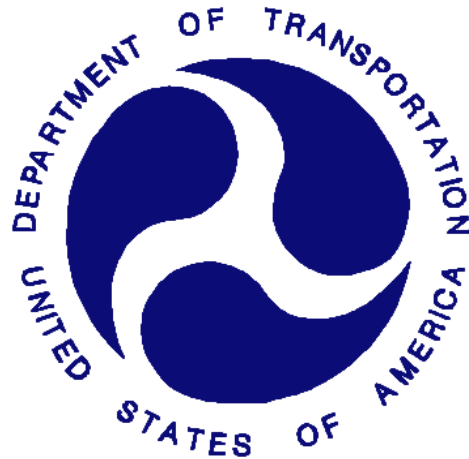


REPORT NUMBER: SPNCAP-MGA-2015-036

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

**MITSUBISHI MOTORS (THAILAND) CO., LTD.
2015 Mitsubishi Mirage DE 5-Dr Hatchback
NHTSA No.: M20155601**

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



Test Date: December 2, 2014

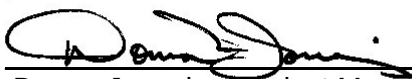
Final Report Date: January 16, 2015

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: January 16, 2015

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

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		6. Performing Organization Code MGA																									
7. Author(s) Donna Janovicz, Project Manager Ben Fischer, Project Engineer		8. Performing Organization Report No. SPNCAP-MGA-2015-036																									
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		14. Sponsoring Agency Code NVS-111																									
15. Supplementary Notes																											
16. Abstract A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2015 Mitsubishi Mirage DE 5-Dr Hatchback 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 December 2, 2014. The impact velocity was 32.3 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.5°C. The test vehicle post-test maximum crush was 326 mm at level 2. The test vehicle's performance was as follows: <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Measurement Description</th> <th style="text-align: center;">Units</th> <th style="text-align: center;">Threshold</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">178</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">Gs</td> <td style="text-align: center;">82</td> <td style="text-align: center;">50</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">4313</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">38*</td> <td style="text-align: center;">23</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">45*</td> <td style="text-align: center;">29</td> </tr> </tbody> </table> *Proposed IARV The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	178	Resultant Lower Spine Acceleration	Gs	82	50	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4313	Maximum Thoracic Rib Deflection	mm	38*	23	Maximum Abdomen Rib Deflection	mm	45*	29
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																									
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
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1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	4

<u>Data Sheet No.</u>		<u>Page No.</u>
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1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment and Fuel System Data	8
3	Dummy Longitudinal Clearance Dimensions	11
4	Dummy Lateral Clearance Dimensions	12
5	Camera and Instrumentation Data	13
6	Vehicle Accelerometer Data	14
7	Rigid Pole Load Cell Data	15
8	Post-Test Observations	16
9	Vehicle Profile Measurements	18
10	Vehicle Exterior Crush Measurements	19
11	Vehicle Damage Profile Distances	22
12	FMVSS No. 301 Static Rollover Results	23
13	Dummy/Vehicle Temperature Stabilization Data	24

Appendix

A	Photographs	A
B	Vehicle and Dummy Response Data Plots	B
C	Dummy Configuration and Performance Verification Data	C
D	Test Equipment and Instrumentation Calibration Data	D

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 Mitsubishi Mirage DE 5-Dr Hatchback. 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 Mitsubishi Mirage DE 5-Dr Hatchback. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.3 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin on December 2, 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	178
Resultant Lower Spine Acceleration	Gs	82	50
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4313
Maximum Thoracic Rib Deflection	mm	38*	23
Maximum Abdominal Rib Deflection	mm	45*	29

*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

None

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 Mitsubishi Mirage DE 5-Dr Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
Test Date: 12/2/2014

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20155601	Traction Control System (TCS)	Yes
Model Year	2015	Auto-Leveling System	No
Make	Mitsubishi	Automatic Door Locks (ADL)	No
Model	Mirage	Power Window Auto-Reverse	Yes
Body Style	5-Dr Hatchback	Other Optional Feature	N/A
VIN	ML32A3HJ0FH003708	Driver Front Airbag	Yes
Body Color	Sapphire Blue	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	97 / 60	Driver Head/Torso Airbag	No
Engine Displacement (L)	1.2	Driver Torso Airbag	No
Type/No. Cylinders	3	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Manual	Driver Knee Airbag	Yes
Transmission Speeds	5	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	Front	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	No	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?	N/A
--	-----

DATA FROM CERTIFICATION LABEL

Manufactured By	Mitsubishi Motors (Thailand) Co., Ltd.	GVWR (kg)	2910
Date of Manufacture	JUN 2014	GAWR Front (kg)	1609
Vehicle Type	Passenger Car	GAWR Rear (kg)	1477

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	(A)
Capacity Weight (VCW) (kg)				375	(B)
DSC x 68.04 kg				340	(A-B)
Rated Cargo and Luggage Weight (RCLW) (kg)				35	

VEHICLE SEAT TYPE

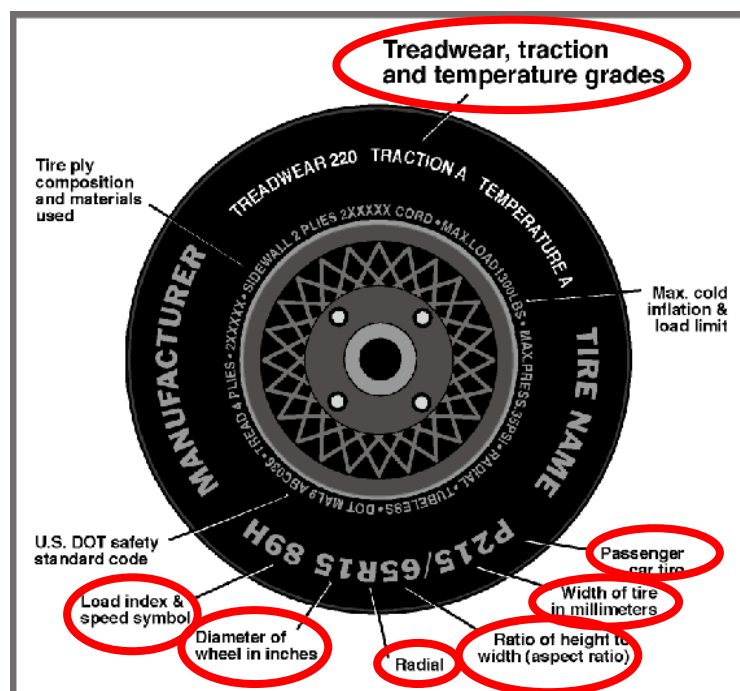
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						Manual	Power
Front Seat	X					w/lever	
Rear or Second Row		X			X		
Third Row Seat							

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

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	165/65R14	165/65R14
Tire Size on Vehicle	165/65R14	165/65R14
Tire Manufacturer	Dunlop	Dunlop
Tire Model	Enasave 01 A/S	Enasave 01 A/S
Treadwear	340	340
Traction	A	A
Temperature Grade	B	B
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	79S	79S
Tire Material	Rubber	Rubber
DOT Safety Code Left	R8CX 2MMR 2114	R8CX 2MMR 2114
DOT Safety Code Right	R8CX 2MMR 2114	R8CX 2MMR 2114

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

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	231	238	238	245
Tire Placard	kpa	240	240	240	240
Owner's Manual	kpa	240	240	240	240
As Tested	kpa	240	240	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	274.5	190.5		291.0	222.5		293.0	227.5	
Right	kg	270.5	177.0		273.0	206.5		281.5	197.5	
Ratio	%	59.7	40.3		56.8	43.2		57.5	42.5	
Totals	kg	545.0	367.5	912.5	564.0	429.0	993.0	574.5	425.0	999.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	912.5	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	35	(C)
Calculated Vehicle Target Weight (TVTW)	kg	999.7	(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	0.0	0.3	0.3	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-0.1	0.2	0.2	Yes
Front Bumper Angle (left-to-right)**	deg	0.1	0.0	0.0	Yes
Rear Bumper Angle (left-to-right)**	deg	0.0	0.0	-0.1	Yes
Vehicle CG (Aft of Front Axle)	mm	987	1058	1042	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	14	24	30	

*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
Right side mirror, left taillight, both headlights, rear bumper/cover, hood, trunk jamb molding, front bumper cover.	35.4

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 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014

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	Fixed	Fixed	Fixed
Front Passenger Seat	Fixed	Fixed	Fixed
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	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	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 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

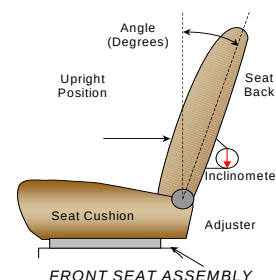
NHTSA No. M20155601
 Test Date: 12/2/2014

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	230	24 (1 st as 1)	0	0 th (1 st as 0)
Front Passenger Seat	230	24 (1 st as 1)	0	0 th (1 st as 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	65.6	34 (1 st as 1)	-4.9	1 st (1 st as 0)
Front Passenger Seat	63.7	33 (1 st as 1)	-4.8	2 nd (1 st as 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 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	4 detents (1 st as 1)	0 (uppermost as 0)

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	5	Lowest

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

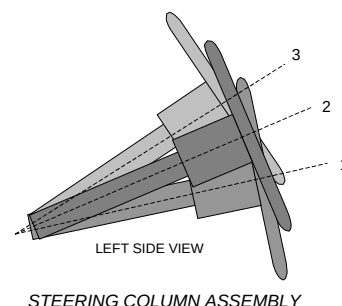
Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014

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.

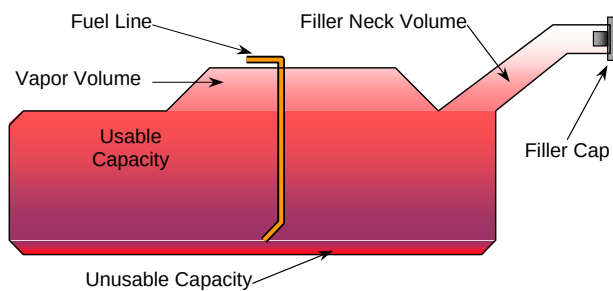
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	67.9	
Geometric Center, Position 2	66.2	
Uppermost, Position 3	64.5	
Telescoping Steering Wheel Travel		
Test Position	66.2	



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. The electric fuel pump operates when the engine is running. The fuel pipe is on the left side.



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

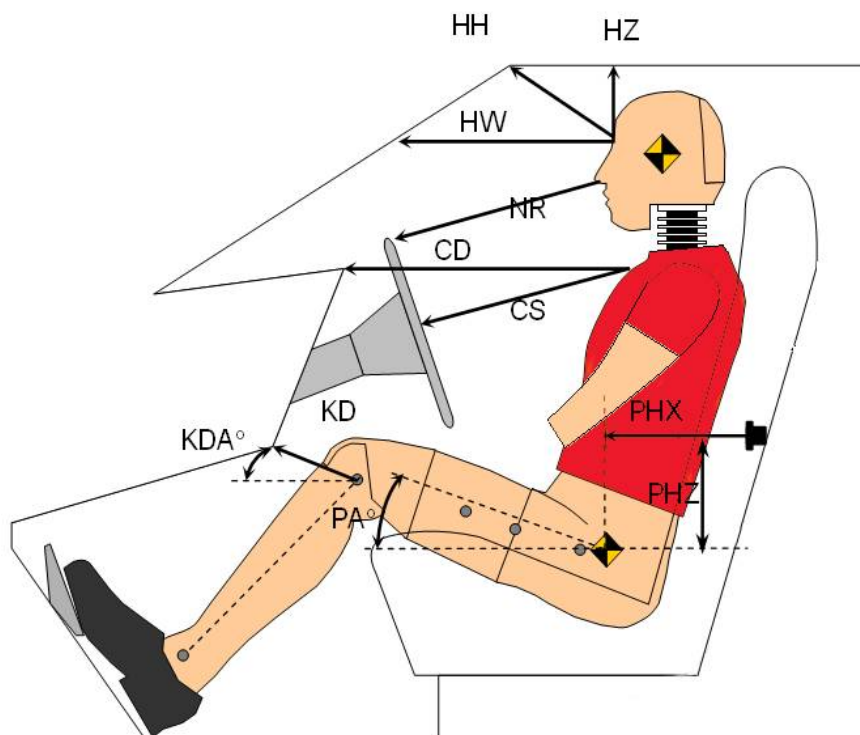
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	34.8
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	35.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	32.4
Actual Amount of Solvent Used	32.4
1/3 of Usable Capacity	11.6

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 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014



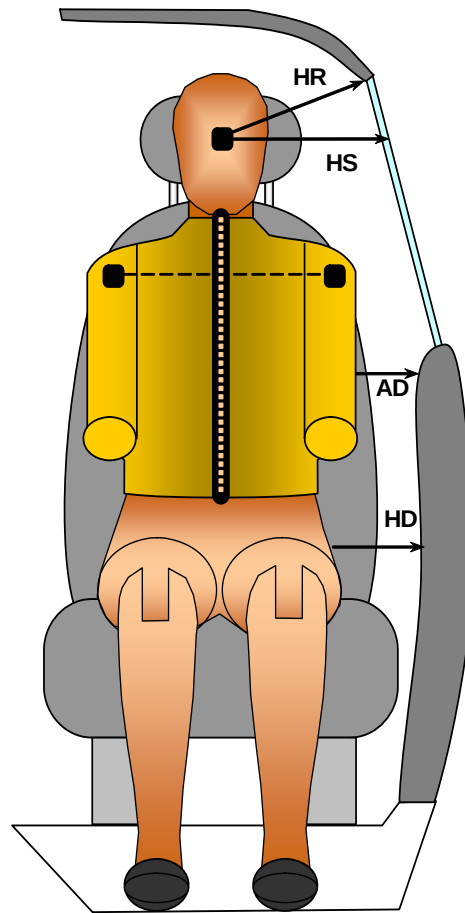
LEFT SIDE VIEW

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	256	
HW	Head to Windshield	583	
HZ	Head to Roof Liner	183	
NR	Nose to Rim	221	
CD	Chest to Dashboard	402	
CS	Chest to Steering Wheel	167	
KDL/KDAL°	Left Knee to Dash	123	46.5
KDR/KDAR°	Right Knee to Dash	137	28.1
PAX°	Pelvic Tilt Angle (X-Axis)		19.0
PAY°	Pelvic Tilt Angle (Y-Axis)		1.2
PHX	Hip Point to Striker (X-Axis)	326	
PHZ	Hip Point to Striker (Z-Axis)	144	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014



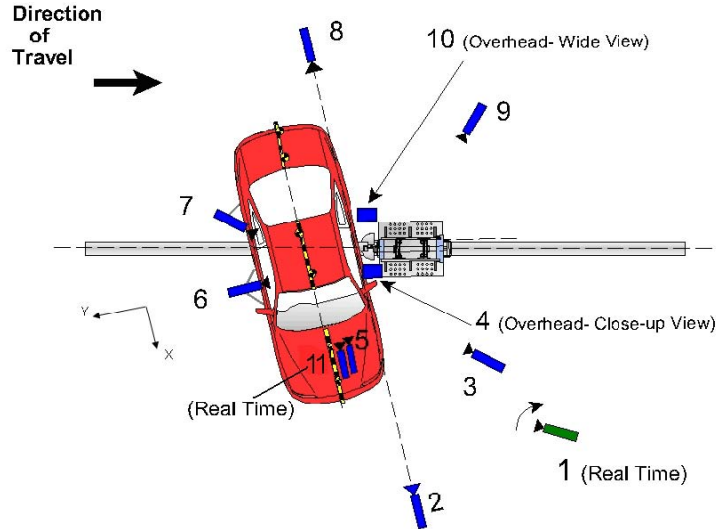
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	258
HS	Head to Side Window	369
AD	Arm to Door	165
HD	Hip Point to Door	134

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
Test Date: 12/2/2014



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	-90	6030	-1850	24	1000
3	Impact Side 45° Forward	-2440	5180	-1920	20	1000
4	Overhead Closeup	110	0	-4430	50	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	-80	-6730	-1810	24	1000
9	Impact Side 45° Rearward	-4430	-3910	-2000	20	1000
10	Overhead Wide View	260	0	-4610	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.

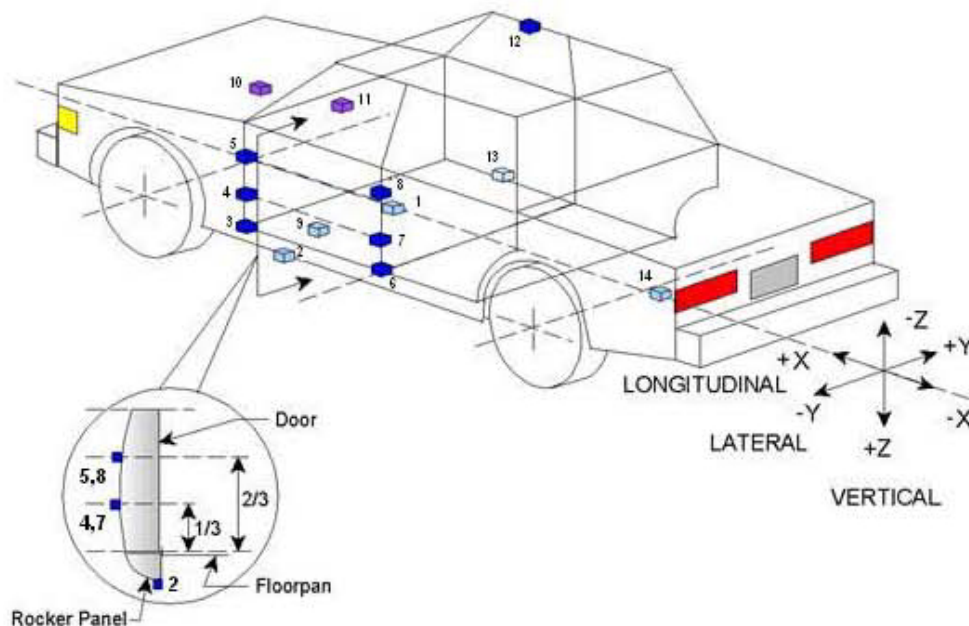
Explain why camera(s) did not operate as intended: None

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 Mitsubishi Mirage DE 5-Dr Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
Test Date: 12/2/2014



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1978	135	-229
2	Left Floor Sill	2270	-660	-200
3	A Pillar Sill	2502	-665	-230
4	A Pillar Low	2455	-715	-540
5	A Pillar Mid	2472	-727	-864
6	B Pillar Sill	1410	-670	-205
7	B Pillar Low	1483	-660	-579
8	B Pillar Mid	1446	-660	-787
9	Driver Seat Track	1558	-300	-264
10	Engine Top	3035	165	-780
11	Firewall	2895	0	-905
12	Right Roof	1536	490	-1470
13	Right Floor Sill	2255	660	-200
14	Rear Floorpan	50	0	-305

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 Mitsubishi Mirage DE 5-Dr Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
Test Date: 12/2/2014



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 Mitsubishi Mirage DE 5-Dr Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
Test Date: 12/2/2014

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag, Headrest
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag, Headrest
Left Shoulder	Side Airbag
Upper Torso	Seatback
Lower Torso	Side Airbag, Seatback
Left Hip	Side Airbag
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	Fixed	No	Fixed
Seat Disengagement from Floor Pan	No	Fixed	No	Fixed
Seat Back Movement from Initial Position	No	Fixed	No	Fixed
Seat Back Collapse	No	Fixed	No	Fixed

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 Broken
Other Notable Effects	None

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

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
Test Date: 12/2/2014

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				

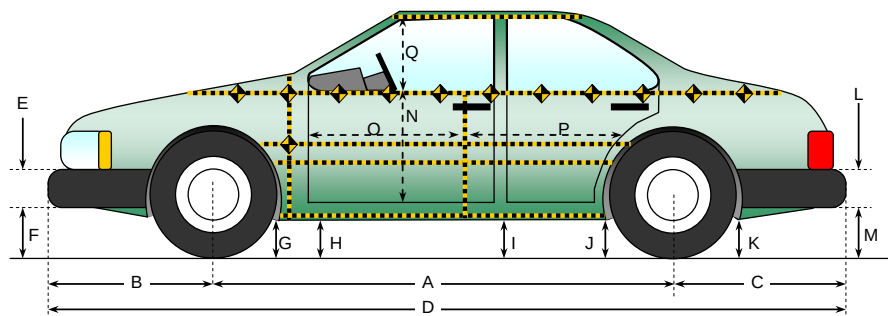
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1005
Actual Impact Point (Aft of Front Axle)	mm		1003
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	+2
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	32.30
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.27

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

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
Test Date: 12/2/2014



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

LEFT SIDE VIEW

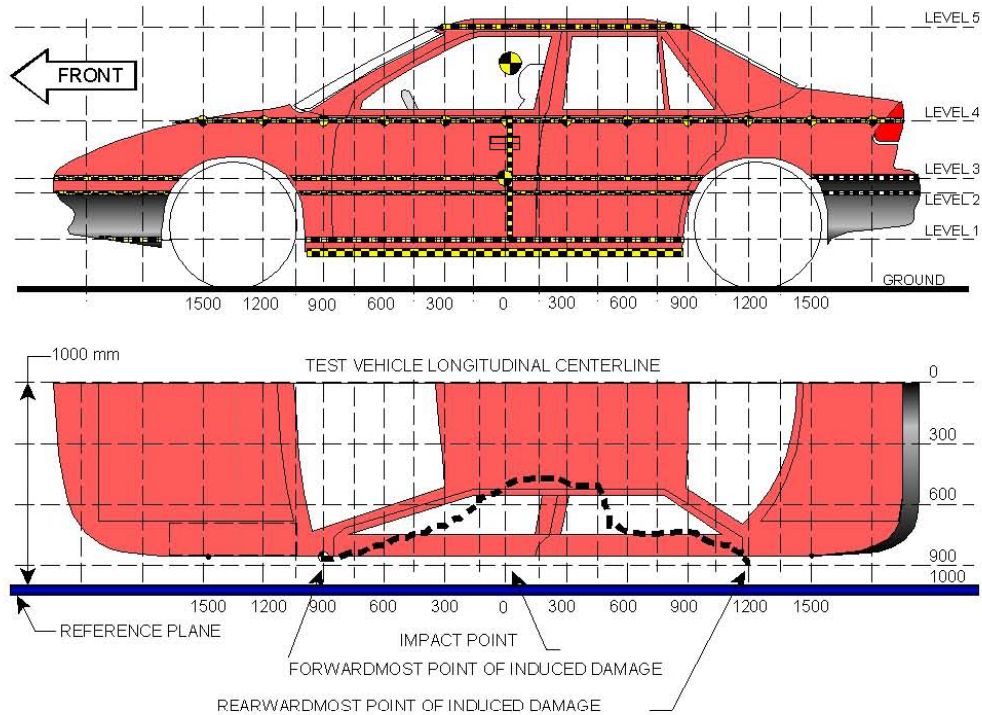
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2450	2402	48
B	Front Axle to FSOV	708	750	-42
C	Rear Axle to RSOV	482	471	11
D	Total Vehicle Length at Centerline	3640	3623	17
E	Front Bumper Thickness	100	100	0
F	Front Bumper Bottom to Ground	241	257	-16
G	Sill Height at Front Wheel Well	188	168	20
H	Sill Height at Front Door Leading Edge	179	164	15
I	Sill Height at B-Pillar	179	192	-13
J1	Sill Height at Rear Wheel Well	180	207	-27
J2	Pinch Weld Height at Rear Wheel Well	181	208	-27
K	Sill Height Aft of Rear Wheel Well	549	566	-17
L	Rear Bumper Thickness			
M	Rear Bumper Bottom to Ground	304	305	-1
N	Sill Height to Bottom of Front Window Sill	703	701	2
O	Front Door Leading Edge to Impact CL	607	481	126
P	Rear Door Trailing Edge to Impact CL	1254	1181	73
Q	Front Window Opening	430	400	30
R	Right Side Length	2946	2948	-2
S	Left Side Length	2946	2835	111
T	Vehicle Width at B-Pillars	1646	1654	-8

DATA SHEET NO. 10 **VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014



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 MEAUREMENTS

Level	Measurement Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	263	274	0
2	Mid Door	588	326	75
3	Occupant Hip Point	614	325	75
4	Window Sill	889	317	75
5	Window Top	1355	182	0

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

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014

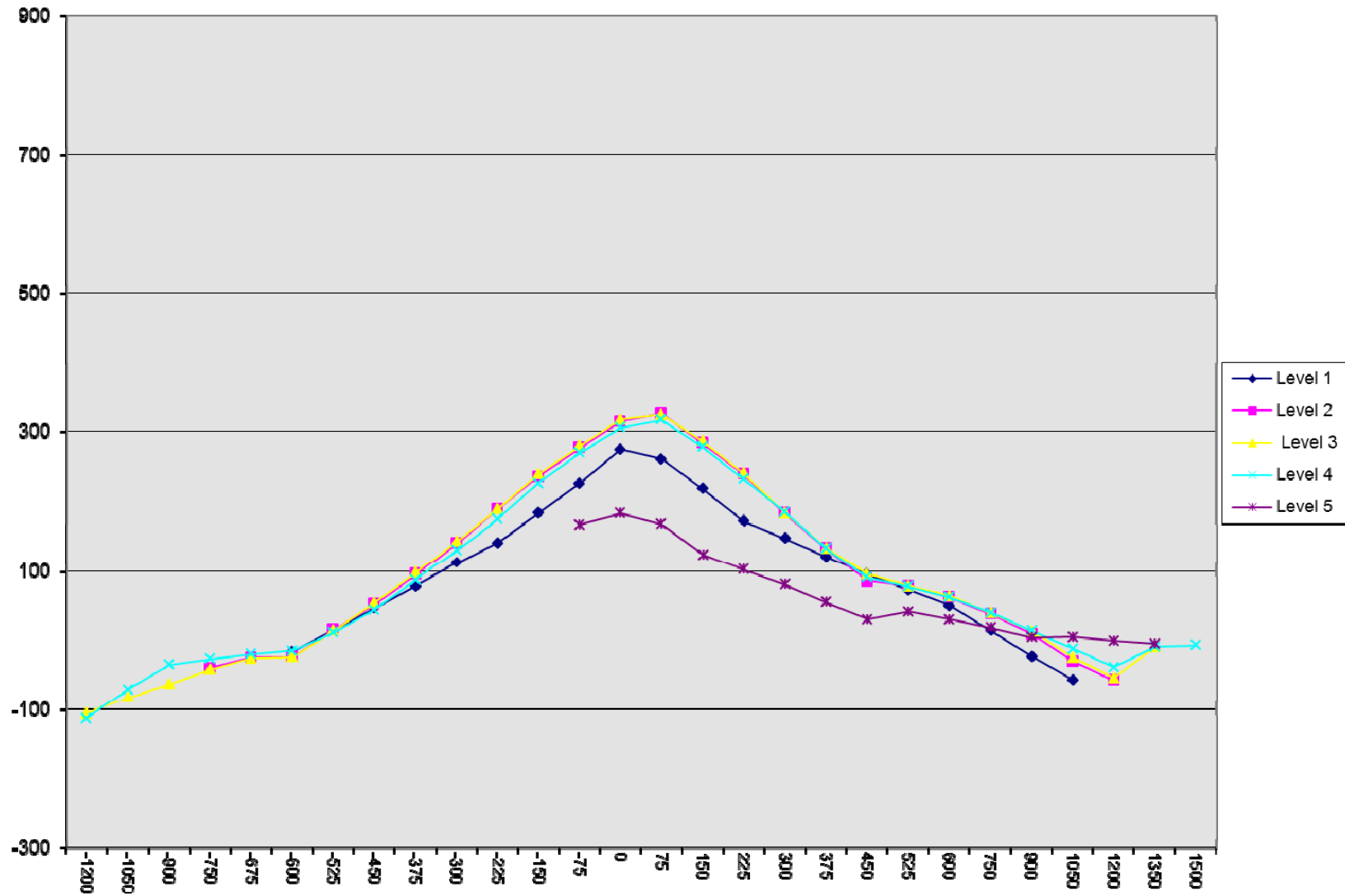
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200			284	381				179	269				-105	-112	
-1050			274	359				192	289				-82	-70	
-900			272	345				210	311				-62	-34	
-750		273	274	338			234	233	312			-39	-41	-26	
-675		280	282	335			256	257	316			-24	-25	-19	
-600	317	287	289	333		302	264	266	319		-15	-23	-23	-14	
-525	320	288	289	330		336	304	304	342		16	16	15	12	
-450	321	287	287	327		368	340	342	372		47	53	55	45	
-375	320	286	286	324		399	381	384	411		79	95	98	87	
-300	320	284	284	320		432	424	427	450		112	140	143	130	
-225	320	283	283	315		461	471	471	489		141	188	188	174	
-150	320	282	282	311		502	517	520	536		182	235	238	225	
-75	321	282	281	307	508	546	458	560	576	674	225	276	279	269	166
0	321	281	280	305	500	595	596	598	611	682	274	315	318	306	182
75	321	281	280	300	497	581	607	605	617	664	260	326	325	317	167
150	322	281	280	299	499	539	564	566	577	623	217	283	286	278	124
225	323	282	280	297	499	494	520	520	528	601	171	238	240	231	102
300	323	282	280	296	500	470	464	463	480	581	147	182	183	184	81
375	323	282	280	296	502	444	415	414	429	558	121	133	134	133	56
450	325	282	280	296	504	420	368	376	387	535	95	86	96	91	31
525	327	284	282	296	502	400	363	361	374	544	73	79	79	78	42
600	328	286	283	298	509	379	349	348	361	540	51	63	65	63	31
750	330	289	287	300	516	345	328	327	341	535	15	39	40	41	19
900	332	293	291	308	526	310	303	305	323	531	-22	10	14	15	5
1050	333	293	293	315	539	277	264	269	304	545	-56	-29	-24	-11	6
1200		283	285	322	554		226	232	284	554		-57	-53	-38	0
1350			285	328	574			277	320	570			-8	-8	-4
1500				336					330					-6	

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 Mitsubishi Mirage DE 5-Dr Hatchback
Test Program: NCAP Side Pole Impact Test

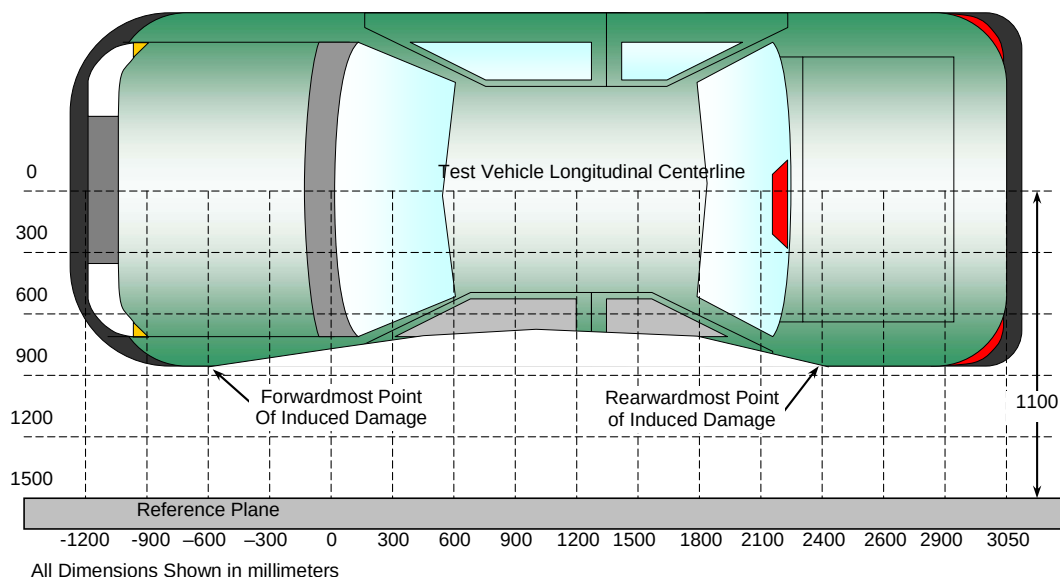
NHTSA No. M20155601
Test Date: 12/2/2014



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

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	475	3	281	364	83
2	255	3	280	501	221
3	35	3	280	605	325
4	-185	3	282	499	217
5	-405	3	286	370	84
6	-625	3	286	267	-19

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

Test Vehicle: 2015 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

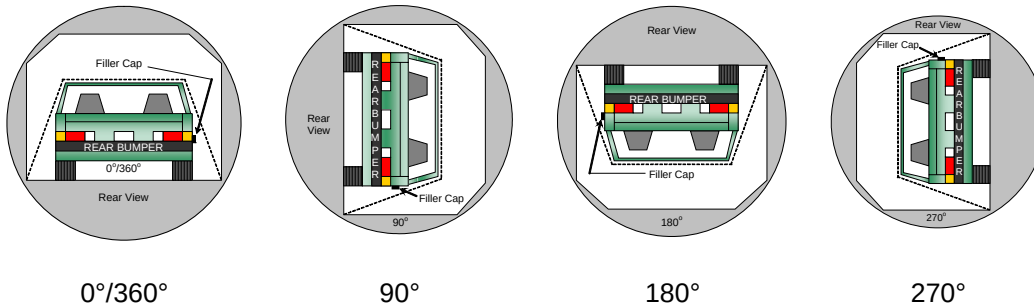
NHTSA No. M20155601
 Test Date: 12/2/2014

Test Time: 10:14 am

Temperature: 21.5°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°	110	300	410
90° to 180°	109	300	409
180° to 270°	106	300	406
270° to 360°	114	300	414

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

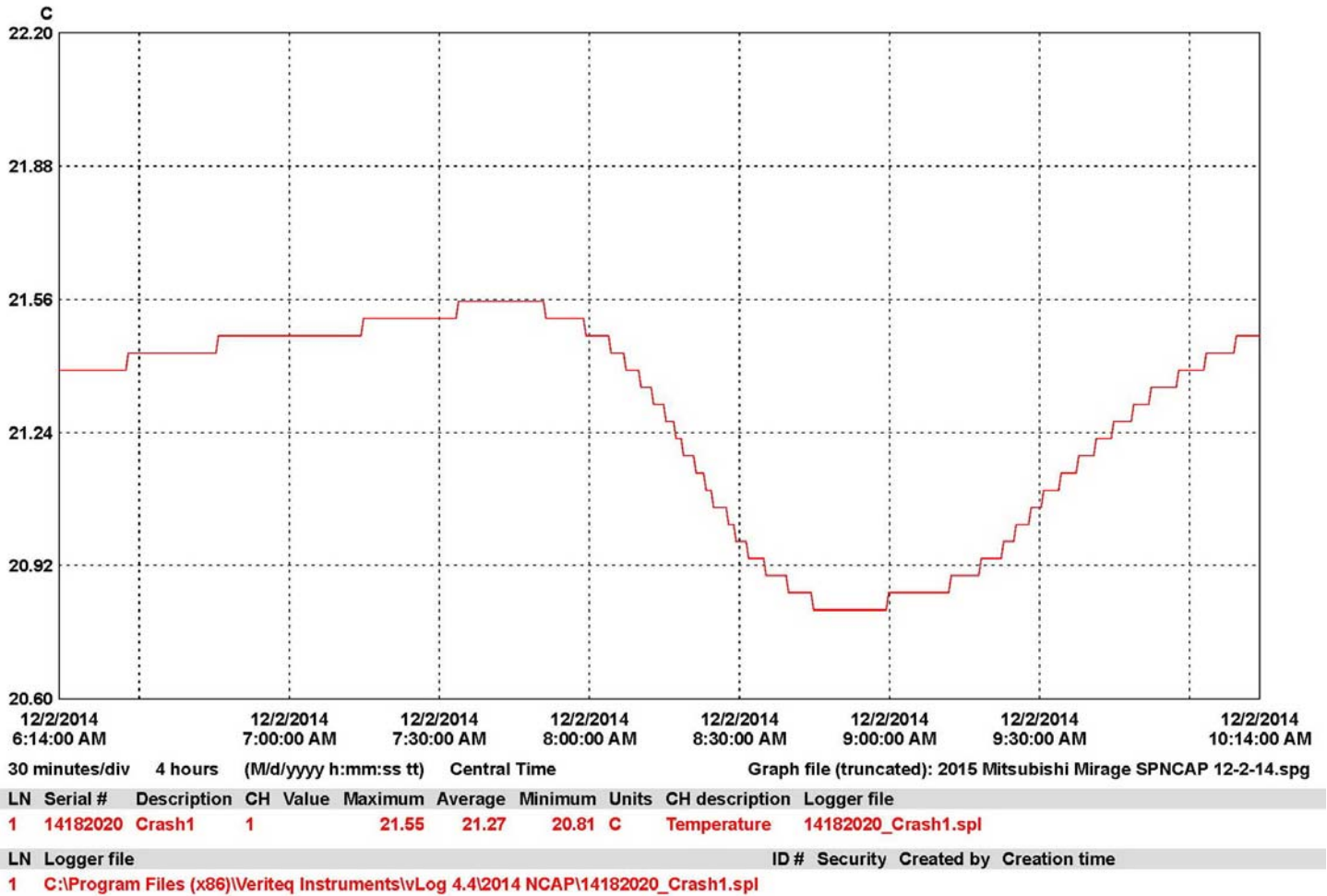
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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 Mitsubishi Mirage DE 5-Dr Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20155601
 Test Date: 12/2/2014



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. 1. As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 2. As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 3. Pre-Test Frontal View of Test Vehicle	A-2
Photo No. 4. Post-Test Frontal View of Test Vehicle	A-2
Photo No. 5. Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 6. Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 7. Pre-Test Left Side View of Test Vehicle	A-4
Photo No. 8. Post-Test Left Side View of Test Vehicle	A-4
Photo No. 9. Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 10. Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 11. Pre-Test Rear View of Test Vehicle	A-6
Photo No. 12. Post-Test Rear View of Test Vehicle	A-6
Photo No. 13. Pre-Test Right Side View of Test Vehicle	A-7
Photo No. 14. Post-Test Right Side View of Test Vehicle	A-7
Photo No. 15. Pre-Test Overhead View of Test Area	A-8
Photo No. 16. Post-Test Overhead View of Test Area	A-8
Photo No. 17. Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 18. Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 19. Pre-Test Close-Up View of Impact Point Target	A-10
Photo No. 20. Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-10
Photo No. 21. Pre-Test Front Close-Up View of Dummy Head and Chest	A-11
Photo No. 22. Post-Test Front Close-Up View of Dummy	A-11
Photo No. 23. Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-12
Photo No. 24. Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-12

	<u>Page No.</u>
Photo No. 25. Post-Test Left Side View of Dummy Shoulder and Door Top View	A-13
Photo No. 26. Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-13
Photo No. 27. Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint	A-14
Photo No. 28. Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-14
Photo No. 29. Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-15
Photo No. 30. Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-15
Photo No. 31. Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-16
Photo No. 32. Pre-Test Placement of Dummy's Feet	A-16
Photo No. 33. Pre-Test View of Belt Anchorage for Dummy	A-17
Photo No. 34. Pre-Test Left Side View of Steering Wheel	A-17
Photo No. 35. Pre-Test View of Disengaged Parking Brake	A-18
Photo No. 36. Pre-Test View of Parking Brake	A-18
Photo No. 37. Pre-Test Close-Up Left Side View of Driver Seat Track	A-19
Photo No. 38. Pre-Test Close-Up Left Side View of Driver Seat Back	A-19
Photo No. 39. Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-20
Photo No. 40. Pre-Test Dummy and Door Clearance View	A-20
Photo No. 41. Post-Test Dummy and Door Clearance View	A-21
Photo No. 42. Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-21
Photo No. 43. Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-22
Photo No. 44. Pre-Test Inner Door Panel View	A-22
Photo No. 45. Post-Test Inner Door Panel View Showing Dummy Contact Location	A-23
Photo No. 46. Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-23
Photo No. 47. Post-Test Dummy Close-Up Head Contact with Side Air Bag View	A-24
Photo No. 48. Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-24
Photo No. 49. Post-Test Dummy Close-Up Torso Contact with Side Air Bag View	A-25
Photo No. 50. Post-Test Dummy Close-Up Torso Contact with Side Air Bag View	A-25

	<u>Page No.</u>
Photo No. 51. Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-26
Photo No. 52. Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View	A-26
Photo No. 53. Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-27
Photo No. 54. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
Photo No. 55. Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-28
Photo No. 56. Close-Up View of Vehicle's Certification Label	A-28
Photo No. 57. Close-Up View of Vehicle's Tire Information Placard or Label	A-29
Photo No. 58. Pre-Test Pole Barrier Front View	A-29
Photo No. 59. Post-Test Pole Barrier Front View	A-30
Photo No. 60. Pre-Test Pole Barrier Side View	A-30
Photo No. 61. Post-Test Pole Barrier Side View	A-31
Photo No. 62. Pre-Test Ballast View	A-31
Photo No. 63. Post-Test Primary and Redundant Speed Trap Read-Out	A-32
Photo No. 64. FMVSS No. 301 Static Rollover 0 Degrees	A-32
Photo No. 65. FMVSS No. 301 Static Rollover 90 Degrees	A-33
Photo No. 66. FMVSS No. 301 Static Rollover 180 Degrees	A-33
Photo No. 67. FMVSS No. 301 Static Rollover 270 Degrees	A-34
Photo No. 68. FMVSS No. 301 Static Rollover 360 Degrees	A-34
Photo No. 69. Impact Event	A-35
Photo No. 70. Monroney Label	A-35
Photo No. 71. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-36
Photo No. 72. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-36
Photo No. 73. Post-Test View of Shattered Vehicle Inner Door Panel	A-37



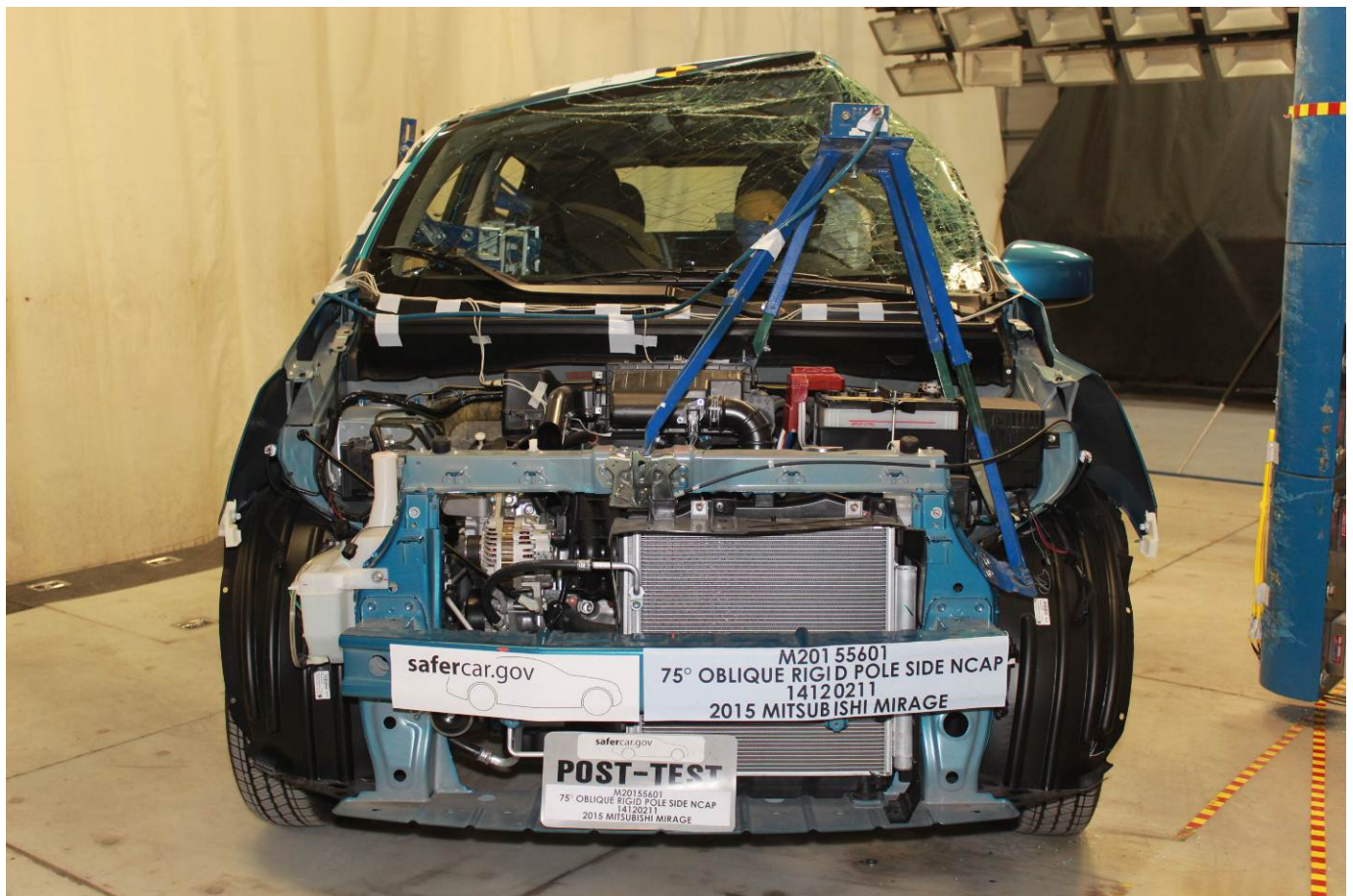
As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



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



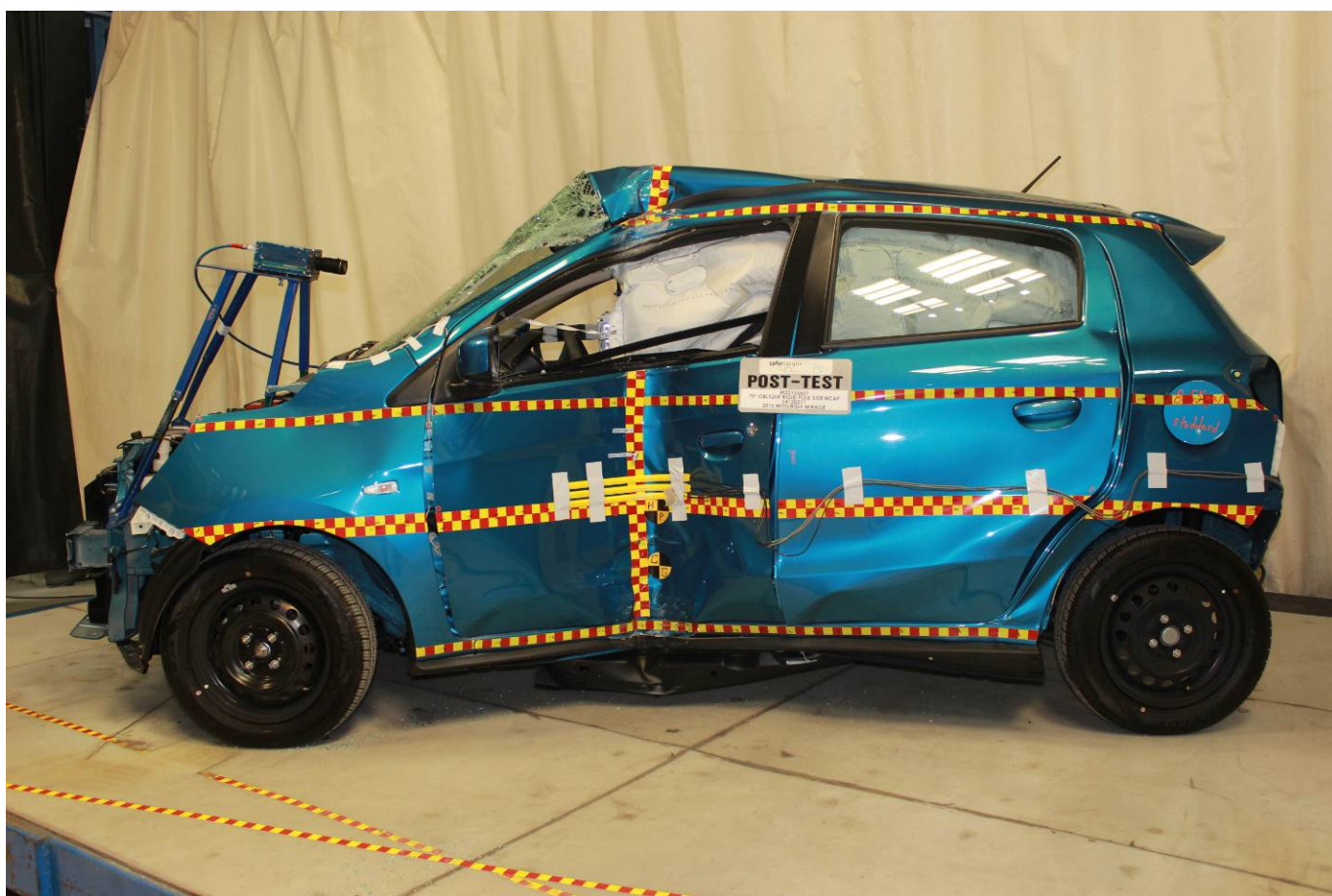
Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



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



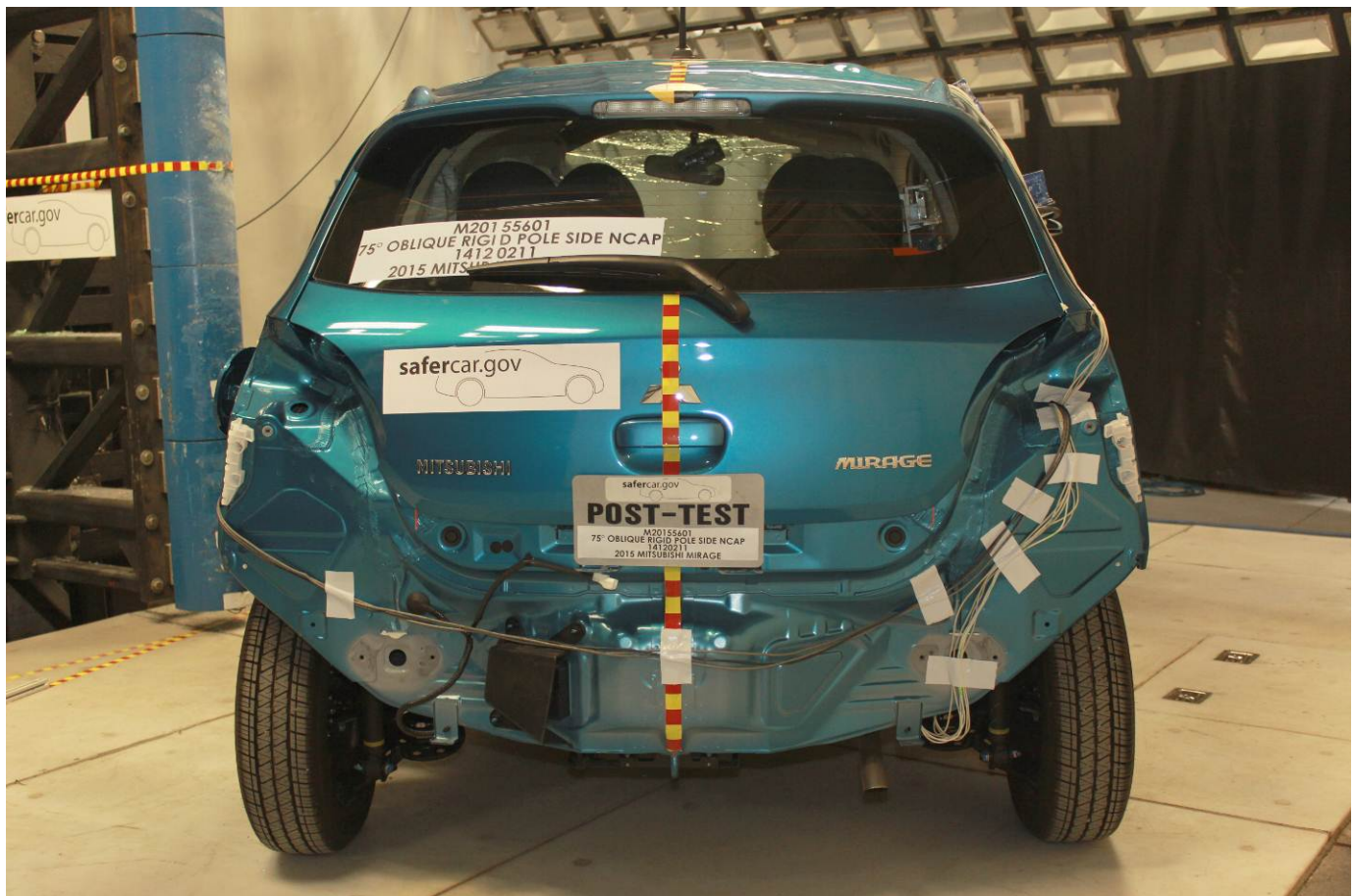
Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



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



Pre-Test Rear View of Test Vehicle



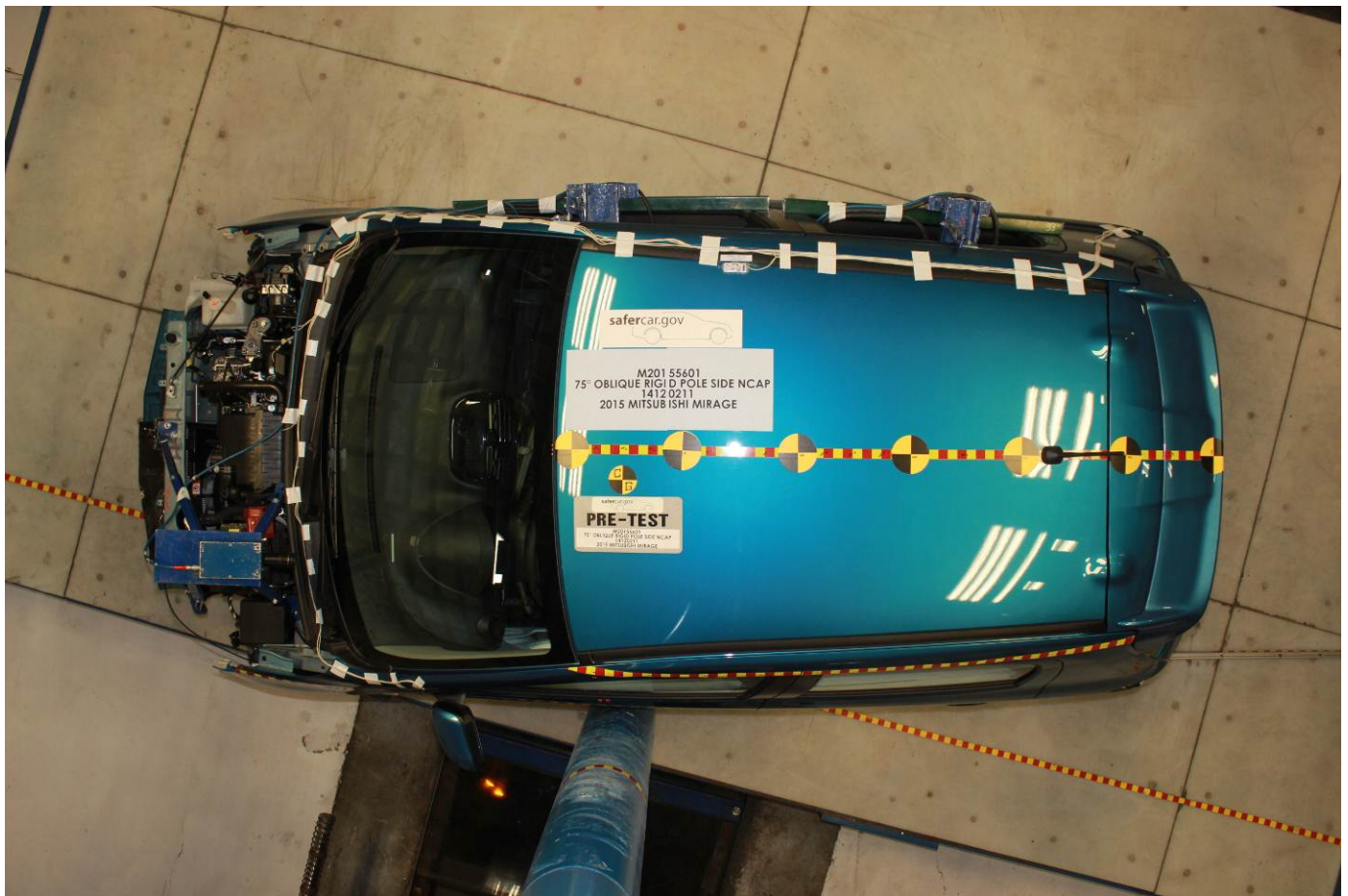
Post-Test Rear View of Test Vehicle



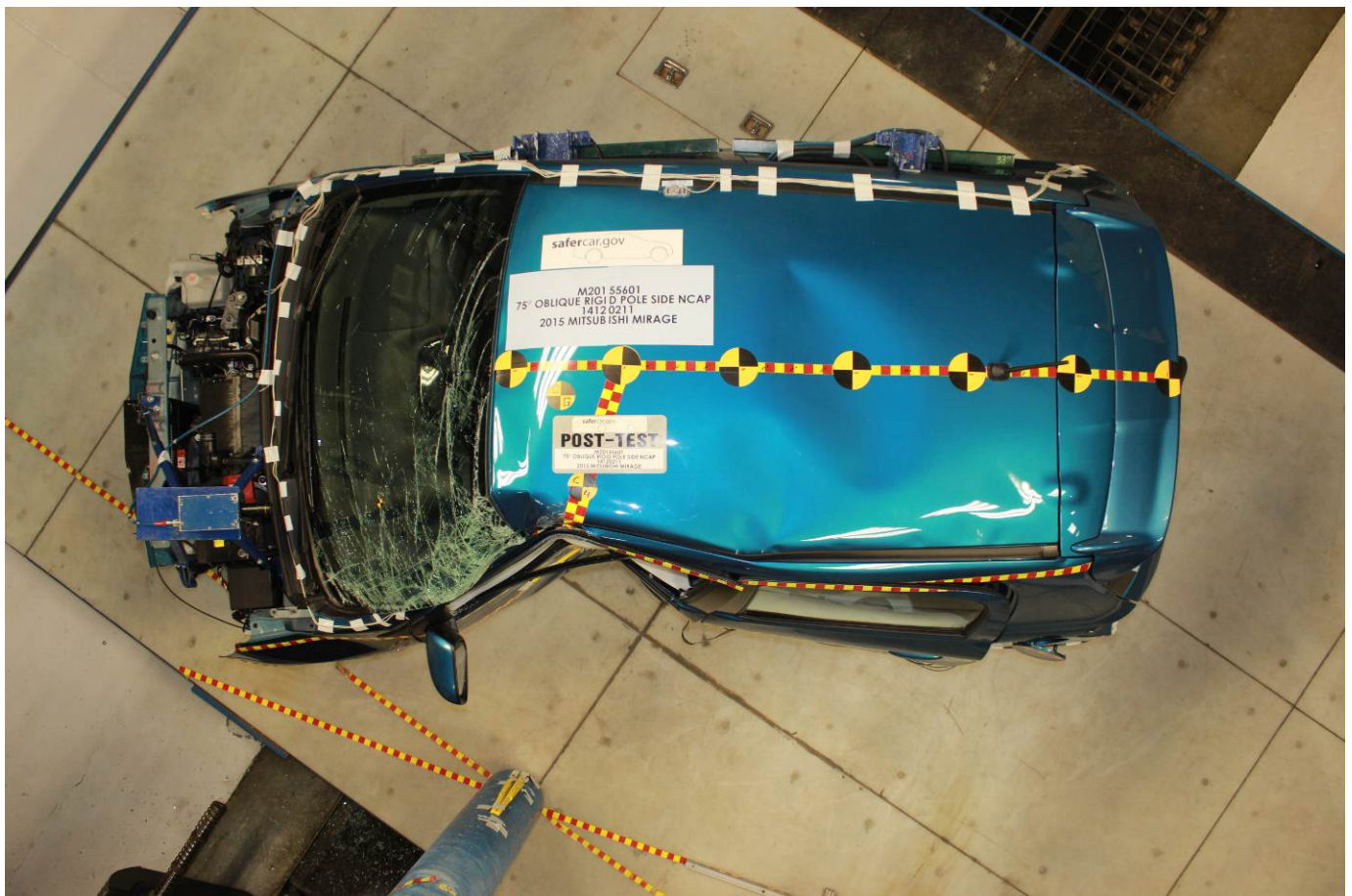
Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



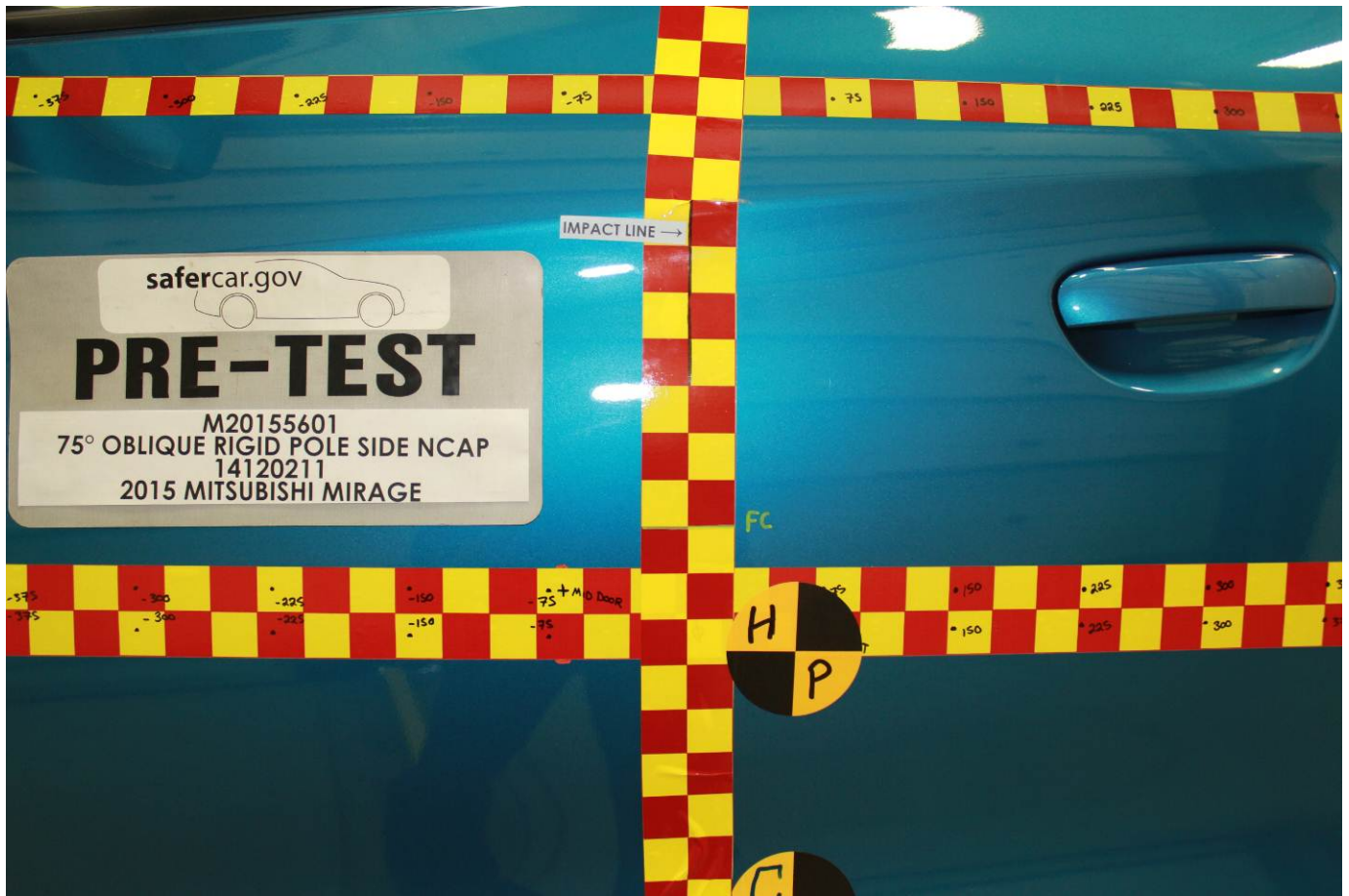
Post-Test Overhead View of Test Area



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



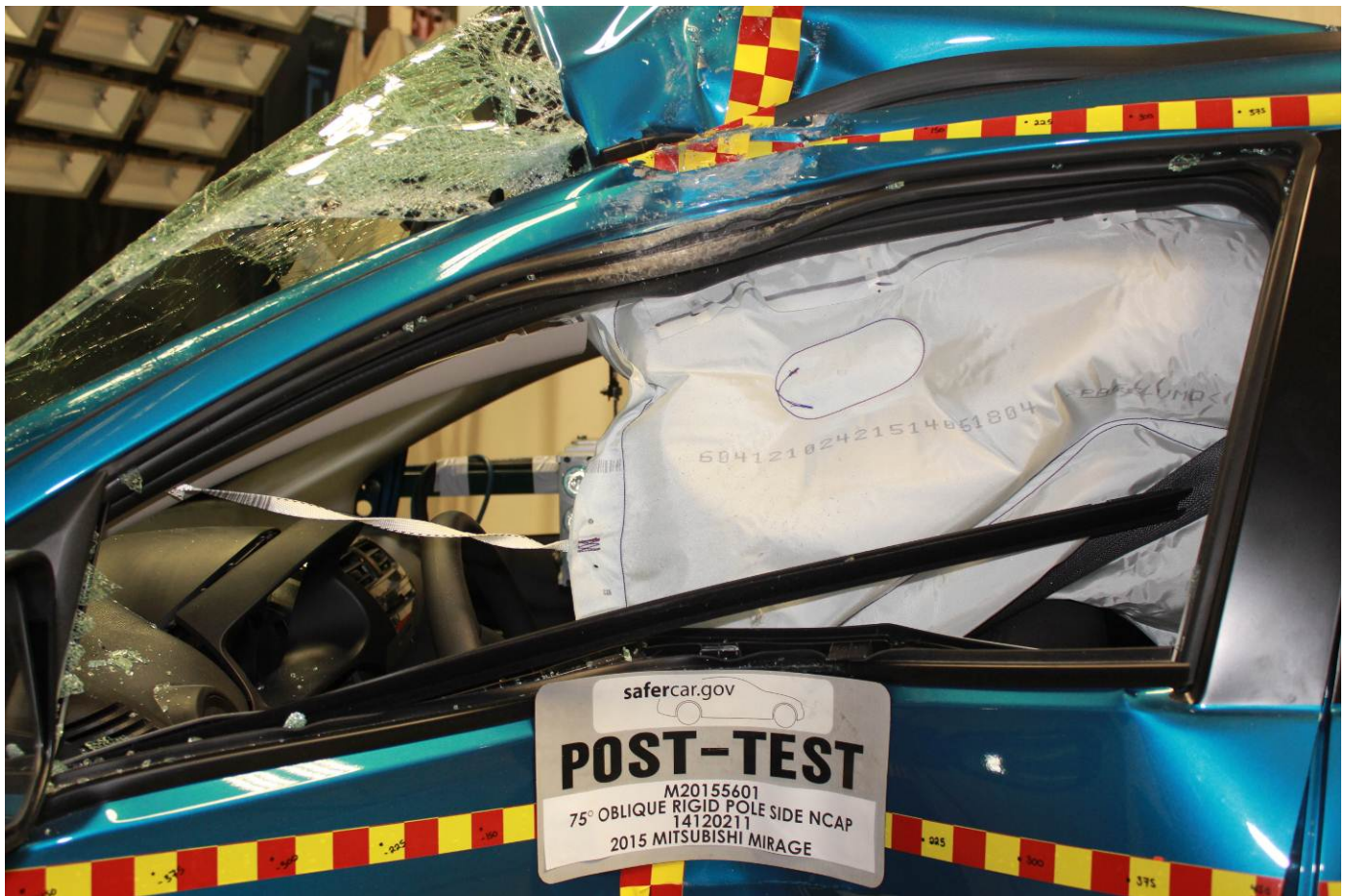
Post-Test Front Close-Up View of Dummy



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



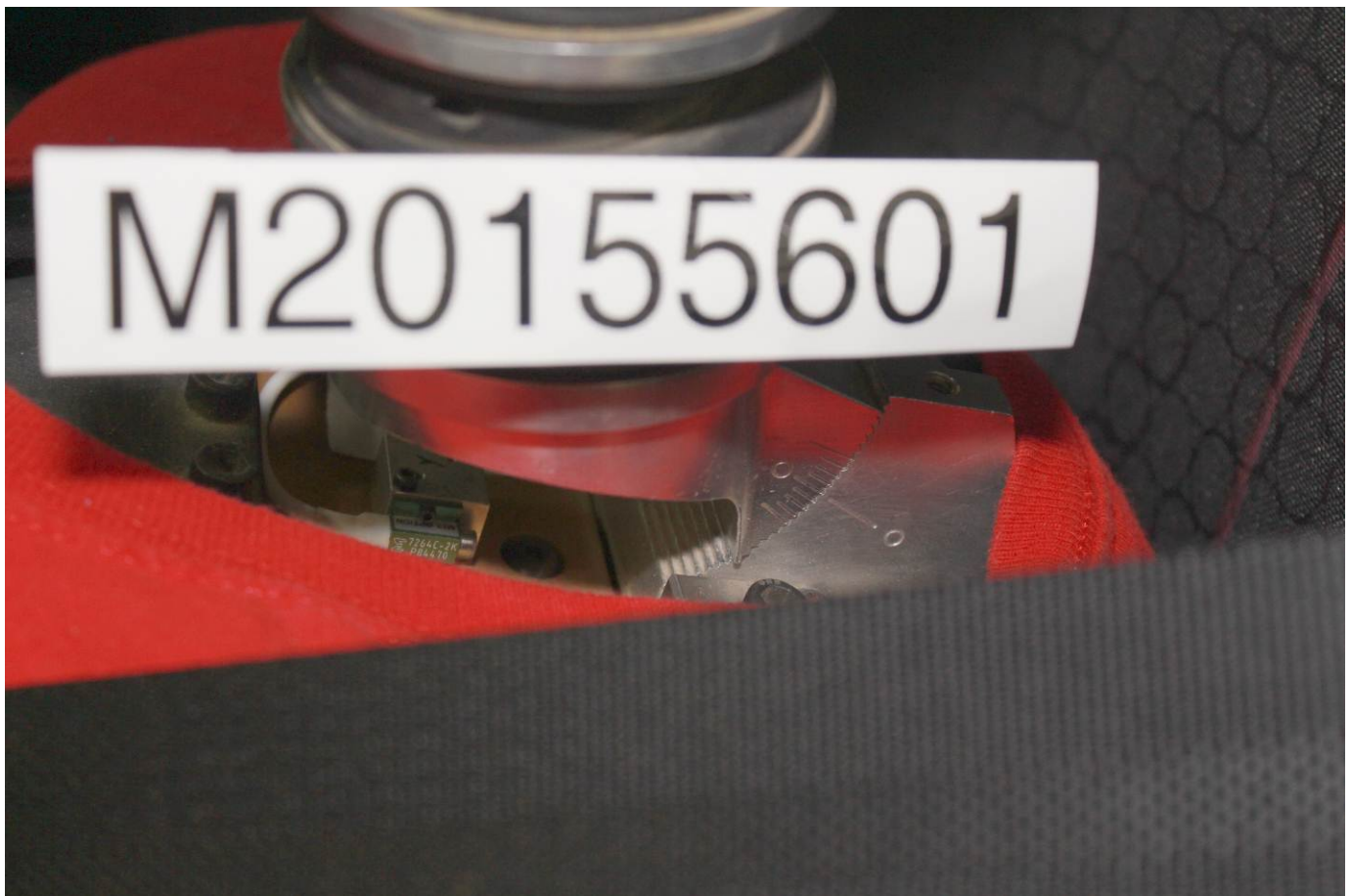
Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



Pre-Test Front 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



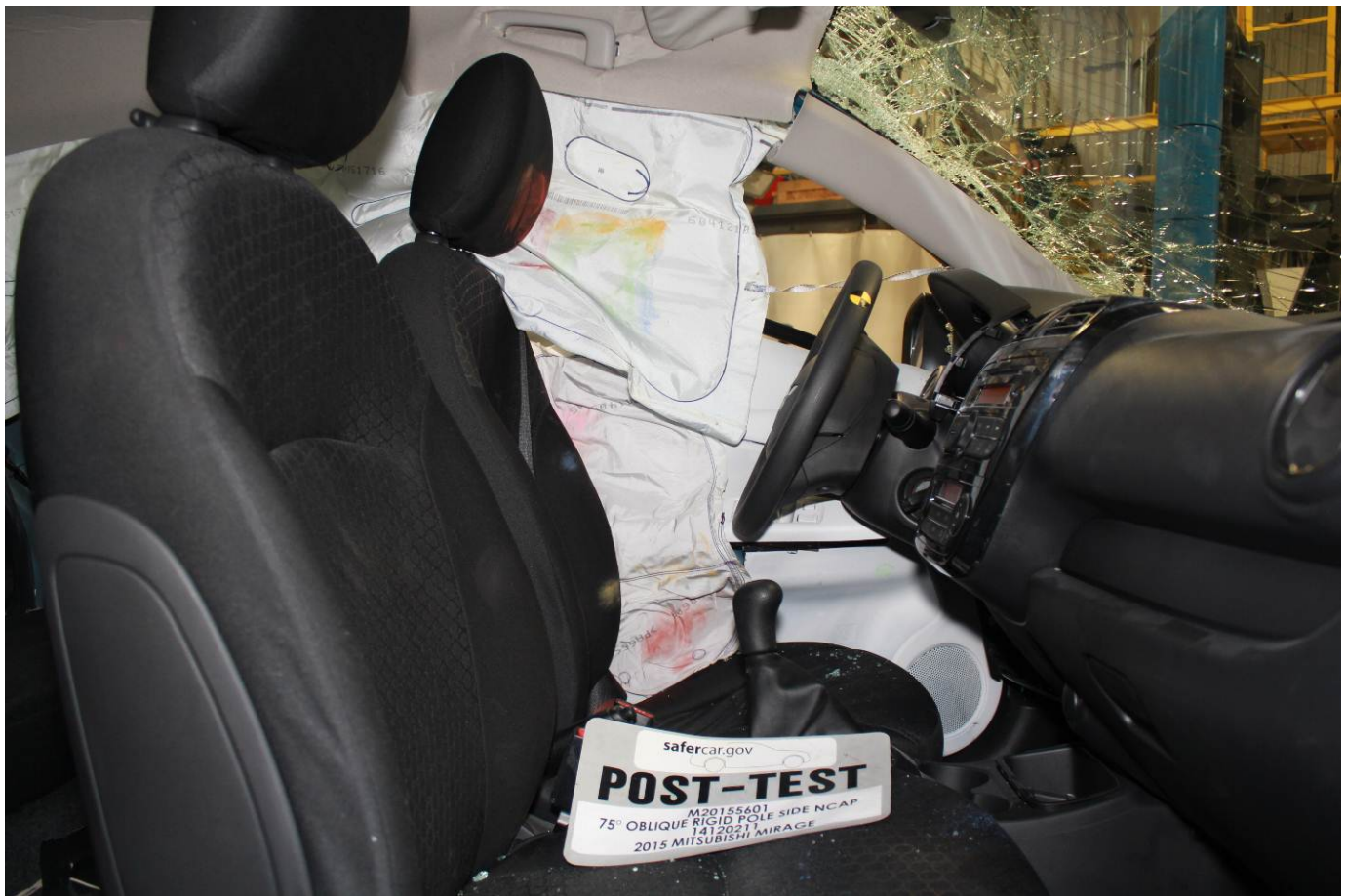
Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



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



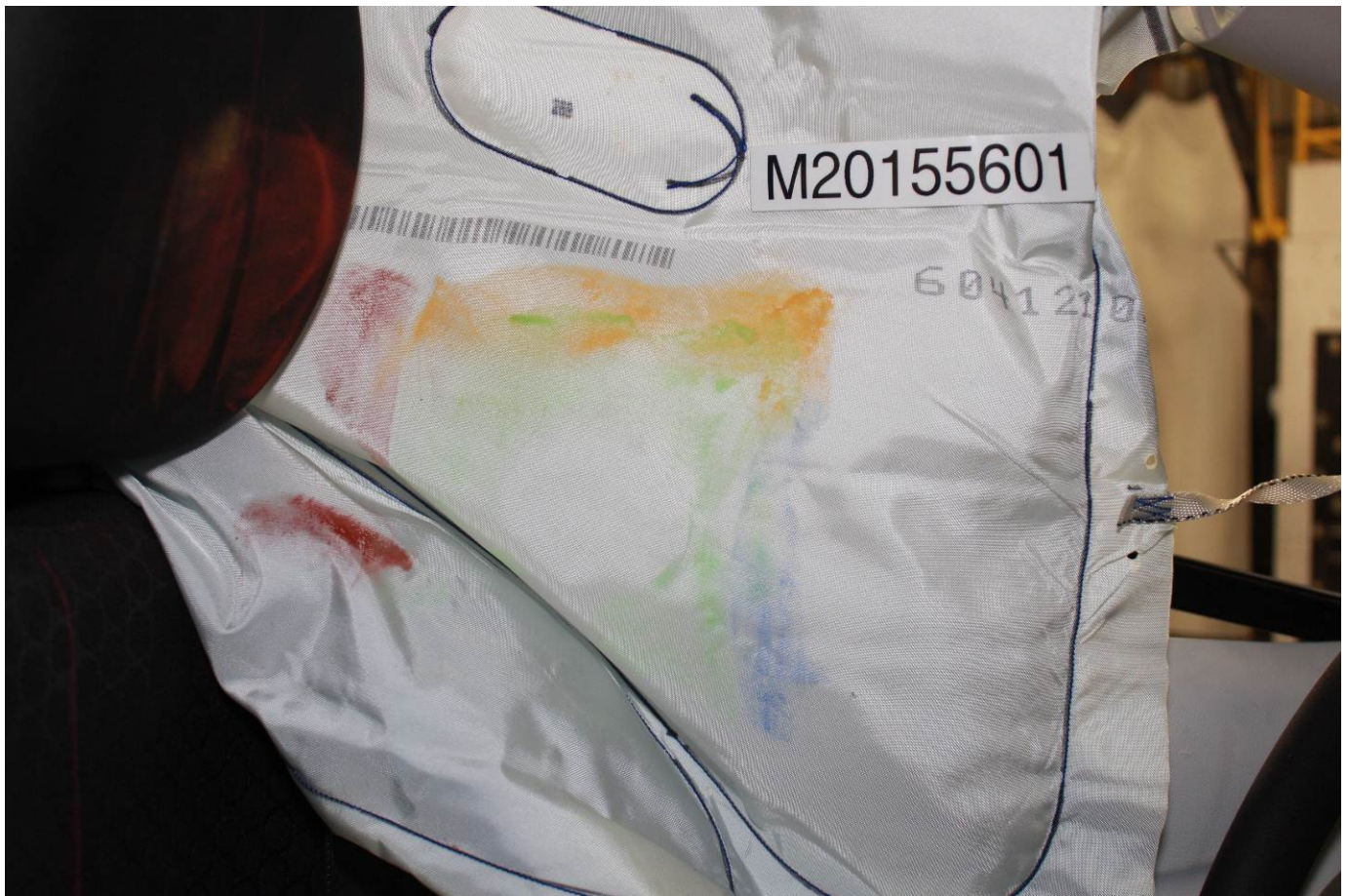
Pre-Test Inner Door Panel View



Post-Test Inner Door Panel View Showing Dummy Contact Location



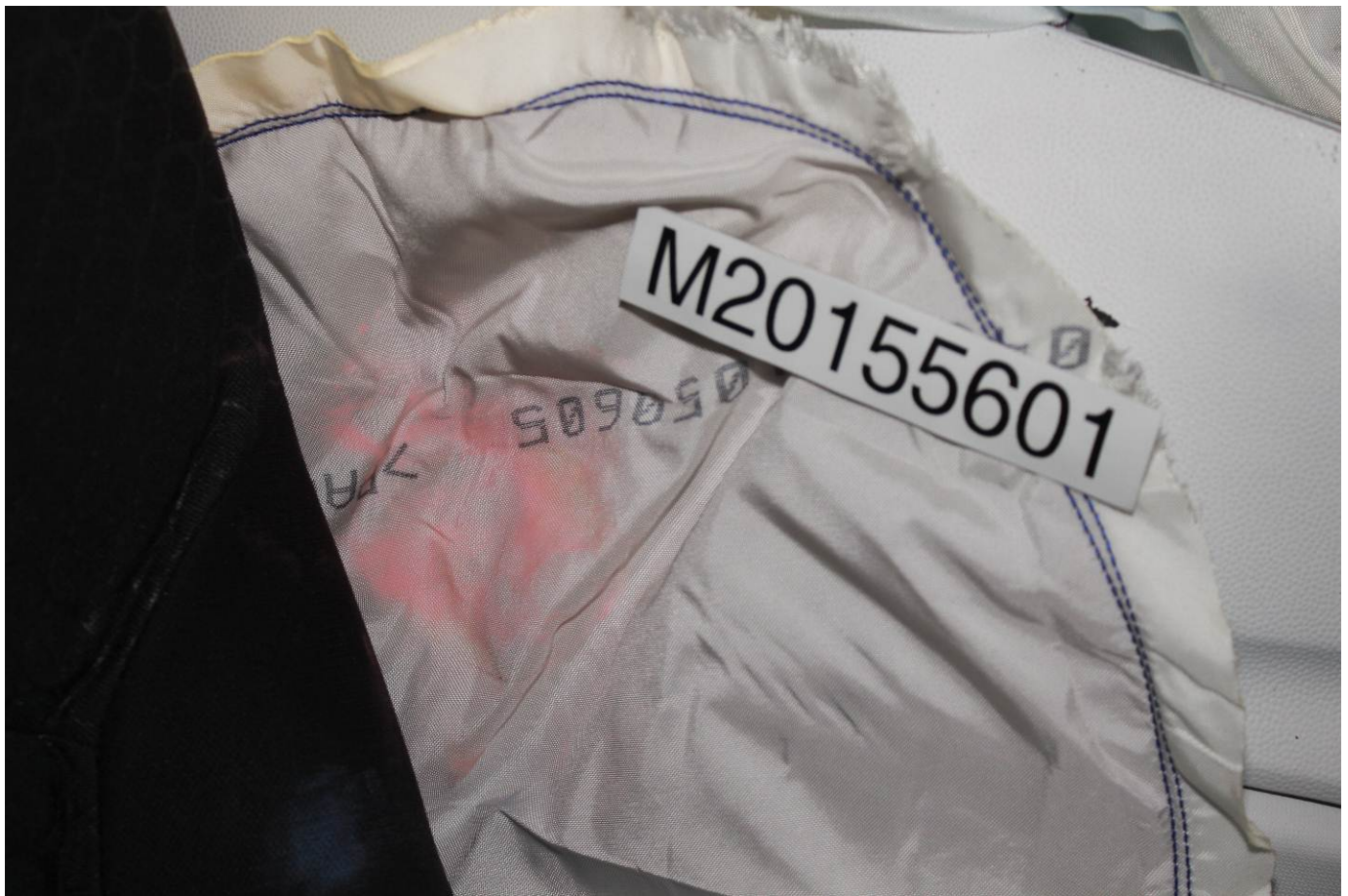
Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



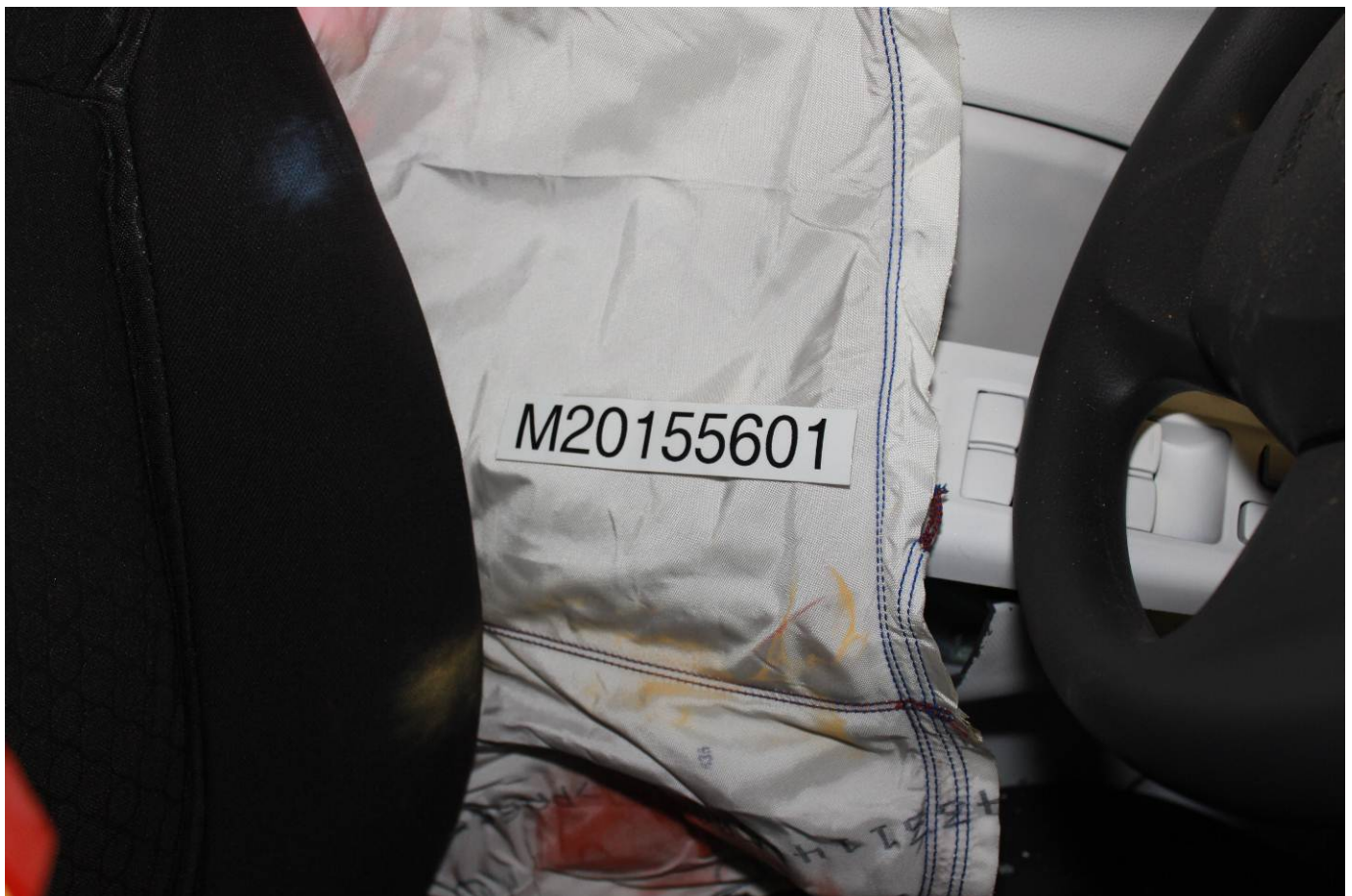
Post-Test Dummy Close-Up Head Contact with Side Air Bag View



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 Torso Contact with Side Air Bag View

PHOTOGRAPH NOT APPLICABLE

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



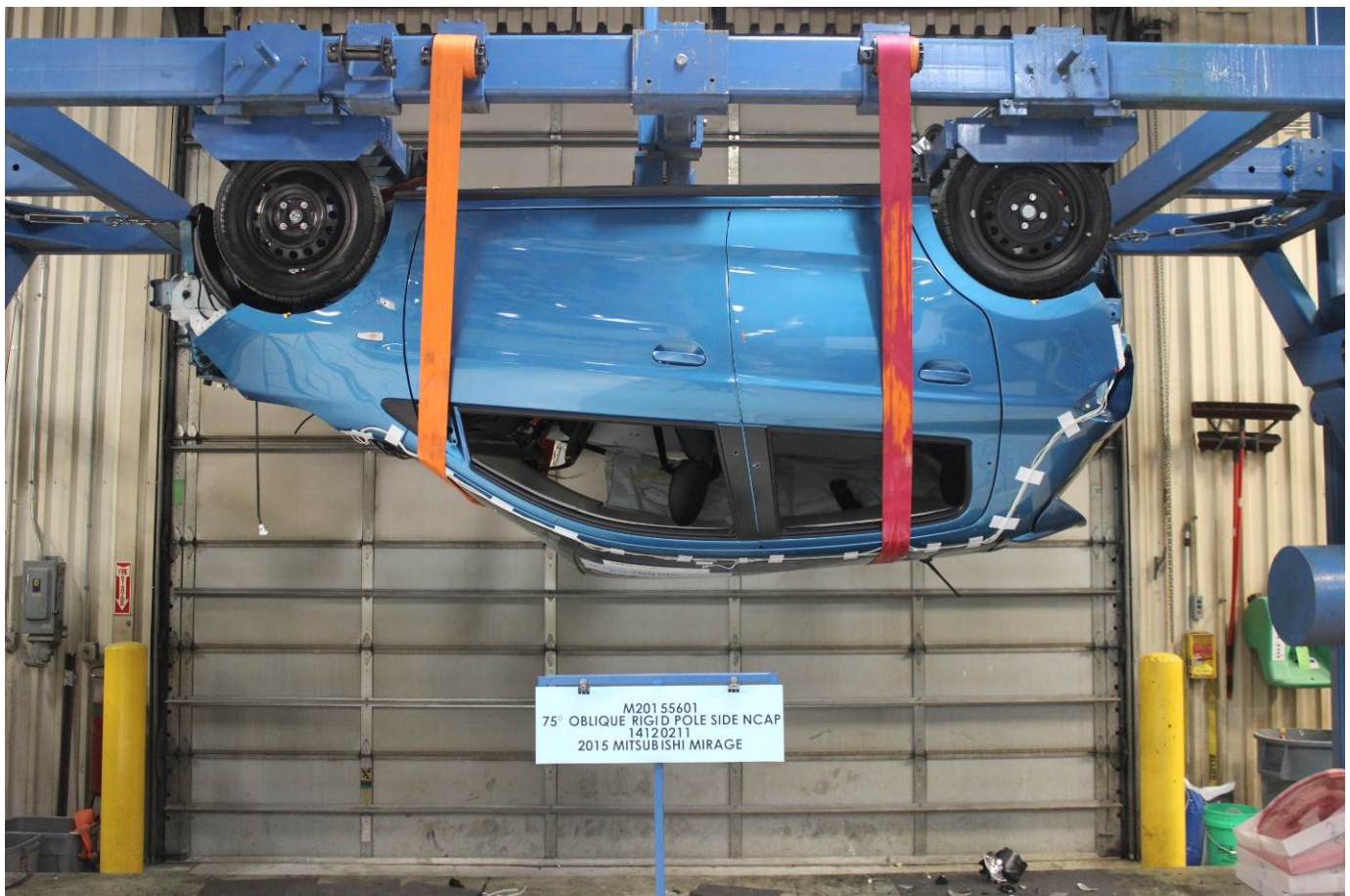
Post-Test Primary and Redundant Speed Trap Read-Out



FMVSS No. 301 Static Rollover 0 Degrees



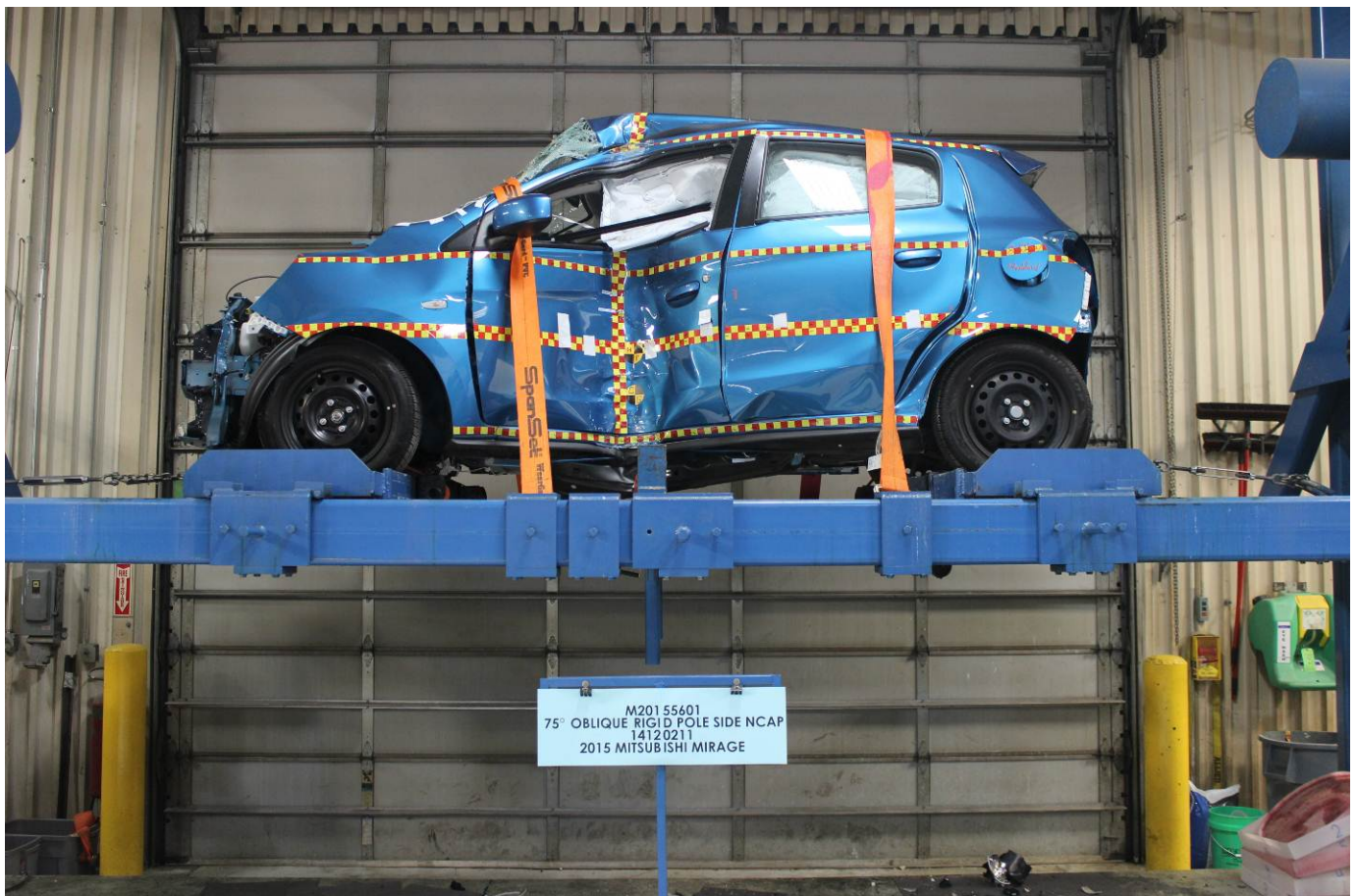
FMVSS No. 301 Static Rollover 90 Degrees



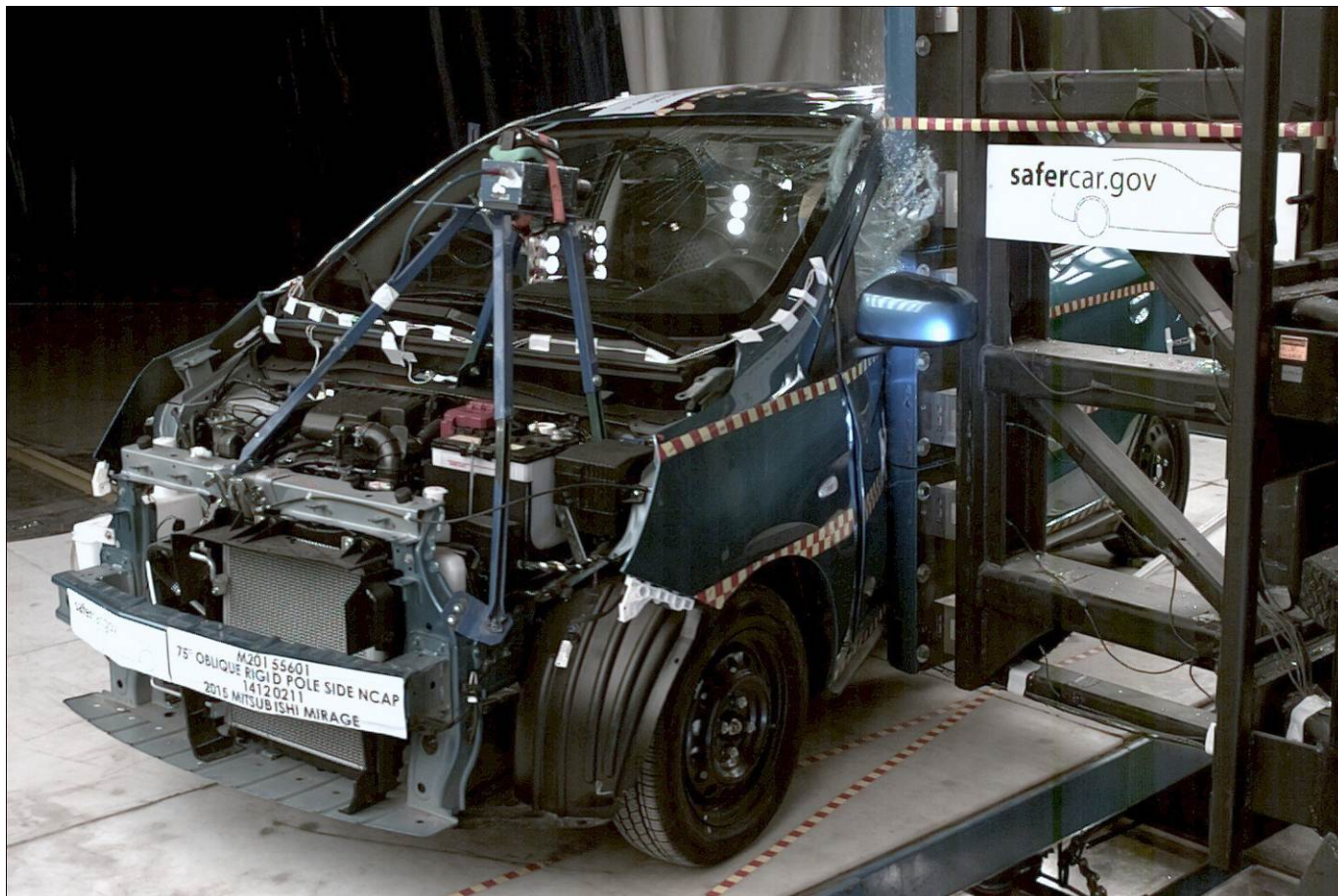
FMVSS No. 301 Static Rollover 180 Degrees



FMVSS No. 301 Static Rollover 270 Degrees



FMVSS No. 301 Static Rollover 360 Degrees



Impact Event



**2015 MIRAGE DE
5-DOOR HATCHBACK
SAPPHIRE BLUE / BLACK**

1.2L 404C 30YV MY10
5-SPEED DV MANUAL TRANSMISSION
50-STATE EMISSIONS STANDARD

Optional Equipment

Optional Equipment	INCLUDED
FULL TANK OF GAS	
ACCY BLUETOOTH HANDS-FREE	\$210.00

EPA DOT Fuel Economy and Environment

37 MPG
combined city/hwy
2.7 gallons per 100 miles

City: 34 MPG
Highway: 42 MPG

Compact Cars range from 14 to 106 MPG.
The best vehicle rates 119 MPG.

You save \$4,000
in fuel costs
over 5 years
compared to the
average new vehicle.

Mechanical Features

- Electric Power Steering Assist
- Front MacPherson strut suspension with stabilizer bar
- Rear torsion beam suspension
- Front Wheel Drive (FWD)

Exterior Features

- Halogen headlights
- High mount rear stop light
- Lower side air dam
- Rear spoiler
- Color-keyed front and rear bumpers
- Color-keyed folding side-view mirrors
- Color-keyed outer door handles
- Color-keyed tail gate handle
- Front windshield variable intermittent wipers and washers
- Rear intermittent wiper
- Power side-view mirrors
- Rear window defroster with timer
- 14" steel wheels with wheel covers
- Space saver temporary spare tire
- Short pole antenna

Interior Features

- Speedometer/tachometer gauge cluster
- ECO status indicator light
- Front room light
- Cargo light
- 4-way adjustable driver's and front passenger seat
- Split folding high-back rear seat
- Rear seat head restraints (x2)
- Automatic air condition climate control
- Micron air filtration
- Chrome accents for HVAC
- Rear heater floor ducts
- Tilt steering wheel
- Gloss black center panel
- Driver and passenger sun visors with driver's side vanity mirror, lid and ticket holder
- Carpeted floor mats
- Fuel lid release lever
- Rear shelf

Convenience Features

- 140-watt AM/FM/CD/MP3 audio system with 4 speakers
- USB port
- Keyless entry with panic alarm feature
- Power windows
- Power door locks
- 12-volt accessory outlet (x1)
- Floor center console with cup holders (x3)
- Retractable assist grips (x2)

Safety & Security

- Anti-lock Braking System (ABS) with Electronic Brakeforce Distribution (EBD) and brake assist
- Advance Stability Control (ASC)
- Tire Pressure Monitoring System (TPMS)

Safety & Security (cont'd)

- Side curtain airbags
- Driver's side knee airbag
- Advanced dual-stage front airbags
- Three-point seatbelts and head restraints for all seating positions
- Height-adjustable front shoulder belts with pretensioner
- LATCH child-restraint system
- Child safety rear door locks
- Anti-theft engine immobilizer
- RISE body construction

Annual fuel Cost

\$1,400

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

1 (Best) **9** (Worst)

This vehicle emits 238 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions. Learn more at fuelconomy.gov.

Smog Rating (tailpipe only)

1 (Best) **5** (Worst)

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 \$11,600 to fuel over 5 years. Cost estimates are based on 10,000 miles per year at \$3.50 per gallon. MPGe 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.

10-year 100,000-mile LIMITED POWERTRAIN WARRANTY

10"/100,000" POWERTRAIN
7"/100,000" ANTI-CORROSION/PERFORATION
5"/60,000" NEW VEHICLE LIMITED WARRANTY
5"/UNLIMITED" ROADSIDE ASSISTANCE

GOVERNMENT 5-STAR SAFETY RATINGS

This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash, or rollover risk.

Sources: National Highway Traffic Safety Administration (NHTSA).
www.safercar.gov or 1-866-327-4236

Parts Content Information

For vehicles in this category:
U.S./Canadian Major Sources of Parts Content: Foreign Parts Content:
0% THAILAND 90%

For this vehicle:
Final Assembly Point: CHONBURI, THAILAND
Country of Origin: THAILAND
Engine: THAILAND
Transmission: THAILAND

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

Mitsubishi Motors Logo

MSRP*: \$12,995.00
Total Optional Equipment: \$210.00
Subtotal: \$13,205.00
Destination/Handling: \$810.00
Total MSRP*: \$14,015.00

Ship To: (DBA) SCHLOSSMANN CITY
40052 MITSUBISHI
4640 S. 27TH STREET
MILWAUKEE, WI 53221

Method of Transport: RAIL
Plant/Port of Entry: TACOMA, WA

VIN: ML32A3HJ0FH003708
Route Code: RJ0

Gasoline, license and title fees, applicable federal, state and local taxes and dealer and distributor installed options and accessories are not included in the manufacturer's suggested retail price. This label has been applied to this vehicle pursuant to federal law and cannot be moved or altered prior to delivery to the ultimate purchaser.

Visit us at www.mitsubishicars.com

⚠ WARNING

- After returning the seatbacks to their upright positions, make sure that the seatbacks are locked in place and firmly. Also check to be sure that the rear seat belts are in front of the seatbacks, and not caught behind the seatbacks.

⚠ CAUTION

- Do not grab the seat belt guide to raise the seatback; doing so can cause damage of the seat belt guide and the seatback.

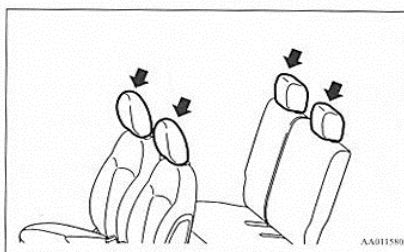
Head restraints

N00404300584

Padded head restraints for the seats can reduce the risk of a whiplash injury if your vehicle is hit from the rear.

The head restraints are equipped in the illustrated position.

To maximize the effectiveness of your head restraint, adjust the front seatback to the upright position, the rear seatback to the normal seating position, and the head restraint to the proper position. Sit back against the seatback with your head close to the head restraint.

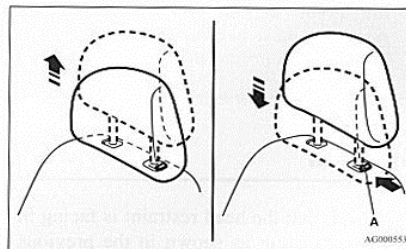
**⚠ WARNING**

- Driving without the head restraints in place can cause you and your passengers serious injury or death in an accident. To reduce the risk of injury in an accident, always make sure the head restraints are installed and properly positioned when the seat is occupied.
- In order to minimize the risk of a neck injury due to a rear impact, the front seatback must be adjusted to the upright position, the rear seatback to the normal seating position, and the head restraint to the proper position before vehicle operation. The driver should never adjust the seat while the vehicle is in motion.
- Never place a cushion or similar device on the seatback. This can adversely affect head restraint performance by increasing the distance between your head and the restraint.

Adjustment of the head restraint height

To reduce the risk of injury in an accident, adjust the head restraint height so that the center of the restraint is at your ear level when seated. Any person too tall for the restraint to reach their ear level when seated should raise the restraint to the highest locked position.

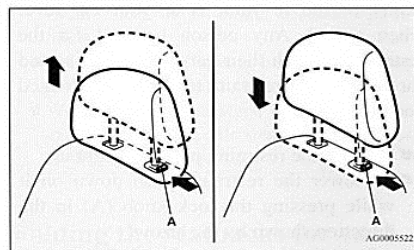
- To raise the restraint, pull it straight up.
- To lower the restraint, push down on it while pressing the lock knob (A) in the direction shown by the arrow.
- After adjusting the height, push down on the restraint to make sure it is locked in position.



Seat and restraint systems 4-7

Head Restraint Use and Adjustment Information from Vehicle Owner's Manual**Seat belts****To remove**

Press the lock knob (A) in the direction shown by the arrows. Then pull the head restraint up and out of the seatback.

**⚠ WARNING**

- To help minimize the risk of neck injury in the event of an accident, the head restraints must be properly installed and positioned to proper height before vehicle operation.

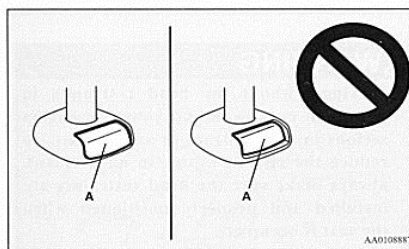
To install

First check that the head restraint is facing in the right direction as shown in the previous illustration, and then insert it into the seatback. Push the head restraint down while

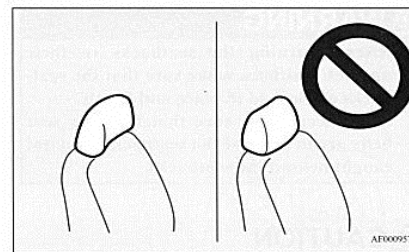
pressing the lock knob (A) until the restraint locks into place.

⚠ CAUTION

- Check that the lock knob (A) is extended out as shown in the illustration. Then pull the head restraint up to make sure that it is locked in place and will not come out of the seatback.

**⚠ CAUTION**

- The shape and size of the head restraint differs according to the seat. Always use the correct head restraint provided for the seat and do not install the head restraint in the wrong direction.

**Seat belts**

N00406001481

Seat belts are installed in your vehicle to help reduce the risk of injury to the driver and passenger in the event of an accident. Always use the provided seat belts.

Carefully review the following information for proper seat belt usage.

⚠ WARNING

- To help reduce the risk of injury or death in an accident, seat belts and child restraint systems must always be used. Refer to "Child restraint systems" on page 4-14 for additional information.
- Never use one seat belt for more than one person.
- Never carry more people in your vehicle than there are seat belts.
- Always adjust the seat belt for a snug fit.



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)

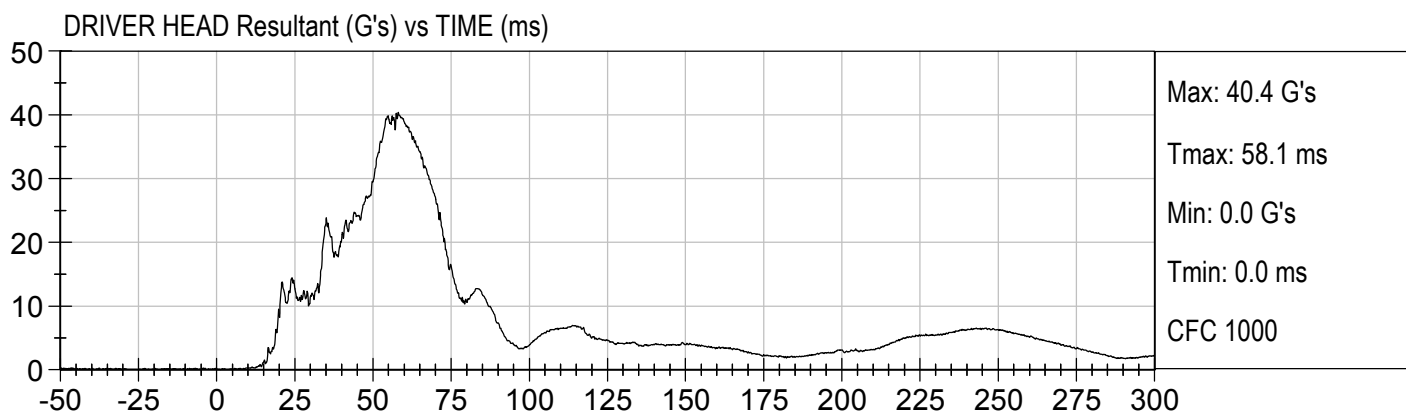
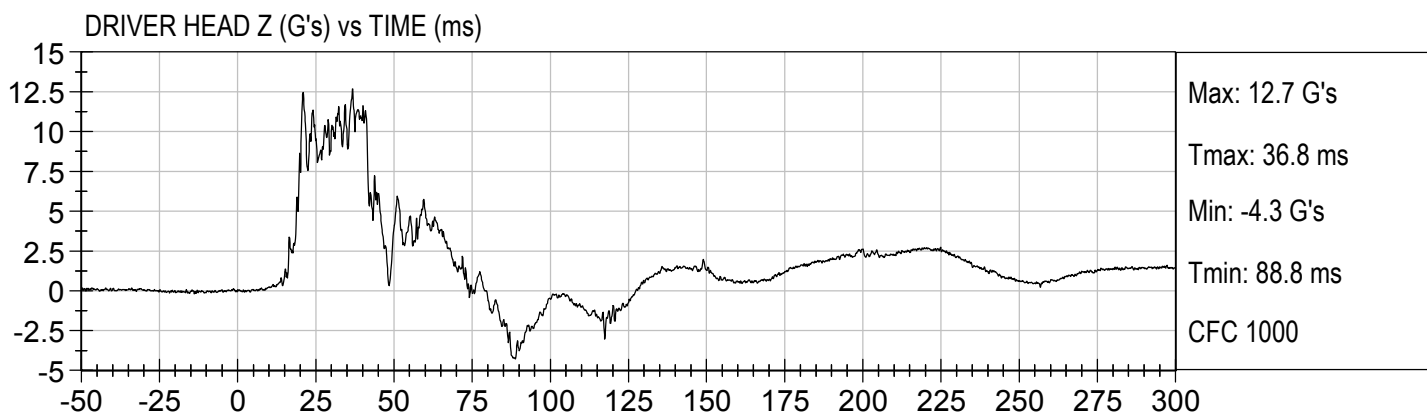
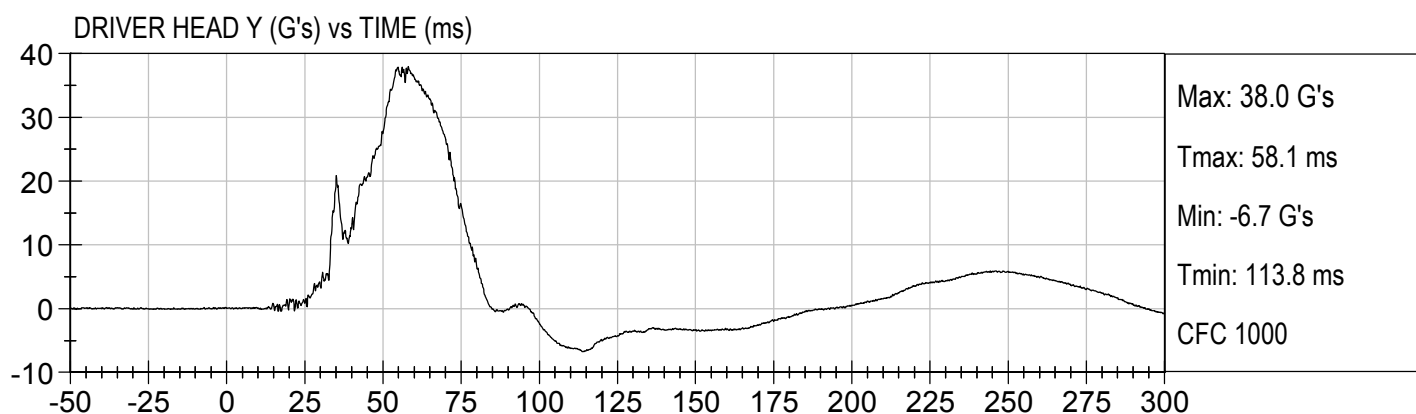
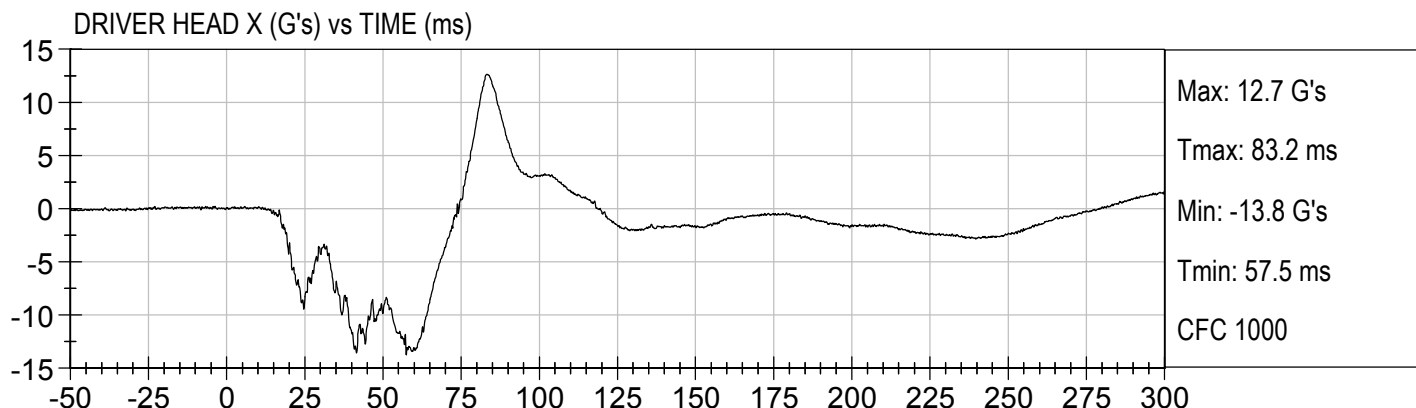
Load Cell Pole Barrier #4 Force (Y)

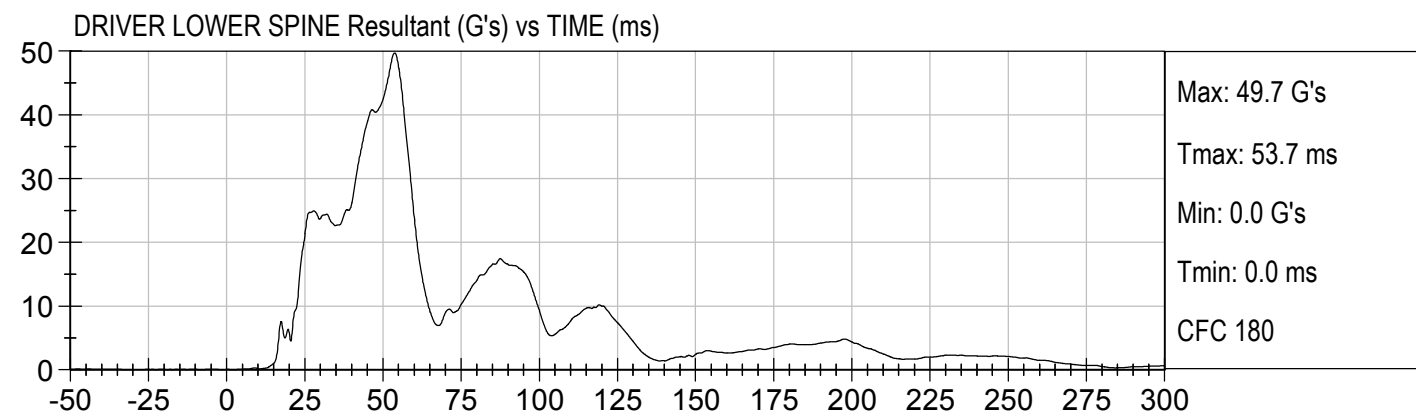
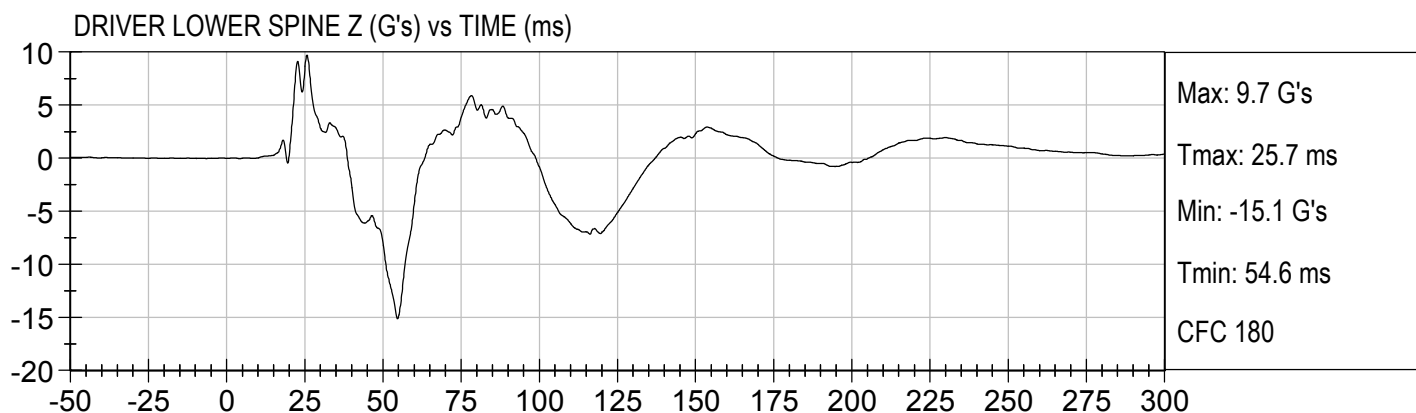
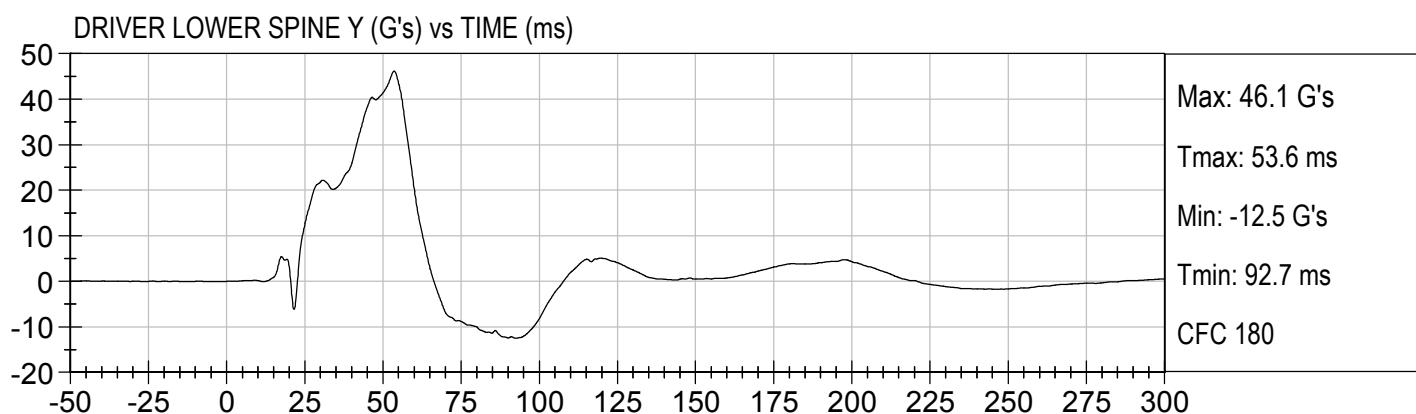
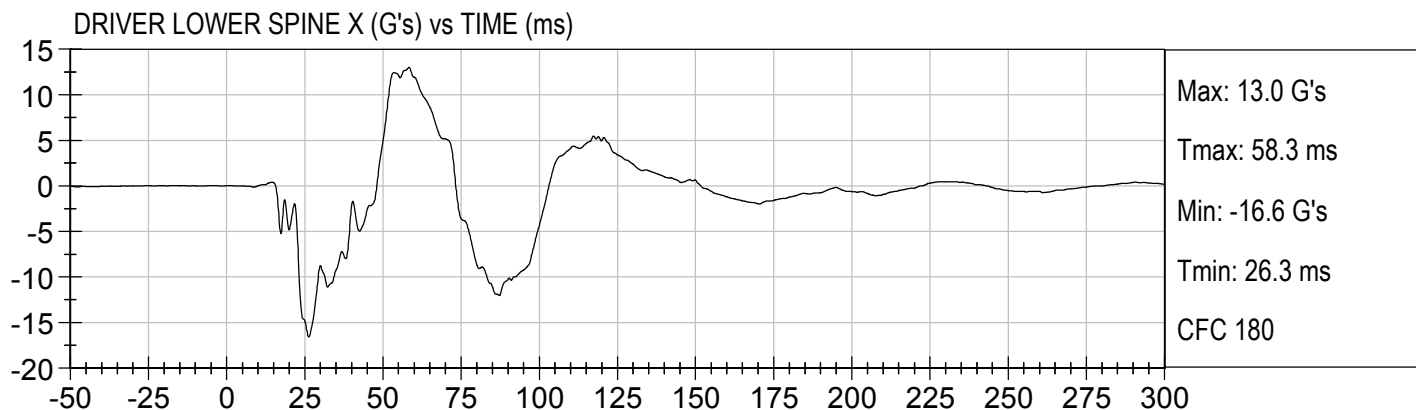
Load Cell Pole Barrier #5 Force (Y)

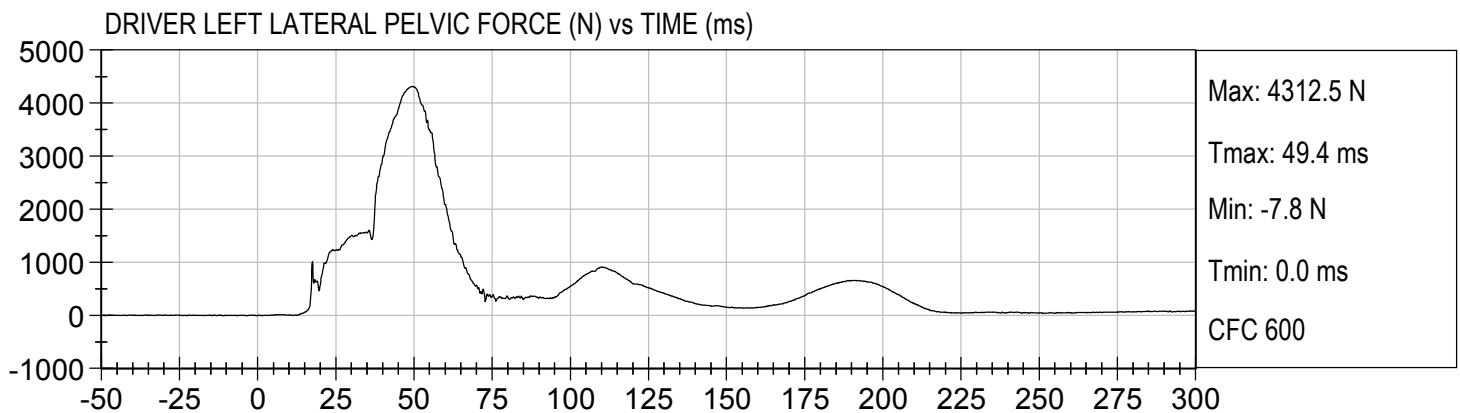
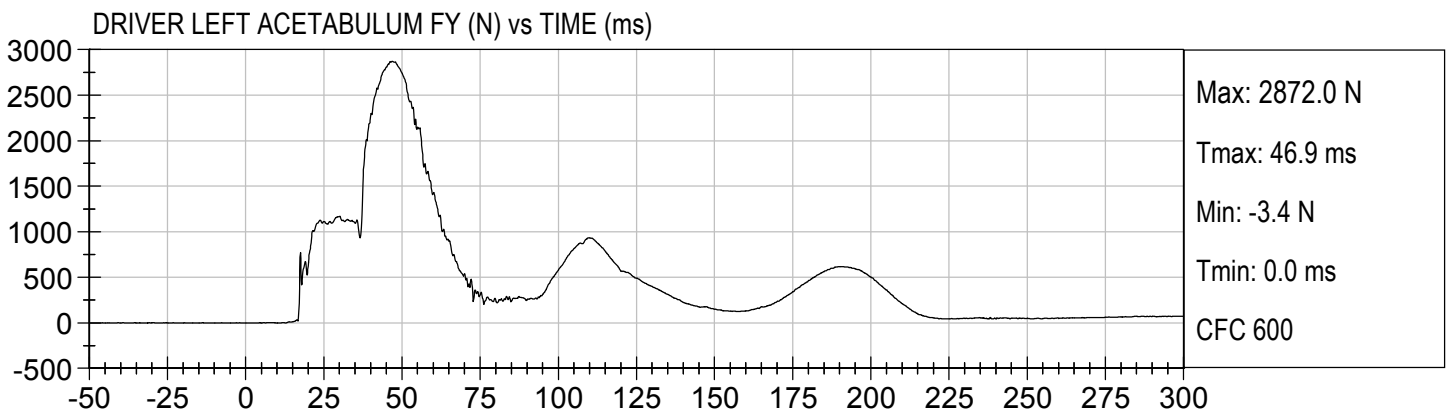
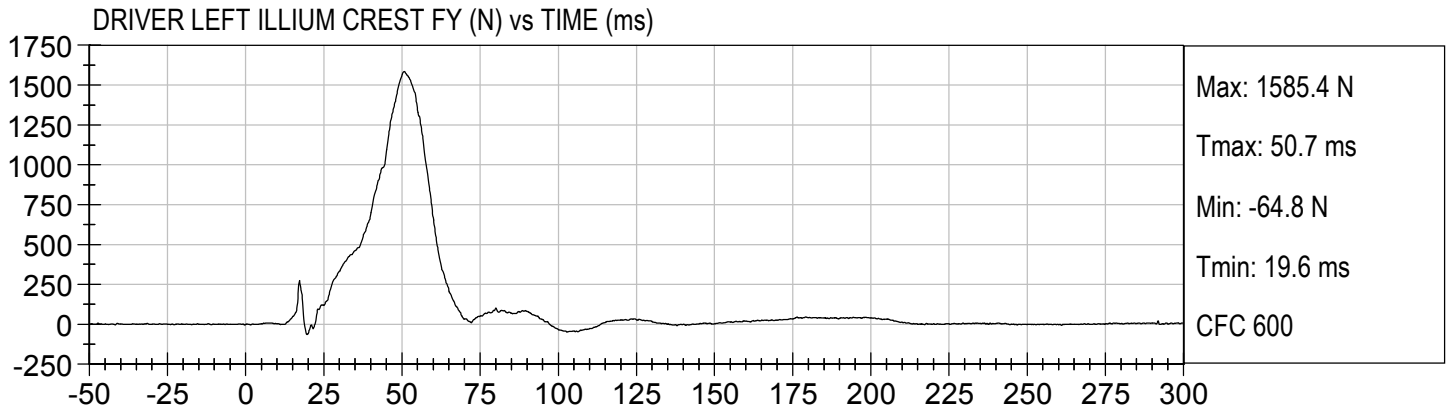
Load Cell Pole Barrier #6 Force (Y)

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

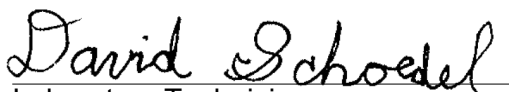
No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	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: D144091

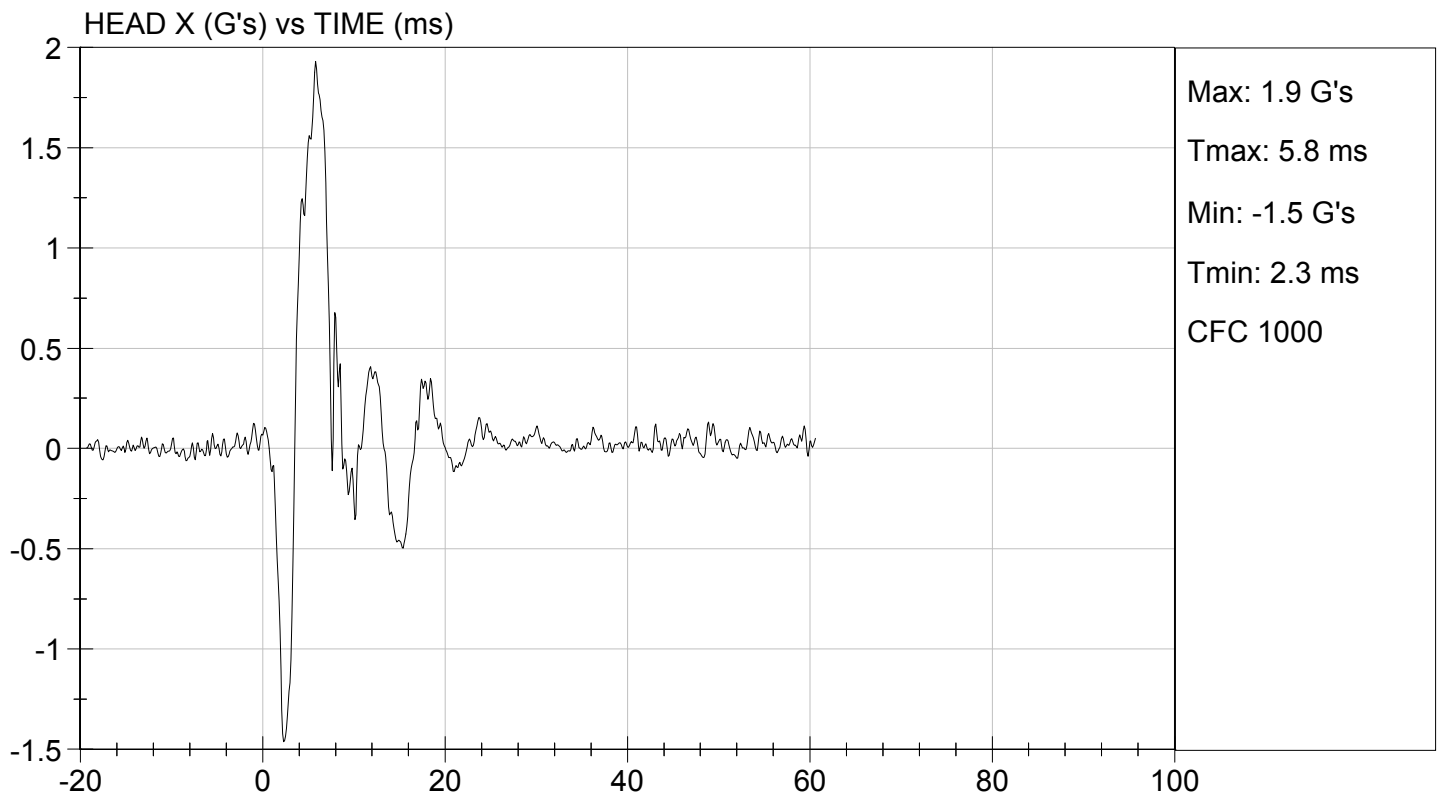
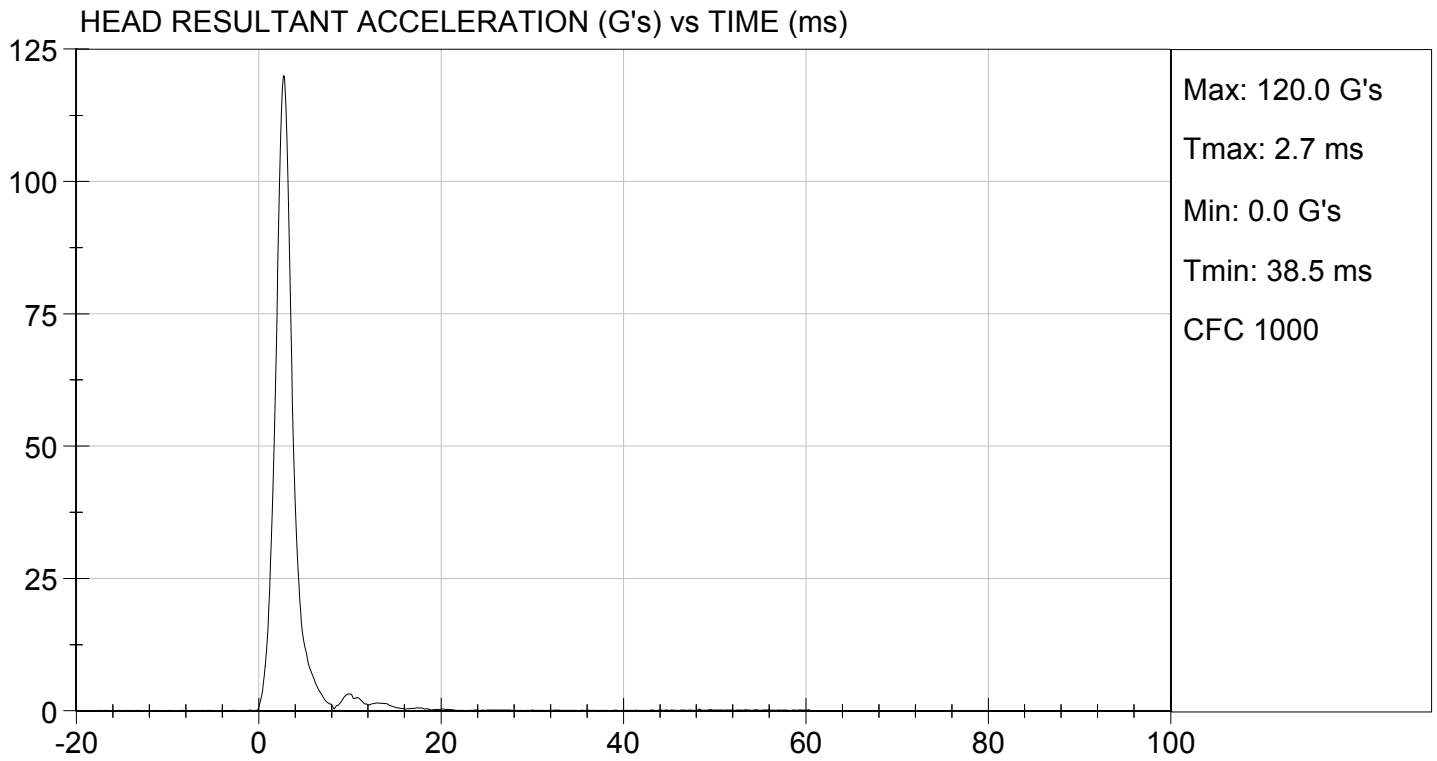
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	18	Pass
Peak Resultant Acceleration	G's	115 to 137	120	Pass
Peak Longitudinal Acceleration	G's	+/- 15	1.9	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
			Overall Test Results	Pass

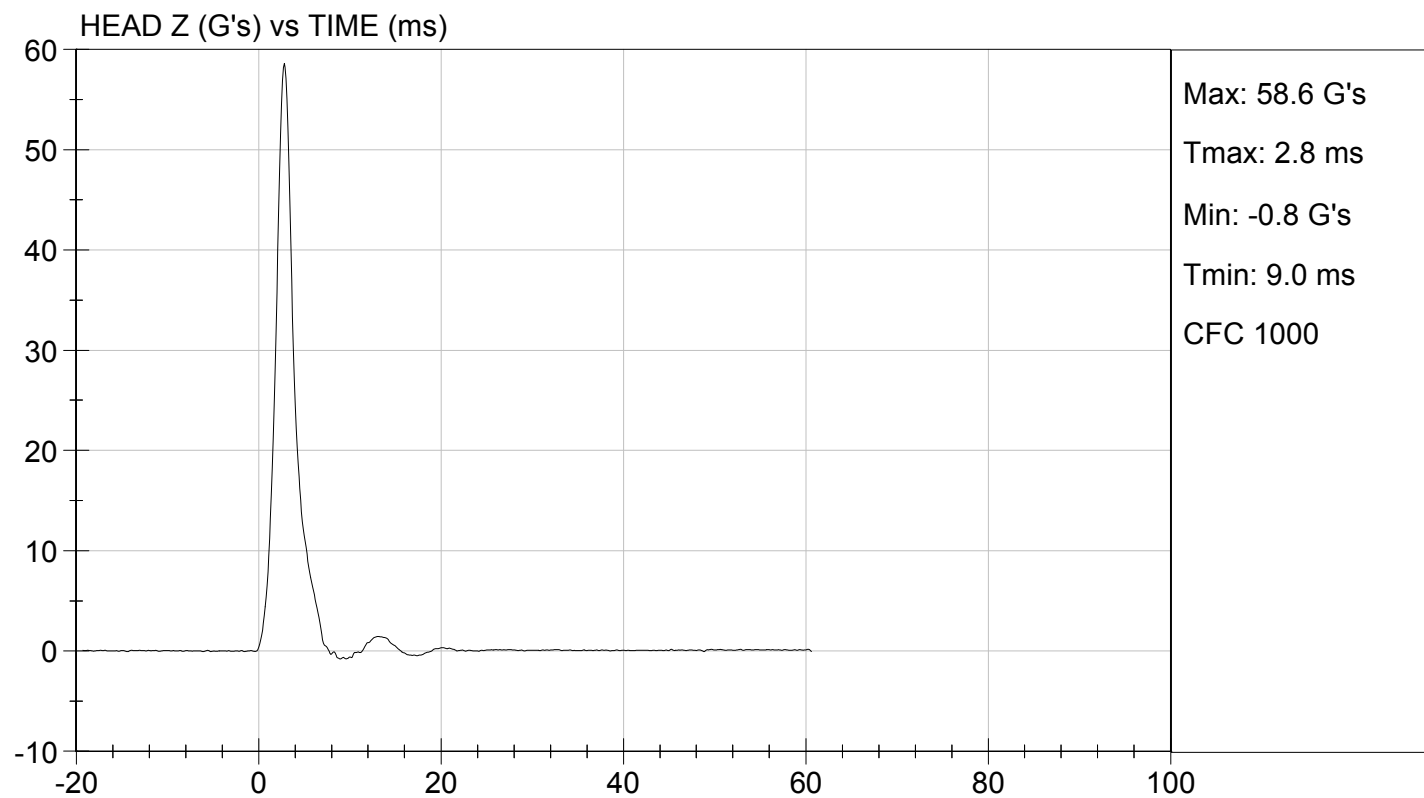
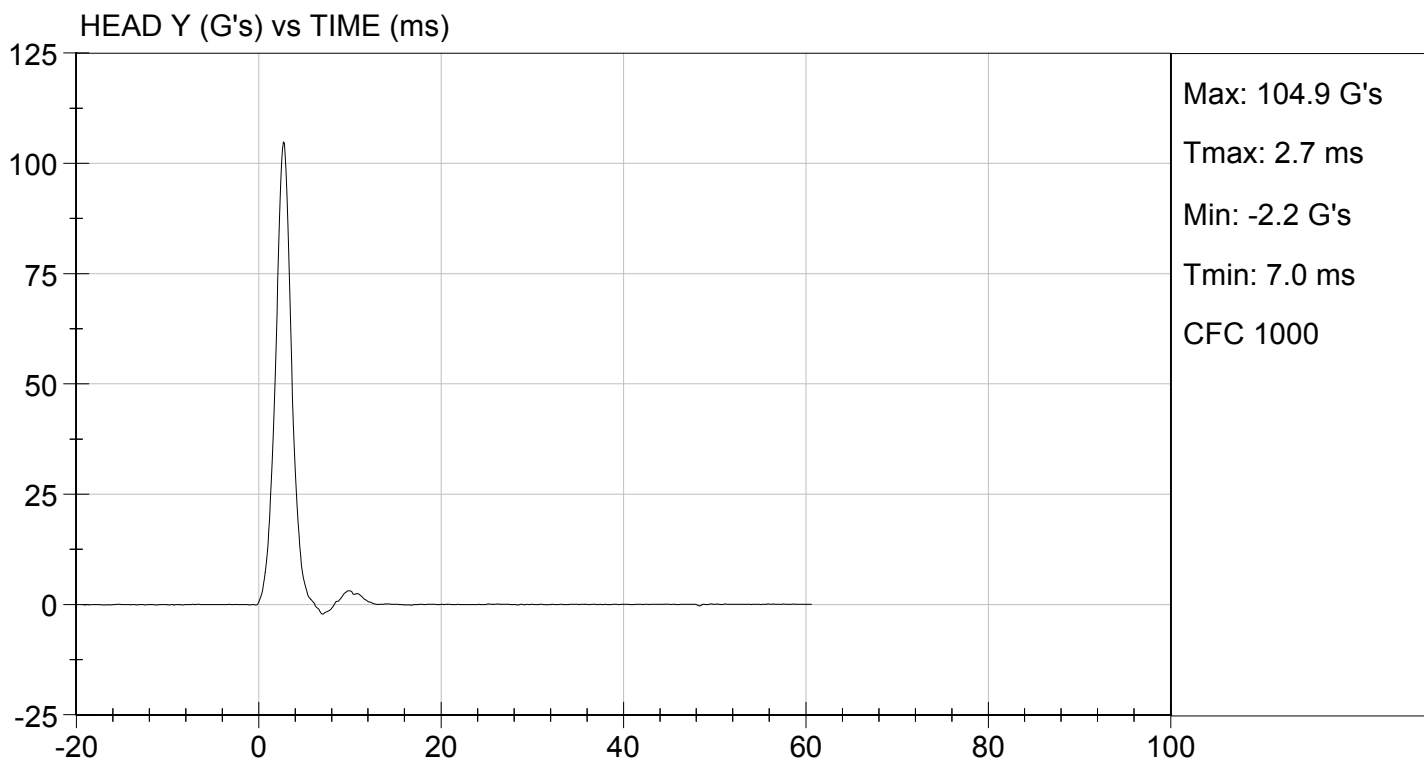

Laboratory Technician

11/19/2014

Test Date


Approved By





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

ATD Serial No: 306

Test I.D: D144092

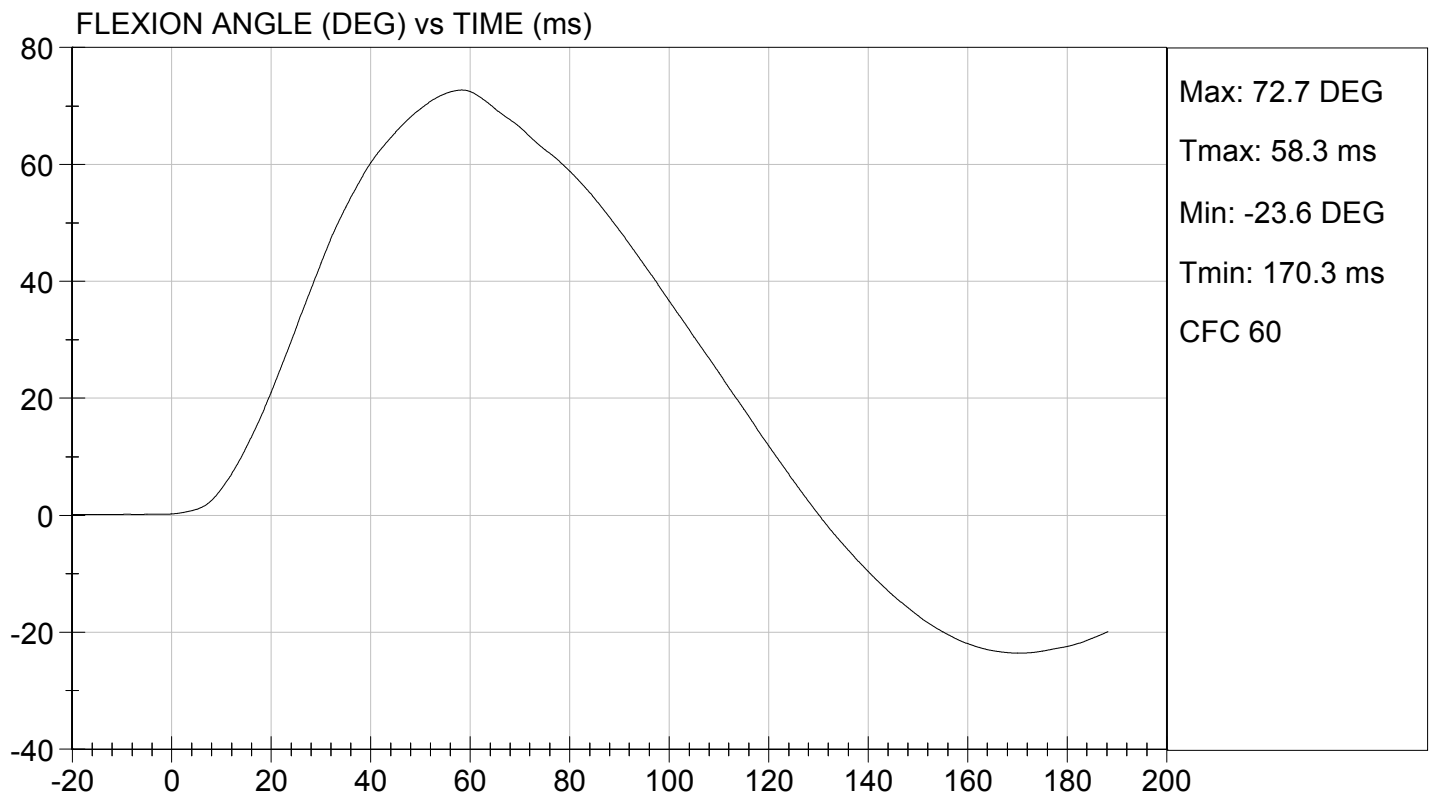
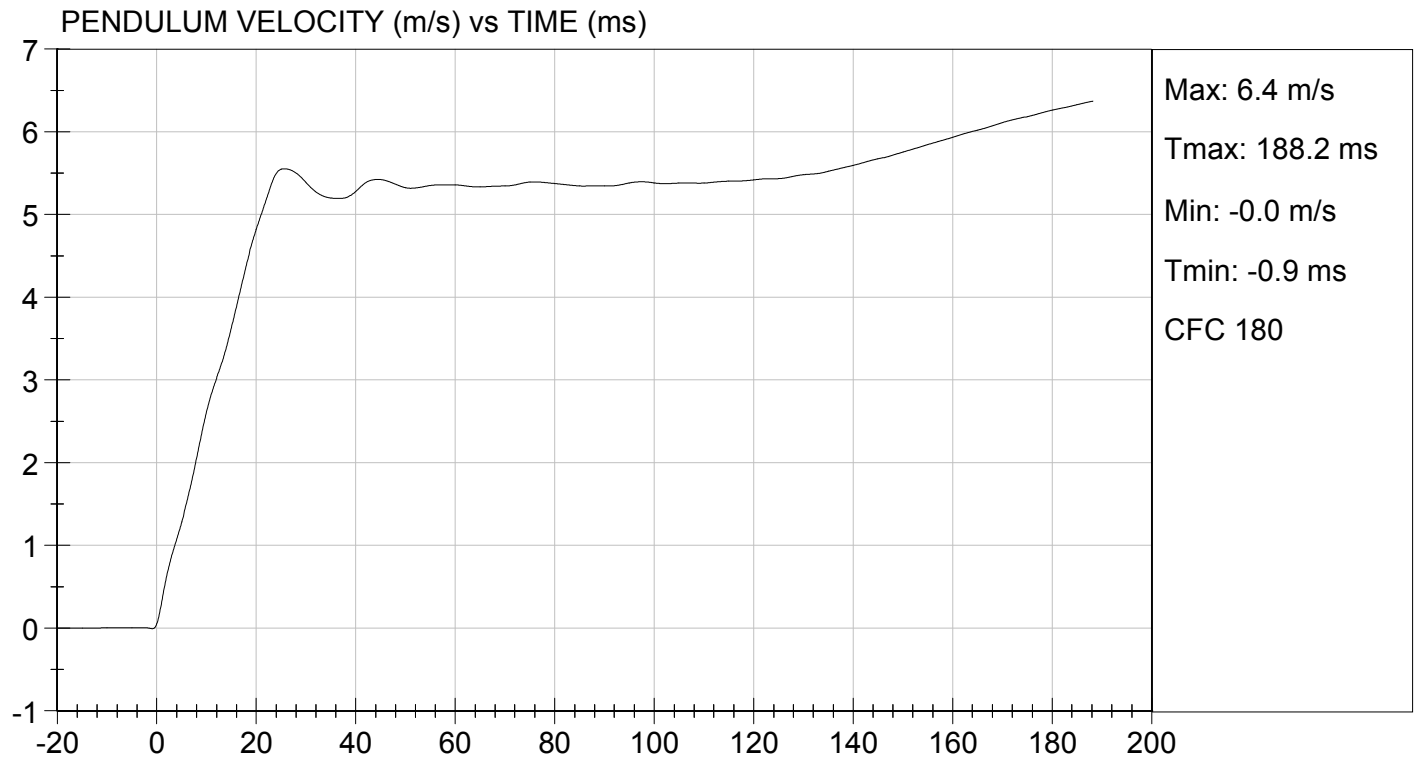
Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.2	Pass
Humidity		%	10 to 70	18	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.62	Pass
	15 ms	m/s	3.30 to 4.10	3.63	Pass
	20 ms	m/s	4.40 to 5.40	4.82	Pass
	25 ms	m/s	5.40 to 6.10	5.55	Pass
	25-100 ms	m/s	5.50 to 6.20	5.55	Pass
Maximum D-Plane Rotation		deg	71 to 81	73	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	116	Pass
Overall Test Results					Pass

David Schoedel
Laboratory Technician

11/19/2014

Test Date

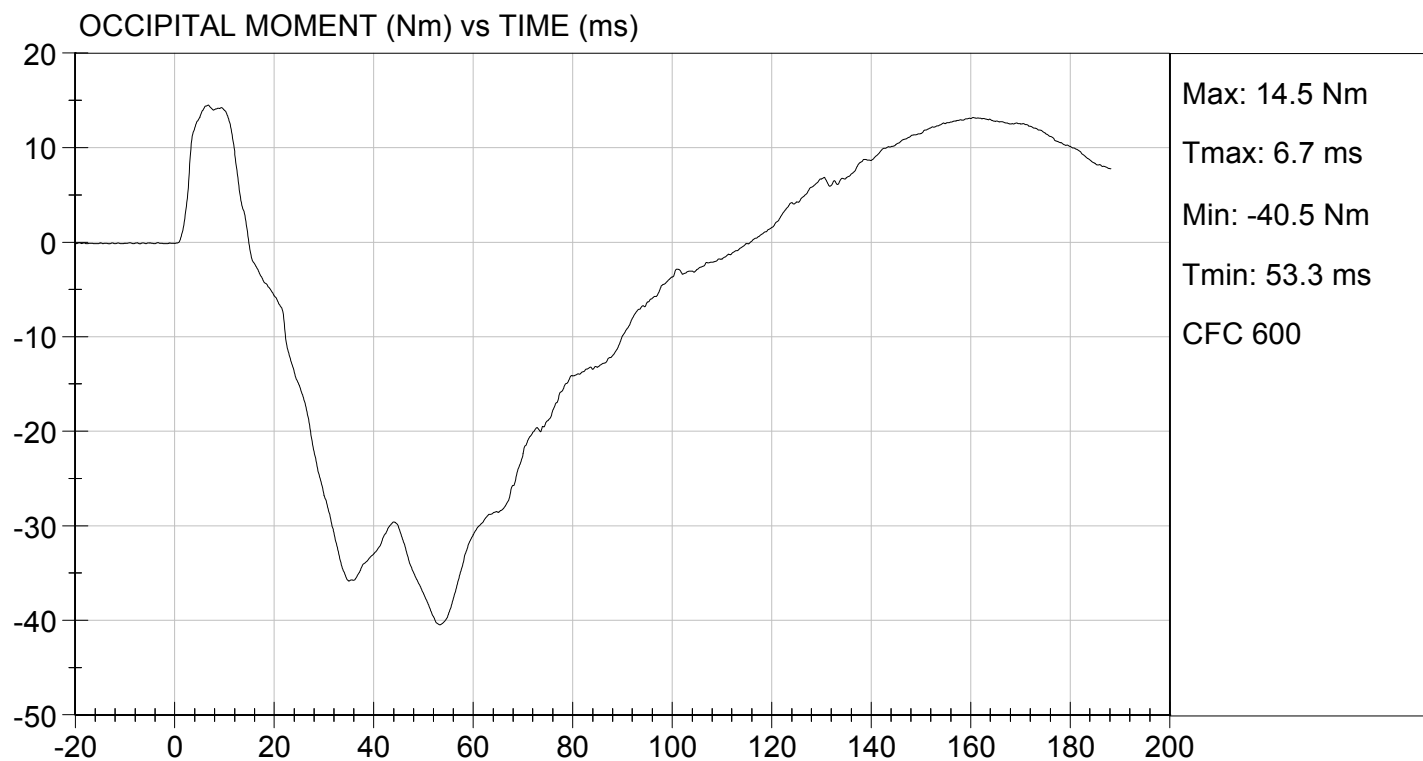
Jessica Hall
Approved By





TEST DESC: NECK BENDING
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 11/19/2014
TEST #: D144092



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

ATD Serial No: 306

Test ID: D144093

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	18	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	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	22	Pass
Overall Test Results			Pass	


Laboratory Technician

11/19/2014

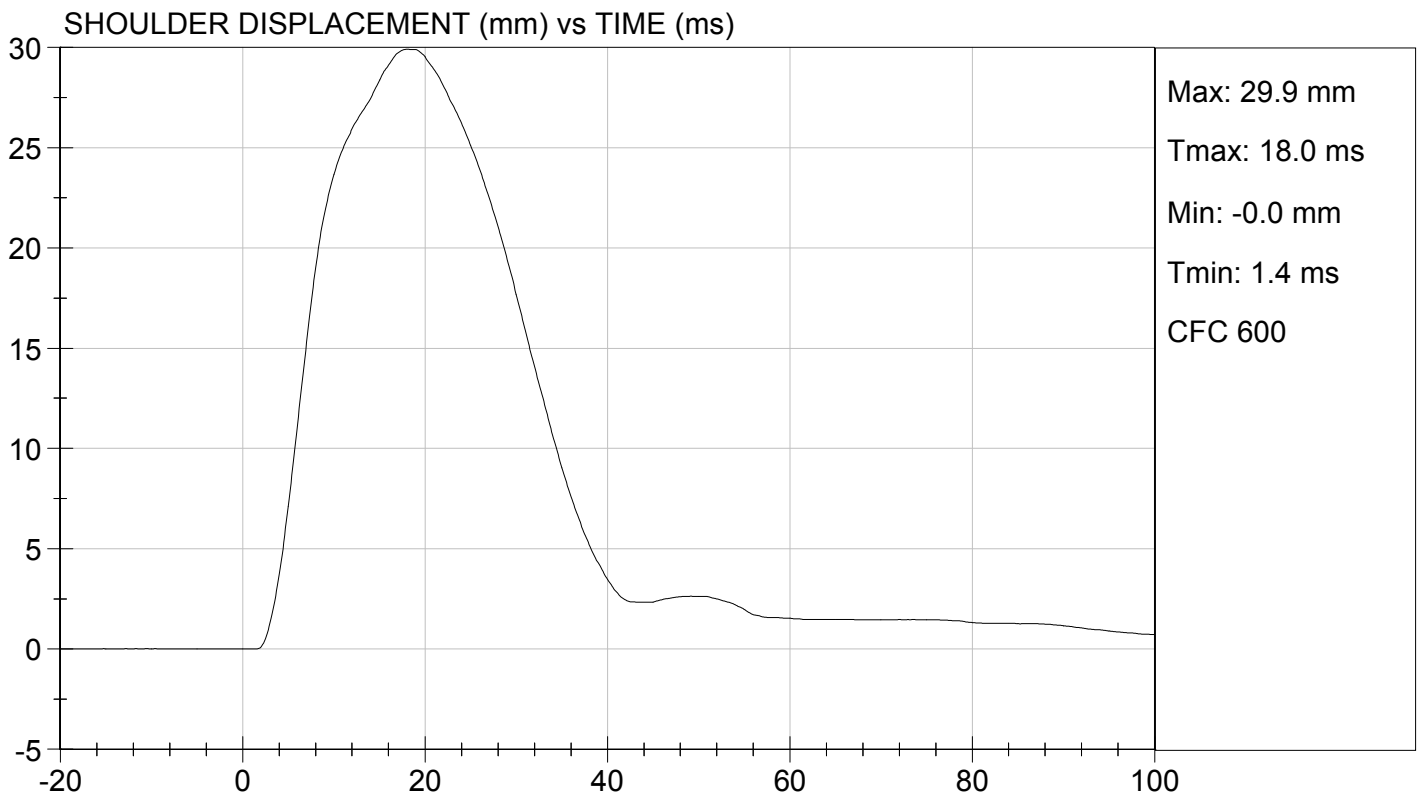
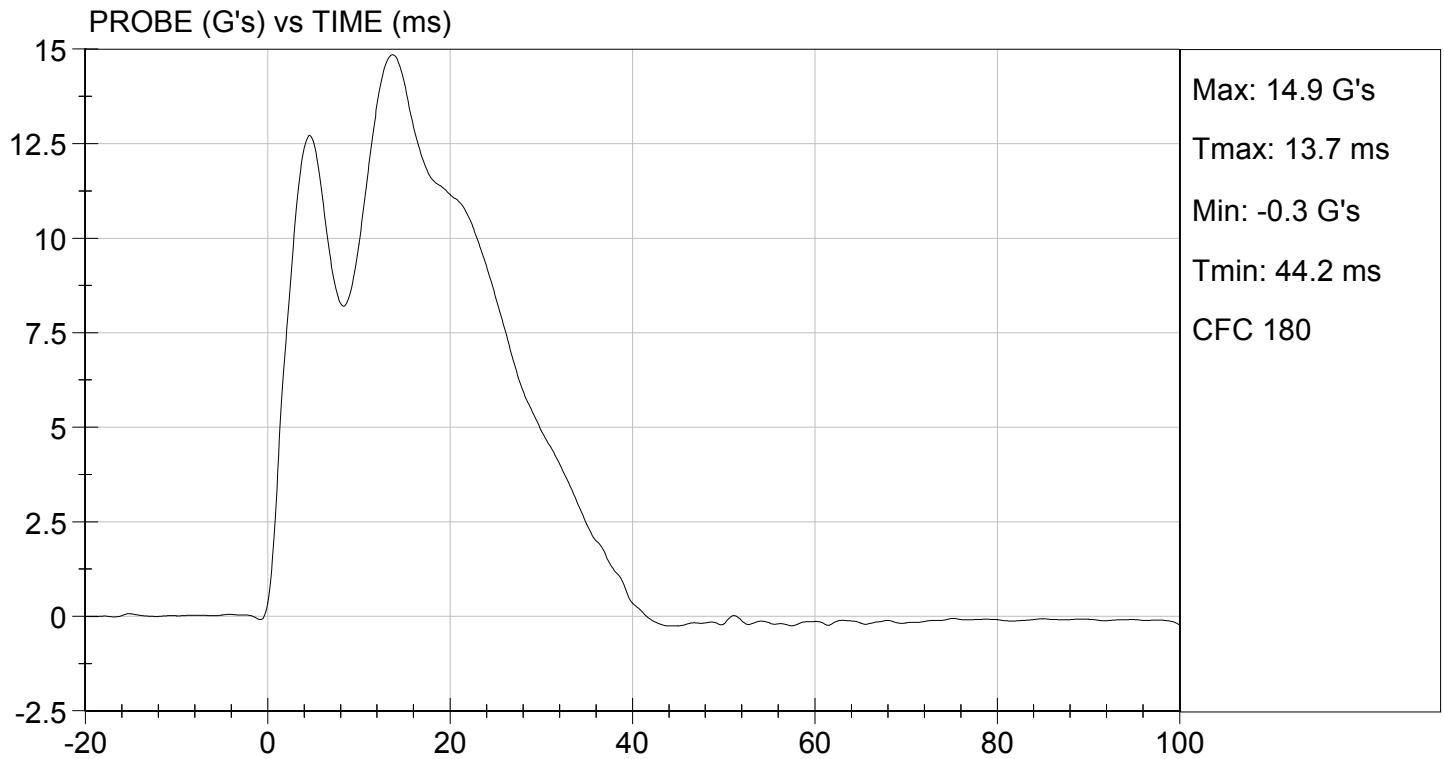
Test Date


Approved By



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

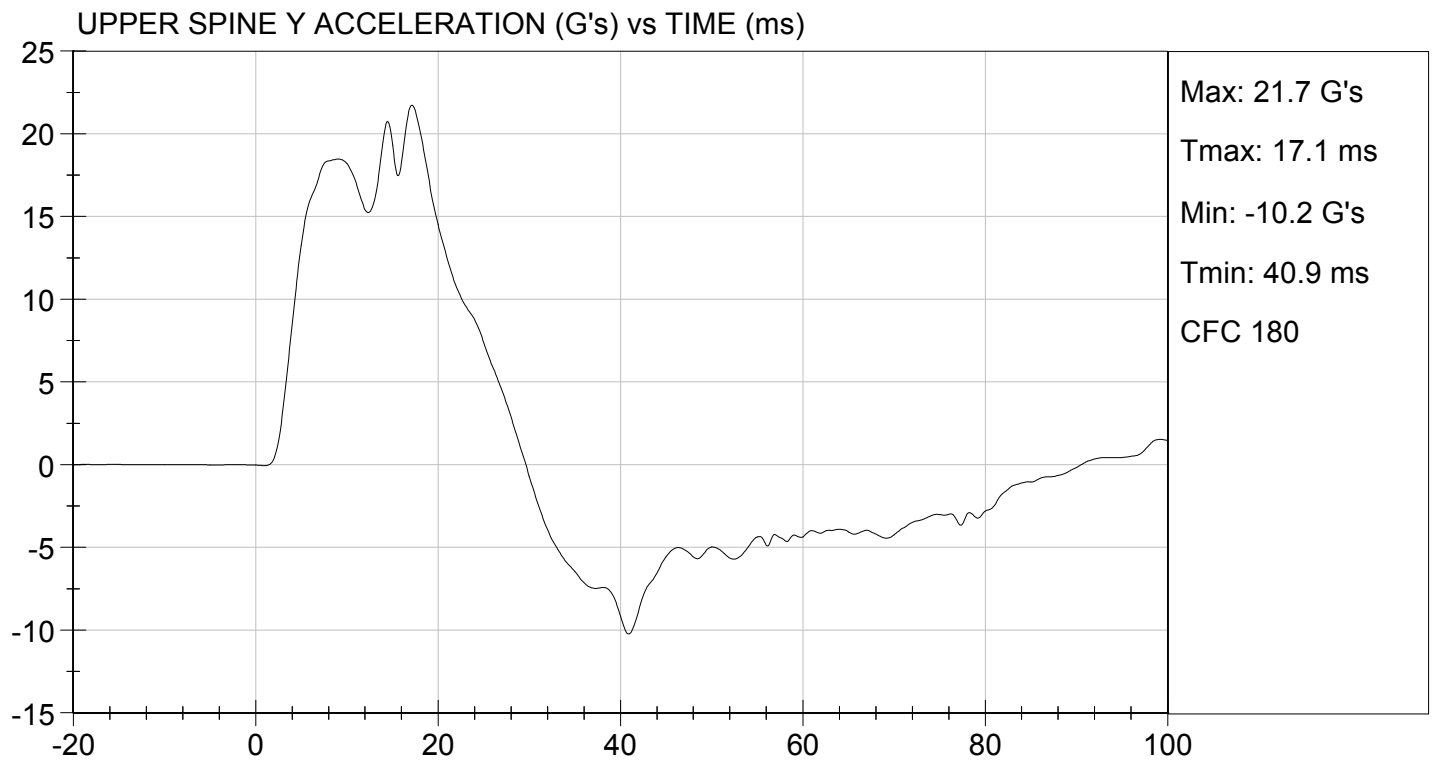
TEST DATE: 11/19/2014
TEST #: D144093





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

TEST DATE: 11/19/2014
TEST #: D144093



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

ATD Serial No: 306

Test I.D: D144094

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	15	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	35	Pass
Upper Rib Displacement	mm	25 to 32	28	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	33	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

11/19/2014

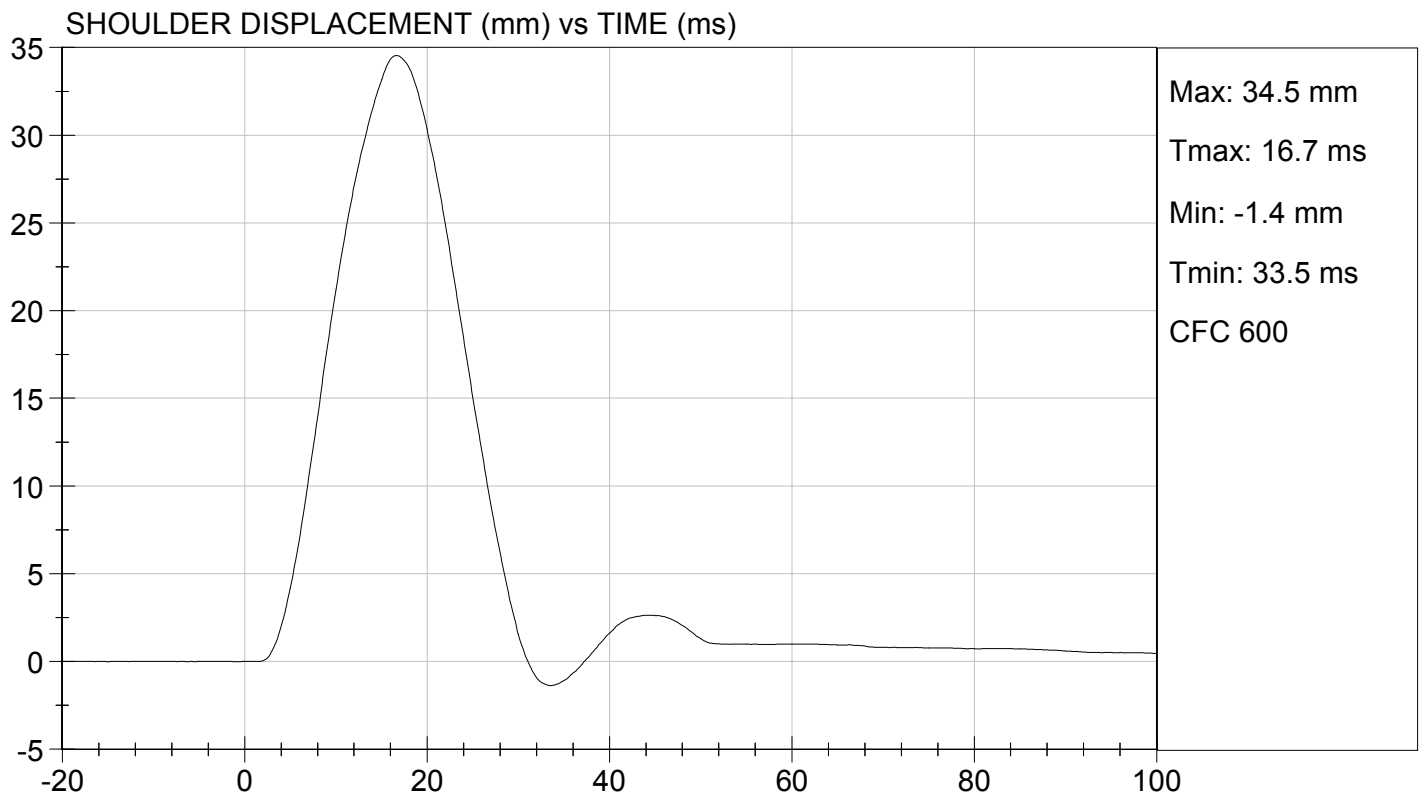
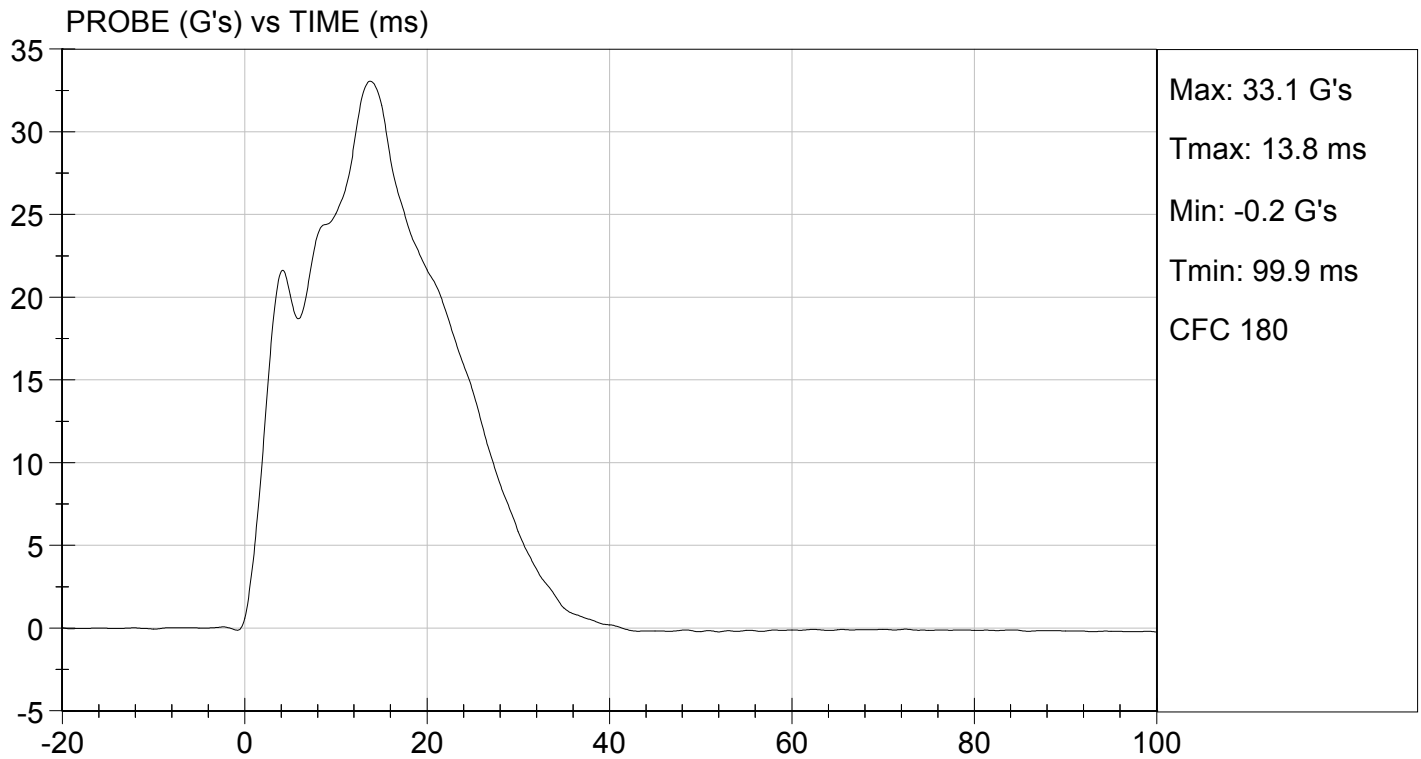
Test Date

Jessica Hall
Approved By



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

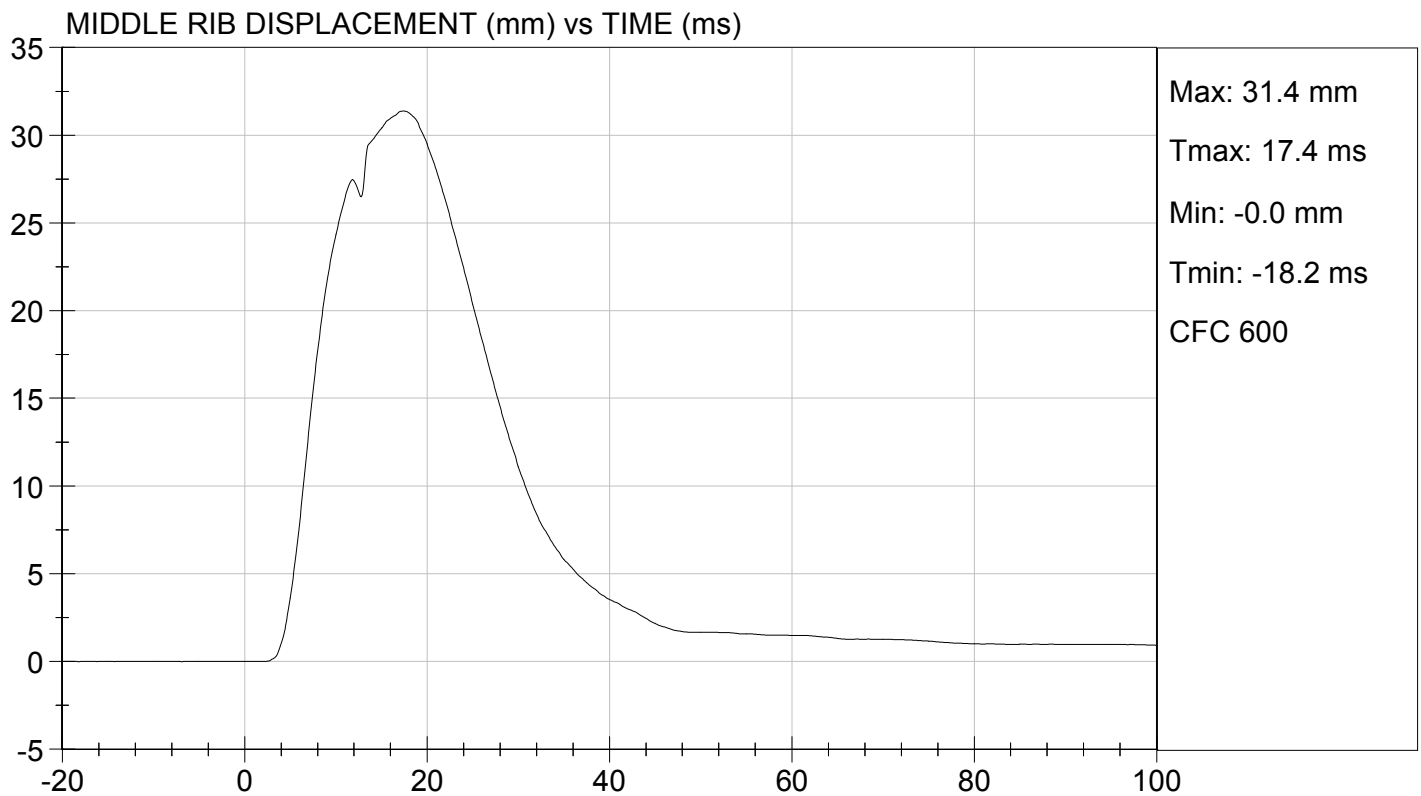
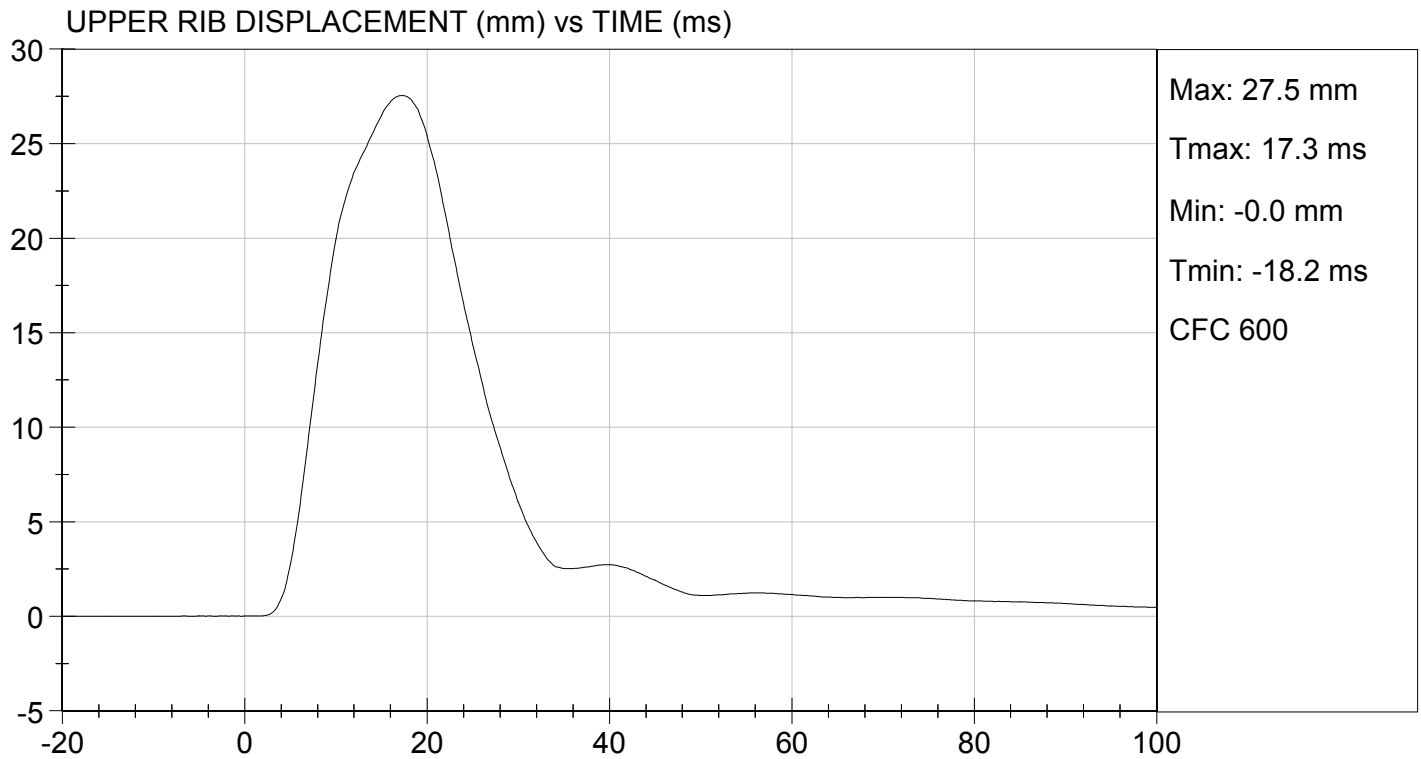
TEST DATE: 11/19/2014
TEST #: D144094





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

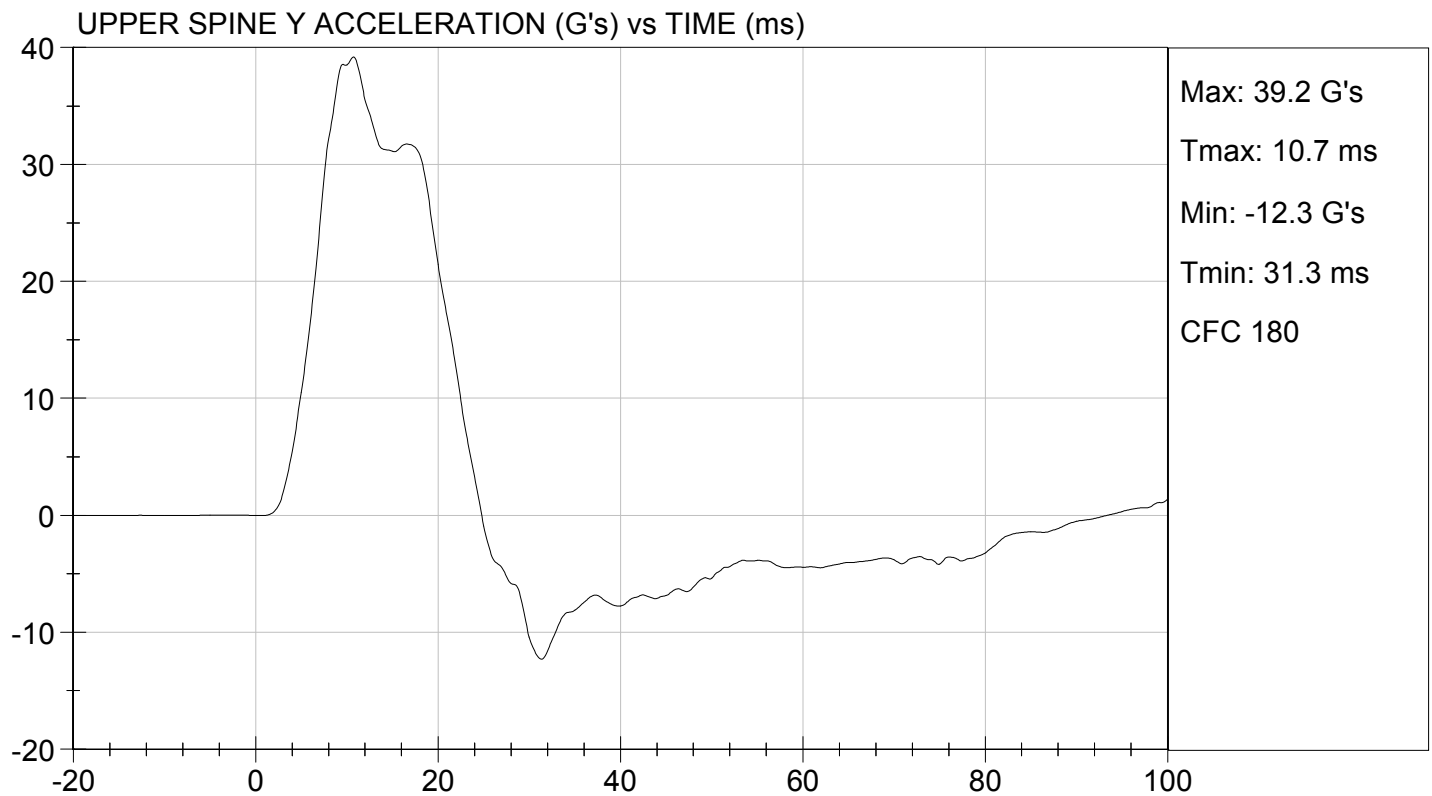
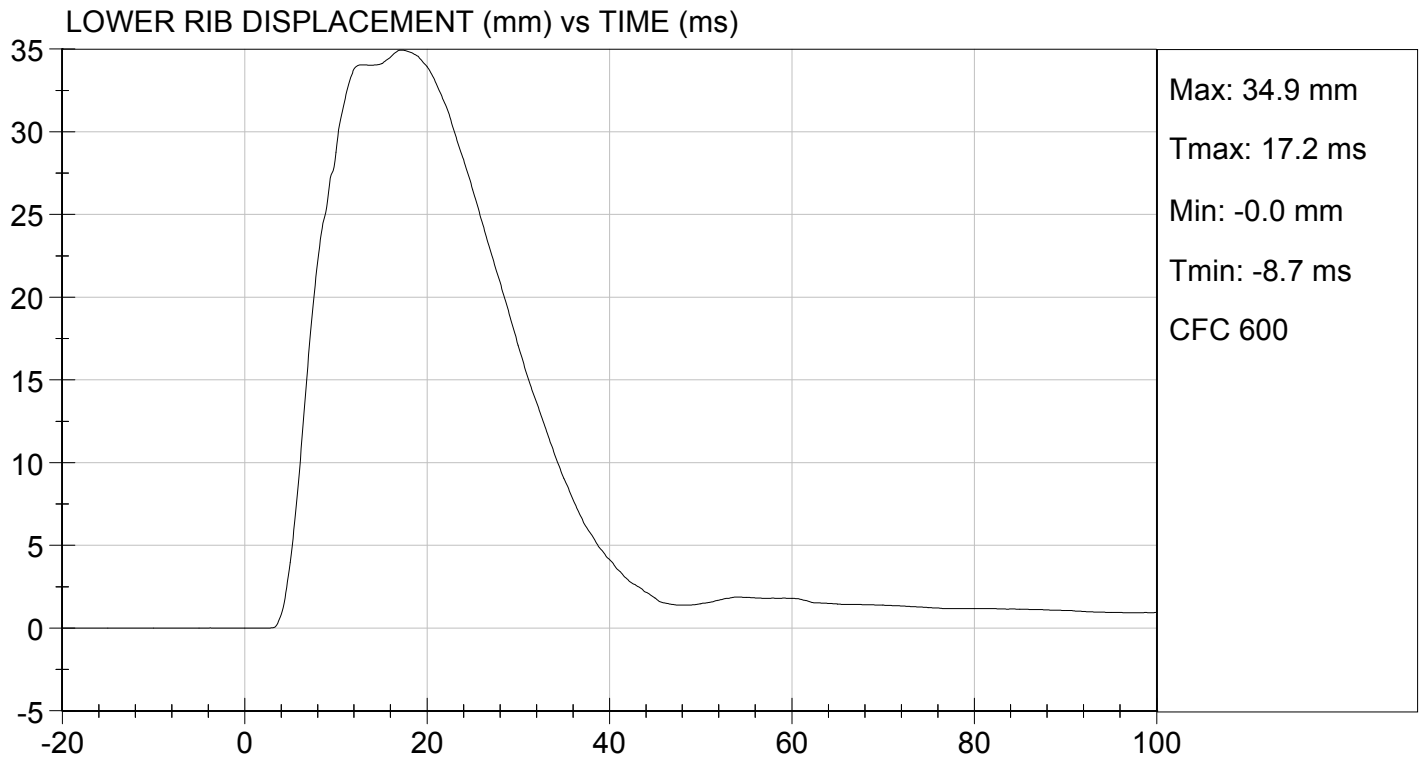
TEST DATE: 11/19/2014
TEST #: D144094





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

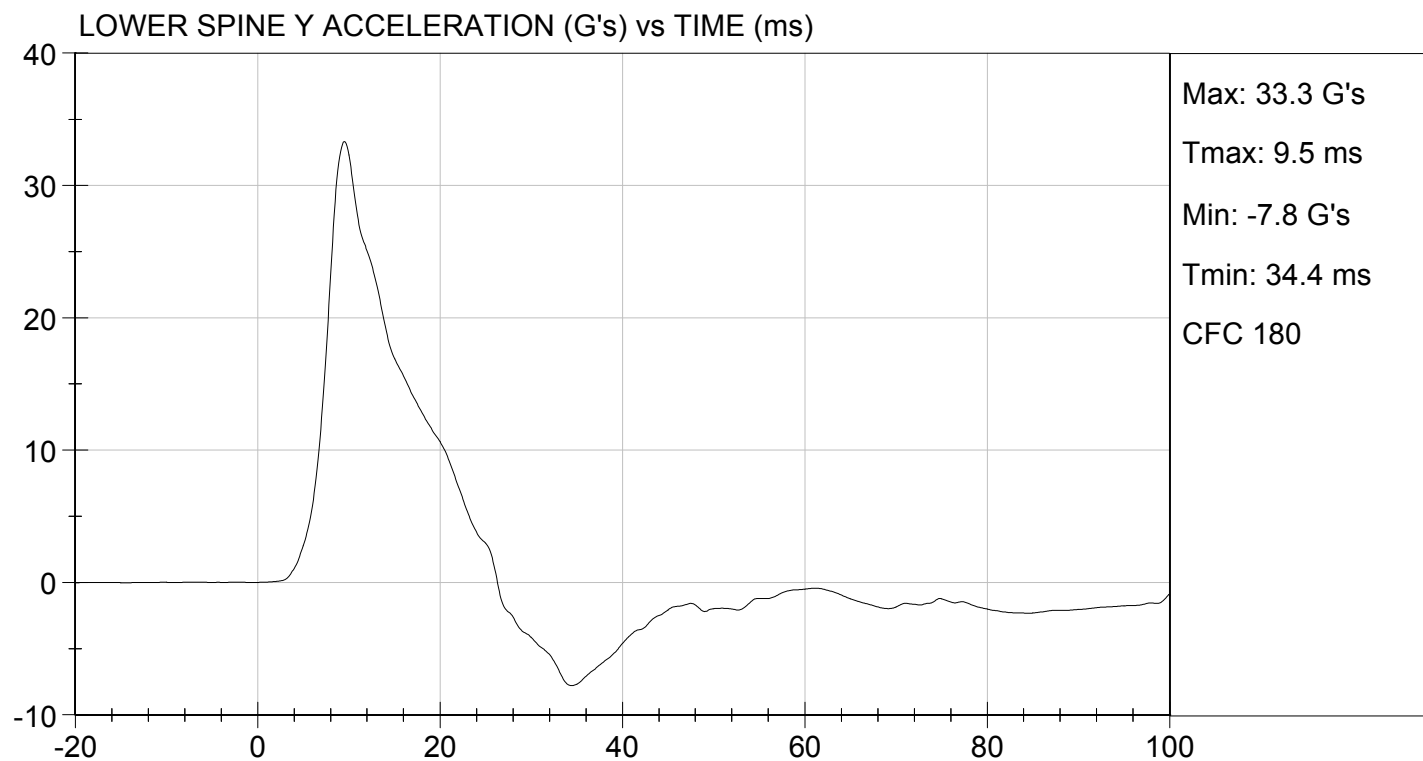
TEST DATE: 11/19/2014
TEST #: D144094





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

TEST DATE: 11/19/2014
TEST #: D144094



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

ATD Serial No: 306

Test I.D: D144095

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	15	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	34	Pass
Middle Rib Displacement	mm	39 to 45	41	Pass
Lower Rib Displacement	mm	35 to 43	41	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	10	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

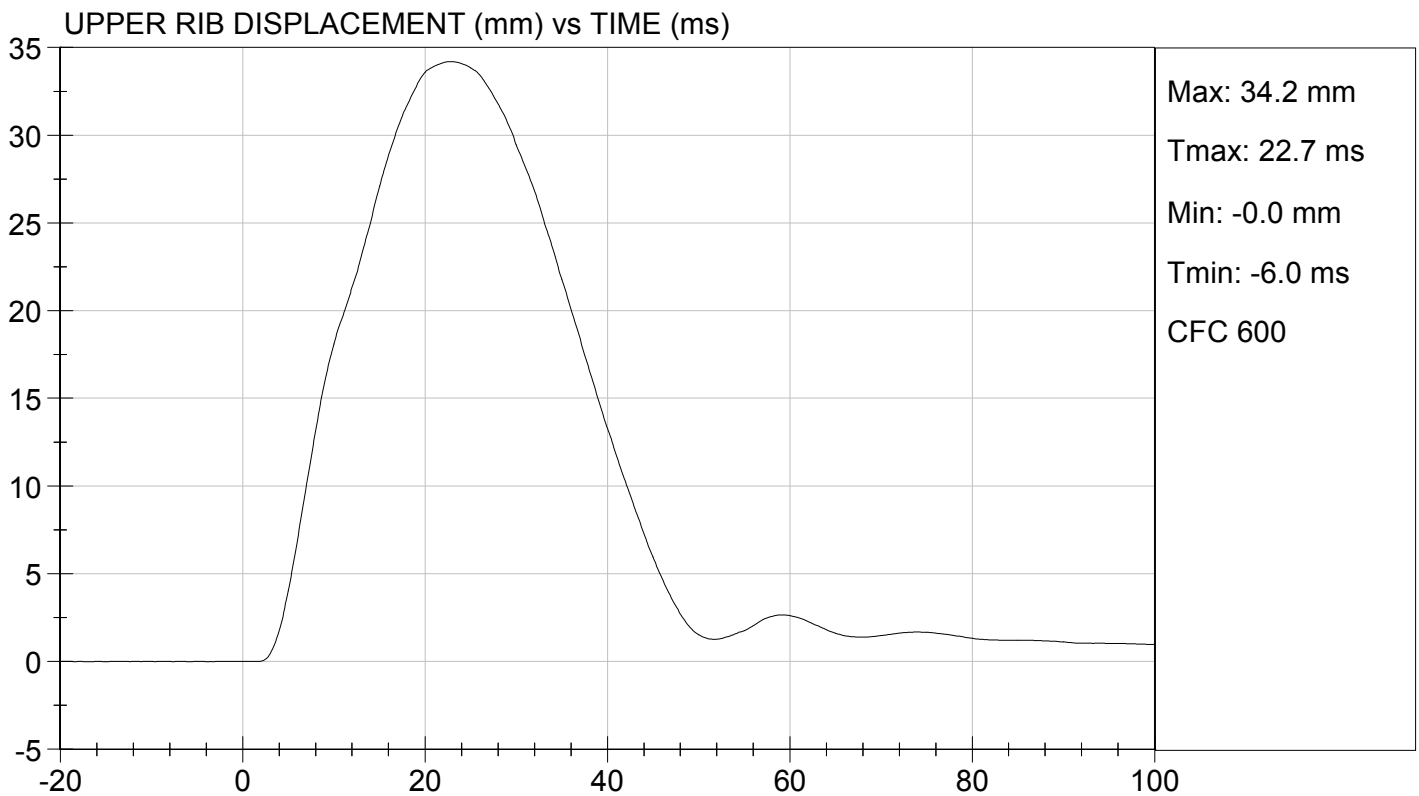
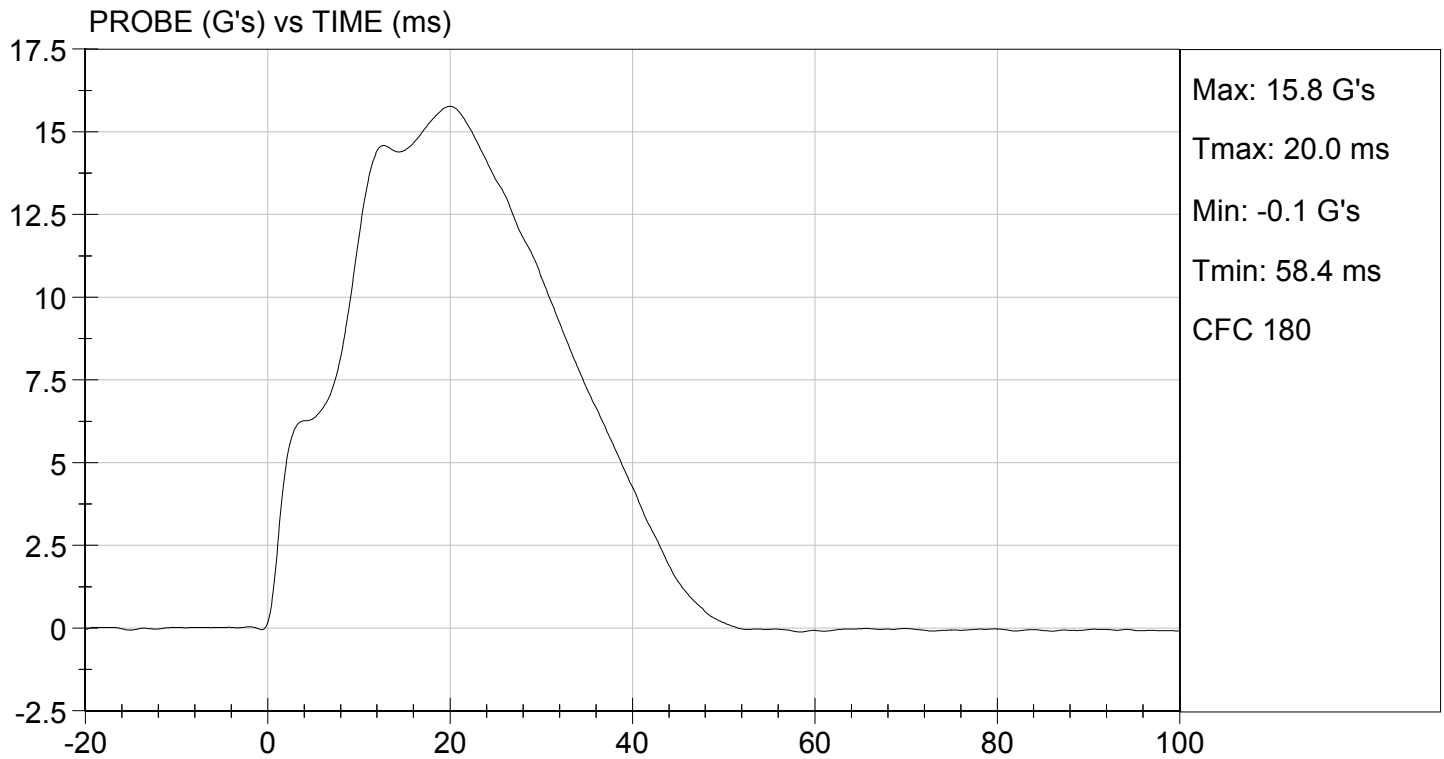
11/19/2014
Test Date

Jessica Hall
Approved By



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

TEST DATE: 11/19/2014
TEST #: D144095

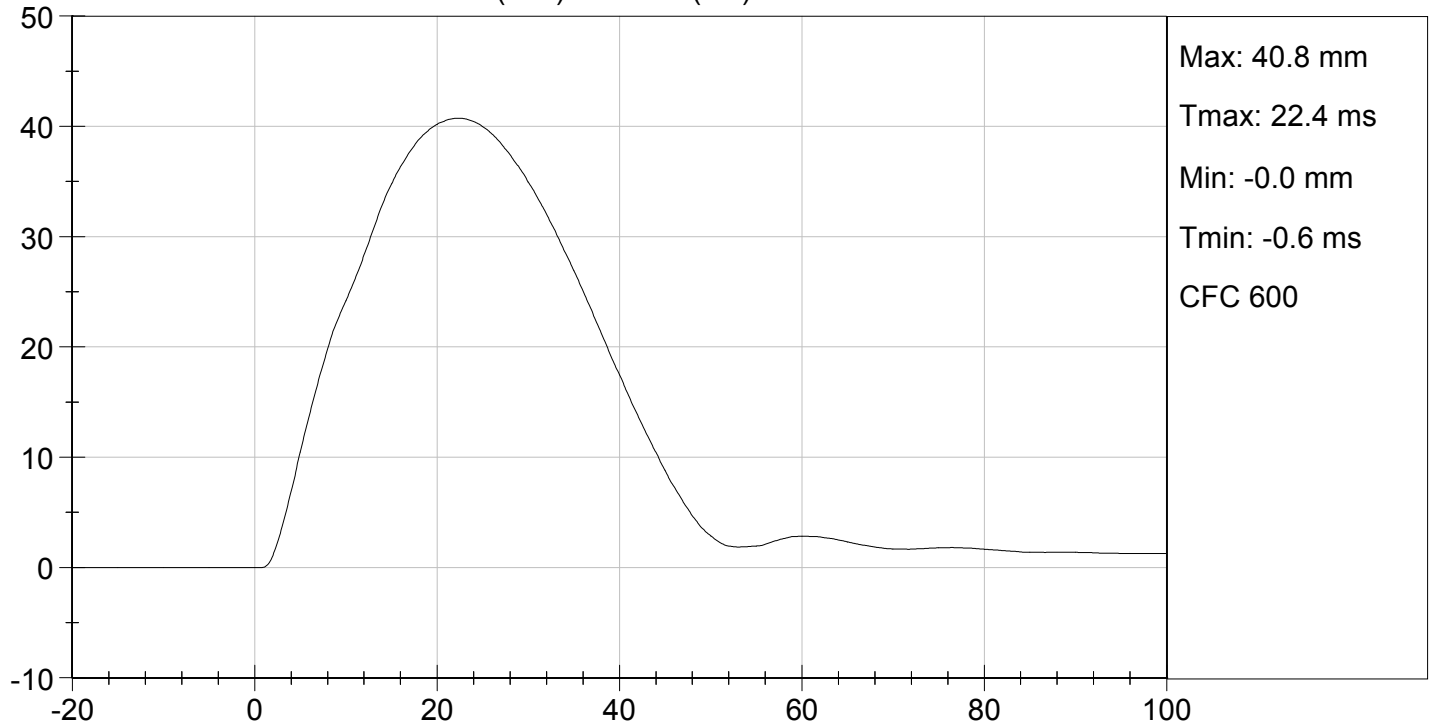




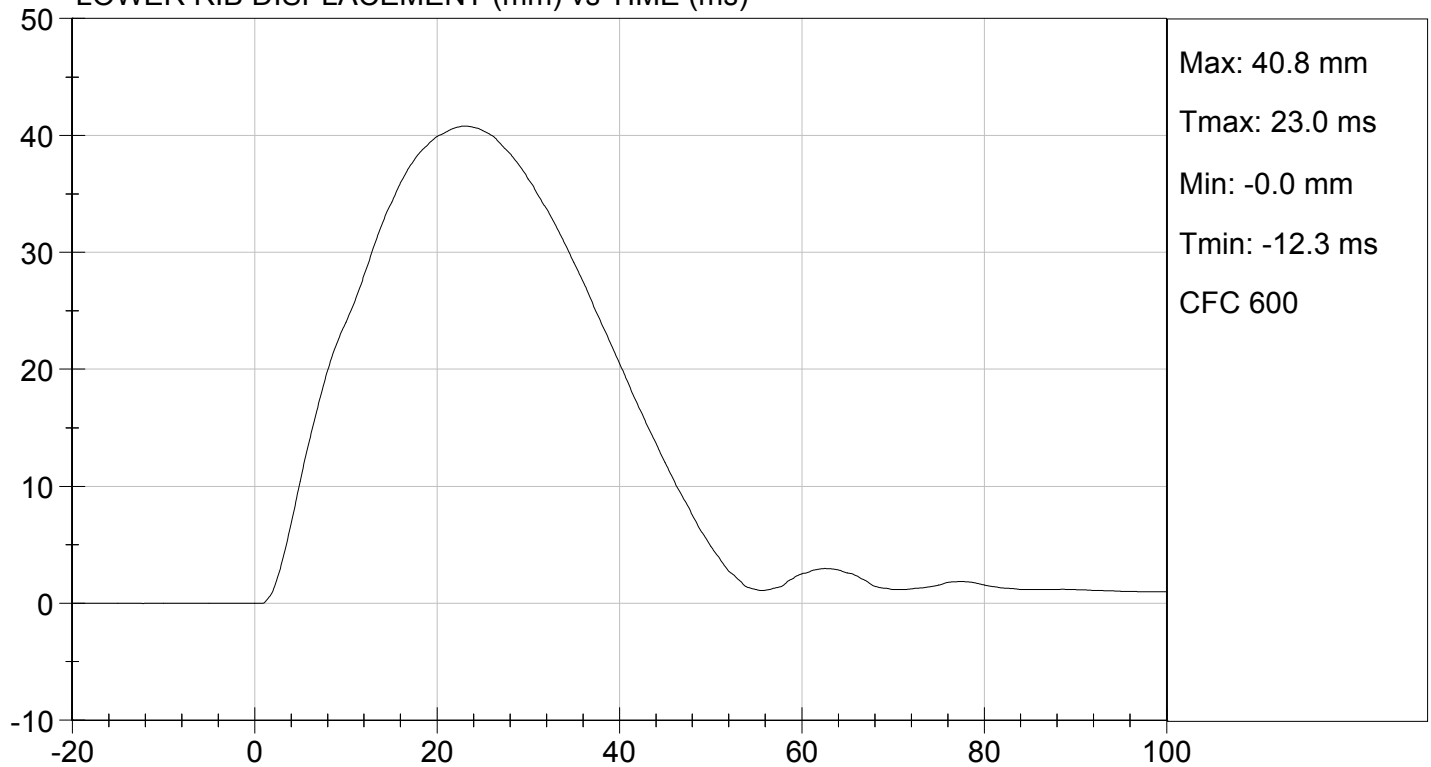
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/19/2014
TEST #: D144095

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

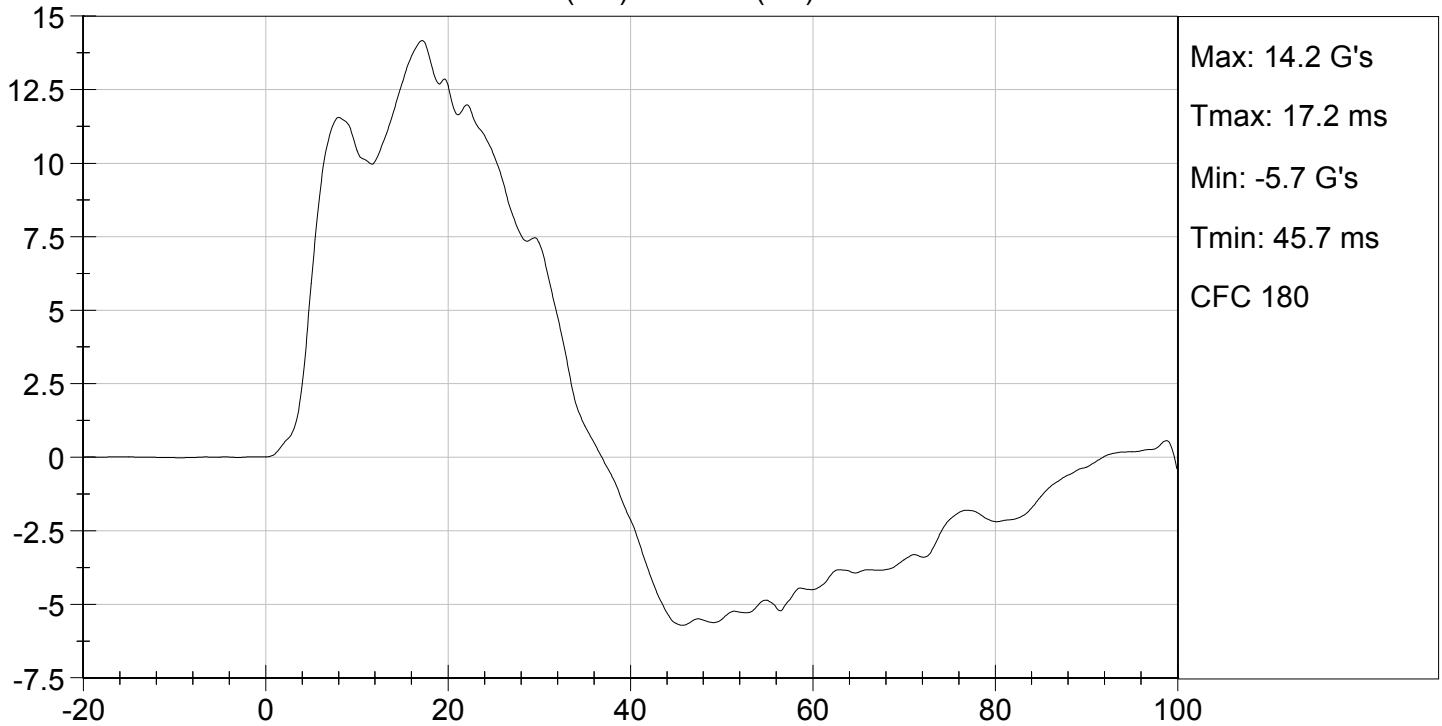




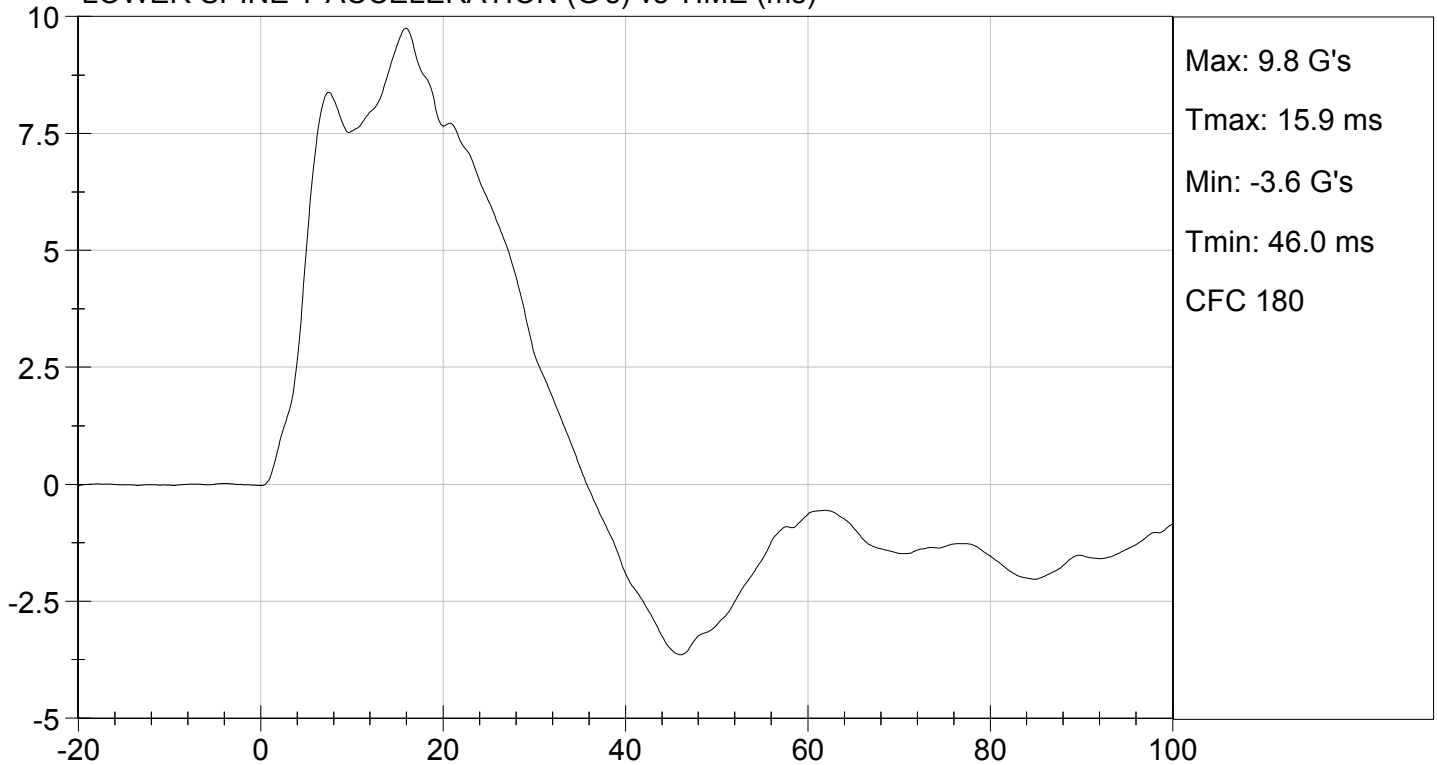
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/19/2014
TEST #: D144095

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: D144096

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	15	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	39	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

11/19/2014

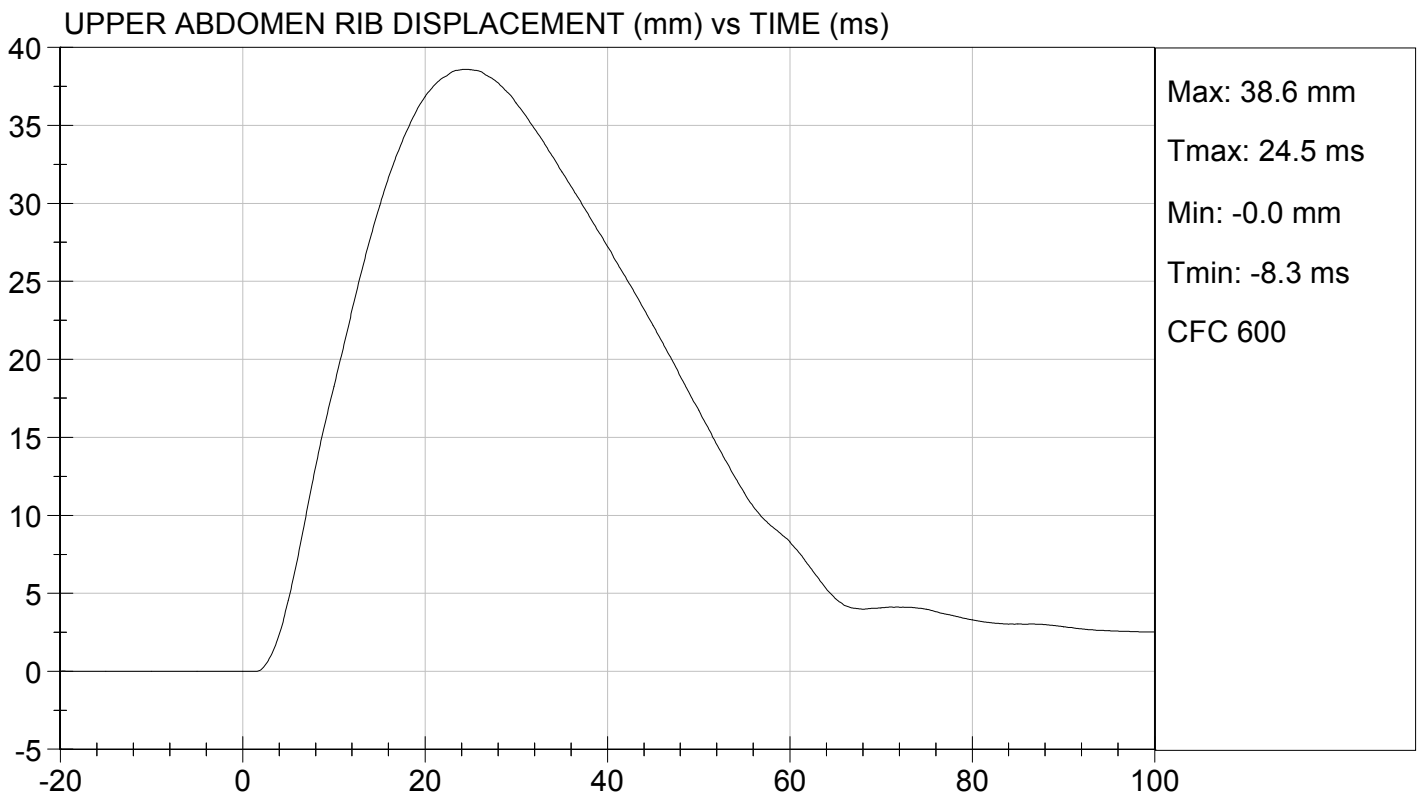
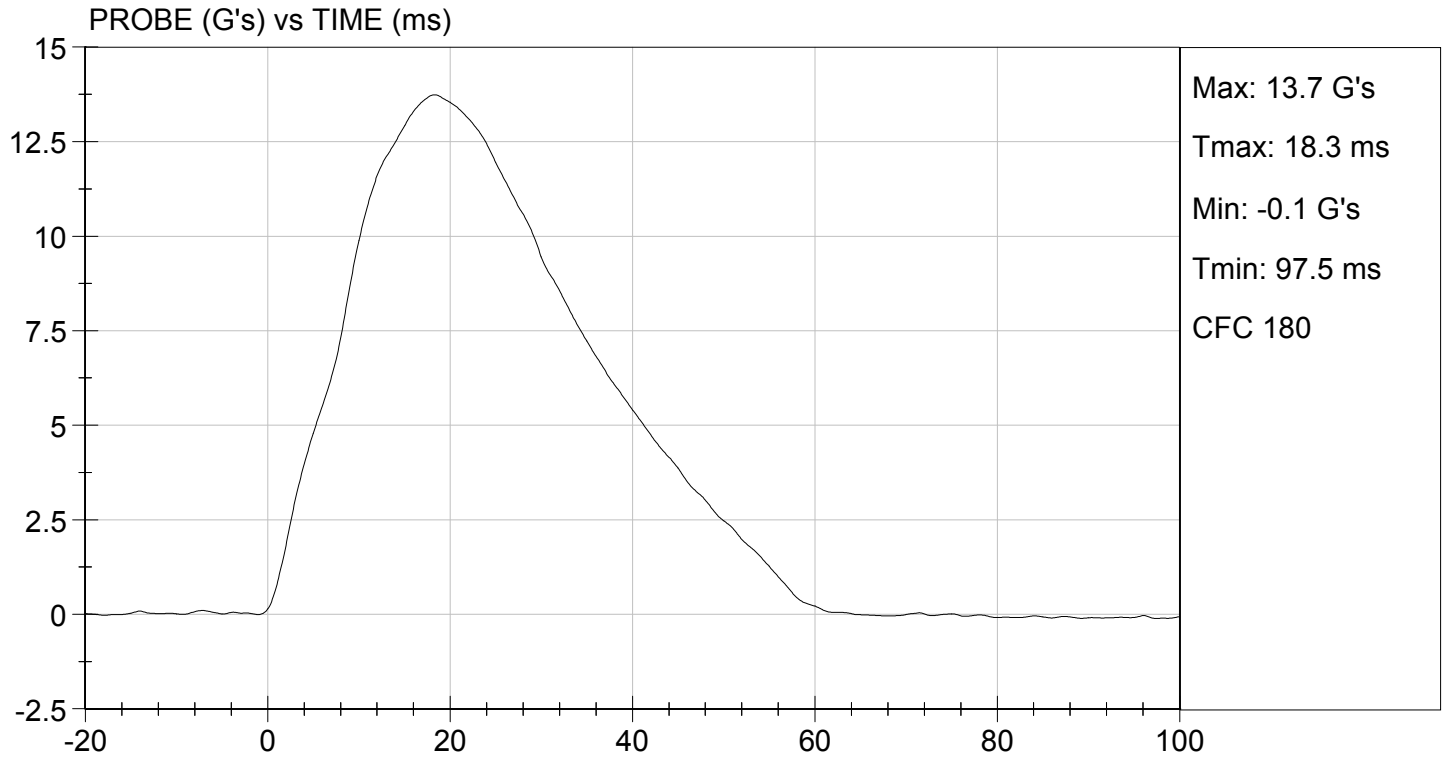
Test Date

Jessica Hall
Approved By



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

TEST DATE: 11/19/2014
TEST #: D144096

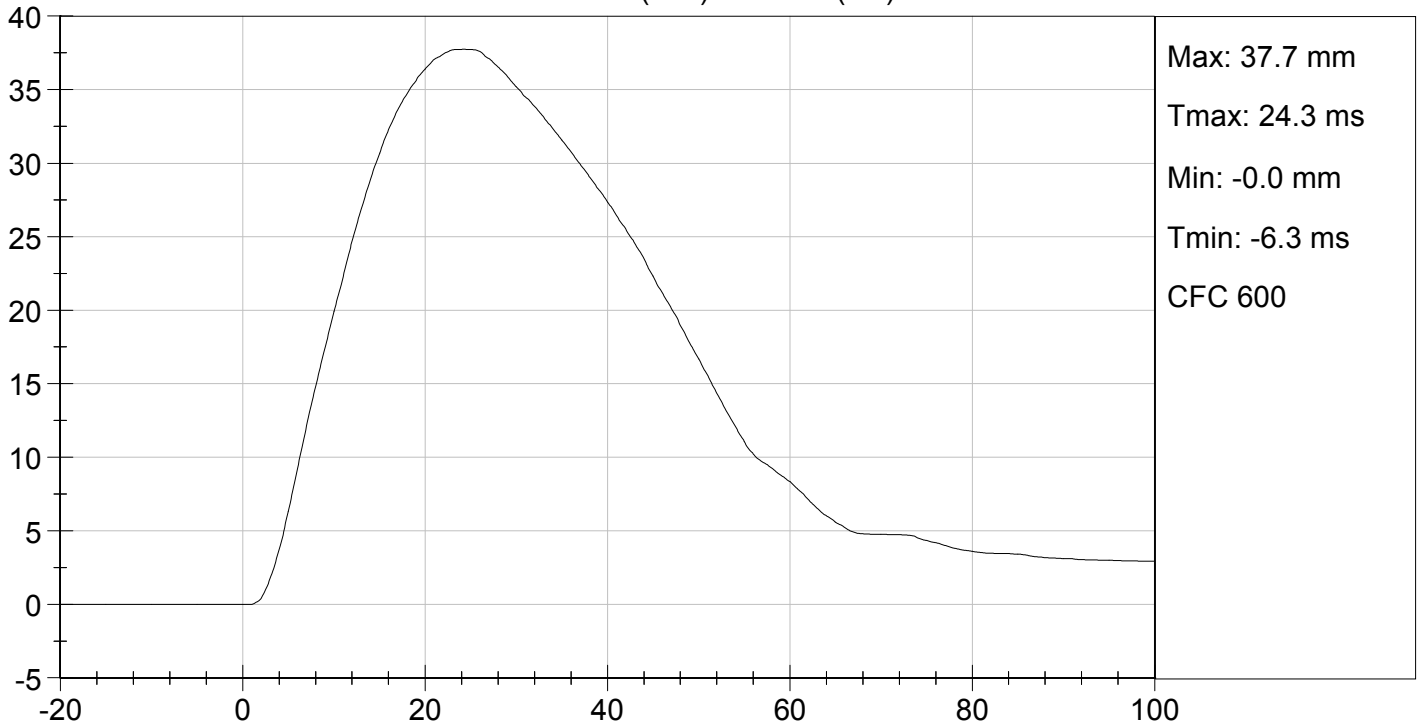




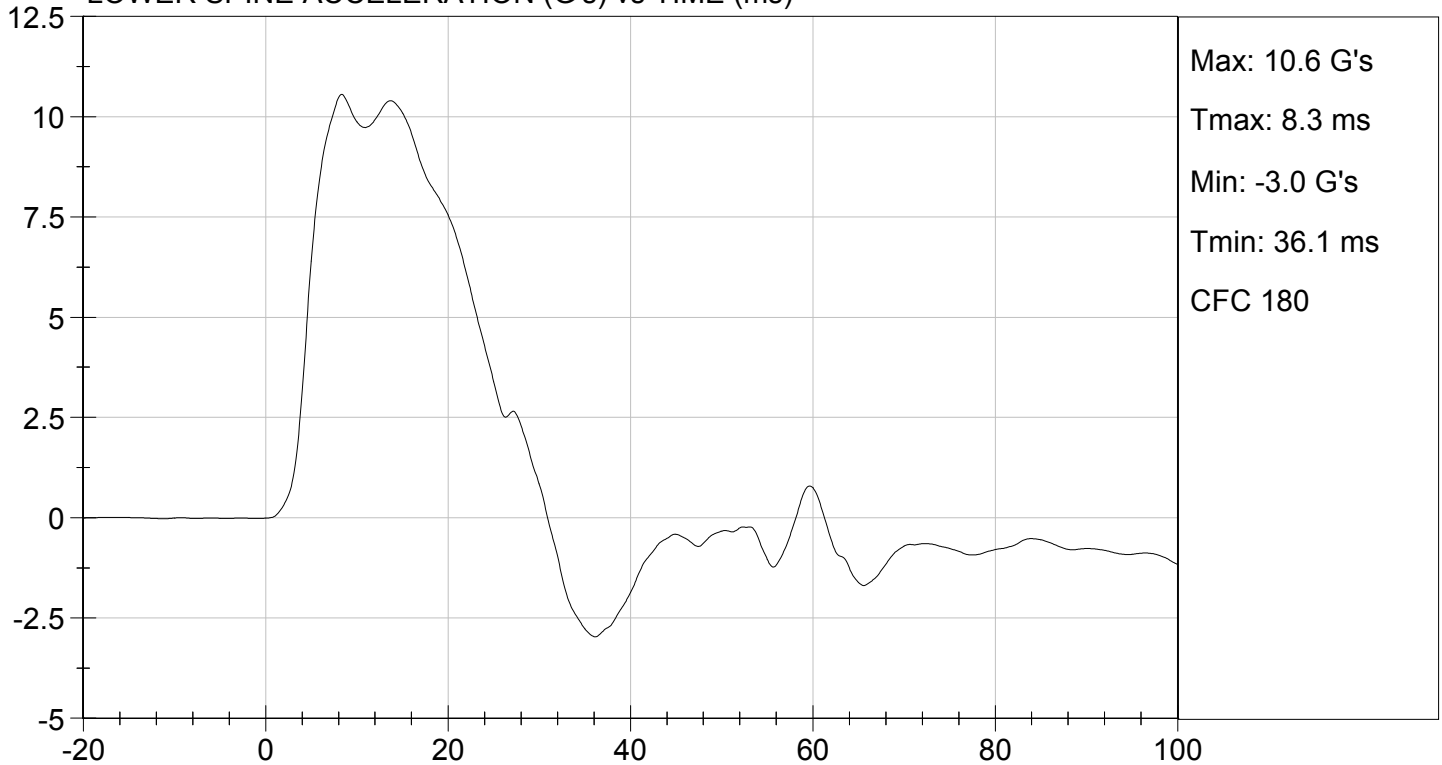
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 11/19/2014
TEST #: D144096

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: D144097

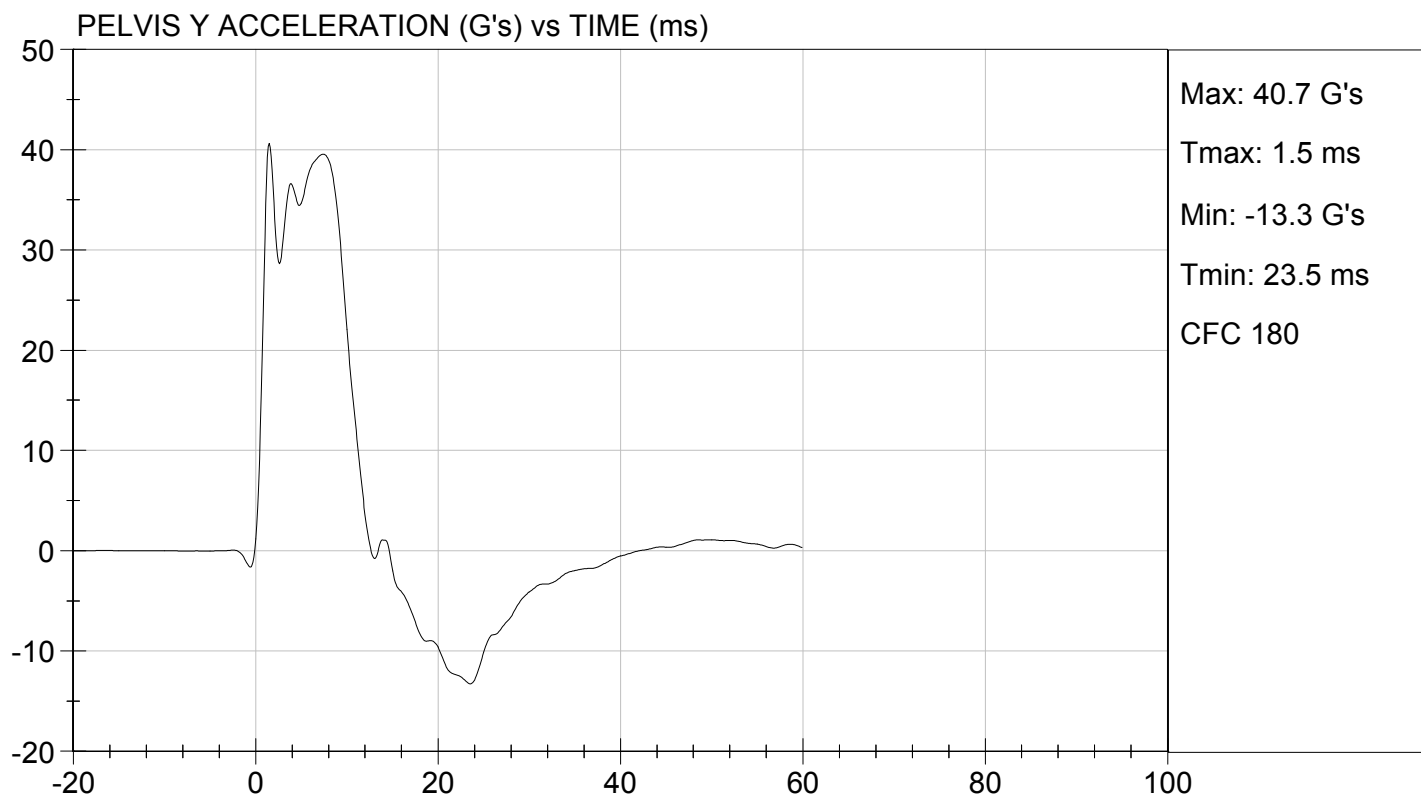
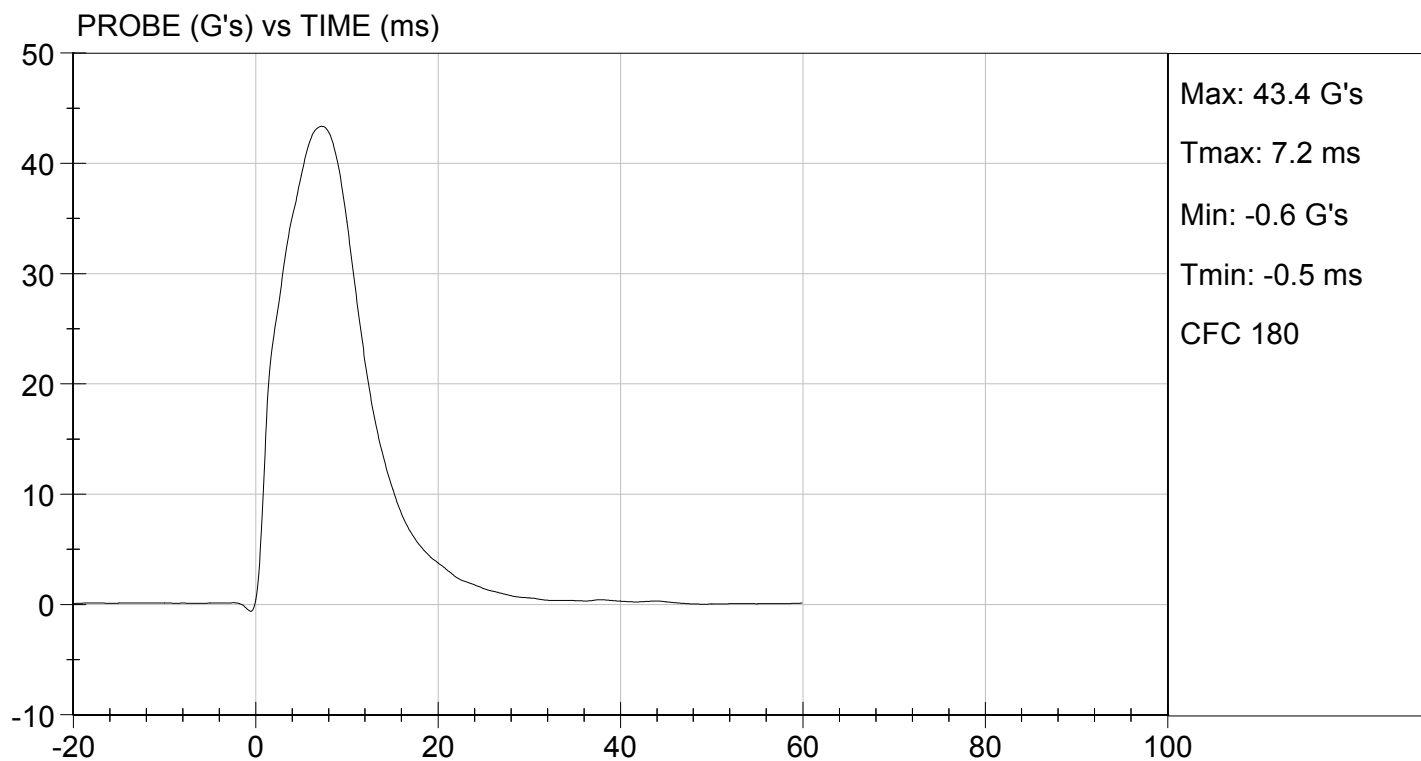
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	15	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	4,067	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

11/19/2014

Test Date

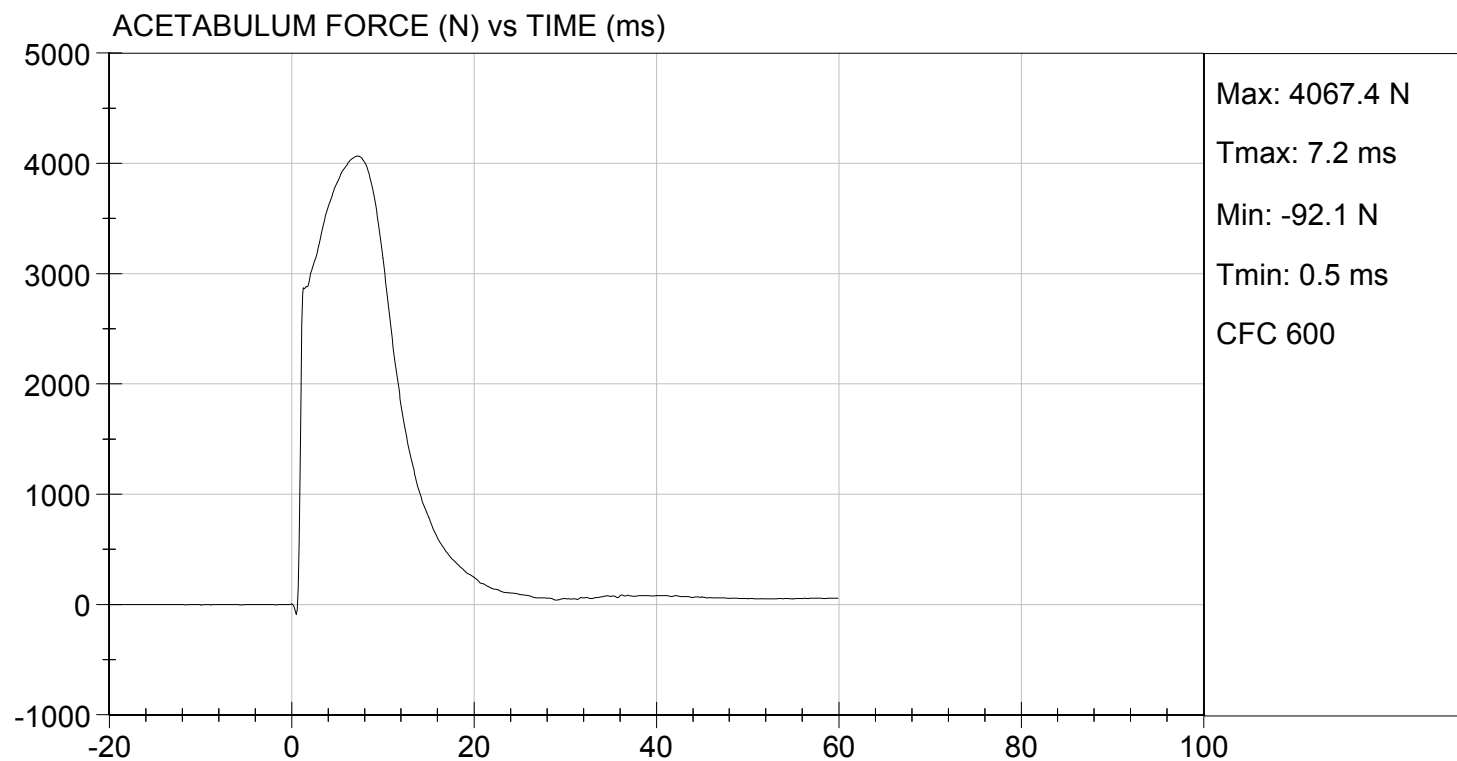
Jessica Hall
Approved By





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

TEST DATE: 11/19/2014
TEST #: D144097



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D144098

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	15	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	30	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,481	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

11/19/2014

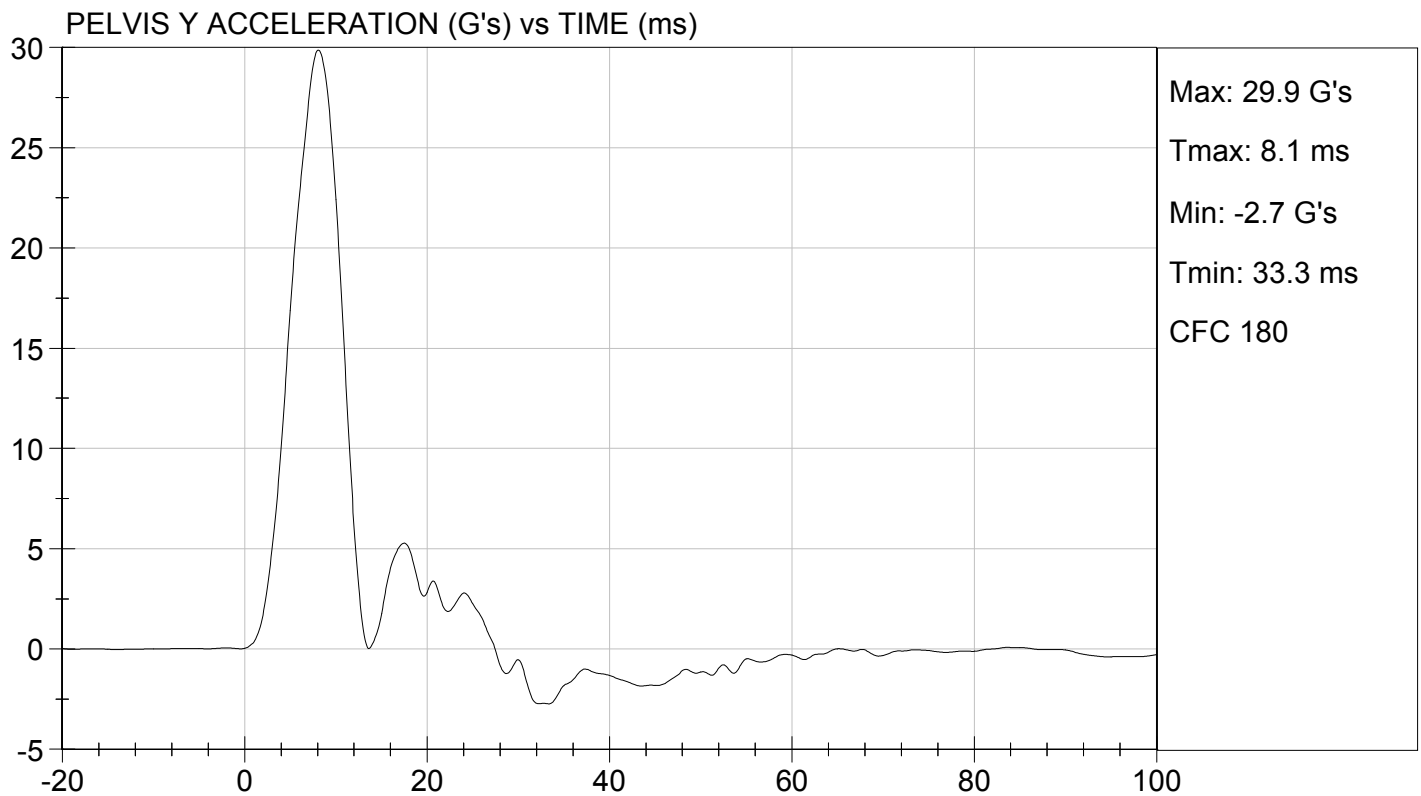
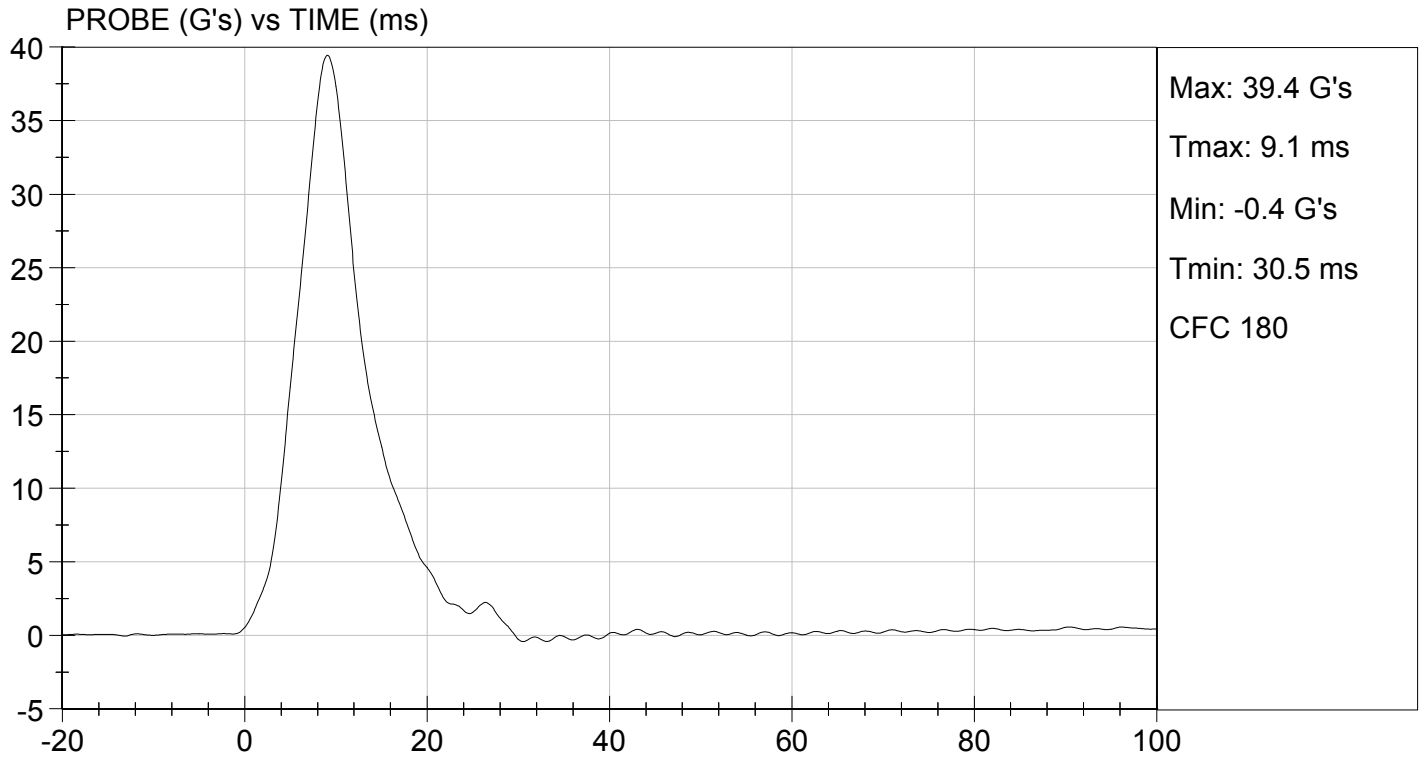
Test Date

Jessica Hall
Approved By



TEST DESC: ILLIAC
VELOCITY: 14.12 ft/s, 4.30 m/s

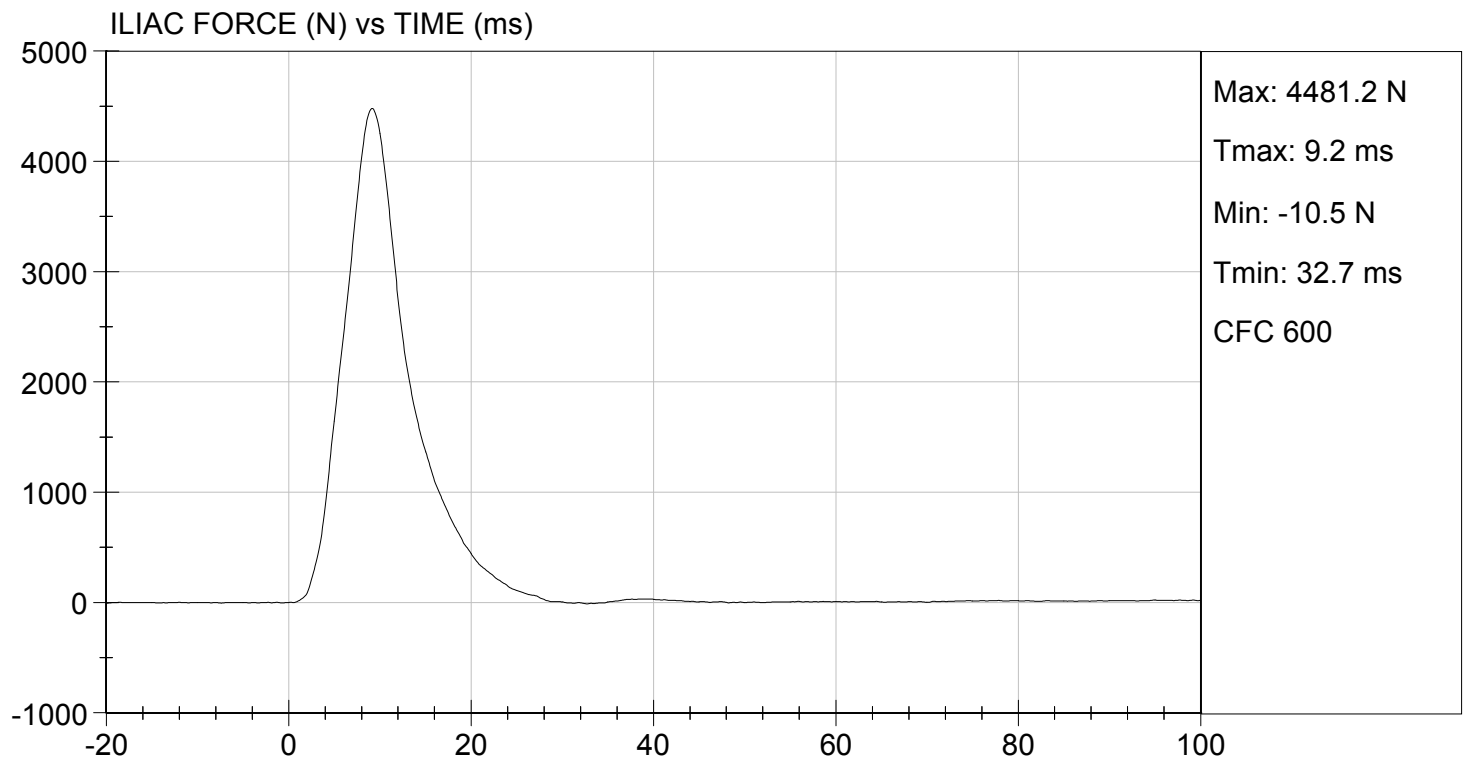
TEST DATE: 11/19/2014
TEST #: D144098





TEST DESC: ILLIAC
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/19/2014
TEST #: D144098



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: D144251

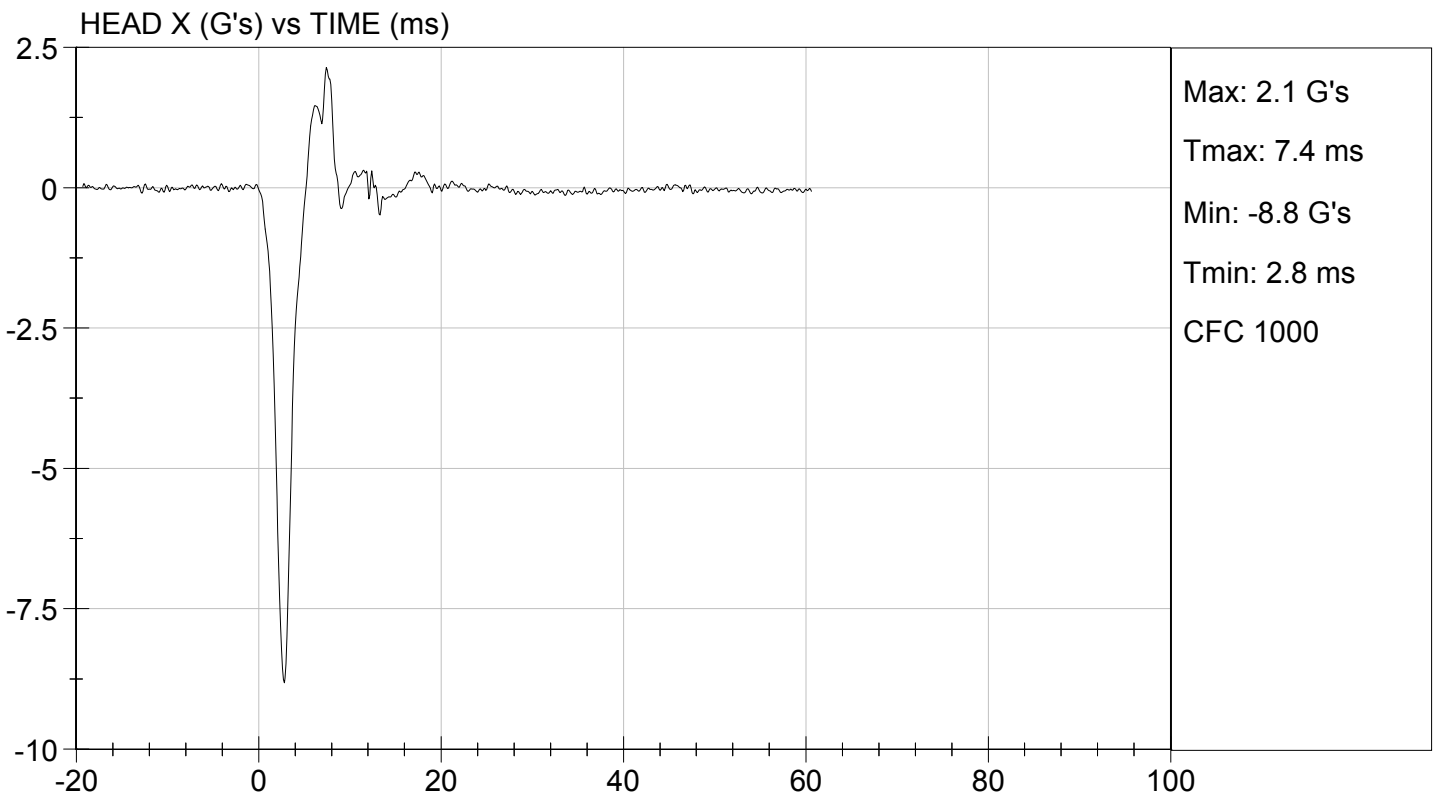
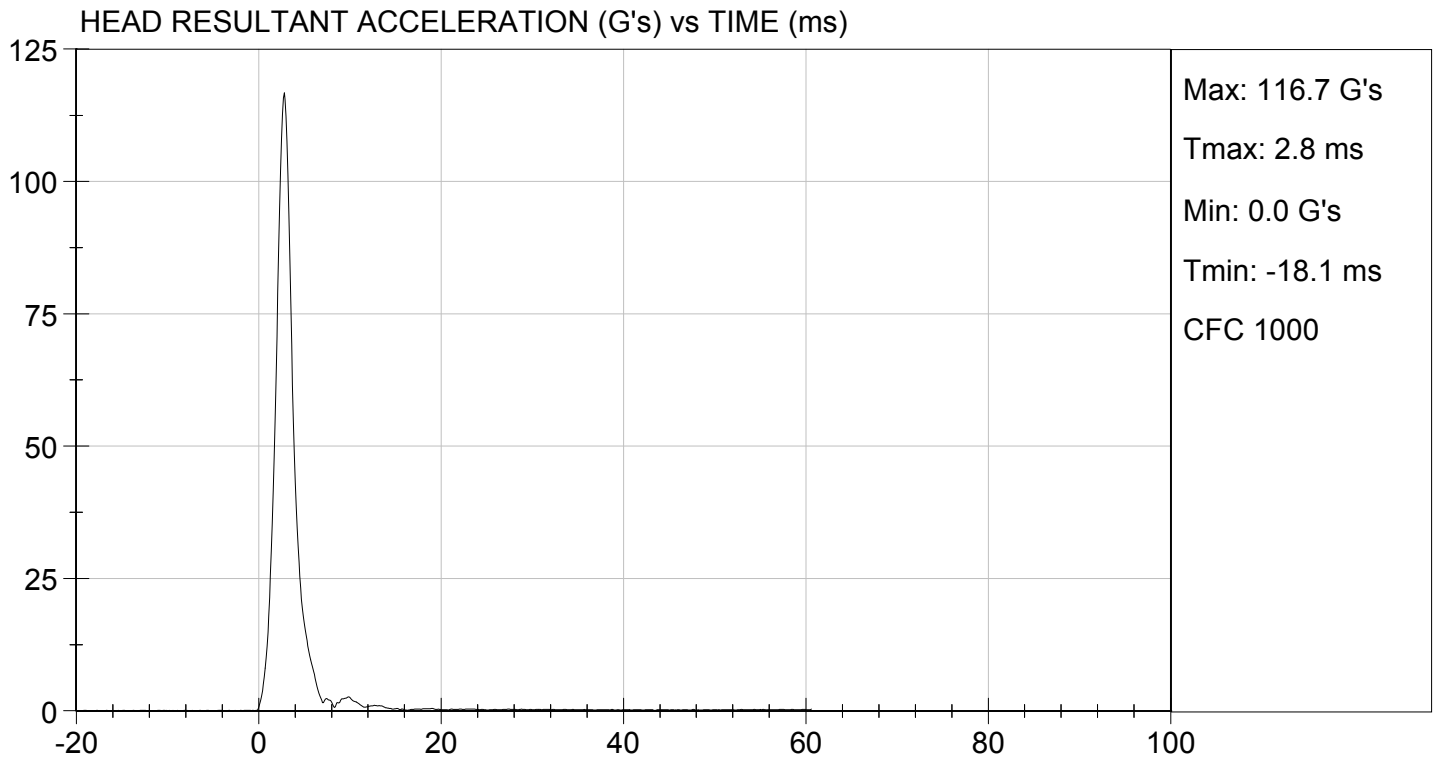
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Peak Resultant Acceleration	G's	115 to 137	117	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-8.8	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results			Pass	

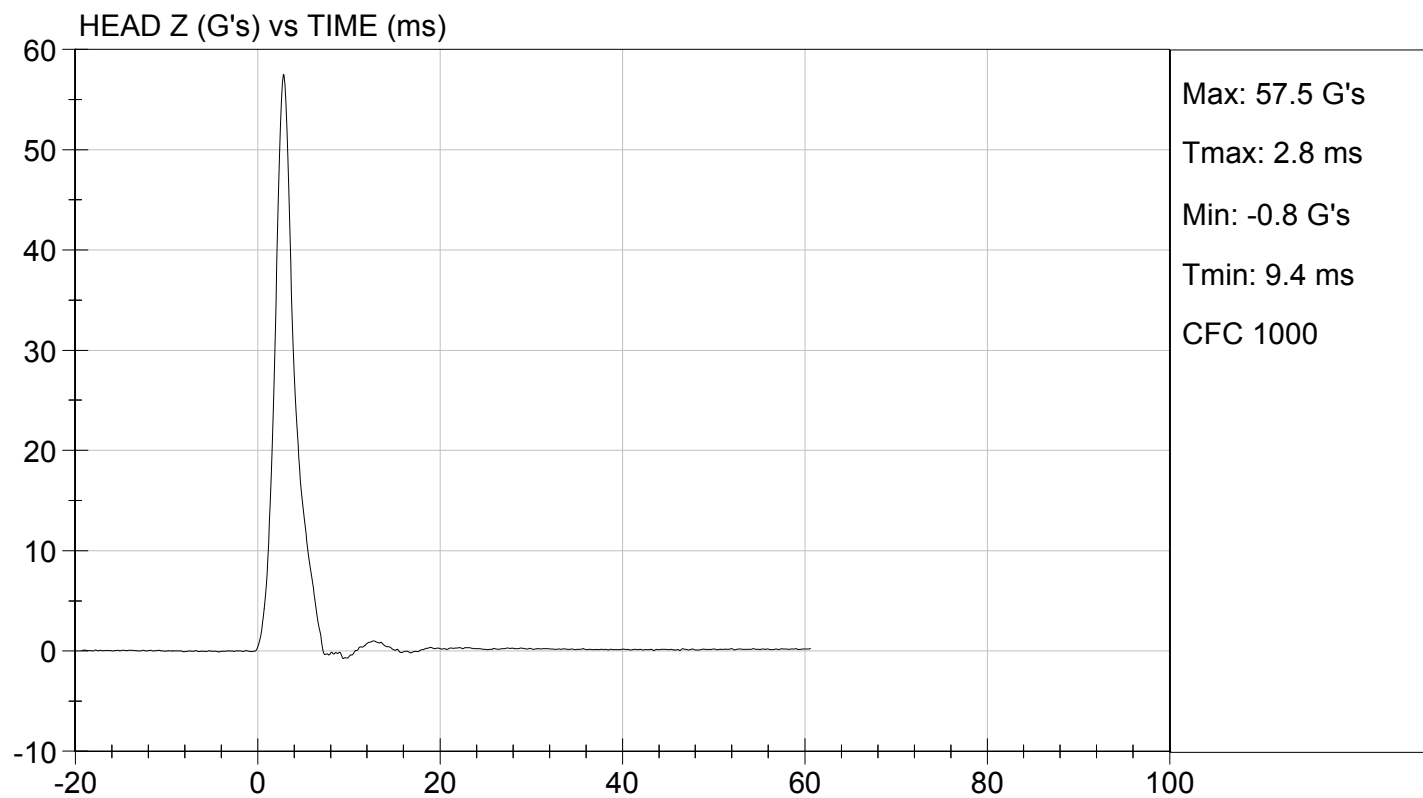
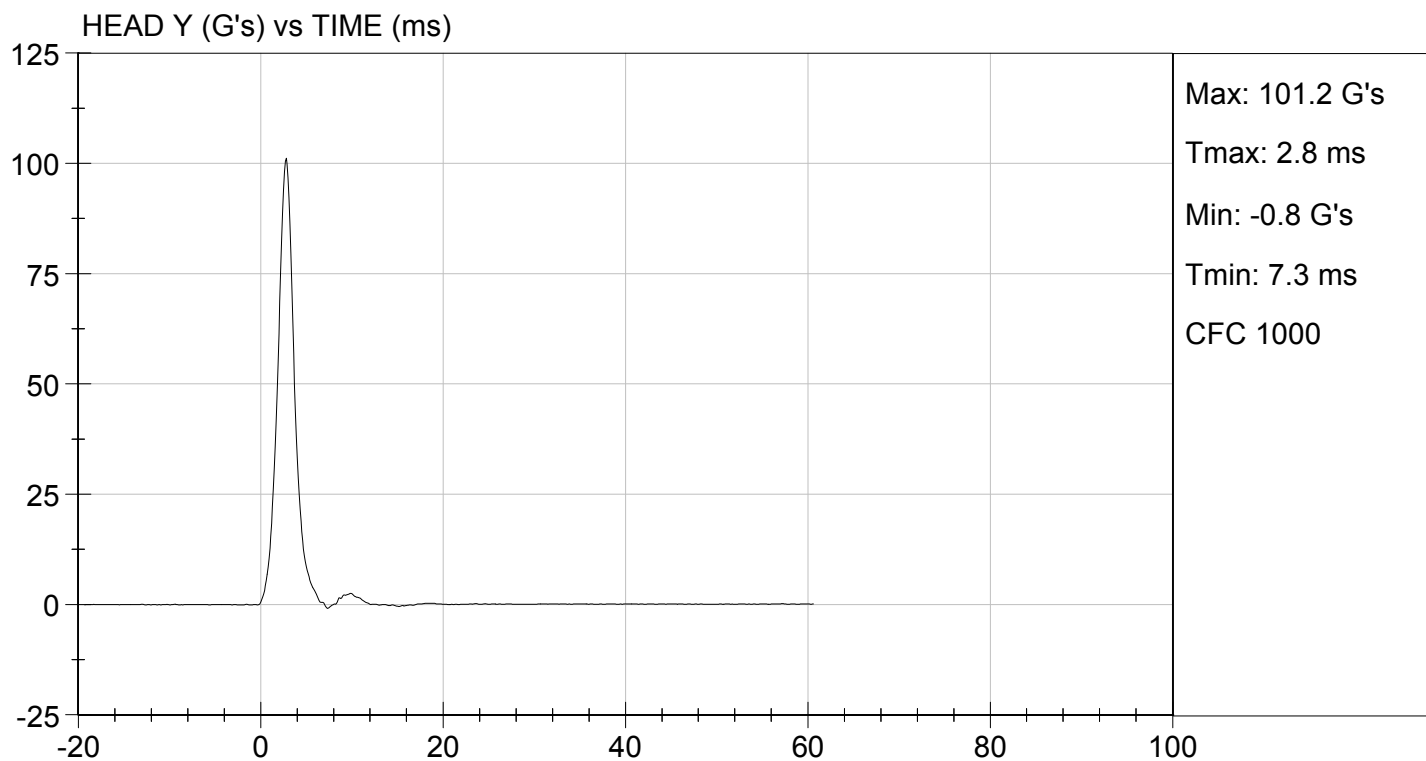
David Schoedel
Laboratory Technician

12/02/2014

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: D144252

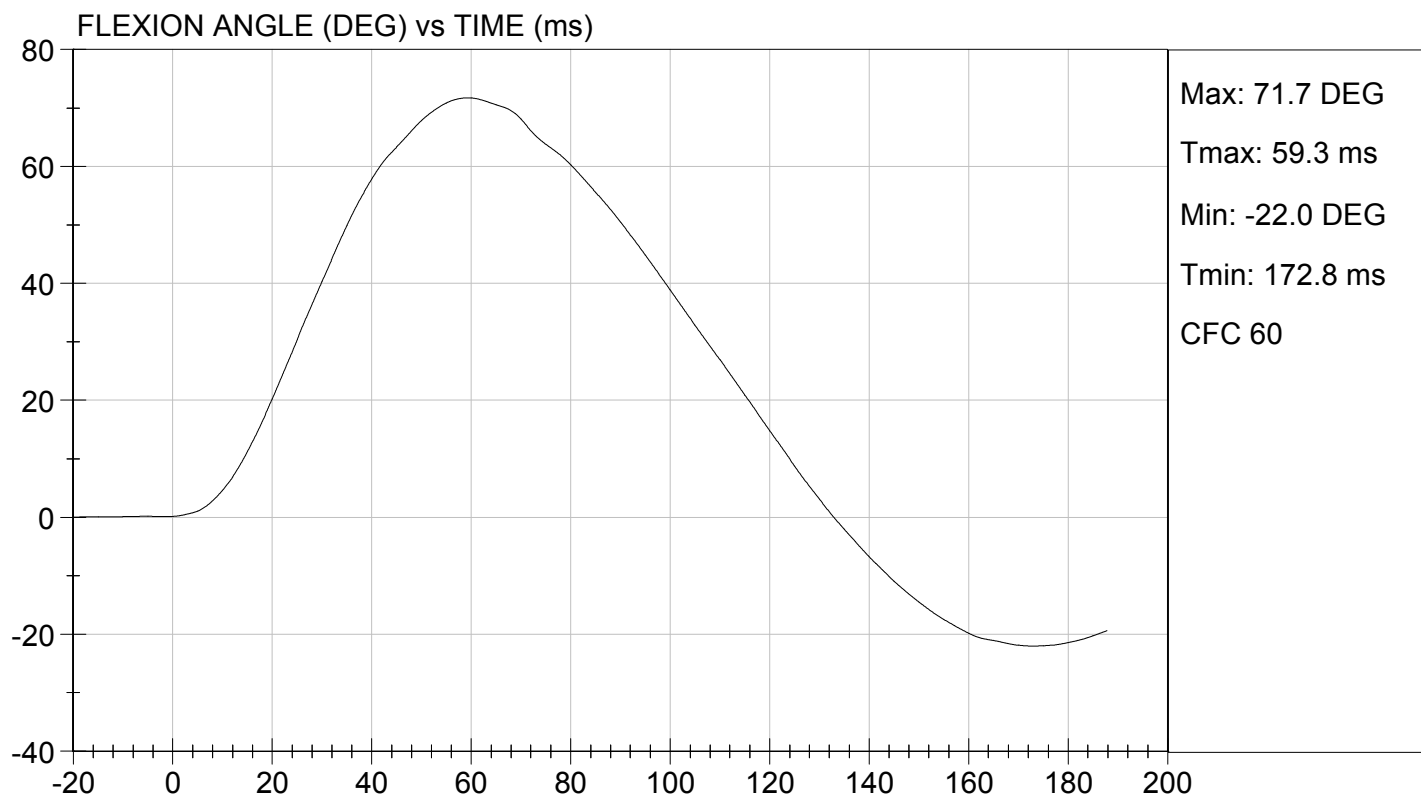
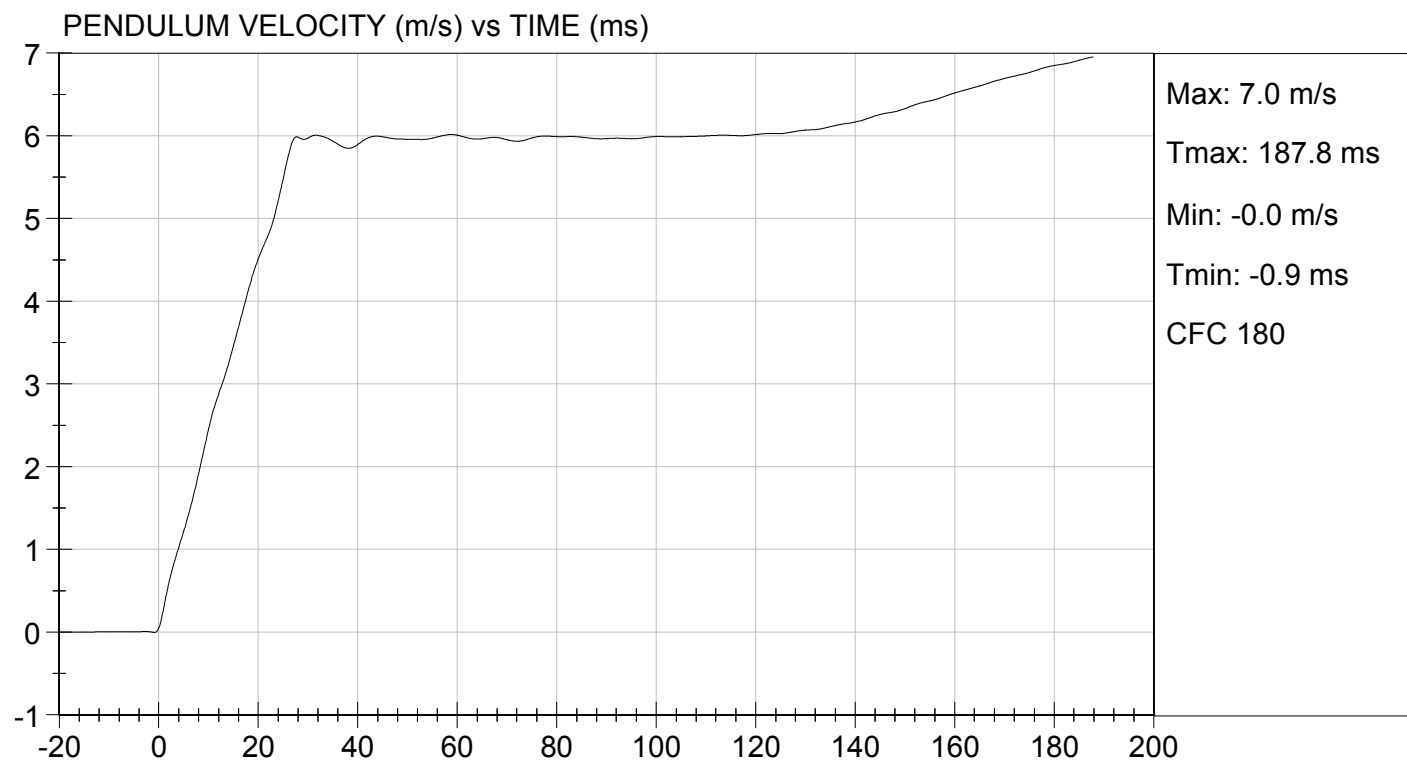
Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.7	Pass
Humidity		%	10 to 70	18	Pass
Impact Velocity		m/s	5.51 to 5.63	5.63	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.46	Pass
	15 ms	m/s	3.30 to 4.10	3.46	Pass
	20 ms	m/s	4.40 to 5.40	4.51	Pass
	25 ms	m/s	5.40 to 6.10	5.49	Pass
	25-100 ms	m/s	5.50 to 6.20	6.02	Pass
Maximum D-Plane Rotation		deg	71 to 81	72	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	59	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-39	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	116	Pass
Overall Test Results					Pass

David Schoedel
Laboratory Technician

12/02/2014

Test Date

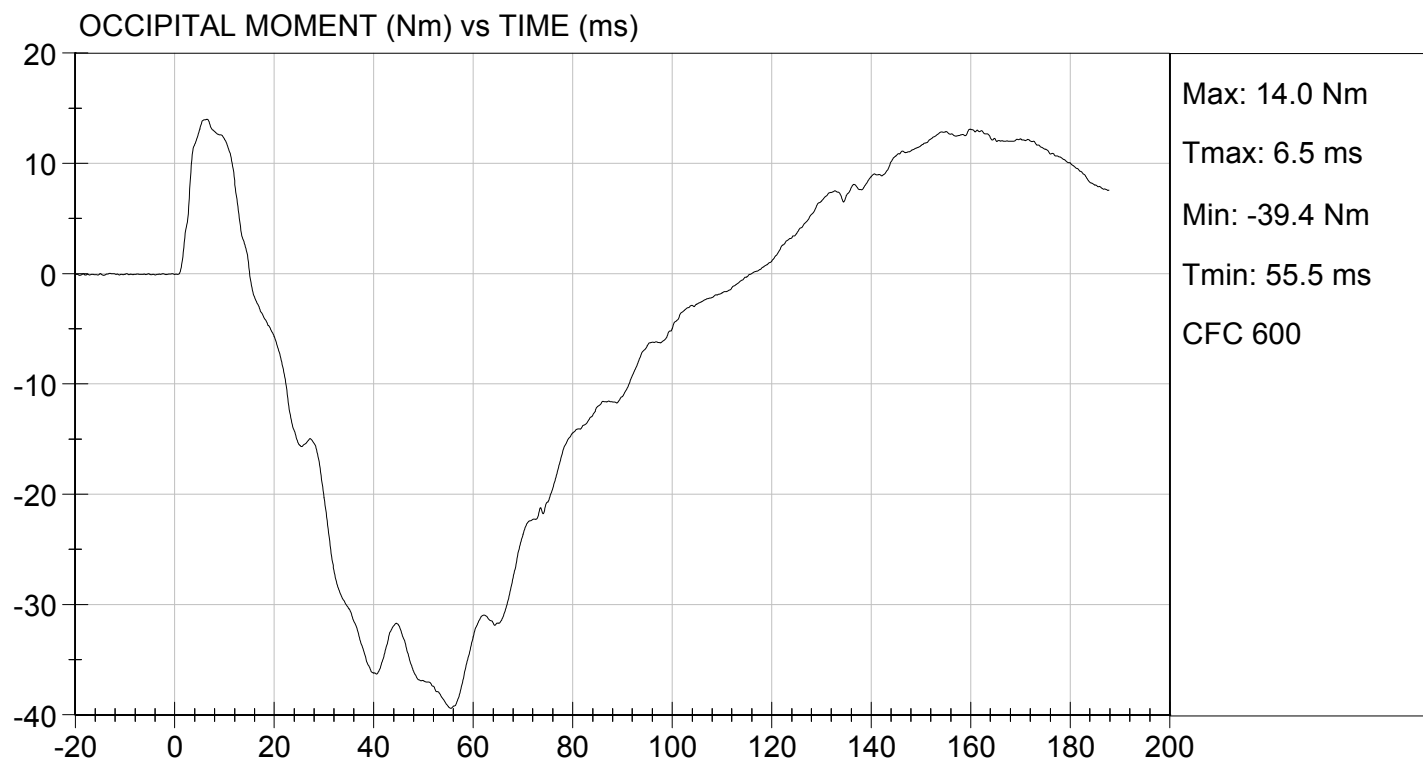
Jessica Hall
Approved By





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

TEST DATE: 12/02/2014
TEST #: D144252

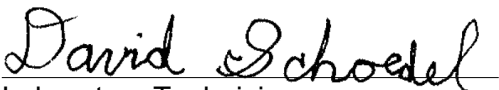


MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D144253

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	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


Laboratory Technician

12/02/2014

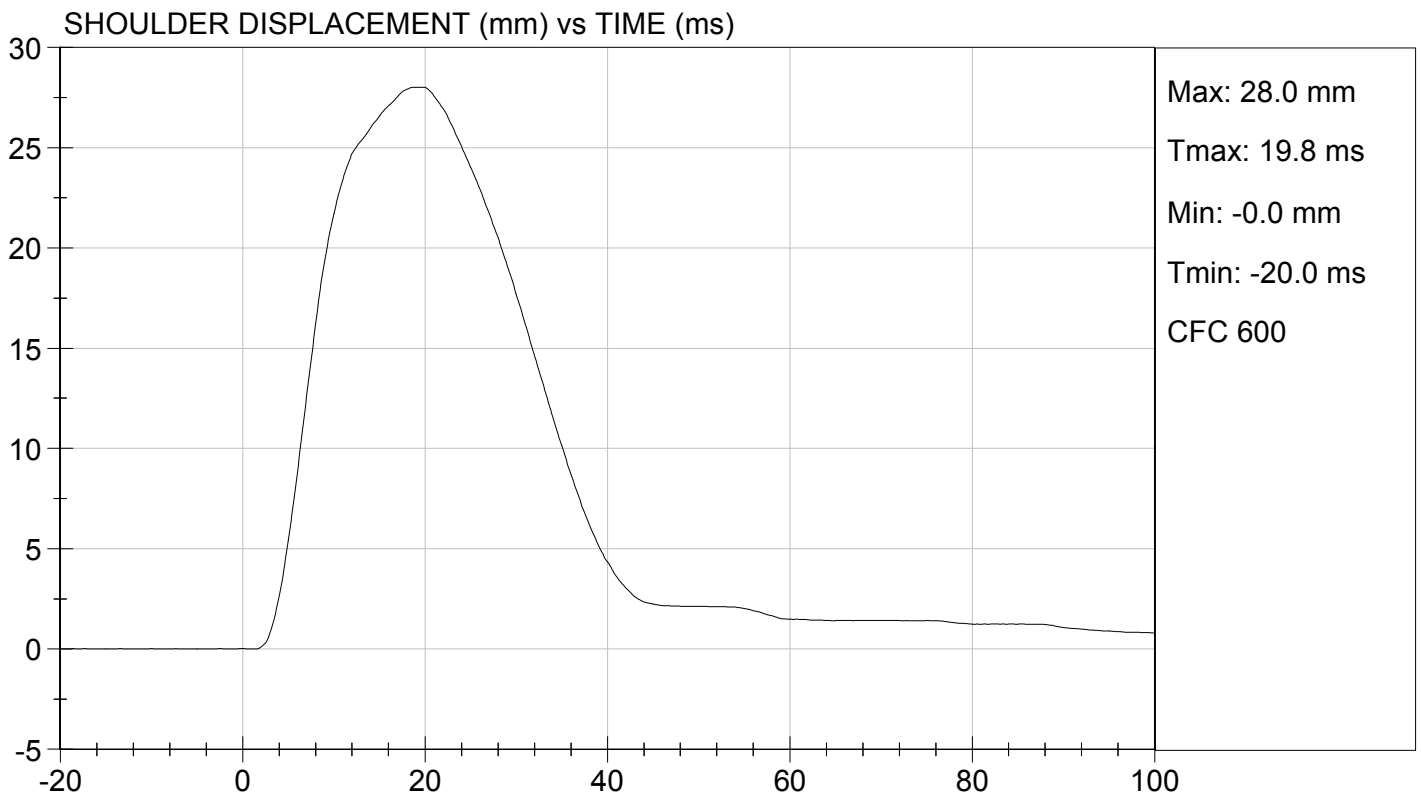
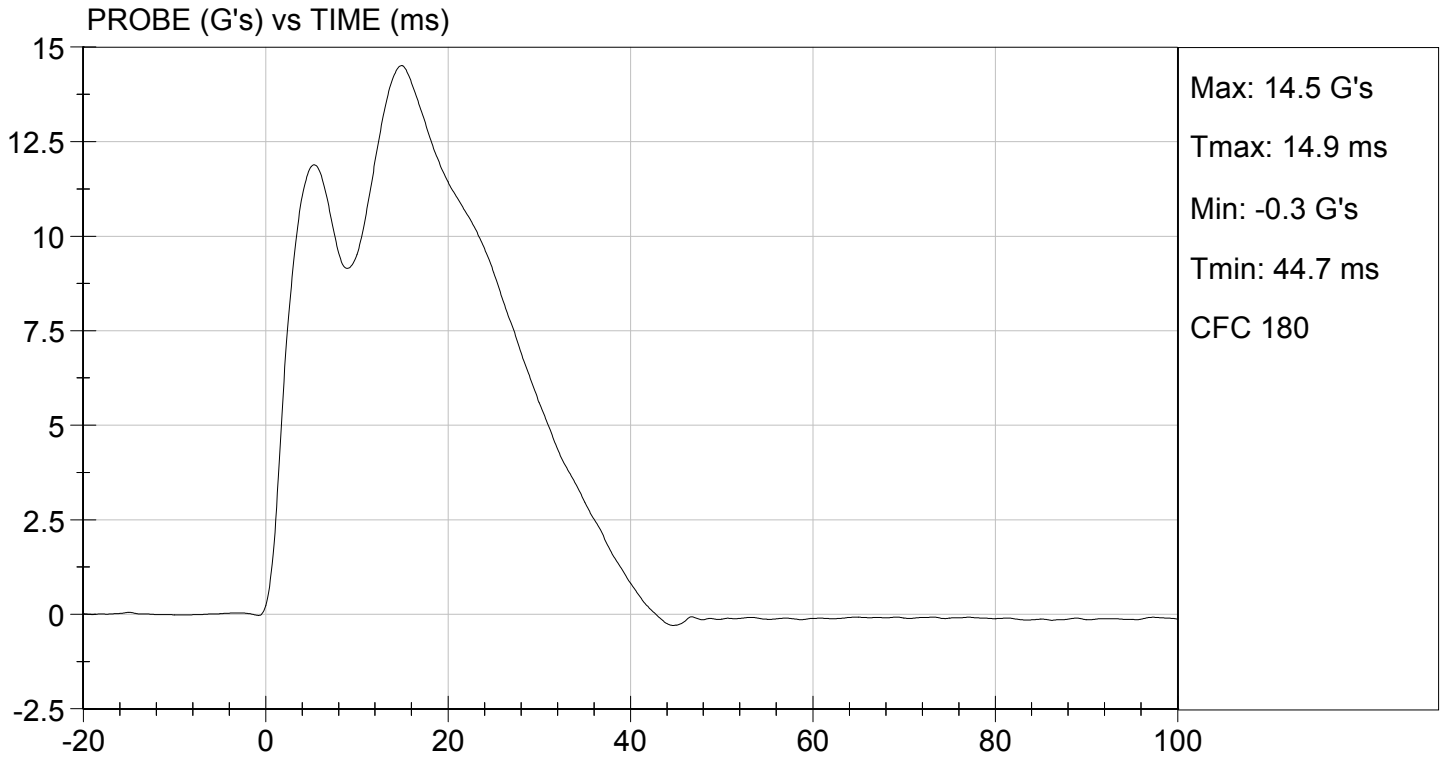
Test Date


Approved By



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

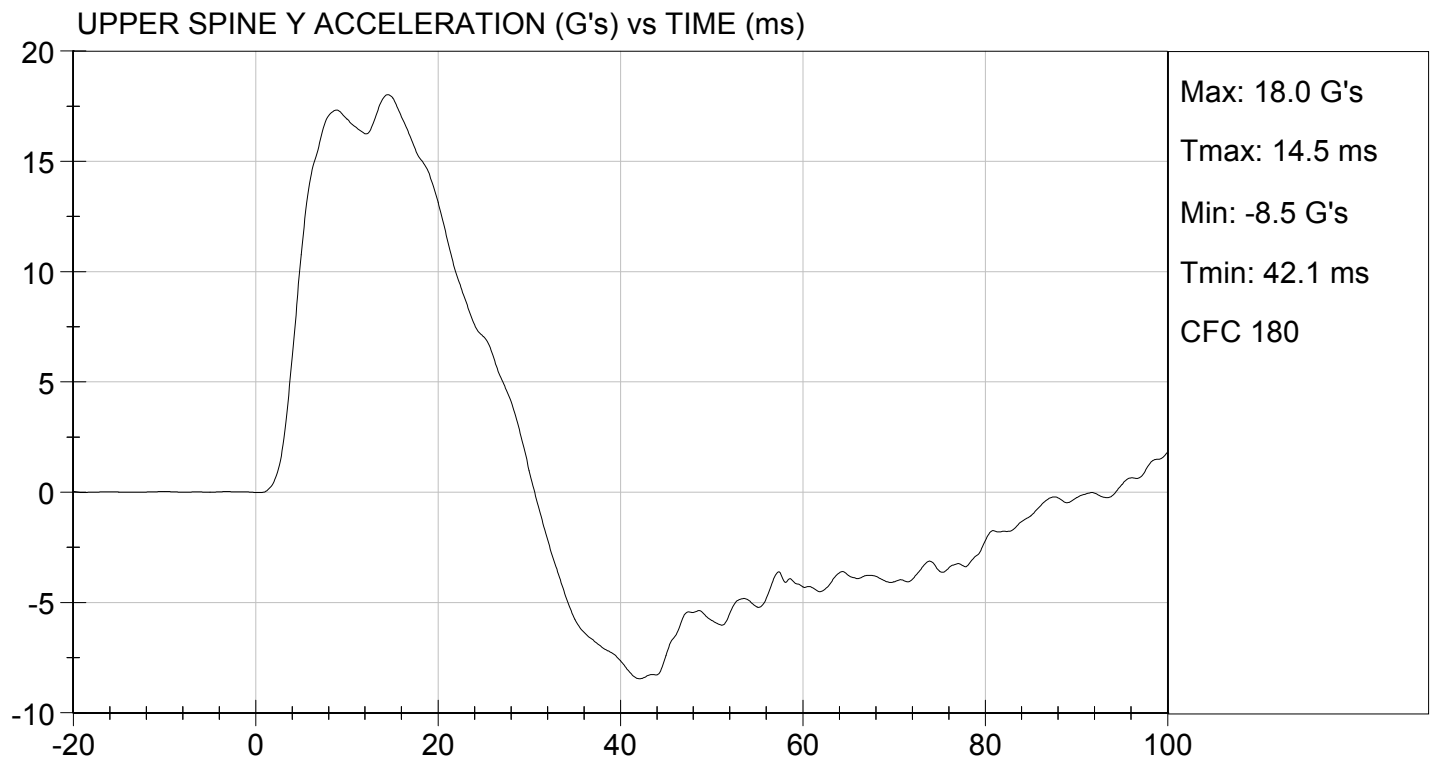
TEST DATE: 12/02/2014
TEST #: D144253





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

TEST DATE: 12/02/2014
TEST #: D144253



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

ATD Serial No: 306

Test I.D: D144254

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	20	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	34	Pass
Upper Rib Displacement	mm	25 to 32	28	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	38	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	32	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

12/02/2014

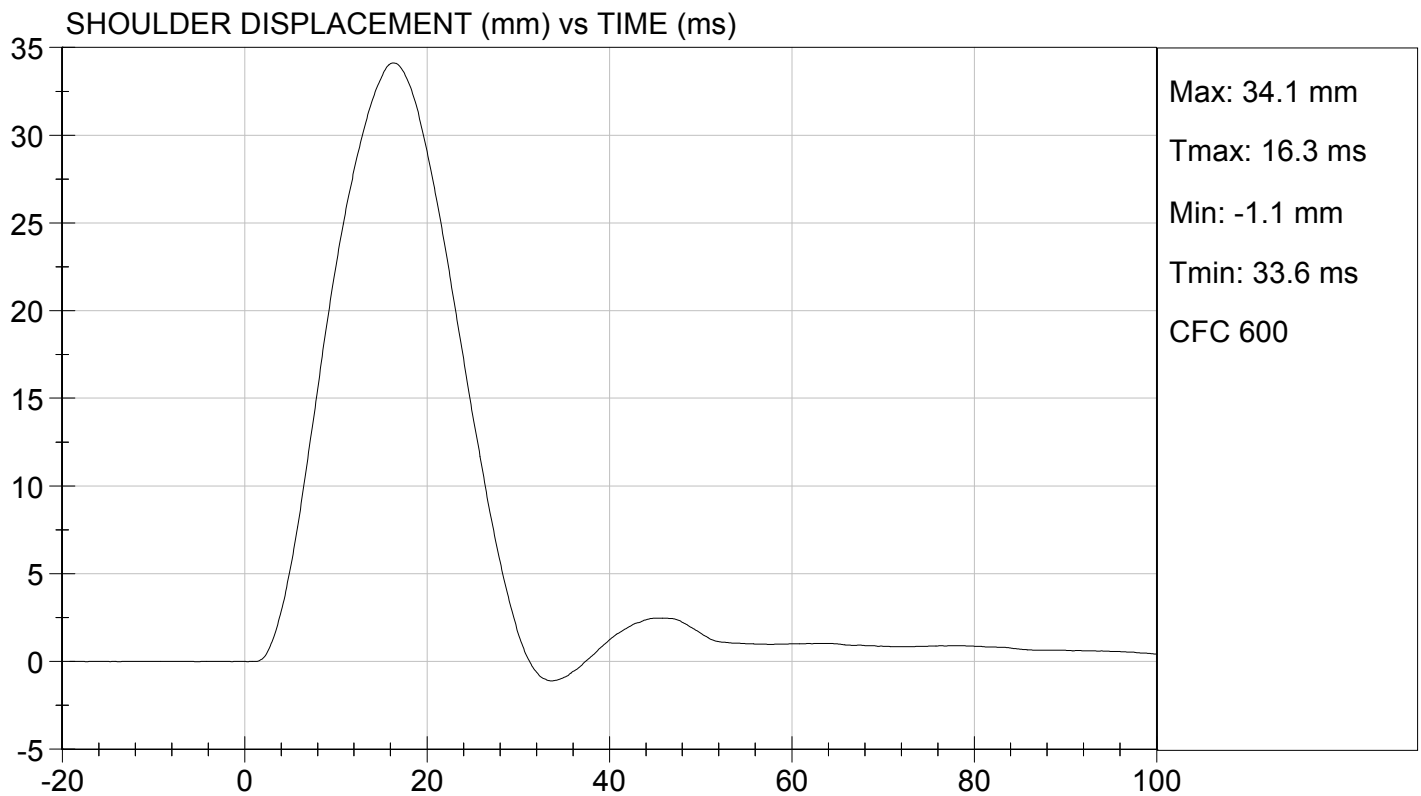
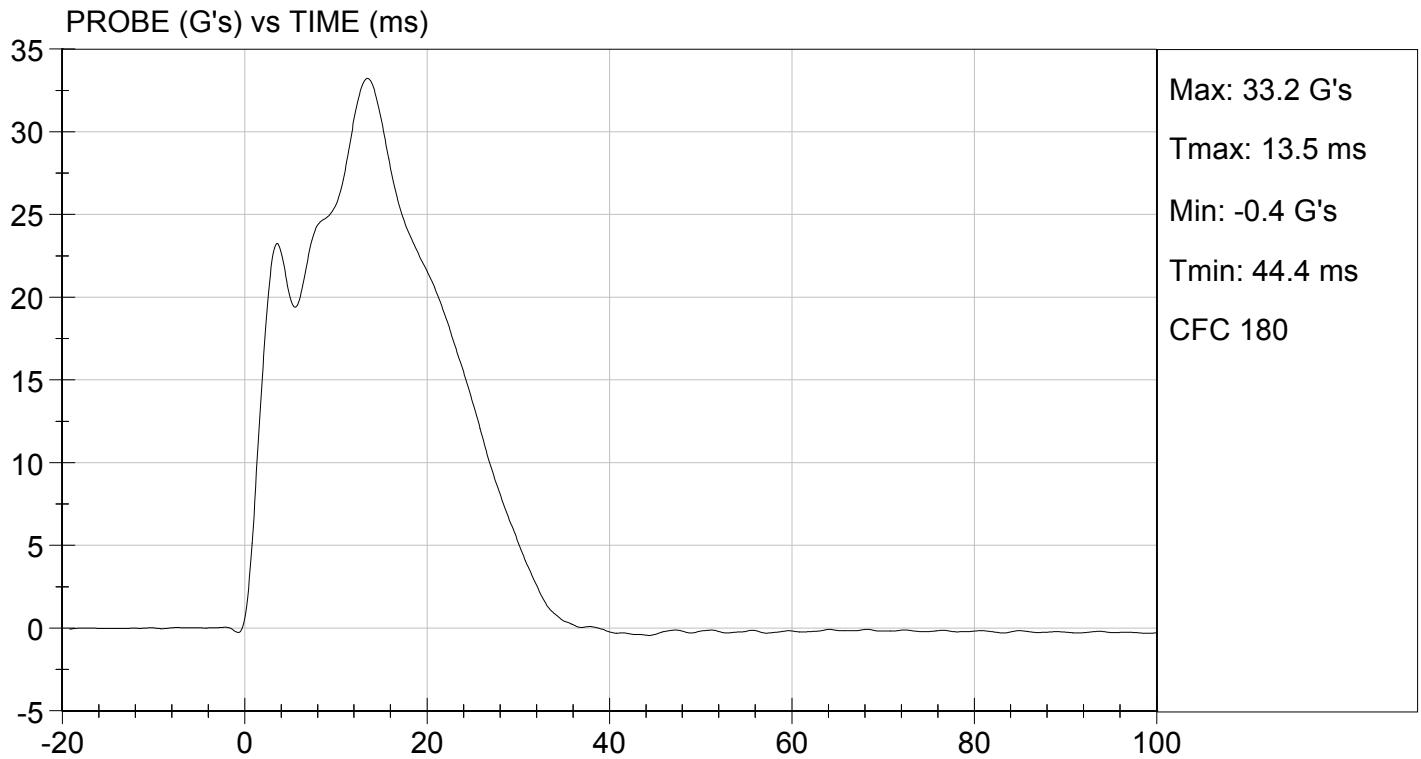
Test Date

Jessica Hall
Approved By



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

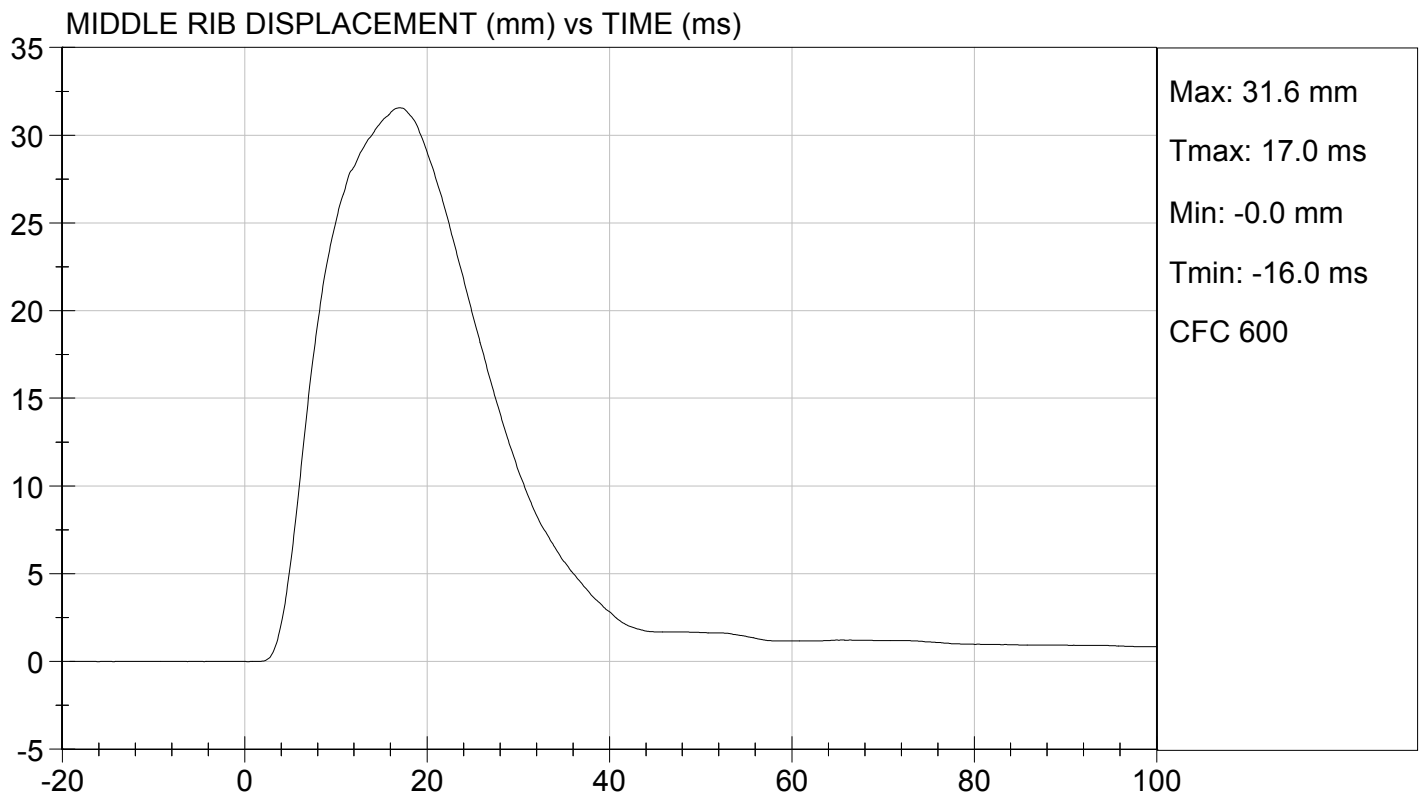
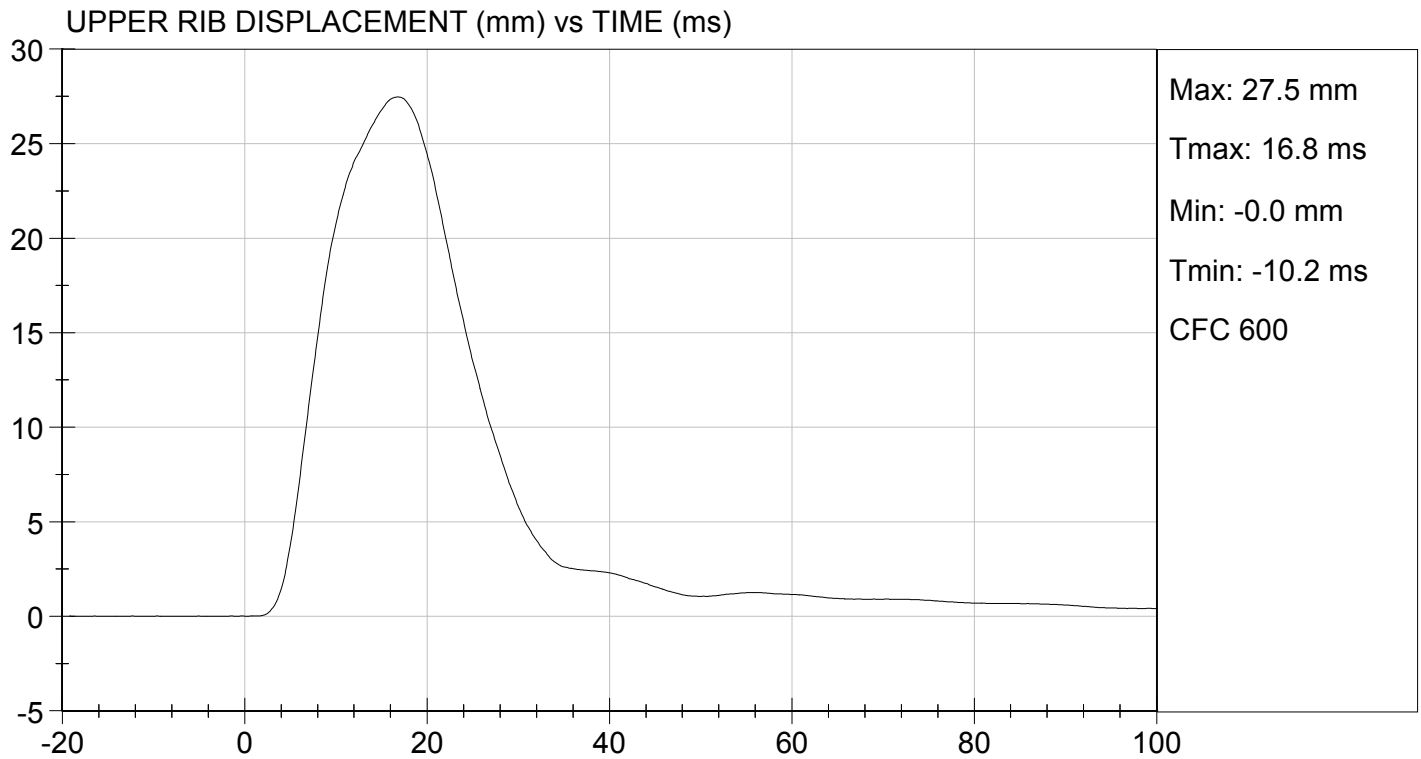
TEST DATE: 12/02/2014
TEST #: D144254





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

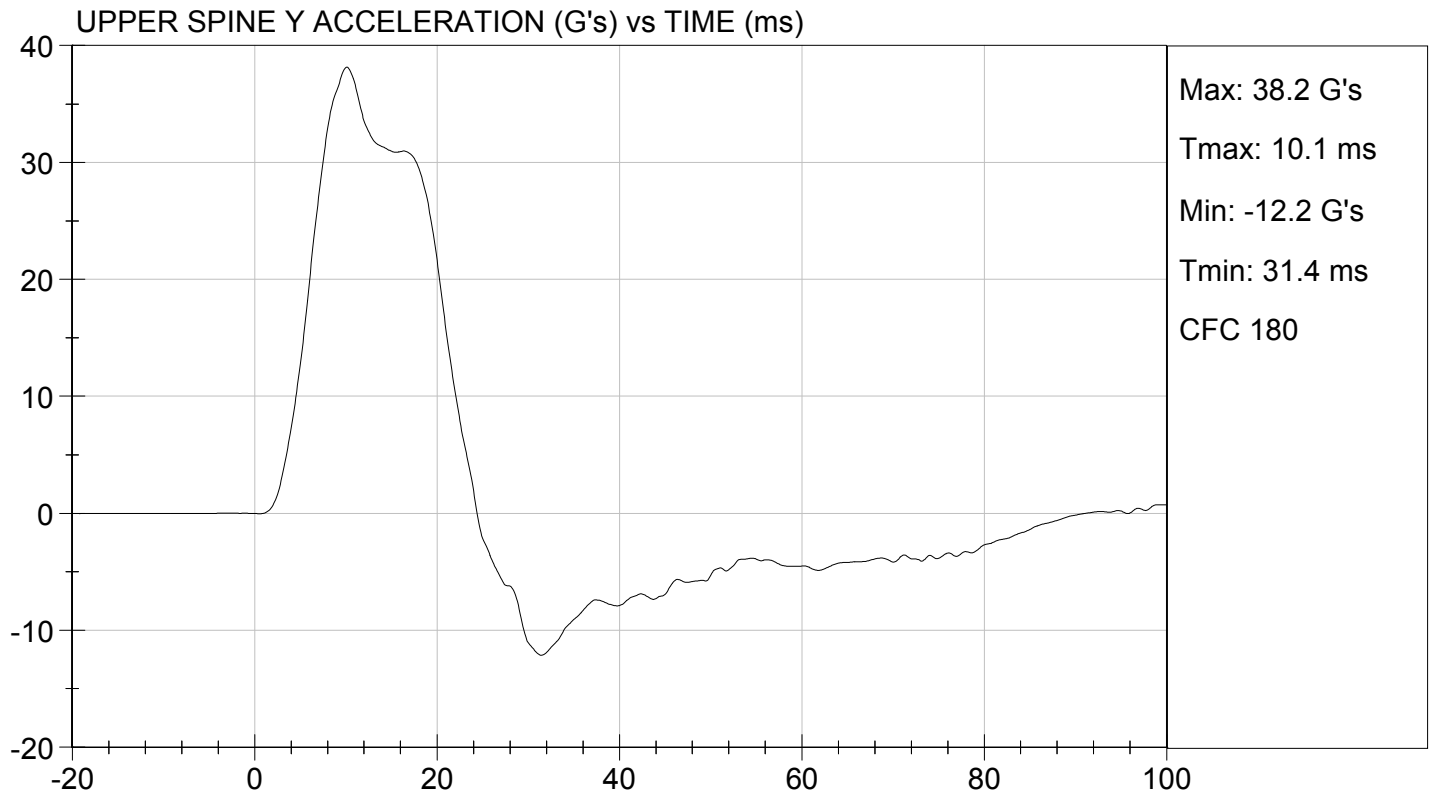
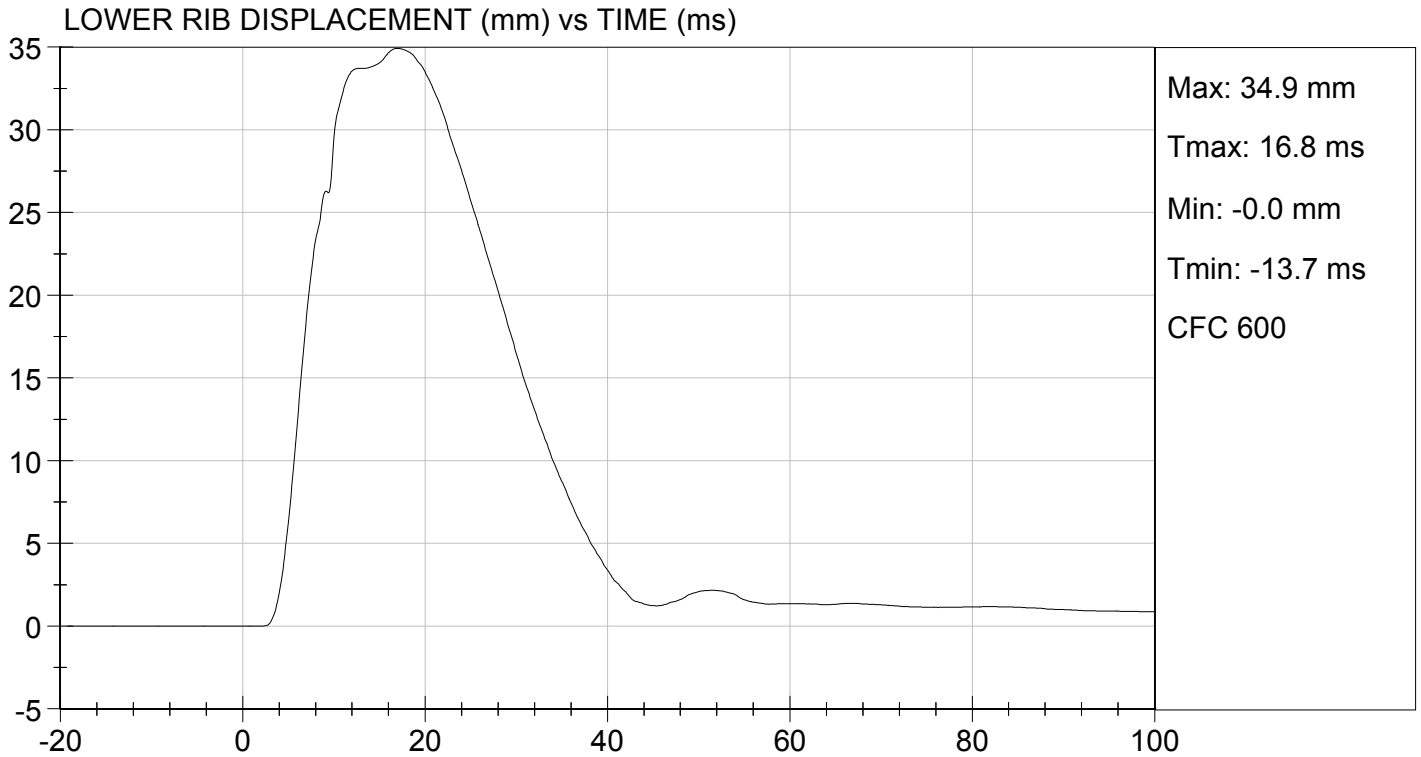
TEST DATE: 12/02/2014
TEST #: D144254





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

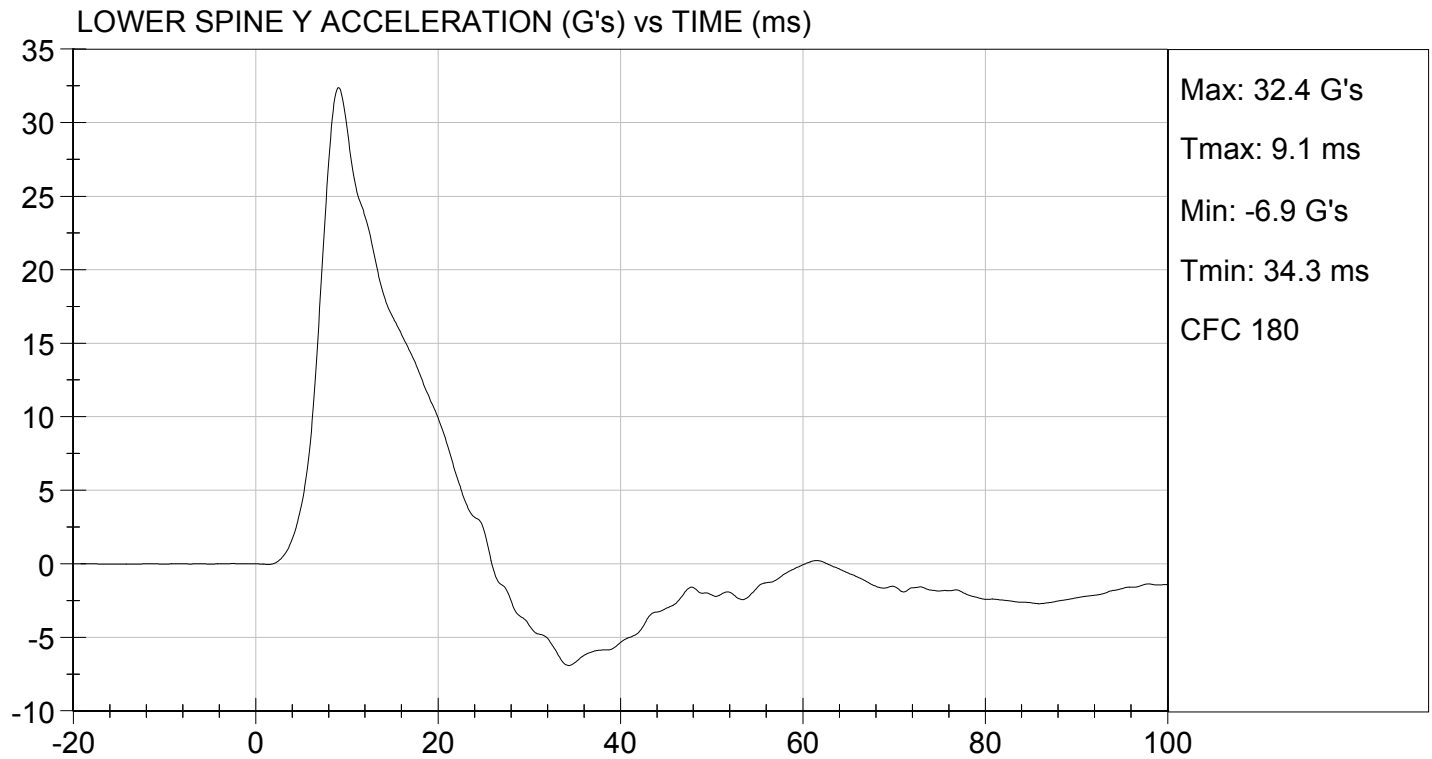
TEST DATE: 12/02/2014
TEST #: D144254





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

TEST DATE: 12/02/2014
TEST #: D144254



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

ATD Serial No: 306

Test I.D: D144255

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	20	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	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	41	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

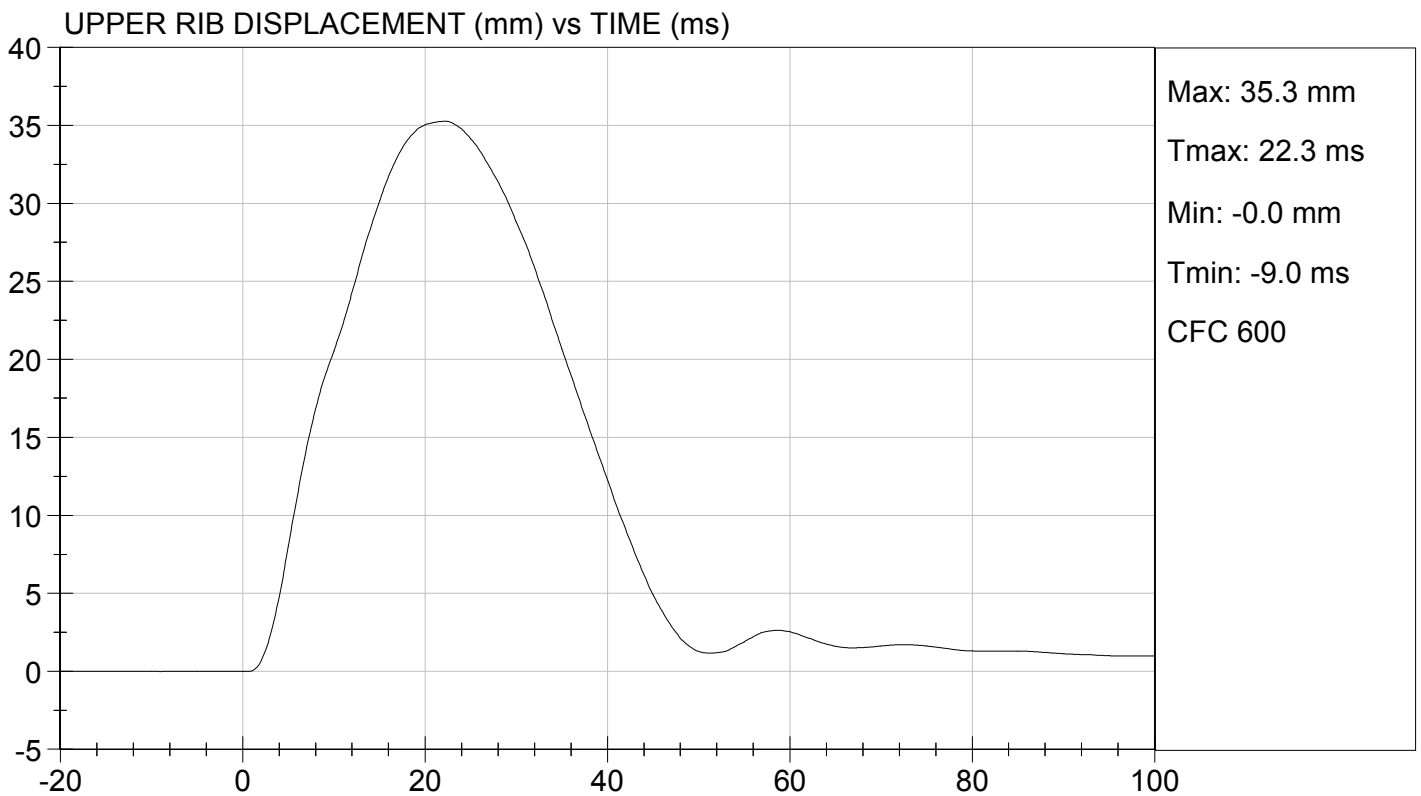
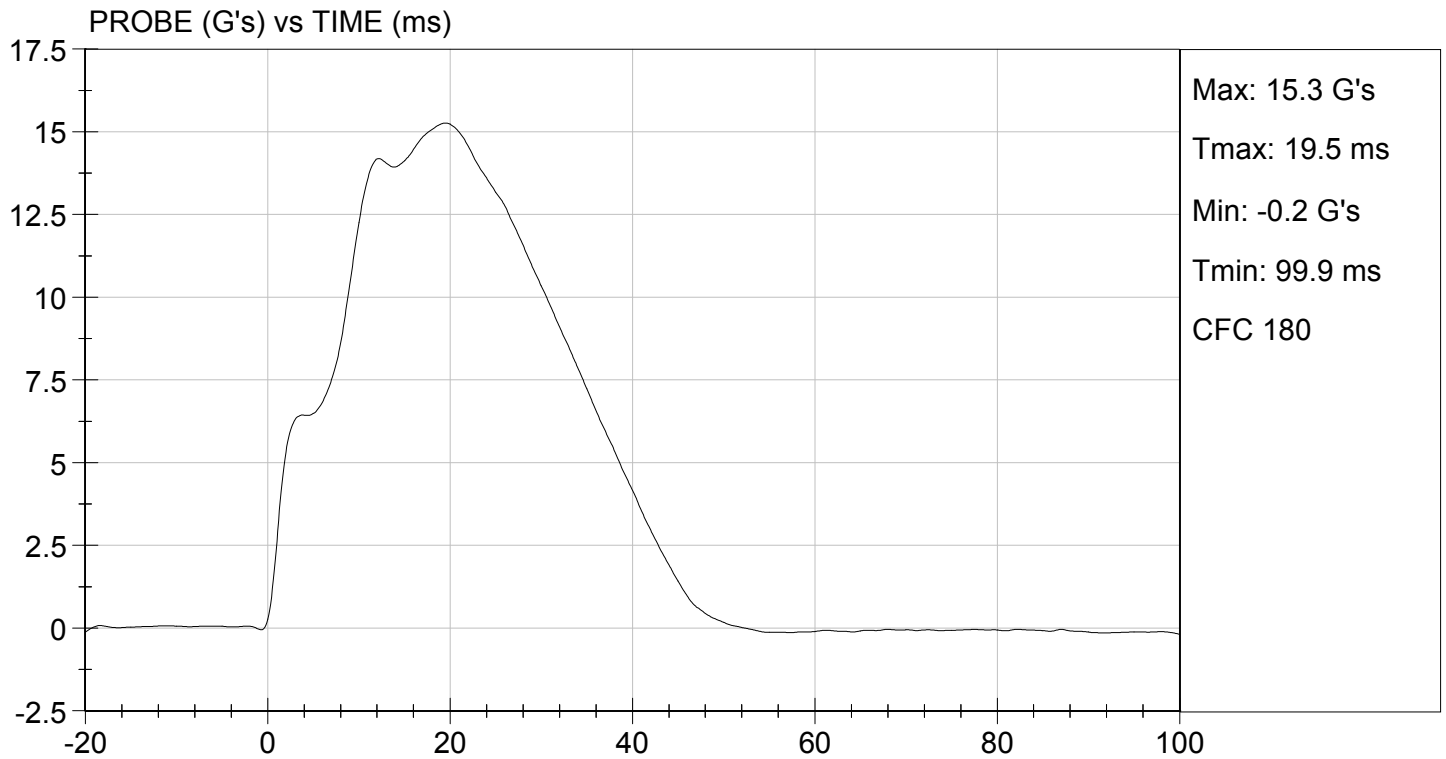
12/02/2014
Test Date

Jessica Hall
Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 12/02/2014
TEST #: D144255

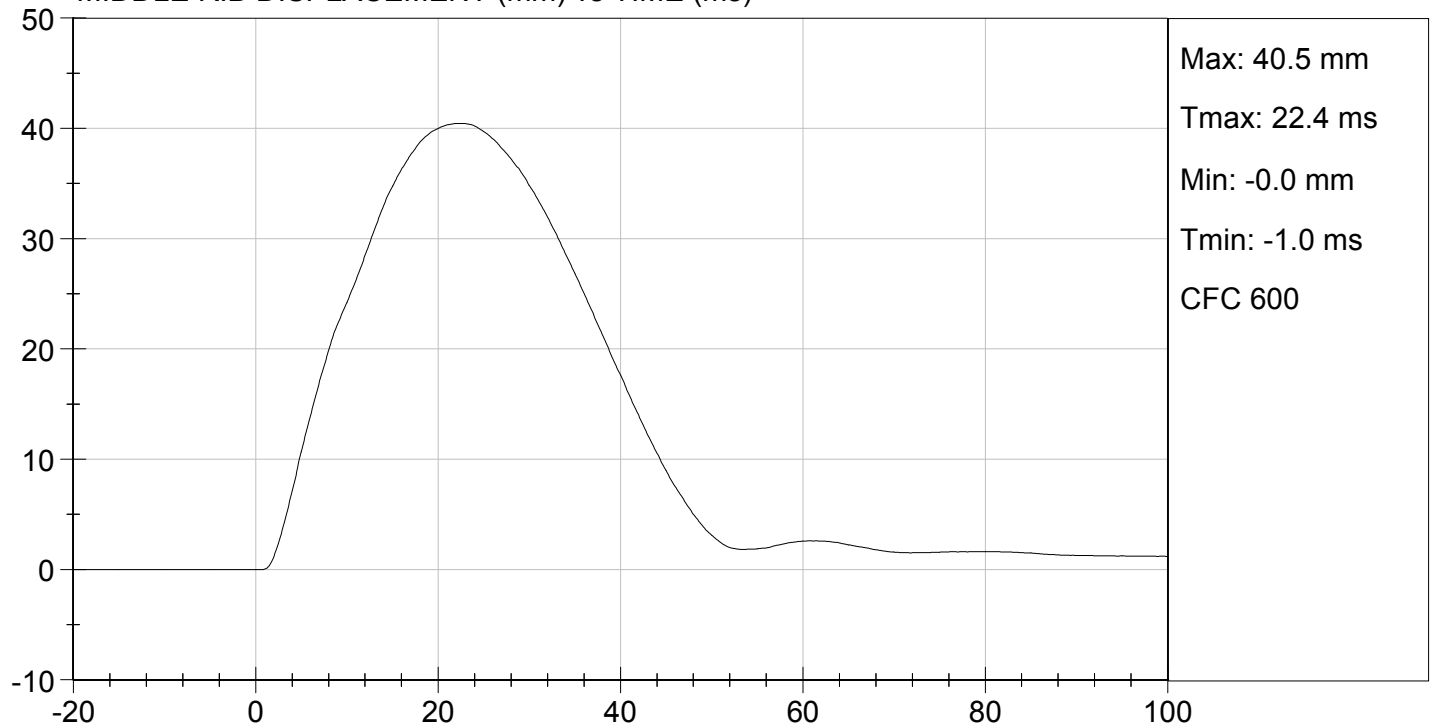




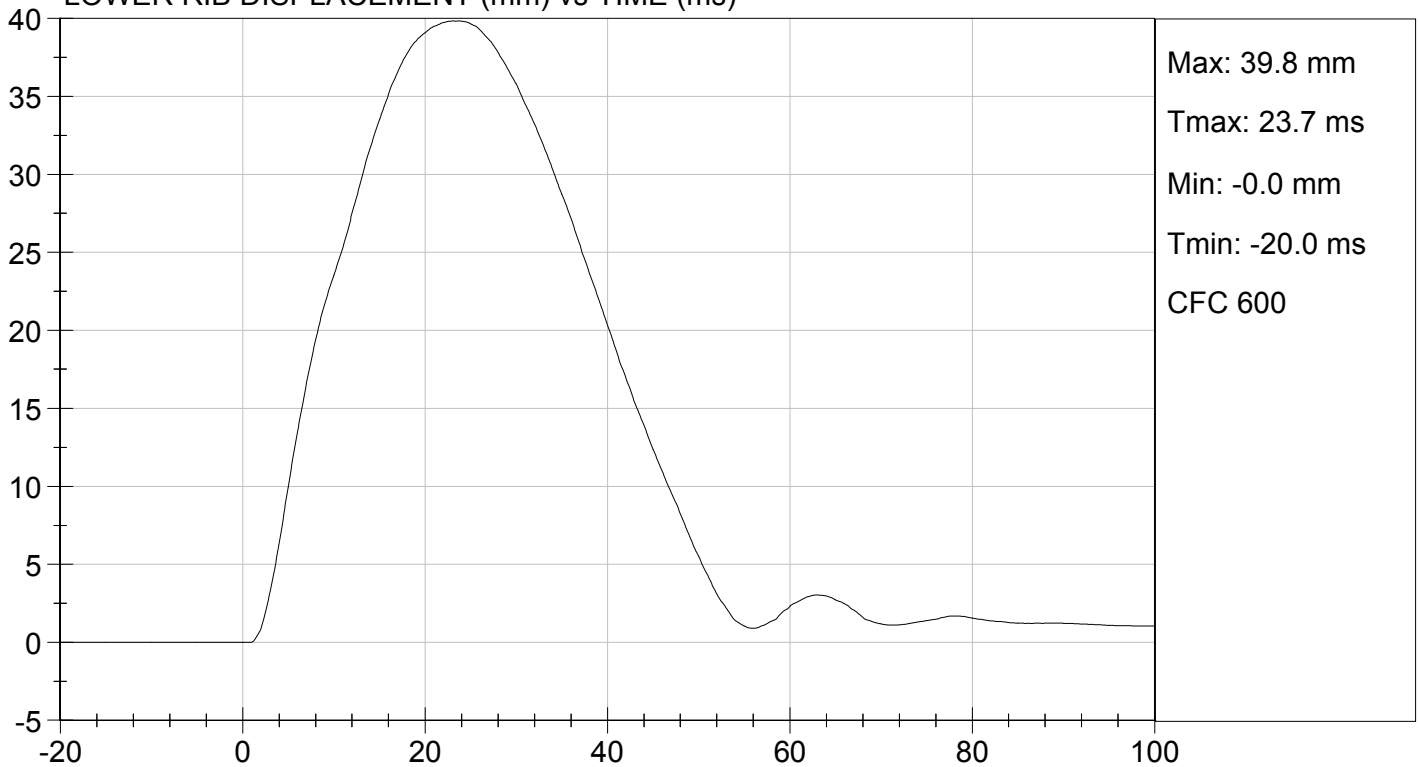
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 12/02/2014
TEST #: D144255

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

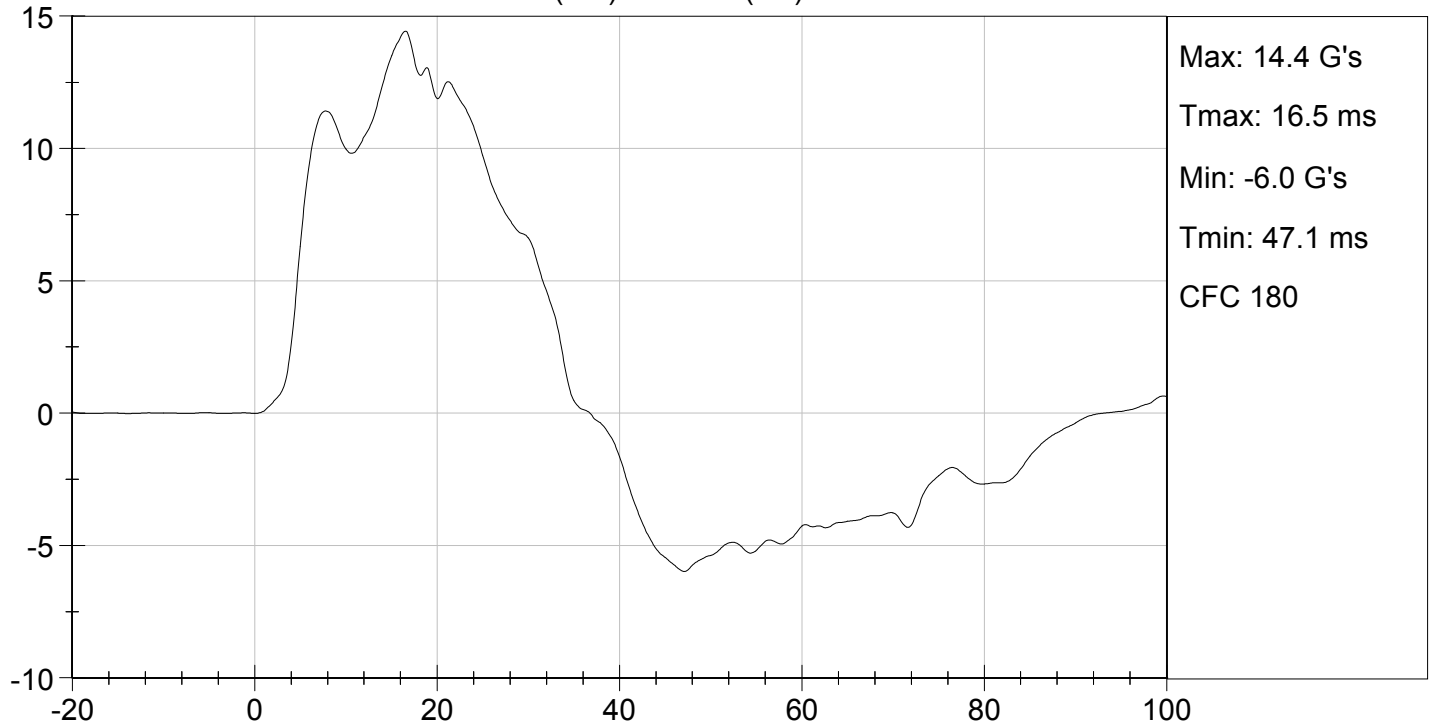




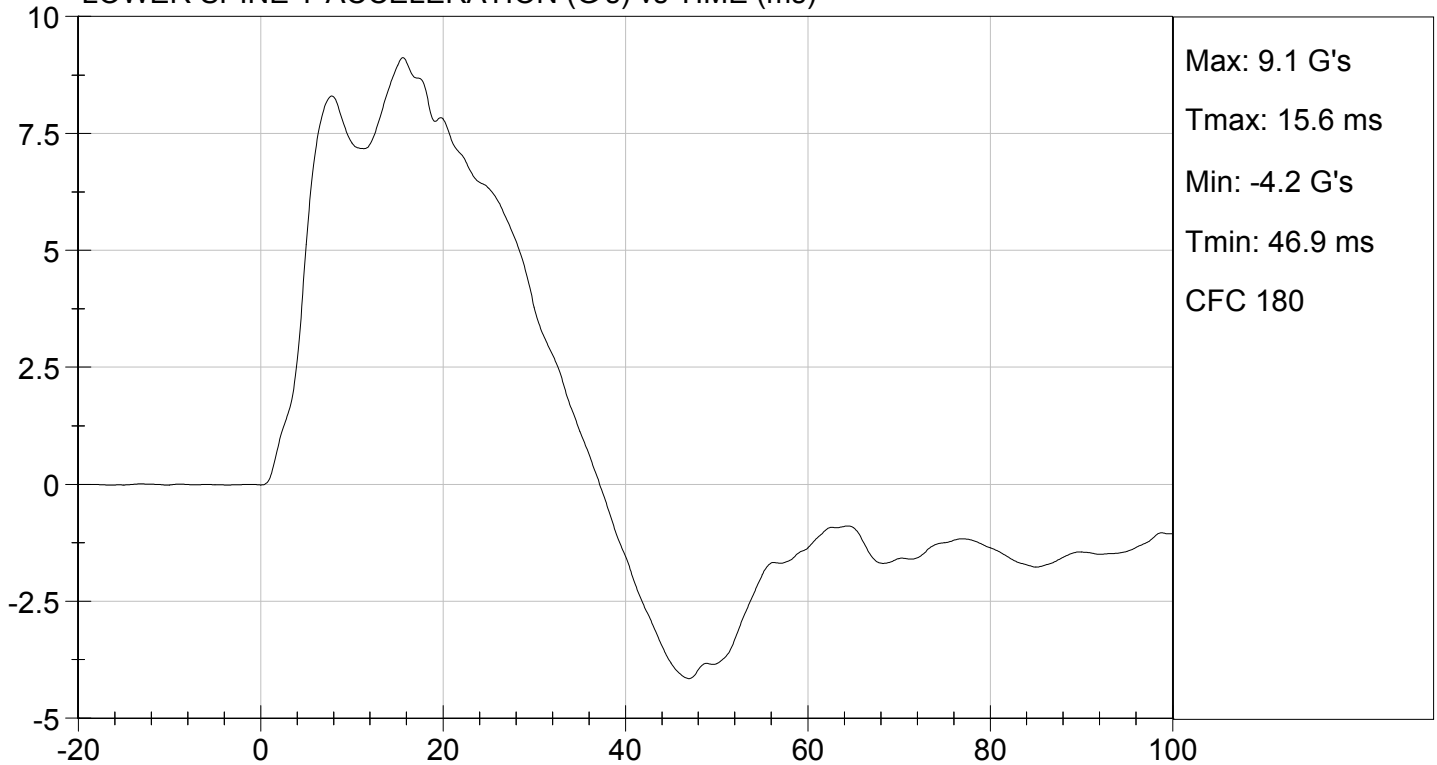
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 12/02/2014
TEST #: D144255

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: D144256

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	20	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	37	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

David Schoedel
Laboratory Technician

12/02/2014

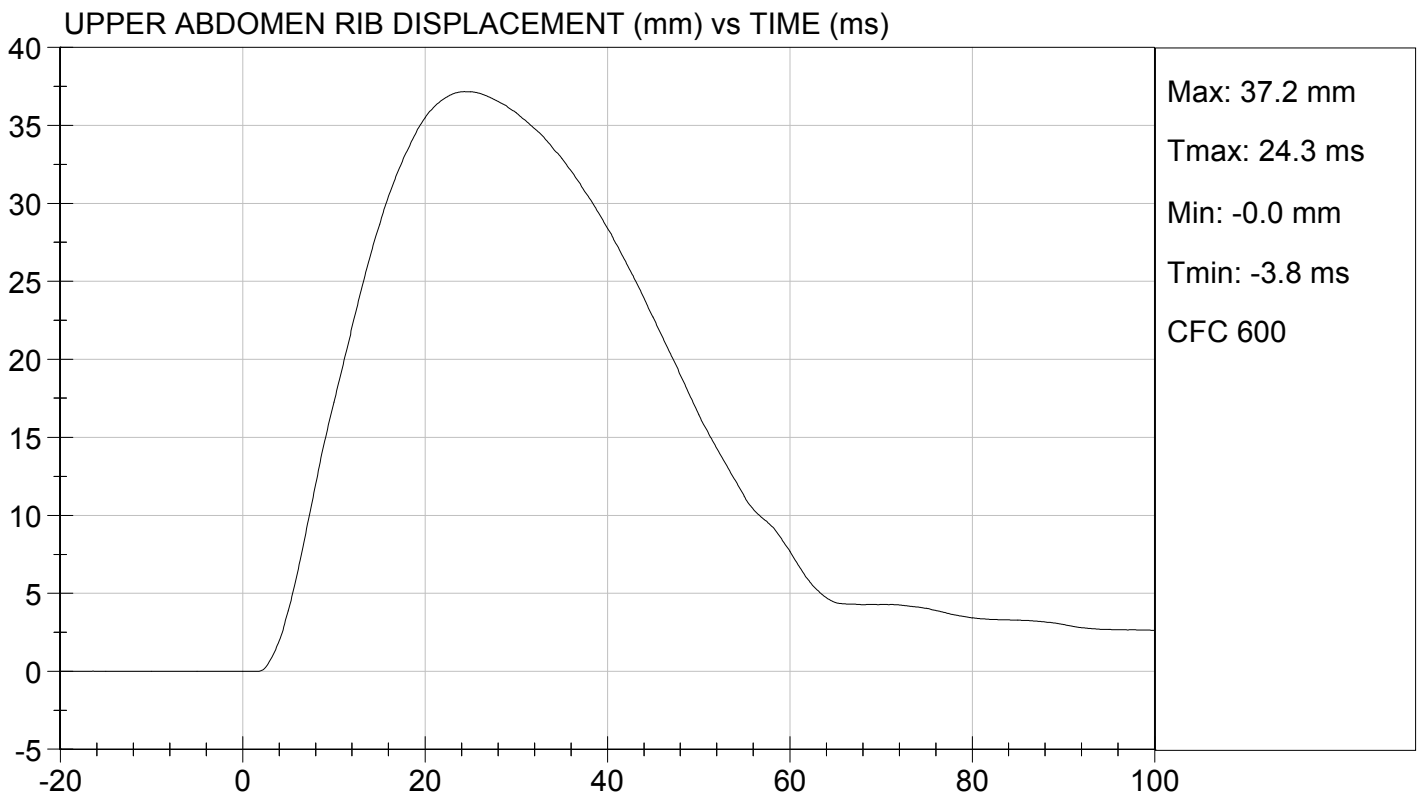
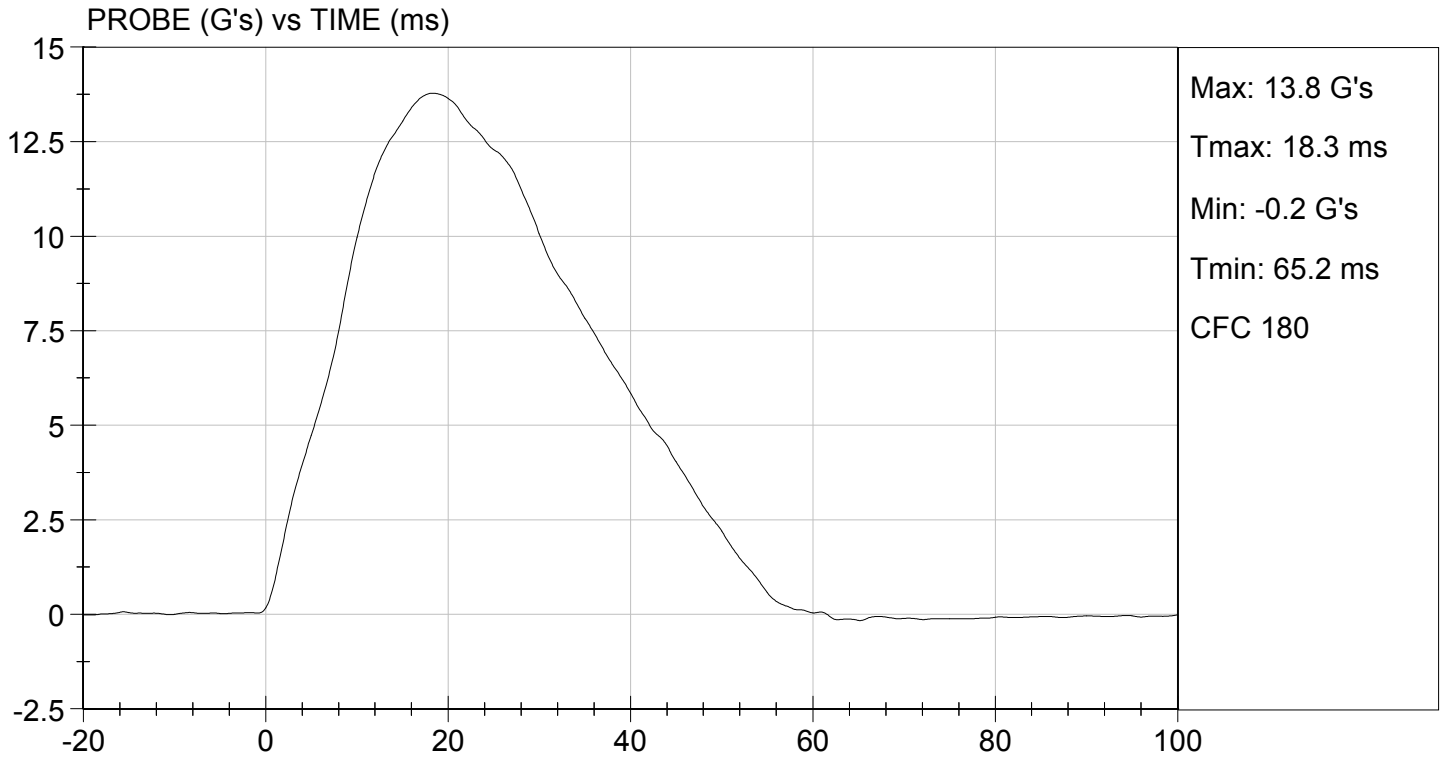
Test Date

Jessica Hall
Approved By



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

TEST DATE: 12/02/2014
TEST #: D144256

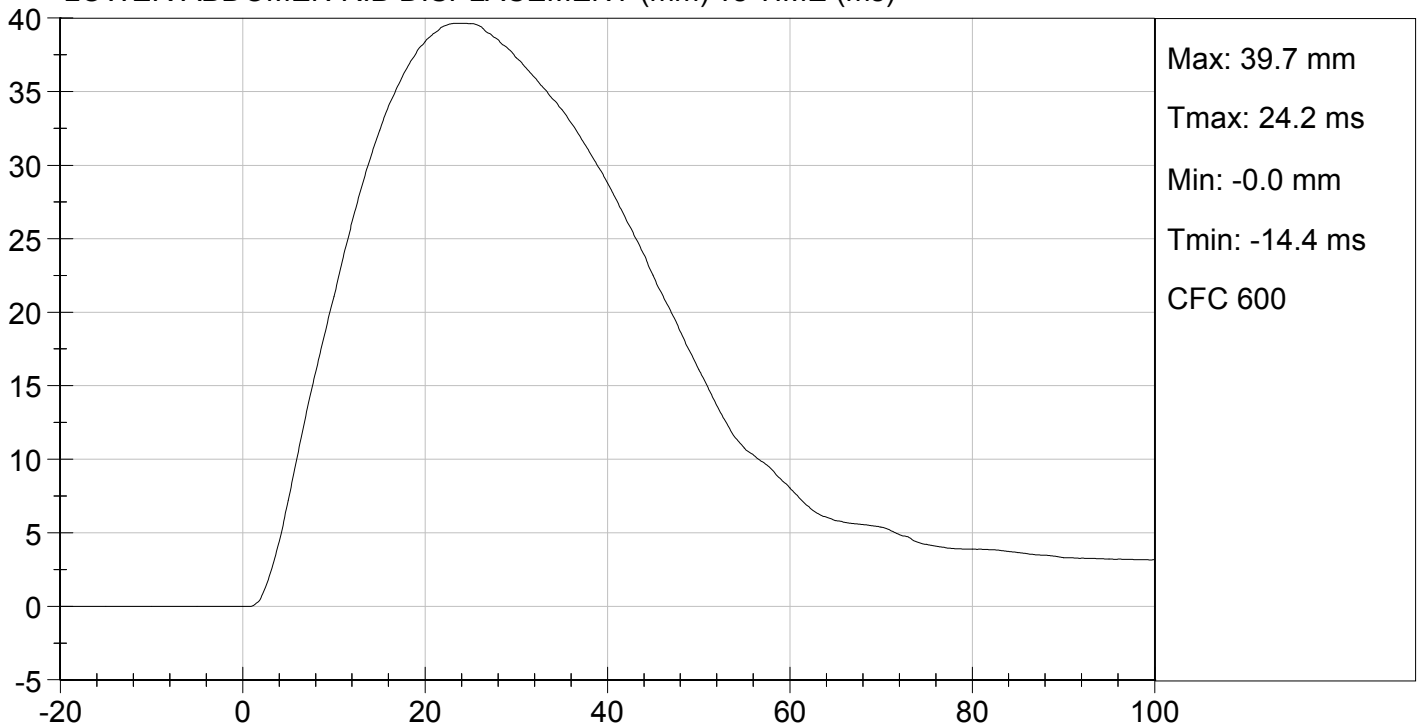




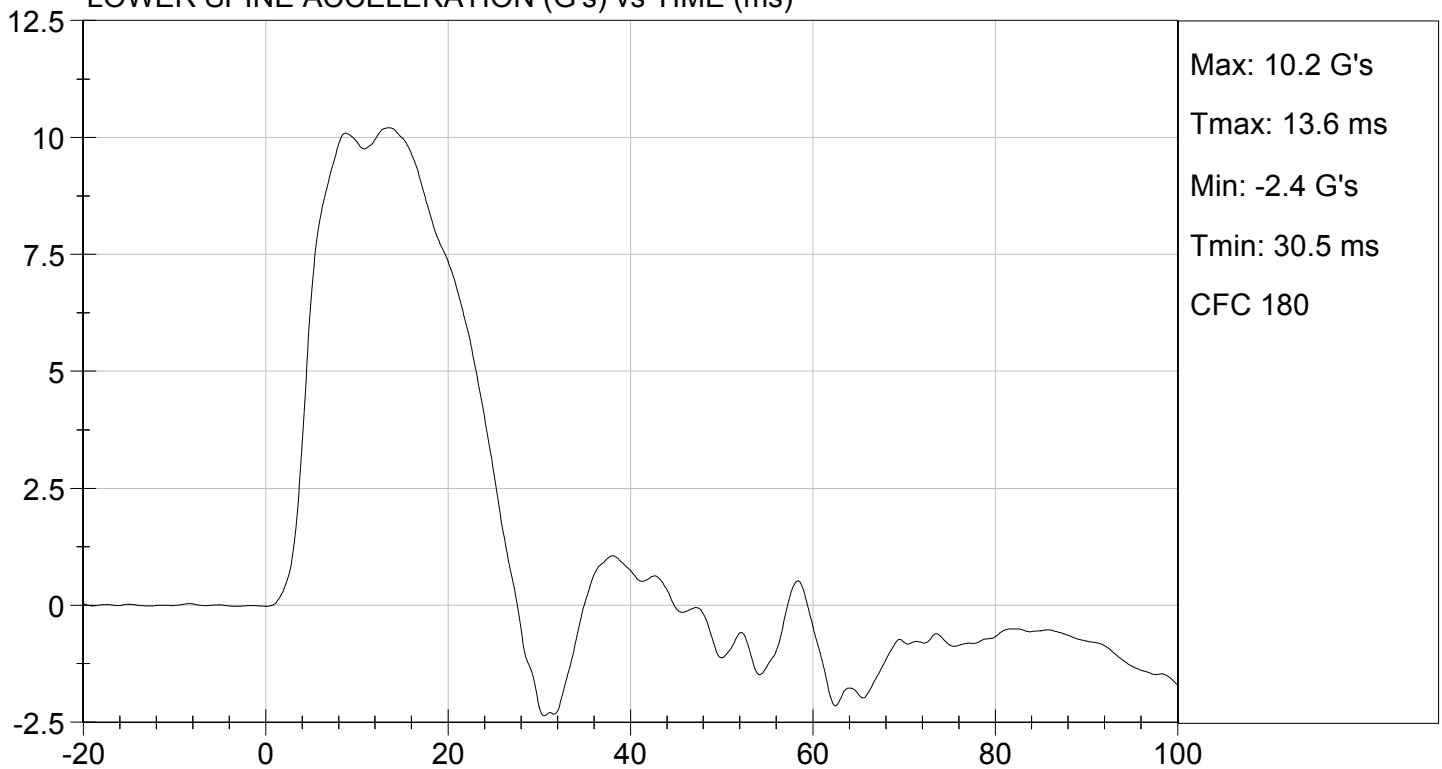
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 12/02/2014
TEST #: D144256

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: D144257

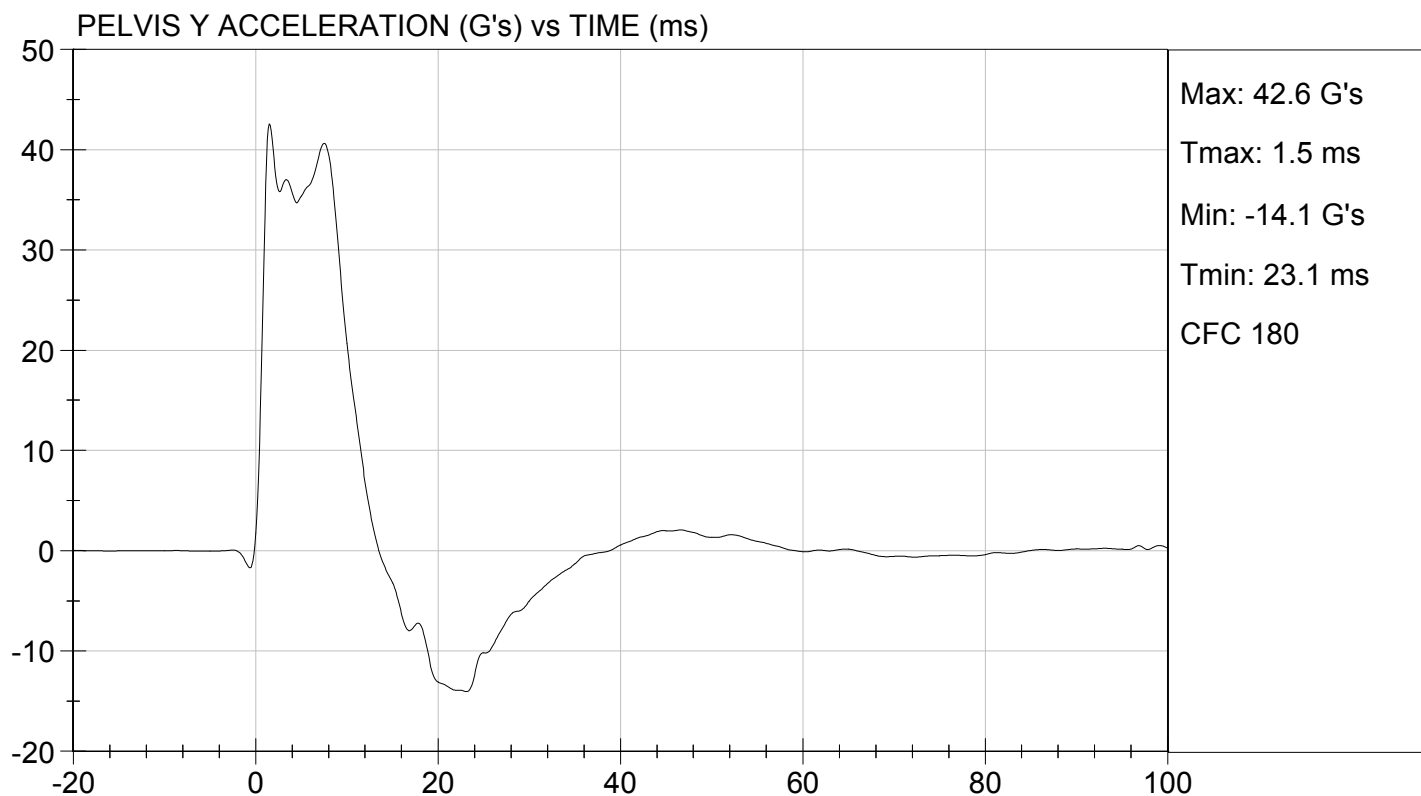
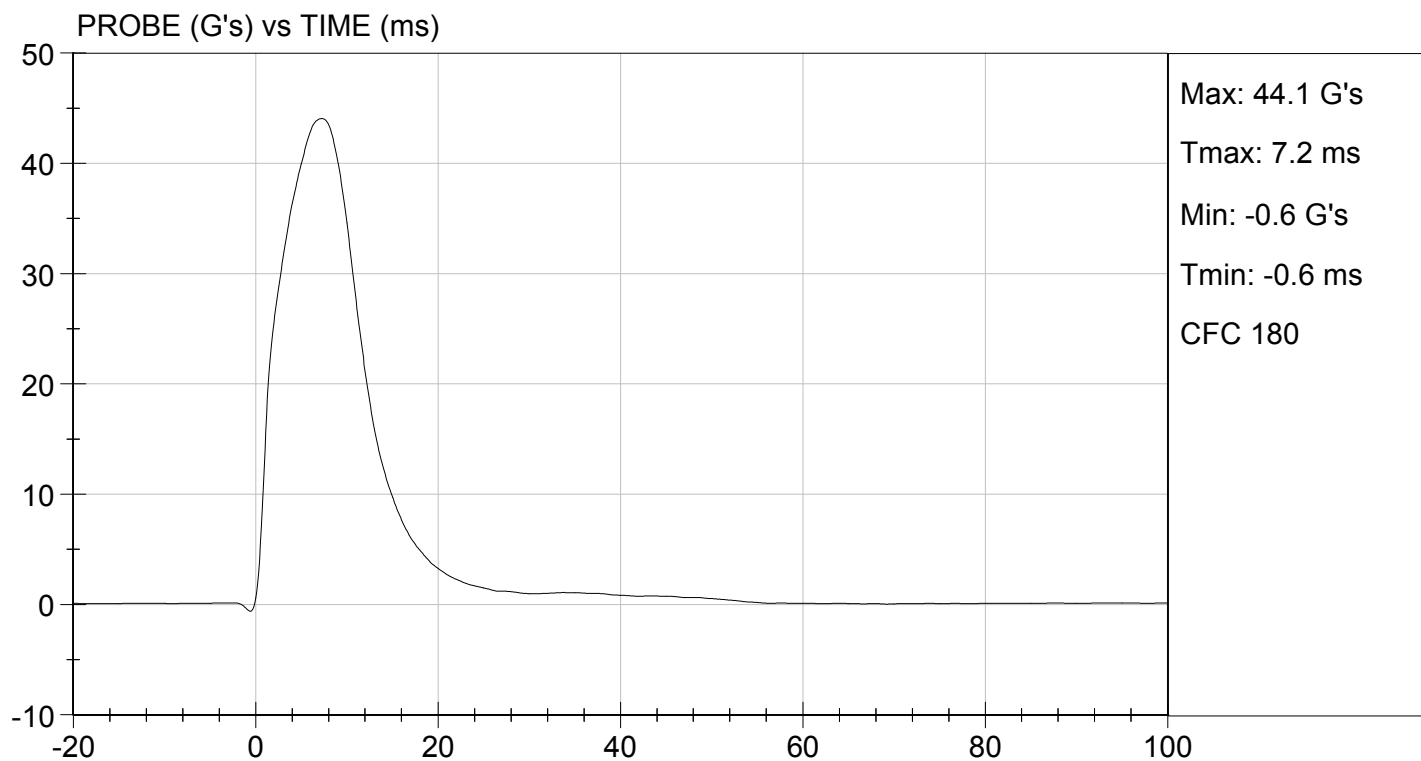
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	20	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	41	Pass
Peak Acetabulum Force	N	3600 to 4300	4,185	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

12/02/2014

Test Date

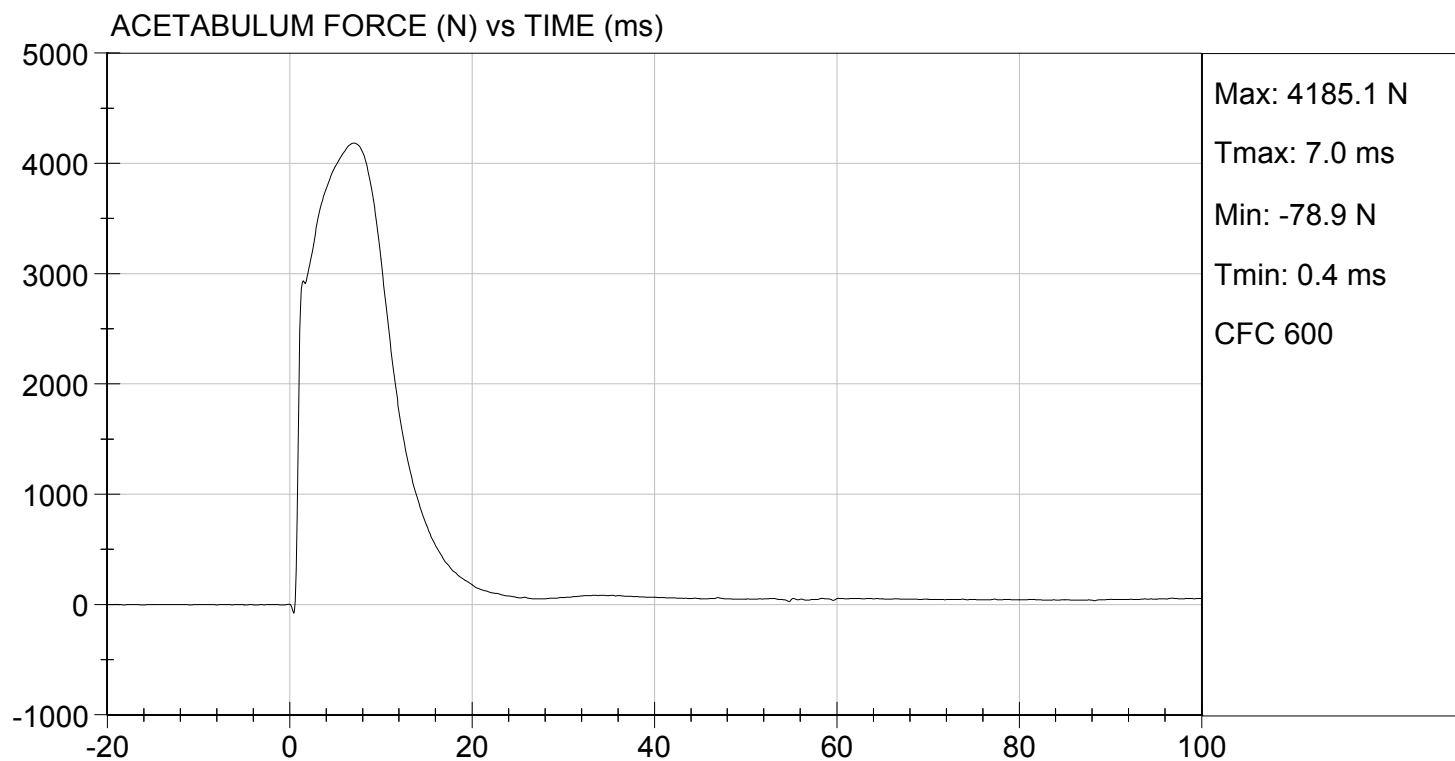
Jessica Hall
Approved By





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

TEST DATE: 12/02/2014
TEST #: D144257



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D144258

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	20	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	28	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,327	Pass
Overall Test Results				Pass

David Schoedel
Laboratory Technician

12/02/2014

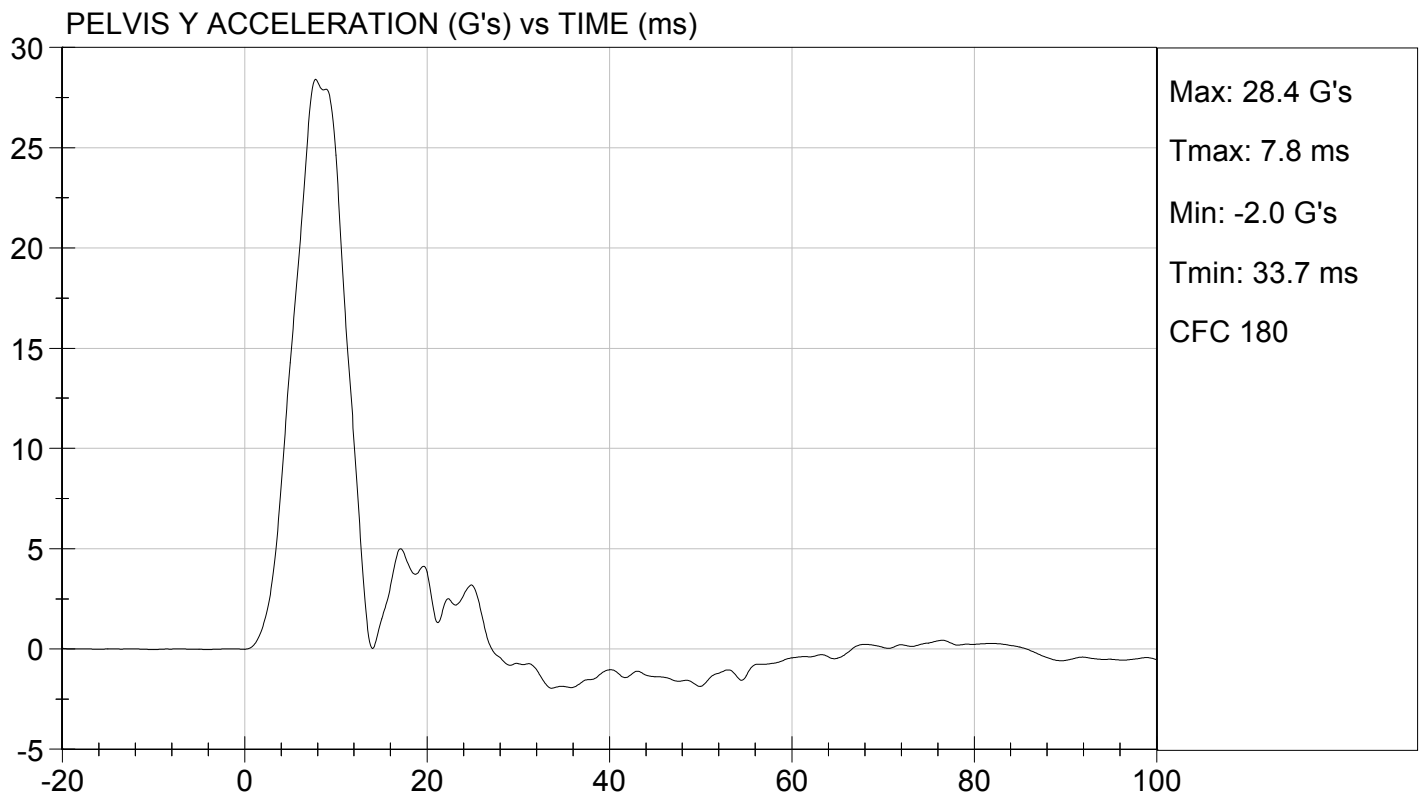
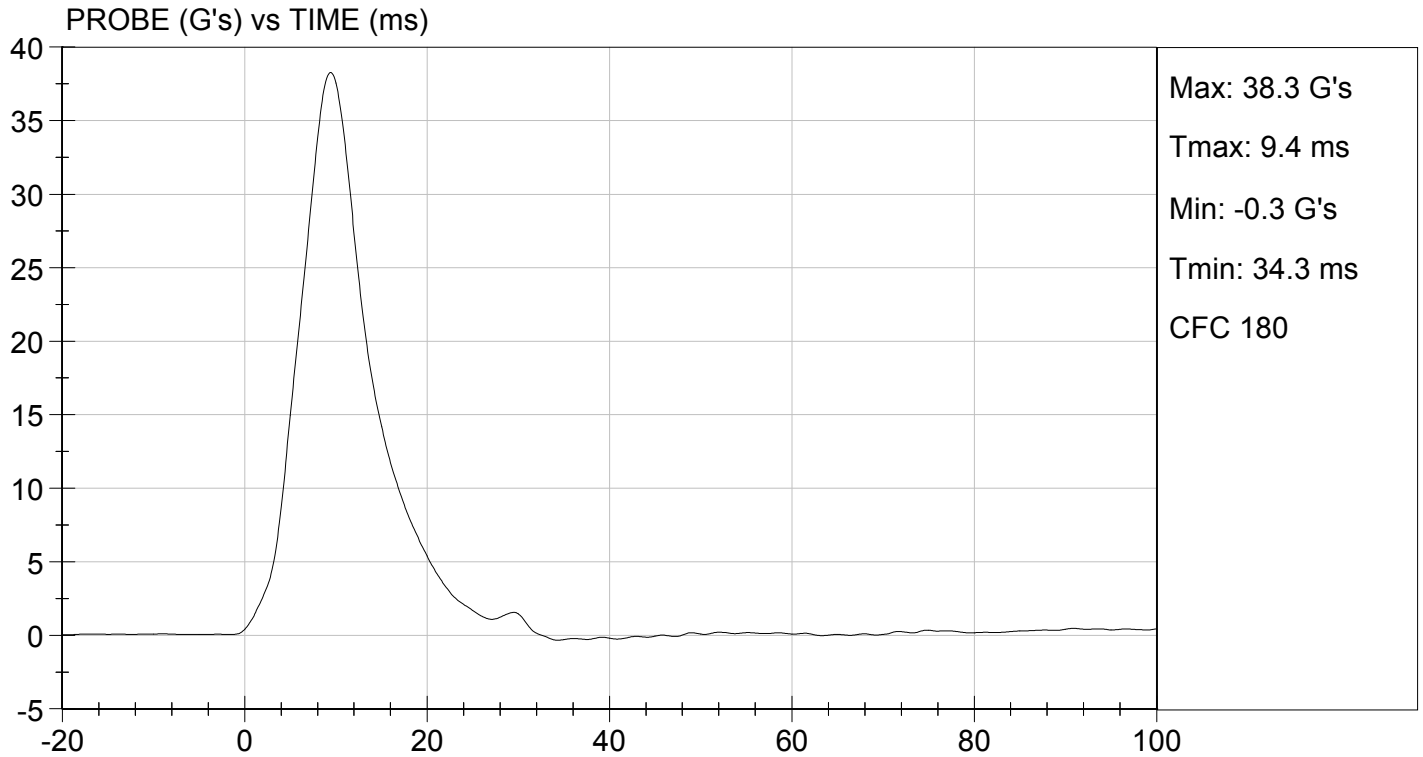
Test Date

Jessica Hall
Approved By



TEST DESC: ILLIAC
VELOCITY: 14.12 ft/s, 4.30 m/s

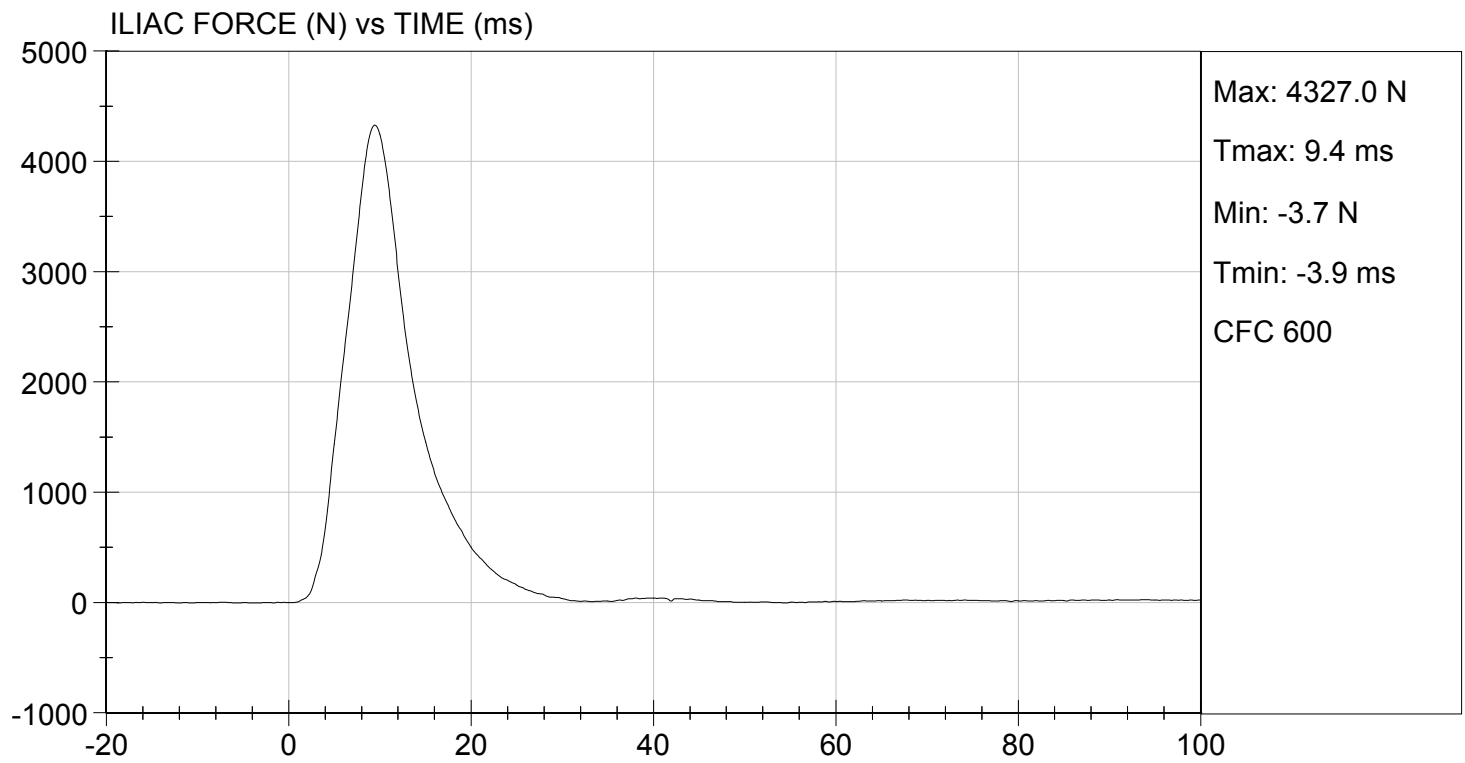
TEST DATE: 12/02/2014
TEST #: D144258



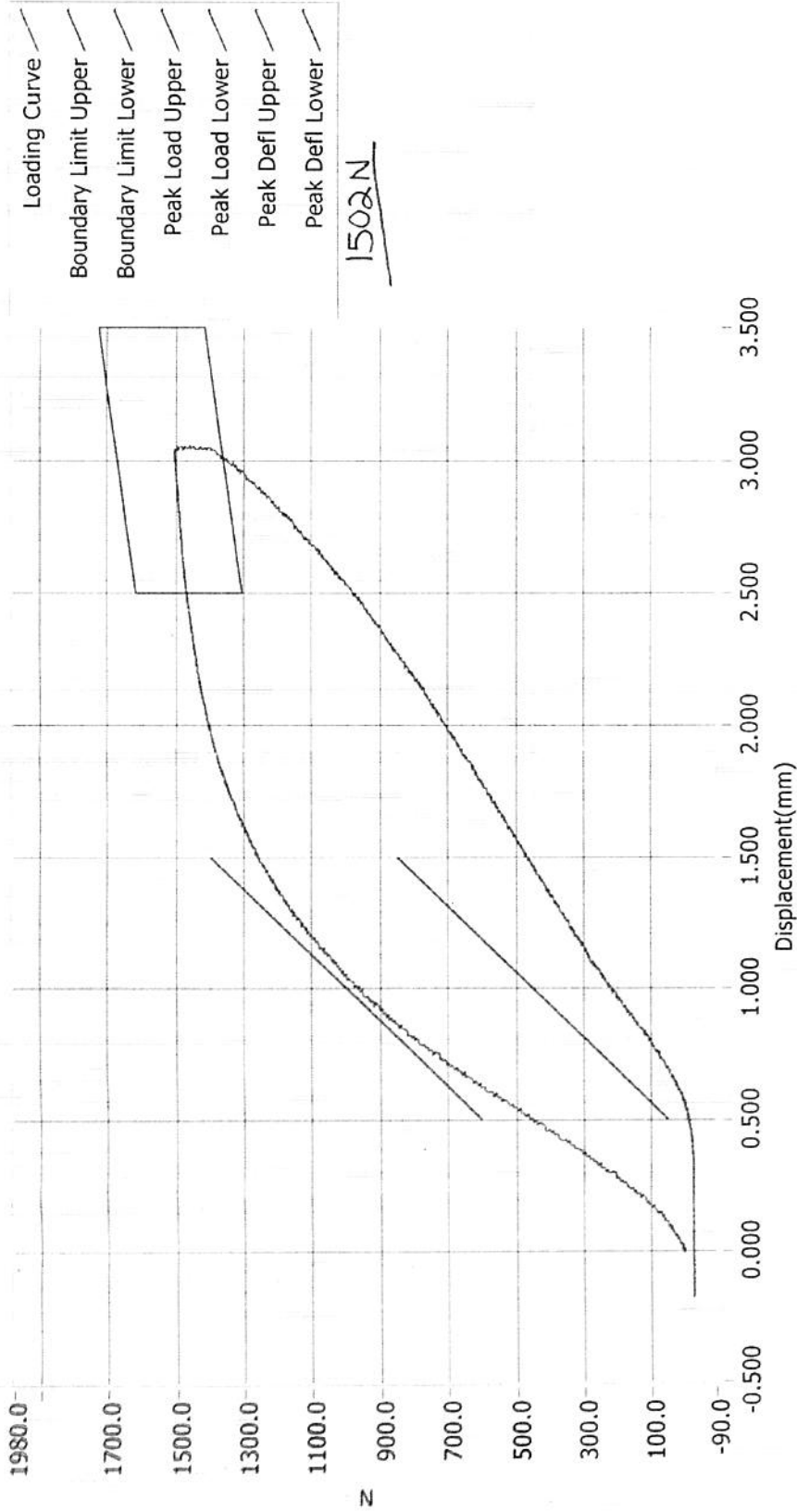


TEST DESC: ILLIAC
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 12/02/2014
TEST #: D144258



Resultant Data - SIDIIs Plug Compression



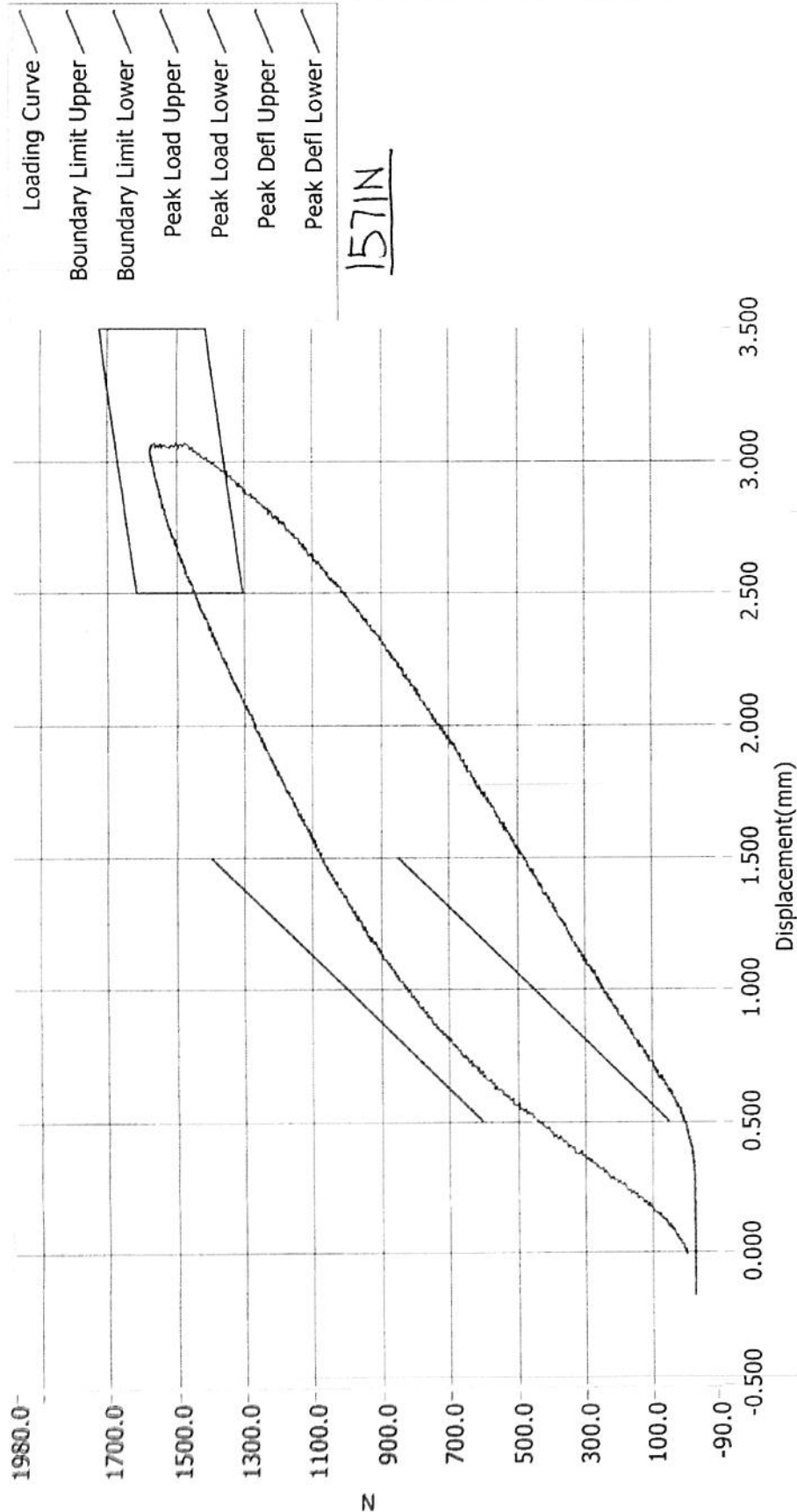
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	70608	12/12/2013	7:55 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/12/2013

Current Time : 19:55:39

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	70734	12/12/2013	10:39 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/12/2013 Current Time : 22:40:14

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	P79684	Endevco	10/21/14
				Y	P79685	Endevco	10/21/14
				Z	P79686	Endevco	10/21/14
				Xr	P79745	Endevco	10/21/14
				Yr	P79746	Endevco	10/21/14
				Zr	P79747	Endevco	10/21/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	G033	FTSS	10/03/14	
		Middle	Y	G1261	FTSS	10/03/14	
		Lower	Y	G1270	FTSS	10/03/14	
	Abdominal Rib	Upper	Y	G032	FTSS	10/03/14	
		Lower	Y	G1304	FTSS	10/03/14	
Lower Spine Accelerometers (T12)				X	P82084	Endevco	09/11/14
				Y	P82085	Endevco	09/11/14
				Z	P82086	Endevco	09/11/14
Acetabulum Load Cell				Y	ACG111	FTSS	04/03/14
Iliac Wing Load Cell				Y	IWG226	FTSS	04/03/14
Pelvis Plug (struck side)					70607	FTSS	12/12/13
Pelvis Plug (non-struck side)					70640	FTSS	12/12/13

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P85045	Endevco	08/08/14
Vehicle Center of Gravity	Y	P85047	Endevco	08/08/14
Vehicle Center of Gravity	Z	P85046	Endevco	08/08/14
Left Floor Sill	Y	P59346	Endevco	06/06/14
A-Pillar Sill	Y	P67376	Endevco	07/01/14
A-Pillar Low	Y	P74318	Endevco	07/28/14
A-Pillar Mid	Y	P78482	Endevco	09/23/14
B-Pillar Sill	Y	P78488	Endevco	10/02/14
B-Pillar Low	Y	P79638	Endevco	07/15/14
B-Pillar Mid	V	P67447	Endevco	11/11/14
Driver Seat	Y	P67873	Endevco	10/31/14
Engine Top	X	P82294	Endevco	10/31/14
Engine Top	Y	P82295	Endevco	10/31/14
Firewall	Y	P68868	Endevco	10/02/14
Right Roof	Y	P77632	Endevco	08/25/14
Right Floor Sill	Y	P78903	Endevco	08/21/14
Rear Floorpan	X	P73871	Endevco	08/18/14
Rear Floorpan	Y	P73870	Endevco	08/18/14

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