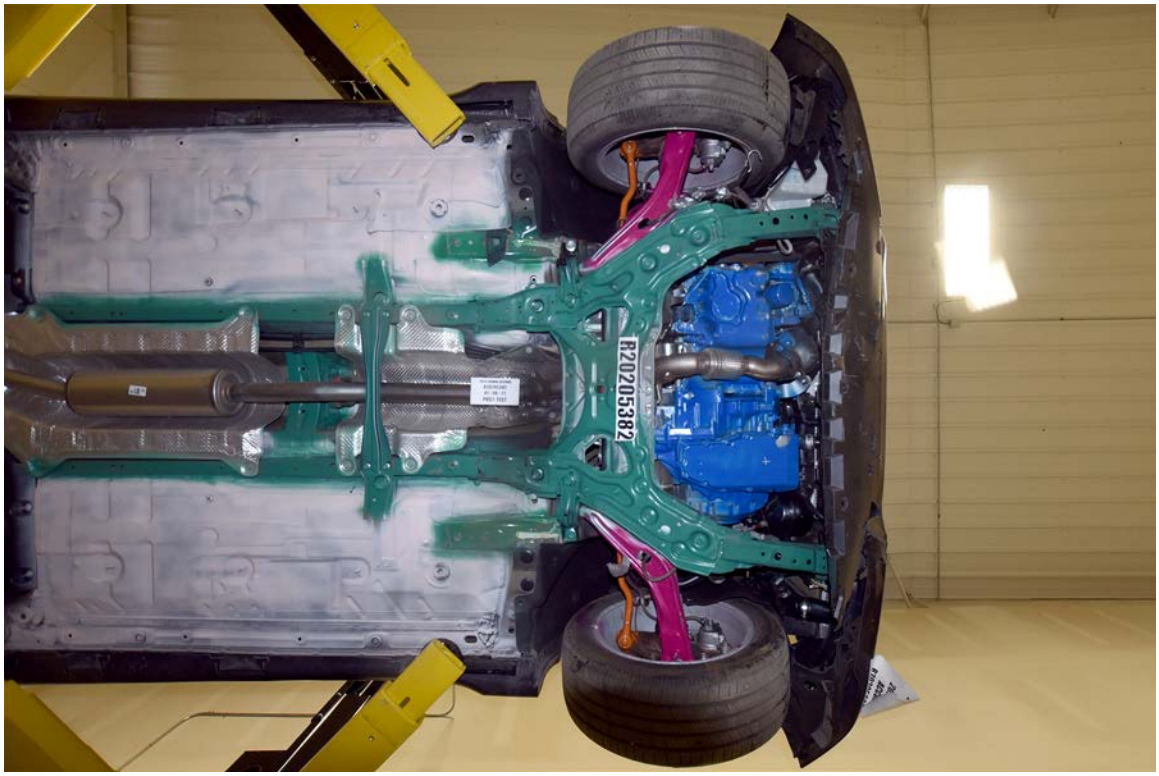


FIGURE 28. Post-Test Front Underbody View

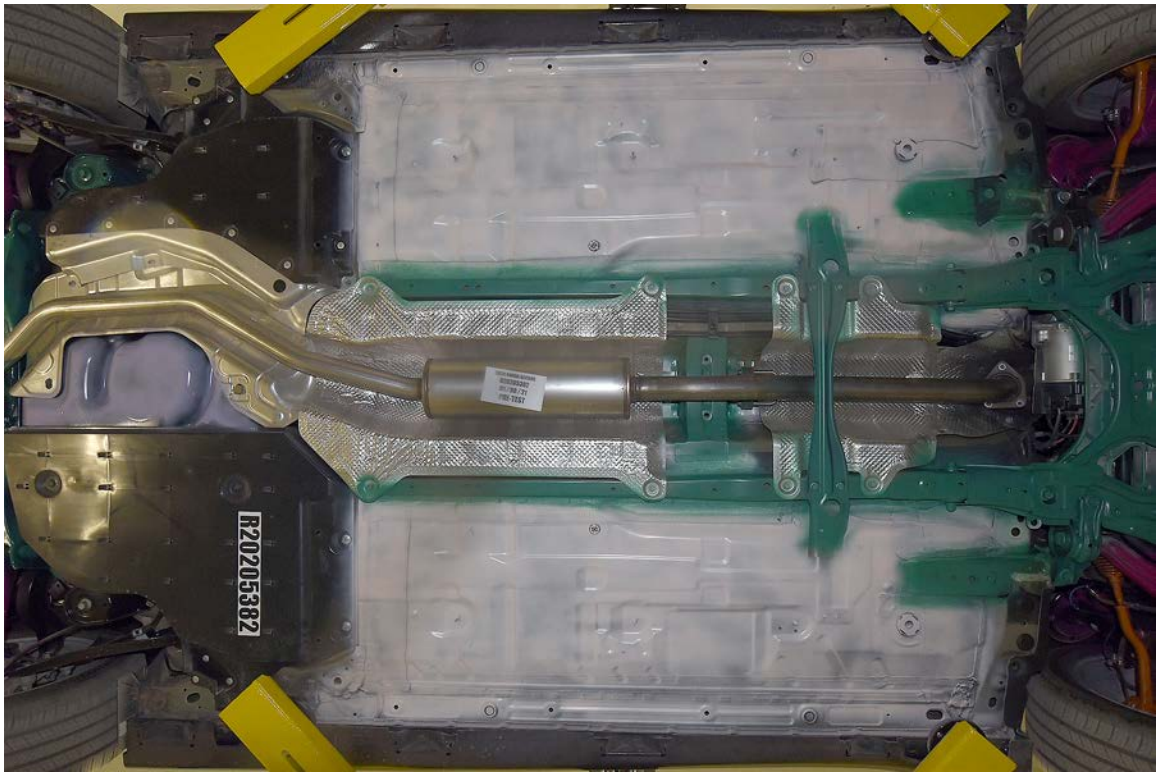


FIGURE 29. Pre-Test Mid Underbody View

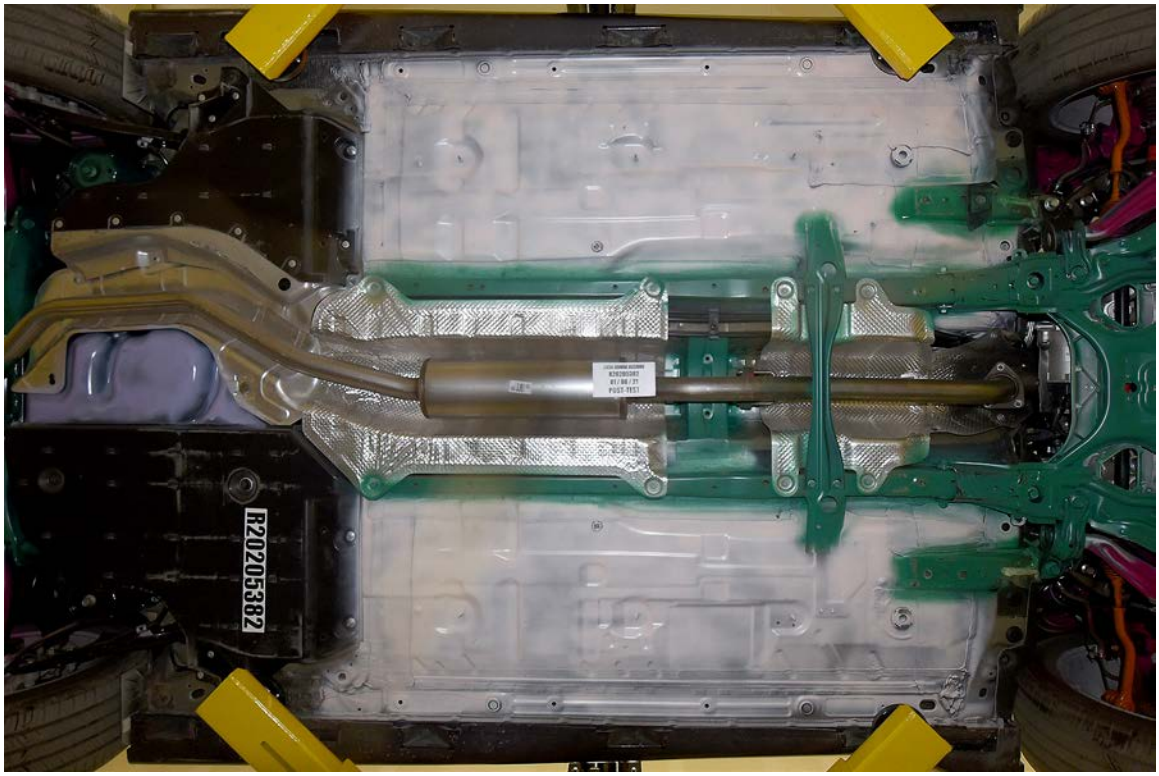


FIGURE 30. Post-Test Mid Underbody View

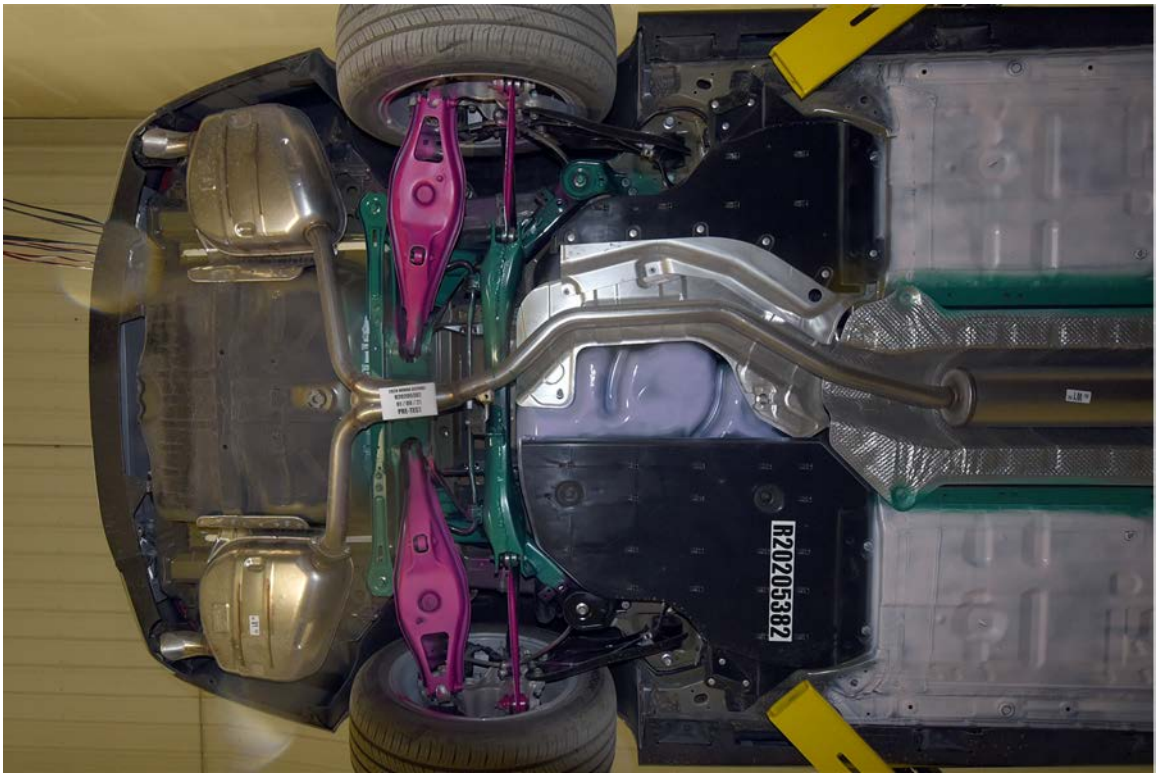


FIGURE 31. Pre-Test Rear Underbody View

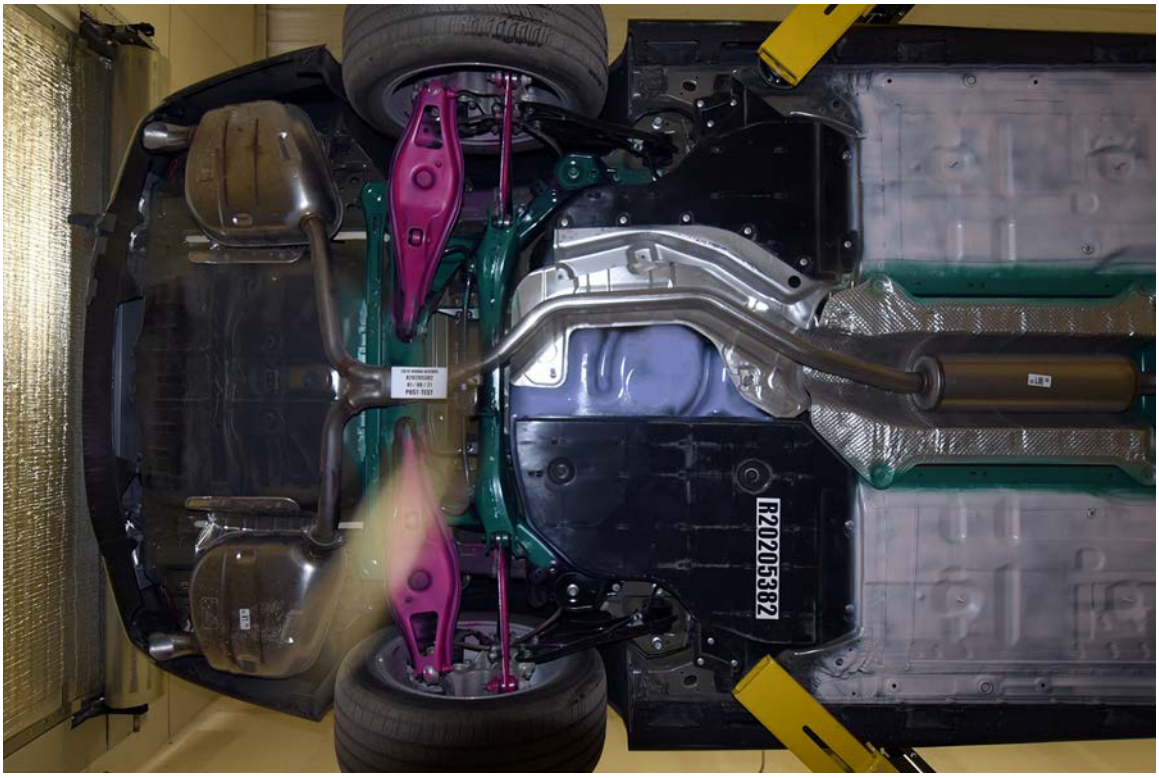


FIGURE 32. Post-Test Rear Underbody View

FIGURE 33. Pre-Test Bumper to Rail Attachments and Crush Initiators

FIGURE 34. Post-Test Bumper to Rail Attachments and Crush Initiators

FIGURE 35. Pre-Test Driver Side Bumper to Rail Attachments and Crush Initiators

FIGURE 36. Post-Test Driver Side Bumper to Rail Attachments and Crush Initiators

FIGURE 37. Pre-Test Passenger Side Bumper to Rail Attachments and Crush Initiators

FIGURE 38. Post-Test Passenger Side Bumper to Rail Attachments and Crush Initiators

FIGURE 39. Pre-Test Driver Side Rocker

FIGURE 40. Post-Test Driver Side Rocker

FIGURE 41. Pre-Test Passenger Side Rocker

FIGURE 42. Post-Test Passenger Side Rocker

FIGURE 43. Pre-Test Driver Front Windshield View

FIGURE 44. Post-Test Driver Front Windshield View

FIGURE 45. Pre-Test Driver Side Front Window View

FIGURE 46. Post-Test Driver Side Front Window View

FIGURE 47. Pre-Test View of Driver Door Clearance

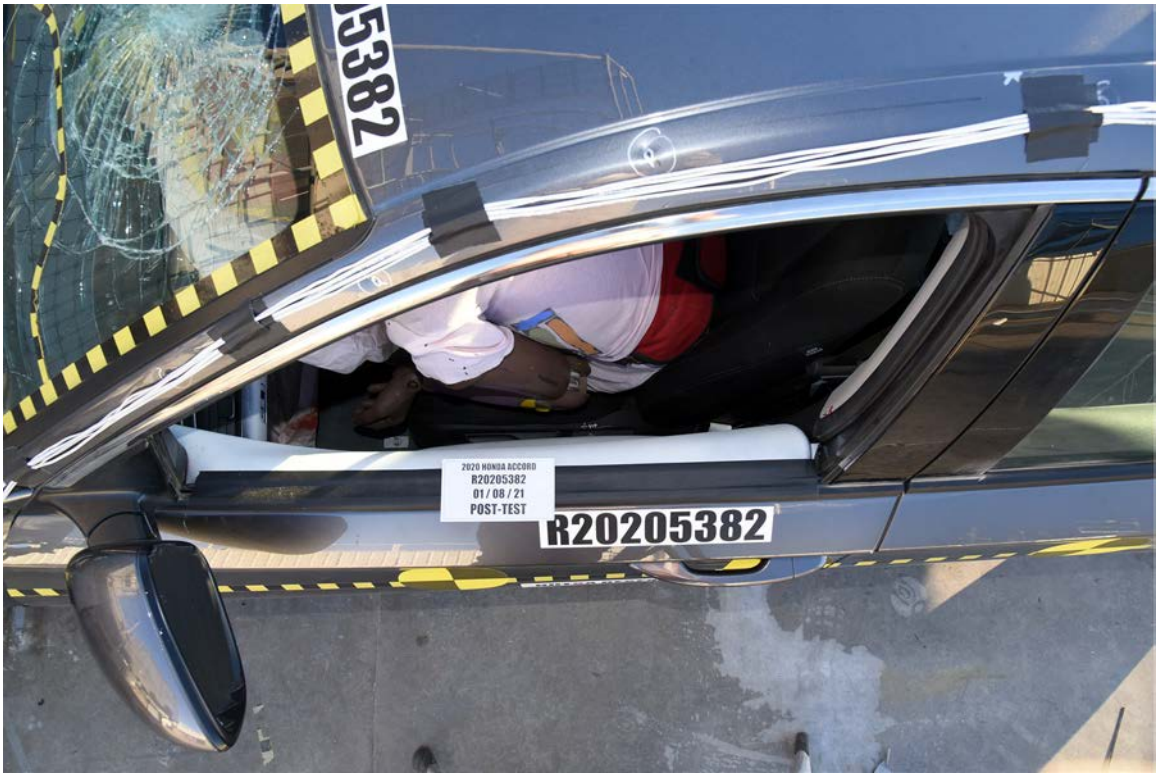


FIGURE 48. Post-Test View of Driver Door Clearance

FIGURE 49. Pre-Test Left Side View of Driver and Interior

FIGURE 50. Post-Test Left Side View of Driver and Interior

FIGURE 51. Pre-Test Left Side View of Steering Wheel Position

FIGURE 52. Post-Test Left Side View of Steering Wheel Position

FIGURE 53. Pre-Test Overhead View of Driver Thighs on Seat

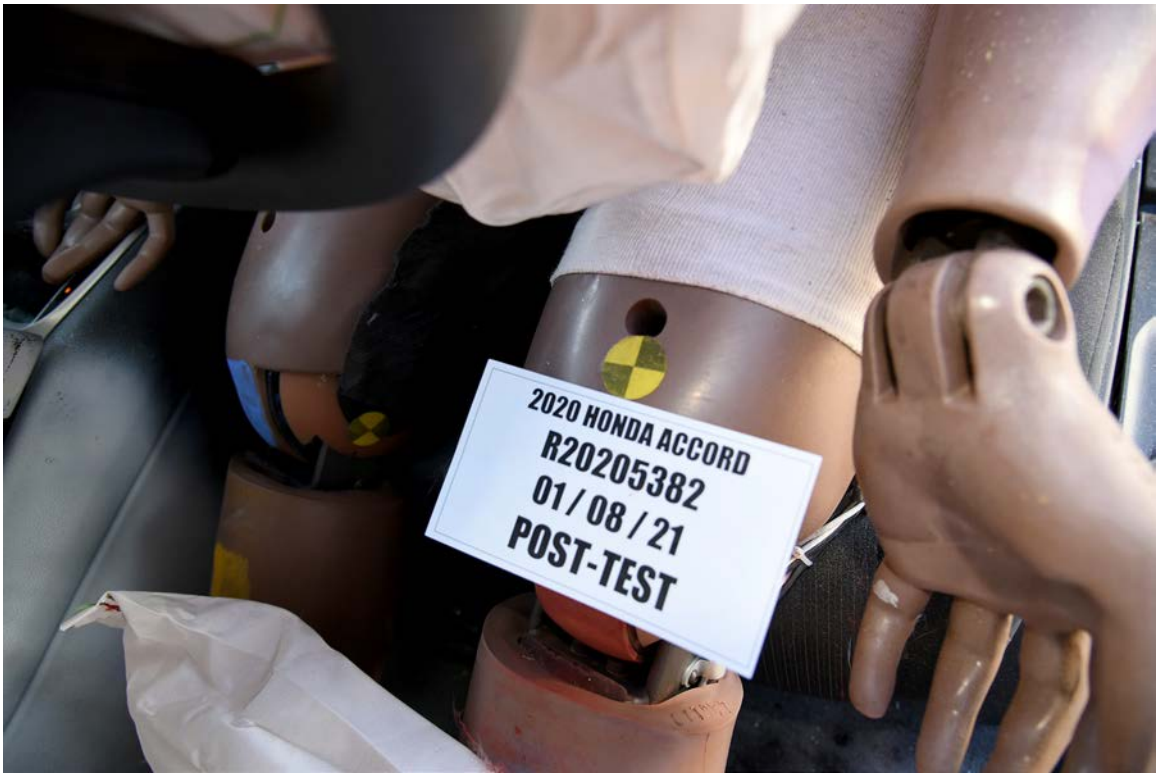


FIGURE 54. Post-Test Overhead View of Driver Thighs on Seat

FIGURE 55. Pre-Test View of Driver Abdomen

FIGURE 56. Post-Test View of Driver Abdomen

FIGURE 57. Pre-Test Right Side View of Driver and Interior

FIGURE 58. Post-Test Right Side View of Driver and Interior

FIGURE 59. Pre-Test View of Driver Left Knee and Bolster

FIGURE 60. Post-Test View of Driver Left Knee and Bolster

FIGURE 61. Pre-Test View of Driver Right Knee and Bolster

FIGURE 62. Post-Test View of Driver Right Knee and Bolster

FIGURE 63. Pre-Test View of the Driver Left Leg

FIGURE 64. Post-Test View of the Driver Left Leg

FIGURE 65. Pre-Test View of the Driver Feet

FIGURE 66. Post-Test View of the Driver Feet

FIGURE 67. Pre-Test Driver Adjustable D-Ring

FIGURE 68. Post-Test Driver Adjustable D-Ring

FIGURE 69. Pre-Test Driver Seat Fore-Aft Markings

FIGURE 70. Post-Test Driver Seat Fore-Aft Markings

FIGURE 71. Pre-Test Driver Seat Back Markings

FIGURE 72. Post-Test Driver Seat Back Markings

FIGURE 73. Pre-Test Close-Up View of Driver Door Latch

FIGURE 74. Post-Test Close-Up View of Driver Door Latch

FIGURE 75. Pre-Test Driver Inner Door Panel

FIGURE 76. Post-Test Driver Inner Door Panel

FIGURE 77. Pre-Test Left Side View of Driver Knee Bolster

FIGURE 78. Post-Test Left Side View of Driver Knee Bolster

FIGURE 79. Pre-Test Overall View of Driver Knee Bolster

FIGURE 80. Post-Test Overall View of Driver Knee Bolster

FIGURE 81. Pre-Test Right Side View of Driver Knee Bolster

FIGURE 82. Post-Test Right Side View of Driver Knee Bolster

FIGURE 83. Pre-Test View of Driver Floor Pan from Outside of Vehicle

FIGURE 84. Post-Test View of Driver Floor Pan from Outside of Vehicle

FIGURE 85. Pre-Test View of Driver Floor Pan from Top of Seat

FIGURE 86. Post-Test View of Driver Floor Pan from Top of Seat

FIGURE 87. Pre-Test View of Driver Floor Pan from Center of Vehicle

FIGURE 88. Post-Test View of Driver Floor Pan from Center of Vehicle

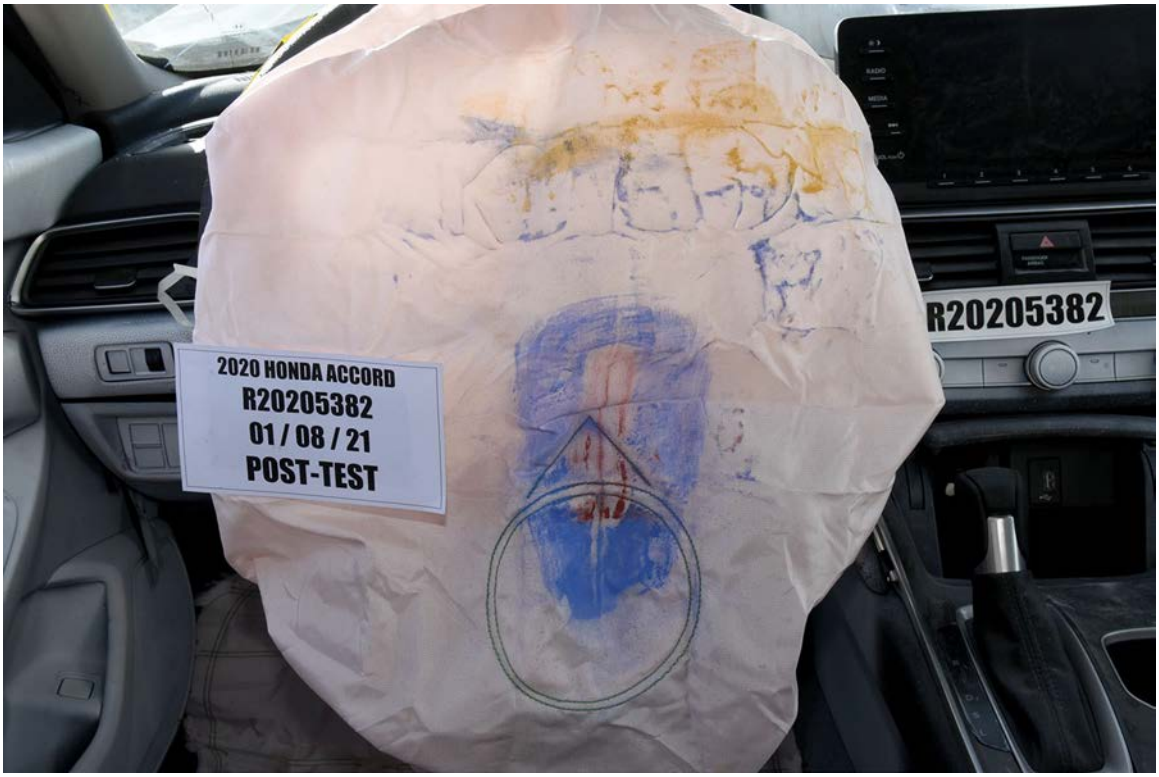


FIGURE 89. Post-Test Driver Dummy Contact with Front Airbag

Photograph Not Applicable

FIGURE 90. Post-Test Driver Dummy Contact with Side Airbag

FIGURE 91. Post-Test Driver Dummy Contact with Knee Airbag

FIGURE 91a. Post-Test Driver Dummy Contact with Headliner

FIGURE 91b. Post-Test Driver Dummy Contact with A-Pillar

FIGURE 92. Pre-Test Passenger Front Windshield View

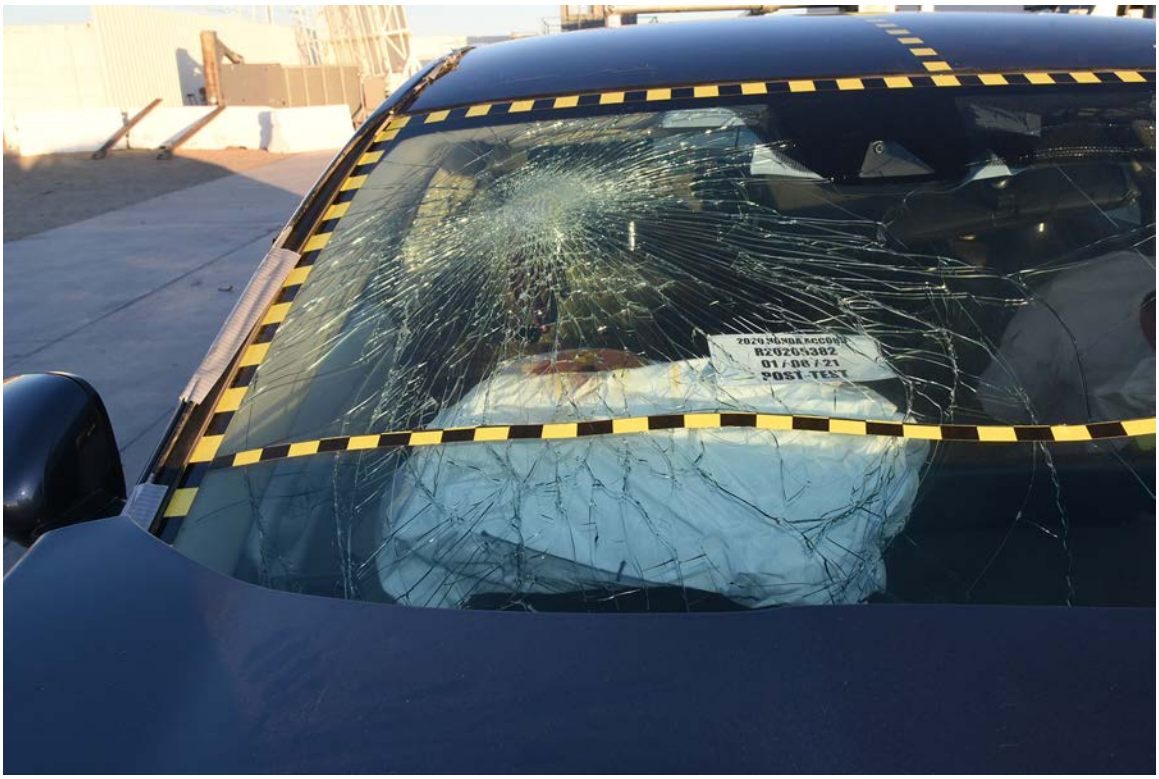


FIGURE 93. Post-Test Passenger Front Windshield View

FIGURE 94. Pre-Test Passenger Side Front Window View

FIGURE 95. Post-Test Passenger Side Front Window View

FIGURE 96. Pre-Test View of Passenger Door Clearance

FIGURE 97. Post-Test View of Passenger Door Clearance

FIGURE 98. Pre-Test Right Side View of Passenger and Interior

FIGURE 99. Post-Test Right Side View of Passenger and Interior

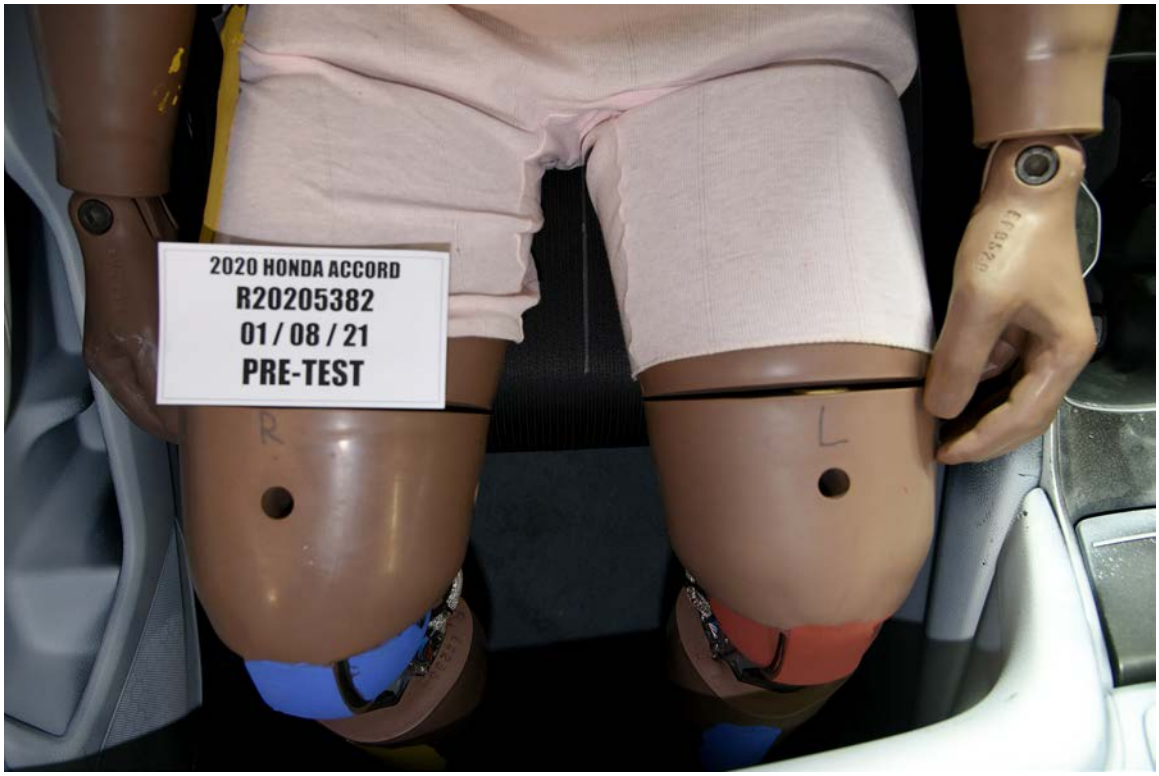


FIGURE 100. Pre-Test Overhead View of Passenger Thighs on Seat

FIGURE 101. Post-Test Overhead View of Passenger Thighs on Seat

FIGURE 102. Pre-Test View of Passenger Abdomen

FIGURE 103. Post-Test View of Passenger Abdomen

FIGURE 104. Pre-Test Left Side Passenger and Interior View

FIGURE 105. Post-Test Left Side Passenger and Interior View

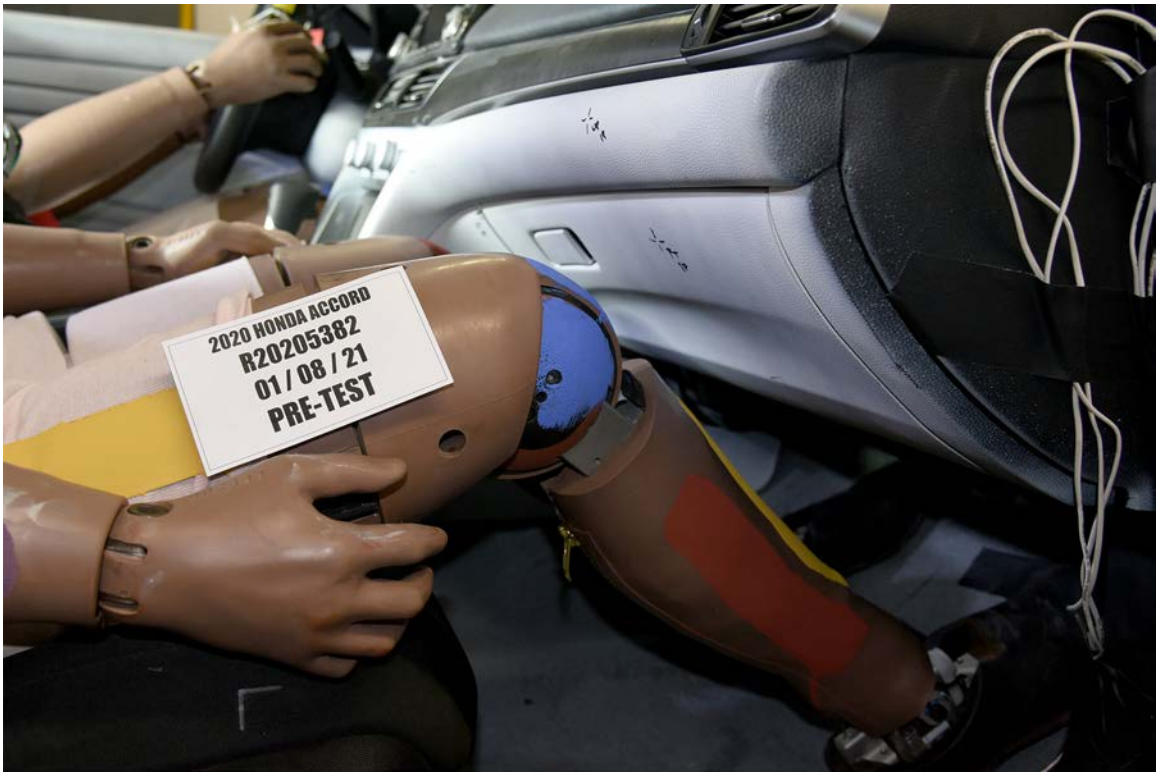


FIGURE 106. Pre-Test View of Passenger Right Knee and Bolster

FIGURE 107. Post-Test View of Passenger Right Knee and Bolster

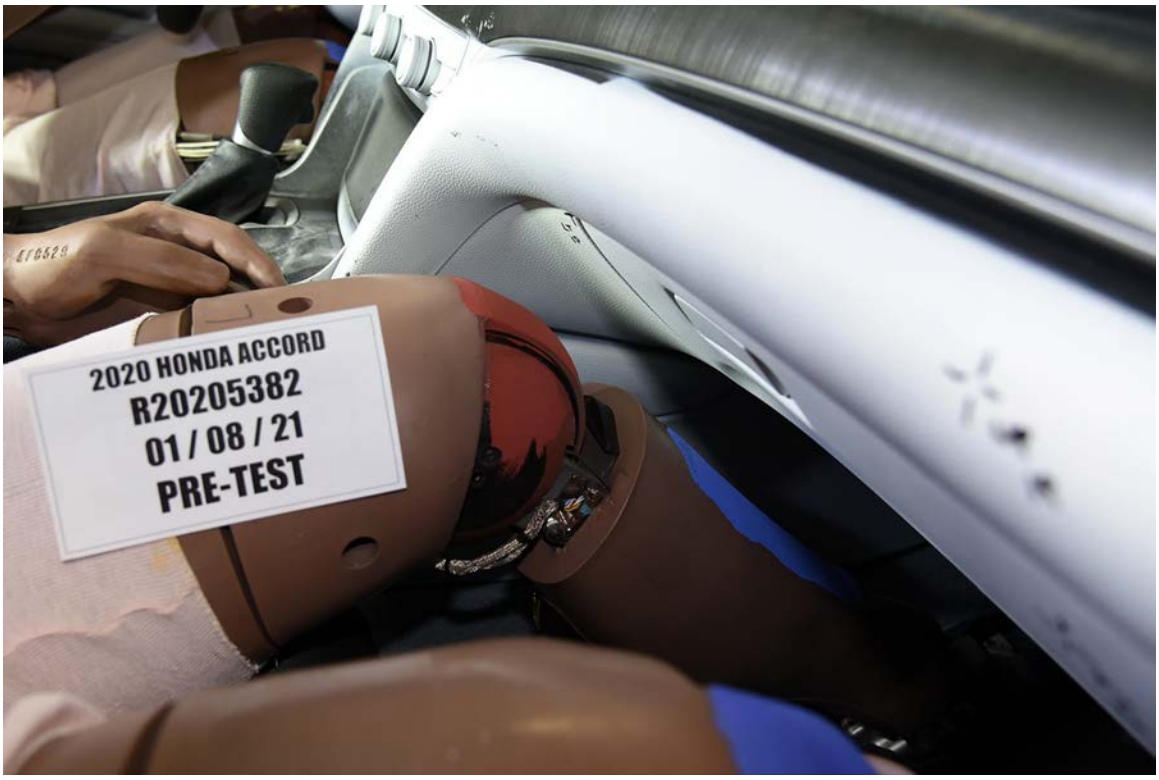


FIGURE 108. Pre-Test View of Passenger Left Knee and Bolster

FIGURE 109. Post-Test View of Passenger Left Knee and Bolster

FIGURE 110. Pre-Test View of the Passenger Feet

FIGURE 111. Post-Test View of the Passenger Feet

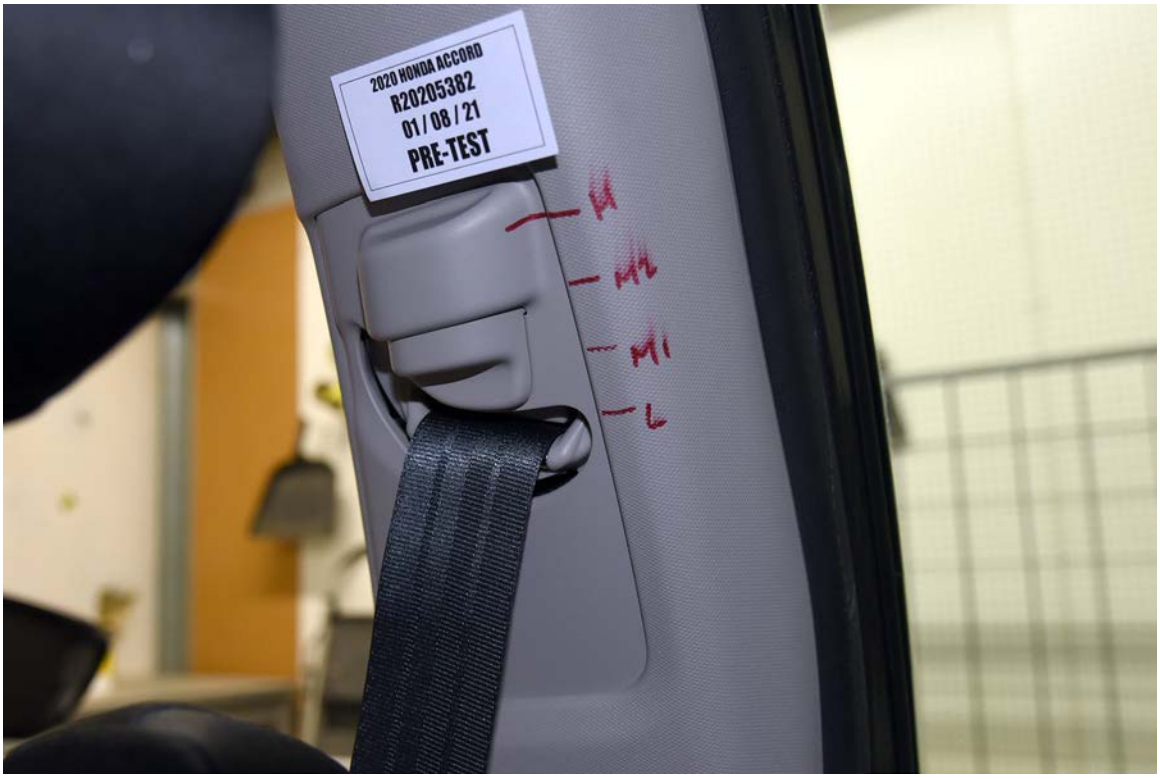


FIGURE 112. Pre-Test Passenger Adjustable D-Ring

FIGURE 113. Post-Test Passenger Adjustable D-Ring

FIGURE 114. Pre-Test Right Front Passenger Seat Fore-Aft Markings

FIGURE 115. Post-Test Right Front Passenger Seat Fore-Aft Markings

FIGURE 116. Pre-Test Passenger Seat Back Markings

FIGURE 117. Post-Test Passenger Seat Back Markings

FIGURE 118. Pre-Test Close-up View of Passenger Door Latch

FIGURE 119. Post-Test Close-up View of Passenger Door Latch

FIGURE 120. Pre-Test Passenger Inner Door Panel

FIGURE 121. Post-Test Passenger Inner Door Panel

FIGURE 122. Pre-Test Right Side View of Passenger Knee Bolster

FIGURE 123. Post-Test Right Side View of Passenger Knee Bolster

FIGURE 124. Pre-Test Center View of Passenger Knee Bolster

FIGURE 125. Post-Test Center View of Passenger Knee Bolster

FIGURE 126. Pre-Test Left Side View of Passenger Knee Bolster

FIGURE 127. Post-Test Left Side View of Passenger Knee Bolster

FIGURE 128. Pre-Test View of Passenger Floor Pan from Outside of Vehicle

FIGURE 129. Post-Test View of Passenger Floor Pan from Outside of Vehicle

FIGURE 130. Pre-Test View of Passenger Floor Pan from Top of Front Seat

FIGURE 131. Post-Test View of Passenger Floor Pan from Top of Front Seat

FIGURE 132. Pre-Test View of Passenger Floor Pan from Center of Vehicle

FIGURE 133. Post-Test View of Passenger Floor Pan from Center of Vehicle

FIGURE 134. Post-Test Passenger Dummy Contact with Front Airbag

Photograph Not Applicable

FIGURE 135. Post-Test Passenger Dummy Contact with Side Airbag

FIGURE 136. Post-Test Passenger Dummy Contact with Knee Airbag

FIGURE 136a. Post-Test Passenger Dummy Contact with Headliner

FIGURE 136b. Post-Test Passenger Dummy Contact with Windshield

Photograph Not Applicable

FIGURE 136c. Post-Test Passenger Dummy Contact with Pelvis Airbag

FIGURE 136d. Post-Test Passenger Dummy Contact with Knee Bolster

FIGURE 136e. Post-Test Passenger Dummy Contact with Door Panel

FIGURE 136f. Post-Test Passenger Dummy Contact with Knee Airbag

Photograph Not Available

FIGURE 137. Photograph of Ballast Installed in Vehicle

Photograph Not Applicable

No Stoddard
Solvent Spillage

FIGURE 138. Post-Test Stoddard Solvent Spillage Location View

FIGURE 139. Post-Test Speed Trap Read-Out

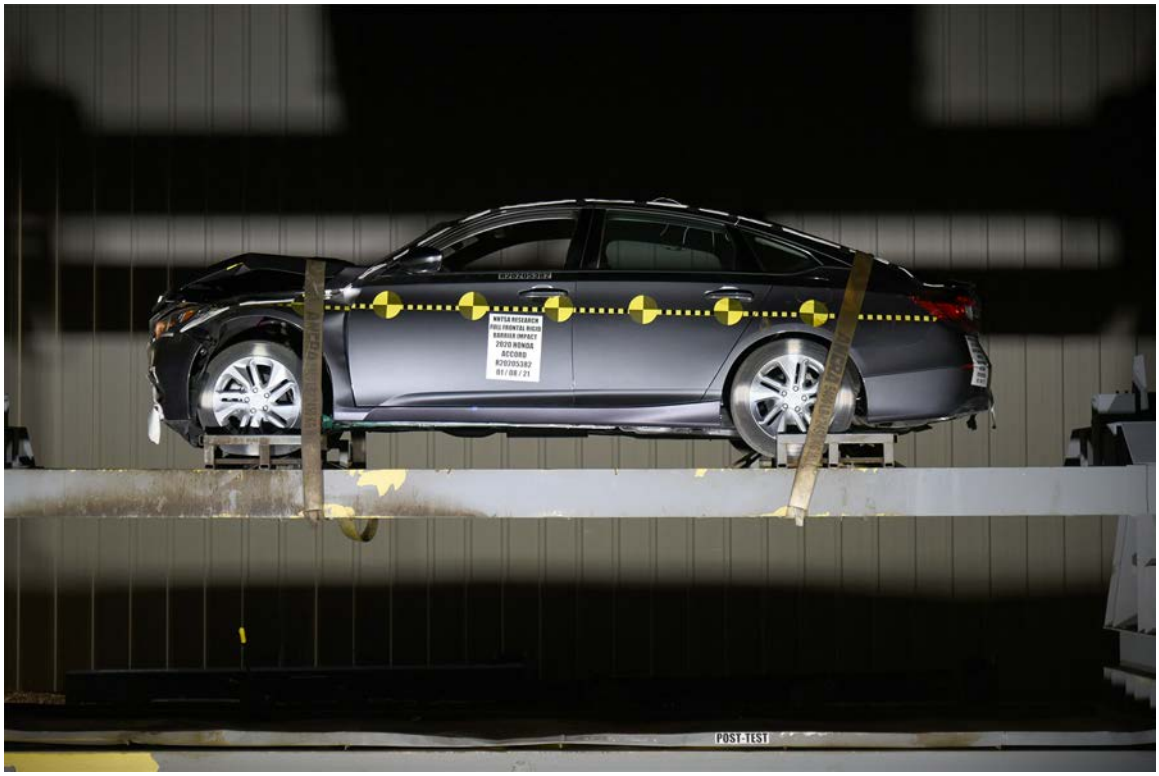


FIGURE 140. Vehicle at 0° on Static Rollover Device

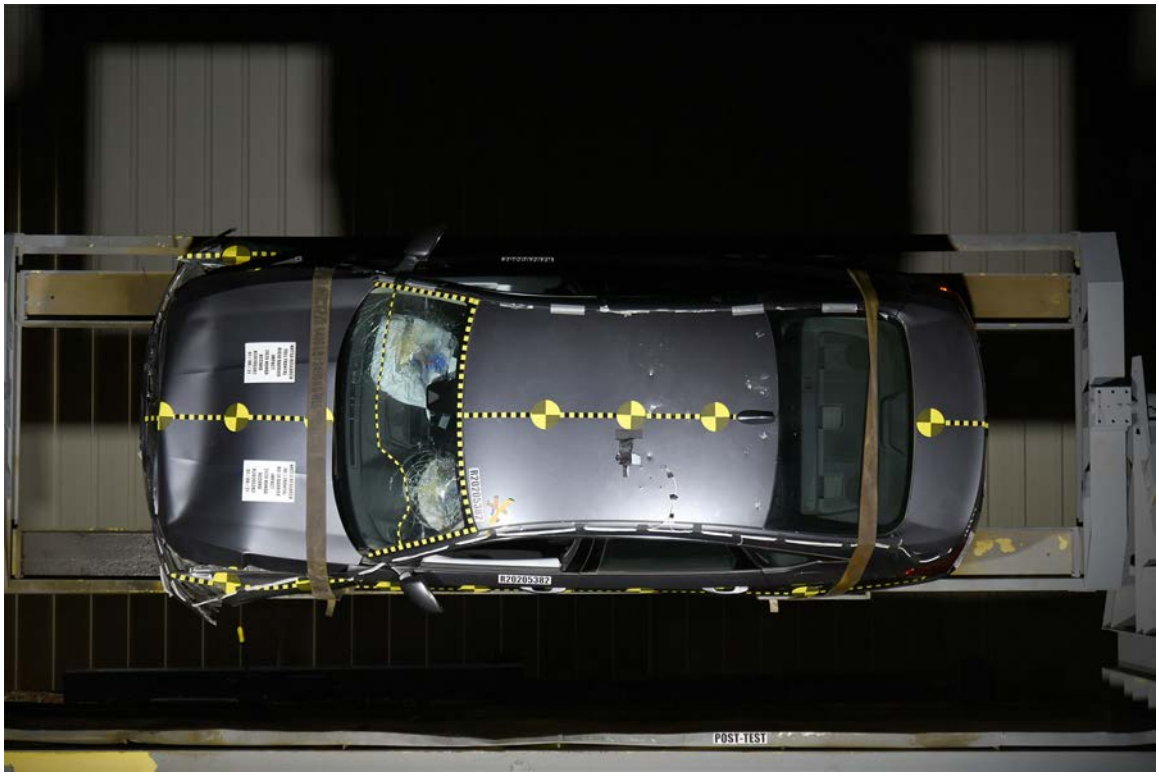


FIGURE 141. Vehicle at 90° on Static Rollover Device

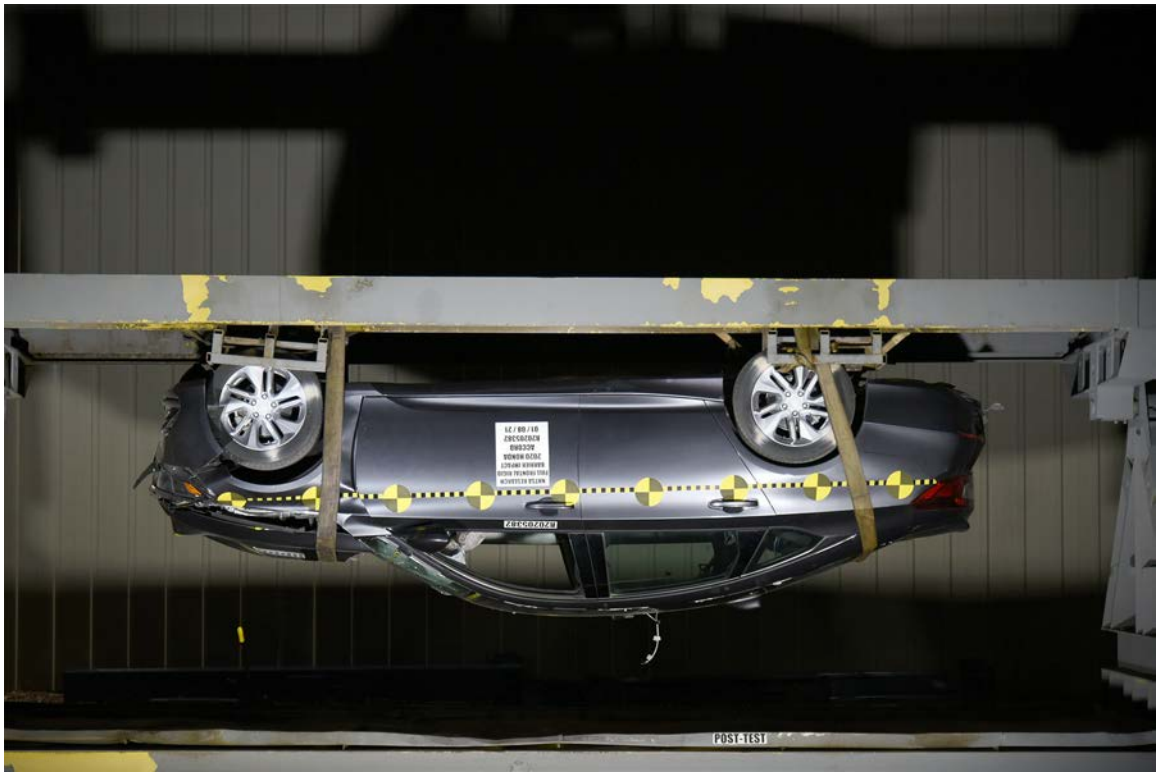


FIGURE 142. Vehicle at 180° on Static Rollover Device

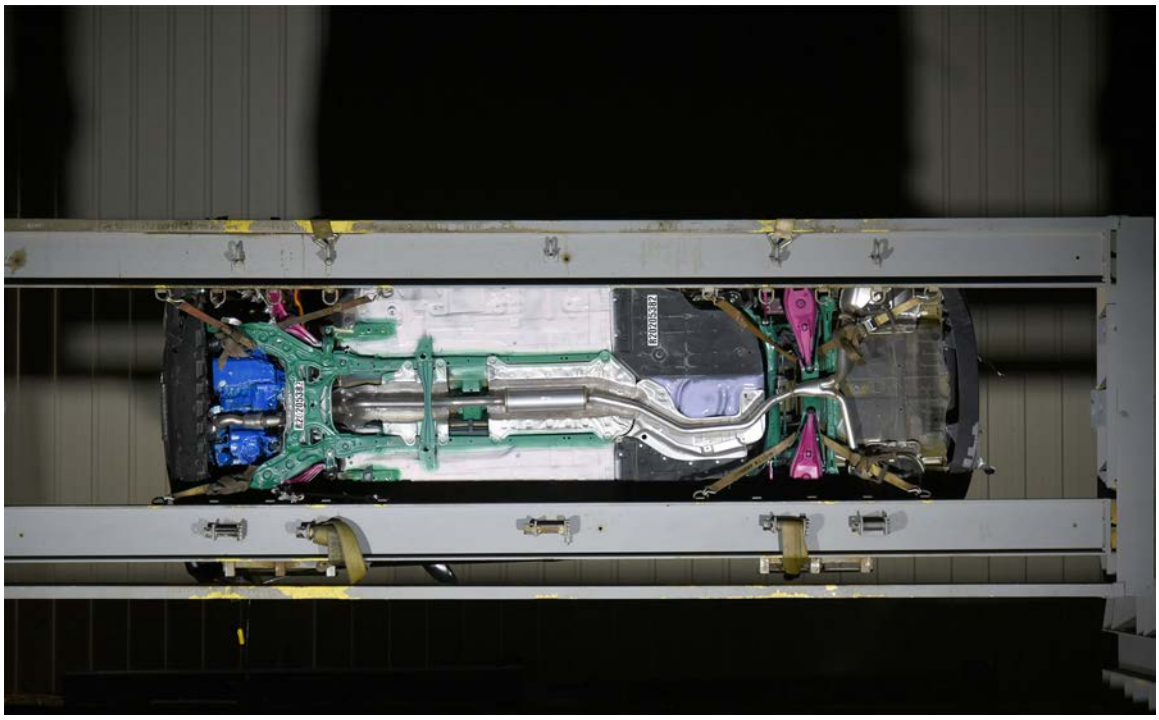


FIGURE 143. Vehicle at 270° on Static Rollover Device

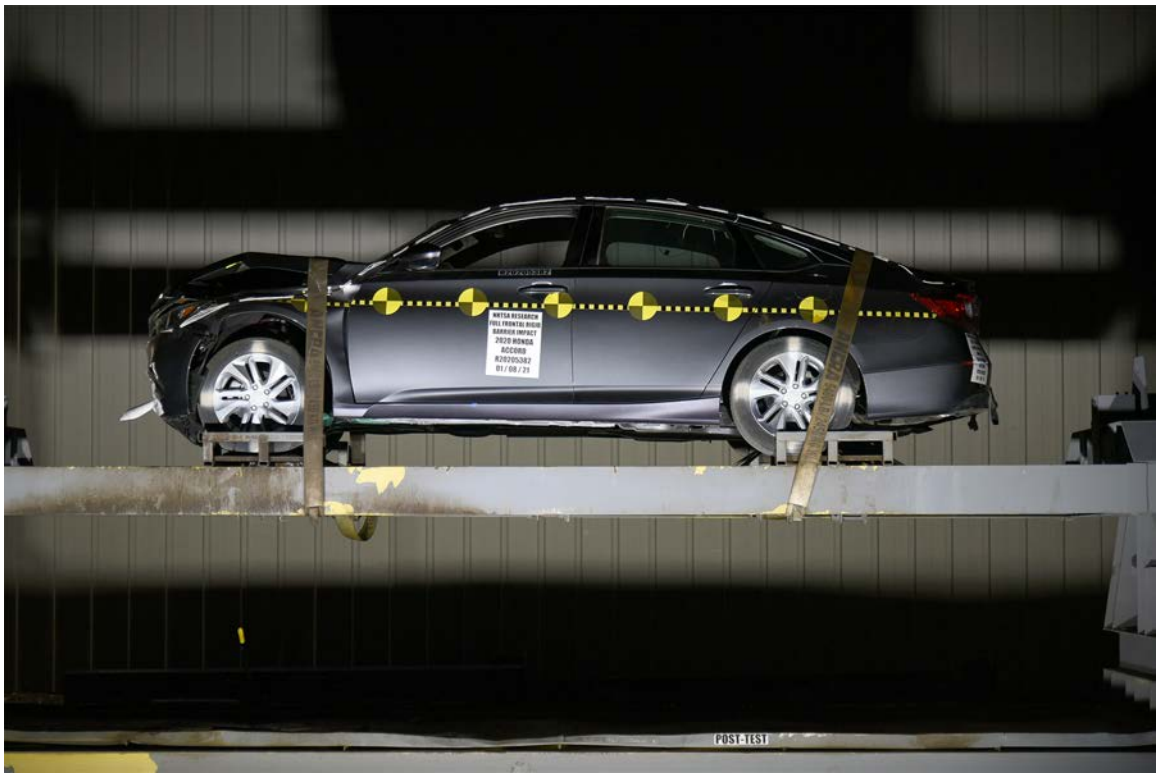


FIGURE 144. Vehicle at 360° on Static Rollover Device

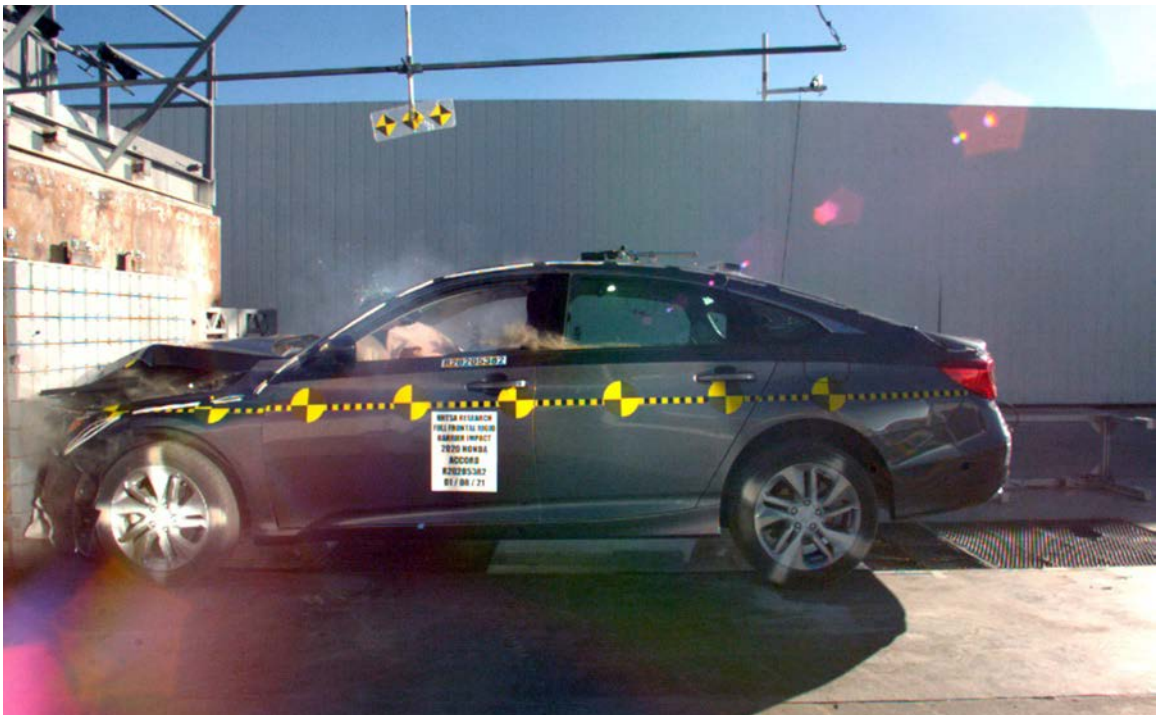


FIGURE 145. Frontal Impact Event

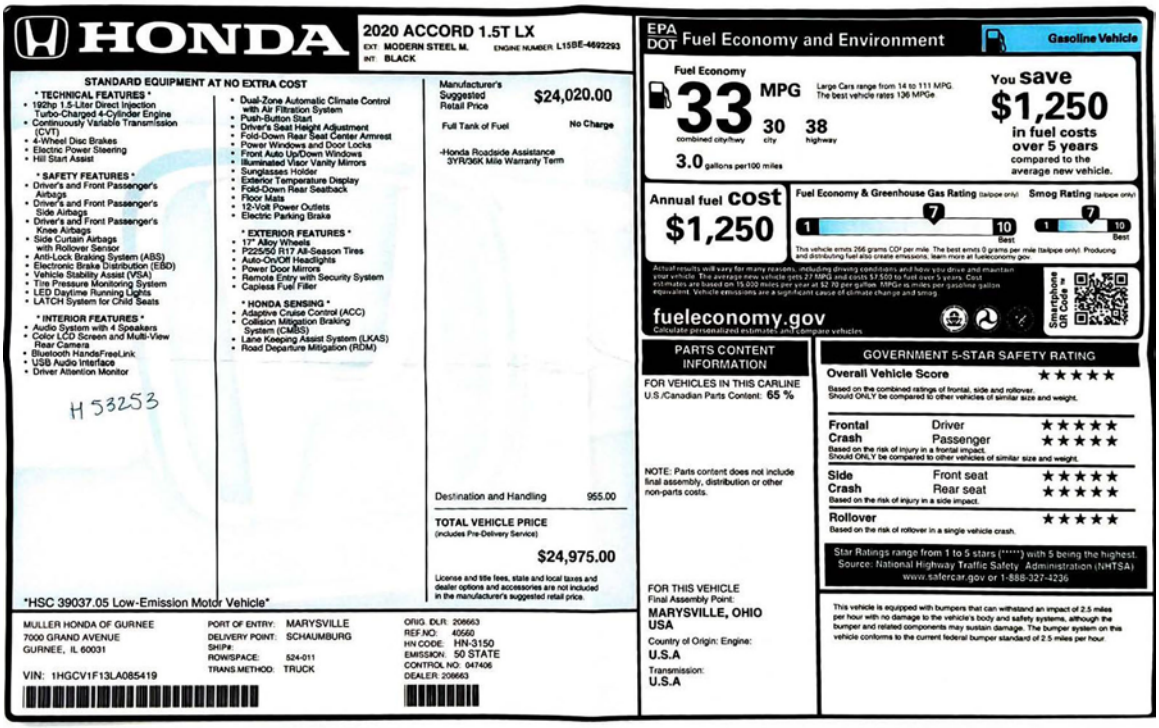


FIGURE 146. Monroney Label Photograph

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA TRACES

TABLE OF DATA PLOTS

TABLE OF DATA PLOTS … (CONTINUED)

TABLE OF DATA PLOTS … (CONTINUED)

TABLE OF DATA PLOTS … (CONTINUED)

TABLE OF DATA PLOTS … (CONTINUED)

TABLE OF DATA PLOTS … (CONTINUED)

TABLE OF DATA PLOTS … (CONTINUED)

TABLE OF DATA PLOTS … (CONTINUED)

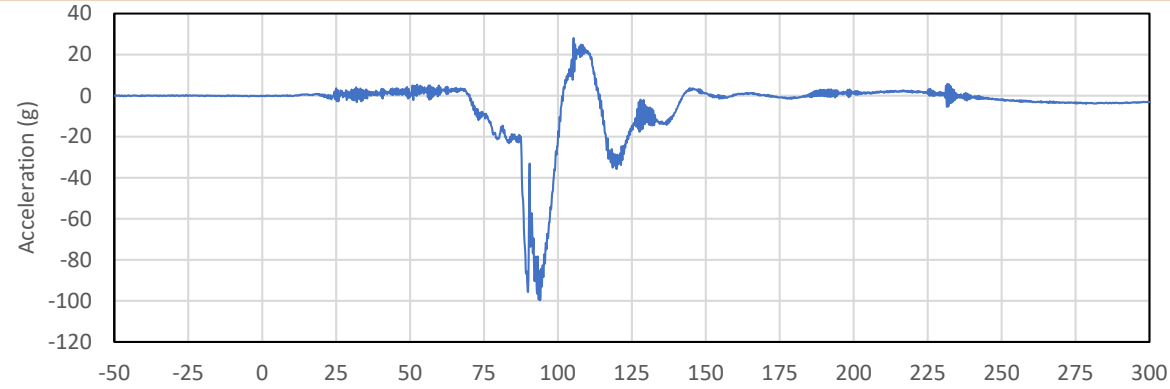
TABLE OF DATA PLOTS … (CONTINUED)

Test Vehicle: 2020 Honda Accord 4-Door Sedan

Test Program: Right Side 30° Frontal Rigid Barrier Impact

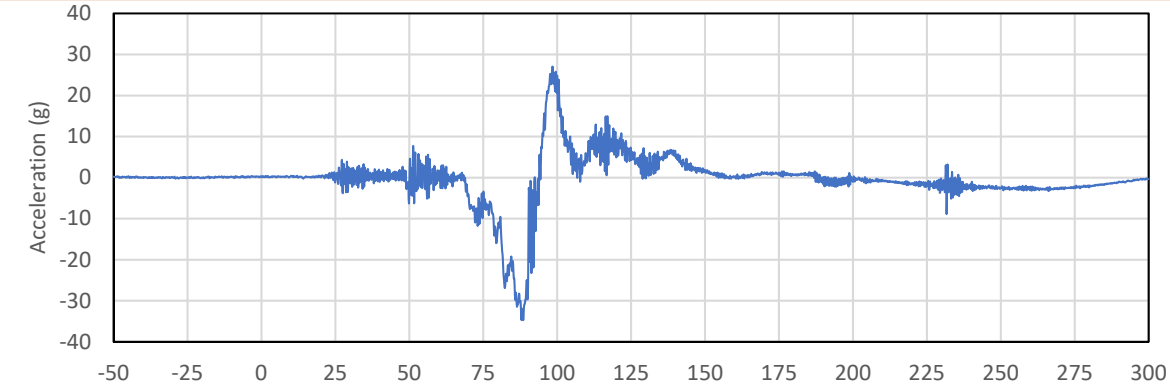
NHTSA No.: R20205381

Test Date: 10/9/2020



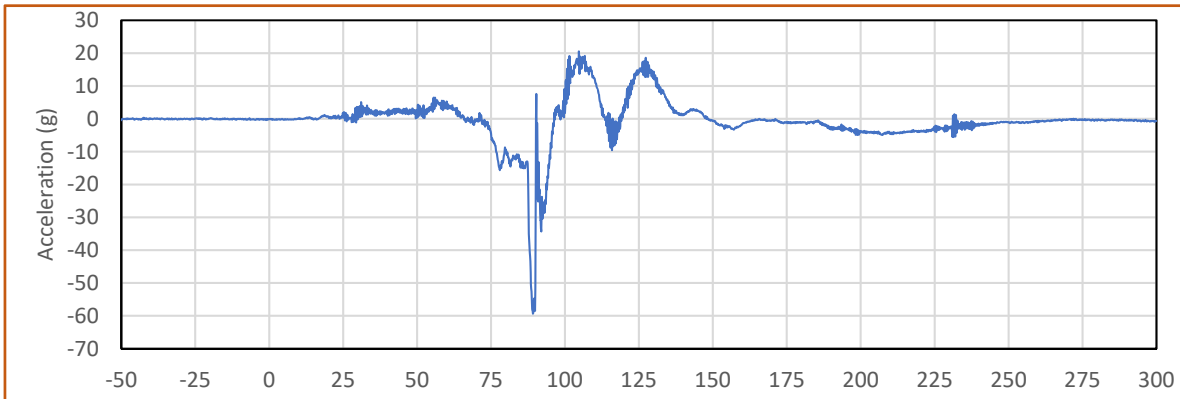
P2TH HEAD CG X ACCELERATION

13HEAD0000THACXA
Max:28.1@105.3
Min:-99.7@94.0
SAE Class 1000



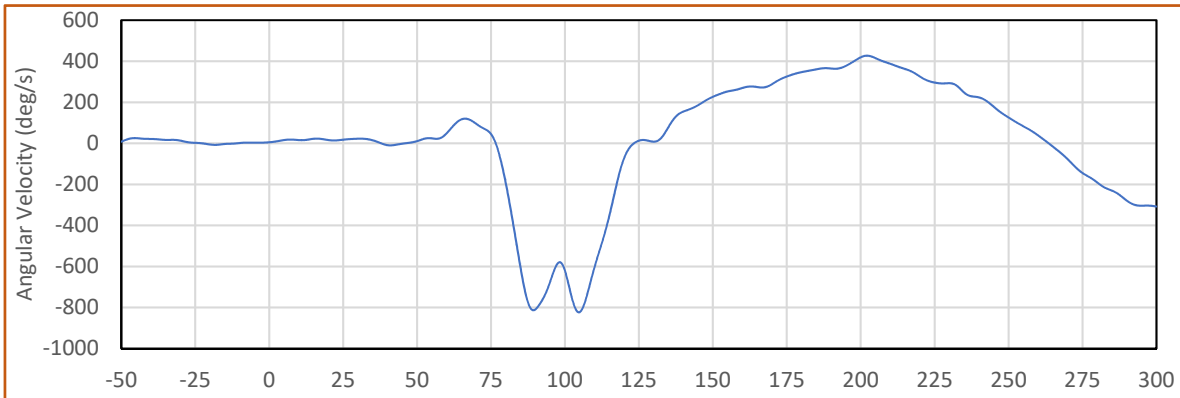
P2TH HEAD CG Y ACCELERATION

13HEAD0000THACYA
Max:27.1@98.4
Min:-34.7@88.5
SAE Class 1000



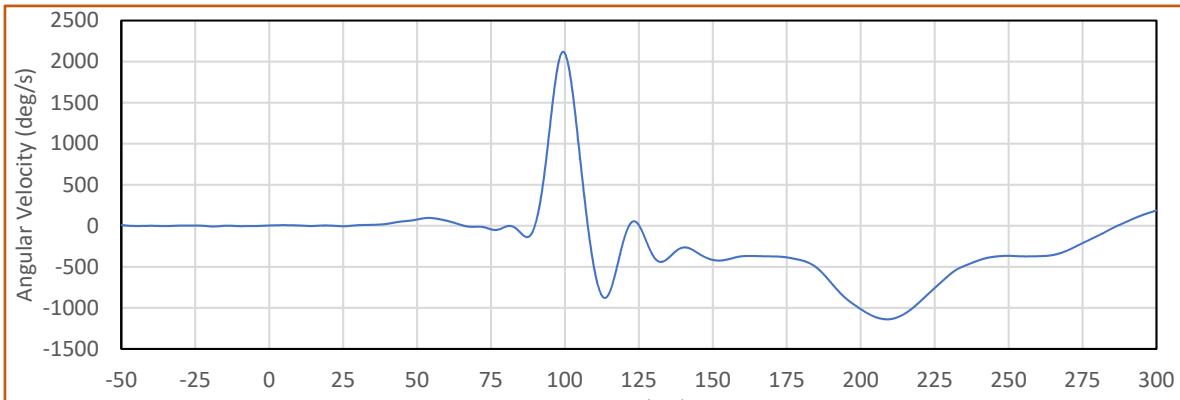
P2TH HEAD CG Z ACCELERATION

13HEAD0000THACZA
Max:20.5@104.7
Min:-59.4@89.2
SAE Class 1000



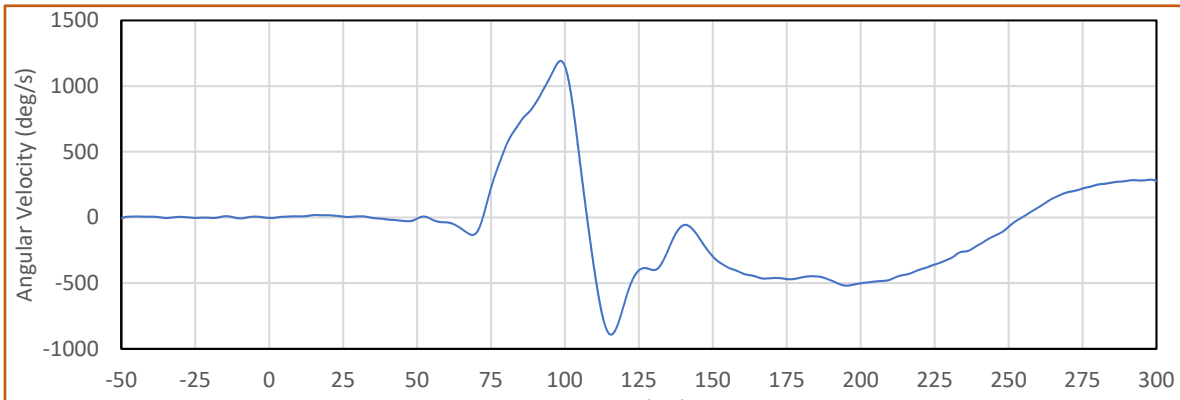
P2TH HEAD CG ANGULAR VELOCITY ABOUT X

13HEAD0000THAVXD
Max:427.0@202.1
Min:-823.6@104.7
SAE Class 60



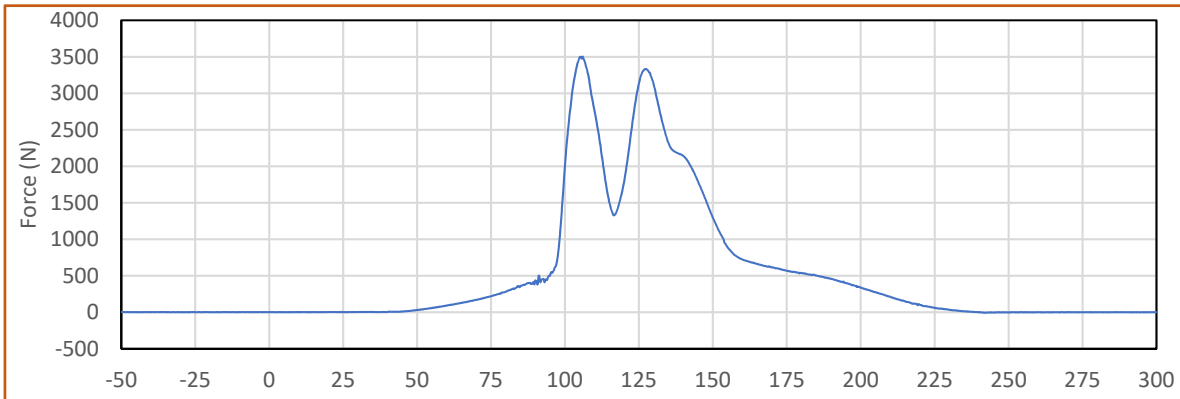
P2TH HEAD CG ANGULAR VELOCITY ABOUT Y

13HEAD0000THAVYD
Max:2119.8@99.4
Min:-1140.1@209.0
SAE Class 60



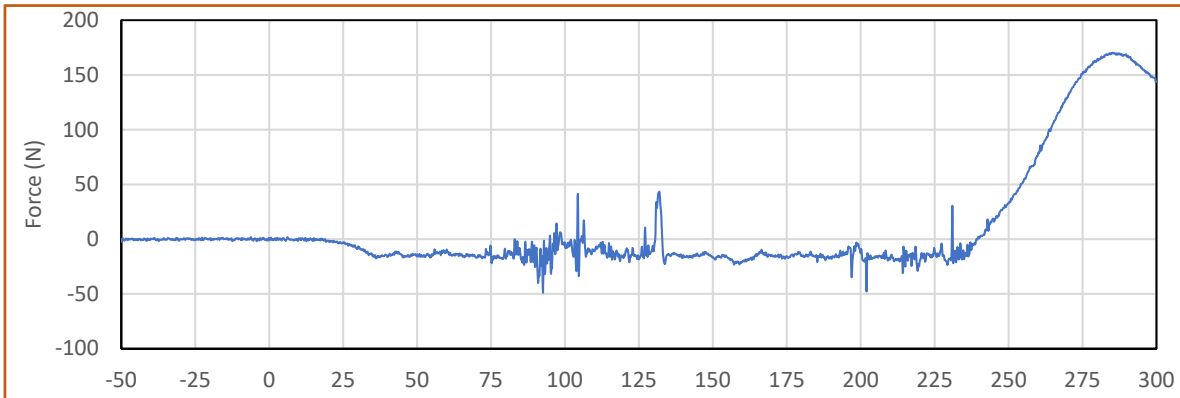
P2TH HEAD CG ANGULAR VELOCITY ABOUT Z

13HEAD0000THAVZD
Max:1191.9@98.6
Min:-892.5@115.6
SAE Class 60



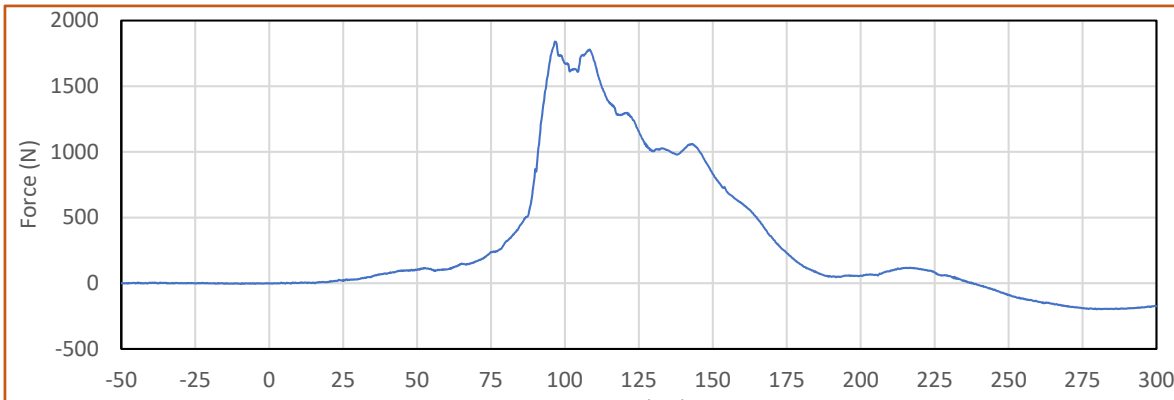
P2TH FRONT NECK SPRING TOWER LOAD CELL

13NECKFR00THFOZA
Max:3503.3@106.0
Min:-8.5@241.9
SAE Class 1000



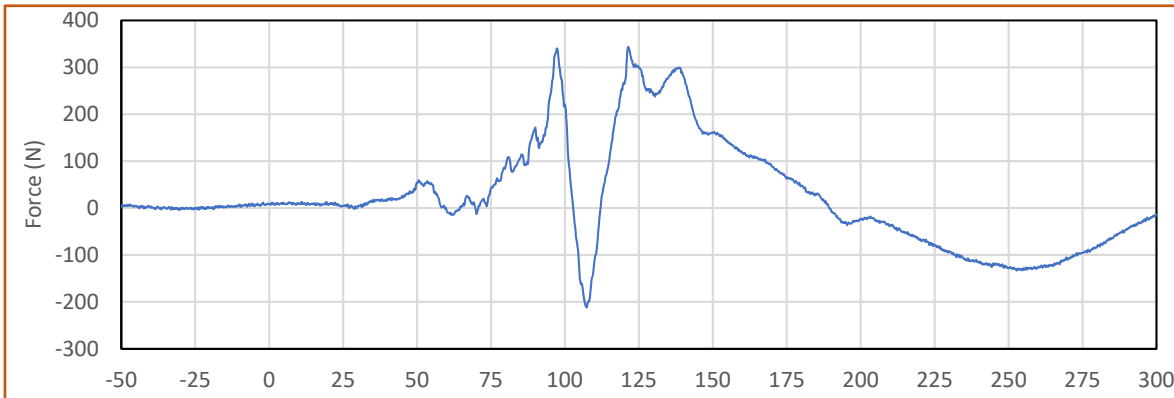
P2TH REAR NECK SPRING TOWER LOAD CELL

13NECKRE00THFOZA
Max:170.2@285.2
Min:-48.9@92.6
SAE Class 1000



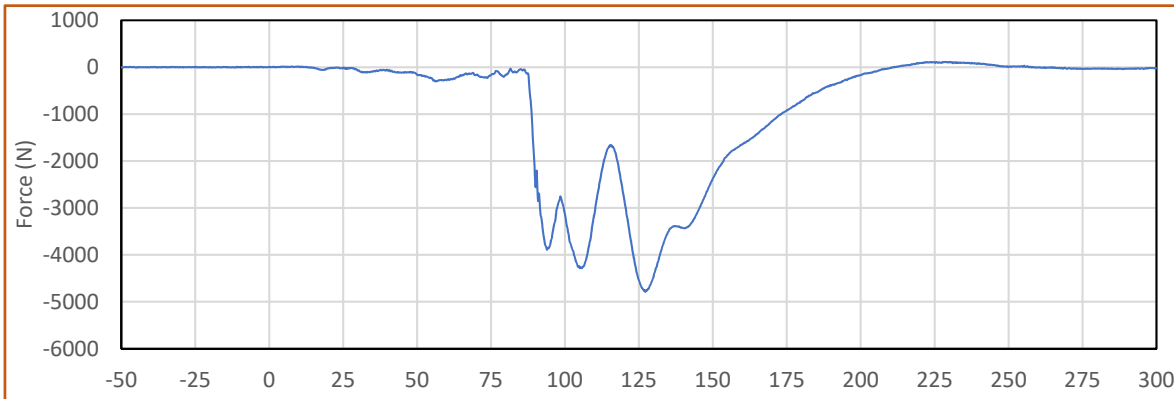
P2TH UPPER NECK X FORCE

13NECKUP00THFOXA
Max:1839.5@96.7
Min:-198.4@279.7
SAE Class 1000



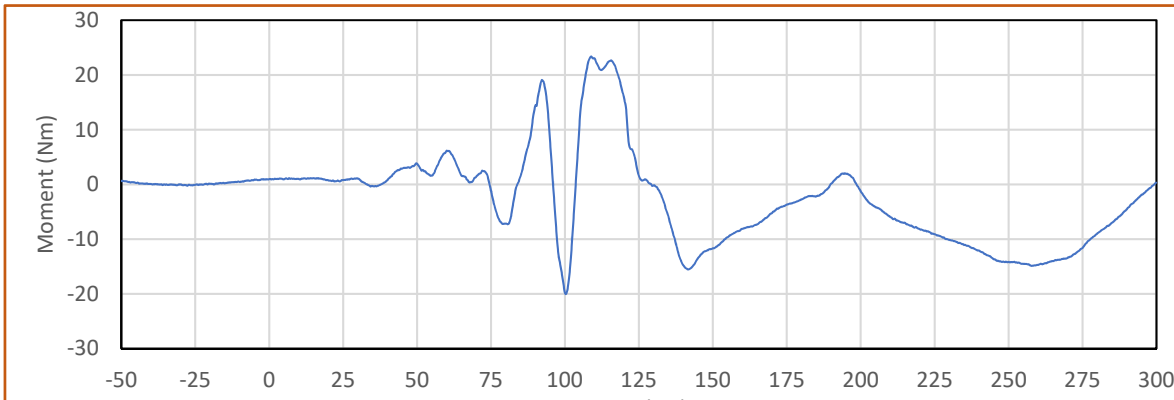
P2TH UPPER NECK Y FORCE

13NECKUP00THFOYA
Max:343.7@121.4
Min:-211.9@107.3
SAE Class 1000



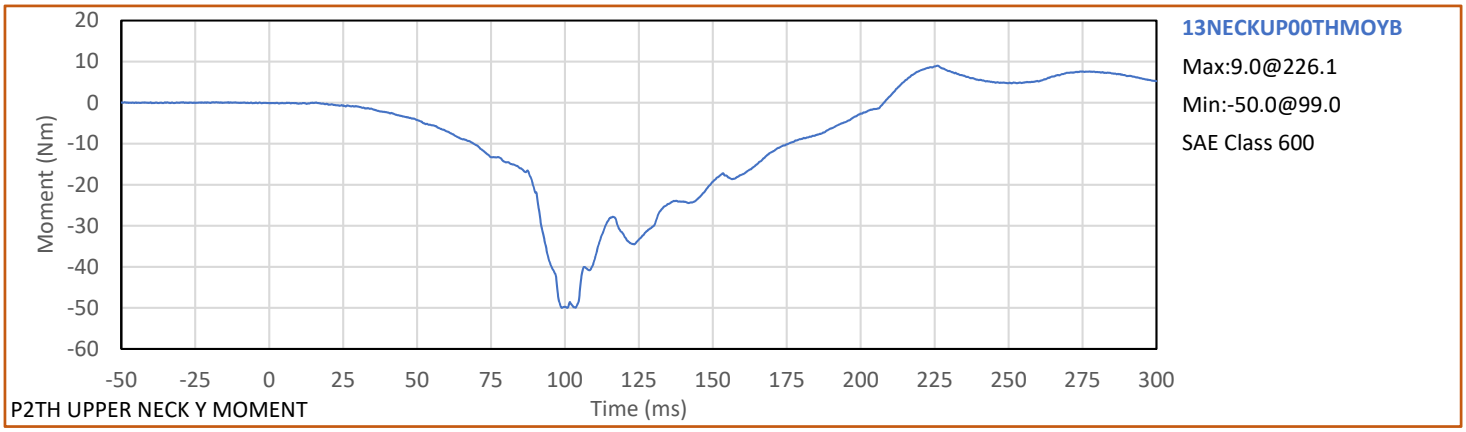
P2TH UPPER NECK Z FORCE

13NECKUP00THFOZA
Max:113.3@228.4
Min:-4789.9@127.2
SAE Class 1000



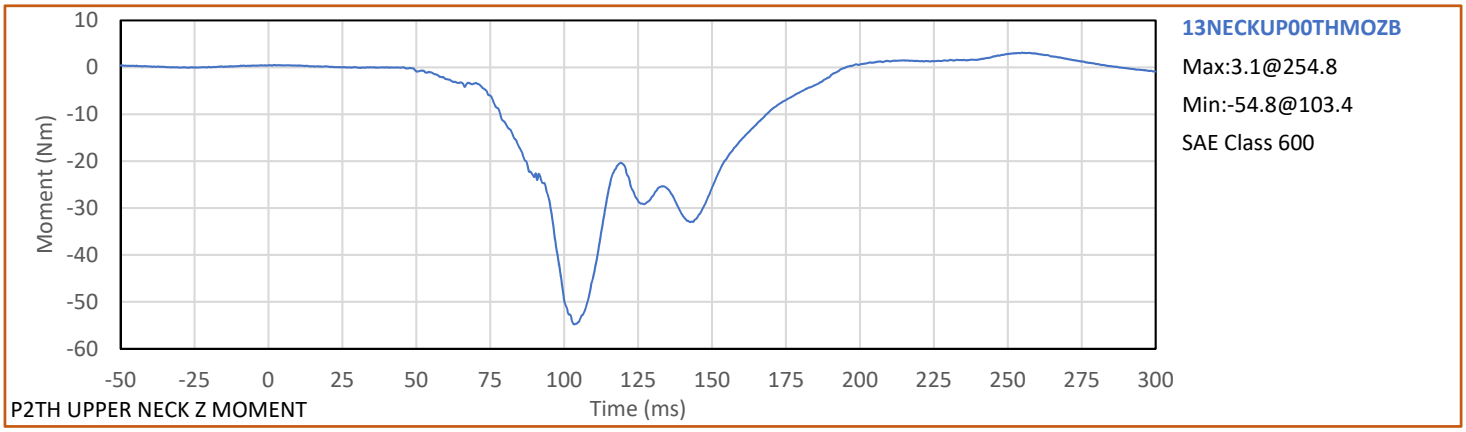
P2TH UPPER NECK X MOMENT

13NECKUP00THMOXB
Max:23.4@108.8
Min:-20.0@100.3
SAE Class 600



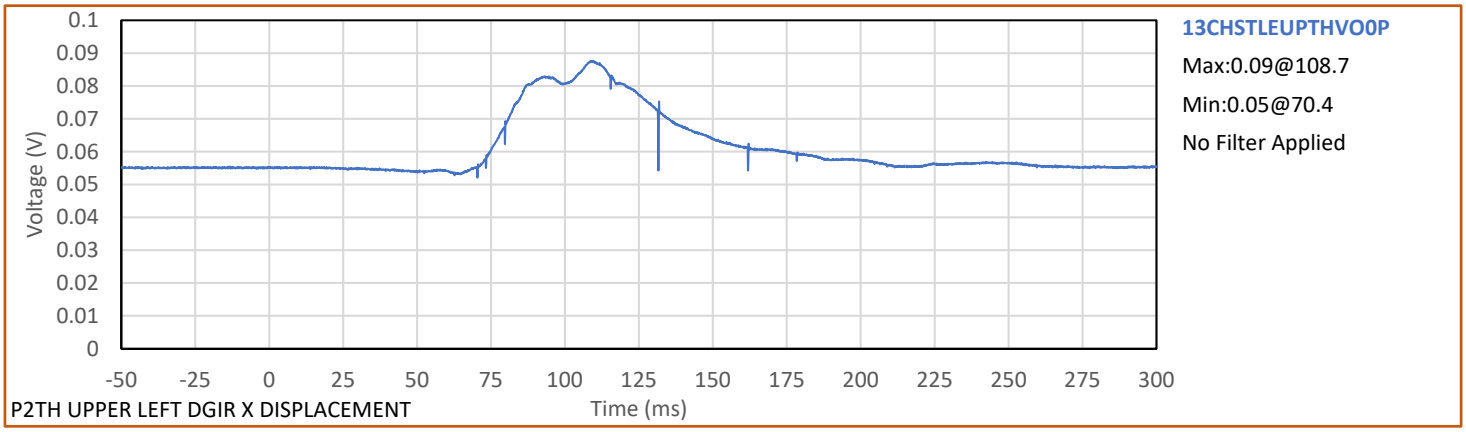
P2TH UPPER NECK Y MOMENT

13NECKUP00THMOYB
Max:9.0@226.1
Min:-50.0@99.0
SAE Class 600



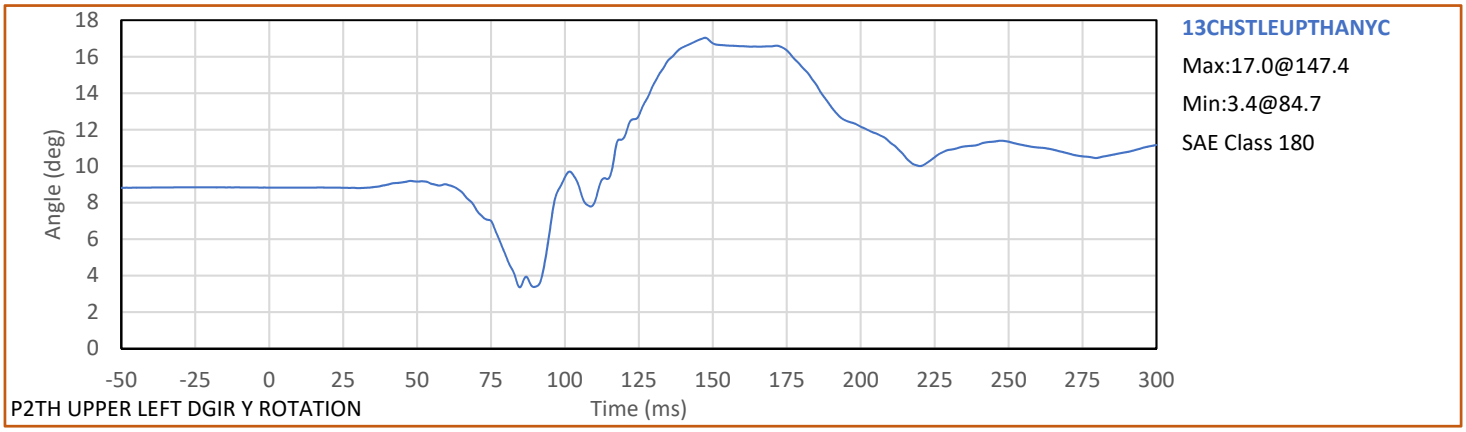
P2TH UPPER NECK Z MOMENT

13NECKUP00THMOZB
Max:3.1@254.8
Min:-54.8@103.4
SAE Class 600



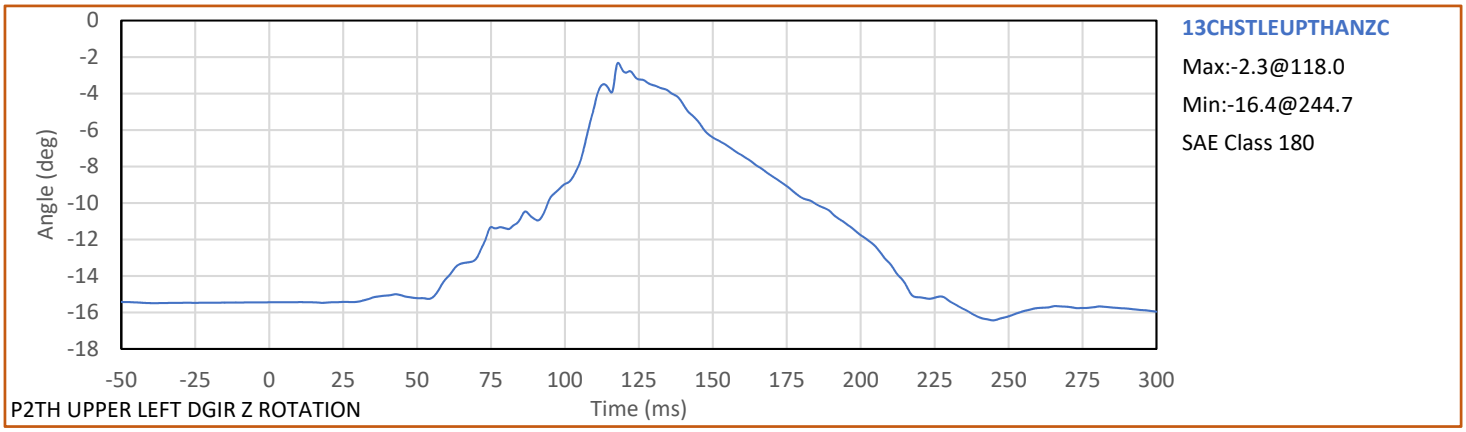
P2TH UPPER LEFT DGIR X DISPLACEMENT

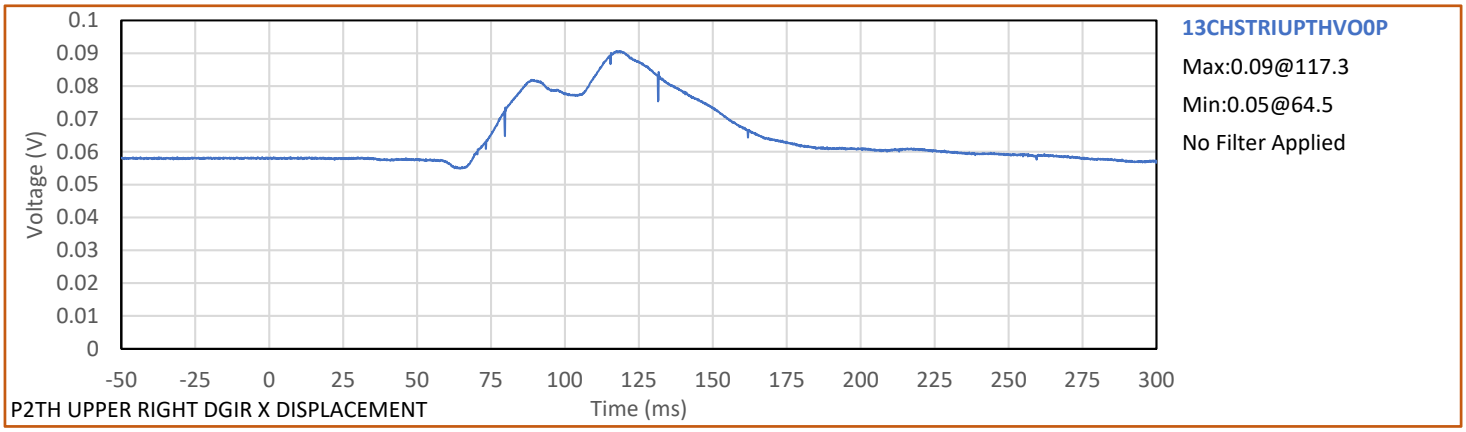
13CHSTLEUPTHVO0P
Max:0.09@108.7
Min:0.05@70.4
No Filter Applied

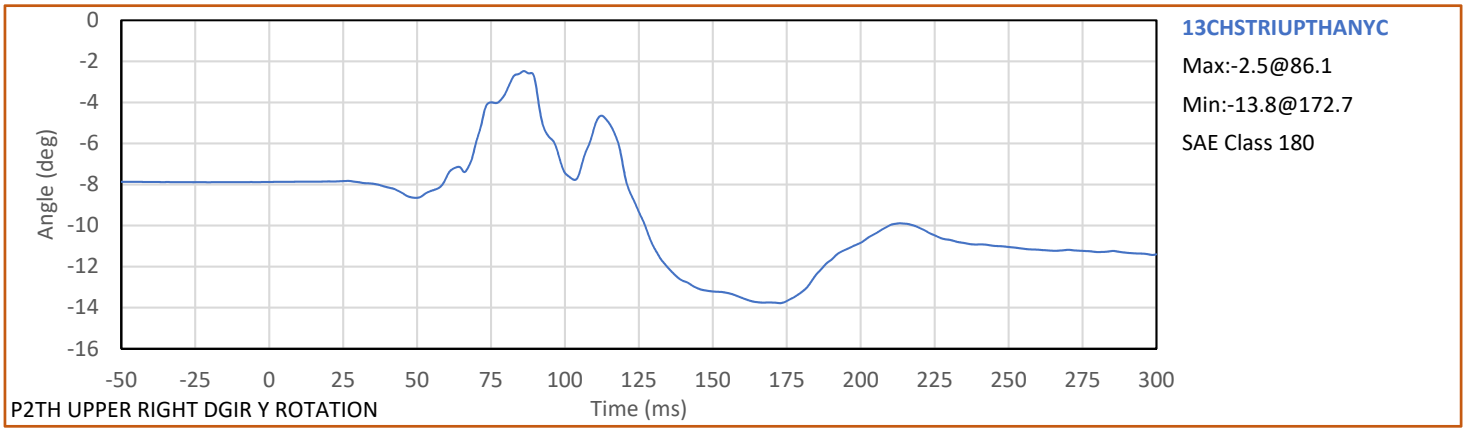


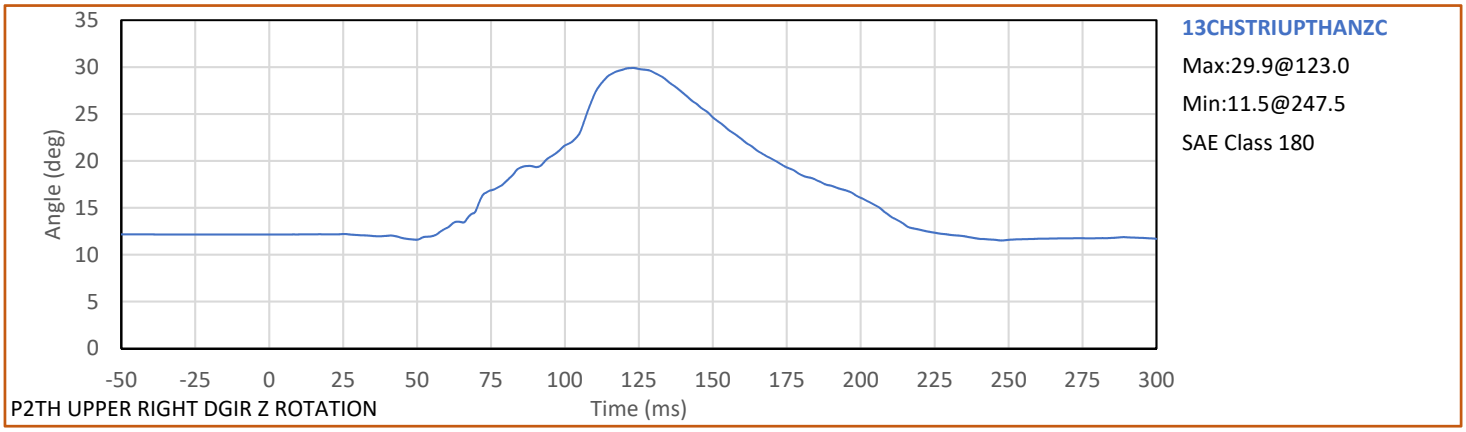
P2TH UPPER LEFT DGIR Y ROTATION

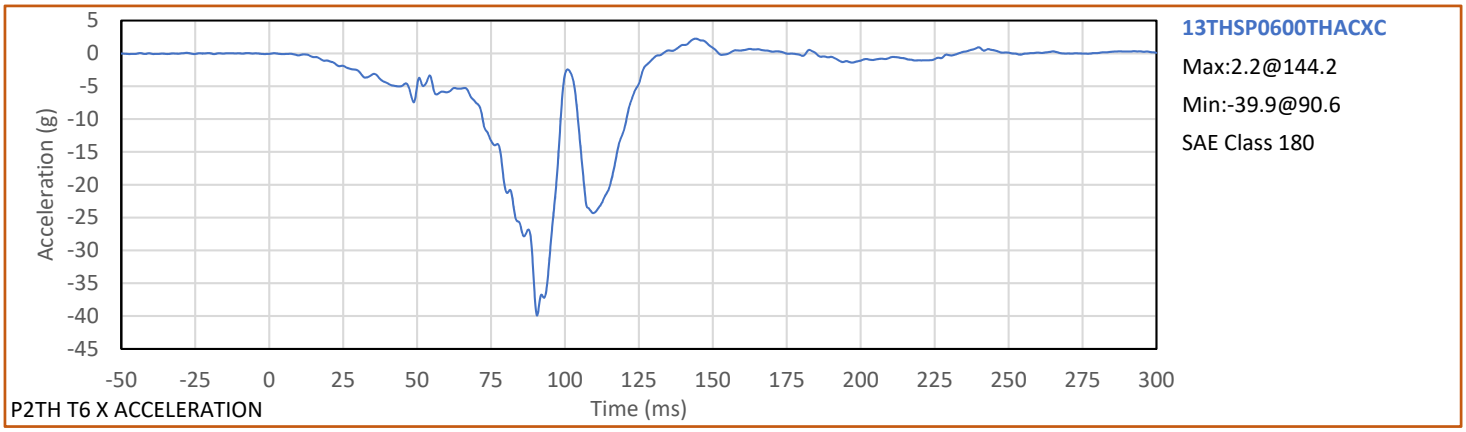
13CHSTLEUPTHANYC
Max:17.0@147.4
Min:3.4@84.7
SAE Class 180

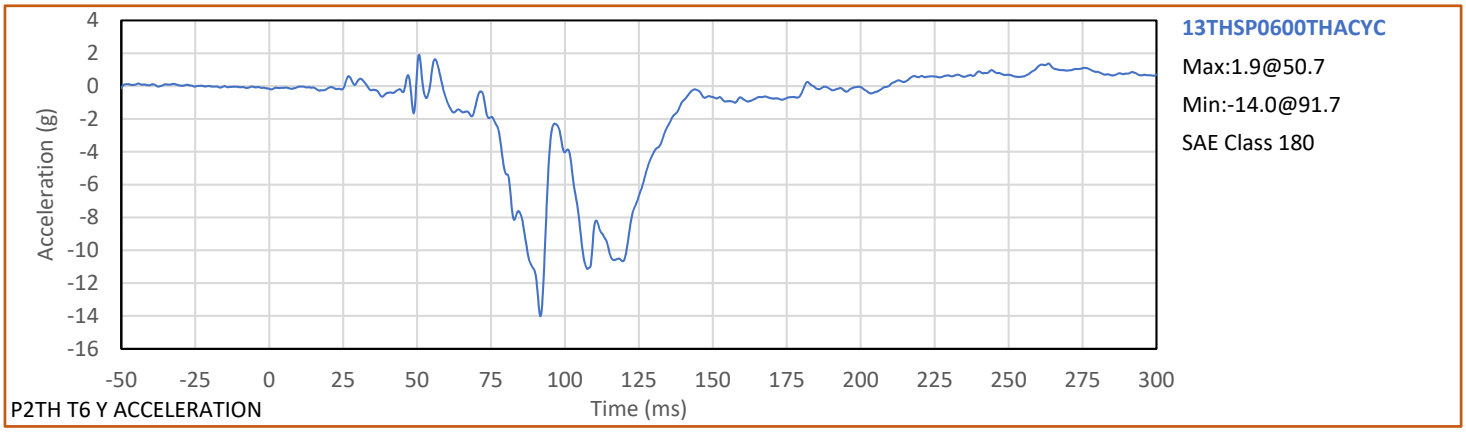

Angle (deg)
Time (ms)
P2TH UPPER LEFT DGIR Z ROTATION
13CHSTLEUPTHANZC
Max:-2.3@118.0
Min:-16.4@244.7
SAE Class 180

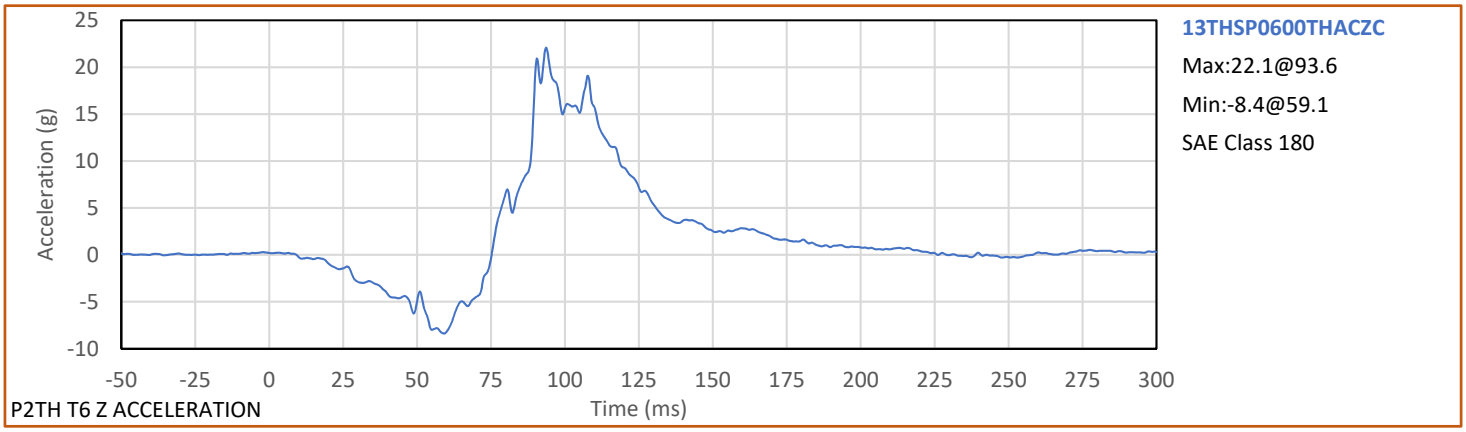

Voltage (V)
Time (ms)
P2TH UPPER RIGHT DGIR X DISPLACEMENT
13CHSTRIUPTHVO0P
Max:0.09@117.3
Min:0.05@64.5
No Filter Applied

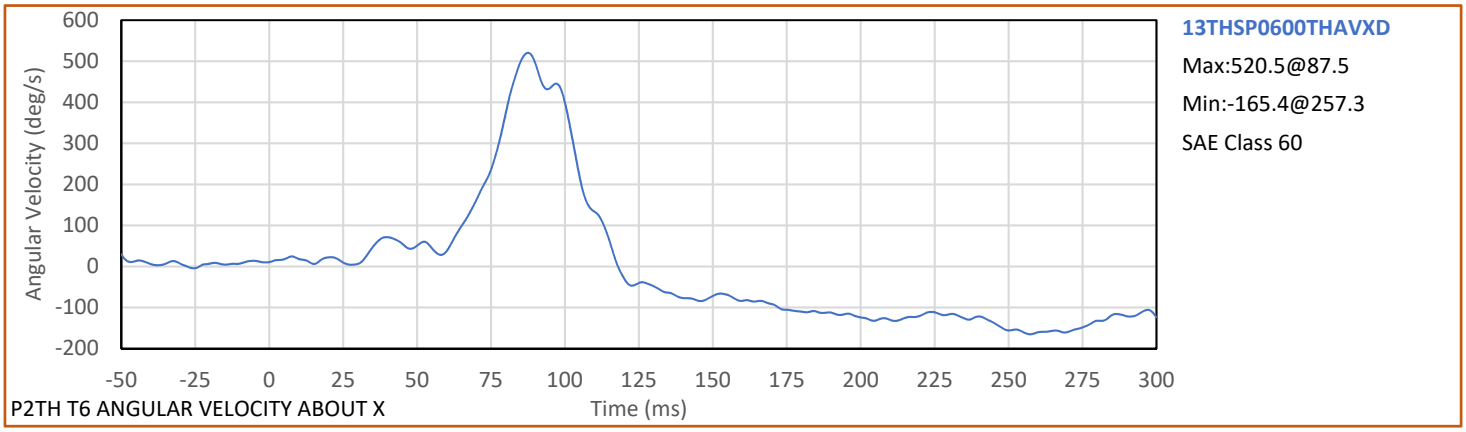

Angle (deg)
Time (ms)
P2TH UPPER RIGHT DGIR Y ROTATION
13CHSTRIUPTHANYC
Max:-2.5@86.1
Min:-13.8@172.7
SAE Class 180

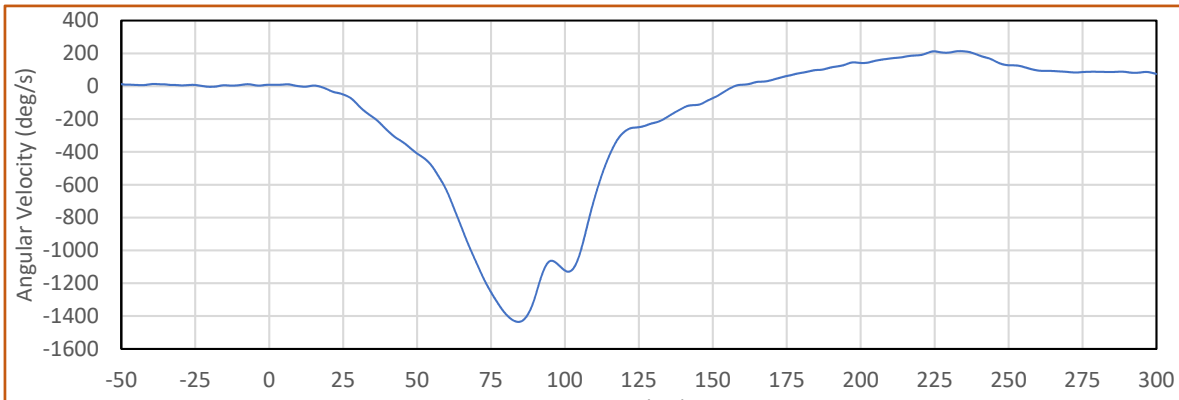

Angle (deg)
Time (ms)
P2TH UPPER RIGHT DGIR Z ROTATION
13CHSTRIUPTHANZC
Max:29.9@123.0
Min:11.5@247.5
SAE Class 180


Acceleration (g)
Time (ms)
P2TH T6 X ACCELERATION
13THSP0600THACXC
Max:2.2@144.2
Min:-39.9@90.6
SAE Class 180


Acceleration (g)
Time (ms)
P2TH T6 Y ACCELERATION
13THSP0600THACYC
Max:1.9@50.7
Min:-14.0@91.7
SAE Class 180

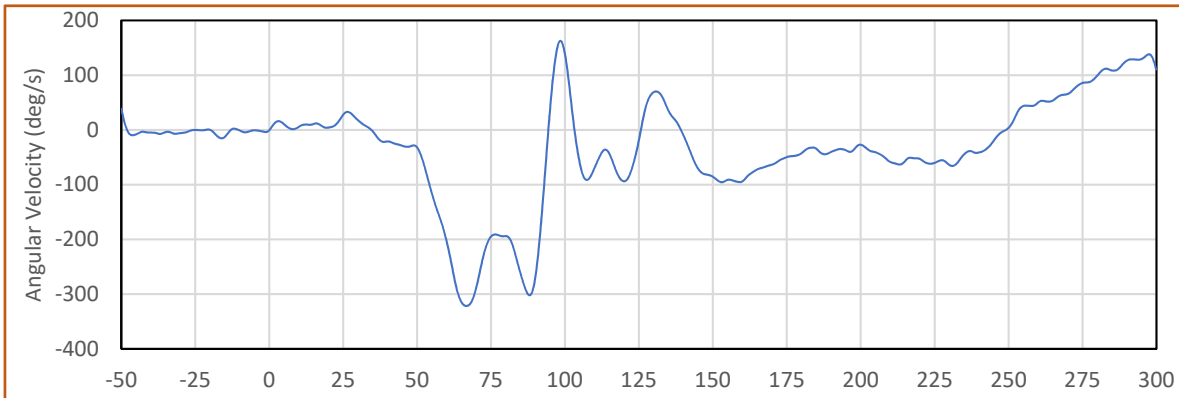

Acceleration (g)
Time (ms)
P2TH T6 Z ACCELERATION
13THSP0600THACZC
Max:22.1@93.6
Min:-8.4@59.1
SAE Class 180


Angular Velocity (deg/s)
Time (ms)
P2TH T6 ANGULAR VELOCITY ABOUT X
13THSP0600THAVXD
Max:520.5@87.5
Min:-165.4@257.3
SAE Class 60



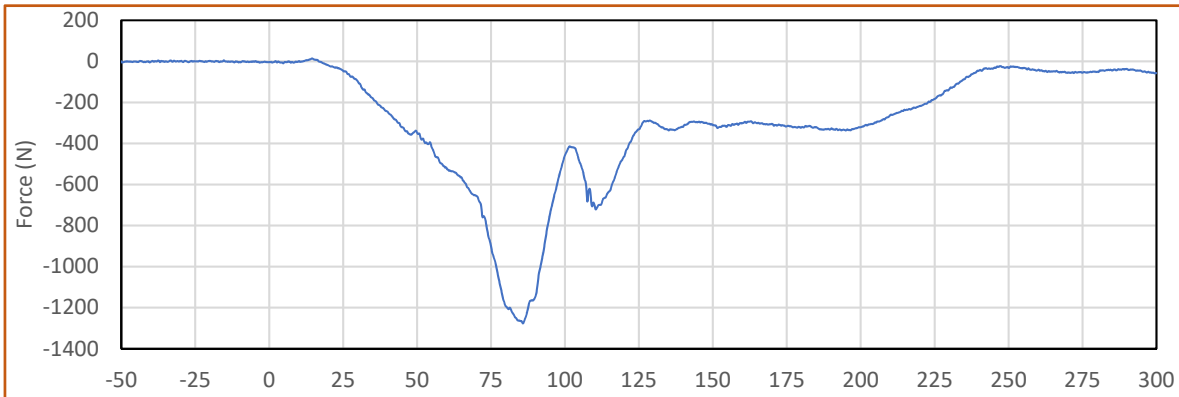
13THSP0600THAVYD
Max:213.8@233.5
Min:-1435.6@84.3
SAE Class 60

P2TH T6 ANGULAR VELOCITY ABOUT Y



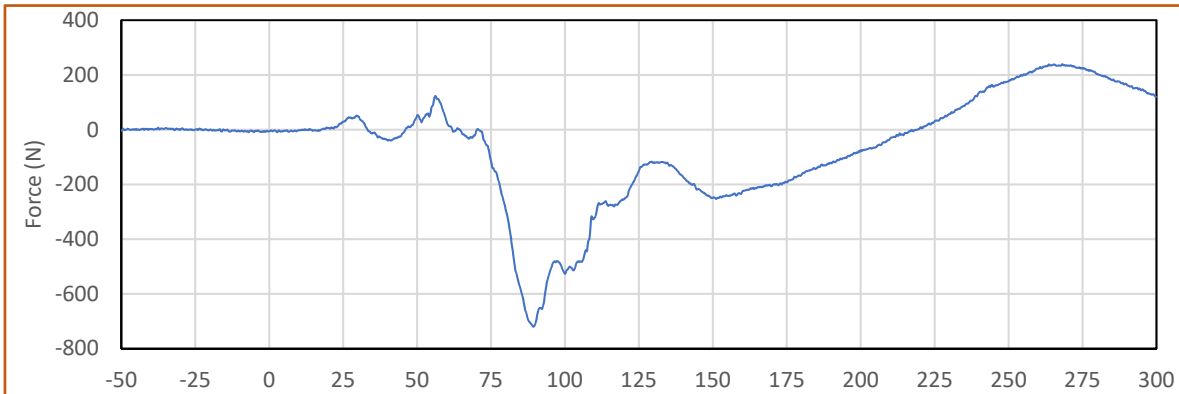
13THSP0600THAVZD
Max:162.8@98.5
Min:-321.9@66.7
SAE Class 60

P2TH T6 ANGULAR VELOCITY ABOUT Z



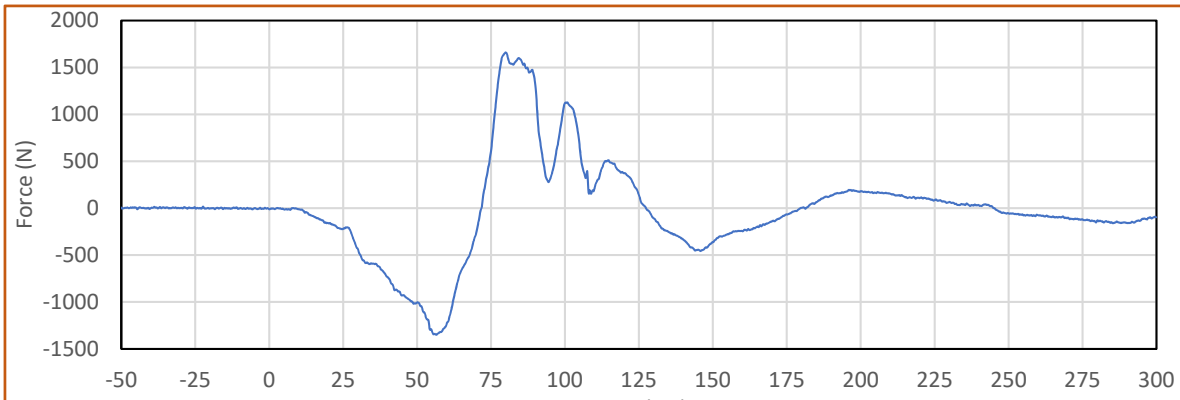
13THSP1200THFOXB
Max:14.0@14.5
Min:-1277.3@85.8
SAE Class 600

P2TH SPINE FORCE X



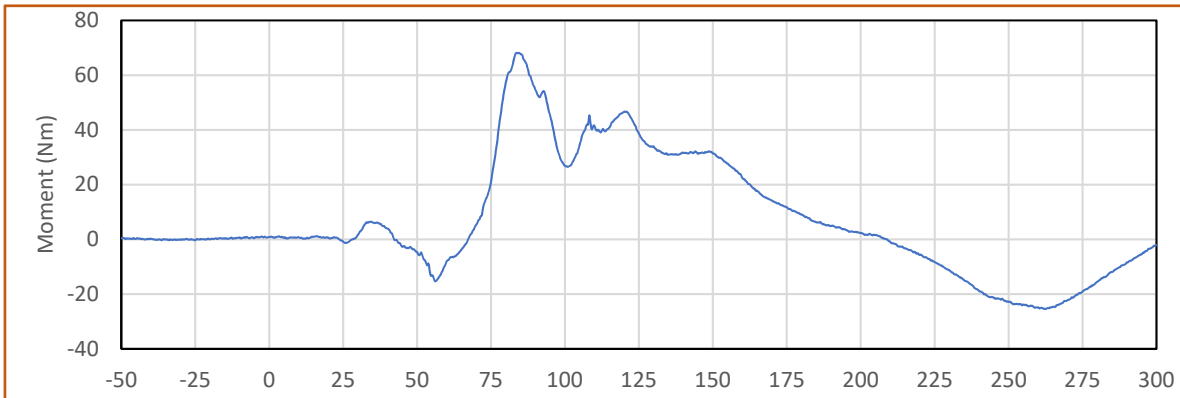
13THSP1200THFOYB
Max:239.0@268.2
Min:-720.3@89.3
SAE Class 600

P2TH SPINE FORCE Y



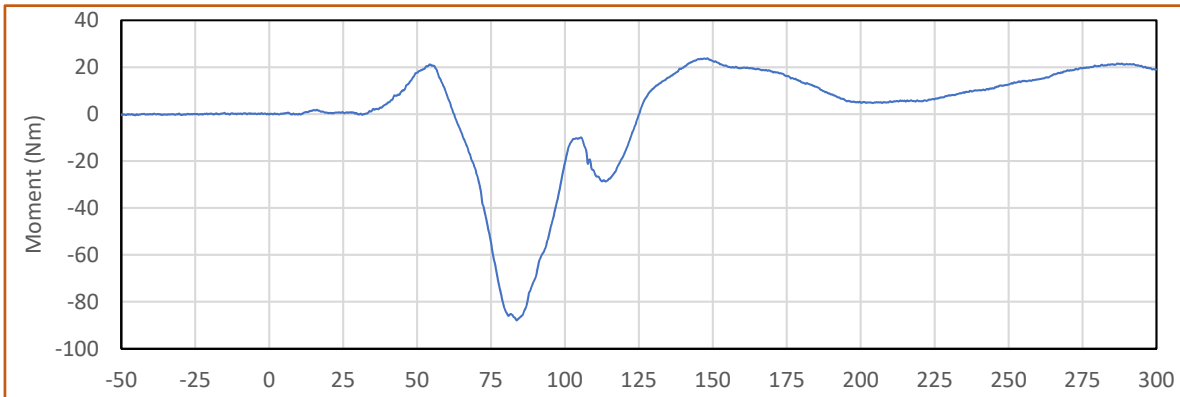
P2TH SPINE FORCE Z

13THSP1200THFOZB
Max:1659.8@80.0
Min:-1349.4@56.5
SAE Class 600



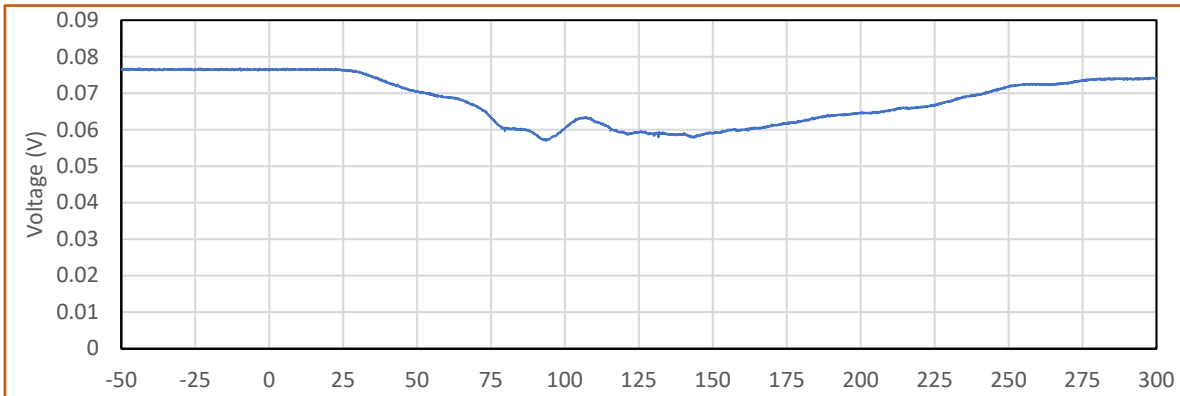
P2TH SPINE MOMENT X

13THSP1200THMOXB
Max:68.2@83.7
Min:-25.5@262.1
SAE Class 600



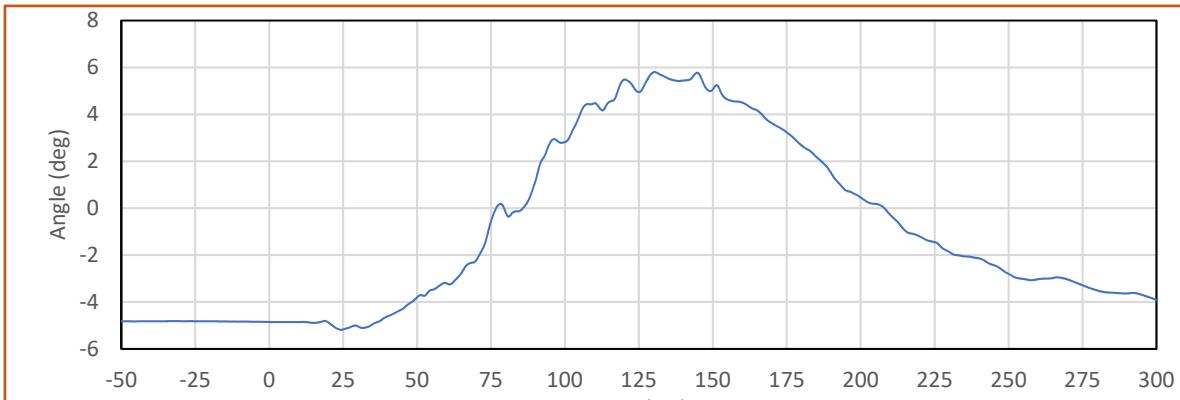
P2TH SPINE MOMENT Y

13THSP1200THMOYB
Max:23.8@148.2
Min:-87.9@83.7
SAE Class 600



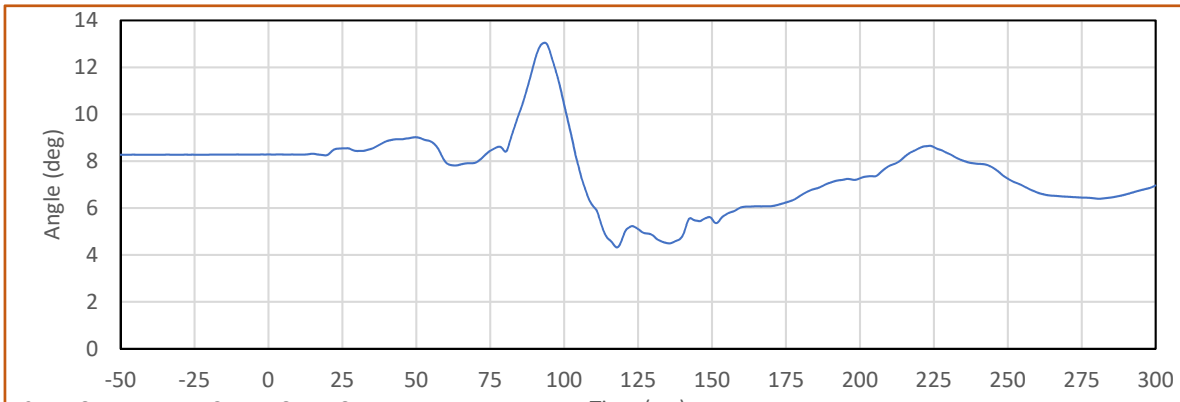
P2TH LOWER LEFT DGIR X DISPLACEMENT

13CHSTLELOTHVO0P
Max:0.08@16.5
Min:0.06@93.7
No Filter Applied



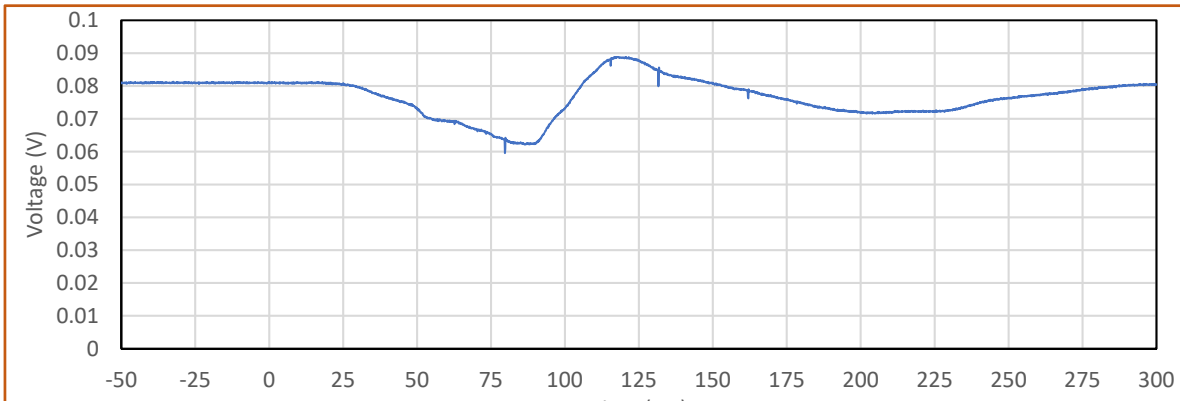
P2TH LOWER LEFT DGIR Y ROTATION

13CHSTLELOTHANYC
Max:5.8@130.4
Min:-5.2@24.3
SAE Class 180



P2TH LOWER LEFT DGIR Z ROTATION

13CHSTLELOTHANZC
Max:13.0@93.4
Min:4.3@117.9
SAE Class 180

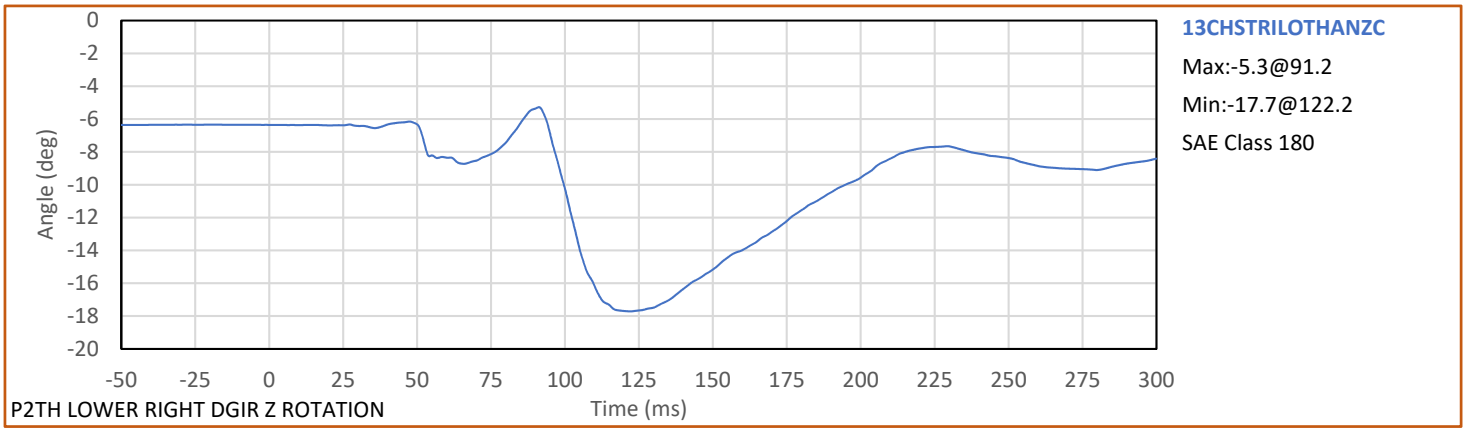


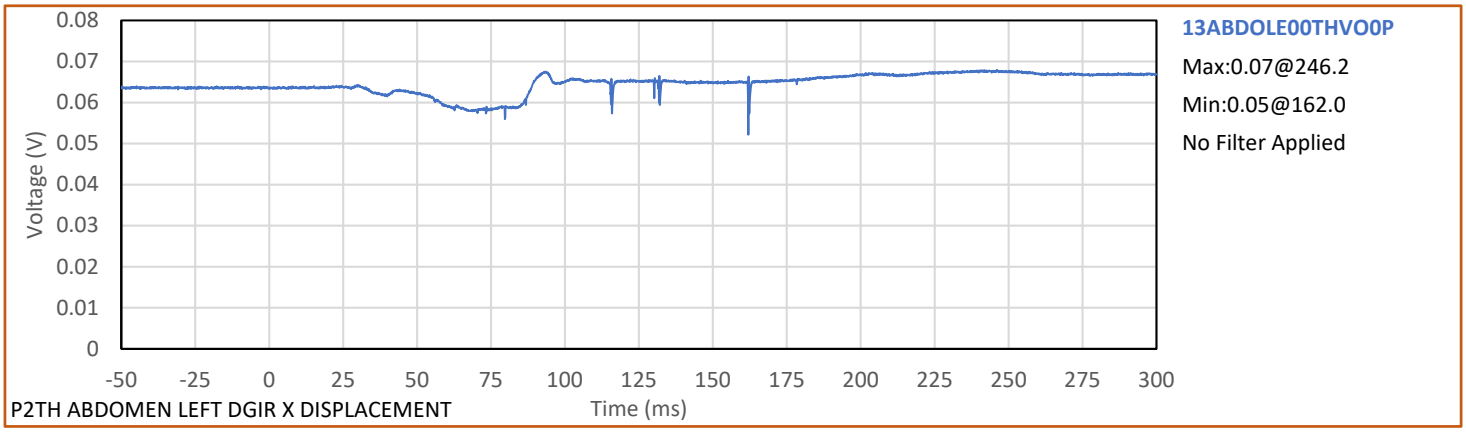
P2TH LOWER RIGHT DGIR X DISPLACEMENT

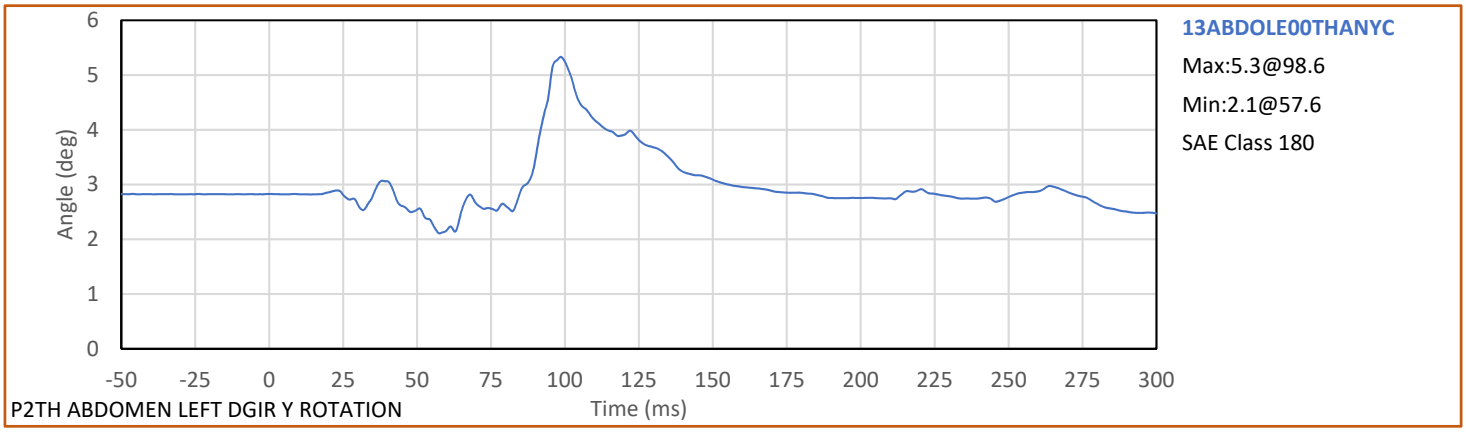
13CHSTRILOTHVO0P
Max:0.09@117.7
Min:0.06@79.7
No Filter Applied

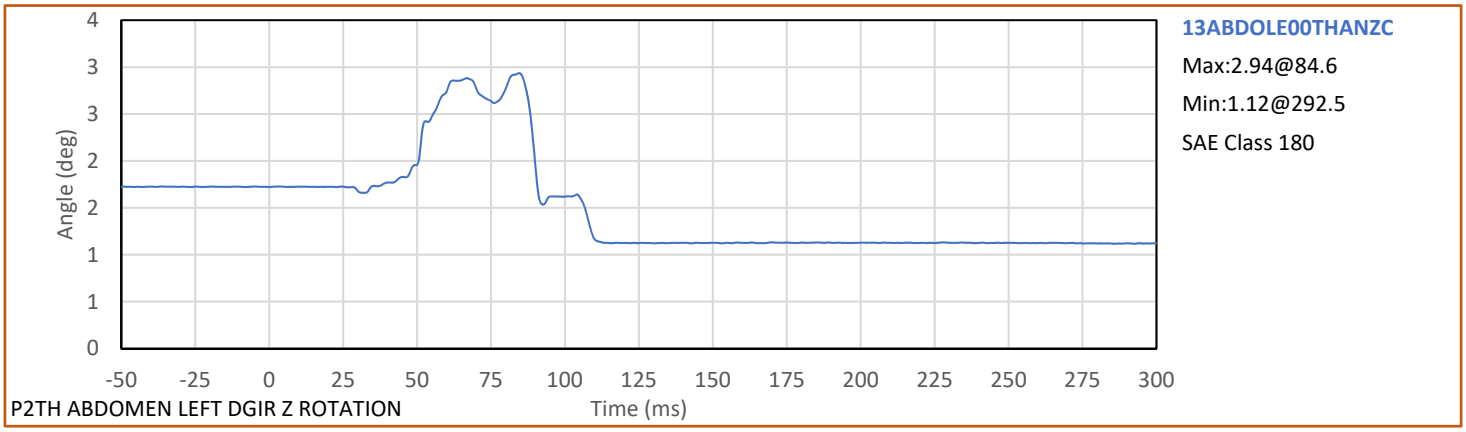
P2TH LOWER RIGHT DGIR Y ROTATION

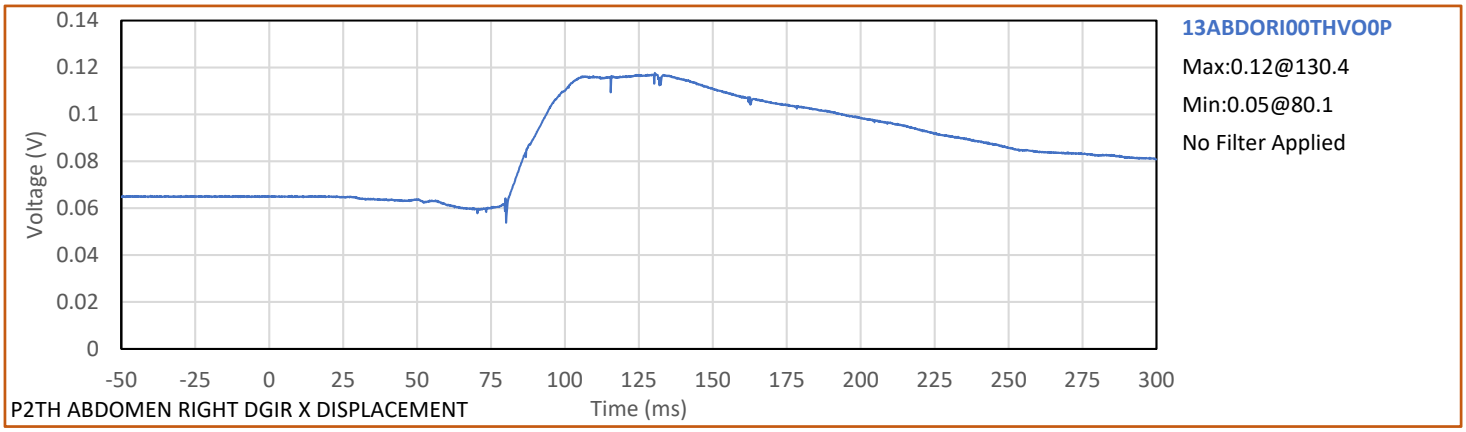
13CHSTRILOTHANYC
Max:3.6@26.9
Min:-9.6@116.9
SAE Class 180


Angle (deg)
Time (ms)
13CHSTRILOTHANZC
Max:-5.3@91.2
Min:-17.7@122.2
SAE Class 180
P2TH LOWER RIGHT DGIR Z ROTATION

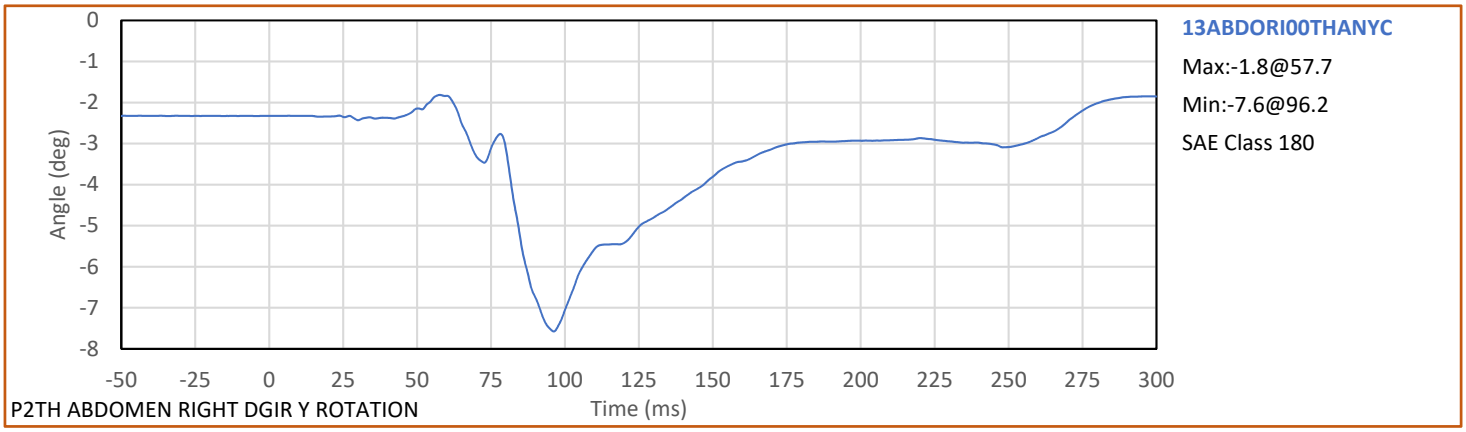

Voltage (V)
Time (ms)
13ABDOLE00THVO0P
Max:0.07@246.2
Min:0.05@162.0
No Filter Applied
P2TH ABDOMEN LEFT DGIR X DISPLACEMENT


Angle (deg)
Time (ms)
13ABDOLE00THANYC
Max:5.3@98.6
Min:2.1@57.6
SAE Class 180
P2TH ABDOMEN LEFT DGIR Y ROTATION

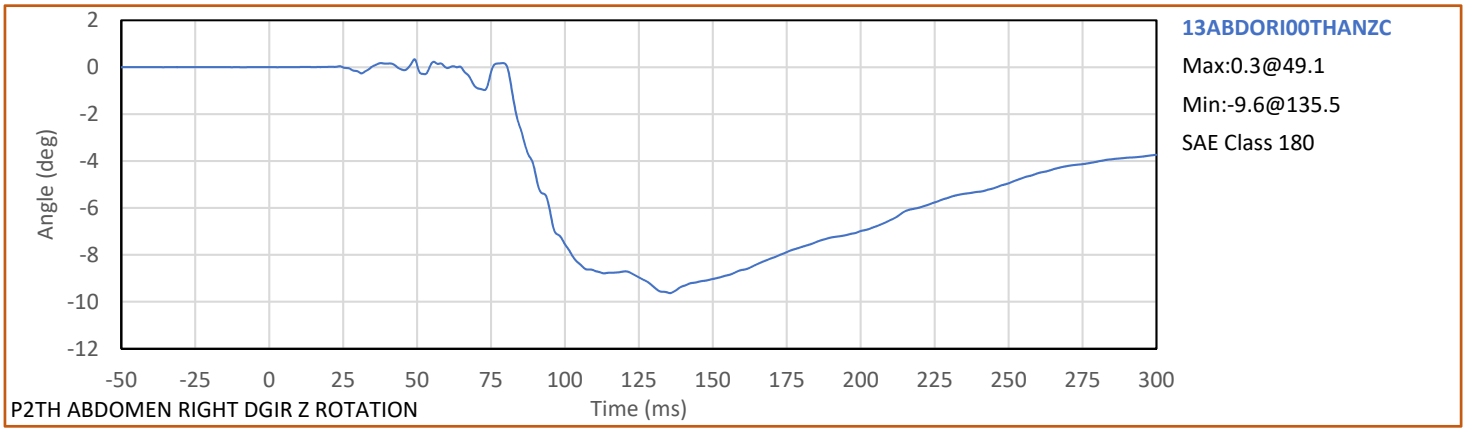

Angle (deg)
Time (ms)
13ABDOLE00THANZC
Max:2.94@84.6
Min:1.12@292.5
SAE Class 180
P2TH ABDOMEN LEFT DGIR Z ROTATION



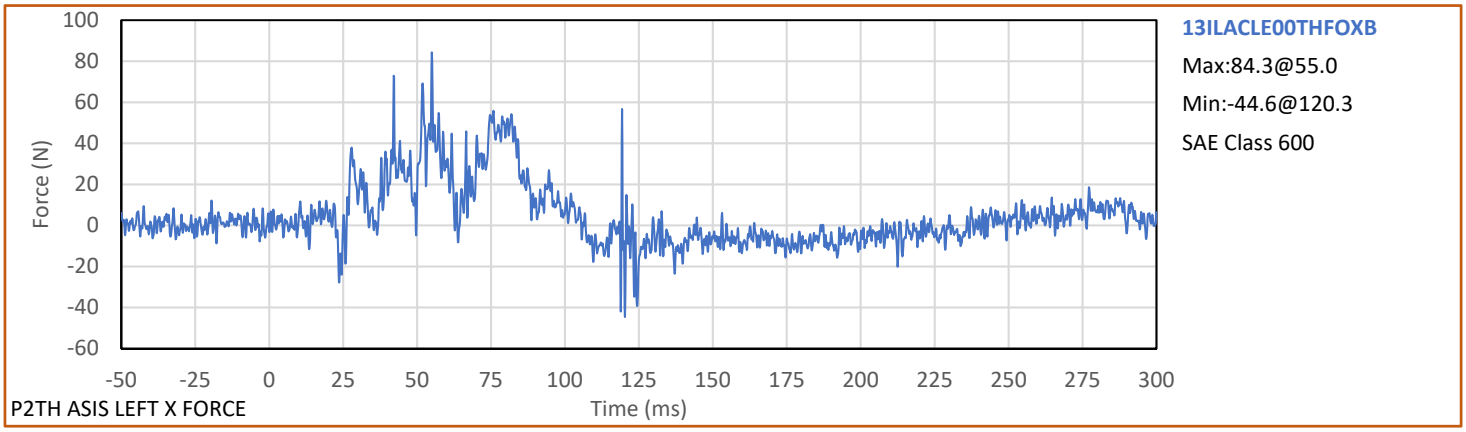
P2TH ABDOMEN RIGHT DGIR X DISPLACEMENT



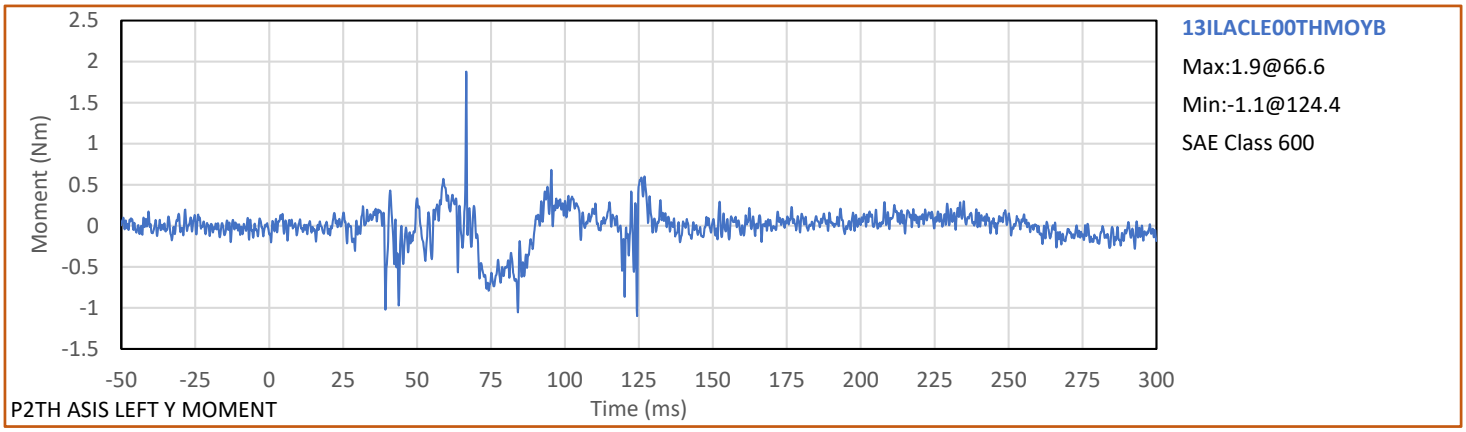
P2TH ABDOMEN RIGHT DGIR Y ROTATION

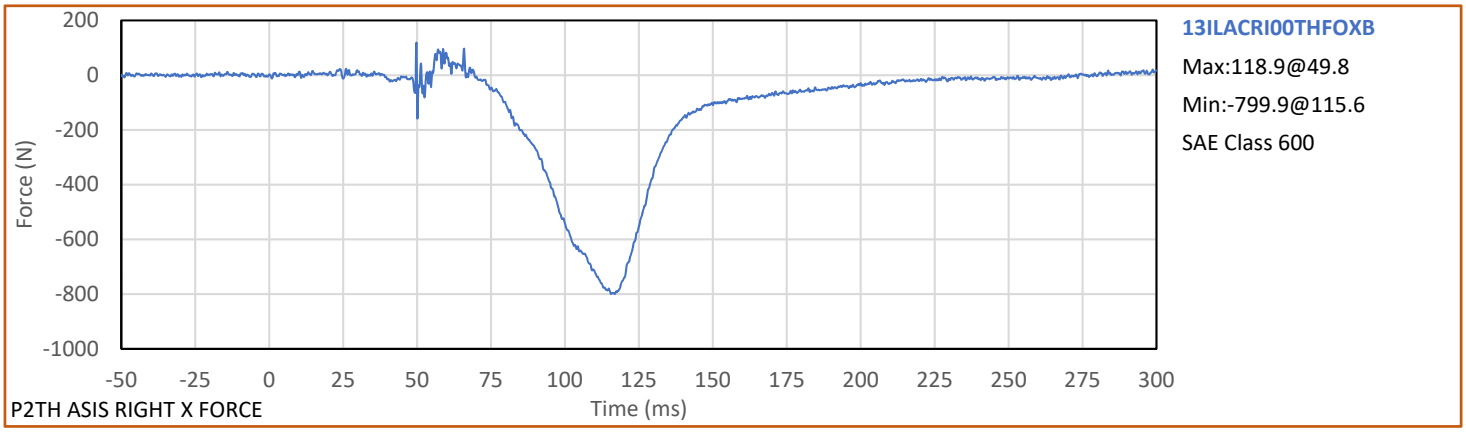


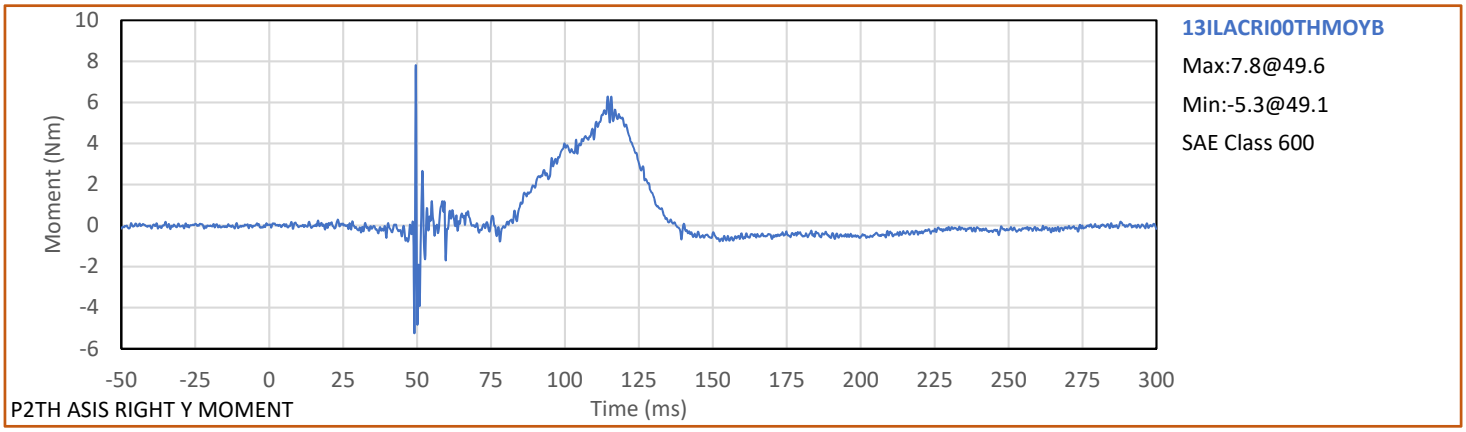
P2TH ABDOMEN RIGHT DGIR Z ROTATION

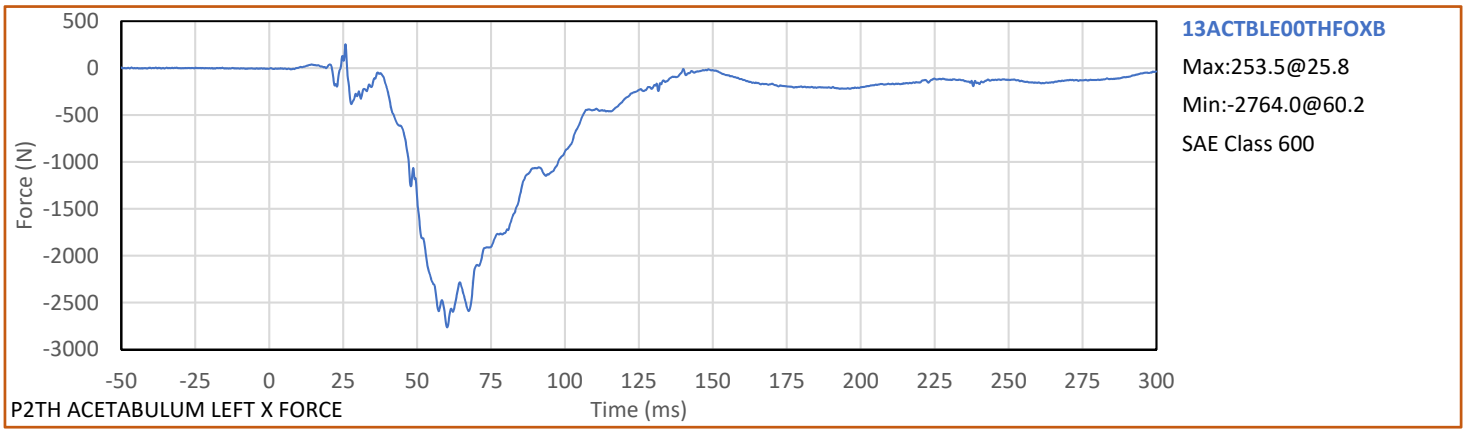


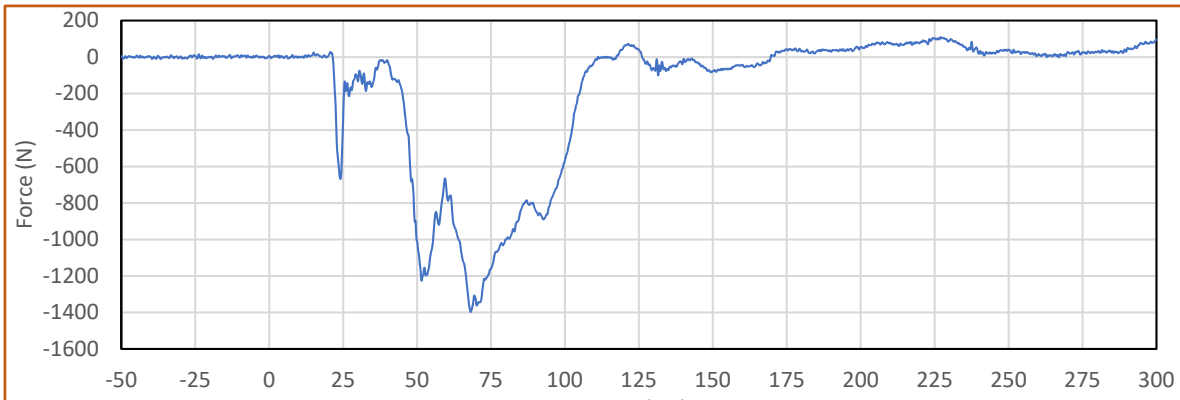
P2TH ASIS LEFT X FORCE


Moment (Nm)
Time (ms)
P2TH ASIS LEFT Y MOMENT
13ILACLE00THMOYB
Max:1.9@66.6
Min:-1.1@124.4
SAE Class 600

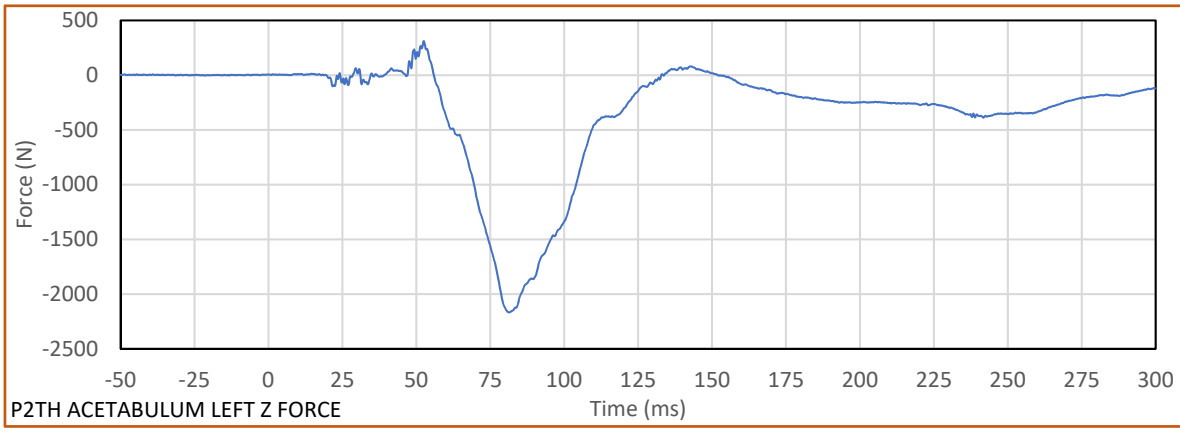

Force (N)
Time (ms)
P2TH ASIS RIGHT X FORCE
13ILACRI00THFOXB
Max:118.9@49.8
Min:-799.9@115.6
SAE Class 600


Moment (Nm)
Time (ms)
P2TH ASIS RIGHT Y MOMENT
13ILACRI00THMOYB
Max:7.8@49.6
Min:-5.3@49.1
SAE Class 600

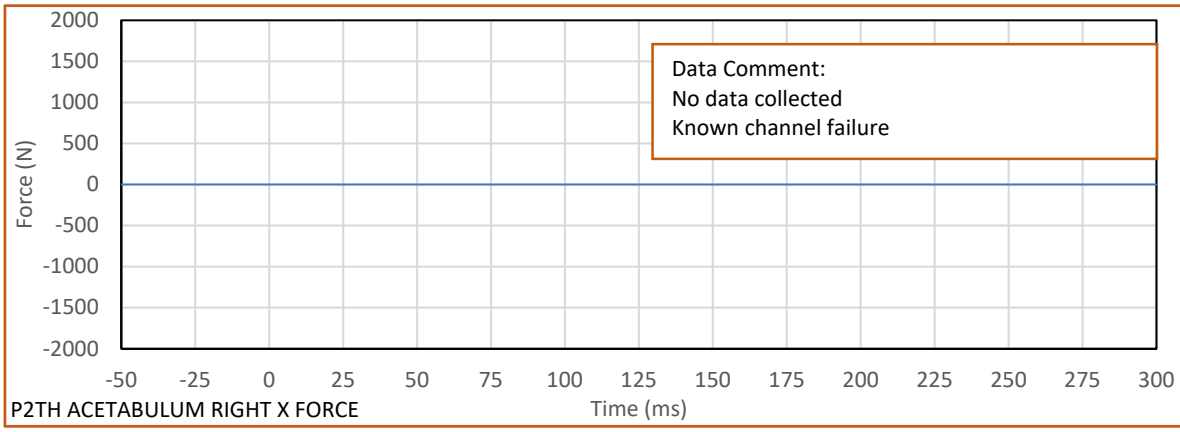

Force (N)
Time (ms)
P2TH ACETABULUM LEFT X FORCE
13ACTBLE00THFOXB
Max:253.5@25.8
Min:-2764.0@60.2
SAE Class 600



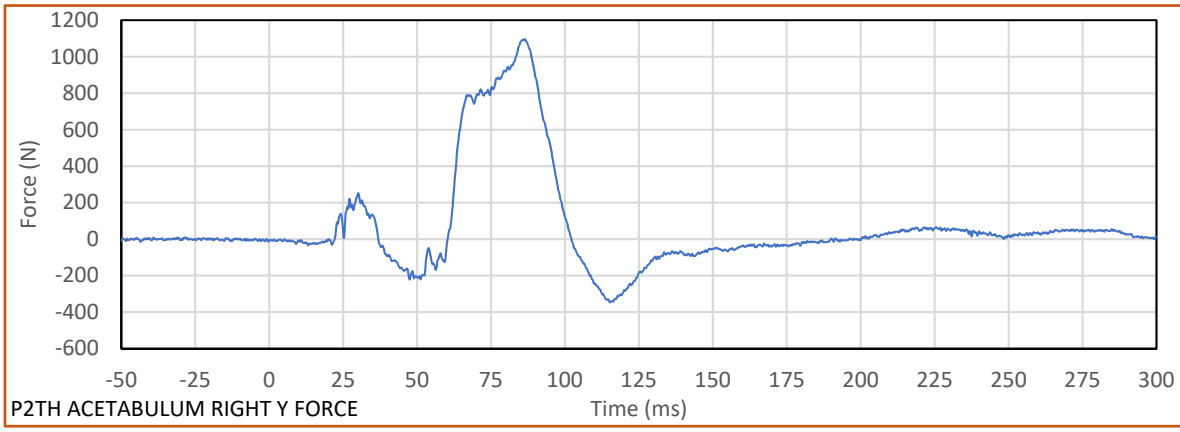
13ACTBLE00THFOYB
Max:109.2@227.0
Min:-1397.3@68.2
SAE Class 600



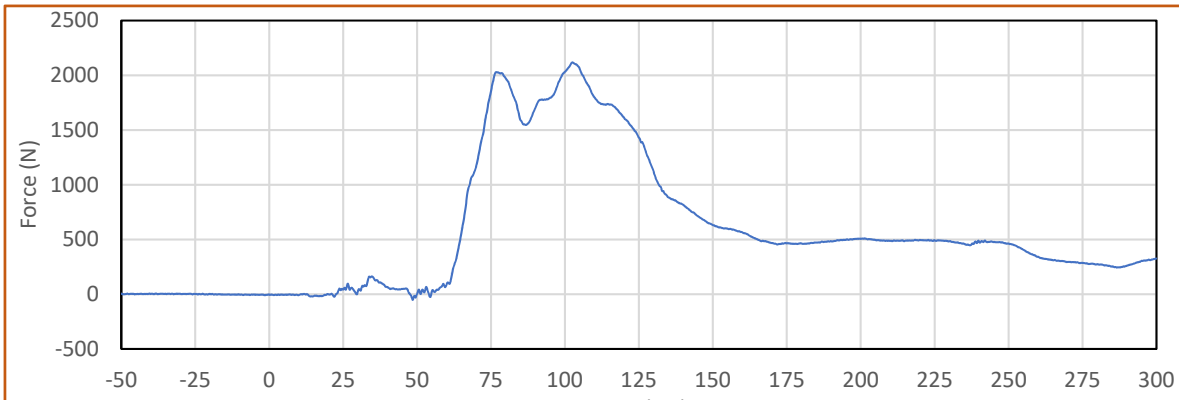
13ACTBLE00THFOZB
Max:311.0@52.5
Min:-2167.8@81.5
SAE Class 600



13ACTBRI00THFOXB
Max:0.00@0.1
Min:0.00@0.1
SAE Class 600

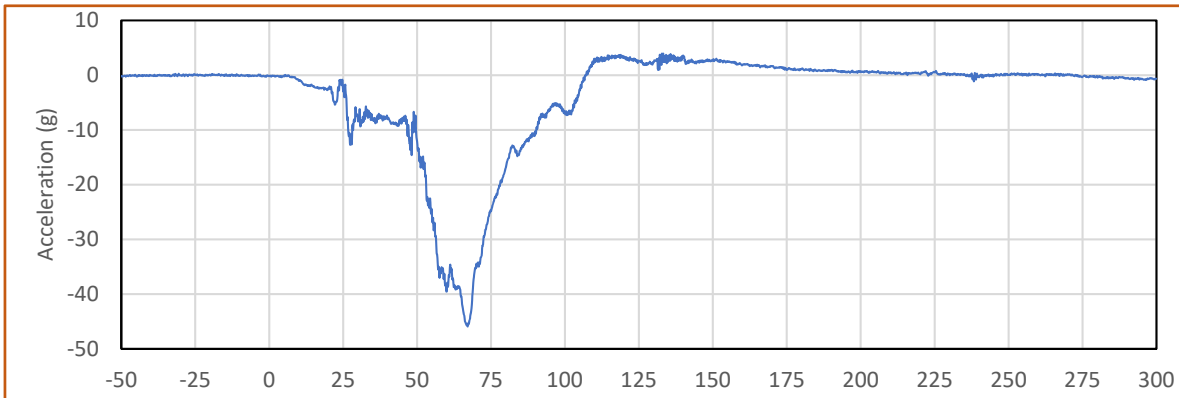


13ACTBRI00THFOYB
Max:1096.7@86.4
Min:-346.7@115.2
SAE Class 600



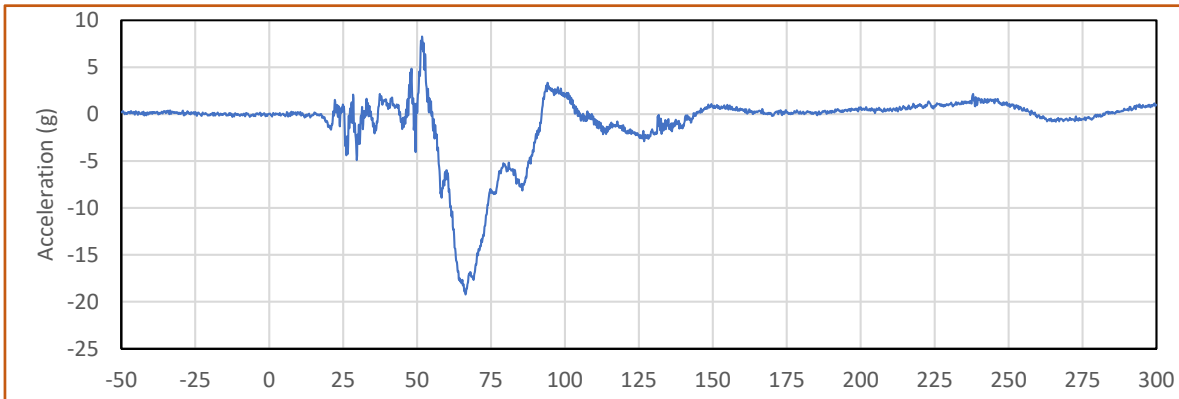
13ACTBRI00THFOZB
Max:2117.6@102.5
Min:-52.5@48.5
SAE Class 600

P2TH ACETABULUM RIGHT Z FORCE



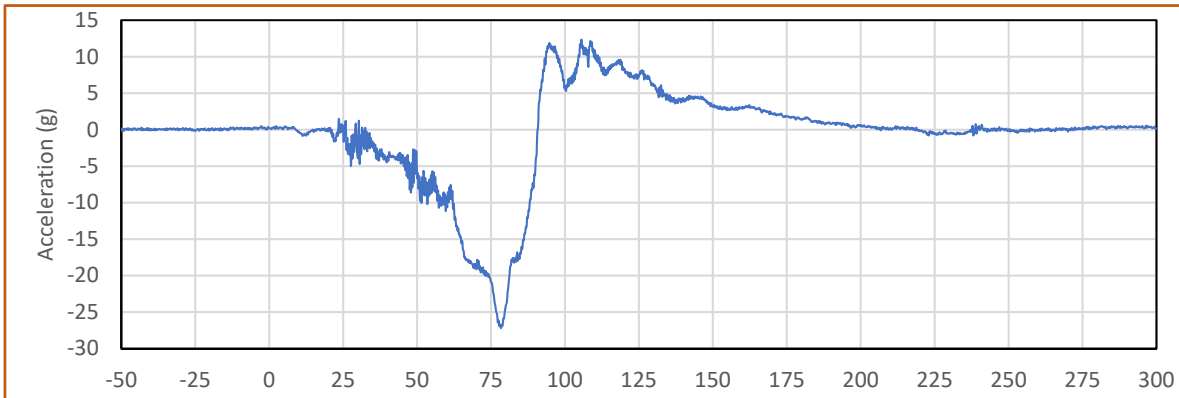
13PELV0000THACXA
Max:3.9@133.2
Min:-45.9@67.1
SAE Class 1000

P2TH PELVIS X ACCELERATION



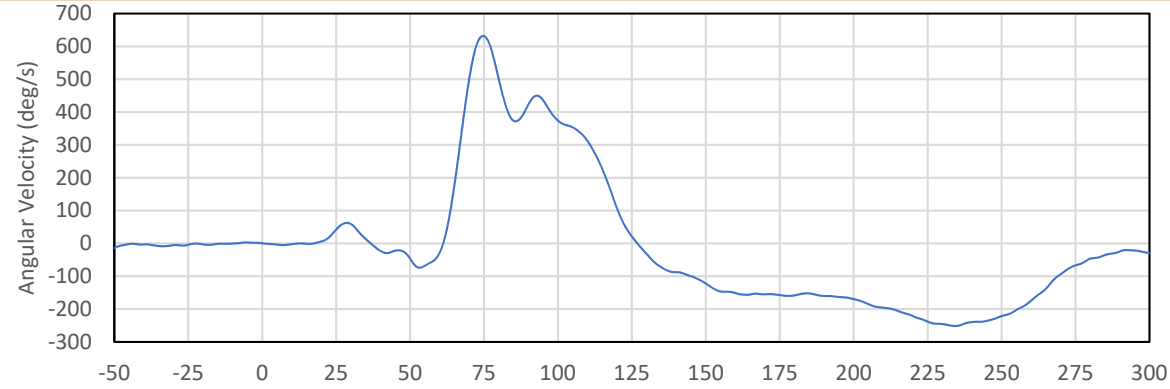
13PELV0000THACYA
Max:8.3@51.7
Min:-19.2@66.4
SAE Class 1000

P2TH PELVIS Y ACCELERATION



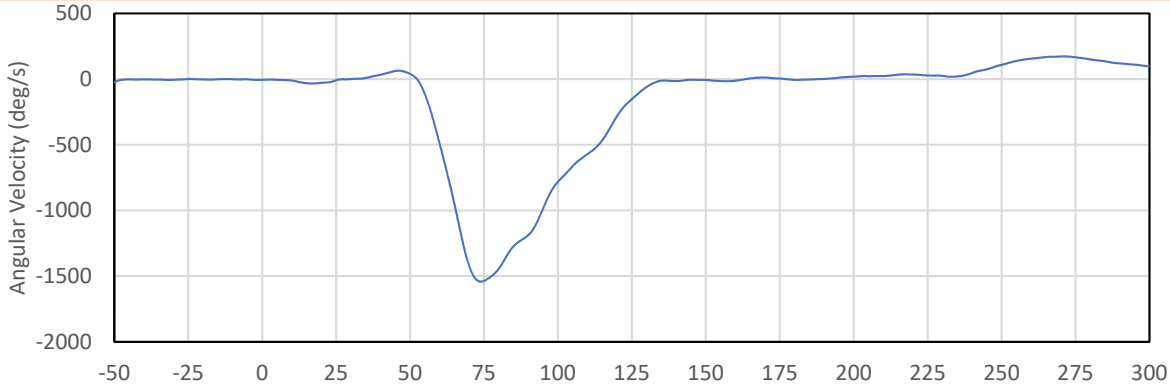
13PELV0000THACZA
Max:12.3@105.6
Min:-27.2@78.4
SAE Class 1000

P2TH PELVIS Z ACCELERATION



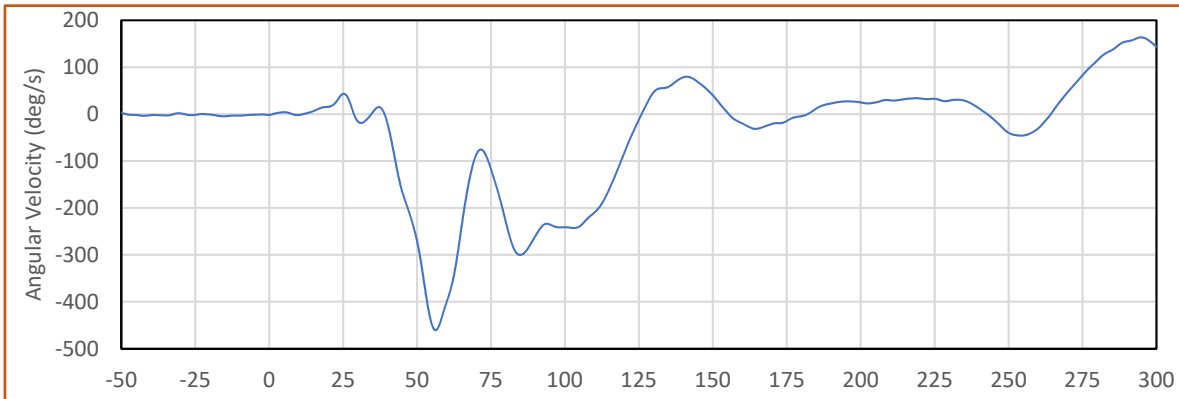
13PELV0000THAVXD
Max:631.8@74.7
Min:-251.8@234.3
SAE Class 60

P2TH PELVIS ANGULAR VELOCITY ABOUT X



13PELV0000THAVYD
Max:172.7@271.2
Min:-1542.1@74.0
SAE Class 60

P2TH PELVIS ANGULAR VELOCITY ABOUT Y

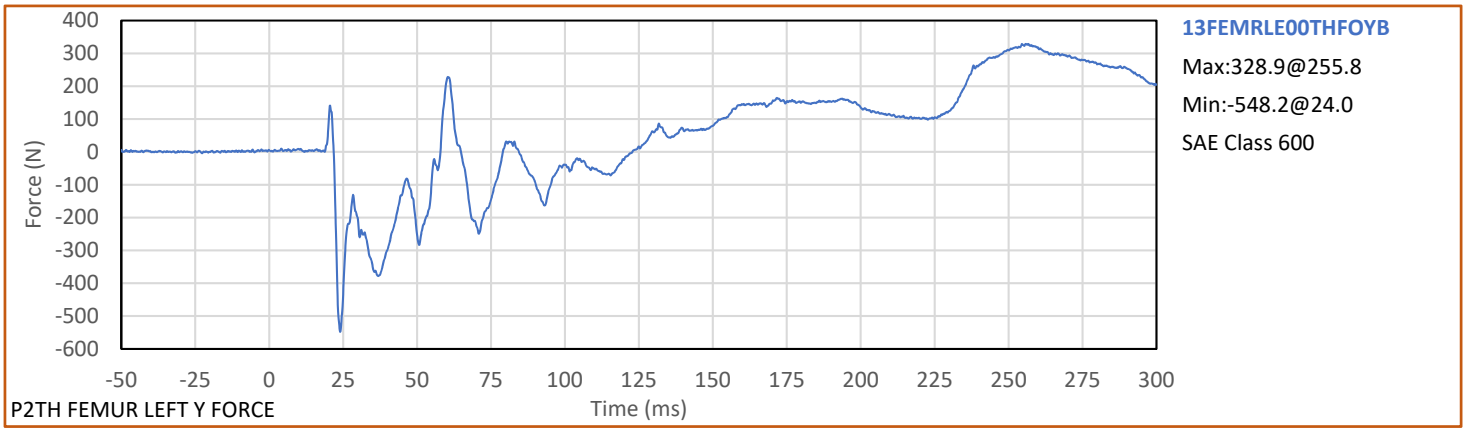


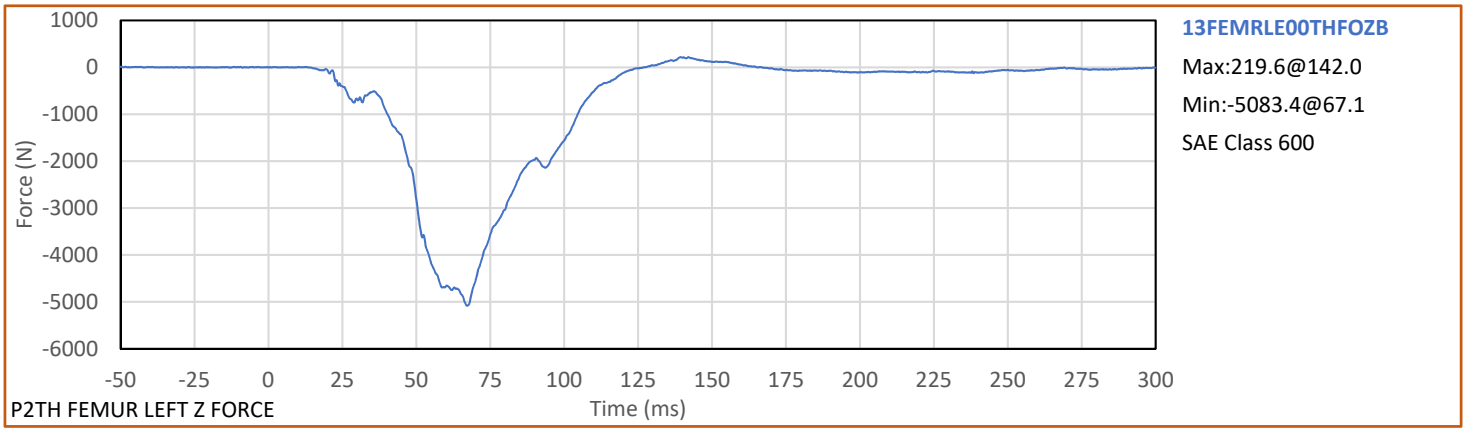
13PELV0000THAVZD
Max:163.6@294.8
Min:-460.6@56.3
SAE Class 60

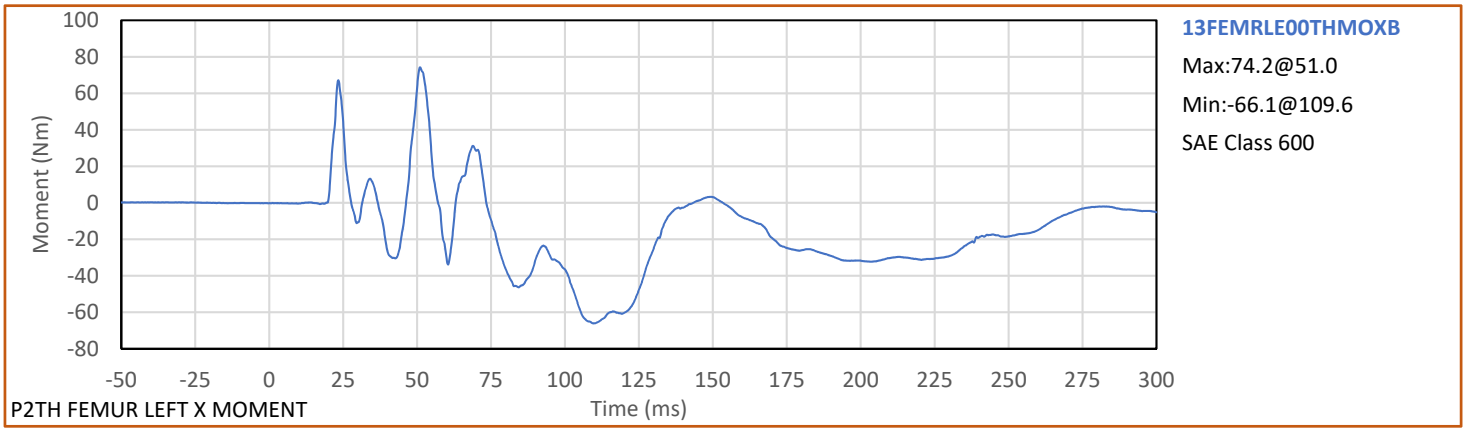
P2TH PELVIS ANGULAR VELOCITY ABOUT Z

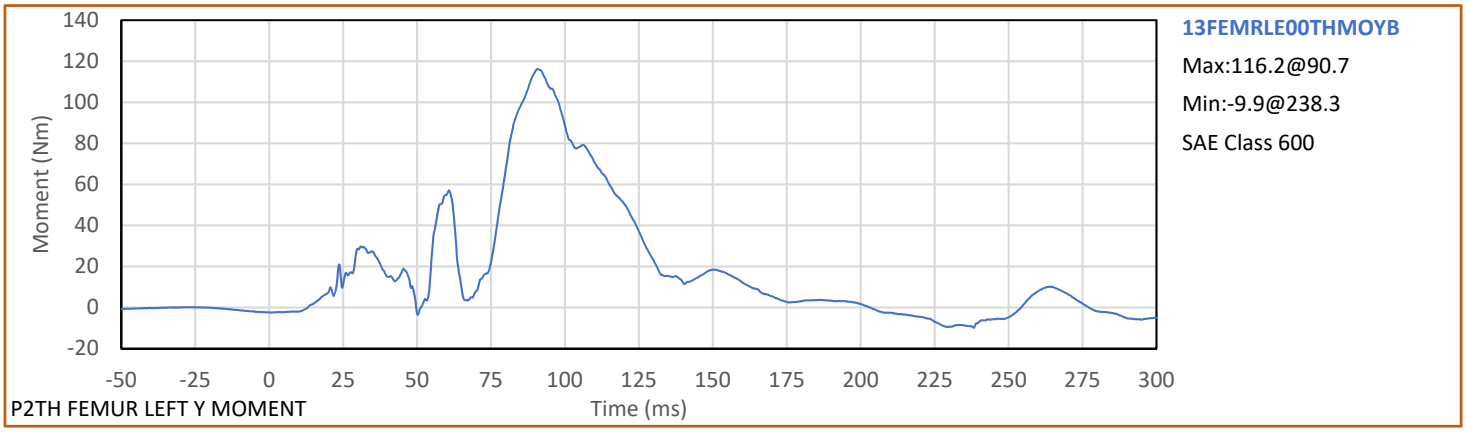
13FEMRLE00THFOXB
Max:1019.1@82.0
Min:-39.5@141.0
SAE Class 600

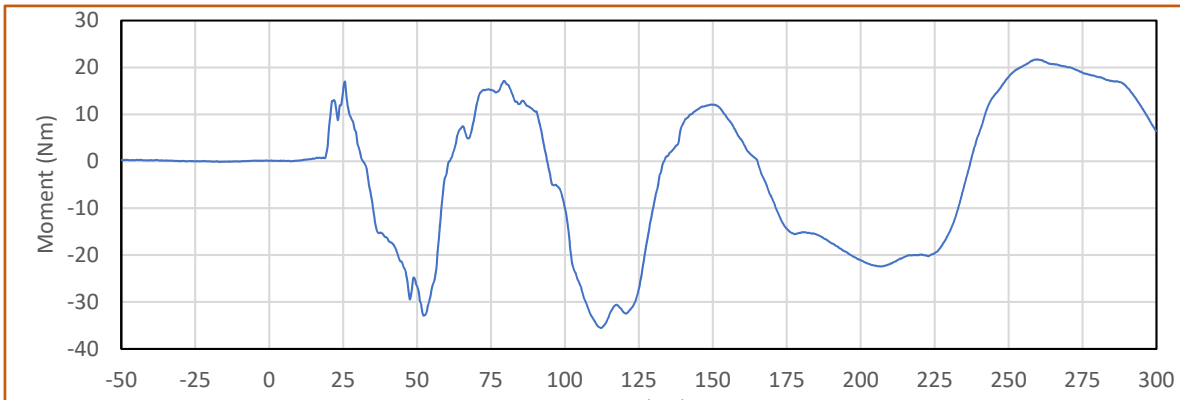
P2TH FEMUR LEFT X FORCE


Force (N)
Time (ms)
P2TH FEMUR LEFT Y FORCE
13FEMRLE00THFOYB
Max:328.9@255.8
Min:-548.2@24.0
SAE Class 600

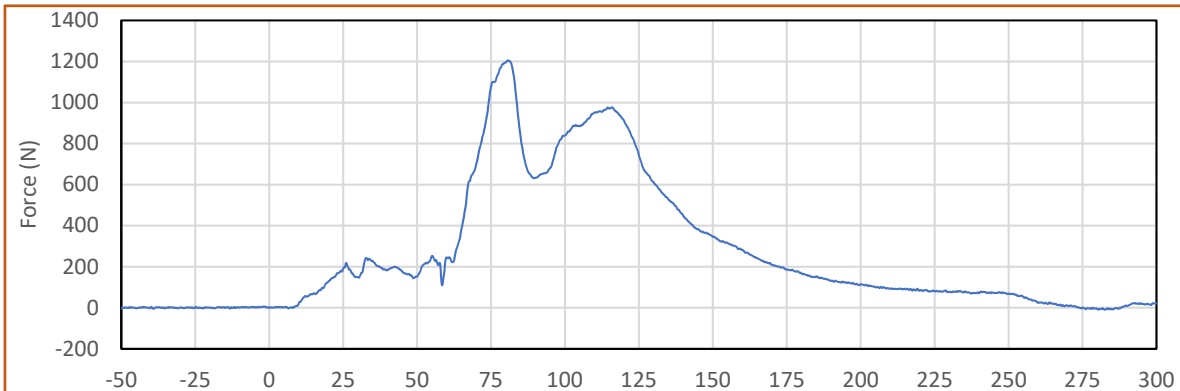

Force (N)
Time (ms)
P2TH FEMUR LEFT Z FORCE
13FEMRLE00THFOZB
Max:219.6@142.0
Min:-5083.4@67.1
SAE Class 600


Moment (Nm)
Time (ms)
P2TH FEMUR LEFT X MOMENT
13FEMRLE00THMOXB
Max:74.2@51.0
Min:-66.1@109.6
SAE Class 600

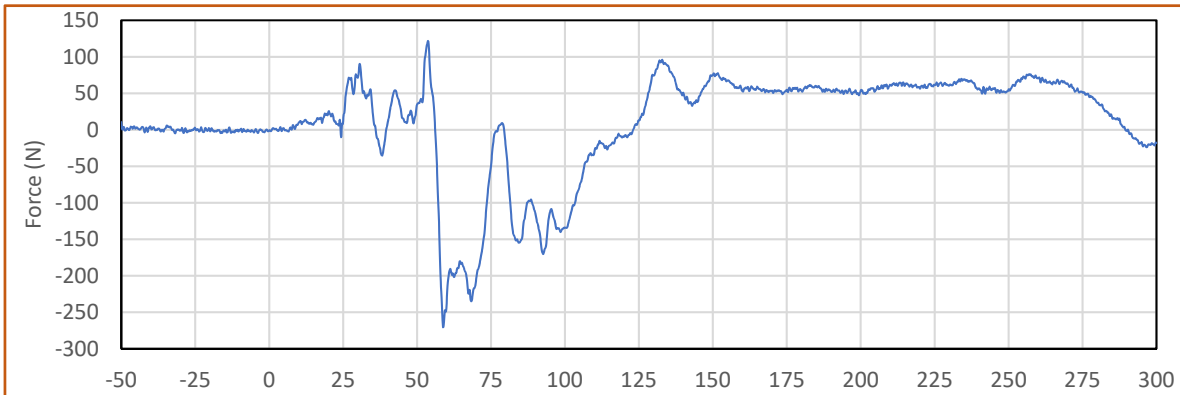

Moment (Nm)
Time (ms)
P2TH FEMUR LEFT Y MOMENT
13FEMRLE00THMOYB
Max:116.2@90.7
Min:-9.9@238.3
SAE Class 600



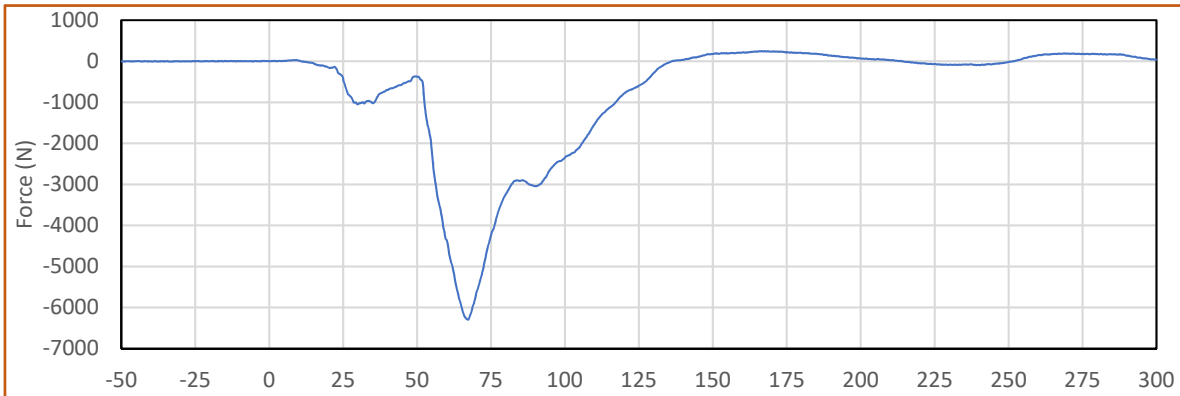
13FEMRLE00THMOZB
Max:21.7@259.7
Min:-35.6@112.2
SAE Class 600



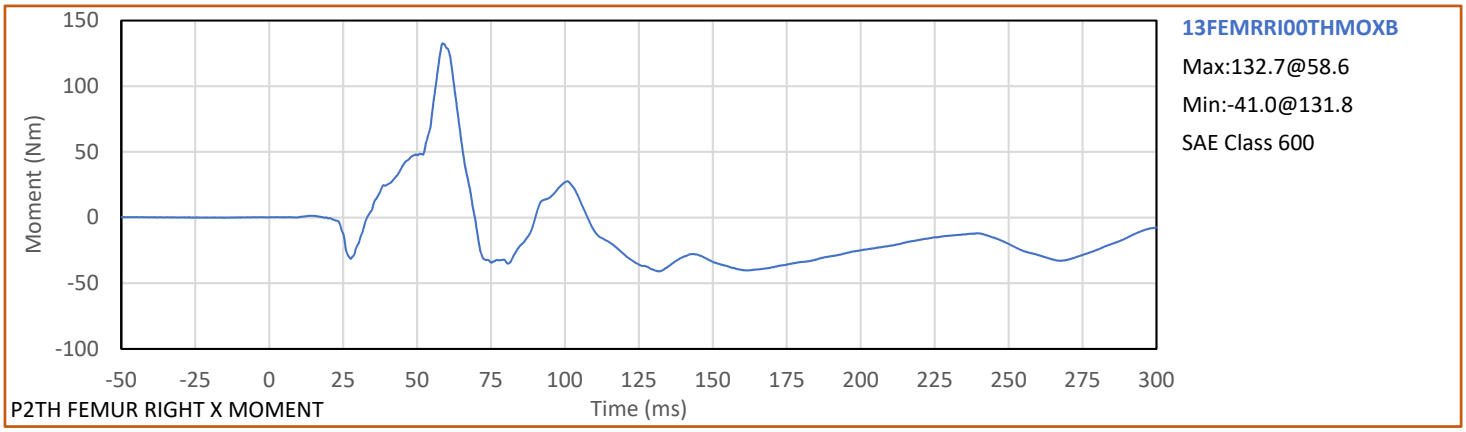
13FEMRRI00THFOXB
Max:1205.0@80.7
Min:-10.0@282.5
SAE Class 600

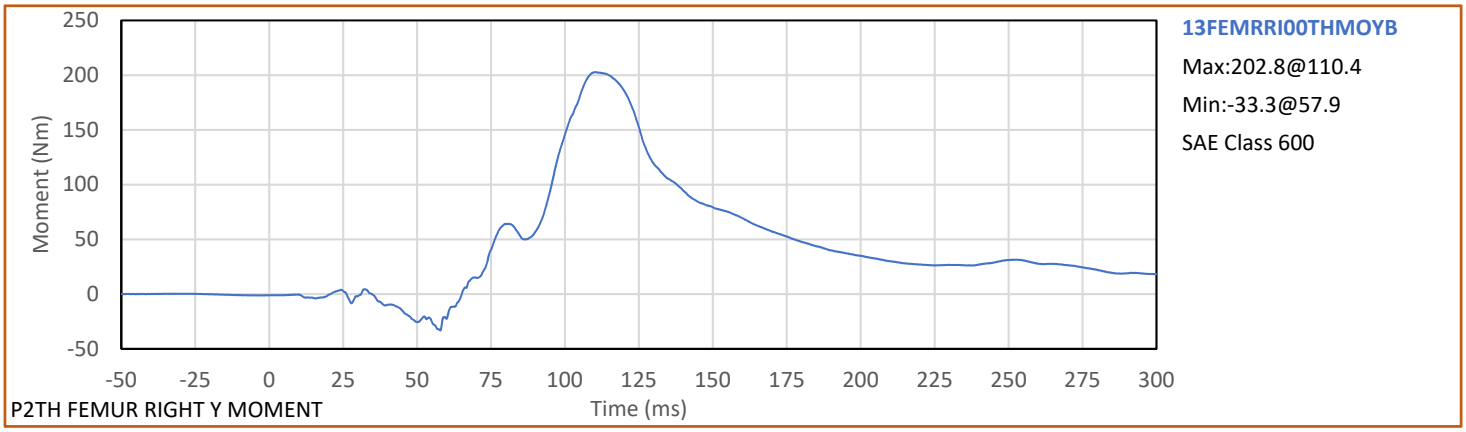


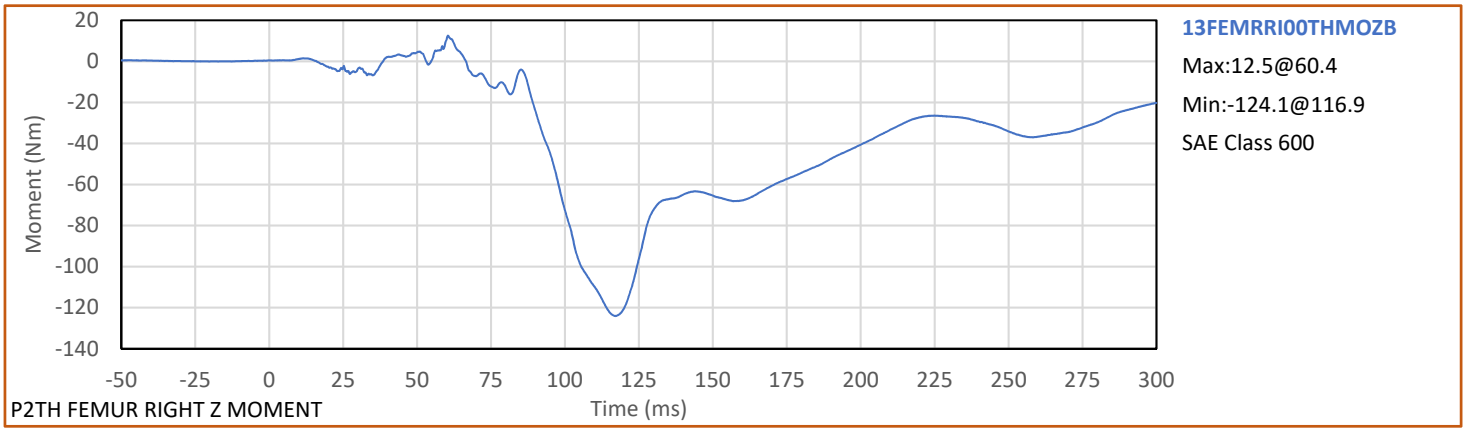
13FEMRRI00THFOYB
Max:121.7@53.7
Min:-270.7@58.8
SAE Class 600

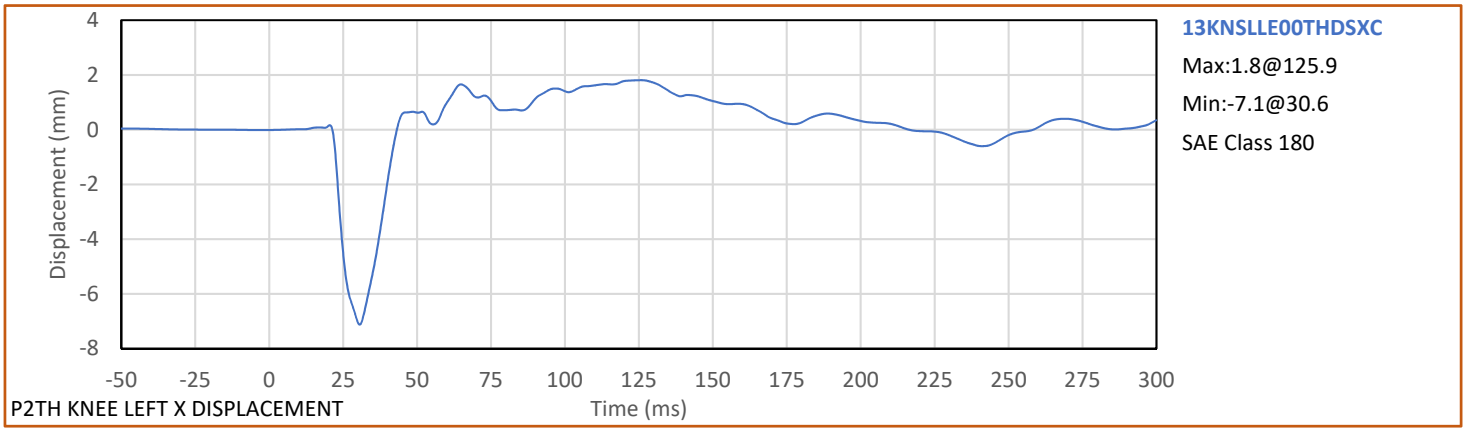


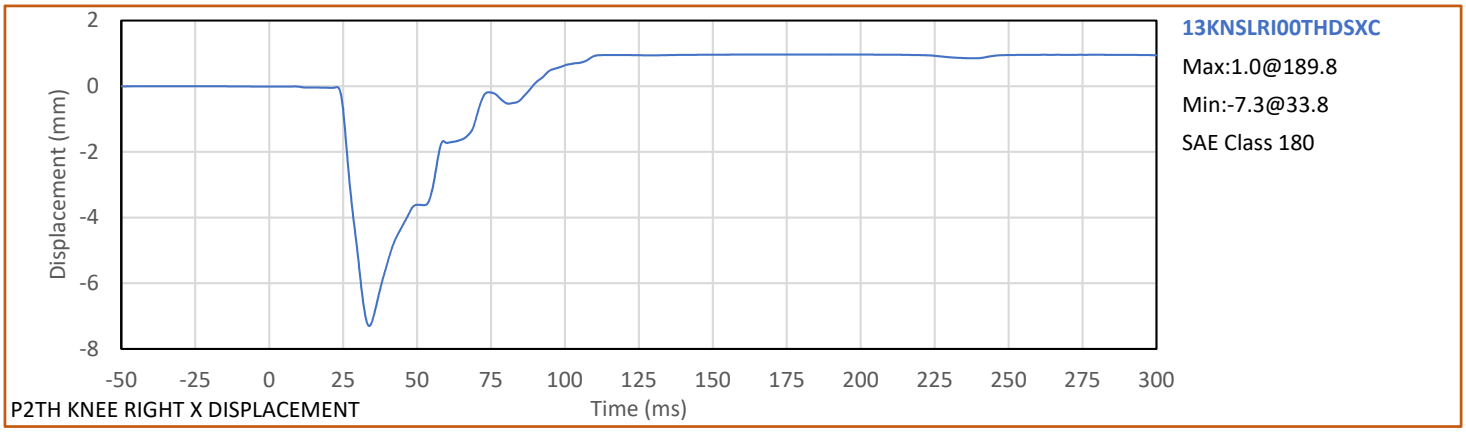
13FEMRRI00THFOZB
Max:246.2@167.5
Min:-6299.3@67.2
SAE Class 600

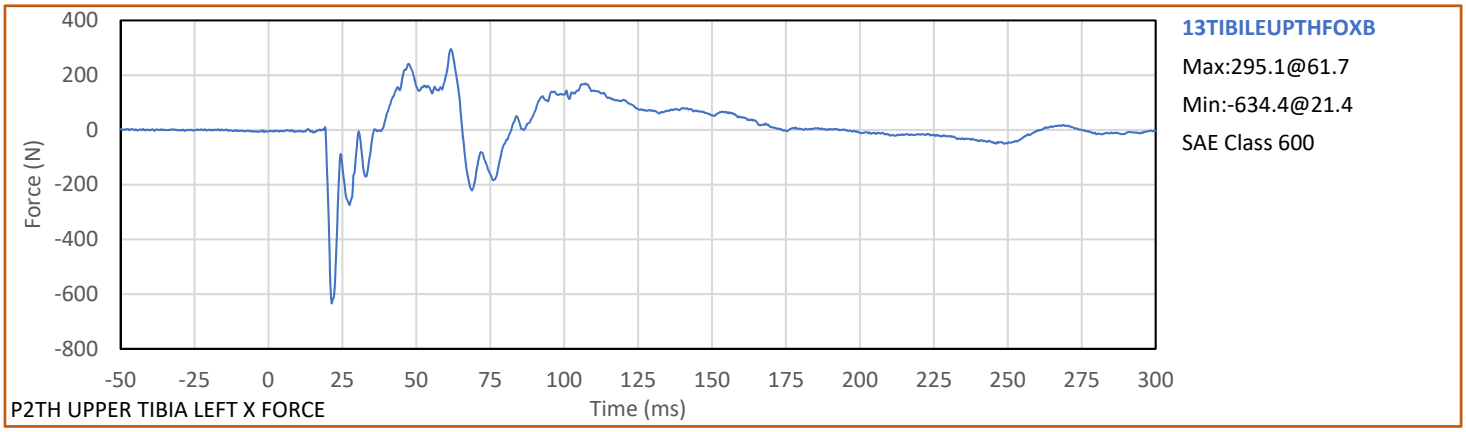

Moment (Nm)
Time (ms)
P2TH FEMUR RIGHT X MOMENT
13FEMRRI00THMOXB
Max:132.7@58.6
Min:-41.0@131.8
SAE Class 600

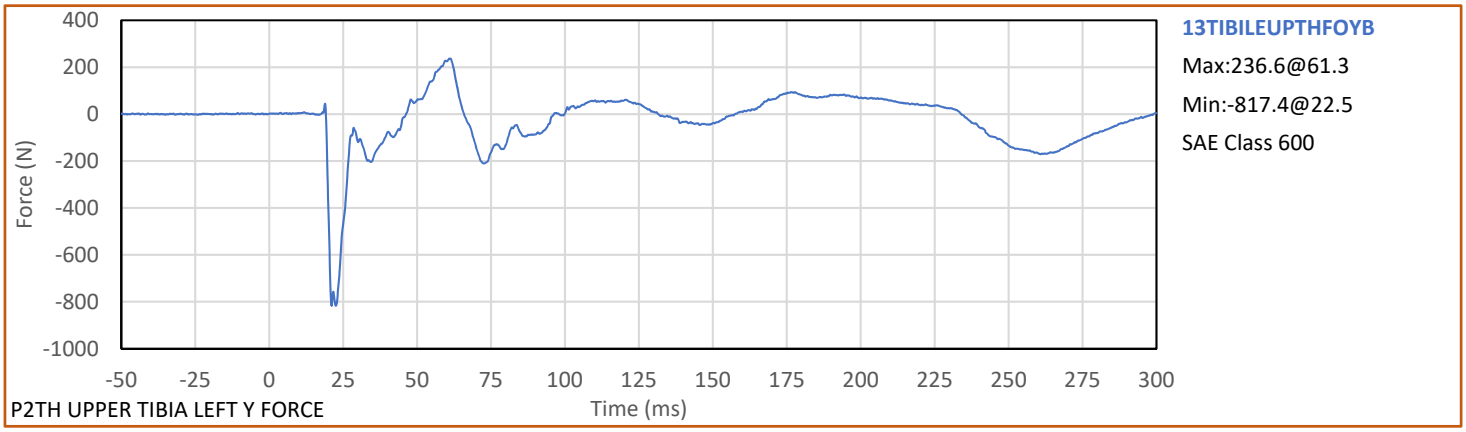

Moment (Nm)
Time (ms)
P2TH FEMUR RIGHT Y MOMENT
13FEMRRI00THMOYB
Max:202.8@110.4
Min:-33.3@57.9
SAE Class 600

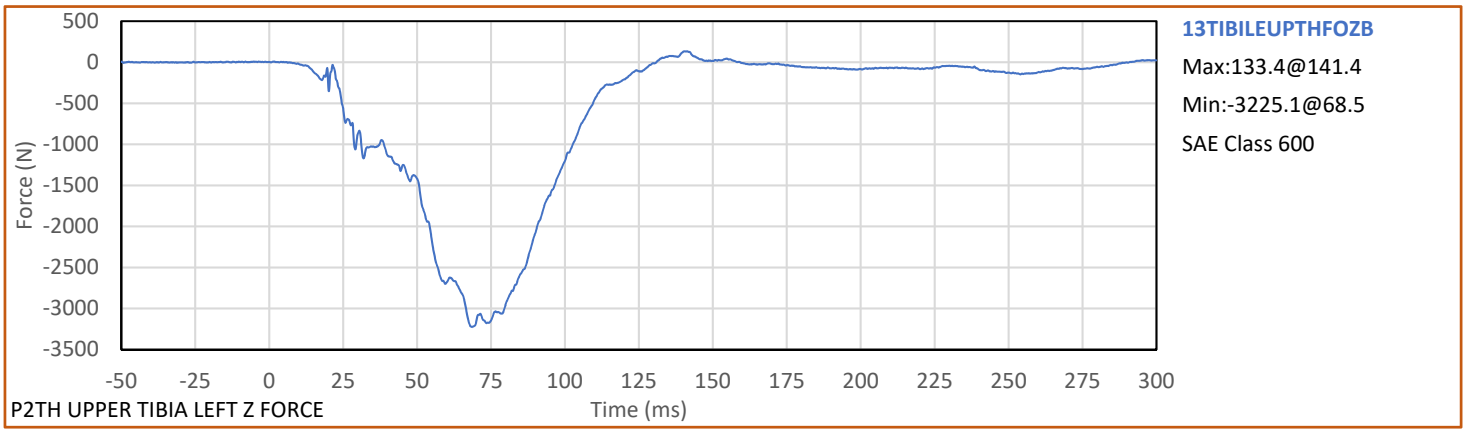

Moment (Nm)
Time (ms)
P2TH FEMUR RIGHT Z MOMENT
13FEMRRI00THMOZB
Max:12.5@60.4
Min:-124.1@116.9
SAE Class 600

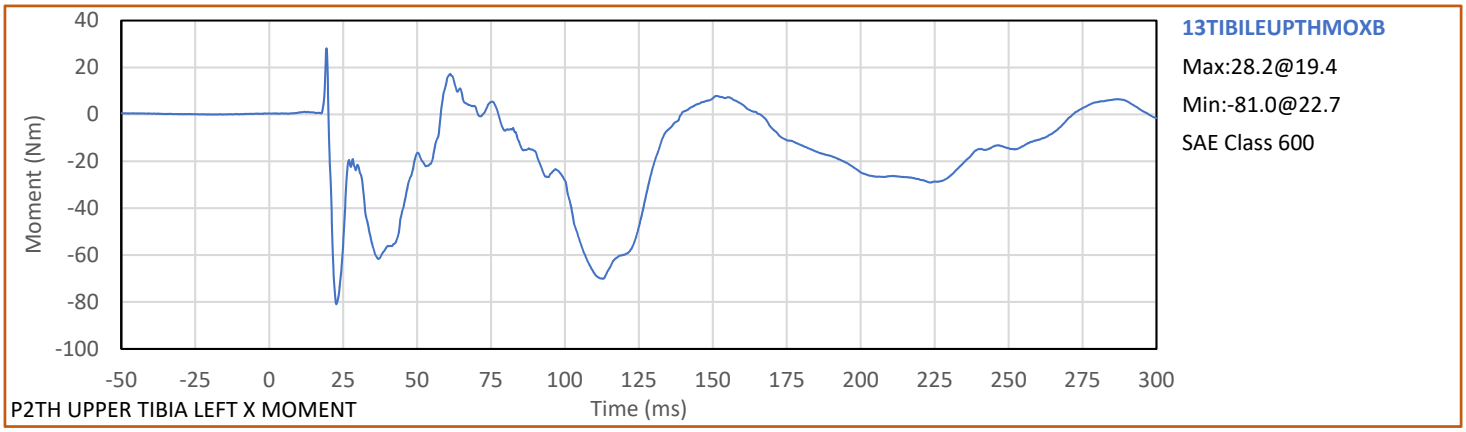

Displacement (mm)
Time (ms)
P2TH KNEE LEFT X DISPLACEMENT
13KNSLLE00THDSXC
Max:1.8@125.9
Min:-7.1@30.6
SAE Class 180

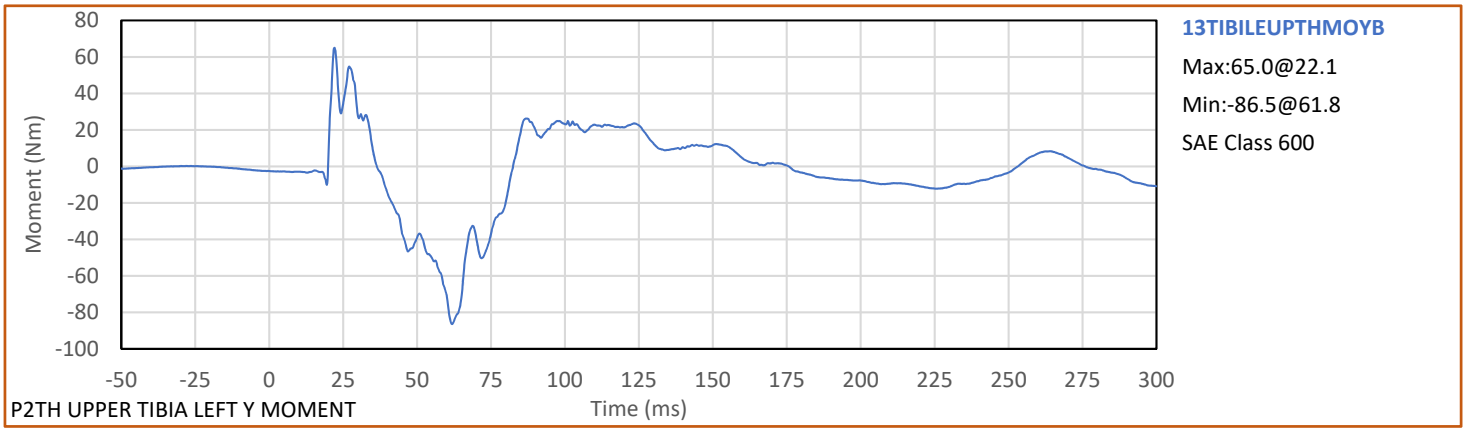

Displacement (mm)
Time (ms)
13KNSLRI00THDSXC
Max:1.0@189.8
Min:-7.3@33.8
SAE Class 180
P2TH KNEE RIGHT X DISPLACEMENT

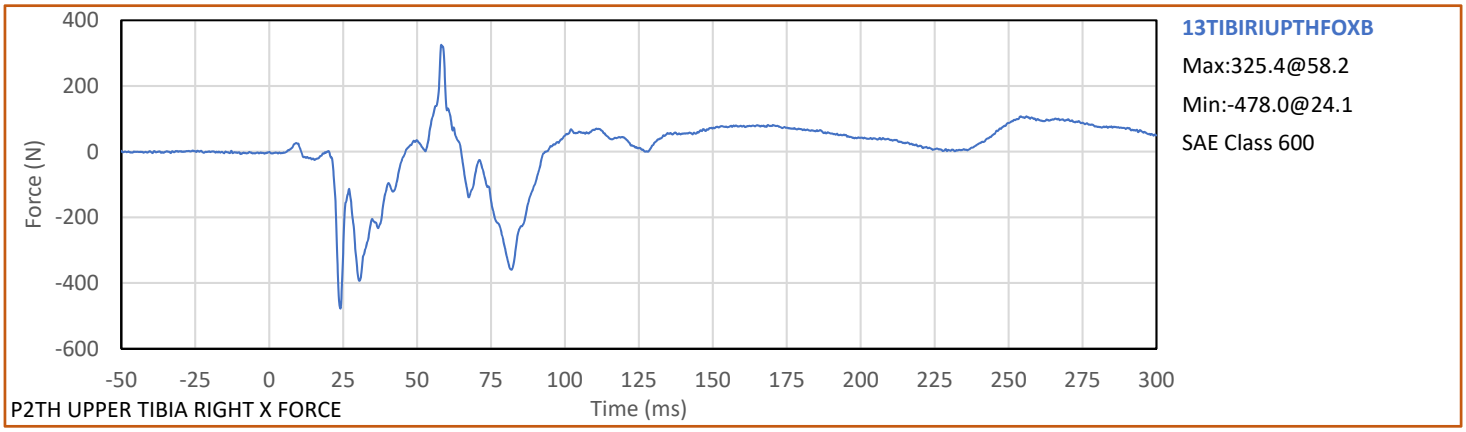

Force (N)
Time (ms)
13TIBILEUPTHFOXB
Max:295.1@61.7
Min:-634.4@21.4
SAE Class 600
P2TH UPPER TIBIA LEFT X FORCE

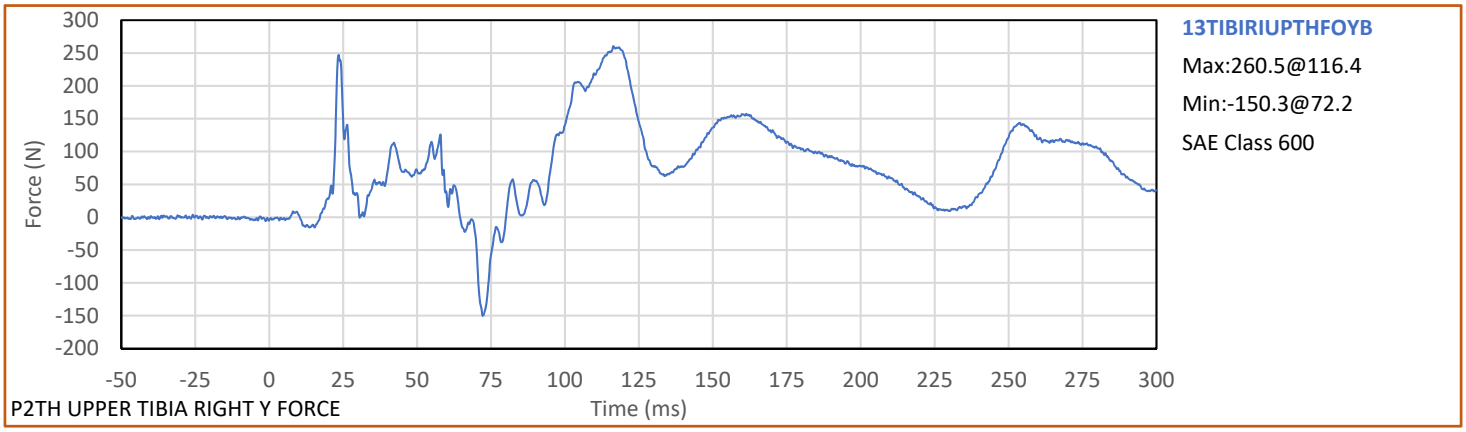

Force (N)
Time (ms)
13TIBILEUPTHFOYB
Max:236.6@61.3
Min:-817.4@22.5
SAE Class 600
P2TH UPPER TIBIA LEFT Y FORCE

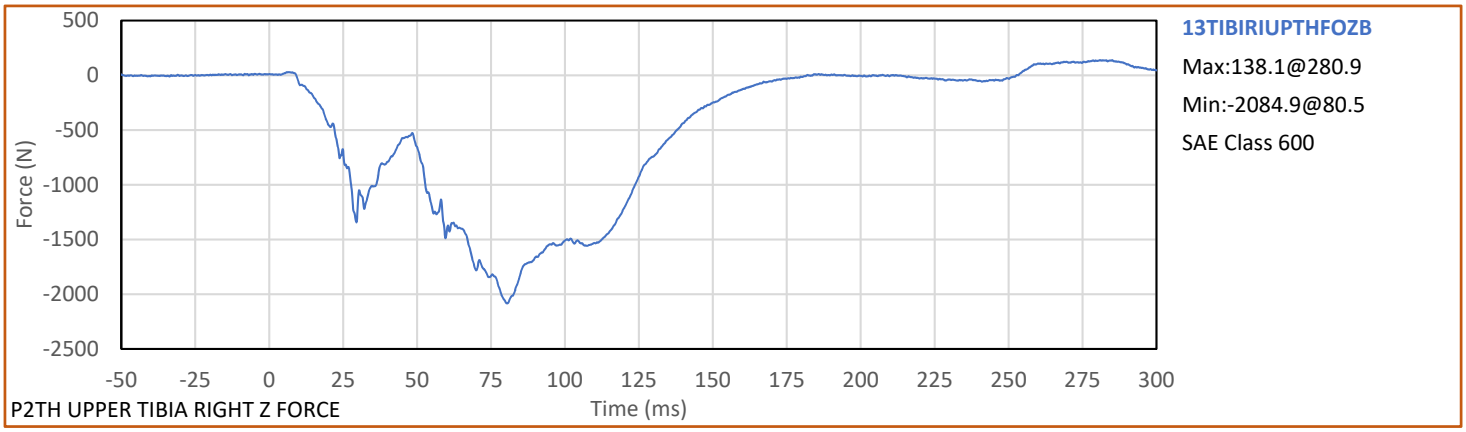

Force (N)
Time (ms)
13TIBILEUPTHFOZB
Max:133.4@141.4
Min:-3225.1@68.5
SAE Class 600
P2TH UPPER TIBIA LEFT Z FORCE

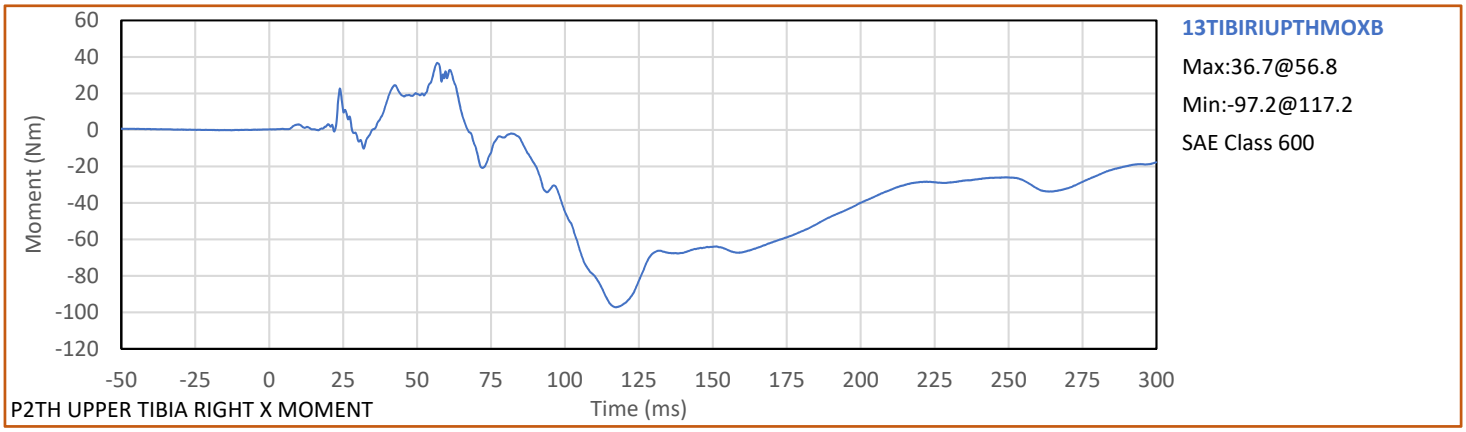

Moment (Nm)
Time (ms)
P2TH UPPER TIBIA LEFT X MOMENT
13TIBILEUPTHMOXB
Max:28.2@19.4
Min:-81.0@22.7
SAE Class 600

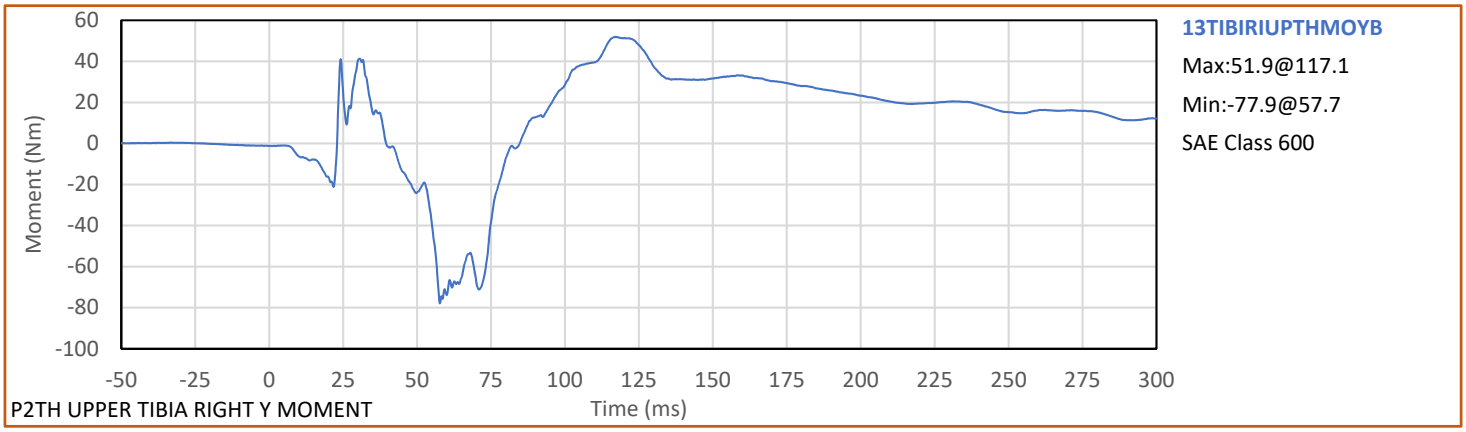

Moment (Nm)
Time (ms)
P2TH UPPER TIBIA LEFT Y MOMENT
13TIBILEUPTHMOYB
Max:65.0@22.1
Min:-86.5@61.8
SAE Class 600

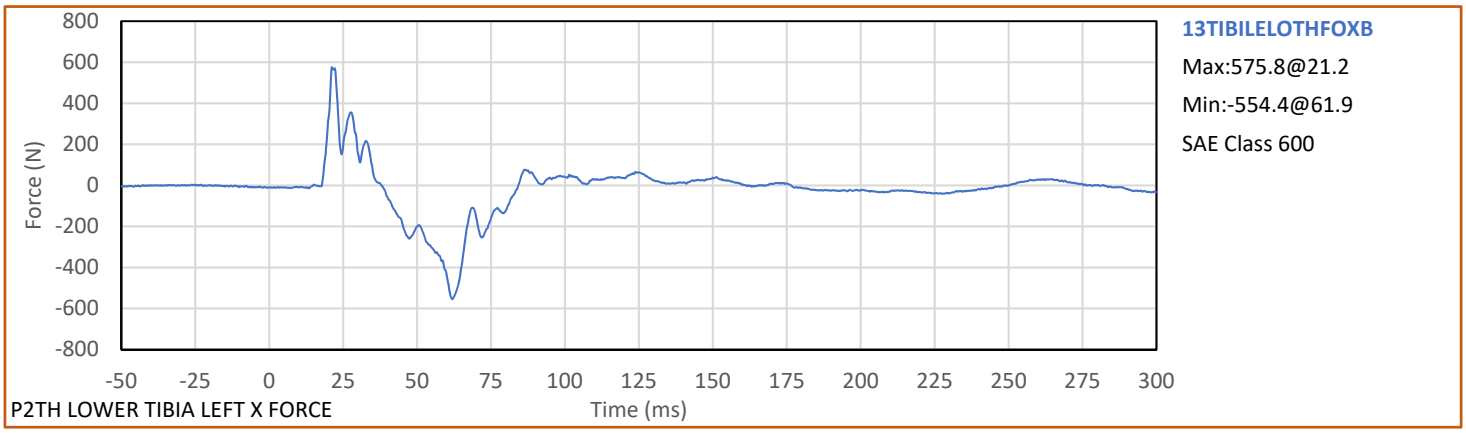

Force (N)
Time (ms)
P2TH UPPER TIBIA RIGHT X FORCE
13TIBIRIUPTHFOXB
Max:325.4@58.2
Min:-478.0@24.1
SAE Class 600


Force (N)
Time (ms)
P2TH UPPER TIBIA RIGHT Y FORCE
13TIBIRIUPTHFOYB
Max:260.5@116.4
Min:-150.3@72.2
SAE Class 600


Force (N)
Time (ms)
P2TH UPPER TIBIA RIGHT Z FORCE
13TIBIRIUPTHFOZB
Max:138.1@280.9
Min:-2084.9@80.5
SAE Class 600

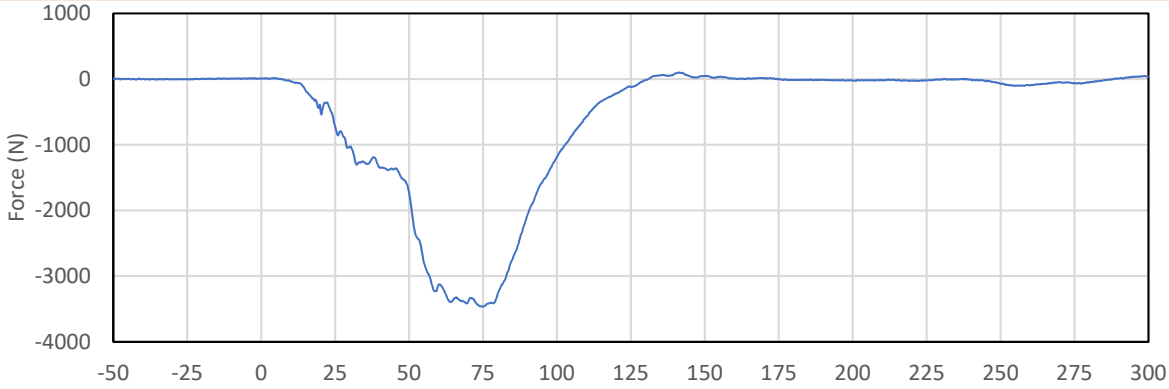

Moment (Nm)
Time (ms)
P2TH UPPER TIBIA RIGHT X MOMENT
13TIBIRIUPTHMOXB
Max:36.7@56.8
Min:-97.2@117.2
SAE Class 600


Moment (Nm)
Time (ms)
P2TH UPPER TIBIA RIGHT Y MOMENT
13TIBIRIUPTHMOYB
Max:51.9@117.1
Min:-77.9@57.7
SAE Class 600


Force (N)
Time (ms)
P2TH LOWER TIBIA LEFT X FORCE
13TIBILELOTHFOXB
Max:575.8@21.2
Min:-554.4@61.9
SAE Class 600

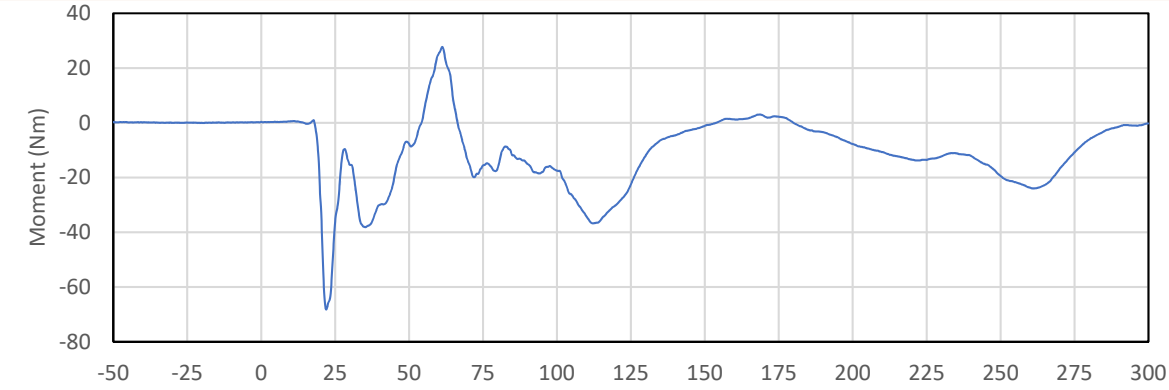
P2TH LOWER TIBIA LEFT Y FORCE

13TIBILELOTHFOYB
Max:709.0@21.4
Min:-148.8@61.5
SAE Class 600



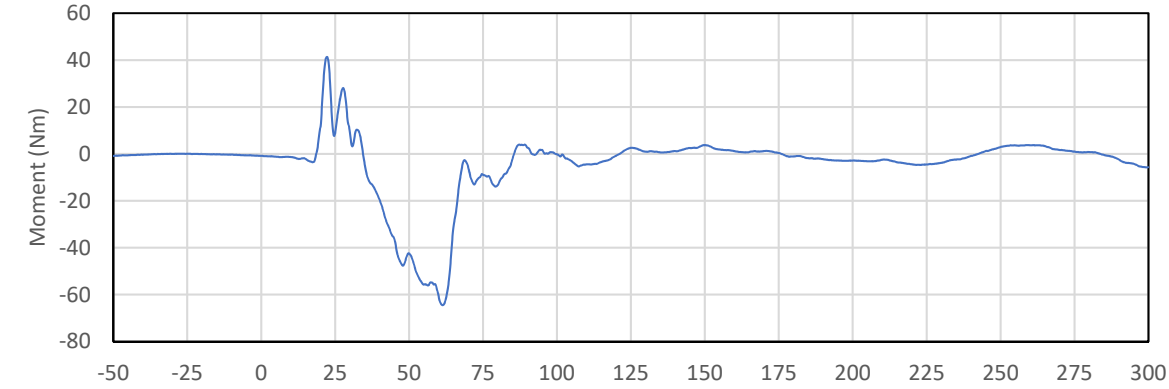
P2TH LOWER TIBIA LEFT Z FORCE

13TIBILELOTHFOZB
Max:101.1@141.2
Min:-3465.5@74.8
SAE Class 600



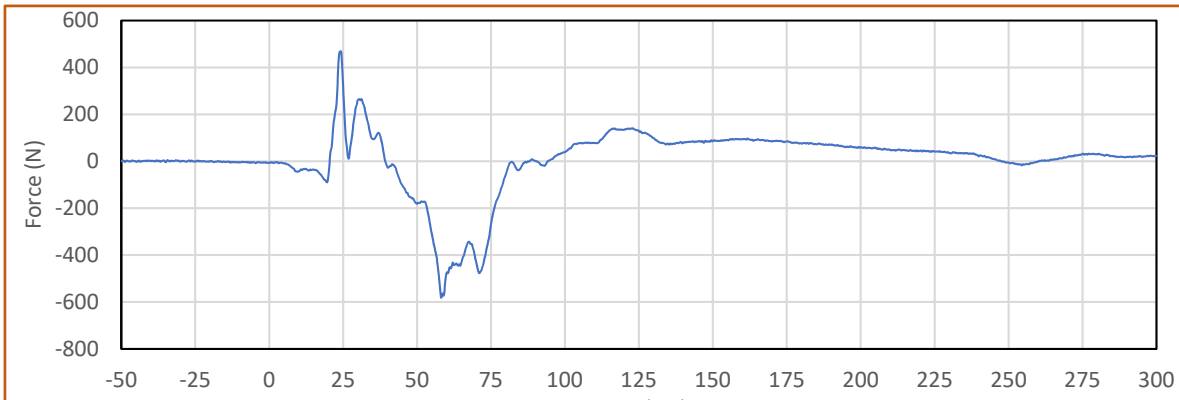
P2TH LOWER TIBIA LEFT X MOMENT

13TIBILELOTHMOXB
Max:27.7@61.2
Min:-68.3@22.0
SAE Class 600



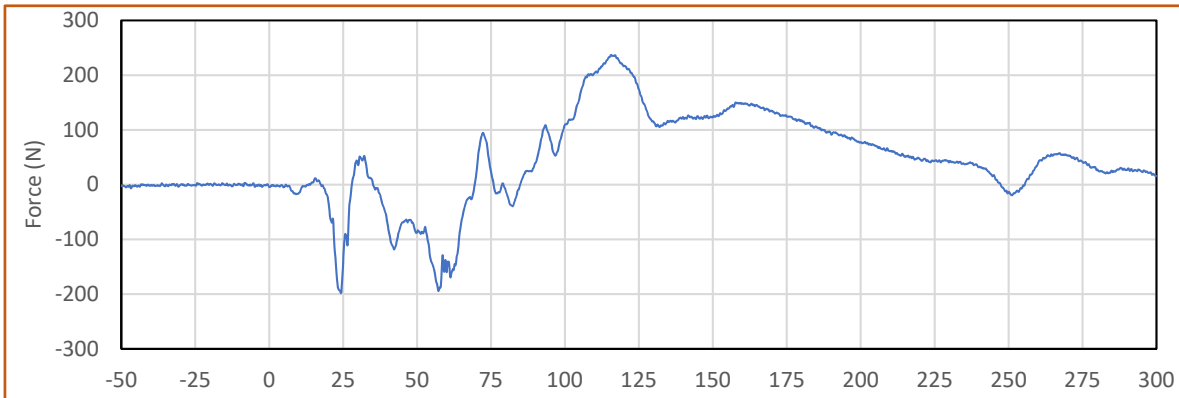
P2TH LOWER TIBIA LEFT Y MOMENT

13TIBILELOTHMOYB
Max:41.3@22.2
Min:-64.5@61.3
SAE Class 600



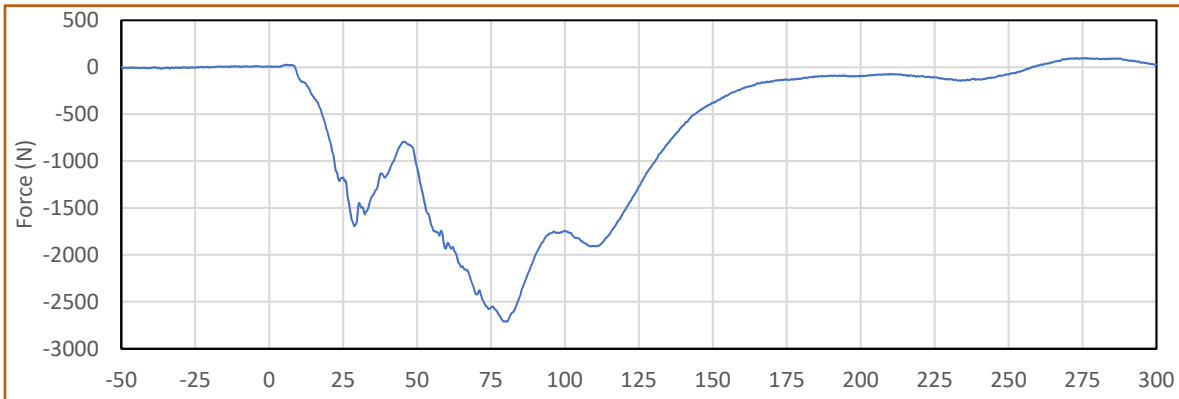
P2TH LOWER TIBIA RIGHT X FORCE

13TIBIRILOTHFOXB
Max:468.9@24.2
Min:-582.2@58.2
SAE Class 600



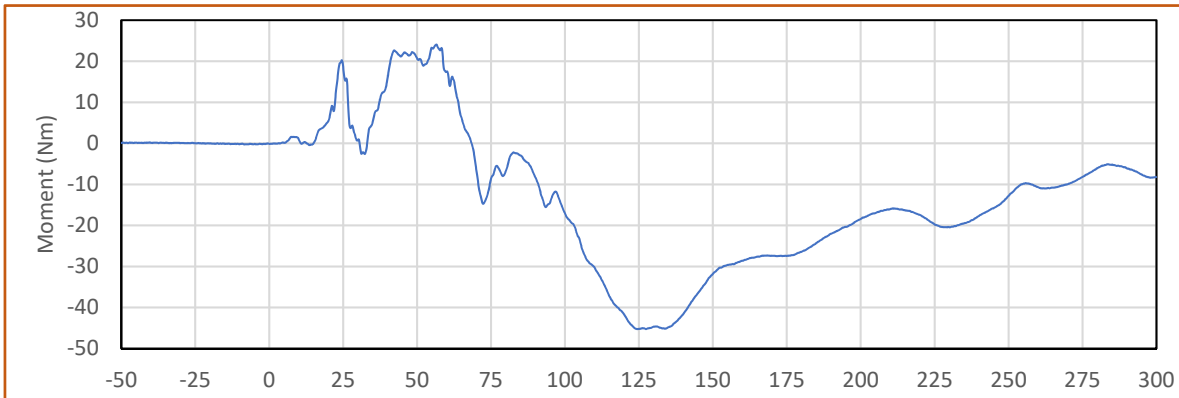
P2TH LOWER TIBIA RIGHT Y FORCE

13TIBIRILOTHFOYB
Max:237.0@115.6
Min:-198.4@24.2
SAE Class 600



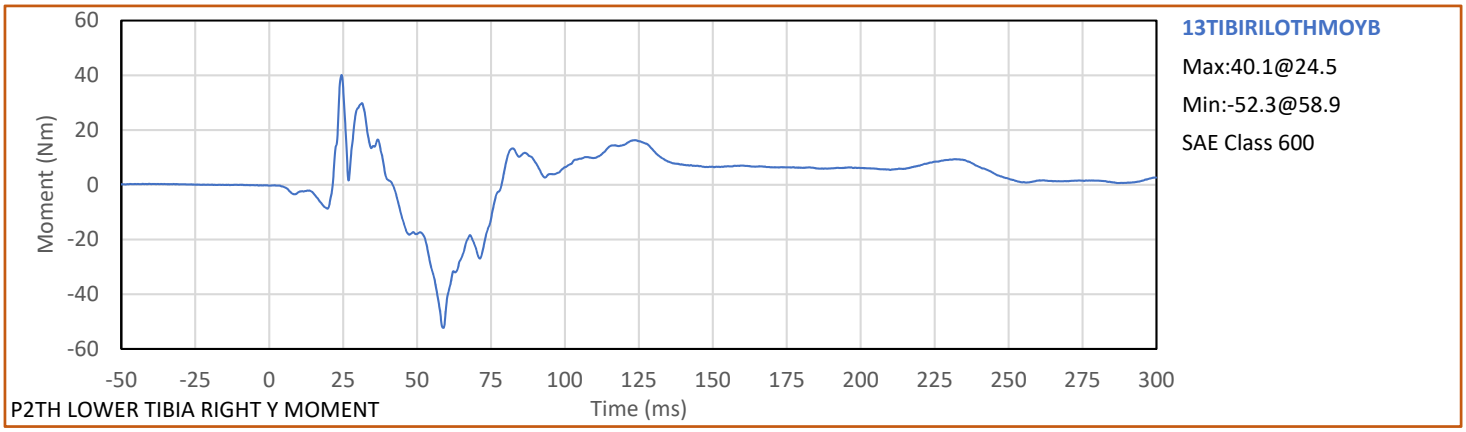
P2TH LOWER TIBIA RIGHT Z FORCE

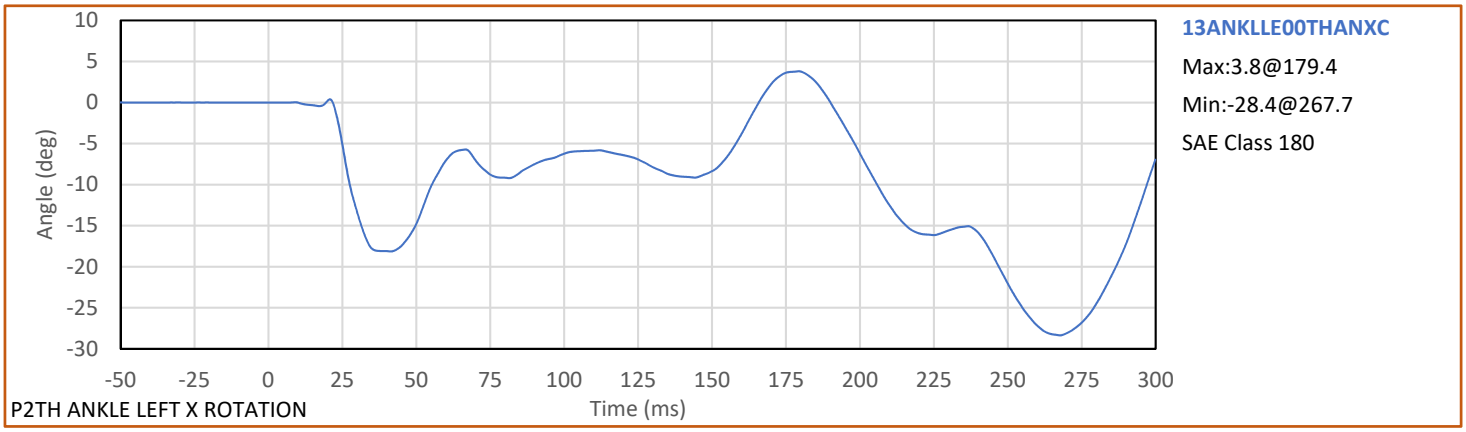
13TIBIRILOTHFOZB
Max:98.1@275.7
Min:-2711.9@79.6
SAE Class 600

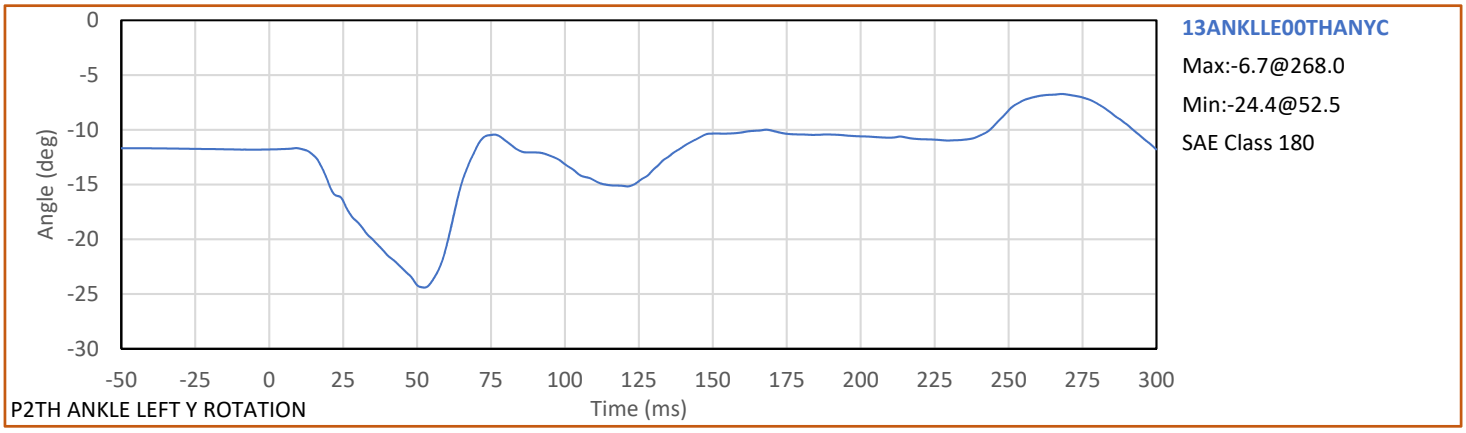


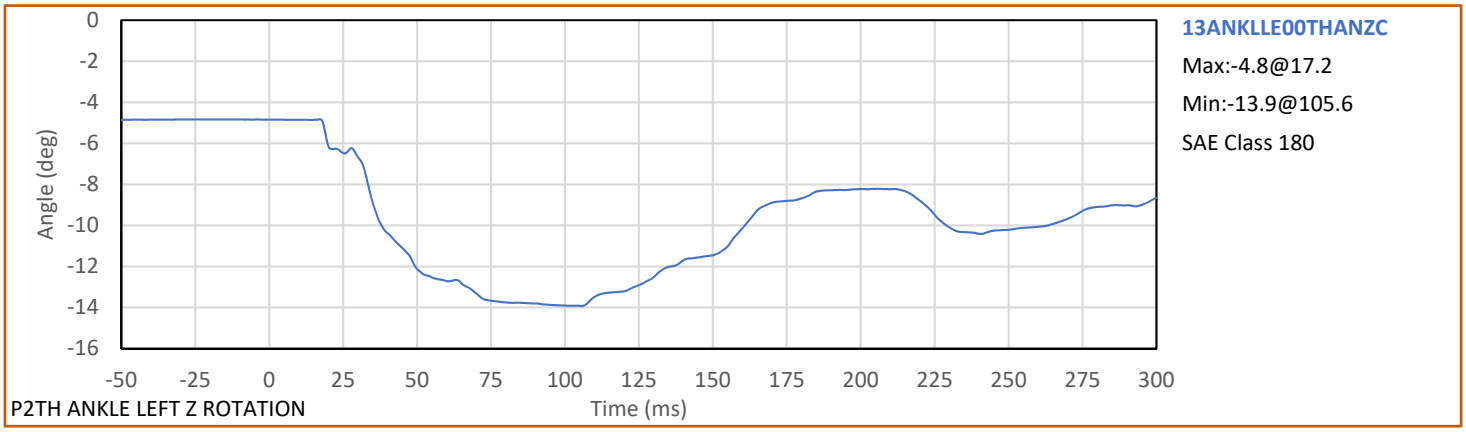
P2TH LOWER TIBIA RIGHT X MOMENT

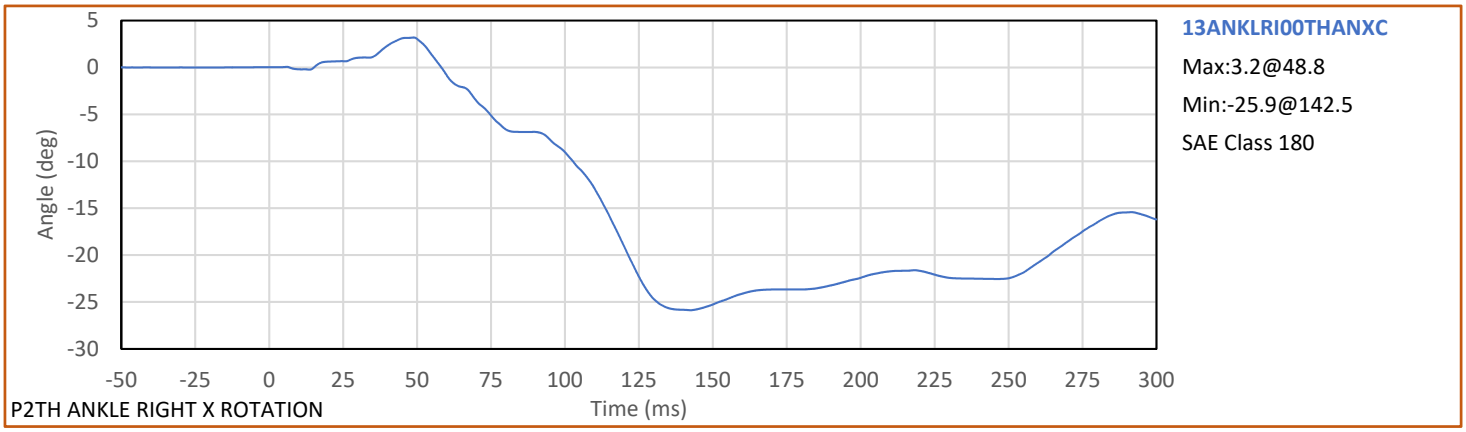
13TIBIRILOTHMOXB
Max:24.1@56.5
Min:-45.3@127.4
SAE Class 600

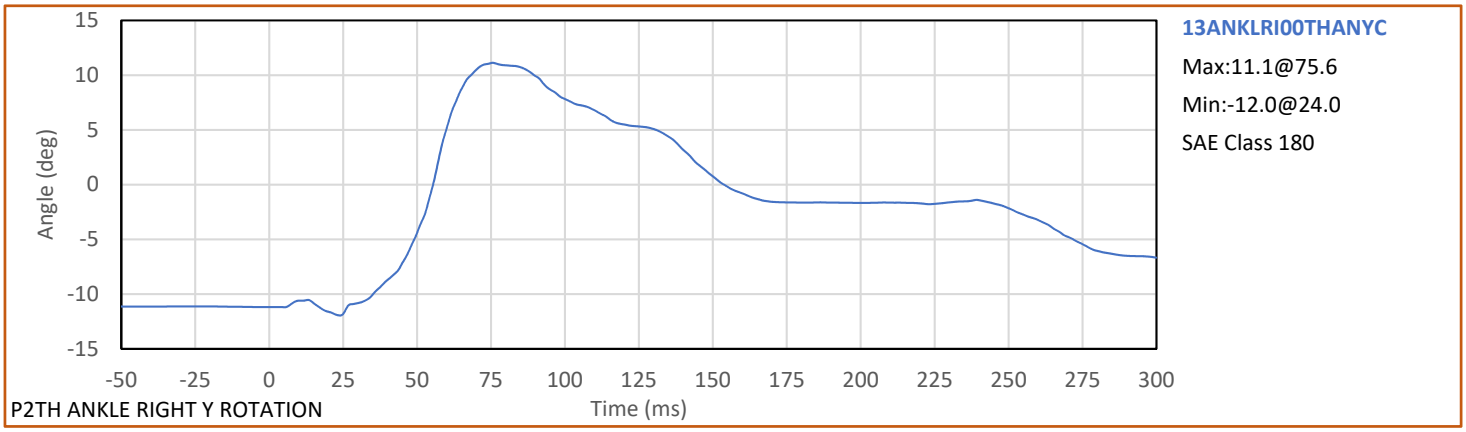

Moment (Nm)
Time (ms)
P2TH LOWER TIBIA RIGHT Y MOMENT
13TIBIRILOTHMOYB
Max:40.1@24.5
Min:-52.3@58.9
SAE Class 600

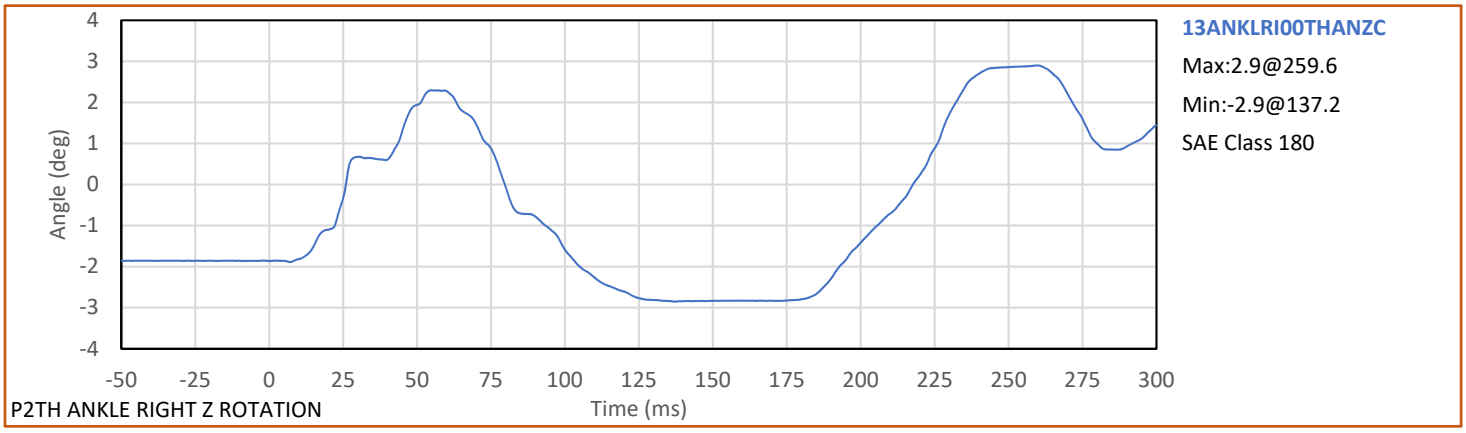

Angle (deg)
Time (ms)
P2TH ANKLE LEFT X ROTATION
13ANKLLE00THANXC
Max:3.8@179.4
Min:-28.4@267.7
SAE Class 180

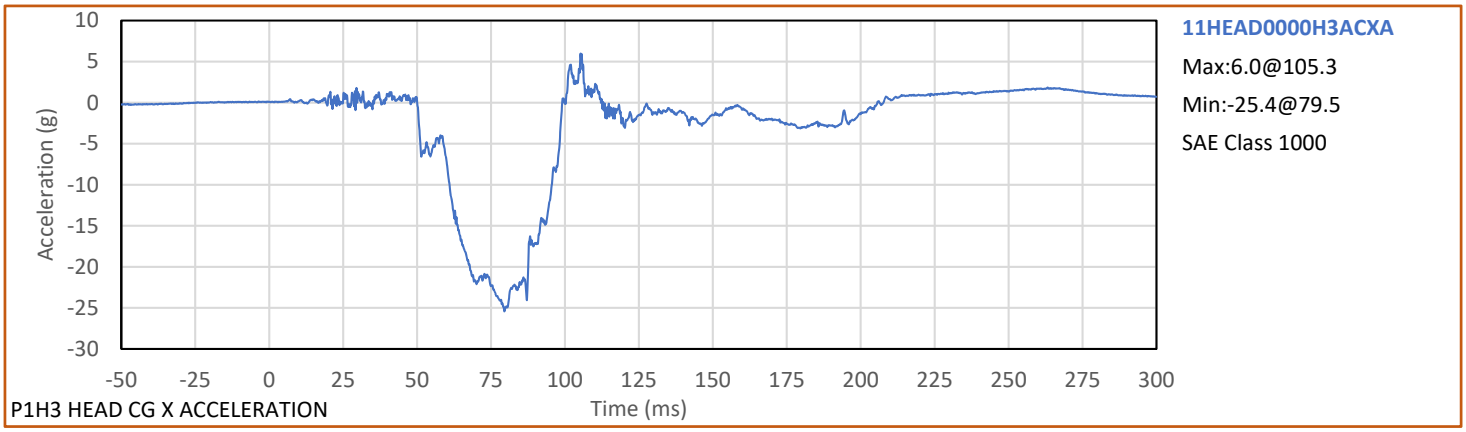

Angle (deg)
Time (ms)
P2TH ANKLE LEFT Y ROTATION
13ANKLLE00THANYC
Max:-6.7@268.0
Min:-24.4@52.5
SAE Class 180

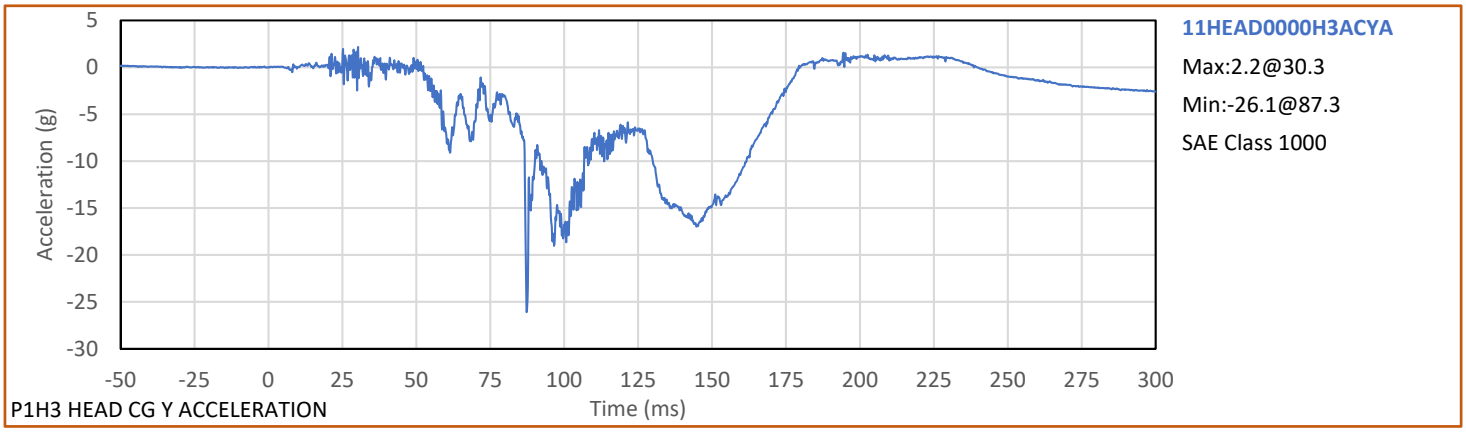

Angle (deg)
Time (ms)
P2TH ANKLE LEFT Z ROTATION
13ANKLLE00THANZC
Max:-4.8@17.2
Min:-13.9@105.6
SAE Class 180

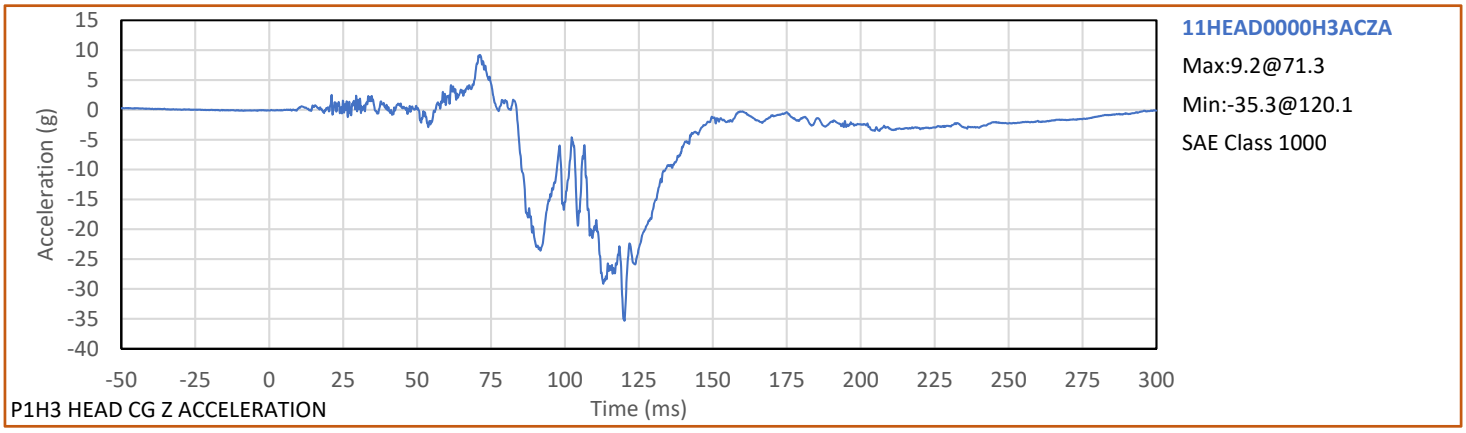

Angle (deg)
Time (ms)
P2TH ANKLE RIGHT X ROTATION
13ANKLRI00THANXC
Max:3.2@48.8
Min:-25.9@142.5
SAE Class 180

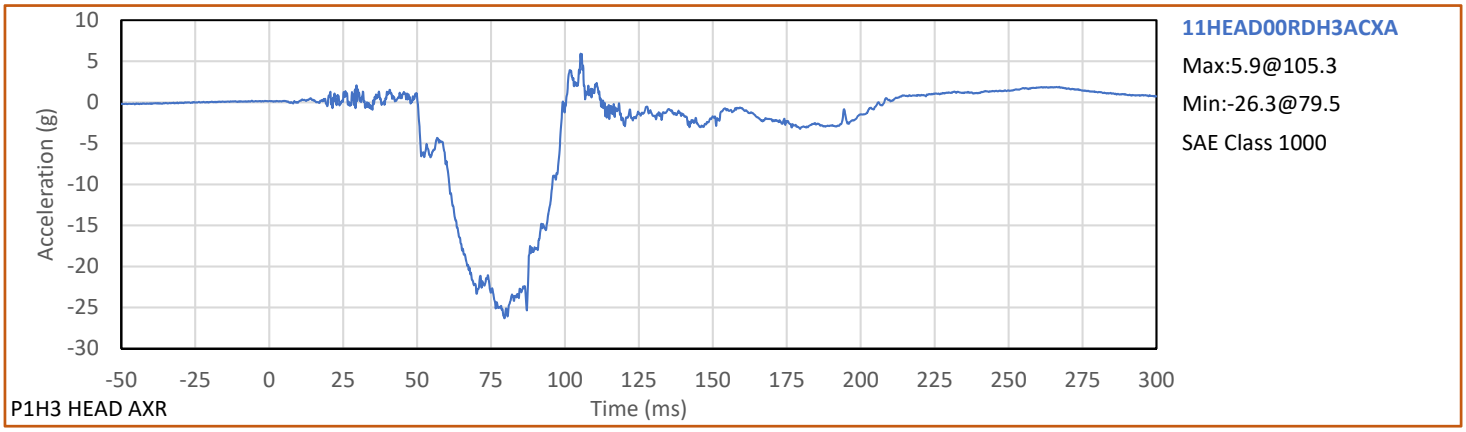

Angle (deg)
Time (ms)
P2TH ANKLE RIGHT Y ROTATION
13ANKLRI00THANYC
Max:11.1@75.6
Min:-12.0@24.0
SAE Class 180

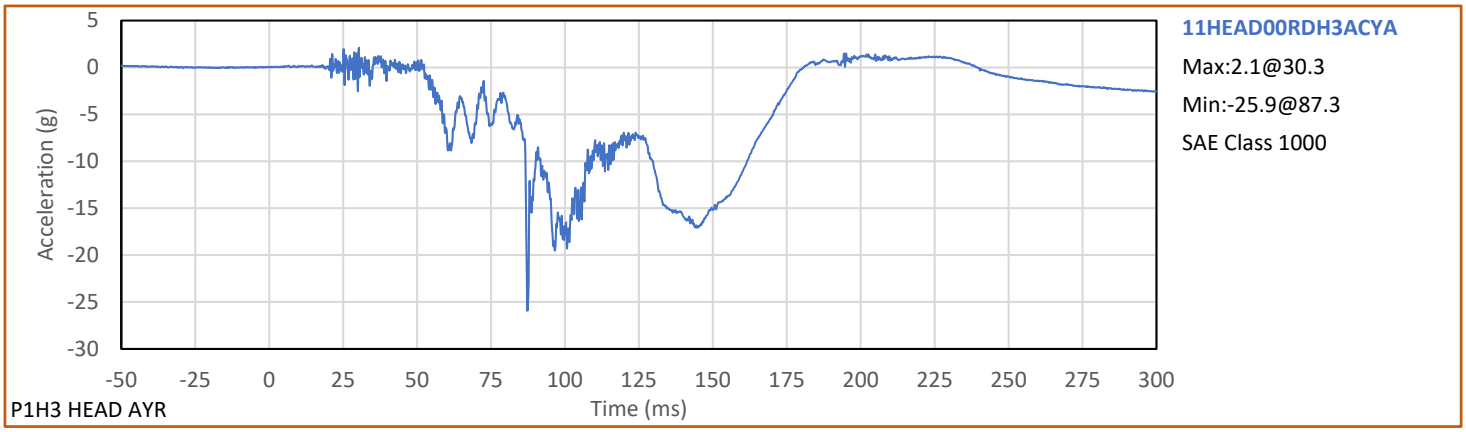

Angle (deg)
Time (ms)
P2TH ANKLE RIGHT Z ROTATION
13ANKLRI00THANZC
Max:2.9@259.6
Min:-2.9@137.2
SAE Class 180

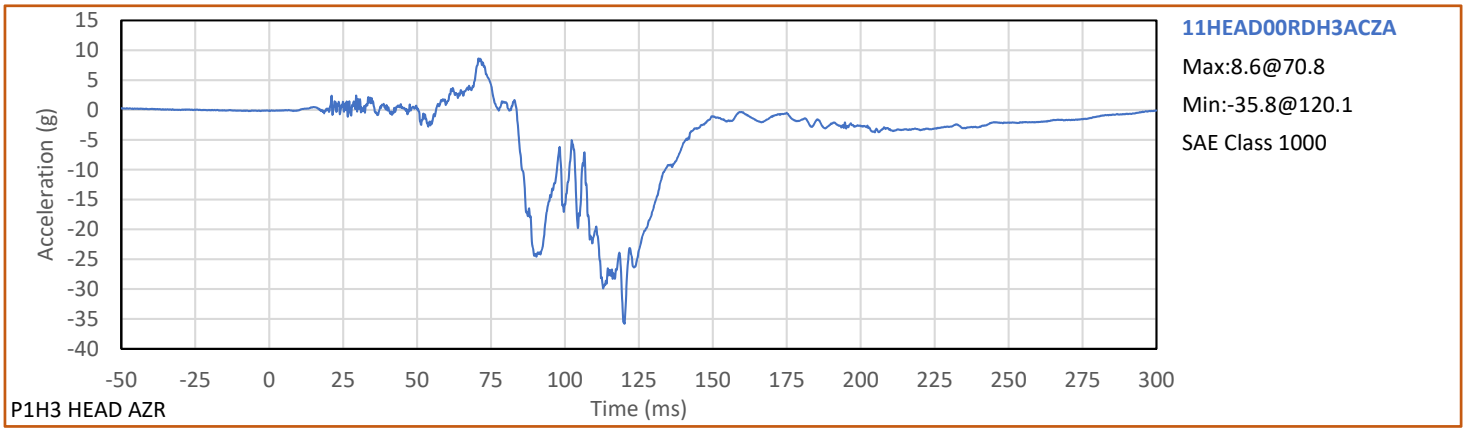

11HEAD0000H3ACXA
Max:6.0@105.3
Min:-25.4@79.5
SAE Class 1000
Acceleration (g)
Time (ms)
P1H3 HEAD CG X ACCELERATION

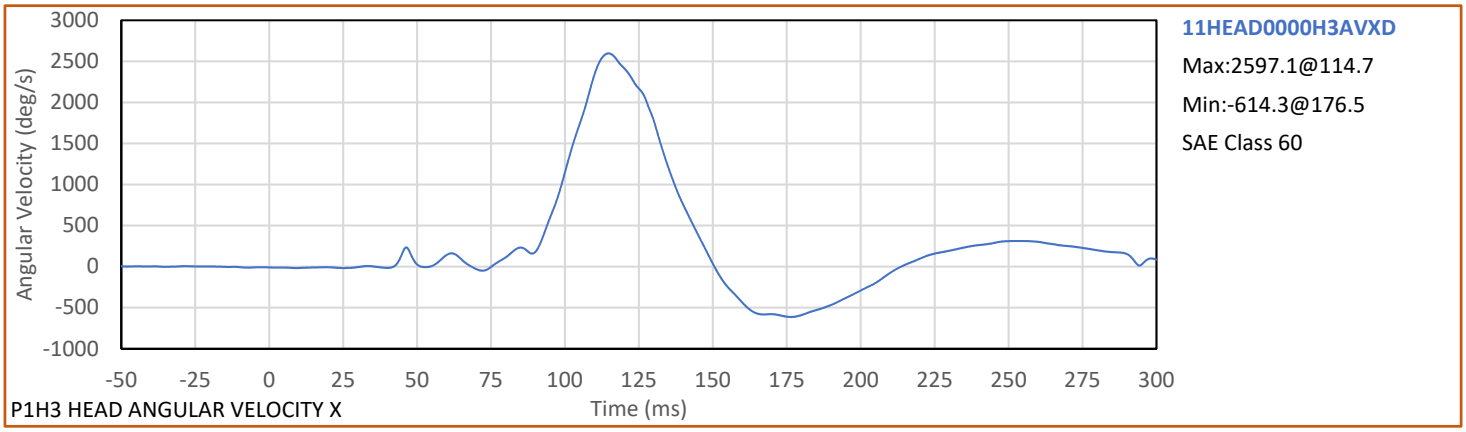

11HEAD0000H3ACYA
Max:2.2@30.3
Min:-26.1@87.3
SAE Class 1000
Acceleration (g)
Time (ms)
P1H3 HEAD CG Y ACCELERATION

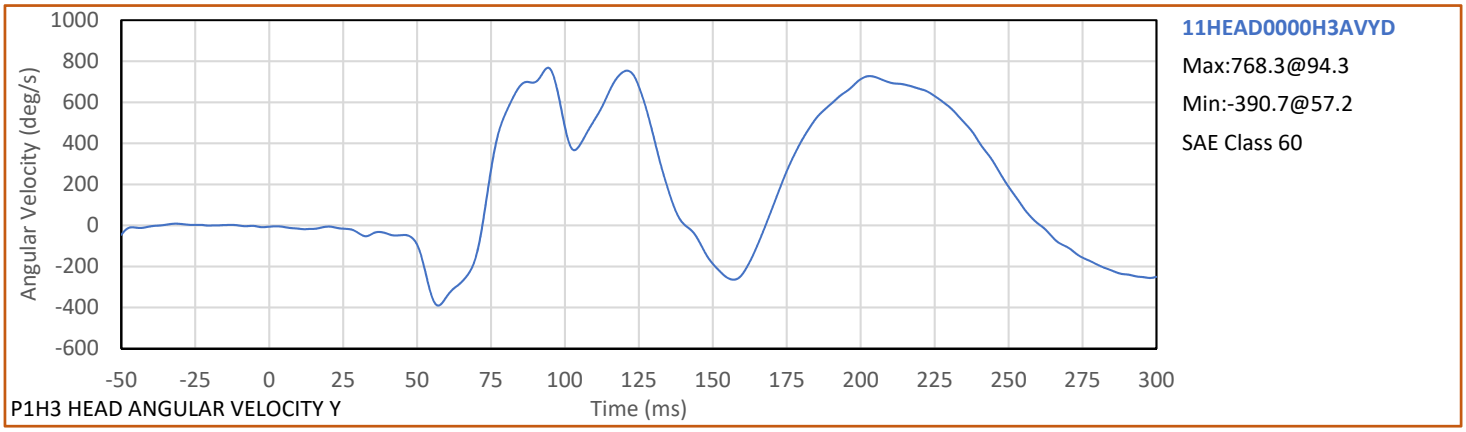

11HEAD0000H3ACZA
Max:9.2@71.3
Min:-35.3@120.1
SAE Class 1000
Acceleration (g)
Time (ms)
P1H3 HEAD CG Z ACCELERATION

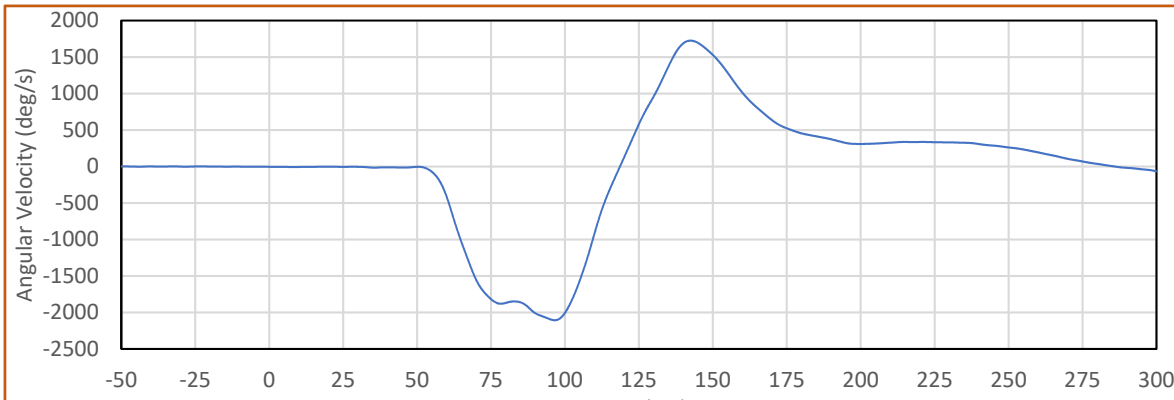

11HEAD00RDH3ACXA
Max:5.9@105.3
Min:-26.3@79.5
SAE Class 1000
Acceleration (g)
Time (ms)
P1H3 HEAD AXR


Acceleration (g)
Time (ms)
P1H3 HEAD AYR
11HEAD00RDH3ACYA
Max:2.1@30.3
Min:-25.9@87.3
SAE Class 1000


Acceleration (g)
Time (ms)
P1H3 HEAD AZR
11HEAD00RDH3ACZA
Max:8.6@70.8
Min:-35.8@120.1
SAE Class 1000

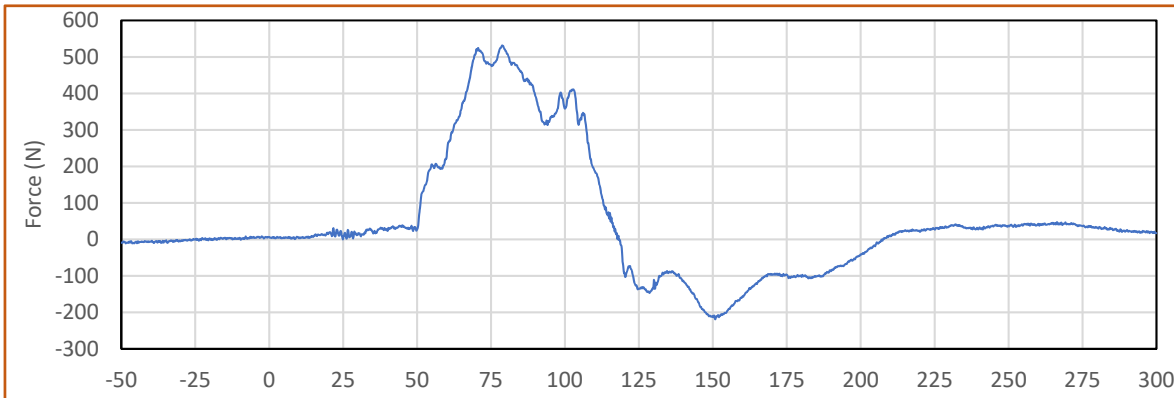

Angular Velocity (deg/s)
Time (ms)
P1H3 HEAD ANGULAR VELOCITY X
11HEAD0000H3AVXD
Max:2597.1@114.7
Min:-614.3@176.5
SAE Class 60


Angular Velocity (deg/s)
Time (ms)
P1H3 HEAD ANGULAR VELOCITY Y
11HEAD0000H3AVYD
Max:768.3@94.3
Min:-390.7@57.2
SAE Class 60



11HEAD0000H3AVZD
Max:1724.6@142.5
Min:-2107.6@96.6
SAE Class 60

P1H3 HEAD ANGULAR VELOCITY Z

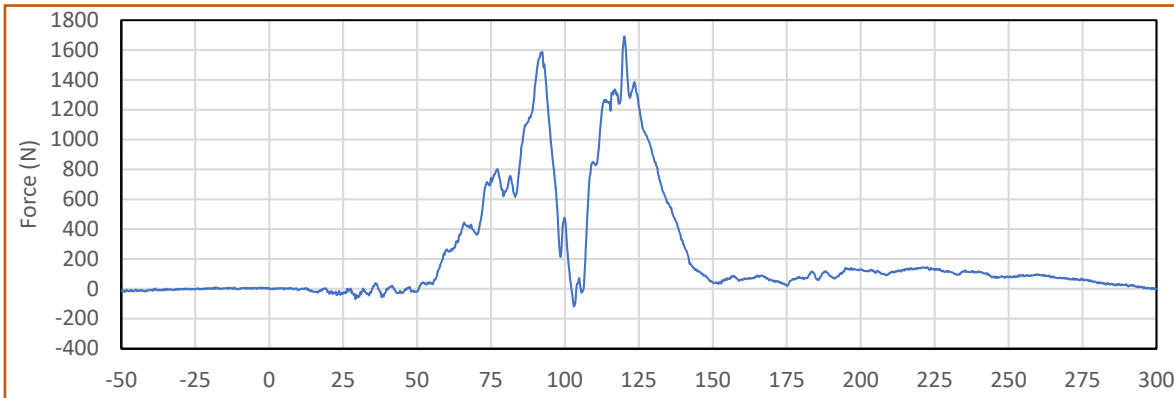


11NECKUP00H3FOXA
Max:531.4@78.8
Min:-219.3@150.8
SAE Class 1000

P1H3 UPPER NECK FX

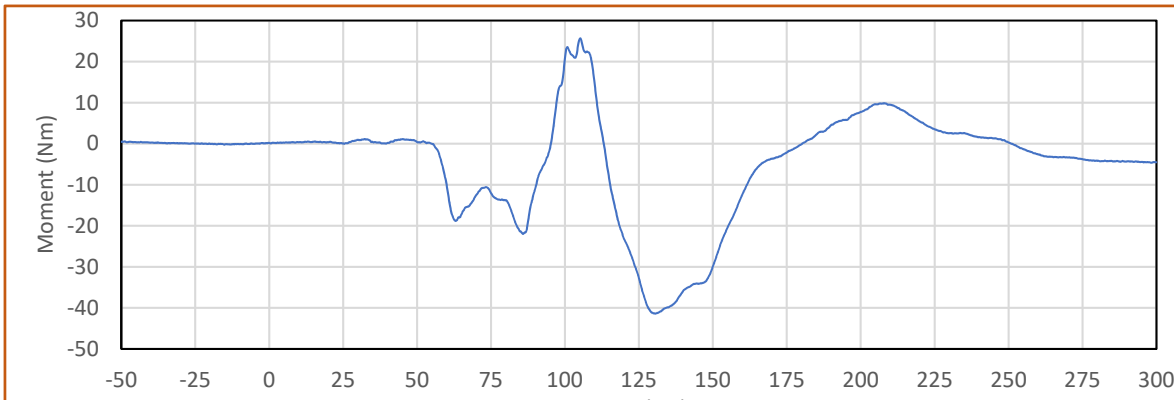
11NECKUP00H3FOYA
Max:508.0@85.3
Min:-470.0@143.0
SAE Class 1000

P1H3 UPPER NECK FY



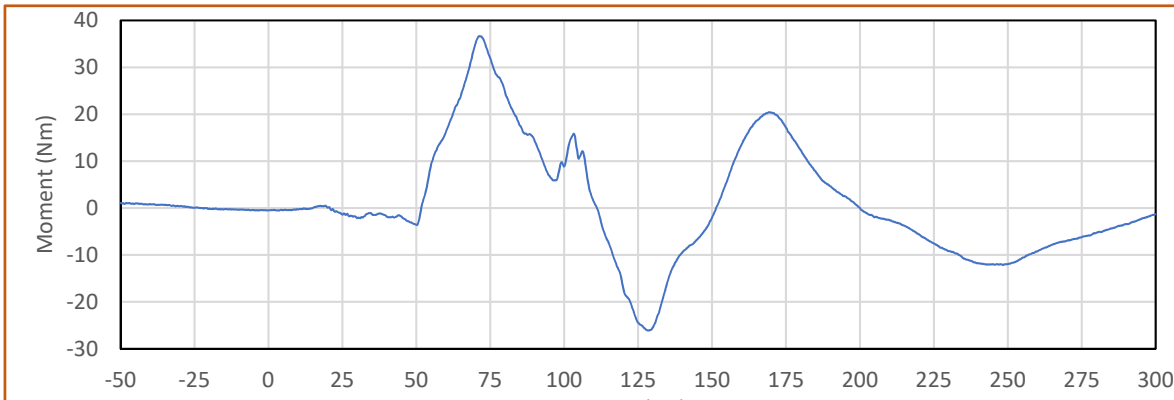
11NECKUP00H3FOZA
Max:1691.0@120.1
Min:-117.9@103.1
SAE Class 1000

P1H3 UPPER NECK FZ



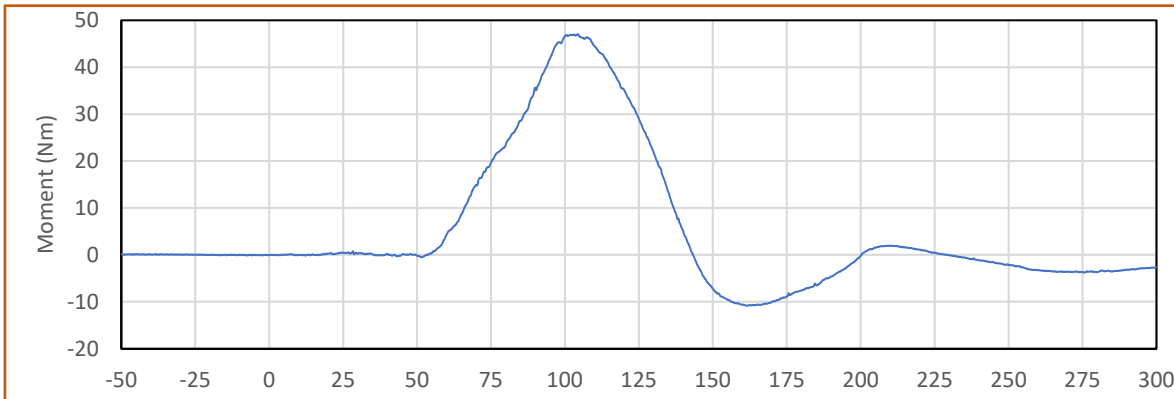
P1H3 UPPER NECK MX

11NECKUP00H3MOXB
Max:25.7@105.2
Min:-41.4@130.6
SAE Class 600



P1H3 UPPER NECK MY

11NECKUP00H3MOYB
Max:36.7@71.3
Min:-26.1@128.5
SAE Class 600

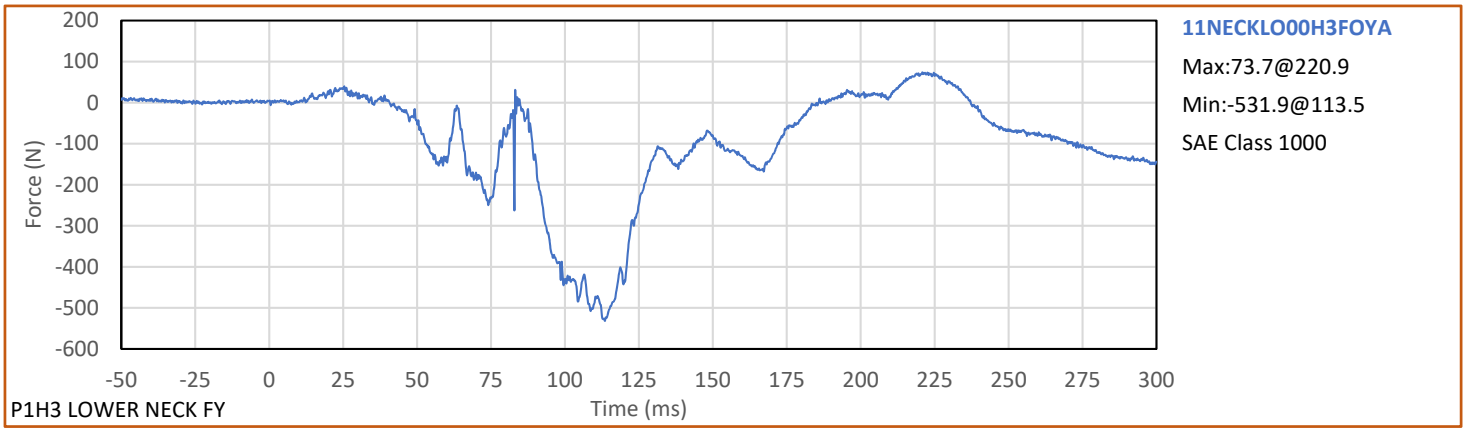


P1H3 UPPER NECK MZ

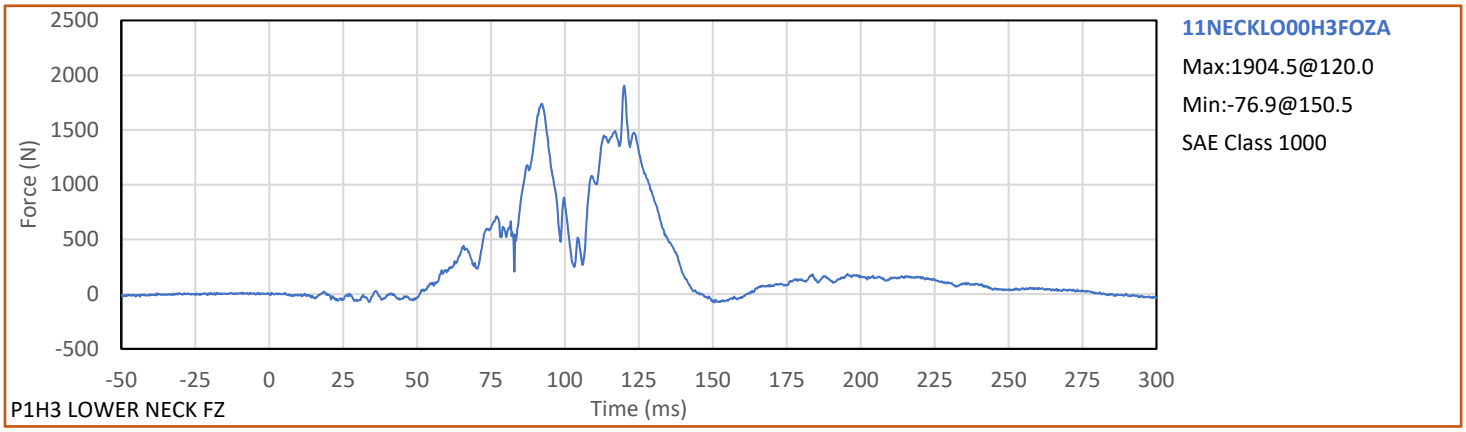
11NECKUP00H3MOZB
Max:47.0@104.3
Min:-10.9@161.8
SAE Class 600

P1H3 LOWER NECK FX

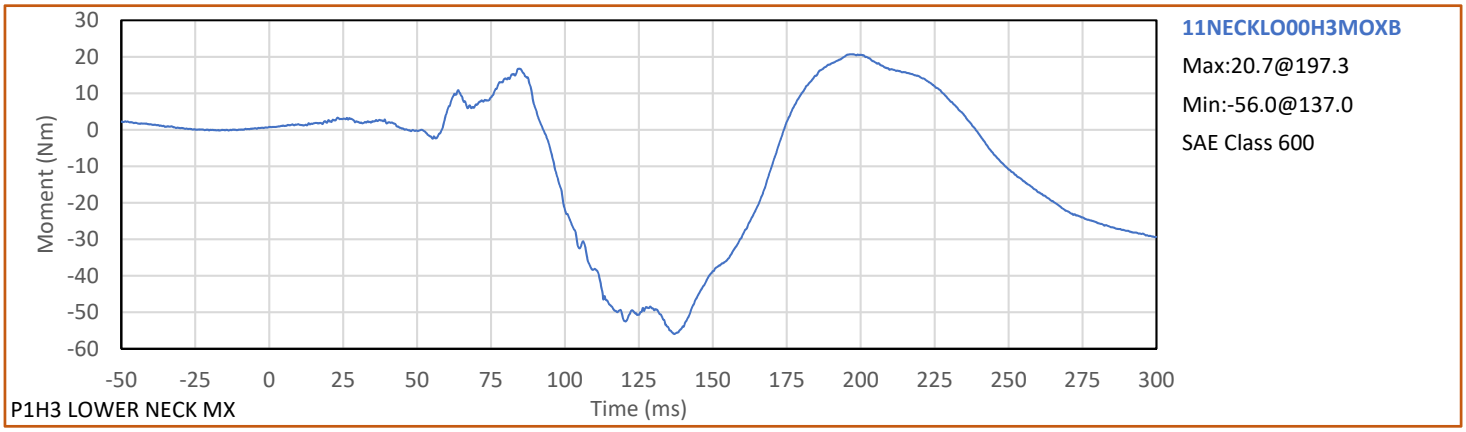
11NECKLO00H3FOXA
Max:1022.8@91.6
Min:-423.3@136.9
SAE Class 1000



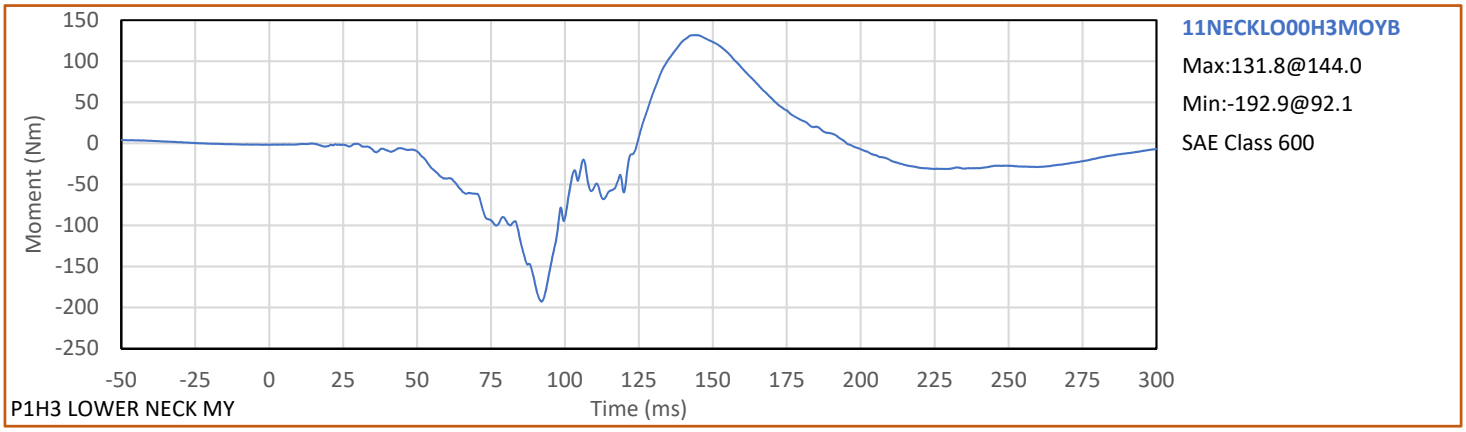
11NECKLO00H3FOYA
Max:73.7@220.9
Min:-531.9@113.5
SAE Class 1000



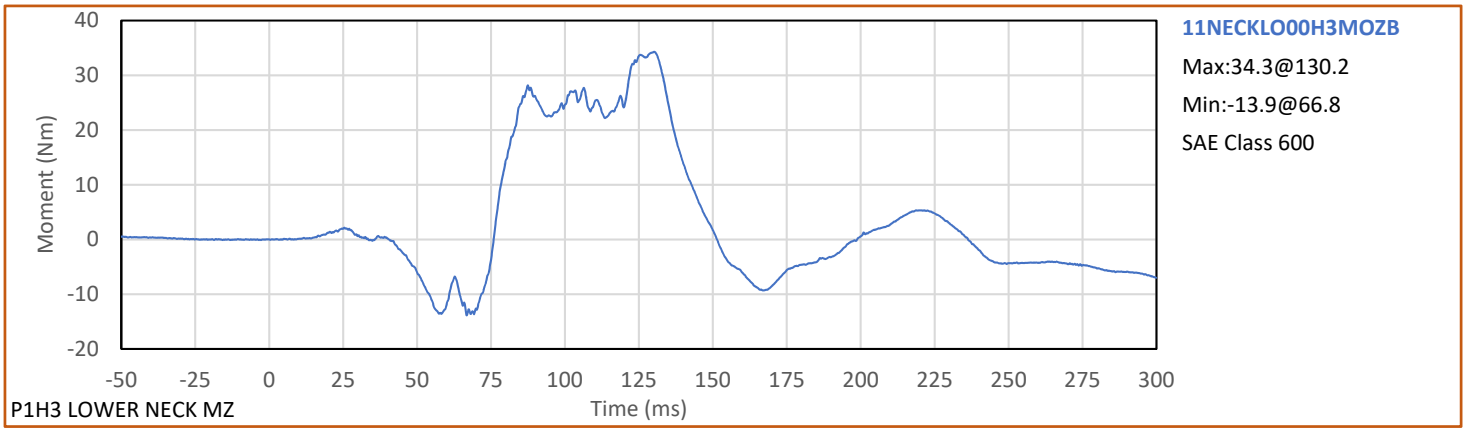
11NECKLO00H3FOZA
Max:1904.5@120.0
Min:-76.9@150.5
SAE Class 1000



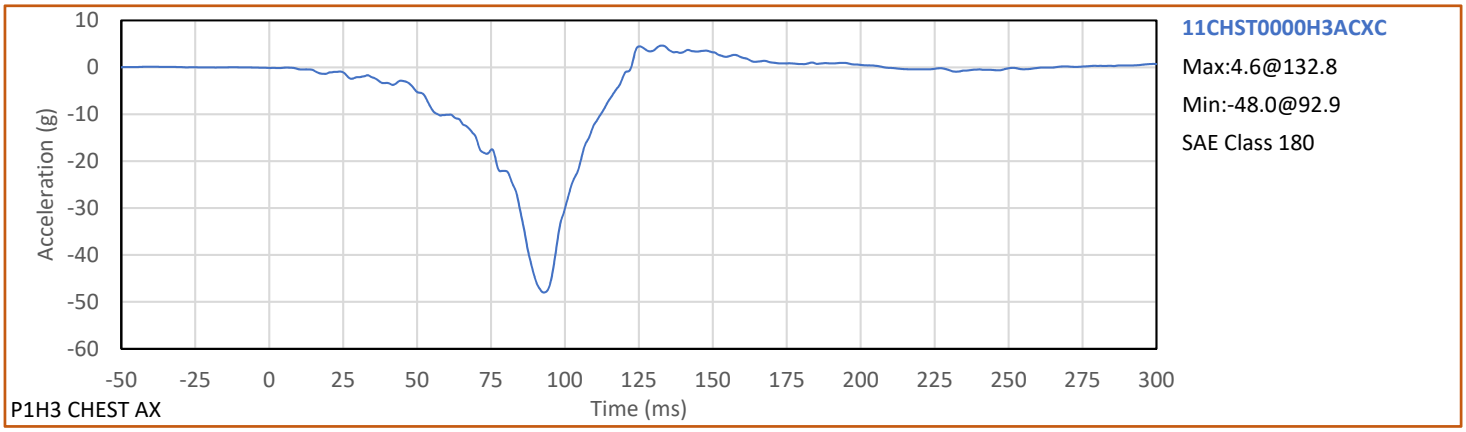
11NECKLO00H3MOXB
Max:20.7@197.3
Min:-56.0@137.0
SAE Class 600



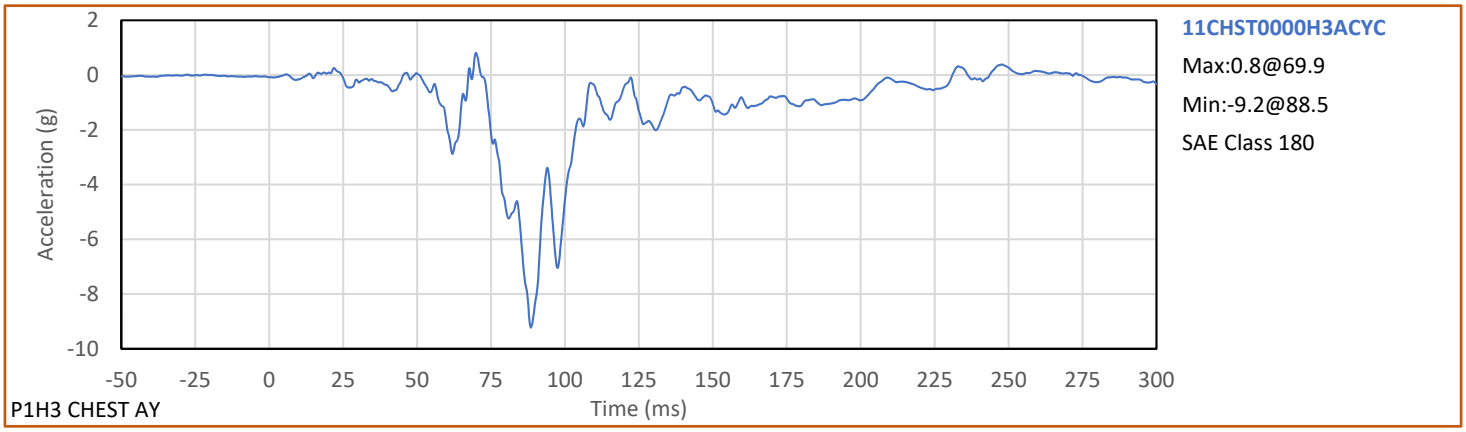
11NECKLO00H3MOYB
Max:131.8@144.0
Min:-192.9@92.1
SAE Class 600



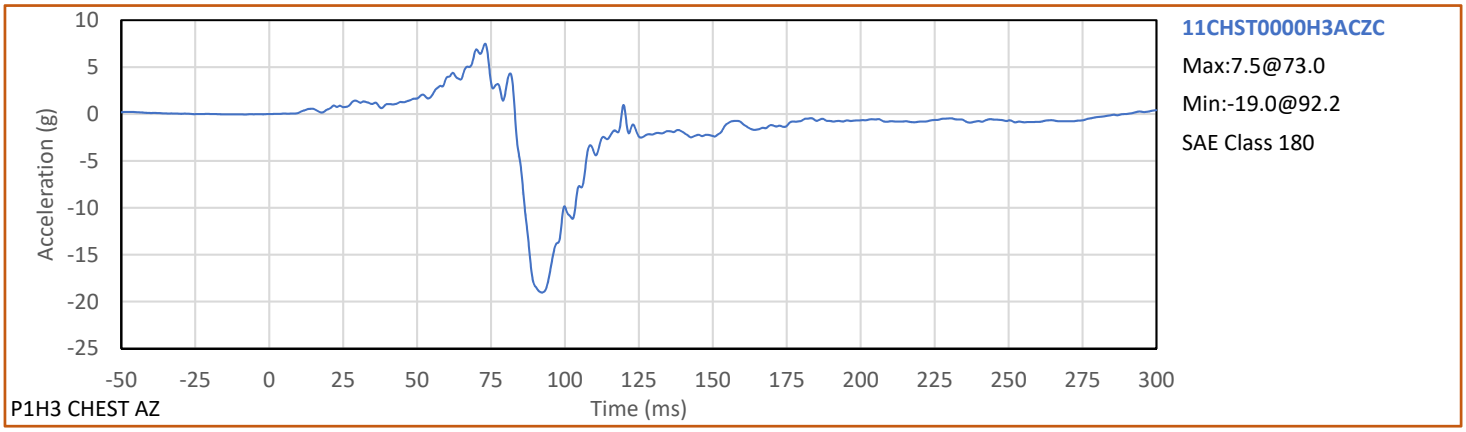
11NECKLO00H3MOZB
Max:34.3@130.2
Min:-13.9@66.8
SAE Class 600



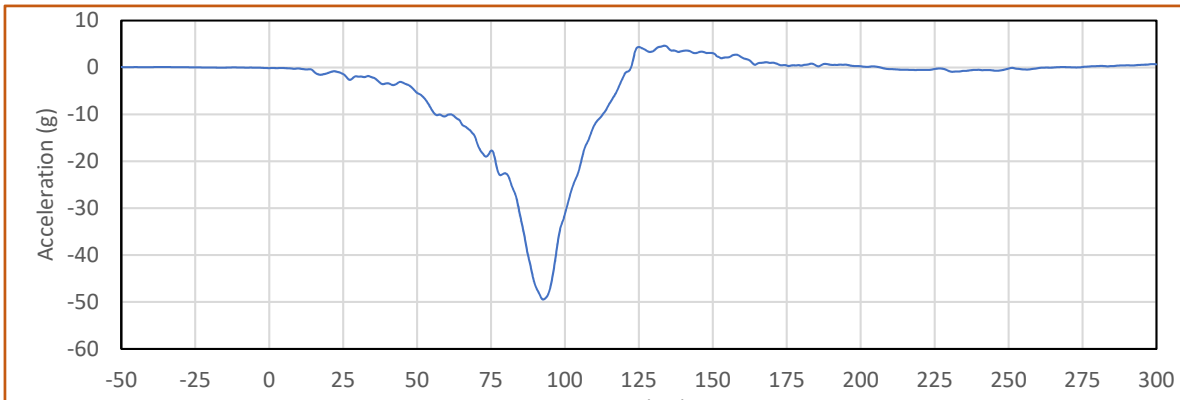
11CHST0000H3ACXC
Max:4.6@132.8
Min:-48.0@92.9
SAE Class 180



11CHST0000H3ACYC
Max:0.8@69.9
Min:-9.2@88.5
SAE Class 180

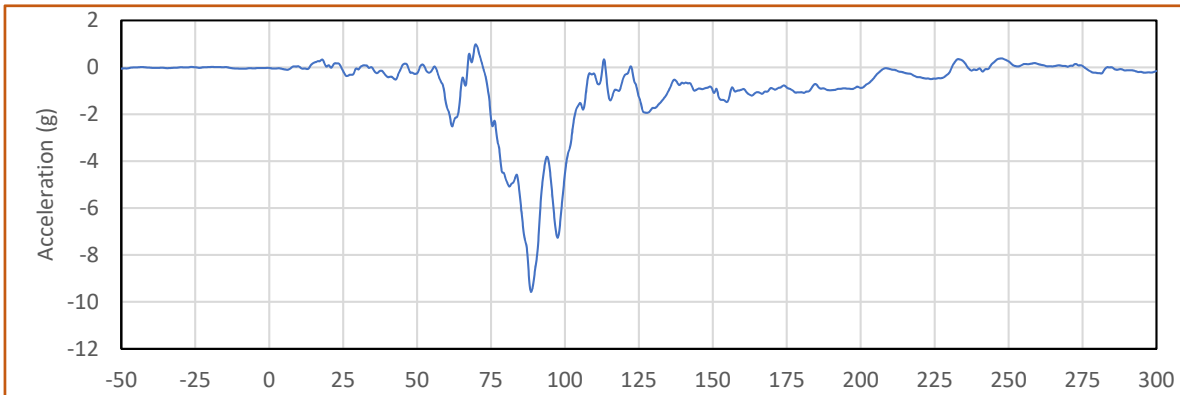


11CHST0000H3ACZC
Max:7.5@73.0
Min:-19.0@92.2
SAE Class 180



P1H3 CHEST AXR

11CHST00RDH3ACXC
Max:4.6@133.6
Min:-49.5@92.6
SAE Class 180

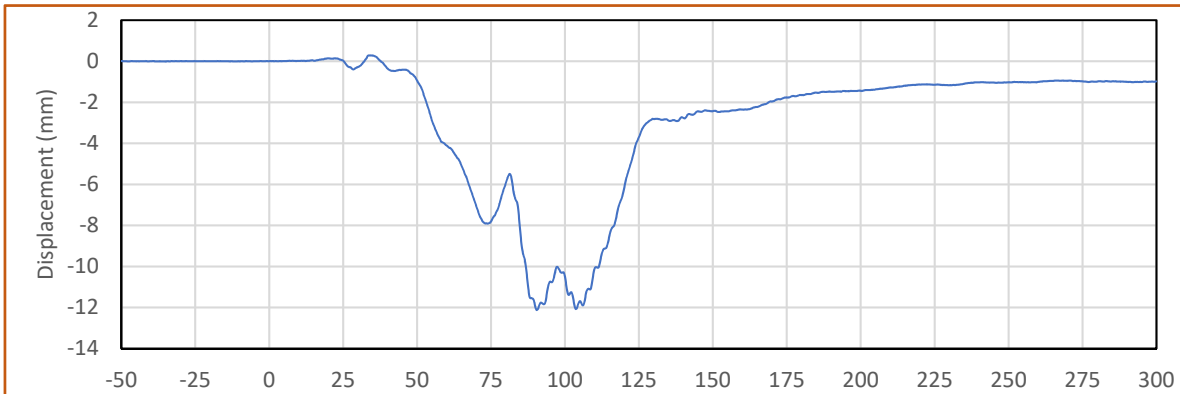


P1H3 CHEST AYR

11CHST00RDH3ACYC
Max:1.0@69.8
Min:-9.6@88.6
SAE Class 180

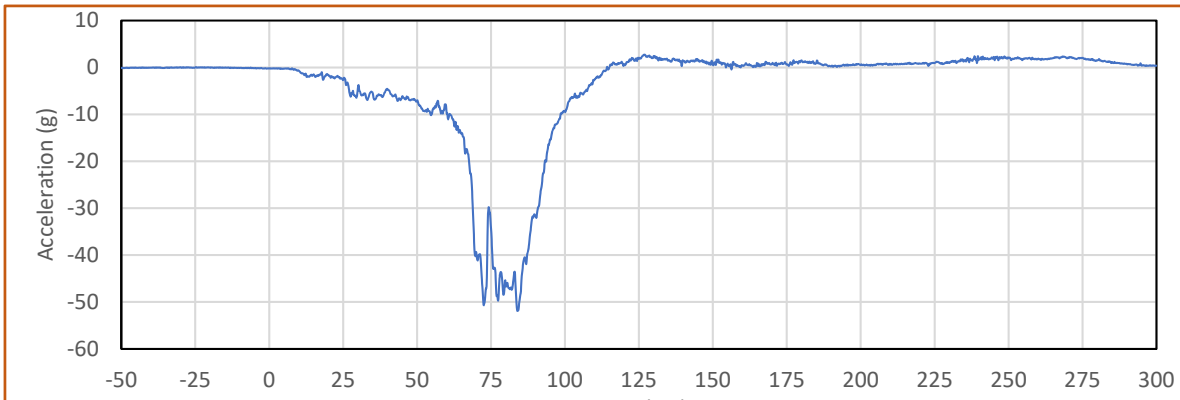
P1H3 CHEST AZR

11CHST00RDH3ACZC
Max:7.2@72.7
Min:-19.5@92.1
SAE Class 180

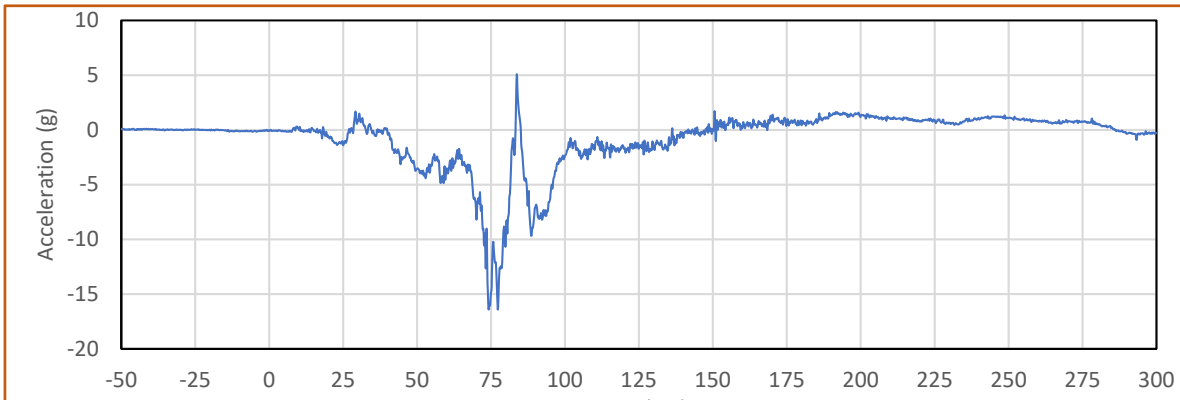


P1H3 CHEST DX

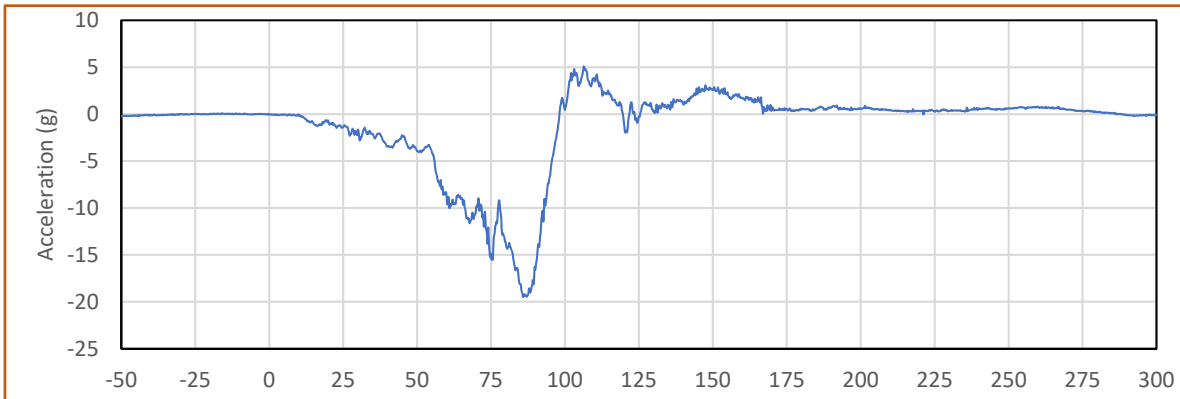
11CHST0000H3DSXB
Max:0.3@34.1
Min:-12.1@90.5
SAE Class 600



11PELV0000H3ACXA
Max:2.7@127.0
Min:-51.9@84.0
SAE Class 1000

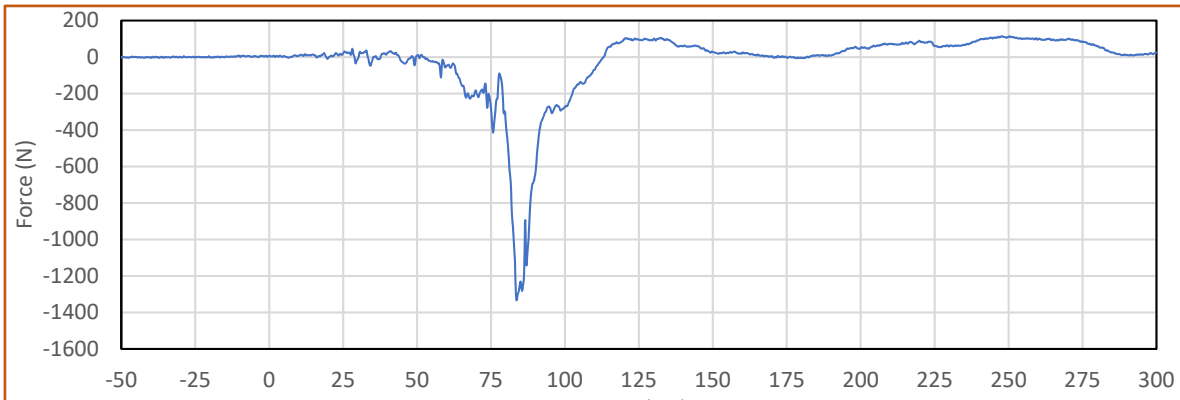


11PELV0000H3ACYA
Max:5.1@83.7
Min:-16.4@74.2
SAE Class 1000

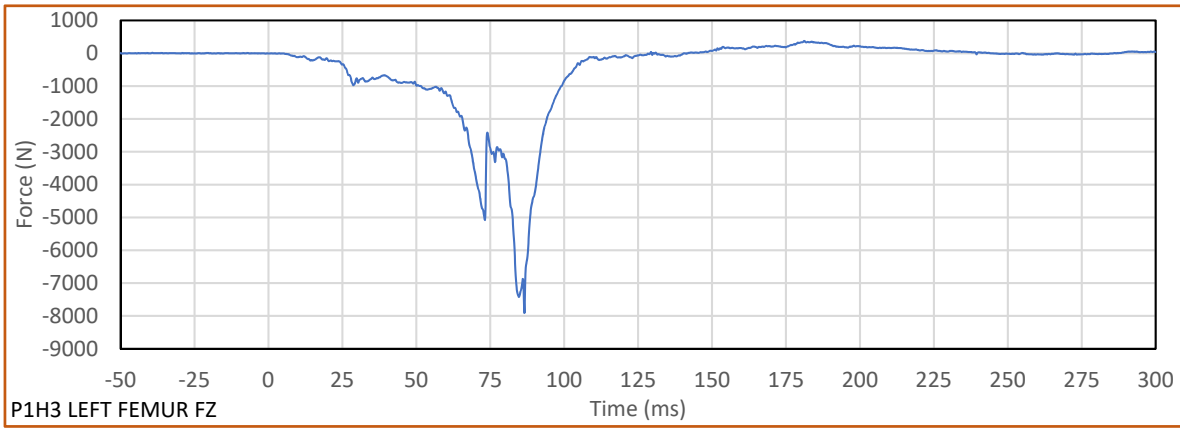


11PELV0000H3ACZA
Max:5.1@106.4
Min:-19.5@85.9
SAE Class 1000

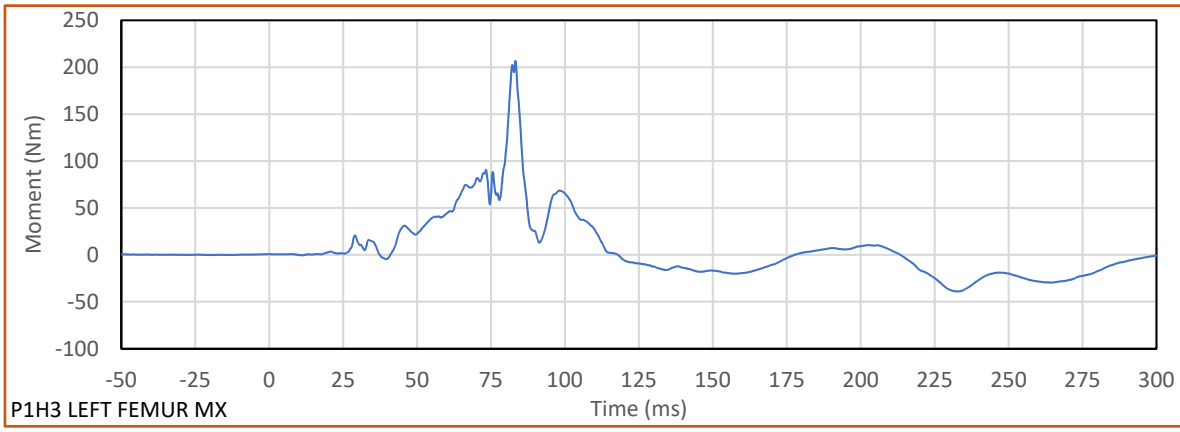
11FEMRLE00H3FOXB
Max:2053.7@86.0
Min:-203.5@189.4
SAE Class 600



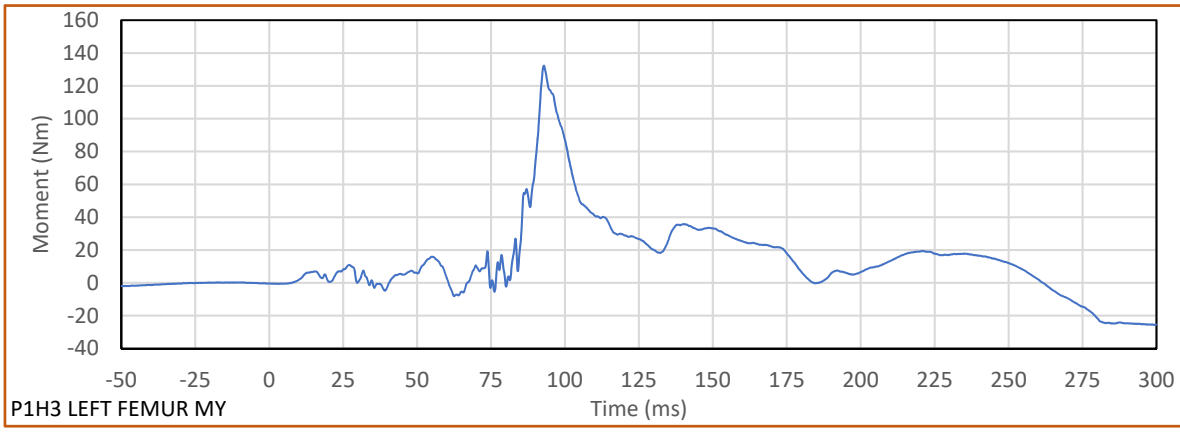
11FEMRLE00H3FOYB
Max:114.1@247.8
Min:-1333.4@83.7
SAE Class 600



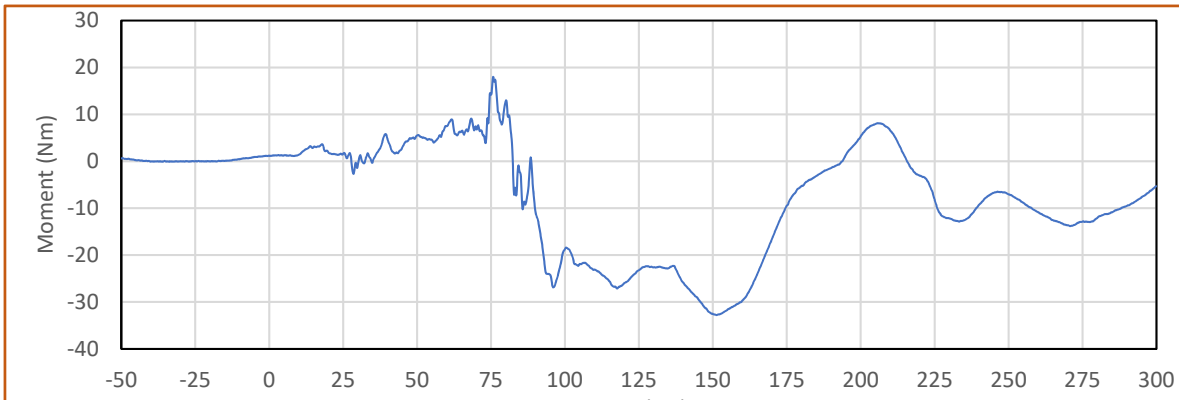
11FEMRLE00H3FOZB
Max:375.0@181.2
Min:-7911.1@86.5
SAE Class 600

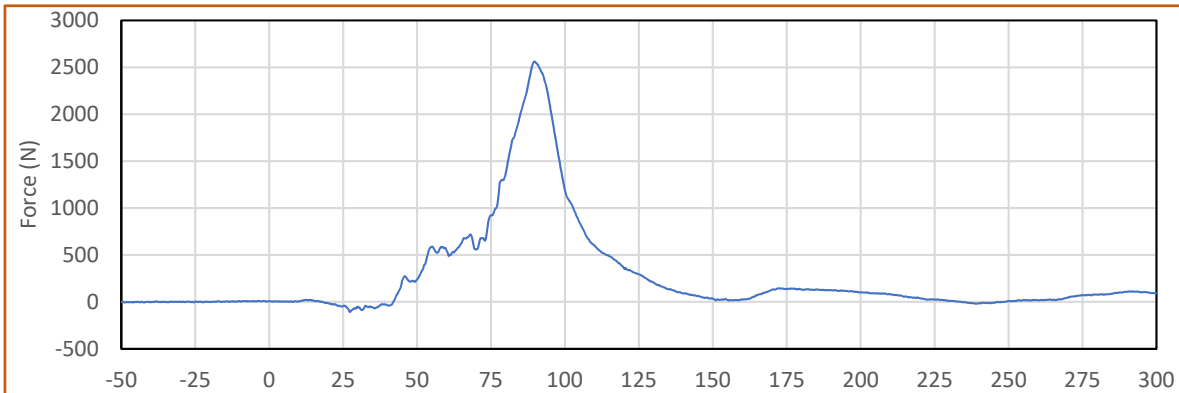


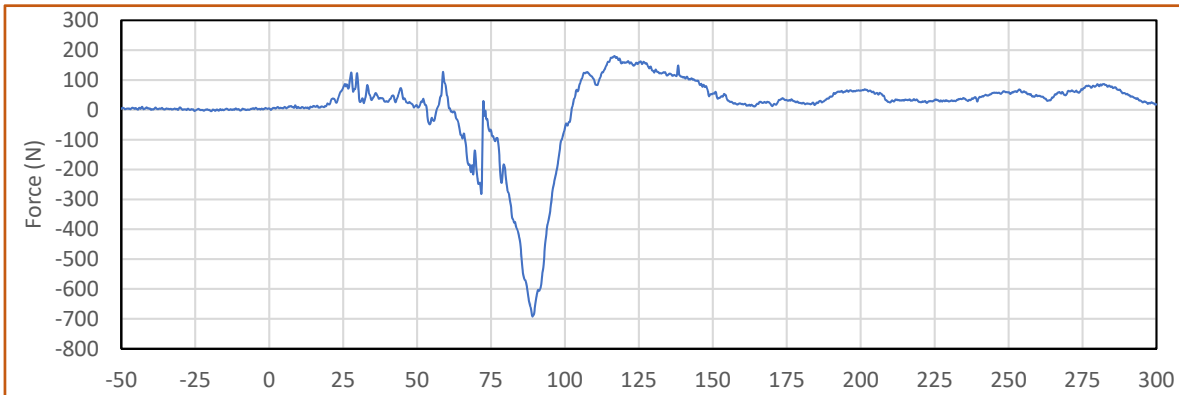
11FEMRLE00H3MOXB
Max:206.7@83.3
Min:-39.1@233.0
SAE Class 600

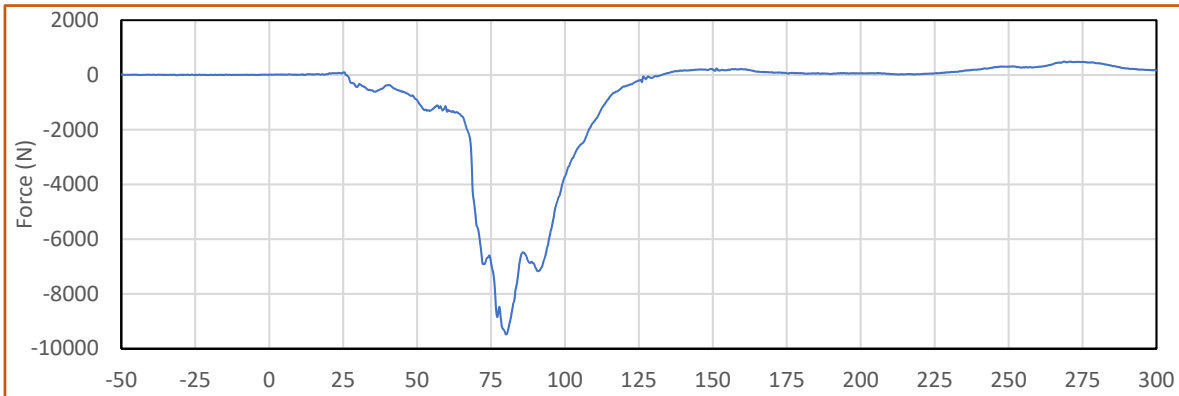


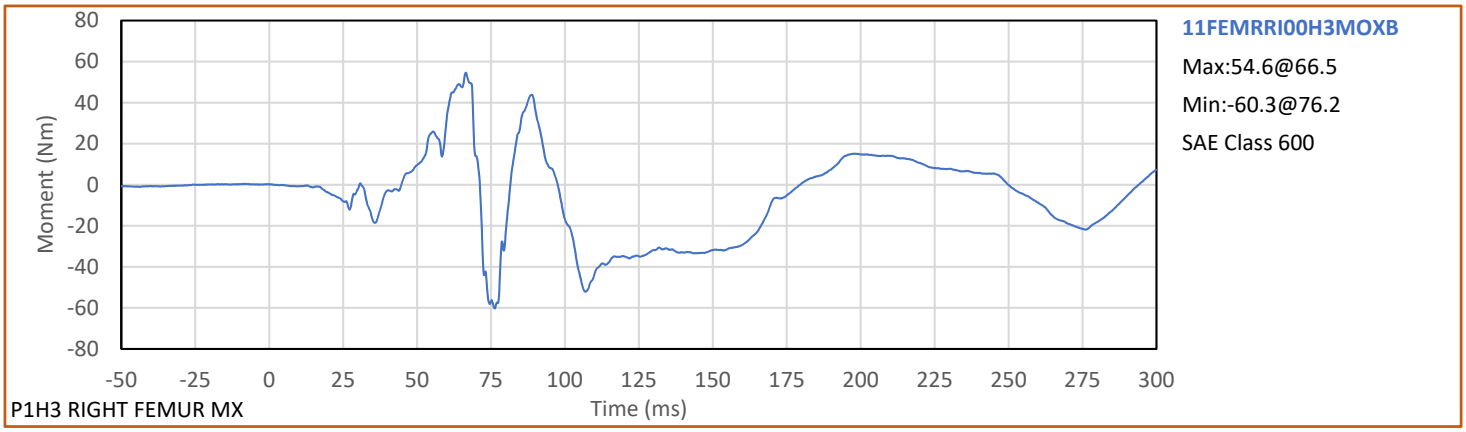
11FEMRLE00H3MOYB
Max:132.3@92.9
Min:-25.6@299.2
SAE Class 600

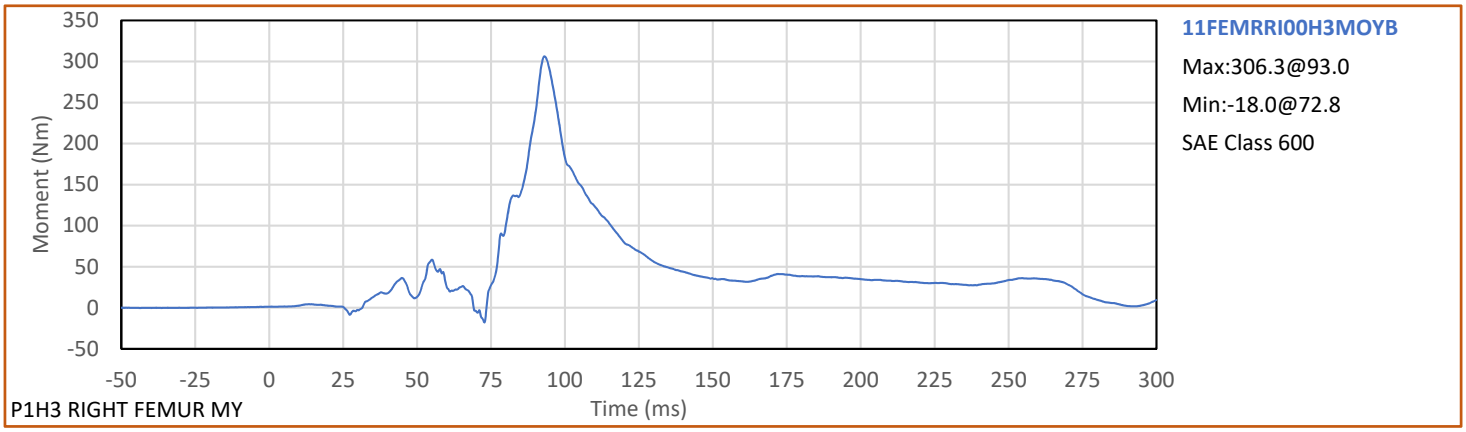

Moment (Nm)
Time (ms)
11FEMRLE00H3MOZB
Max:18.0@75.7
Min:-32.8@151.2
SAE Class 600
P1H3 LEFT FEMUR MZ

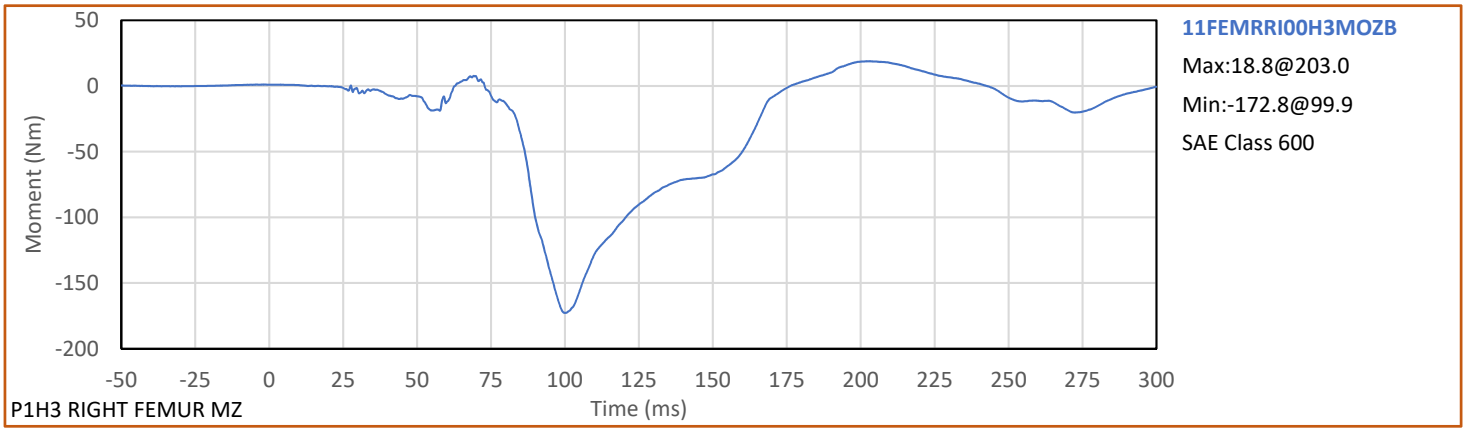

Force (N)
Time (ms)
11FEMRRI00H3FOXB
Max:2562.7@89.7
Min:-108.4@27.3
SAE Class 600
P1H3 RIGHT FEMUR FX

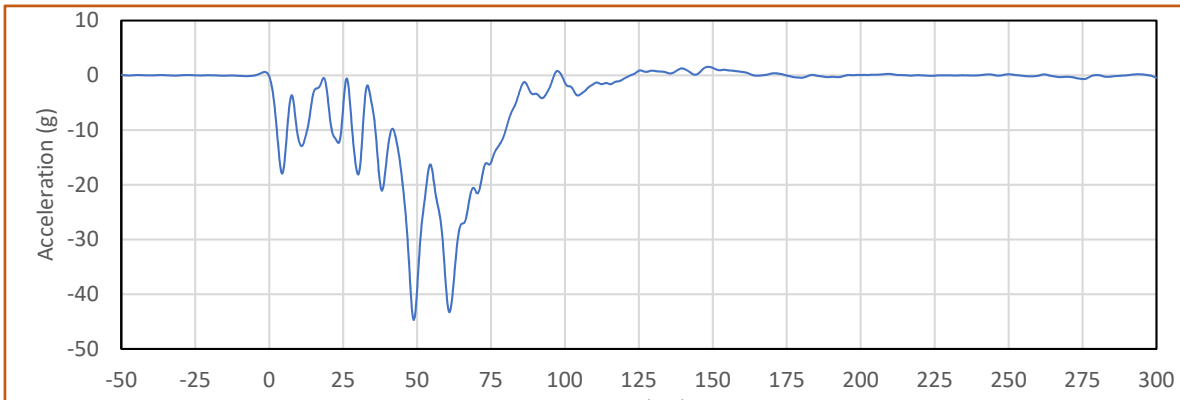

Force (N)
Time (ms)
11FEMRRI00H3FOYB
Max:180.2@116.7
Min:-692.6@89.0
SAE Class 600
P1H3 RIGHT FEMUR FY


Force (N)
Time (ms)
11FEMRRI00H3FOZB
Max:487.4@268.8
Min:-9485.8@80.1
SAE Class 600
P1H3 RIGHT FEMUR FZ


Moment (Nm)
Time (ms)
11FEMRRI00H3MOXB
Max:54.6@66.5
Min:-60.3@76.2
SAE Class 600
P1H3 RIGHT FEMUR MX

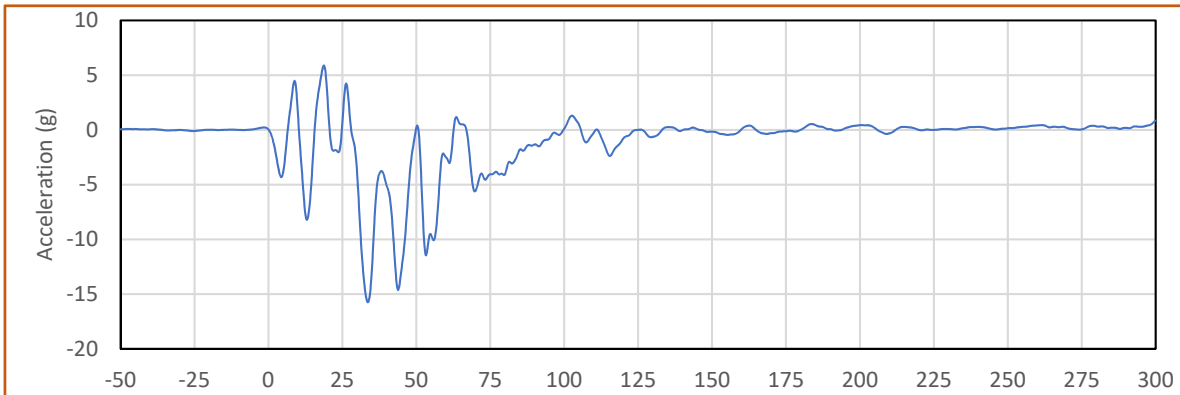

Moment (Nm)
Time (ms)
11FEMRRI00H3MOYB
Max:306.3@93.0
Min:-18.0@72.8
SAE Class 600
P1H3 RIGHT FEMUR MY


Moment (Nm)
Time (ms)
11FEMRRI00H3MOZB
Max:18.8@203.0
Min:-172.8@99.9
SAE Class 600
P1H3 RIGHT FEMUR MZ



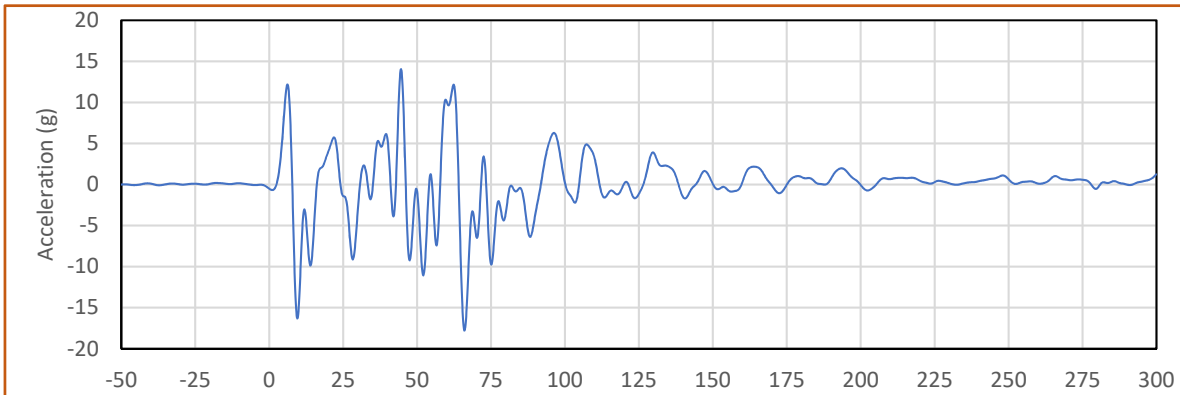
VEHICLE CG X

15TUNNCGLO00ACXD
Max:1.5@148.5
Min:-44.7@48.9
SAE Class 60



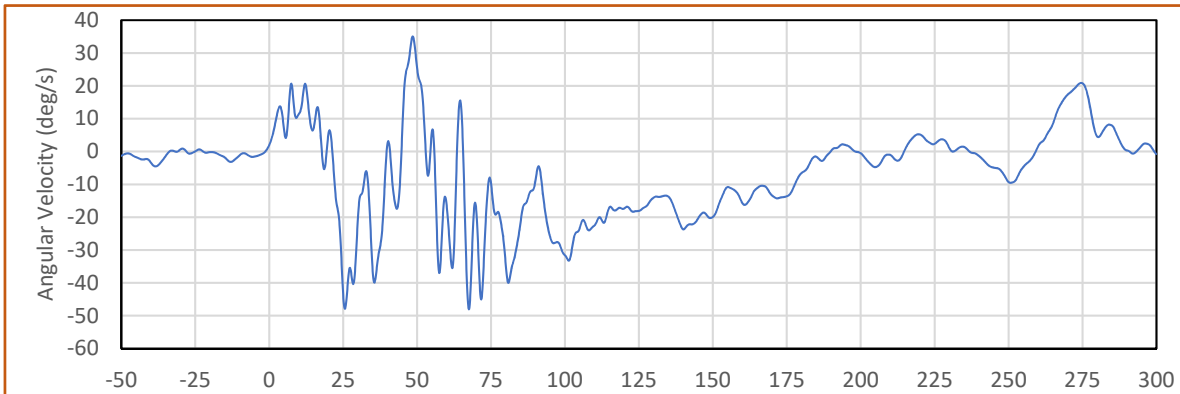
VEHICLE CG Y

15TUNNCGLO00ACYD
Max:5.9@18.7
Min:-15.8@33.6
SAE Class 60



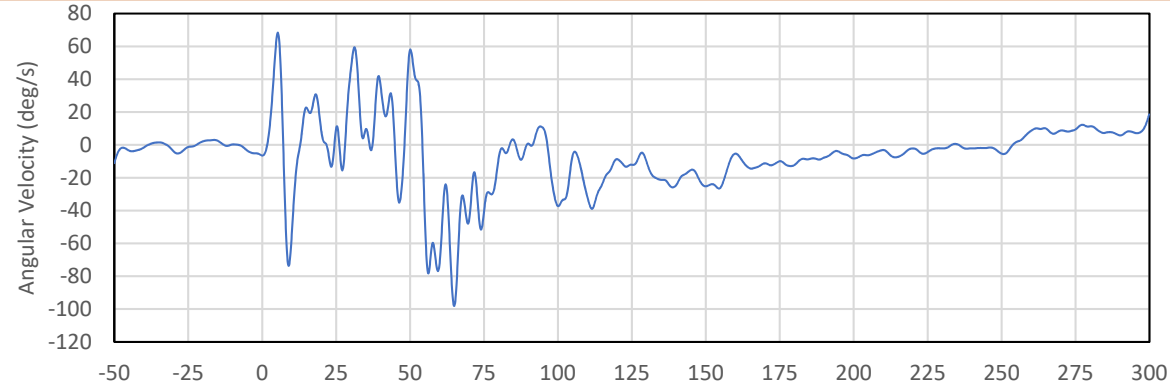
VEHICLE CG Z

15TUNNCGLO00ACZD
Max:14.1@44.6
Min:-17.8@66.0
SAE Class 60

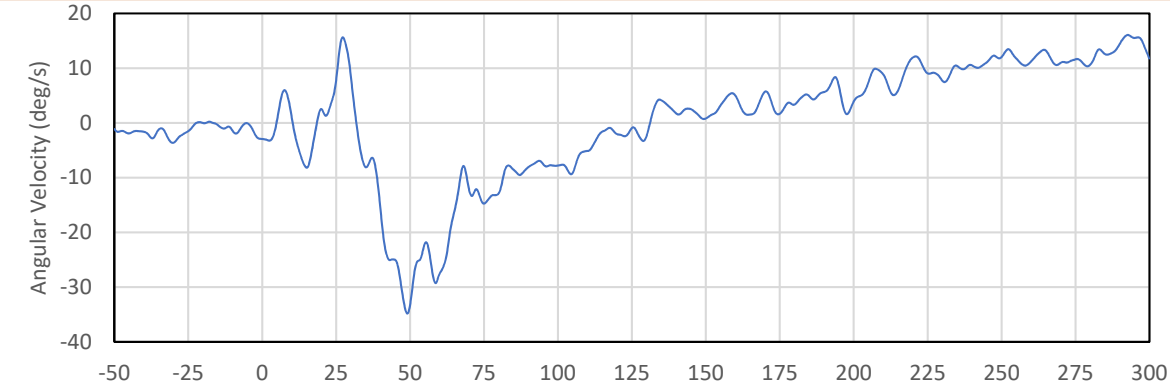


VEHICLE CG ROTATION ABOUT X

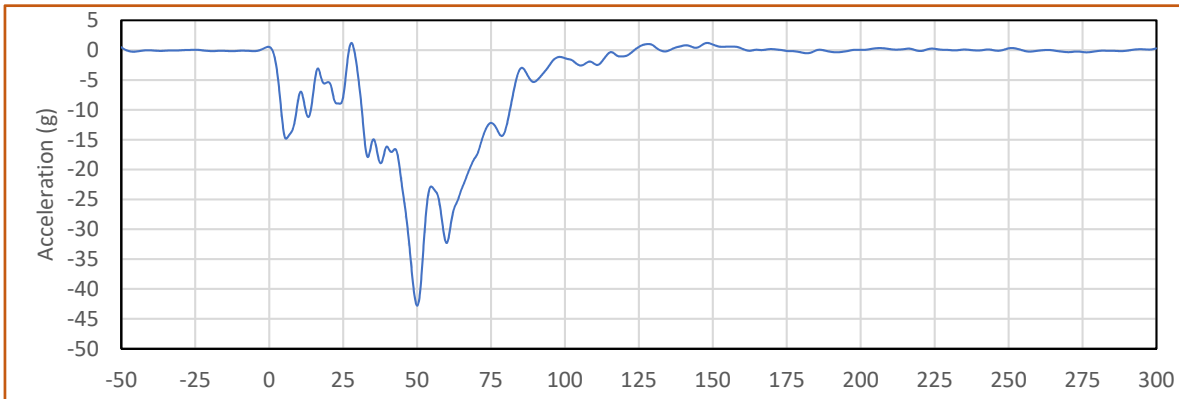
15TUNNCGLO00AVXD
Max:35.1@48.5
Min:-48.1@67.5
SAE Class 60



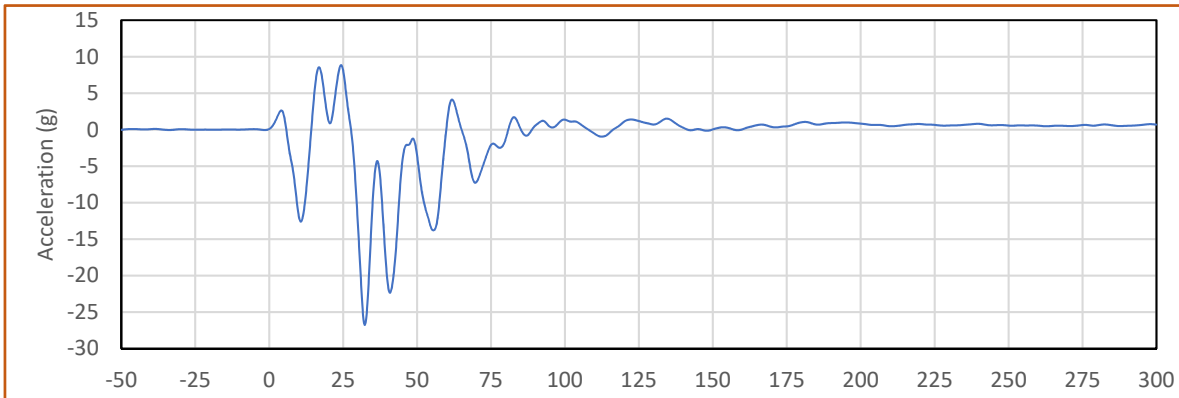
15TUNNCGLO00AVYD
Max:68.4@5.3
Min:-98.1@64.9
SAE Class 60
VEHICLE CG ROTATION ABOUT Y



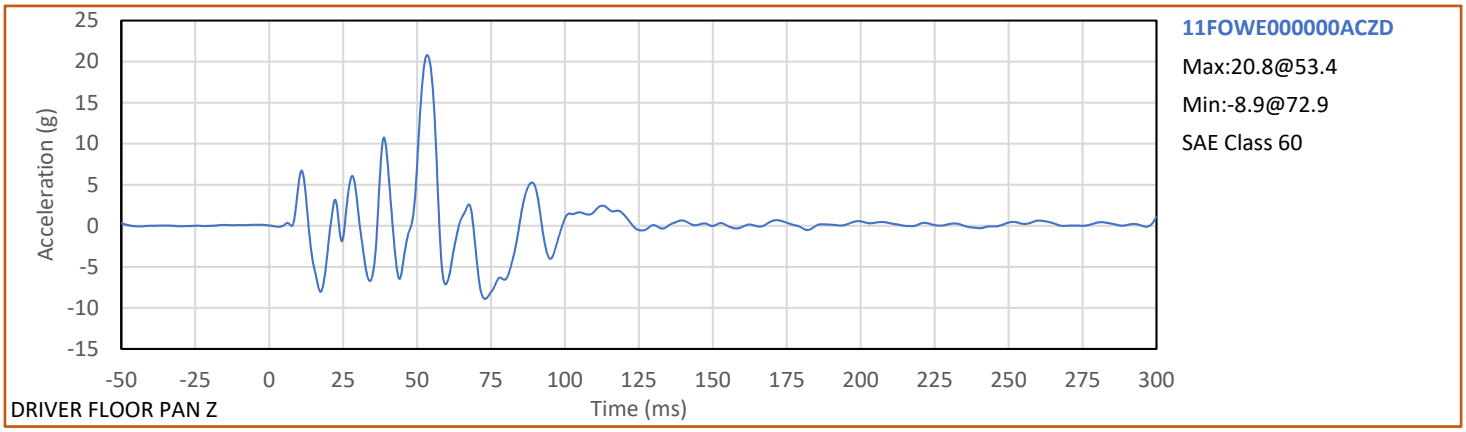
15TUNNCGLO00AVZD
Max:16.1@292.7
Min:-34.8@49.1
SAE Class 60
VEHICLE CG ROTATION ABOUT Z

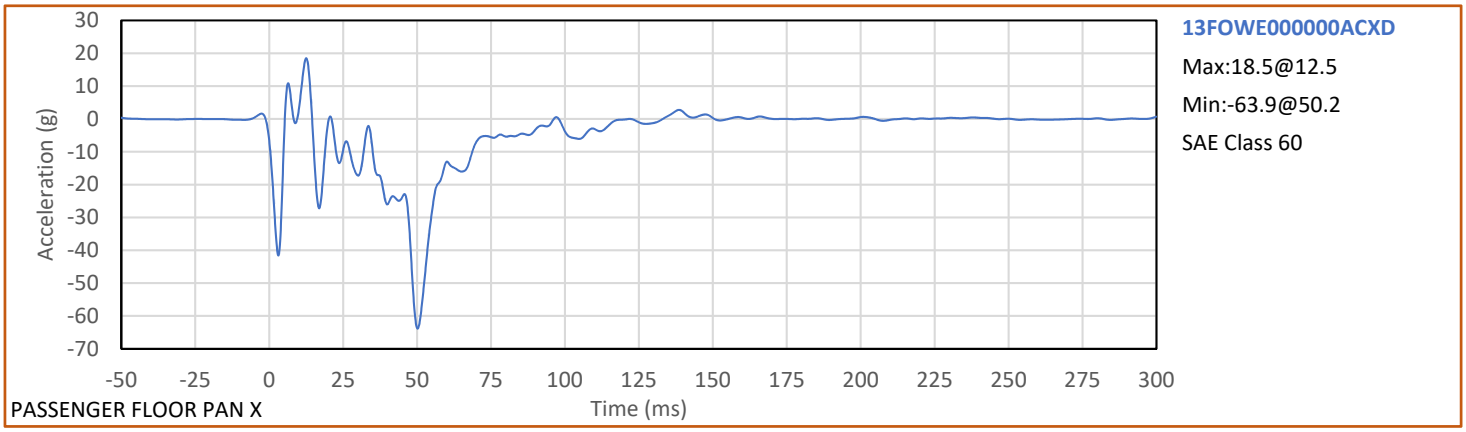


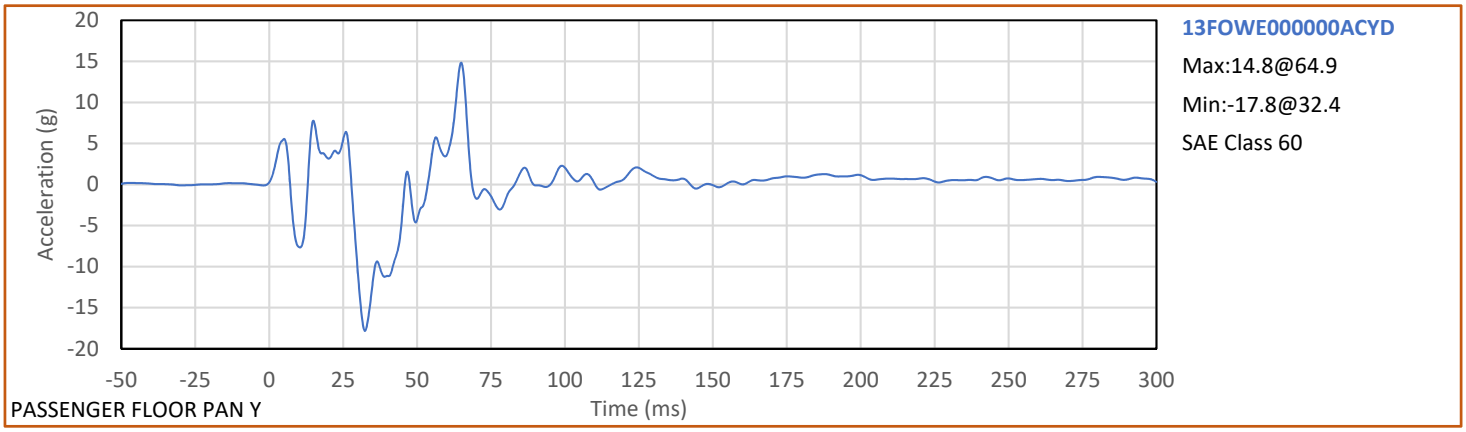
11FOWE000000ACXD
Max:1.2@27.8
Min:-42.8@50.0
SAE Class 60
DRIVER FLOOR PAN X

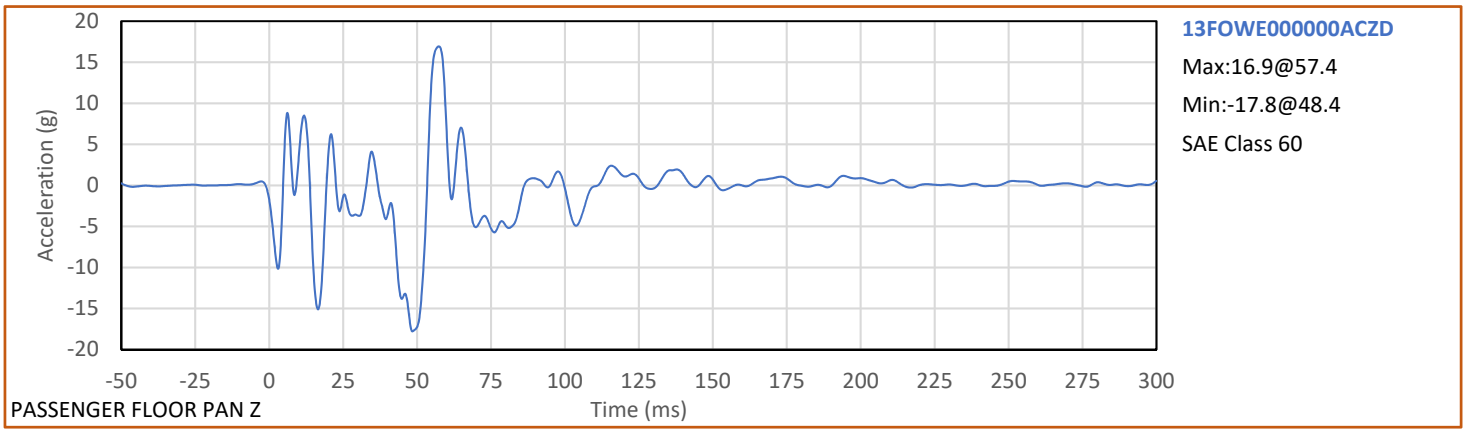


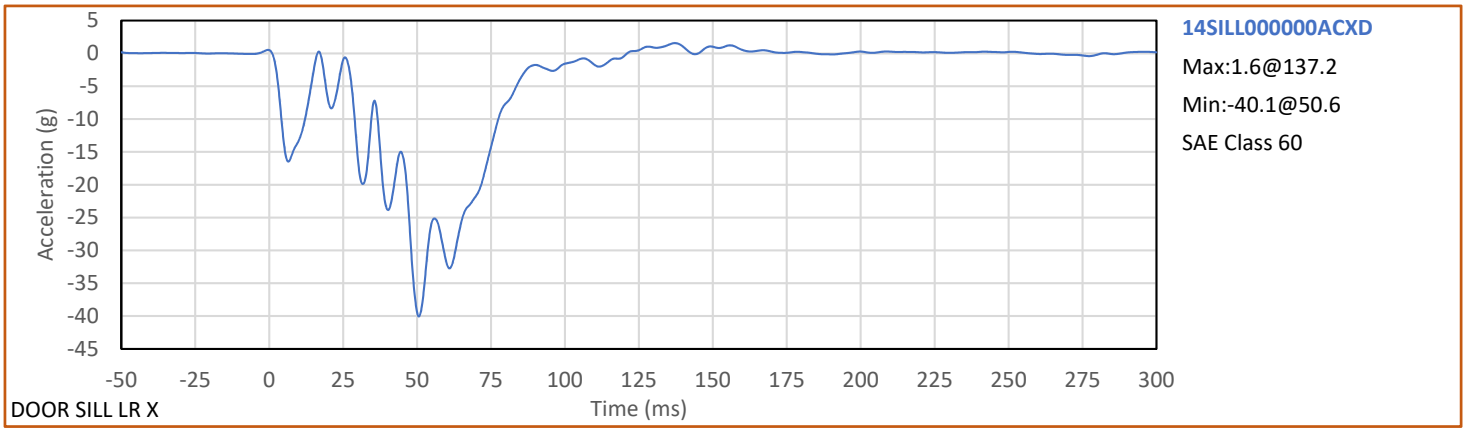
11FOWE000000ACYD
Max:8.8@24.3
Min:-26.8@32.3
SAE Class 60
DRIVER FLOOR PAN Y

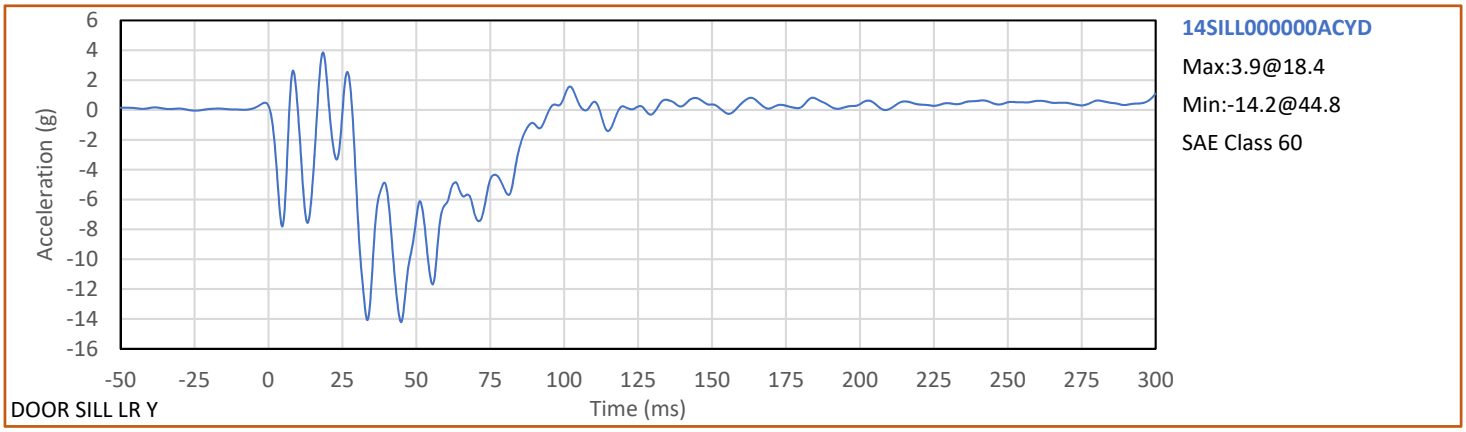

11FOWE000000ACZD
Max:20.8@53.4
Min:-8.9@72.9
SAE Class 60
Acceleration (g)
Time (ms)
DRIVER FLOOR PAN Z

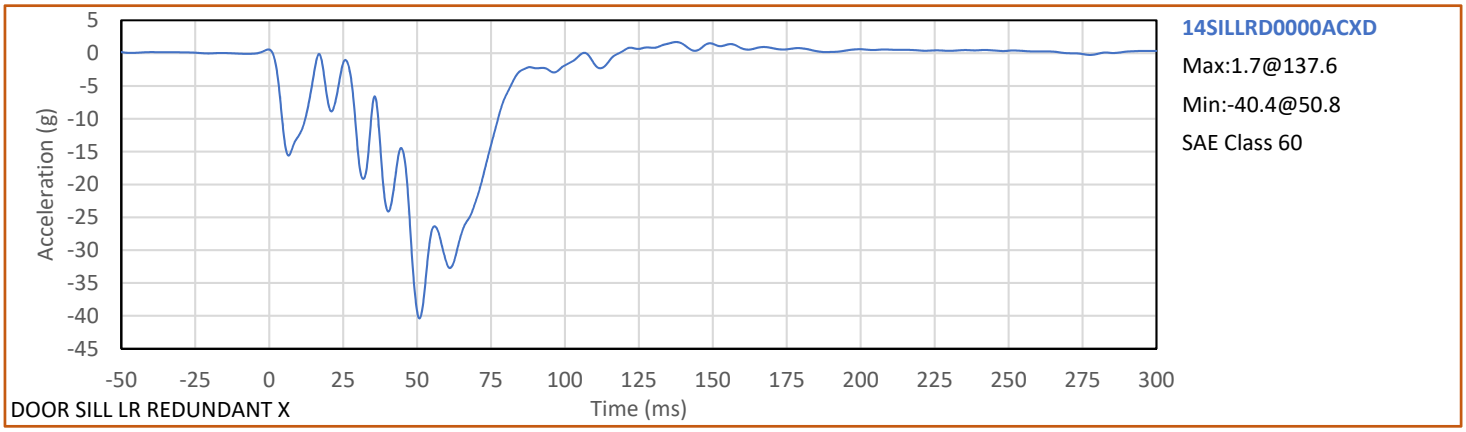

13FOWE000000ACXD
Max:18.5@12.5
Min:-63.9@50.2
SAE Class 60
Acceleration (g)
Time (ms)
PASSENGER FLOOR PAN X

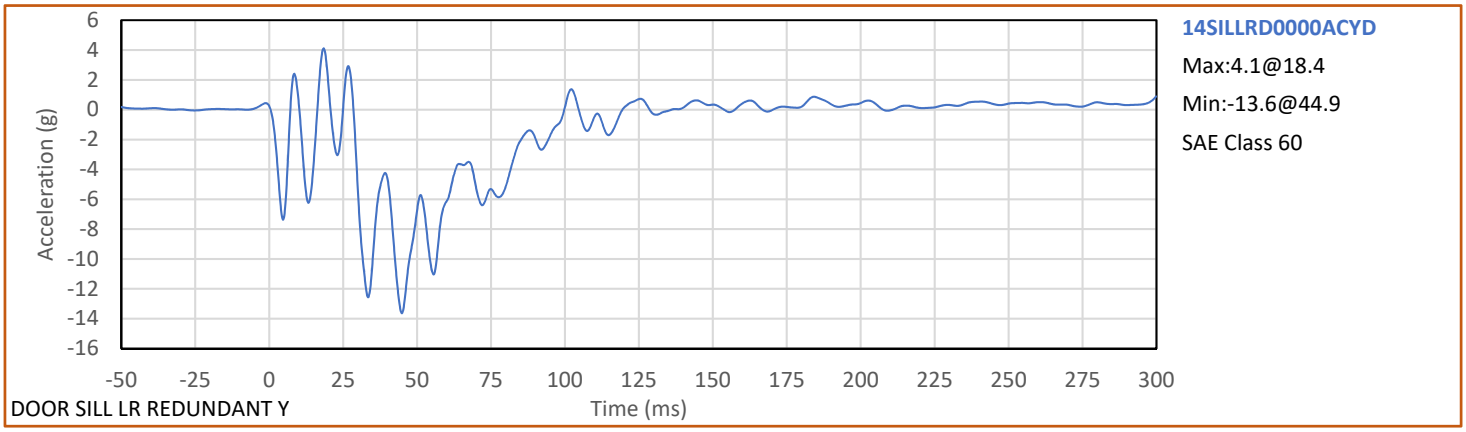

13FOWE000000ACYD
Max:14.8@64.9
Min:-17.8@32.4
SAE Class 60
Acceleration (g)
Time (ms)
PASSENGER FLOOR PAN Y

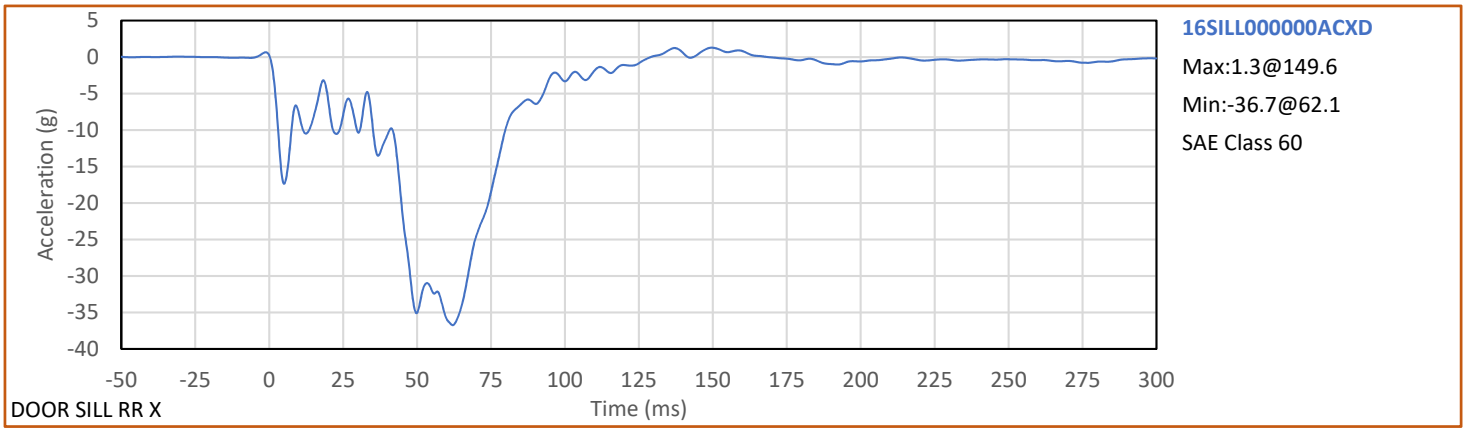

13FOWE000000ACZD
Max:16.9@57.4
Min:-17.8@48.4
SAE Class 60
Acceleration (g)
Time (ms)
PASSENGER FLOOR PAN Z

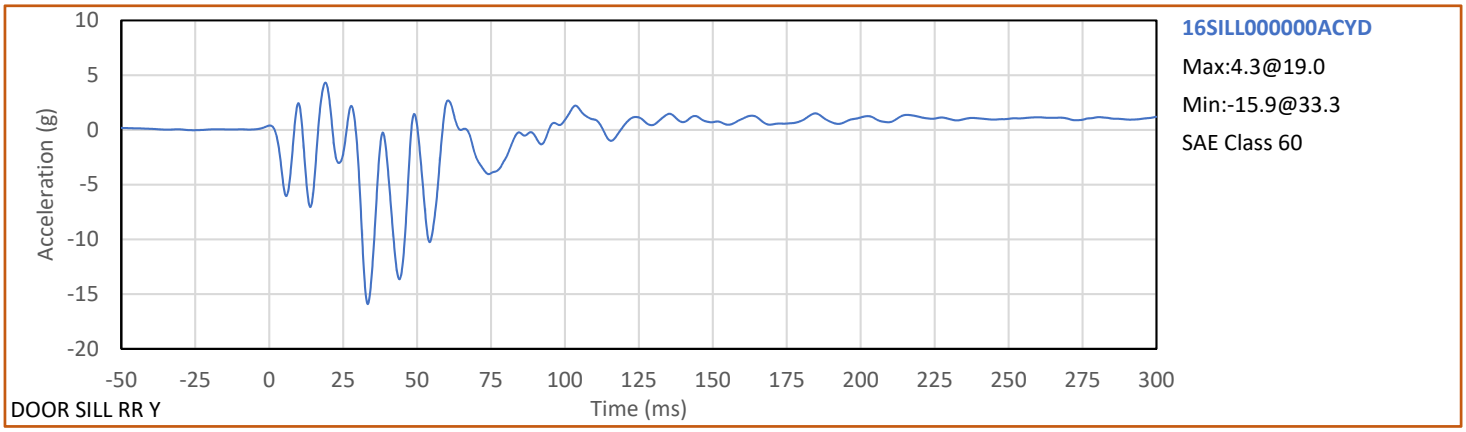

14SILL000000ACXD
Max:1.6@137.2
Min:-40.1@50.6
SAE Class 60
Acceleration (g)
Time (ms)
DOOR SILL LR X

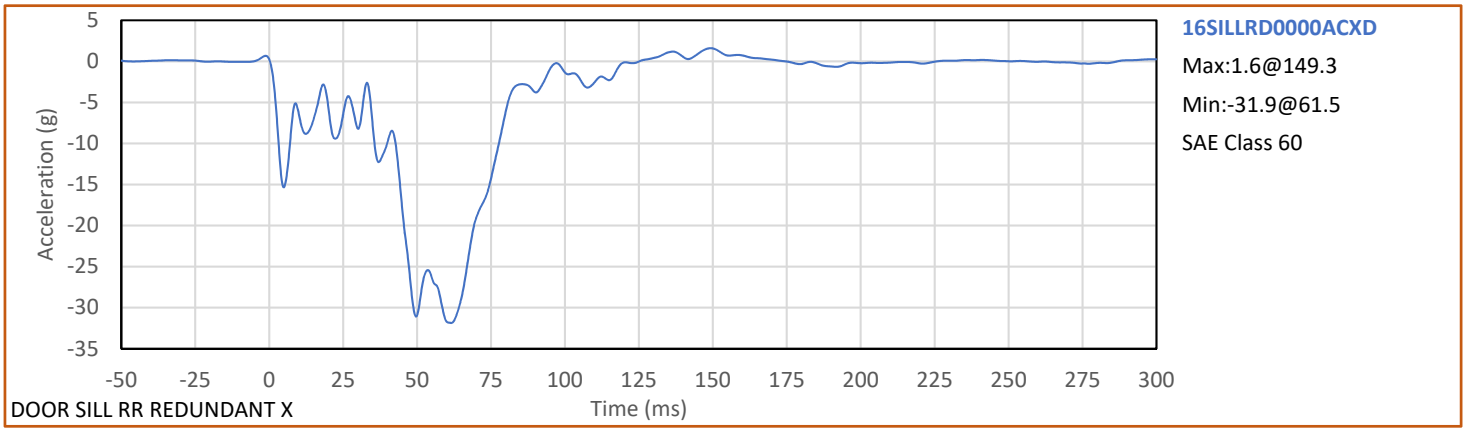

14SILL000000ACYD
Max:3.9@18.4
Min:-14.2@44.8
SAE Class 60
Acceleration (g)
Time (ms)
DOOR SILL LR Y

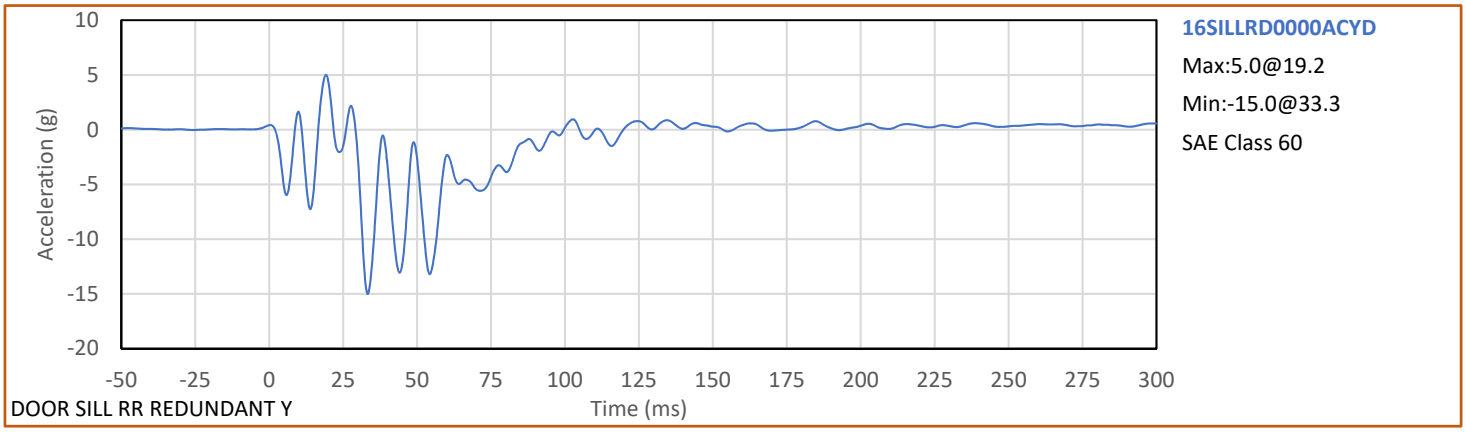

14SILLRD0000ACXD
Max:1.7@137.6
Min:-40.4@50.8
SAE Class 60
Acceleration (g)
Time (ms)
DOOR SILL LR REDUNDANT X

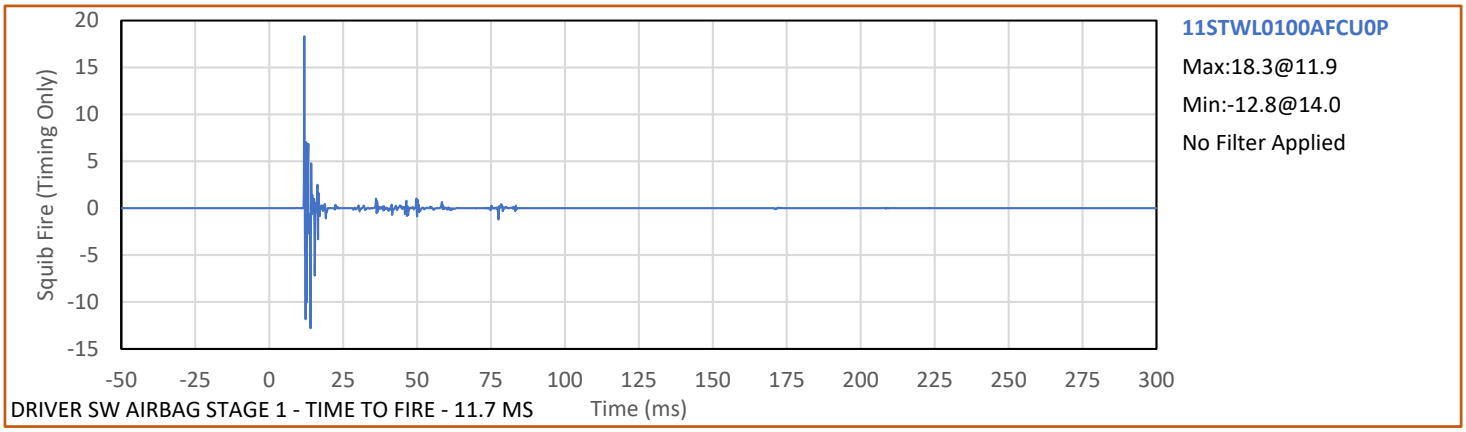

14SILLRD0000ACYD
Max:4.1@18.4
Min:-13.6@44.9
SAE Class 60
Acceleration (g)
Time (ms)
DOOR SILL LR REDUNDANT Y


Acceleration (g)
Time (ms)
16SILL000000ACXD
Max:1.3@149.6
Min:-36.7@62.1
SAE Class 60
DOOR SILL RR X

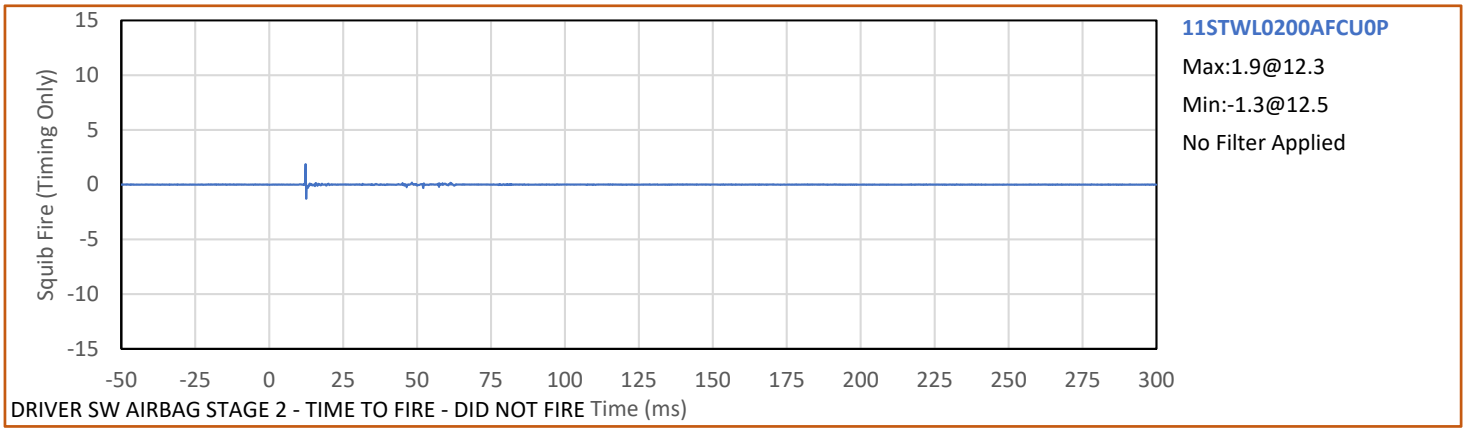

Acceleration (g)
Time (ms)
16SILL000000ACYD
Max:4.3@19.0
Min:-15.9@33.3
SAE Class 60
DOOR SILL RR Y


Acceleration (g)
Time (ms)
16SILLRD0000ACXD
Max:1.6@149.3
Min:-31.9@61.5
SAE Class 60
DOOR SILL RR REDUNDANT X

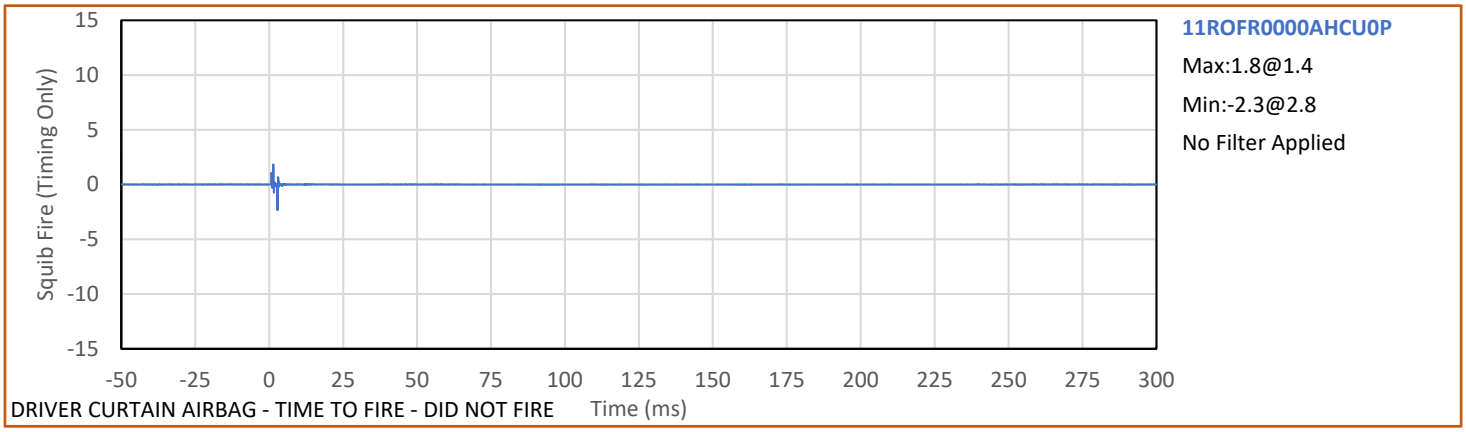

Acceleration (g)
Time (ms)
16SILLRD0000ACYD
Max:5.0@19.2
Min:-15.0@33.3
SAE Class 60
DOOR SILL RR REDUNDANT Y



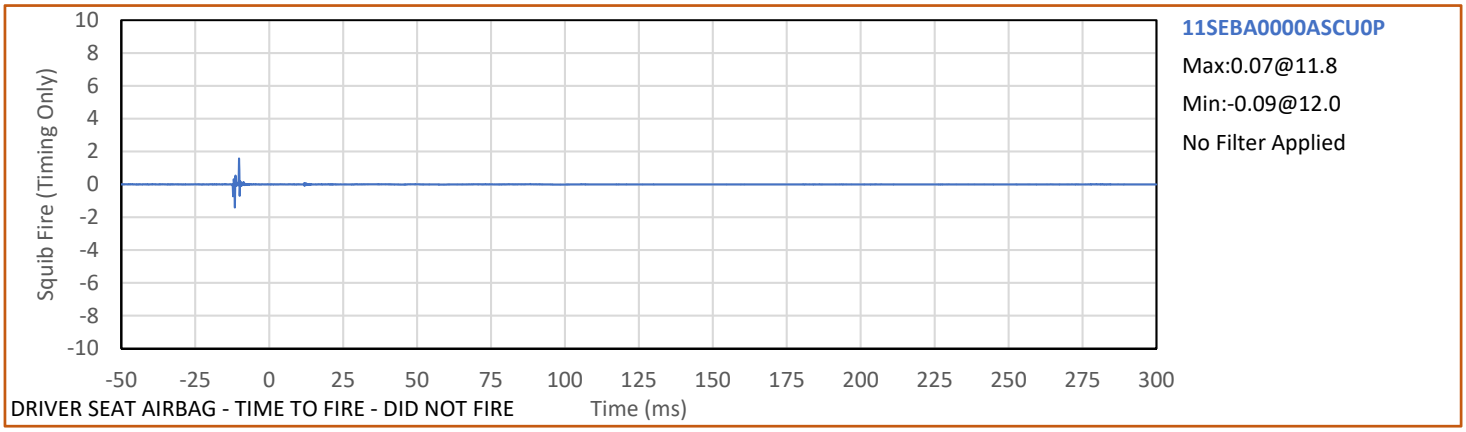
DRIVER SW AIRBAG STAGE 1 - TIME TO FIRE - 11.7 MS



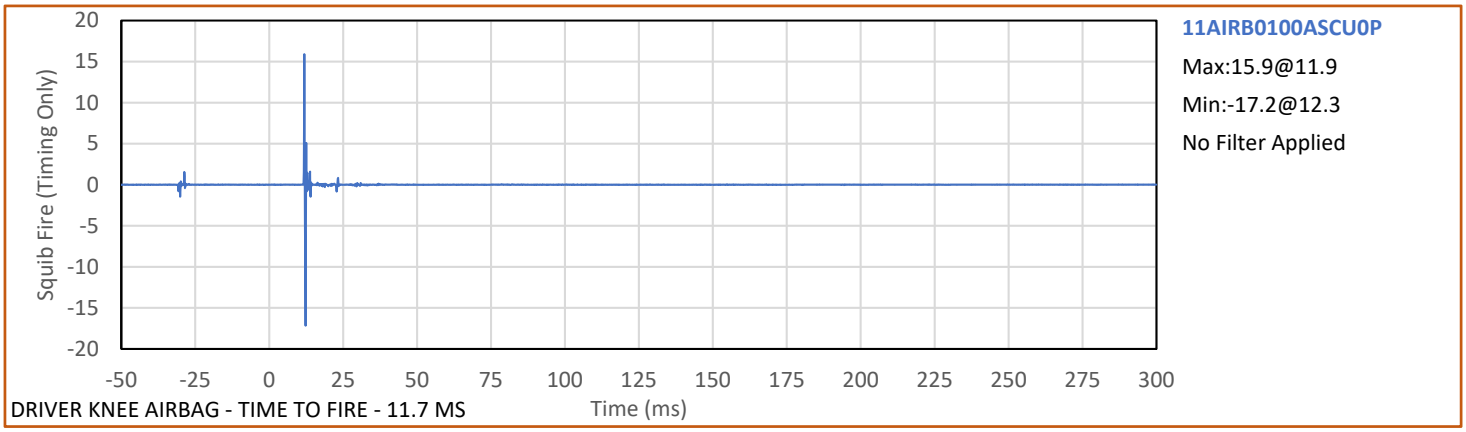
DRIVER SW AIRBAG STAGE 2 - TIME TO FIRE - DID NOT FIRE



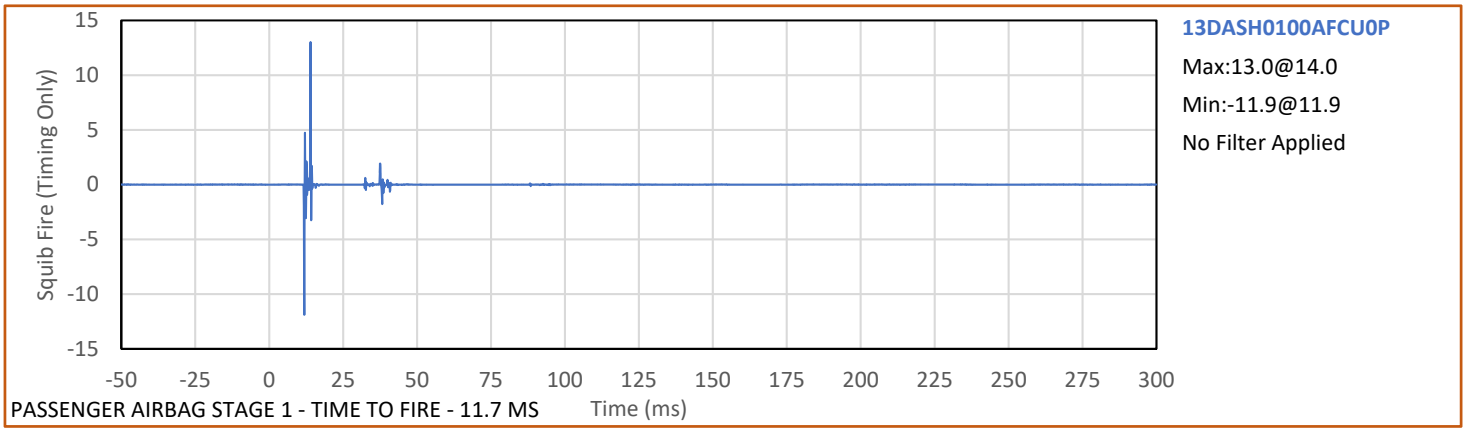
DRIVER CURTAIN AIRBAG - TIME TO FIRE - DID NOT FIRE



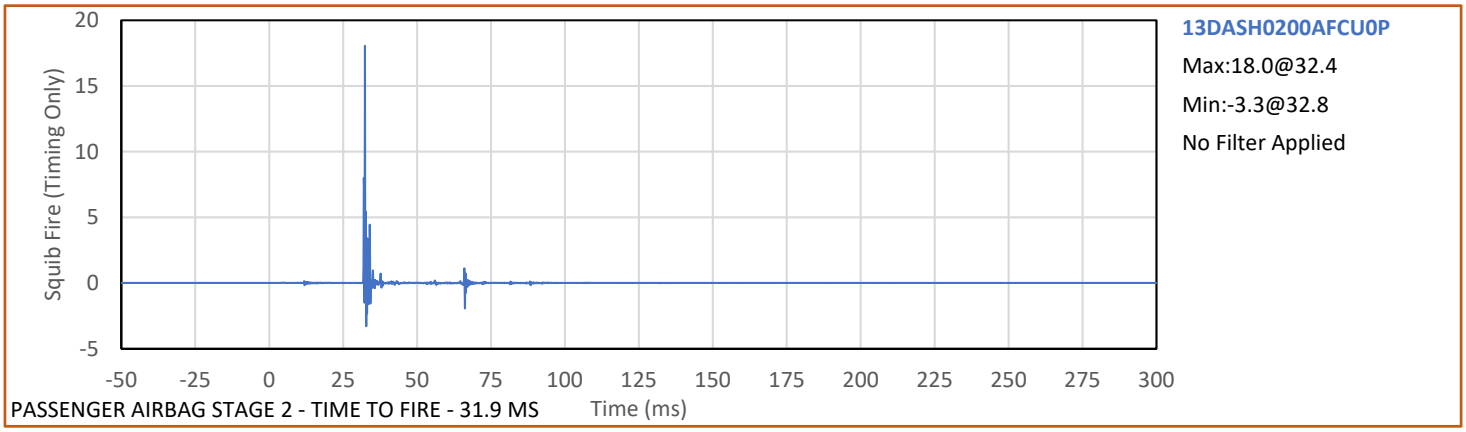
DRIVER SEAT AIRBAG - TIME TO FIRE - DID NOT FIRE



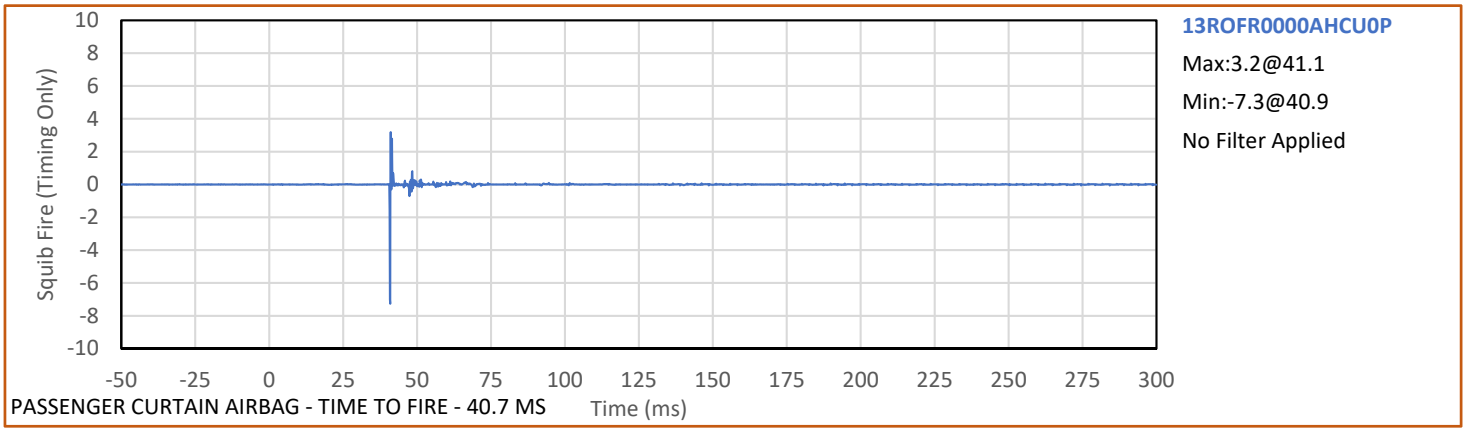
DRIVER KNEE AIRBAG - TIME TO FIRE - 11.7 MS



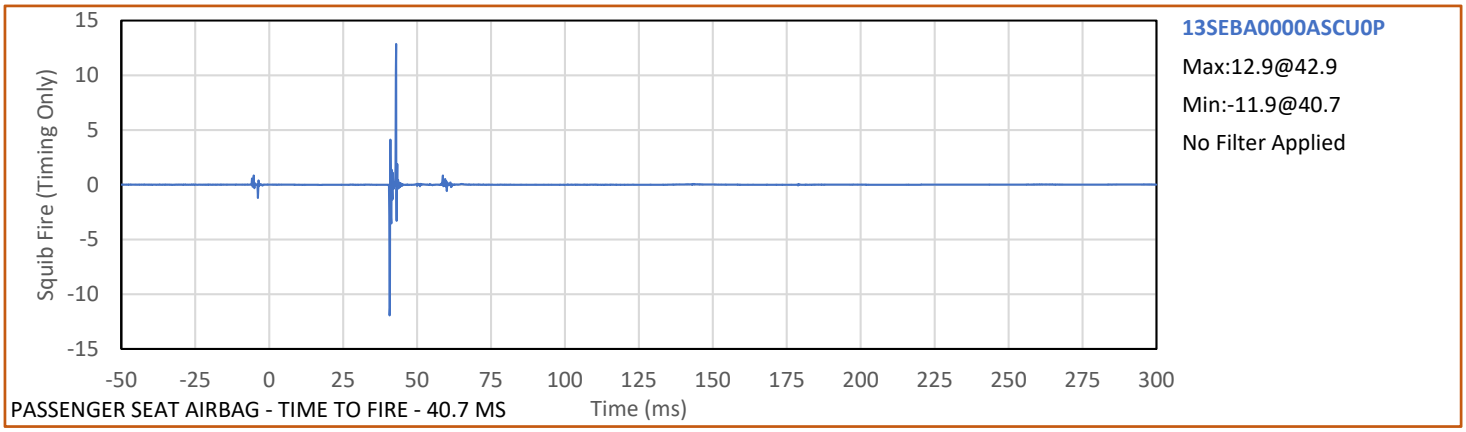
PASSENGER AIRBAG STAGE 1 - TIME TO FIRE - 11.7 MS



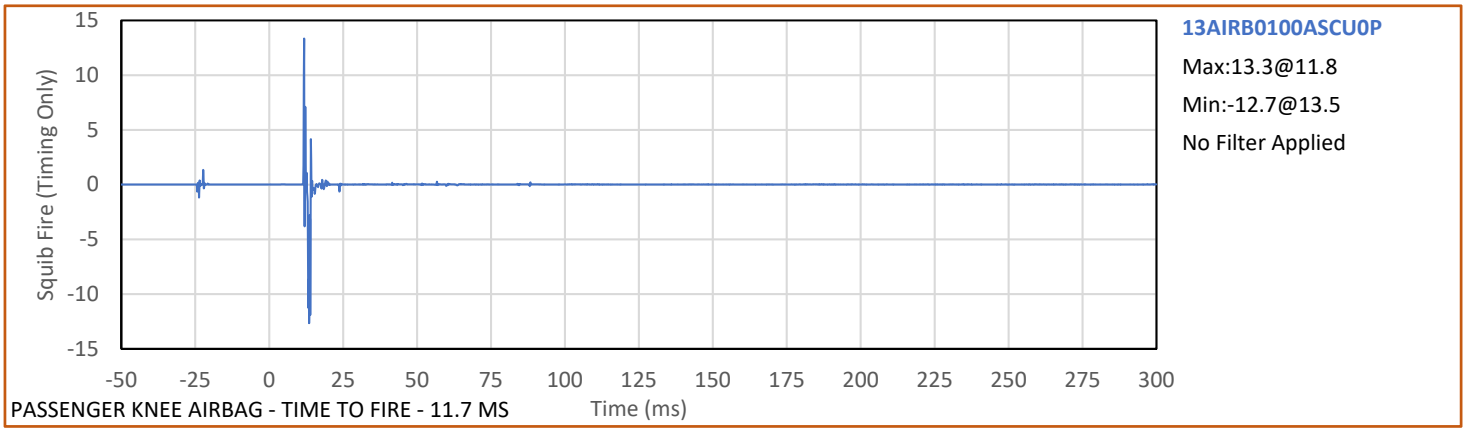
PASSENGER AIRBAG STAGE 2 - TIME TO FIRE - 31.9 MS



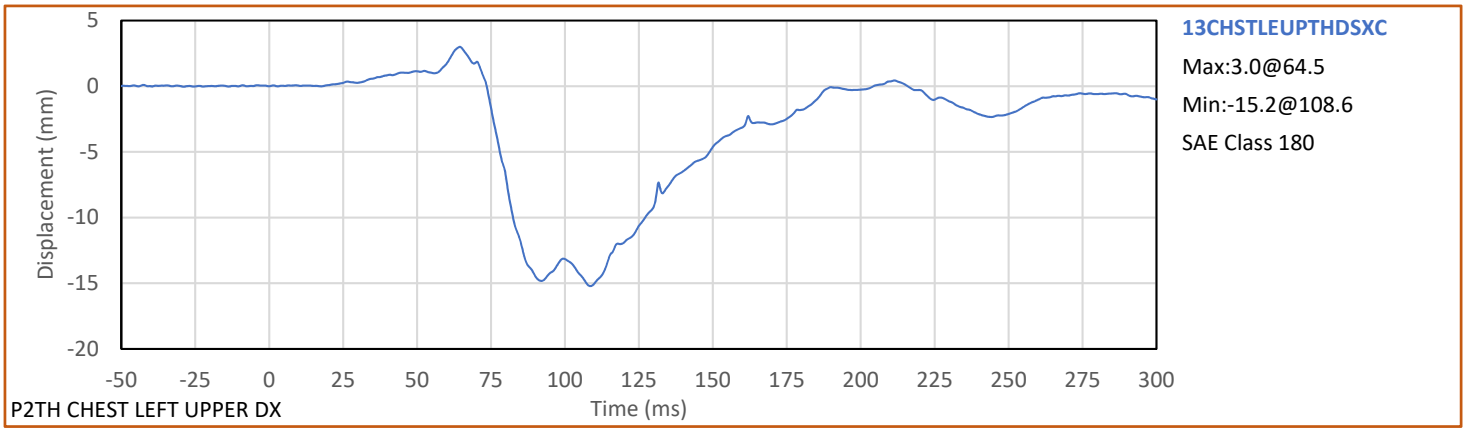
PASSENGER CURTAIN AIRBAG - TIME TO FIRE - 40.7 MS

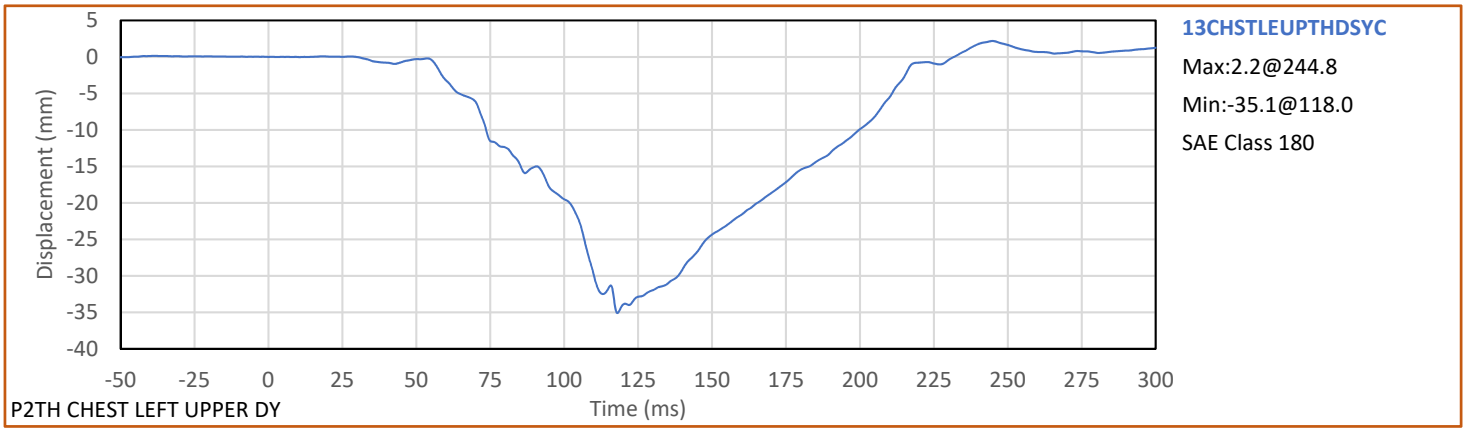


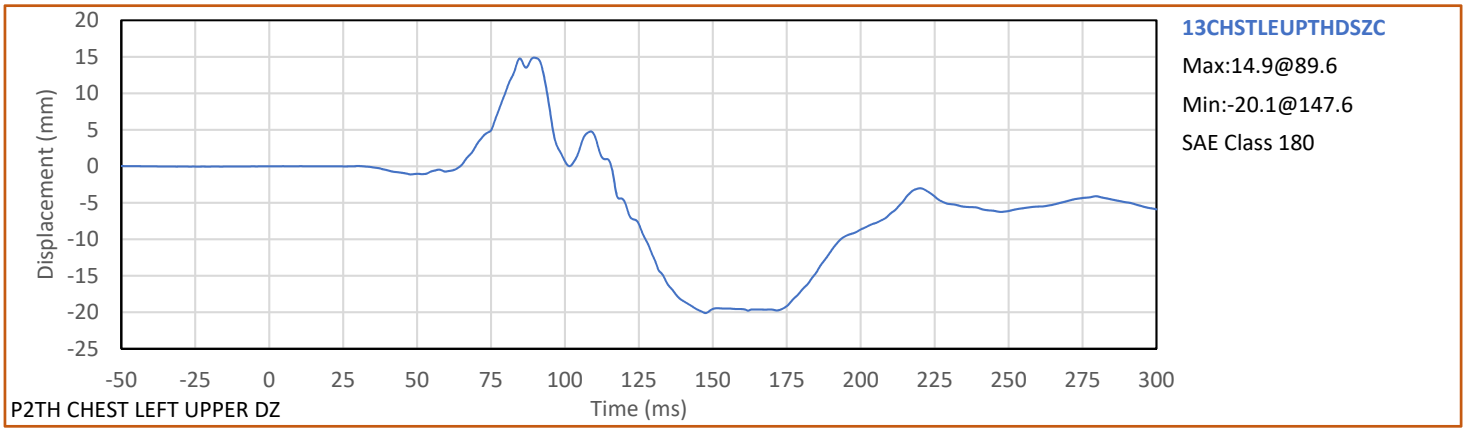
PASSENGER SEAT AIRBAG - TIME TO FIRE - 40.7 MS

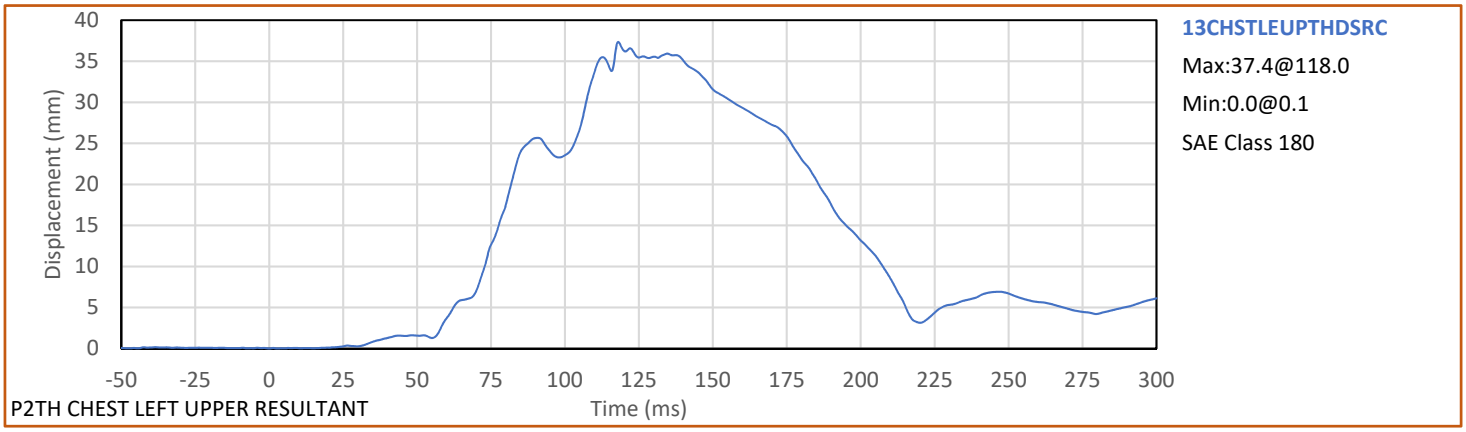


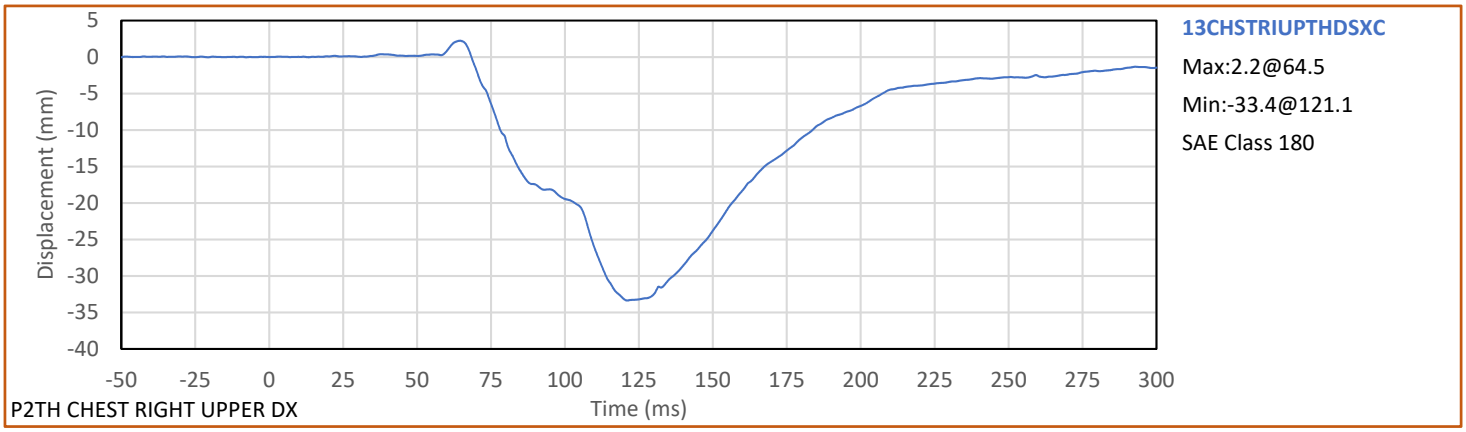
PASSENGER KNEE AIRBAG - TIME TO FIRE - 11.7 MS

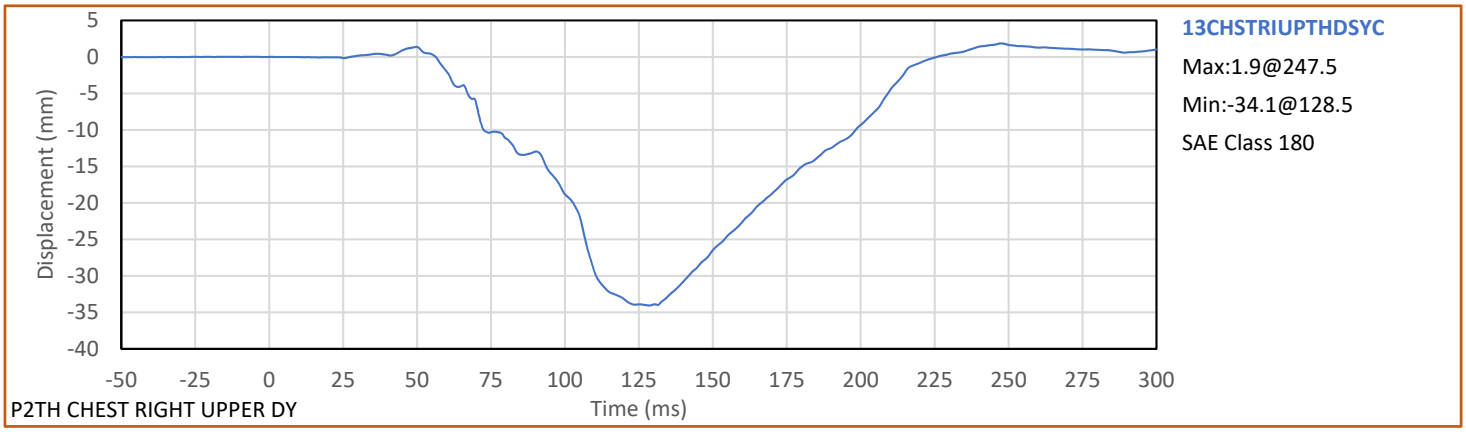

Displacement (mm)
Time (ms)
P2TH CHEST LEFT UPPER DX
13CHSTLEUPTHDSXC
Max:3.0@64.5
Min:-15.2@108.6
SAE Class 180

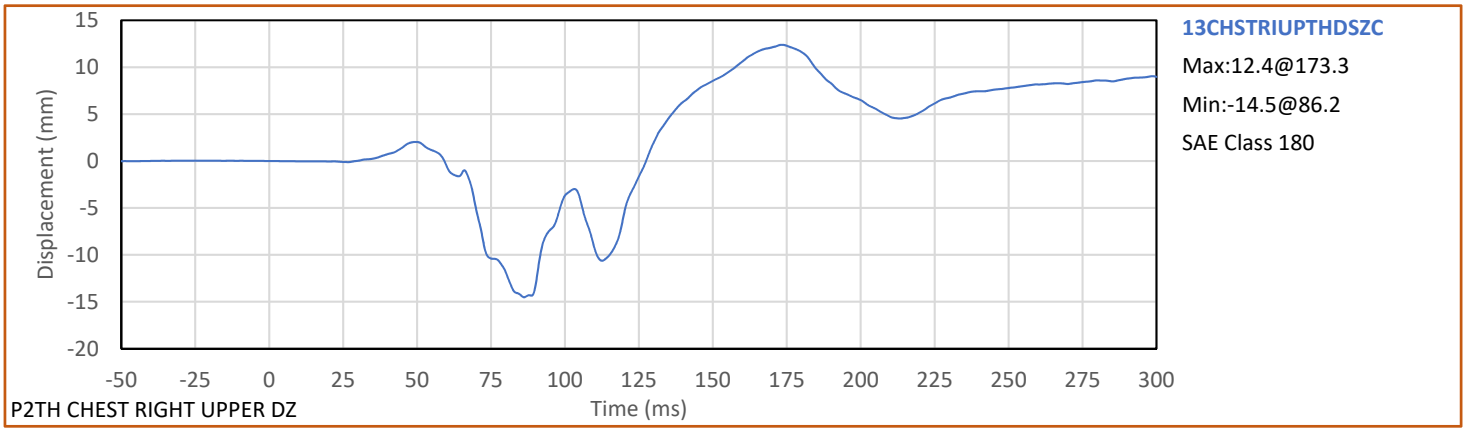

Displacement (mm)
Time (ms)
P2TH CHEST LEFT UPPER DY
13CHSTLEUPTHDSYC
Max:2.2@244.8
Min:-35.1@118.0
SAE Class 180

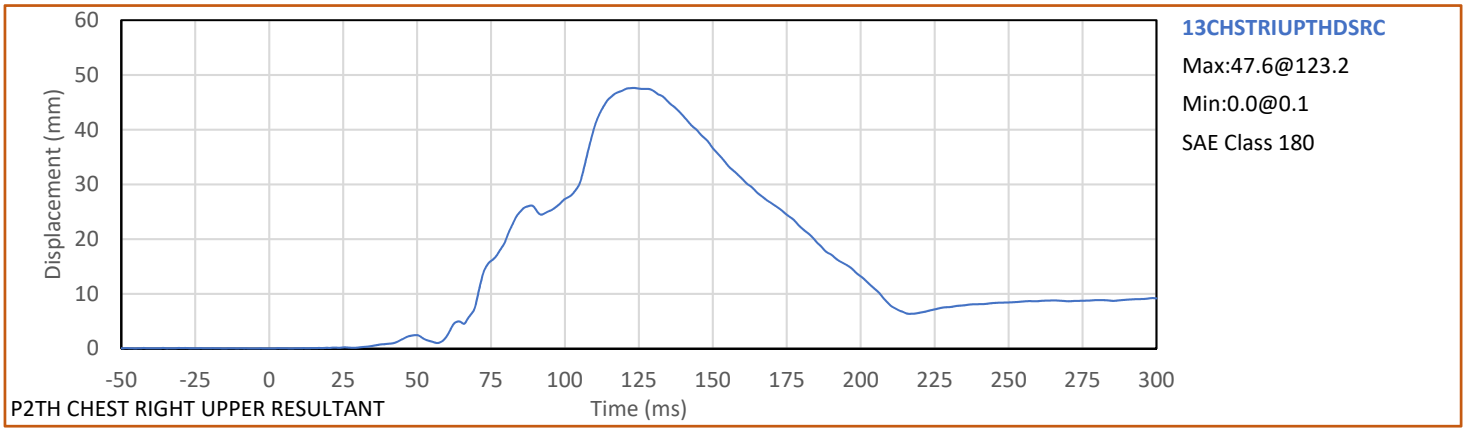

Displacement (mm)
Time (ms)
P2TH CHEST LEFT UPPER DZ
13CHSTLEUPTHDSZC
Max:14.9@89.6
Min:-20.1@147.6
SAE Class 180

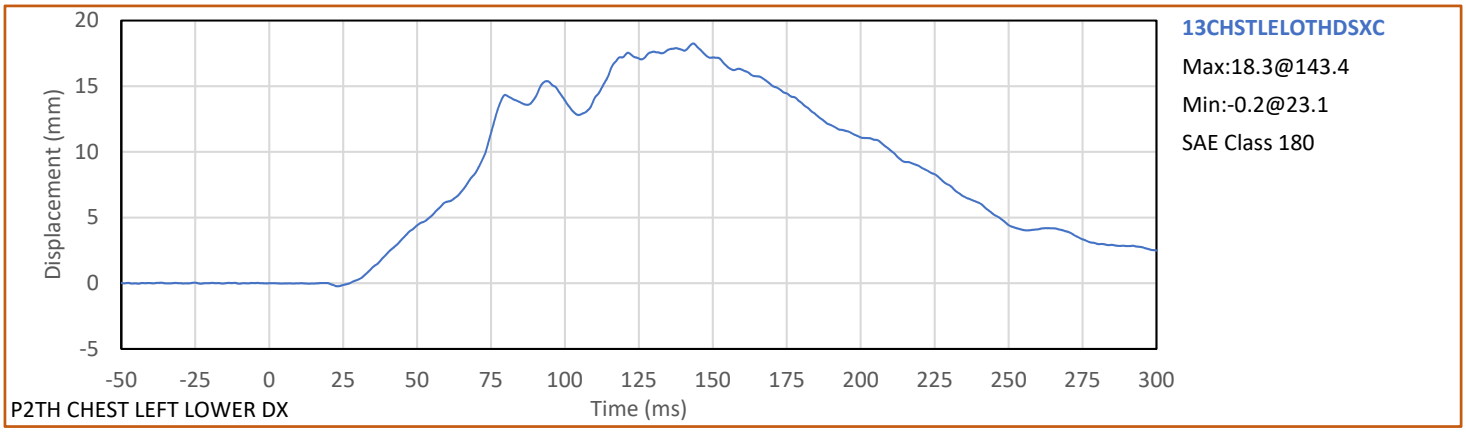

Displacement (mm)
Time (ms)
P2TH CHEST LEFT UPPER RESULTANT
13CHSTLEUPTHDSRC
Max:37.4@118.0
Min:0.0@0.1
SAE Class 180


Displacement (mm)
Time (ms)
P2TH CHEST RIGHT UPPER DX
13CHSTRIUPTHDSXC
Max:2.2@64.5
Min:-33.4@121.1
SAE Class 180

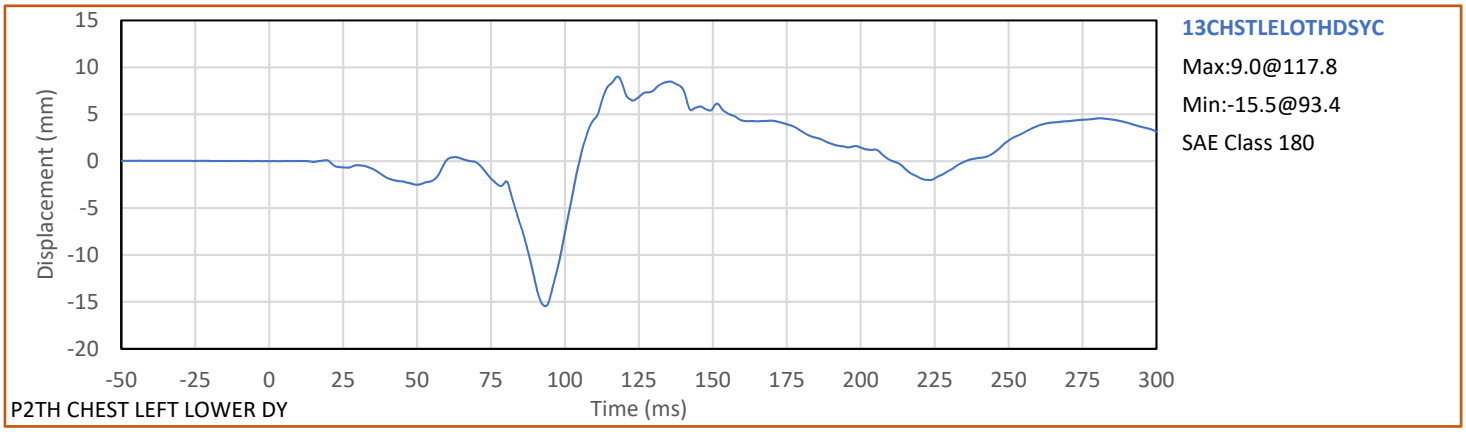

Displacement (mm)
Time (ms)
P2TH CHEST RIGHT UPPER DY
13CHSTRIUPTHDSYC
Max:1.9@247.5
Min:-34.1@128.5
SAE Class 180


Displacement (mm)
Time (ms)
P2TH CHEST RIGHT UPPER DZ
13CHSTRIUPTHDSZC
Max:12.4@173.3
Min:-14.5@86.2
SAE Class 180

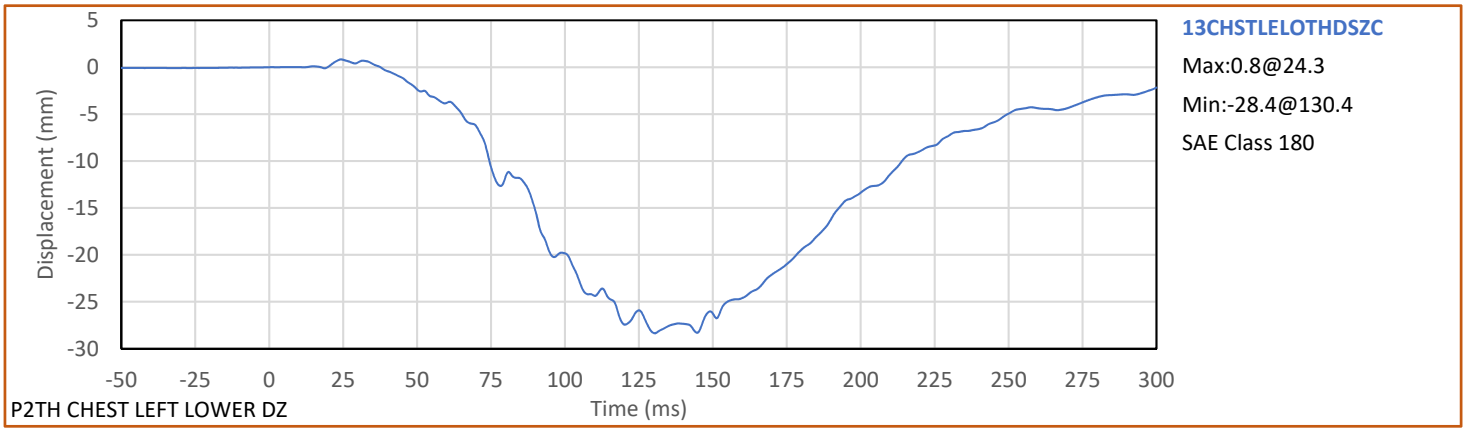

Displacement (mm)
Time (ms)
P2TH CHEST RIGHT UPPER RESULTANT
13CHSTRIUPTHDSRC
Max:47.6@123.2
Min:0.0@0.1
SAE Class 180



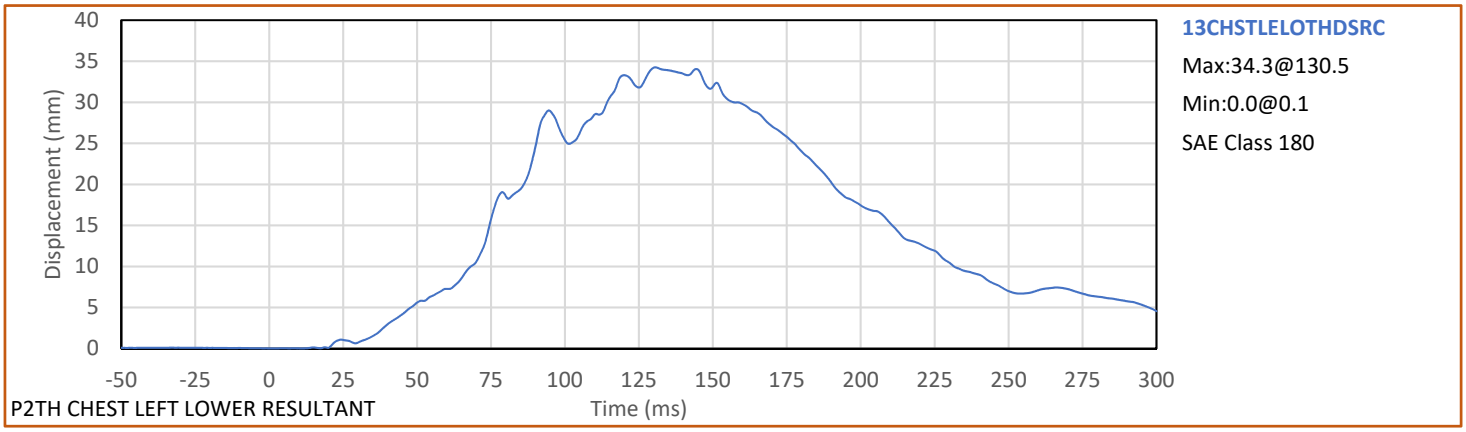
13CHSTLELOTHDSXC
Max:18.3@143.4
Min:-0.2@23.1
SAE Class 180



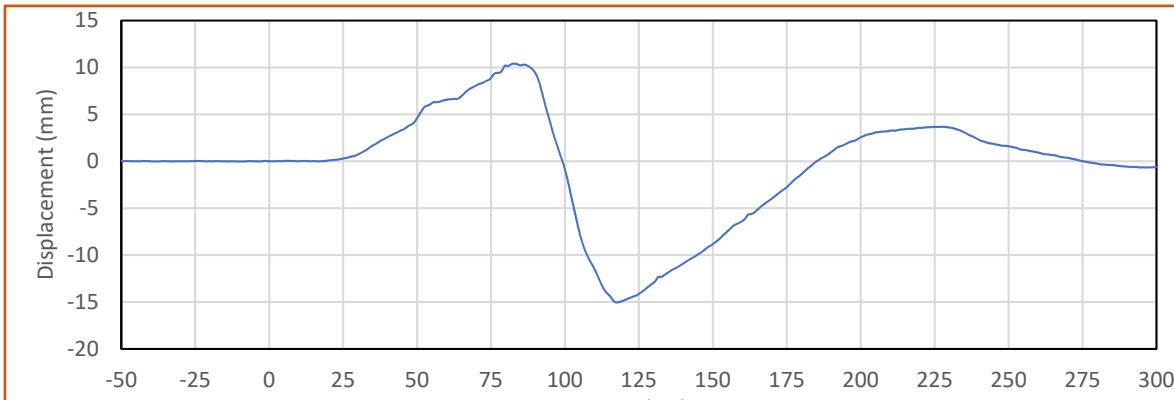
13CHSTLELOTHDSYC
Max:9.0@117.8
Min:-15.5@93.4
SAE Class 180



13CHSTLELOTHDSZC
Max:0.8@24.3
Min:-28.4@130.4
SAE Class 180

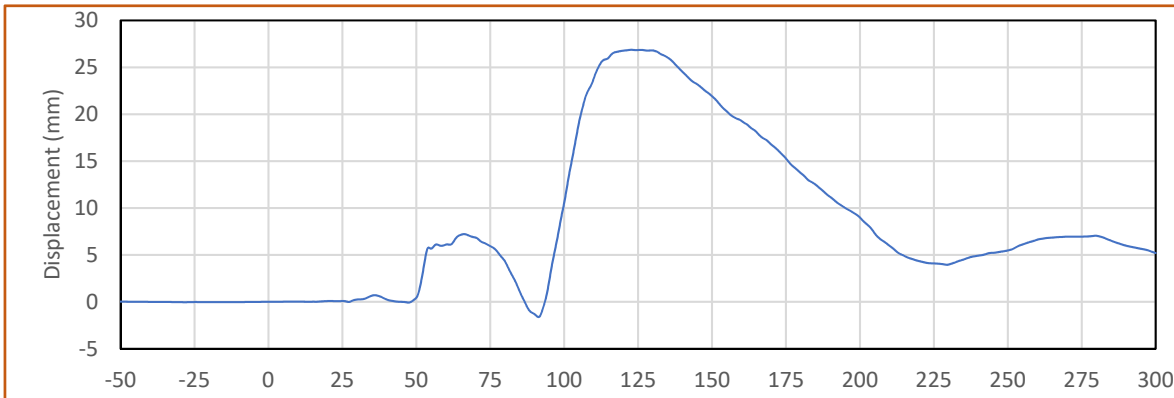


13CHSTLELOTHDSRC
Max:34.3@130.5
Min:0.0@0.1
SAE Class 180



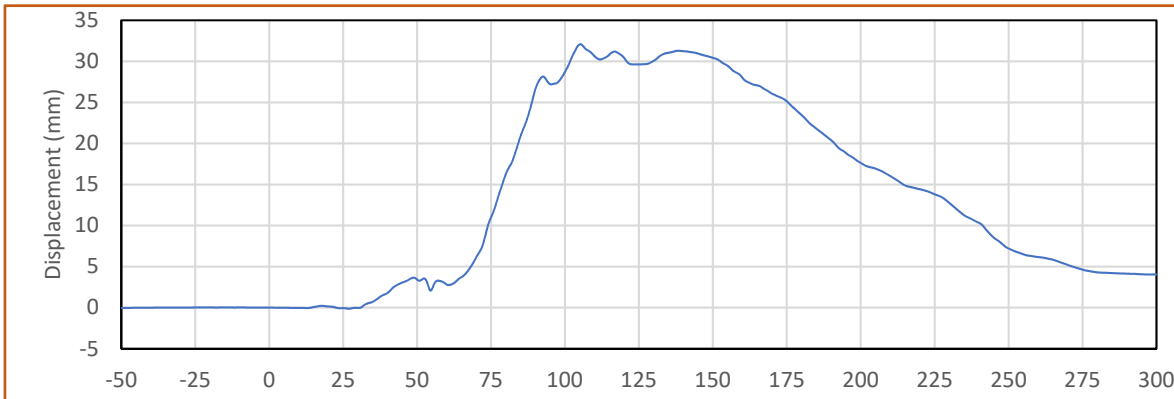
P2TH CHEST RIGHT LOWER DX

13CHSTRILOTHDSXC
Max:10.4@82.7
Min:-15.1@117.6
SAE Class 180



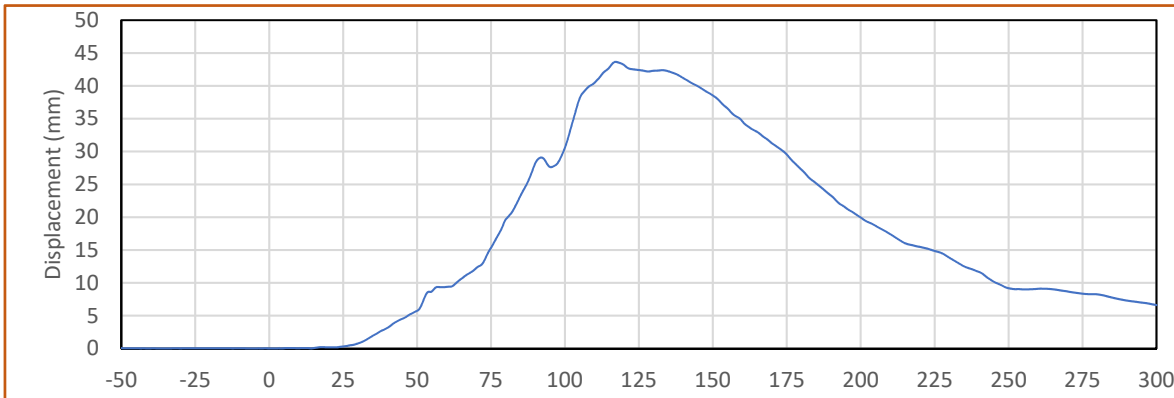
P2TH CHEST RIGHT LOWER DY

13CHSTRILOTHDSYC
Max:26.9@122.7
Min:-1.6@91.3
SAE Class 180



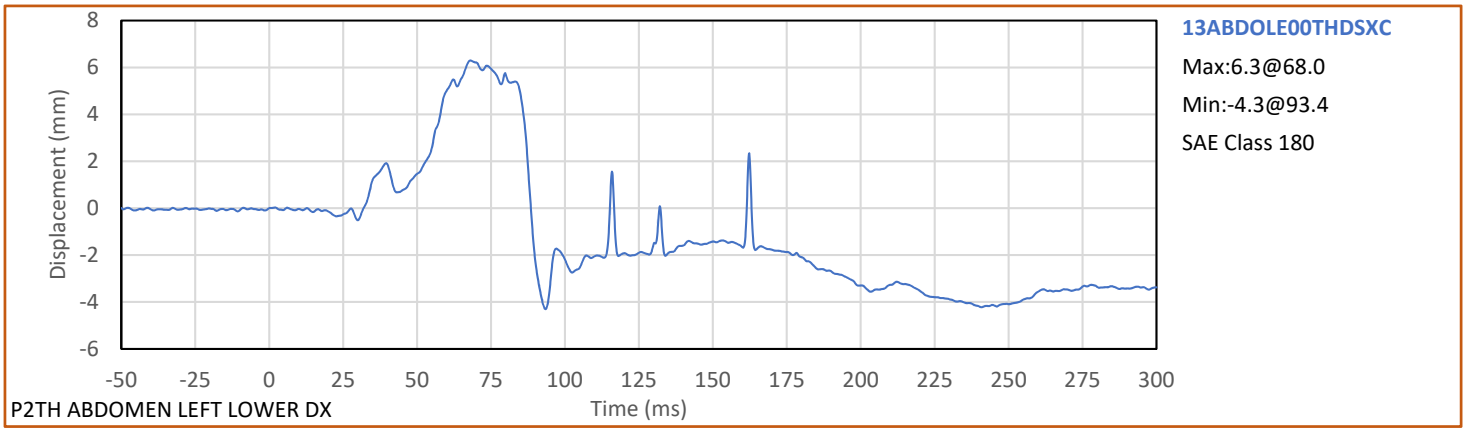
P2TH CHEST RIGHT LOWER DZ

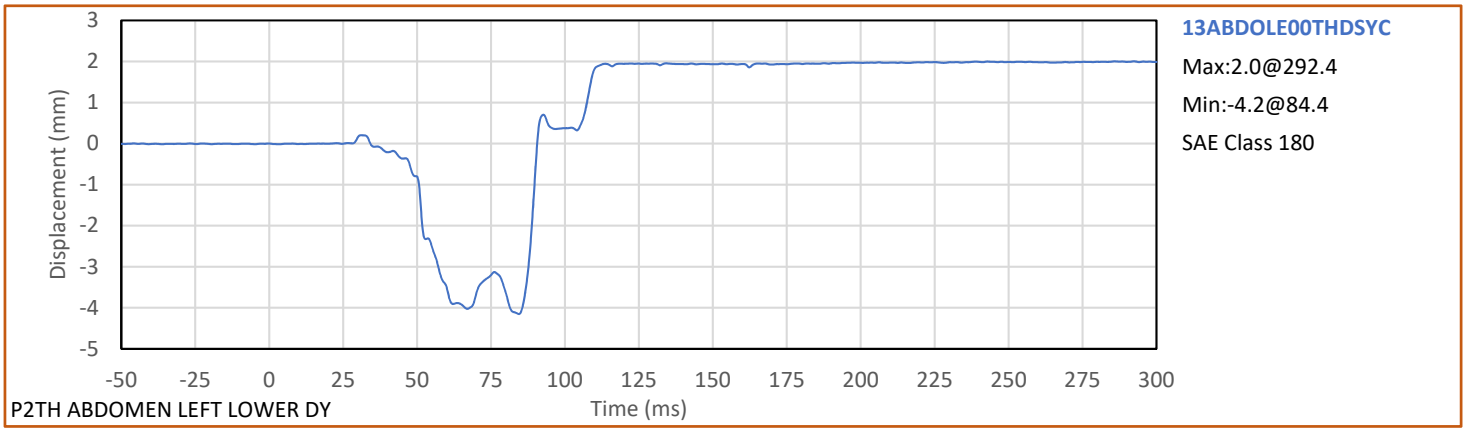
13CHSTRILOTHDSZC
Max:32.1@105.2
Min:-0.1@26.9
SAE Class 180

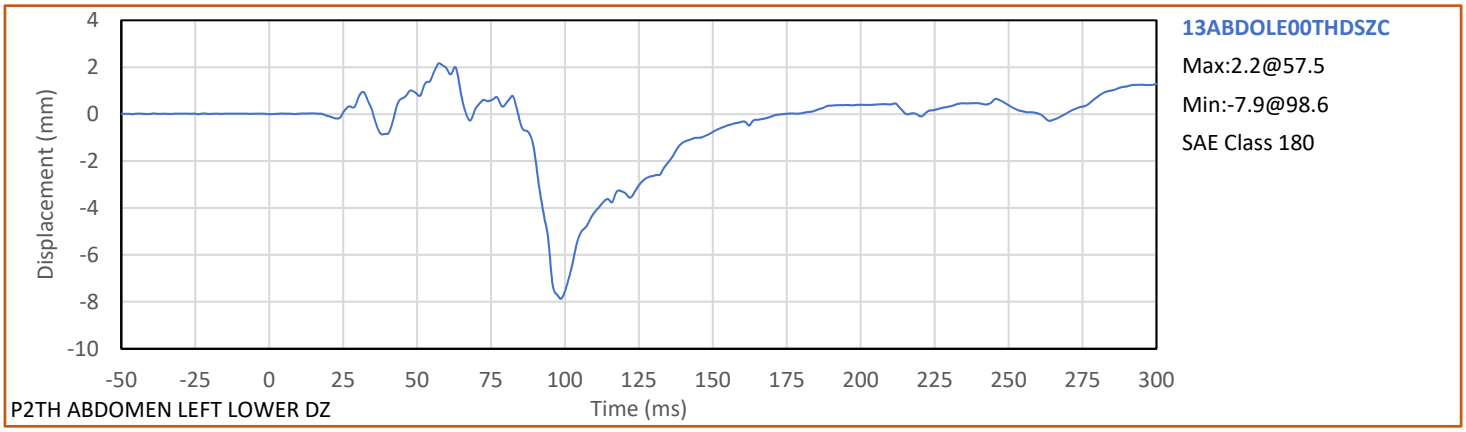


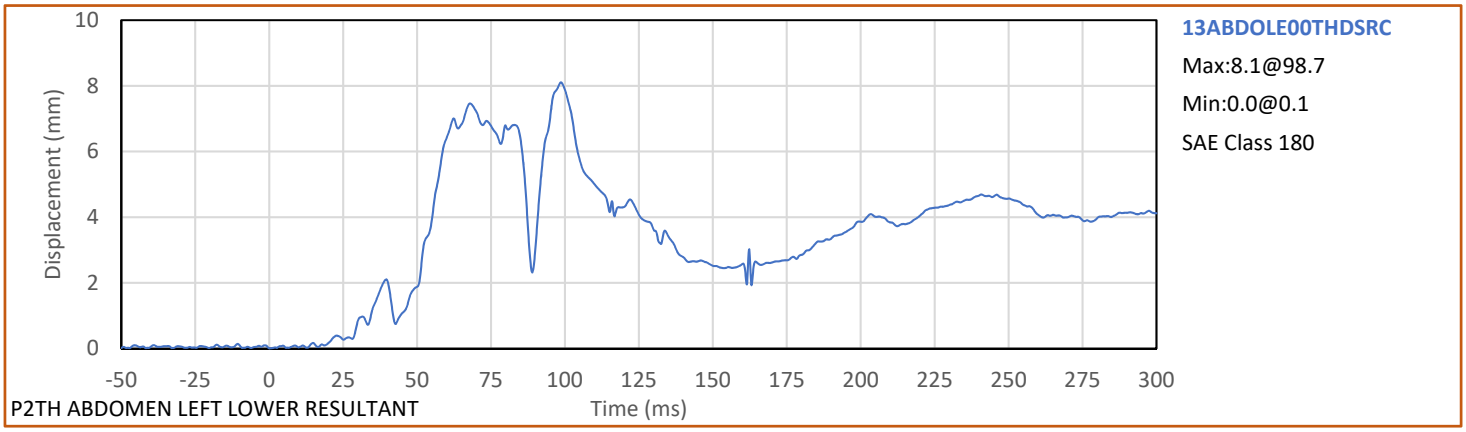
P2TH CHEST RIGHT LOWER RESULTANT

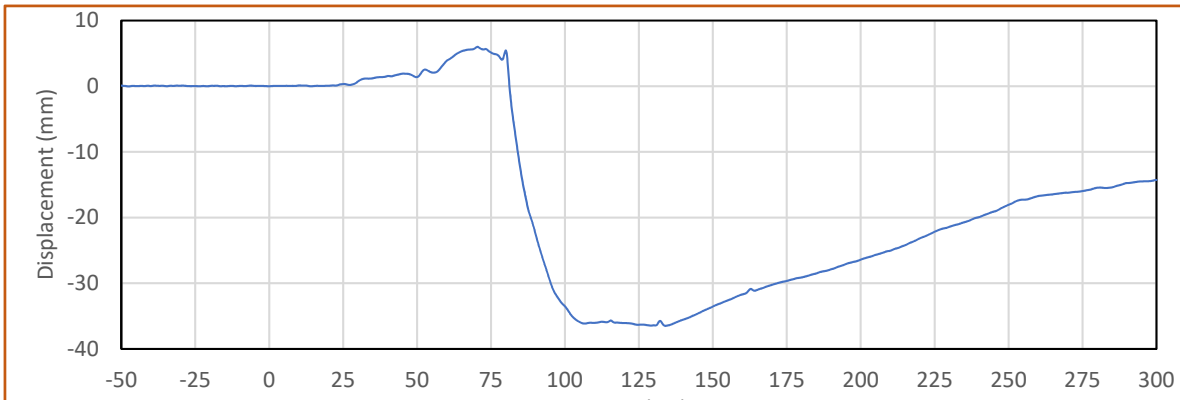
13CHSTRILOTHDSRC
Max:43.7@117.2
Min:0.0@0.1
SAE Class 180


Displacement (mm)
Time (ms)
P2TH ABDOMEN LEFT LOWER DX
13ABDOLE00THDSXC
Max:6.3@68.0
Min:-4.3@93.4
SAE Class 180


Displacement (mm)
Time (ms)
P2TH ABDOMEN LEFT LOWER DY
13ABDOLE00THDSYC
Max:2.0@292.4
Min:-4.2@84.4
SAE Class 180

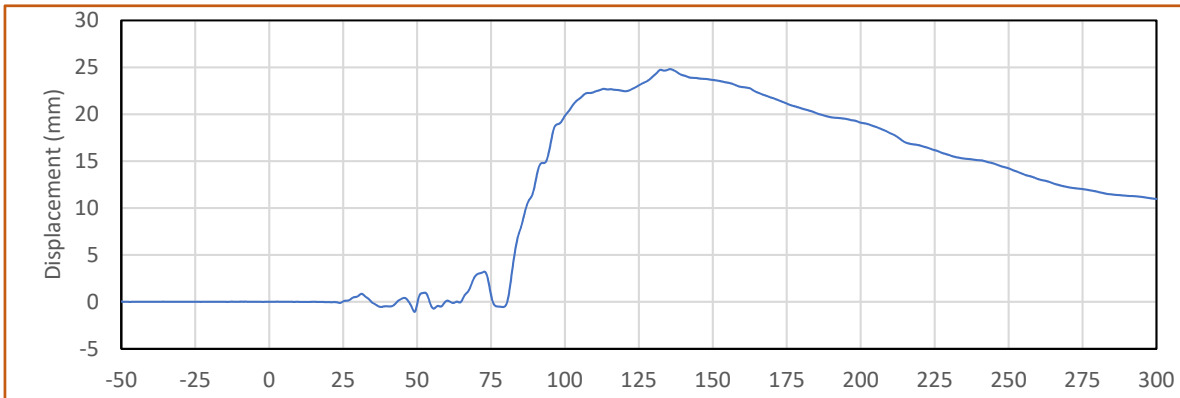

Displacement (mm)
Time (ms)
P2TH ABDOMEN LEFT LOWER DZ
13ABDOLE00THDSZC
Max:2.2@57.5
Min:-7.9@98.6
SAE Class 180


Displacement (mm)
Time (ms)
P2TH ABDOMEN LEFT LOWER RESULTANT
13ABDOLE00THDSRC
Max:8.1@98.7
Min:0.0@0.1
SAE Class 180



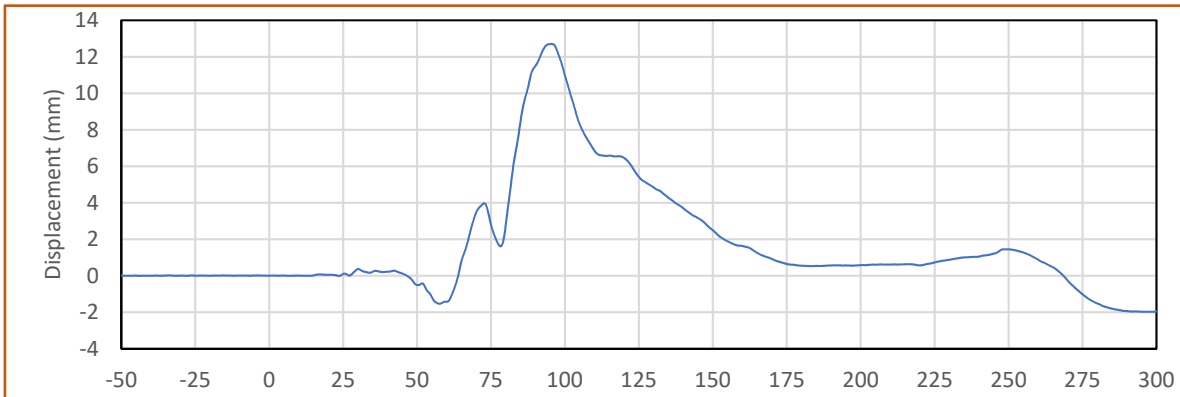
P2TH ABDOMEN RIGHT LOWER DX

13ABDORI00THDSXC
Max:6.0@70.4
Min:-36.5@134.0
SAE Class 180



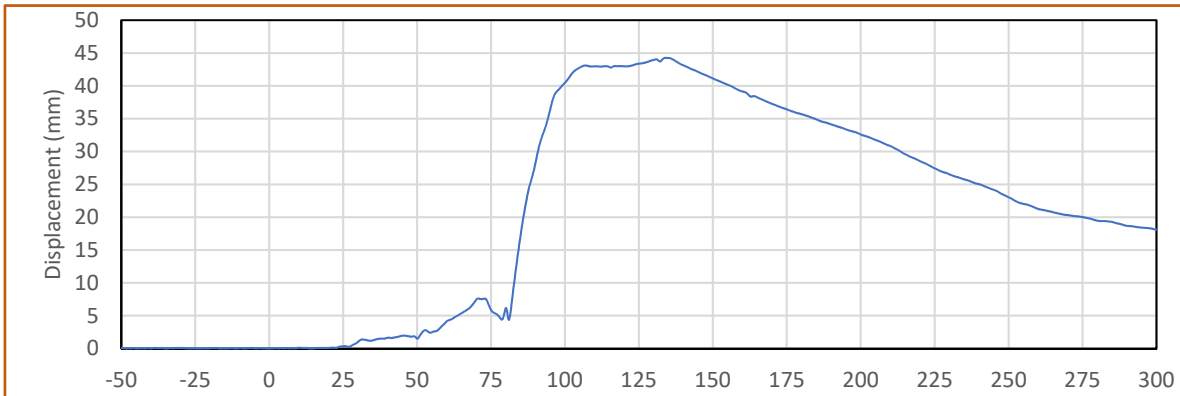
P2TH ABDOMEN RIGHT LOWER DY

13ABDORI00THDSYC
Max:24.8@135.6
Min:-1.1@49.1
SAE Class 180



P2TH ABDOMEN RIGHT LOWER DZ

13ABDORI00THDSZC
Max:12.7@95.7
Min:-2.0@297.8
SAE Class 180



P2TH ABDOMEN RIGHT LOWER RESULTANT

13ABDORI00THDSRC
Max:44.3@134.1
Min:0.0@14.4
SAE Class 180

APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA SHEETS

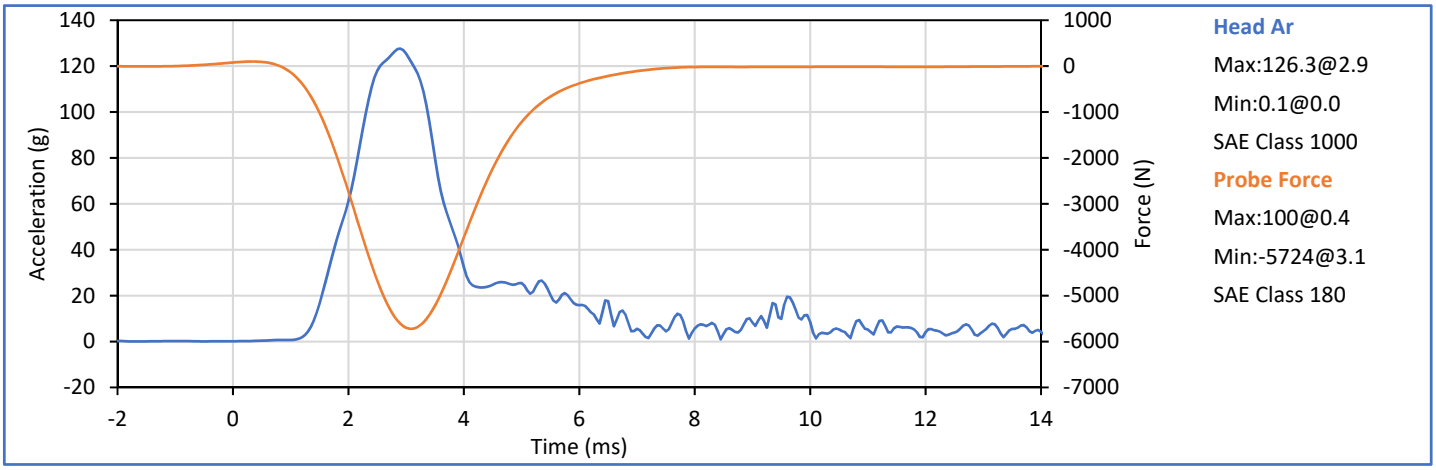
APPENDIX C
Pre-Test ATD Qualification and Performance Verification
THOR-50M 50th Percentile Male ATD, (Reduced Certification)
S/N: EG2595

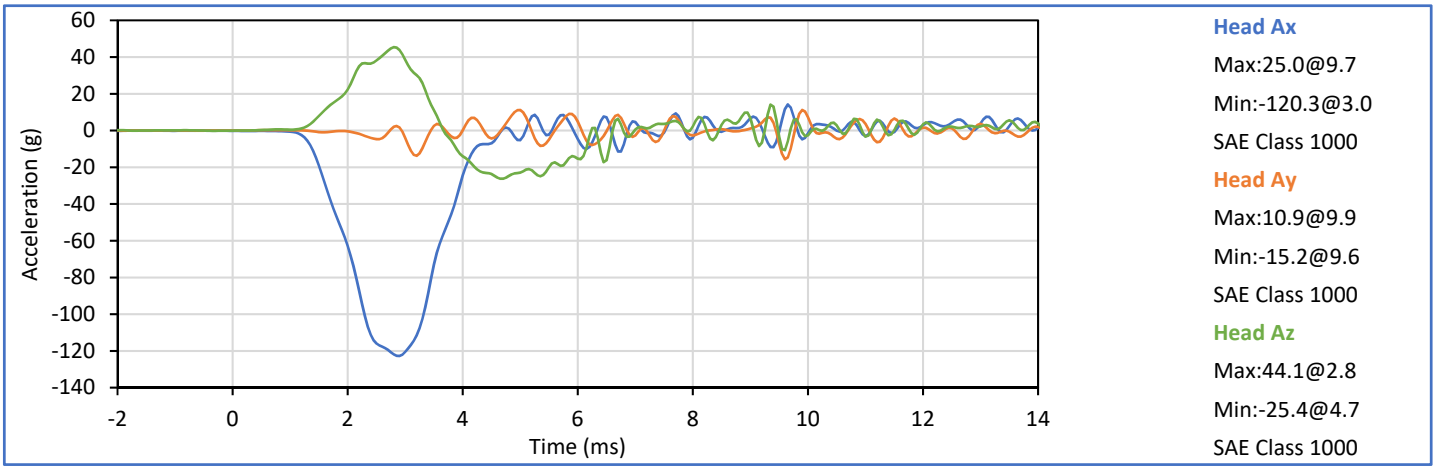
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Head Qualification

ATD Serial No.: EG2595 Test Date: 2020-10-06

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	22.1	Pass
Laboratory Relative Humidity	%	10	70	23	Pass
Probe Velocity	m/s	1.95	2.05	2.01	Pass
Peak Probe Force	kN	-6138	-5022	-5724	Pass
Peak Head Resultant Acceleration	g	105.3	128.7	126.3	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

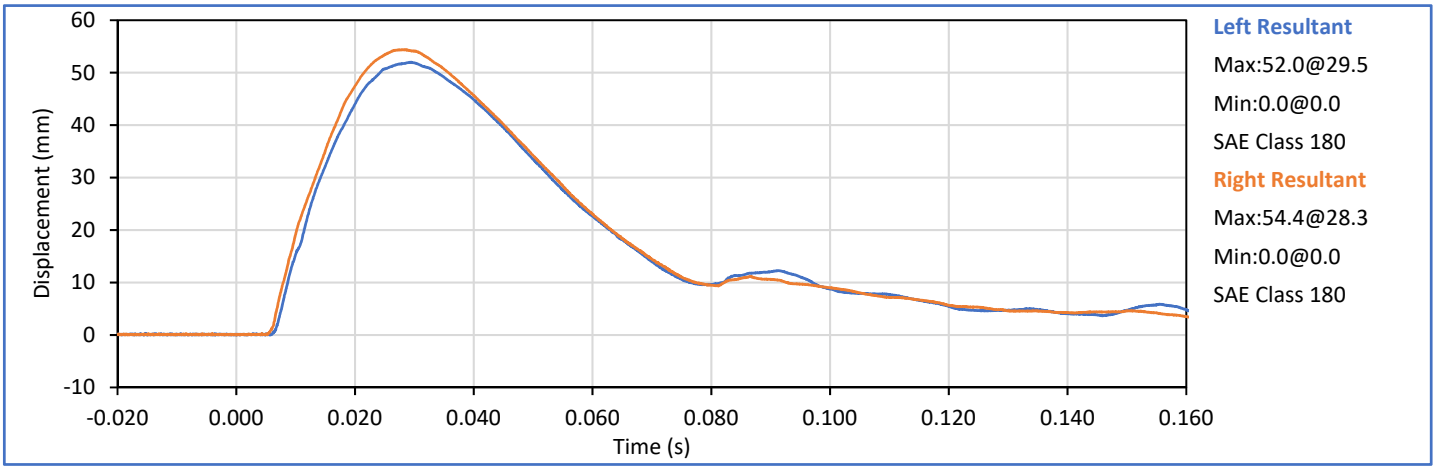
Approved By: P. Puzzuto

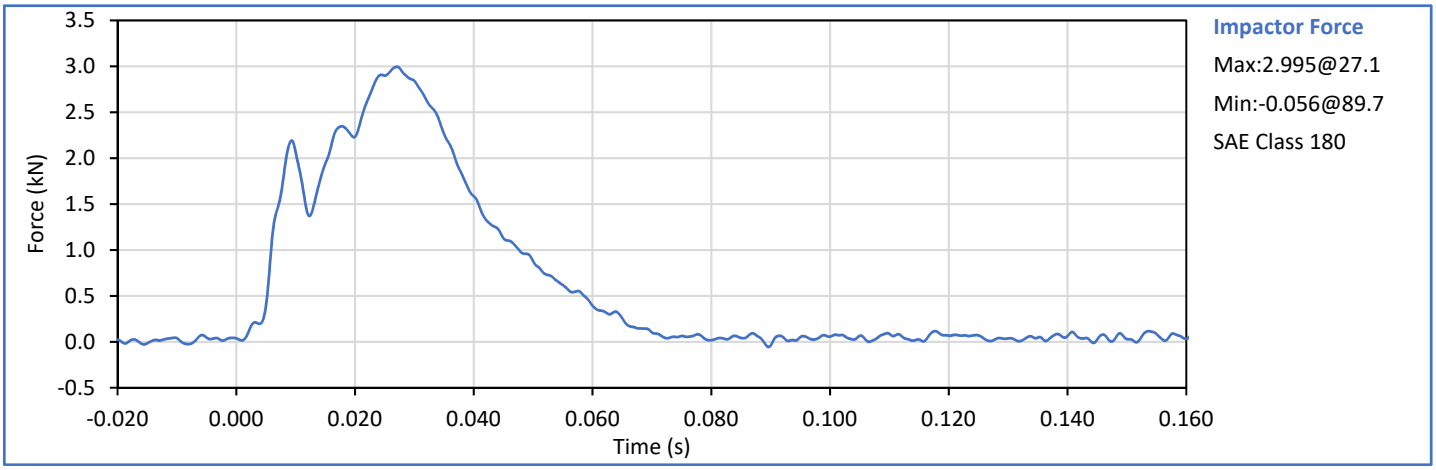
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Thorax Impact (Upper)

ATD Serial No.: EG2595 Test Date: 2020-10-07

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	26	Pass
Probe Velocity	m/sec	4.25	4.35	4.32	Pass
Peak Probe Force	kN		3.039	2.995	Pass
Peak Upper Left Deflection Resultant	mm	48.3	59.0	52.0	Pass
Peak Upper Right Deflection Resultar	mm			54.4	Pass
Absolute Difference L/R Dx Resultant	mm	0.0	5.0	2.4	Pass
Force at Peak Upper Left Resultant	mm	2.409	2.944	2.859	Pass
Force at Peak Upper Right Resultant	mm			2.913	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

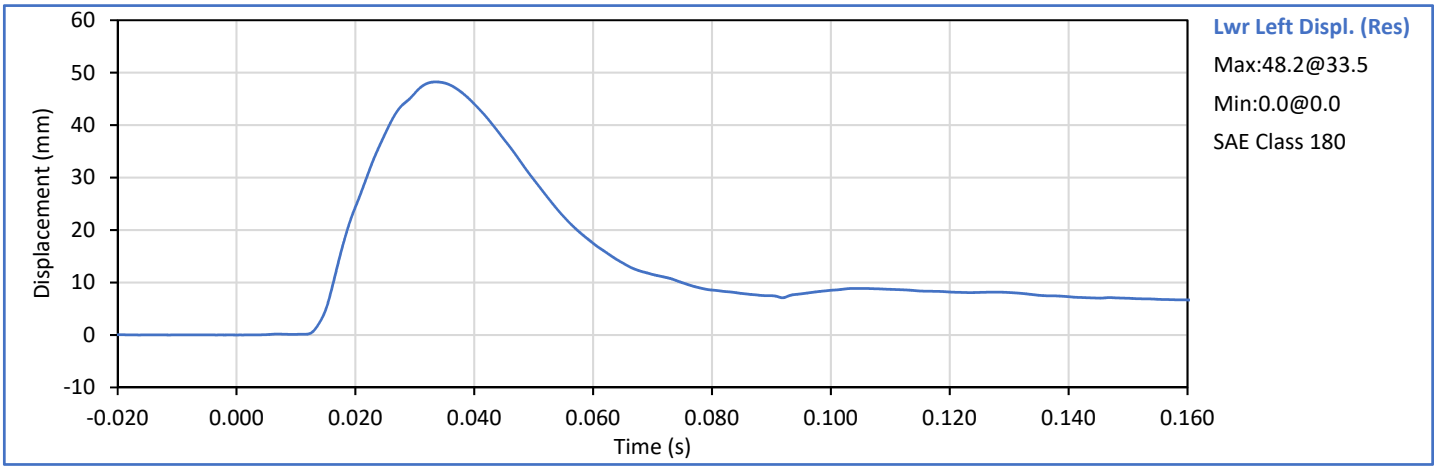
Approved By: P. Puzzuto

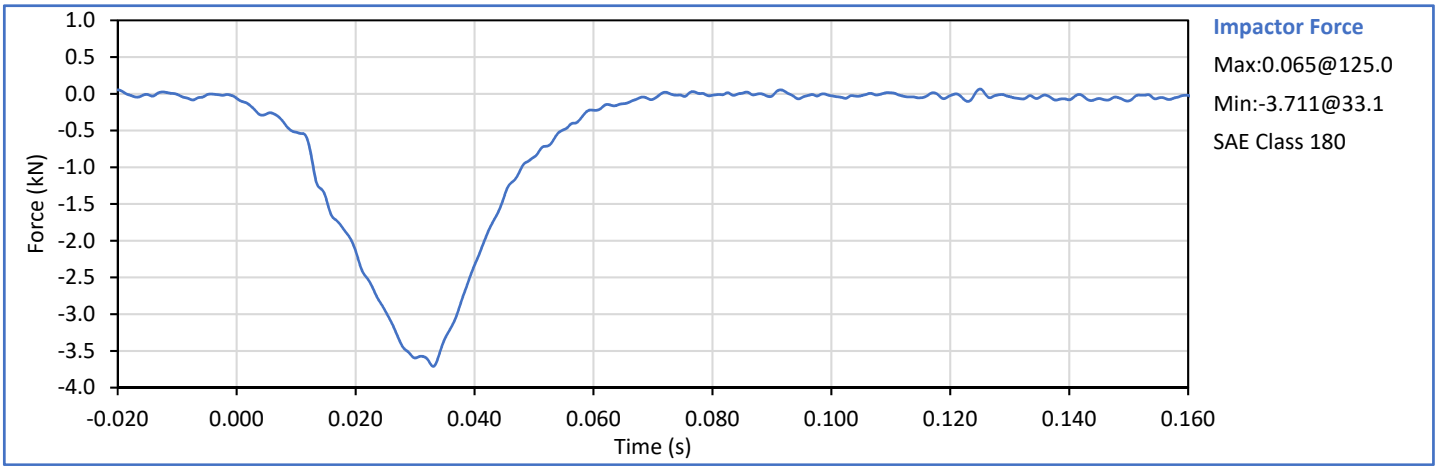
Applus IDIADA
KARCO

THOR-50M 50th Percentile Male ATD
Thorax Impact (Lower Left)

ATD Serial No.: EG2595 Test Date: 2020-10-07

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	25	Pass
Probe Velocity	m/sec	4.25	4.35	4.34	Pass
Peak Probe Force	kN	-3.832	-3.136	-3.711	Pass
Lower Left Resultant Dx at Peak Fx	mm	45.8	56.0	48.2	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

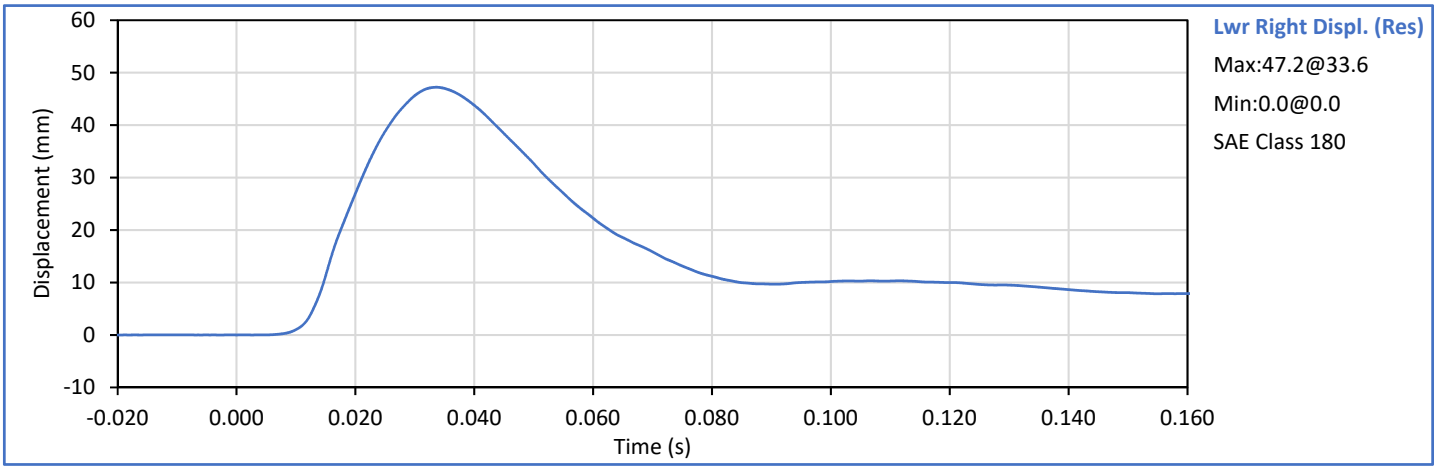
Approved By: P. Puzzuto

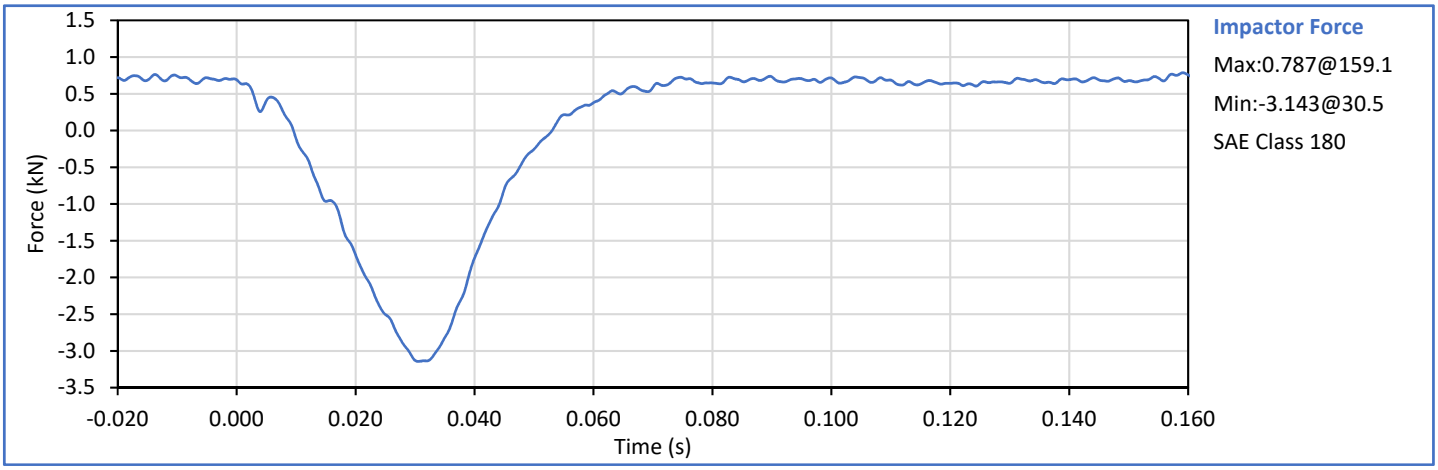
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Thorax Impact (Lower Right)

ATD Serial No.: EG2595 Test Date: 2020-10-07

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	26	Pass
Probe Velocity	m/sec	4.25	4.35	4.33	Pass
Peak Probe Force	kN	-3.832	-3.136	-3.143	Pass
Lower Right Resultant Dx at Peak Fx	mm	45.8	56.0	46.1	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

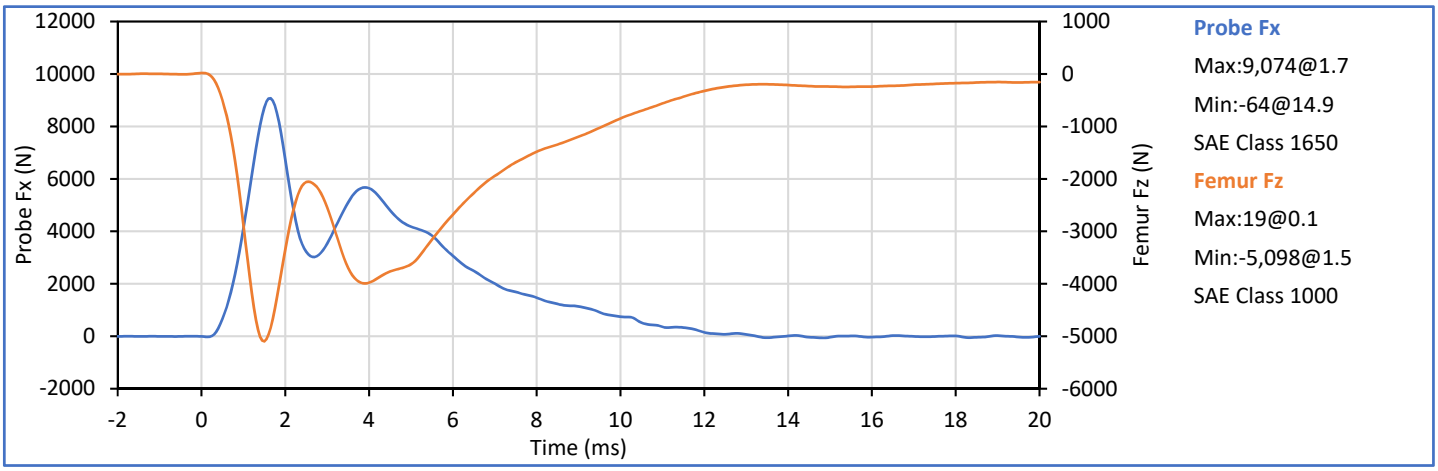
Approved By: P. Puzzuto

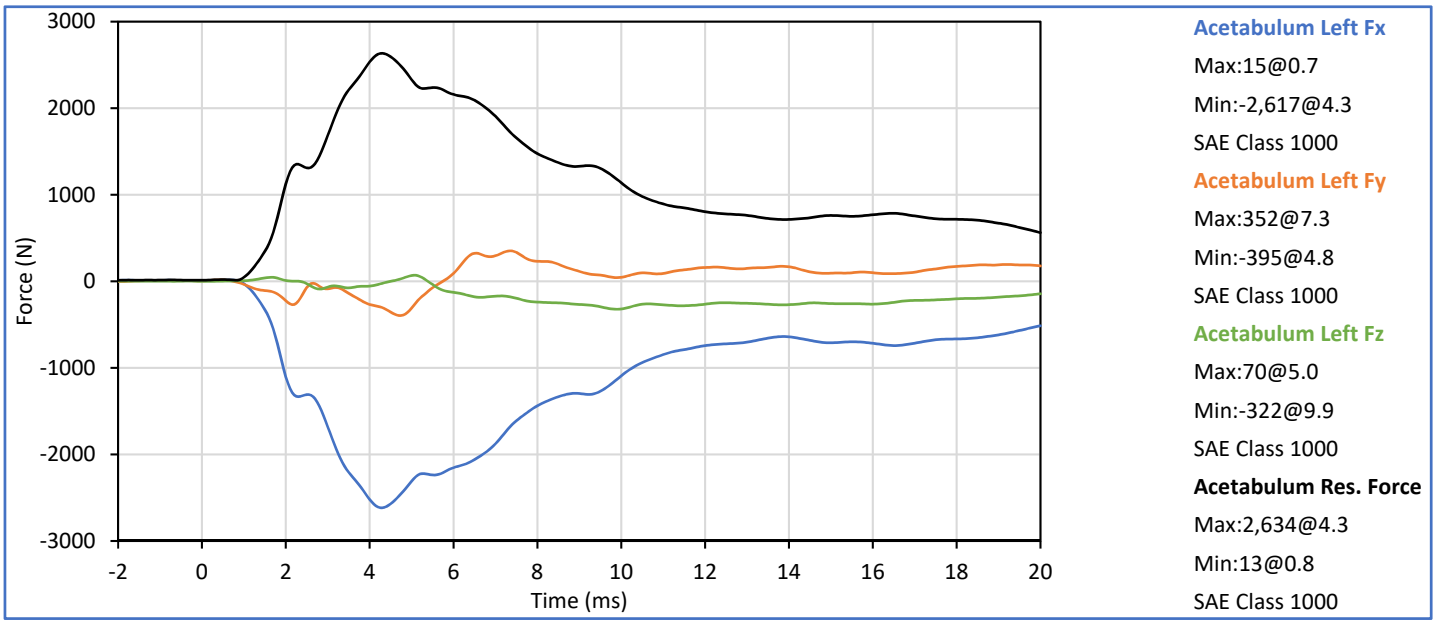
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Upper Leg (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-10-08

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Relative Humidity	%	10	70	28	Pass
Pendulum Velocity	m/s	3.25	3.35	3.33	Pass
Peak Probe Force	N	*	*	9074	*
Peak Femur Fz	N	*	*	-5098	*
Acetabulum Force Resultant	N	*	*	2634	*
* Research data. No defined P/F corridor			Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto

Applus IDIADA KARCO

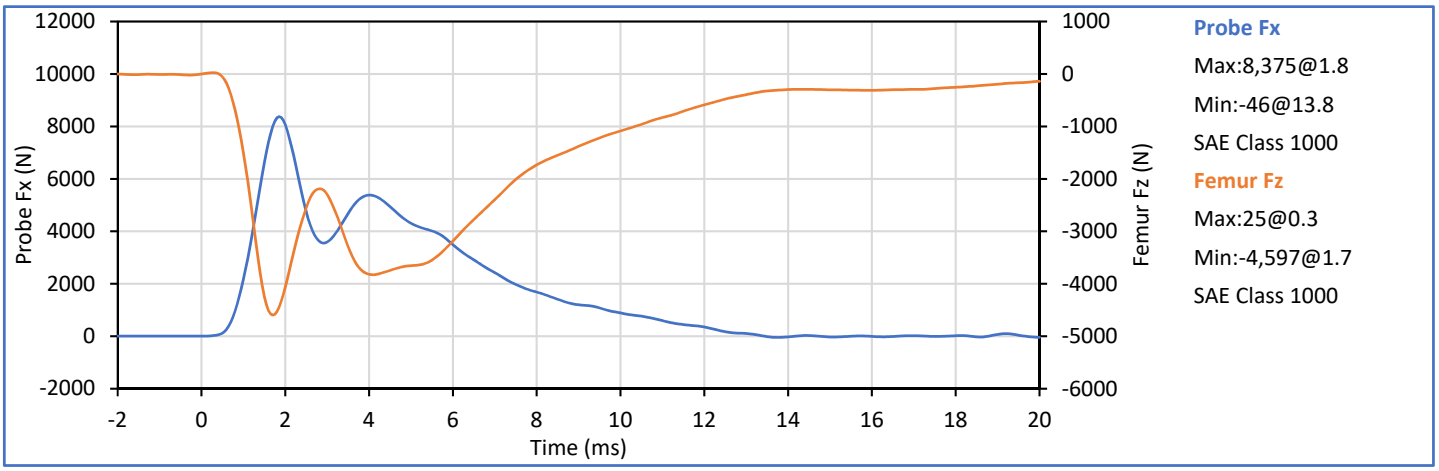
THOR-50M 50th Percentile Male ATD
Upper Leg (Right) Qualification

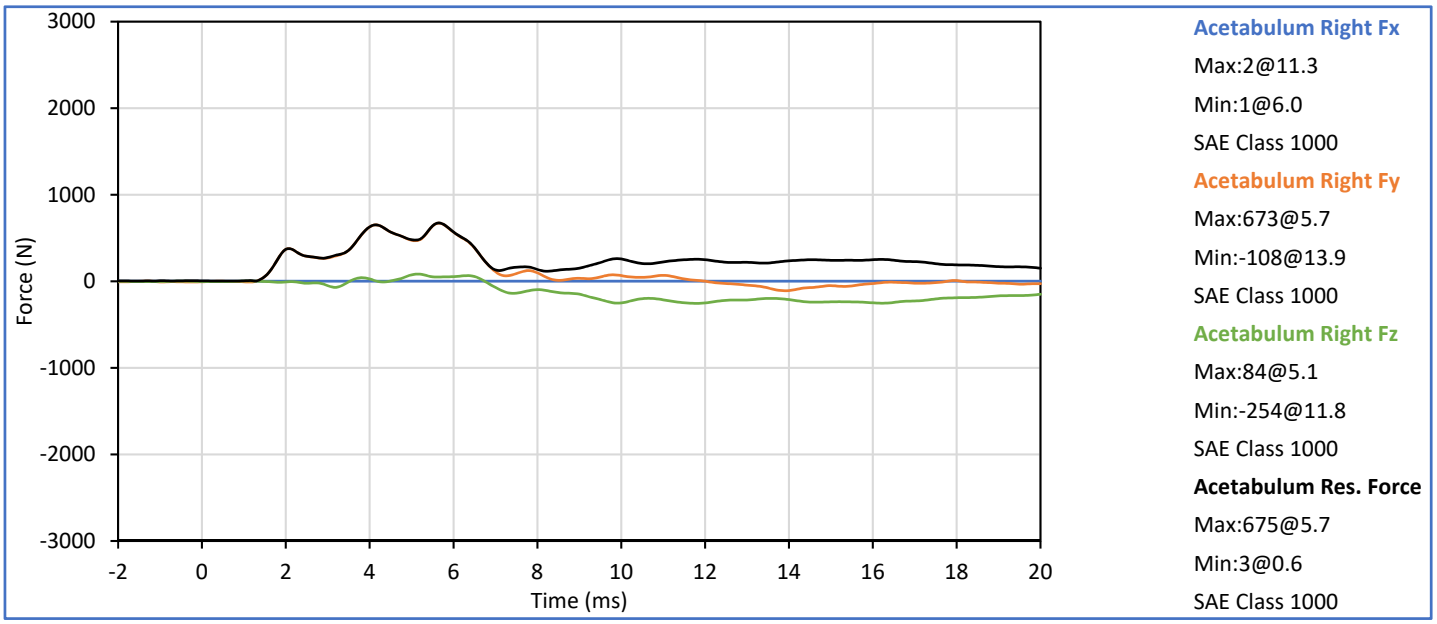
ATD Serial No.: EG2595 Test Date: 2020-10-08

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail	
Laboratory Temperature	°C	20.6	22.2	21.7	Pass	
Laboratory Relative Humidity	%	10	70	29	Pass	
Pendulum Velocity	m/s	3.25	3.35	3.32	Pass	
Peak Probe Force	N	*	*	8375	*	
Peak Femur Fz	N	*	*	-4597	*	
Acetabulum Force Resultant	N	*	*	675	*	**
			Overall Test Results		Pass	

* Research data. No defined P/F corridor

** Acetabulum Fx is not functioning





Technician: J. Hernandez

Approved By: P. Puzzuto

APPENDIX C
Pre-Test ATD Qualification and Performance Verification Hybrid III 50th Percentile Male ATD, (Compressed Certification) S/N: 168

Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
ATD Damage Checklist

ATD Serial No.: 168 Test Date: 2020-09-29

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.	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: J. Hernandez

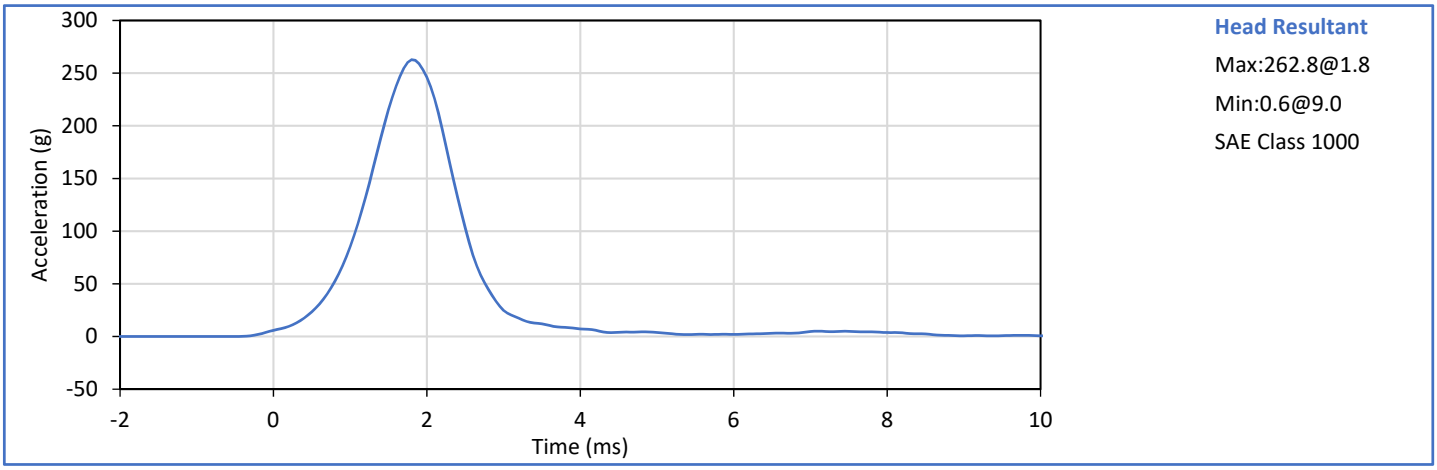
Approved By: P. Puzzuto

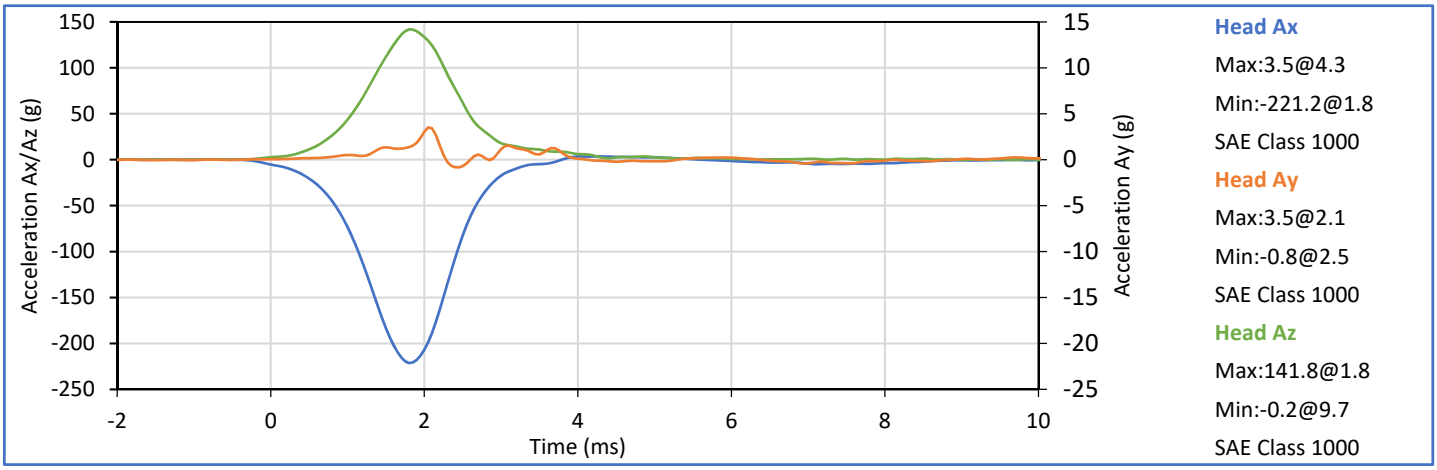
Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
Head Drop

ATD Serial No.: 168 Test Date: 2020-09-29

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	21	Pass
Peak Resultant Acceleration	g	225.0	275.0	262.8	Pass
Peak Lateral Acceleration	g	-15.0	15.0	3.5	Pass
Oscillations After Main Pulse	%	0.0	10.0	1.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

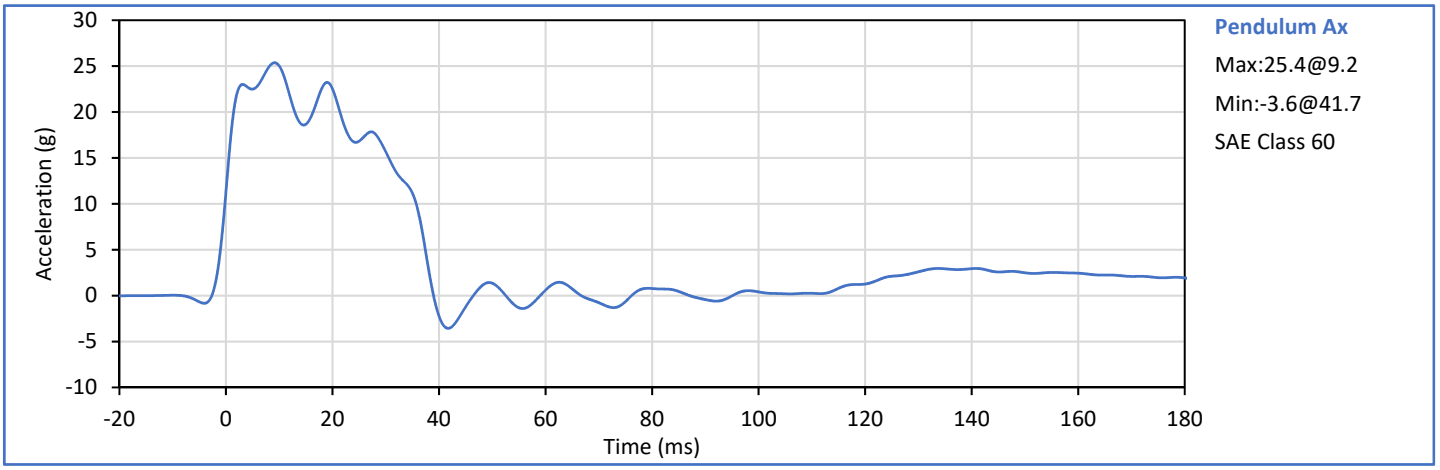
Approved By: P. Puzzuto

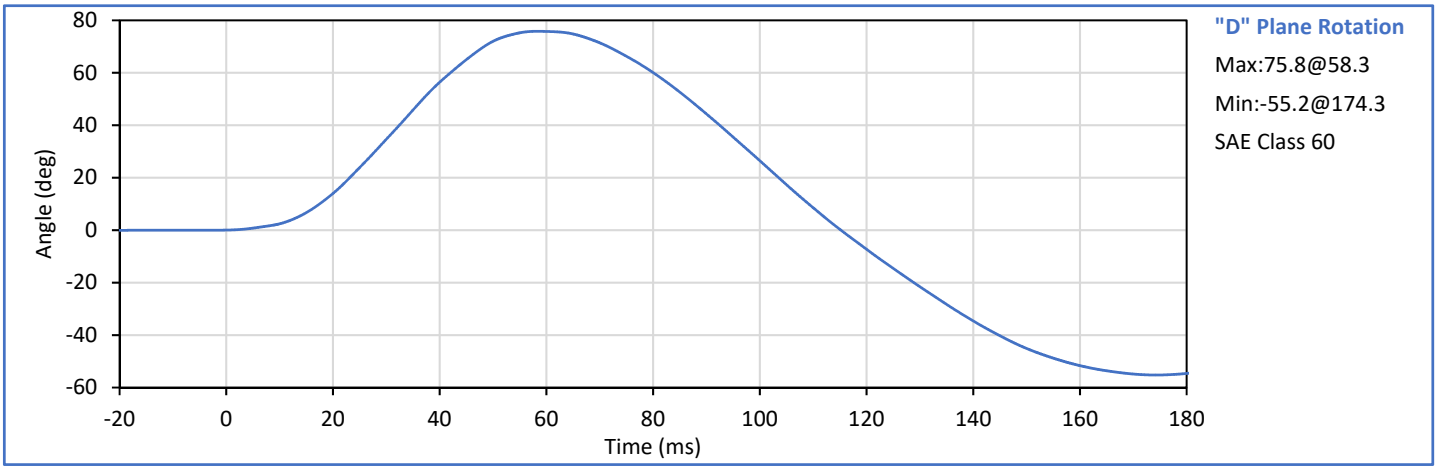
Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
Neck Flexion Test

ATD Serial No.: 168 Test Date: 2020-09-29

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	21	Pass
Pendulum Velocity	m/s	6.89	7.13	6.90	Pass
Pendulum Deceleration at 10 ms	g	22.5	27.5	25.0	Pass
Pendulum Deceleration at 20 ms	g	17.6	22.6	22.5	Pass
Pendulum Deceleration at 30 ms	g	12.5	18.5	15.7	Pass
Peak Pendulum Decel. after 30 ms	g	0.0	29.0	15.7	Pass
Deceleration Decay to Cross 5 g	ms	34.0	42.0	37.4	Pass
"D" Plane Rotation peak	deg	64.0	78.0	75.8	Pass
	ms	57.0	64.0	58.3	Pass
"D" Plane Rotation Decay To Zero	ms	113.0	128.0	115.3	Pass
Moment About Occipital Condyle	Nm	88.1	108.5	100.7	Pass
	ms	47.0	58.0	50.6	Pass
Moment Decay, Peak to Zero	ms	97.0	107.0	102.2	Pass
			Overall Test Results		Pass



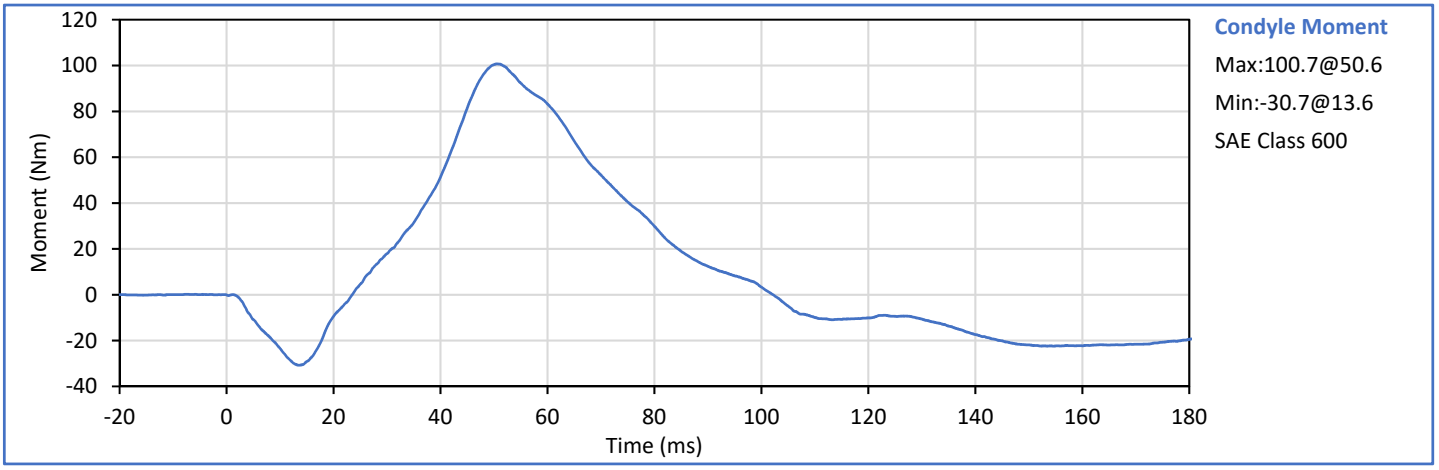


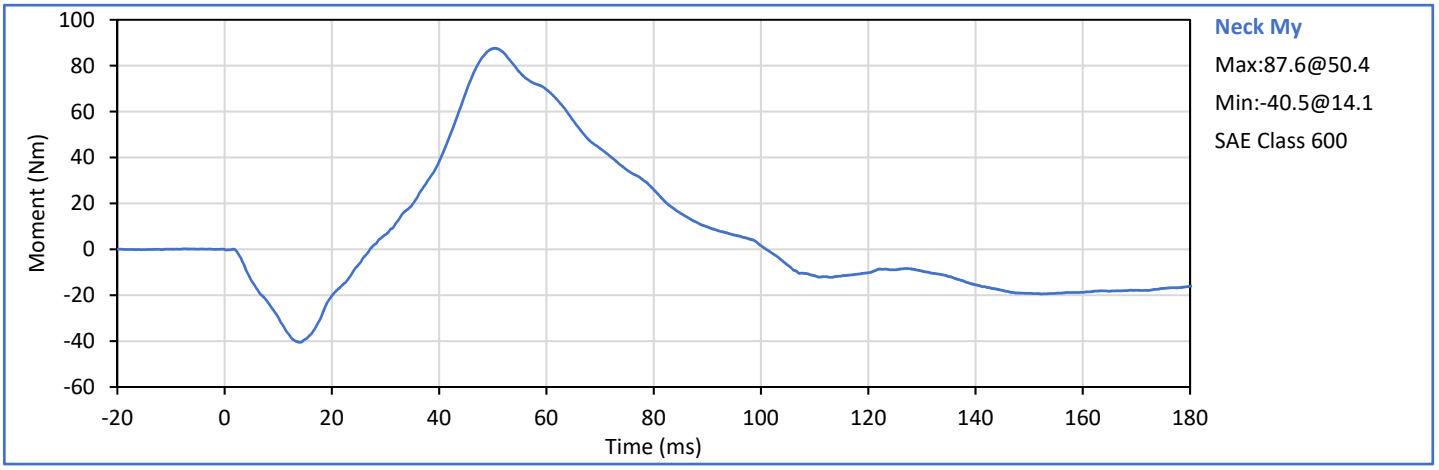
Technician: J. Hernandez

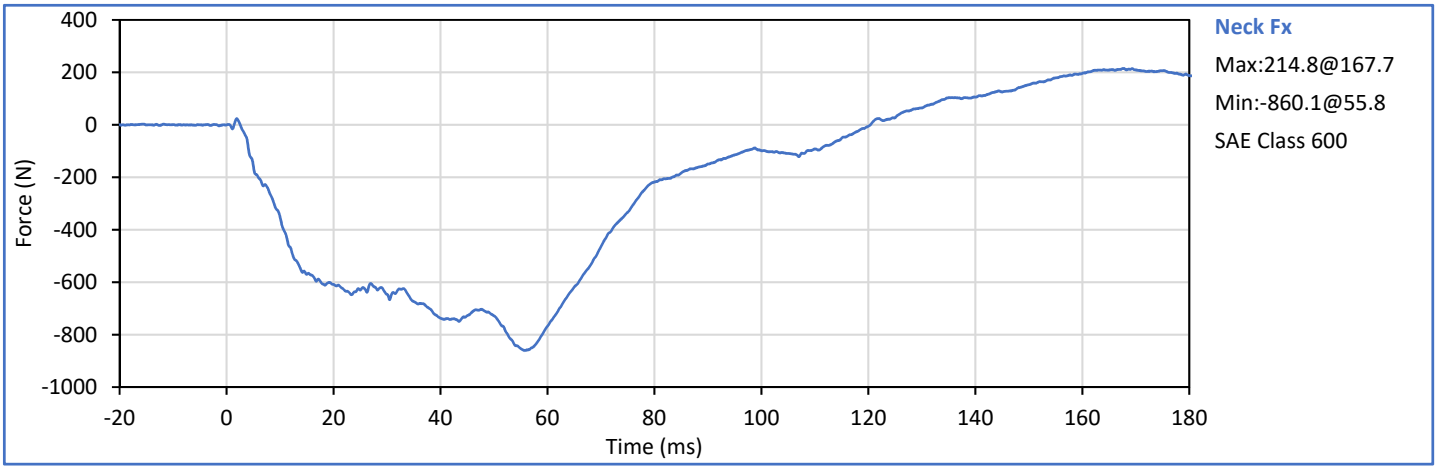
Approved By: P. Puzzuto

Hybrid III 50th Percentile Male ATD
Neck Flexion Test

ATD Serial No.: 168 Test Date: 2020-09-29





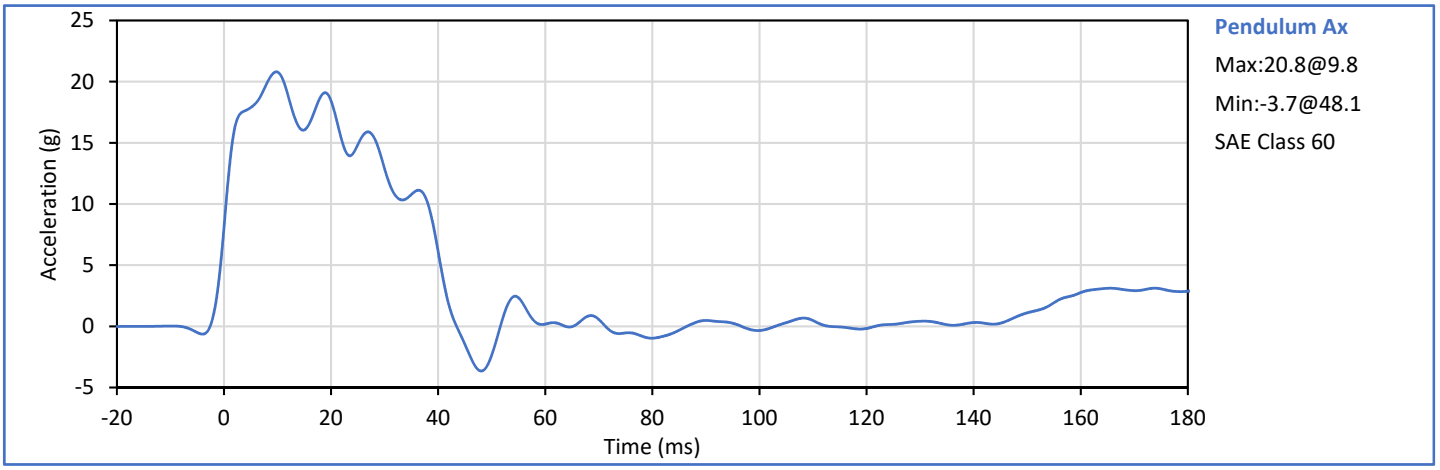


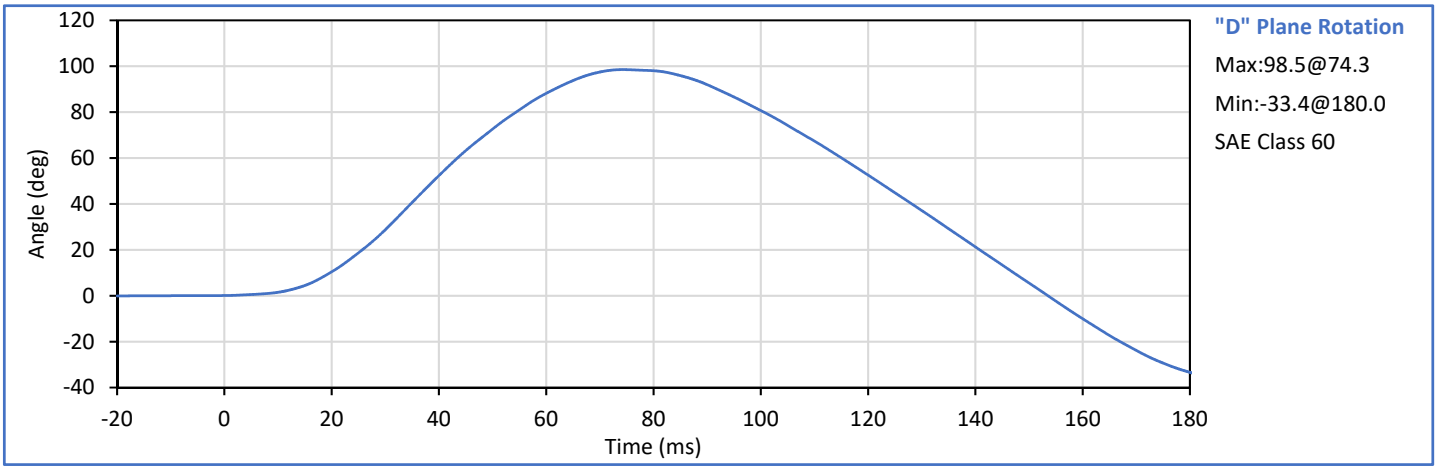
Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
Neck Extension Test

ATD Serial No.: 168 Test Date: 2020-09-29

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	32	Pass
Pendulum Velocity	m/s	5.94	6.19	6.09	Pass
Pendulum Deceleration at 10 ms	g	17.2	21.2	20.8	Pass
Pendulum Deceleration at 20 ms	g	14.0	19.0	18.4	Pass
Pendulum Deceleration at 30 ms	g	11.0	16.0	12.9	Pass
Peak Pendulum Decel. after 30 ms	g	0.0	22.0	12.9	Pass
Deceleration Decay to Cross 5 g	ms	38.0	46.0	40.5	Pass
"D" Plane Rotation peak	deg	81.0	106.0	98.5	Pass
	ms	72.0	82.0	74.3	Pass
"D" Plane Rotation Decay To Zero	ms	147.0	174.0	153.6	Pass
Moment About Occipital Condyle	Nm	-79.9	-52.9	-77.5	Pass
	ms	65.0	79.0	70.7	Pass
Moment Decay, Peak to Zero	ms	120.0	148.0	140.6	Pass
			Overall Test Results		Pass



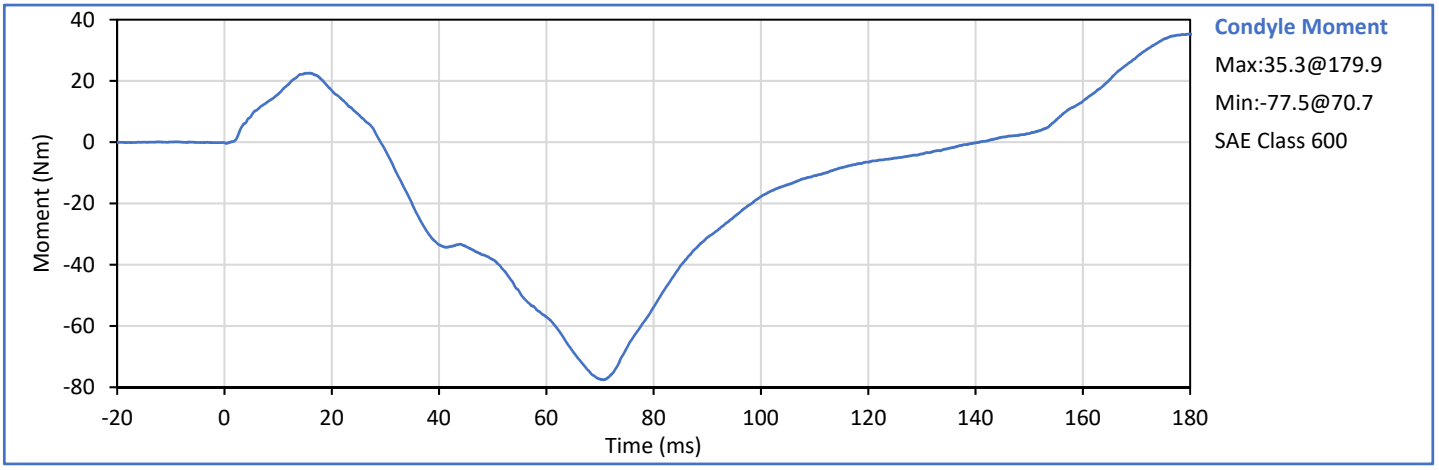


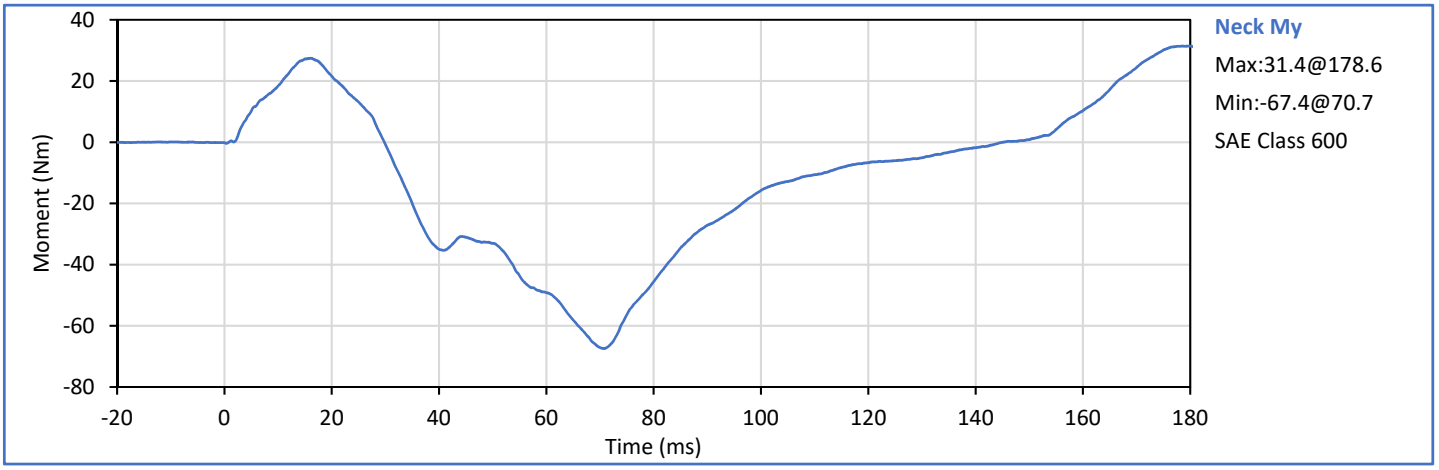
Technician: J. Hernandez

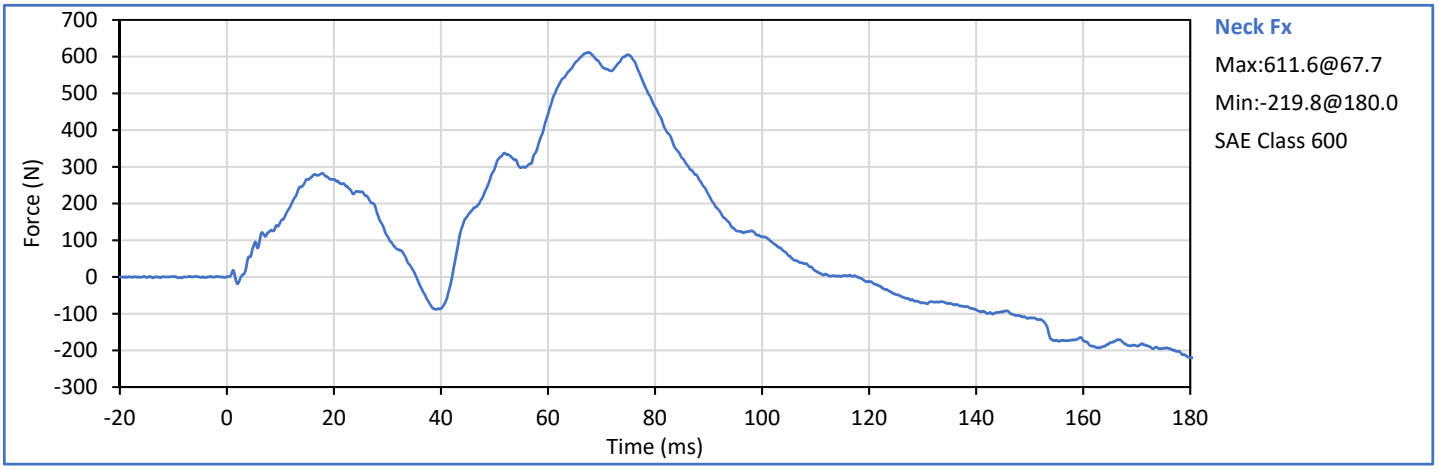
Approved By: P. Puzzuto

Hybrid III 50th Percentile Male ATD
Neck Extension Test

ATD Serial No.: 168 Test Date: 2020-09-29





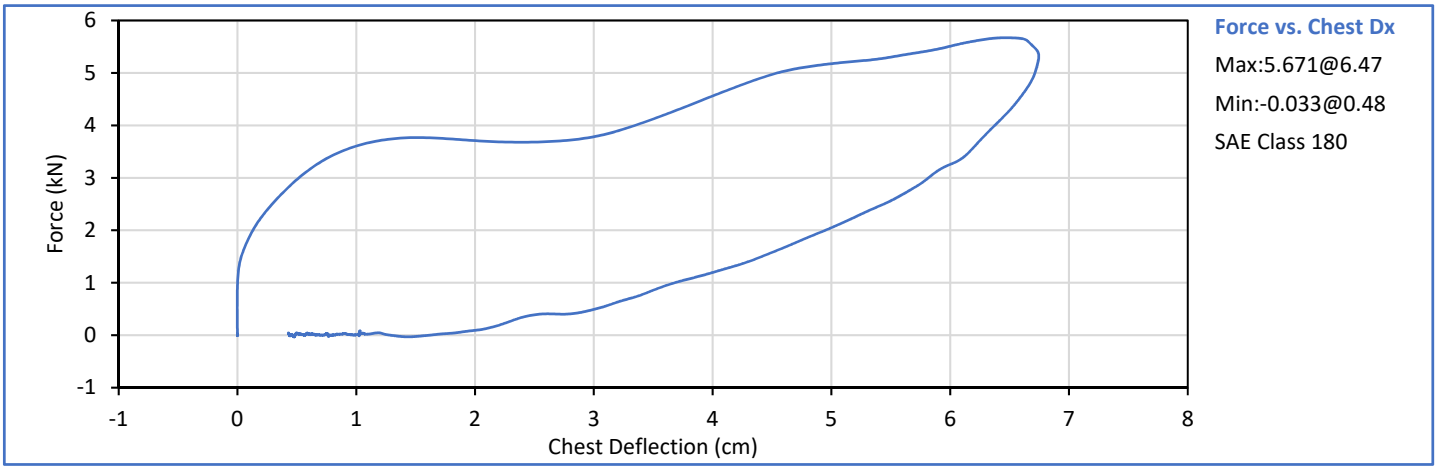


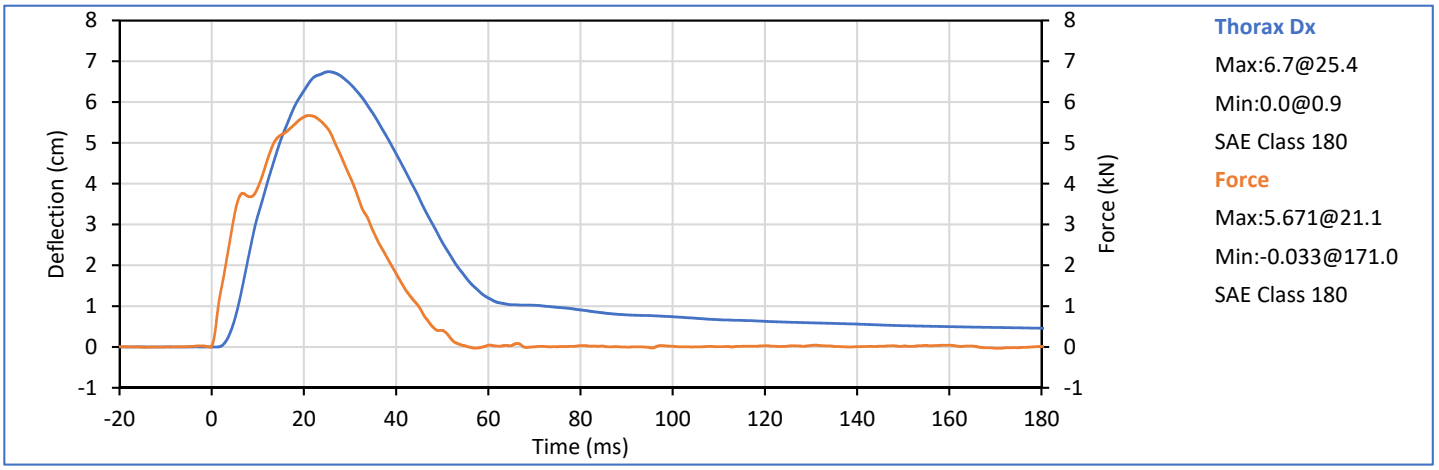
Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
Thorax Impact

ATD Serial No.: 168 Test Date: 2020-09-30

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	21	Pass
Probe Velocity	m/s	6.58	6.82	6.72	Pass
Peak Chest Deflection	cm	6.35	7.26	6.75	Pass
Peak Probe Force	kN	5.159	5.893	5.671	Pass
Internal Hysterisis	%	69.0	85.0	70.8	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto

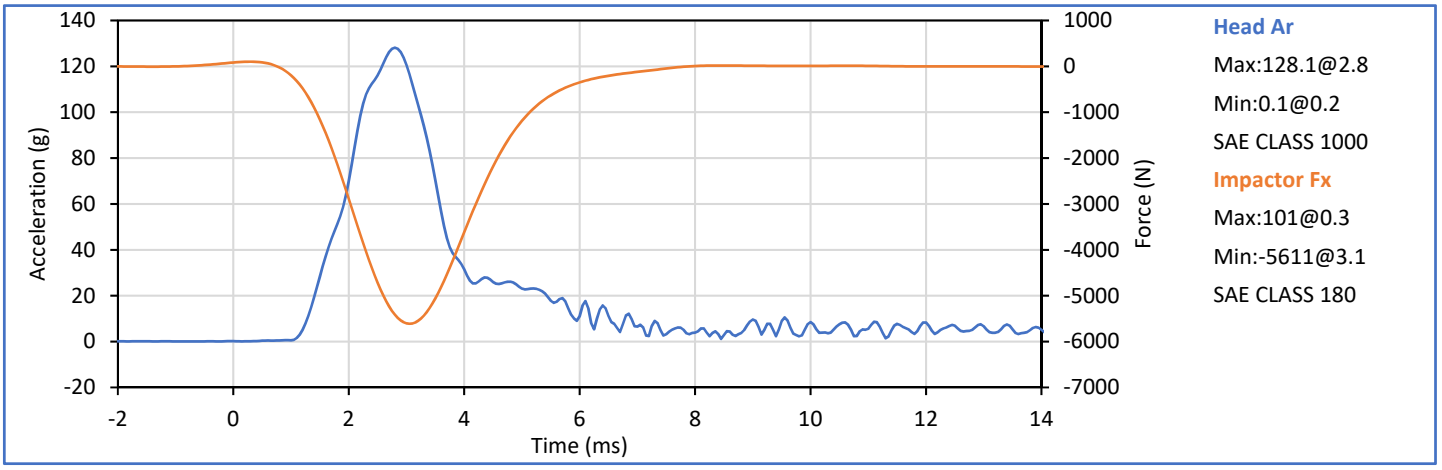
APPENDIX C
Post-Test ATD Configuration and Performance Verification Data
THOR-50M 50th Percentile Male ATD
S/N: EG2595

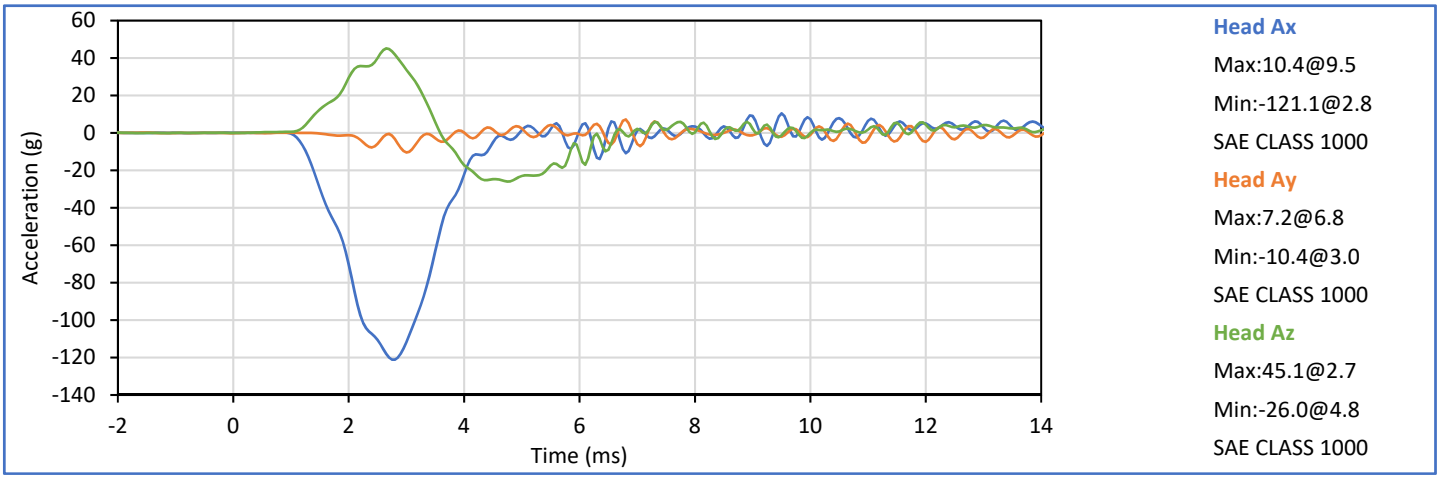
Applus IDIADA
KARCO

THOR-50M 50th Percentile Male ATD
Head Qualification

ATD Serial No.: EG2595 Test Date: 2020-10-14

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	28	Pass
Velocity	m/s	1.95	2.05	1.98	Pass
Peak Probe Force	kN	-6138	-5022	-5611	Pass
Peak Head Resultant Acceleration	g	105.3	128.7	128.1	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

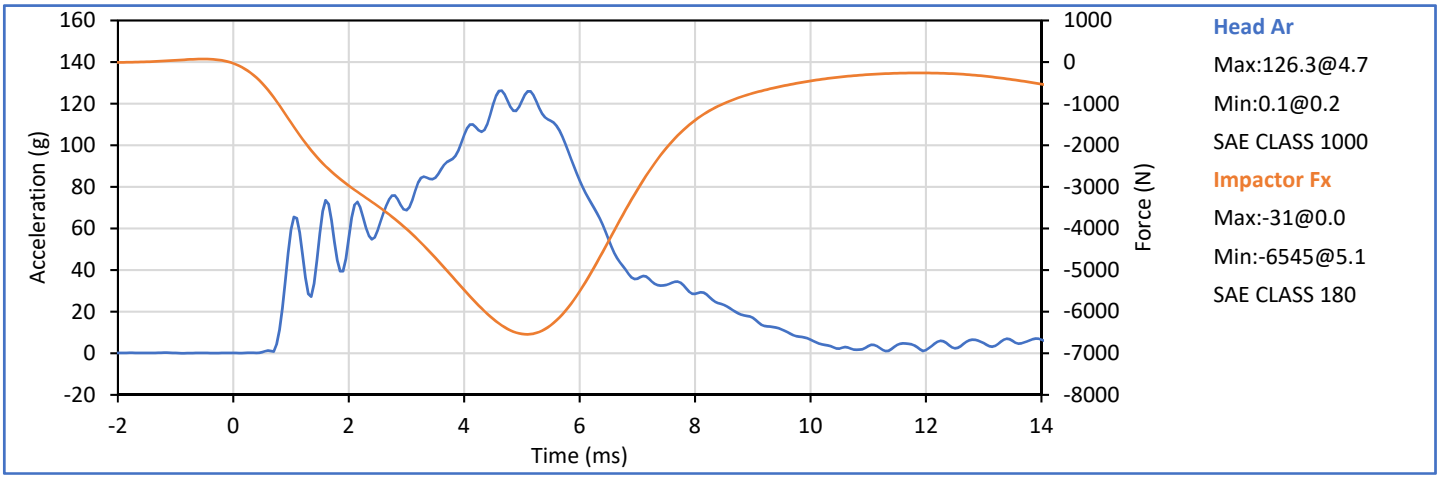
Approved By: P. Puzzuto

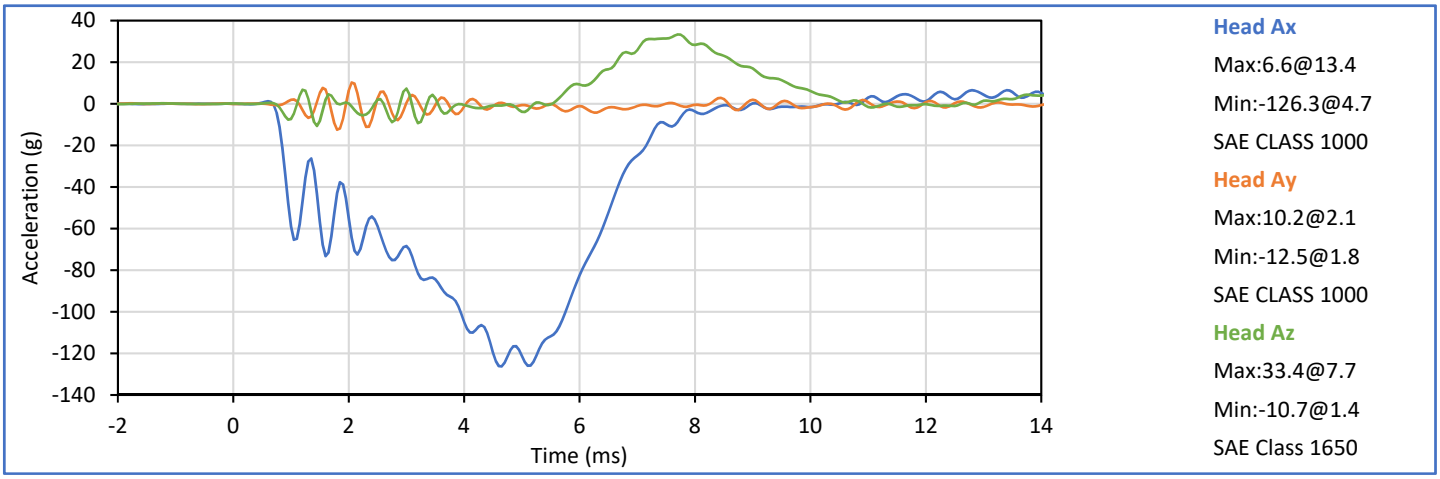
Applus IDIADA
KARCO

THOR-50M 50th Percentile Male ATD
Face Qualification

ATD Serial No.: EG2595 Test Date: 2020-10-26

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	26	Pass
Velocity	m/s	6.68	6.78	6.75	Pass
Peak Probe Force	kN	-7796	-6378	-6545	Pass
Peak Head Resultant Acceleration	g	124.0	152.0	126.3	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

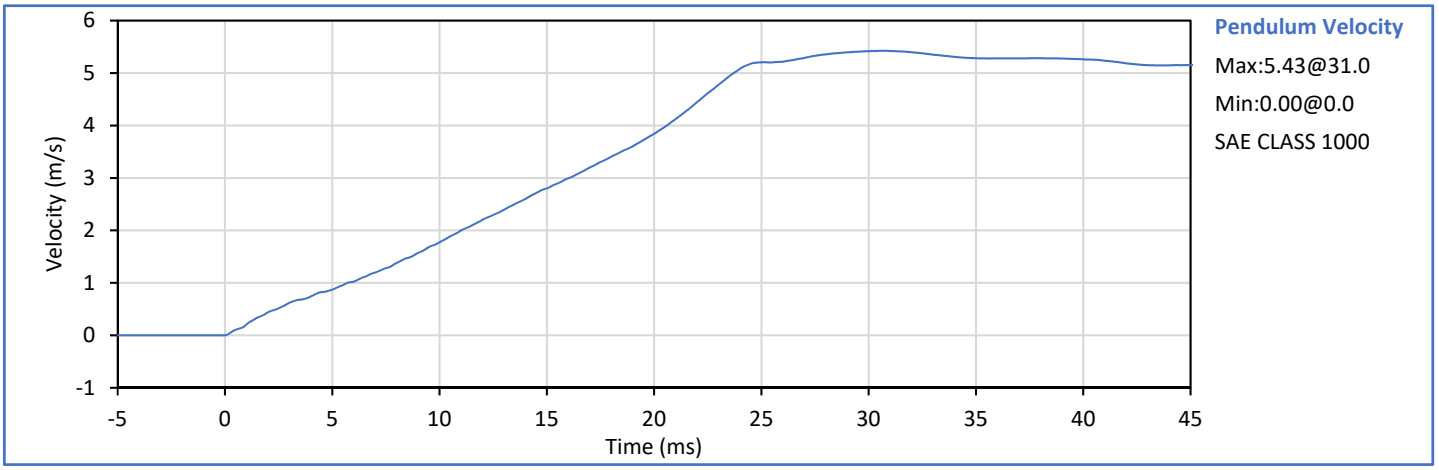
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Torsion (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-25

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	20.8	Pass
Laboratory Humidity	%	10	70	20	Pass
Pendulum Velocity	m/s	4.95	5.05	5.05	Pass
Pendulum Velocity at 10 ms	m/s	1.71	2.09	1.77	Pass
Pendulum Velocity at 15 ms	m/s	2.57	3.14	2.80	Pass
Pendulum Velocity at 20 ms	m/s	3.46	4.23	3.84	Pass
Pendulum Velocity at 25 ms	m/s	4.27	5.22	5.21	Pass
Peak Upper Neck Mz	Nm	37.3	45.6	43.9	Pass
Peak Head Wz	deg/s	1251	1529	1362	Pass
Peak Neck Fixture Rotation	deg	43.1	52.7	45.7	Pass
NHTSA 2019-05 Corridor			Overall Test Results		Pass



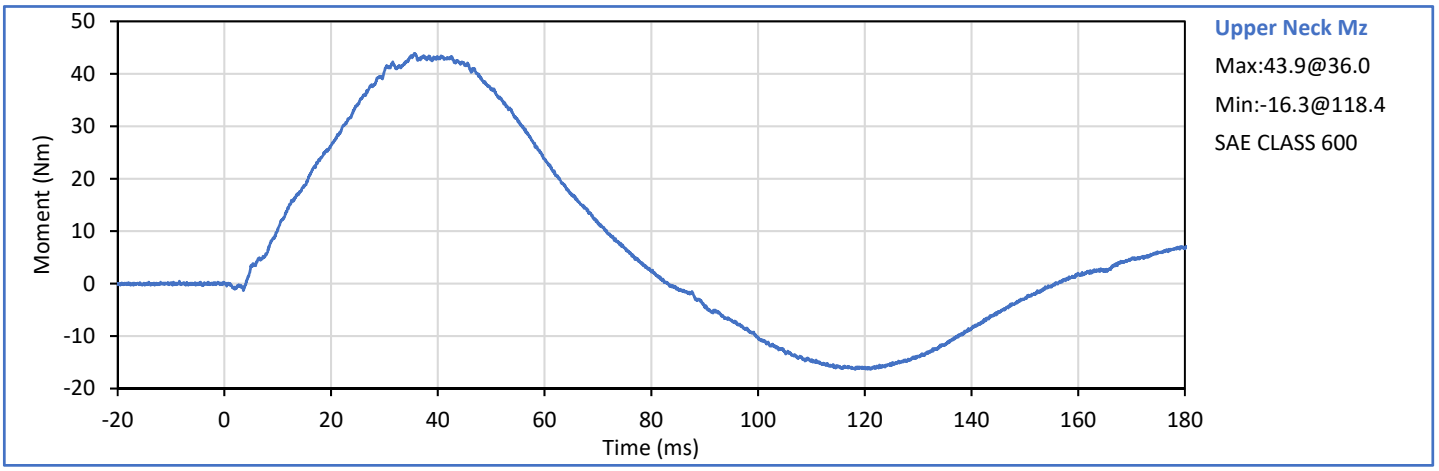
Technician: J. Hernandez

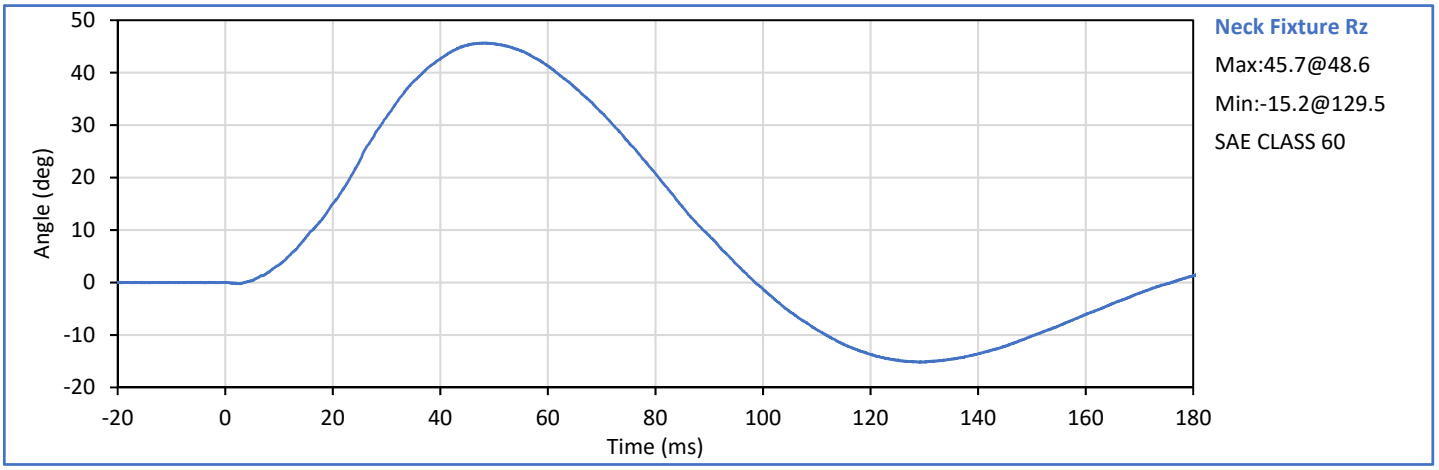
Approved By: P. Puzzuto

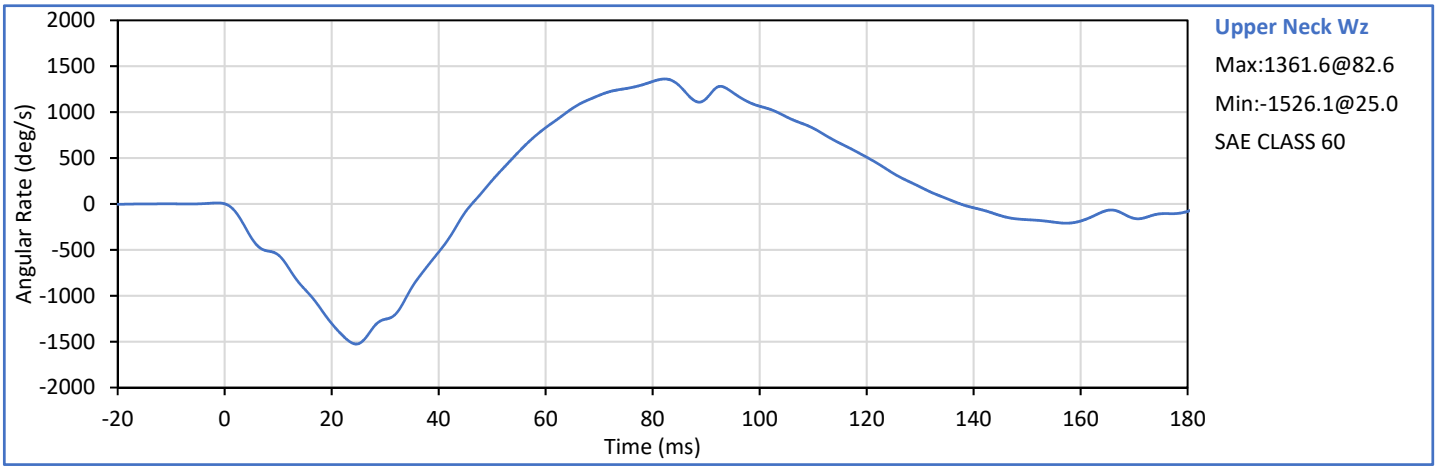
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Torsion (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-25







Technician: J. Hernandez

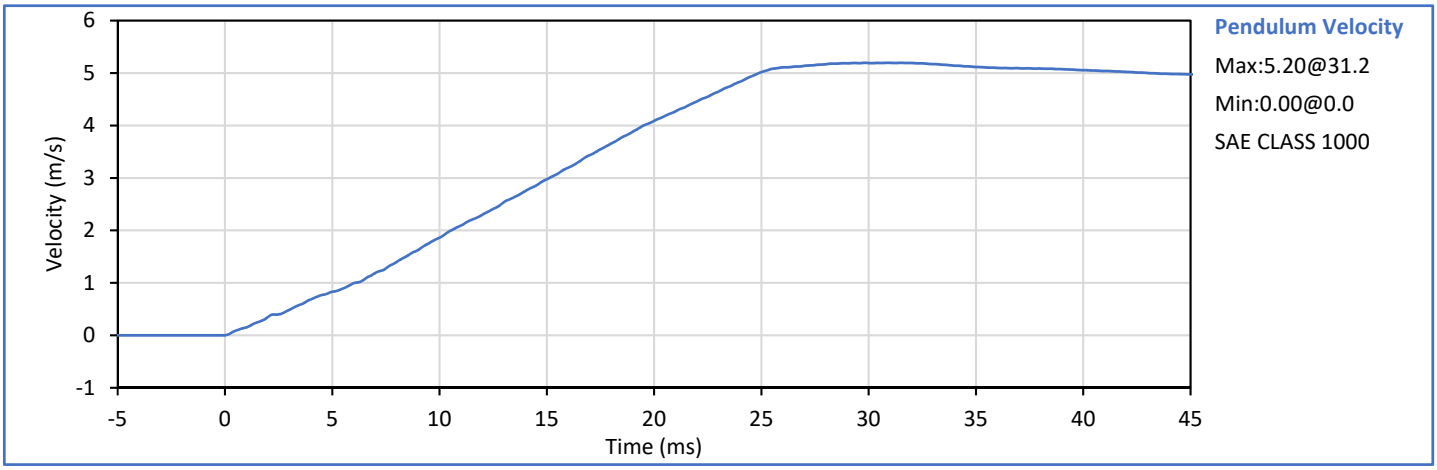
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Torsion (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-25

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	20.8	Pass
Laboratory Humidity	%	10	70	20	Pass
Pendulum Velocity	m/s	4.95	5.05	5.04	Pass
Pendulum Velocity at 10 ms	m/s	1.71	2.09	1.86	Pass
Pendulum Velocity at 15 ms	m/s	2.57	3.14	2.97	Pass
Pendulum Velocity at 20 ms	m/s	3.46	4.23	4.09	Pass
Pendulum Velocity at 25 ms	m/s	4.27	5.22	5.02	Pass
Peak Upper Neck Mz	Nm	-45.6	-37.3	-41.3	Pass
Peak Head Wz	deg/s	-1529	-1251	-1297	Pass
Peak Neck Fixture Rotation	deg	-52.7	-43.1	-49.0	Pass
NHTSA 2019-05 Corridor			Overall Test Results		Pass



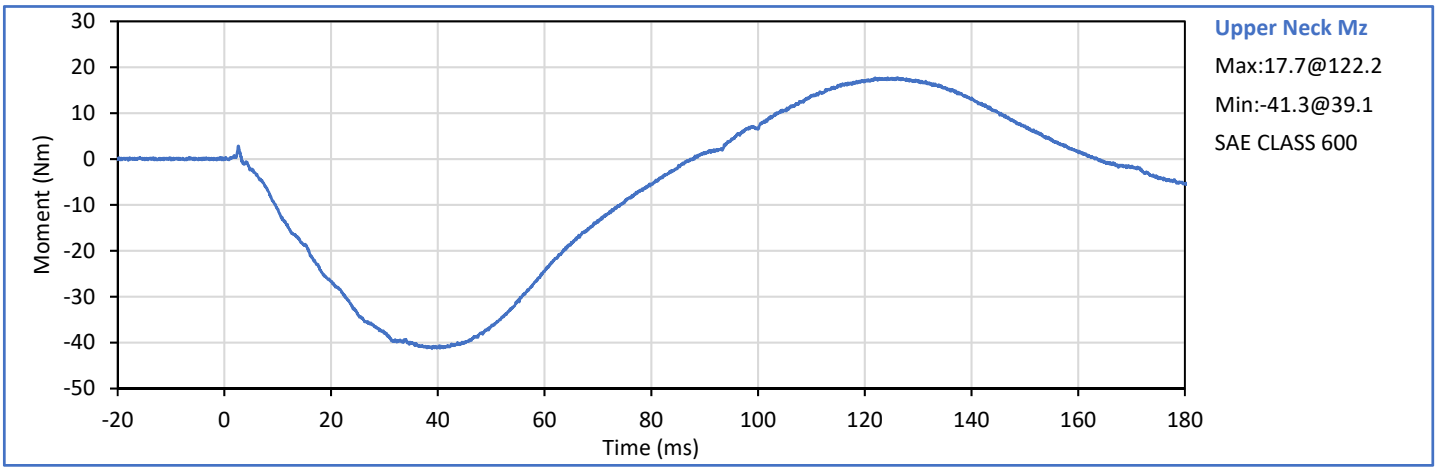
Technician: J. Hernandez

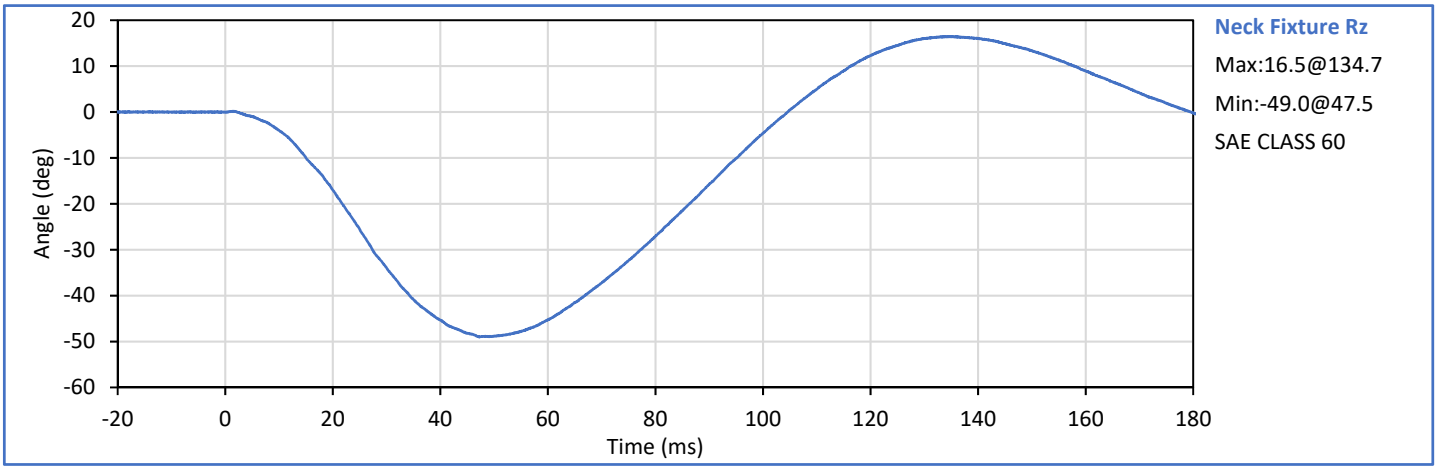
Approved By: P. Puzzuto

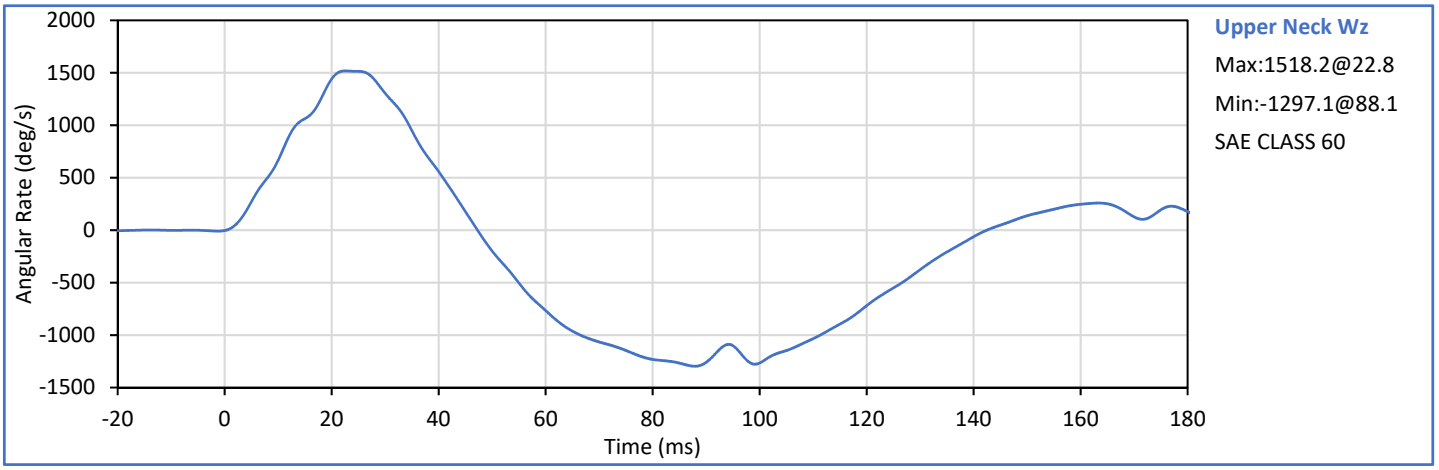
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Torsion (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-25







Technician: J. Hernandez

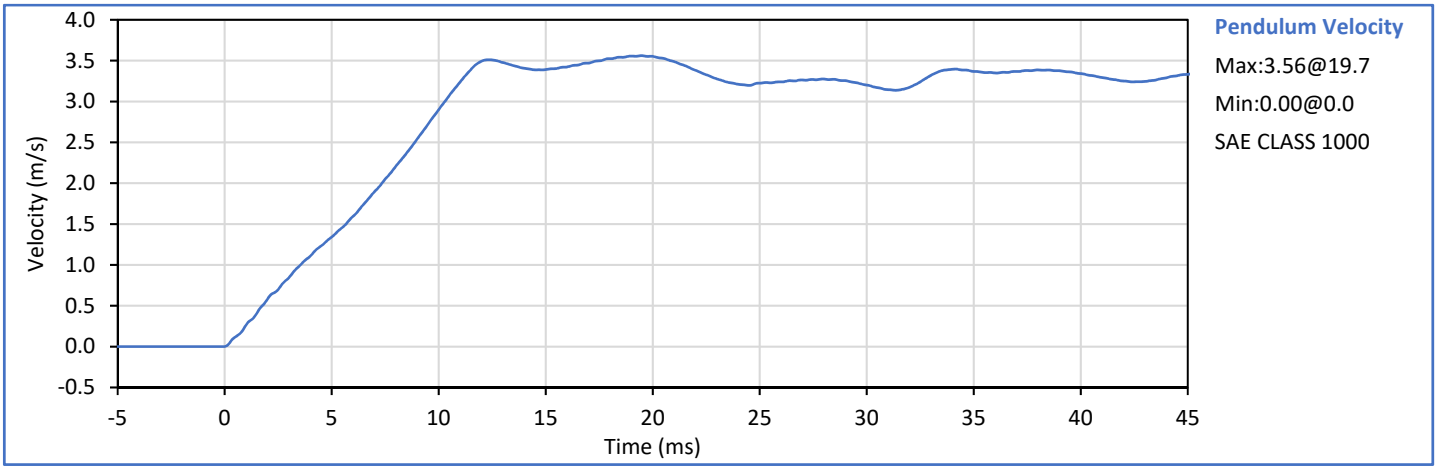
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Lateral Flexion (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-24

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Humidity	%	10	70	24	Pass
Pendulum Velocity	m/s	3.35	3.45	3.43	Pass
Pendulum Velocity at 4 ms	m/s	1.06	1.30	1.11	Pass
Pendulum Velocity at 8 ms	m/s	2.09	2.55	2.21	Pass
Pendulum Velocity at 12 ms	m/s	3.16	3.86	3.49	Pass
Peak Upper Neck Mx after 40 ms	Nm	44.8	54.7	51.3	Pass
Peak Head Wx	deg/s	-1498	-1226	-1306	Pass
Peak Head Relative Rotation	deg	-45.9	-37.6	-38.2	Pass
NHTSA 2019-05 Corridor			Overall Test Results		Pass



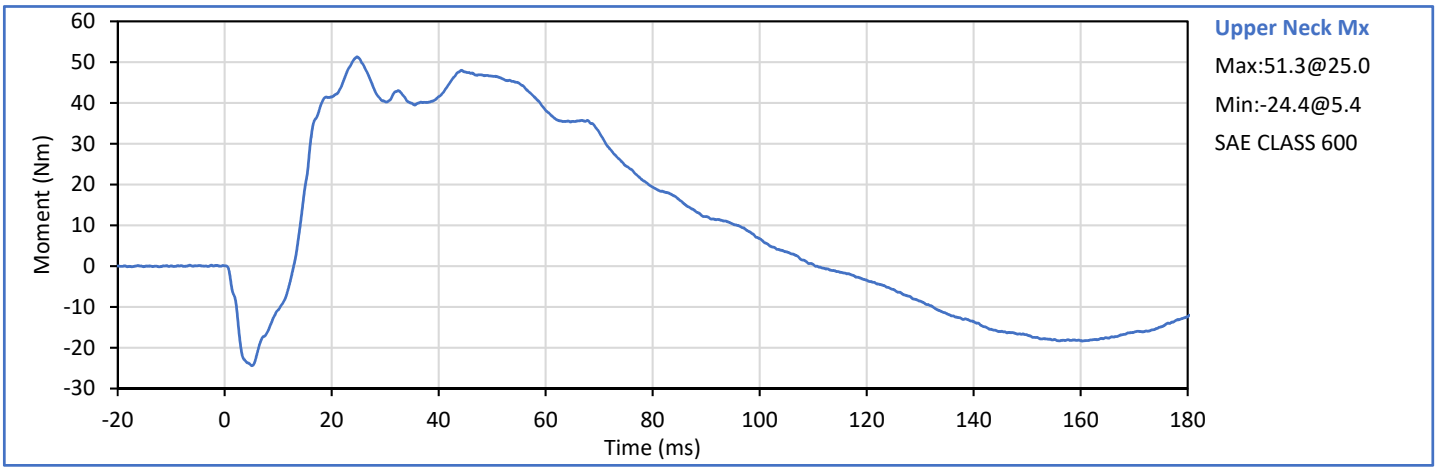
Technician: J. Hernandez

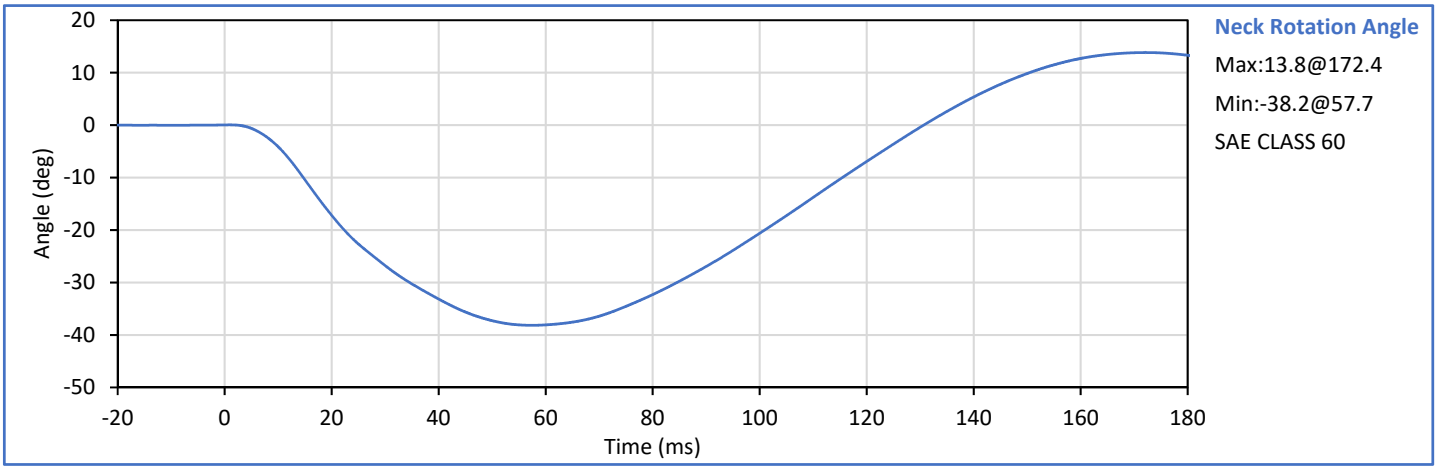
Approved By: P. Puzzuto

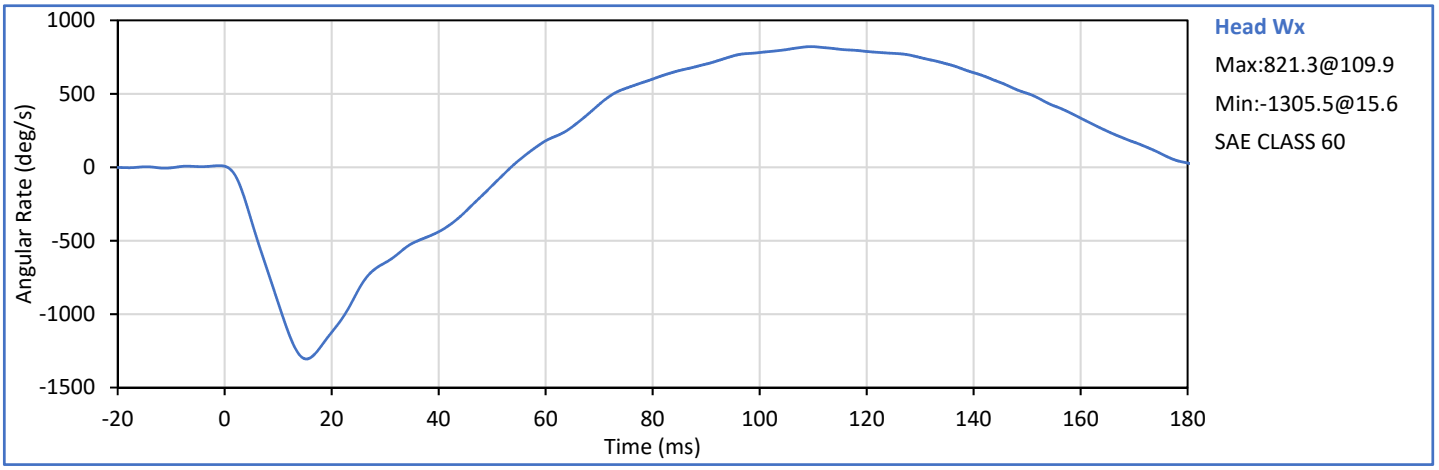
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Lateral Flexion (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-24







Technician: J. Hernandez

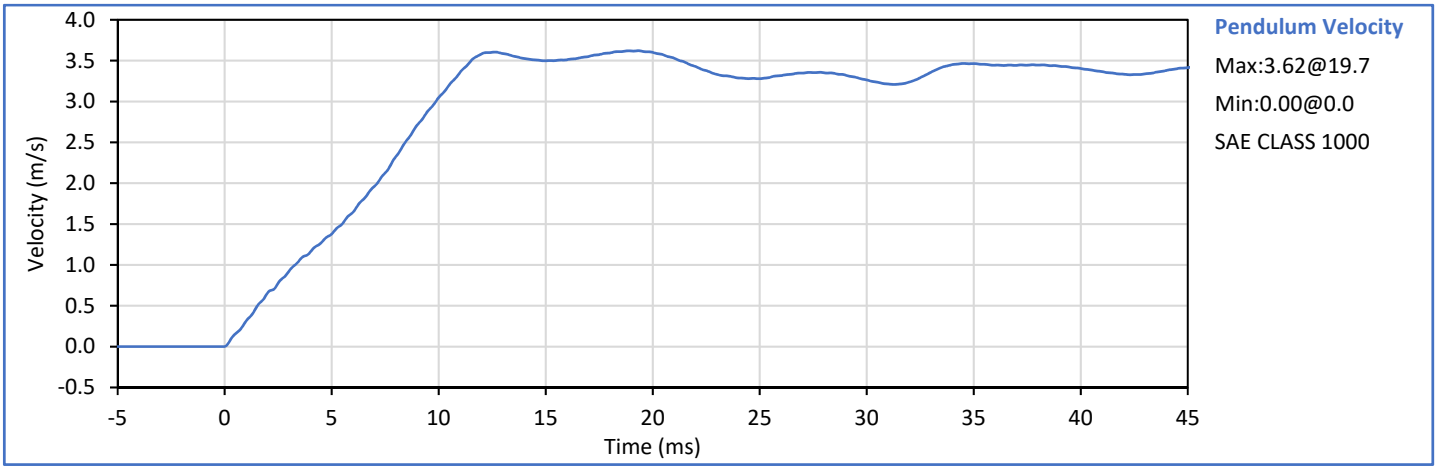
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Lateral Flexion (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-24

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.7	Pass
Laboratory Humidity	%	10	70	24	Pass
Pendulum Velocity	m/s	3.35	3.45	3.44	Pass
Pendulum Velocity at 4 ms	m/s	1.06	1.30	1.16	Pass
Pendulum Velocity at 8 ms	m/s	2.09	2.55	2.33	Pass
Pendulum Velocity at 12 ms	m/s	3.16	3.86	3.58	Pass
Peak Upper Neck Mx after 40 ms	Nm	-54.7	-44.8	-49.8	Pass
Peak Head Wx	deg/s	1226	1498	1355	Pass
Peak Head Relative Rotation	deg	37.6	45.9	40.7	Pass
NHTSA 2019-05 Corridor			Overall Test Results		Pass



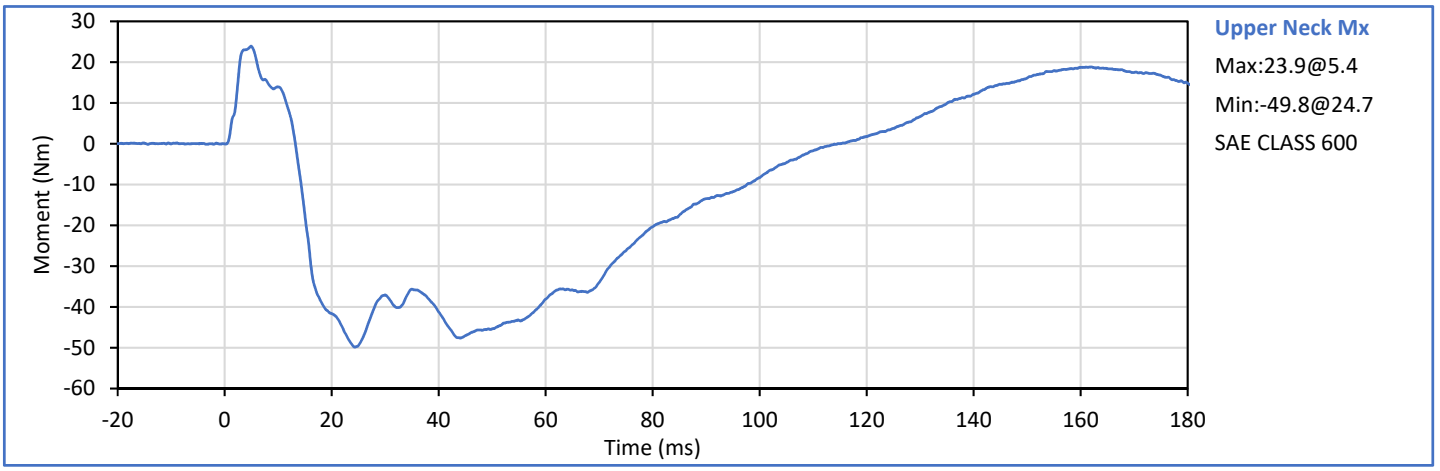
Technician: J. Hernandez

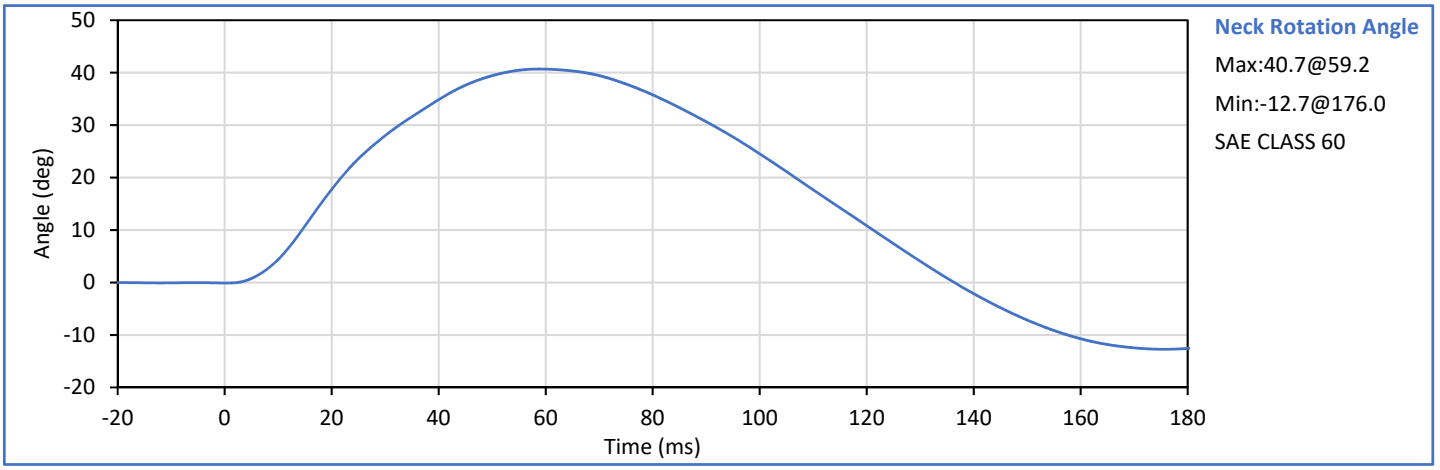
Approved By: P. Puzzuto

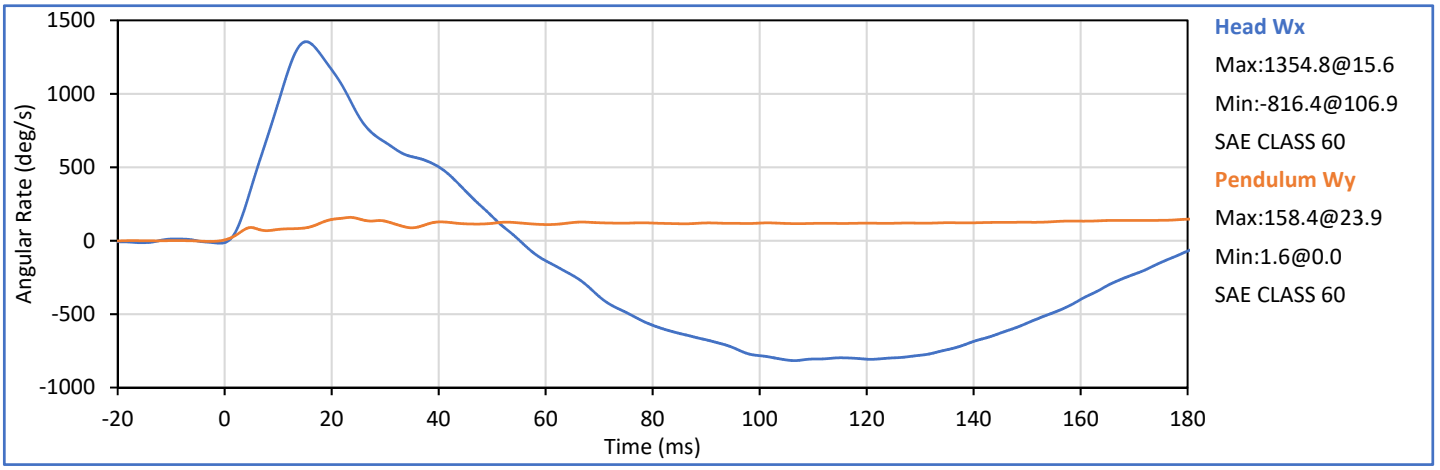
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Lateral Flexion (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-24







Technician: J. Hernandez

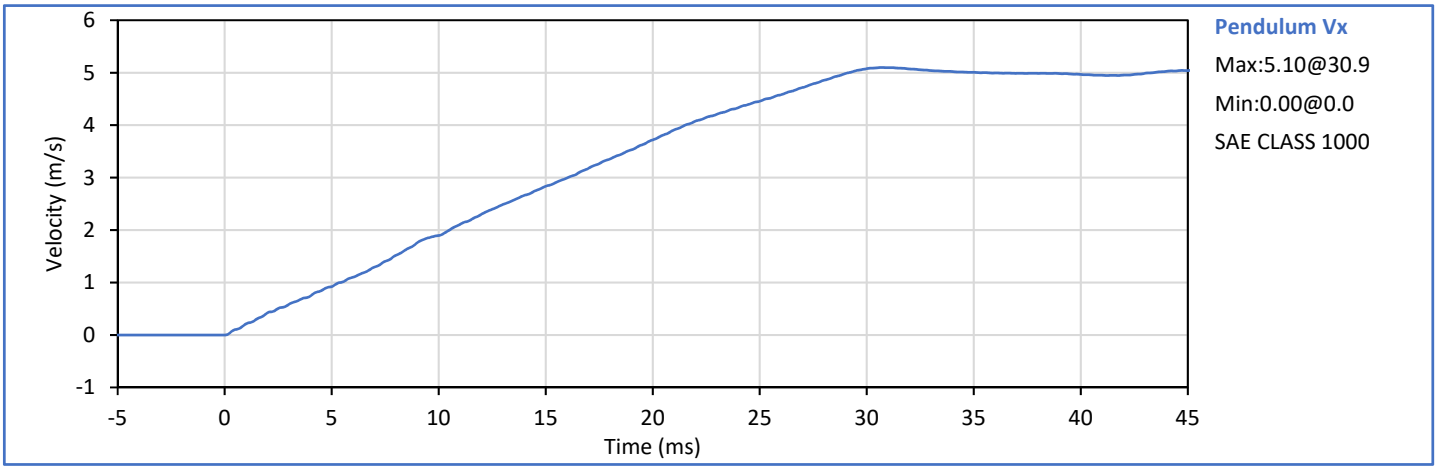
Approved By: P. Puzzuto

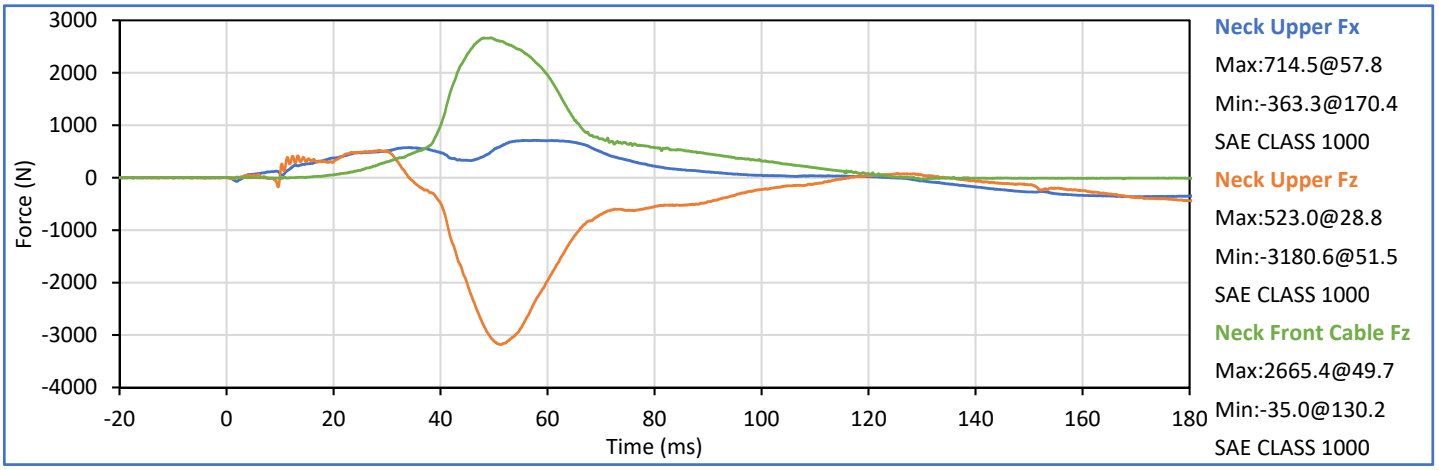
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Extension Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-24

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	4.95	5.05	5.01	Pass
Pendulum Velocity at 10 ms	m/s	1.74	2.12	1.90	Pass
Pendulum Velocity at 20 ms	m/s	3.30	4.04	3.73	Pass
Pendulum Velocity at 30 ms	m/s	4.53	5.54	5.08	Pass
Peak Upper Neck My	Nm	-25.3	-20.7	-24.4	Pass
Peak Upper Neck Fz	N	-3210	-2626	-3181	Pass
Peak Head Wy	deg/s	1855	2267	2207	Pass
Peak Head Relative Rotation	deg	58.5	71.5	62.9	Pass
NHTSA 2019-05 Corridor			Overall Test Results		Pass





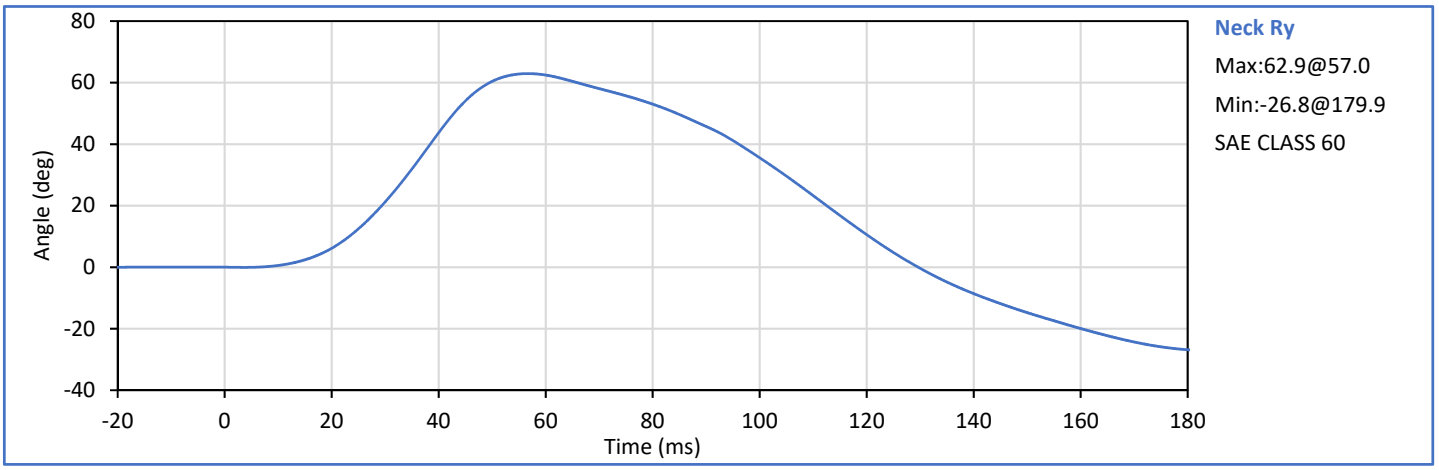
Technician: J. Hernandez

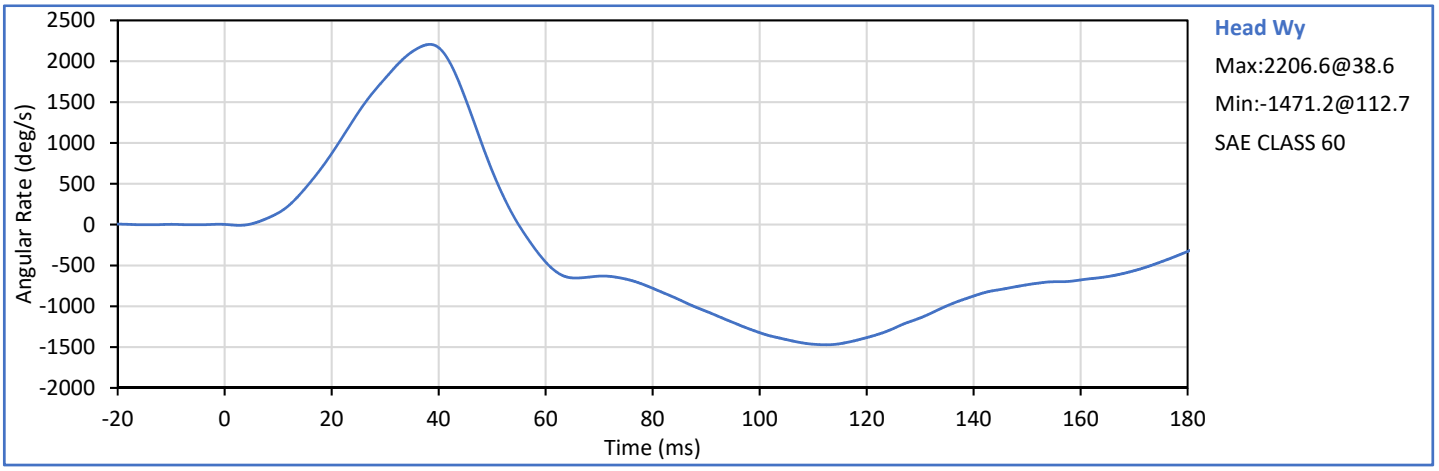
Approved By: P. Puzzuto

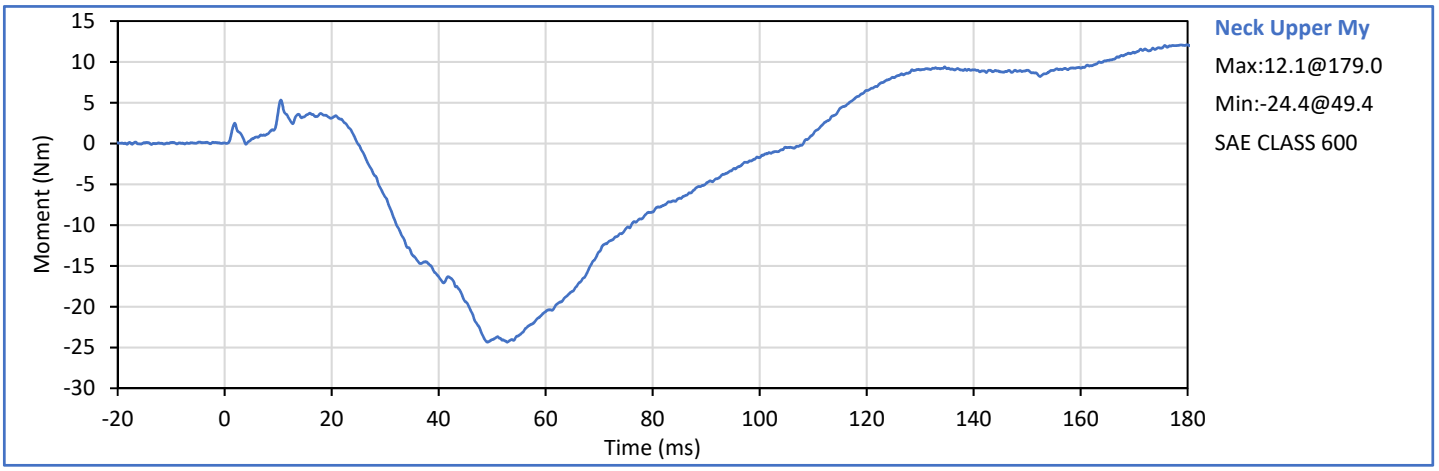
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Extension Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-24







Technician: J. Hernandez

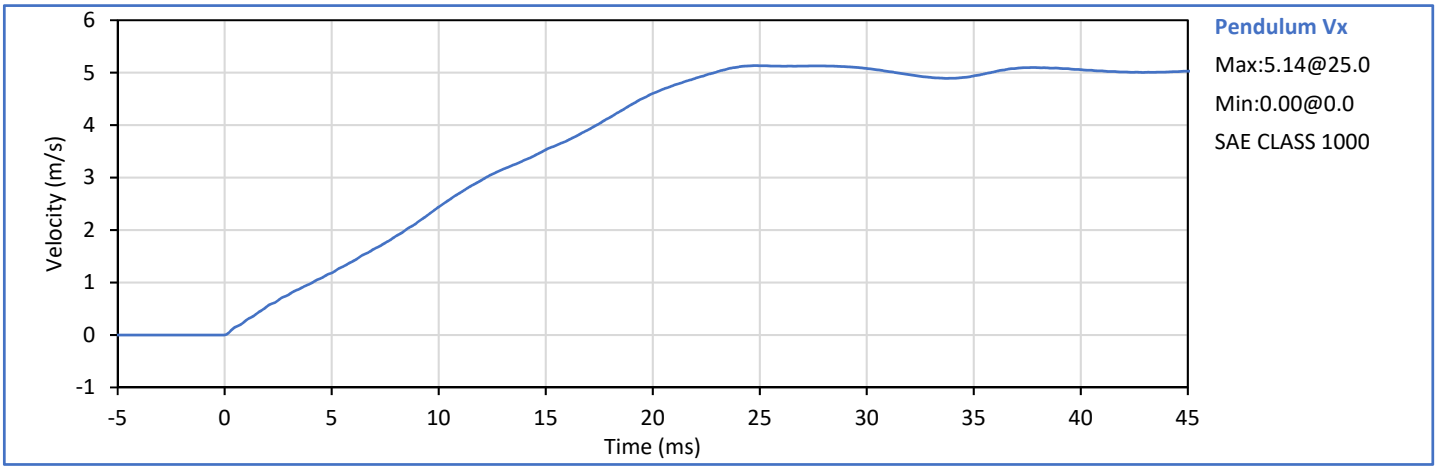
Approved By: P. Puzzuto

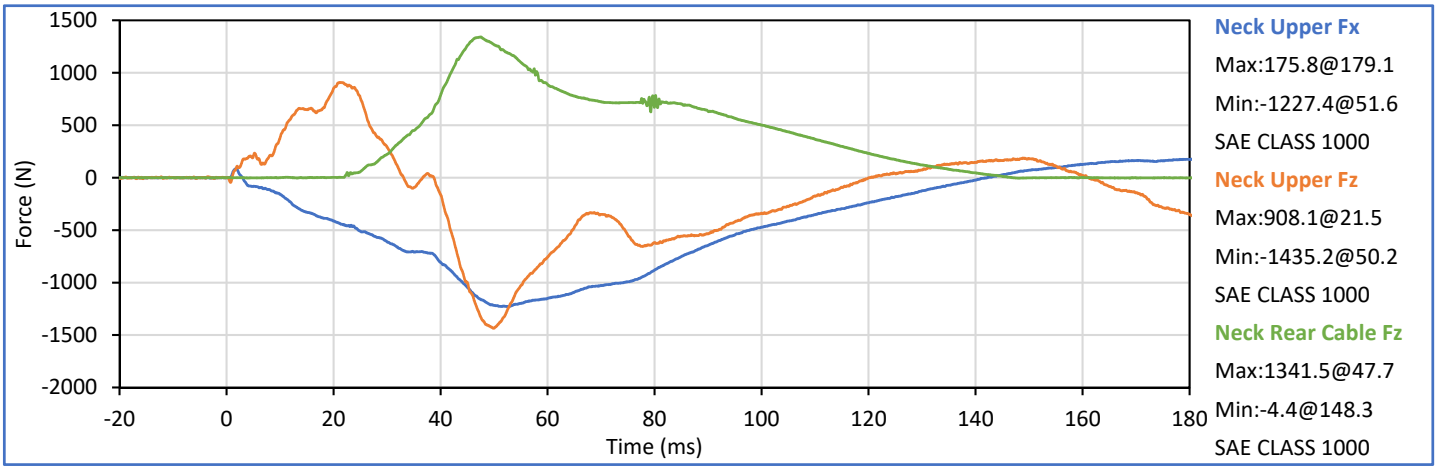
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Neck Flexion Front Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-24

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	22	Pass
Pendulum Velocity	m/s	4.95	5.05	5.01	Pass
Pendulum Velocity at 8 ms	m/s	1.57	1.92	1.88	Pass
Pendulum Velocity at 16 ms	m/s	3.13	3.82	3.70	Pass
Pendulum Velocity at 24 ms	m/s	4.42	5.41	5.11	Pass
Peak Upper Neck My	Nm	27.9	34.1	33.1	Pass
Peak Upper Neck Fz (before 40 ms)	N	774	946	908	Pass
Peak Head Wy	deg/s	-2172	-1777	-2087	Pass
Peak Head Relative Rotation	deg	-71.0	-58.1	-63.1	Pass
NHTSA 2019-05 Corridor			Overall Test Results		Pass





Technician: J. Hernandez

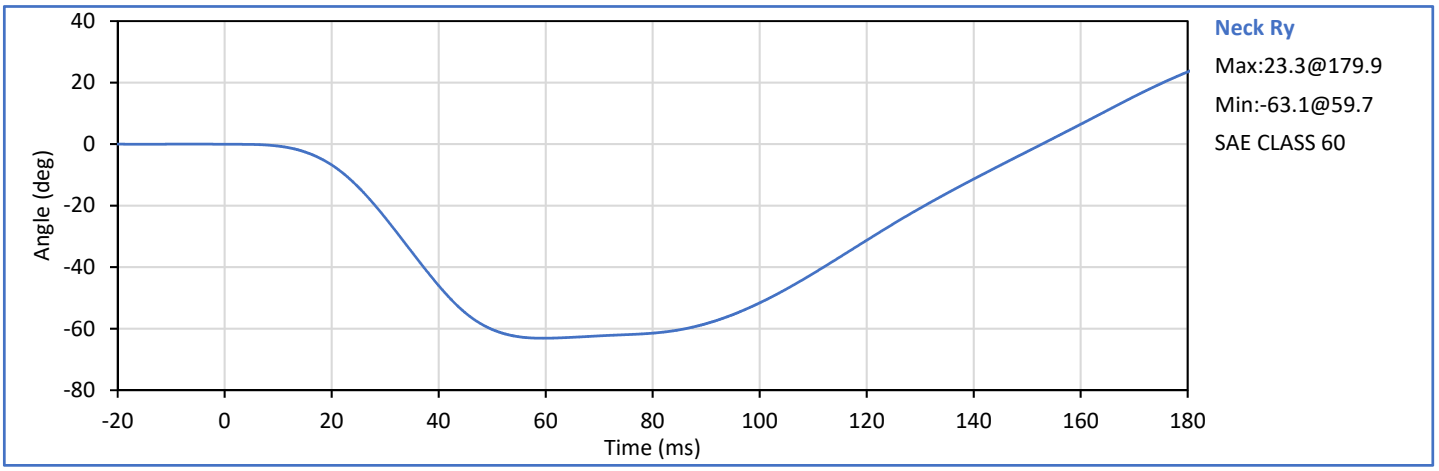
Approved By: P. Puzzuto

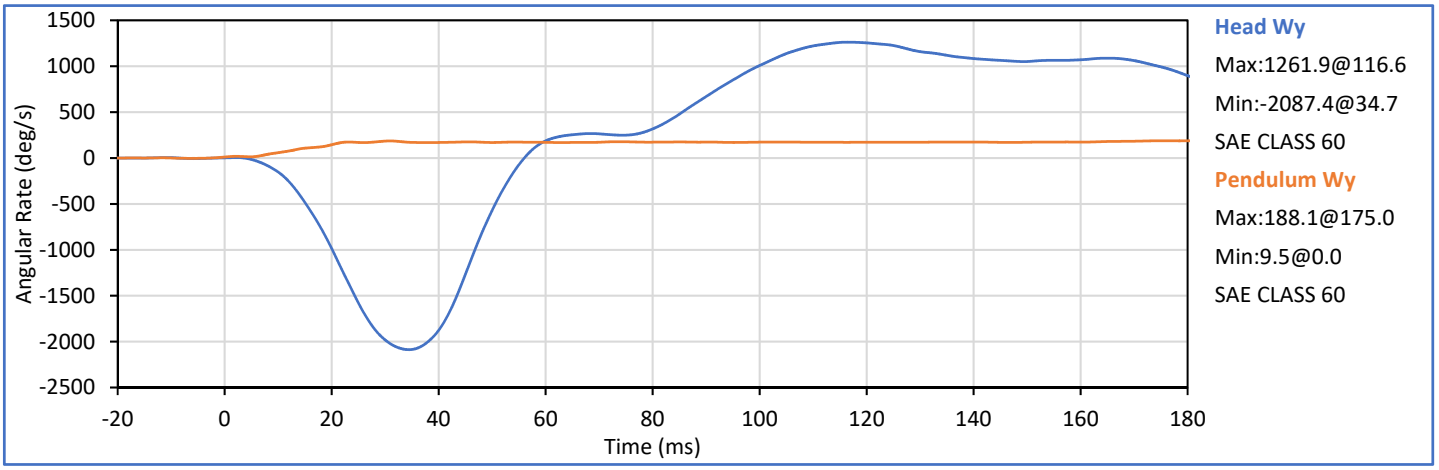
Applus IDIADA KARCO

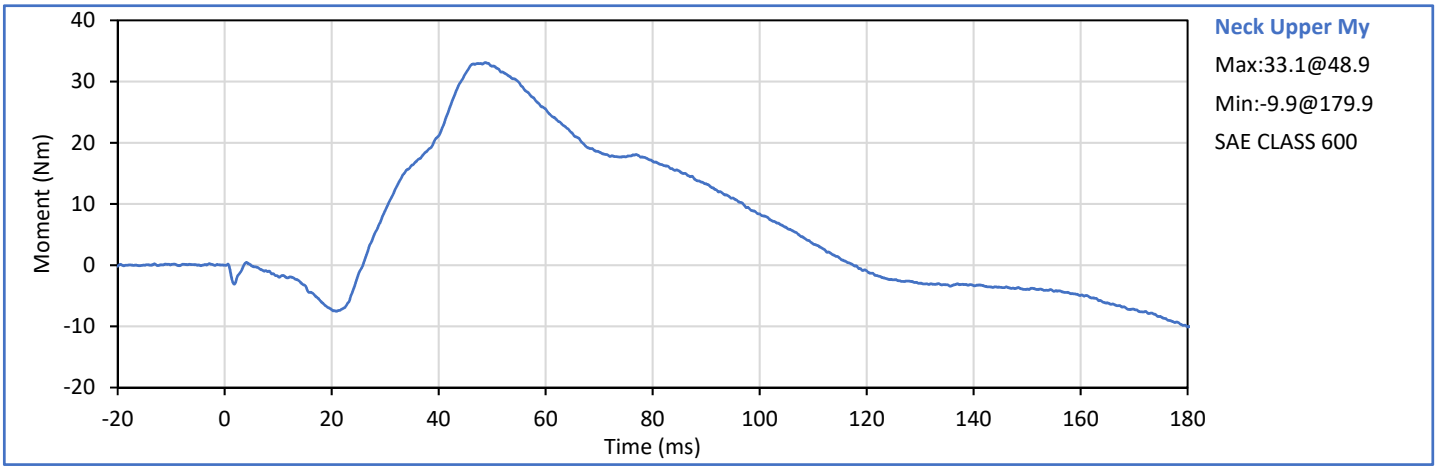
THOR-50M 50th Percentile Male ATD
Neck Flexion Front Qualification

ATD Serial No.: EG2595

Test Date: 2020-11-24







Technician: J. Hernandez

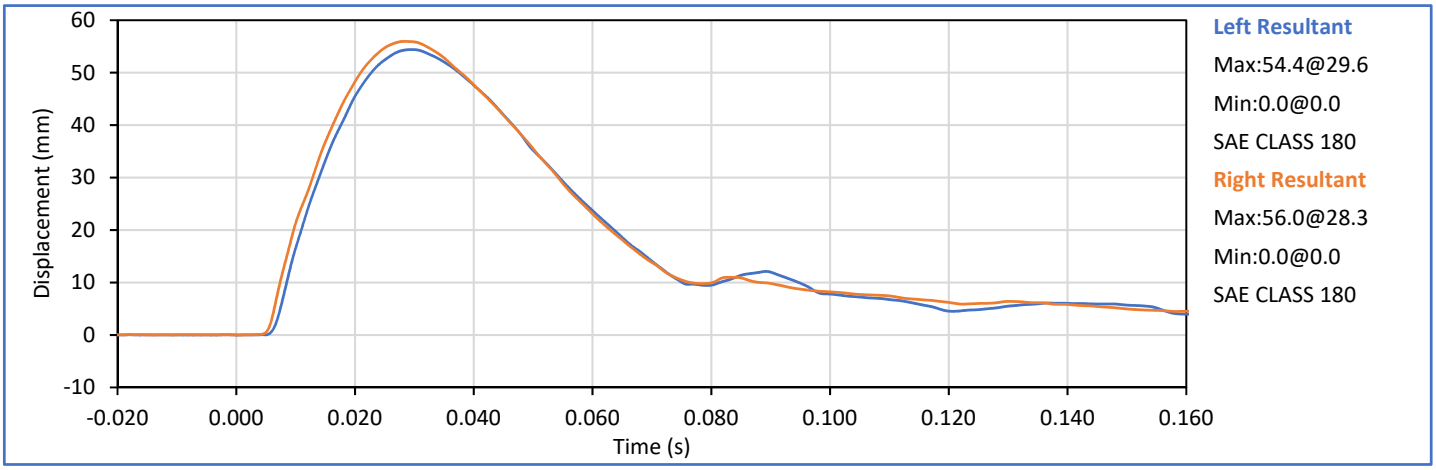
Approved By: P. Puzzuto

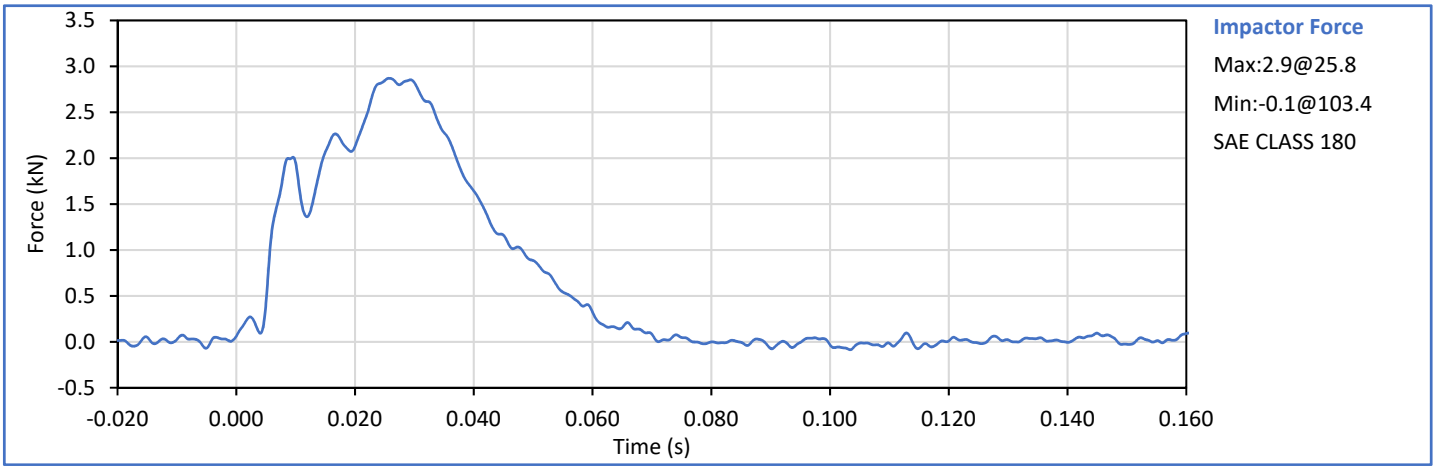
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Thorax Impact (Upper)

ATD Serial No.: EG2595 Test Date: 2020-10-14

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	27	Pass
Probe Velocity	m/sec	4.25	4.35	4.33	Pass
Peak Probe Force	kN		3.039	2.870	Pass
Peak Upper Left Deflection Resultant	mm	48.3	59.0	54.4	Pass
Peak Upper Right Deflection Resultar	mm			56.0	Pass
Absolute Difference L/R Dx Resultant	mm	0.0	5.0	1.6	Pass
Force at Peak Upper Left Resultant	mm	2.409	2.944	2.851	Pass
Force at Peak Upper Right Resultant	mm			2.834	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

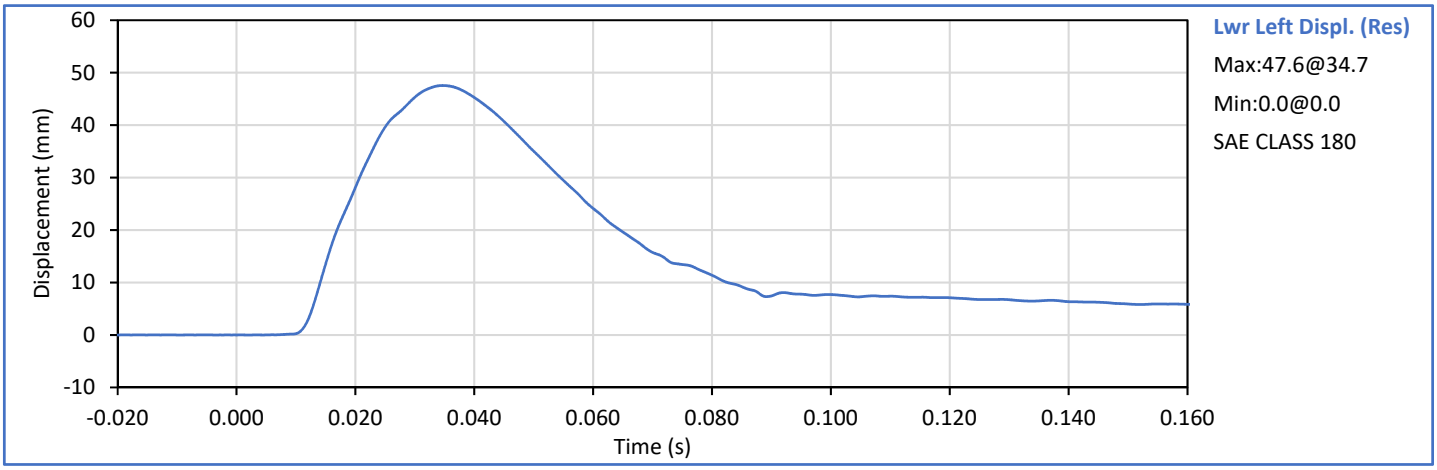
Approved By: P. Puzzuto

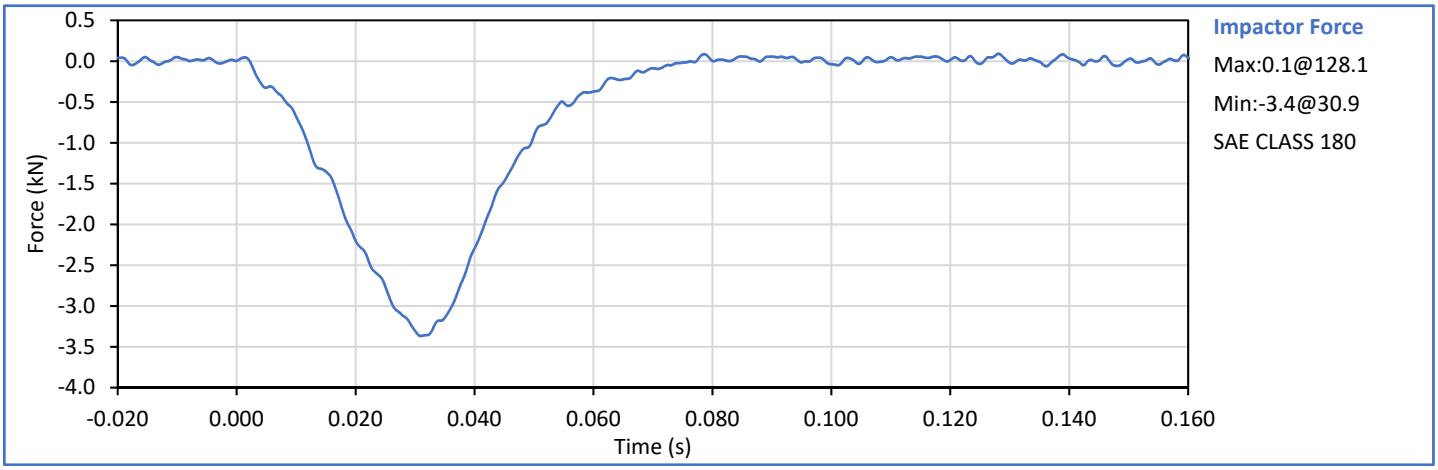
Applus IDIADA
KARCO

THOR-50M 50th Percentile Male ATD
Thorax Impact (Lower Left)

ATD Serial No.: EG2595 Test Date: 2020-10-14

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	36	Pass
Probe Velocity	m/sec	4.25	4.35	4.34	Pass
Peak Probe Force	kN	-3.832	-3.136	-3.368	Pass
Lower Left Resultant Dx at Peak Fx	mm	45.8	56.0	46.2	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

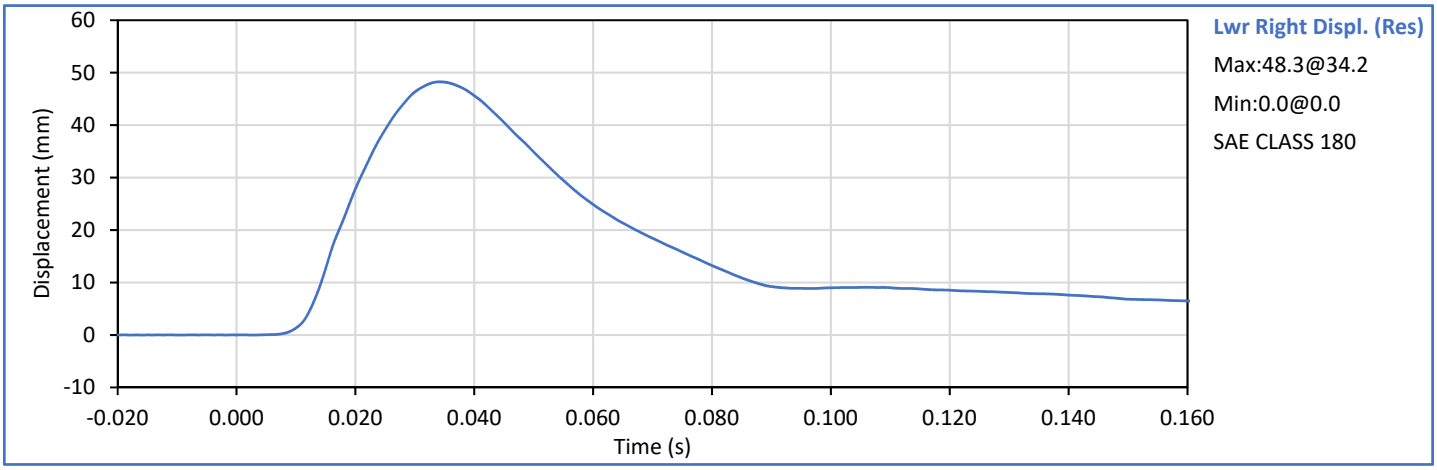
Approved By: P. Puzzuto

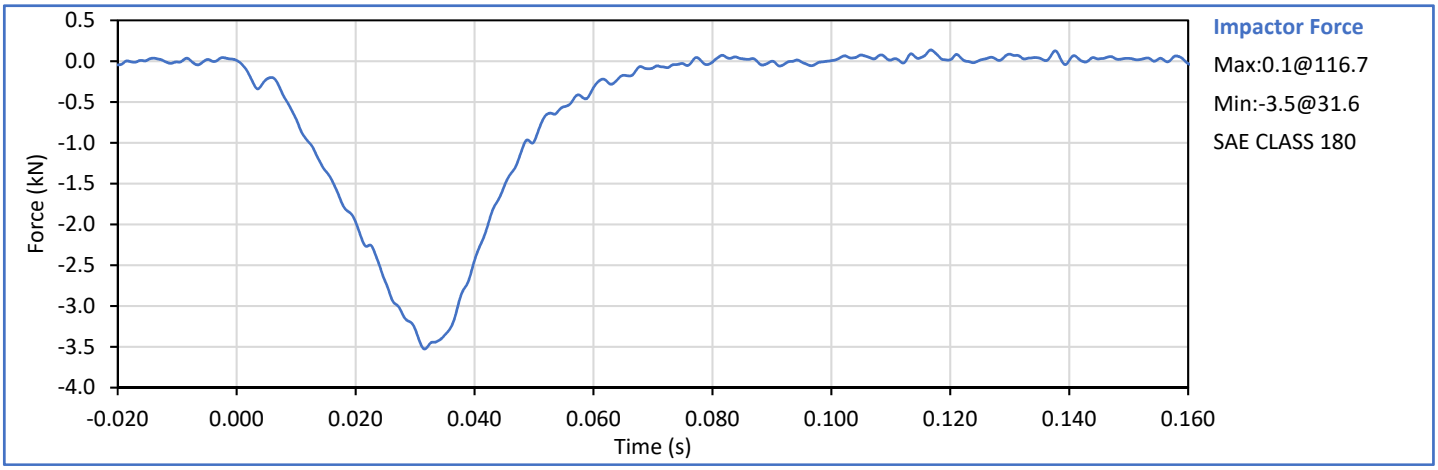
Applus IDIADA
KARCO

THOR-50M 50th Percentile Male ATD
Thorax Impact (Lower Right)

ATD Serial No.: EG2595 Test Date: 2020-10-14

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	26	Pass
Probe Velocity	m/sec	4.25	4.35	4.33	Pass
Peak Probe Force	kN	-3.832	-3.136	-3.526	Pass
Lower Right Resultant Dx at Peak Fx	mm	45.8	56.0	47.5	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

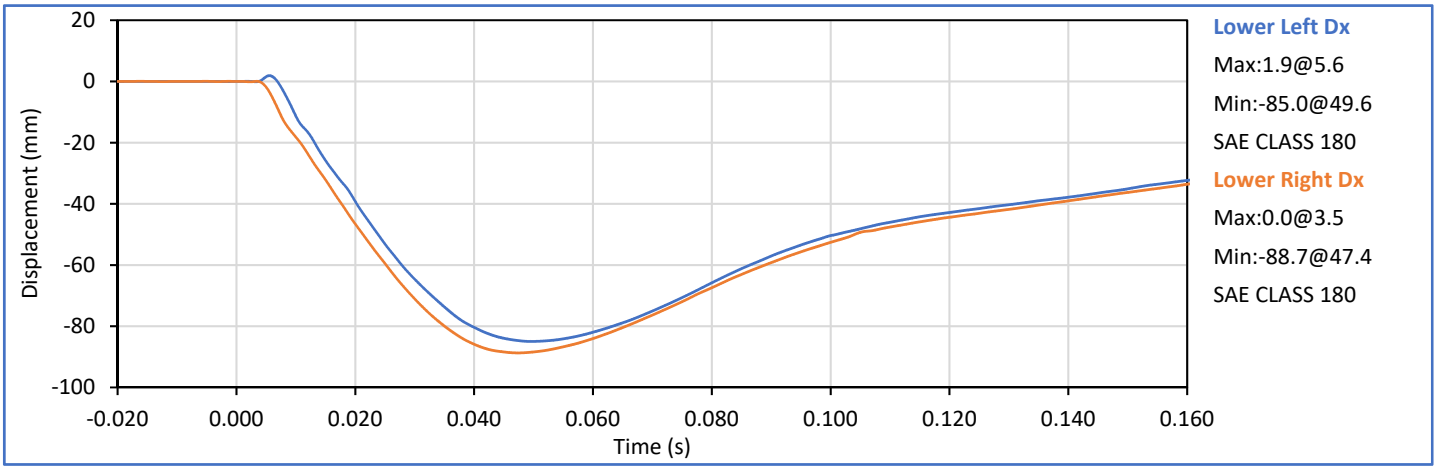
Approved By: P. Puzzuto

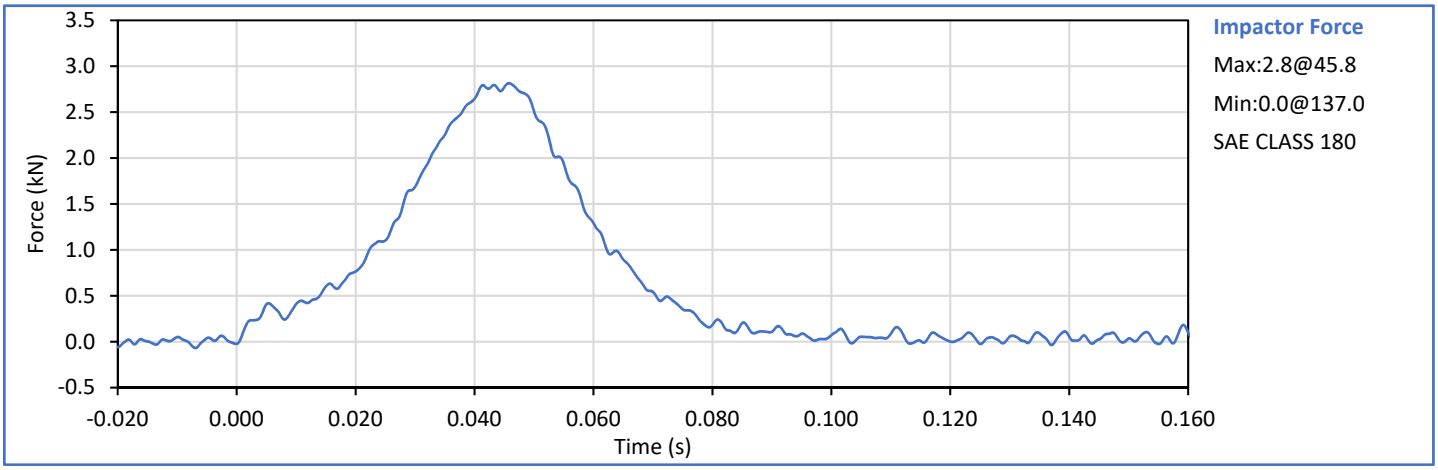
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Abdomen Qualificaion

ATD Serial No.: EG2595 Test Date: 2020-10-15

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	27	Pass
Probe Velocity	m/sec	3.25	3.35	3.34	Pass
Peak Probe Force	kN	2.626	3.210	2.815	Pass
Lower Left Dx at Time of Peak Force	mm	-91.3	-74.7	-84.2	Pass
Lower Right Dx at Time of Peak Force	mm			-88.6	Pass
Absolute Difference of Left/Right Dx	mm	0.0	8.0	4.3	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

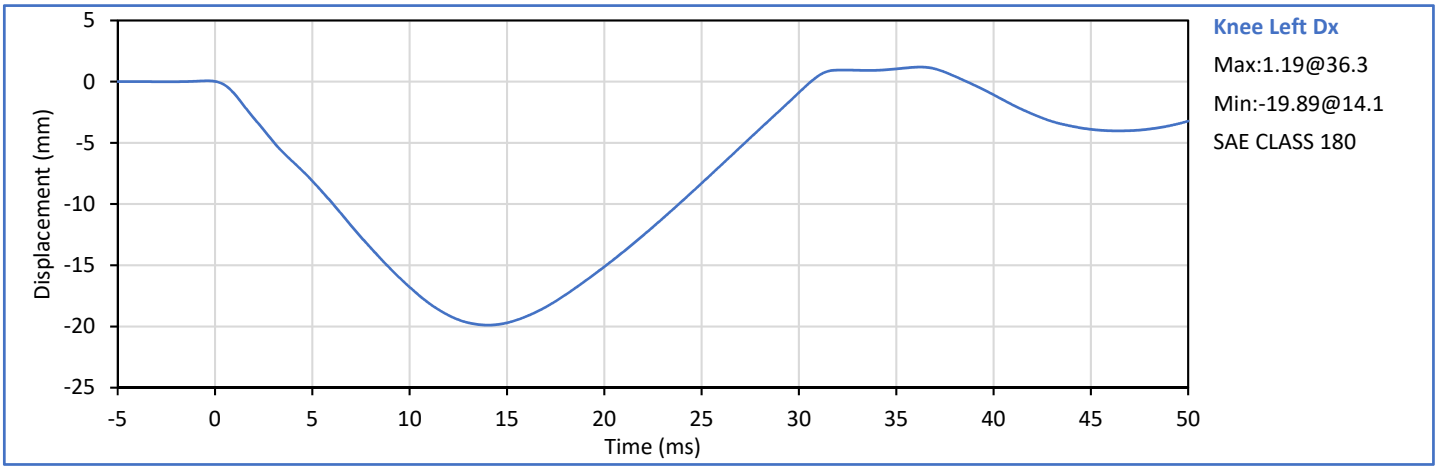
Approved By: P. Puzzuto

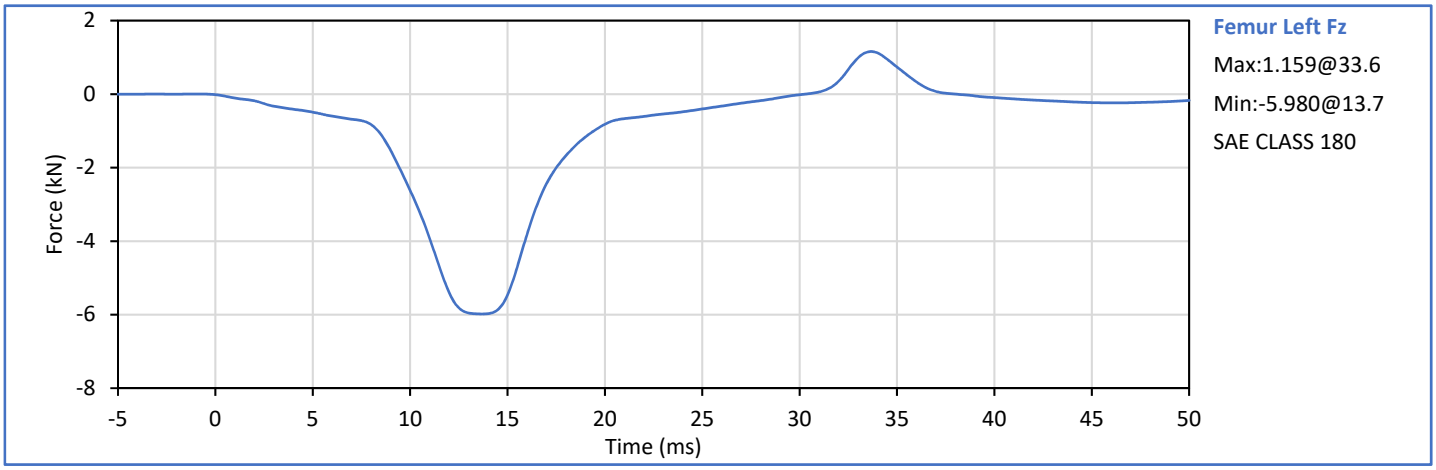
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Knee (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-18

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.0	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Pendulum Velocity	m/s	2.15	2.25	2.22	Pass
Peak Femur Fz	kN	-7.156	-5.855	-5.980	Pass
Knee Dx at Peak Femur Fz	mm	-22.20	-18.20	-19.85	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

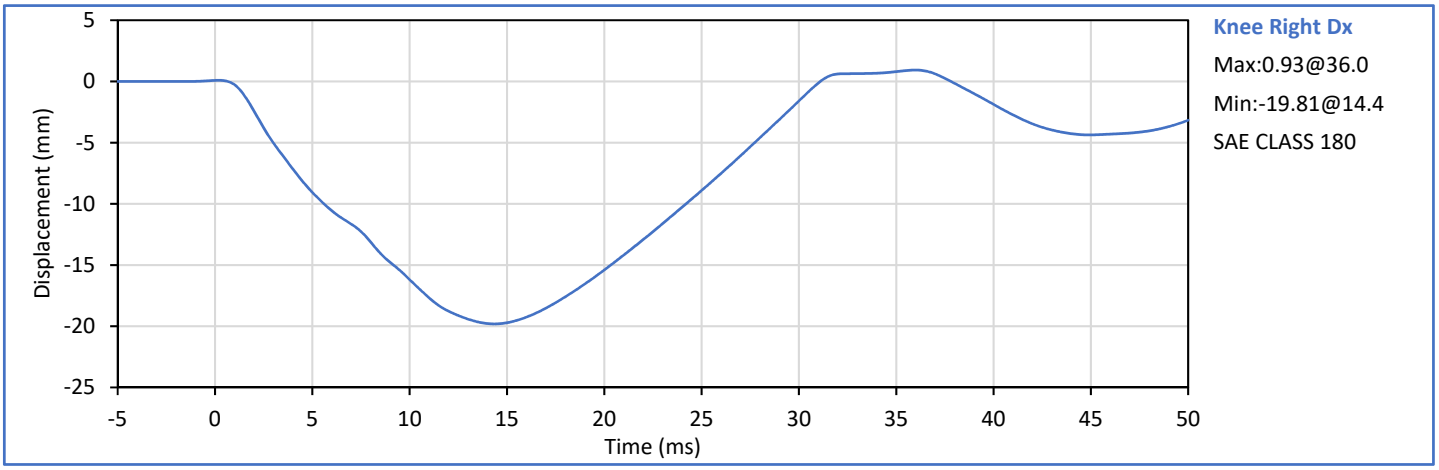
Approved By: P. Puzzuto

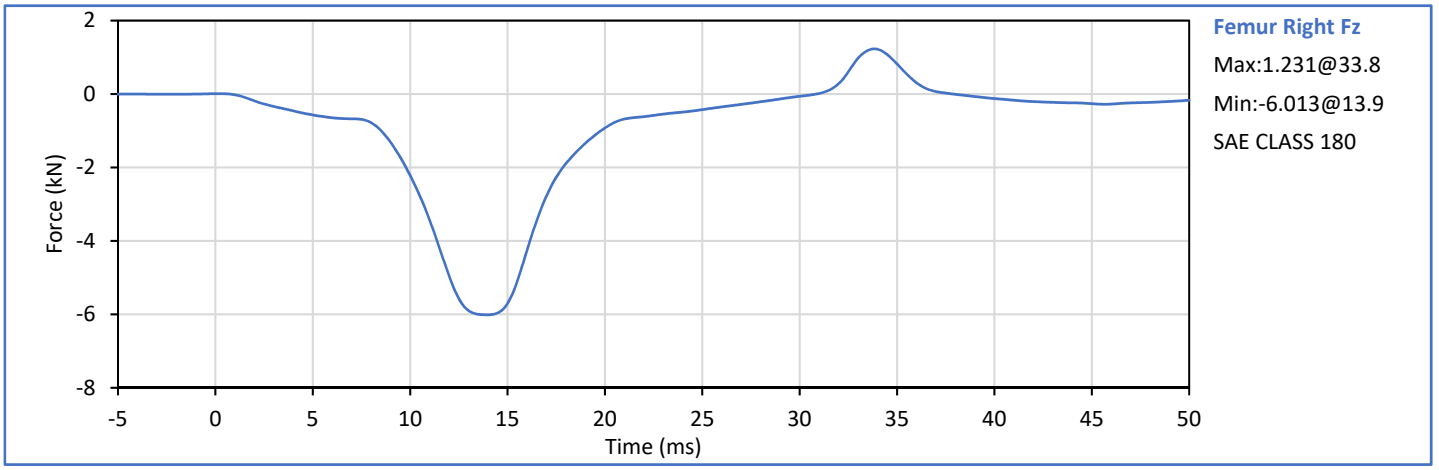
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Knee (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-18

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	36	Pass
Pendulum Velocity	m/s	2.15	2.25	2.22	Pass
Peak Femur Fz	kN	-7.156	-5.855	-6.013	Pass
Knee Dx at Peak Femur Fz	mm	-22.20	-18.20	-19.73	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass





Technician: J. Hernandez

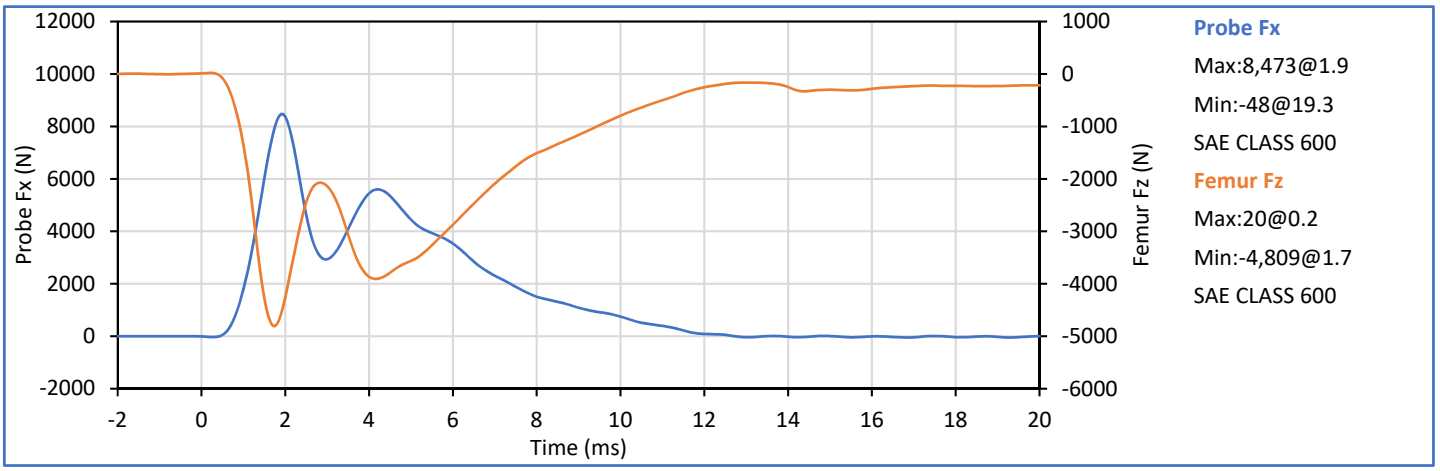
Approved By: P. Puzzuto

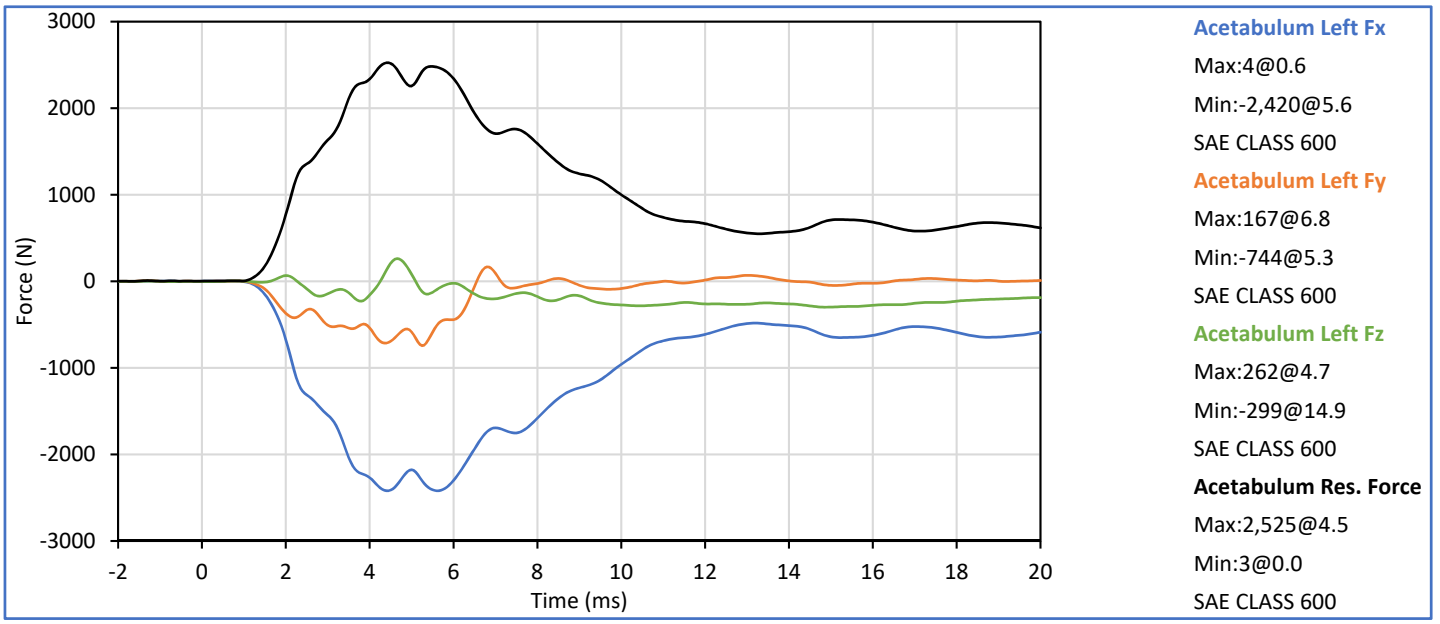
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Upper Leg (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-11-18

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	19	Pass
Pendulum Velocity	m/s	3.25	3.35	3.30	Pass
Peak Probe Force	N	*	*	8473	*
Peak Femur Fz	N	*	*	-4809	*
Acetabulum Force Resultant	N	*	*	2525	*
* Research data. No defined P/F corridor			Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto

Applus IDIADA KARCO

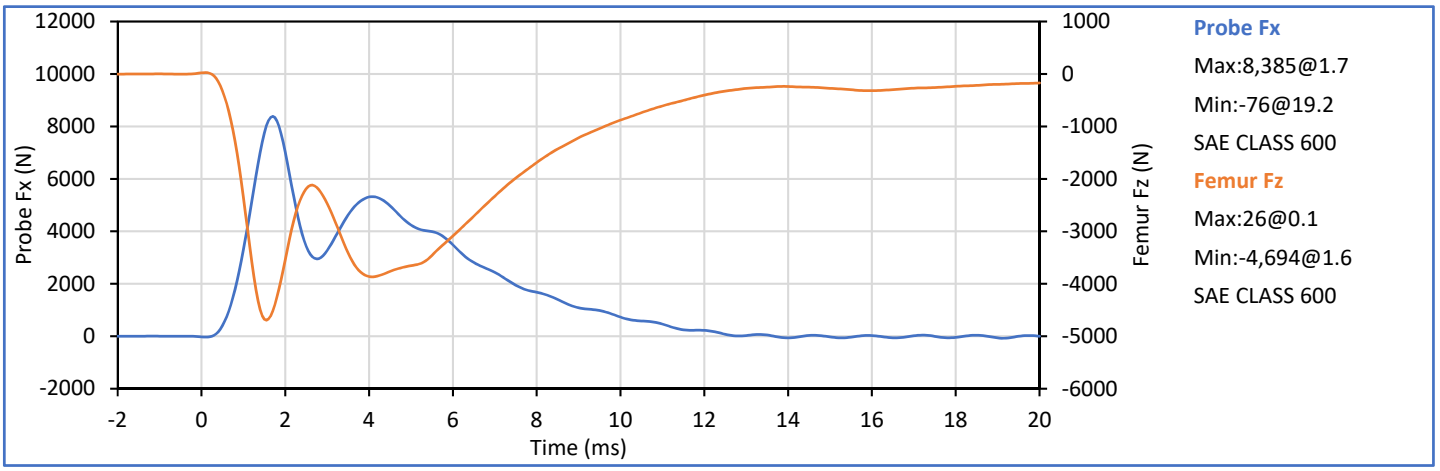
THOR-50M 50th Percentile Male ATD
Upper Leg (Right) Qualification

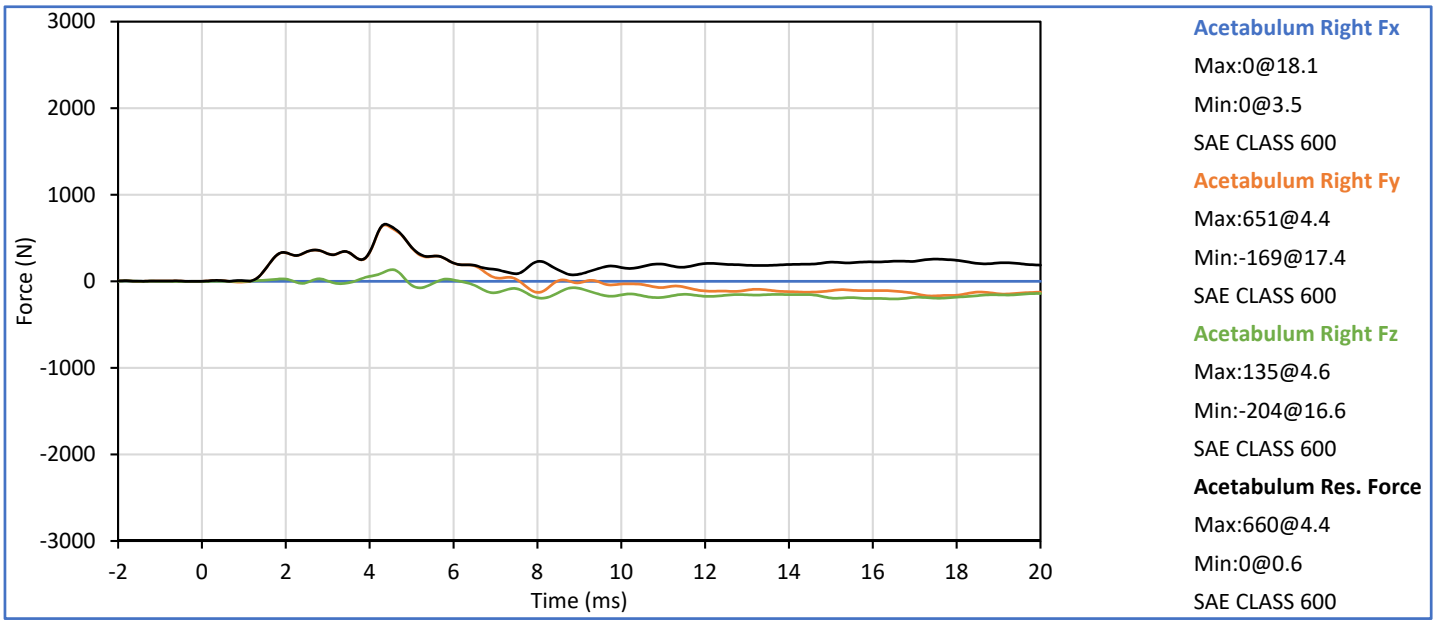
ATD Serial No.: EG2595 Test Date: 2020-11-18

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	28	Pass	
Pendulum Velocity	m/s	3.25	3.35	3.33	Pass	
Peak Probe Force	N	*	*	8385	*	
Peak Femur Fz	N	*	*	-4694	*	
Acetabulum Force Resultant	N	*	*	660	*	**
			Overall Test Results		Pass	

* Research data. No defined P/F corridor

** Acetabulum Fx is not functioning





Technician: J. Hernandez

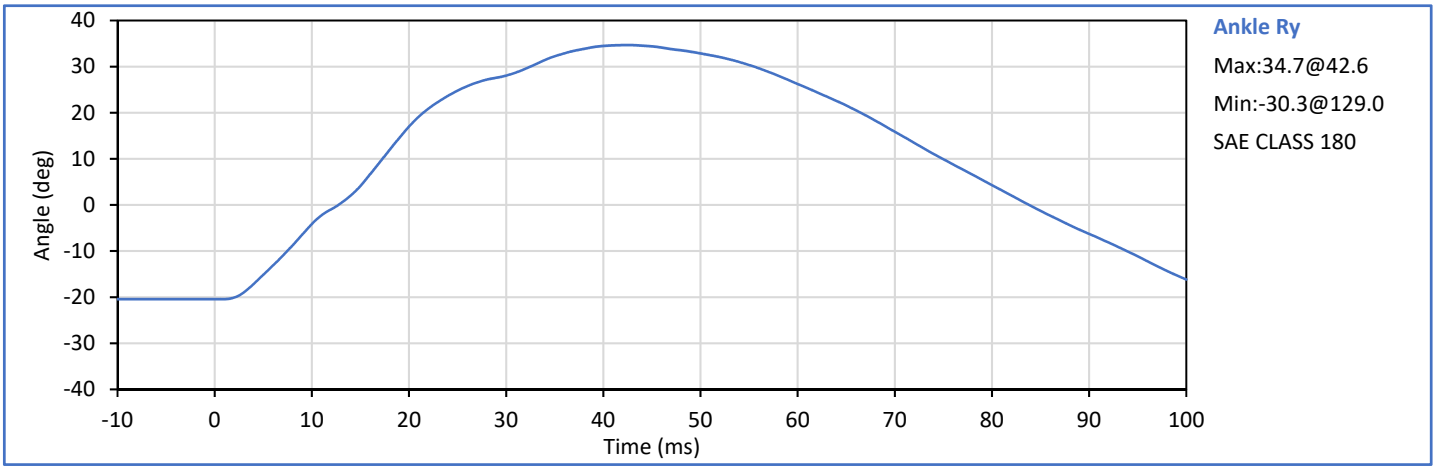
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Ball of Foot (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-03

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	14	Pass
Pendulum Velocity	m/s	4.95	5.05	4.99	Pass
Peak Ankle Ry	deg	30.4	37.2	34.7	Pass
Peak Ankle Resistive Moment	Nm	49.8	60.8	53.5	Pass
Peak Lower Tibia Fz	kN	-3.487	-2.853	-2.876	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass



Technician: J. Hernandez

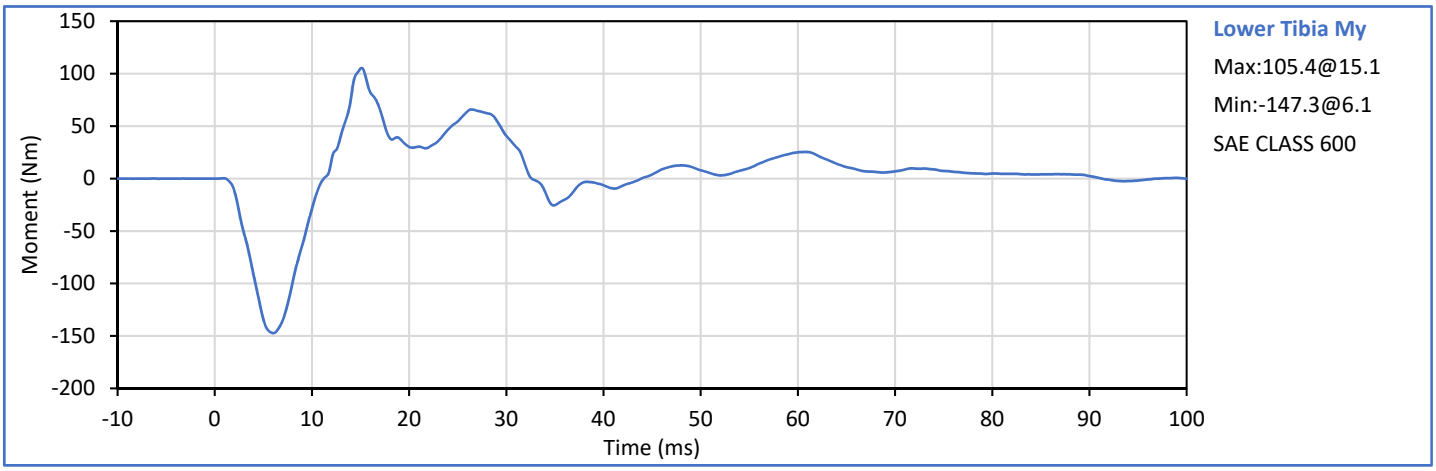
Approved By: P. Puzzuto

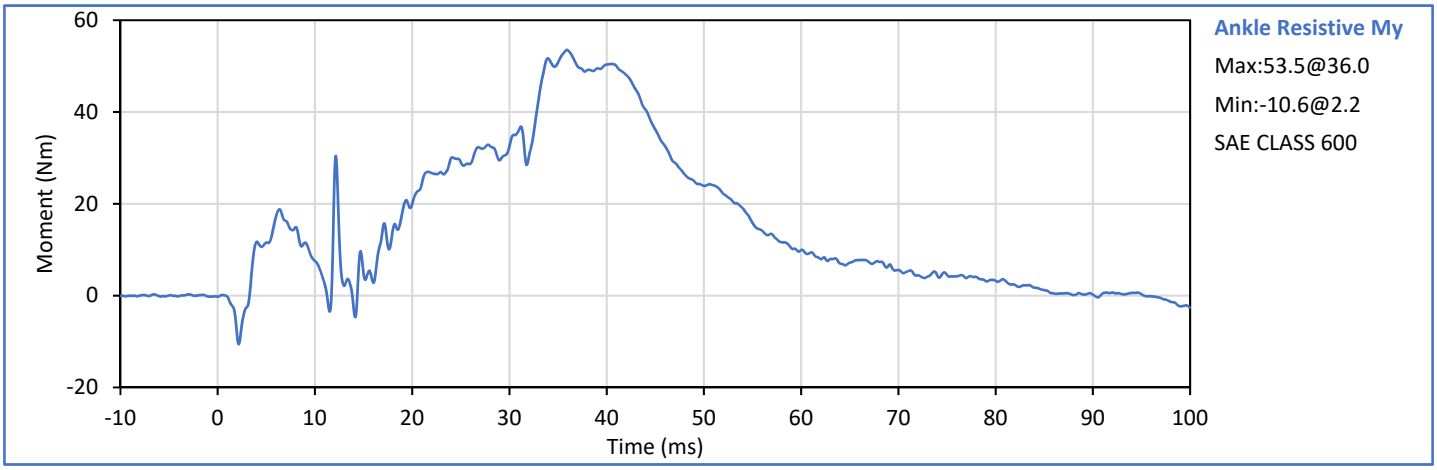
Applus IDIADA KARCO

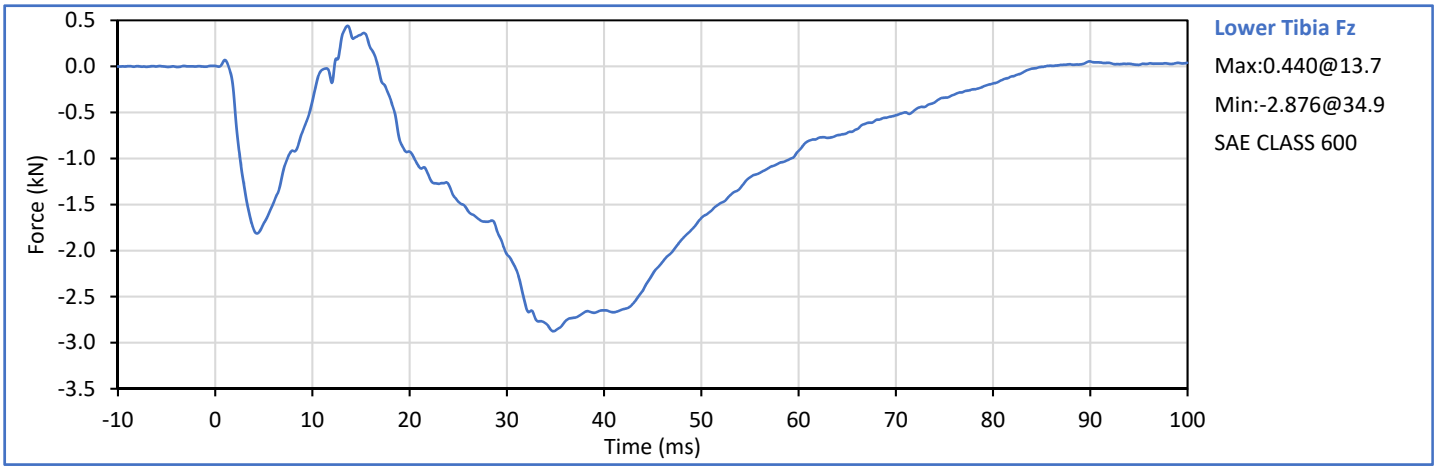
THOR-50M 50th Percentile Male ATD
Ball of Foot (Left) Qualification

ATD Serial No.: EG2595

Test Date: 2020-12-03







Technician: J. Hernandez

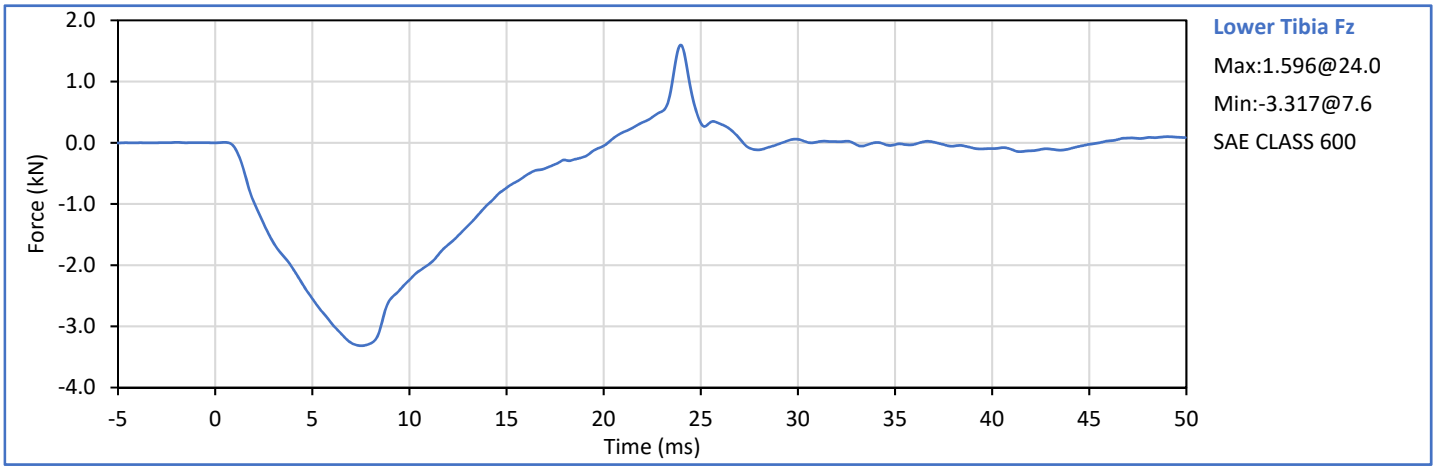
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Heel of Foot (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02

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	19	Pass
Pendulum Velocity	m/s	3.95	4.05	3.96	Pass
Peak Lower Tibia Fz	kN	-3.478	-2.846	-3.317	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass



Technician: J. Hernandez

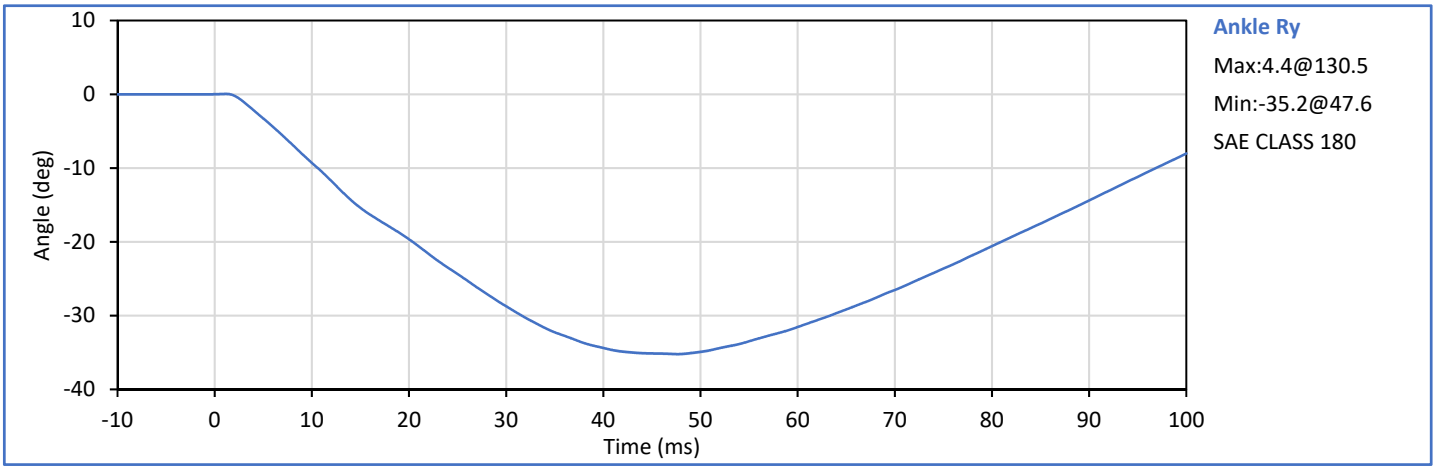
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Ankle Inversion (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.3	Pass
Laboratory Relative Humidity	%	10	70	20	Pass
Pendulum Velocity	m/s	1.95	2.05	2.01	Pass
Peak Ankle Rx	deg	-37.9	-31.0	-35.2	Pass
Peak Ankle Resistive Mx	Nm	-43.0	-35.2	-38.6	Pass
Peak Lower Tibia Fz	kN	-0.555	-0.454	-0.529	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass



Technician: J. Hernandez

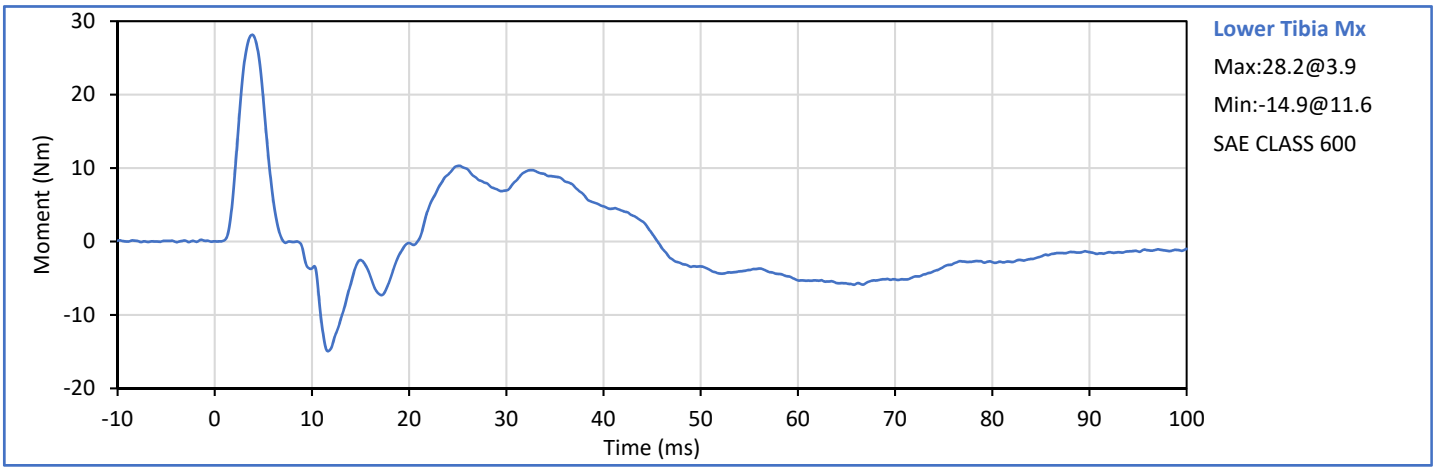
Approved By: P. Puzzuto

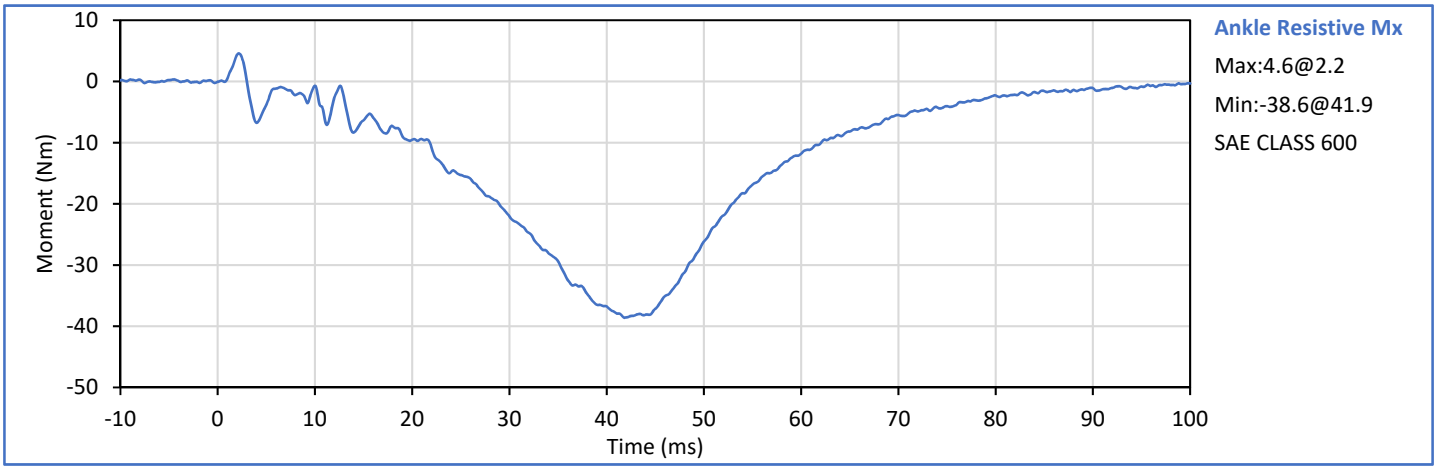
Applus IDIADA KARCO

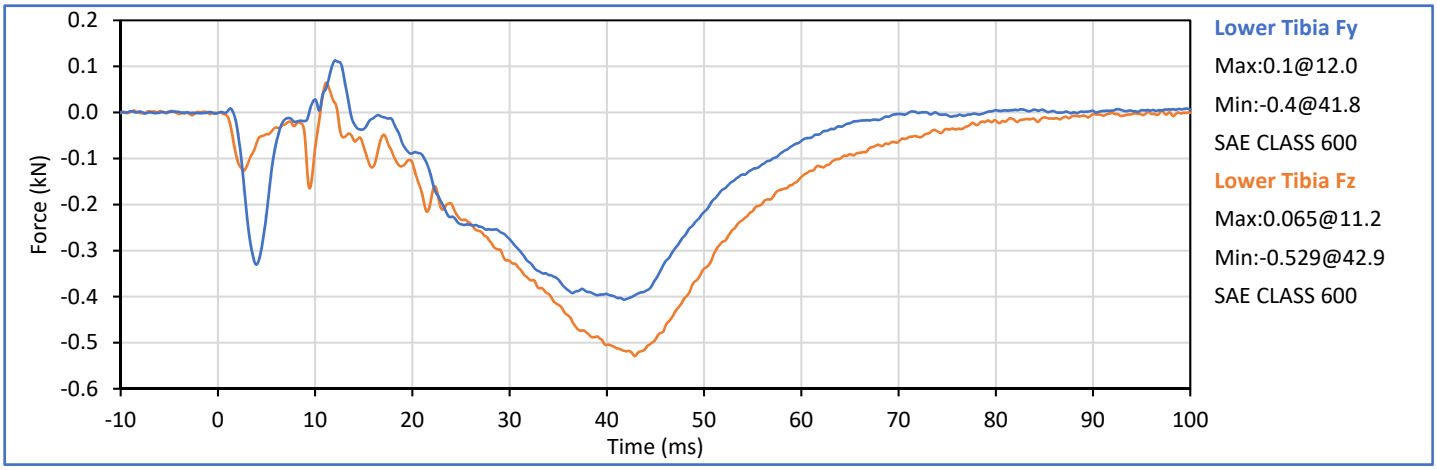
THOR-50M 50th Percentile Male ATD
Ankle Inversion (Left) Qualification

ATD Serial No.: EG2595

Test Date: 2020-12-02







Technician: J. Hernandez

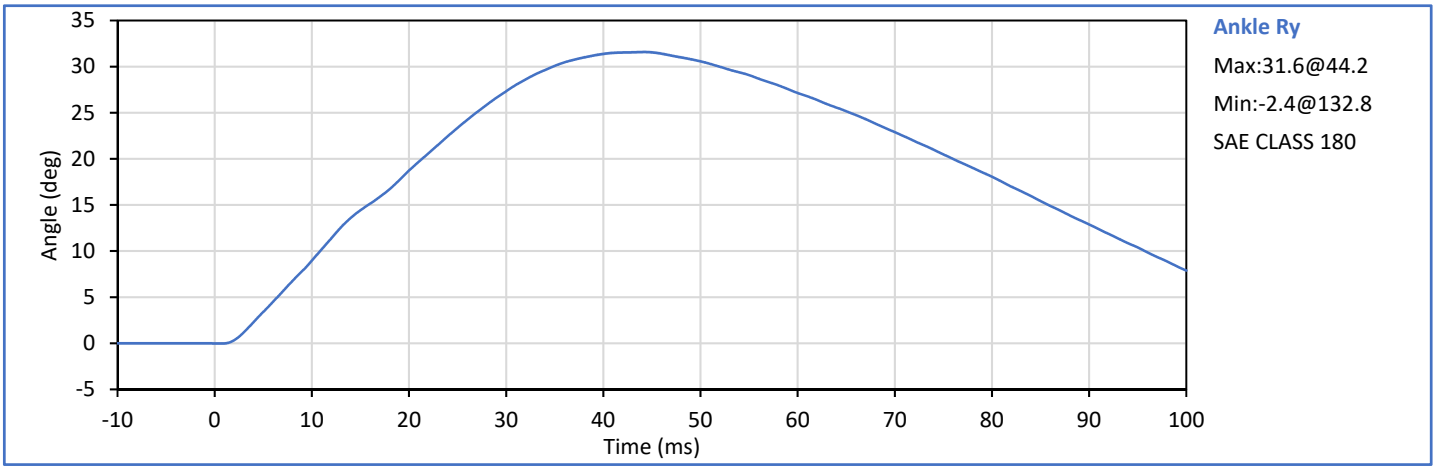
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Ankle Eversion (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.6	Pass
Laboratory Relative Humidity	%	10	70	20	Pass
Pendulum Velocity	m/s	1.95	2.05	2.03	Pass
Peak Ankle Rx	deg	26.6	32.5	31.6	Pass
Peak Ankle Resistive Mx	Nm	38.7	47.3	40.4	Pass
Peak Lower Tibia Fz	kN	-0.629	-0.514	-0.569	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass



Technician: J. Hernandez

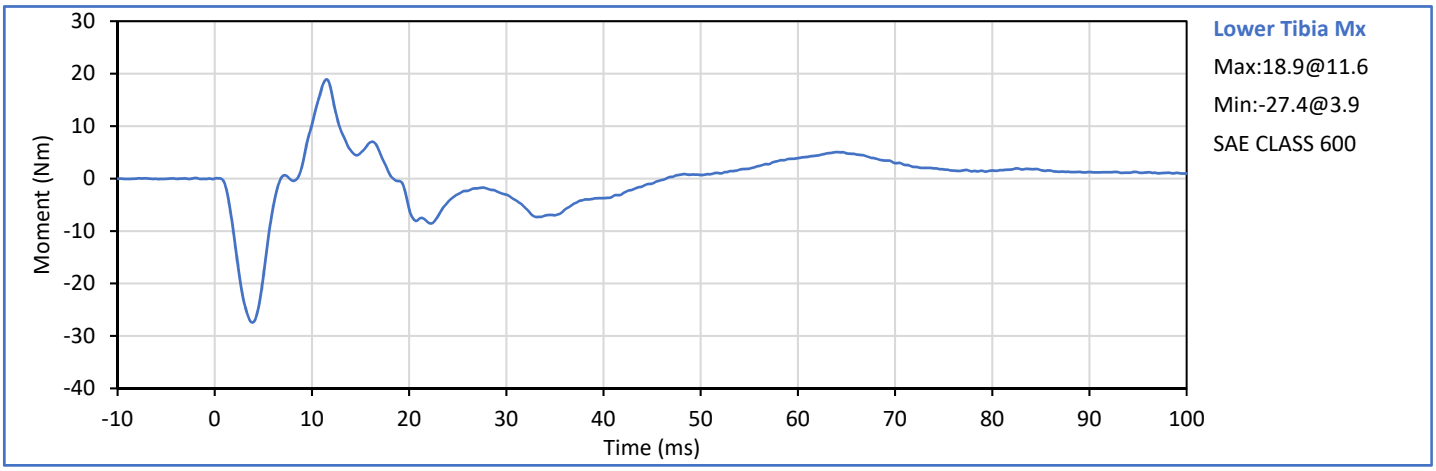
Approved By: P. Puzzuto

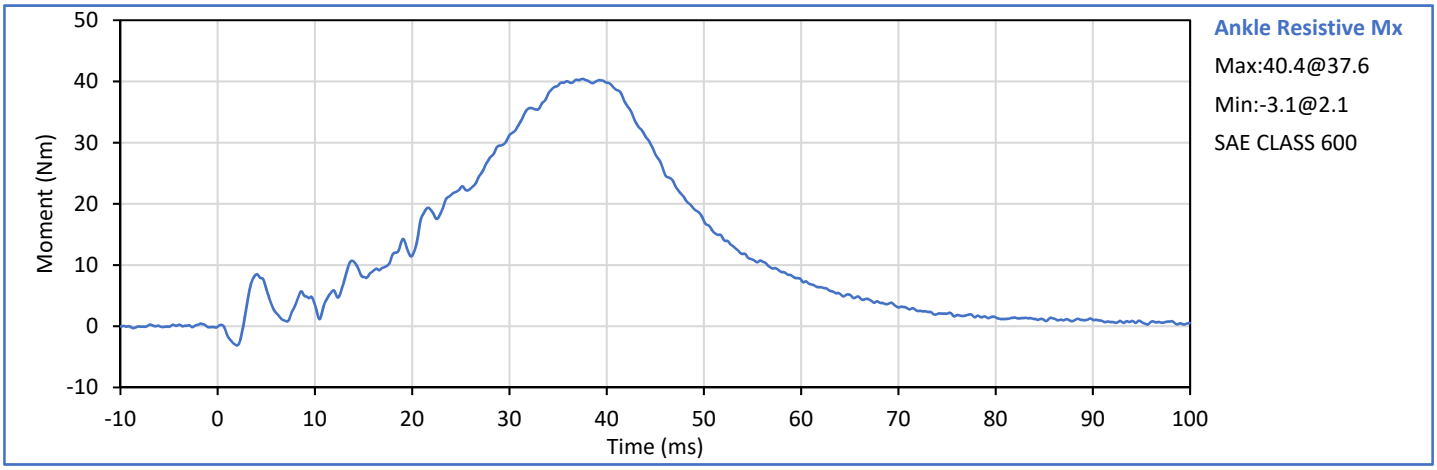
Applus IDIADA KARCO

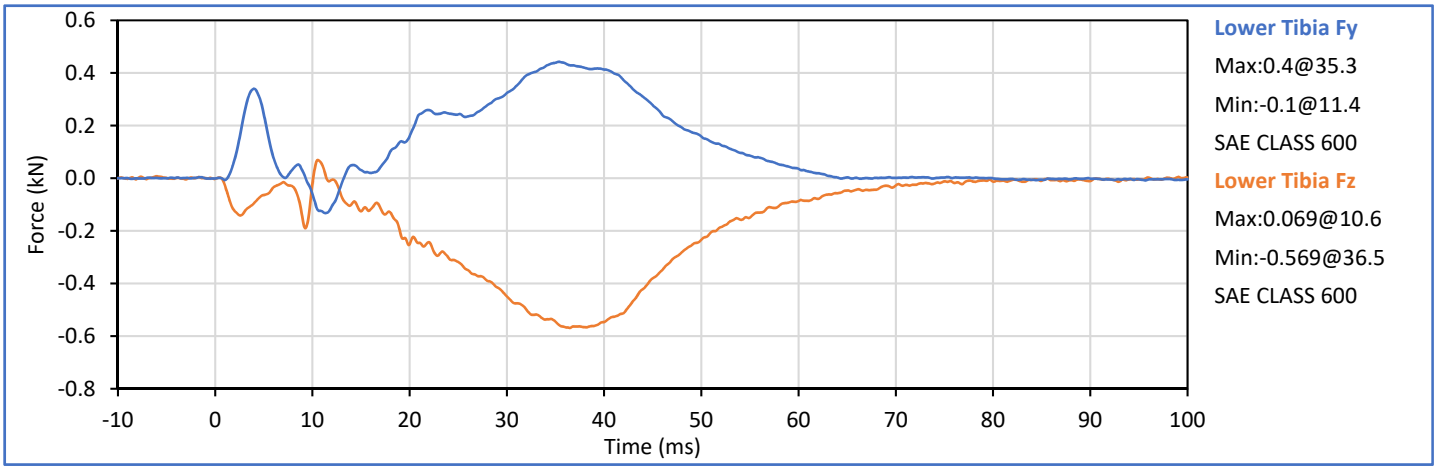
THOR-50M 50th Percentile Male ATD
Ankle Eversion (Left) Qualification

ATD Serial No.: EG2595

Test Date: 2020-12-02







Technician: J. Hernandez

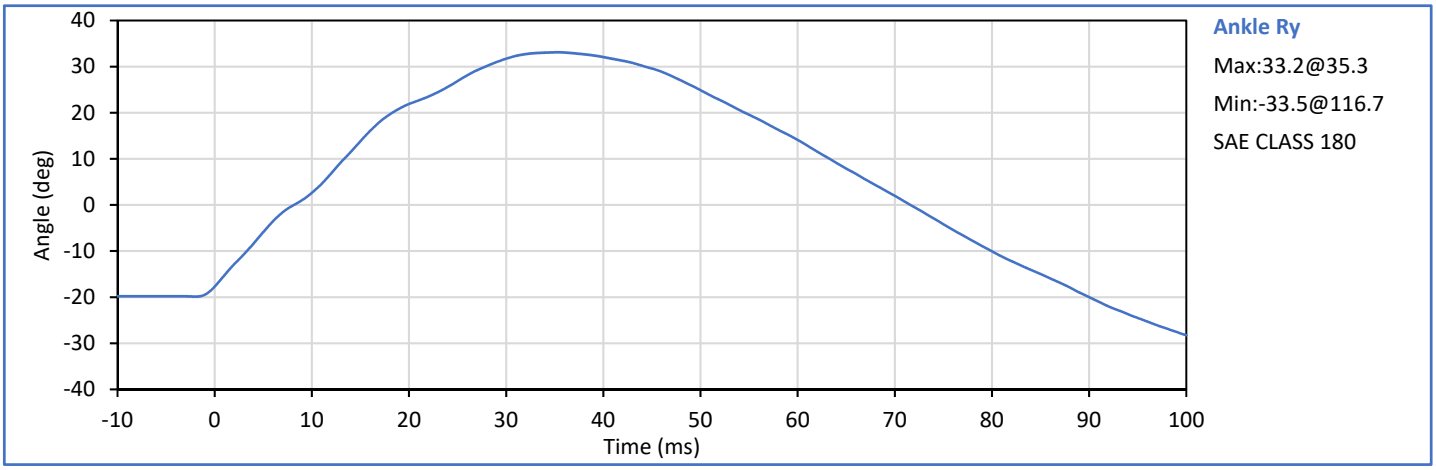
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Ball of Foot (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	13	Pass
Pendulum Velocity	m/s	4.95	5.05	5.02	Pass
Peak Ankle Ry	deg	30.4	37.2	33.2	Pass
Peak Ankle Resistive Moment	Nm	49.8	60.8	53.1	Pass
Peak Lower Tibia Fz	kN	-3.487	-2.853	-2.902	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass



Technician: J. Hernandez

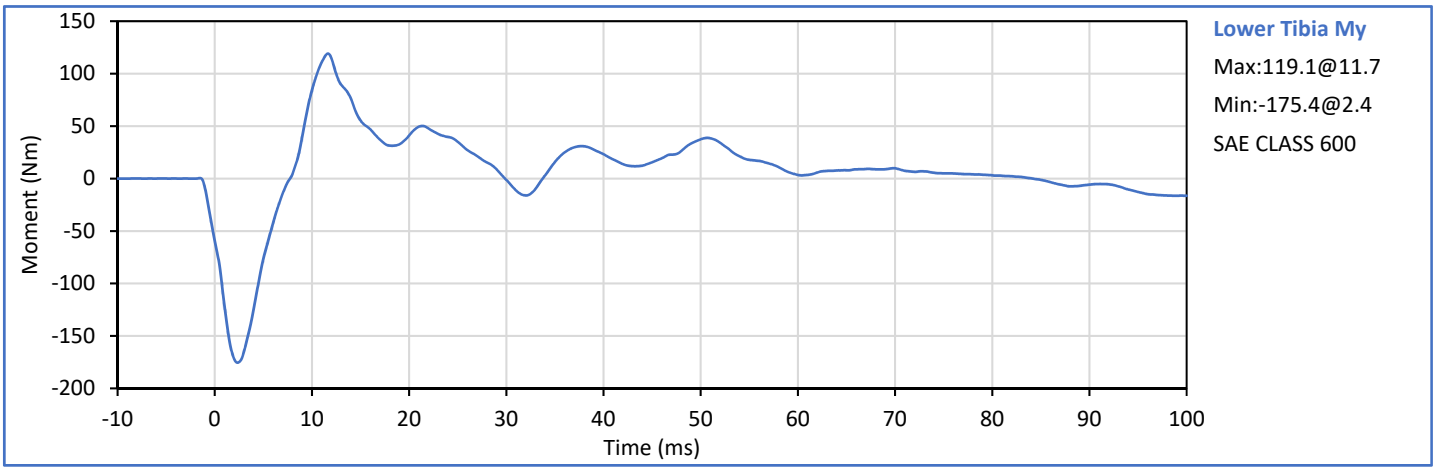
Approved By: P. Puzzuto

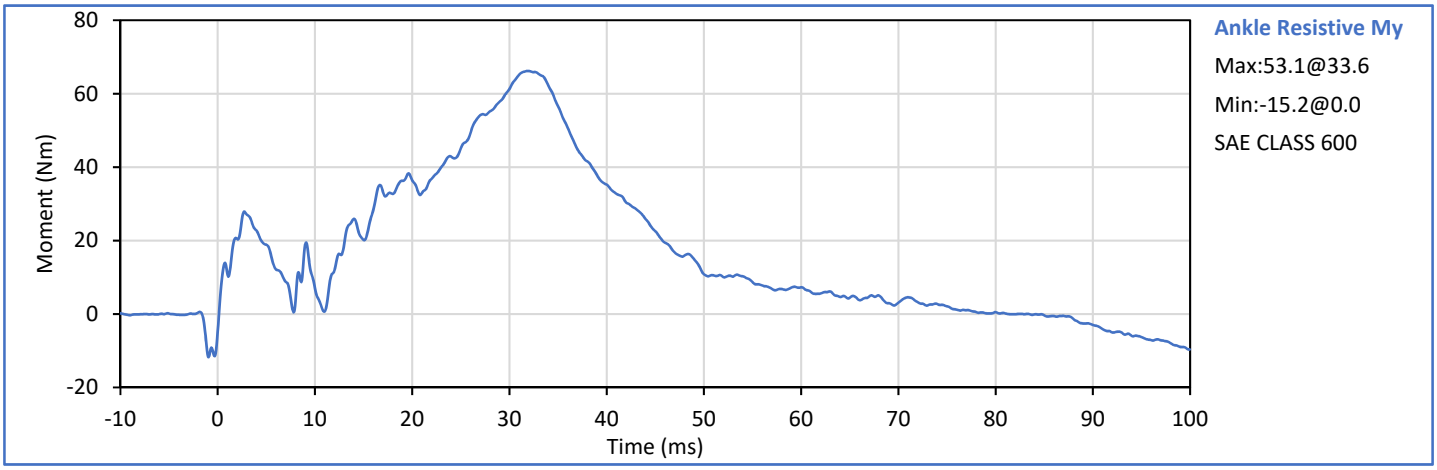
Applus IDIADA KARCO

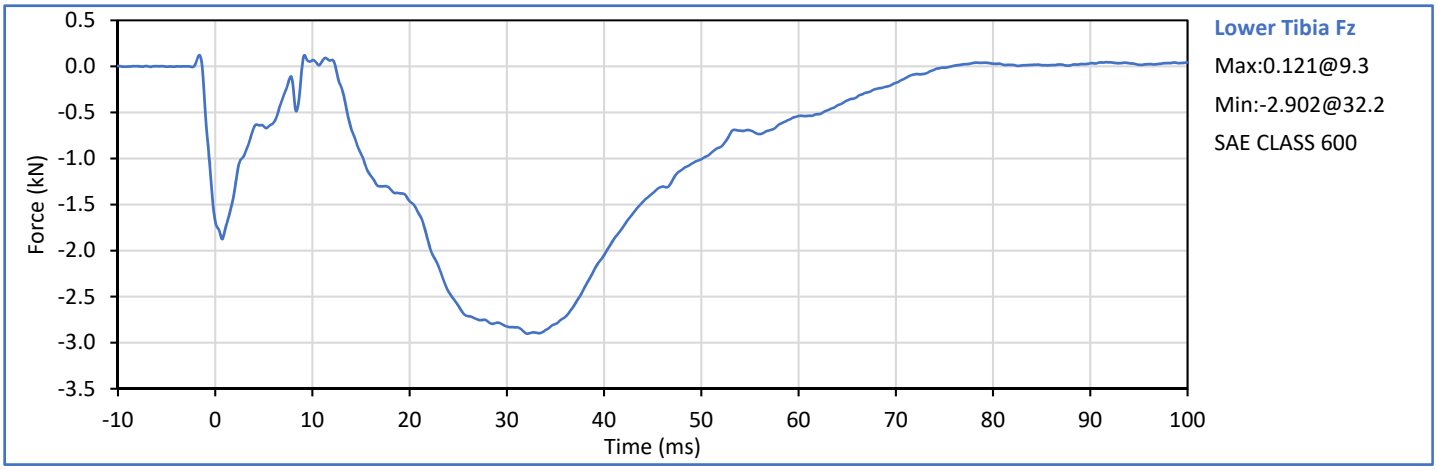
THOR-50M 50th Percentile Male ATD
Ball of Foot (Left) Qualification

ATD Serial No.: EG2595

Test Date: 2020-12-02







Technician: J. Hernandez

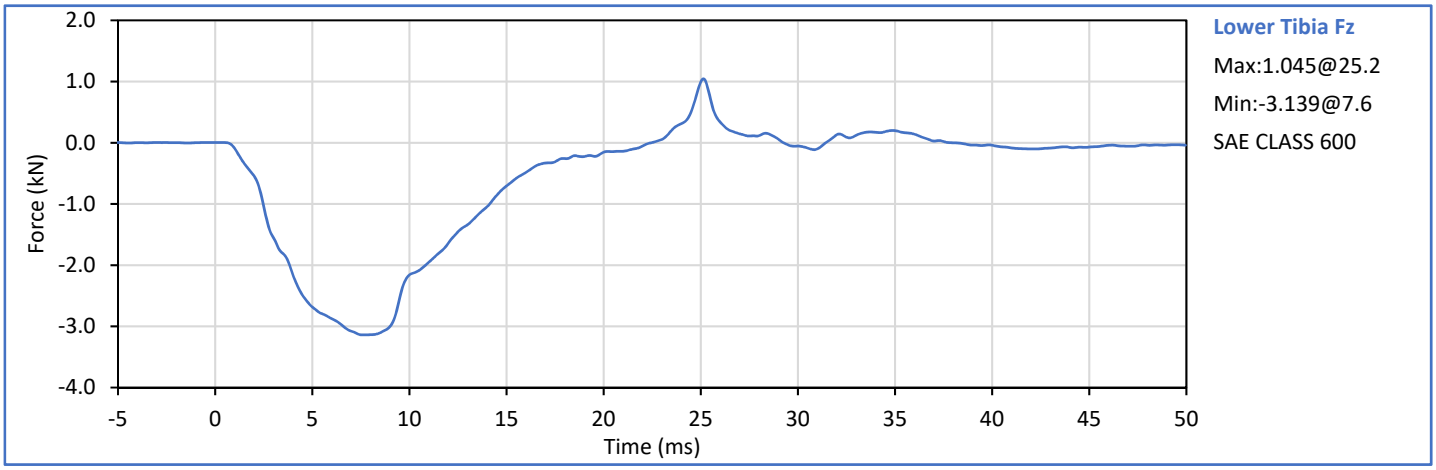
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Heel of Foot (Left) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	17	Pass
Pendulum Velocity	m/s	3.95	4.05	3.98	Pass
Peak Lower Tibia Fz	kN	-3.478	-2.846	-3.139	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass



Technician: J. Hernandez

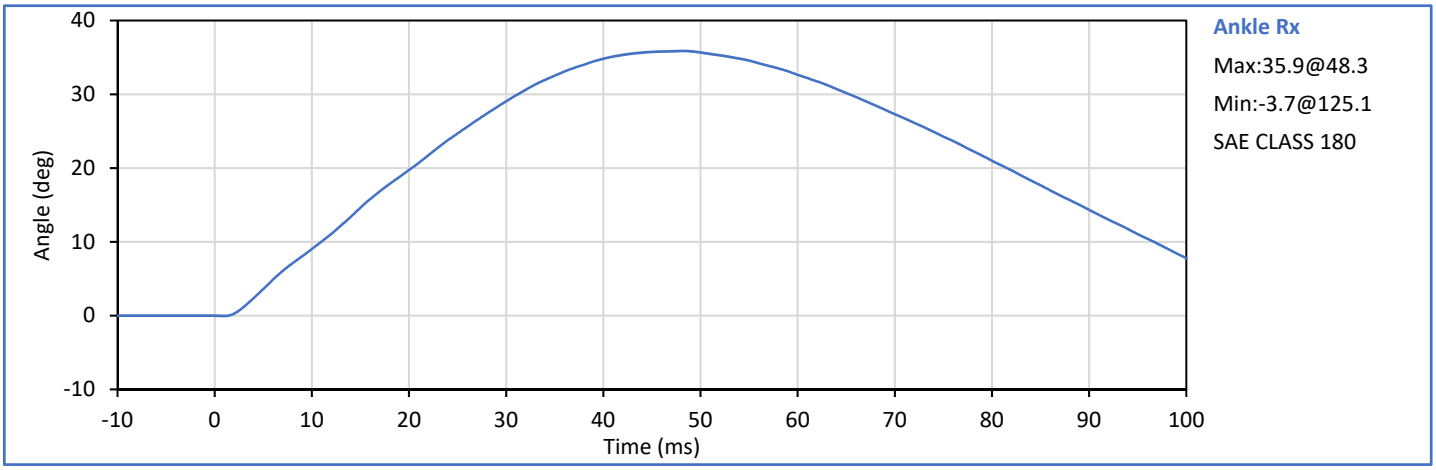
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Ankle Inversion (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02

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	19	Pass
Pendulum Velocity	m/s	1.95	2.05	2.00	Pass
Peak Ankle Rx	deg	31.0	37.9	35.9	Pass
Peak Ankle Resistive Mx	Nm	35.2	43.0	35.9	Pass
Peak Lower Tibia Fz	kN	-0.555	-0.454	-0.487	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass



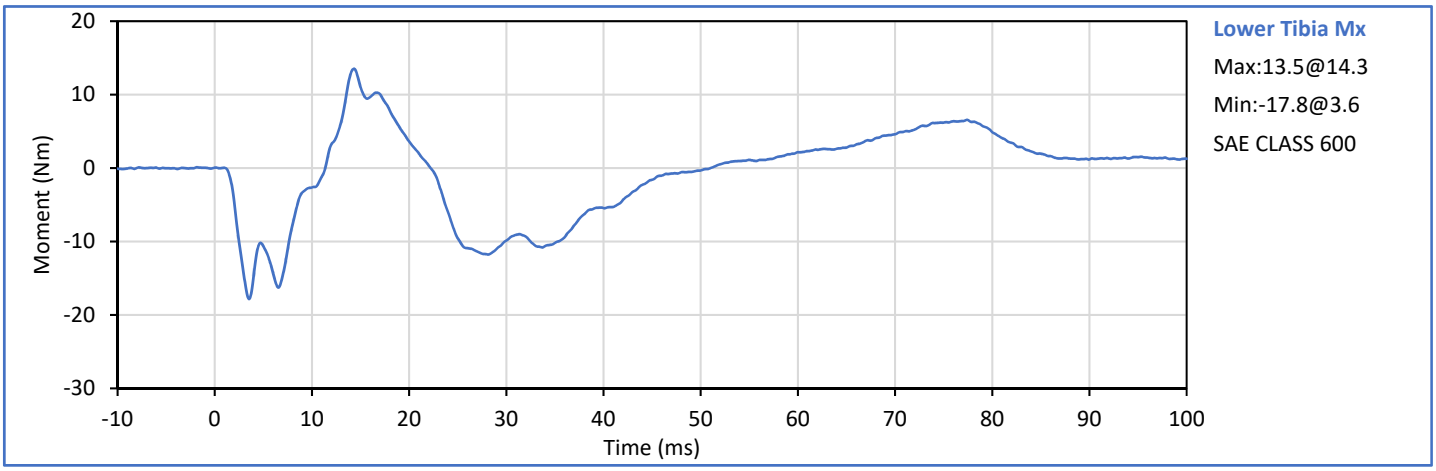
Technician: J. Hernandez

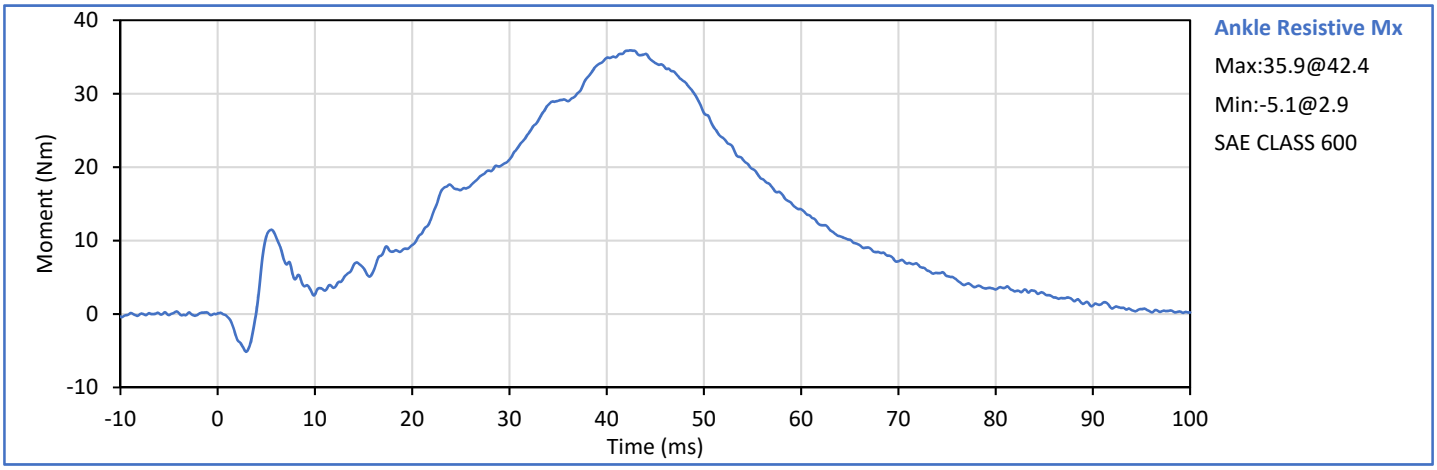
Approved By: P. Puzzuto

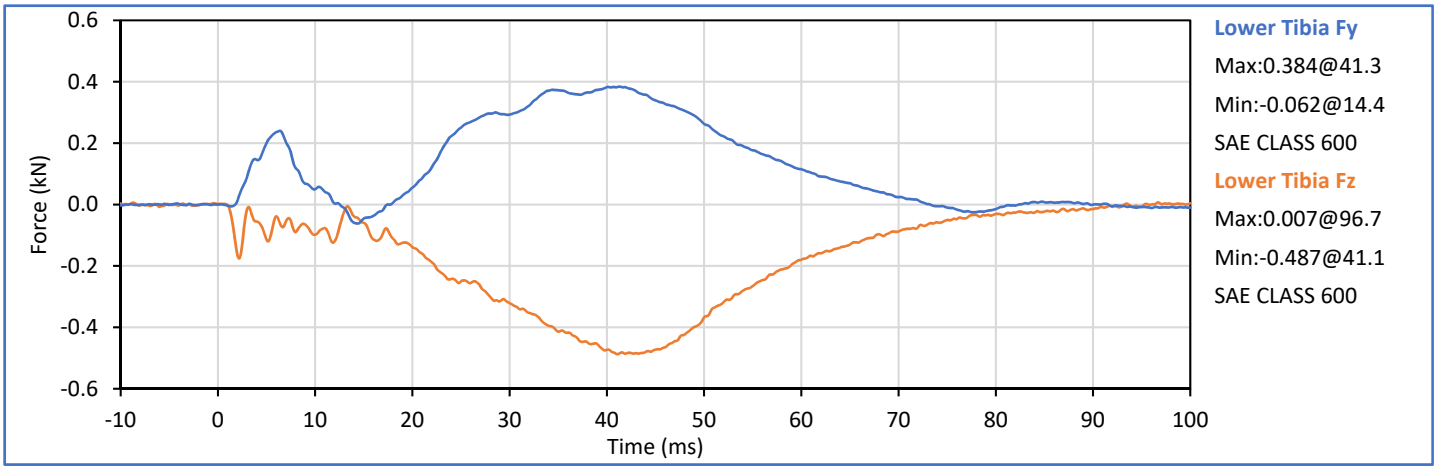
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Ankle Inversion (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02







Technician: J. Hernandez

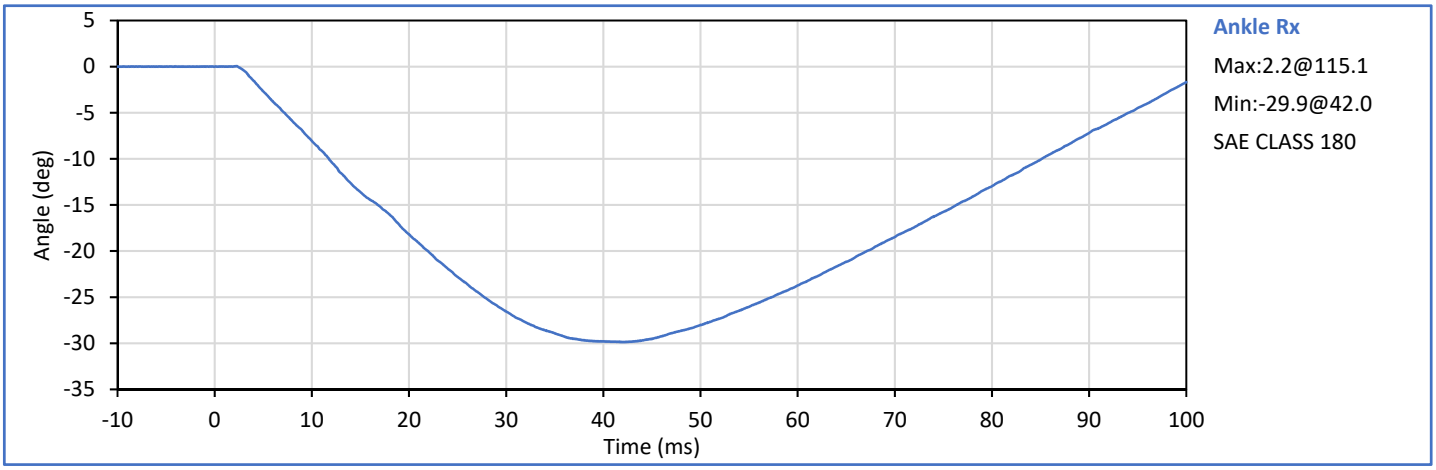
Approved By: P. Puzzuto

Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Ankle Eversion (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02

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	15	Pass
Pendulum Velocity	m/s	1.95	2.05	2.01	Pass
Peak Ankle Rx	deg	26.6	32.5	29.9	Pass
Peak Ankle Resistive Mx	Nm	38.7	47.3	41.3	Pass
Peak Lower Tibia Fz	kN	-0.629	-0.514	-0.574	Pass
NHTSA Corridor 2019-05			Overall Test Results		Pass



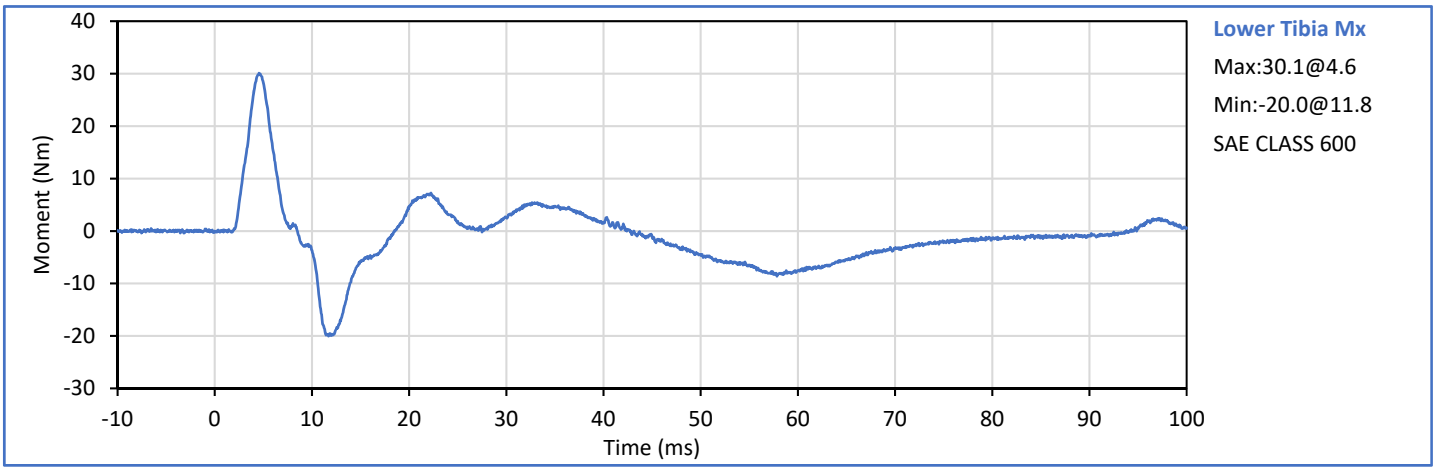
Technician: J. Hernandez

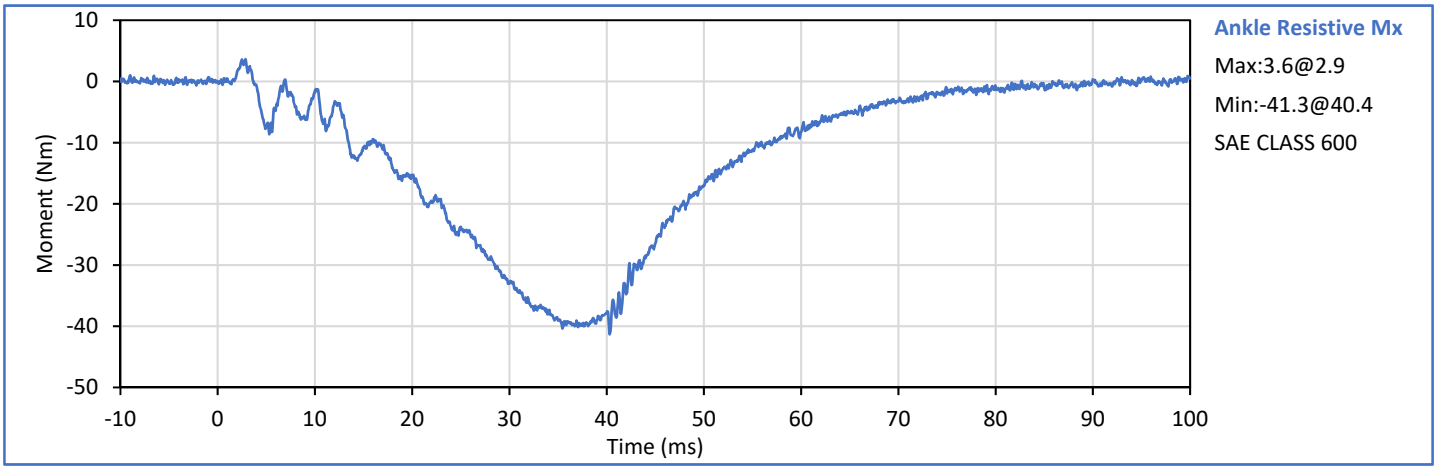
Approved By: P. Puzzuto

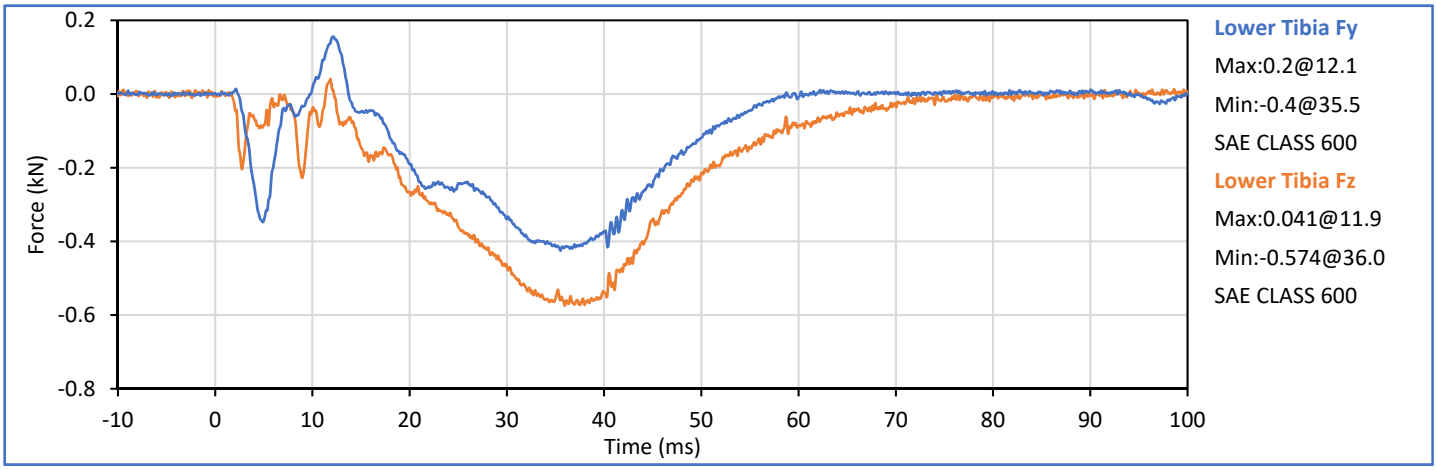
Applus IDIADA KARCO

THOR-50M 50th Percentile Male ATD
Ankle Eversion (Right) Qualification

ATD Serial No.: EG2595 Test Date: 2020-12-02







Technician: J. Hernandez

Approved By: P. Puzzuto

APPENDIX C
Post-Test ATD Qualification and Performance Verification
Hybrid III 50th Percentile Male ATD
S/N: 168

Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
ATD Damage Checklist

ATD Serial No.: 168 Test Date: 2020-10-13

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.	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: J. Hernandez

Approved By: P. Puzzuto

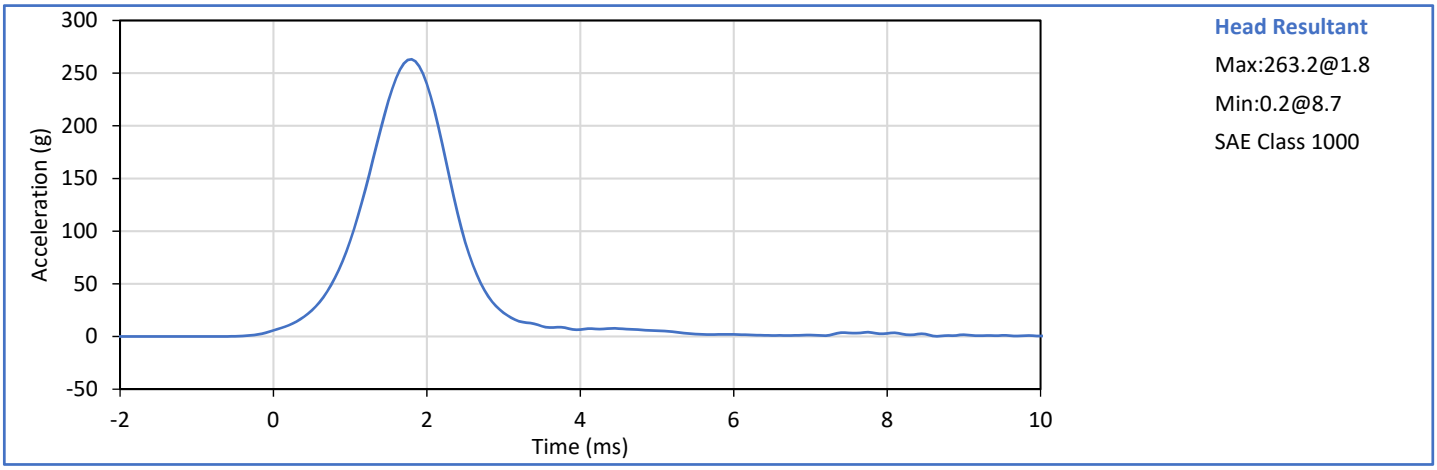
Applus IDIADA
KARCO

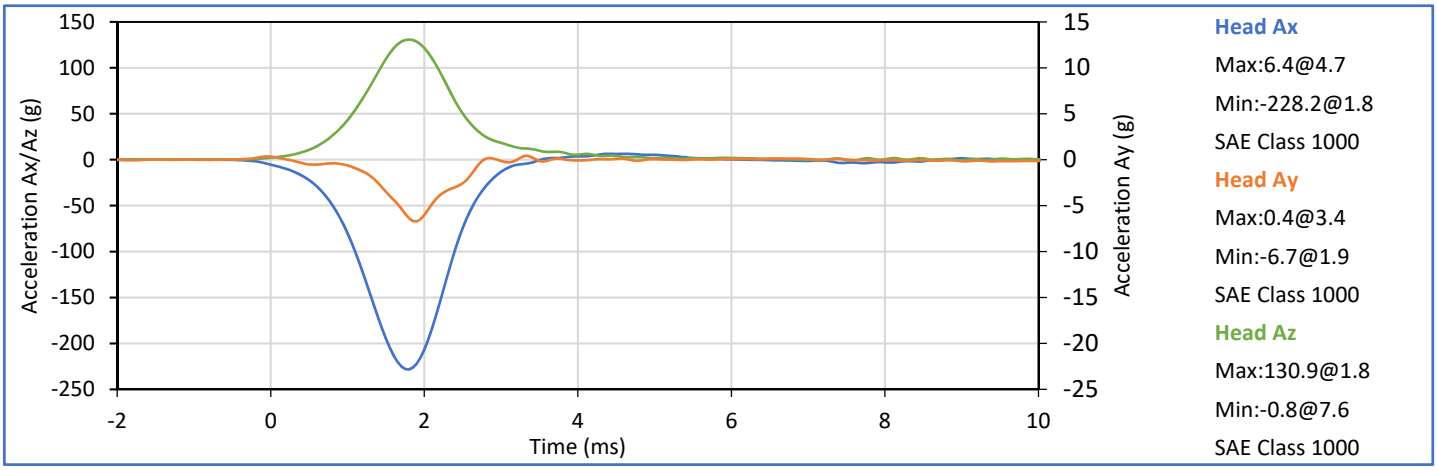
Hybrid III 50th Percentile Male ATD
Head Drop

ATD Serial No.: 168

Test Date: 2020-10-13

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	18.9	25.6	21.2	Pass
Laboratory Relative Humidity	%	10	70	24	Pass
Peak Resultant Acceleration	g	225.0	275.0	263.2	Pass
Peak Lateral Acceleration	g	-15.0	15.0	-6.7	Pass
Oscillations After Main Pulse	%	0.0	10.0	1.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes		Yes	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

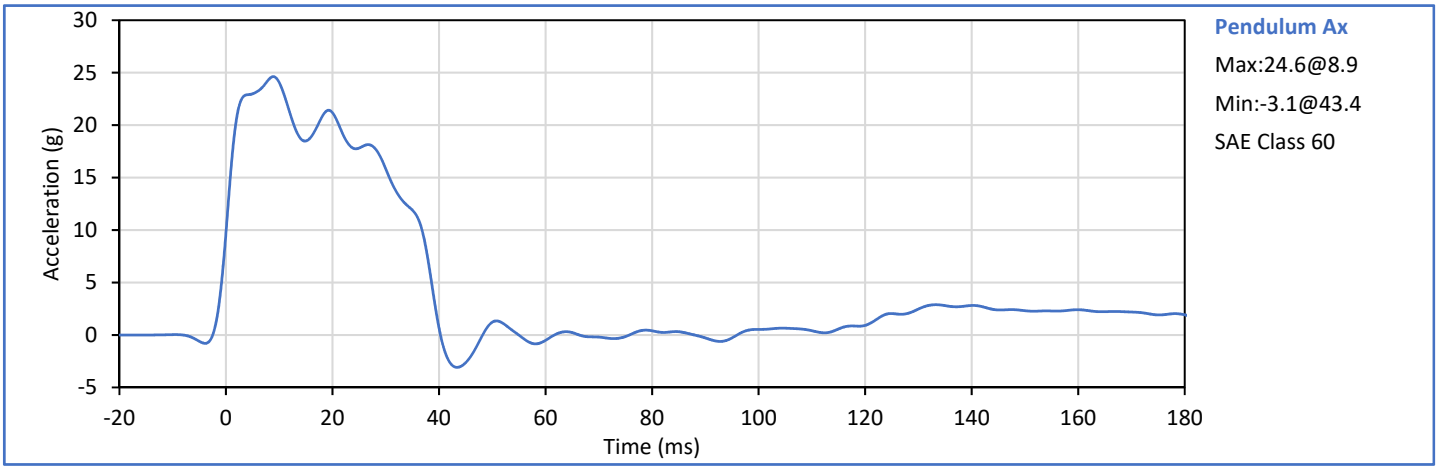
Approved By: P. Puzzuto

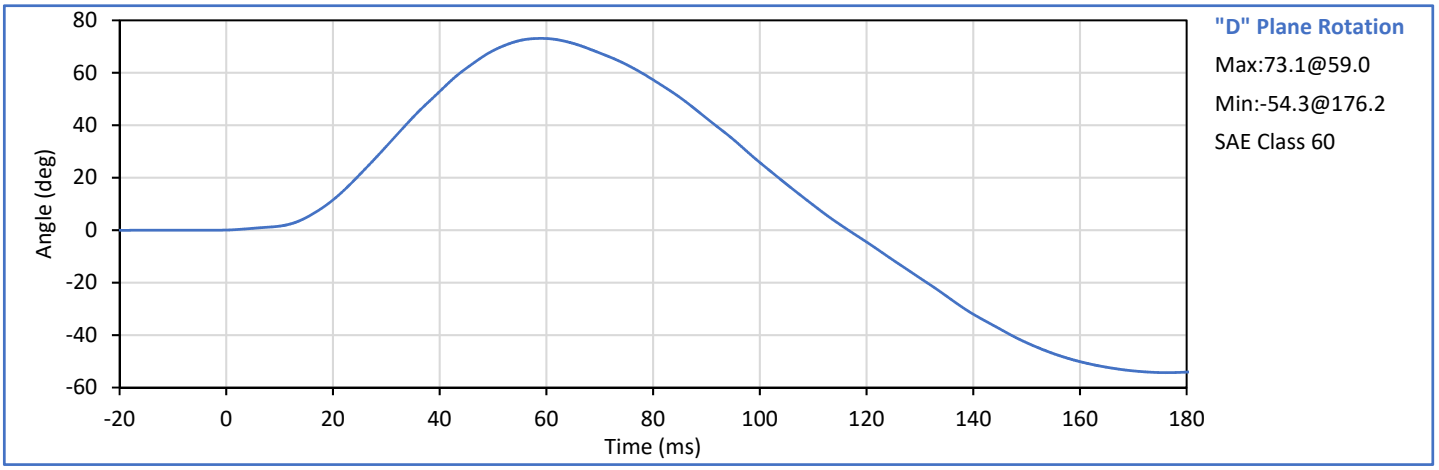
Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
Neck Flexion Test

ATD Serial No.: 168 Test Date: 2020-10-13

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Pendulum Velocity	m/s	6.89	7.13	6.96	Pass
Pendulum Deceleration at 10 ms	g	22.5	27.5	24.1	Pass
Pendulum Deceleration at 20 ms	g	17.6	22.6	21.2	Pass
Pendulum Deceleration at 30 ms	g	12.5	18.5	15.8	Pass
Peak Pendulum Decel. after 30 ms	g	0.0	29.0	15.8	Pass
Deceleration Decay to Cross 5 g	ms	34.0	42.0	38.6	Pass
"D" Plane Rotation peak	deg	64.0	78.0	73.1	Pass
	ms	57.0	64.0	59.0	Pass
"D" Plane Rotation Decay To Zero	ms	113.0	128.0	116.7	Pass
Moment About Occipital Condyle	Nm	88.1	108.5	98.3	Pass
	ms	47.0	58.0	51.9	Pass
Moment Decay, Peak to Zero	ms	97.0	107.0	100.0	Pass
			Overall Test Results		Pass





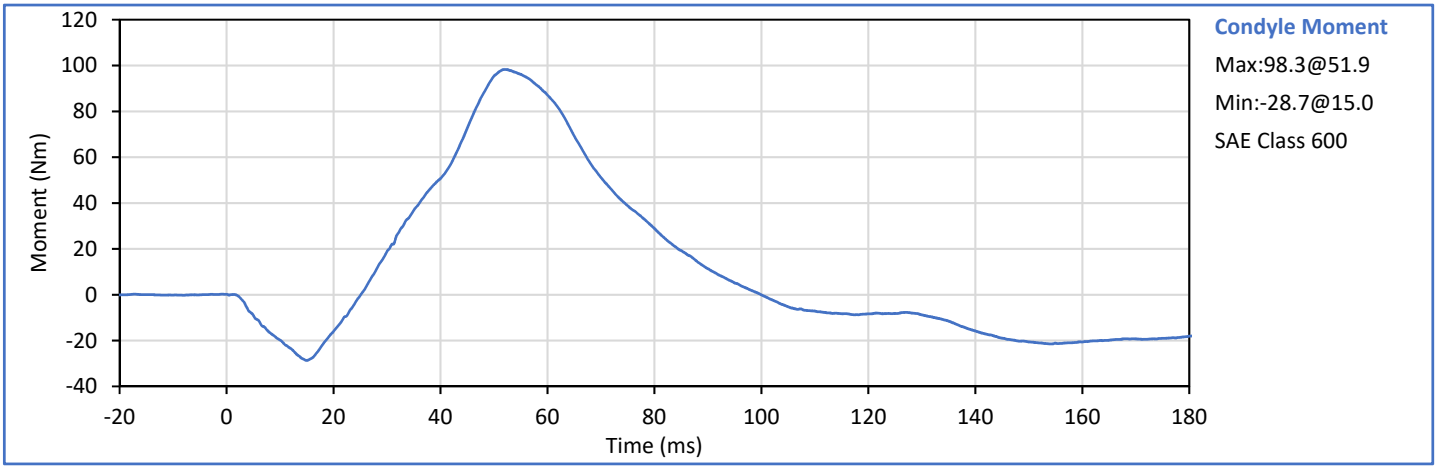
Technician: J. Hernandez

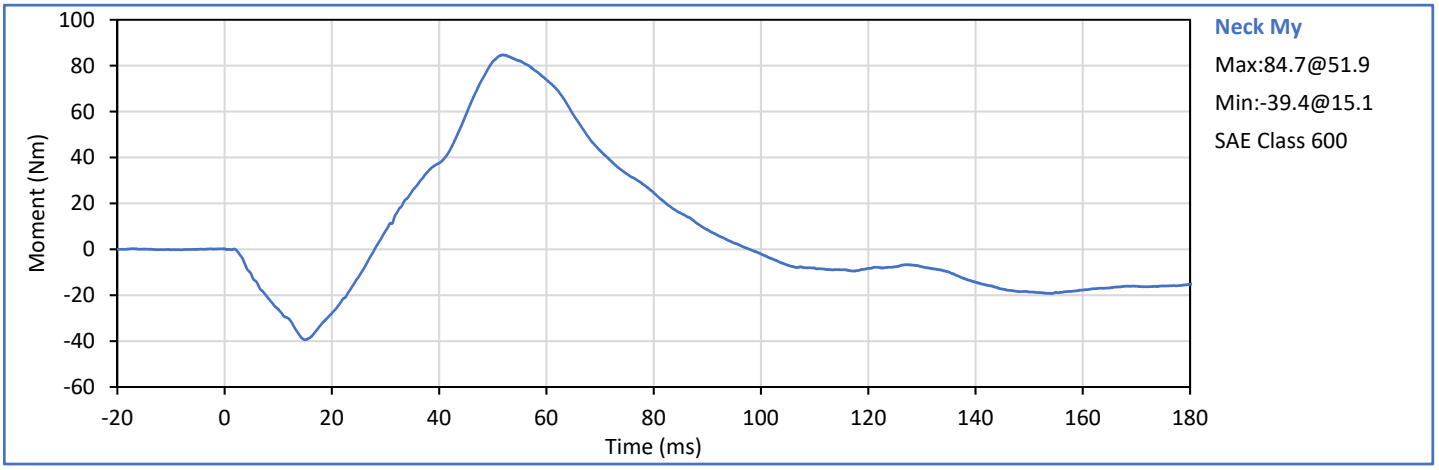
Approved By: P. Puzzuto

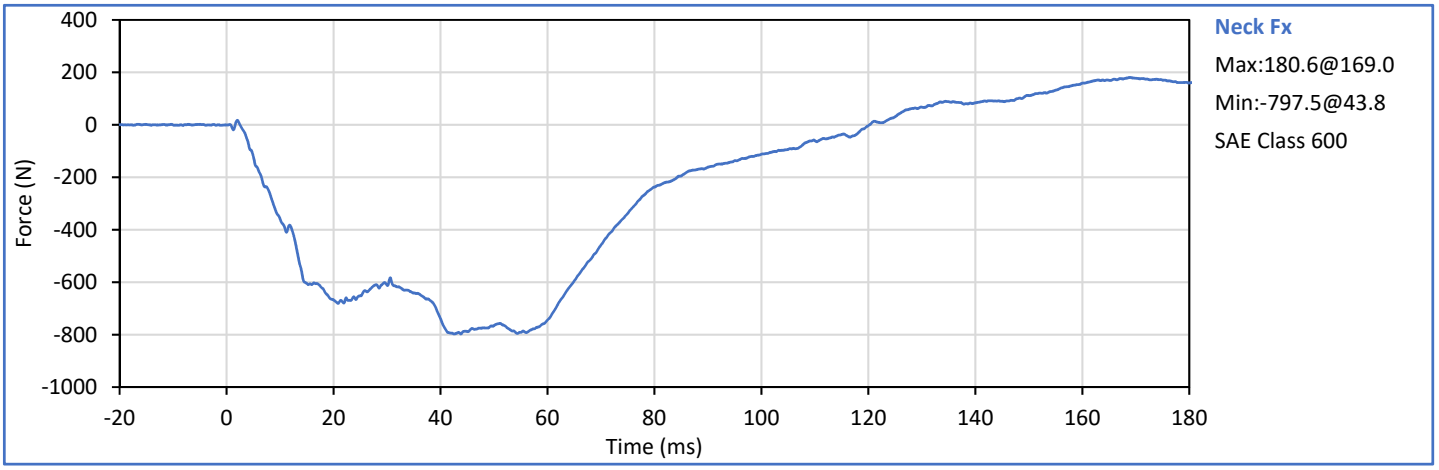
Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
Neck Flexion Test

ATD Serial No.: 168 Test Date: 2020-10-13





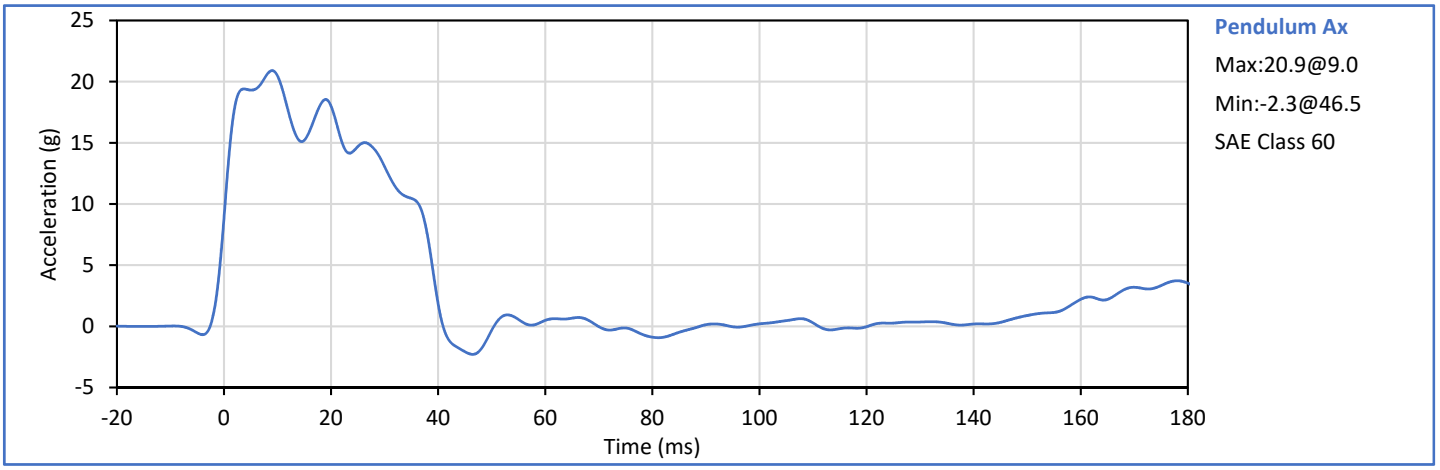


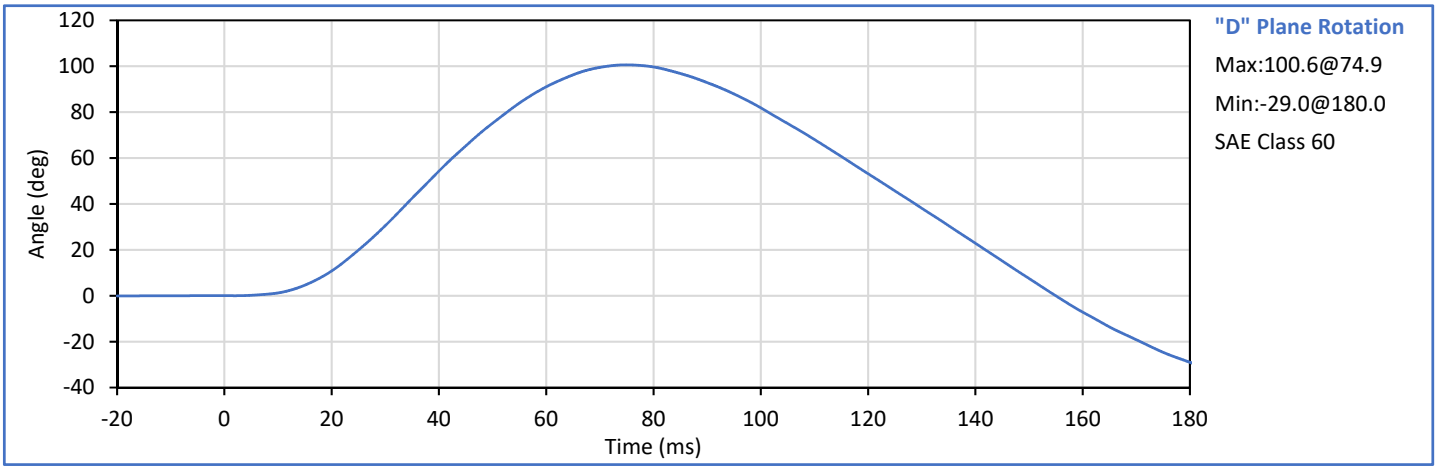
Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
Neck Extension Test

ATD Serial No.: 168 Test Date: 2020-10-13

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.8	Pass
Laboratory Relative Humidity	%	10	70	29	Pass
Pendulum Velocity	m/s	5.94	6.19	6.07	Pass
Pendulum Deceleration at 10 ms	g	17.2	21.2	20.5	Pass
Pendulum Deceleration at 20 ms	g	14.0	19.0	18.0	Pass
Pendulum Deceleration at 30 ms	g	11.0	16.0	13.1	Pass
Peak Pendulum Decel. after 30 ms	g	0.0	22.0	13.1	Pass
Deceleration Decay to Cross 5 g	ms	38.0	46.0	38.9	Pass
"D" Plane Rotation peak	deg	81.0	106.0	100.6	Pass
	ms	72.0	82.0	74.9	Pass
"D" Plane Rotation Decay To Zero	ms	147.0	174.0	155.0	Pass
Moment About Occipital Condyle	Nm	-79.9	-52.9	-73.5	Pass
	ms	65.0	79.0	70.0	Pass
Moment Decay, Peak to Zero	ms	120.0	148.0	143.4	Pass
			Overall Test Results		Pass





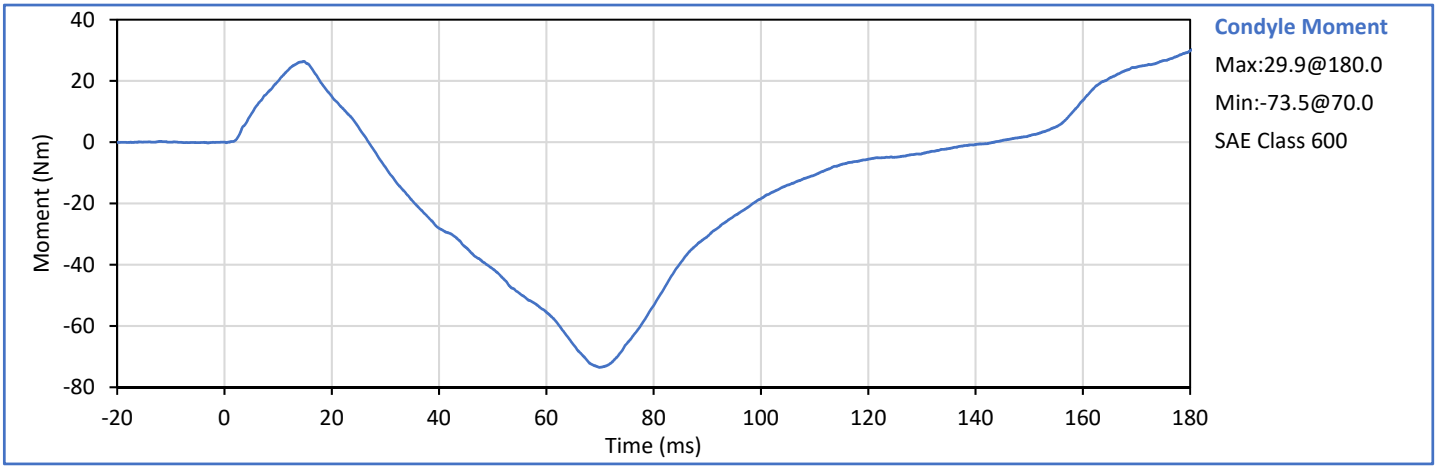
Technician: J. Hernandez

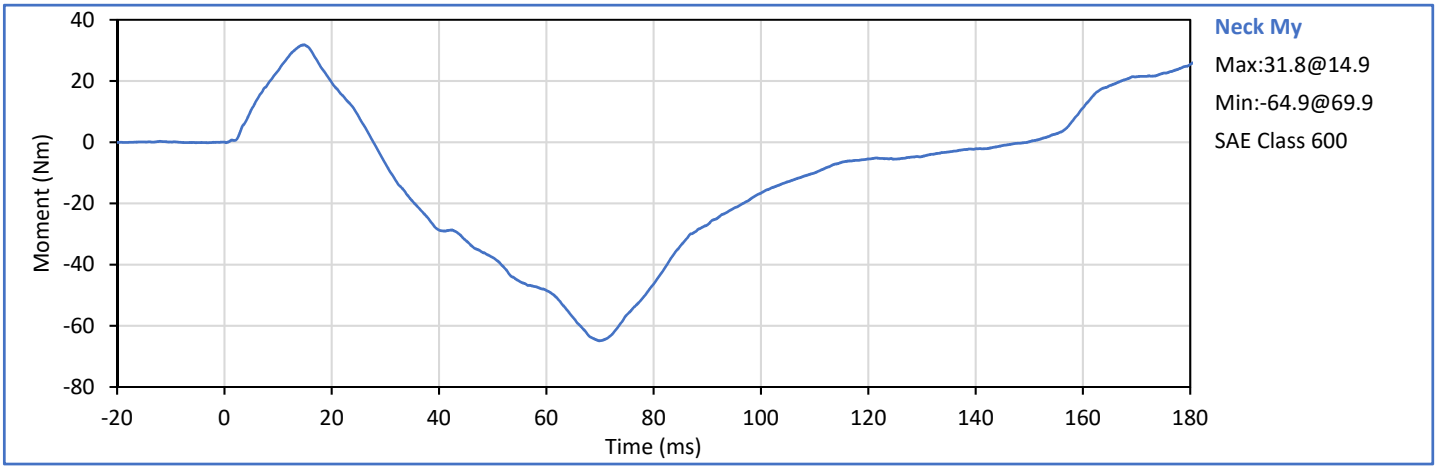
Approved By: P. Puzzuto

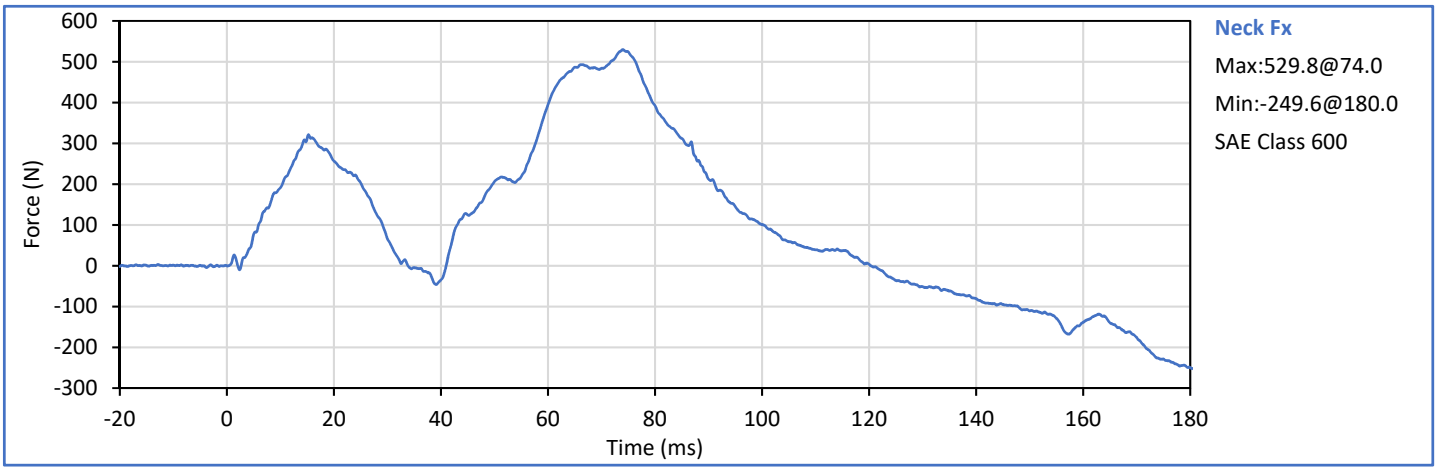
Applus IDIADA KARCO

Hybrid III 50th Percentile Male ATD
Neck Extension Test

ATD Serial No.: 168 Test Date: 2020-10-13







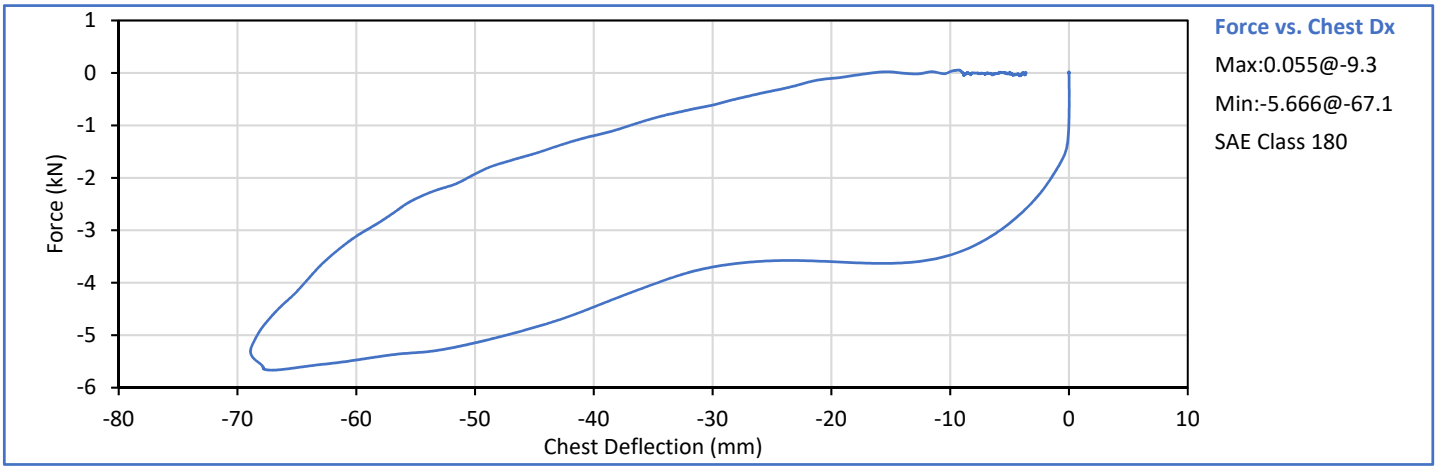
Applus IDIADA
KARCO

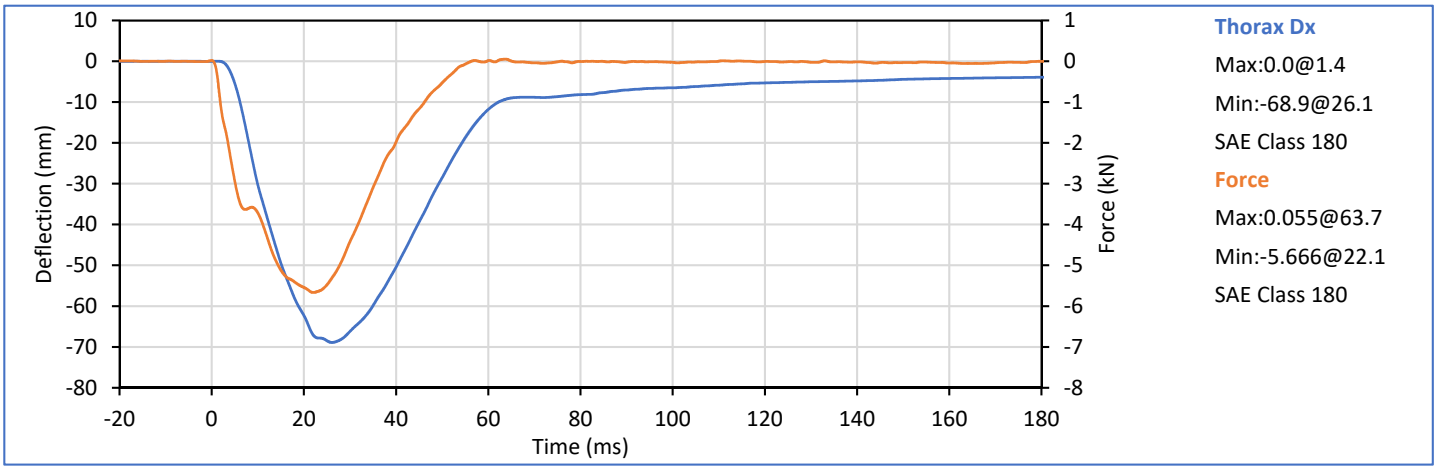
Hybrid III 50th Percentile Male ATD
Thorax Impact

ATD Serial No.: 168

Test Date: 2020-10-13

Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
Laboratory Temperature	°C	20.6	22.2	21.4	Pass
Laboratory Relative Humidity	%	10	70	30	Pass
Probe Velocity	m/s	6.58	6.82	6.71	Pass
Peak Chest Deflection	mm	-72.6	-63.5	-68.9	Pass
Peak Probe Force	kN	-5.893	-5.159	-5.666	Pass
Internal Hysterisis	%	69.0	85.0	69.6	Pass
			Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto

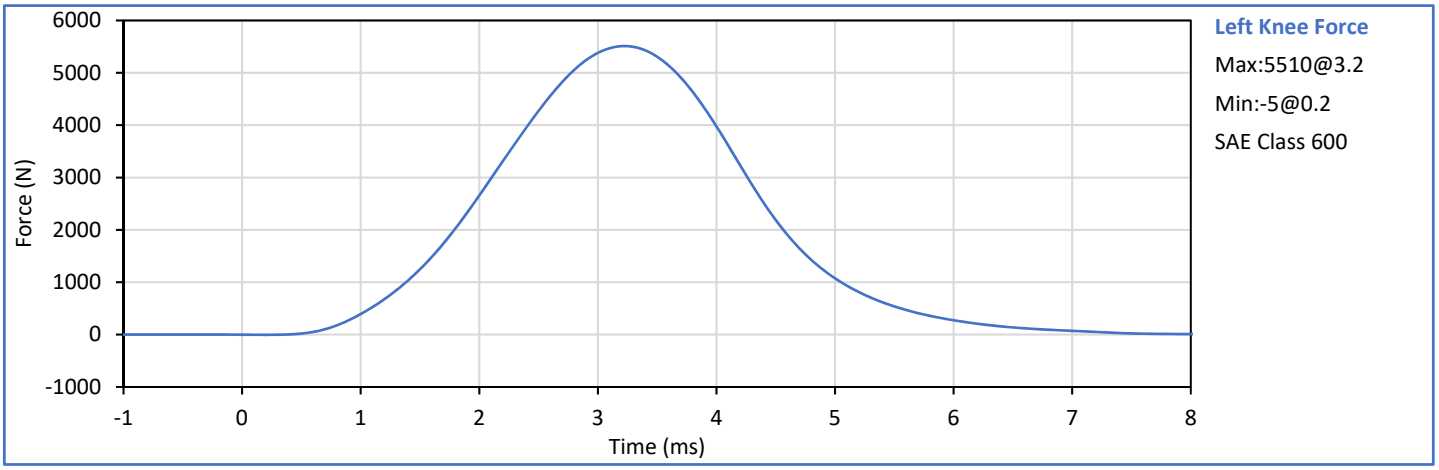
Applus IDIADA
KARCO

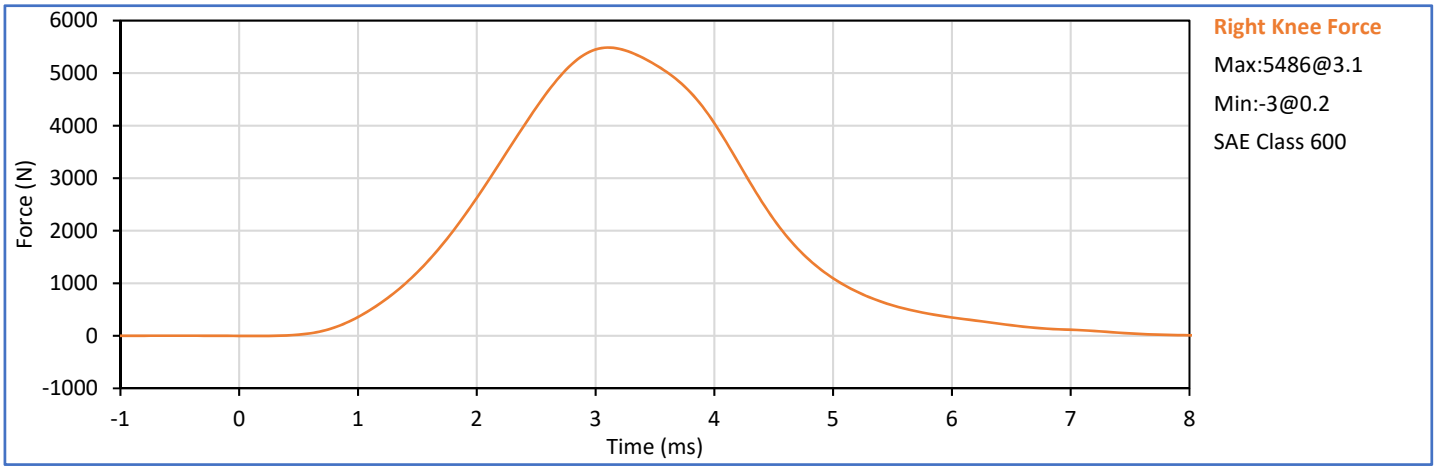
Hybrid III 50th Percentile Male ATD
Knee Impact (Left/Right)

ATD Serial No.: 168

Test Date: 2020-10-16

	Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
	Laboratory Temperature	°C	18.9	25.6	22.2	Pass
	Laboratory Relative Humidity	%	10	70	26	Pass
Left Knee	Probe Velocity	m/s	2.070	2.130	2.078	Pass
	Peak Resistive Force	N	4715	5782	5510	Pass
Right Knee	Probe Velocity	m/s	2.070	2.130	2.099	Pass
	Peak Resistive Force	N	4715	5782	5486	Pass
				Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto

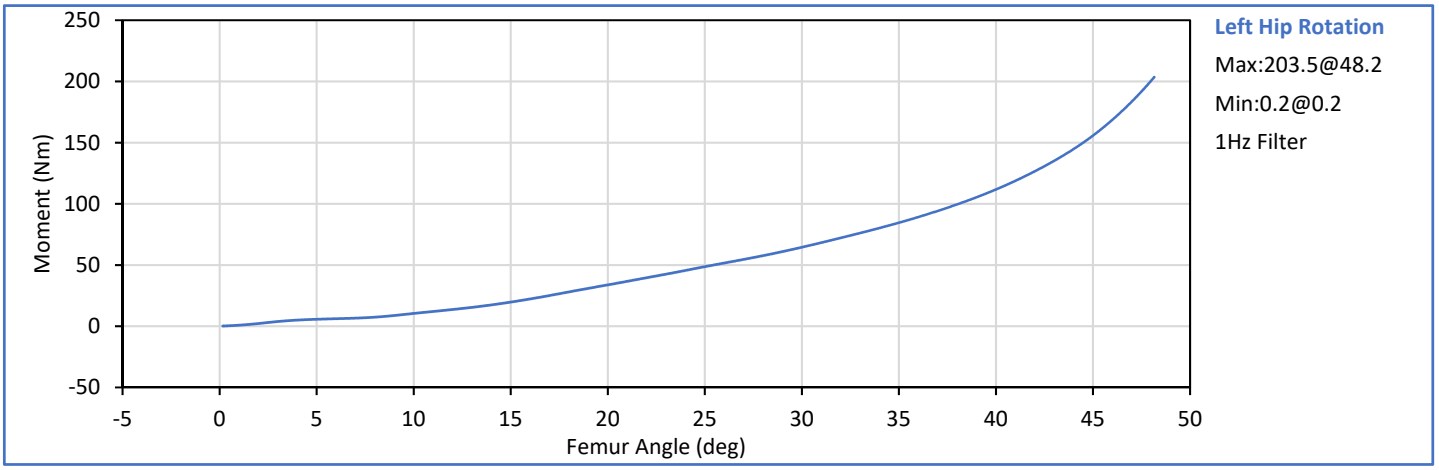
Applus IDIADA
KARCO

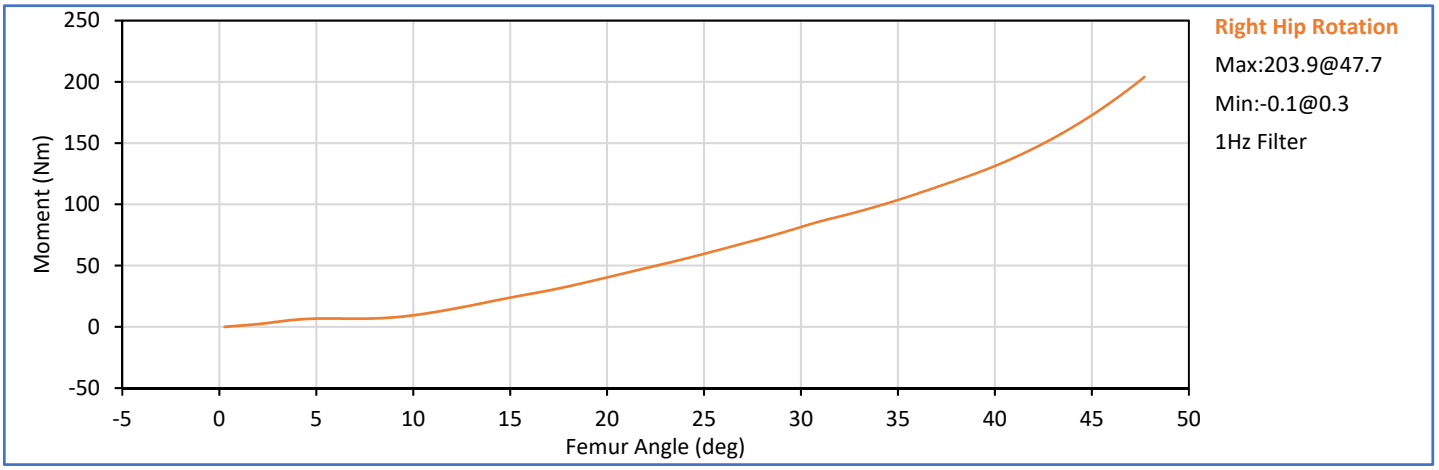
Hybrid III 50th Percentile Male ATD
Hip Flexion (Left/Right)

ATD Serial No.: 168

Test Date: 2020-10-16

	Tested Parameter	Units	Spec. Low	Spec. High	Result	Pass/Fail
	Laboratory Temperature	°C	18.9	25.6	21.1	Pass
	Laboratory Relative Humidity	%	10	70	25	Pass
Left Hip	Left Hip Rotation Rate	deg/s	5.0	10.0	5.9	Pass
	Left Femur Torque at 30°	Nm	0.0	95.0	64.6	Pass
	Left Hip Rotation at 203 Nm	deg	40.0	50.0	48.1	Pass
Right Hip	Right Hip Rotation Rate	deg/s	5.0	10.0	6.0	Pass
	Right Femur Torque at 30°	Nm	0.0	95.0	81.6	Pass
	Right Hip Rotation at 203 Nm	deg	40.0	50.0	47.6	Pass
				Overall Test Results		Pass





Technician: J. Hernandez

Approved By: P. Puzzuto