

REPORT NUMBER: SPNCAP-MGA-2013-004

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

**GENERAL MOTORS LLC
2012 Chevrolet Silverado 2500 LT Crew Cab
NHTSA No.: GC0101**

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



Test Date: July 25, 2012

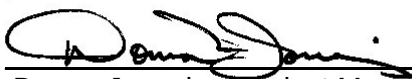
Final Report Date: August 14, 2012

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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Approved by: 
Ben Fischer, Project Engineer

Approval Date: August 14, 2012

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-2013-004																												
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				11. Contract or Grant No. DTNH22-09-D-00124																												
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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 2012 Chevrolet Silverado 2500 LT Crew Cab 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 July 25, 2012. The impact velocity was 32.1 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.3°C. The test vehicle post-test maximum crush was 447 mm at level 2. The test vehicle's performance was as follows: <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2" style="text-align: left;">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>474</td> </tr> <tr> <td style="text-align: left;">Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>53</td> </tr> <tr> <td style="text-align: left;">Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>2966</td> </tr> <tr> <td style="text-align: left;">Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>31</td> </tr> <tr> <td style="text-align: left;">Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>36</td> </tr> </tbody> </table> *Proposed IARV The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.						Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	474	Resultant Lower Spine Acceleration	Gs	82	53	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2966	Maximum Thoracic Rib Deflection	mm	38*	31	Maximum Abdomen Rib Deflection	mm	45*	36
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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, Room E12-100 Washington, DC 20590 Email: tis@nhtsa.dot.gov FAX: 202-493-2833																												
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2012 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 2012 Chevrolet Silverado 2500 LT Crew Cab. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated May 2012.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2012 Chevrolet Silverado 2500 LT Crew Cab. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.1 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on July 25, 2012. 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 May 2012. Camera locations and other pertinent camera information are included in this report.

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

- Head CG Triaxial Accelerometers (Primary and Redundant)
- 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	474
Resultant Lower Spine Acceleration	Gs	82	53
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2966
Maximum Thoracic Rib Deflection	mm	38*	31
Maximum Abdominal Rib Deflection	mm	45*	36

*Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes		
Knee Airbag	No			
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Abdomen/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

There was no valid data collected for:
Left Floor Sill Y after 10ms

Left Lower A-Post Y is questionable from 34-46ms
Driver Seat Track Y is questionable from 27-31ms

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: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
 Test Date: 7/25/2012

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	GC0101	Traction Control System (TCS)	Yes
Model Year	2012	Auto-Leveling System	No
Make	Chevrolet	Automatic Door Locks (ADL)	Yes
Model	Silverado 2500 Crew Cab	Power Window Auto-Reverse	No
Body Style	Truck	Other Optional Feature	N/A
VIN	1GC1CXEG1CF178947	Driver Front Airbag	Yes
Body Color	Mocha Steel Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	74 /46	Driver Head/Torso Airbag	No
Engine Displacement (L)	6.0	Driver Torso Airbag	No
Type/No. Cylinders	8	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Longitudinal	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
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	Yes	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	No
Power Seats	Driver Only	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
All Wheel Drive (AWD)	No	Other Safety Restraint	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)	4309
Date of Manufacture	02/12	GAWR Front (kg)	1996
Vehicle Type	Truck	GAWR Rear (kg)	2812

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	3	3		6	
Capacity Weight (VCW) (kg)				1388	(A)
DSC x 68.04 kg				408	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				980	(A-B)

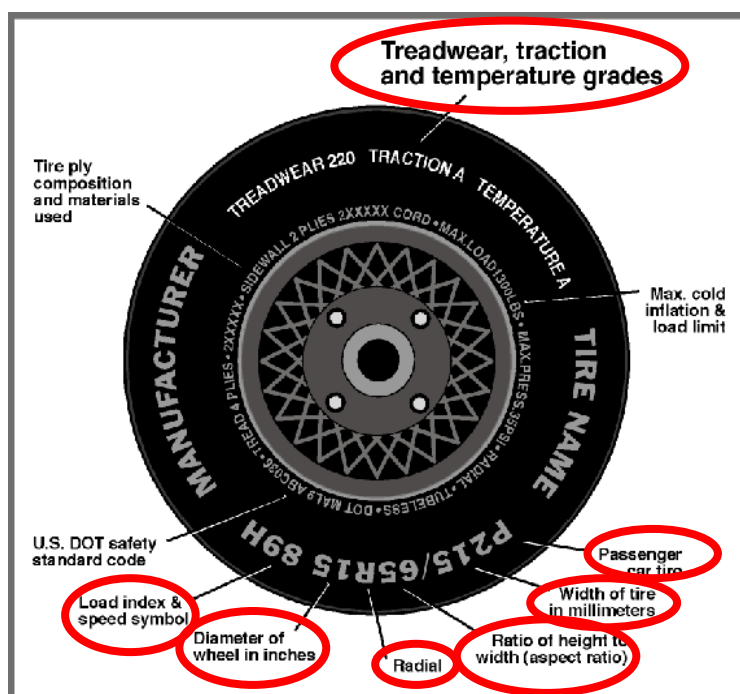
VEHICLE SEAT TYPE

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: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012



TIRE PLACARD INFORMATION

Measured Parameter	Front	Rear
Recommended Cold Tire Pressure (kPa)	420	480
Recommended Tire Size	LT265/70R18	LT265/70R18

TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	550	550
Tire Size on Vehicle	LT265/70R18	LT265/70R18
Tire Manufacturer	Michelin	Michelin
Tire Name	LTX A/T ²	LTX A/T ²
Tire Type	Light Truck	Light Truck
Tire Width	265	265
Aspect Ratio	70	70
Radial	Yes	Yes
Wheel Diameter	18	18
Load Index/Speed Symbol	124R	124R
Treadwear	Not Applicable	Not Applicable
Traction Grade	Not Applicable	Not Applicable
Temperature Grade	Not Applicable	Not Applicable
Tire Material	Rubber	Rubber

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

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
 Test Date: 7/25/2012

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	420	420	480	480
Tire Placard	kpa	420	420	480	480
Owner's Manual	kpa				
As Tested	kpa	420	420	480	480

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	815.6	664.5		851.9	724.0		835.6	755.7	
Right	kg	771.1	654.6		791.9	719.4		765.2	737.5	
Ratio	%	54.6	45.4		53.2	46.8		51.7	48.3	
Totals	kg	1586.7	1319.1	2905.8	1643.8	1443.4	3087.2	1600.8	1493.2	3094.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2905.8	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	136	(C)
Calculated Vehicle Target Weight (TVTW)	kg	3094.0	(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**

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast (if any)	80.3
None	0.0

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-0.9	-0.8	-0.7	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-1.2	-1.1	-1.1	Yes
Front Bumper Angle (left-to-right)**	deg	-0.5	-0.5	-0.6	Yes
Rear Bumper Angle (left-to-right)**	deg	-0.2	-0.2	-0.4	Yes
Vehicle CG (Aft of Front Axle)	mm	1775	1828	1887	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	16	18	25	

*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.

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

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
 Test Date: 7/25/2012

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	14.6	3.0	8.8
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat	Fixed	Fixed	Fixed
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	8.8	20	Max	40	40	40
	8.8	20	Mid	20	20	20
	8.8	20	Min	0	0	0
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Front Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
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: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

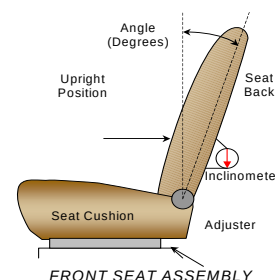
NHTSA No. GC0101
 Test Date: 7/25/2012

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	240	22 (1 st as 1)	0	0 (1 st as 0)
Front Center Seat	Fixed	Fixed	Fixed	Fixed
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	50.3		-0.7	4 th (1 st as 0)
Front Passenger Seat	51.4		0.3	4 th (1 st as 0)
Front Center Seat	Fixed		Fixed	Fixed
Struck Side Rear Seat	Fixed		Fixed	Fixed
Non-Struck Side Rear Seat	Fixed		Fixed	Fixed
Rear Center Seat	Fixed		Fixed	Fixed

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	5 (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	4	Lowest

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

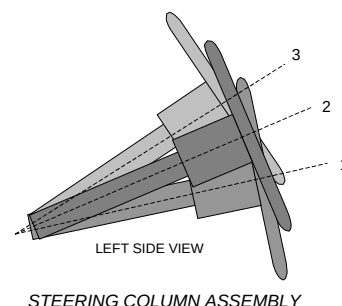
Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
 Test Date: 7/25/2012

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.

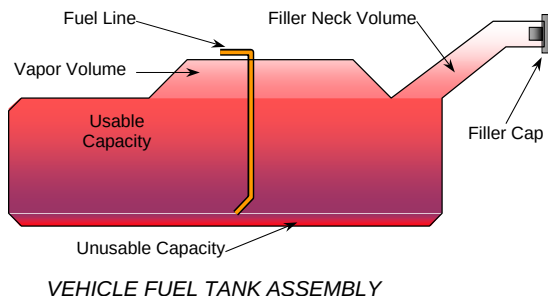
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	78.0	
Geometric Center, Position 2	68.2	
Uppermost, Position 3	58.3	
Telescoping Steering Wheel Travel		
Test Position	68.2	



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. Pump will run when engine is running. Also, it will run briefly when ignition key is turned to the "on" position without starting the engine. The fuel pipe is on the left side.



FUEL TANK CAPACITY DATA

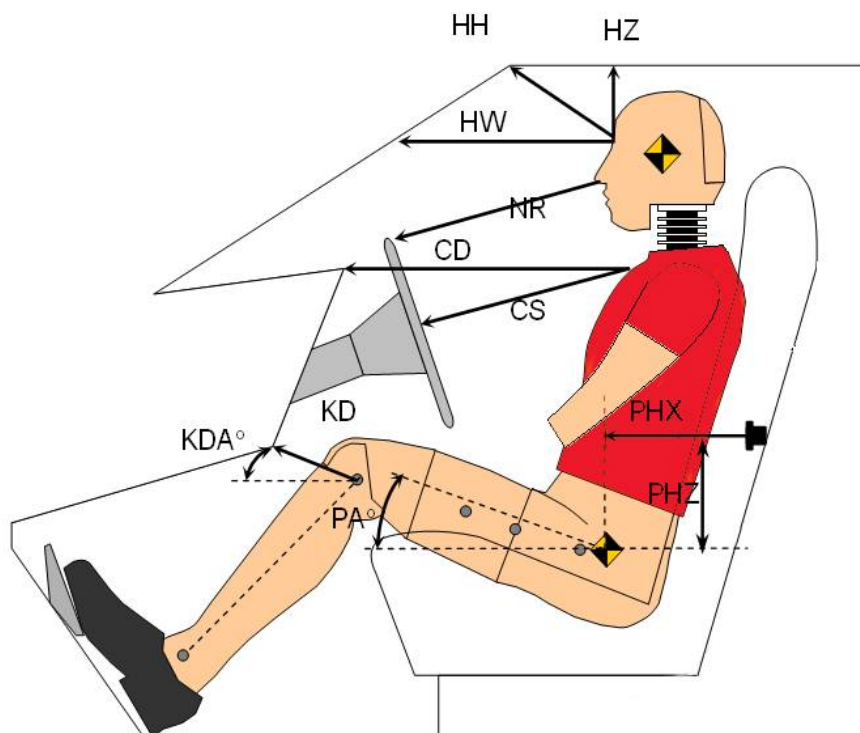
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	135.1
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	136.3
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	125.6
Actual Amount of Solvent Used	126.8
1/3 of Usable Capacity	45.0

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: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
 Test Date: 7/25/2012



LEFT SIDE VIEW

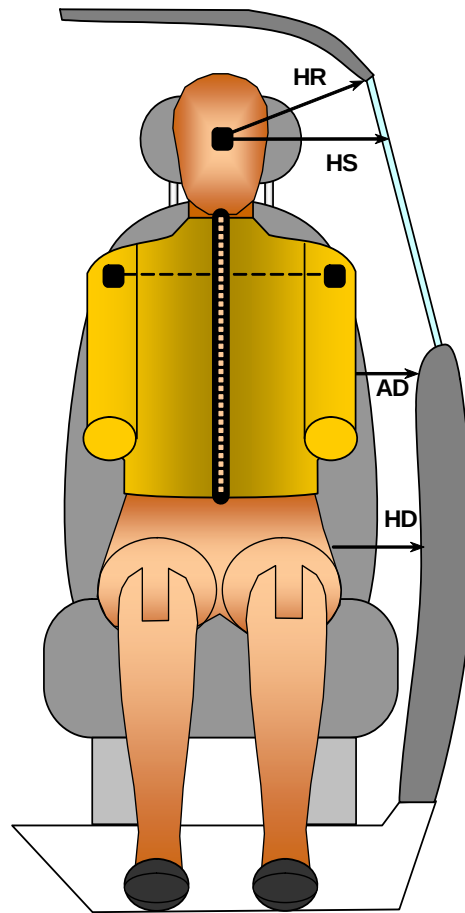
Code	Measurement Description	Driver S/N 306	
		Length (mm)	Angle (°)
HH	Head to Header	326	
HW	Head to Windshield	648	
HZ	Head to Roof Liner	235	
NR	Nose to Rim	202	
CD	Chest to Dashboard	381	
CS	Chest to Steering Wheel	158	
KDL/KDAL°	Left Knee to Dash	85	31.0
KDR/KDAR°	Right Knee to Dash	83	33.7
PAX°	Pelvic Tilt Angle (X-Axis)		19.2
PAY°	Pelvic Tilt Angle (Y-Axis)		1.2
PHX	Hip Point to Striker (X-Axis)	471	
PHZ	Hip Point to Striker (Z-Axis)	-3 *	

*H-point above striker

DATA SHEET NO. 4**DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012



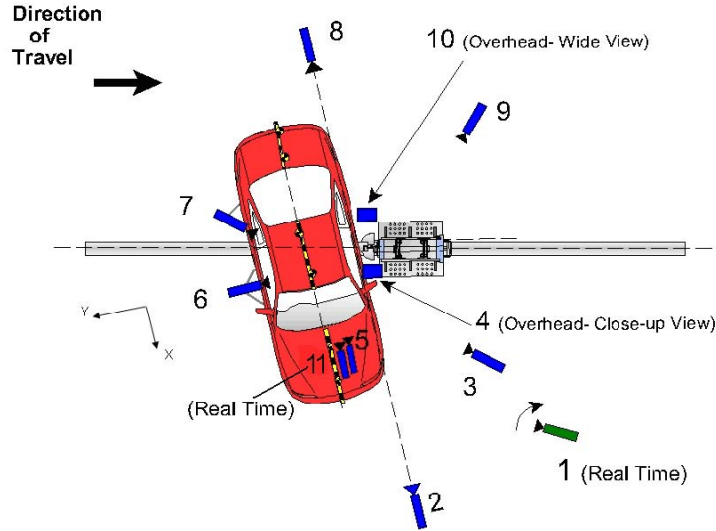
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver S/N 306
		Length (mm)
HR	Head to Side Header	256
HS	Head to Side Window	380
AD	Arm to Door	194
HD	Hip Point to Door	168

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012



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	6340	-1920	24	1000
3	Impact Side 45° Forward	-2150	5370	-1940	20	1000
4	Overhead Closeup	120	0	-4420	50	1000
5	Onboard – Driver Front				16	
6	Onboard – Driver Side				8	
7	Onboard – Driver Rear				8	
8	Rear Ground Level	-100	-7140	-1830	24	1000
9	Impact Side 45° Rearward	-4180	-4590	-1930	20	1000
10	Overhead Wide View	370	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: Not Applicable

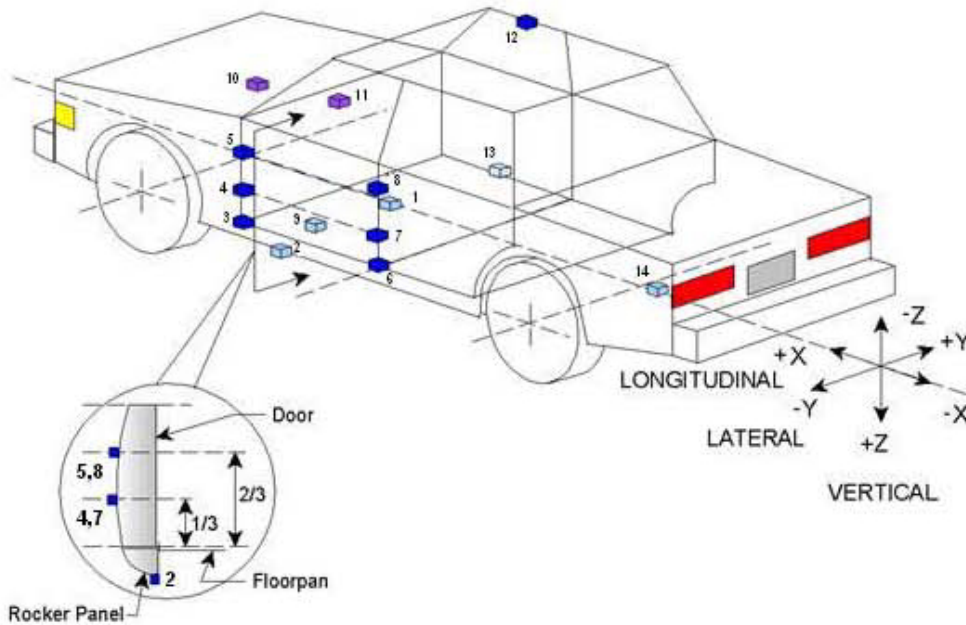
INSTRUMENTATION

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

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

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3269	-139	-638
2	Left Floor Sill	4052	-795	-487
3	A Pillar Sill	4490	-795	-486
4	A Pillar Low	4524	-873	-890
5	A Pillar Mid	4524	-872	-1103
6	B Pillar Sill	3552	-805	-516
7	B Pillar Low	3253	-825	-867
8	B Pillar Mid	3268	-816	-1132
9	Driver Seat Track	3658	-608	-751
10	Engine Top	5176	0	-1170
11	Firewall	4942	0	-1346
12	Right Roof	3305	630	-1939
13	Right Floor Sill	3480	795	-525
14	Rear Floorpan	884	0	-970

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: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012



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: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag, Frontal Airbag, Headrest
Top of Head	Curtain Airbag, Headrest
Left Side of Head	Curtain Airbag
Back of Head	Headrest
Left Shoulder	Side Airbag
Upper Torso	Side Airbag, Seatback
Lower Torso	Side Airbag, Seatback
Left Hip	Side Airbag, Seat Cushion
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	Yes	Yes	Yes	N/A
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	N/A
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	N/A
Disengaged from Latched Position	No	No	No	No	N/A
Latch Separated from Striker	No	No	No	No	N/A
Jammed Shut	Yes	Yes	No	No	N/A
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 Broke
Other Notable Effects	None

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

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

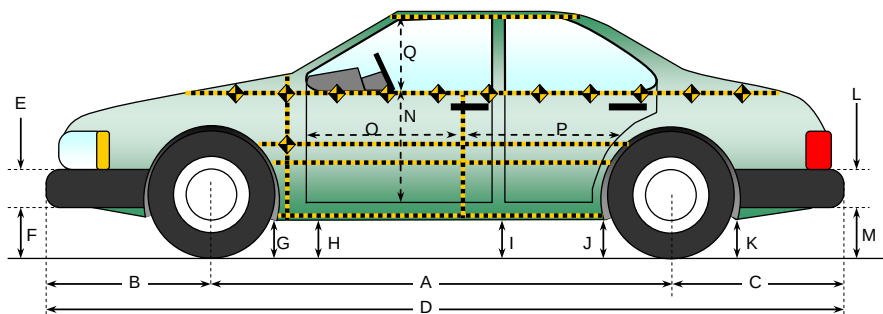
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1212
Actual Impact Point (Aft of Front Axle)	mm		1215
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	-3
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	32.1
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.3

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

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012



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

LEFT SIDE VIEW

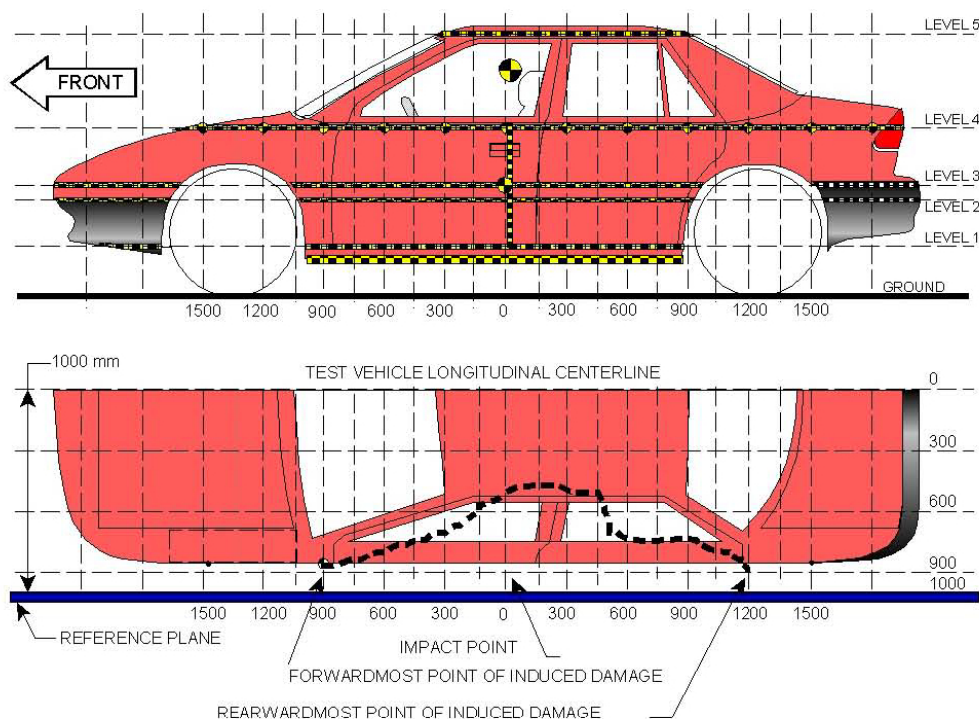
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	3910	3857	53
B	Front Axle to FSOV	982	985	-3
C	Rear Axle to RSOV	1209	1209	0
D	Total Vehicle Length at Centerline	6101	6051	50
E	Front Bumper Thickness	194	194	0
F	Front Bumper Bottom to Ground	270	290	-20
G	Sill Height at Front Wheel Well	365	353	12
H	Sill Height at Front Door Leading Edge	330	202	128
I	Sill Height at B-Pillar	340	310	30
J1	Sill Height at Rear Wheel Well	340	320	20
J2	Pinch Weld Height at Rear Wheel Well	317	377	-60
K	Sill Height Aft of Rear Wheel Well	560	572	-12
L	Rear Bumper Thickness	214	214	0
M	Rear Bumper Bottom to Ground	218	215	3
N	Sill Height to Bottom of Front Window Sill	844	836	8
O	Front Door Leading Edge to Impact CL	567	567	0
P	Rear Door Trailing Edge to Impact CL	1590	1654	-64
Q	Front Window Opening	520	575	-55
R	Right Side Length	5240	5275	-35
S	Left Side Length	5240	5002	238
T	Vehicle Width at B-Pillars	2004	1915	89

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

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
 Test Date: 7/25/2012



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)
1	Sill Top	590
2	Occupant Hip Point	915
3	Mid Door	995
4	Window Sill	1270
5	Window Top	1905

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

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
 Test Date: 7/25/2012

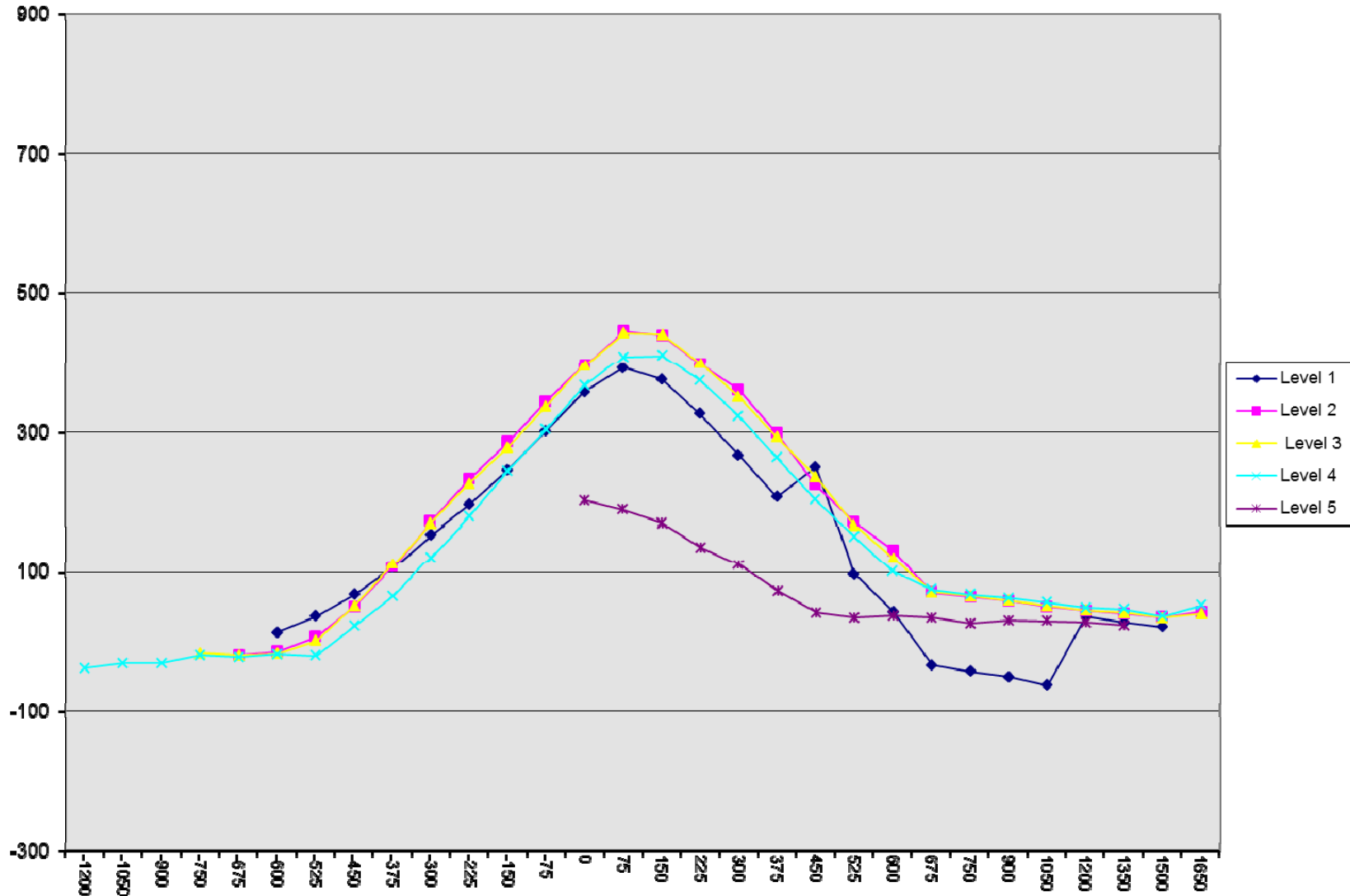
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200				166					130					-36	
-1050				158					129					-29	
-900				155					126					-29	
-750			85	155				70	137				-15	-18	
-675		89	89	160			71	71	139			-18	-18	-21	
-600	146	103	114	160		160	90	98	143		14	-13	-16	-17	
-525	156	115	119	158		193	123	121	139		37	8	2	-19	
-450	160	115	118	155		228	166	170	178		68	51	52	23	
-375	159	114	116	154		266	222	228	220		107	108	112	66	
-300	159	112	115	153		313	284	285	275		154	172	170	122	
-225	159	111	114	152		355	343	340	331		196	232	226	179	
-150	160	110	112	149		406	396	390	393		246	286	278	244	
-75	160	109	110	148		462	453	447	452		302	344	337	304	
0	160	108	110	145	394	518	506	507	512	596	358	398	397	367	202
75	159	107	110	145	389	552	554	554	555	578	393	447	444	410	189
150	159	106	109	142	383	535	547	551	554	553	376	441	442	412	170
225	159	105	108	141	379	485	504	508	516	515	326	399	400	375	136
300	159	105	107	140	377	426	466	458	463	488	267	361	351	323	111
375	159	105	107	139	373	366	403	400	402	446	207	298	293	263	73
450	159	105	106	138	373	409	329	342	341	415	250	224	236	203	42
525	159	104	106	136	371	256	275	273	287	406	97	171	167	151	35
600	159	104	105	135	369	203	236	226	236	407	44	132	121	101	38
675	160	104	105	135	367	128	175	177	210	402	-32	71	72	75	35
750	160	104	105	135	367	119	169	171	203	394	-41	65	66	68	27
900	162	103	105	133	363	113	162	165	196	394	-49	59	60	63	31
1050	165	103	105	132	361	104	154	157	189	391	-61	51	52	57	30
1200	166	104	105	132	359	203	149	151	181	387	37	45	46	49	28
1350	169	104	105	130	358	197	145	147	177	382	28	41	42	47	24
1500	169	105	106	130		191	141	141	167		22	36	35	37	
1650		120	123	150			164	164	203			44	41	53	

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

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

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
Test Date: 7/25/2012



DATA SHEET NO. 11
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

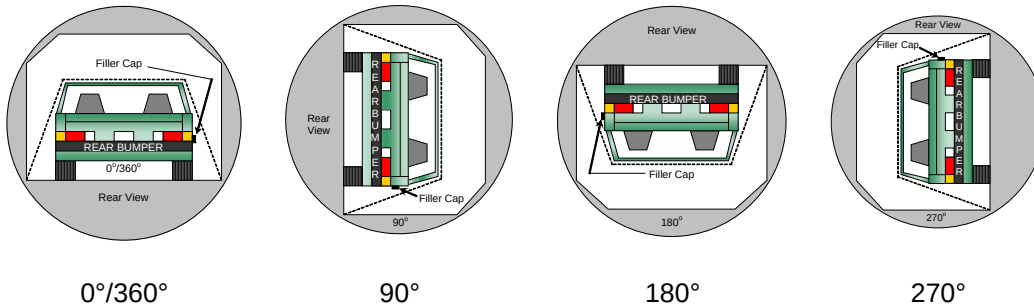
NHTSA No. GC0101
 Test Date: 7/25/2012

Test Time: 10:59 am

Temperature: 21.3° 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°	169	300	469
90° to 180°	150	300	450
180° to 270°	147	300	447
270° to 360°	160	300	460

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

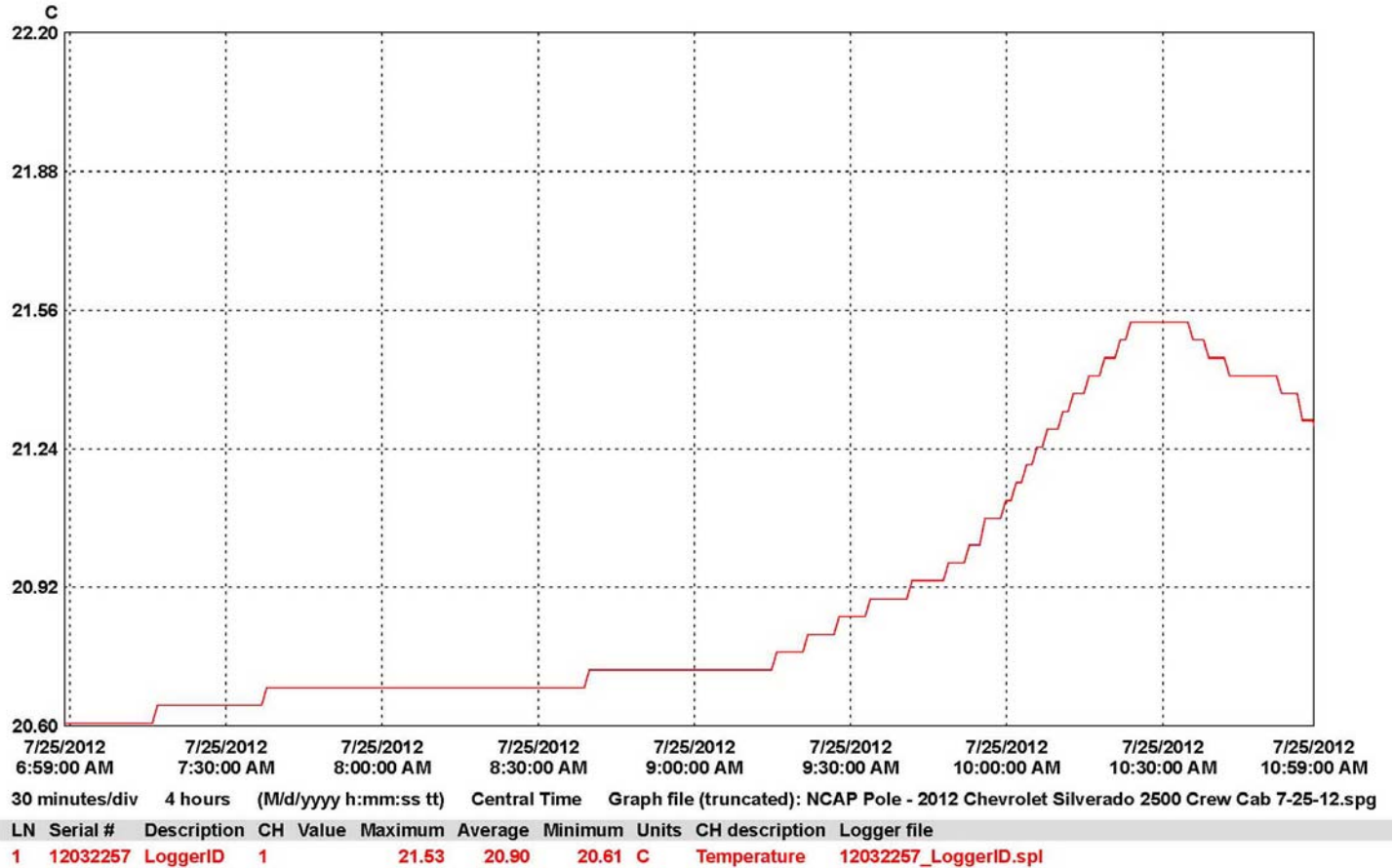
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 12
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2012 Chevrolet Silverado 2500 LT Crew Cab
 Test Program: NCAP Side Pole Impact Test

NHTSA No. GC0101
 Test Date: 7/25/2012



APPENDIX A
PHOTOGRAPHS

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As Delivered Right Front ¾ View of Test Vehicle



As Delivered Left Rear ¾ 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



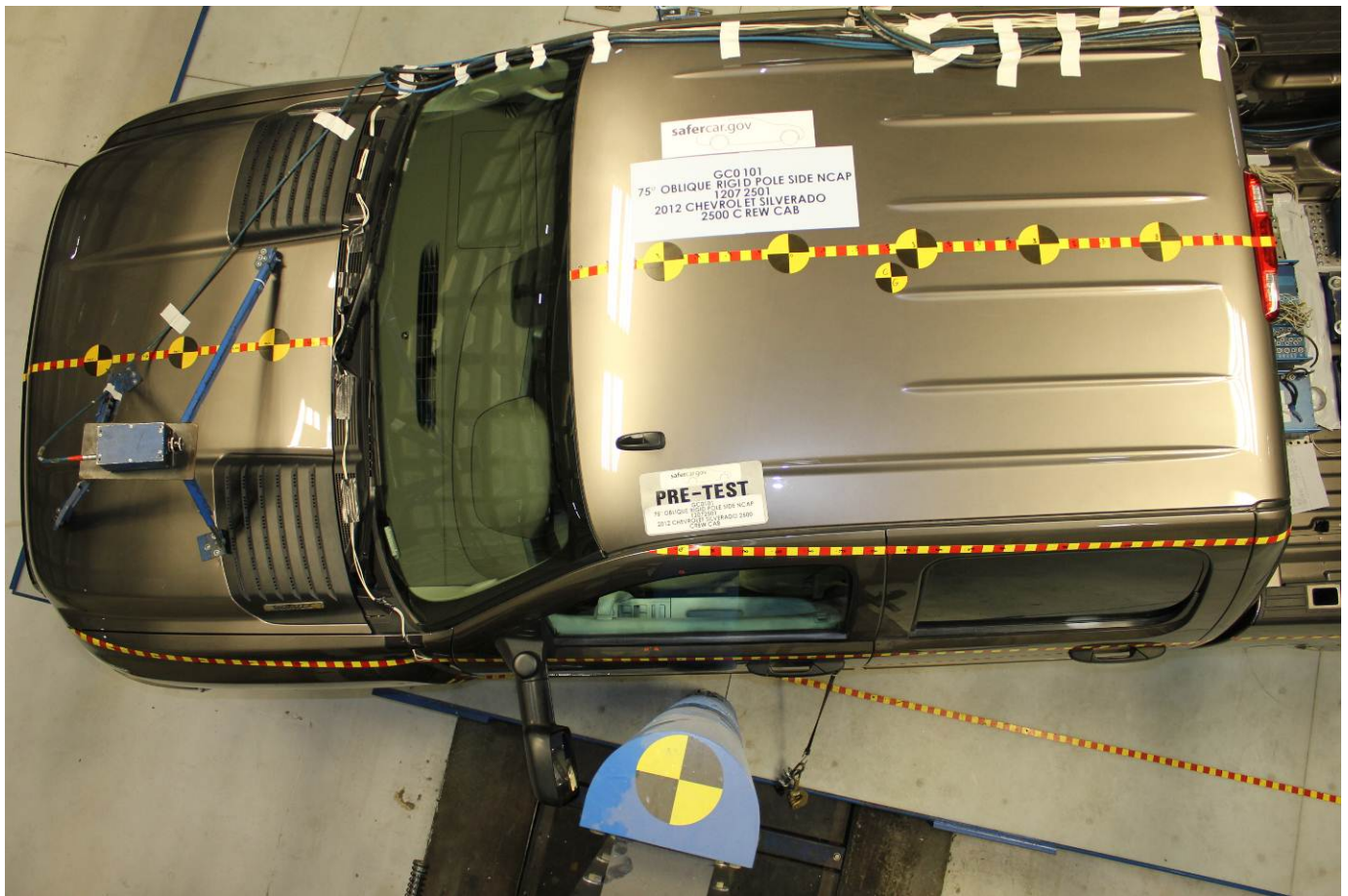
Post-Test Rear View of Test Vehicle



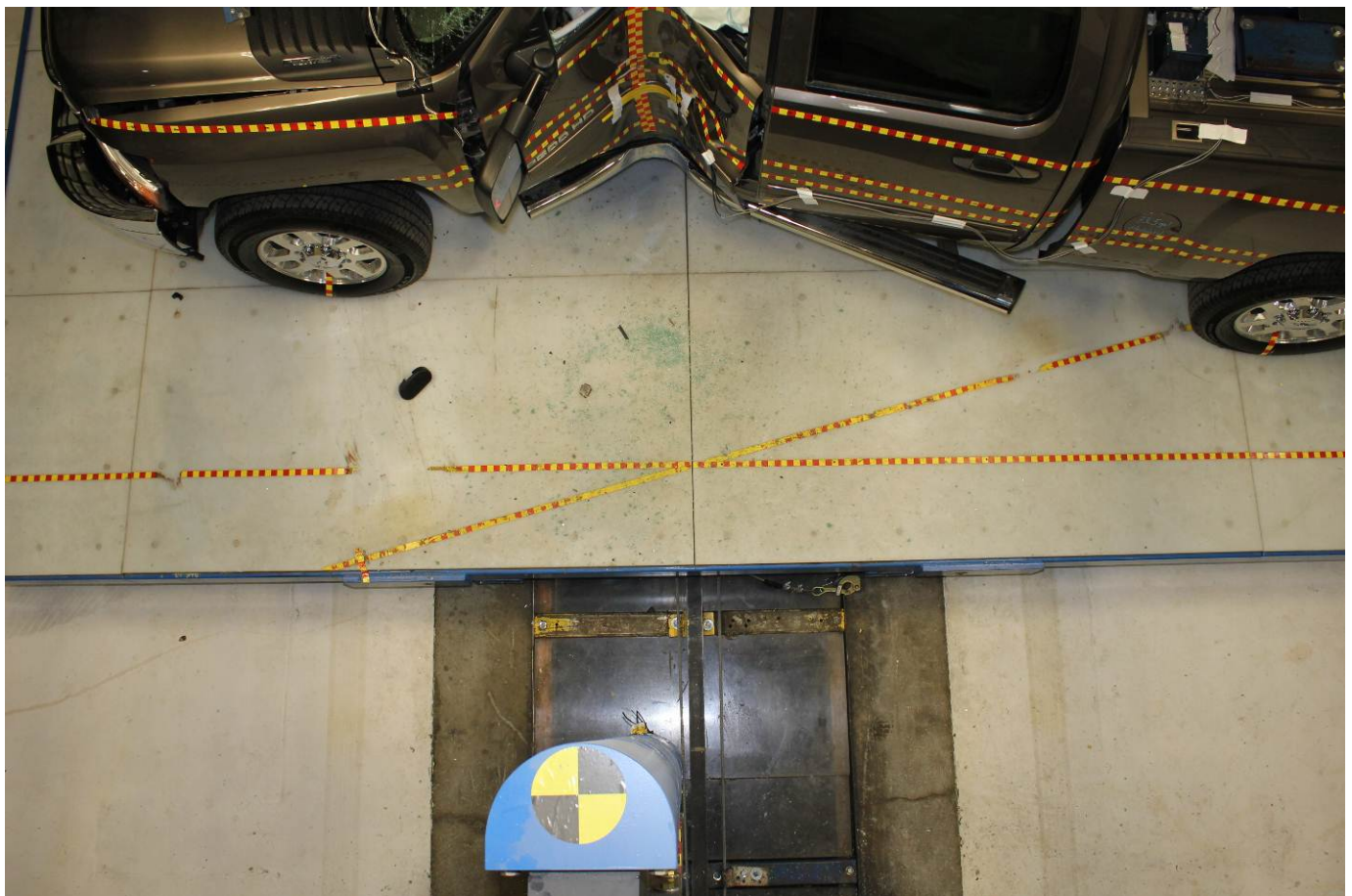
Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



Post-Test Overhead View of Test Area



Post-Test Overhead View of Test Area



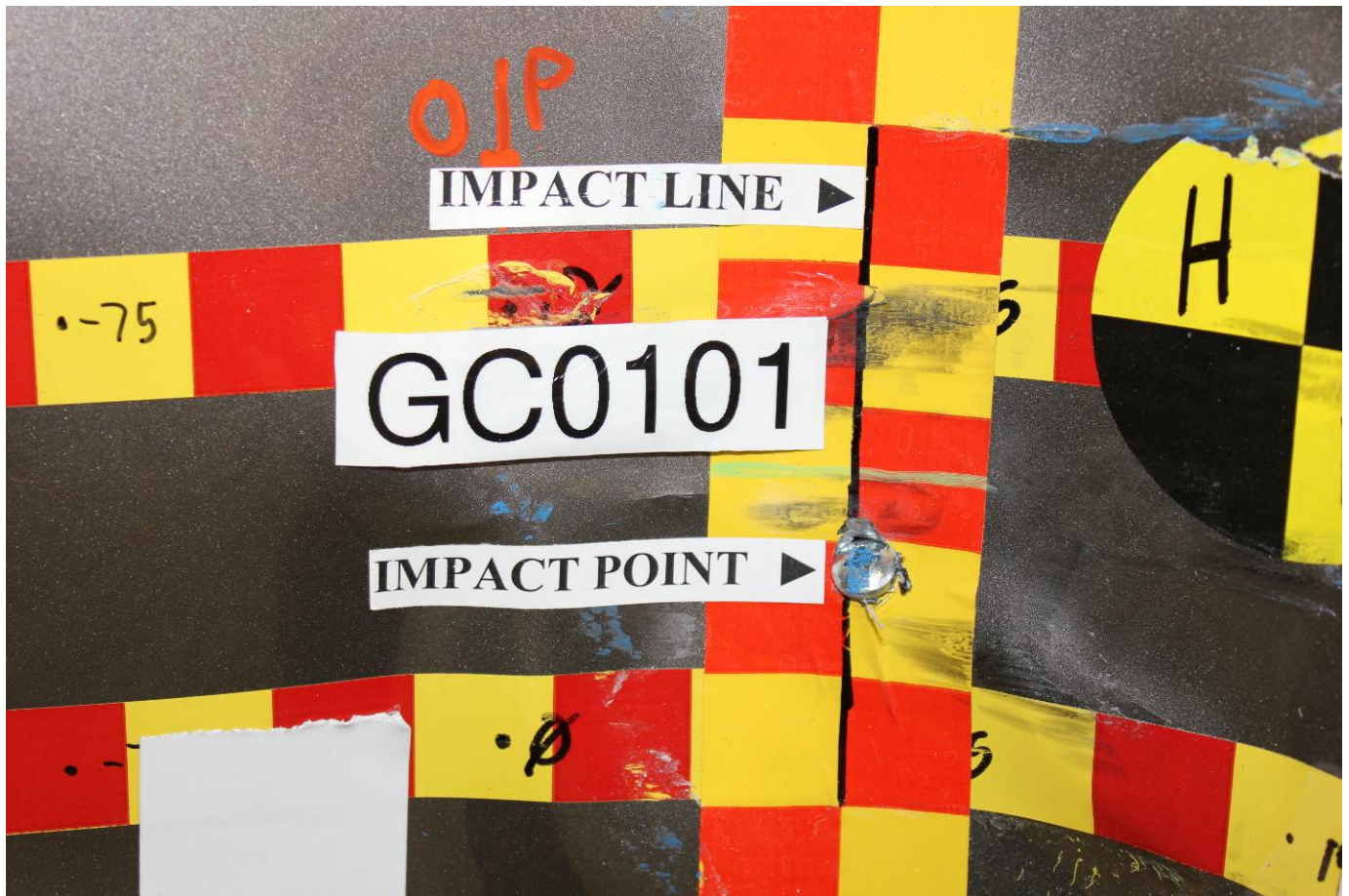
Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



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



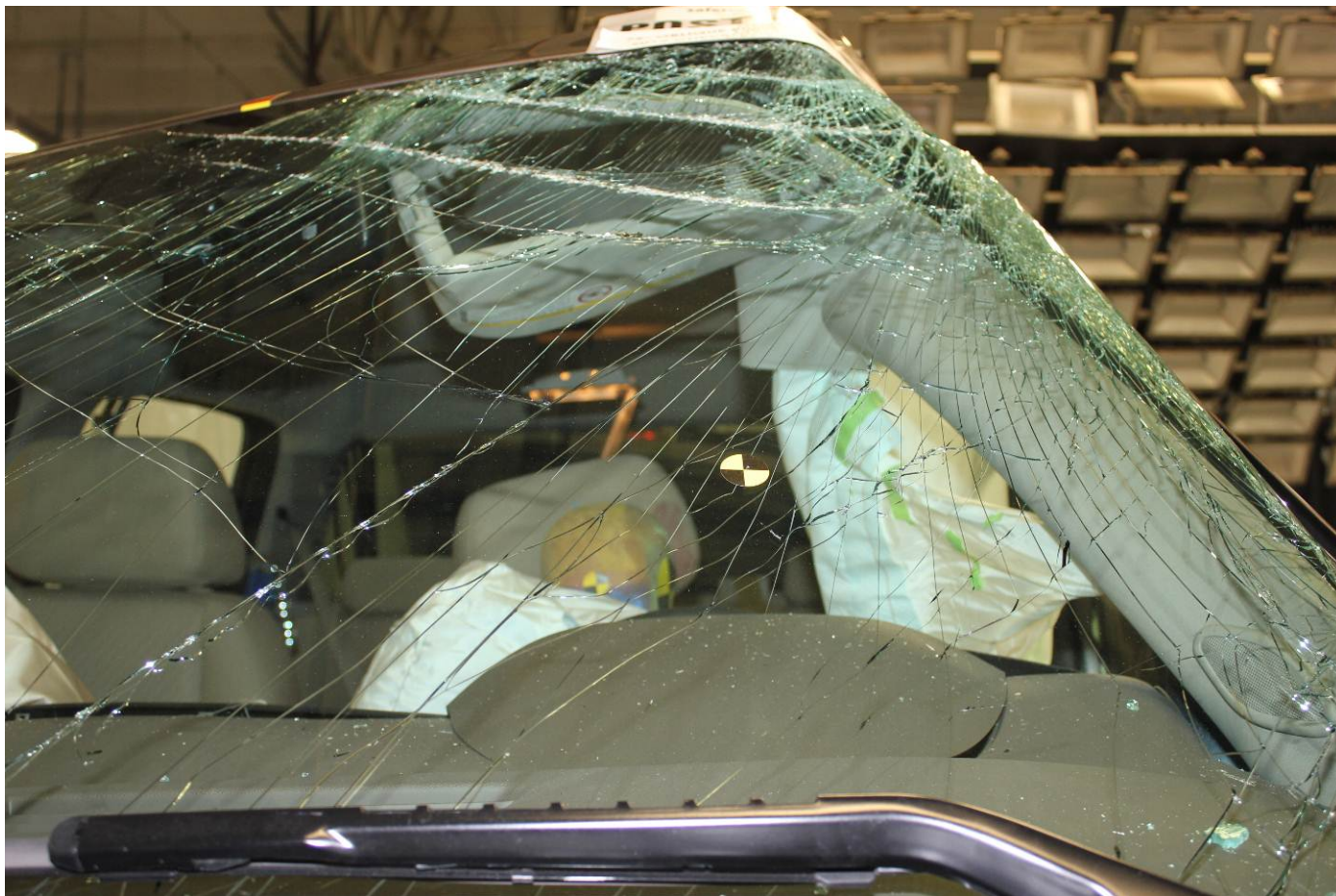
Pre-Test Close-Up View of Impact Point Target



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

PHOTOGRAPH NOT AVAILABLE

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



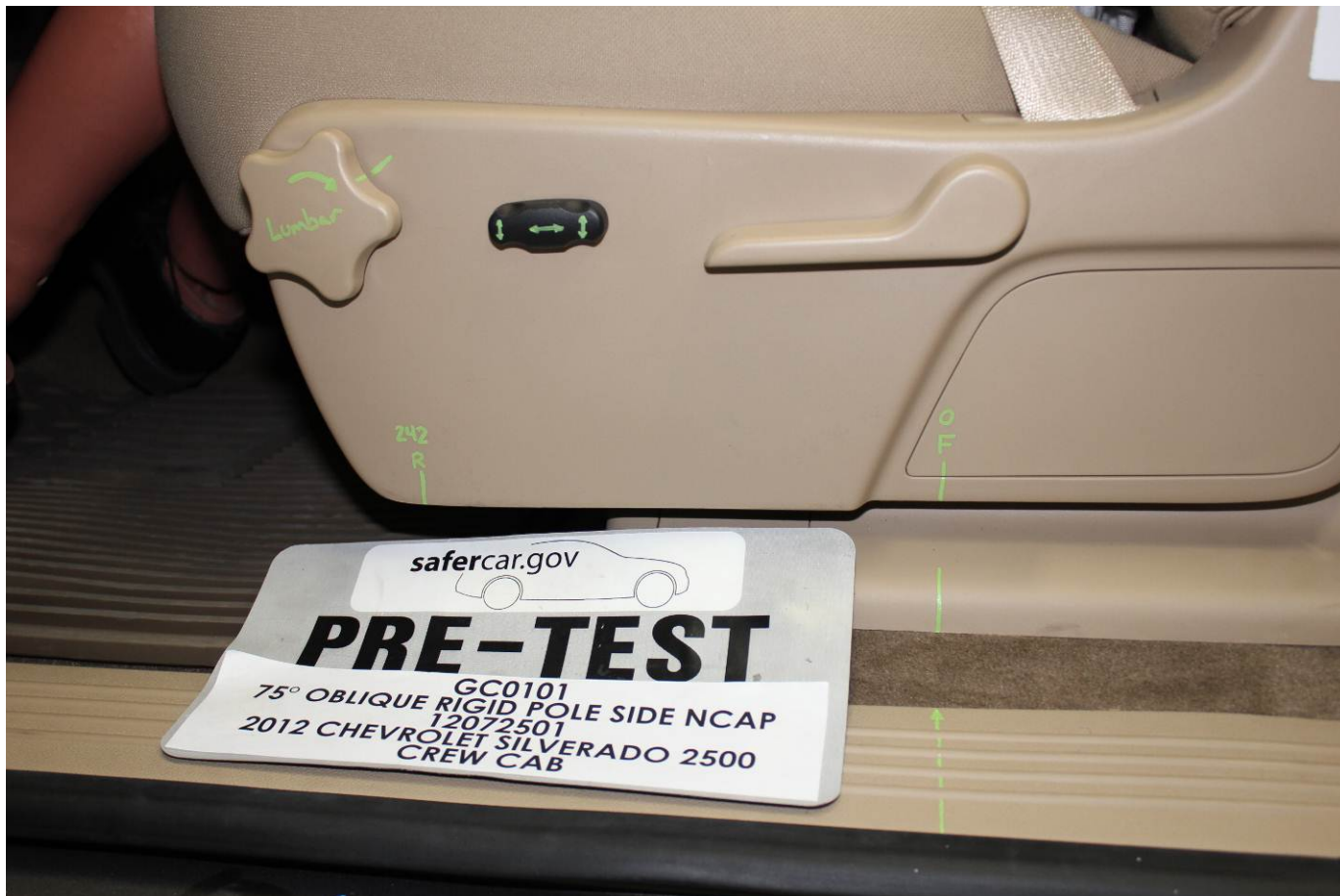
Pre-Test Left Side View of Steering Wheel

PHOTOGRAPH NOT AVAILABLE

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



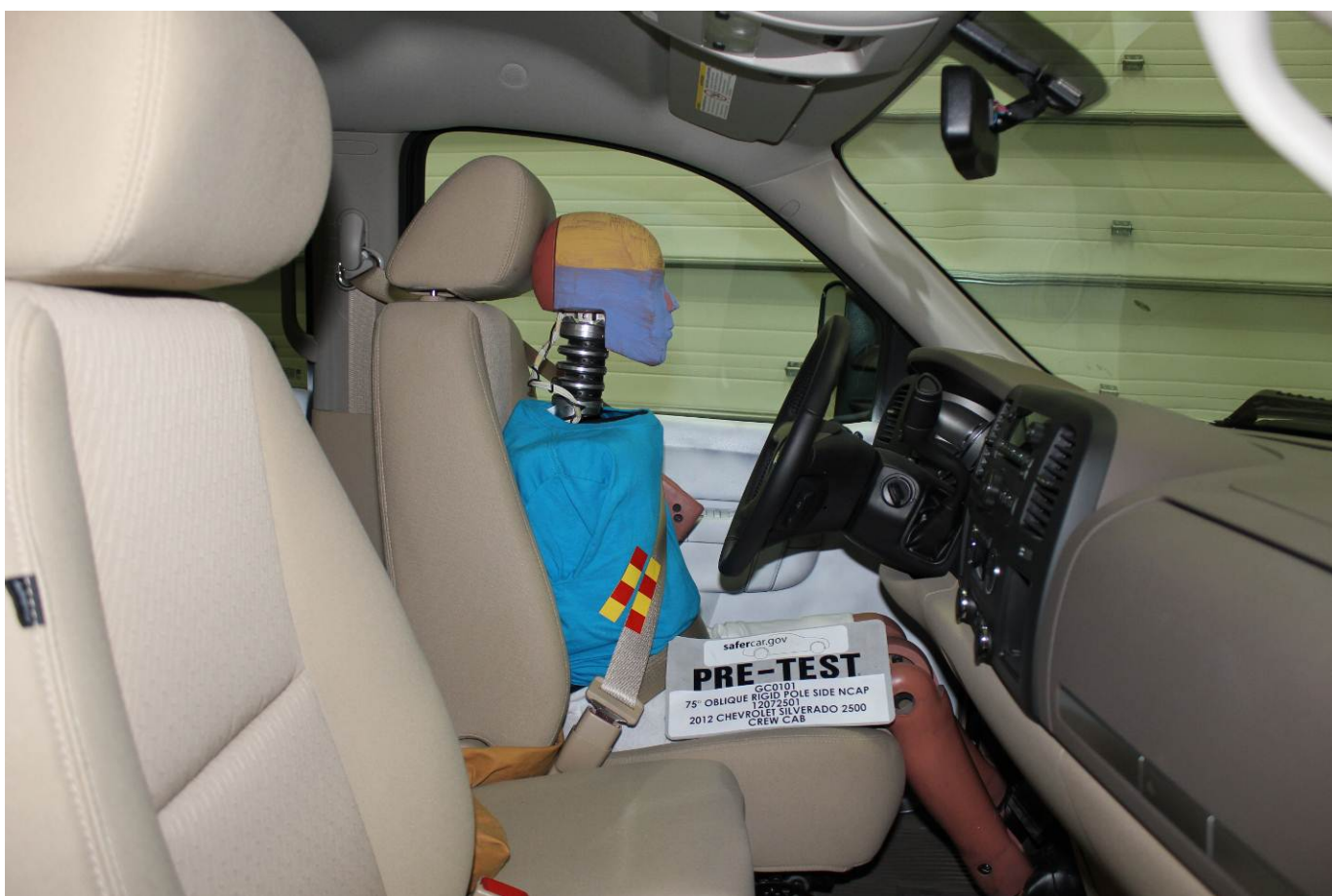
Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Pre-Test Dummy and Door Clearance View



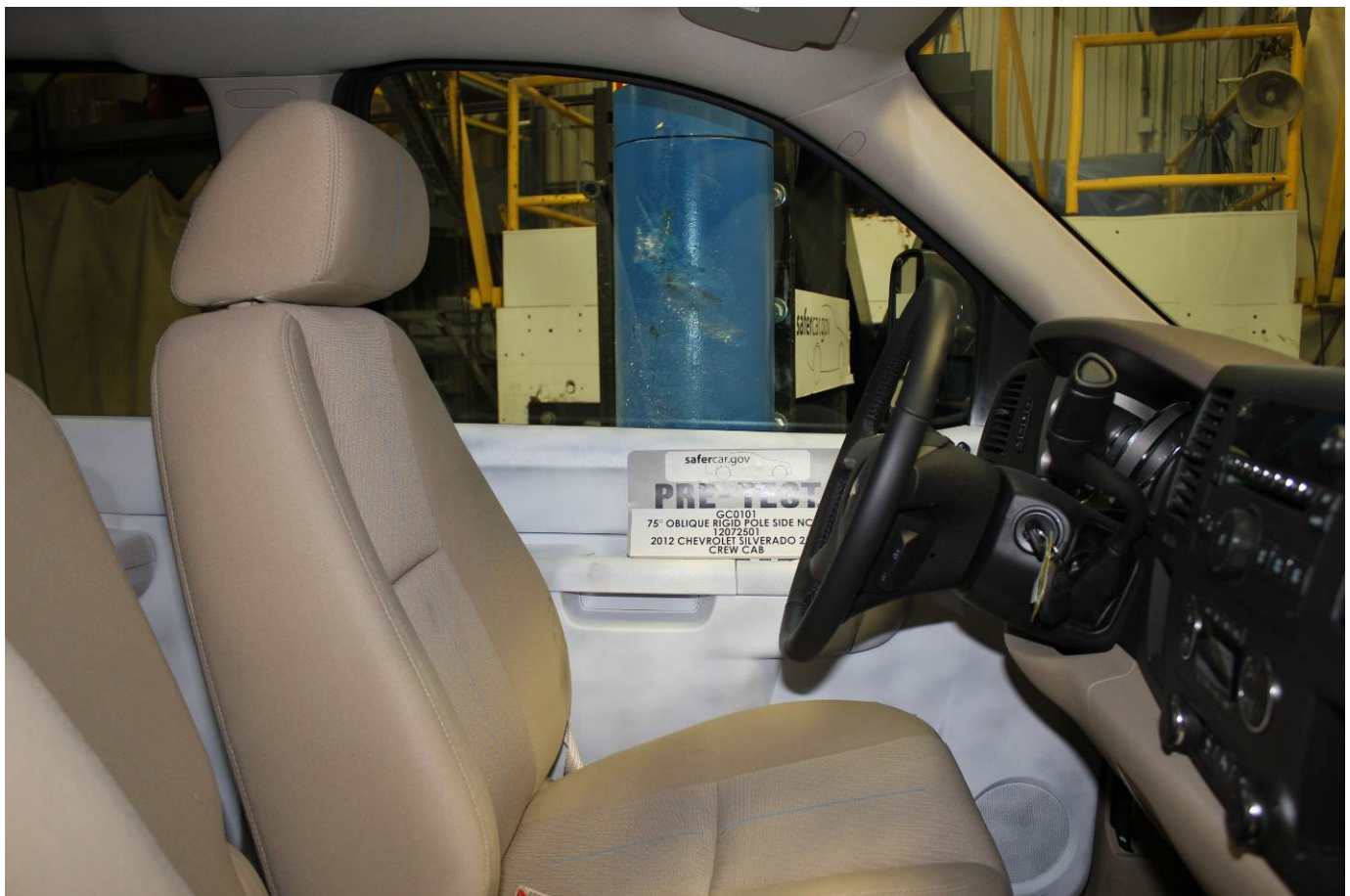
Post-Test Dummy and Door Clearance View



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



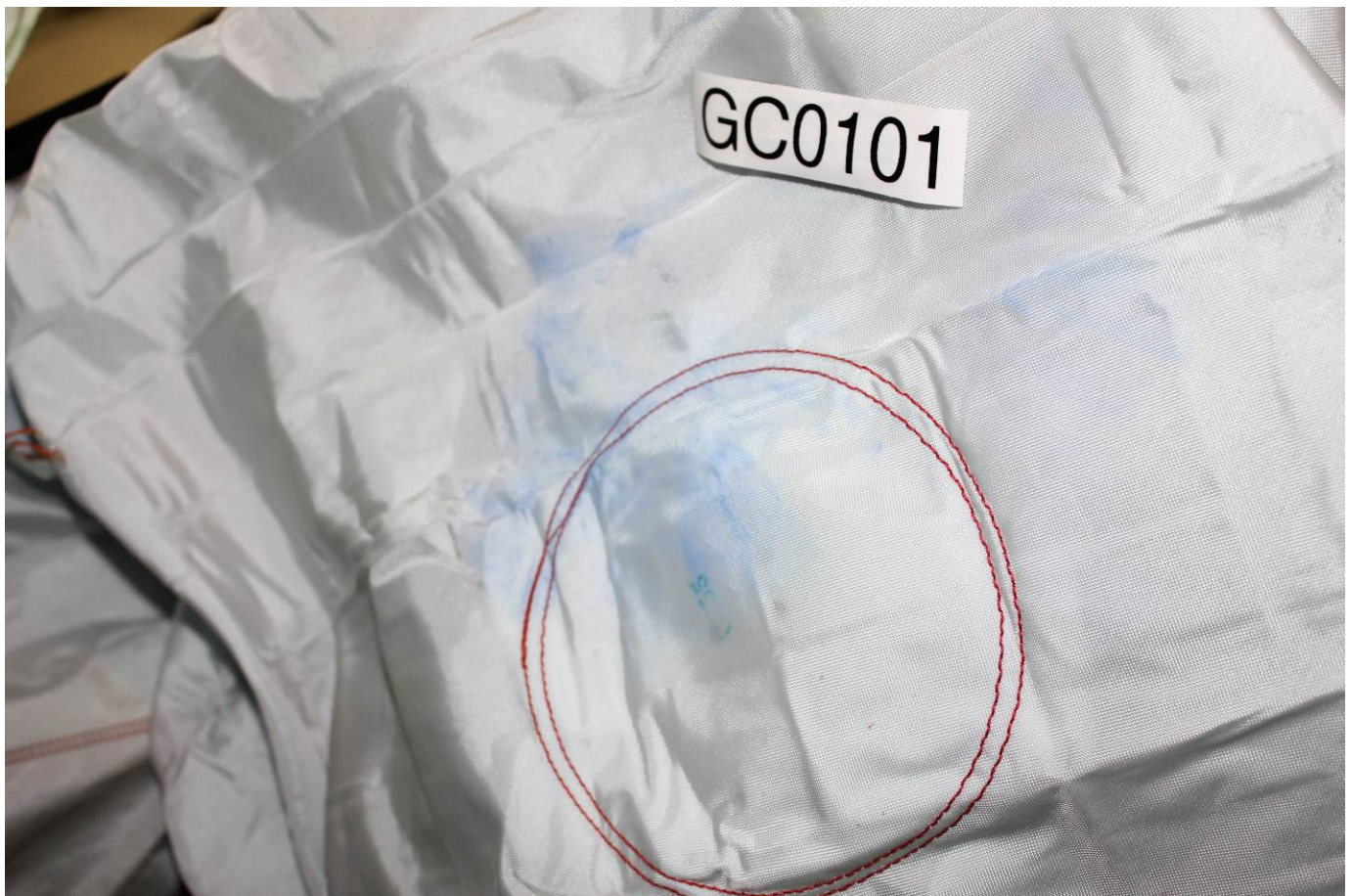
Post-Test Inner Door Panel View Showing Dummy Contact Location



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 Head Contact with Frontal 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



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



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



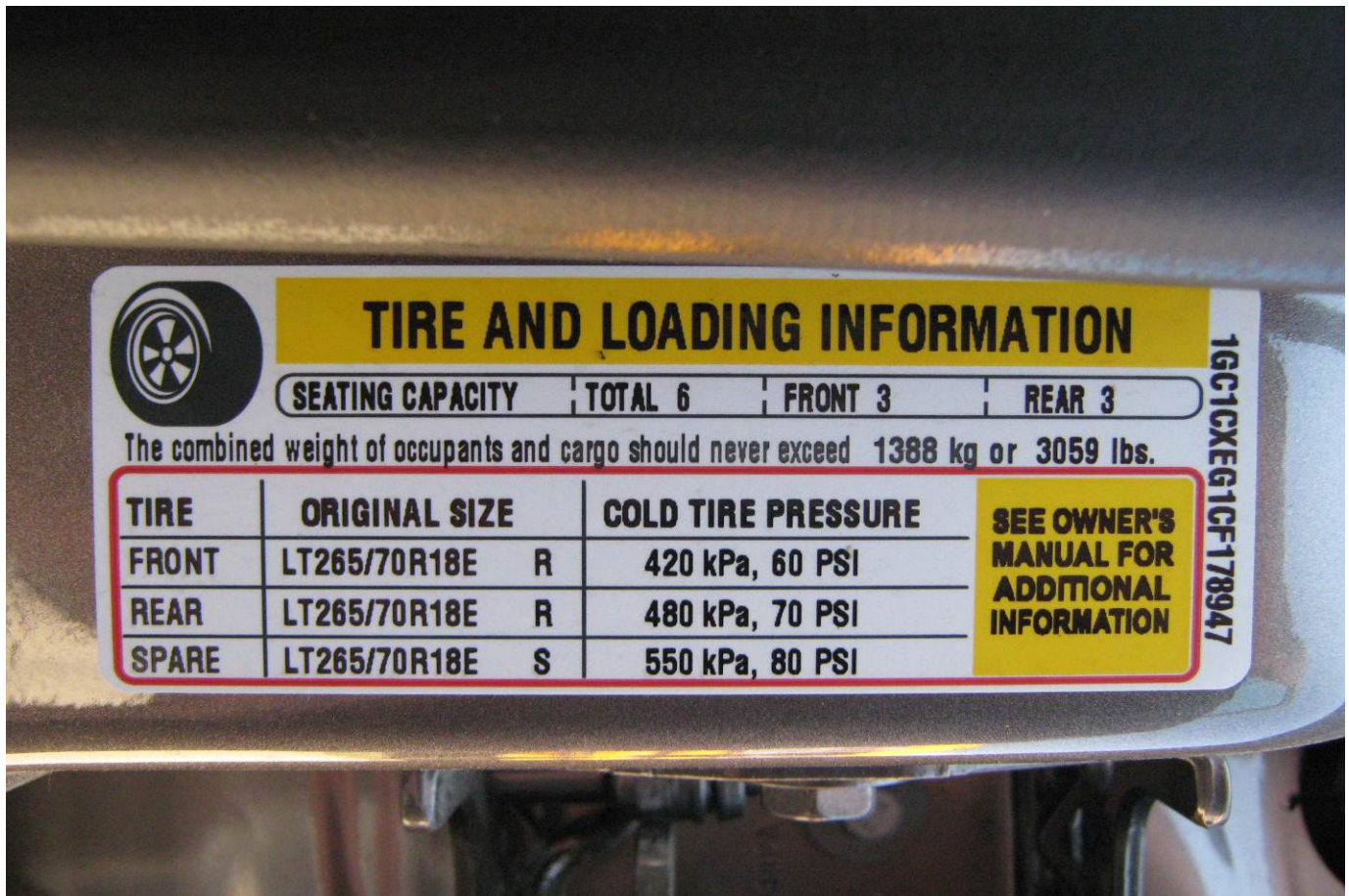
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



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



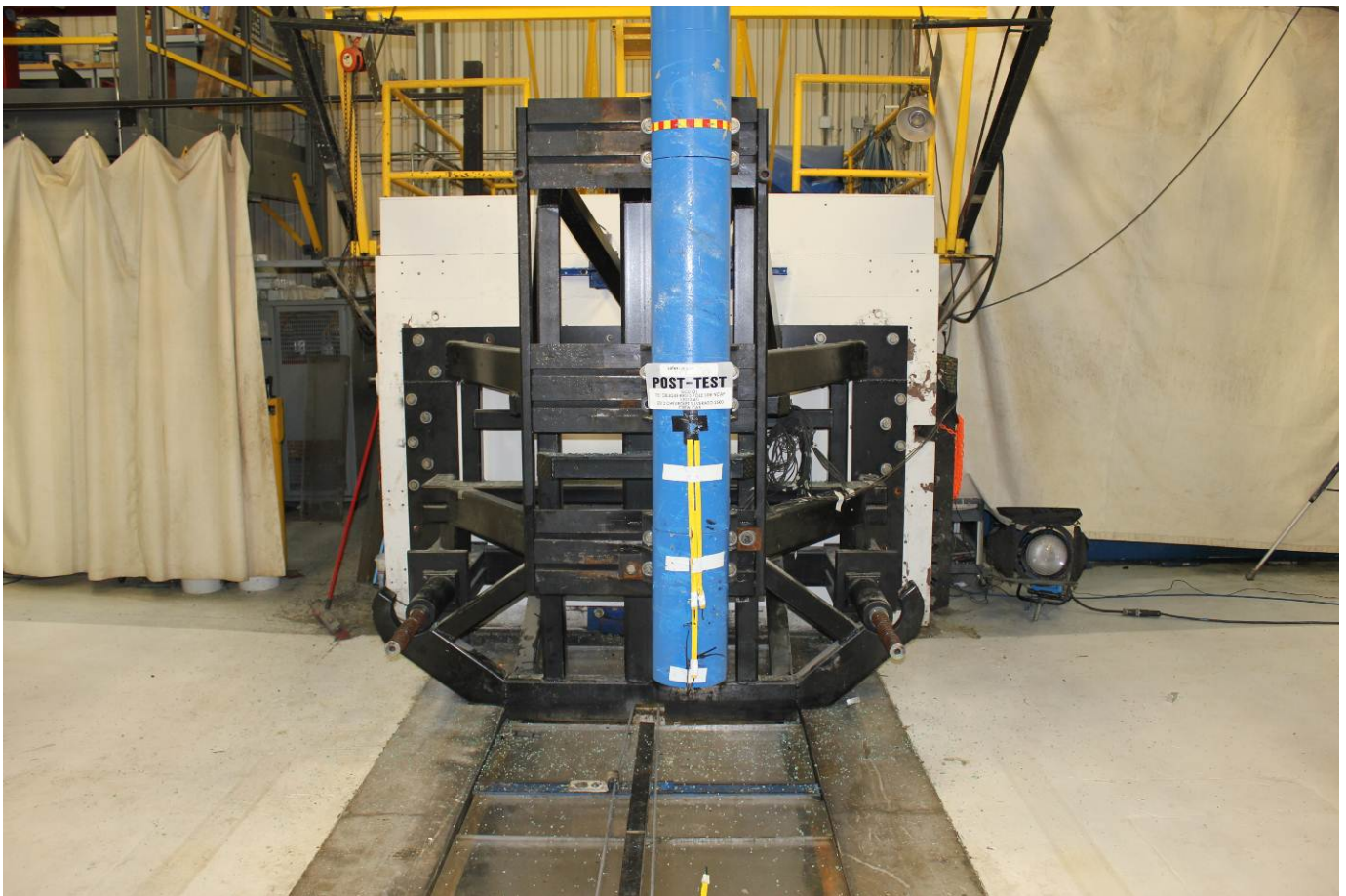
Close-Up View of Vehicle's Certification Label



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



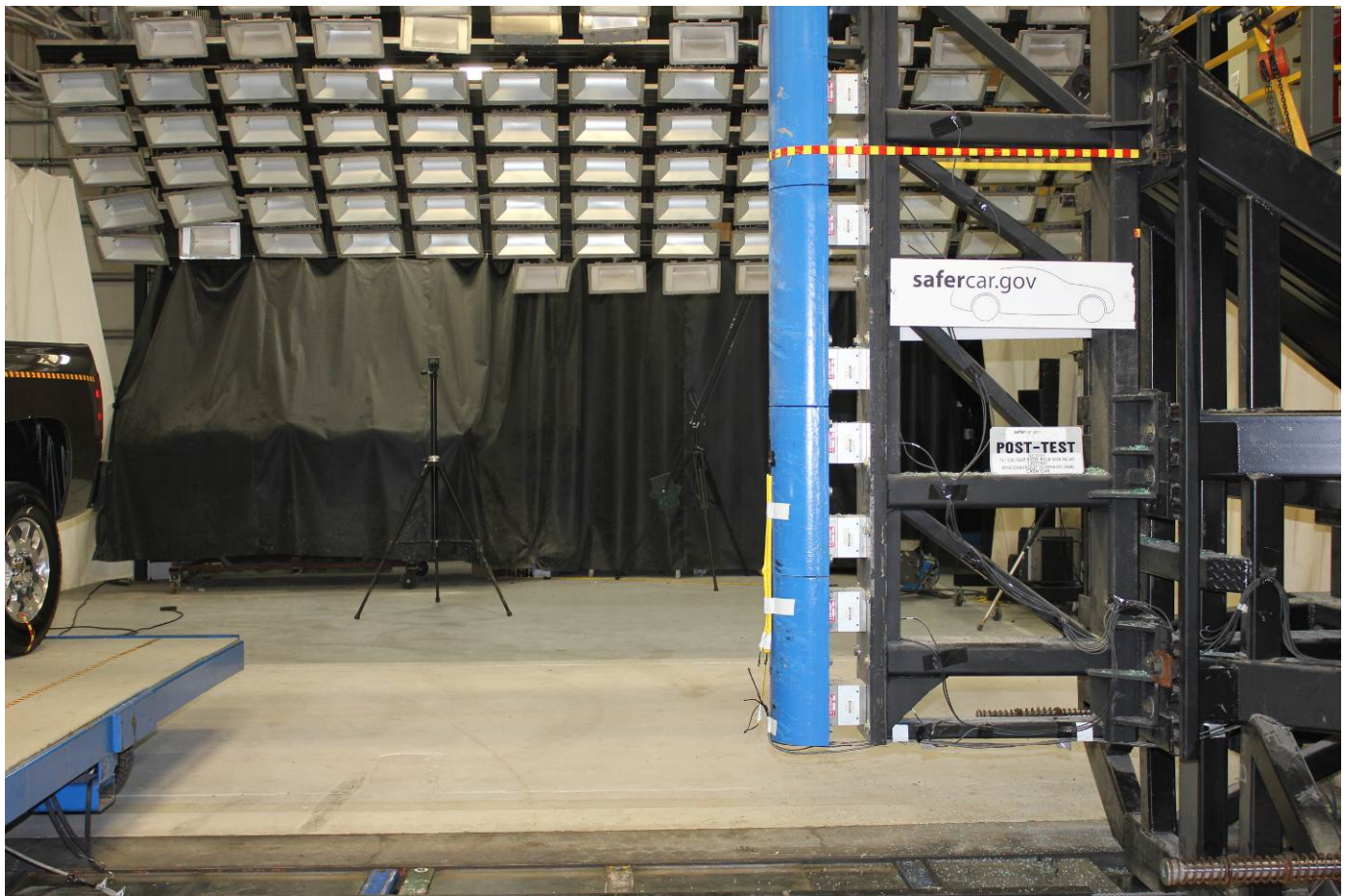
Pre-Test Pole Barrier Front View



Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View



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



CHEVROLET

**2012 SILVERADO 2500 2WD LT
CREW CAB**

**EXTERIOR: MOCHA STEEL METALLIC
INTERIOR: LIGHT CASHMERE/DARK
CASHMERE**

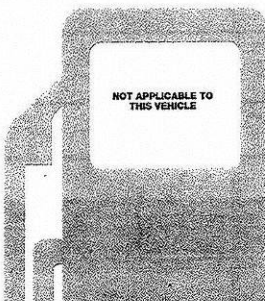
**VORTEC 6.0L V8 SFI GAS ENGINE
6-SPEED AUTOMATIC TRANSMISSION**

STANDARD EQUIPMENT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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EPA Fuel Economy Estimates

CITY MPG

Expected range for most drivers
XX to XX MPG



HIGHWAY MPG

Expected range for most drivers
XX to XX MPG

Your actual mileage will vary depending on how you drive and maintain your vehicle.

See the **FREE** Fuel Economy Guide at dealers or www.fueleconomy.gov

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 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

This label has been applied pursuant to Federal law - Do not remove prior to delivery to the ultimate purchaser. Includes Manufacturer's Recommended Pre-Delivery Service. Does not include dealer-installed options and accessories not listed below. See dealer for details.

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GAZL1_P000_0003 - 10/29/2011

ORDER NO 00000000 SALES CODE E
SALES MODEL CODE 002043
DEALER NO 00109
FINAL ASSEMBLY
PLANT NO. U.S.A.

VIN 1GCG1XG61C0F178947

DEALER TO WHOM DELIVERED
CAVENDER CHEVROLET
PO BOX 1102
BOERNE, TX 78008-1102



QT
2GA1626855

Monroney Label

Head Restraints

Front Seats

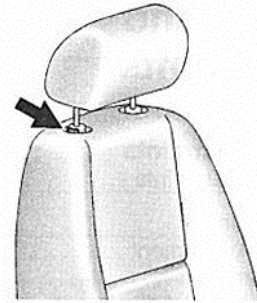
The front seats have adjustable head restraints in the outboard seating positions.

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.



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

The front seat outboard head restraints are not designed to be removed.

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

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

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Figure No. 2.	Driver Head Acceleration (Y) Primary vs. Time	B-1
Figure No. 3.	Driver Head Acceleration (Z) Primary vs. Time	B-1
Figure No. 4.	Driver Head Resultant Primary Acceleration vs. Time	B-1
Figure No. 5.	Driver Lower Spine T12 Acceleration (X) vs. Time	B-2
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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 Acceleration (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
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)

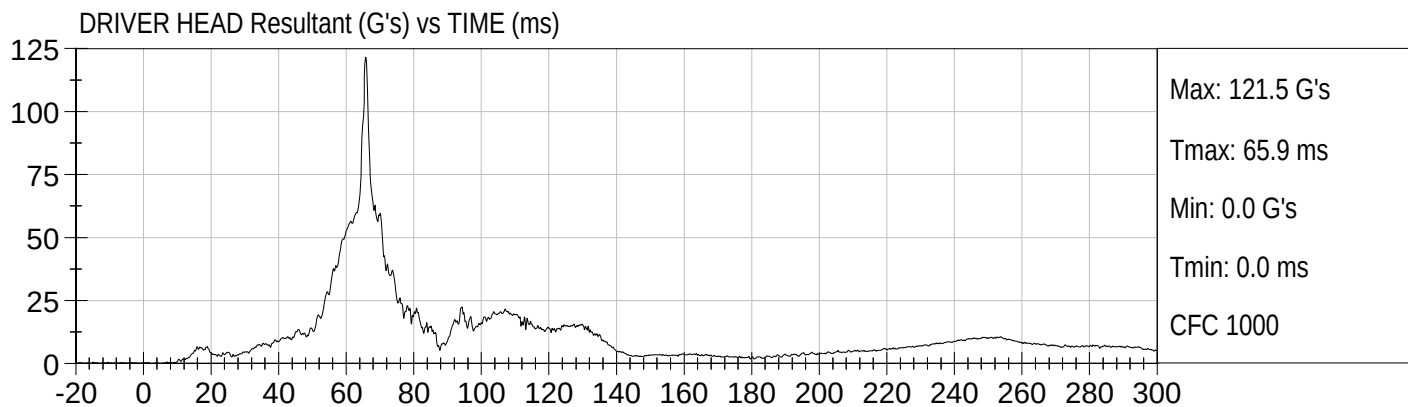
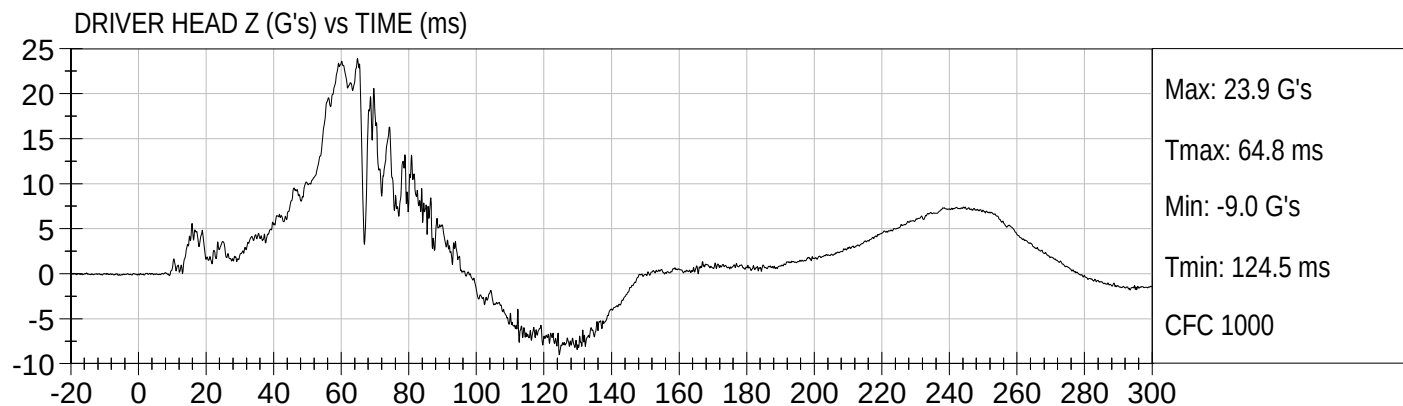
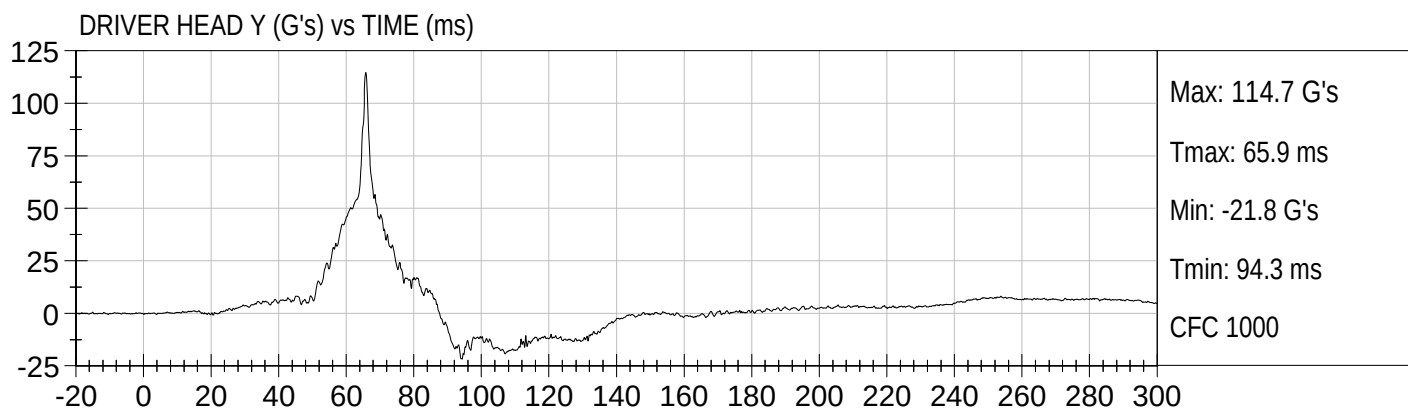
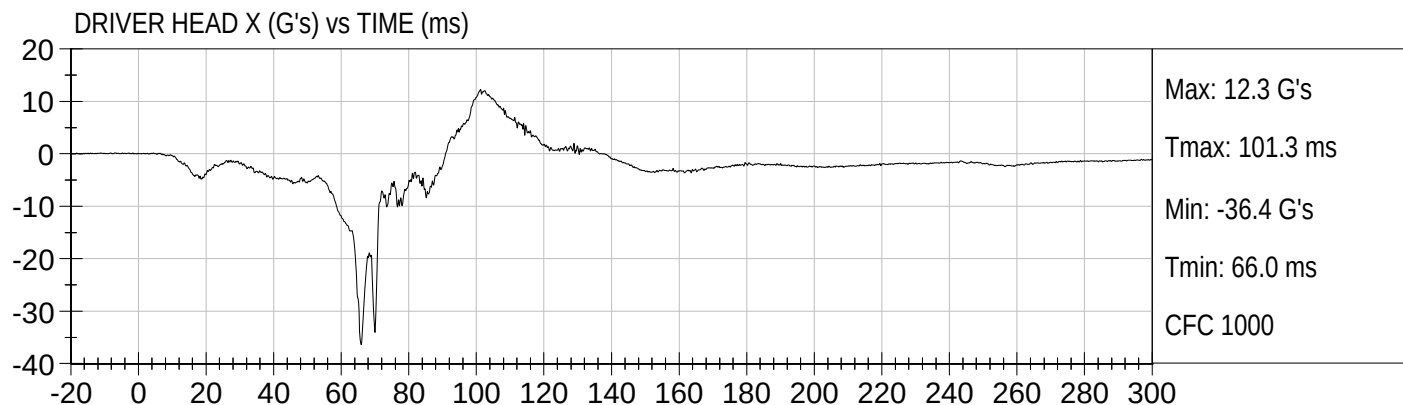
Load Cell Pole Barrier #4 Force (Y)

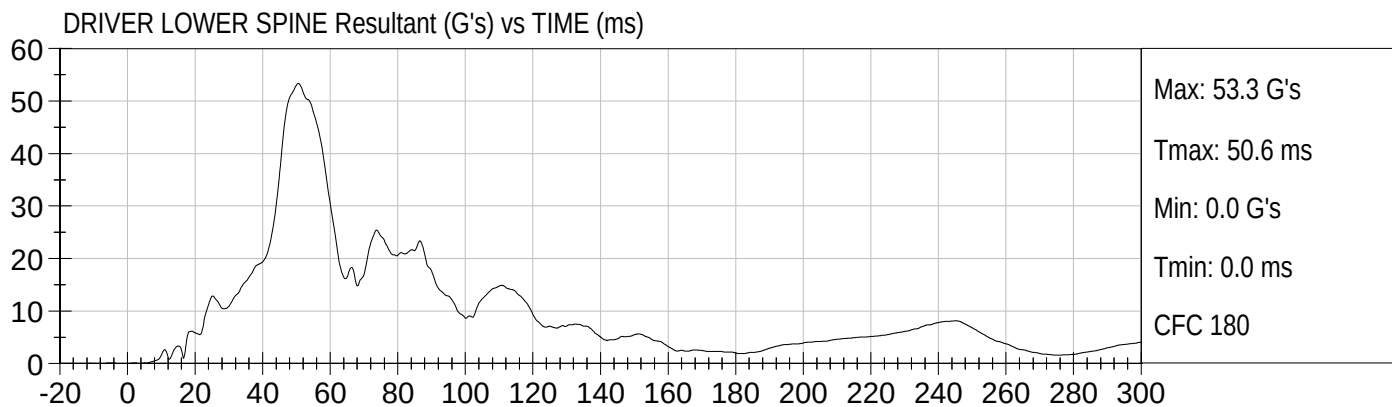
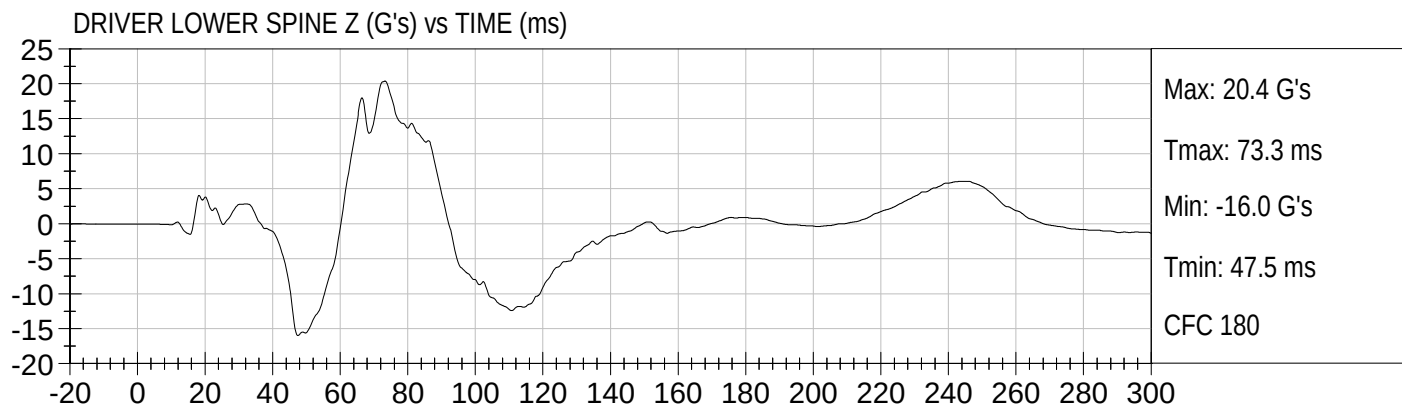
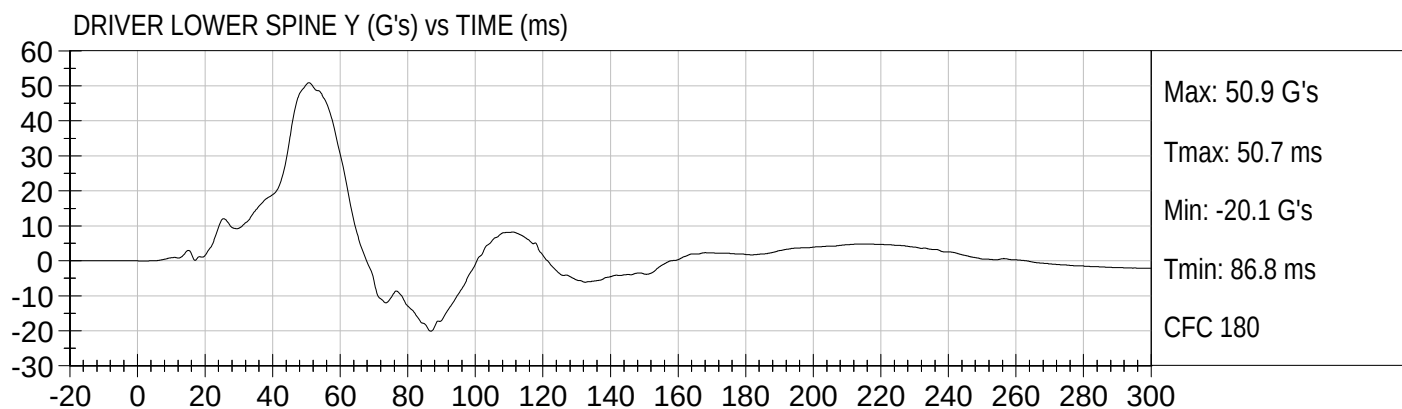
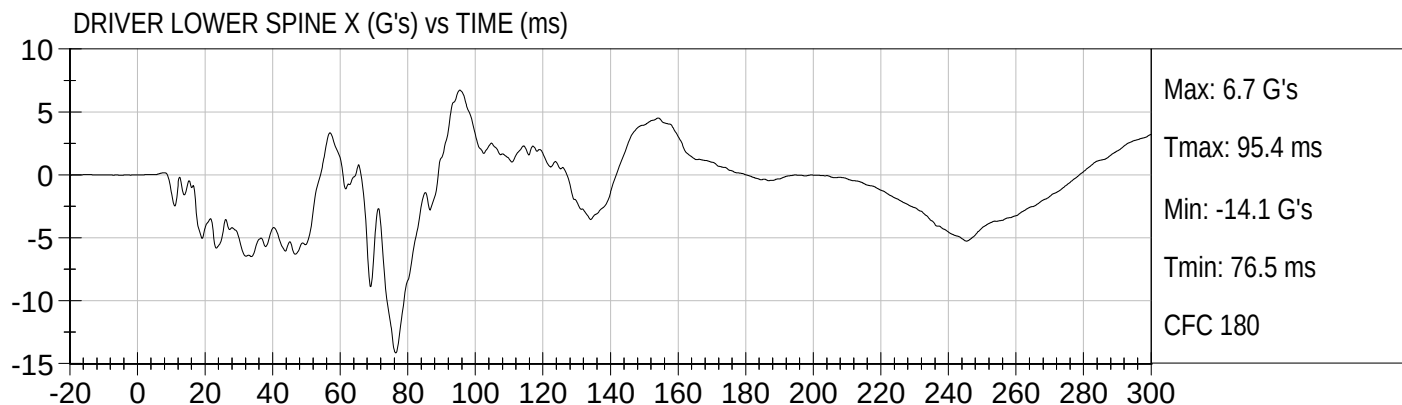
Load Cell Pole Barrier #5 Force (Y)

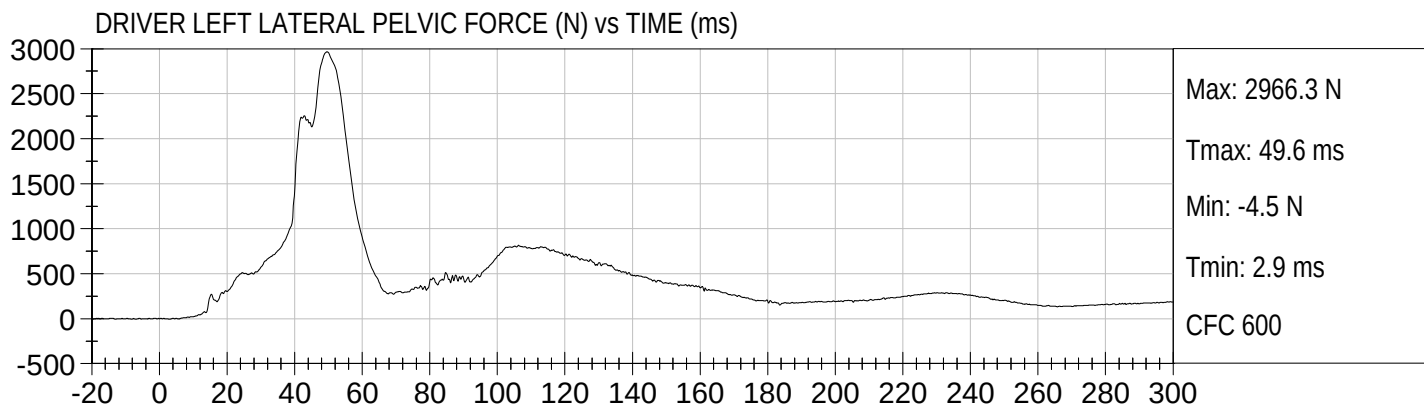
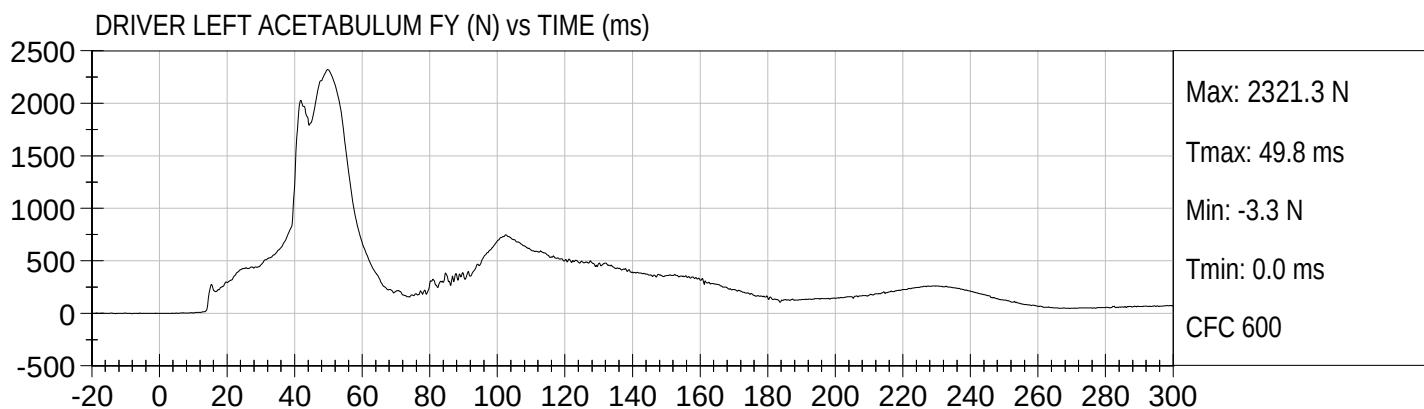
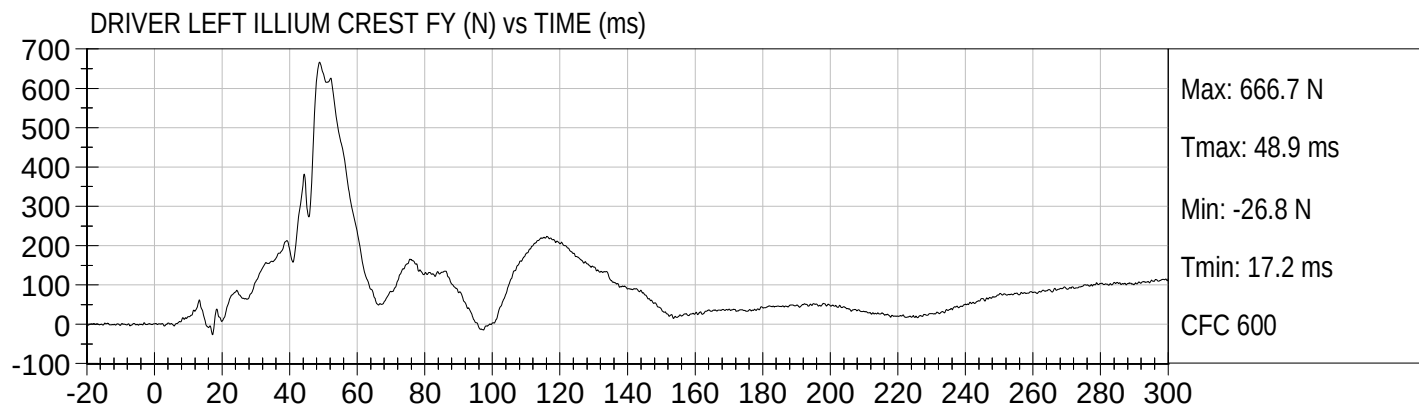
Load Cell Pole Barrier #6 Force (Y)

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: D122501

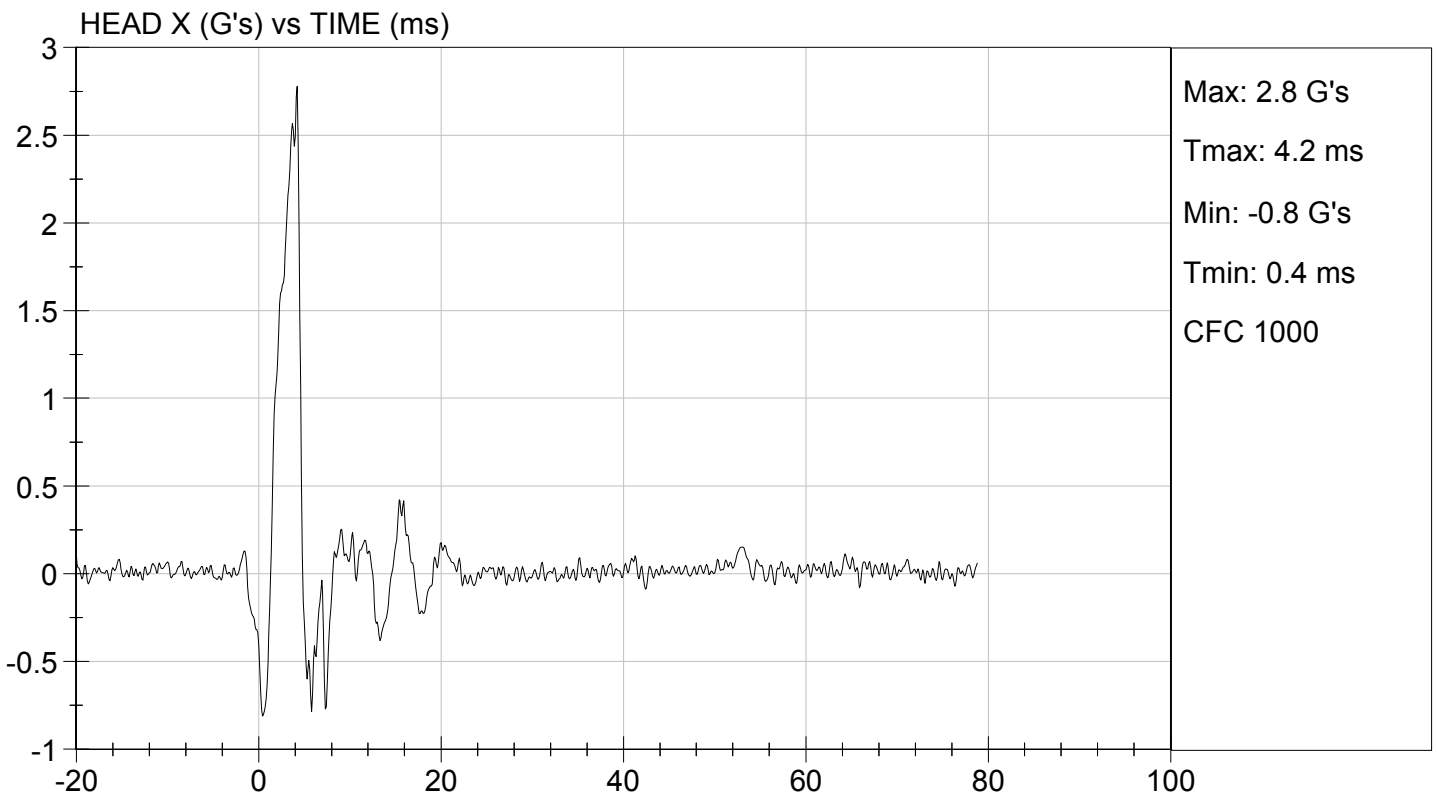
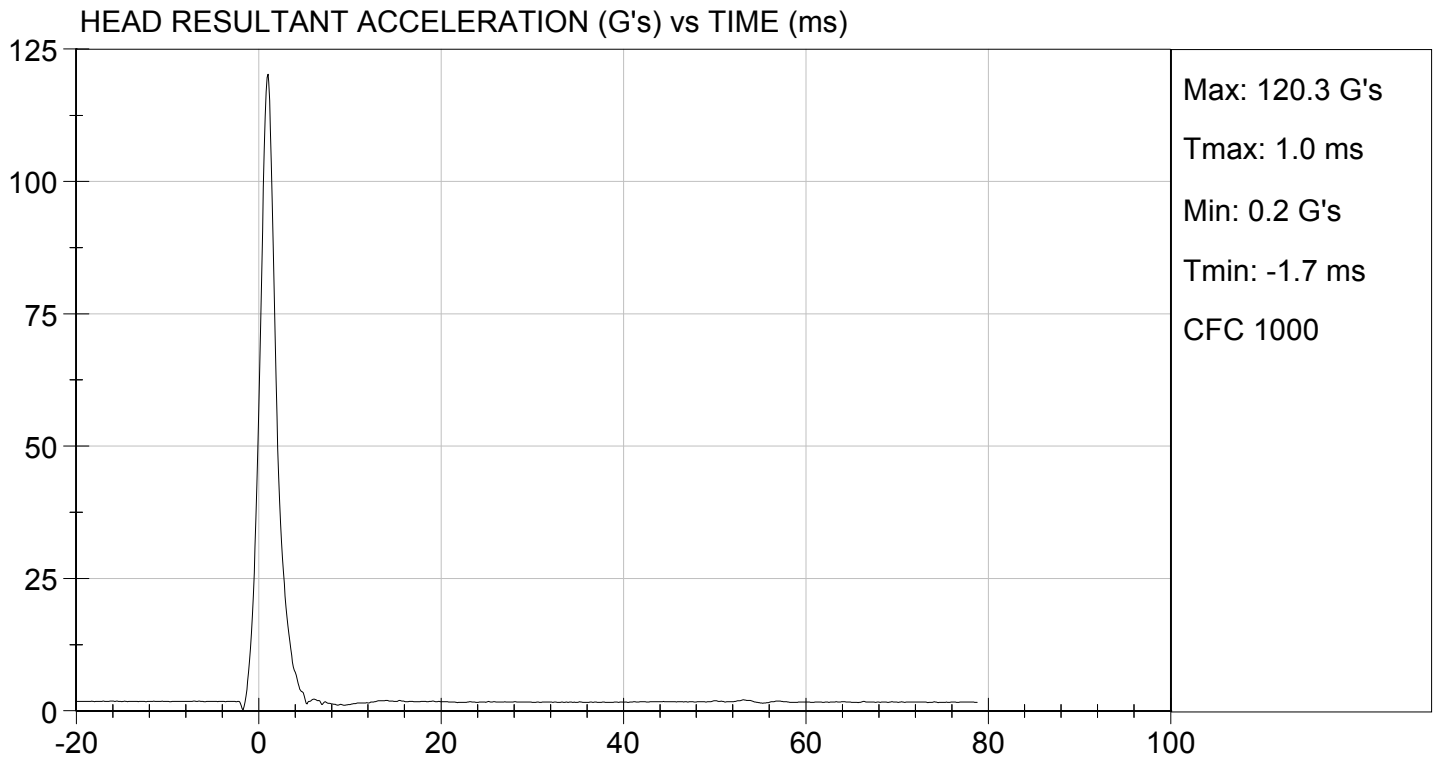
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	47	Pass
Peak Resultant Acceleration	G's	115 to 137	120	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.8	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
			Overall Test Results	Pass

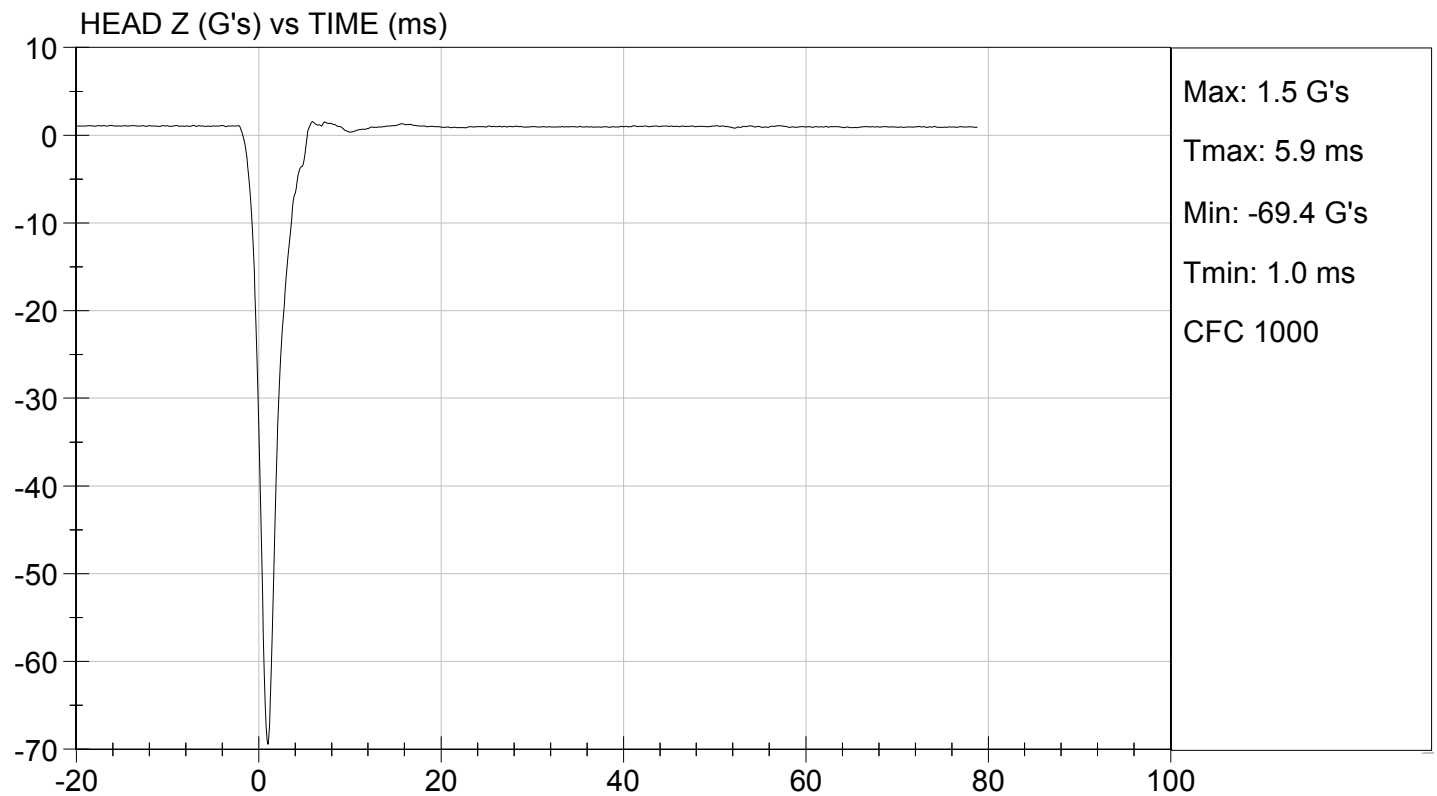
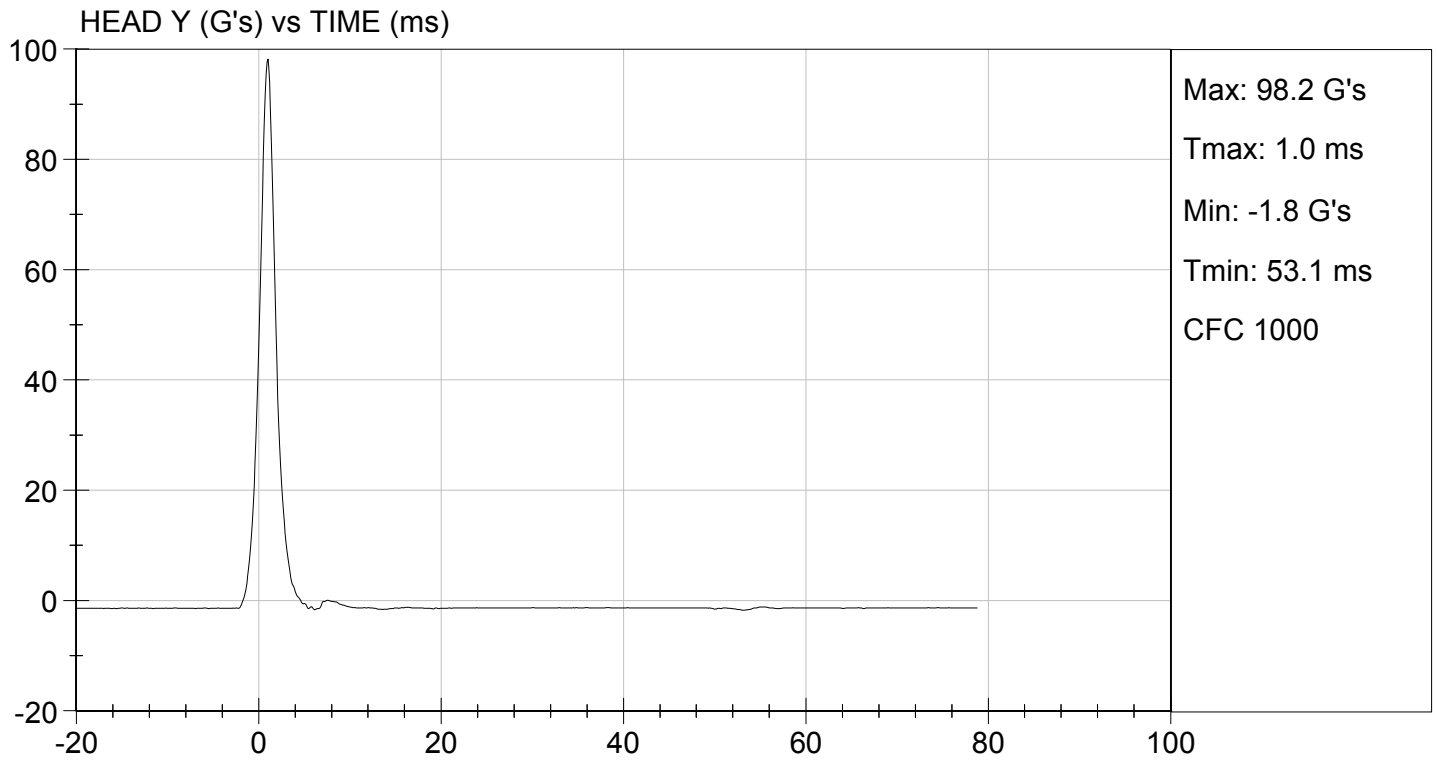

Laboratory Technician

07/06/2012

Test Date


Approved By





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

ATD Serial No: 306

Test I.D: D122502

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	22.0	Pass
Humidity		%	10 to 70	47	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.63	Pass
	15 ms	m/s	3.30 to 4.10	3.68	Pass
	20 ms	m/s	4.40 to 5.40	4.90	Pass
	25 ms	m/s	5.40 to 6.10	5.50	Pass
	25-100 ms	m/s	5.50 to 6.20	5.52	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	-43	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	117	Pass
Overall Test Results				Pass	


 Laboratory Technician

07/06/2012

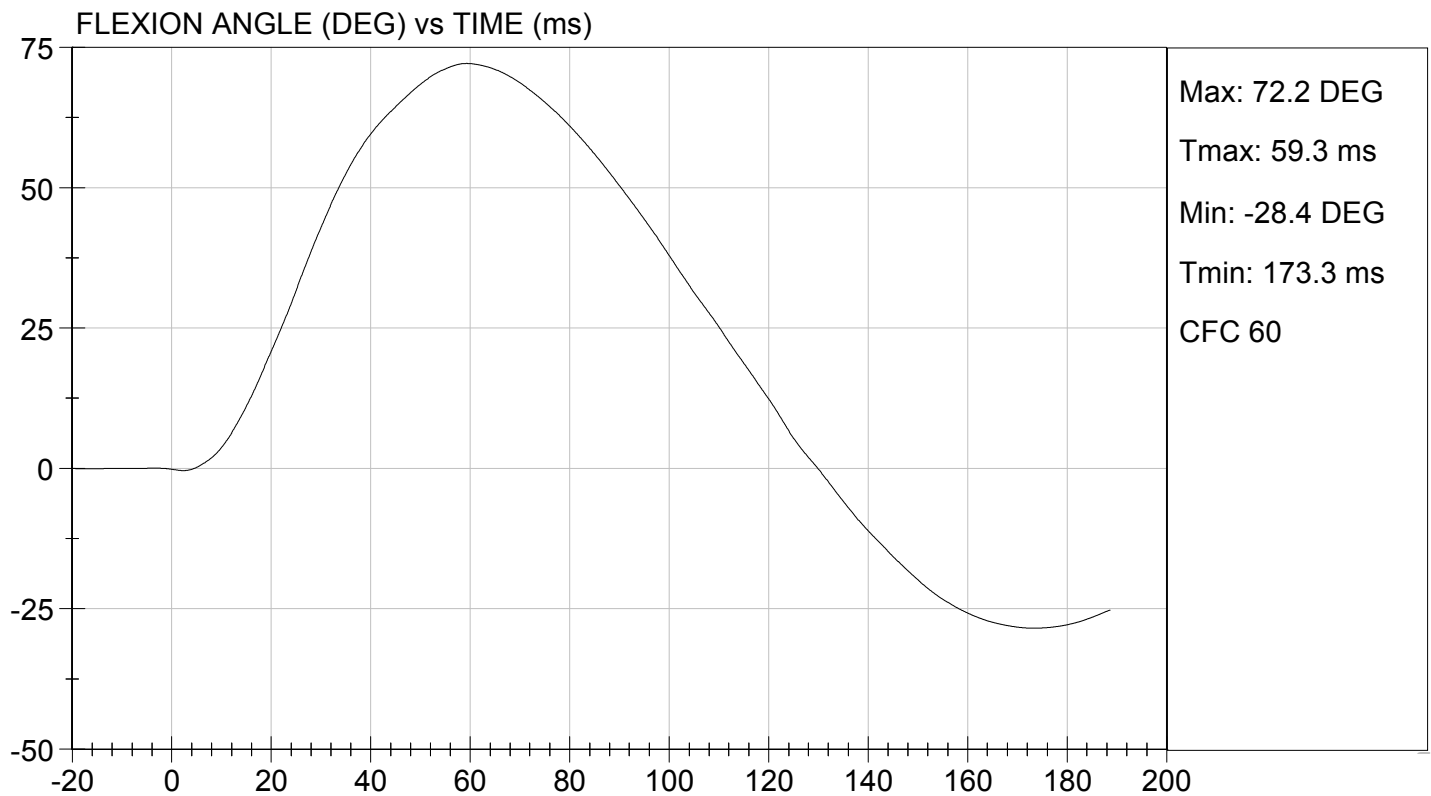
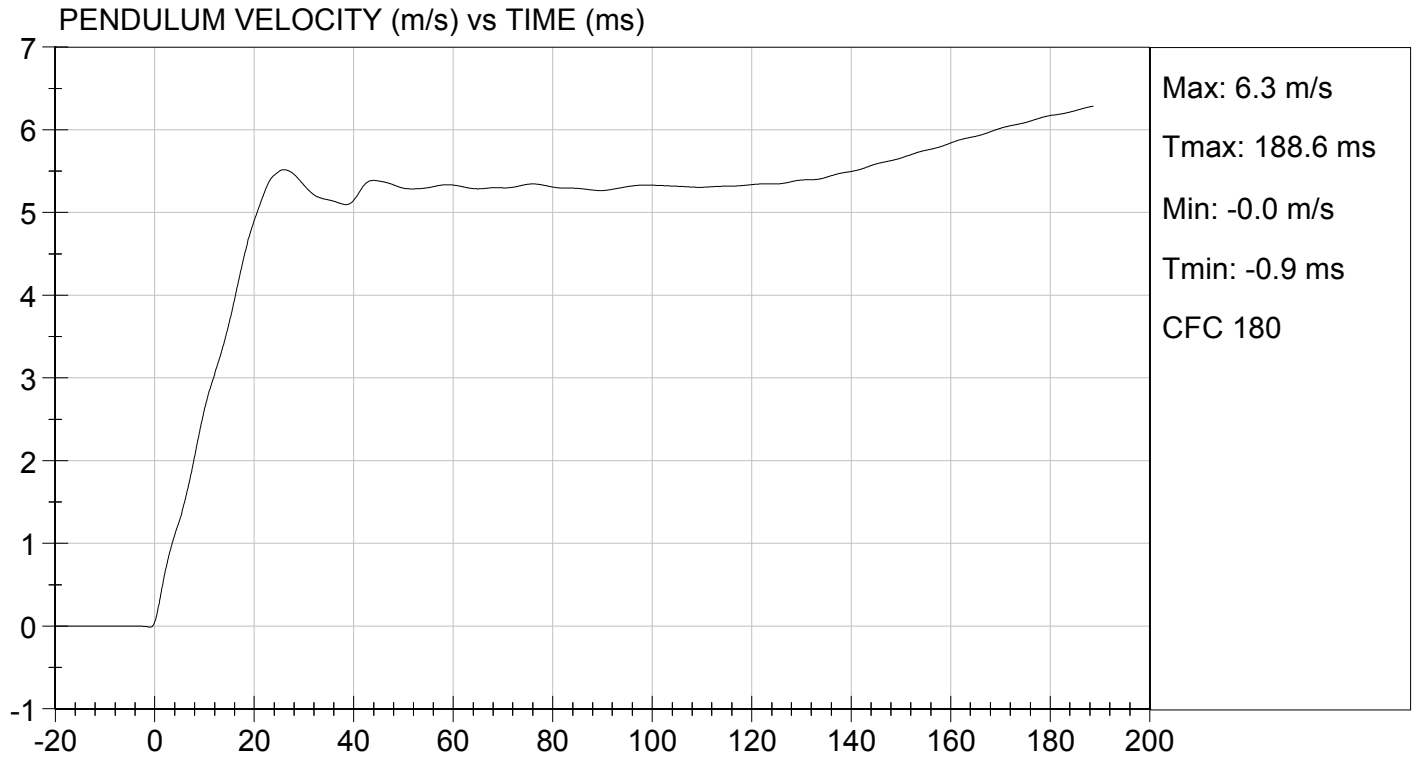
Test Date


 Approved By



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

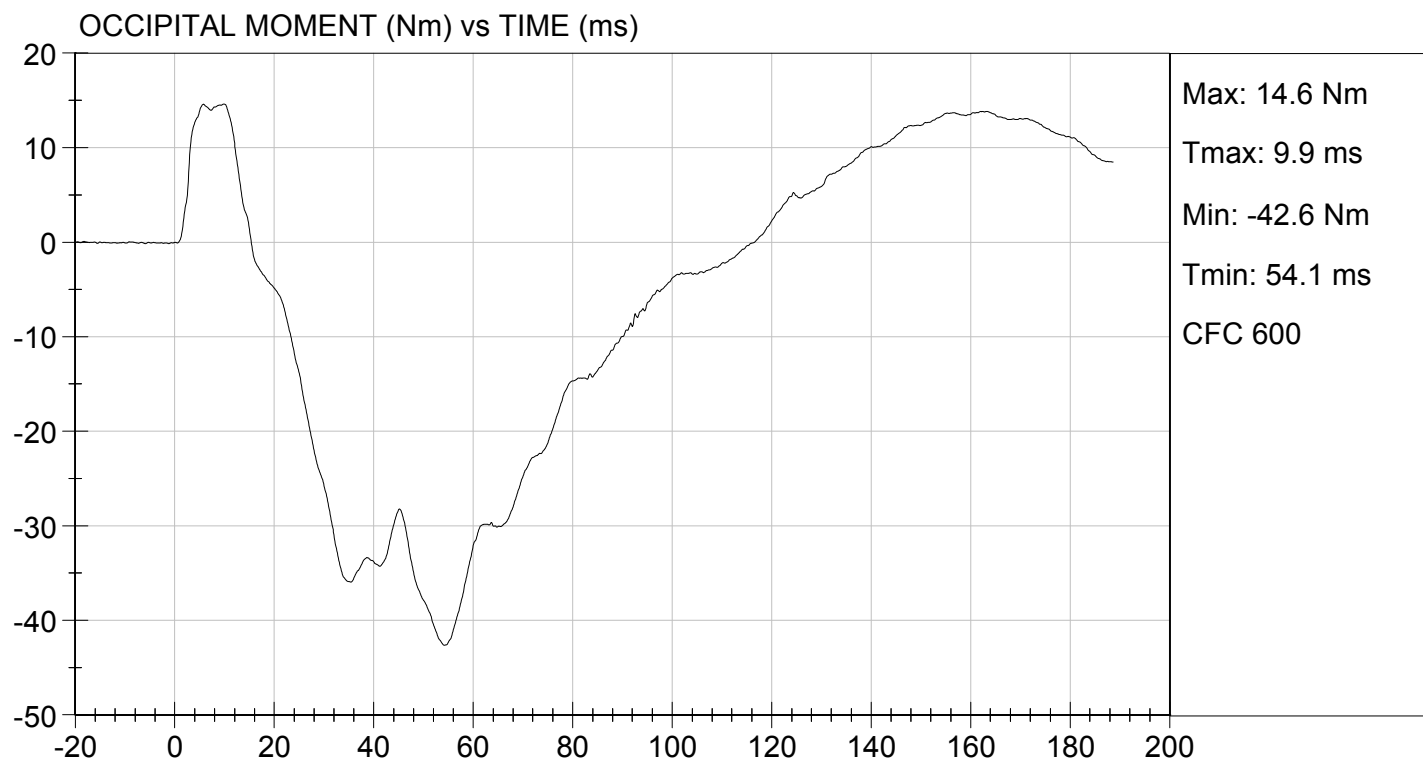
TEST DATE: 07/06/2012
TEST #: D122502





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

TEST DATE: 07/06/2012
TEST #: D122502

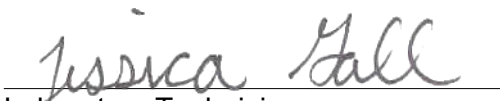


MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D122503

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	47	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	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass


Laboratory Technician

07/06/2012

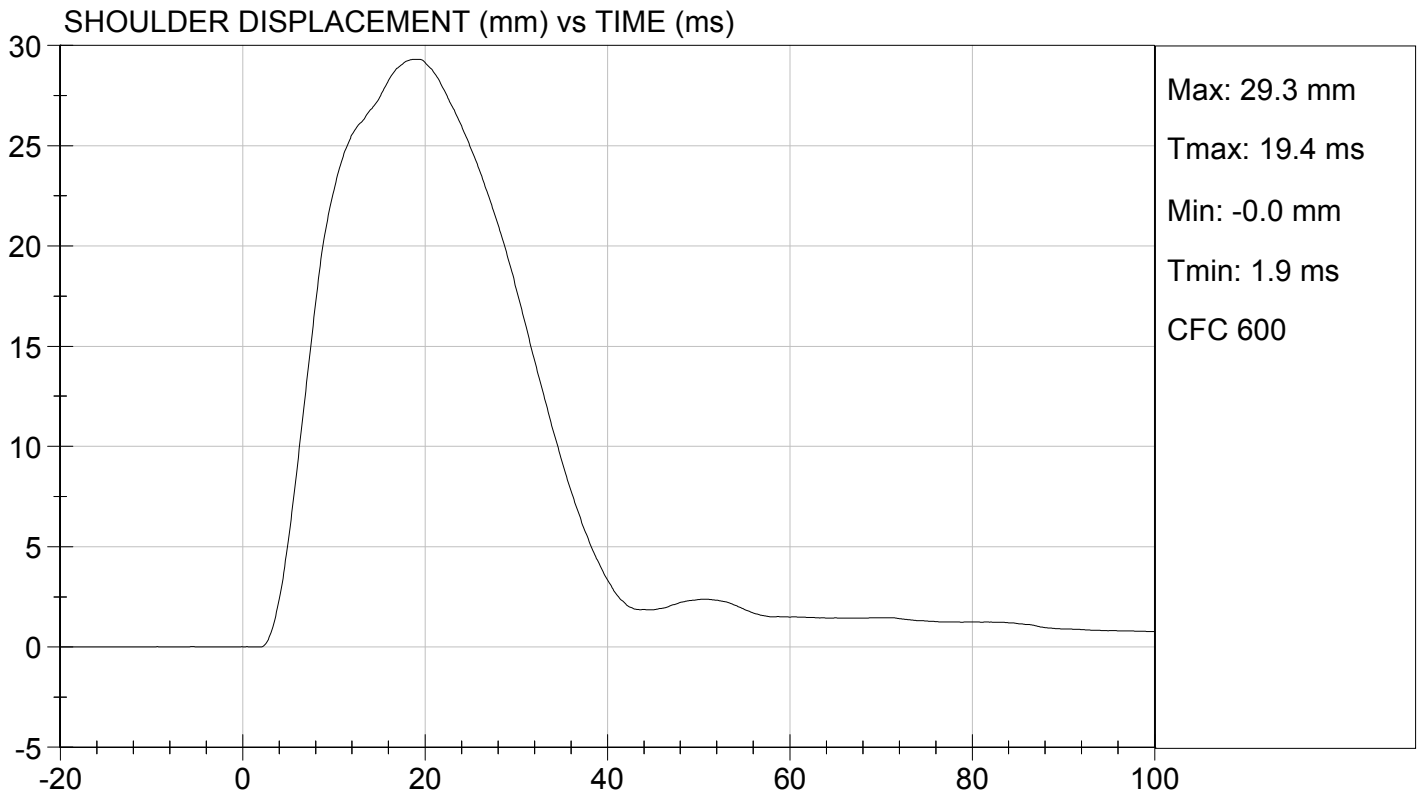
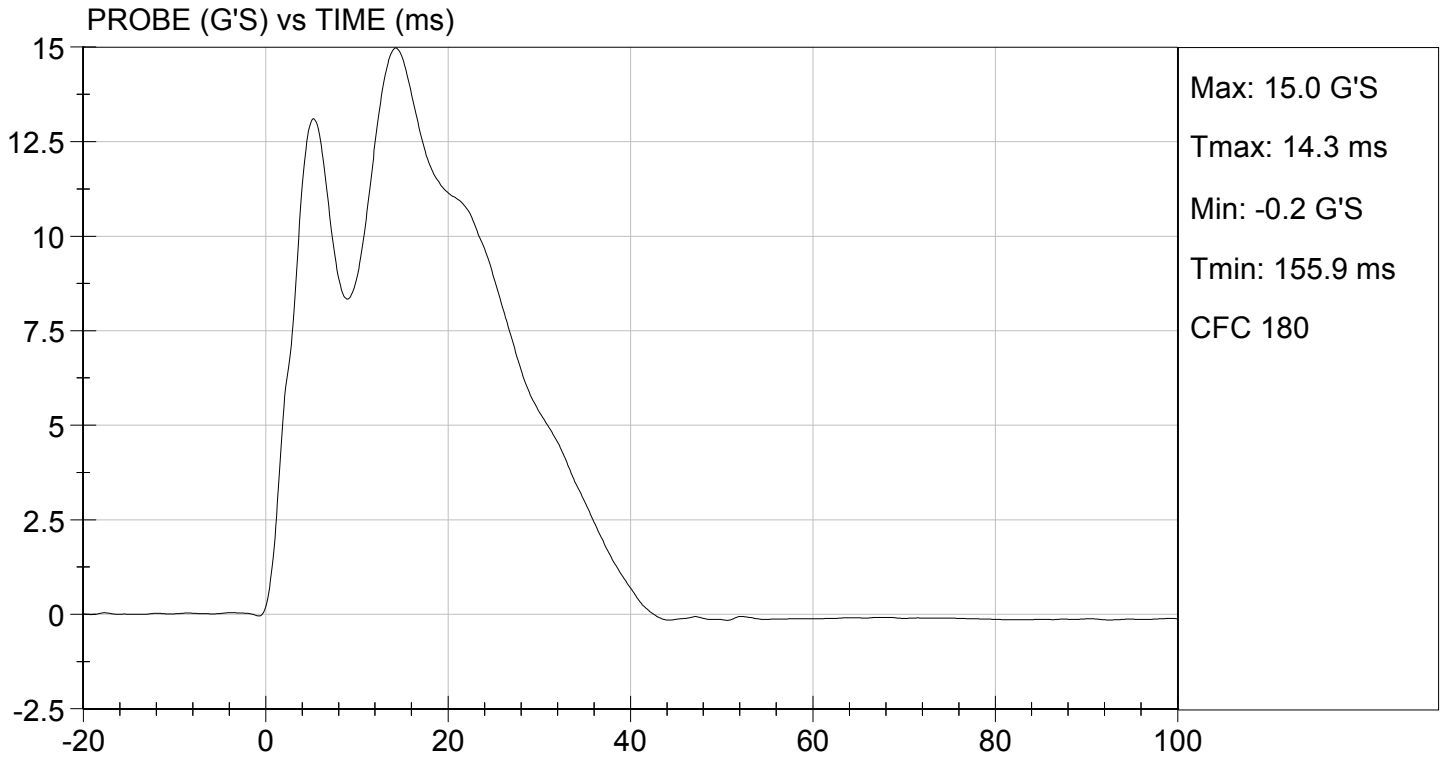
Test Date


Approved By



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

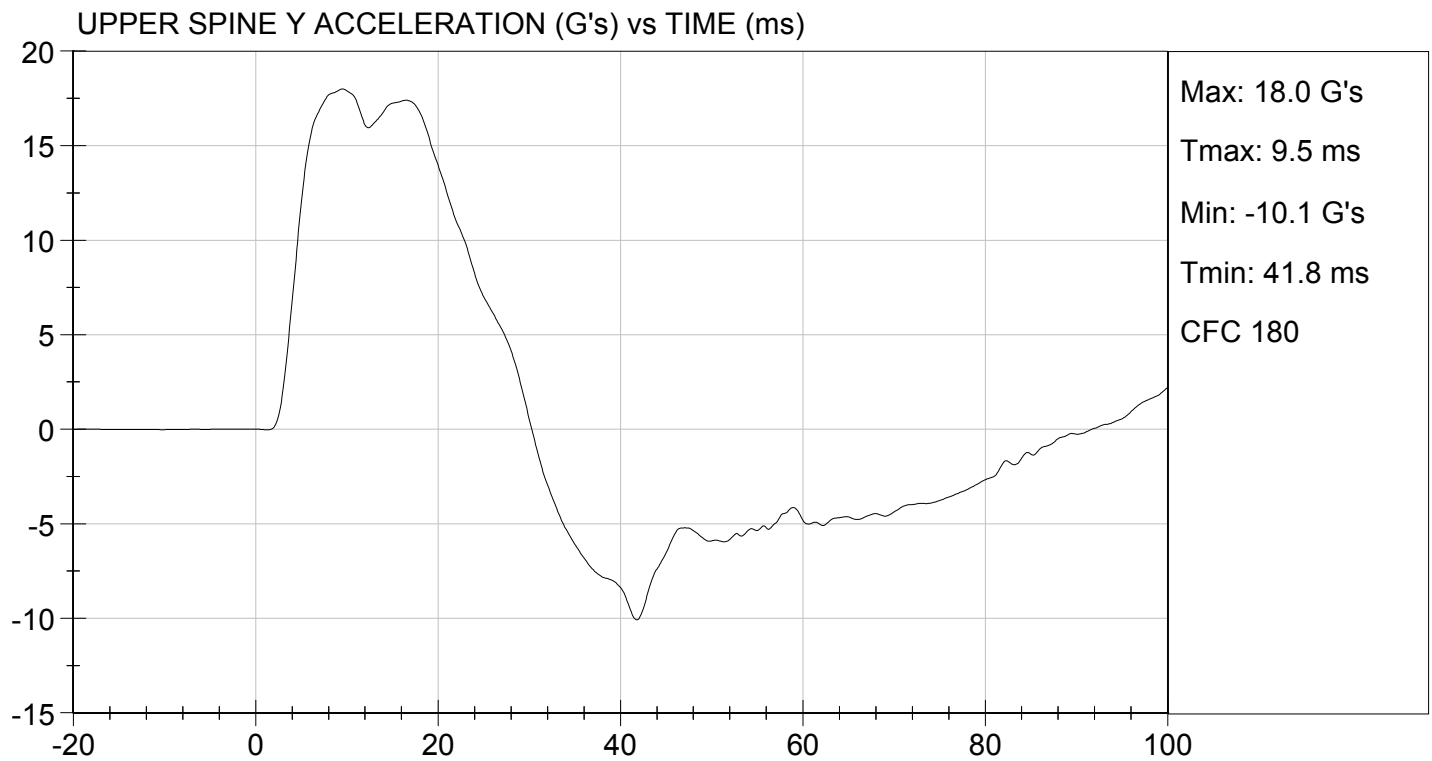
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TEST #: D122503





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

TEST DATE: 07/06/2012
TEST #: D122503



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

ATD Serial No: 306

Test I.D: D122504

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	47	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

Jessica Gall
Laboratory Technician

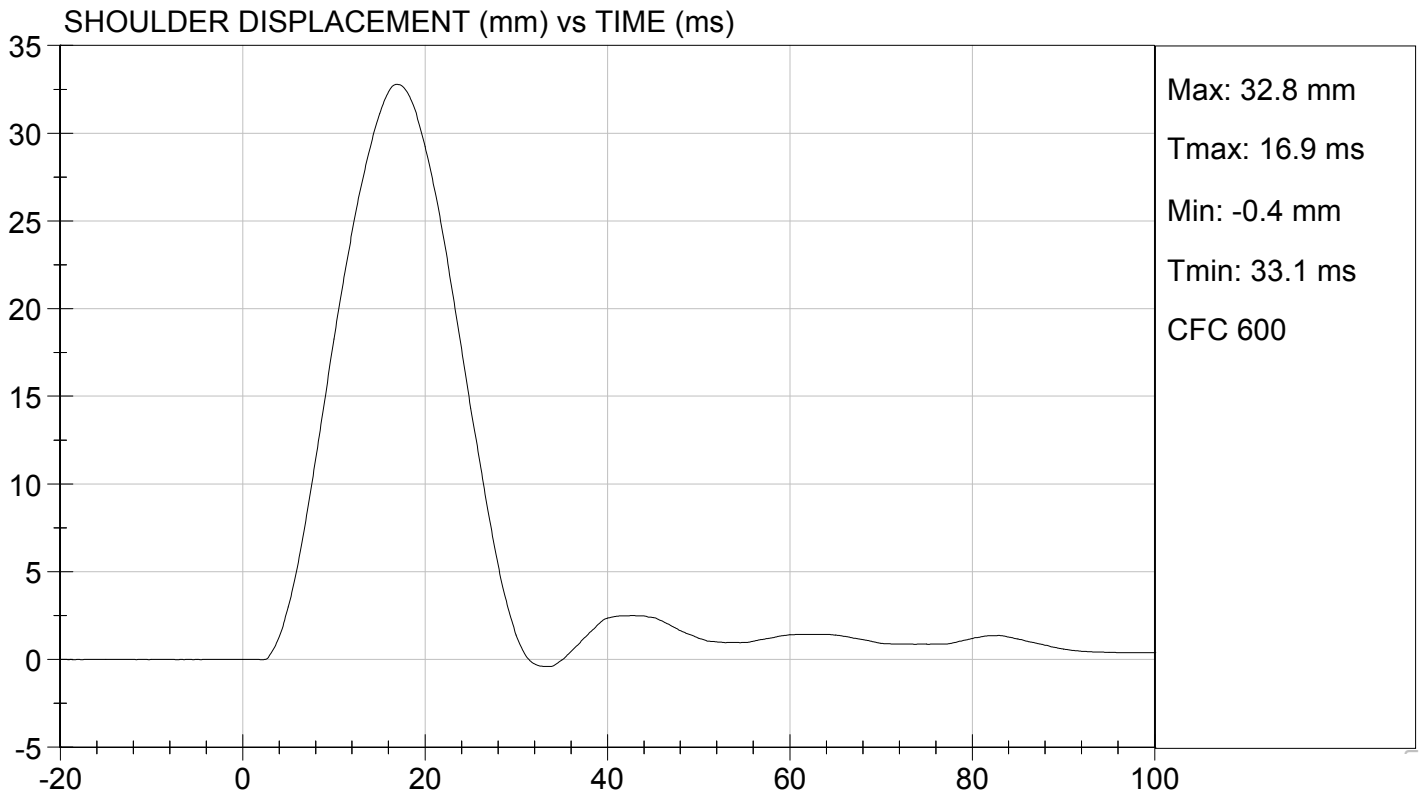
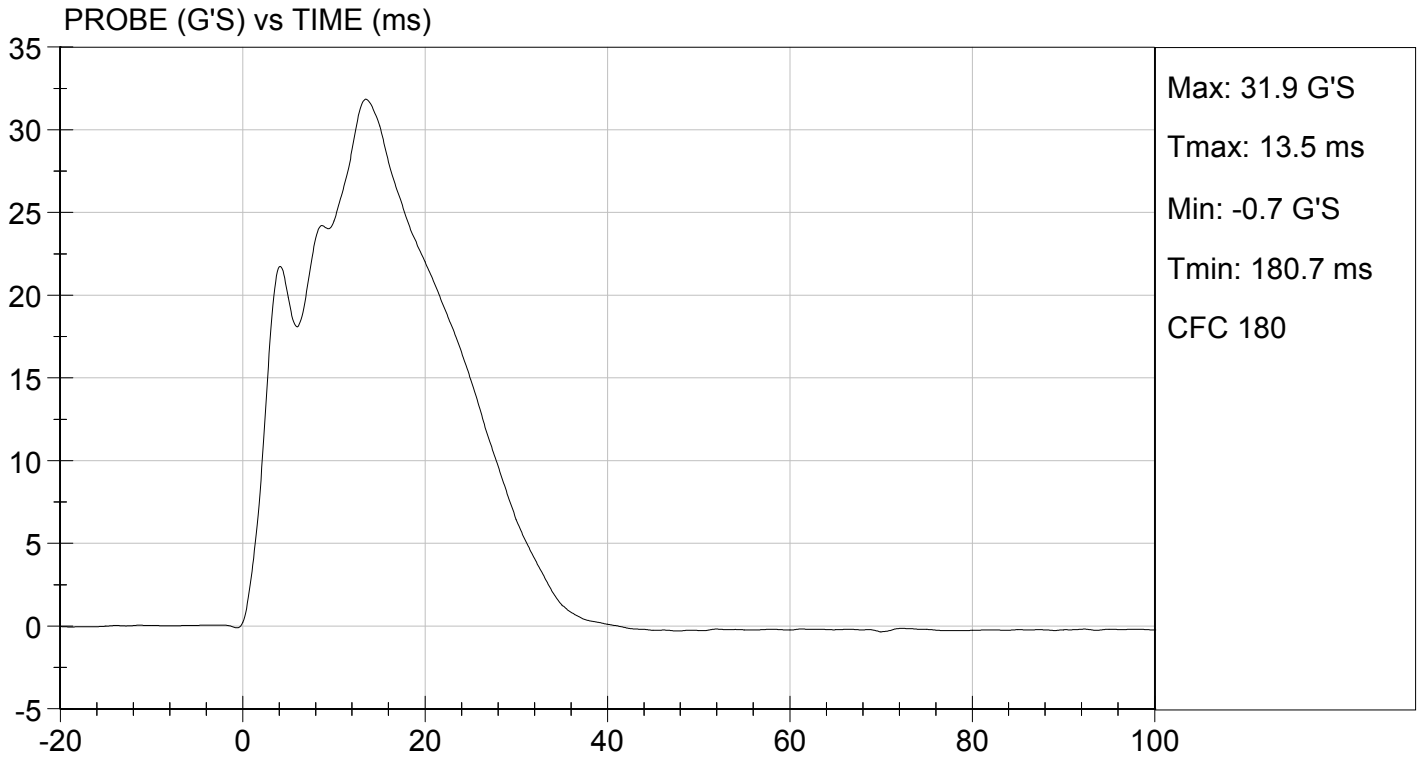
07/06/2012
Test Date

David Winkelbauer
Approved By



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

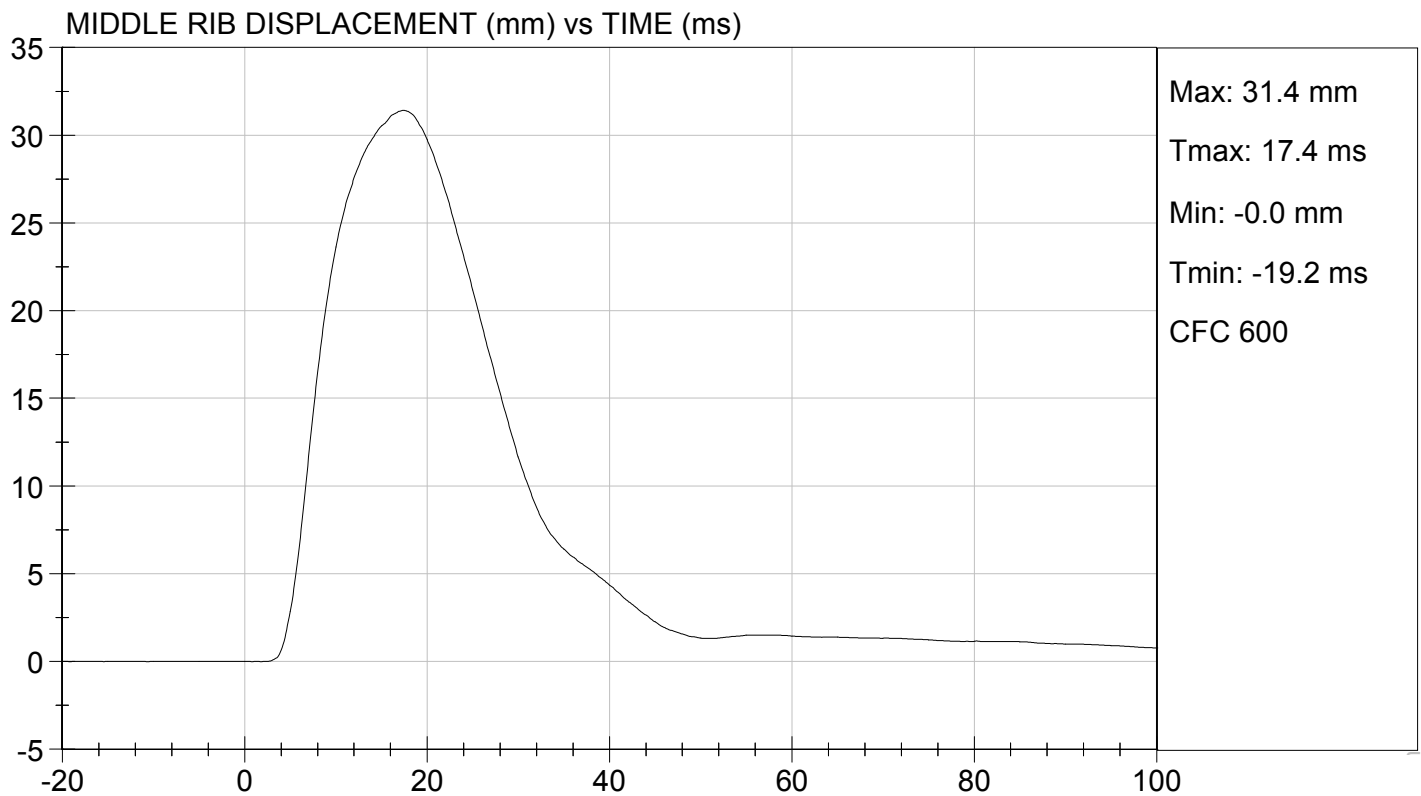
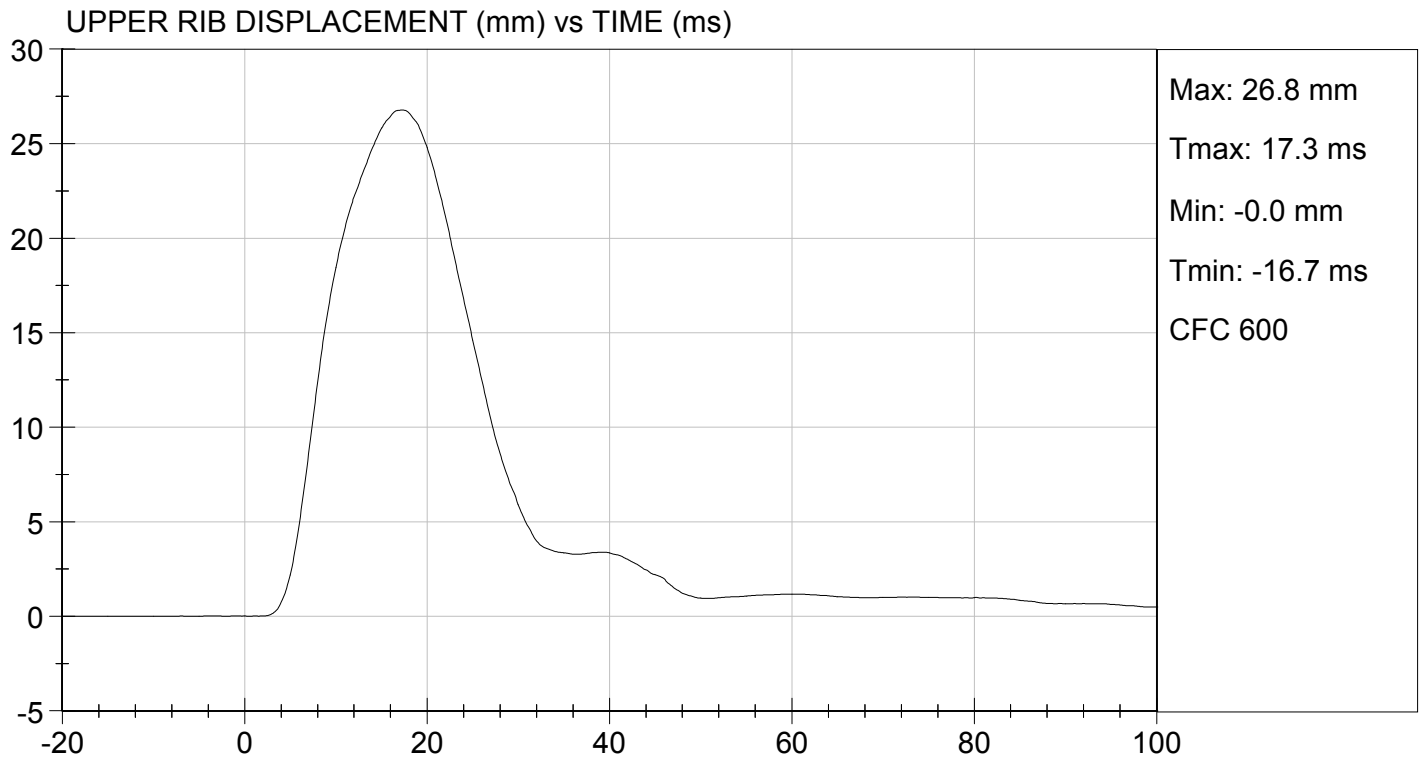
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TEST #: D122504





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

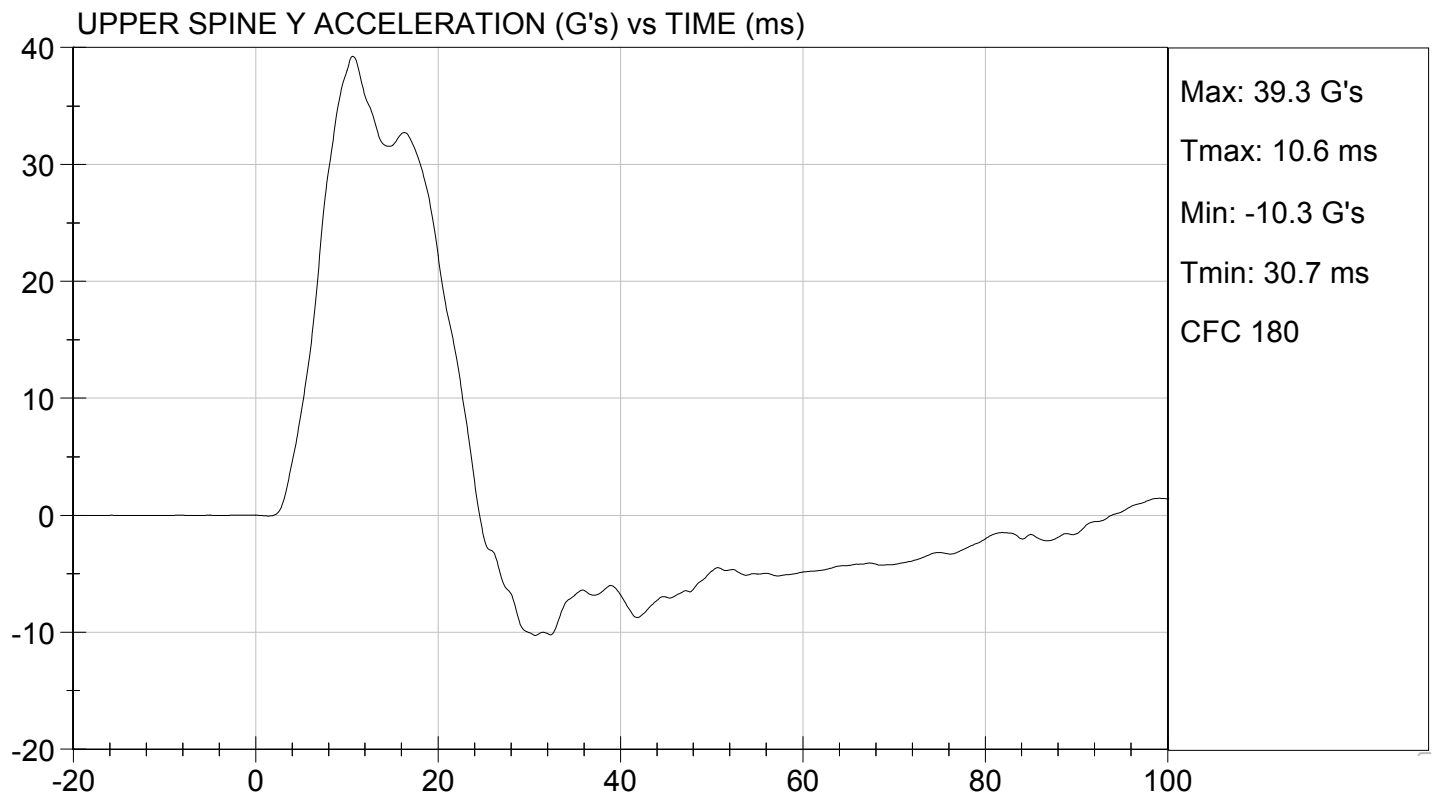
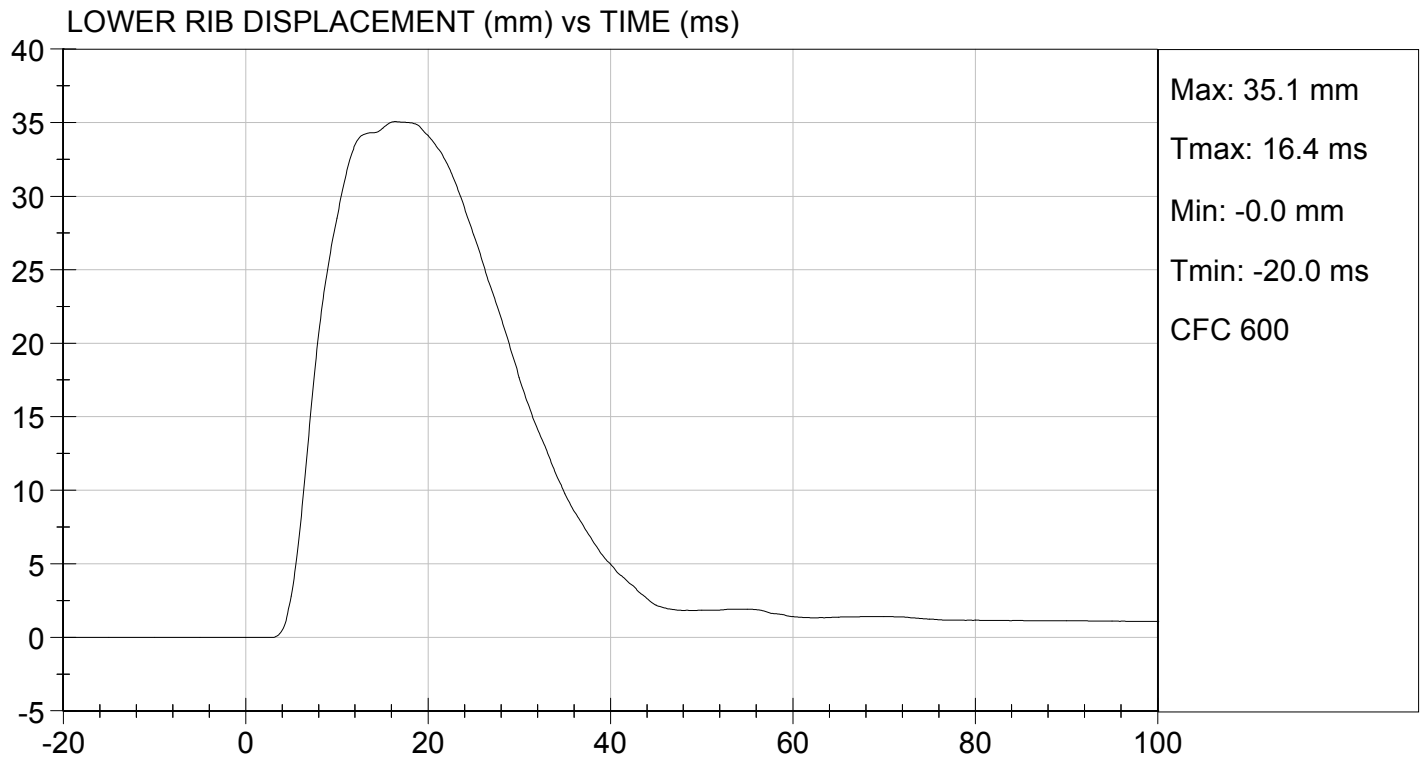
TEST DATE: 07/06/2012
TEST #: D122504





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

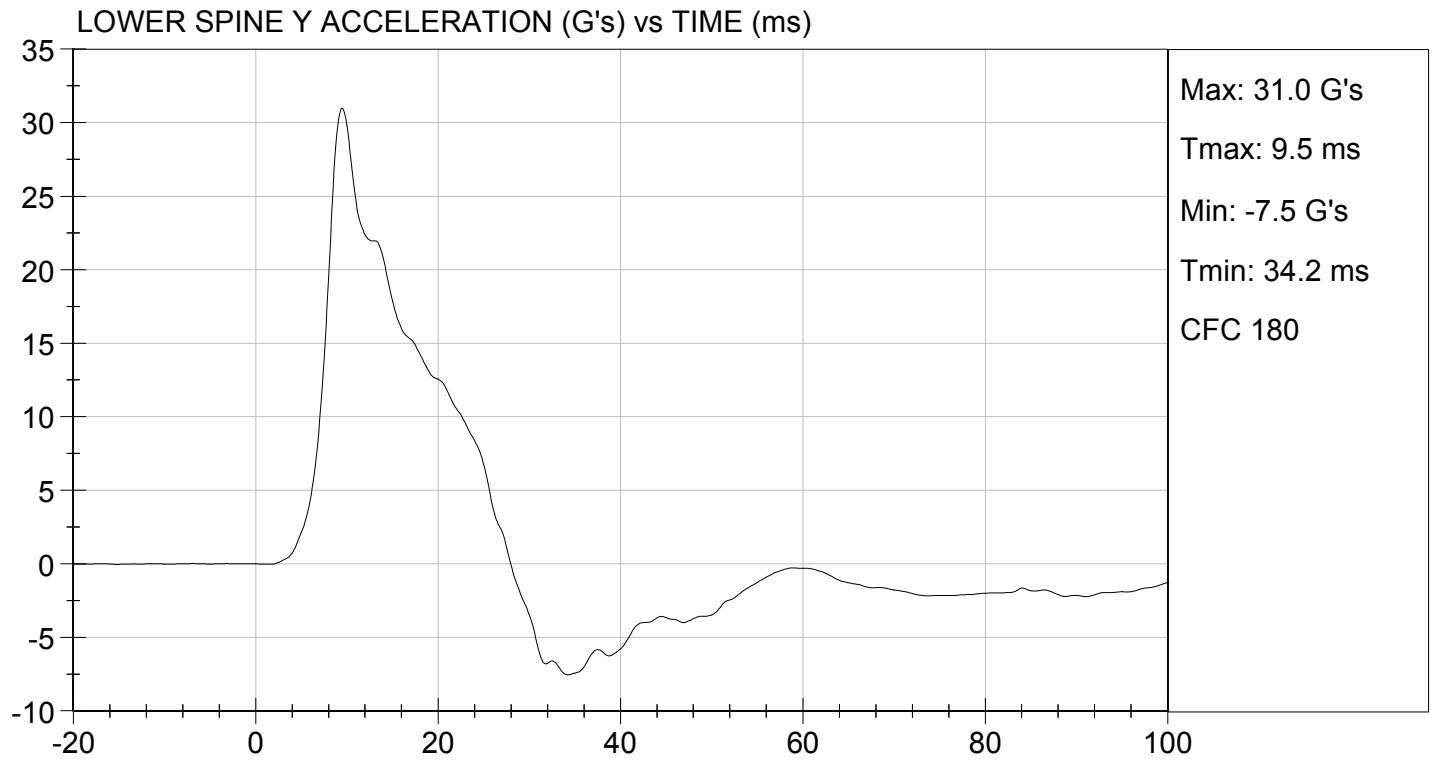
TEST DATE: 07/06/2012
TEST #: D122504





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

TEST DATE: 07/06/2012
TEST #: D122504

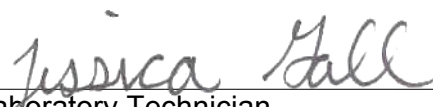


MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D122505

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	47	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	36	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


 Laboratory Technician

07/06/2012

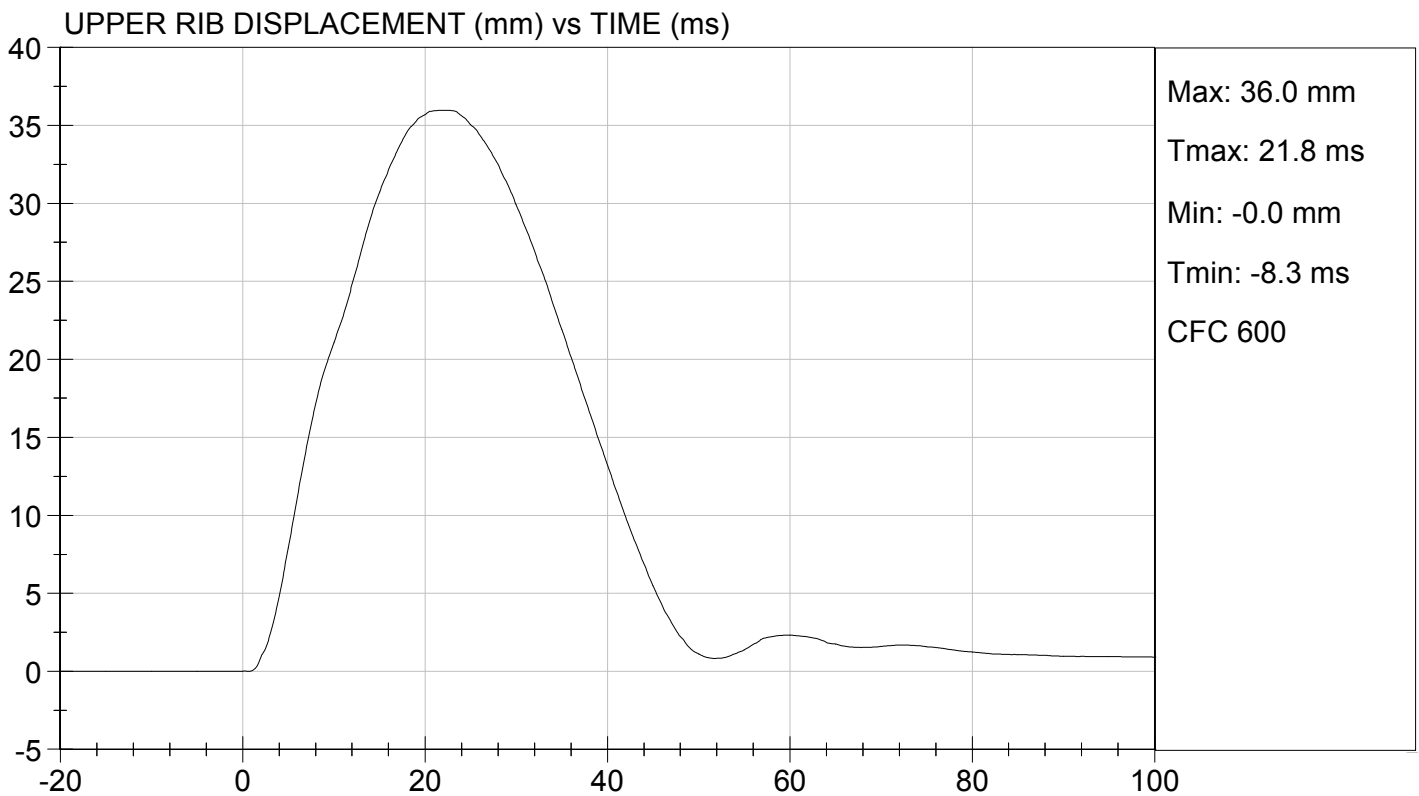
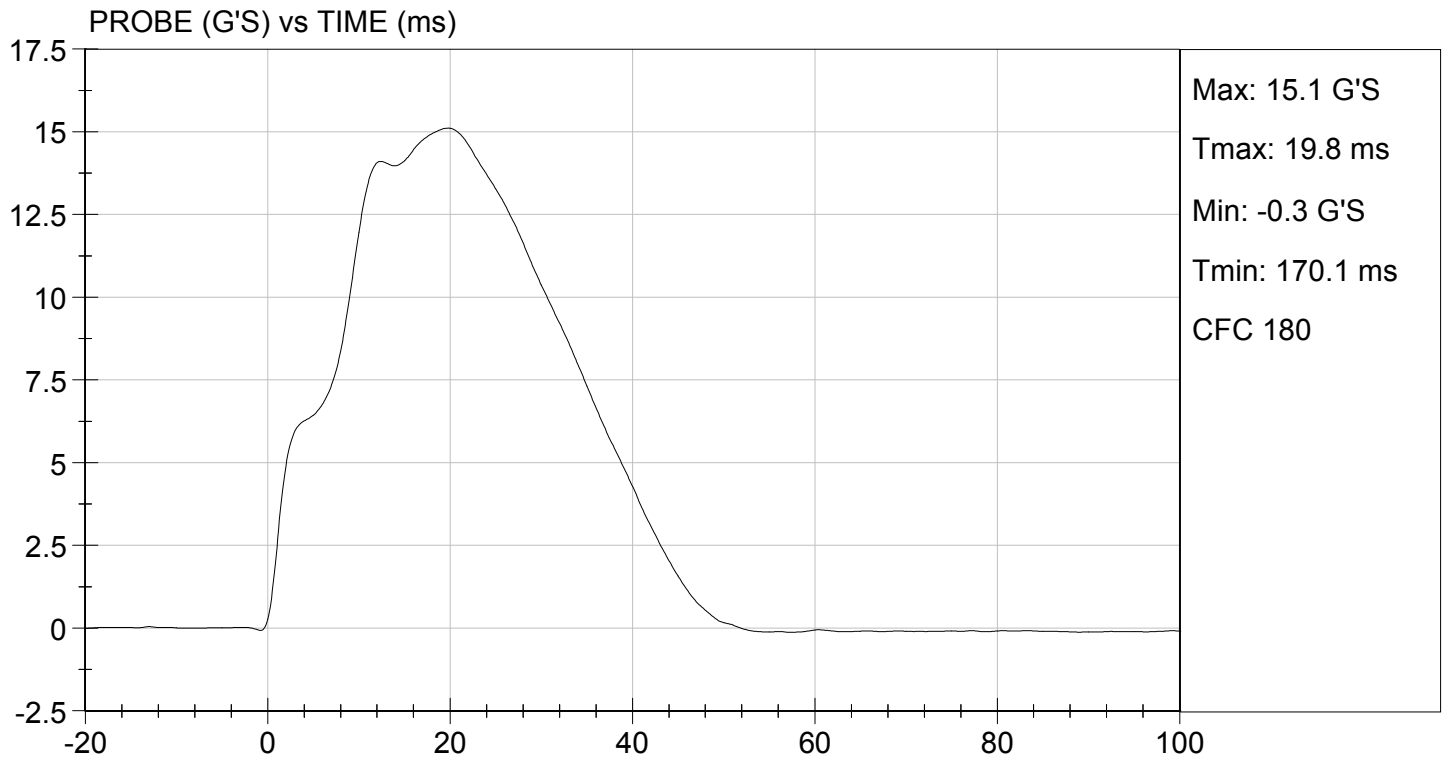
Test Date


 Approved By



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

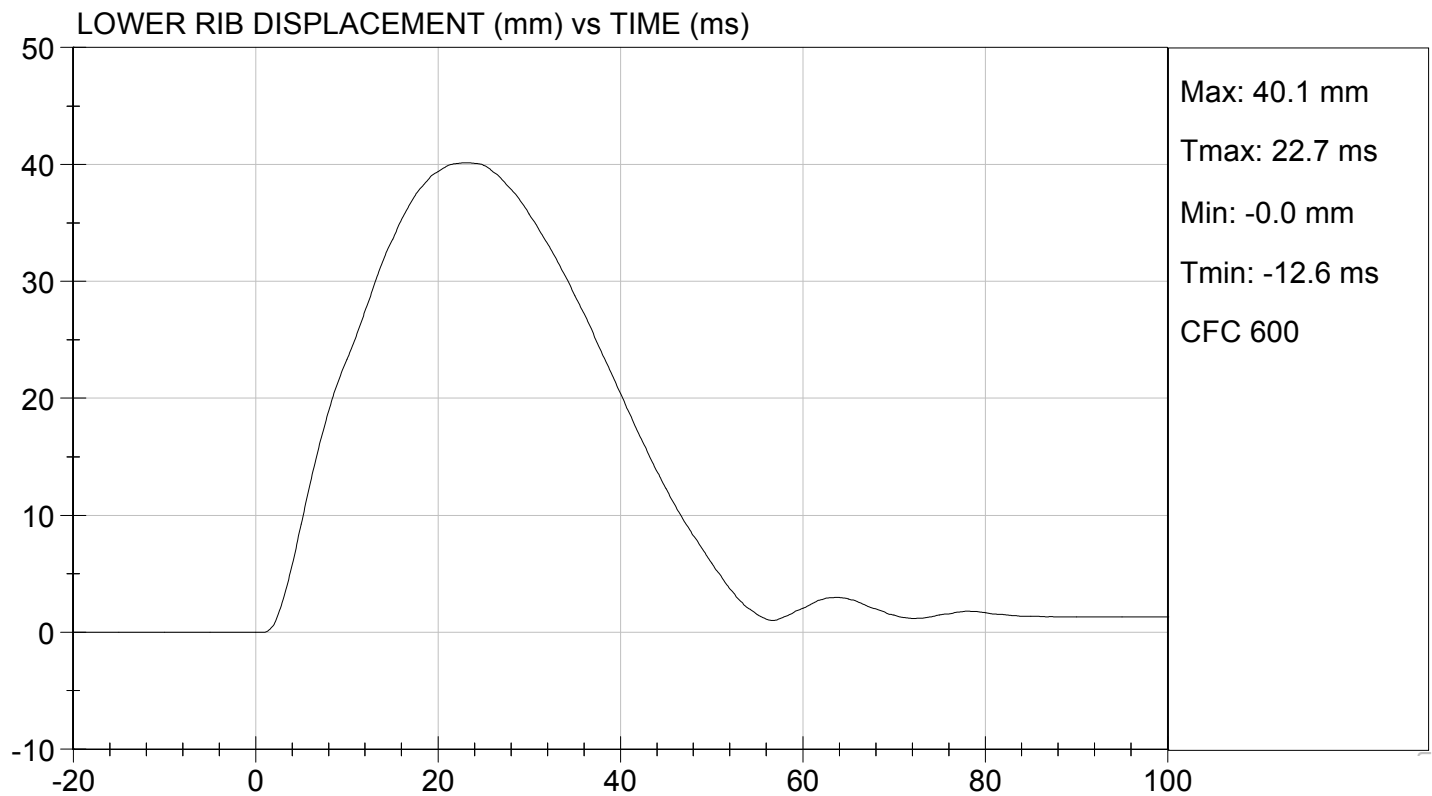
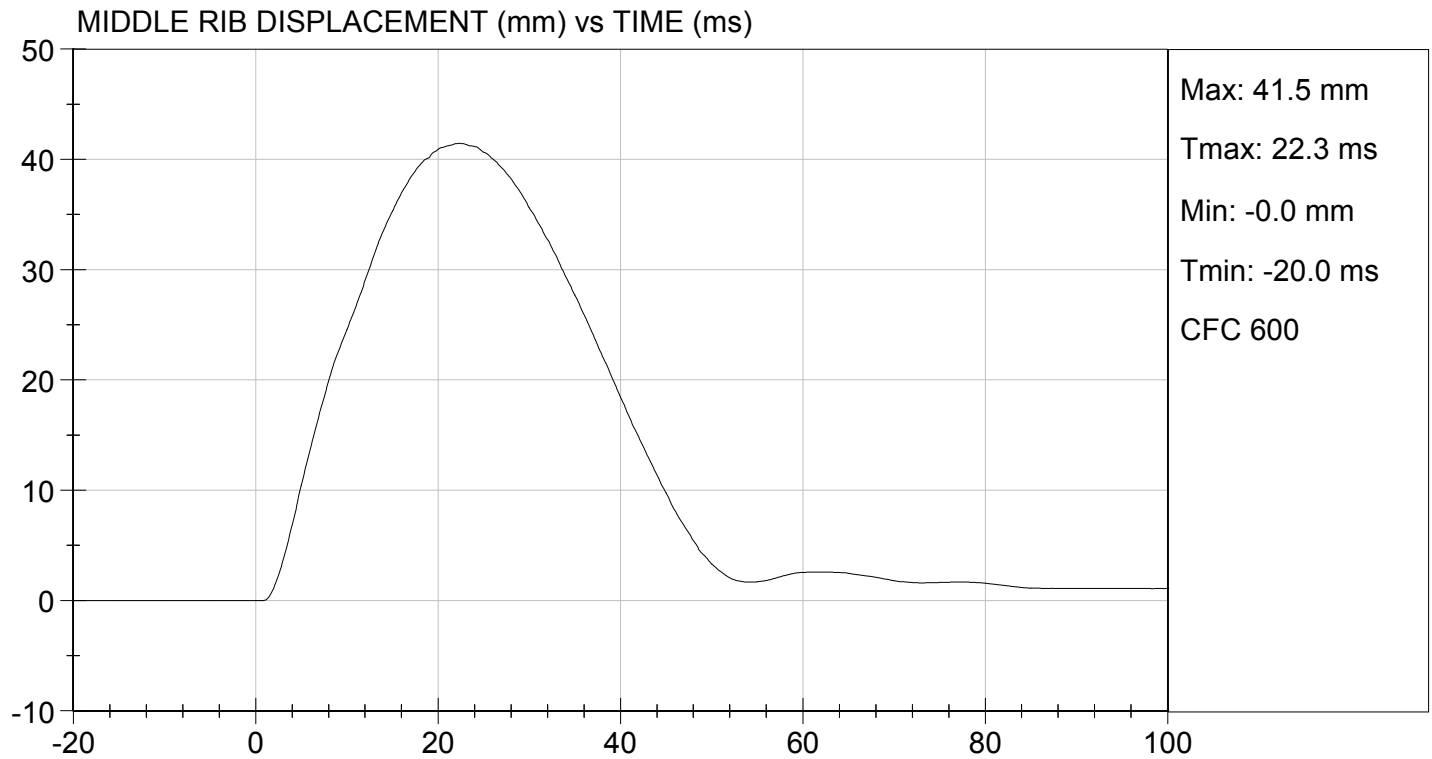
TEST DATE: 07/06/2012
TEST #: D122505





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

TEST DATE: 07/06/2012
TEST #: D122505

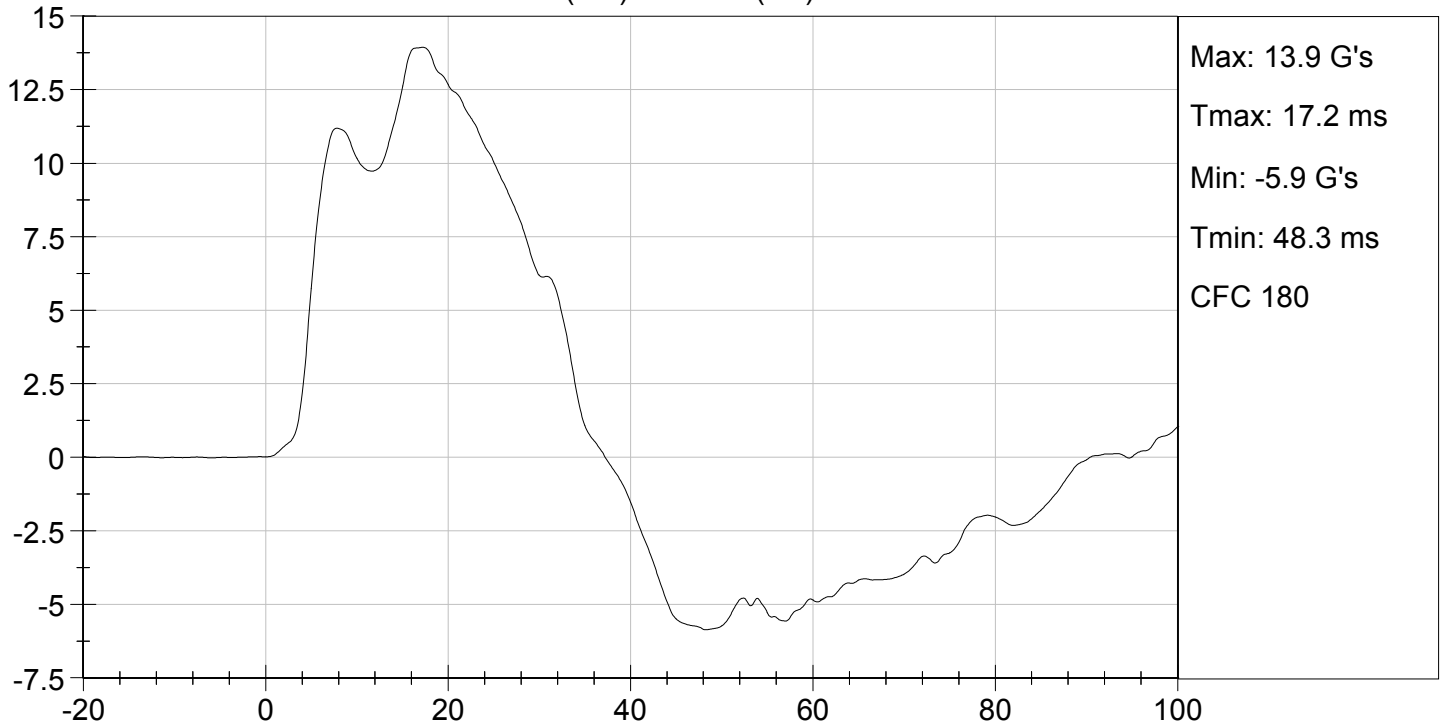




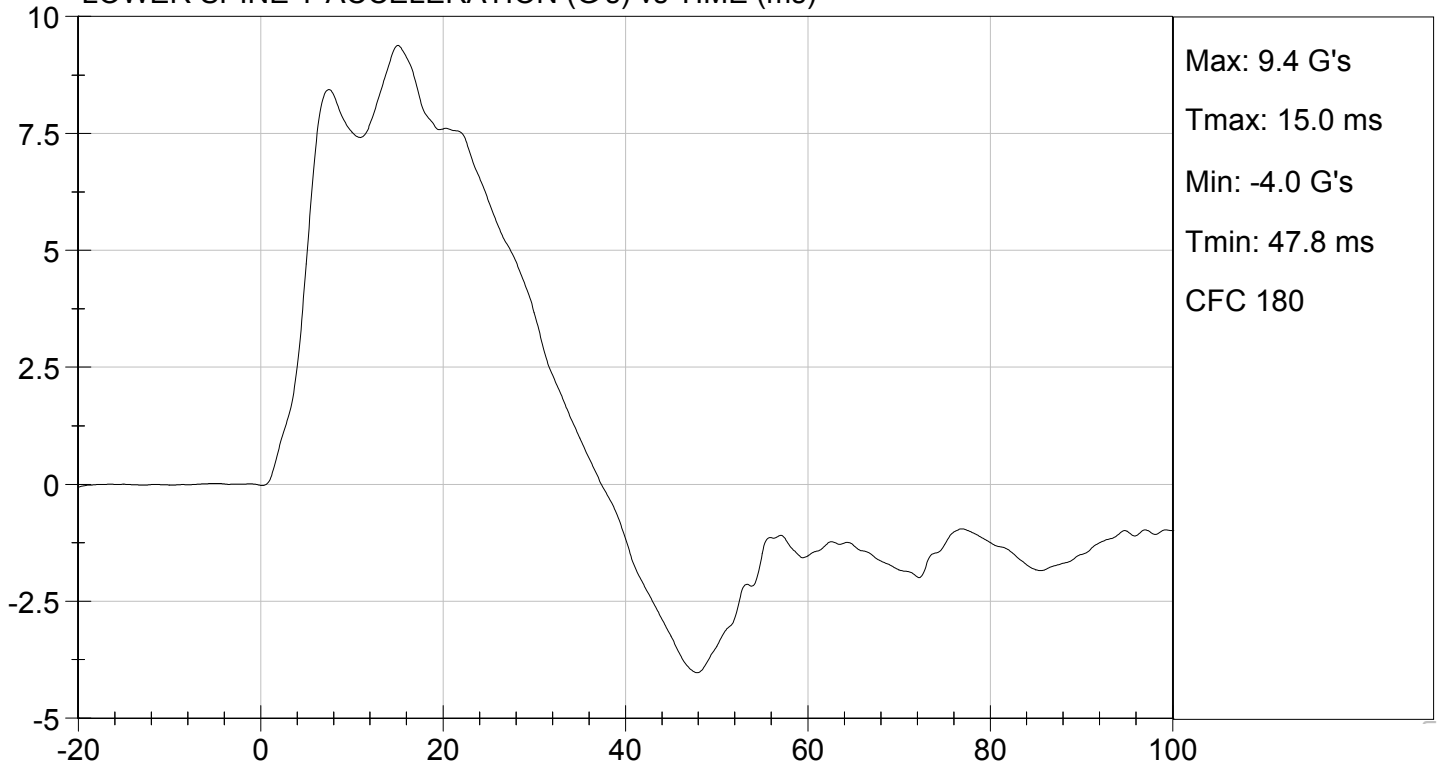
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 07/06/2012
TEST #: D122505

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: D122506

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	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	37	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

07/06/2012

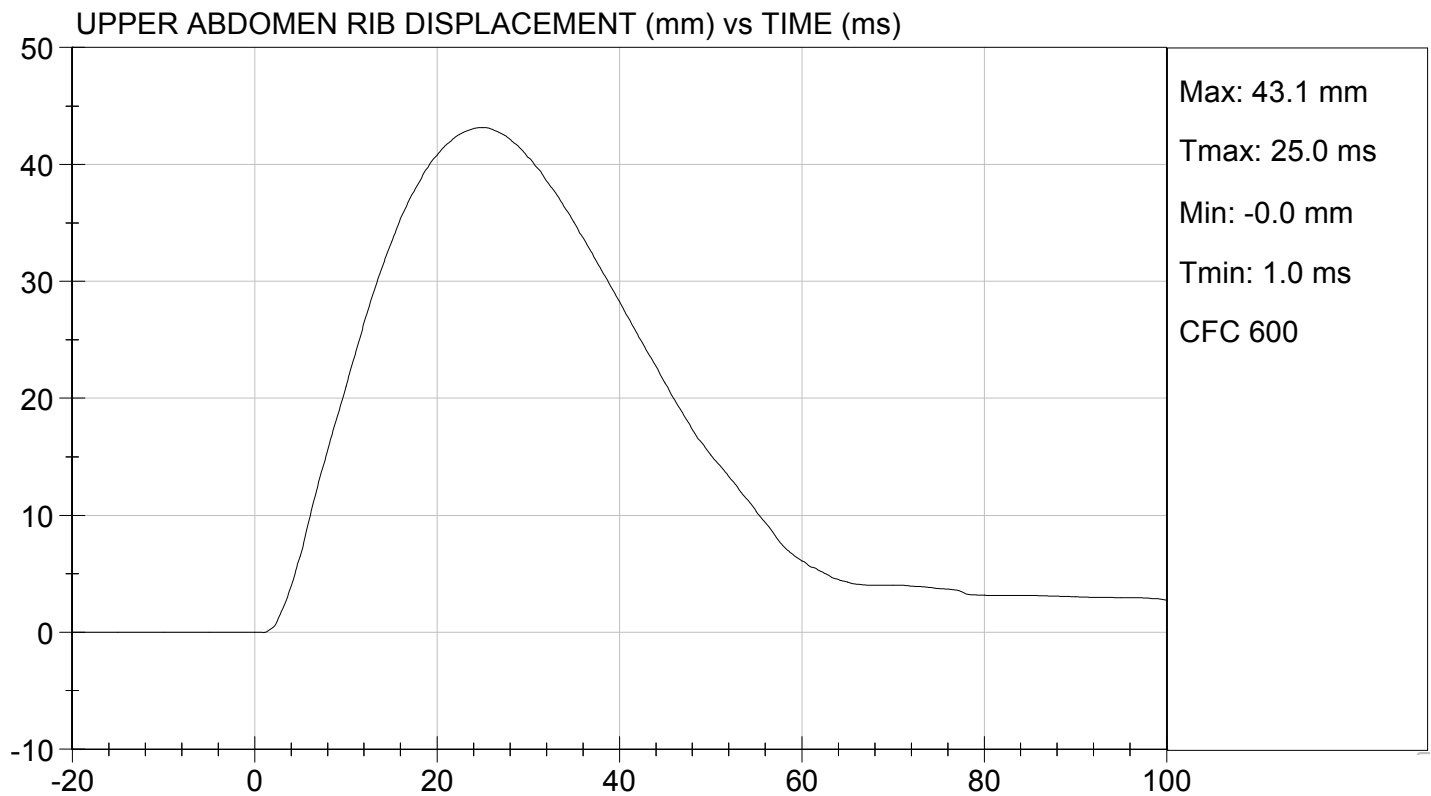
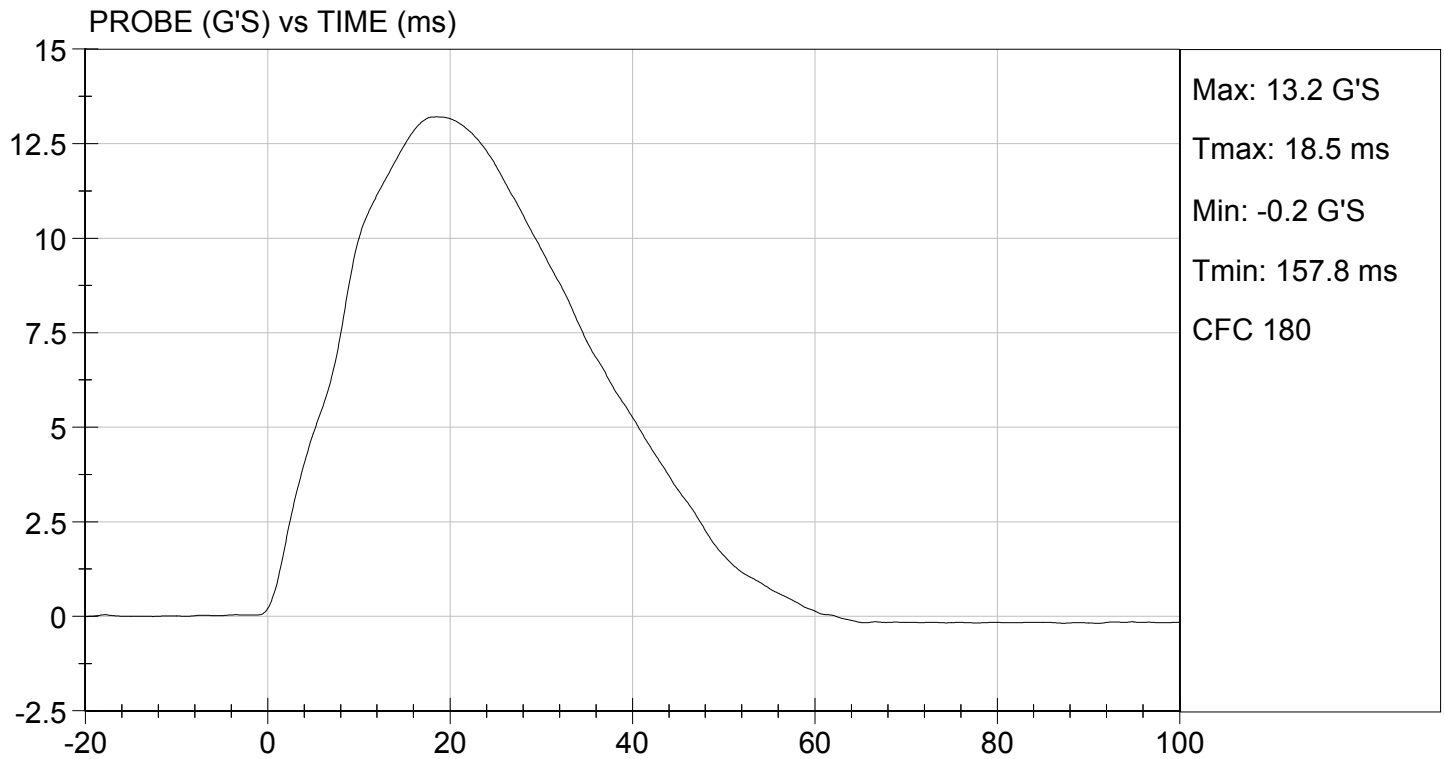
Test Date

David Winkelbauer
Approved By



TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 07/06/2012
TEST #: D122506

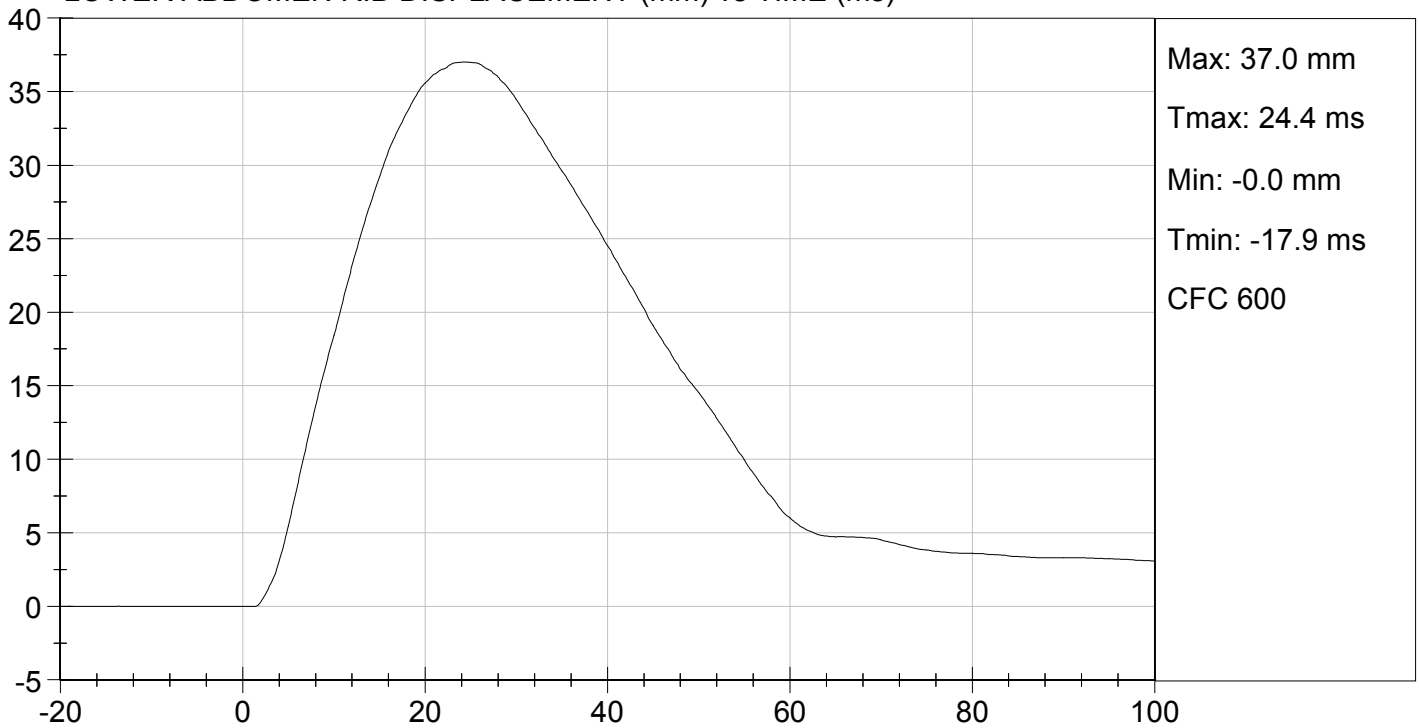




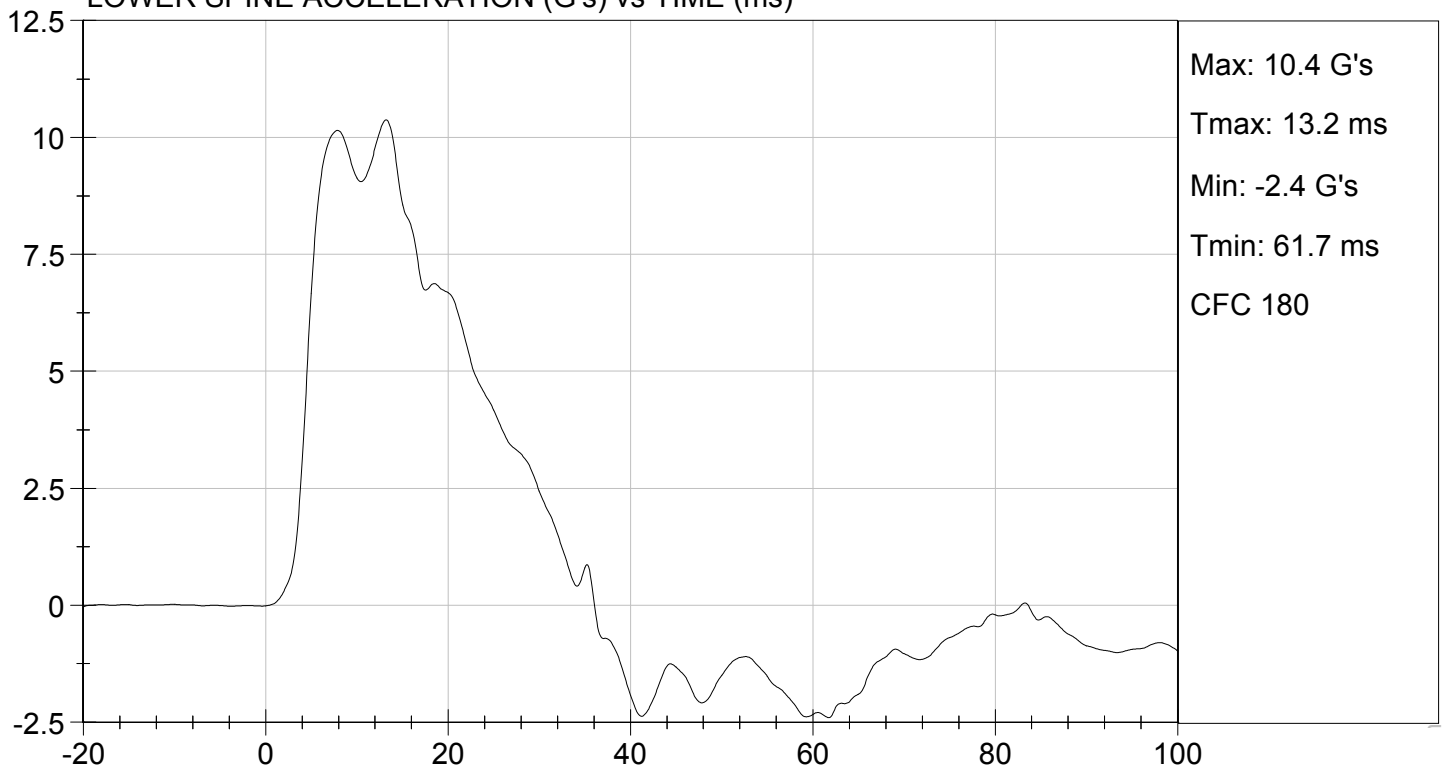
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 07/06/2012
TEST #: D122506

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: D122507

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.0	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	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	3,921	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

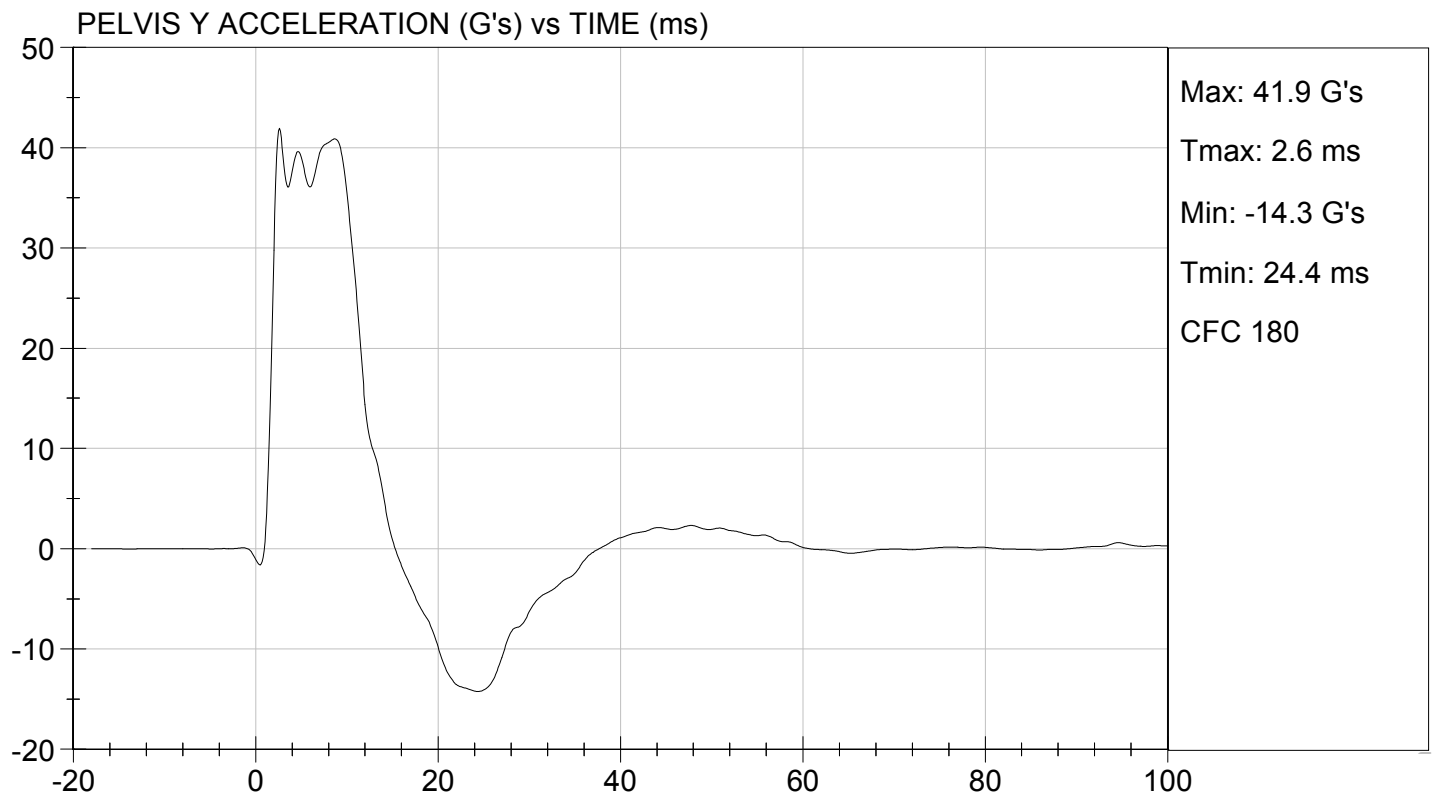
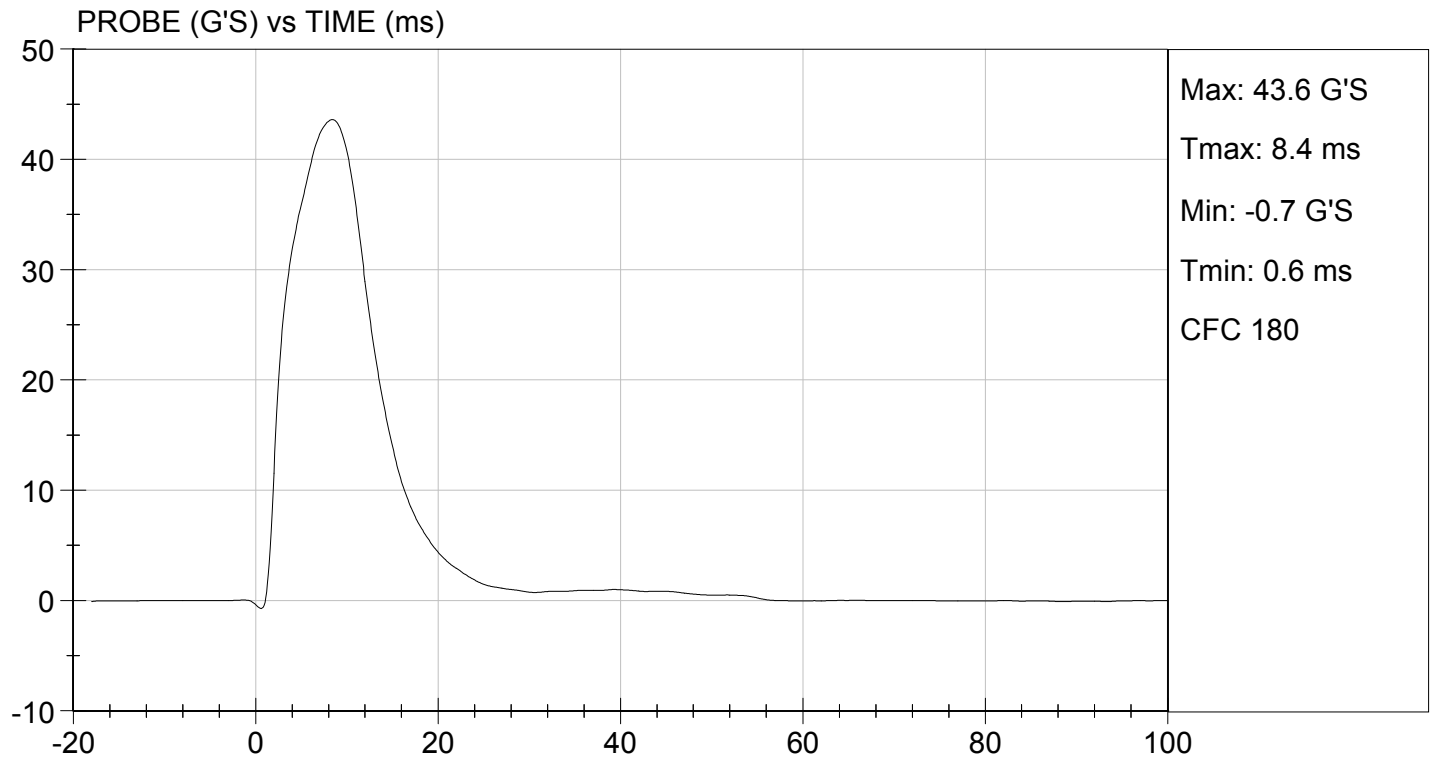
07/06/2012
Test Date

David Winkelbauer
Approved By



TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

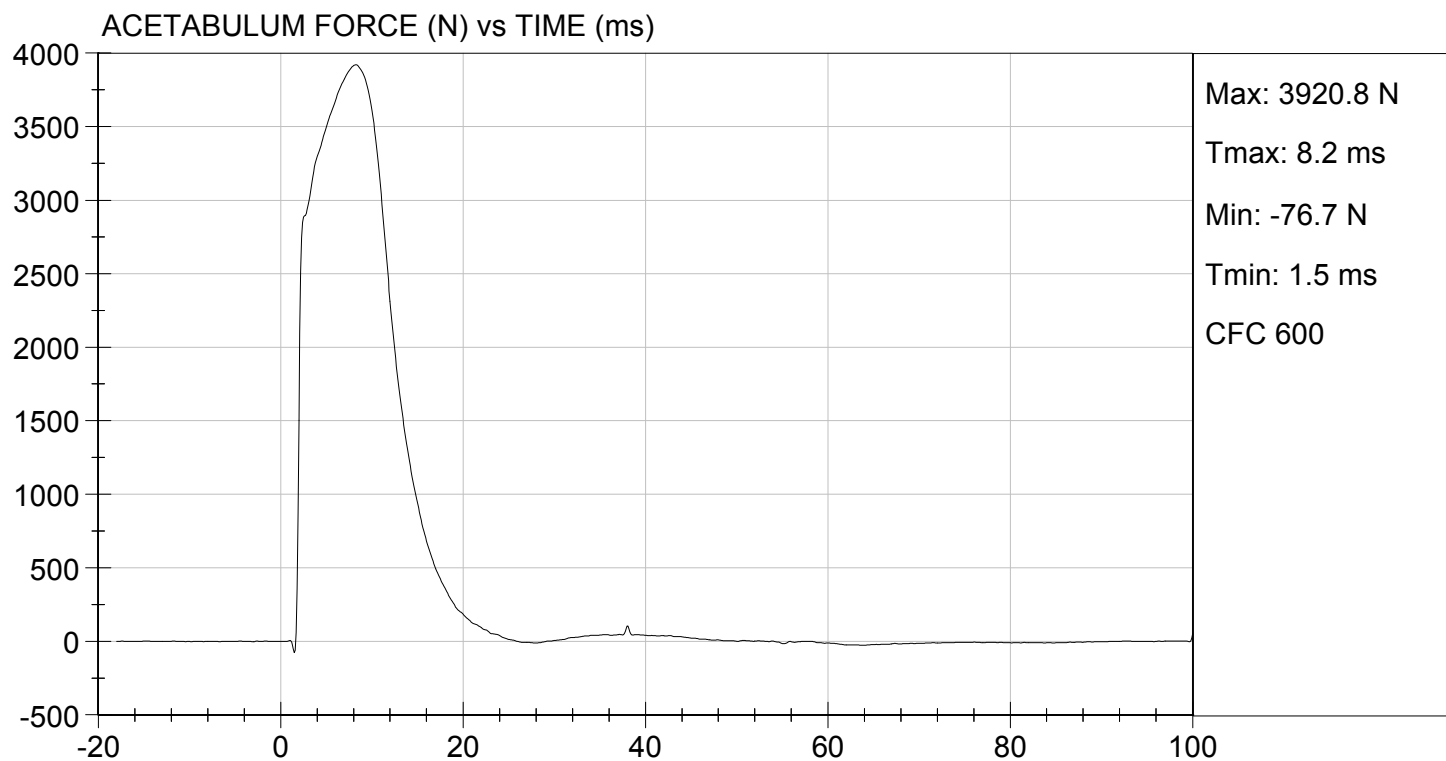
TEST DATE: 07/06/2012
TEST #: D122507





TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 07/06/2012
TEST #: D122507



MGA RESEARCH CORPORATION

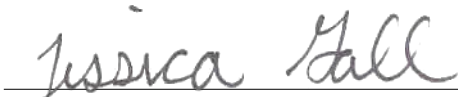
ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

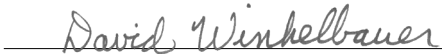
Test I.D: D122508

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	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	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,497	Pass
Overall Test Results				Pass


Laboratory Technician

07/06/2012

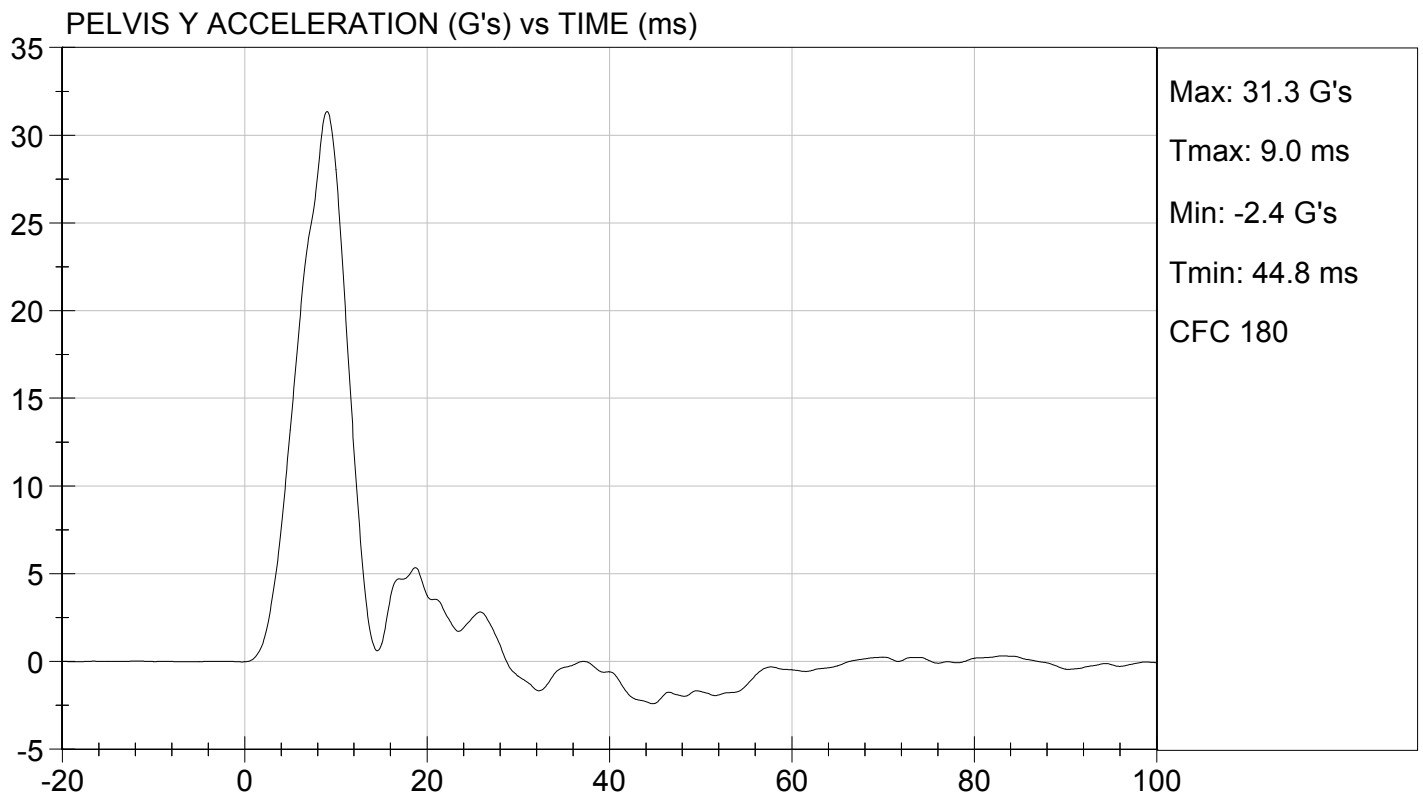
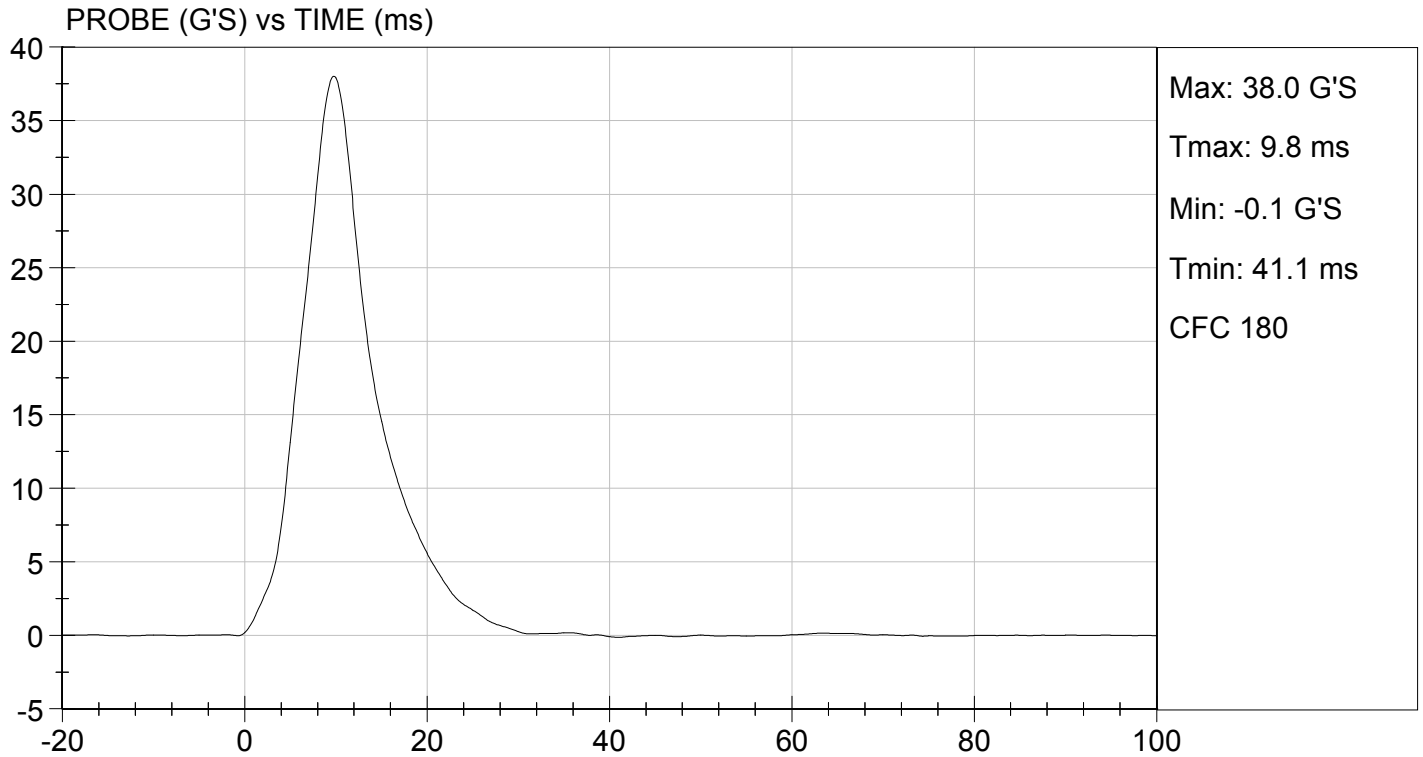
Test Date


Approved By



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

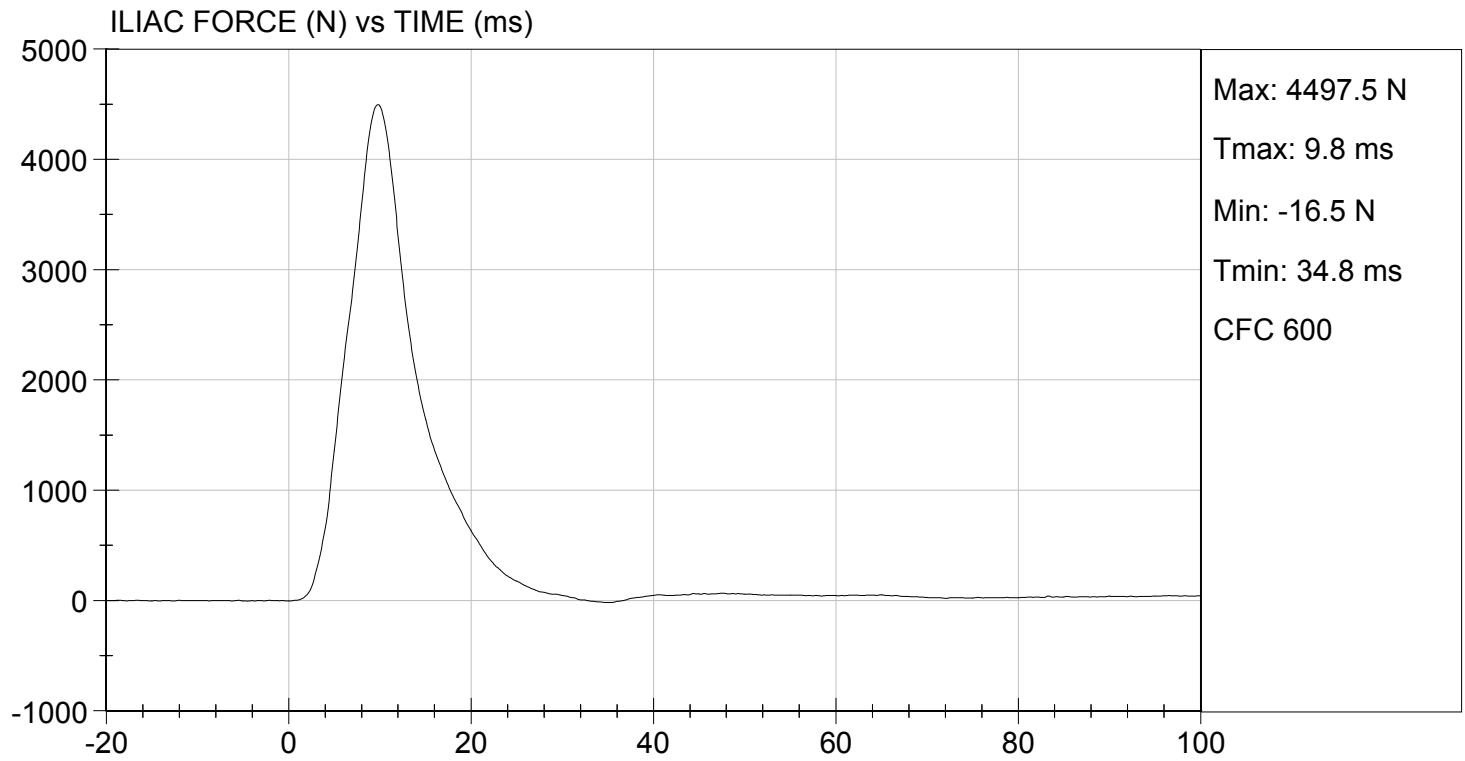
TEST DATE: 07/06/2012
TEST #: D122508





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

TEST DATE: 07/06/2012
TEST #: D122508

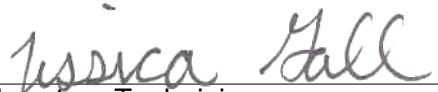


MGA RESEARCH CORPORATION
HEAD DROP TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D122731

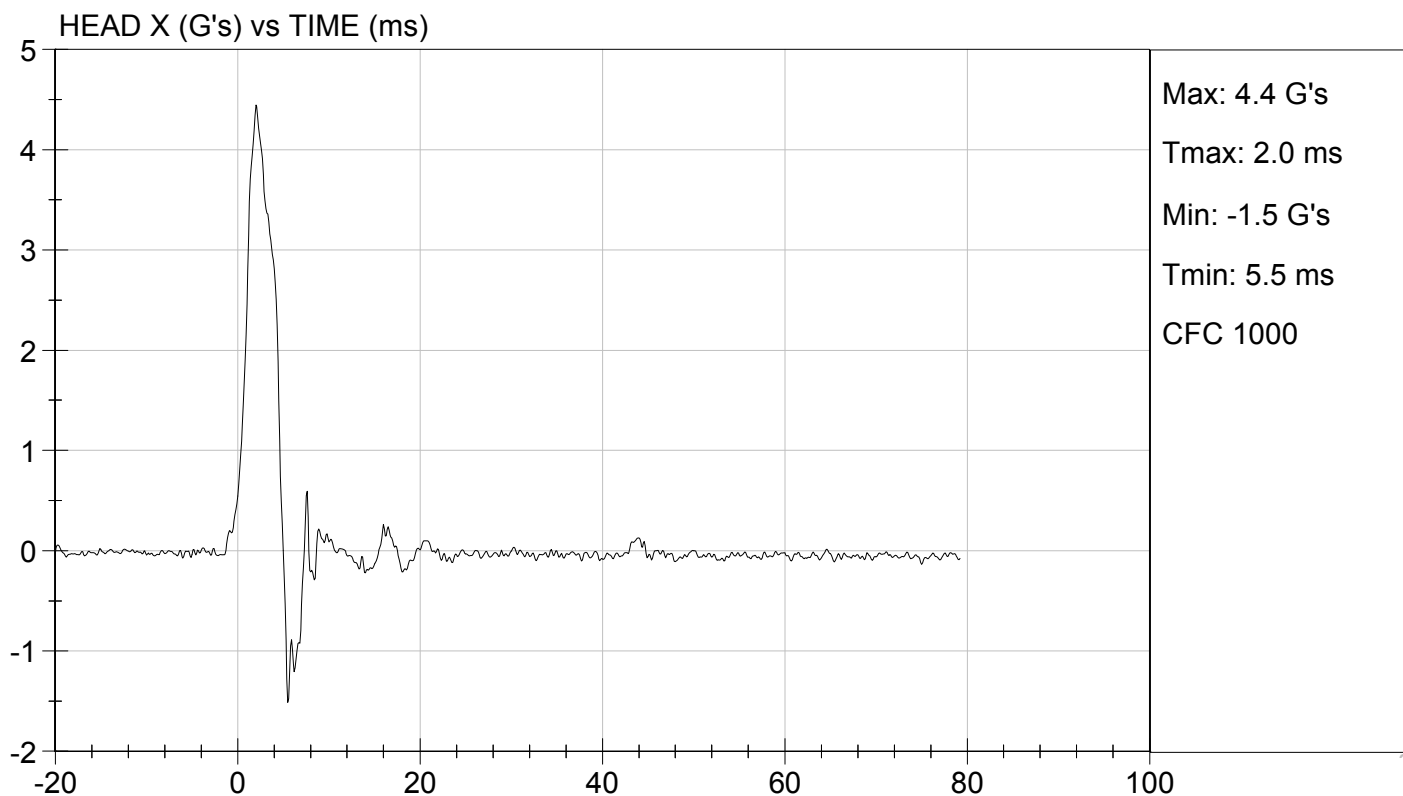
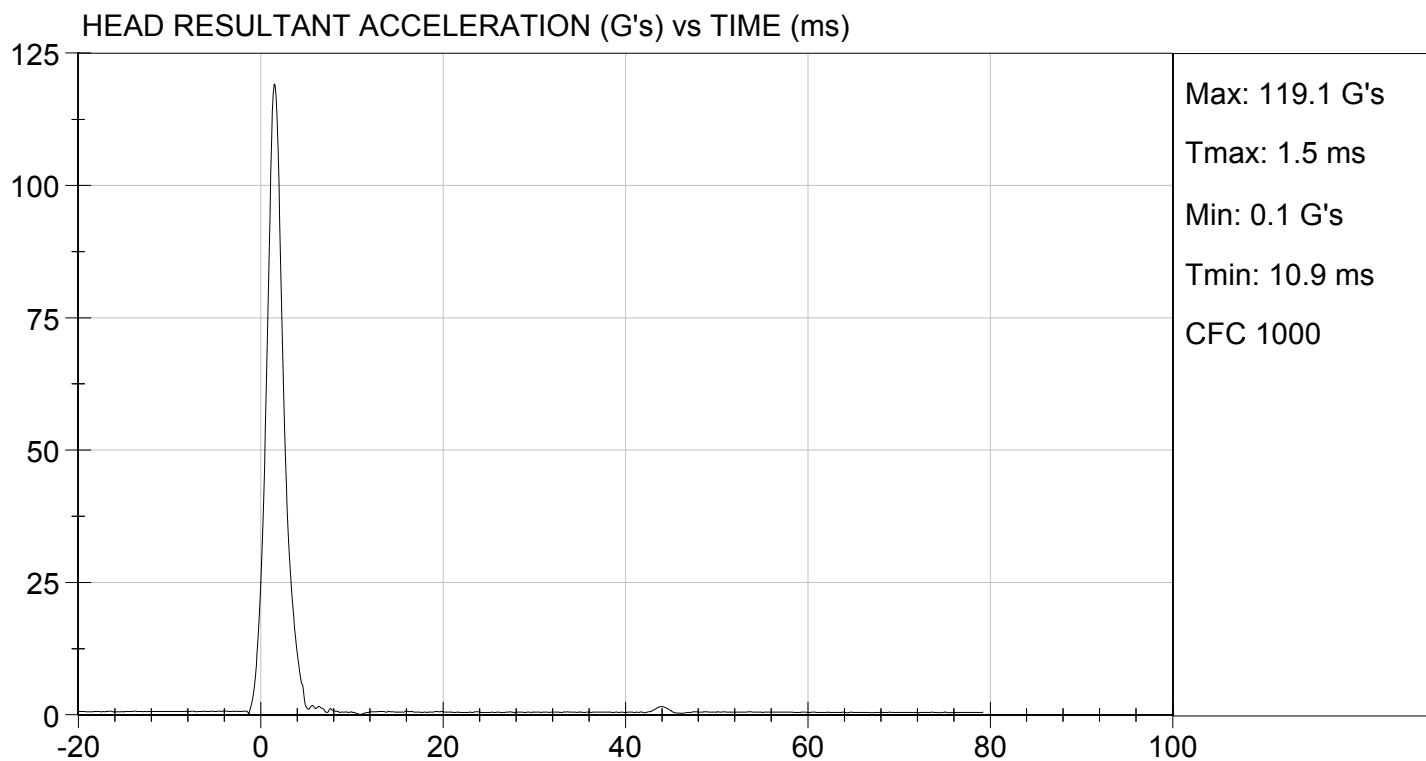
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Peak Resultant Acceleration	G's	115 to 137	119	Pass
Peak Longitudinal Acceleration	G's	+/- 15	4.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results			Pass	

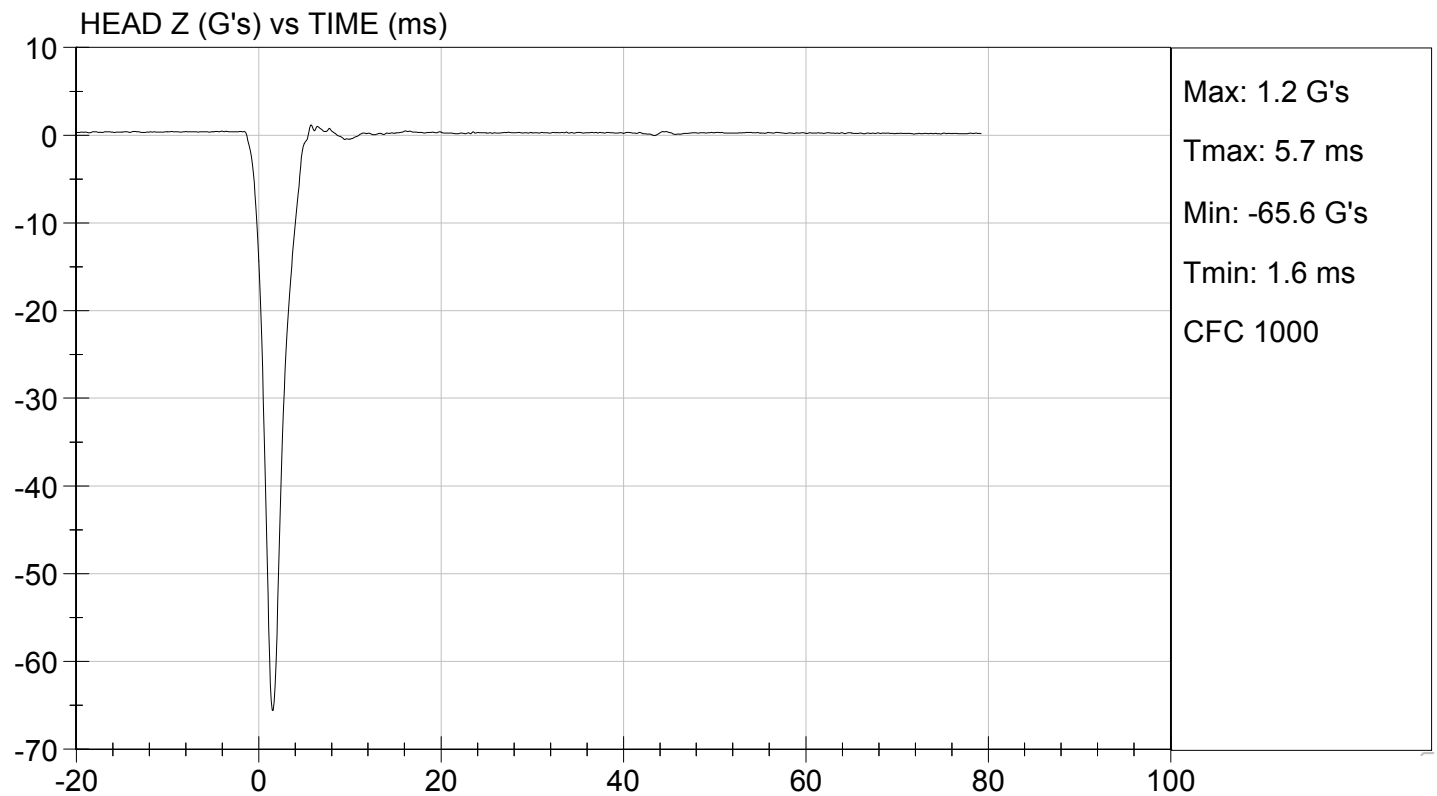
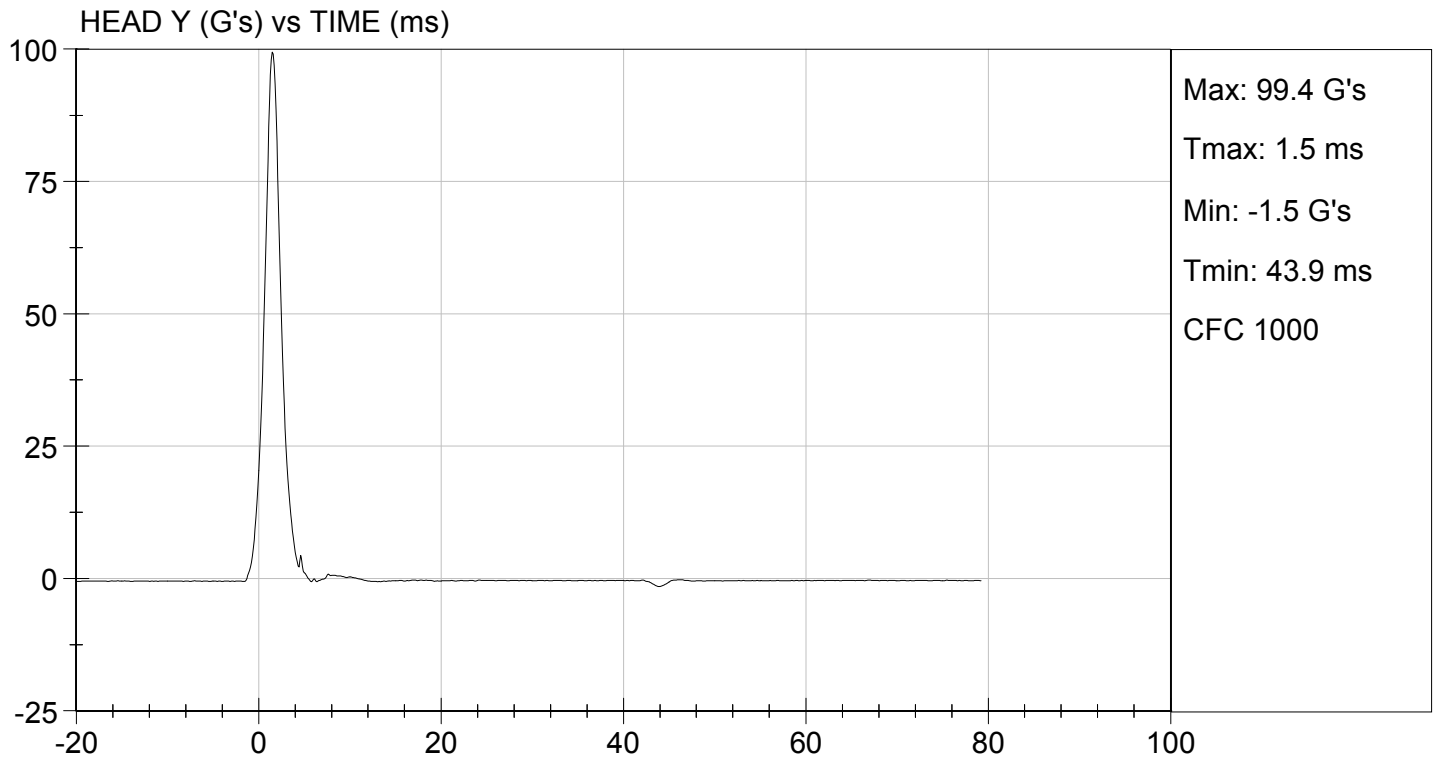

Laboratory Technician

07/25/2012

Test Date


Approved By





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

ATD Serial No: 306

Test I.D: D122732

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.5	Pass
Humidity		%	10 to 70	49	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.52	Pass
	15 ms	m/s	3.30 to 4.10	3.74	Pass
	20 ms	m/s	4.40 to 5.40	5.06	Pass
	25 ms	m/s	5.40 to 6.10	5.50	Pass
	25-100 ms	m/s	5.50 to 6.20	5.53	Pass
Maximum D-Plane Rotation		deg	71 to 81	72	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	60	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-43	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	116	Pass
Overall Test Results					Pass

Jessica Hall
Laboratory Technician

07/25/2012

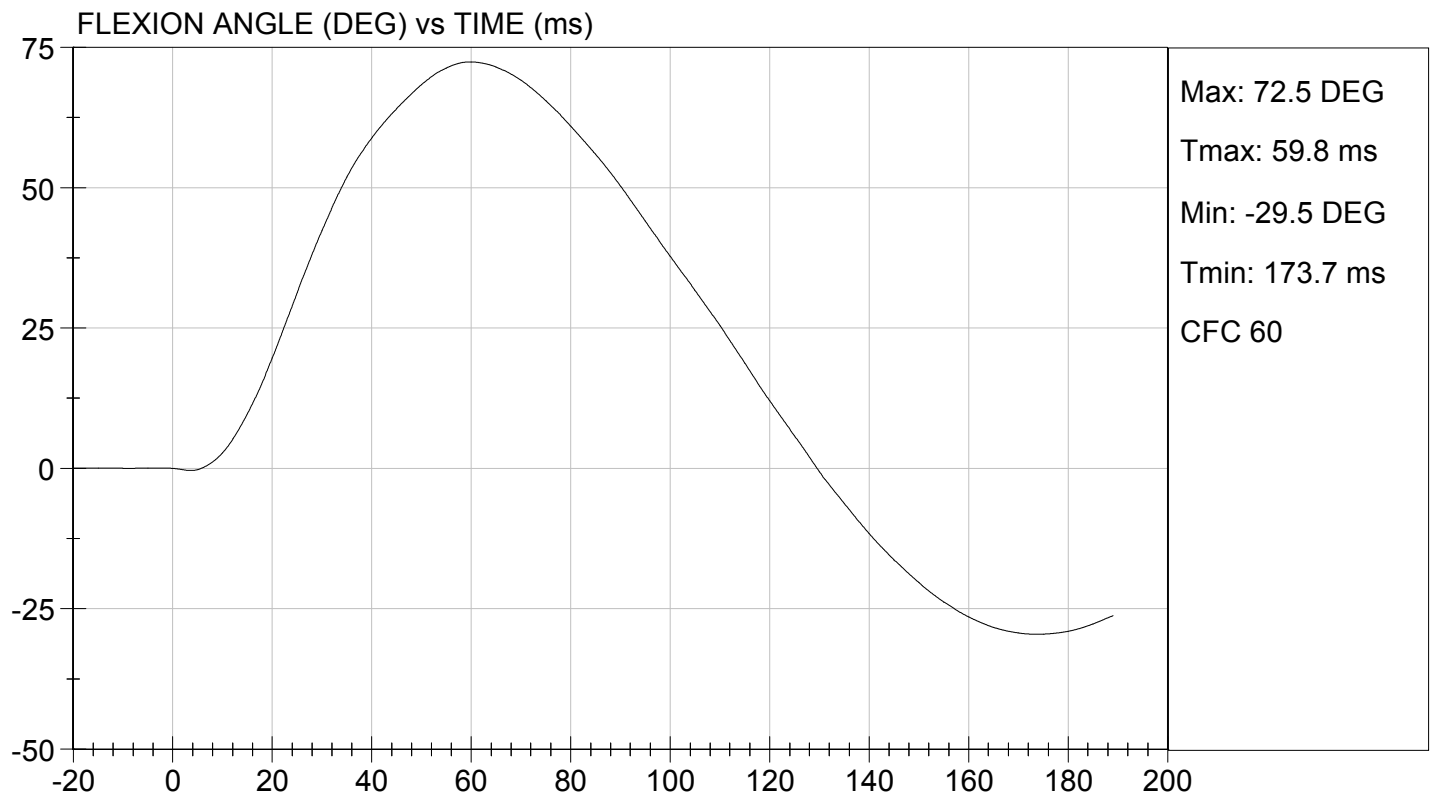
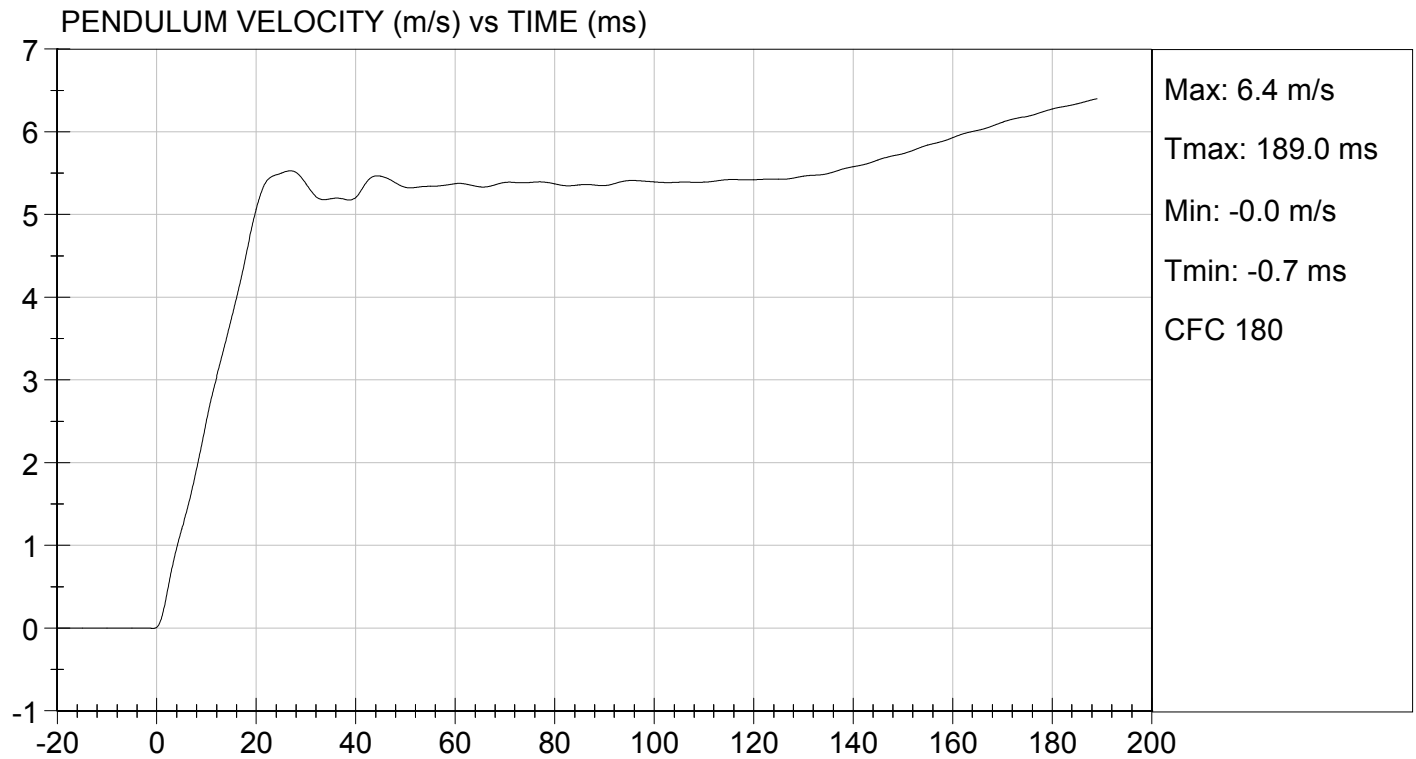
Test Date

David Winkelbauer
Approved By



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

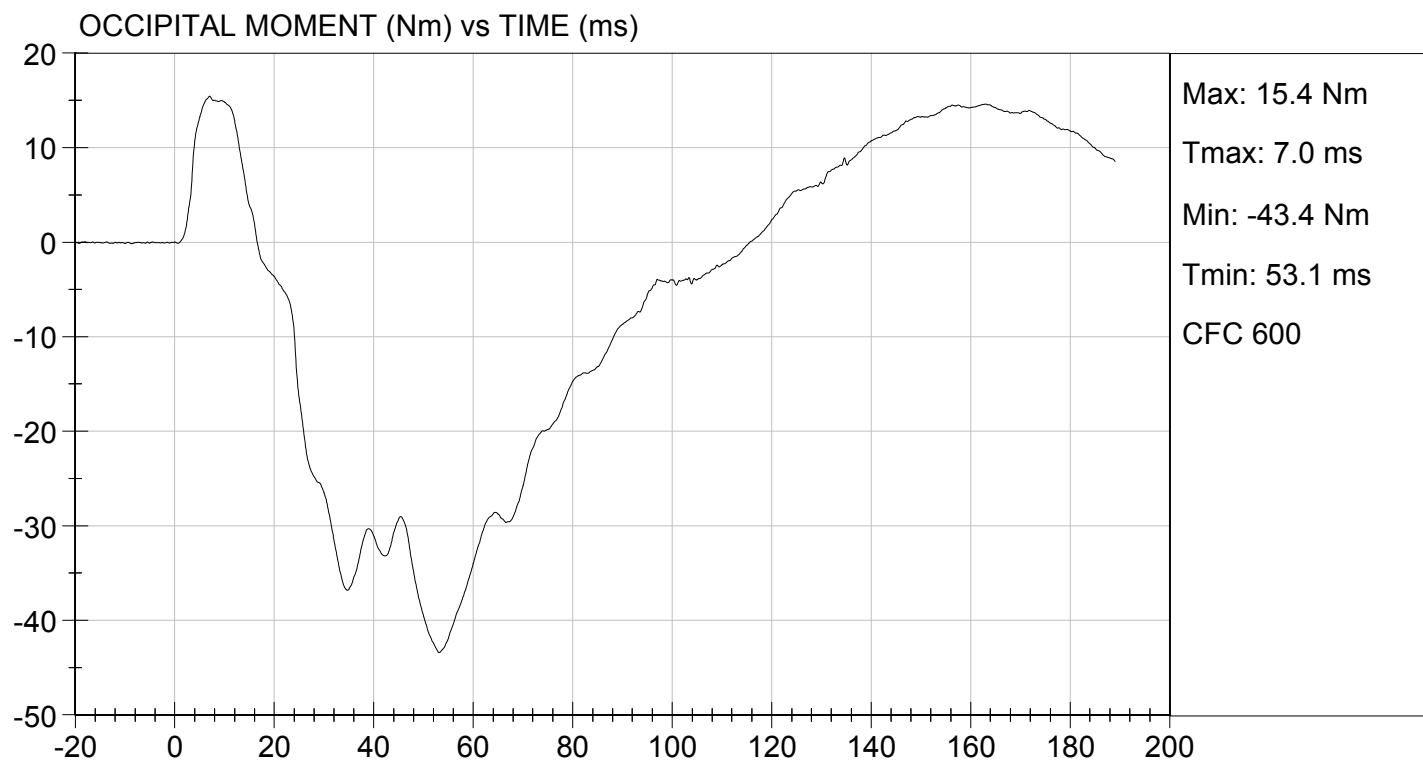
TEST DATE: 07/25/2012
TEST #: D122732





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

TEST DATE: 07/25/2012
TEST #: D122732

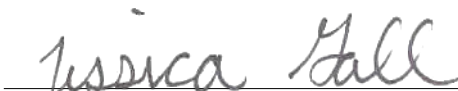


MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test ID: D122733

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	51	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
			Overall Test Results	Pass


Laboratory Technician

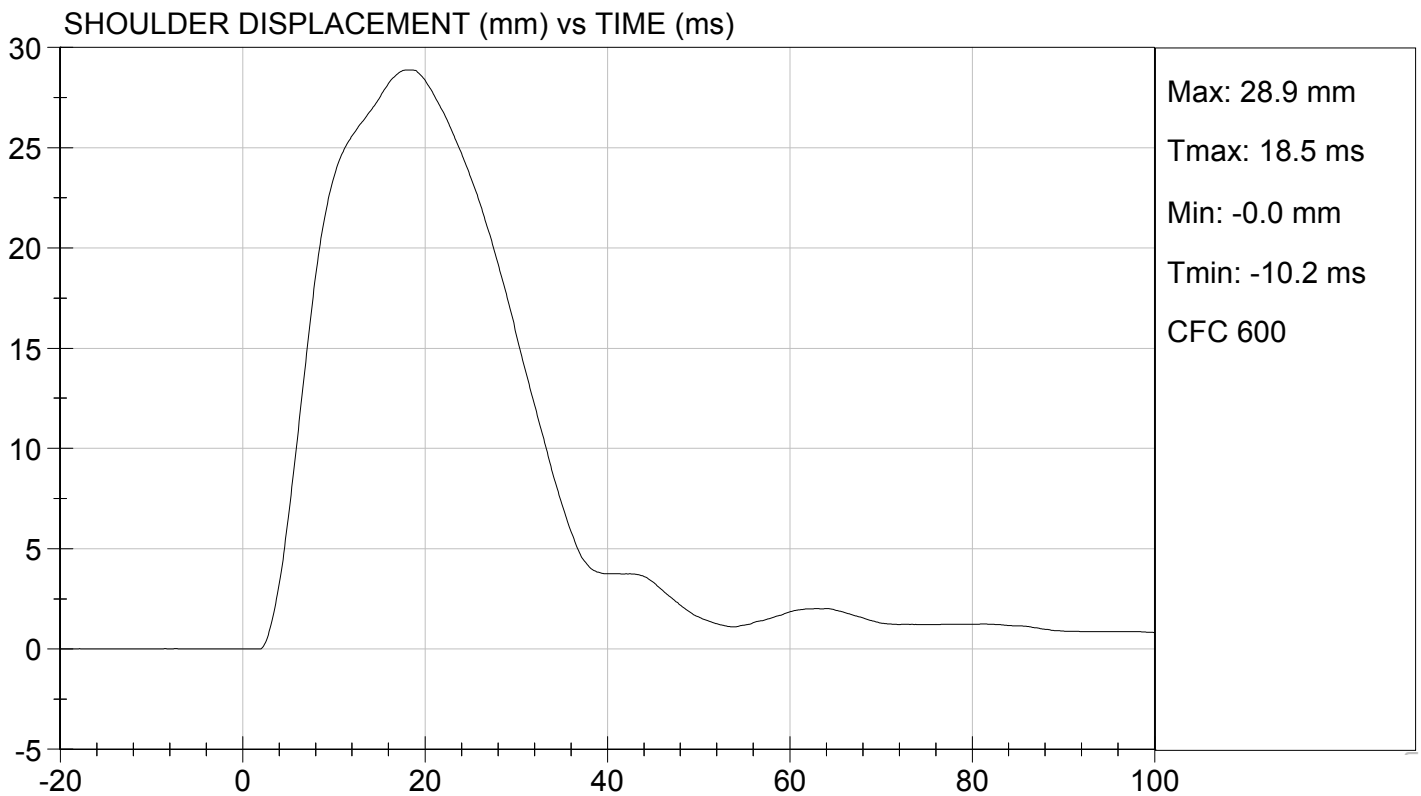
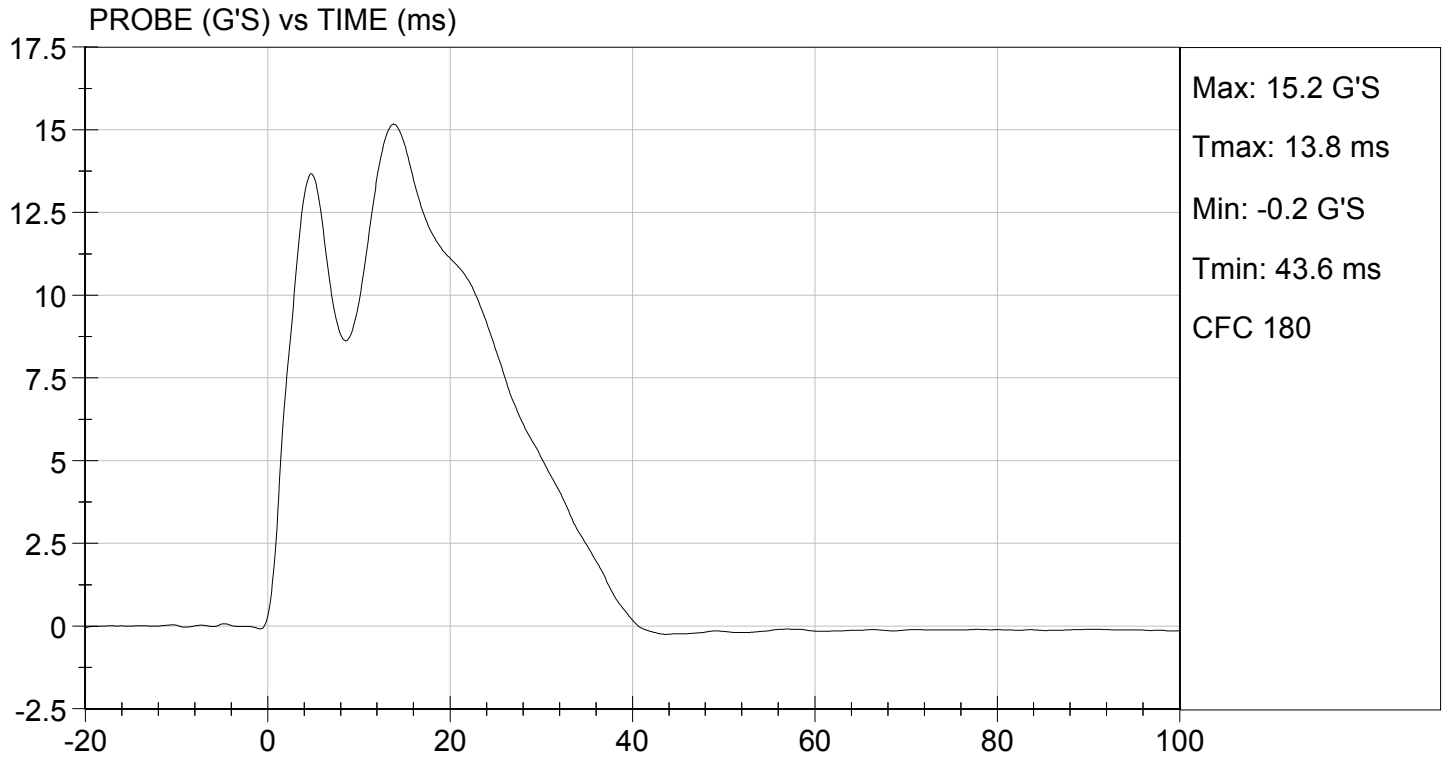
07/25/2012
Test Date


Approved By



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

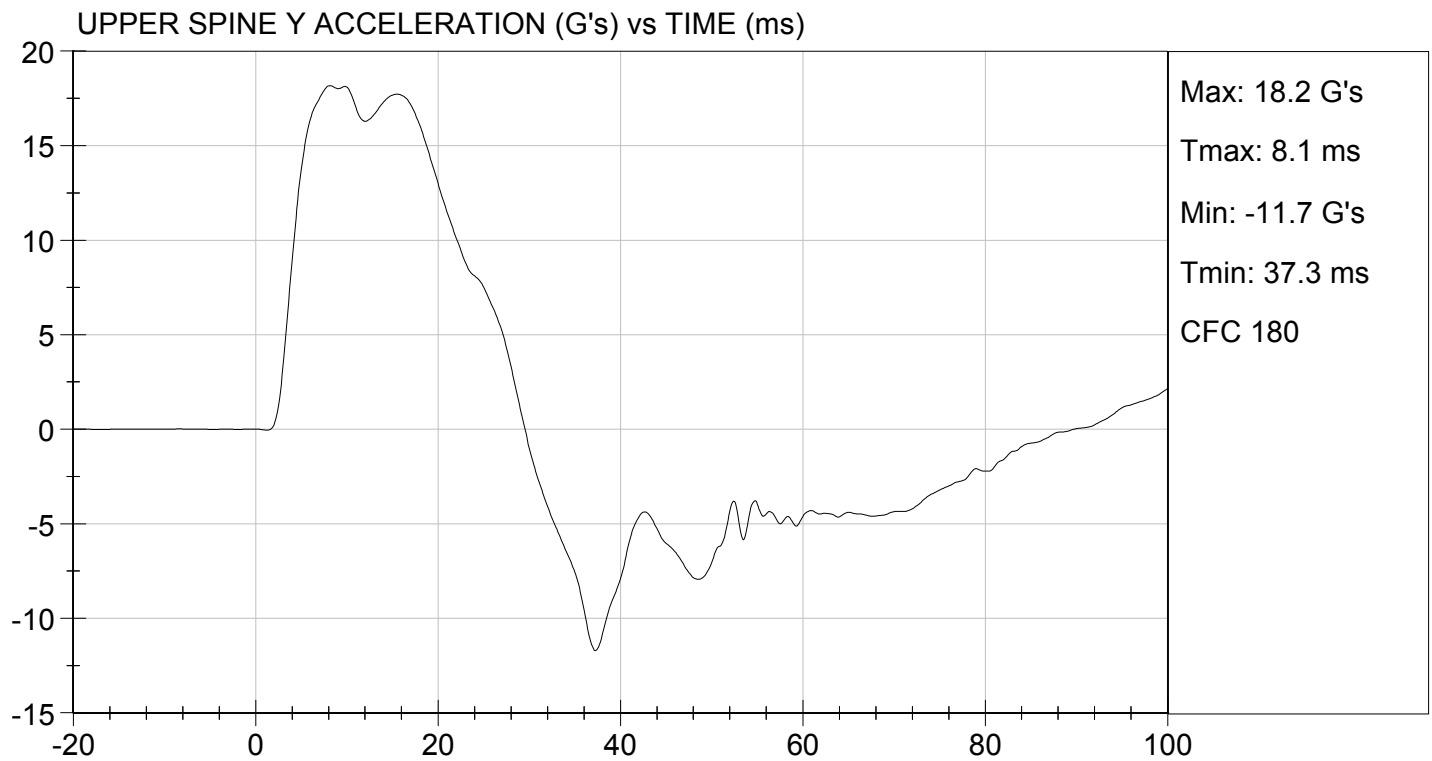
TEST DATE: 07/25/2012
TEST #: D122733





TEST DESC: SHOULDER IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 07/25/2012
TEST #: D122733



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

ATD Serial No: 306

Test I.D: D122734

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	51	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	32	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	36	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

Jessica Hall
Laboratory Technician

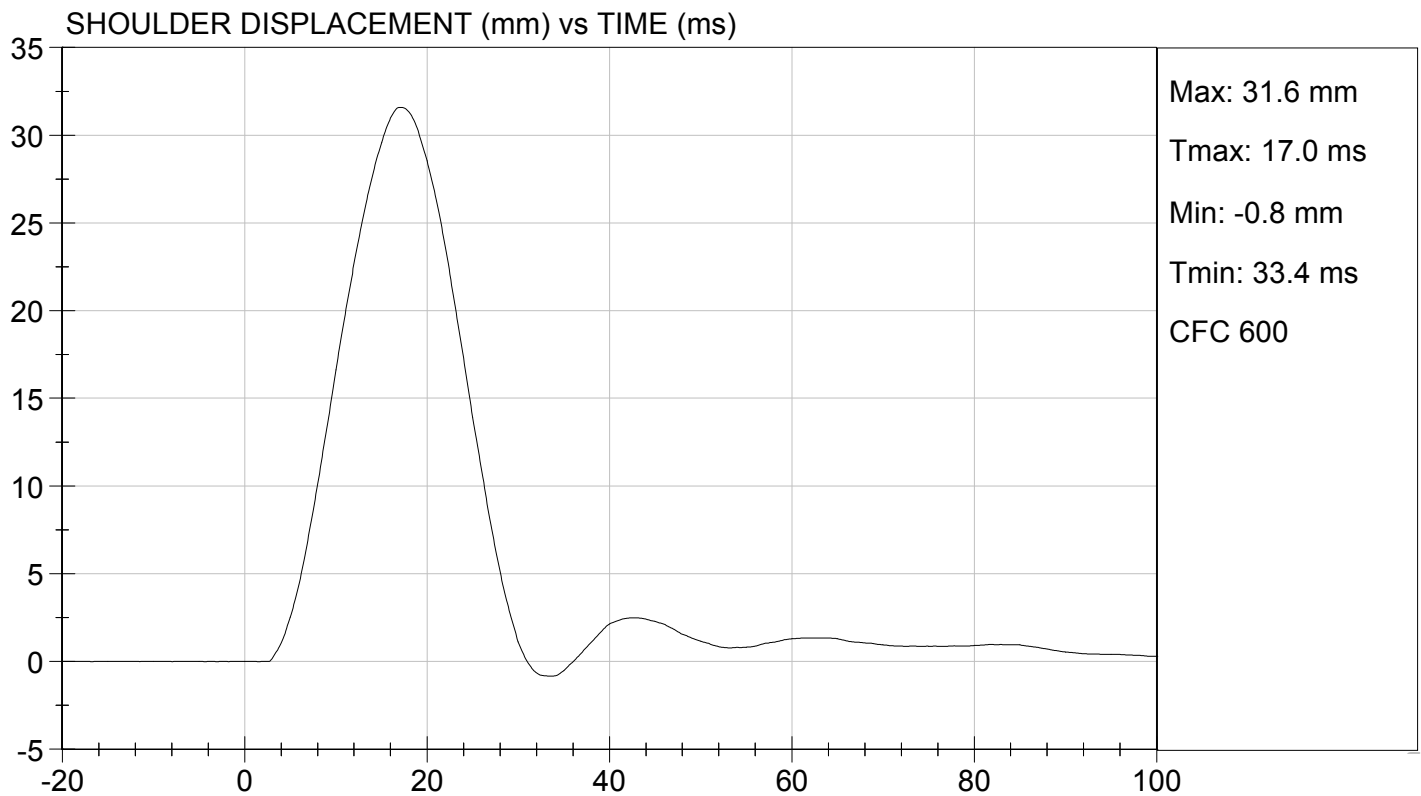
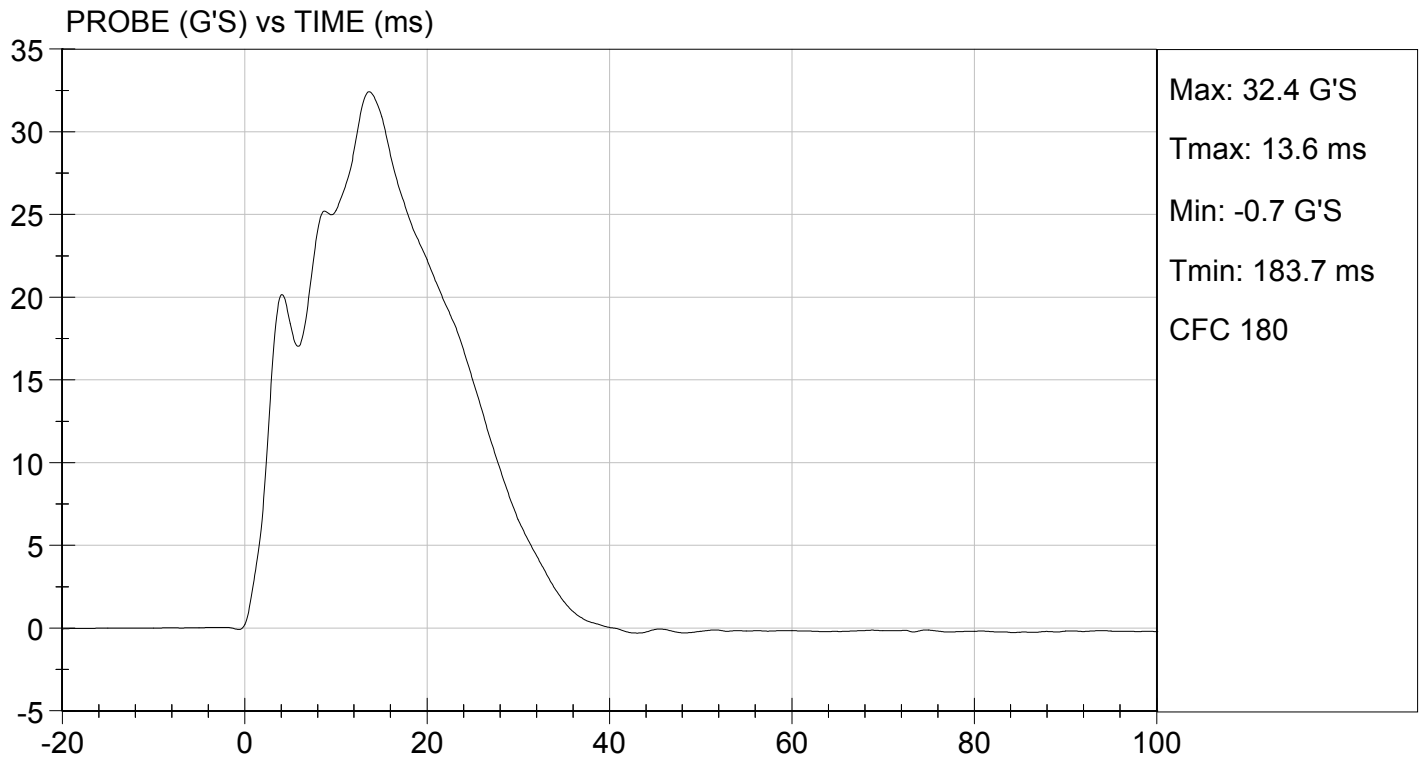
07/25/2012
Test Date

David Winkelbauer
Approved By



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

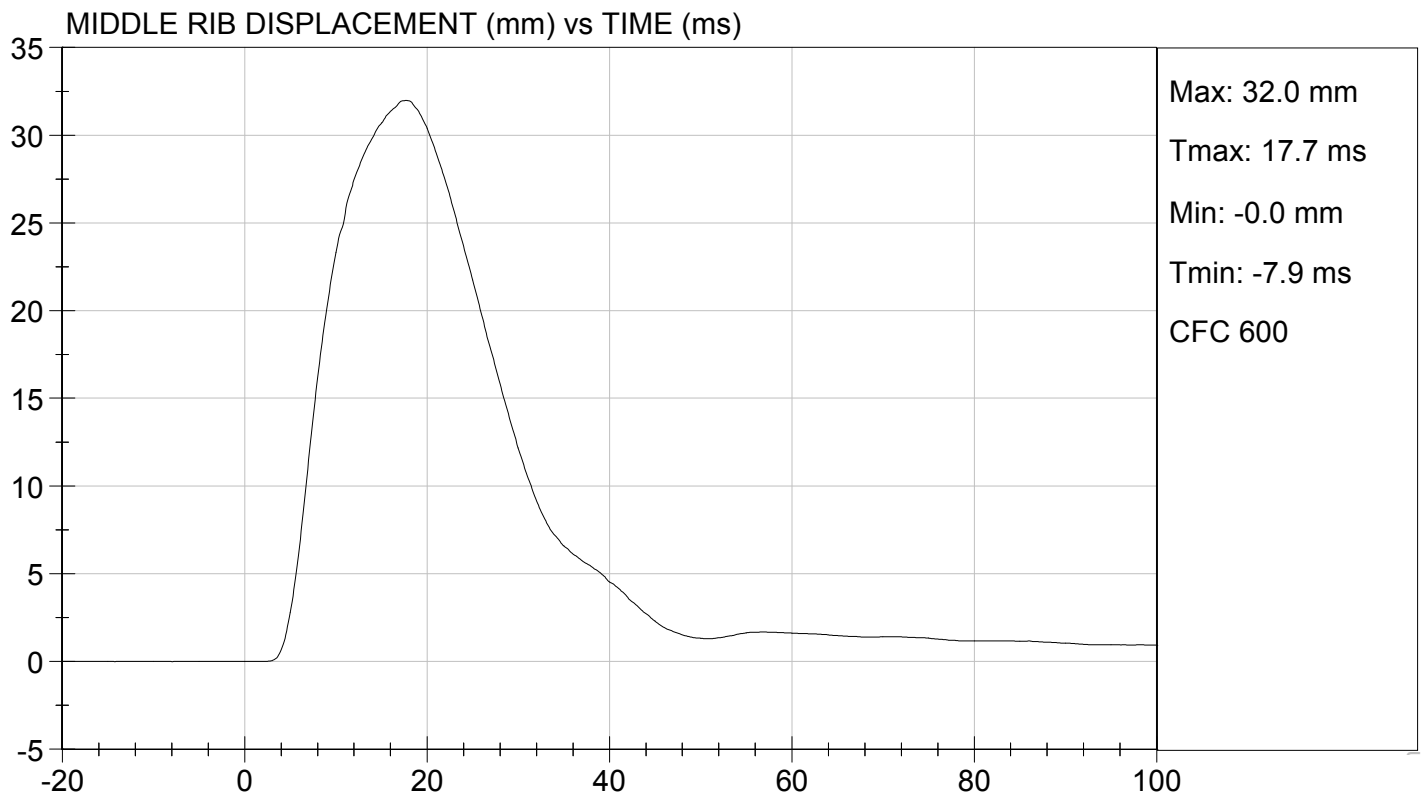
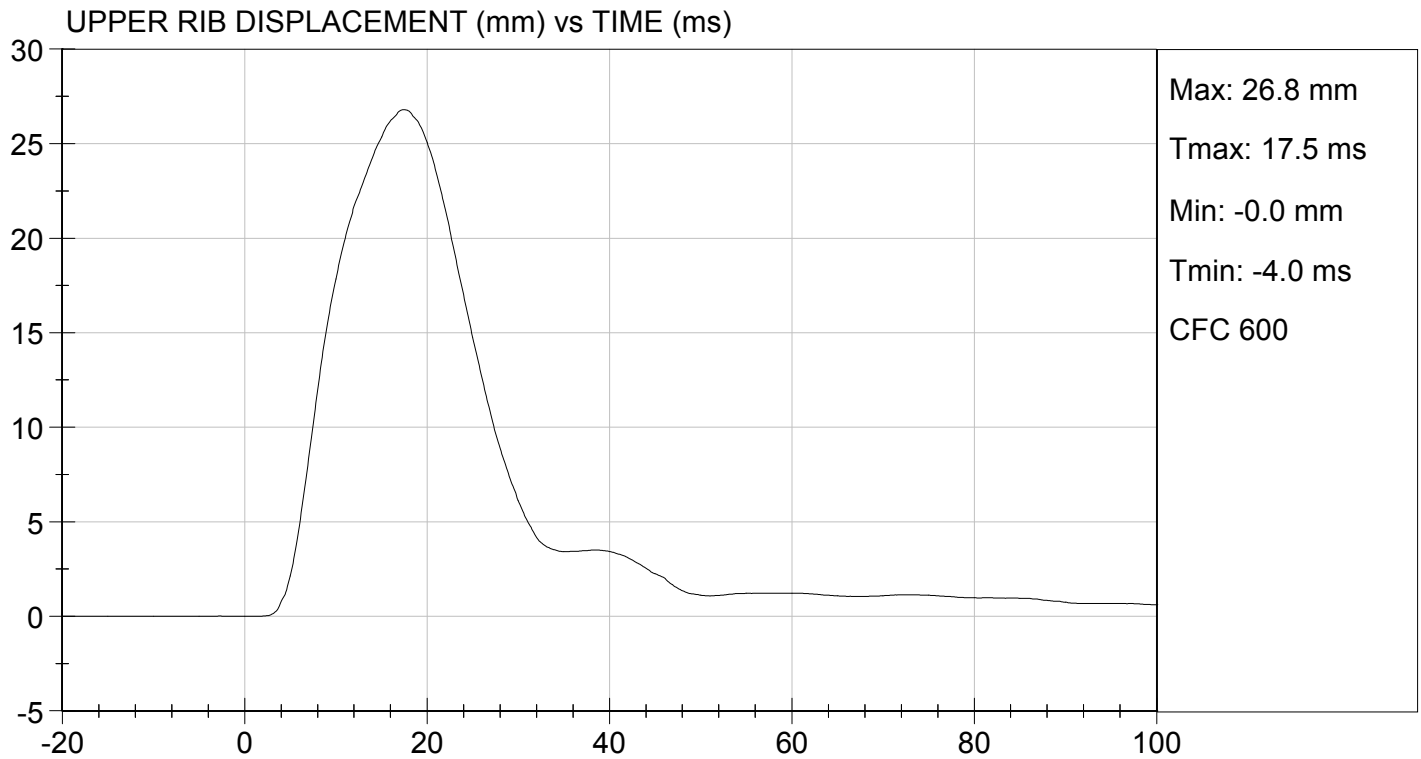
TEST DATE: 07/25/2012
TEST #: D122734





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

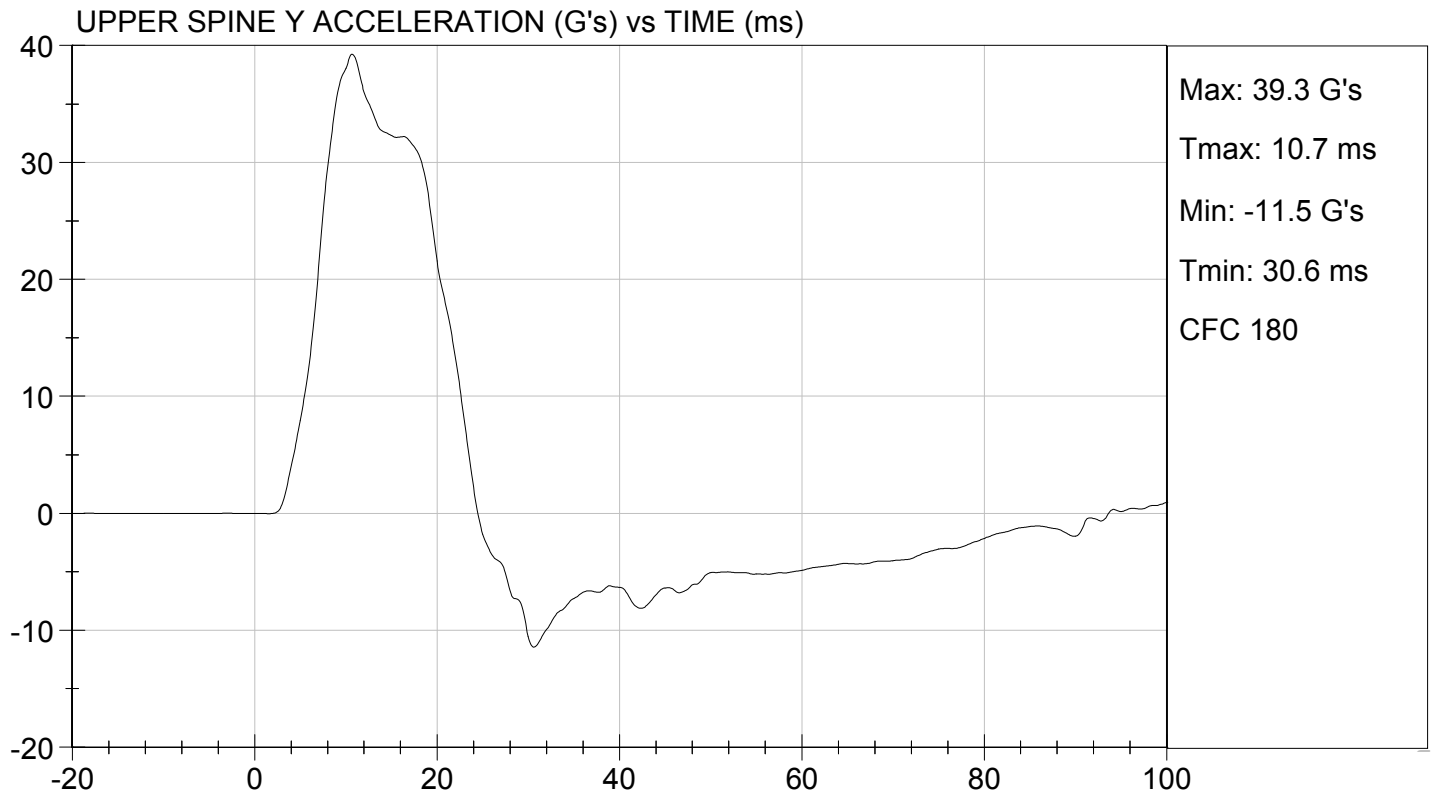
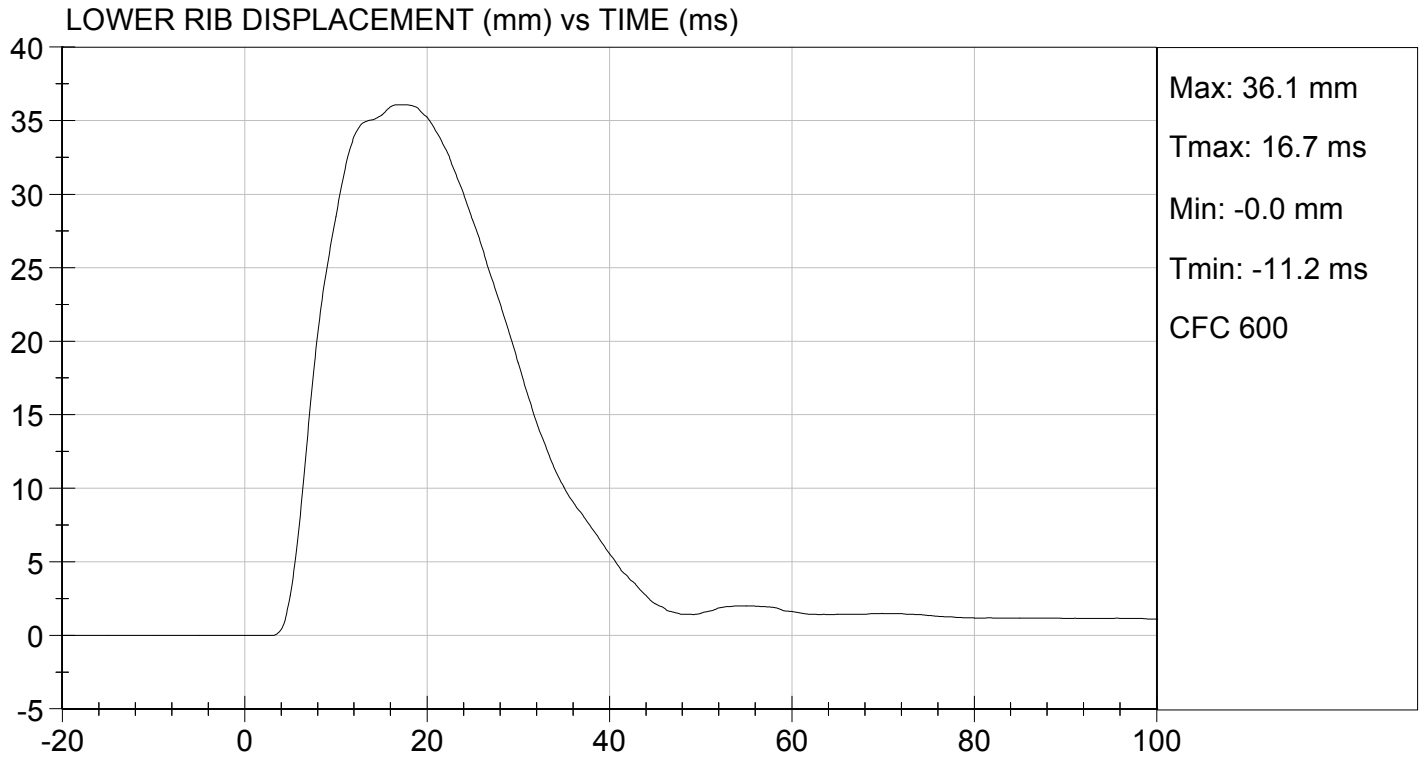
TEST DATE: 07/25/2012
TEST #: D122734





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

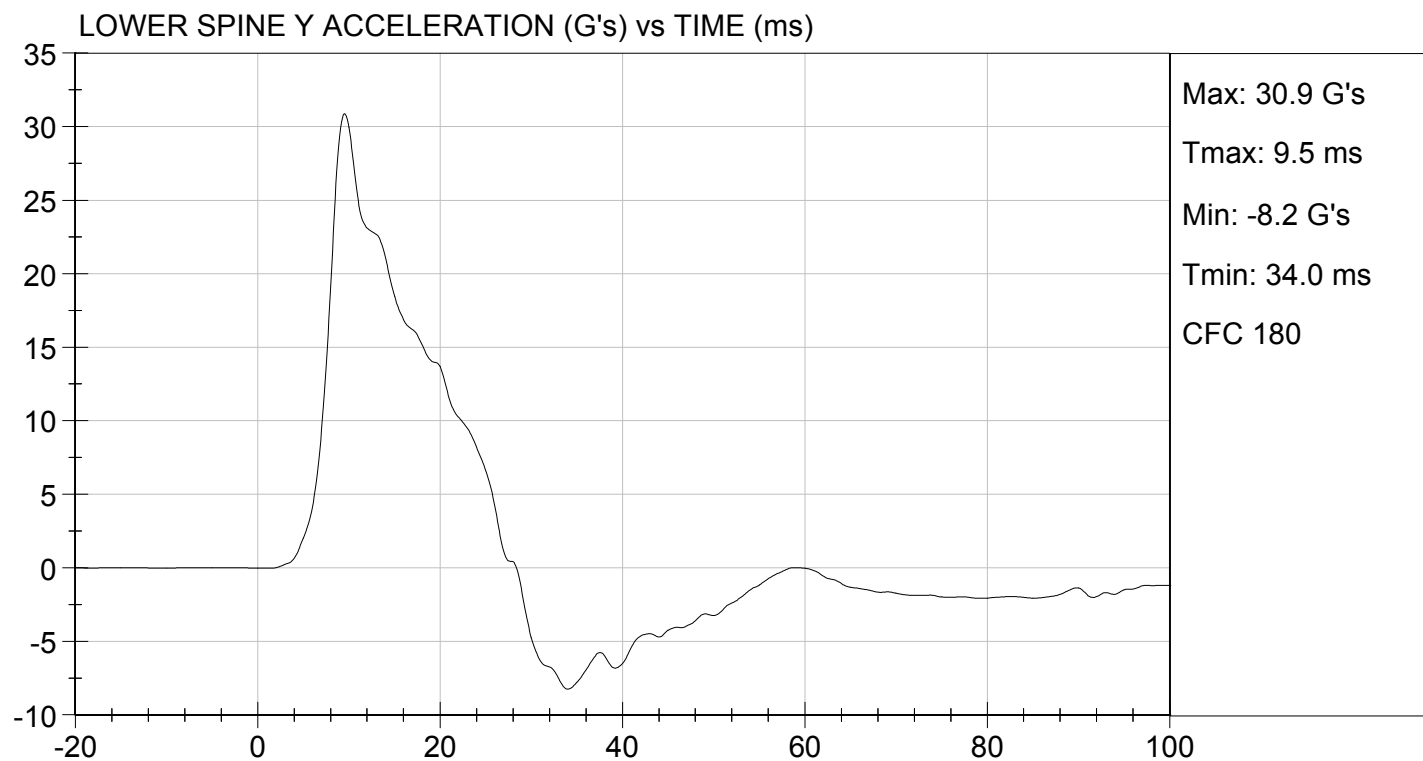
TEST DATE: 07/25/2012
TEST #: D122734





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

TEST DATE: 07/25/2012
TEST #: D122734



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

ATD Serial No: 306

Test I.D: D122735

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	51	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	36	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	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	10	Pass
Overall Test Results				Pass


 Laboratory Technician

07/25/2012

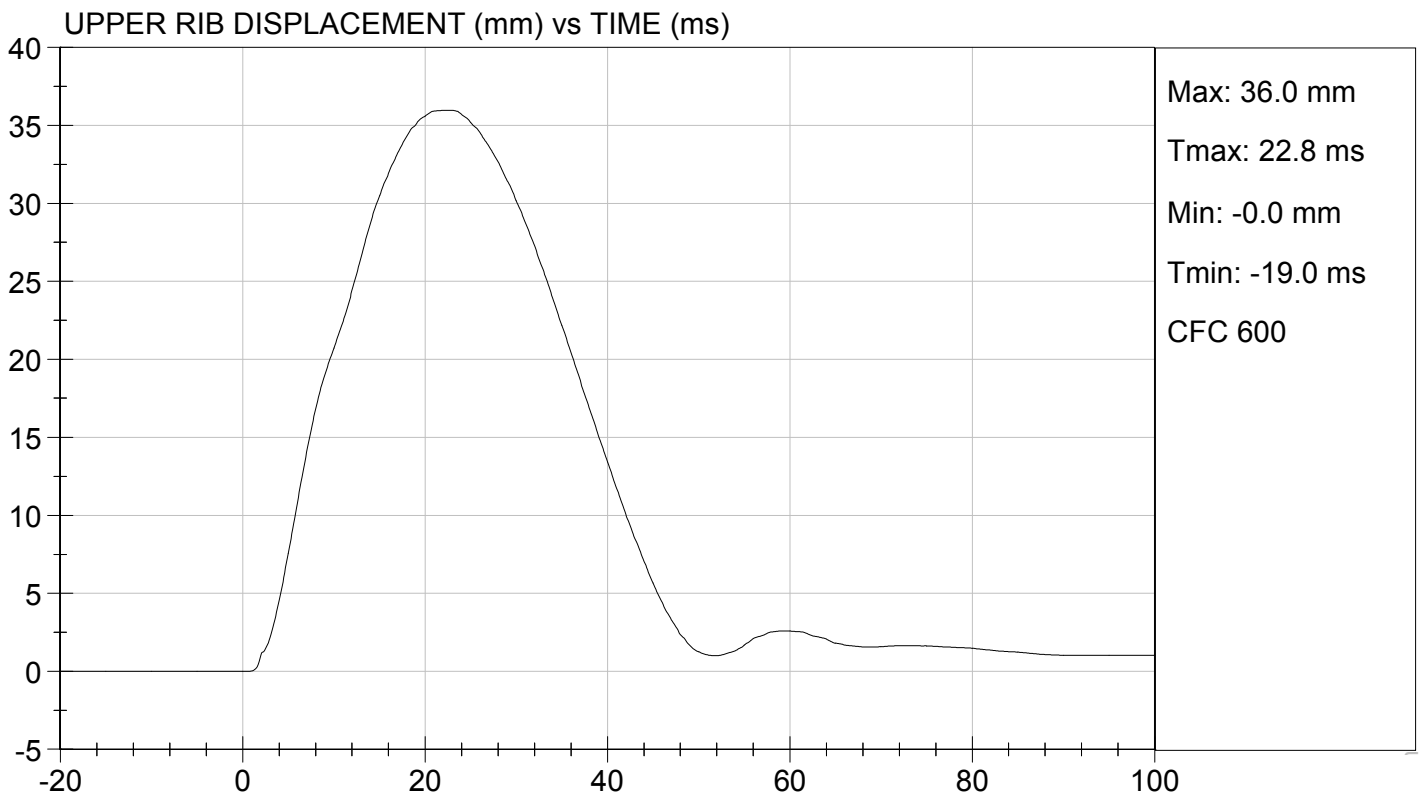
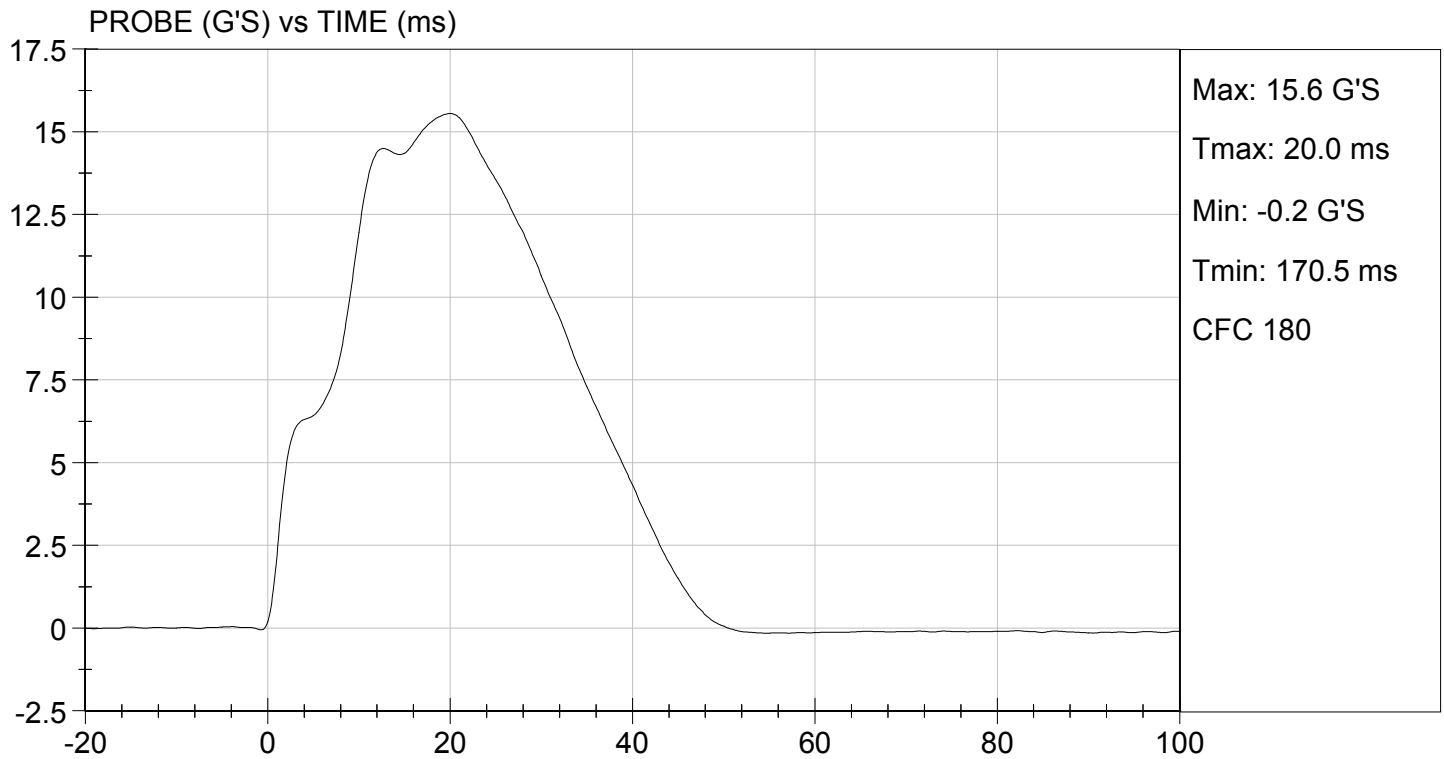
Test Date


 Approved By



TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 07/25/2012
TEST #: D122735

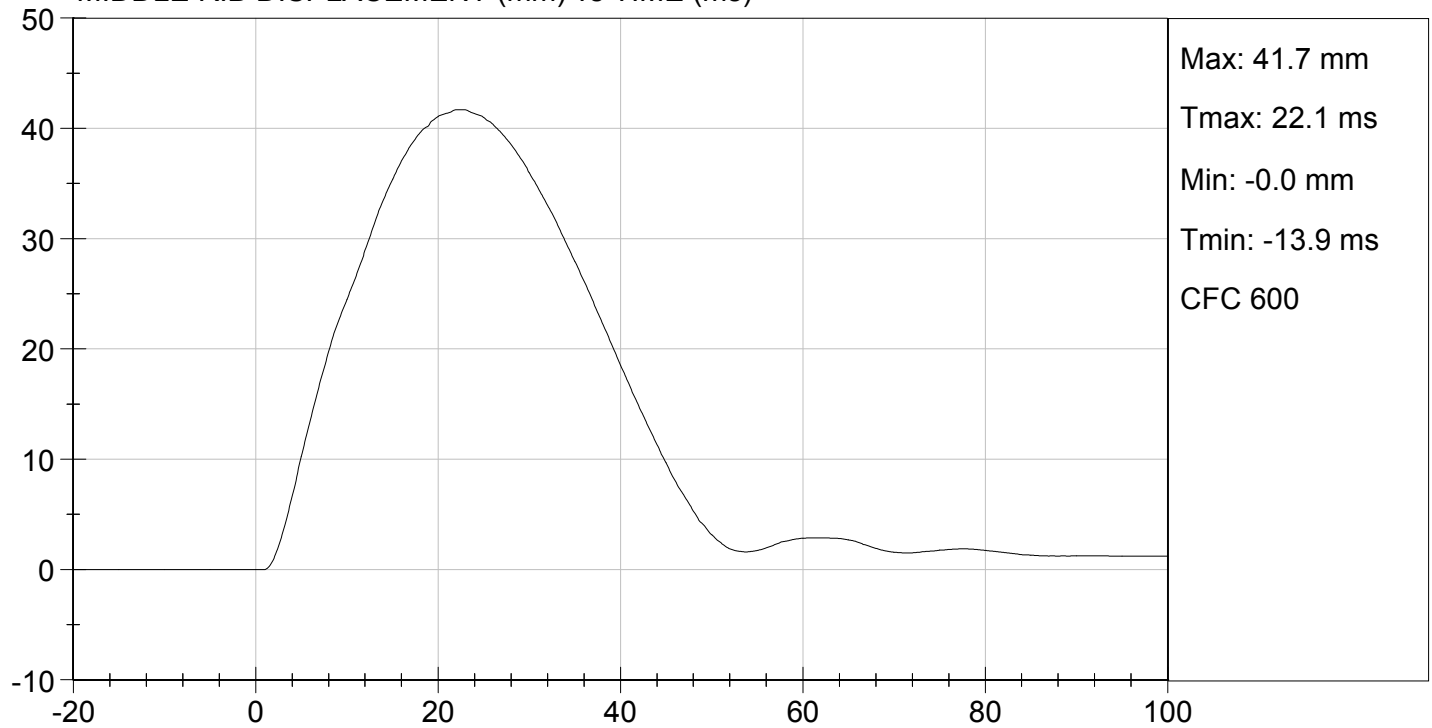




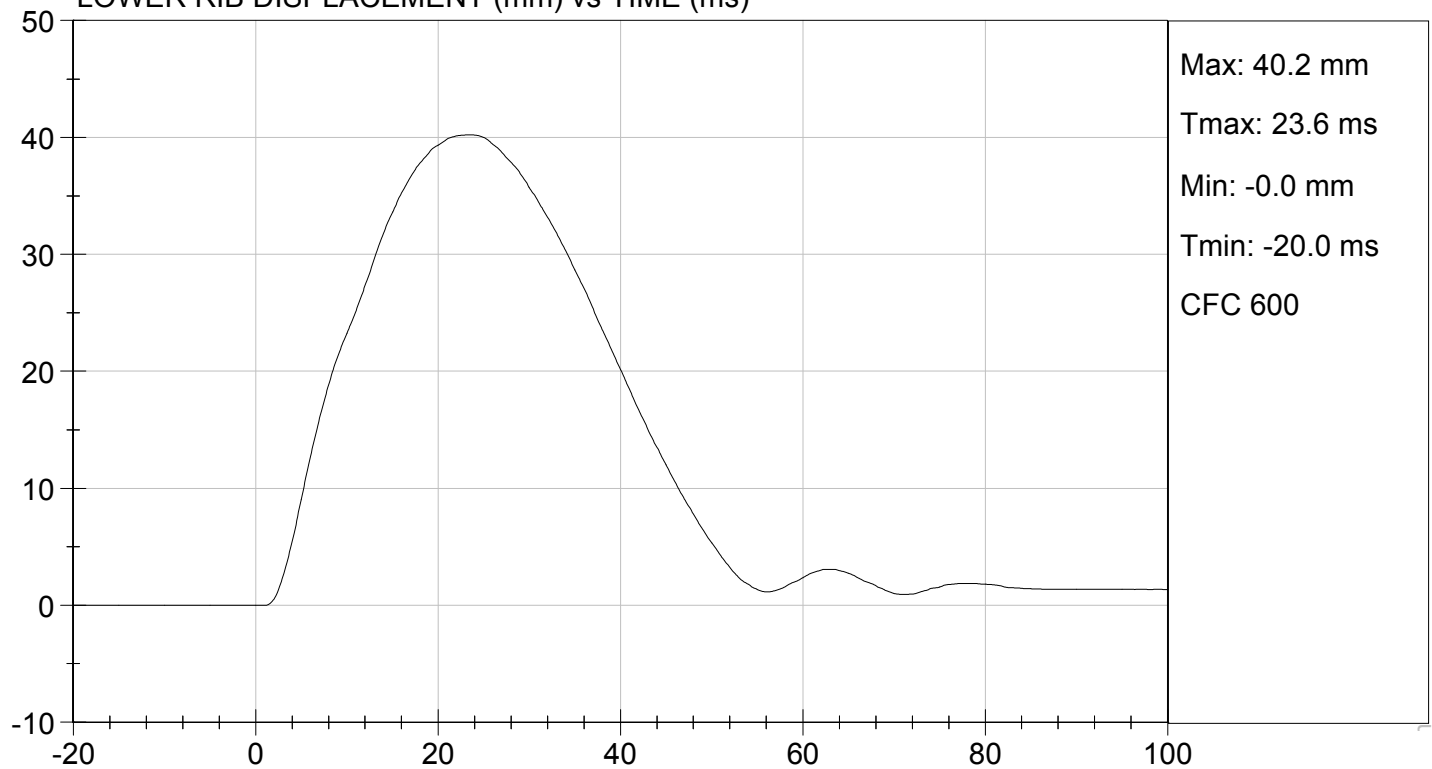
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 07/25/2012
TEST #: D122735

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

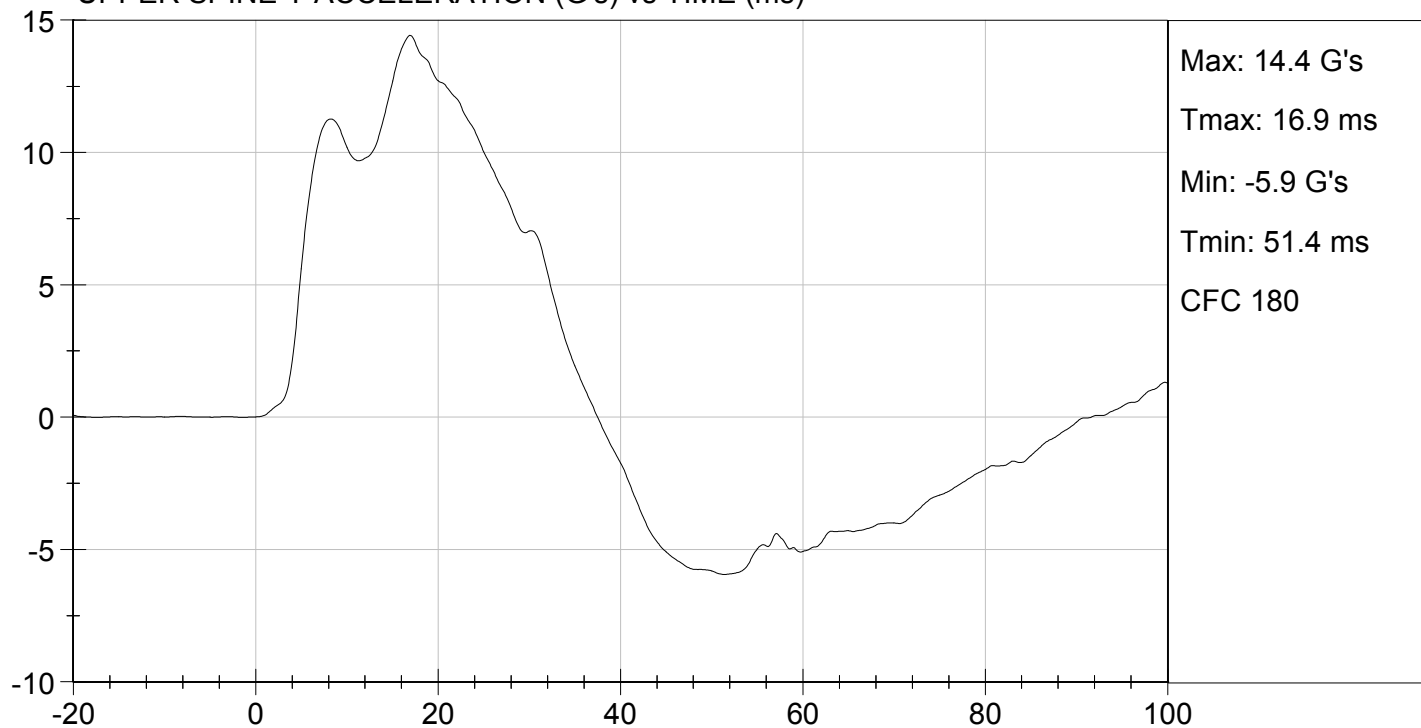




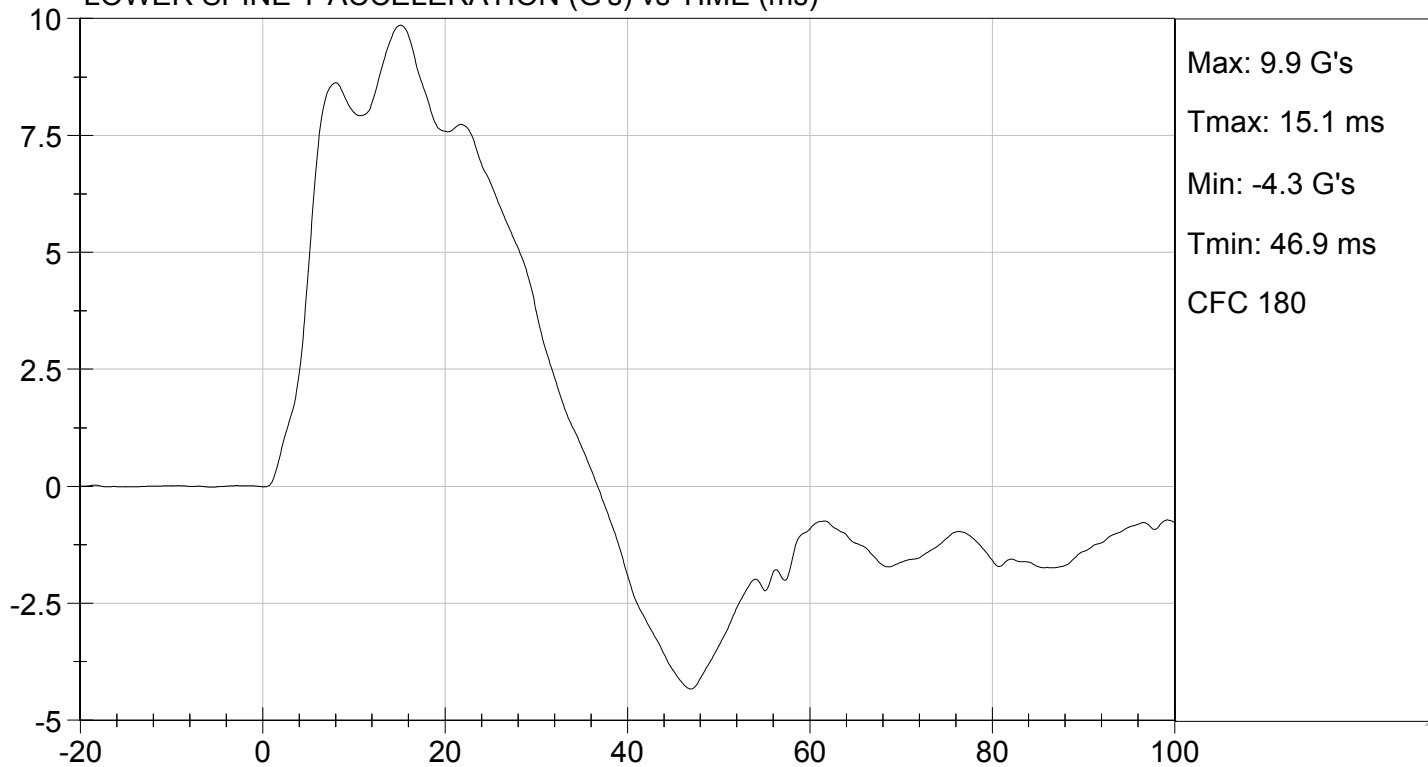
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 07/25/2012
TEST #: D122735

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



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



MGA RESEARCH CORPORATION

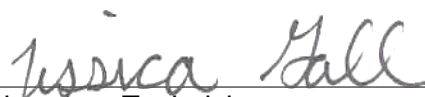
ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D122736

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	51	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	42	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


Laboratory Technician

07/25/2012

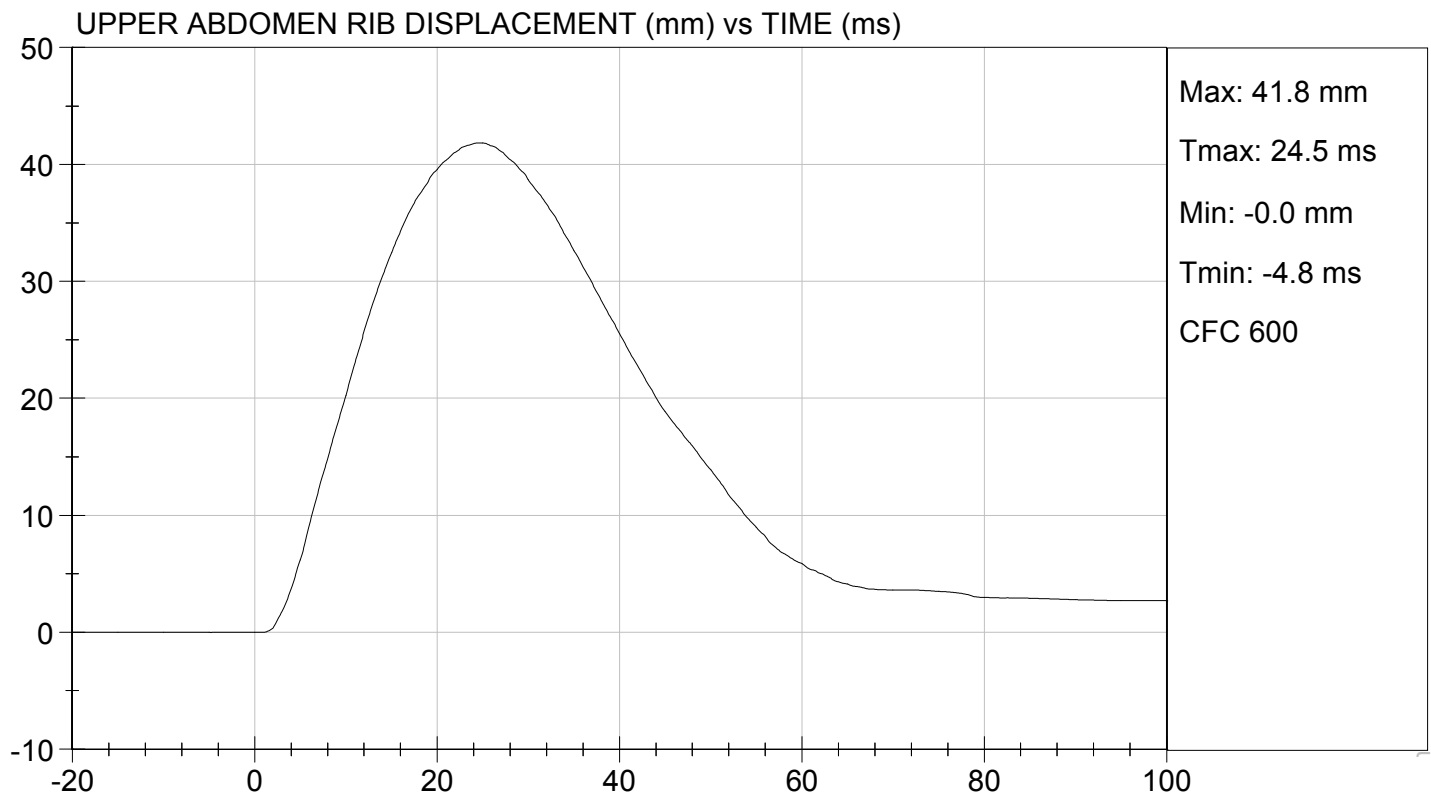
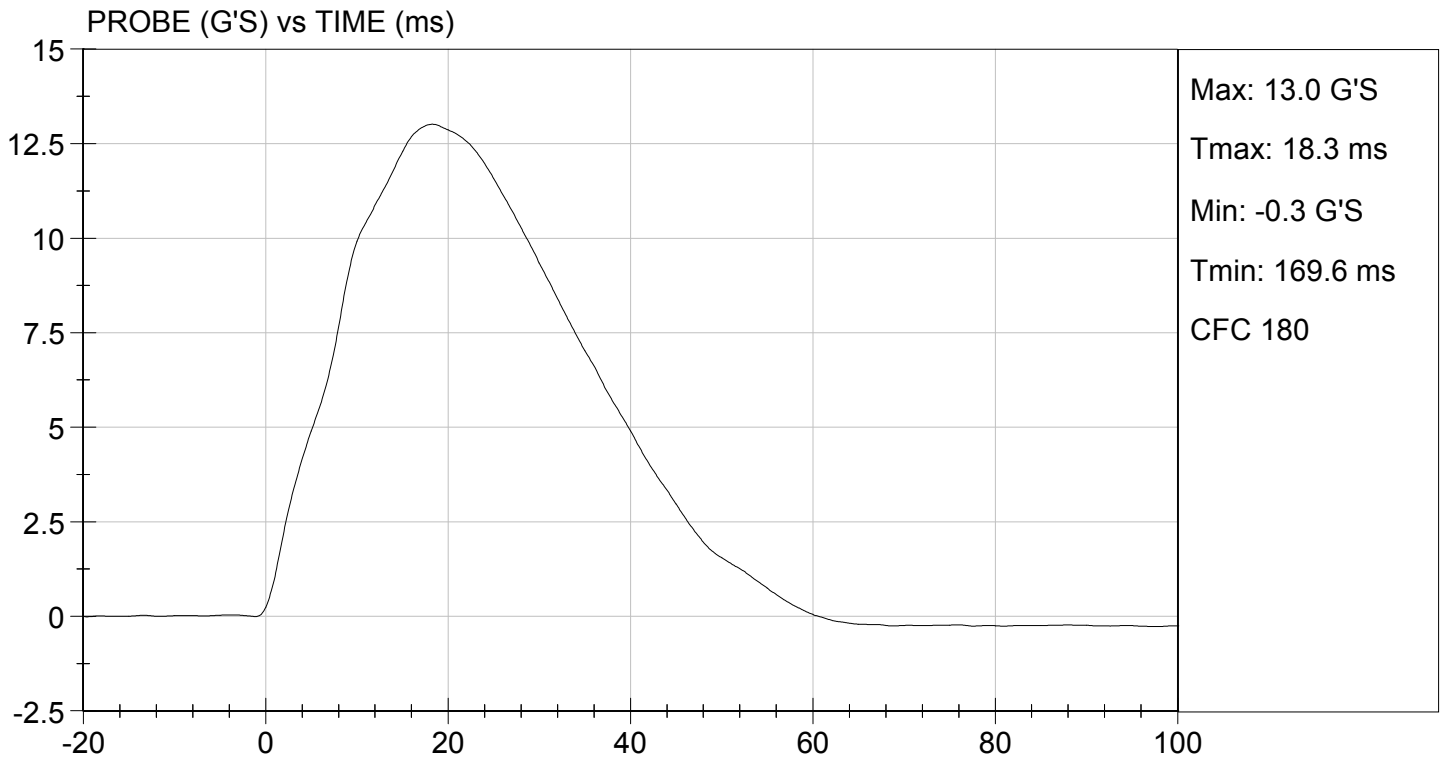
Test Date


Approved By



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

TEST DATE: 07/25/2012
TEST #: D122736

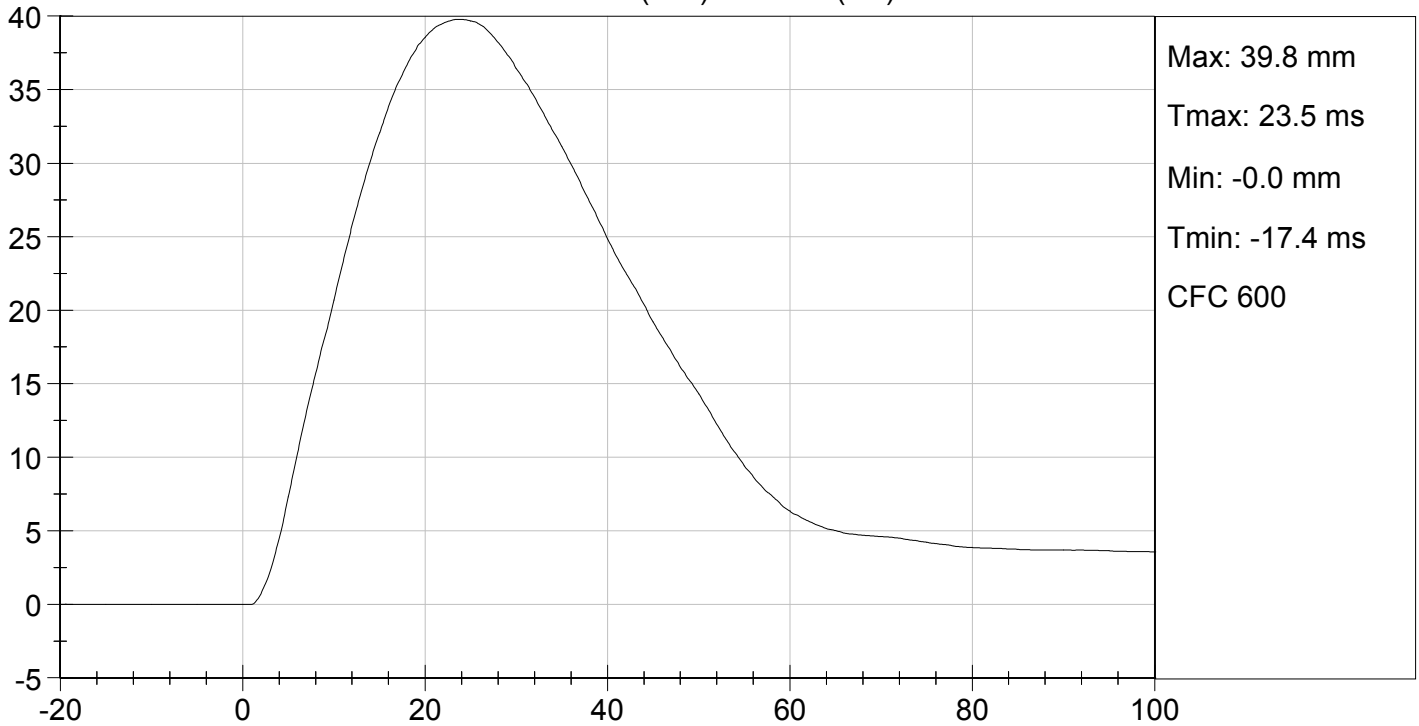




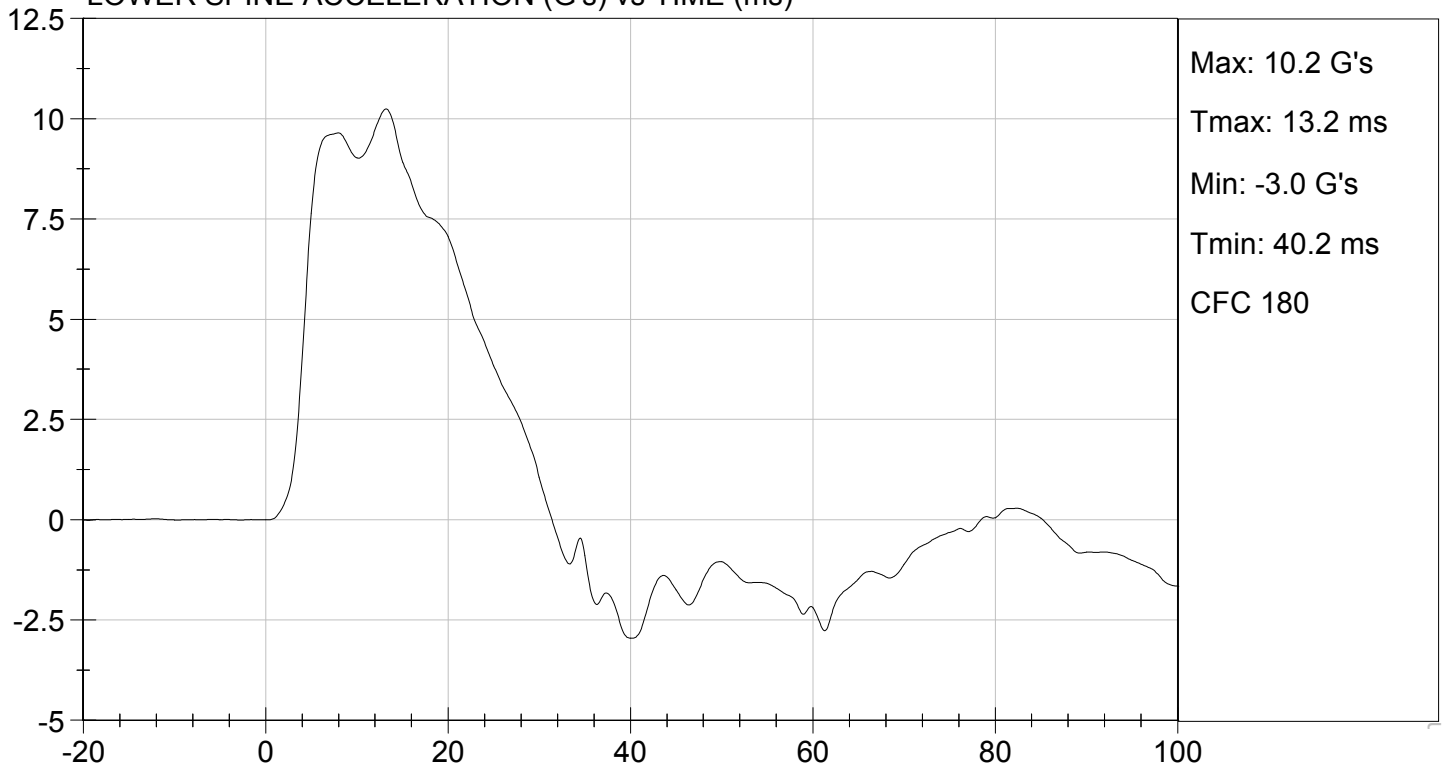
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 07/25/2012
TEST #: D122736

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: D122737

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	51	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	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	3,993	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

07/25/2012

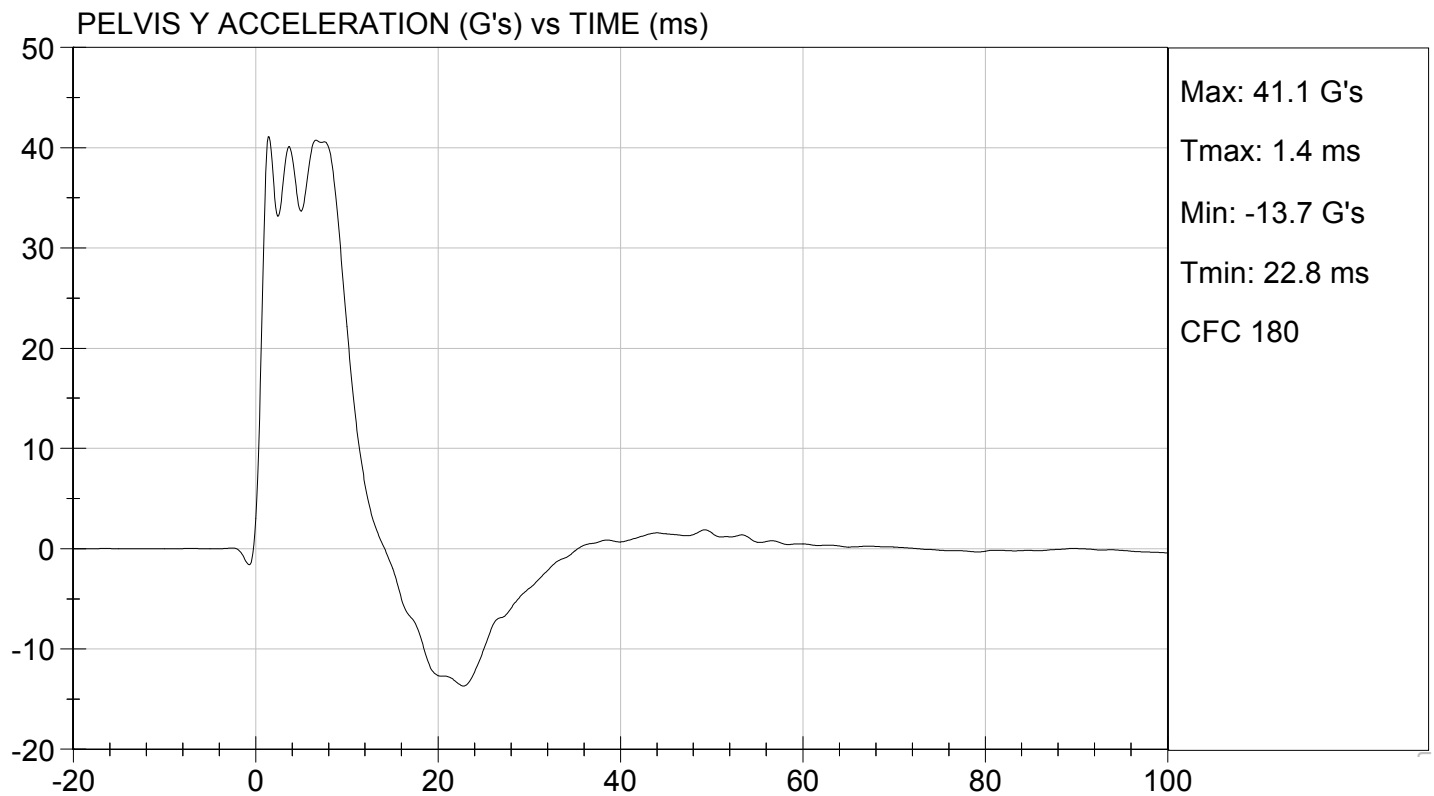
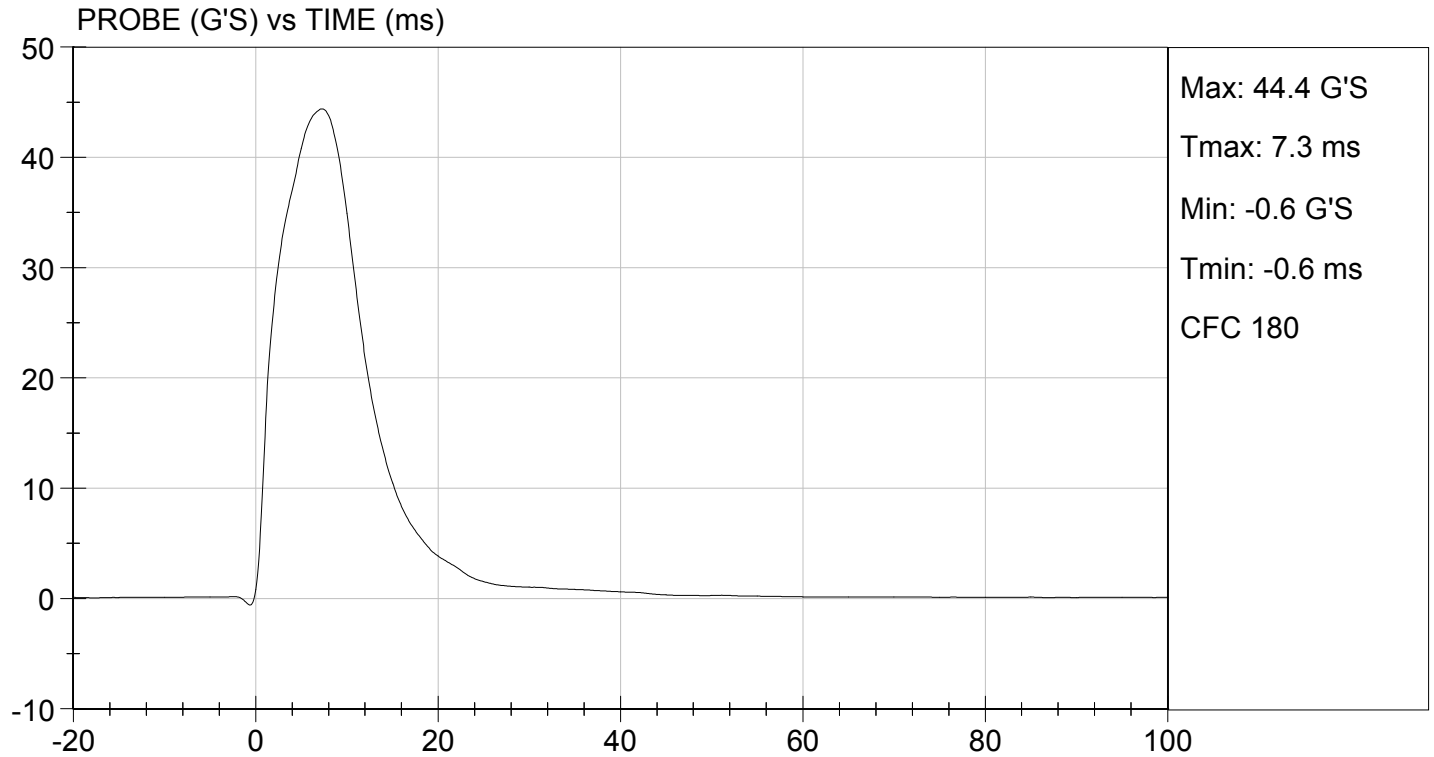
Test Date

David Winkelbauer
Approved By



TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

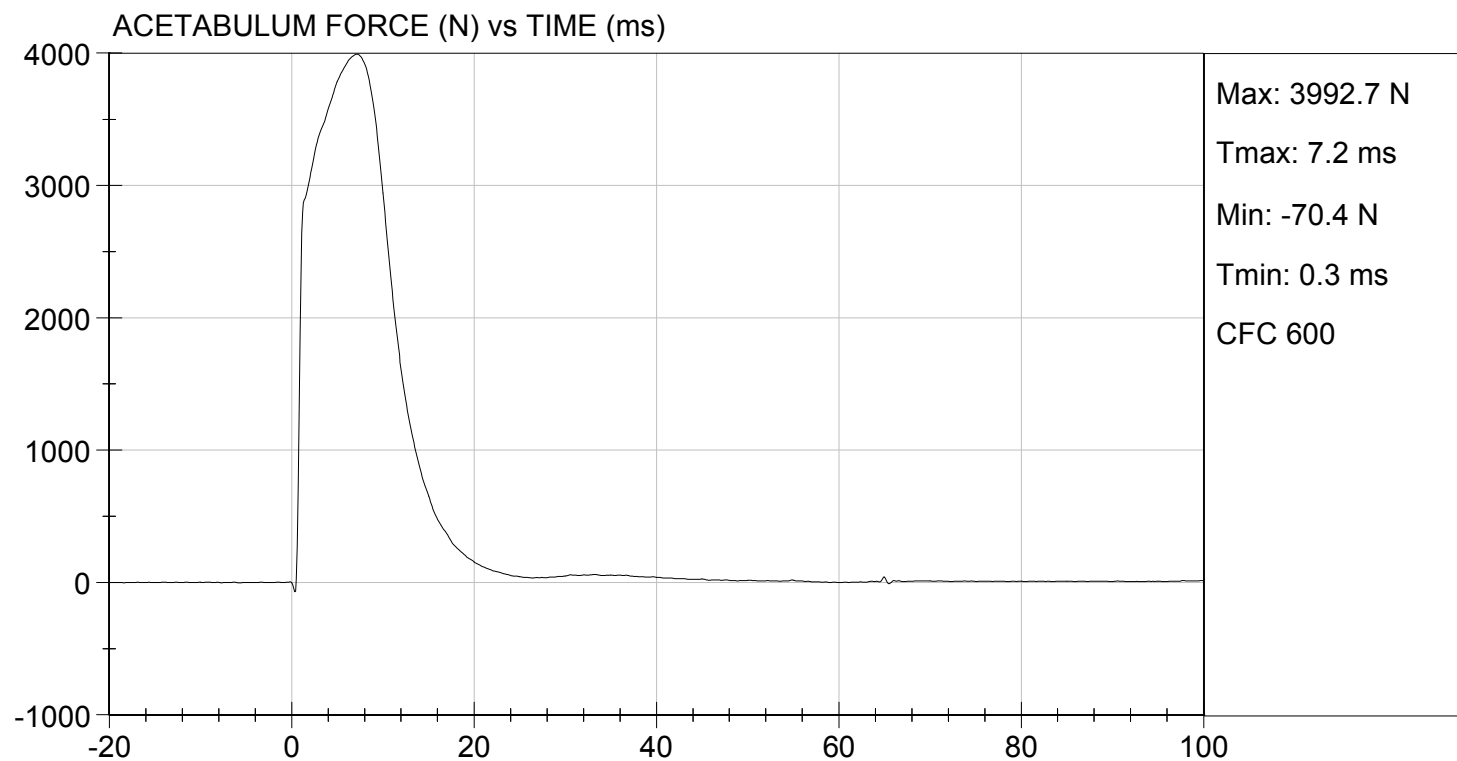
TEST DATE: 07/25/2012
TEST #: D122737





TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 07/25/2012
TEST #: D122737



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306

Test I.D: D122738

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	51	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleratio	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,505	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

07/25/2012

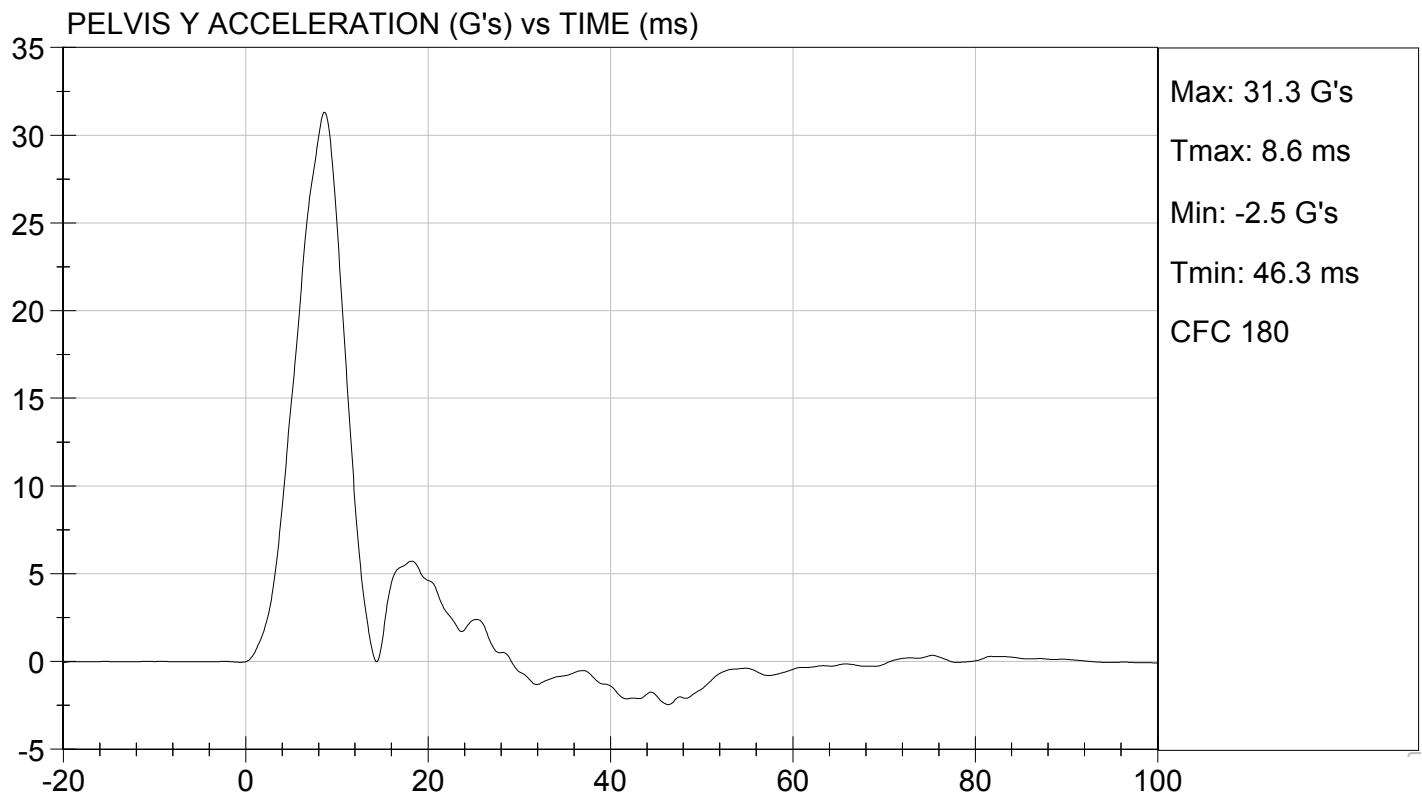
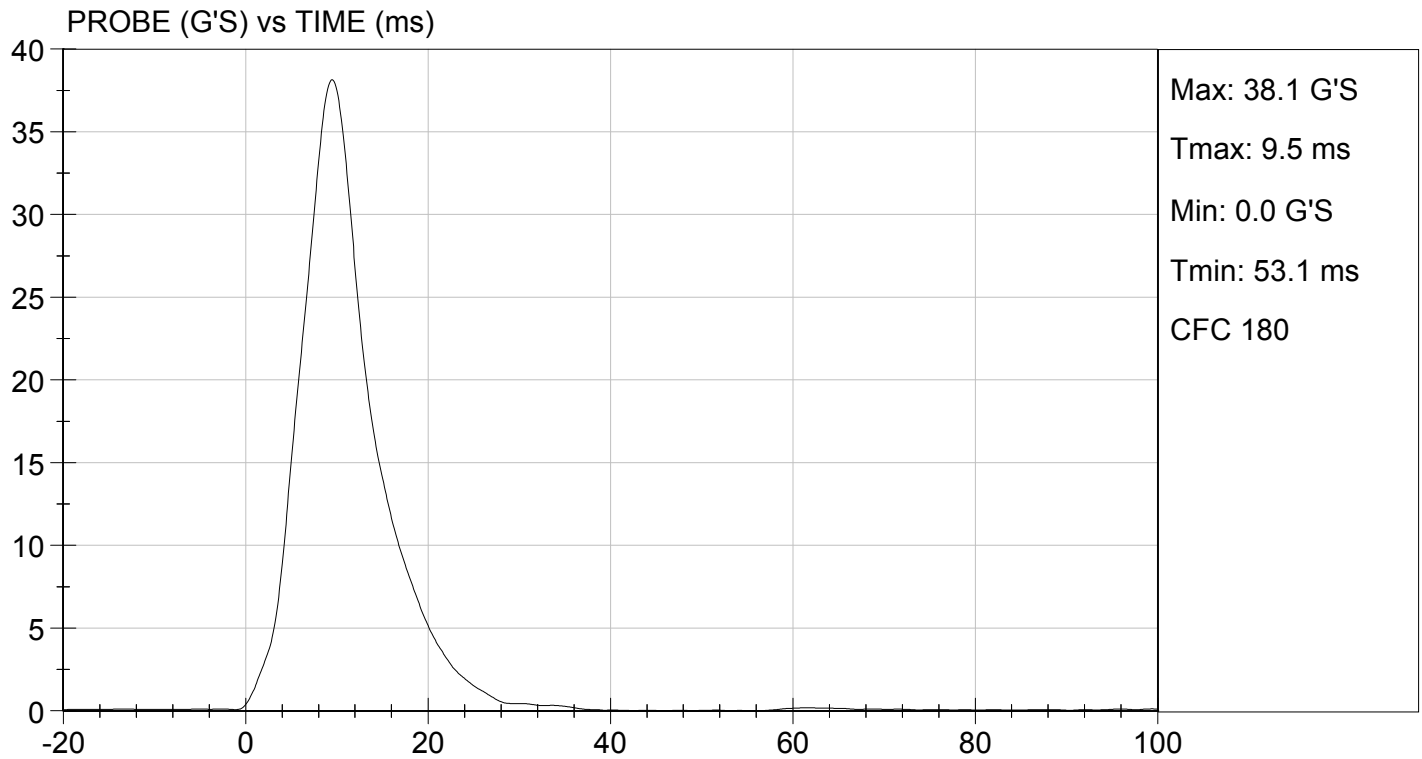
Test Date

David Winkelbauer
Approved By



TEST DESC: ILLIAC IMPACT
VELOCITY: 13.89 ft/s, 4.23 m/s

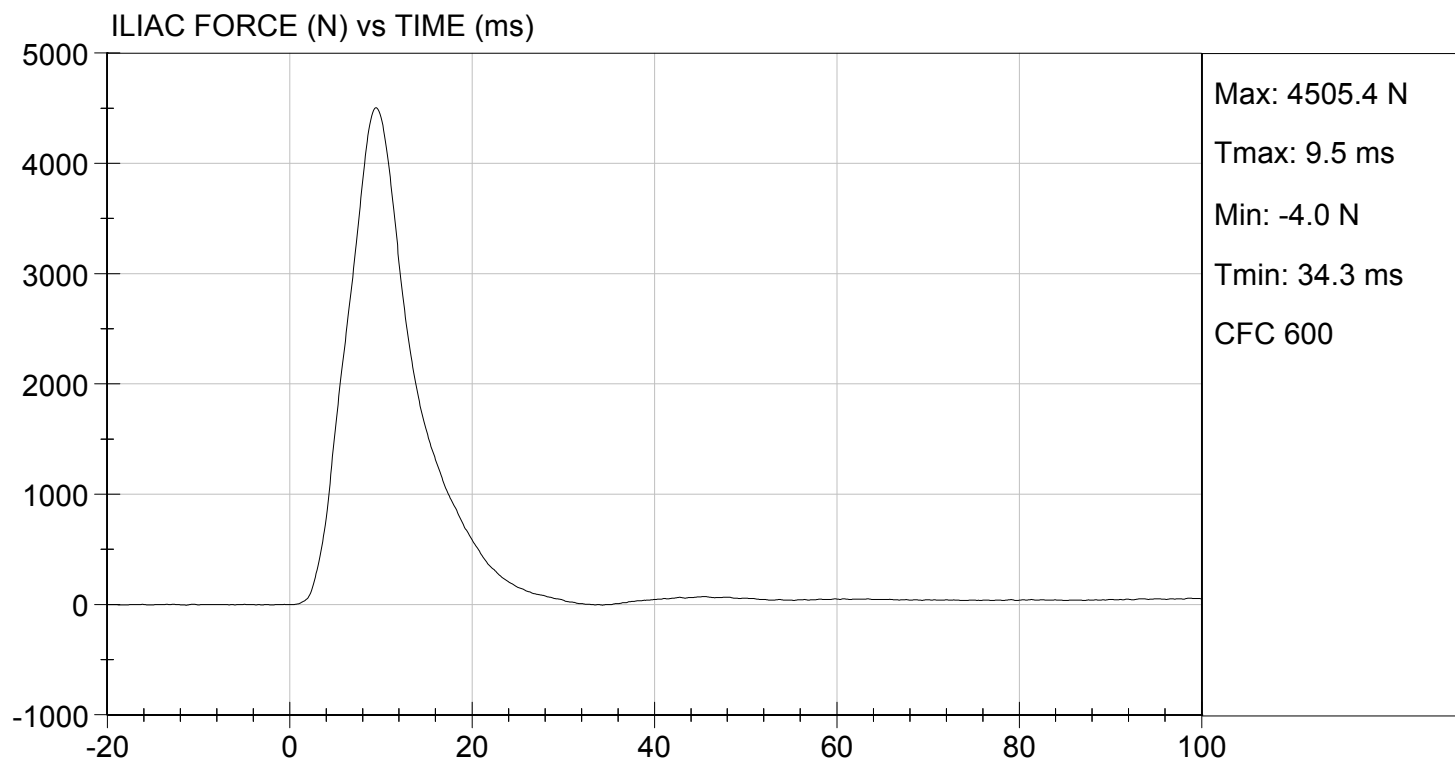
TEST DATE: 07/25/2012
TEST #: D122738



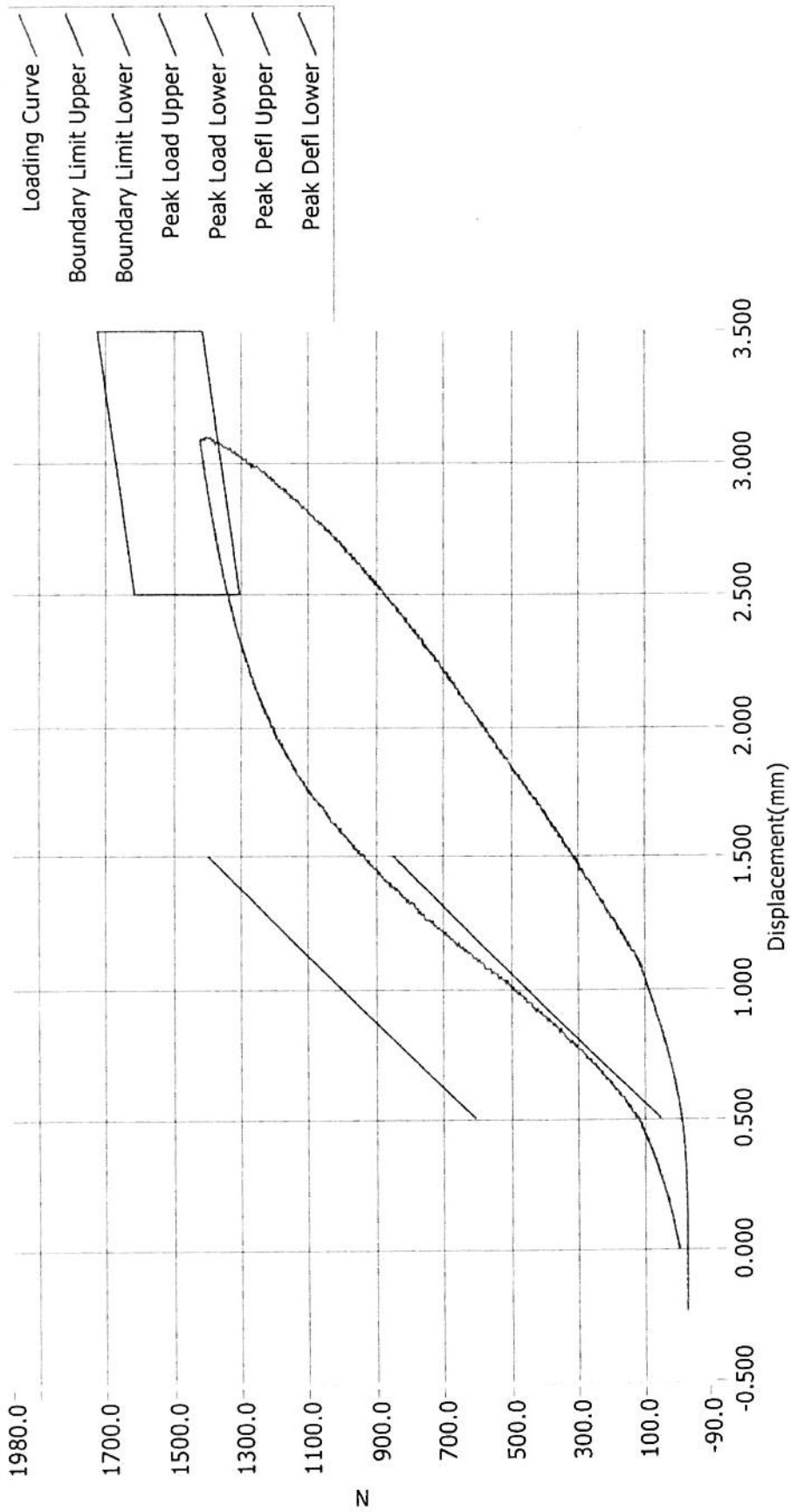


TEST DESC: ILLIAC IMPACT
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 07/25/2012
TEST #: D122738



Resultant Data - SIDIIs Plug Compression



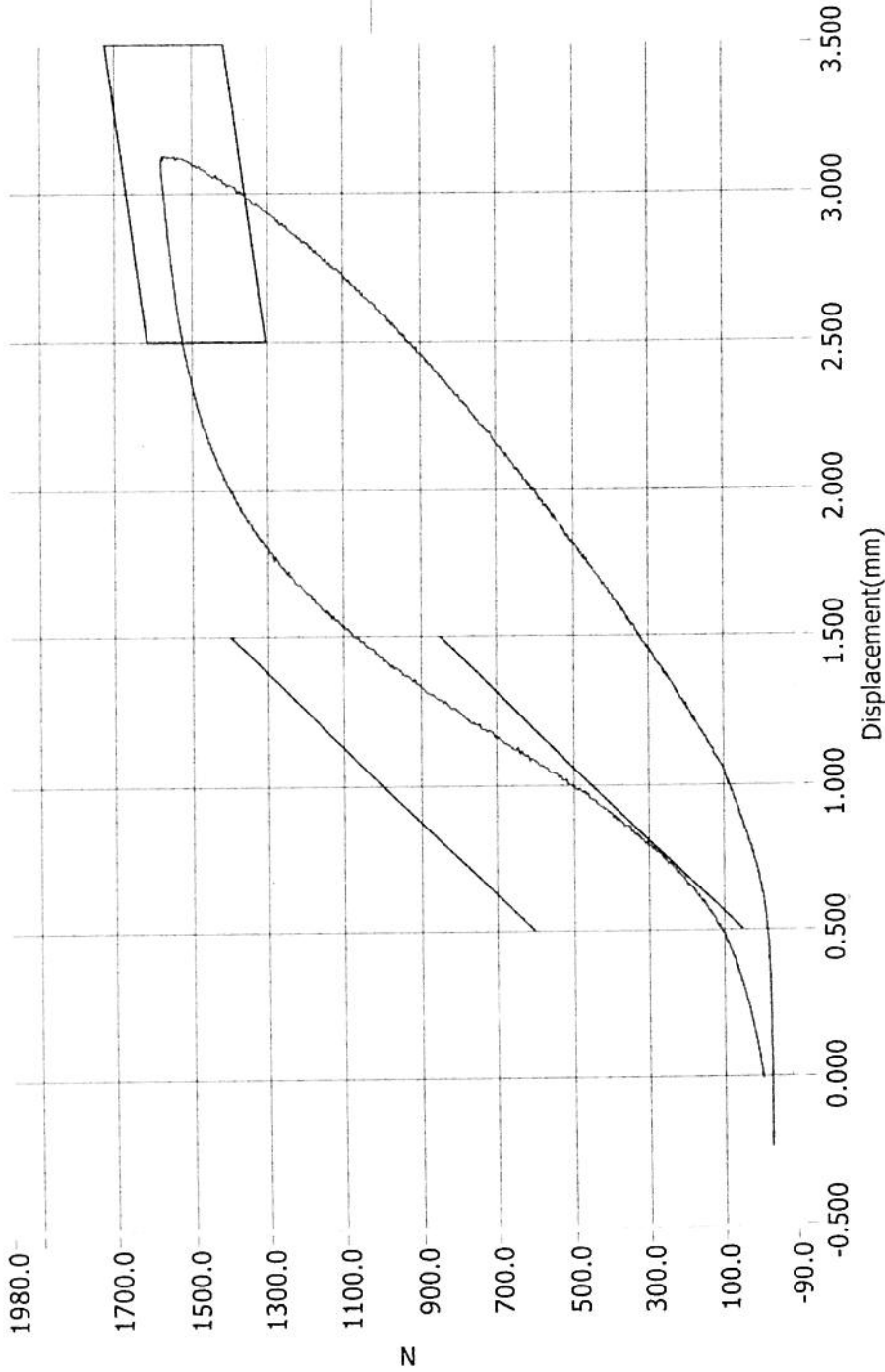
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	49270	12/9/2011	12:22 AM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/9/2011

Current Time : 00:23:06

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	49177	12/8/2011	1:39 AM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/8/2011

Current Time : 01:40:26

APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

			SID-IIs S/N 306			
			Serial Number	Manufacturer	Calibration Date	
Head Accelerometers			X	P67884	Endevco	05/23/12
			Y	P67886	Endevco	05/23/12
			Z	P67887	Endevco	05/23/12
Head Accelerometers			Xr	P67888	Endevco	05/23/12
			Yr	P67889	Endevco	05/23/12
			Zr	P67890	Endevco	05/23/12
Displacement Potentiometers	Thoracic Rib	Upper	Y	G1187	FTSS	05/23/12
		Middle	Y	G1261	FTSS	05/23/12
		Lower	Y	G1270	FTSS	05/23/12
	Abdominal Rib	Upper	Y	G1287	FTSS	05/23/12
		Lower	Y	G1304	FTSS	05/23/12
Lower Spine Accelerometers (T12)			X	P67508	Endevco	05/23/12
			Y	P67510	Endevco	05/23/12
			Z	P67511	Endevco	05/23/12
Acetabulum Load Cell			Y	ACG111	FTSS	05/09/12
Iliac Wing Load Cell			Y	IWG226	FTSS	05/14/12
Pelvis Plug (struck side)				49270	FTSS	12/09/11
Pelvis Plug (non-struck side)				49177	FTSS	12/08/11

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P66612	Endevco	07/12/12
Vehicle Center of Gravity	Y	P66611	Endevco	07/12/12
Vehicle Center of Gravity	Z	P66613	Endevco	07/12/12
Left Floor Sill	Y	P63880	Endevco	07/12/12
A-Pillar Sill	Y	P68855	Endevco	07/12/12
A-Pillar Low	Y	P63542	Endevco	07/12/12
A-Pillar Mid	Y	P66644	Endevco	07/12/12
B-Pillar Sill	Y	P68857	Endevco	07/12/12
B-Pillar Low	Y	P63873	Endevco	07/12/12
B-Pillar Mid	V	P59283	Endevco	07/12/12
Driver Seat	Y	P63878	Endevco	07/12/12
Engine Top	X	P67954	Endevco	07/05/12
Engine Top	Y	P67953	Endevco	07/05/12
Firewall	Y	P66532	Endevco	07/05/12
Right Roof	Y	P63287	Endevco	07/12/12
Right Floor Sill	Y	P63899	Endevco	07/12/12
Rear Floorpan	X	P59395	Endevco	07/12/12
Rear Floorpan	Y	P59396	Endevco	07/12/12

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	09/15/11
Load Cell 2	DG6278	FTSS	09/15/11
Load Cell 3	DG6279	FTSS	09/15/11
Load Cell 4	DG6280	FTSS	09/15/11
Load Cell 5	DG6281	FTSS	09/15/11
Load Cell 6	DG6283	FTSS	09/15/11
Load Cell 7	DG6284	FTSS	09/15/11
Load Cell 8	DG6282	FTSS	09/15/11