REPORT NUMBER: SPNCAP-CAL-21-001

NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

Nissan Motor Co., LTD.
2021 Nissan Rogue
SUV

NHTSA No: M20215203

PREPARED BY:
CALSPAN CORPORATION
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March 2, 2021

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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Prepared by: Matthew Pronko Date: March 2, 2021
Matthew Pronko, Test Engineer

Approved by: Vanessa Hansen Date: March 2, 2021
Vanessa Hansen, Operations Manager

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. SideNCAPPole-CAL-21-001	***2. Government Accession No.***	***3. Recipient's Catalog No.***
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of 2021 Nissan Rogue SUV NHTSA No.: M20215203		***5. Report Date*** March 2, 2021 ***6. Performing Organization Code*** CAL
7. Author(s) Matthew Pronko, Test Engineer Vanessa Hansen, Operations Manager		***8. Performing Organization Report No.*** CAL-DOT-2021-001
9. Performing Organization Name and Address Calspan Corporation Transportation Test Operation P.O. Box 400 Buffalo, New York 14225		***10. Work Unit No.*** ***11. Contract or Grant No.*** DTNH22-14-D-00352L
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NRM-110) 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C. 20590		***13. Type of Report and Period Covered:*** Final Test Report, January 4, 2021 - March 2, 2021 ***14. Sponsoring Agency Code*** NRM-100
15. *Supplementary Notes*		

16. Abstract

A 32.20 km/h (20 mph), 75˚ oblique impact Side NCAP Test was conducted on the subject 2021 Nissan Rogue SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on January 4, 2021.

The impact velocity of the vehicle was 32.22 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle was 28°C. The target vehicle's maximum post-test static crush was 330 mm located at level 3. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (SID-IIs) (Serial No. 300)		
	Units	Threshold	Result
Head Injury Criteria (HIC_{36})		1000	161.607
Resultant Lower Spine Acceleration	G	82	Lost Data*
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1770.262
Maximum Thoracic Rib Deflection	mm	38	17.387
Maximum Abdomen Rib Deflection	mm	45	18.037

*Note: Z Acceleration was questionable throughout

The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.

17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs	***18. Distribution Statement*** Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, 1200 New Jersey Ave. SE Washington, D.C. 20590

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UNCLASSIFIED	UNCLASSIFIED	125	

Form DOT F1700.7 (8-72)

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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 2021 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-14-D-00352L. The purpose of this test is to generate comparative side impact performance in a 2021 Nissan Rogue SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated March 2020.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2021 Nissan Rogue SUV. The subject vehicle was towed into the rigid pole at an angle of 75^{o} and a velocity of 32.22 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on January 4, 2021. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated March 2020. The side impact event was documented by 11 cameras. Camera locations and other pertinent camera information are included on page 3-11 in this report.

The Part 572V (SID-IIs) dummy was instrumented accordingly:

Head CG tri-axial accelerometers
Thorax upper, middle, and lower rib displacement potentiometers
Abdomen upper and lower rib displacement potentiometers
Lower spine tri-axial accelerometers
Iliac load cell
Acetabulum load cell

Appendix B contains the dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report. Appendix D identifies all serial numbers, manufacturers, and calibration dates for test equipment, dummy sensors, potentiometers, and load cells used to collect data during the test.

Injury readings for the SID-IIs dummy were recorded as follows:

INJURY READINGS

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC_{36})		1000	161.607
Resultant Lower Spine Acceleration	g	82	Lost Data**
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1770.262
Maximum Thoracic Rib Deflection	mm	38*	17.387
Maximum Abdominal Rib Deflection	mm	45*	18.037

*****Proposed IARV
**Note: Z-Acceleration was questionable throughout

Supplemental restraint information was recorded as follows:

SUPPLEMENTAL RESTRAINT INFORMATION

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

GENERAL COMMENTS:

- P1 serial number – 300

Data Anomalies:

- Driver Lower Spine T12 Z Acceleration, Questionable data throughout

SECTION 3

OCCUPANT AND VEHICLE INFORMATION

This section contains information reporting for the following Data Sheets:

Data Sheet No. 1 – General Test and Vehicle Parameter Data

Data Sheet No. 2 – Seat, Seat Belt, Steering Wheel Adjustment and Fuel Systems Data

Data Sheet No. 3 – Dummy Longitudinal Clearance Dimensions

Data Sheet No. 4 – Dummy Lateral Clearance Dimensions

Data Sheet No. 5 – Camera and instrumentation Data

Data Sheet No. 6 – Vehicle Accelerometer Data

Data Sheet No. 7 – Rigid Pole Load Cell Data

Data Sheet No. 8 – Post-Test Observations

Data Sheet No. 9 – Test Vehicle Profile Measurements

Data Sheet No. 10 – Test Vehicle Exterior Crush Measurements

Data Sheet No. 11 – Vehicle Damage Profile Distances

Data Sheet No. 12 – FMVSS No. 301 Static Rollover Results

Data Sheet No. 13 – Dummy / Vehicle Temperature and Humidity Stabilization Data

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2021 Nissan Rogue SUV
NHTSA No.: M20215203
Test Program: NCAP Side Pole Impact Test
Test Date: 1/4/2021

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20215203
Model Year	2021
Make	Nissan
Model	Rogue
Body Style	SUV
VIN	JN8AT3AA1MW000200
Body Color	Silver
Odometer Reading (km/mi)	23
Engine Displacement (L)	2.5
Type / No. Cylinders	I4
Engine Placement	In-line
Transmission Type	A/T
Transmission Speeds	CVT
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	-
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso / Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head / Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso / Pelvis Airbag	Yes
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other Safety Restraint	-

Does owner's manual provide instructions to turn off automatic door locks? No

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co.
Date of Manufacture	07/20
Vehicle Type	SUV

GVWR (kg)	4486
GAWR Front (kg)	2359
GAWR Rear (kg)	2238

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3	-	5	
Capacity Weight (VCW) (kg)				408	(A)
DSC X 68.04 kg				340.2	(B)
Cargo Weight (RCLW) (kg)				67.8	(A-B)

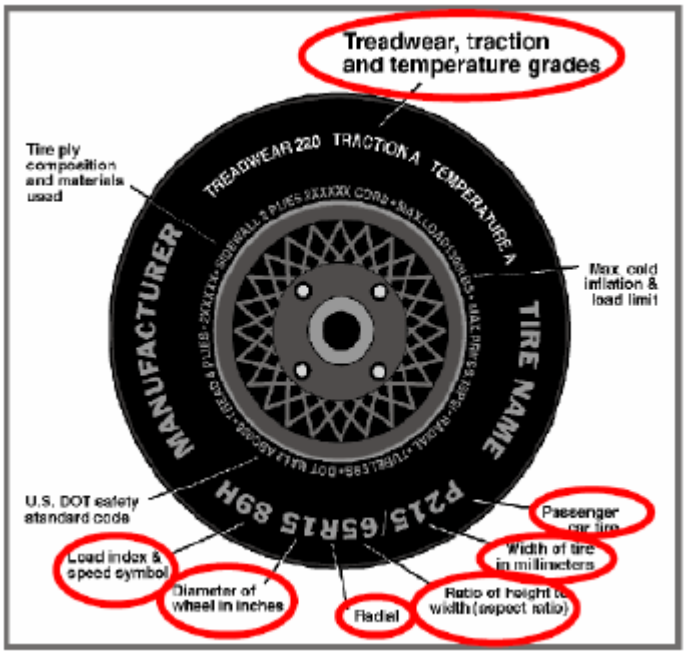
VEHICLE SEAT TYPE

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

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

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021

Collected for year, make, model, & VIN, all items circled in red, tire manufacturer and tire name.



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	250	230
Recommended Tire Size	235/65R17	235/65R17
Tire Size on Vehicle	235/65R17	235/65R17
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Sport A/S	Sport A/S
Treadwear	500	500
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	104H	104H
Tire Material	Rubber	Rubber
DOT Safety Code Left	EJL8CEC1520	EJL8CEC1520
DOT Safety Code Right	EJL8CEC1520	EJL8CEC1520

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

Test Vehicle: 2021 Nissan Rogue SUV NHTSA No.: M20215203
Test Program: NCAP Side Pole Impact Test Test Date: 1/4/2021

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	250	250	230	230
Tire Placard	kPa	250	250	230	230
Owner's Manual	kPa	250	250	230	230
As Tested	kPa	250	250	230	230

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	466	310		481	350		485	361	
Right	kg	445	314		461	352		452	355	
Ratio	%	59.3	40.7		57.3	42.7		56.7	43.3	
Totals	kg	911	624	1535	942	702	1644	937	716	1653

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1535	(A)
Actual Weight of 1 P572V (SID-IIs) ATD Used	kg	50	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	67.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1652.8	(A+B+C)

Does the measured As Test Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to – 9 kg)? [X] **Yes** [ ] **No**

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Rqmt***
Driver Door Sill Angle (front-to-rear)*	Deg	-0.90	-0.60	-0.55	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg	-0.95	-0.95	-0.95	Yes
Front Bumper-Line Angle (left-to-right)**	Deg	+0.05	+0.05	+0.10	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg	+0.30	+0.35	+0.35	Yes
Vehicle CG (Aft of Front Axle)	mm	1099	1155	1171	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	9	9	19	

* ND = Nose Down (-), NU = Nose Up (+)
** LD = Left Down (-), LU = Left Up (+)
*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements. Indicate "Yes" or "No" for Meets Requirement"

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

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	10
Spare Tire	16
Jack	3
Tail Light	2
Ballast / Equipment Added	34

Test Height – Adjustable Suspension Setting, if Applicable	N/A

Test Surface Markings

	Distance from 75° Impact Location Line (mm)
Fore 25 mm target	976
Aft 25 mm target	975

DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the forward-most, mid-height, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rear-most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (º)		
	Max	Min	Mid
Driver Seat	18.0	13.5	15.8
Front Passenger Seat	Not Adjustable		
Front Center Seat	-	-	-
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (º)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore / Aft	Forward-Most
Driver Seat	15.8	52	Max	-	-	-
			Mid	25	39	52
			Min	-	-	-
Front Passenger Seat	Not Adjustable		Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Front Center Seat	N/A	N/A	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Struck Side Rear Seat	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Non-Struck Side Rear Seat	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Rear Center Seat	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-

DATA SHEET NO. 2 … (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

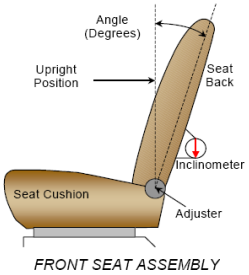
Test Vehicle: 2021 Nissan Rogue SUV NHTSA No.: M20215203
Test Program: NCAP Side Pole Impact Test Test Date: 1/4/2021

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detents*
Driver Seat	260	27 (0 – 26)	0	0
Front Passenger Seat	260	27 (0 – 26)	0	0
Front Center Seat	-	-	-	-
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1 for the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back are set to match the struck-side rear seat back.



FRONT SEAT ASSEMBLY

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/Seated Dummy	64.2	15	3.2	5
Front Passenger Seat	62.7	15	3.3	5
Front Center Seat	-	-	-	-
Struck Side Rear Seat	8.5	2	4.0	1 (Foremost)
Non-Struck Side Rear Seat	11.1	2	6.6	1 (Foremost)
Rear Center Seat	11.1	2	6.6	1 (Foremost)

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. Zero is defined as the uppermost detent

Seat	Total # of Positions	Placed in Position #
Driver Seat	4 (0 – 3)	0

HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the lowest and most full forward in-use position.

Seat	Total # of Positions	Placed in Position #
Driver Seat	5 (0 – 4)	Lowermost

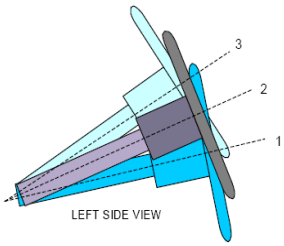
DATA SHEET NO. 2 … (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

	Degrees	Fore / Aft Position (mm)
Lowermost – Position 1	27.8	
Geometric Center – Position 2	25.2	
Uppermost – Position 3	22.7	
Telescoping Steering Wheel Travel		60
Test Position	25.2	30

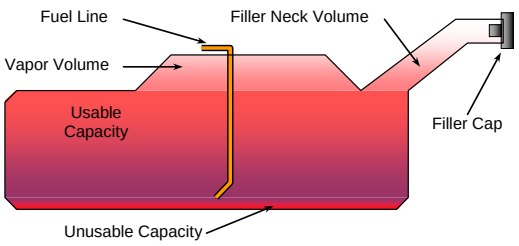


STEERING COLUMN ASSEMBLY

FUEL PUMP

Describe the fuel pump type, details about how it operates, and the location of the fuel filler neck.

The vehicle is equipped with an electric fuel pump. The fuel filler neck is on the left side of the vehicle. The pump creates positive pressure in the fuel lines, pushing the gasoline to the engine. See form 1 for more information.



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

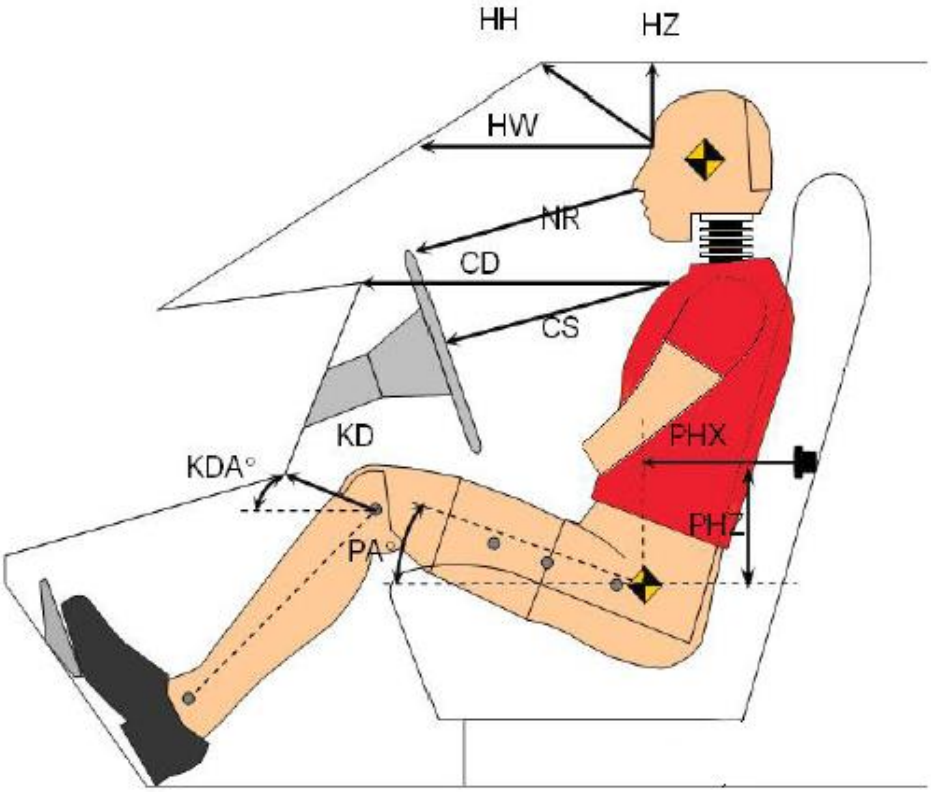
Description			Liters
Usable Capacity of “Standard Tank”	-	see Form No. 1	58.3
Usable Capacity of “Optional Tank”	-	see Form No. 1	-
Usable Capacity of “Standard Tank”	-	see Owner’s Manual	58.3
Usable Capacity of “Optional Tank”	-	see Owner’s Manual	-
93% of Usable Capacity			54.2
Actual Amount of Solvent Used in Test			54.2
1/3 of Usable Capacity			19.4

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

[X] Yes [ ] No

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021



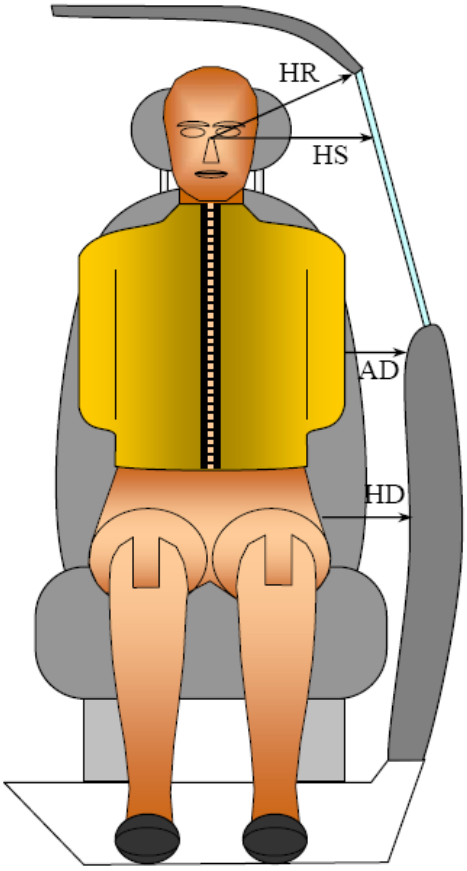
Left Side View

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver (Serial No. 300)	
		Length (mm)	Angle (◦)
HH	Head to Header	283	
HW	Head to Windshield	597	
HZ	Head to Roof Liner	220	
NR	Nose to Rim	235	
CD	Chest to Dash	395	
CS	Chest to Steering Wheel	165	
KD(L) / KDA(L)◦	Left Knee to Dash	87	32.9
KD(R) / KDA(R)◦	Right Knee to Dash	84	32.2
PAX◦	Pelvic Tilt Angle (X-Axis)		20.0
PAY◦	Pelvic Tilt Angle (Y-Axis)		0.3
PHX	Hip Point to Striker (X-Axis)	384	
PHZ	Hip Point to Striker (Z-Axis)	114	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021



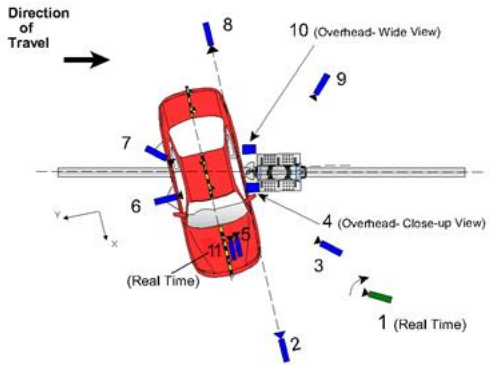
FRONT VIEW OF DUMMY

DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver - Length (Serial No. 300)
HR	Head To Side Header	mm	262
HS	Head to Side Window	mm	374
AD	Arm to Door	mm	162
HD	Hip Point to Door	mm	186

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2021 Nissan Rogue SUV NHTSA No.: M20215203
Test Program: NCAP Side Pole Impact Test Test Date: 1/4/2021



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real-time (24 - 30 fps) pan view of impact				Zoom	60
2	Front ground level - impact view	0	6715	-1443	28	1000
3	Impact side 45º - forward pole view	1392	5366	-1572	24	1000
4	Overhead Close-up view of impact	0	0	-9375	28	1000
5	Onboard - dummy front view				25	1000
6	Onboard - dummy side view				12.5	1000
7	Onboard - dummy rear oblique view				12.5	1000
8	Rear ground level - impact view	0	-7788	-1456	28	1000
9	Impact side 45º - rearward pole view	4615	-3365	-1400	24	1000
10	Overhead wide - view of impact	0	0	-9375	12.5	1000
11	Real-time (24 - 30 fps) - dummy front view				Zoom	60

Notes: *Reference - From Point of Impact for X and Y; from Ground for Z*
+X = Forward of vehicle, +Y = Right of vehicle, +Z = Down
** All measurements accurate to ± 6 mm.* *Vehicle is at a 75º angle to the rigid pole.*

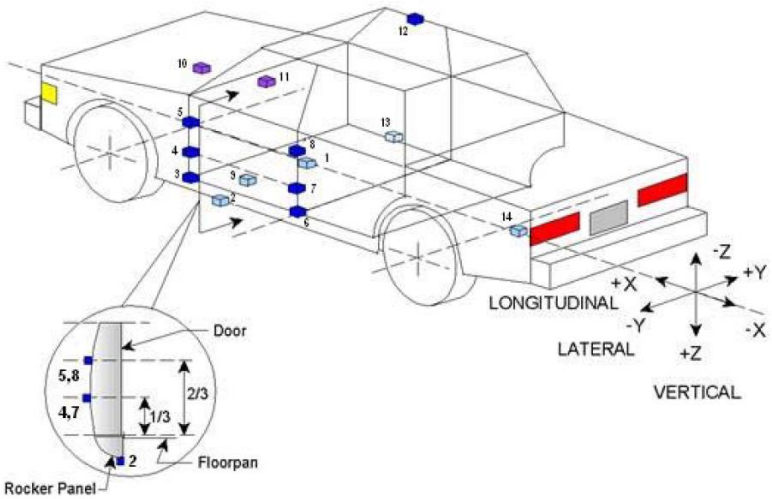
Comments: All cameras operated as intended.

INSTRUMENTATION

Description	Number of Channels
Driver Dummy Channels	16
Vehicle Structure Accelerometers	18
Pole Load Cells	8
Total	42

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2021 Nissan Rogue SUV NHTSA No.: M20215203
Test Program: NCAP Side Pole Impact Test Test Date: 1/4/2021



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2701	5	-11
2	Left Floor Sill	2890	-643	149
3	A-Pillar Sill	3199	-617	135
4	A-Pillar Low	3218	-610	-70
5	A-Pillar Mid	3218	-629	-581
6	B-Pillar Sill	2028	-636	169
7	B-Pillar Low	2178	-679	-68
8	B-Pillar Mid	2140	-665	-326
9	Driver Seat Track	2407	-545	124
10	Engine Top	3870	143	-304
11	Firewall	3643	-1	-389
12	Right Roof	2081	574	-1079
13	Right Floor Sill	2897	643	137
14	Rear Floorpan	531	-1	130

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

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021

POLE BARRIER

RIGID POLE LOAD CELL LOCATIONS

ID	Units	Height From Ground
1	mm	200
2	mm	590
3	mm	750
4	mm	1075
5	mm	1260
6	mm	1740
7	mm	1920
8	mm	2300

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2021 Nissan Rogue SUV
Test Program: NCAP Side Pole Impact Test
NHTSA No.: M20215203
Test Date: 1/4/2021

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver Seat Dummy (SID-IIs)
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag & Headrest
Left Shoulder	Torso/Pelvis Airbag
Upper Torso	Seatback & Torso/Pelvis Airbag
Lower Torso	Seatback & Torso/Pelvis Airbag
Left Hip	Seat pan & Torso/Pelvis Airbag
Left Knee	Driver Door

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Width of Opening at Striker (mm)	0	0	0	0	0

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

DATA SHEET NO. 8 … (CONTINUED)
POST-TEST OBSERVATIONS

Test Vehicle: 2021 Nissan Rogue SUV NHTSA No.: M20215203
Test Program: NCAP Side Pole Impact Test Test Date: 1/4/2021

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	A-Pillar buckled
Sill Separation	None
Windshield Damage	Cracks throughout and separation along A-pillar and roof
Side Window Damage	Driver window shattered
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

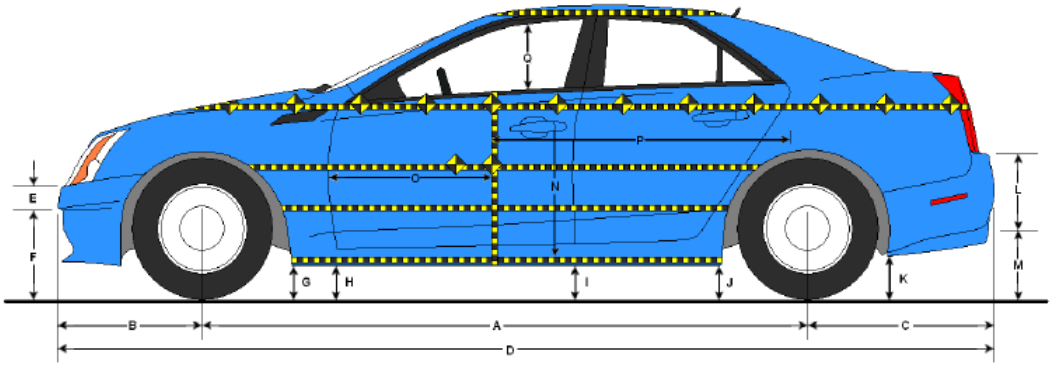
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter		Units	Tolerance	Value
Vertical Impact Ref Line	- Aft of Front Axle, Intended Impact Pt	mm		1068
Actual Impact Point	- Aft of Front Axle	mm		1073
Horizontal Offset (+ forward / - rearward)		mm	+/- 38 *	-5
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion		deg	75 +/- 3	75
Trap No. 1 Velocity	- Primary	kph	31.4 to 33.0	32.22
Trap No. 2 Velocity	- Redundant	kph	31.4 to 33.0	32.14

* Of Intended Impact Point

DATA SHEET NO. 9
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2021 Nissan Rogue SUV
Test Program: NCAP Side Pole Impact Test
NHTSA No.: M20215203
Test Date: 1/4/2021



LEFT SIDE VIEW

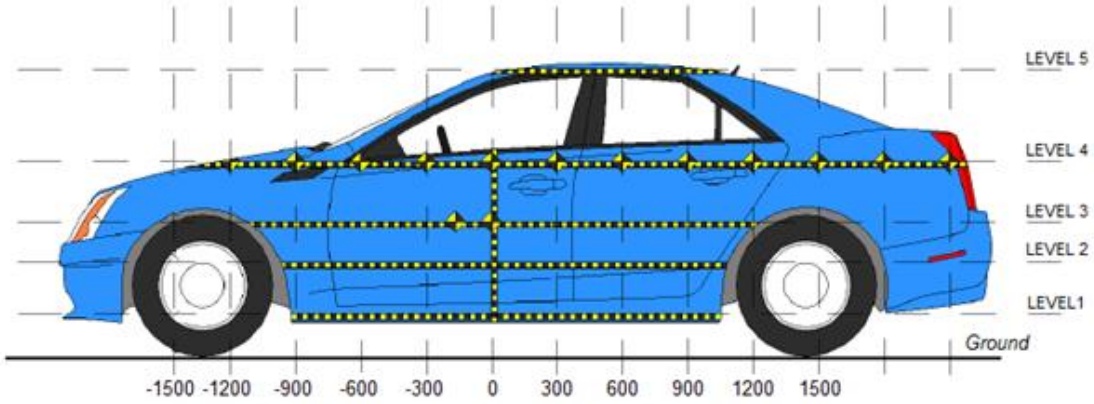
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2704	2662	42
B	Front Axle to FSOV	940	957	-17
C	Rear Axle to RSOV	1007	1006	1
D	Total Length at Centerline	4650	4625	25
E	Front Bumper Thickness	210	210	0
F	Front Bumper Bottom to Ground	315	341	-26
G	Sill Height at Front Wheel Well	281	280	1
H	Sill Height at Front Door Leading Edge	282	281	1
I	Sill Height at B-Pillar	295	310	-15
J1	Sill Height at Rear Wheel Well	318	339	-21
J2	Pinch Weld Height at Rear Wheel Well	299	314	-15
K	Sill Height Aft of Rear Wheel Well	315	330	-15
L	Rear Bumper Thickness	150	150	0
M	Rear Bumper Bottom to Ground	465	458	7
N	Sill Height to Bottom of Front Window Sill	851	863	-12
O	Front Door Leading Edge to Impact CL	597	526	71
P	Rear Door Trailing Edge to Impact CL	1572	1498	74
Q	Front Window Opening	404	402	2
R	Right Side Length	4537	4530	7
S	Left Side Length	4541	4493	48
T	Vehicle Width at B-Pillars	1830	1736	94
U	Front Wheel Track Width	1580	1582	-2
V	Rear Wheel Track Width	1590	1590	0

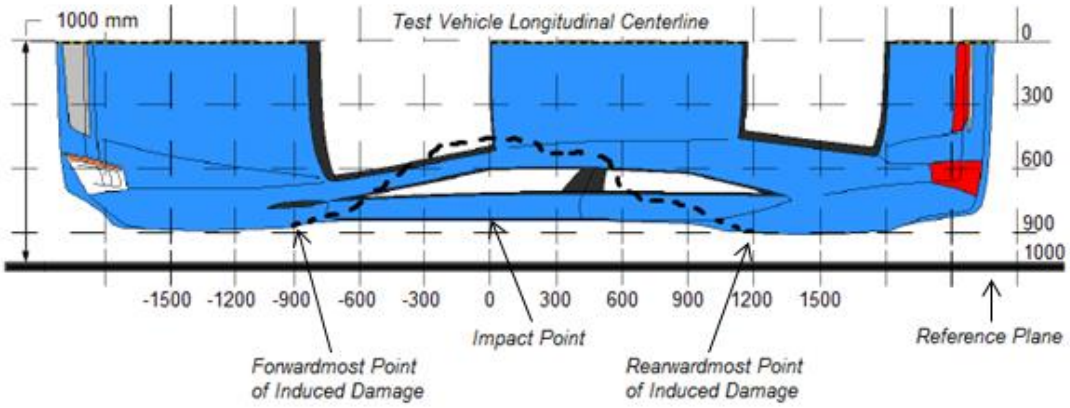
* All measurements in mm with tolerance of ± 3mm

DATA SHEET NO. 10
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2021 Nissan Rogue SUV NHTSA No.: M20215203
Test Program: NCAP Side Pole Impact Test Test Date: 1/4/2021



Left Side View



Overhead View

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	366	285	0
2	Occupant Hip Point	mm	729	327	0
3	Mid - Door	mm	822	330	0
4	Window Sill	mm	1125	259	150
5	Window Top	mm	1618	92	150

NOTE: *The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.*

DATA SHEET NO. 10 … (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2021 Nissan Rogue SUV NHTSA No.: M20215203
Test Program: NCAP Side Pole Impact Test Test Date: 1/4/2021

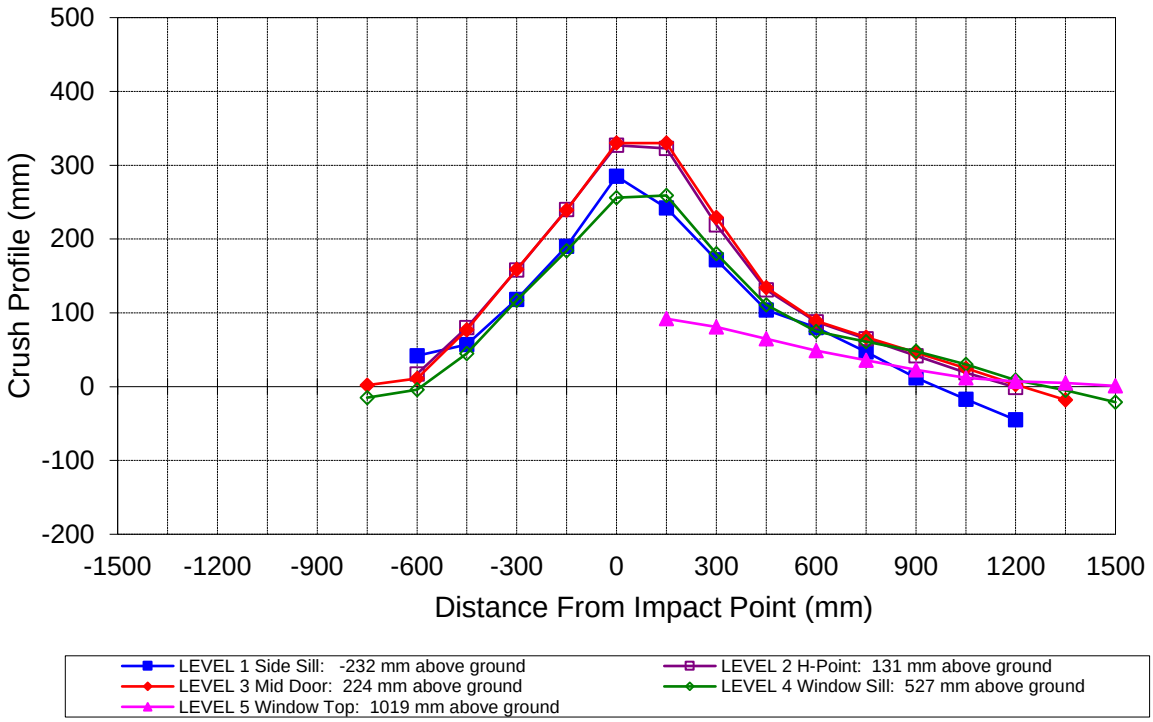
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500															
-1350															
-1200															
-1050															
-900															
-750			911	810				909	825				2	-15	
-600	916	917	915	816		874	900	904	820		42	17	11	-4	
-450	910	915	914	813		853	835	837	768		57	80	77	45	
-300	909	910	914	814		791	752	755	697		118	158	159	117	
-150	907	909	912	821		717	669	673	637		190	240	239	184	
0	904	909	912	828		619	582	582	572		285	327	330	256	
150	902	908	910	833	620	660	585	580	574	528	242	323	330	259	92
300	900	906	908	838	631	728	687	679	658	550	172	219	229	180	81
450	896	903	905	841	631	792	772	771	730	566	104	131	134	111	65
600	892	899	901	841	631	812	811	812	766	582	80	88	89	75	49
750	886	895	897	841	630	839	830	830	780	594	47	65	67	61	36
900	882	895	895	841	629	870	853	849	793	606	12	42	46	48	23
1050	883	906	903	845	626	900	887	878	815	614	-17	19	25	30	12
1200	884	911	915	860	622	929	912	912	851	615	-45	-1	3	9	7
1350			917	871	618			935	876	613			-18	-5	5
1500				879	610				900	609				-21	1

NOTE: *Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point. The final distance from impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy's head.*

DATA SHEET NO. 10 … (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021

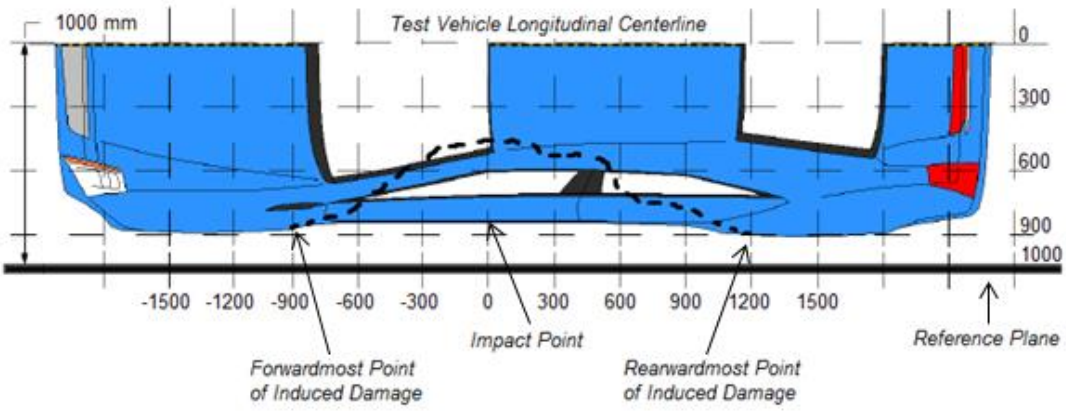


Vehicle Exterior Crush Measurements - Visual Representation

DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021

For guidance regarding damage profile distance measurements, please refer to the latest version of the *NHTSA Test Reference Guide, Volume 1: Vehicle Tests.*



Overhead View

VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	-750	3	91	89	2
2	-330	3	229	86	143
3	90	3	419	89	330
4	510	3	213	97	116
5	930	3	145	103	42
6	1350	3	65	83	-18

DATA SHEET NO. 12
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side MDB Impact Test	Test Date:	1/4/2021
Test Time:	10:00 AM	Temperature:	21.2 C

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

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

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

D. Spillage Details: — No Spillage Occurred

FMVSS NO. 301 STATIC ROLLOVER DATA

ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	67	300	367
90° to 180°	68	300	368
180° to 270°	65	300	365
270° to 360°	68	300	368

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

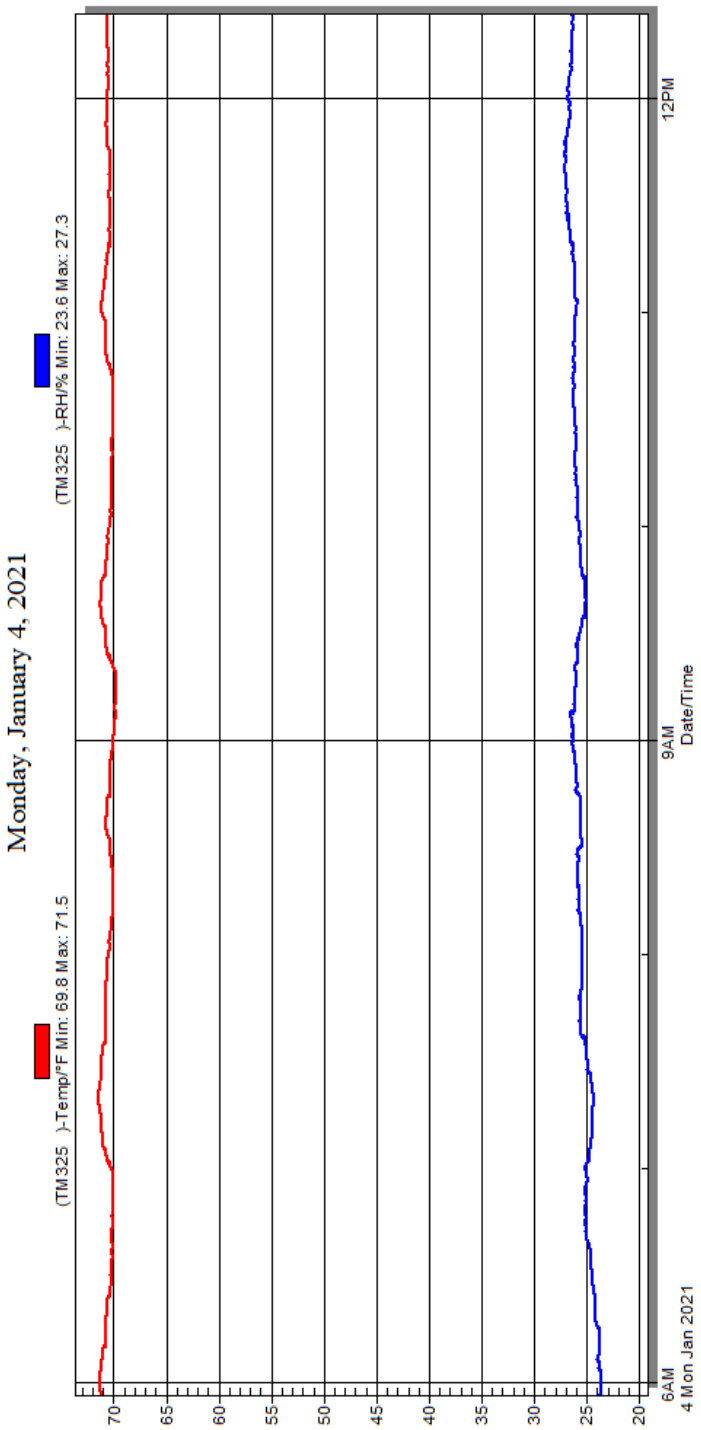
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0	0	0	-
90° to 180°	0	0	0	-
180° to 270°	0	0	0	-
270° to 360°	0	0	0	-

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	None
90° to 180°	None
180° to 270°	None
270° to 360°	None

DATA SHEET NO. 13
DUMMY / VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle:	2021 Nissan Rogue SUV	NHTSA No.:	M20215203
Test Program:	NCAP Side Pole Impact Test	Test Date:	1/4/2021



Temperature and Humidity Stabilization Chart / Data for Dummies and Test Vehicle

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Figure A-1: As Delivered Right Front ¾ View of Test Vehicle

Figure A-2: As Delivered Left Rear ¾ View of Test Vehicle

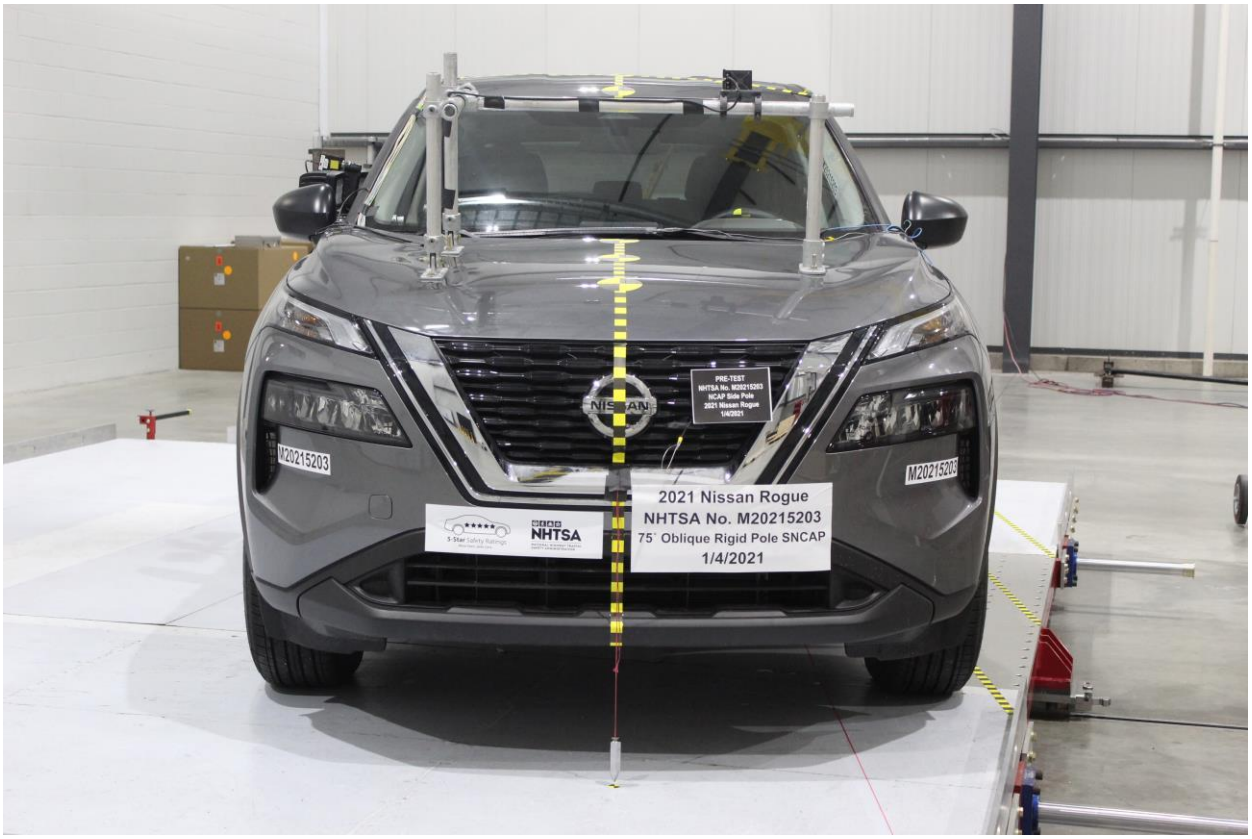


Figure A-3: Pre-Test Frontal View of Test Vehicle

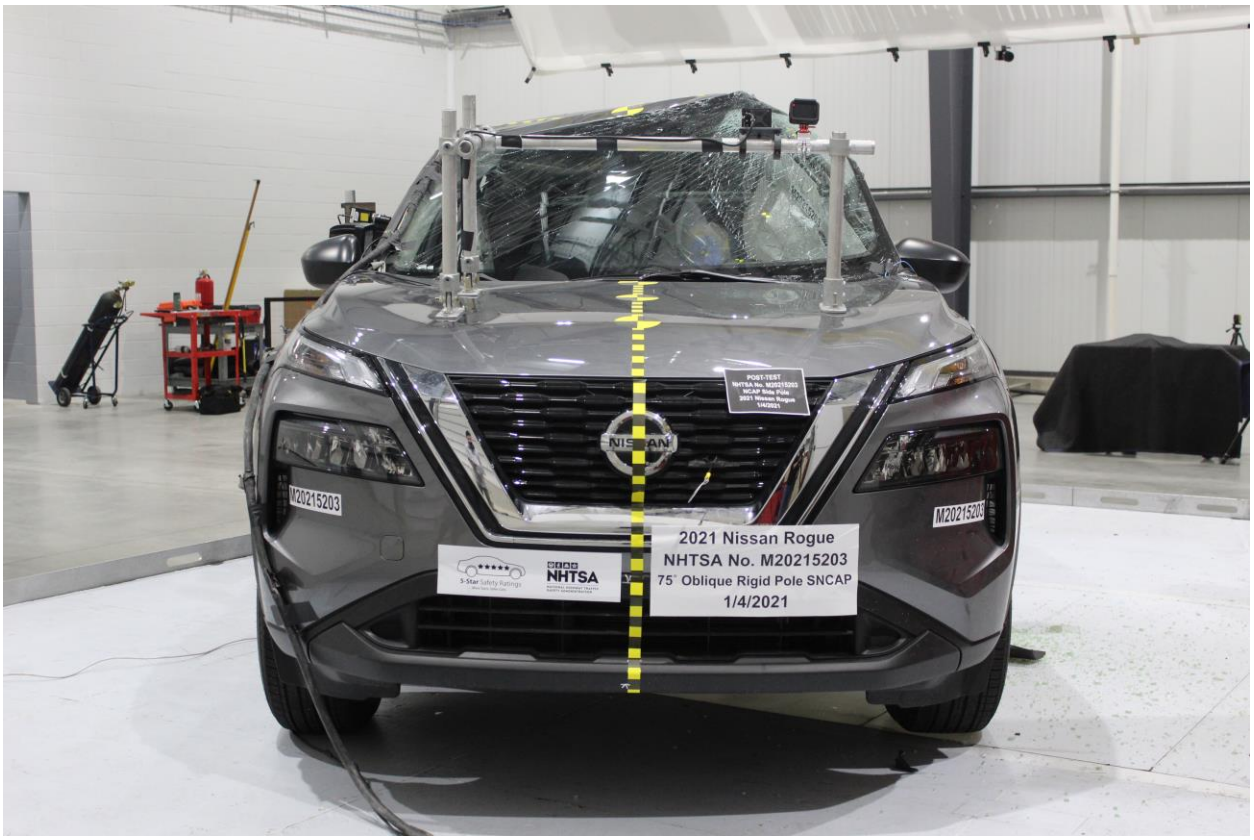


Figure A-4: Post-Test Frontal View of Test Vehicle

Figure A-5: Pre-Test Left Front ¾ View of Test Vehicle

Figure A-6: Post-Test Left Front ¾ View of Test Vehicle

Figure A-7: Pre-Test Left Side View of Test Vehicle

Figure A-8: Post-Test Left Side View of Test Vehicle

Figure A-9: Pre-Test Left Rear ¾ View of Test Vehicle

Figure A-10: Post-Test Left Rear ¾ View of Test Vehicle

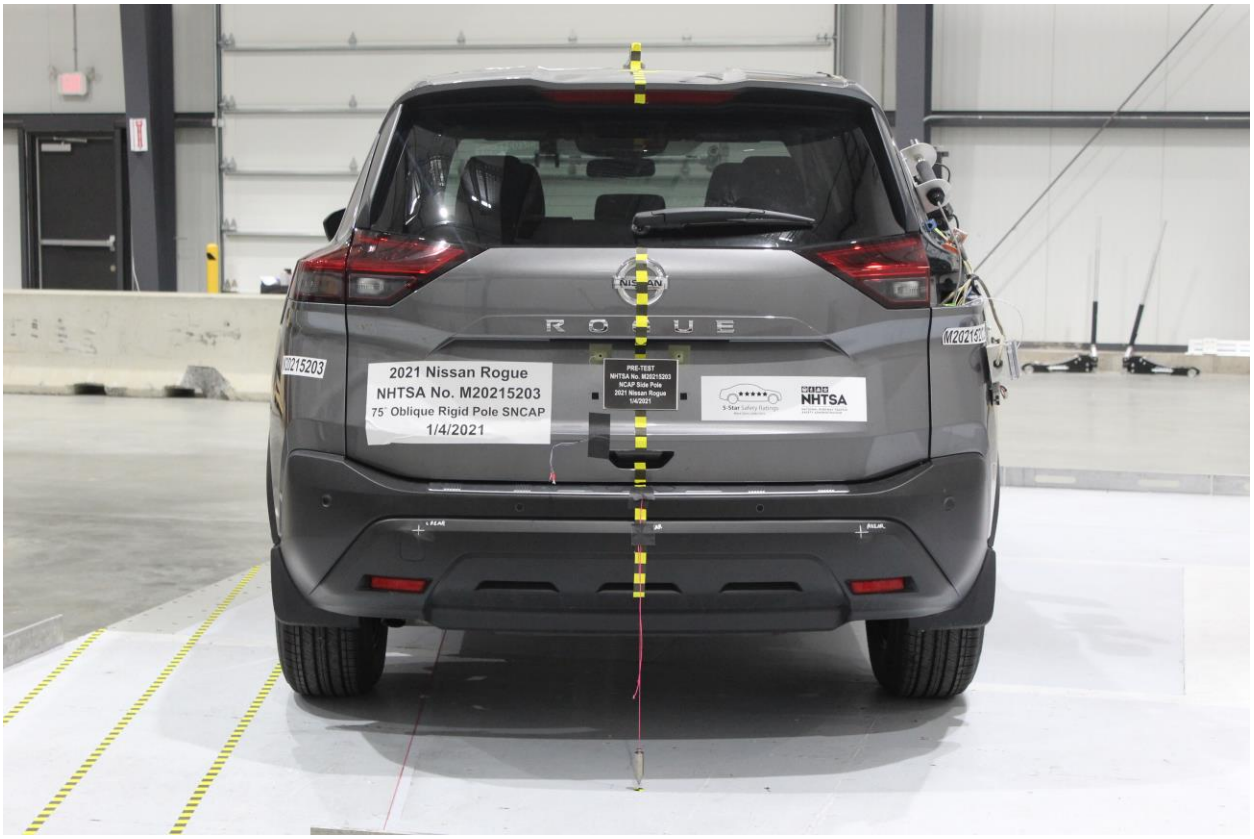


Figure A-11: Pre-Test Rear View of Test Vehicle

Figure A-12: Post-Test Rear View of Test Vehicle

Figure A-13: Pre-Test Right Side View of Test Vehicle

Figure A-14: Post-Test Right Side View of Test Vehicle

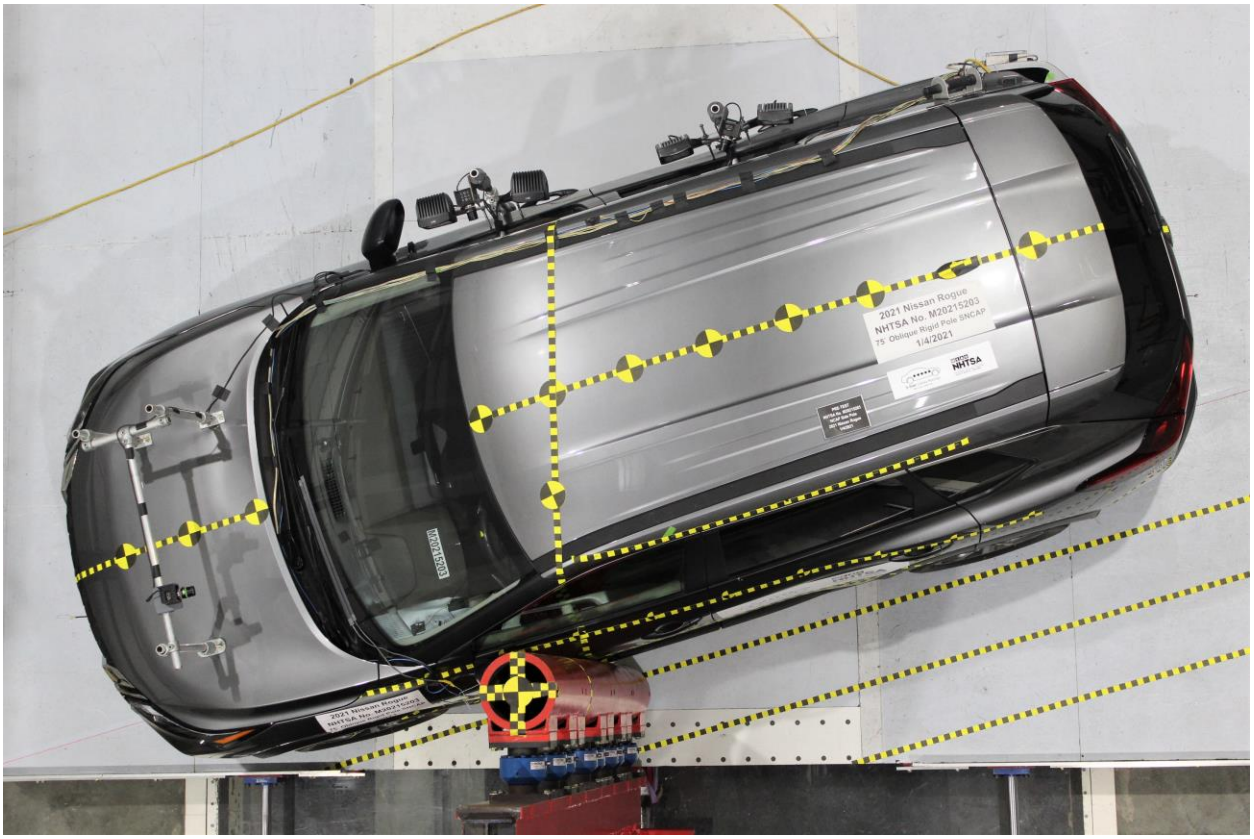


Figure A-15: Pre-Test Overhead View of Test Area

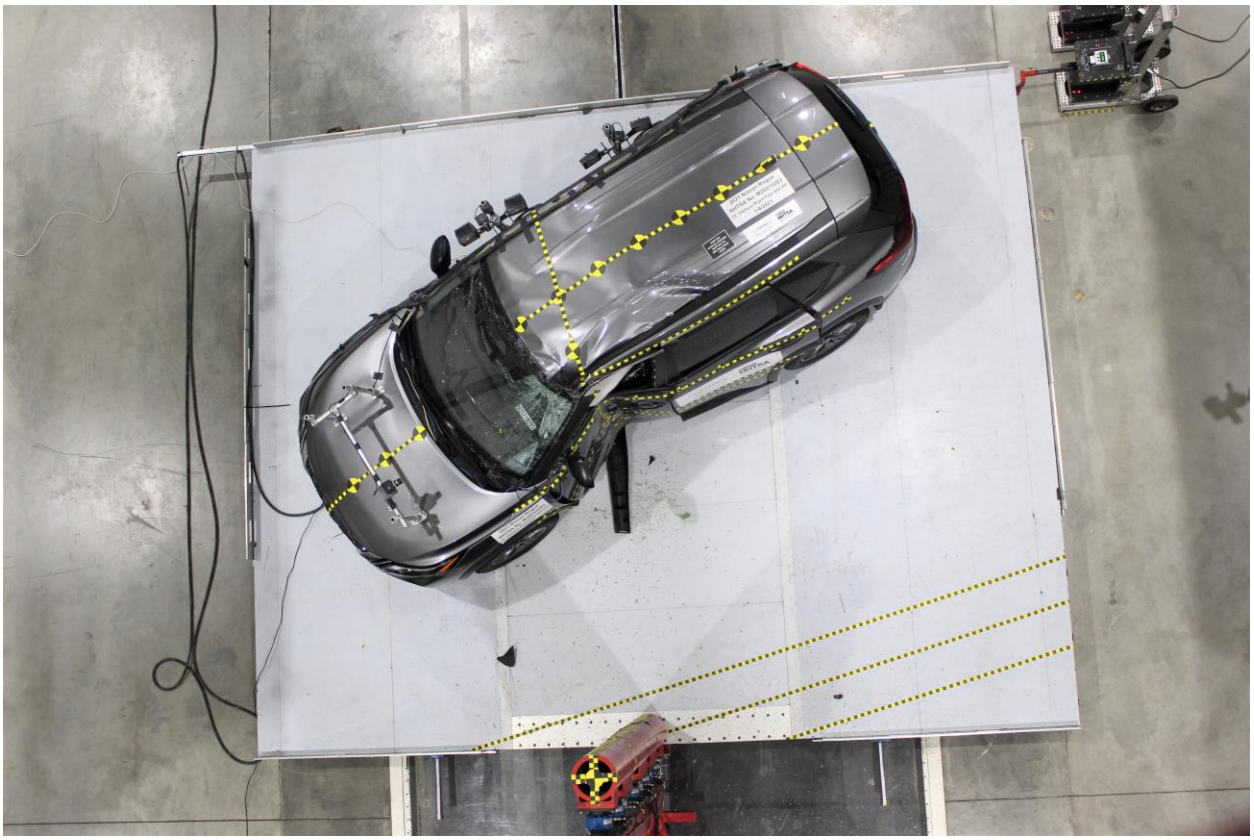


Figure A-16: Post-Test Overhead View of Test Area

Figure A-17: Pre-Test Left Side View of Pole Positioned Against Side of Vehicle

Figure A-18: Pre-Test Right Side View of Pole Positioned Against Side of Vehicle

Figure A-19: Pre-Test Close-Up View of Impact Point Target

Figure A-20: Post-Test Close-Up View of Impact Point Target Showing Impact Location

Figure A-21: Pre-Test Front Close-Up View of Dummy Head and Chest

Figure A-22: Post-Test Front Close-Up View of Dummy

Figure A-23: Pre-Test Left Side View of Dummy Showing Belt and Chalking

Figure A-24: Pre-Test Left Side View of Dummy Shoulder and Door Top View

Figure A-25: Post-Test Left Side View of Dummy Shoulder and Door Top View

Figure A-26: Pre-Test Frontal View of Seat Back Prior to Dummy Positioning

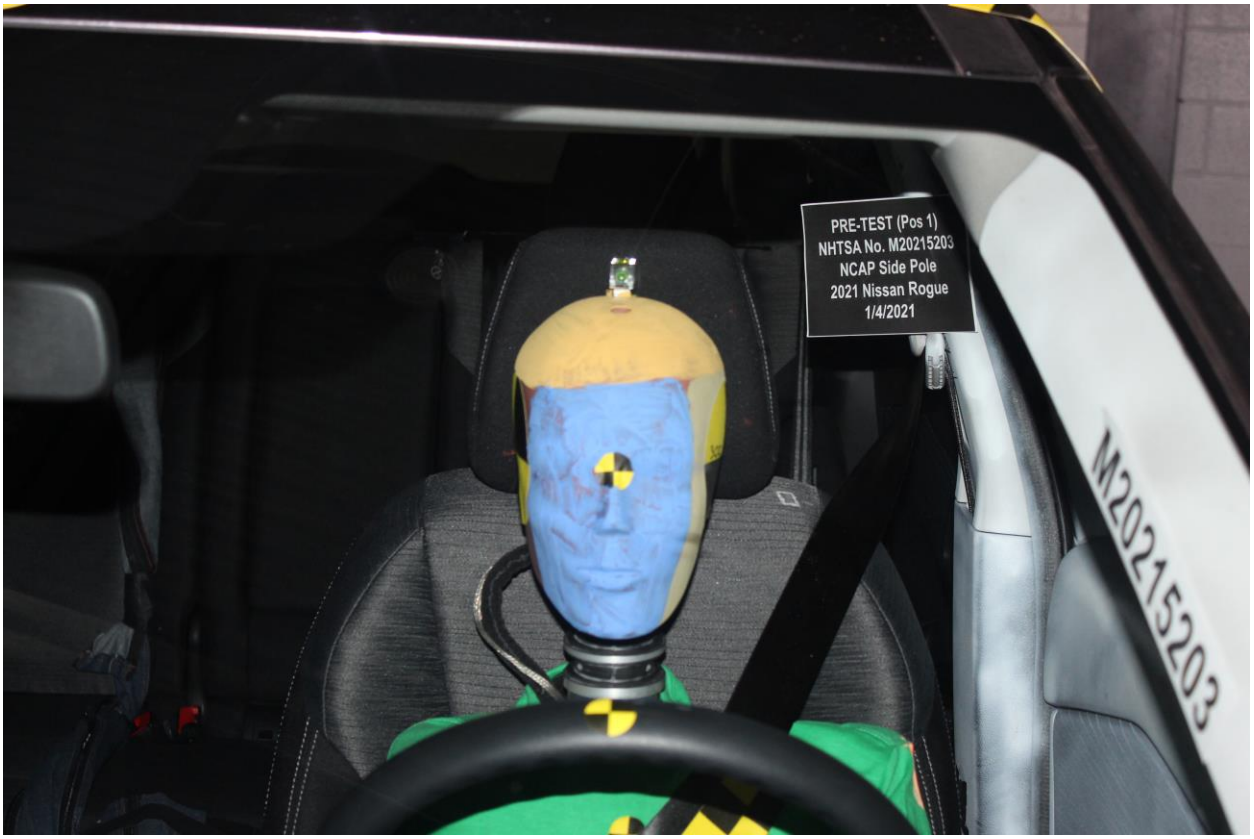


Figure A-27: Pre-Test Frontal Close-Up View of Dummy Head / Shoulders in Relation to Head Restraint

Figure A-28: Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning

Figure A-29: Pre-Test Overhead View of Dummy Thighs on Seat Pan

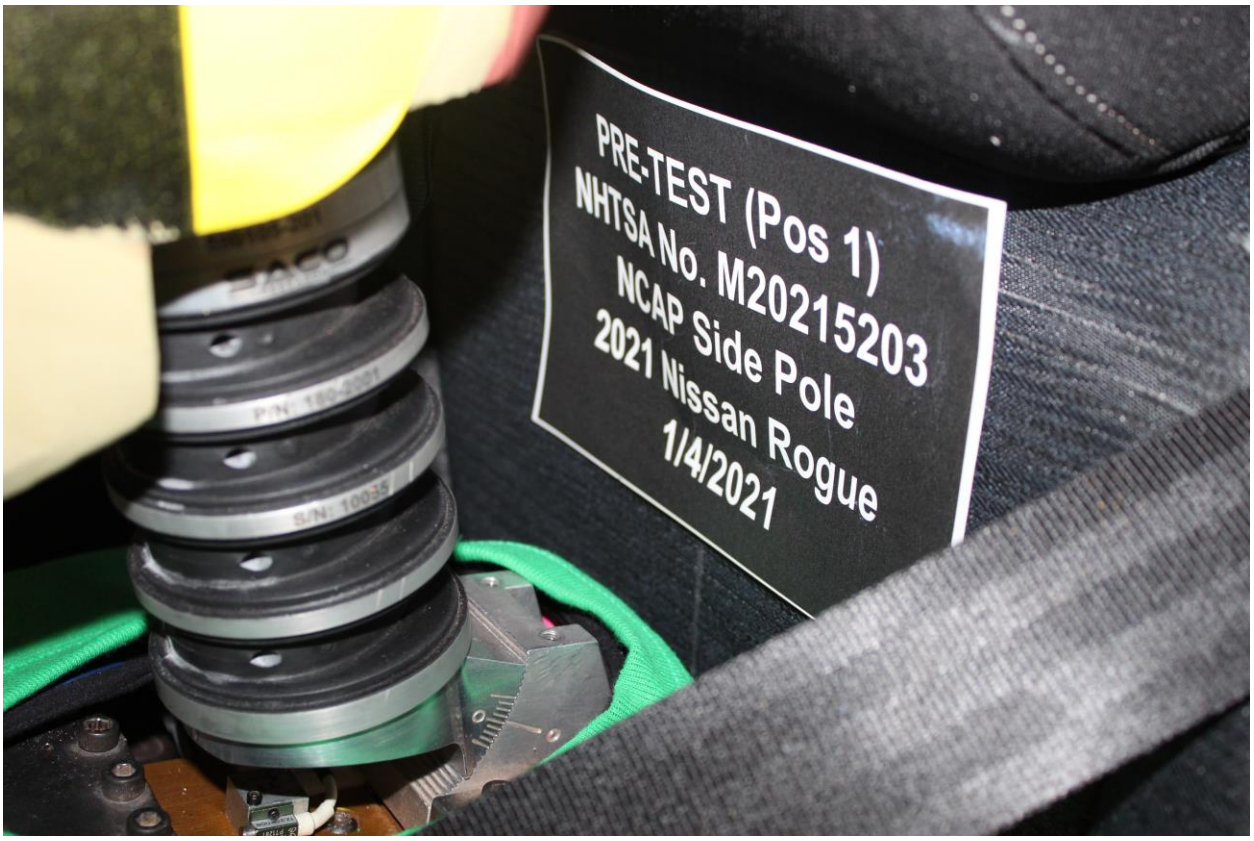


Figure A-30: Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket

Figure A-31: Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level

Figure A-32: Pre-Test Placement of Dummy's Feet

Figure A-33: Pre-Test View of Belt Anchorage for Dummy

Figure A-34: Pre-Test Left Side View of Steering Wheel

Figure A-35: Pre-Test View of Disengaged Parking Brake

Figure A-36: Pre-Test View of Parking Brake

Figure A-37: Pre-Test Close-Up Left Side View of Driver Seat Track

Figure A-38: Pre-Test Close-Up Left Side View of Driver Seat Back

Figure A-39: Pre-Test Close-Up View of Driver Seat Back or Head Restraint

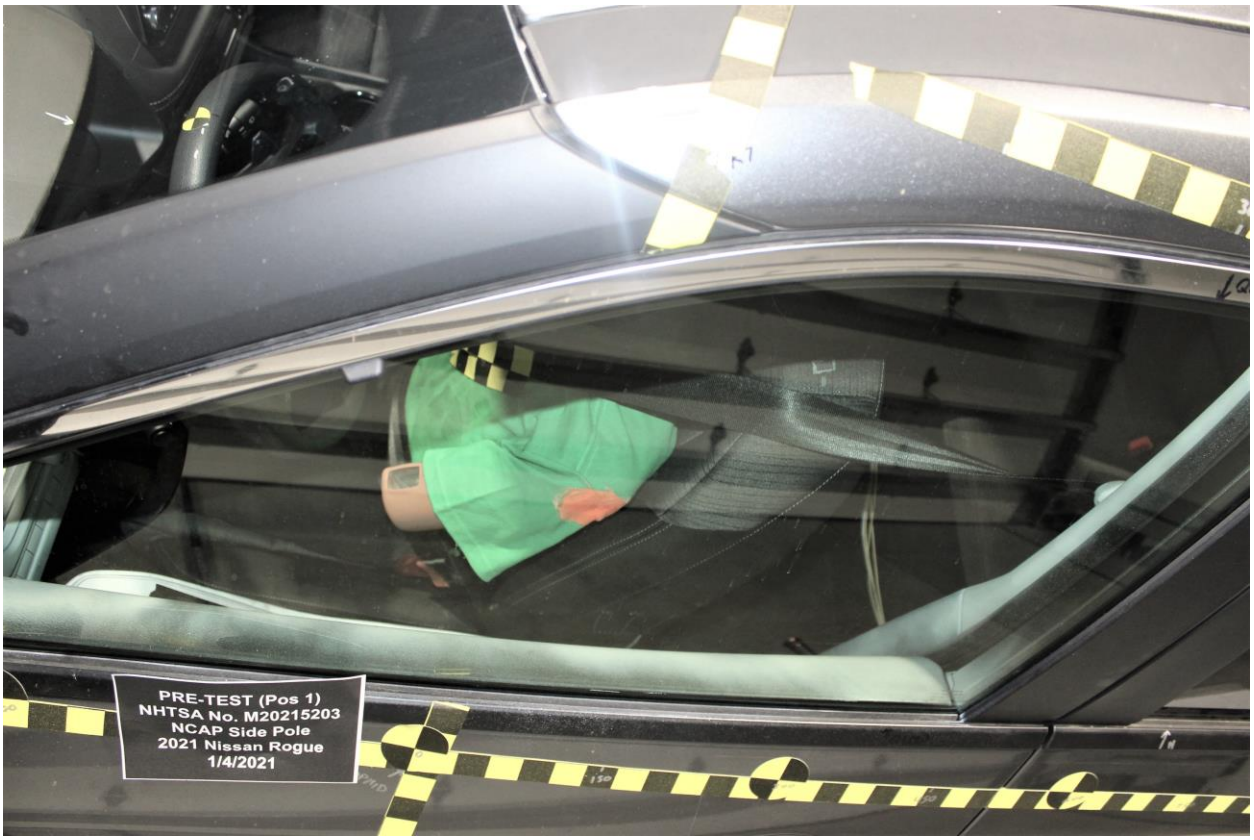


Figure A-40: Pre-Test Dummy and Door Clearance View

Figure A-41: Post-Test Dummy and Door Clearance View

Figure A-42: Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment

Figure A-43: Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment

Figure A-44: Pre-Test Inner Door Panel View

Figure A-45: Post-Test Inner Door Panel View Showing Dummy Contact Location

Figure A-46: Post-Test Dummy Close-Up Head Contact with Vehicle Interior View

Figure A-47: Post-Test Dummy Close-Up Head Contact with Side Airbag View

Figure A-48: Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View

Figure A-49: Post-Test Dummy Close-Up Torso Contact with Side Airbag View

Figure A-50: Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View

Figure A-51: Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View

Figure A-52: Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View

Figure A-53: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

Figure A-54: Post-Test View of Fuel Filler Cap or Fuel Filler Neck

Figure A-55: Close-Up View of Vehicle's Certification Label

Figure A-56: Close-Up View of Vehicle's Tire Information Placard or Label

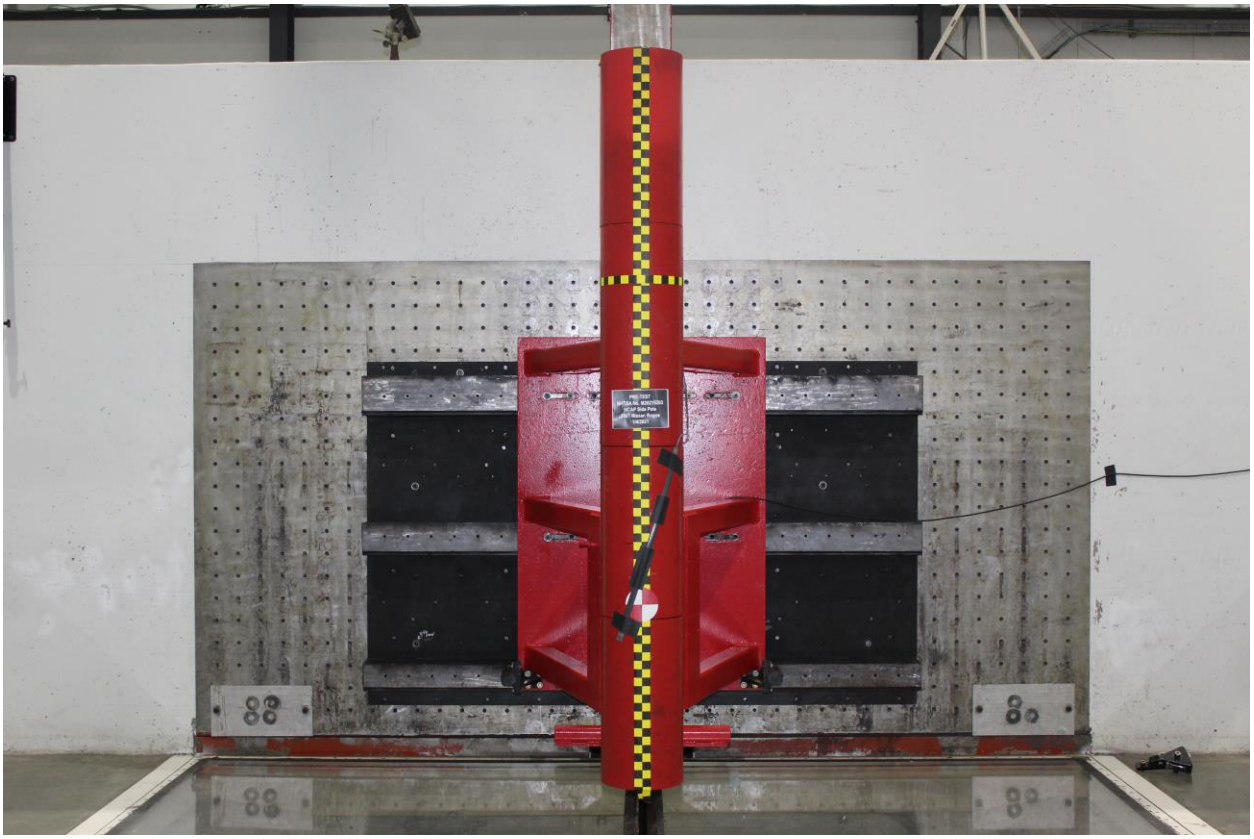


Figure A-57: Pre-Test Pole Barrier Front View

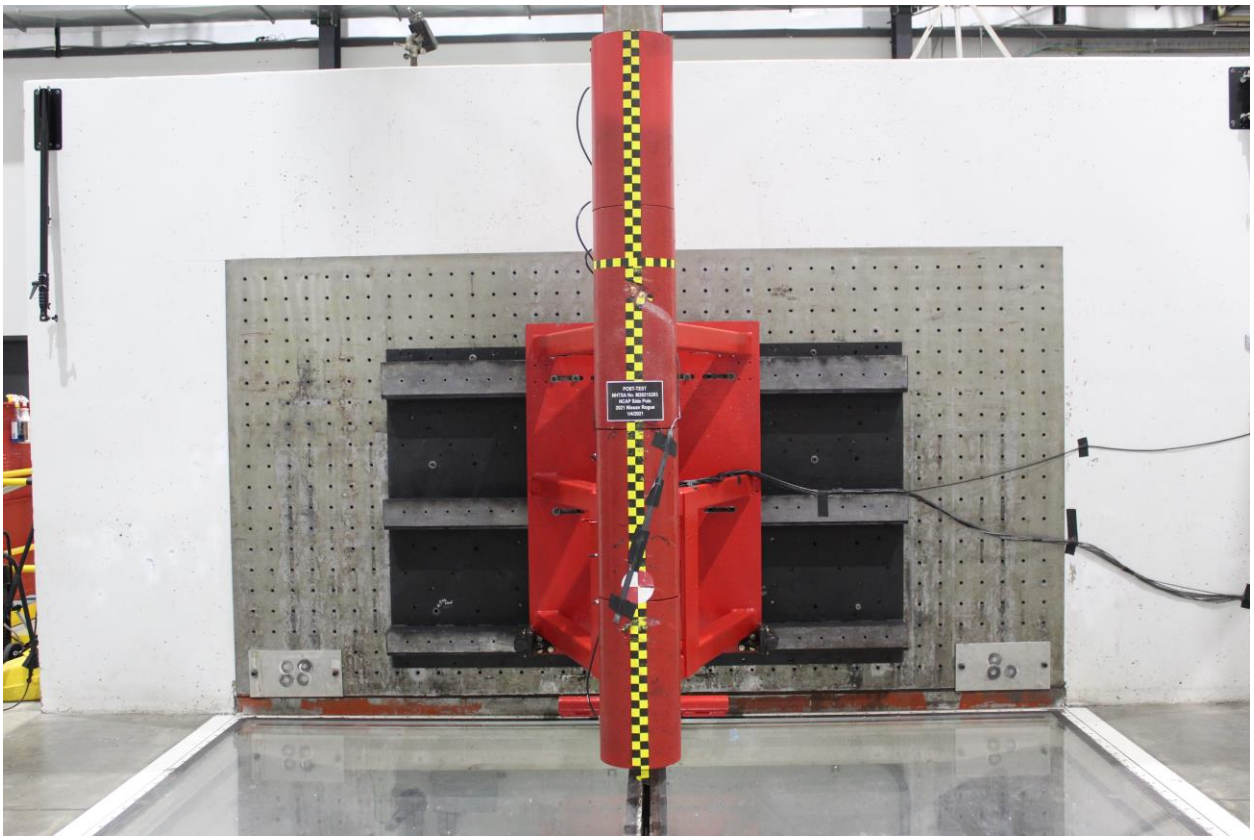


Figure A-58: Post-Test Pole Barrier Front View

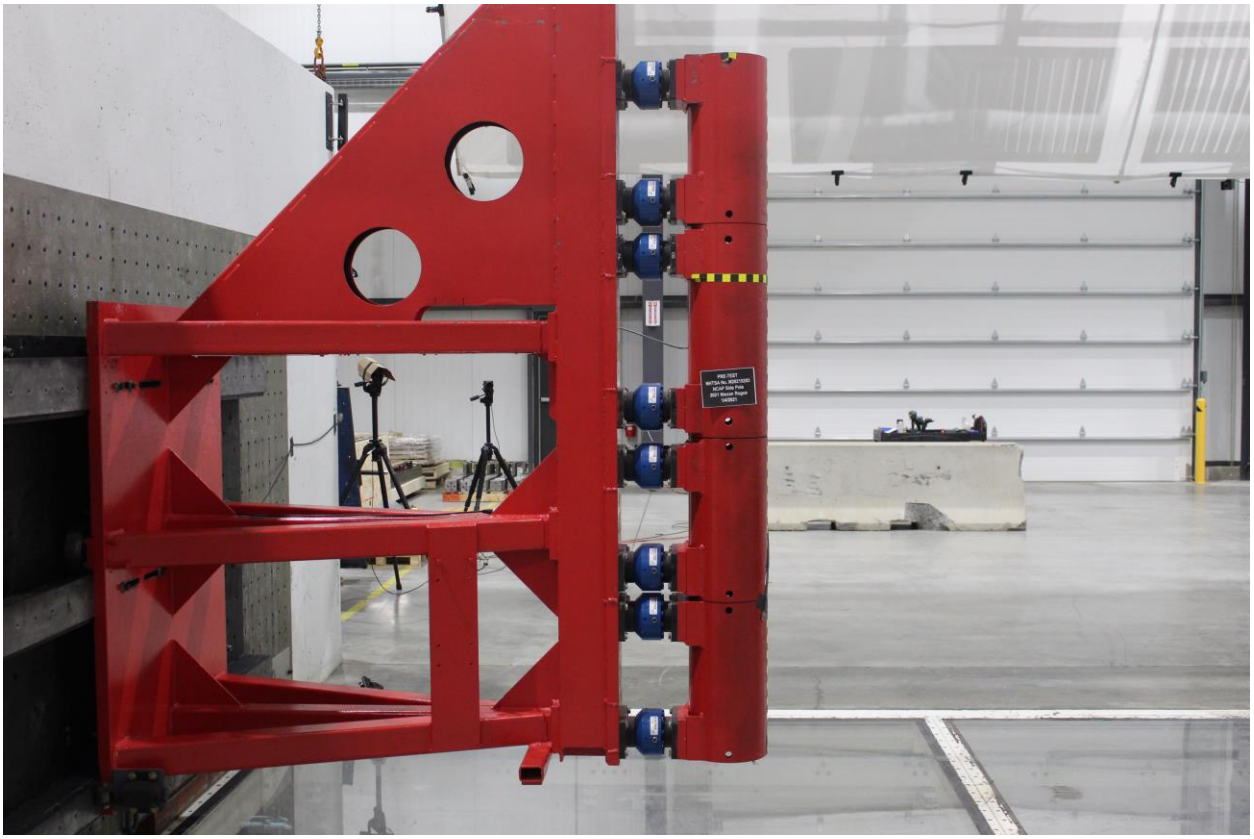


Figure A-59: Pre-Test Pole Barrier Side View

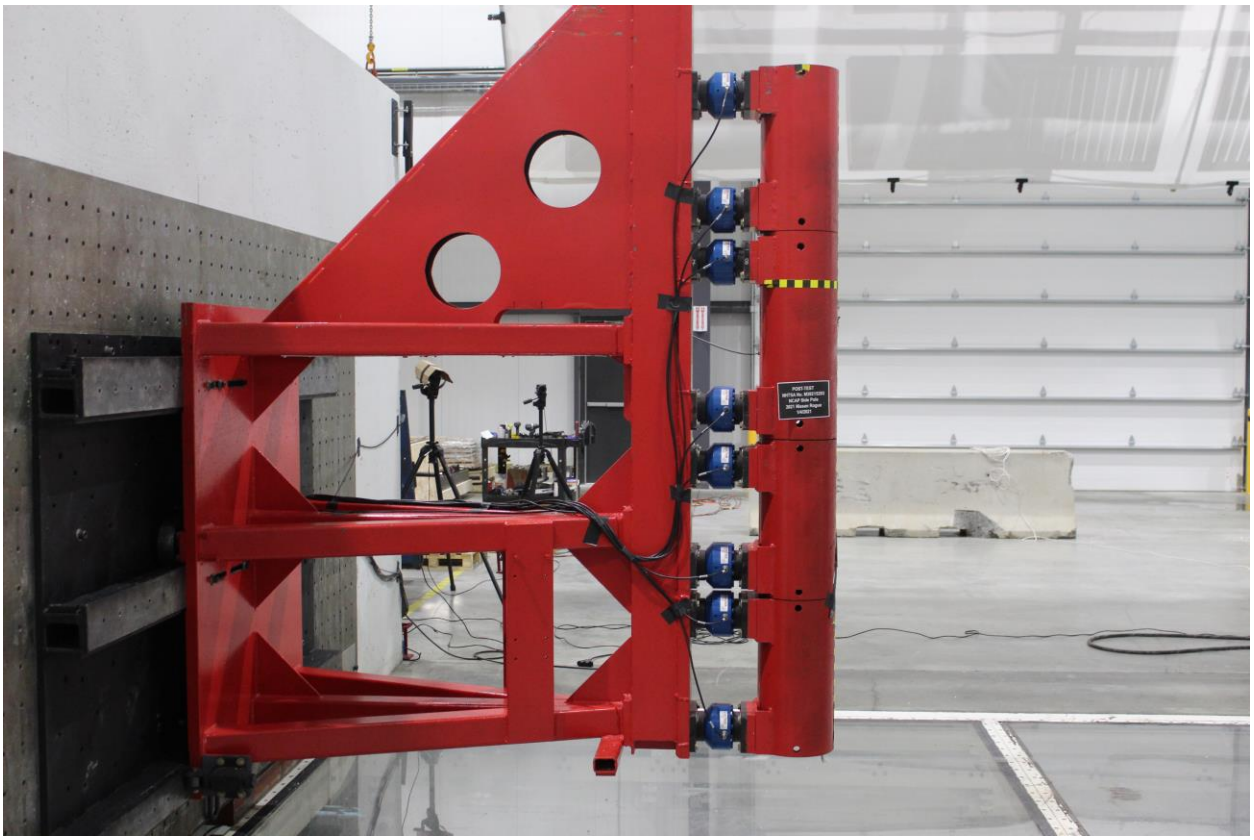


Figure A-60: Post-Test Pole Barrier Side View

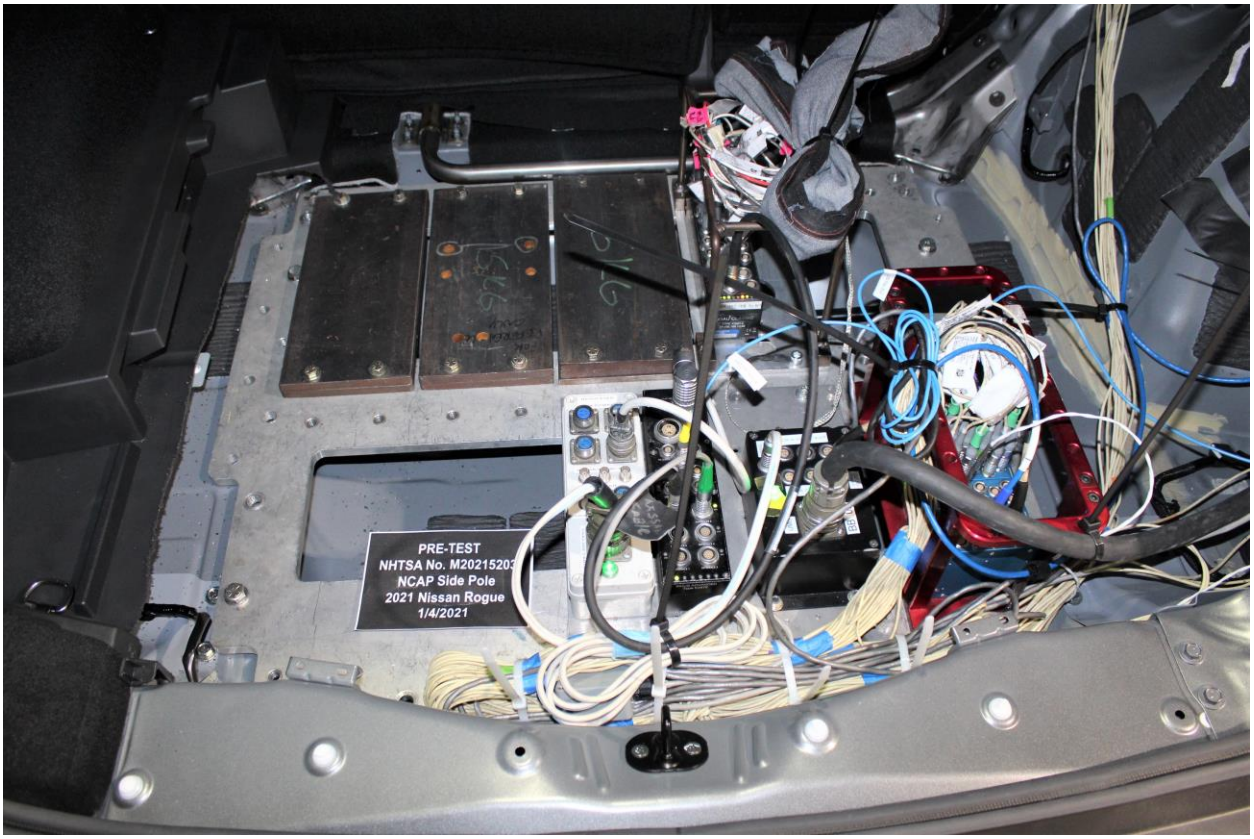


Figure A-61: Pre-Test Ballast View

Figure A-62: Post-Test Primary and Redundant Speed Trap Read-Out

Figure A-63: FMVSS No. 301 Static Rollover 0 Degrees

Figure A-64: FMVSS No. 301 Static Rollover 90 Degrees

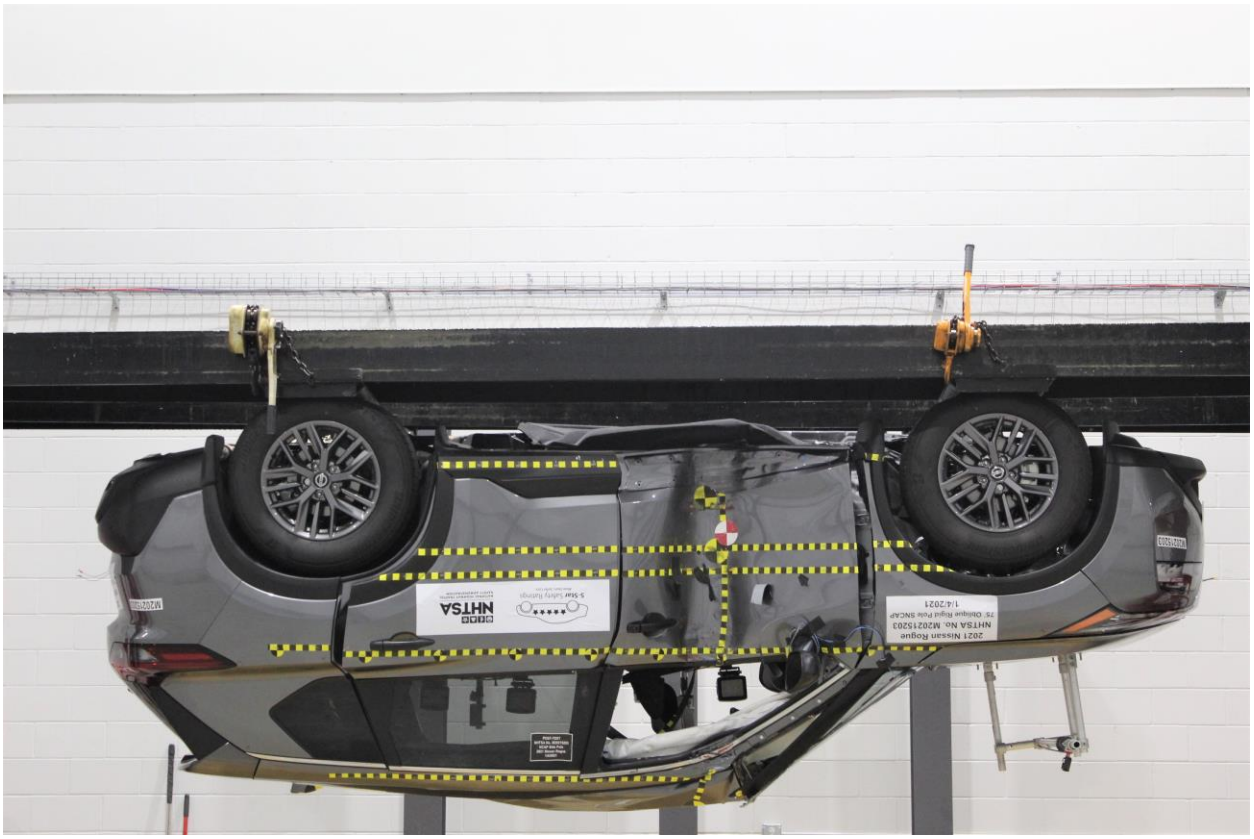


Figure A-65: FMVSS No. 301 Static Rollover 180 Degrees

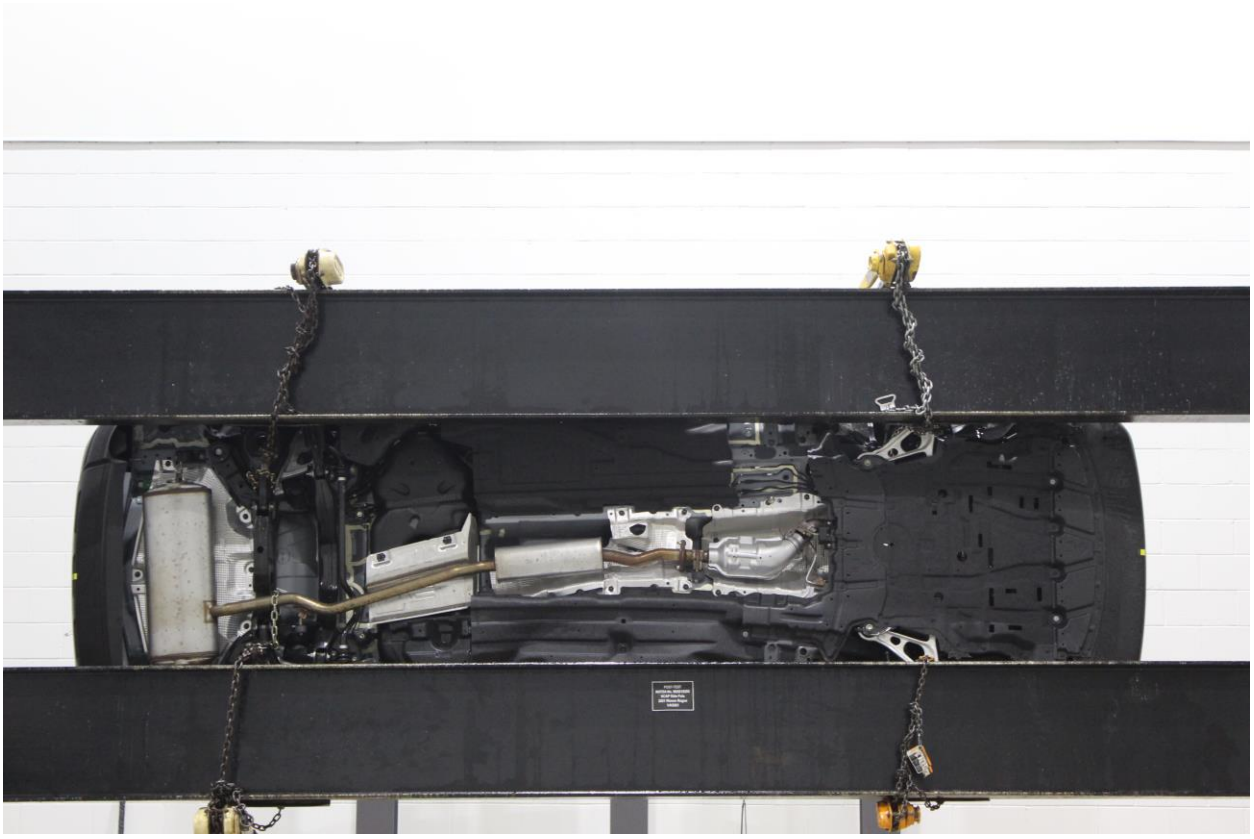
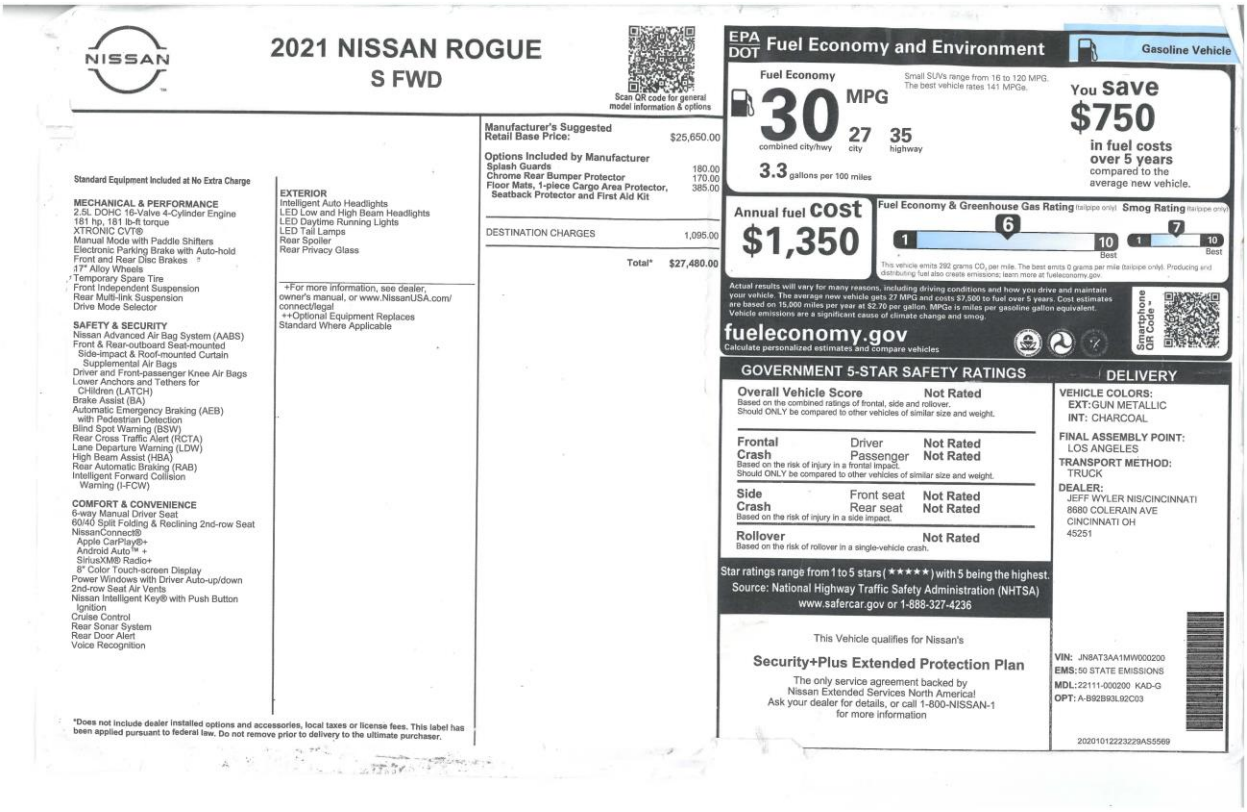


Figure A-66: FMVSS No. 301 Static Rollover 270 Degrees

Figure A-67: FMVSS No. 301 Static Rollover 360 Degrees

Figure A-68: Impact Event



NISSAN

2021 NISSAN ROGUE
S FWD

Scan QR code for general model information & options

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE
2.5L DOHC 16-Valve 4-Cylinder Engine
181 hp, 181 lb-ft torque
XTRONIC CVT®
Manual Mode with Paddle Shifters
Electronic Parking Brake with Auto-hold
Front and Rear Disc Brakes
17" Alloy Wheels
Temporary Spare Tire
Front Independent Suspension
Rear Multi-link Suspension
Drive Mode Selector

SAFETY & SECURITY
Nissan Advanced Air Bag System (AABS)
Front & Rear-outboard Seat-mounted Side-impact & Roof-mounted Curtain Supplemental Air Bags
Driver and Front-passenger Knee Air Bags
Lower Anchors and Tethers for Children (LATCH)
Brake Assist (BA)
Automatic Emergency Braking (AEB) with Pedestrian Detection
Blind Spot Warning (BSW)
Rear Cross Traffic Alert (RCTA)
Lane Departure Warning (LDW)
High Beam Assist (HBA)
Rear Automatic Braking (RAB)
Intelligent Forward Collision Warning (I-FCW)

COMFORT & CONVENIENCE
6-way Manual Driver Seat
60/40 Split Folding & Reclining 2nd-row Seat
NissanConnect®
Apple CarPlay®+
Android Auto™ +
SiriusXM® Radio+
8" Color Touch-screen Display
Power Windows with Driver Auto-up/down
2nd-row Seat Air Vents
Nissan Intelligent Key® with Push Button Ignition
Cruise Control
Rear Sonar System
Rear Door Alert
Voice Recognition

EXTERIOR
Intelligent Auto Headlights
LED Low and High Beam Headlights
LED Daytime Running Lights
LED Tail Lamps
Rear Spoiler
Rear Privacy Glass

+For more information, see dealer, owner's manual, or www.NissanUSA.com/connect/legal
++Optional Equipment Replaces Standard Where Applicable

*Does not include dealer installed options and accessories, local taxes or license fees. This label has been applied pursuant to federal law. Do not remove prior to delivery to the ultimate purchaser.

Manufacturer's Suggested Retail Base Price: $25,650.00

Options Included by Manufacturer
Splash Guards 180.00
Chrome Rear Bumper Protector 170.00
Floor Mats, 1-piece Cargo Area Protector, Seatback Protector and First Aid Kit 385.00

DESTINATION CHARGES 1,095.00

Total* $27,480.00

EPA DOT Fuel Economy and Environment — Gasoline Vehicle

Fuel Economy
30 MPG combined city/hwy
27 city
35 highway
3.3 gallons per 100 miles

Small SUVs range from 16 to 120 MPG. The best vehicle rates 141 MPGe.

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

Annual fuel cost $1,350

Fuel Economy & Greenhouse Gas Rating (tailpipe only) 6 (1 Worst, 10 Best)
Smog Rating (tailpipe only) 7 (1 Worst, 10 Best)

This vehicle emits 292 grams CO_2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fueleconomy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and costs $7,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $2.70 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fueleconomy.gov
Calculate personalized estimates and compare vehicles

Smartphone Link Code

GOVERNMENT 5-STAR SAFETY RATINGS

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

Frontal Crash — Driver: Not Rated; Passenger: Not Rated
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Side Crash — Front seat: Not Rated; Rear seat: Not Rated
Based on the risk of injury in a side impact.

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

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

This Vehicle qualifies for Nissan's
Security+Plus Extended Protection Plan
The only service agreement backed by Nissan Extended Services North America!
Ask your dealer for details, or call 1-800-NISSAN-1 for more information

DELIVERY

VEHICLE COLORS:
EXT: GUN METALLIC
INT: CHARCOAL

FINAL ASSEMBLY POINT:
LOS ANGELES

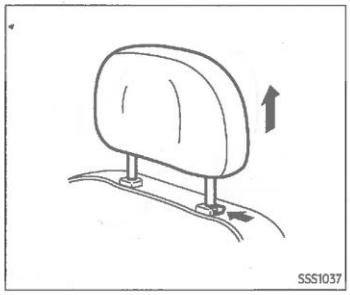
TRANSPORT METHOD:
TRUCK

DEALER:
JEFF WYLER NIS/CINCINNATI
8680 COLERAIN AVE
CINCINNATI OH
45251

VIN: JN8AT3AA1MW000200
EMS: 50 STATE EMISSIONS
MDL: 22111-000200 KAD-G
OPT: A-B92B93L92C03

20201012223229AS5569

Figure A-69: Monroney Label

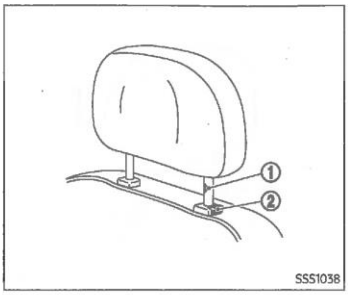


SSS1037

REMOVE

Use the following procedure to remove the head restraint/headrest.

1. Pull the head restraint/headrest up to the highest position.
2. Push and hold the lock knob.
3. Remove the head restraint/headrest from the seat.
4. Store the head restraint/headrest properly in a secure place so it is not loose in the vehicle.
5. Reinstall and properly adjust the head restraint/headrest before an occupant uses the seating position.



SSS1038

INSTALL

1. Align the head restraint/headrest stalks with the holes in the seat. Make sure that the head restraint/headrest is facing the correct direction. The stalk with the adjustment notch ① must be installed in the hole with the lock knob ②.
2. Push and hold the lock knob and push the head restraint/headrest down.
3. Properly adjust the head restraint/headrest before an occupant uses the seating position.

SSS0997

ADJUST

For adjustable head restraint/headrest

Adjust the head restraint/headrest so the center is level with the center of your ears. If your ear position is still higher than the recommended alignment, place the head restraint/headrest at the highest position.

Figure A-70: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Figure A-71: Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver Dummy Instrumentation Plots

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at www.NHTSA.gov.

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)

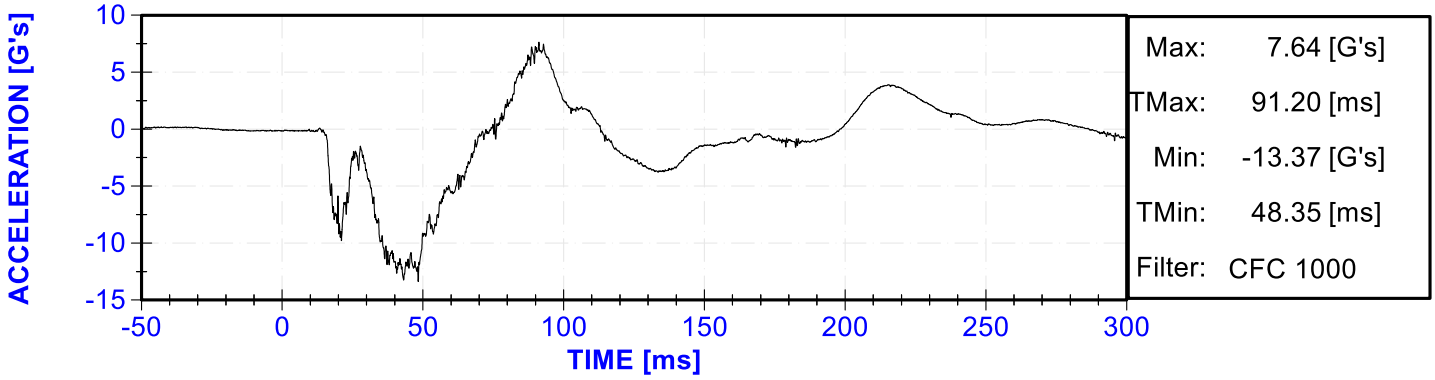
Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

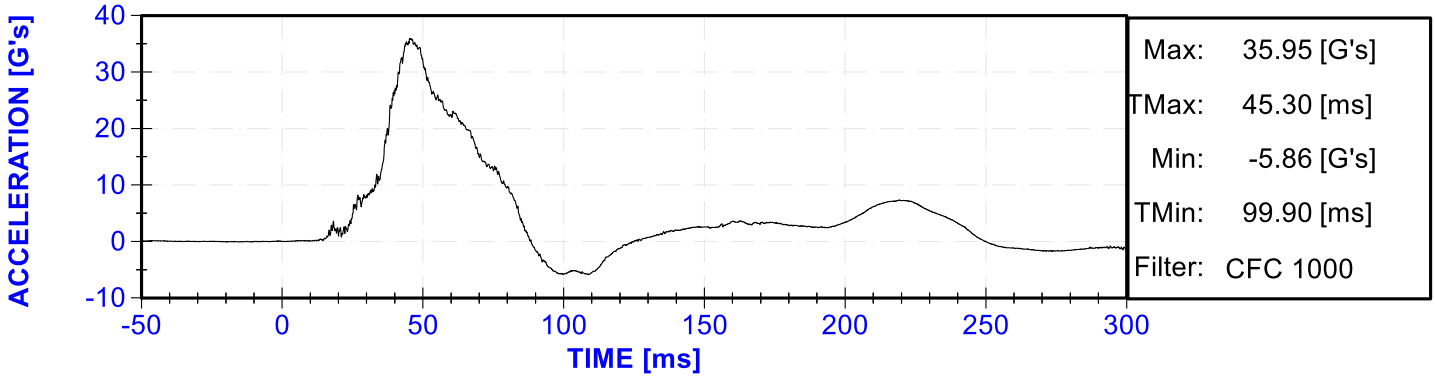
Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

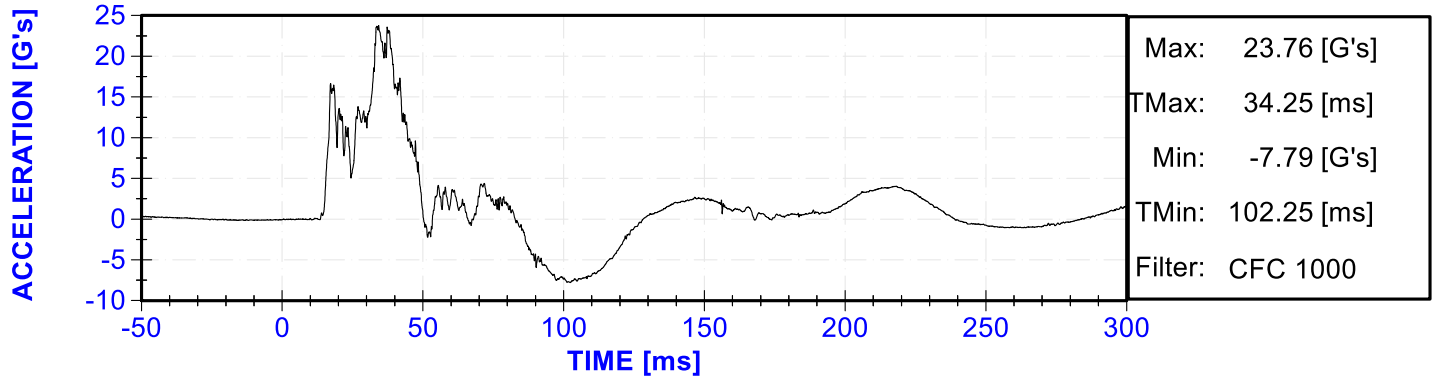
Driver Head Acceleration (X) Primary vs. Time



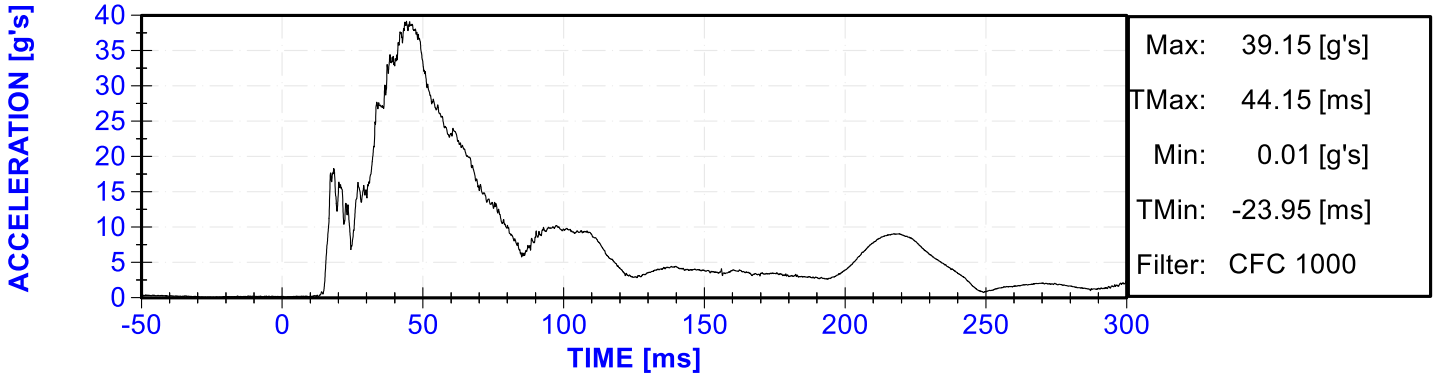
Driver Head Acceleration (Y) Primary vs. Time



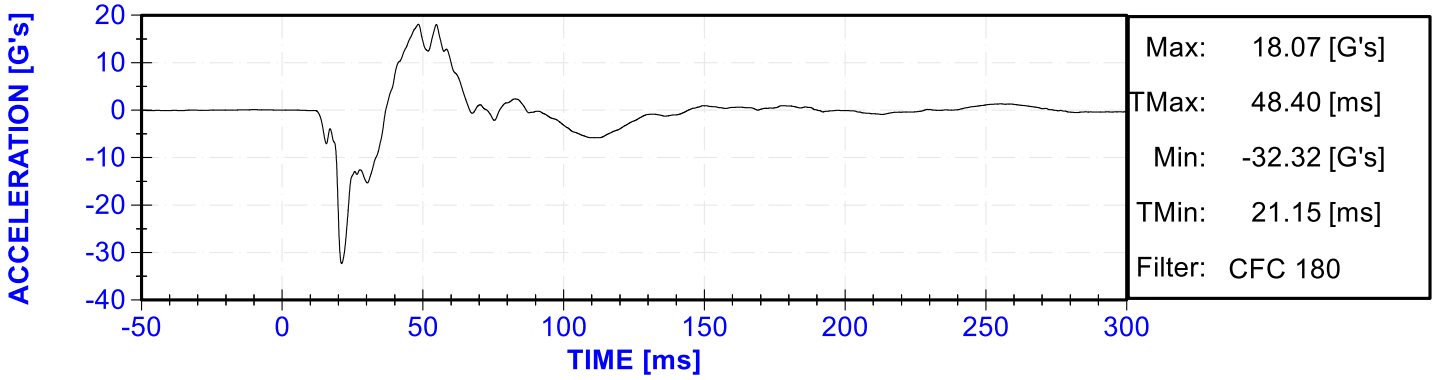
Driver Head Acceleration (Z) Primary vs. Time



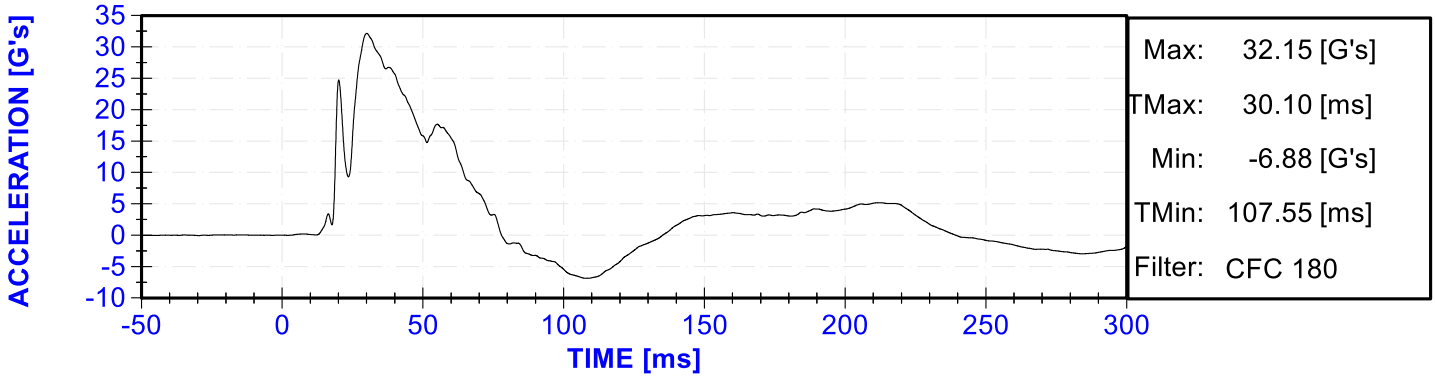
Driver Head Resultant Primary vs. Time



Driver Lower Spine T12 Acceleration (X) vs. Time

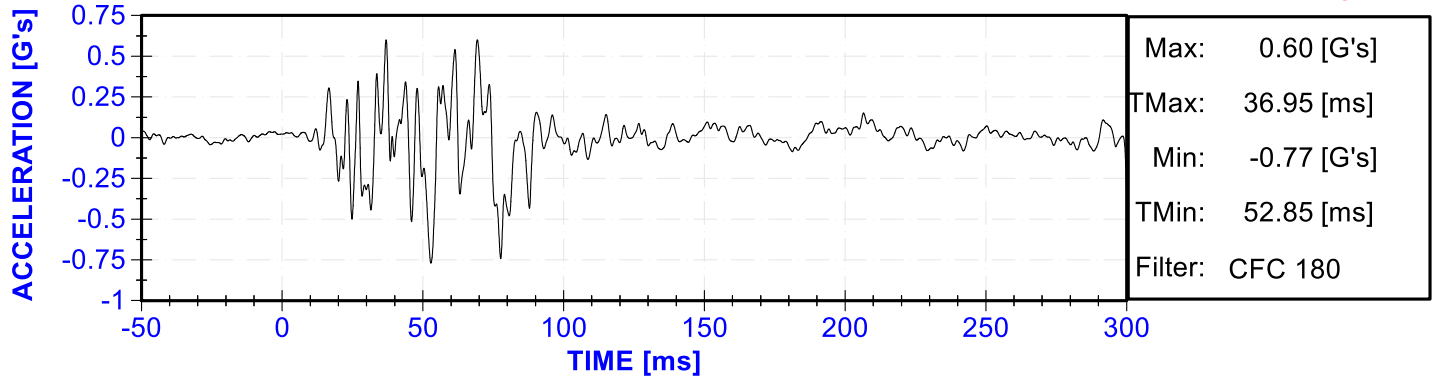


Driver Lower Spine T12 Acceleration (Y) vs. Time



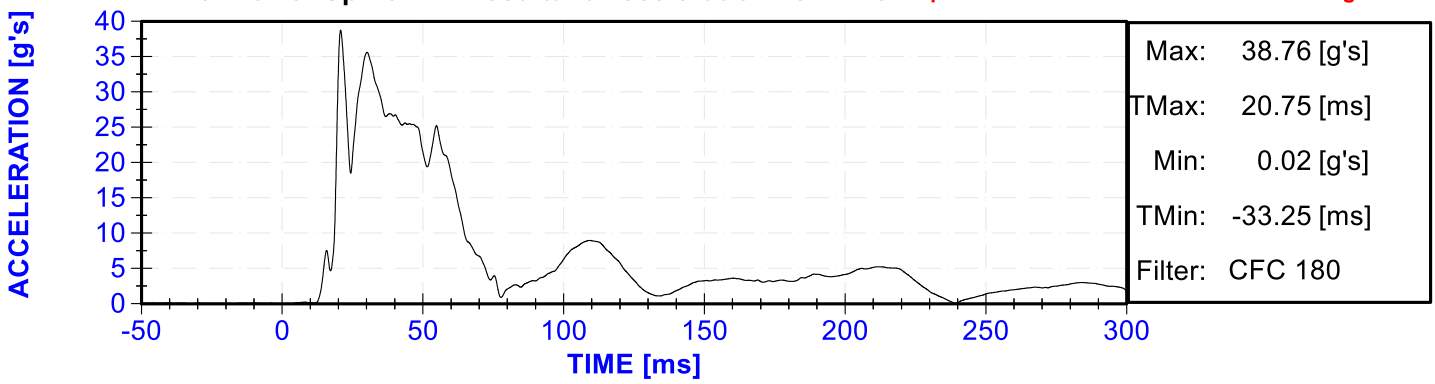
Driver Lower Spine T12 Acceleration (Z) vs. Time

Questionable data throughout

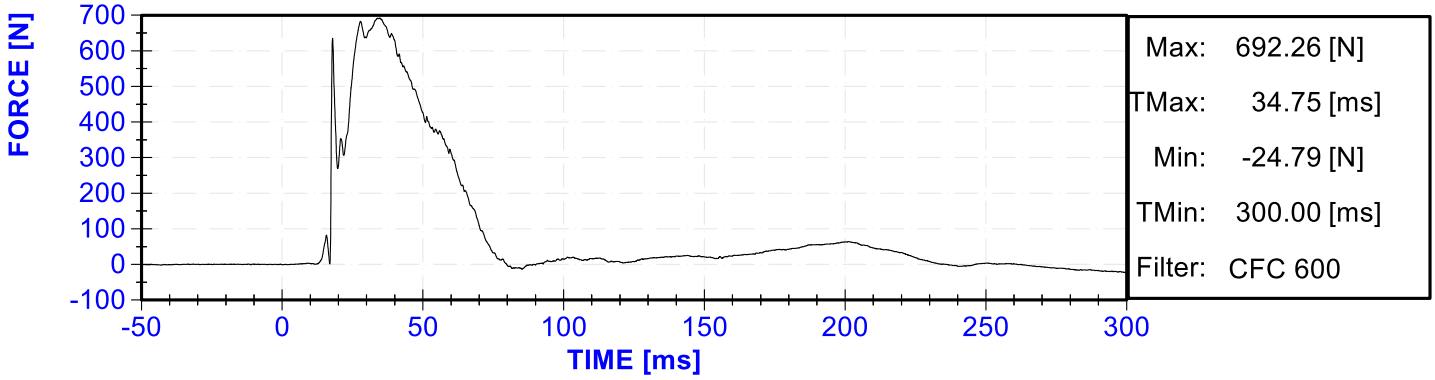


Driver Lower Spine T12 Resultant Acceleration vs. Time

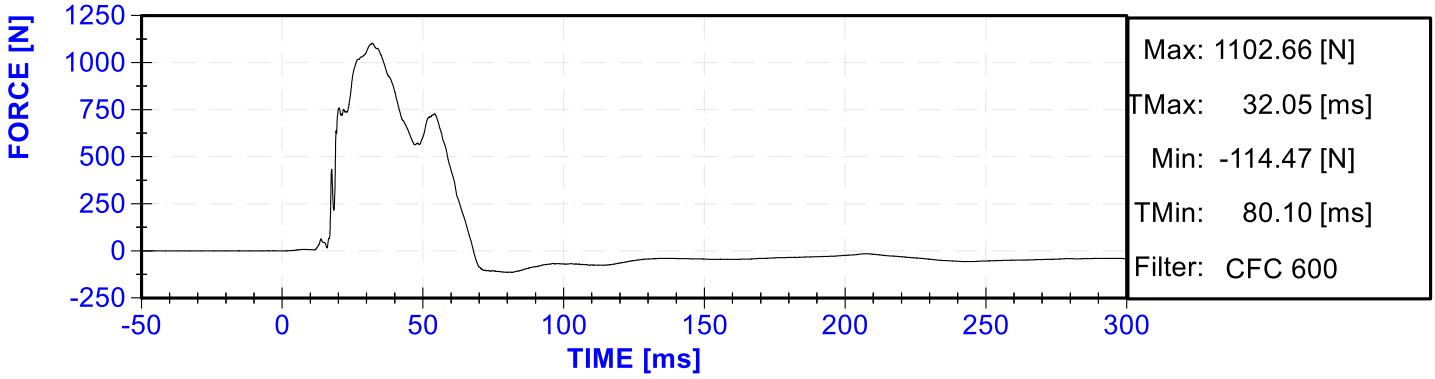
T12 Spine Z Accel - Questionable data throughout



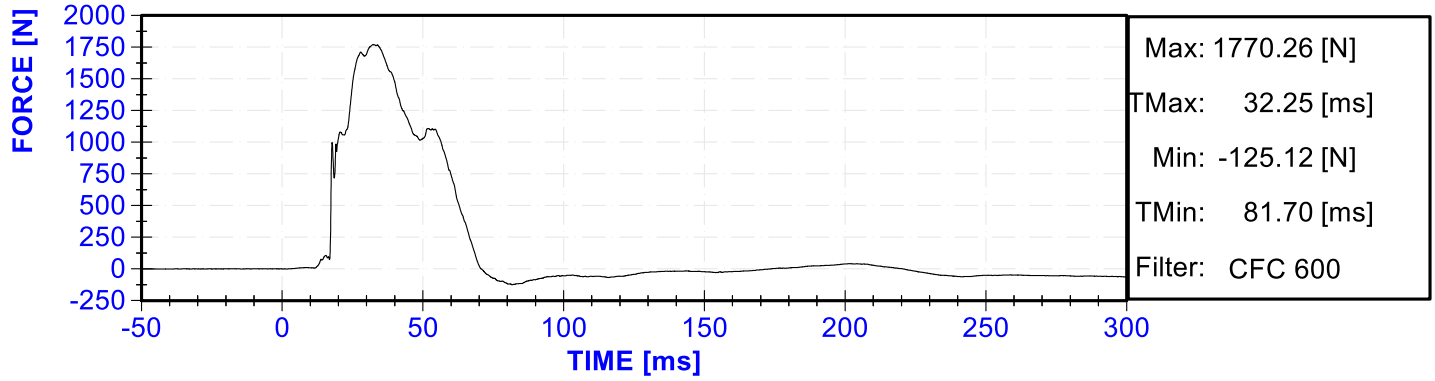
Driver Iliac Wing Force on Impact Side (Y) vs. Time



Driver Acetabulum Force on Impact Side (Y) vs. Time



Driver Total Pelvis Force on Impact Side (Y) vs. Time



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

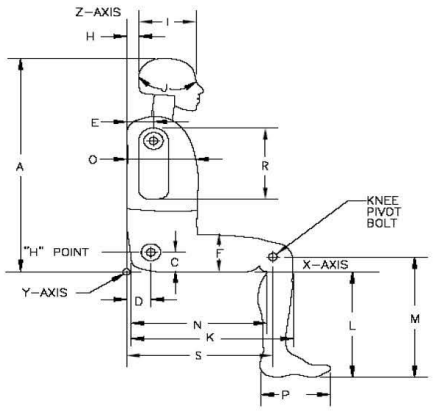
SERIAL NO: 300

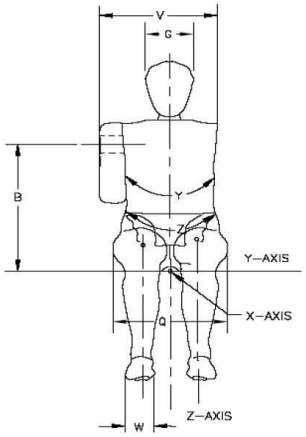
(CONFIGURED FOR LEFT SIDE IMPACT)

External Measurements - SID-IIs

Technician: K. Dutton Date: 12/15/2020

Dummy Serial Number: 300





Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	781	Pass
B	Shoulder Pivot Height	437	453	440	Pass
C	H-point Height	79	89	85	Pass
D	H-point from seatback	141	151	145	Pass
E	Shoulder Pivot from Backline	97	107	101	Pass
F	Thigh Clearance	119	135	126	Pass
G	Head Breadth	140	148	144	Pass
H	Head Back from Backline	40	46	42	Pass
I	Head Depth	178	188	187	Pass
J	Head Circumference	541	551	544	Pass
K	Buttock to Knee Length	514	540	532	Pass
L	Popliteal Height	343	369	361	Pass
M	Knee Pivot to floor height	392	409	401	Pass
N	Buttock Popliteal Length	416	442	430	Pass
O	Chest Depth w/o jacket	195	211	208	Pass
P	Foot Length	216	232	220	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	317	Pass
R	Arm Length	249	259	254	Pass
S	Knee Joint to seatback	477	493	484	Pass
V	Shoulder Width	341	357	352	Pass
W	Foot Width	78	94	83	Pass
Y	Chest Circumference w/jacket	851	881	875	Pass
Z	Waist Circumference	761	791	773	Pass

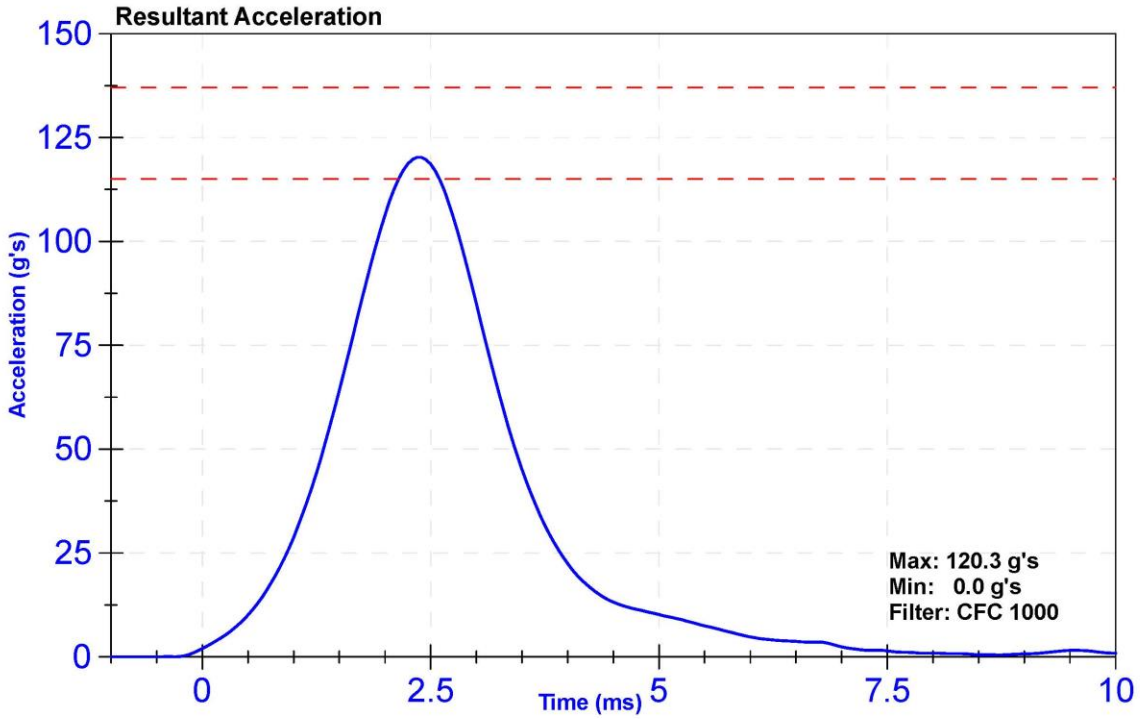
ATD Manufacturer	FTSS	Test Technician	D.Reinard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

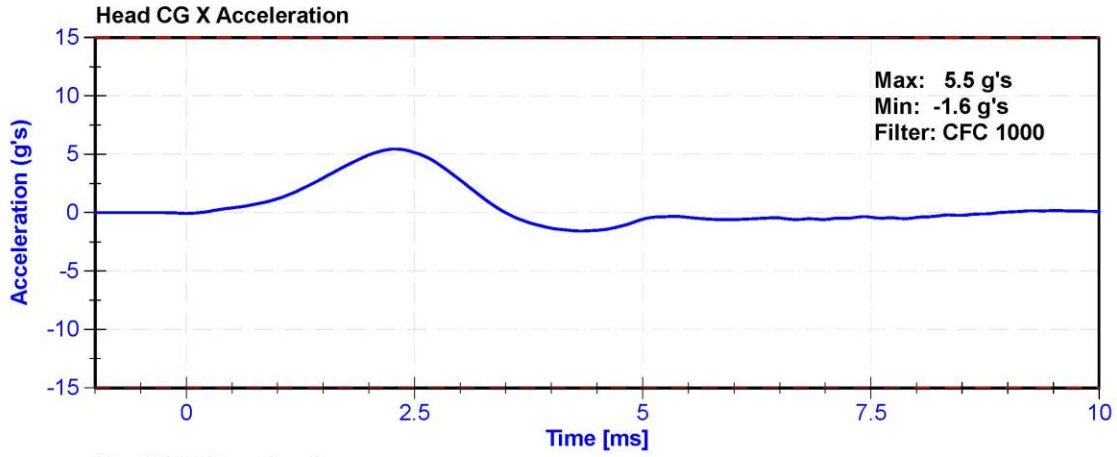
Results

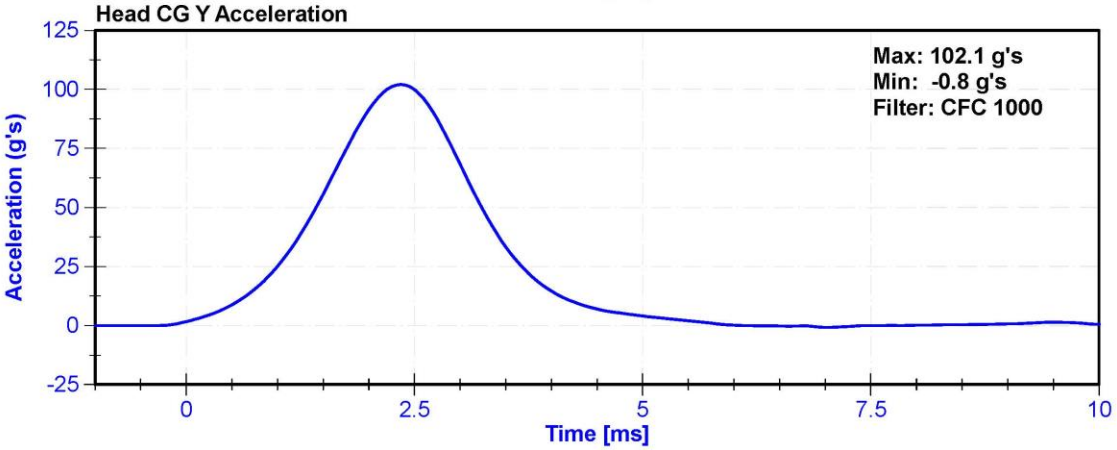
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	29	Pass
Resultant Acceleration	115	137	g's	120.3	Pass
Oscillation	0	15	%	2.9	Pass
Fore-Aft Acceleration	-15	15	g's	5.5	Pass

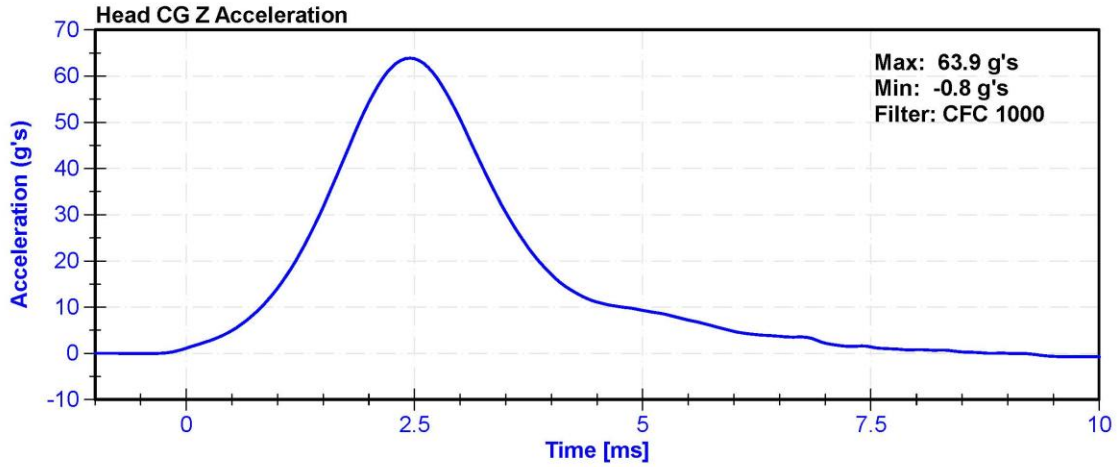
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	ENDEVCO 7264CT	AC-P59018	11/10/2020	5/11/2021
Y Accelerometer	ENDEVCO 7264	AC-P79189	11/10/2020	5/11/2021
Z Accelerometer	ENDEVCO 7264CT	AC-P58777	11/10/2020	5/11/2021




Head CG X Acceleration
Max: 5.5 g's
Min: -1.6 g's
Filter: CFC 1000
Acceleration (g's)
15
10
5
0
-5
-10
-15
0
2.5
5
7.5
10
Time [ms]


Head CG Y Acceleration
Max: 102.1 g's
Min: -0.8 g's
Filter: CFC 1000
Acceleration (g's)
125
100
75
50
25
0
-25
0
2.5
5
7.5
10
Time [ms]


Head CG Z Acceleration
Max: 63.9 g's
Min: -0.8 g's
Filter: CFC 1000
Acceleration (g's)
70
60
50
40
30
20
10
0
-10
0
2.5
5
7.5
10
Time [ms]

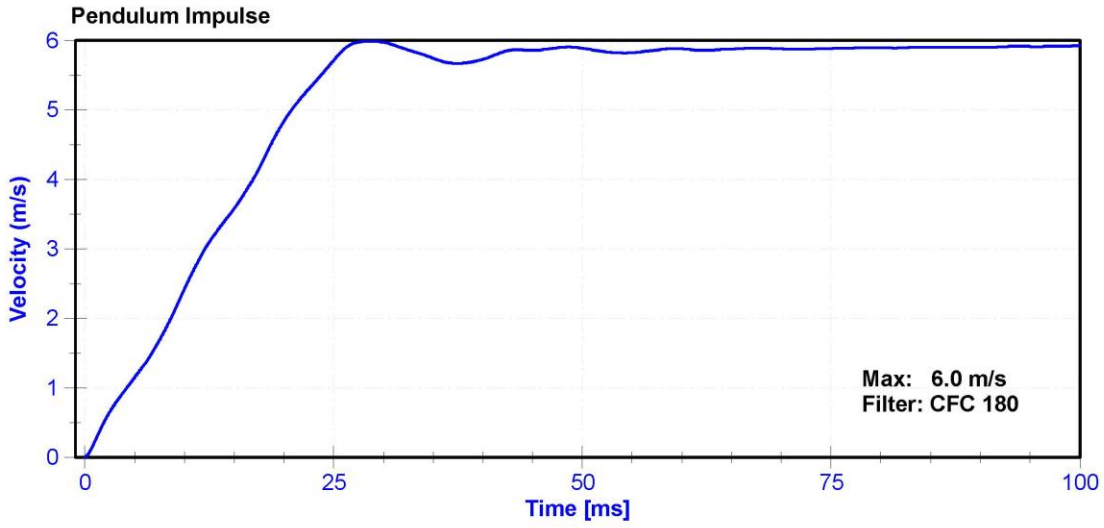
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

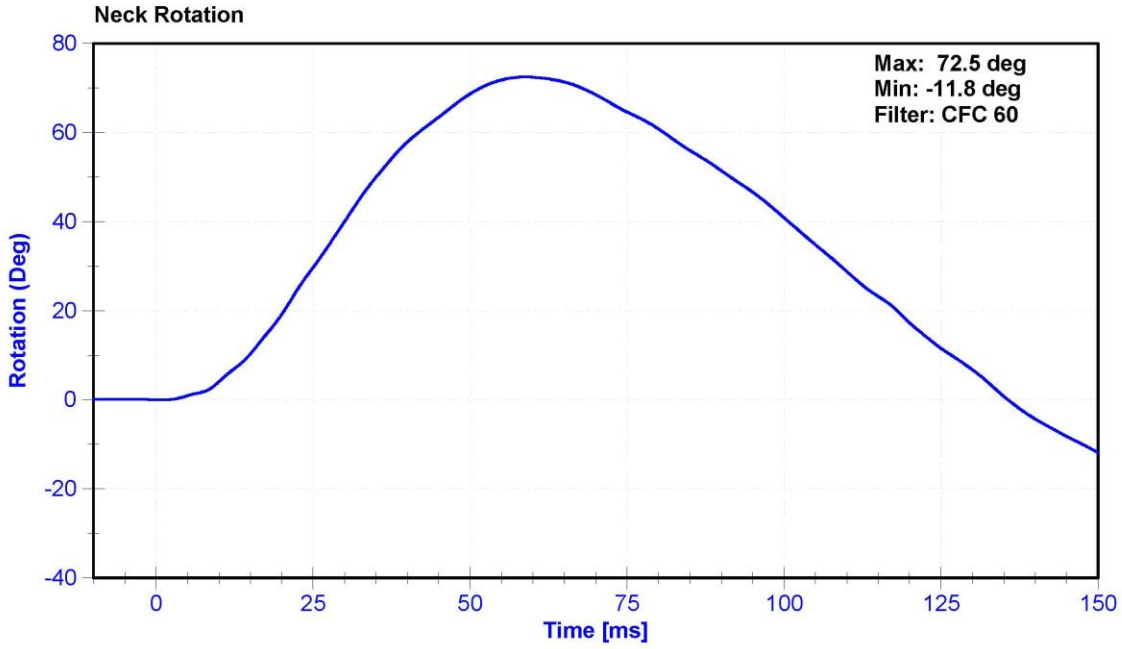
Results

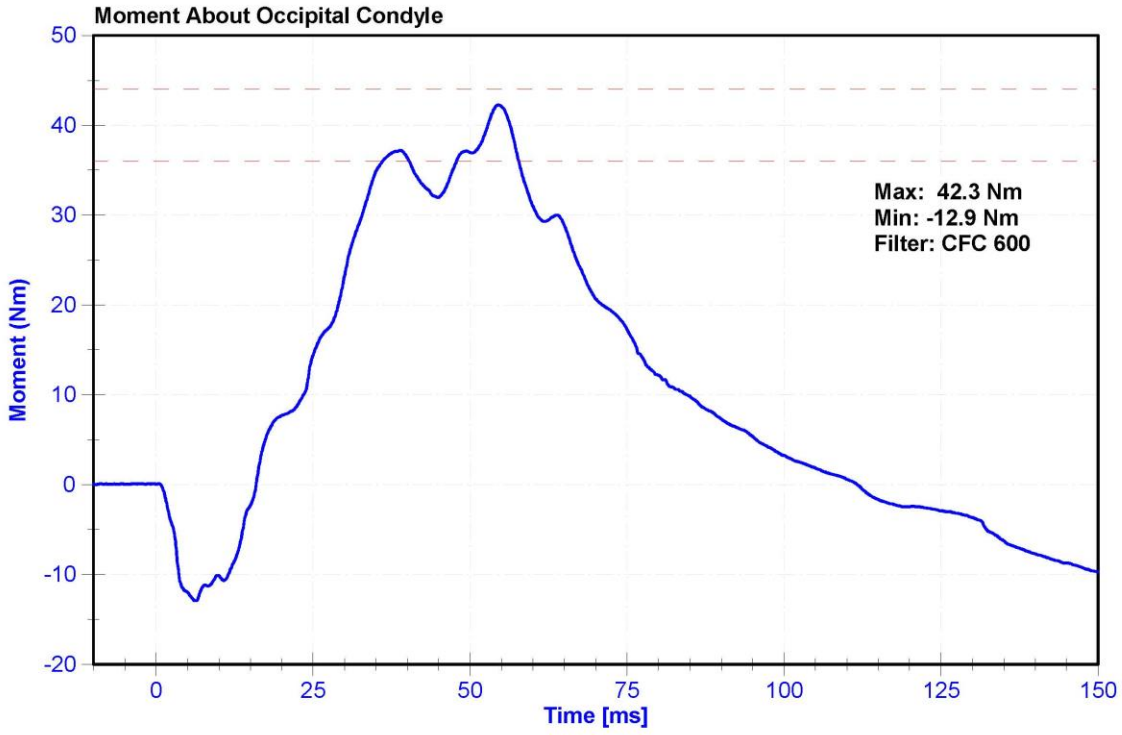
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	19	Pass
Velocity	5.51	5.63	m/s	5.514	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.43	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.58	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.84	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.72	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.99	Pass
Neck Rotation	71	81	deg	72.5	Pass
Time at Maximum Rotation	50	70	ms	58.7	Pass
Moment about the OC	36	44	Nm	42.3	Pass
Moment Decay to 0 Nm	102	126	ms	111.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C16503 Striker	2/6/2020	2/5/2021
Pendulum Potentiometer	Denton 78051-342	DS-184Pend	11/6/2020	11/6/2021
Condyle Potentiometer	Denton 78051-342	DS-185Pend	11/6/2020	11/6/2021
Upper Neck Load Cell	Denton 1716	17162019 FY	3/18/2020	3/18/2021




Neck Rotation
Max: 72.5 deg
Min: -11.8 deg
Filter: CFC 60
Rotation (Deg)
80
60
40
20
0
-20
-40
0
25
50
75
100
125
150
Time [ms]


Moment About Occipital Condyle
Max: 42.3 Nm
Min: -12.9 Nm
Filter: CFC 600
Moment (Nm)
50
40
30
20
10
0
-10
-20
0
25
50
75
100
125
150
Time [ms]

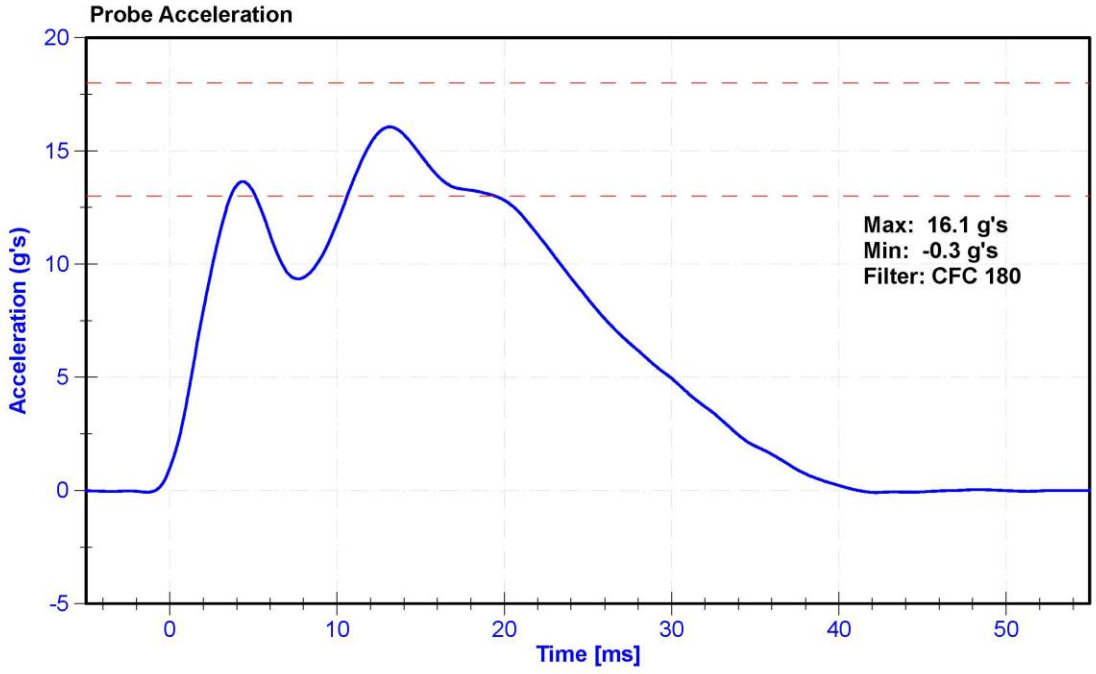
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

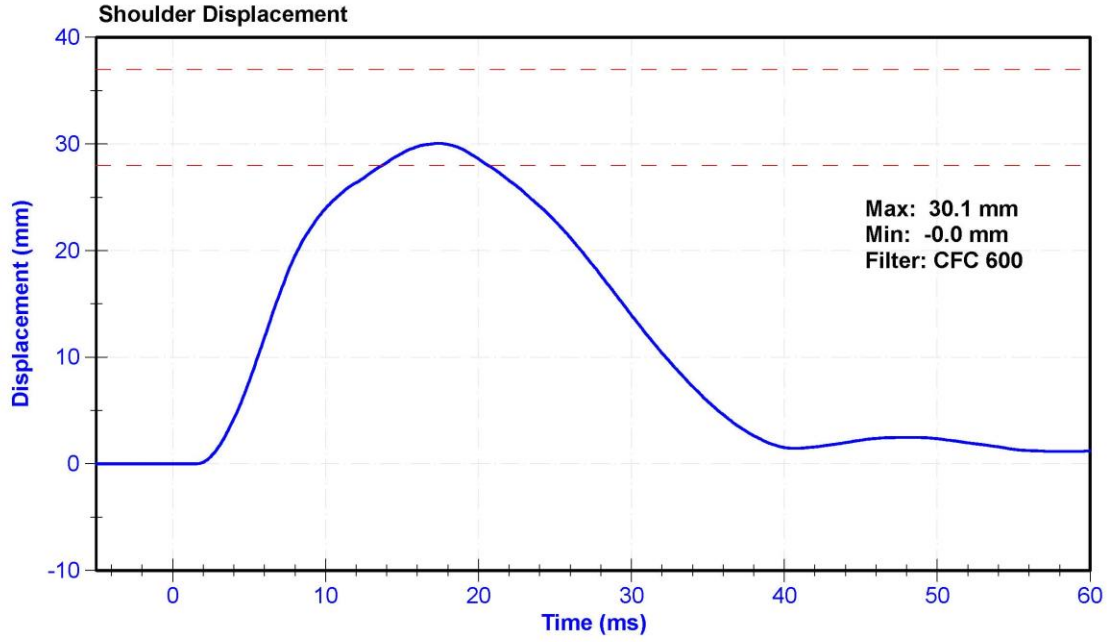
Results

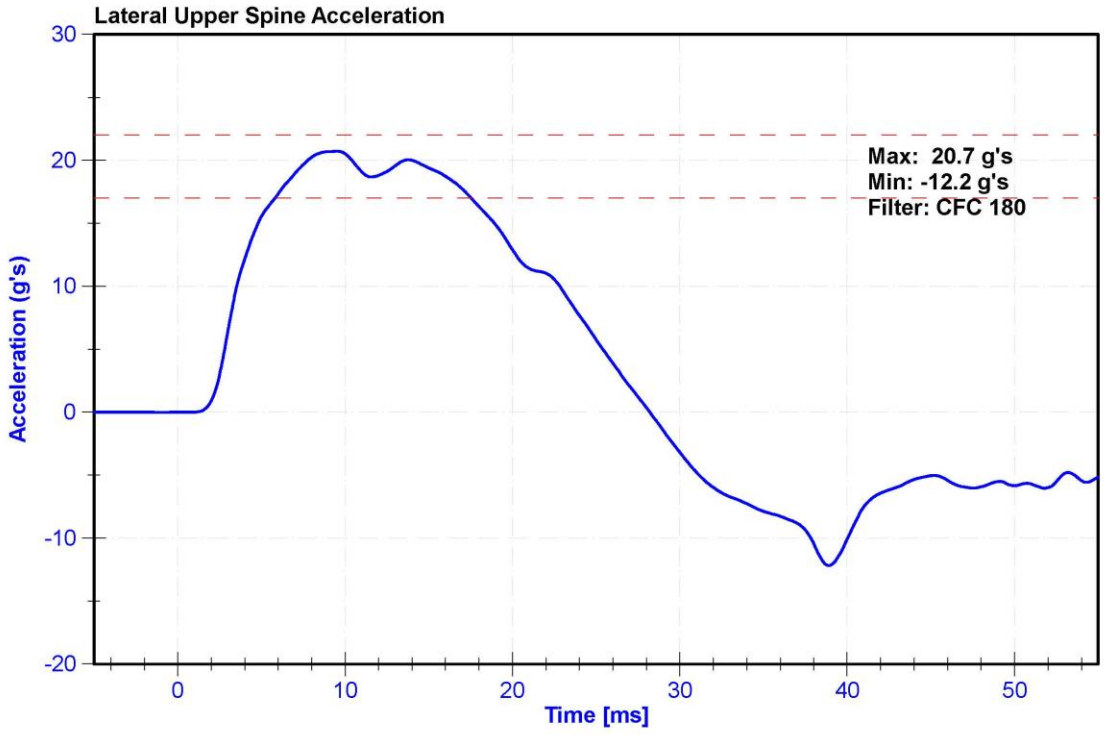
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	24	Pass
Velocity	4.2	4.4	m/s	4.29	Pass
Probe Acceleration	13	18	g's	16.1	Pass
Shoulder Deflection	28	37	mm	30.1	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Shoulder Potentiometer	Servo 08CT1-3725	DS-053 GFE	11/10/2020	5/11/2021
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P71281	11/9/2020	5/10/2021




Shoulder Displacement
Displacement (mm)
Time (ms)
Max: 30.1 mm
Min: -0.0 mm
Filter: CFC 600
40
30
20
10
0
-10
0
10
20
30
40
50
60


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 20.7 g's
Min: -12.2 g's
Filter: CFC 180
30
20
10
0
-10
-20
0
10
20
30
40
50

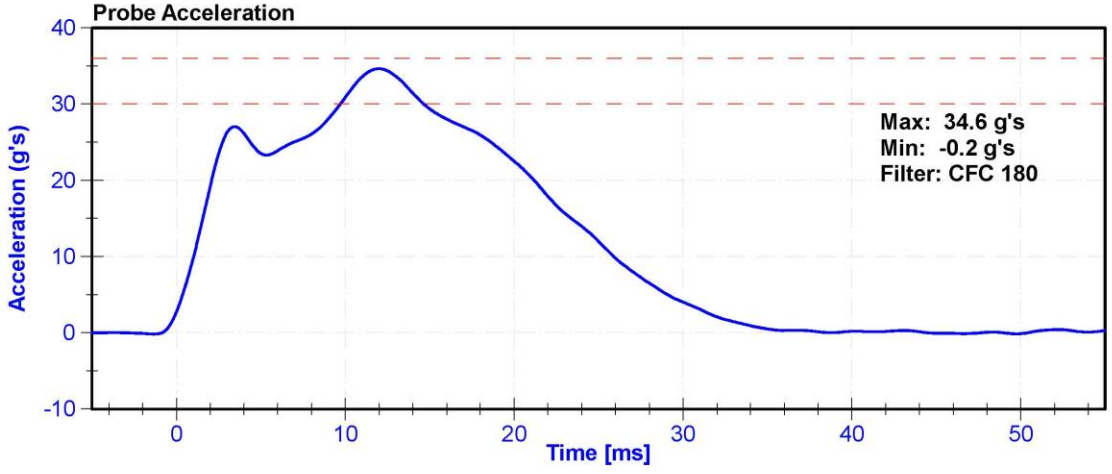
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

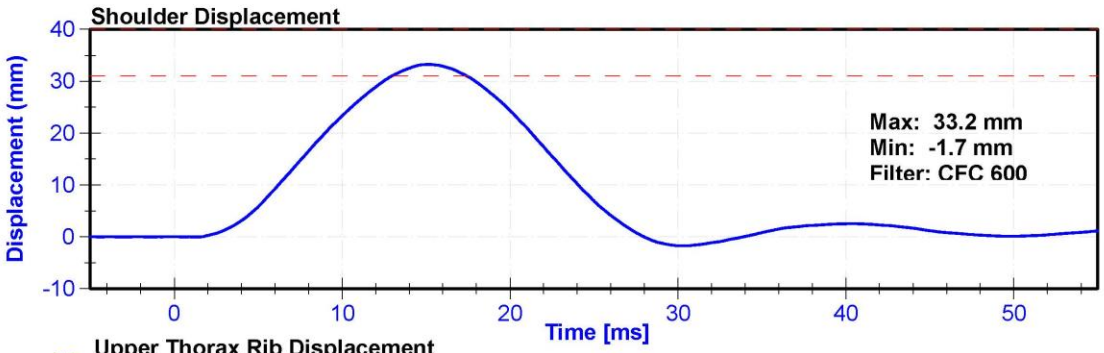
Results

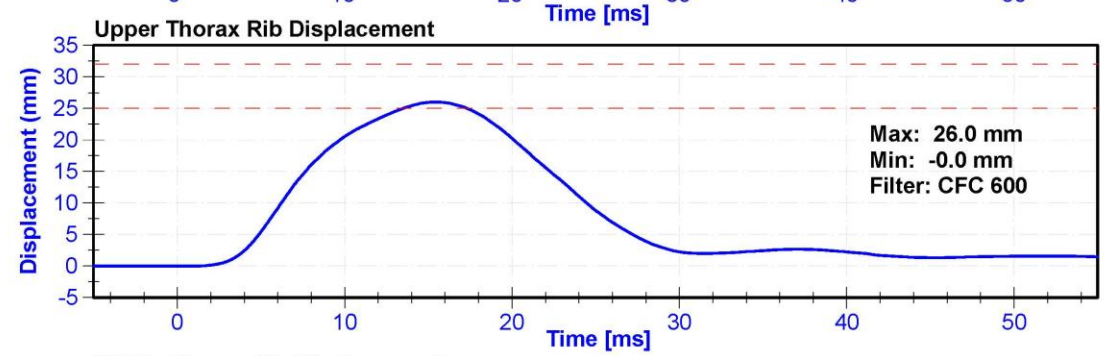
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	54.0	Pass
Velocity	6.6	6.8	m/s	6.73	Pass
Probe Acceleration after 5 ms	30	36	g's	34.6	Pass
Lateral Upper Spine Acceleration	34	43	g's	40.6	Pass
Lateral Lower Spine Acceleration	29	37	g's	31.8	Pass
Shoulder Deflection	31	40	mm	33.2	Pass
Upper Thorax Rib Deflection	25	32	mm	26.0	Pass
Mid Thorax Rib Deflection	30	36	mm	31.1	Pass
Lower Thorax Rib Deflection	32	38	mm	33.7	Pass

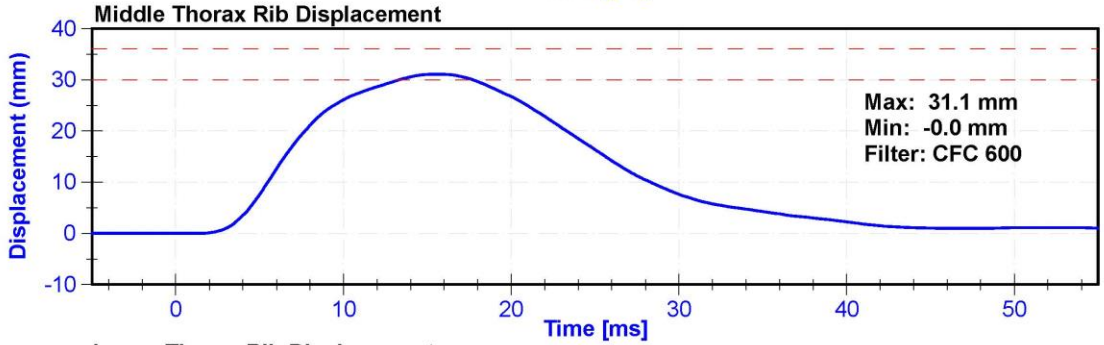
Transducer Calibrations

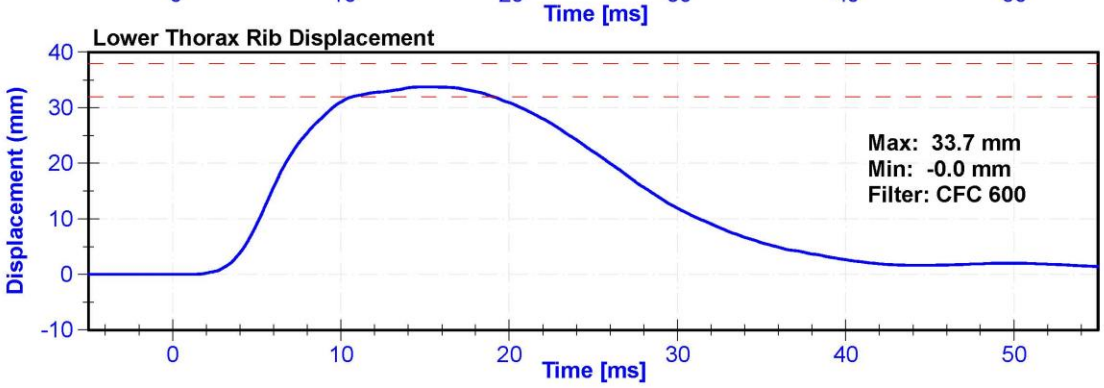
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Upper Spine T1 Y Accelerometer	ENDEVCO 7264CT	AC-P71281	11/9/2020	5/10/2021
Upper Spine T12 Y Accelerometer	ENDEVCO 7264	AC-P64147	11/9/2020	5/10/2021
Shoulder Potentiometer	Servo 08CT1-3725	DS-053 GFE	11/10/2020	5/11/2021
Upper Thorax Rib Potentiometer	Servo 08CT1-3725	DS-451GFE	11/10/2020	5/11/2021
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-040GFE	11/10/2020	5/11/2021
Lower Thorax Rib Potentiometer	Servo 08TC1-3725	DS-1156GFE	11/9/2020	5/10/2021

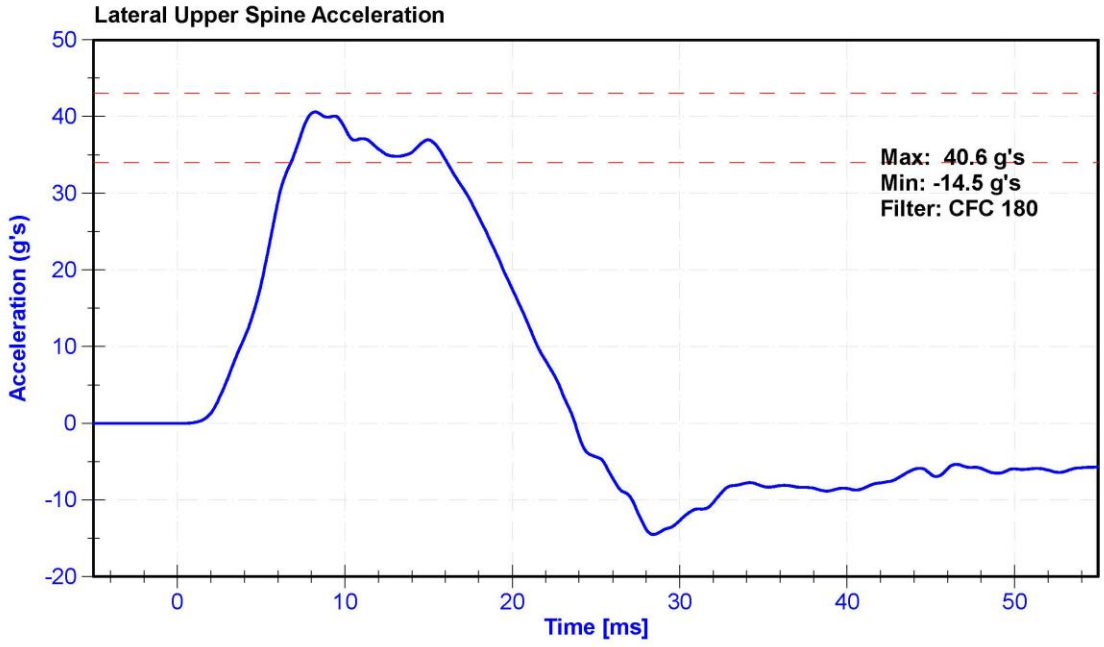


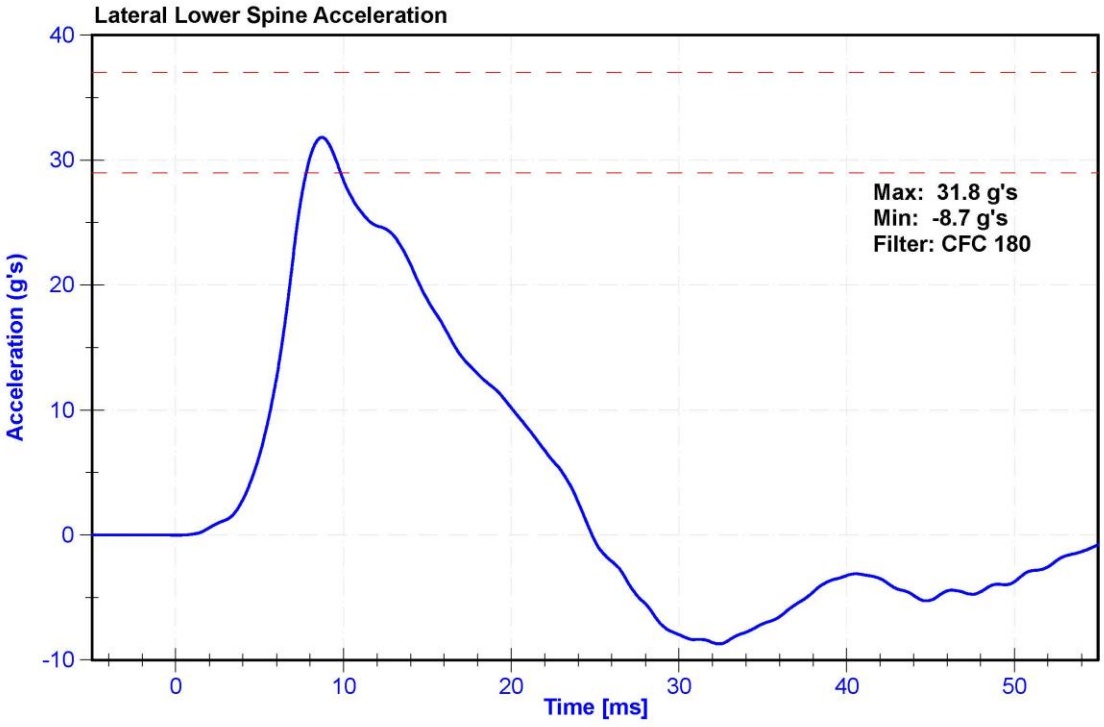

Shoulder Displacement
Displacement (mm)
Time [ms]
Max: 33.2 mm
Min: -1.7 mm
Filter: CFC 600


Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 26.0 mm
Min: -0.0 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 31.1 mm
Min: -0.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 33.7 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Max: 40.6 g's
Min: -14.5 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]


Lateral Lower Spine Acceleration
Max: 31.8 g's
Min: -8.7 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]

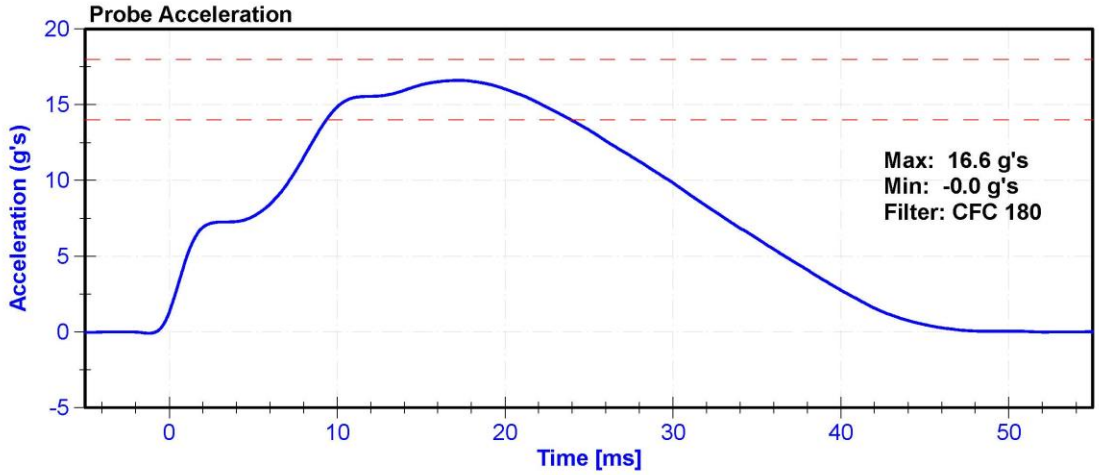
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

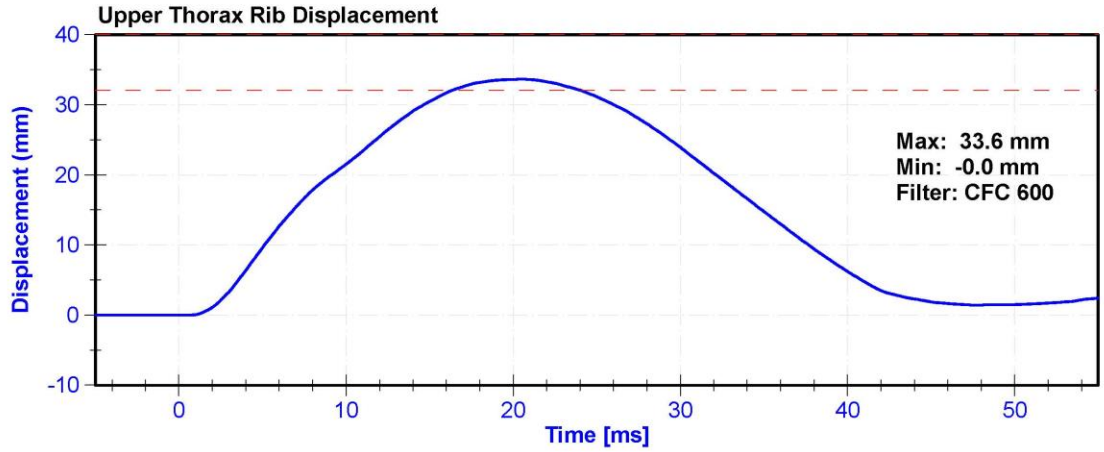
Results

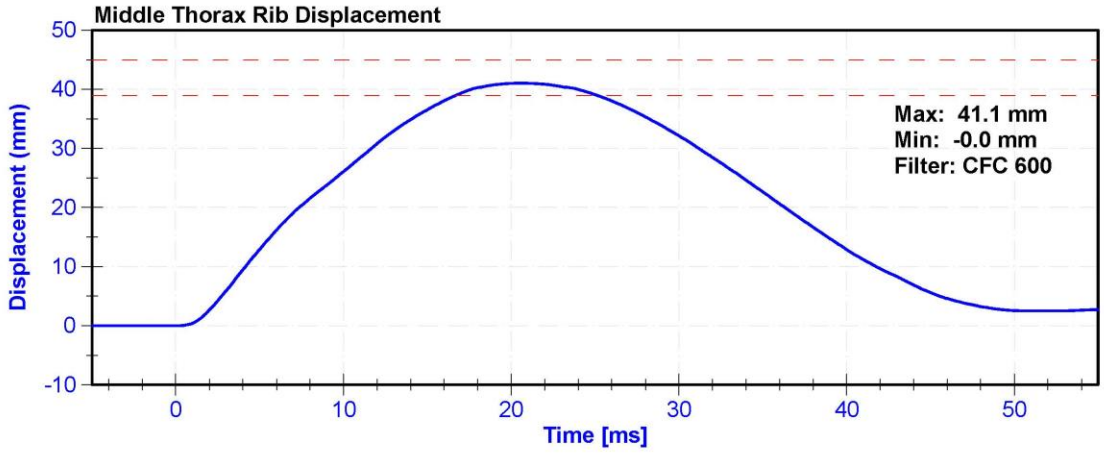
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	25	Pass
Velocity	4.2	4.4	m/s	4.37	Pass
Probe Acceleration	14	18	g's	16.6	Pass
Lateral Upper Spine Acceleration	13	17	g's	15.5	Pass
Lateral Lower Spine Acceleration	7	11	g's	10.0	Pass
Upper Thorax Rib Deflection	32	40	mm	33.6	Pass
Middle Thorax Rib Deflection	39	45	mm	41.1	Pass
Lower Thorax Rib Deflection	35	43	mm	38.3	Pass

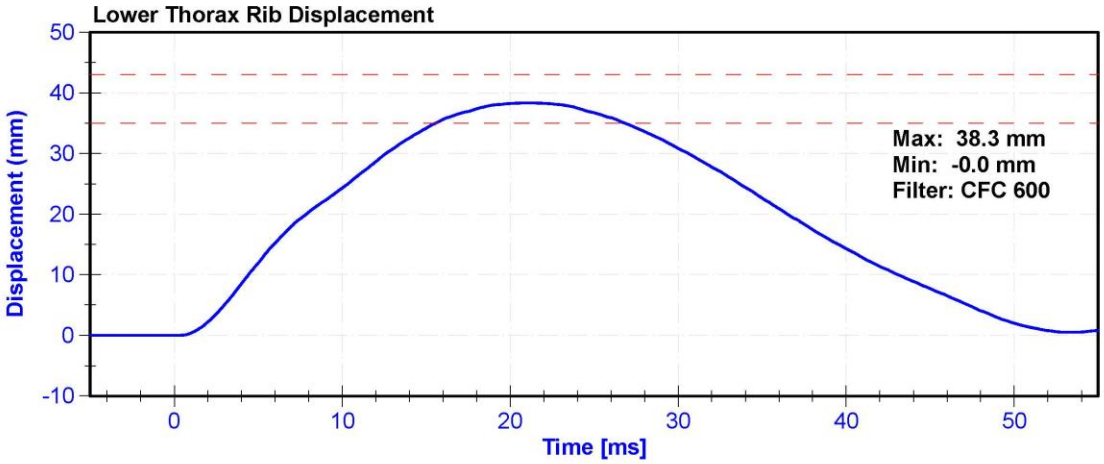
Transducer Calibrations

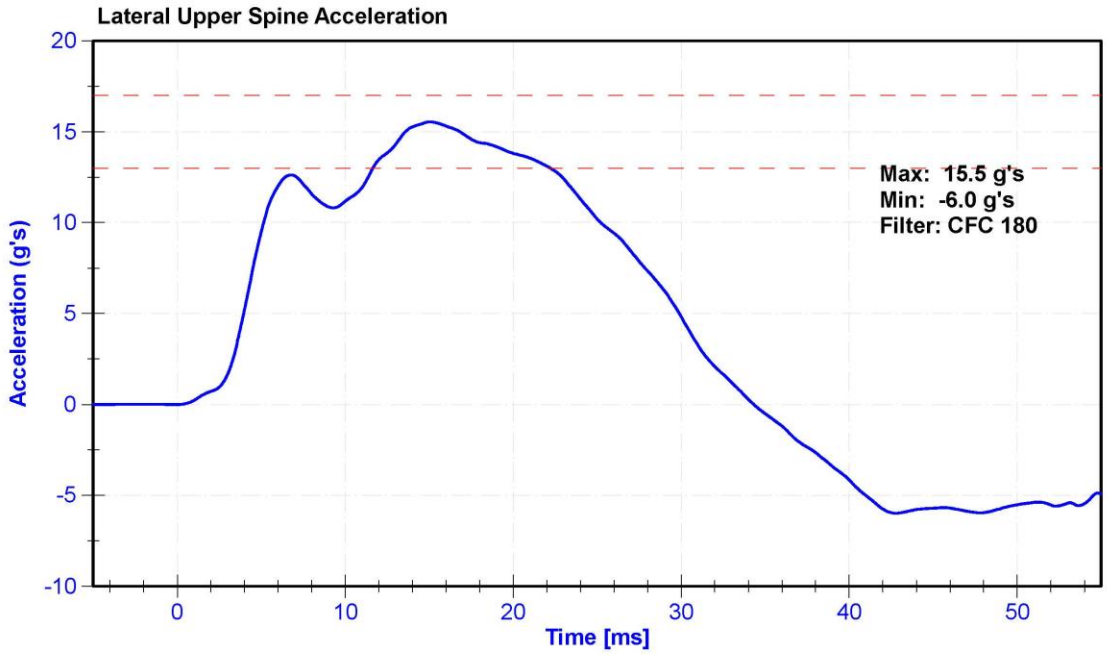
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P71281	11/9/2020	5/10/2021
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P64147	11/9/2020	5/10/2021
Upper Thorax Rib Potentiometer	Servo 08CT1-3725	DS-451GFE	11/10/2020	5/11/2021
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-040GFE	11/10/2020	5/11/2021
Lower Thorax Rib Potentiometer	Servo 08TC1-3725	DS-1156GFE	11/9/2020	5/10/2021

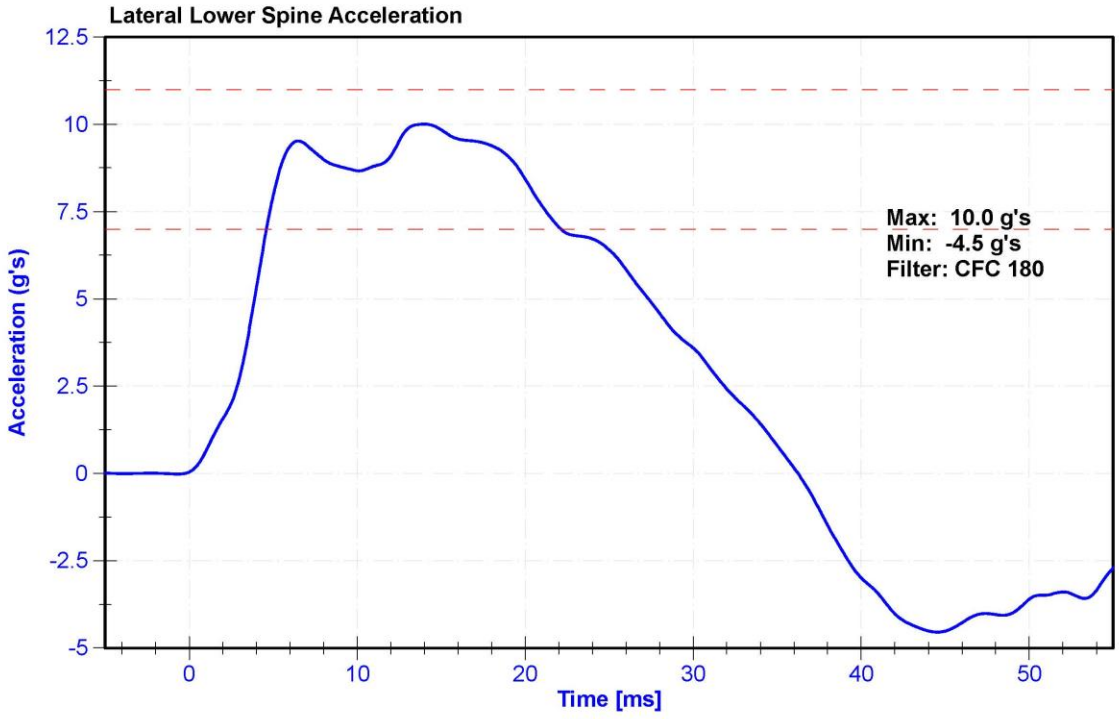



Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 33.6 mm
Min: -0.0 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 41.1 mm
Min: -0.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 38.3 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 15.5 g's
Min: -6.0 g's
Filter: CFC 180


Lateral Lower Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 10.0 g's
Min: -4.5 g's
Filter: CFC 180

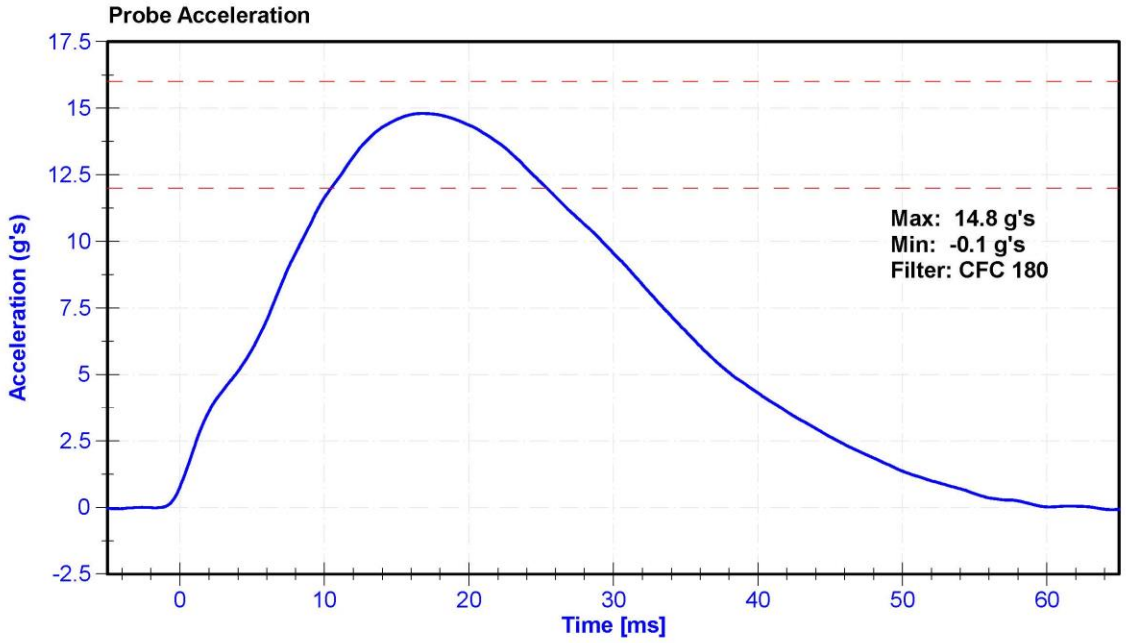
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

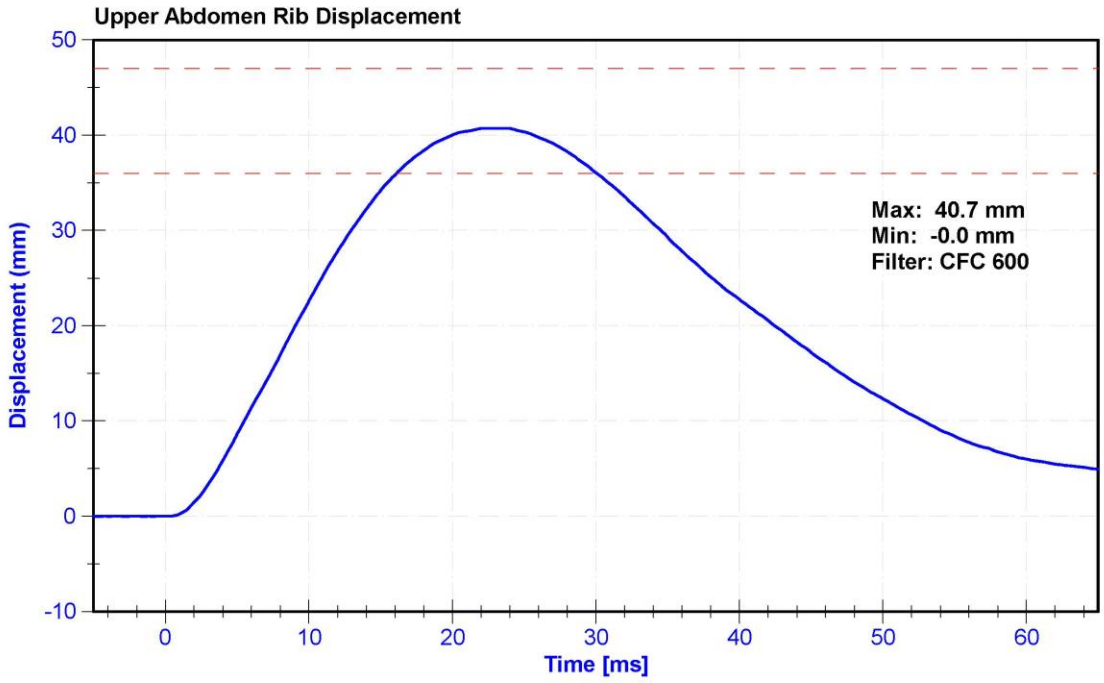
Results

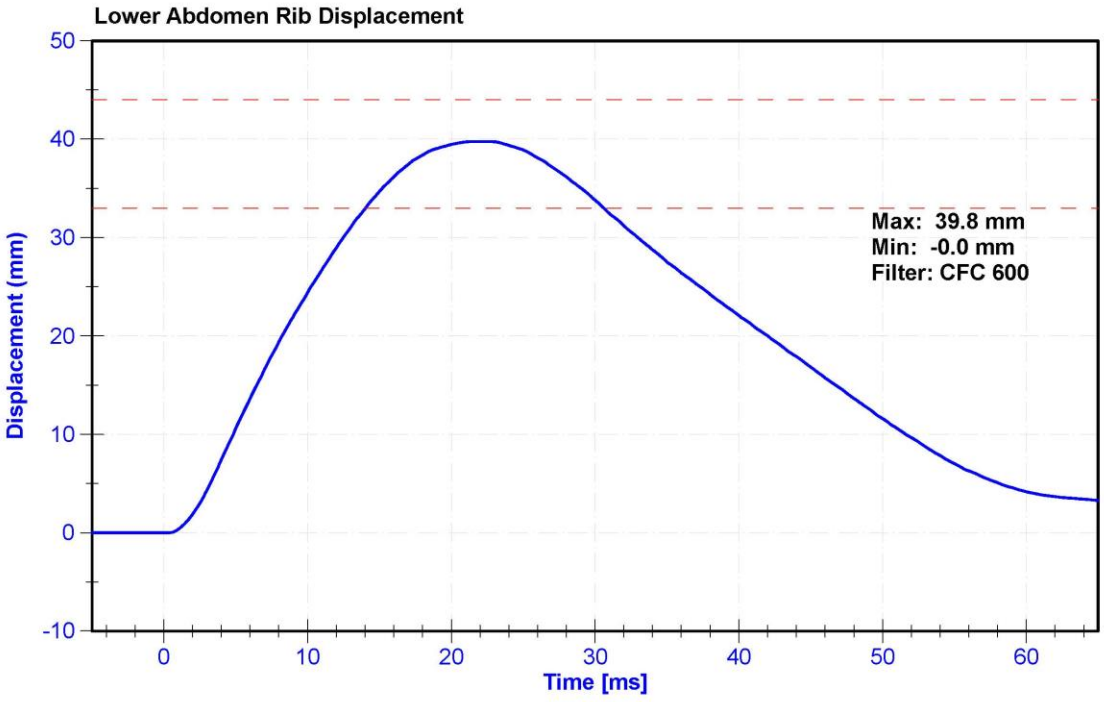
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	24.0	Pass
Velocity	4.2	4.4	m/s	4.31	Pass
Probe Acceleration	12	16	g's	14.8	Pass
Lateral Lower Spine Acceleration	9	14	g's	10.7	Pass
Upper Abdomen Rib Deflection	36	47	mm	40.7	Pass
Lower Abdomen Rib Deflection	33	44	mm	39.8	Pass

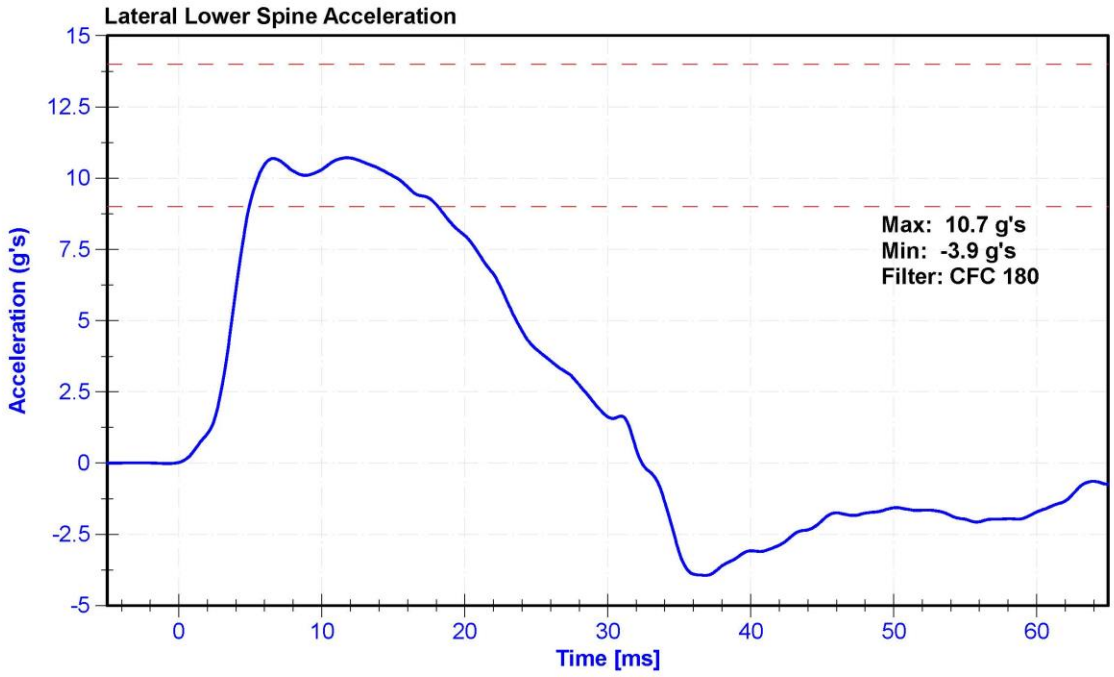
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P64147	11/9/2020	5/10/2021
Upper Abdomen Rib Potentiometer	Servo 08CT1-3725	DS-308GFE	11/10/2020	5/11/2021
Lower Abdomen Rib Potentiometer	Servo 08CT1-3725	DS-307GFE	11/10/2020	5/11/2021




Upper Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 40.7 mm
Min: -0.0 mm
Filter: CFC 600


Lower Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 39.8 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Lower Spine Acceleration
Acceleration (g's)
15
12.5
10
7.5
5
2.5
0
-2.5
-5
0
10
20
30
40
50
60
Time [ms]
Max: 10.7 g's
Min: -3.9 g's
Filter: CFC 180

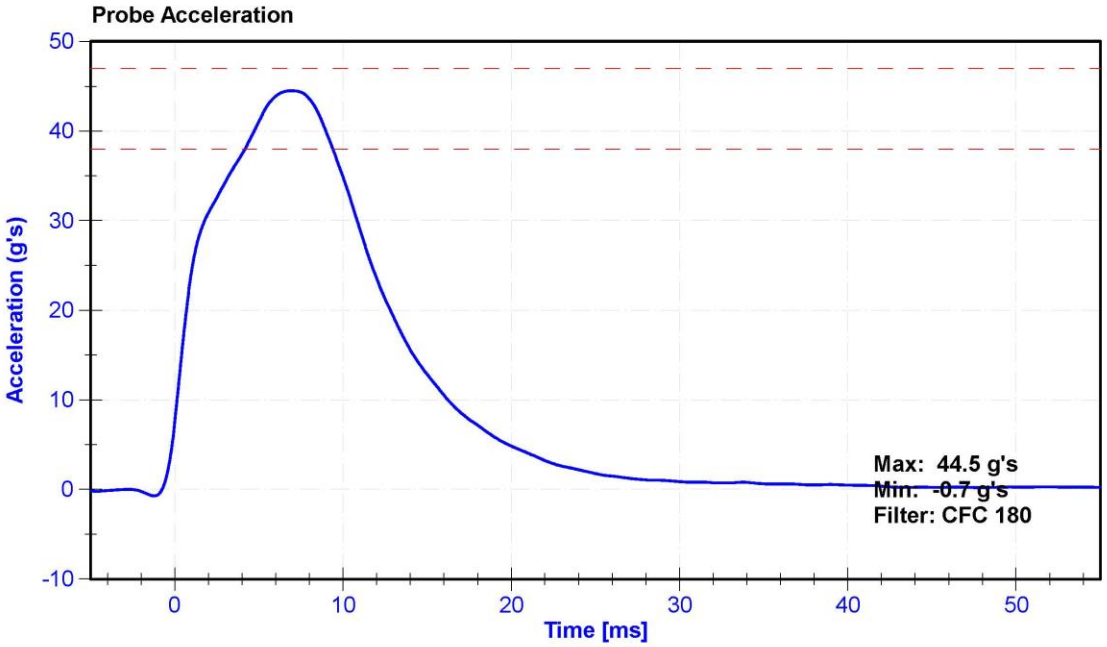
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

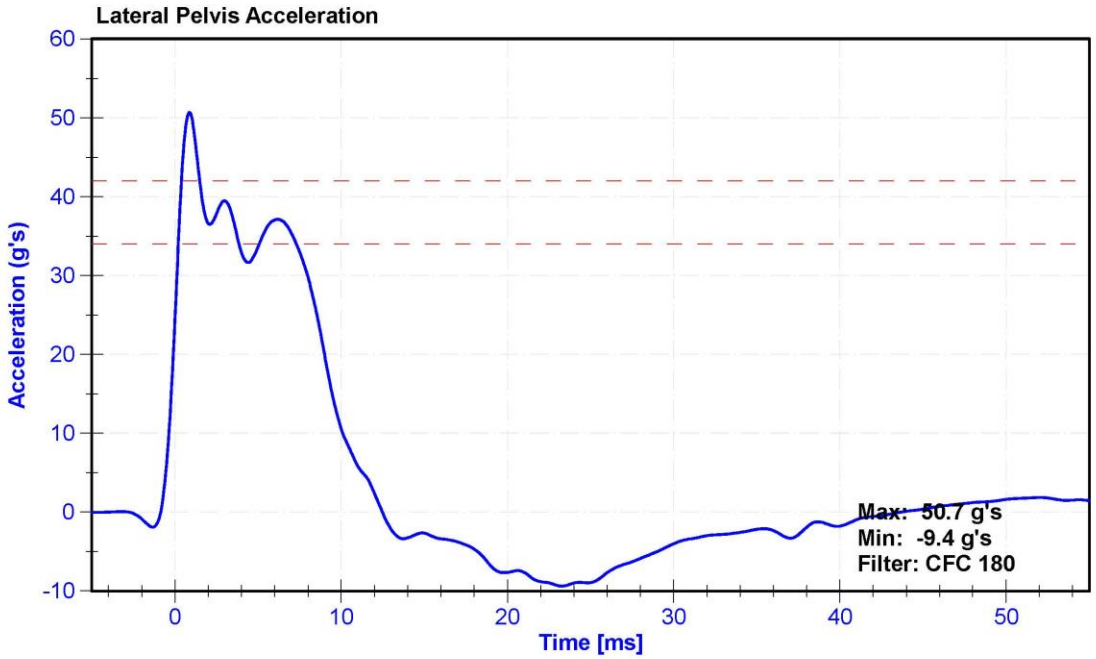
Results

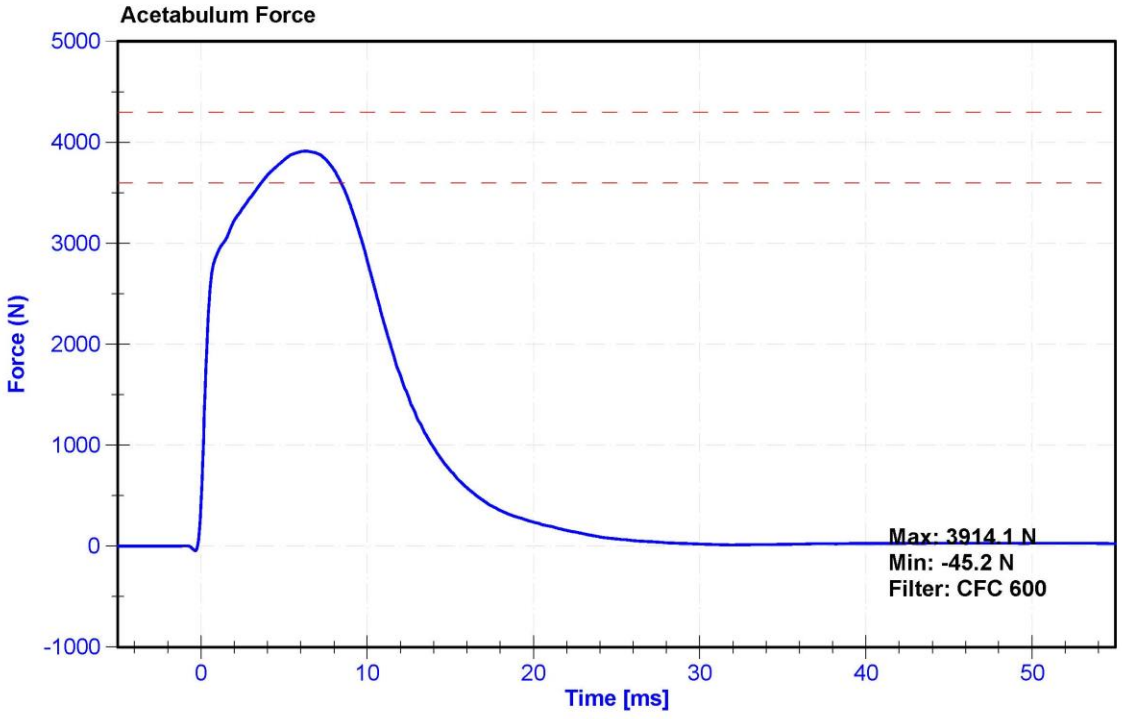
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.8	Pass
Humidity	10	70	%	25	Pass
Velocity	6.6	6.8	m/s	6.63	Pass
Probe Acceleration	38	47	g's	44.5	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	37.1	Pass
Acetabulum Force	3600	4300	N	3914.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Pelvis Y Accelerometer	ENDEVCO 7264C	AC-P51731	11/9/2020	5/10/2021
Acetabulum Load Cell	Denton IF-520	LC-236Fy	3/18/2020	3/18/2021
Certification Plug	SACO	13382	9/19/2019	N/A
Crash Test Plug	SACO	13493	9/23/2019	N/A




Lateral Pelvis Acceleration
Acceleration (g's)
60
50
40
30
20
10
0
-10
0
10
20
30
40
50
Time [ms]
Max: 50.7 g's
Min: -9.4 g's
Filter: CFC 180


Acetabulum Force
Force (N)
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50
Time [ms]
Max: 3914.1 N
Min: -45.2 N
Filter: CFC 600

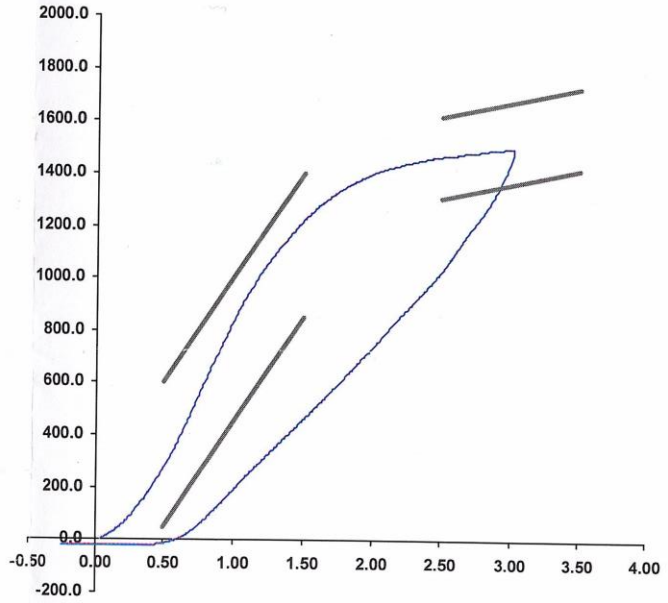
Cert 2
12/15/20
300

SID-IIs Pelvis Plug Certification Test

Plug S/N 13382
Test Number 11024
Report Number 11062
Test Date 9/19/2019 12:09:13 PM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	288.65	50.00	600.00
Force @ 1.5 mm (N)	1,223.37	850.00	1,400.00
Force @ 2.5 mm (N)	1,465.96	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,497.39	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 19-Sep-19
SACO Research

By : DC Date : 9/19/2019

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

300
Crash
12/4/20

SID-IIs Pelvis Plug Certification Test

Plug S/N 13493
Test Number 11136
Report Number 11174
Test Date 9/23/2019 8:41:36 AM

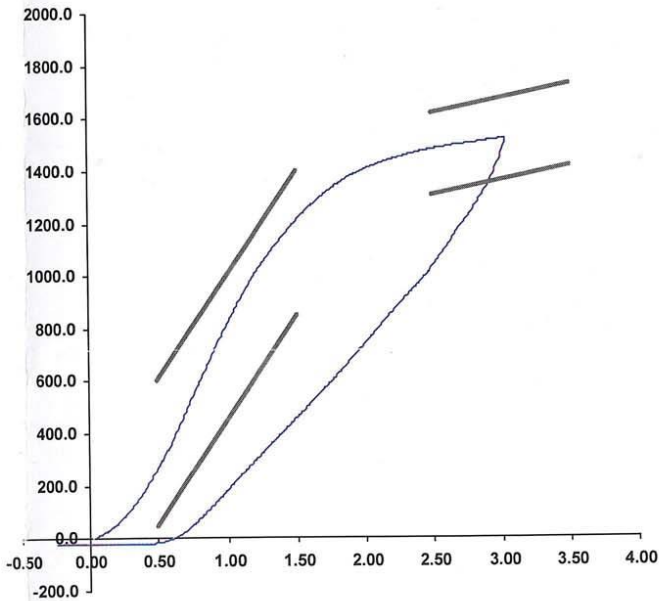
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	279.07	50.00	600.00
Force @ 1.5 mm (N)	1,214.85	850.00	1,400.00
Force @ 2.5 mm (N)	1,481.75	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,519.15	1,361.00	1,673.00

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

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

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 23-Sep-19
SACO Research

By : DC Date : 9/23/2019

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

SACO RESEARCH

300 Non Impact Crash

SID-IIs Pelvis Plug Certification Test

Plug S/N 13472
Test Number 11115
Report Number 11153
Test Date 9/20/2019 10:42:50 AM

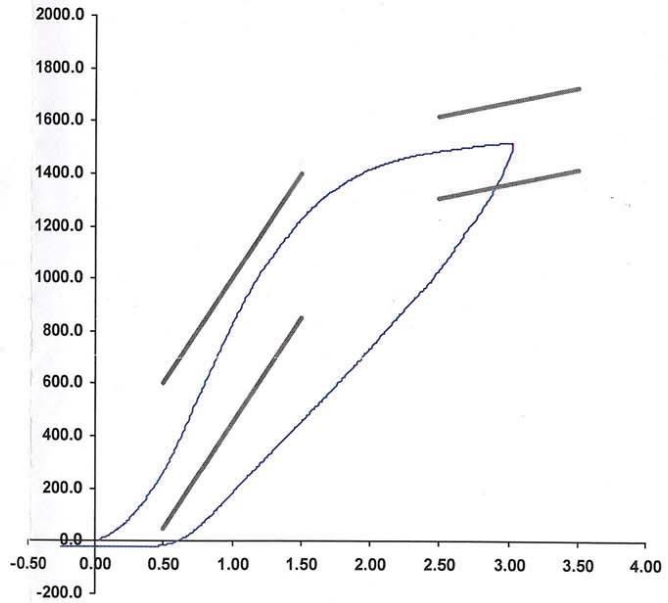
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	276.24	50.00	600.00
Force @ 1.5 mm (N)	1,235.17	850.00	1,400.00
Force @ 2.5 mm (N)	1,489.70	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,521.39	1,361.00	1,673.00

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

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

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 20-Sep-19
SACO Research

By : DC Date : 9/20/2019

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

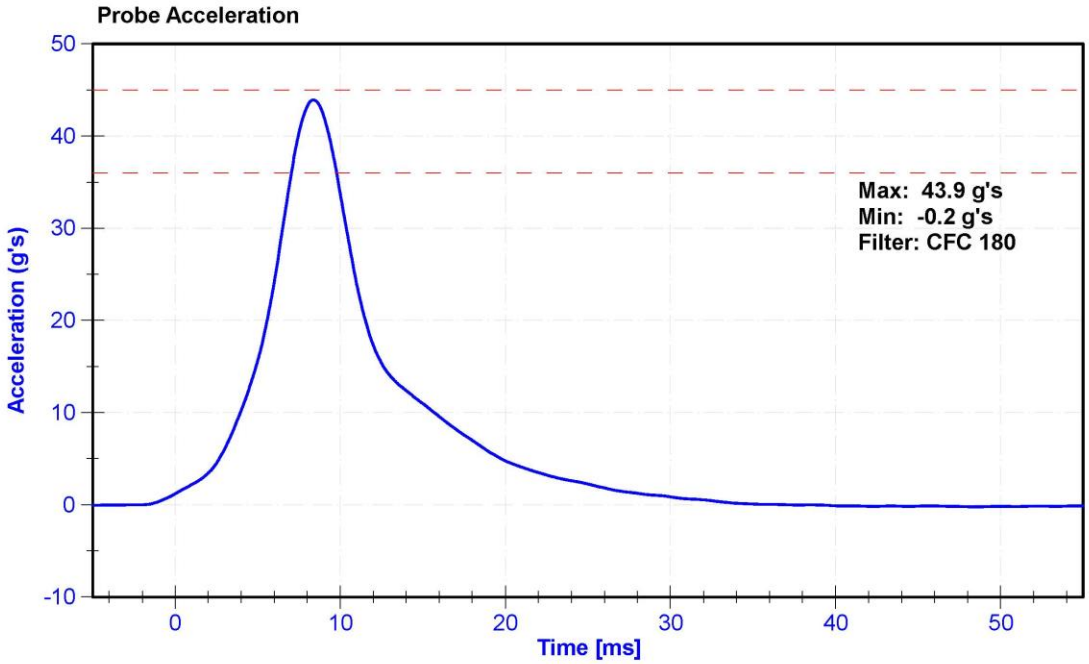
ATD Manufacturer	FTSS	Test Technician	K. Brogan
ATD Serial Number	300	Laboratory Supervisor	D.Reinhard

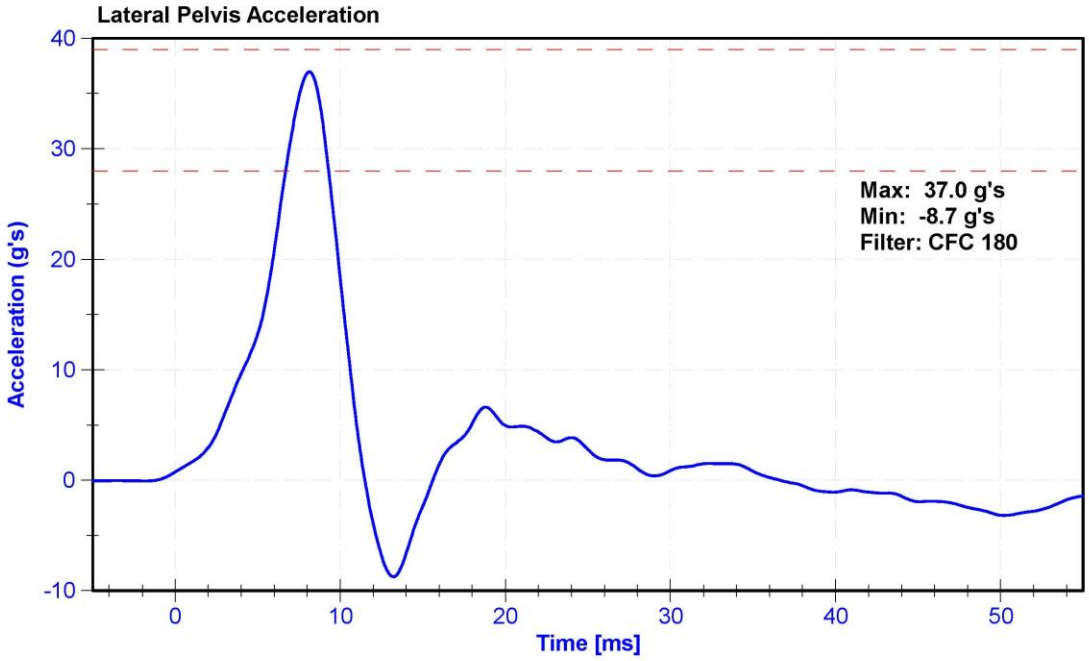
Results

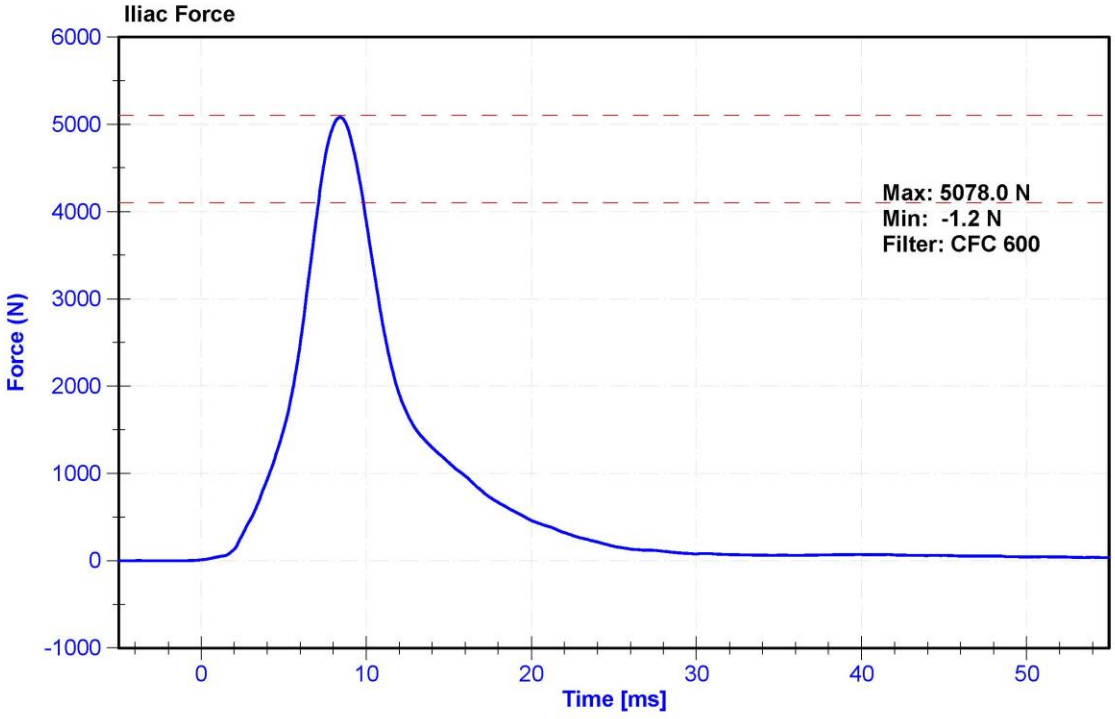
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.6	Pass
Humidity	10	70	%	18	Pass
Velocity	4.2	4.4	m/s	4.20	Pass
Probe Acceleration	36	45	g's	43.9	Pass
Lateral Pelvis Acceleration	28	39	g's	37.0	Pass
Iliac Force	4100	5100	N	5078.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Pelvis Y Accelerometer	ENDEVCO 7264C-2K-TZ2	AC-P51731	11/9/2020	5/10/2021
Iliac Load Cell	DENTON 3228J	LC-279Fy	11/23/2020	11/23/2021




Lateral Pelvis Acceleration
Acceleration (g's)
Time [ms]
Max: 37.0 g's
Min: -8.7 g's
Filter: CFC 180


Iliac Force
Force (N)
Time [ms]
Max: 5078.0 N
Min: -1.2 N
Filter: CFC 600

CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

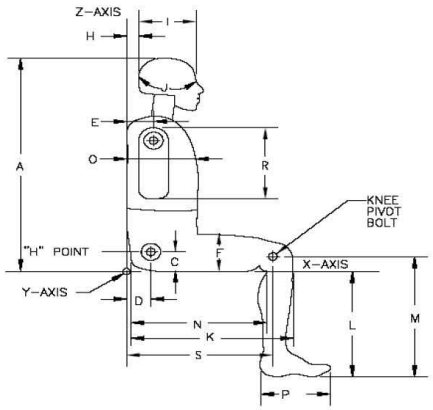
SERIAL NO: 300

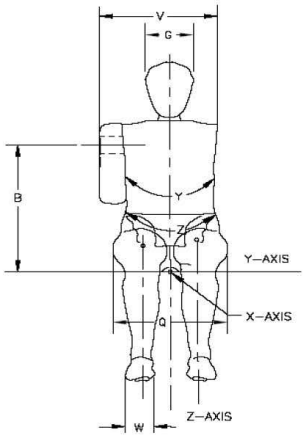
(CONFIGURED FOR LEFT SIDE IMPACT)

External Measurements - SID-IIs

Technician: K. Dutton Date: 01/04/2021

Dummy Serial Number: 300





Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	781	Pass
B	Shoulder Pivot Height	437	453	440	Pass
C	H-point Height	79	89	85	Pass
D	H-point from seatback	141	151	146	Pass
E	Shoulder Pivot from Backline	97	107	102	Pass
F	Thigh Clearance	119	135	126	Pass
G	Head Breadth	140	148	144	Pass
H	Head Back from Backline	40	46	42	Pass
I	Head Depth	178	188	187	Pass
J	Head Circumference	541	551	544	Pass
K	Buttock to Knee Length	514	540	532	Pass
L	Popliteal Height	343	369	361	Pass
M	Knee Pivot to floor height	392	409	400	Pass
N	Buttock Popliteal Length	416	442	430	Pass
O	Chest Depth w/o jacket	195	211	208	Pass
P	Foot Length	216	232	220	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	317	Pass
R	Arm Length	249	259	254	Pass
S	Knee Joint to seatback	477	493	484	Pass
V	Shoulder Width	341	357	352	Pass
W	Foot Width	78	94	83	Pass
Y	Chest Circumference w/jacket	851	881	875	Pass
Z	Waist Circumference	761	791	773	Pass

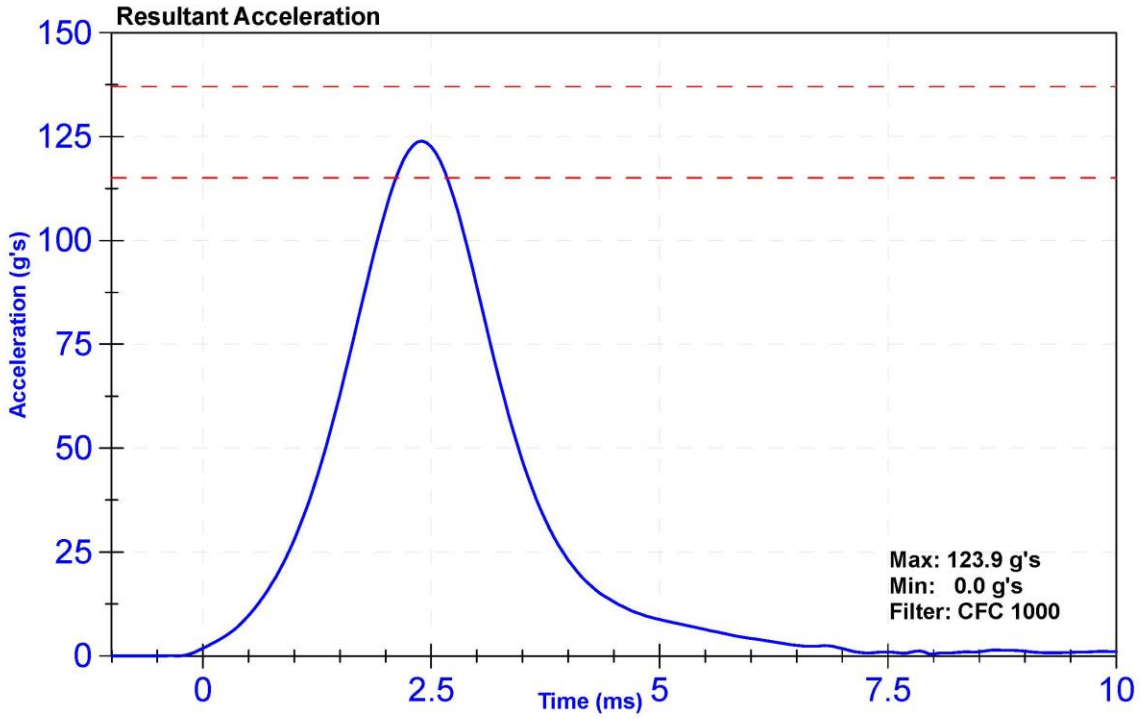
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

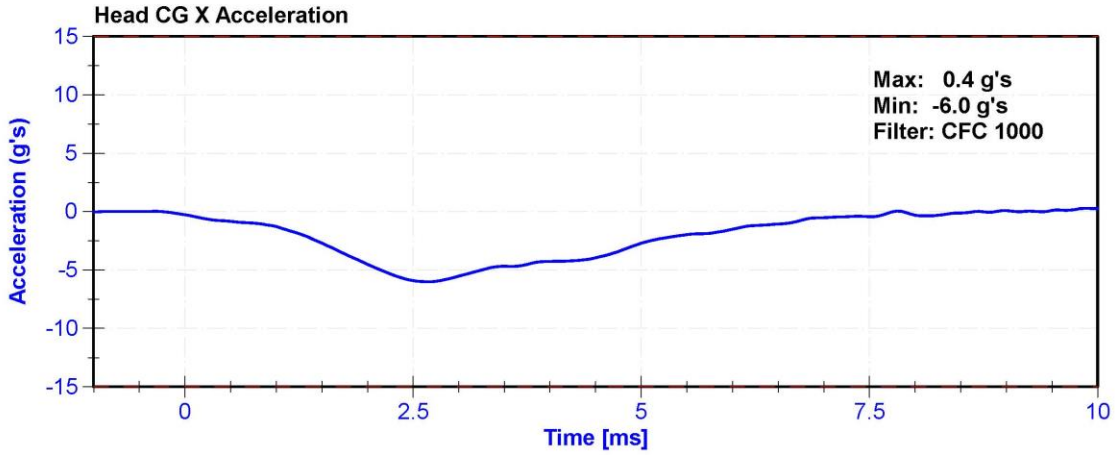
Results

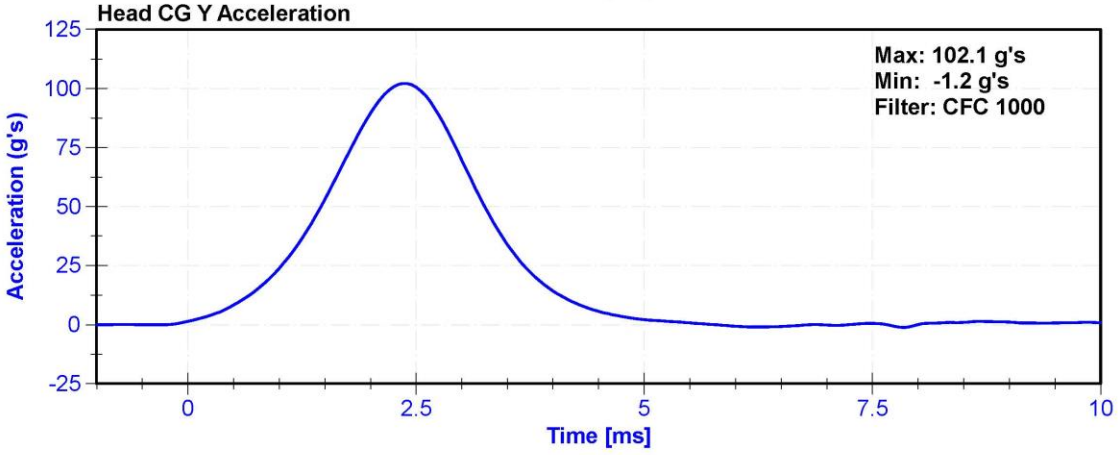
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	21	Pass
Humidity	10	70	%	34	Pass
Resultant Acceleration	115	137	g's	123.9	Pass
Oscillation	0	15	%	2.0	Pass
Fore-Aft Acceleration	-15	15	g's	-6.0	Pass

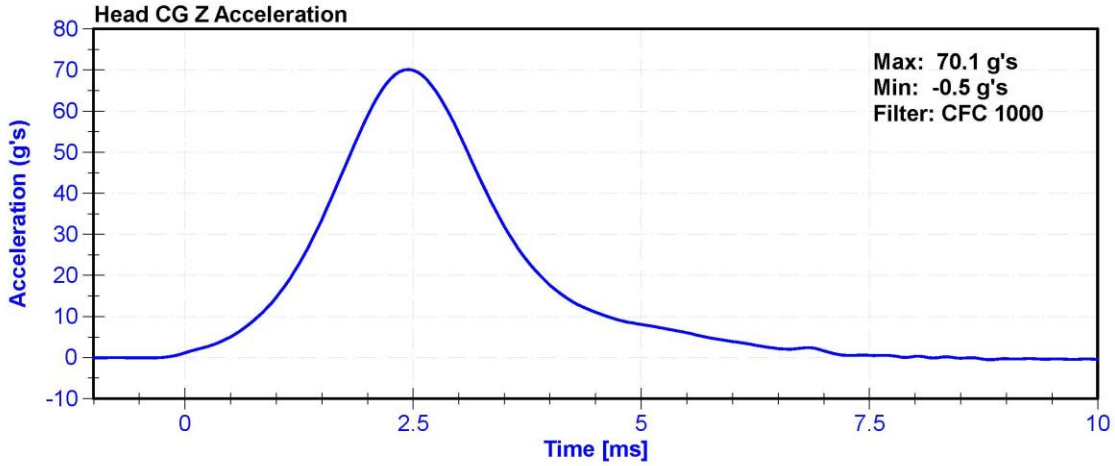
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	ENDEVCO 7264CT	AC-P59018	11/10/2020	5/11/2021
Y Accelerometer	ENDEVCO 7264	AC-P79189	11/10/2020	5/11/2021
Z Accelerometer	ENDEVCO 7264CT	AC-P58777	11/10/2020	5/11/2021




Head CG X Acceleration
Max: 0.4 g's
Min: -6.0 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]


Head CG Y Acceleration
Max: 102.1 g's
Min: -1.2 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]


Head CG Z Acceleration
Max: 70.1 g's
Min: -0.5 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]

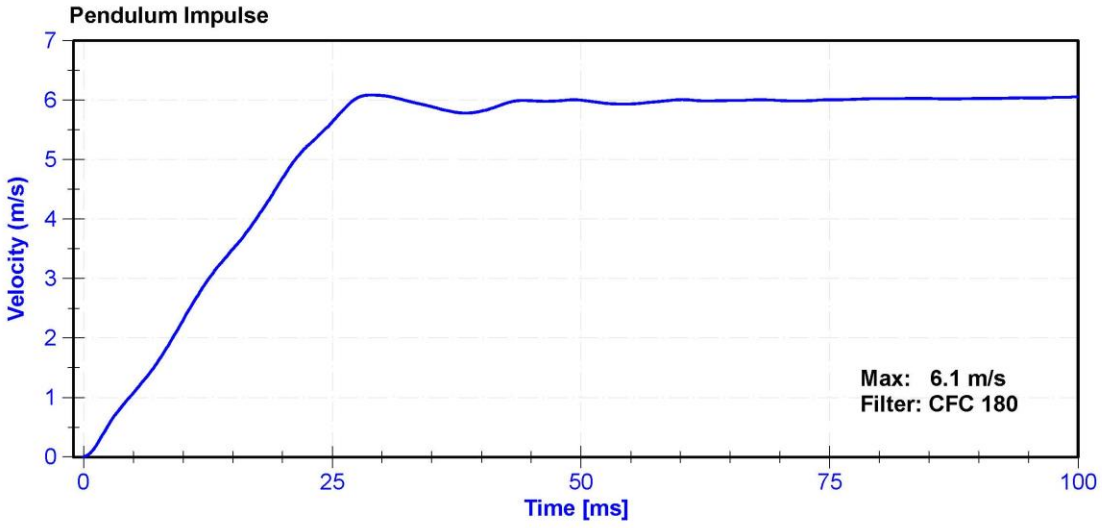
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

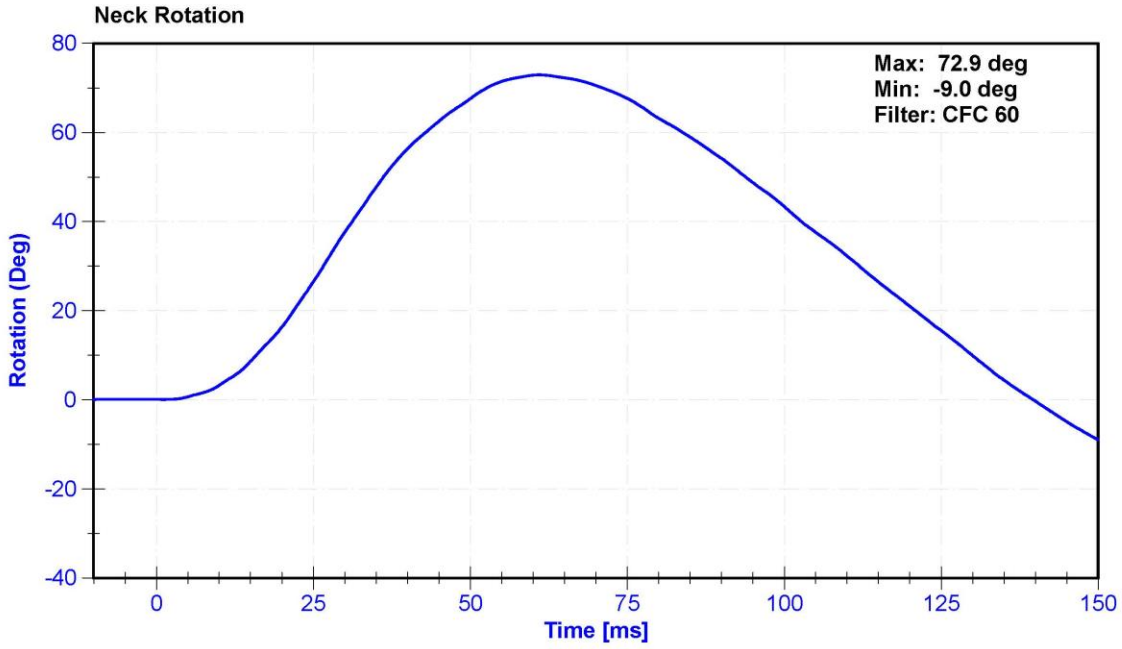
Results

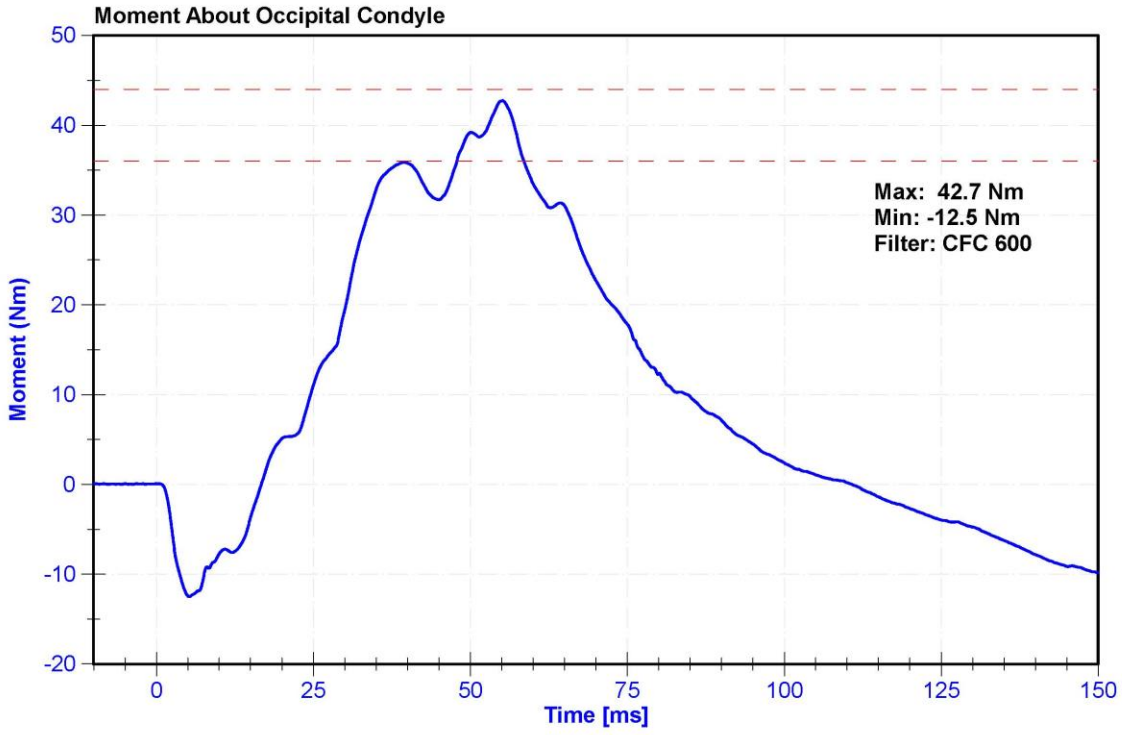
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	21.5	Pass
Humidity	10	70	%	34.6	Pass
Velocity	5.51	5.63	m/s	5.584	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.30	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.49	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.69	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.63	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	6.08	Pass
Neck Rotation	71	81	deg	72.9	Pass
Time at Maximum Rotation	50	70	ms	61.0	Pass
Moment about the OC	36	44	Nm	42.7	Pass
Moment Decay to 0 Nm	102	126	ms	110.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C16503 Striker	2/6/2020	2/5/2021
Pendulum Potentiometer	Denton 78051-342	DS-184Pend	11/6/2020	11/6/2021
Condyle Potentiometer	Denton 78051-342	DS-185Pend	11/6/2020	11/6/2021
Upper Neck Load Cell	Denton 1716	17162019 FY	3/18/2020	3/18/2021




Neck Rotation
Max: 72.9 deg
Min: -9.0 deg
Filter: CFC 60
Rotation (Deg)
80
60
40
20
0
-20
-40
0
25
50
75
100
125
150
Time [ms]


Moment About Occipital Condyle
Max: 42.7 Nm
Min: -12.5 Nm
Filter: CFC 600
Moment (Nm)
50
40
30
20
10
0
-10
-20
0
25
50
75
100
125
150
Time [ms]

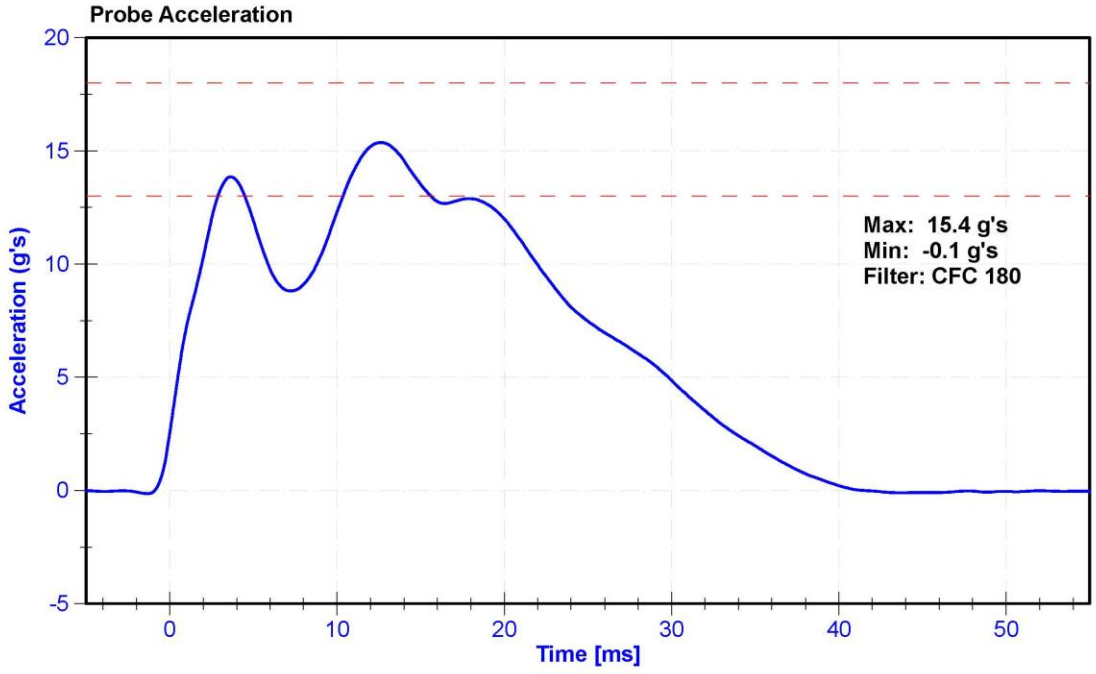
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

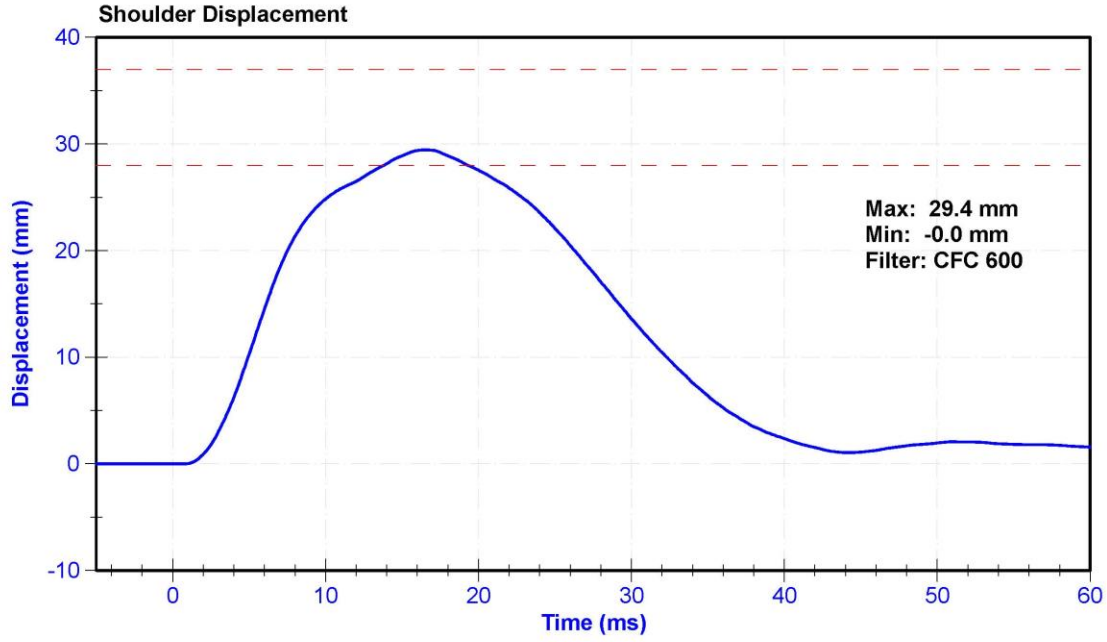
Results

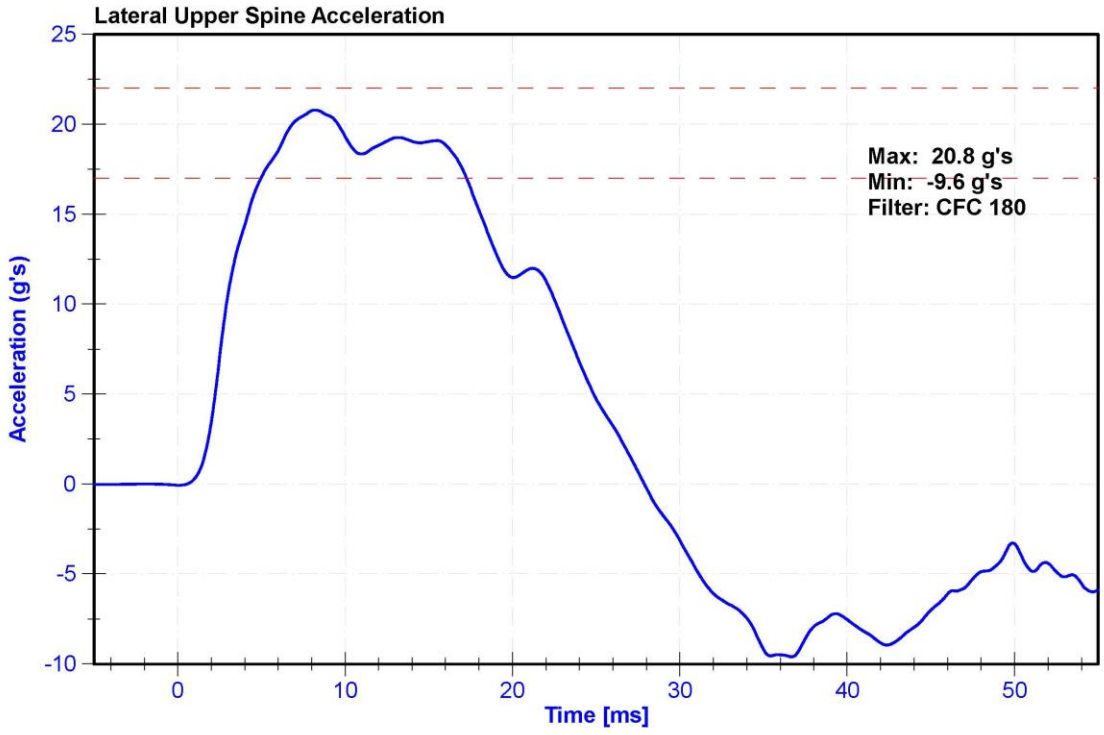
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	21	Pass
Humidity	10	70	%	34	Pass
Velocity	4.2	4.4	m/s	4.29	Pass
Probe Acceleration	13	18	g's	15.4	Pass
Shoulder Deflection	28	37	mm	29.4	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Shoulder Potentiometer	Servo 08CT1-3725	DS-053 GFE	11/10/2020	5/11/2021
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P71281	11/9/2020	5/10/2021




Shoulder Displacement
Displacement (mm)
Time (ms)
Max: 29.4 mm
Min: -0.0 mm
Filter: CFC 600
40
30
20
10
0
-10
0
10
20
30
40
50
60


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 20.8 g's
Min: -9.6 g's
Filter: CFC 180
25
20
15
10
5
0
-5
-10
0
10
20
30
40
50

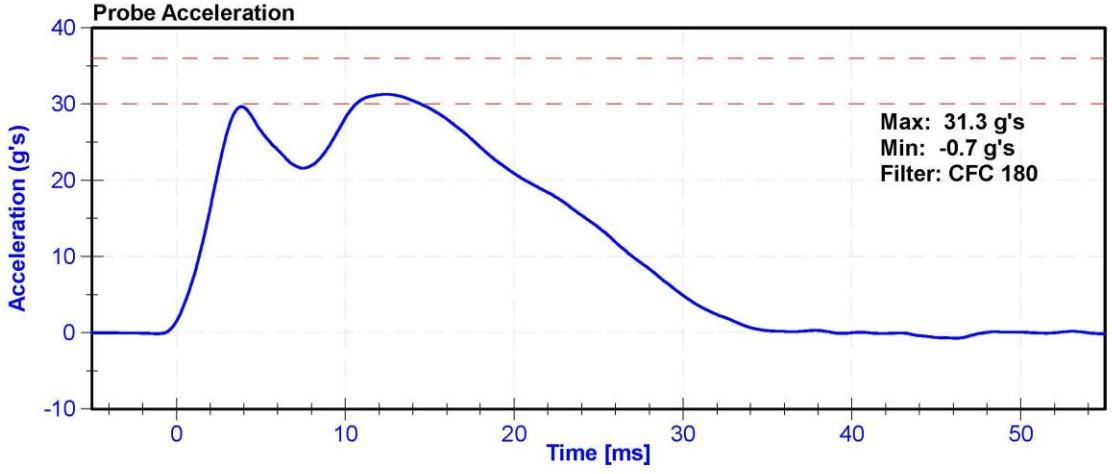
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

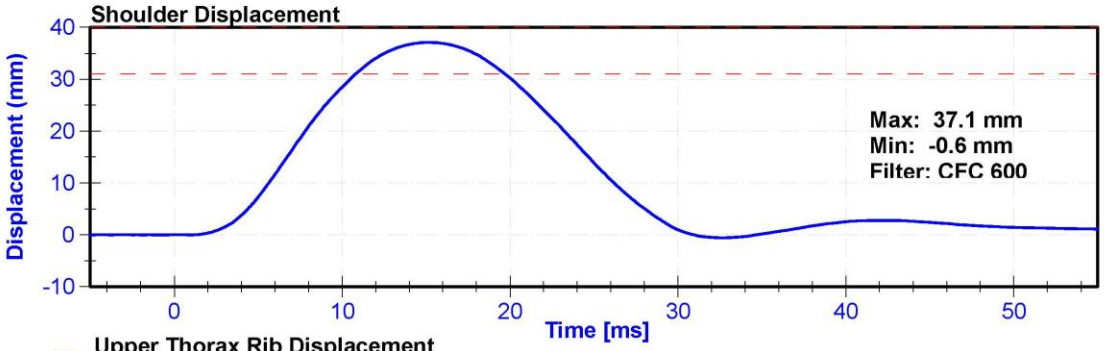
Results

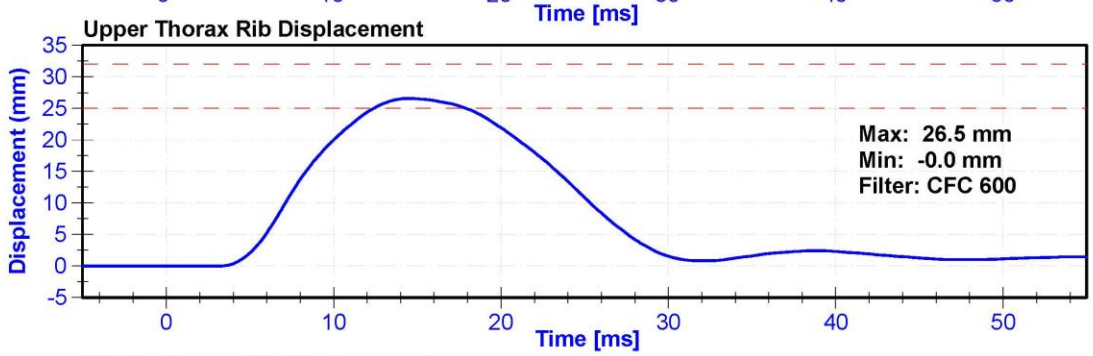
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	21.0	Pass
Humidity	10	70	%	34.0	Pass
Velocity	6.6	6.8	m/s	6.74	Pass
Probe Acceleration after 5 ms	30	36	g's	31.3	Pass
Lateral Upper Spine Acceleration	34	43	g's	40.9	Pass
Lateral Lower Spine Acceleration	29	37	g's	31.4	Pass
Shoulder Deflection	31	40	mm	37.1	Pass
Upper Thorax Rib Deflection	25	32	mm	26.5	Pass
Mid Thorax Rib Deflection	30	36	mm	31.8	Pass
Lower Thorax Rib Deflection	32	38	mm	34.0	Pass

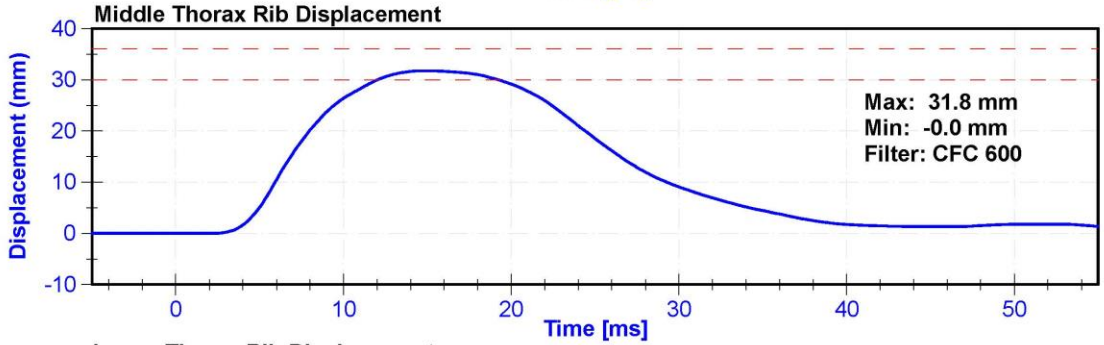
Transducer Calibrations

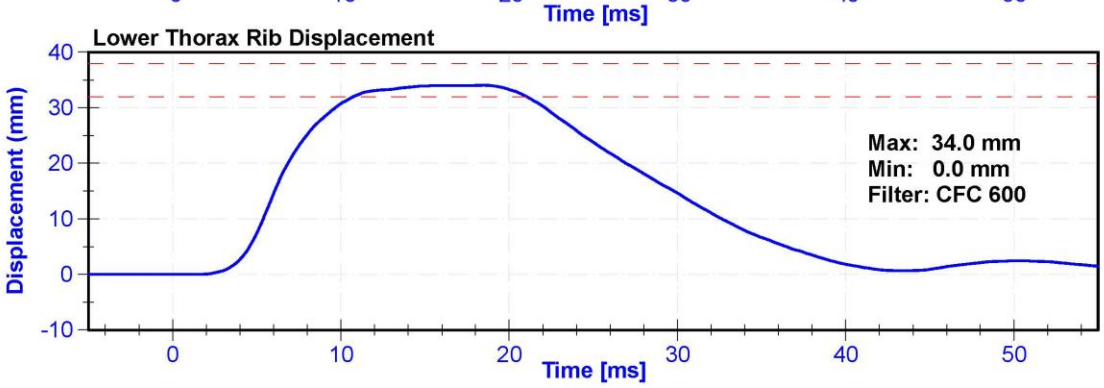
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Upper Spine T1 Y Accelerometer	ENDEVCO 7264CT	AC-P71281	11/9/2020	5/10/2021
Upper Spine T12 Y Accelerometer	ENDEVCO 7264	AC-P64147	11/9/2020	5/10/2021
Shoulder Potentiometer	Servo 08CT1-3725	DS-053 GFE	11/10/2020	5/11/2021
Upper Thorax Rib Potentiometer	Servo 08CT1-3725	DS-451GFE	11/10/2020	5/11/2021
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-040GFE	11/10/2020	5/11/2021
Lower Thorax Rib Potentiometer	Servo 08TC1-3725	DS-1156GFE	11/9/2020	5/10/2021

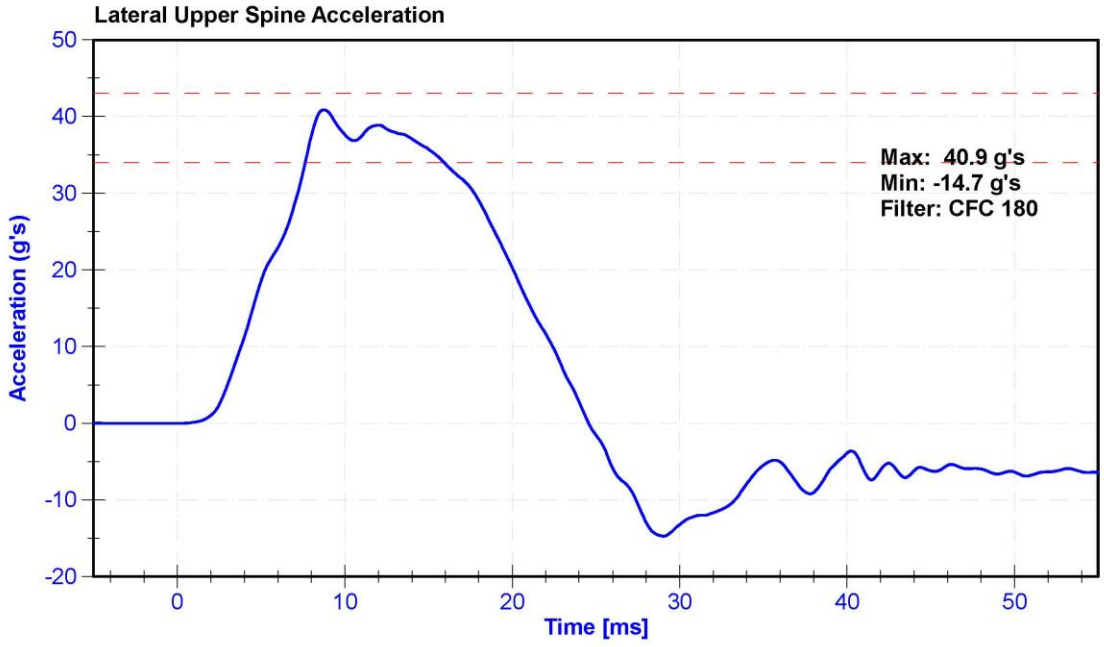


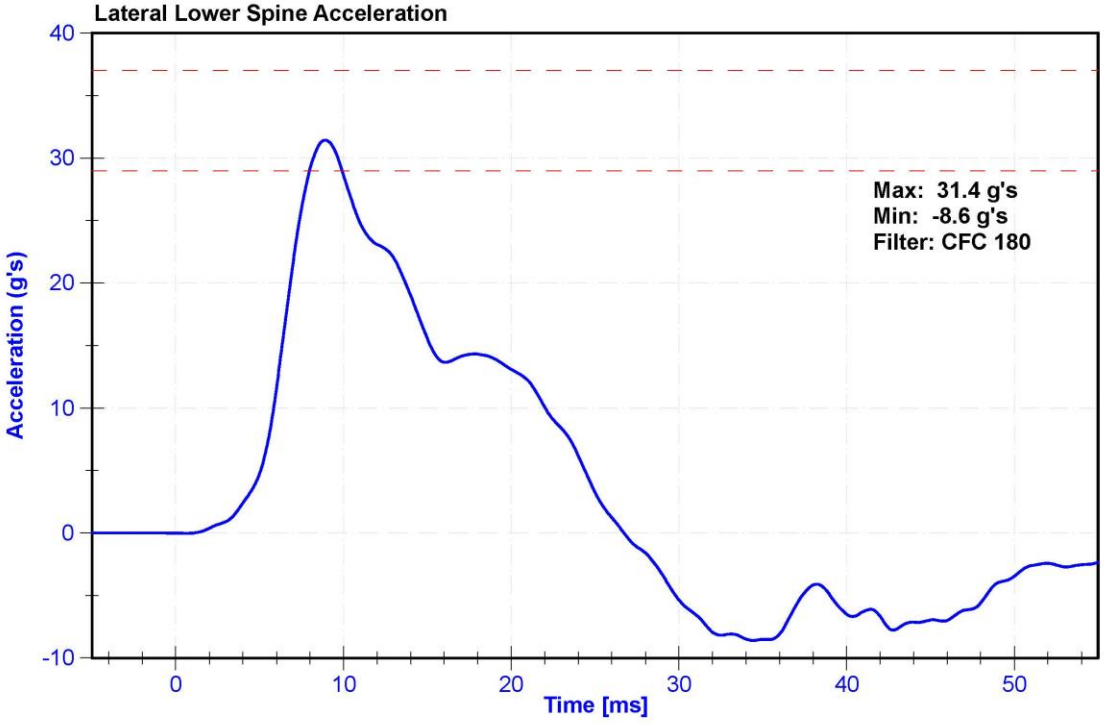

Shoulder Displacement
Displacement (mm)
Time [ms]
Max: 37.1 mm
Min: -0.6 mm
Filter: CFC 600


Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 26.5 mm
Min: -0.0 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 31.8 mm
Min: -0.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 34.0 mm
Min: 0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Max: 40.9 g's
Min: -14.7 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]


Lateral Lower Spine Acceleration
Max: 31.4 g's
Min: -8.6 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]

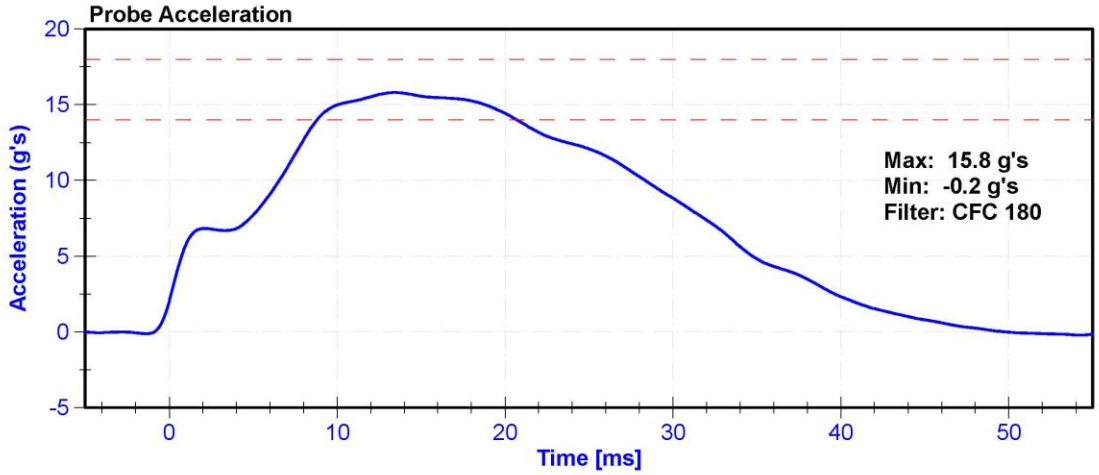
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

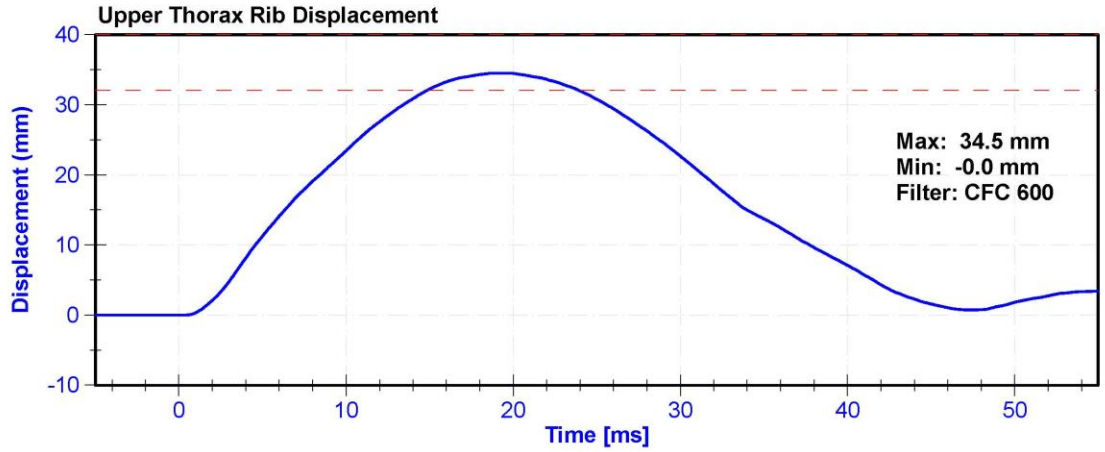
Results

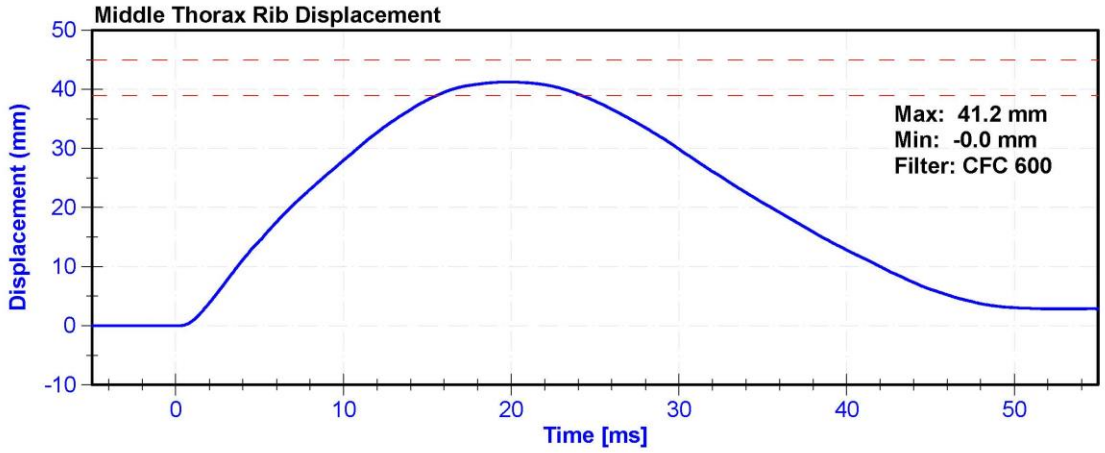
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	21	Pass
Humidity	10	70	%	34	Pass
Velocity	4.2	4.4	m/s	4.36	Pass
Probe Acceleration	14	18	g's	15.8	Pass
Lateral Upper Spine Acceleration	13	17	g's	16.0	Pass
Lateral Lower Spine Acceleration	7	11	g's	10.9	Pass
Upper Thorax Rib Deflection	32	40	mm	34.5	Pass
Middle Thorax Rib Deflection	39	45	mm	41.2	Pass
Lower Thorax Rib Deflection	35	43	mm	38.5	Pass

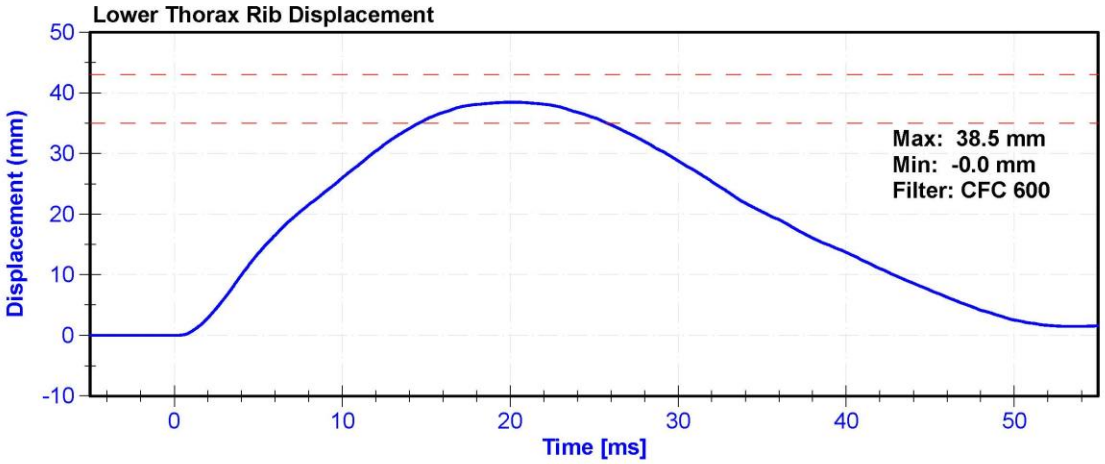
Transducer Calibrations

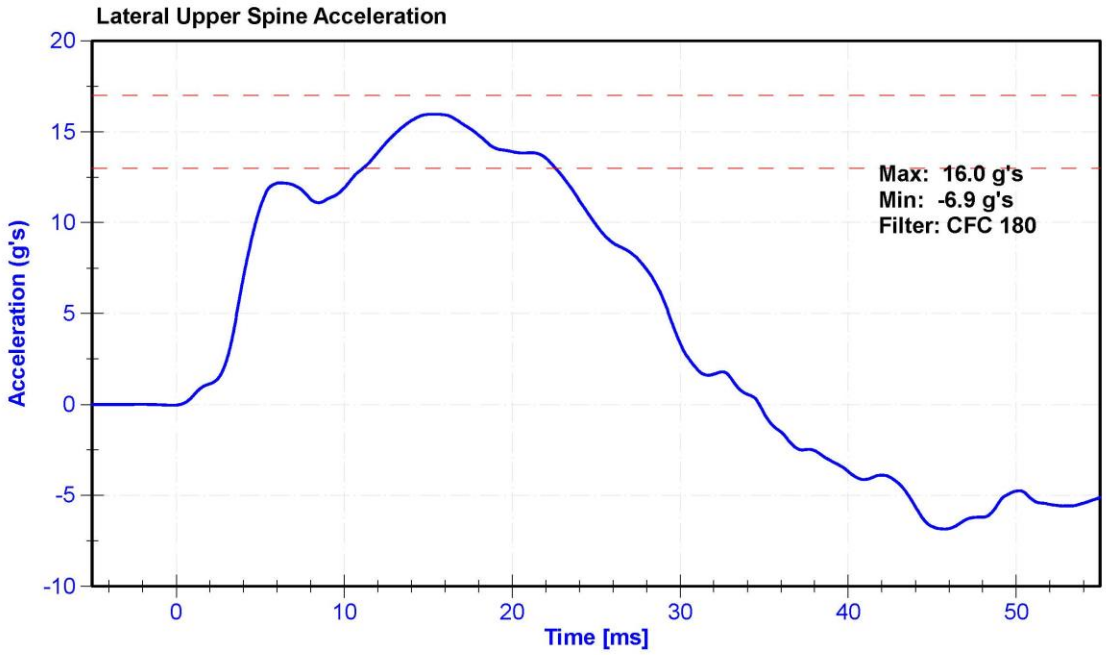
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P71281	11/9/2020	5/10/2021
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P64147	11/9/2020	5/10/2021
Upper Thorax Rib Potentiometer	Servo 08CT1-3725	DS-451GFE	11/10/2020	5/11/2021
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-040GFE	11/10/2020	5/11/2021
Lower Thorax Rib Potentiometer	Servo 08TC1-3725	DS-1156GFE	11/9/2020	5/10/2021

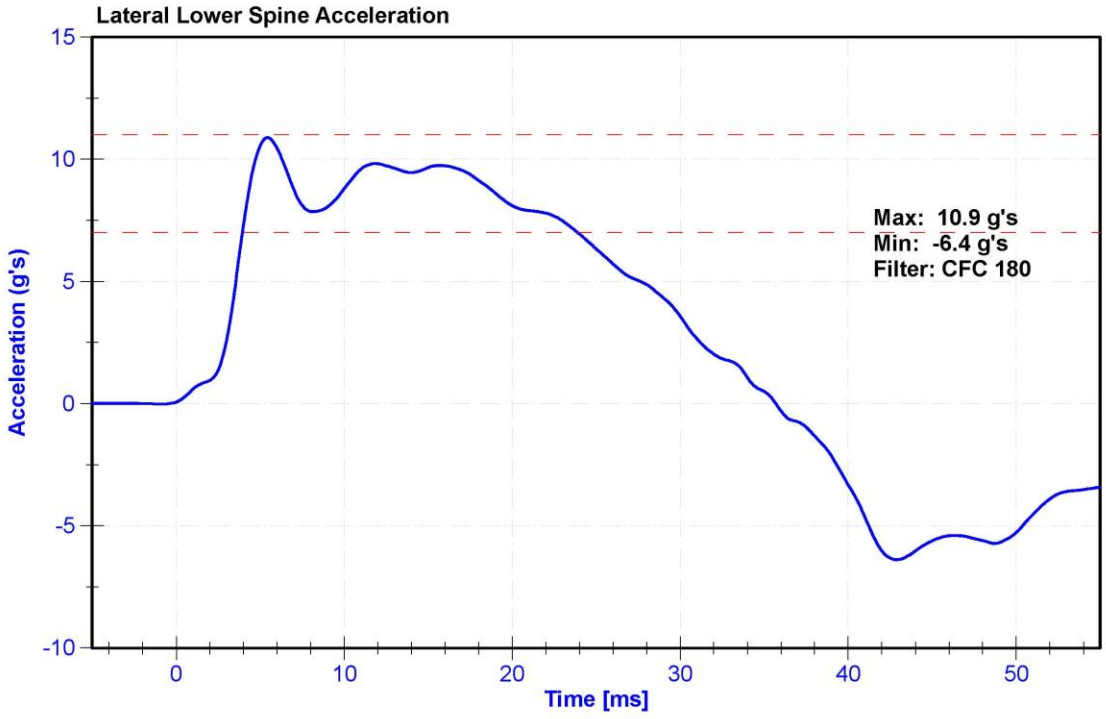



Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 34.5 mm
Min: -0.0 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 41.2 mm
Min: -0.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 38.5 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Max: 16.0 g's
Min: -6.9 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]
20
15
10
5
0
-5
-10
0
10
20
30
40
50


Lateral Lower Spine Acceleration
Max: 10.9 g's
Min: -6.4 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]
15
10
5
0
-5
-10
0
10
20
30
40
50

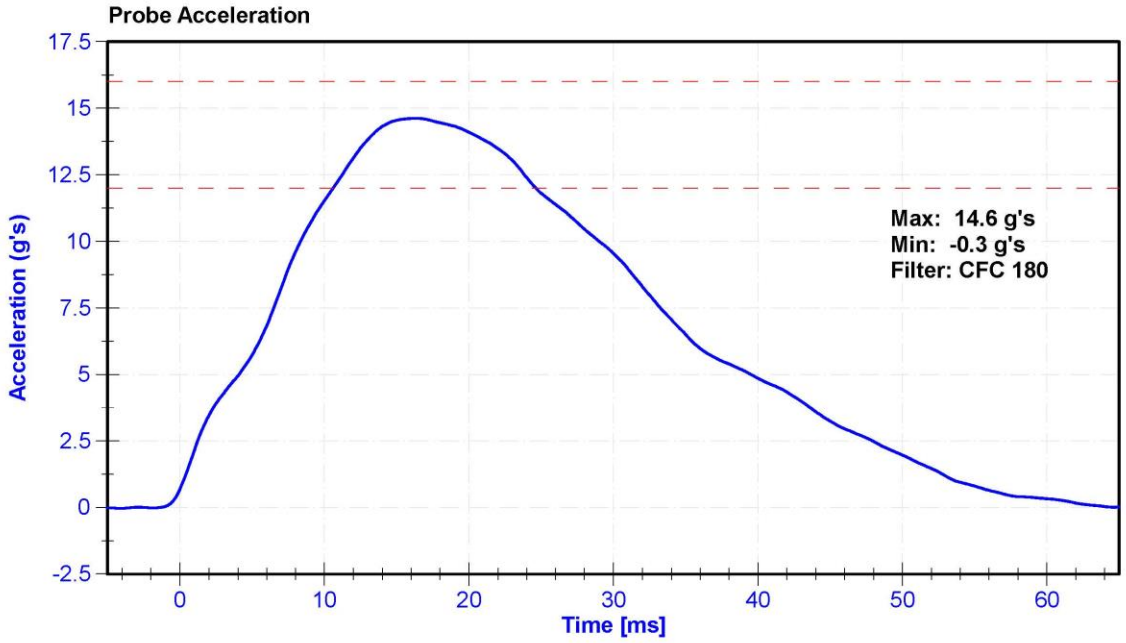
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

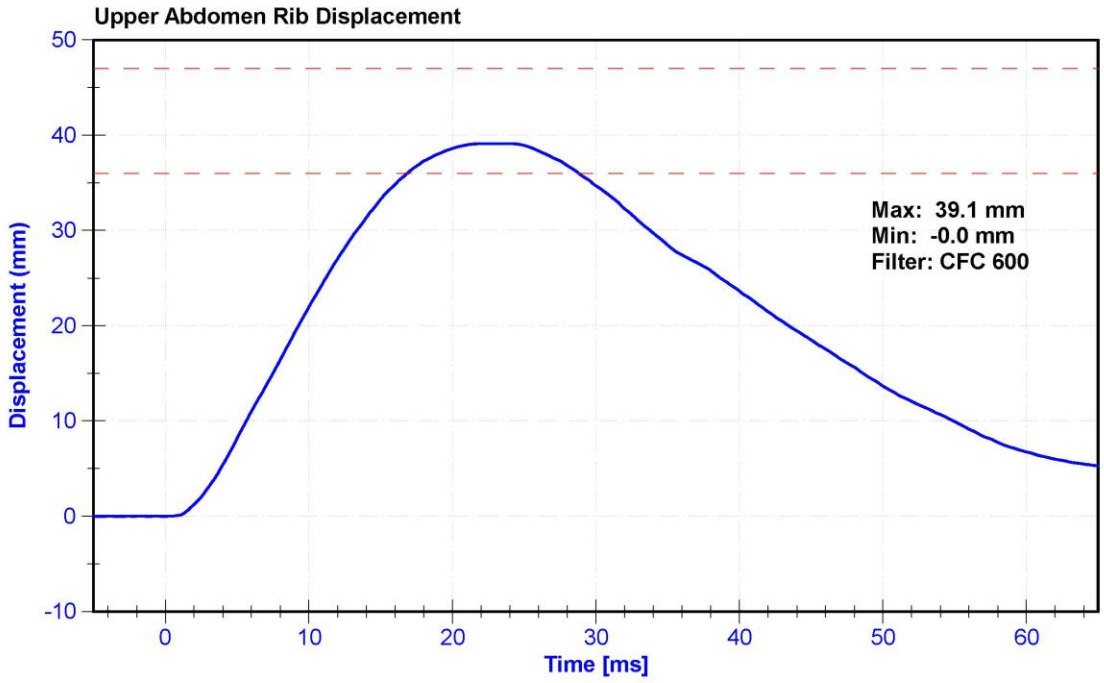
Results

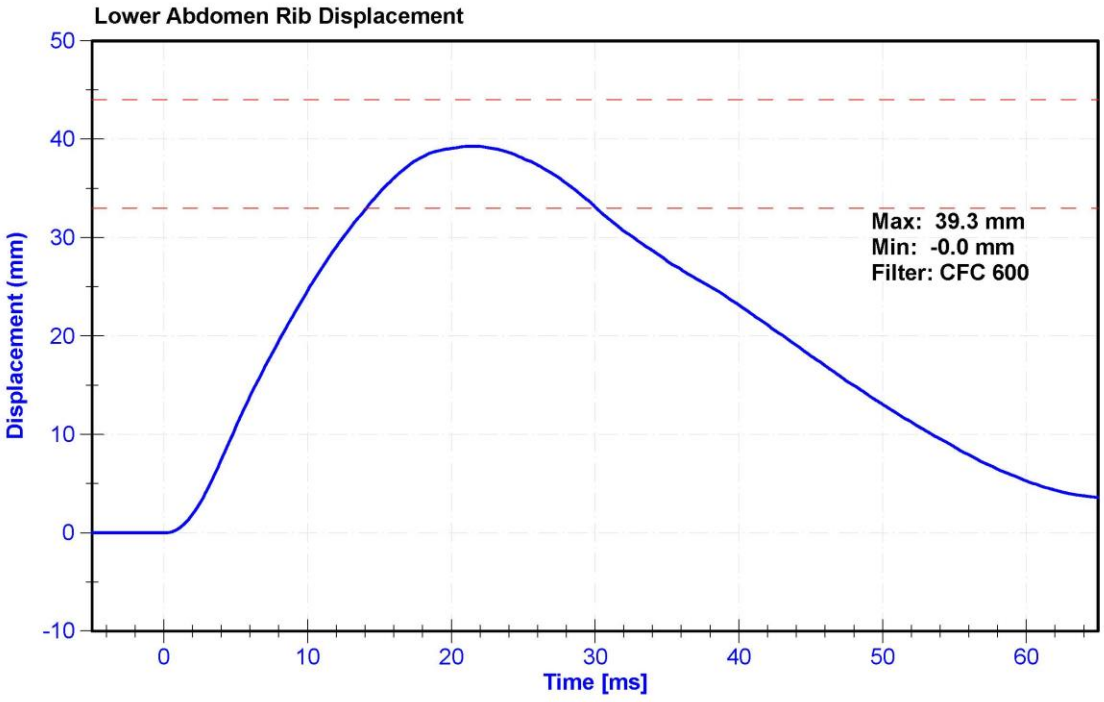
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	29.0	Pass
Velocity	4.2	4.4	m/s	4.31	Pass
Probe Acceleration	12	16	g's	14.6	Pass
Lateral Lower Spine Acceleration	9	14	g's	11.0	Pass
Upper Abdomen Rib Deflection	36	47	mm	39.1	Pass
Lower Abdomen Rib Deflection	33	44	mm	39.3	Pass

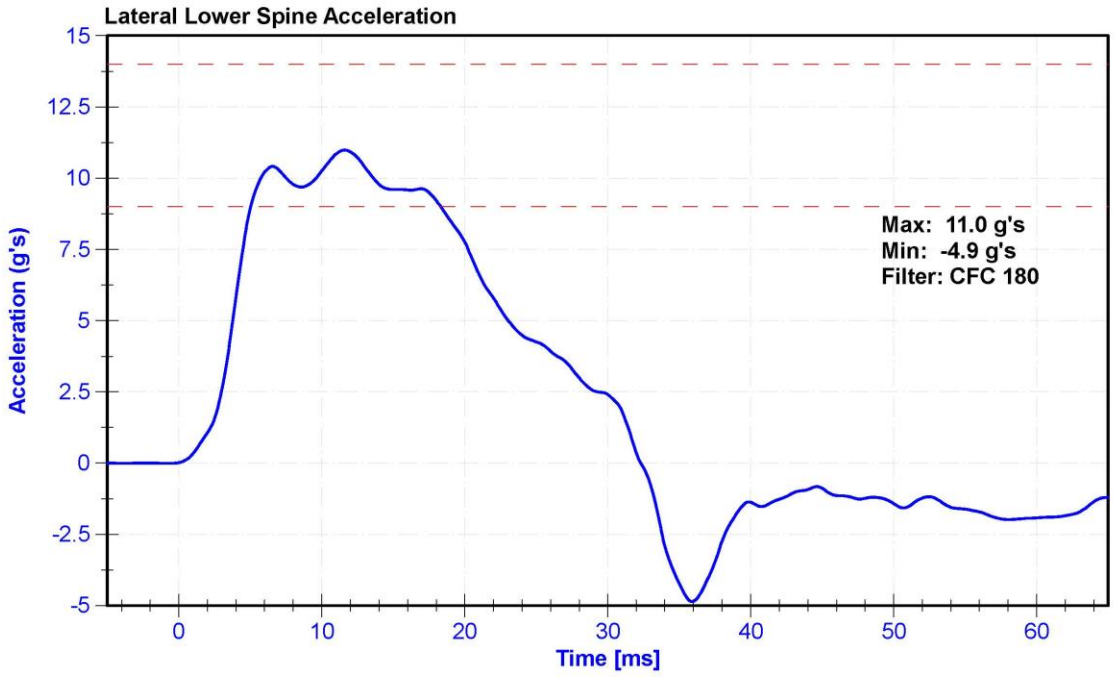
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P64147	11/9/2020	5/10/2021
Upper Abdomen Rib Potentiometer	Servo 08CT1-3725	DS-308GFE	11/10/2020	5/11/2021
Lower Abdomen Rib Potentiometer	Servo 08CT1-3725	DS-307GFE	11/10/2020	5/11/2021




Upper Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 39.1 mm
Min: -0.0 mm
Filter: CFC 600


Lower Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 39.3 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Lower Spine Acceleration
Acceleration (g's)
15
12.5
10
7.5
5
2.5
0
-2.5
-5
0
10
20
30
40
50
60
Time [ms]
Max: 11.0 g's
Min: -4.9 g's
Filter: CFC 180

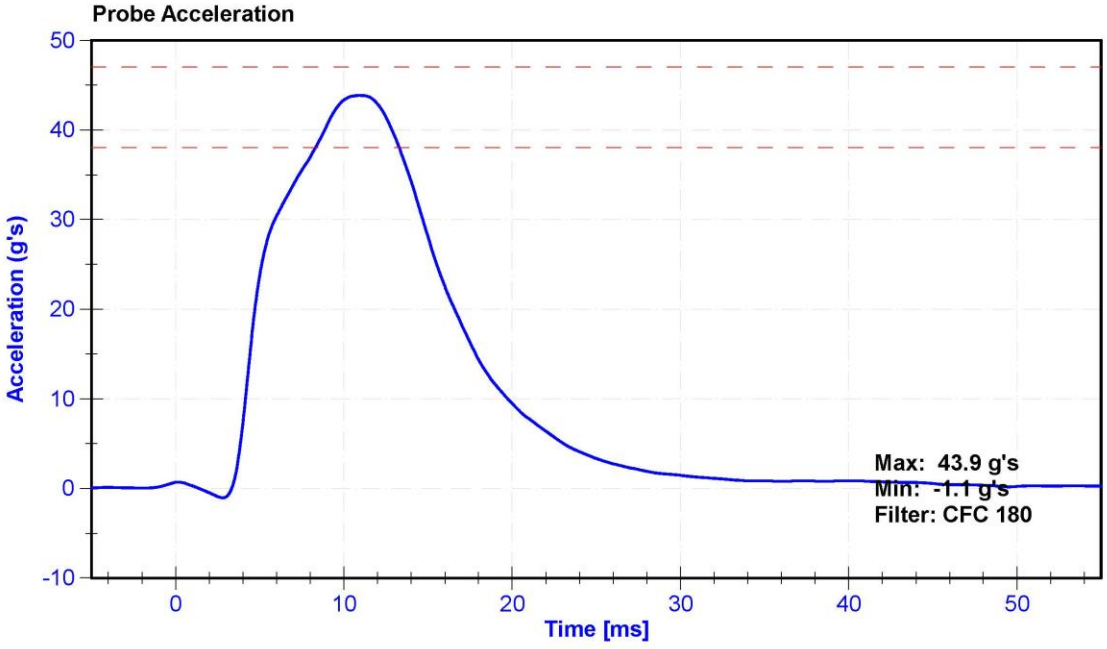
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

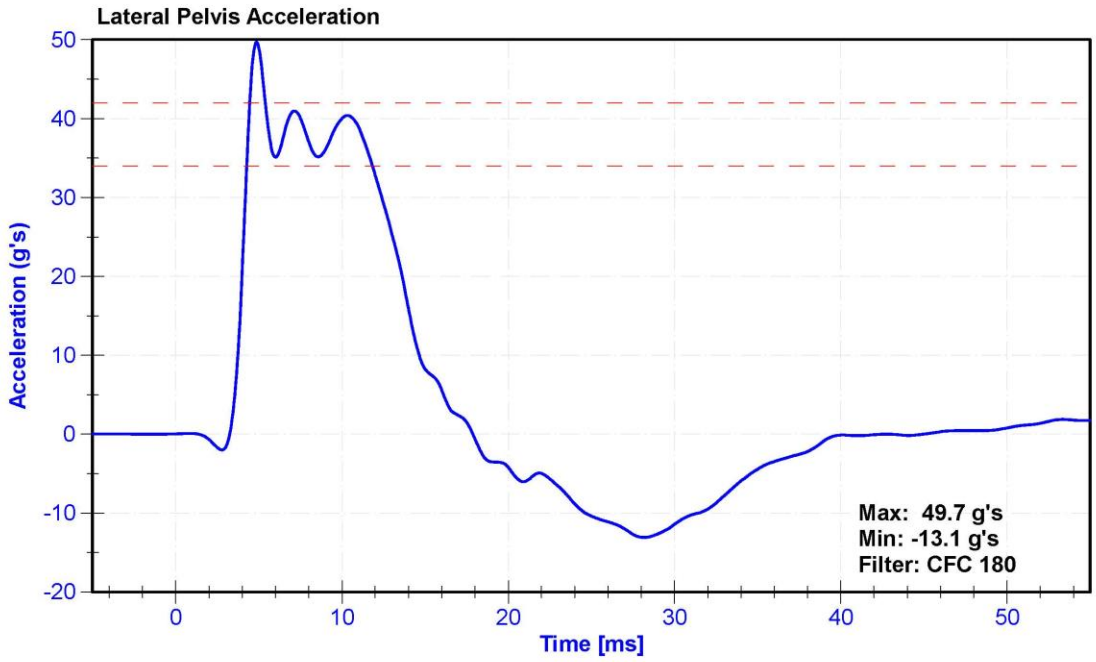
Results

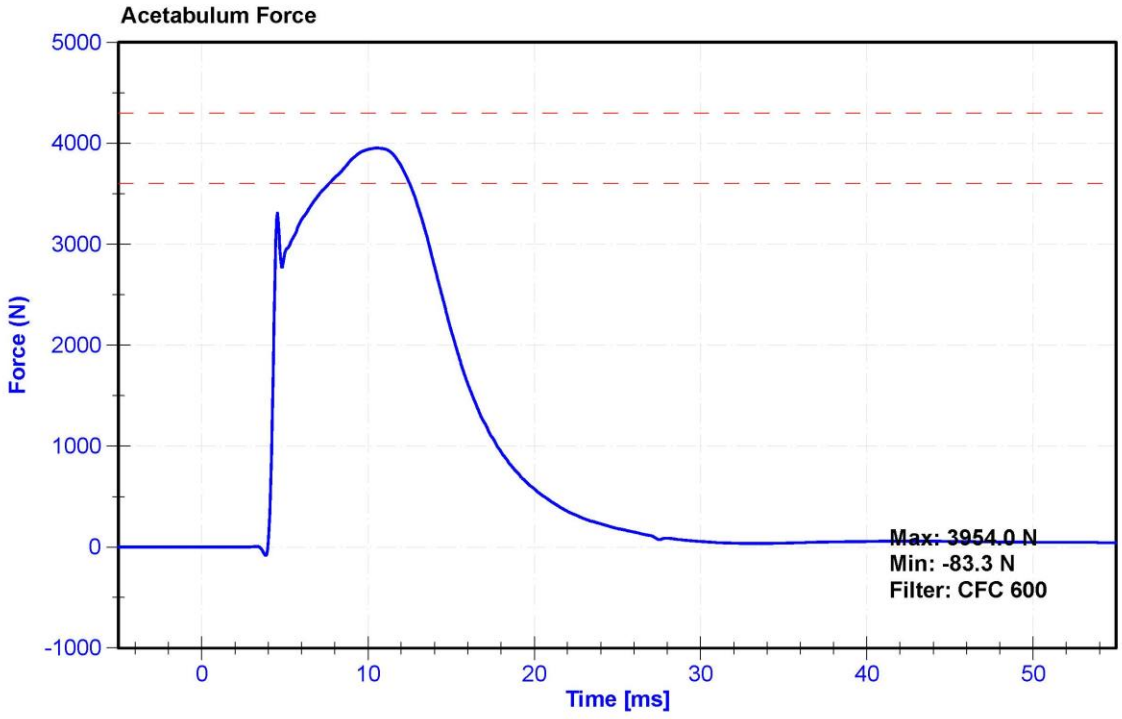
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	29	Pass
Velocity	6.6	6.8	m/s	6.66	Pass
Probe Acceleration	38	47	g's	43.9	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	41.0	Pass
Acetabulum Force	3600	4300	N	3954.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Pelvis Y Accelerometer	ENDEVCO 7264C-2K-TZ2	AC-P51731	11/9/2020	5/10/2021
Acetabulum Load Cell	Denton IF-520	LC-236Fy	3/18/2020	3/18/2021
Certification Plug	SACO	13533	9/23/2019	N/A
Crash Test Plug	SACO	13247	8/12/2019	N/A




Lateral Pelvis Acceleration
Acceleration (g's)
50
40
30
20
10
0
-10
-20
0
10
20
30
40
50
Time [ms]
Max: 49.7 g's
Min: -13.1 g's
Filter: CFC 180


Acetabulum Force
Force (N)
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50
Time [ms]
Max: 3954.0 N
Min: -83.3 N
Filter: CFC 600

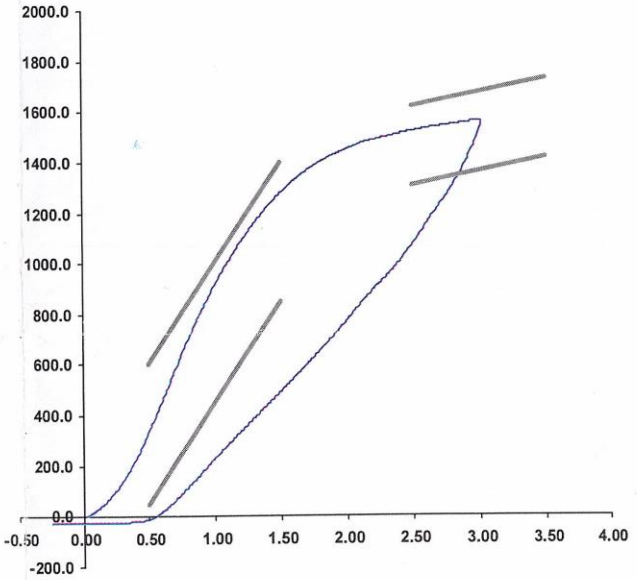
Crush
300
1/5/21

SID-IIs Pelvis Plug Certification Test

Plug S/N 13247
Test Number 10669
Report Number 10705
Test Date 8/12/2019 8:16:01 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	346.15	50.00	600.00
Force @ 1.5 mm (N)	1,280.98	850.00	1,400.00
Force @ 2.5 mm (N)	1,522.58	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,561.98	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 12-Aug-19
SACO Research

By : DC Date : 8/12/2019

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

Cert 1
300
1/5/21

SID-IIs Pelvis Plug Certification Test

Plug S/N 13533
Test Number 11177
Report Number 11215
Test Date 9/23/2019 10:53:47 AM

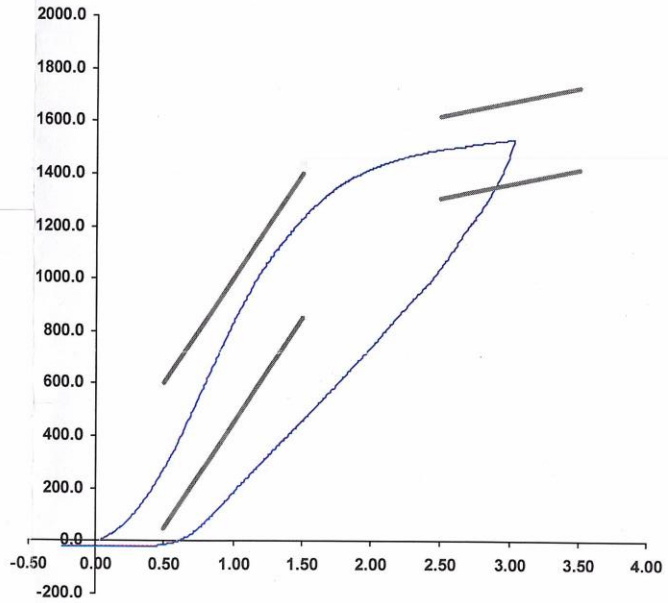
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	286.56	50.00	600.00
Force @ 1.5 mm (N)	1,238.04	850.00	1,400.00
Force @ 2.5 mm (N)	1,493.70	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,531.36	1,361.00	1,673.00

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

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

Notes:

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 23-Sep-19
SACO Research

By : DC Date : 9/23/2019

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

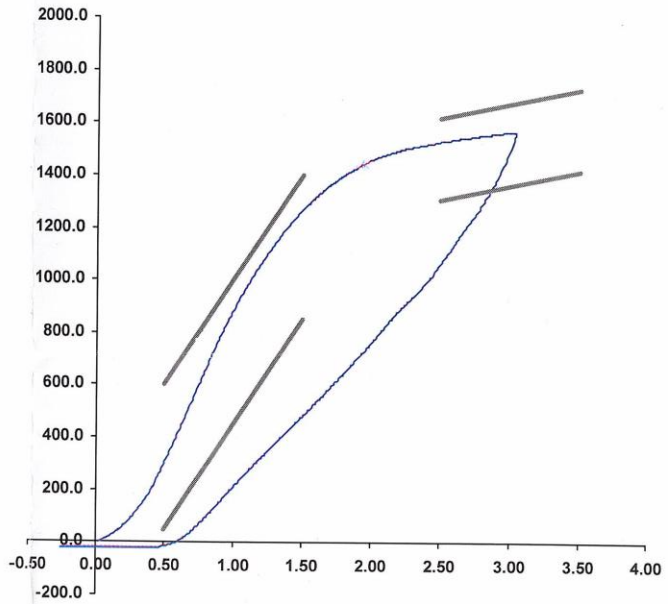
Non Impact side
300
1/5/21

SID-IIs Pelvis Plug Certification Test

Plug S/N 13276
Test Number 10699
Report Number 10736
Test Date 8/12/2019 10:33:42 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	305.57	50.00	600.00
Force @ 1.5 mm (N)	1,272.75	850.00	1,400.00
Force @ 2.5 mm (N)	1,530.03	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,565.79	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 12-Aug-19
SACO Research

By : DC Date : 8/12/2019

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

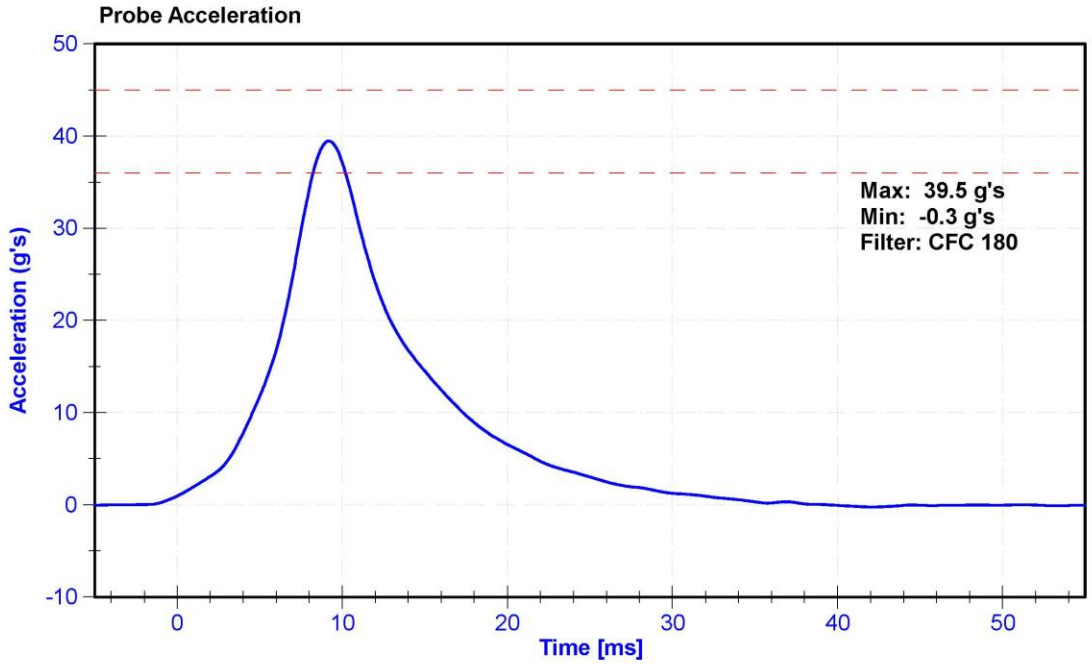
ATD Manufacturer	FTSS	Test Technician	K. Brogan
ATD Serial Number	300	Laboratory Supervisor	D.Reinhard

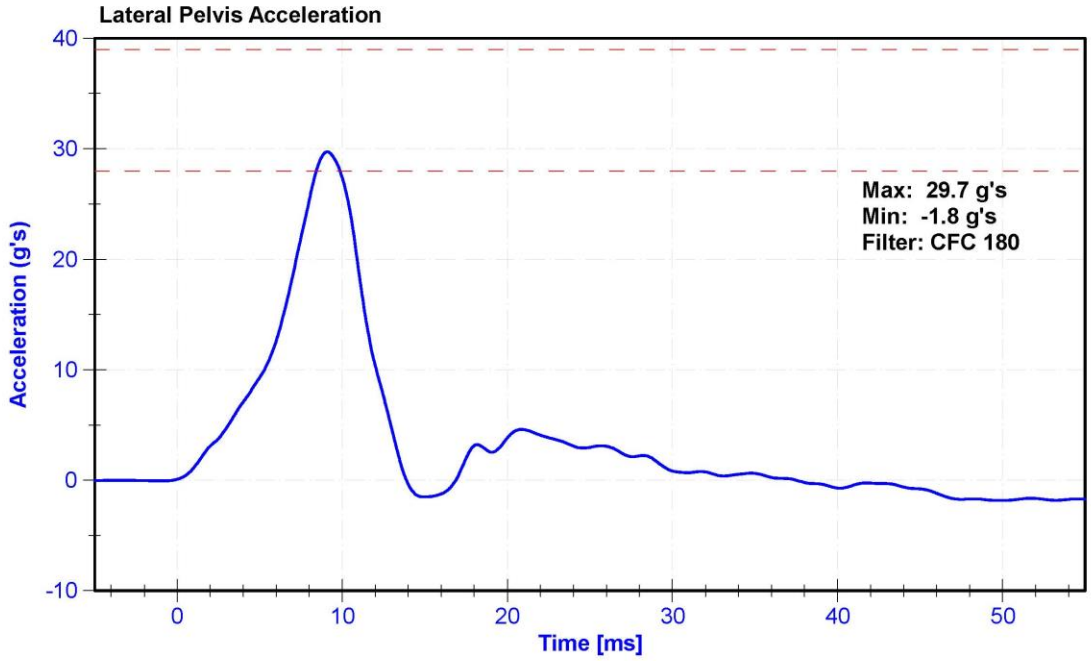
Results

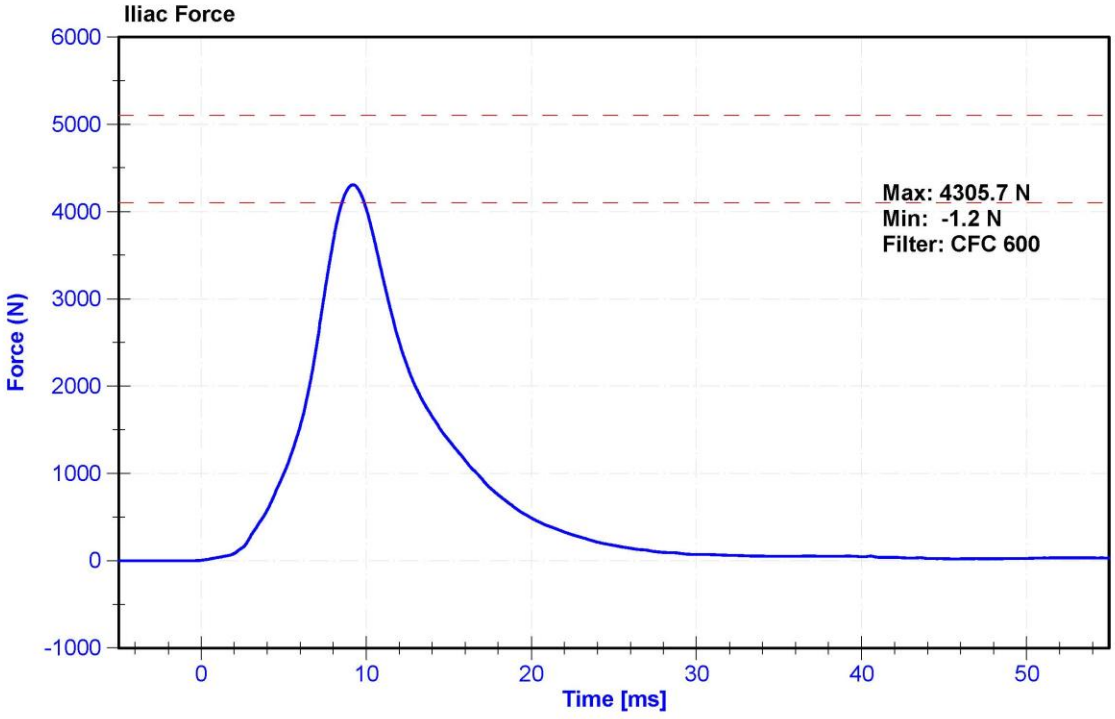
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	27.0	Pass
Velocity	4.2	4.4	m/s	4.25	Pass
Probe Acceleration	36	45	g's	39.5	Pass
Lateral Pelvis Acceleration	28	39	g's	29.7	Pass
Iliac Force	4100	5100	N	4305.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Pelvis Y Accelerometer	ENDEVCO 7264C-2K-TZ2	AC-P51731	11/9/2020	5/10/2021
Iliac Load Cell	DENTON 3228J	LC-279Fy	11/23/2020	11/23/2021




Lateral Pelvis Acceleration
Acceleration (g's)
Time [ms]
Max: 29.7 g's
Min: -1.8 g's
Filter: CFC 180


Iliac Force
Force (N)
Time [ms]
Max: 4305.7 N
Min: -1.2 N
Filter: CFC 600

APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N: 300		
				Serial Number	**Manufacturer**	**Calibration Date**
Head Accelerometers			X	AC-P59018	Endevco	11/10/2020
			Y	AC-P79189	Endevco	11/10/2020
			Z	AC-P58777	Endevco	11/10/2020
Head Accelerometers - Redundant			X	AC-P68057	Endevco	11/10/2020
			Y	AC-P58986	Endevco	11/10/2020
			Z	AC-P52025	Endevco	11/10/2020
Displacement Potentiometer	Shoulder		Y			
	Thoracic Rib	Upper	Y	DS-451GFE	Servo	11/10/2020
		Middle	Y	DS-040GFE	Servo	11/10/2020
		Lower	Y	DS-1156GFE	Servo	11/9/2020
	Abdominal Rib	Upper	Y	DS-308GFE	Servo	11/10/2020
		Lower	Y	DS-307GFE	Servo	11/10/2020
Lower Spine Accelerometers (T12)			X	AC-P64003	Endevco	11/9/2020
			Y	AC-P64147	Endevco	11/9/2020
			Z	AC-P58786	Endevco	11/9/2020
Acetabulum Load Cell			Y	LC-236Fy	Denton	3/18/2020
Lilac Wing Load Cell			Y	LC-279Fy	Denton	11/23/2020
Pelvis Plug (Struck Side)				13493	SACO	9/23/2019
Pelvis Plug (Non-Struck Side)				13472	SACO	9/20/2019

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A350928	MSI	9/25/2020
Vehicle Center of Gravity	Y	A350930	MSI	9/25/2020
Vehicle Center of Gravity	Z	A352390	MSI	9/25/2020
Left Floor Sill	Y	A280367	MSI	8/18/2020
A-Pillar Sill	Y	A284324	MSI	9/1/2020
A-Pillar Low	Y	A281040	MSI	8/8/2020
A-Pillar Mid	Y	A327104	MSI	9/8/2020
B-Pillar Sill	Y	A281024	MSI	11/4/2020
B-Pillar Low	Y	A352379	MSI	9/24/2020
B-Pillar Mid	Y	A315742	MSI	11/5/2020
Driver Seat	Y	A280201	MSI	8/7/2020
Engine Top	X	A280881	MSI	7/15/2020
Engine Top	Y	A315902	MSI	9/8/2020
Firewall	Y	A281458	MSI	10/22/2020
Right Roof	Y	A284365	MSI	10/17/2020
Right Floor Sill	Y	A284287	MSI	10/30/2020
Rear Floorpan	X	A352325	MSI	9/25/2020
Rear Floorpan	Y	A352358	MSI	9/25/2020

Table 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	1220AF-1057559-F0	Interface	9/2/2020
Load Cell 2	1220AF-1117006-F0	Interface	9/2/2020
Load Cell 3	1220AF-1117025-F0	Interface	9/2/2020
Load Cell 4	1220AF-1117019-F0	Interface	9/2/2020
Load Cell 5	1220AF-1117011-F0	Interface	9/2/2020
Load Cell 6	1220AF-1117017-F0	Interface	9/2/2020
Load Cell 7	1220AF-1117035-F0	Interface	9/2/2020
Load Cell 8	1220AF-1117023-F0	Interface	9/2/2020