REPORT NUMBER: SPNCAP-CAL-20-004

NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

Mercedes-Benz AG Stuttgart
2021 Mercedes C300
Four Door Sedan

NHTSA No: M20214300

PREPARED BY:
CALSPAN CORPORATION
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May 4, 2021

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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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 32.20 km/h (20 mph), 75˚ oblique impact Side NCAP Test was conducted on the subject 2021 Mercedes C300 four door sedan in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on February 4, 2021.

The impact velocity of the vehicle was 32.21 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle was 21°C. The target vehicle's maximum post-test static crush was 302 mm located at level 3. The test vehicle's occupant performance data is as follows:

Measurement Description	Driver ATD (SID-IIs) (Serial No. DG8012)		
	Units	Threshold	Result
Head Injury Criteria (HIC_{36})		1000	395.429
Resultant Lower Spine Acceleration	G	82	50.877
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2961.984
Maximum Thoracic Rib Deflection	mm	38	26.257
Maximum Abdomen Rib Deflection	mm	45	19.149

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

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

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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 2021 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-14-D-00352. The purpose of this test is to generate comparative side impact performance in a 2021 Mercedes C300 four door sedan. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated March 2020.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2021 Mercedes C300 four door sedan. The subject vehicle was towed into the rigid pole at an angle of 75^{o} and a velocity of 32.21 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on February 4, 2021. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

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

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

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

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

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

INJURY READINGS

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC_{36})		1000	395.429
Resultant Lower Spine Acceleration	g	82	50.877
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2961.984
Maximum Thoracic Rib Deflection	mm	38*	26.257
Maximum Abdominal Rib Deflection	mm	45*	19.149

*****Proposed IARV

Supplemental restraint information was recorded as follows:

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 – Torso/Pelvis	Yes	Yes	No	N/A
Side Airbag 3 – Torso	No	N/A	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	No
Seat Belt Load Limiter	Yes	Yes	Yes	No
Other				

GENERAL COMMENTS:

1. P1 serial number – DG8012

Data Anomalies:

- A-Pillar Low Y, Exceeded calibration range at 55.9 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 Systems Data

Data Sheet No. 3 – Dummy Longitudinal Clearance Dimensions

Data Sheet No. 4 – Dummy Lateral Clearance Dimensions

Data Sheet No. 5 – Camera and instrumentation Data

Data Sheet No. 6 – Vehicle Accelerometer Data

Data Sheet No. 7 – Rigid Pole Load Cell Data

Data Sheet No. 8 – Post-Test Observations

Data Sheet No. 9 – Test Vehicle Profile Measurements

Data Sheet No. 10 – Test Vehicle Exterior Crush Measurements

Data Sheet No. 11 – Vehicle Damage Profile Distances

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

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

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2021 Mercedes C300 four door sedan
NHTSA No.: M20214300
Test Program: NCAP Side Pole Impact Test
Test Date: 2/4/2021

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20214300
Model Year	2021
Make	Mercedes
Model	C300
Body Style	Four Door Sedan
VIN	W1KWF8DB7MR61441
Body Color	Silver
Odometer Reading (km/mi)	7 miles
Engine Displacement (L)	2.0
Type / No. Cylinders	I4
Engine Placement	Inline
Transmission Type	Automatic
Transmission Speeds	9-Speed
Overdrive	Yes
Final Drive	Rear Wheel Drive
Roof Rack	No
Sunroof / T-Top	Yes
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 Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso / Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head / Torso Airbag	No
Rear Pass. Torso Airbag	Yes
Rear Pass. Torso / Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other Safety Restraint	-

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Mercedes-Benz AG Stuttgart
Date of Manufacture	10/20
Vehicle Type	Passenger Car

GVWR (kg)	2090
GAWR Front (kg)	1010
GAWR Rear (kg)	1100

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3	N/A	5	
Capacity Weight (VCW) (kg)				444	(A)
DSC X 68.04 kg				340.2	(B)
Cargo Weight (RCLW) (kg)				103.8	(A-B)

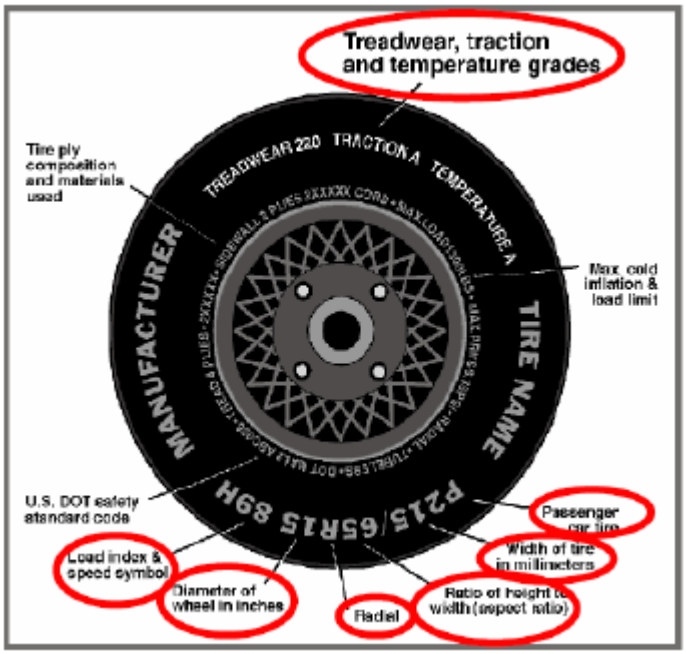
VEHICLE SEAT TYPE

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

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

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021

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



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	280	320
Recommended Tire Size	225/45R18	245/40R18
Tire Size on Vehicle	225/45R18	245/40R18
Tire Manufacturer	Continental	Continental
Tire Model	ProContact SSR	ProContact SSR
Treadwear	500	500
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	2 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Polyamide	1 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	95H	97H
Tire Material	Rubber	Rubber
DOT Safety Code Left	LM4FWBJR3220	LM2PWBJT3420
DOT Safety Code Right	LM4FWBJR3220	LM2PWBJT3420

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

Test Vehicle: 2021 Mercedes C300 four door sedan NHTSA No.: M20214300
Test Program: NCAP Side Pole Impact Test Test Date: 2/4/2021

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	301	307	298	294
Tire Placard	kPa	280	280	320	320
Owner's Manual	kPa	280	280	320	320
As Tested	kPa	280	280	320	320

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	418	374		434	432		426	457	
Right	kg	427	373		435	437		434	436	
Ratio	%	53.1	46.9		50	50		49.1	50.9	
Totals	kg	845	747	1592	869	869	1738	860	893	1753

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1592	(A)
Actual Weight of 1 P572V (SID-IIs) ATD Used	kg	50	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	103.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1745.8	(A+B+C)

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

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Rqmt***
Driver Door Sill Angle (front-to-rear)*	Deg	-0.10	-0.50	-0.60	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg	0.00	-0.40	-0.40	Yes
Front Bumper-Line Angle (left-to-right)**	Deg	-0.15	-0.20	-0.20	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg	-0.15	-0.20	-0.20	Yes
Vehicle CG (Aft of Front Axle)	mm	1332	1419	1446	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	-4	+7	+6	

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

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

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	12
Tail Light	2
Ballast / Equipment Added	60.3

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

Test Surface Markings

	Distance from 75° Impact Location Line (mm)
Fore 25 mm target	928
Aft 25 mm target	930

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

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (º)		
	Max	Min	Mid
Driver Seat	20.5	12.1	16.3
Front Passenger Seat	21.6	12.2	16.9
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (º)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore / Aft	Forward-Most
Driver Seat	16.3	49	Max	66	77	73
			Mid	33	44.5	49
			Min	0	10	25
Front Passenger Seat	16.9	62.5	Max	72	86	100
			Mid	36	48	62.5
			Min	0	10	25
Front Center Seat	N/A	N/A	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Struck Side Rear Seat	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Non-Struck Side Rear Seat	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Rear Center Seat	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-

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

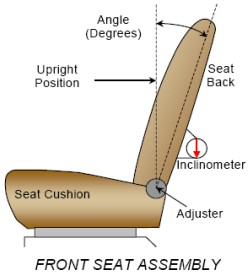
Test Vehicle: 2021 Mercedes C300 four door sedan NHTSA No.: M20214300
Test Program: NCAP Side Pole Impact Test Test Date: 2/4/2021

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detents*
Driver Seat	260	N/A	0	N/A
Front Passenger Seat	260	N/A	0	N/A
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

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



FRONT SEAT ASSEMBLY

Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/Seated Dummy	63	N/A	1.0	N/A
Front Passenger Seat	63	N/A	1.0	N/A
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BELT ANCHORAGE ADJUSTMENT

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

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

HEAD RESTRAINT ADJUSTMENT

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

Seat	Total # of Positions	Placed in Position #
Driver Seat	Power (Infinite)	Lowermost & Full Forward

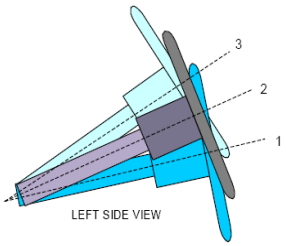
DATA SHEET NO. 2 … (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021

STEERING COLUMN ADJUSTMENT

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

	Degrees	Fore / Aft Position (mm)
Lowermost – Position 1	18.3	
Geometric Center – Position 2	20.4	
Uppermost – Position 3	22.4	
Telescoping Steering Wheel Travel		60
Test Position	20.4	30

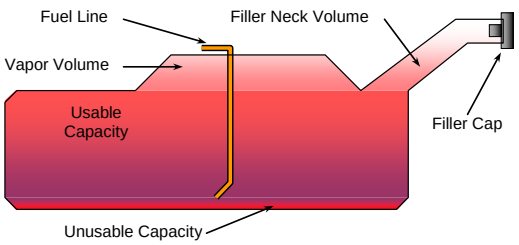


STEERING COLUMN ASSEMBLY

FUEL PUMP

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

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



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

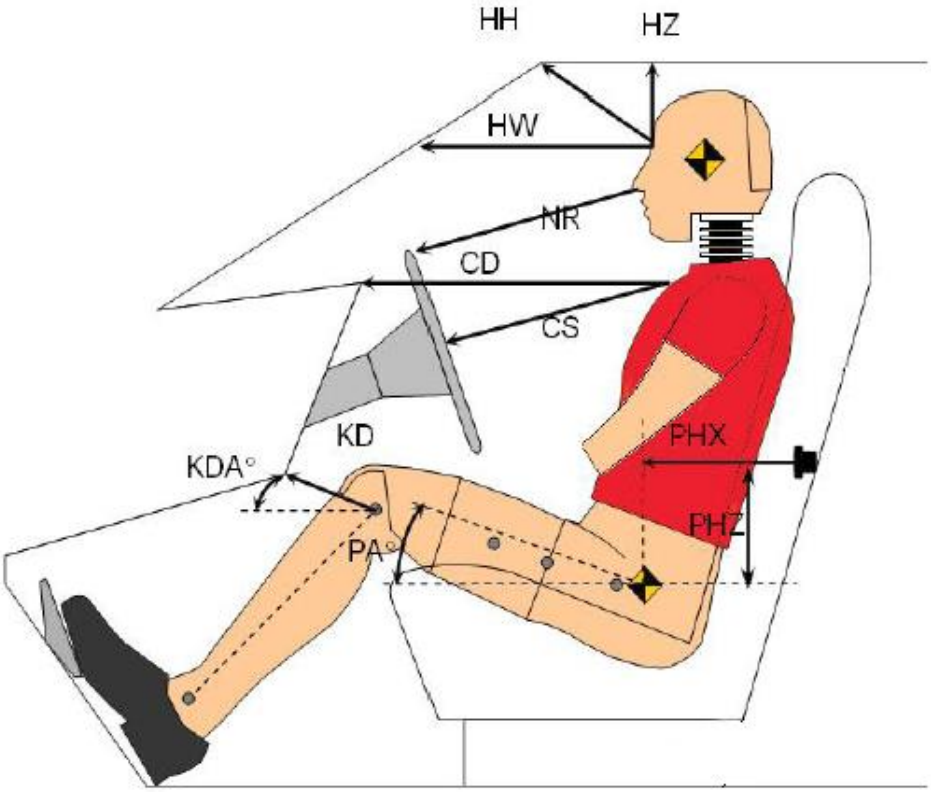
Description			Liters
Usable Capacity of “Standard Tank”	-	see Form No. 1	65.9
Usable Capacity of “Optional Tank”	-	see Form No. 1	N/A
Usable Capacity of “Standard Tank”	-	see Owner’s Manual	65.9
Usable Capacity of “Optional Tank”	-	see Owner’s Manual	N/A
93% of Usable Capacity			61.3
Actual Amount of Solvent Used in Test			61.3
1/3 of Usable Capacity			22

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

[X] Yes [ ] No

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021



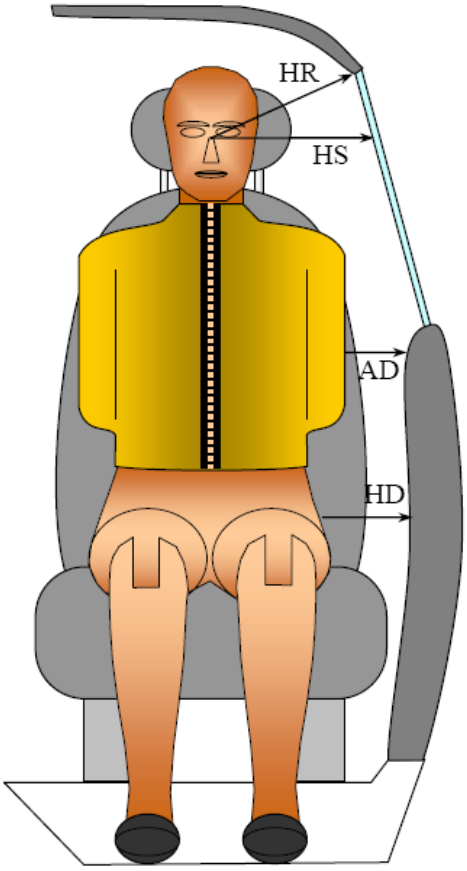
Left Side View

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver (Serial No. DG8012)	
		Length (mm)	Angle (◦)
HH	Head to Header	273	
HW	Head to Windshield	572	
HZ	Head to Roof Liner	178	
NR	Nose to Rim	246	
CD	Chest to Dash	418	
CS	Chest to Steering Wheel	210	
KD(L) / KDA(L)◦	Left Knee to Dash	156	28.7
KD(R) / KDA(R)◦	Right Knee to Dash	158	29.7
PAX◦	Pelvic Tilt Angle (X-Axis)		19.8
PAY◦	Pelvic Tilt Angle (Y-Axis)		0.3
PHX	Hip Point to Striker (X-Axis)	263	
PHZ	Hip Point to Striker (Z-Axis)	210	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021



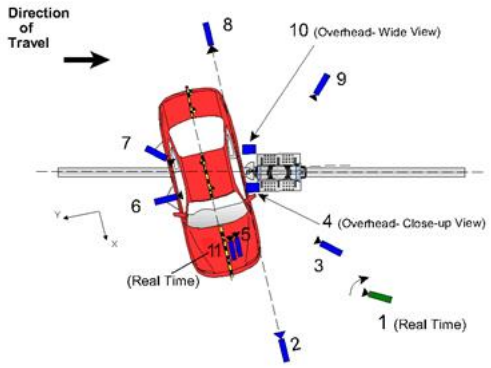
FRONT VIEW OF DUMMY

DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver - Length (Serial No. DG8012)
HR	Head To Side Header	mm	220
HS	Head to Side Window	mm	348
AD	Arm to Door	mm	155
HD	Hip Point to Door	mm	161

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2021 Mercedes C300 four door sedan NHTSA No.: M20214300
Test Program: NCAP Side Pole Impact Test Test Date: 2/4/2021



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real-time (24 - 30 fps) pan view of impact				Zoom	60
2	Front ground level - impact view	7579	0	-1361	28	1000
3	Impact side 45º - forward pole view	5122	-1311	-1451	24	1000
4	Overhead Close-up view of impact	0	0	-9375	28	1000
5	Onboard - dummy front view				25	1000
6	Onboard - dummy side view				12.5	1000
7	Onboard - dummy rear oblique view				12.5	1000
8	Rear ground level - impact view	-7555	0	-1593	28	1000
9	Impact side 45º - rearward pole view	-4511	-3748	-1256	24	1000
10	Overhead wide - view of impact	0	0	-9375	12.5	1000
11	Real-time (24 - 30 fps) - dummy front view				Zoom	60

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

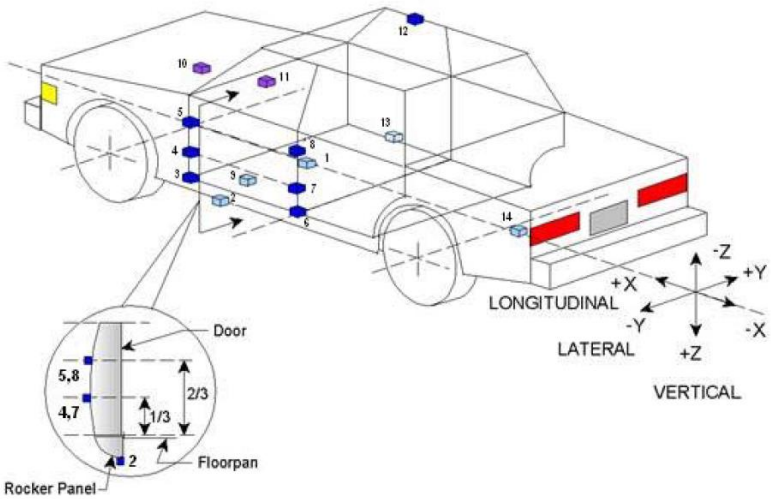
Comments: All cameras operated as intended.

INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2621	3	-166
2	Left Floor Sill	2716	-679	126
3	A-Pillar Sill	3187	-670	104
4	A-Pillar Low	3151	-674	-96
5	A-Pillar Mid	3089	-647	-493
6	B-Pillar Sill	2189	-663	89
7	B-Pillar Low	2159	-685	-140
8	B-Pillar Mid	2111	-665	-391
9	Driver Seat Track	2476	-566	176
10	Engine Top	4063	-14	-355
11	Firewall	3556	0	-376
12	Right Roof	2271	564	-925
13	Right Floor Sill	2684	684	123
14	Rear Floorpan	846	-1	-32

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

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021

POLE BARRIER

RIGID POLE LOAD CELL LOCATIONS

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

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2021 Mercedes C300 four door sedan NHTSA No.: M20214300
Test Program: NCAP Side Pole Impact Test Test Date: 2/4/2021

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver Seat Dummy (SID-IIs)
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag & Headrest
Left Shoulder	Torso/Pelvis Airbag & Driver Door
Upper Torso	Seatback & Torso/Pelvis Airbag
Lower Torso	Seatback
Left Hip	Seatpan, Torso/Pelvis Airbag & Driver Door
Left Knee	None

POST-TEST DOOR PERFORMANCE

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

POST-TEST SEAT PERFORMANCE

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

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

Test Vehicle: 2021 Mercedes C300 four door sedan NHTSA No.: M20214300
Test Program: NCAP Side Pole Impact Test Test Date: 2/4/2021

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	A-Pillar & C-Pillar Buckled
Sill Separation	None
Windshield Damage	Cracks throughout with separation along driver A-Pillar
Side Window Damage	Driver window shattered
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 – Torso/Pelvis	Yes	Yes	No	N/A
Side Airbag 3 – Torso	No	N/A	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	No
Seat Belt Load Limiter	Yes	Yes	Yes	No
Other				

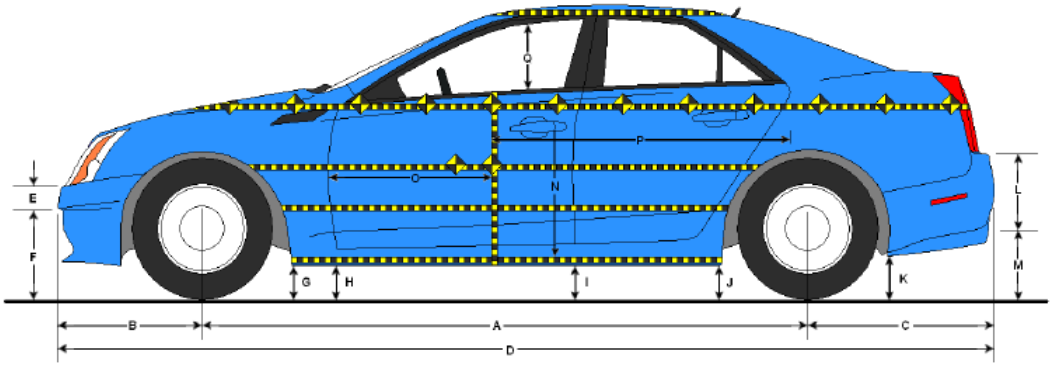
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt	mm		1350
Actual Impact Point - Aft of Front Axle	mm		1352
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 *	-2
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75
Trap No. 1 Velocity - Primary	kph	31.4 to 33.0	32.21
Trap No. 2 Velocity - Redundant	kph	31.4 to 33.0	32.19

* Of Intended Impact Point

DATA SHEET NO. 9
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2021 Mercedes C300 four door sedan
Test Program: NCAP Side Pole Impact Test
NHTSA No.: M20214300
Test Date: 2/4/2021



LEFT SIDE VIEW

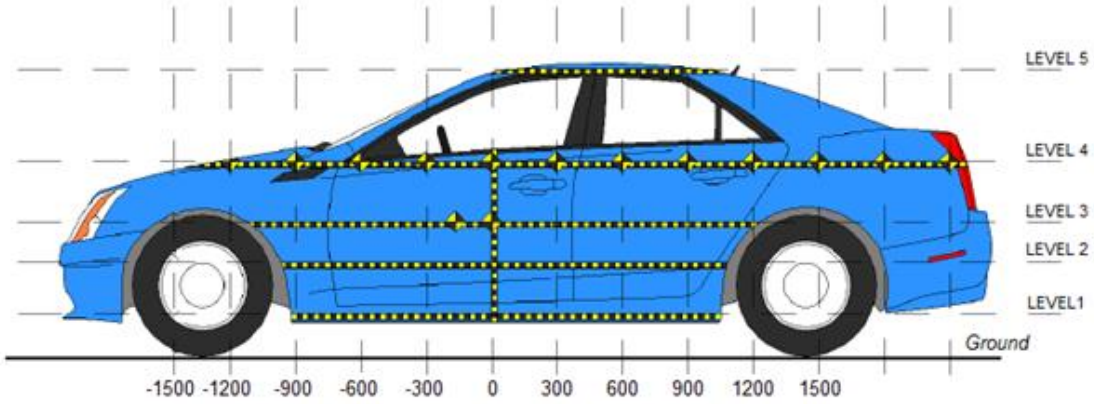
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2838	2804	34
B	Front Axle to FSOV	793	810	-17
C	Rear Axle to RSOV	1059	1059	0
D	Total Length at Centerline	4690	4673	17
E	Front Bumper Thickness	220	220	0
F	Front Bumper Bottom to Ground	238	225	13
G	Sill Height at Front Wheel Well	168	173	-5
H	Sill Height at Front Door Leading Edge	170	160	10
I	Sill Height at B-Pillar	173	152	21
J1	Sill Height at Rear Wheel Well	165	161	4
J2	Pinch Weld Height at Rear Wheel Well	157	168	-11
K	Sill Height Aft of Rear Wheel Well	197	203	-6
L	Rear Bumper Thickness	255	255	0
M	Rear Bumper Bottom to Ground	348	346	2
N	Sill Height to Bottom of Front Window Sill	720	721	-1
O	Front Door Leading Edge to Impact CL	671	599	72
P	Rear Door Trailing Edge to Impact CL	1434	1374	60
Q	Front Window Opening	346	354	-8
R	Right Side Length	4582	4580	2
S	Left Side Length	4582	4549	33
T	Vehicle Width at B-Pillars	1797	1719	78
U	Front Wheel Track Width	1575	1575	0
V	Rear Wheel Track Width	1540	1534	6

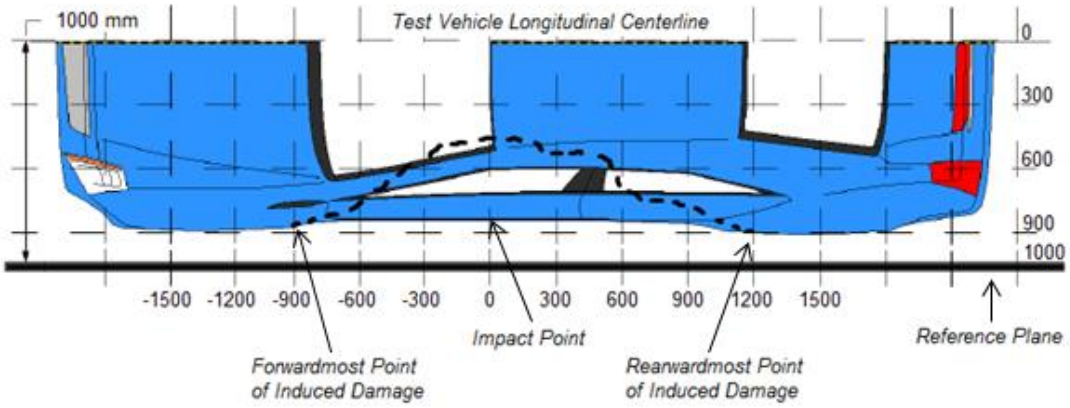
* All measurements in mm with tolerance of ± 3mm

DATA SHEET NO. 10
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2021 Mercedes C300 four door sedan NHTSA No.: M20214300
Test Program: NCAP Side Pole Impact Test Test Date: 2/4/2021



Left Side View



Overhead View

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	243	241	0
2	Occupant Hip Point	mm	526	288	0
3	Mid - Door	mm	644	302	0
4	Window Sill	mm	930	253	0
5	Window Top	mm	1401	56	150

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

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

Test Vehicle: 2021 Mercedes C300 four door sedan NHTSA No.: M20214300
Test Program: NCAP Side Pole Impact Test Test Date: 2/4/2021

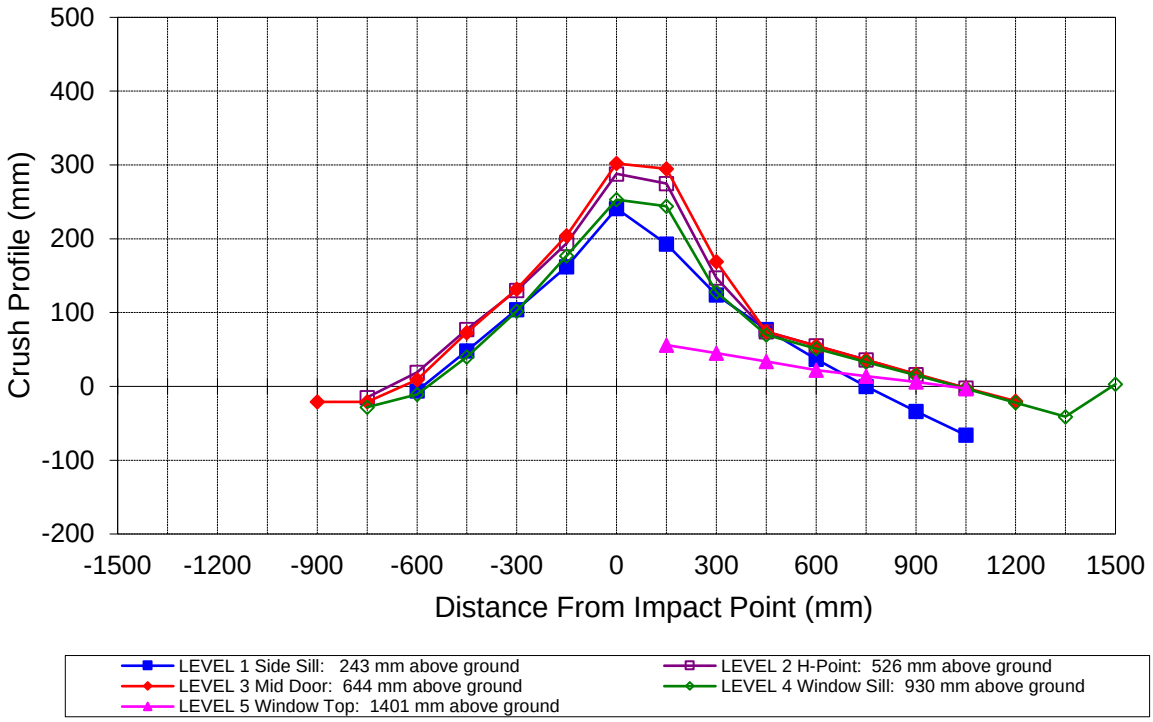
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500															
-1350															
-1200															
-1050															
-900			892					913					-21		
-750		887	894	794			902	915	822			-15	-21	-28	
-600	849	888	897	806		855	869	888	817		-6	19	9	-11	
-450	848	890	899	817		800	813	826	777		48	77	73	40	
-300	847	892	901	827		743	762	769	725		104	130	132	102	
-150	846	892	901	834		684	698	697	657		162	194	204	177	
0	845	892	902	840		604	604	600	587		241	288	302	253	
150	844	890	901	837	573	651	615	606	593	517	193	275	295	244	56
300	844	889	899	832	580	720	742	730	704	535	124	147	169	128	45
450	842	887	897	847	579	765	813	823	777	545	77	74	74	70	34
600	841	884	894	845	574	804	829	839	794	552	37	55	55	51	22
750	840	881	889	842	568	840	845	853	809	554	0	36	36	33	14
900	841	878	884	843	553	875	862	867	828	547	-34	16	17	15	6
1050	847	879	883	845	503	913	881	885	848	506	-66	-2	-2	-3	-3
1200			890	829				910	851				-20	-22	
1350				843					884					-41	
1500				839					836					3	

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

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

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021

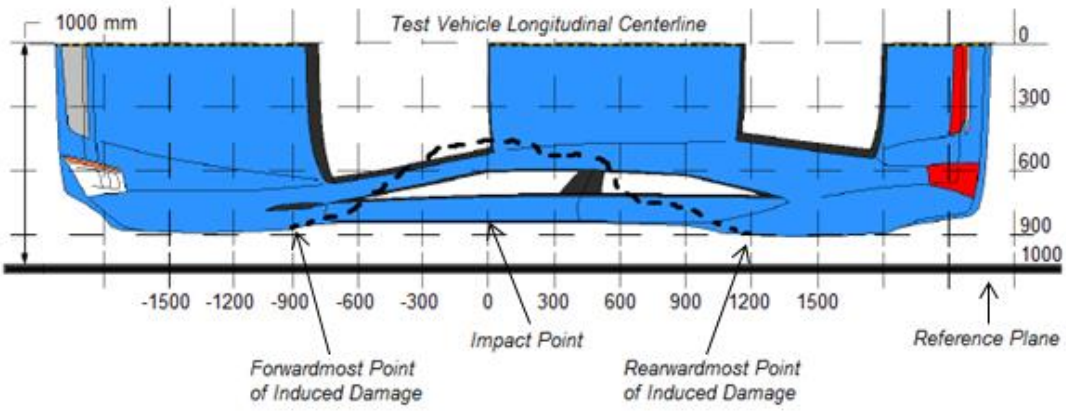


Vehicle Exterior Crush Measurements - Visual Representation

DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021

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



Overhead View

VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	-900	3	87	108	-21
2	-480	3	162	101	61
3	-60	3	361	98	263
4	360	3	233	102	131
5	780	3	144	112	32
6	1200	3	90	110	-20

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

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side MDB Impact Test	Test Date:	2/4/2021
Test Time:	9:01 AM	Temperature:	21° C

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

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

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

D. Spillage Details: — No Spillage Occurred

FMVSS NO. 301 STATIC ROLLOVER DATA

ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	71	300	371
90° to 180°	68	300	368
180° to 270°	70	300	370
270° to 360°	70	300	370

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

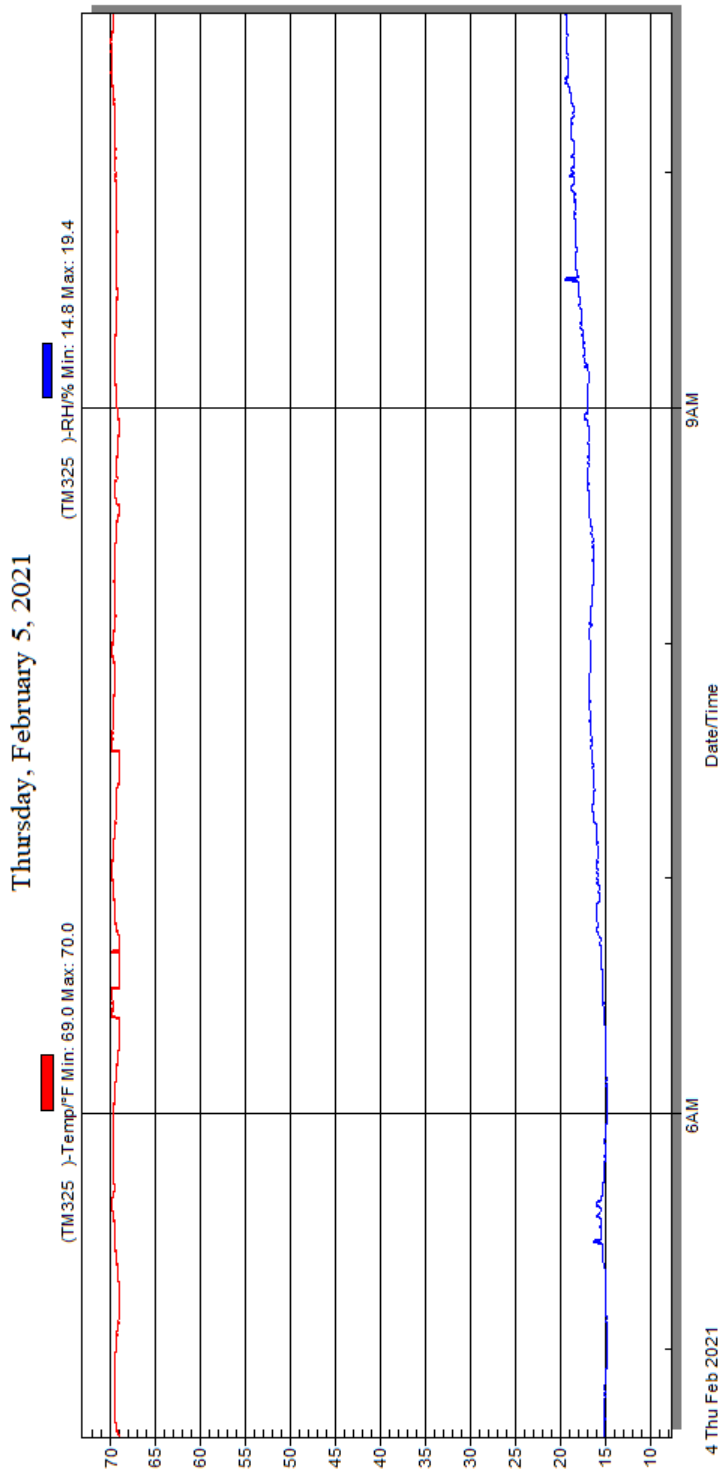
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0	0	0	
90° to 180°	0	0	0	
180° to 270°	0	0	0	
270° to 360°	0	0	0	

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

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

Test Vehicle:	2021 Mercedes C300 four door sedan	NHTSA No.:	M20214300
Test Program:	NCAP Side Pole Impact Test	Test Date:	2/4/2021



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

APPENDIX A

PHOTOGRAPHS

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

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

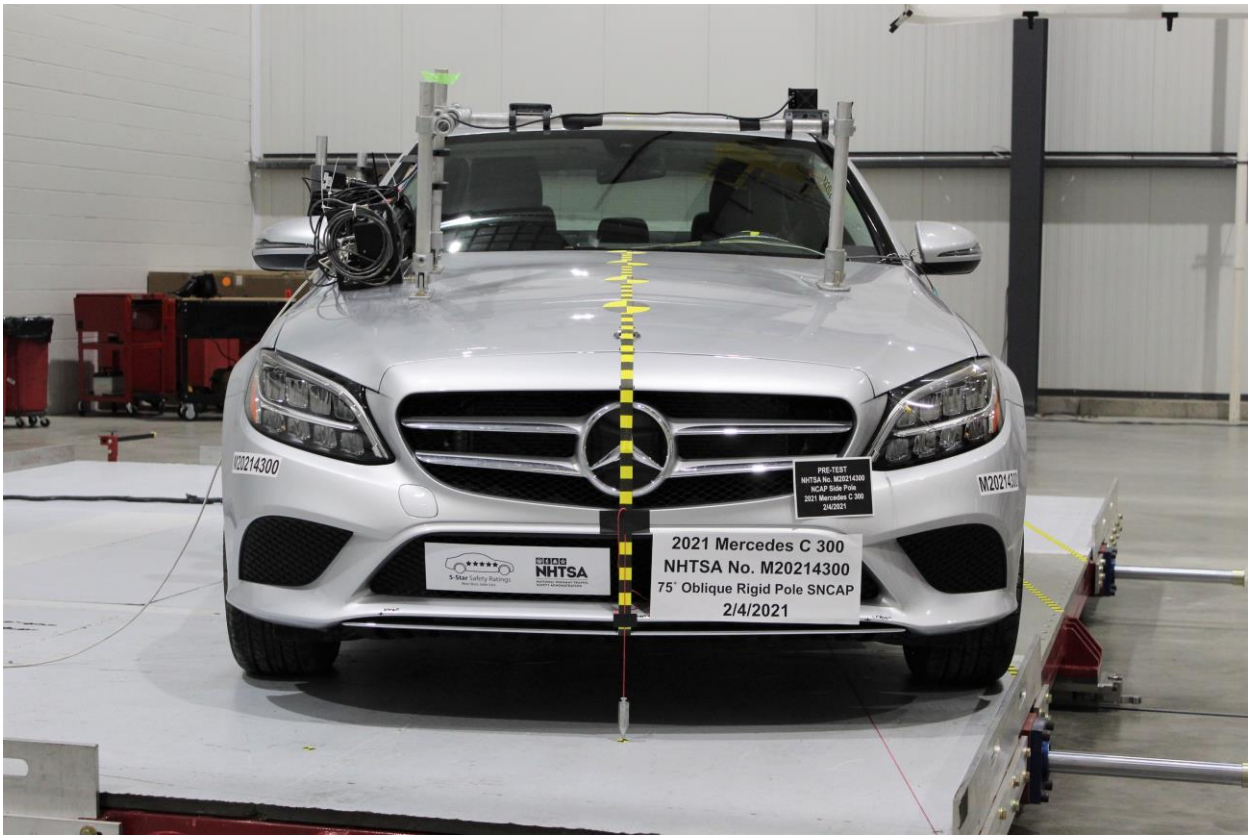


Figure A-3: Pre-Test Frontal View of Test Vehicle

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

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

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

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

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

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

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

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

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

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

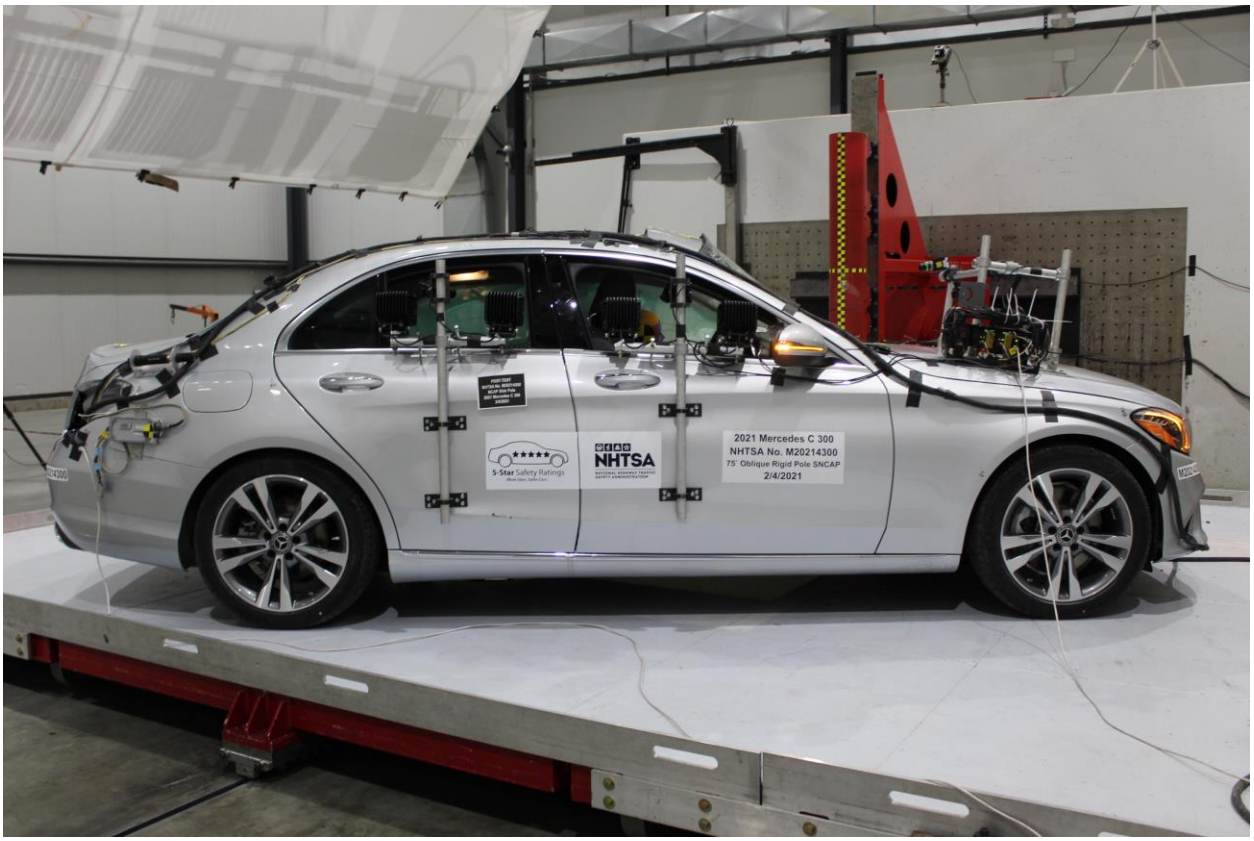


Figure A-14: Post-Test Right Side View of Test Vehicle

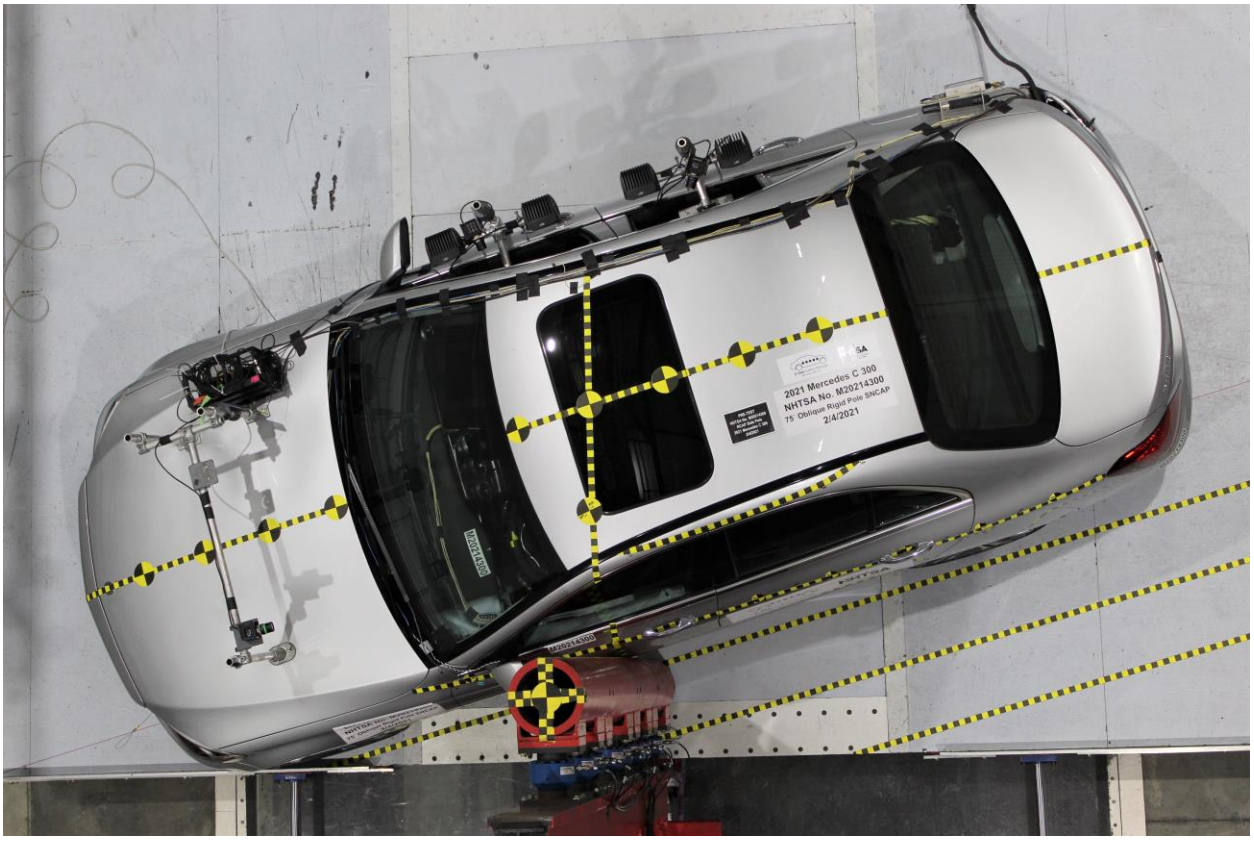


Figure A-15: Pre-Test Overhead View of Test Area

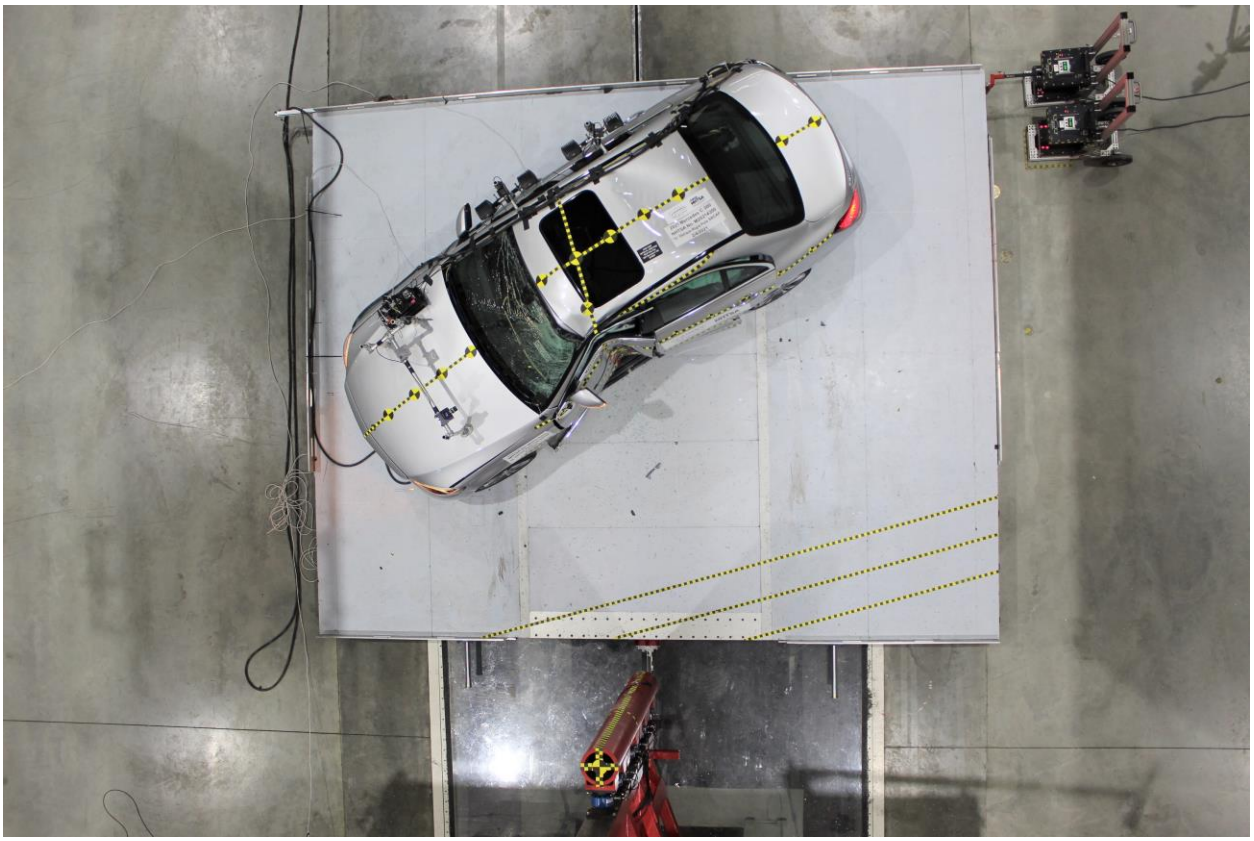


Figure A-16: Post-Test Overhead View of Test Area

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

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

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

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

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

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

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

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

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

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

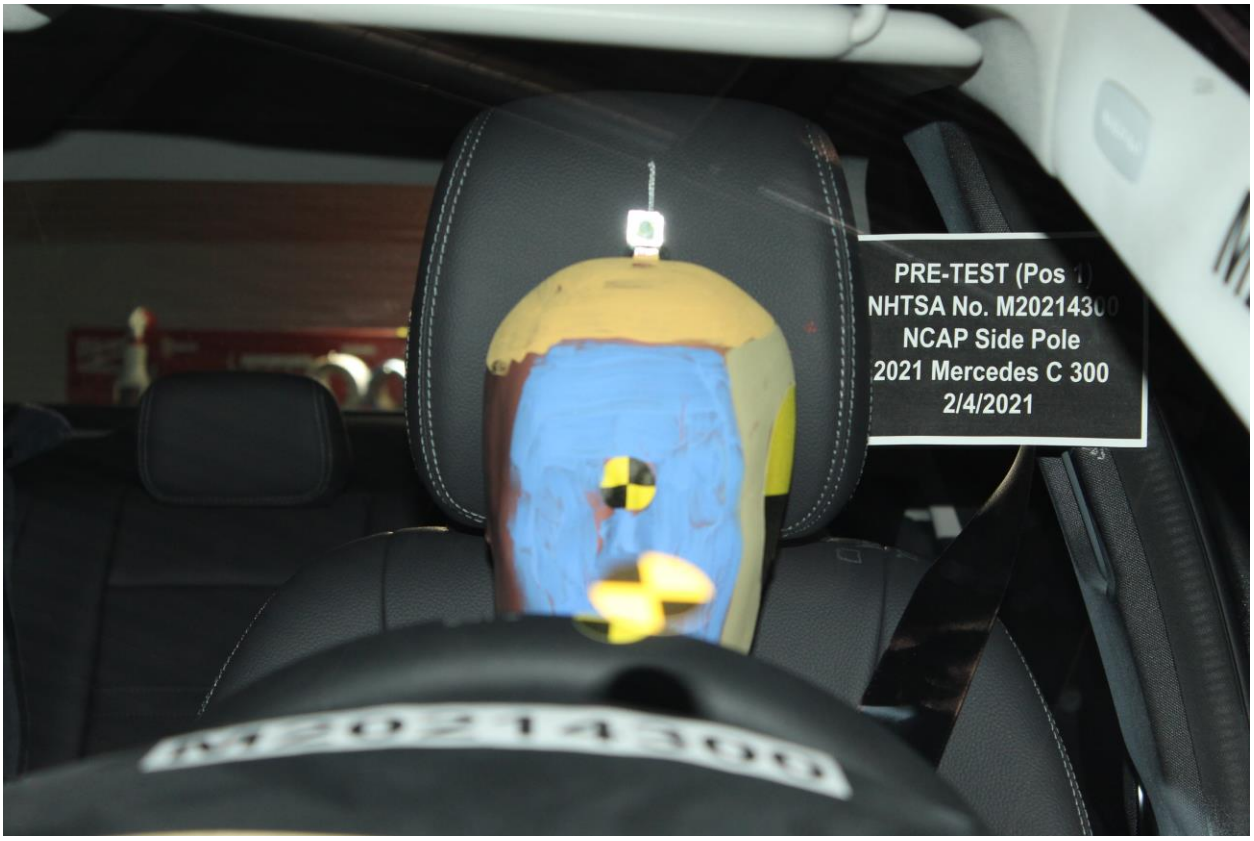


Figure A-27: Pre-Test Frontal Close-Up View of Dummy Head / Shoulders in Relation to Head Restraint

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

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

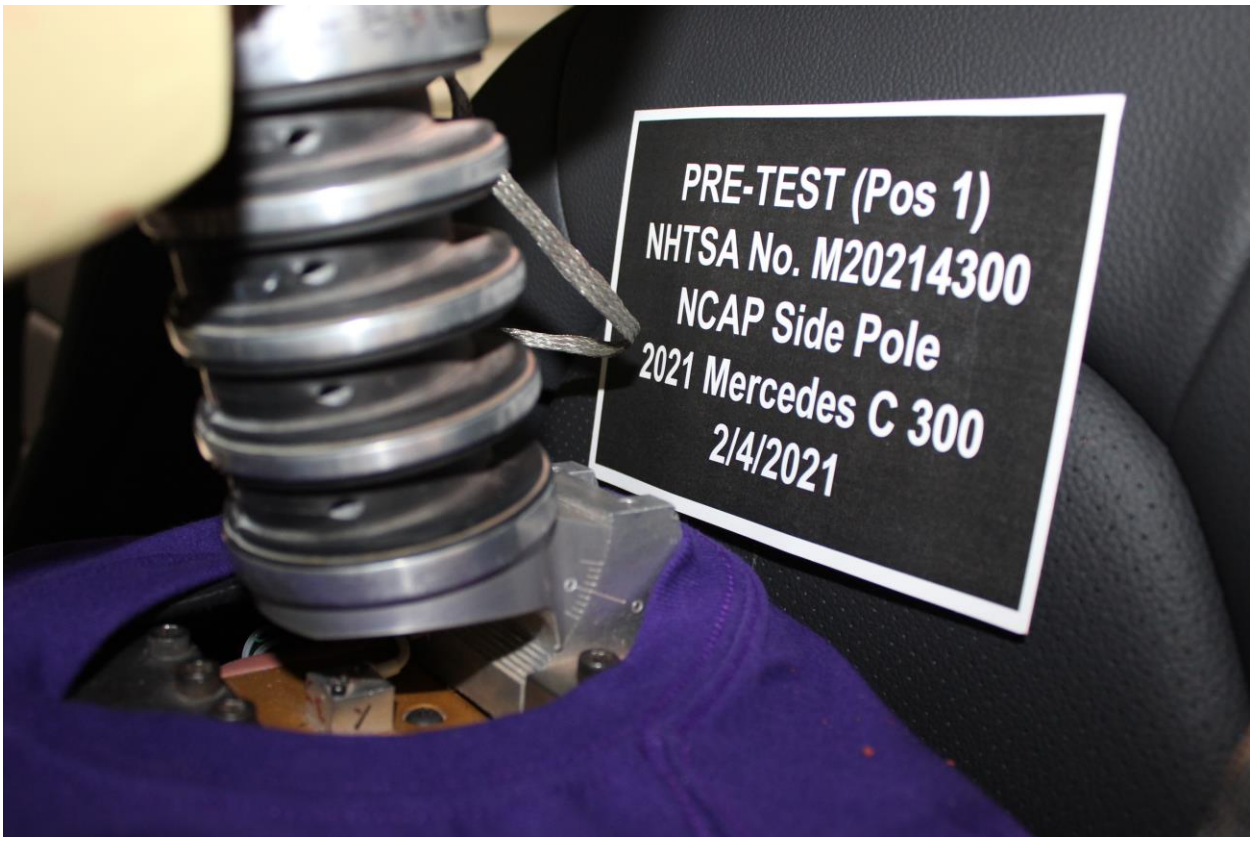


Figure A-30: Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket

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

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

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

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

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

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

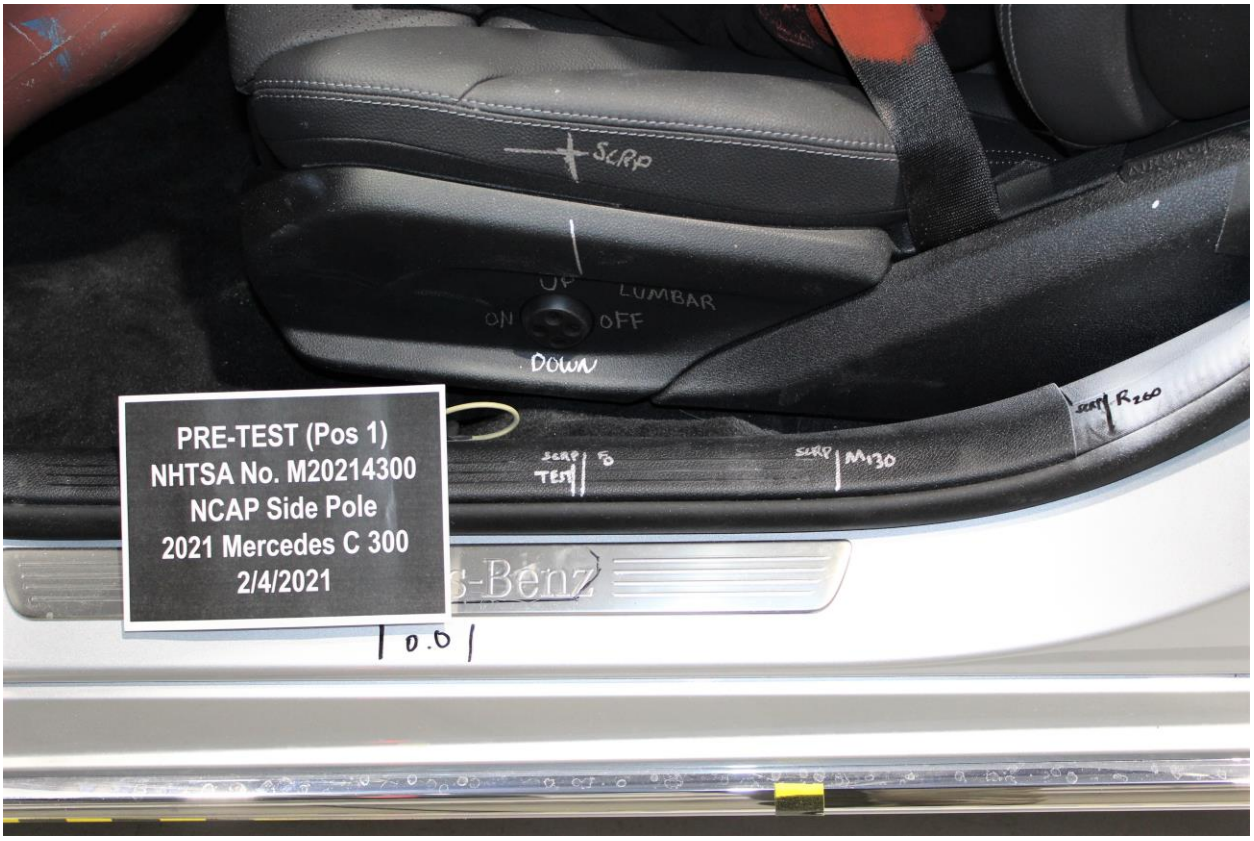


Figure A-37: Pre-Test Close-Up Left Side View of Driver Seat Track

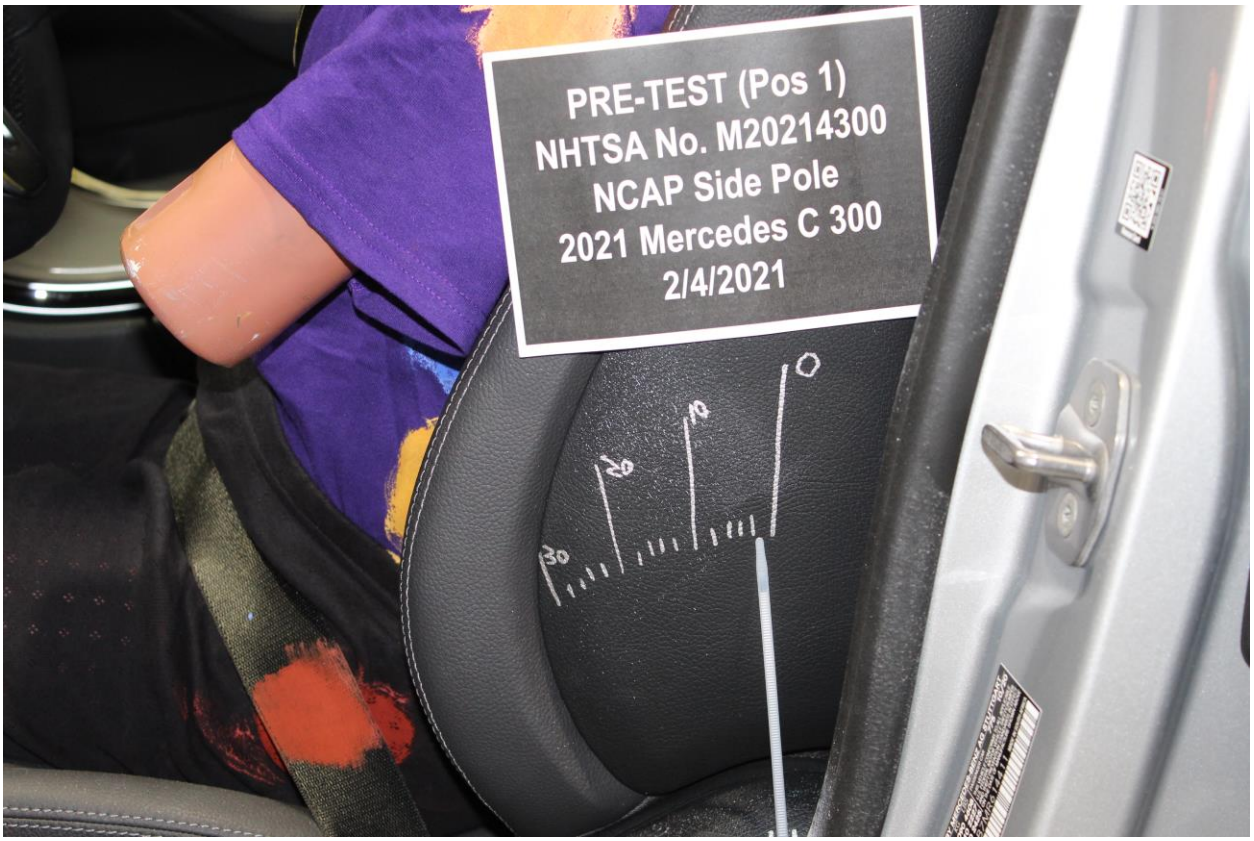


Figure A-38: Pre-Test Close-Up Left Side View of Driver Seat Back

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Figure A-53: Pre-Test Right Side View of Dummy and Rear Seat of Occupant Compartment

Figure A-54: Post-Test Inner Rear Passenger Torso Air Bag Deployment View

Figure A-55: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

Figure A-56: Post-Test View of Fuel Filler Cap or Fuel Filler Neck

Figure A-57: Close-Up View of Vehicle's Certification Label

Figure A-58: Close-Up View of Vehicle's Tire Information Placard or Label

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

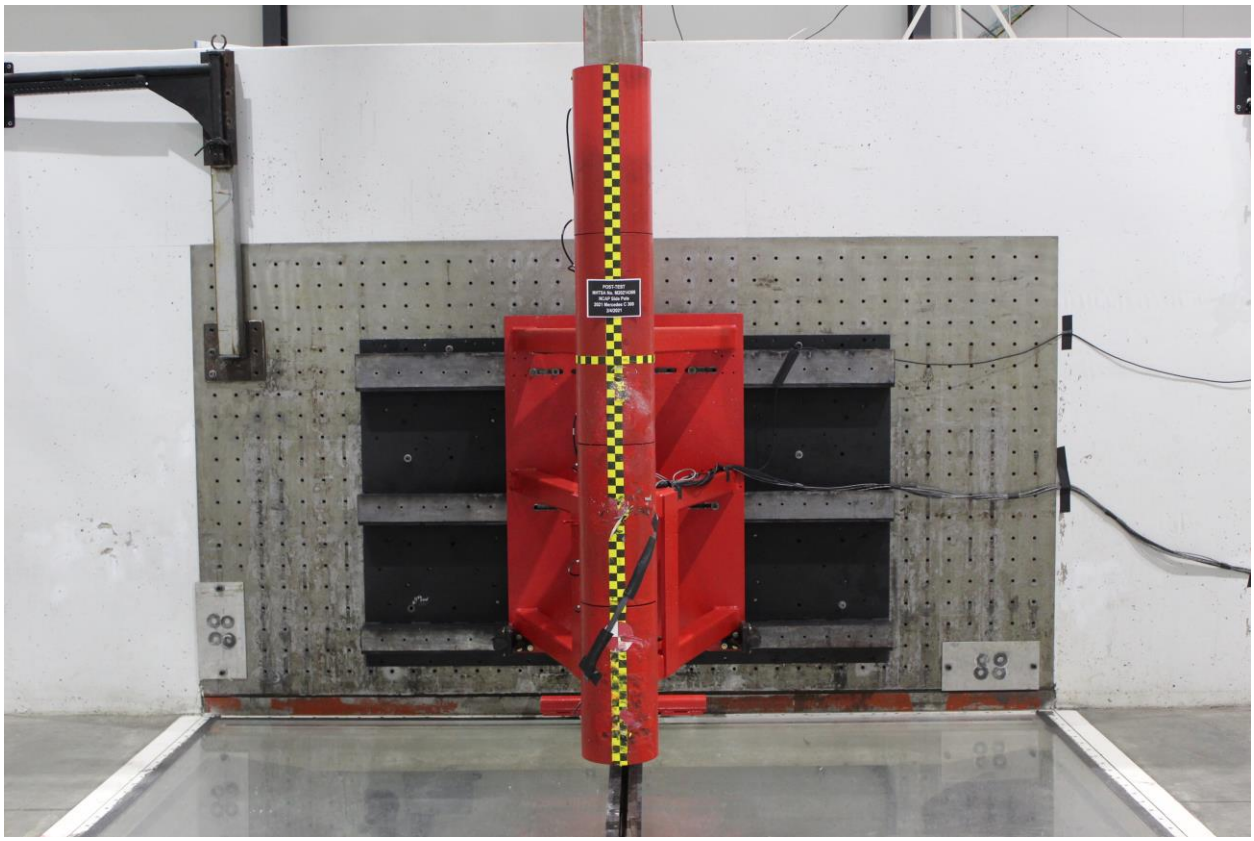


Figure A-60: Post-Test Pole Barrier Front View

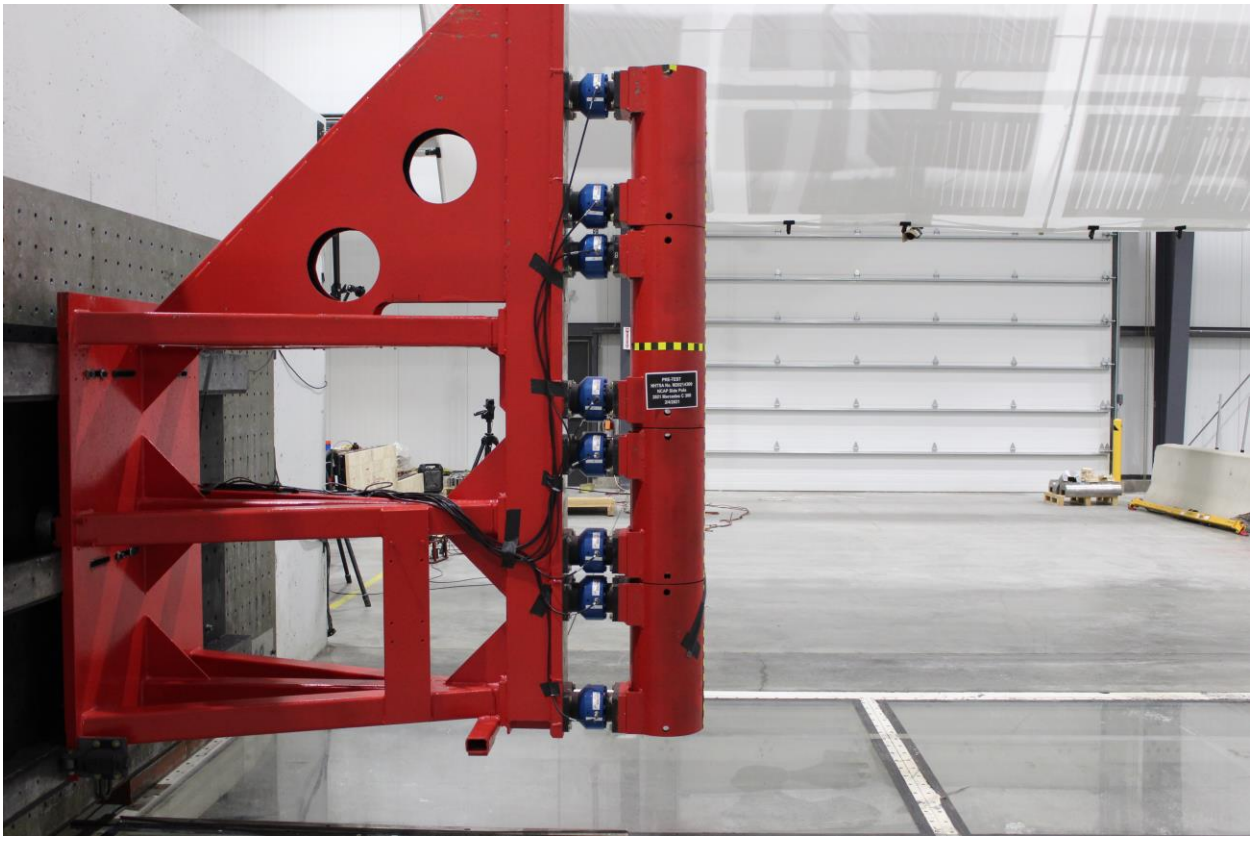


Figure A-61: Pre-Test Pole Barrier Side View

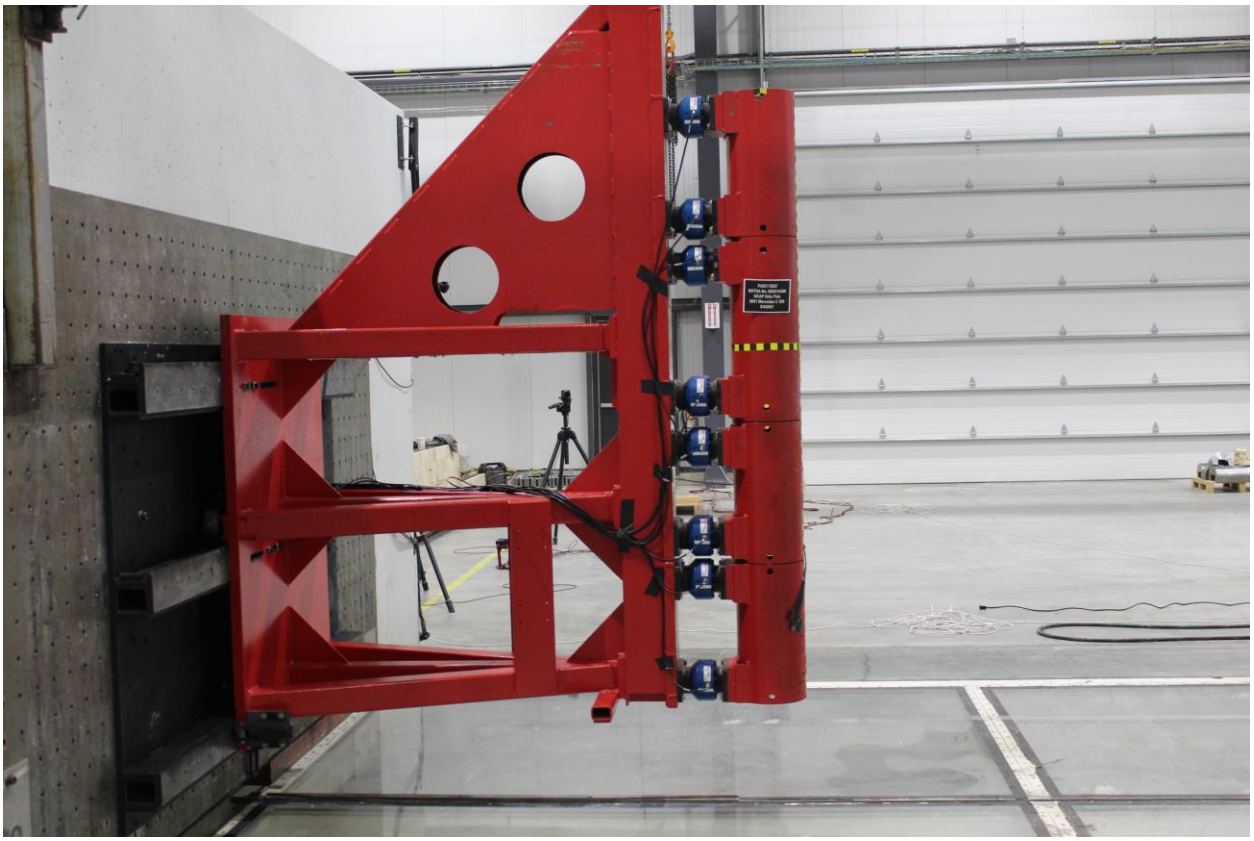


Figure A-62: Post-Test Pole Barrier Side View

Figure A-63: Pre-Test Ballast View

Figure A-64: Post-Test Primary and Redundant Speed Trap Read-Out

Figure A-65: FMVSS No. 301 Static Rollover 0 Degrees

Figure A-66: FMVSS No. 301 Static Rollover 90 Degrees

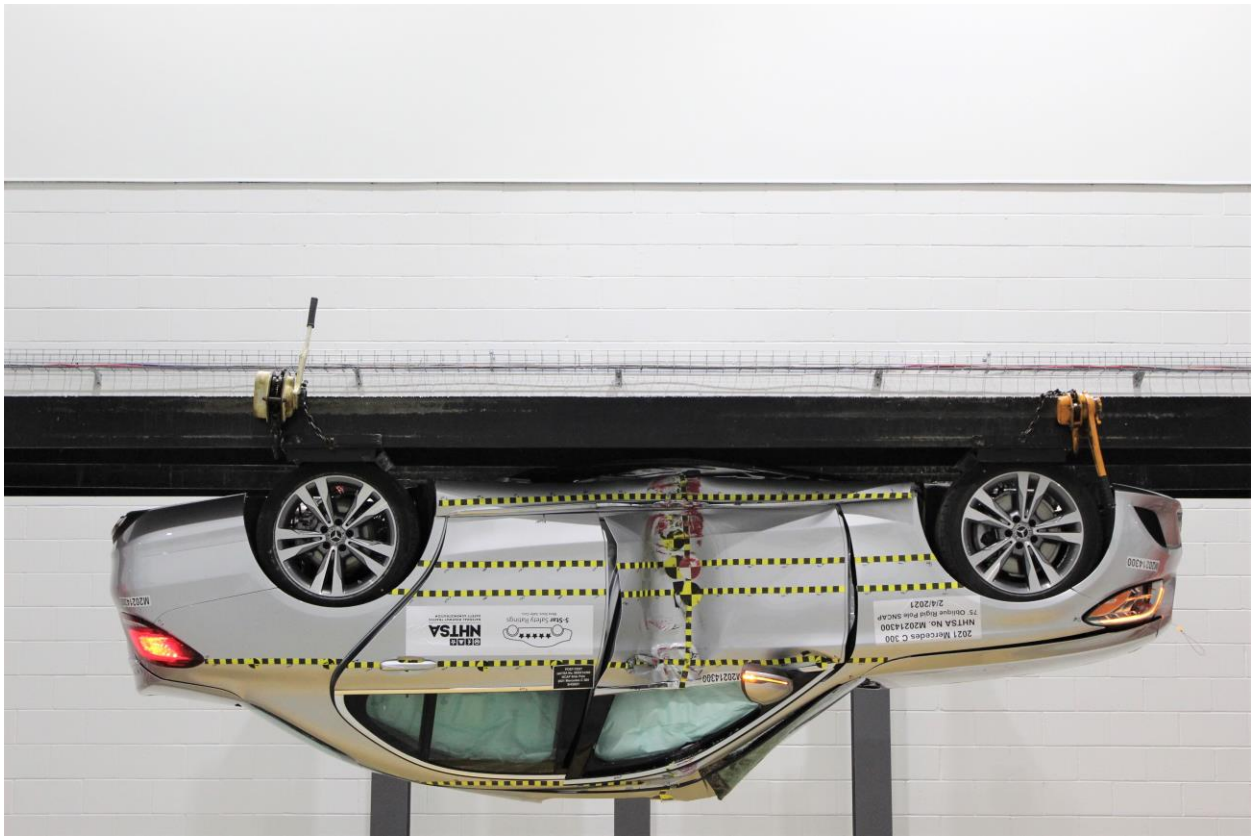


Figure A-67: FMVSS No. 301 Static Rollover 180 Degrees

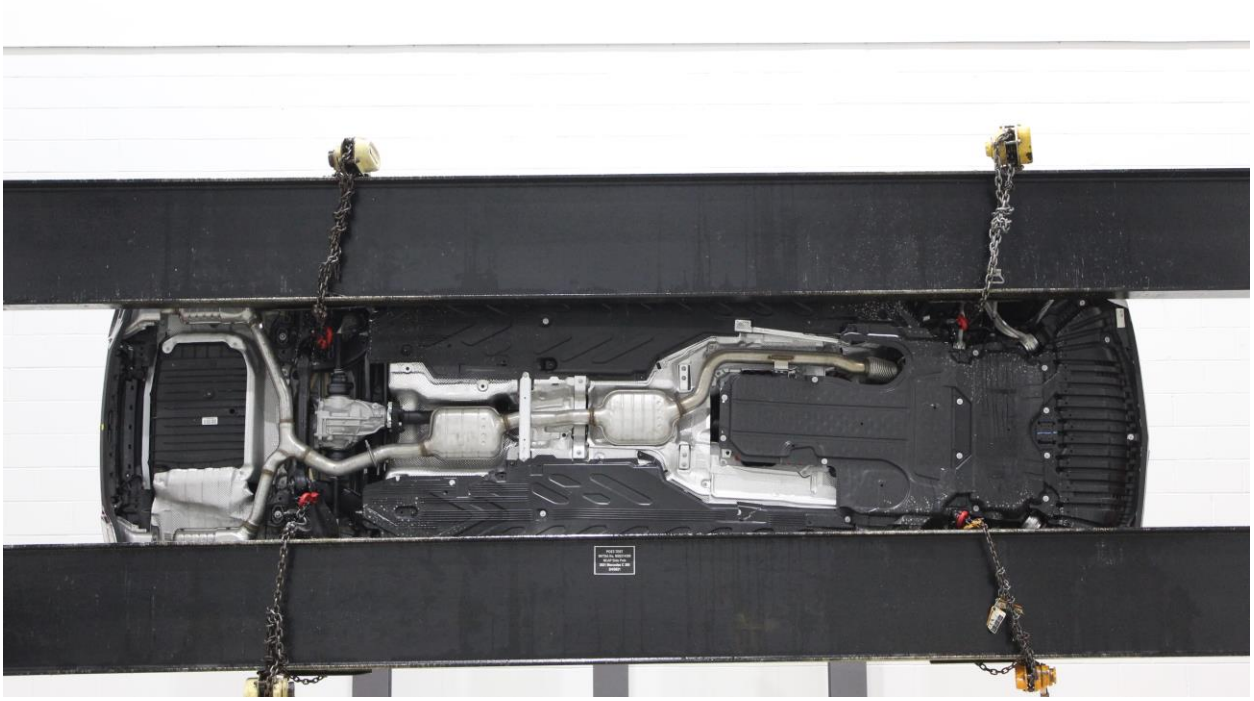
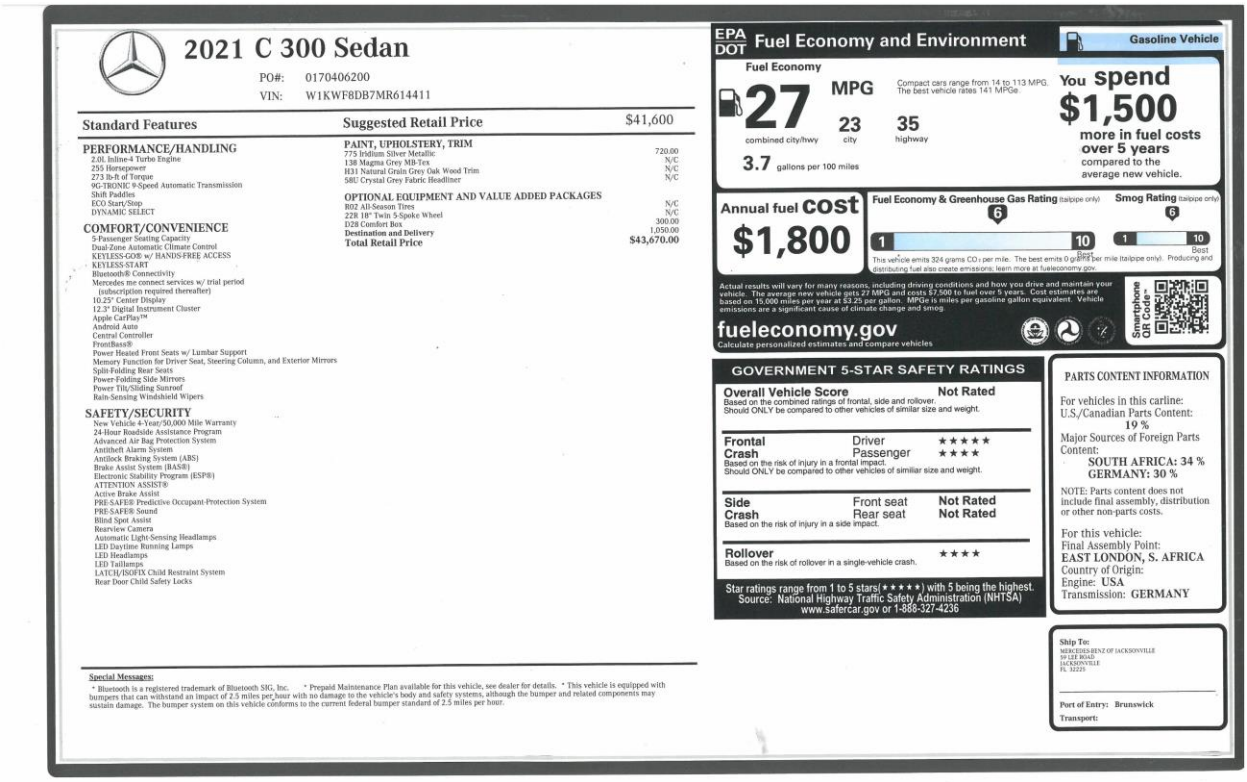


Figure A-68: FMVSS No. 301 Static Rollover 270 Degrees

Figure A-69: FMVSS No. 301 Static Rollover 360 Degrees

Figure A-70: Impact Event



2021 C 300 Sedan

PO#: 0170406200

VIN: W1KWF8DB7MR614411

Standard Features

PERFORMANCE/HANDLING
2.0L Inline-4 Turbo Engine
255 Horsepower
273 lb-ft of Torque
9G-TRONIC 9-Speed Automatic Transmission
Shift Paddles
ECO Start/Stop
DYNAMIC SELECT

COMFORT/CONVENIENCE
5-Passenger Seating Capacity
Dual-Zone Automatic Climate Control
KEYLESS-GO® w/ HANDS-FREE ACCESS
KEYLESS-START
Bluetooth® Connectivity
Mercedes me connect services w/ trial period (subscription required thereafter)
10.25" Center Display
12.3" Digital Instrument Cluster
Apple CarPlay™
Android Auto
Central Controller
FrontBass®
Power Heated Front Seats w/ Lumbar Support
Memory Function for Driver Seat, Steering Column, and Exterior Mirrors
Split-Folding Rear Seats
Power-Folding Side Mirrors
Power Tilt/Sliding Sunroof
Rain-Sensing Windshield Wipers

SAFETY/SECURITY
New Vehicle 4-Year/50,000 Mile Warranty
24-Hour Roadside Assistance Program
Advanced Air Bag Protection System
Antitheft Alarm System
Antilock Braking System (ABS)
Brake Assist System (BAS®)
Electronic Stability Program (ESP®)
ATTENTION ASSIST®
Active Brake Assist
PRE-SAFE® Predictive Occupant-Protection System
PRE-SAFE® Sound
Blind Spot Assist
Rearview Camera
Automatic Light-Sensing Headlamps
LED Daytime Running Lamps
LED Headlamps
LED Taillamps
LATCH/ISOFIX Child Restraint System
Rear Door Child Safety Locks

Suggested Retail Price $41,600

PAINT, UPHOLSTERY, TRIM
775 Iridium Silver Metallic 720.00
138 Magma Grey MB-Tex N/C
H31 Natural Grain Grey Oak Wood Trim N/C
58U Crystal Grey Fabric Headliner N/C

OPTIONAL EQUIPMENT AND VALUE ADDED PACKAGES
B02 All-Season Tires N/C
228 18" Twin 5-Spoke Wheel N/C
D28 Comfort Box 300.00
Destination and Delivery 1,050.00
Total Retail Price **$43,670.00**

Special Messages:
* Bluetooth is a registered trademark of Bluetooth SIG, Inc. * Prepaid Maintenance Plan available for this vehicle, see dealer for details. * This vehicle is equipped with bumpers that can withstand an impact of 2.5 miles per hour with no damage to the vehicle's body and safety systems, although the bumper and related components may sustain damage. The bumper system on this vehicle conforms to the current federal bumper standard of 2.5 miles per hour.

EPA DOT **Fuel Economy and Environment** — Gasoline Vehicle

Fuel Economy
27 MPG combined city/hwy — 23 city — 35 highway
3.7 gallons per 100 miles
Compact cars range from 14 to 113 MPG. The best vehicle rates 141 MPGe.

You spend **$1,500** more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost **$1,800**

Fuel Economy & Greenhouse Gas Rating (tailpipe only) 6 — Smog Rating (tailpipe only) 6

1 — 10 (Best)

This vehicle emits 324 grams CO_2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fueleconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and costs $7,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $3.25 per gallon. MPGe is miles per gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fueleconomy.gov
Calculate personalized estimates and compare vehicles

Smartphone QR Code™

GOVERNMENT 5-STAR SAFETY RATINGS

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

Frontal Crash — Driver ★★★★★ — Passenger ★★★★
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

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

Rollover ★★★★
Based on the risk of rollover in a single-vehicle crash.

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

PARTS CONTENT INFORMATION

For vehicles in this carline:
U.S./Canadian Parts Content: 19 %
Major Sources of Foreign Parts Content:
SOUTH AFRICA: 34 %
GERMANY: 30 %

NOTE: Parts content does not include final assembly, distribution or other non-parts costs.

For this vehicle:
Final Assembly Point: EAST LONDON, S. AFRICA
Country of Origin:
Engine: USA
Transmission: GERMANY

Ship To: MERCEDES-BENZ OF JACKSONVILLE 59 LEE ROAD JACKSONVILLE FL 32225

Port of Entry: Brunswick
Transport:

Figure A-71: Monroney Label

WARNING Risk of injury due to head restraints which are not installed or are adjusted incorrectly

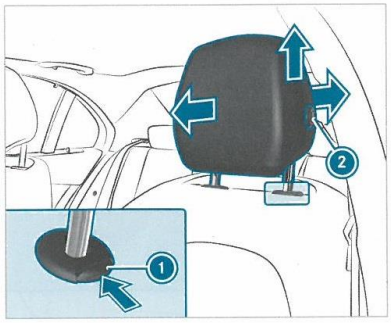
If head restraints are not installed or are adjusted incorrectly, the head restraints cannot provide protection as intended.

There is an increased risk of injury in the head and neck area, e.g. in the event of an accident or when braking.

- Always drive with the head restraints installed.
- Before driving off, make sure for every vehicle occupant that the center of the head restraint supports the back of the head at about eye level.

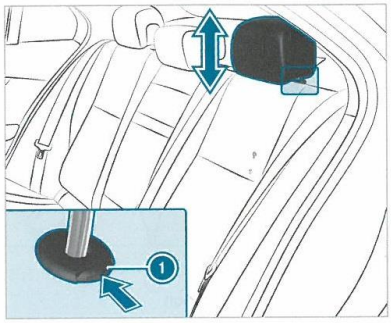
Do not interchange the head restraints of the front and rear seats. Otherwise, you will not be able to adjust the height and angle of the head restraints correctly.

Adjust the head restraint fore-and-aft position so that it is as close as possible to the back of your head.



- **To raise:** pull the head restraint up.
- **To lower:** press release knob (1) in the direction of the arrow and push the head restraint down.
- **To move forwards:** pull the head restraint forwards.
- **To move backwards:** press and hold release knob (2).
- Push the head restraint backwards and let go of release knob (2).

Adjusting the head restraints of the rear seats mechanically



- **To raise:** pull the head restraint up.
- **To lower:** press the release knob (1) in the direction of the arrow and push the head restraint down.

Figure A-72: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Figure A-73: Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver Dummy Instrumentation Plots

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

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

Additional Driver Dummy Instrumentation Data

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

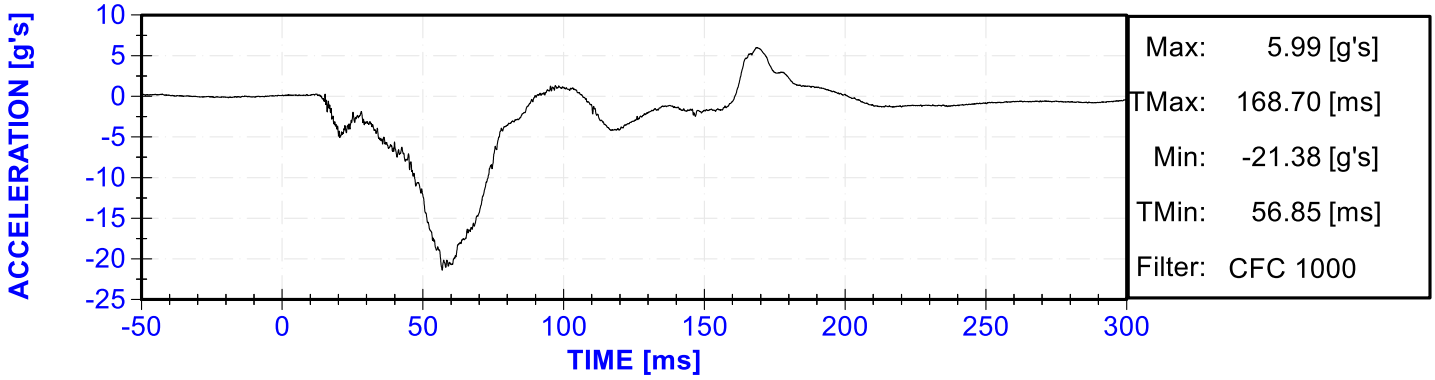
Vehicle Instrumentation Data

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

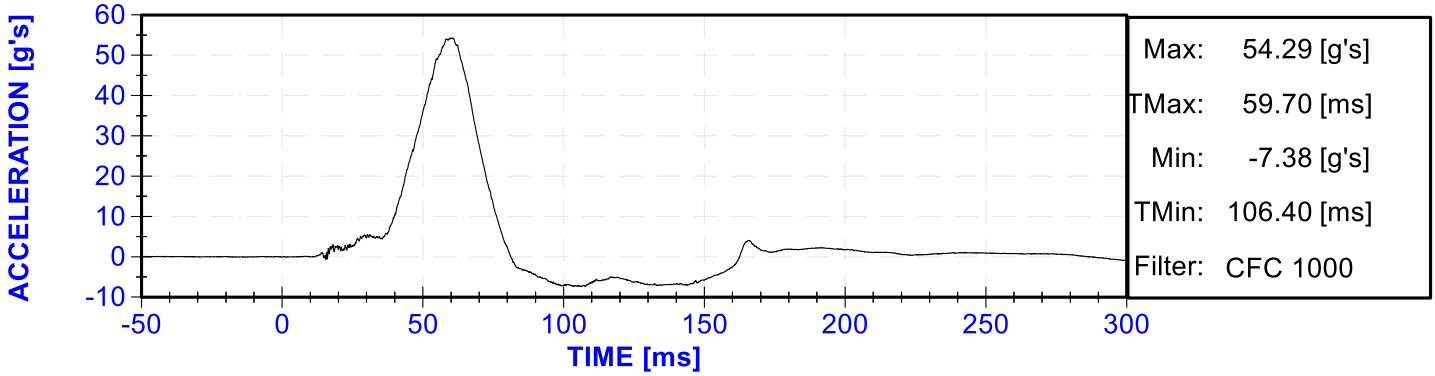
Pole Instrumentation Data

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

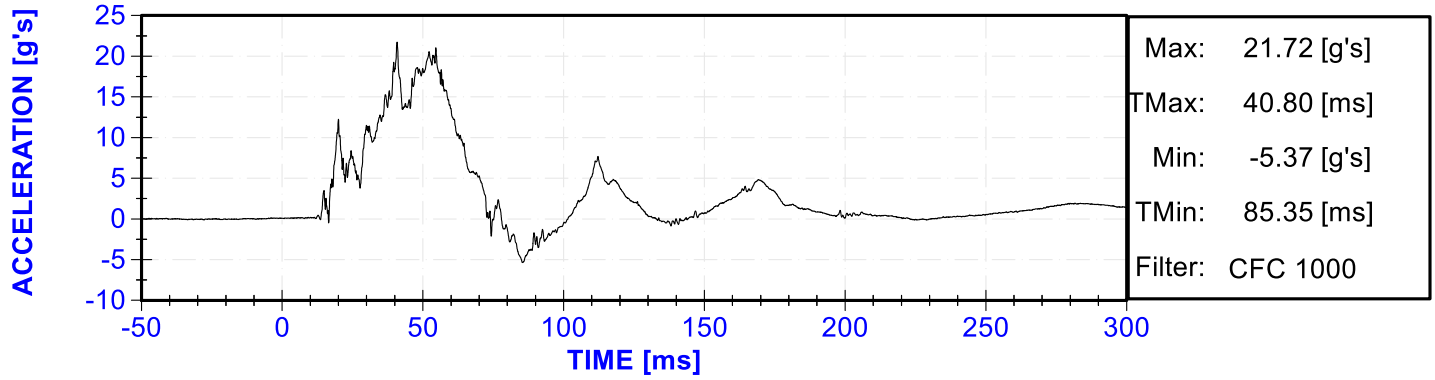
Driver Head Acceleration (X) Primary vs. Time



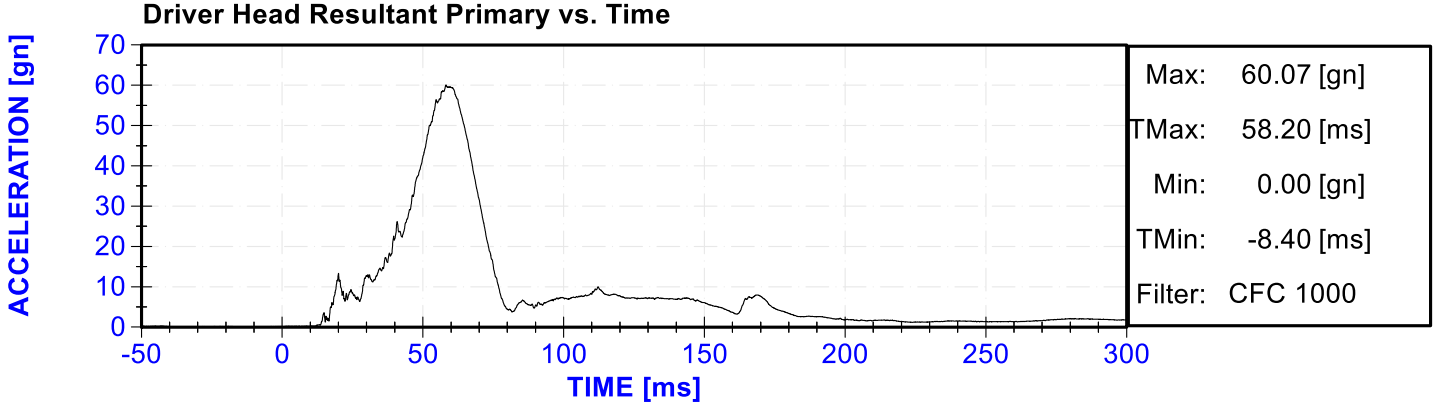
Driver Head Acceleration (Y) Primary vs. Time



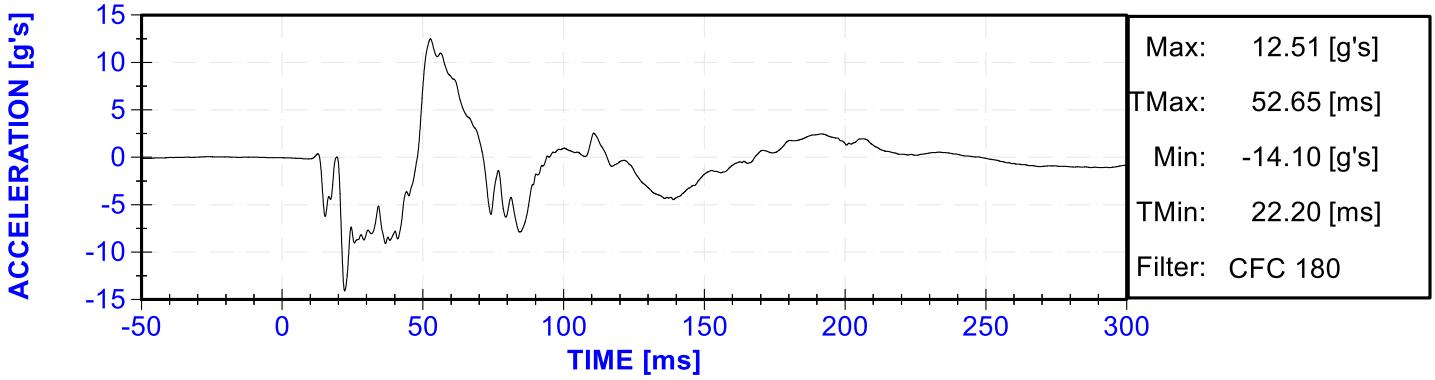
Driver Head Acceleration (Z) Primary vs. Time



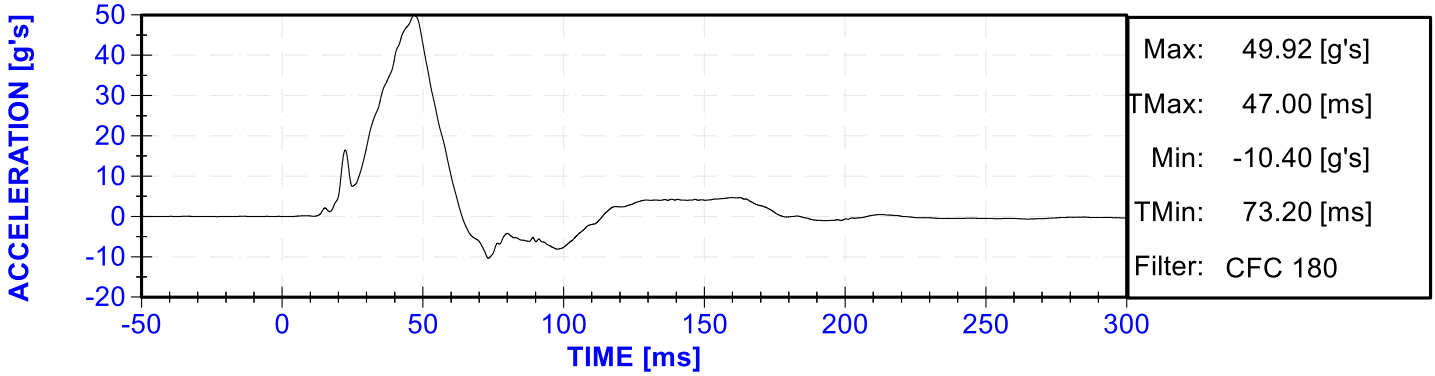
Driver Head Resultant Primary vs. Time



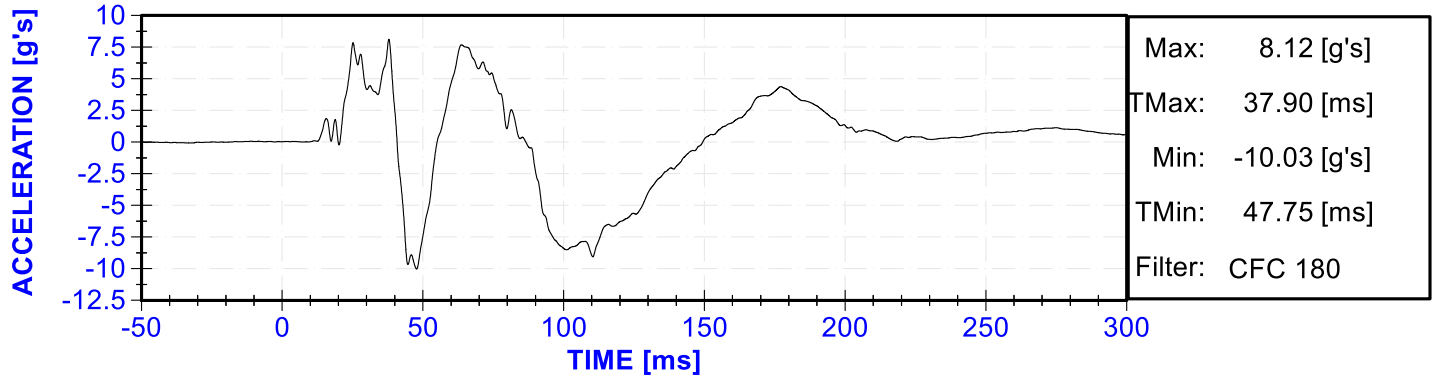
Driver Lower Spine T12 Acceleration (X) vs. Time



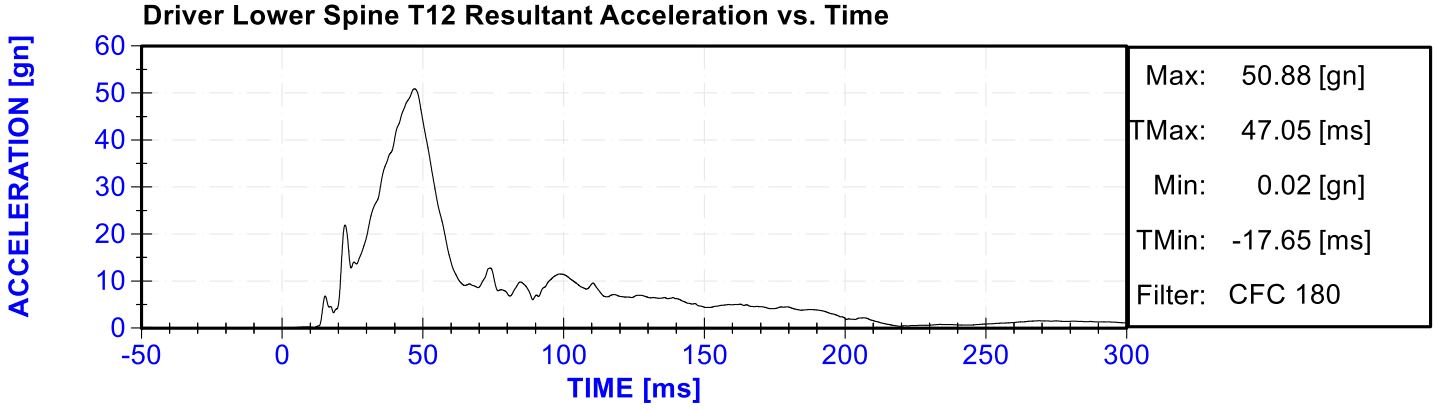
Driver Lower Spine T12 Acceleration (Y) vs. Time



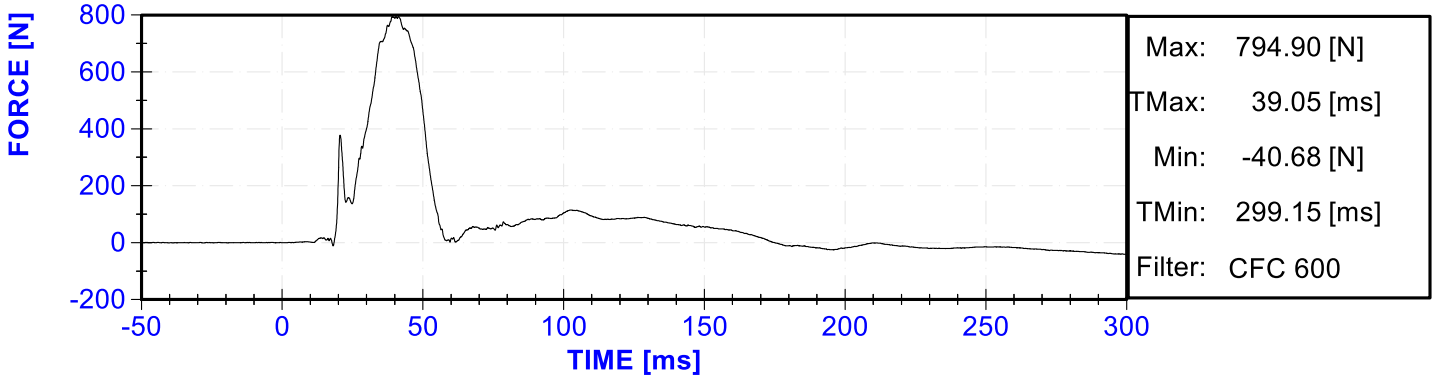
Driver Lower Spine T12 Acceleration (Z) vs. Time



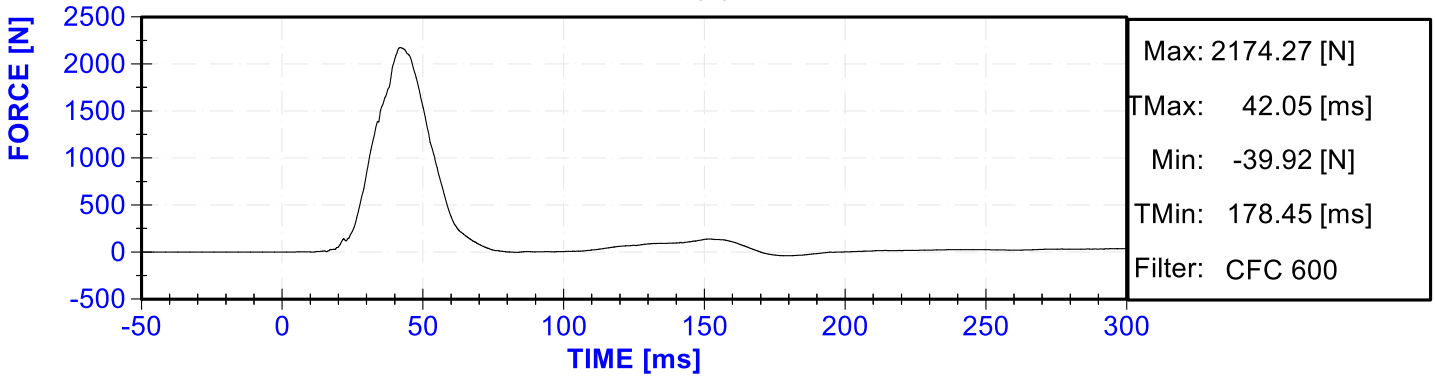
Driver Lower Spine T12 Resultant Acceleration vs. Time



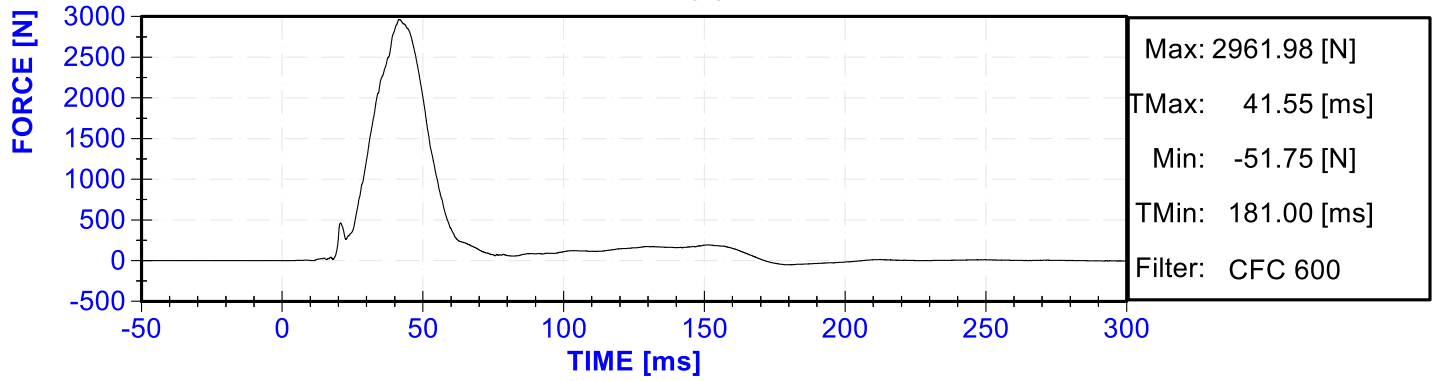
Driver Iliac Wing Force on Impact Side (Y) vs. Time



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



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



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

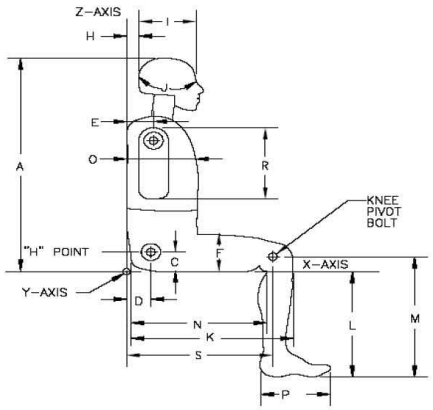
SERIAL NO: DG8012

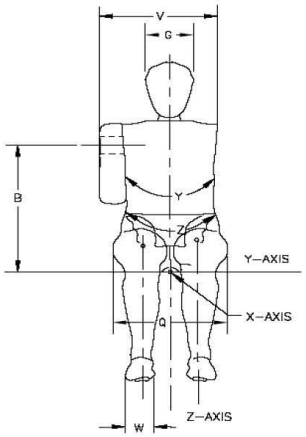
(CONFIGURED FOR LEFT SIDE IMPACT)

External Measurements - SID-IIs

Technician: K. Dutton Date: 01/14/2021

Dummy Serial Number: DG8012





Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	780	Pass
B	Shoulder Pivot Height	437	453	446	Pass
C	H-point Height	79	89	83	Pass
D	H-point from seatback	141	151	146	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	184	Pass
J	Head Circumference	541	551	548	Pass
K	Buttock to Knee Length	514	540	534	Pass
L	Popliteal Height	343	369	357	Pass
M	Knee Pivot to floor height	392	409	402	Pass
N	Buttock Popliteal Length	416	442	433	Pass
O	Chest Depth w/o jacket	195	211	205	Pass
P	Foot Length	216	232	225	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	319	Pass
R	Arm Length	249	259	255	Pass
S	Knee Joint to seatback	477	493	486	Pass
V	Shoulder Width	341	357	346	Pass
W	Foot Width	78	94	85	Pass
Y	Chest Circumference w/jacket	851	881	867	Pass
Z	Waist Circumference	761	791	781	Pass

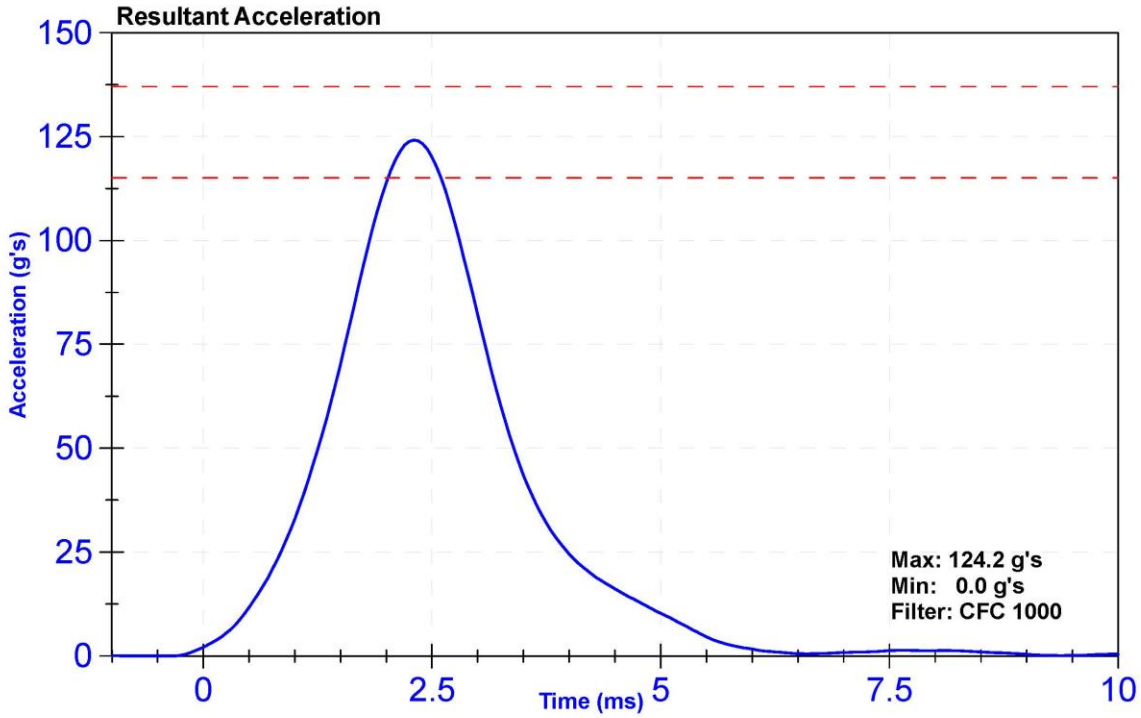
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

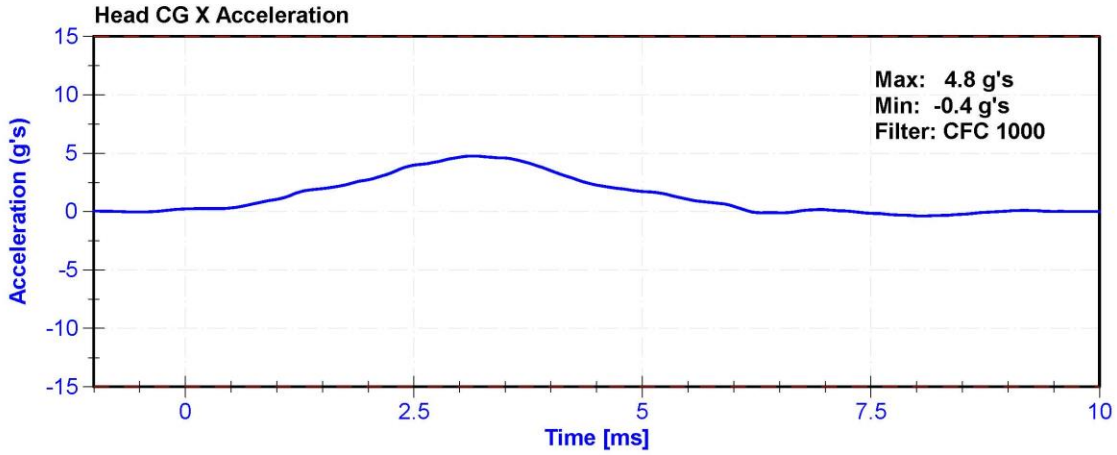
Results

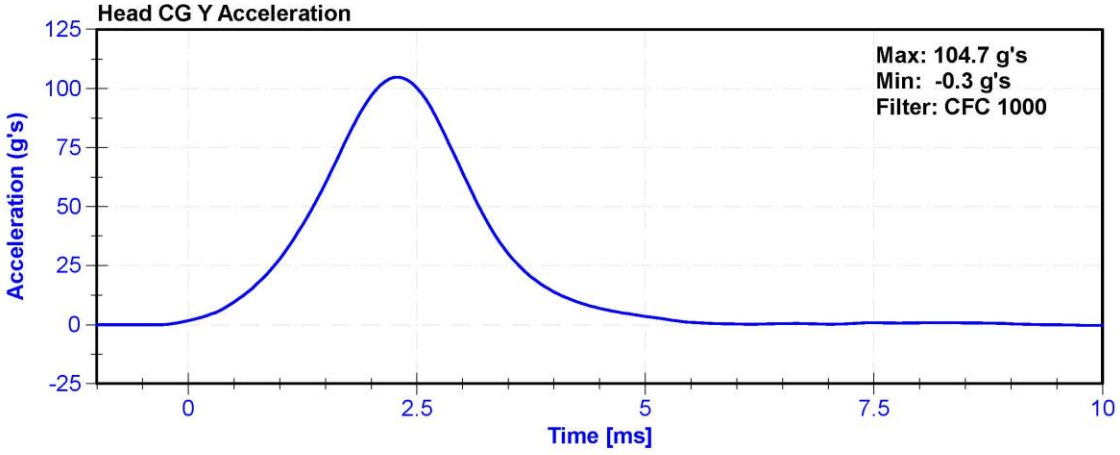
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.8	Pass
Humidity	10	70	%	22.3	Pass
Resultant Acceleration	115	137	g's	124.2	Pass
Oscillation	0	15	%	1.1	Pass
Fore-Aft Acceleration	-15	15	g's	4.8	Pass

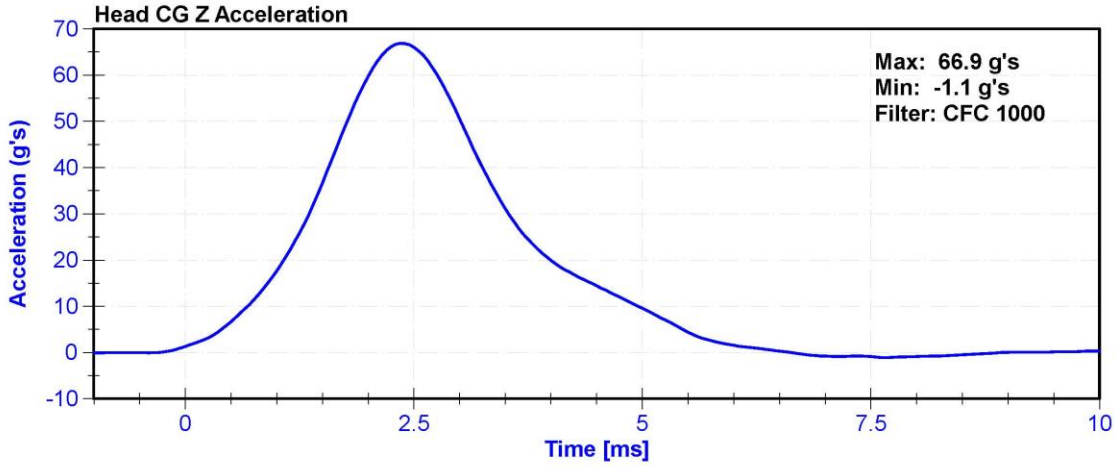
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	ENDEVCO 7264	AC-P74788	11/5/2020	5/6/2021
Y Accelerometer	ENDEVCO 7264CT	AC-P83432	11/5/2020	5/6/2021
Z Accelerometer	ENDEVCO 7264	AC-P83319	11/5/2020	5/6/2021




Head CG X Acceleration
Max: 4.8 g's
Min: -0.4 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]


Head CG Y Acceleration
Max: 104.7 g's
Min: -0.3 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]


Head CG Z Acceleration
Max: 66.9 g's
Min: -1.1 g's
Filter: CFC 1000
Acceleration (g's)
Time [ms]

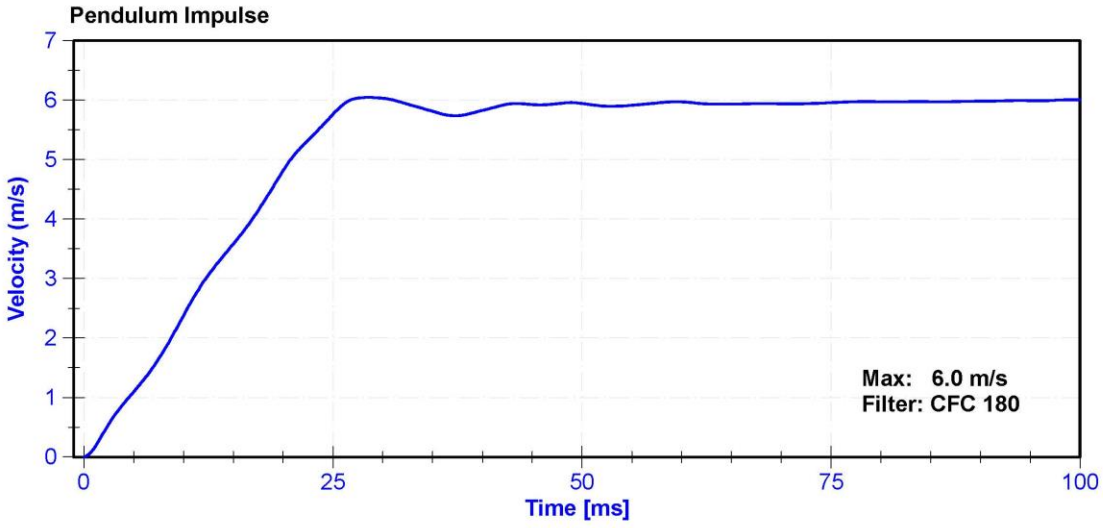
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

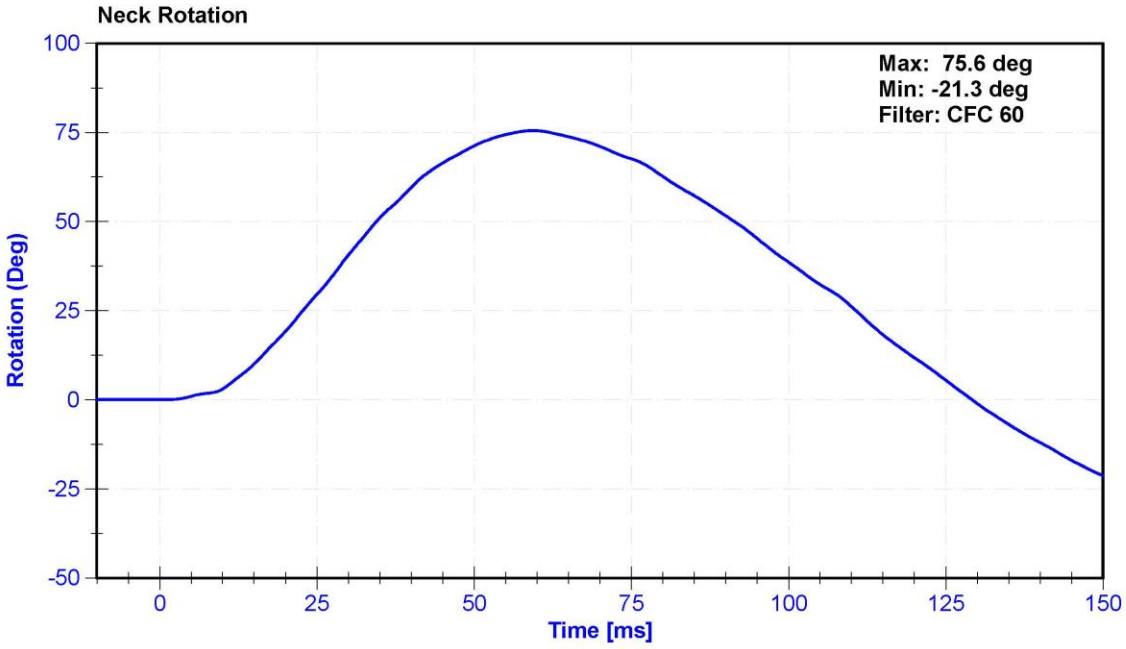
Results

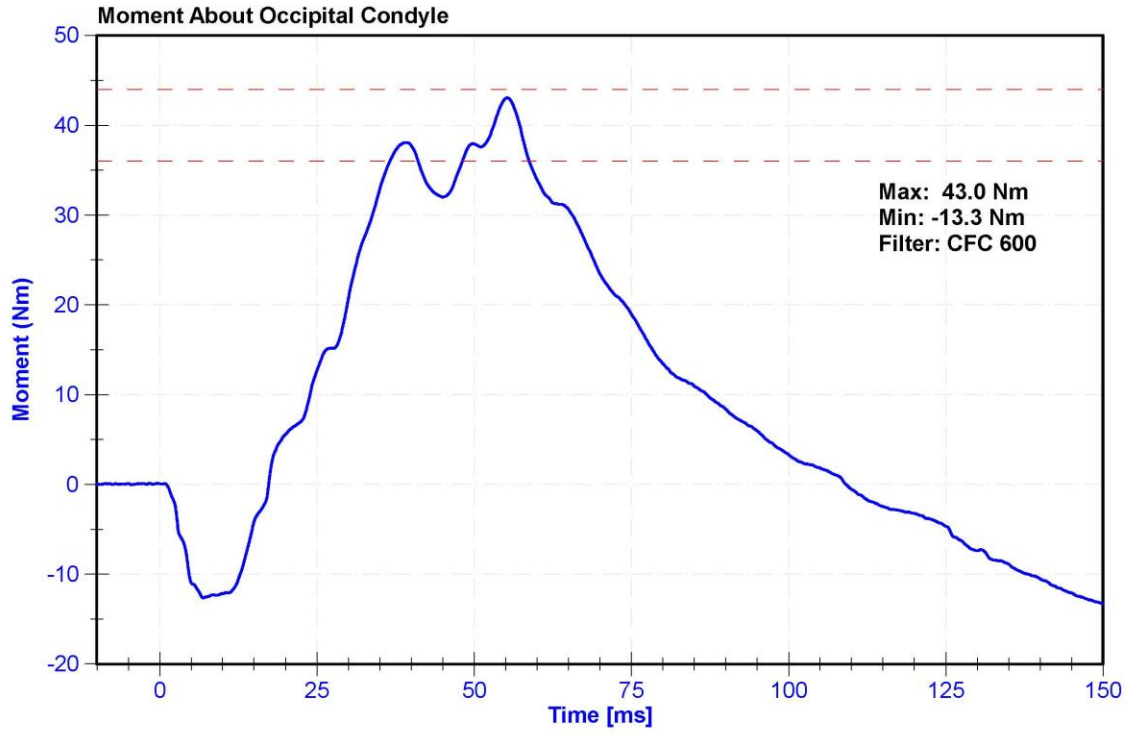
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	22.3	Pass
Velocity	5.51	5.63	m/s	5.549	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.38	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.58	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.81	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.76	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	6.04	Pass
Neck Rotation	71	81	deg	75.6	Pass
Time at Maximum Rotation	50	70	ms	59.3	Pass
Moment about the OC	36	44	Nm	43.0	Pass
Moment Decay to 0 Nm	102	126	ms	109.1	Pass

Transducer Calibrations

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




Neck Rotation
Max: 75.6 deg
Min: -21.3 deg
Filter: CFC 60
Rotation (Deg)
100
75
50
25
0
-25
-50
0
25
50
75
100
125
150
Time [ms]


Moment About Occipital Condyle
Max: 43.0 Nm
Min: -13.3 Nm
Filter: CFC 600
Moment (Nm)
50
40
30
20
10
0
-10
-20
0
25
50
75
100
125
150
Time [ms]

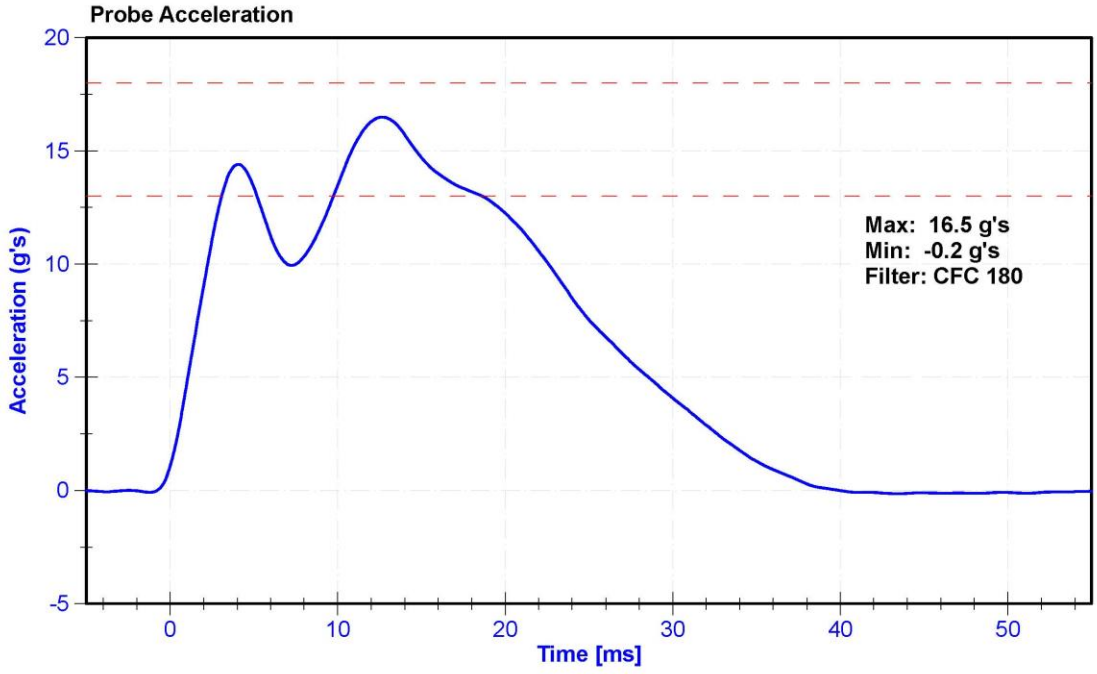
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

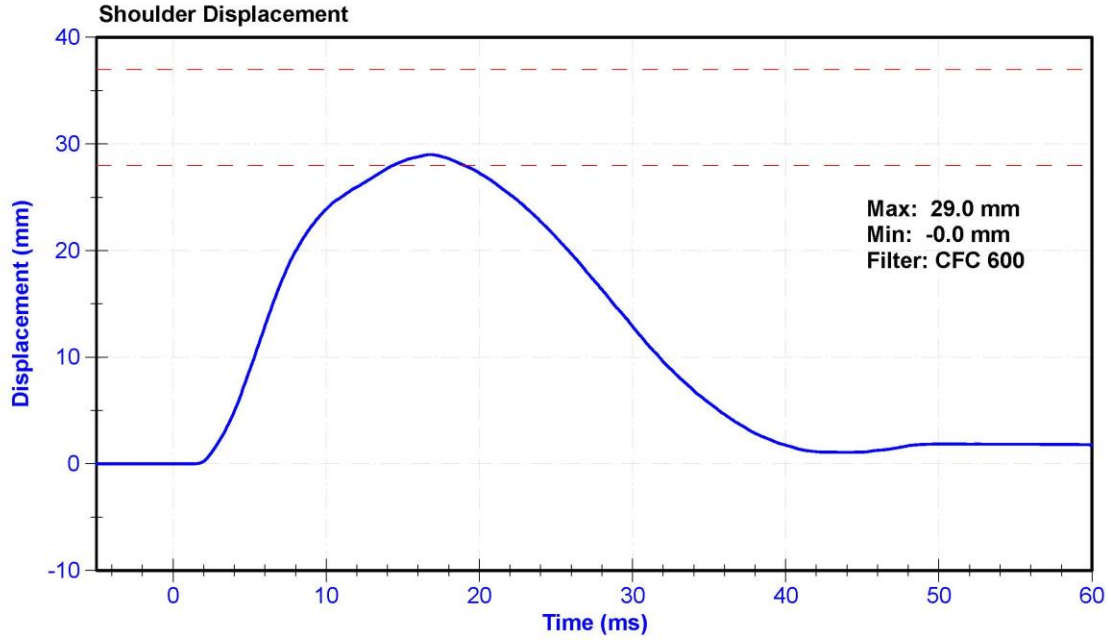
Results

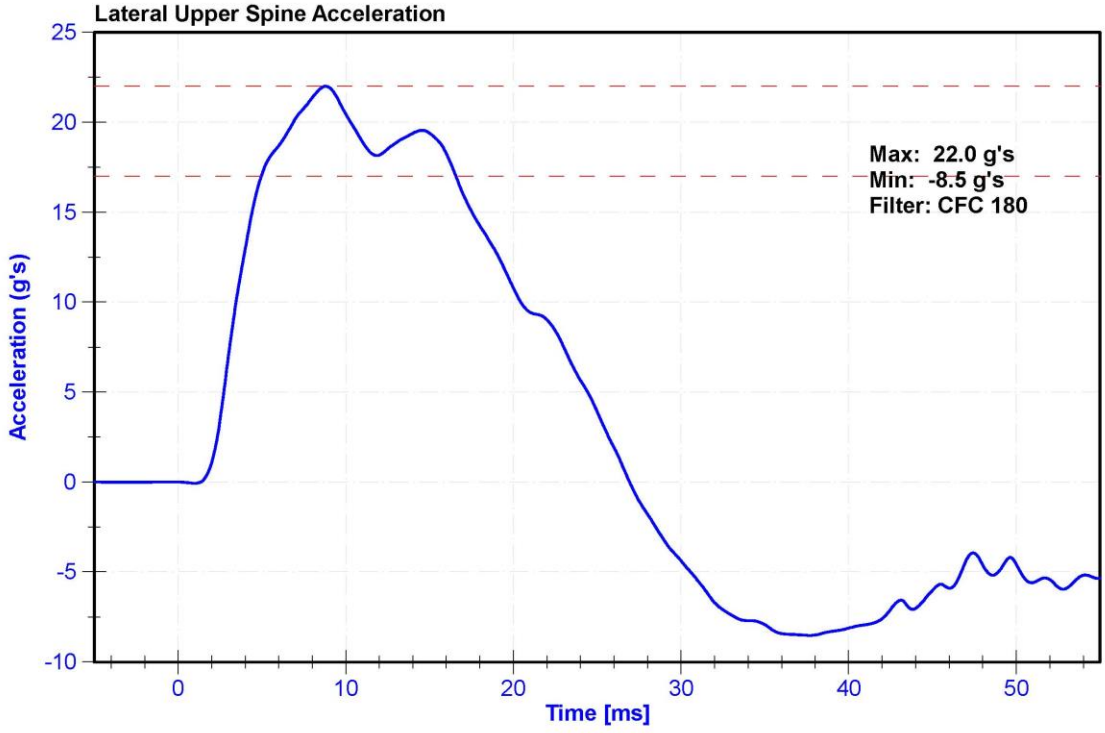
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	29	Pass
Velocity	4.2	4.4	m/s	4.32	Pass
Probe Acceleration	13	18	g's	16.5	Pass
Shoulder Deflection	28	37	mm	29.0	Pass
Lateral Upper Spine Acceleration	17	22	g's	22.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Shoulder Potentiometer	Servo 08TC1-3745	DS-1845GFE	12/2/2020	6/2/2021
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P64148	11/5/2020	5/6/2021




Shoulder Displacement
Displacement (mm)
Time (ms)
Max: 29.0 mm
Min: -0.0 mm
Filter: CFC 600
40
30
20
10
0
-10
0
10
20
30
40
50
60


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 22.0 g's
Min: -8.5 g's
Filter: CFC 180
25
20
15
10
5
0
-5
-10
0
10
20
30
40
50

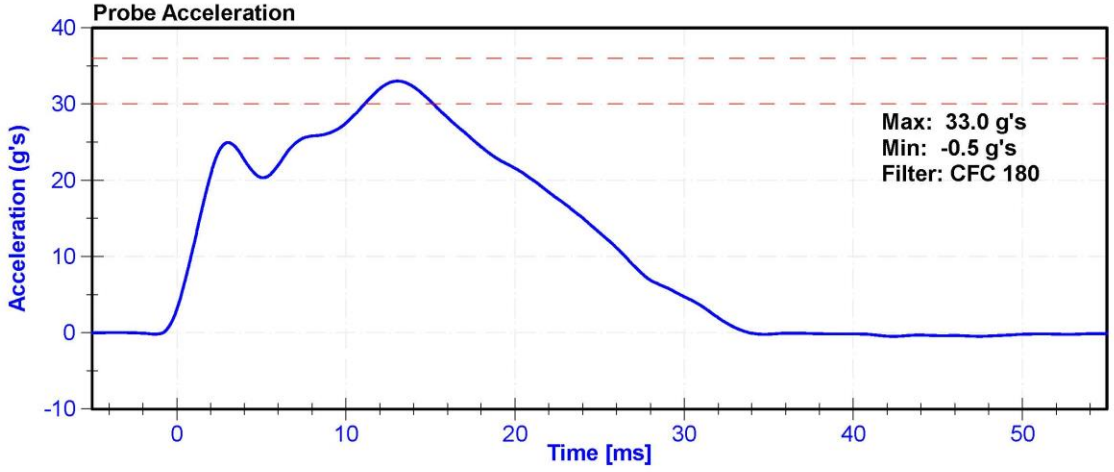
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

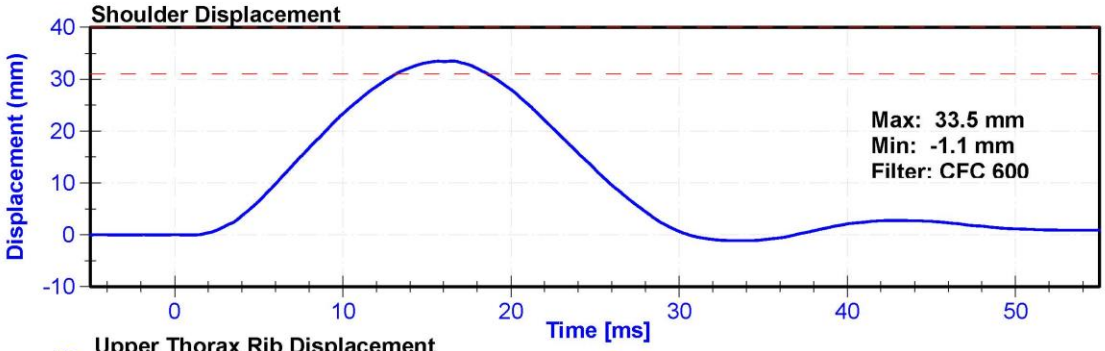
Results

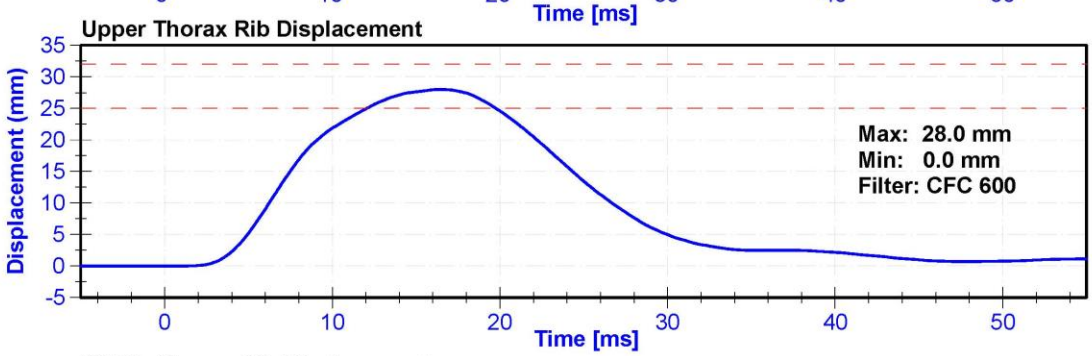
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.8	Pass
Humidity	10	70	%	29	Pass
Velocity	6.6	6.8	m/s	6.68	Pass
Probe Acceleration after 5 ms	30	36	g's	33.0	Pass
Lateral Upper Spine Acceleration	34	43	g's	35.8	Pass
Lateral Lower Spine Acceleration	29	37	g's	32.3	Pass
Shoulder Deflection	31	40	mm	33.5	Pass
Upper Thorax Rib Deflection	25	32	mm	28.0	Pass
Mid Thorax Rib Deflection	30	36	mm	32.4	Pass
Lower Thorax Rib Deflection	32	38	mm	34.4	Pass

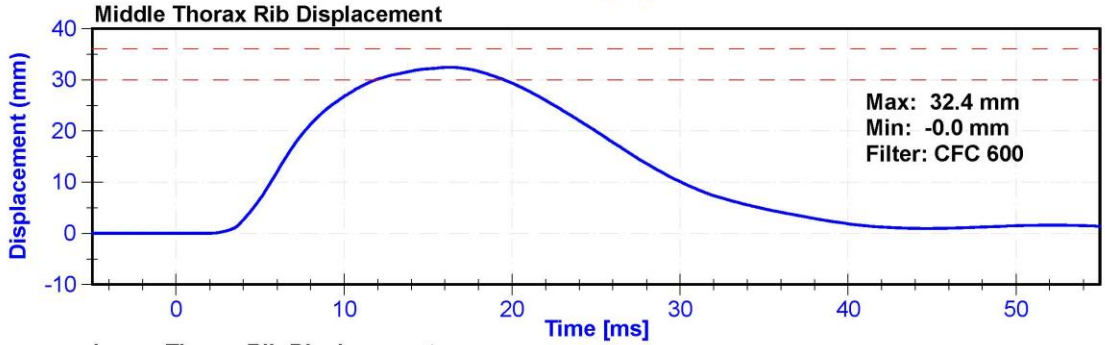
Transducer Calibrations

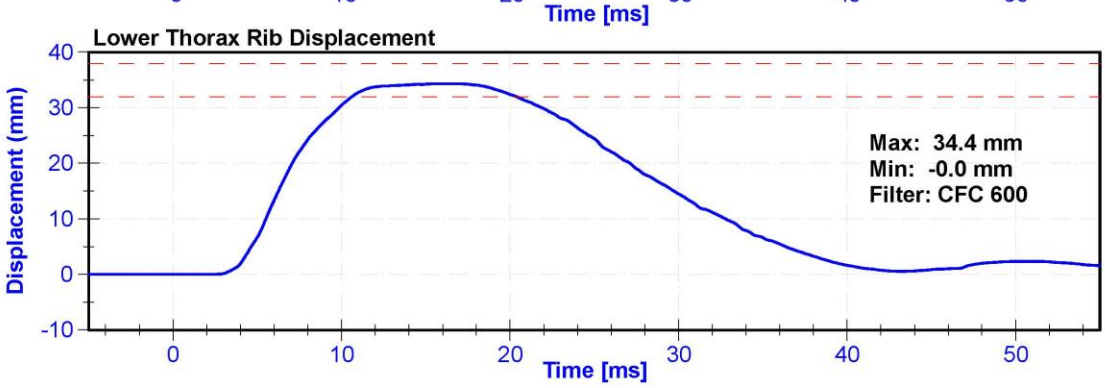
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Upper Spine T1 Y Accelerometer	ENDEVCO 7264CT	AC-P64148	11/5/2020	5/6/2021
Upper Spine T12 Y Accelerometer	ENDEVCO 7264C	AC-P51327	11/5/2020	5/6/2021
Shoulder Potentiometer	Servo 08TC1-3745	DS-1845GFE	12/2/2020	6/2/2021
Upper Thorax Rib Potentiometer	Servo 1246	DS-2165GFE	11/6/2020	5/7/2021
Middle Thorax Rib Potentiometer	Servo 08TC1-3621	DS-45 GFE	11/6/2020	5/7/2021
Lower Thorax Rib Potentiometer	Servo 08TC1-3787	DS-011GFE	11/6/2020	5/7/2021

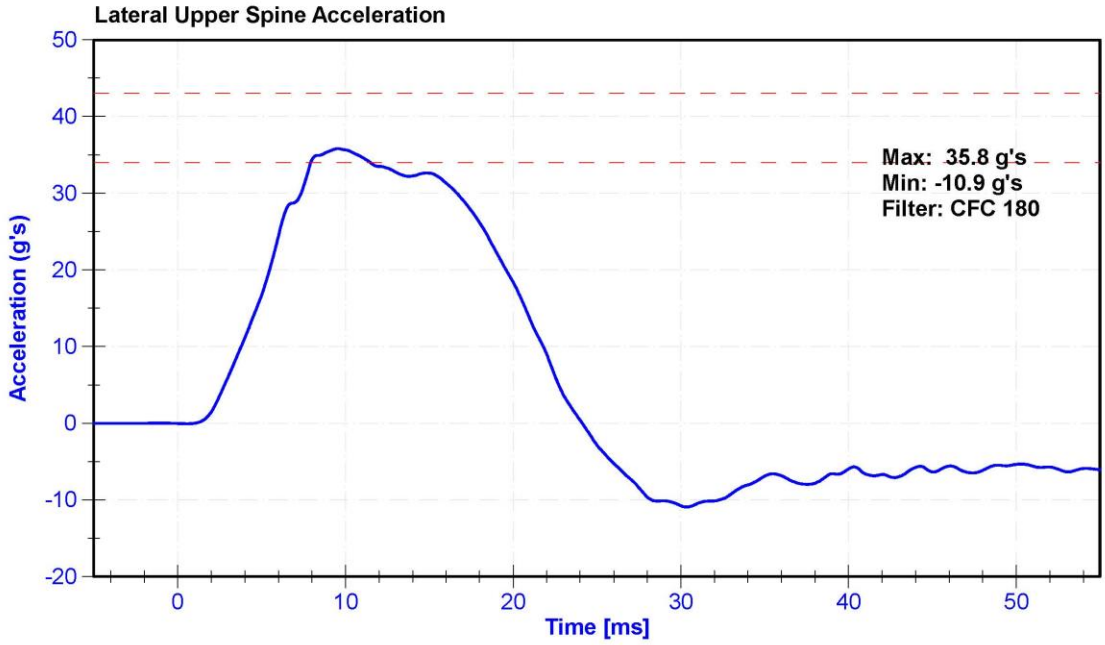


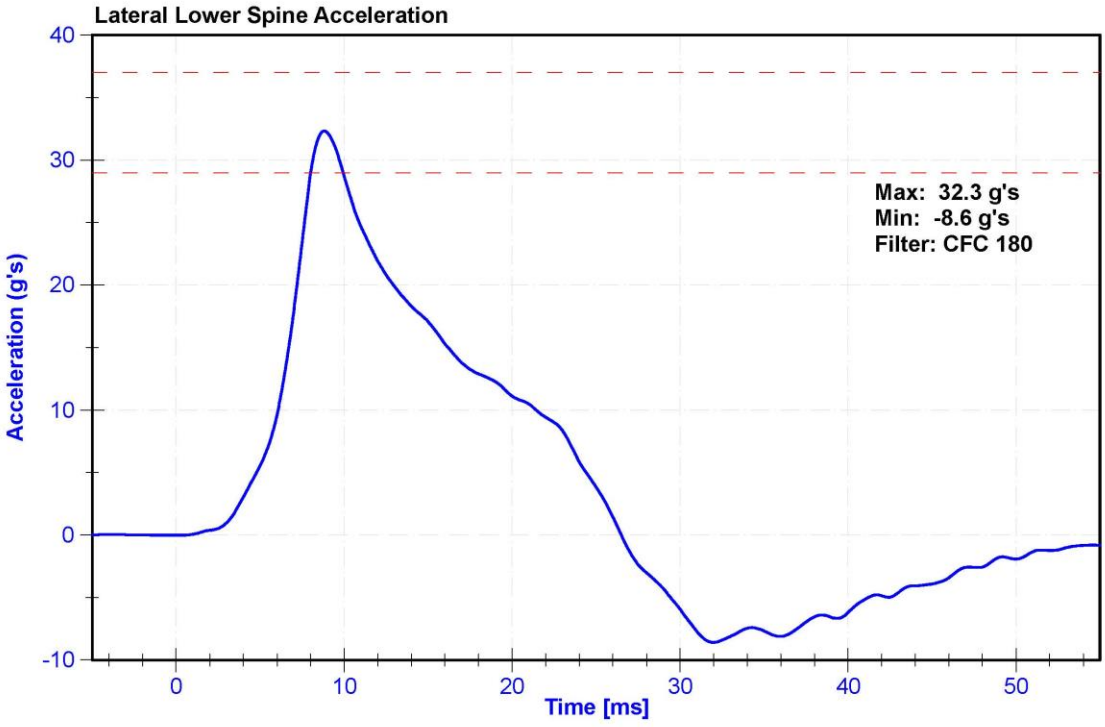

Shoulder Displacement
Displacement (mm)
Time [ms]
Max: 33.5 mm
Min: -1.1 mm
Filter: CFC 600


Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 28.0 mm
Min: 0.0 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 32.4 mm
Min: -0.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 34.4 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Max: 35.8 g's
Min: -10.9 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]


Lateral Lower Spine Acceleration
Max: 32.3 g's
Min: -8.6 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]

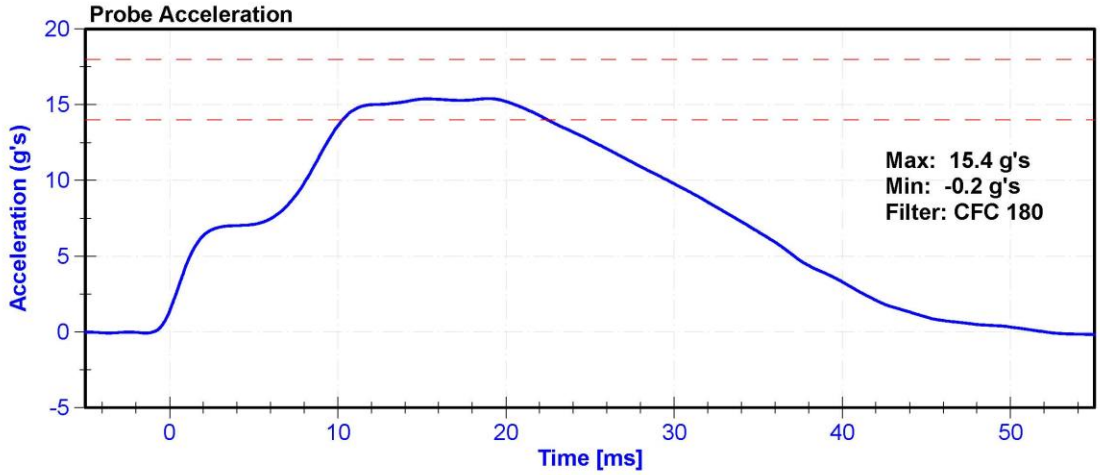
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

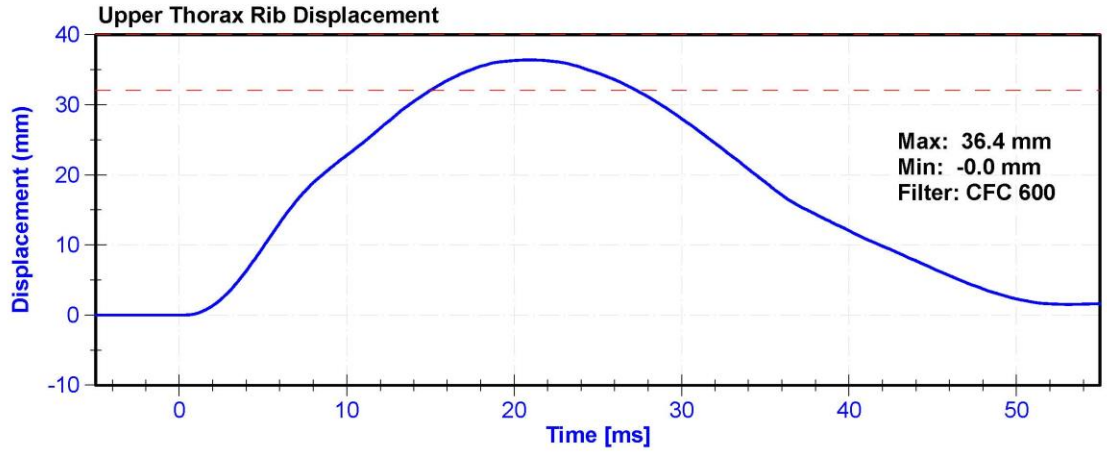
Results

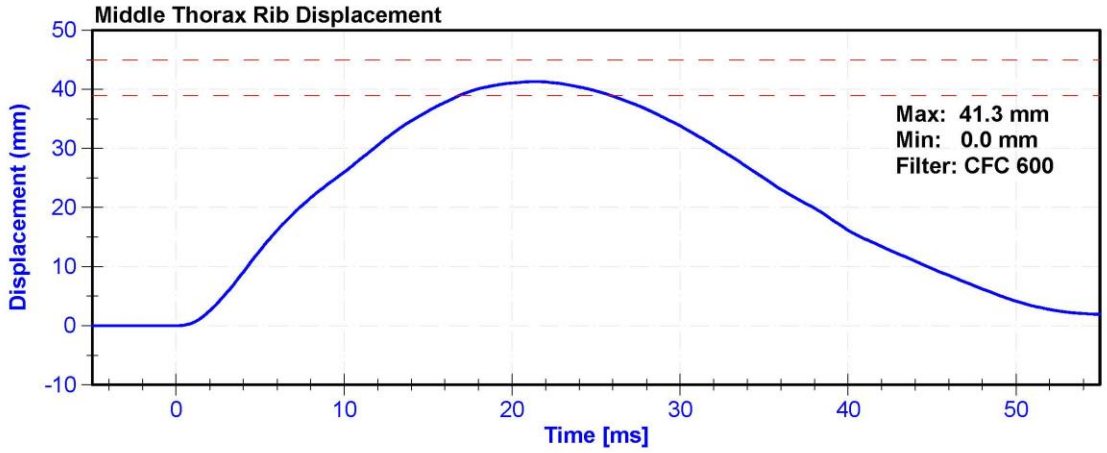
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	29	Pass
Velocity	4.2	4.4	m/s	4.26	Pass
Probe Acceleration	14	18	g's	15.4	Pass
Lateral Upper Spine Acceleration	13	17	g's	14.5	Pass
Lateral Lower Spine Acceleration	7	11	g's	8.5	Pass
Upper Thorax Rib Deflection	32	40	mm	36.4	Pass
Middle Thorax Rib Deflection	39	45	mm	41.3	Pass
Lower Thorax Rib Deflection	35	43	mm	38.6	Pass

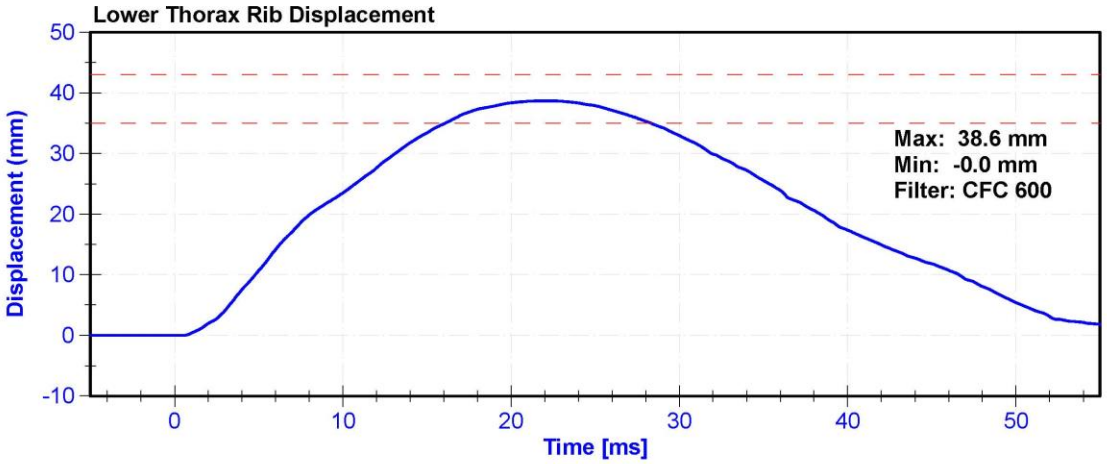
Transducer Calibrations

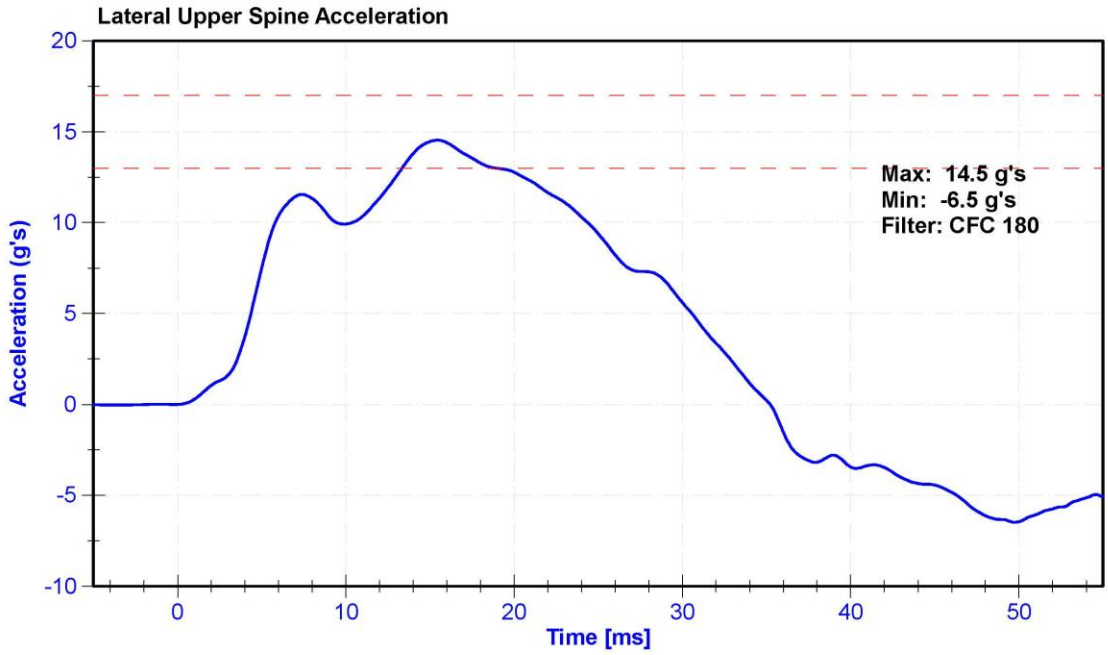
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P64148	11/5/2020	5/6/2021
Lower Spine Y Accelerometer	ENDEVCO 7264C	AC-P51327	11/5/2020	5/6/2021
Upper Thorax Rib Potentiometer	Servo 1246	DS-2165GFE	11/6/2020	5/7/2021
Middle Thorax Rib Potentiometer	Servo 08TC1-3621	DS-45 GFE	11/6/2020	5/7/2021
Lower Thorax Rib Potentiometer	Servo 08TC1-3787	DS-011GFE	11/6/2020	5/7/2021

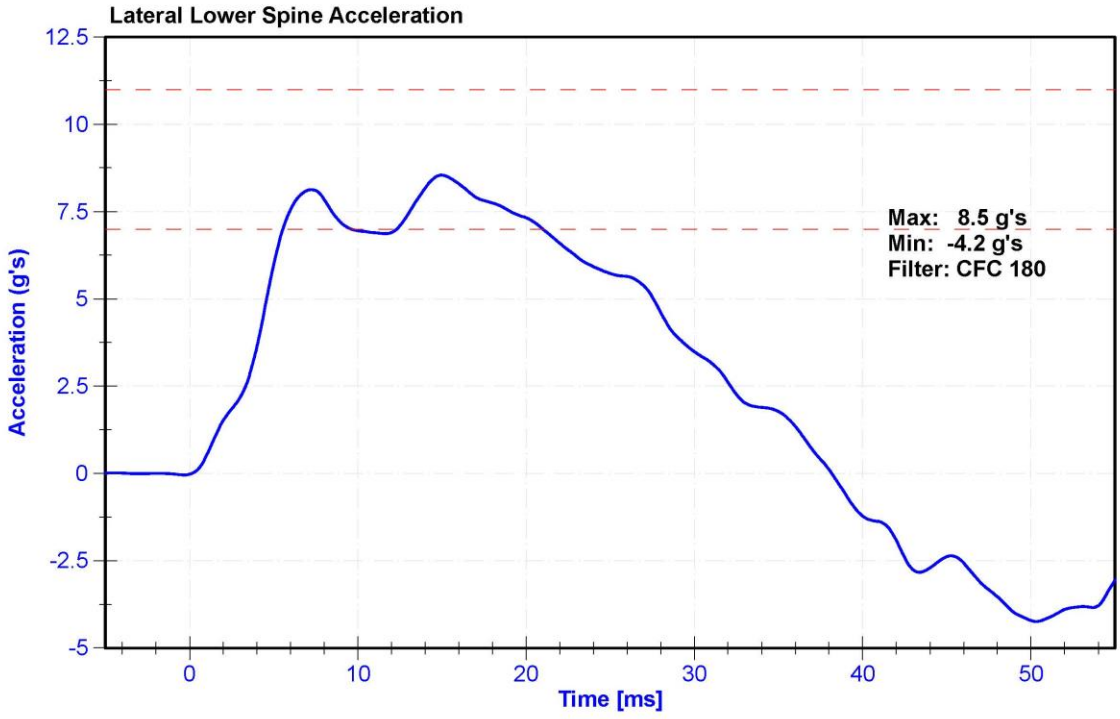



Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 36.4 mm
Min: -0.0 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 41.3 mm
Min: 0.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 38.6 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Max: 14.5 g's
Min: -6.5 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]
20
15
10
5
0
-5
-10
0
10
20
30
40
50


Lateral Lower Spine Acceleration
Max: 8.5 g's
Min: -4.2 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]
12.5
10
7.5
5
2.5
0
-2.5
-5
0
10
20
30
40
50

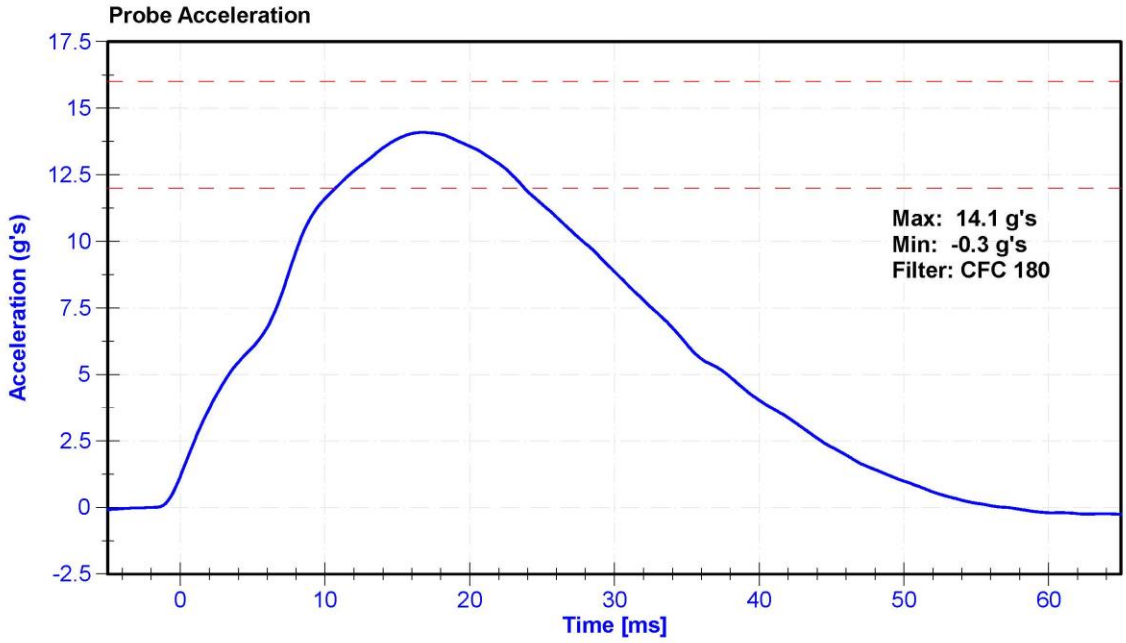
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

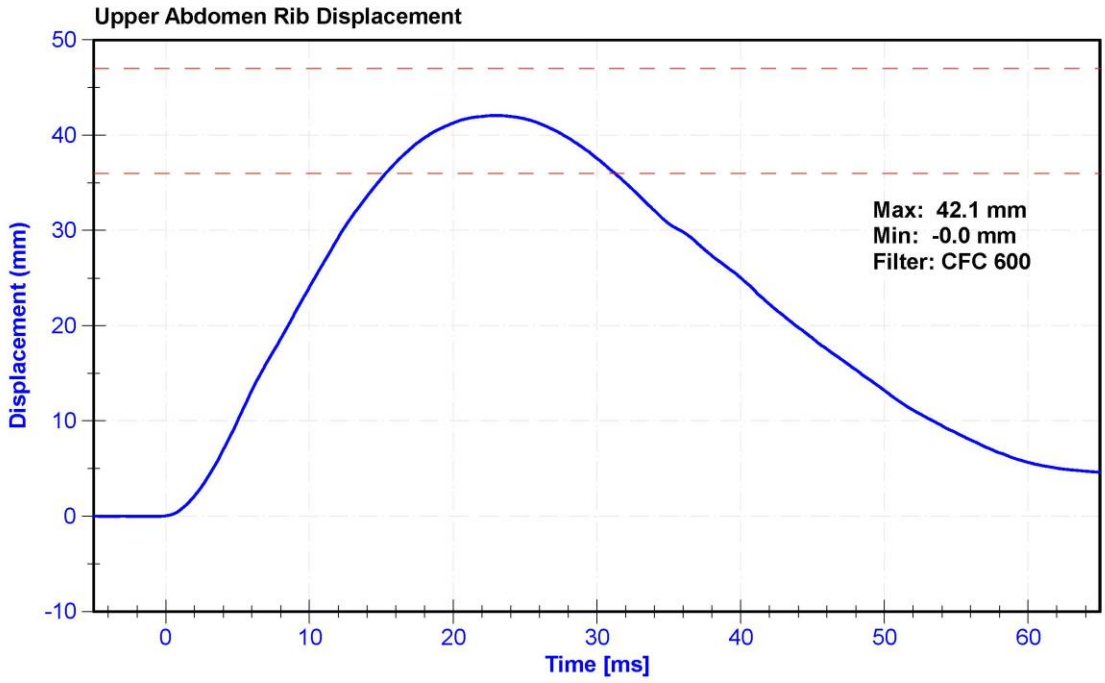
Results

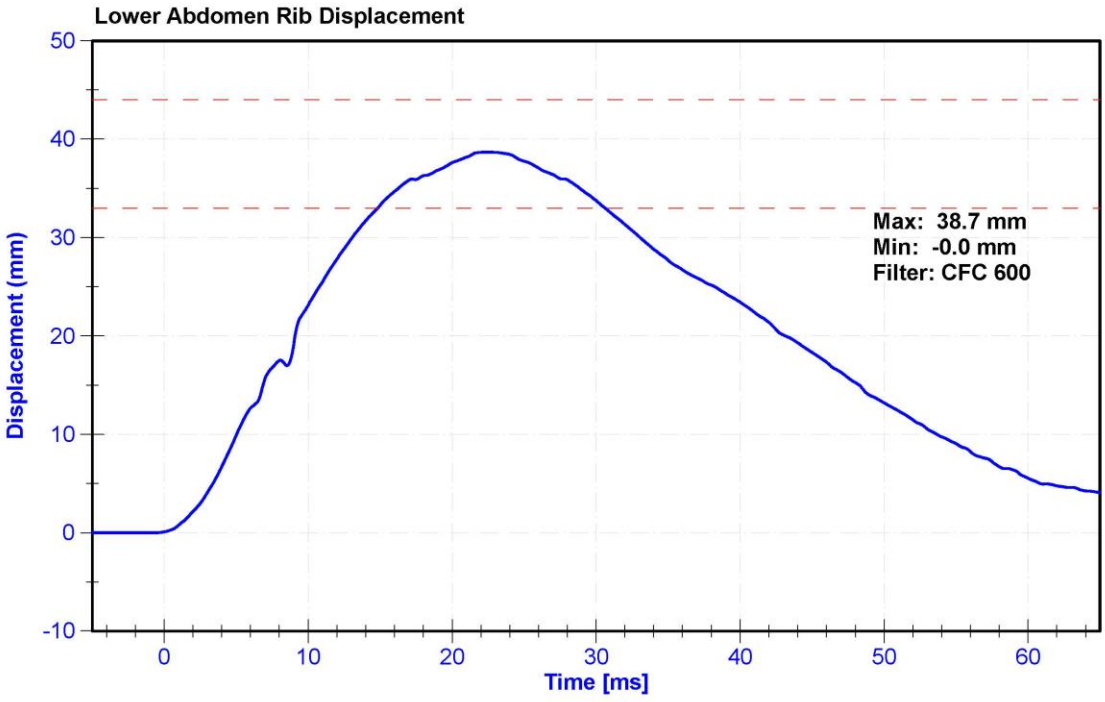
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	29	Pass
Velocity	4.2	4.4	m/s	4.26	Pass
Probe Acceleration	12	16	g's	14.1	Pass
Lateral Lower Spine Acceleration	9	14	g's	10.5	Pass
Upper Abdomen Rib Deflection	36	47	mm	42.1	Pass
Lower Abdomen Rib Deflection	33	44	mm	38.7	Pass

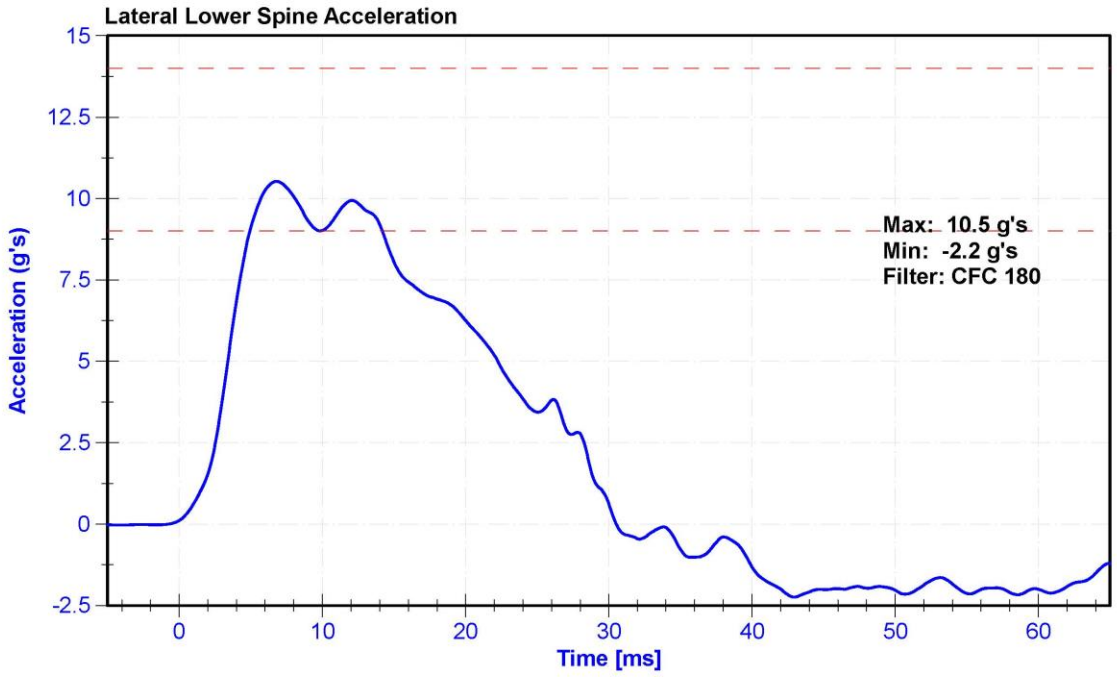
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Lower Spine Y Accelerometer	ENDEVCO 7264C	AC-P51327	11/5/2020	5/6/2021
Upper Abdomen Rib Potentiometer	Servo 08TC1-3725	DS-008GFE	11/6/2020	5/7/2021
Lower Abdomen Rib Potentiometer	Servo 08TC1-3745	DS-1774GFE	11/6/2020	5/7/2021




Upper Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 42.1 mm
Min: -0.0 mm
Filter: CFC 600


Lower Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 38.7 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Lower Spine Acceleration
Acceleration (g's)
15
12.5
10
7.5
5
2.5
0
-2.5
0
10
20
30
40
50
60
Time [ms]
Max: 10.5 g's
Min: -2.2 g's
Filter: CFC 180

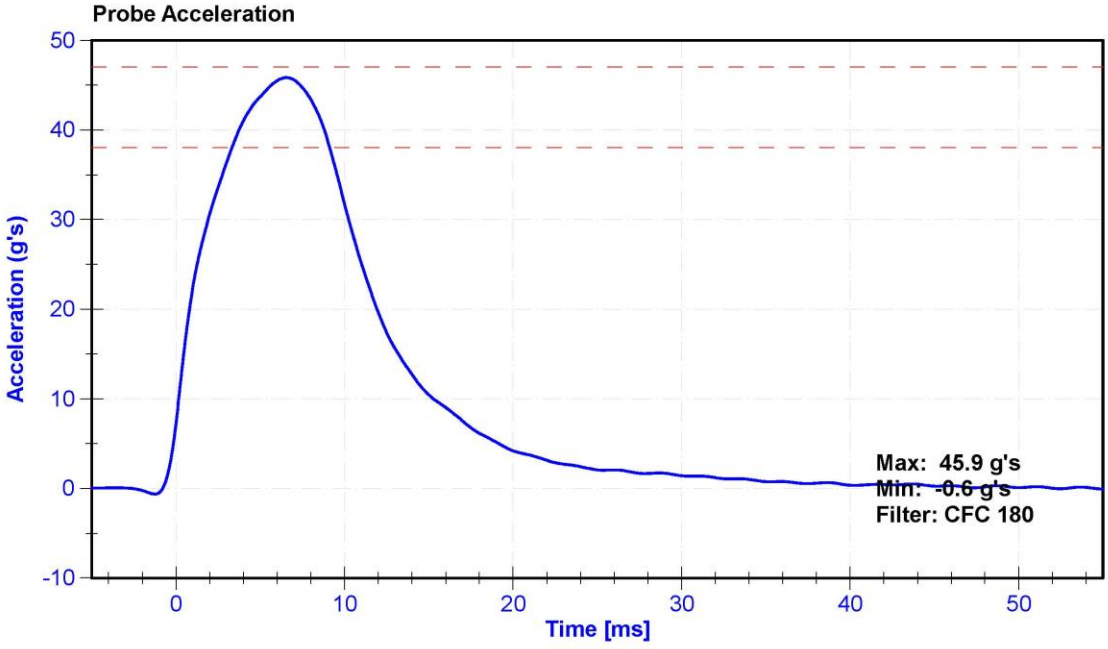
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

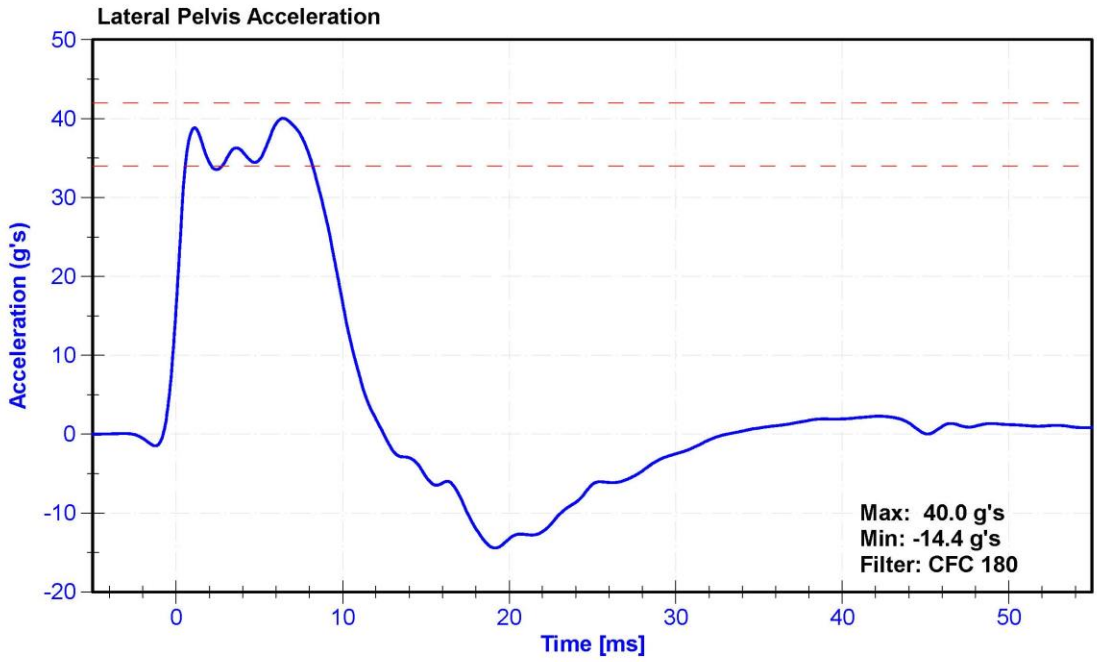
Results

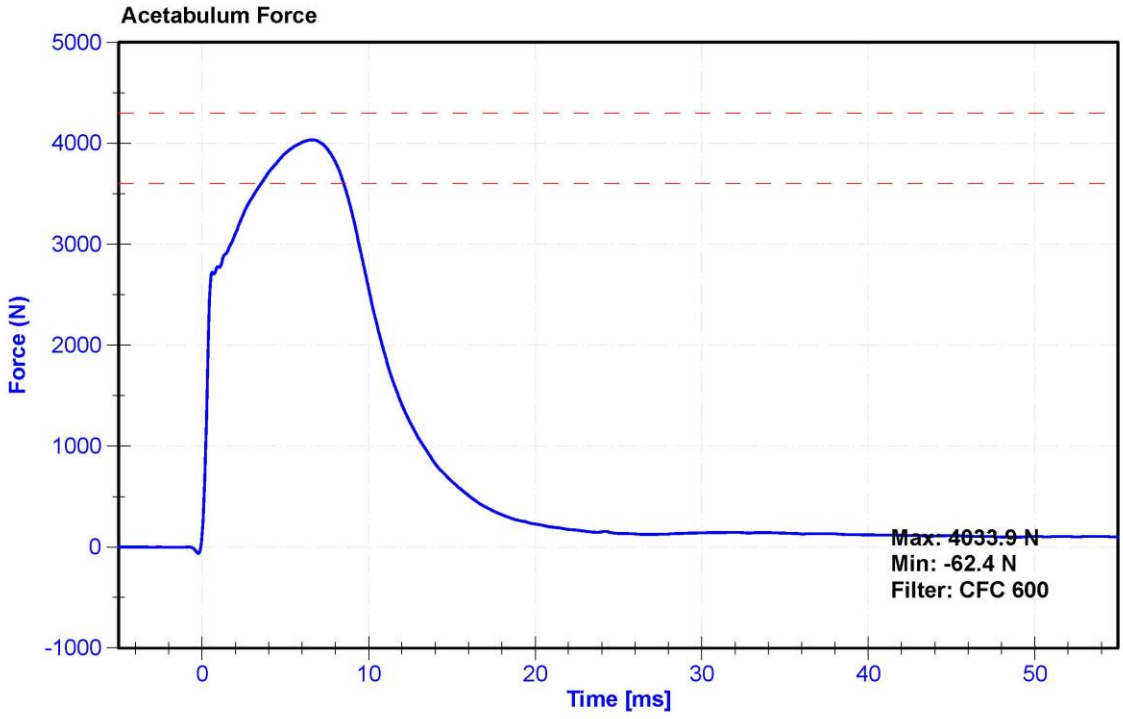
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.7	Pass
Humidity	10	70	%	29	Pass
Velocity	6.6	6.8	m/s	6.66	Pass
Probe Acceleration	38	47	g's	45.9	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	40.0	Pass
Acetabulum Force	3600	4300	N	4033.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Pelvis Y Accelerometer	ENDEVCO 7264C	AC-P51875	11/5/2020	5/6/2021
Acetabulum Load Cell	Denton 3249J	LC-267Fy	3/19/2020	3/19/2021
Certification Plug	SACO	13342	9/19/2019	N/A
Crash Test Plug	SACO	13279	8/12/2019	N/A




Lateral Pelvis Acceleration
Acceleration (g's)
50
40
30
20
10
0
-10
-20
0
10
20
30
40
50
Time [ms]
Max: 40.0 g's
Min: -14.4 g's
Filter: CFC 180


Acetabulum Force
Force (N)
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50
Time [ms]
Max: 4033.9 N
Min: -62.4 N
Filter: CFC 600

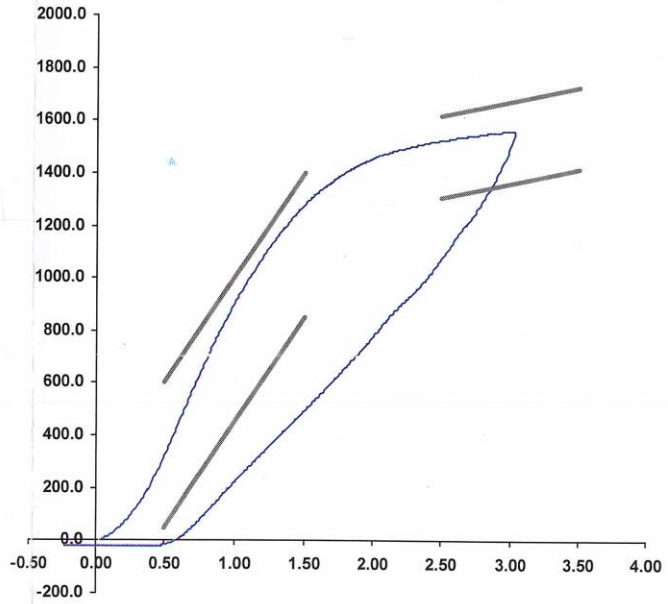
8012
Crash
1/14/21

SID-IIs Pelvis Plug Certification Test

Plug S/N 13279
Test Number 10702
Report Number 10739
Test Date 8/12/2019 10:38:13 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	339.39	50.00	600.00
Force @ 1.5 mm (N)	1,279.43	850.00	1,400.00
Force @ 2.5 mm (N)	1,526.88	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,561.22	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 12-Aug-19
SACO Research

By : DL Date : 8/12/2019

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

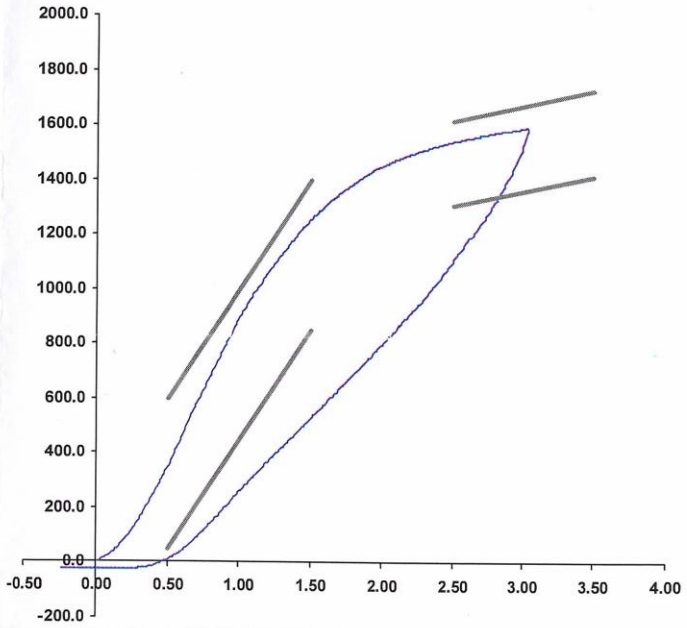
8012
Non-Impact Crash
1/14/2021 SV

SID-IIs Pelvis Plug Certification Test

Plug S/N 12958
Test Number 8292
Report Number 8322
Test Date 1/22/2019 12:34:36 PM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	346.58	50.00	600.00
Force @ 1.5 mm (N)	1,256.02	850.00	1,400.00
Force @ 2.5 mm (N)	1,539.45	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,590.83	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 22-Jan-19
SACO Research

By : DC Date : 1/22/2019

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

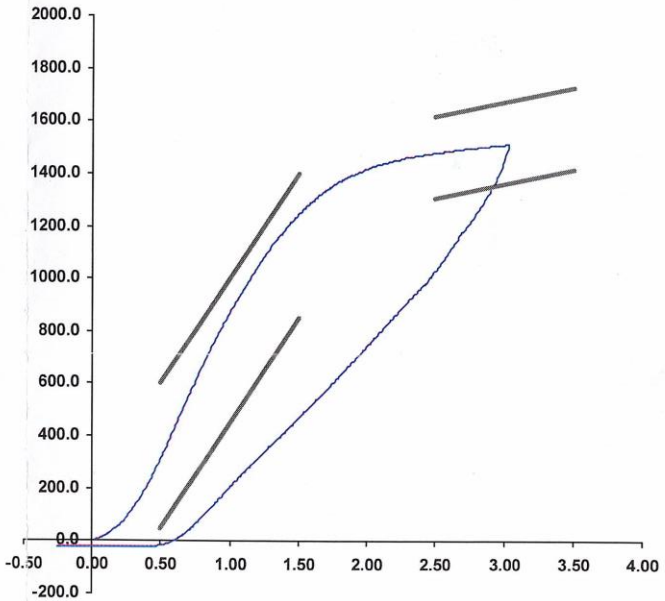
8012
Cert 1
1/14/21

SID-IIs Pelvis Plug Certification Test

Plug S/N 13342
Test Number 10984
Report Number 11022
Test Date 9/19/2019 10:14:05 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	319.17	50.00	600.00
Force @ 1.5 mm (N)	1,247.77	850.00	1,400.00
Force @ 2.5 mm (N)	1,479.22	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,512.41	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 19-Sep-19
SACO Research

By : DC Date 9/19/2019

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

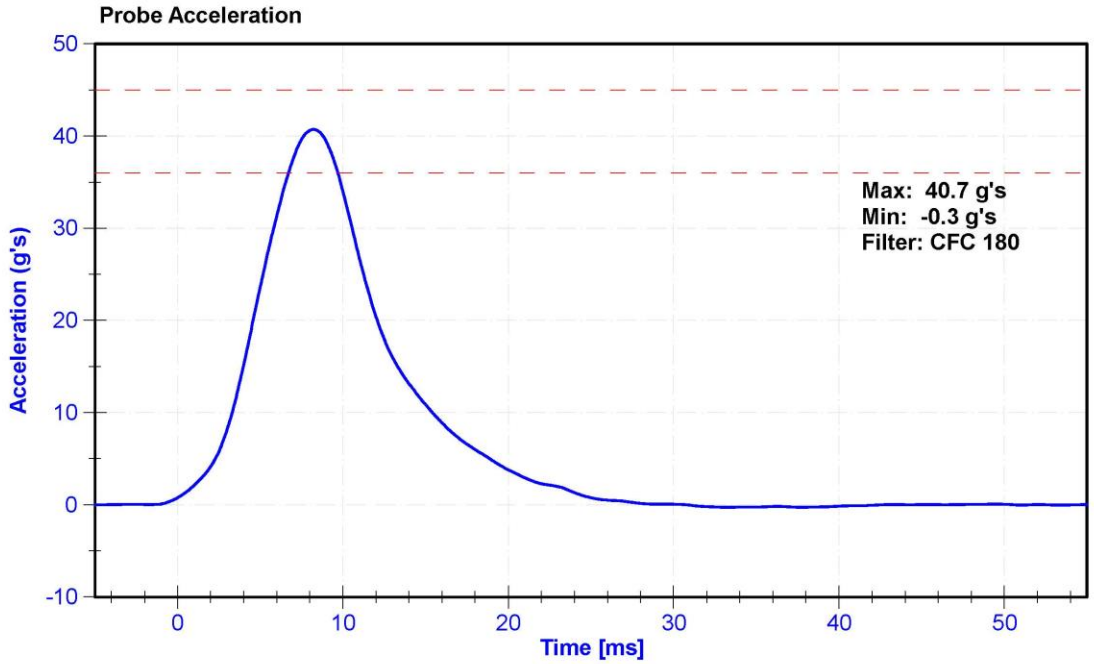
ATD Manufacturer	FTSS	Test Technician	D.Reinhard
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

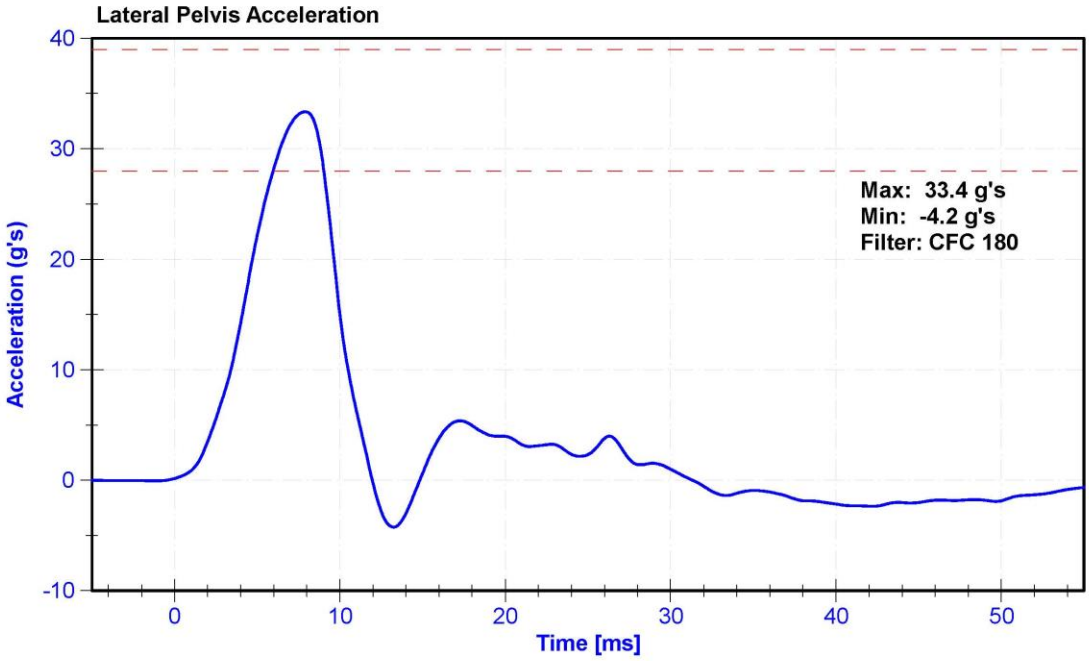
Results

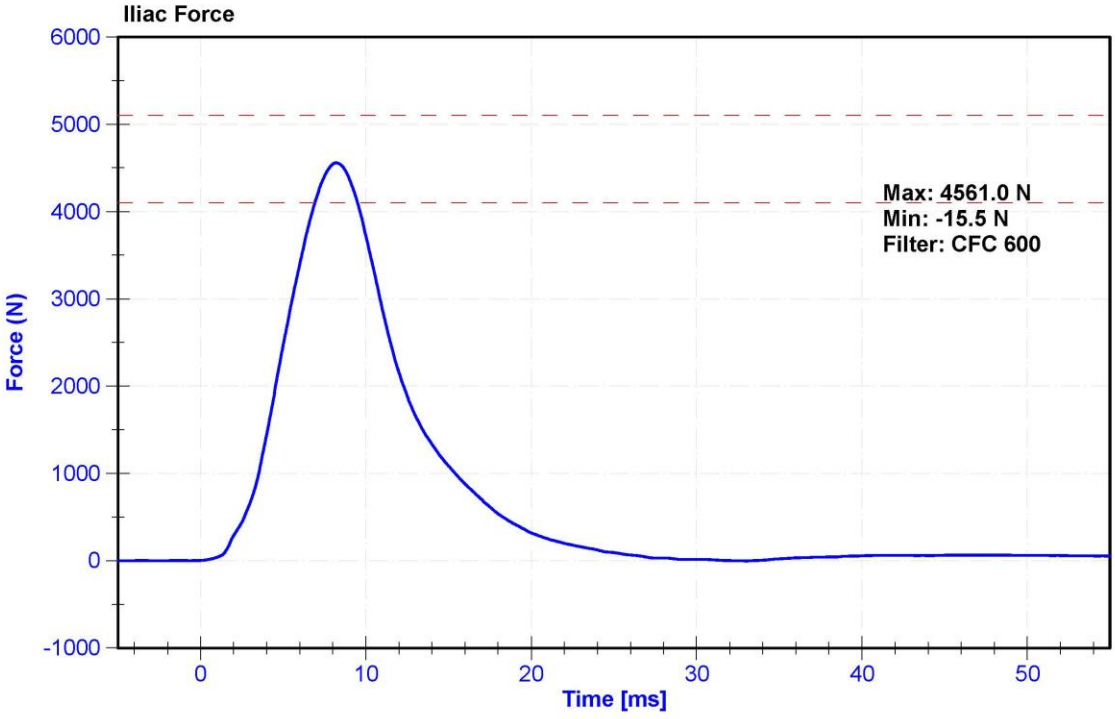
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.8	Pass
Humidity	10	70	%	29.0	Pass
Velocity	4.2	4.4	m/s	4.37	Pass
Probe Acceleration	36	45	g's	40.7	Pass
Lateral Pelvis Acceleration	28	39	g's	33.4	Pass
Iliac Force	4100	5100	N	4561.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A286228	1/29/2020	1/28/2021
Pelvis Y Accelerometer	ENDEVCO 7264C	AC-P51875	11/5/2020	5/6/2021
Iliac Load Cell	DENTON 3228J	LC-290Fy	11/16/2020	11/16/2021




Lateral Pelvis Acceleration
Acceleration (g's)
Time [ms]
Max: 33.4 g's
Min: -4.2 g's
Filter: CFC 180


Iliac Force
Force (N)
Time [ms]
Max: 4561.0 N
Min: -15.5 N
Filter: CFC 600

CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

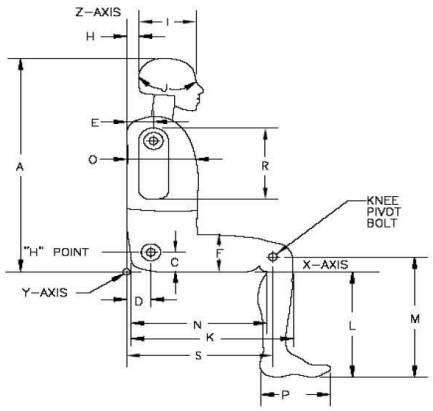
SERIAL NO: DG8012

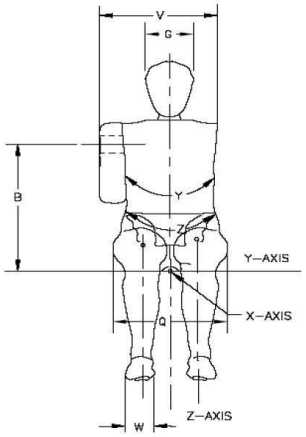
(CONFIGURED FOR LEFT SIDE IMPACT)

External Measurements - SID-IIs

Technician: J.Pericak Date: 2/5/2021

Dummy Serial Number: DG8012





Symbol	Description	Specification (mm)		Result (mm)	Pass/Fail
A	Sitting Height	772	788	780	Pass
B	Shoulder Pivot Height	437	453	446	Pass
C	H-point Height	79	89	84	Pass
D	H-point from seatback	141	151	144	Pass
E	Shoulder Pivot from Backline	97	107	103	Pass
F	Thigh Clearance	119	135	130	Pass
G	Head Breadth	140	148	144	Pass
H	Head Back from Backline	40	46	44	Pass
I	Head Depth	178	188	184	Pass
J	Head Circumference	541	551	548	Pass
K	Buttock to Knee Length	514	540	536	Pass
L	Popliteal Height	343	369	357	Pass
M	Knee Pivot to floor height	392	409	400	Pass
N	Buttock Popliteal Length	416	442	435	Pass
O	Chest Depth w/o jacket	195	211	207	Pass
P	Foot Length	216	232	225	Pass
Q	Hip Breadth (w/pelvic plugs)	313	323	320	Pass
R	Arm Length	249	259	255	Pass
S	Knee Joint to seatback	477	493	485	Pass
V	Shoulder Width	341	357	348	Pass
W	Foot Width	78	94	85	Pass
Y	Chest Circumference w/jacket	851	881	870	Pass
Z	Waist Circumference	761	791	784	Pass

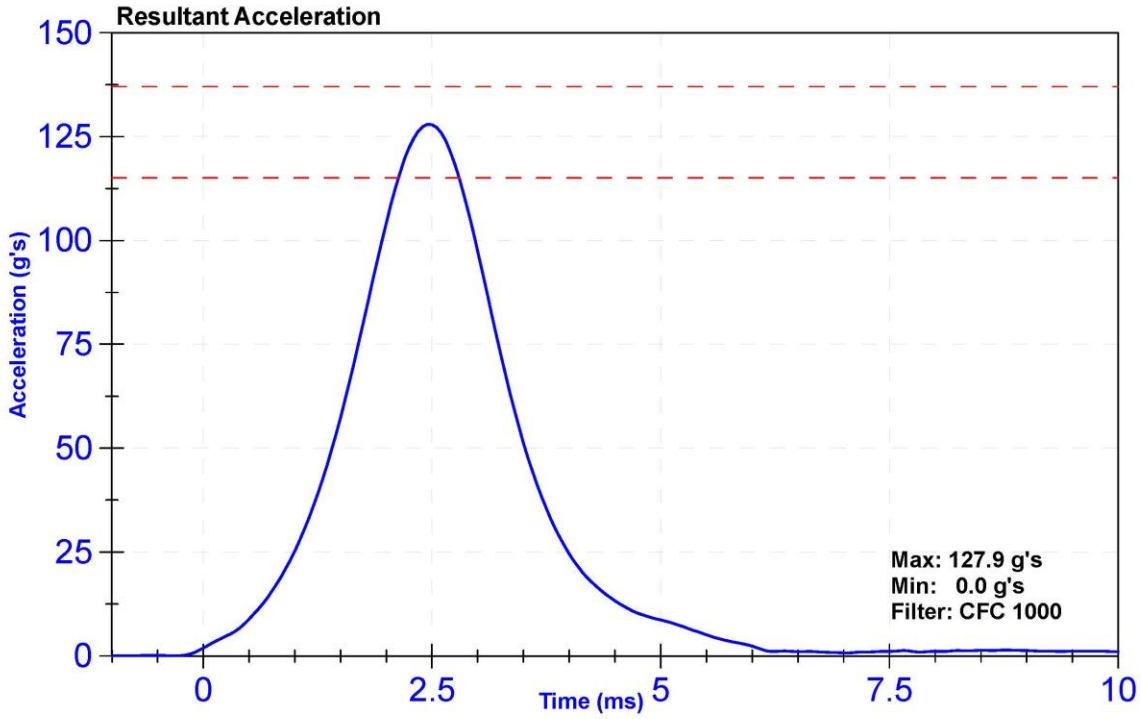
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

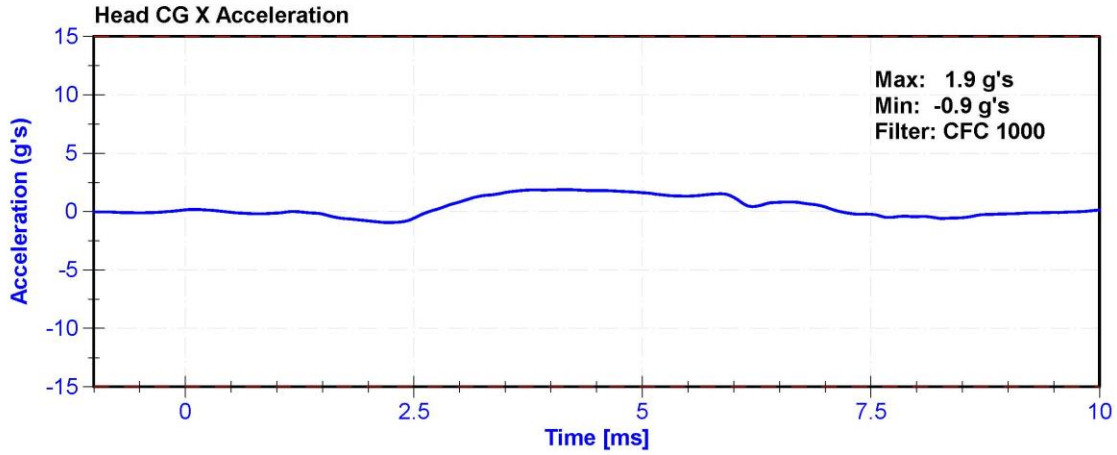
Results

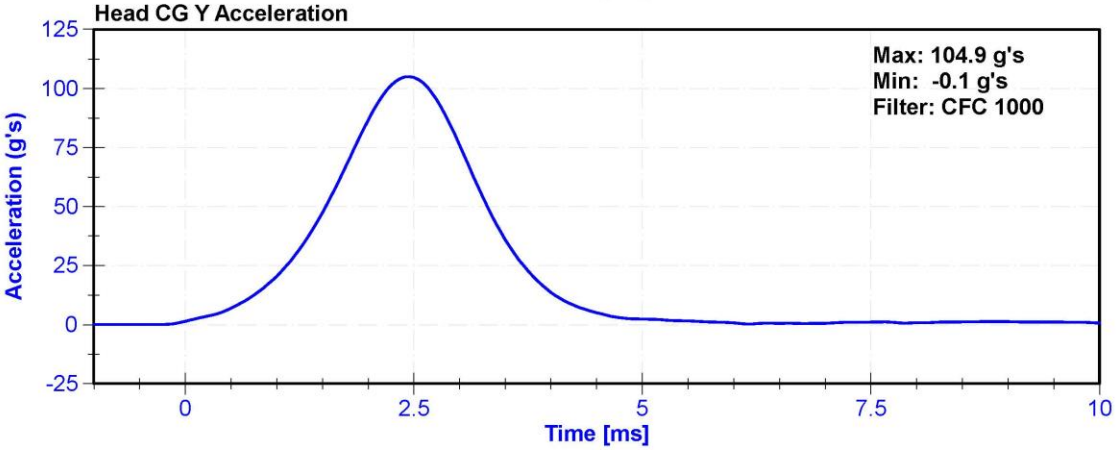
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	19.8	Pass
Resultant Acceleration	115	137	g's	127.9	Pass
Oscillation	0	15	%	1.1	Pass
Fore-Aft Acceleration	-15	15	g's	1.9	Pass

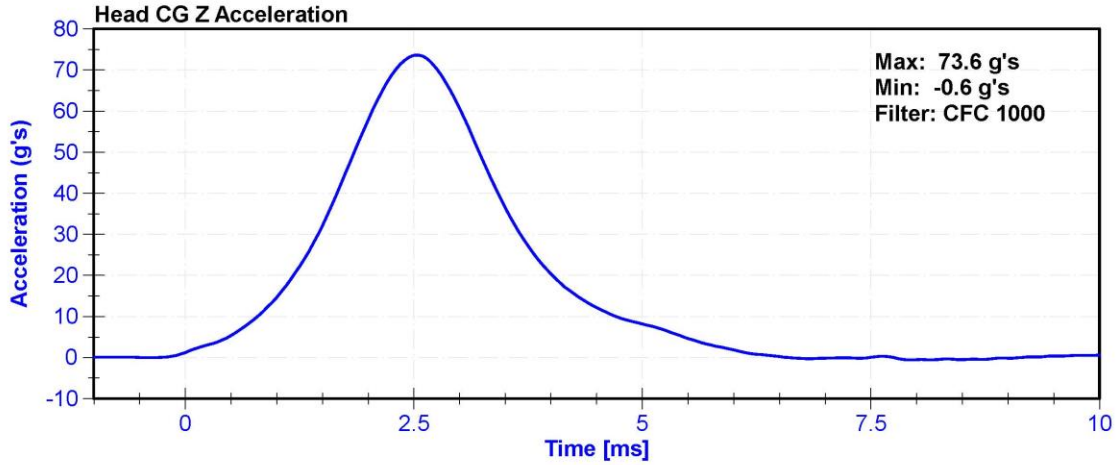
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
X Accelerometer	ENDEVCO 7264	AC-P74788	11/5/2020	5/6/2021
Y Accelerometer	ENDEVCO 7264	AC-P83432	11/5/2020	5/6/2021
Z Accelerometer	ENDEVCO 7264	AC-P83319	11/5/2020	5/6/2021




Head CG X Acceleration
Max: 1.9 g's
Min: -0.9 g's
Filter: CFC 1000
Acceleration (g's)
15
10
5
0
-5
-10
-15
0
2.5
5
7.5
10
Time [ms]


Head CG Y Acceleration
Max: 104.9 g's
Min: -0.1 g's
Filter: CFC 1000
Acceleration (g's)
125
100
75
50
25
0
-25
0
2.5
5
7.5
10
Time [ms]


Head CG Z Acceleration
Max: 73.6 g's
Min: -0.6 g's
Filter: CFC 1000
Acceleration (g's)
80
70
60
50
40
30
20
10
0
-10
0
2.5
5
7.5
10
Time [ms]

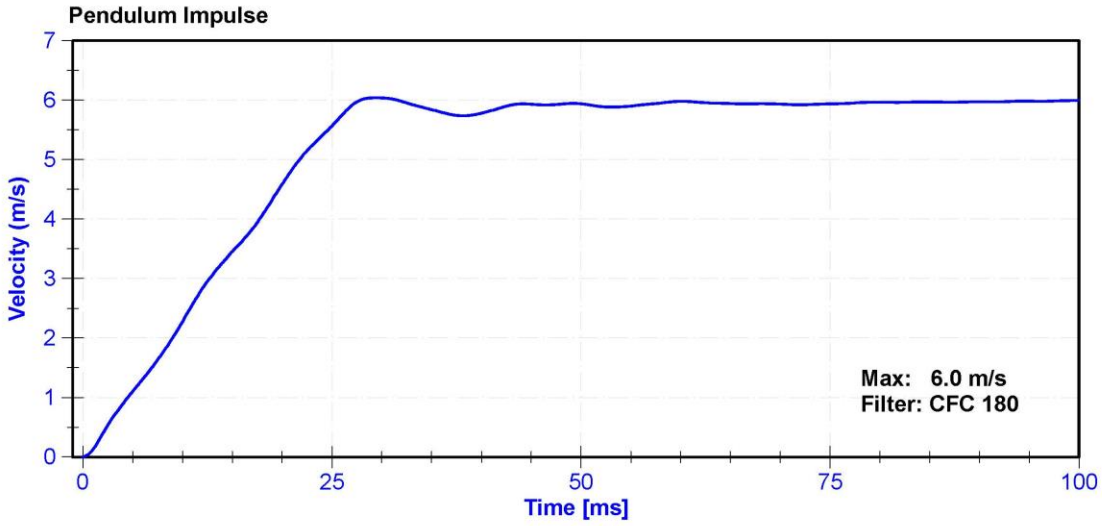
ATD Manufacturer	FTSS	Test Technician	E. Helenbrook
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

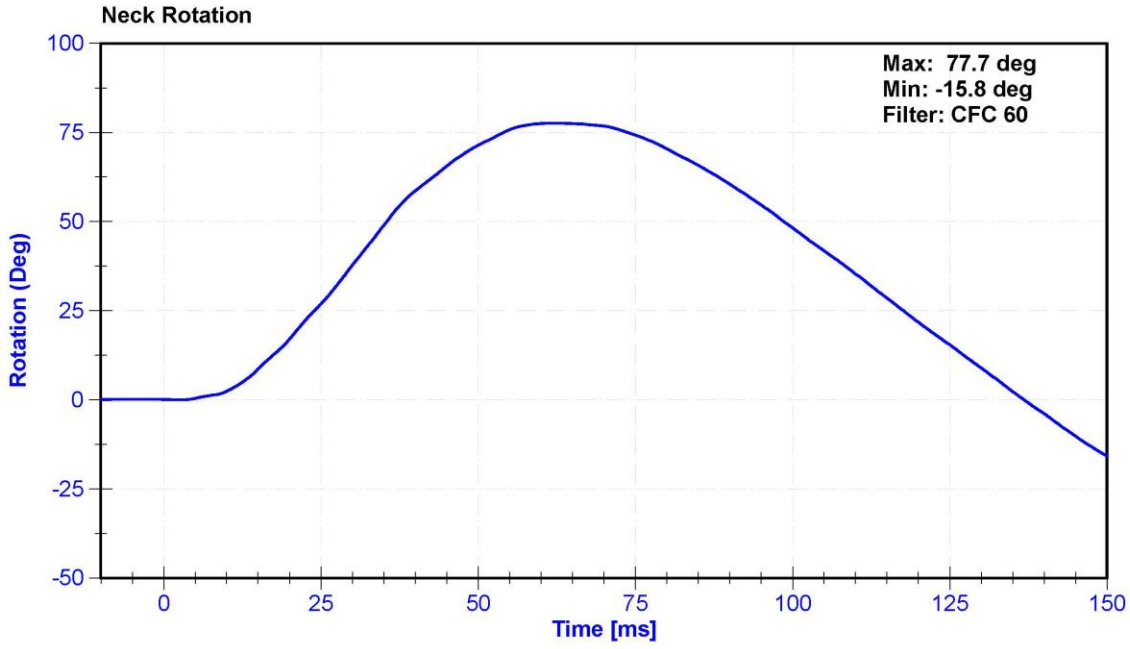
Results

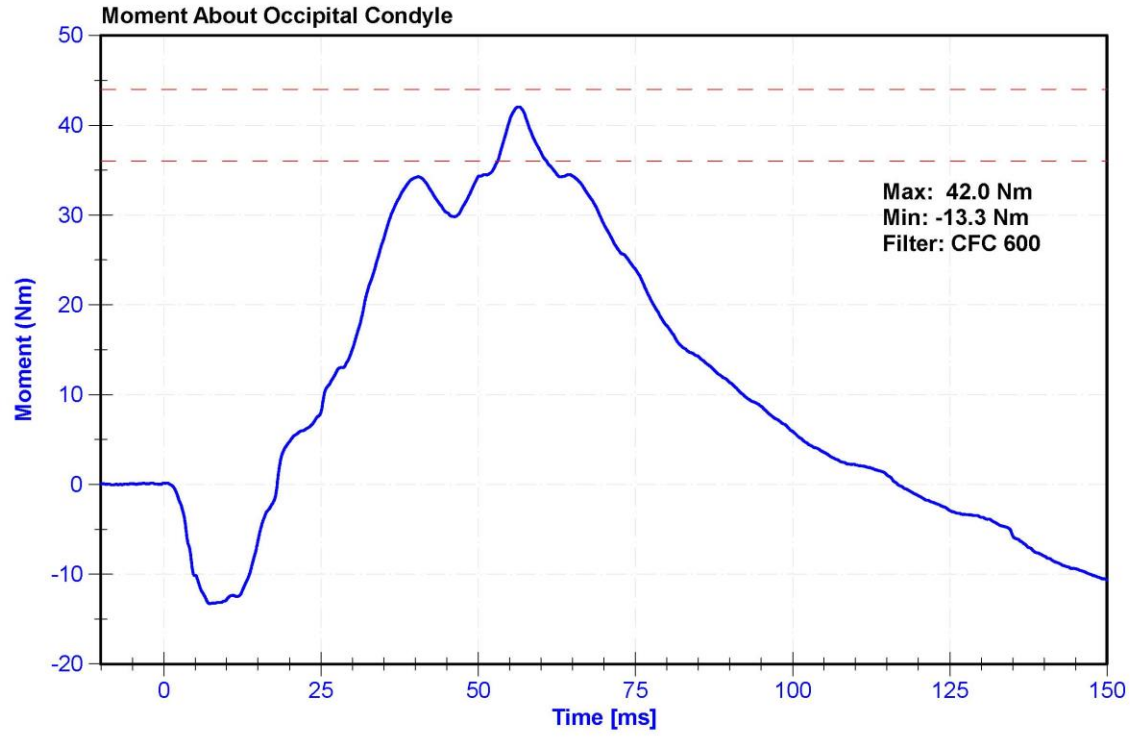
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	21.5	Pass
Humidity	10	70	%	22.5	Pass
Velocity	5.51	5.63	m/s	5.549	Pass
Pendulum Impulse at 10ms	2.2	2.8	m/s	2.27	Pass
Pendulum Impulse at 15ms	3.3	4.1	m/s	3.45	Pass
Pendulum Impulse at 20ms	4.4	5.4	m/s	4.58	Pass
Pendulum Impulse at 25ms	5.4	6.1	m/s	5.56	Pass
Pendulum Impulse from 25 to 100ms	5.5	6.2	m/s	6.04	Pass
Neck Rotation	71	81	deg	77.7	Pass
Time at Maximum Rotation	50	70	ms	61.9	Pass
Moment about the OC	36	44	Nm	42.0	Pass
Moment Decay to 0 Nm	102	126	ms	116.8	Pass

Transducer Calibrations

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




Neck Rotation
Max: 77.7 deg
Min: -15.8 deg
Filter: CFC 60
Rotation (Deg)
100
75
50
25
0
-25
-50
0
25
50
75
100
125
150
Time [ms]


Moment About Occipital Condyle
Max: 42.0 Nm
Min: -13.3 Nm
Filter: CFC 600
Moment (Nm)
50
40
30
20
10
0
-10
-20
0
25
50
75
100
125
150
Time [ms]

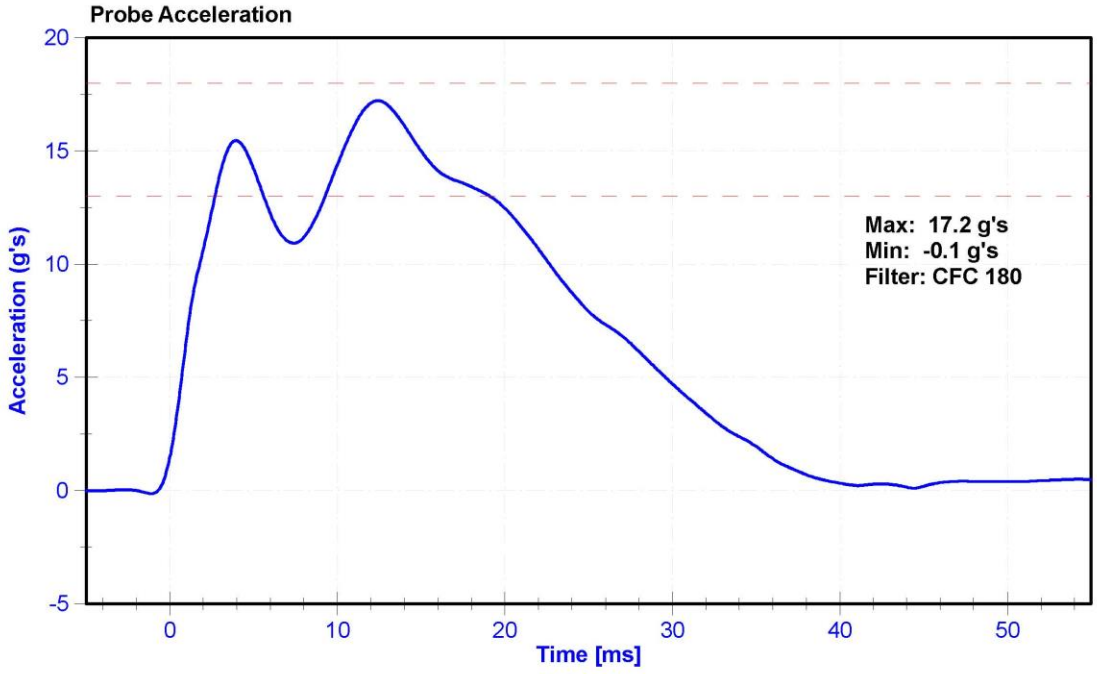
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

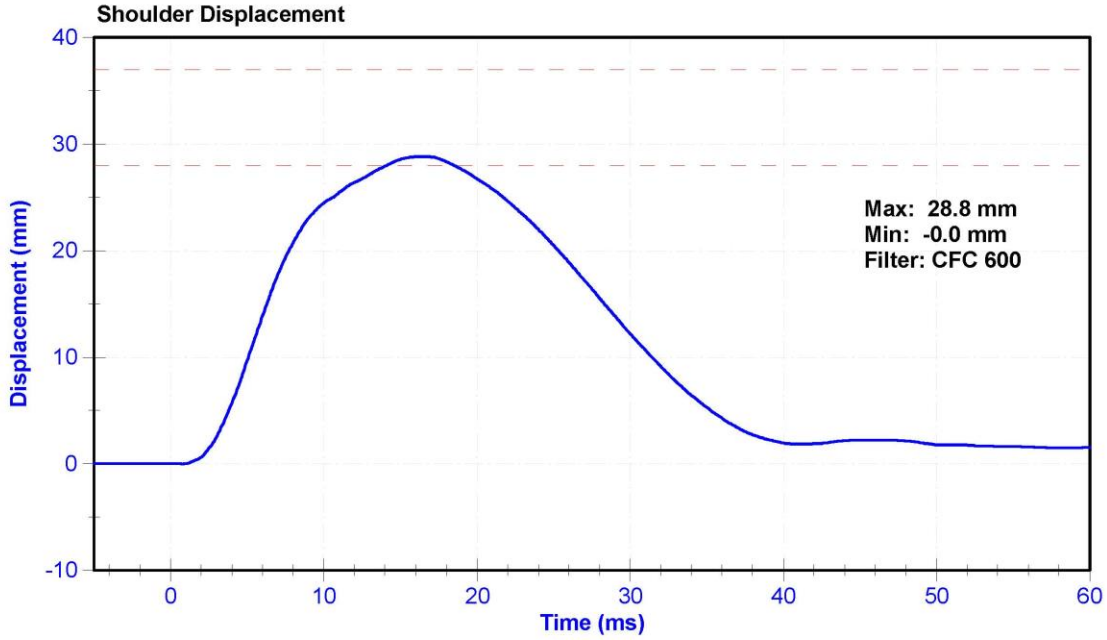
Results

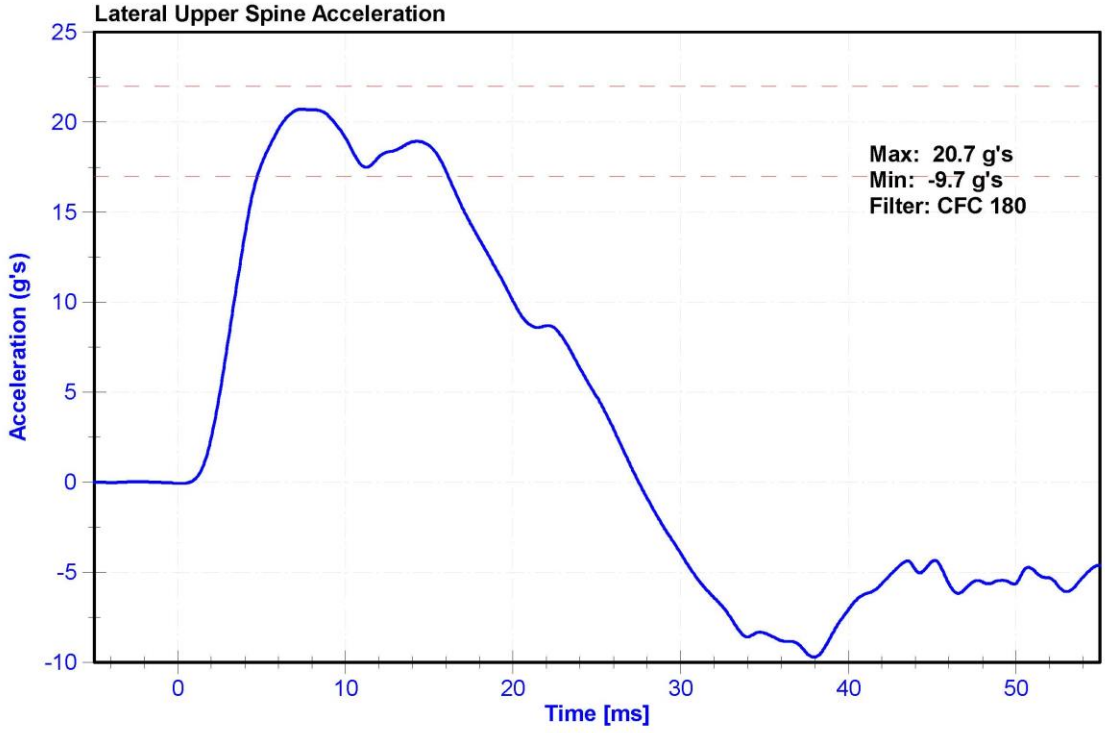
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	21.3	Pass
Humidity	10	70	%	34.2	Pass
Velocity	4.2	4.4	m/s	4.33	Pass
Probe Acceleration	13	18	g's	17.2	Pass
Shoulder Deflection	28	37	mm	28.8	Pass
Lateral Upper Spine Acceleration	17	22	g's	20.7	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A278994	12/3/2020	12/3/2021
Shoulder Potentiometer	Servo 08TC1-3745	DS-1845GFE	12/2/2020	6/2/2021
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P64148	11/5/2020	5/6/2021




Shoulder Displacement
Displacement (mm)
Time (ms)
Max: 28.8 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Acceleration (g's)
Time [ms]
Max: 20.7 g's
Min: -9.7 g's
Filter: CFC 180

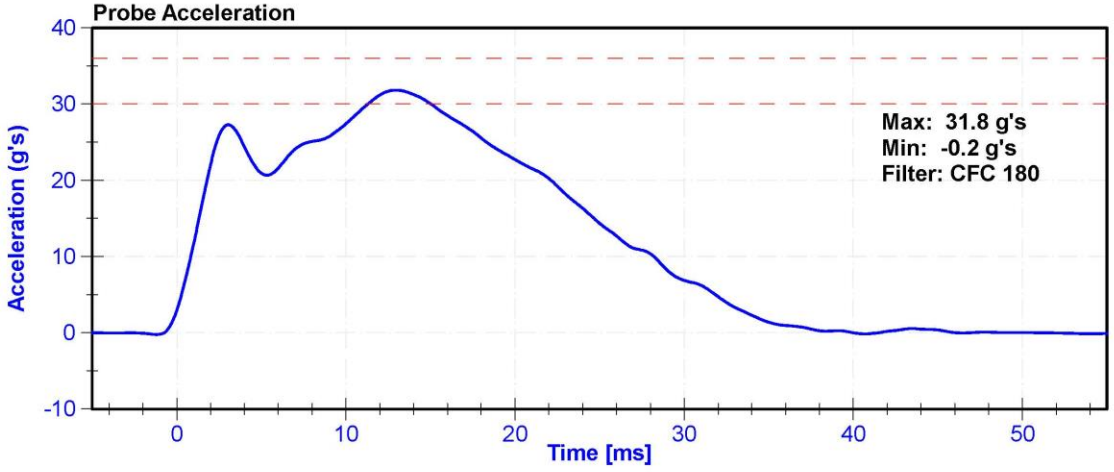
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

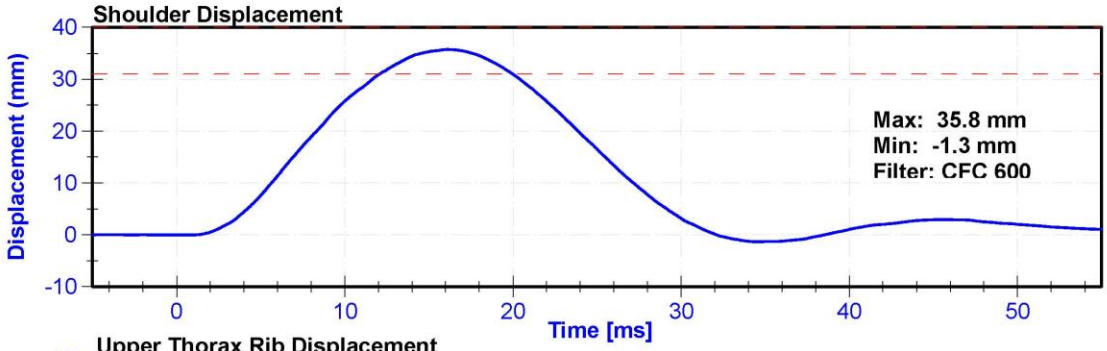
Results

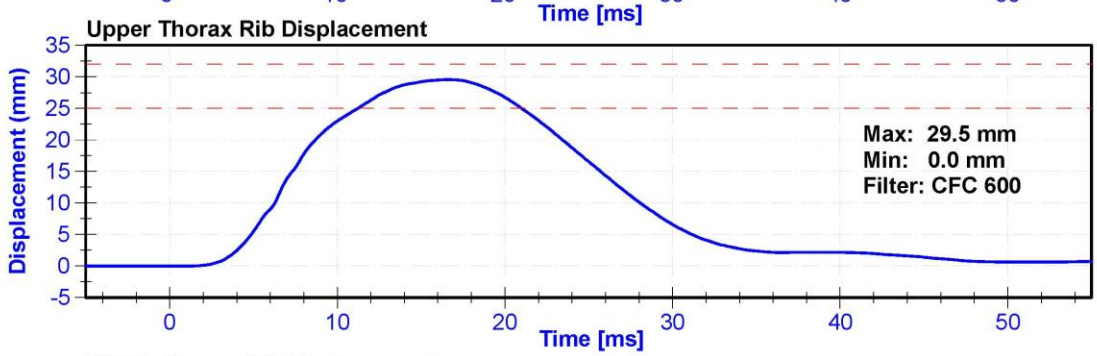
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	23	Pass
Velocity	6.6	6.8	m/s	6.67	Pass
Probe Acceleration after 5 ms	30	36	g's	31.8	Pass
Lateral Upper Spine Acceleration	34	43	g's	34.4	Pass
Lateral Lower Spine Acceleration	29	37	g's	30.0	Pass
Shoulder Deflection	31	40	mm	35.8	Pass
Upper Thorax Rib Deflection	25	32	mm	29.5	Pass
Mid Thorax Rib Deflection	30	36	mm	33.8	Pass
Lower Thorax Rib Deflection	32	38	mm	35.7	Pass

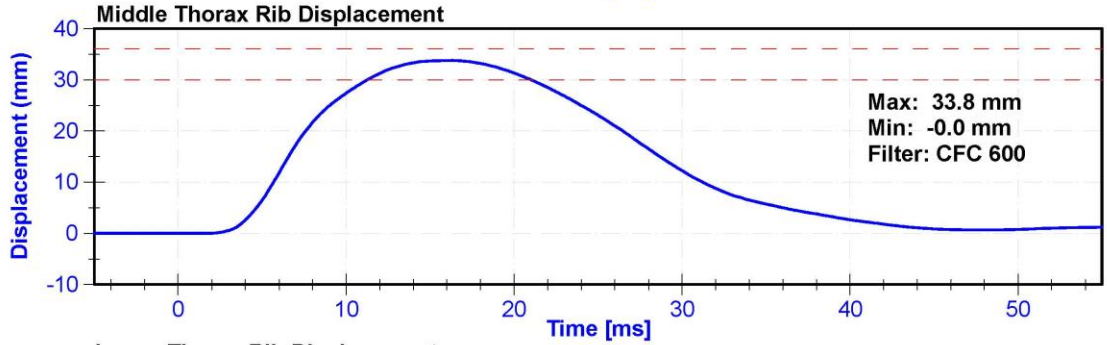
Transducer Calibrations

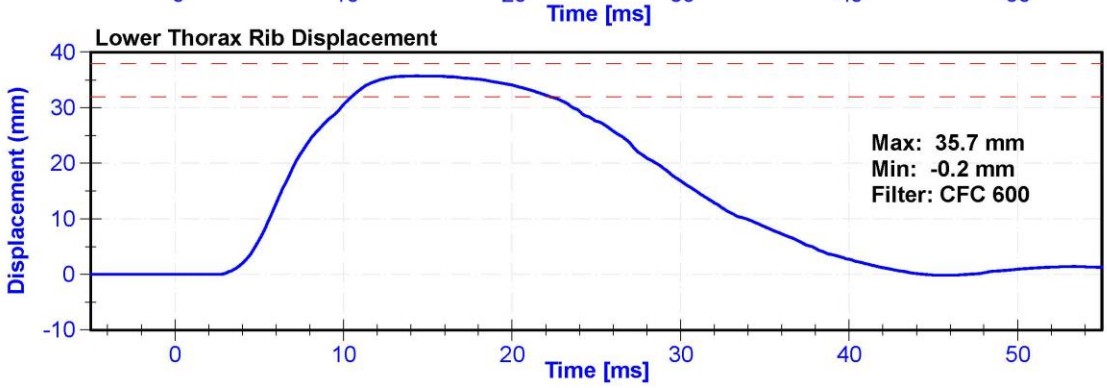
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A278994	12/3/2020	12/3/2021
Upper Spine T1 Y Accelerometer	ENDEVCO 7264CT	AC-P64148	11/5/2020	5/6/2021
Upper Spine T12 Y Accelerometer	ENDEVCO 7264C	AC-P51327	11/5/2020	5/6/2021
Shoulder Potentiometer	Servo 08TC1-3745	DS-1845GFE	12/2/2020	6/2/2021
Upper Thorax Rib Potentiometer	Servo 1246	DS-2165GFE	11/6/2020	5/7/2021
Middle Thorax Rib Potentiometer	Servo 08TC1-3621	DS-45 GFE	11/6/2020	5/7/2021
Lower Thorax Rib Potentiometer	Servo 08TC1-3787	DS-011GFE	11/6/2020	5/7/2021

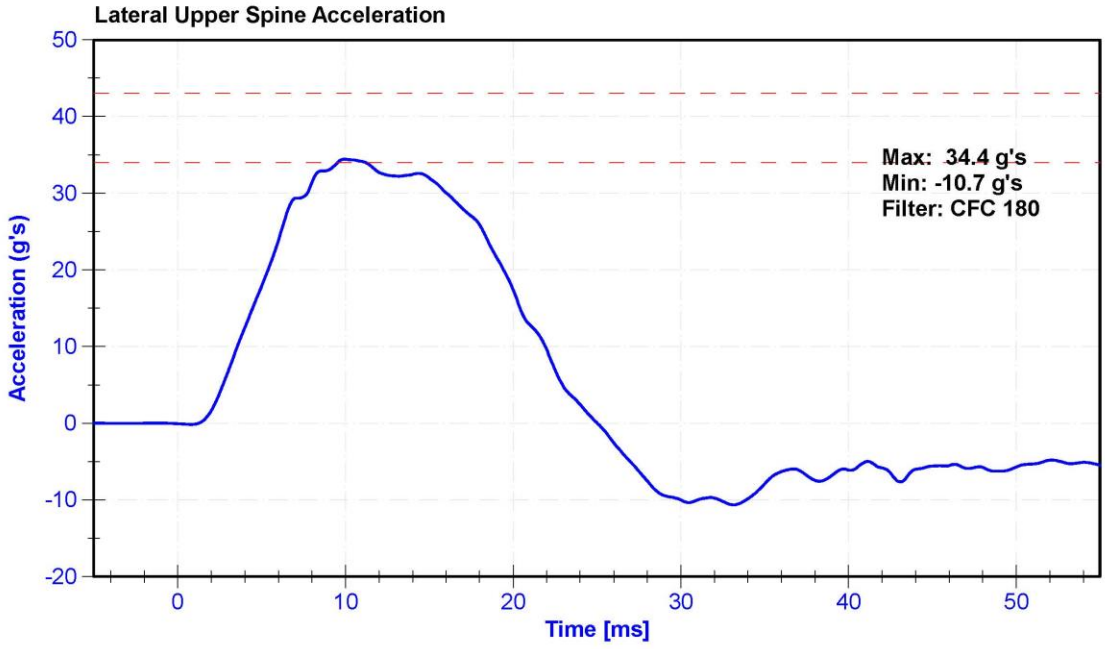


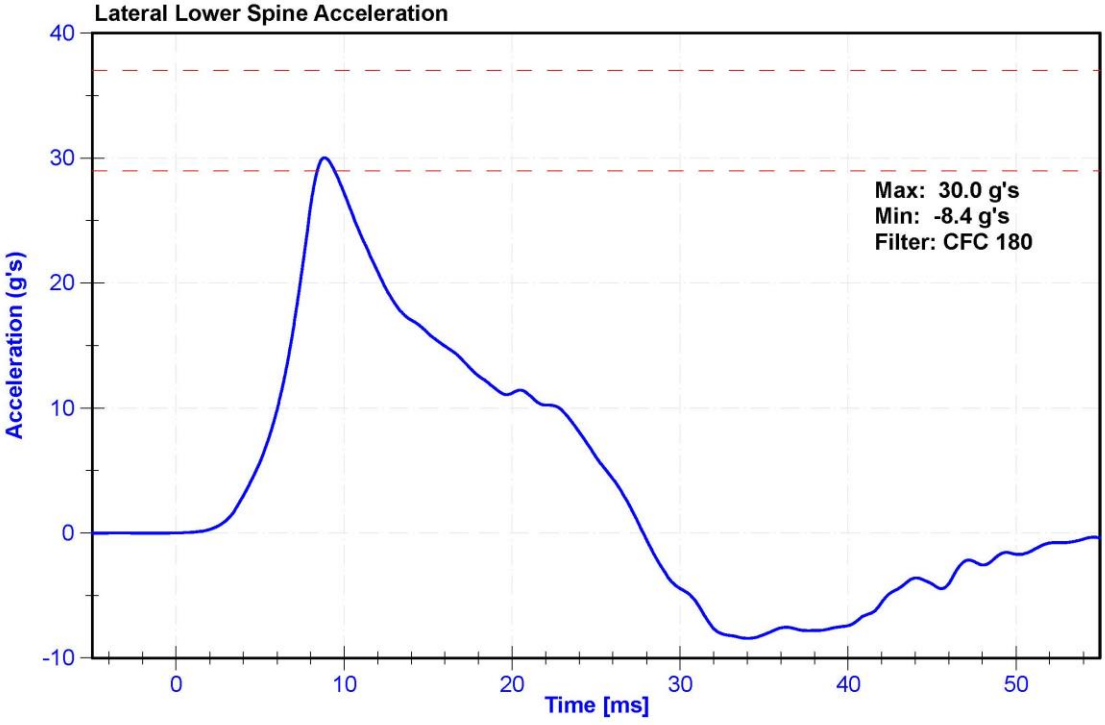

Shoulder Displacement
Displacement (mm)
Time [ms]
Max: 35.8 mm
Min: -1.3 mm
Filter: CFC 600


Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 29.5 mm
Min: 0.0 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 33.8 mm
Min: -0.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 35.7 mm
Min: -0.2 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Max: 34.4 g's
Min: -10.7 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]


Lateral Lower Spine Acceleration
Max: 30.0 g's
Min: -8.4 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]

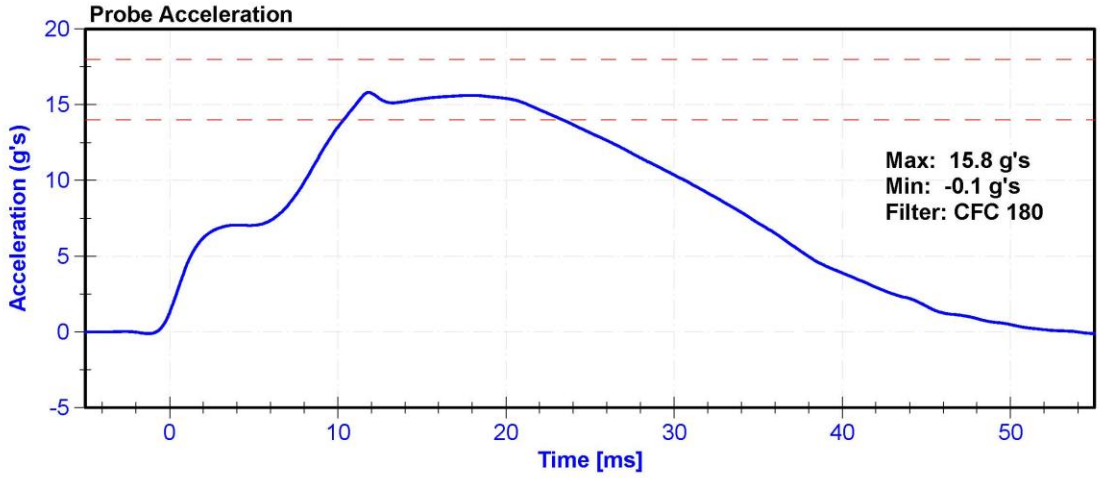
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

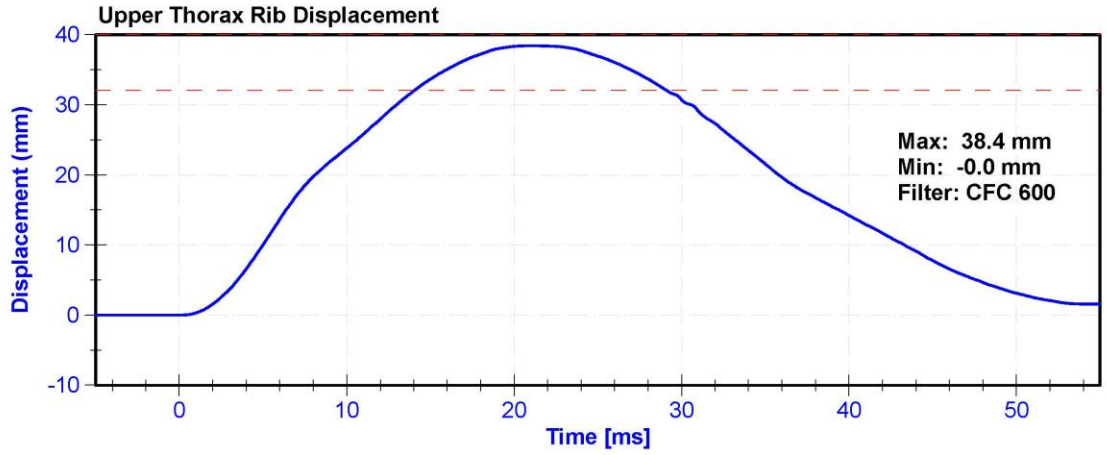
Results

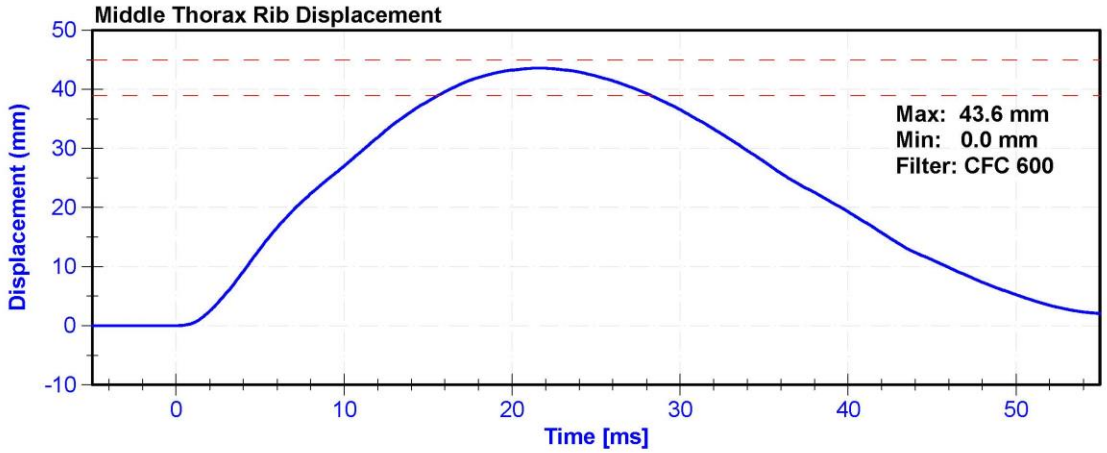
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	23	Pass
Velocity	4.2	4.4	m/s	4.38	Pass
Probe Acceleration	14	18	g's	15.8	Pass
Lateral Upper Spine Acceleration	13	17	g's	14.4	Pass
Lateral Lower Spine Acceleration	7	11	g's	8.7	Pass
Upper Thorax Rib Deflection	32	40	mm	38.4	Pass
Middle Thorax Rib Deflection	39	45	mm	43.6	Pass
Lower Thorax Rib Deflection	35	43	mm	40.4	Pass

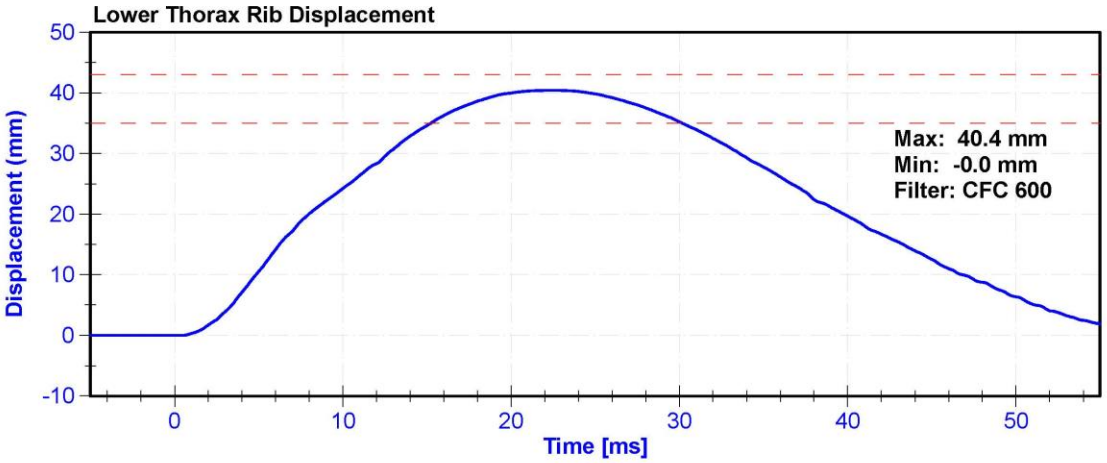
Transducer Calibrations

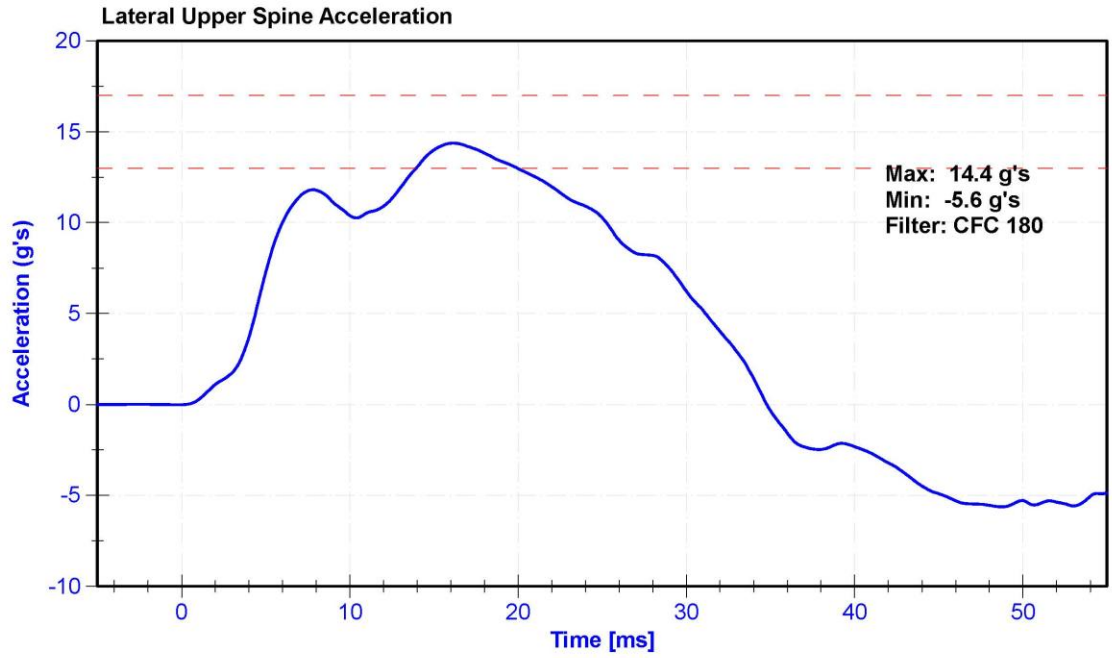
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A278994	12/3/2020	12/3/2021
Upper Spine Y Accelerometer	ENDEVCO 7264CT	AC-P64148	11/5/2020	5/6/2021
Lower Spine Y Accelerometer	ENDEVCO 7264C	AC-P51327	11/5/2020	5/6/2021
Upper Thorax Rib Potentiometer	Servo 1246	DS-2165GFE	11/6/2020	5/7/2021
Middle Thorax Rib Potentiometer	Servo 08TC1-3621	DS-45 GFE	11/6/2020	5/7/2021
Lower Thorax Rib Potentiometer	Servo 08TC1-3787	DS-011GFE	11/6/2020	5/7/2021

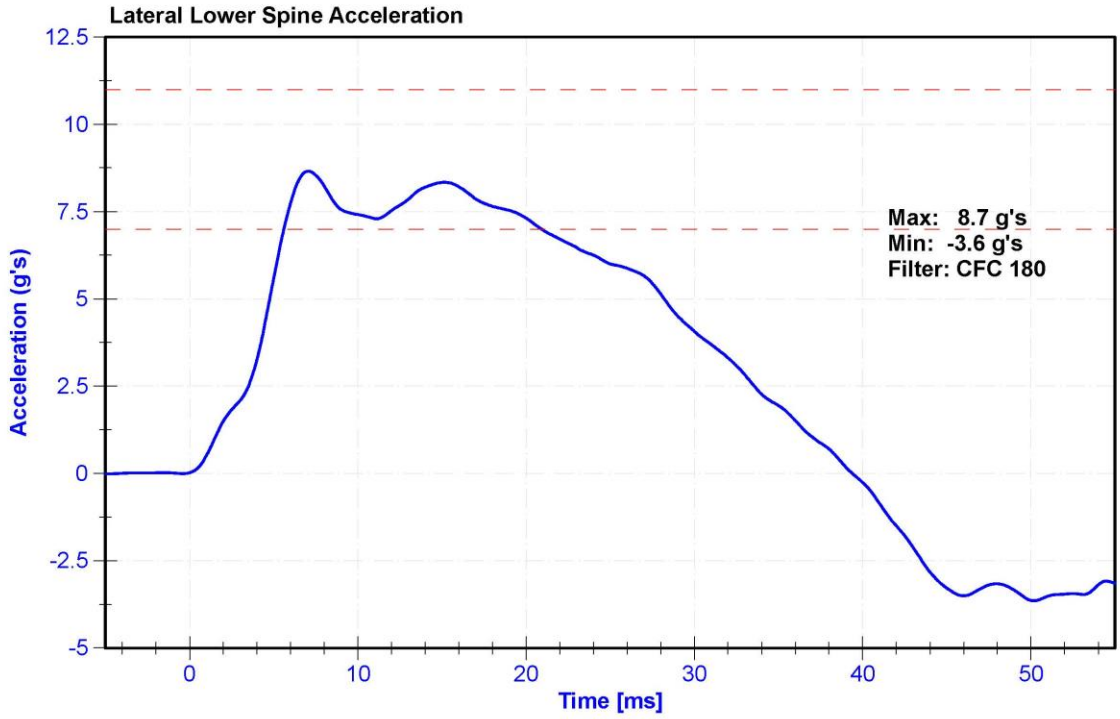



Upper Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 38.4 mm
Min: -0.0 mm
Filter: CFC 600


Middle Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 43.6 mm
Min: 0.0 mm
Filter: CFC 600


Lower Thorax Rib Displacement
Displacement (mm)
Time [ms]
Max: 40.4 mm
Min: -0.0 mm
Filter: CFC 600


Lateral Upper Spine Acceleration
Max: 14.4 g's
Min: -5.6 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]
20
15
10
5
0
-5
-10
0
10
20
30
40
50


Lateral Lower Spine Acceleration
Max: 8.7 g's
Min: -3.6 g's
Filter: CFC 180
Acceleration (g's)
Time [ms]
12.5
10
7.5
5
2.5
0
-2.5
-5
0
10
20
30
40
50

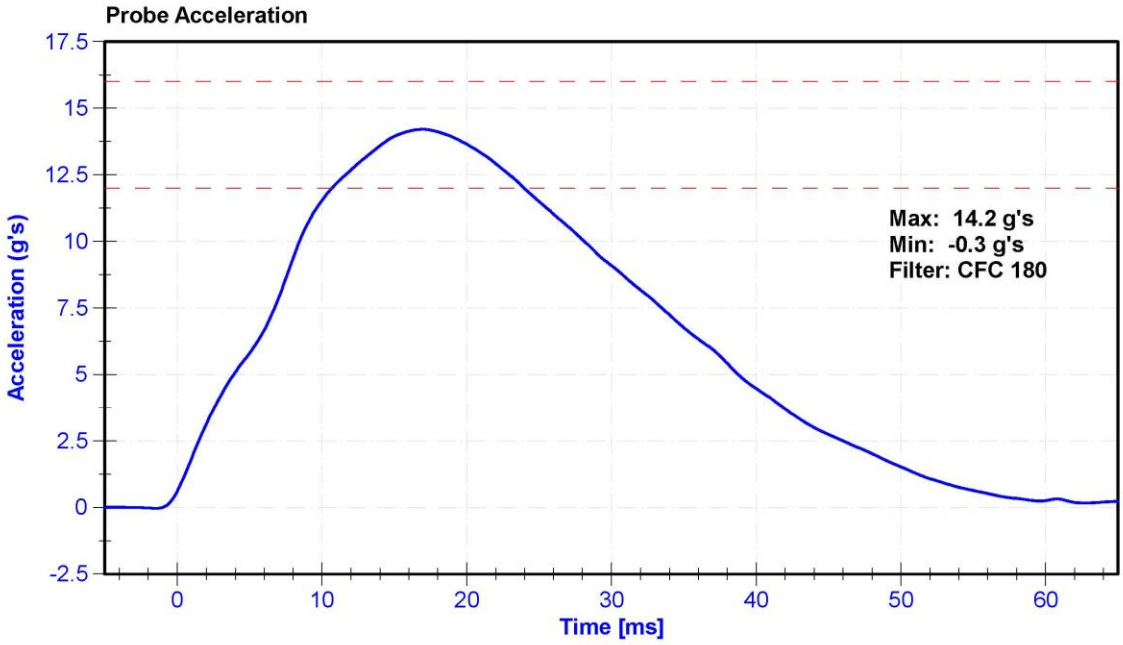
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

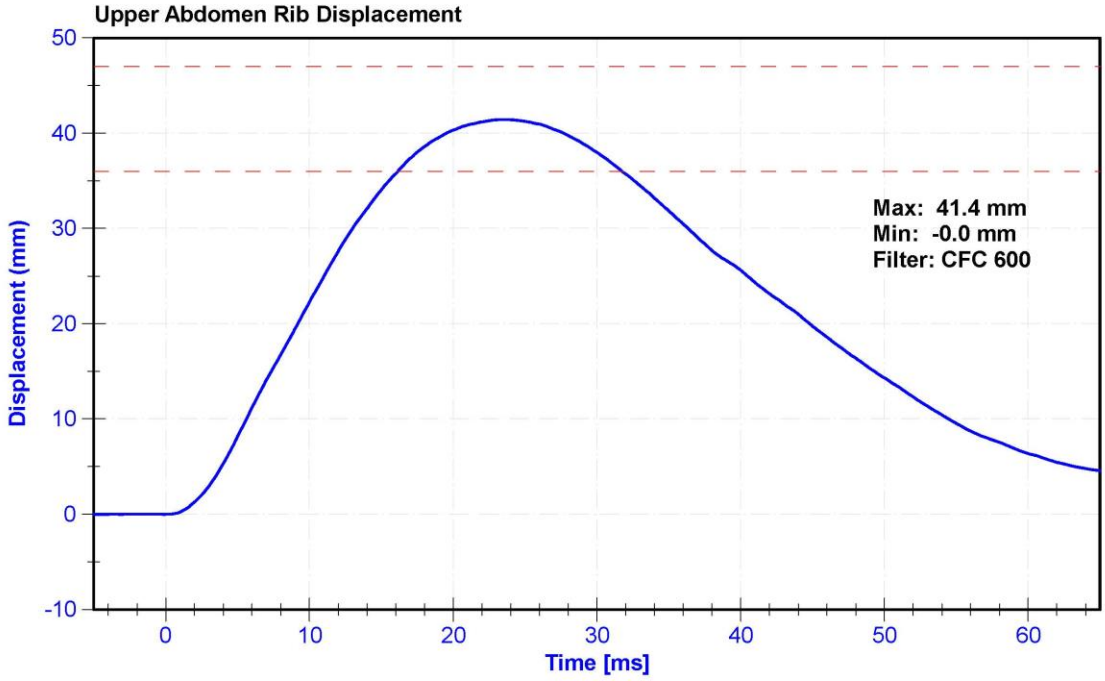
Results

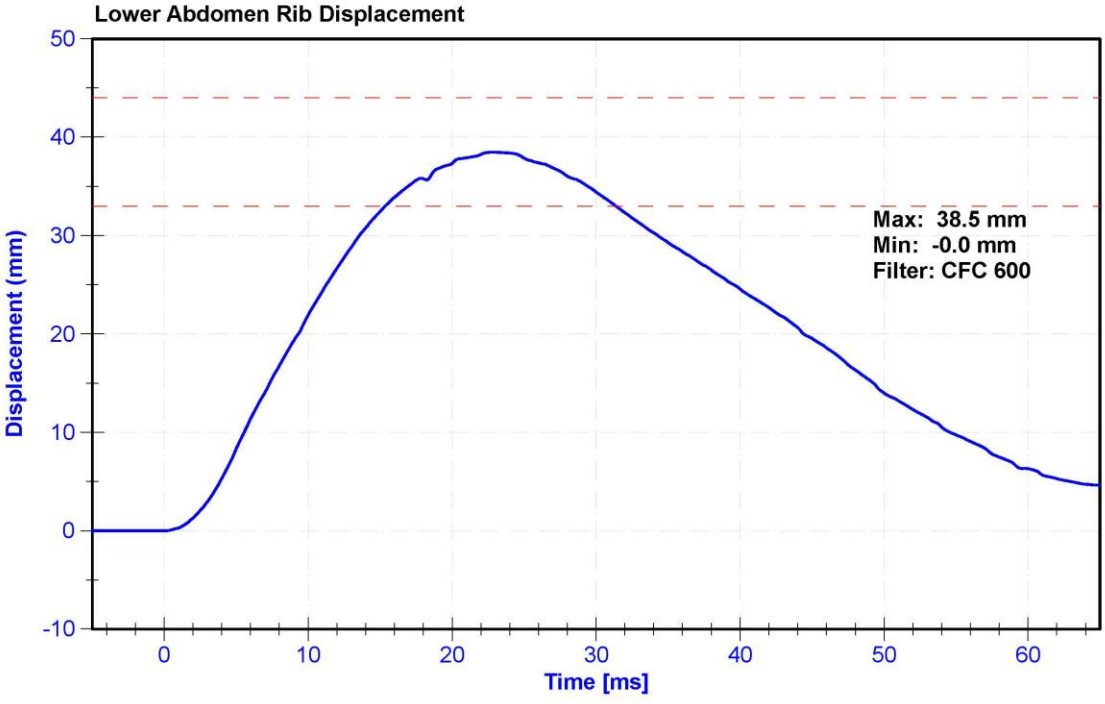
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	23	Pass
Velocity	4.2	4.4	m/s	4.26	Pass
Probe Acceleration	12	16	g's	14.2	Pass
Lateral Lower Spine Acceleration	9	14	g's	10.5	Pass
Upper Abdomen Rib Deflection	36	47	mm	41.4	Pass
Lower Abdomen Rib Deflection	33	44	mm	38.5	Pass

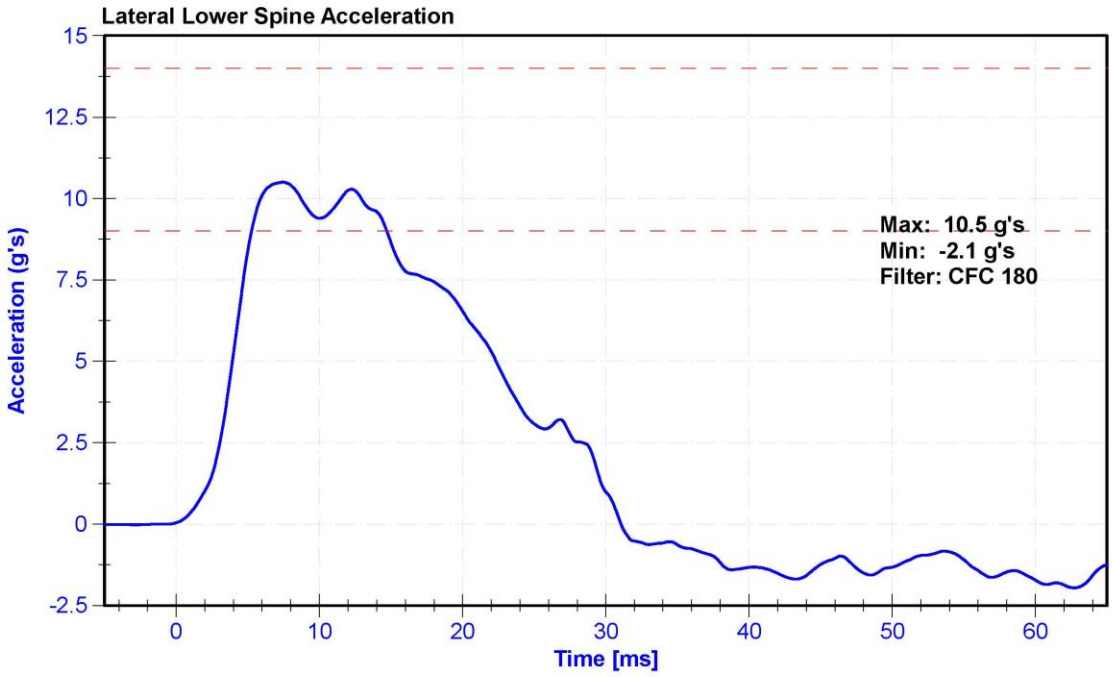
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	MSI 64C-2000	A278994	12/3/2020	12/3/2021
Lower Spine Y Accelerometer	ENDEVCO 7264C	AC-P51327	11/5/2020	5/6/2021
Upper Abdomen Rib Potentiometer	Servo 08TC1-3725	DS-008GFE	11/6/2020	5/7/2021
Lower Abdomen Rib Potentiometer	Servo 08TC1-3745	DS-1774GFE	11/6/2020	5/7/2021




Upper Abdomen Rib Displacement
Displacement (mm)
Time [ms]
Max: 41.4 mm
Min: -0.0 mm
Filter: CFC 600


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


Lateral Lower Spine Acceleration
Acceleration (g's)
15
12.5
10
7.5
5
2.5
0
-2.5
0
10
20
30
40
50
60
Time [ms]
Max: 10.5 g's
Min: -2.1 g's
Filter: CFC 180

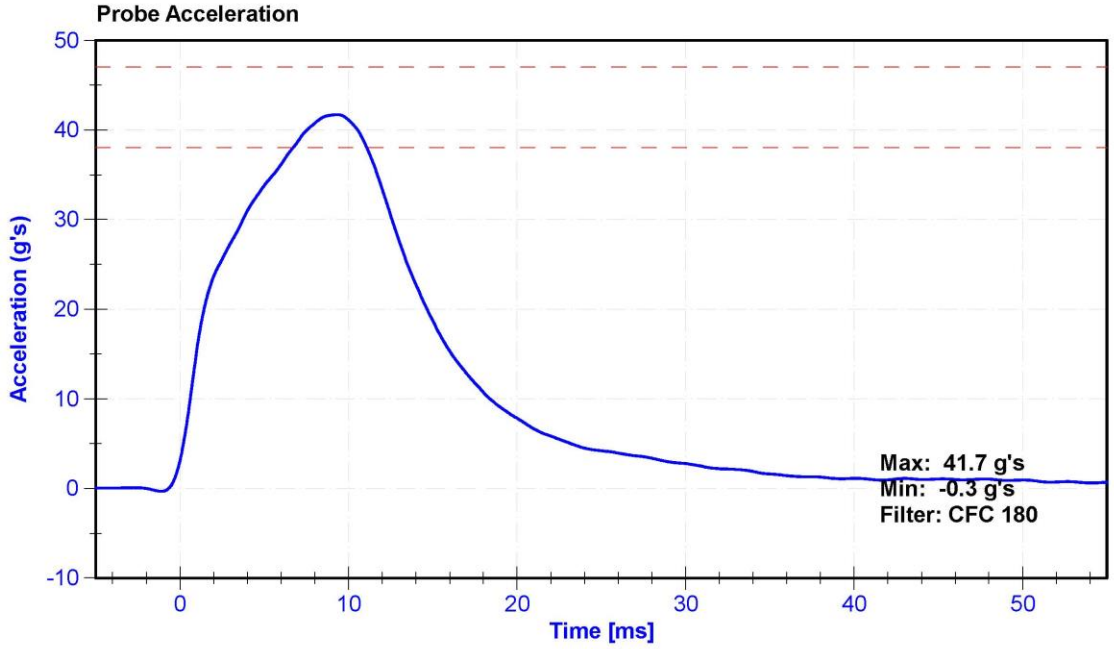
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

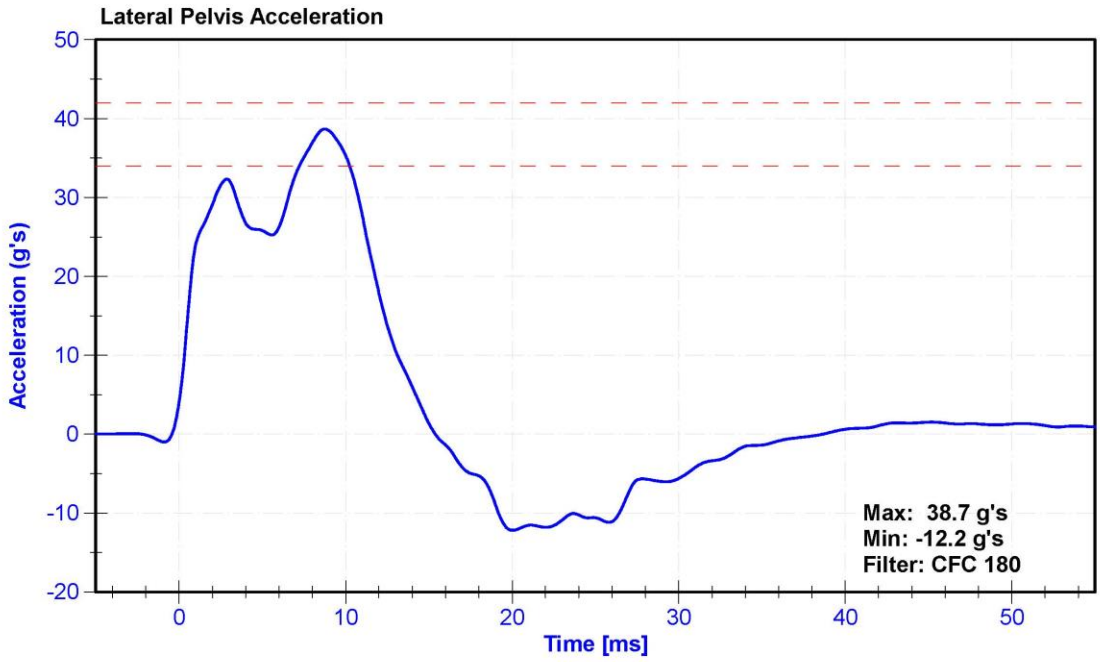
Results

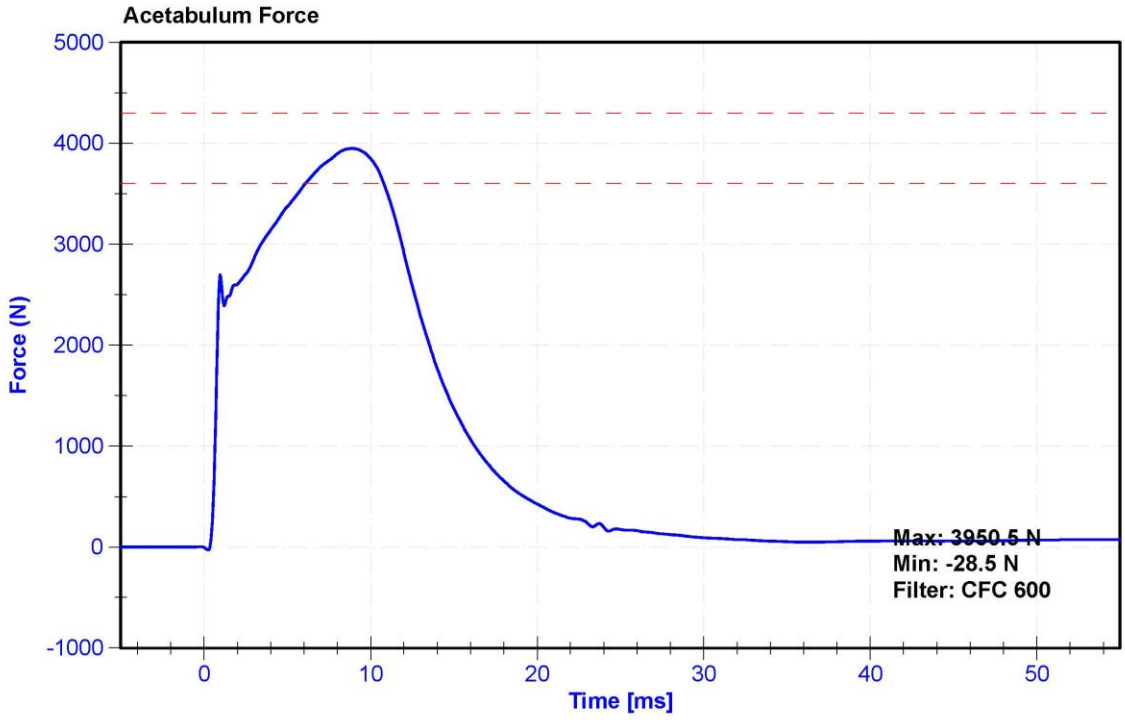
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	23	Pass
Velocity	6.6	6.8	m/s	6.68	Pass
Probe Acceleration	38	47	g's	41.7	Pass
Lateral Pelvis Acceleration after 6ms	34	42	g's	38.7	Pass
Acetabulum Force	3600	4300	N	3950.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A278994	12/3/2020	12/3/2021
Pelvis Y Accelerometer	ENDEVCO 7264C	AC-P51875	11/5/2020	5/6/2021
Acetabulum Load Cell	Denton 3249J	LC-267Fy	3/19/2020	3/19/2021
Certification Plug	SACO	13894	5/20/2020	N/A
Crash Test Plug	SACO	13085	7/30/2020	N/A




Lateral Pelvis Acceleration
Acceleration (g's)
50
40
30
20
10
0
-10
-20
0
10
20
30
40
50
Time [ms]
Max: 38.7 g's
Min: -12.2 g's
Filter: CFC 180


Acetabulum Force
Force (N)
5000
4000
3000
2000
1000
0
-1000
0
10
20
30
40
50
Time [ms]
Max: 3950.5 N
Min: -28.5 N
Filter: CFC 600

068012 CRASH 2/5/21 SV

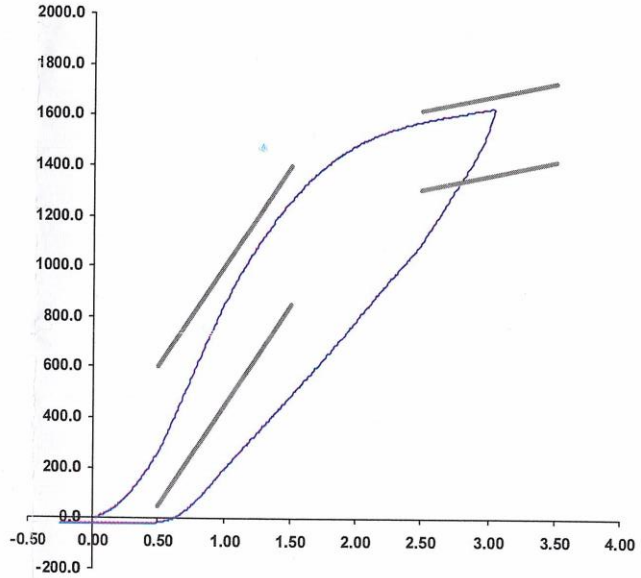
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 13085
Test Number 10405
Report Number 10440
Test Date 7/30/2019 4:30:16 PM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	267.09	50.00	600.00
Force @ 1.5 mm (N)	1,266.72	850.00	1,400.00
Force @ 2.5 mm (N)	1,577.82	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,627.74	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 30-Jul-19
SACO Research

By : DC Date : 7/30/2019

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

DG-8012 NON-IMPACT CRASH 2/5/21 S

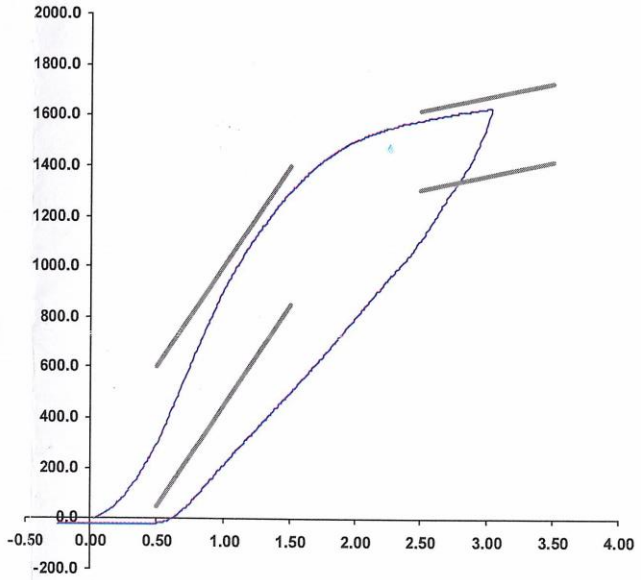
SACO RESEARCH

SID-IIs Pelvis Plug Certification Test

Plug S/N 13092
Test Number 10412
Report Number 10447
Test Date 7/30/2019 4:41:57 PM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	303.70	50.00	600.00
Force @ 1.5 mm (N)	1,296.38	850.00	1,400.00
Force @ 2.5 mm (N)	1,581.33	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,628.33	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



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

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

Notes:

Operator

Part Number 180-4450

Template No 107 30-Jul-19
SACO Research

By : DC Date : 7/30/2019

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

SACO RESEARCH

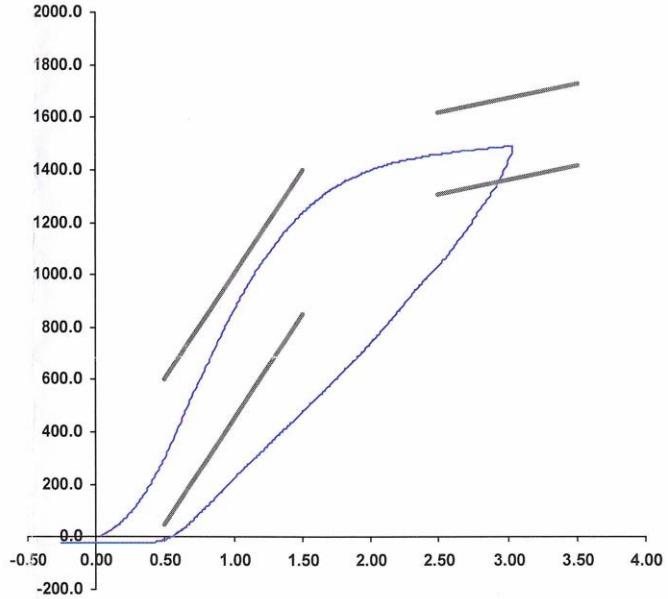
068012 Cert #5 Pass 2/5/21 SV

SID-IIs Pelvis Plug Certification Test

Plug S/N 13894
Test Number 13368
Report Number 13413
Test Date 5/20/2020 8:17:51 PM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	304.82	50.00	600.00
Force @ 1.5 mm (N)	1,237.97	850.00	1,400.00
Force @ 2.5 mm (N)	1,459.14	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,491.07	1,361.00	1,673.00

Force (-N) vs Extension (-mm)



Testing Machine STM-20 5965542
Load Cell S/N (FI360947), Units (LBS) 1000
Preload Value (-N) 22.24
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 20-May-20
SACO Research

By : DC Date : 5/20/2020

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

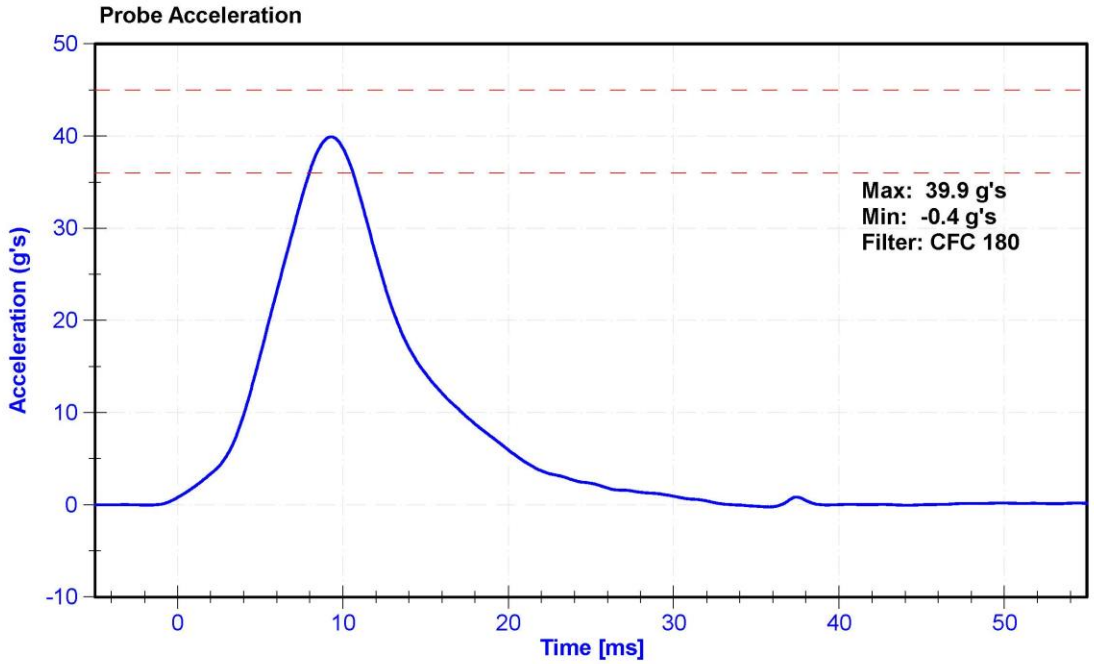
ATD Manufacturer	FTSS	Test Technician	S. Vacanti
ATD Serial Number	DG8012	Laboratory Supervisor	K. Brogan

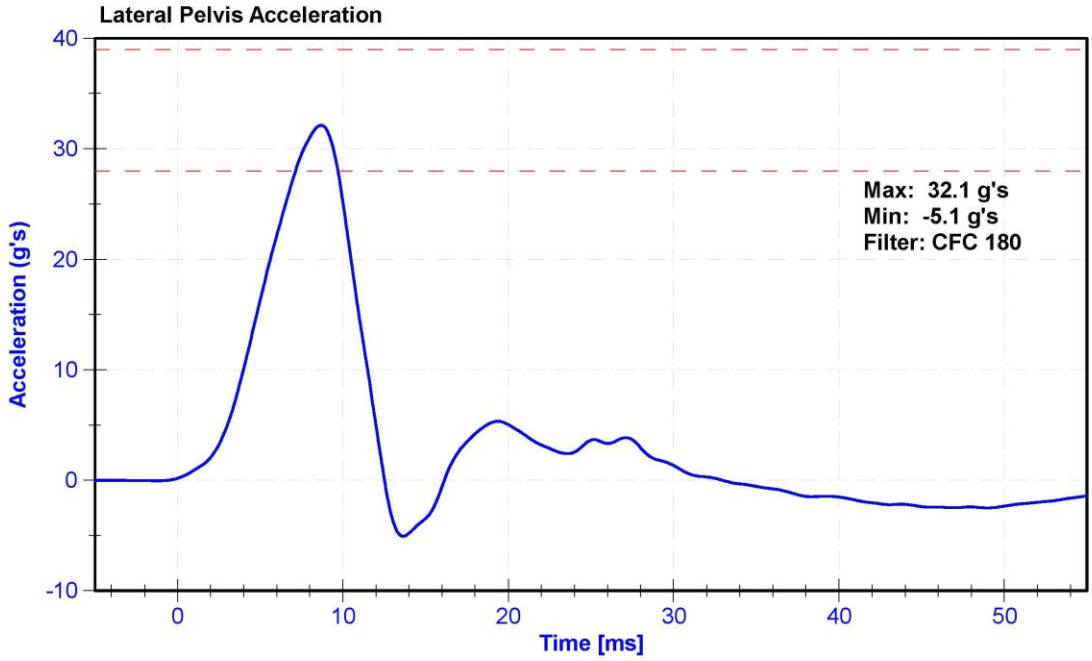
Results

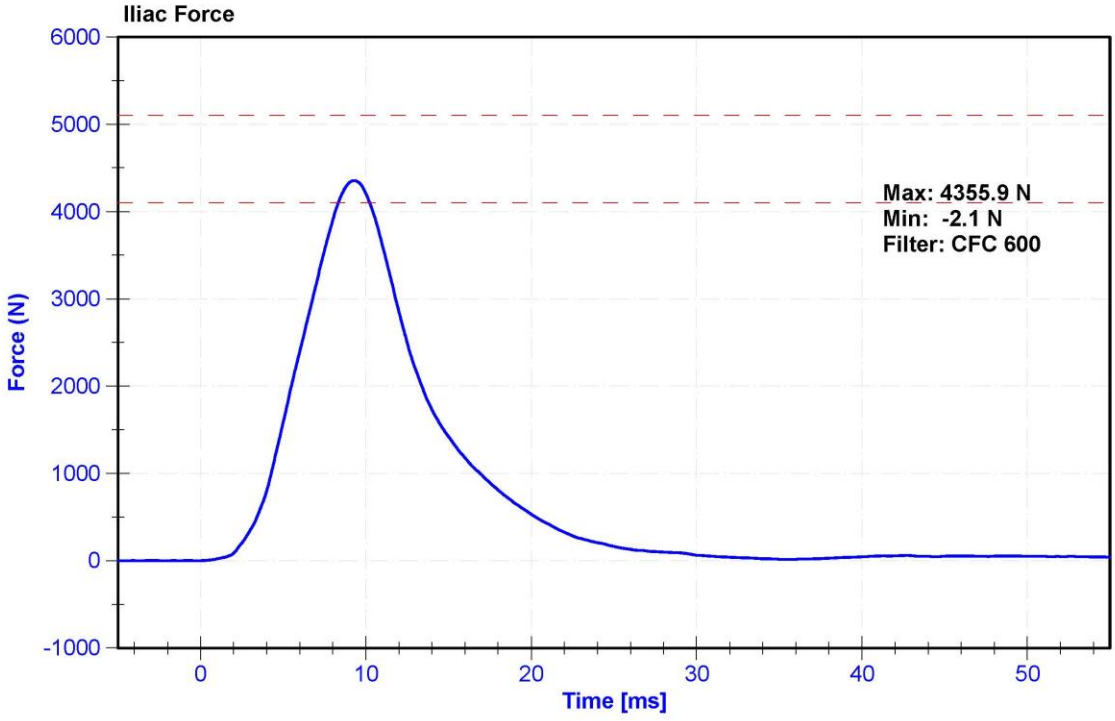
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	ºC	20.9	Pass
Humidity	10	70	%	23	Pass
Velocity	4.2	4.4	m/s	4.26	Pass
Probe Acceleration	36	45	g's	39.9	Pass
Lateral Pelvis Acceleration	28	39	g's	32.1	Pass
Iliac Force	4100	5100	N	4355.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	MSI 64C-2000	A278994	12/3/2020	12/3/2021
Pelvis Y Accelerometer	ENDEVCO 7264C	AC-P51875	11/5/2020	5/6/2021
Iliac Load Cell	DENTON 3228J	LC-290Fy	11/16/2020	11/16/2021




Lateral Pelvis Acceleration
Acceleration (g's)
Time [ms]
Max: 32.1 g's
Min: -5.1 g's
Filter: CFC 180


Iliac Force
Force (N)
Time [ms]
Max: 4355.9 N
Min: -2.1 N
Filter: CFC 600

APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N: DG8012		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers			X	AC-P74788	ENDEVCO	11/5/2020
			Y	AC-P83432	ENDEVCO	11/5/2020
			Z	AC-P83319	ENDEVCO	11/5/2020
Head Accelerometers - Redundant			X	AC-P80334	ENDEVCO	11/5/2020
			Y	AC-P52155	ENDEVCO	11/5/2020
			Z	AC-P83322	ENDEVCO	11/5/2020
Displacement Potentiometer	Shoulder		Y			
	Thoracic Rib	Upper	Y	DS-2165GFE	Servo	11/6/2020
		Middle	Y	DS-45 GFE	Servo	11/6/2020
		Lower	Y	DS-011GFE	Servo	11/6/2020
	Abdominal Rib	Upper	Y	DS-008GFE	Servo	11/6/2020
		Lower	Y	DS-1774GFE	Servo	11/6/2020
Lower Spine Accelerometers (T12)			X	AC-P71272	ENDEVCO	11/5/2020
			Y	AC-P51327	ENDEVCO	11/5/2020
			Z	AC-P52067	ENDEVCO	11/5/2020
Acetabulum Load Cell			Y	LC-267Fy	DENTON	3/19/2020
Lilac Wing Load Cell			Y	LC-290Fy	DENTON	11/16/2020
Pelvis Plug (Struck Side)				13279	SACO	8/12/2019
Pelvis Plug (Non-Struck Side)				12958	SACO	1/22/2019

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	1201-1000_A352319	MSI	9/25/2020
Vehicle Center of Gravity	Y	1201-1000_A352343	MSI	9/25/2020
Vehicle Center of Gravity	Z	1201-1000_A352355	MSI	9/25/2020
Left Floor Sill	Y	1201-1000_A283654	MSI	12/5/2020
A-Pillar Sill	Y	1201-1000_A281039	MSI	8/20/2020
A-Pillar Low	Y	1201-1000_A284279	MSI	10/27/2020
A-Pillar Mid	Y	1201-1000_A372873	MSI	11/20/2020
B-Pillar Sill	Y	1201-1000_A335452	MSI	10/17/2020
B-Pillar Low	Y	1201-1000_A315108	MSI	1/18/2021
B-Pillar Mid	Y	1201-1000_A315890	MSI	11/19/2020
Driver Seat	Y	1201-1000_A352320	MSI	1/18/2021
Engine Top	X	1201-1000_A350933	MSI	1/18/2021
Engine Top	Y	1201-1000_A315916	MSI	11/5/2020
Firewall	Y	1201-1000_A197003	MSI	10/30/2020
Right Roof	Y	1201-1000_A370964	MSI	11/19/2020
Right Floor Sill	Y	1201-1000_A315100	MSI	10/5/2020
Rear Floorpan	X	1201-1000_A279995	MSI	08/07/2020
Rear Floorpan	Y	1201-1000_A315020	MSI	10/19/2020

Table 3 – Pole Instrumentation

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