

REPORT NUMBER: SPNCAP-CAL-18-003

**NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST**

**Nissan Motor Co., LTD.
2018 Nissan Armada
SUV**

NHTSA No: M20185201

**PREPARED BY:
CALSPAN CORPORATION
P.O. BOX 400
BUFFALO, NEW YORK 14225**



February 24, 2018

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NRM-110
1200 NEW JERSEY AVE SE, ROOM W43-410
WASHINGTON, D.C. 20590**

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Date: February 24, 2018

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Date: February 24, 2018

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: _____

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16. Abstract A 32.20 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2018 Nissan Armada 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 December 8, 2017. The impact velocity of the vehicle was 32.79 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle was 21°C. The target vehicle's maximum post-test static crush was 400 mm located at level 3. The test vehicle's occupant performance data is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs) (Serial No. DG8012)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>437.292</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>G</td> <td>82</td> <td>39.277</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3040.420</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>19.915</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45</td> <td>17.391</td> </tr> </tbody> </table> 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.				Measurement Description	Driver ATD (SID-IIs) (Serial No. DG8012)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	437.292	Resultant Lower Spine Acceleration	G	82	39.277	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3040.420	Maximum Thoracic Rib Deflection	mm	38	19.915	Maximum Abdomen Rib Deflection	mm	45	17.391
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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, NPO-411 1200 New Jersey Ave. SE Washington, D.C. 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																												
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 2018 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-14-D-00352. The purpose of this test is to generate comparative side impact performance in a 2018 Nissan Armada SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated October 2015.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2018 Nissan Armada SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.79 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on December 8, 2017. 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 October 2015. 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	437.292
Resultant Lower Spine Acceleration	g	82	39.277
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3040.420
Maximum Thoracic Rib Deflection	mm	38*	19.915
Maximum Abdominal Rib Deflection	mm	45*	17.391

*Proposed IARV

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	Yes		
Knee Airbag	No	N/A		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 – Torso/Pelvis	Yes	Yes	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	Yes	No	N/A
Other				

GENERAL COMMENTS:

1. P1 serial number – DG8012

Data Anomalies:

- Driver Middle Thorax Rib Y Displacement, Questionable spike at 46.70
- Front Seat Track Y Acceleration, Exceeded calibration range at 56.1ms

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: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20185201
Model Year	2018
Make	Nissan
Model	Armada
Body Style	SUV
VIN	JN8AY2ND7J9053784
Body Color	Silver
Odometer Reading (km/mi)	16 mi
Engine Displacement (L)	5.6
Type / No. Cylinders	V8
Engine Placement	Inline
Transmission Type	Automatic
Transmission Speeds	7-Speed
Overdrive	Yes
Final Drive	Rear Wheel Drive
Roof Rack	No
Sunroof / T-Top	No
Running Boards	Yes
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

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

Does owner's manual provide instructions to turn off automatic door locks?

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co LTD
Date of Manufacture	7/17
Vehicle Type	MPV

GVWR (kg)	3311
GAWR Front (kg)	1640
GAWR Rear (kg)	1970

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	3	8
Capacity Weight (VCW) (kg)				750
DSC X 68.04 kg				544.32
Cargo Weight (RCLW) (kg)				136

(A)

(B)

(A-B)

VEHICLE SEAT TYPE

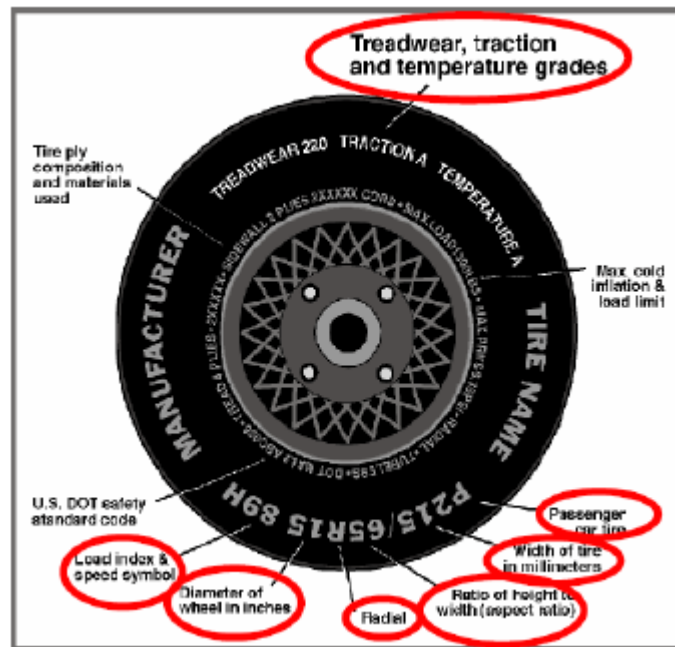
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	X						X
Rear or Second Row Seat			X			X	
Third Row seat		X			X		

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

Test Vehicle: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017

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)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	265/70R18	265/70R18
Tire Size on Vehicle	265/70R18	265/70R18
Tire Manufacturer	Dunlop	Dunlop
Tire Model	Grandtrek	Grandtrek
Treadwear	360	360
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Nylon	2 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	116H	116H
Tire Material	Rubber	Rubber
DOT Safety Code Left	V4D63DDDR2817	V4D63DDDR2817
DOT Safety Code Right	V4D63DDDR2817	V4D63DDDR2817

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

Test Vehicle: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	284	282	286	284
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	240	240	240	240
As Tested	kPa	240	240	240	240

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	640	627		665	713		660	716	
Right	kg	631	620		629	688		636	698	
Ratio	%	50	50		48	52		48	52	
Totals	kg	1271	1247	2518	1294	1401	2695	1296	1414	2710

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	2518	(A)
Actual Weight of 1 P572V (SID-IIs) ATD Used	kg	49.9	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	136	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2703.9	(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)? ☒ 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	-0.55	-0.4	-0.35	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg	-0.90	-0.70	-0.70	Yes
Front Bumper-Line Angle (left-to-right)**	Deg	-0.15	-0.25	-0.25	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg	0	0	-0.05	Yes
Vehicle CG (Aft of Front Axle)	mm	1523	1598	1604	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	5	19	13	

* 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: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	9
Jack	6
Tail Light	1
Passenger Windows	10
Ballast / Equipment Added	95

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

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

Test Vehicle: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017

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 (°)		
	Max	Min	Mid
Driver Seat	16.8	9.6	13.2
Front Passenger Seat	12.1	9.4	10.75
Front Center Seat	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore / Aft	Forward-Most
Driver Seat	13.2	15	Max	30	30	30
			Mid	15	15	15
			Min	3	3	3
Front Passenger Seat	10.75	15	Max	-	-	-
			Mid	15	15	15
			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: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

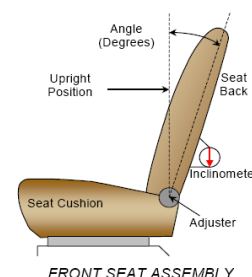
NHTSA No.: M20185201
 Test Date: 12/8/2017

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detents*
Driver Seat	240	N/A	0	N/A
Front Passenger Seat	240	N/A	0	N/A
Front Center Seat	N/A	N/A	N/A	N/A
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.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/Seated Dummy	-5.1 to 49.6	N/A	0.3	N/A
Front Passenger Seat	-2.2 to 50.3	N/A	0.3	N/A
Front Center Seat	N/A	N/A	N/A	N/A
Struck Side Rear Seat	-1.4 to 18.5	N/A	-1.4	N/A
Non-Struck Side Rear Seat	-1.4 to 18.5	N/A	-1.4	N/A
Rear Center Seat	-1.4 to 18.5	N/A	-1.4	N/A

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

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	6	Lowest

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

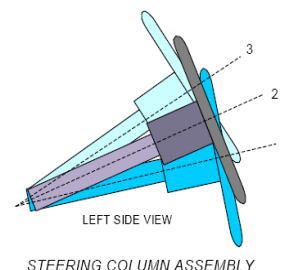
Test Vehicle: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017

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.

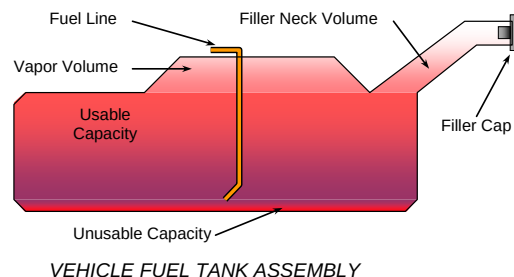
		Degrees	Fore / Aft Position (mm)
Lowermost	– Position 1	17.6	
Geometric Center	– Position 2	24.5	
Uppermost	– Position 3	31.4	
Telescoping Steering Wheel Travel			32
Test Position		24.5	16



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.



FUEL TANK CAPACITY DATA

Description	Liters
Usable Capacity of "Standard Tank" - see Form No. 1	98.4
Usable Capacity of "Optional Tank" - see Form No. 1	N/A
Usable Capacity of "Standard Tank" - see Owner's Manual	98.4
Usable Capacity of "Optional Tank" - see Owner's Manual	N/A
93% of Usable Capacity	91.5
Actual Amount of Solvent Used in Test	91.5
1/3 of Usable Capacity	32.8

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



Yes

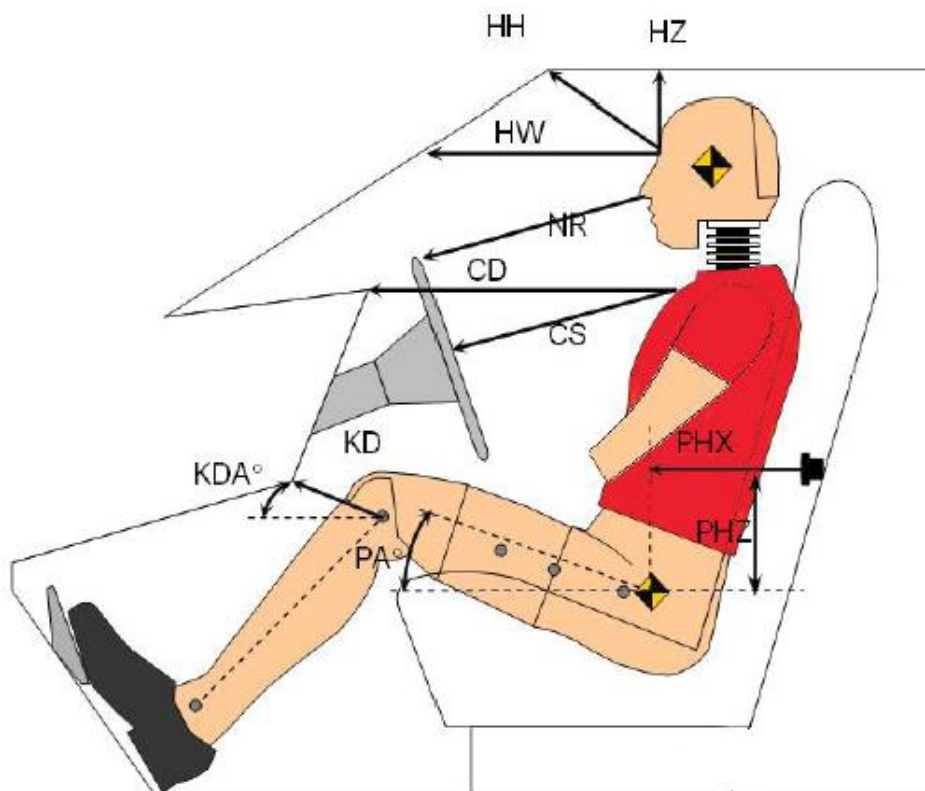


No

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017



Left Side View

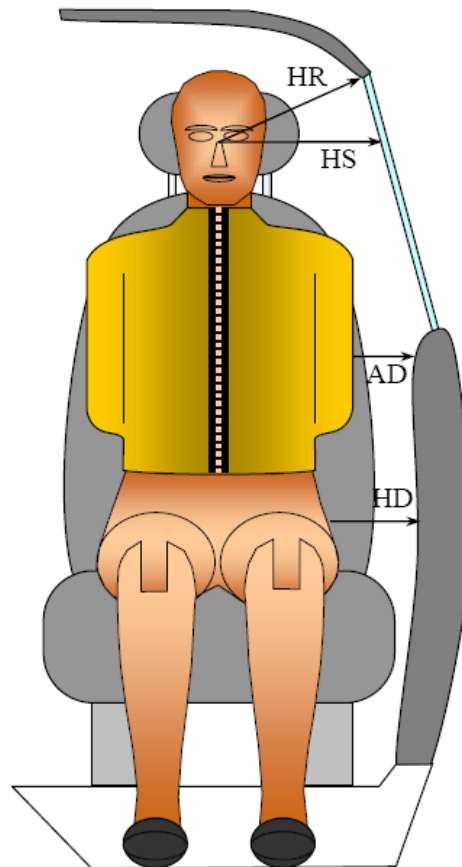
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver (Serial No. DG8012)	
		Length (mm)	Angle (°)
HH	Head to Header	325	
HW	Head to Windshield	567	
HZ	Head to Roof Liner	228	
NR	Nose to Rim	215	
CD	Chest to Dash	392	
CS	Chest to Steering Wheel	142	
KD(L) / KDA(L)°	Left Knee to Dash	80	34
KD(R) / KDA(R)°	Right Knee to Dash	58	35.6
PAX°	Pelvic Tilt Angle (X-Axis)		19.3
PAY°	Pelvic Tilt Angle (Y-Axis)		0.3
PHX	Hip Point to Striker (X-Axis)	398	
PHZ	Hip Point to Striker (Z-Axis)	45	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017



FRONT VIEW OF DUMMY

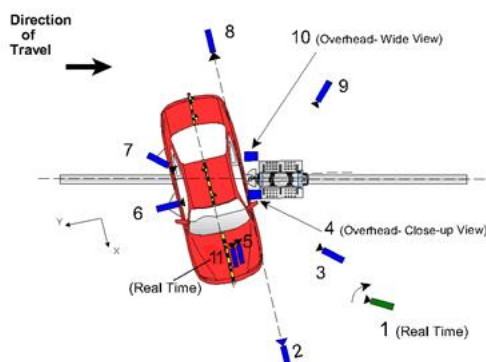
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver - Length (Serial No. DG8012)
HR	Head To Side Header	mm	273
HS	Head to Side Window	mm	390
AD	Arm to Door	mm	155
HD	Hip Point to Door	mm	164

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017



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	8724	0	-1551	24	1000
3	Impact side 45° - forward pole view	4637	2000	-1950	24	1000
4	Overhead Close-up view of impact	0	0	-5203	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	-8973	0	-1603	24	1000
9	Impact side 45° - rearward pole view	-2683	-4210	-1910	24	1000
10	Overhead wide - view of impact	-80	305	-5201	14	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 75° angle to the rigid pole.

Comments: All cameras operated as intended.

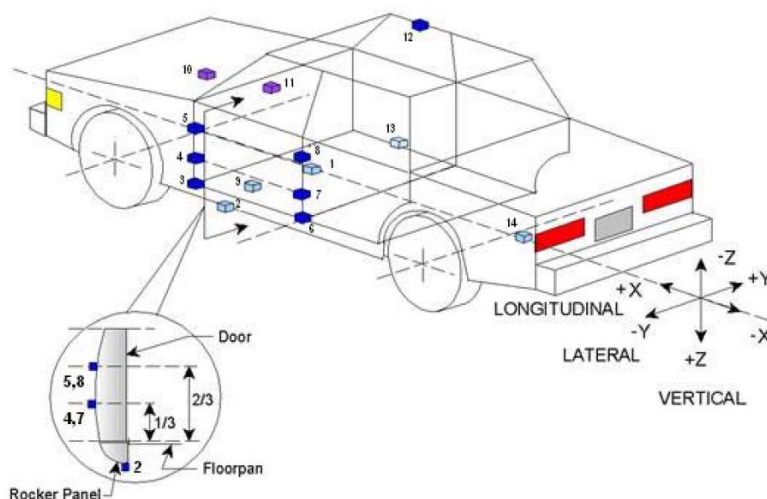
INSTRUMENTATION

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: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3341	-7	-311
2	Left Floor Sill	3284	-735	71
3	A-Pillar Sill	3695	-719	-40
4	A-Pillar Low	3728	-718	-207
5	A-Pillar Mid	3641	-735	-752
6	B-Pillar Sill	2615	-749	-9
7	B-Pillar Low	2620	-764	-286
8	B-Pillar Mid	2603	-771	-517
9	Driver Seat Track	2780	-670	-50
10	Engine Top	4340	-14	-542
11	Firewall	3980	25	-499
12	Right Roof	2646	634	-1256
13	Right Floor Sill	3297	735	72
14	Rear Floorpan	968	100	-222

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: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017

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: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017

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 Post
Left Shoulder	Seatback & Torso/Pelvis Airbag
Upper Torso	Seatback
Lower Torso	Seatback & Torso/Pelvis Airbag
Left Hip	Seat Pan & Torso/Pelvis Airbag
Left Knee	None

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: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	A-Pillar Buckled
Sill Separation	None
Windshield Damage	Cracks throughout & separation along A-Pillar
Side Window Damage	Driver Window has cracks throughout
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

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

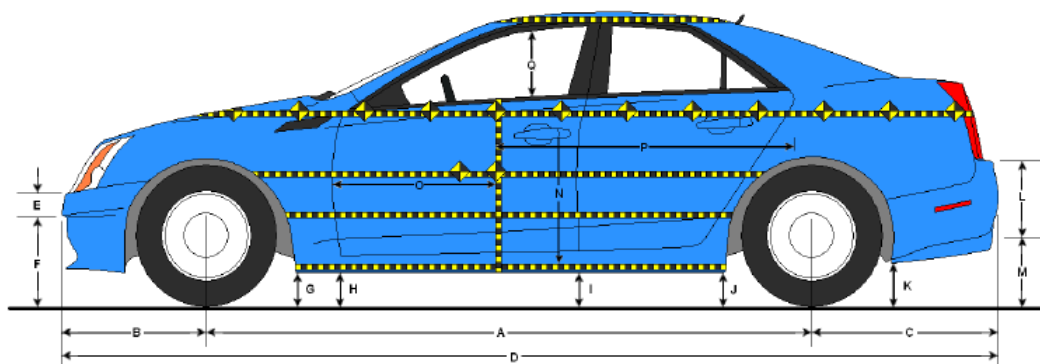
Measured Parameter	Units	Tolerance	Value
Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt	mm		1188
Actual Impact Point - Aft of Front Axle	mm		1188
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 *	0
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75.0
Trap No. 1 Velocity - Primary	kph	31.4 to 33.0	32.79
Trap No. 2 Velocity - Redundant	kph	31.4 to 33.0	32.61

* Of Intended Impact Point

DATA SHEET NO. 9
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

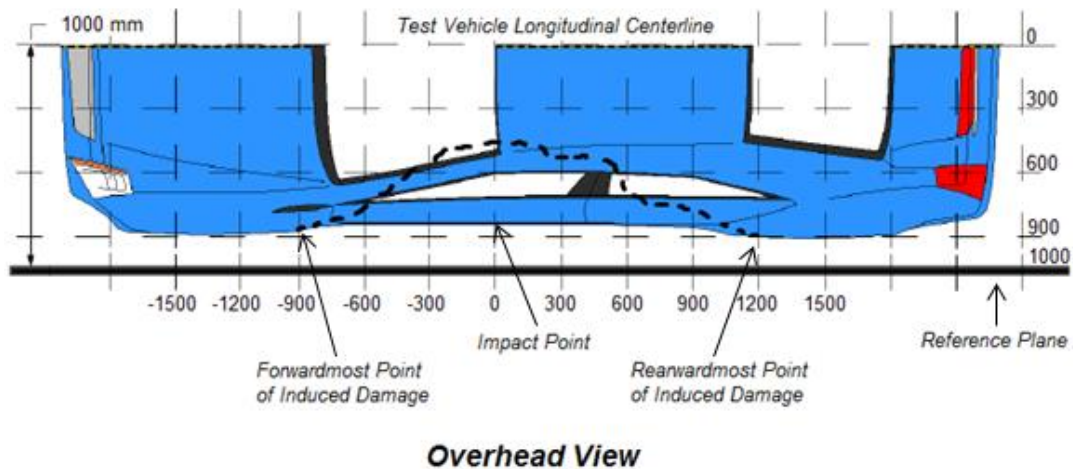
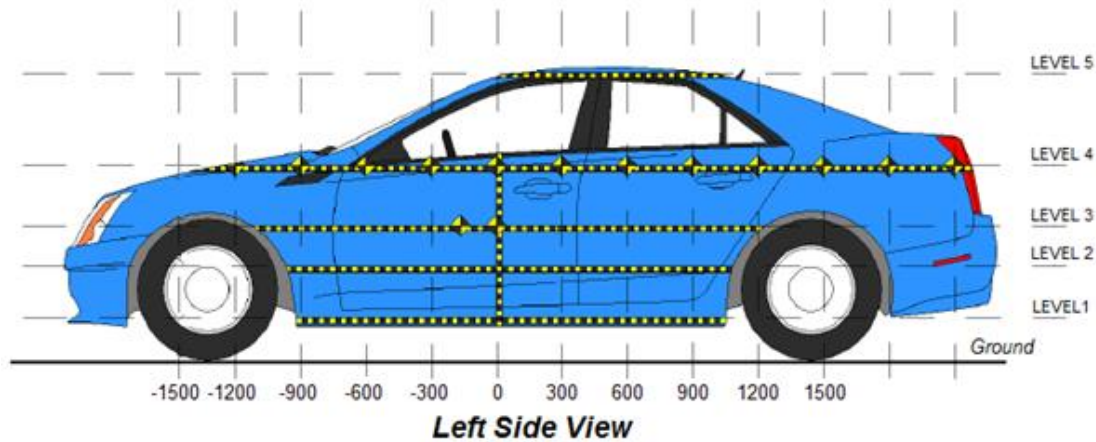
Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	3076	3025	51
B	Front Axle to FSOV	965	993	-28
C	Rear Axle to RSOV	1263	1242	21
D	Total Length at Centerline	5303	5260	43
E	Front Bumper Thickness	330	330	0
F	Front Bumper Bottom to Ground	418	439	-21
G	Sill Height at Front Wheel Well	337	318	19
H	Sill Height at Front Door Leading Edge	342	338	4
I	Sill Height at B-Pillar	289	275	14
J1	Sill Height at Rear Wheel Well	286	283	3
J2	Pinch Weld Height at Rear Wheel Well	366	376	-10
K	Sill Height Aft of Rear Wheel Well	334	340	-6
L	Rear Bumper Thickness	250	250	0
M	Rear Bumper Bottom to Ground	498	518	-20
N	Sill Height to Bottom of Front Window Sill	873	872	1
O	Front Door Leading Edge to Impact CL	547	415	132
P	Rear Door Trailing Edge to Impact CL	1595	1493	102
Q	Front Window Opening	457	459	-2
R	Right Side Length	5234	5210	24
S	Left Side Length	5234	5160	74
T	Vehicle Width at B-Pillars	1994	1887	107

* All measurements in mm with tolerance of $\pm 3\text{mm}$

DATA SHEET NO. 10
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	499	365	0
2	Occupant Hip Point	mm	849	397	0
3	Mid - Door	mm	920	400	0
4	Window Sill	mm	1250	346	0
5	Window Top	mm	1800	180	0

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: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

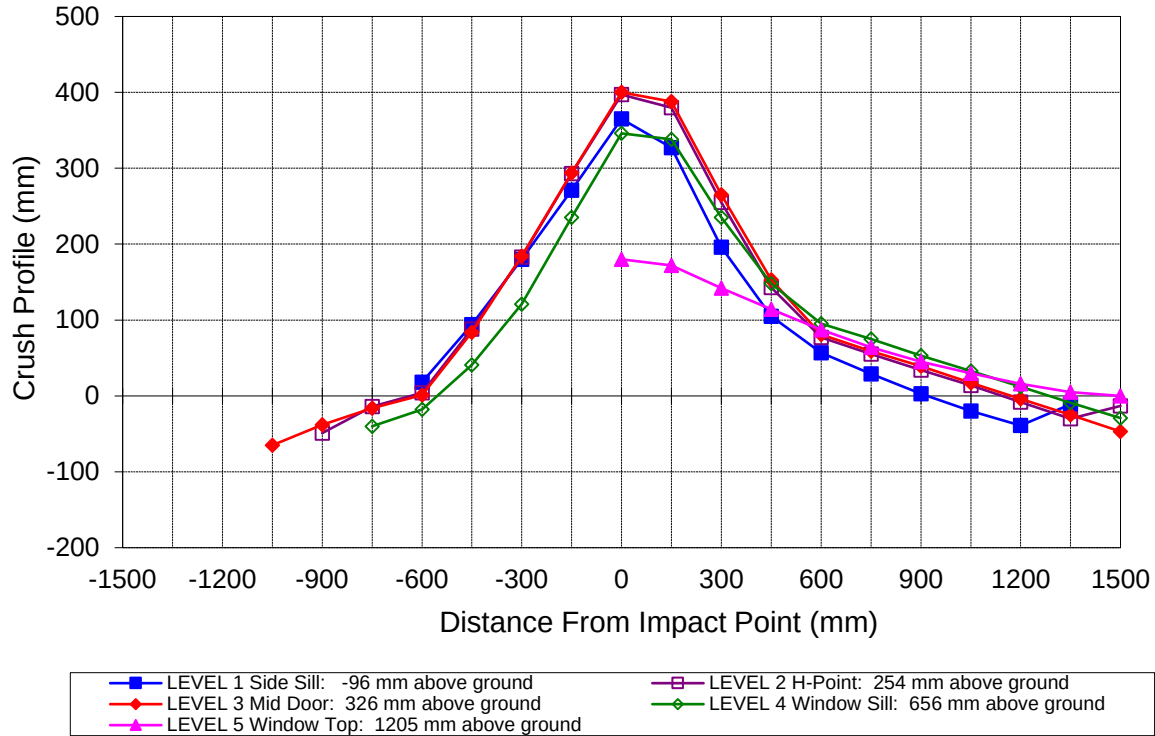
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500															
-1350															
-1200															
-1050			1020					1085					-65		
-900		1019	1012				1068	1050				-49	-38		
-750		1004	1002	895			1018	1018	935			-14	-16	-40	
-600	988	1001	1000	904		970	997	999	922		18	4	1	-18	
-450	976	998	998	911		882	910	914	870		94	88	84	41	
-300	972	996	998	920		792	813	814	799		180	183	184	121	
-150	971	997	999	926		700	704	705	691		271	293	294	235	
0	973	998	1000	933	693	608	601	600	587	513	365	397	400	346	180
150	974	998	1000	938	721	647	618	612	600	549	327	380	388	338	172
300	974	997	1000	941	730	778	742	735	706	588	196	255	265	235	142
450	975	996	999	944	735	870	853	846	796	621	105	143	153	148	114
600	974	994	998	944	737	917	917	917	849	650	57	77	81	95	87
750	973	992	996	944	738	944	937	937	869	674	29	55	59	75	64
900	972	991	995	943	737	969	957	956	890	692	3	34	39	53	45
1050	973	993	994	943	736	993	979	977	910	706	-20	14	17	33	30
1200	977	997	996	941	734	1016	1005	1000	929	718	-39	-8	-4	12	16
1350	997	1001	999	939	731	1008	1031	1024	948	726	-11	-30	-25	-9	5
1500		1003	1001	937	726		1016	1048	966	726		-13	-47	-29	0

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: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017



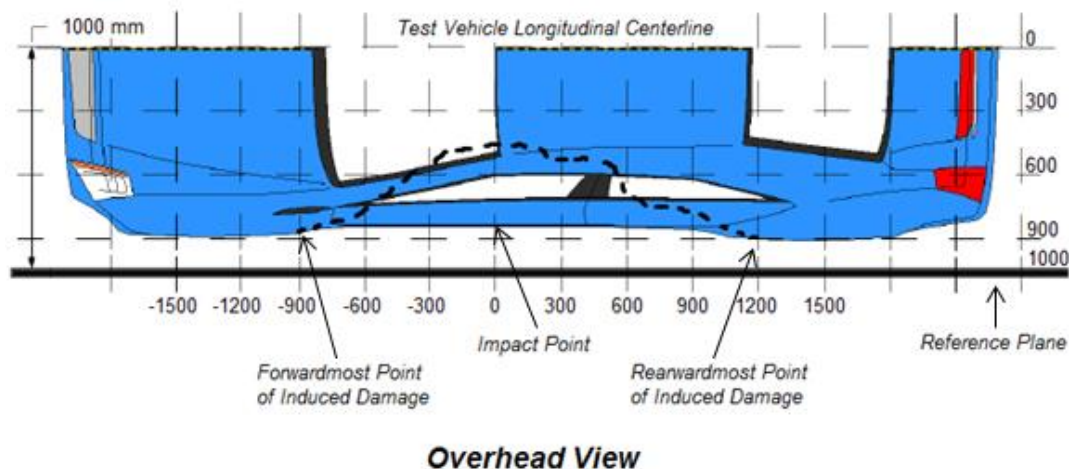
Vehicle Exterior Crush Measurements - Visual Representation

DATA SHEET NO. 11 **VEHICLE DAMAGE PROFILE DISTANCES**

Test Vehicle: 2018 Nissan Armada SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
 Test Date: 12/8/2017

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



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	-1050	3	-85	-20	-65
2	-540	3	35	1	34
3	-30	3	379	0	379
4	480	3	140	1	139
5	990	3	31	6	25
6	1500	3	-48	-1	-47

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

Test Vehicle:	<u>2018 Nissan Armada SUV</u>	NHTSA No.:	<u>M20185201</u>
Test Program:	<u>NCAP Side MDB Impact Test</u>	Test Date:	<u>12/8/2017</u>
Test Time:	<u>10:30 AM</u>	Temperature:	<u>21° C</u>

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum allowable is 1 oz.)
- B. For the 5-minute period after motion ceases: 0 oz.
 (Maximum allowable is 5 oz.)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable is 1 oz./minute)
- 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°	72	300	372
90° to 180°	68	300	368
180° to 270°	66	300	366
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	0
90° to 180°	0	0	0	0
180° to 270°	0	0	0	0
270° to 360°	0	0	0	0

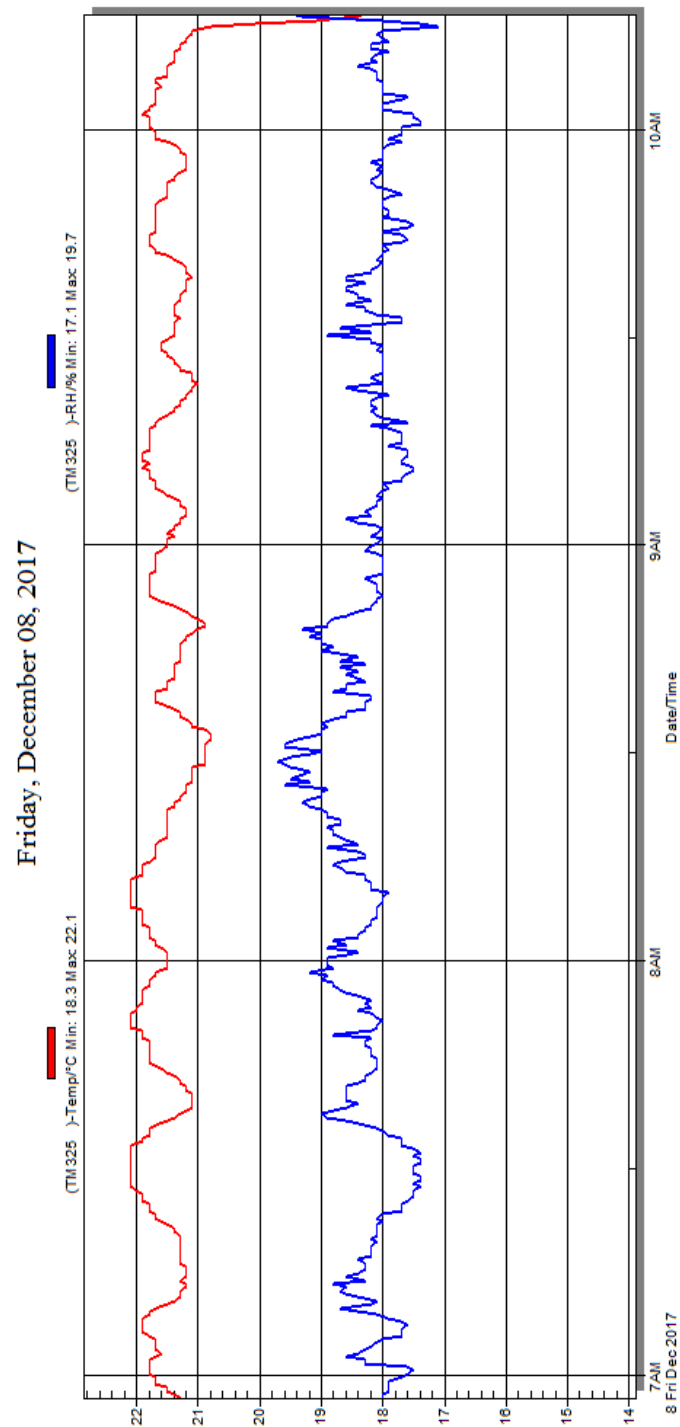
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	No Spillage Occurred
90° to 180°	No Spillage Occurred
180° to 270°	No Spillage Occurred
270° to 360°	No Spillage Occurred

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

Test Vehicle: 2018 Nissan Armada SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20185201
Test Date: 12/8/2017



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

APPENDIX A
PHOTOGRAPHS

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Figure A-1: As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



Figure A-2: As Delivered Left Rear $\frac{3}{4}$ 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 $\frac{3}{4}$ View of Test Vehicle



Figure A-6: Post-Test Left Front $\frac{3}{4}$ 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 $\frac{3}{4}$ View of Test Vehicle



Figure A-10: Post-Test Left Rear $\frac{3}{4}$ 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

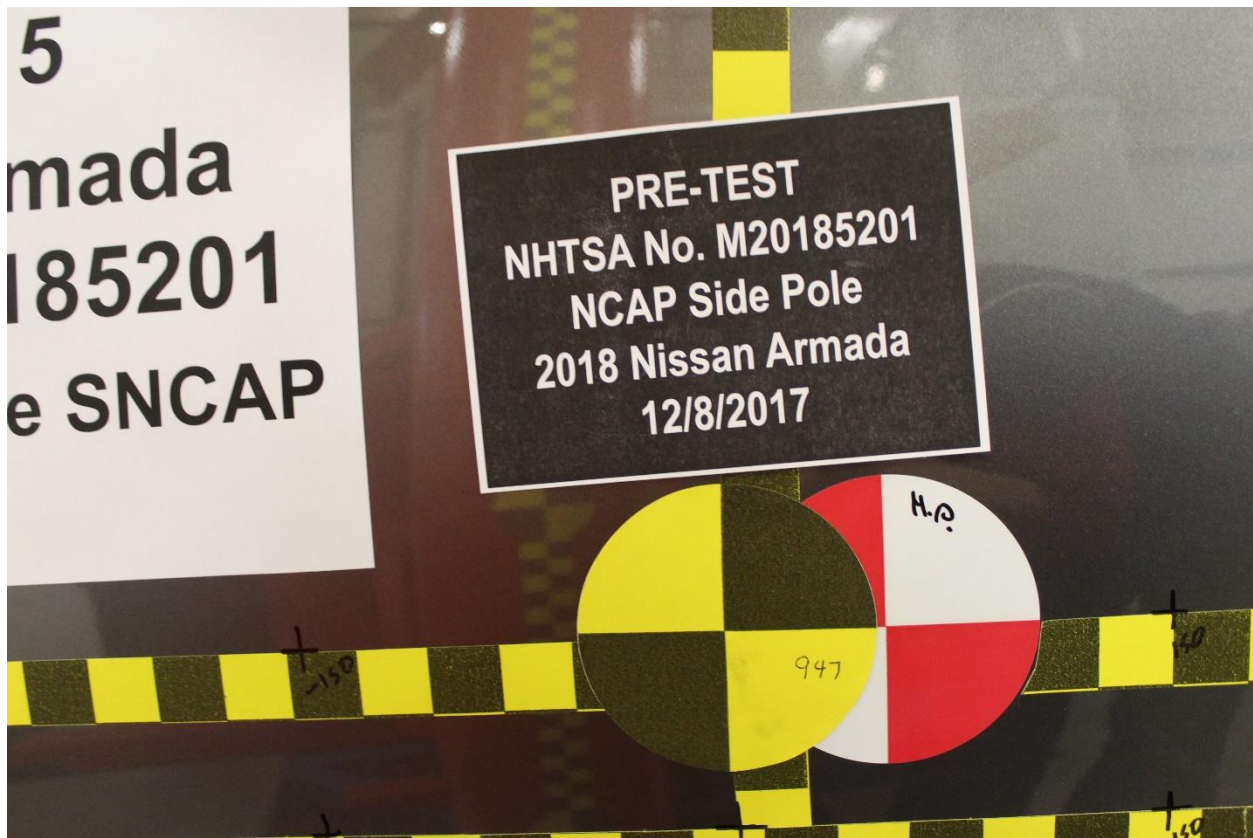


Figure A-19: Pre-Test Close-Up View of Impact Point Target



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

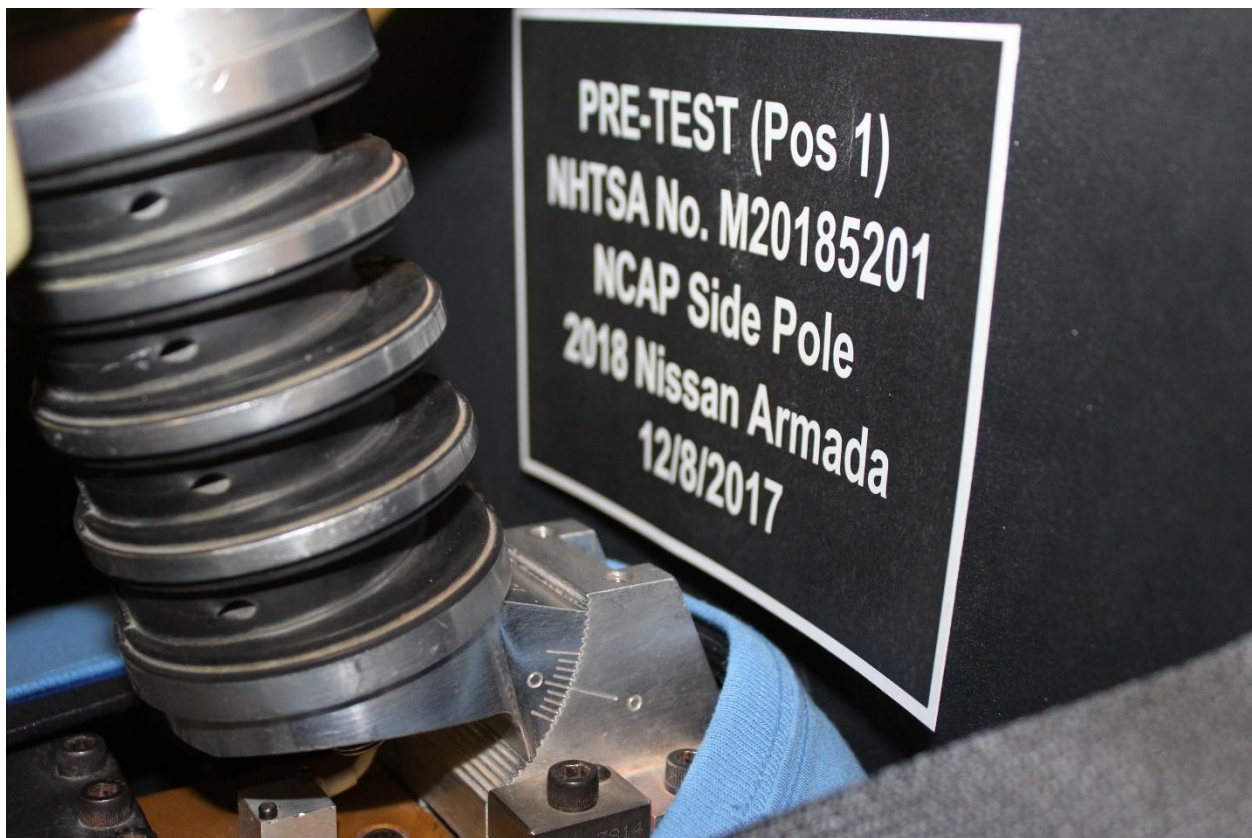


Figure A-30: Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket



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

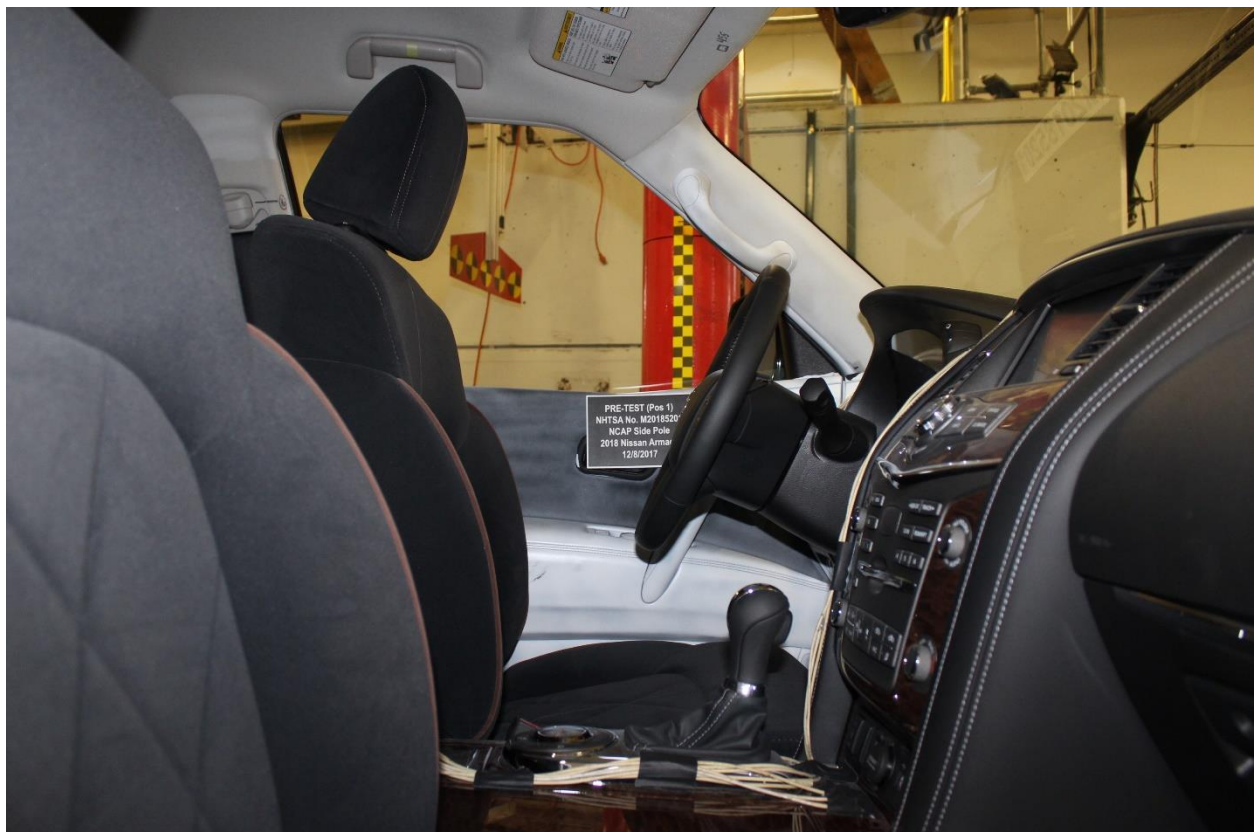


Figure A-44: Pre-Test Inner Door Panel View



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

Photo Not Applicable

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

Photo Not Applicable

Figure A-55a: Close-Up View of Reduced Load Capacity Label

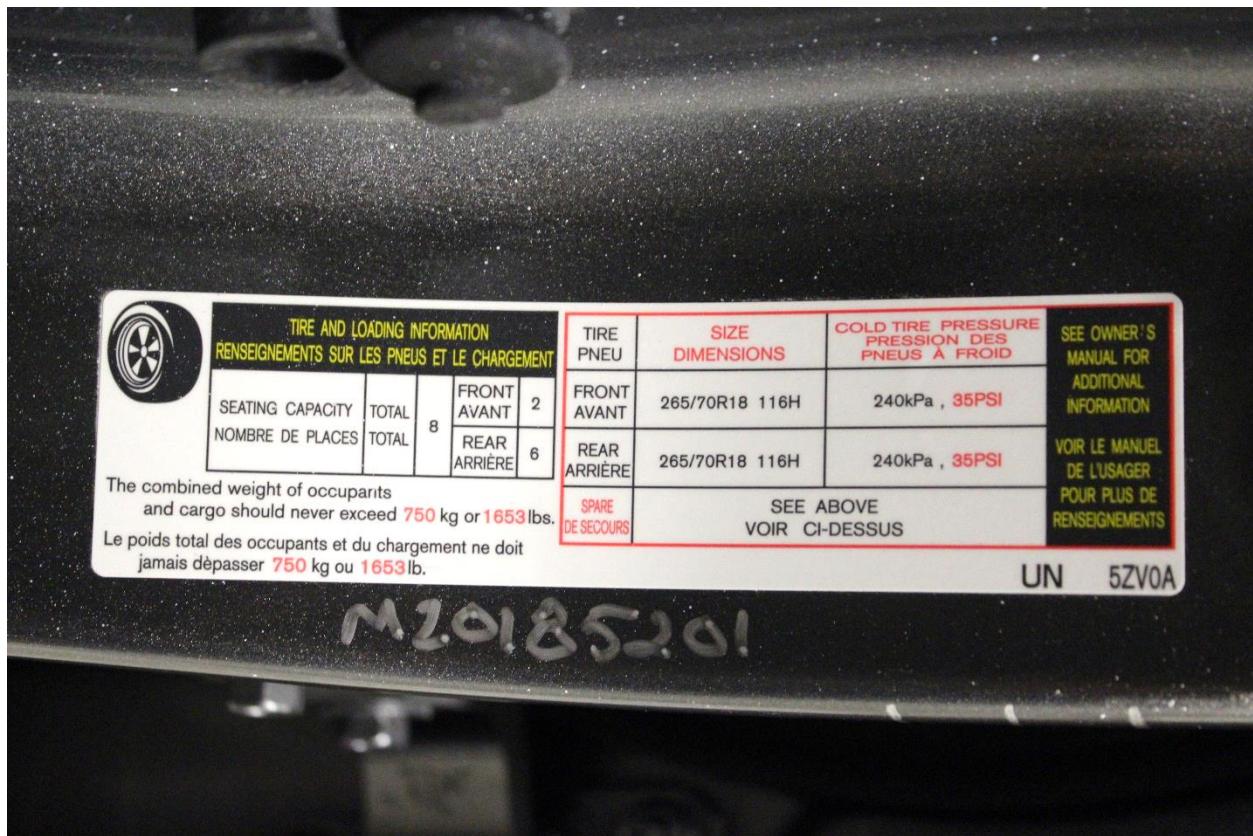


Figure A-56: Close-Up View of Vehicle's Tire Information Placard or Label

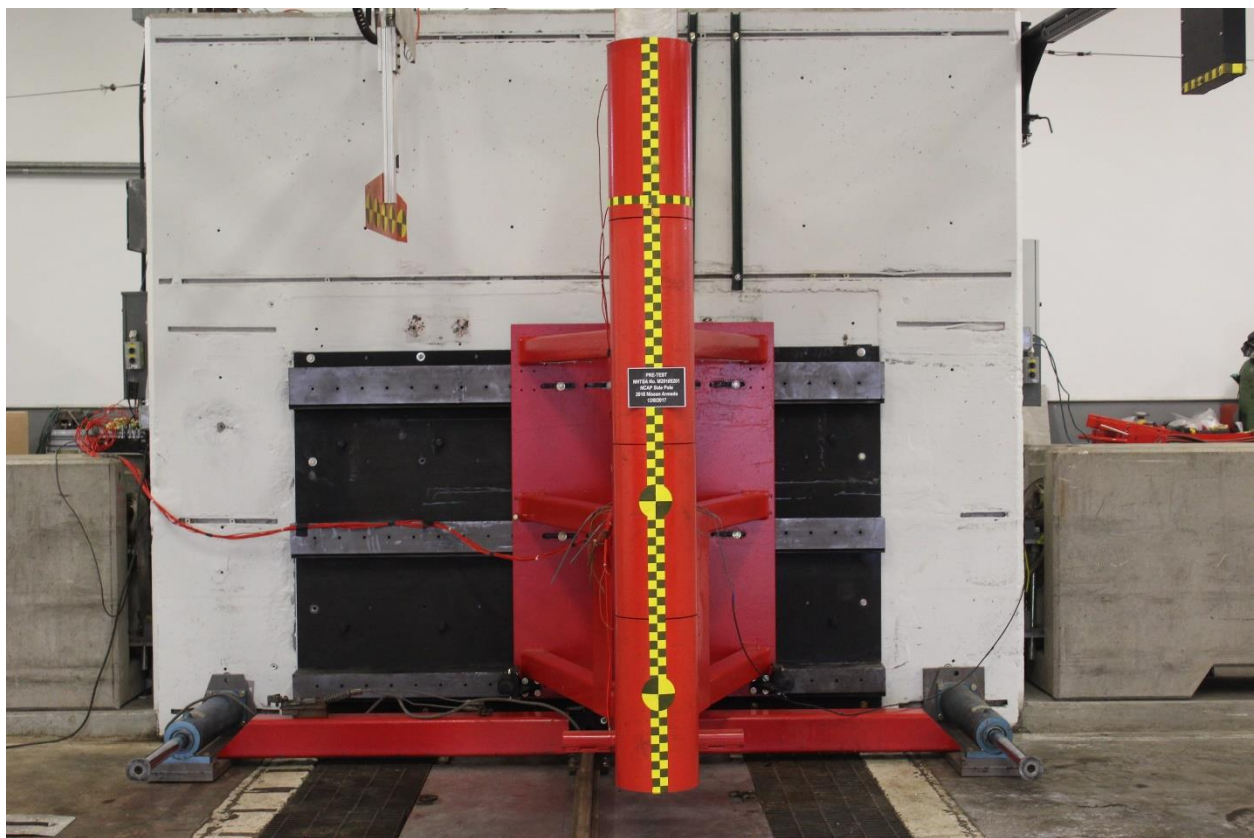


Figure A-57: Pre-Test Pole Barrier Front View



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

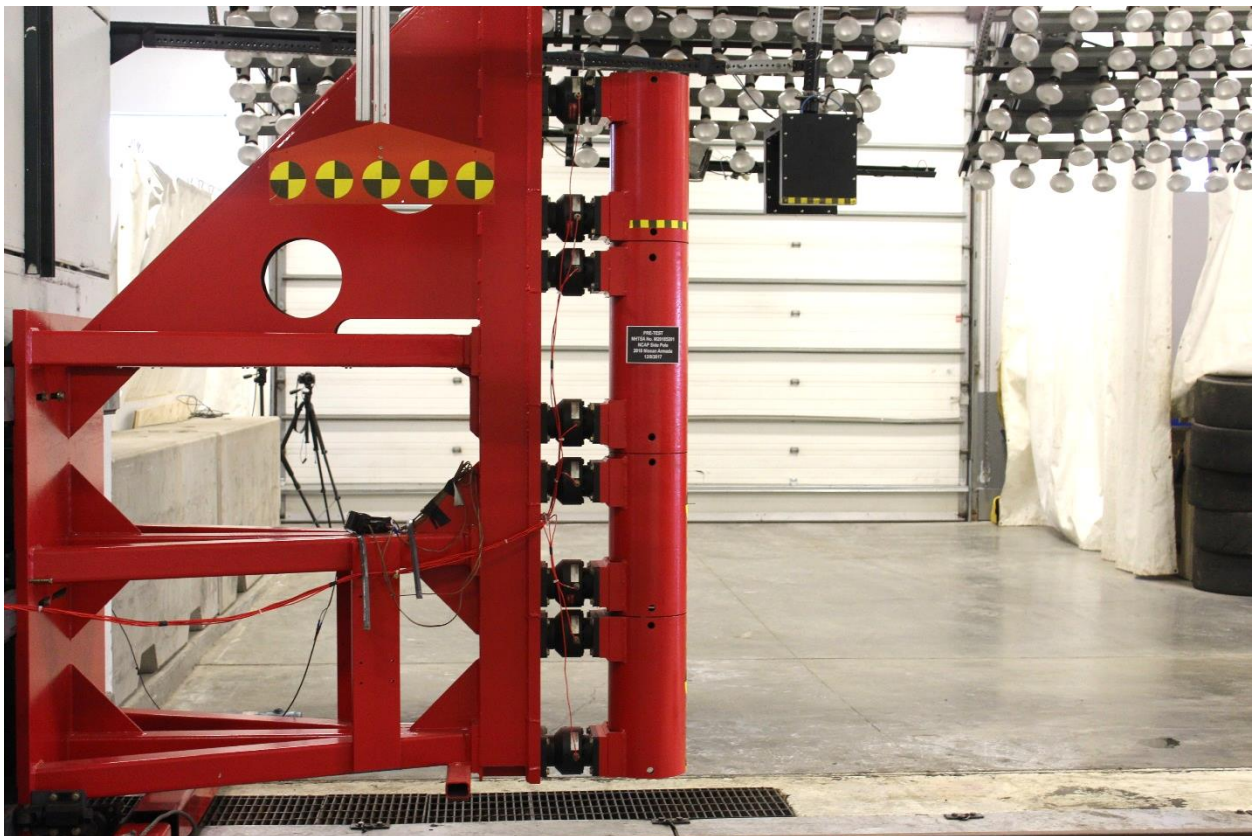


Figure A-59: Pre-Test Pole Barrier Side View

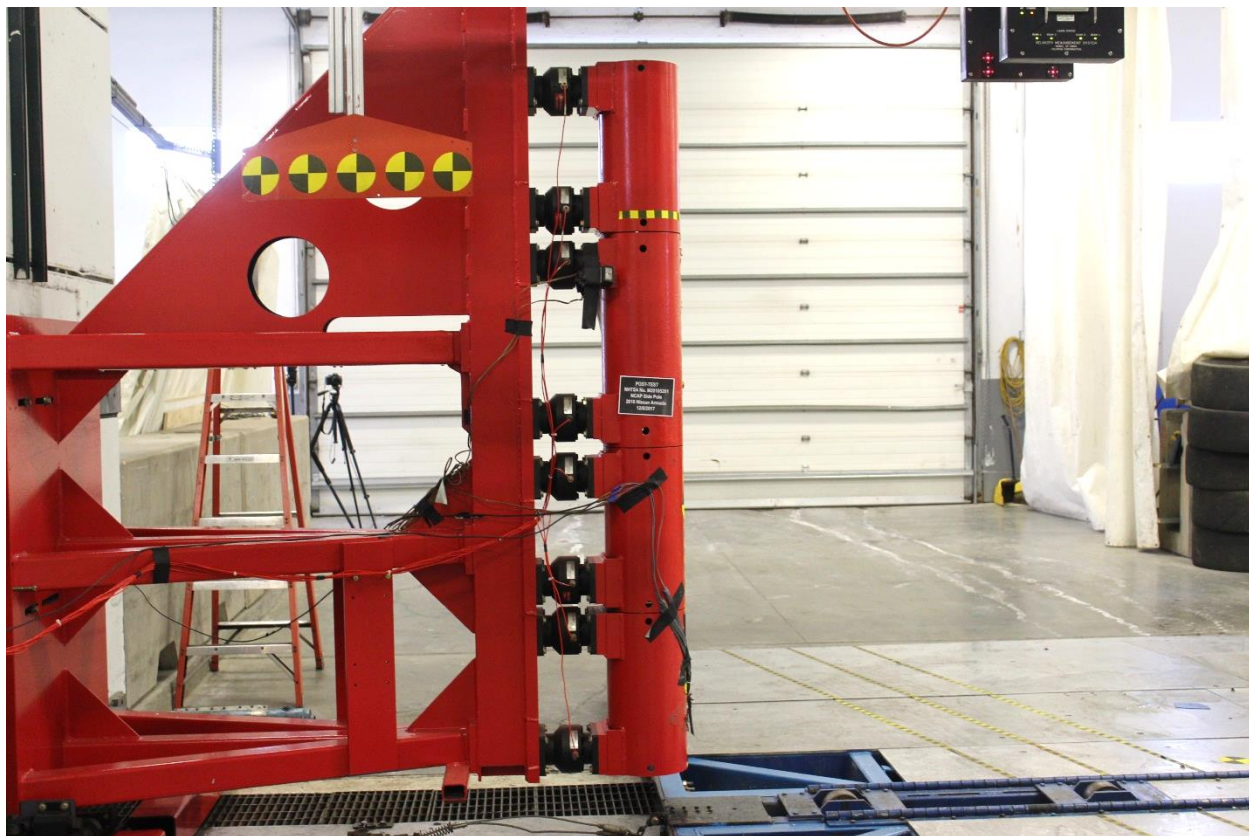


Figure A-60: Post-Test Pole Barrier Side View

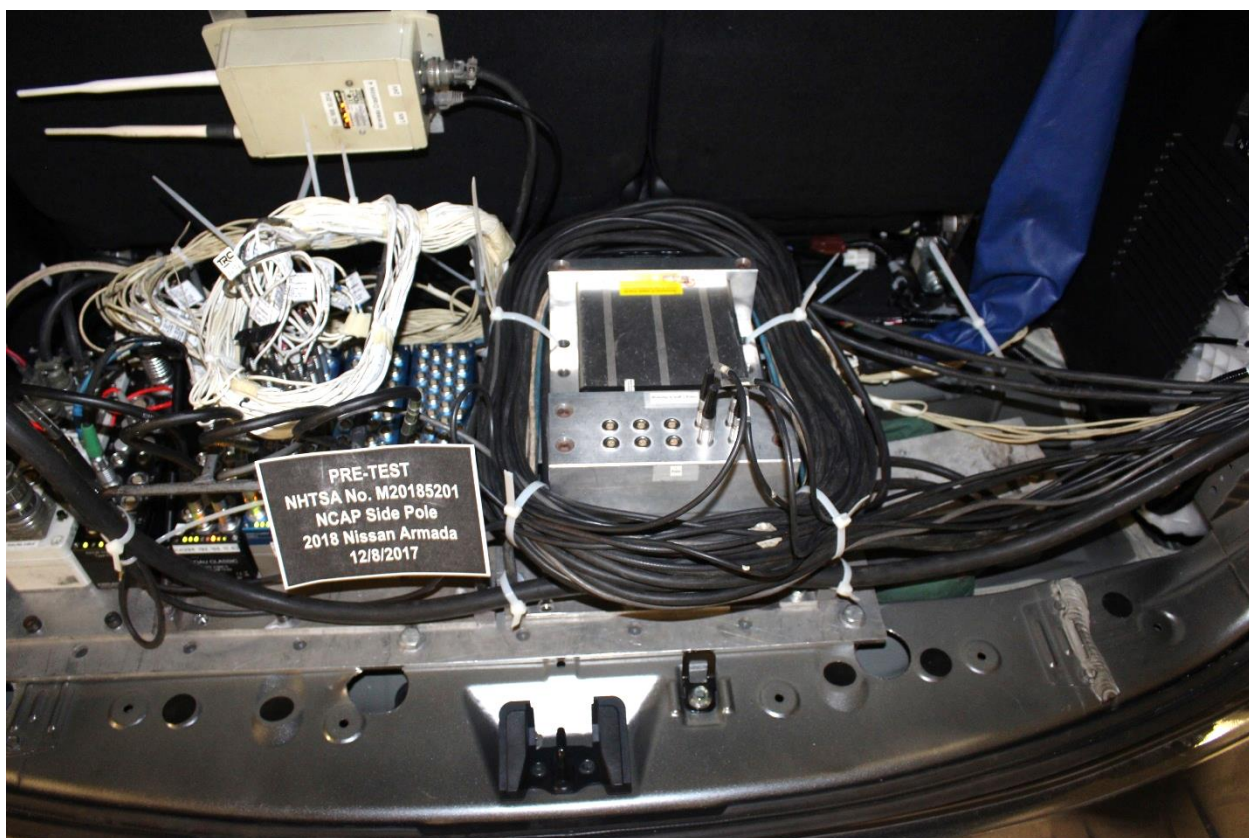


Figure A-61: Pre-Test Ballast View



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

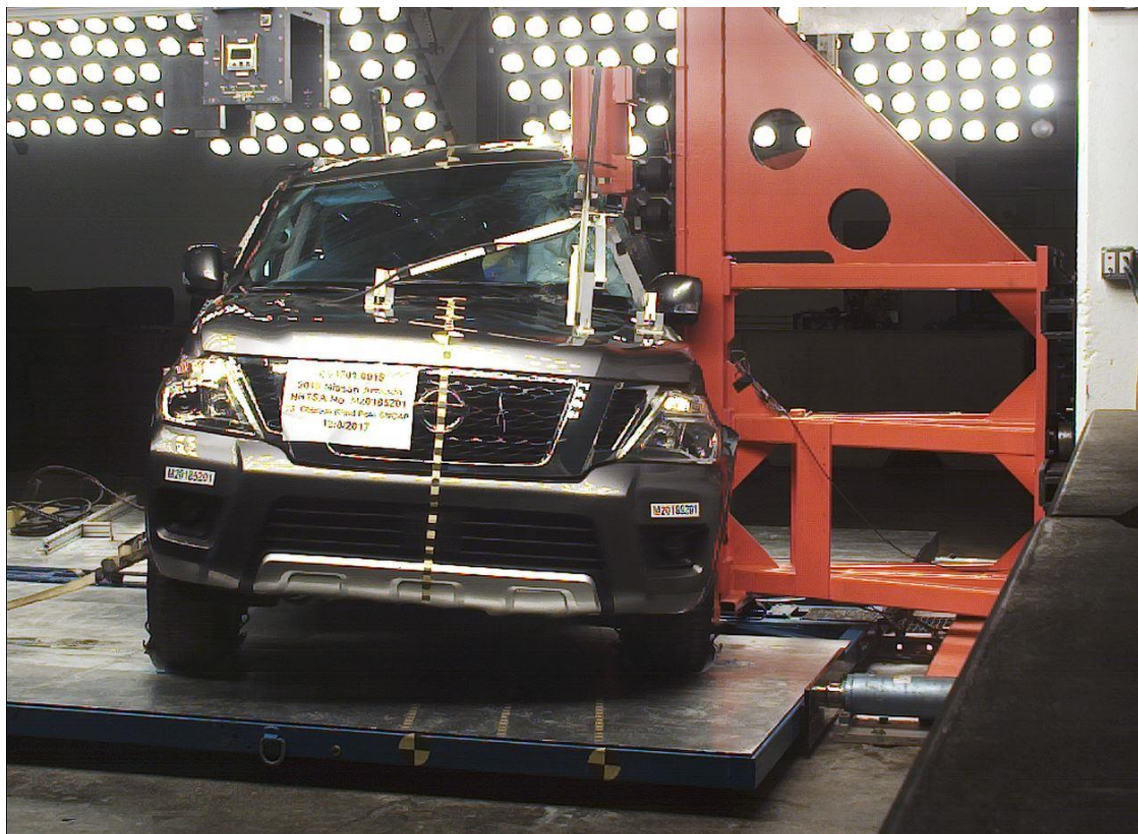


Figure A-68: Impact Event



2018 NISSAN ARMADA
SV 2WD



Scan QR code for general model information & options.

Standard Equipment Included at No Extra Charge MECHANICAL & PERFORMANCE 5.6-liter Endurance® V8 Engine 390 Horsepower & 394 lb-ft. Torque 7-speed Automatic Transmission Independent Double-Wishbone Suspension Front and Rear Ventilated Disc Brakes Hill Start Assist 18" Alloy Wheels SAFETY & SECURITY Driver & Front Passenger, Side-Impact & Curtain Airbags Lower Anchor & Tethers for Children (LATCH) Vehicle Dynamic Control (VDC) with Traction Control System (TCS) 4-Wheel Anti-Lock Braking System (ABS) Electronic Brake Force Distribution (EBD) Tire Pressure Monitoring System (TPMS) Vehicle Security System (VSS) Nissan Anti-Theft System (NATS) COMFORT & CONVENIENCE 10-Way Power Driver Seat including 2-Way Power Lumbar Support 8-Way Power Front Passenger Seat including 2-Way Power Lumbar Support Heated Driver and Front Passenger Seats 60/40 Split Fold-Down Rear Seats Intelligent Key with Push Button Start Leather Wrapped Steering Wheel Leather Wrapped Shift Knob Cruise Control 13 Speaker Bose® Premium Audio System with XM/FM/SXM/MP3 Aux 4 USB Ports 2 Charge Only 2 Charge with iPod®/Connectivity	COMFORT & CONVENIENCE CONT. Nissan Navigation System+ 8" Color Display with Multi-Touch Control Bluetooth® Hands-free Phone System+ Hands-free Text Messaging Assistant+ HD Radio® Technology SiriusXM® Satellite Radio+ SiriusXM® Traffic and Travel Link+ NissanConnect® Services Powered by SiriusXM® Dual Zone Automatic A/C with Microfilter Rear A/C with Rear Controls (3) 12-Volt Power Outlets Power Windows w/ One Touch Up/Down Front and Rear Sonar System Rear View Monitor Rear Defroster and Rear Intermittent Wipers EXTERIOR Automatic On/Off Headlights Side, Back and Rear Window Privacy Glass Electric Folding and Heated Outside Mirror with Turn Signal Indicator Dark Painted Roof Rails, Side Step Rails, and Overlanders	Manufacturer's Suggested Retail Base Price: \$45,000.00 Options Included by Manufacturer <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>CARPETED FLOOR MATS Carpeted Floor Mats (3-Row) Carpeted Cargo Mat</td> <td style="text-align: right;">310.00</td> </tr> <tr> <td>CARGO PACKAGE Cargo Area Protector Cargo Net Final Aid Kit</td> <td style="text-align: right;">225.00</td> </tr> <tr> <td>DRIVER PACKAGE Front Fog Lights Auto-Dimming Interior Rear View Mirror w/ Homelink® Universal Transceiver Power Folding 60/40 3rd Row Seat Power Liftgate Trailer Towing Harness, Pre-wired and Connector for Brake Controller</td> <td style="text-align: right;">600.00</td> </tr> </table> DESTINATION CHARGES 1,295.00 Total* \$48,030.00	CARPETED FLOOR MATS Carpeted Floor Mats (3-Row) Carpeted Cargo Mat	310.00	CARGO PACKAGE Cargo Area Protector Cargo Net Final Aid Kit	225.00	DRIVER PACKAGE Front Fog Lights Auto-Dimming Interior Rear View Mirror w/ Homelink® Universal Transceiver Power Folding 60/40 3rd Row Seat Power Liftgate Trailer Towing Harness, Pre-wired and Connector for Brake Controller	600.00
CARPETED FLOOR MATS Carpeted Floor Mats (3-Row) Carpeted Cargo Mat	310.00							
CARGO PACKAGE Cargo Area Protector Cargo Net Final Aid Kit	225.00							
DRIVER PACKAGE Front Fog Lights Auto-Dimming Interior Rear View Mirror w/ Homelink® Universal Transceiver Power Folding 60/40 3rd Row Seat Power Liftgate Trailer Towing Harness, Pre-wired and Connector for Brake Controller	600.00							

*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.

EPA DOT Fuel Economy and Environment

Fuel Economy

16 MPG
combined city 14 highway 19
6.2 gallons per 100 miles

Annual fuel Cost \$2,250

Fuel Economy & Greenhouse Gas Rating (tailpipe only) Smog Rating (tailpipe only)

1 2 3 10 10 Best Best

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. This average new vehicle gets 27 MPG and costs \$6,160 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.40 per gallon. MPGe is miles per gallon gasoline equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov
Calculate personalized estimates and compare vehicles

Gasoline Vehicle

You spend \$4,500 more in fuel costs over 5 years compared to the average new vehicle.

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 Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.	Driver Not Rated	Passenger Not Rated
Side Crash Based on the risk of injury in a side impact.	Front seat Not Rated	Rear seat Not Rated
Rollover Based on the risk of rollover in a single-vehicle crash.	Not Rated	

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

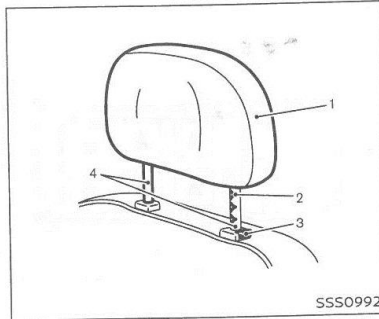
DEALER:
EMPIRE NISSAN, INC.
1377 KETTERING LOOP
ONTARIO CA 91761

VIN: JNBA2ND72003784
EMS: 50 STATE EMS50JMS
MDL: 2618-053784 KAD-G
OPT: 9-L02M20129603

20170925232549A5102C

Figure A-69: Monroney Label

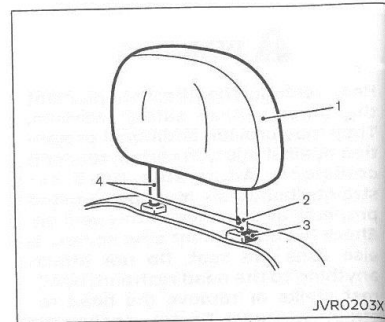
riding in that designated seating position.



SSS0992

ADJUSTABLE HEAD RESTRAINT/ HEADREST COMPONENTS

1. Removable head restraint/headrest
2. Multiple notches
3. Lock knob
4. Stalks



JVR0203X

NON-ADJUSTABLE HEAD RE- STRAINT/HEADREST COMPONENTS

1. Removable head restraint/headrest
2. Single notch
3. Lock knob
4. Stalks

1-16 Safety — seats, seat belts and supplemental restraint system

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 (if applicable)

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver Dummy Instrumentation Plots

Fig.	Description	Page
1	Driver Head Acceleration (X) Primary vs. Time	B-4
2	Driver Head Acceleration (Y) Primary vs. Time	B-4
3	Driver Head Acceleration (Z) Primary vs. Time	B-4
4	Driver Head Resultant Acceleration Primary vs. Time	B-4
5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-5
6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-5
7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-5
8	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-5
9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-6
10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-6
11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-6

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.dot.gov.

Additional Driver Dummy Instrumentation Data

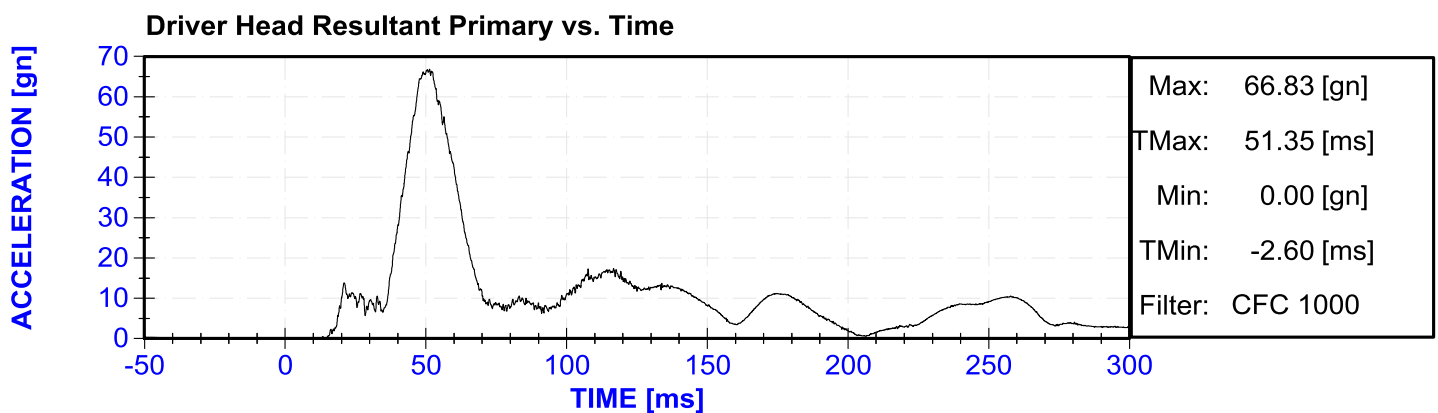
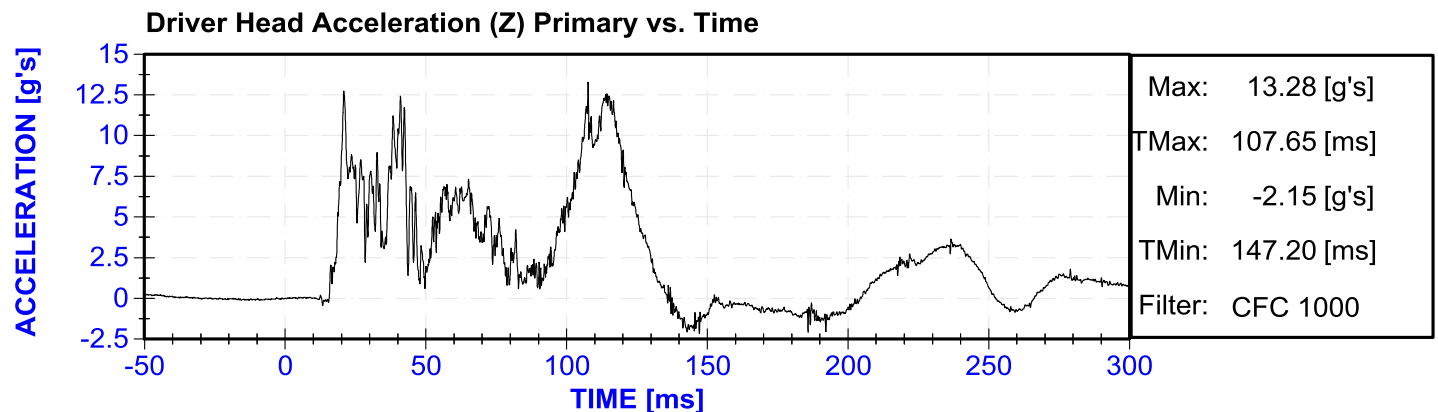
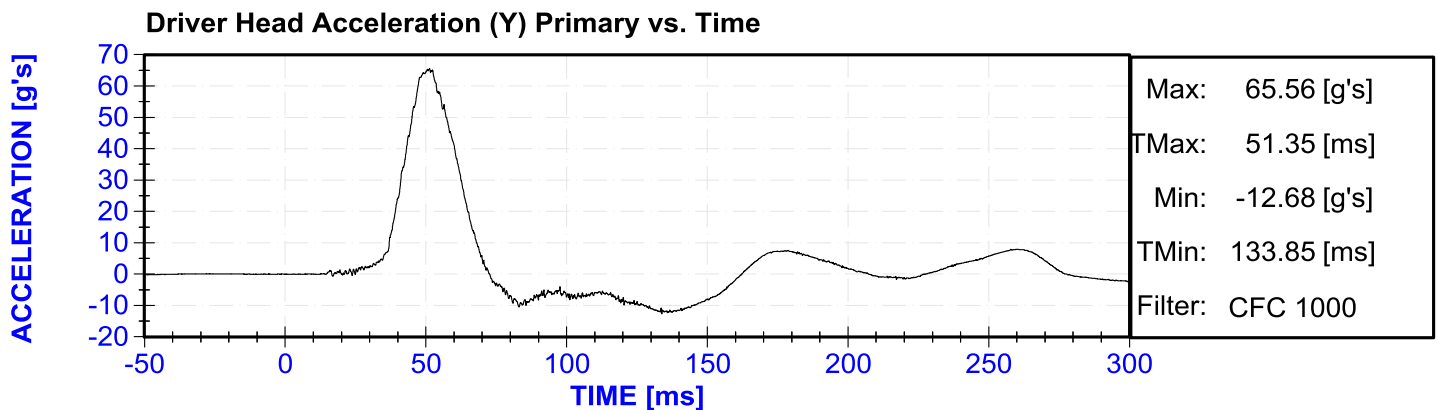
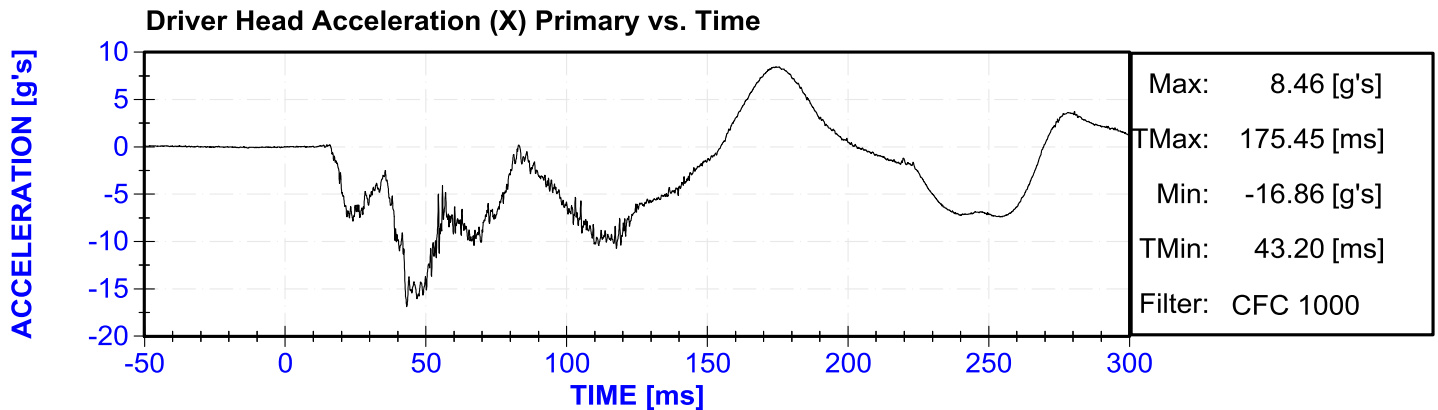
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection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

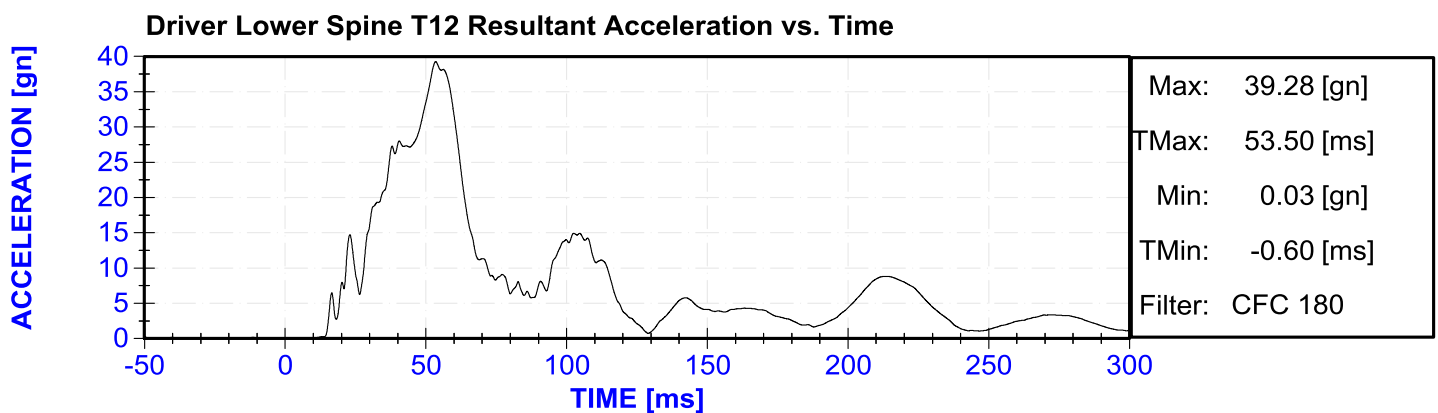
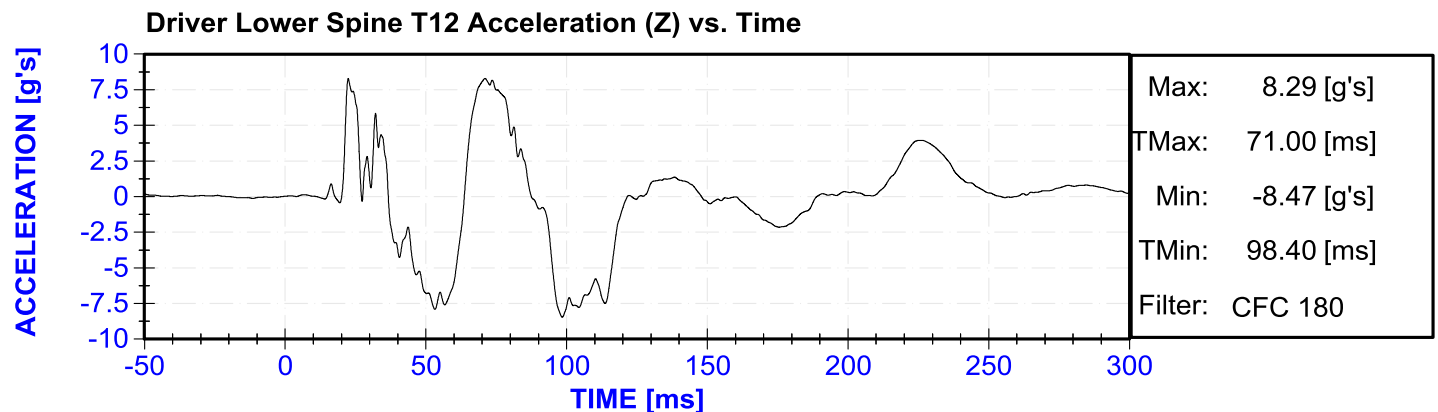
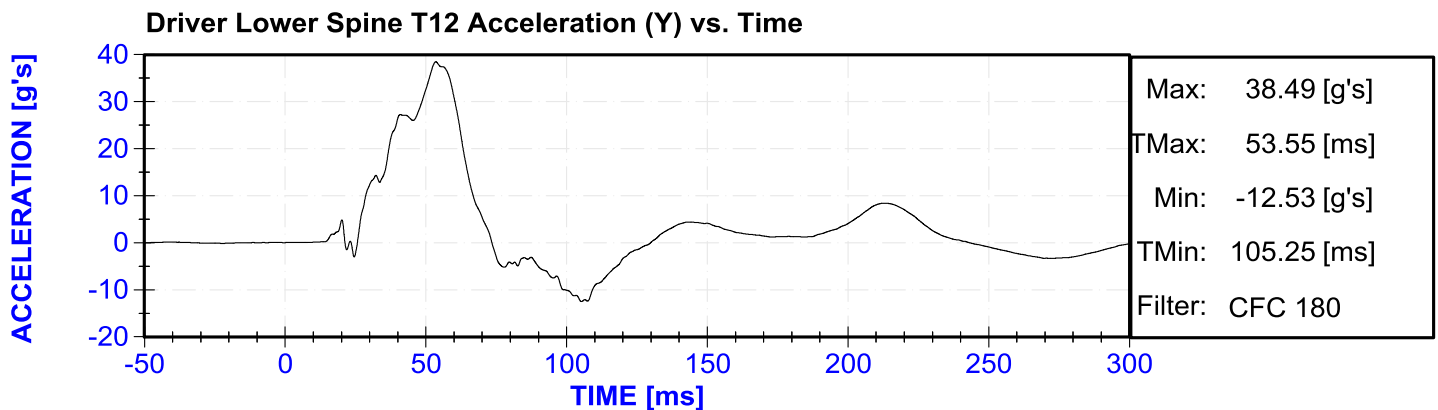
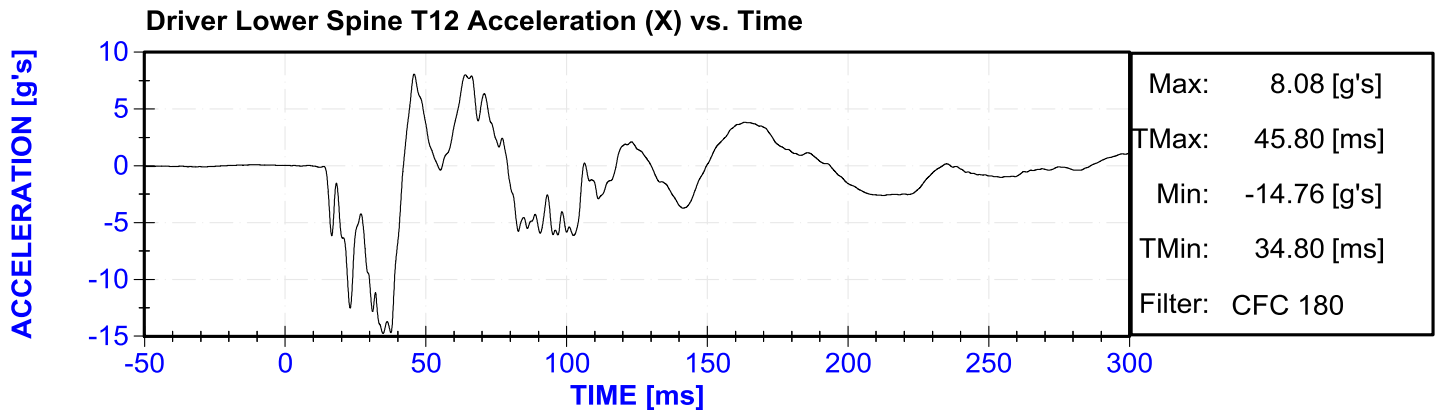
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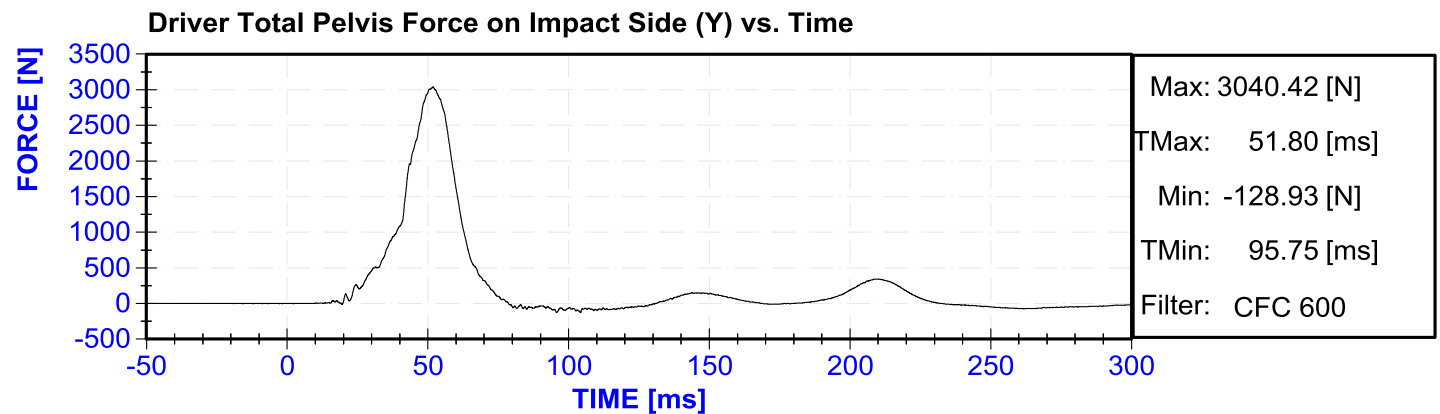
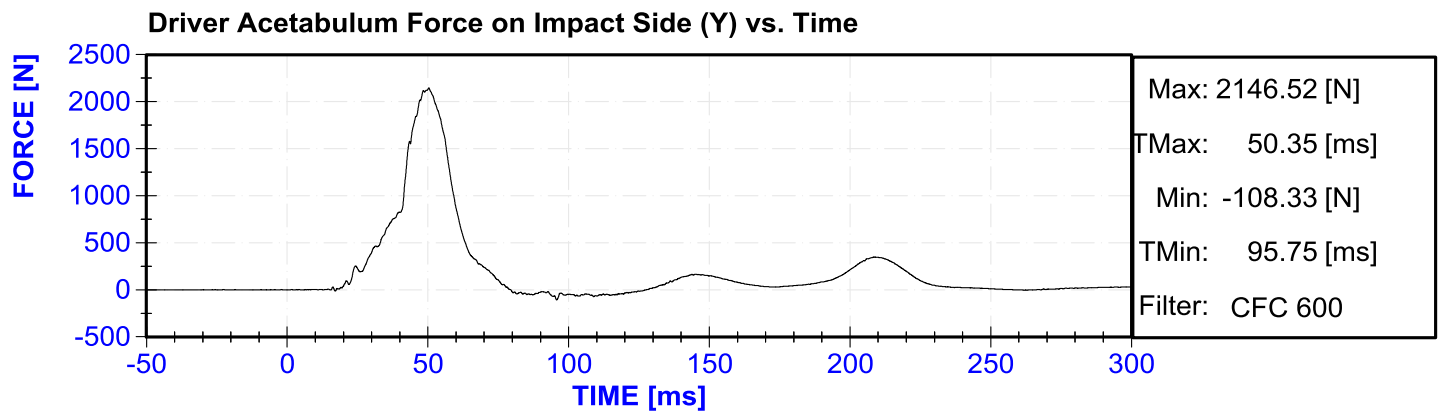
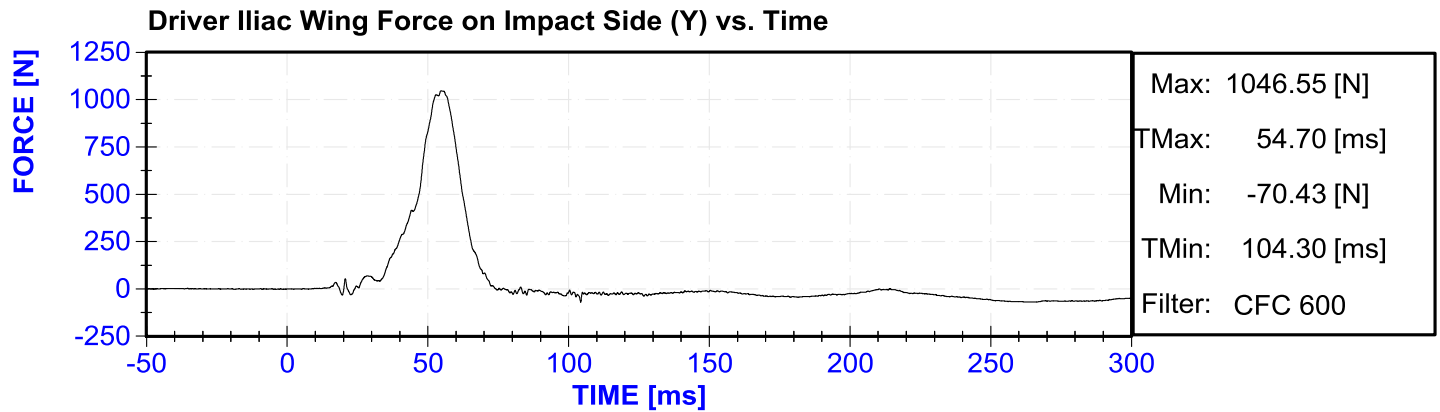
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (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)







APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SERIAL NO: DG8012

(CONFIGURED FOR LEFT SIDE IMPACT)

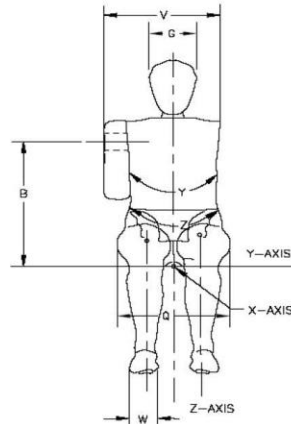
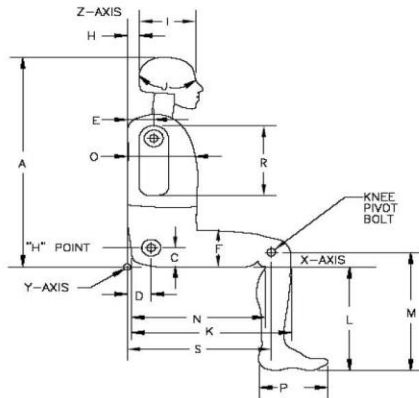


External Measurements - SID-IIs

Technician: K. Brogan

Date: 11/15/2017

Dummy Serial Number: DG8012



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	780	Pass
B	Shoulder Pivot Height	437	453	444	Pass
C	H-point Height	79	89	86	Pass
D	H-point from seatback	141	151	145	Pass
E	Shoulder Pivot from Backline	97	107	102	Pass
F	Thigh Clearance	119	135	128	Pass
G	Head Breadth	140	148	144	Pass
H	Head Back from Backline	40	46	43	Pass
I	Head Depth	178	188	182	Pass
J	Head Circumference	541	551	547	Pass
K	Buttock to Knee Length	514	540	529	Pass
L	Popliteal Height	343	369	350	Pass
M	Knee Pivot to floor height	392	409	400	Pass
N	Buttock Popliteal Length	416	442	428	Pass
O	Chest Depth w/o jacket	195	211	205	Pass
P	Foot Length	216	232	220	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	320	Pass
R	Arm Length	249	259	254	Pass
S	Knee Joint to seatback	477	493	486	Pass
V	Shoulder Width	341	357	346	Pass
W	Foot Width	78	94	86	Pass
Y	Chest Circumference w/jacket	851	881	860	Pass
Z	Waist Circumference	761	791	771	Pass

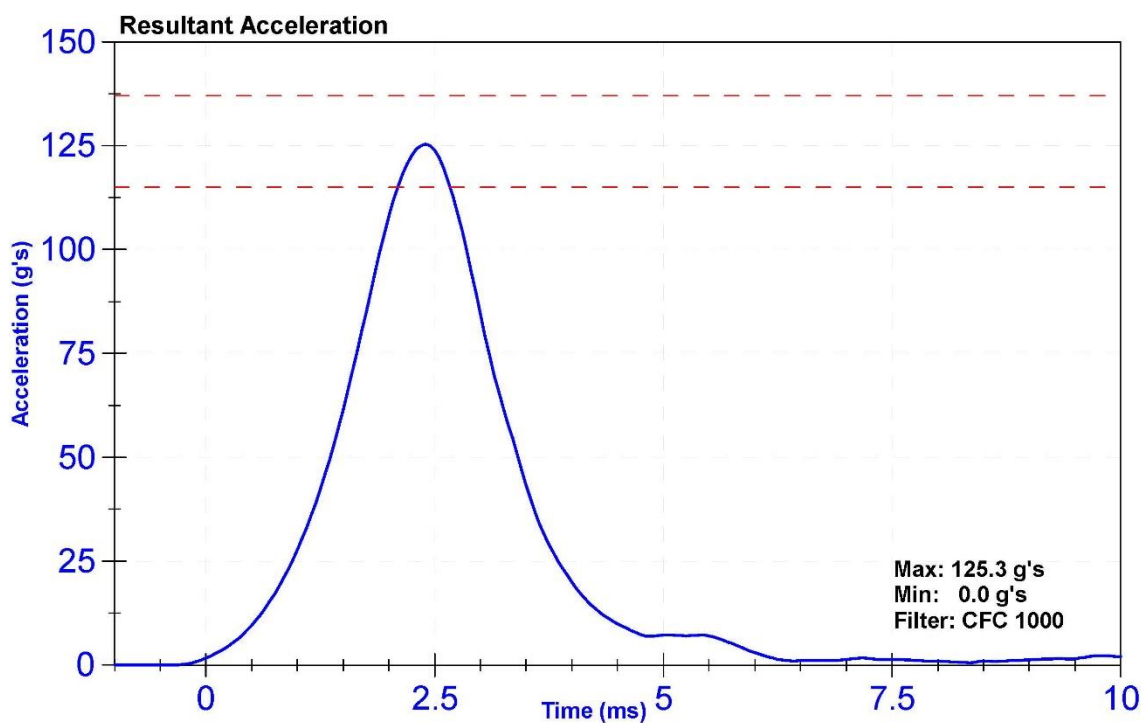
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ATD Serial Number	DG8012	Laboratory Supervisor	M. Goehle

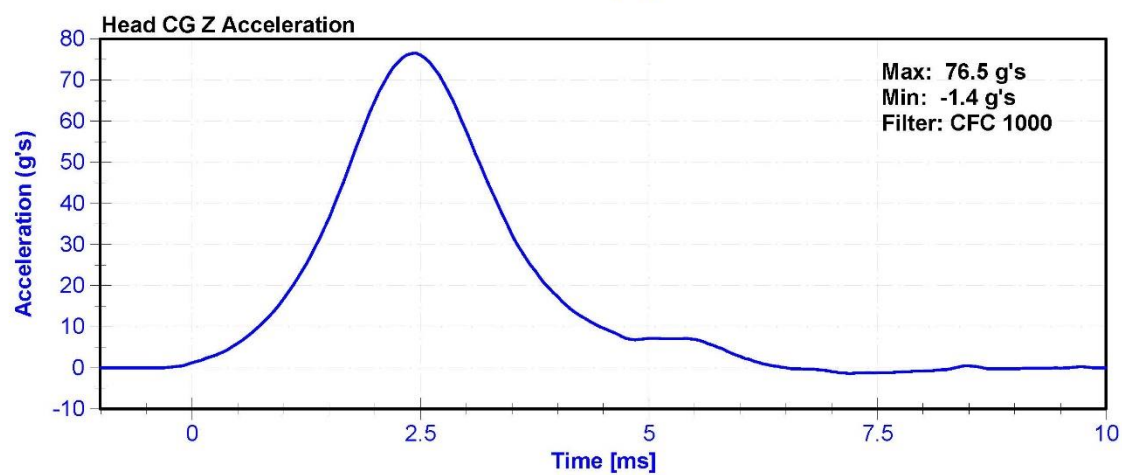
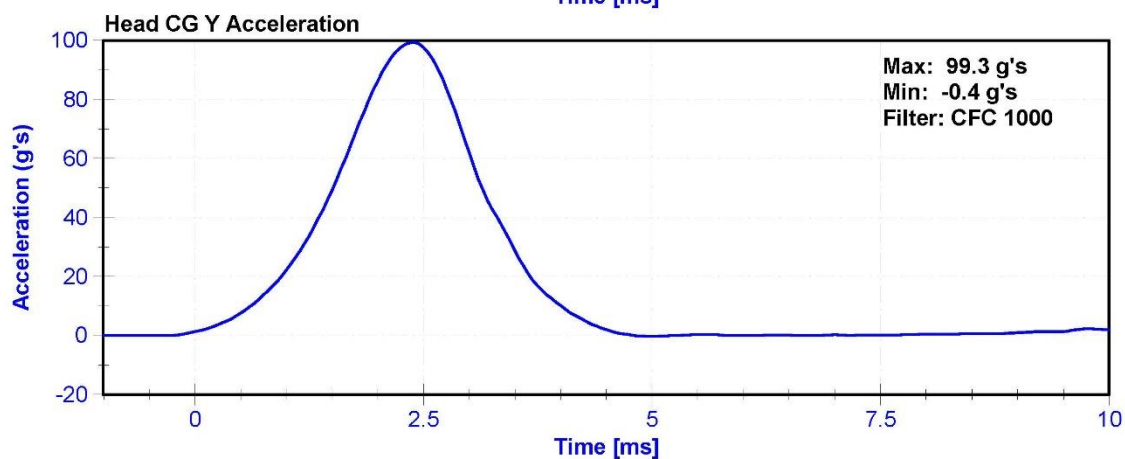
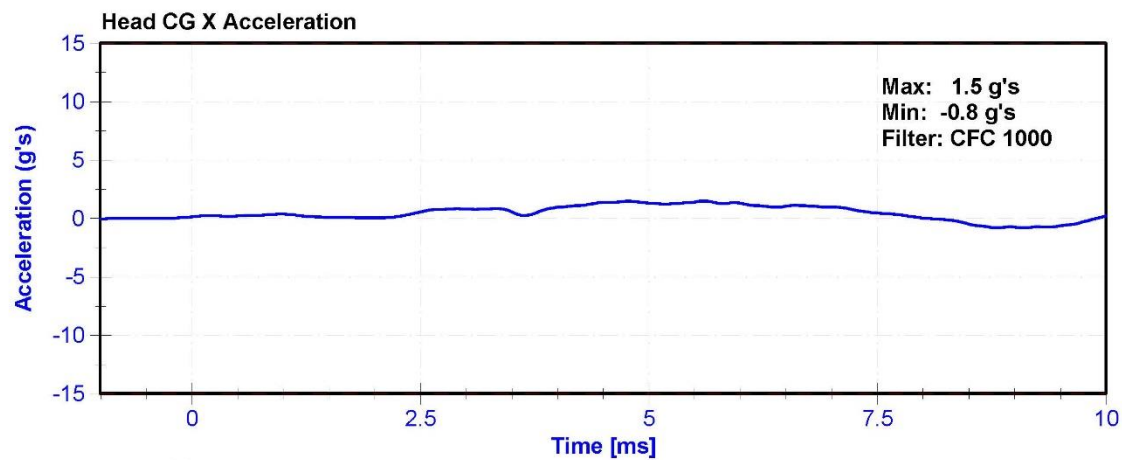
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	39.8	Pass
Resultant Acceleration	115	137	g's	125.3	Pass
Oscillation	0	15	%	5.8	Pass
Fore-Aft Acceleration	-15	15	g's	1.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	ENDEVCO 7264CT	AC-P51685	10/31/2017	5/1/2018
Y Accelerometer	ENDEVCO 7264CT	AC-P51682	10/31/2017	5/1/2018
Z Accelerometer	ENDEVCO 7264CT	AC-P51699	10/31/2017	5/1/2018





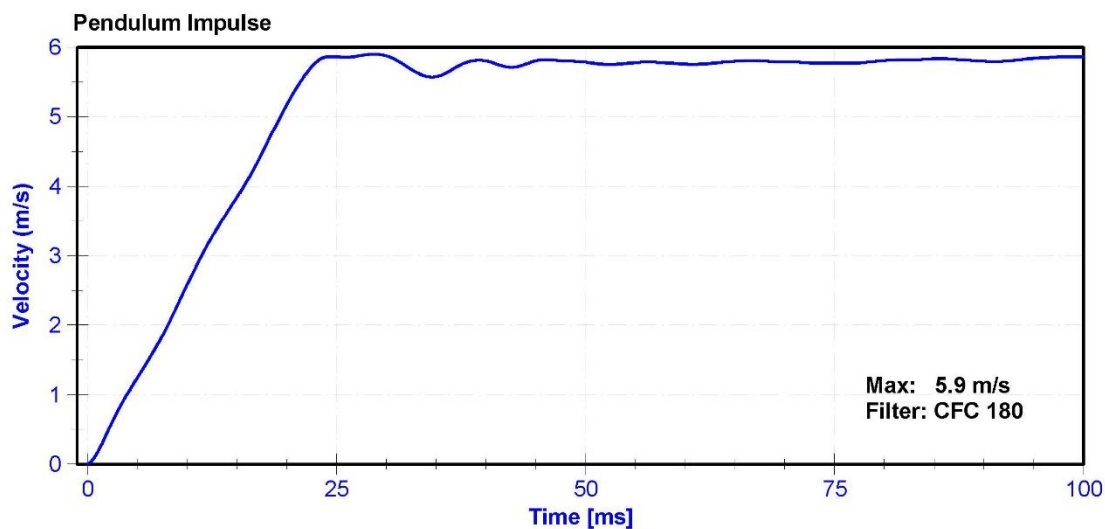
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ATD Serial Number	DG8012	Laboratory Supervisor	M. Goehle

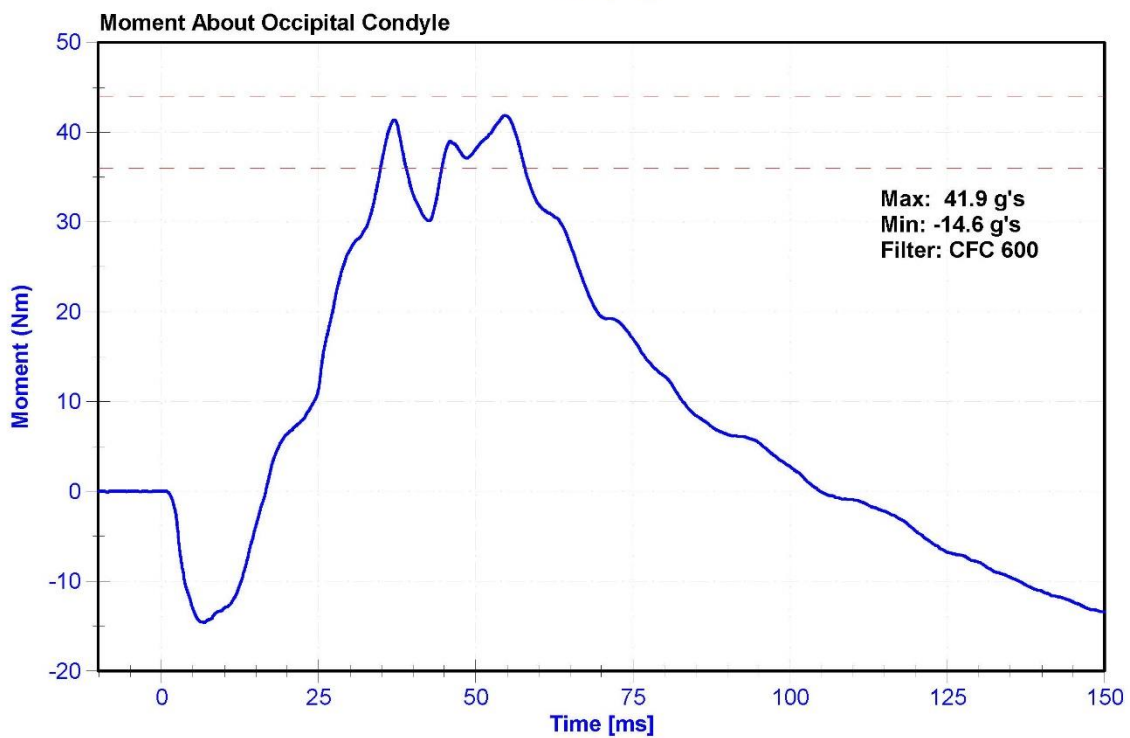
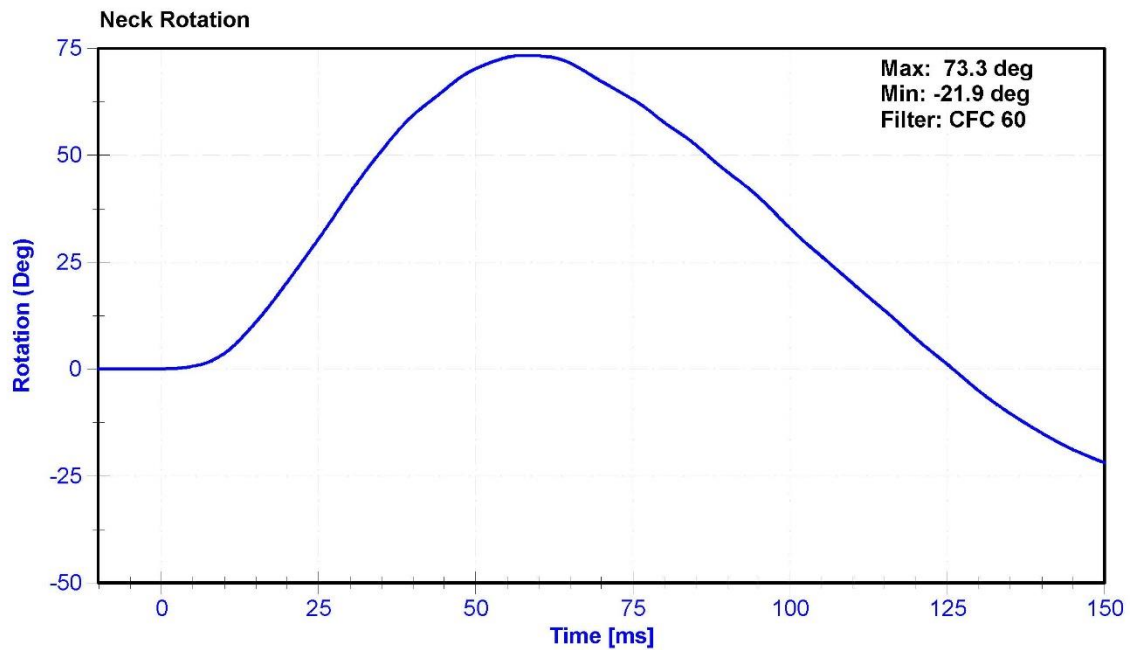
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	38.8	Pass
Velocity	5.51	5.63	m/s	5.620	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.58	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.84	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	5.17	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.87	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.90	Pass
Neck Rotation	71	81	deg	73.3	Pass
Time at Maximum Rotation	50	70	ms	57.8	Pass
Moment about the OC	36	44	Nm	41.9	Pass
Moment Decay to 0 Nm	102	126	ms	104.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/11/2017	5/11/2018
Pendulum Potentiometer	Denton 78051-342	DS-184Pend	10/27/2017	10/27/2018
Condyle Potentiometer	Denton 78051-342	DS-185Pend	10/27/2017	10/27/2018
Upper Neck Load Cell	Denton 1716	LC-1872 FY	7/26/2017	7/26/2018





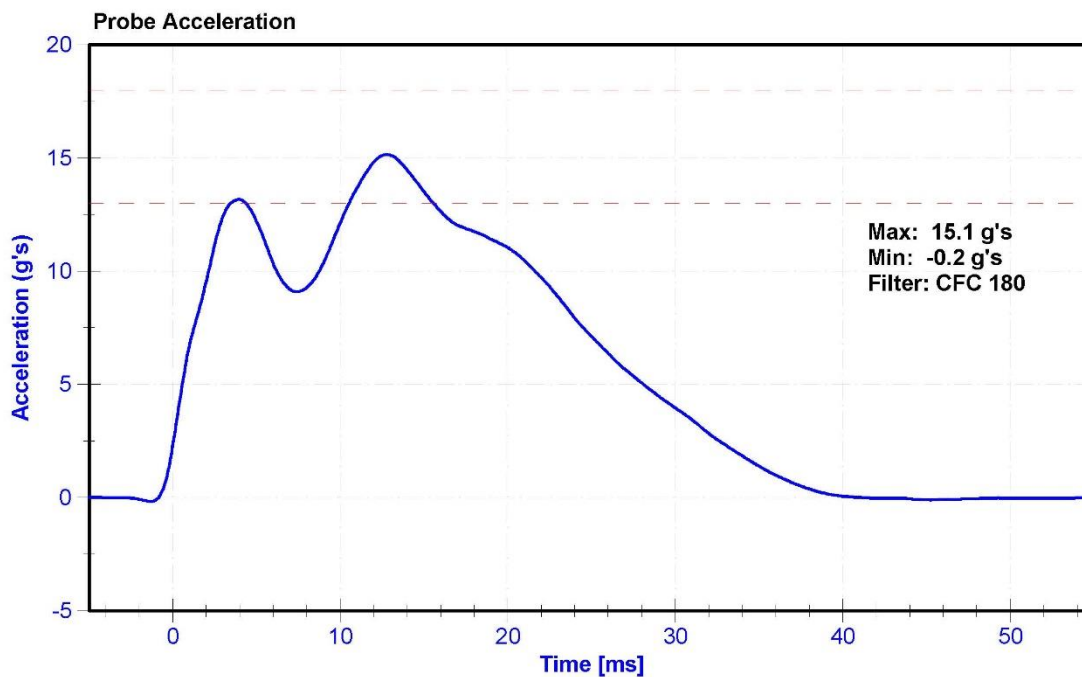
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ATD Serial Number	DG8012	Laboratory Supervisor	M. Goehle

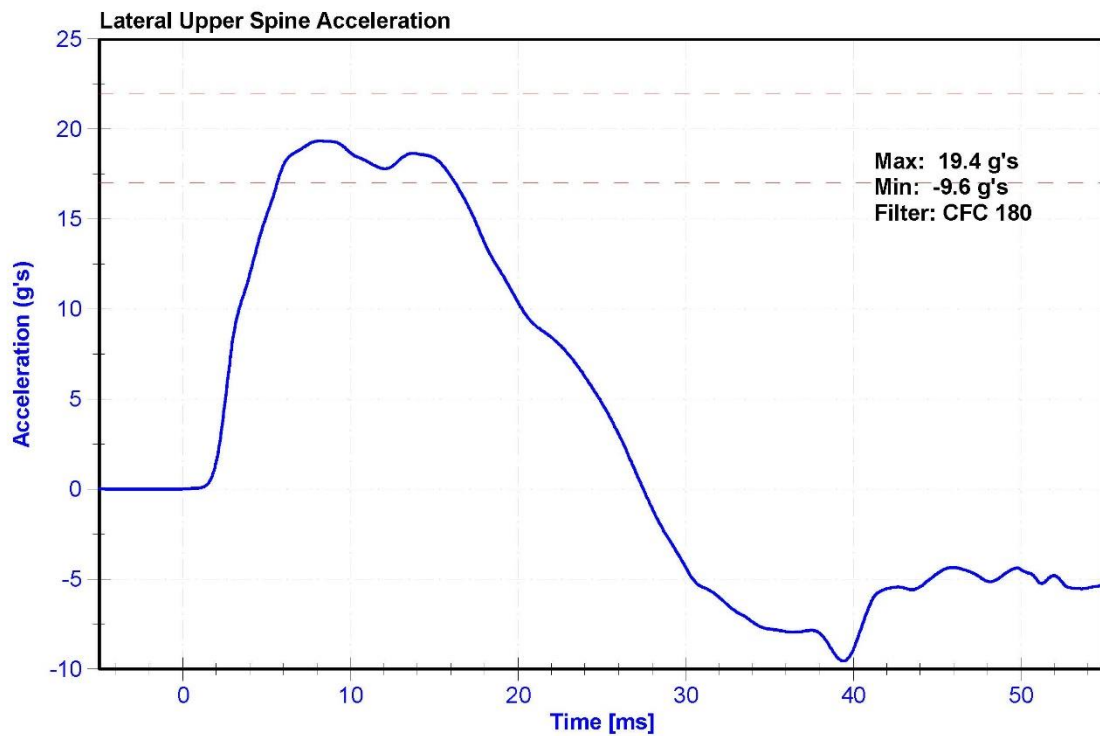
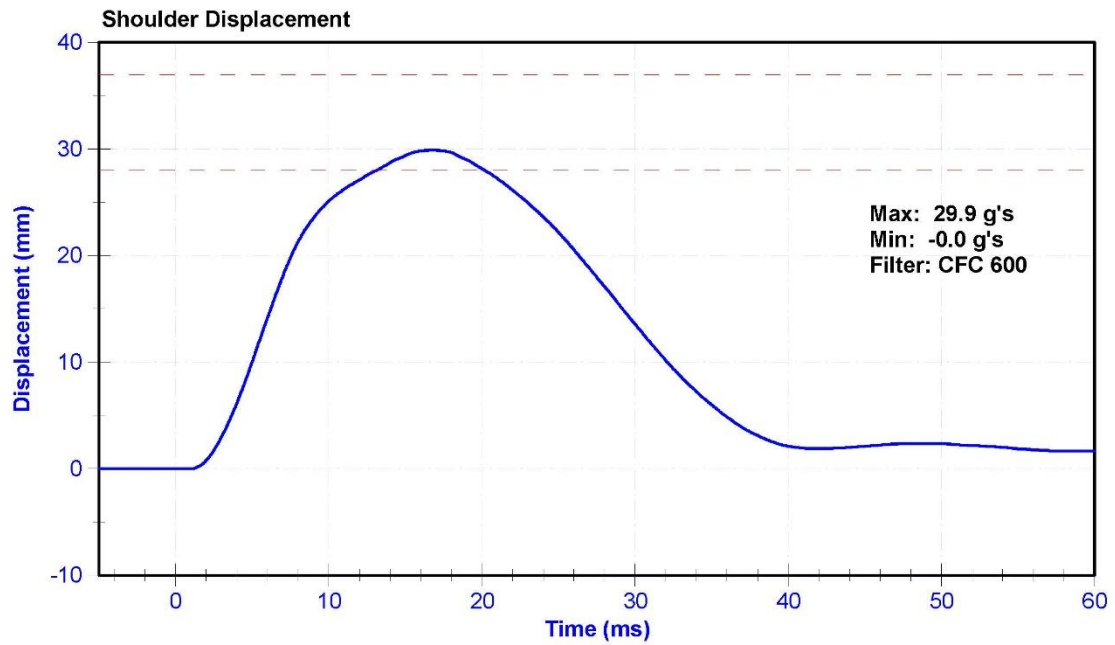
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	37.5	Pass
Velocity	4.2	4.4	m/s	4.36	Pass
Probe Acceleration	13	18	g's	15.1	Pass
Shoulder Deflection	28	37	mm	29.9	Pass
Lateral Upper Spine Acceleration	17	22	g's	19.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Shoulder Potentiometer	Servo 08TC1-3745	DS-1845GFE	9/27/2017	9/27/2018
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P63561	10/31/2017	5/1/2018





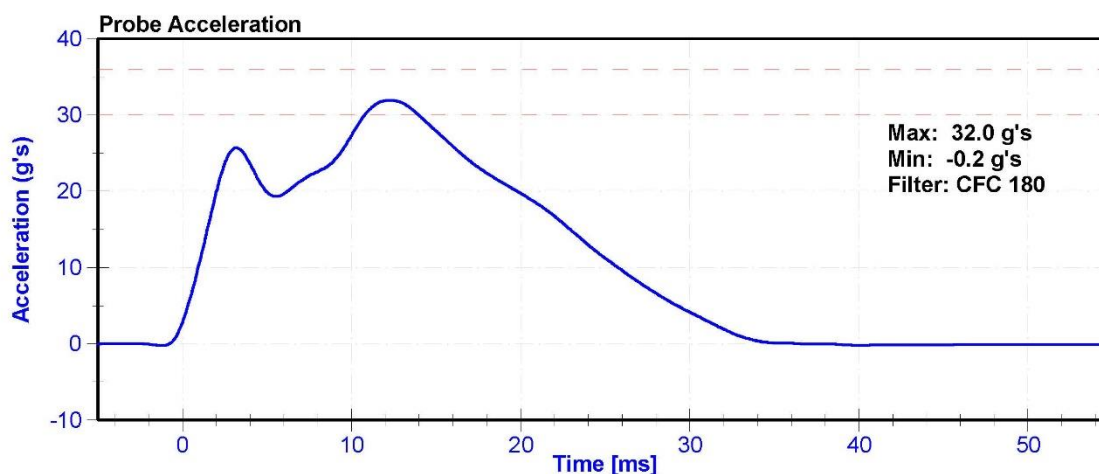
ATD Manufacturer	FTSS	Test Technician	K. Brogan
ATD Serial Number	DG8012	Laboratory Supervisor	M. Goehle

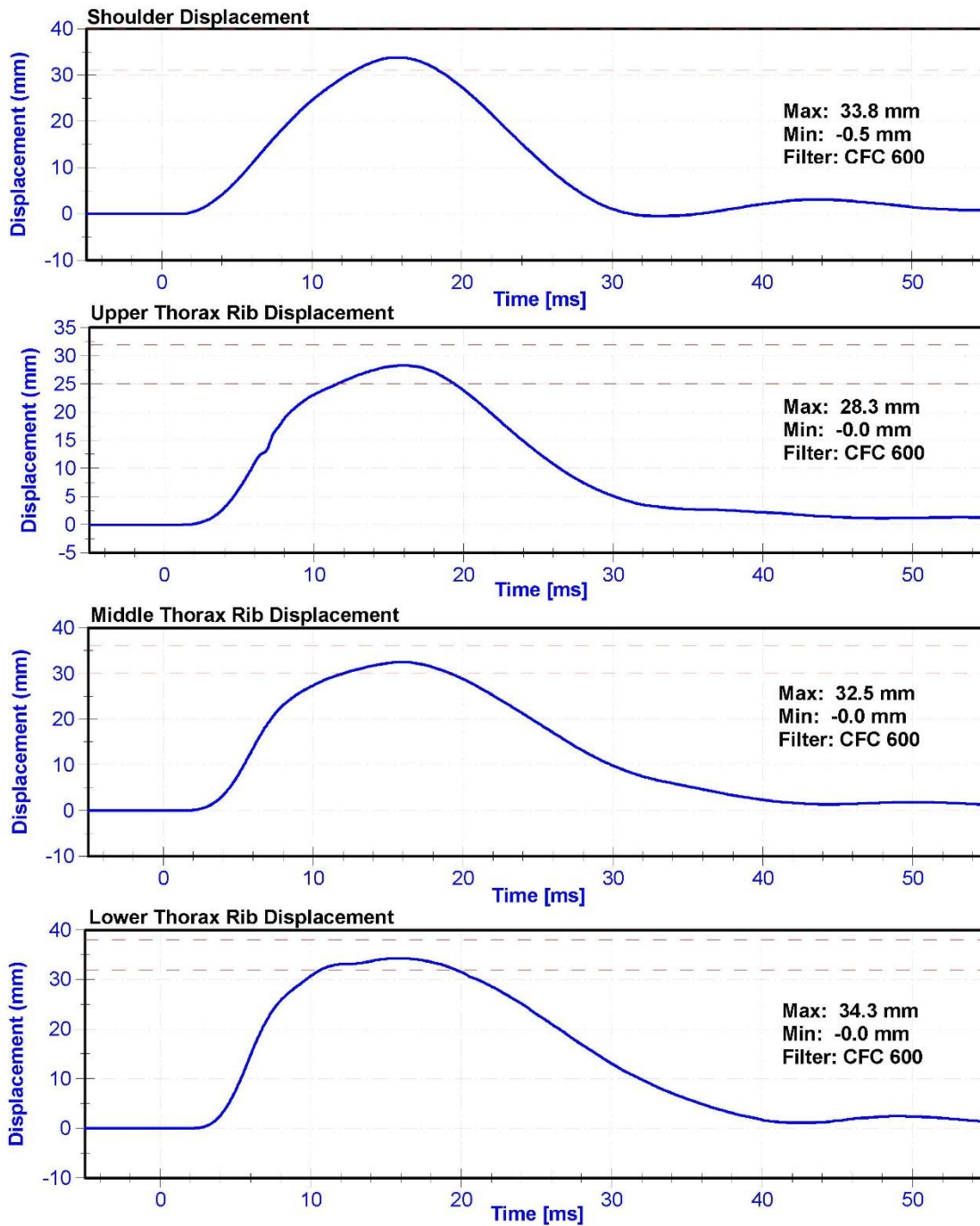
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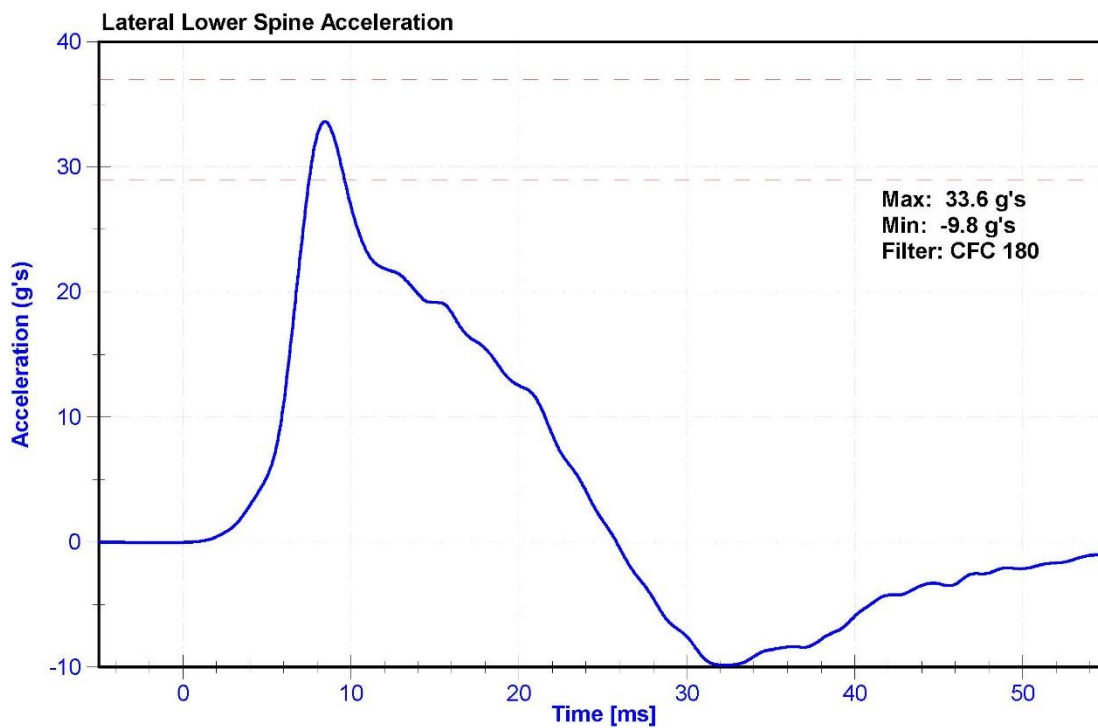
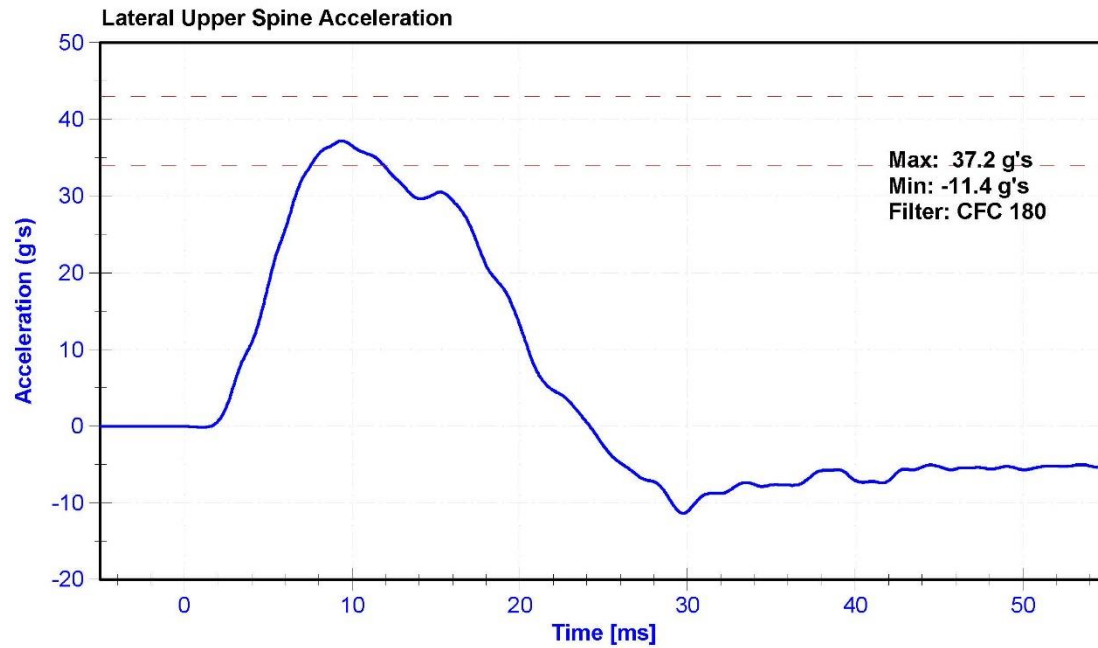
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	38.8	Pass
Velocity	6.6	6.8	m/s	6.71	Pass
Probe Acceleration after 5 ms	30	36	g's	32.0	Pass
Lateral Upper Spine Acceleration	34	43	g's	37.2	Pass
Lateral Lower Spine Acceleration	29	37	g's	33.6	Pass
Shoulder Deflection	31	40	mm	33.8	Pass
Upper Thorax Rib Deflection	25	32	mm	28.3	Pass
Mid Thorax Rib Deflection	30	36	mm	32.5	Pass
Lower Thorax Rib Deflection	32	38	mm	34.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Upper Spine T1 Y Accelerometer	ENDEVCO 7264CT	AC-P63561	10/31/2017	5/1/2018
Upper Spine T12 Y Accelerometer	ENDEVCO 7264	AC-P83319	10/31/2017	5/1/2018
Shoulder Potentiometer	Servo 08TC1-3745	DS-1845GFE	9/27/2017	9/27/2018
Upper Thorax Rib Potentiometer	Servo 08TC1-3621	DS-808GFE	9/27/2017	9/27/2018
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-1514GFE	9/27/2017	9/27/2018
Lower Thorax Rib Potentiometer	Servo 08TC1-3787	DS-011GFE	9/27/2017	9/27/2018







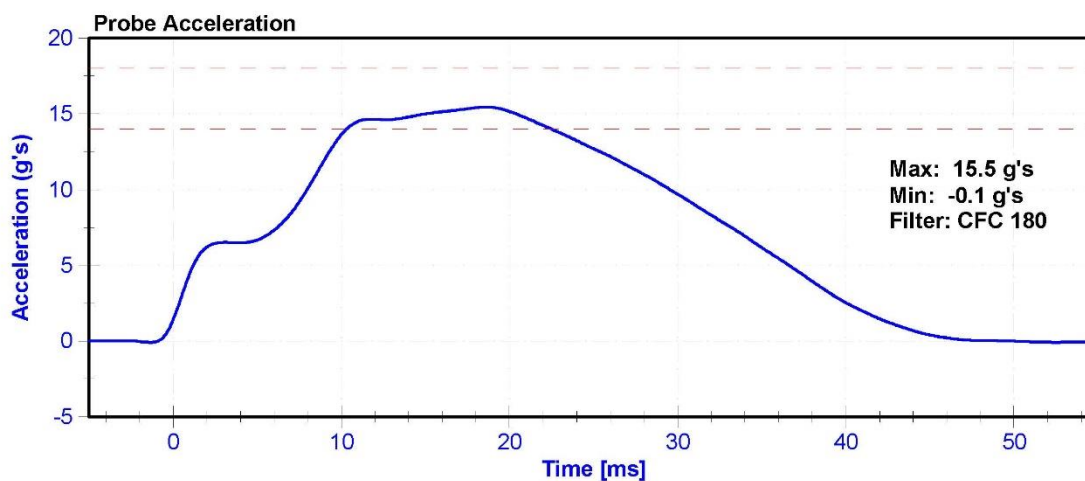
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ATD Serial Number	DG8012	Laboratory Supervisor	M. Goehle

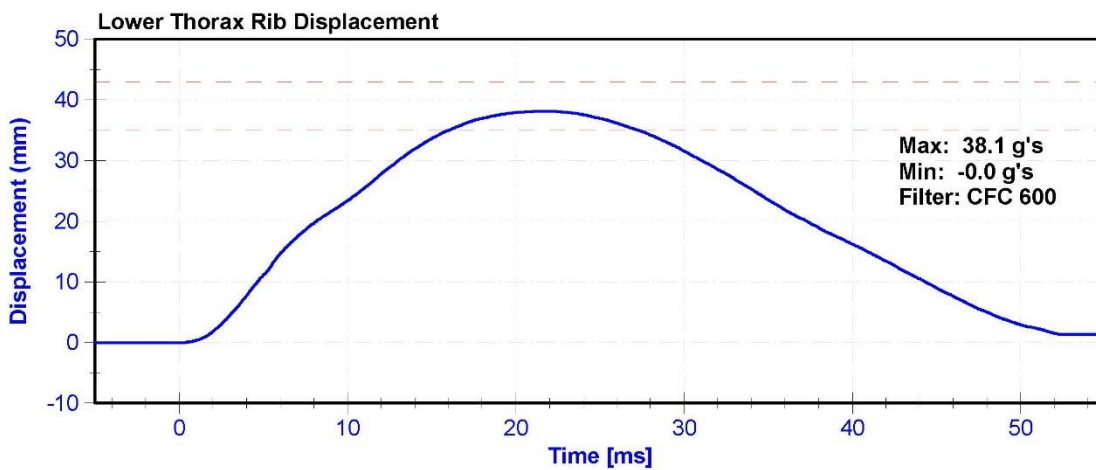
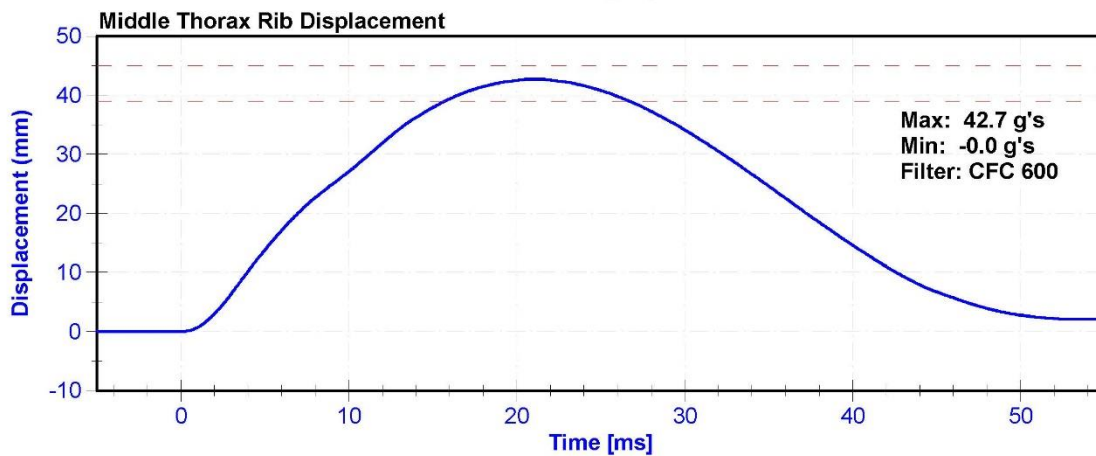
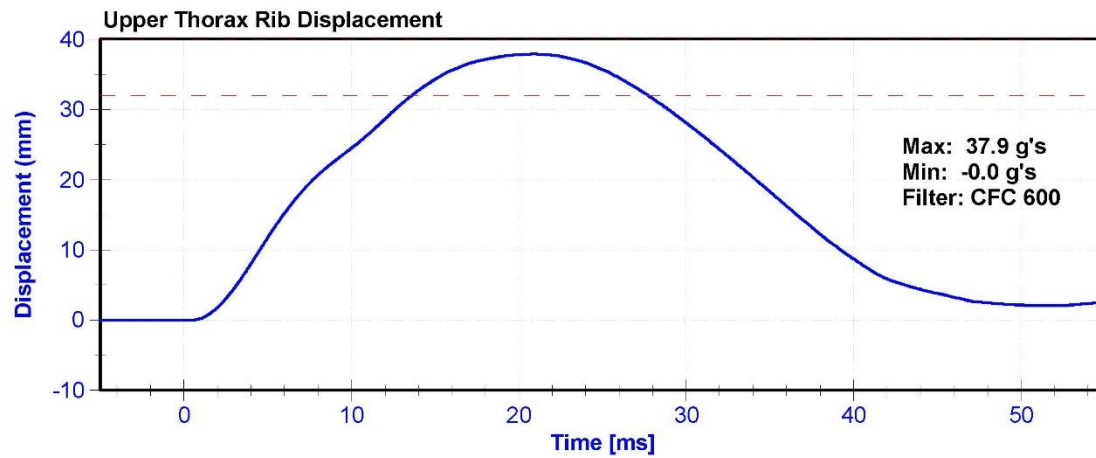
Results

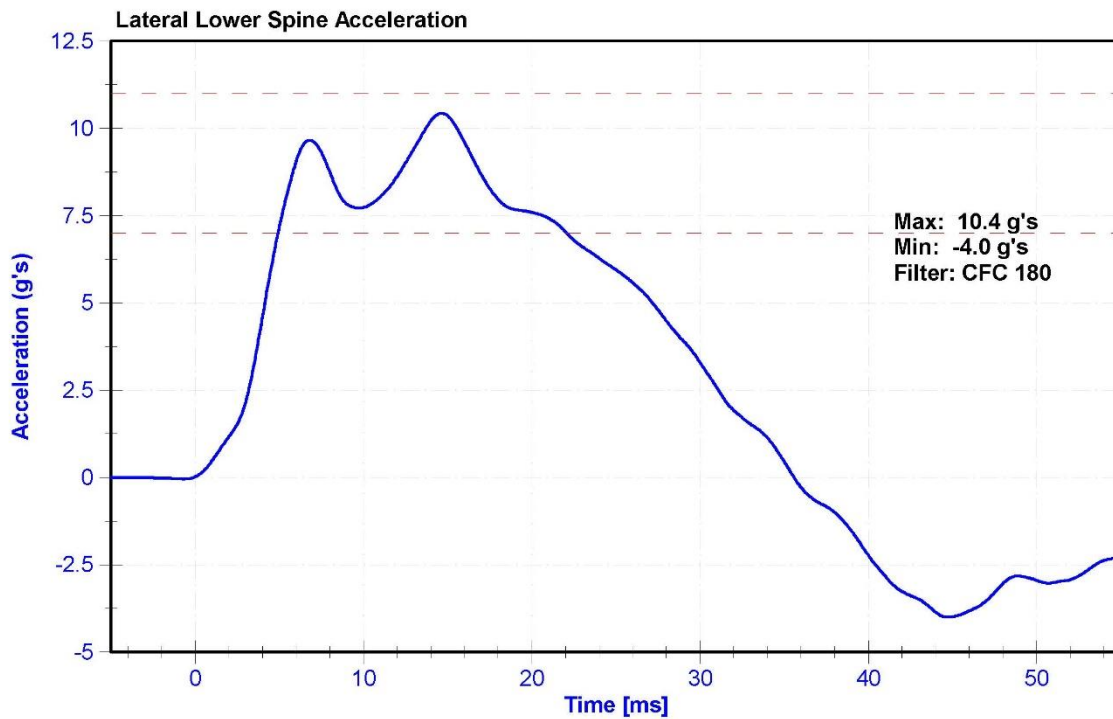
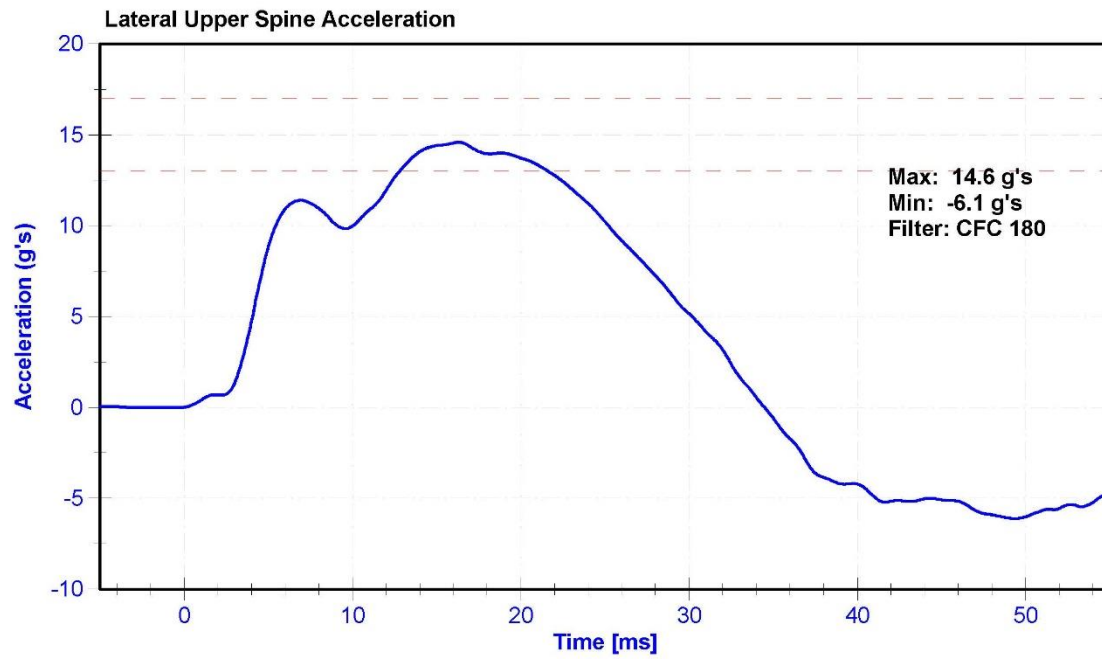
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	36.7	Pass
Velocity	4.2	4.4	m/s	4.36	Pass
Probe Acceleration	14	18	g's	15.5	Pass
Lateral Upper Spine Acceleration	13	17	g's	14.6	Pass
Lateral Lower Spine Acceleration	7	11	g's	10.4	Pass
Upper Thorax Rib Deflection	32	40	mm	37.9	Pass
Middle Thorax Rib Deflection	39	45	mm	42.7	Pass
Lower Thorax Rib Deflection	35	43	mm	38.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P63561	10/31/2017	5/1/2018
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P83319	10/31/2017	5/1/2018
Upper Thorax Rib Potentiometer	Servo 08TC1-3621	DS-808GFE	9/27/2017	9/27/2018
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-1514GFE	9/27/2017	9/27/2018
Lower Thorax Rib Potentiometer	Servo 08TC1-3787	DS-011GFE	9/27/2017	9/27/2018







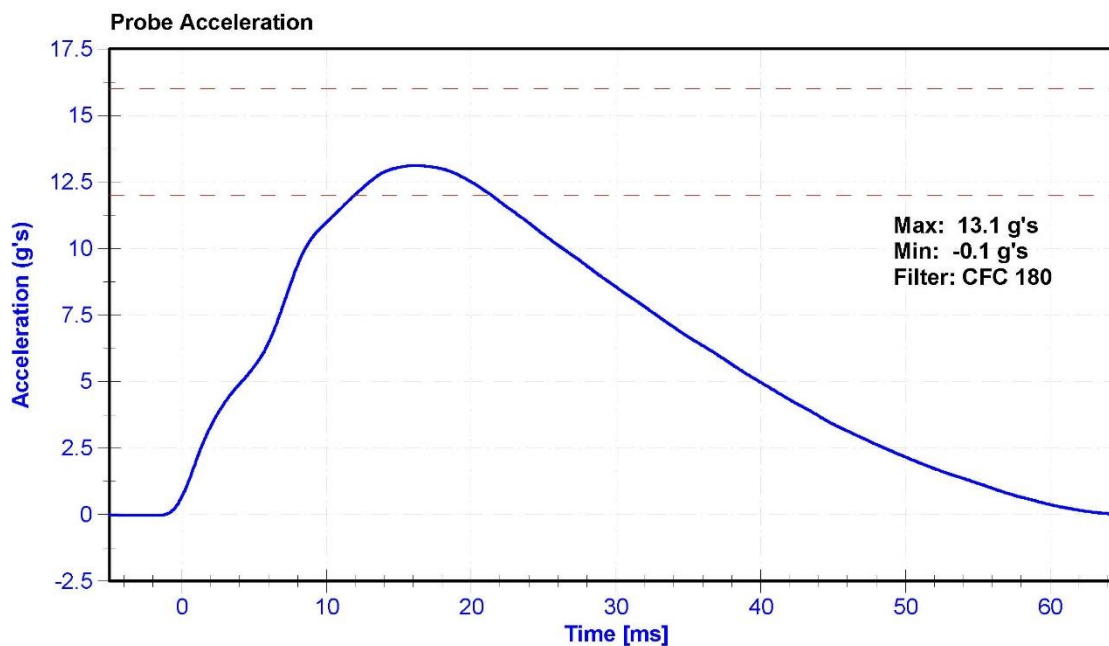
ATD Manufacturer	FTSS	Test Technician	K. Brogan
ATD Serial Number	DG8012	Laboratory Supervisor	M. Goehle

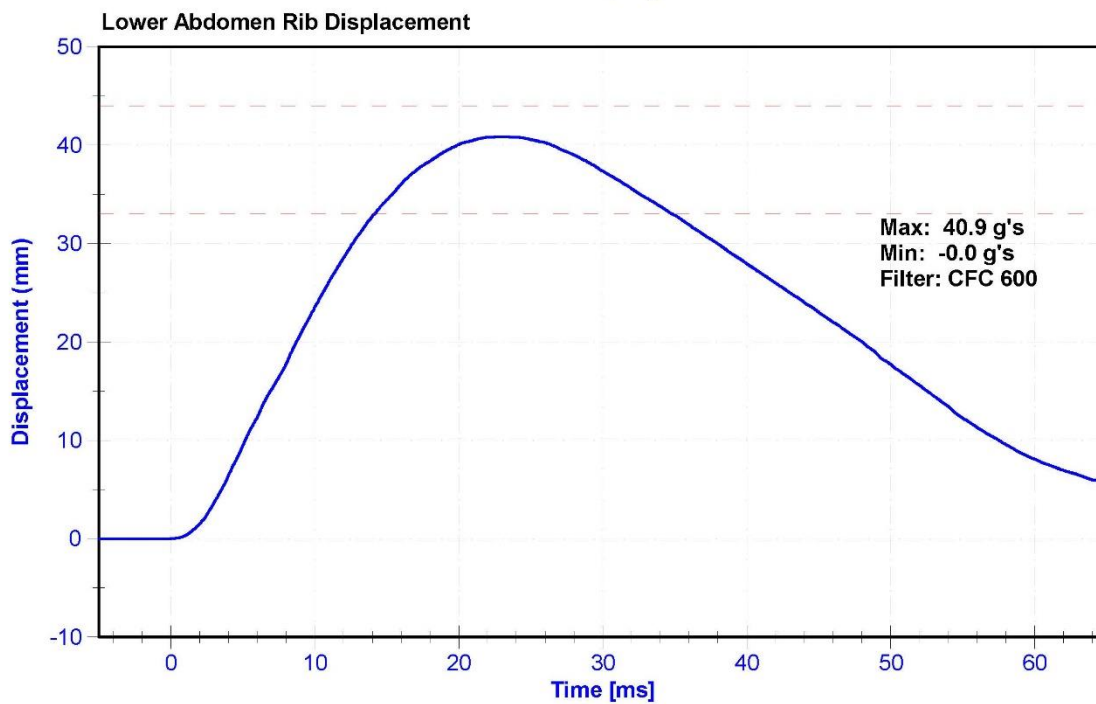
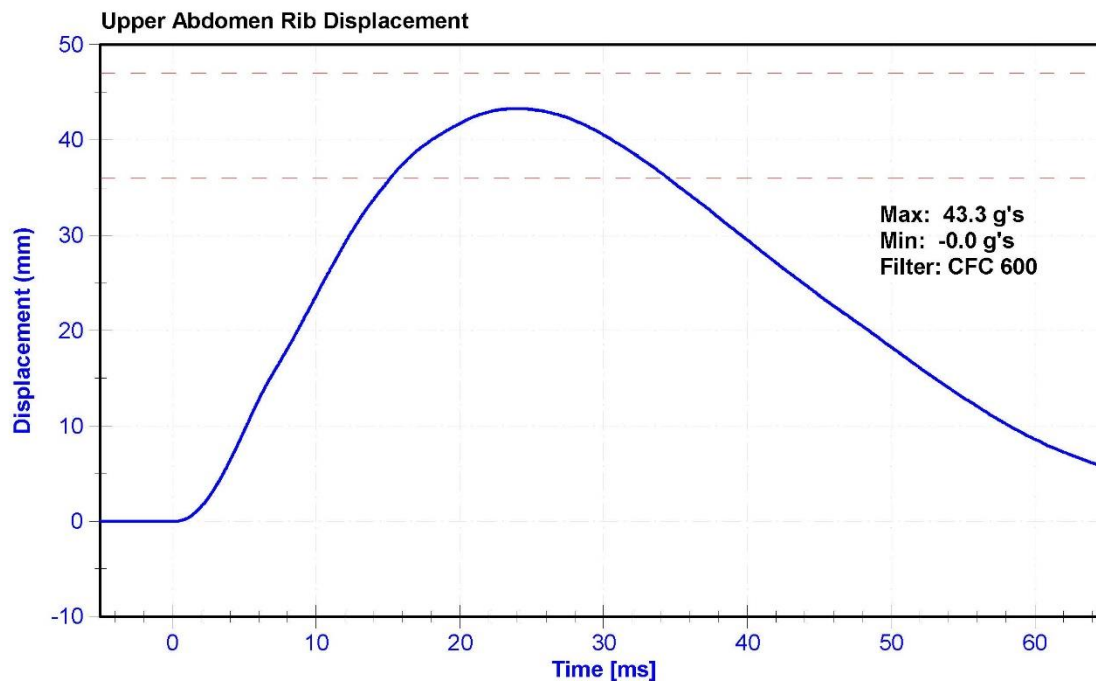
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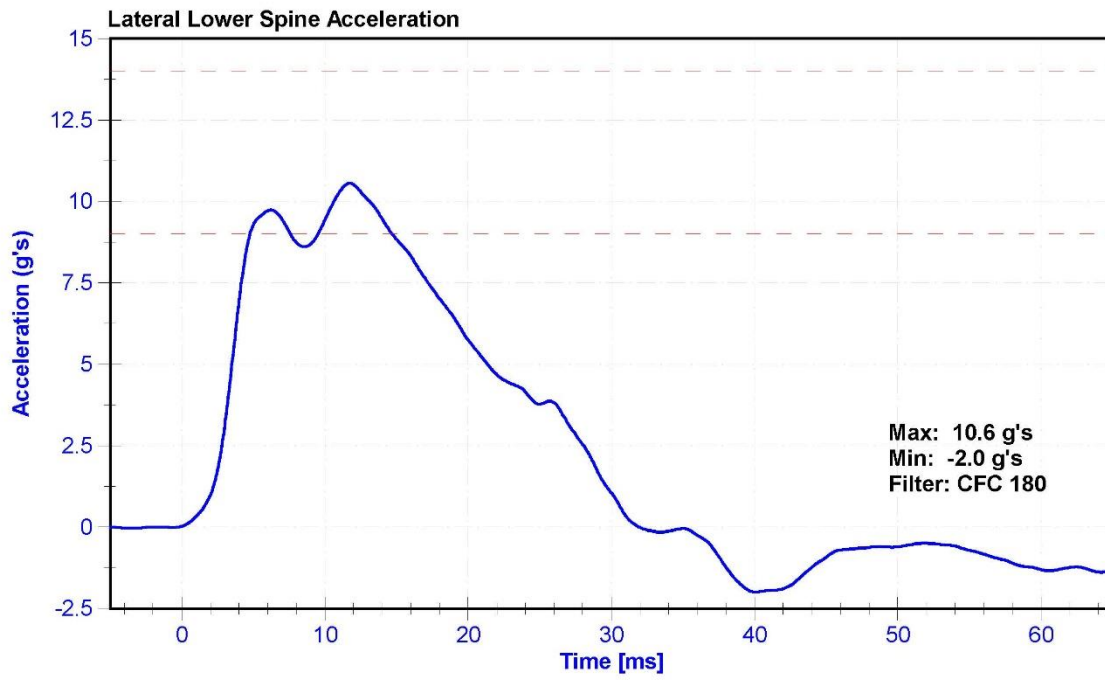
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	37.2	Pass
Velocity	4.2	4.4	m/s	4.35	Pass
Probe Acceleration	12	16	g's	13.1	Pass
Lateral Lower Spine Acceleration	9	14	g's	10.6	Pass
Upper Abdomen Rib Deflection	36	47	mm	43.3	Pass
Lower Abdomen Rib Deflection	33	44	mm	40.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P83319	10/31/2017	5/1/2018
Upper Abdomen Rib Potentiometer	Servo 08TC1-3725	DS-008GFE	9/27/2017	9/27/2018
Lower Abdomen Rib Potentiometer	Servo 08TC1-3745	DS-1774GFE	9/27/2017	9/27/2018







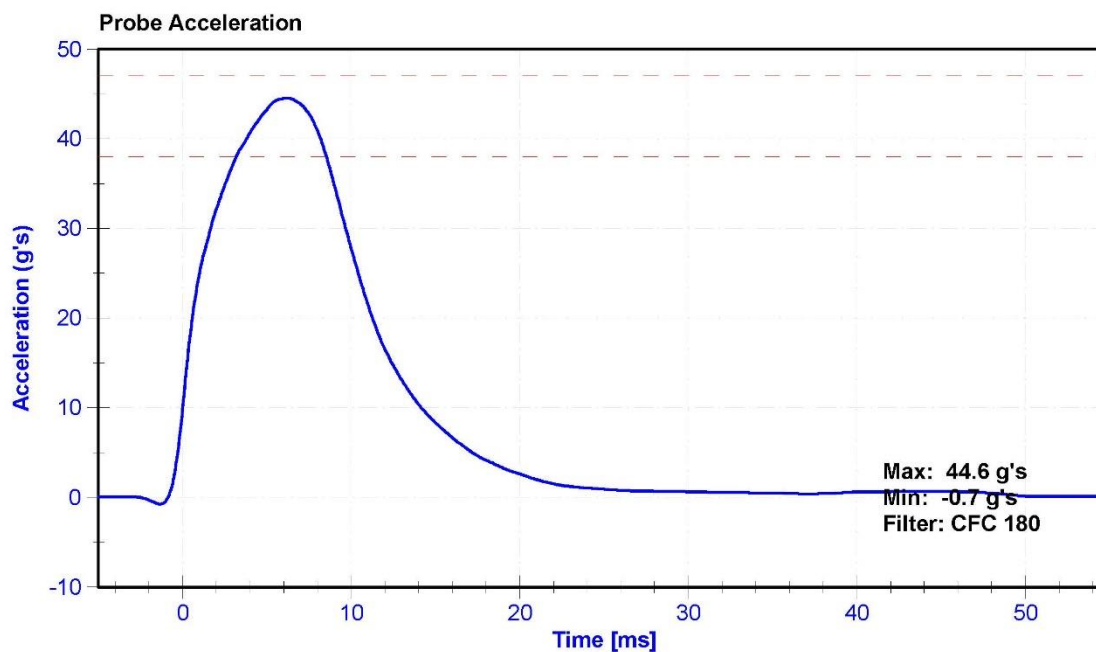
ATD Manufacturer	FTSS	Test Technician	K. Brogan
ATD Serial Number	DG8012	Laboratory Supervisor	M. Goehle

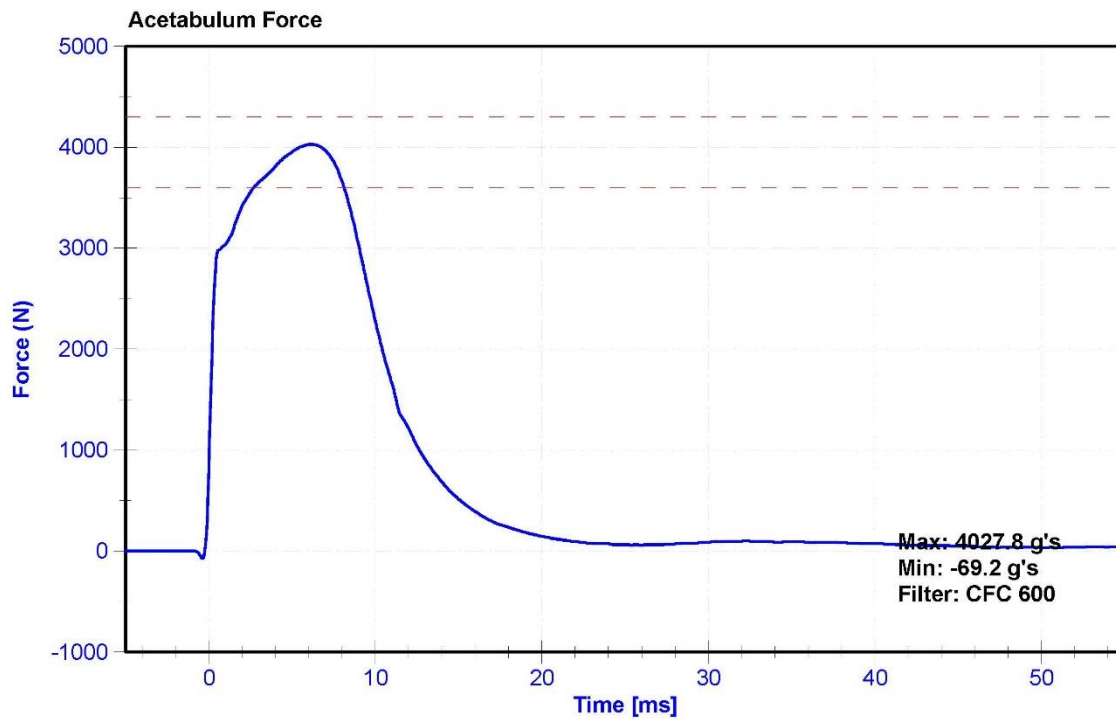
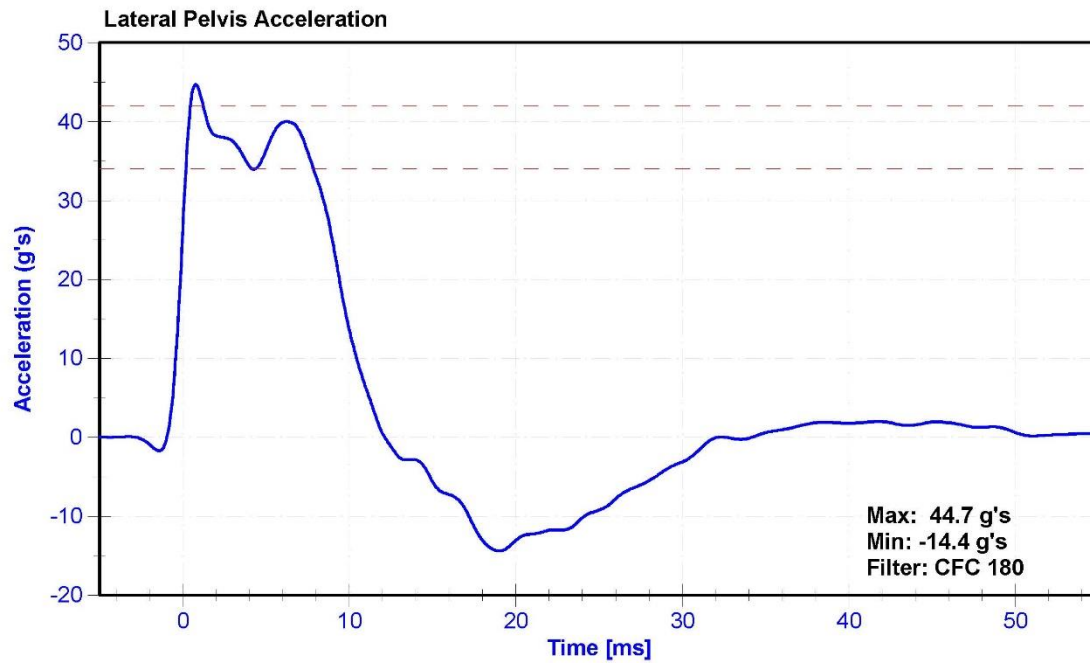
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	36.5	Pass
Velocity	6.6	6.8	m/s	6.63	Pass
Probe Acceleration	38	47	g's	44.6	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	40.0	Pass
Acetabulum Force	3600	4300	N	4027.8	Pass

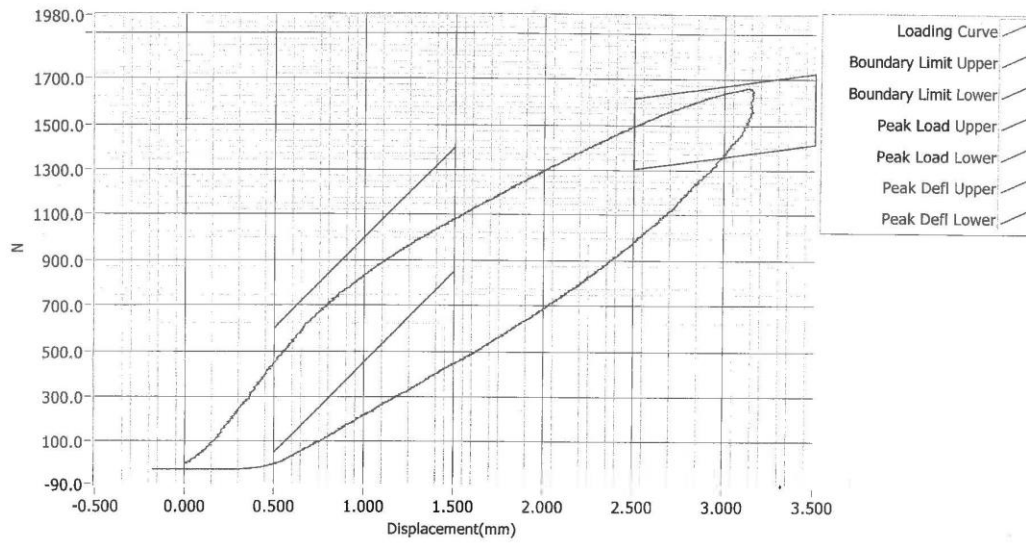
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Pelvis Y Accelerometer	ENDEVCO 7264CT	AC-P51875	10/31/2017	5/1/2018
Acetabulum Load Cell	Denton 3249J	LC-267Fy	6/6/2017	6/6/2018
Certification Plug	Humanetics	80949	11/25/2014	N/A
Crash Test Plug	Humanetics	80943	11/25/2014	N/A





Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

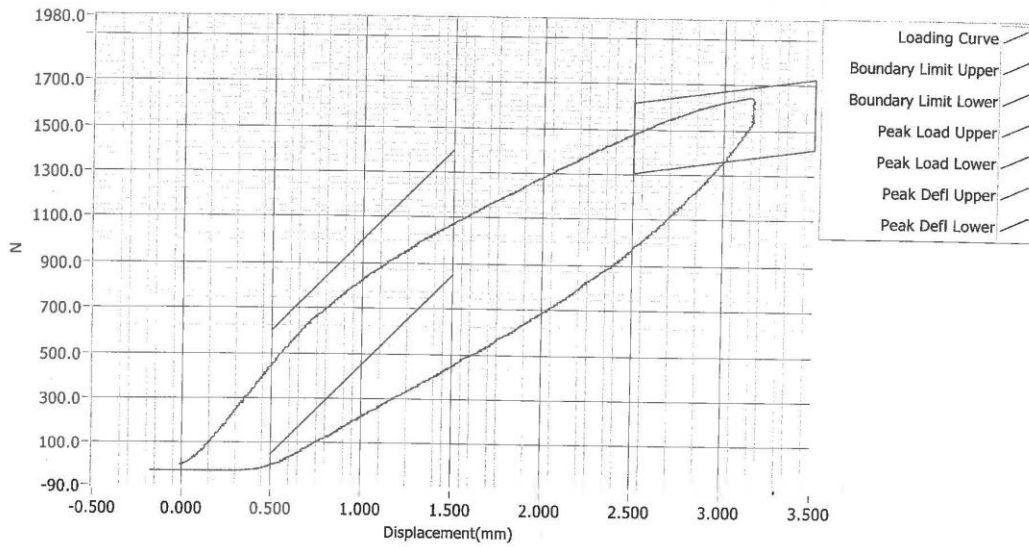
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<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	N/A	SIDIIs	

Current Date : 11/25/2014

Current Time : 09:06:03

Cert-2 1640N

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	80943	11/25/2014	8:54 AM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 11/25/2014

Current Time : 08:56:00

Crash

1623N

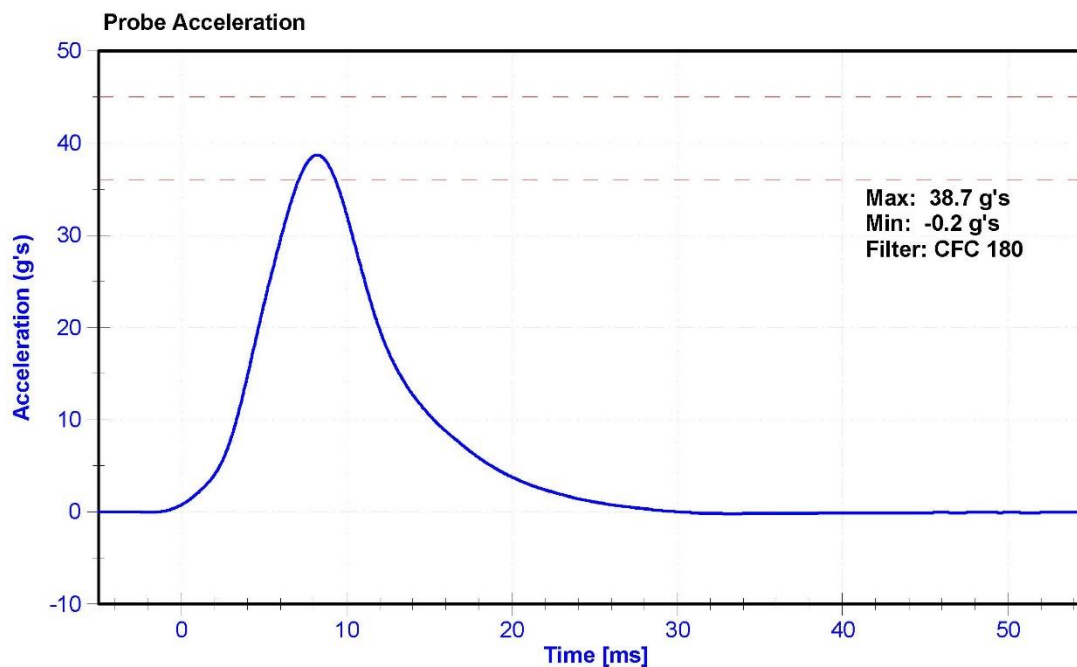
ATD Manufacturer	FTSS	Test Technician	K. Brogan
ATD Serial Number	DG8012	Laboratory Supervisor	M. Goehle

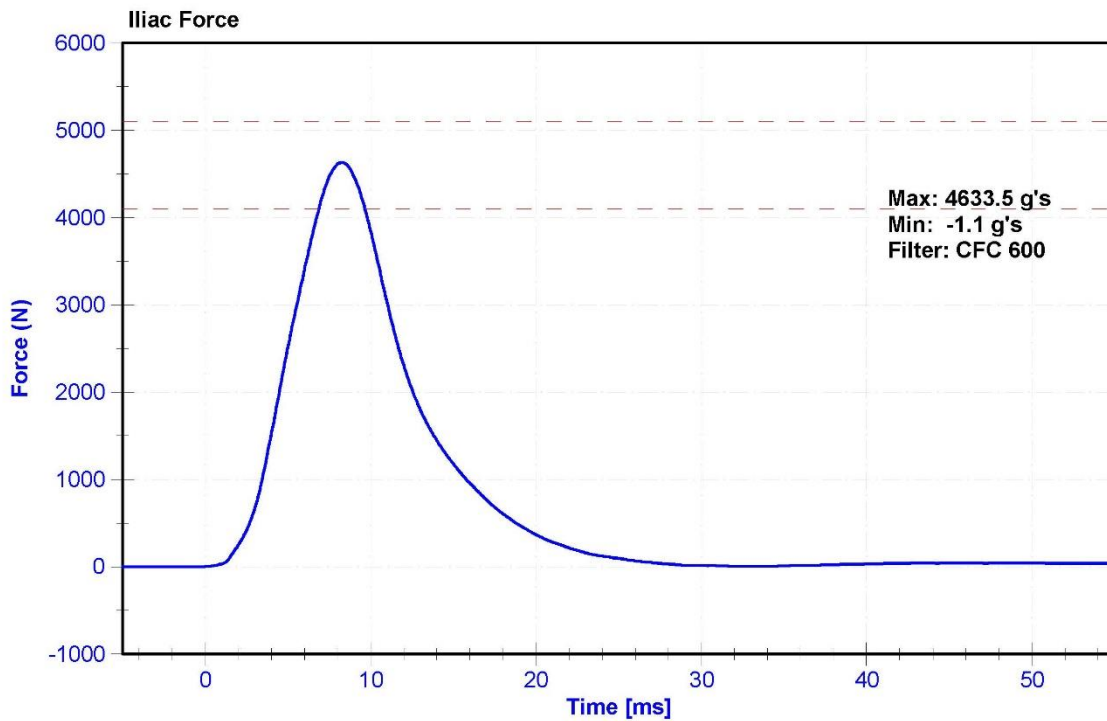
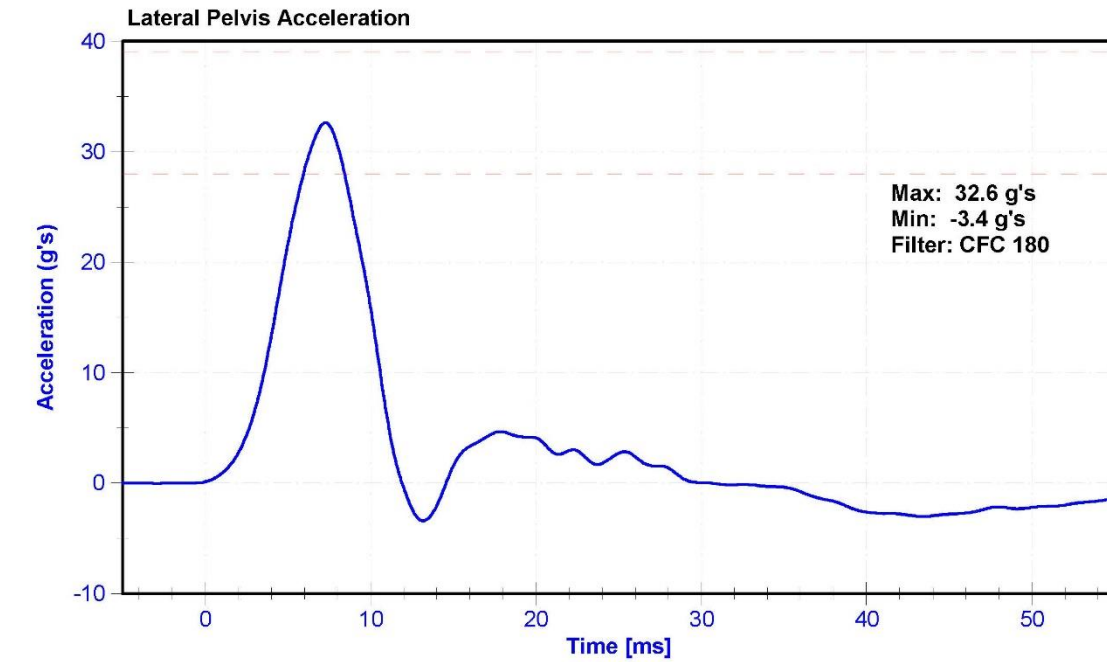
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	38.3	Pass
Velocity	4.2	4.4	m/s	4.36	Pass
Probe Acceleration	36	45	g's	38.7	Pass
Lateral Pelvis Acceleration	28	39	g's	32.6	Pass
Iliac Force	4100	5100	N	4633.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Pelvis Y Accelerometer	ENDEVCO 7264CT	AC-P51875	10/31/2017	5/1/2018
Iliac Load Cell	DENTON 3228J	LC-281Fy	6/6/2017	6/6/2018





CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SERIAL NO: DG8012

(CONFIGURED FOR LEFT SIDE IMPACT)

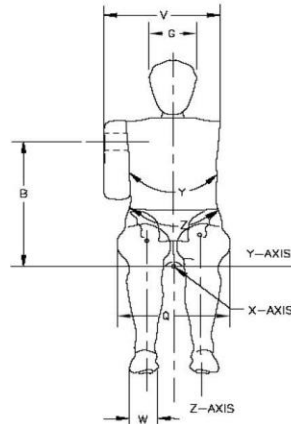
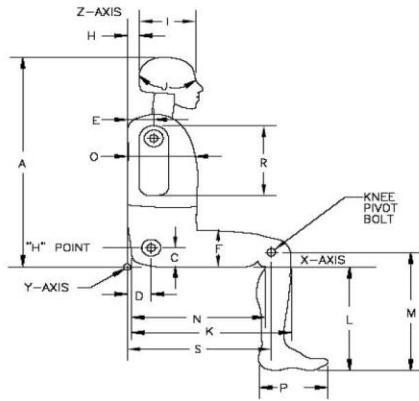


External Measurements - SID-IIs

Technician: K. Brogan

Date: 12/12/2017

Dummy Serial Number: DG8012



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	780	Pass
B	Shoulder Pivot Height	437	453	444	Pass
C	H-point Height	79	89	86	Pass
D	H-point from seatback	141	151	145	Pass
E	Shoulder Pivot from Backline	97	107	102	Pass
F	Thigh Clearance	119	135	128	Pass
G	Head Breadth	140	148	144	Pass
H	Head Back from Backline	40	46	43	Pass
I	Head Depth	178	188	182	Pass
J	Head Circumference	541	551	547	Pass
K	Buttock to Knee Length	514	540	529	Pass
L	Popliteal Height	343	369	350	Pass
M	Knee Pivot to floor height	392	409	400	Pass
N	Buttock Popliteal Length	416	442	428	Pass
O	Chest Depth w/o jacket	195	211	205	Pass
P	Foot Length	216	232	220	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	320	Pass
R	Arm Length	249	259	254	Pass
S	Knee Joint to seatback	477	493	486	Pass
V	Shoulder Width	341	357	346	Pass
W	Foot Width	78	94	86	Pass
Y	Chest Circumference w/jacket	851	881	860	Pass
Z	Waist Circumference	761	791	771	Pass

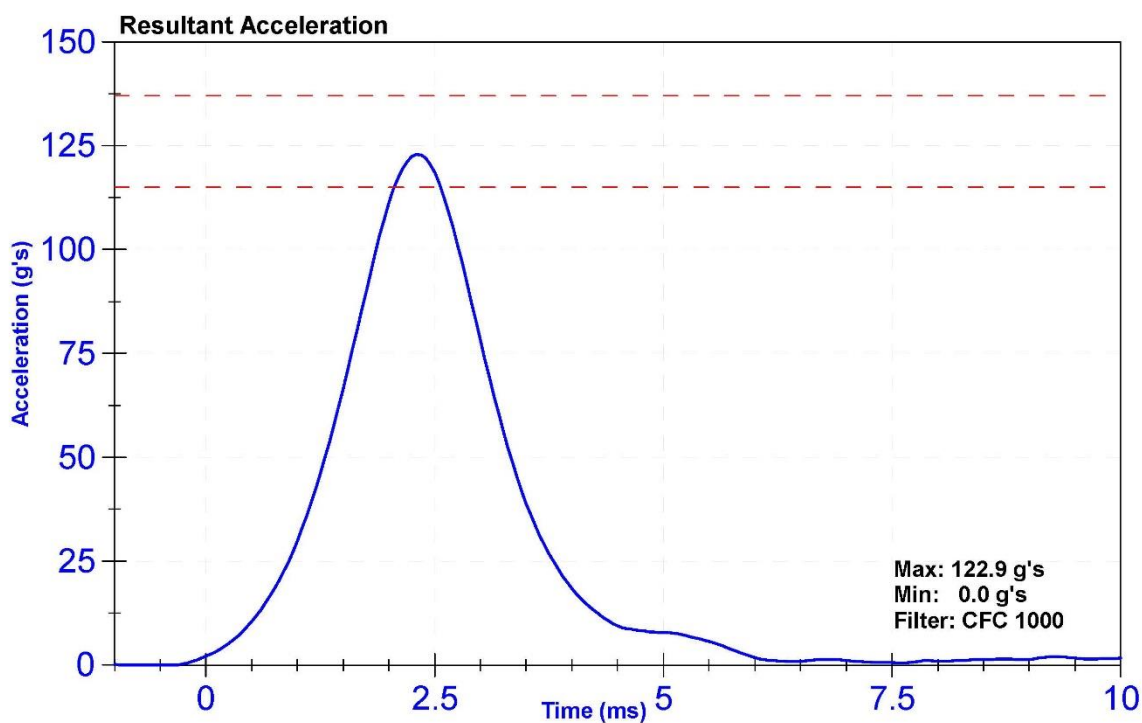
ATD Manufacturer	FTSS	Test Technician	S. Keller
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

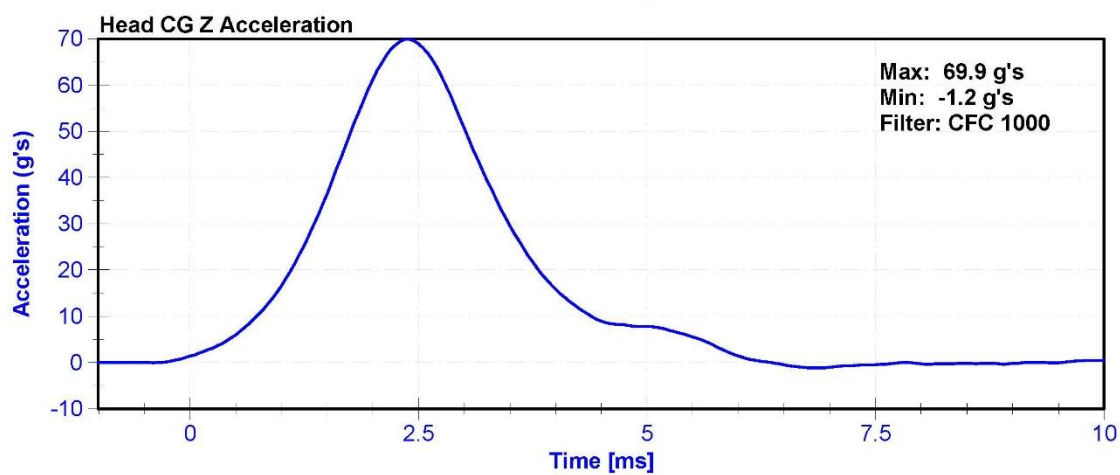
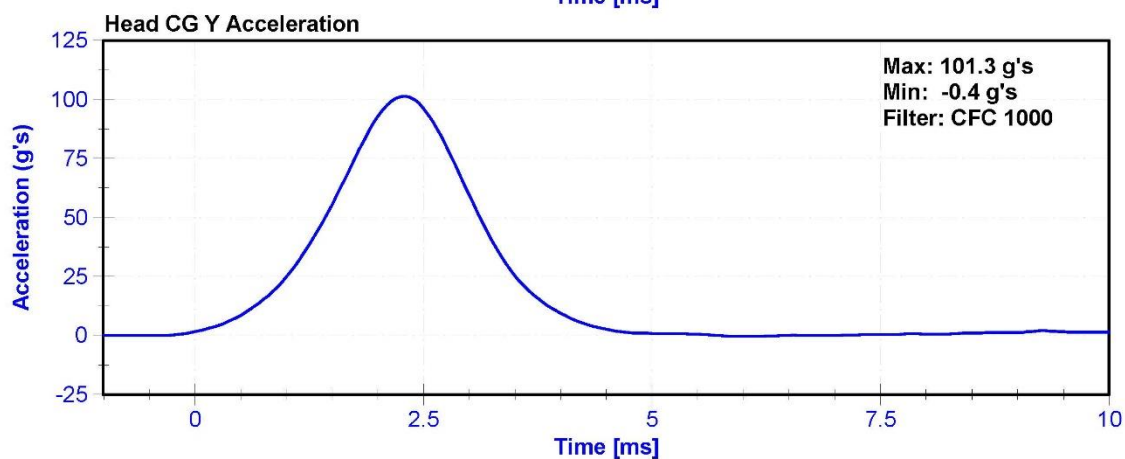
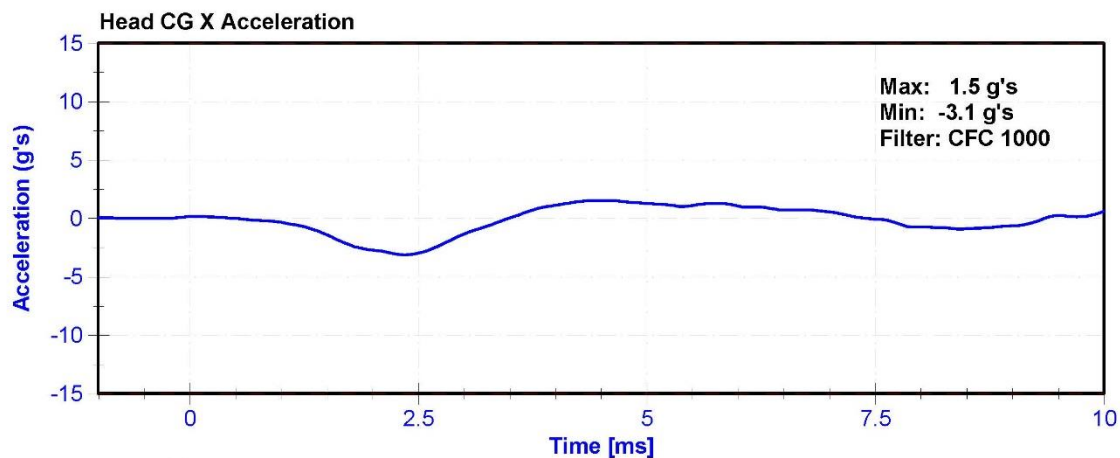
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	30.8	Pass
Resultant Acceleration	115	137	g's	122.9	Pass
Oscillation	0	15	%	6.4	Pass
Fore-Aft Acceleration	-15	15	g's	-3.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	ENDEVCO 7264CT	AC-P51685	10/31/2017	5/1/2018
Y Accelerometer	ENDEVCO 7264CT	AC-P51682	10/31/2017	5/1/2018
Z Accelerometer	ENDEVCO 7264CT	AC-P51699	10/31/2017	5/1/2018





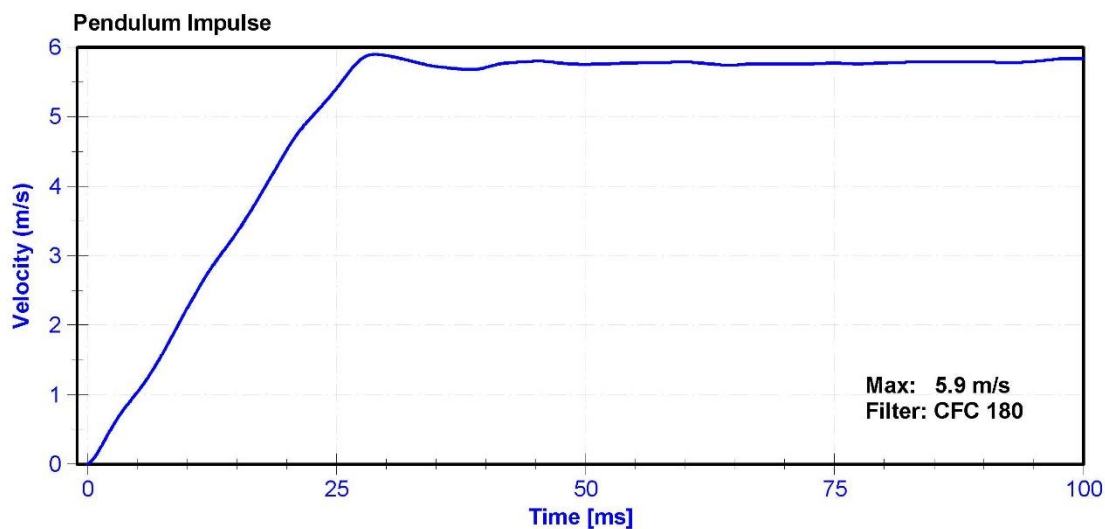
ATD Manufacturer	FTSS	Test Technician	S. Keller
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

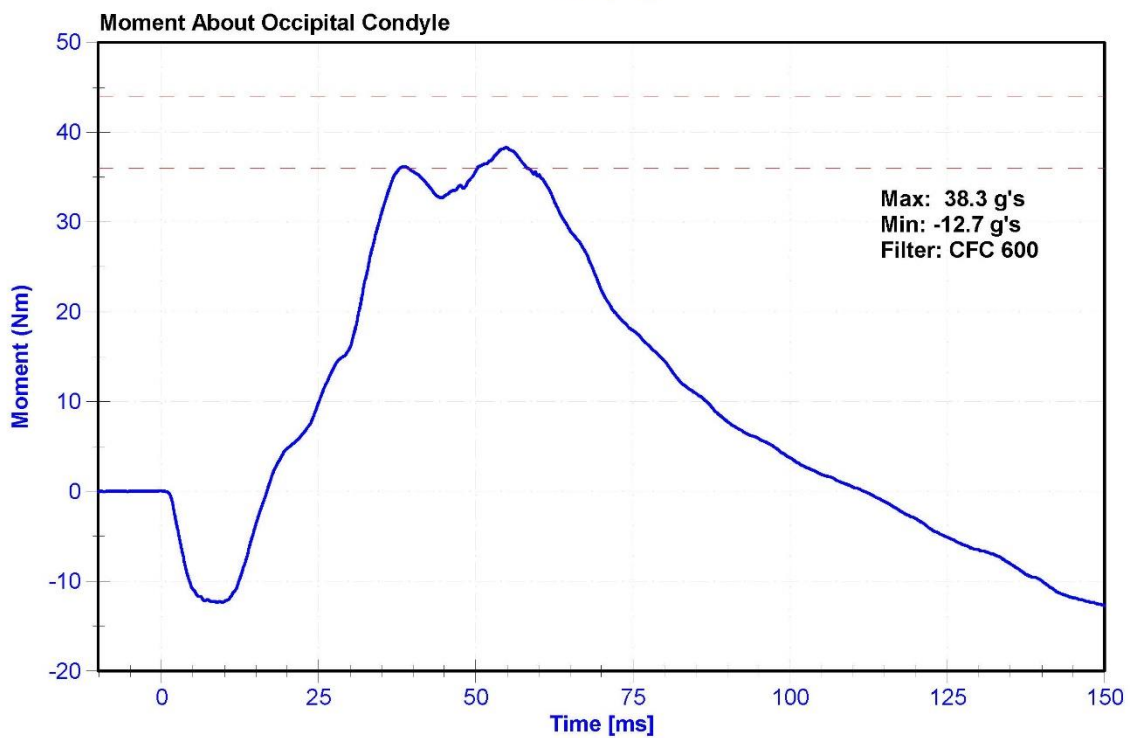
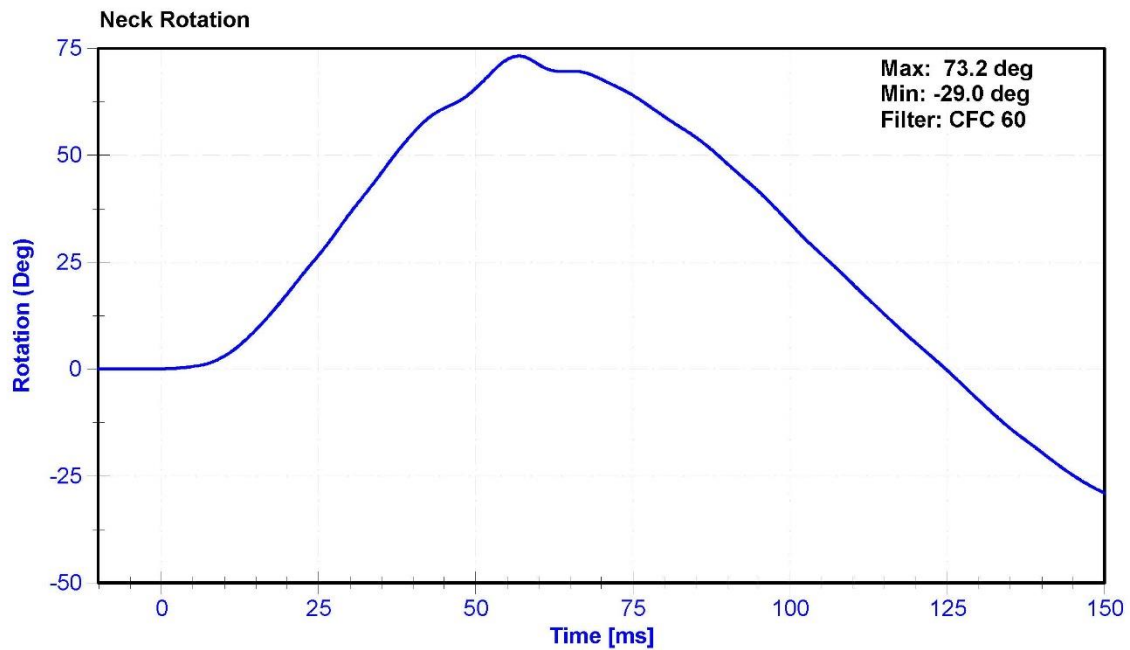
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	29.3	Pass
Velocity	5.51	5.63	m/s	5.620	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.24	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.34	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.52	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.41	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	5.90	Pass
Neck Rotation	71	81	deg	73.2	Pass
Time at Maximum Rotation	50	70	ms	56.9	Pass
Moment about the OC	36	44	Nm	38.3	Pass
Moment Decay to 0 Nm	102	126	ms	111.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/11/2017	5/11/2018
Pendulum Potentiometer	Denton 78051-342	DS-184Pend	10/27/2017	10/27/2018
Condyle Potentiometer	Denton 78051-342	DS-185Pend	10/27/2017	10/27/2018
Upper Neck Load Cell	Denton 1716	LC-1872 FY	7/26/2017	7/26/2018





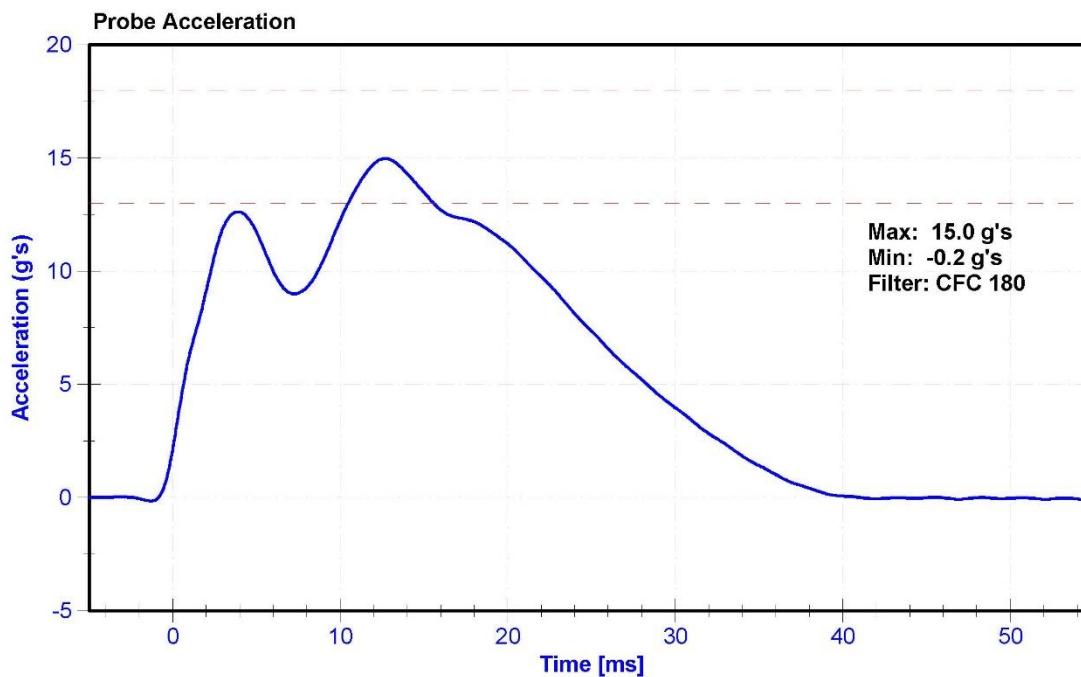
ATD Manufacturer	FTSS	Test Technician	S. McCloskey
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

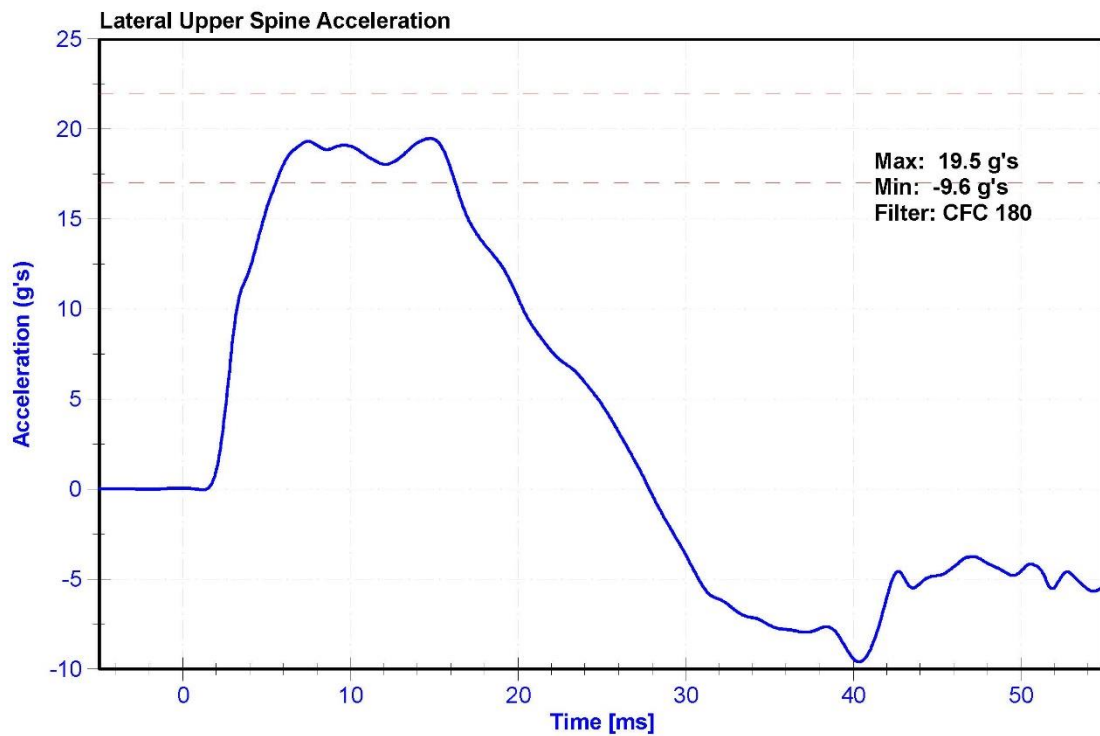
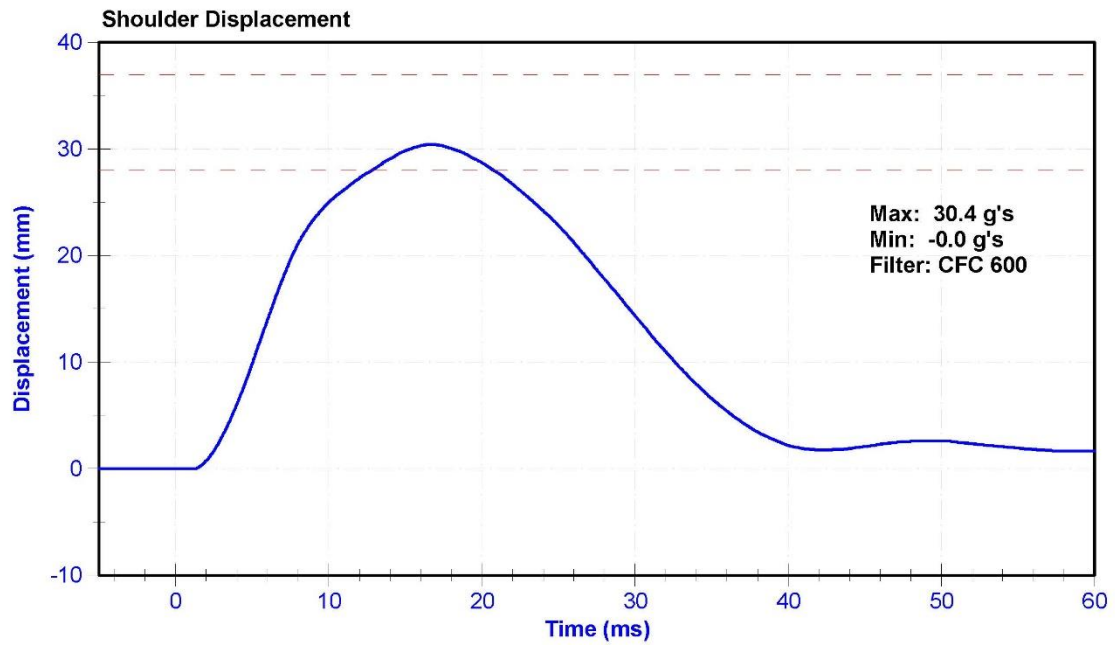
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	30	Pass
Velocity	4.2	4.4	m/s	4.37	Pass
Probe Acceleration	13	18	g's	15.0	Pass
Shoulder Deflection	28	37	mm	30.4	Pass
Lateral Upper Spine Acceleration	17	22	g's	19.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Shoulder Potentiometer	Servo 08TC1-3745	DS-1845GFE	9/27/2017	9/27/2018
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P63561	10/31/2017	5/1/2018





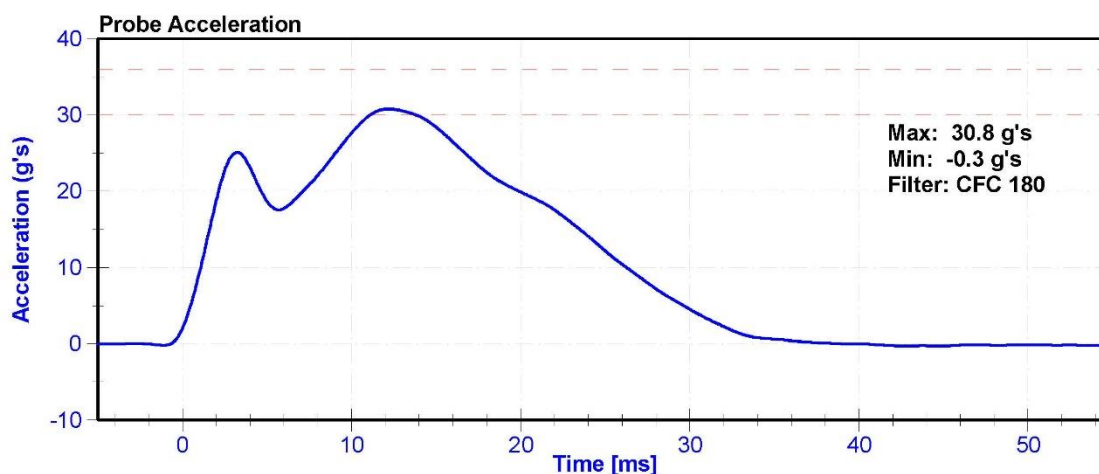
ATD Manufacturer	FTSS	Test Technician	S. McCloskey
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

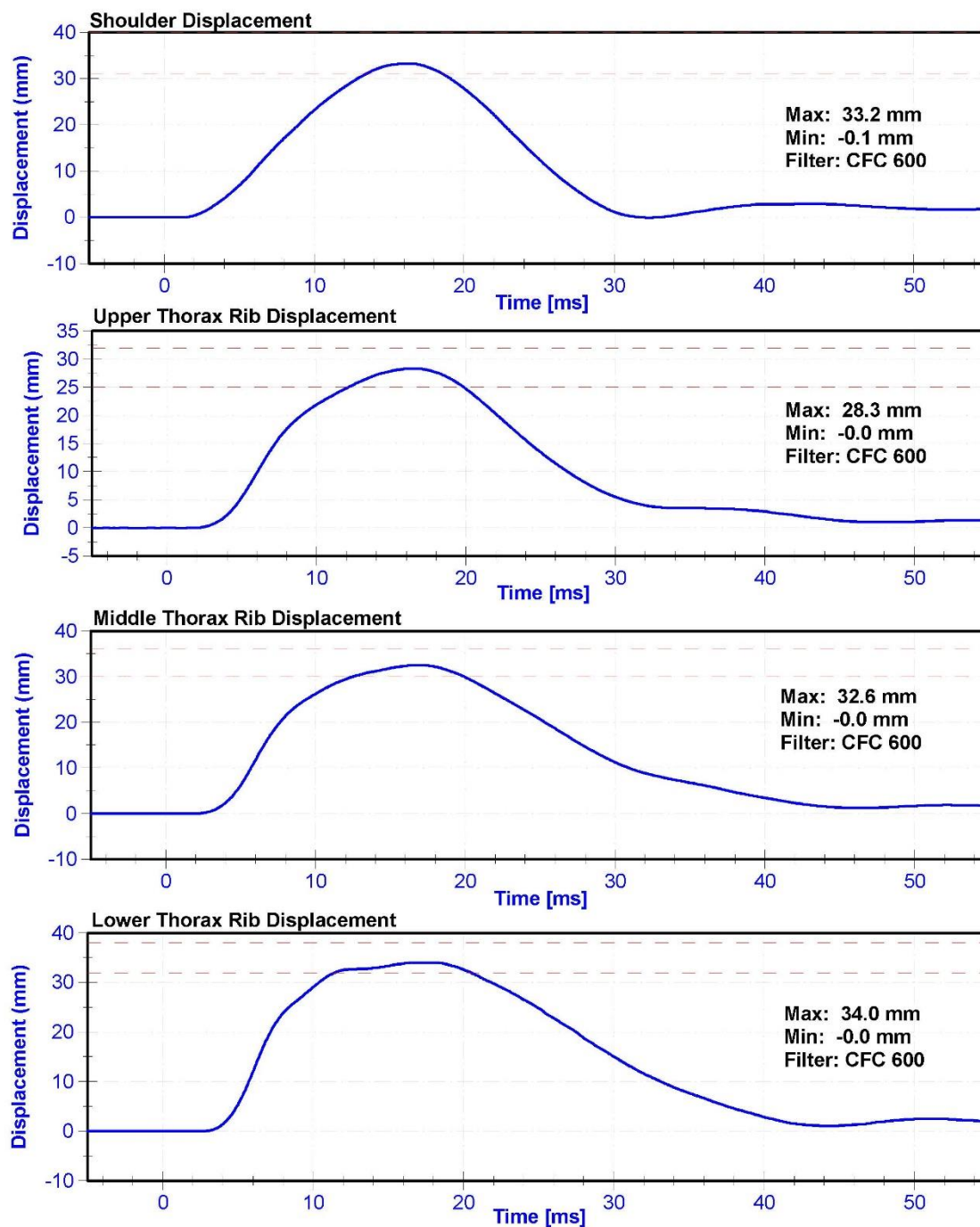
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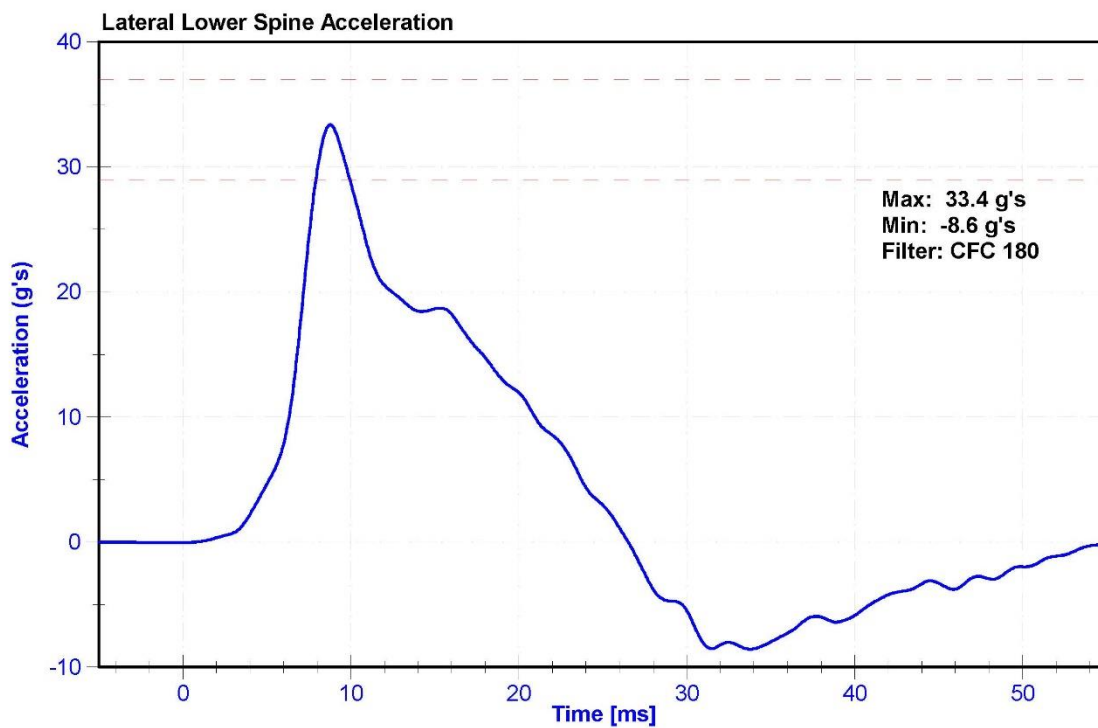
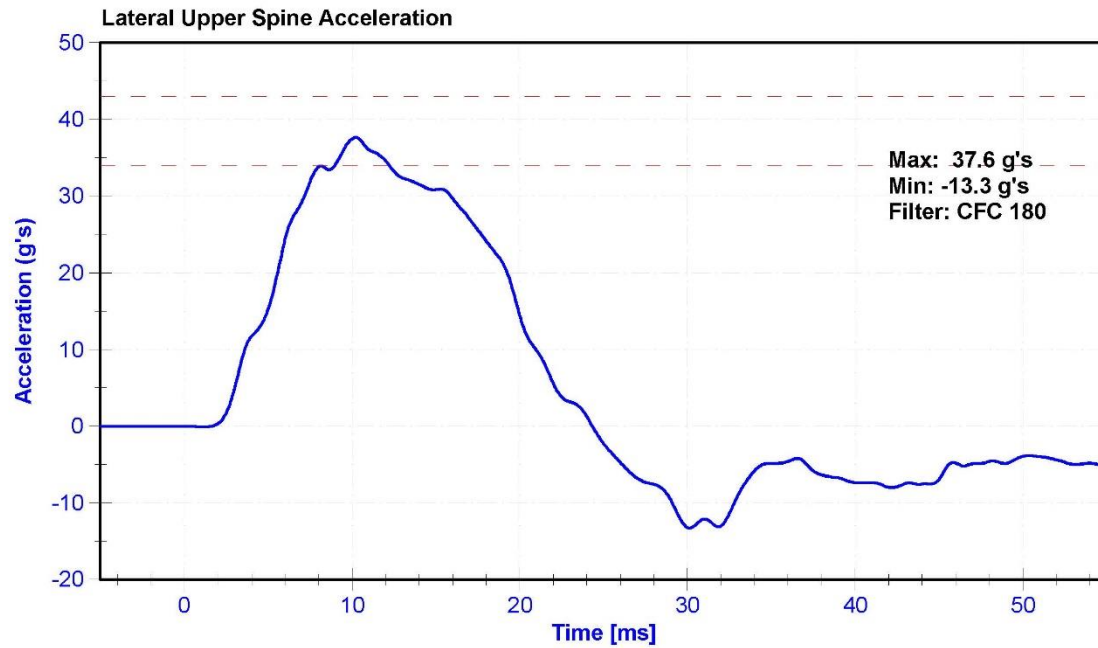
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	31.8	Pass
Velocity	6.6	6.8	m/s	6.70	Pass
Probe Acceleration after 5 ms	30	36	g's	30.8	Pass
Lateral Upper Spine Acceleration	34	43	g's	37.6	Pass
Lateral Lower Spine Acceleration	29	37	g's	33.4	Pass
Shoulder Deflection	31	40	mm	33.2	Pass
Upper Thorax Rib Deflection	25	32	mm	28.3	Pass
Mid Thorax Rib Deflection	30	36	mm	32.6	Pass
Lower Thorax Rib Deflection	32	38	mm	34.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Upper Spine T1 Y Accelerometer	ENDEVCO 7264CT	AC-P63561	10/31/2017	5/1/2018
Upper Spine T12 Y Accelerometer	ENDEVCO 7264	AC-P83319	10/31/2017	5/1/2018
Shoulder Potentiometer	Servo 08TC1-3745	DS-1845GFE	9/27/2017	9/27/2018
Upper Thorax Rib Potentiometer	Servo 08TC1-3621	DS-808GFE	9/27/2017	9/27/2018
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-1514GFE	9/27/2017	9/27/2018
Lower Thorax Rib Potentiometer	Servo 08TC1-3787	DS-011GFE	9/27/2017	9/27/2018







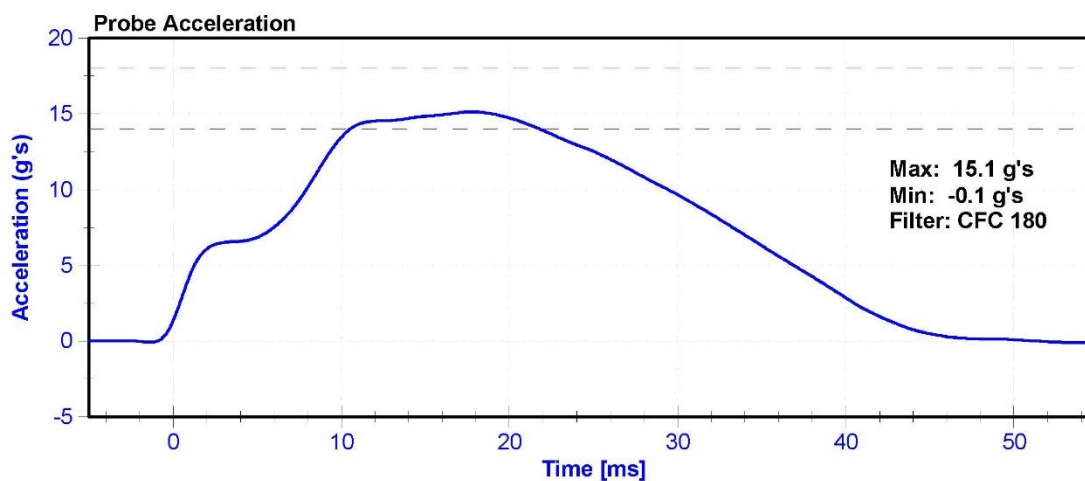
ATD Manufacturer	FTSS	Test Technician	S. McCloskey
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

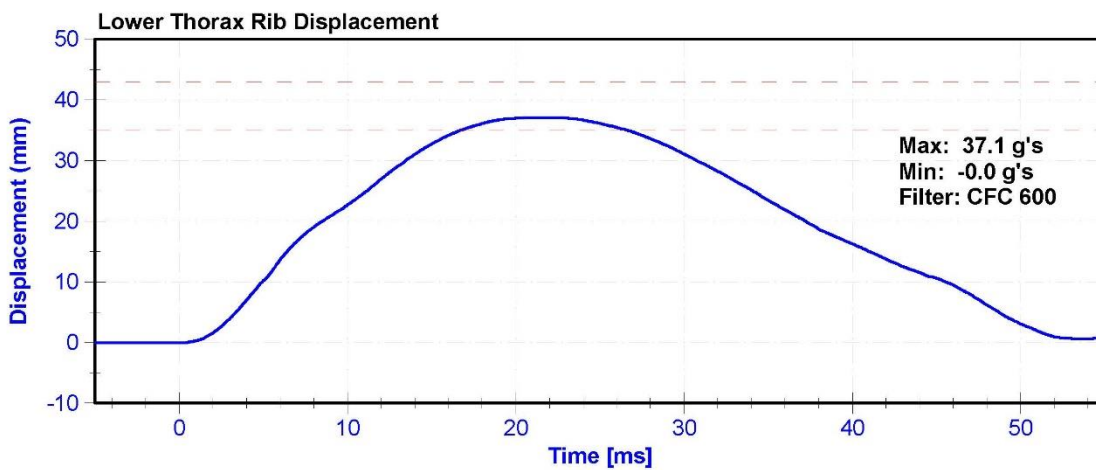
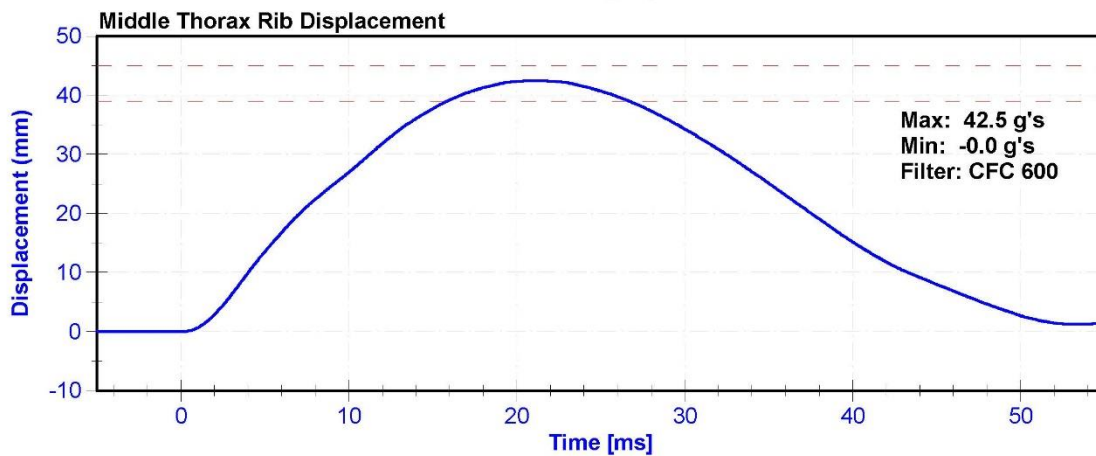
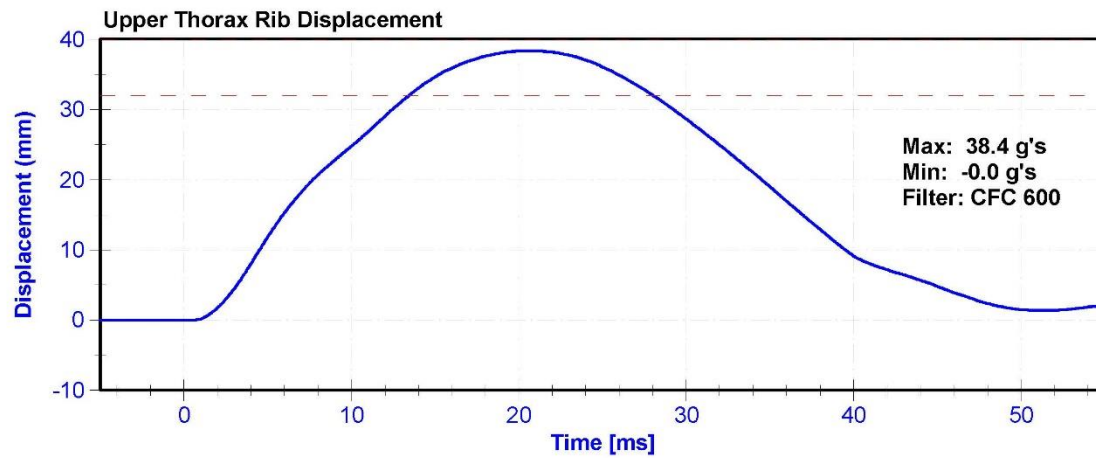
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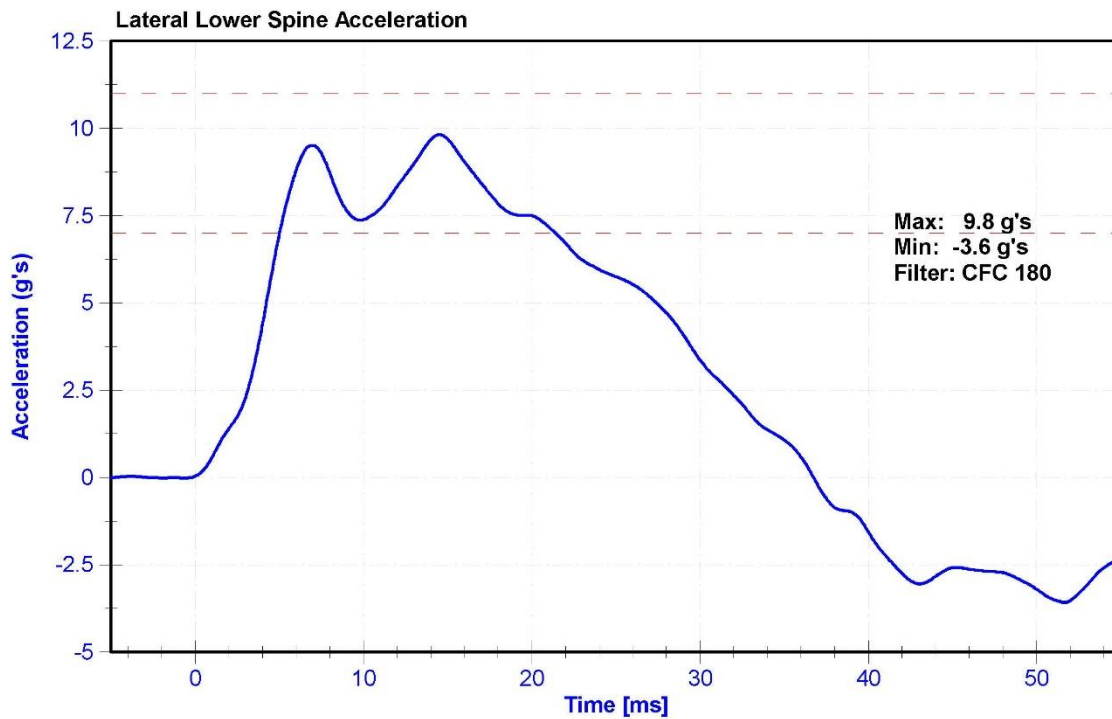
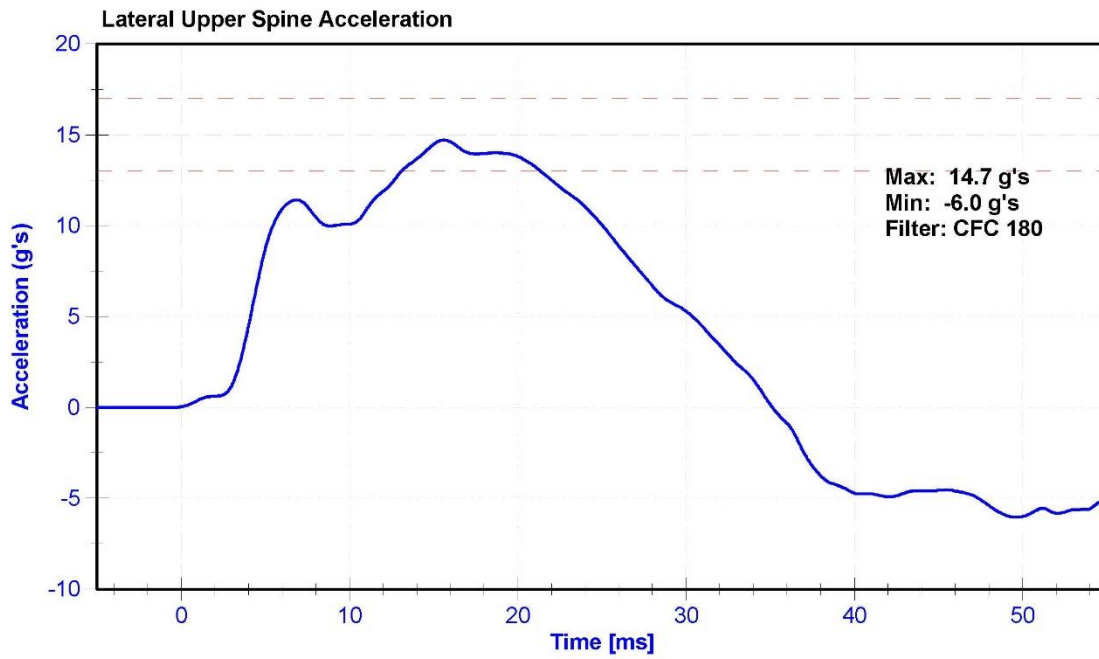
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.9	Pass
Humidity	10	70	%	31.2	Pass
Velocity	4.2	4.4	m/s	4.36	Pass
Probe Acceleration	14	18	g's	15.1	Pass
Lateral Upper Spine Acceleration	13	17	g's	14.7	Pass
Lateral Lower Spine Acceleration	7	11	g's	9.8	Pass
Upper Thorax Rib Deflection	32	40	mm	38.4	Pass
Middle Thorax Rib Deflection	39	45	mm	42.5	Pass
Lower Thorax Rib Deflection	35	43	mm	37.1	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P63561	10/31/2017	5/1/2018
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P83319	10/31/2017	5/1/2018
Upper Thorax Rib Potentiometer	Servo 08TC1-3621	DS-808GFE	9/27/2017	9/27/2018
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-1514GFE	9/27/2017	9/27/2018
Lower Thorax Rib Potentiometer	Servo 08TC1-3787	DS-011GFE	9/27/2017	9/27/2018







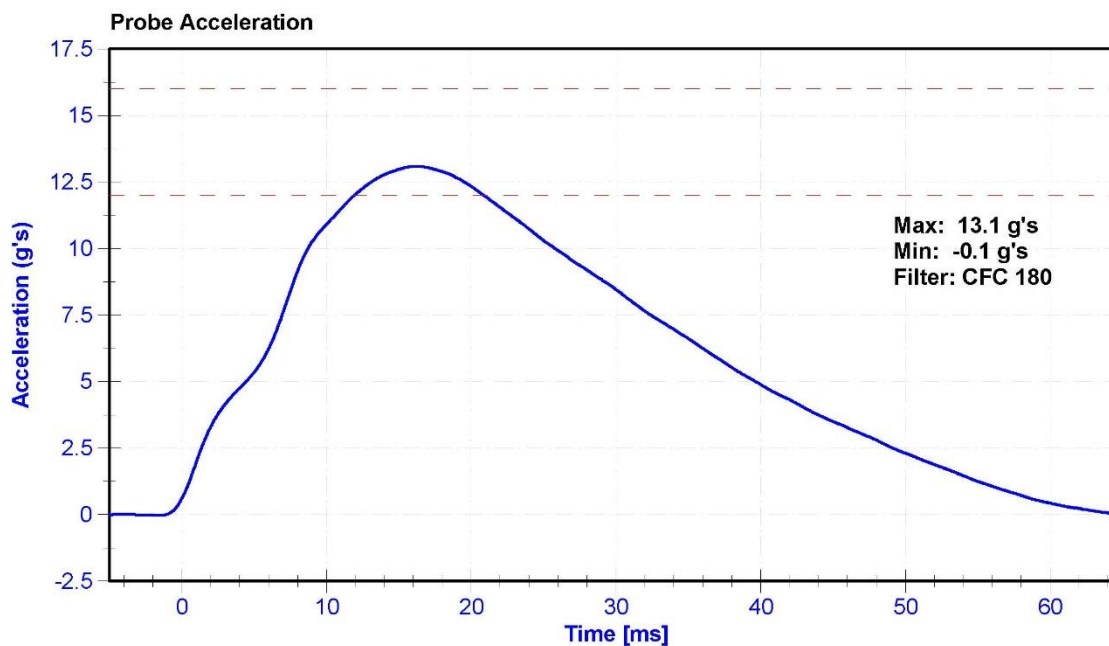
ATD Manufacturer	FTSS	Test Technician	S. McCloskey
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

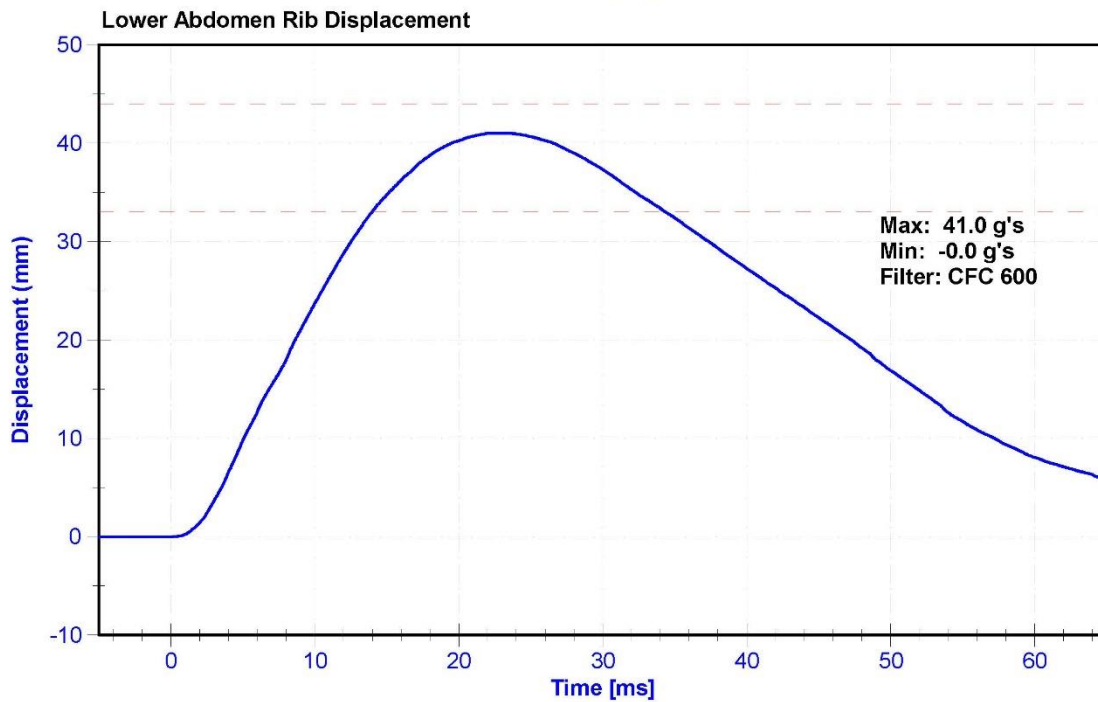
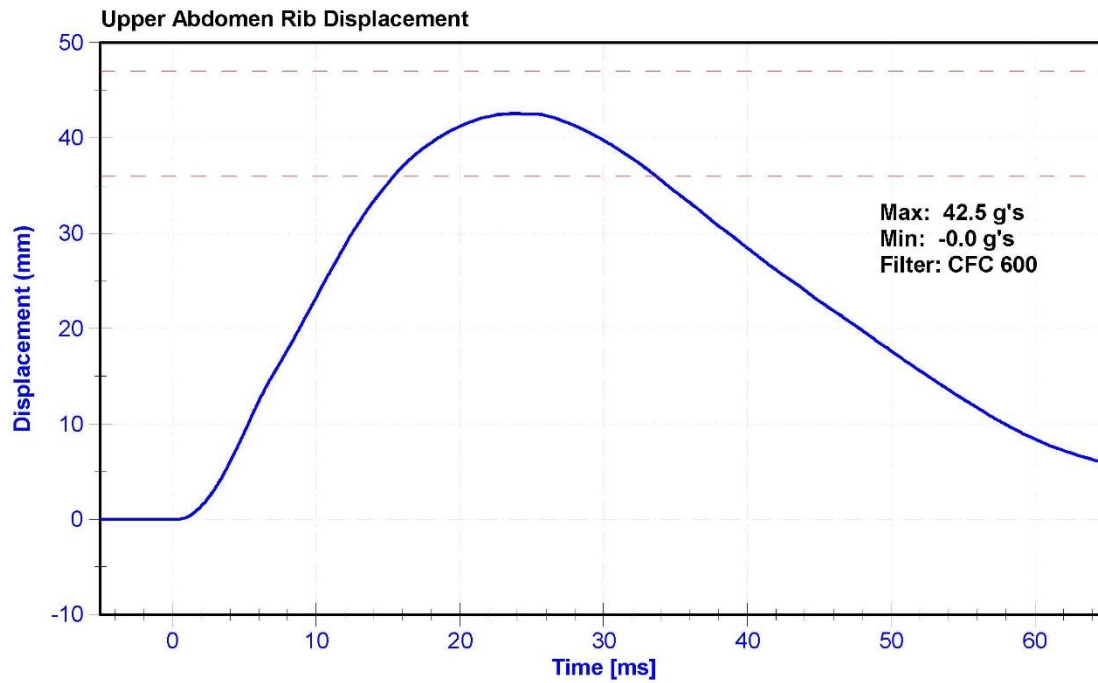
Results

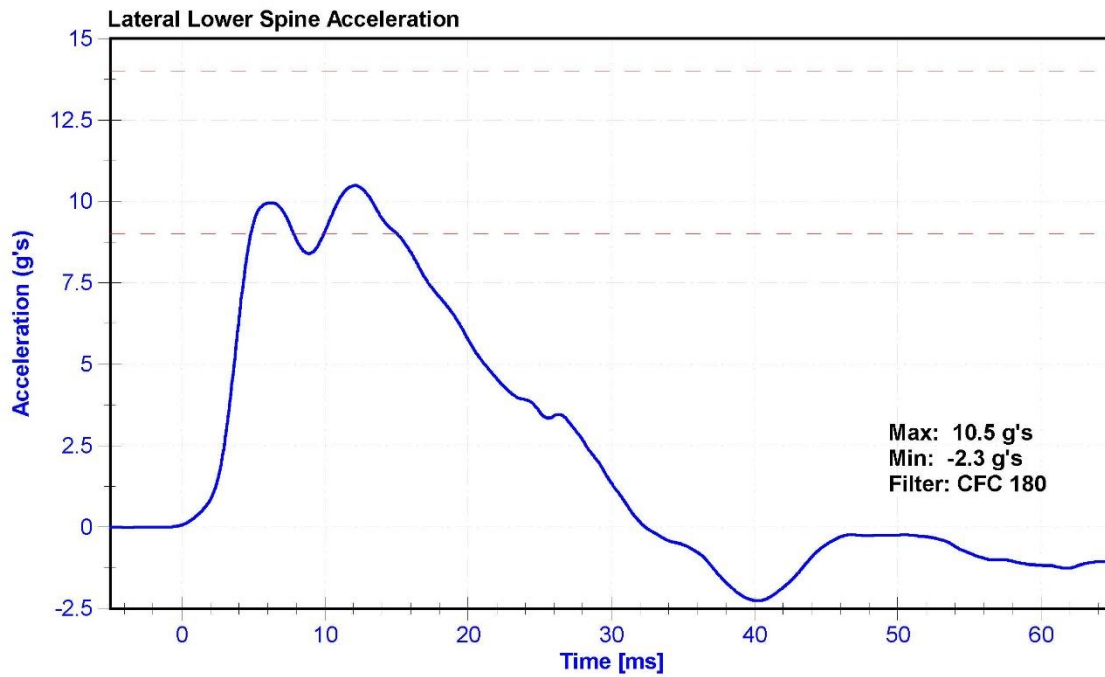
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	31.3	Pass
Velocity	4.2	4.4	m/s	4.37	Pass
Probe Acceleration	12	16	g's	13.1	Pass
Lateral Lower Spine Acceleration	9	14	g's	10.5	Pass
Upper Abdomen Rib Deflection	36	47	mm	42.5	Pass
Lower Abdomen Rib Deflection	33	44	mm	41.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P83319	10/31/2017	5/1/2018
Upper Abdomen Rib Potentiometer	Servo 08TC1-3725	DS-008GFE	9/27/2017	9/27/2018
Lower Abdomen Rib Potentiometer	Servo 08TC1-3745	DS-1774GFE	9/27/2017	9/27/2018







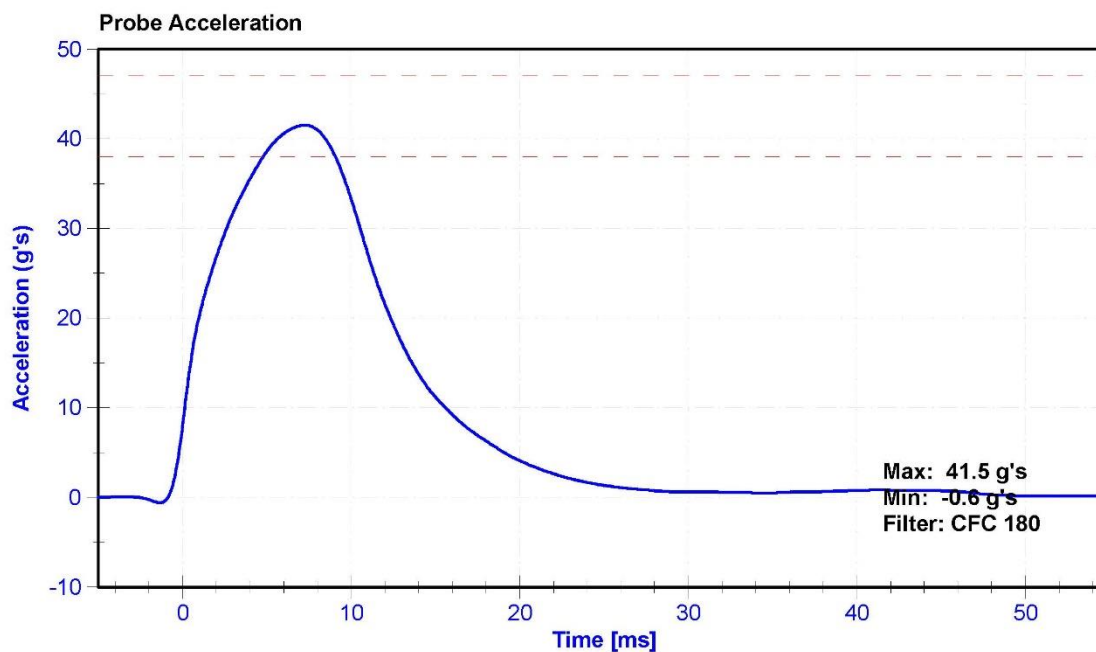
ATD Manufacturer	FTSS	Test Technician	S. McCloskey
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

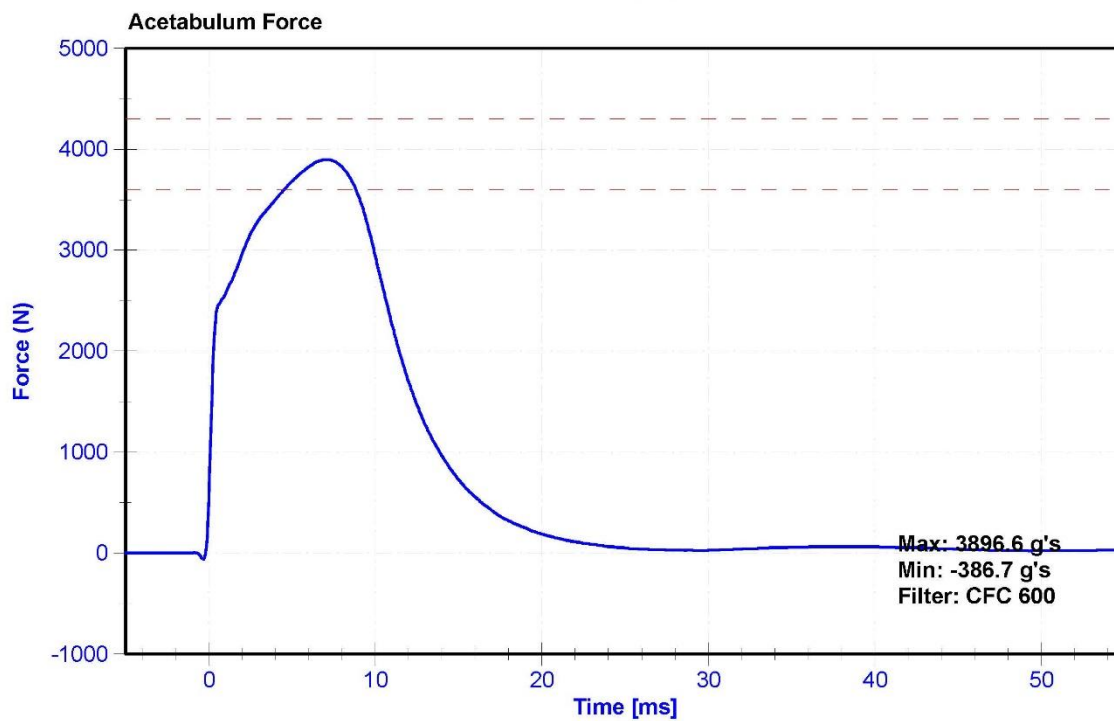
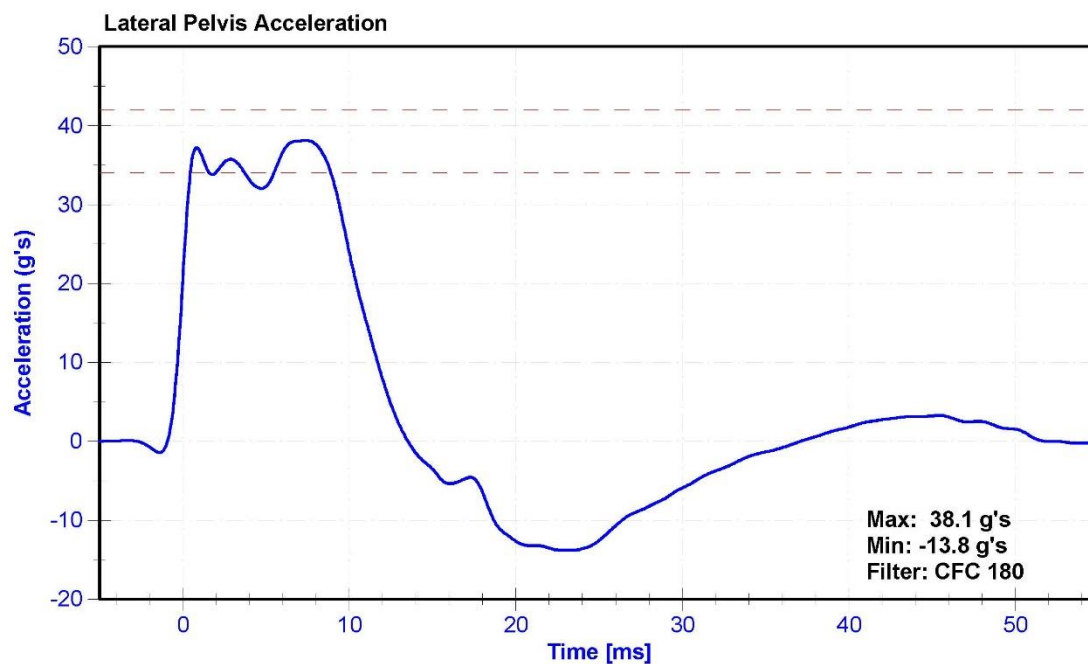
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	36.5	Pass
Velocity	6.6	6.8	m/s	6.61	Pass
Probe Acceleration	38	47	g's	41.5	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	38.1	Pass
Acetabulum Force	3600	4300	N	3896.6	Pass

Transducer Calibrations

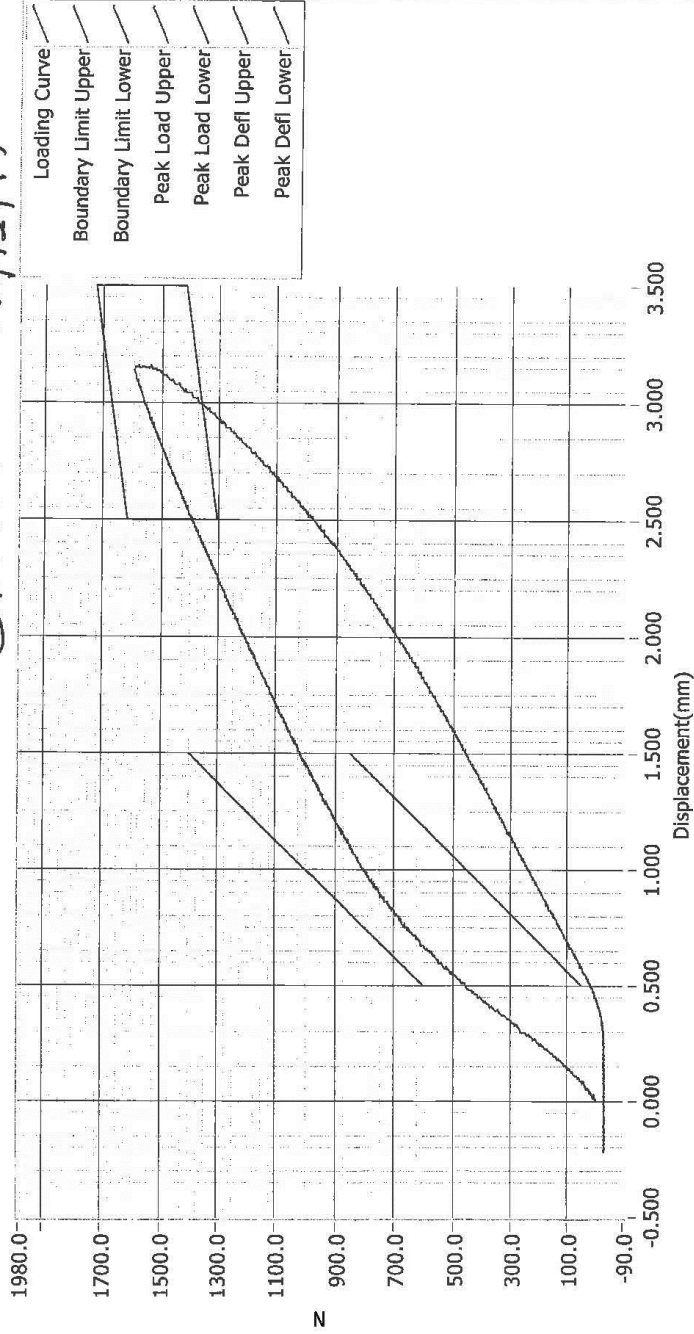
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Pelvis Y Accelerometer	ENDEVCO 7264CT	AC-P51875	10/31/2017	5/1/2018
Acetabulum Load Cell	Denton 3249J	LC-267Fy	6/6/2017	6/6/2018
Certification Plug	Humanetics	65063	04/05/2013	N/A
Crash Test Plug	Humanetics	80890	11/25/2014	N/A





Resultant Data - SIDIIs Plug Compression

CLASH 12/12/17



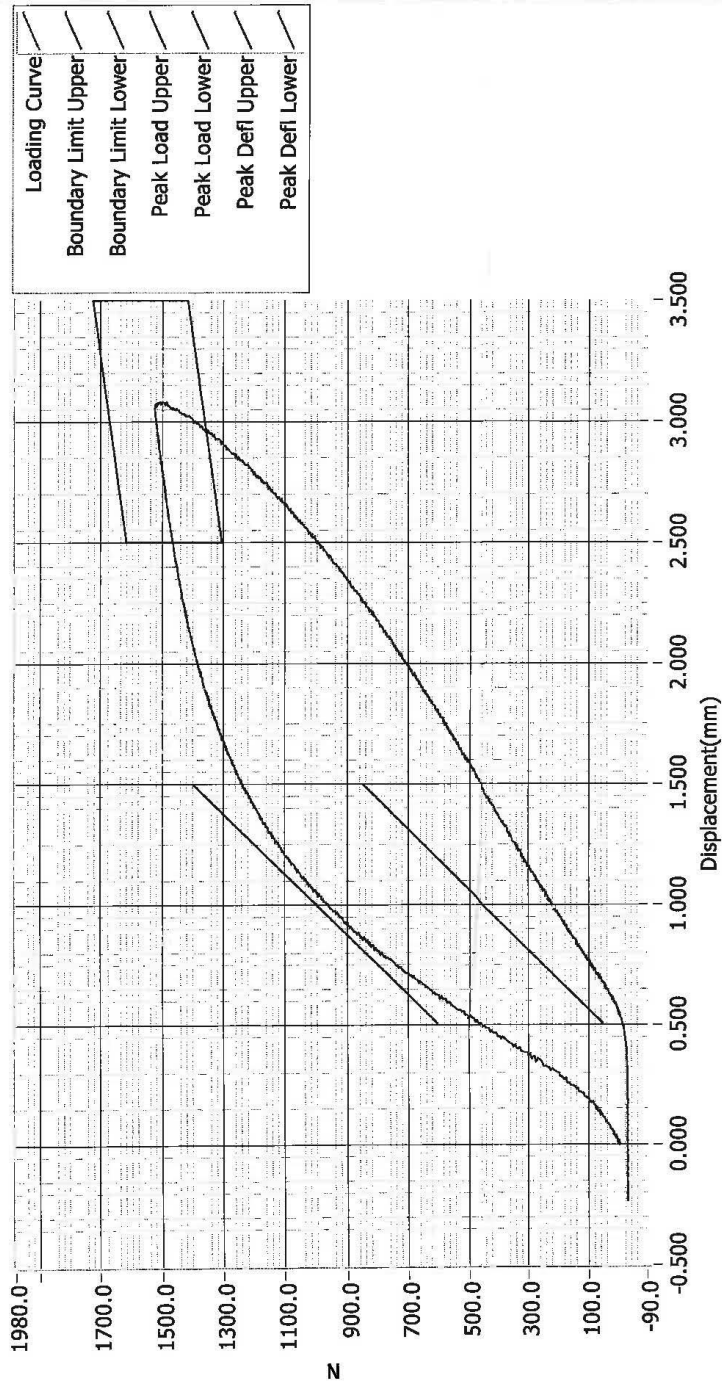
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	80890	11/25/2014	6:29 AM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 11/25/2014 Current Time : 06:30:19

CERT 12/11/15

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	65063	4/5/2013	8:52 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 4/5/2013 Current Time : 20:53:09

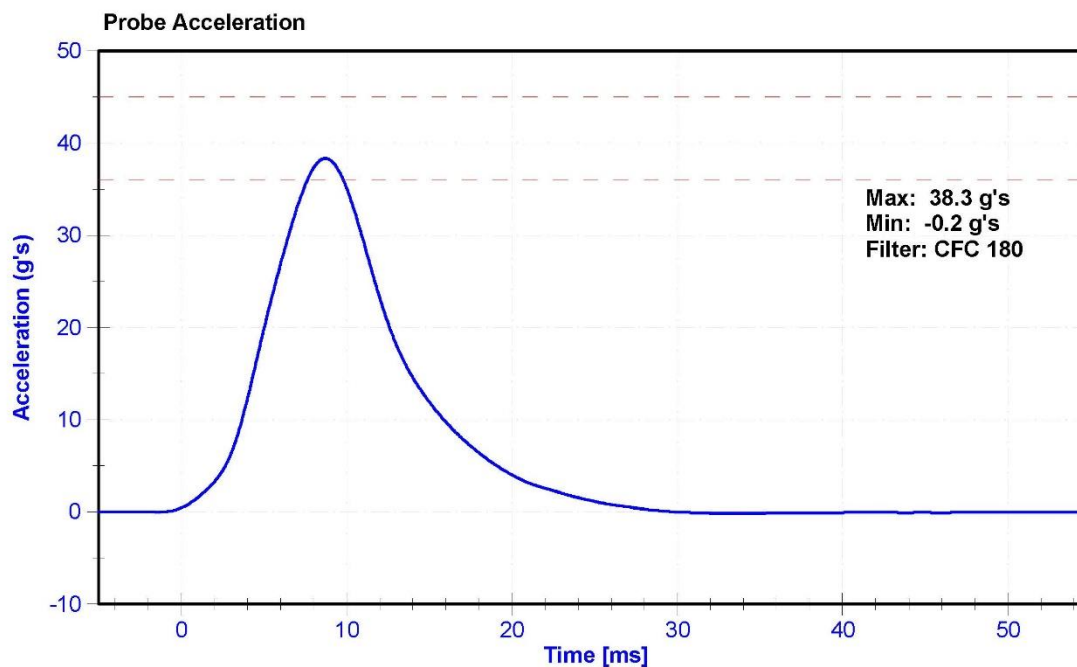
ATD Manufacturer	FTSS	Test Technician	S. McCloskey
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

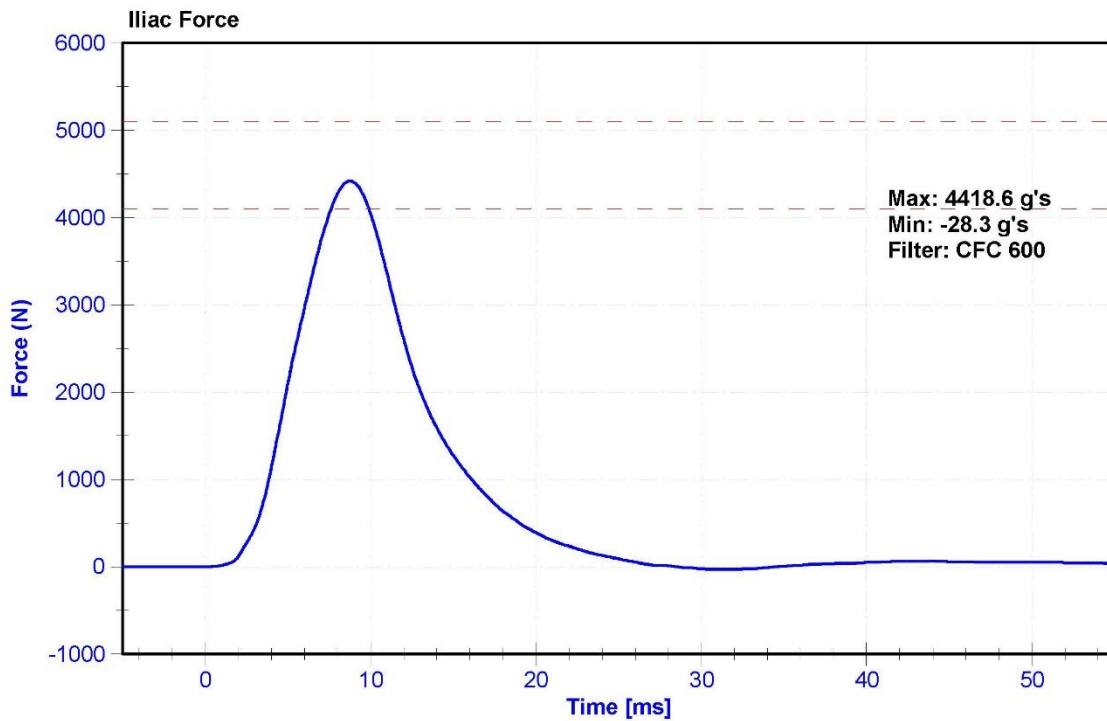
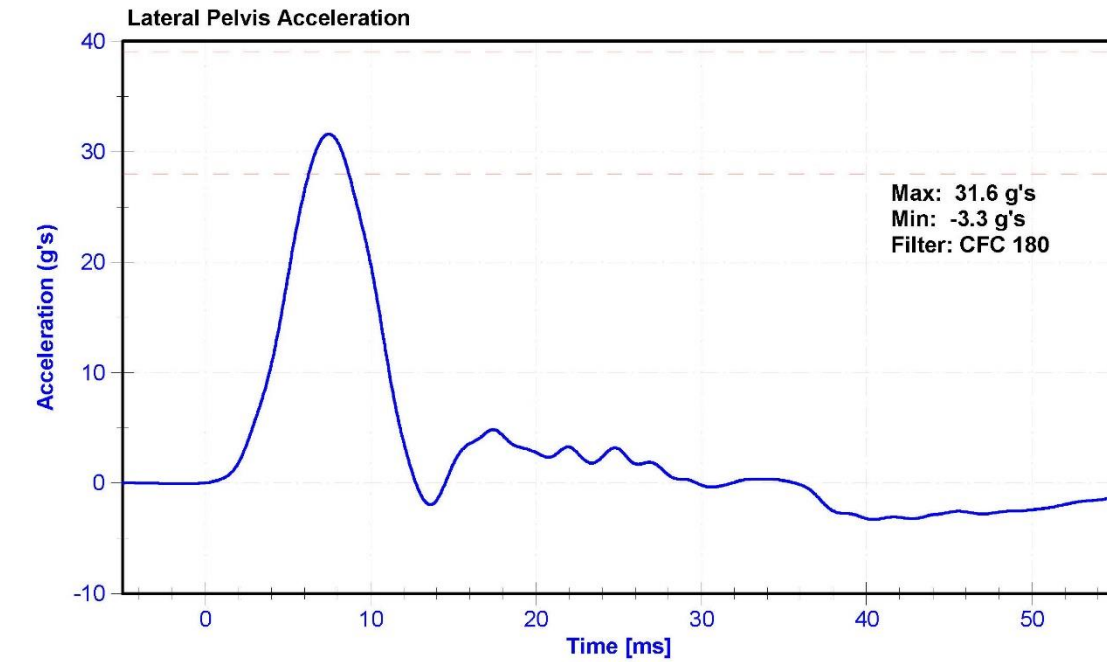
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.2	Pass
Humidity	10	70	%	30.3	Pass
Velocity	4.2	4.4	m/s	4.36	Pass
Probe Acceleration	36	45	g's	38.3	Pass
Lateral Pelvis Acceleration	28	39	g's	31.6	Pass
Iliac Force	4100	5100	N	4418.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32453	10/17/2017	4/17/2018
Pelvis Y Accelerometer	ENDEVCO 7264CT	AC-P51875	10/31/2017	5/1/2018
Iliac Load Cell	DENTON 3228J	LC-281Fy	6/6/2017	6/6/2018





APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N: DG8012		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers			X	AC-P51685	ENDEVCO	10/31/2017
			Y	AC-P51682	ENDEVCO	10/31/2017
			Z	AC-P51699	ENDEVCO	10/31/2017
Head Accelerometers - Redundant			X	AC-P51701	ENDEVCO	10/31/2017
			Y	AC-P45019	ENDEVCO	10/31/2017
			Z	AC-P51690	ENDEVCO	10/31/2017
Displacement Potentiometer	Shoulder		Y			
	Thoracic Rib	Upper	Y	DS-808GFE	Servo	9/27/2017
		Middle	Y	DS-1514GFE	Servo	9/27/2017
		Lower	Y	DS-011GFE	Servo	9/27/2017
	Abdominal Rib	Upper	Y	DS-008GFE	Servo	9/27/2017
		Lower	Y	DS-1774GFE	Servo	9/27/2017
Lower Spine Accelerometers (T12)			X	AC-P74788	ENDEVCO	10/31/2017
			Y	AC-P83319	ENDEVCO	10/31/2017
			Z	AC-P83432	ENDEVCO	10/31/2017
Acetabulum Load Cell			Y	LC-267Fy	Denton	6/6/2017
Lilac Wing Load Cell			Y	LC-281Fy	Denton	6/6/2017
Pelvis Plug (Struck Side)				80943	Humanetics	11/25/2014
Pelvis Plug (Non-Struck Side)						

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	AC-A197009	MSI 1201-1000	9/26/2017
Vehicle Center of Gravity	Y	AC-A192207	Measurement Specialties	10/17/2017
Vehicle Center of Gravity	Z	AC-A197007	MSI 1201-1000	10/17/2017
Left Floor Sill	Y	AC-A217537	MSI 1201-1000	12/5/2017
A-Pillar Sill	Y	AC-A192200	Measurement Specialties	10/3/2017
A-Pillar Low	Y	AC-A206921	MSI 1201-1000	10/3/2017
A-Pillar Mid	Y	AC-A197033	MSI 1201-1000	10/3/2017
B-Pillar Sill	Y	AC-A217566	MSI 1201-1000	10/12/2017
B-Pillar Low	Y	AC-A217568	MSI 1201-1000	8/24/2017
B-Pillar Mid	Y	AC-A197024	MSI 1201-1000	10/12/2017
Driver Seat	Y	AC-A197047	MSI 1201-1000	12/5/2017
Engine Top	X	AC-A217578	MSI 1201-1000	8/24/2017
Engine Top	Y	AC-A217547	MSI 1201-1000	9/26/2017
Firewall	Y	AC-A217543	MSI 1201-1000	12/5/2017
Right Roof	Y	AC-A217554	MSI 1201-1000	12/5/2017
Right Floor Sill	Y	AC-A196979	MSI 1201-1000	12/5/2017
Rear Floorpan	X	AC-A213654	MSI 1201-1000	11/29/2017
Rear Floorpan	Y	AC-A203877	MSI 1201-1000	12/5/2017

Table 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	LC-18879	Interface 1220-FS	6/19/2017
Load Cell 2	LC-18852	Interface 1220-FS	6/19/2017
Load Cell 3	LC-46955	Interface 1220-FS	6/19/2017
Load Cell 4	LC-18882	Interface 1220-FS	6/19/2017
Load Cell 5	LC-18864	Interface 1220-FS	6/19/2017
Load Cell 6	LC-18847	Interface 1220-FS	6/19/2017
Load Cell 7	LC-62086	Interface 1220-FS	6/19/2017
Load Cell 8	LC-46962	Interface 1220-FS	6/19/2017