

REPORT NUMBER: SINCAP-CAL-20-003

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

**Ford Motor Company
2020 Ford Escape
Four Door SUV**

NHTSA No: M20200202

**PREPARED BY:
CALSPAN CORPORATION
P.O. BOX 400
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April 14, 2020

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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Date: April 14, 2020

Approved by: Edward Dutton
Edward Dutton, Director

Date: April 14, 2020

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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15. Supplementary Notes																																																							
16. Abstract A 55/28, (61.90kph / 38.5 mph), 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2020 Ford Escape SUV in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on January 6, 2020. The impact velocity of the Moving Deformable Barrier (MDB) was 61.79 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21°C. The target vehicle's maximum post-test static crush was 180mm 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 (ES-2re)</th> </tr> <tr> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>197.124</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>44</td> <td>22.675</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>850.293</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>1068.456</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>96.789</td> </tr> <tr> <td>Lower Spine Resultant Acceleration</td> <td>G</td> <td>82</td> <td>42.623</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3628.917</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>17.958</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45*</td> <td>17.043</td> </tr> </tbody> </table> * Proposed IARV 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 (ES-2re)			Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	197.124	Maximum Thoracic Rib Deflection	mm	44	22.675	Total Abdominal Force	N	2500	850.293	Pubic Symphysis Force	N	6000	1068.456	Measurement Description	Passenger ATD (SID-IIs)			Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	96.789	Lower Spine Resultant Acceleration	G	82	42.623	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3628.917	Maximum Thoracic Rib Deflection	mm	38*	17.958	Maximum Abdominal Rib Deflection	mm	45*	17.043
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17. Key Words New Car Assessment Program (NCAP) Side Impact MDB ES-2re SID-IIs			18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave. SE Washington, D.C. 20590 FAX: 202-493-2833																																																				
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SECTION 1

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2020 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-14-D-00352. The purpose of this test is to generate comparative side impact performance in a 2020 Ford Escape SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated October 2015.

SECTION 2

SUMMARY OF TEST RESULTS

A 2020 Ford Escape SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.79 km/h. The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Calspan Corporation's Transportation Test Operations Center in Buffalo, New York on January 6, 2020. Pre-test and post-test photographs of the test vehicle, the MDB and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated October 2015. The side impact event was documented by 9 high-speed and 2 real-time cameras. Camera locations are included in this report.

The Dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

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

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

Lower spine (T12) tri-axial accelerometers

Public symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG tri-axial accelerometers

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

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (T12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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

DUMMY INJURY VALUES

Measurement Description	Driver ATD (ES-2re)		
	Units	Threshold	Result
Head Injury Criteria (HIC36)		1000	197.124
Maximum Thorax Rib Deflection	mm	44	22.675
Combined Abdominal Force	N	2500	850.293
Pubic Symphysis Force	N	6000	1068.456

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC36)		1000	96.789
Lower Spine (T12) Resultant Acceleration	G	82	42.623
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3628.917
Maximum Thoracic Rib Deflection	mm	38*	17.958
Maximum Abdominal Rib Deflection	mm	45*	17.043

*Proposed IARV

SUPPLEMENTAL RESTRAINT INFORMATION

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

GENERAL COMMENTS:

1. P1 serial number – F034
2. P4 serial number – 300

Data Anomalies:

The following channel was questionable for

- Left B-Pillar Lower Y Acceleration, Exceeded calibration range at 11.7 ms
- Left B-Pillar Middle Y Acceleration, Exceeded calibration range at 12.4 ms
- Left Front Sill, Questionable Data
- Left Rear Sill, Questionable Data
- Vehicle CG X Acceleration, Questionable Data from 50 – 150 ms
- Vehicle CG Y Acceleration, Questionable Data from 50 – 150 ms
- Vehicle CG Z Acceleration, Questionable Data from 50 – 150 ms

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 System 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 – Test Vehicle Accelerometer Locations

Data Sheet No. 7 – MDB Accelerometer Locations

Data Sheet No. 8 – Post-Test Observations

Data Sheet No. 9 – MDB Summary of Results

Data Sheet No. 10 – Test Vehicle Profile Measurements

Data Sheet No. 11 – Test Vehicle Exterior Crush Measurements

Data Sheet No. 12 – MDB Exterior Static Crush Measurements

Data Sheet No. 13 – Vehicle and MDB Damage Profile Distances

Data Sheet No. 14 – FMVSS No. 301 Static Rollover Results

Data Sheet No. 15 – Dummy/Vehicle Temperature and Humidity Stabilization Data

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Ford Escape SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
Test Date: 1/6/2020

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20200202
Model Year	2020
Make	Ford
Model	Escape
Body Style	SUV
VIN	1FMCU0G61LUA27504
Body Color	Gray
Odometer Reading (km/mi)	6.3 miles
Engine Displacement (L)	1.5
Type/No. Cylinders	I3
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	No
Other Optional Feature	-
Driver Front Air bag	Yes
Driver Curtain Air bag	Yes
Driver Head/Torso Air bag	No
Driver Torso Air bag	No
Driver Torso/Pelvis Air bag	Yes
Driver Pelvis Air bag	No
Driver Knee Air bag	Yes
Rear Pass. Curtain Air bag	Yes
Rear Pass. Head/Torso Air bag	No
Rear Pass. Torso Air bag	No
Rear Pass. Torso/Pelvis Air bag	Yes
Rear Pass. Pelvis Air bag	No
Driver Seat Belt Pretensioners	Yes
Rear Pass. Seat Belt Pretensioners	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	Ford Motor Co.
Date of Manufacture	10/19
Vehicle Type	MPV

GVWR (kg)	1978
GAWR Front (kg)	1061
GAWR Rear (kg)	975

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	-	5
Capacity Weight (VCW) (kg)				461
DSC X 68.04 kg				340.2
Cargo Weight (RCLW) (kg)				120.8

(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							

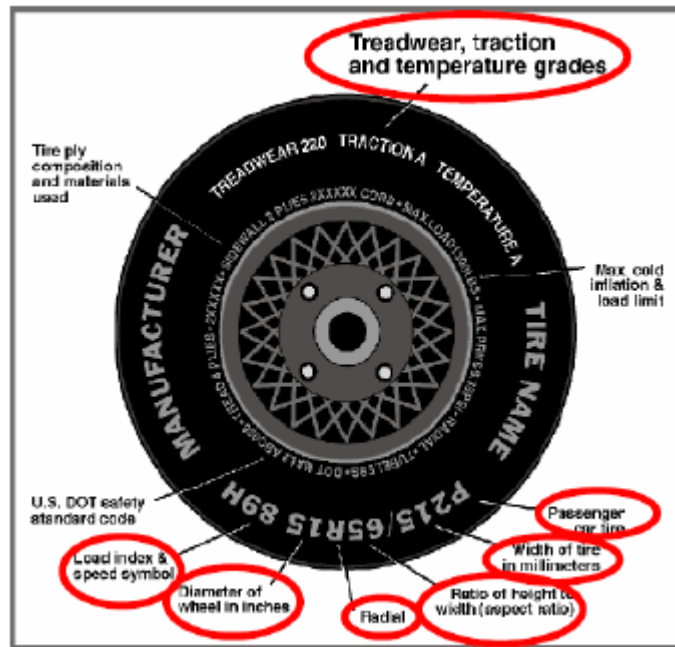
DATA SHEET NO. 1 ... (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2020 Ford Escape SUV
Test Program:	NCAP Side MDB Impact Test

NHTSA No.: M20200202
Test Date: 1/6/2020

VEHICLE TIRE INFORMATION

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



TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	225/65R17	225/65R17
Tire Size on Vehicle	225/65R17	225/65R17
Tire Manufacturer	Michelin	Michelin
Tire Model	Primacy	Primacy
Treadwear	540	540
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 1 Polyamide, 2 Steel	2 Polyester, 1 Polyamide, 2 Steel
Load Index/Speed Symbol	102H	102H
Tire Material	Rubber	Rubber
DOT Safety Code Left	M33T07BX3919	M33T07BX3919
DOT Safety Code Right	M33T07BX3919	M33T07BX3919

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

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	228	230	231	227
Tire Placard	kPa	230	230	230	230
Owner's Manual	kPa	230	230	230	230
As Tested	kPa	230	230	230	230

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21	207	207	207	207

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	451	315		529	377		500	419	
Right	kg	436	300		483	354		449	379	
Ratio	%	59	41		58.0	42.0		54	46	
Totals	kg	887	615	1502	1012	731	1743	949	798	1747

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1502	(A)
Sum of Actual Weight of 1 ES2re and 1 P572 ATD (SID-IIs)	kg	127	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	120.5	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1749.5	(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	Fully Loaded	As Tested	Meets Requirement**
LF	mm	807	810	Yes
RF	mm	820	815	Yes
RR	mm	854	848	Yes
LR	mm	842	837	Yes
Vehicle CG (Aft of Front Axle)	mm	1236	1135	
Vehicle CG (Left(+)/Right(-) from Longitudinal Centerline)	mm	41	31	

*** The "As Tested" vehicle attitude measurements must be equal to or within ± 10mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirements".

Test height adjustable suspension setting, if applicable: N/A

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

Test Vehicle:	<u>2020 Ford Escape SUV</u>	NHTSA No.:	<u>M20200202</u>
Test Program:	<u>NCAP Side MDB Impact Test</u>	Test Date:	<u>1/6/2020</u>

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	10
Spare Tire	12
Jack	3
Passenger Side Door Internals	5
Ballast / Equipment Added	79.4

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

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	17.8	8.6	13.2
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

**if applicable*

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	2.5	Max	50	52.5	55
			Mid	25	27.5	30
			Min	0	2.5	5
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	-	-	-

**if applicable*

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

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020

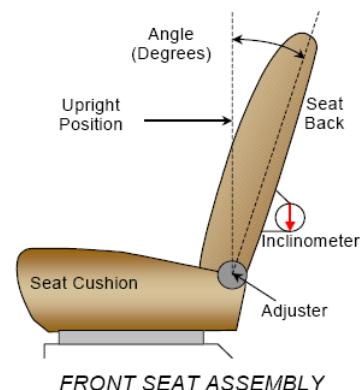
SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	N/A	120	N/A
Front Passenger Seat	255	38 (0-37)	128	18
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	160	16 (0-15)	160	15
Non-Struck Side Rear Seat	160	16 (0-15)	160	15
Rear Center Seat*	160	16 (0-15)	160	15

**if applicable*

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated design angle. 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 seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/ Seated Dummy	61	N/A	3.1	N/A
Front Passenger Seat	51	N/A	3.1	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat w/ Seated Dummy	12	7 (0-6)	2.2	0
Non-Struck Side Rear Seat	12.1	7 (0-6)	2.2	0
Rear Center Seat*	12	7 (0-6)	2.1	0

**if applicable*

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

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. For this test zero is defined as the uppermost position.

	Total # of Positions	Placed in Position #
Driver Seat	4 (0-3)	0
Rear Seat	Fixed	Fixed

HEAD RESTRAINT ADJUSTMENT

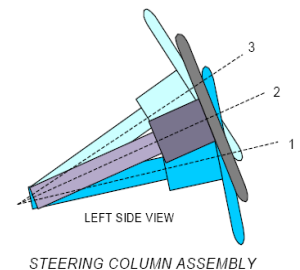
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	3	0 – Uppermost
Rear Seat	1	1

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.

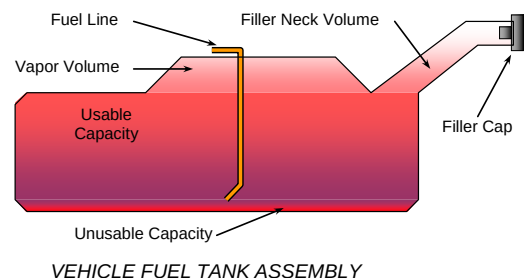
	Degrees	Fore/Aft Position (mm)
Lowermost – Position 1	22.6	
Geometric Center – Position 2	24.9	
Uppermost – Position 3	27.2	
Telescoping Steering Wheel Travel		55
Test Position	24.8	27.5



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.



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

Test Vehicle: 2020 Ford Escape Four Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
Test Date: 1/6/2020

FUEL TANK CAPACITY

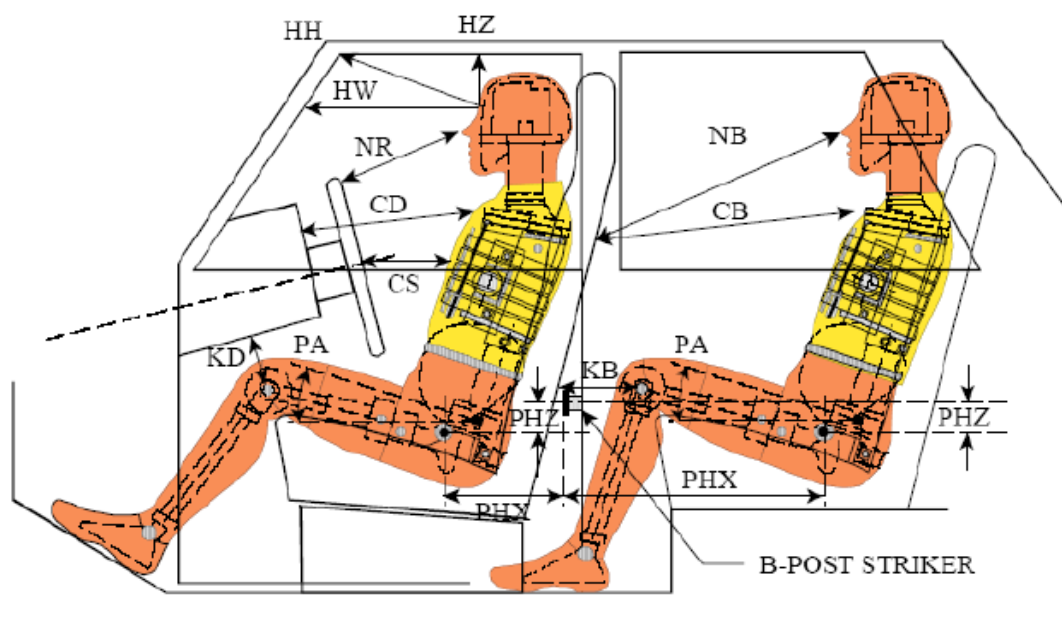
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	56.2
Usable Capacity of "Optional Tank" (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	56.2
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	52.2
Actual Amount of Solvent Used in Test	52.2
1/3 of Usable Capacity	18.7

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: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

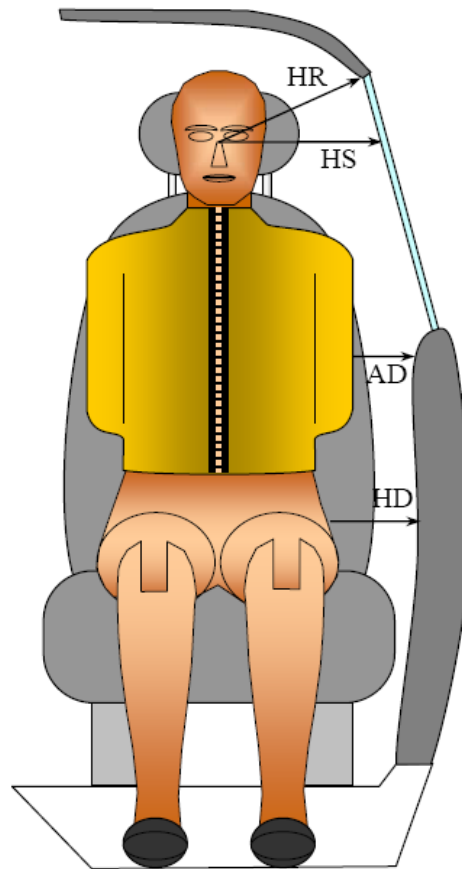
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Description	Driver (Serial No. F034)		Passenger (Serial No.300)	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	385			
HW		Header to Windshield	688			
HZ	HZ	Head to Roof Liner	218		298	
NR	NB	Nose to Rim/Seat Back	461		536	
CD	CB	Chest to Dash/Seat Back	563		551	
CS		Chest to Steering Wheel	357			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	203	17.1	313	5.8
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	204	11.5	314	3.1
PAX°	PAX°	Pelvic Tilt Angle X		24.5		17.8
	PAY°	Pelvic Tilt Angle Y				0.3
PHX	PHX	Hip Point to Striker (X-Axis)	183		198	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	124		264	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020



FRONT VIEW OF DUMMY

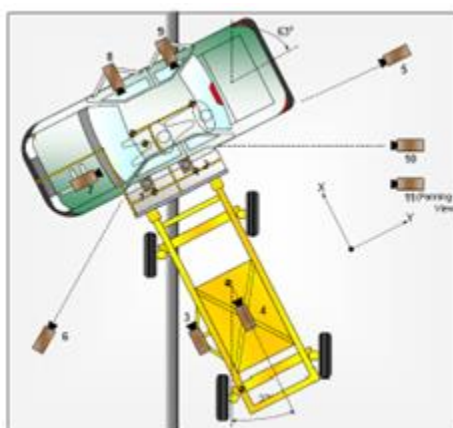
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver (Serial No. F034)	Passenger (Serial No. 300)
HR	Head to Side Header	mm	238	263
HS	Head to Side Window	mm	355	366
AD	Arm to Door	mm	90	146
HD	Hip Point to Door	mm	157	165

DATA SHEET NO. 5 **CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	355	568	-9370	12.5	1000
2	Overhead Close-up	0	708	-9370	24	1000
3	Left Impact Point (MDB)	-1470	0	-847	25	1000
4	Side Overall (MDB)	-1140	878	-1587	8	1000
5	Rear	0	9556	-1247	24	1000
6	Left Front	2424	5057	-1153	24	1000
7	Driver Front (OB)				25	1000
8	Driver Side (OB)				12.5	1000
9	Passenger Side (OB)				12.5	1000
10	Real-time Left Rear				Zoom	60
11	Real-time In run				Zoom	60

Notes: *Reference: Impact Point projected to Ground*
+X = To Front of MDB, +Y = To Right of MDB, +Z = Down
**All measurements accurate to ± 6 mm.*

If applicable, explain why camera(s) did not operate as intended: All cameras operated normally

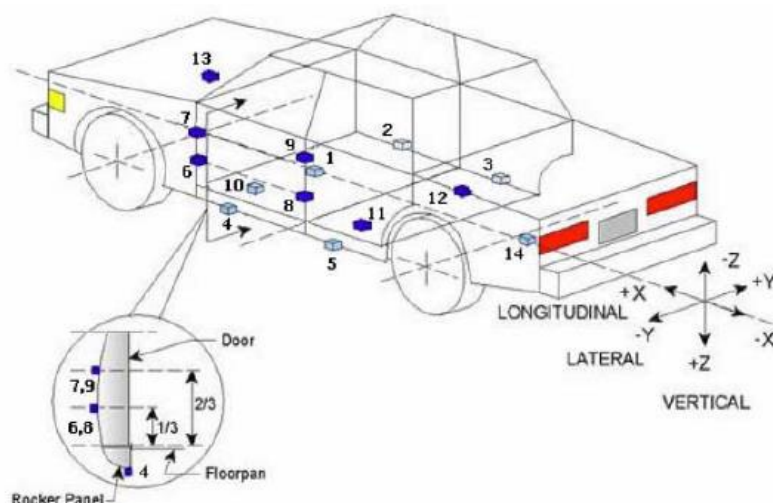
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MDB Accelerometers	7
Total	62

DATA SHEET NO. 6 TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2020 Ford Escape SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
Test Date: 1/6/2020



TEST VEHICLE ACCELEROMETER LOCATIONS

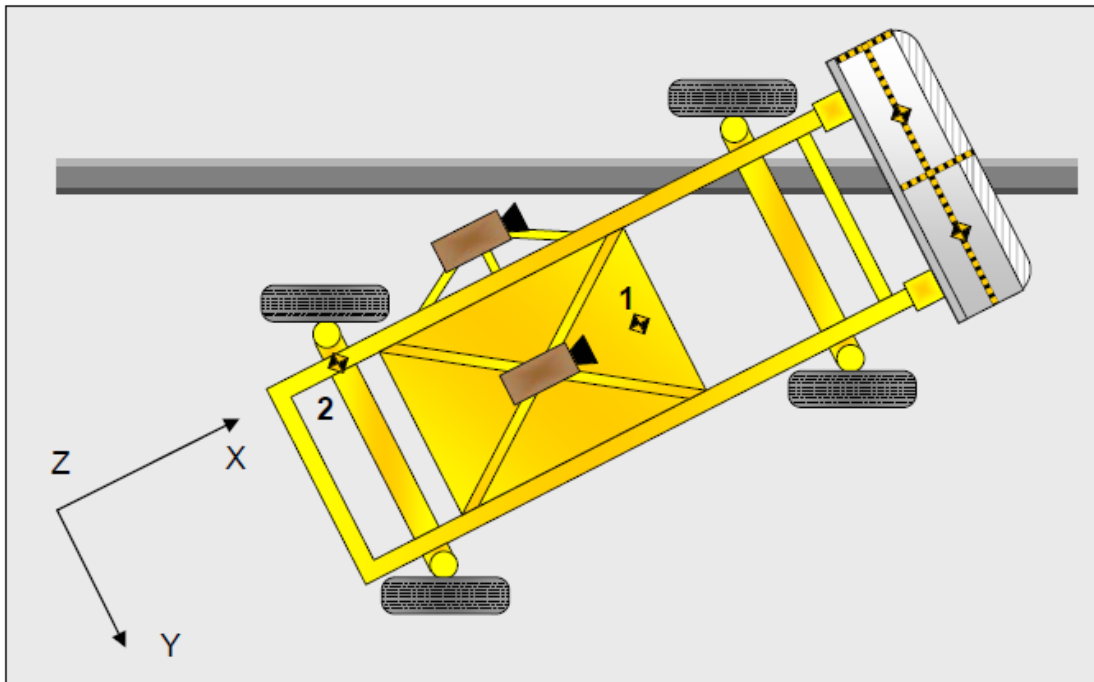
No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2516	40	-17
2	Right Sill at Front Seat	2873	664	175
3	Right Sill at Rear Seat	1901	651	194
4	Left Sill at Front Door	2833	-661	201
5	Left Sill at Rear Door	1905	-644	196
6	A-Post Lower	3107	-634	-2
7	A-Post Middle	2989	-667	-544
8	B-Post Lower	2082	-691	-54
9	B-Post Middle	2029	-681	-420
10	Front Seat Track	2273	-549	164
11	Rear Seat Structure	1609	-501	74
12	Rt. Rear Occ. Compartment	1940	382	312
13	Engine Block	3680	106	-276
14	Rear Above Axle	990	-6	54

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

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020



MDB ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	1859	0	-330
2	MDB Rear	386	-660	-660

Reference: X – Face of MDB (+ forward)
 Y – MDB centerline (+ to right)
 Z – Ground plane (+ down)

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2020 Ford Escape SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
Test Date: 1/6/2020

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag	No Contact
Top of Head	Side Header	Side Header & Curtain Airbag
Left Side of Head	Curtain Airbag	Curtain Air Bag
Back of Head	Head Restraint & Side Header	Head Restraint & Curtain Airbag
Left Shoulder	Driver Door, Curtain Airbag, B Pillar	Torso/Pelvis Airbag
Upper Torso	Seat Back & Torso/Pelvis Airbag	Seat Back & Torso/Pelvis Airbag
Lower Torso	Seat Back & Torso/Pelvis Airbag	Seat Back & Torso/Pelvis Airbag
Left Hip	Seatpan & Torso/Pelvis Airbag	Passenger Door & Torso/Pelvis Airbag
Left Knee	Driver Door	Passenger 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

*Tailgate opened during impact but is still operational.

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	Yes	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Buckling at B-Pillar & C-Pillar
Sill Separation	None
Windshield Damage	None
Side Window Damage	None
Other Notable Effects	None

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

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2707
Vertical Impact Reference Line (Aft of Front Axle - Intended Impact Point)	mm		413
Actual Impact Point (Aft of Frontal Axle)	mm		416
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact Point	-3
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	-4

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2020 Ford Escape SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
Test Date: 1/6/2020

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1,250
Overall Length Including Honeycomb Frame	4,120
Wheelbase of Framework Carriage	2,600
CG Location of Front Axle	1,120

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	392.5	297.5	690.0
Right	kg	386.0	291.5	677.5
Ratio	%	57.4%	42.6%	100.0%
Totals	kg	778.5	589.0	1367.5

SPEED AND ANGLE AT IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.10 to 62.70	61.79
Trap No. 2 Velocity (Redundant)	km/h	61.10 to 62.70	61.80
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.0
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.0
MDB Crabbed angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.0

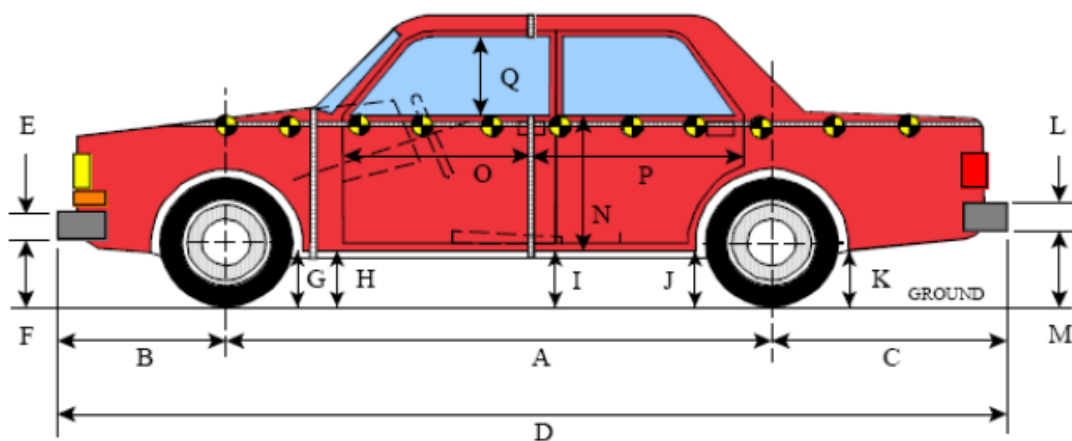
MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Right	228
B	Top of Bumper	533	700	Right	142
C	Mid-Level	686	800	Left	144
D	Top of Stack	813	800	Left	160

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

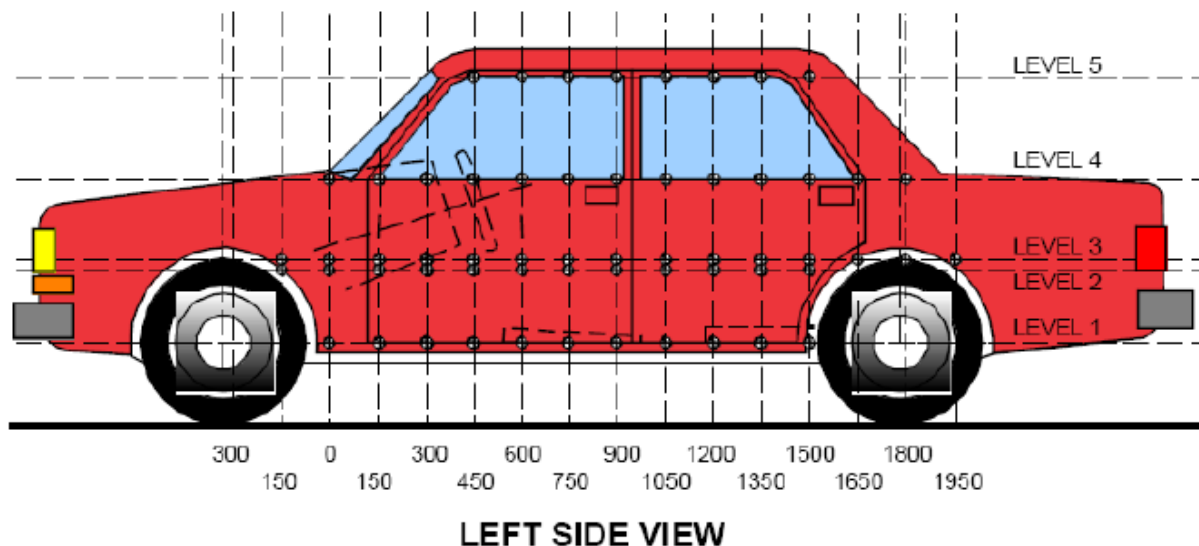
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2707	2709	2
B	Front Axle to FSOV	975	973	-2
C	Rear Axle to RSOV	909	907	-2
D	Total Length at Centerline	4590	4588	-2
E	Front Bumper Thickness	177	177	0
F	Front Bumper Bottom to Ground	277	278	1
G	Sill Height at Front Wheel Well	208	212	4
H	Sill Height at Front Door Leading Edge	212	219	7
I	Sill Height at B Pillar	233	244	11
J1	Sill Height at Rear Wheel Well	238	249	11
J2	Pinch Weld Height at Rear Wheel Well	237	246	9
K	Sill Height Aft of Rear Wheel Well	290	304	14
L	Rear Bumper Thickness	90	90	0
M	Rear Bumper Bottom to Ground	495	508	13
N	Sill Height to Window Bottom of Front Window Sill	863	856	-7
O	Front Door Leading Edge to Impact CL	789	765	-24
P	Rear Door Trailing Edge to Impact CL	1343	1308	-35
Q	Front Window Opening	426	425	-1
R	Right Side Length	4460	4457	-3
S	Left Side Length	4458	4456	-2
T	Maximum Vehicle Width	1810	1713	-97

DATA SHEET NO. 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	367	40	1200
2	Driver Hip Point	mm	656	169	1800
3	Mid-Door	mm	735	180	1650
4	Window Sill	mm	1019	101	1650
5	Window Top	mm	1567	2	1350

*window top level bent outward from original position

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. 11 ... (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

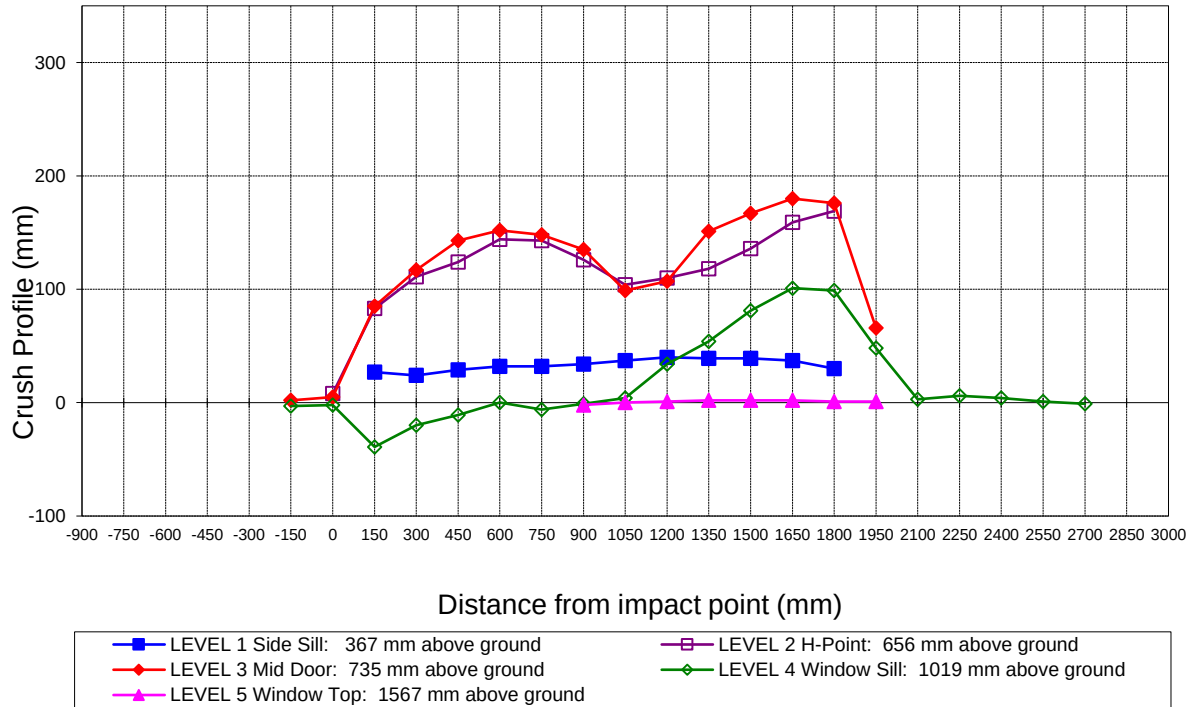
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300															
-150			926	841				924	844				2	-3	
0		924	924	850			916	920	852			8	4	-2	
150	893	914	916	853		866	831	831	892		27	83	85	-39	
300	896	904	911	862		872	793	794	882		24	111	117	-20	
450	897	897	908	867		868	773	765	878		29	124	143	-11	
600	896	890	904	876		864	746	752	876		32	144	152	0	
750	894	885	900	879		862	742	752	885		32	143	148	-6	
900	892	880	896	885	657	858	754	761	886	659	34	126	135	-1	-2
1050	890	878	893	887	664	853	774	794	883	664	37	104	99	4	0
1200	887	876	890	890	661	847	766	783	856	660	40	110	107	34	1
1350	885	876	888	892	657	846	758	737	838	655	39	118	151	54	2
1500	884	879	889	894	651	845	743	722	813	649	39	136	167	81	2
1650	881	888	896	893	645	844	729	716	792	643	37	159	180	101	2
1800	879	906	907	891	636	849	737	731	792	635	30	169	176	99	1
1950			918	915	624			852	867	623			66	48	1
2100				886					883					3	
2250				882					876					6	
2400				875					871					4	
2550				863					862					1	
2700				842					843					-1	
2850															
3000															

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 test based on an estimated impact point.

DATA SHEET NO. 11 (CONTINUED) **TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020

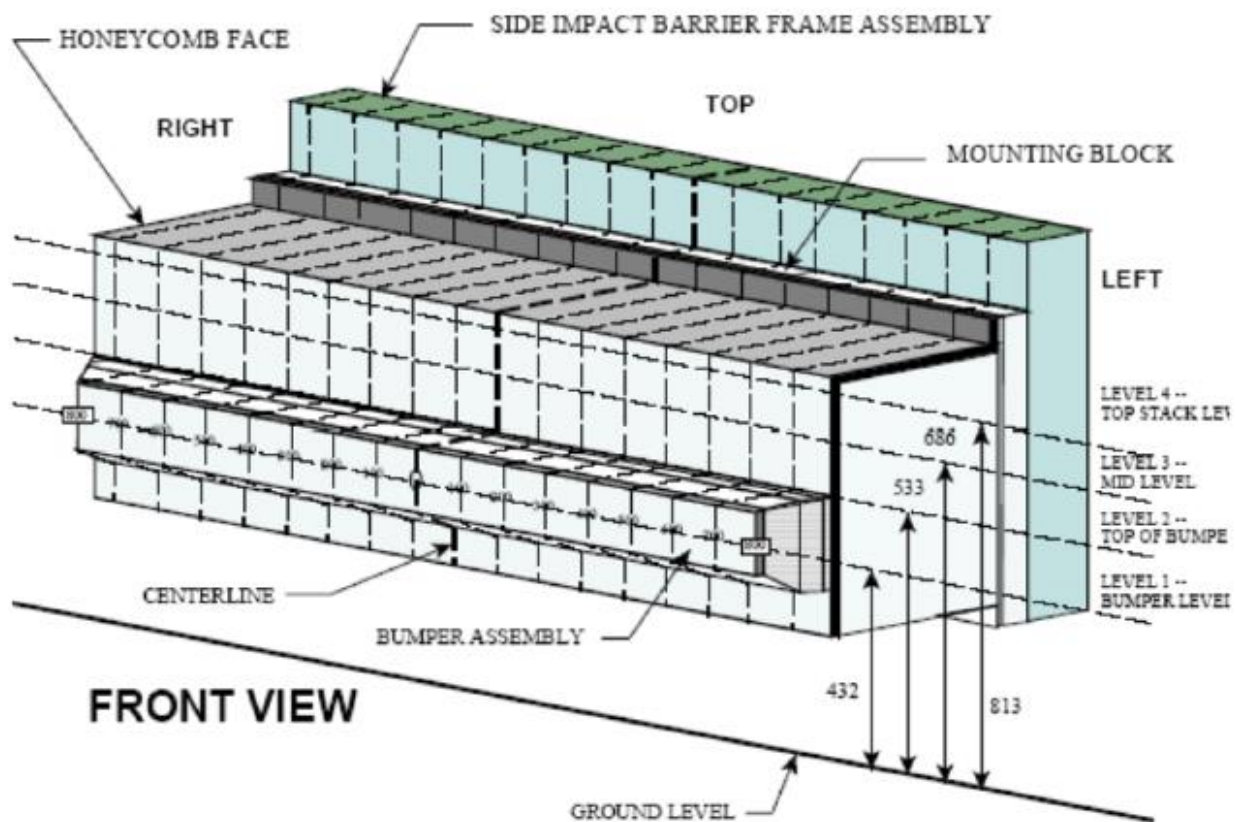


Vehicle Exterior Crush Measurements - Visual Representation

DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

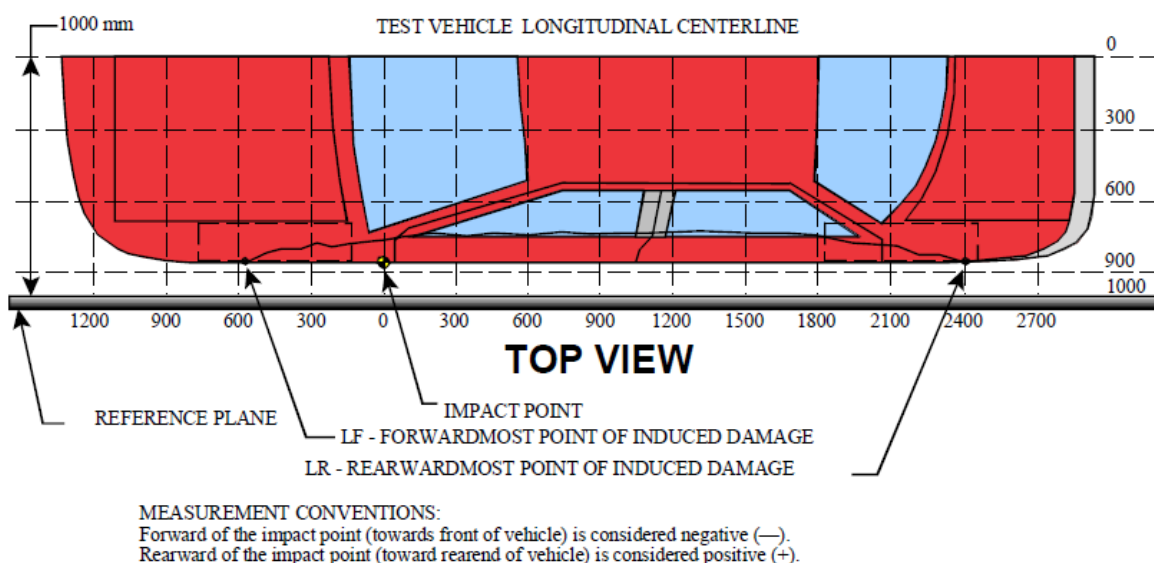
Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	228	220	214	213	213	212	212	211	214	206	202	199	196	195	194	207	223
2	137	142	140	137	133	130	131	132	133	129	127	125	123	121	119	123	133
3	50	33	28	32	37	38	54	65	54	36	32	31	34	45	66	103	144
4	49	26	21	26	40	70	94	95	77	61	63	68	75	76	84	113	160

DATA SHEET NO. 13 **VEHICLE AND MDB DAMAGE PROFILE DISTANCES**

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020

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	-150	3	76	74	2
2	270	3	199	88	111
3	690	3	248	98	150
4	1110	3	210	108	102
5	1530	3	279	110	169
6	1950	3	148	82	66

MDB DAMAGE PROFILE DISTANCES

DPD	Distance From Center of MDB	Level	Post-Test (mm)*
1	800 mm left of center	1	223
2	480 mm left of center	1	195
3	160 mm left of center	1	204
4	160 mm right of center	1	212
5	480 mm right of center	1	213
6	800 mm right of center	1	228

DATA SHEET NO. 14
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: <u>2020 Ford Escape SUV</u>	NHTSA No.: <u>M20200202</u>
Test Program: <u>NCAP Side MDB Impact Test</u>	Test Date: <u>1/6/2020</u>
Test Time: <u>10:40 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°	70	300	370
90° to 180°	68	300	368
180° to 270°	67	300	367
270° to 360°	67	300	367

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	

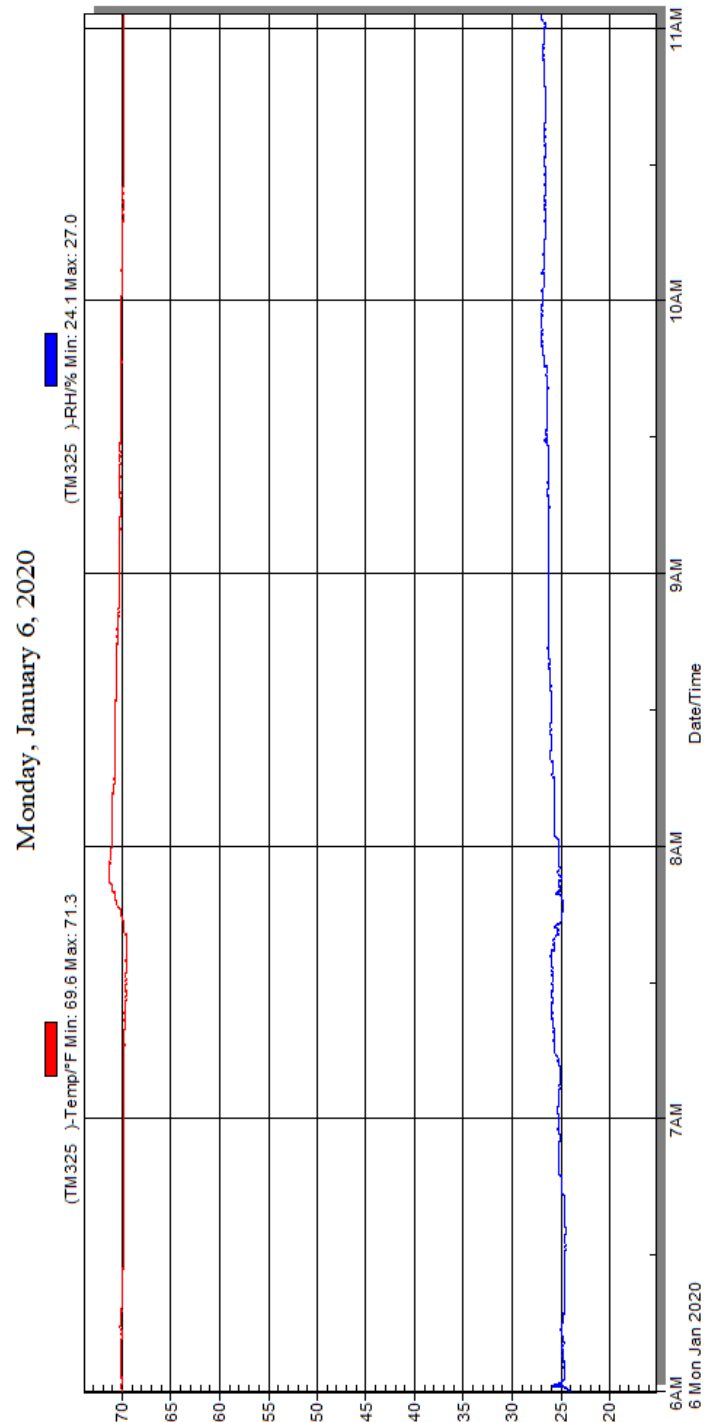
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 15
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2020 Ford Escape SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20200202
 Test Date: 1/6/2020



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

APPENDIX A
PHOTOGRAPHS

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50	Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View	A-29
51	Post-Test Driver Dummy Close-Up Torso Contact with Side Air bag View	A-30
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Figure A-1: As-Delivered Right Front 3/4 View of Test Vehicle



Figure A-2: As-Delivered Left Rear 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 Side 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

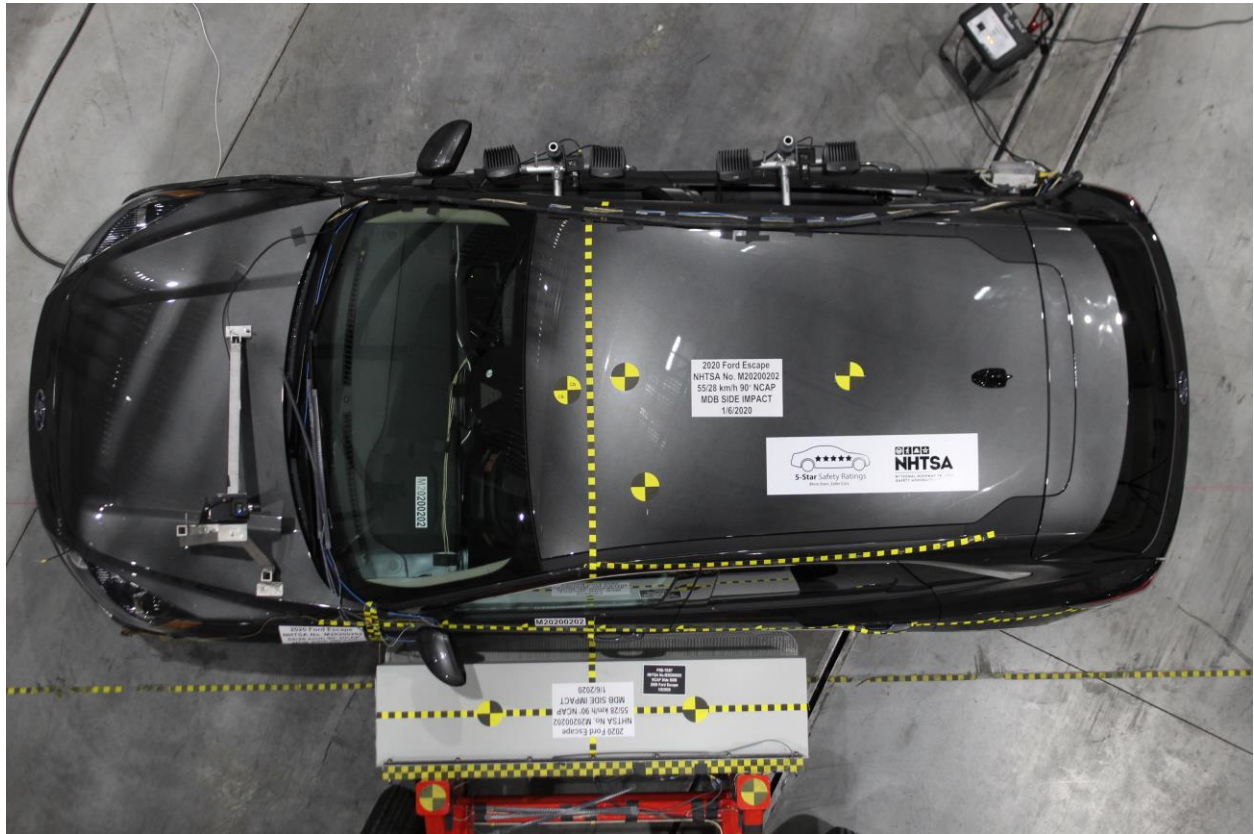


Figure A-15: Pre-Test Overhead View of the Test Area

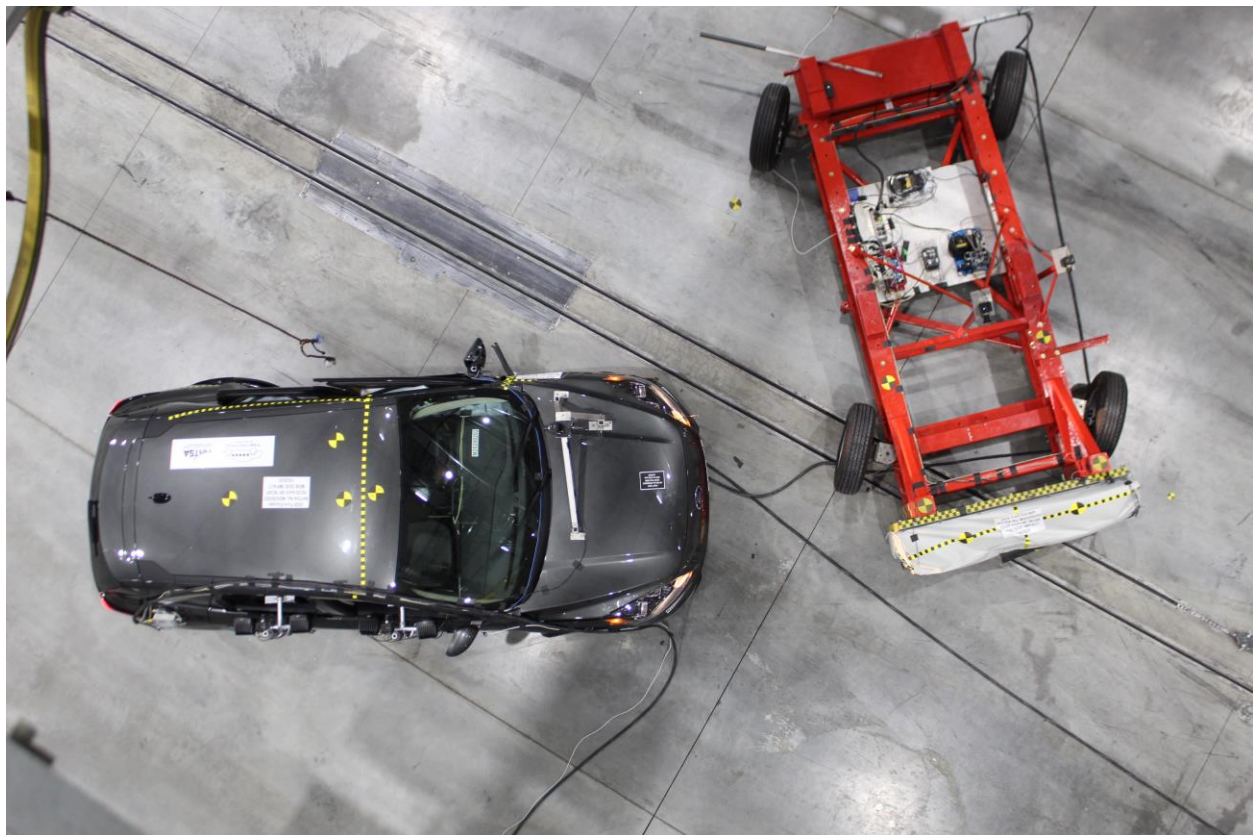


Figure A-16: Post-Test Overhead View of Test Area

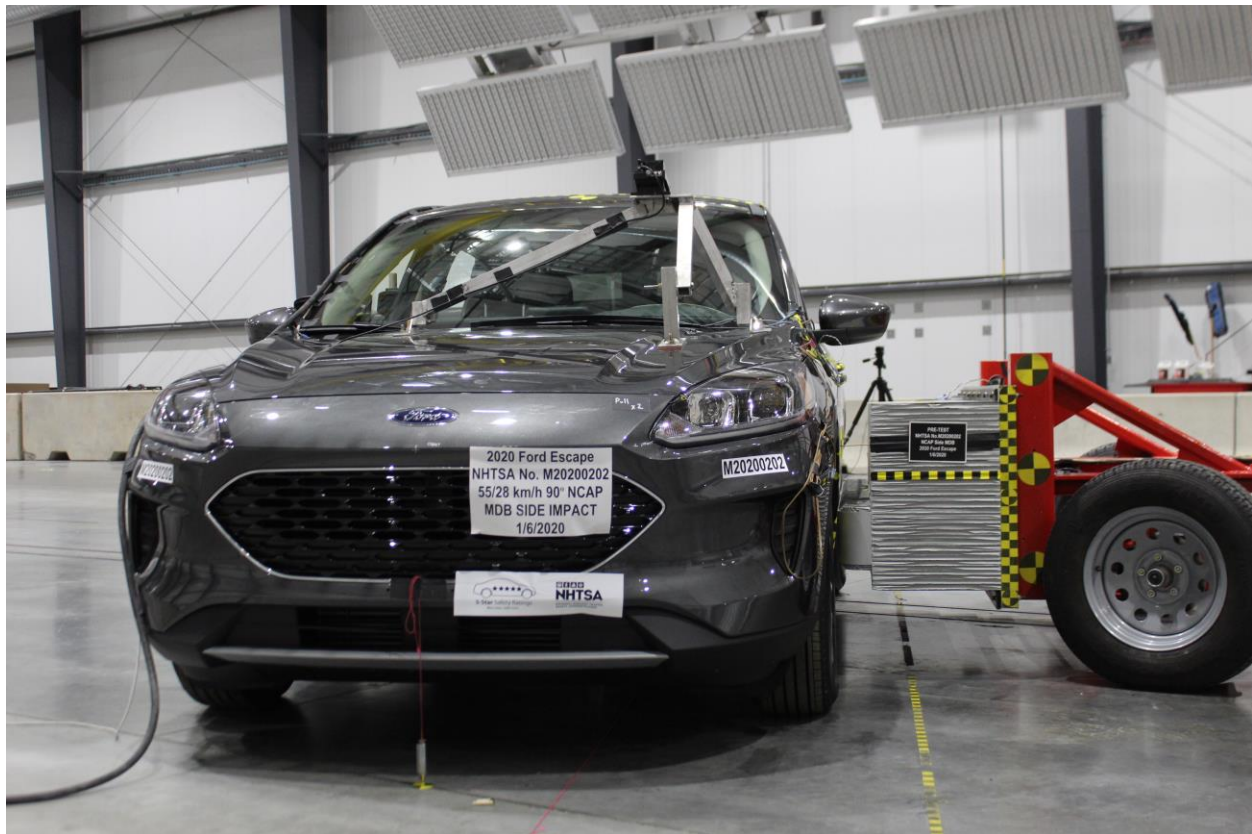


Figure A-17: Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



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

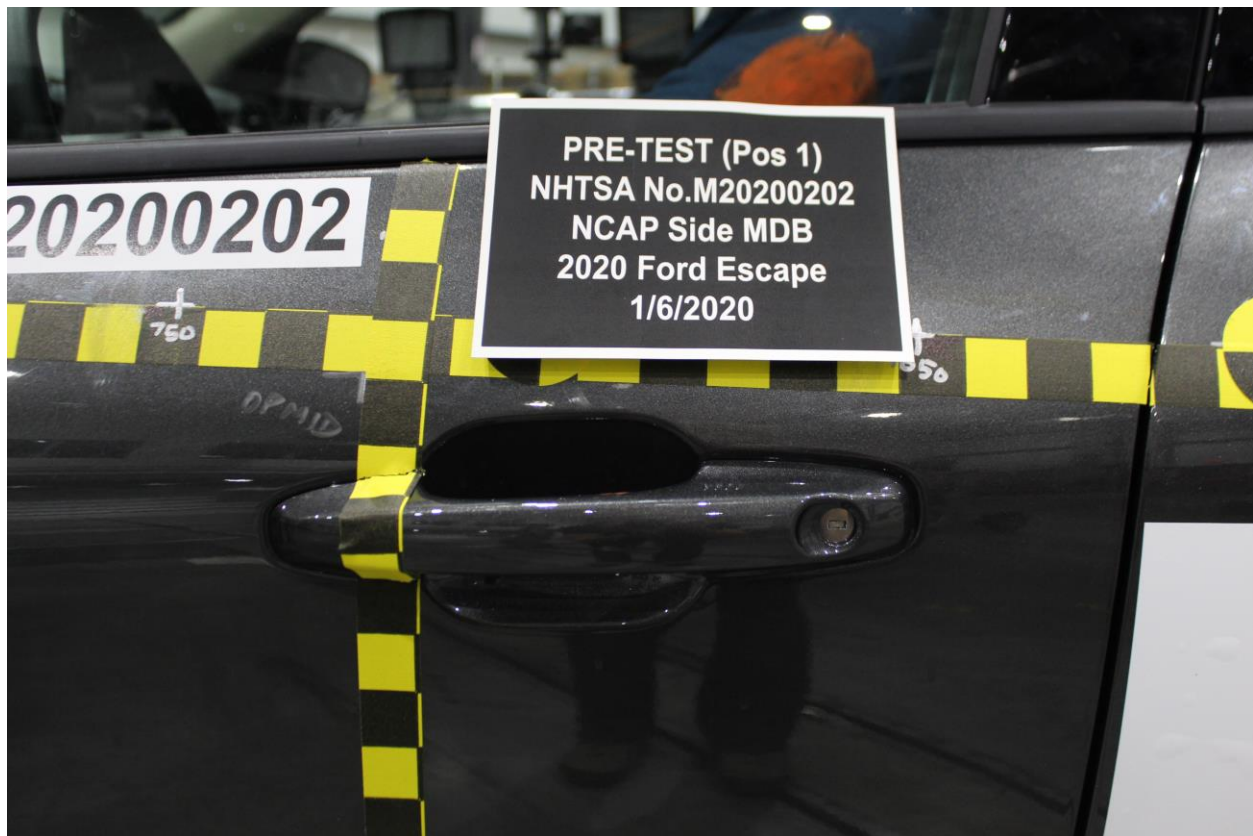


Figure A-21: Pre-Test Left Front Door Latch Close-Up



Figure A-22: Post-Test Left Front Door Latch Close-Up

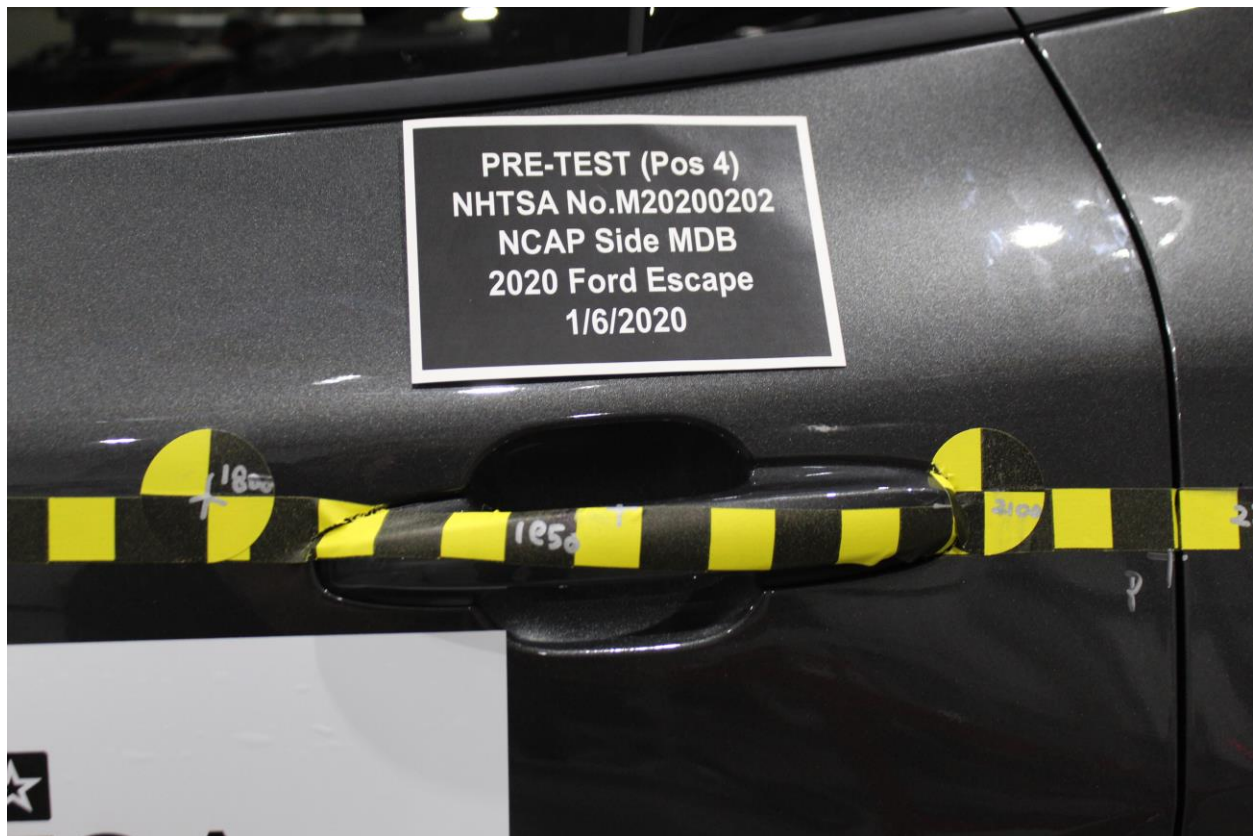


Figure A-23: Pre-Test Left Rear Door Latch Close-Up



Figure A-24: Post-Test Left Rear Door Latch Close-Up



Figure A-25: Pre-Test Front Close-up View of Driver Dummy



Figure A-26: Post-Test Front Close-up View of Driver Dummy



Figure A-27: Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



Figure A-28: Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



Figure A-29: Post-Test Left Side View of Driver Dummy Shoulder and Door Top View



Figure A-30: Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



Figure A-31: Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



Figure A-32: Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



Figure A-33: Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



Figure A-34: Pre-Test Placement of Driver Dummy's Feet

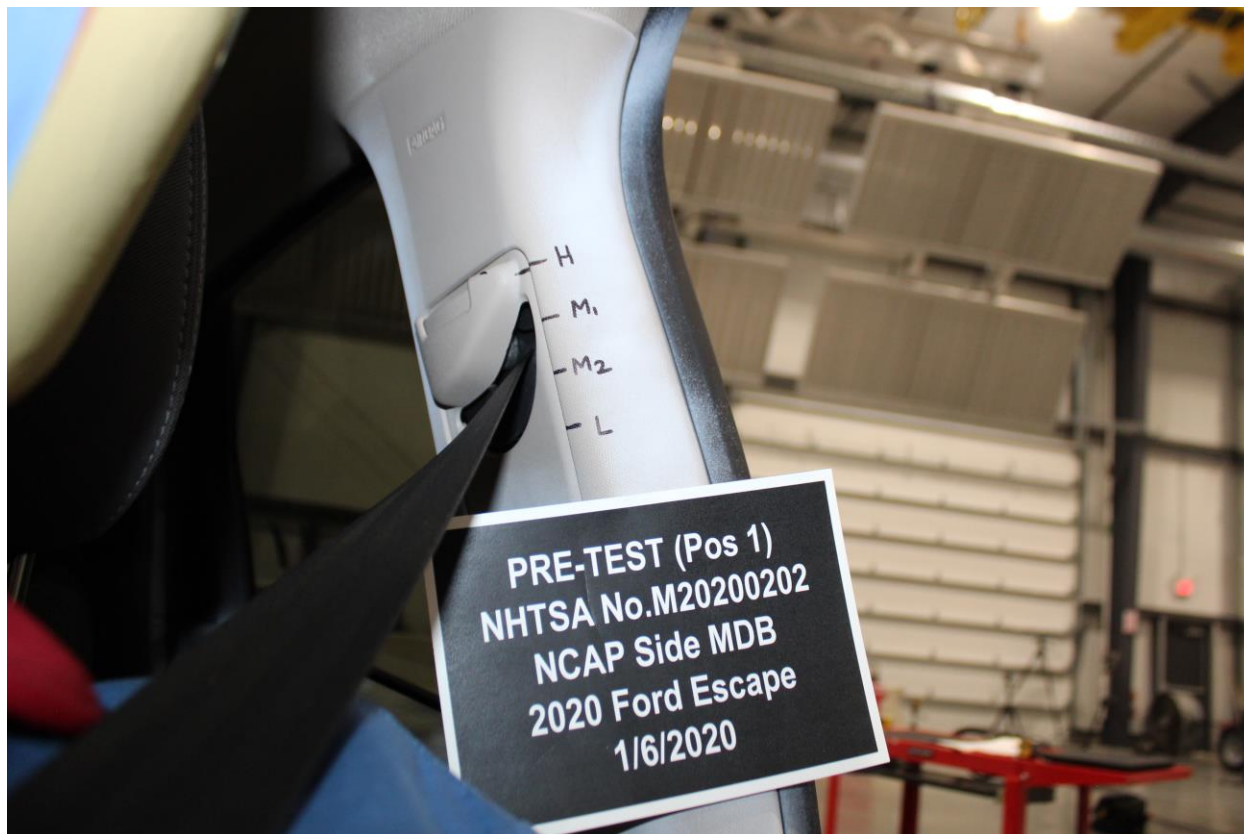


Figure A-35: Pre-Test View of Belt Anchorage for Driver Dummy



Figure A-36: Pre-Test Left Side View of Steering Wheel



Figure A-37: View of Disengaged Parking Brake



Figure A-38: Pre-Test View of Parking Brake



Figure A-39: Pre-test Close-Up Left Side View of Driver Seat Track



Figure A-40: Pre-Test Close-Up Left Side View of Driver Seat Back



Figure A-41: Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Figure A-42: Pre-Test Driver Dummy and Door Clearance View



Figure A-43: Post-Test Driver Dummy and Door Clearance View



Figure A-44: Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Figure A-45: Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Figure A-46: Pre-Test Driver Inner Door Panel View



Figure A-47: Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations



Figure A-48: Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



Figure A-49: Post-Test Driver Dummy Close-Up Head Contact with Side Air bag View



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



Figure A-51: Post-Test Driver Dummy Close-Up Torso Contact with Side Air bag View



Figure A-52: Post-Test Driver Dummy Close-Up Pelvis Contact View



Figure A-53: Post-Test Driver Dummy Close-Up Pelvis Contact with Side Air bag View



Figure A-54: Post-Test Driver Dummy Close-Up Knee Contact View



Figure A-55: Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking



Figure A-56: Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



Figure A-57: Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



Figure A-58: Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning

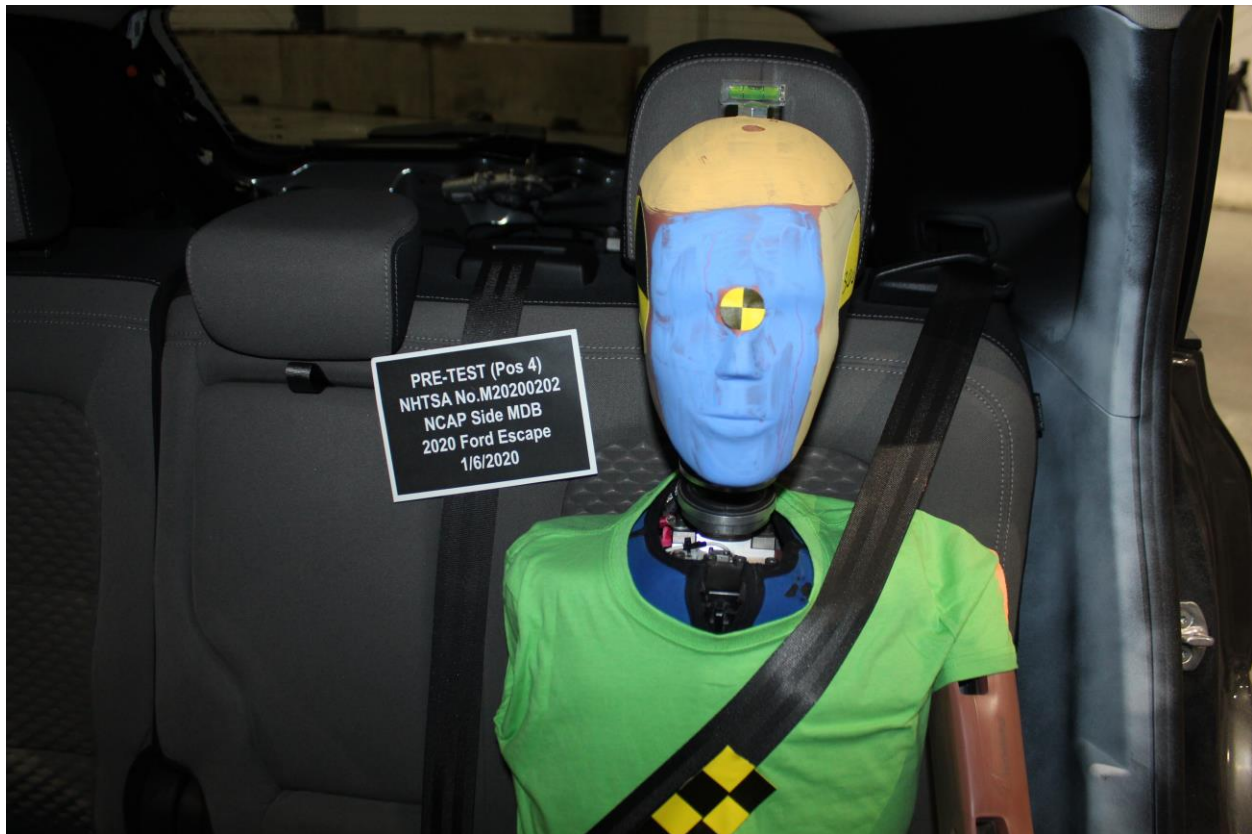


Figure A-59: Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



Figure A-60: Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



Figure A-61: Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



Figure A-62: Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket

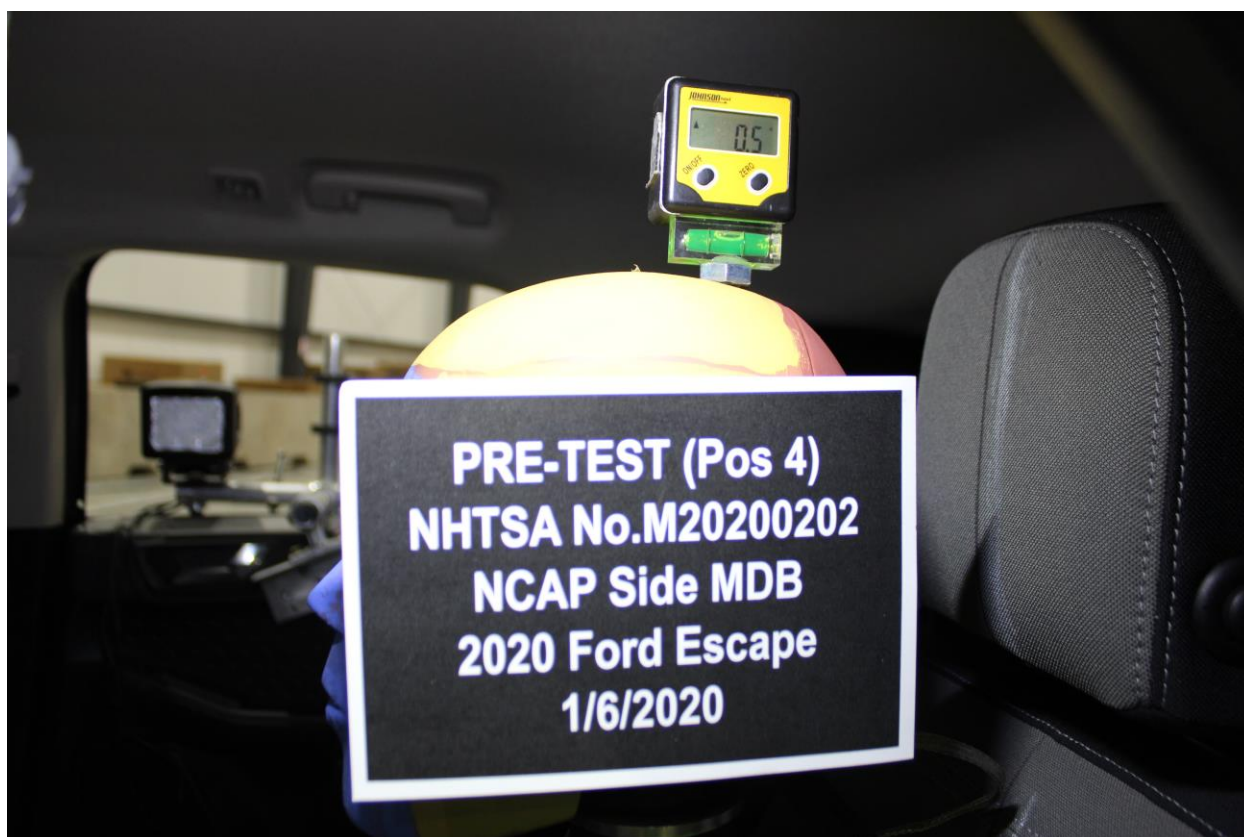


Figure A-63: Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level

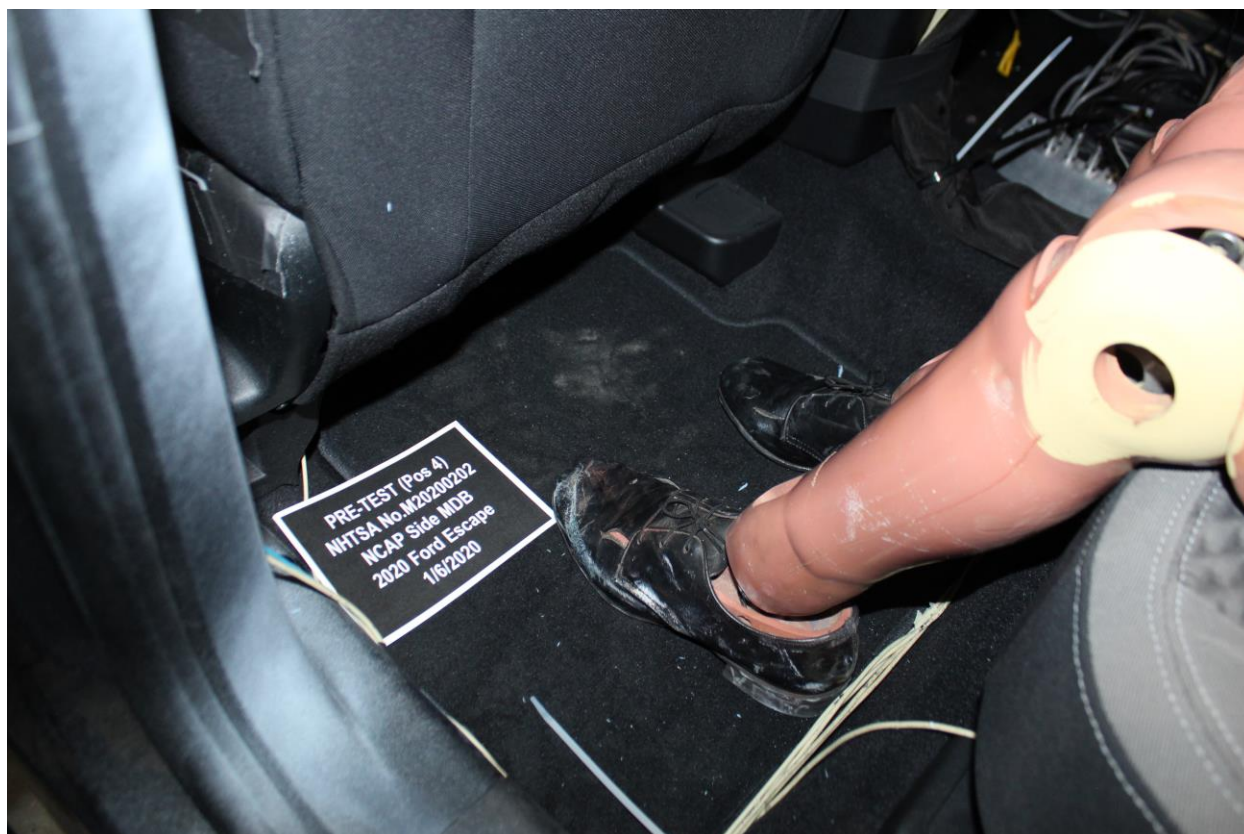


Figure A-64: Pre-Test Placement of Rear Passenger Dummy's Feet



Figure A-65: Pre-Test View of Belt Anchorage for Rear Passenger Dummy

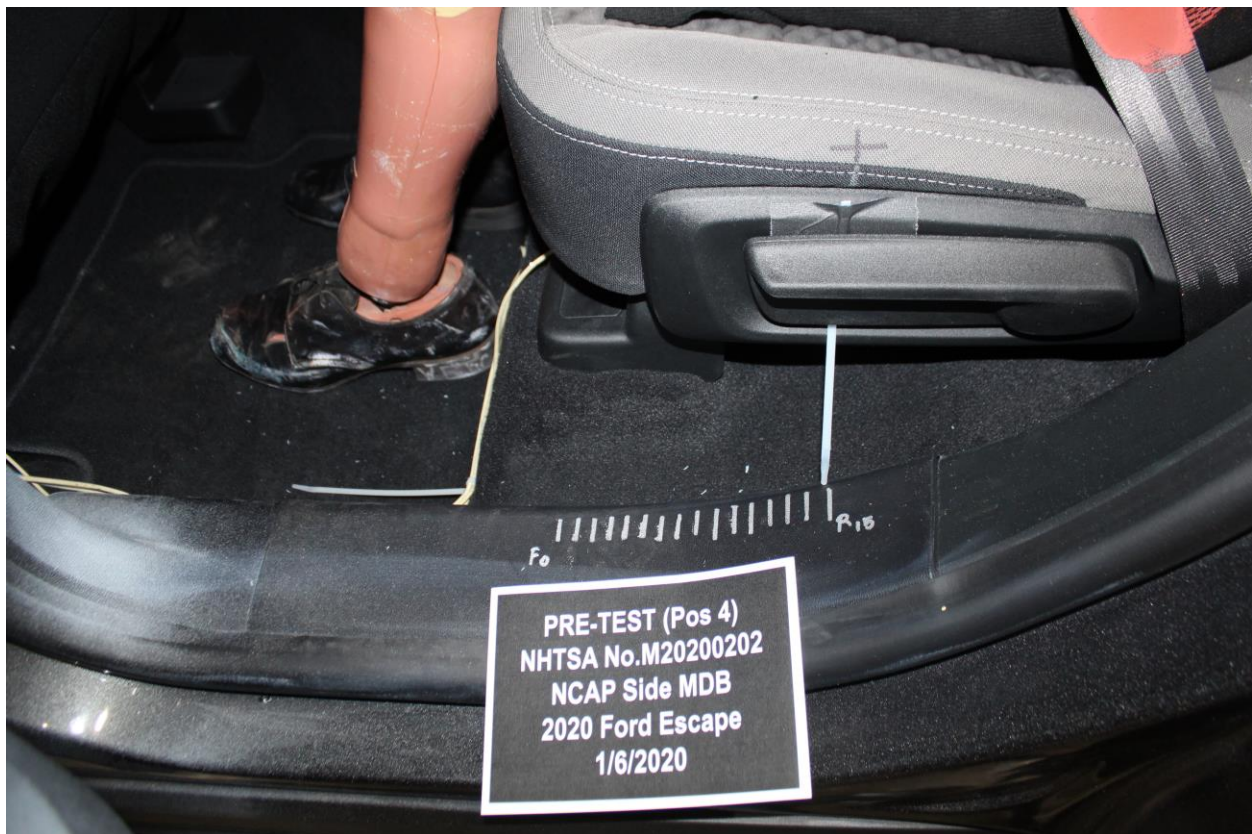


Figure A-66: Pre-Test Close-Up Left Side View of Rear Passenger Seat Track

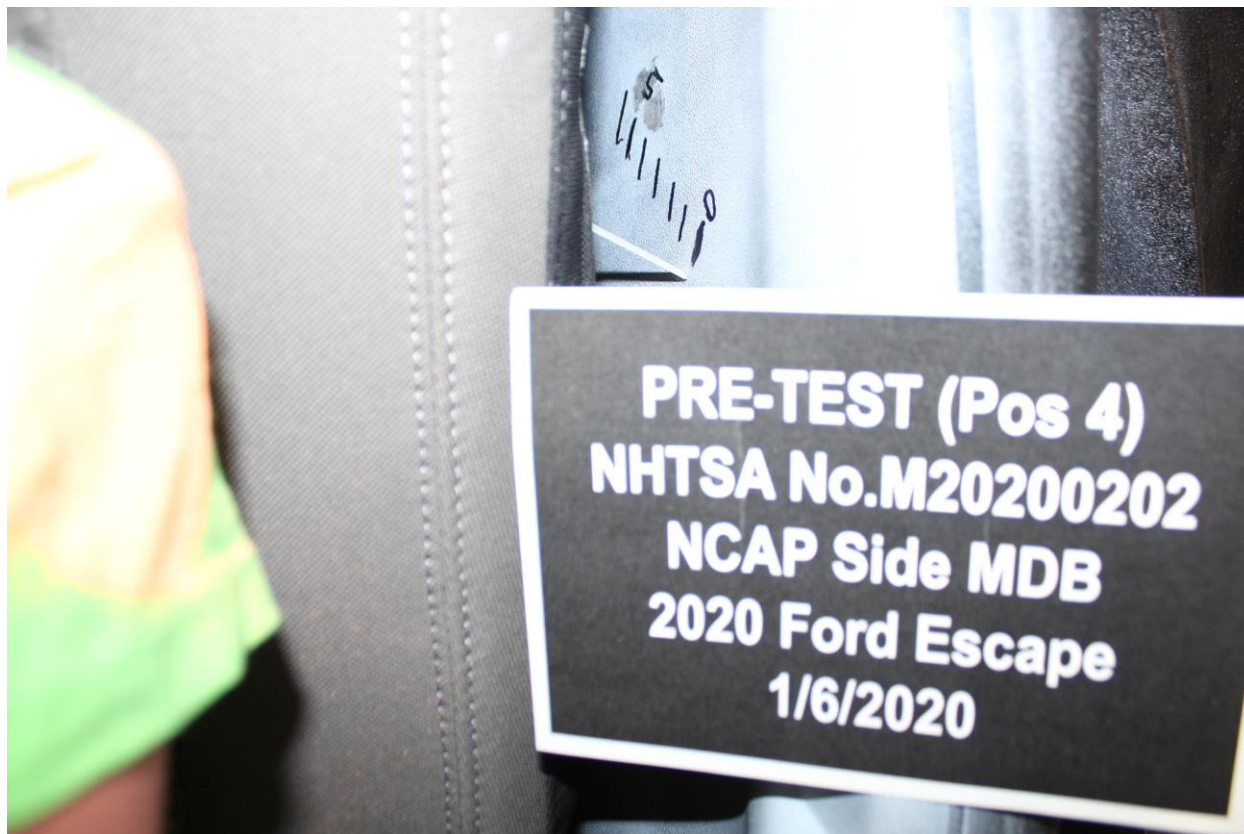


Figure A-67: Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



Figure A-68: Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



Figure A-69: Pre-Test Rear Passenger Dummy and Door Clearance View



Figure A-70: Post-Test Rear Passenger Dummy and Door Clearance View



Figure A-71: Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Figure A-72: Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Figure A-73: Pre-Test Rear Passenger Inner Door Panel View



Figure A-74: Post-Test Rear Passenger Inner Door Panel View Showing Rear Passenger Dummy Contact Locations



Figure A-75: Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



Figure A-76: Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Air bag View



Figure A-77: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



Figure A-78: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Air bag View



Figure A-79: Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View



Figure A-80: Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Air bag View



Figure A-81: Post-Test Rear Passenger Dummy Close-Up Knee Contact View



Figure A-82: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-83: Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-84: Pre-Test Front View of MDB Impactor Face



Figure A-85: Post-Test Front View of MDB Impactor Face



Figure A-86: Pre-Test Top View of MDB Impactor Face



Figure A-87: Post-Test Top View of MDB Impactor Face



Figure A-88: Pre-Test Left Side View of MDB Impactor Face



Figure A-89: Post-Test Left Side View of MDB Impactor Face



Figure A-90: Pre-Test Right Side View of MDB Impactor Face



Figure A-91: Post-Test Right Side View of MDB Impactor Face



Figure A-92: Close-Up View of Vehicle's Certification Label

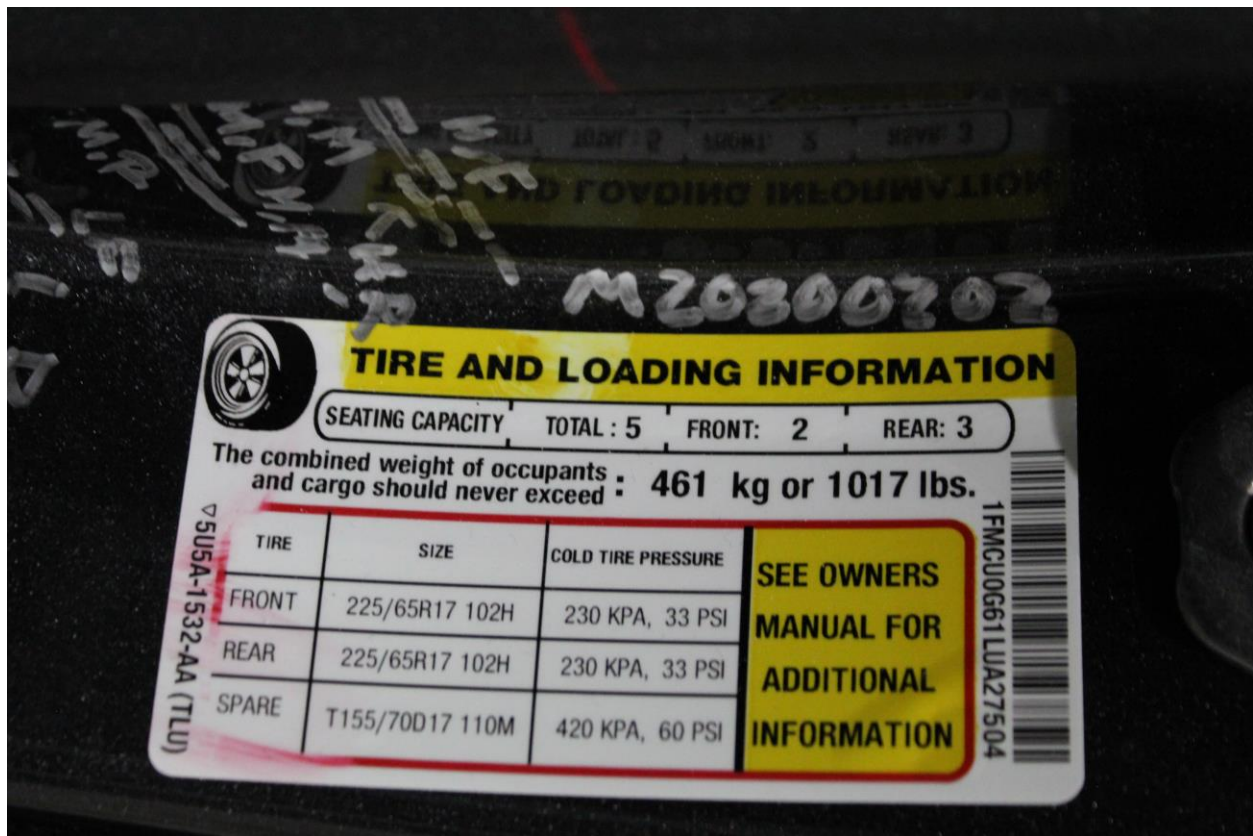


Figure A-93: Close-Up View of Vehicle's Tire Information Placard or Label

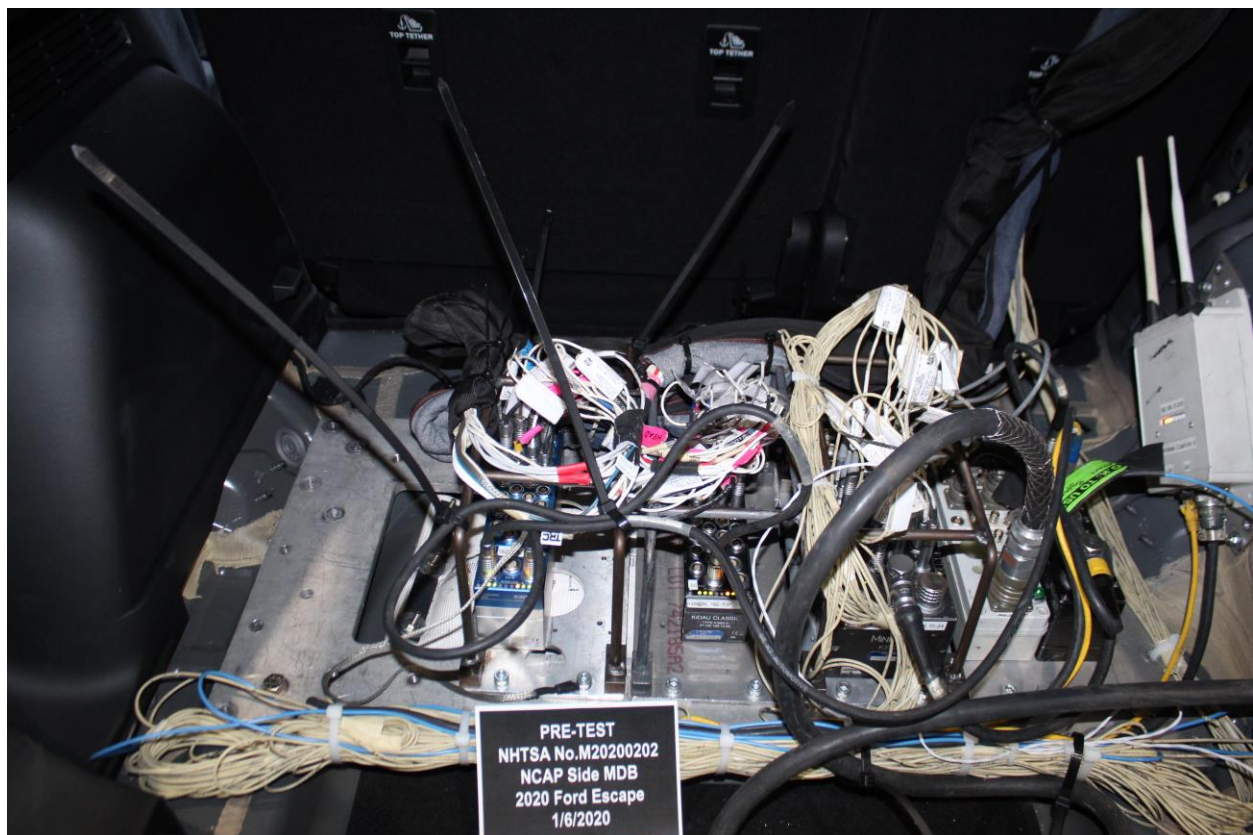


Figure A-94: Pre-Test Ballast View



Figure A-95: Post-Test Primary and Redundant Speed Trap Read-Out



Figure A-96: FMVSS No. 301 Static Rollover 0 Degrees



Figure A-97: FMVSS No. 301 Static Rollover 90 Degrees



Figure A-98: FMVSS No. 301 Static Rollover 180 Degrees

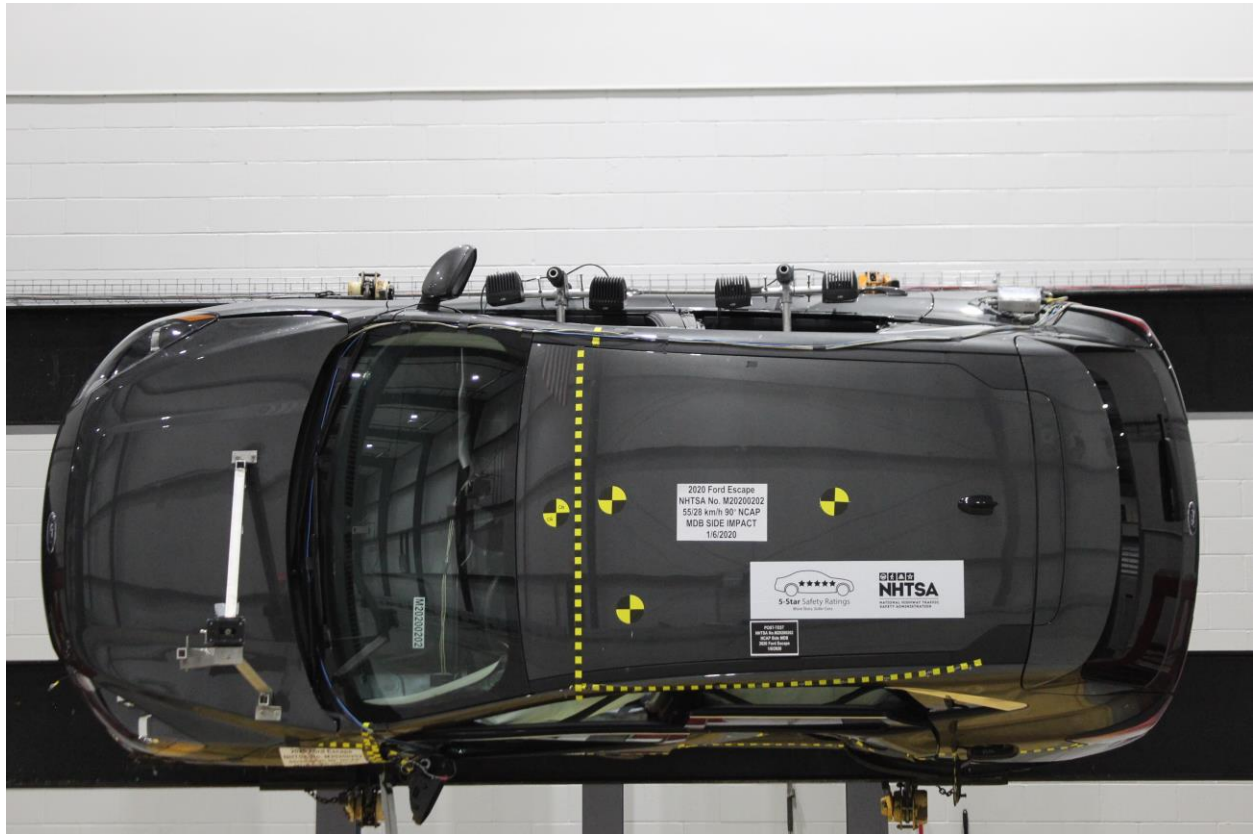


Figure A-99: FMVSS No. 301 Static Rollover 270 Degrees

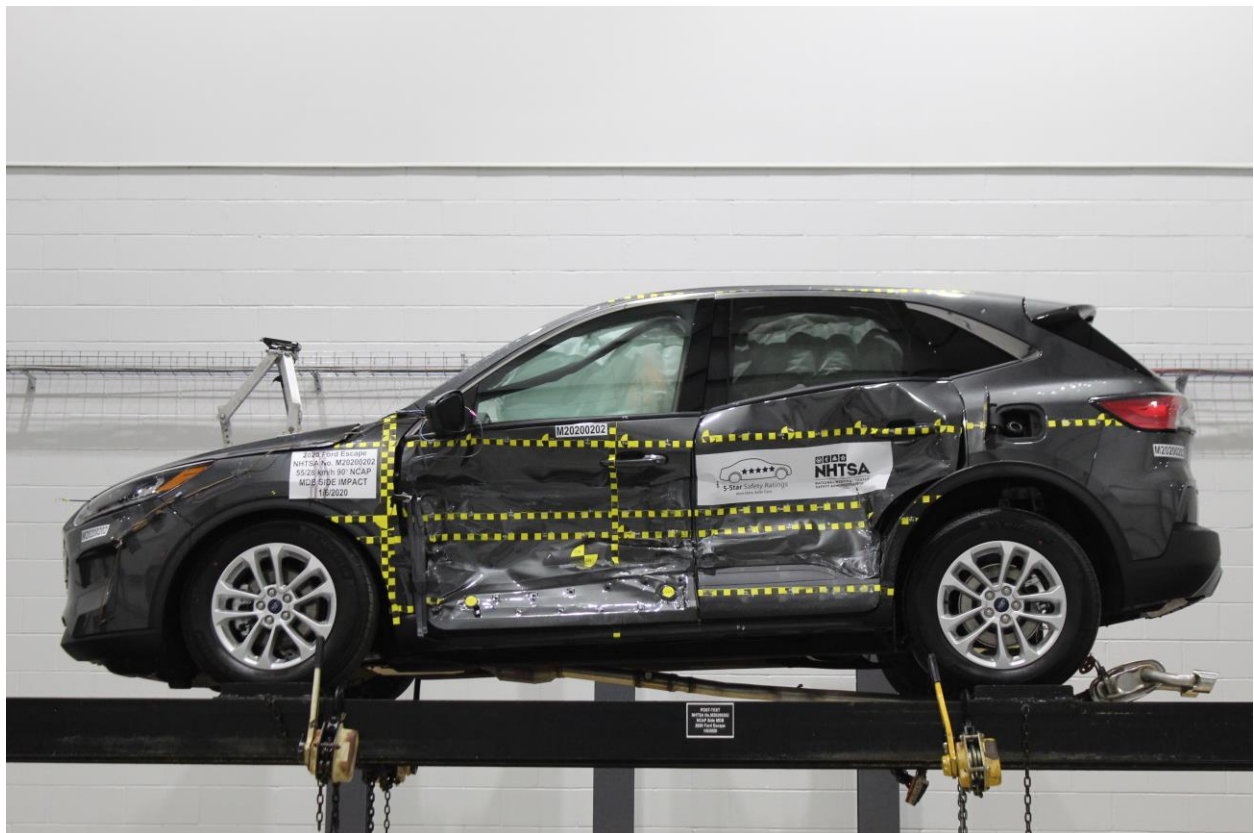


Figure A-100: FMVSS No. 301 Static Rollover 360 Degrees



Figure A-101: Impact Event

VEHICLE DESCRIPTION		LU A27504		EPA DOT Fuel Economy and Environment		Gasoline Vehicle													
ESCAPE FWD 2020 ESCAPE SE FWD 156.7" WHEELBASE 1.5L ECOBOOST W/START-STOP 8-SPD AUTO TRANSMISSION		EXTERIOR MAGNETIC METALLIC INTERIOR DARK EARTH GRAY CLOTH SEATS		Fuel Economy 30 MPG combined city/hwy 27 city 33 highway 3.3 gallons per 100 miles		You save \$750 in fuel costs over 5 years compared to the average new vehicle.													
STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE				Annual fuel cost \$1,350															
EXTERIOR • ACTIVE GRILLE SHUTTERS • DOOR HANDLES - BODY COLOR • DUAL EXHAUST CHROME TIPS • EASY FUEL & CAPLESS FILLER • HEADLAMP COURTESY DELAY • HEADLAMPS - AUTO HALOGEN • LED SIGNATURE LIGHTING • MIRRORS - HD/POWER GLASS, MANUAL FOLD • PRIVACY GLASS - REAR DOORS • REAR INT WIPER/WASH/DPST • REAR SPOILER • TAILLAMPS - LED				Interior • 1-TOUCH DOWN DRIVER WINDOW • CARPETED FLOOR MATS • DUAL ILLUM VIS VANITY MIRR • ELECTRONIC AUTO TEMP CTRL • HTD FRNT SEATS - 15-WAY PWR • 4-WAY MANUAL PASS • ILLUMINATED ENTRY SYSTEM • POWERPOINTS • ROTARY GEAR SHIFT DIAL • SMART CHARGING USB PORT(2) • SPLIT FOLD/SLIDE REAR SEAT • STEERING TILT/TELESCOPE • CRUISE & AUDIO CONTROLS															
FUNCTIONAL • AM/FM/MP3, 6 SPEAKERS • AUTO START STOP TECH • ELECTRIC PARKING BRAKE • FORD CO-PILOT360™ • FORDPASS™ CONNECT 4G-WI-FI • HOTSPOT TELEMATICS MODEM • INTELLIGENT ACCESS W/PUSH • BUTTON START • REAR VIEW CAMERA • SECURICODE KEYLESS KEYPAD • SIRIUSXM® - SVC N/A AKMS • SYNC3® 8" SCRN W/APPLINK®				SAFETY/SECURITY • ADVANCETRAC® WITH RSC® • AIRBAG - DRIVER KNEE • AIRBAGS - DUAL STAGE FRONT • AIRBAGS - FRONT SEAT • MOUNTED SIDE IMPACT • AIRBAGS - SAFETY CANOPY® • LATCH CHILD SAFETY SYSTEM™ • PERSONAL SAFETY SYSTEM™ • SOS POST-CRASH ALERT SYS™ • TIRE PRESSURE MONIT SYS															
WARRANTY • 3YR/36,000 BUMPER / BUMPER • 5YR/60,000 POWERTRAIN • 5YR/60,000 ROADSIDE ASSIST				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 \$2.76 per gallon. MSRP is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.															
INCLUDED ON THIS VEHICLE EQUIPMENT GROUP 300A 17" SHOW SILVER-PINTD ALUM WHEEL 225/65R17 102H A/S BSW TIRES FRONT LICENSE PLATE BRACKET		OPTIONAL EQUIPMENT/OTHER NO CHARGE		PRICE INFORMATION BASE PRICE \$27,095.00 TOTAL OPTIONS/OTHER \$1,195.00 TOTAL MSRP \$28,290.00		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. <table border="1"> <tr> <td>Frontal Crash</td> <td>Driver Passenger</td> <td>Not Rated</td> </tr> <tr> <td>Side Crash</td> <td>Front seat</td> <td>Not Rated</td> </tr> <tr> <td></td> <td>Rear seat</td> <td>Not Rated</td> </tr> <tr> <td>Rollover</td> <td></td> <td>Not Rated</td> </tr> </table> 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		Frontal Crash	Driver Passenger	Not Rated	Side Crash	Front seat	Not Rated		Rear seat	Not Rated	Rollover		Not Rated
Frontal Crash	Driver Passenger	Not Rated																	
Side Crash	Front seat	Not Rated																	
	Rear seat	Not Rated																	
Rollover		Not Rated																	
SOLD TO West Hill Ford of Rochester 4545 Ridge Road Rochester NY 14626		44F123 RAMP ONE CS18 METHOD OF TRANSFER CONVOY ITEM # 44-3899 O/T 2		FINAL ASSEMBLY PLANT LOUISVILLE 44-3899 O/T 2 ITEM # 44-3899 O/T 2		1FMCU0D6L1UA27504 WARNING: Operating, servicing and maintaining a passenger vehicle, pickup truck, van, or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle .													
SHIP TO / OTHER THAN SOLID TO SHIP THROUGH		SHIP TWO This label is affixed pursuant to the Federal Automobile Information Disclosure Act. Gasoline, License, and Title Fees, State and Local taxes are not included. Dealer installed options or accessories are not included unless listed above.		SHIP TWO This label is affixed pursuant to the Federal Automobile Information Disclosure Act. Gasoline, License, and Title Fees, State and Local taxes are not included. Dealer installed options or accessories are not included unless listed above.		SHIP TWO This label is affixed pursuant to the Federal Automobile Information Disclosure Act. Gasoline, License, and Title Fees, State and Local taxes are not included. Dealer installed options or accessories are not included unless listed above.													

Figure A-102: Monroney Label

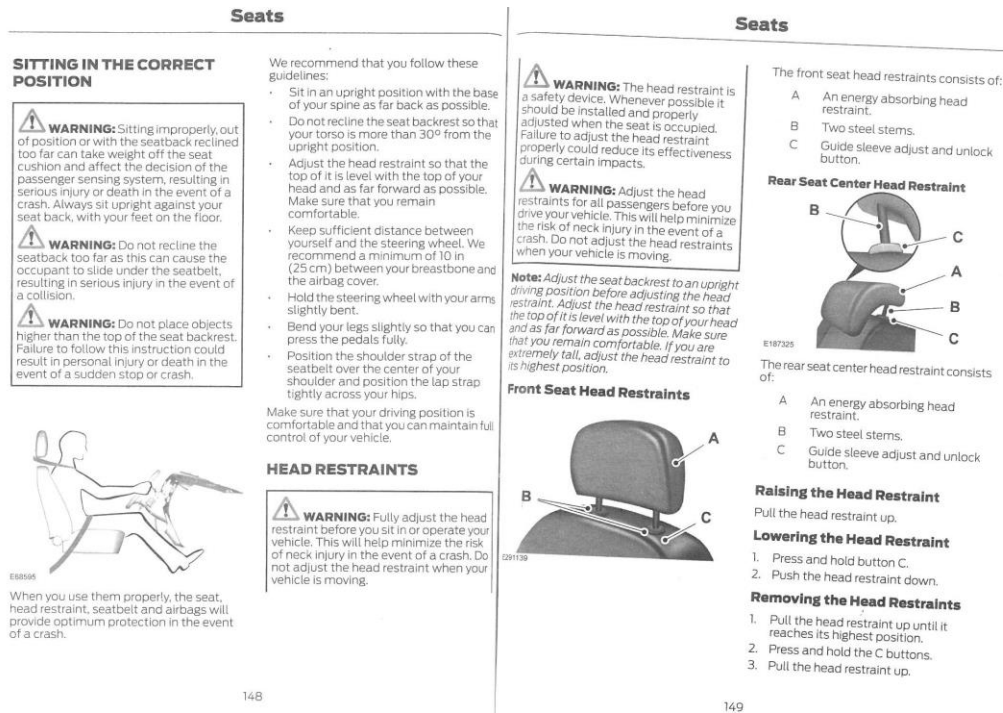


Figure A-103: Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

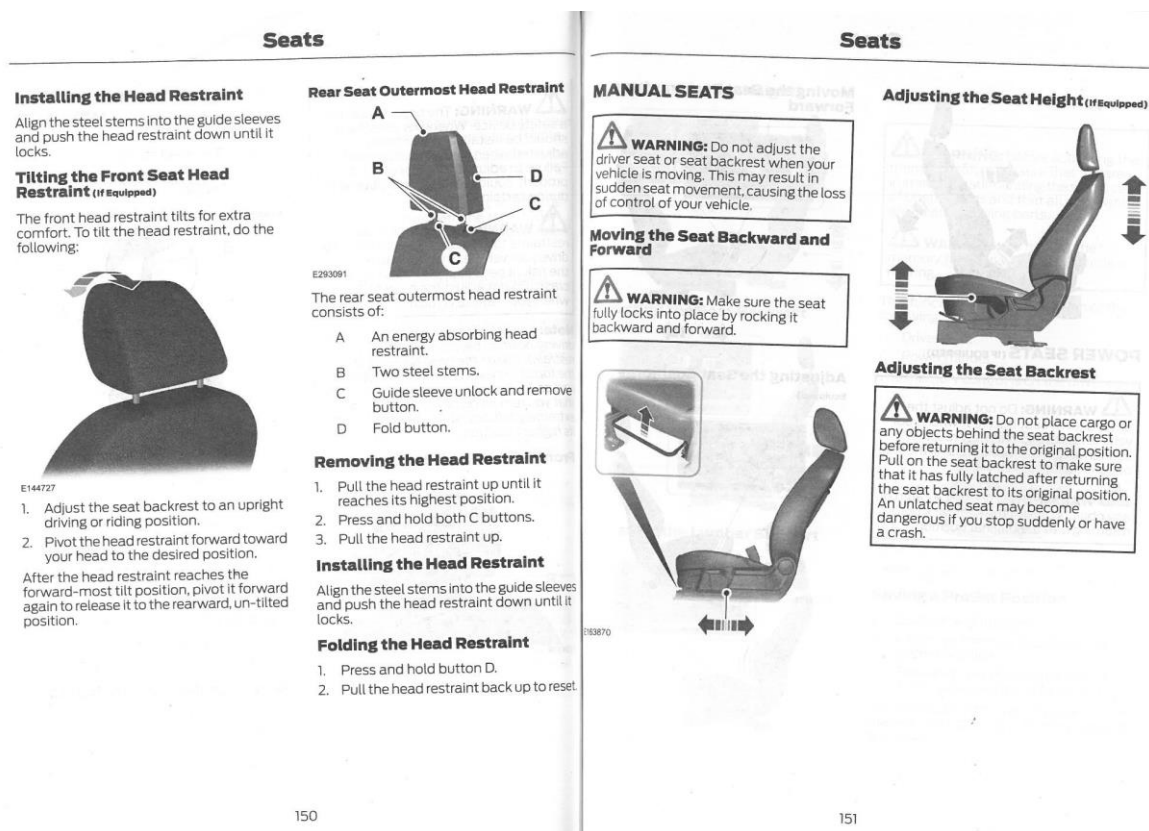


Figure A-104: Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual-Rear Restraints Not Adjustable

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

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3	Driver Head Acceleration (Z) Primary vs. Time	B-5
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6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-6
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-6
8	Driver Thorax Rib Deflection Maximum vs. Time	B-6
9	Driver Anterior Abdominal Force (Y) vs. Time	B-7
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14	Passenger Head Acceleration (X) vs. Time Primary	B-8
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18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-9
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-9
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21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-10
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-10
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24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-10

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 & Passenger Dummy Instrumentation Data

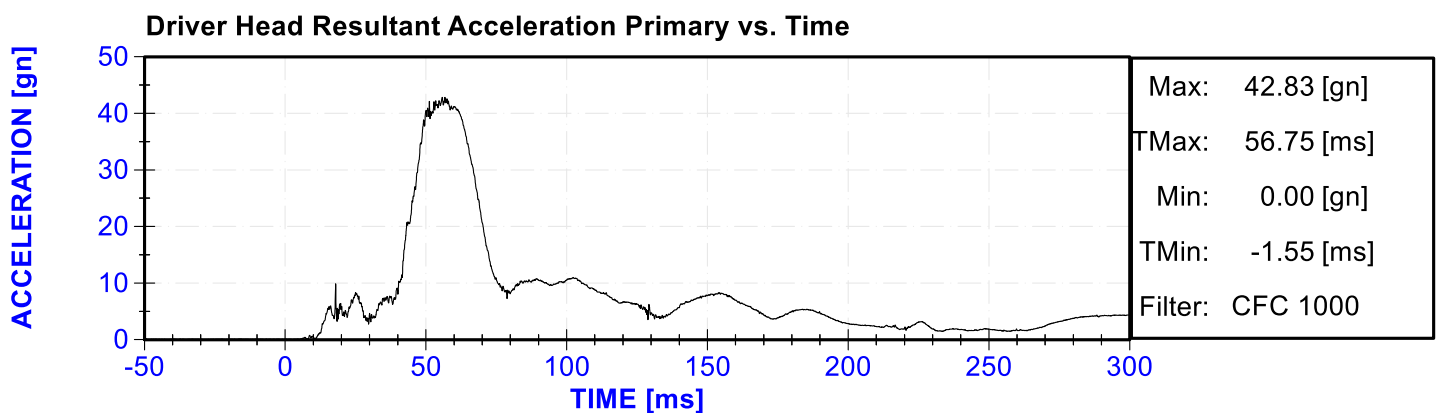
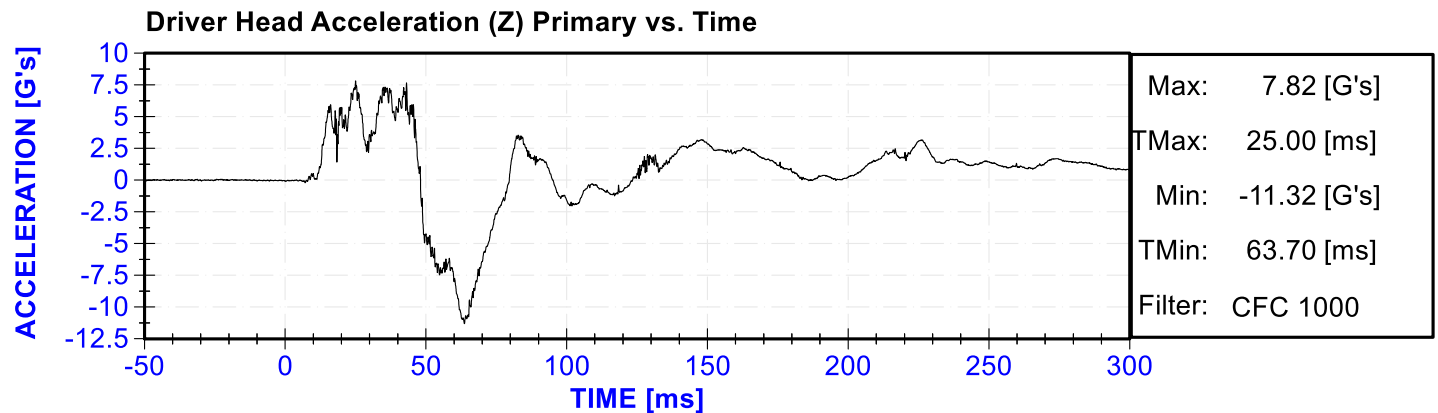
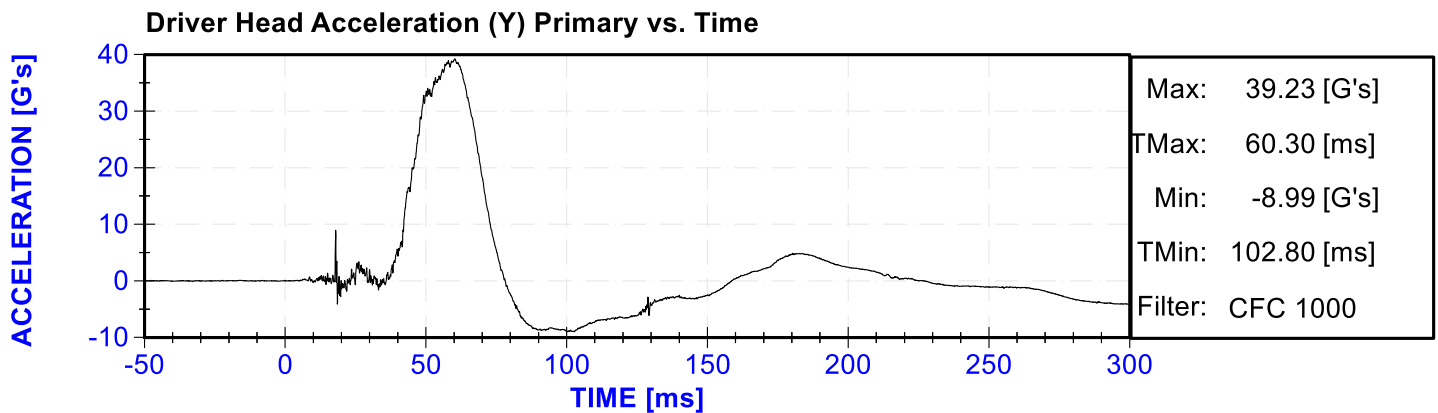
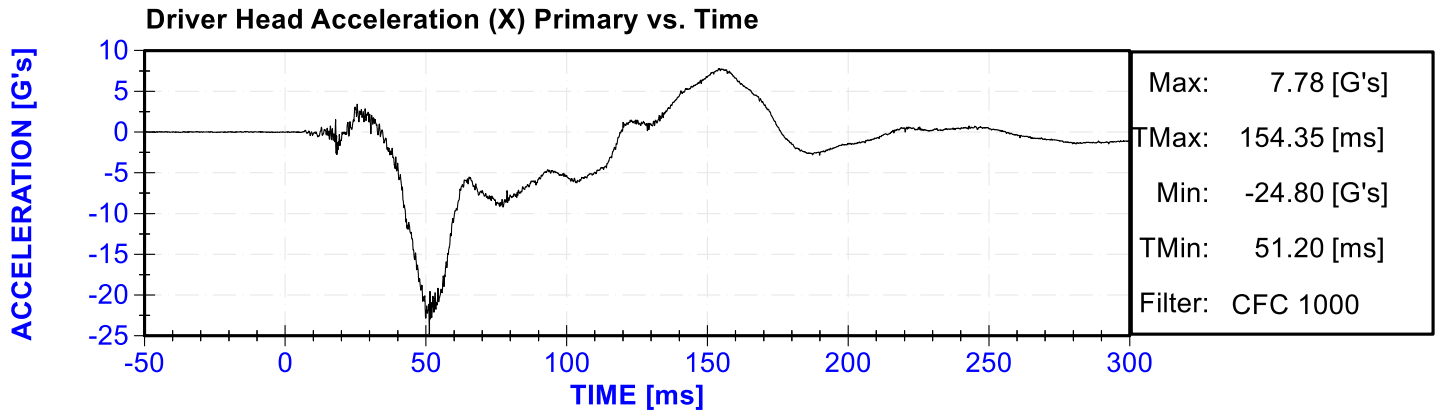
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Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
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Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
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Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

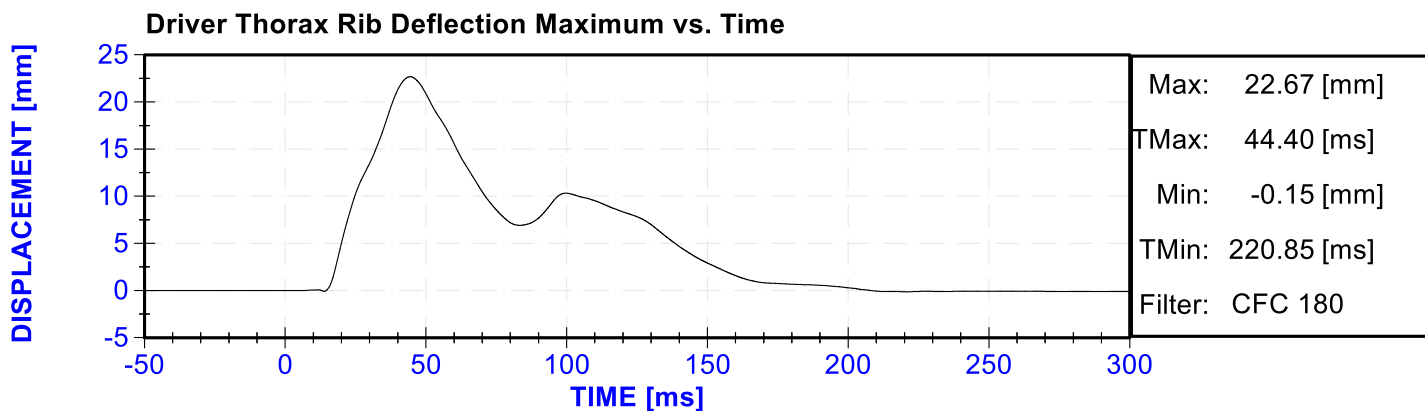
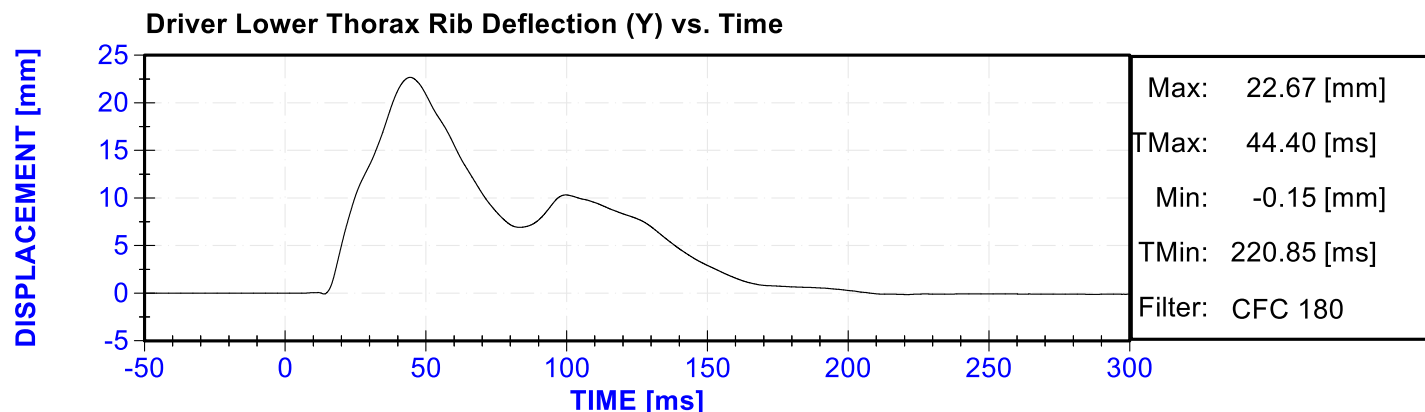
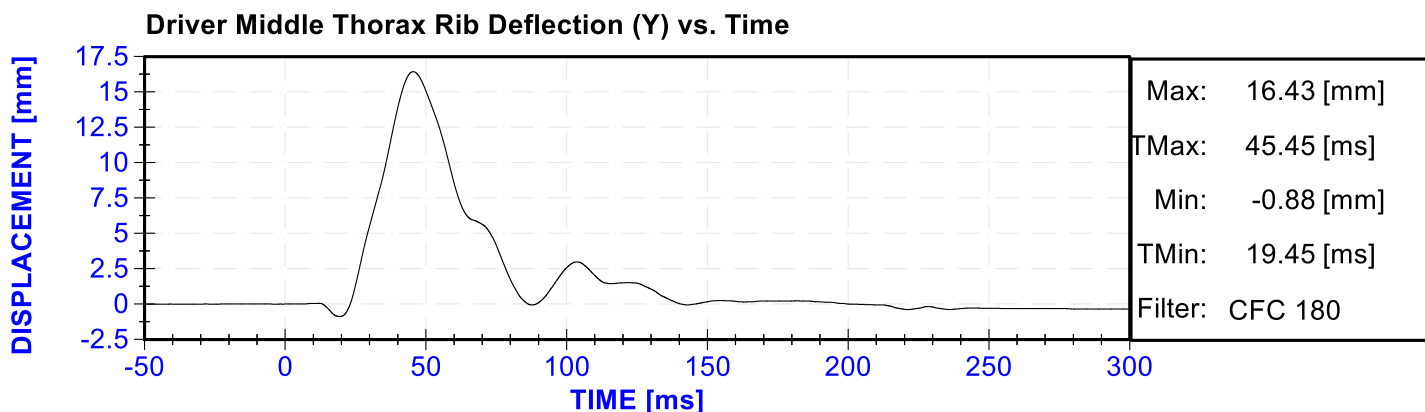
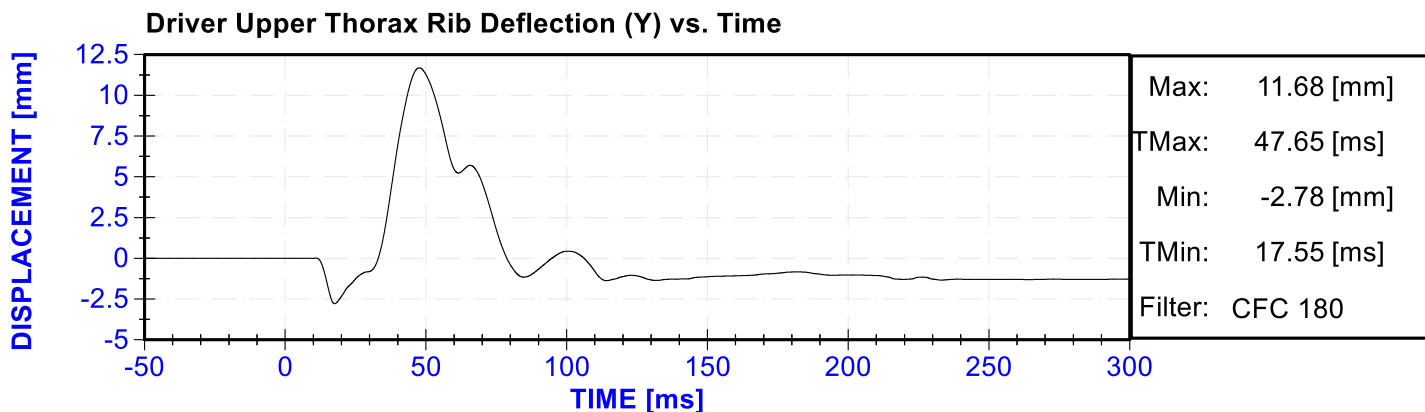
Vehicle Instrumentation Data

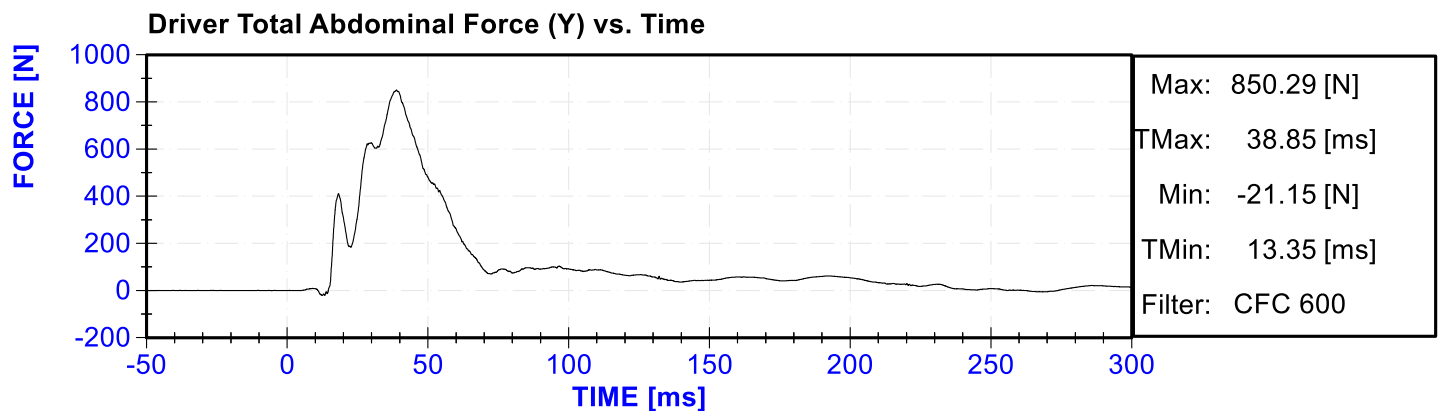
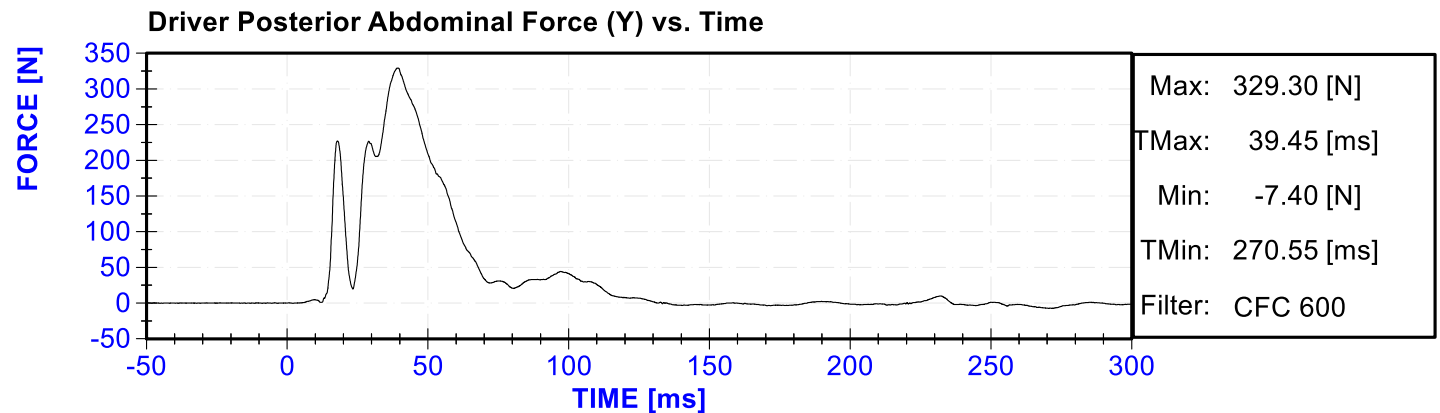
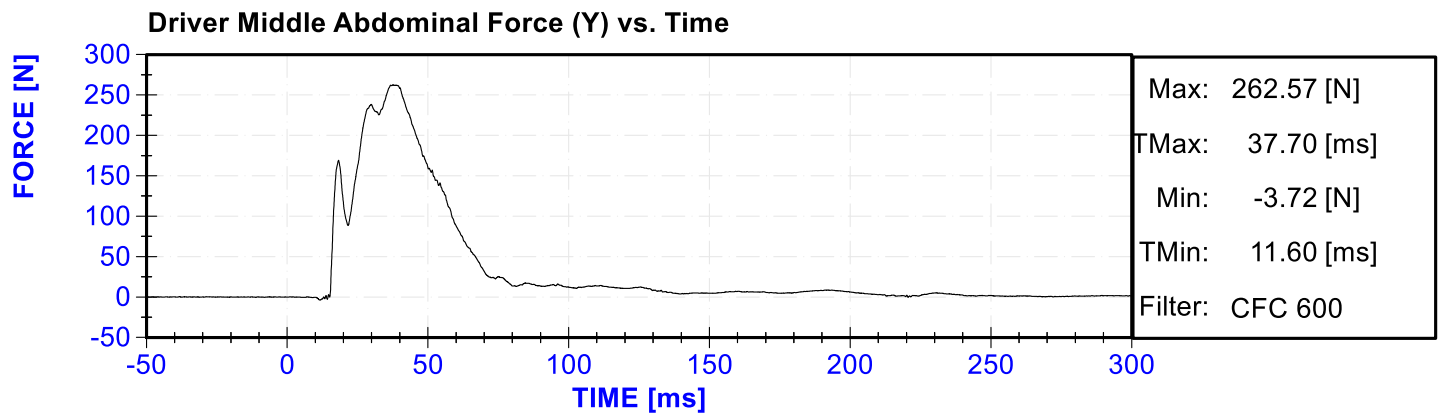
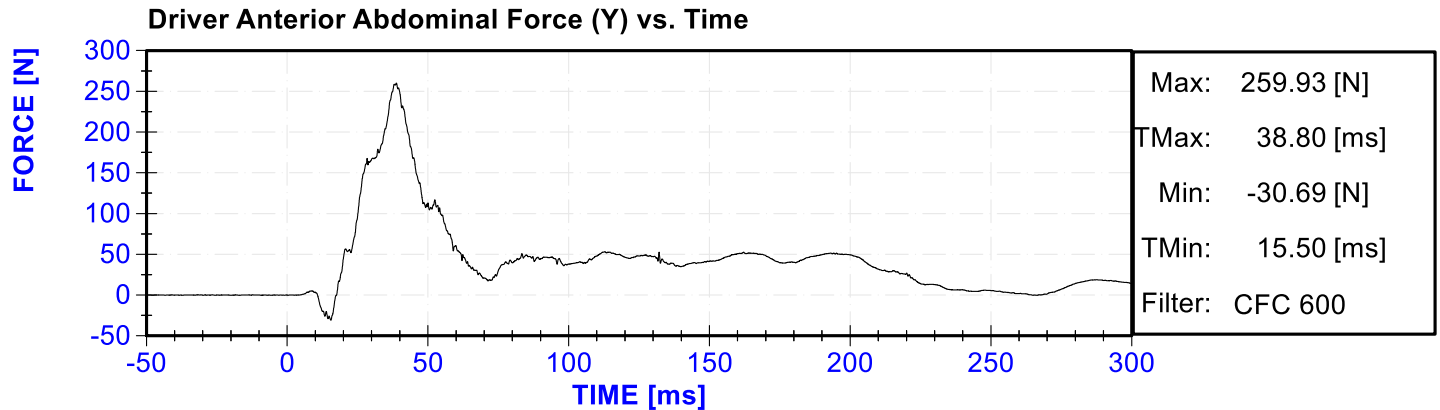
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

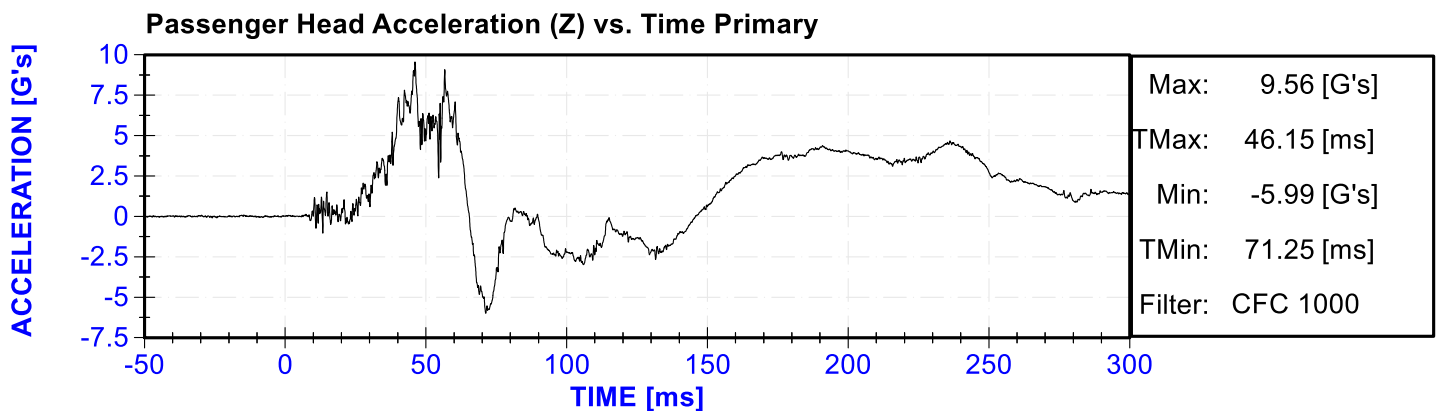
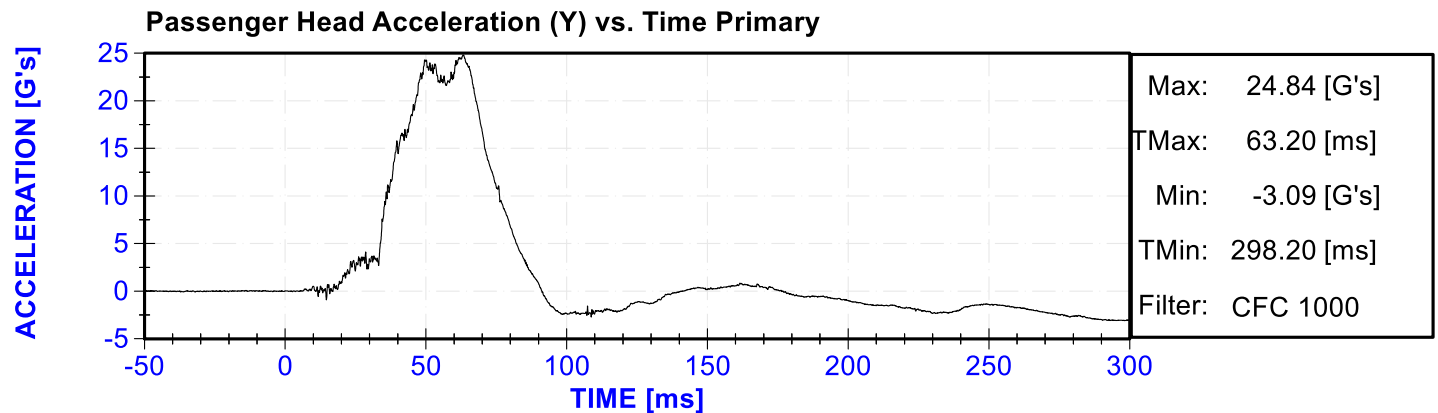
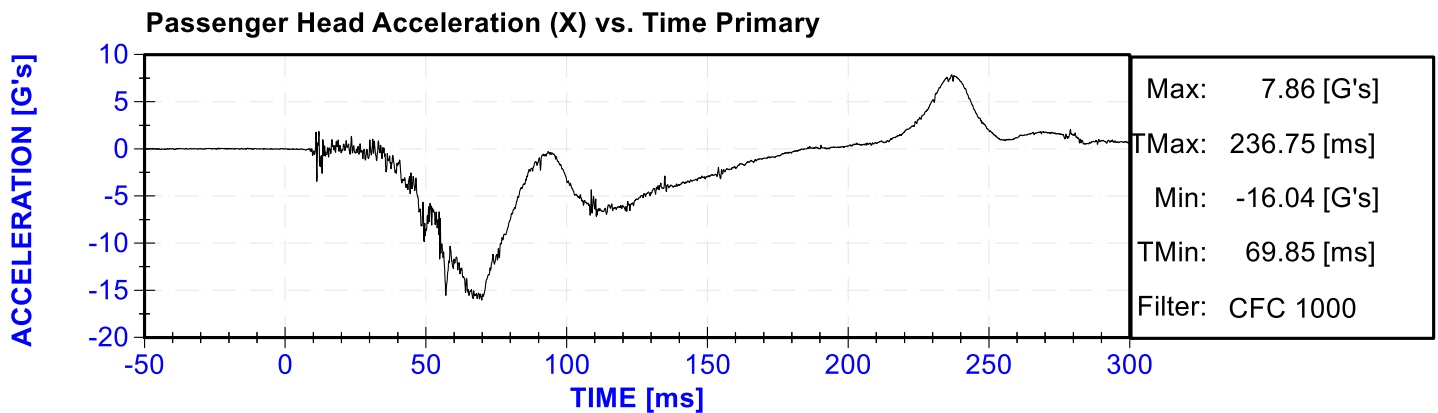
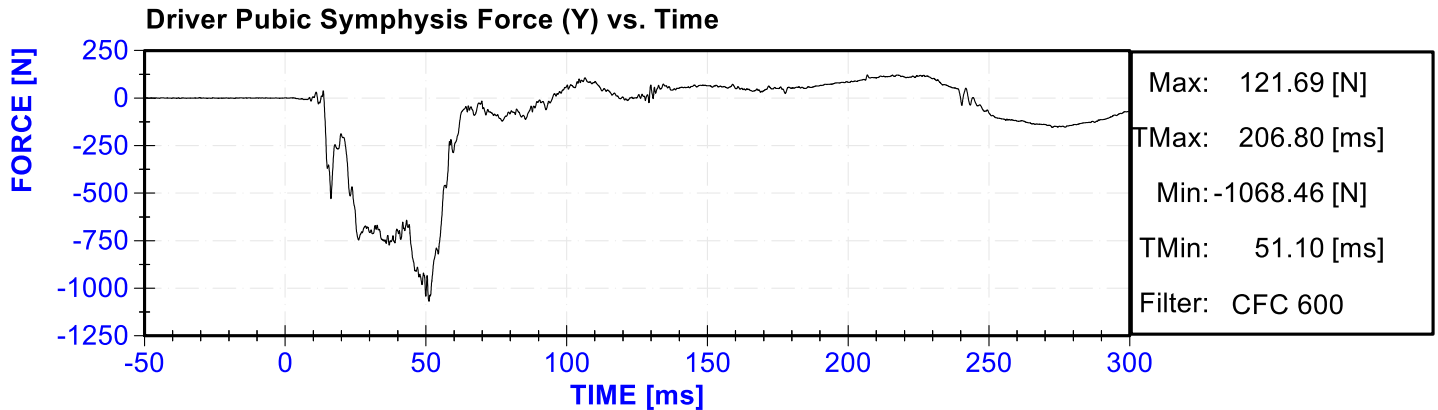
MDB Instrumentation Data

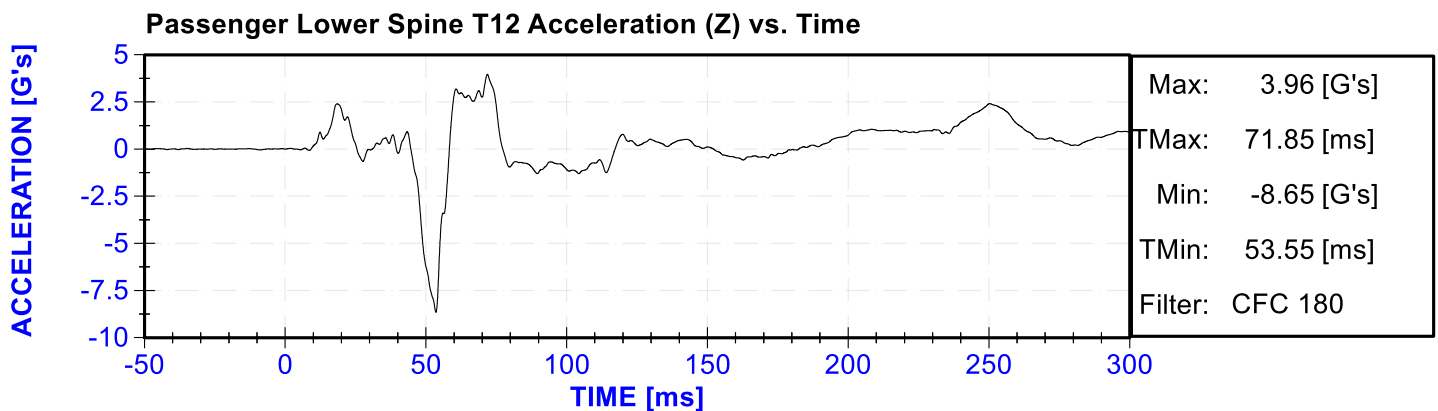
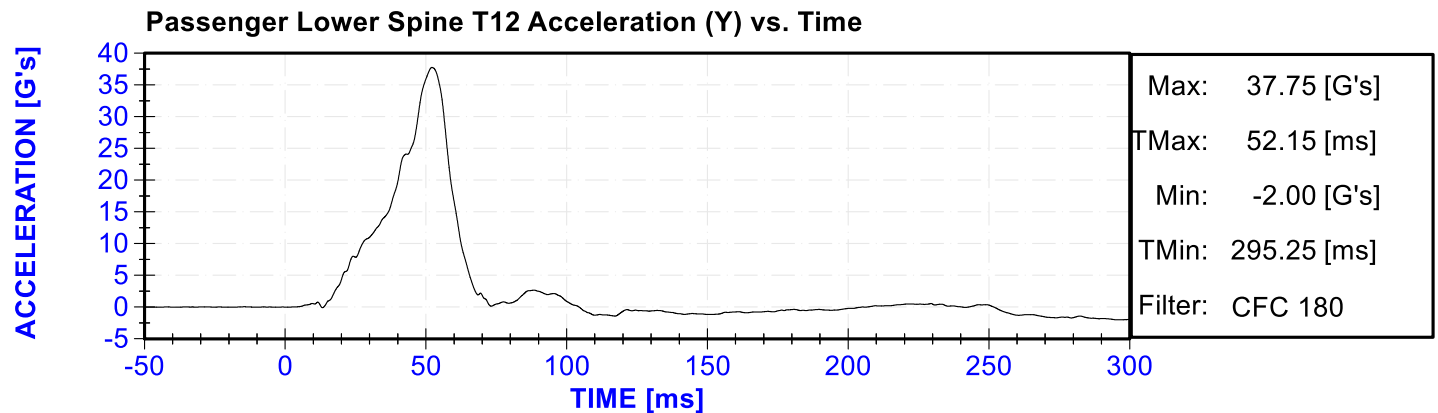
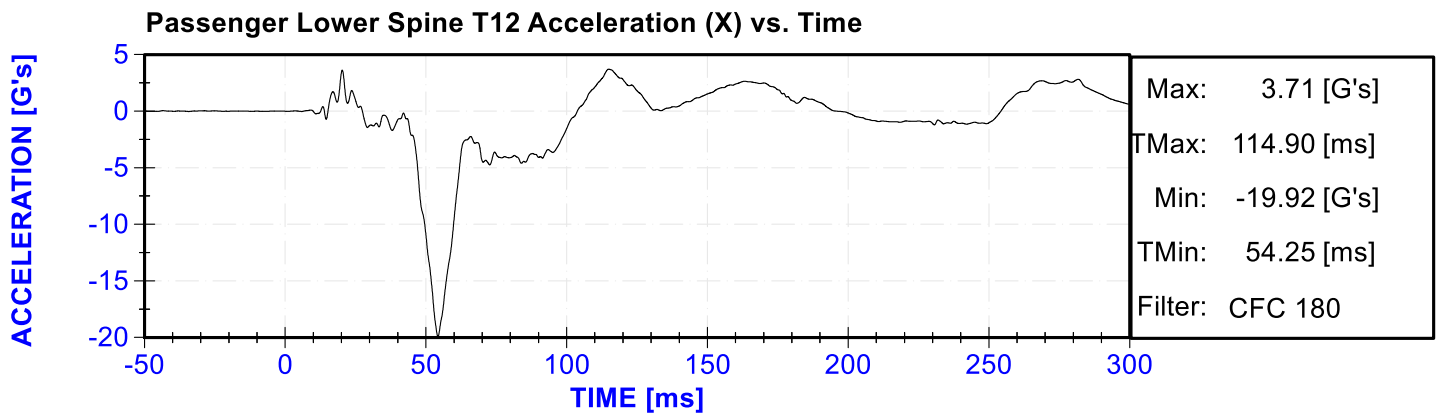
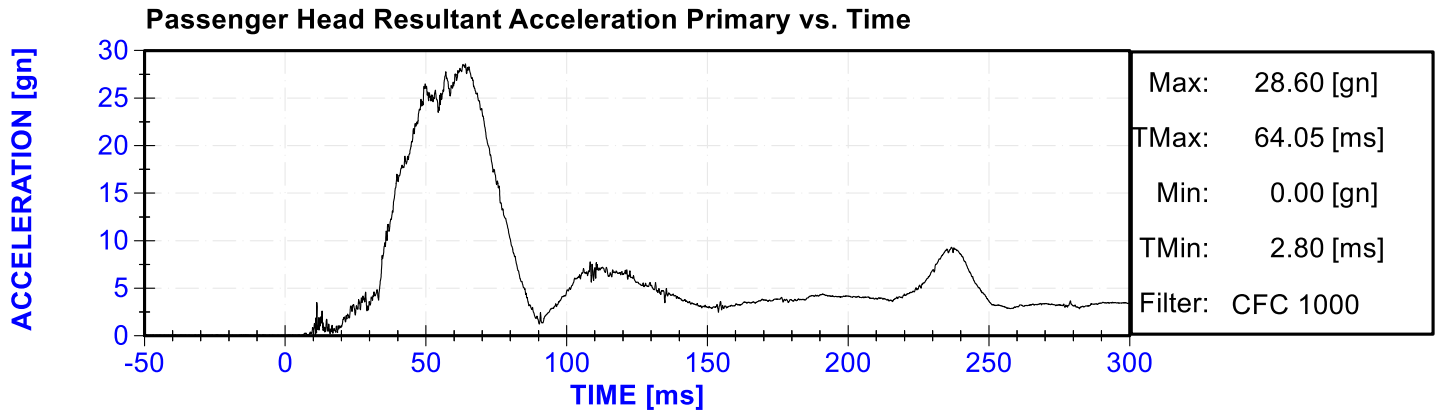
MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

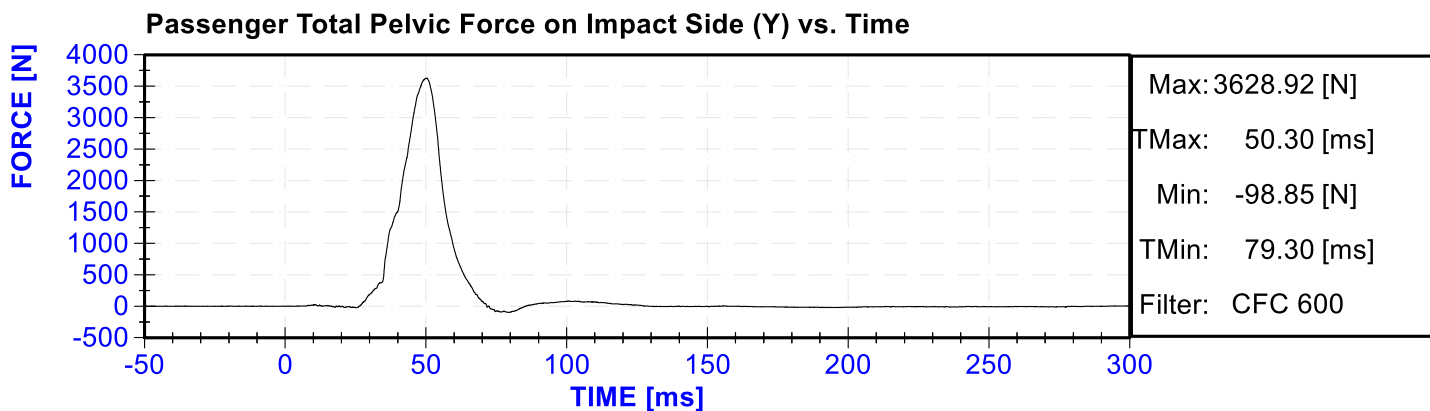
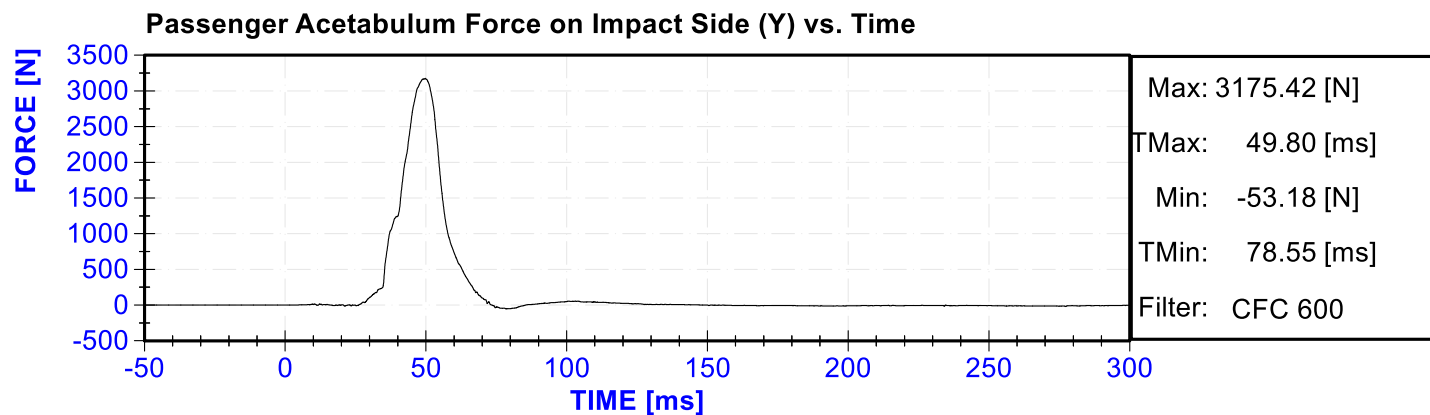
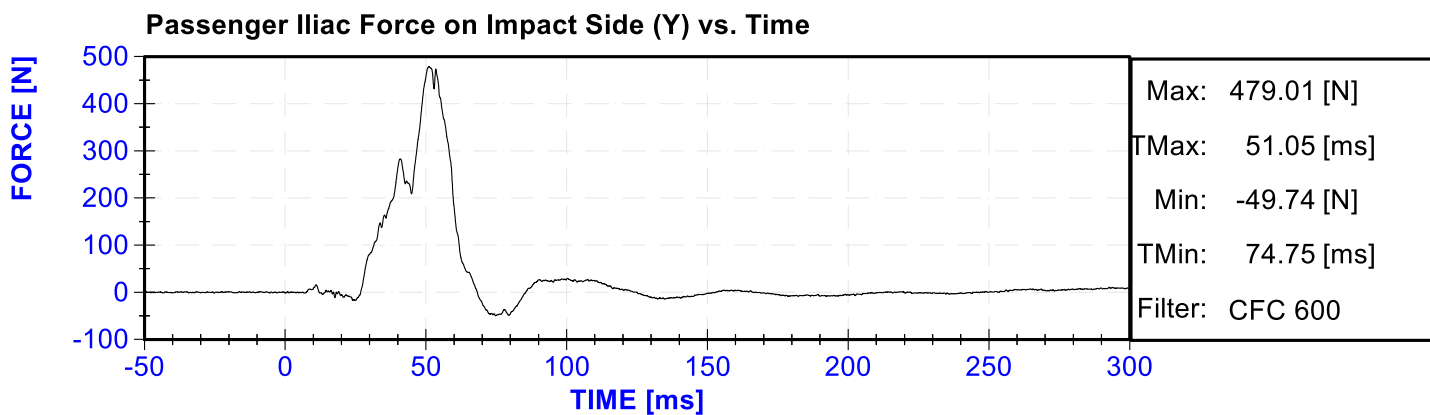
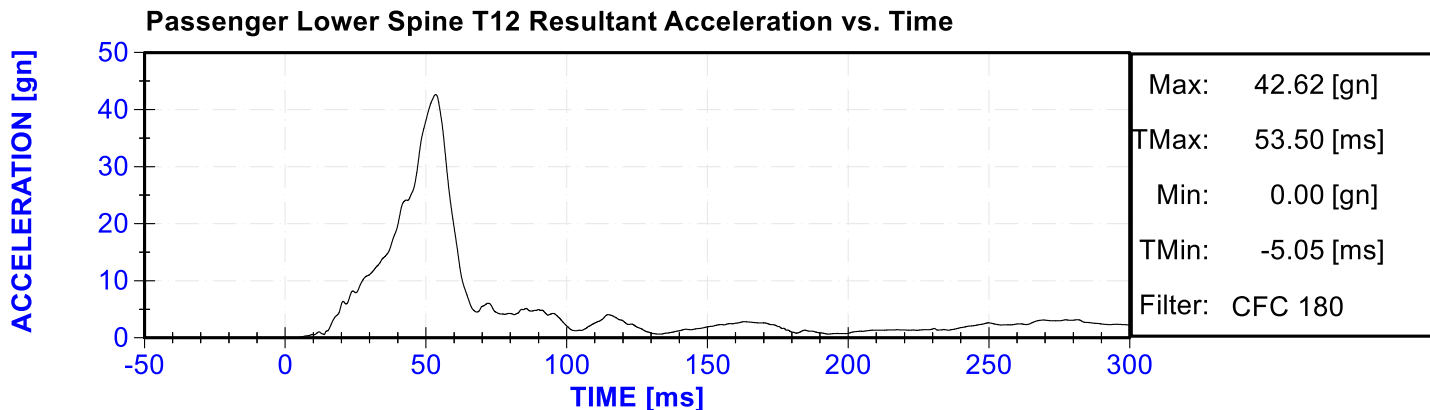












APPENDIX C

DUMMY PERFORMANCE CALIBRATION TEST DATA

CALIBRATION TEST RESULTS

PRE-TEST

EUROSID 2 (ES-2RE) MALE – DRIVER ATD

SERIAL NO: F034

(CONFIGURED FOR LEFT SIDE IMPACT)

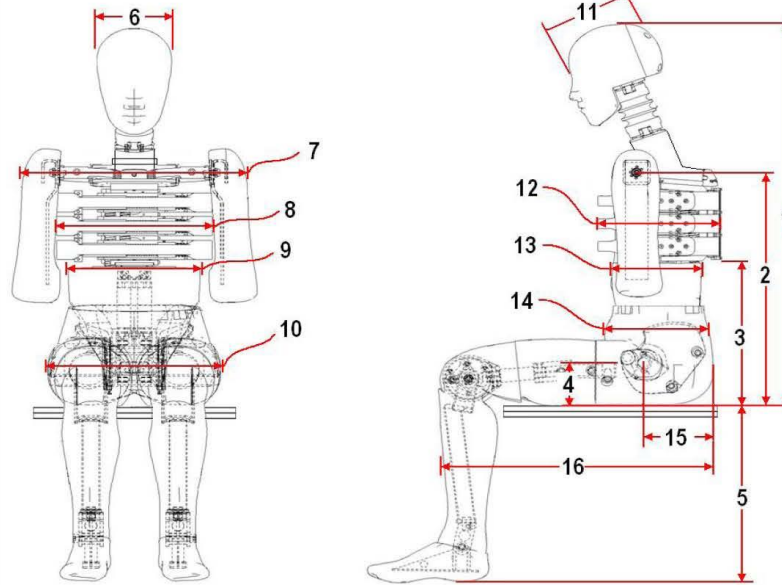


External Measurements - EuroSID-2re

Technician: K. Dutton

Date: 12/04/2019

Dummy Serial Number: F034



FRONT VIEW

SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	910	Pass
2	Seat to Shoulder Joint	558	572	569	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	352	Pass
4	Seat to Hip Joint (center of bolt)	97	103	99	Pass
5	Sole to Seat, Sitting	333	451	419	Pass
6	Head Width	152	158	154	Pass
7	Shoulder/Arm Width	461	479	472	Pass
8	Thorax Width	322	332	327	Pass
9	Abdomen Width	273	287	283	Pass
10	Pelvis Lap Width	359	373	365	Pass
11	Head Depth	196	206	202	Pass
12	Thorax Depth	262	272	269	Pass
13	Abdomen Depth	194	204	201	Pass
14	Pelvis Depth	235	245	242	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	155	Pass
16	Back of Buttocks to Front Knee	597	615	609	Pass

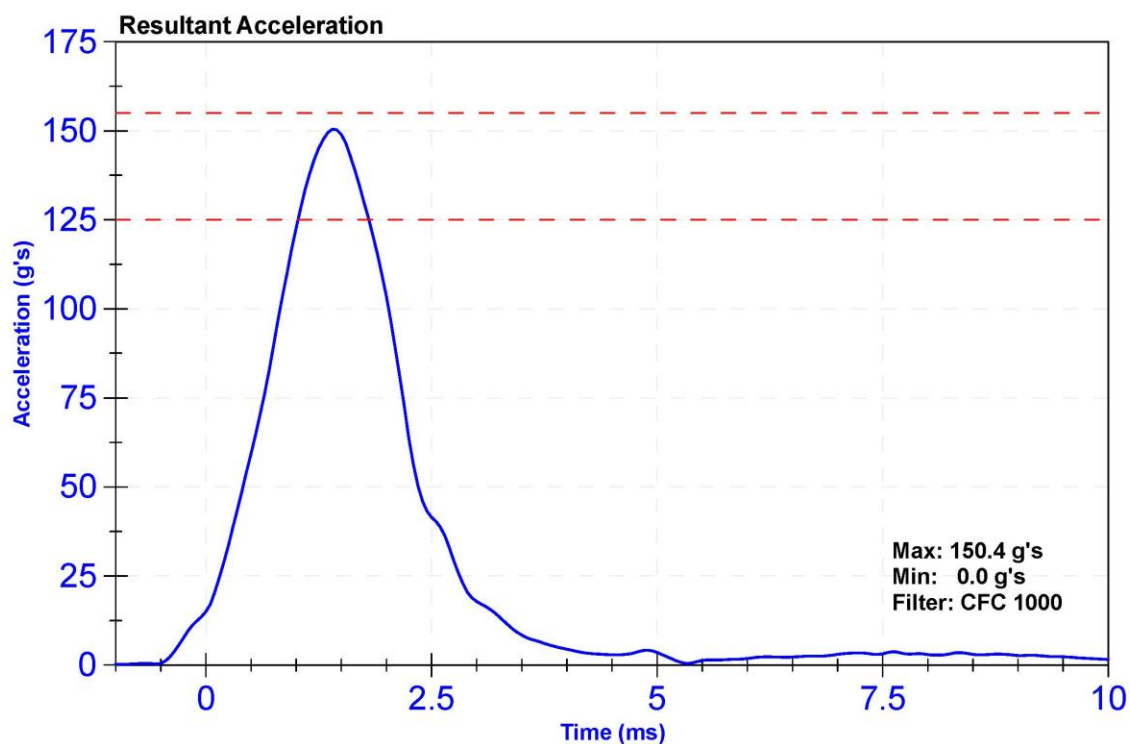
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

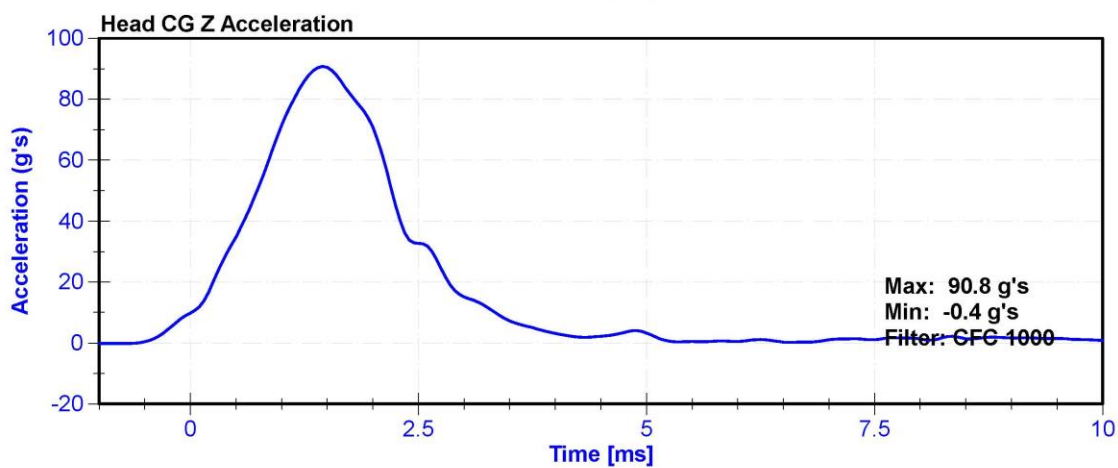
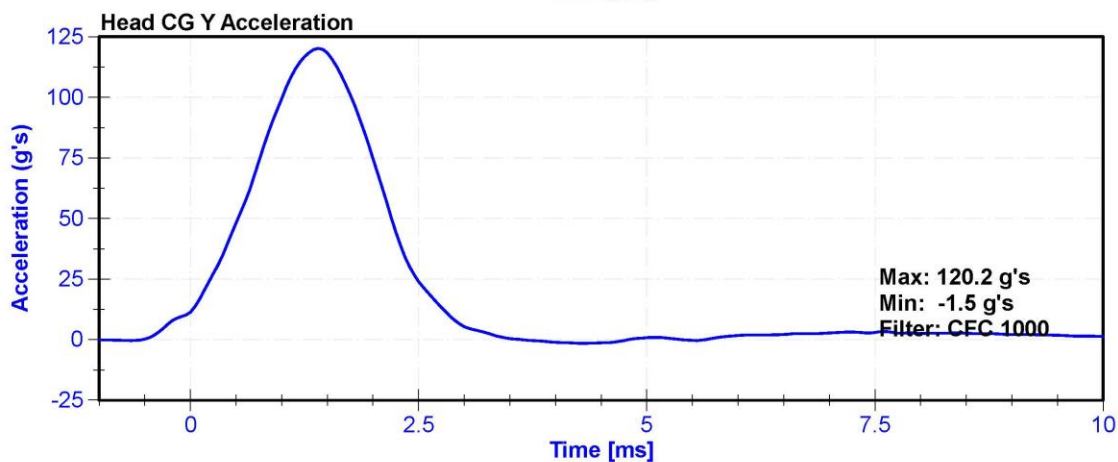
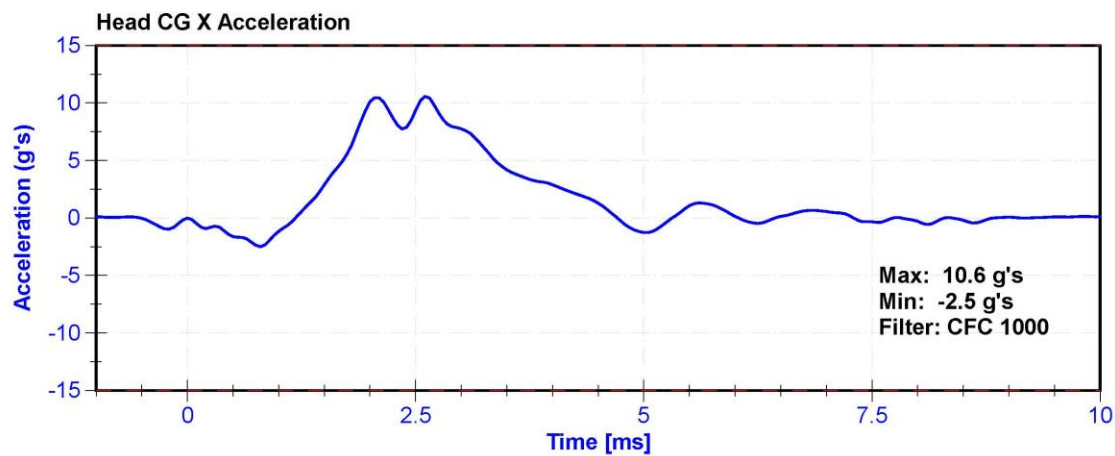
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	31.1	Pass
Resultant Acceleration	125	155	g's	150.4	Pass
Oscillation	0	15	%	2.76	Pass
Fore-Aft Acceleration	-15	15	g's	10.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P49204	10/29/2019	4/29/2020
Y Accelerometer	Endevco	P63981	10/29/2019	4/29/2020
Z Accelerometer	Endevco	P64007	10/29/2019	4/29/2020





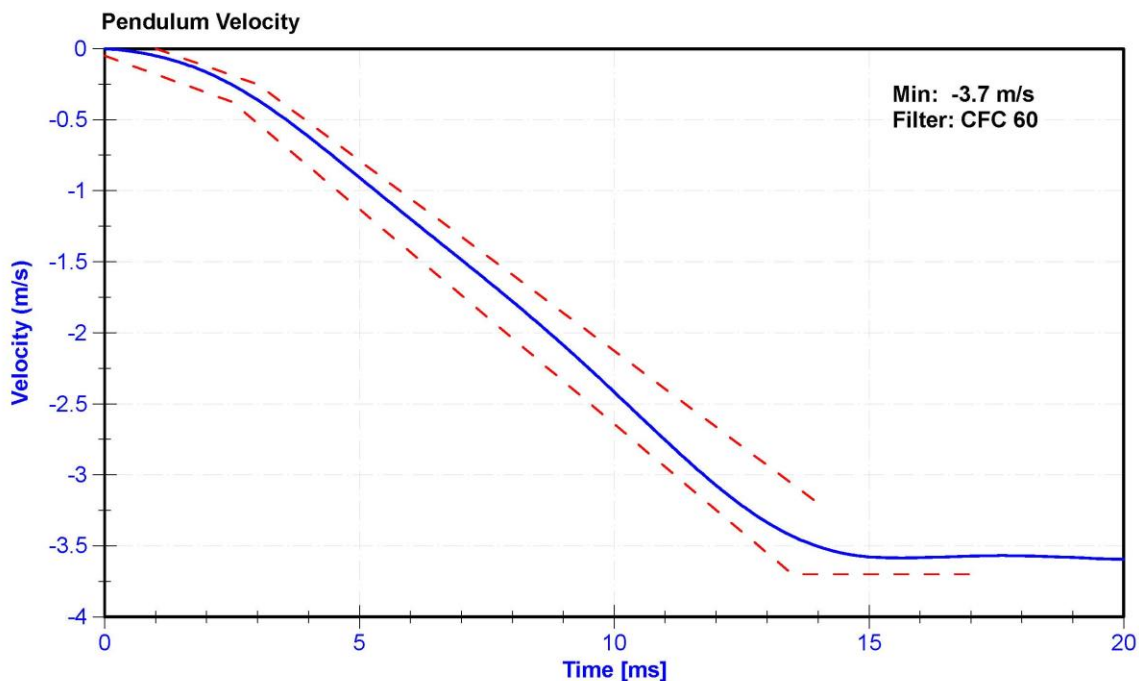
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

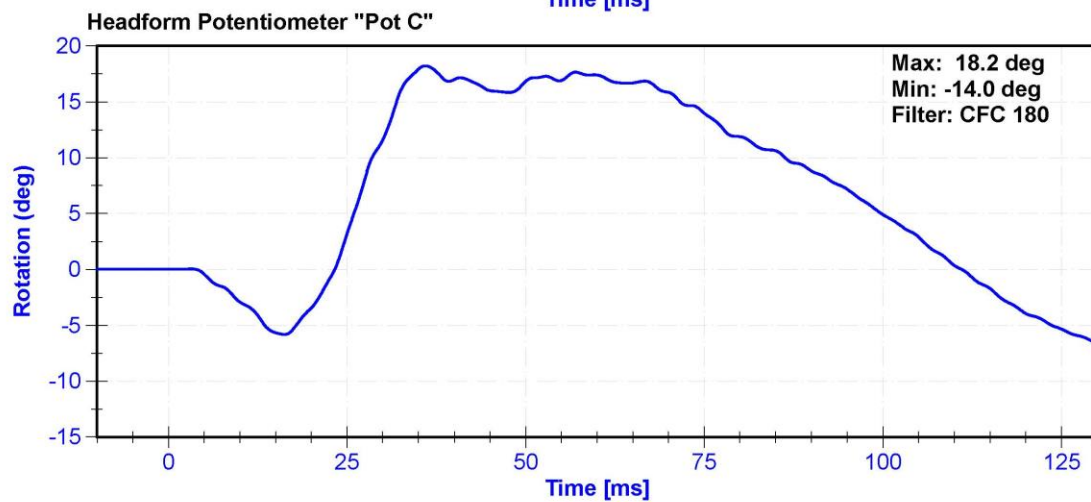
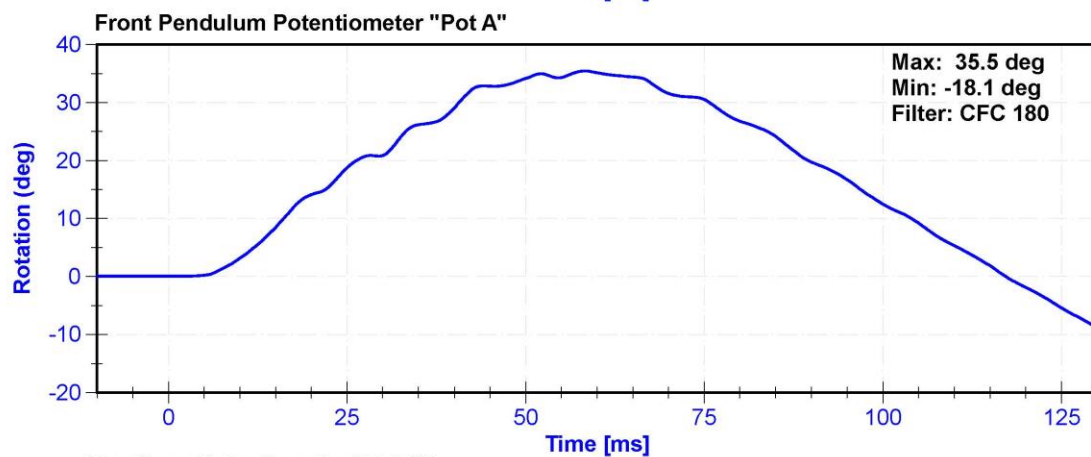
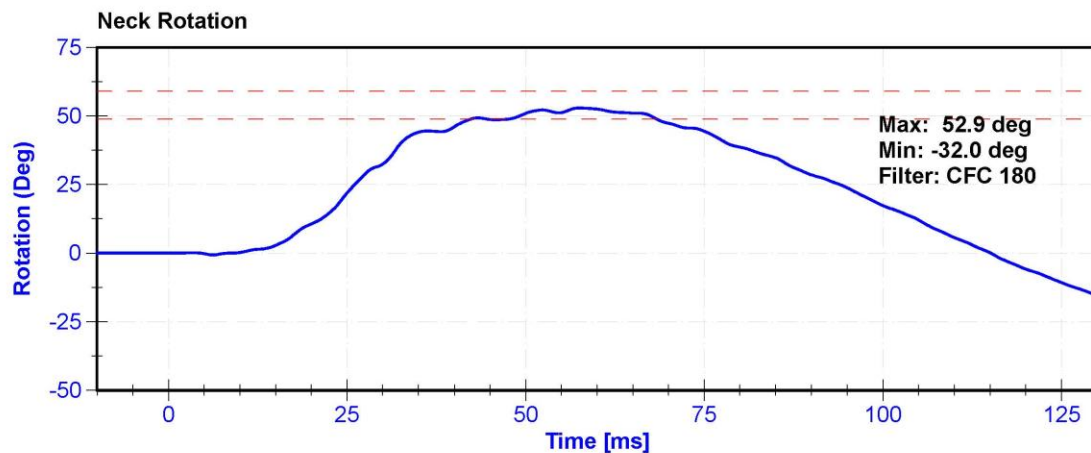
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21	Pass
Humidity	10	70	%	23	Pass
Velocity	3.3	3.5	m/s	3.33	Pass
Lateral Neck Rotation	49	59	deg	52.9	Pass
Time at Maximum Rotation	54	66	ms	57.5	Pass
Time of Rotation Decay from Maximum	53	88	ms	57.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5M9	1/29/2019	1/29/2020
Front Pendulum Potentiometer	SP22G	DS-094	10/31/2019	10/30/2020
Headform Potentiometer	SP22G	DS-095	10/31/2019	10/30/2020





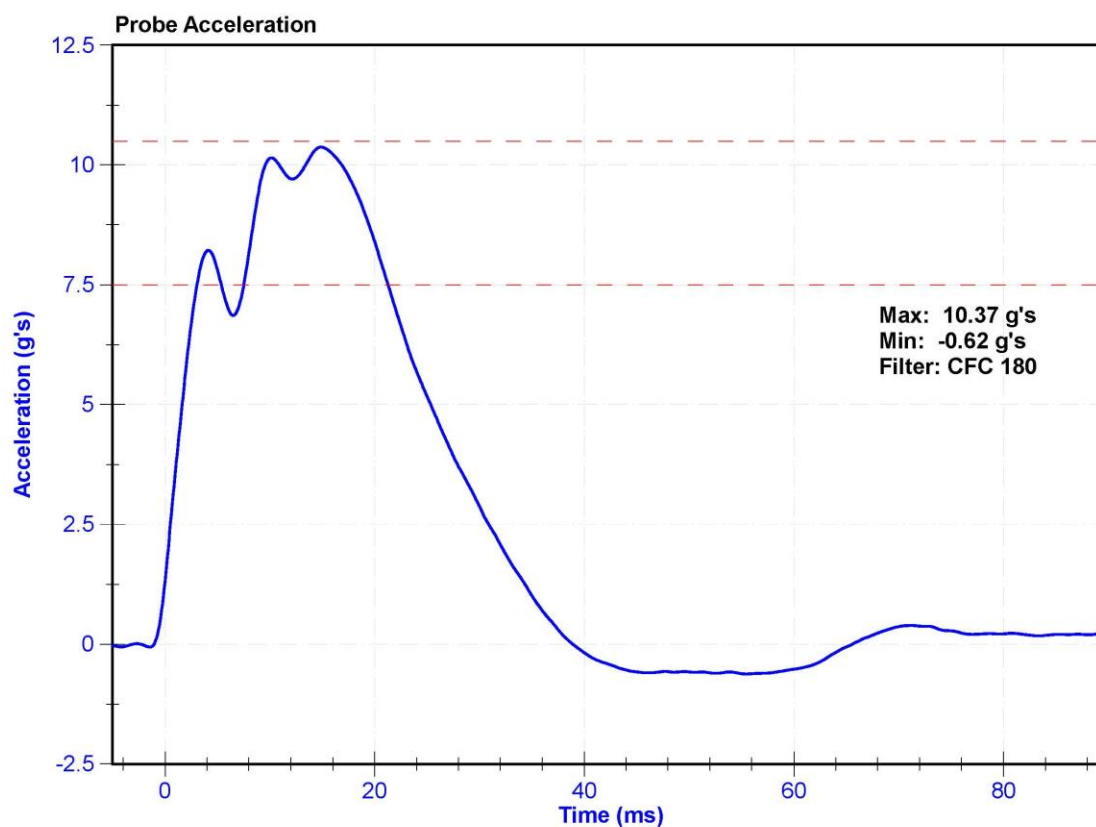
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	30.0	Pass
Velocity	4.2	4.4	m/s	4.23	Pass
Probe Acceleration	7.5	10.5	g's	10.37	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A260568	7/29/2019	1/27/2020



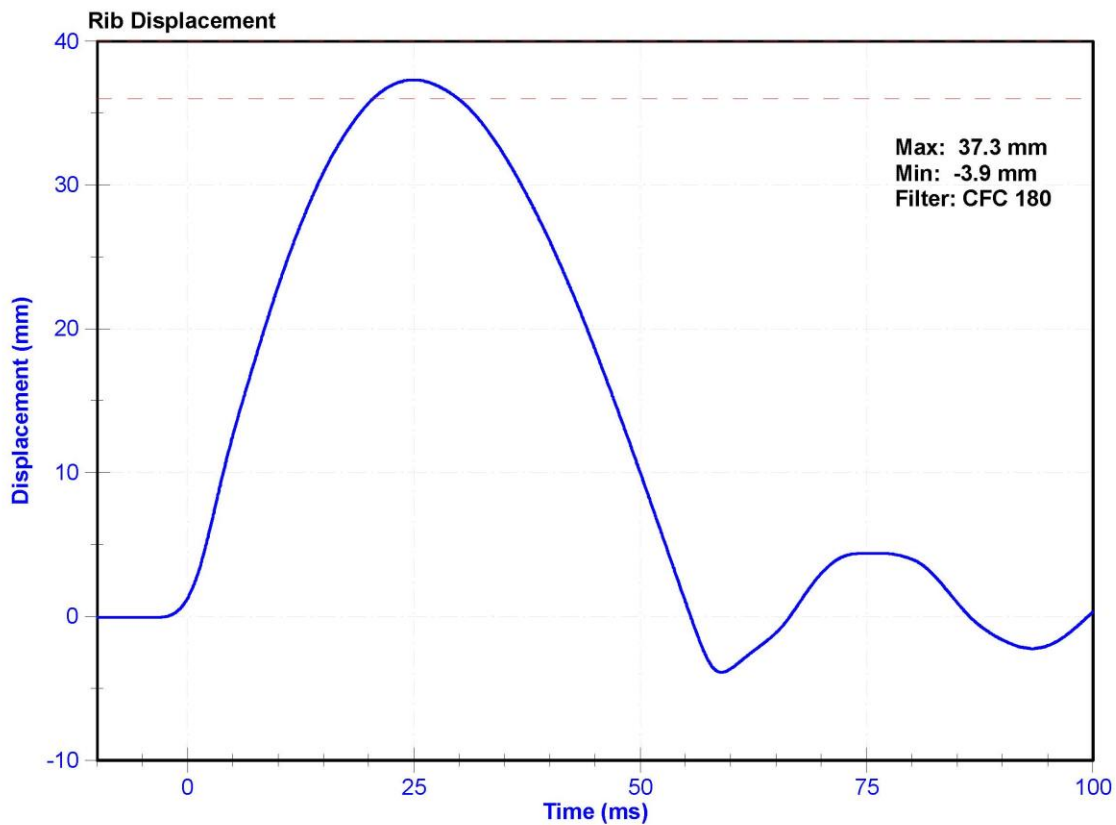
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	34.5	Pass
Rib Displacement	36	40	mm	37.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell MLT-38000203	DS-183GFE	10/31/2019	4/30/2020



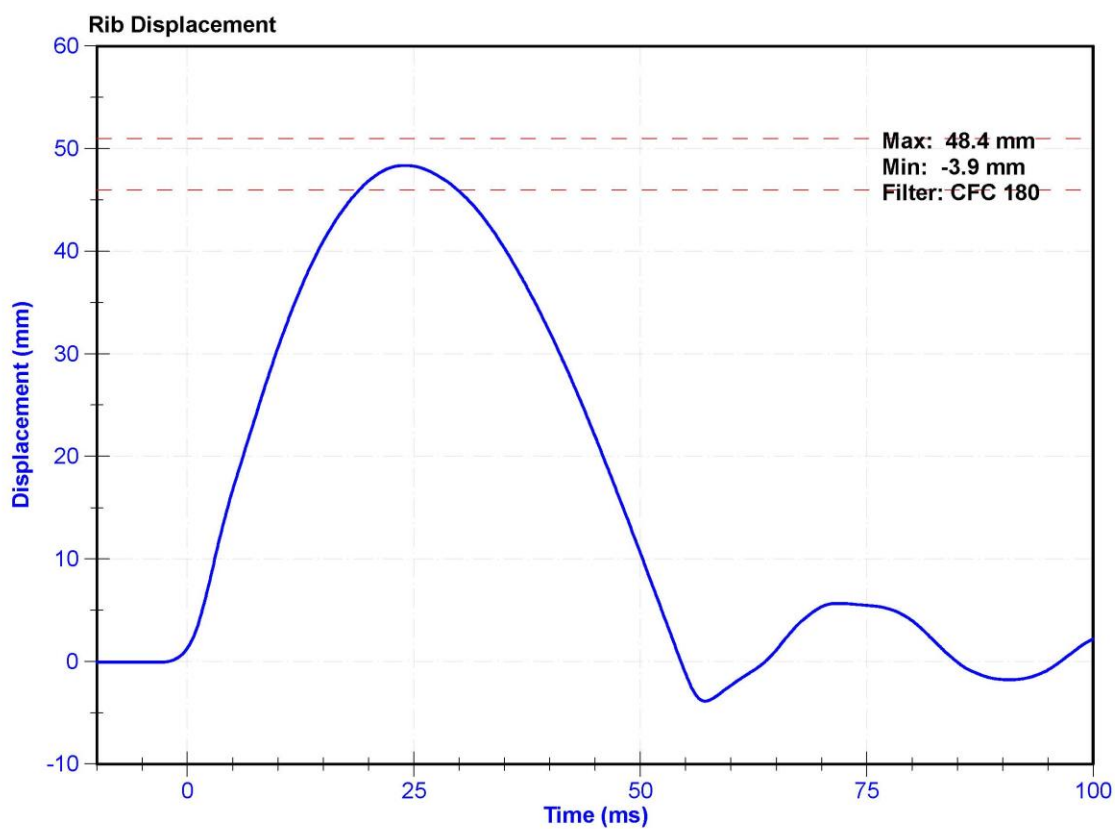
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	34.5	Pass
Rib Displacement	46	51	mm	48.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell MLT-38000203	DS-183GFE	10/31/2019	4/30/2020



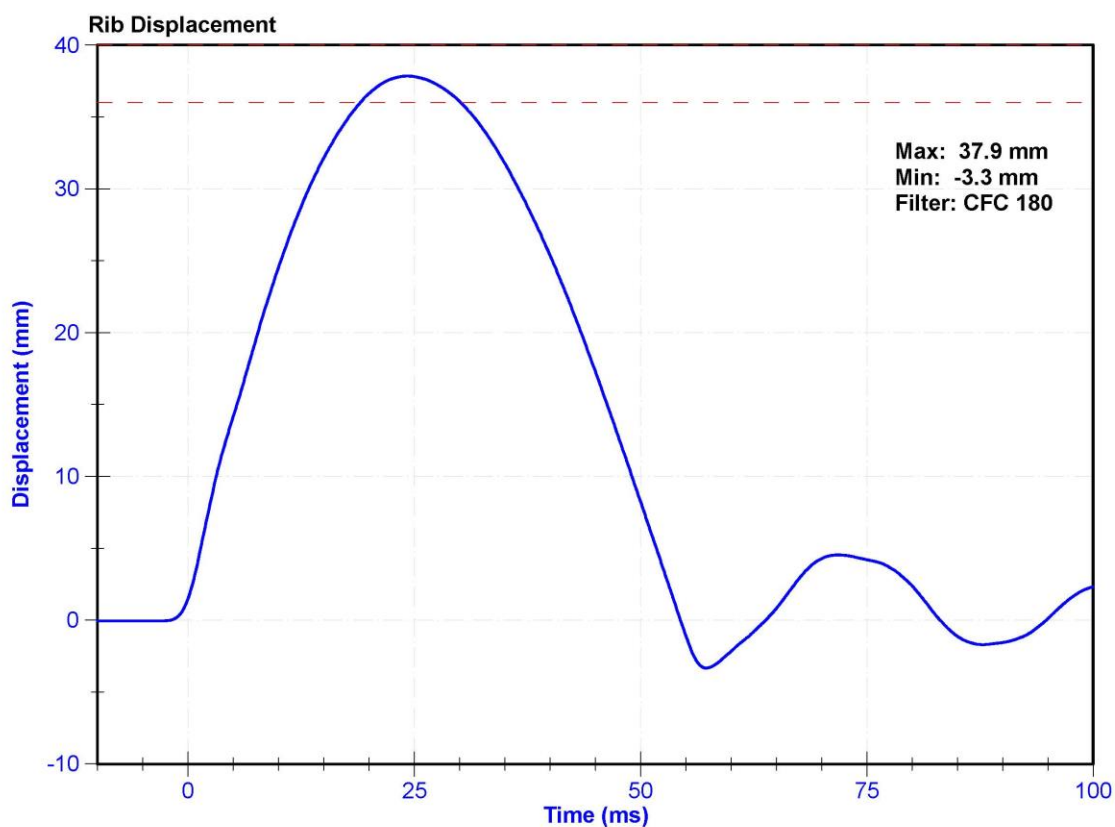
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.0	Pass
Humidity	10	70	%	48.1	Pass
Rib Displacement	36	40	mm	37.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell MLT-38000203	DS-184GFE	10/31/2019	4/30/2020



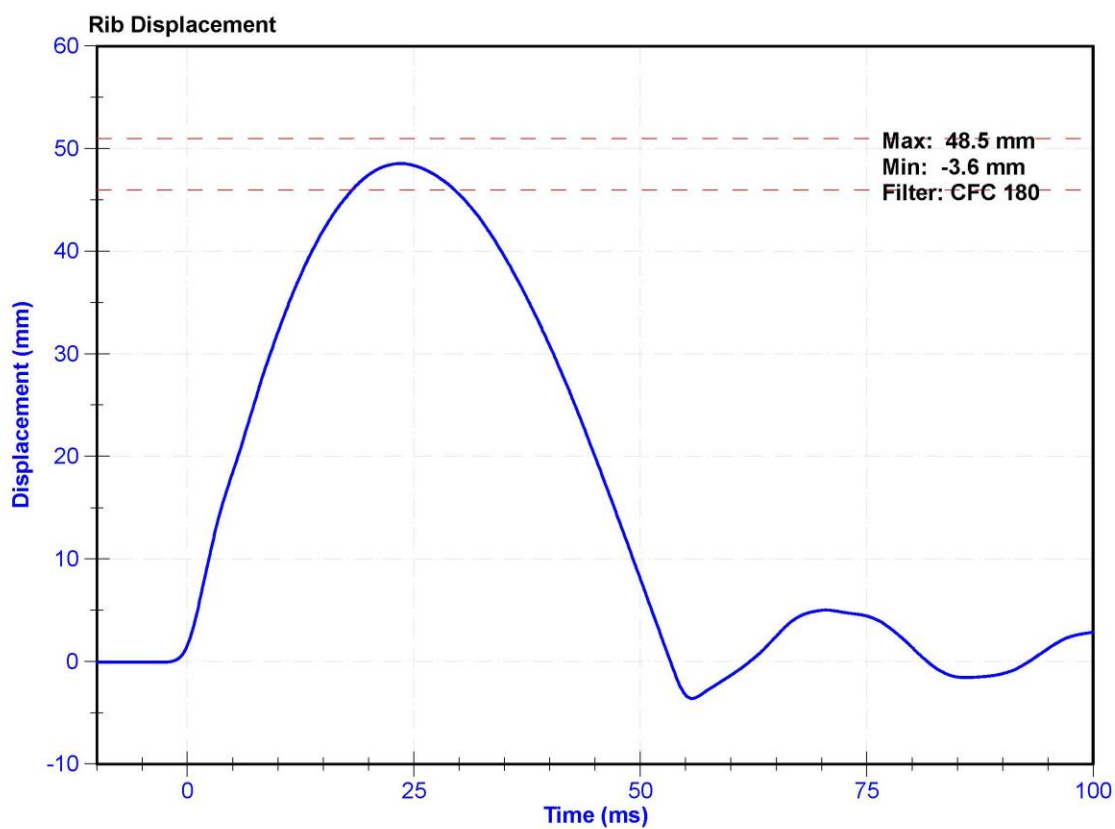
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	33.3	Pass
Rib Displacement	46	51	mm	48.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell MLT-38000203	DS-184GFE	10/31/2019	4/30/2020



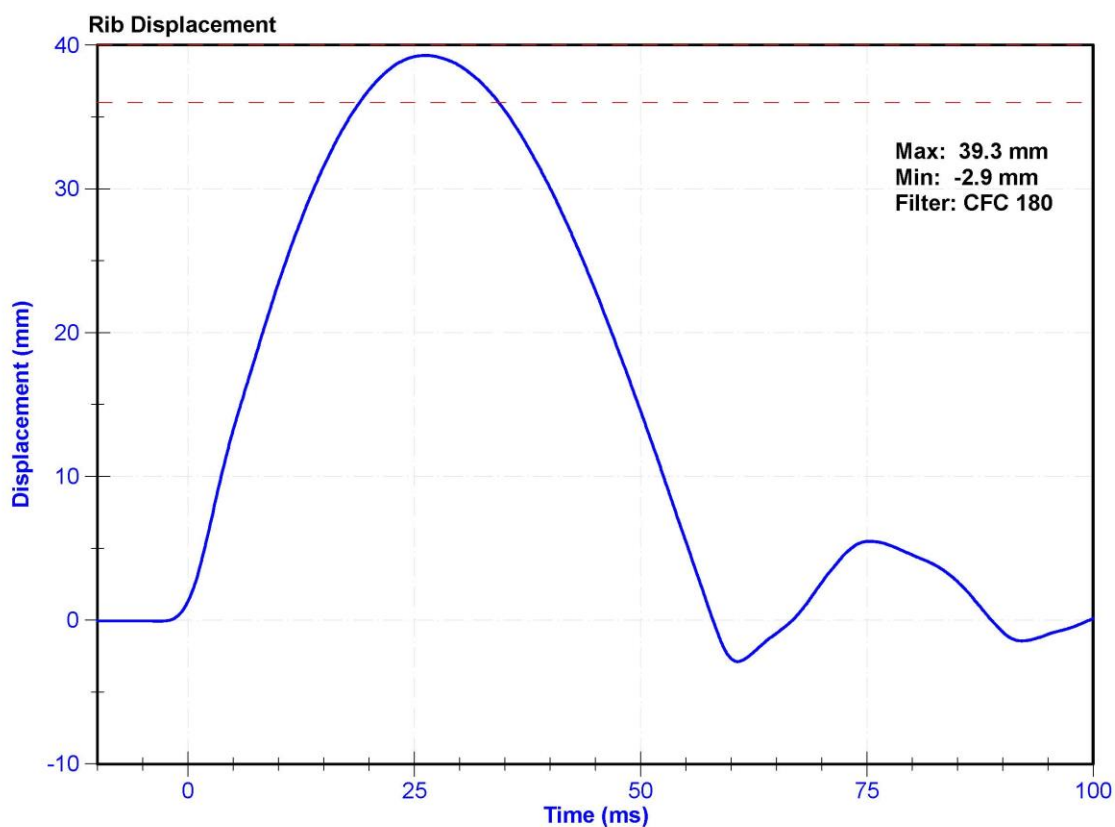
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	32.9	Pass
Rib Displacement	36	40	mm	39.3	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell MLT-38000203	DS-182GFE	10/31/2019	4/30/2020



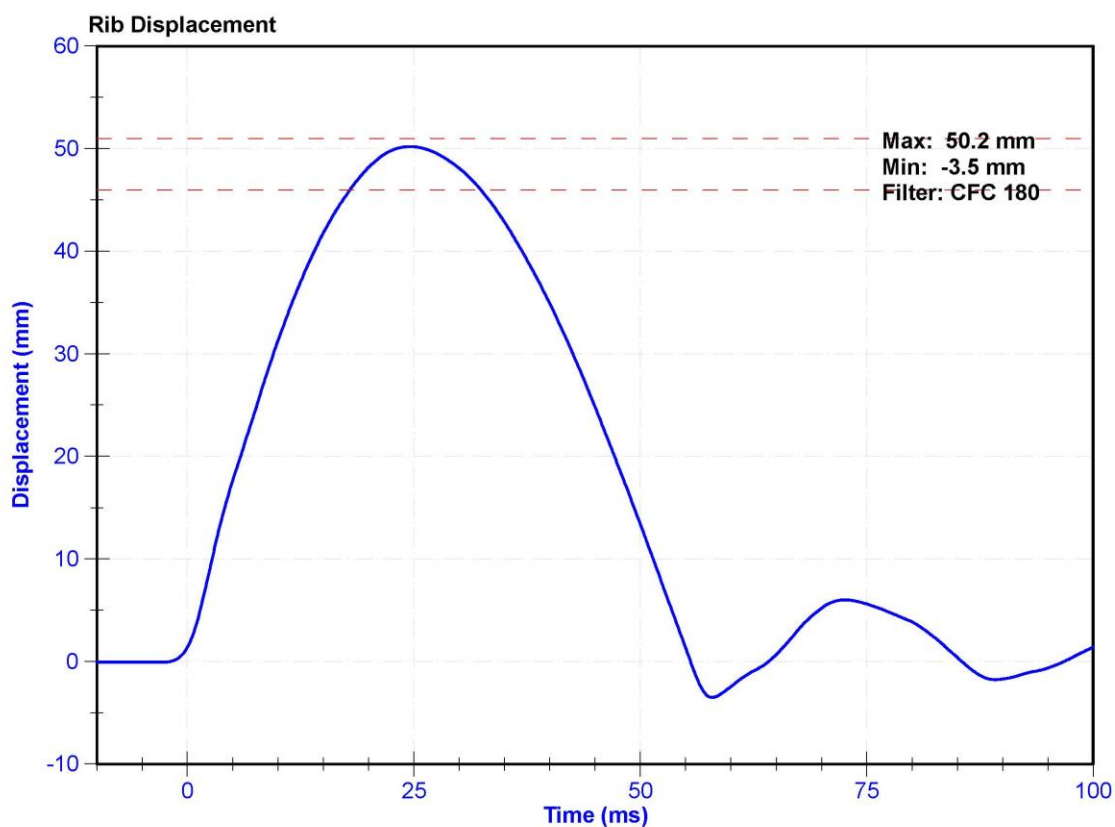
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	33.9	Pass
Rib Displacement	46	51	mm	50.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell MLT-38000203	DS-182GFE	10/31/2019	4/30/2020



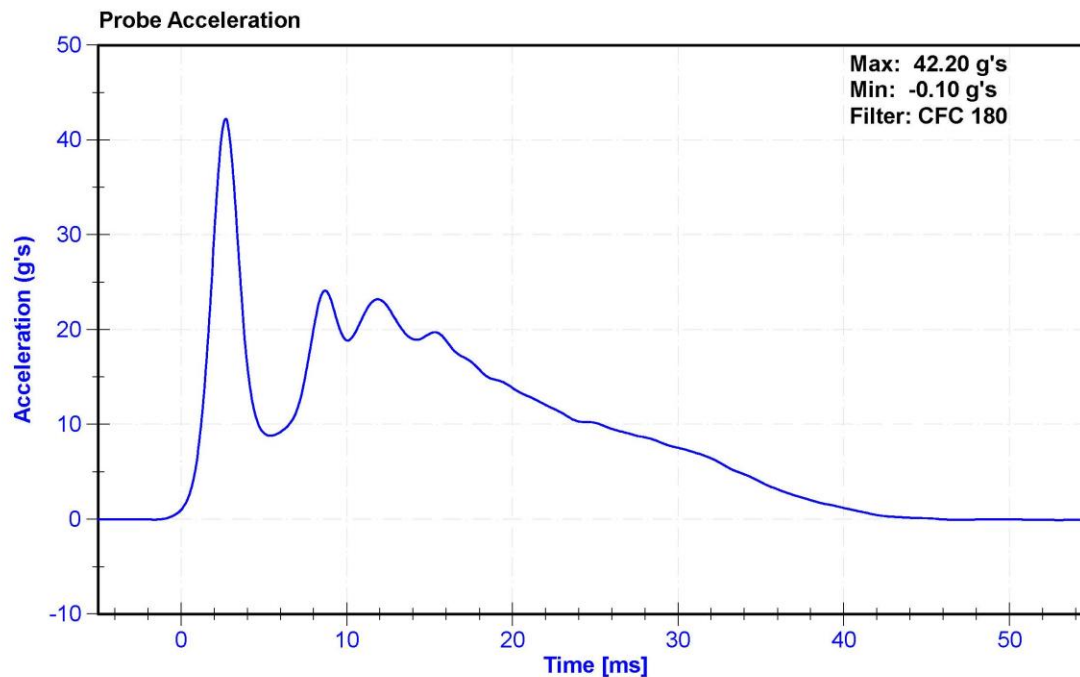
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

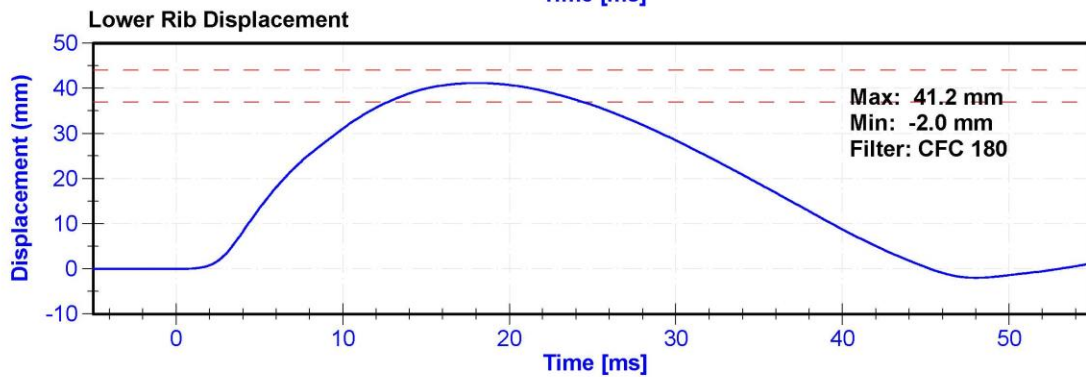
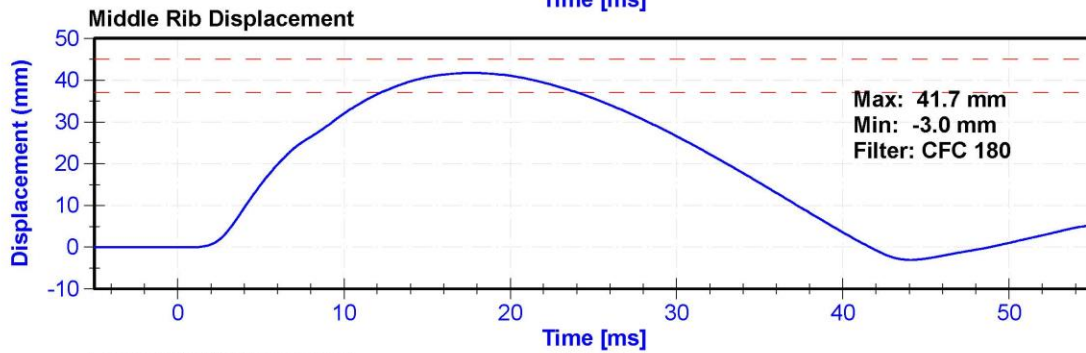
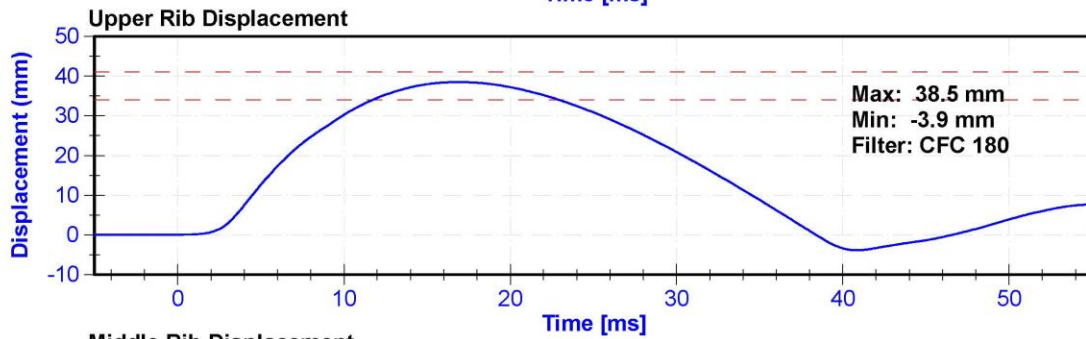
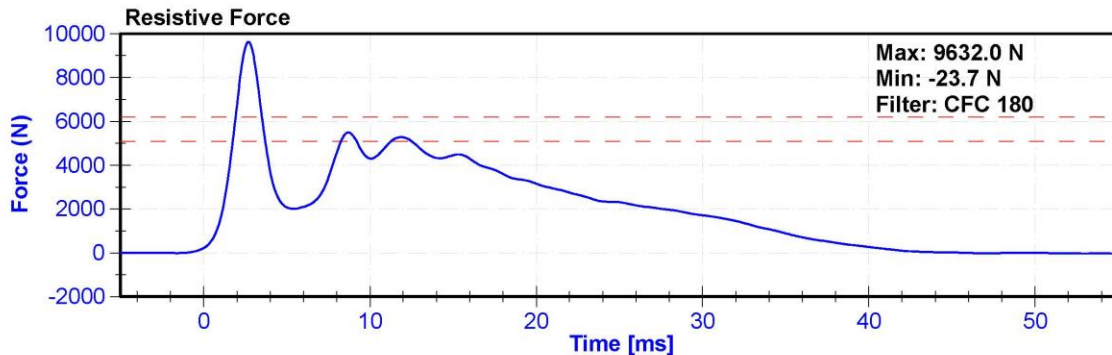
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	29.7	Pass
Velocity	5.4	5.6	m/s	5.40	Pass
Resistive Force after 6ms	5100	6200	N	5499.3	Pass
Upper Thorax Rib Deflection	34	41	mm	38.5	Pass
Mid Thorax Rib Deflection	37	45	mm	41.7	Pass
Lower Thorax Rib Deflection	37	44	mm	41.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A260568	7/29/2019	1/27/2020
Upper Thorax Rib Potentiometer	Honeywell MLT-38000203	DS-183GFE	10/31/2019	4/30/2020
Middle Thorax Rib Potentiometer	Honeywell MLT-38000203	DS-184GFE	10/31/2019	4/30/2020
Lower Thorax Rib Potentiometer	Honeywell MLT-38000203	DS-182GFE	10/31/2019	4/30/2020





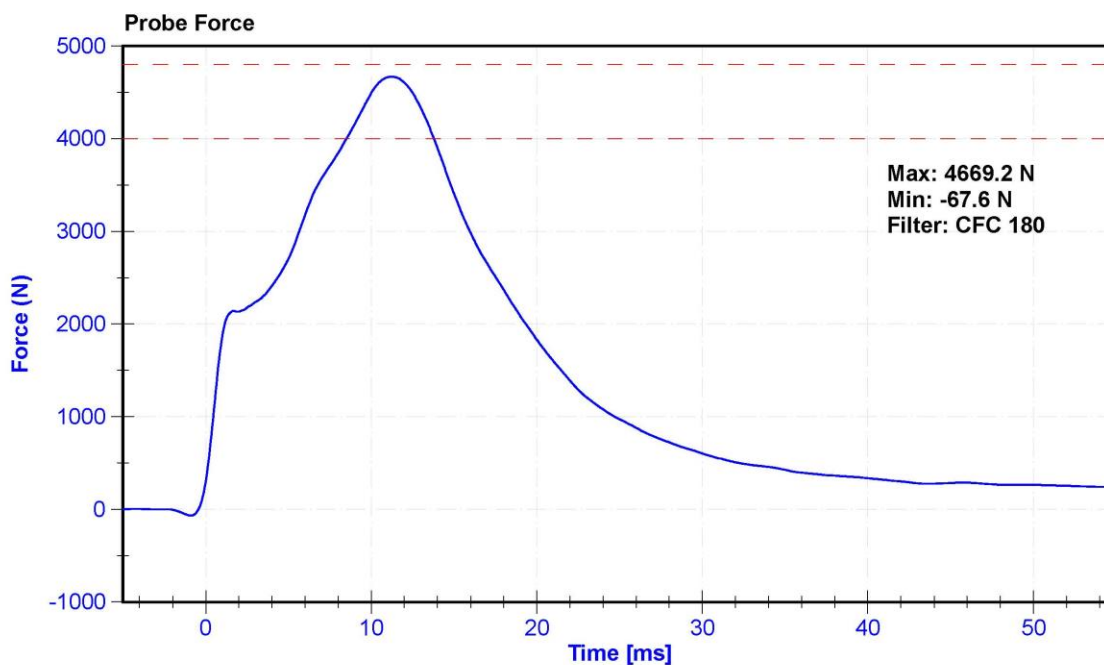
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K.Brogan

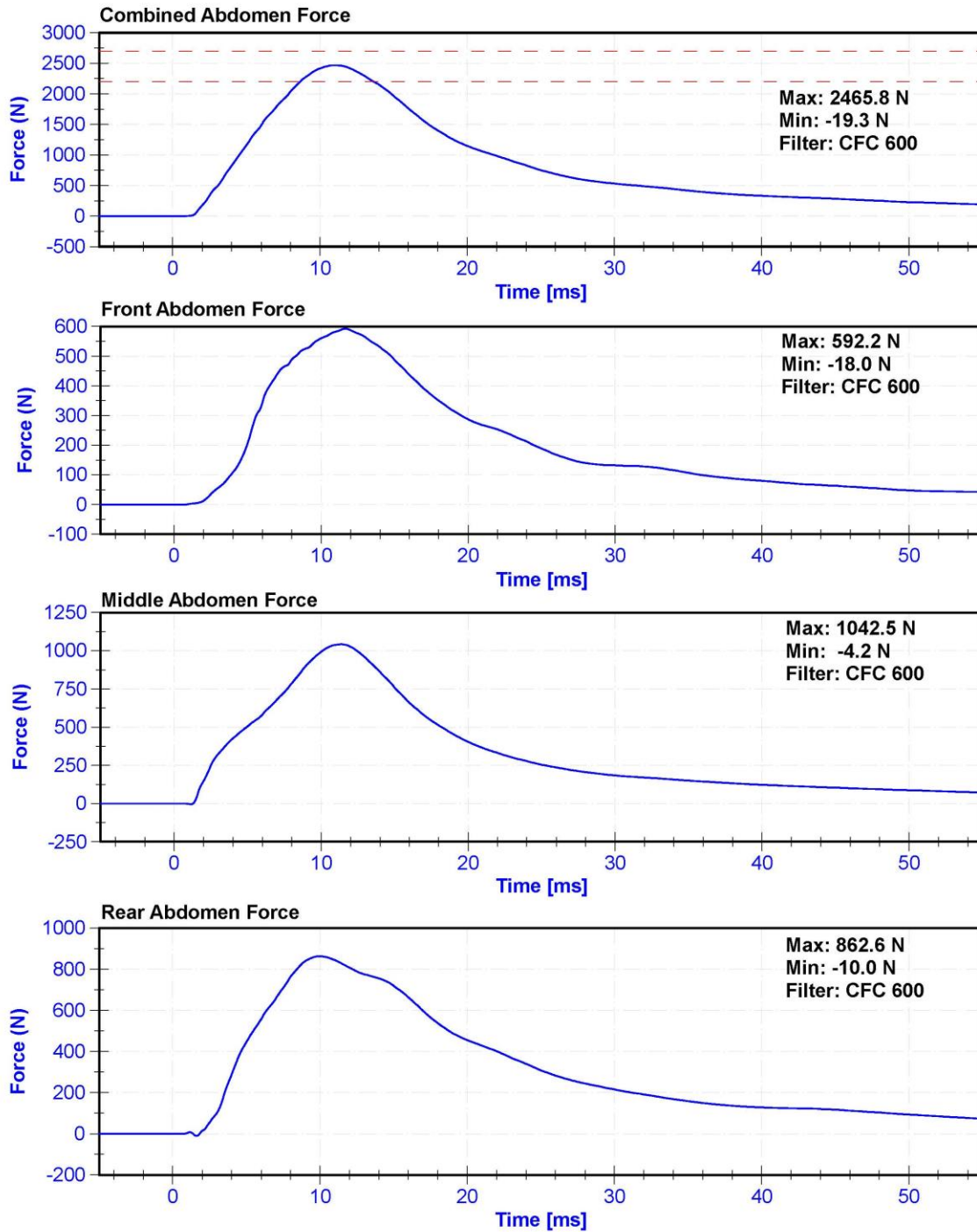
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	34	Pass
Velocity	3.9	4.1	m/s	4.08	Pass
Combined Abdomen Force	2200	2700	N	2465.8	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	10.90	Pass
Resistive Probe Force	4000	4800	N	4669.2	Pass
Time at Peak Resistive Force	10.6	13.0	ms	11.25	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A260568	7/29/2019	1/27/2020
Front Abdomen Load Cell	DENTON 2631	LC-1440	6/14/2019	6/13/2020
Middle Abdomen Load Cell	DENTON 2631	LC-1525	6/5/2019	6/4/2020
Rear Abdomen Load Cell	DENTON 2631	LC-1528	6/14/2019	6/13/2020







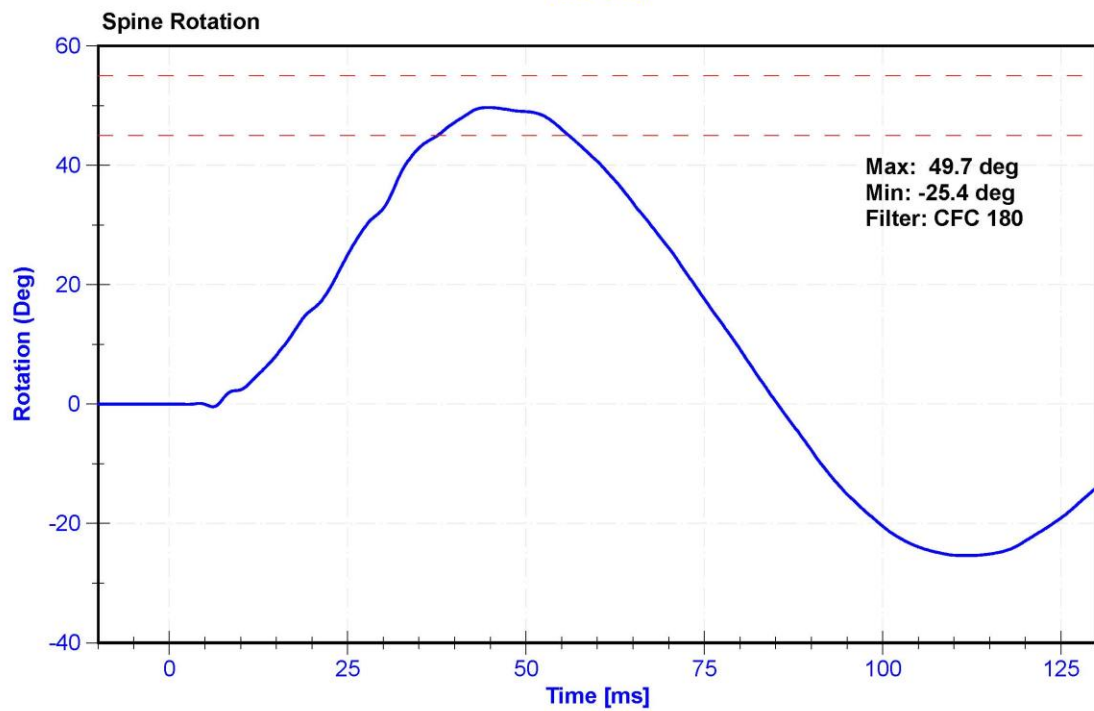
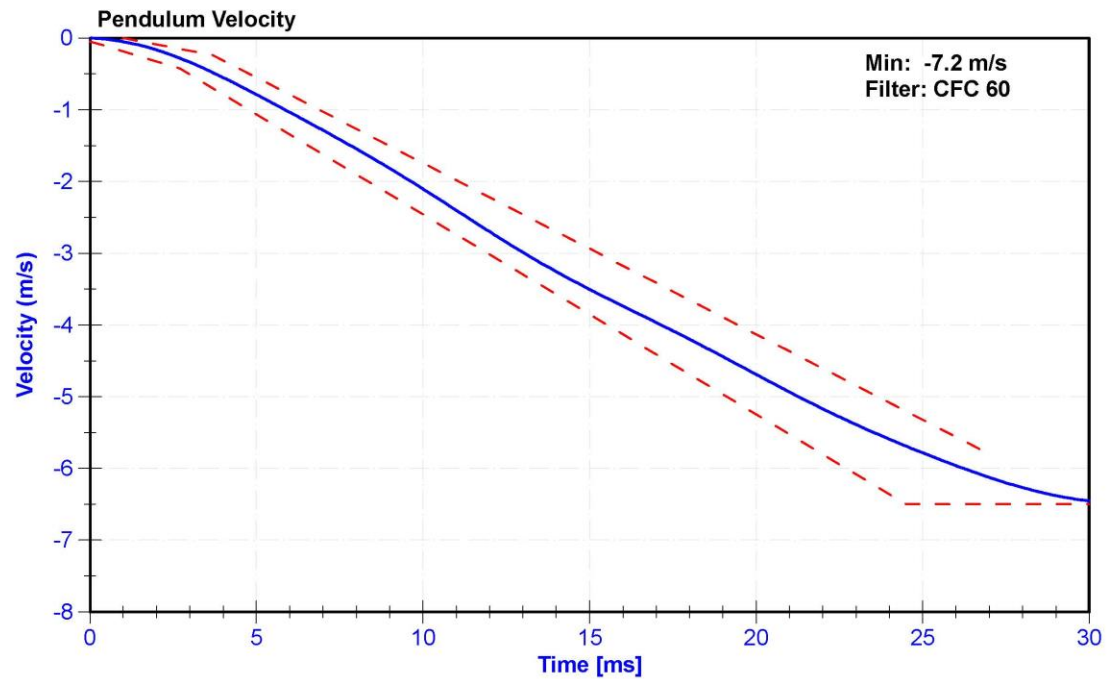
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

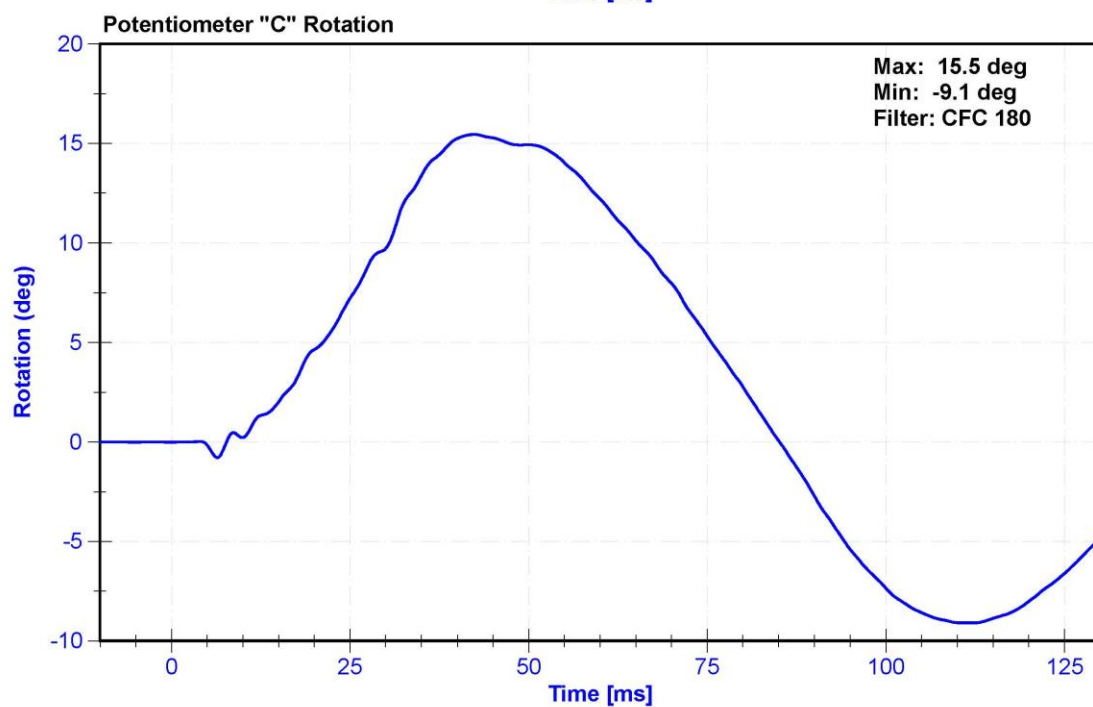
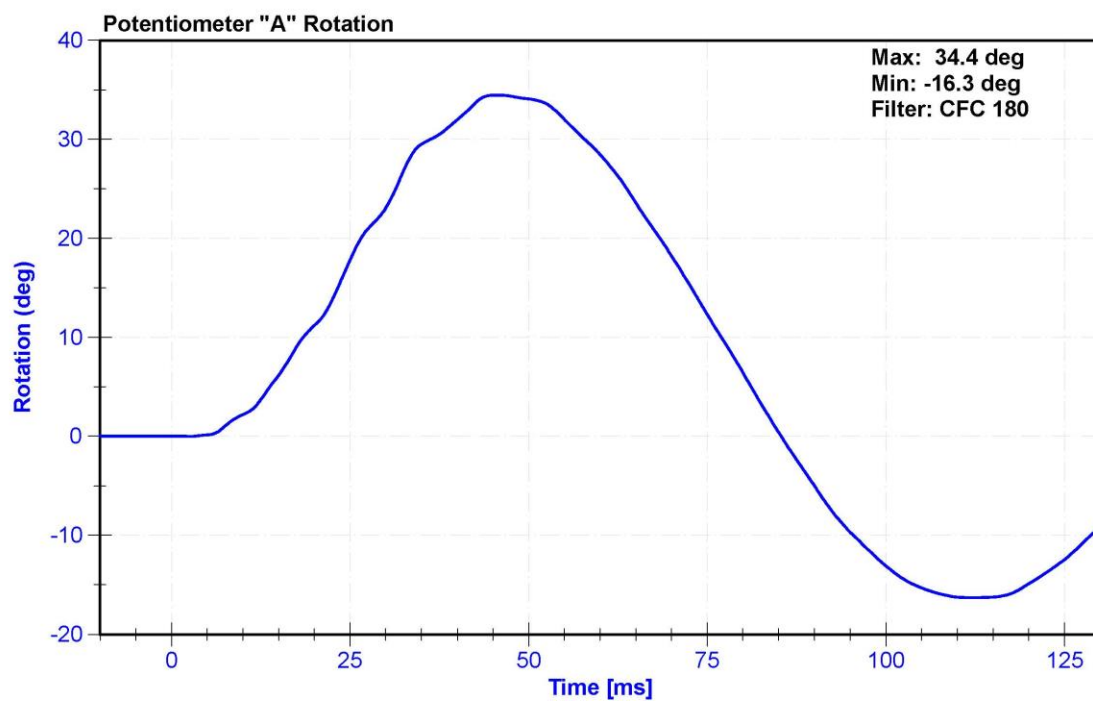
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.0	Pass
Humidity	10	70	%	24.3	Pass
Velocity	5.95	6.15	m/s	6.005	Pass
Lateral Spine Rotation	45	55	deg	49.7	Pass
Time at Maximum Rotation	39	53	ms	44.7	Pass
Time of Decay to Zero Degrees	37	57	ms	40.6	Pass
Pulse within Corridor?	-	-	-		

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5M9 Pend	1/29/2019	1/29/2020
Pendulum "A" Potentiometer	SP22G	DS-094	10/31/2019	10/30/2020
Condyle "B" Potentiometer	SP22G	DS-095	10/31/2019	10/30/2020





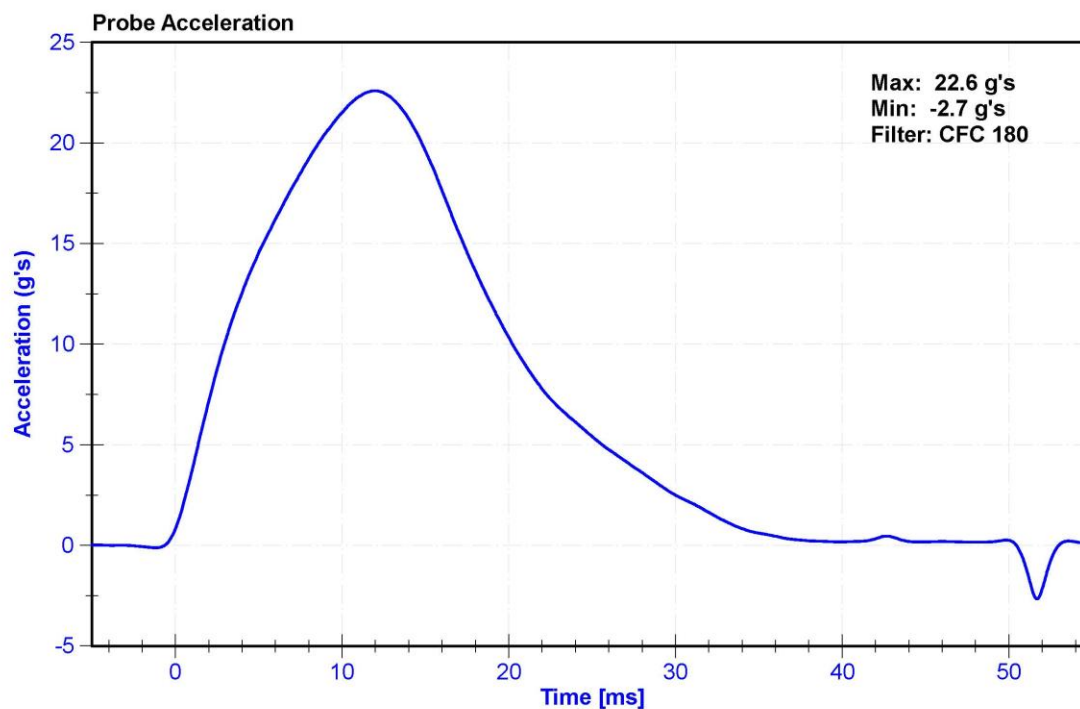
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

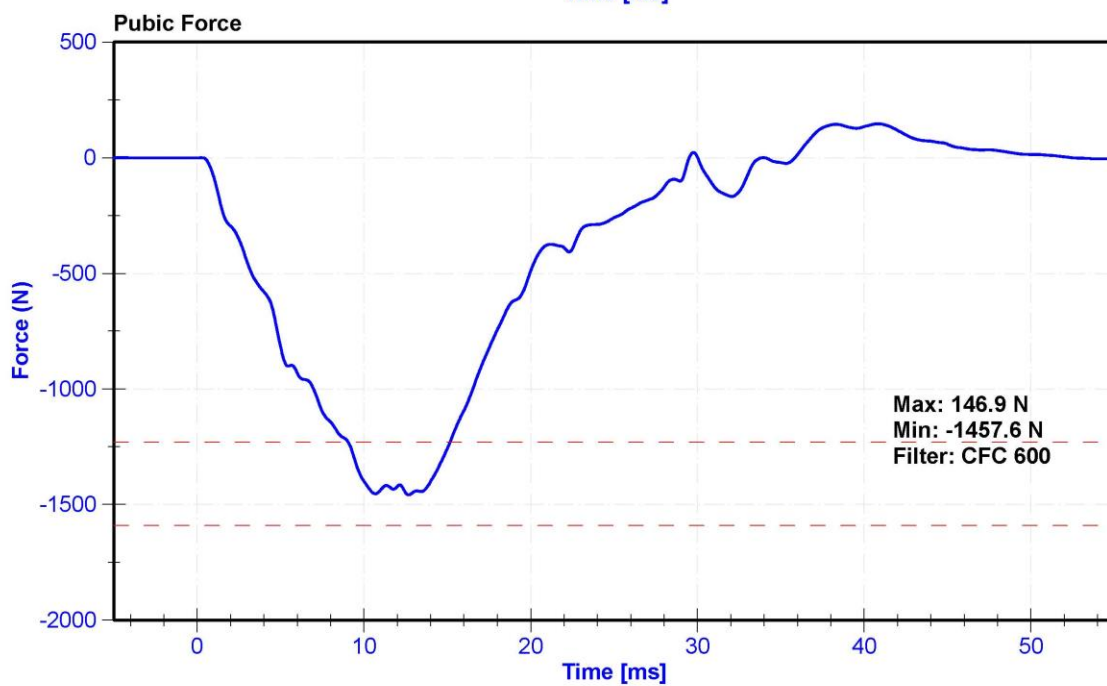
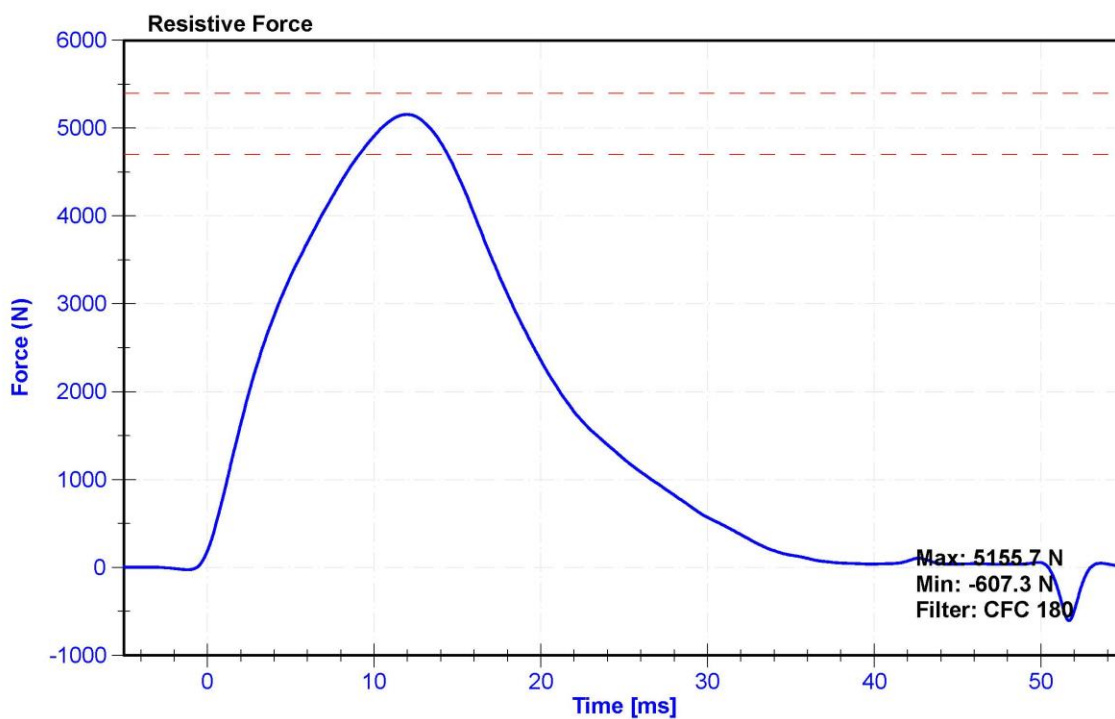
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	31.0	Pass
Velocity	4.2	4.4	m/s	4.37	Pass
Resistive Force	4700	5400	N	5155.7	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.00	Pass
Pubic Force	-1590	-1230	N	-1457.6	Pass
Time at Peak Pubic Force	12.2	17.0	ms	12.70	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A260568	7/29/2019	1/27/2020
Pubic Load Cell	Denton 3096JFL	LC-464fy	6/14/2019	6/13/2020





CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER ATD

SERIAL No: 300

(CONFIGURED FOR LEFT SIDE IMPACT)

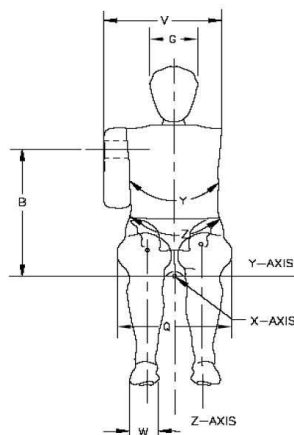
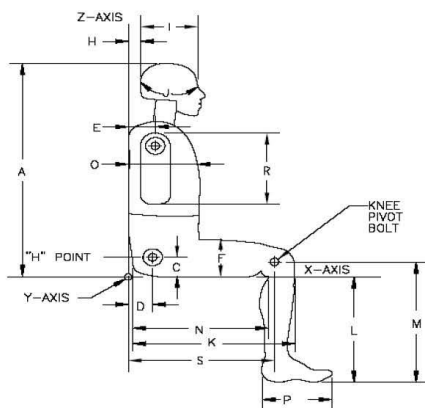


External Measurements - SID-IIs

Technician: **K. Dutton**

Date: **12/04/2019**

Dummy Serial Number: **300**



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	779	Pass
B	Shoulder Pivot Height	437	453	450	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	103	Pass
F	Thigh Clearance	119	135	127	Pass
G	Head Breadth	140	148	144	Pass
H	Head Back from Backline	40	46	43	Pass
I	Head Depth	178	188	185	Pass
J	Head Circumference	541	551	546	Pass
K	Buttock to Knee Length	514	540	530	Pass
L	Popliteal Height	343	369	356	Pass
M	Knee Pivot to floor height	392	409	402	Pass
N	Buttock Popliteal Length	416	442	431	Pass
O	Chest Depth w/o jacket	195	211	203	Pass
P	Foot Length	216	232	222	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	319	Pass
R	Arm Length	249	259	253	Pass
S	Knee Joint to seatback	477	493	485	Pass
V	Shoulder Width	341	357	351	Pass
W	Foot Width	78	94	84	Pass
Y	Chest Circumference w/jacket	851	881	870	Pass
Z	Waist Circumference	761	791	769	Pass

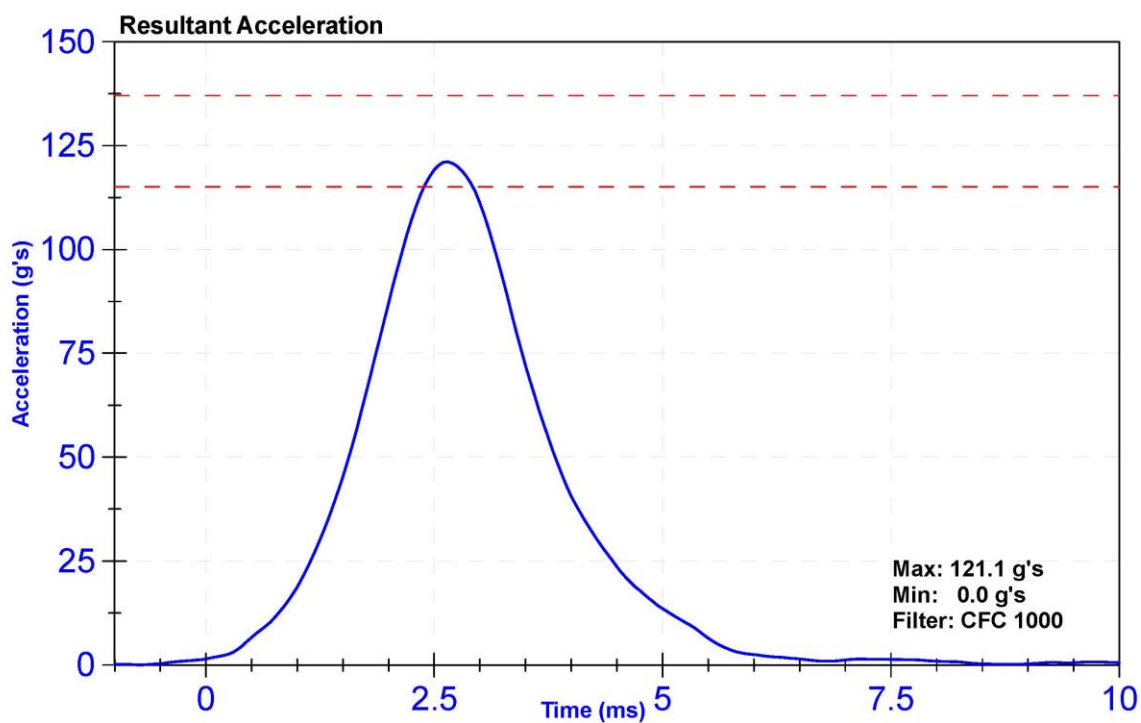
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

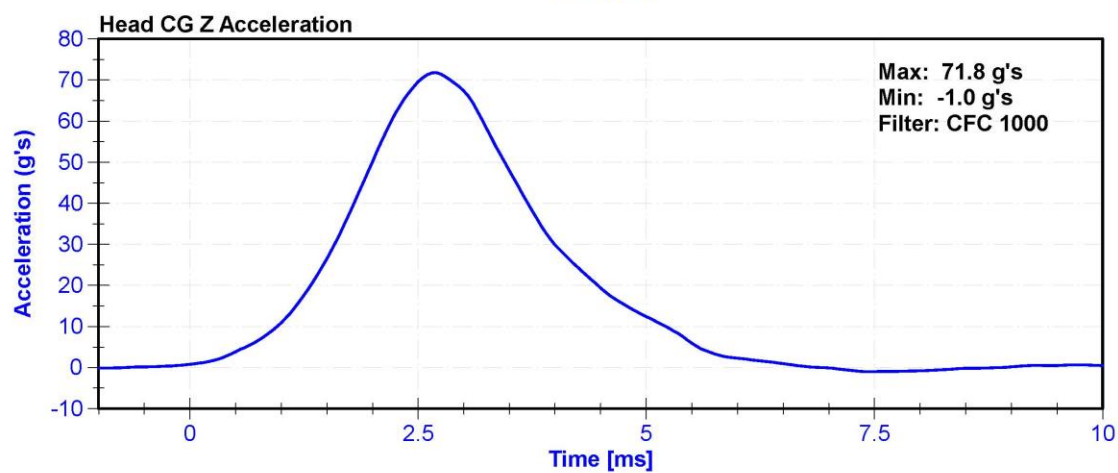
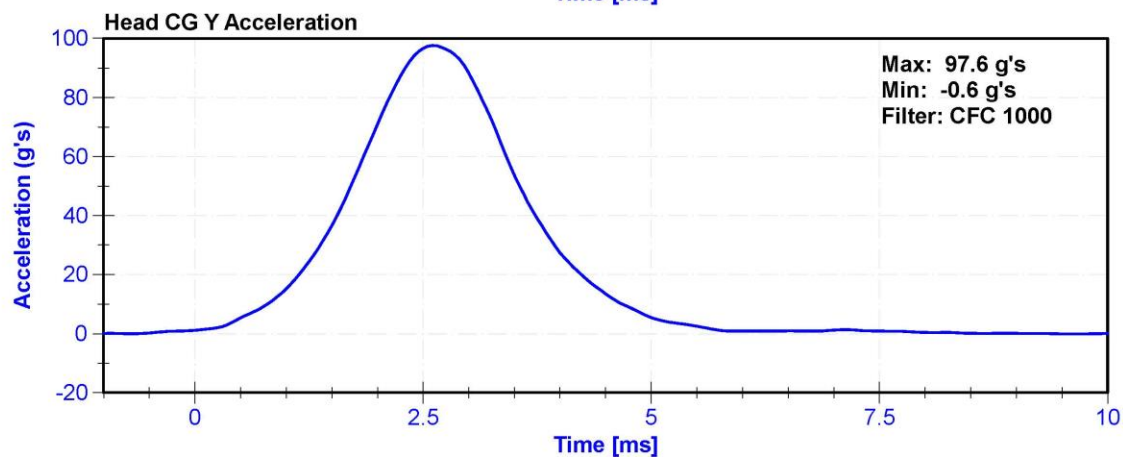
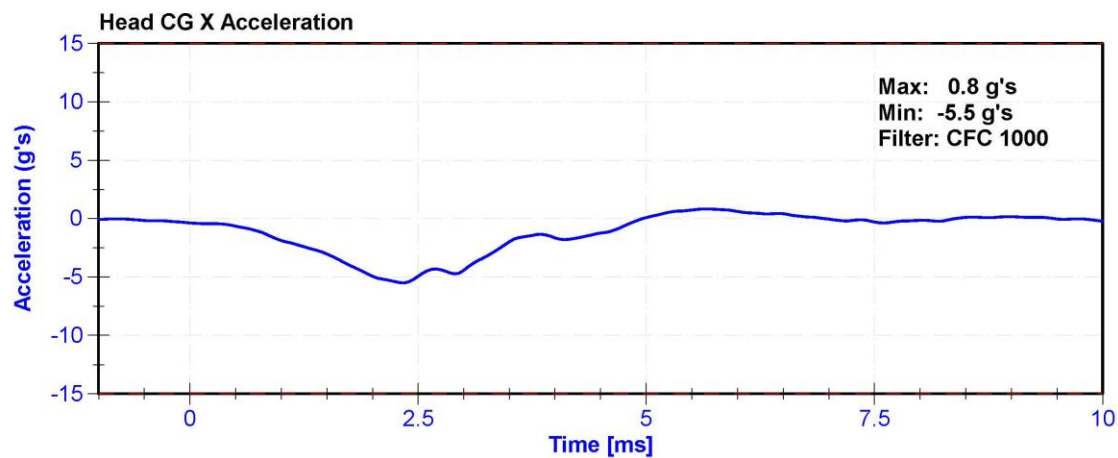
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	31.1	Pass
Resultant Acceleration	115	137	g's	121.1	Pass
Oscillation	0	15	%	1.1	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	P68057	10/29/2019	4/29/2020
Y Accelerometer	Endevco	P79189	10/29/2019	4/29/2020
Z Accelerometer	Endevco	P52095	10/29/2019	4/29/2020





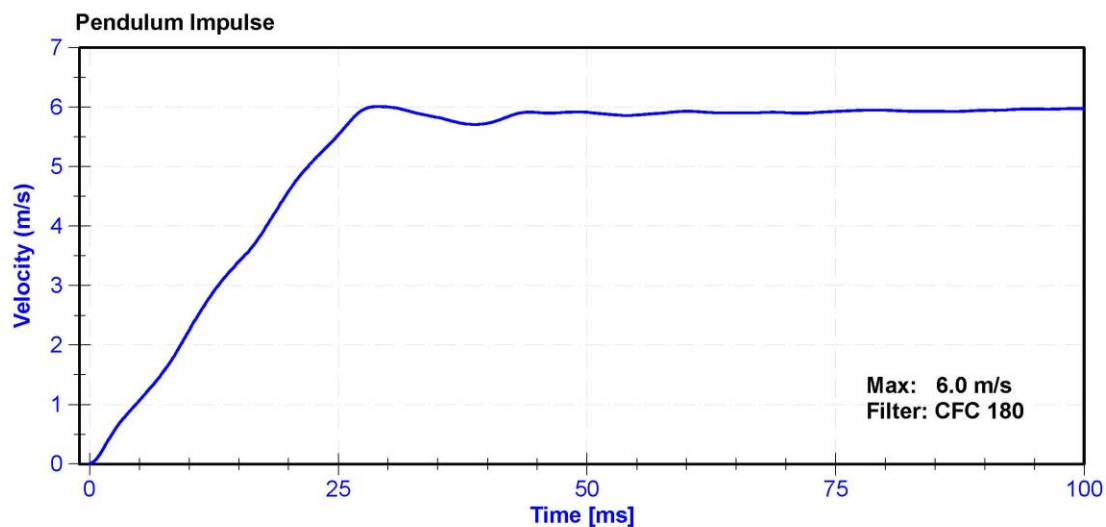
ATD Manufacturer	FTSS	Test Technician	C. Mantell
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

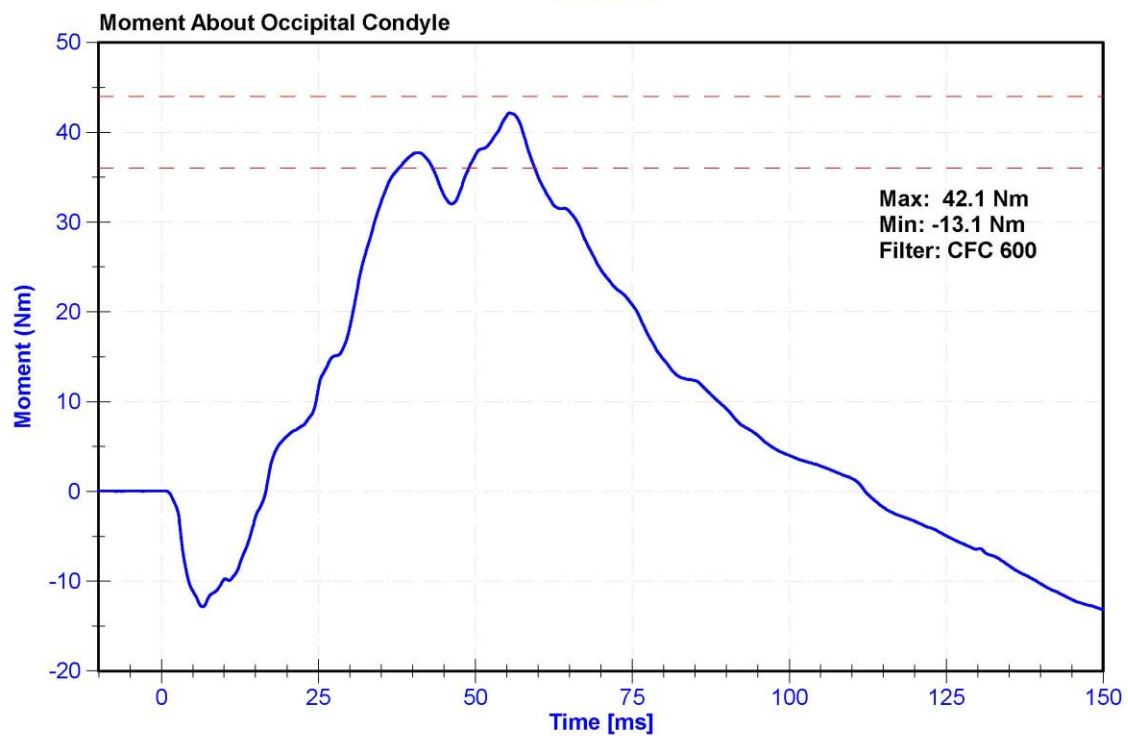
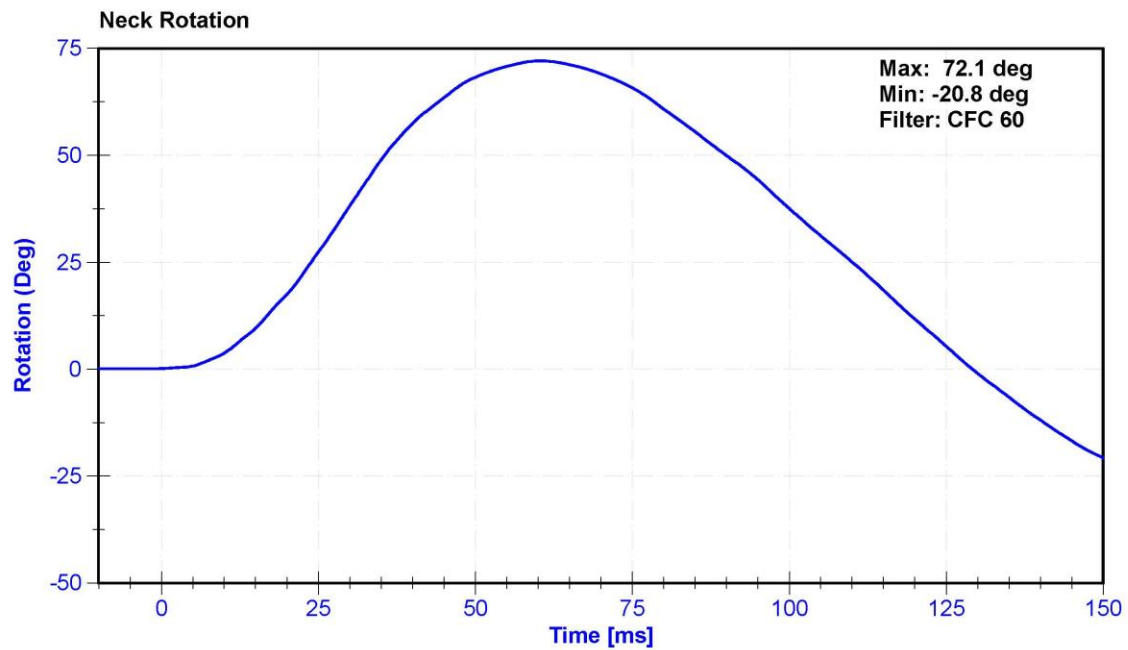
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	31.4	Pass
Velocity	5.51	5.63	m/s	5.584	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.25	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.40	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.58	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.53	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	6.00	Pass
Neck Rotation	71	81	deg	72.1	Pass
Time at Maximum Rotation	50	70	ms	60.4	Pass
Moment about the OC	36	44	Nm	42.1	Pass
Moment Decay to 0 Nm	102	126	ms	112.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5M9 Pend	1/29/2019	1/29/2020
Pendulum Potentiometer	Denton 78051-342	DS-184Pend	11/4/2019	11/3/2020
Condyle Potentiometer	Denton 78051-342	DS-185Pend	11/4/2019	11/3/2020
Upper Neck Load Cell	Denton 1716A	LC-2192Fy	6/20/2019	6/19/2020





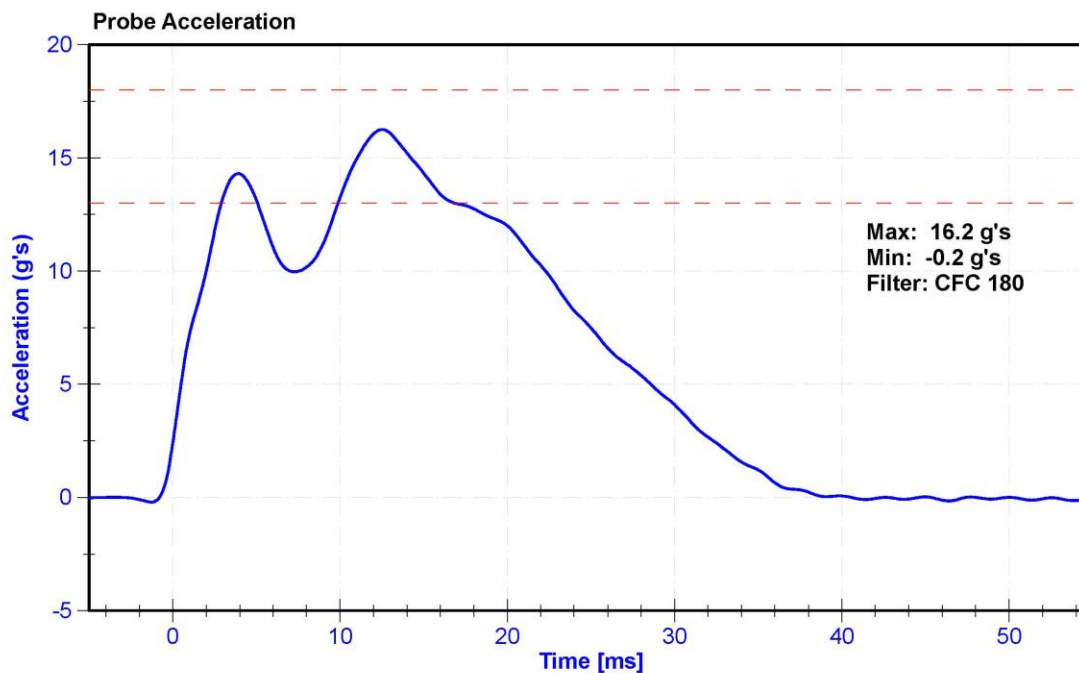
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

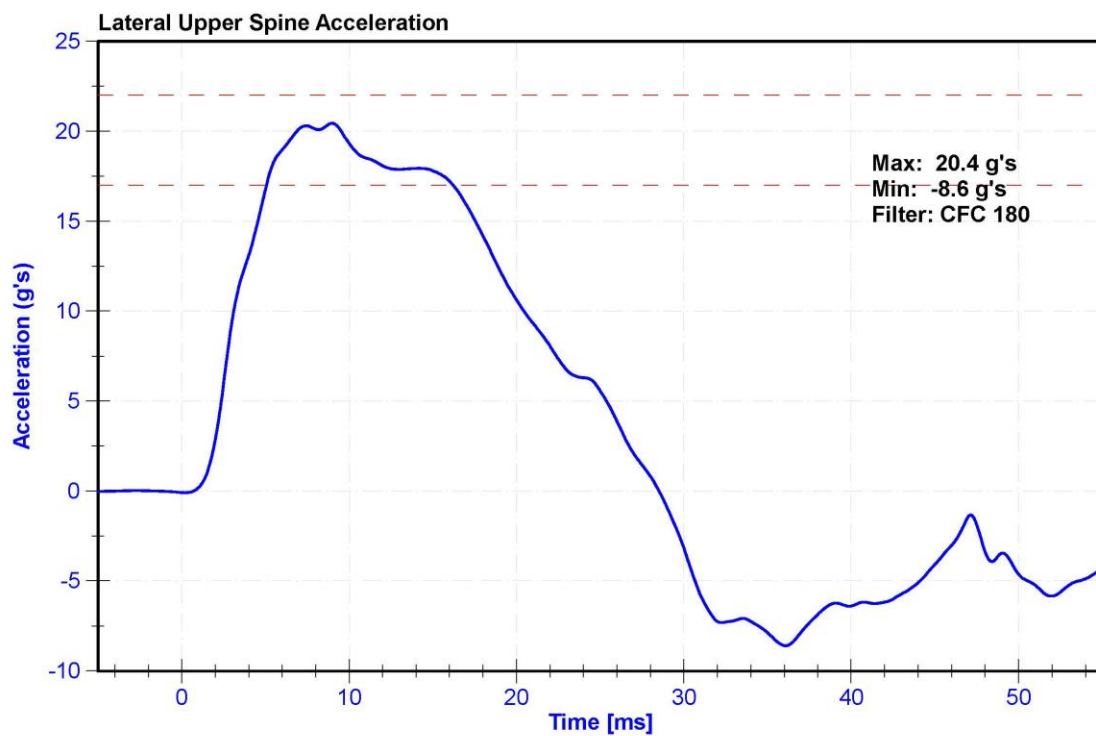
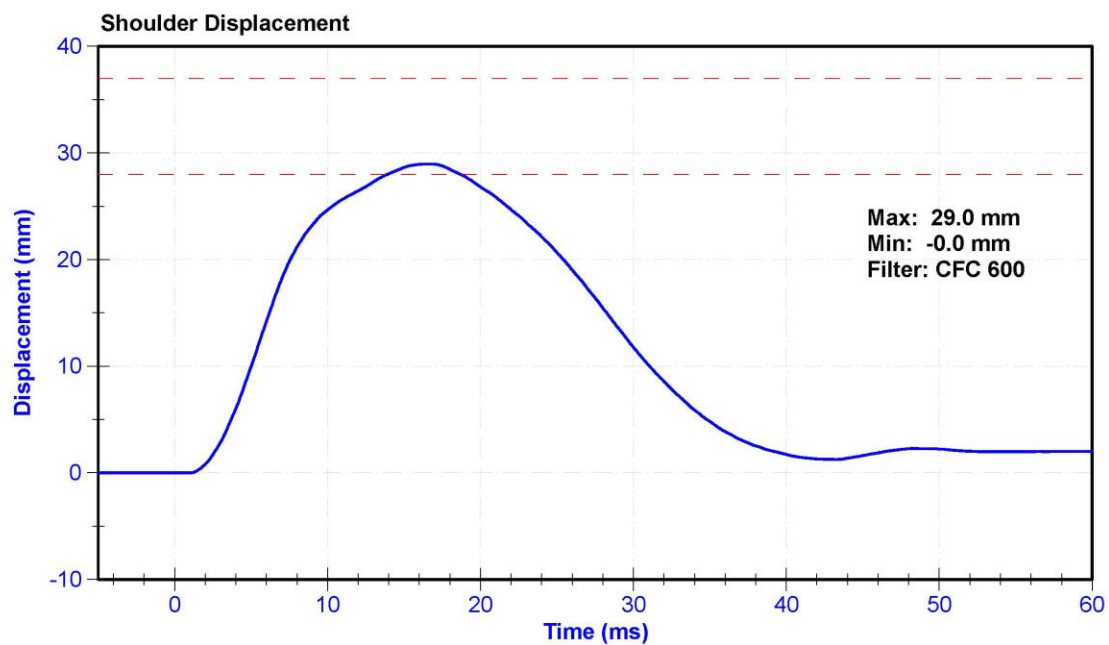
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	34.9	Pass
Velocity	4.2	4.4	m/s	4.39	Pass
Probe Acceleration	13	18	g's	16.2	Pass
Shoulder Deflection	28	37	mm	29.0	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Shoulder Potentiometer	Servo 08CT1-3725	DS-053 GFE	10/29/2019	4/28/2020
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P51668	10/29/2019	4/28/2020





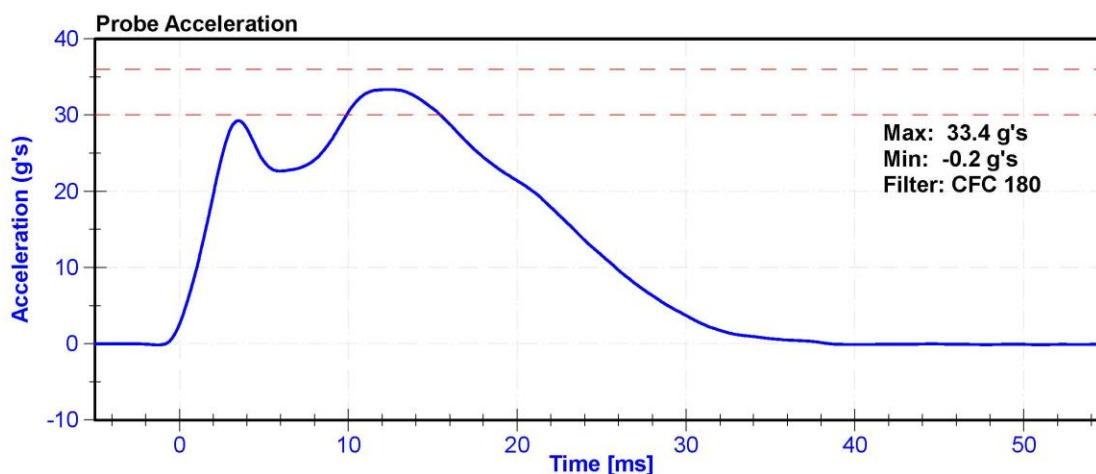
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

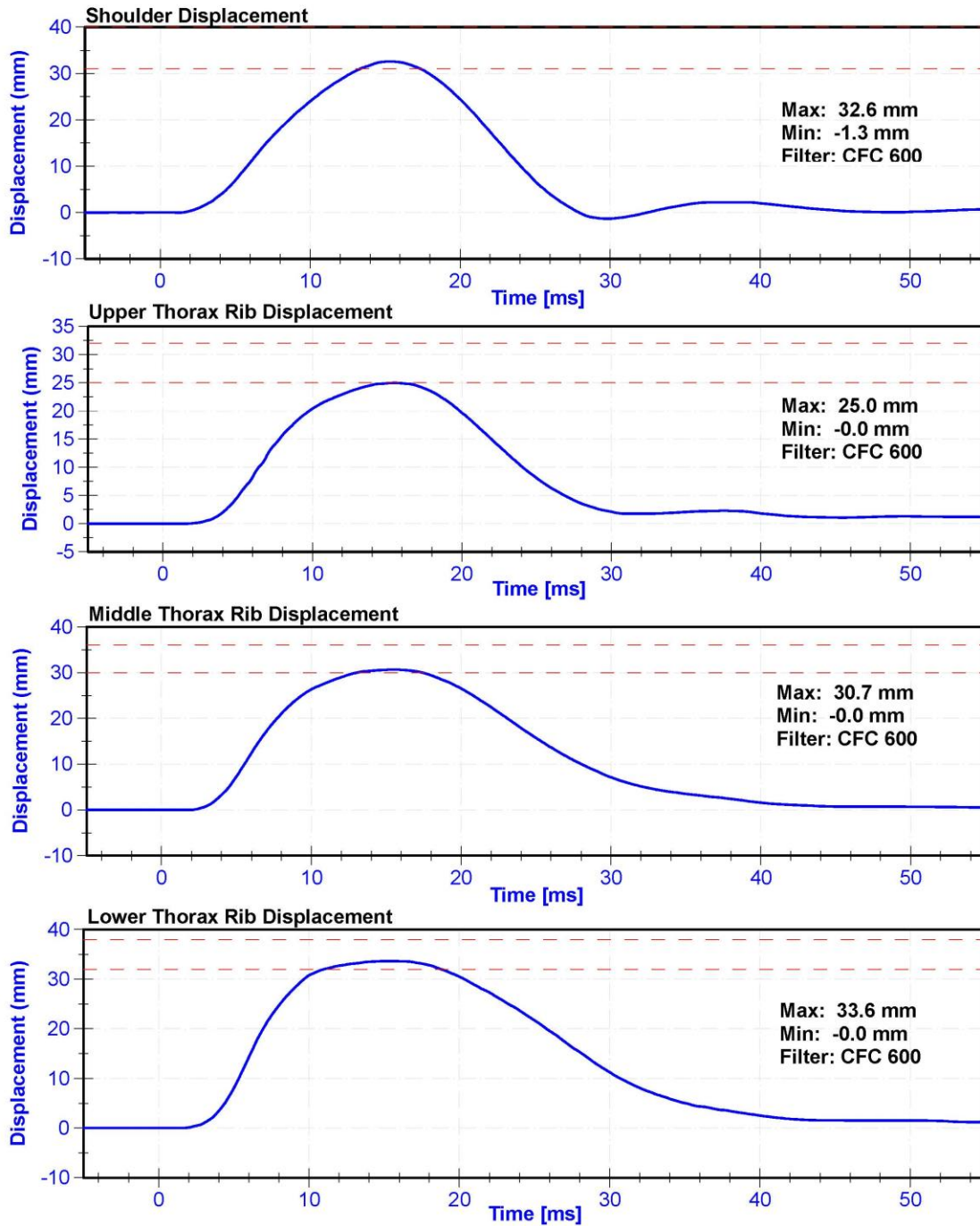
Results

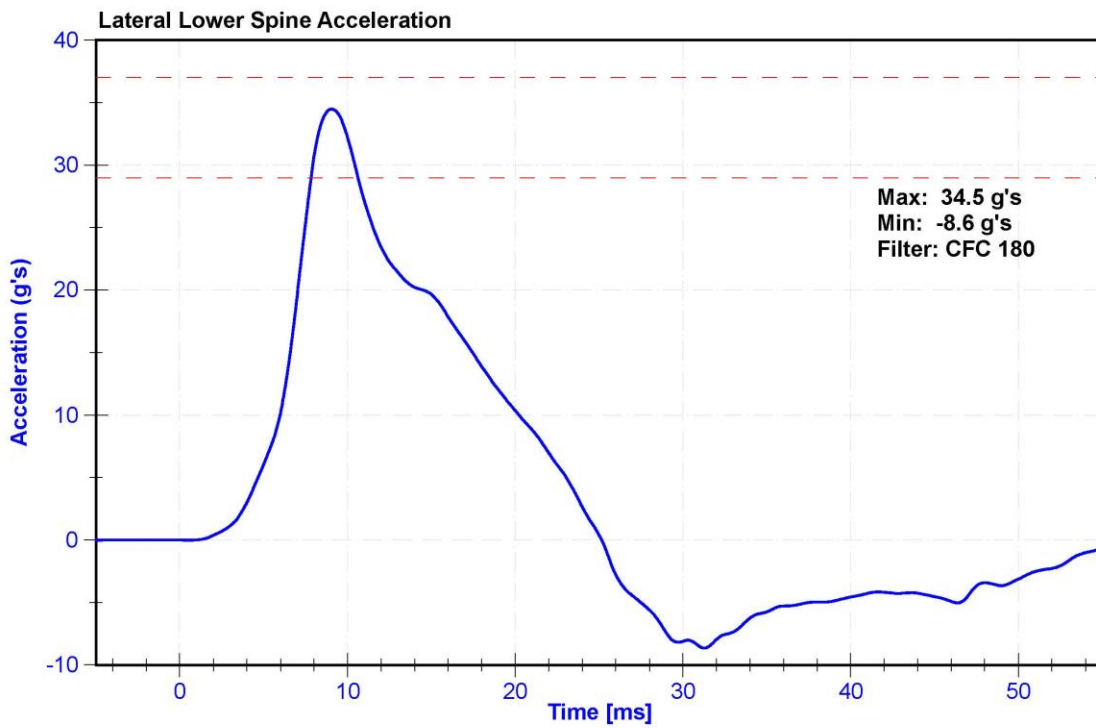
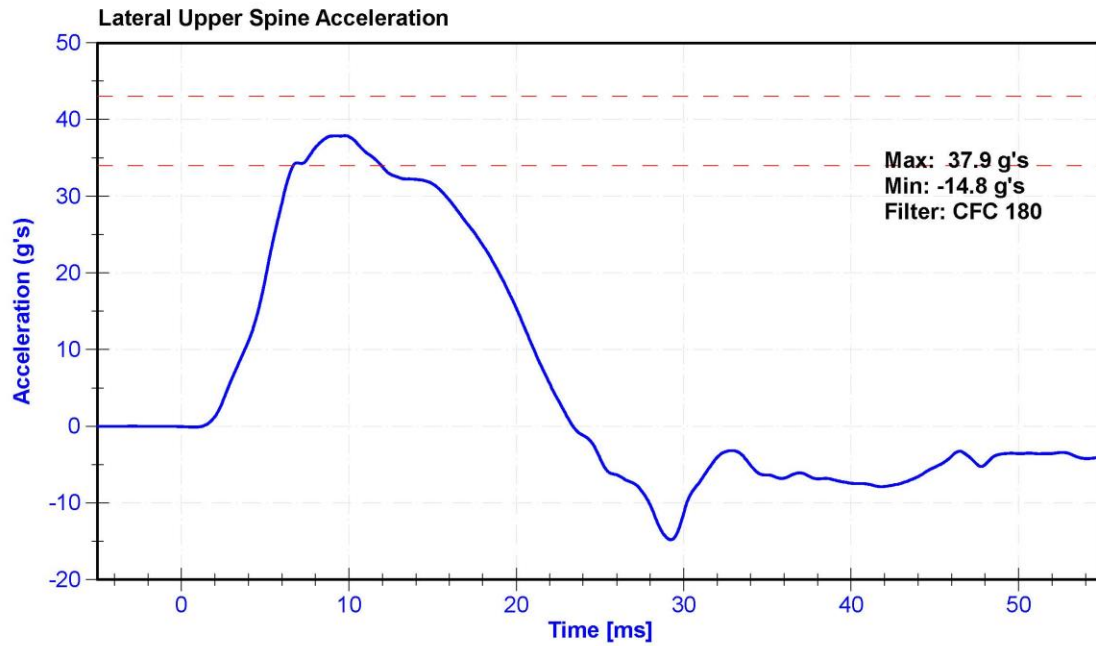
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	35.0	Pass
Velocity	6.6	6.8	m/s	6.76	Pass
Probe Acceleration after 5 ms	30	36	g's	33.4	Pass
Lateral Upper Spine Acceleration	34	43	g's	37.9	Pass
Lateral Lower Spine Acceleration	29	37	g's	34.5	Pass
Shoulder Deflection	31	40	mm	32.6	Pass
Upper Thorax Rib Deflection	25	32	mm	25.0	Pass
Mid Thorax Rib Deflection	30	36	mm	30.7	Pass
Lower Thorax Rib Deflection	32	38	mm	33.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Upper Spine T1 Y Accelerometer	ENDEVCO 7264CT	AC-P51668	10/29/2019	4/28/2020
Upper Spine T12 Y Accelerometer	ENDEVCO 7264	AC-P64147	10/29/2019	4/28/2020
Shoulder Potentiometer	Servo 08CT1-3725	DS-053 GFE	10/29/2019	4/28/2020
Upper Thorax Rib Potentiometer	Servo 08CT1-3725	DS-451GFE	10/29/2019	4/28/2020
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-040GFE	10/29/2019	4/28/2020
Lower Thorax Rib Potentiometer	Servo 08TC1-3725	DS-1156GFE	10/29/2019	4/28/2020







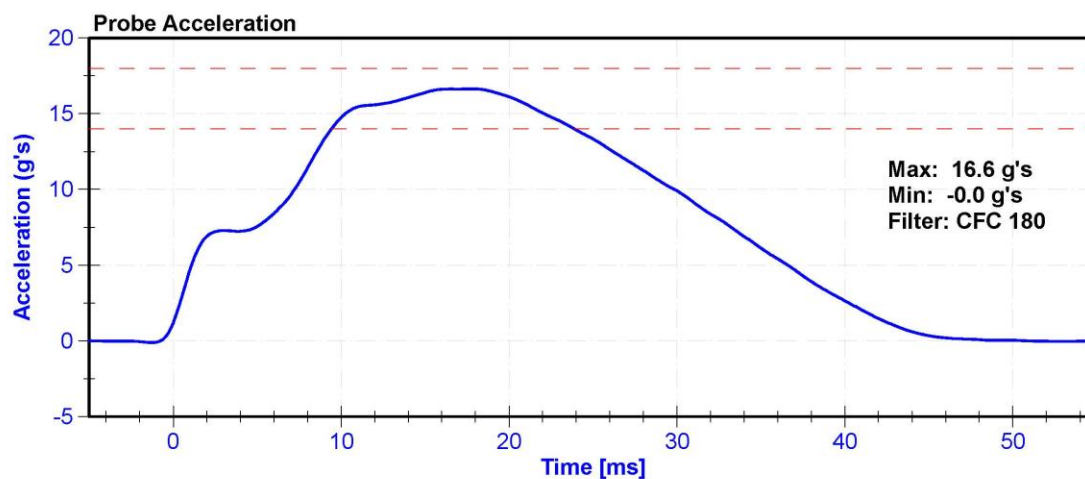
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

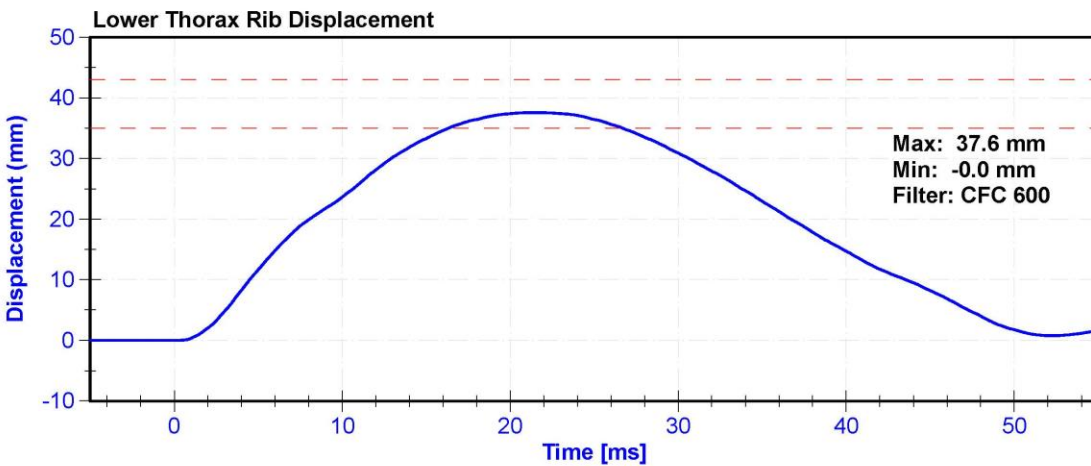
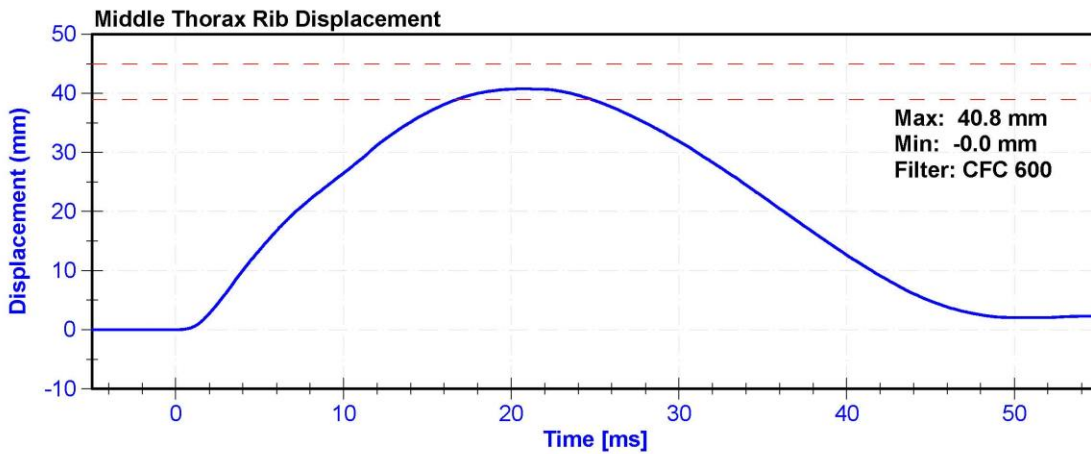
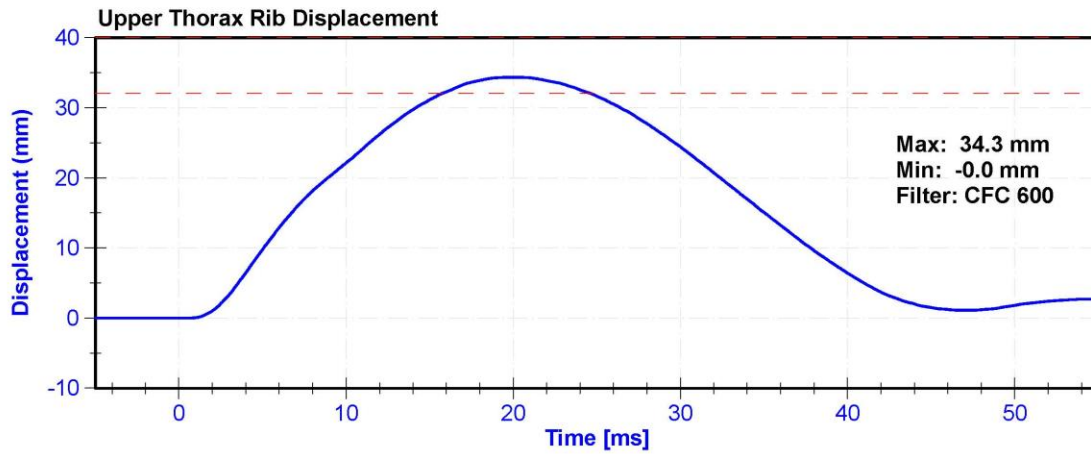
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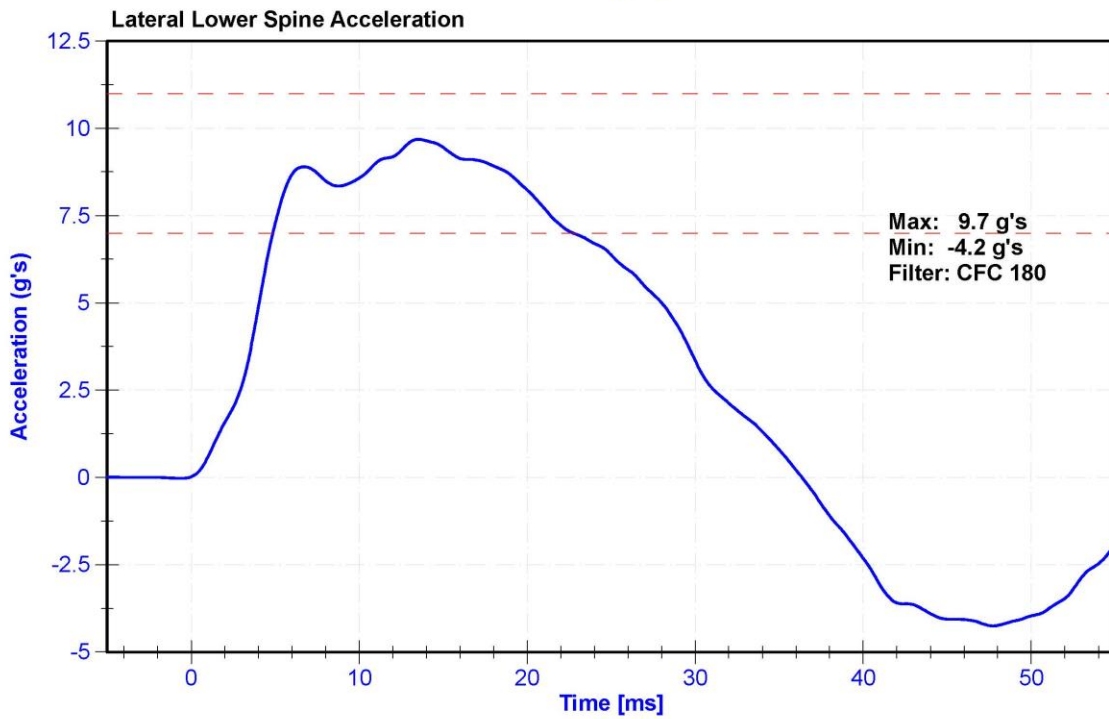
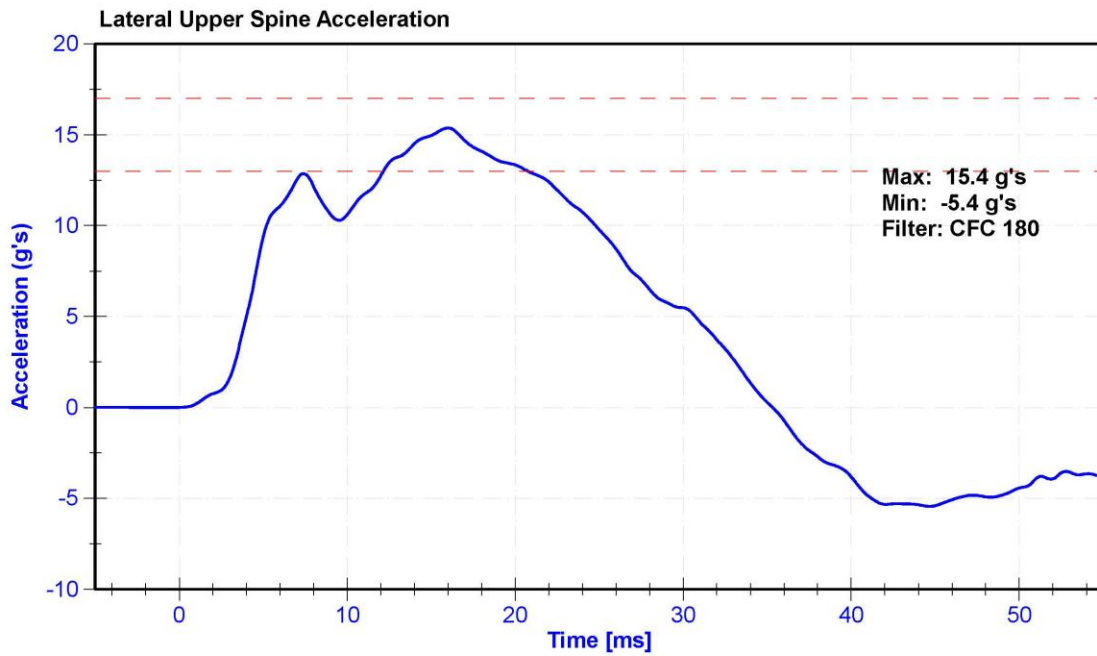
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	29	Pass
Velocity	4.2	4.4	m/s	4.39	Pass
Probe Acceleration	14	18	g's	16.6	Pass
Lateral Upper Spine Acceleration	13	17	g's	15.4	Pass
Lateral Lower Spine Acceleration	7	11	g's	9.7	Pass
Upper Thorax Rib Deflection	32	40	mm	34.3	Pass
Middle Thorax Rib Deflection	39	45	mm	40.8	Pass
Lower Thorax Rib Deflection	35	43	mm	37.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P51668	10/29/2019	4/28/2020
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P64147	10/29/2019	4/28/2020
Upper Thorax Rib Potentiometer	Servo 08CT1-3725	DS-451GFE	10/29/2019	4/28/2020
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-040GFE	10/29/2019	4/28/2020
Lower Thorax Rib Potentiometer	Servo 08TC1-3725	DS-1156GFE	10/29/2019	4/28/2020







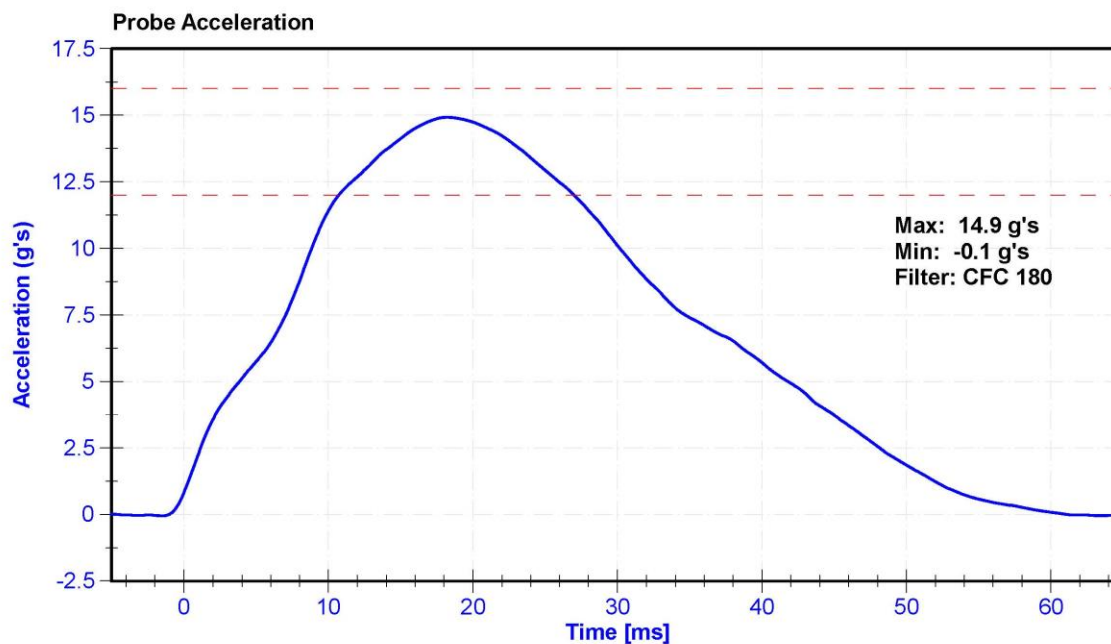
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

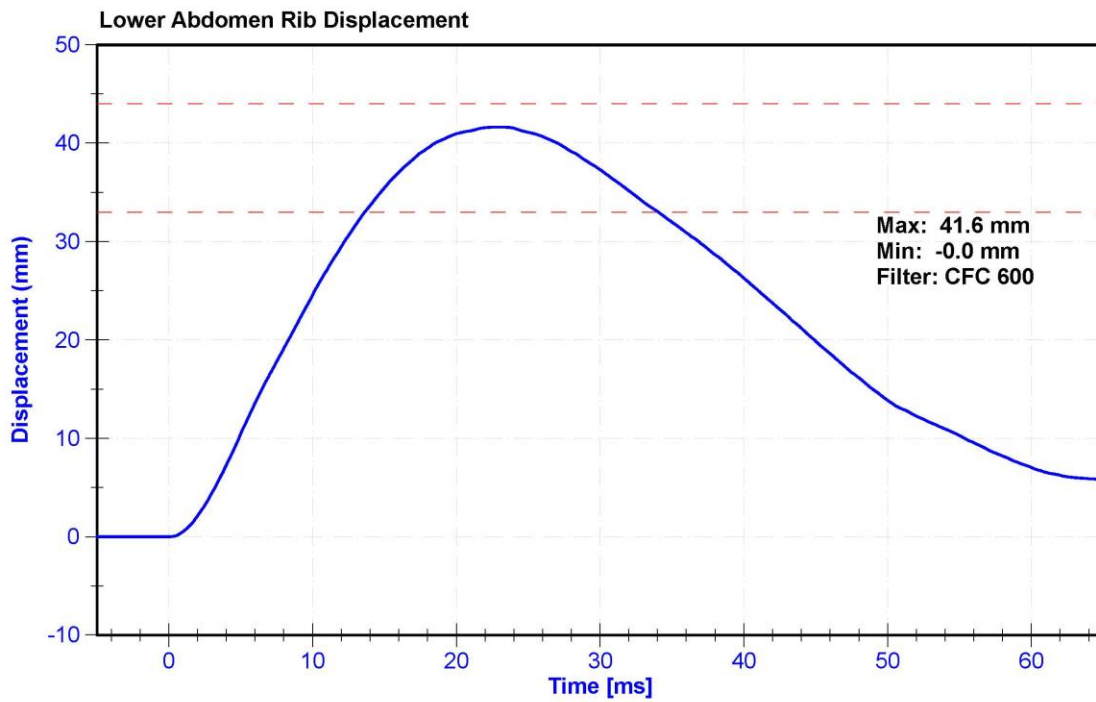
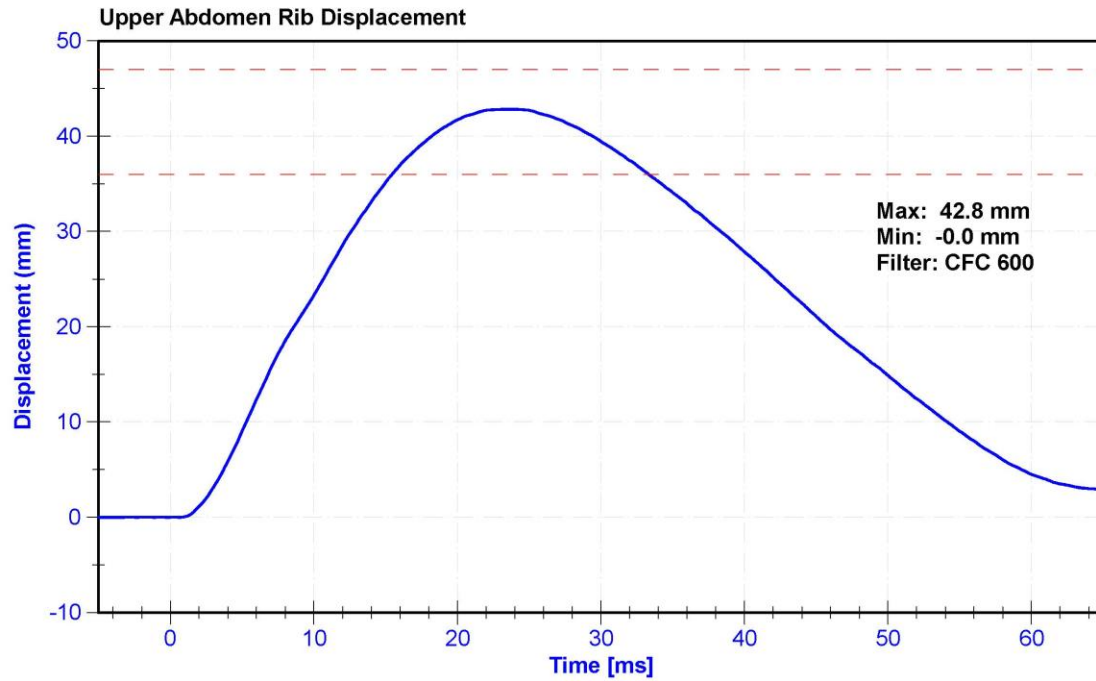
Results

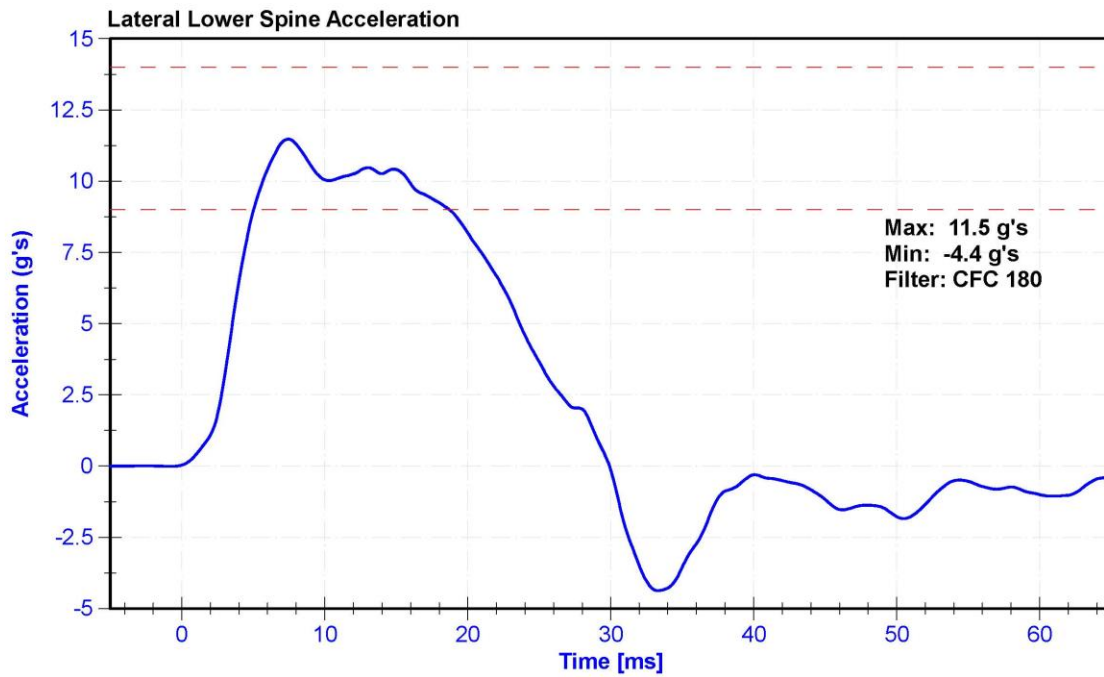
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	34.0	Pass
Velocity	4.2	4.4	m/s	4.39	Pass
Probe Acceleration	12	16	g's	14.9	Pass
Lateral Lower Spine Acceleration	9	14	g's	11.5	Pass
Upper Abdomen Rib Deflection	36	47	mm	42.8	Pass
Lower Abdomen Rib Deflection	33	44	mm	41.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P64147	10/29/2019	4/28/2020
Upper Abdomen Rib Potentiometer	Servo 08CT1-3725	DS-308GFE	10/29/2019	4/28/2020
Lower Abdomen Rib Potentiometer	Servo 08CT1-3725	DS-307GFE	10/29/2019	4/28/2020







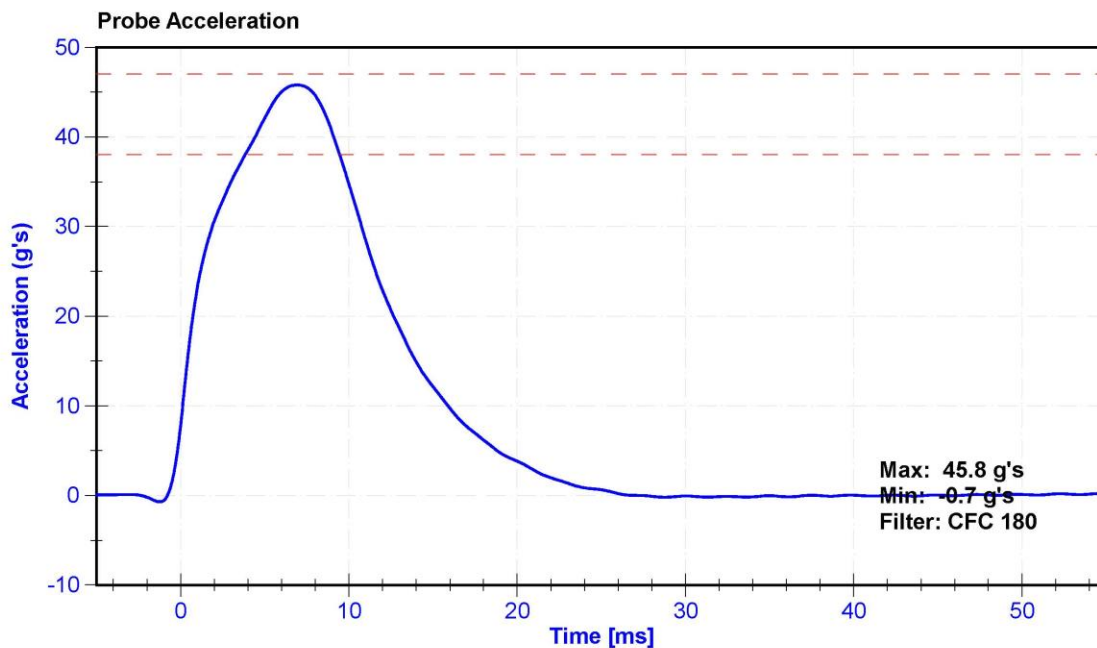
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

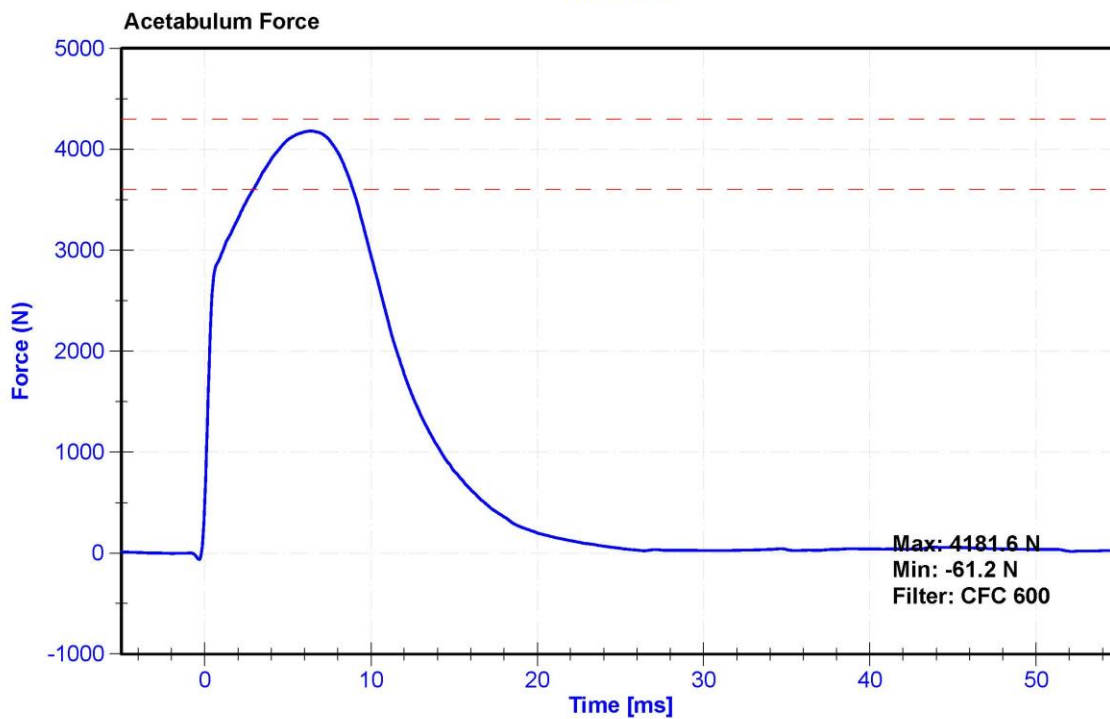
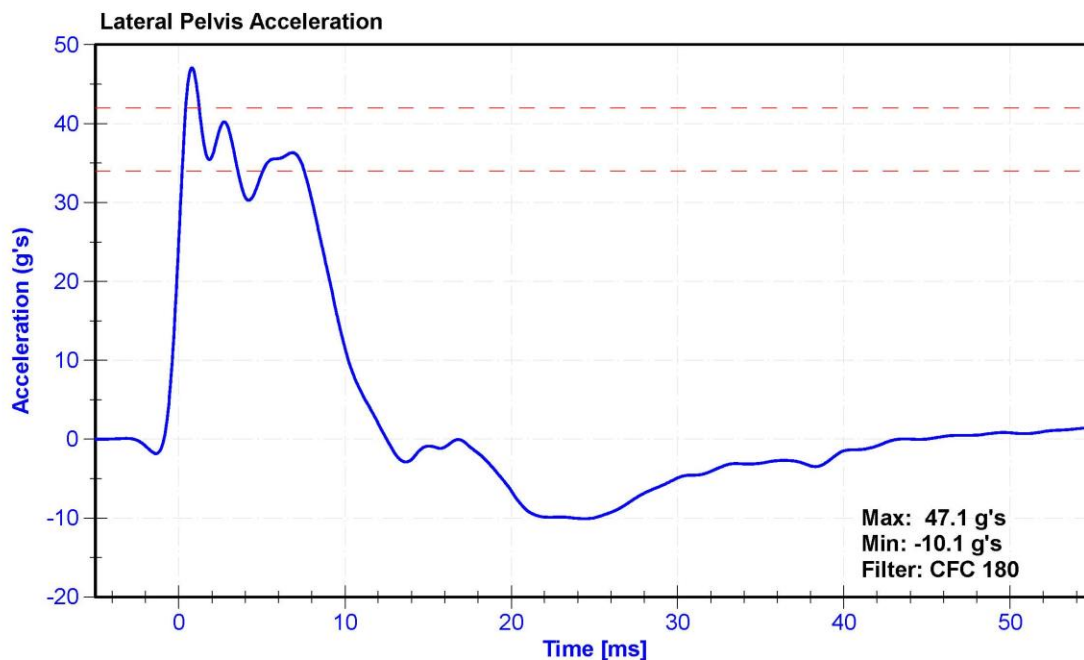
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	29	Pass
Velocity	6.6	6.8	m/s	6.67	Pass
Probe Acceleration	38	47	g's	45.8	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	36.3	Pass
Acetabulum Force	3600	4300	N	4181.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Pelvis Y Accelerometer	ENDEVCO 7264CT	AC-P51731	10/29/2019	4/28/2020
Acetabulum Load Cell	Denton 3249J	LC-276Fy	9/24/2019	9/23/2020
Certification Plug	SACO	12610	10/3/2018	N/A
Crash Test Plug	SACO	12560	10/3/2018	N/A







300 12/4/2019 Certy

SID-IIs Pelvis Plug Certification Test

Plug S/N 12610

Test Number 7540

Report Number 7555

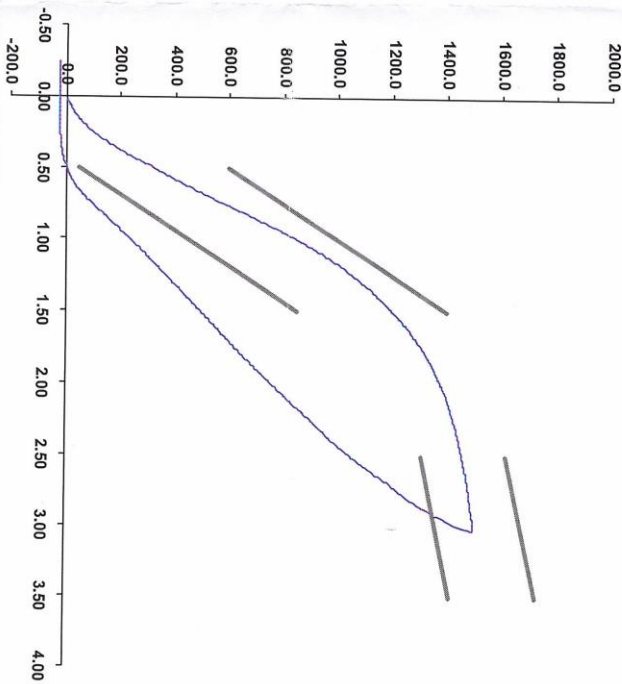
Test Date 10/3/2018 10:52:16 AM

Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	327.44	50.00
Force @ 1.5 mm (N)	1,205.77	850.00
Force @ 2.5 mm (N)	1,457.10	1,306.00
Force @ 3.0 mm (N)	1,500.46	1,361.00

Testing Machine STM-20 5965542
Load Cell S/N (F1360947), 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
SACO Research

03-Oct-18

By: PC

Date: 10/3/18

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



300 Cash 12/5/19

SID-IIs Pelvis Plug Certification Test

Plug S/N 12560

Test Number 7488

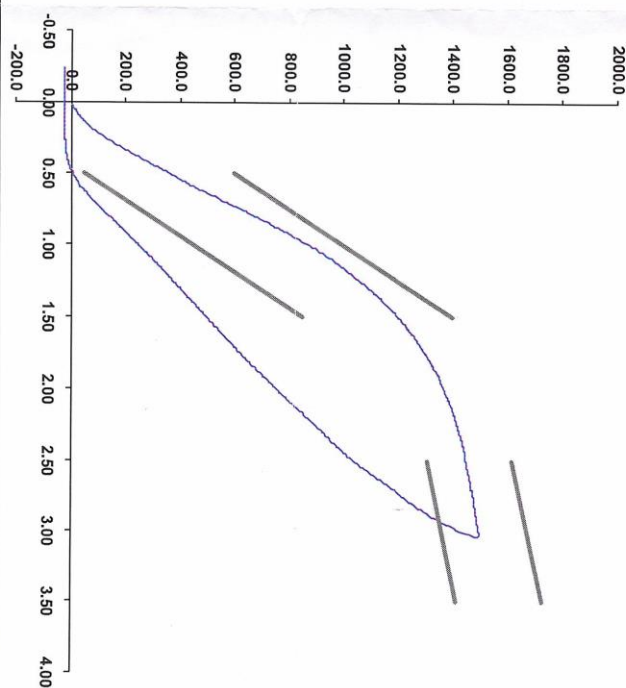
Report Number 7503

Test Date 10/3/2018 8:25:19 AM

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

Testing Machine STM-20 5965542
Load Cell S/N (F1360947), 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 03-Oct-18
SACO Research

By: DC Date: 10/3/18

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

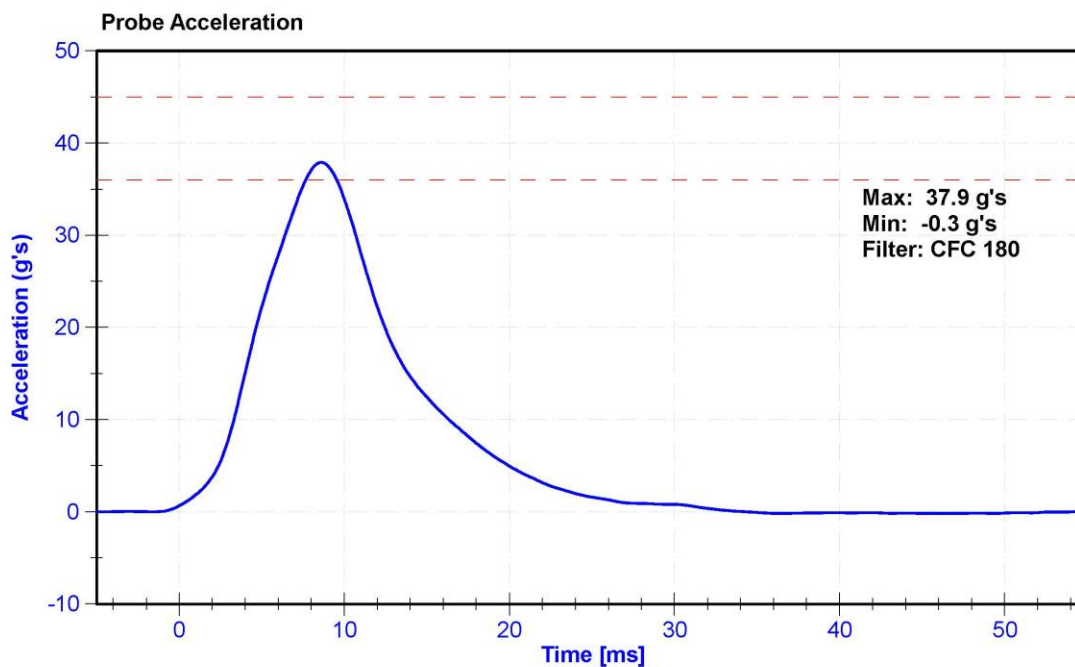
ATD Manufacturer	FTSS	Test Technician	K. Brogan
ATD Serial Number	300	Laboratory Supervisor	K. Dutton

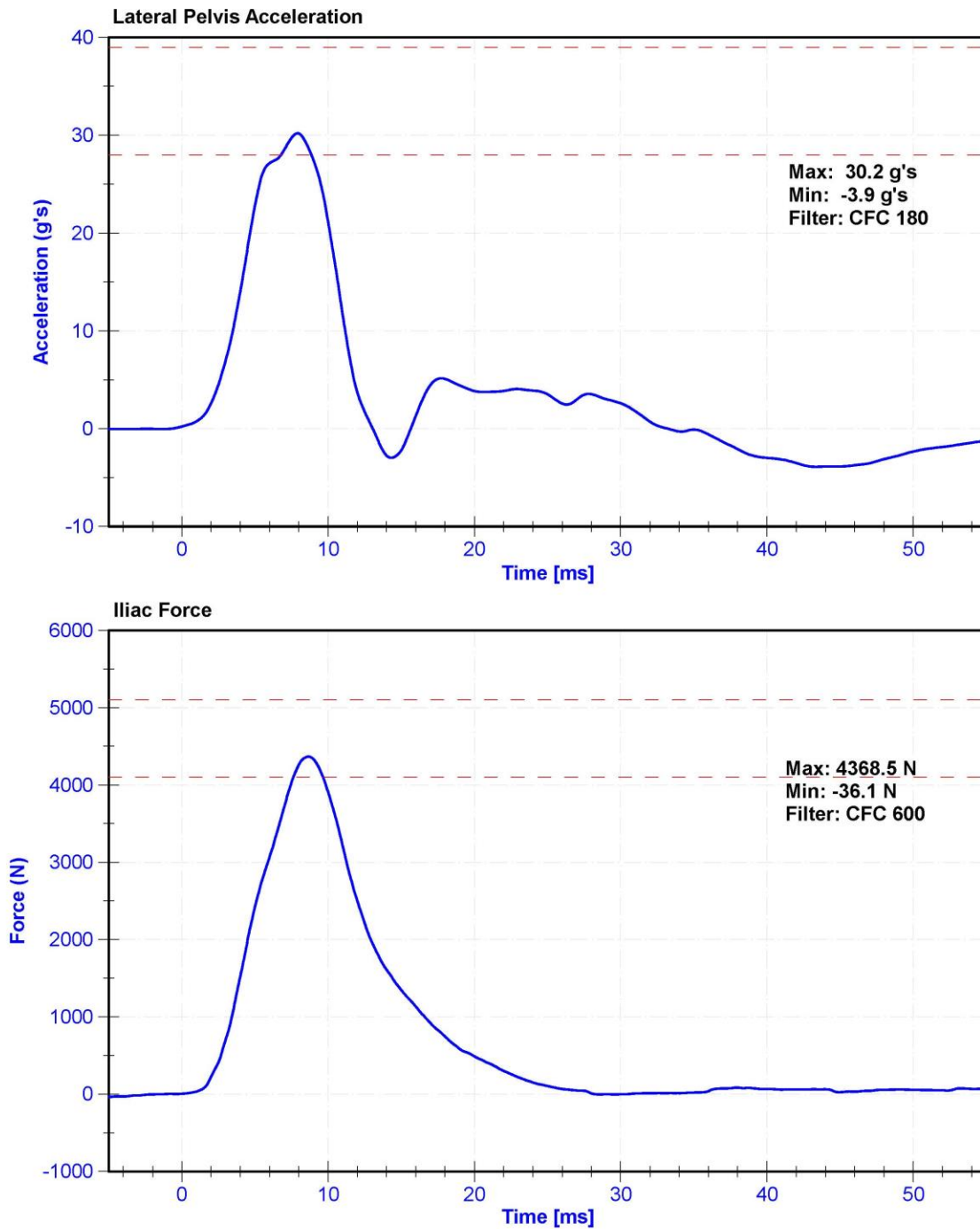
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	24.3	Pass
Velocity	4.2	4.4	m/s	4.40	Pass
Probe Acceleration	36	45	g's	37.9	Pass
Lateral Pelvis Acceleration	28	39	g's	30.2	Pass
Iliac Force	4100	5100	N	4368.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Pelvis Y Accelerometer	ENDEVCO 7264CT	AC-P51731	10/29/2019	4/28/2020
Iliac Load Cell	DENTON 3228J	LC-280Fy	6/20/2019	6/19/2020





CALIBRATION TEST RESULTS

POST-TEST

EUROSID 2 (ES-2RE) MALE – DRIVER ATD

SERIAL NO: F034

(CONFIGURED FOR LEFT SIDE IMPACT)

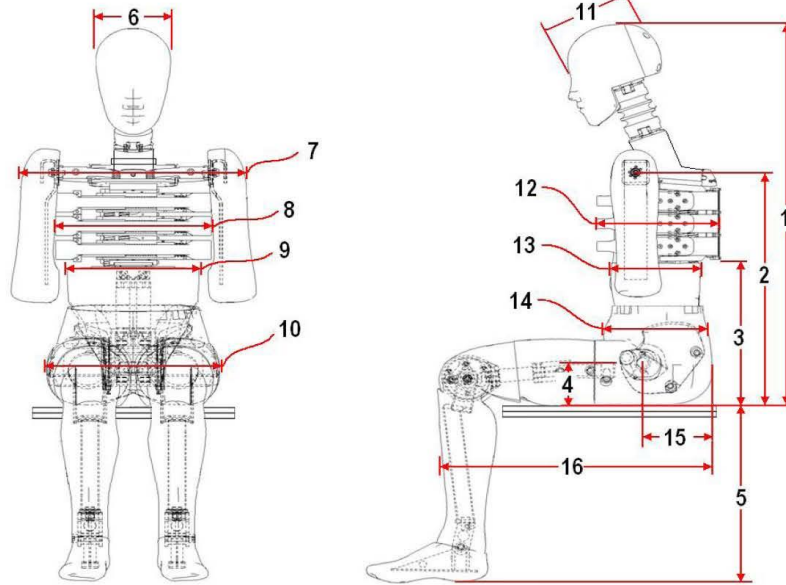


External Measurements - EuroSID-2re

Technician: K. Dutton

Date: 01/07/2020

Dummy Serial Number: F034



FRONT VIEW

SIDE VIEW

Dim. No.	Description	Specification (mm)		Result (mm)	Pass/Fail
1	Sitting Height	900	918	910	Pass
2	Seat to Shoulder Joint	558	572	569	Pass
3	Seat to Lower Face of Thoracic Spine Box	346	356	352	Pass
4	Seat to Hip Joint (center of bolt)	97	103	100	Pass
5	Sole to Seat, Sitting	333	451	419	Pass
6	Head Width	152	158	154	Pass
7	Shoulder/Arm Width	461	479	472	Pass
8	Thorax Width	322	332	327	Pass
9	Abdomen Width	273	287	284	Pass
10	Pelvis Lap Width	359	373	365	Pass
11	Head Depth	196	206	202	Pass
12	Thorax Depth	262	272	269	Pass
13	Abdomen Depth	194	204	201	Pass
14	Pelvis Depth	235	245	242	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150	160	155	Pass
16	Back of Buttocks to Front Knee	597	615	609	Pass

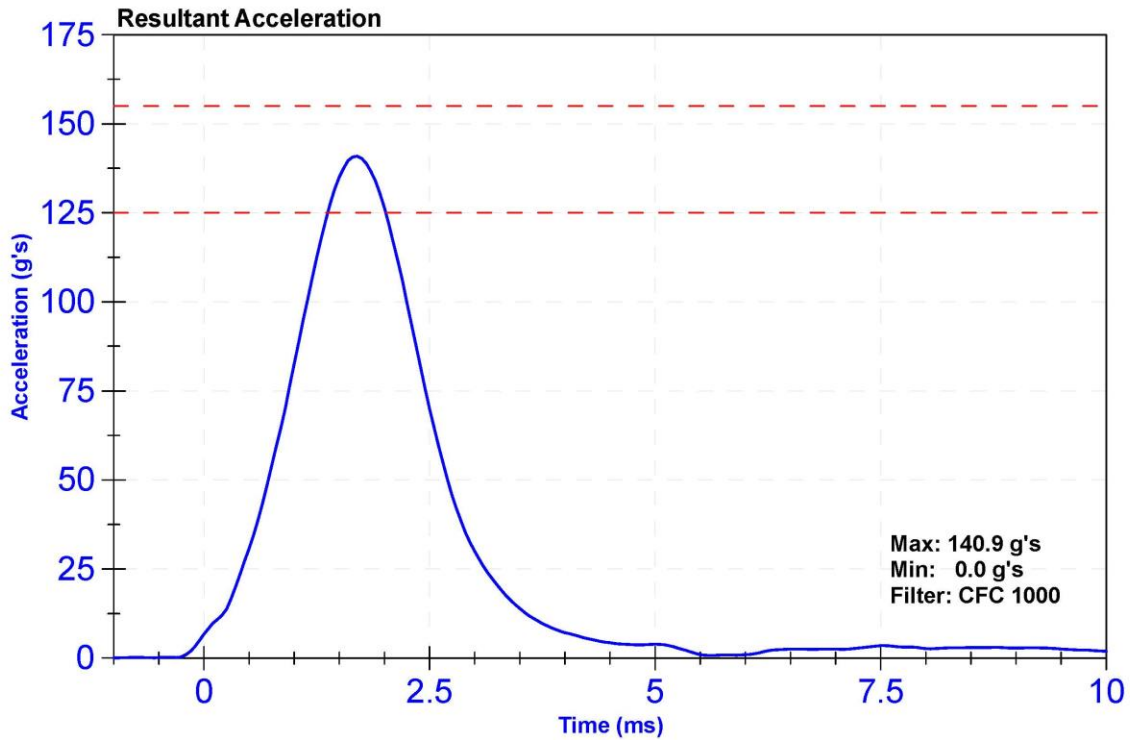
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

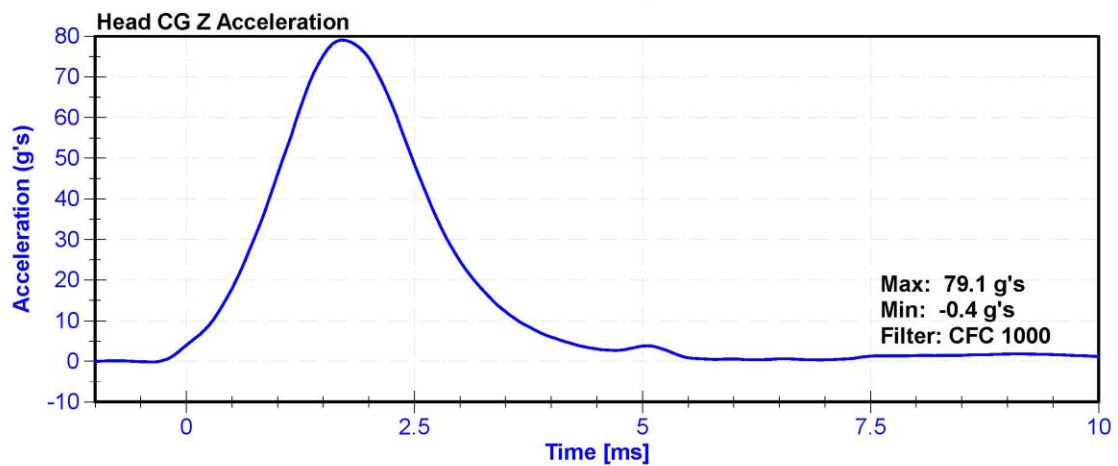
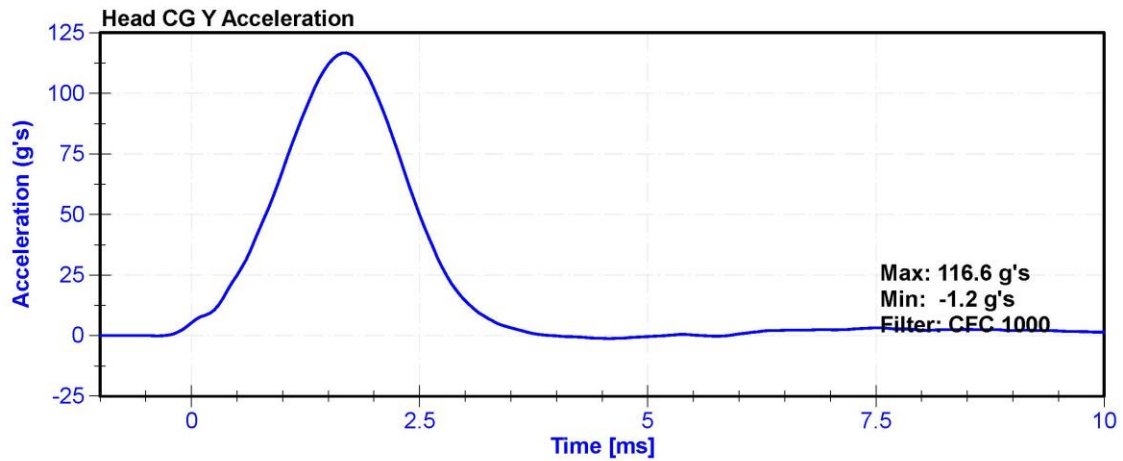
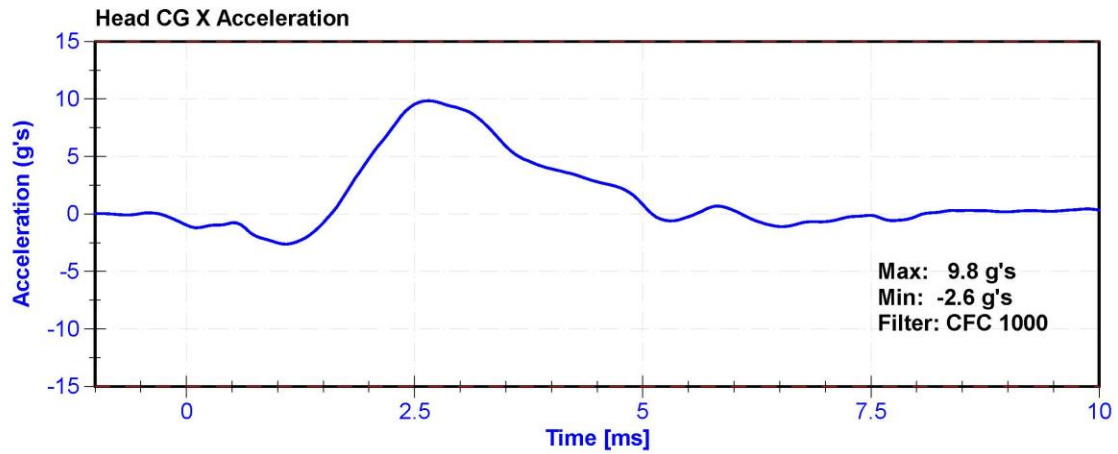
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	26.7	Pass
Resultant Acceleration	125	155	g's	140.9	Pass
Oscillation	0	15	%	2.75	Pass
Fore-Aft Acceleration	-15	15	g's	9.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	Endevco	P49204	10/29/2019	4/29/2020
Y Accelerometer	Endevco	P63981	10/29/2019	4/29/2020
Z Accelerometer	Endevco	P64007	10/29/2019	4/29/2020





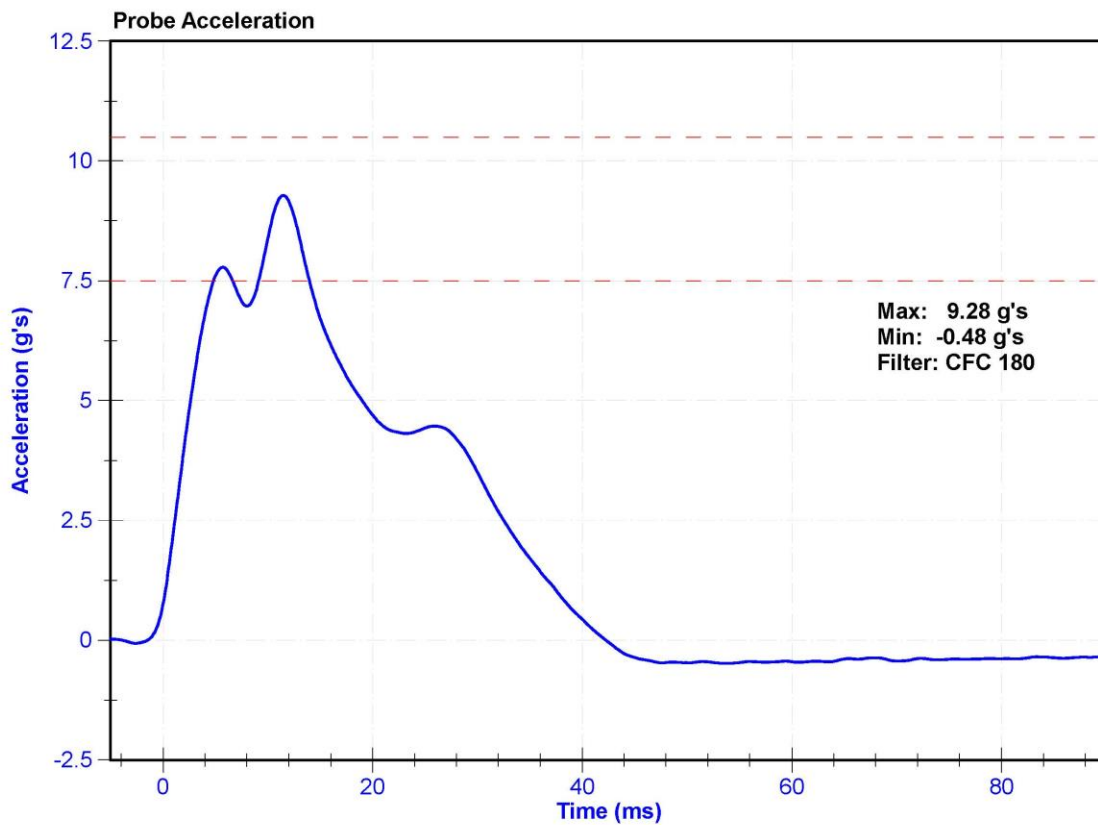
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.0	Pass
Humidity	10	70	%	30.0	Pass
Velocity	4.2	4.4	m/s	4.23	Pass
Probe Acceleration	7.5	10.5	g's	9.28	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020



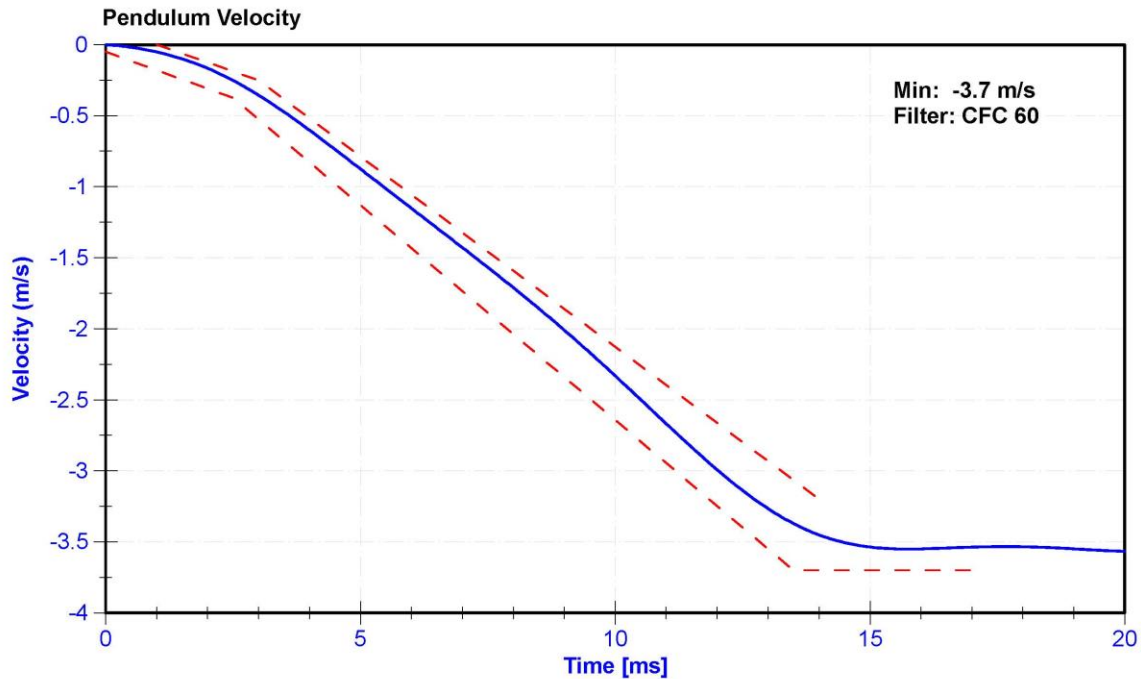
ATD Manufacturer	FTSS	Test Technician	M. Dudek
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

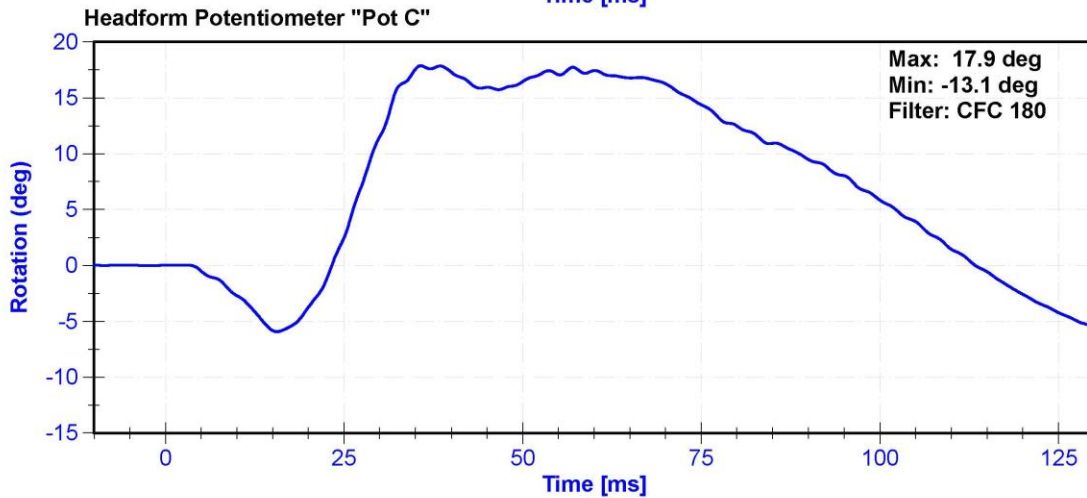
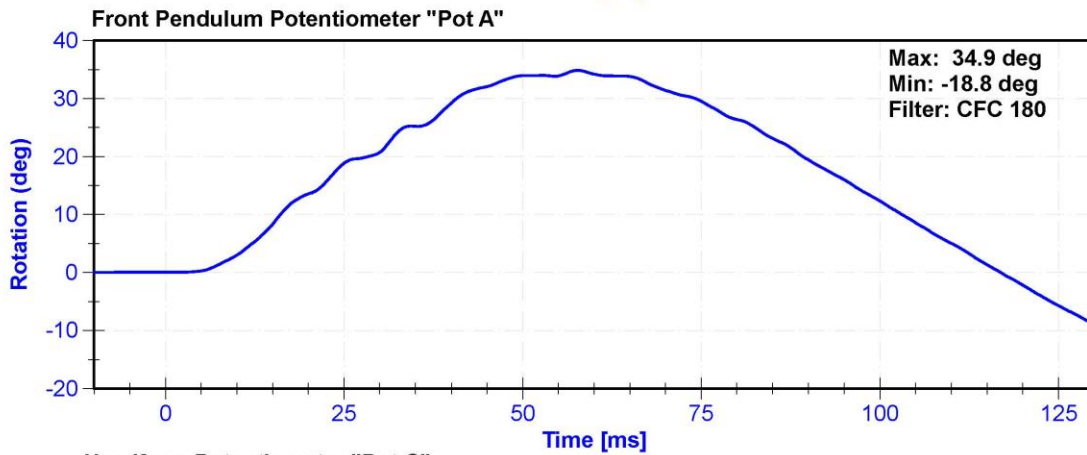
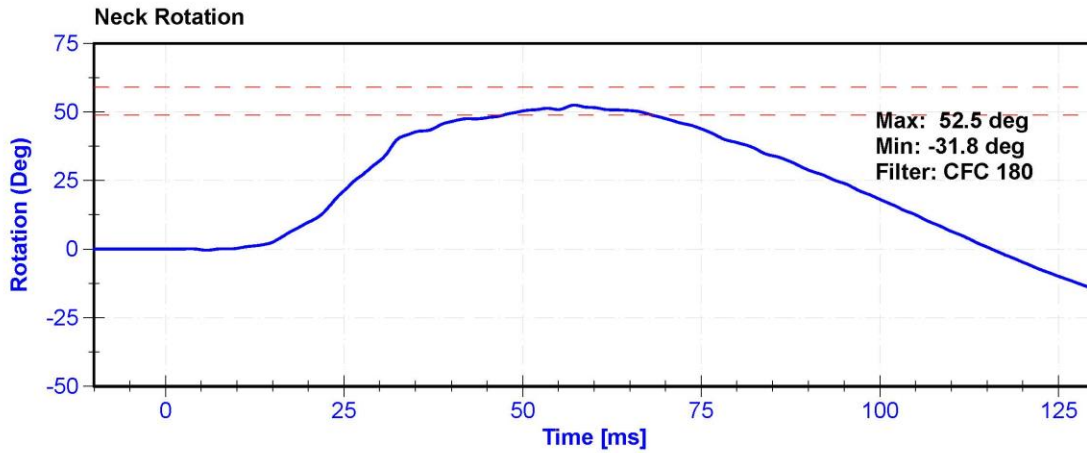
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	25	Pass
Velocity	3.3	3.5	m/s	3.30	Pass
Lateral Neck Rotation	49	59	deg	52.5	Pass
Time at Maximum Rotation	54	66	ms	57.2	Pass
Time of Rotation Decay from Maximum	53	88	ms	58.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5M9	1/29/2019	1/29/2020
Front Pendulum Potentiometer	SP22G	DS-094	10/31/2019	10/30/2020
Headform Potentiometer	SP22G	DS-095	10/31/2019	10/30/2020





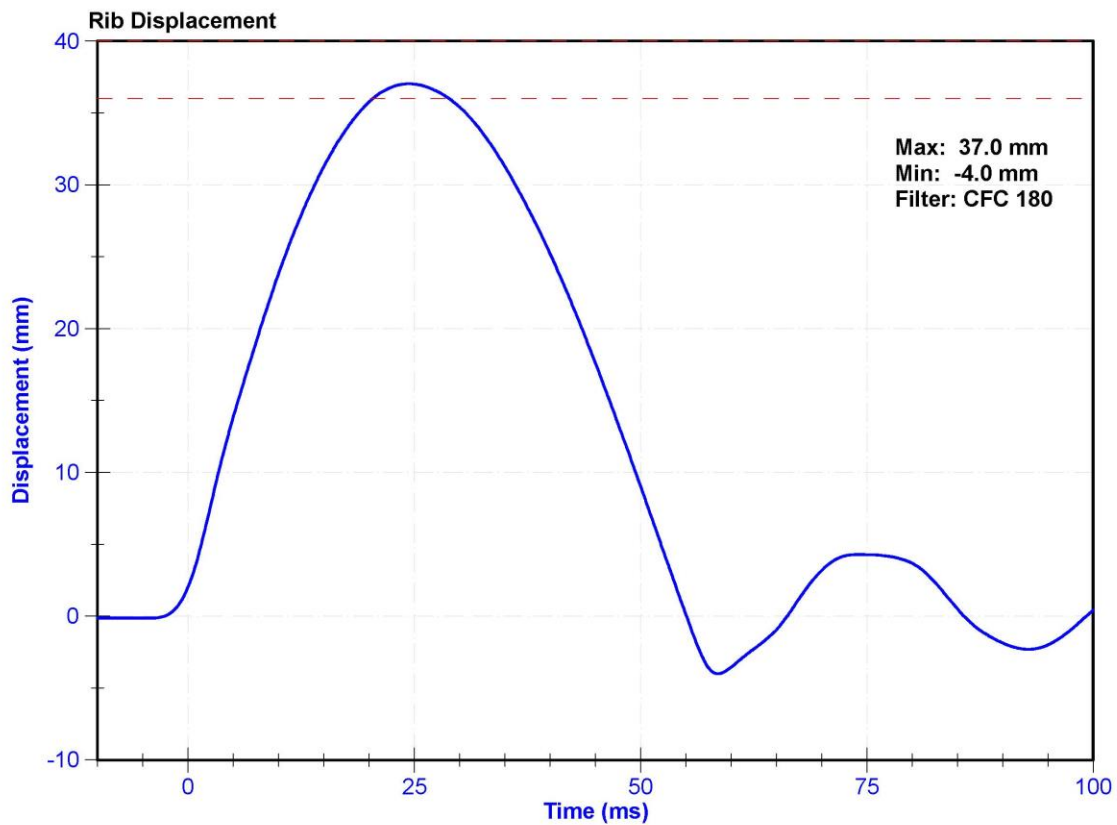
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	26.7	Pass
Rib Displacement	36	40	mm	37.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	183GFE	10/31/2019	4/30/2020



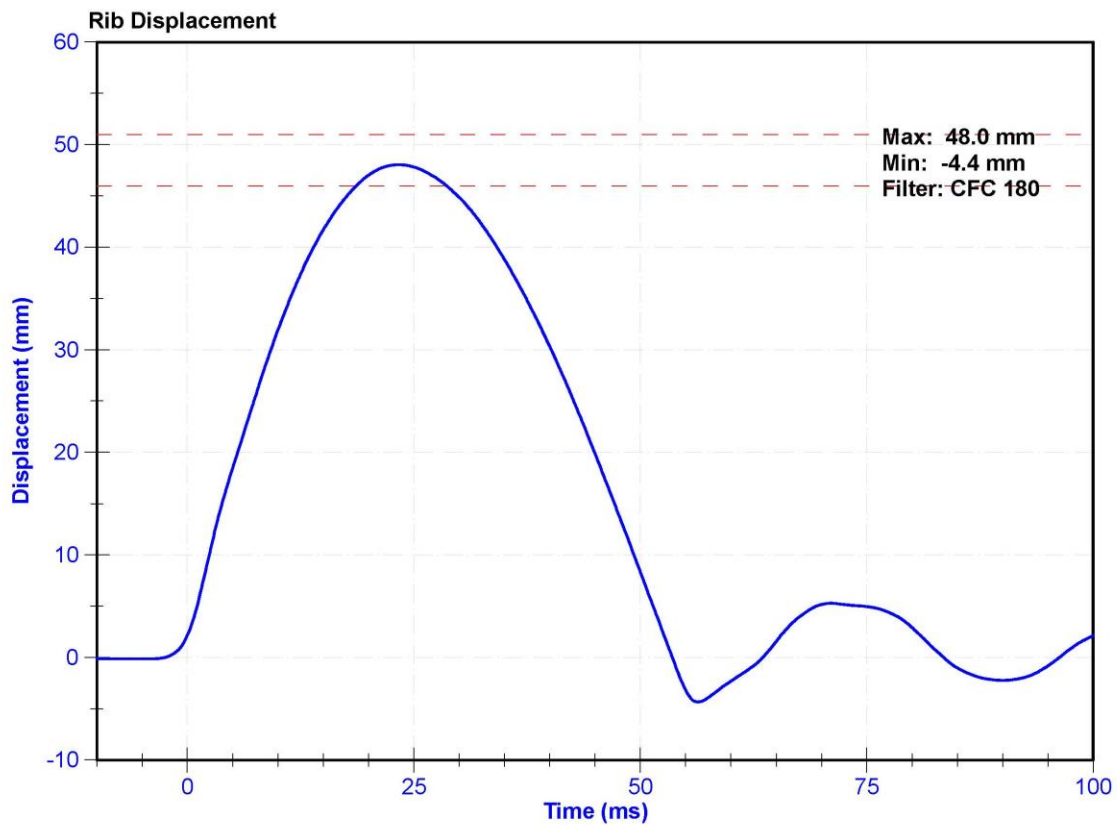
ATD Manufacturer	FTSS	Test Technician	M. Dudek
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	26.7	Pass
Rib Displacement	46	51	mm	48.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	183GFE	10/31/2019	4/30/2020



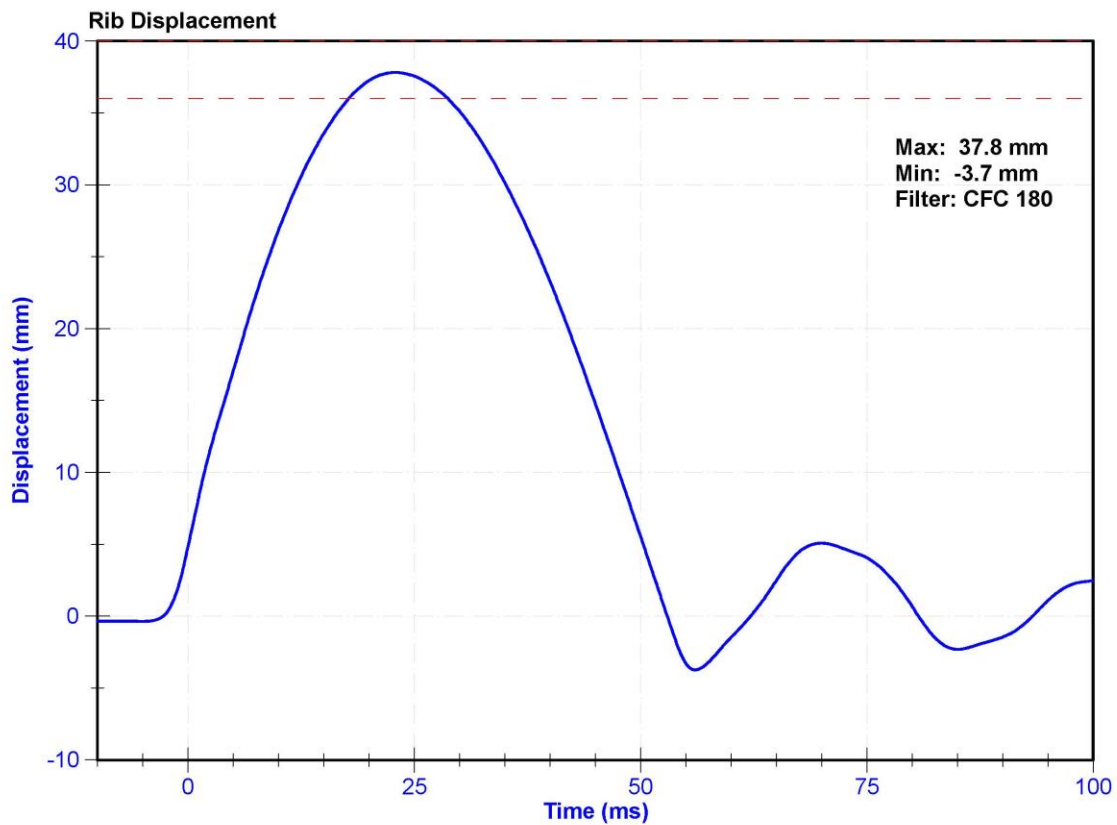
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	26.7	Pass
Rib Displacement	36	40	mm	37.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	184GFE	10/31/2019	4/30/2020



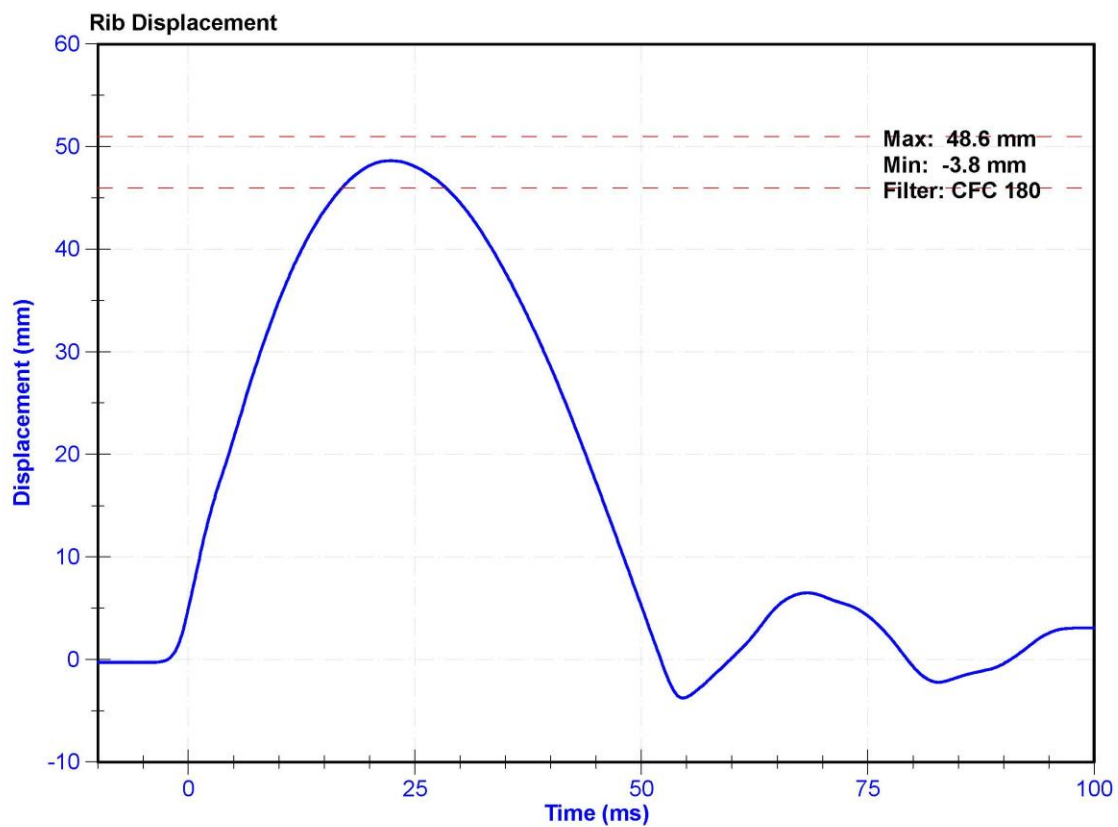
ATD Manufacturer	FTSS	Test Technician	M. Dudek
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	26.7	Pass
Rib Displacement	46	51	mm	48.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	184GFE	10/31/2019	4/30/2020



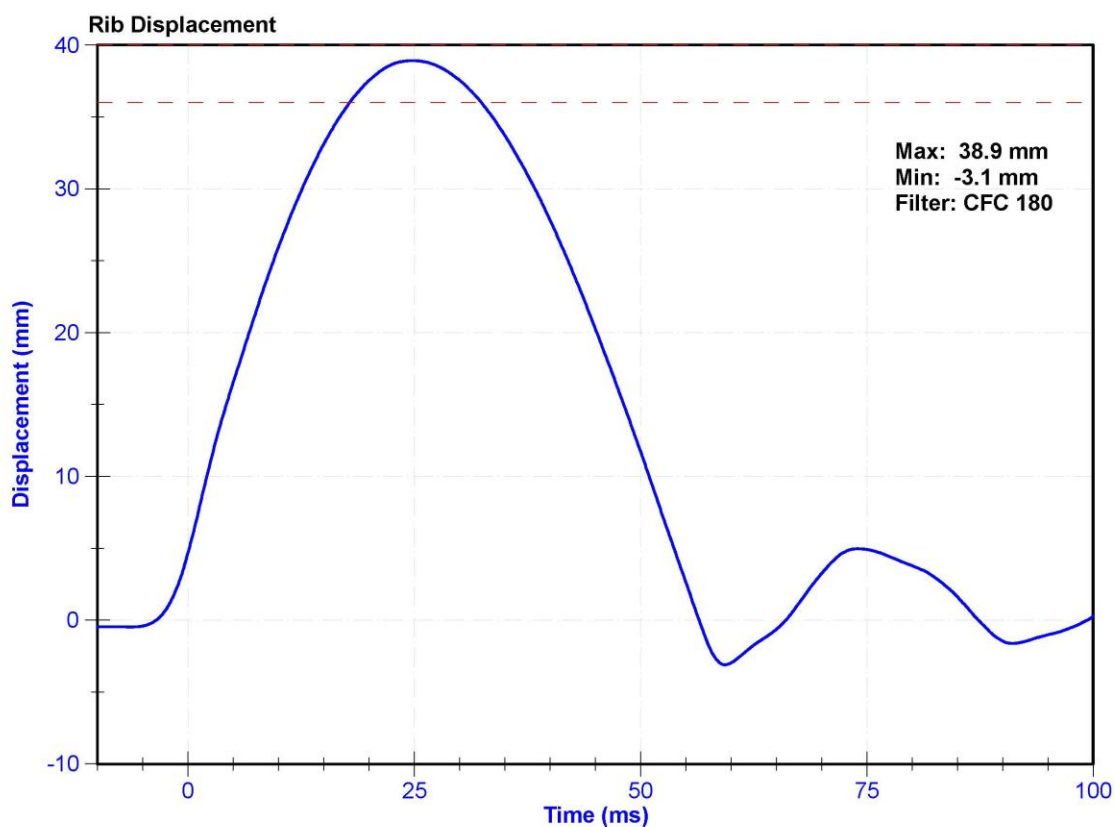
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	26.7	Pass
Rib Displacement	36	40	mm	38.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	182GFE	10/31/2019	4/30/2020



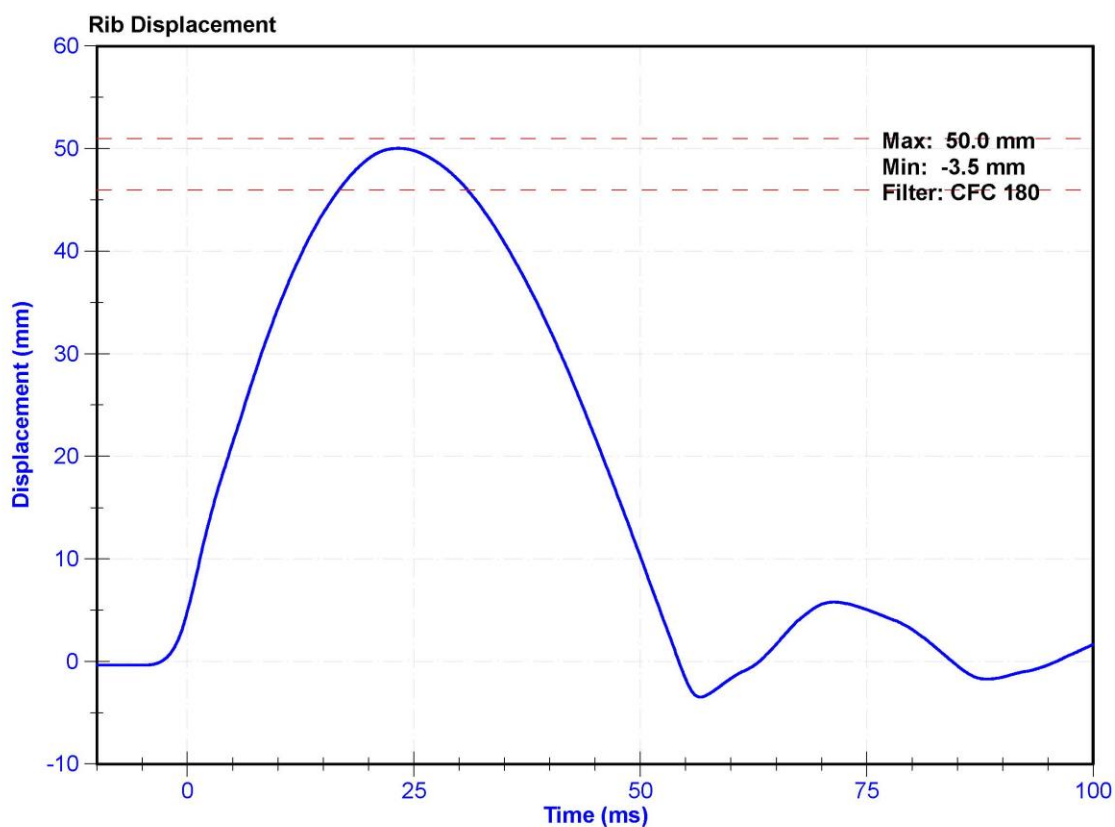
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	26.7	Pass
Rib Displacement	46	51	mm	50.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Rib Potentiometer	Honeywell	182GFE	10/31/2019	4/30/2020



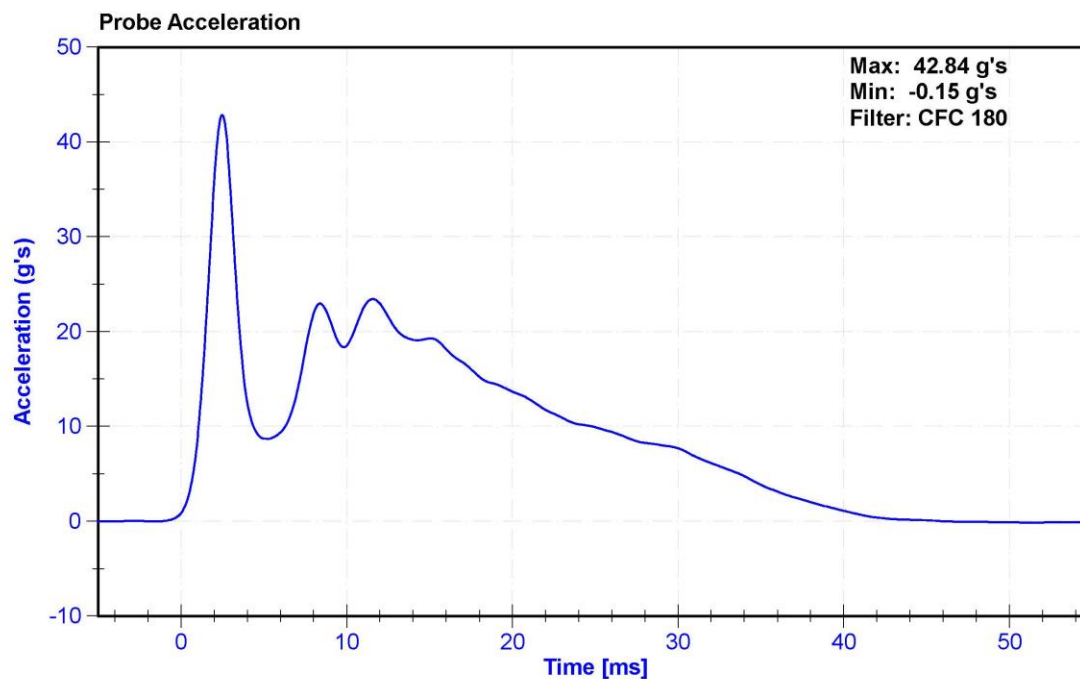
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

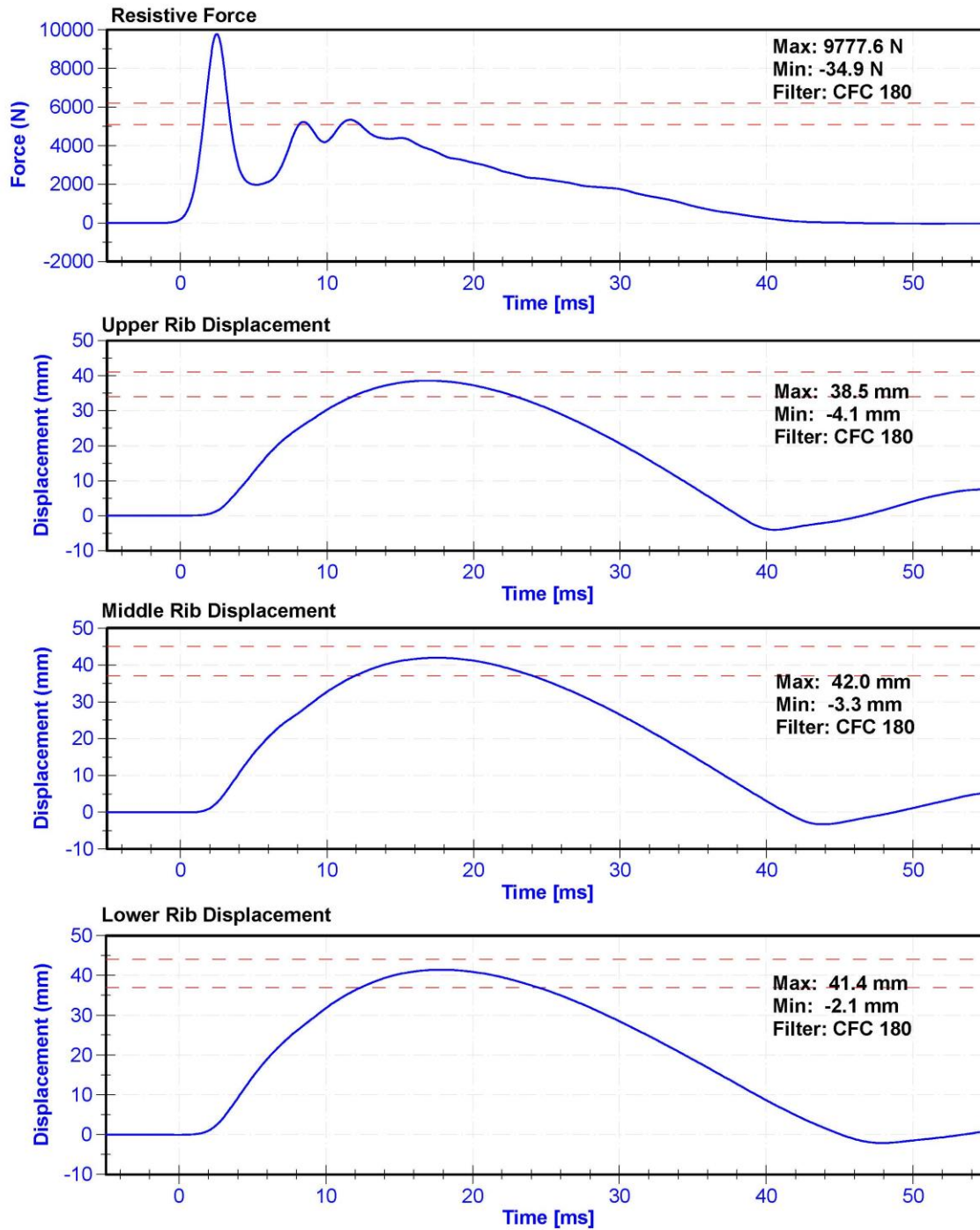
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	41.0	Pass
Velocity	5.4	5.6	m/s	5.41	Pass
Resistive Force after 6ms	5100	6200	N	5346.4	Pass
Upper Thorax Rib Deflection	34	41	mm	38.5	Pass
Mid Thorax Rib Deflection	37	45	mm	42.0	Pass
Lower Thorax Rib Deflection	37	44	mm	41.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Upper Thorax Rib Potentiometer	Honeywell MLT-38000203	DS-183GFE	10/31/2019	4/30/2020
Middle Thorax Rib Potentiometer	Honeywell MLT-38000203	DS-184GFE	10/31/2019	4/30/2020
Lower Thorax Rib Potentiometer	Honeywell MLT-38000203	DS-182GFE	10/31/2019	4/30/2020





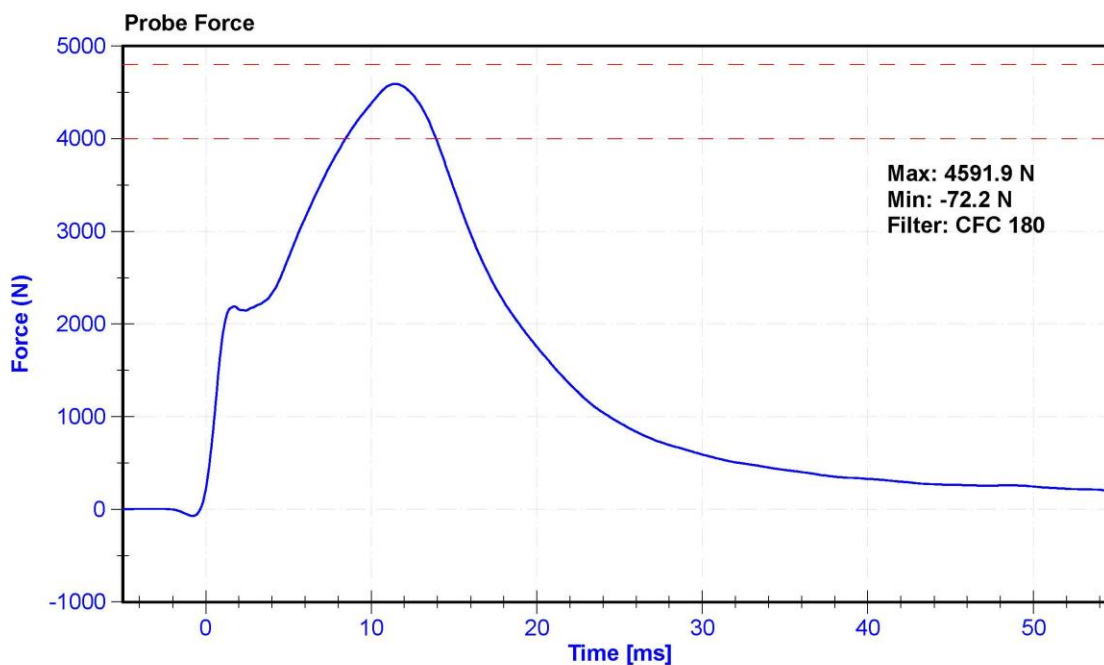
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K.Brogan

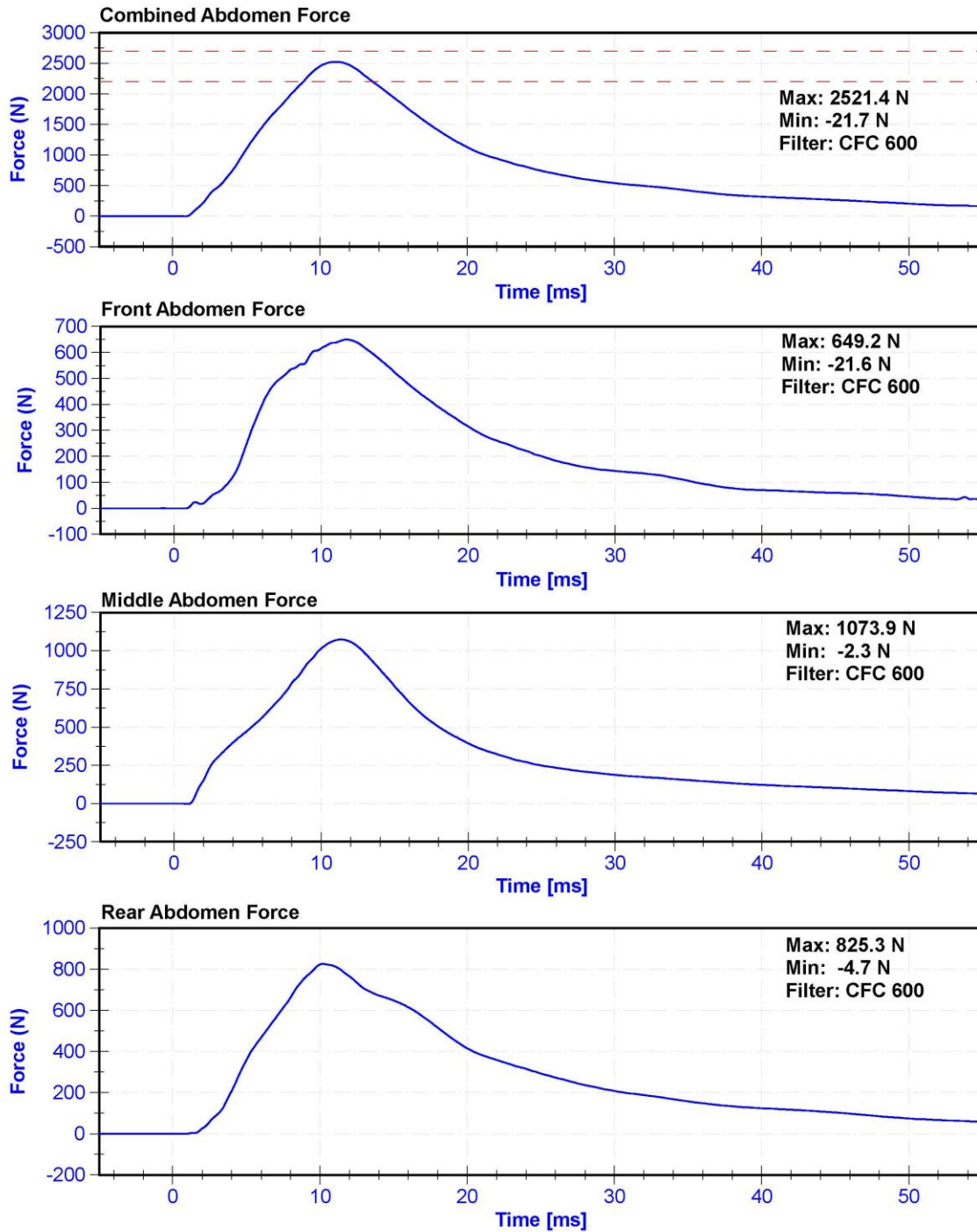
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	40	Pass
Velocity	3.9	4.1	m/s	4.06	Pass
Combined Abdomen Force	2200	2700	N	2521.4	Pass
Time at Peak Abdomen Force	10.0	12.3	ms	11.15	Pass
Resistive Probe Force	4000	4800	N	4591.9	Pass
Time at Peak Resistive Force	10.6	13.0	ms	11.45	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Front Abdomen Load Cell	DENTON 2631	LC-1440	6/14/2019	6/13/2020
Middle Abdomen Load Cell	DENTON 2631	LC-1525	6/5/2019	6/4/2020
Rear Abdomen Load Cell	DENTON 2631	LC-1528	6/14/2019	6/13/2020







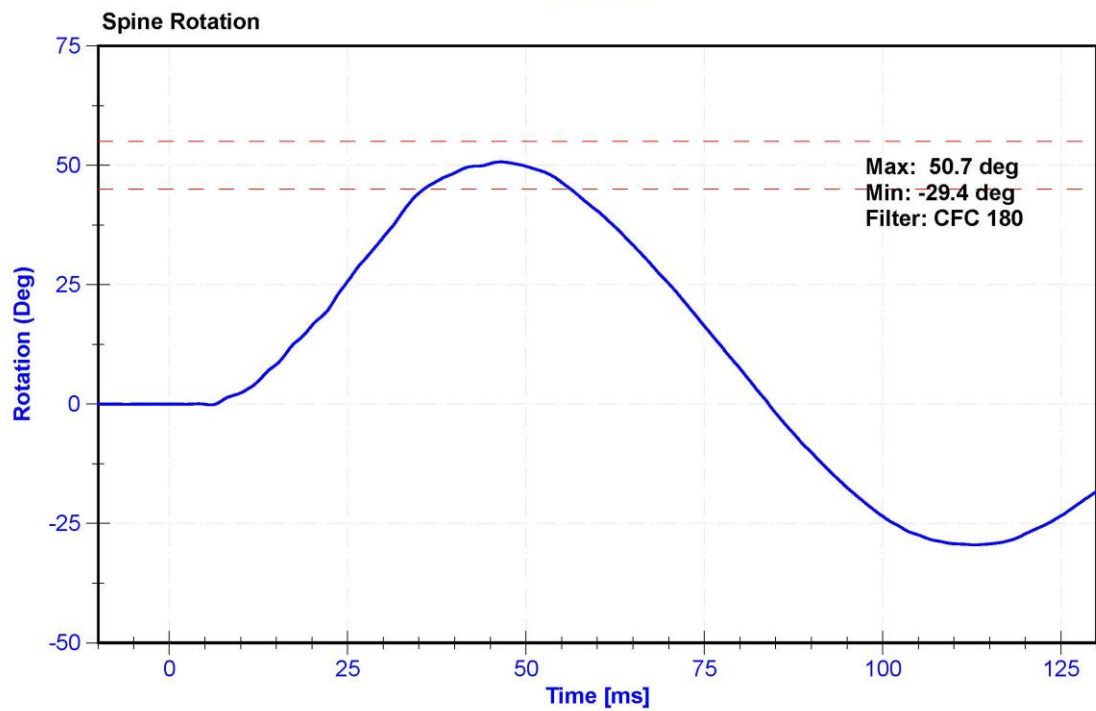
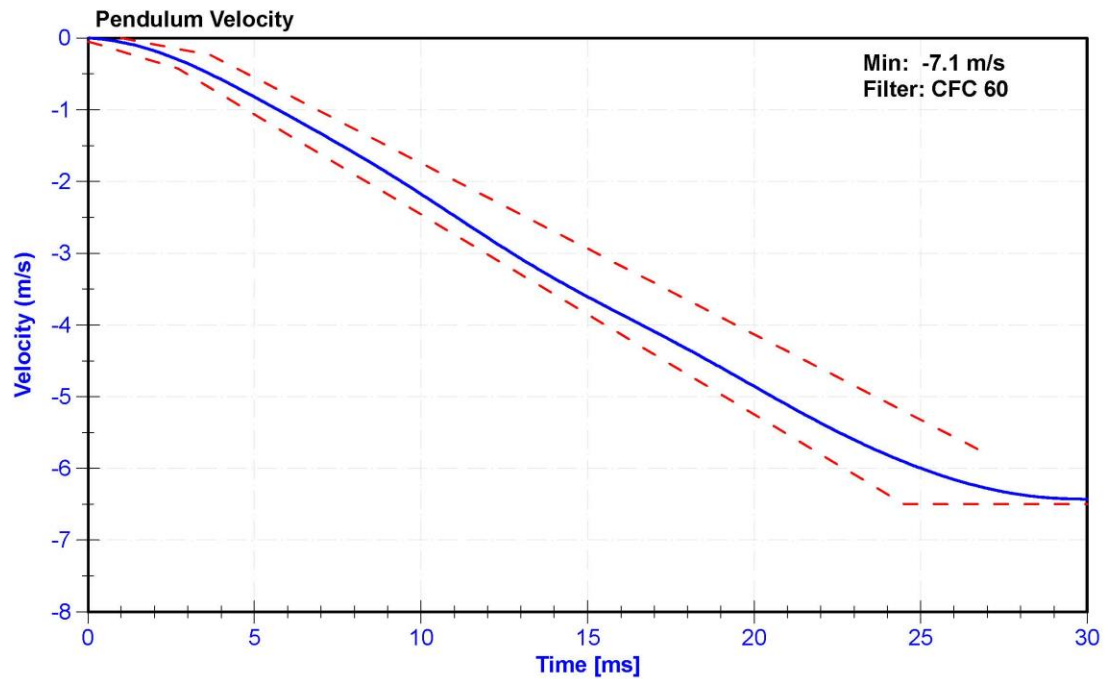
ATD Manufacturer	FTSS	Test Technician	M. Dudek
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

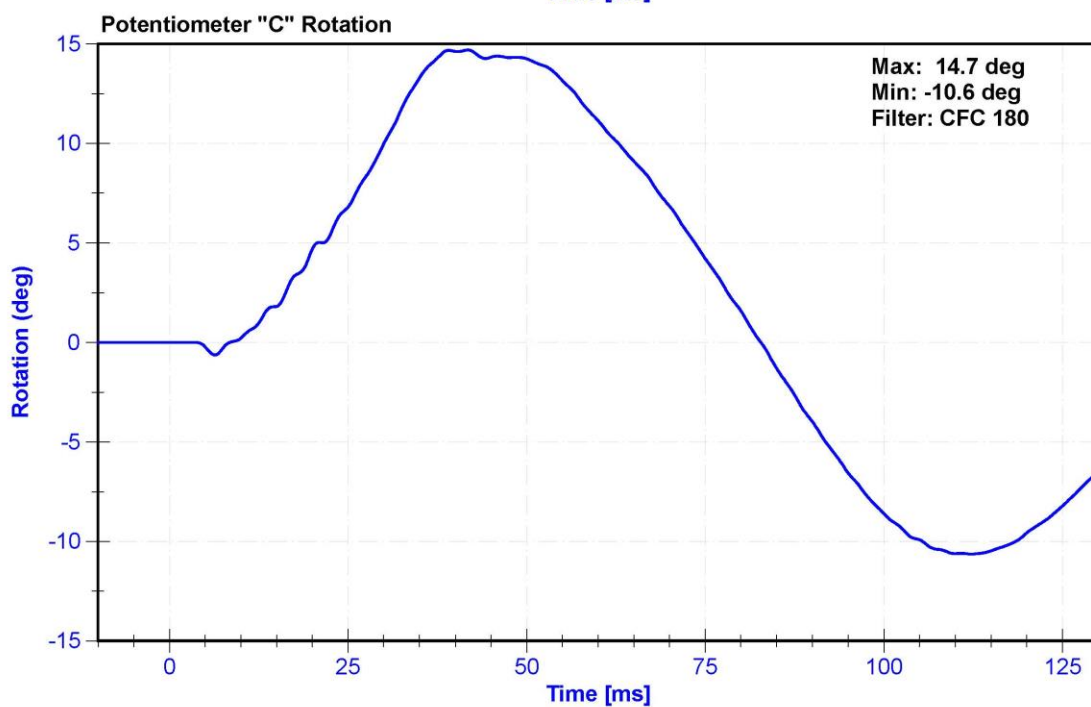
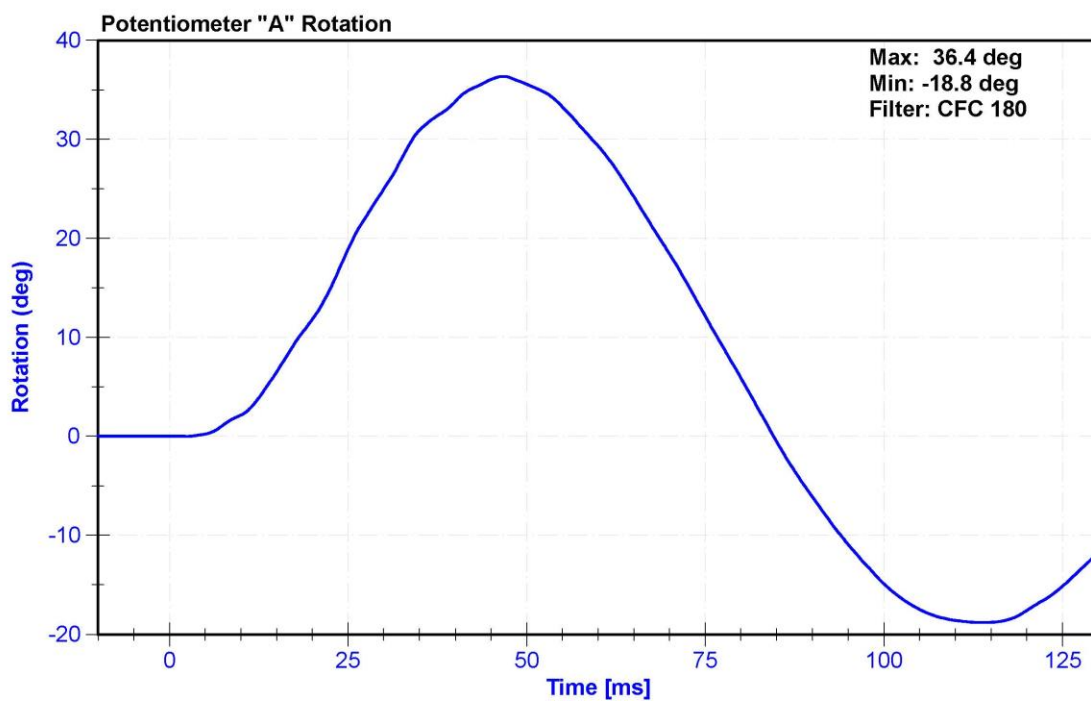
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	26	Pass
Velocity	5.95	6.15	m/s	6.005	Pass
Lateral Spine Rotation	45	55	deg	50.7	Pass
Time at Maximum Rotation	39	53	ms	46.5	Pass
Time of Decay to Zero Degrees	37	57	ms	37.5	Pass
Pulse within Corridor?	-	-	-		

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5M9 Pend	1/29/2019	1/29/2020
Pendulum "A" Potentiometer	SP22G	DS-094	10/31/2019	10/30/2020
Condyle "B" Potentiometer	SP22G	DS-095	10/31/2019	10/30/2020





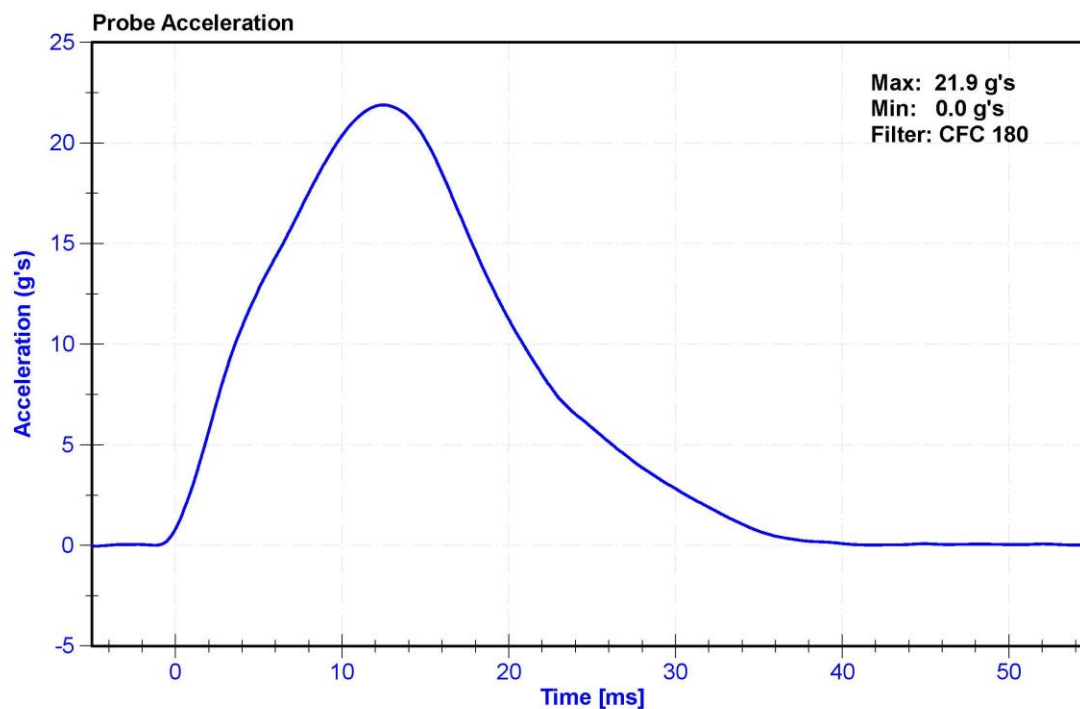
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	F034	Laboratory Supervisor	K. Brogan

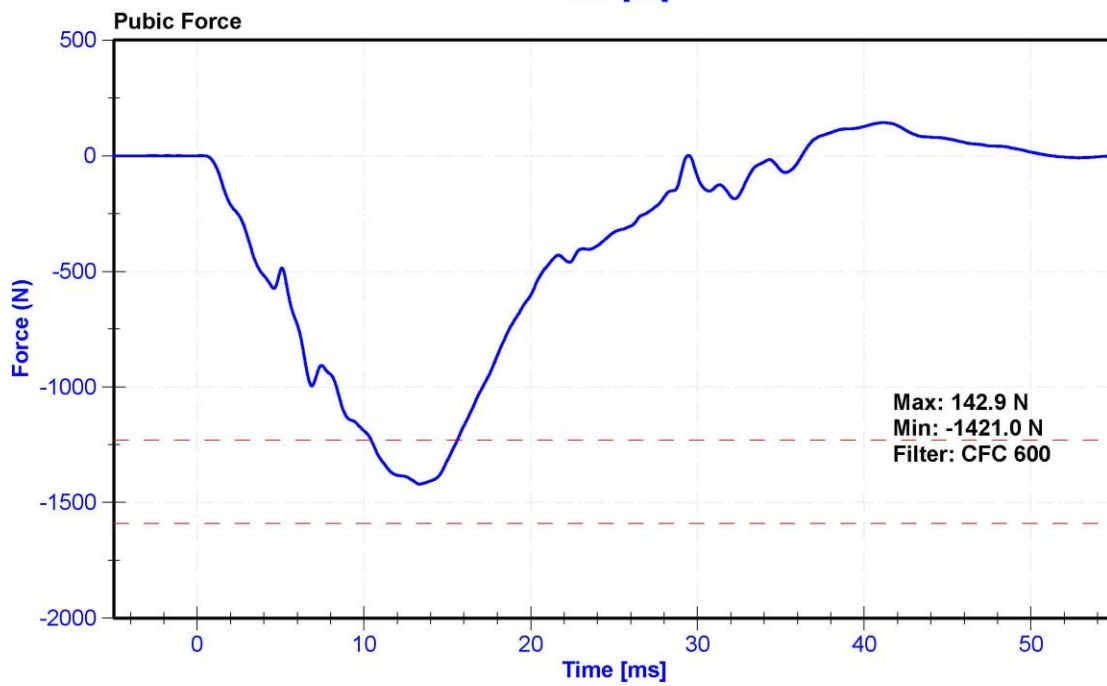
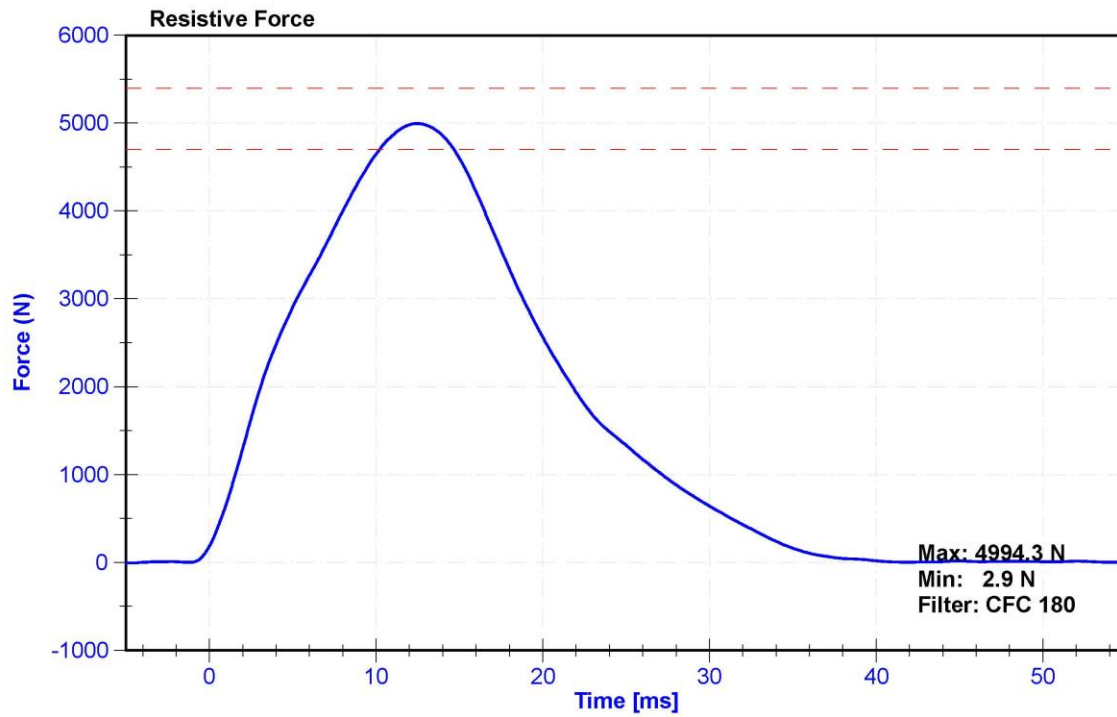
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	41.0	Pass
Velocity	4.2	4.4	m/s	4.35	Pass
Resistive Force	4700	5400	N	4994.3	Pass
Time at Peak Resistive Force	11.8	16.1	ms	12.45	Pass
Pubic Force	-1590	-1230	N	-1421.0	Pass
Time at Peak Pubic Force	12.2	17.0	ms	13.35	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Pubic Load Cell	Denton 3096JFL	LC-464fy	6/14/2019	6/13/2020





CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER ATD

SERIAL No: 300

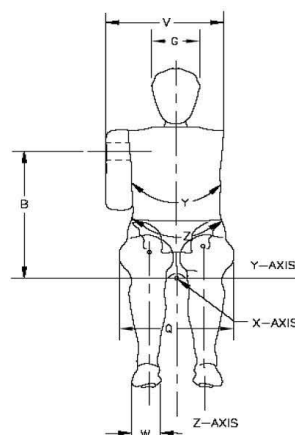
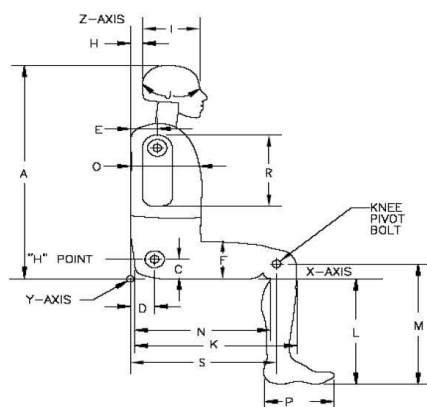


External Measurements - SID-IIs

Technician: **K. Dutton**

Date: **01/07/2020**

Dummy Serial Number: **300**



Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	779	Pass
B	Shoulder Pivot Height	437	453	450	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	103	Pass
F	Thigh Clearance	119	135	127	Pass
G	Head Breadth	140	148	144	Pass
H	Head Back from Backline	40	46	43	Pass
I	Head Depth	178	188	185	Pass
J	Head Circumference	541	551	546	Pass
K	Buttock to Knee Length	514	540	530	Pass
L	Popliteal Height	343	369	357	Pass
M	Knee Pivot to floor height	392	409	402	Pass
N	Buttock Popliteal Length	416	442	431	Pass
O	Chest Depth w/o jacket	195	211	203	Pass
P	Foot Length	216	232	222	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	319	Pass
R	Arm Length	249	259	253	Pass
S	Knee Joint to seatback	477	493	485	Pass
V	Shoulder Width	341	357	351	Pass
W	Foot Width	78	94	84	Pass
Y	Chest Circumference w/jacket	851	881	870	Pass
Z	Waist Circumference	761	791	769	Pass

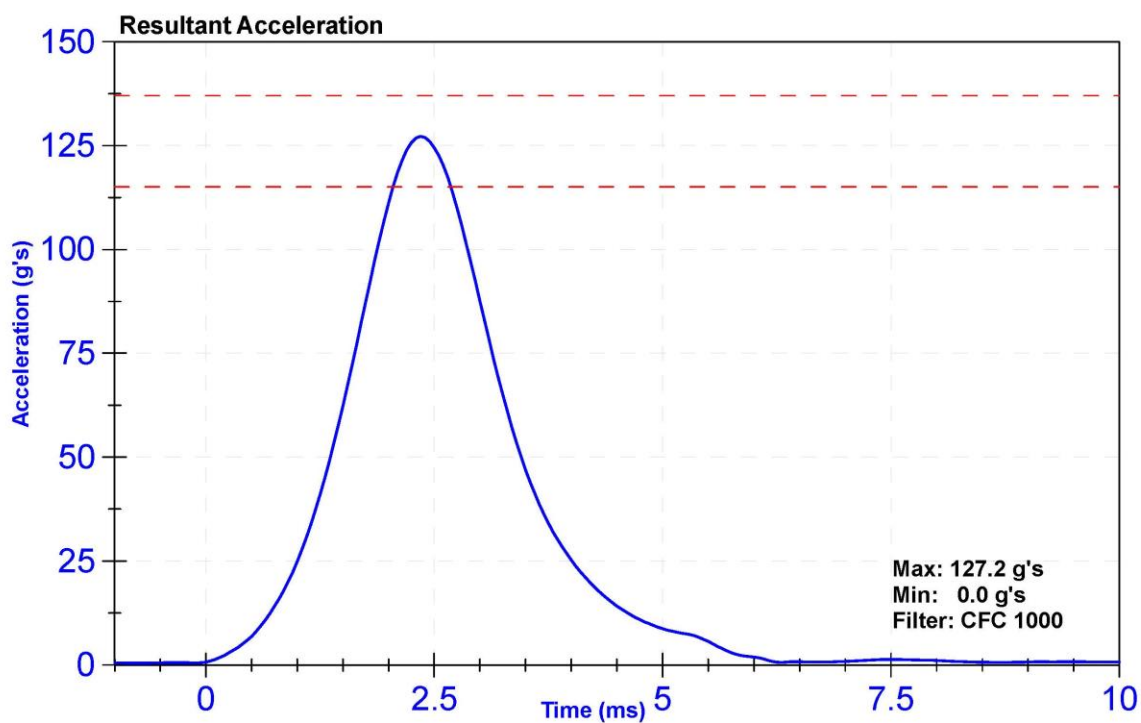
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

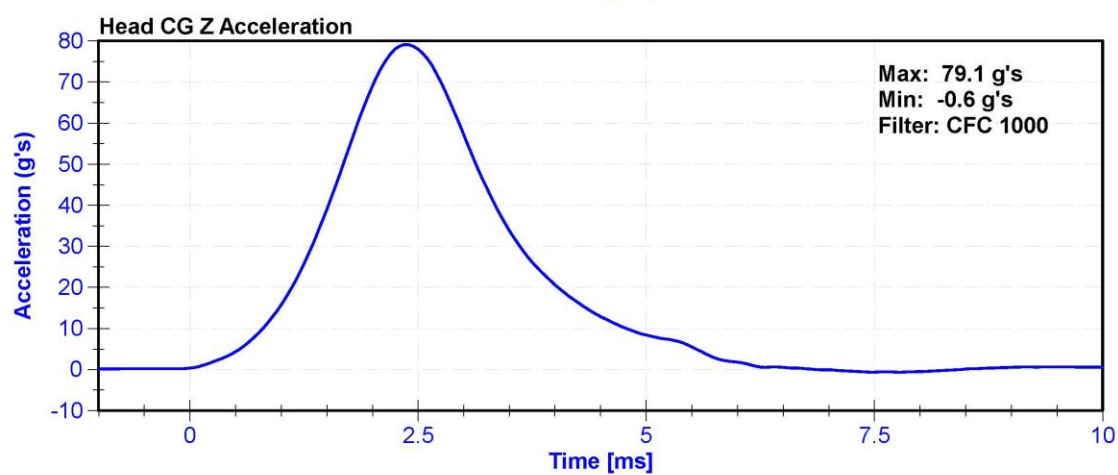
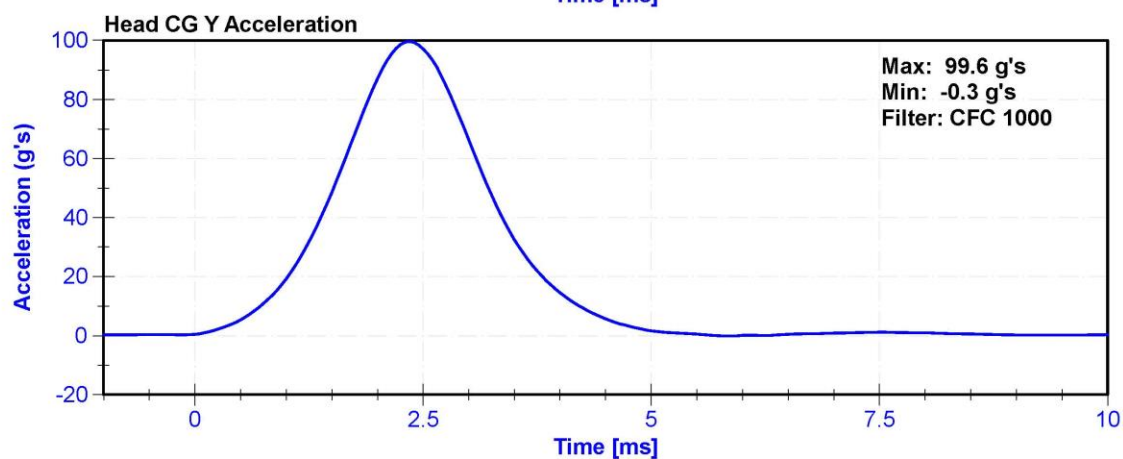
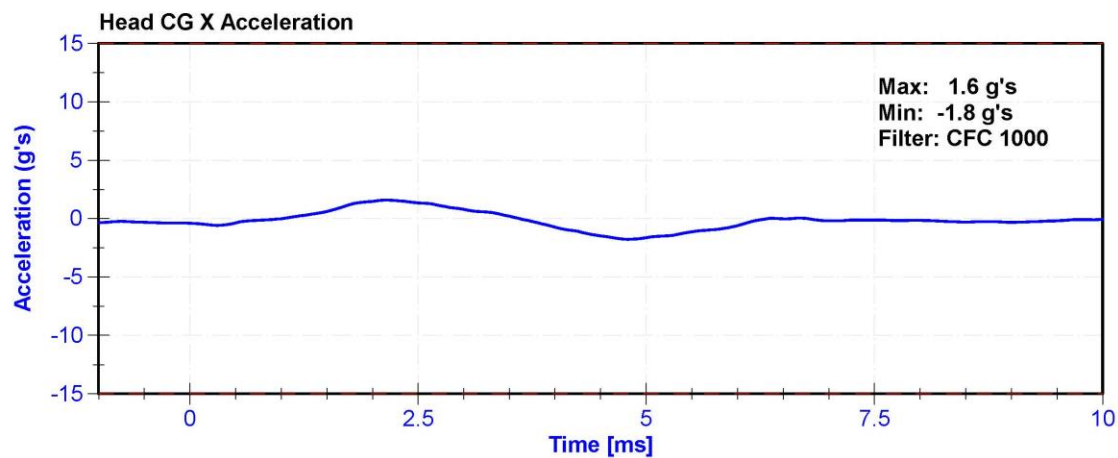
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.8	Pass
Humidity	10	70	%	16.5	Pass
Resultant Acceleration	115	137	g's	127.2	Pass
Oscillation	0	15	%	1.0	Pass
Fore-Aft Acceleration	-15	15	g's	-1.8	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	ENDEVCO 7264CT	AC-P59018	10/29/2019	4/28/2020
Y Accelerometer	ENDEVCO 7264	AC-P79189	10/29/2019	4/28/2020
Z Accelerometer	ENDEVCO 7264CT	AC-P58777	10/29/2019	4/28/2020





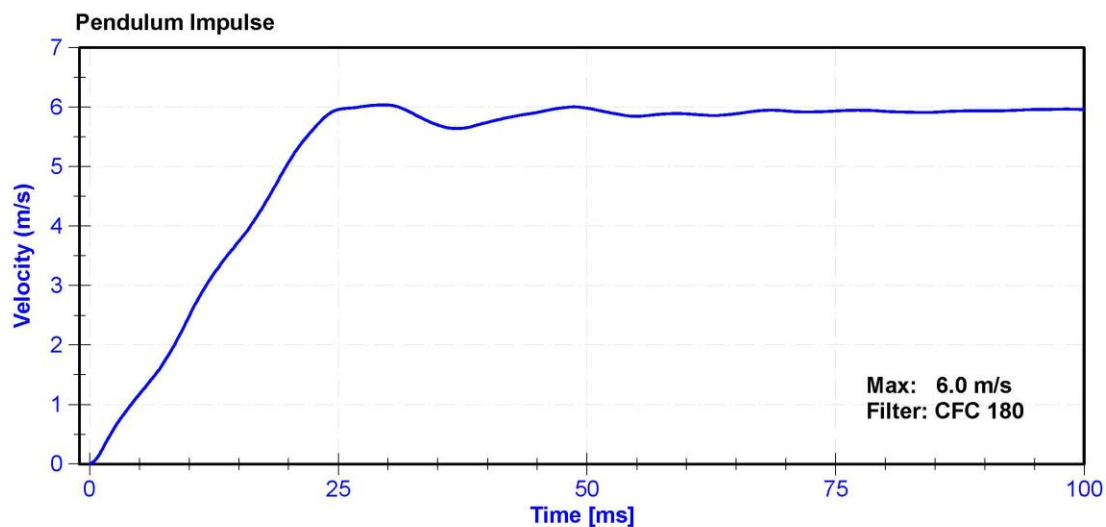
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

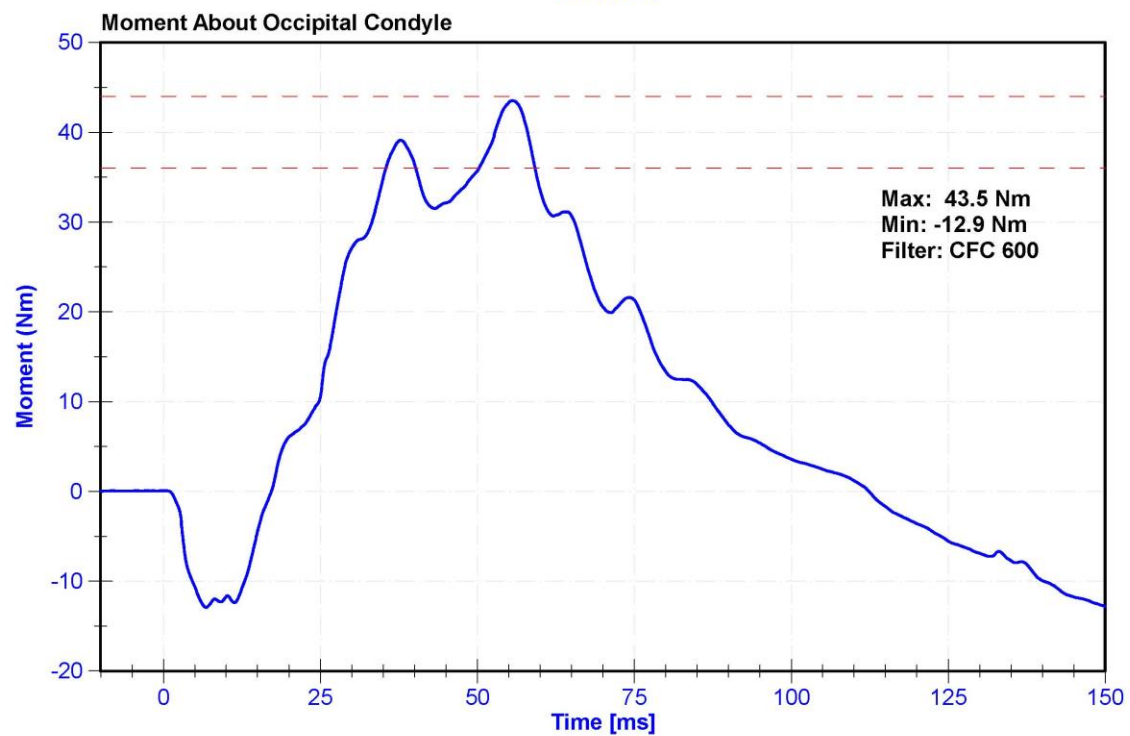
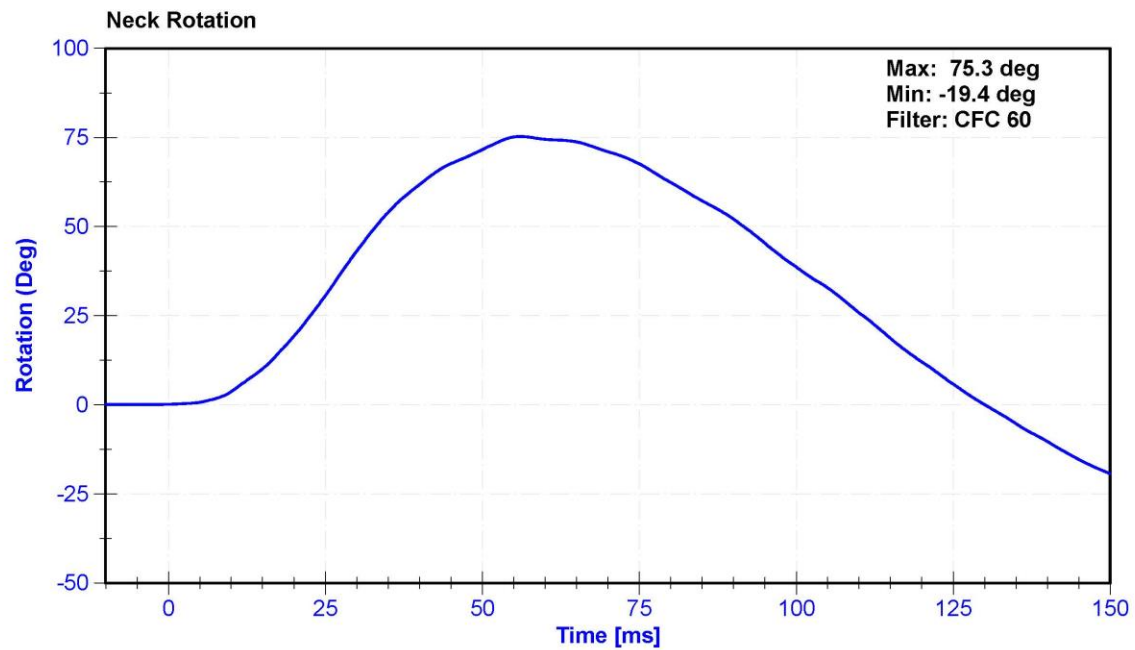
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	16.3	Pass
Velocity	5.51	5.63	m/s	5.549	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.48	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.74	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	5.07	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.96	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	6.04	Pass
Neck Rotation	71	81	deg	75.3	Pass
Time at Maximum Rotation	50	70	ms	56.0	Pass
Moment about the OC	36	44	Nm	43.5	Pass
Moment Decay to 0 Nm	102	126	ms	112.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5M9 Pend	1/29/2019	1/29/2020
Pendulum Potentiometer	Denton 78051-342	DS-184Pend	11/4/2019	11/3/2020
Condyle Potentiometer	Denton 78051-342	DS-185Pend	11/4/2019	11/3/2020
Upper Neck Load Cell	Denton 1716A	LC-2192Fy	6/20/2019	6/19/2020





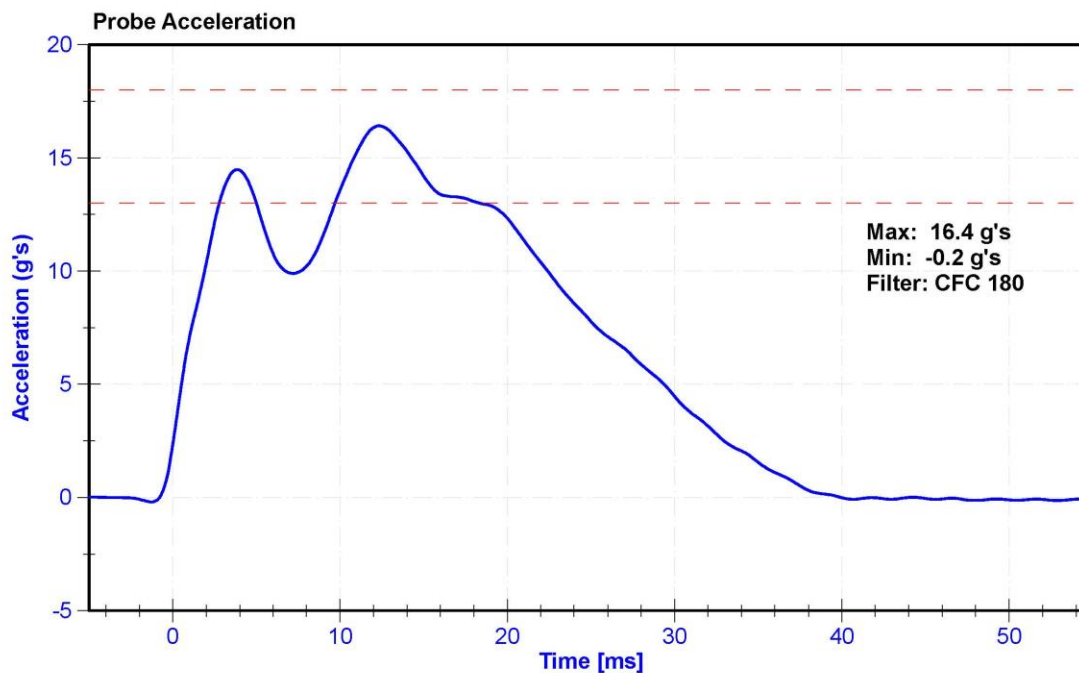
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

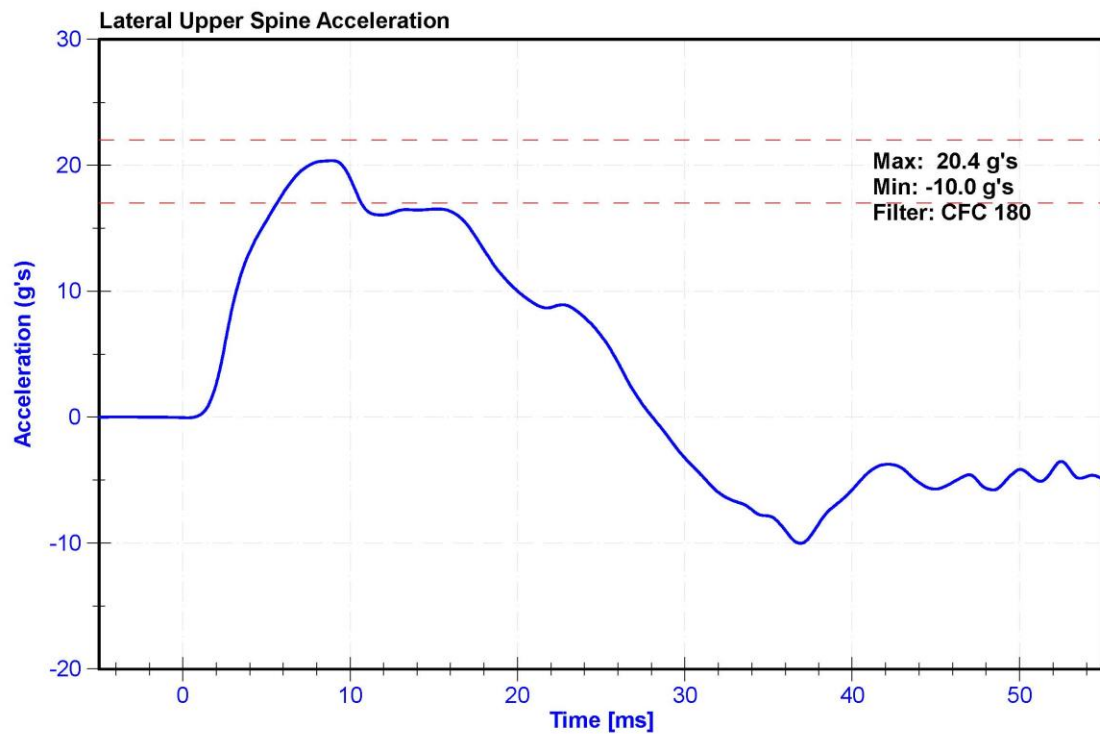
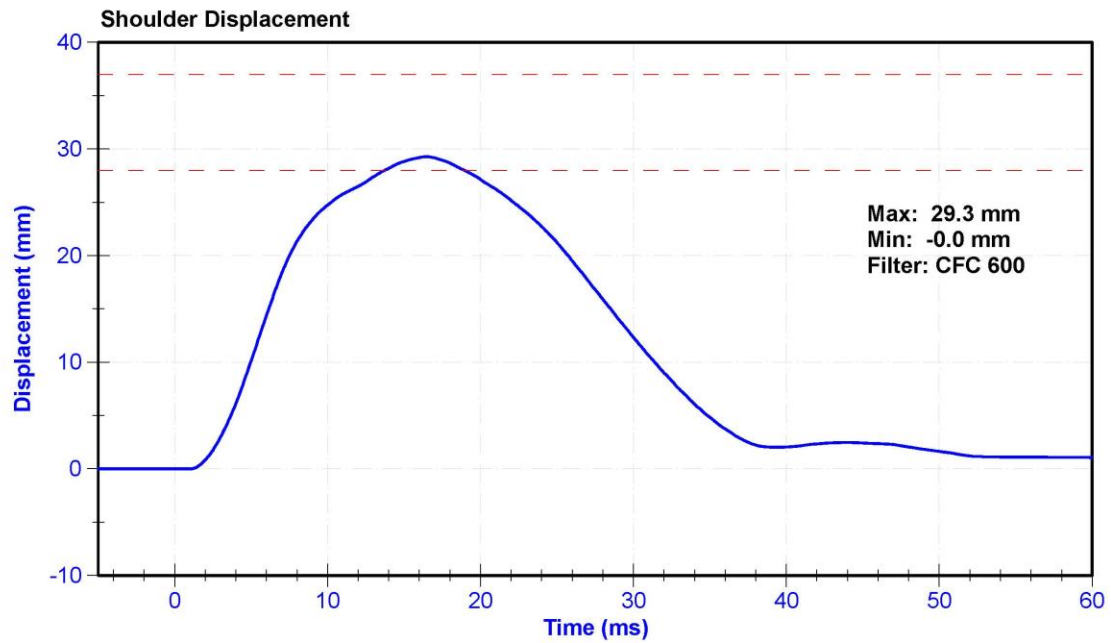
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	15.4	Pass
Velocity	4.2	4.4	m/s	4.40	Pass
Probe Acceleration	13	18	g's	16.4	Pass
Shoulder Deflection	28	37	mm	29.3	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Shoulder Potentiometer	Servo 08CT1-3725	DS-053 GFE	10/29/2019	4/28/2020
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P51668	10/29/2019	4/28/2020





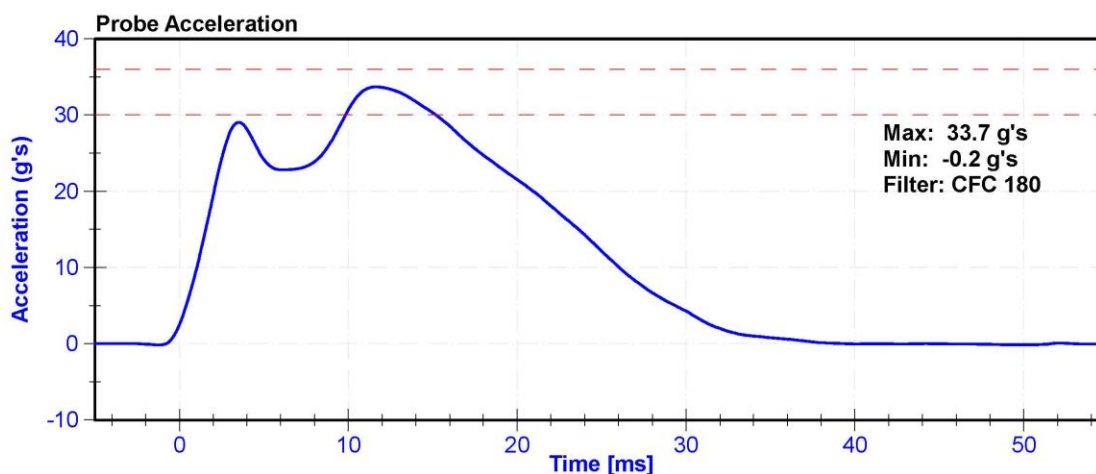
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

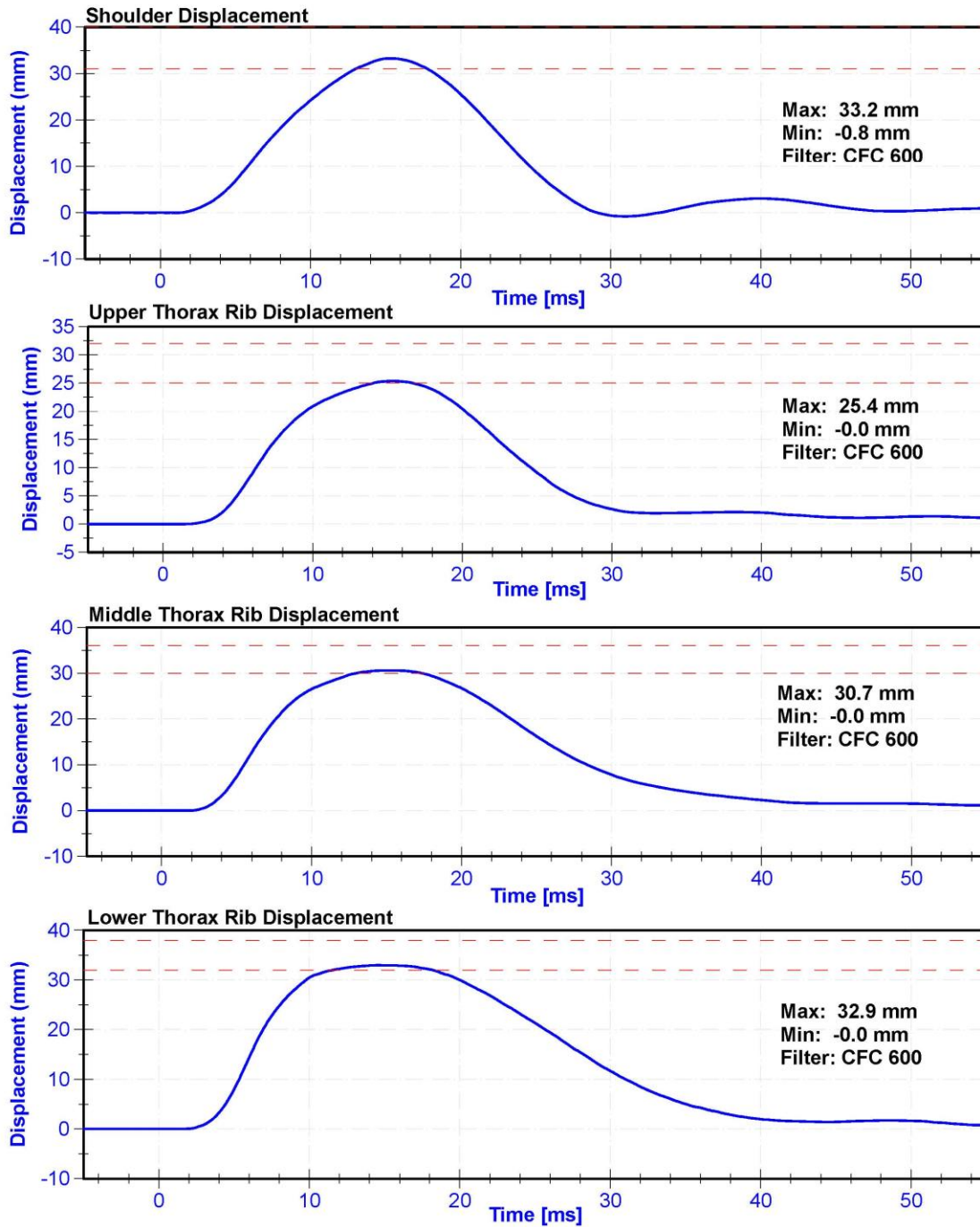
Results

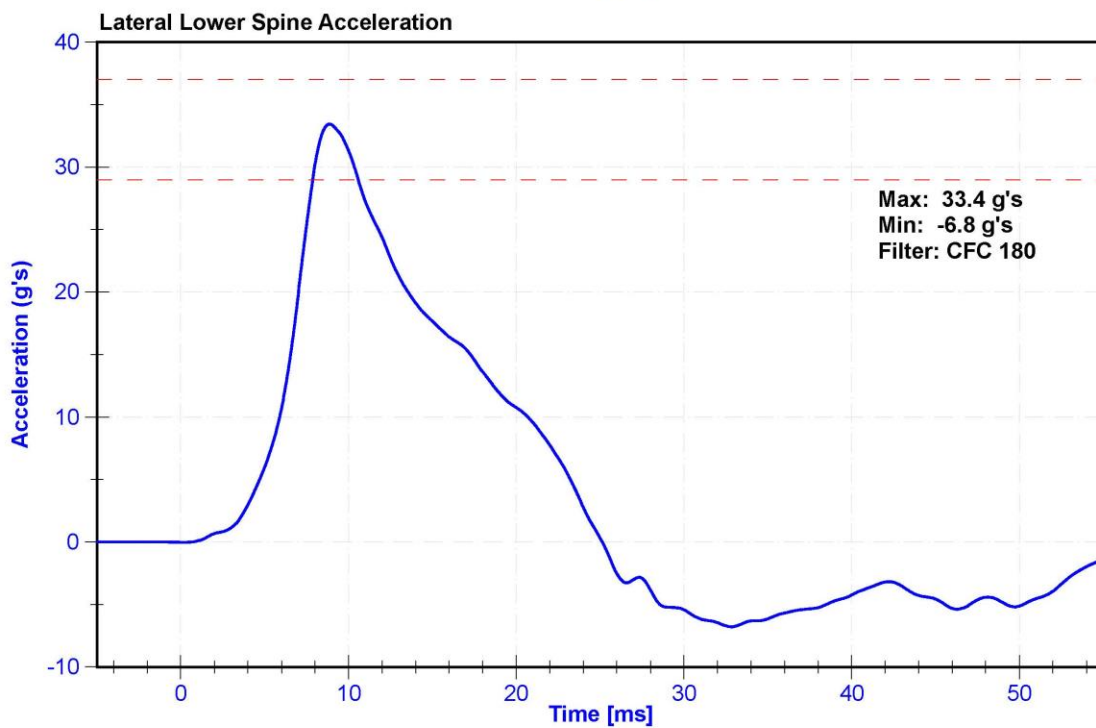
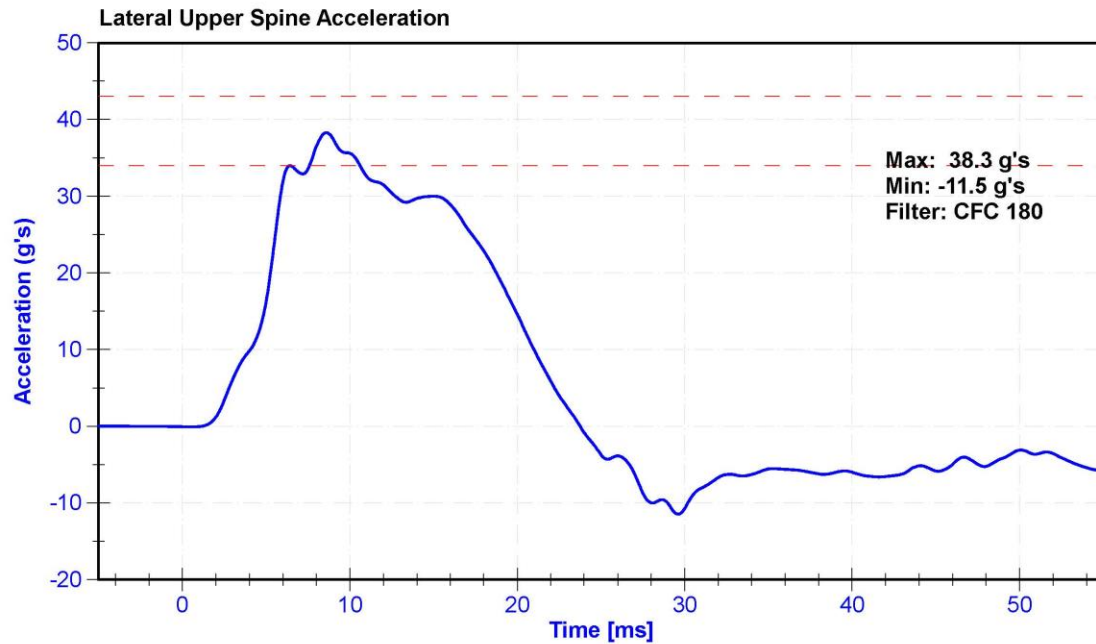
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	16.3	Pass
Velocity	6.6	6.8	m/s	6.79	Pass
Probe Acceleration after 5 ms	30	36	g's	33.7	Pass
Lateral Upper Spine Acceleration	34	43	g's	38.3	Pass
Lateral Lower Spine Acceleration	29	37	g's	33.4	Pass
Shoulder Deflection	31	40	mm	33.2	Pass
Upper Thorax Rib Deflection	25	32	mm	25.4	Pass
Mid Thorax Rib Deflection	30	36	mm	30.7	Pass
Lower Thorax Rib Deflection	32	38	mm	32.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Upper Spine T1 Y Accelerometer	ENDEVCO 7264CT	AC-P51668	10/29/2019	4/28/2020
Upper Spine T12 Y Accelerometer	ENDEVCO 7264	AC-P64147	10/29/2019	4/28/2020
Shoulder Potentiometer	Servo 08CT1-3725	DS-053 GFE	10/29/2019	4/28/2020
Upper Thorax Rib Potentiometer	Servo 08CT1-3725	DS-451GFE	10/29/2019	4/28/2020
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-040GFE	10/29/2019	4/28/2020
Lower Thorax Rib Potentiometer	Servo 08TC1-3725	DS-1156GFE	10/29/2019	4/28/2020







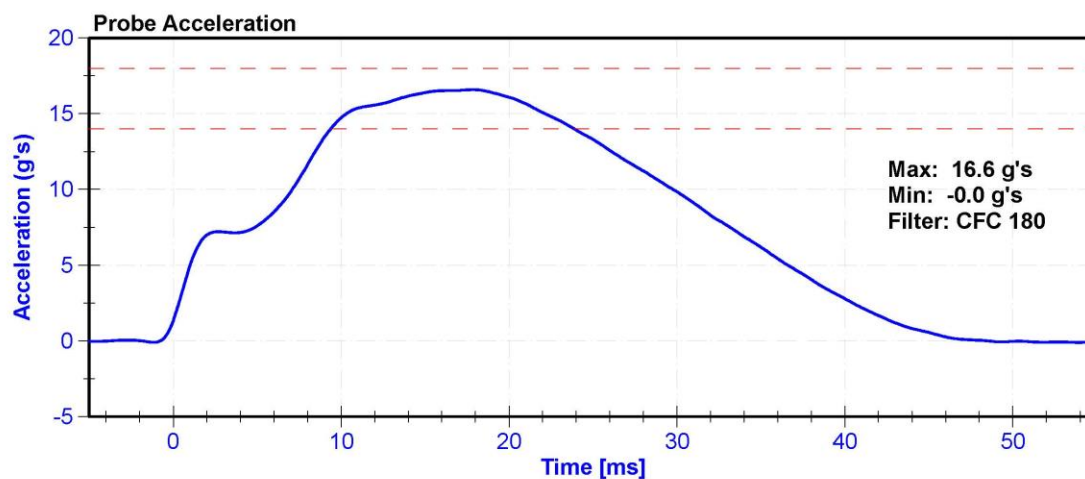
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

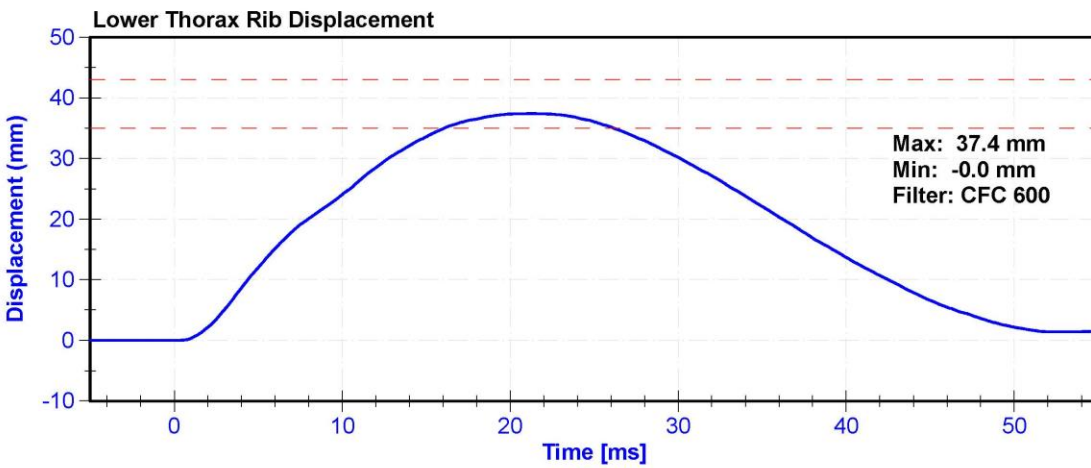
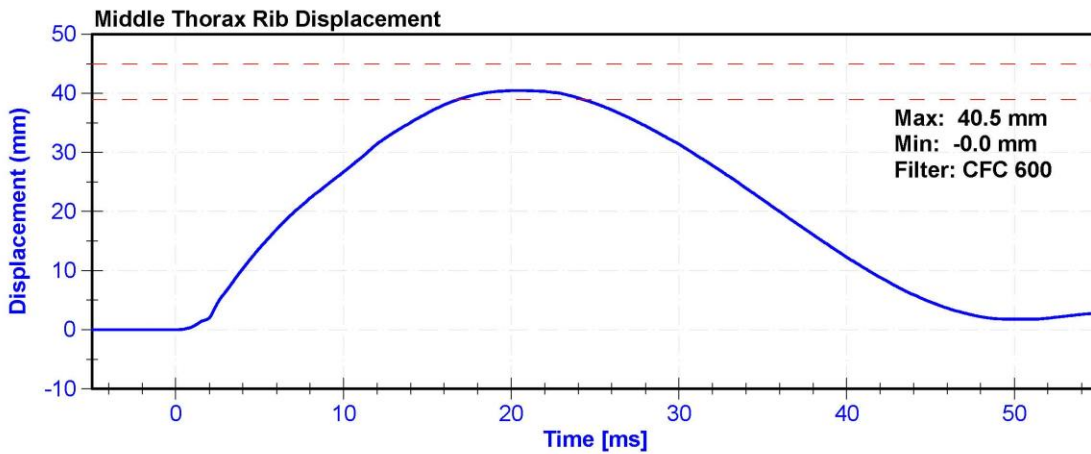
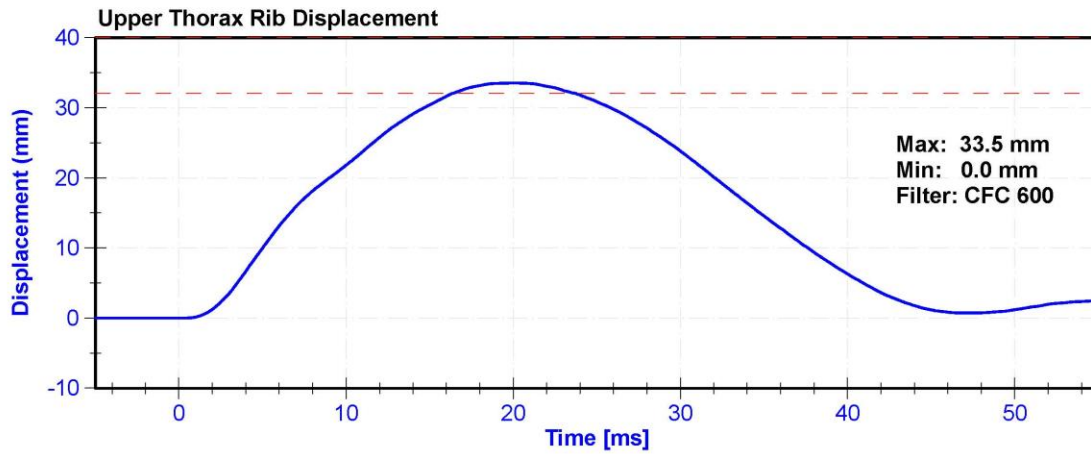
Results

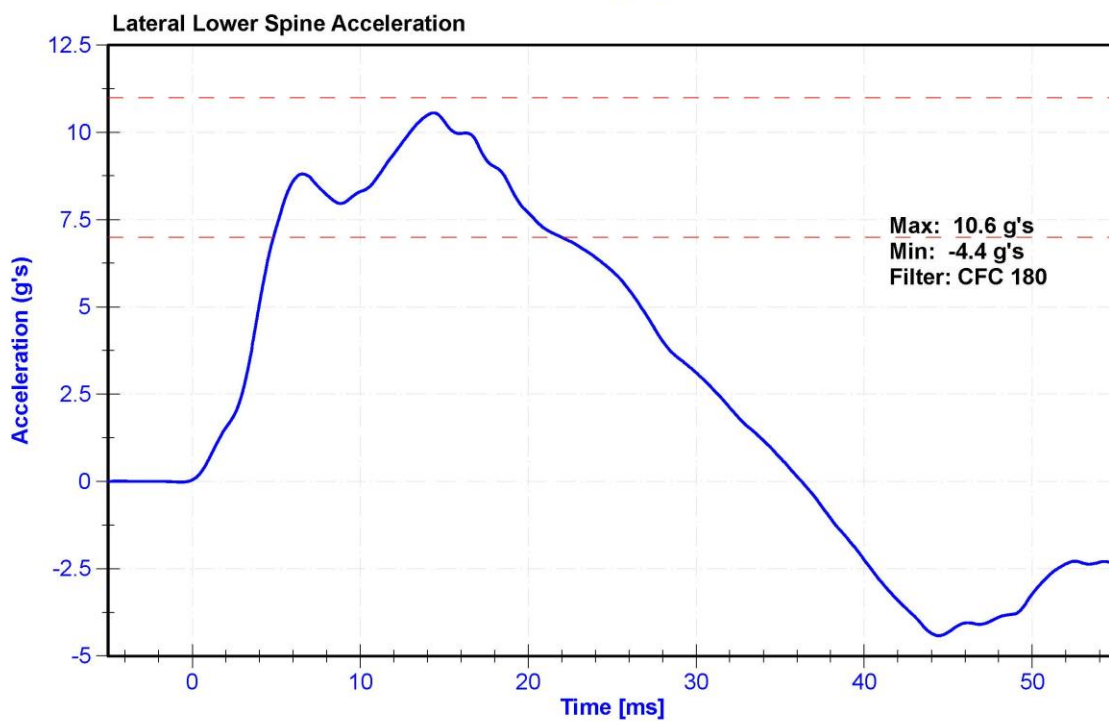
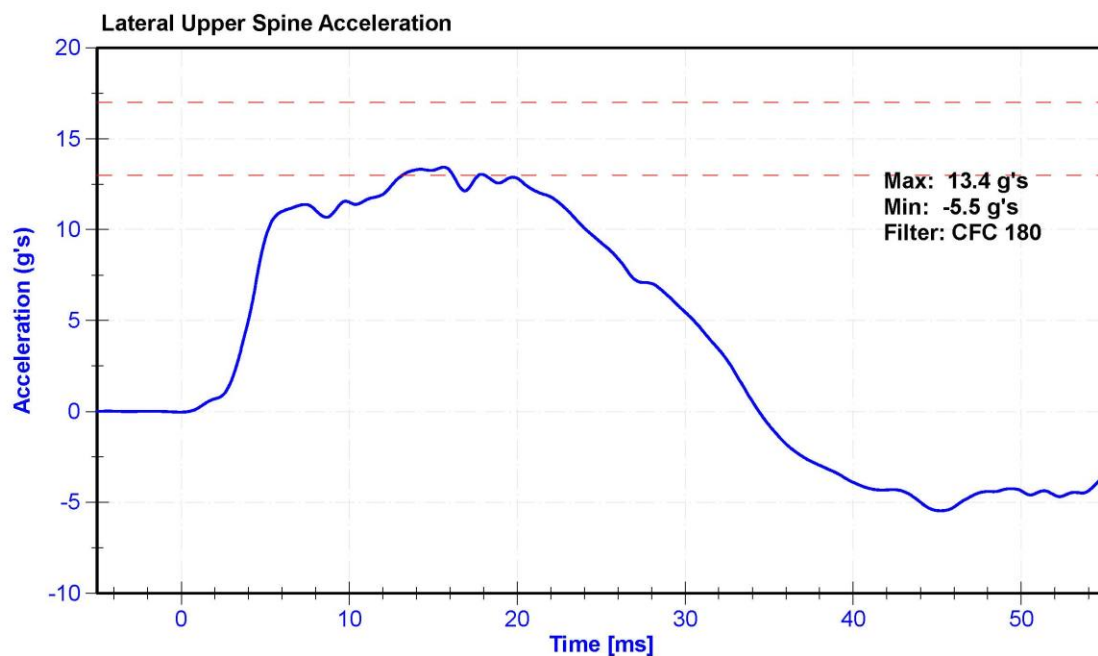
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	15.4	Pass
Velocity	4.2	4.4	m/s	4.39	Pass
Probe Acceleration	14	18	g's	16.6	Pass
Lateral Upper Spine Acceleration	13	17	g's	13.4	Pass
Lateral Lower Spine Acceleration	7	11	g's	10.6	Pass
Upper Thorax Rib Deflection	32	40	mm	33.5	Pass
Middle Thorax Rib Deflection	39	45	mm	40.5	Pass
Lower Thorax Rib Deflection	35	43	mm	37.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P51668	10/29/2019	4/28/2020
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P64147	10/29/2019	4/28/2020
Upper Thorax Rib Potentiometer	Servo 08CT1-3725	DS-451GFE	10/29/2019	4/28/2020
Middle Thorax Rib Potentiometer	Servo 08TC1-3745	DS-040GFE	10/29/2019	4/28/2020
Lower Thorax Rib Potentiometer	Servo 08TC1-3725	DS-1156GFE	10/29/2019	4/28/2020







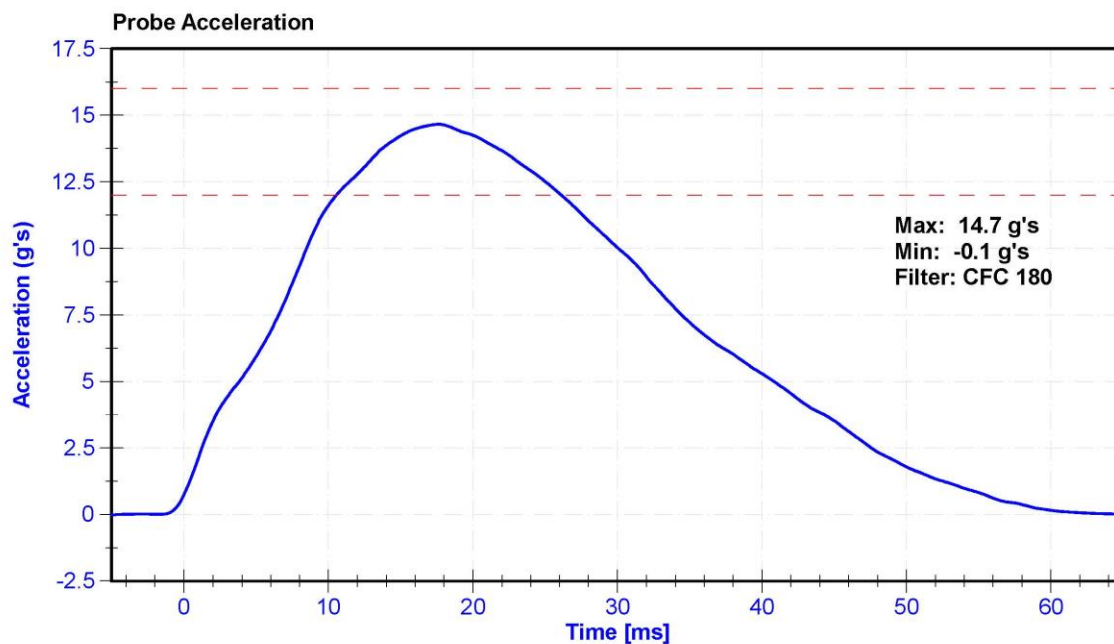
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

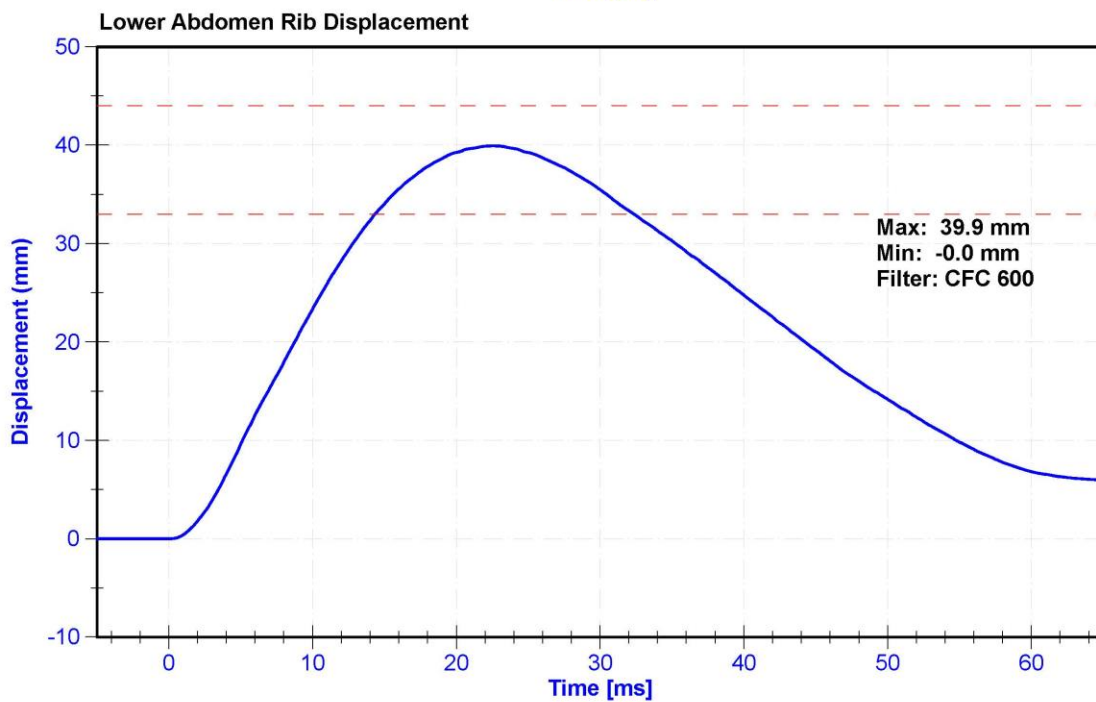
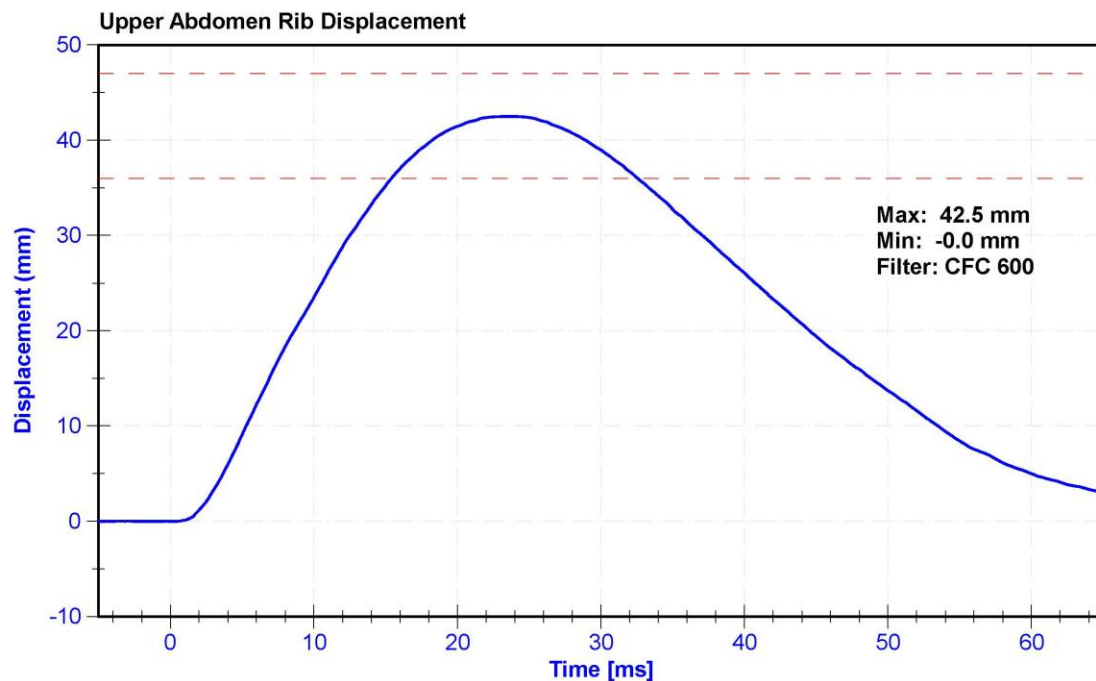
Results

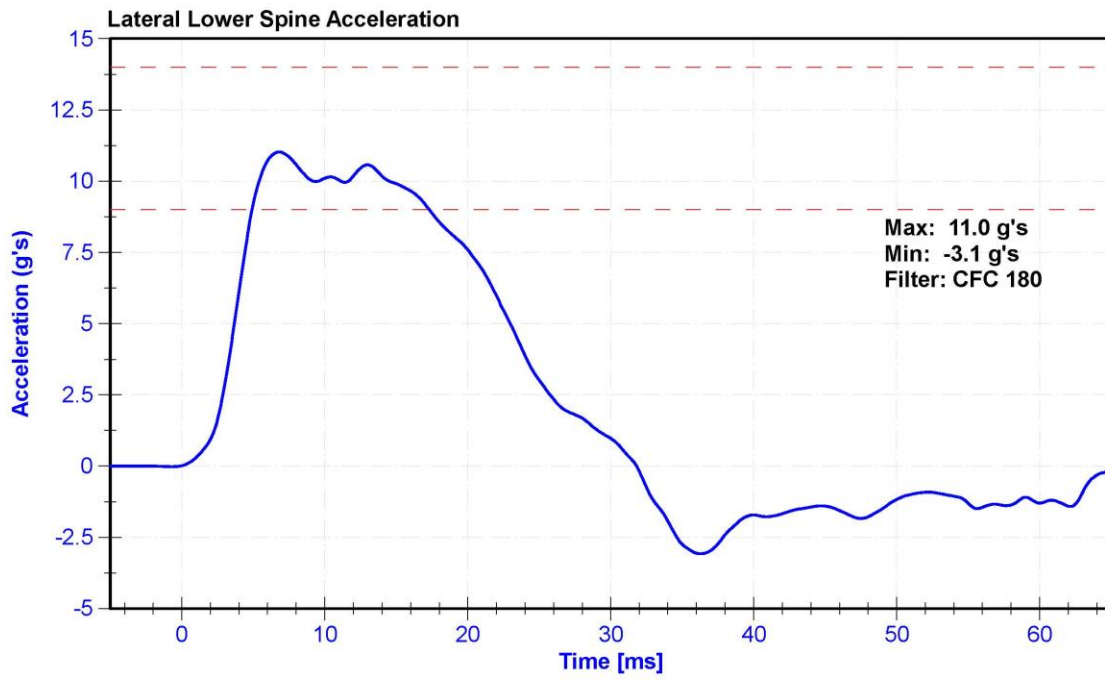
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	16.2	Pass
Velocity	4.2	4.4	m/s	4.40	Pass
Probe Acceleration	12	16	g's	14.7	Pass
Lateral Lower Spine Acceleration	9	14	g's	11.0	Pass
Upper Abdomen Rib Deflection	36	47	mm	42.5	Pass
Lower Abdomen Rib Deflection	33	44	mm	39.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Lower Spine Y Accelerometer	ENDEVCO 7264	AC-P64147	10/29/2019	4/28/2020
Upper Abdomen Rib Potentiometer	Servo 08CT1-3725	DS-308GFE	10/29/2019	4/28/2020
Lower Abdomen Rib Potentiometer	Servo 08CT1-3725	DS-307GFE	10/29/2019	4/28/2020







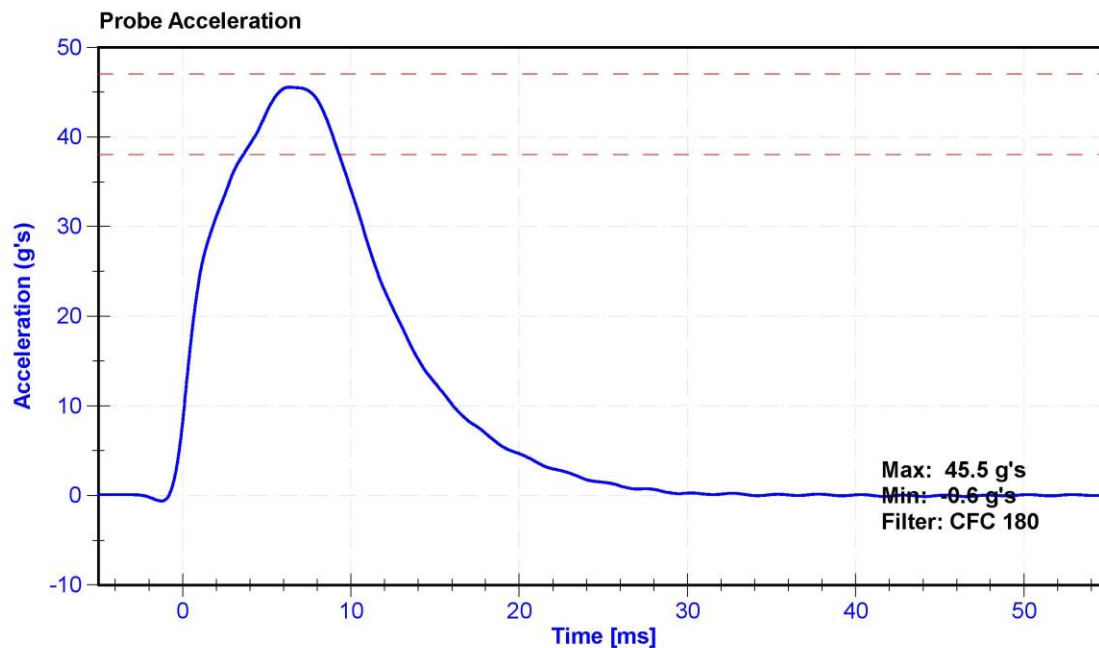
ATD Manufacturer	FTSS	Test Technician	K. Dutton
ATD Serial Number	300	Laboratory Supervisor	K. Brogan

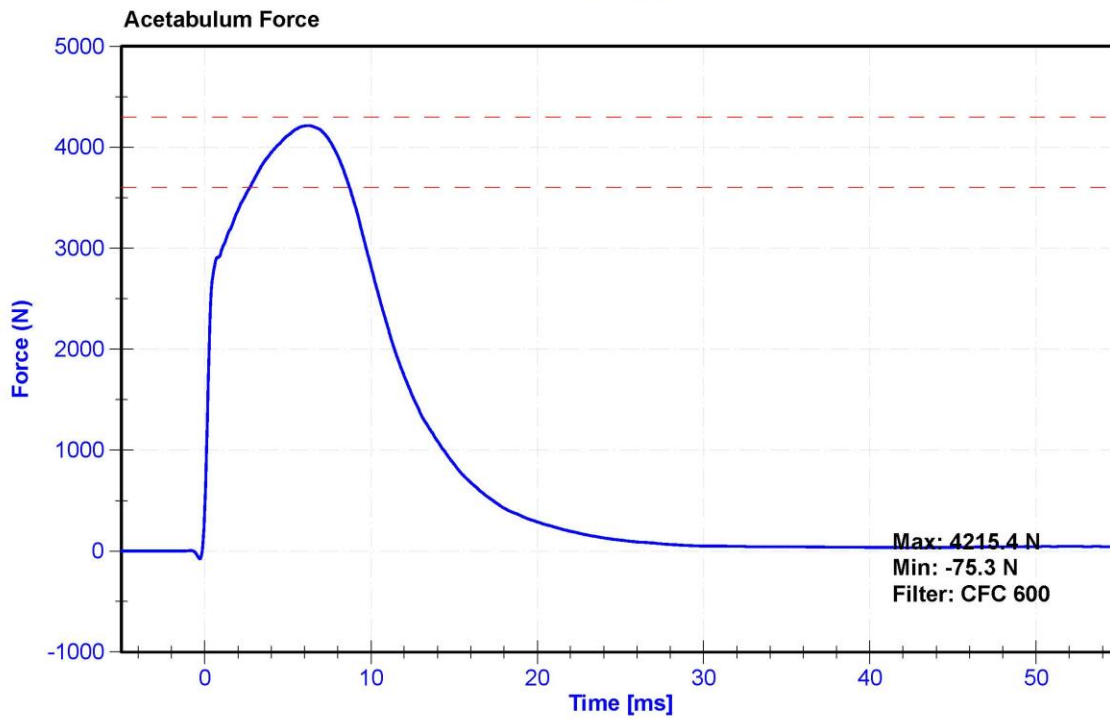
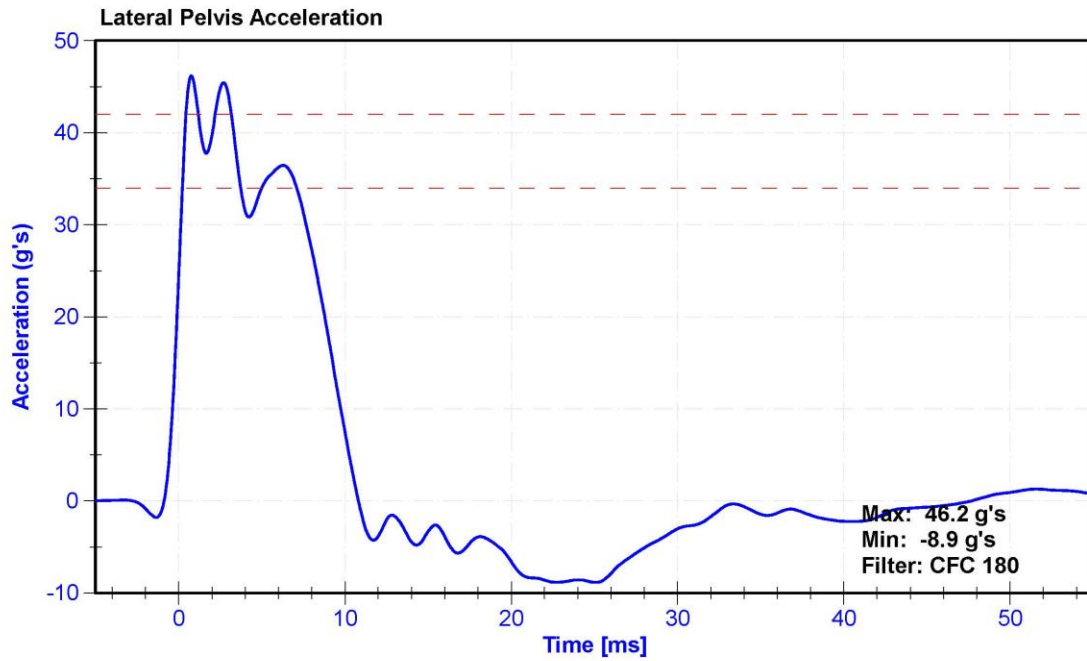
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	17.1	Pass
Velocity	6.6	6.8	m/s	6.68	Pass
Probe Acceleration	38	47	g's	45.5	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	36.5	Pass
Acetabulum Force	3600	4300	N	4215.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Pelvis Y Accelerometer	ENDEVCO 7264CT	AC-P51731	10/29/2019	4/28/2020
Acetabulum Load Cell	Denton 3249J	LC-276Fy	9/24/2019	9/23/2020
Certification Plug	SACO	12688	11-21-2018	N/A
Crash Test Plug	SACO	12858	1-18-2019	N/A







SID-IIs Pelvis Plug Certification Test

Plug S/N 12858
Test Number 8190
Report Number 8220
Test Date 1/18/2019 10:41:40 AM

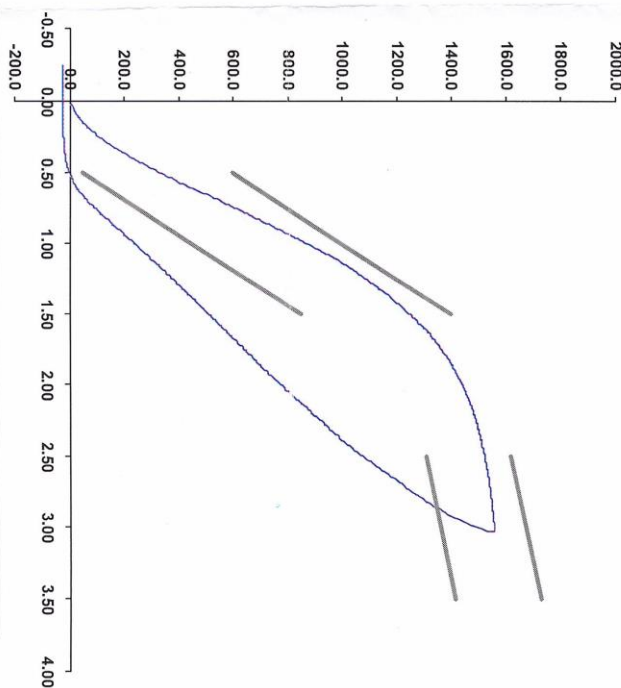
1-7-620
300
Crash Ply.

Force (-N) vs Extension (-mm)

Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	322.97	50.00
Force @ 1.5 mm (N)	1,247.21	850.00
Force @ 2.5 mm (N)	1,520.03	1,306.00
Force @ 3.0 mm (N)	1,557.59	1,361.00

Testing Machine STM-20 5965542
Load Cell S/N (F1360947), 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 18-Jan-19
SACO Research

By: DC Date: 1/18/2019
SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX



1-7-20
Cert-1

SID-Its Pelvis Plug Certification Test

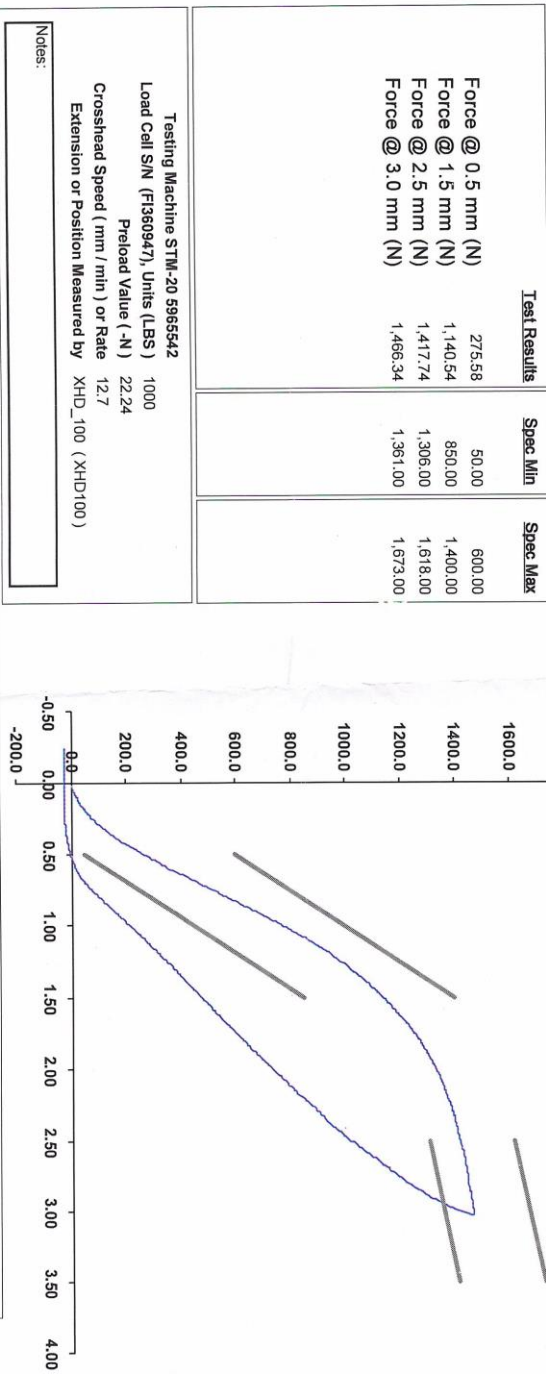
Plug S/N 12688

Test Number 7691

Report Number 7720

Test Date 11/21/2018 12:20:16 PM

Force (-N) vs Extension (-mm)



Operator

Part Number 180-4450

Template No 107 21-Nov-18
SACO Research

By: DC Date: 11/21/2018

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

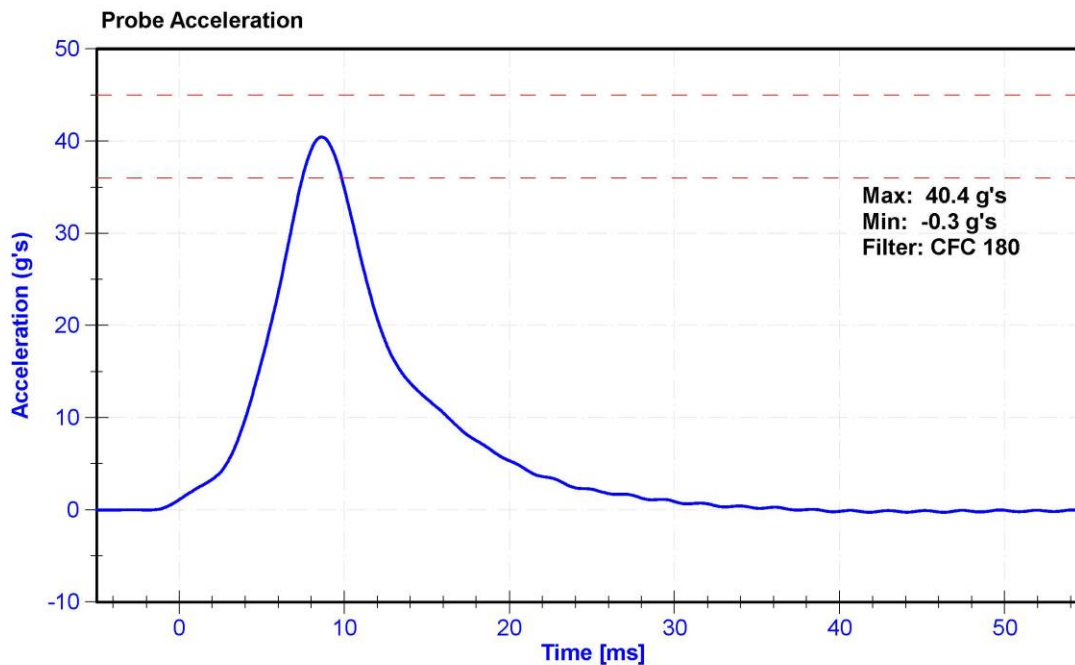
ATD Manufacturer	FTSS	Test Technician	K. Brogan
ATD Serial Number	300	Laboratory Supervisor	K. Dutton

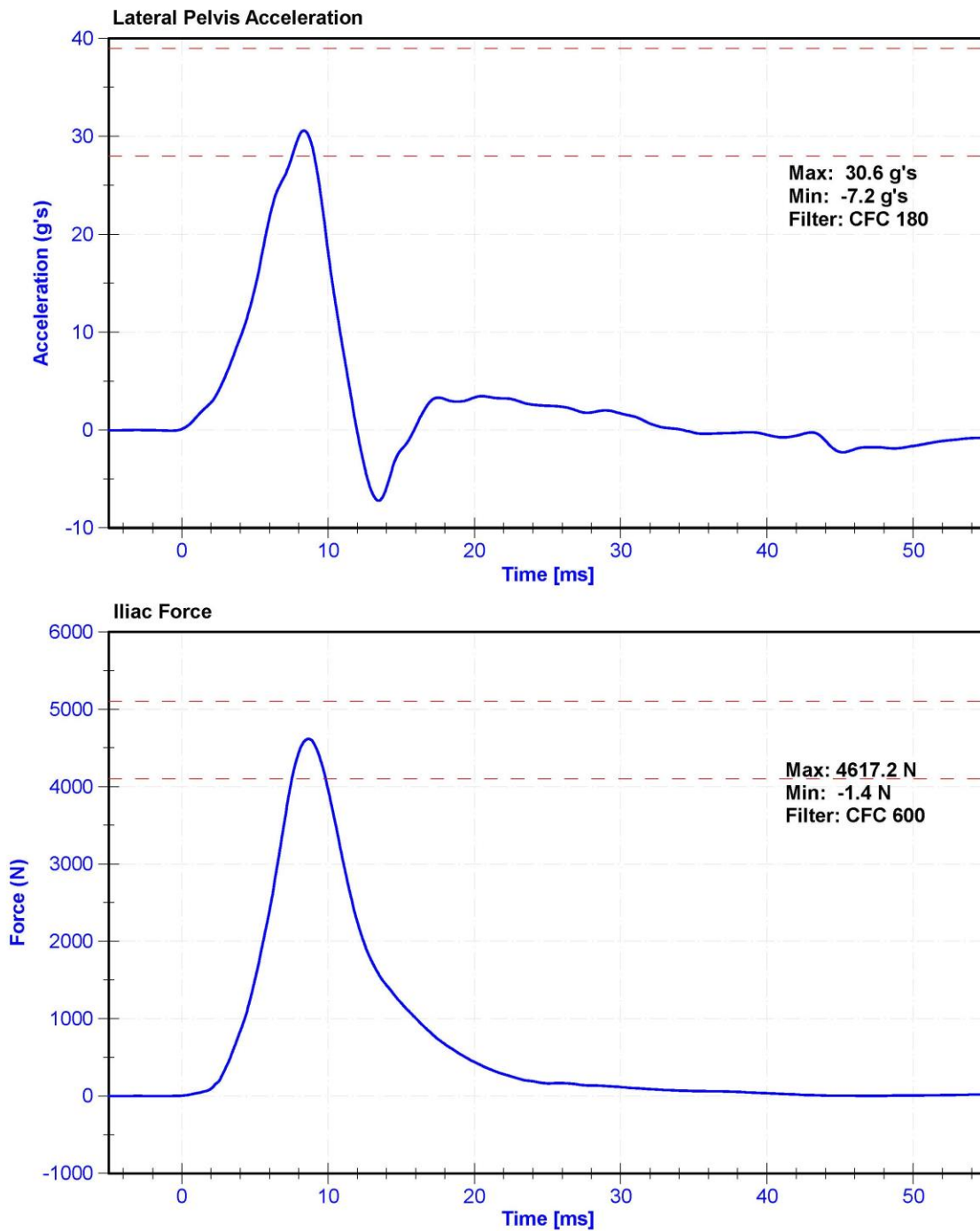
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	15.8	Pass
Velocity	4.2	4.4	m/s	4.22	Pass
Probe Acceleration	36	45	g's	40.4	Pass
Lateral Pelvis Acceleration	28	39	g's	30.6	Pass
Iliac Force	4100	5100	N	4617.2	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	9/27/2019	3/27/2020
Pelvis Y Accelerometer	ENDEVCO 7264CT	AC-P51731	10/29/2019	4/28/2020
Iliac Load Cell	DENTON 3228J	LC-280Fy	6/20/2019	6/19/2020





APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F034		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers	Primary	X	AC-P49204	ENDEVCO	10/29/2019
		Y	AC-P63981	ENDEVCO	10/29/2019
		Z	AC-P64007	ENDEVCO	10/29/2019
	Redundant	X	AC-P52003	ENDEVCO	10/29/2019
		Y	AC-P64122	ENDEVCO	10/29/2019
		Z	AC-P51962	ENDEVCO	10/29/2019
Thorax Rib Displacement Potentiometers	Upper	Y	DS-183GFE	Honeywell	10/31/2019
	Middle	Y	DS-184GFE	Honeywell	10/31/2019
	Lower	Y	DS-182GFE	Honeywell	10/31/2019
Abdomen Load Cells	Forward	Y	LC-1440	DENTON	6/14/2019
	Middle	Y	LC-1525	DENTON	6/5/2019
	Rear	Y	LC-1528	DENTON	6/14/2019
Lower Spine Accelerometers (T12)		X	AC-P17299	ENDEVCO	10/29/2019
		Y	AC-P39731	ENDEVCO	10/29/2019
		Z	AC-P22639	ENDEVCO	10/29/2019
Pubic Symphysis Load Cell		Y	LC-464fy	DENTON	6/14/2019

Table 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 300		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers		Primary	X	AC-P68057	ENDEVCO	10/29/2019
			Y	AC-P79189	ENDEVCO	10/29/2019
			Z	AC-P52095	ENDEVCO	10/29/2019
		Redundant	X	AC-P59018	ENDEVCO	10/29/2019
			Y	AC-P58986	ENDEVCO	10/29/2019
			Z	AC-P58777	ENDEVCO	10/29/2019
Displacement Potentiometers	Thoracic Rib	Upper	Y	DS-451GFE	Servo	10/29/2019
		Middle	Y	DS-040GFE	Servo	10/29/2019
		Lower	Y	DS-1156GFE	Servo	10/29/2019
	Abdominal Rib	Upper	Y	DS-308GFE	Servo	10/29/2019
		Lower	Y	DS-307GFE	Servo	10/29/2019
Lower Spine Accelerometers (T12)			X	AC-P58883	ENDEVCO	10/29/2019
			Y	AC-P64147	ENDEVCO	10/29/2019
			Z	AC-P58786	ENDEVCO	10/29/2019
Acetabulum Load Cell			Y	LC-276Fy	DENTON	9/24/2019
Iliac Wing Load Cell			Y	LC-280Fy	DENTON	6/20/2019
Pelvis Plug (struck side)				12560	SACO	10/3/2018
Pelvis Plug (non-struck side)				-	-	-

Table 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	AC-A222645	MSI 1201-1000	9/7/2019
	Vehicle Center of Gravity	Y	AC-A280902	MSI 1201-1000	9/7/2019
	Vehicle Center of Gravity	Z	AC-A280968	MSI 1201-1000	9/7/2019
2	Right Sill at Front Seat	X	AC-A255975	MSI 1201-1000	9/5/2019
	Right Sill at Front Seat	Y	AC-A262056	MSI 1201-1000	11/8/2019
	Right Sill at Front Seat	Z	A281029	MSI 1201-1000	11/8/2019
3	Right Sill at Rear Seat	X	AC-A280374	MSI 1201-1000	11/8/2019
	Right Sill at Rear Seat	Y	AC-A280930	MSI 1201-1000	7/10/2019
	Right Sill at Rear Seat	Z	AC-A280977	MSI 1201-1000	11/8/2019
4	Left Sill at Front Door	Y	AC-A222647	MSI 1201-1000	9/10/2019
5	Left Sill at Rear Door	Y	AC-A280175	MSI 1201-1000	12/2/2019
6	Left A-Post Lower	Y	AC-A280007	MSI 1201-1000	9/18/2019
7	Left A-Post Middle	Y	A283618	MSI 1201-1000	10/18/2019
8	Left B-Post Lower	Y	A284232	MSI 1201-1000	7/8/2019
9	Left B-Post Middle	Y	AC-A280003	MSI 1201-1000	11/12/2019
10	Front Seat Track	Y	A284331	MSI 1201-1000	10/25/2019
11	Rear Seat Track or Structure	Y	AC-A280957	MSI 1201-1000	10/18/2019
12	Right Rear Occ. Compartment	Y	AC-A280177	MSI 1201-1000	12/17/2019
13	Engine Block	X	AC-A254658	MSI 1201-1000	9/6/2019
	Engine Block	Y	AC-A262051	MSI 1201-1000	9/7/2019
14	Rear Floorpan Above Axle	X	AC-A255997	MSI 1201-1000	10/9/2019
	Rear Floorpan Above Axle	Y	AC-A280208	MSI 1201-1000	9/6/2019
	Rear Floorpan Above Axle	Z	A284397	MSI 1201-1000	8/14/2019

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	A255112	MSI 1201-1000	11/21/2019
MDB Center of Gravity	Y	A255126	MSI 1201-1000	11/21/2019
MDB Center of Gravity	Z	A255143	MSI 1201-1000	11/21/2019
Left Frame at Rear Axle Centerline	X	A280025	MSI 1201-1000	11/22/2019
Left Frame at Rear Axle Centerline	Y	A280334	MSI 1201-1000	11/22/2019