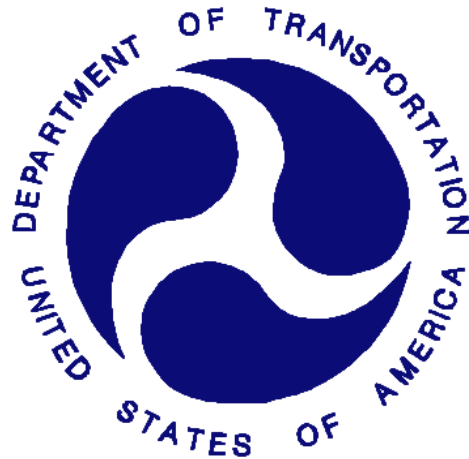


REPORT NUMBER: SPNCAP-MGA-2015-018

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Side Impact Pole Test**

**GENERAL MOTORS LLC
2015 Cadillac ATS 4-Dr Sedan
NHTSA No.: M20150115**

**MGA RESEARCH CORPORATION
5000 Warren Road
Burlington, WI 53105**



Test Date: September 23, 2014

Final Report Date: October 17, 2014

FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NVS-111
1200 New Jersey Ave, SE
Room W43-410
Washington, DC 20590**

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Prepared by: 
Donna Janovicz, Project Manager

Approved by: 
Ben Fischer, Project Engineer

Approval Date: October 17, 2014

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

1. Report No. SPNCAP-MGA-2015-018		2. Government Accession No.		3. Recipient's Catalog No.																											
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of a 2015 Cadillac ATS 4-Dr Sedan, NHTSA No.: M20150115		5. Report Date October 17, 2014		6. Performing Organization Code MGA																											
		8. Performing Organization Report No. SPNCAP-MGA-2015-018																													
7. Author(s) Donna Janovicz, Project Manager Ben Fischer, Project Engineer		10. Work Unit No.																													
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12. Sponsoring Agency Name and Address United States Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NVS-111) 1200 New Jersey Ave, SE, Room W43-410 Washington, DC 20590		11. Contract or Grant No. DTNH22-09-D-00124																													
		13. Type of Report and Period Covered: Final Test Report September 23, 2014 to October 17, 2014																													
15. Supplementary Notes		14. Sponsoring Agency Code NVS-111																													
		16. Abstract A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2015 Cadillac ATS 4-Dr 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. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on September 23, 2014. The impact velocity was 32.2 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.4°C. The test vehicle post-test maximum crush was 339 mm at level 3. The test vehicle's performance was as follows: <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="2"></th> <th colspan="2">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Measurement Description</th> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>232</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>43</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3454</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>24</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>21</td> </tr> </tbody> </table> *Proposed IARV The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.						Driver ATD (SID-IIs)		Measurement Description	Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	232	Resultant Lower Spine Acceleration	Gs	82	43	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3454	Maximum Thoracic Rib Deflection	mm	38*	24	Maximum Abdomen Rib Deflection	mm
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2015 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00124. The purpose of this test is to generate comparative side impact performance in a 2015 Cadillac ATS 4-Dr Sedan. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated September 2013.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2015 Cadillac ATS 4-Dr Sedan. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.2 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on September 23, 2014. 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 September 2013. Camera locations and other pertinent camera information are included in this report.

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

Primary and Redundant Head CG Triaxial Accelerometers
Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
Abdomen Upper Rib and Lower Rib Displacement Potentiometers
Lower Spine (T12) Triaxial Accelerometers
Iliac Load Cell
Acetabulum Load Cell

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

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

Measurement Description	Driver ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	232
Resultant Lower Spine Acceleration	Gs	82	43
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3454
Maximum Thoracic Rib Deflection	mm	38*	24
Maximum Abdominal Rib Deflection	mm	45*	21

*Proposed IARV

Supplemental restraint information is given below:

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

The test data can be found on the NHTSA website at www.nhtsa.dot.gov

GENERAL COMMENTS

Vehicle CG Y has no valid data after 40 ms.
Left Mid B-Post Y has no valid data after 25 ms.
Driver Seat Track Y has no valid data after 11 ms.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20150115	Traction Control System (TCS)	Yes
Model Year	2015	Auto-Leveling System	No
Make	Cadillac	Automatic Door Locks (ADL)	Yes
Model	ATS	Power Window Auto-Reverse	Yes
Body Style	Sedan	Other Optional Feature	N/A
VIN	1G6AA5RX3F0101057	Driver Front Airbag	Yes
Body Color	Silver Coast Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	51 / 32	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.0	Driver Torso Airbag	No
Type/No. Cylinders	4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Longitudinal	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	6	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	Rear	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	No
Power Seats	Yes	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
		Other Restraint Feature	N/A

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

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors LLC	GVWR (kg)	1956
Date of Manufacture	06/14	GAWR Front (kg)	879
Vehicle Type	Passenger Car	GAWR Rear (kg)	1077

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	(A)
Capacity Weight (VCW) (kg)				396	(B)
DSC x 68.04 kg				340	(A-B)
Rated Cargo and Luggage Weight (RCLW) (kg)				56	

VEHICLE SEAT TYPE

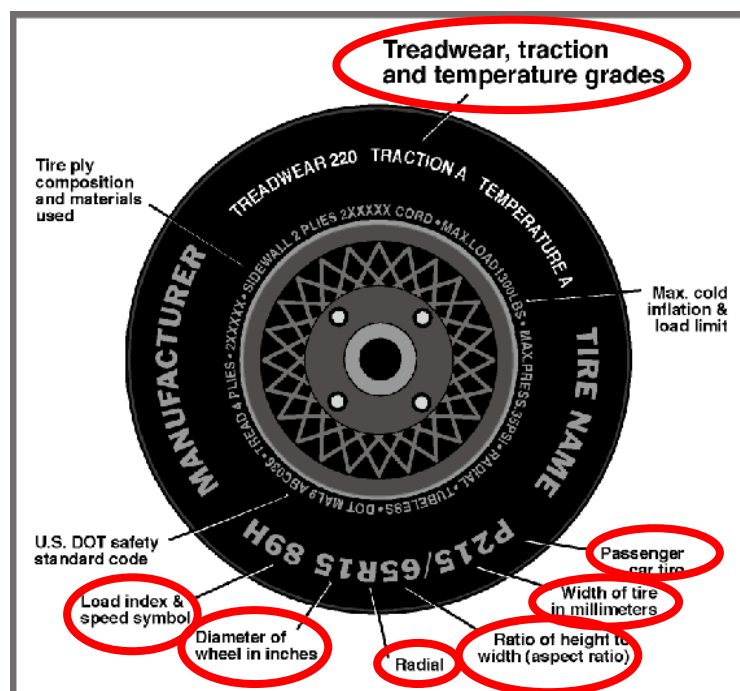
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						Manual	Power
Front Seat	X						X
Rear or Second Row			X		X		
Third Row Seat							

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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	240
Recommended Tire Size	P225/45R17	P225/45R17
Tire Size on Vehicle	P225/45R17	P225/45R17
Tire Manufacturer	Michelin	Michelin
Tire Model	Primacy MXM4	Primacy MXM4
Treadwear	500	500
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Rayon	2 Rayon
Tire Plies Body	2 Rayon, 1 Polyamide, 2 Steel	2 Rayon, 1 Polyamide, 2 Steel
Load Index/Speed Symbol	90V	90V
Tire Material	Rubber	Rubber
DOT Safety Code Left	B98A 023X 2314	B98A 023X 2314
DOT Safety Code Right	B98A 023X 2214	B98A 023X 2314

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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	227	220	248	240
Tire Placard	kpa	220	220	240	240
Owner's Manual	kpa				
As Tested	kpa	220	220	240	240

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	409.0	370.5		420.5	415.0		424.5	420.5	
Right	kg	388.5	374.0		393.5	414.0		391.0	414.0	
Ratio	%	51.7	48.3		49.5	50.5		49.4	50.6	
Totals	kg	797.5	744.5	1542.0	814.0	829.0	1643.0	815.5	834.5	1650.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1542.0	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	56	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1650.2	(A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range
 (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)? **YES**

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-0.7	-0.6	-0.3	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-0.8	-0.8	-0.5	Yes
Front Bumper Angle (left-to-right)**	deg	-0.2	0.0	0.0	Yes
Rear Bumper Angle (left-to-right)**	deg	0.1	0.1	0.1	Yes
Vehicle CG (Aft of Front Axle)	mm	1341	1401	1404	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	9	13	16	

*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.

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast (if any)	0.0
None	0.0

Test height adjustable suspension setting, if applicable:	Not Applicable
---	----------------

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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	17.4	12.4	14.9
Front Passenger Seat	15.0	10.4	12.7
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) (°)	As Tested SCR Height (mm)	SCR Height Position	SCR Height (mm)		
				Rear- most	Mid- Fore/Aft	Forward- Most
Driver Seat	14.9	Fixed	Max	Fixed	Fixed	Fixed
	14.9	Fixed	Mid	Fixed	Fixed	Fixed
	14.9	Fixed	Min	Fixed	Fixed	Fixed
Front Passenger Seat	12.7	Fixed	Max	Fixed	Fixed	Fixed
	12.7	Fixed	Mid	Fixed	Fixed	Fixed
	12.7	Fixed	Min	Fixed	Fixed	Fixed
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed

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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

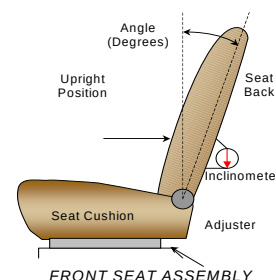
NHTSA No. M20150115
 Test Date: 9/23/2014

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	242		0	
Front Passenger Seat	242		0	
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

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



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents	Degree	Detent
Driver Seat w/Seated Dummy	52.8		-1.4	
Front Passenger Seat	53.0		-1.4	
Front Center Seat				
Struck Side Rear Seat				
Non-Struck Side Rear Seat				
Rear Center Seat				

Seat back angles measured on headrest post.

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1.

	Total # of Positions	Placed in Position #
Driver Seat	Fixed	Not Applicable

HEAD RESTRAINT ADJUSTMENT

Head restraints are adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	4	Lowest / Forwardmost

DATA SHEET NO. 2 (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA

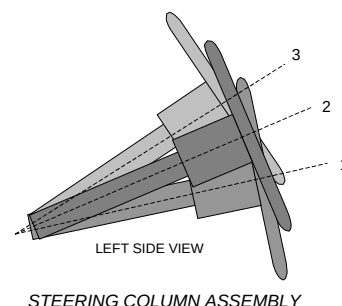
Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
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NHTSA No. M20150115
 Test Date: 9/23/2014

STEERING COLUMN ADJUSTMENT

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

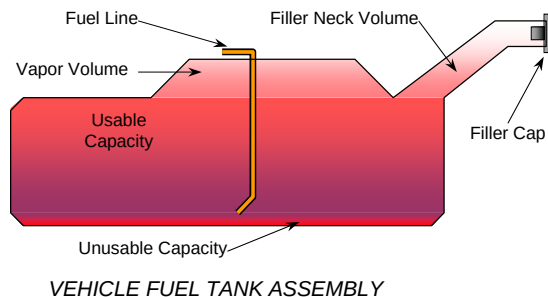
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	73.0	216
Geometric Center, Position 2	70.7	198
Uppermost, Position 3	68.4	180
Telescoping Steering Wheel Travel		36
Test Position	70.7	198



FUEL PUMP

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

The vehicle is equipped with an electric fuel pump. If the ignition is at "On" setting and engine is not running, the fuel pump only operates for a short duration to prime the fuel system. If the engine is running the fuel pump operates continuously. The fuel pipe is on the right side.



FUEL TANK CAPACITY DATA

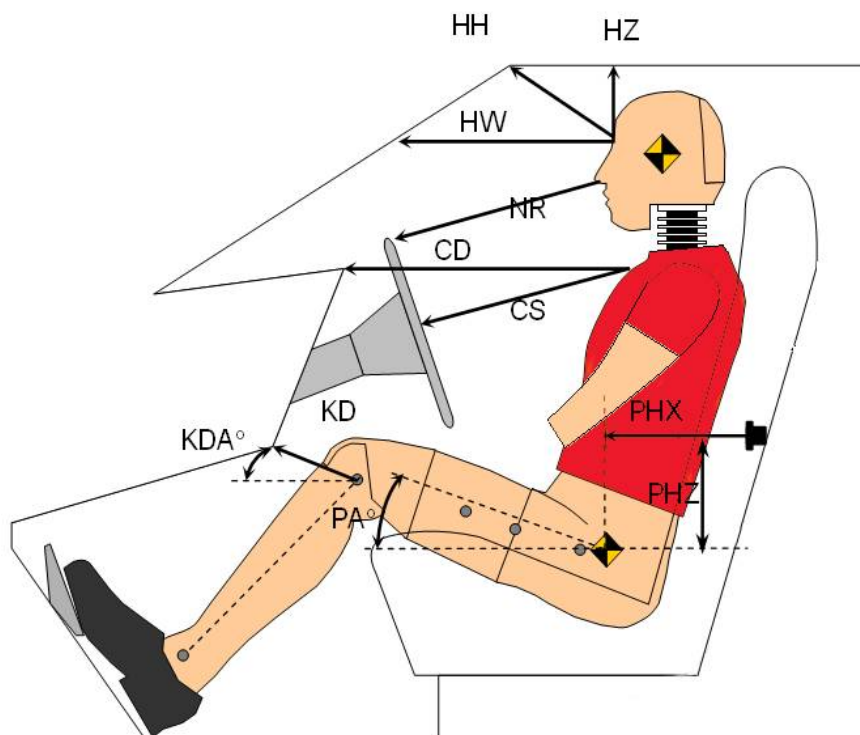
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	62.5
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	62.5
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	58.1
Actual Amount of Solvent Used	58.1
1/3 of Usable Capacity	20.8

Is the actual amount of solvent used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in Form No. 1? **YES**

.DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014



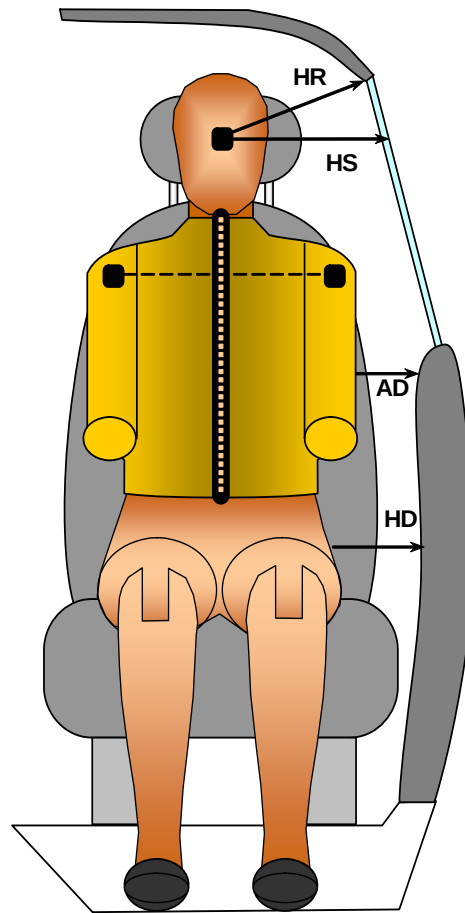
LEFT SIDE VIEW

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	263	
HW	Head to Windshield	585	
HZ	Head to Roof Liner	195	
NR	Nose to Rim	245	
CD	Chest to Dashboard	418	
CS	Chest to Steering Wheel	207	
KDL/KDAL°	Left Knee to Dash	150	35.6
KDR/KDAR°	Right Knee to Dash	146	39.2
PAX°	Pelvic Tilt Angle (X-Axis)		21.9
PAY°	Pelvic Tilt Angle (Y-Axis)		0.8
PHX	Hip Point to Striker (X-Axis)	255	
PHZ	Hip Point to Striker (Z-Axis)	168	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
Test Date: 9/23/2014



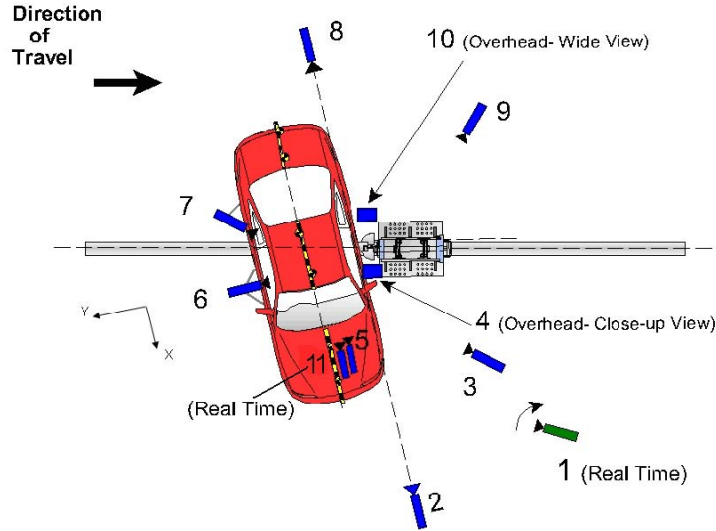
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	226
HS	Head to Side Window	337
AD	Arm to Door	92
HD	Hip Point to Door	156

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014



Reference: (from Point of Impact for X and Y; from Ground for Z):
 +X = Forward of Impact, + Y = Right of Impact, +Z = Down

Camera No.	View	Coordinates (mm)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real-Time Pan View					30
2	Front Ground Level	-60	6130	-1830	24	1000
3	Impact Side 45° Forward	-2570	5250	-1950	20	See Note
4	Overhead Closeup	120	0	-4420	50	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	-60	-6870	-1800	24	1000
9	Impact Side 45° Rearward	-4340	-3920	-1960	20	1000
10	Overhead Wide View	280	0	-4620	14	1000
11	Real-Time Dummy Front View					30

* All measurements accurate to ± 6 mm

Note: Vehicle was at a 75° angle to the rigid pole.

Explain why camera(s) did not operate as intended: Camera did not trigger

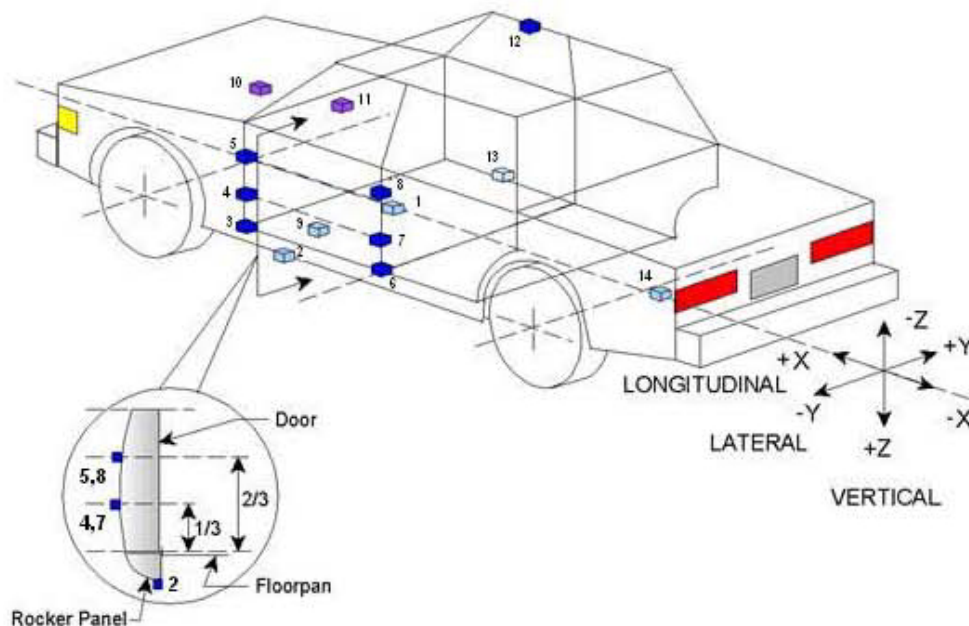
INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	8
TOTAL	42

DATA SHEET NO. 6 **VEHICLE ACCELEROMETER DATA**

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2323	170	-180
2	Left Floor Sill	2852	-740	-195
3	A Pillar Sill	3344	-740	-205
4	A Pillar Low	3124	-776	-506
5	A Pillar Mid	3134	-768	-752
6	B Pillar Sill	2015	-740	-195
7	B Pillar Low	2055	-724	-599
8	B Pillar Mid	1956	-704	-808
9	Driver Seat Track	2211	-329	-190
10	Engine Top	3578	20	-860
11	Firewall	3402	-22	-928
12	Right Roof	2935	480	-1403
13	Right Floor Sill	2780	740	-195
14	Rear Floorpan	713	0	-524

Reference:

X – Test Vehicle Rear Bumper (+forward)
 Y – Test Vehicle Centerline (+ to right)
 Z – Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
Test Date: 9/23/2014



254 mm Diameter Rigid Pole

Load Cell Locations	
ID	Height From Impact Surface (mm)
1	182
2	470
3	698
4	986
5	1212
6	1641
7	1854
8	2053

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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
Test Date: 9/23/2014

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag, Seatback
Back of Head	Curtain Airbag, Headrest
Left Shoulder	Side Airbag, Seatback
Upper Torso	Seatback
Lower Torso	Side Airbag, Seatback
Left Hip	Side Airbag, Seatpan
Left Knee	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	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, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	Cracked
Side Window Damage	Left Front Window Cracked
Other Notable Effects	None

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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
Test Date: 9/23/2014

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 Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	
Other				

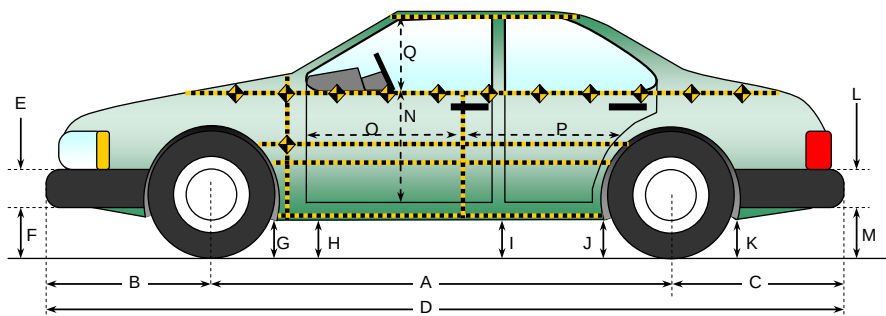
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1317
Actual Impact Point (Aft of Front Axle)	mm		1317
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	0
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.21
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.21

DATA SHEET NO. 9 **VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
Test Date: 9/23/2014



All measurements in (mm) with tolerance of ± 3 mm

LEFT SIDE VIEW

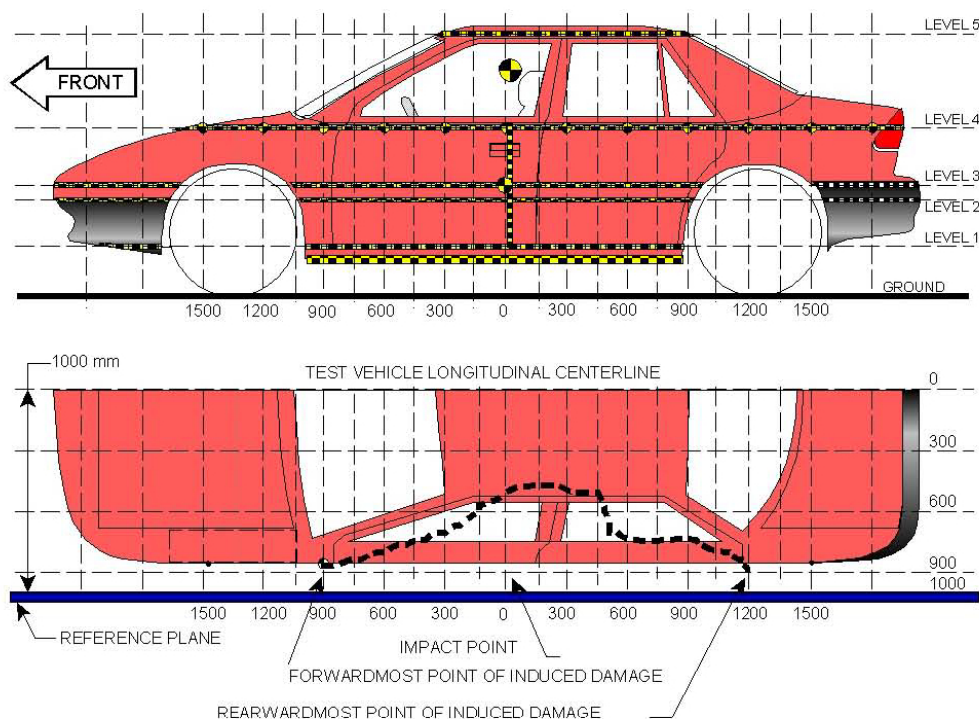
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2777	2711	66
B	Front Axle to FSOV	839	887	-48
C	Rear Axle to RSOV	1041	1050	-9
D	Total Vehicle Length at Centerline	4657	4648	9
E	Front Bumper Thickness	100	100	0
F	Front Bumper Bottom to Ground	203	239	-36
G	Sill Height at Front Wheel Well	162	147	15
H	Sill Height at Front Door Leading Edge	161	144	17
I	Sill Height at B-Pillar	165	175	-10
J1	Sill Height at Rear Wheel Well	175	173	2
J2	Pinch Weld Height at Rear Wheel Well	175	173	2
K	Sill Height Aft of Rear Wheel Well	221	223	-2
L	Rear Bumper Thickness	102	102	0
M	Rear Bumper Bottom to Ground	265	251	14
N	Sill Height to Bottom of Front Window Sill	710	705	5
O	Front Door Leading Edge to Impact CL	840	740	100
P	Rear Door Trailing Edge to Impact CL	1058	982	76
Q	Front Window Opening	393	363	30
R	Right Side Length	3428	3430	-2
S	Left Side Length	3428	3352	76
T	Vehicle Width at B-Pillars	1758	1623	135

DATA SHEET NO. 10 VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
Test Date: 9/23/2014



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

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	215	287	-75
2	Occupant Hip Point	498	321	-75
3	Mid Door	613	339	-75
4	Window Sill	900	304	-75
5	Window Top	1340	117	-75

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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014

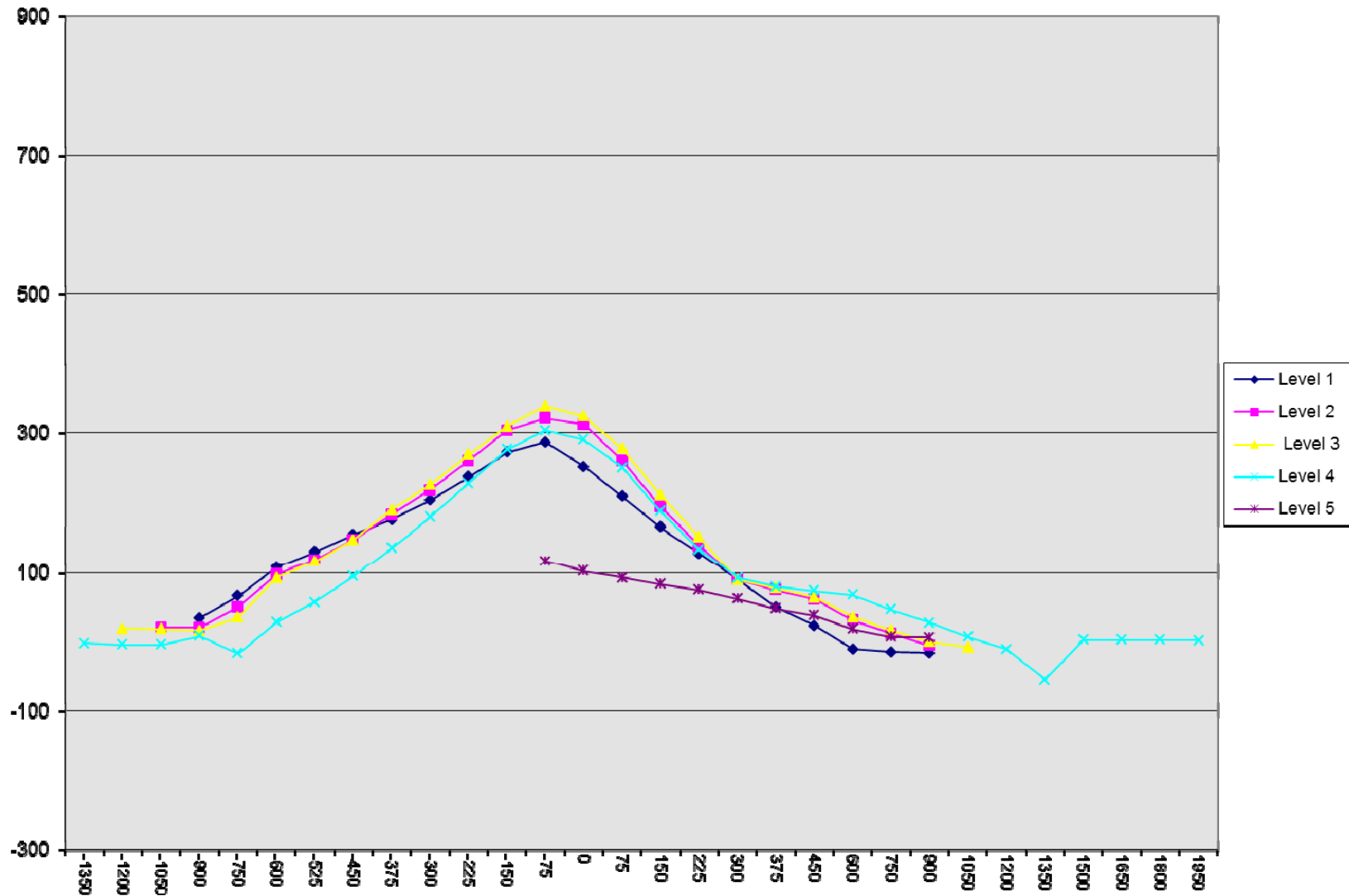
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1350				402					401					-1	
-1200			216	375				236	372				20	-3	
-1050		224	228	348			245	247	345			21	19	-3	
-900	256	234	234	326		291	255	251	335		35	21	17	9	
-750	257	237	234	308		324	288	270	292		67	51	36	-16	
-600	258	237	233	295		366	334	326	324		108	97	93	29	
-525	258	237	232	293		388	355	348	351		130	118	116	58	
-450	258	236	231	289		413	384	379	384		155	148	148	95	
-375	259	235	230	286		435	418	420	422		176	183	190	136	
-300	260	234	230	282		463	452	456	461		203	218	226	179	
-225	260	234	229	280		497	494	498	508		237	260	269	228	
-150	261	233	229	278		533	537	538	554		272	304	309	276	
-75	261	232	228	275	523	548	553	567	579	640	287	321	339	304	117
0	262	232	227	275	520	514	544	551	565	622	252	312	324	290	102
75	262	231	227	273	516	471	491	505	523	609	209	260	278	250	93
150	263	230	226	272	514	428	424	437	460	598	165	194	211	188	84
225	264	230	226	271	514	392	369	377	405	589	128	139	151	134	75
300	264	230	227	269	513	354	320	317	362	576	90	90	90	93	63
375	264	231	227	268	512	315	306	305	348	561	51	75	78	80	49
450	265	231	227	267	512	289	293	292	341	551	24	62	65	74	39
600	268	230	228	265	516	258	262	265	333	535	-10	32	37	68	19
750	266	227	227	265	521	252	240	245	312	529	-14	13	18	47	8
900	260	218	220	264	532	245	213	221	292	539	-15	-5	1	28	7
1050			203	268				196	276				-7	8	
1200				272					262					-10	
1350				279					226					-53	
1500				290					294					4	
1650				304					308					4	
1800				321					325					4	
1950				341					344					3	

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 pile 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)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
Test Program: NCAP Side Pole Impact Test

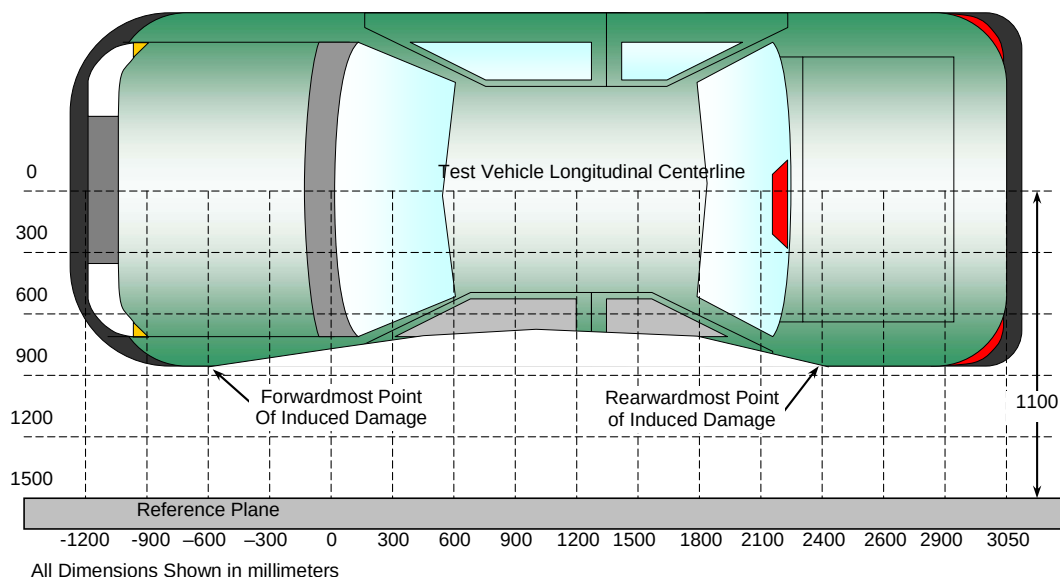
NHTSA No. M20150115
Test Date: 9/23/2014



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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	300	3	227	317	90
2	70	3	227	508	281
3	-160	3	229	534	305
4	-390	3	230	411	181
5	-620	3	233	320	87
6	-850	3	234	251	17

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

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

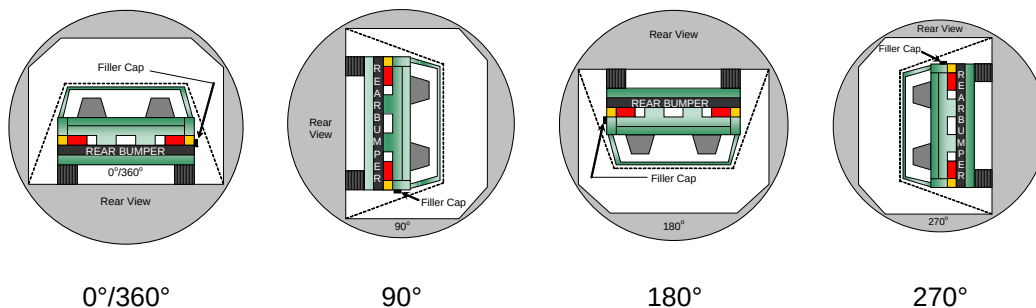
NHTSA No. M20150115
 Test Date: 9/23/2014

Test Time: 9:37 am

Temperature: 21.4°C

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum Allowable = 1 ounce)
 B. For the 5 minute period after motion ceases: None
 (Maximum allowable = 5 ounces)
 C. For the following 25 minutes: None
 (Maximum allowable = 1 oz./minute)
 D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	112	300	412
90° to 180°	110	300	410
180° to 270°	108	300	408
270° to 360°	110	300	410

FMVSS 301 ROLLOVER SPILLAGE TABLE (units in ounces)

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

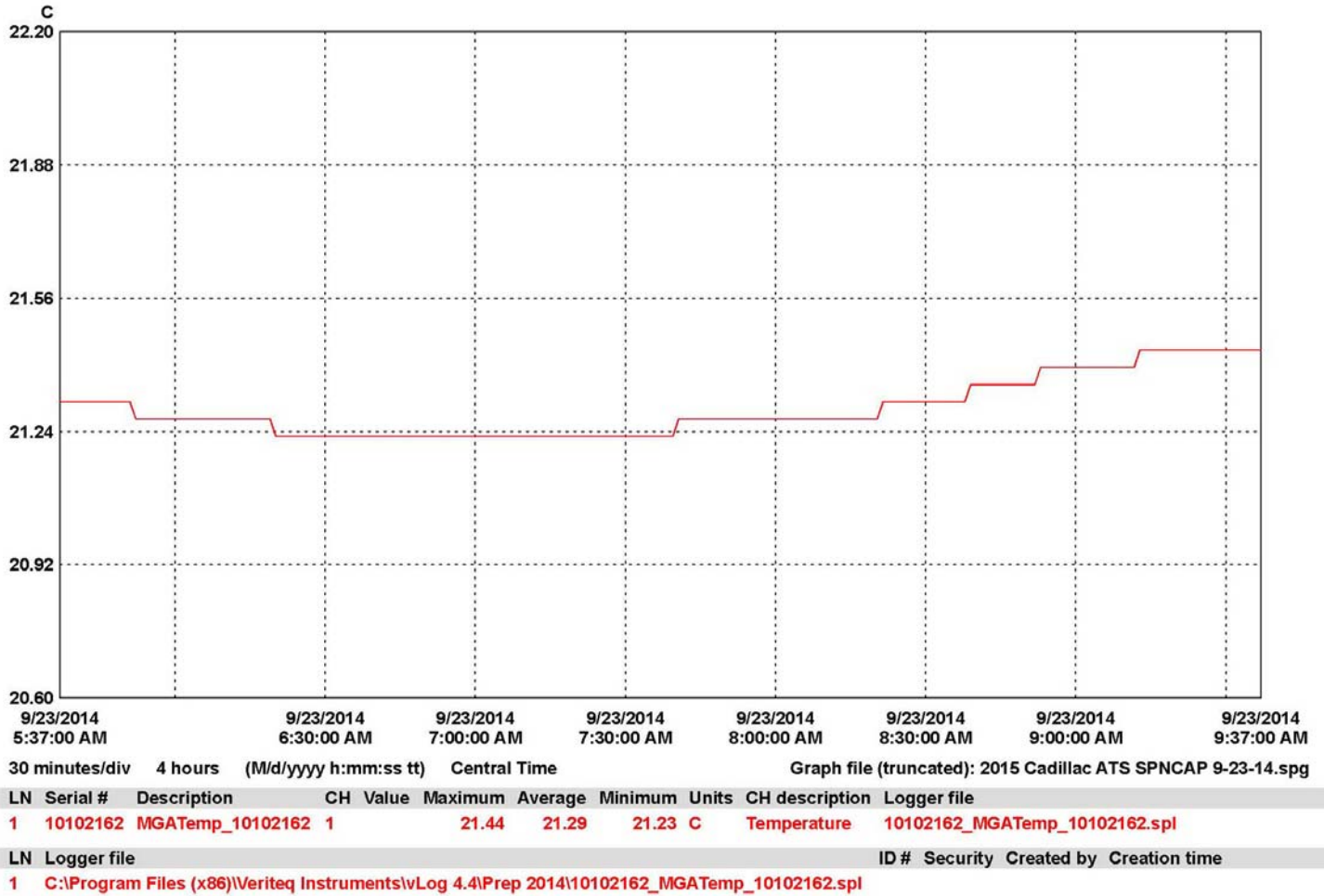
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 13
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2015 Cadillac ATS 4-Dr Sedan
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150115
 Test Date: 9/23/2014



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PHOTOGRAPHS

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As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



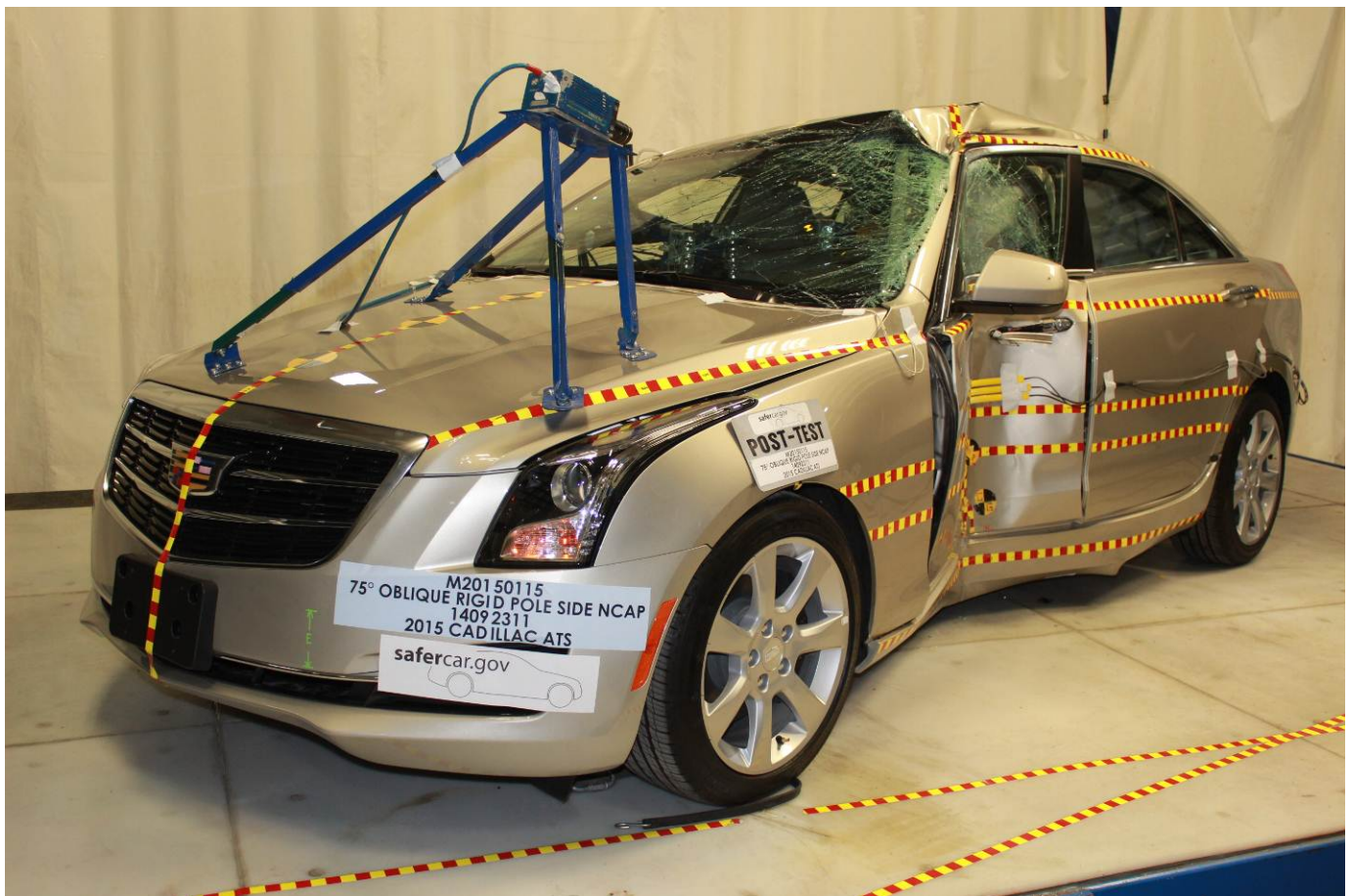
Pre-Test Frontal View of Test Vehicle



Post-Test Frontal View of Test Vehicle



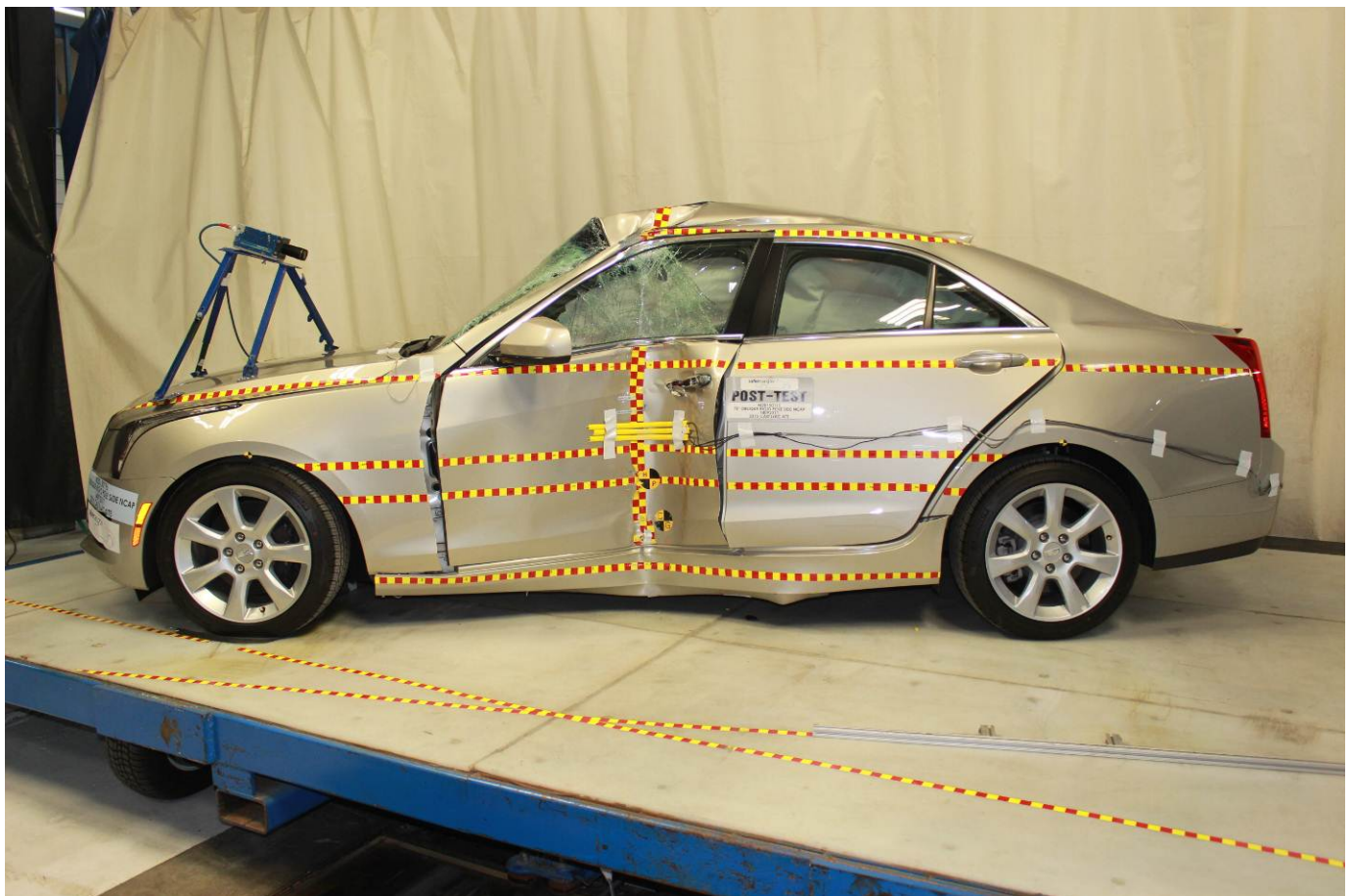
Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Pre-Test Rear View of Test Vehicle



Post-Test Rear View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



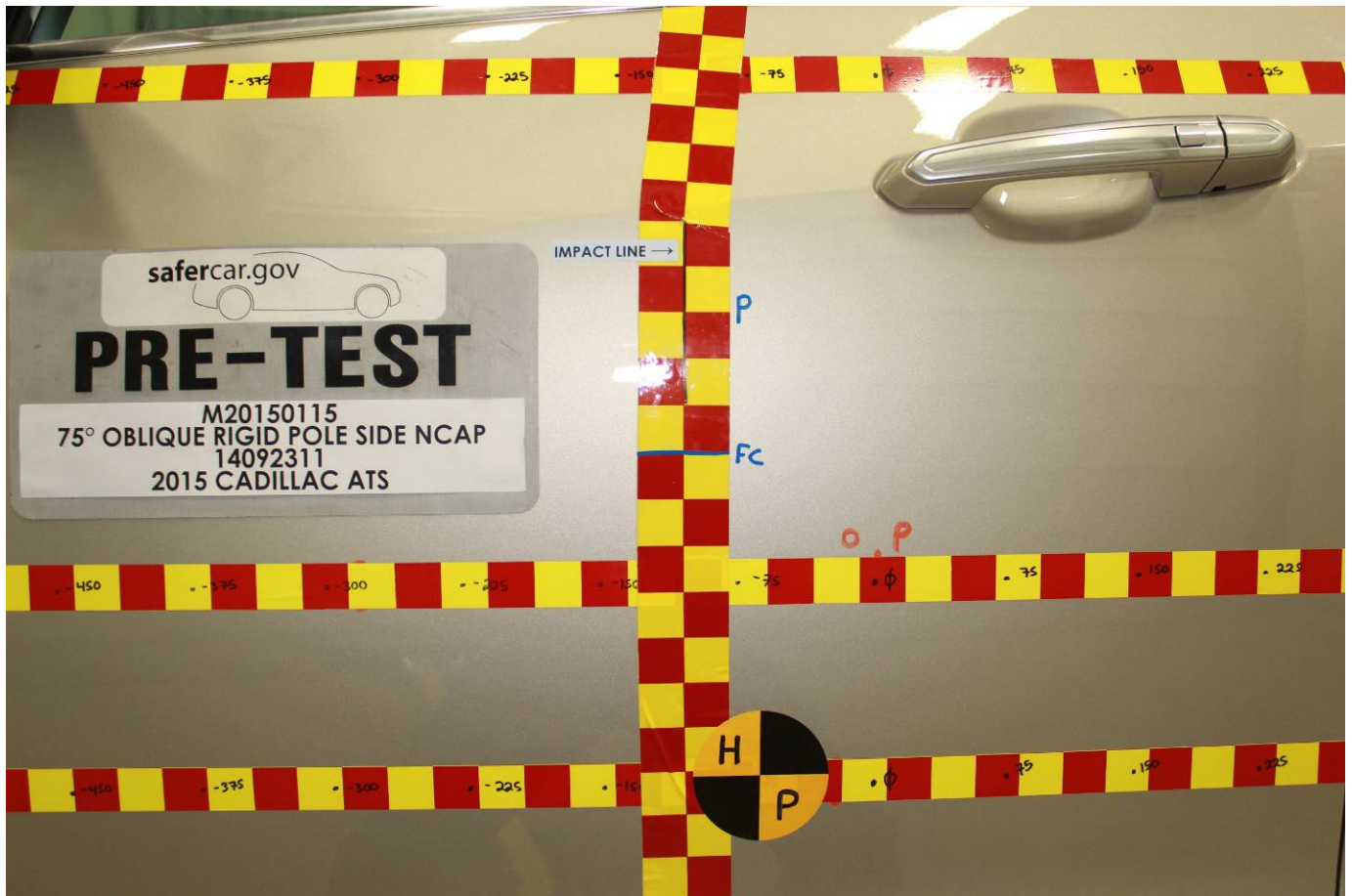
Post-Test Overhead View of Test Area



Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



Pre-Test Close-Up View of Impact Point Target



Post-Test Close-Up View of Impact Point Target Showing Impact Location



Pre-Test Front Close-Up View of Dummy Head and Chest



Post-Test Front Close-Up View of Dummy



Pre-Test Left Side View of Dummy Showing Belt and Chalking



Pre-Test Left Side View of Dummy Shoulder and Door Top View



Post-Test Left Side View of Dummy Shoulder and Door Top View



Pre-Test Front View of Seat Back Prior to Dummy Positioning



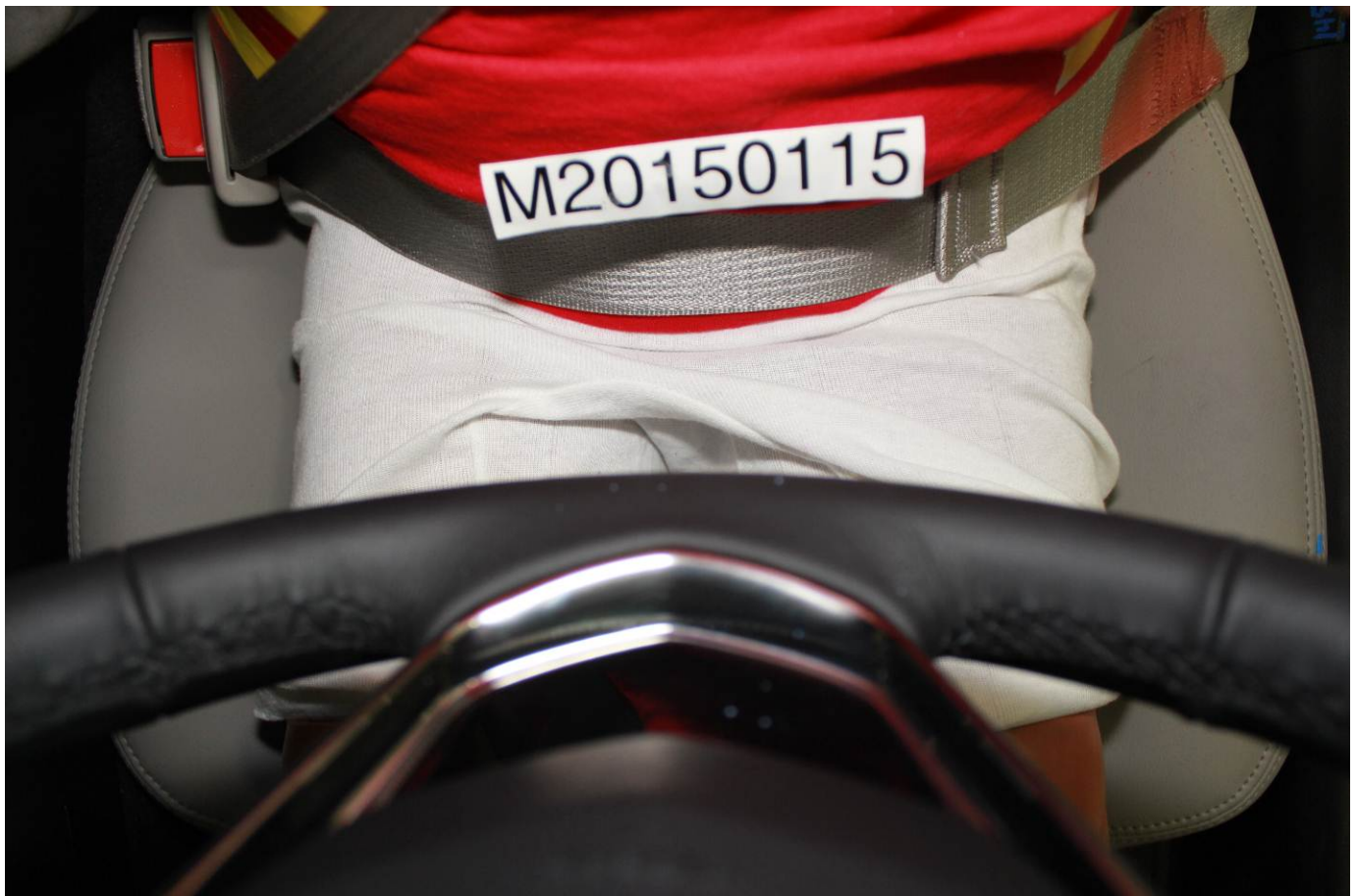
Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



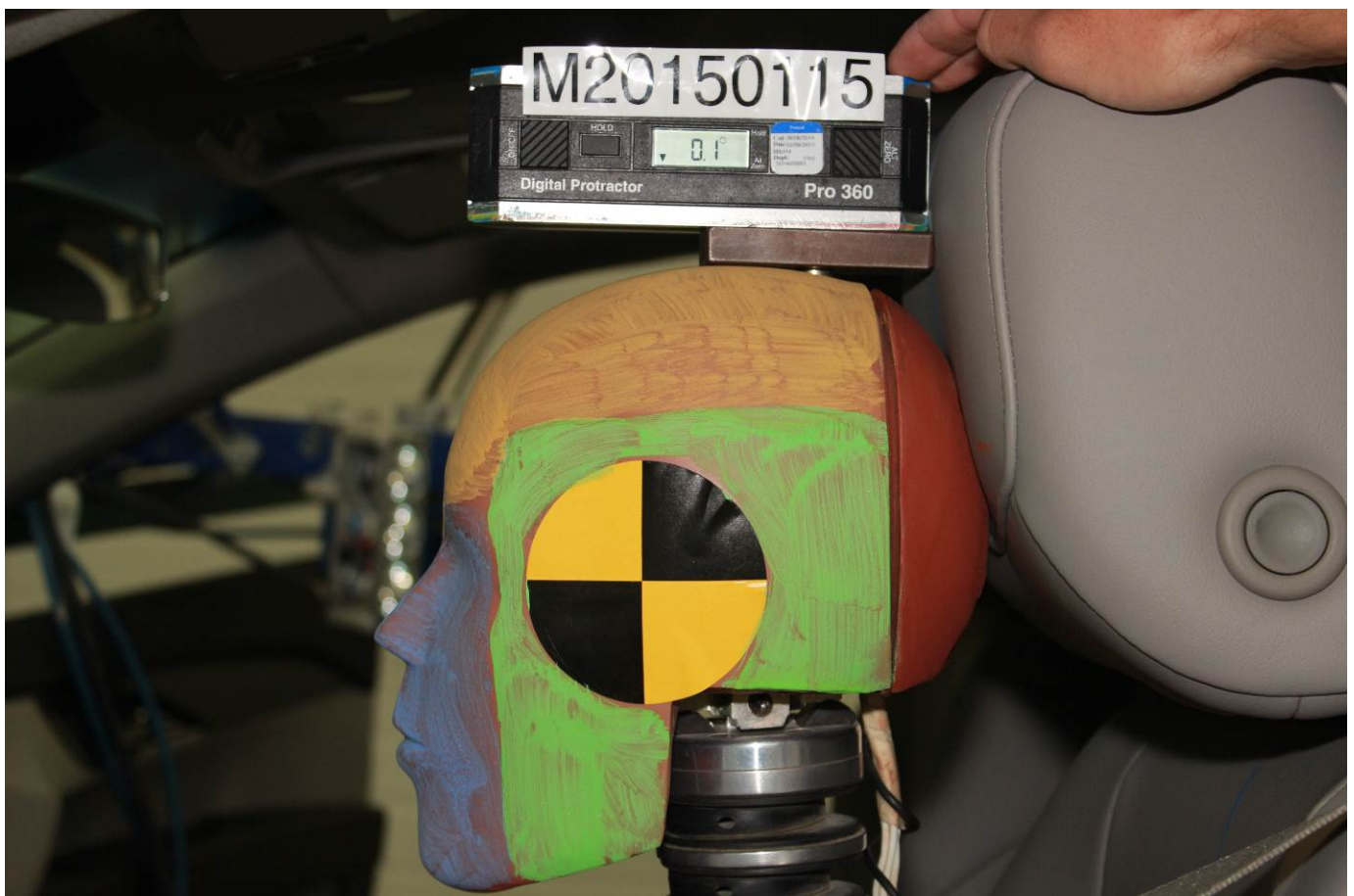
Pre-Test Front View of Seat Pan Prior to Dummy Positioning



Pre-Test Overhead View of Dummy Thighs on Seat Pan



Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket



Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level



Pre-Test Placement of Dummy's Feet



Pre-Test View of Belt Anchorage for Dummy



Pre-Test Left Side View of Steering Wheel



Pre-Test View of Disengaged Parking Brake



Pre-Test View of Parking Brake



Pre-Test Close-Up Left Side View of Driver Seat Track



Pre-Test Close-Up Left Side View of Driver Seat Back



Pre-Test Close-Up View of Driver Seat Back or Head Restraint



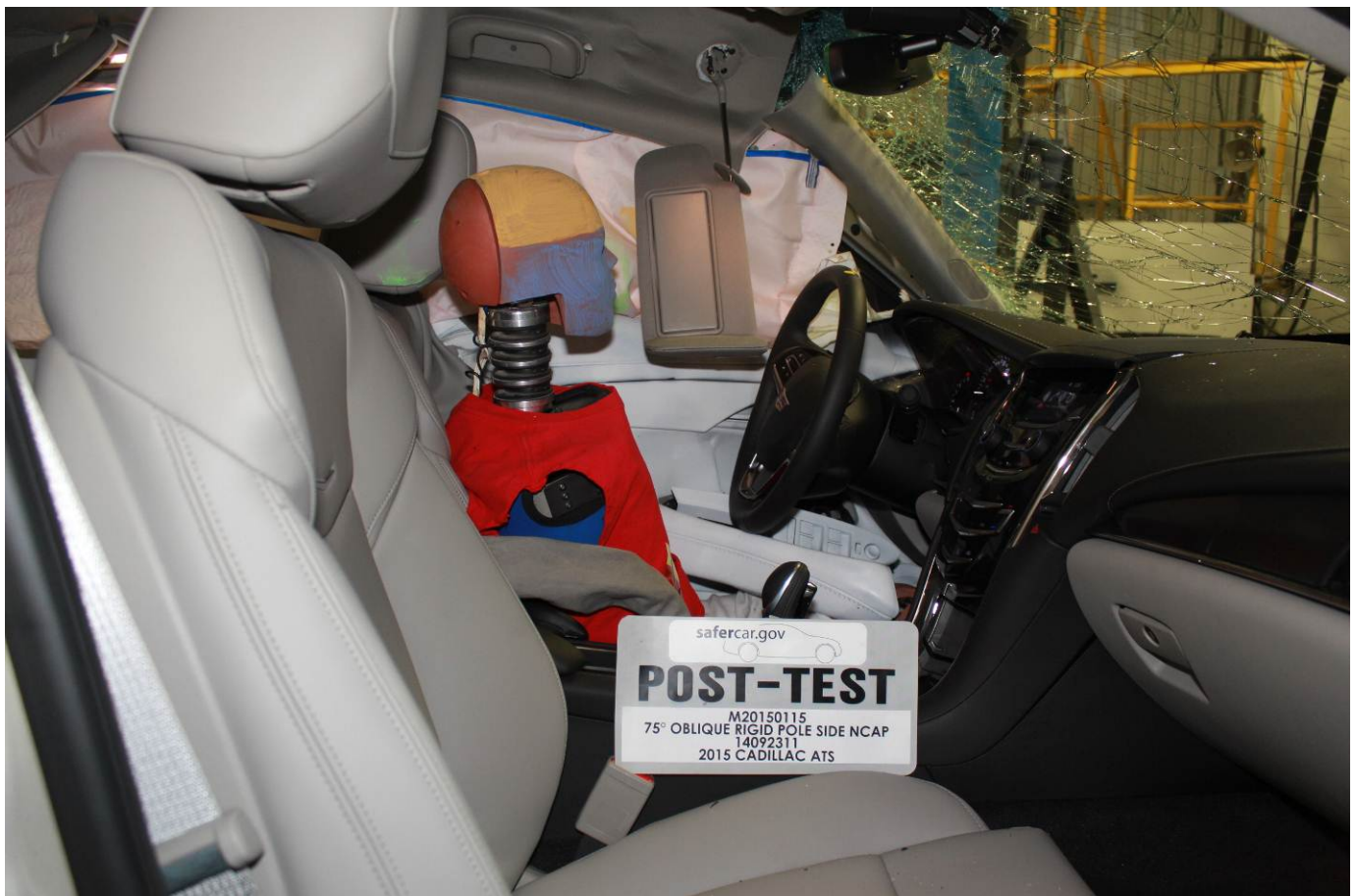
Pre-Test Dummy and Door Clearance View



Post-Test Dummy and Door Clearance View



Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Pre-Test Inner Door Panel View



Post-Test Inner Door Panel View Showing Dummy Contact Location



Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



Post-Test Dummy Close-Up Head Contact with Side Air Bag View



Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Post-Test Dummy Close-Up Torso Contact with Side Air Bag View



Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View



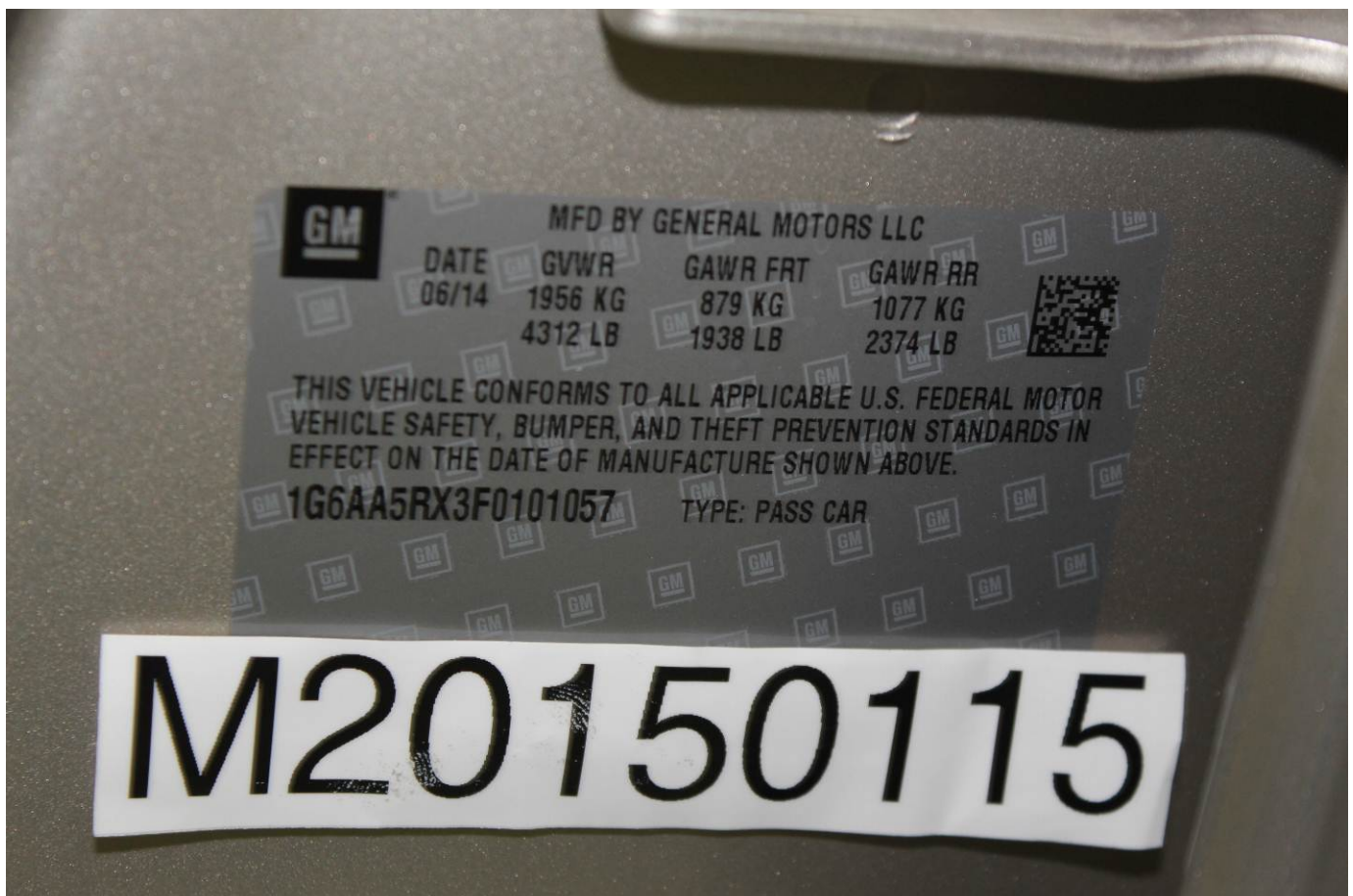
Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



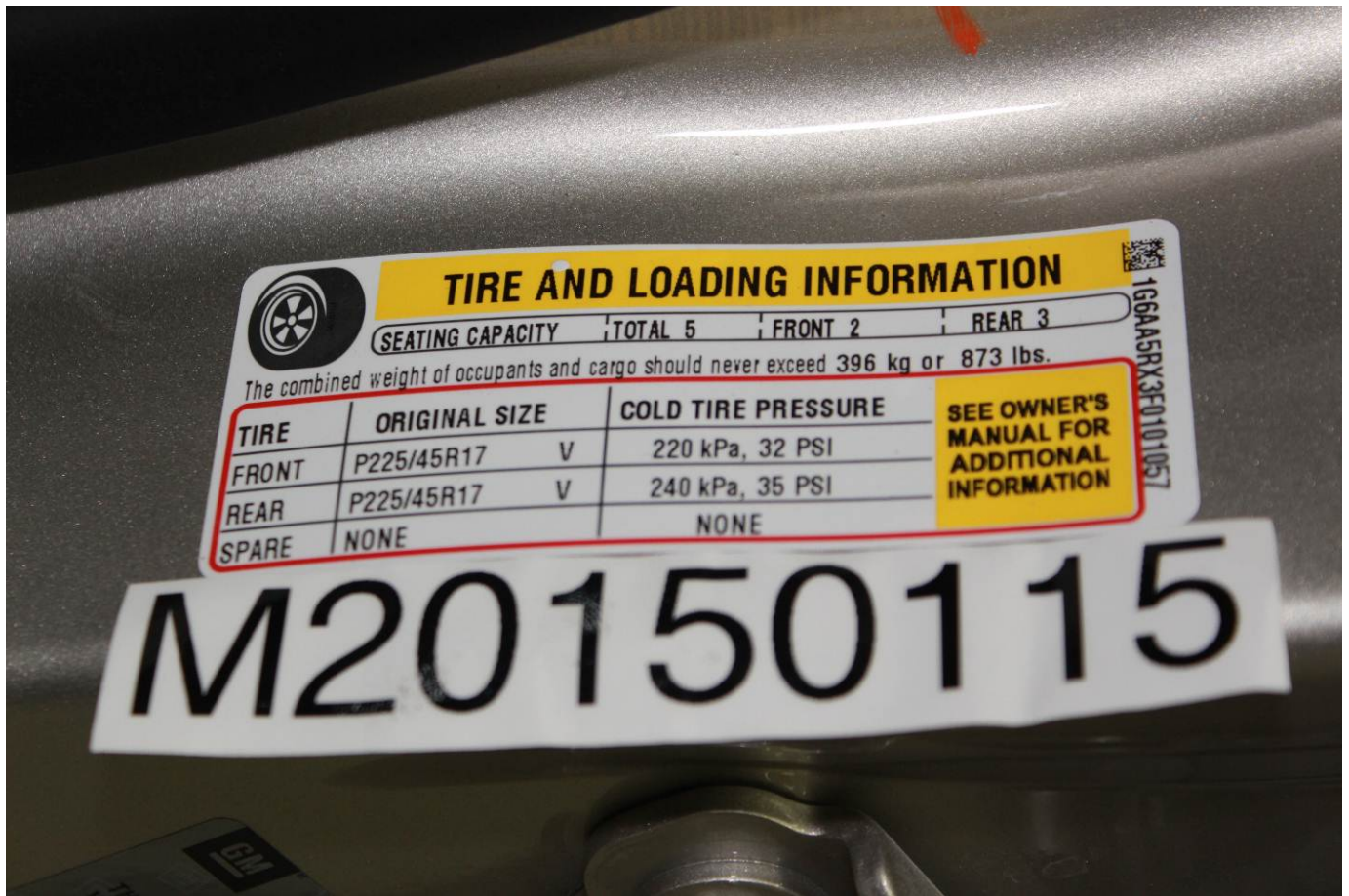
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



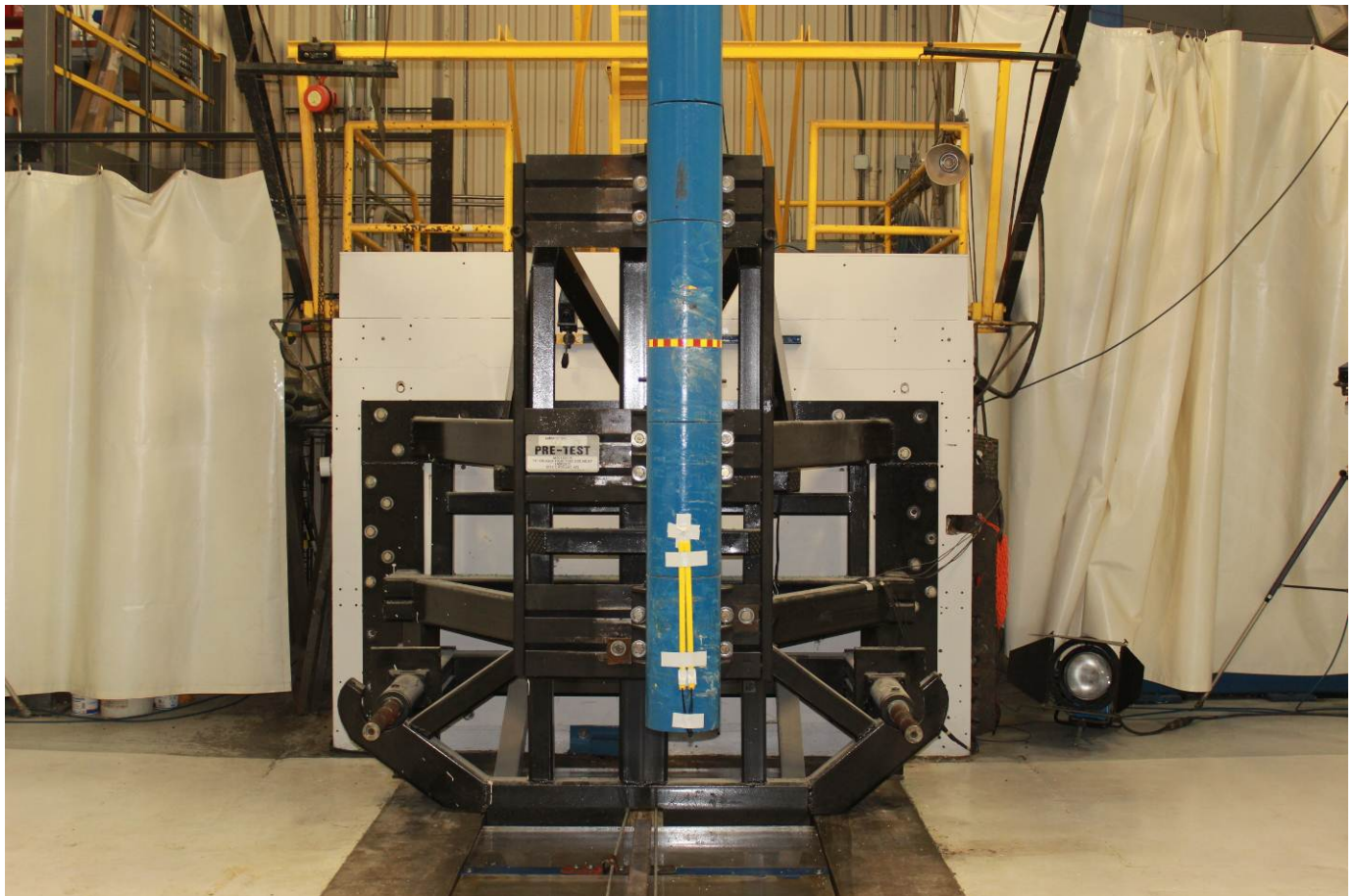
Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Close-Up View of Vehicle's Certification Label



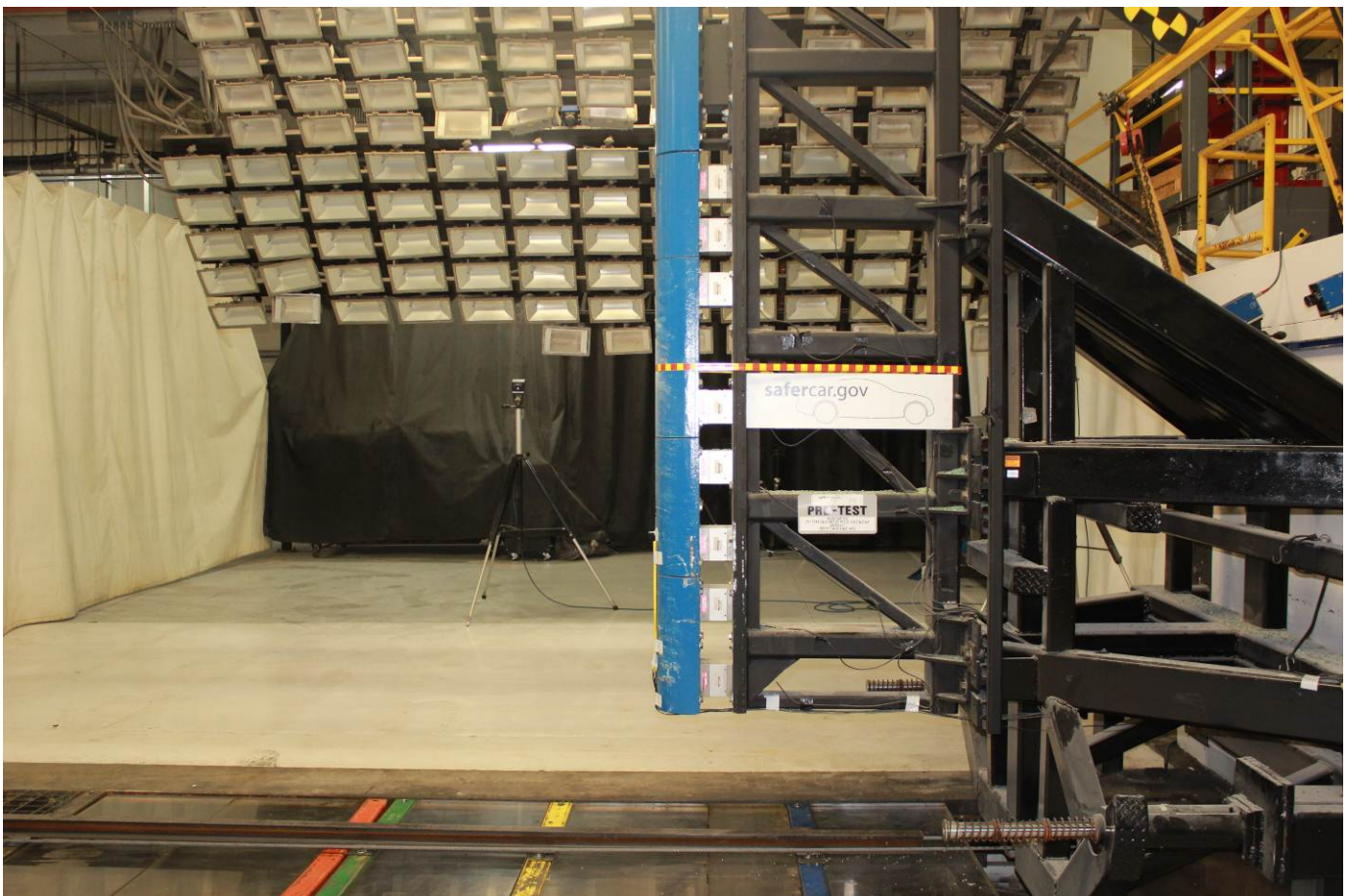
Close-Up View of Vehicle's Tire Information Placard or Label



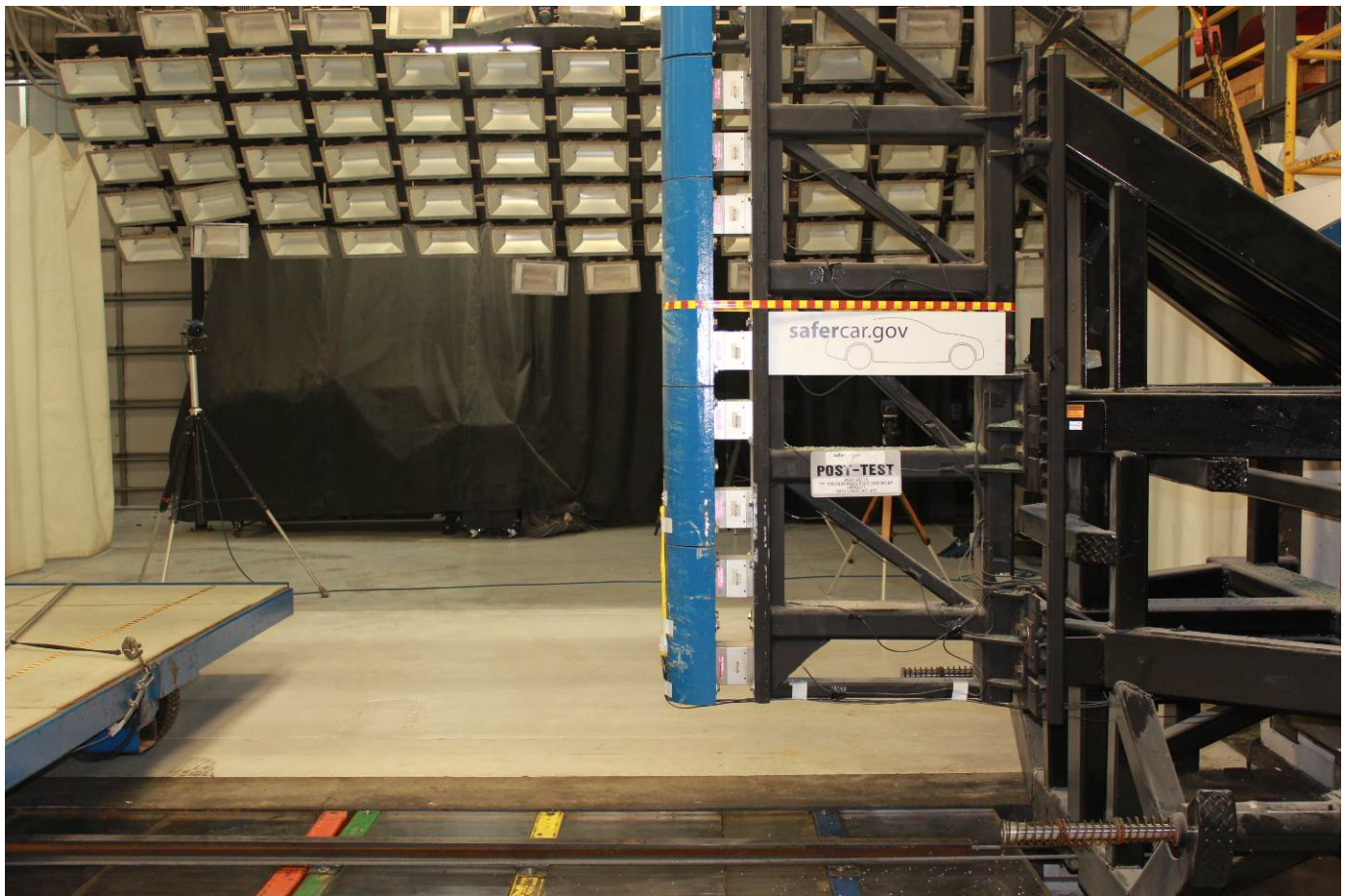
Pre-Test Pole Barrier Front View



Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



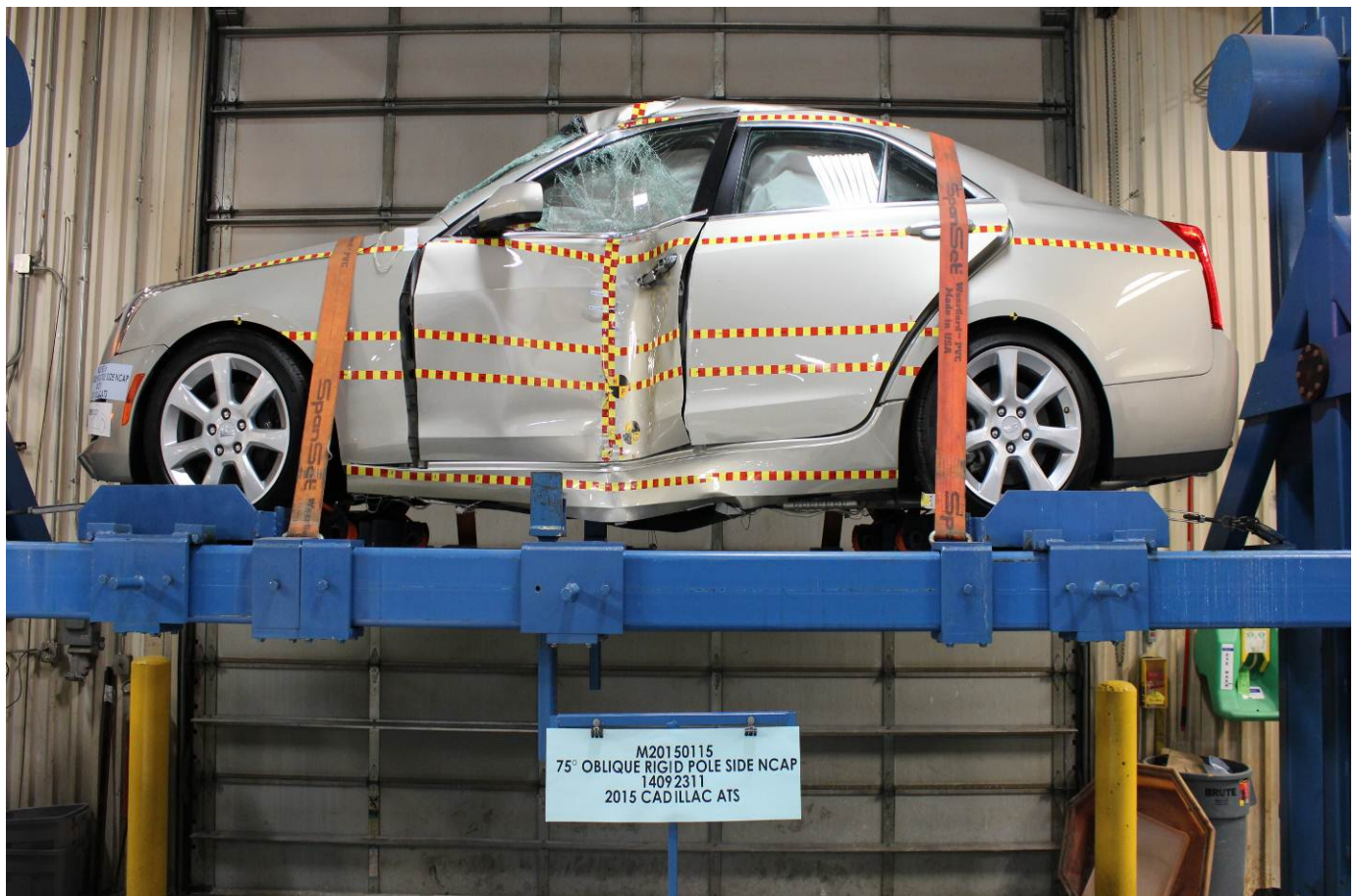
Post-Test Pole Barrier Side View

PHOTOGRAPH NOT APPLICABLE

Pre-Test Ballast View



Post-Test Primary and Redundant Speed Trap Read-Out



FMVSS No. 301 Static Rollover 0 Degrees



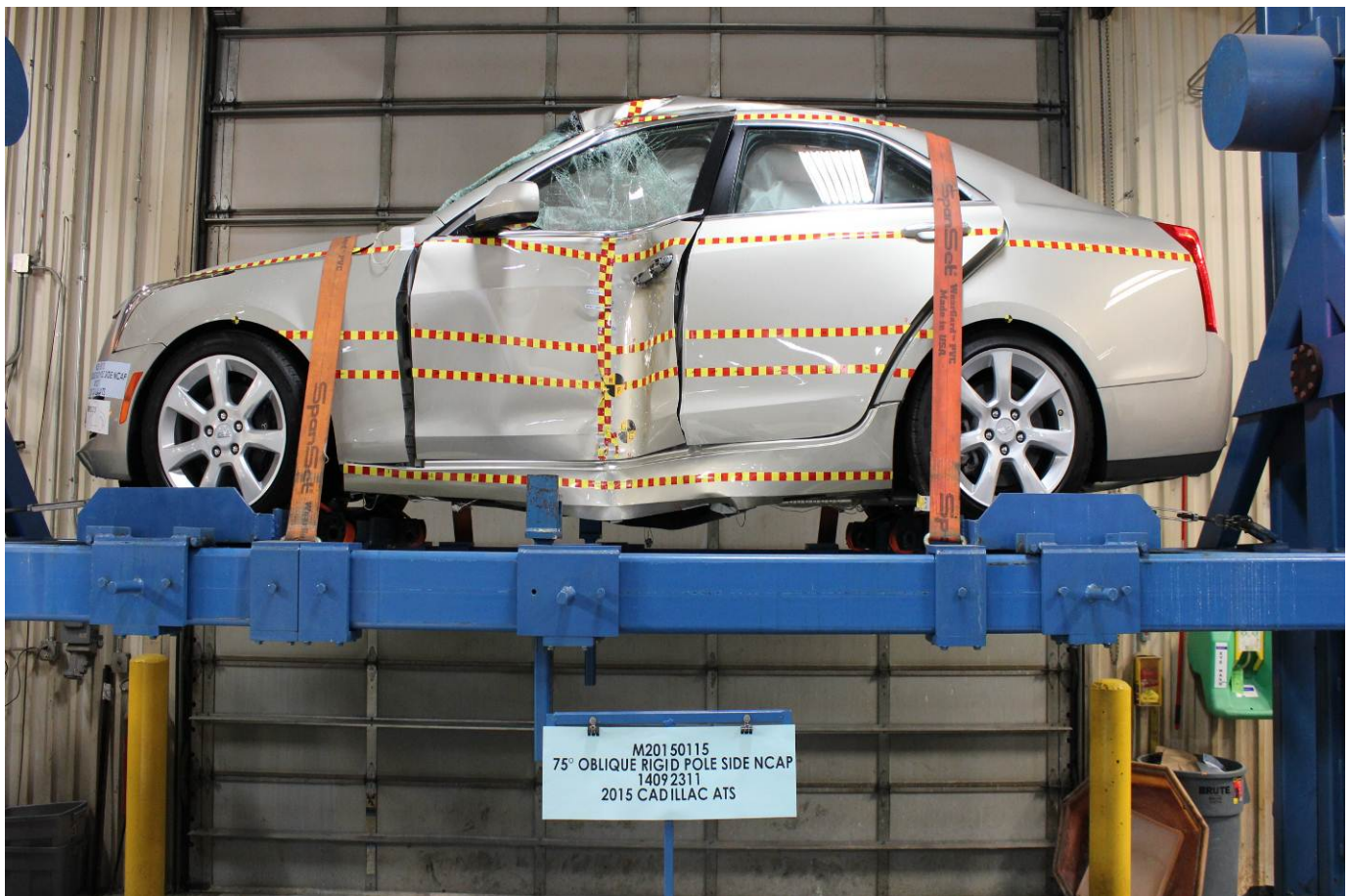
FMVSS No. 301 Static Rollover 90 Degrees



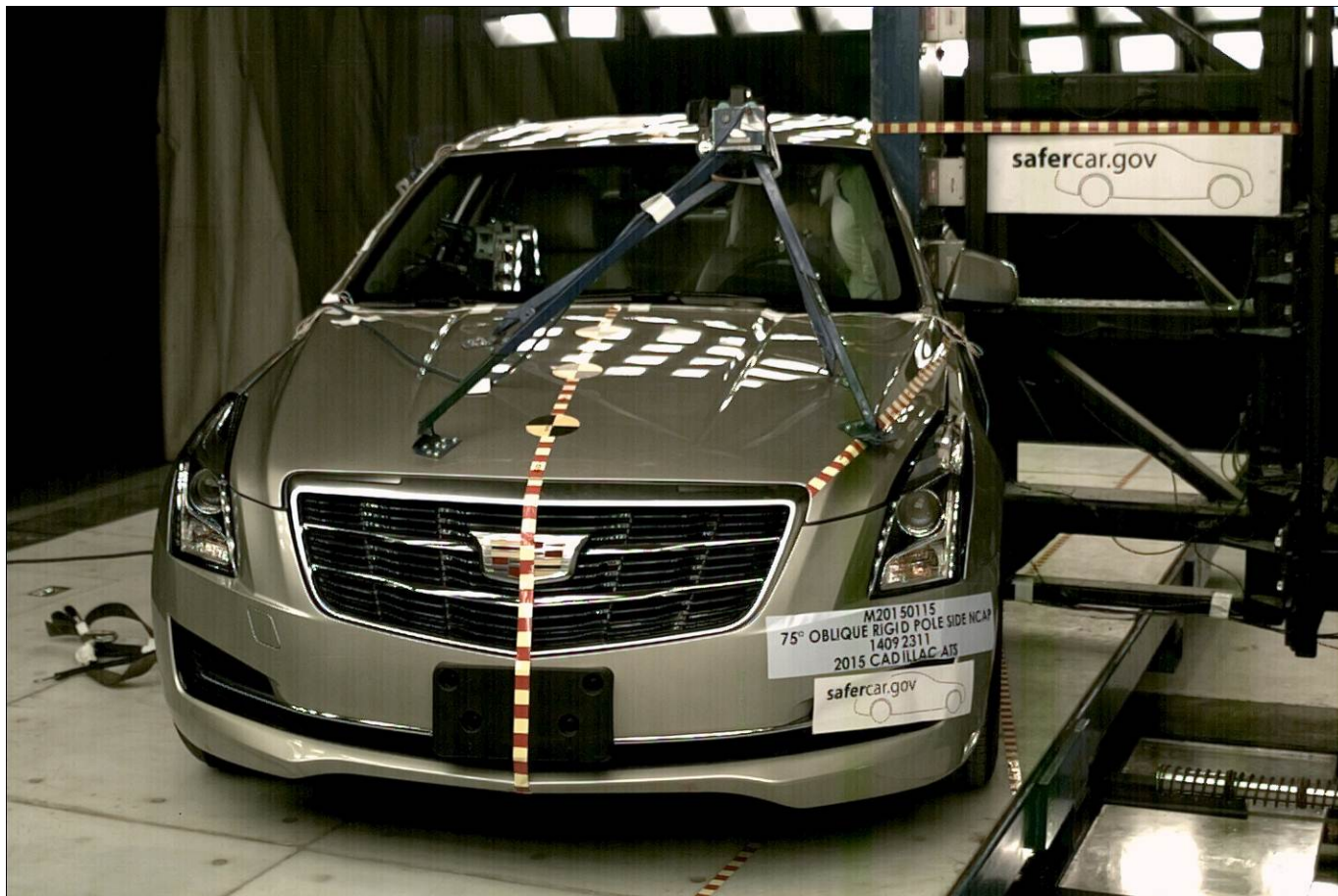
FMVSS No. 301 Static Rollover 180 Degrees



FMVSS No. 301 Static Rollover 270 Degrees



FMVSS No. 301 Static Rollover 360 Degrees



Impact Event



2015 ATS 2.0T SEDAN



EXTERIOR: SILVER COAST METALLIC
INTERIOR: PLATINUM W/ JET BLACK ACCENTS

ENGINE: 2.0L TURBO 4-CYL
TRANSMISSION: 6 SPD AUTOMATIC

Visit us at www.cadillac.com

STANDARD EQUIPMENT

ITEMS FEATURED BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE (EXCEPT WHERE NOTED)

CADILLAC OWNER BENEFITS

- 4 YEAR / 50,000 MILE* BUMPER-TO-BUMPER WARRANTY
- 6 YEAR / 70,000 MILE* POWERTRAIN LIMITED WARRANTY
- 4 YEAR / 50,000 MILE* PREMIUM CARE MAINTENANCE
- 6 YEAR / 70,000 MILE* COURTESY TRANSPORTATION
- 6 YEAR / 70,000 MILE* ROADSIDE ASSISTANCE
- *WHICHEVER COMES FIRST, SEE DEALER FOR DETAILS.
- 1 YR. ONSTAR(R) DIRECTIONS & CONNECTIONS W/AUTOMATIC CRASH RESPONSE & TURN-BY-TURN NAV PLUS 5-YEAR ONSTAR BASIC PLAN (OMITS SAFETY, SECURITY & NAV) (SEE ONSTAR.COM)

PERFORMANCE

- ENGINE, 2.0L TURBO 4-CYL 272HP WITH DIRECT INJECTION
- TRANSMISSION, 6 SPD AUTOMATIC
- PERF. ALGORITHM TAPSHIFT
- SUSPENSION, SPORT
- 2F PREMIUM ELECTRIC/ VARIABLE STEERING
- EXHAUST, DUAL STAINLESS STEEL WITH BRIGHT POLISHED TIPS
- WHEELS, 17" PAINTED ALUMINUM
- TIRES, ALL SEASON RUN FLAT
- BREMBO PERFORMANCE FRT BRAKES
- STABILITRAK-STABILITY CONTROL W/ TRACTION CONTROL
- TIRE PRESSURE MONITOR
- LUXURY & CONVENIENCE
- HANDCRAFTED CUT & SEWN INTERIOR
- LEATHERETTE SEATING SURFACES
- PWR SEAT ADJUST DRIVER AND FRONT PASSENGER 6-WAY

- LUMBAR FRT DRIVER/PASS PWR
- 5.7" FULL-COLOR DIC
- 4.2" FULL-COLOR RADIO DISPLAY
- STEREO, BOSE
- XM RADIO - SERVICE SUBSCRIPTION SOLD SEPARATELY BY SIRIUSXM AFTER 3 MTHS
- BLUETOOTH FOR PHONE
- LEATHER WRAP STRG WHL/SHIFTER
- DUAL ZONE CLIMATE CONTROL
- AIR FILTRATION SYSTEM
- MIRRORS, OUTSIDE HEATED & PWR
- LED INTERIOR LIGHTING ACCENTS
- KEYLESS PUSH-BUTTON START
- EZ KEY PASSIVE ENTRY SYSTEM
- SAFETY & SECURITY
- AIRBAGS, DRIVER & PASSENGER
- FRONTAL, KNEE, AND SIDE FRT/OTDR RR - HEAD CURTAIN
- 4-WAY ADJUSTABLE FRONT HEAD RESTRAINTS
- BRAKES, ABS W/ AUTO DRY

OPTIONS & PRICING

MANUFACTURER'S SUGGESTED RETAIL PRICE	
STANDARD VEHICLE PRICE	\$35,245.00
OPTIONS INSTALLED BY THE MANUFACTURER (MAY REPLACE STANDARD EQUIPMENT SHOWN)	
DRIVER & FRONT PASSENGER HEATED SEATS	450.00
TOTAL OPTIONS	\$450.00
TOTAL VEHICLE & OPTIONS	\$35,695.00
DESTINATION CHARGE	995.00
TOTAL VEHICLE PRICE*	\$36,690.00

Fuel Economy and Environment

Fuel Economy

24 MPG combined city/hwy
21 MPG city
30 MPG highway

4.2 gallons per 100 miles

You save \$0 in fuel costs over 5 years compared to the average new vehicle.

Compact cars range from 14 to 105 MPG. The best vehicle rates 119 MPG.

Annual fuel cost \$2,200

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

Smog Rating (tailpipe only)

1 6 10 Best

This vehicle emits 366 grams CO₂ per mile. The best emits 6 grams per mile (tailpipe only). Producing and distributing fuel also create emissions. Learn more at fuelconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs \$11,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.50 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov

Calculate personalized estimates and compare vehicles

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 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

Equipped with the safety and connectivity of OnStar.

Push your blue button or visit onstar.com for details.

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 65%

NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT: LANSING, MI U.S.A.
COUNTRY OF ORIGIN: ENGINE: UNITED STATES
TRANSMISSION: FRANCE

© 2009 General Motors LLC. GM33L79002_0002 - M702014

ORDER NO. 870729 SALES CODE F
DEALER NO. 08877
FINAL ASSEMBLY: LANSING, MI U.S.A.
VIN 1G6AASRX3F0101057
REISSUE

DEALER TO WHOM DELIVERED
PALMEN BUICK GMC CADILLAC, INC.
7110 74TH PLACE
KENOSHA, WI 53142-3519

Monroney Label

Head Restraints

Warning

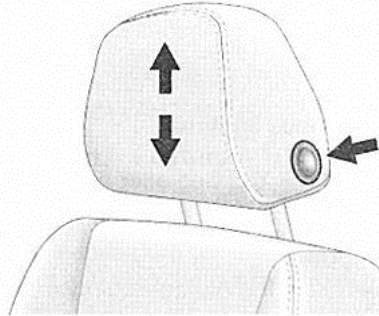
With head restraints that are not installed and adjusted properly, there is a greater chance that occupants will suffer a neck/spinal injury in a crash. Do not drive until the head restraints for all occupants are installed and adjusted properly.



Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.

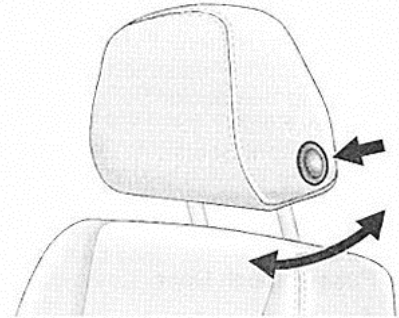
Front Seats

The vehicle's front seats have adjustable head restraints in the outboard seating positions.



The height of the head restraint can be adjusted.

To raise or lower the head restraint, press the button located on the side of the head restraint, and pull up or push the head restraint down and release the button. Pull and push on the head restraint after the button is released to make sure that it is locked in place.



To adjust the head restraint forward and rearward, press the button located on the side facing of the head restraint and move it forward or rearward until the desired locking position is reached. Try to move the

Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

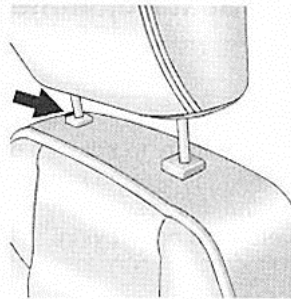
head restraint after the button is released to make sure that it is locked in place.

The front seat outboard head restraints are not removable.

Rear Seats

The vehicle's rear seats have adjustable head restraints in the outboard seating positions.

The height of the head restraint can be adjusted. Pull the head restraint up to raise it. Try to move the head restraint to make sure that it is locked in place.

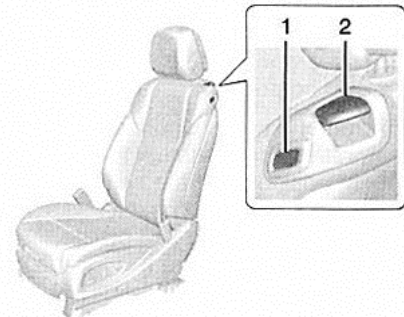


To lower the head restraint, press the button, located on the top of the seatback, and push the head restraint down. Try to move the head restraint after the button is released to make sure that it is locked in place.

Rear outboard head restraints are not removable.

Front Seats

Easy Entry Seat



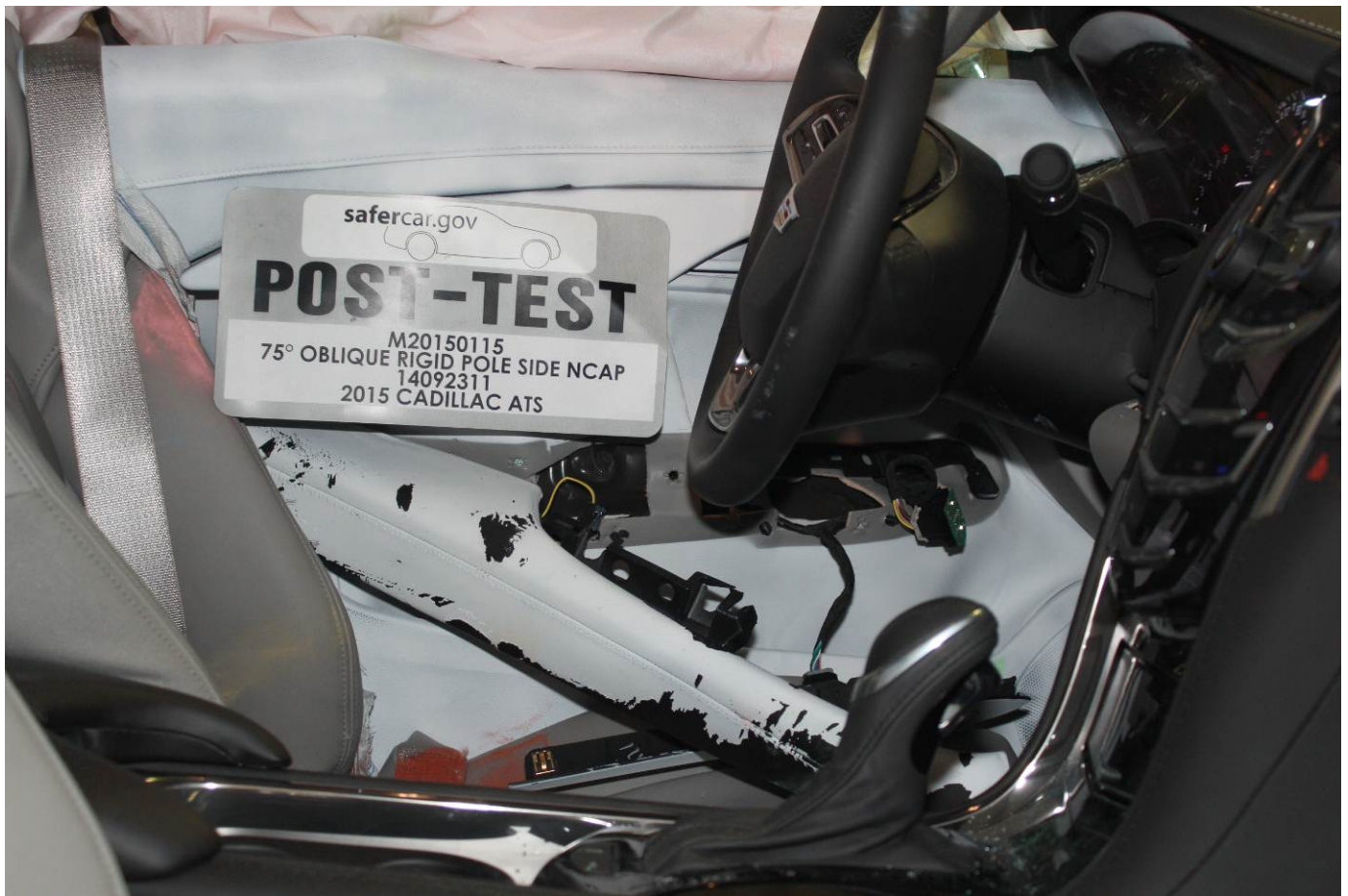
Coupe

1. Seat Adjustment Switch
2. Folding Seatback Handle

If equipped, the front seats can be moved out of the way to make it easier to get in and out of the rear seat.

To fold the seatback, lift the handle (2) on top of the seatback. The seatback will fold forward.

Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

		<u>Page No.</u>
Figure No. 1.	Driver Head CG Acceleration (X) vs. Time	B-1
Figure No. 2.	Driver Head CG Acceleration (Y) vs. Time	B-1
Figure No. 3.	Driver Head CG Acceleration (Z) vs. Time	B-1
Figure No. 4.	Driver Head CG Resultant Acceleration (X) vs. Time	B-1
Figure No. 5.	Driver Lower Spine T12 Acceleration (X) vs. Time	B-2
Figure No. 6.	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-2
Figure No. 7.	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-2
Figure No. 8.	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-2
Figure No. 9.	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-3
Figure No. 10.	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-3
Figure No. 11.	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-3

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

Additional Driver Dummy Instrumentation Data

Driver Head CG Redundant Acceleration (X) vs. Time

Driver Head CG Redundant Acceleration (Y) vs. Time

Driver Head CG Redundant Acceleration (Z) vs. Time

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)

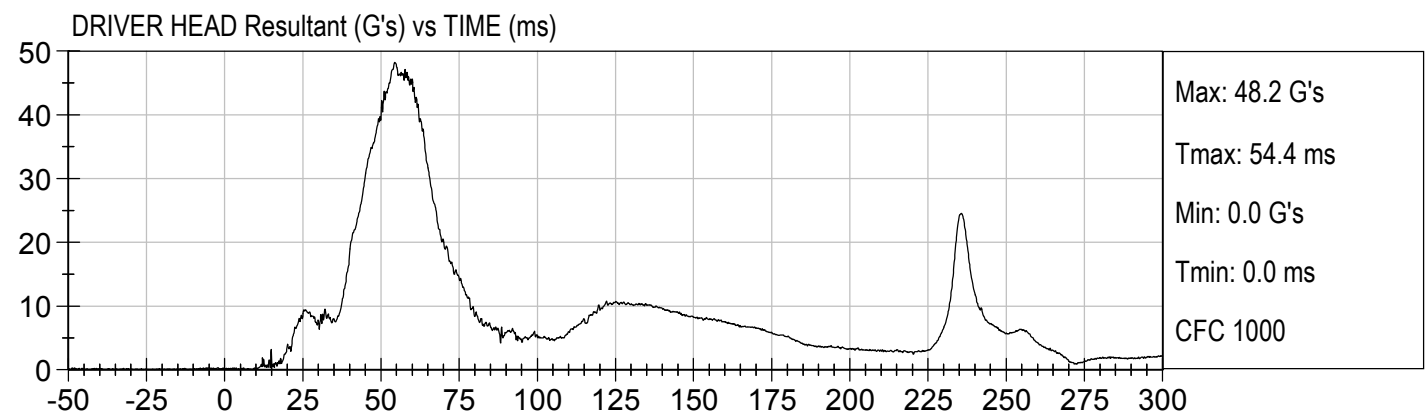
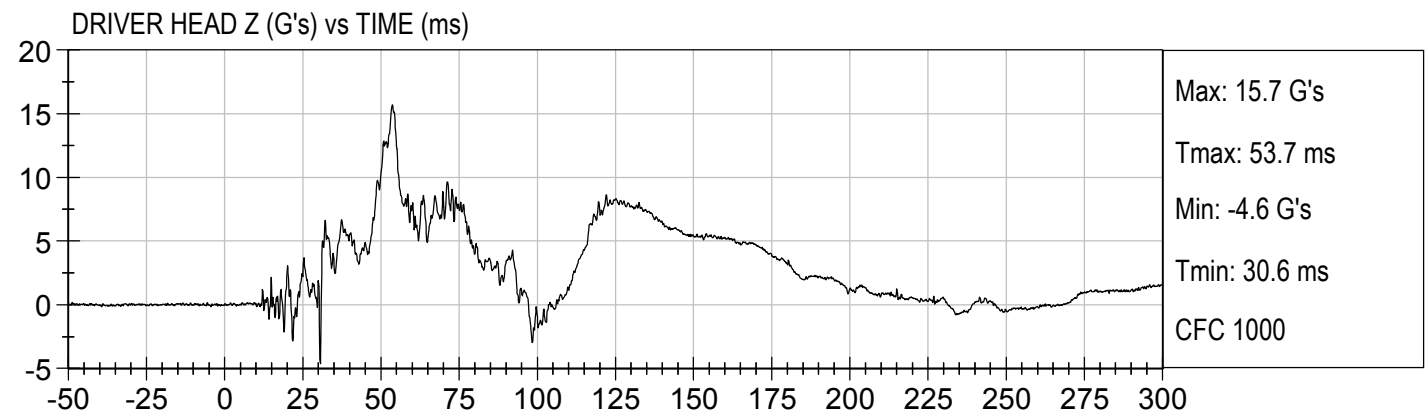
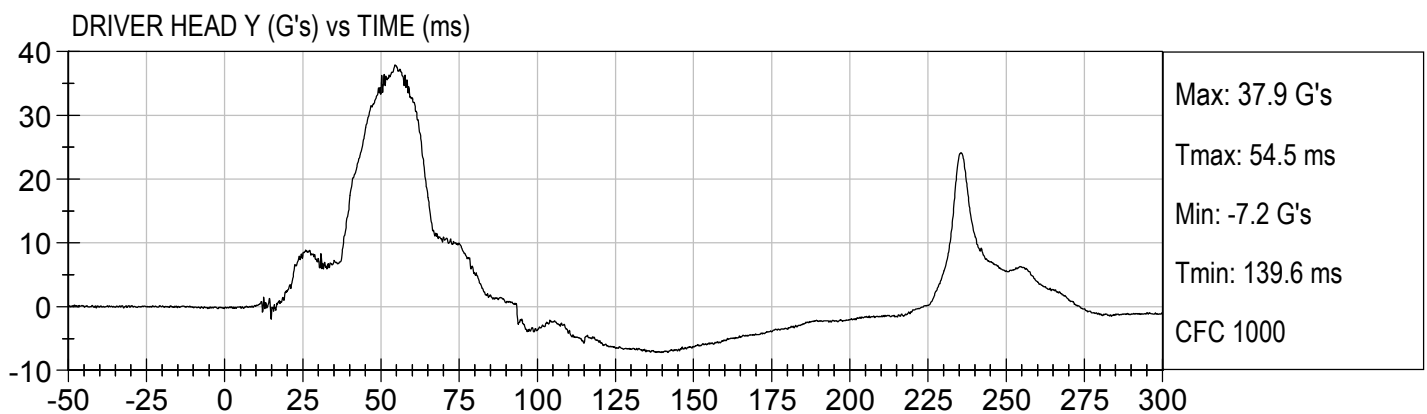
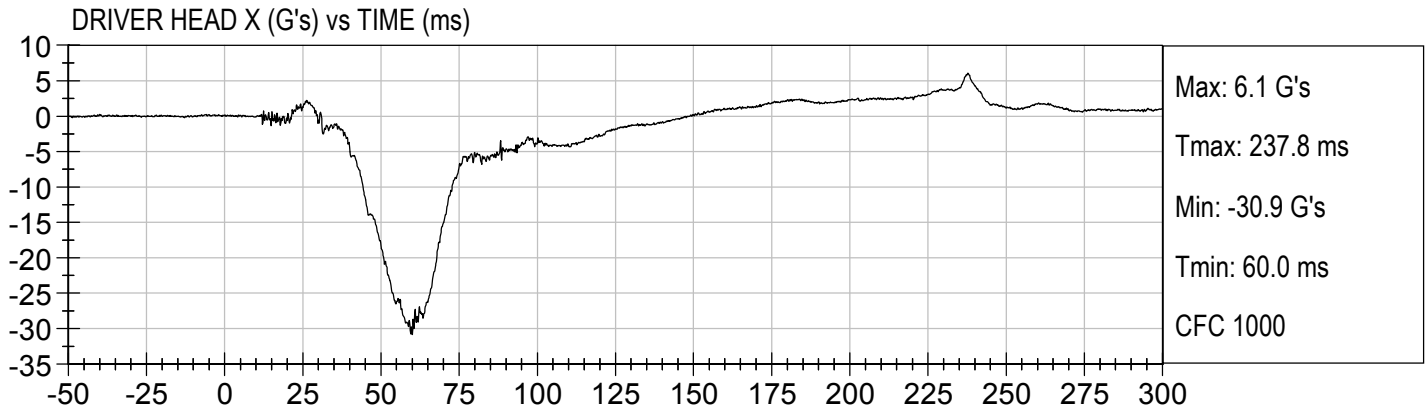
Load Cell Pole Barrier #4 Force (Y)

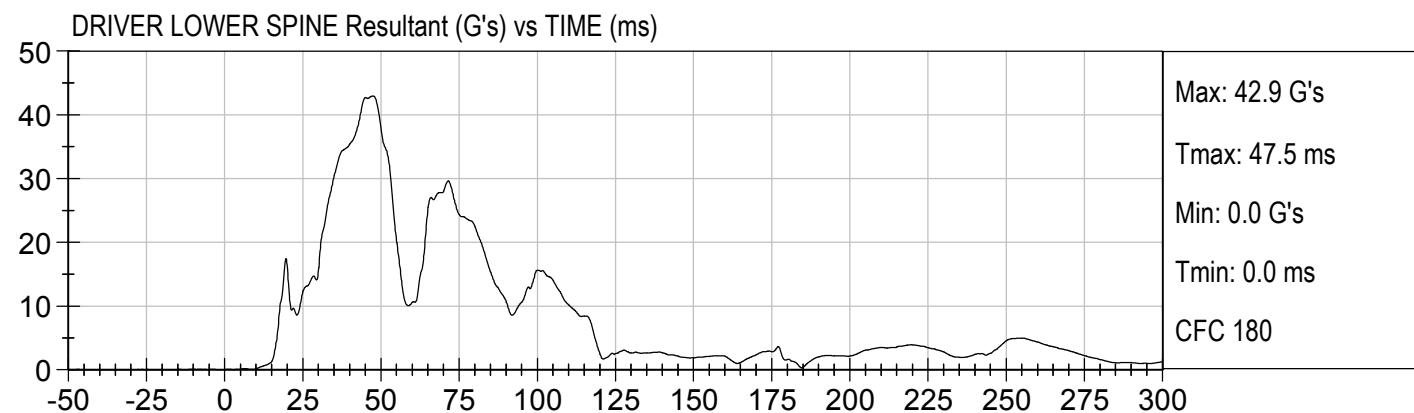
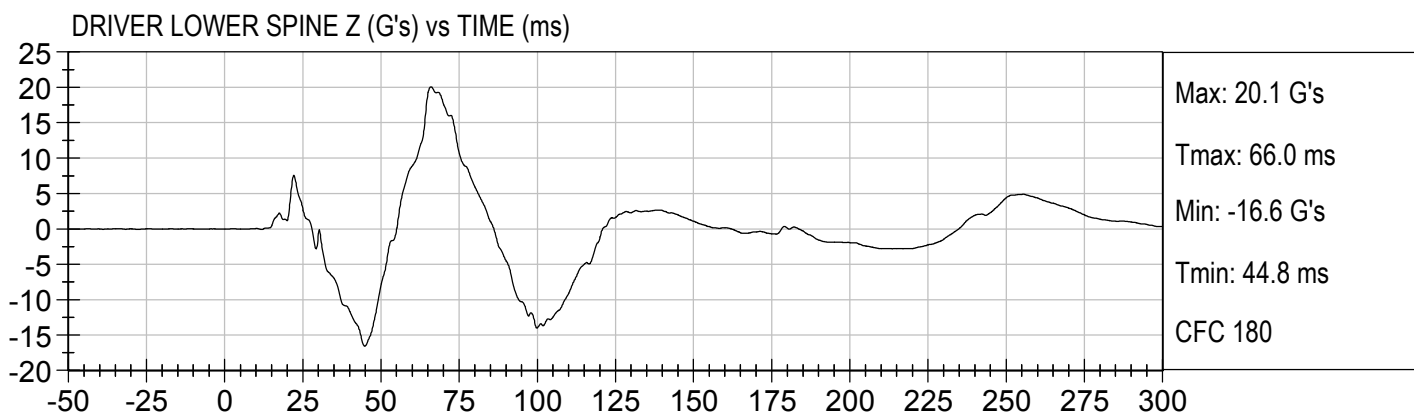
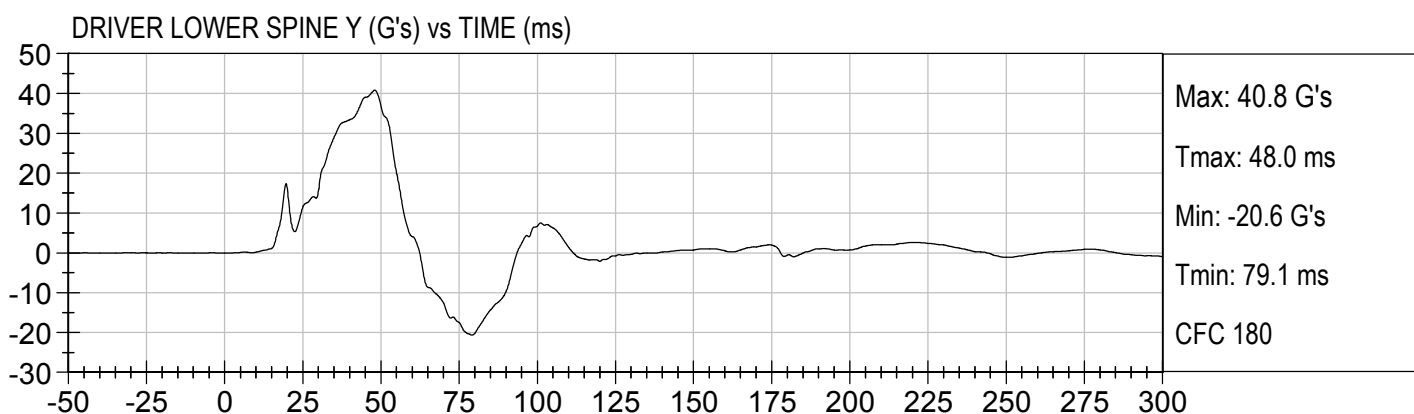
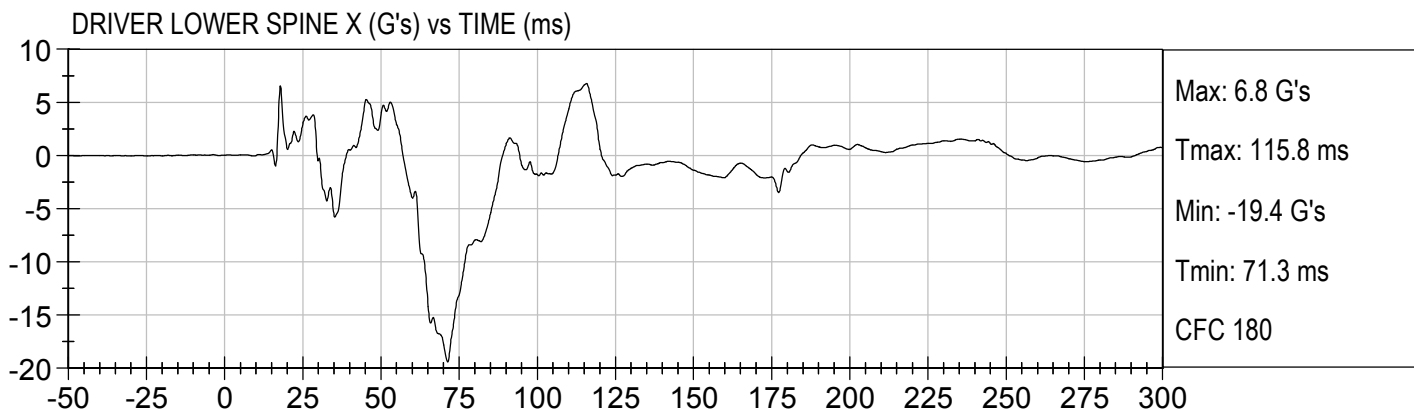
Load Cell Pole Barrier #5 Force (Y)

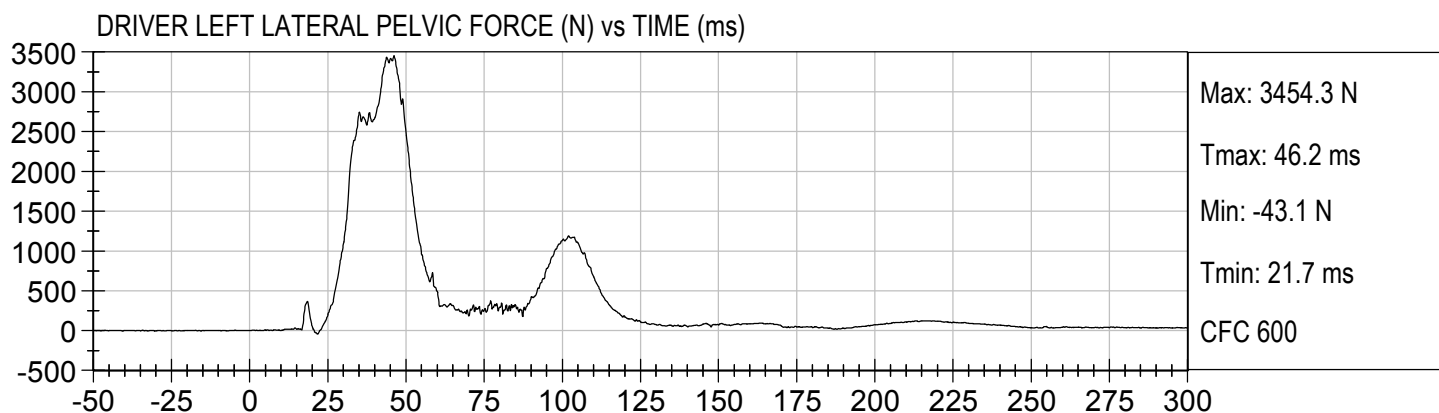
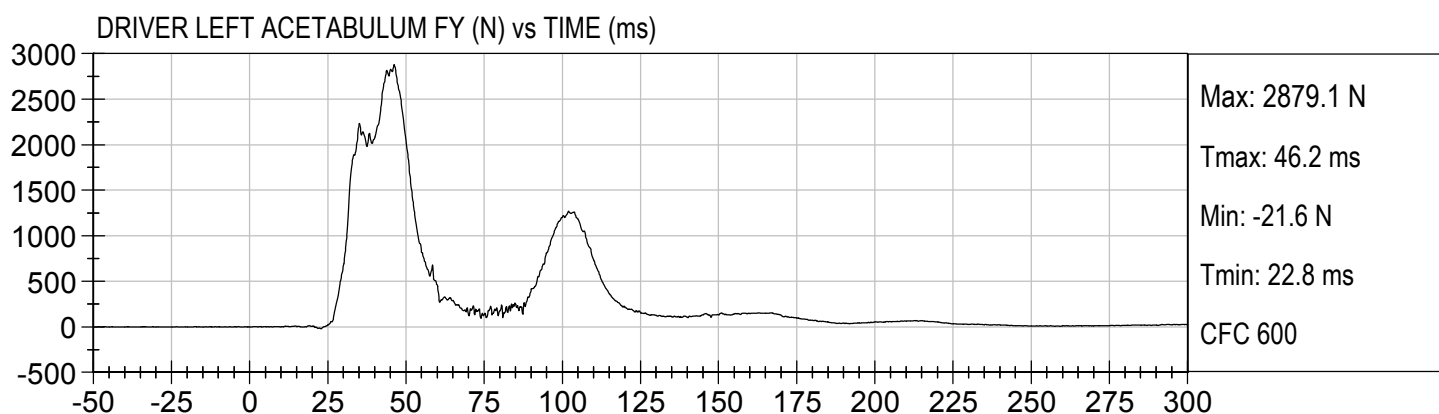
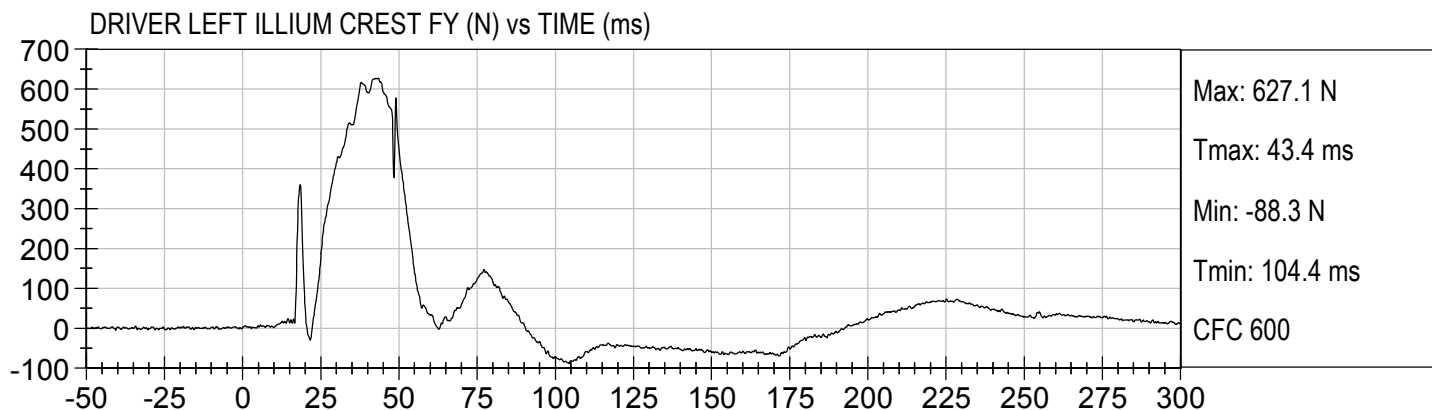
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)







APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SID-IIsD External Measurements
SN: 306

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

MGA RESEARCH CORPORATION
HEAD DROP TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D143061

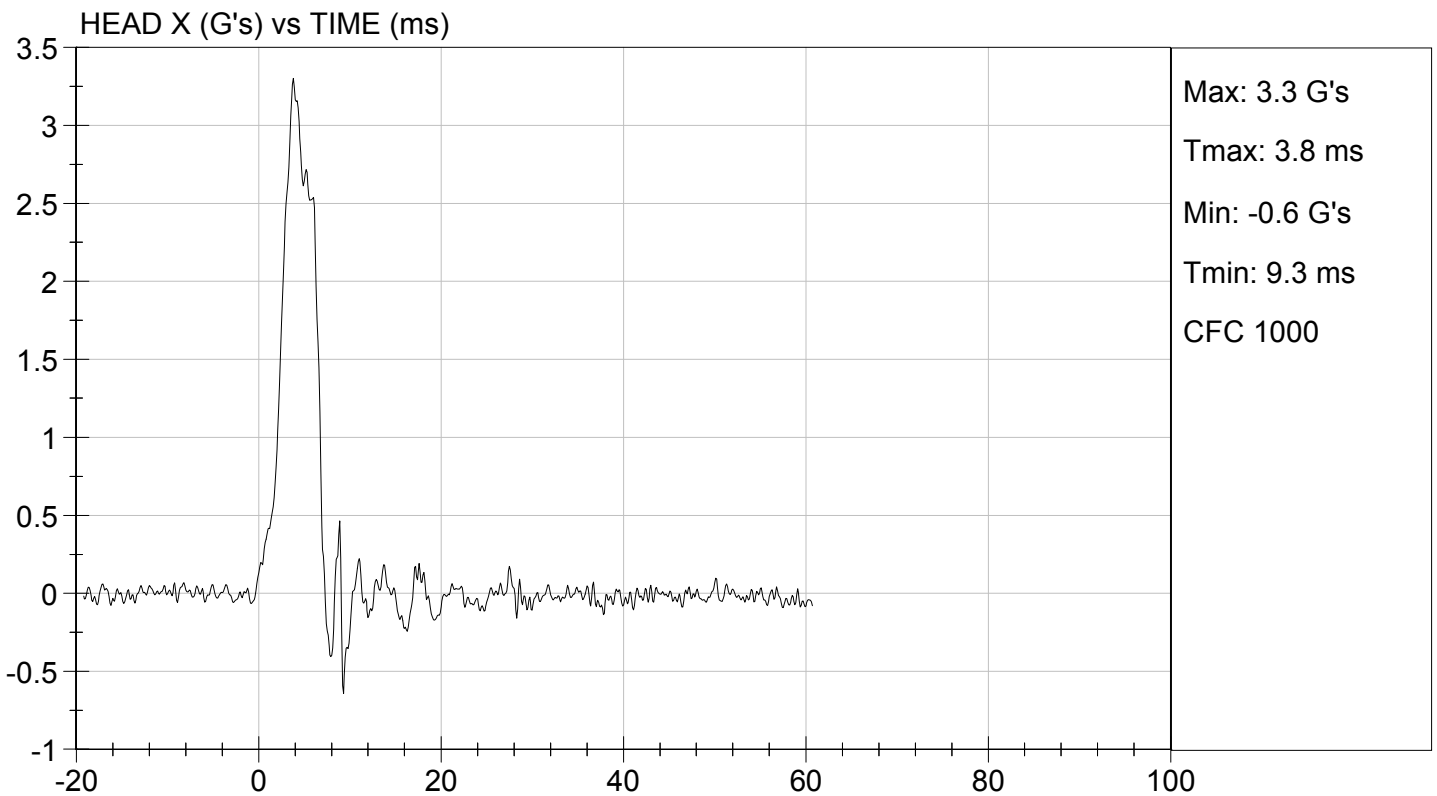
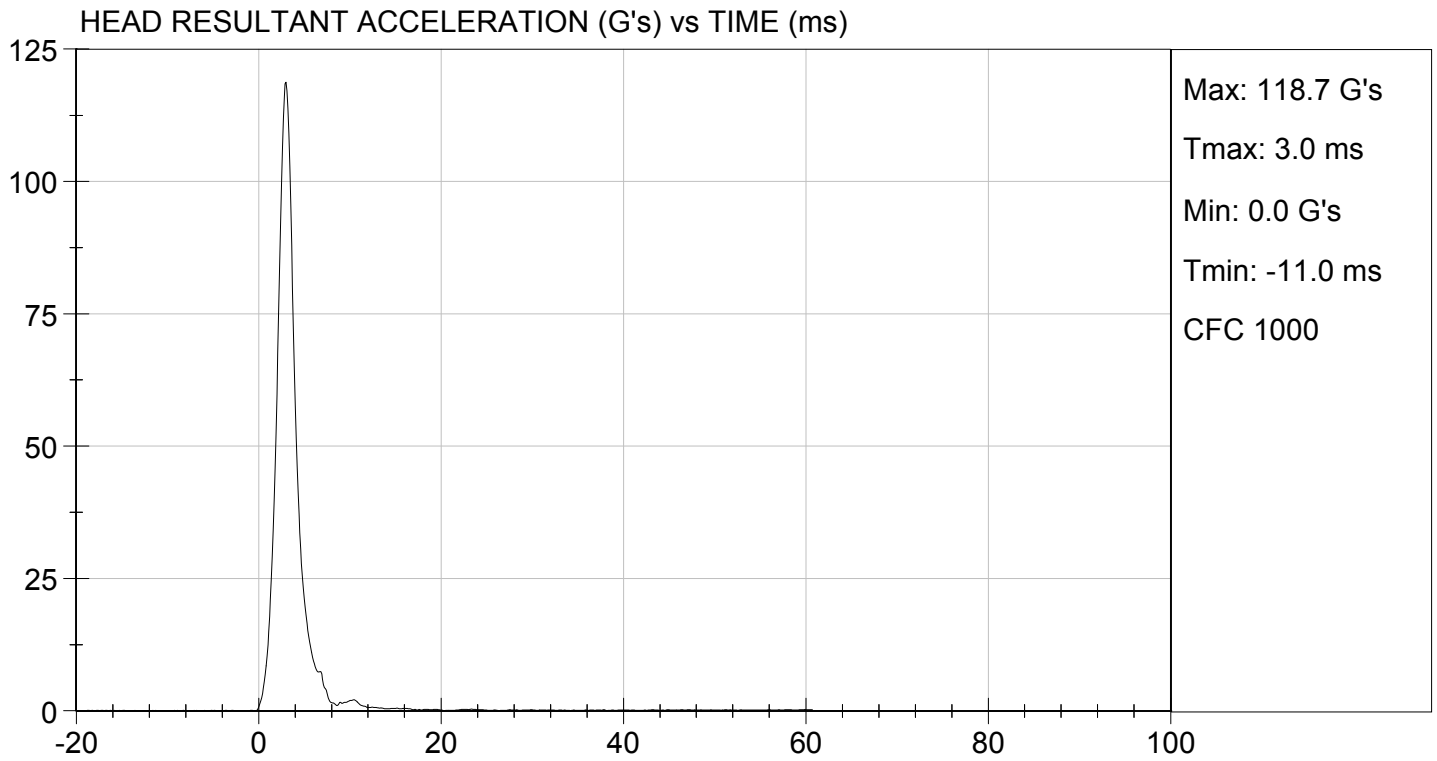
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Peak Resultant Acceleration	G's	115 to 137	119	Pass
Peak Longitudinal Acceleration	G's	+/- 15	3.3	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results			Pass	

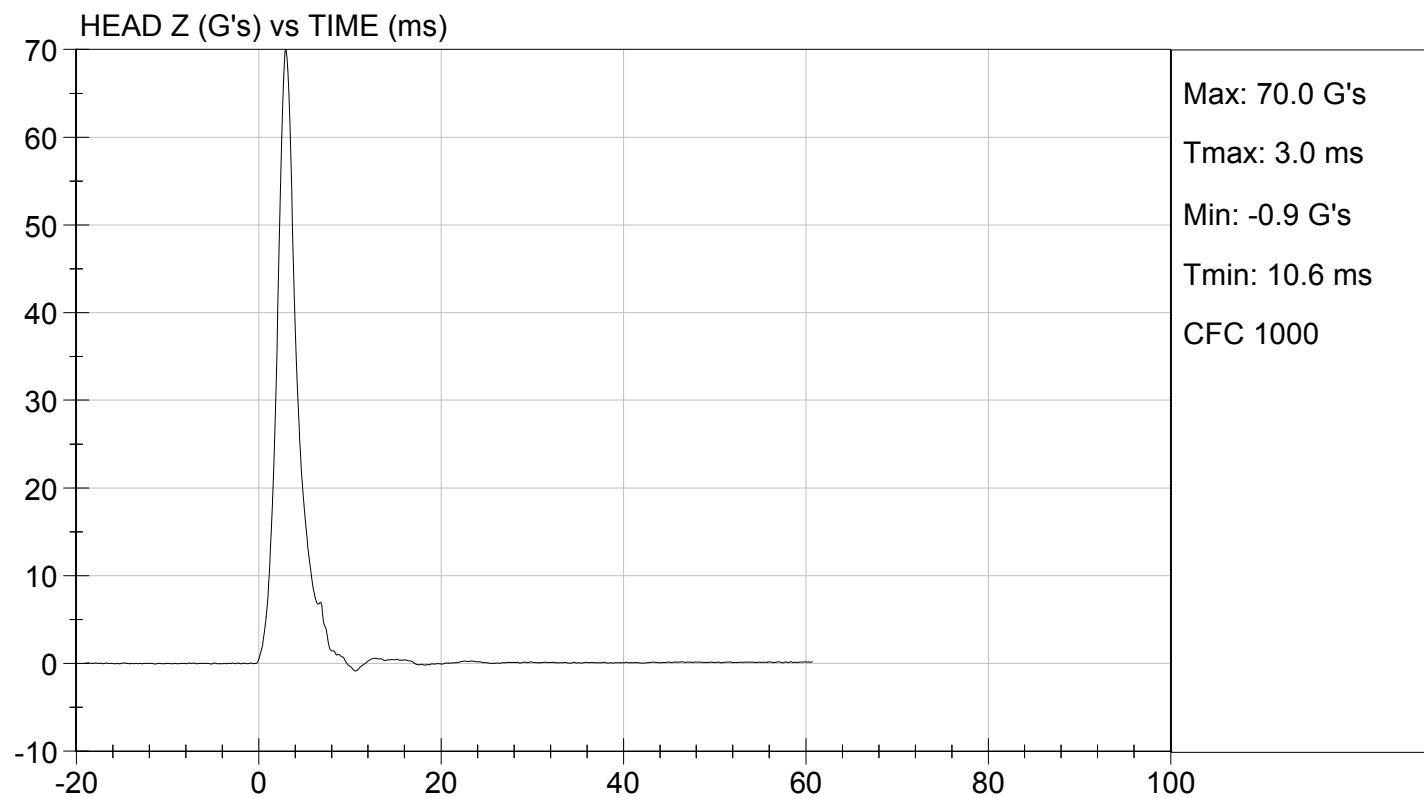
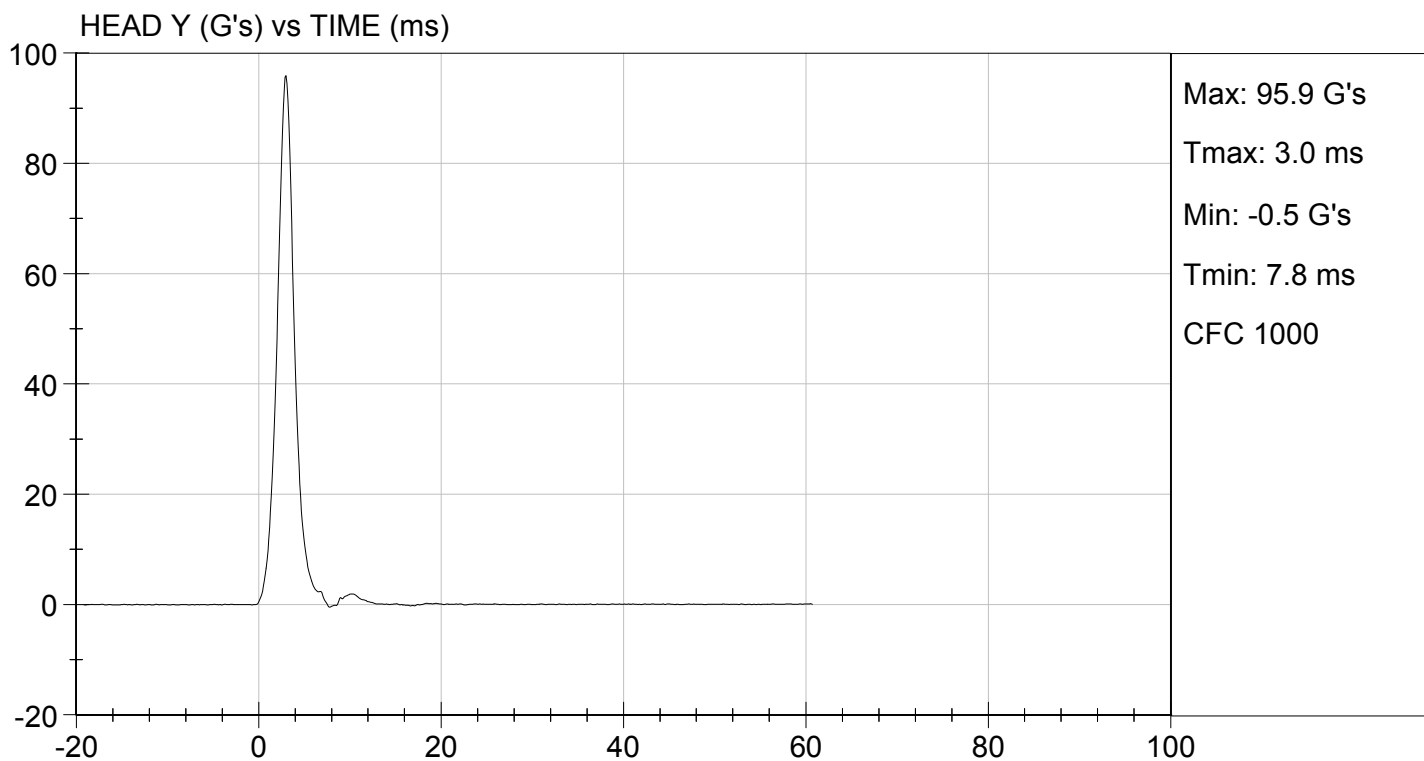
David Schoedel
Laboratory Technician

09/08/2014

Test Date

Jessica Hall
Approved By





MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143062

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.0	Pass
Humidity		%	10 to 70	50	Pass
Impact Velocity		m/s	5.51 to 5.63	5.63	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.69	Pass
	15 ms	m/s	3.30 to 4.10	3.76	Pass
	20 ms	m/s	4.40 to 5.40	5.01	Pass
	25 ms	m/s	5.40 to 6.10	5.52	Pass
	25-100 ms	m/s	5.50 to 6.20	5.52	Pass
Maximum D-Plane Rotation		deg	71 to 81	75	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	58	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-41	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	112	Pass
Overall Test Results					Pass

David Schoedel
Laboratory Technician

09/08/2014

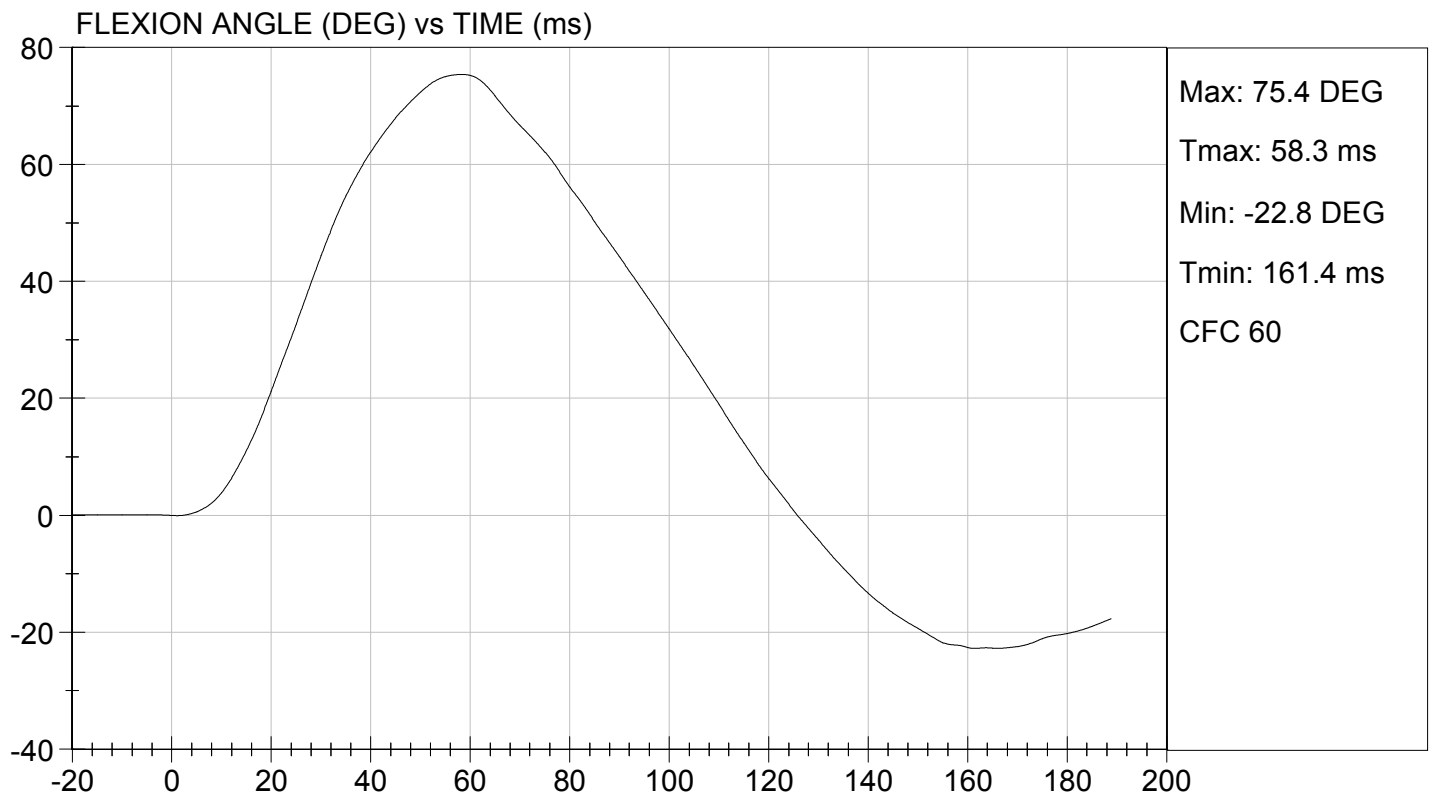
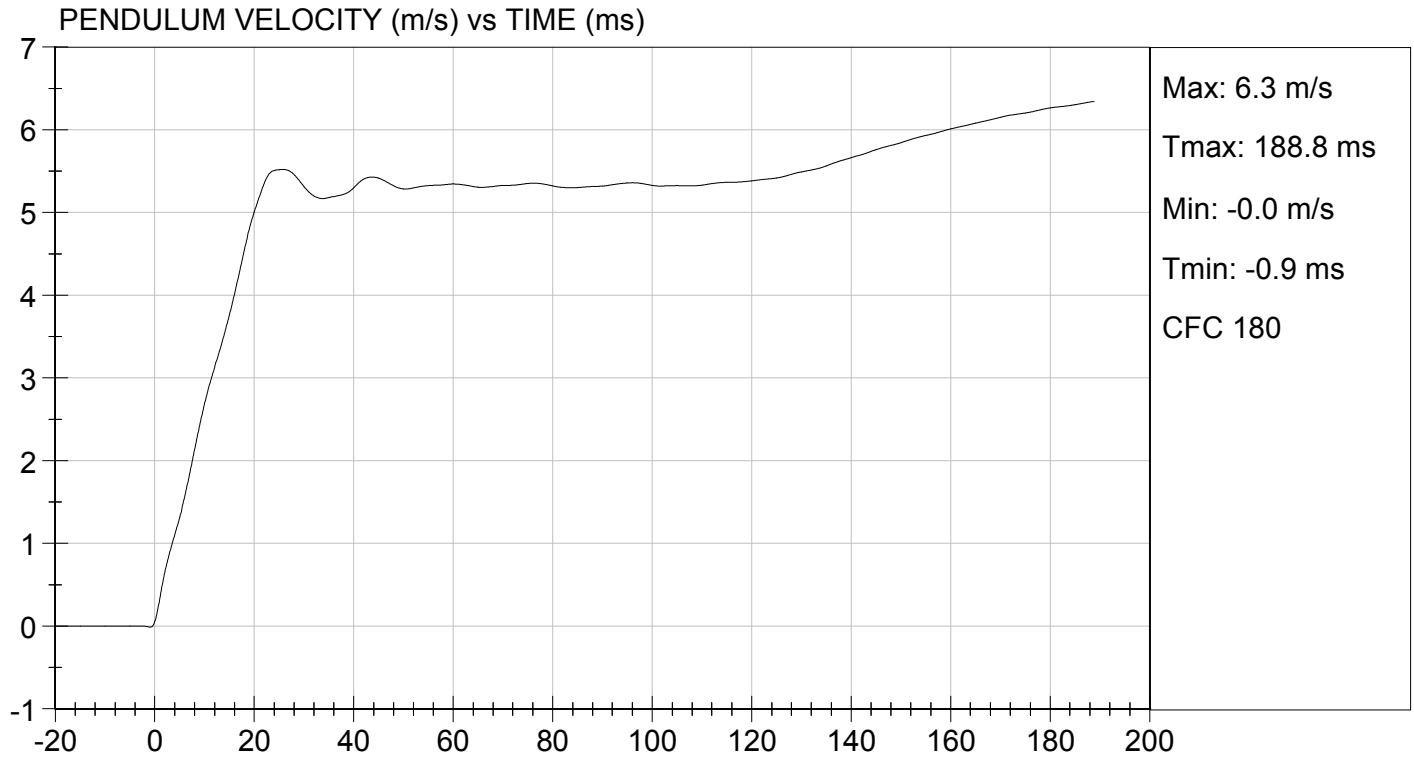
Test Date

Jessica Hall
Approved By



TEST DESC: NECK BENDING
VELOCITY: 18.47 ft/s, 5.63 m/s

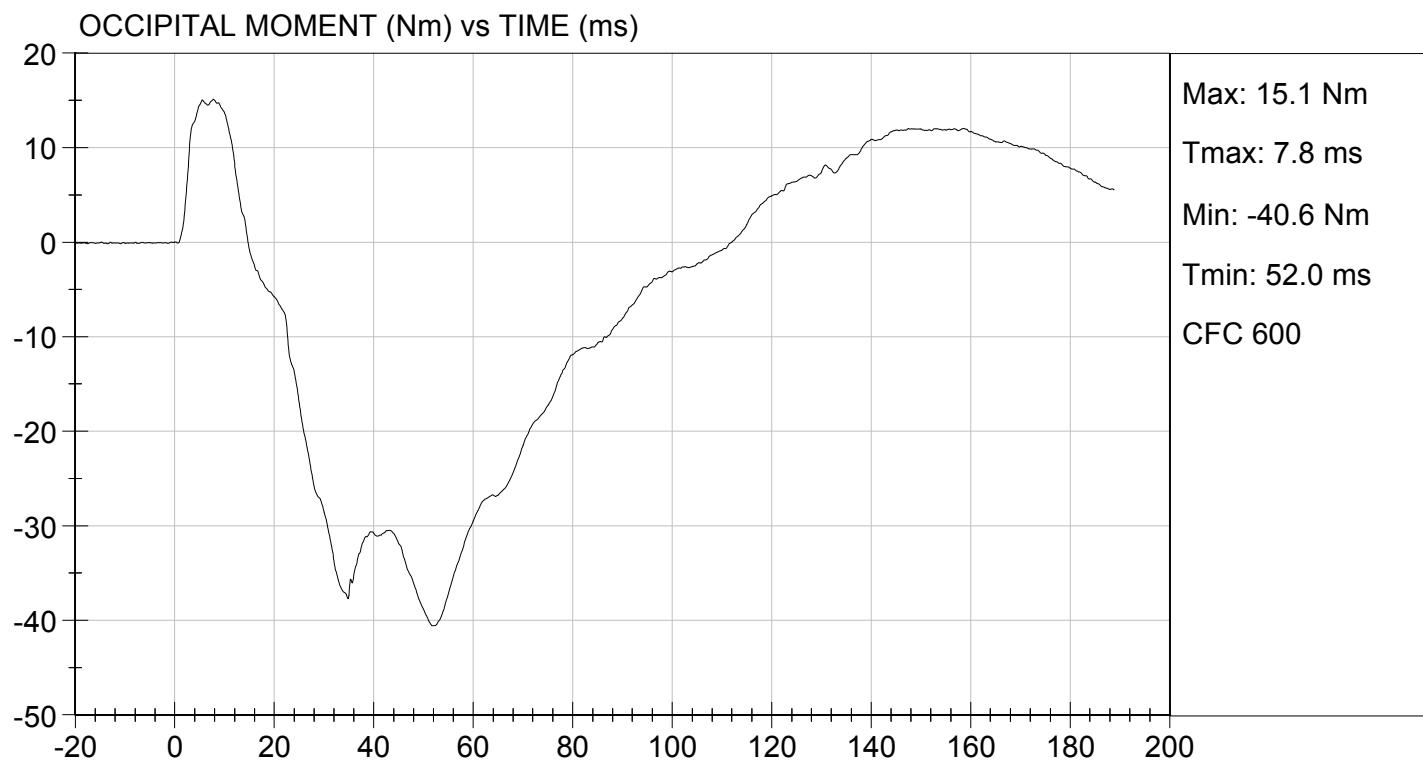
TEST DATE: 09/08/2014
TEST #: D143062





TEST DESC: NECK BENDING
VELOCITY: 18.47 ft/s, 5.63 m/s

TEST DATE: 09/08/2014
TEST #: D143062



MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D143063

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	31	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

09/08/2014

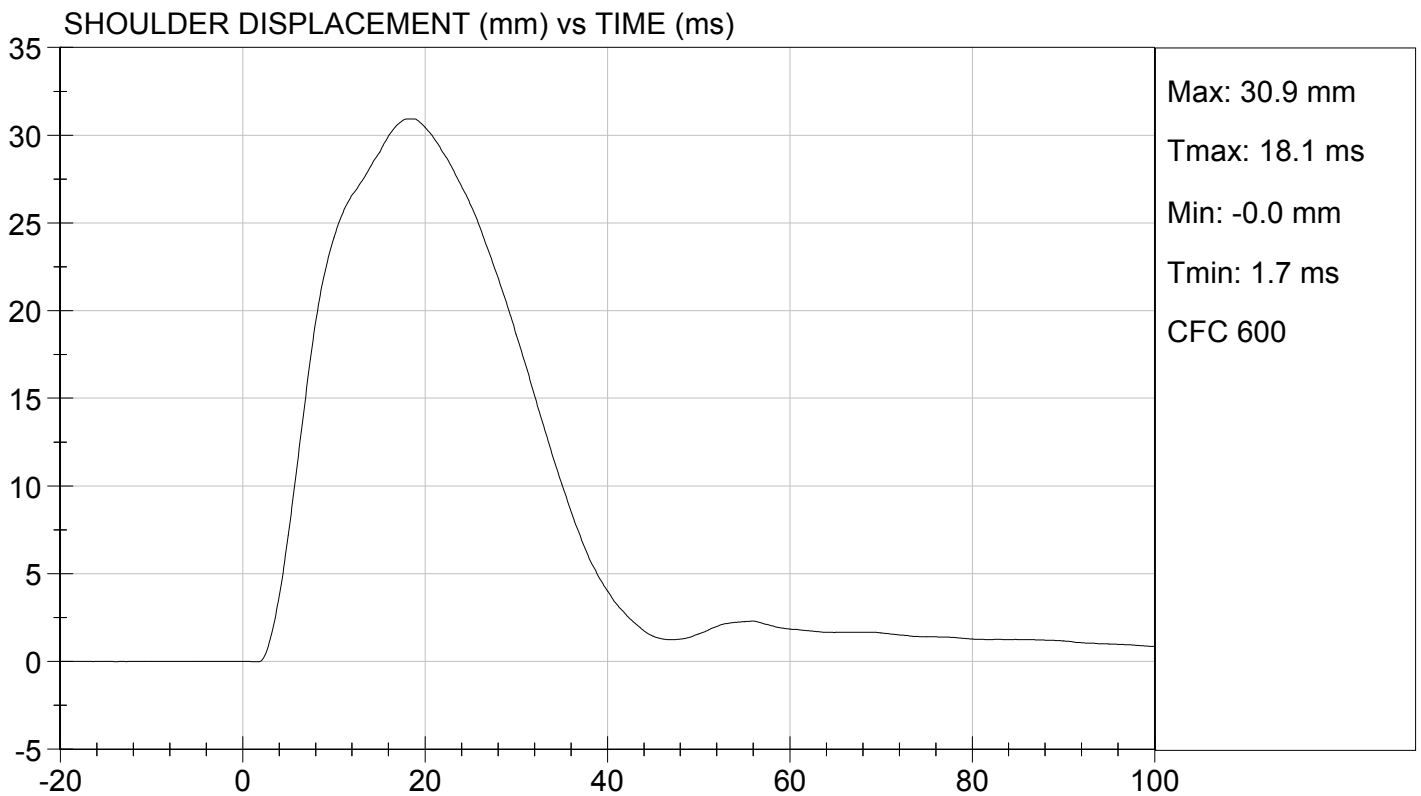
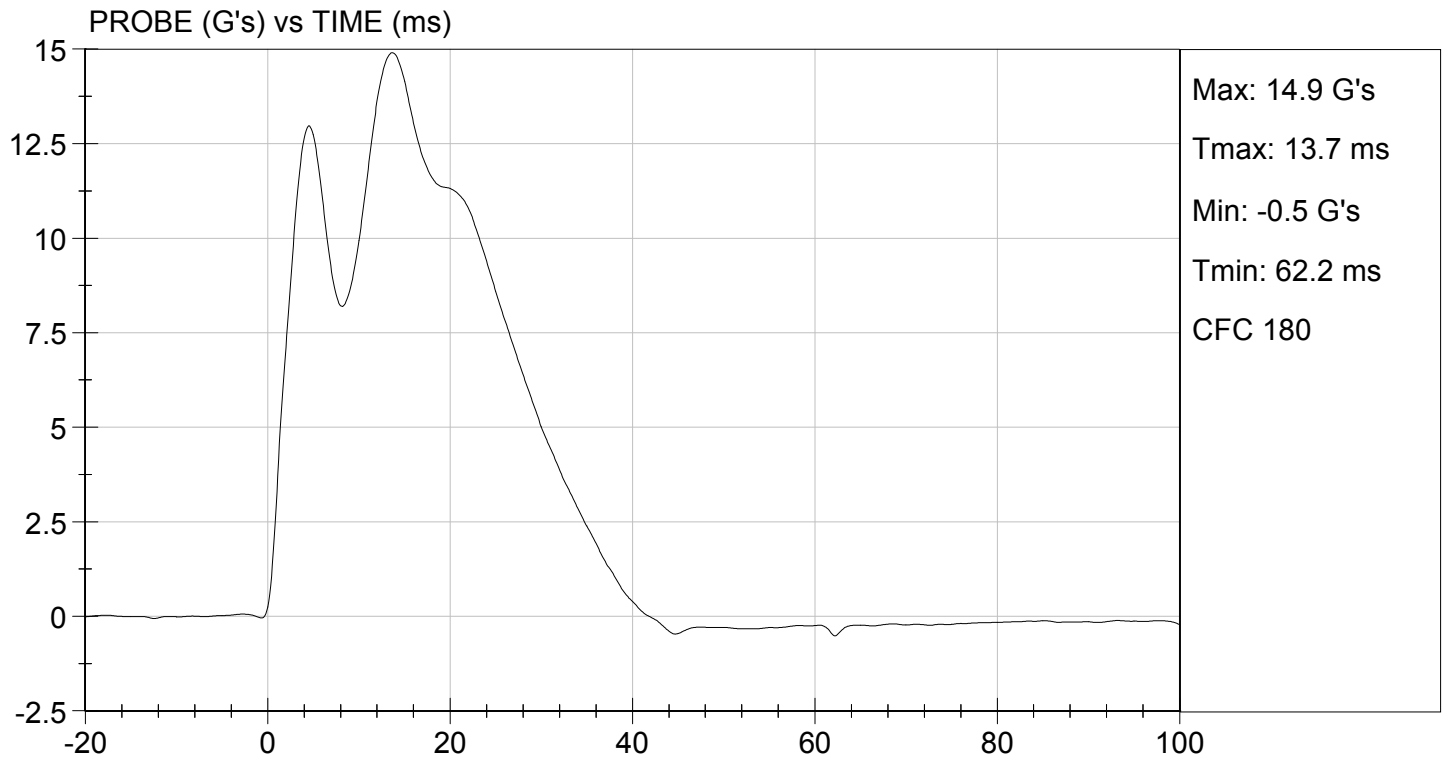
Test Date

Jessica Hall
Approved By



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.01 ft/s, 4.27 m/s

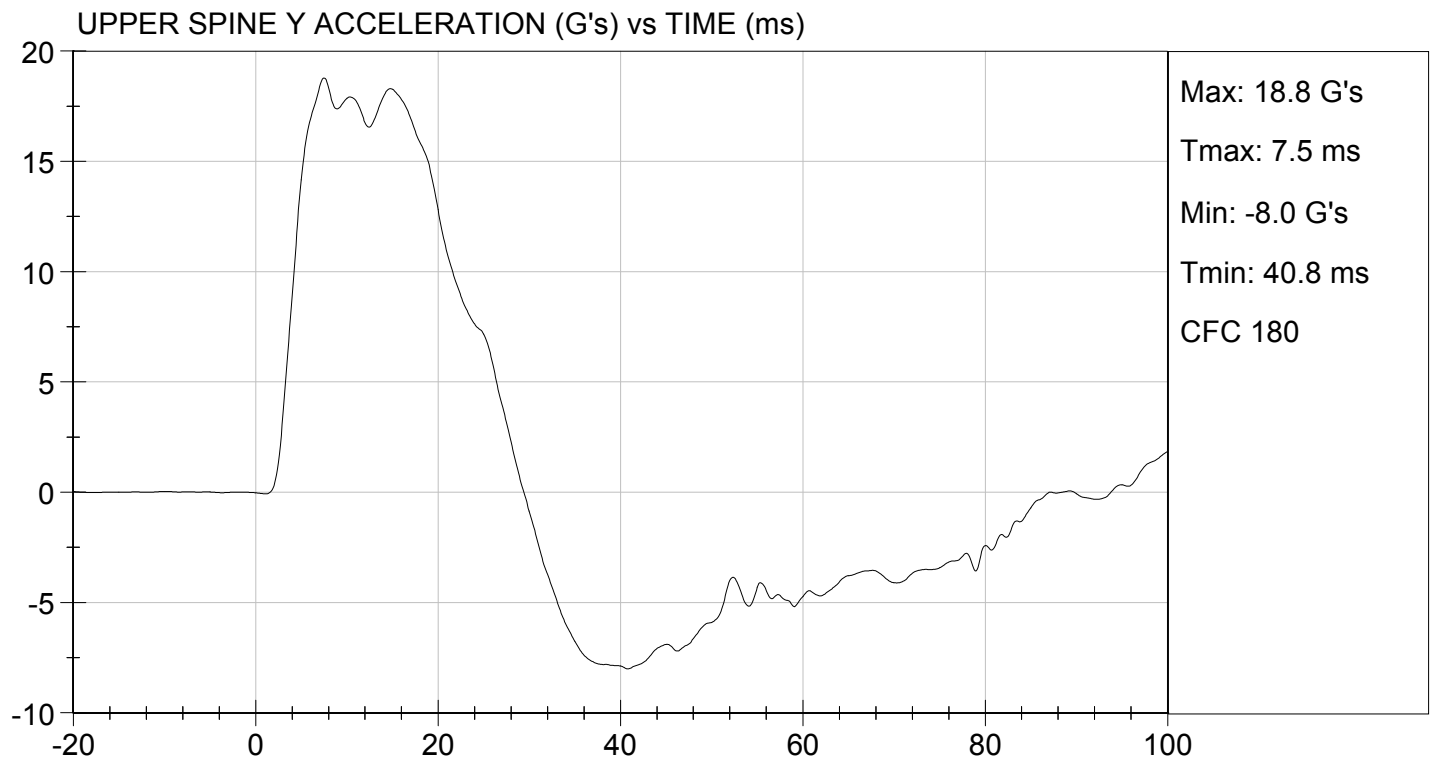
TEST DATE: 09/08/2014
TEST #: D143063





TEST DESC: SHOULDER IMPACT
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 09/08/2014
TEST #: D143063



MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143064

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	32	Pass
Shoulder Displacement	mm	31 to 40	35	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

09/08/2014

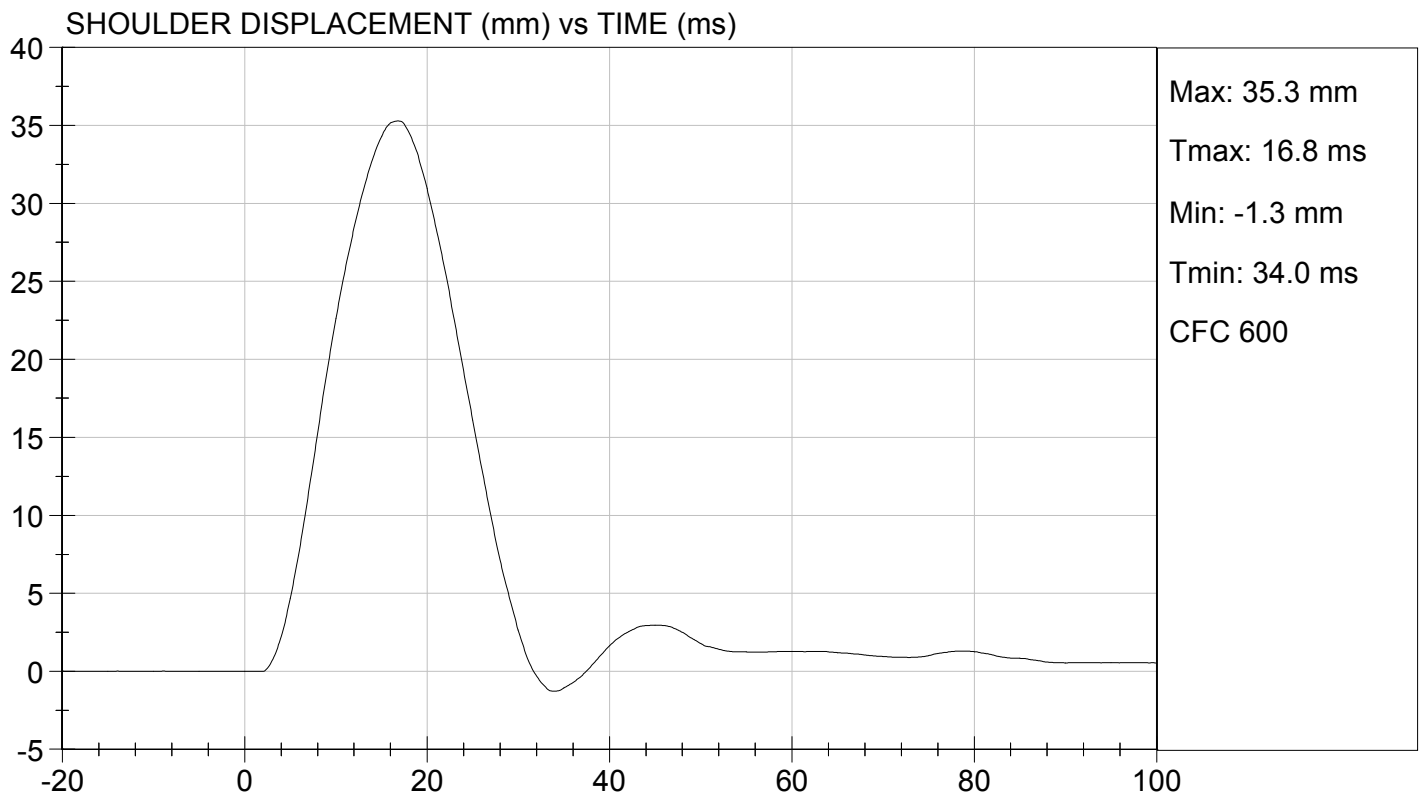
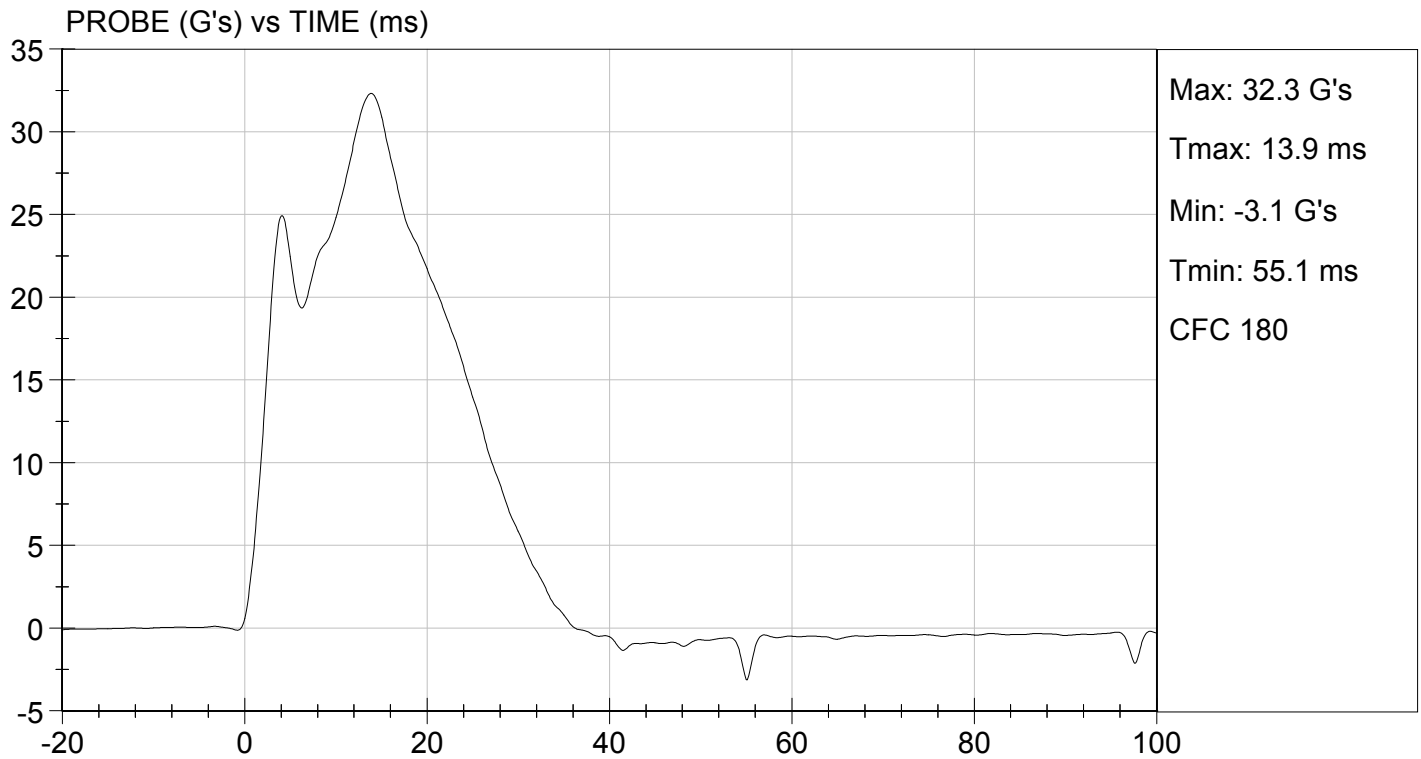
Test Date

Jessica Hall
Approved By



TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

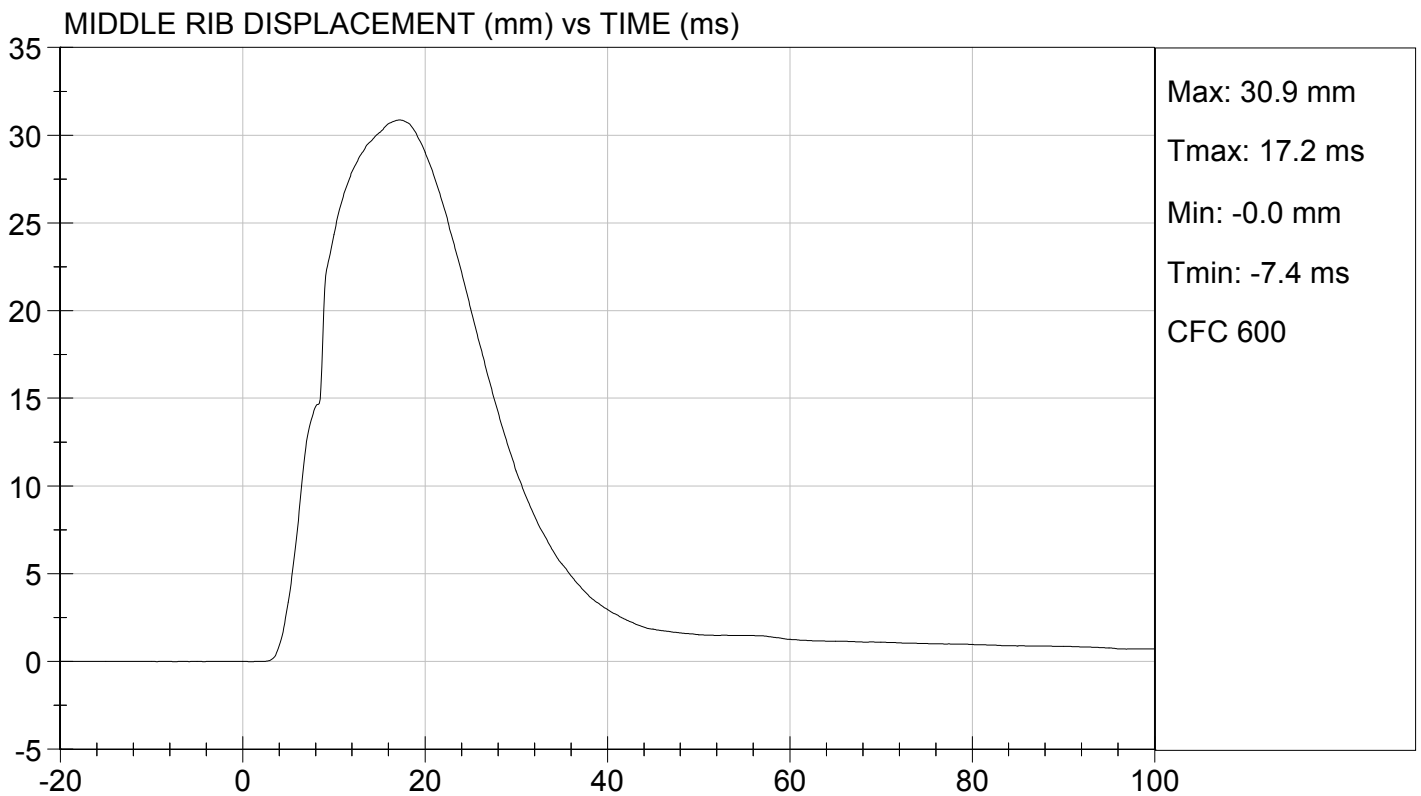
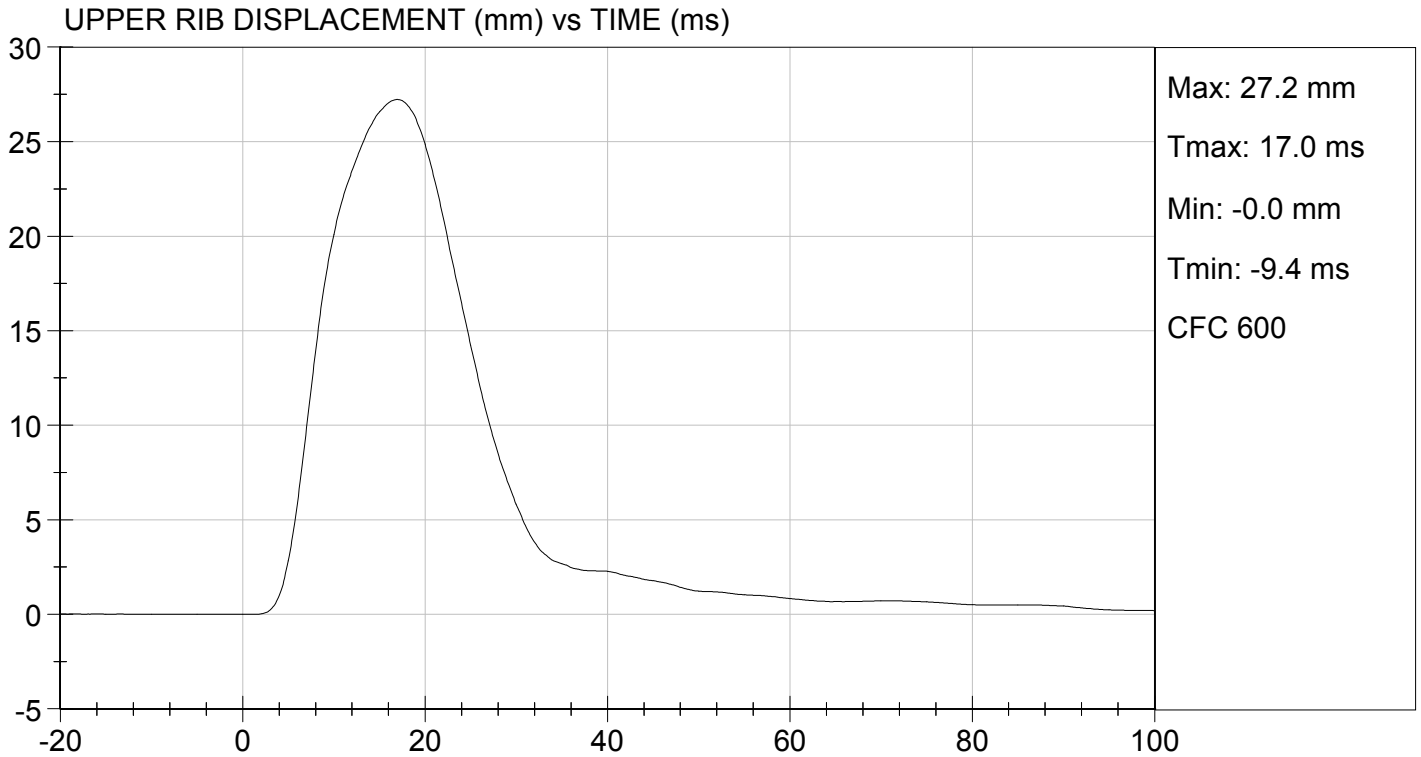
TEST DATE: 09/08/2014
TEST #: D143064





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 09/08/2014
TEST #: D143064

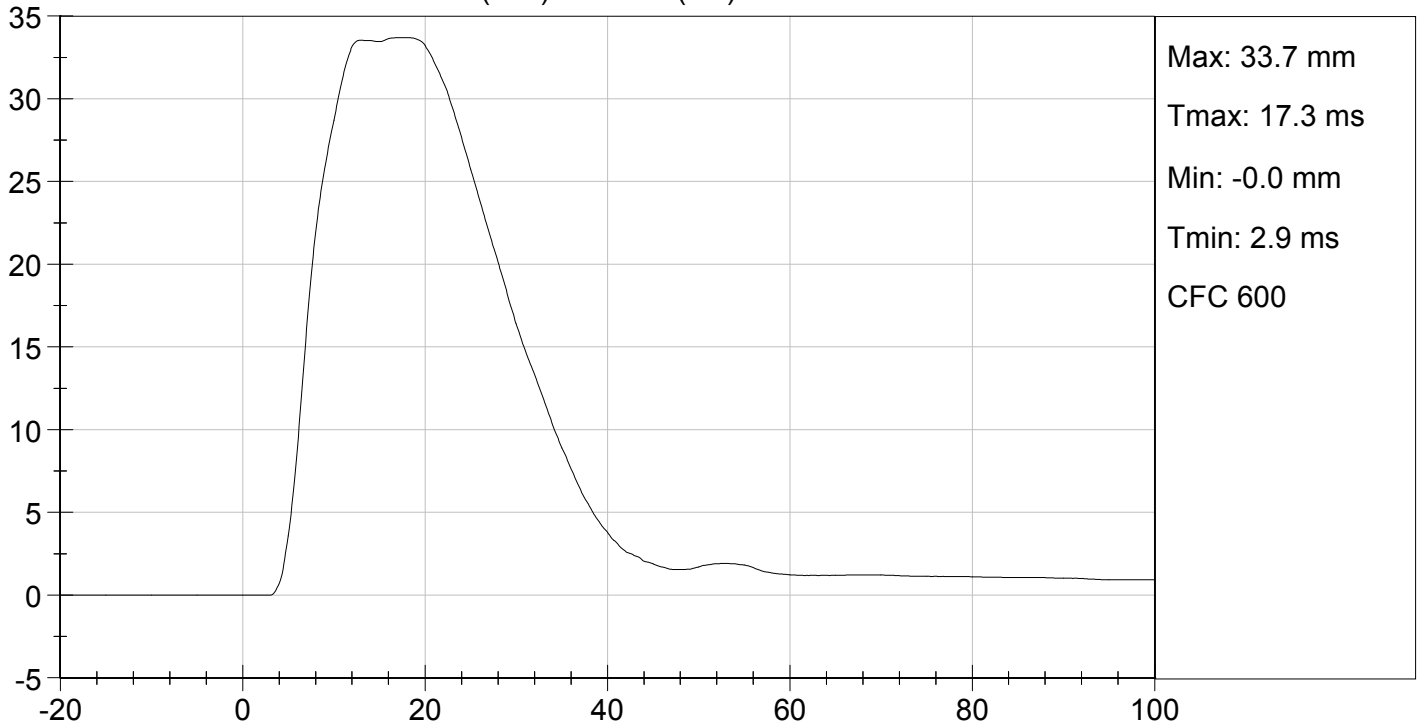




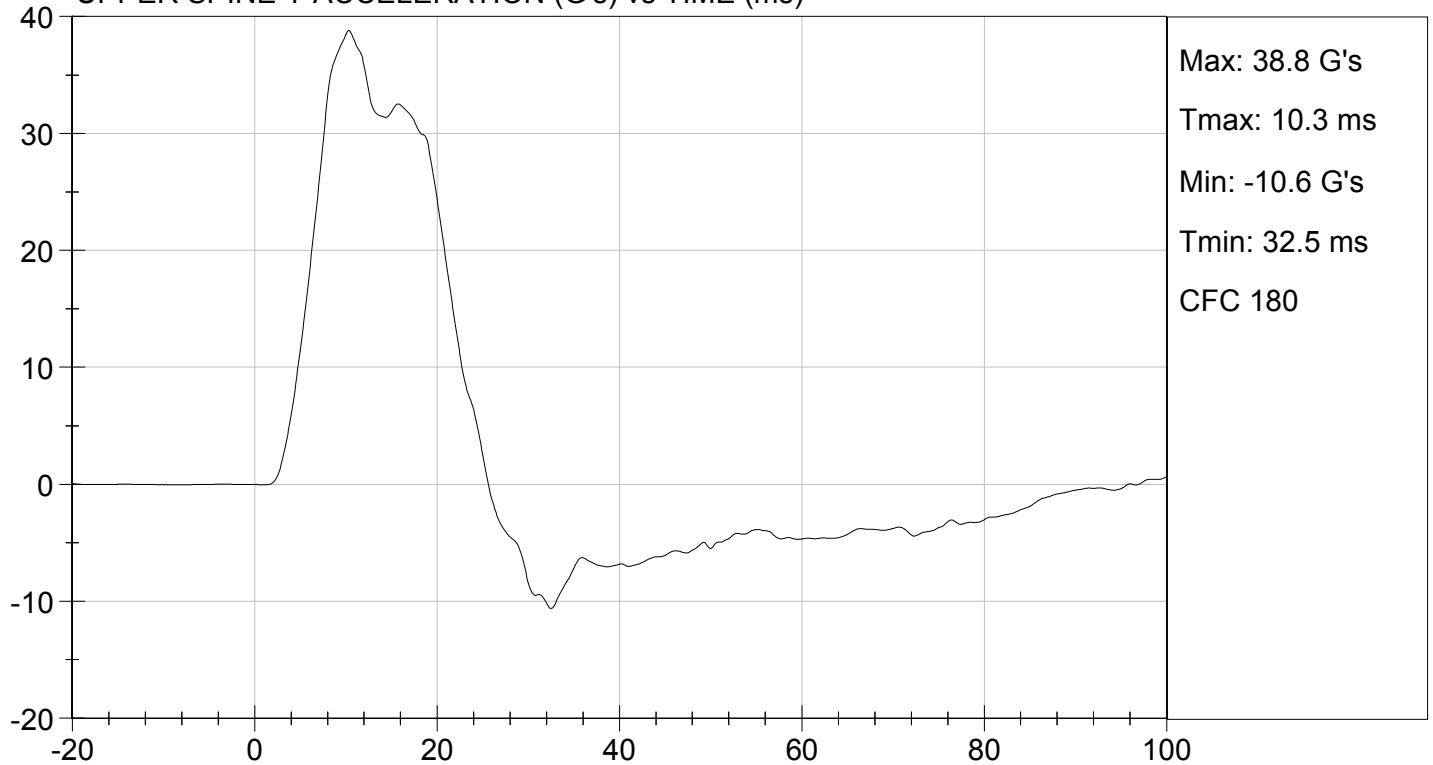
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 09/08/2014
TEST #: D143064

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



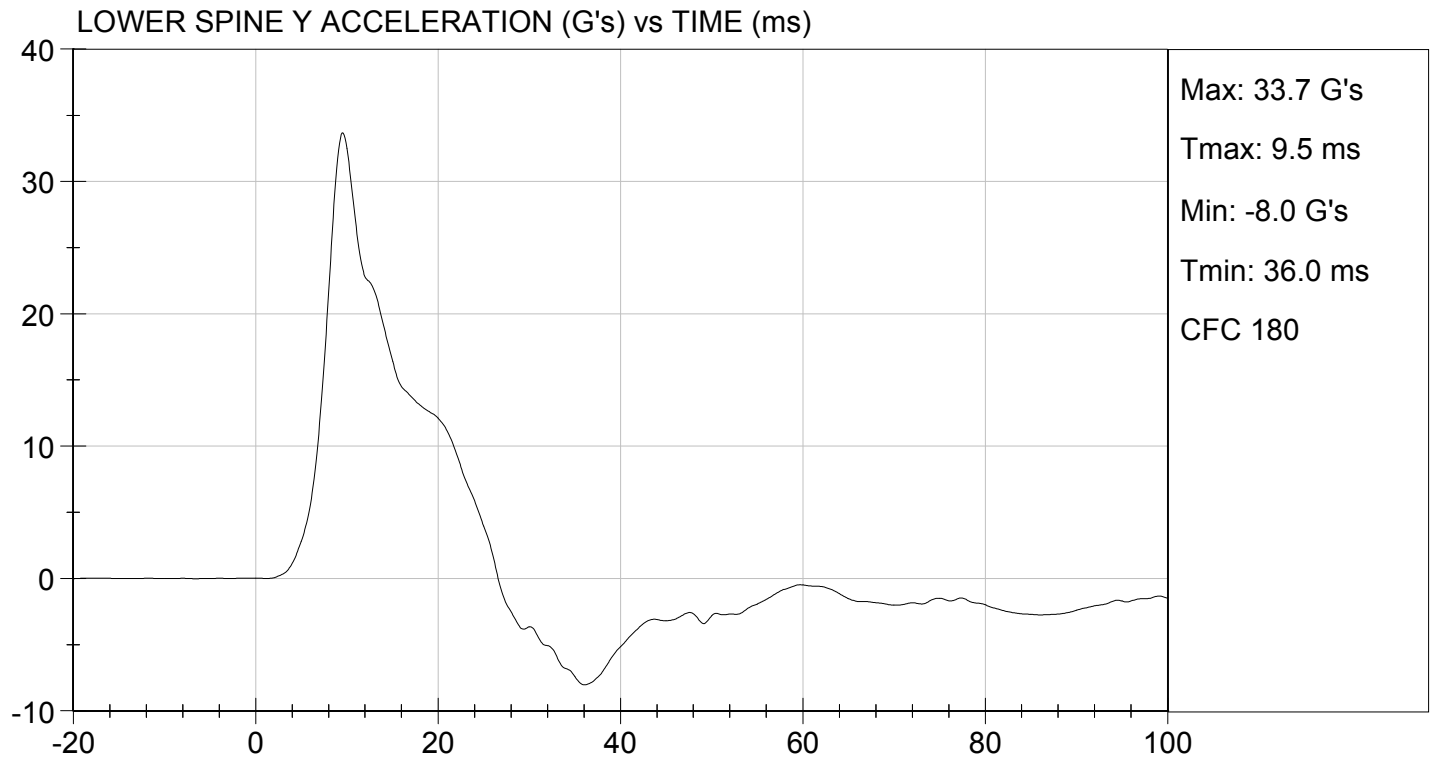
UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 09/08/2014
TEST #: D143064



MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143065

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	35	Pass
Middle Rib Displacement	mm	39 to 45	40	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

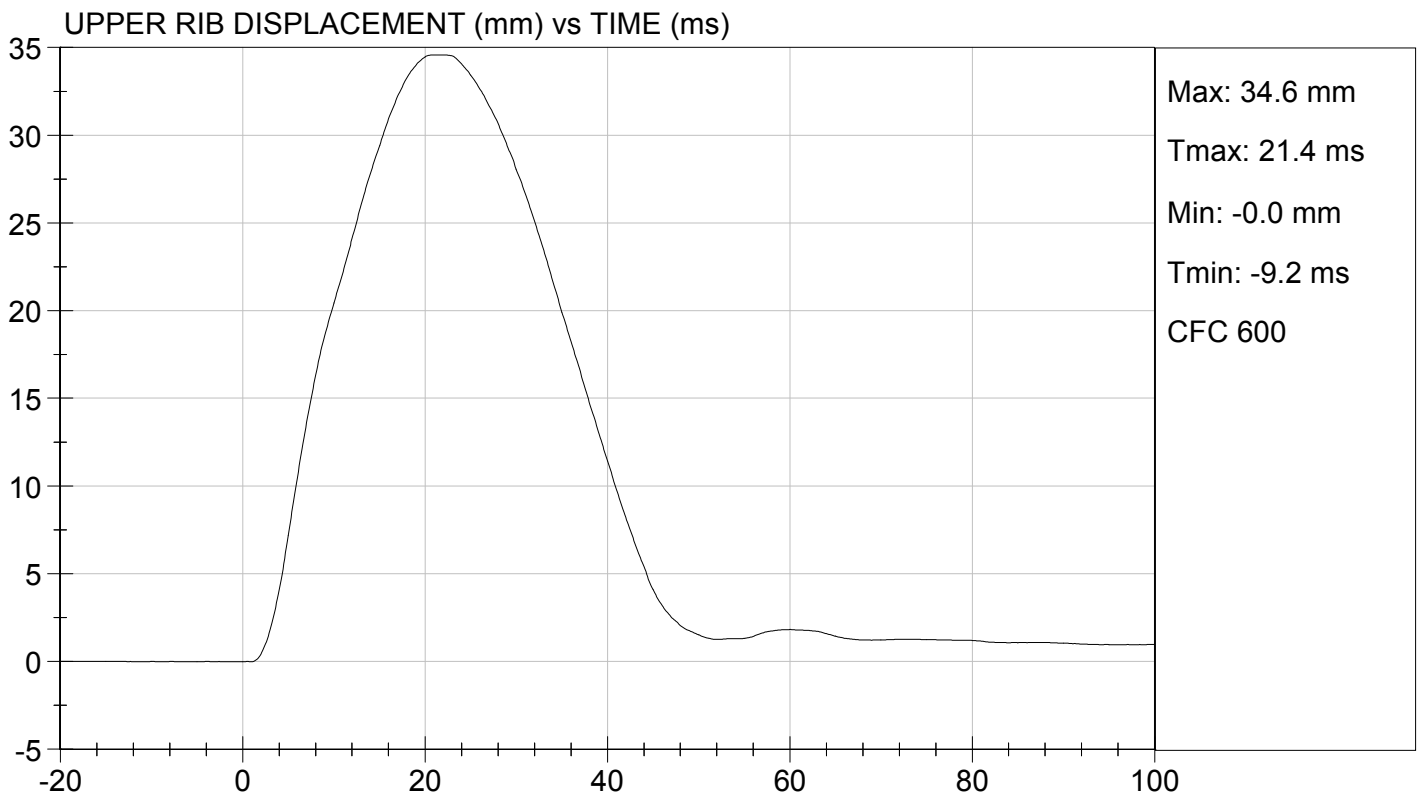
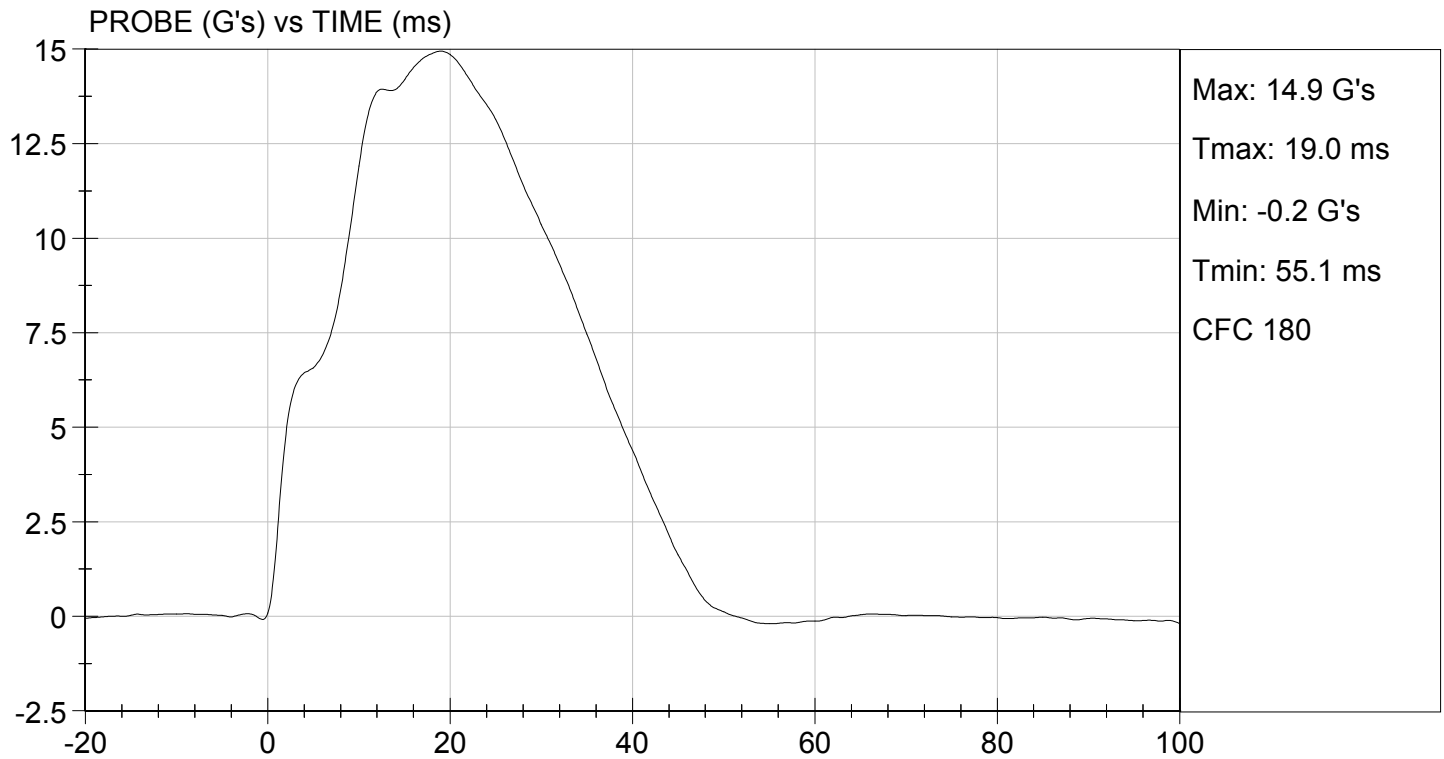
09/08/2014
Test Date

Jessica Hall
Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

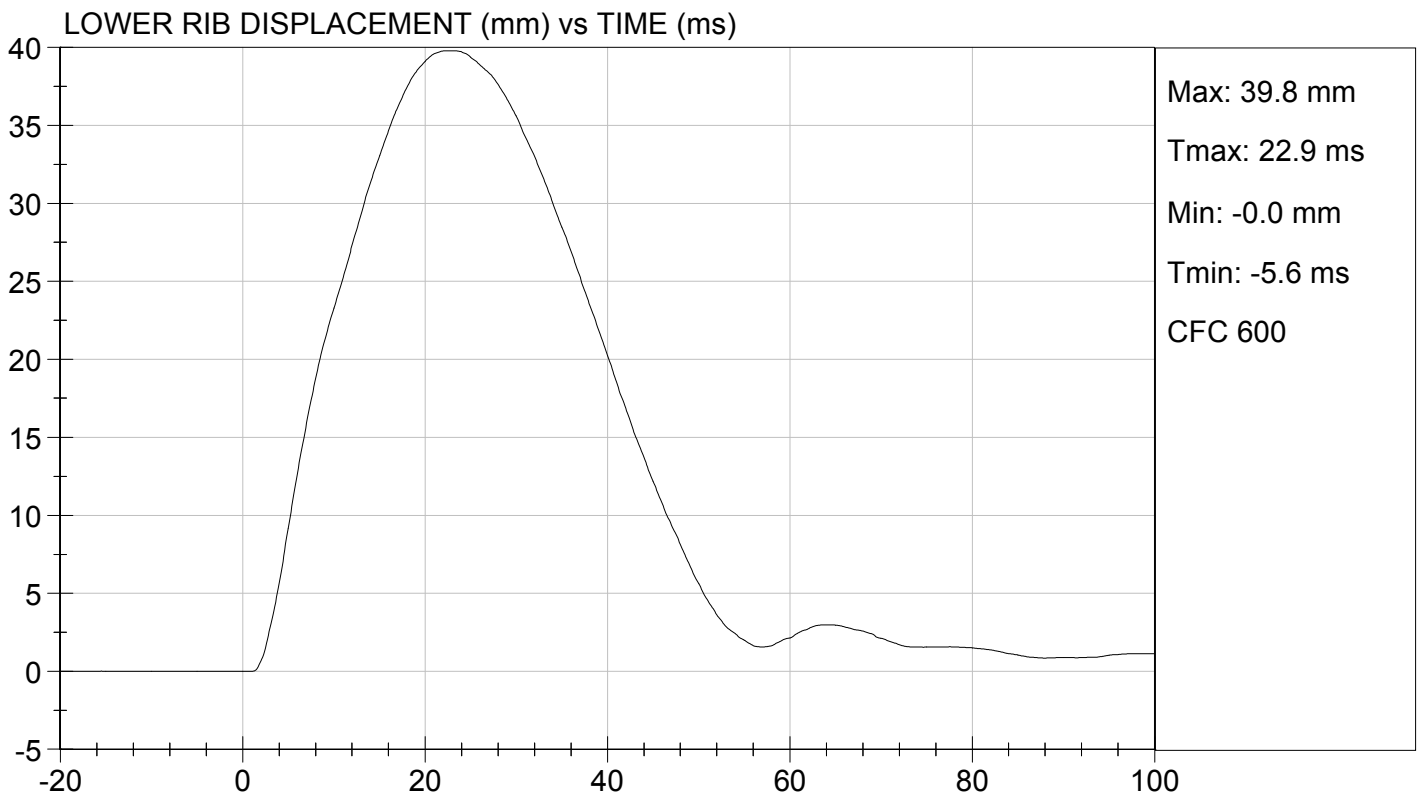
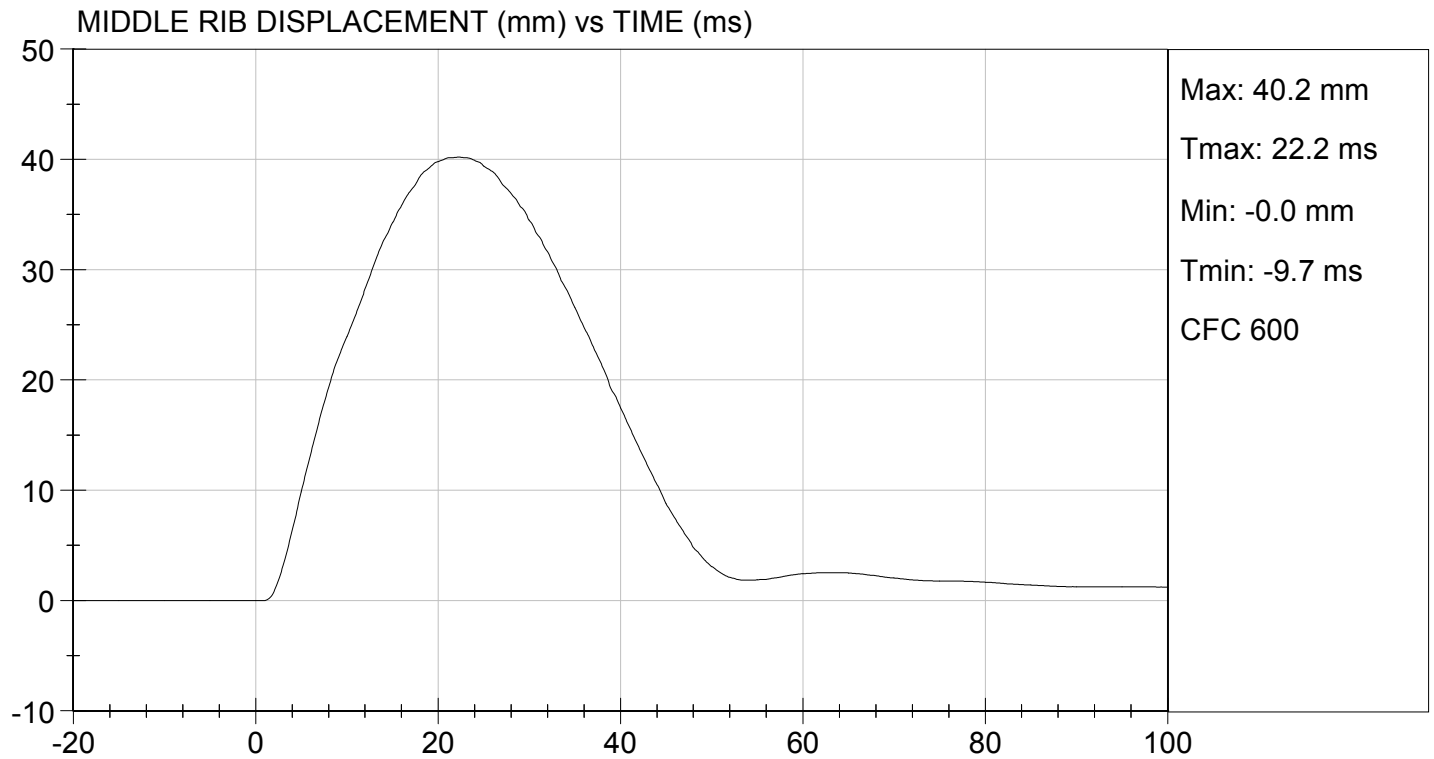
TEST DATE: 09/08/2014
TEST #: D143065





TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 09/08/2014
TEST #: D143065

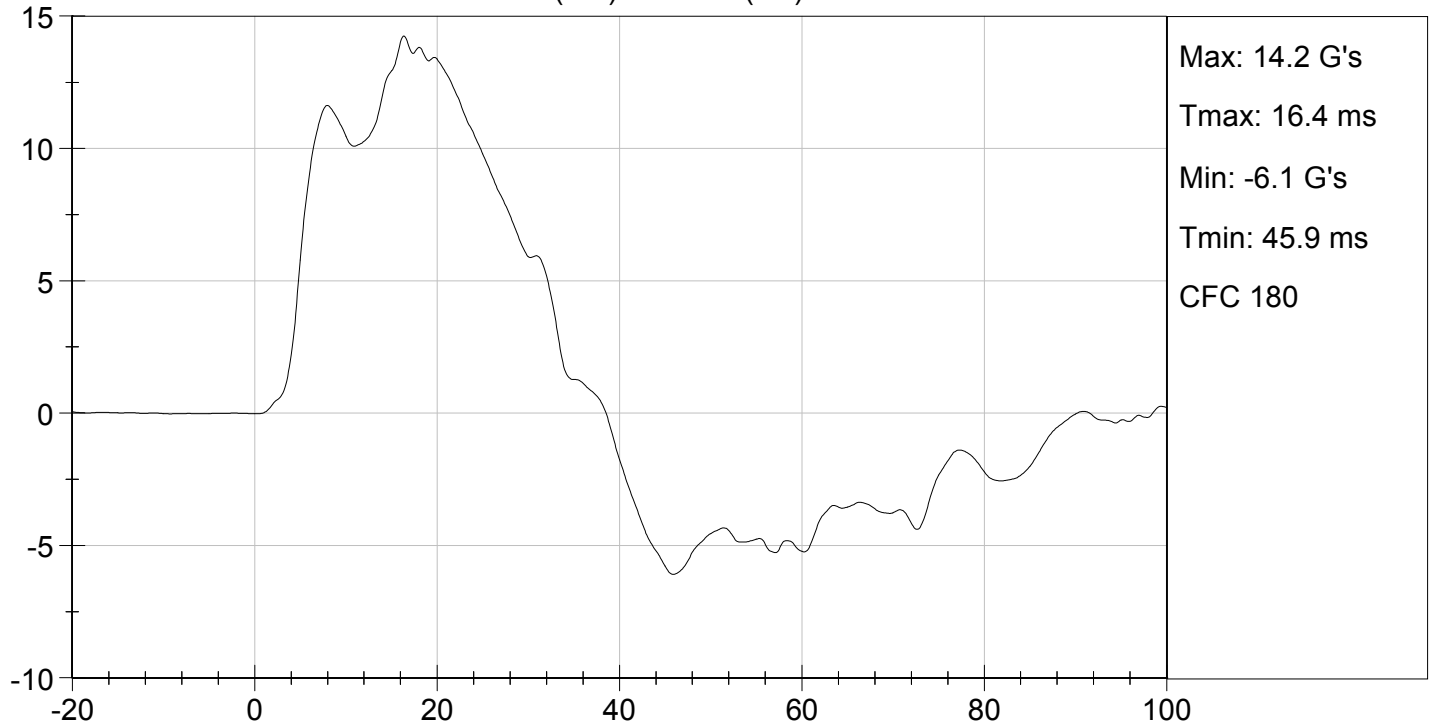




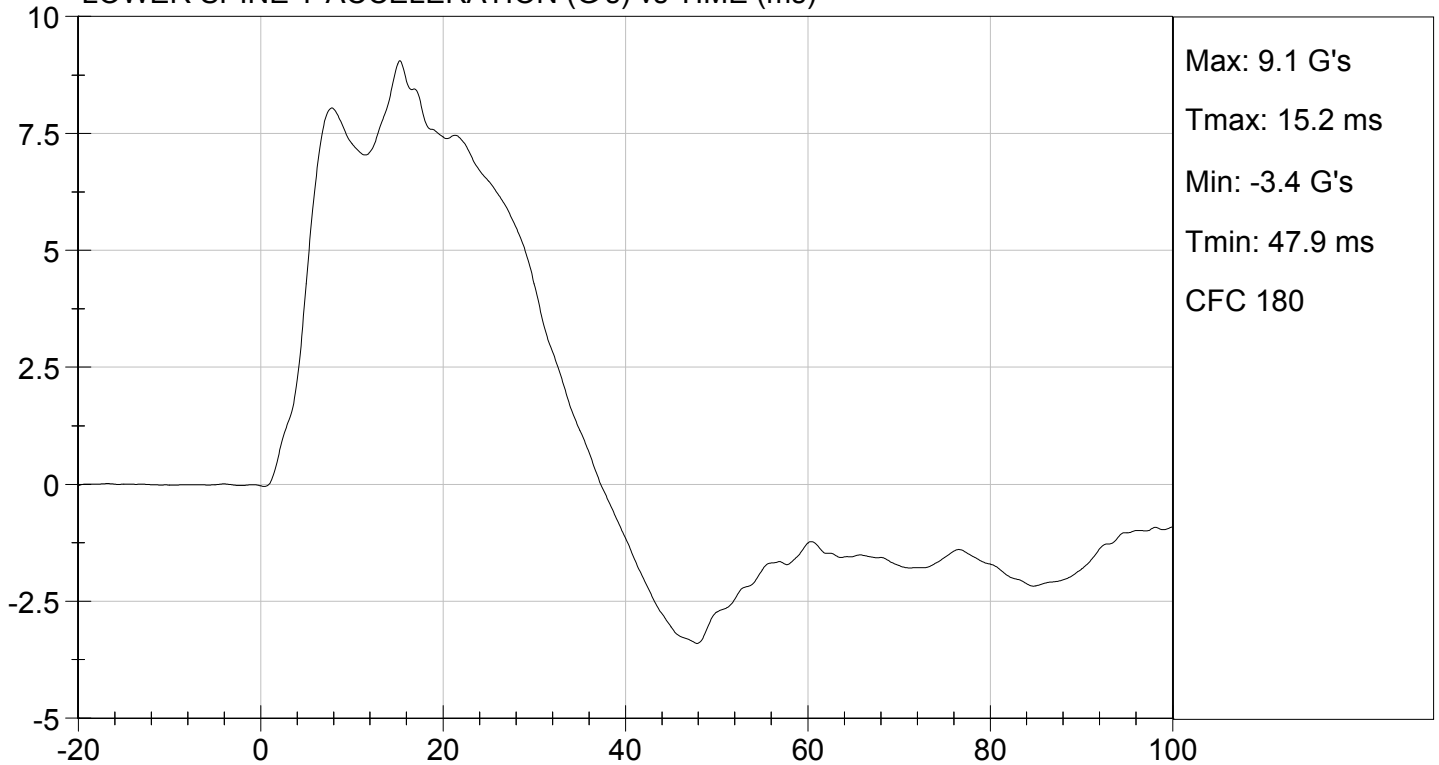
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 09/08/2014
TEST #: D143065

UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



LOWER SPINE Y ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143066

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	42	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	40	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

09/08/2014

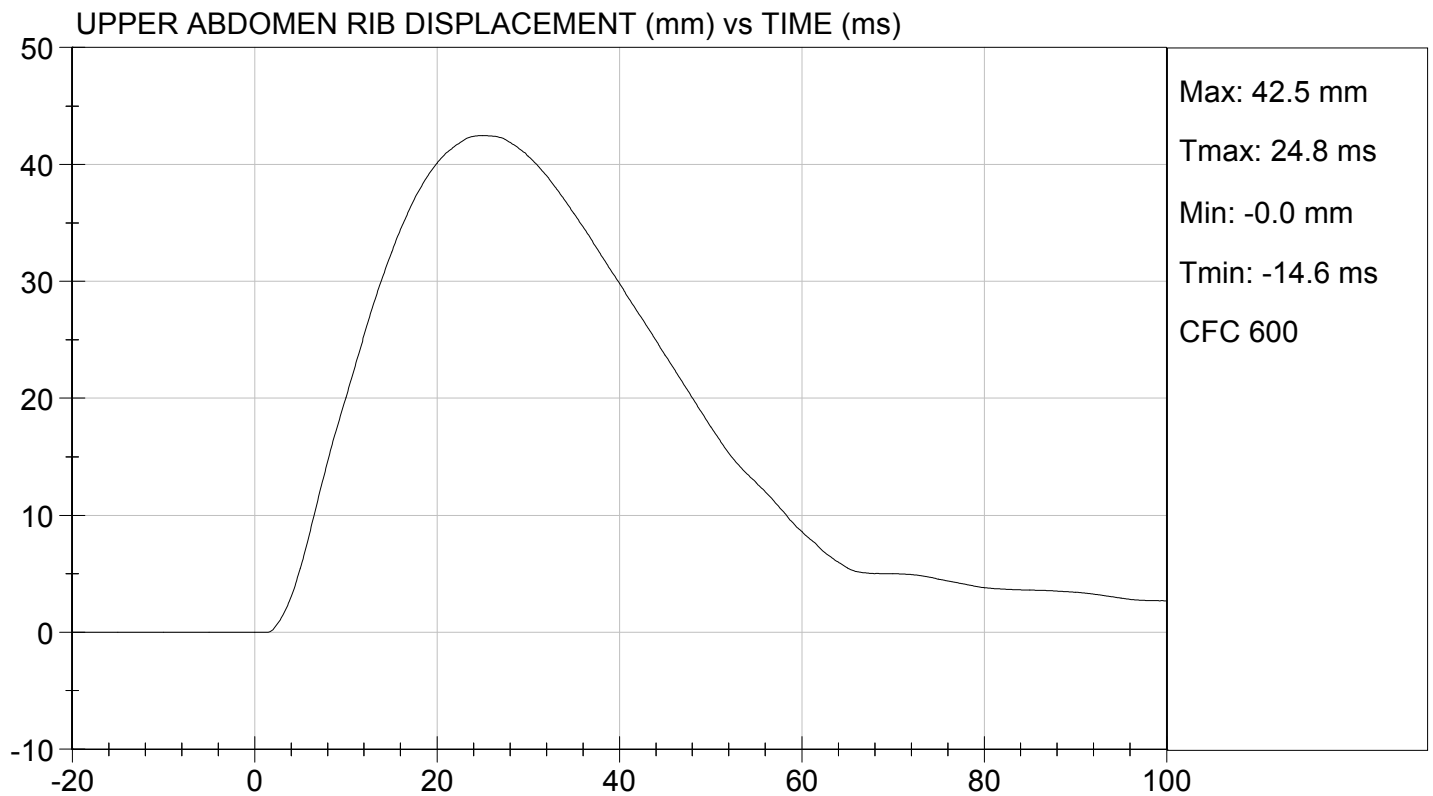
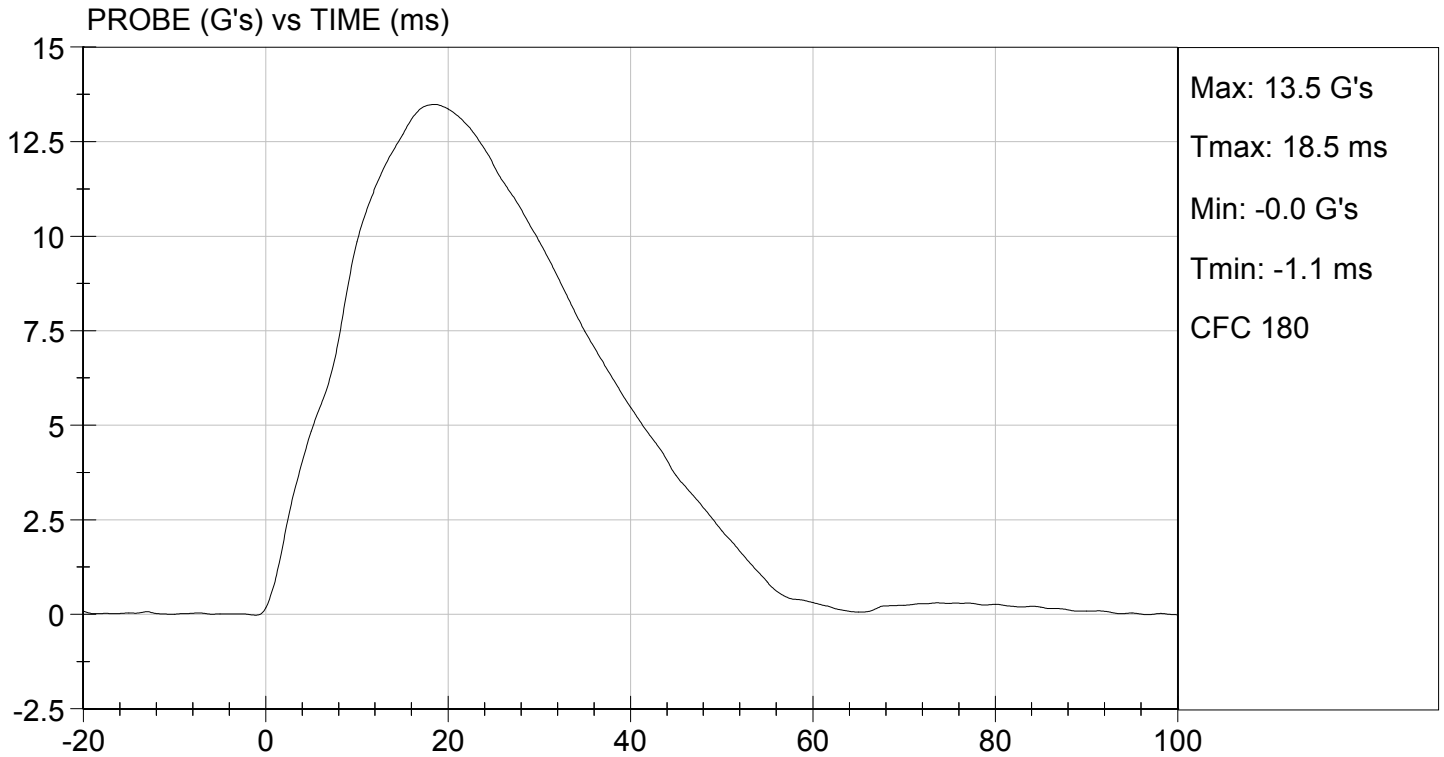
Test Date

Jessica Hall
Approved By



TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 09/08/2014
TEST #: D143066

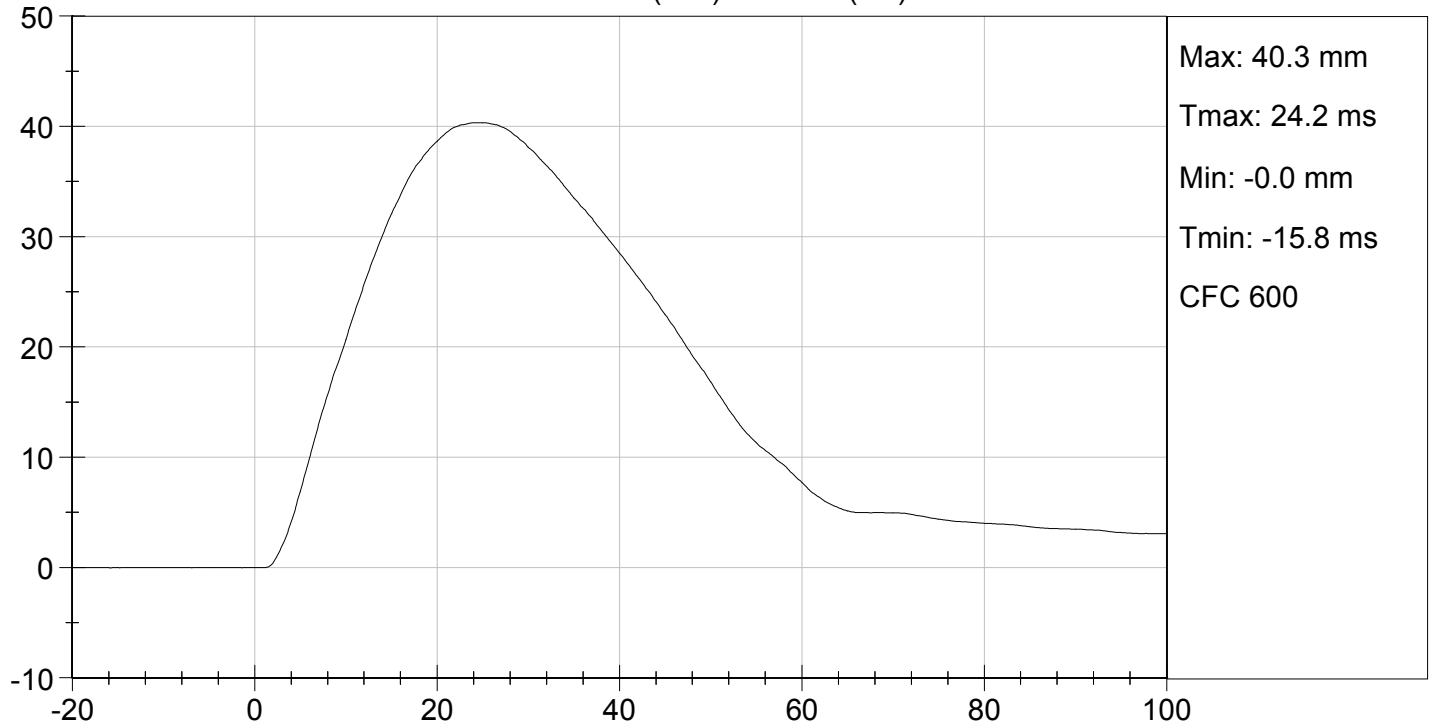




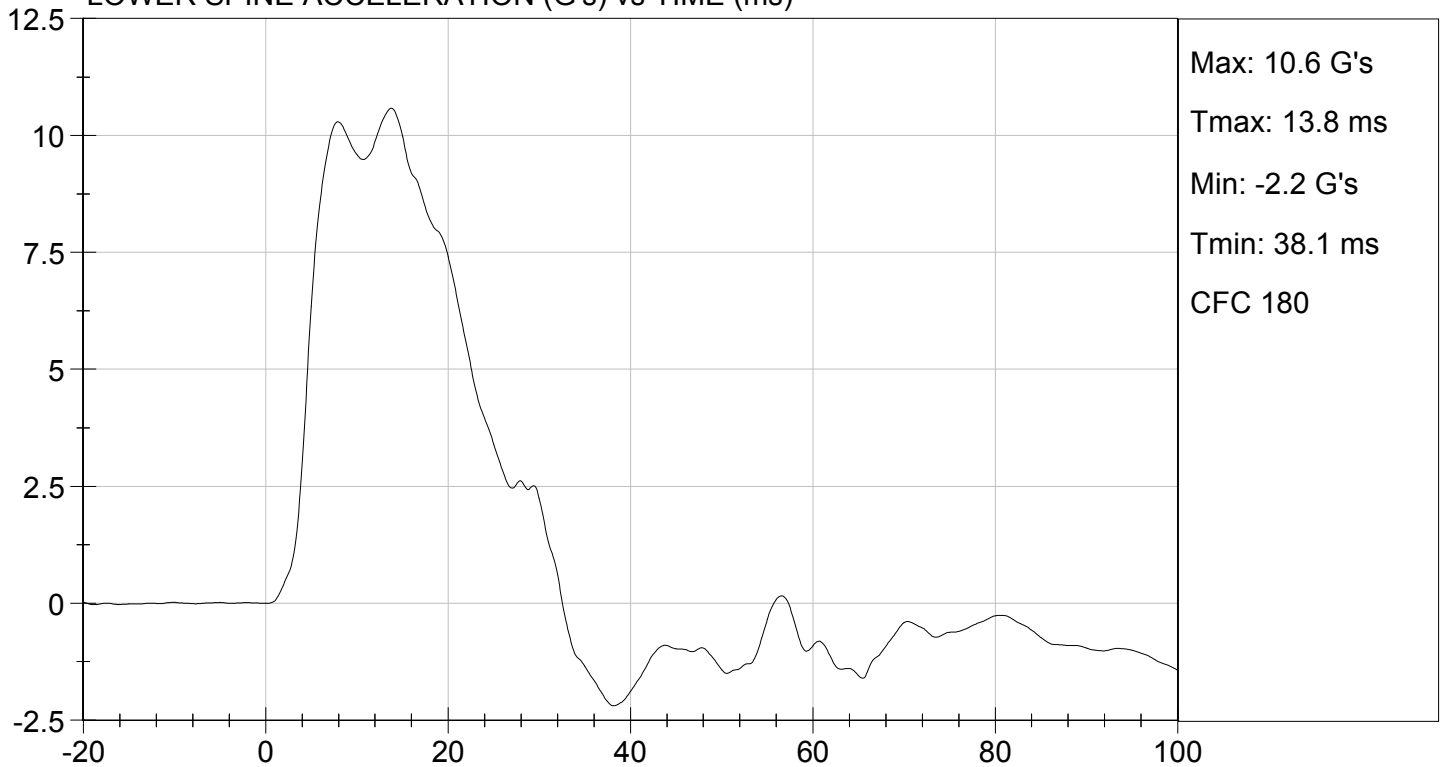
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 09/08/2014
TEST #: D143066

LOWER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER SPINE ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143067

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	4,148	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

09/08/2014

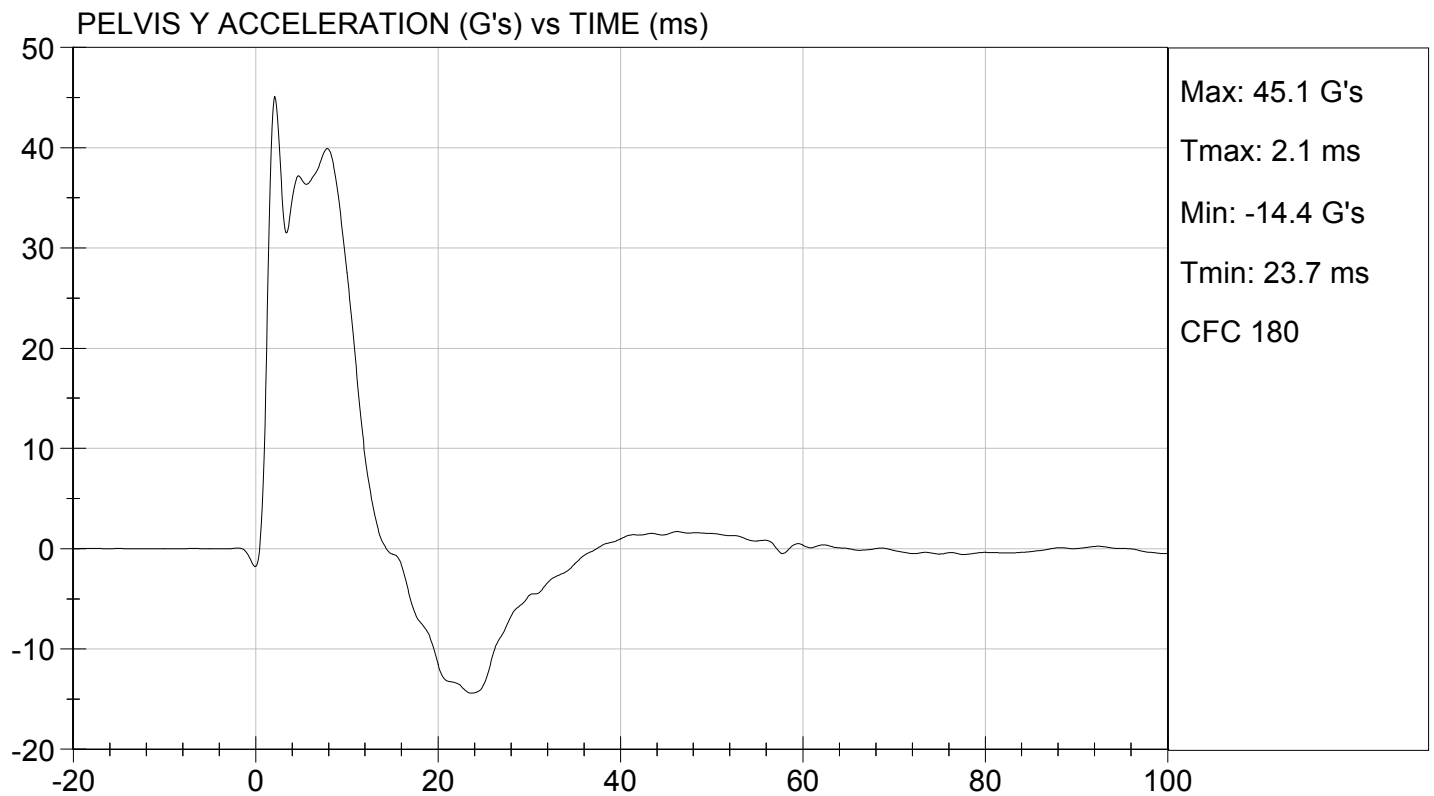
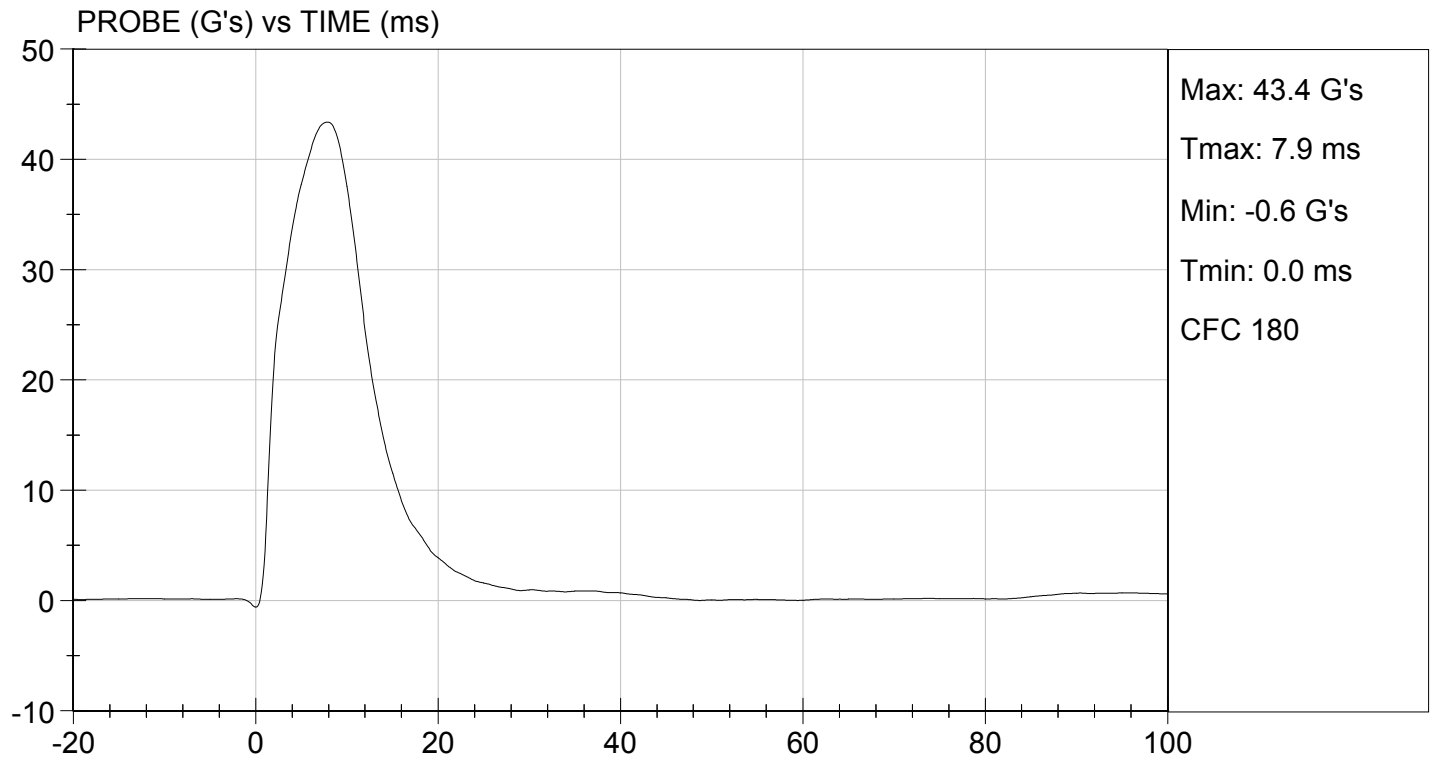
Test Date

Jessica Hall
Approved By



TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

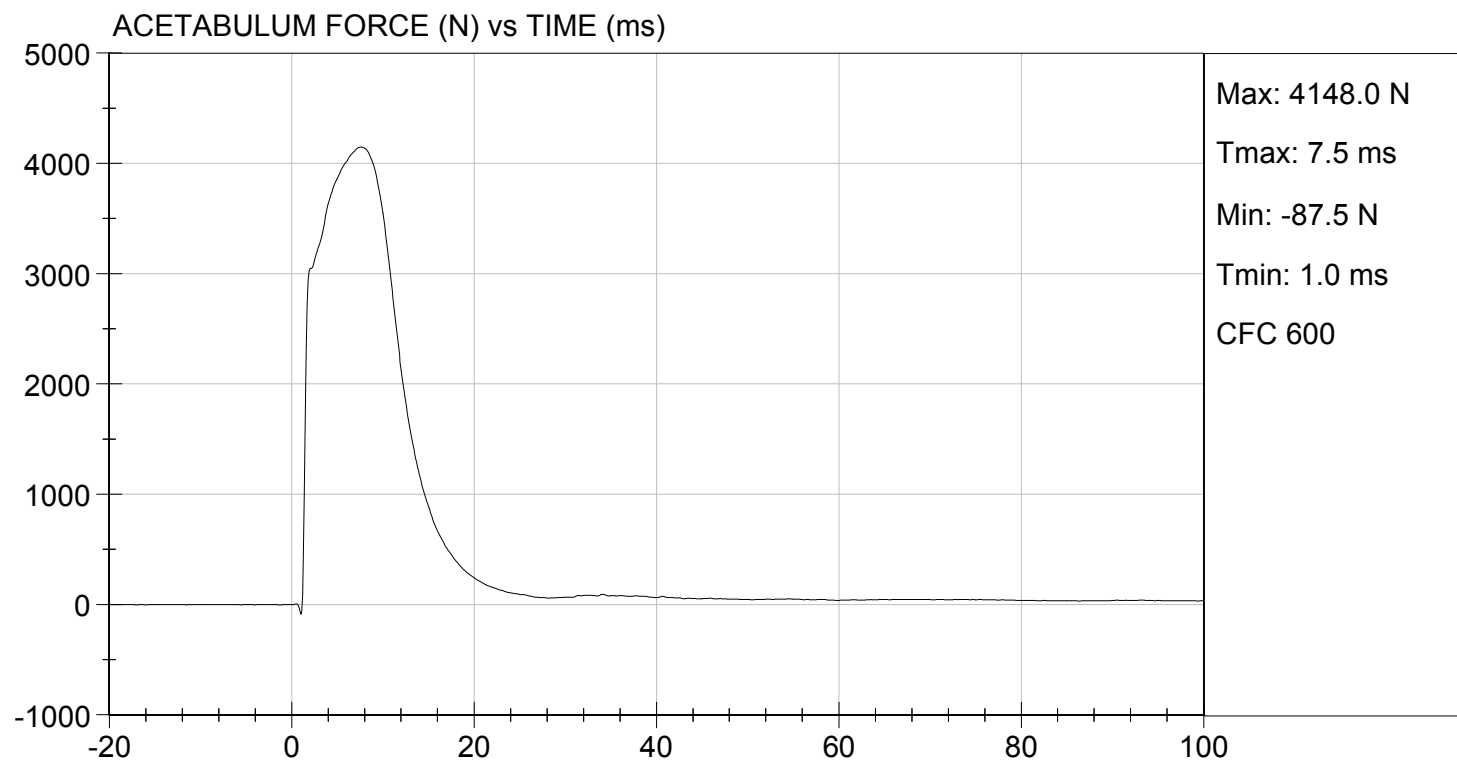
TEST DATE: 09/08/2014
TEST #: D143067





TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 09/08/2014
TEST #: D143067



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143068

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.20 to 4.40	4.20	Pass
Maximum Probe Acceleration	G's	36 to 45	41	Pass
Pelvis Y Acceleration	G's	28 to 39	33	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,809	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

09/08/2014

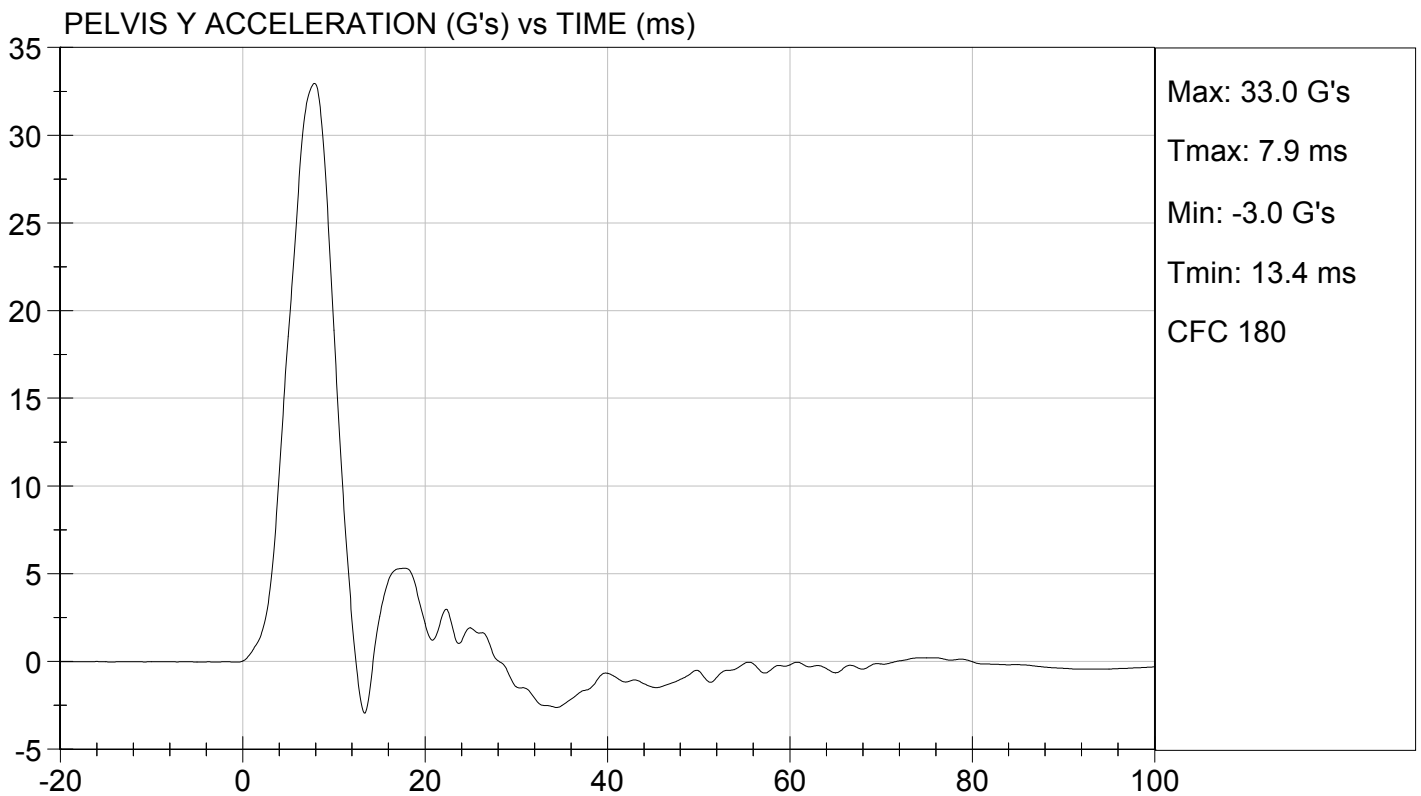
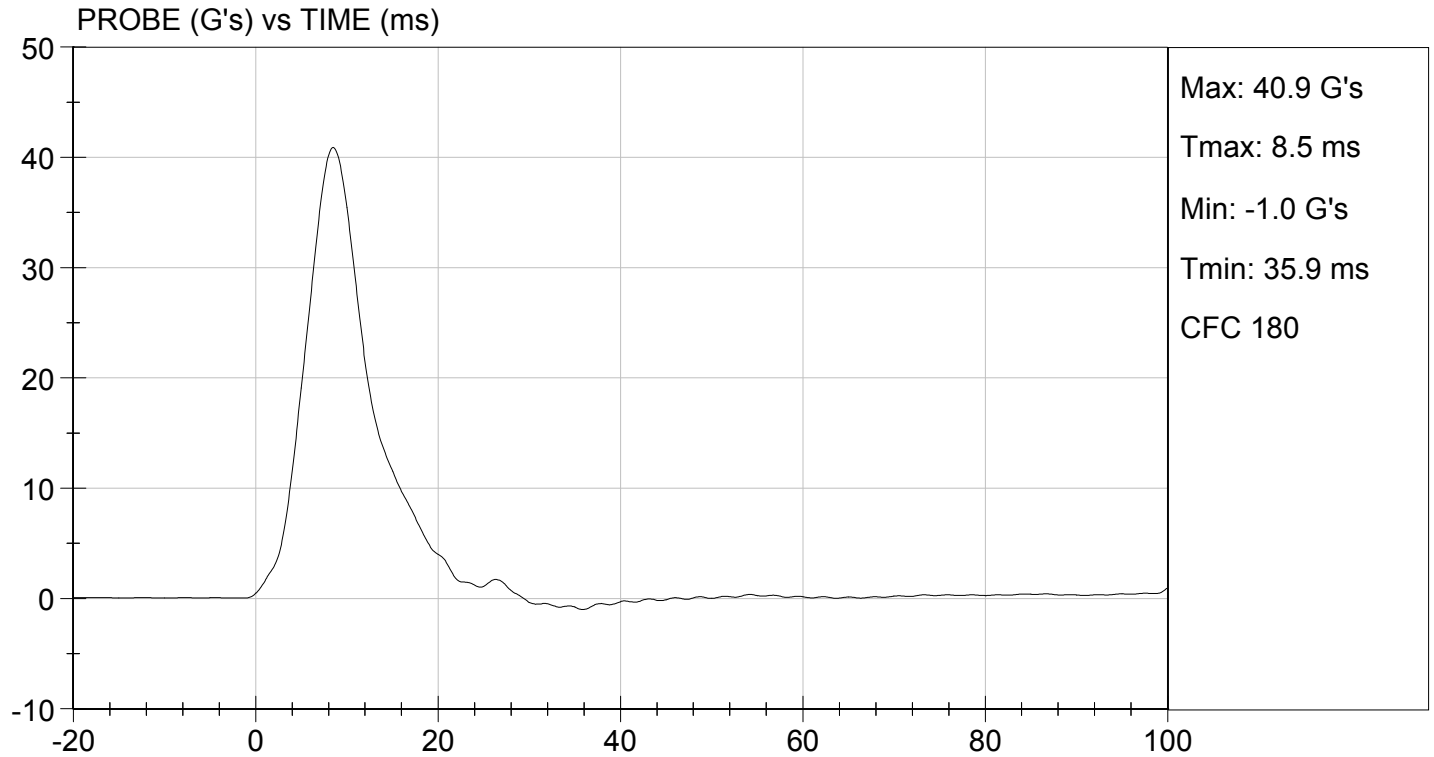
Test Date

Jessica Hall
Approved By



TEST DESC: ILLIAC
VELOCITY: 13.78 ft/s, 4.20 m/s

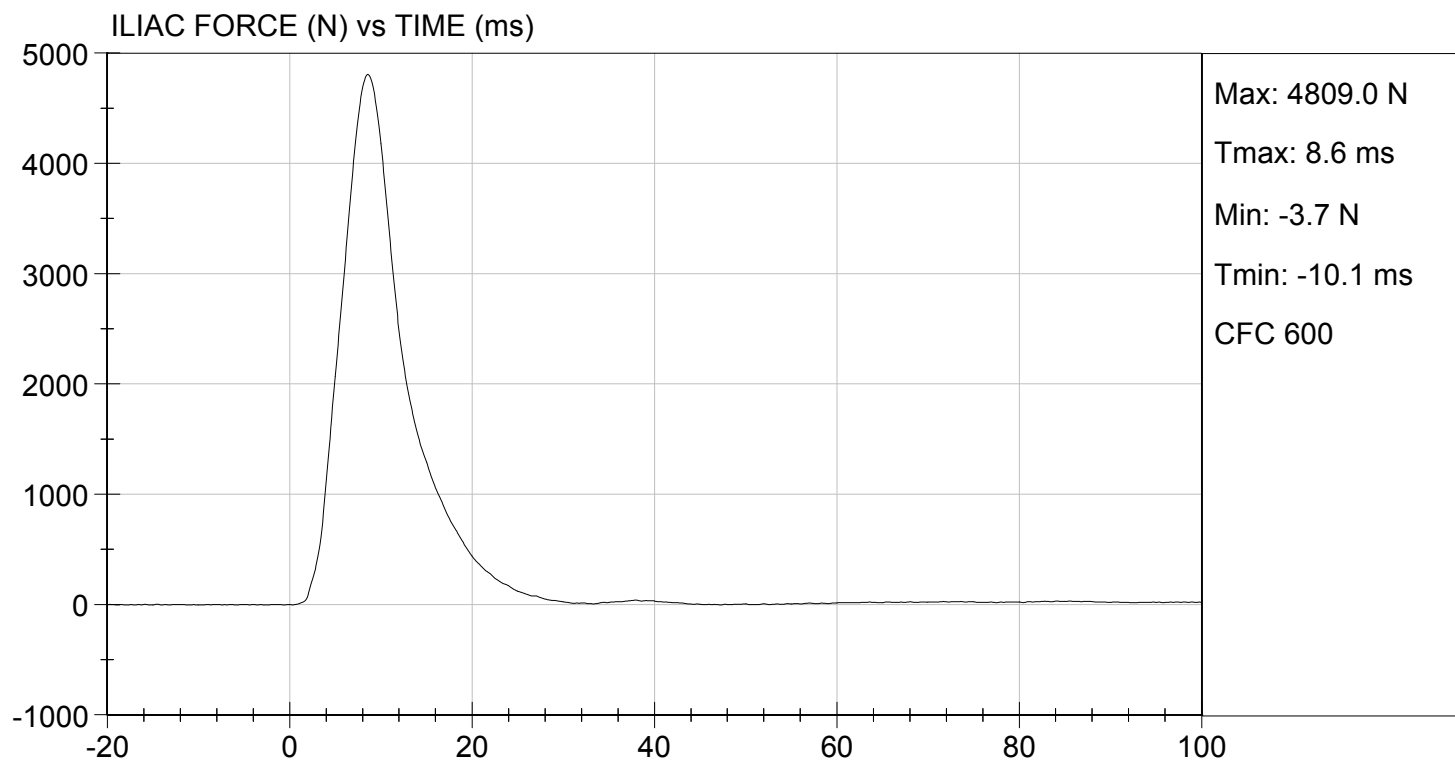
TEST DATE: 09/08/2014
TEST #: D143068





TEST DESC: ILLIAC
VELOCITY: 13.78 ft/s, 4.20 m/s

TEST DATE: 09/08/2014
TEST #: D143068



SID-IIsD External Measurements
SN: 306

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

MGA RESEARCH CORPORATION
HEAD DROP TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D143301

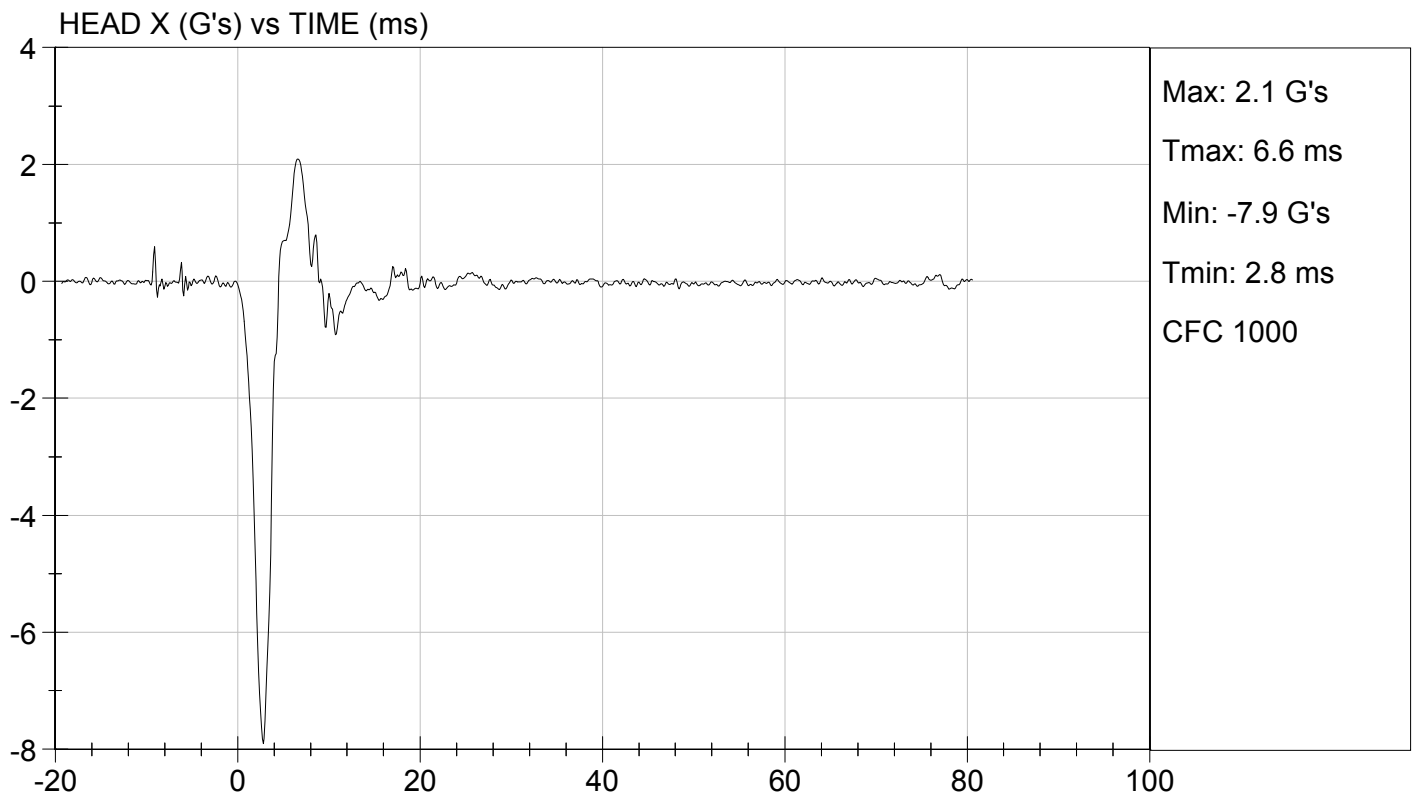
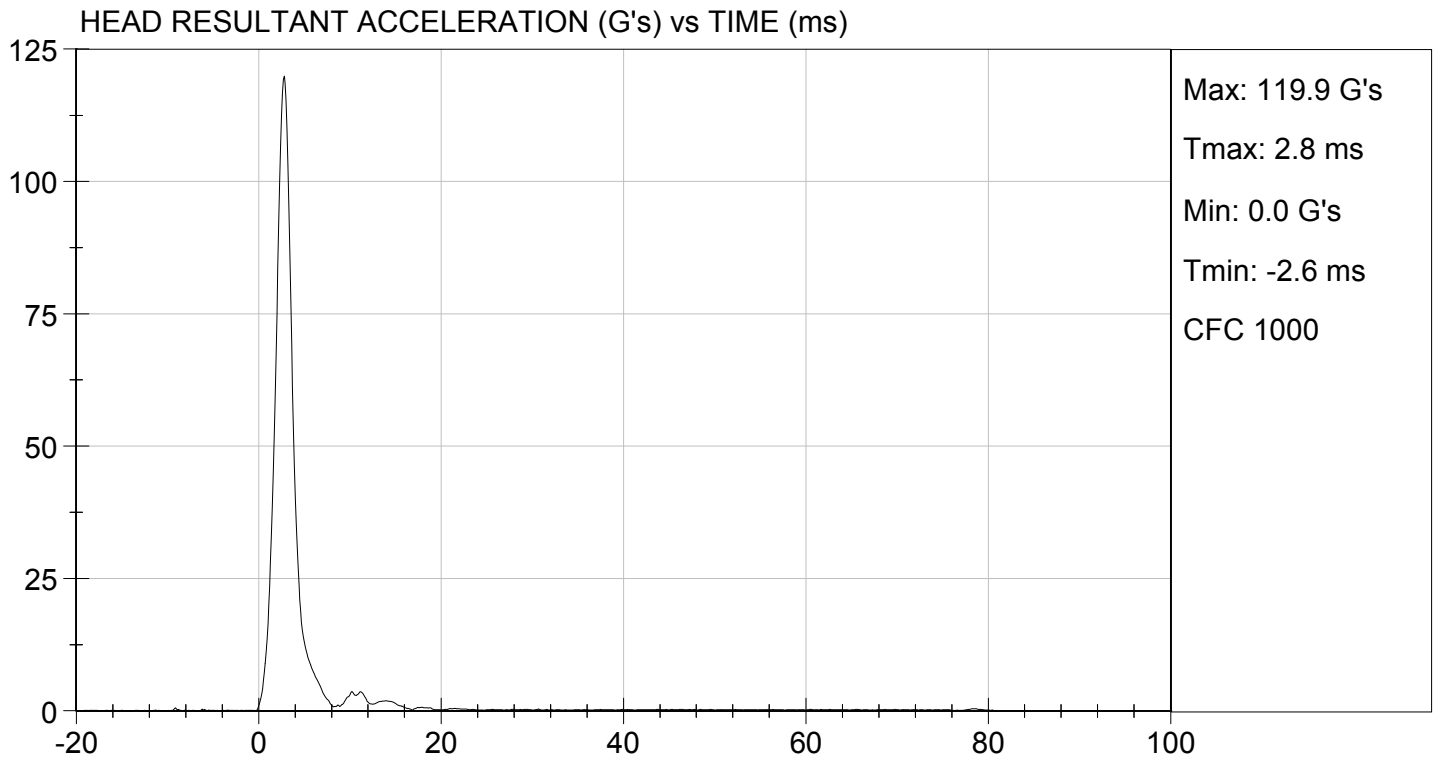
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Peak Resultant Acceleration	G's	115 to 137	120	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-7.9	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results			Pass	

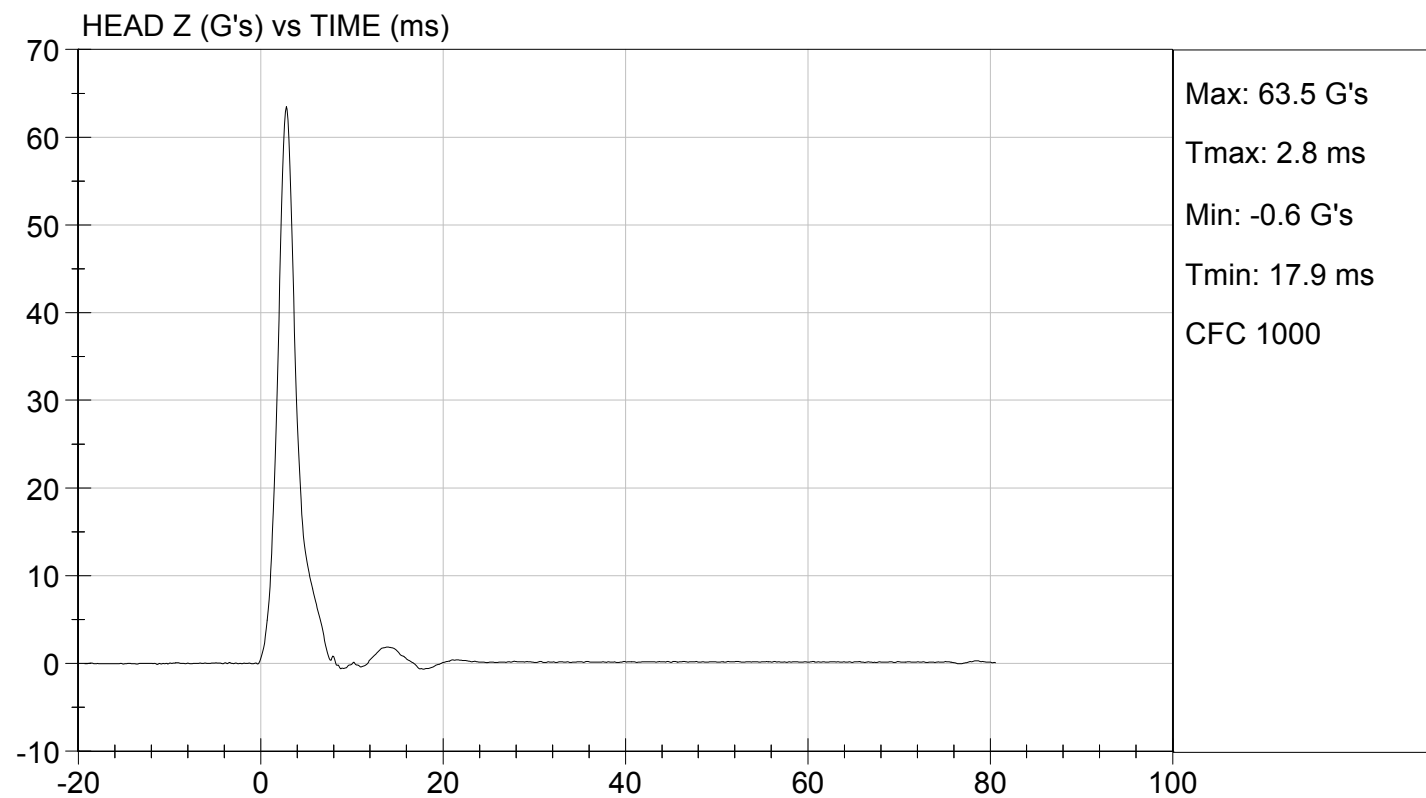
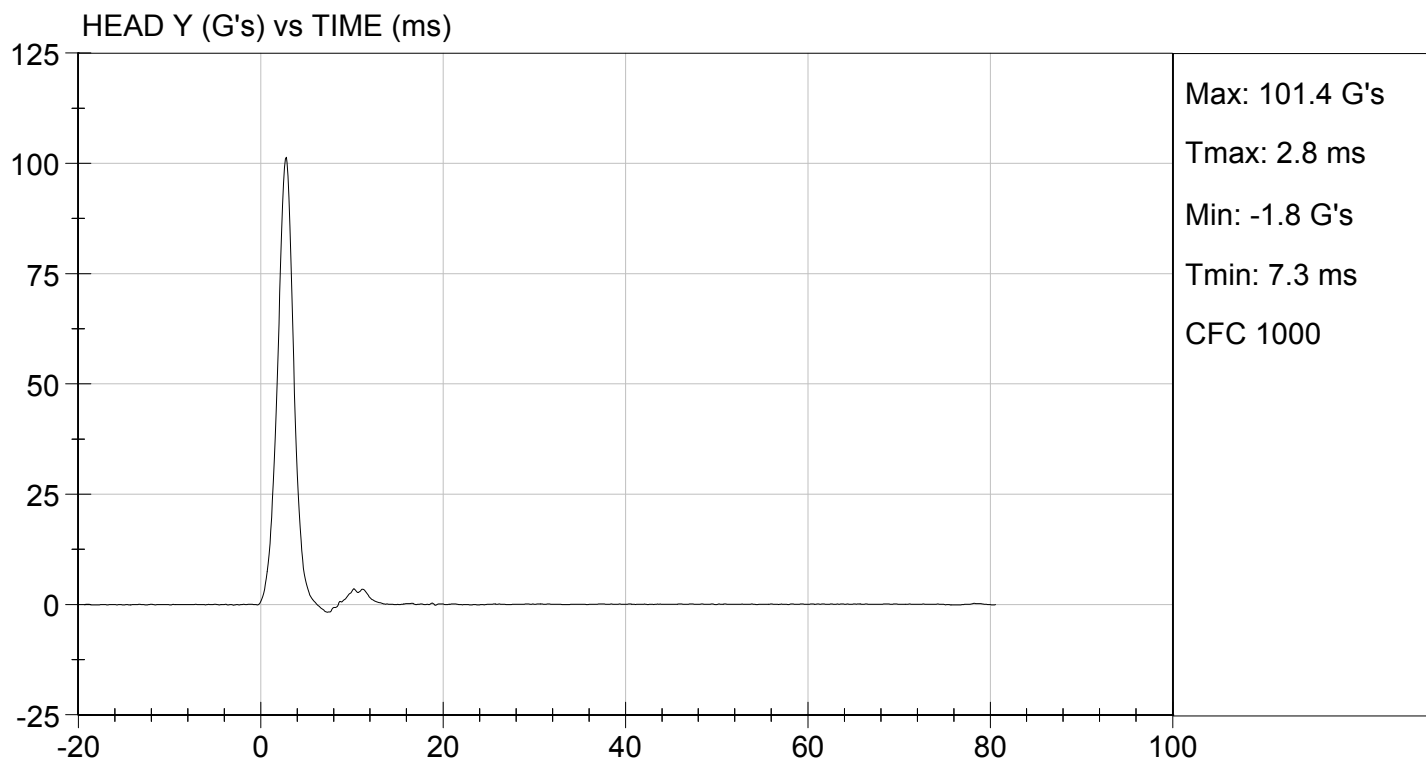
Maxime Chamberland
Laboratory Technician

09/23/2014

Test Date

Jessica Hall
Approved By





MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143302

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.5	Pass
Humidity		%	10 to 70	45	Pass
Impact Velocity		m/s	5.51 to 5.63	5.63	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.42	Pass
	15 ms	m/s	3.30 to 4.10	3.42	Pass
	20 ms	m/s	4.40 to 5.40	4.61	Pass
	25 ms	m/s	5.40 to 6.10	5.49	Pass
	25-100 ms	m/s	5.50 to 6.20	5.57	Pass
Maximum D-Plane Rotation		deg	71 to 81	74	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	61	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-39	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	112	Pass
Overall Test Results					Pass

David Schoedel
Laboratory Technician

09/23/2014

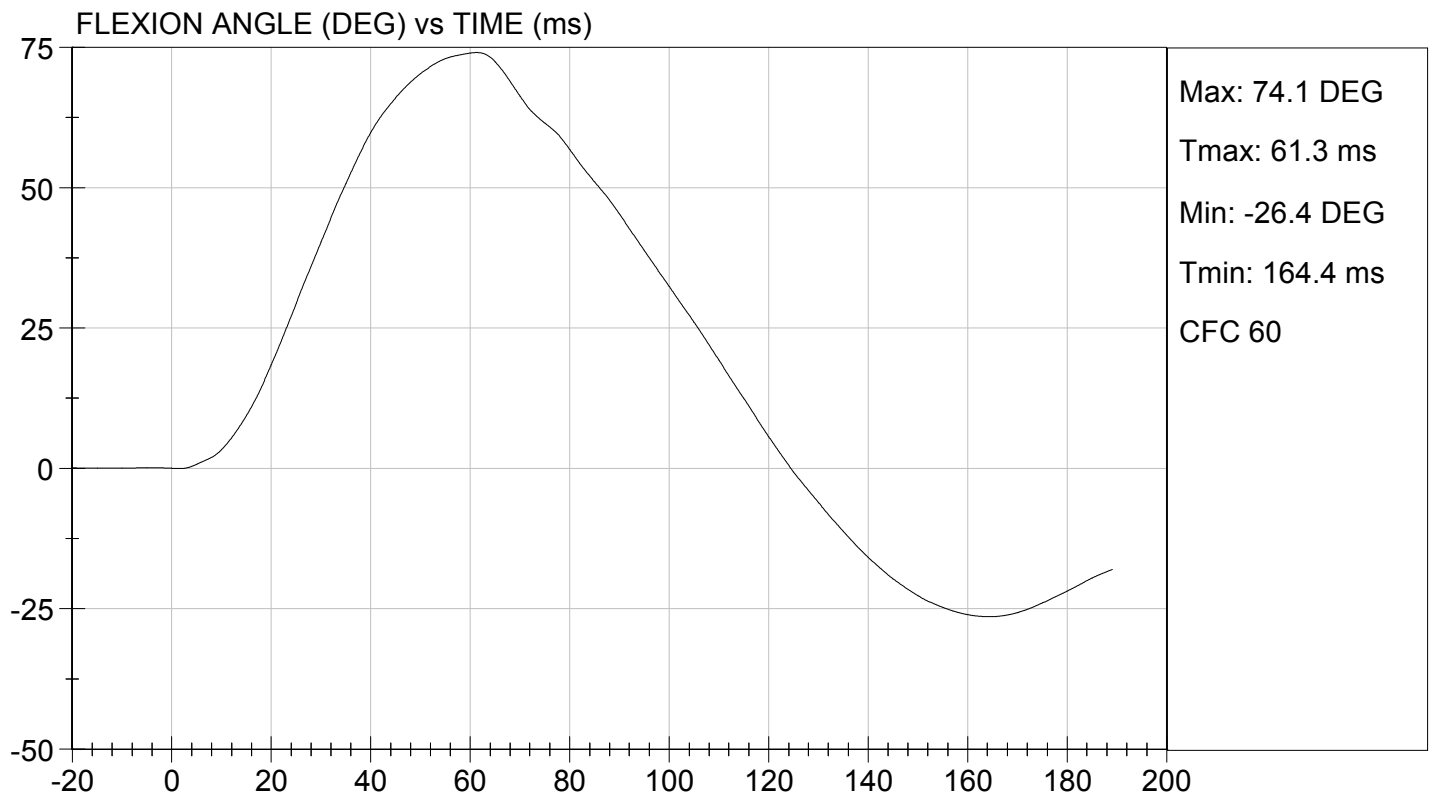
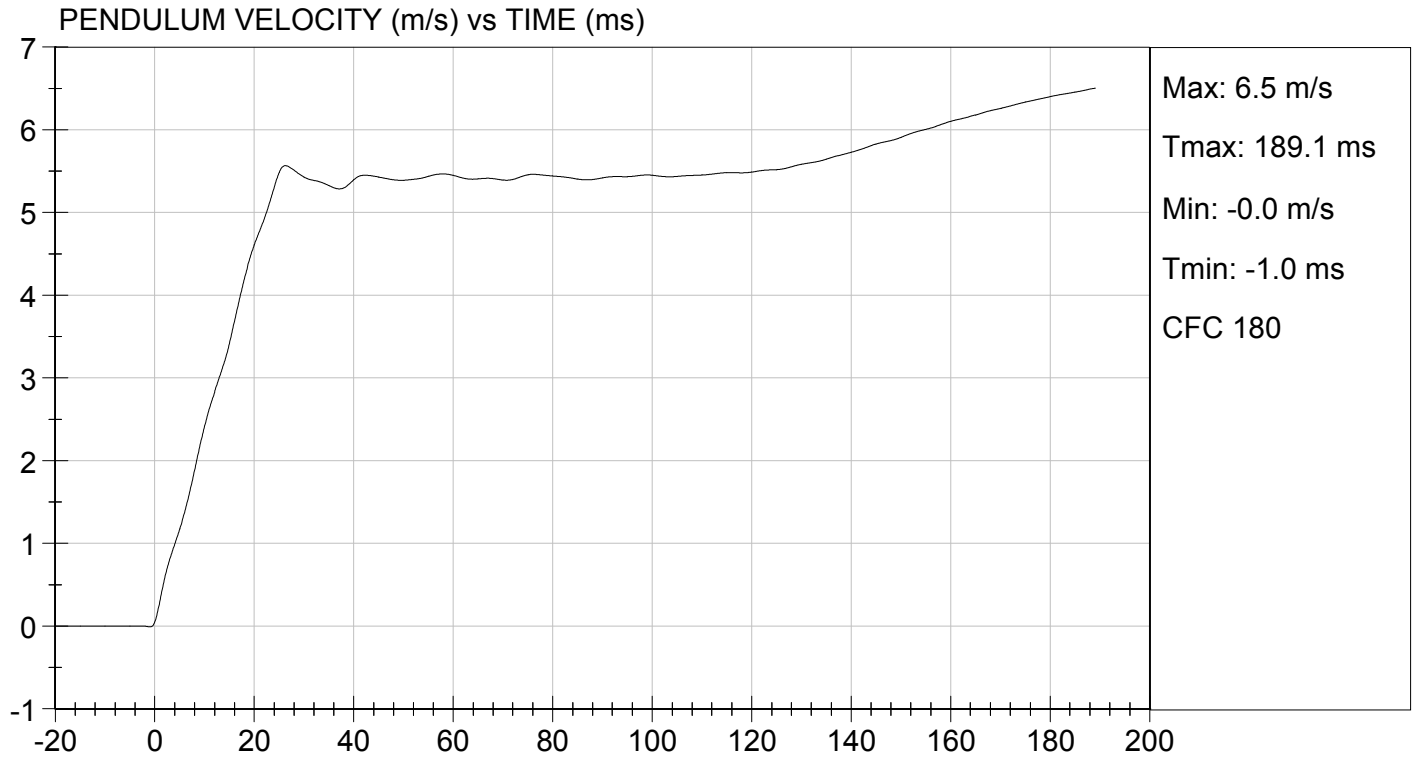
Test Date

Jessica Hall
Approved By



TEST DESC: NECK BENDING
VELOCITY: 18.48 ft/s, 5.63 m/s

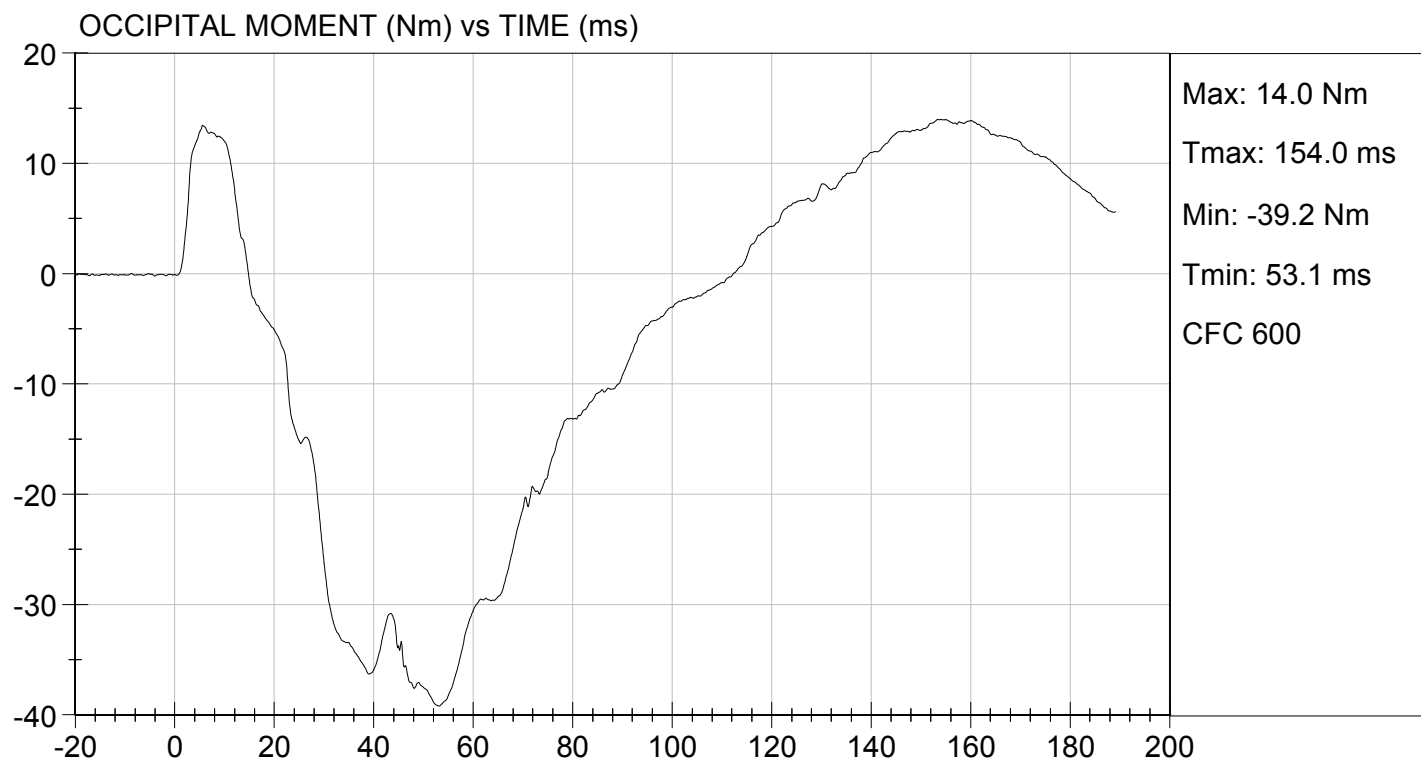
TEST DATE: 09/23/2014
TEST #: D143302





TEST DESC: NECK BENDING
VELOCITY: 18.48 ft/s, 5.63 m/s

TEST DATE: 09/23/2014
TEST #: D143302



MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D143303

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	28	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass

Maxime Chamberland
Laboratory Technician

09/23/2014

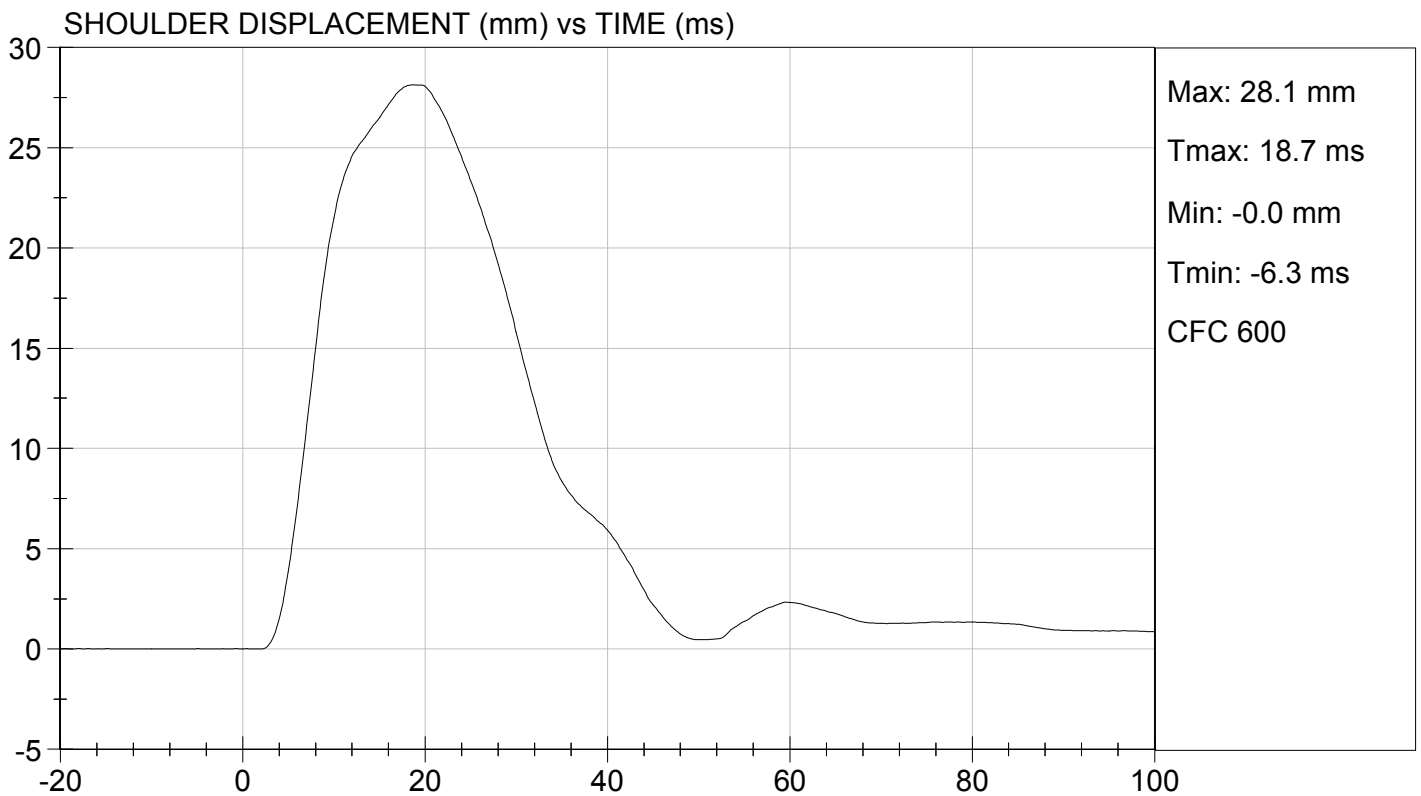
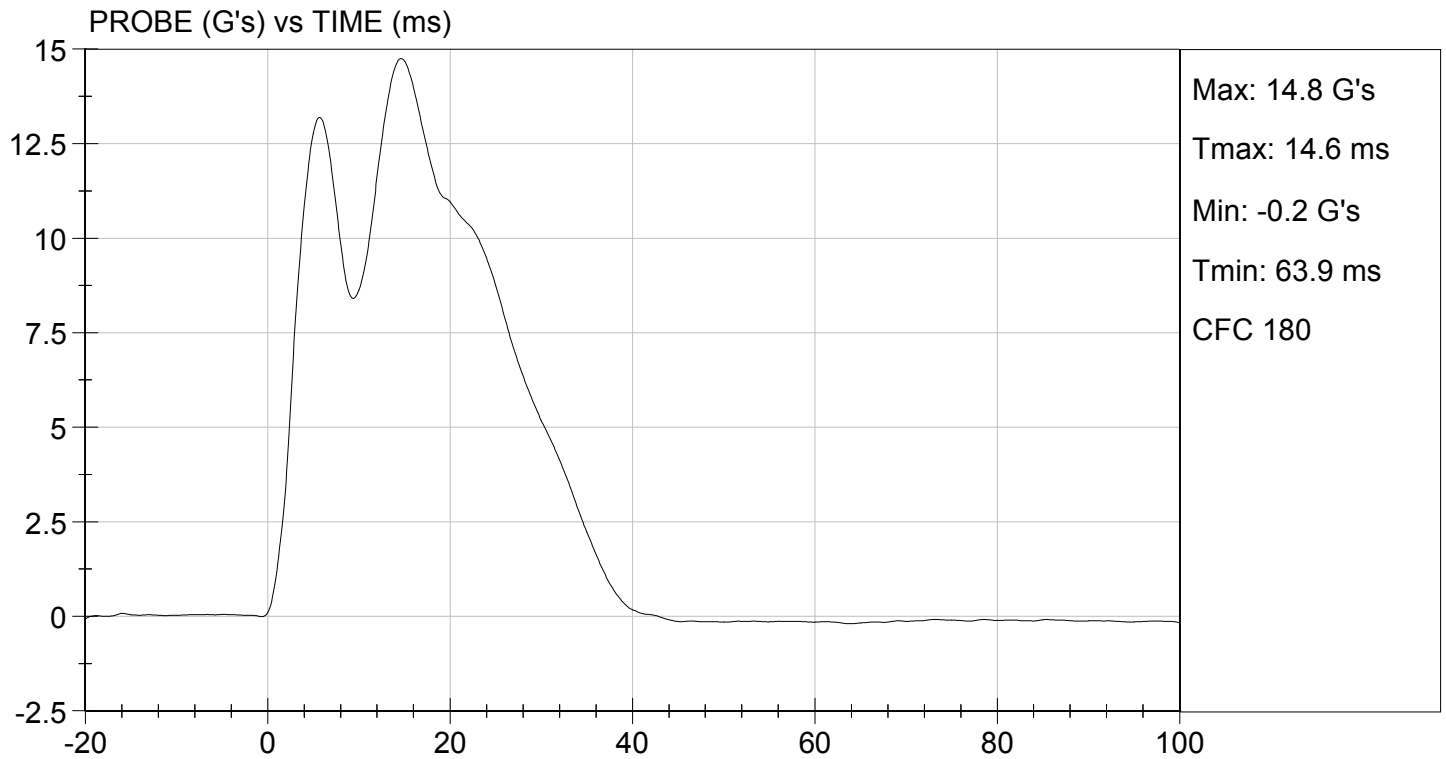
Test Date

Jessica Hall
Approved By



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

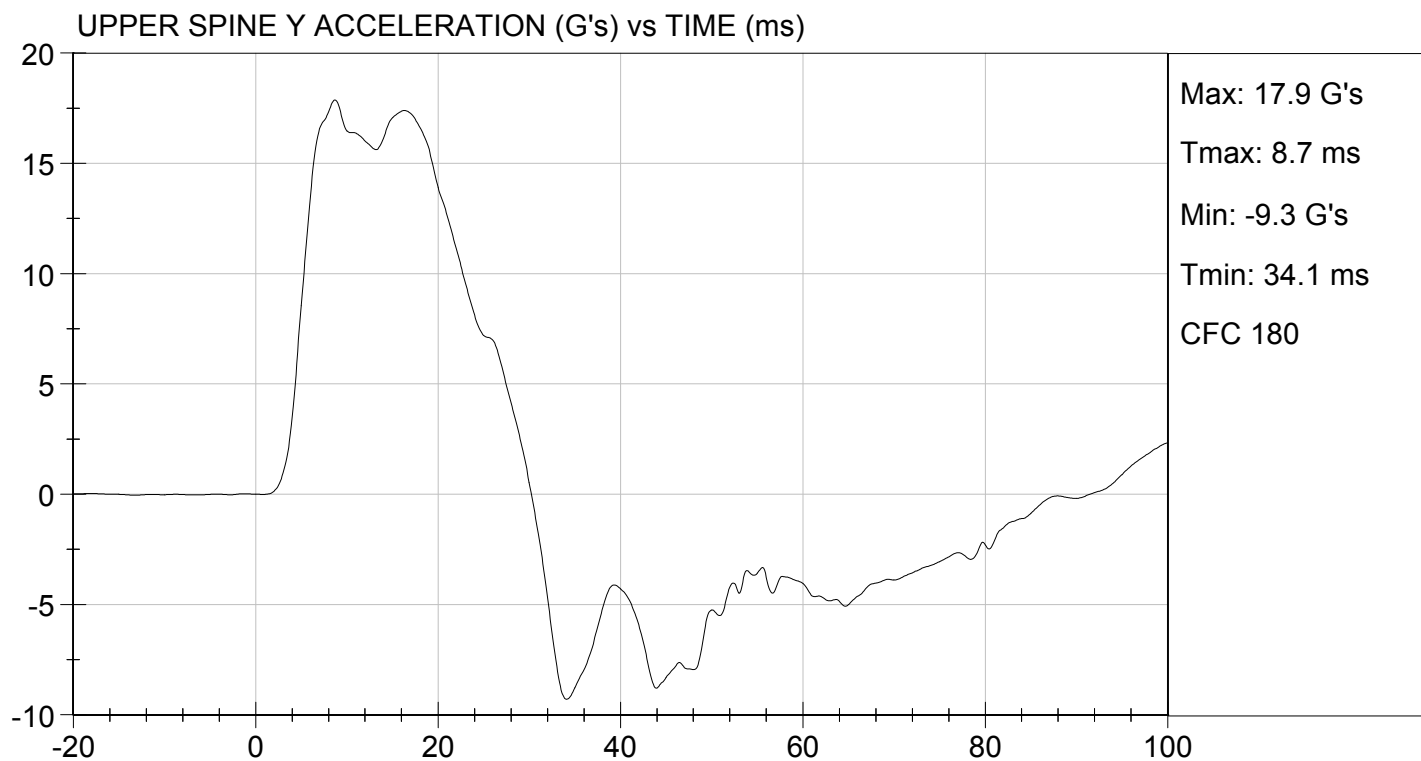
TEST DATE: 09/23/2014
TEST #: D143303





TEST DESC: SHOULDER IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 09/23/2014
TEST #: D143303



MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143304

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.2	Pass
Humidity	%	10 to 70	43	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	32	Pass
Shoulder Displacement	mm	31 to 40	33	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	31	Pass
Overall Test Results				Pass

Maxime Chamberland
Laboratory Technician

09/24/2014

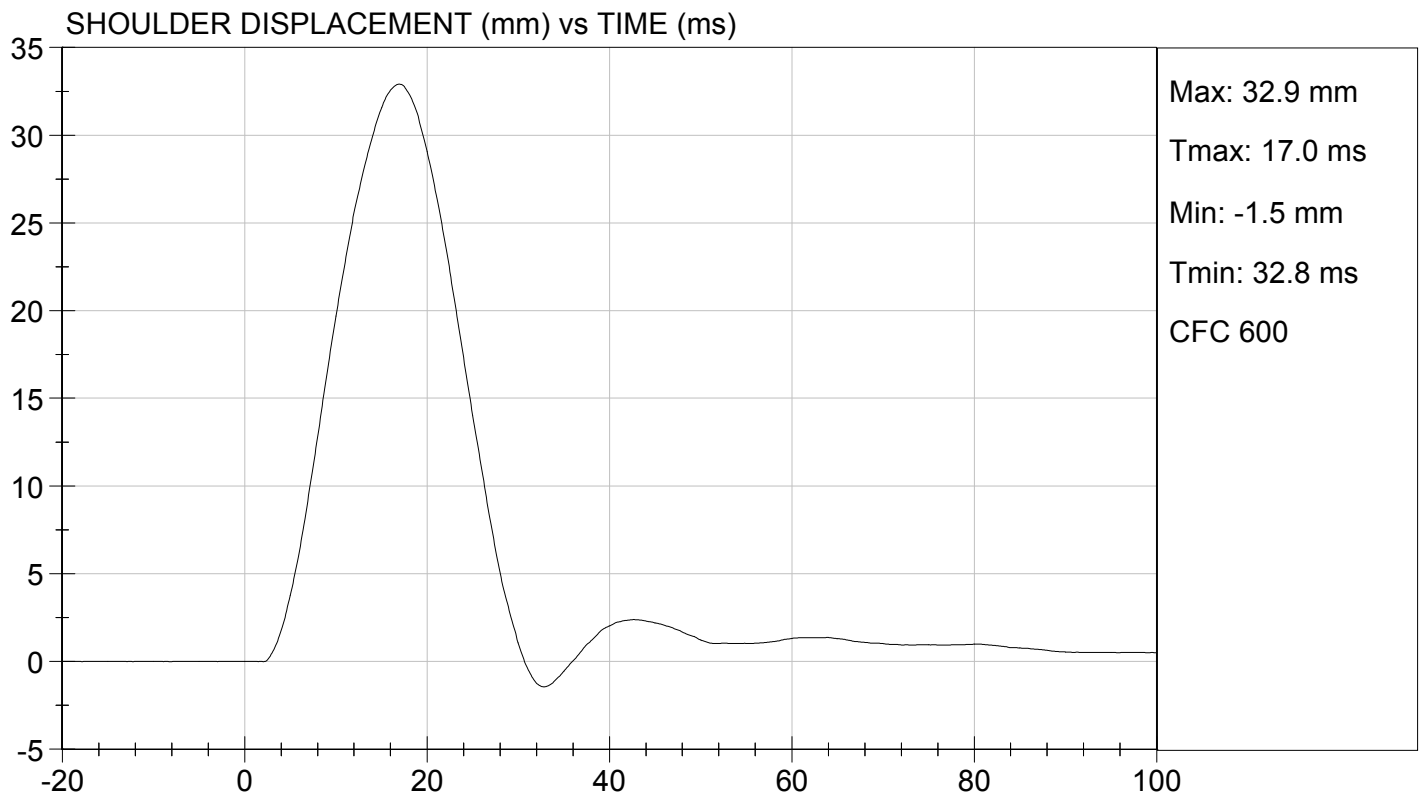
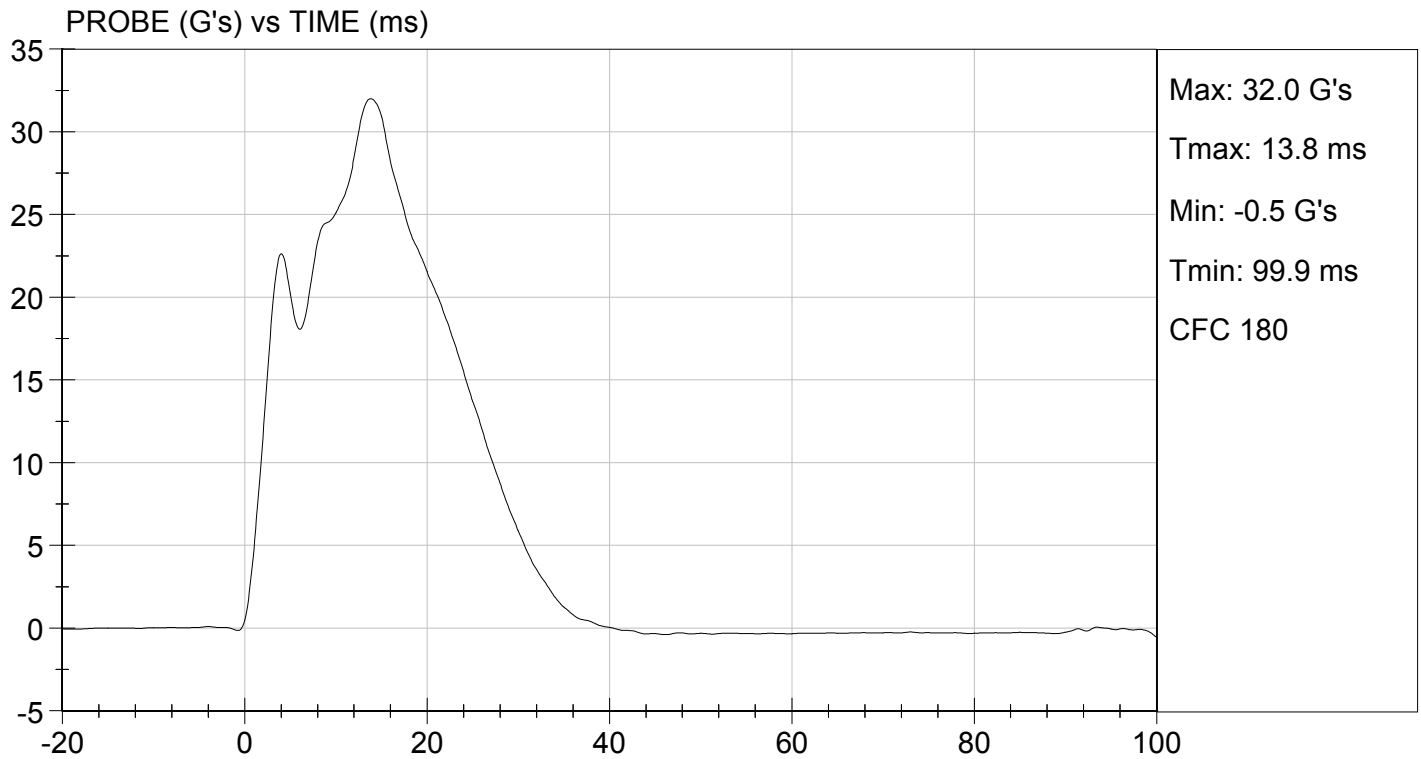
Test Date

Jessica Hall
Approved By



TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

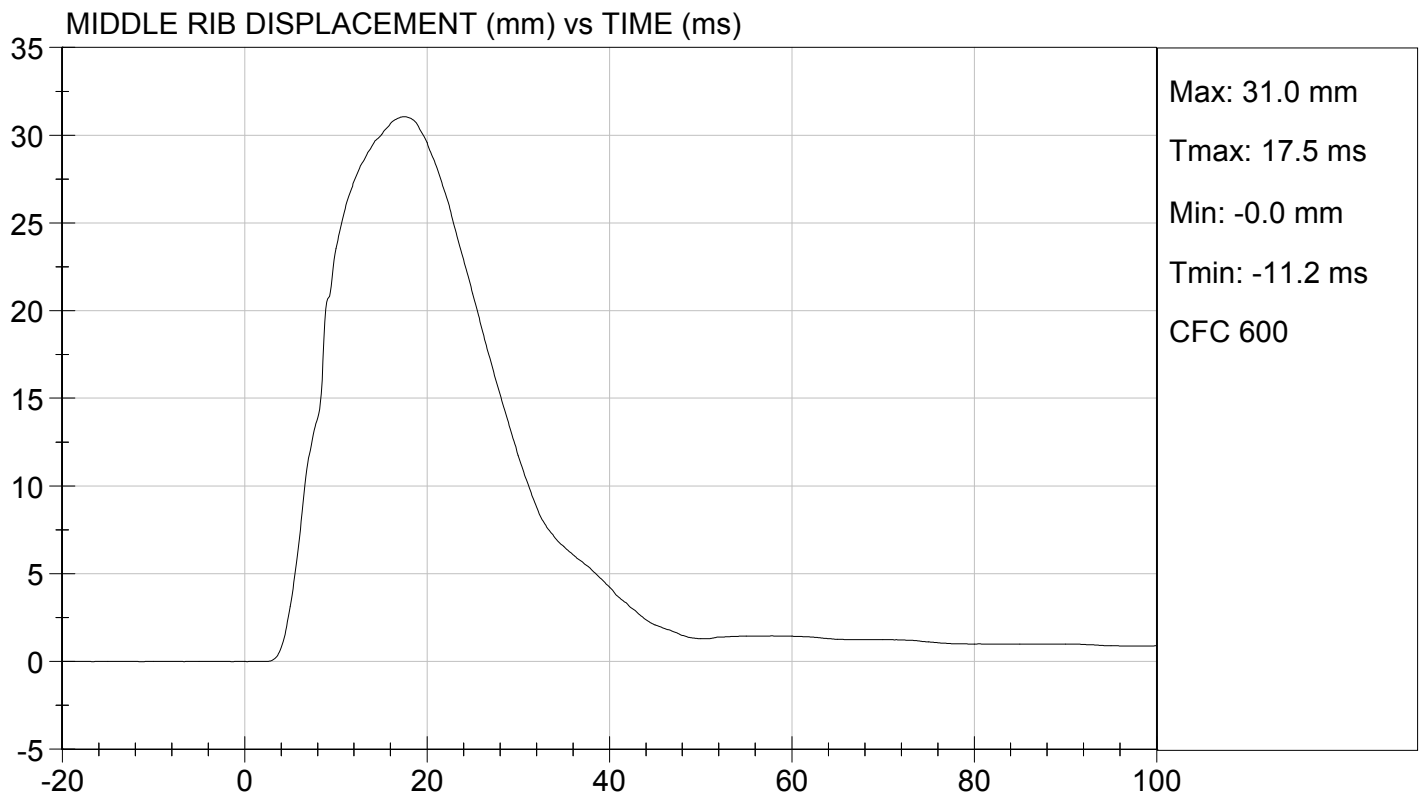
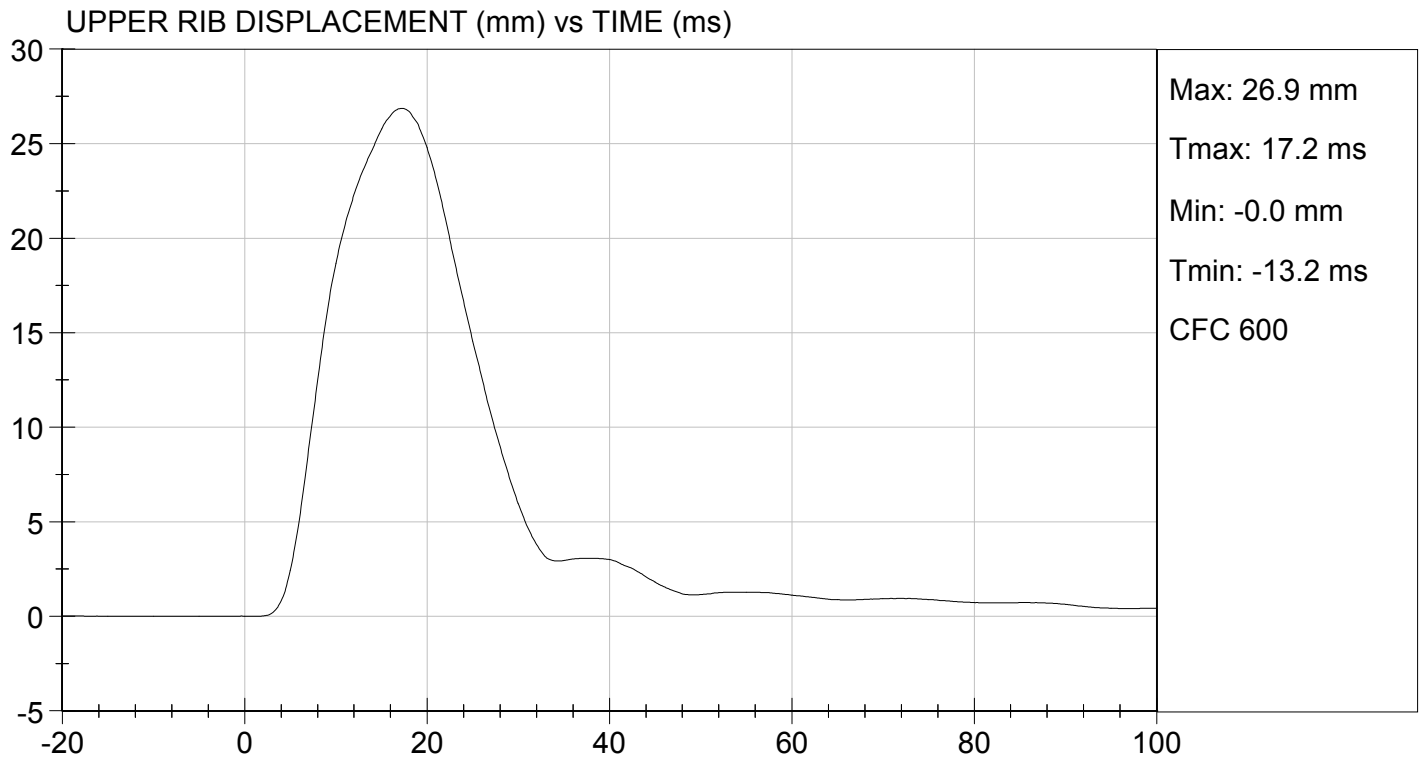
TEST DATE: 09/24/2014
TEST #: D143304





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 09/24/2014
TEST #: D143304

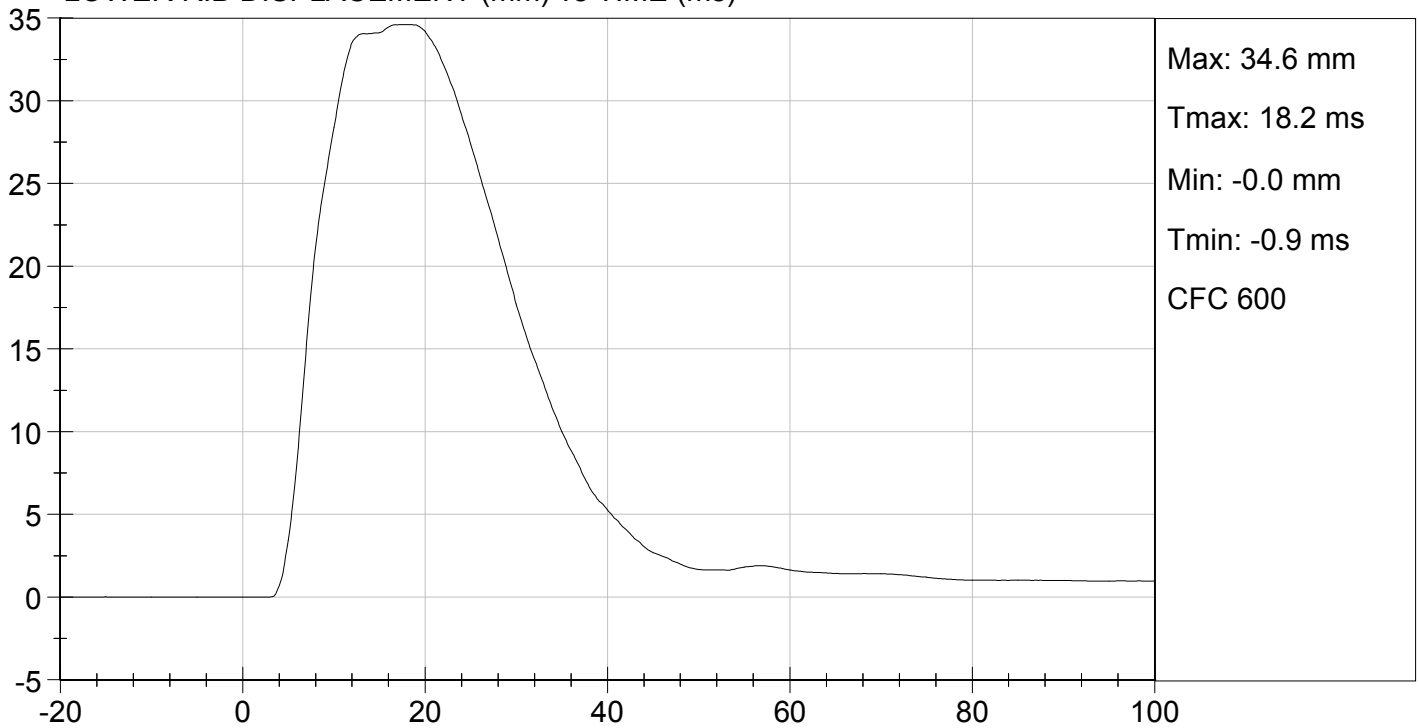




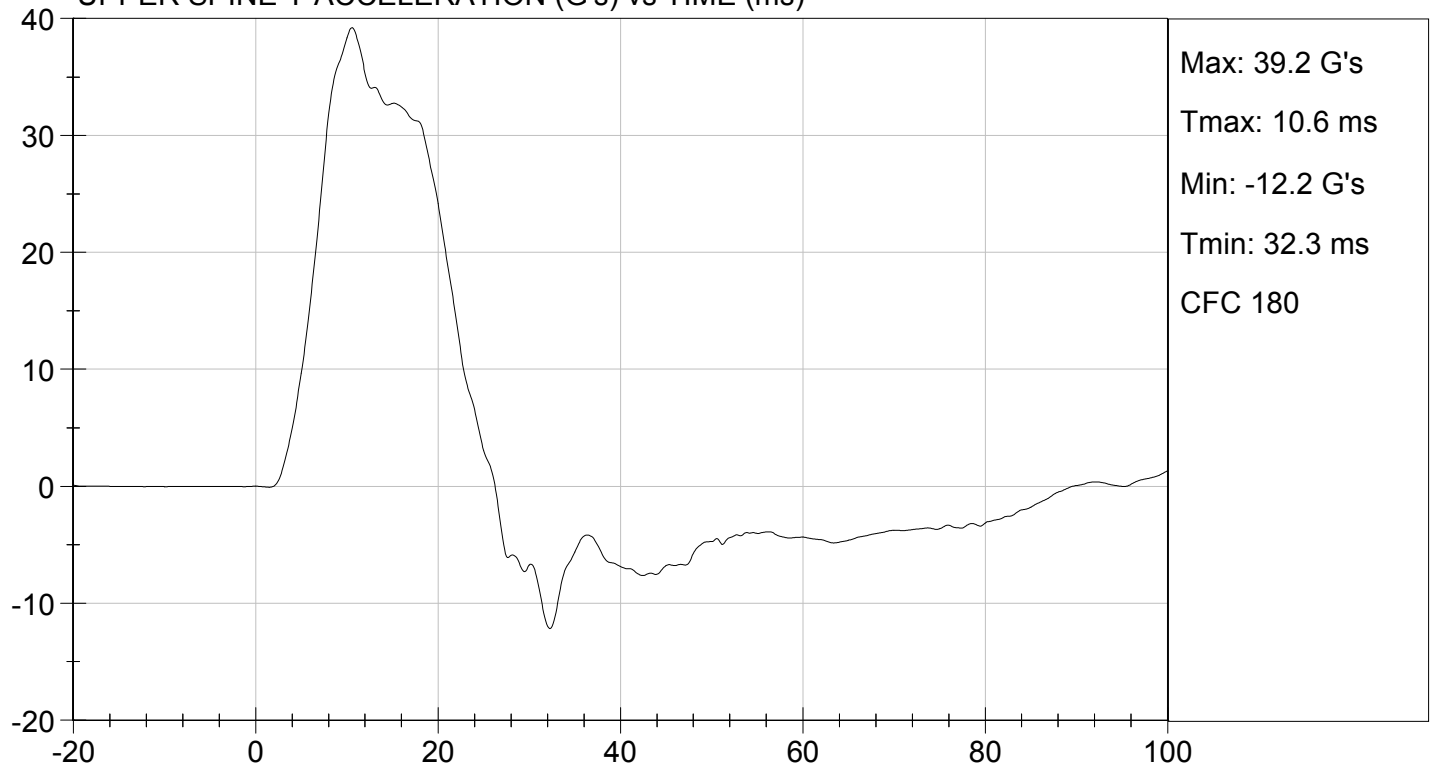
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 09/24/2014
TEST #: D143304

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



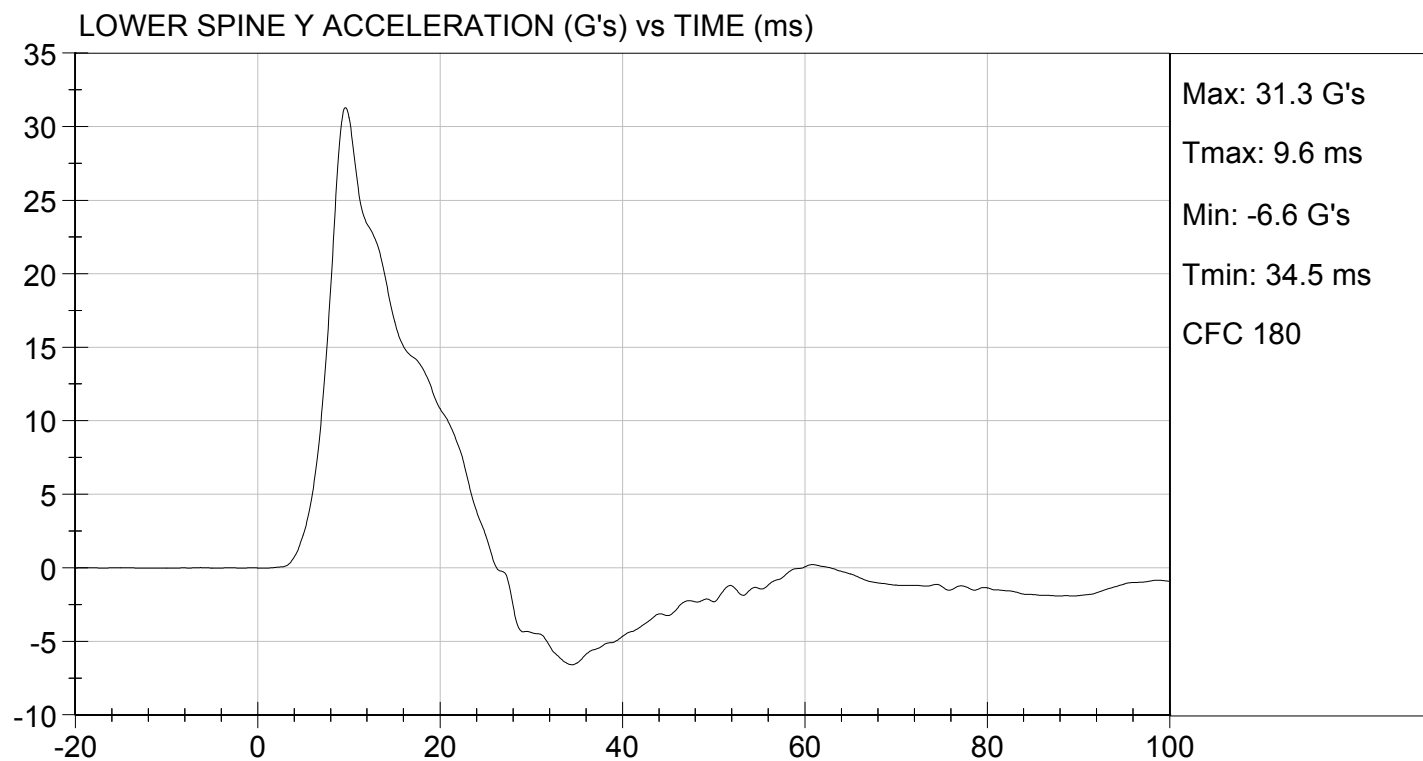
UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)





TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 09/24/2014
TEST #: D143304



MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143305

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.2	Pass
Humidity	%	10 to 70	44	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	38	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results				Pass

Maxime Chamberland
Laboratory Technician

09/23/2014

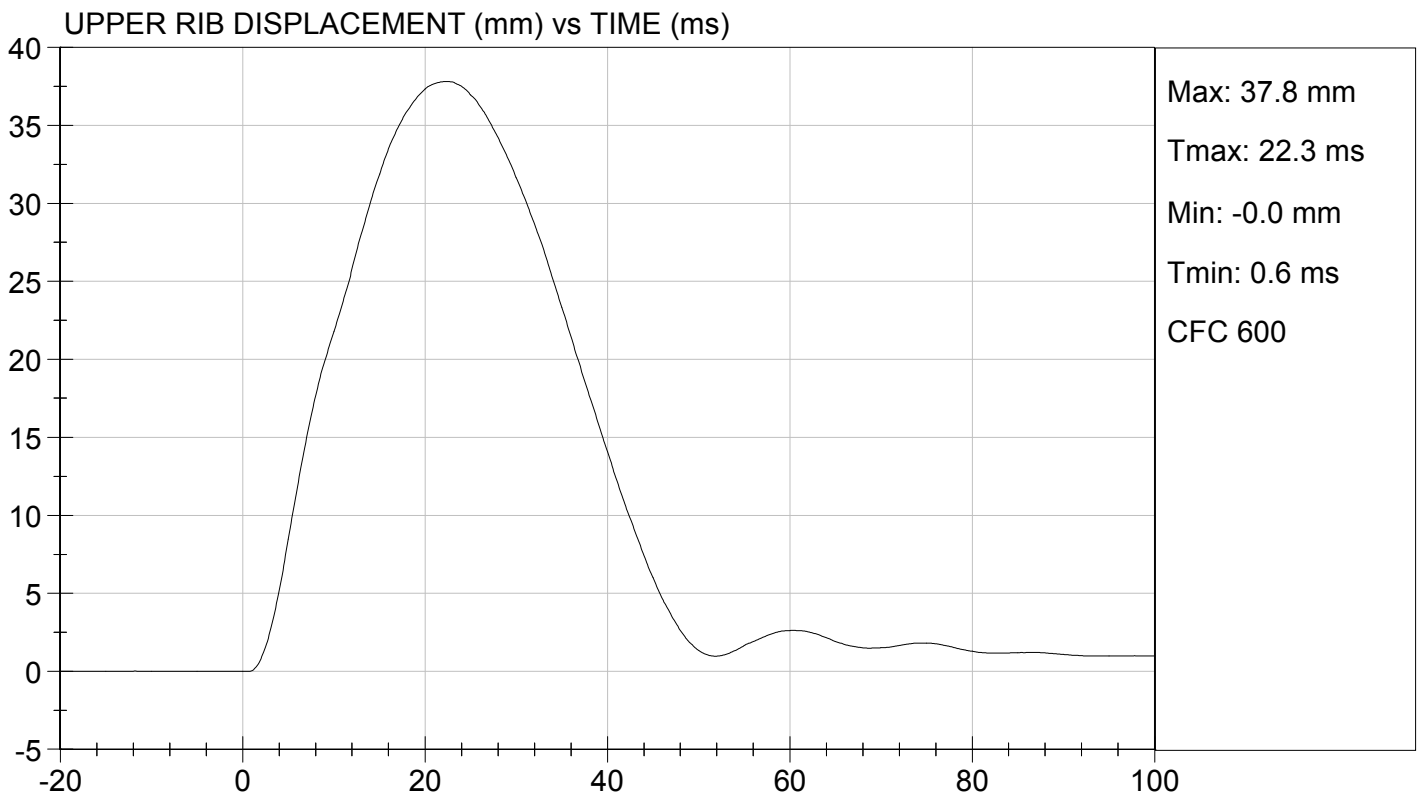
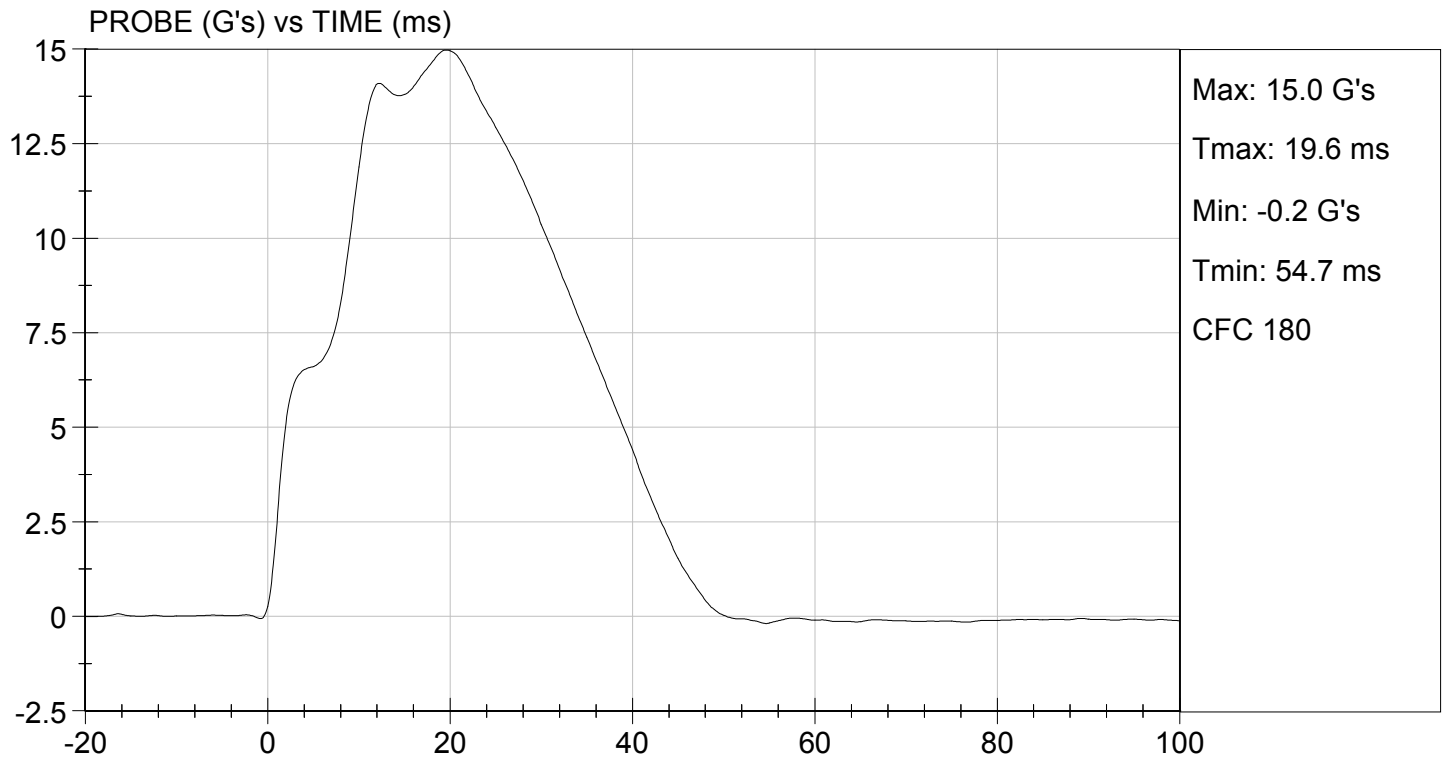
Test Date

Jessica Hall
Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 09/23/2014
TEST #: D143305

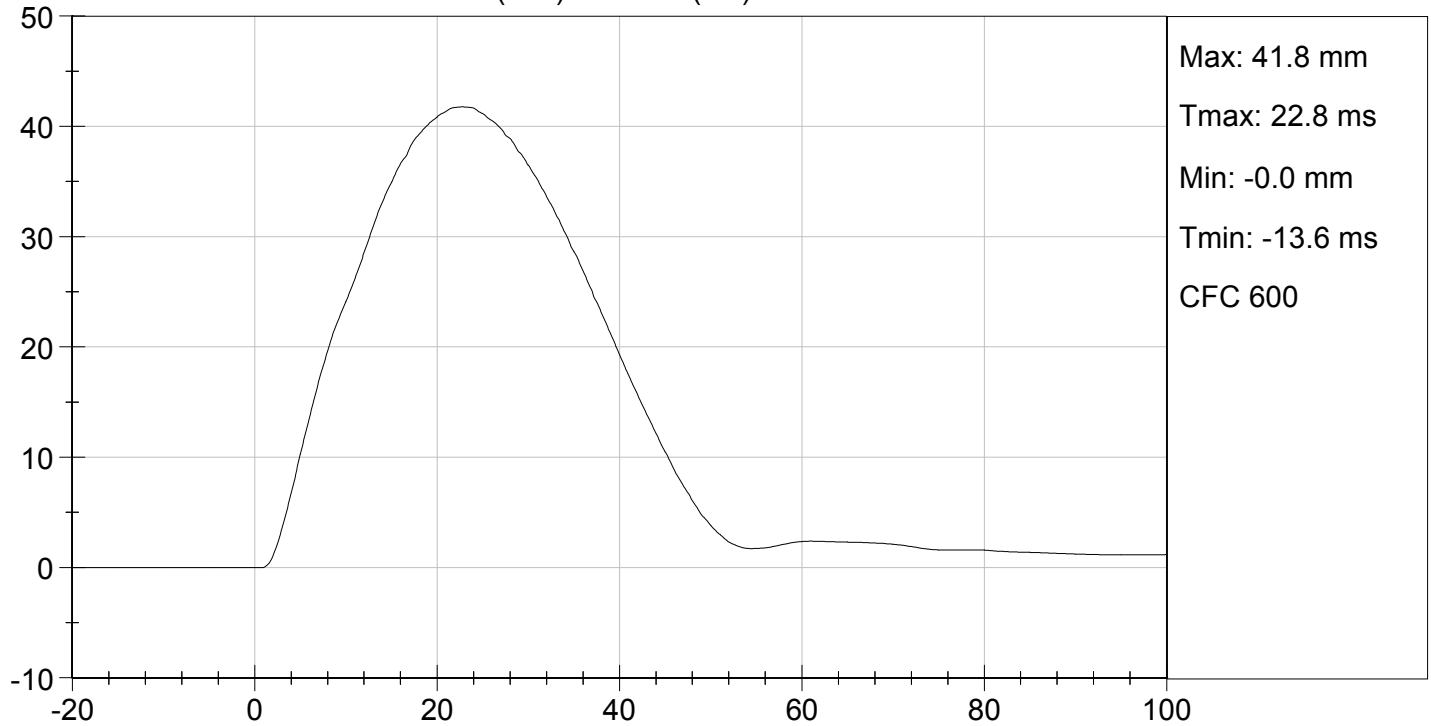




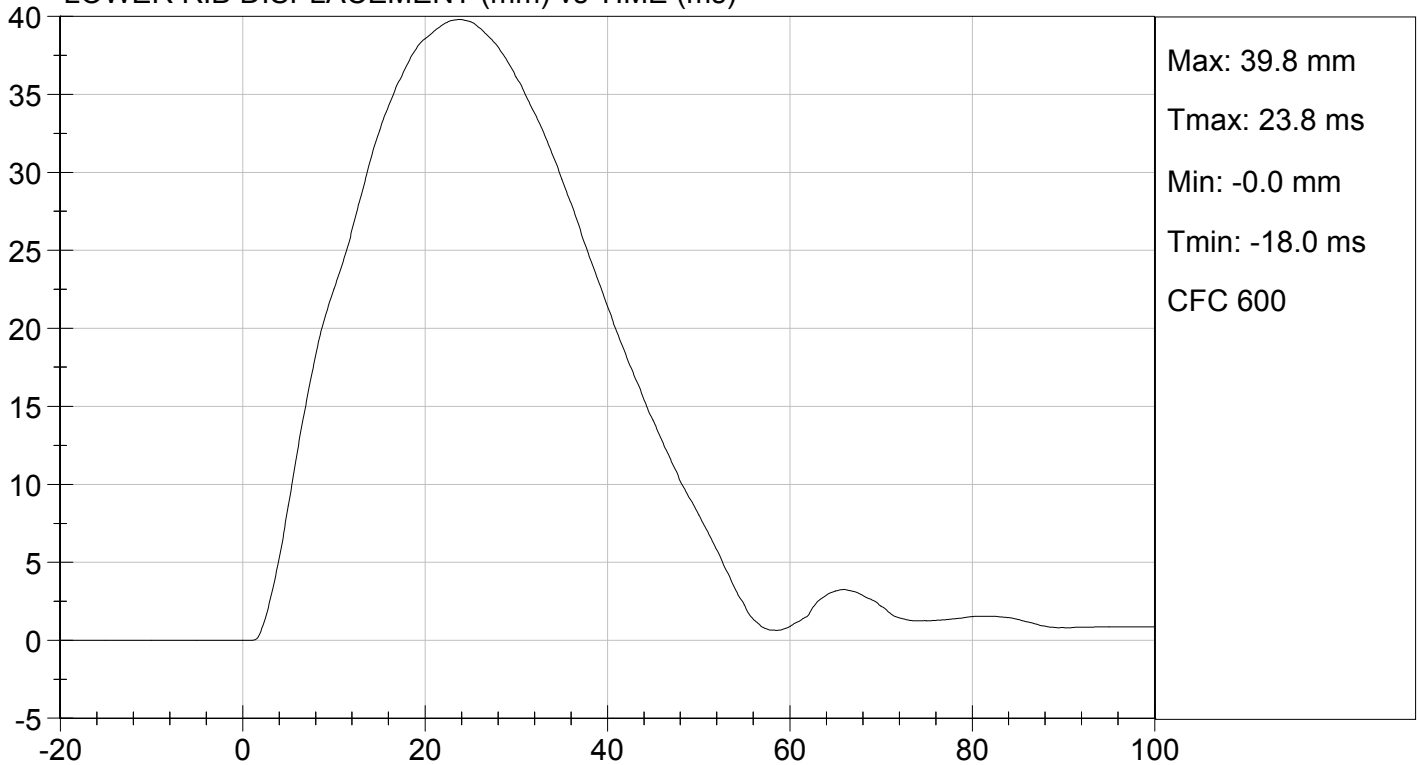
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 09/23/2014
TEST #: D143305

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

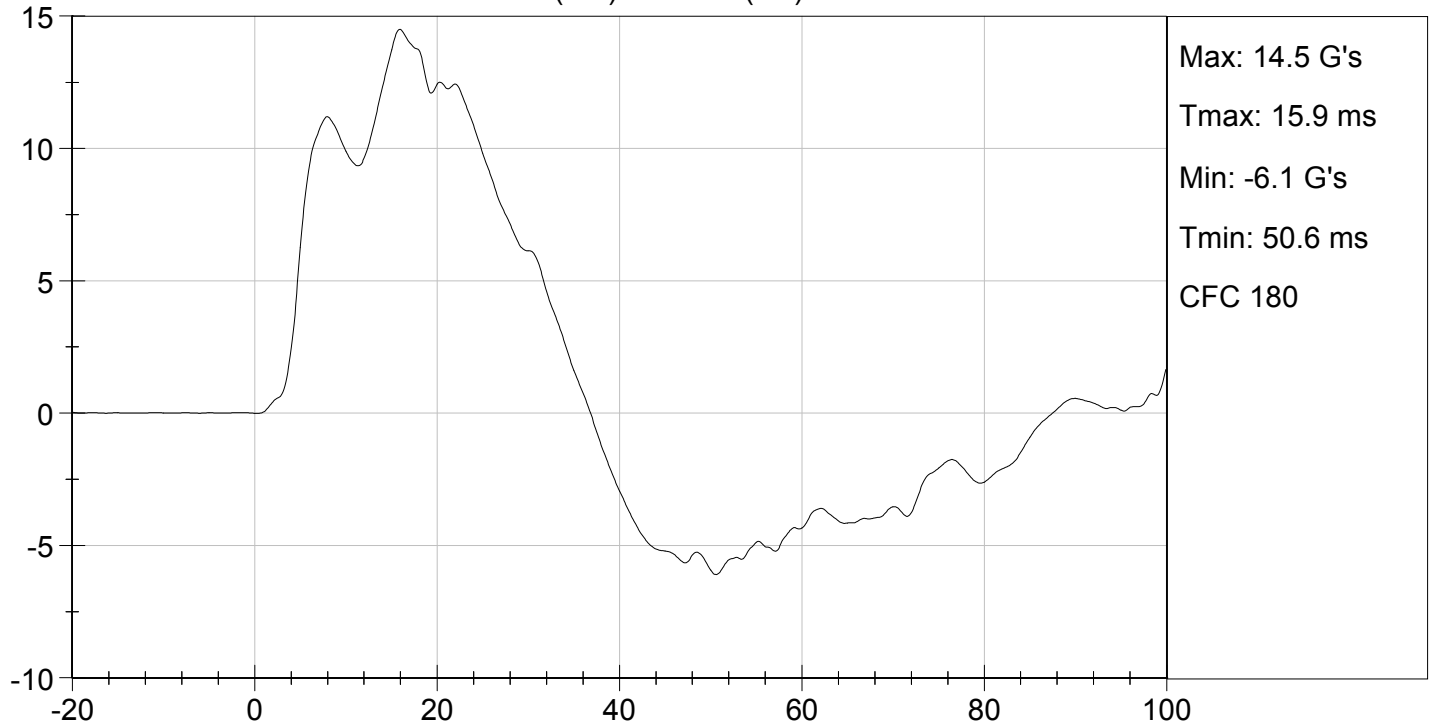




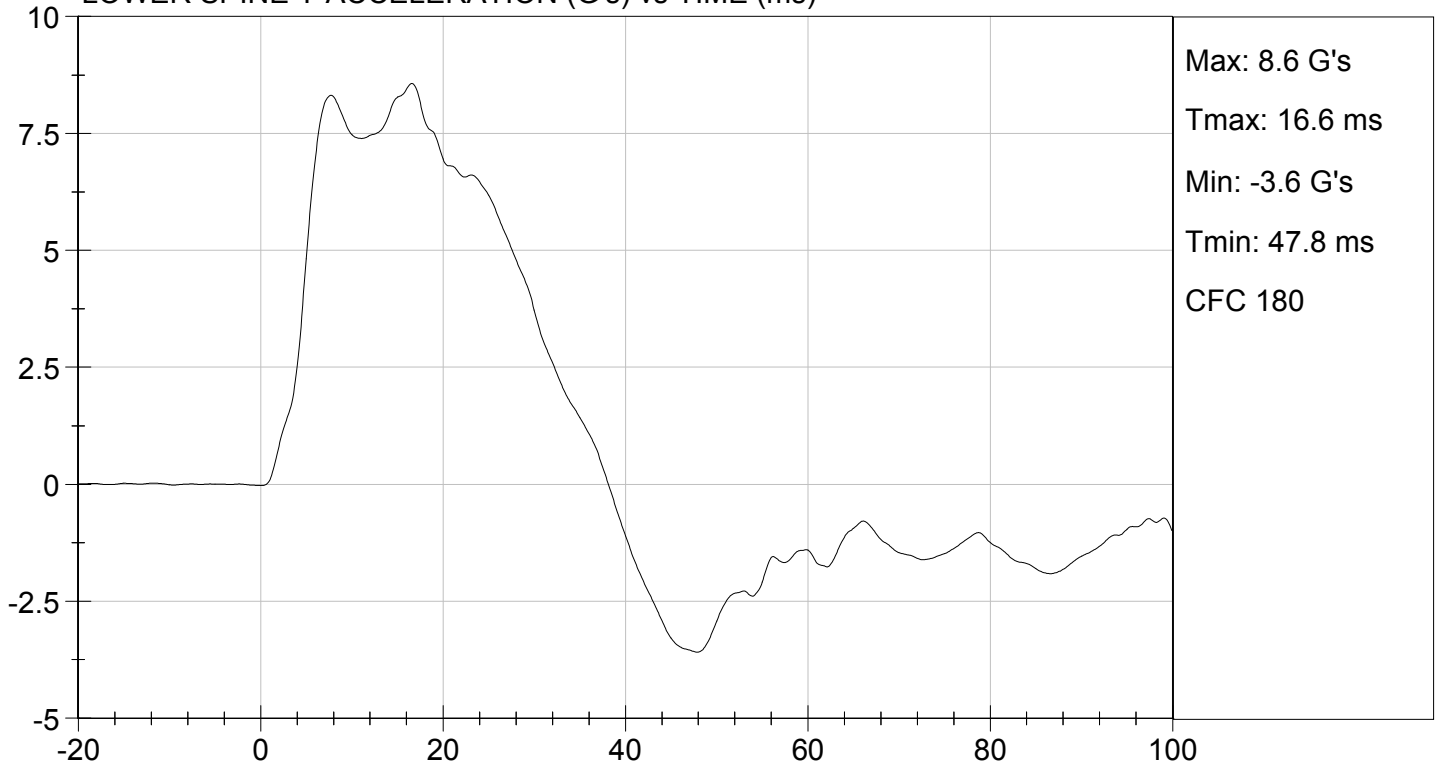
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 09/23/2014
TEST #: D143305

UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



LOWER SPINE Y ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143306

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	44	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	43	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	40	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
Overall Test Results				Pass

Maxime Chamberland
Laboratory Technician

09/23/2014

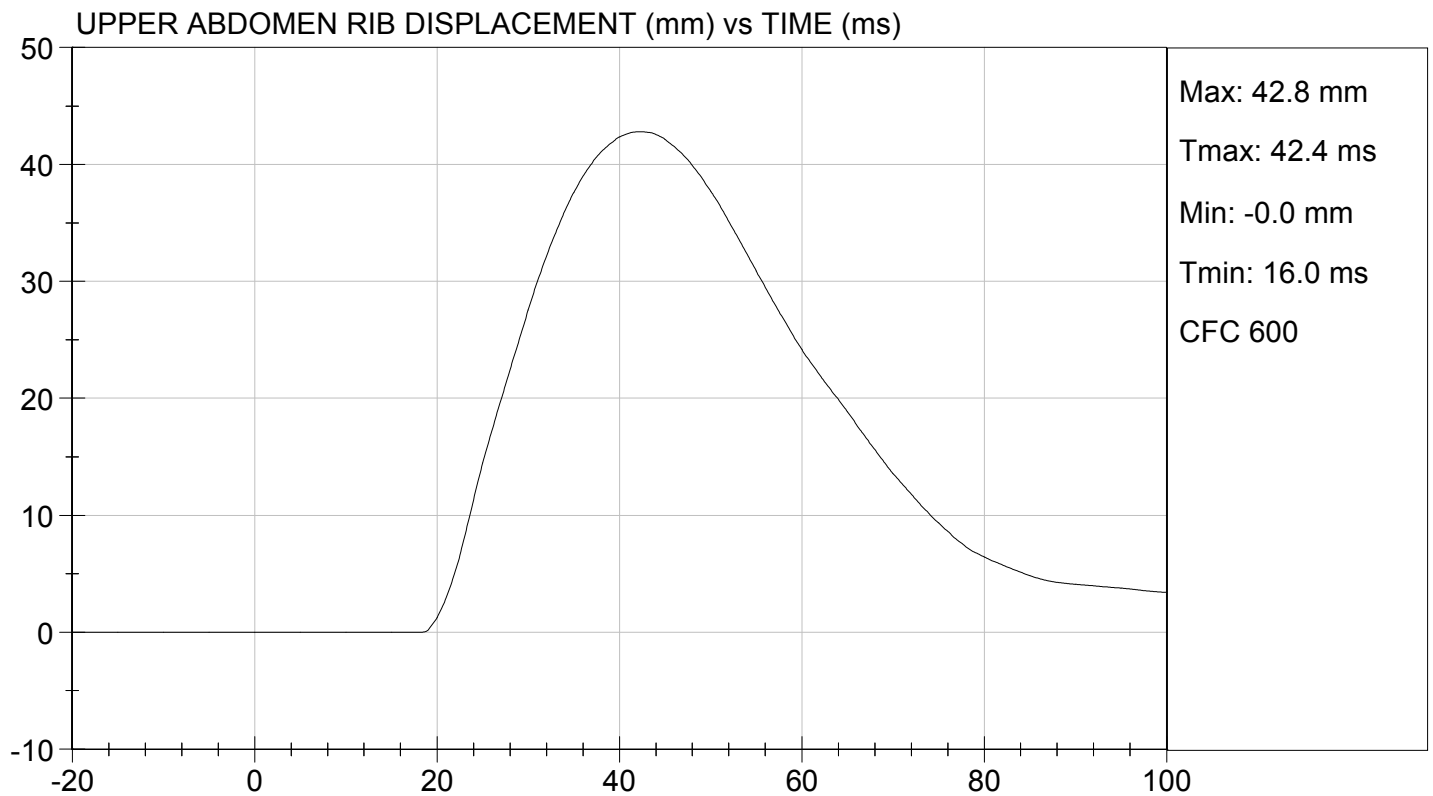
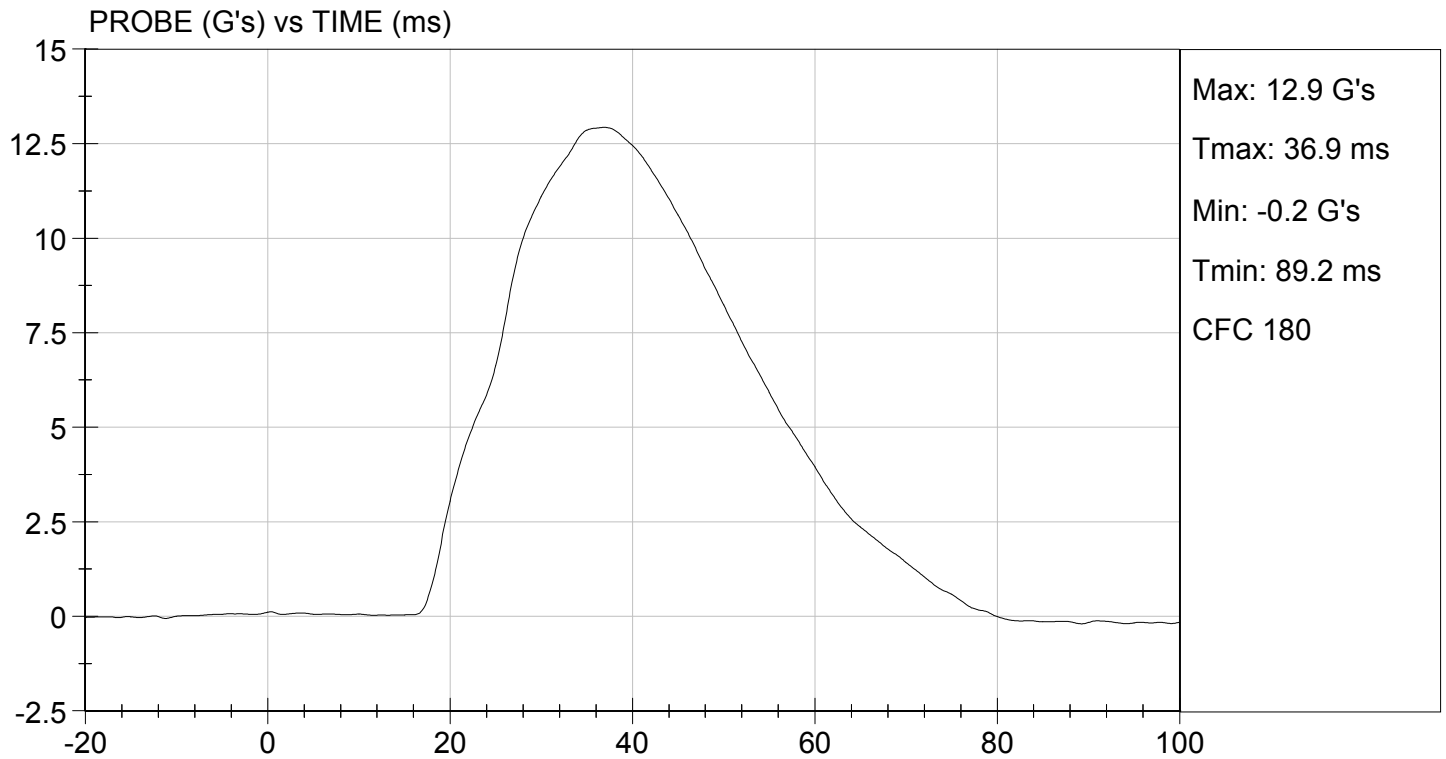
Test Date

Jessica Hall
Approved By



TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 09/23/2014
TEST #: D143306

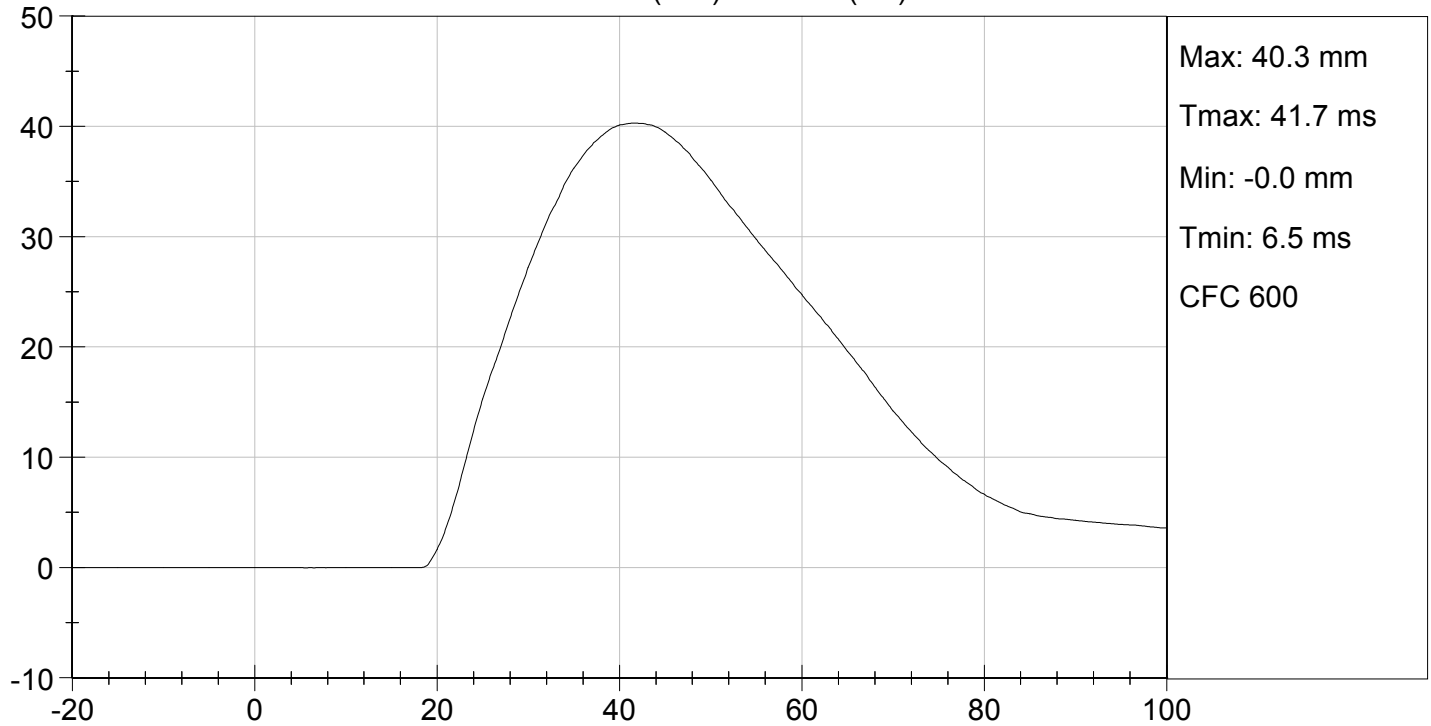




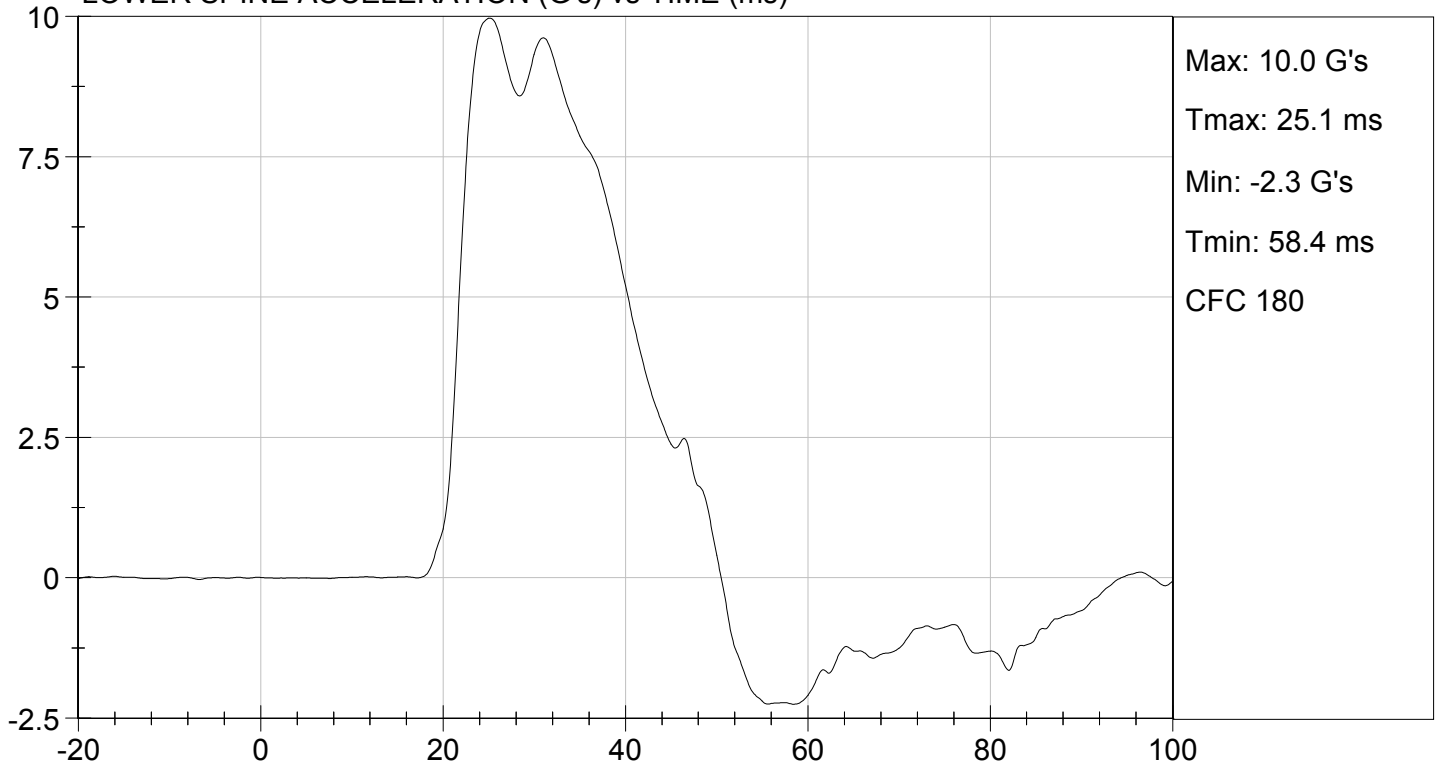
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 09/23/2014
TEST #: D143306

LOWER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER SPINE ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143307

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	42	Pass
Impact Velocity	m/s	6.60 to 6.80	6.71	Pass
Maximum Probe Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	4,155	Pass
Overall Test Results				Pass

Maxime Chamberland
Laboratory Technician

09/24/2014

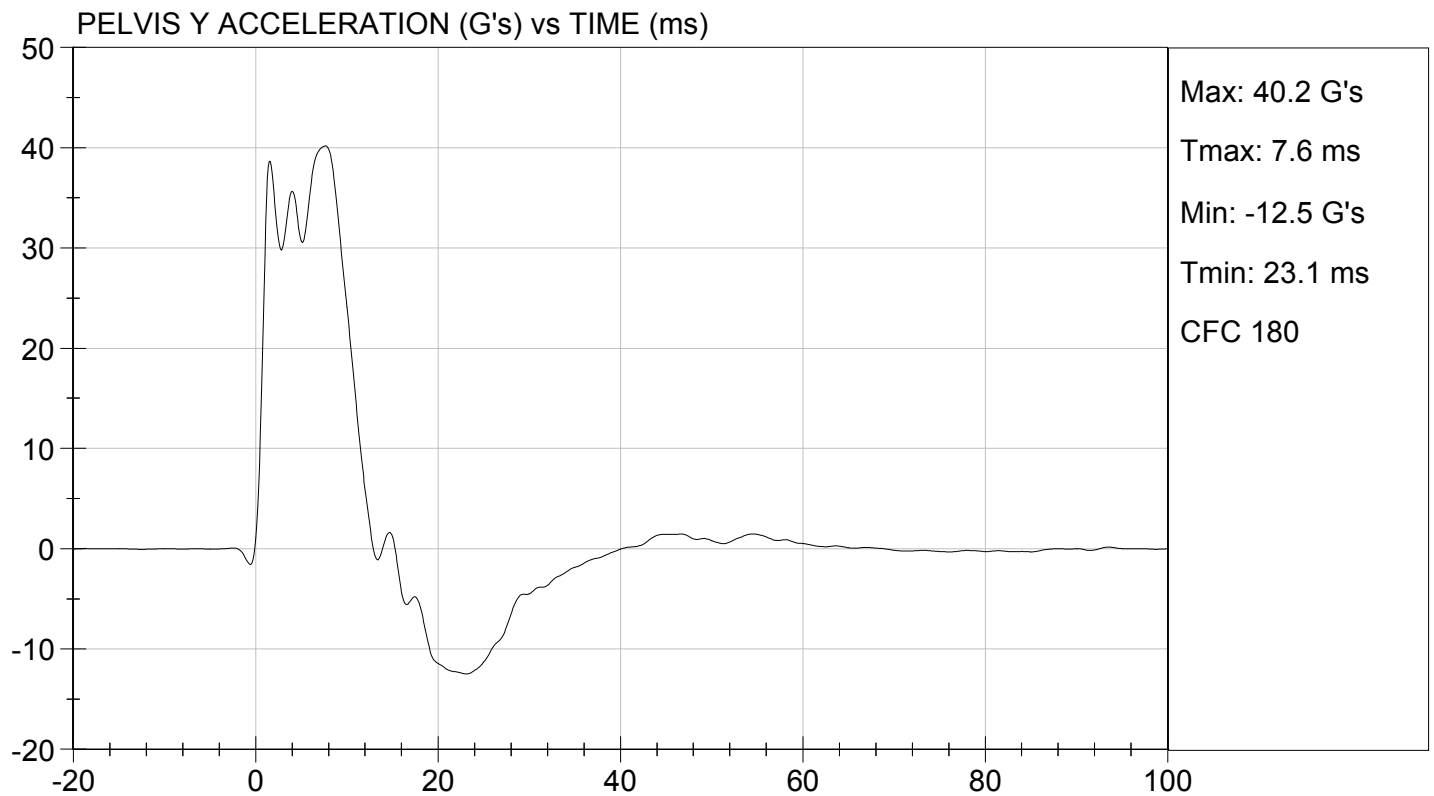
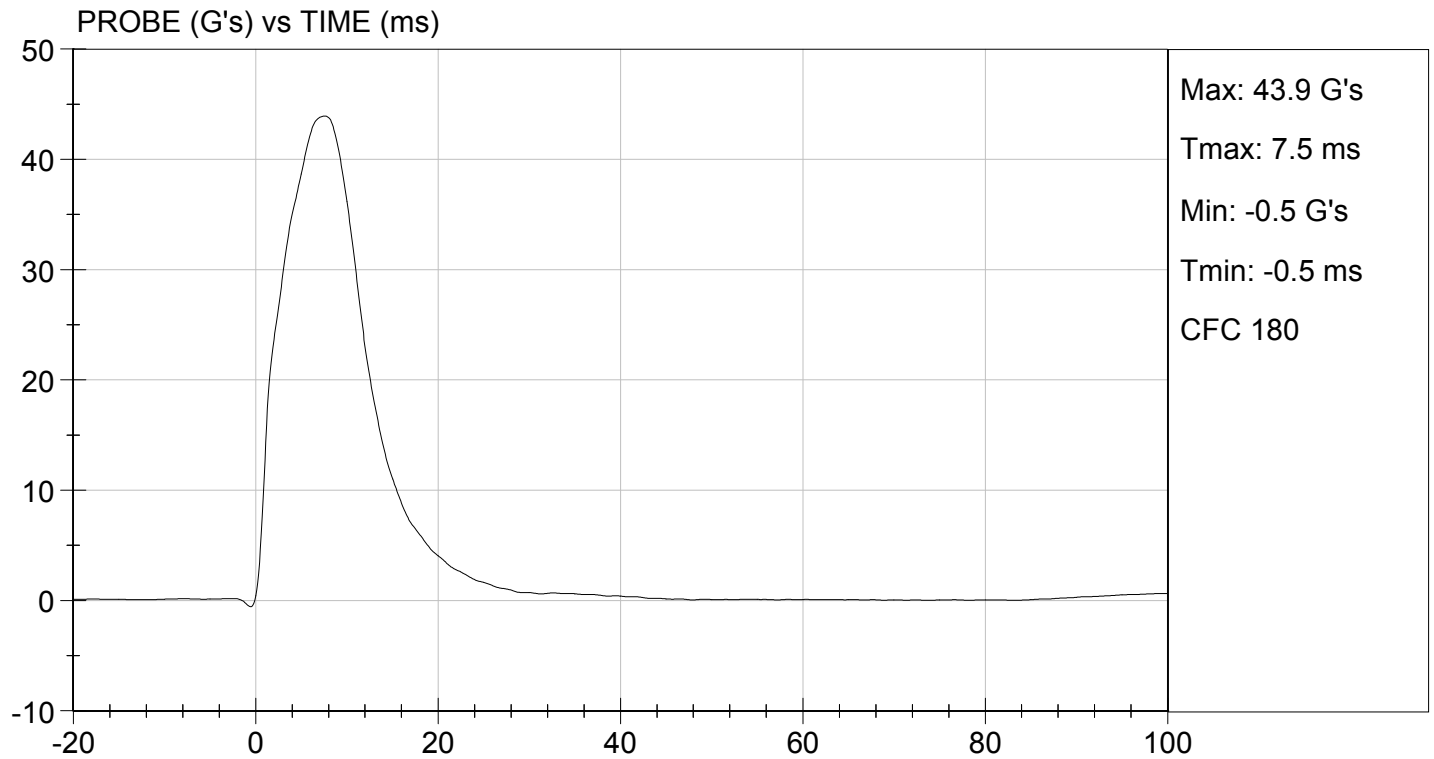
Test Date

Jessica Hall
Approved By



TEST DESC: PELVIS IMPACT
VELOCITY: 22.00 ft/s, 6.71 m/s

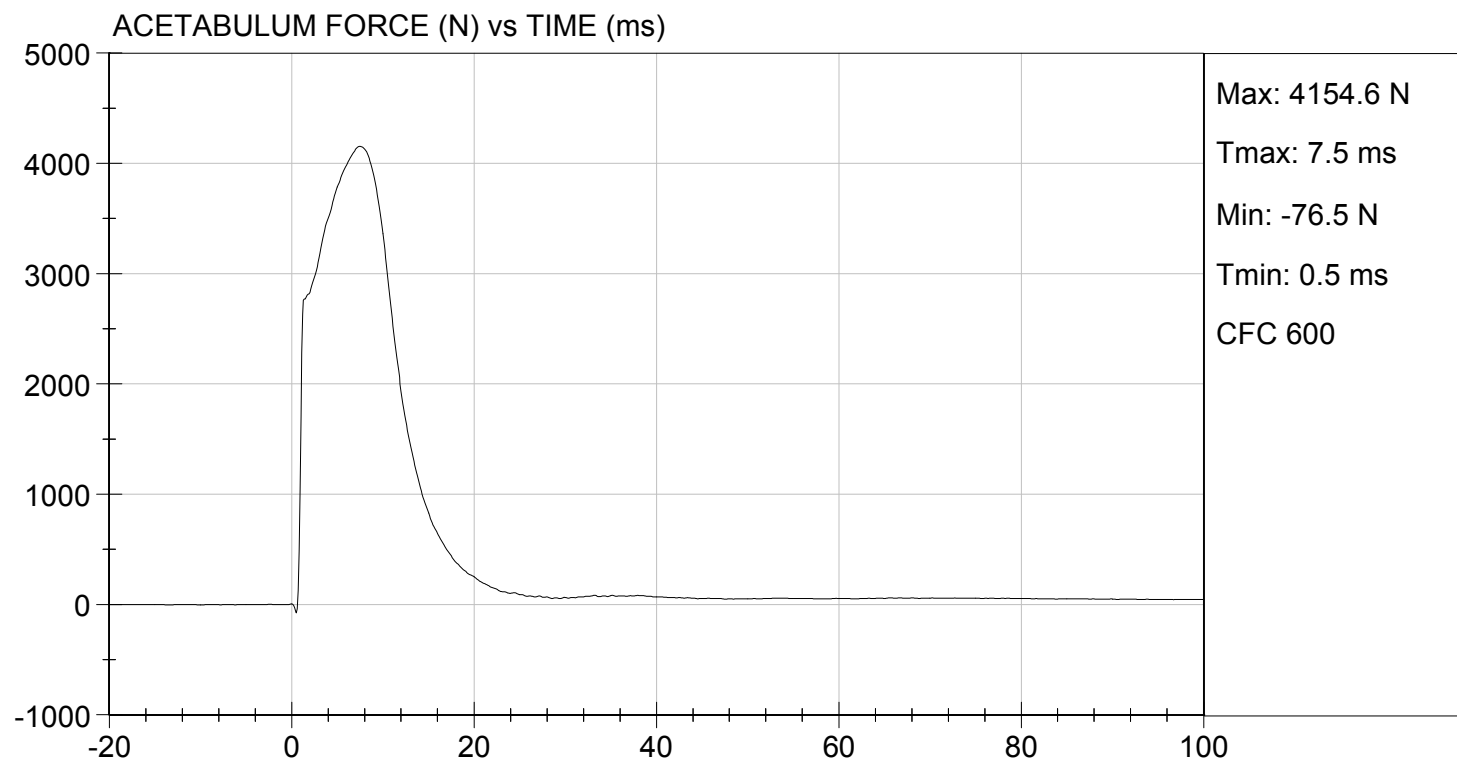
TEST DATE: 09/24/2014
TEST #: D143307





TEST DESC: PELVIS IMPACT
VELOCITY: 22.00 ft/s, 6.71 m/s

TEST DATE: 09/24/2014
TEST #: D143307



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D143308

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	29	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,432	Pass
Overall Test Results				Pass

Maxime Chamberland
Laboratory Technician

09/24/2014

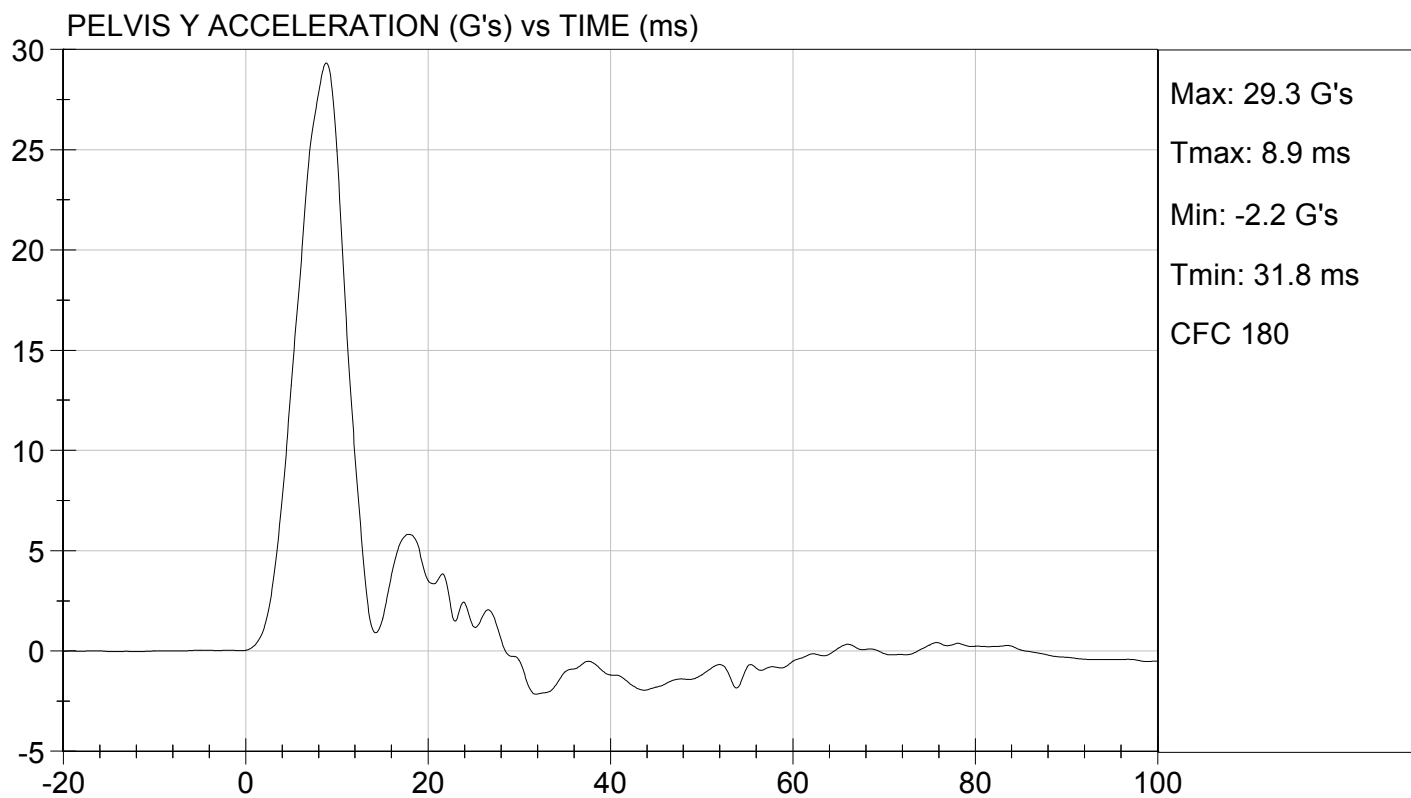
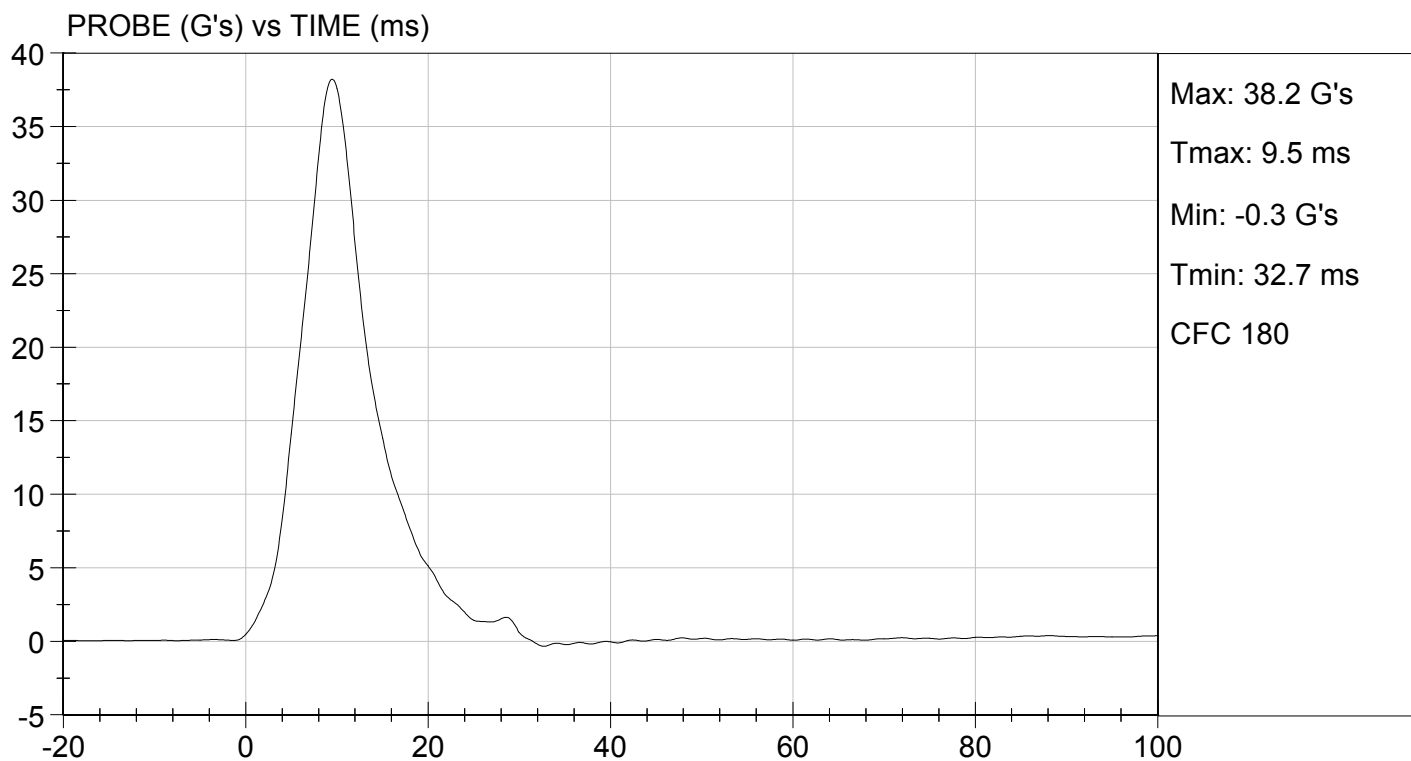
Test Date

Jessica Hall
Approved By



TEST DESC: ILLIAC
VELOCITY: 14.37 ft/s, 4.38 m/s

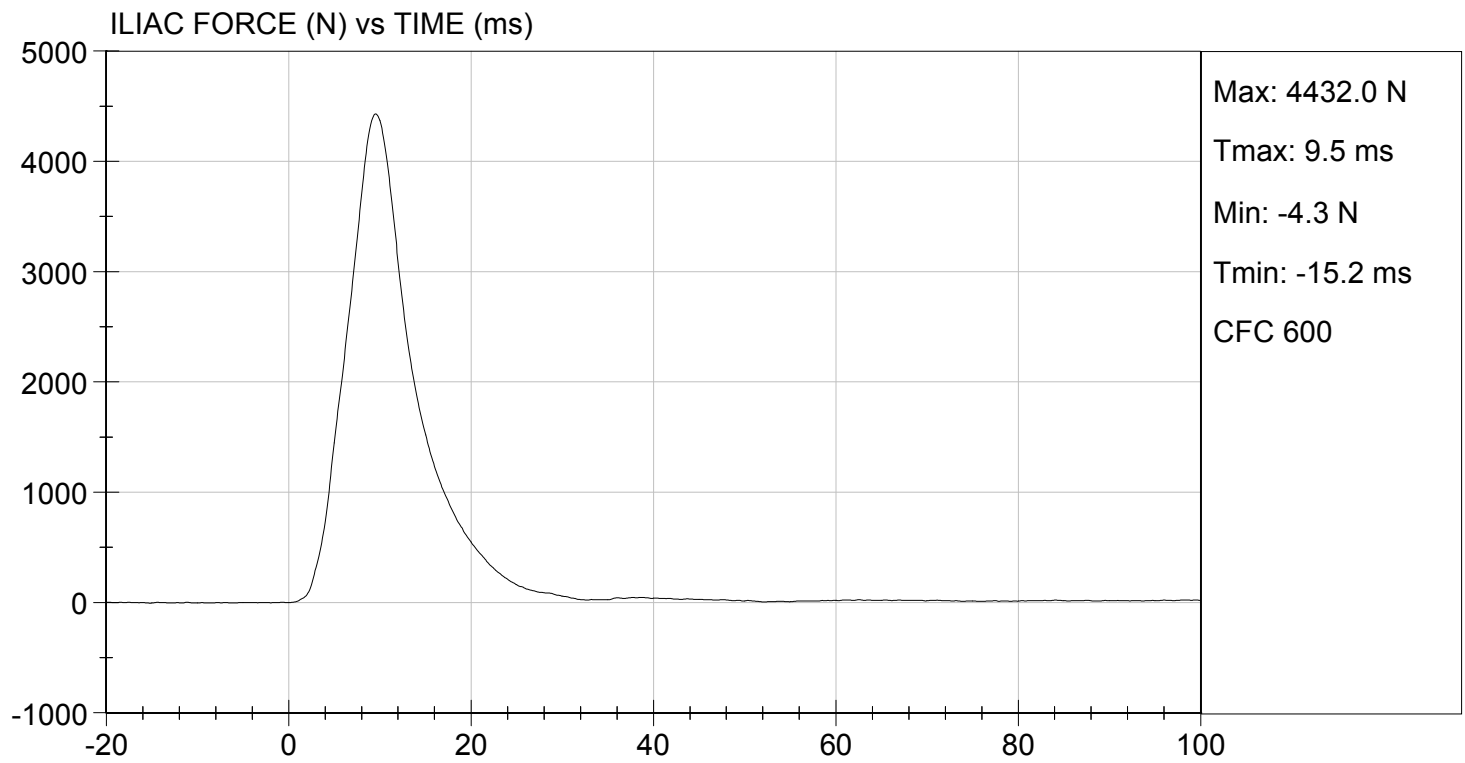
TEST DATE: 09/24/2014
TEST #: D143308



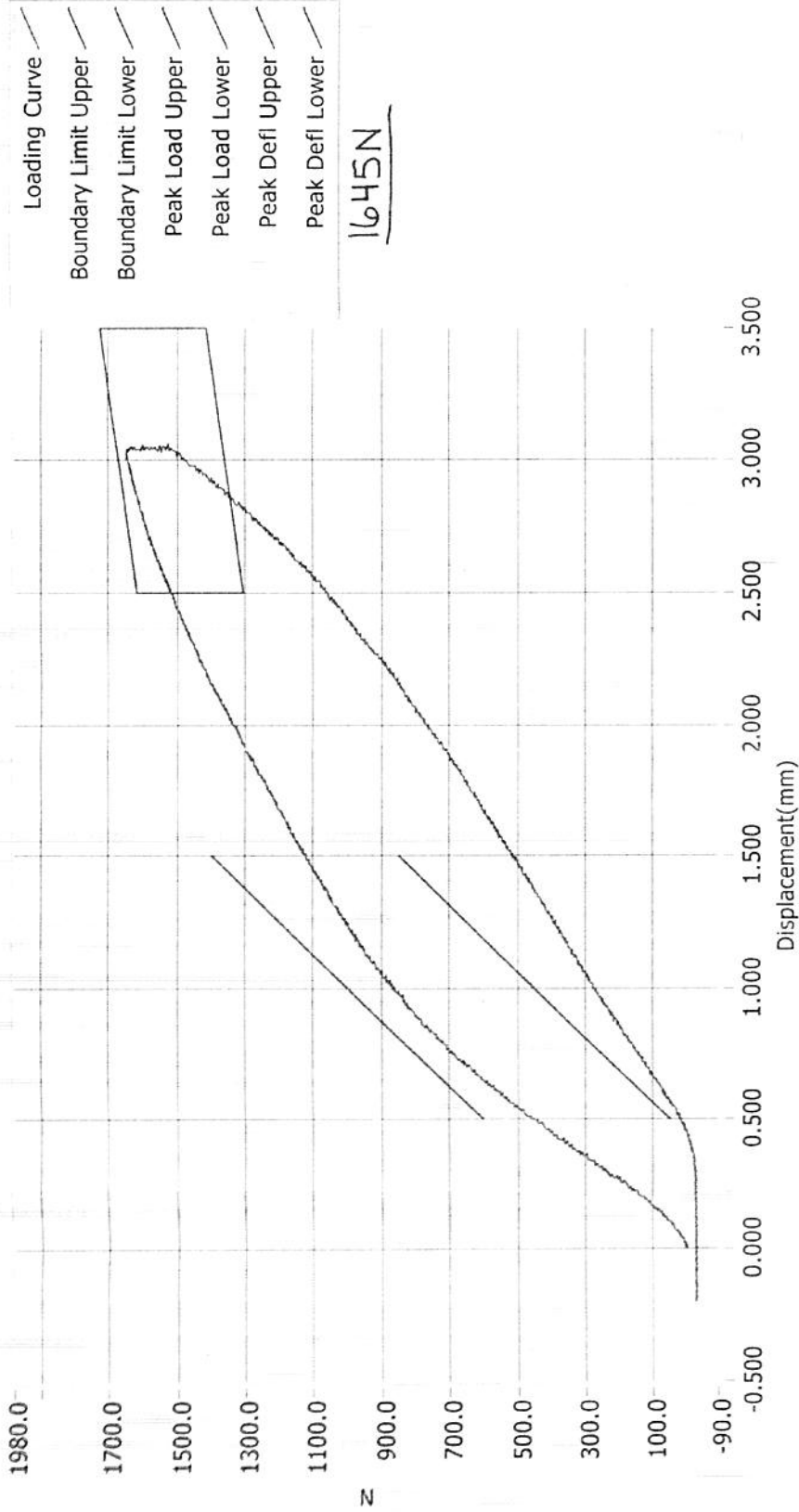


TEST DESC: ILLIAC
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 09/24/2014
TEST #: D143308



Resultant Data - SIDIIs Plug Compression

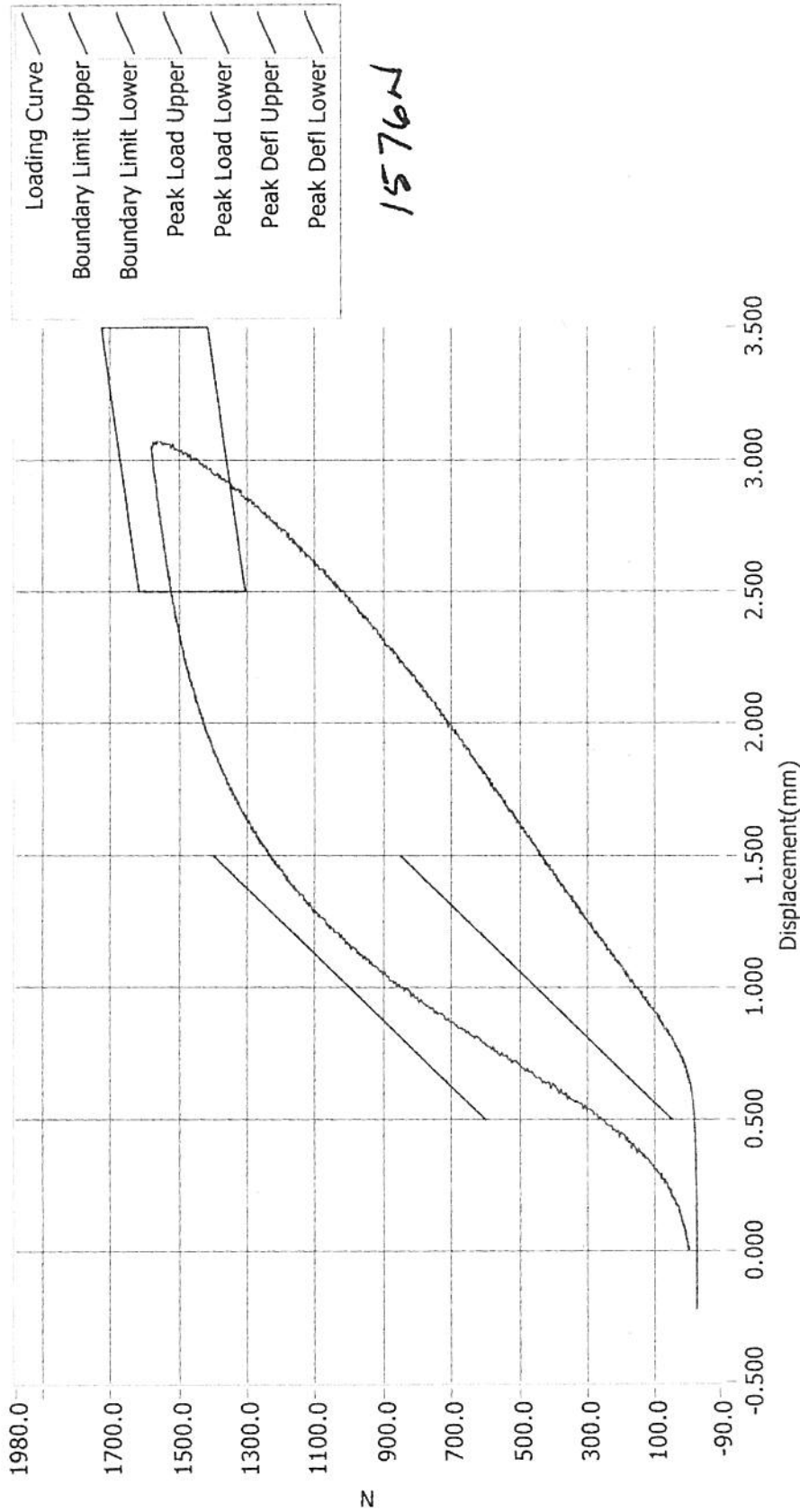


ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	70670	12/12/2013	9:10 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/12/2013 Current Time : 21:10:41

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	63489	2/4/2013	8:10 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 2/4/2013 Current Time : 20:11:06

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

				SID-IIs S/N 306			
				Serial Number	Manufacturer	Calibration Date	
Head CG Accelerometers				X	P79715	Endevco	06/19/14
				Y	P79716	Endevco	06/19/14
				Z	P79717	Endevco	06/19/14
				Xr	P79718	Endevco	06/19/14
				Yr	P79720	Endevco	06/19/14
				Zr	P79726	Endevco	06/19/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	G033	FTSS	04/17/14	
		Middle	Y	G1261	FTSS	04/17/14	
		Lower	Y	G1270	FTSS	04/17/14	
	Abdominal Rib	Upper	Y	G032	FTSS	04/17/14	
		Lower	Y	G1304	FTSS	04/17/14	
Lower Spine Accelerometers (T12)				X	P79441	Endevco	04/10/14
				Y	P79442	Endevco	04/10/14
				Z	P79443	Endevco	04/10/14
Acetabulum Load Cell				Y	ACG111	FTSS	04/03/14
Iliac Wing Load Cell				Y	IWG226	FTSS	04/03/14
Pelvis Plug (struck side)					70670	FTSS	12/12/13
Pelvis Plug (non-struck side)					63489	FTSS	02/04/13

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P74307	Endevco	09/04/14
Vehicle Center of Gravity	Y	P74309	Endevco	09/04/14
Vehicle Center of Gravity	Z	P74308	Endevco	09/04/14
Left Floor Sill	Y	P74321	Endevco	07/16/14
A-Pillar Sill	Y	P77673	Endevco	05/22/14
A-Pillar Low	Y	P67946	Endevco	08/05/14
A-Pillar Mid	Y	P67945	Endevco	08/05/14
B-Pillar Sill	Y	P63551	Endevco	04/21/14
B-Pillar Low	Y	P67376	Endevco	07/01/14
B-Pillar Mid	V	P67375	Endevco	07/01/14
Driver Seat	Y	P73882	Endevco	07/28/14
Engine Top	X	P78722	Endevco	05/07/14
Engine Top	Y	P78723	Endevco	05/07/14
Firewall	Y	P66849	Endevco	07/28/14
Right Roof	Y	P59277	Endevco	04/21/14
Right Floor Sill	Y	P66869	Endevco	04/23/14
Rear Floorpan	X	P85123	Endevco	08/08/14
Rear Floorpan	Y	P85124	Endevco	08/08/14

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	08/12/14
Load Cell 2	DG6278	FTSS	08/12/14
Load Cell 3	DG6279	FTSS	08/12/14
Load Cell 4	DG6280	FTSS	08/12/14
Load Cell 5	DG6281	FTSS	08/12/14
Load Cell 6	DG6283	FTSS	08/12/14
Load Cell 7	DG6284	FTSS	08/12/14
Load Cell 8	DG6582	FTSS	08/12/14