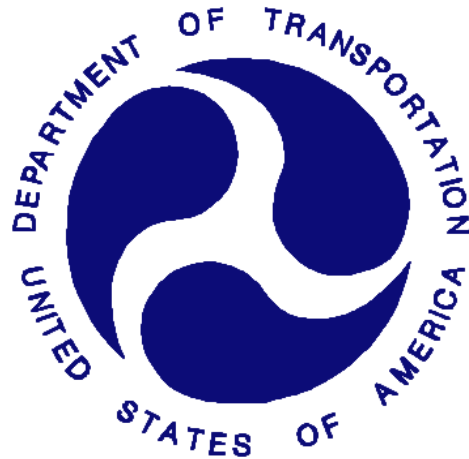


**REPORT NUMBER: SPNCAP-MGA-2014-058**

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

**GENERAL MOTORS LLC  
2015 Chevrolet Silverado 2500 LT Crew Cab  
NHTSA No.: M20150101**

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



**Test Date: April 28, 2014**

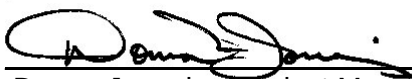
**Final Report Date: May 22, 2014**

**FINAL REPORT**

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

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Prepared by:   
Donna Janovicz, Project Manager

Approved by:   
Ben Fischer, Project Engineer

Approval Date: May 22, 2014

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: \_\_\_\_\_

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

Date: \_\_\_\_\_

### Technical Report Documentation Page

| <b>1. Report No.</b><br>SPNCAP-MGA-2014-058                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>2. Government Accession No.</b>                         | <b>3. Recipient's Catalog No.</b>                                                                                                                                                                                                                                                                                                |                  |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
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| <b>4. Title and Subtitle</b><br>Final Report of New Car Assessment Program<br>Side Impact Pole Testing of a 2015 Chevrolet Silverado 2500 LT Crew Cab, NHTSA No.: M20150101                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                            | <b>5. Report Date</b><br>May 22, 2014                                                                                                                                                                                                                                                                                            |                  |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
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| <b>7. Author(s)</b><br>Donna Janovicz, Project Manager<br>Ben Fischer, Project Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                            | <b>8. Performing Organization Report No.</b><br>SPNCAP-MGA-2014-058                                                                                                                                                                                                                                                              |                  |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
| <b>9. Performing Organization Name and Address</b><br>MGA Research Corporation<br>5000 Warren Road<br>Burlington, WI 53105                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                            | <b>10. Work Unit No.</b>                                                                                                                                                                                                                                                                                                         |                  |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
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| <b>12. Sponsoring Agency Name and Address</b><br>United States Department of Transportation<br>National Highway Traffic Safety Administration<br>Office of Crashworthiness Standards (NVS-111)<br>1200 New Jersey Ave, SE, Room W43-410<br>Washington, DC 20590                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                            | <b>13. Type of Report and Period Covered:</b><br>Final Test Report<br>April 28, 2014 to May 22, 2014                                                                                                                                                                                                                             |                  |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
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| <b>15. Supplementary Notes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                            |                                                                                                                                                                                                                                                                                                                                  |                  |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
| <b>16. Abstract</b><br>A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2015 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 April 28, 2014.<br><br>The impact velocity was 31.9 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 20.9°C. The test vehicle post-test maximum crush was 445 mm at level 2. The test vehicle's performance was as follows:<br><br><table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: left;">Measurement Description</th> <th colspan="3" style="text-align: center;">Driver ATD (SID-IIs)</th> </tr> <tr> <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 (HIC<sub>36</sub>)</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">239</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;">46</td> </tr> <tr> <td>Total Pelvic Force<br/>(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;">3930</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;">20</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;">24</td> </tr> </tbody> </table> <p style="text-align: center;">*Proposed IARV</p> 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 <sub>36</sub> ) | N/A | 1000 | 239 | Resultant Lower Spine Acceleration | Gs | 82 | 46 | Total Pelvic Force<br>(sum of acetabular and iliac forces) | N | 5525 | 3930 | Maximum Thoracic Rib Deflection | mm | 38* | 20 | Maximum Abdomen Rib Deflection | mm | 45* | 24 |
| Measurement Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Driver ATD (SID-IIs)                                       |                                                                                                                                                                                                                                                                                                                                  |                  |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
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| Head Injury Criteria (HIC <sub>36</sub> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                                                        | 1000                                                                                                                                                                                                                                                                                                                             | 239              |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
| Resultant Lower Spine Acceleration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Gs                                                         | 82                                                                                                                                                                                                                                                                                                                               | 46               |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
| Total Pelvic Force<br>(sum of acetabular and iliac forces)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | N                                                          | 5525                                                                                                                                                                                                                                                                                                                             | 3930             |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
| Maximum Thoracic Rib Deflection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | mm                                                         | 38*                                                                                                                                                                                                                                                                                                                              | 20               |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
| Maximum Abdomen Rib Deflection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | mm                                                         | 45*                                                                                                                                                                                                                                                                                                                              | 24               |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
| <b>17. Key Words</b><br>New Car Assessment Program (NCAP)<br>Side Impact<br>Pole<br>Part 572V<br>SID-IIs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                            | <b>18. Distribution Statement</b><br>Copies of this report are available from:<br>National Highway Traffic Safety Administration<br>Technical Information Services Division, NPO-411<br>1200 New Jersey Ave, SE<br>Washington, DC 20590<br>e-mail: <a href="mailto:tis@nhtsa.dot.gov">tis@nhtsa.dot.gov</a><br>FAX: 202-493-2833 |                  |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |
| <b>19. Security Classification of Report</b><br>Unclassified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>20. Security Classification of Page</b><br>Unclassified | <b>21. No. of Pages</b><br><br>137                                                                                                                                                                                                                                                                                               | <b>22. Price</b> |                         |                      |  |  |       |           |        |                                           |     |      |     |                                    |    |    |    |                                                            |   |      |      |                                 |    |     |    |                                |    |     |    |

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## **SECTION 1**

### **TEST PURPOSE AND PROCEDURE**

This side impact test is part of the MY 2015 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00124. The purpose of this test is to generate comparative side impact performance in a 2015 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 September 2013.

## SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2015 Chevrolet Silverado 2500 LT Crew Cab. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 31.9 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on April 28, 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 <sub>36</sub> )                  | N/A                  | 1000      | 239    |
| Resultant Lower Spine Acceleration                         | Gs                   | 82        | 46     |
| Total Pelvic Force<br>(sum of acetabular and iliac forces) | N                    | 5525      | 3930   |
| Maximum Thoracic Rib Deflection                            | mm                   | 38*       | 20     |
| Maximum Abdominal Rib Deflection                           | mm                   | 45*       | 24     |

\*Proposed IARV

Supplemental restraint information is given below:

| Restraint Type           | Struck Side Driver |          | Struck Side Rear Passenger |          |
|--------------------------|--------------------|----------|----------------------------|----------|
|                          | Mounted            | Deployed | Mounted                    | Deployed |
| Frontal Airbag           | Yes                | Yes      |                            |          |
| Knee Airbag              | 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](http://www.nhtsa.dot.gov)

### **GENERAL COMMENTS**

Left A-Post @ Sill Y has no valid data after 30ms

Left Lower B-Post Y has no valid data after 8ms

Left Mid B-Post Y has no valid data after 10ms

Driver Seat Track Y has no valid data after 18ms

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

NHTSA No. M20150101  
Test Date: 4/28/2014

**TEST VEHICLE INFORMATION AND OPTIONS**

|                          |                     |                                   |     |
|--------------------------|---------------------|-----------------------------------|-----|
| NHTSA No.                | M20150101           | Traction Control System (TCS)     | Yes |
| Model Year               | 2015                | Auto-Leveling System              | No  |
| Make                     | Chevrolet           | Automatic Door Locks (ADL)        | Yes |
| Model                    | Silverado 2500      | Power Window Auto-Reverse         | Yes |
| Body Style               | Truck Crew Cab      | Other Optional Feature            | N/A |
| VIN                      | 1GC1CVEG5FF105640   | Driver Front Airbag               | Yes |
| Body Color               | Blue Topaz Metallic | Driver Curtain Airbag             | Yes |
| Odometer Reading (km/mi) | 14 / 9              | 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           | No                  | Driver Seat Belt Pretensioner     | Yes |
| Tilt Steering Wheel      | Yes                 | Rear Pass. Seat Belt Pretensioner | No  |
| Power Seats              | Yes                 | Driver Load Limiter               | Yes |
| Anti-Lock Brakes (ABS)   | Yes                 | Rear Pass. Load Limiter           | No  |
|                          |                     | Other 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 | 02/14              | 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     | (A)   |
| Capacity Weight (VCW) (kg)                 |       |      |       | 1375  | (B)   |
| DSC x 68.04 kg                             |       |      |       | 408   | (A-B) |
| Rated Cargo and Luggage Weight (RCLW) (kg) |       |      |       | 967   |       |

**VEHICLE SEAT TYPE**

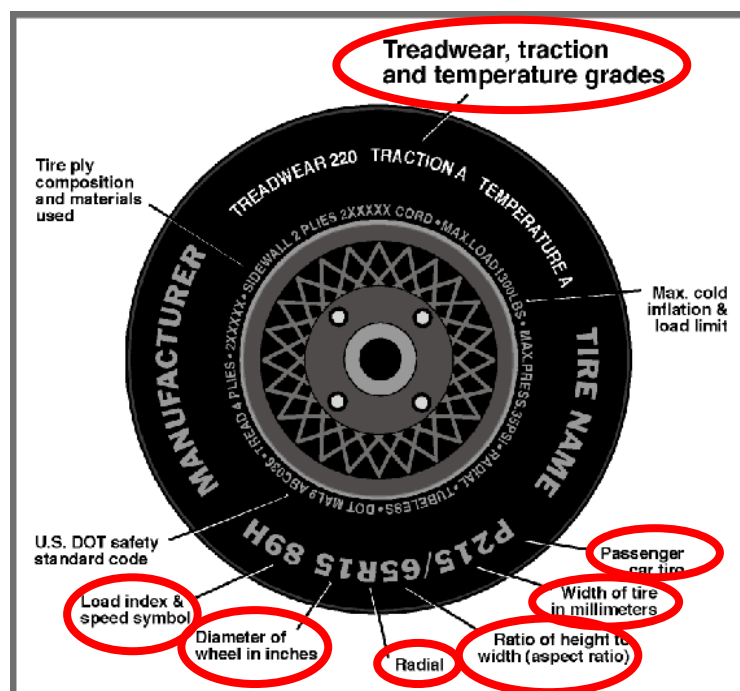
| Seating Location   | Type of Seat Pan |       |             |           | Type of Seat Back |            |       |
|--------------------|------------------|-------|-------------|-----------|-------------------|------------|-------|
|                    | Bucket           | Bench | Split Bench | Contoured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

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014

**VEHICLE TIRE INFORMATION**



| Measured Parameter       | Front                | Rear                 |
|--------------------------|----------------------|----------------------|
| Max. Tire Pressure (kPa) | 550                  | 550                  |
| Cold Pressure (kPa)      | 420                  | 480                  |
| Recommended Tire Size    | 265/70R18            | 265/70R18            |
| Tire Size on Vehicle     | 265/70R18            | 265/70R18            |
| Tire Manufacturer        | Michelin             | Michelin             |
| Tire Model               | LTX A/T              | LTX A/T              |
| Treadwear                |                      |                      |
| Traction                 |                      |                      |
| Temperature Grade        |                      |                      |
| Tire Plies Sidewall      | 2 Polyester          | 2 Polyester          |
| Tire Plies Body          | 2 Polyester, 2 Steel | 2 Polyester, 2 Steel |
| Load Index/Speed Symbol  | 124/121R             | 124/121R             |
| Tire Material            | Rubber               | Rubber               |
| DOT Safety Code Left     | B3AC 001X 5113       | B3AC 001X 5213       |
| DOT Safety Code Right    | B3AC 001X 5013       | B3AC 001X 4913       |

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014

**TEST PRESSURES**

|                | Units | LF  | RF  | LR  | RR  |
|----------------|-------|-----|-----|-----|-----|
| As Delivered   | kpa   | 427 | 421 | 490 | 490 |
| Tire Placard   | kpa   | 420 | 420 | 480 | 480 |
| Owner's Manual | kpa   |     |     |     |     |
| As Tested      | kpa   | 420 | 420 | 480 | 480 |

**TEST VEHICLE WEIGHTS**

|        | Units | As Delivered (UVW) |        |        | As Tested (ATW) |        |        | Fully Loaded |        |        |
|--------|-------|--------------------|--------|--------|-----------------|--------|--------|--------------|--------|--------|
|        |       | Front              | Rear   | Total  | Front           | Rear   | Total  | Front        | Rear   | Total  |
| Left   | kg    | 812.9              | 643.2  |        | 820.1           | 736.6  |        | 833.7        | 754.2  |        |
| Right  | kg    | 788.8              | 643.7  |        | 779.7           | 732.7  |        | 760.2        | 727.8  |        |
| Ratio  | %     | 55.4               | 44.6   |        | 52.1            | 47.9   |        | 51.8         | 48.2   |        |
| Totals | kg    | 1601.7             | 1286.9 | 2888.6 | 1599.8          | 1469.3 | 3069.1 | 1593.9       | 1482.0 | 3075.9 |

**TARGET TEST WEIGHT CALCULATION**

| Measured Parameter                              | Units | Value  |         |
|-------------------------------------------------|-------|--------|---------|
| Total Delivered Weight (UVW)                    | kg    | 2888.6 | (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    | 3076.8 | (A+B+C) |

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

**TEST VEHICLE ATTITUDES AND CG**

|                                                                | Units | As Delivered | As Tested | Fully Loaded | Meets Requirement*** |
|----------------------------------------------------------------|-------|--------------|-----------|--------------|----------------------|
| Driver Door Sill Angle (front-to-rear)*                        | deg   | -0.7         | -0.7      | -0.2         | Yes                  |
| Front Pass. Sill Angle (front-to-rear)*                        | deg   | -1.0         | -0.9      | -0.6         | Yes                  |
| Front Bumper Angle (left-to-right)**                           | deg   | 0.6          | 0.5       | 0.4          | Yes                  |
| Rear Bumper Angle (left-to-right)**                            | deg   | 1.1          | 0.5       | 0.4          | Yes                  |
| Vehicle CG (Aft of Front Axle)                                 | mm    | 1744         | 1874      | 1886         |                      |
| Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline) | mm    | 7            | 13        | 28           |                      |

\*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)      | 60.8        |
| None                  | 0.0         |

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

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014

**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               | 20.5     | 10.7  | 15.6  |
| 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<br>SCRL Angle<br>(Mid) (°) | As Tested<br>SCR Height<br>(mm) | SCR<br>Height<br>Position | SCR Height (mm) |                  |                  |
|------------------------------|--------------------------------------|---------------------------------|---------------------------|-----------------|------------------|------------------|
|                              |                                      |                                 |                           | Rear-<br>most   | Mid-<br>Fore/Aft | Forward-<br>Most |
| Driver Seat                  | 15.6                                 | 32                              | Max                       | 64              | 64               | 64               |
|                              | 15.6                                 | 32                              | Mid                       | 32              | 32               | 32               |
|                              | 15.6                                 | 32                              | 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<br>Rear Seat | Fixed                                | Fixed                           | Max                       | Fixed           | Fixed            | Fixed            |
|                              | Fixed                                | Fixed                           | Mid                       | Fixed           | Fixed            | Fixed            |
|                              | Fixed                                | Fixed                           | Min                       | Fixed           | Fixed            | Fixed            |
| Rear Center Seat             | Fixed                                | Fixed                           | Max                       | Fixed           | Fixed            | Fixed            |
|                              | Fixed                                | Fixed                           | Mid                       | Fixed           | Fixed            | Fixed            |
|                              | Fixed                                | Fixed                           | Min                       | Fixed           | Fixed            | Fixed            |

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

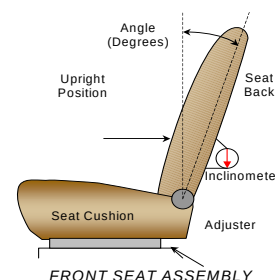
NHTSA No. M20150101  
 Test Date: 4/28/2014

**SEAT FORE/AFT POSITIONS**

| Seat                      | Total Fore/Aft Travel |                           | Test Position from Forward-most Position |                          |
|---------------------------|-----------------------|---------------------------|------------------------------------------|--------------------------|
|                           | mm                    | Detents                   | mm                                       | Detent                   |
| Driver Seat               | 262                   |                           | 0                                        |                          |
| Front Passenger Seat      | 210                   | 43 (1 <sup>st</sup> as 1) | 0                                        | 0 (1 <sup>st</sup> 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 5<sup>th</sup> percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



| Seat                       | Total Seat Back Angle Range |                           | Test Position from Vertical |                                        |
|----------------------------|-----------------------------|---------------------------|-----------------------------|----------------------------------------|
|                            | Degrees                     | Detents                   | Degree                      | Detent                                 |
| Driver Seat w/Seated Dummy | 52.4                        |                           | -6.3                        |                                        |
| Front Passenger Seat       | 46.3                        | 24 (1 <sup>st</sup> as 1) | -5.3                        | 3 <sup>rd</sup> (1 <sup>st</sup> 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 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.

|             | <b>Total # of Positions</b>      | <b>Placed in Position #</b> |
|-------------|----------------------------------|-----------------------------|
| Driver Seat | 5 detents (1 <sup>st</sup> as 1) | 0 (uppermost as 0)          |

**HEAD RESTRAINT ADJUSTMENT**

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

|             | <b>Total # of Positions</b> | <b>Placed in Position #</b> |
|-------------|-----------------------------|-----------------------------|
| Driver Seat | 7                           | Lowest                      |

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

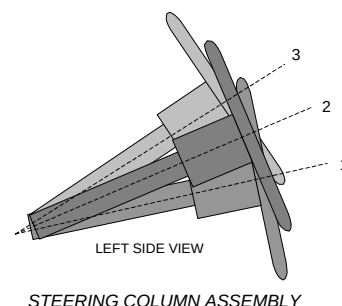
Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014

**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.

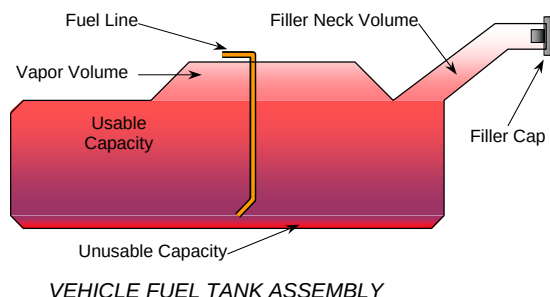
|                                   | Degrees | Fore/Aft Position (mm) |
|-----------------------------------|---------|------------------------|
| Lowermost, Position 1             | 81.6    | 276                    |
| Geometric Center, Position 2      | 69.1    | 256                    |
| Uppermost, Position 3             | 56.6    | 236                    |
| Telescoping Steering Wheel Travel |         | 40                     |
| Test Position                     | 69.1    | 256                    |



**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**

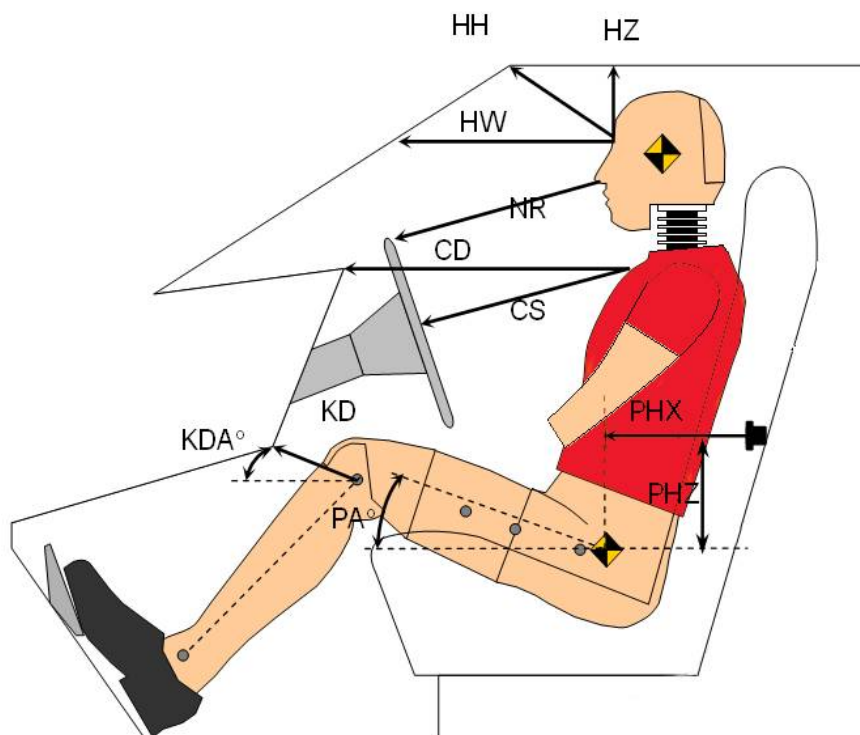
|                                                                 | Liters |
|-----------------------------------------------------------------|--------|
| Usable Capacity of "Standard Tank" (see Form No. 1)             | 135.1  |
| Usable Capacity of "Optional Tank" (see Form No. 1)             |        |
| 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                                   | 125.7  |
| 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: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014



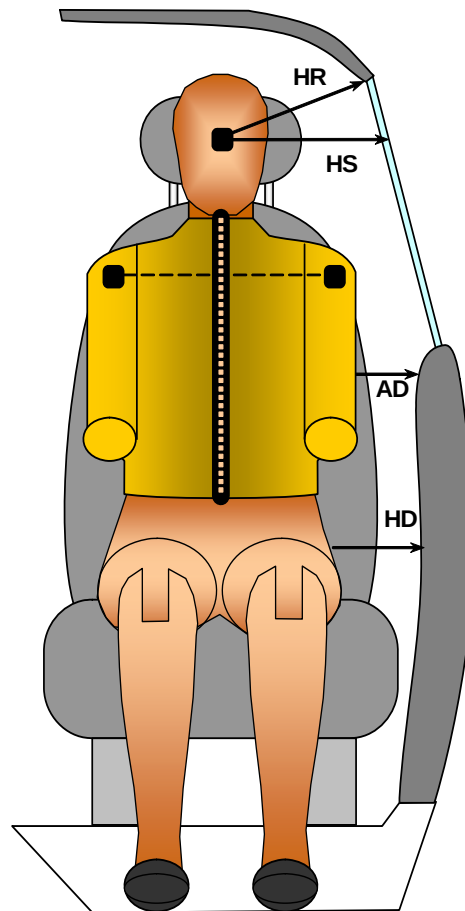
**LEFT SIDE VIEW**

| Code      | Measurement Description       | Driver      |           |
|-----------|-------------------------------|-------------|-----------|
|           |                               | Length (mm) | Angle (°) |
| HH        | Head to Header                | 337         |           |
| HW        | Head to Windshield            | 640         |           |
| HZ        | Head to Roof Liner            | 234         |           |
| NR        | Nose to Rim                   | 214         |           |
| CD        | Chest to Dashboard            | 426         |           |
| CS        | Chest to Steering Wheel       | 164         |           |
| KDL/KDAL° | Left Knee to Dash             | 101         | 30.6      |
| KDR/KDAR° | Right Knee to Dash            | 106         | 31.2      |
| PAX°      | Pelvic Tilt Angle (X-Axis)    |             | 20.2      |
| PAY°      | Pelvic Tilt Angle (Y-Axis)    |             | -0.5      |
| PHX       | Hip Point to Striker (X-Axis) | 364         |           |
| PHZ       | Hip Point to Striker (Z-Axis) | 9           |           |

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014



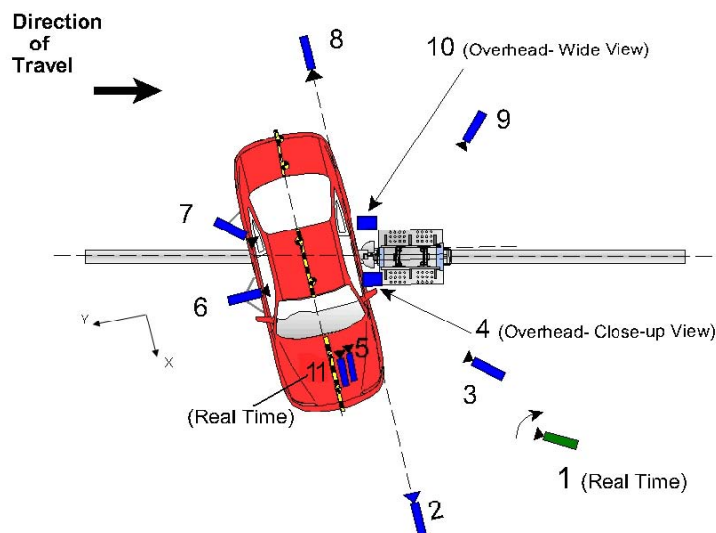
*FRONT VIEW OF DUMMY*

| Code | Measurement Description | Driver      |
|------|-------------------------|-------------|
|      |                         | Length (mm) |
| HR   | Head to Side Header     | 276         |
| HS   | Head to Side Window     | 362         |
| AD   | Arm to Door             | 179         |
| HD   | Hip Point to Door       | 154         |

## DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
Test Date: 4/28/2014



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         | -80              | 6340  | -1800 | 20        | 1000             |
| 3          | Impact Side 45° Forward    | -2310            | 5370  | -1930 | 20        | 1000             |
| 4          | Overhead Closeup           | 100              | 0     | -4420 | 50        | 1000             |
| 5          | Onboard – Driver Front     |                  |       |       | 16        | 1000             |
| 6          | Onboard – Driver Side      |                  |       |       | 8         | 1000             |
| 7          | Onboard – Driver Rear      |                  |       |       | 8         | 1000             |
| 8          | Rear Ground Level          | -70              | -7100 | -1830 | 20        | 1000             |
| 9          | Impact Side 45° Rearward   | -4150            | -4560 | -1900 | 20        | 1000             |
| 10         | Overhead Wide View         | 390              | 0     | -4610 | 14        | 1000             |
| 11         | Real-Time Dummy Front View |                  |       |       |           | 30               |

\* All measurements accurate to  $\pm 6$  mm

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

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

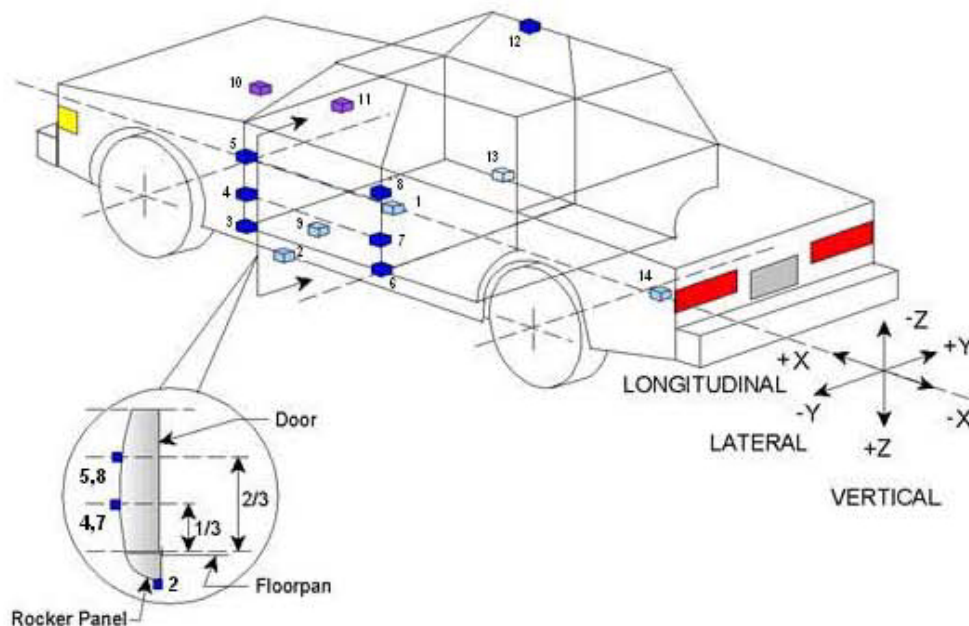
### INSTRUMENTATION

|                   | Number of Channels |
|-------------------|--------------------|
| Driver Dummy      | 16                 |
| Vehicle Structure | 18                 |
| Pole Load Cells   | 8                  |
| <b>TOTAL</b>      | <b>42</b>          |

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014



|    | Accelerometer Location |                  |      |      |
|----|------------------------|------------------|------|------|
|    | ID                     | Coordinates (mm) |      |      |
|    |                        | X                | Y    | Z    |
| 1  | Vehicle CG             | 3424             | 0    | 725  |
| 2  | Left Floor Sill        | 4194             | -784 | 526  |
| 3  | A Pillar Sill          | 4380             | 792  | 508  |
| 4  | A Pillar Low           | 4475             | -910 | 834  |
| 5  | A Pillar Mid           | 4520             | -898 | 1096 |
| 6  | B Pillar Sill          | 3170             | 802  | 540  |
| 7  | B Pillar Low           | 3261             | -784 | 898  |
| 8  | B Pillar Mid           | 3266             | -780 | 1147 |
| 9  | Driver Seat Track      | 3536             | -464 | 716  |
| 10 | Engine Top             | 5110             | 0    | 1200 |
| 11 | Firewall               | 4864             | 0    | 1362 |
| 12 | Right Roof             | 3476             | 555  | 1965 |
| 13 | Right Floor Sill       | 4195             | 784  | 540  |
| 14 | Rear Floorpan          | 238              | 0    | 975  |

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

NHTSA No. M20150101  
Test Date: 4/28/2014



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

NHTSA No. M20150101  
Test Date: 4/28/2014

**TEST DUMMY INFORMATION AND CONTACT POINTS**

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

**POST-TEST DOOR PERFORMANCE**

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

**POST-TEST SEAT PERFORMANCE**

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

**POST-TEST STRUCTURAL OBSERVATIONS**

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

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
Test Date: 4/28/2014

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

| Restraint Type           | Struck Side Driver |          | Struck Side Rear Passenger |          |
|--------------------------|--------------------|----------|----------------------------|----------|
|                          | Mounted            | Deployed | Mounted                    | Deployed |
| Frontal Airbag           | Yes                | Yes      |                            |          |
| Knee Airbag              | 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                    |                    |          |                            |          |

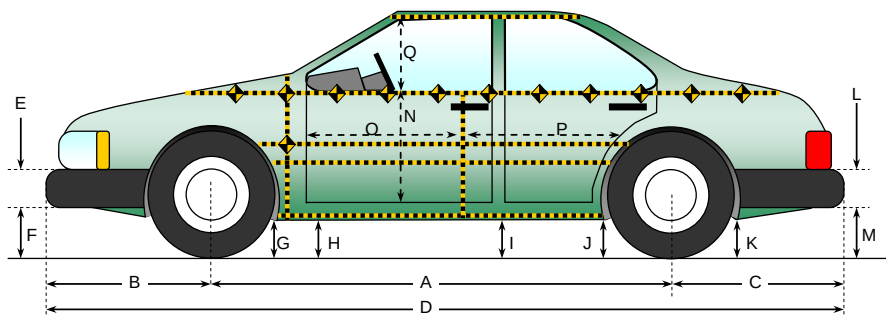
**VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA**

| Measured Parameter                                                            | Units | Tolerance                       | Value |
|-------------------------------------------------------------------------------|-------|---------------------------------|-------|
| Vertical Impact Reference Line (Aft of Front Axle)<br>(Intended Impact Point) | mm    |                                 | 1198  |
| Actual Impact Point (Aft of Front Axle)                                       | mm    |                                 | 1196  |
| 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                    | 31.90 |
| Trap No. 2 Velocity (Redundant)                                               | km/h  | 31.4 to 33.0                    | 32.01 |

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
Test Date: 4/28/2014



All measurements in (mm) with tolerance of  $\pm 3$  mm

**LEFT SIDE VIEW**

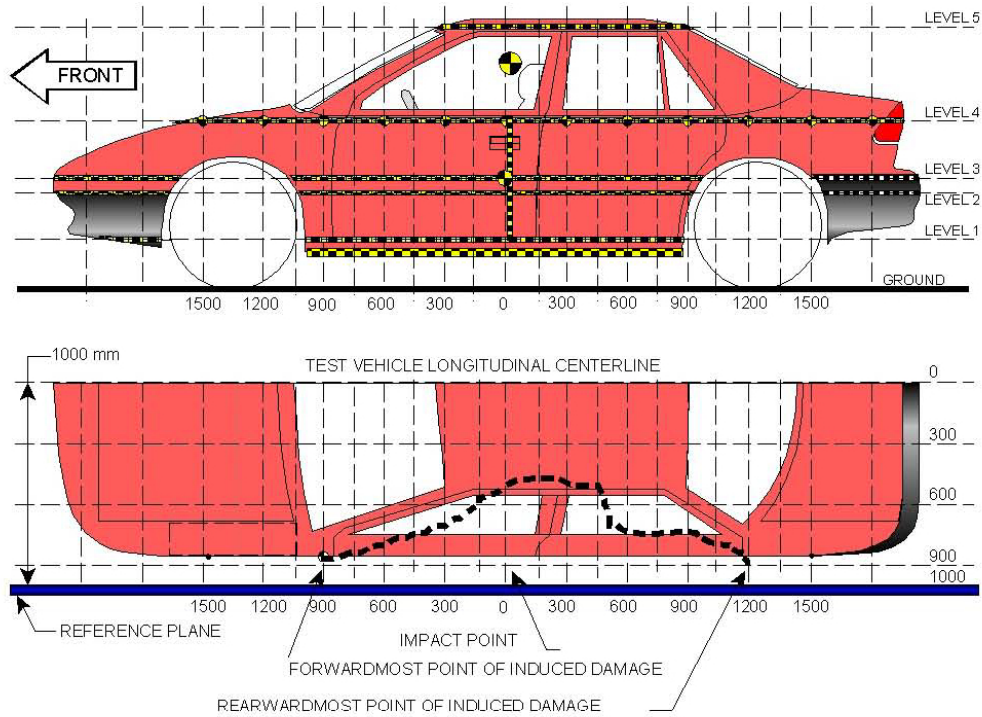
**VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION**

| Code | Measurement Description                    | Pre-Test | Post-Test | Difference |
|------|--------------------------------------------|----------|-----------|------------|
| A    | Wheelbase                                  | 3915     | 3847      | 68         |
| B    | Front Axle to FSOV                         | 983      | 1013      | -30        |
| C    | Rear Axle to RSOV                          | 1232     | 1235      | -3         |
| D    | Total Vehicle Length at Centerline         | 6130     | 6095      | 35         |
| E    | Front Bumper Thickness                     | 355      | 355       | 0          |
| F    | Front Bumper Bottom to Ground              | 285      | 306       | -21        |
| G    | Sill Height at Front Wheel Well            | 466      | 465       | 1          |
| H    | Sill Height at Front Door Leading Edge     | 467      | 454       | 13         |
| I    | Sill Height at B-Pillar                    | 477      | 488       | -11        |
| J1   | Sill Height at Rear Wheel Well             | 498      | 499       | -1         |
| J2   | Pinch Weld Height at Rear Wheel Well       | 487      | 490       | -3         |
| K    | Sill Height Aft of Rear Wheel Well         | 542      | 554       | -12        |
| L    | Rear Bumper Thickness                      | 220      | 220       | 0          |
| M    | Rear Bumper Bottom to Ground               | 506      | 634       | -128       |
| N    | Sill Height to Bottom of Front Window Sill | 832      | 838       | -6         |
| O    | Front Door Leading Edge to Impact CL       | 640      | 452       | 188        |
| P    | Rear Door Trailing Edge to Impact CL       | 1518     | 1368      | 150        |
| Q    | Front Window Opening                       | 508      | 472       | 36         |
| R    | Right Side Length                          | 5325     | 5345      | -20        |
| S    | Left Side Length                           | 5325     | 5092      | 233        |
| T    | Vehicle Width at B-Pillars                 | 2000     | 1905      | 95         |

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014



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                | 565                      | 387                           | 0                    |
| 2     | Mid Door                | 936                      | 445                           | 0                    |
| 3     | Occupant Hip Point      | 963                      | 443                           | 0                    |
| 4     | Window Sill             | 1315                     | 392                           | 0                    |
| 5     | Window Top              | 1950                     | 209                           | 0                    |

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014

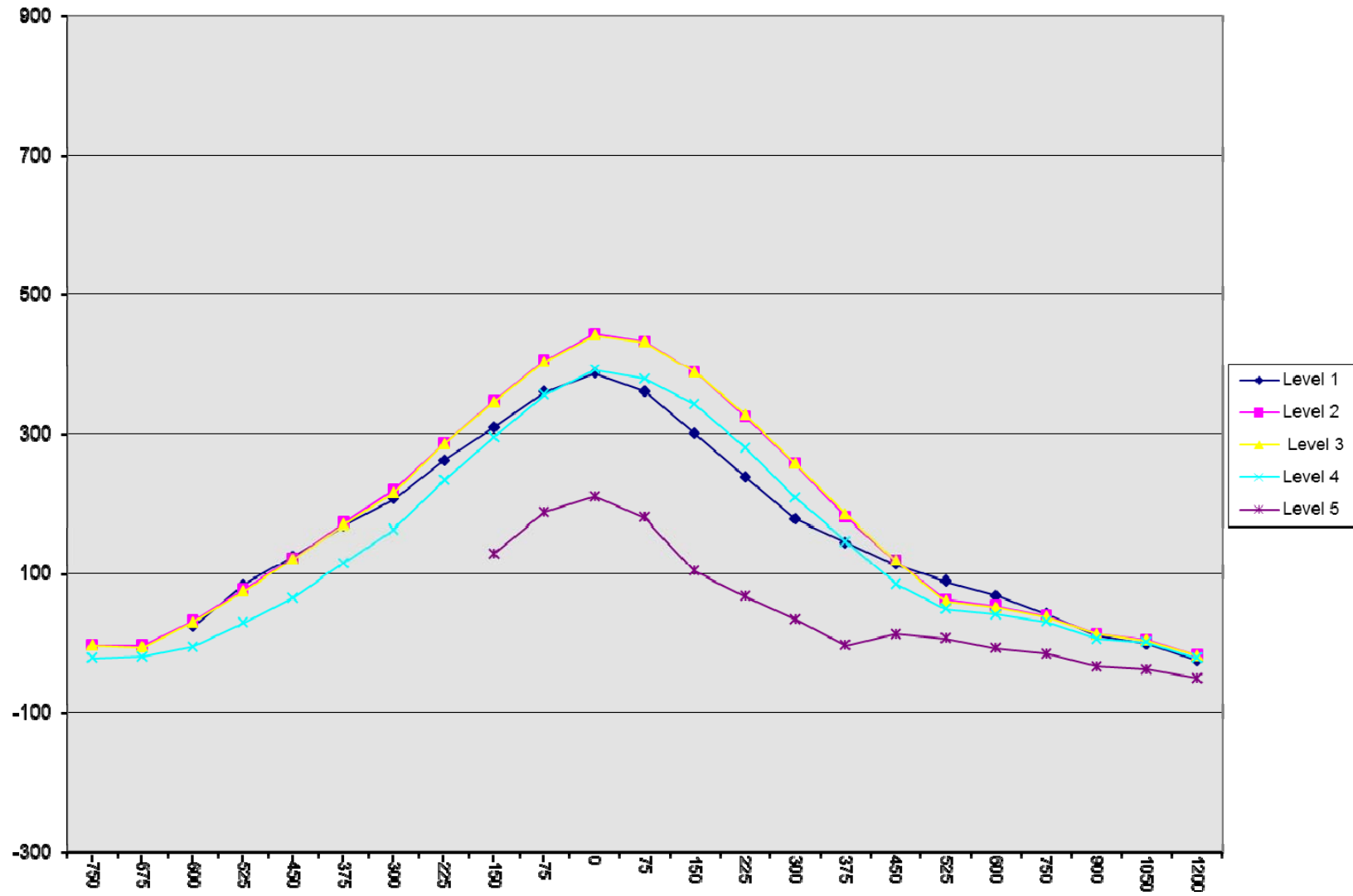
|      | Pre-Test |     |     |     |     | Post-Test |     |     |     |     | Difference |     |     |     |     |
|------|----------|-----|-----|-----|-----|-----------|-----|-----|-----|-----|------------|-----|-----|-----|-----|
|      | 1        | 2   | 3   | 4   | 5   | 1         | 2   | 3   | 4   | 5   | 1          | 2   | 3   | 4   | 5   |
| -750 |          | 87  | 87  | 181 |     |           | 85  | 85  | 161 |     |            | -2  | -2  | -20 |     |
| -675 |          | 95  | 98  | 178 |     |           | 93  | 93  | 160 |     |            | -2  | -5  | -18 |     |
| -600 | 173      | 110 | 110 | 178 |     | 198       | 143 | 141 | 174 |     | 25         | 33  | 31  | -4  |     |
| -525 | 169      | 110 | 110 | 177 |     | 253       | 188 | 185 | 207 |     | 84         | 78  | 75  | 30  |     |
| -450 | 169      | 110 | 110 | 175 |     | 294       | 232 | 231 | 241 |     | 125        | 122 | 121 | 66  |     |
| -375 | 166      | 109 | 109 | 172 |     | 334       | 281 | 278 | 287 |     | 168        | 172 | 169 | 115 |     |
| -300 | 165      | 108 | 109 | 171 |     | 371       | 327 | 324 | 334 |     | 206        | 219 | 215 | 163 |     |
| -225 | 166      | 108 | 108 | 169 |     | 427       | 394 | 393 | 401 |     | 261        | 286 | 285 | 232 |     |
| -150 | 164      | 108 | 108 | 168 | 424 | 473       | 455 | 453 | 463 | 553 | 309        | 347 | 345 | 295 | 129 |
| -75  | 164      | 108 | 108 | 166 | 410 | 524       | 514 | 512 | 522 | 597 | 360        | 406 | 404 | 356 | 187 |
| 0    | 167      | 108 | 109 | 165 | 408 | 554       | 553 | 552 | 557 | 617 | 387        | 445 | 443 | 392 | 209 |
| 75   | 165      | 109 | 109 | 164 | 403 | 526       | 543 | 542 | 543 | 582 | 361        | 434 | 433 | 379 | 179 |
| 150  | 171      | 109 | 109 | 161 | 401 | 471       | 498 | 498 | 503 | 504 | 300        | 389 | 389 | 342 | 103 |
| 225  | 171      | 110 | 109 | 160 | 398 | 408       | 434 | 436 | 439 | 466 | 237        | 324 | 327 | 279 | 68  |
| 300  | 173      | 111 | 110 | 160 | 396 | 350       | 367 | 367 | 368 | 431 | 177        | 256 | 257 | 208 | 35  |
| 375  | 179      | 111 | 110 | 158 | 394 | 324       | 291 | 294 | 304 | 392 | 145        | 180 | 184 | 146 | -2  |
| 450  | 179      | 111 | 111 | 158 | 393 | 292       | 230 | 230 | 244 | 407 | 113        | 119 | 119 | 86  | 14  |
| 525  | 179      | 112 | 111 | 157 | 391 | 268       | 175 | 172 | 207 | 399 | 89         | 63  | 61  | 50  | 8   |
| 600  | 180      | 113 | 112 | 155 | 391 | 249       | 167 | 164 | 197 | 385 | 69         | 54  | 52  | 42  | -6  |
| 750  | 180      | 114 | 113 | 154 | 389 | 223       | 154 | 152 | 186 | 375 | 43         | 40  | 39  | 32  | -14 |
| 900  | 182      | 115 | 114 | 153 | 386 | 194       | 129 | 128 | 160 | 354 | 12         | 14  | 14  | 7   | -32 |
| 1050 | 184      | 116 | 116 | 152 | 385 | 184       | 122 | 121 | 154 | 349 | 0          | 6   | 5   | 2   | -36 |
| 1200 | 187      | 118 | 117 | 151 | 385 | 163       | 102 | 100 | 131 | 336 | -24        | -16 | -17 | -20 | -49 |

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

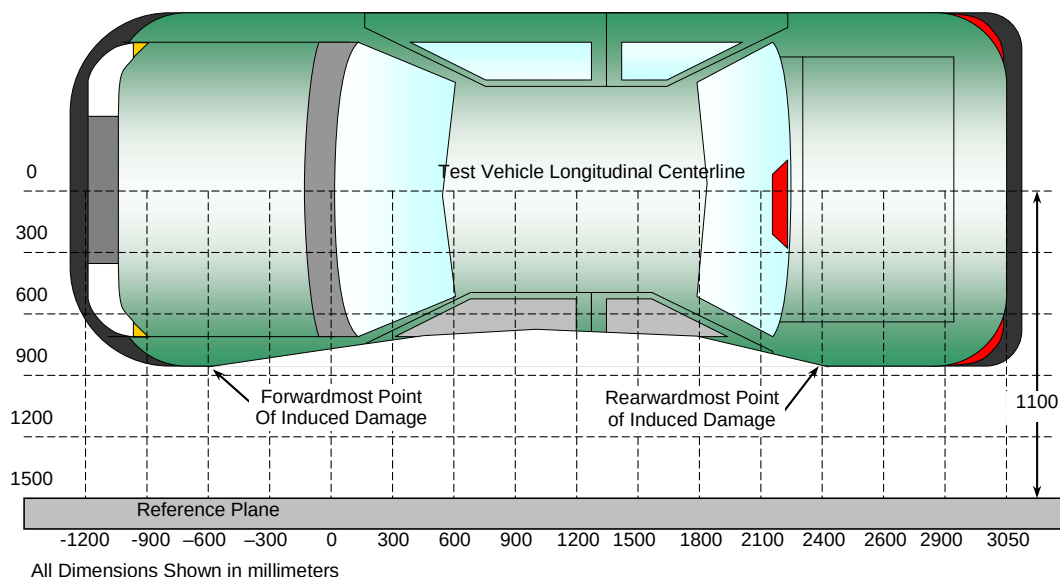
NHTSA No. M20150101  
Test Date: 4/28/2014



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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

NHTSA No. M20150101  
 Test Date: 4/28/2014



**TOP VIEW**

## **DAMAGE PROFILE DISTANCES**

| DPD | Distance from Impact Point (mm) | Level | Pre-Test (mm) | Post-Test (mm) | Crush (mm) |
|-----|---------------------------------|-------|---------------|----------------|------------|
| 1   | 525                             | 3     | 111           | 172            | 30         |
| 2   | 285                             | 3     | 109           | 384            | 275        |
| 3   | 45                              | 3     | 109           | 554            | 445        |
| 4   | -195                            | 3     | 108           | 420            | 312        |
| 5   | -435                            | 3     | 110           | 241            | 131        |
| 6   | -675                            | 3     | 98            | 93             | -5         |

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

Test Vehicle: 2015 Chevrolet Silverado 2500 LT Crew Cab  
 Test Program: NCAP Side Pole Impact Test

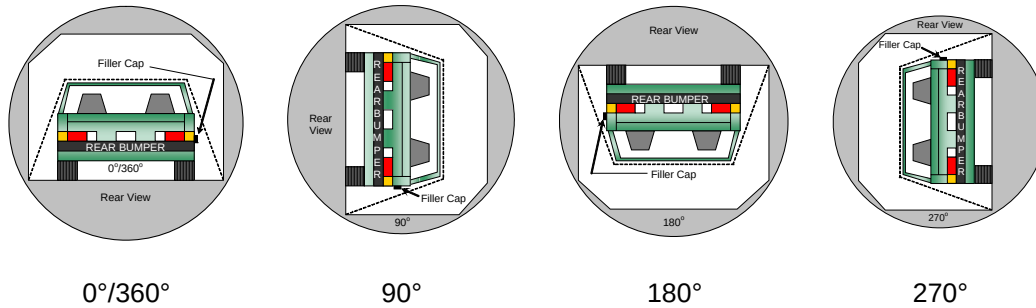
NHTSA No. M20150101  
 Test Date: 4/28/2014

Test Time: 10:15 am

Temperature: 20.9°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°    | 159           | 300       | 459        |
| 90° to 180°  | 142           | 300       | 442        |
| 180° to 270° | 140           | 300       | 440        |
| 270° to 360° | 175           | 300       | 475        |

**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            |

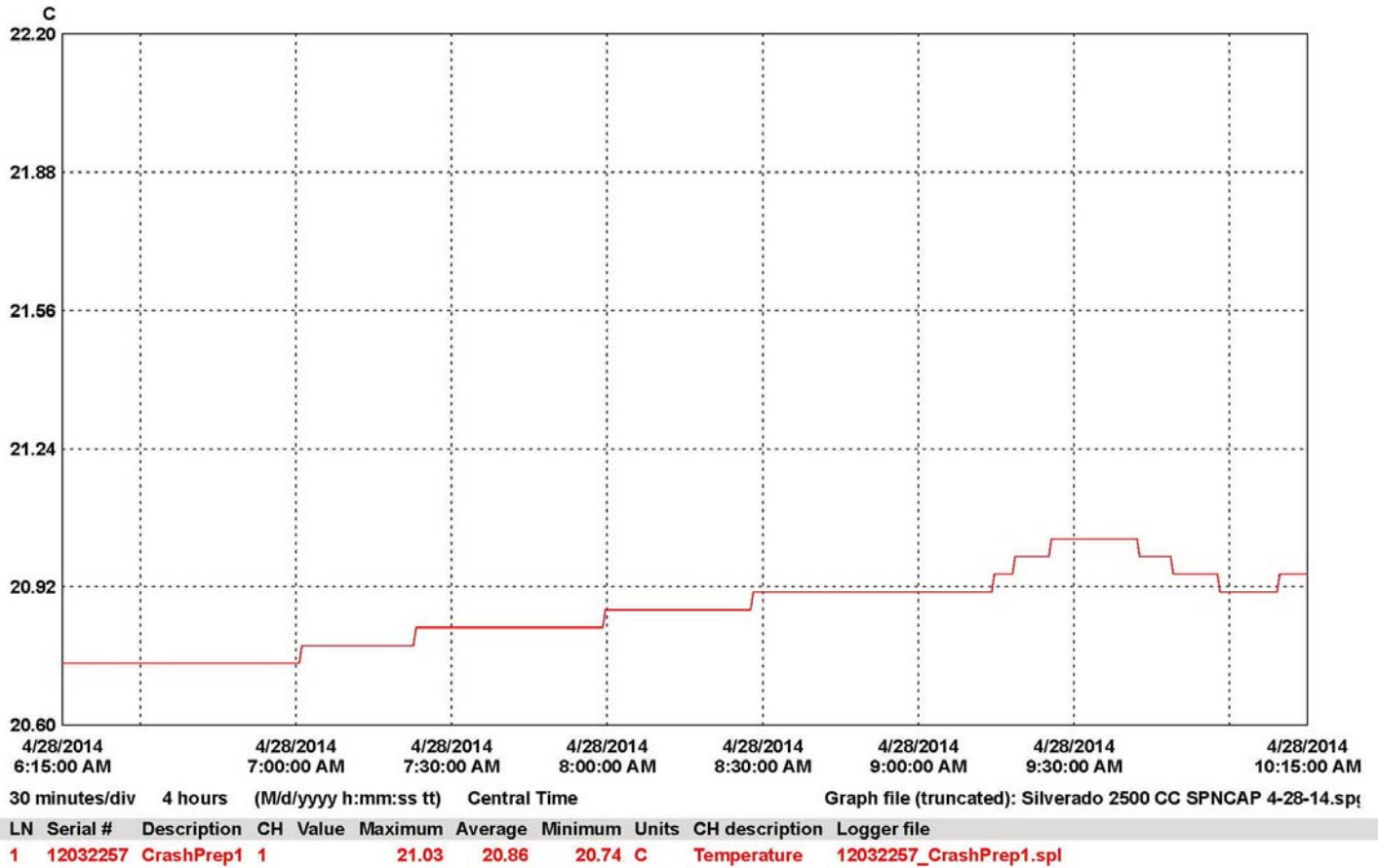
**ROLLOVER SOLVENT SPILLAGE LOCATION TABLE**

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

NHTSA No. M20150101  
 Test Date: 4/28/2014



**APPENDIX A**  
**PHOTOGRAPHS**

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



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



Pre-Test Frontal View of Test Vehicle



Post-Test Frontal View of Test Vehicle



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



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



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



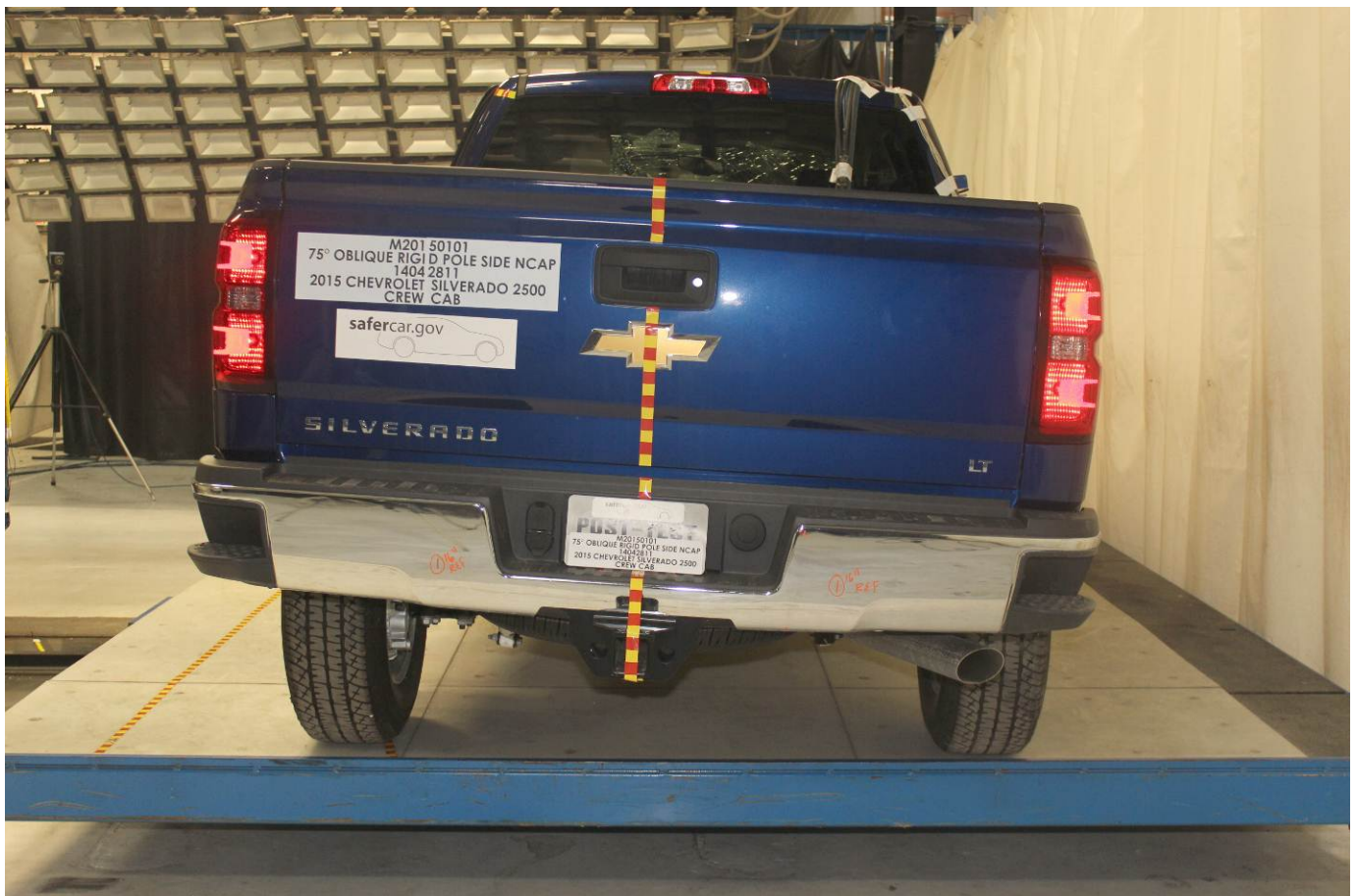
Pre-Test Left Rear  $\frac{3}{4}$  View of Test Vehicle



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



Pre-Test Rear View of Test Vehicle



Post-Test Rear View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



Post-Test Overhead View of Test Area



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



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



Pre-Test Close-Up View of Impact Point Target



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



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



Post-Test Front Close-Up View of Dummy



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



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



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



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



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



Pre-Test Front 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



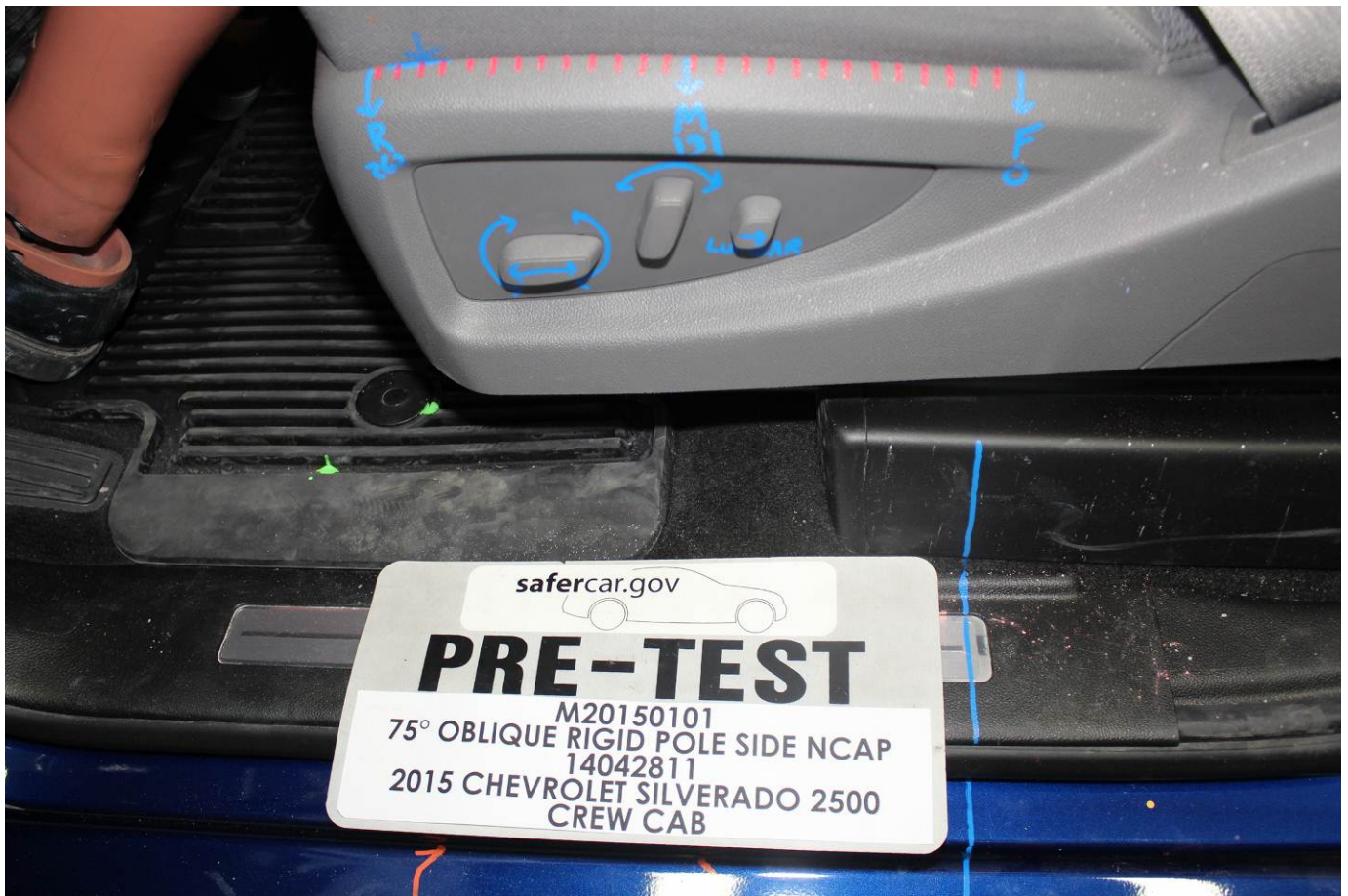
Pre-Test Left Side View of Steering Wheel



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



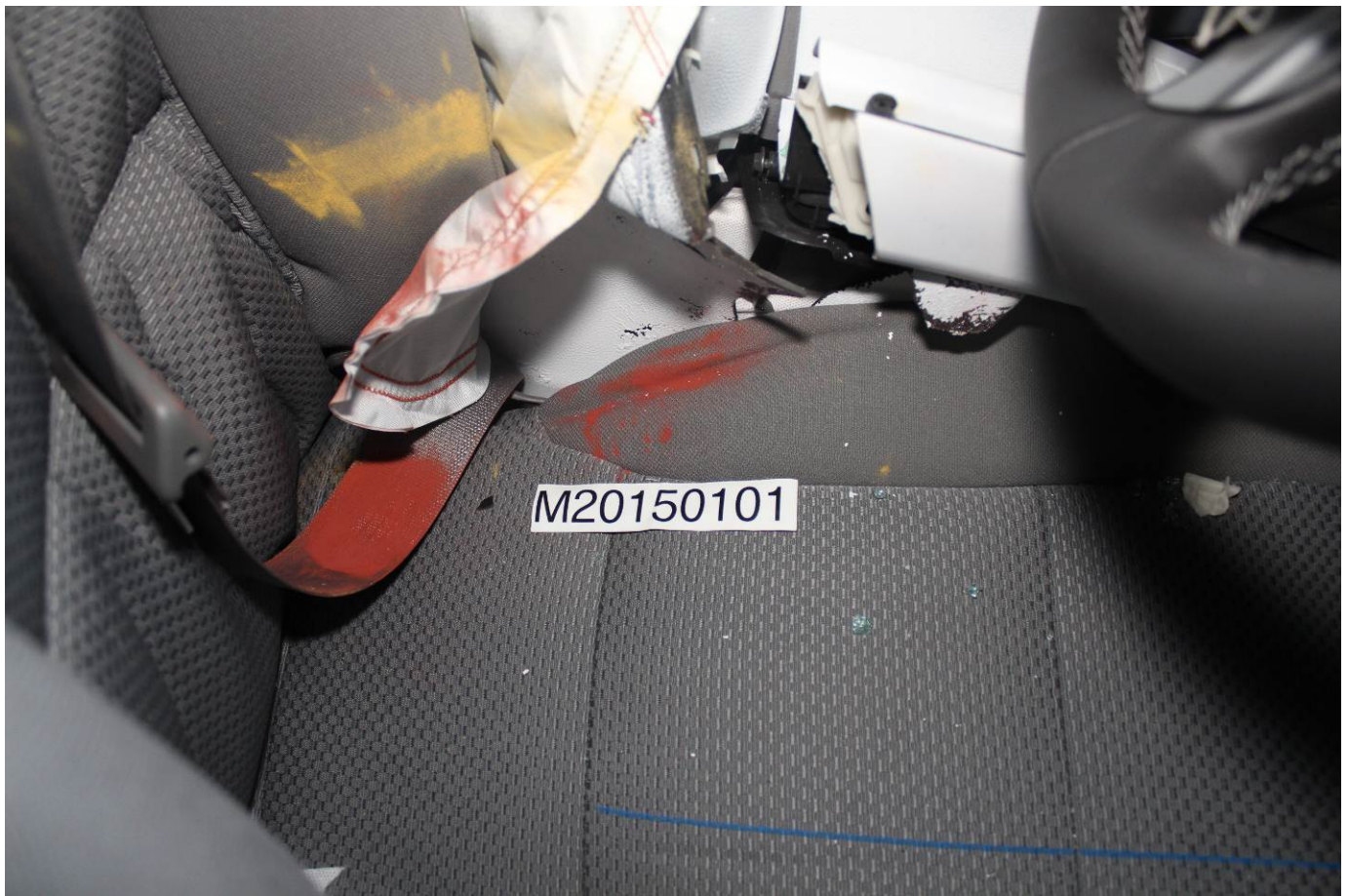
Post-Test Dummy Close-Up Head Contact with Frontal Air Bag View



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 Pelvis Contact with Vehicle Interior View



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



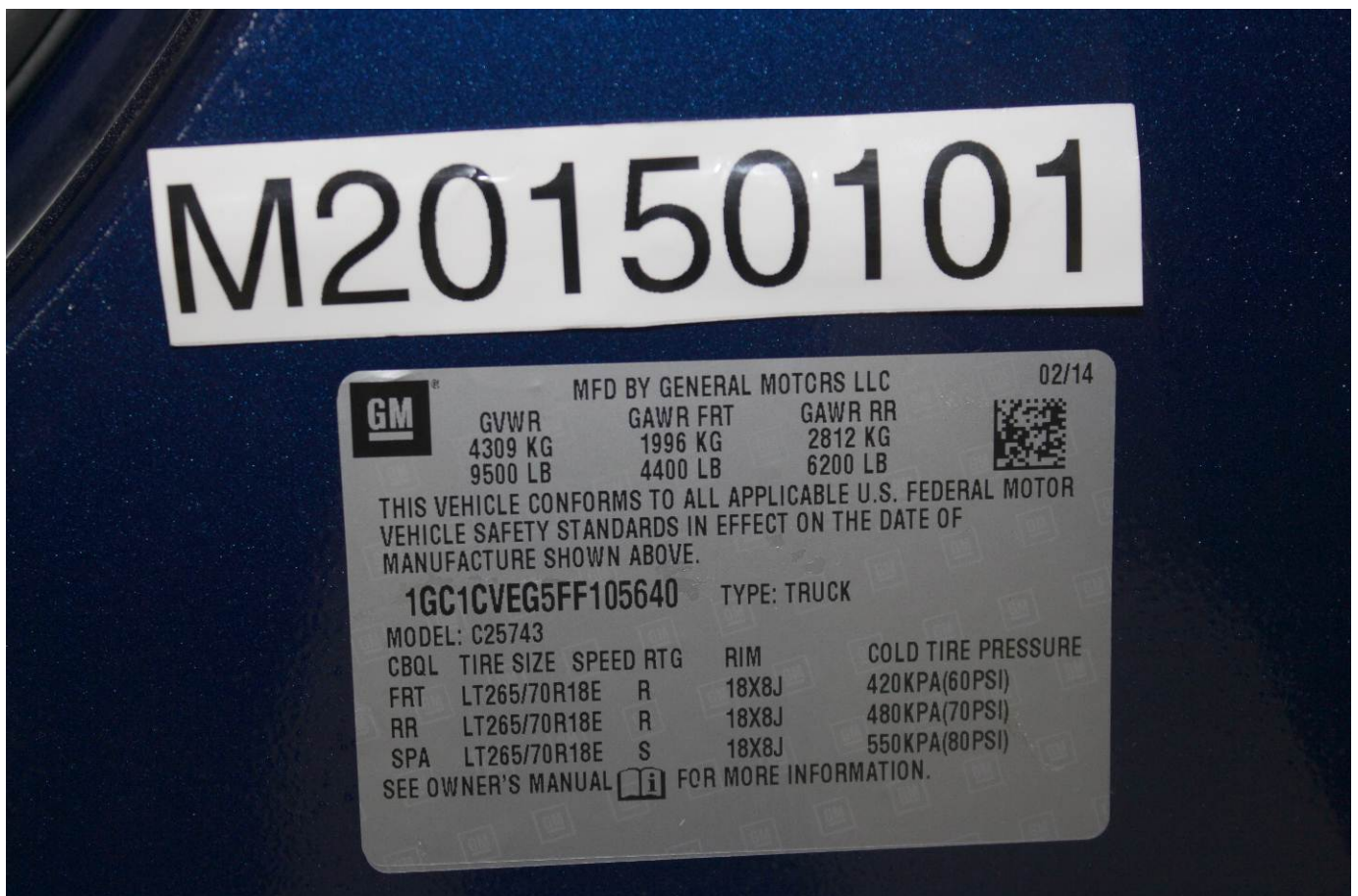
Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



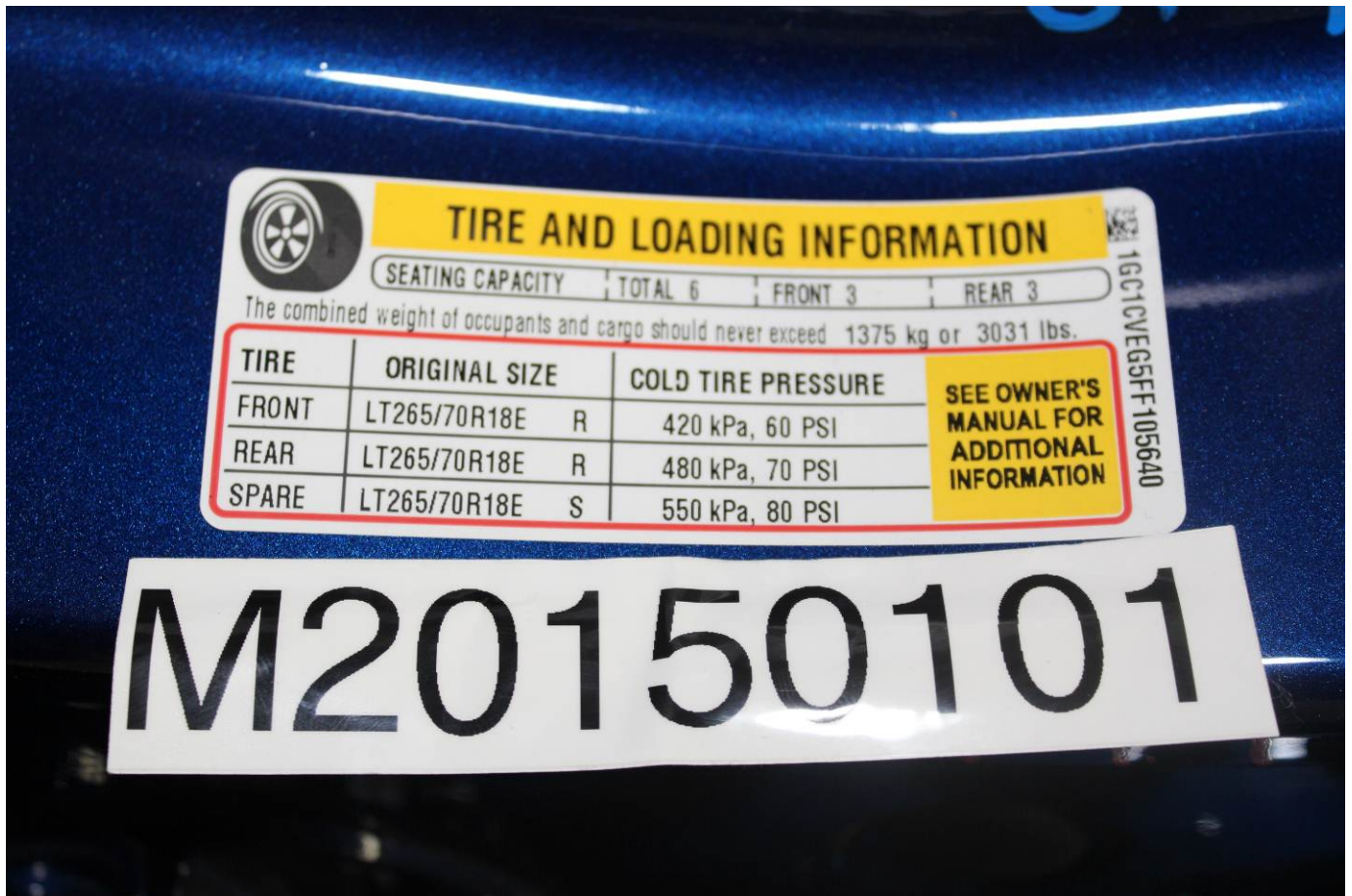
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



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



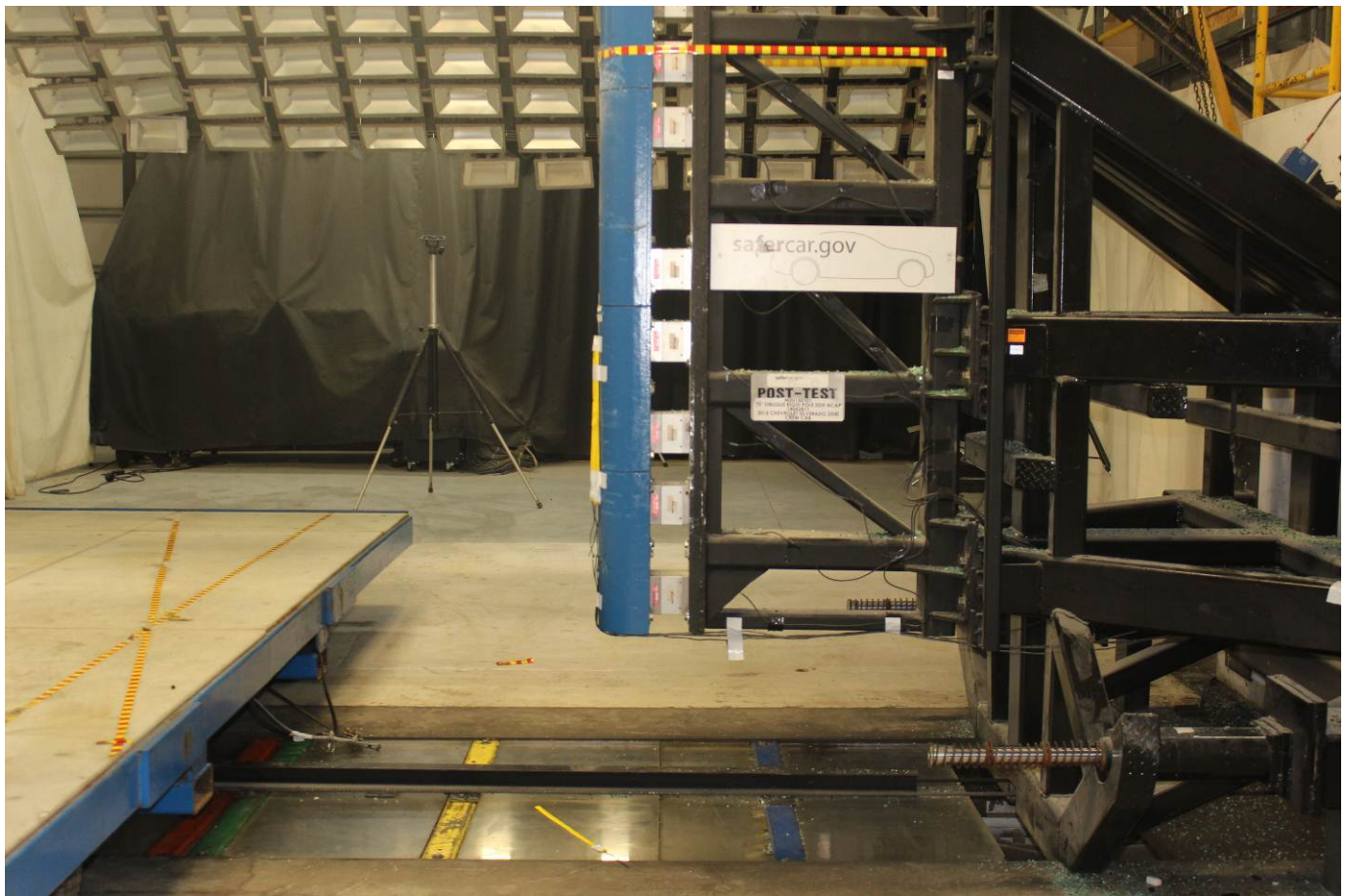
Pre-Test Pole Barrier Front View



Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View



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

## 2015 SILVERADO 2500 2WD LT CREW CAB



EXTERIOR: BLUE TOPAZ METALLIC  
INTERIOR: JET BLACK / DARK ASH

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

### STANDARD EQUIPMENT

ITEMS FEATURED BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE SHOWN

- SCHEDULED MAINTENANCE 2YR/24,000 MILES
- OIL & FILTER
- 4 WHEEL TIRE ROTATION SEE WWW.CHEVY.COM OR DEALER FOR DETAILS
- 5 YEAR / 100,000 MILE POWERTRAIN LIMITED WARRANTY SEE DEALER FOR DETAILS
- 24-HOUR ROADSIDE ASSISTANCE

### MECHANICAL

- VORTEC 6.0L V8 ENGINE
- 6-SPEED HD AUTO TRANSMISSION
- REAR AXLE, 4.10 RATIO
- 150 AMP ALTERNATOR
- AIR CLEANER, HIGH CAPACITY
- TORSION BAR FRONT SUSPENSION
- MULTI-LEAF REAR SPRING SUSP

### SAFETY & SECURITY

- AIRBAGS: DRIVER & RT. FRONT PASS - FRONT/SIDE-IMPACT, OUTBOARD FRT & REAR SEAT-SIDE HEAD CURTAIN
- STABILITRAK-STABILITY CONTROL WITH TRAILER SWAY CONTROL AND HILL START ASSIST
- ANTILOCK BRAKES, 4 WHEEL DISC
- TIRE PRESSURE MONITOR SYSTEM (EXCL. SPARE)
- 6 MTH ONSTAR(R) DIRECTIONS & CONNECTIONS W/ AUTOMATIC CRASH RESPONSE & TURN-BY-TURN NAV PLUS 5-YEAR ONSTAR BASIC PLAN (OMITS SAFETY, SECURITY & NAV) (SEE ONSTAR.COM)

### EXTERIOR

- EZ LIFT AND LOWER TAILGATE
- LOCKING TAILGATE
- GLASS, DEEP-TINTED
- WHEELHOUSE LINERS, REAR

- POWER HEATED OUTSIDE MIRRORS
- HEADLAMP, PROJECTOR
- WHEELS, 17" MACHINED ALUMINUM
- TIRES, ALL SEASON
- SPARE TIRE LOCK
- RECOVERY HOOKS, FRONT
- FRONT BUMPER, CHROME
- REAR BUMPER, CHROME
- CORNERSTEP, REAR BUMPER
- FULLY BOXED STEEL FRAME
- BED RAIL PROTECTORS

### INTERIOR

- SEATS, FRONT 40/20/40 BENCH
- SEAT 60/40 REAR FOLDING BENCH
- REMOTE KEYLESS ENTRY
- POWER WINDOWS, DRIVER EXPRESS
- POWER DOOR LOCKS
- COLOR KEYPED CARPET
- AIR CONDITIONING
- CRUISE CONTROL
- VISORS, DRIVER AND FRONT PASSENGER, LIGHTED

- DRIVER INFO - COLOR DISPLAY
- STEERING WHEEL AUDIO CONTROLS
- LEATHER WRAP STEERING WHEEL
- STEERING COLUMN, TILT
- CHEVROLET MYLINK AUDIO SYSTEM
- 4.2" DIAGONAL COLOR DISPLAY
- SINGLE-SLOT CD/MP3 PLAYER
- SIRIUSXM + SERVICE SUBSCRIPTION SOLD SEPARATELY BY SIRIUSXM AFTER 3 MONTHS
- USB PORTS
- BLUETOOTH FOR PHONE

### OPTIONS & PRICING

MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE **\$39,360.00**

OPTIONS INSTALLED BY THE MANUFACTURER (MAY REPLACE STANDARD EQUIPMENT SHOWN)

- LT CONVENIENCE PACKAGE: 1,525.00
- PWR SEAT ADJUSTER, DRIVER
- FRONT FOG LAMPS

Visit us at [www.chevy.com](http://www.chevy.com)

- AIR CONDITIONING, DUAL ZONE CLIMATE CONTROL
- REMOTE VEHICLE START
- CHEVROLET MYLINK AUDIO SYSTEM
- W/ 8" DIAGONAL COLOR TOUCH
- REAR VISION CAMERA
- REAR WINDOW DEFROSTER
- POWER OUTLET, 110-VOLT AC

Z71 OFF-ROAD PACKAGE: 1,460.00

- MONOTUBE RANCHO SHOCKS
- TRAILERING HITCH
- AUTO LOCKING REAR DIFFERENTIAL
- TRAILER BRAKE CONTROLLER
- UNDERBODY SHIELDS
- HILL DESCENT CONTROL
- DOOR SILL PLATES
- UNIQUE Z71 GRILLE
- Z71 BADGE AND Z71 PICKUP BOX DECALS
- 18" FORGED POLISHED ALUM WHEELS 545.00
- POWER OUTSIDE CAMPER MIRRORS 300.00

|                                                                                            |                    |
|--------------------------------------------------------------------------------------------|--------------------|
| WITH HEAT, TURN SIGNAL, AND INSIDE REARVIEW AUTO-DIMMING MIRROR (REPLACES STD/OPT MIRRORS) | 200.00             |
| 18" ALL-TERRAIN BLACKWALL TIRES                                                            | 100.00             |
| STEERING COLUMN, TILT & TELESOPING                                                         |                    |
| CAMPER/5TH WHEEL TRAILER WIRING PROVISIONS                                                 | 35.00              |
| GVW RATING - 9,500 LBS                                                                     | INC.               |
| <b>TOTAL OPTIONS</b>                                                                       | <b>\$4,165.00</b>  |
| <b>TOTAL VEHICLE &amp; OPTIONS</b>                                                         | <b>\$43,525.00</b> |
| <b>DESTINATION CHARGE</b>                                                                  | <b>1,095.00</b>    |
| <b>TOTAL VEHICLE PRICE*</b>                                                                | <b>\$44,620.00</b> |



### Fuel Economy and Environment

NOT APPLICABLE TO THIS VEHICLE

[fuelconomy.gov](http://fuelconomy.gov)

Calculate personalized estimates and compare vehicles



### 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.

Source: National Highway Traffic Safety Administration (NHTSA)  
[www.safercar.gov](http://www.safercar.gov) or 1-888-327-4236



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ORDER NO RMHJUM SALES CODE E  
SALES MODEL CODE CC23743  
DEALER NO 14200  
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PLANT MI U.S.A.  
VIN 1G61C1VEG5FF105840

DEALER TO WHOM DELIVERED  
HAMPTON CHEVROLET  
1073 W MERCURY BLVD  
HAMPTON, VA 23666-3327



This label has been applied pursuant to Federal law. Do not remove. Return to dealer for replacement. \*Includes Manufacturer's Recommended Pre-Delivery Service. Does not include dealer installed options and accessories not listed above. Local taxes or license fees.

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GM/BL\_PROD\_0000-01/18/2014

Monroney Label

## Head Restraints

### Front Seats

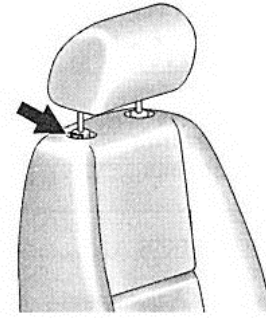
The vehicle's front seats have adjustable head restraints in the outboard seating positions.

#### ⚠ 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.

On some models, the head restraints adjust forward and rearward. To adjust the head

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

## Seats and Restraints 3-3

restraint forward, grasp the head restraint and pull forward to the desired locking position. To adjust the head restraint rearward, grasp the head restraint and pull forward fully until the mechanism releases and allows the head restraint to return to the full rear position.

The front seat outboard head restraints are not removable.

### Rear Seats

The rear seat has adjustable headrests in the outboard seating positions.

The height of the headrest can be adjusted. Pull the headrest up to raise it. To lower the headrest, push the headrest down.

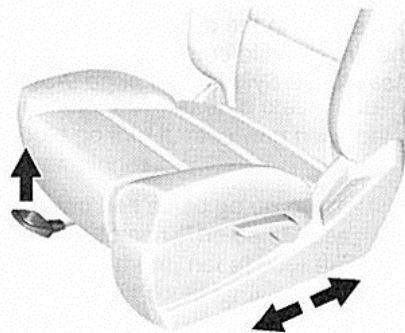
If you are installing a child restraint in the rear seat, see "Securing a Child Restraint Designed for the LATCH System" under *Lower Anchors and Tethers for Children (LATCH System)* on page 3-46.

## Front Seats

### Seat Adjustment

#### ⚠ Warning

You can lose control of the vehicle if you try to adjust a driver seat while the vehicle is moving. Adjust the driver seat only when the vehicle is not moving.



To adjust a manual seat:

1. Pull the handle at the front of the seat.
2. Slide the seat to the desired position and release the handle.
3. Try to move the seat back and forth to be sure it is locked in place.

To adjust the seatback, see *Reclining Seatbacks* on page 3-5.

To adjust the lumbar support, see *Lumbar Adjustment* on page 3-4.

### Center Seat

If equipped, the center front seatback doubles as an armrest and cupholder/storage area for the driver and passenger when the center front seat is not used. Do not use it as a seating position when the seatback is folded down.

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



Post-Test View of Shattered Vehicle Inner Door Panel

**APPENDIX B**  
**DUMMY RESPONSE DATA PLOTS**

**TABLE OF DATA PLOTS**  
**Driver Dummy Instrumentation Plots**

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

**The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at [www.NHTSA.dot.gov](http://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)

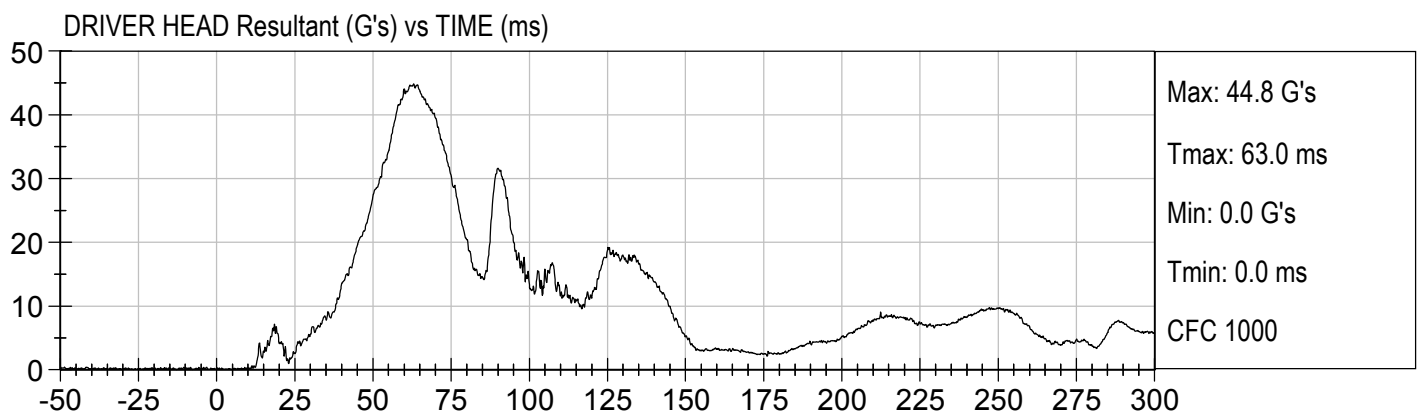
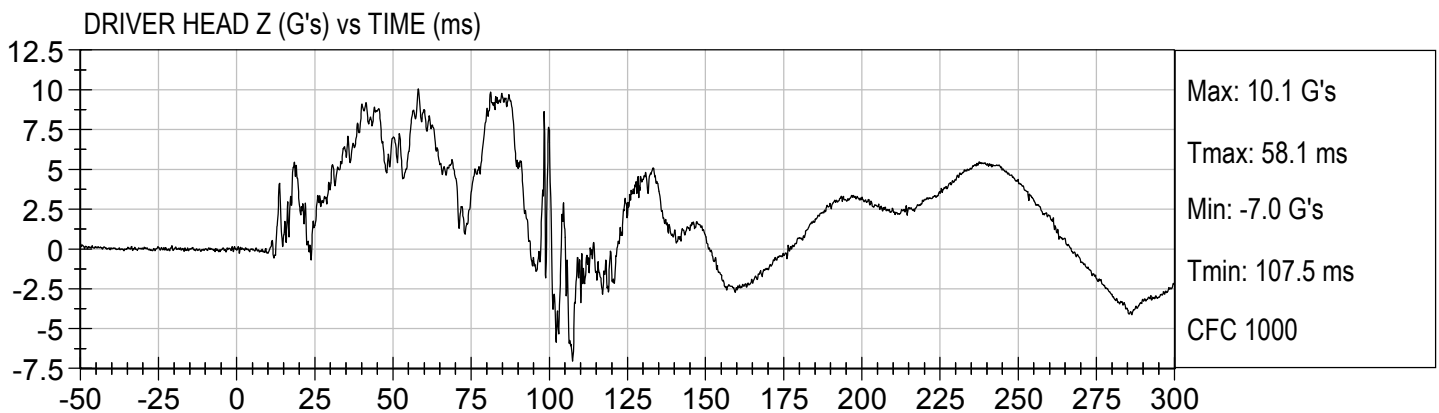
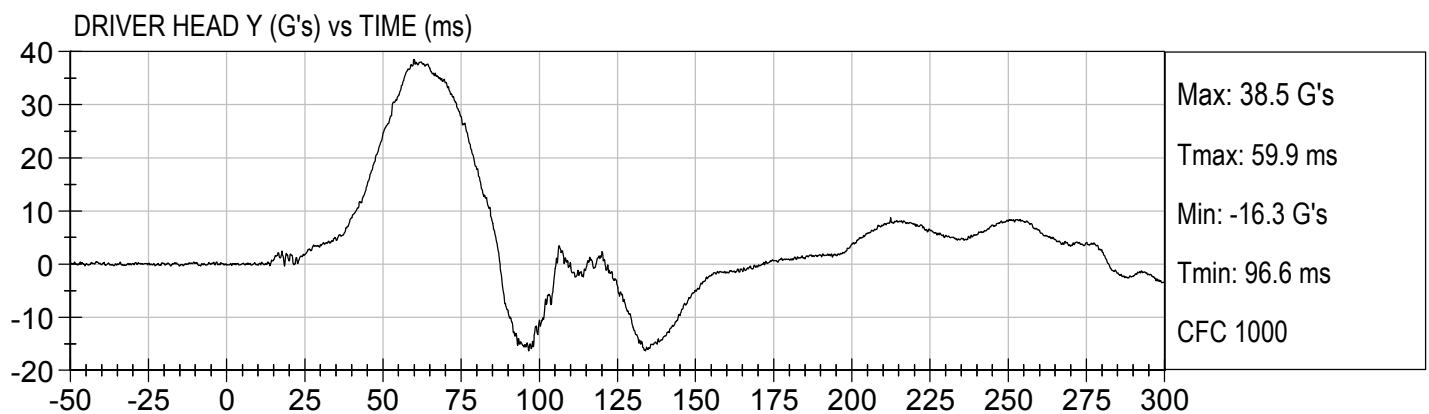
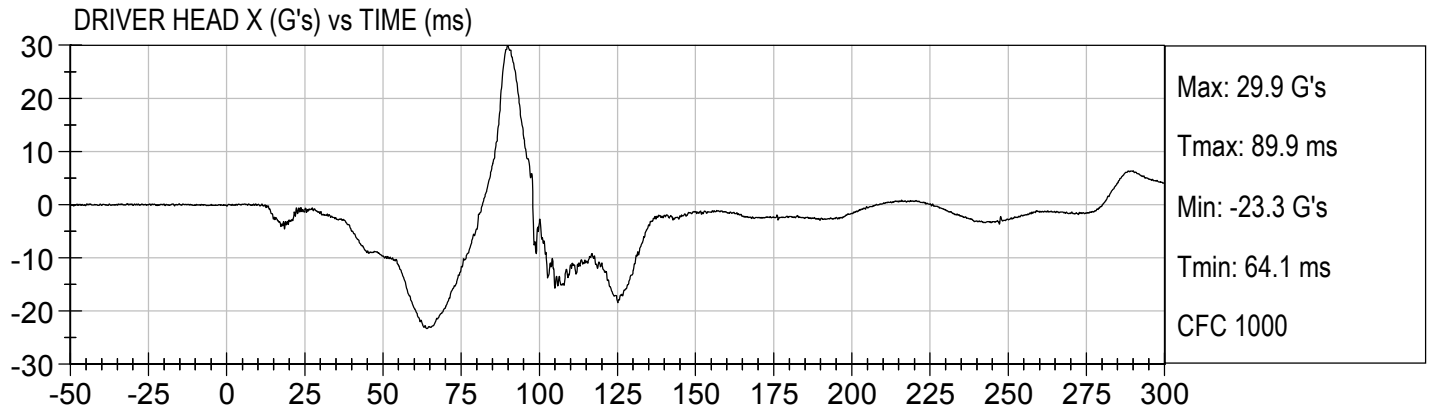
Load Cell Pole Barrier #4 Force (Y)

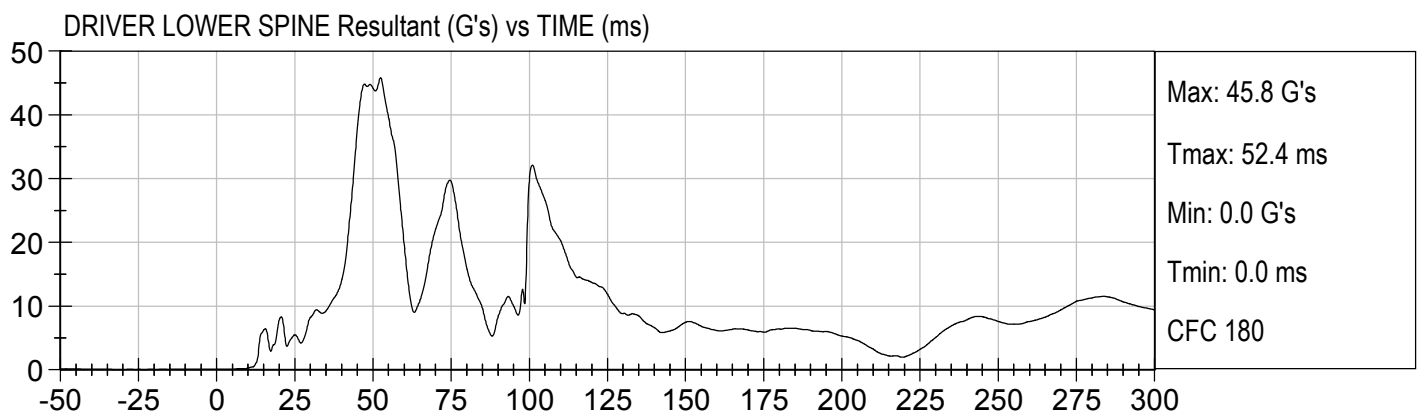
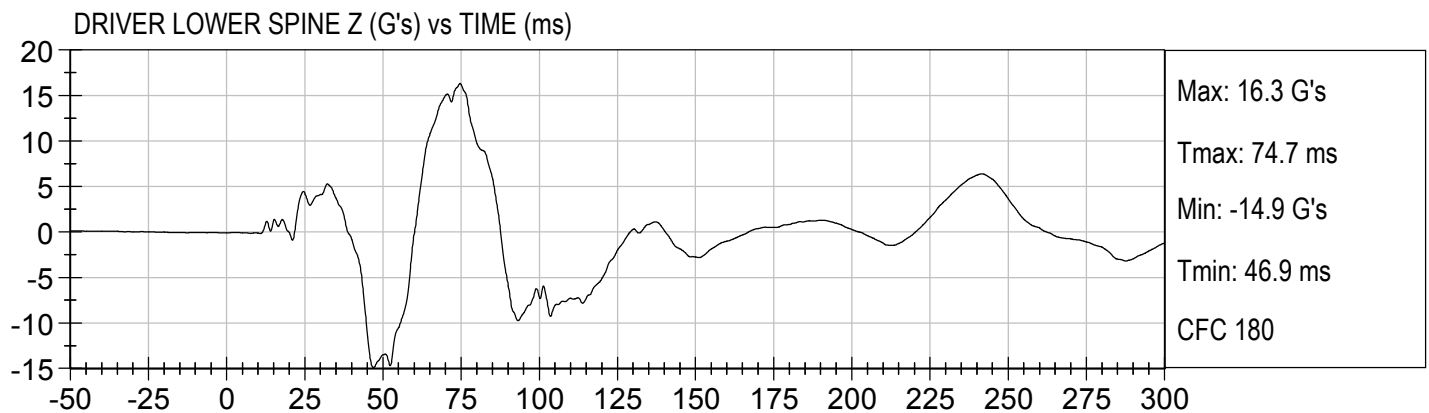
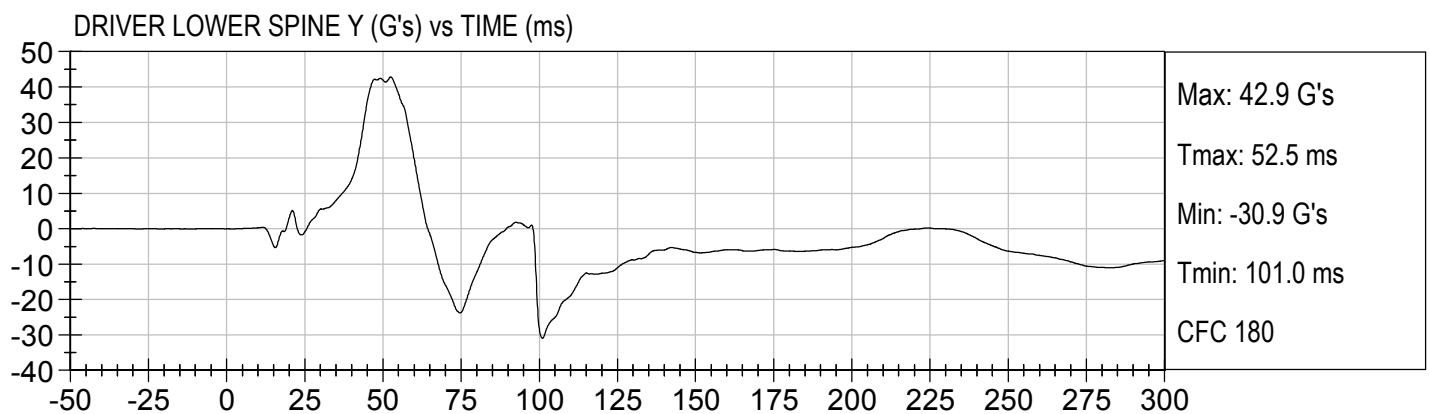
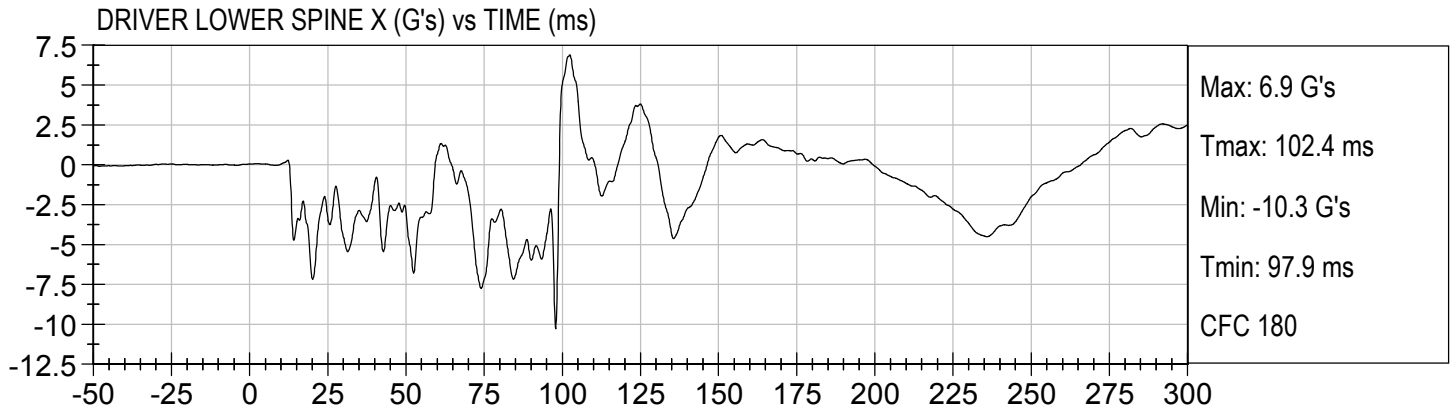
Load Cell Pole Barrier #5 Force (Y)

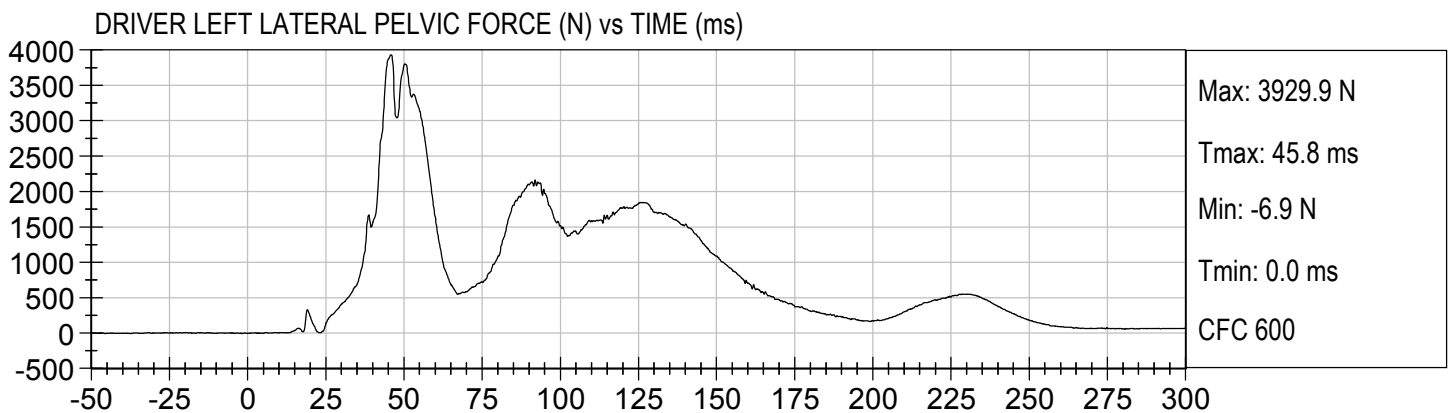
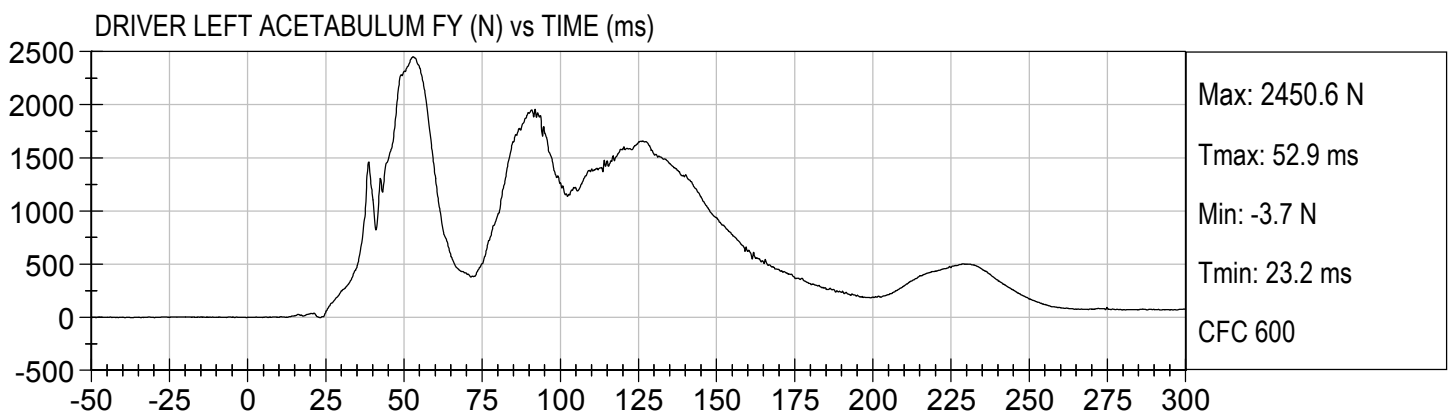
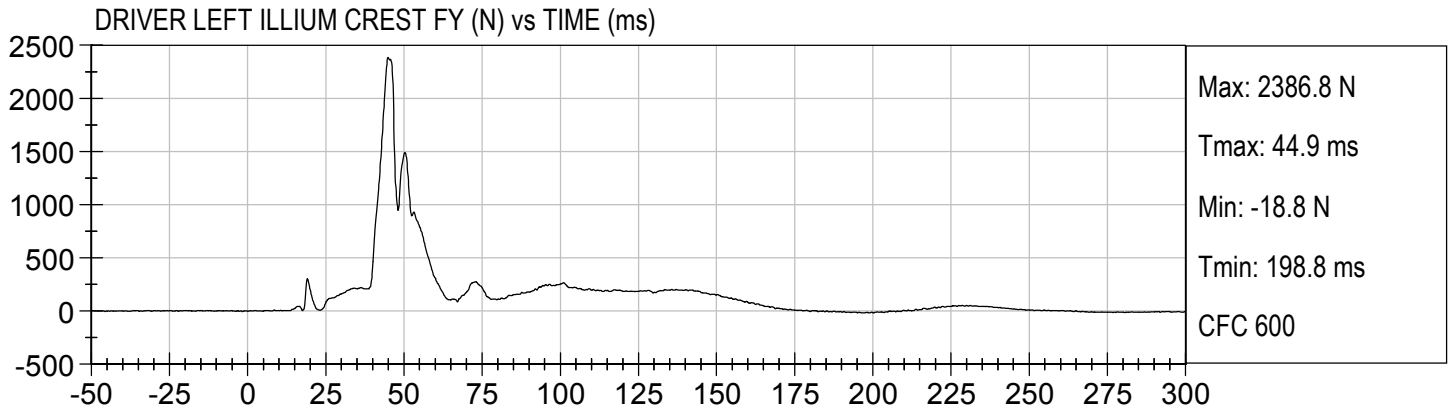
Load Cell Pole Barrier #6 Force (Y)

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**

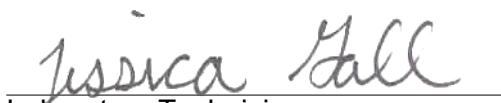
| No.      | Name                          | Spec. (mm) | Result | Pass/Fail |
|----------|-------------------------------|------------|--------|-----------|
| <b>A</b> | Sitting Height                | 772 - 788  | 785    | Pass      |
| <b>B</b> | Shoulder Pivot Height         | 437 - 453  | 449  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

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

**ATD Serial No:** 306

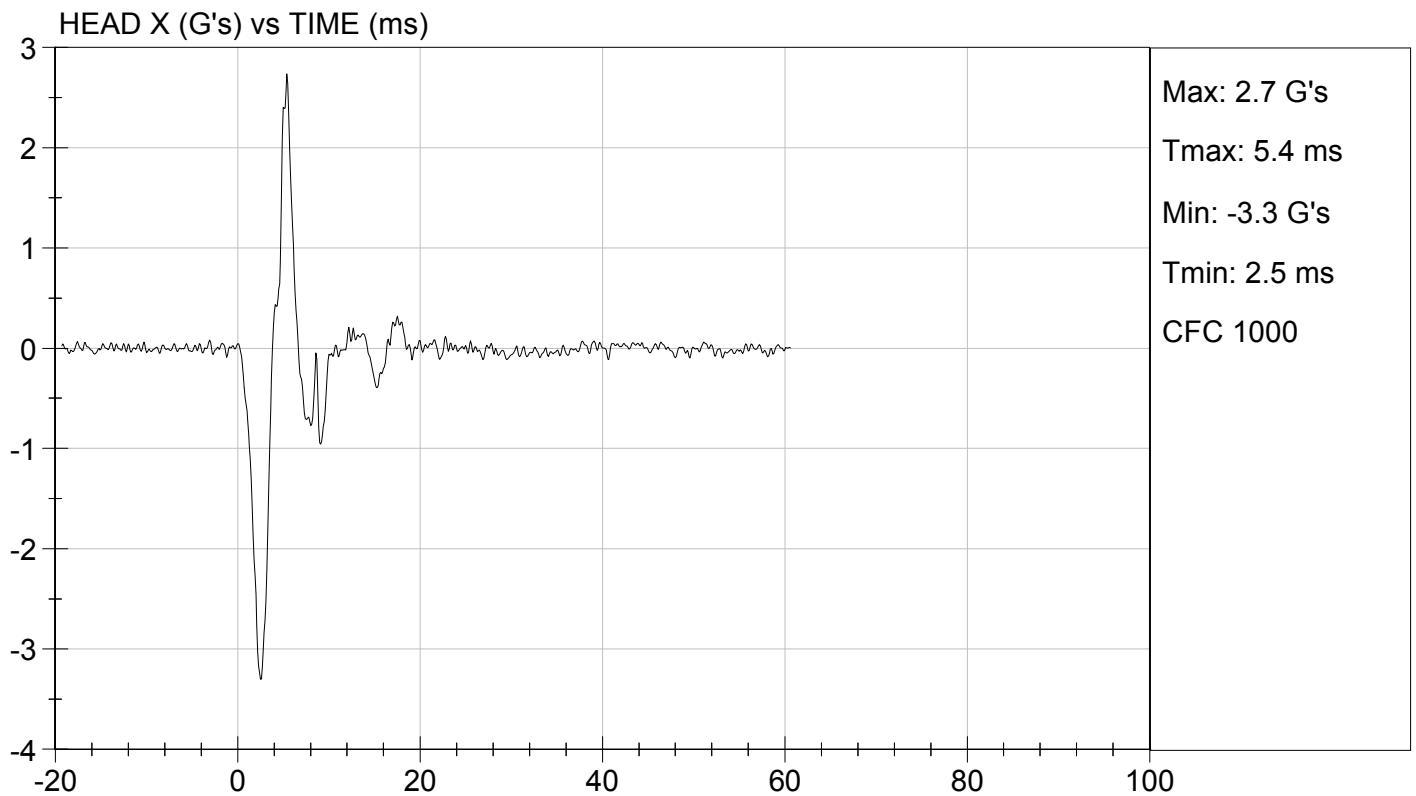
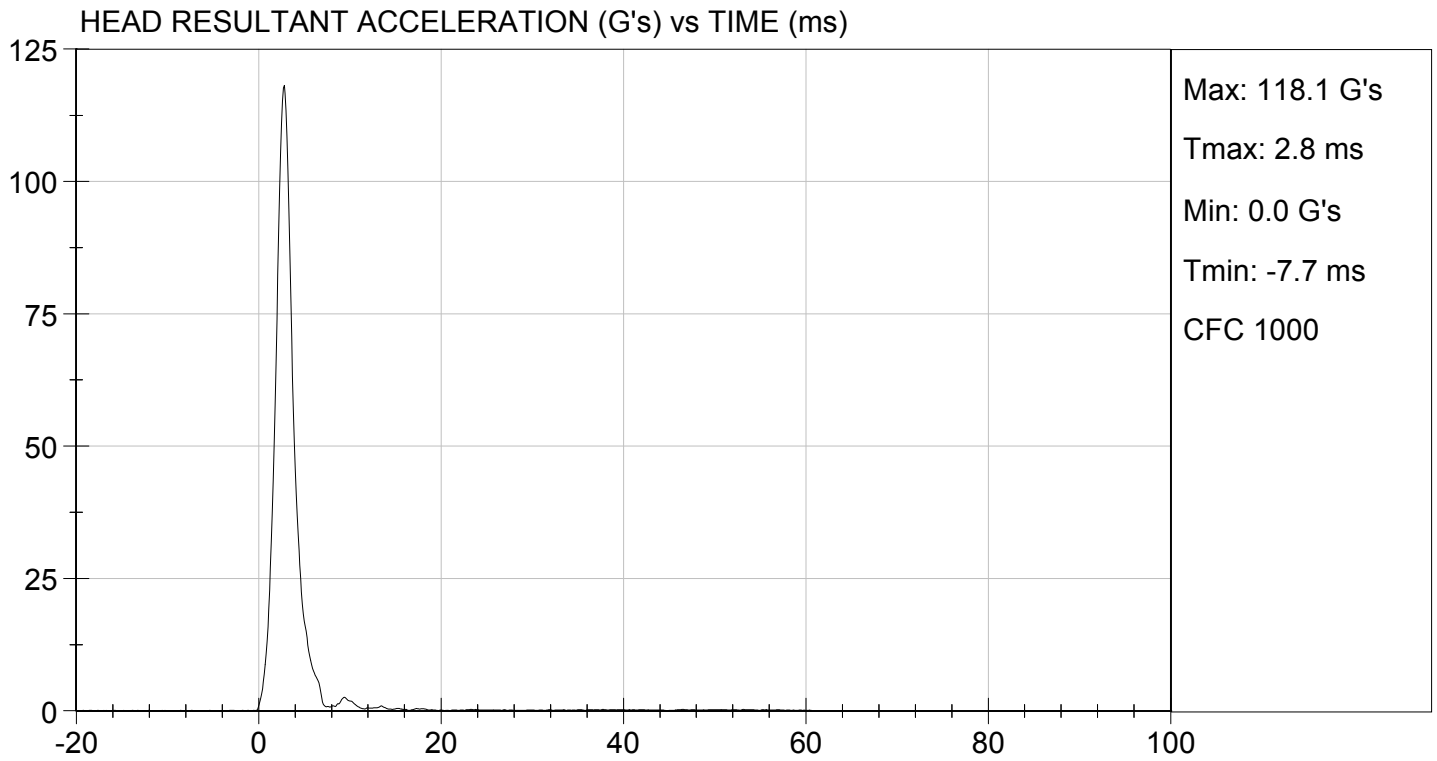
**Test ID:** D14811

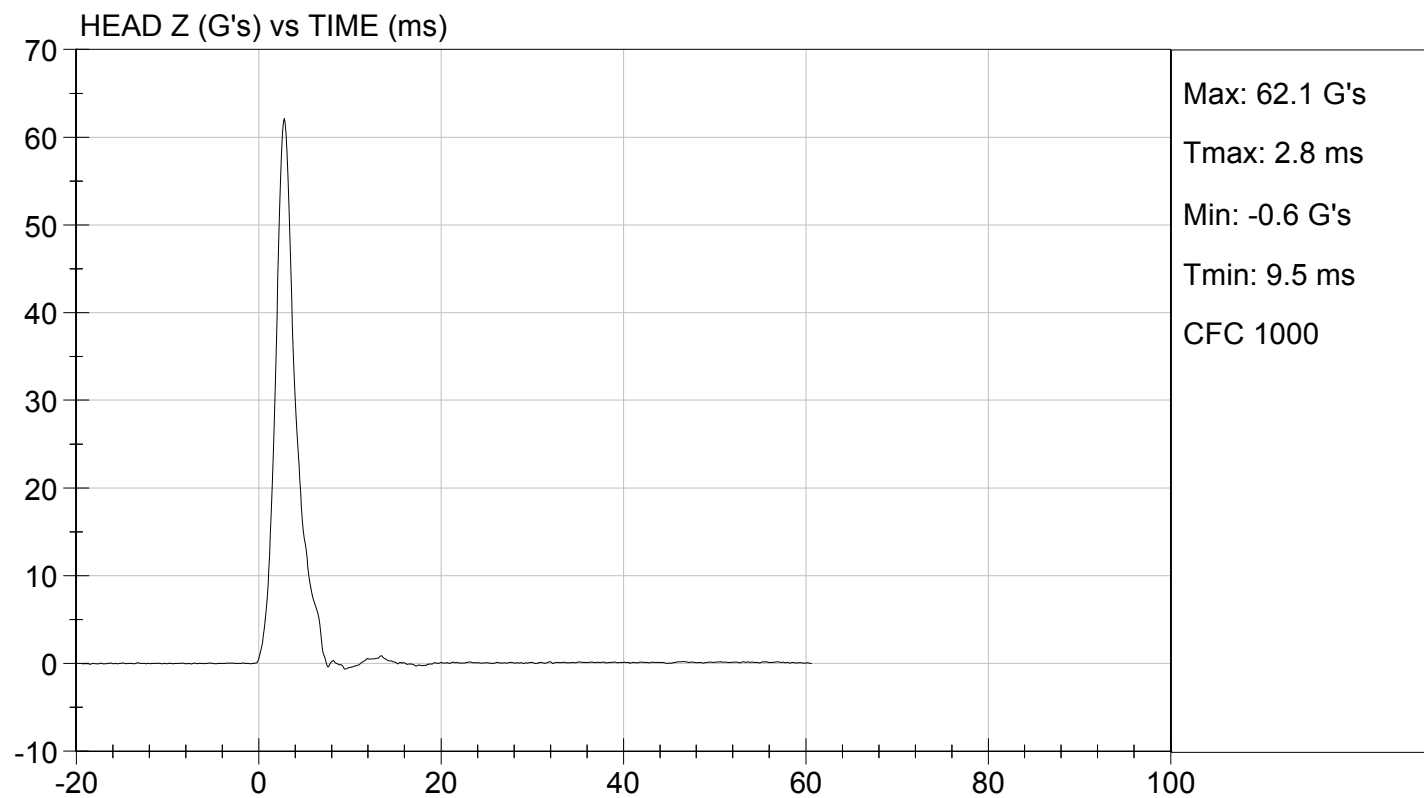
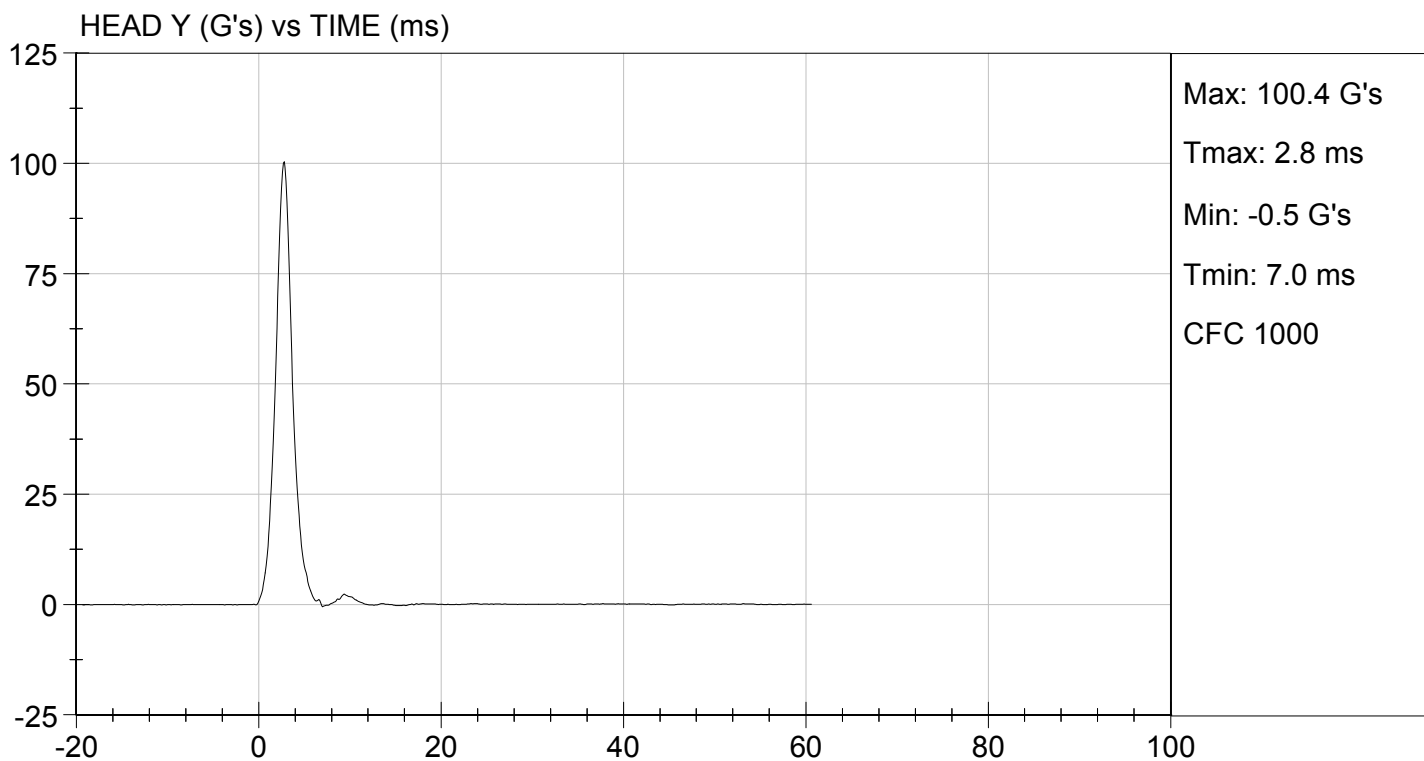
| Tested Parameter               | Units | Specification | Result               | Pass/Fail |
|--------------------------------|-------|---------------|----------------------|-----------|
| Laboratory Temperature         | deg C | 20.6 to 22.2  | 21.3                 | Pass      |
| Laboratory Relative Humidity   | %     | 10 to 70      | 17                   | Pass      |
| Peak Resultant Acceleration    | G's   | 115 to 137    | 118                  | Pass      |
| Peak Longitudinal Acceleration | G's   | +/- 15        | -3.3                 | Pass      |
| Unimodal                       | N/A   | Yes           | Yes                  | Pass      |
| Oscillations                   | N/A   | <15%          | Yes                  | Pass      |
|                                |       |               | Overall Test Results | Pass      |

  
Laboratory Technician

03/05/2014  
Test Date

  
Approved By





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

**ATD Serial No:** 306

**Test I.D:** D14812

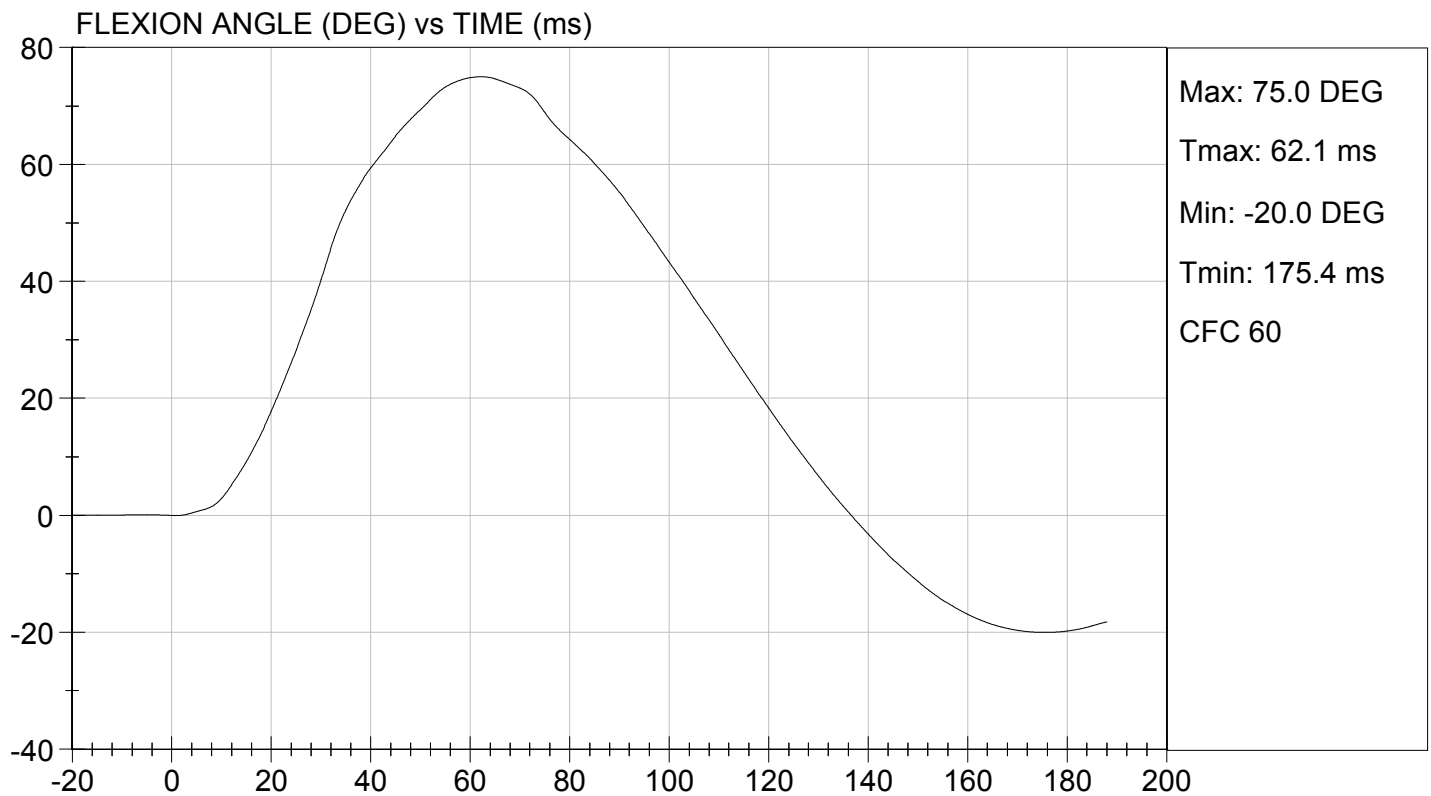
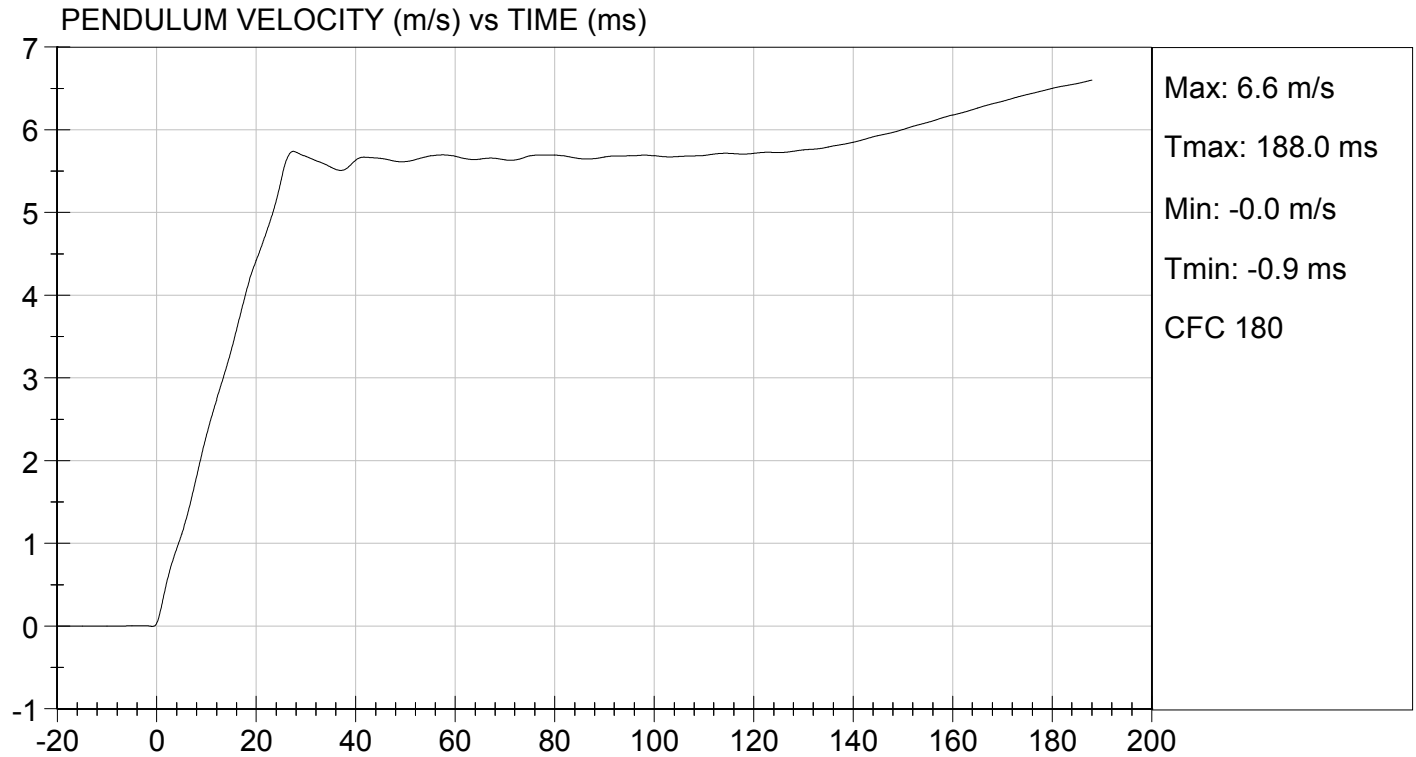
| Tested Parameter                 |           | Units | Specification | Result | Pass/Fail |
|----------------------------------|-----------|-------|---------------|--------|-----------|
| Temperature                      |           | deg C | 20.6 to 22.2  | 21.3   | Pass      |
| Humidity                         |           | %     | 10 to 70      | 17     | Pass      |
| Impact Velocity                  |           | m/s   | 5.51 to 5.63  | 5.63   | Pass      |
| Pendulum Velocity                | 10 ms     | m/s   | 2.20 to 2.80  | 2.32   | Pass      |
|                                  | 15 ms     | m/s   | 3.30 to 4.10  | 3.34   | Pass      |
|                                  | 20 ms     | m/s   | 4.40 to 5.40  | 4.42   | Pass      |
|                                  | 25 ms     | m/s   | 5.40 to 6.10  | 5.40   | Pass      |
|                                  | 25-100 ms | m/s   | 5.50 to 6.20  | 5.74   | Pass      |
| Maximum D-Plane Rotation         |           | deg   | 71 to 81      | 75     | Pass      |
| Time of Maximum D-Plane Rotation |           | ms    | 50 to 70      | 62     | 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      |

  
 Laboratory Technician

03/05/2014

Test Date

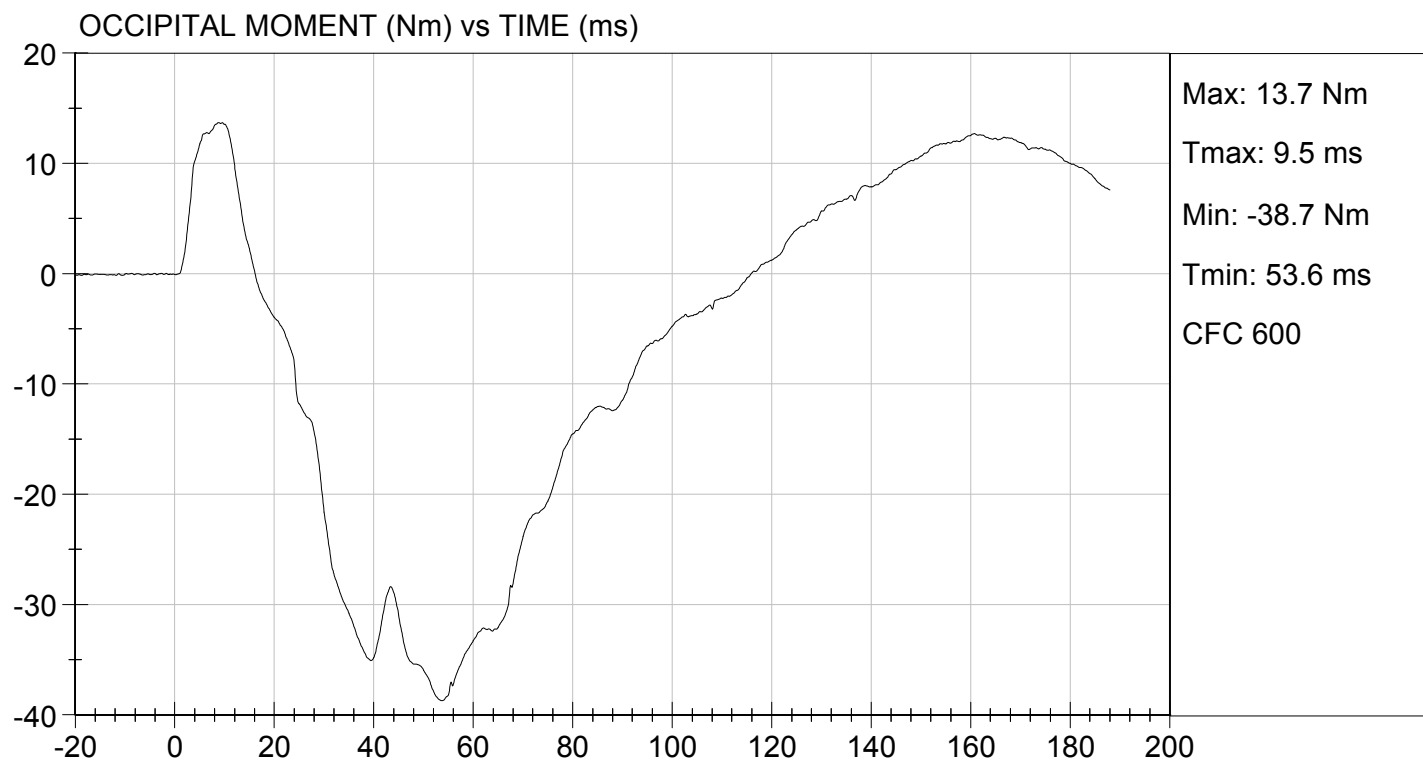
  
 Approved By





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

TEST DATE: 03/05/2014  
TEST #: D14812



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

**ATD Serial No:** 306

**Test ID:** D14813

| Tested Parameter                | Units | Specification | Result | Pass/Fail |
|---------------------------------|-------|---------------|--------|-----------|
| Laboratory Temperature          | deg C | 20.6 to 22.2  | 20.9   | Pass      |
| Laboratory Relative Humidity    | %     | 10 to 70      | 16     | 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      | 29     | Pass      |
| Upper Spine (T1) Y Acceleration | G's   | 17 to 22      | 18     | Pass      |
| Overall Test Results            |       |               | Pass   |           |

Jessica Hall  
Laboratory Technician

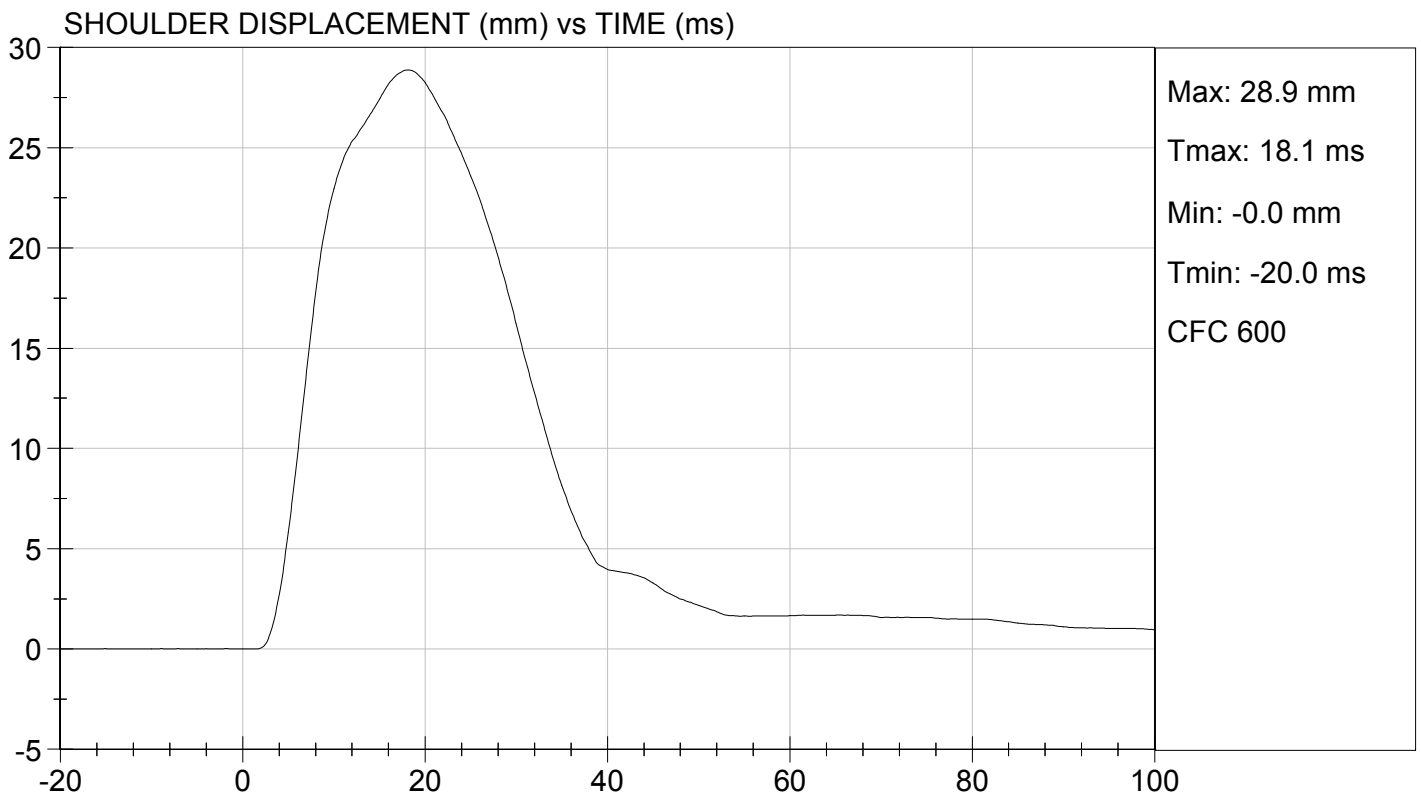
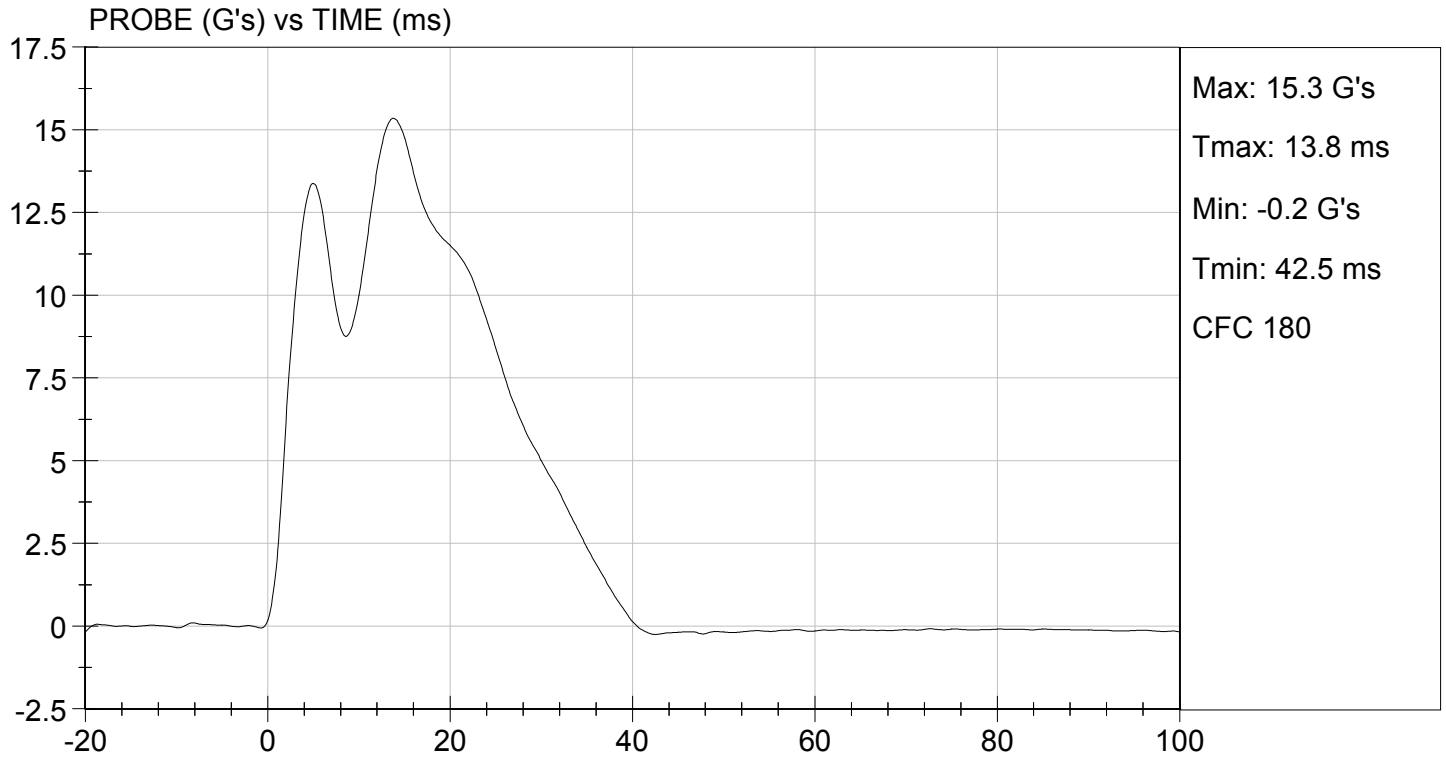
03/05/2014  
Test Date

David Winkelbauer  
Approved By



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

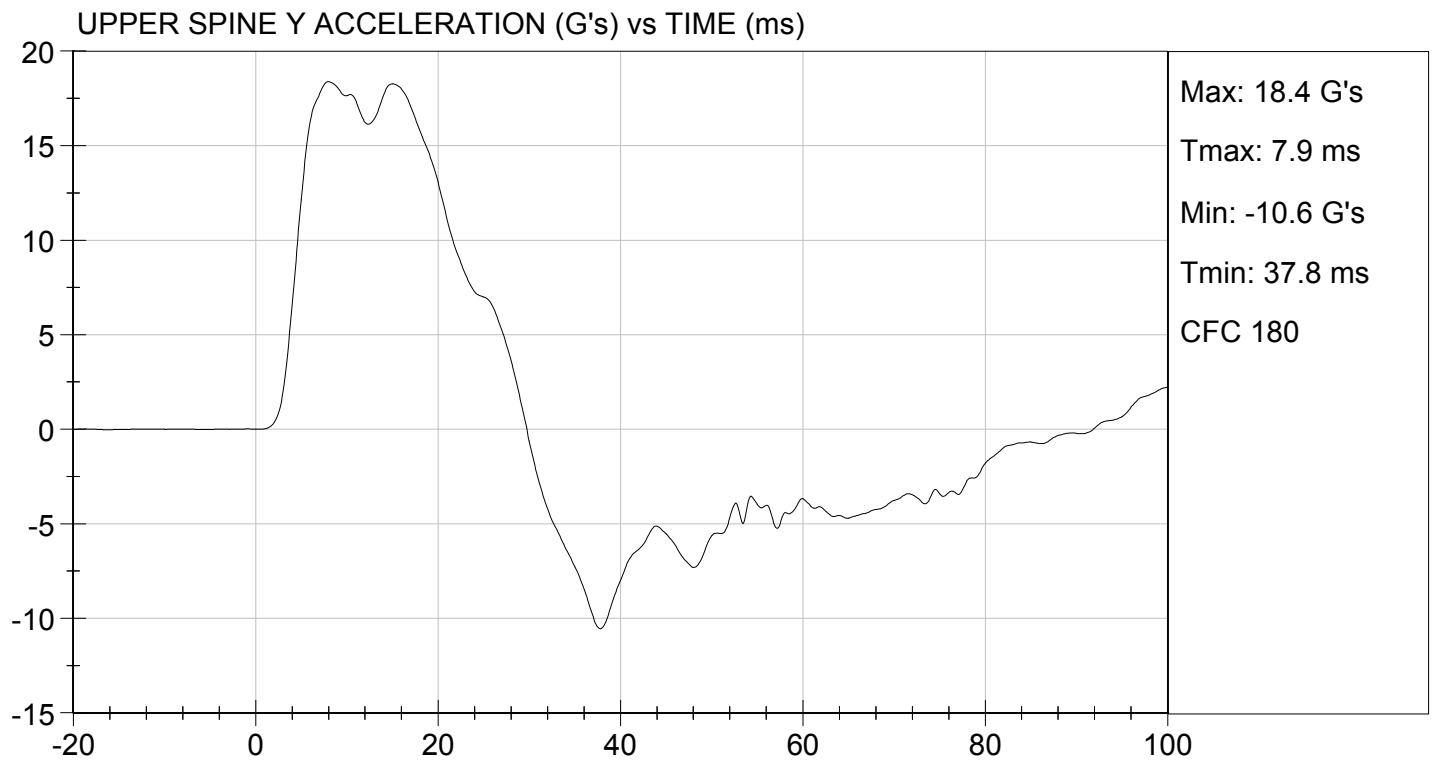
TEST DATE: 03/05/2014  
TEST #: D14813





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

TEST DATE: 03/05/2014  
TEST #: D14813

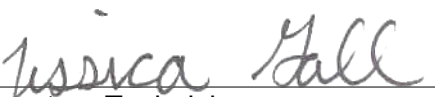


**MGA RESEARCH CORPORATION**  
**THORAX (WITH ARM) IMPACT TEST**  
**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D14814

| Tested Parameter                 | Units | Specification | Result | Pass/Fail |
|----------------------------------|-------|---------------|--------|-----------|
| Temperature                      | deg C | 20.6 to 22.2  | 20.9   | Pass      |
| Humidity                         | %     | 10 to 70      | 16     | 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      | 26     | Pass      |
| Middle Rib Displacement          | mm    | 30 to 36      | 30     | Pass      |
| Lower Rib Displacement           | mm    | 32 to 38      | 33     | Pass      |
| Upper Spine (T1) Y Acceleration  | G's   | 34 to 43      | 40     | Pass      |
| Lower Spine (T12) Y Acceleration | G's   | 29 to 37      | 34     | Pass      |
| Overall Test Results             |       |               |        | Pass      |

  
 Laboratory Technician

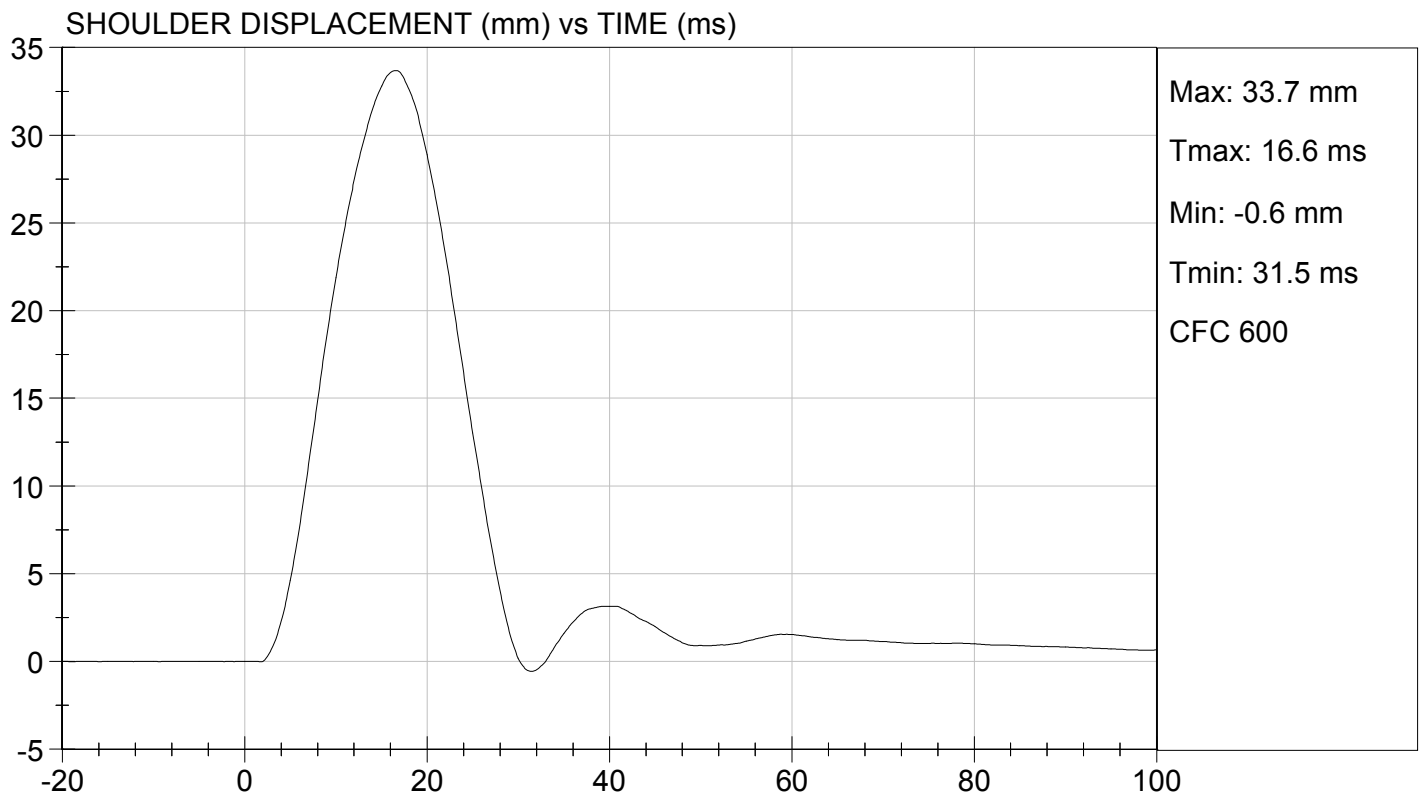
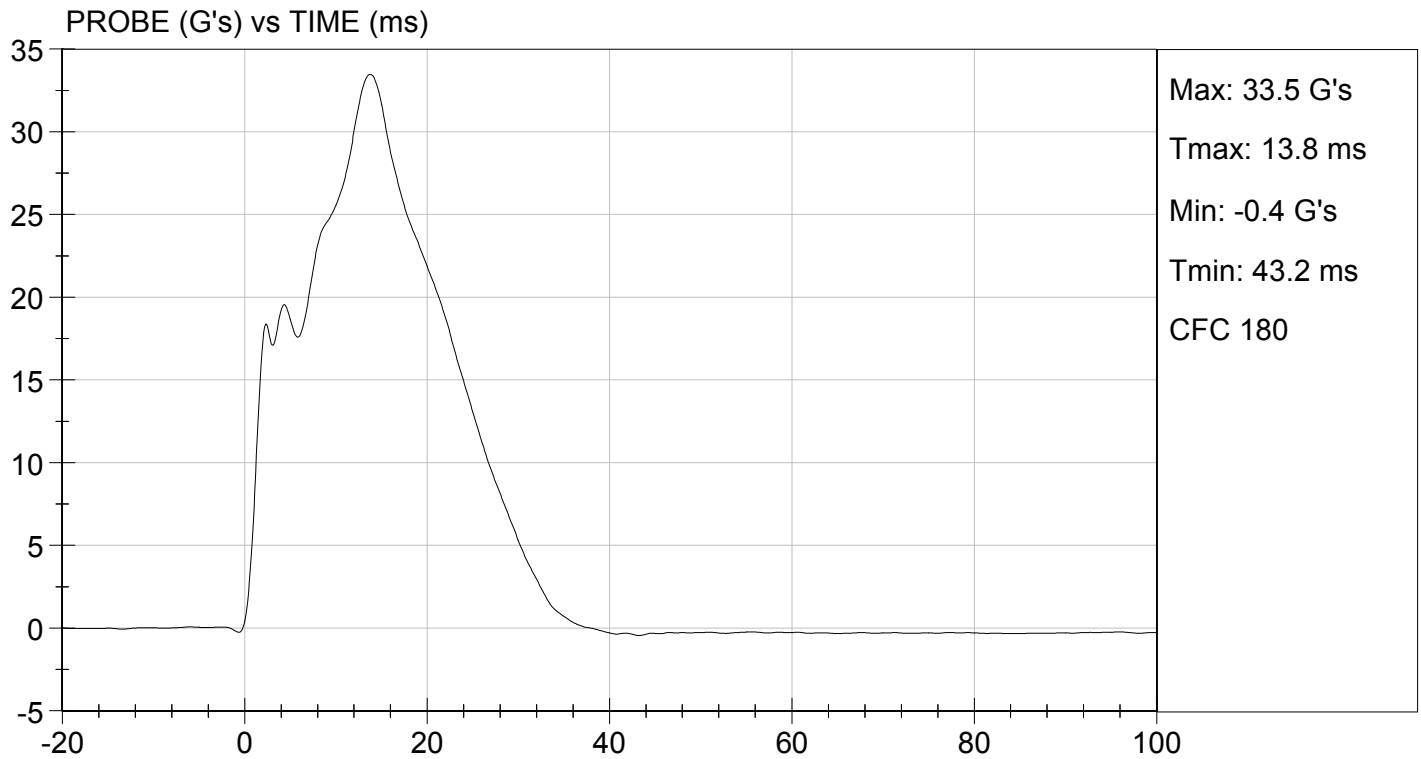
03/05/2014  
 Test Date

  
 Approved By



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

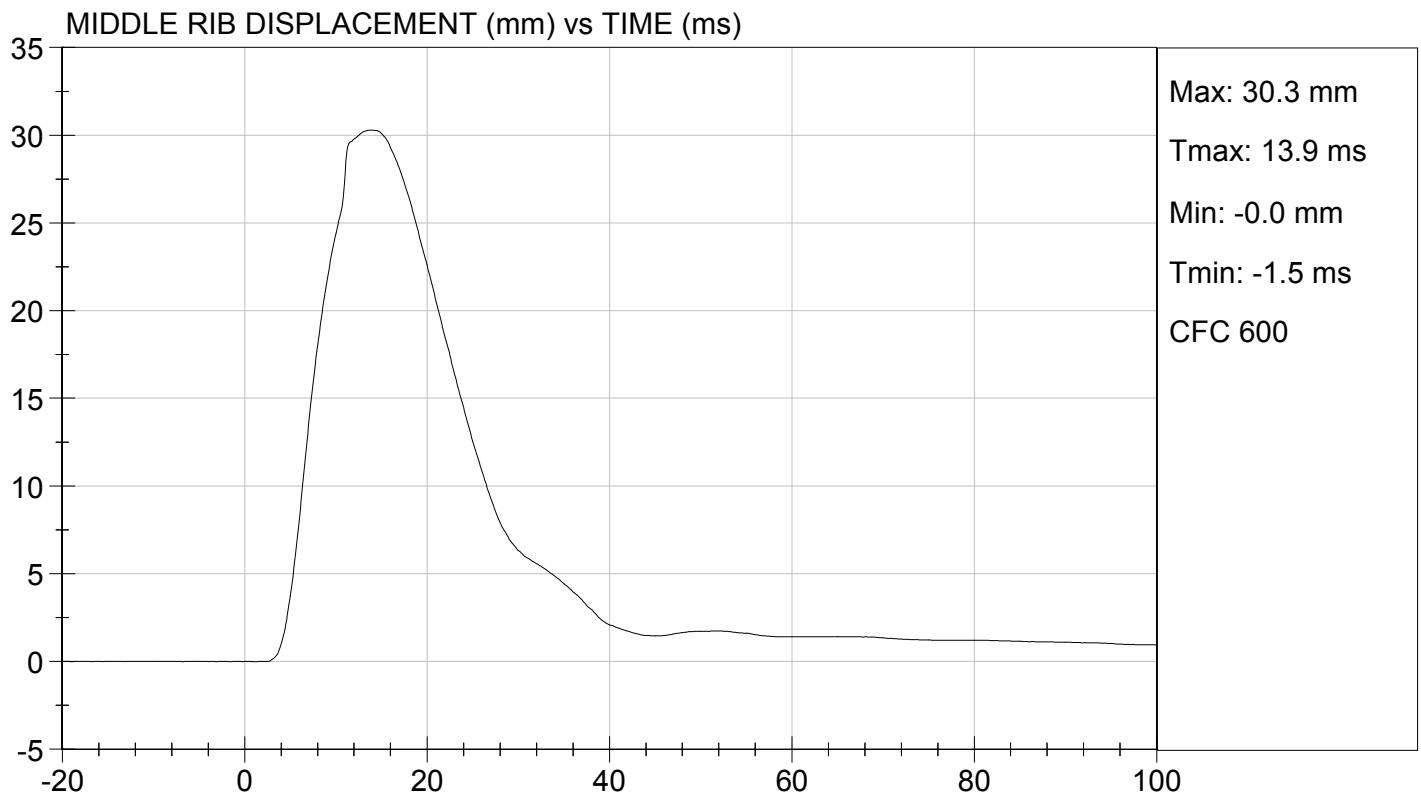
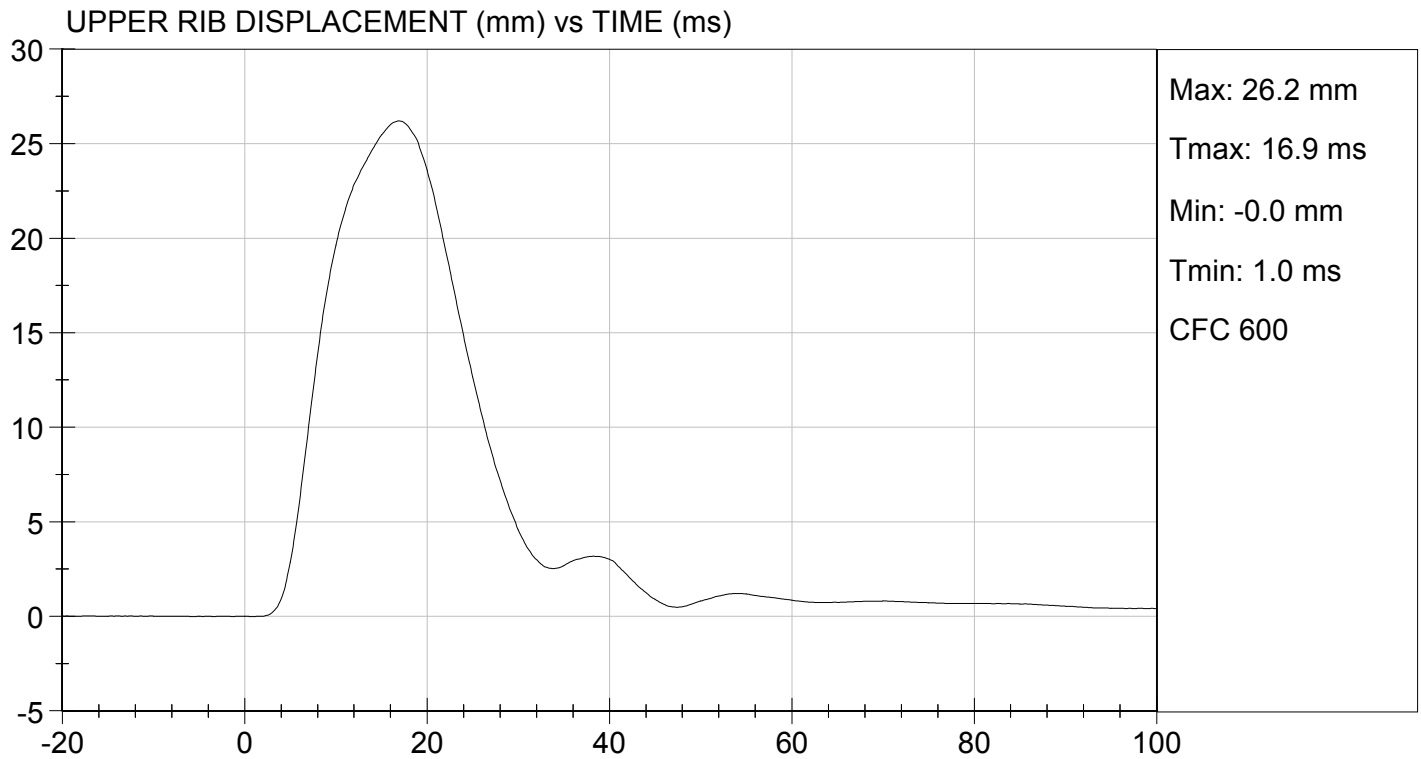
TEST DATE: 03/05/2014  
TEST #: D14814





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

TEST DATE: 03/05/2014  
TEST #: D14814

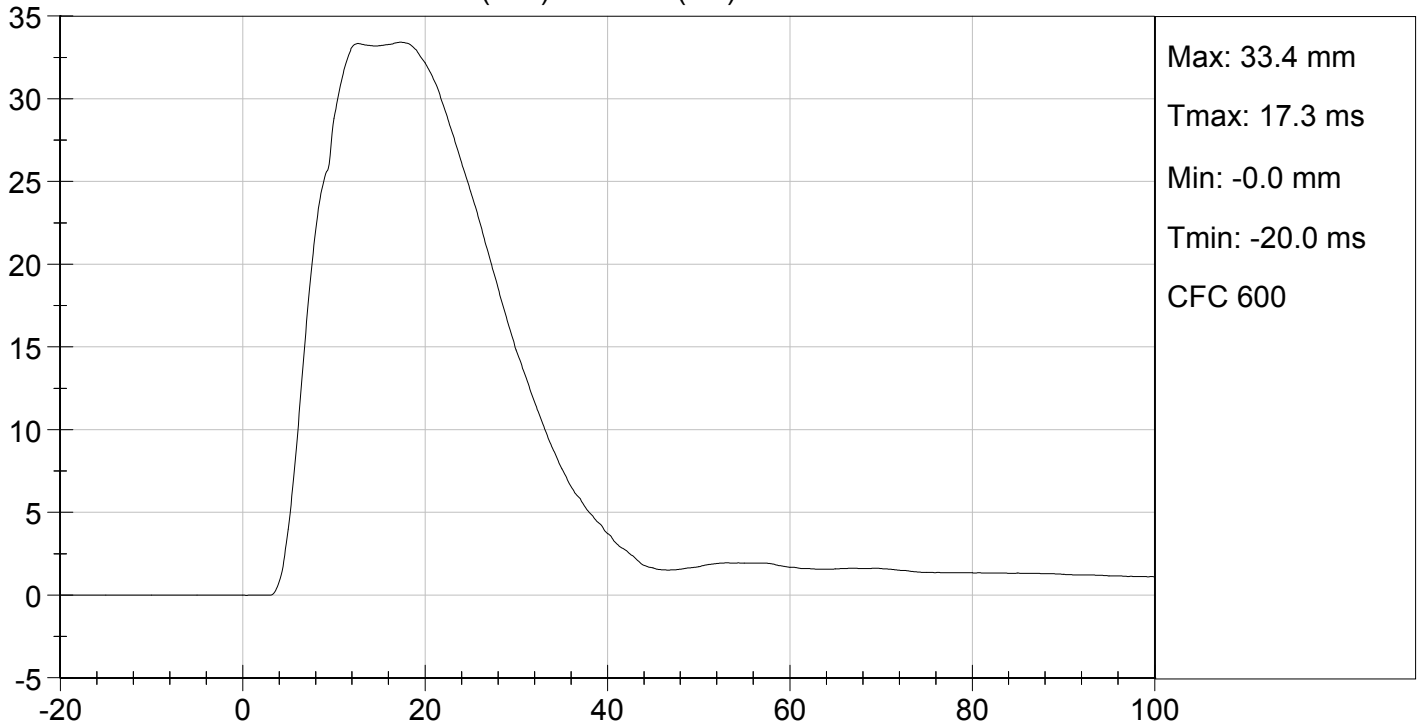




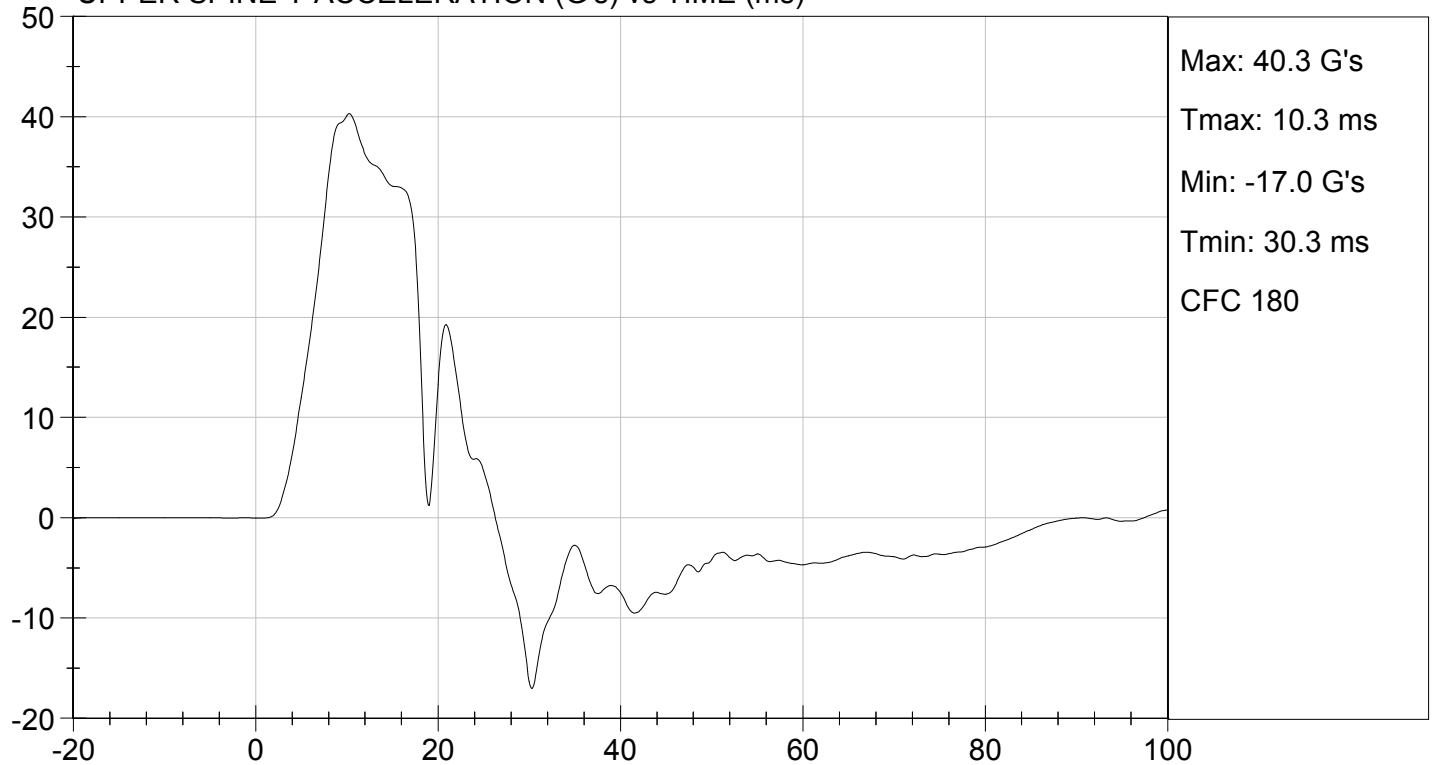
TEST DESC: THORAX IMPACT WITH ARM  
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 03/05/2014  
TEST #: D14814

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



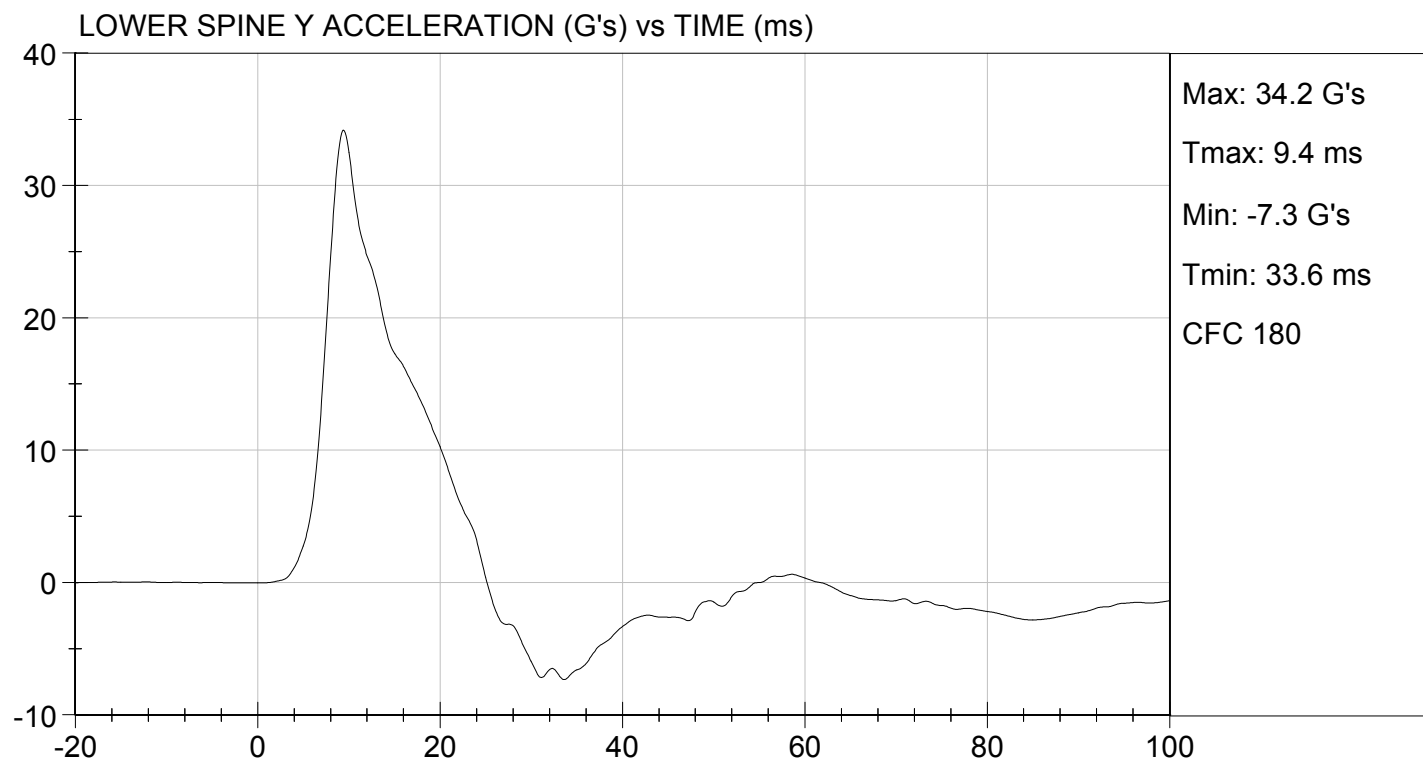
UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)





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

TEST DATE: 03/05/2014  
TEST #: D14814

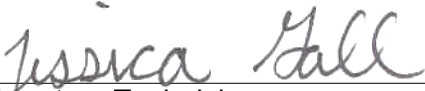


**MGA RESEARCH CORPORATION**  
**THORAX (WITHOUT ARM) IMPACT TEST**  
**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D14815

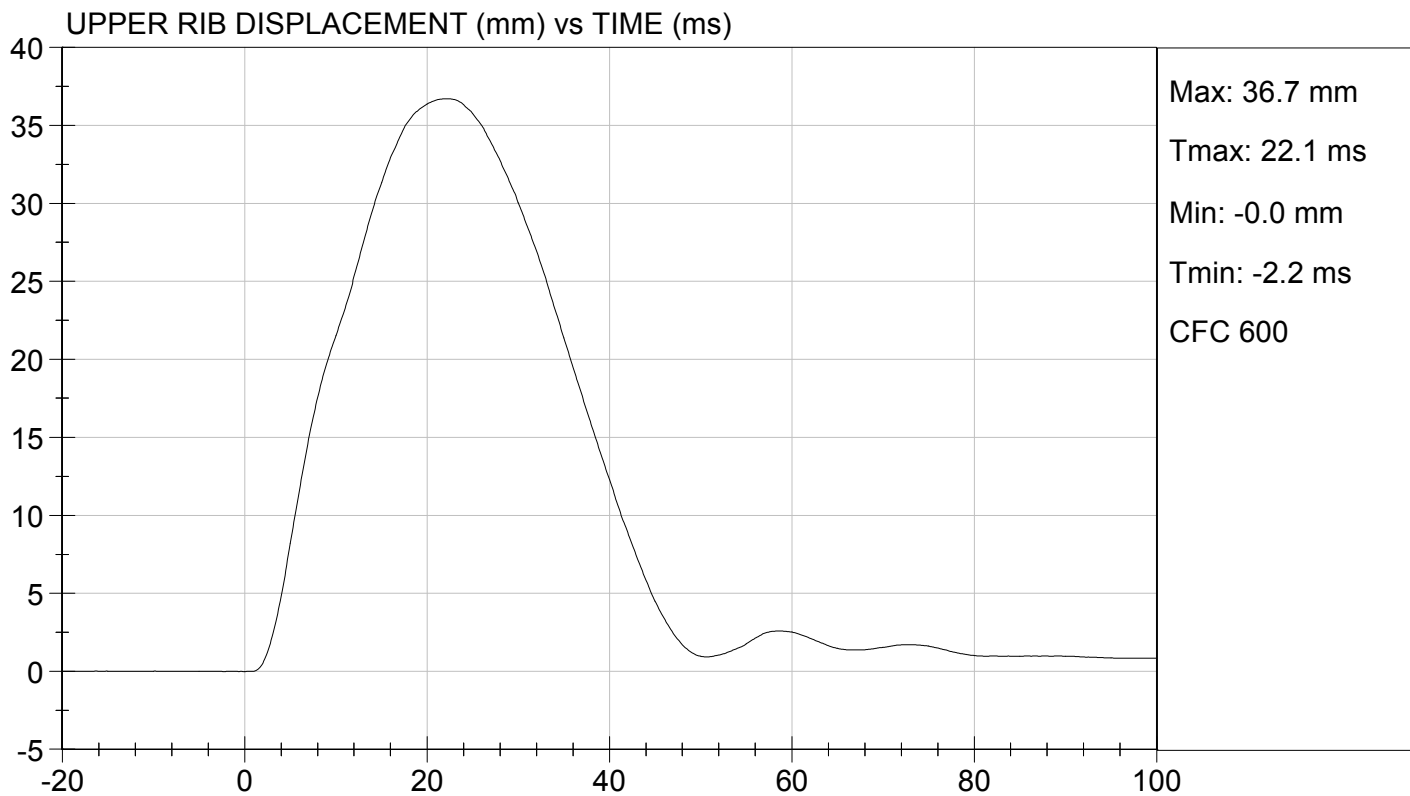
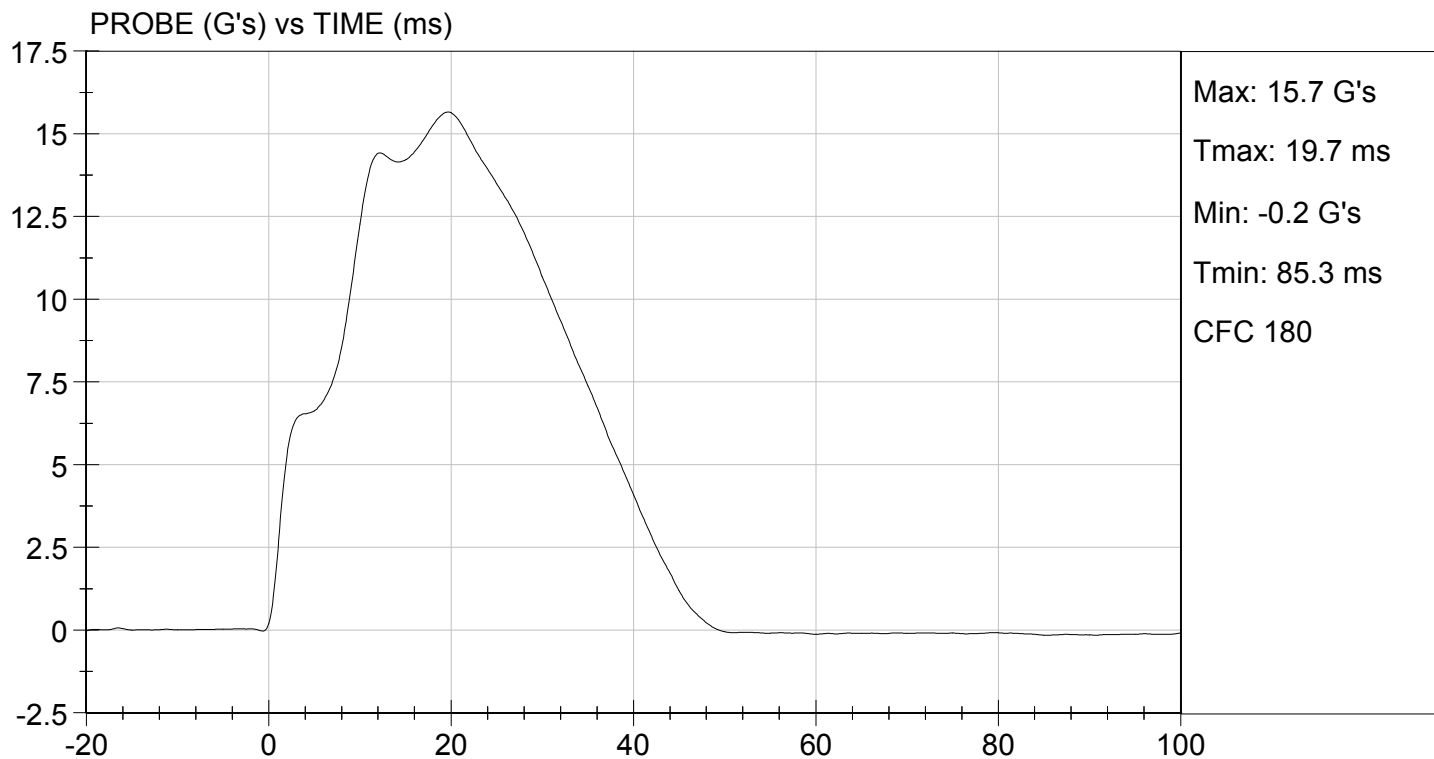
| Tested Parameter                 | Units | Specification | Result | Pass/Fail |
|----------------------------------|-------|---------------|--------|-----------|
| Temperature                      | deg C | 20.6 to 22.2  | 20.9   | Pass      |
| Humidity                         | %     | 10 to 70      | 16     | Pass      |
| Impact Velocity                  | m/s   | 4.20 to 4.40  | 4.38   | Pass      |
| Maximum Probe Acceleration       | G's   | 14 to 18      | 16     | Pass      |
| Upper Rib Displacement           | mm    | 32 to 40      | 37     | 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      | 16     | Pass      |
| Lower Spine (T12) Y Acceleration | G's   | 7 to 11       | 9      | Pass      |
| Overall Test Results             |       |               |        | Pass      |

  
 Laboratory Technician

03/05/2014

Test Date

  
 Approved By

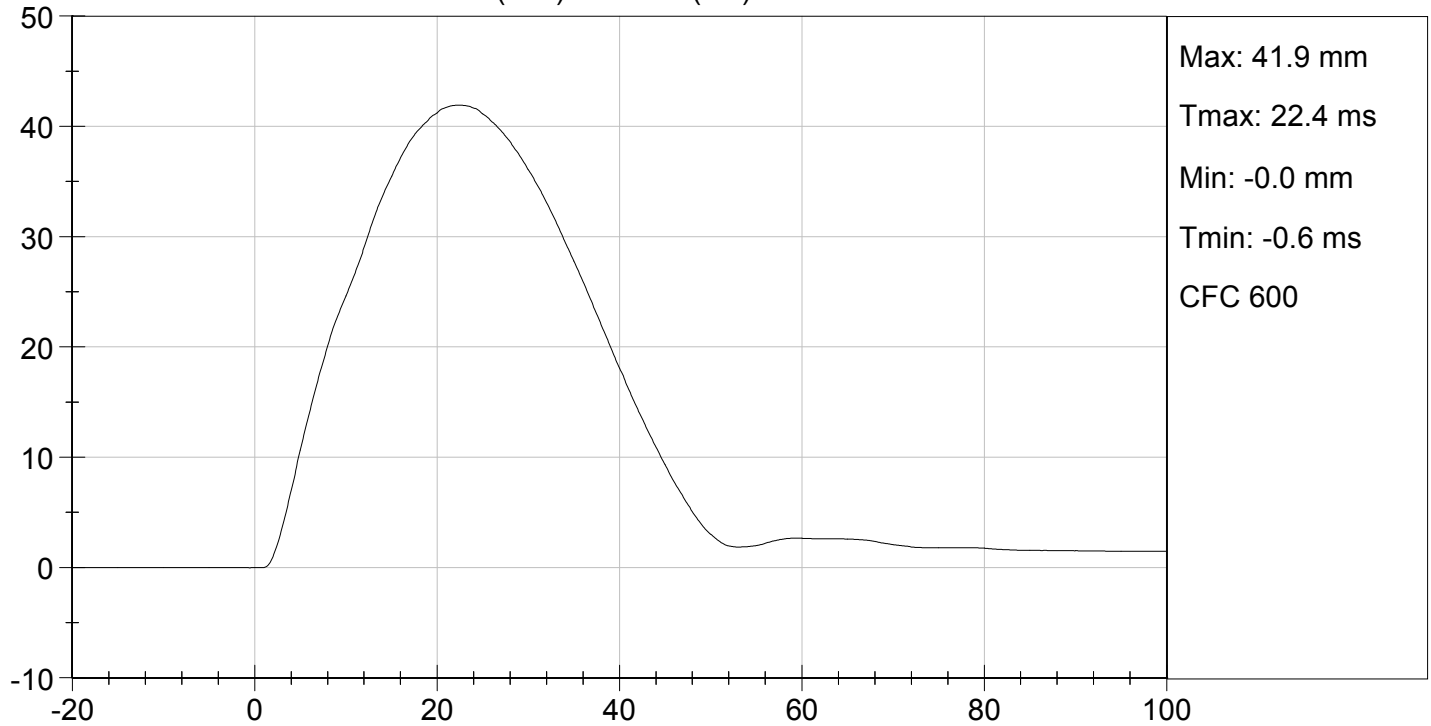




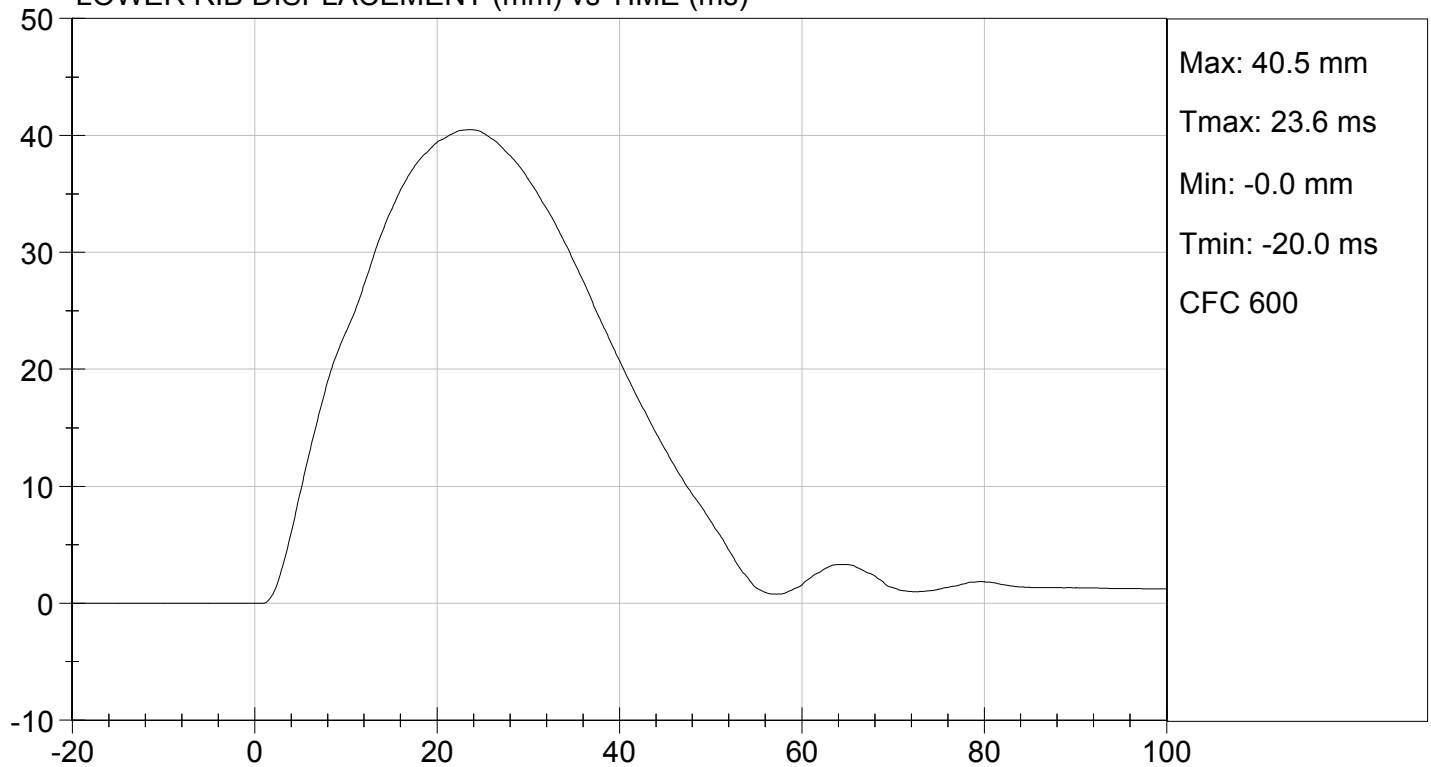
TEST DESC: THORAX IMPACT WITHOUT ARM  
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 03/05/2014  
TEST #: D14815

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

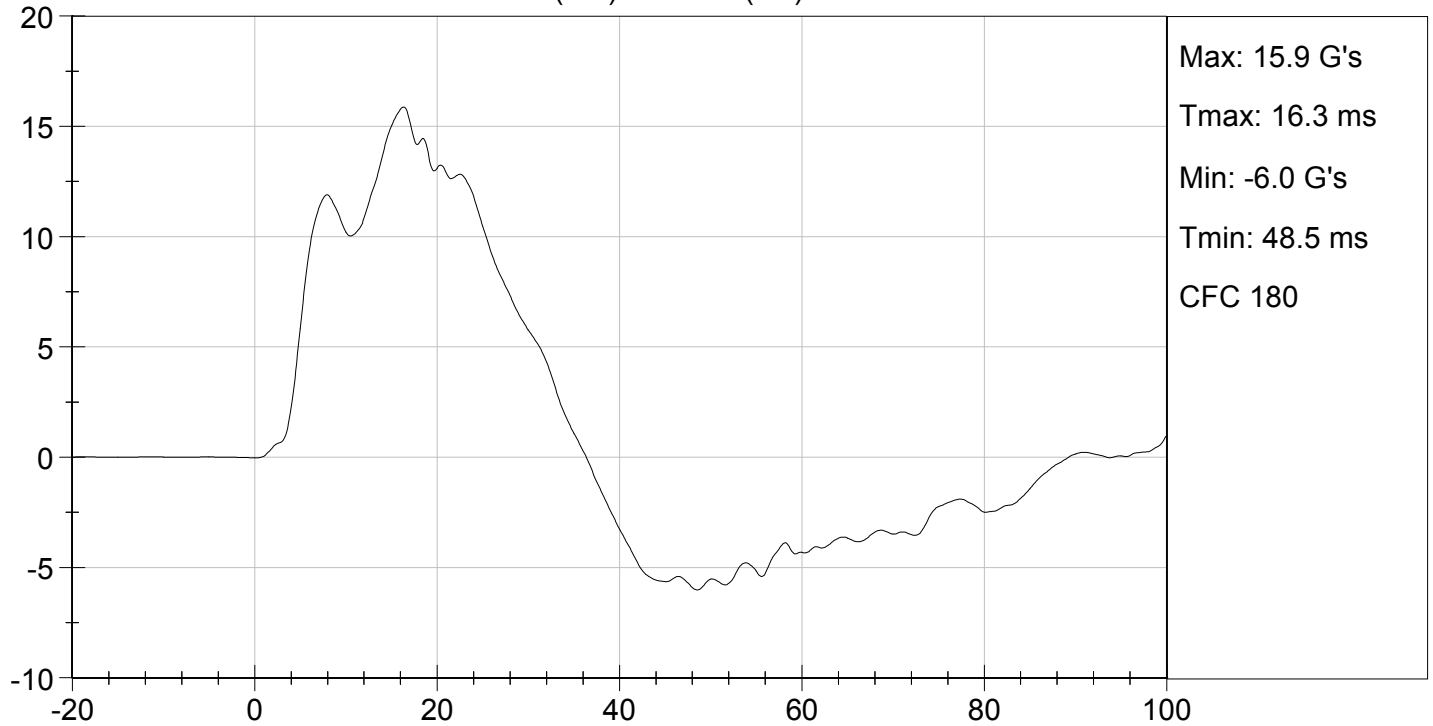




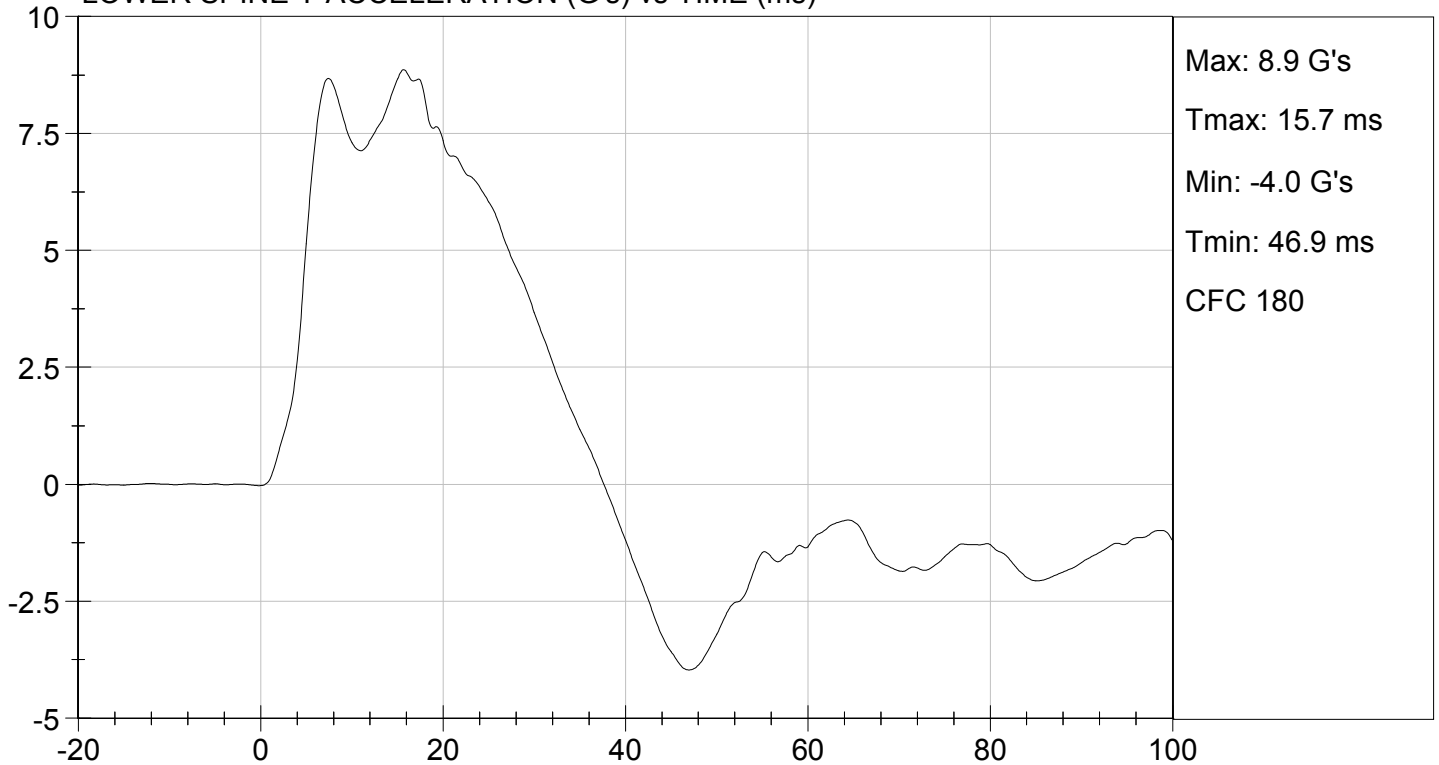
TEST DESC: THORAX IMPACT WITHOUT ARM  
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 03/05/2014  
TEST #: D14815

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

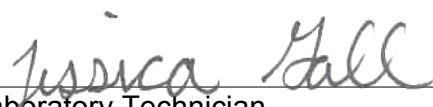


LOWER SPINE Y ACCELERATION (G's) vs TIME (ms)



**MGA RESEARCH CORPORATION****ABDOMINAL IMPACT TEST****SID-IIs BUILD LEVEL D DUMMY****ATD Serial No:** 306**Test I.D:** D14816

| Tested Parameter                 | Units | Specification | Result | Pass/Fail |
|----------------------------------|-------|---------------|--------|-----------|
| Temperature                      | deg C | 20.6 to 22.2  | 20.9   | Pass      |
| Humidity                         | %     | 10 to 70      | 16     | Pass      |
| Impact Velocity                  | m/s   | 4.20 to 4.40  | 4.38   | Pass      |
| Maximum Probe Acceleration       | G's   | 12 to 16      | 14     | Pass      |
| Upper Abdomen Rib Displacement   | mm    | 36 to 47      | 41     | Pass      |
| Lower Abdomen Rib Displacement   | mm    | 33 to 44      | 41     | Pass      |
| Lower Spine (T12) Y Acceleration | G's   | 9 to 14       | 10     | Pass      |
| Overall Test Results             |       |               |        | Pass      |

  
Laboratory Technician

03/05/2014

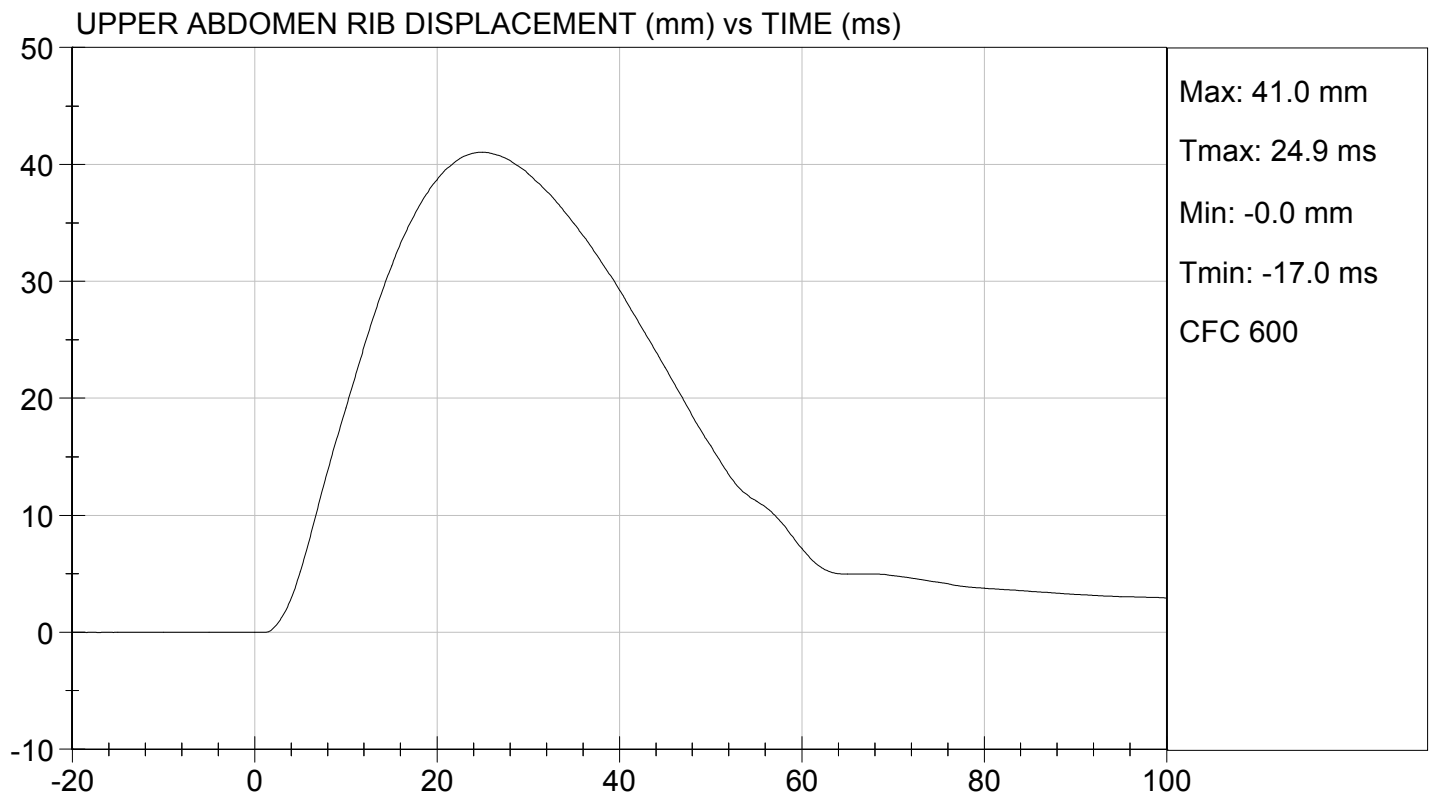
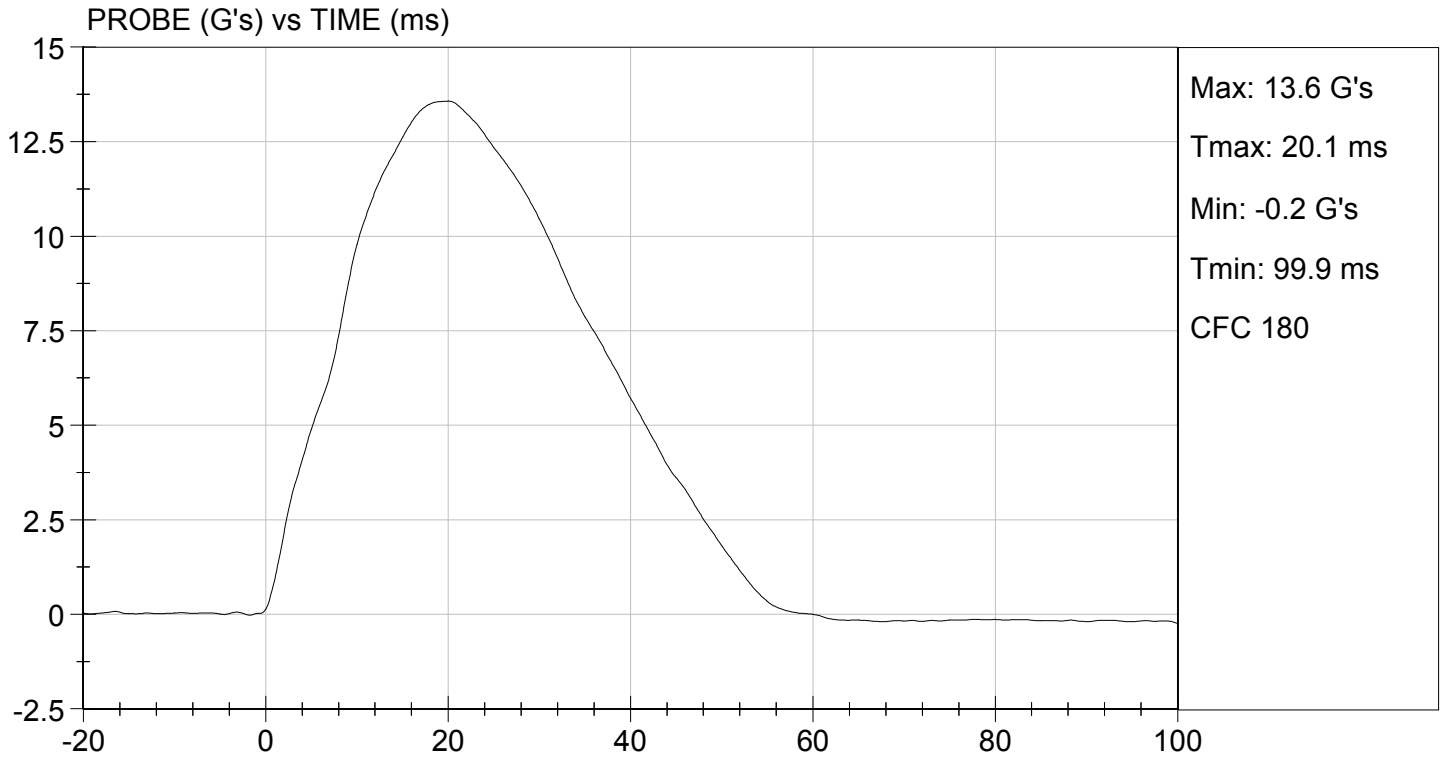
Test Date

  
Approved By



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

TEST DATE: 03/05/2014  
TEST #: D14816

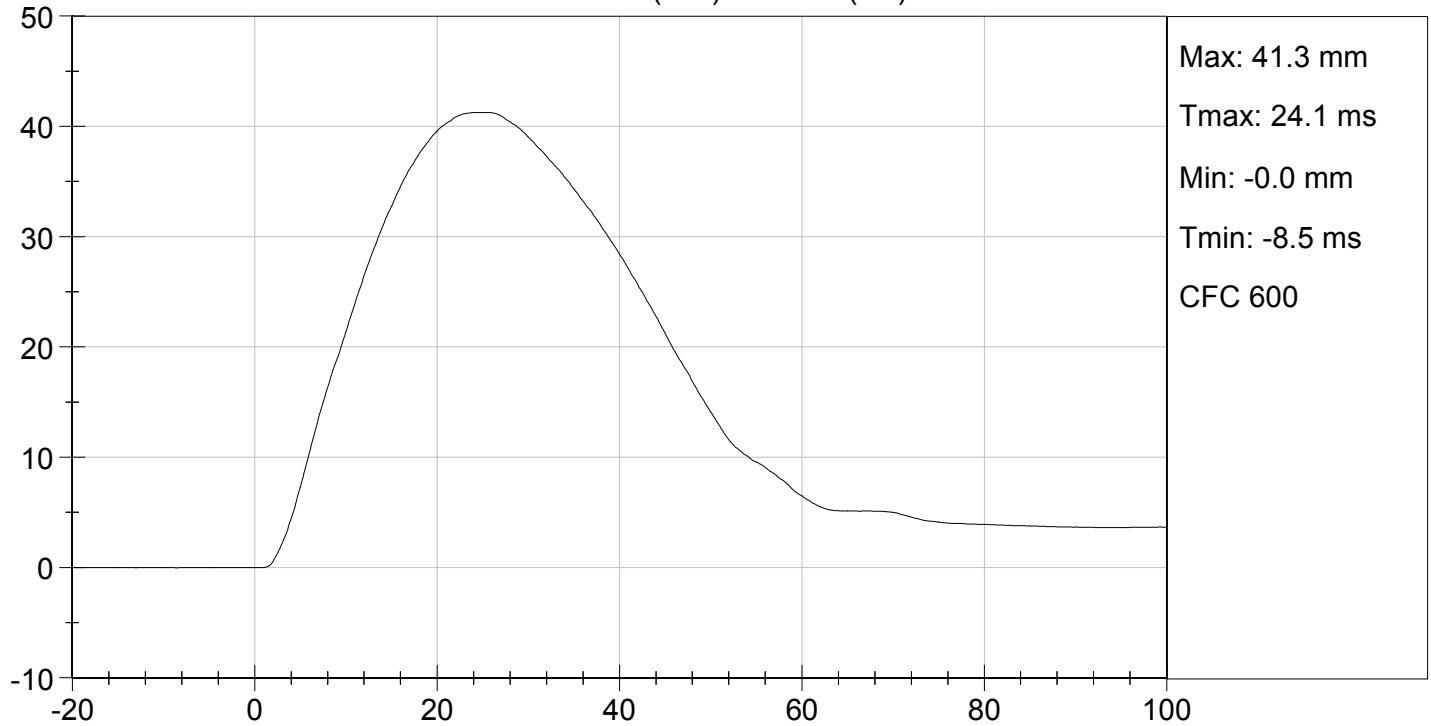




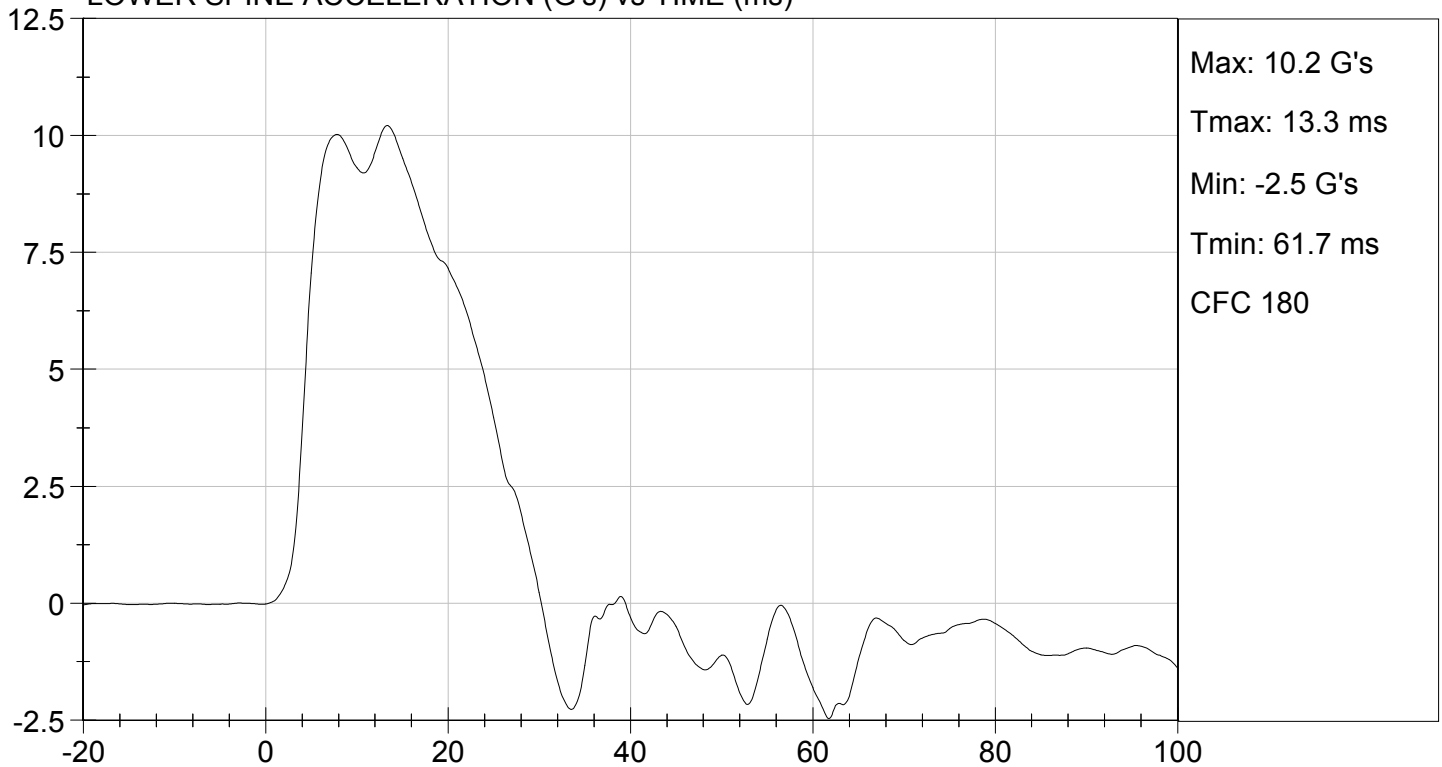
TEST DESC: ABDOMEN IMPACT  
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 03/05/2014  
TEST #: D14816

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:** D14817

| Tested Parameter                 | Units | Specification | Result | Pass/Fail |
|----------------------------------|-------|---------------|--------|-----------|
| Temperature                      | deg C | 20.6 to 22.2  | 20.9   | Pass      |
| Humidity                         | %     | 10 to 70      | 16     | 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      |

Jessica Hall  
Laboratory Technician

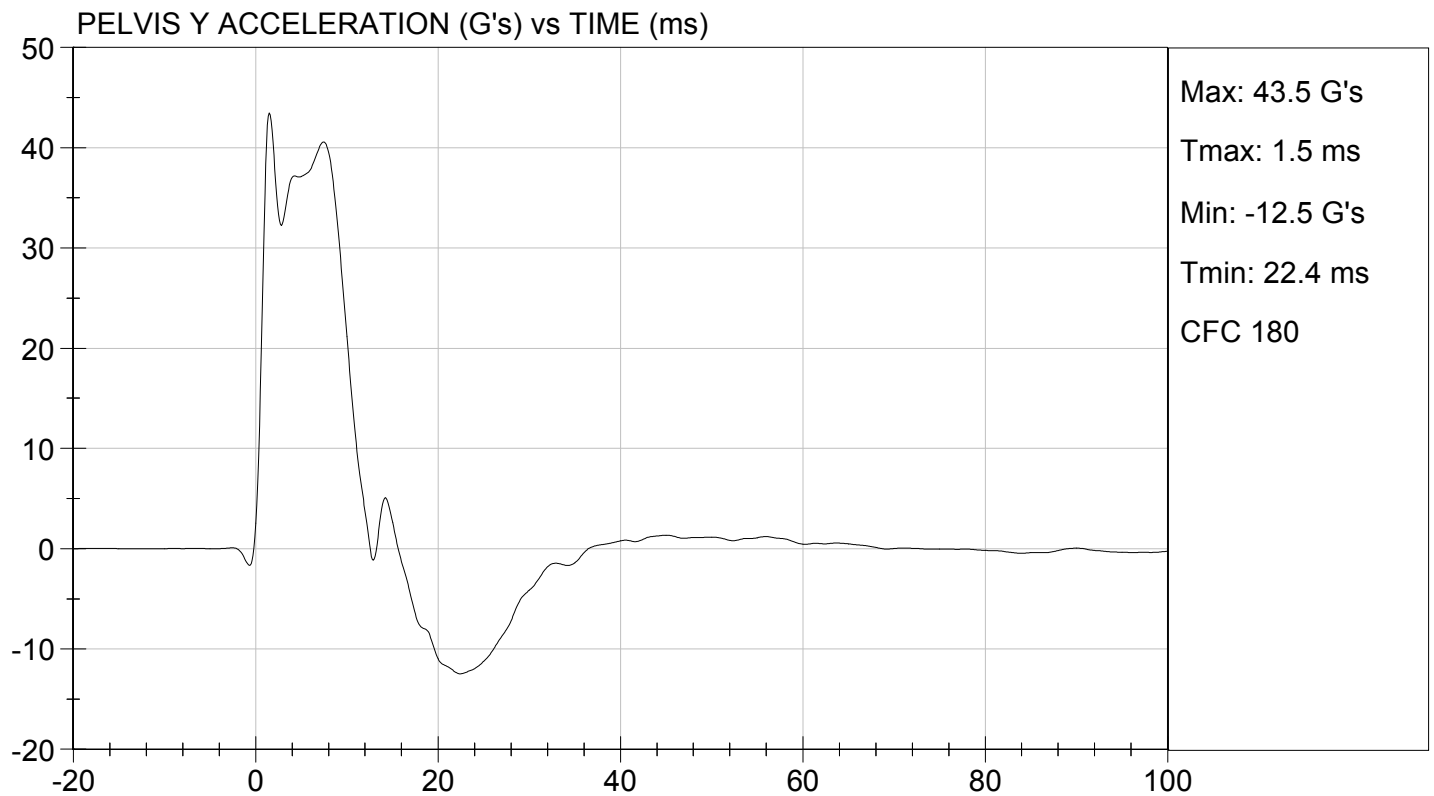
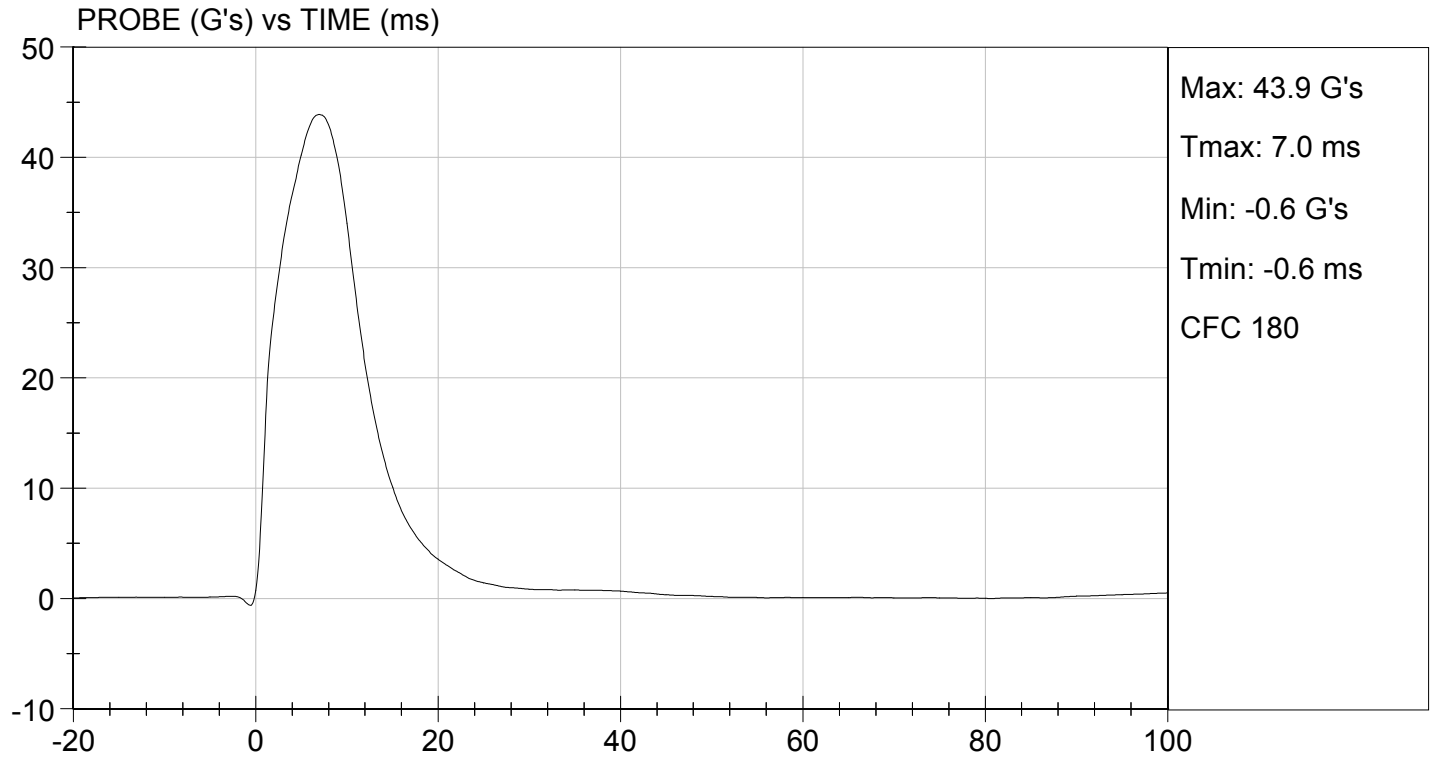
03/05/2014  
Test Date

David Winkelbauer  
Approved By



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

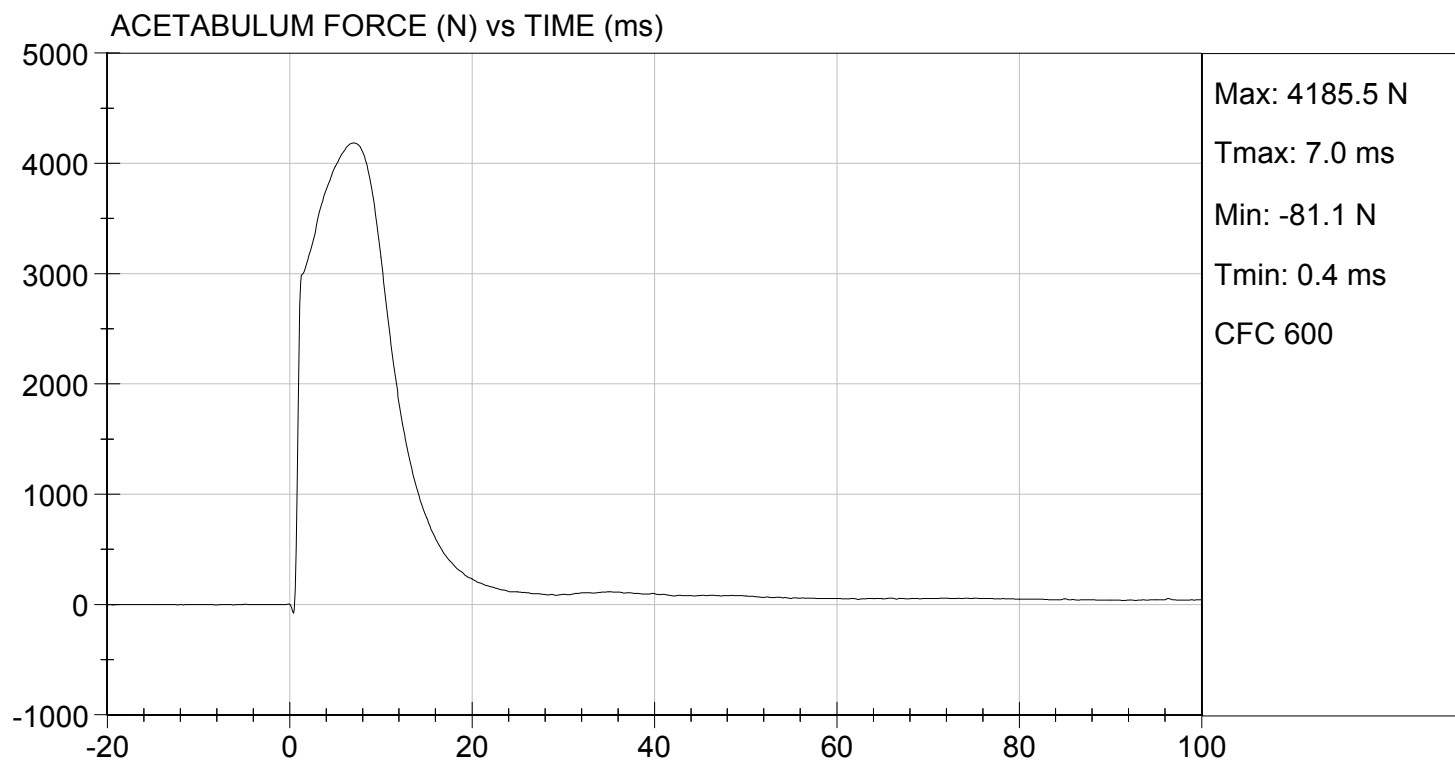
TEST DATE: 03/05/2014  
TEST #: D14817





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

TEST DATE: 03/05/2014  
TEST #: D14817



**MGA RESEARCH CORPORATION**

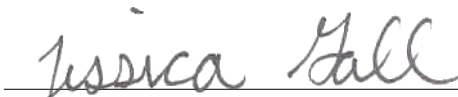
**ILIAC IMPACT TEST**

**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D14818

| Tested Parameter           | Units | Specification | Result | Pass/Fail |
|----------------------------|-------|---------------|--------|-----------|
| Temperature                | deg C | 20.6 to 22.2  | 20.9   | Pass      |
| Humidity                   | %     | 10 to 70      | 16     | Pass      |
| Impact Velocity            | m/s   | 4.20 to 4.40  | 4.27   | Pass      |
| Maximum Probe Acceleration | G's   | 36 to 45      | 40     | Pass      |
| Pelvis Y Acceleration      | G's   | 28 to 39      | 34     | Pass      |
| Peak Pelvis Iliac Force    | N     | 4100 to 5100  | 4,696  | Pass      |
| Overall Test Results       |       |               |        | Pass      |

  
Laboratory Technician

03/05/2014

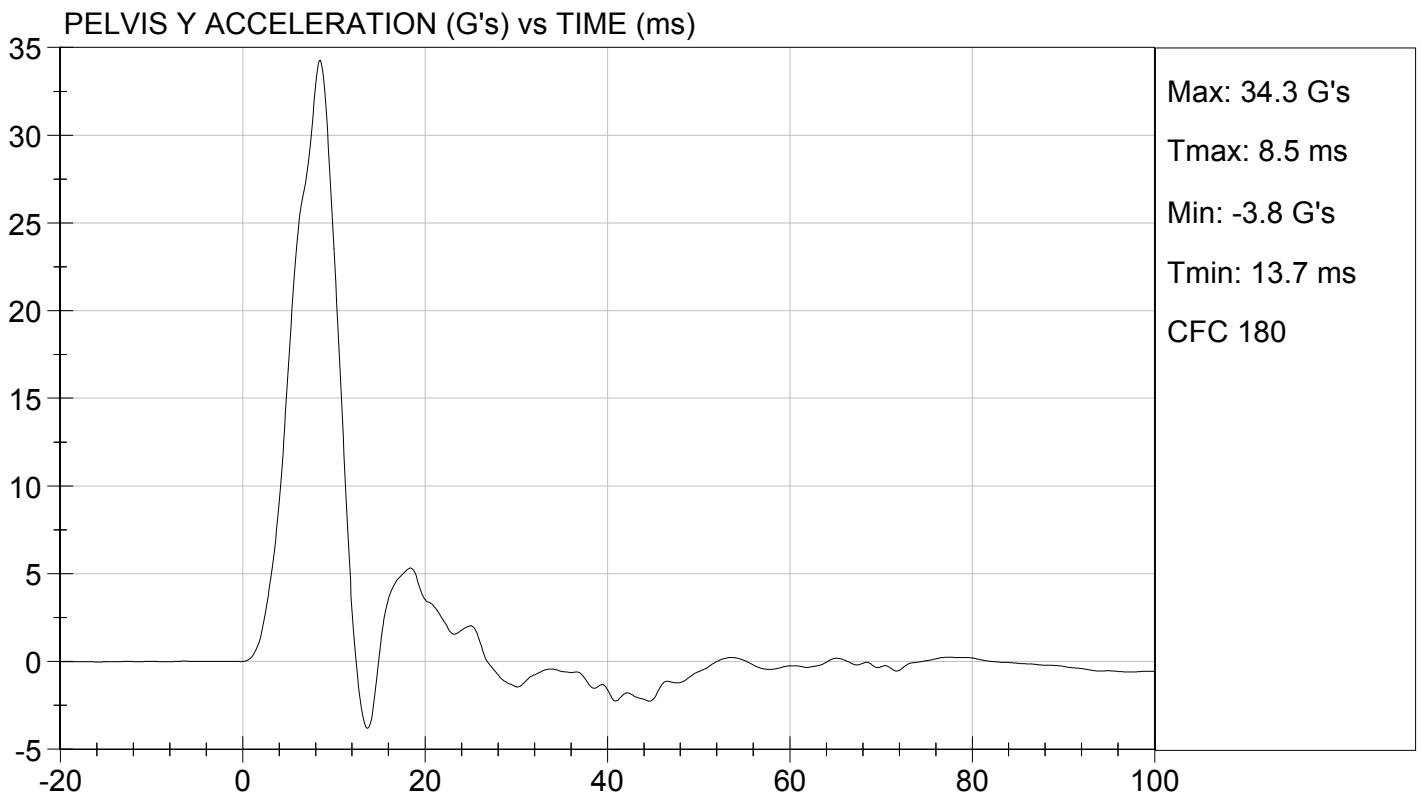
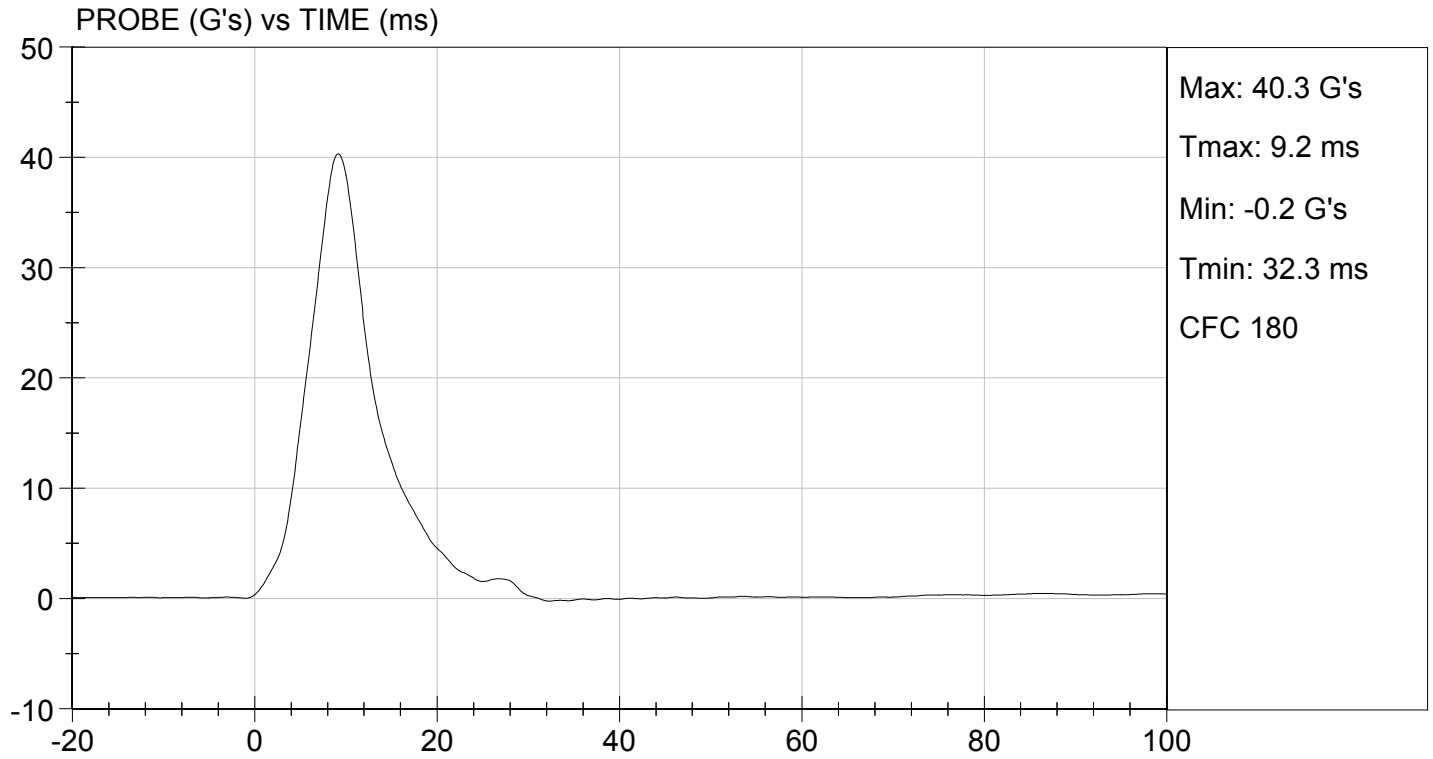
Test Date

  
Approved By



TEST DESC: ILLIAC  
VELOCITY: 14.01 ft/s, 4.27 m/s

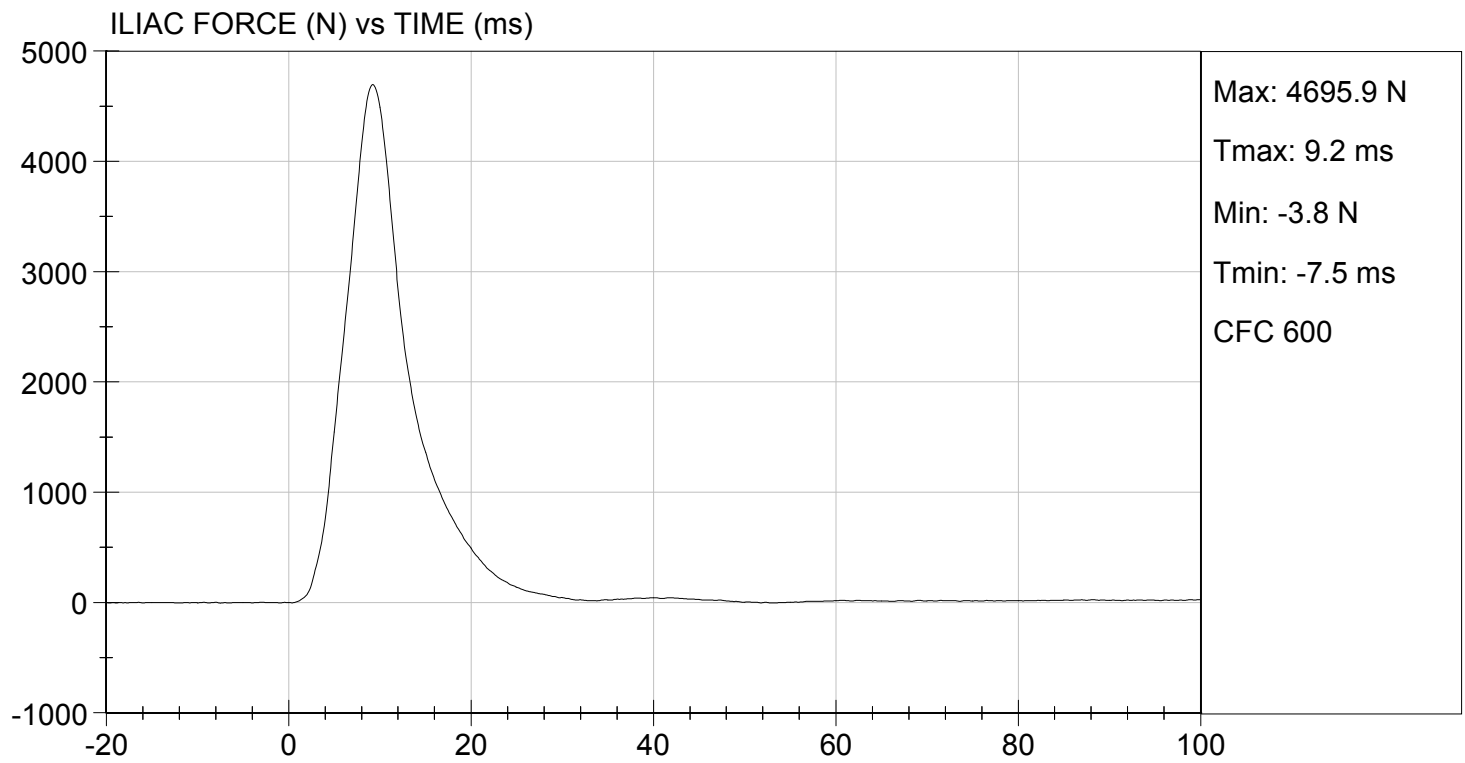
TEST DATE: 03/05/2014  
TEST #: D14818





TEST DESC: ILLIAC  
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 03/05/2014  
TEST #: D14818



**SID-IIsD External Measurements**  
**SN: 306**

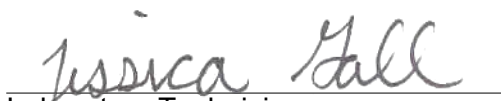
| <b>No.</b> | <b>Name</b>                   | <b>Spec. (mm)</b> | <b>Result</b> | <b>Pass/Fail</b> |
|------------|-------------------------------|-------------------|---------------|------------------|
| <b>A</b>   | Sitting Height                | 772 - 788         | 785           | Pass         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

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

**ATD Serial No:** 306

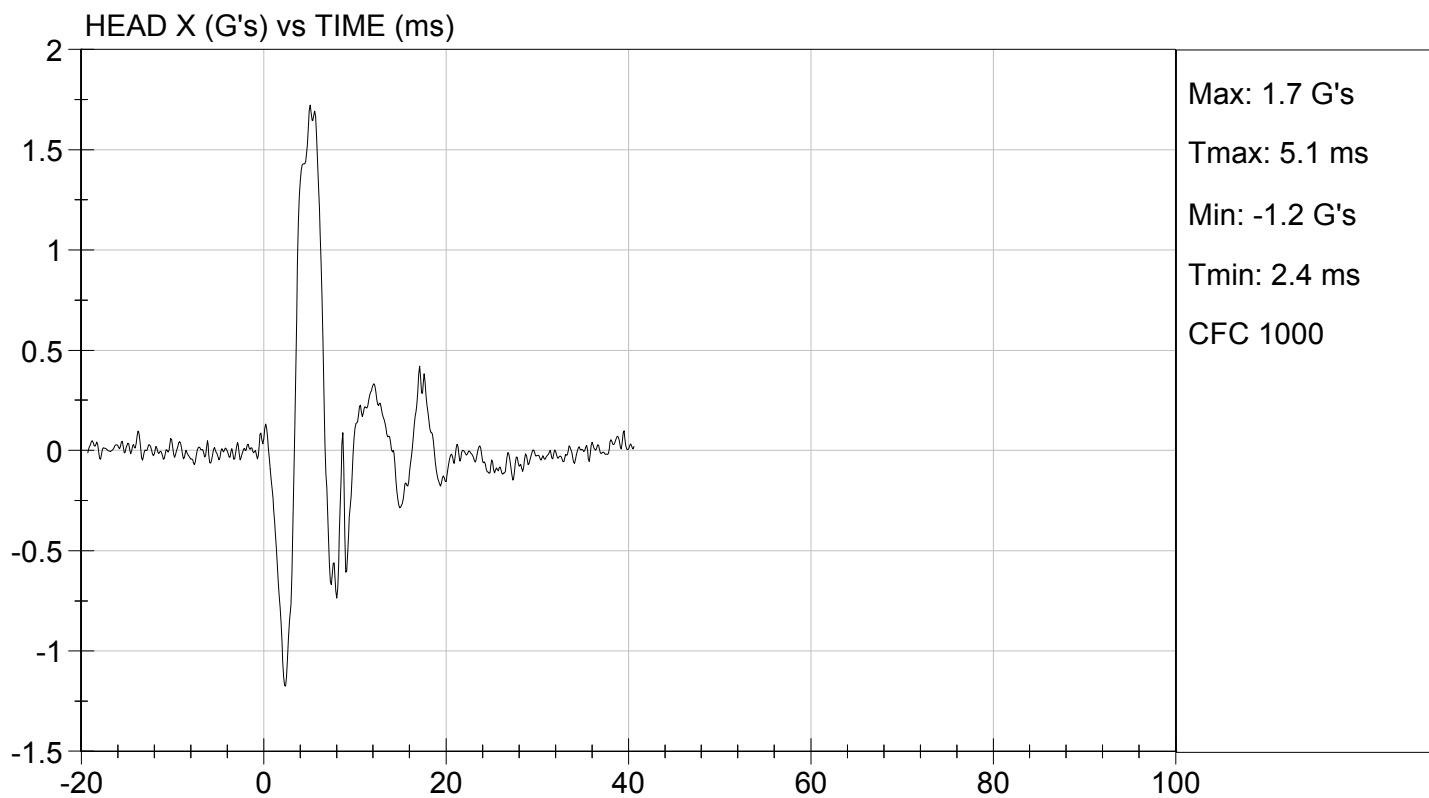
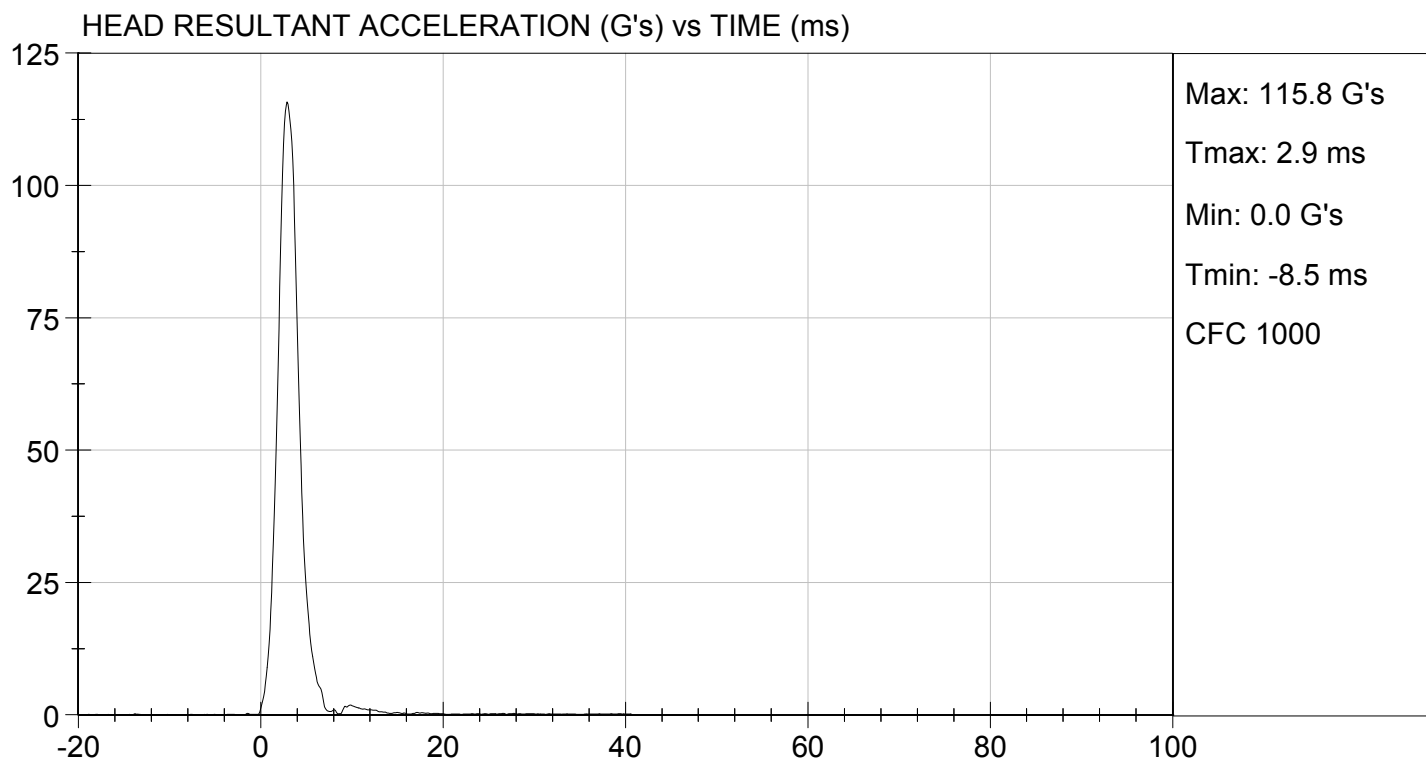
**Test ID:** D141621

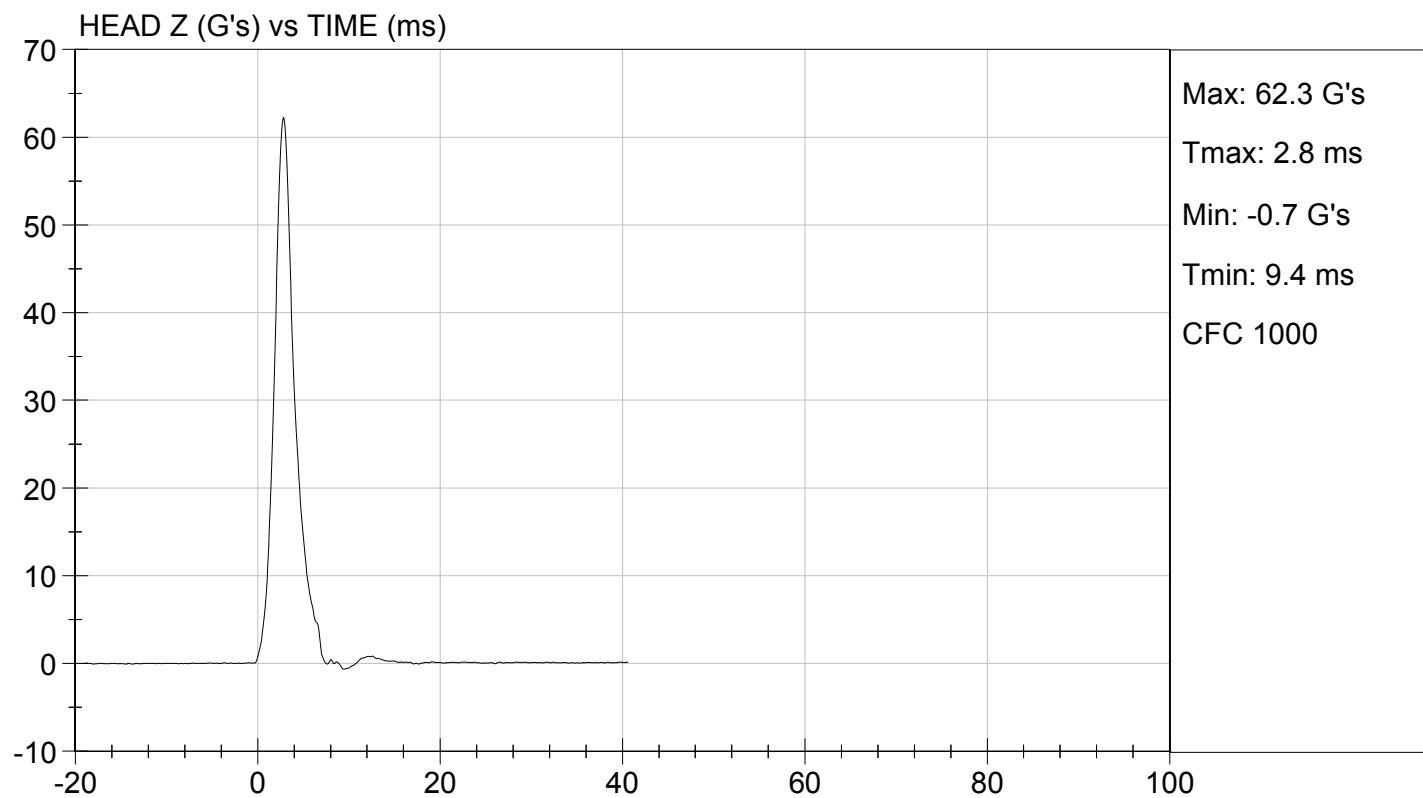
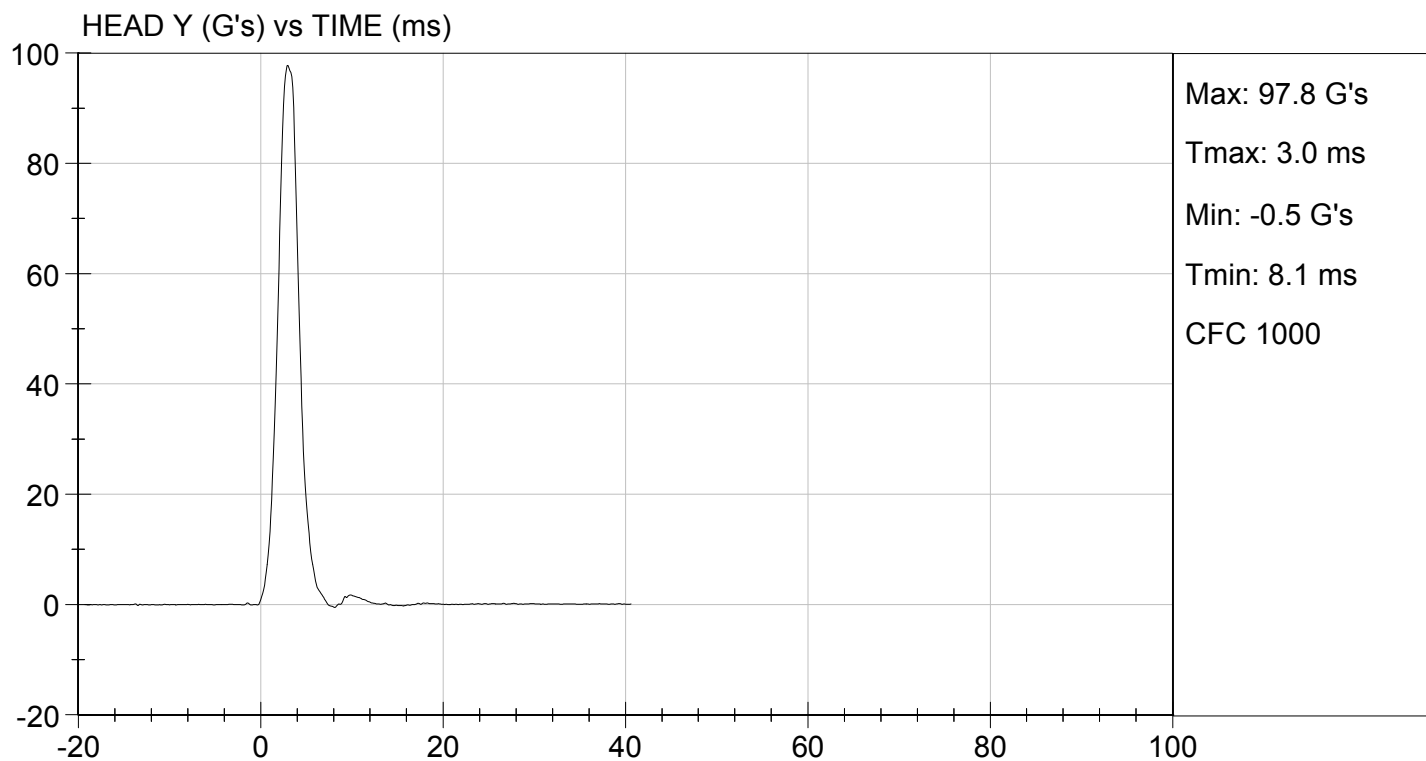
| Tested Parameter               | Units | Specification | Result               | Pass/Fail |
|--------------------------------|-------|---------------|----------------------|-----------|
| Laboratory Temperature         | deg C | 20.6 to 22.2  | 21.9                 | Pass      |
| Laboratory Relative Humidity   | %     | 10 to 70      | 34                   | Pass      |
| Peak Resultant Acceleration    | G's   | 115 to 137    | 116                  | Pass      |
| Peak Longitudinal Acceleration | G's   | +/- 15        | 1.7                  | Pass      |
| Unimodal                       | N/A   | Yes           | Yes                  | Pass      |
| Oscillations                   | N/A   | <15%          | Yes                  | Pass      |
|                                |       |               | Overall Test Results | Pass      |

  
Laboratory Technician

04/28/2014  
Test Date

  
Approved By



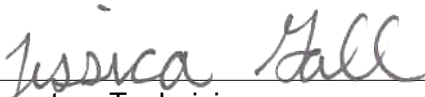


**MGA RESEARCH CORPORATION**  
**LATERAL NECK PENDULUM TEST**  
**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D141622

| Tested Parameter                 |           | Units | Specification | Result | Pass/Fail |
|----------------------------------|-----------|-------|---------------|--------|-----------|
| Temperature                      |           | deg C | 20.6 to 22.2  | 21.1   | Pass      |
| Humidity                         |           | %     | 10 to 70      | 34     | Pass      |
| Impact Velocity                  |           | m/s   | 5.51 to 5.63  | 5.63   | Pass      |
| Pendulum Velocity                | 10 ms     | m/s   | 2.20 to 2.80  | 2.66   | Pass      |
|                                  | 15 ms     | m/s   | 3.30 to 4.10  | 3.74   | Pass      |
|                                  | 20 ms     | m/s   | 4.40 to 5.40  | 4.94   | Pass      |
|                                  | 25 ms     | m/s   | 5.40 to 6.10  | 5.53   | Pass      |
|                                  | 25-100 ms | m/s   | 5.50 to 6.20  | 5.53   | Pass      |
| Maximum D-Plane Rotation         |           | deg   | 71 to 81      | 71     | Pass      |
| Time of Maximum D-Plane Rotation |           | ms    | 50 to 70      | 59     | Pass      |
| Maximum Occipital Condyle Moment |           | Nm    | -44 to -36    | -44    | Pass      |
| Time of Moment Decay to 0 Nm     |           | ms    | 102 to 126    | 114    | Pass      |
| Overall Test Results             |           |       |               |        | Pass      |

  
 Laboratory Technician

04/28/2014

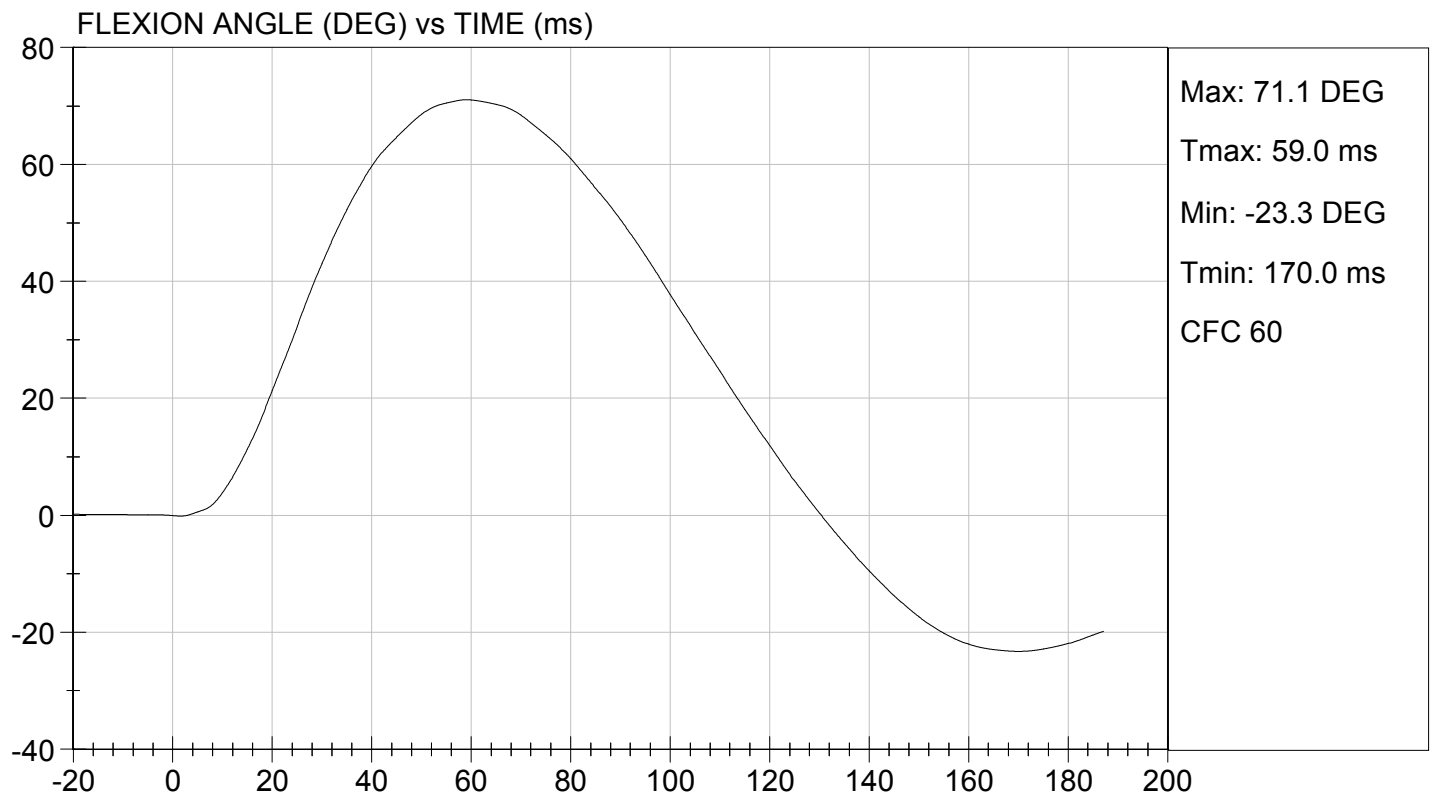
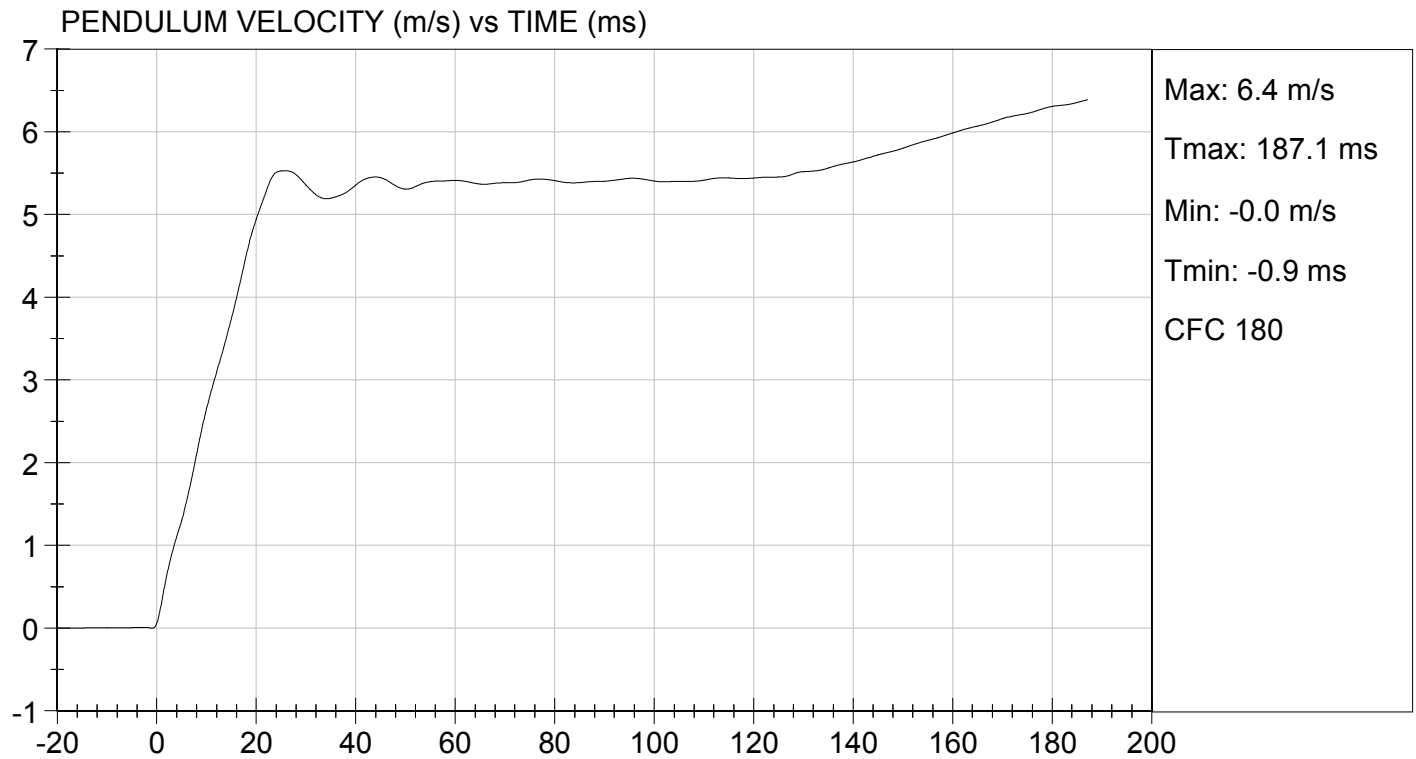
Test Date

  
 Approved By



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

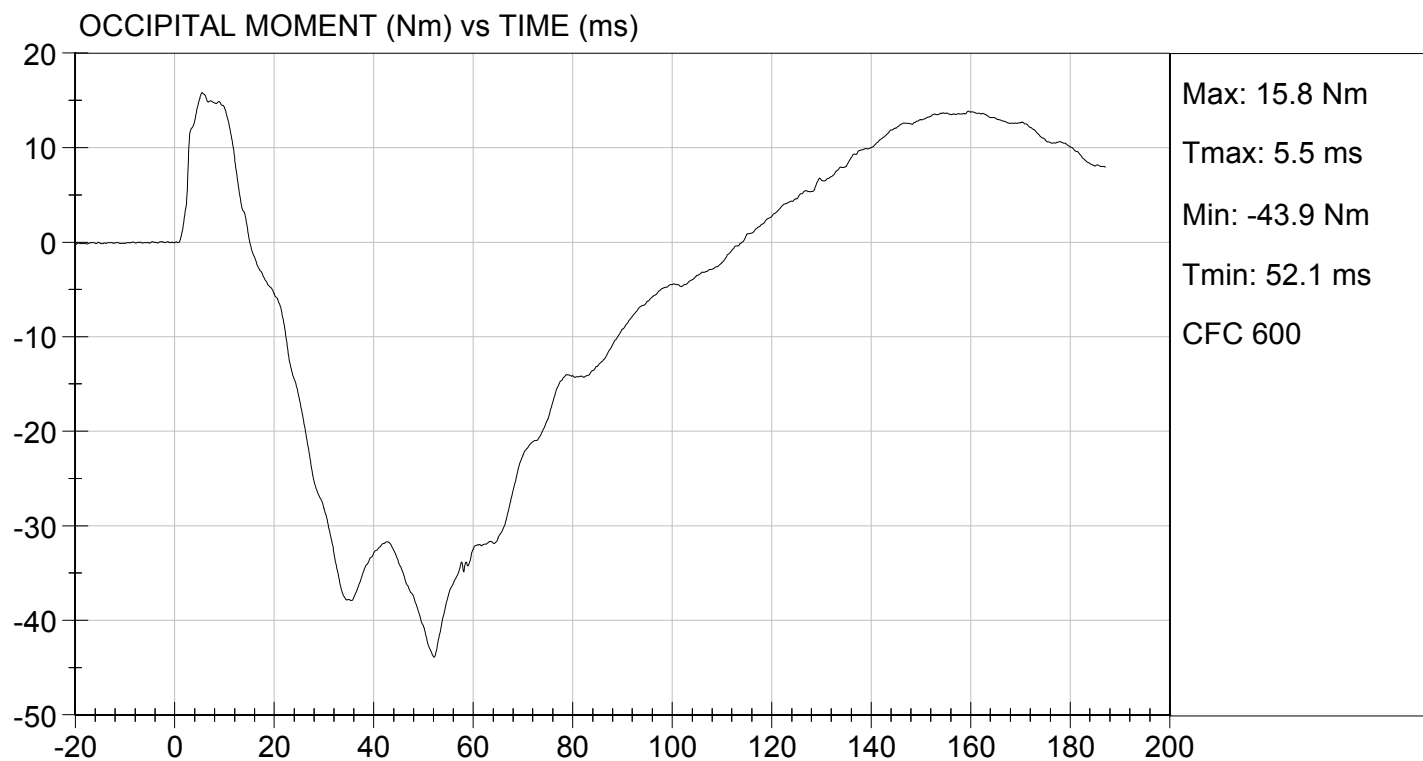
TEST DATE: 04/28/2014  
TEST #: D141622





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

TEST DATE: 04/28/2014  
TEST #: D141622

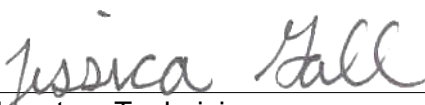


**MGA RESEARCH CORPORATION**  
**SHOULDER IMPACT TEST**  
**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test ID:** D141623

| Tested Parameter                | Units | Specification | Result | Pass/Fail |
|---------------------------------|-------|---------------|--------|-----------|
| Laboratory Temperature          | deg C | 20.6 to 22.2  | 21.9   | Pass      |
| Laboratory Relative Humidity    | %     | 10 to 70      | 34     | 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      | 19     | Pass      |
| Overall Test Results            |       |               |        | Pass      |

  
Laboratory Technician

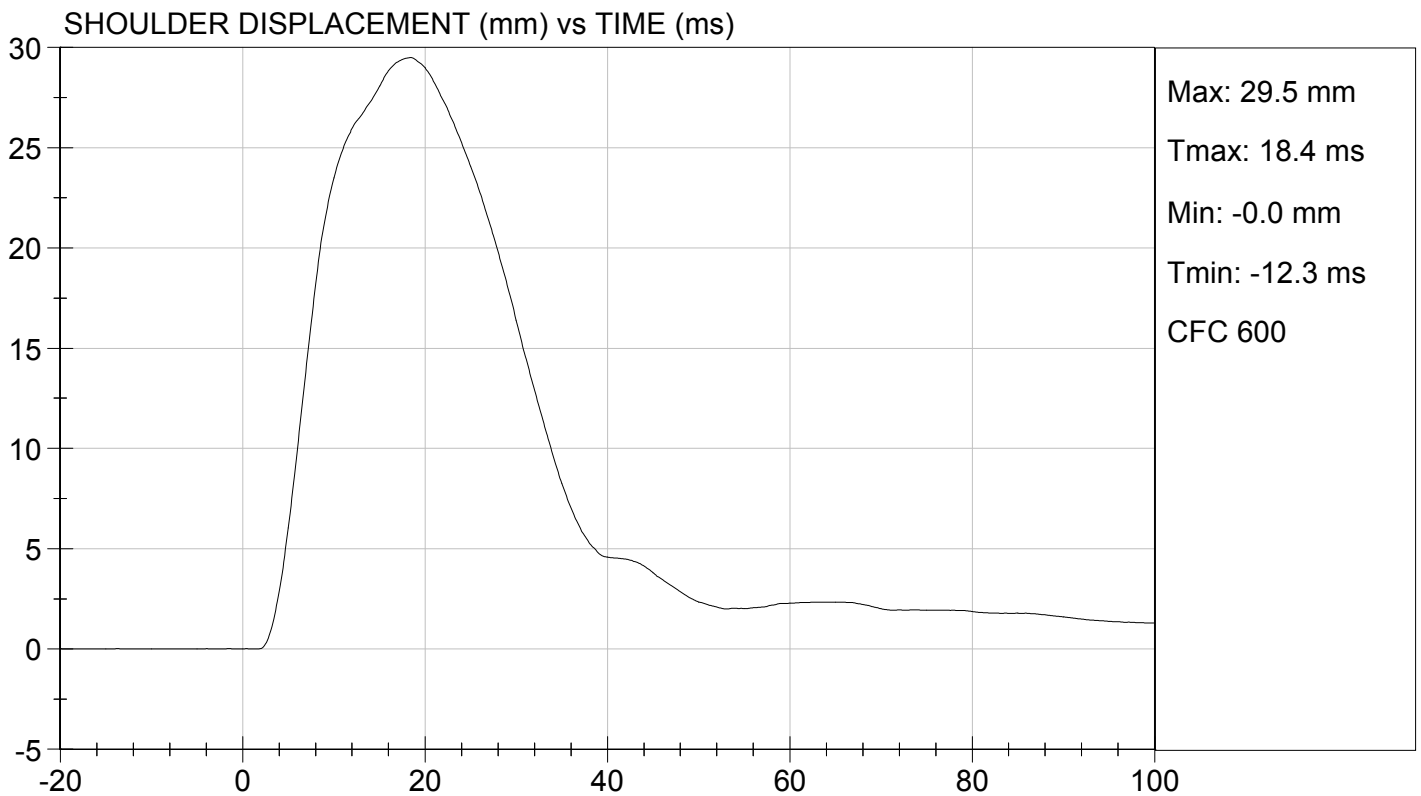
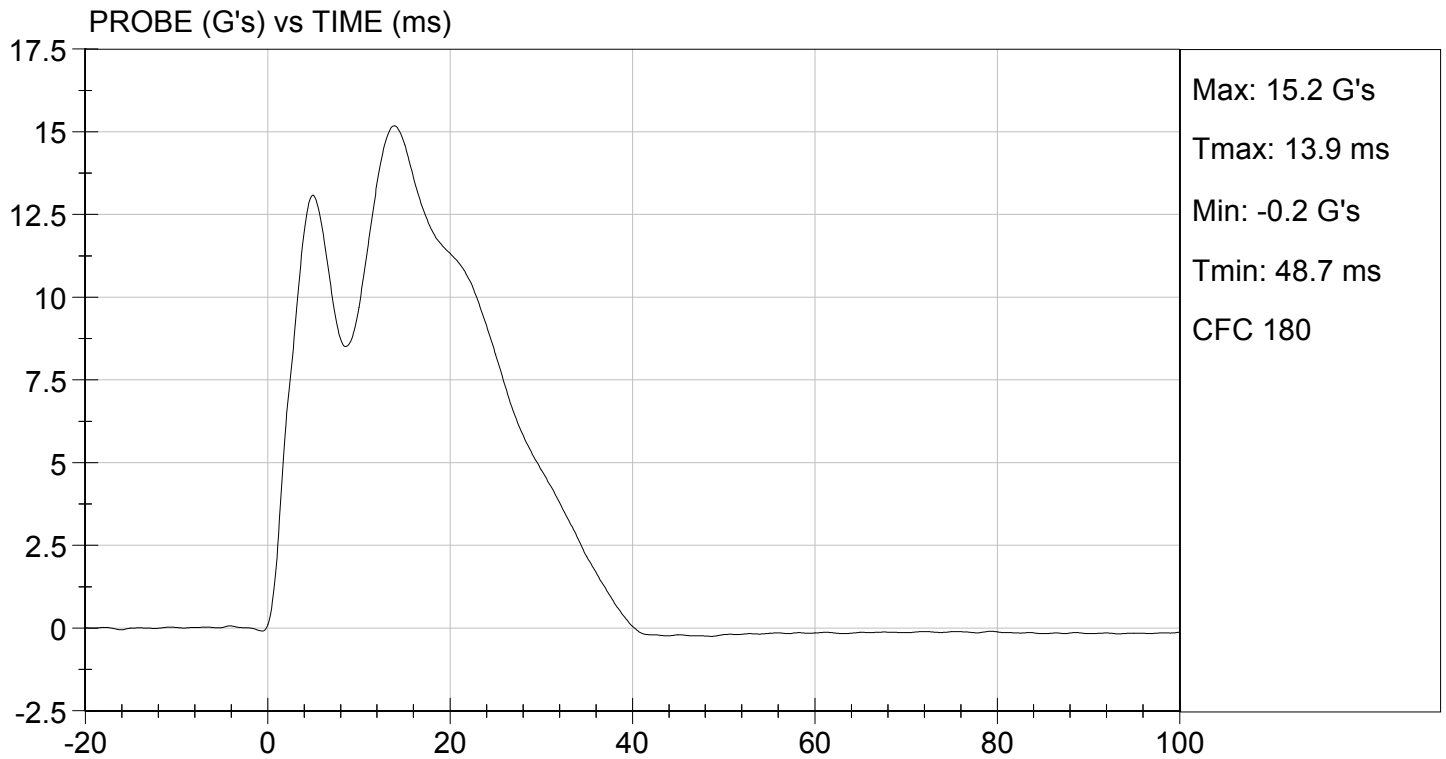
04/28/2014  
Test Date

  
Approved By



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

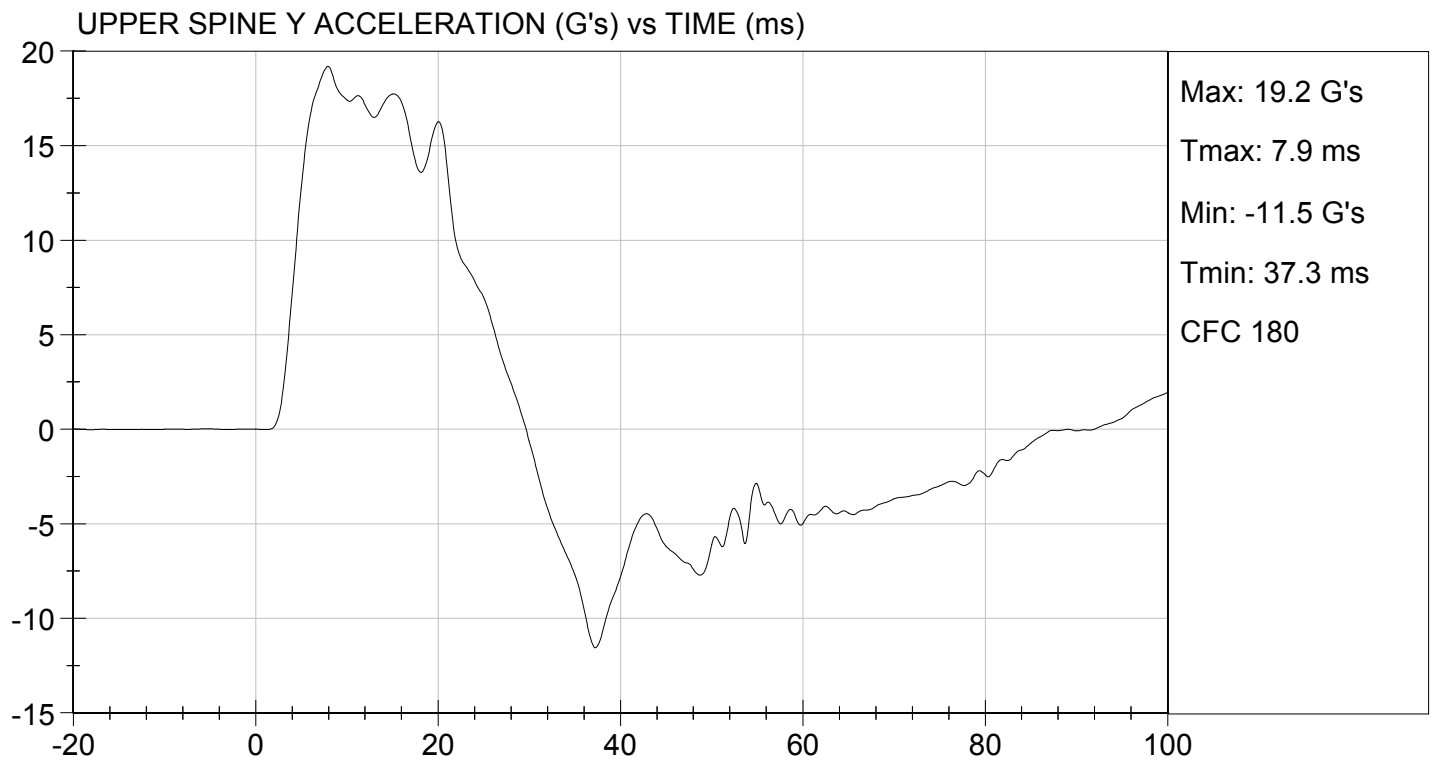
TEST DATE: 04/28/2014  
TEST #: D141623





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

TEST DATE: 04/28/2014  
TEST #: D141623

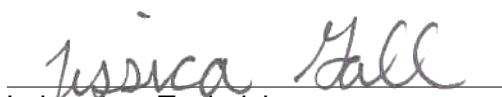


**MGA RESEARCH CORPORATION**  
**THORAX (WITH ARM) IMPACT TEST**  
**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D141624

| Tested Parameter                 | Units | Specification | Result | Pass/Fail |
|----------------------------------|-------|---------------|--------|-----------|
| Temperature                      | deg C | 20.6 to 22.2  | 21.1   | Pass      |
| Humidity                         | %     | 10 to 70      | 36     | 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      | 32     | 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      | 36     | 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      |

  
Laboratory Technician

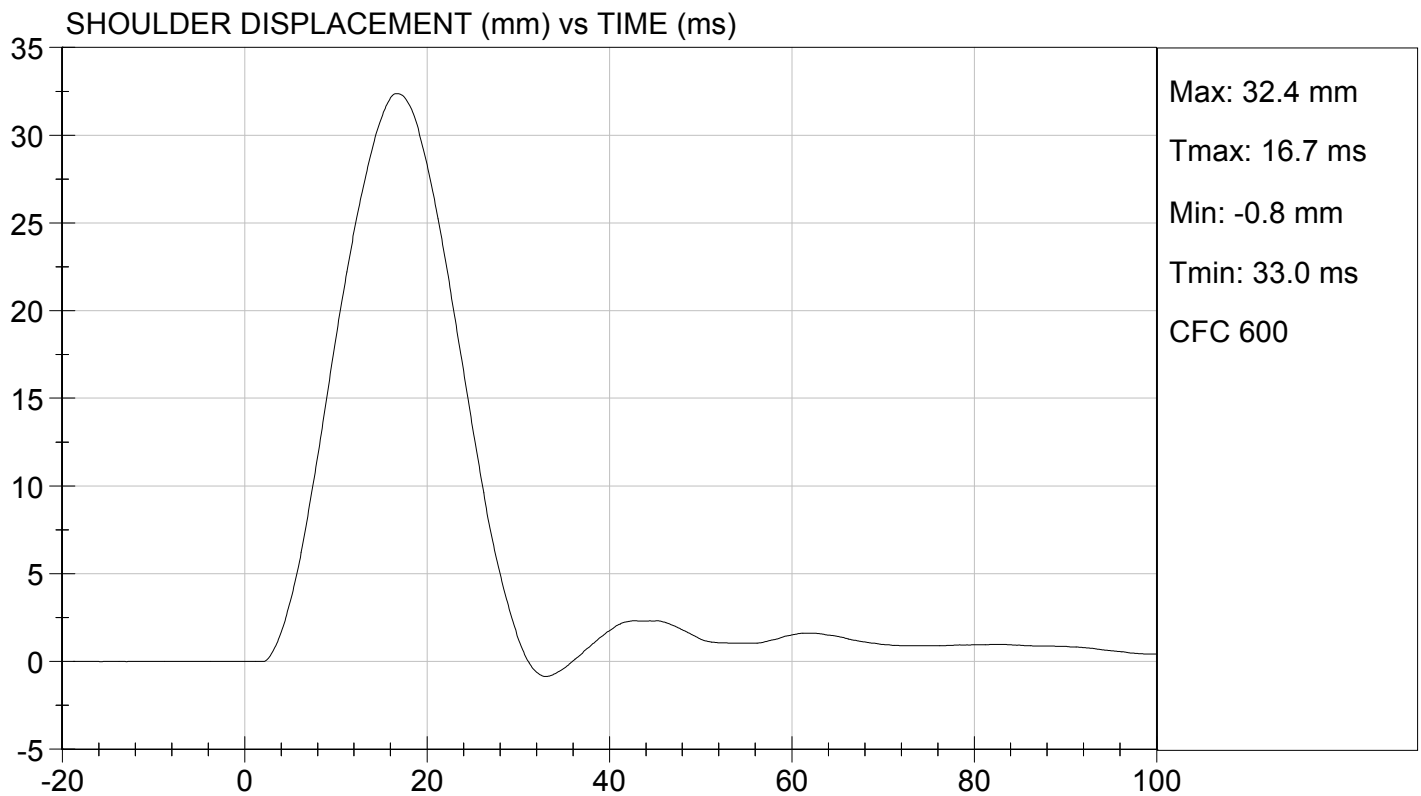
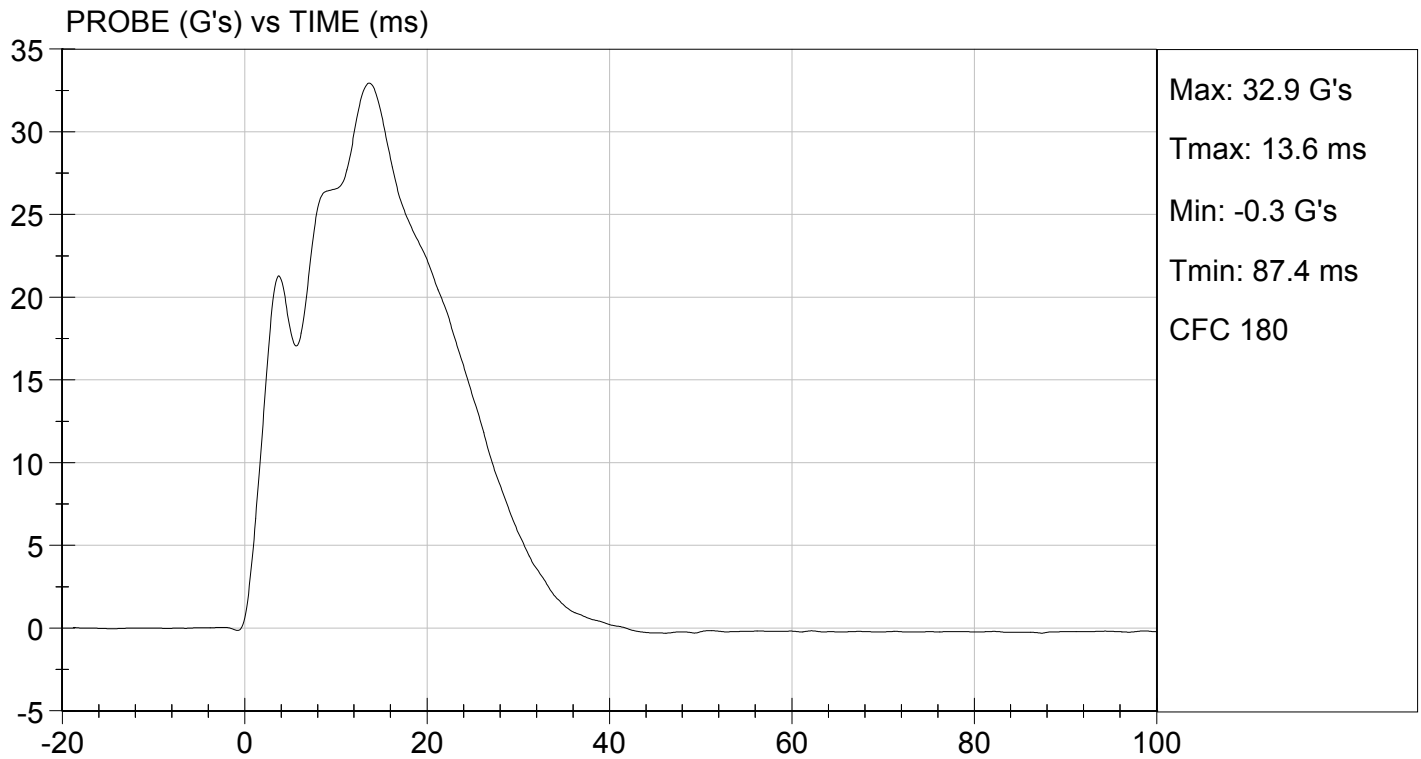
04/28/2014  
Test Date

  
Approved By



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

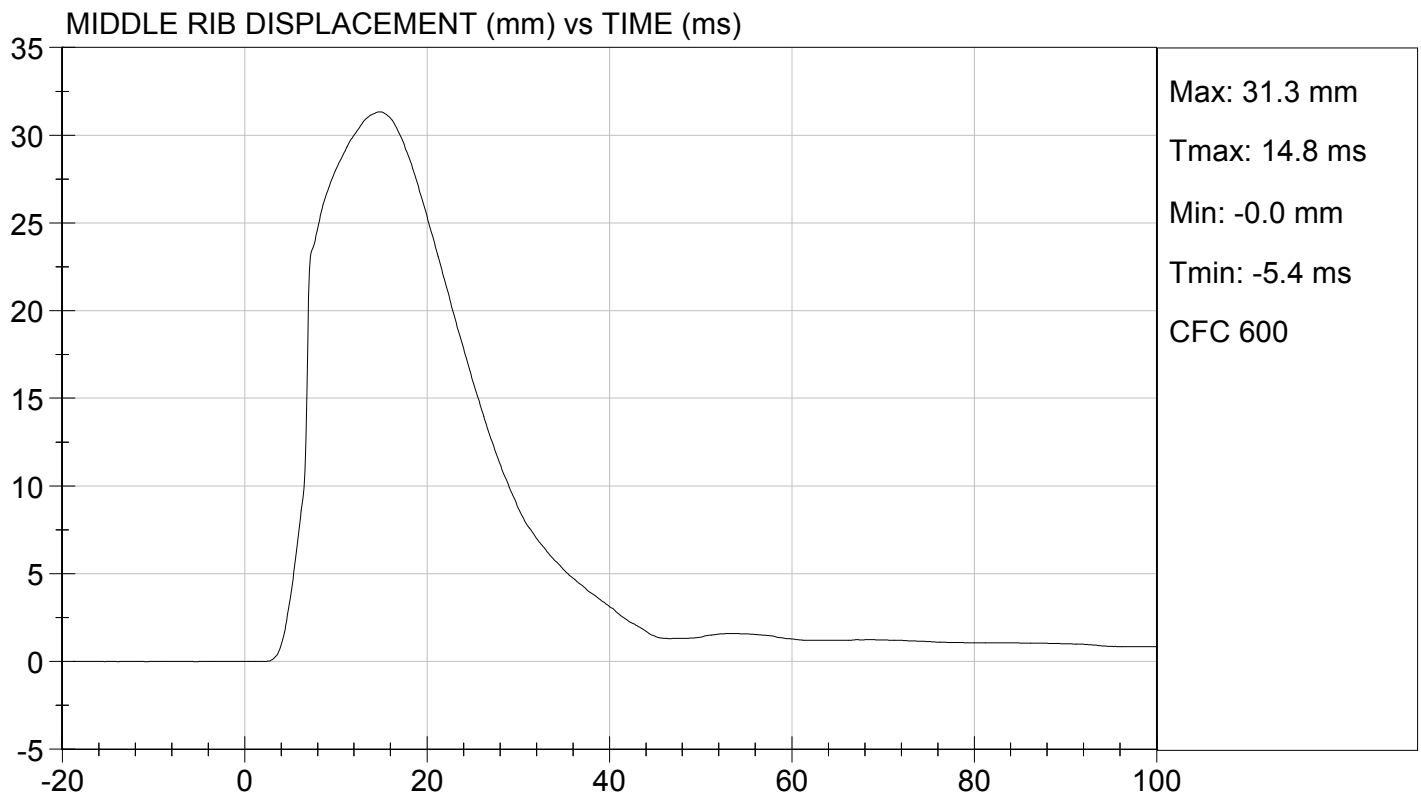
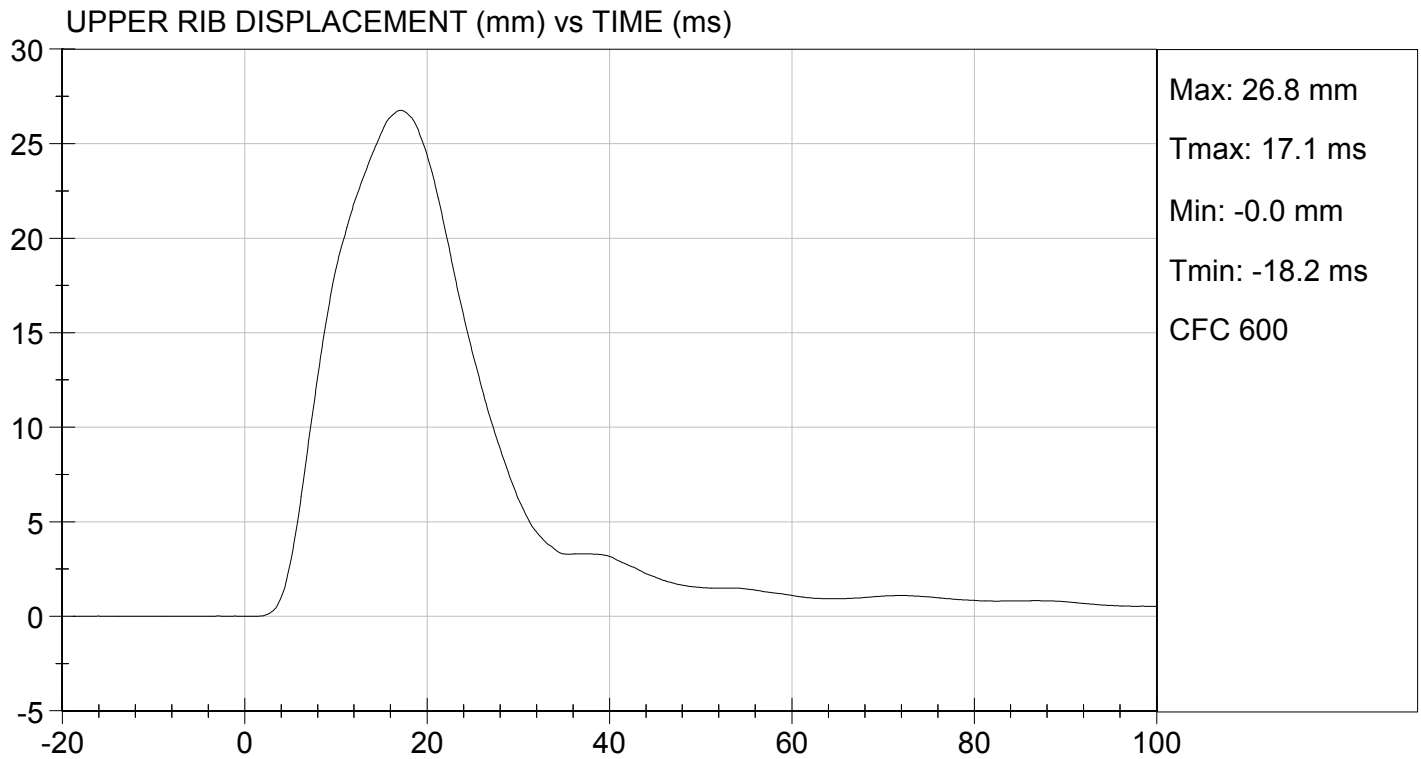
TEST DATE: 04/28/2014  
TEST #: D141624





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

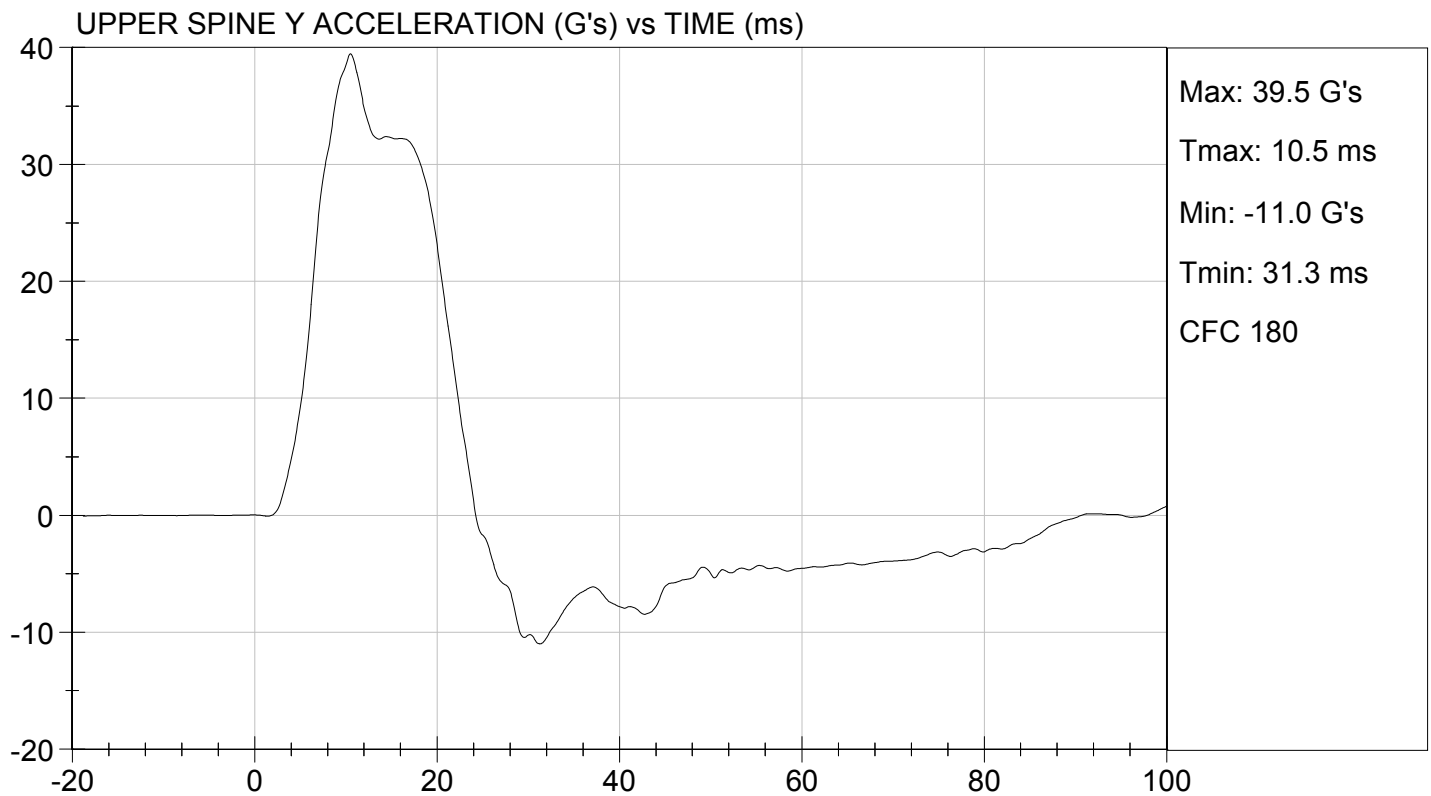
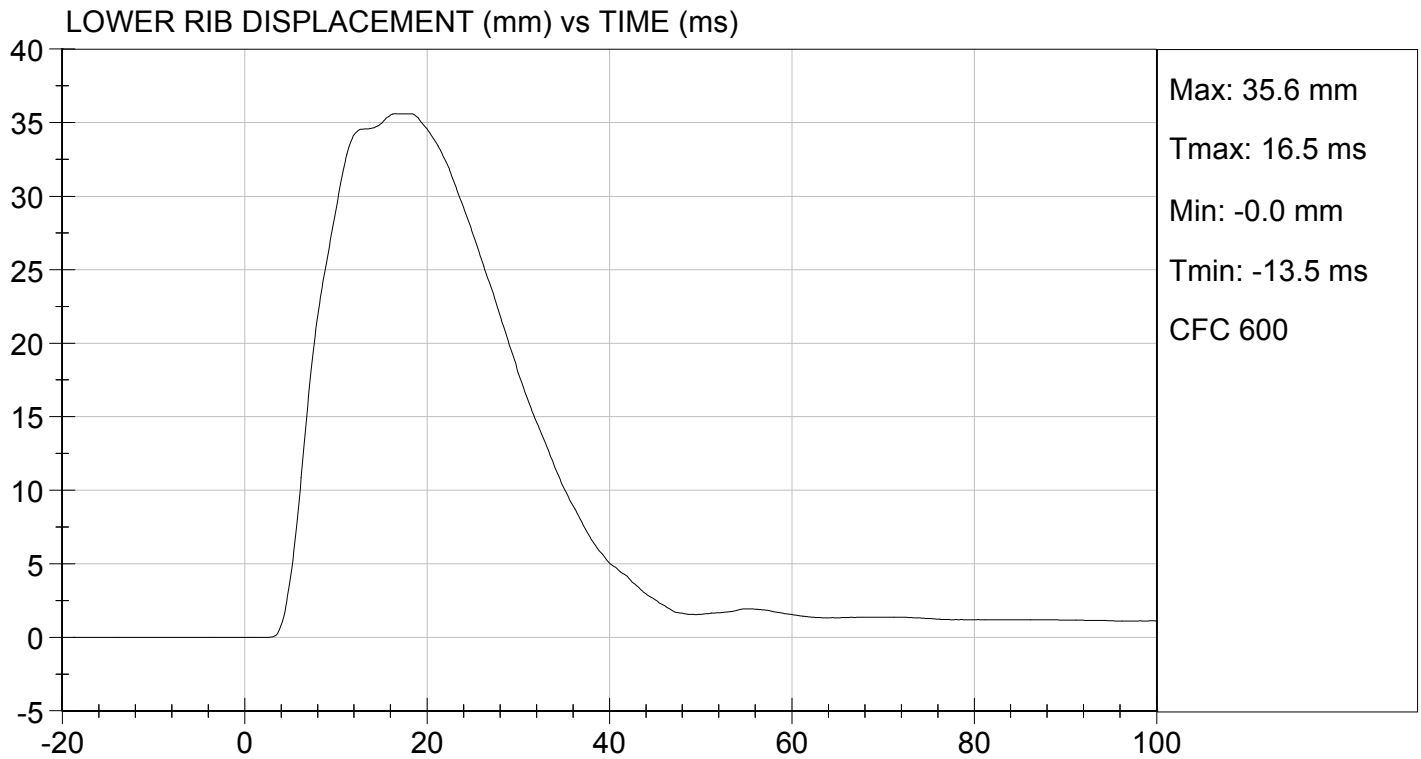
TEST DATE: 04/28/2014  
TEST #: D141624





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

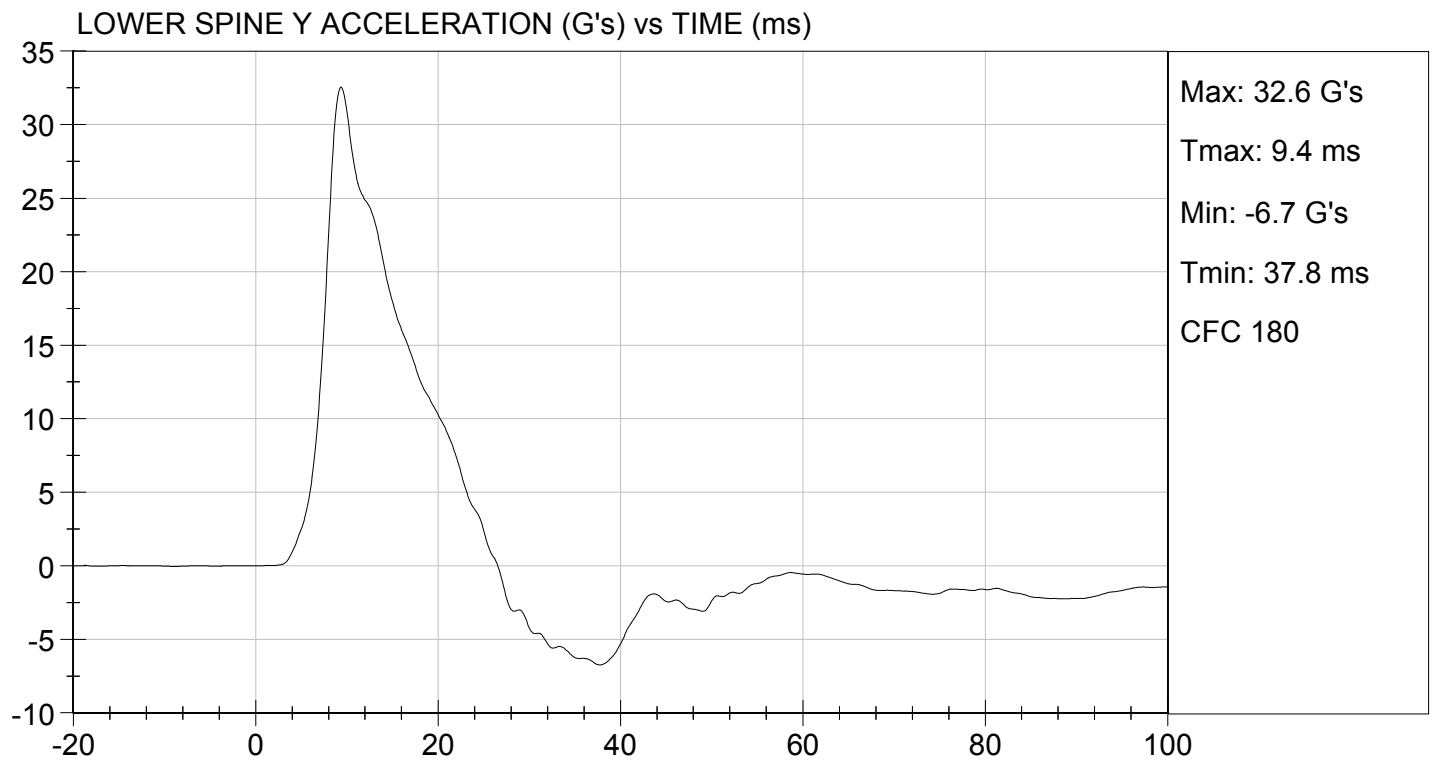
TEST DATE: 04/28/2014  
TEST #: D141624





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

TEST DATE: 04/28/2014  
TEST #: D141624

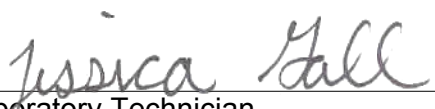


**MGA RESEARCH CORPORATION**  
**THORAX (WITHOUT ARM) IMPACT TEST**  
**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D141625

| Tested Parameter                 | Units | Specification | Result | Pass/Fail |
|----------------------------------|-------|---------------|--------|-----------|
| Temperature                      | deg C | 20.6 to 22.2  | 21.1   | Pass      |
| Humidity                         | %     | 10 to 70      | 36     | 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      | 37     | Pass      |
| Middle Rib Displacement          | mm    | 39 to 45      | 42     | Pass      |
| Lower Rib Displacement           | mm    | 35 to 43      | 41     | Pass      |
| Upper Spine (T1) Y Acceleration  | G's   | 13 to 17      | 15     | Pass      |
| Lower Spine (T12) Y Acceleration | G's   | 7 to 11       | 9      | Pass      |
| Overall Test Results             |       |               |        | Pass      |

  
 Laboratory Technician

04/28/2014

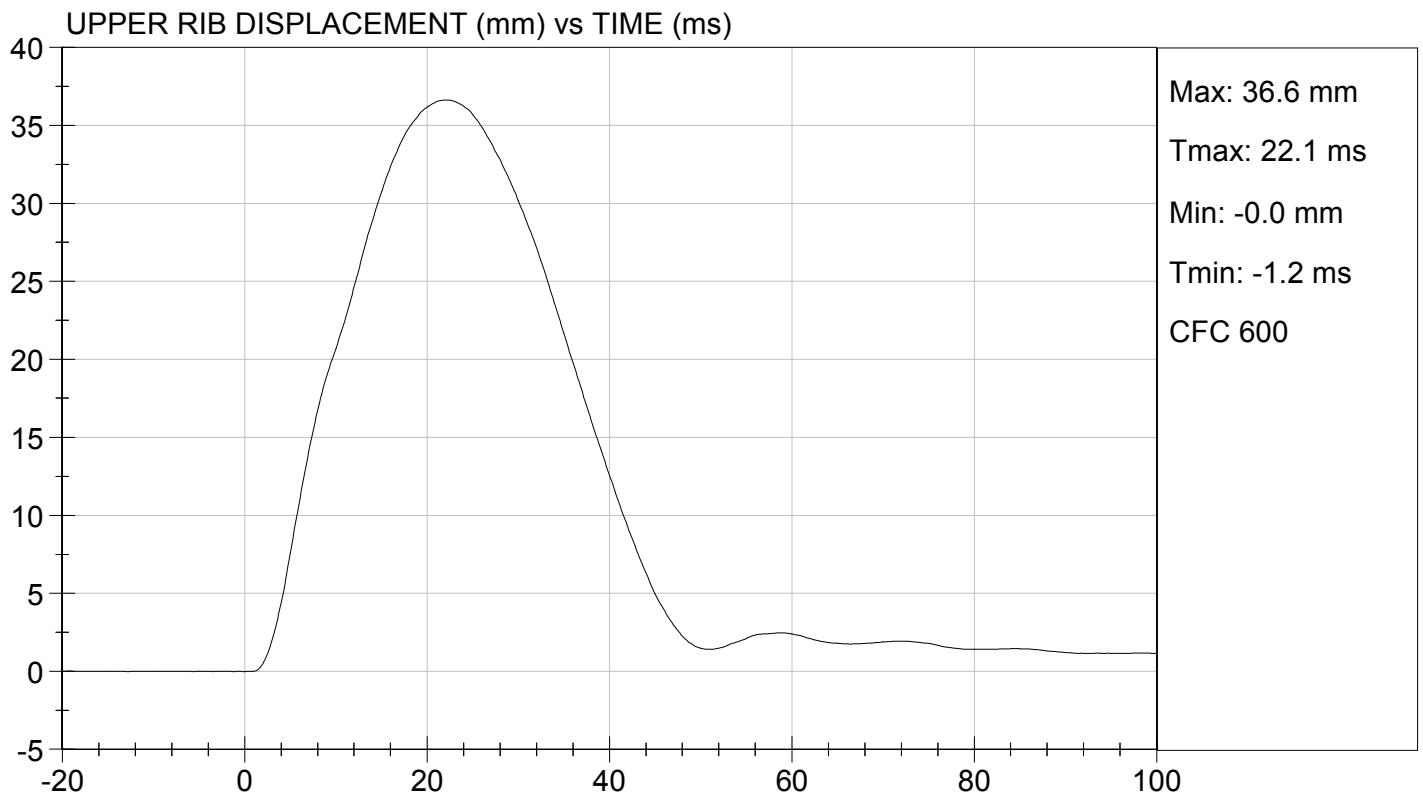
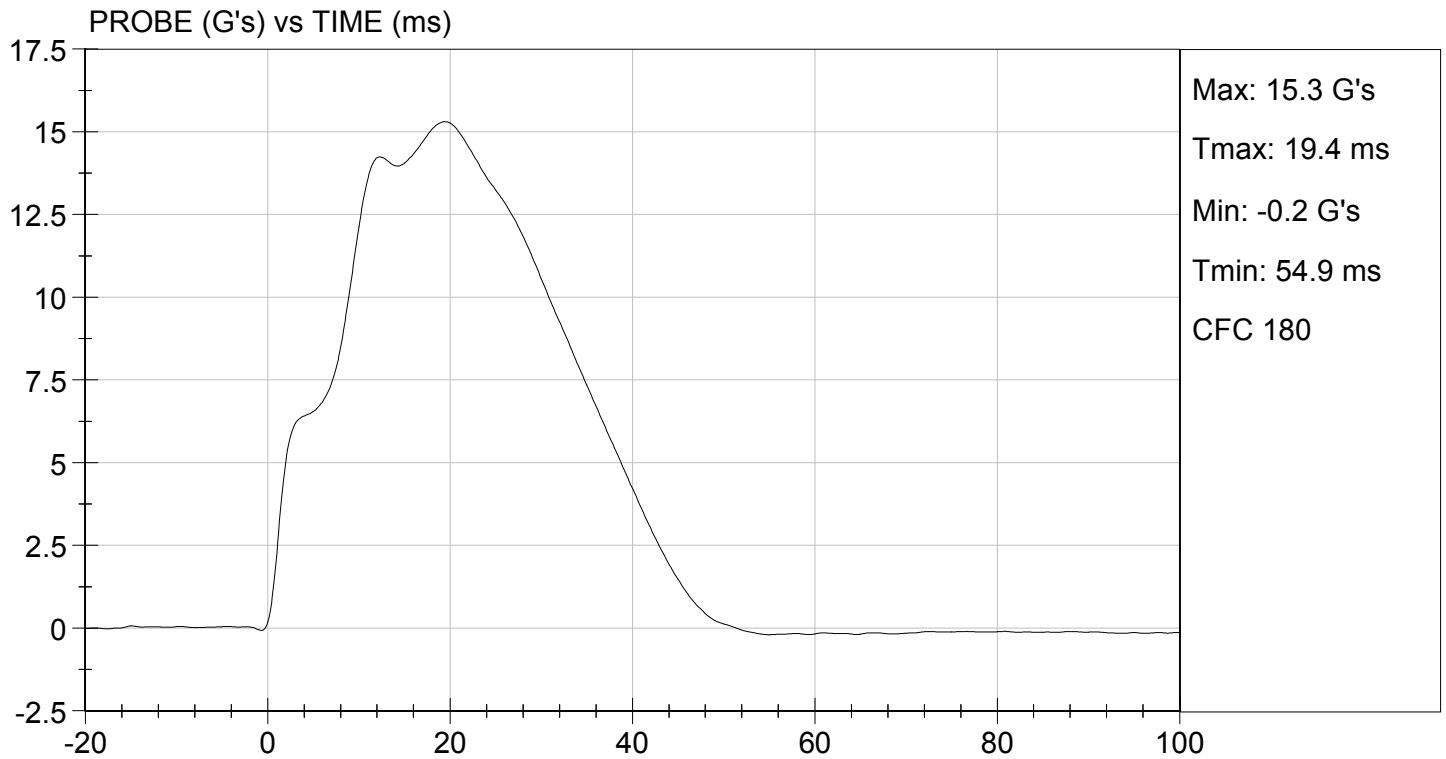
Test Date

  
 Approved By



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

TEST DATE: 04/28/2014  
TEST #: D141625

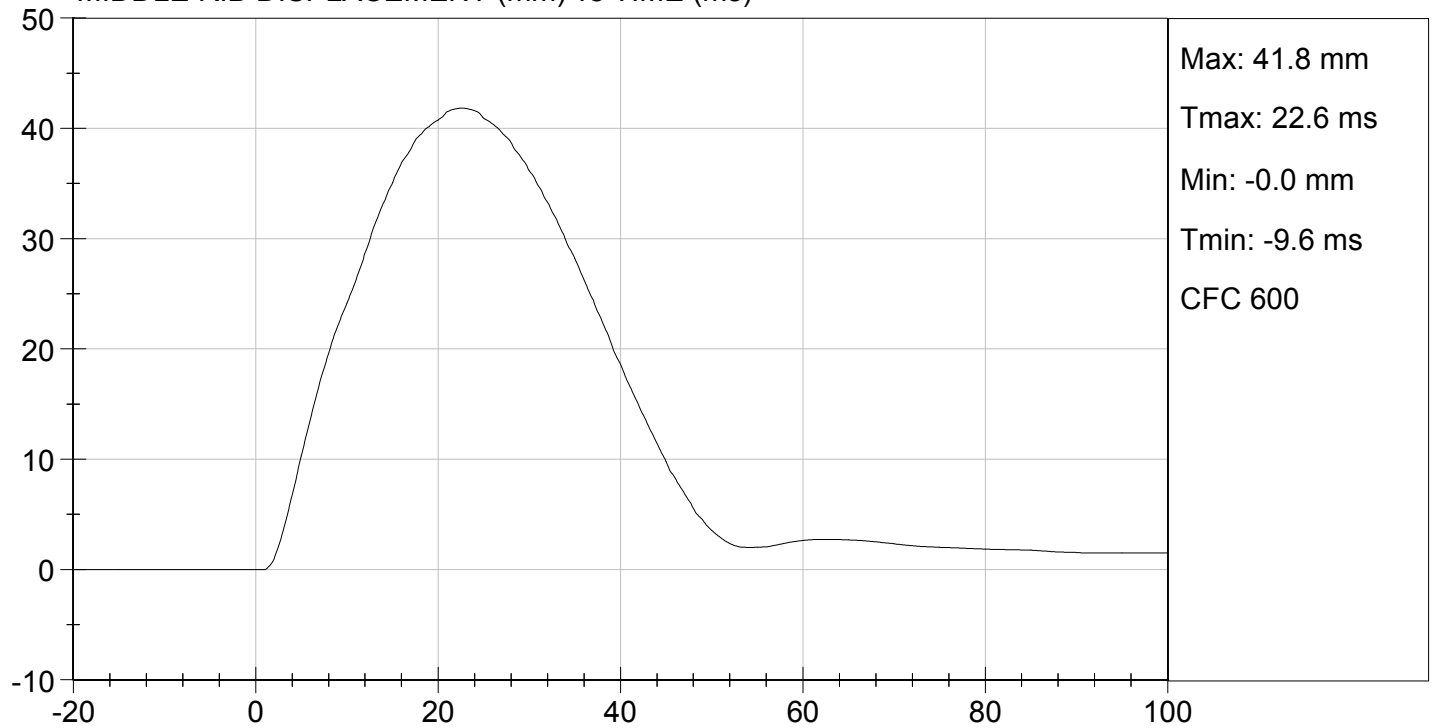




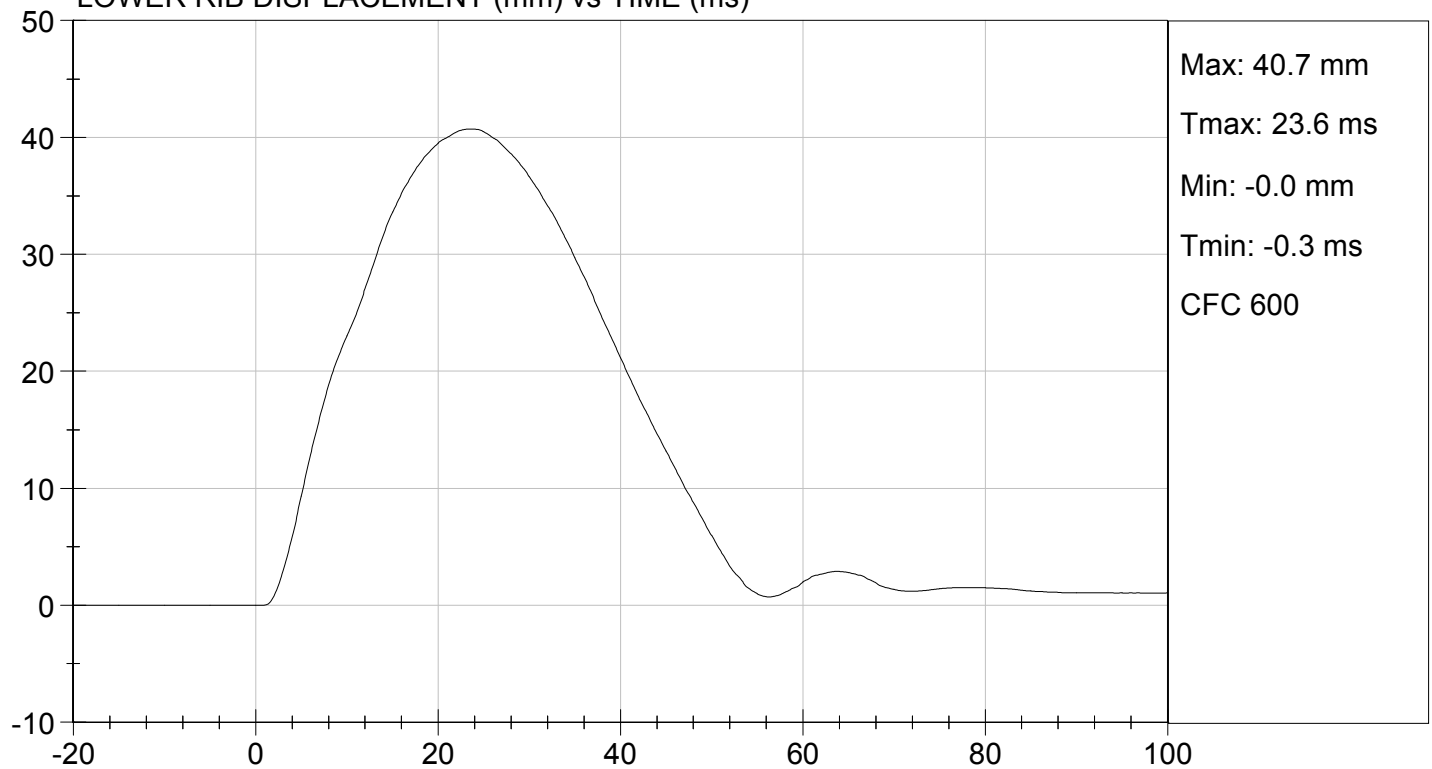
TEST DESC: THORAX IMPACT WITHOUT ARM  
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 04/28/2014  
TEST #: D141625

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

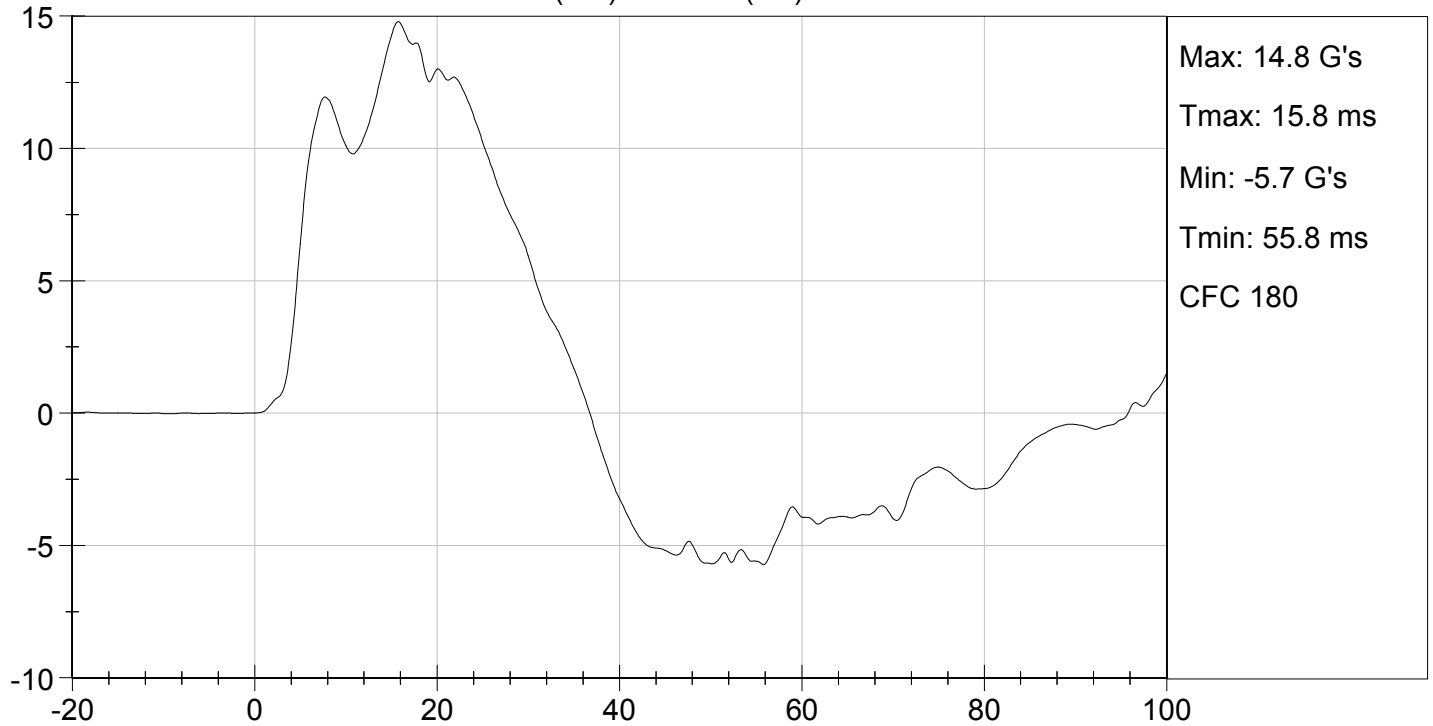




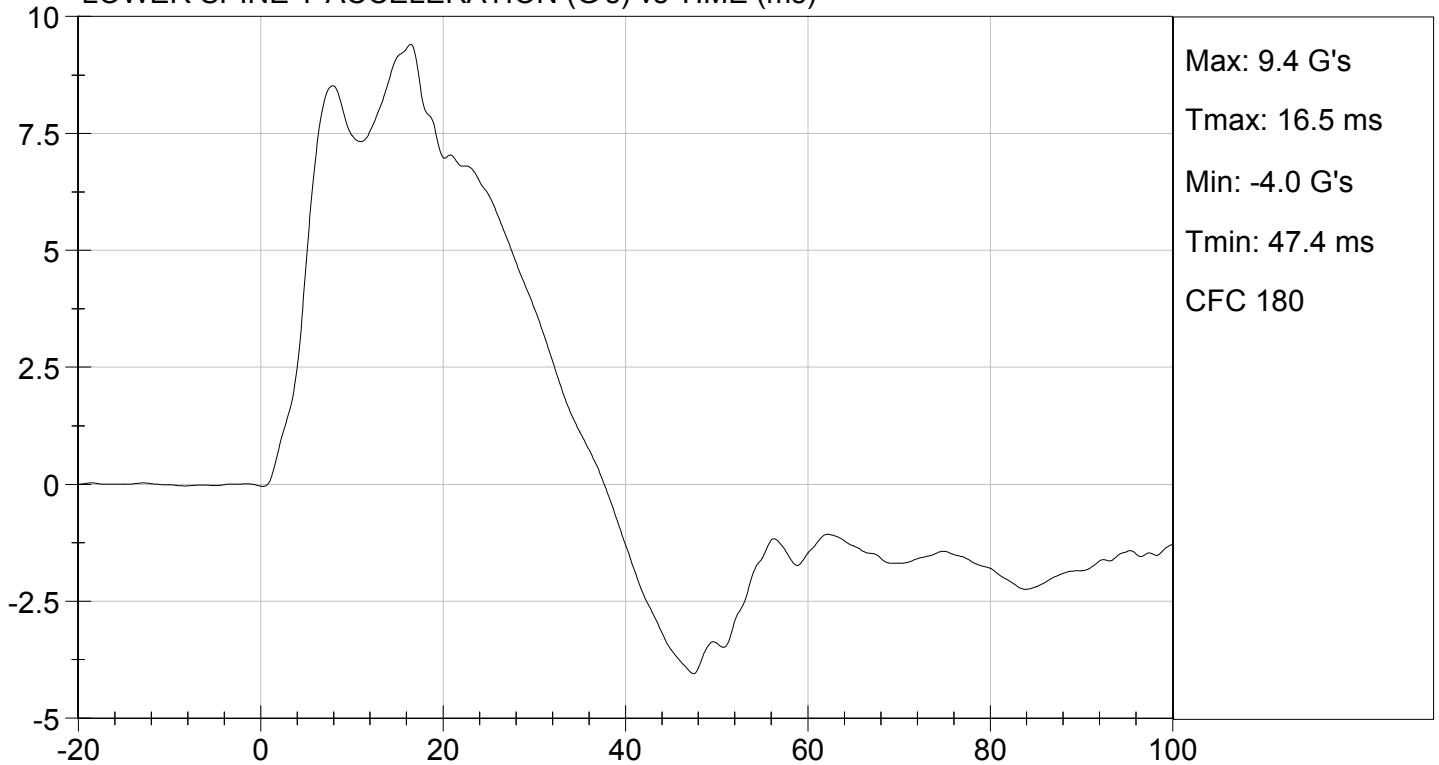
TEST DESC: THORAX IMPACT WITHOUT ARM  
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 04/28/2014  
TEST #: D141625

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



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



**MGA RESEARCH CORPORATION**

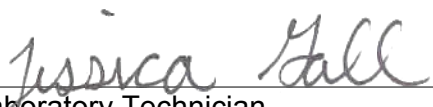
**ABDOMINAL IMPACT TEST**

**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D141626

| Tested Parameter                 | Units | Specification | Result | Pass/Fail |
|----------------------------------|-------|---------------|--------|-----------|
| Temperature                      | deg C | 20.6 to 22.2  | 21.1   | Pass      |
| Humidity                         | %     | 10 to 70      | 36     | 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      | 38     | Pass      |
| Lower Abdomen Rib Displacement   | mm    | 33 to 44      | 43     | Pass      |
| Lower Spine (T12) Y Acceleration | G's   | 9 to 14       | 10     | Pass      |
| Overall Test Results             |       |               |        | Pass      |

  
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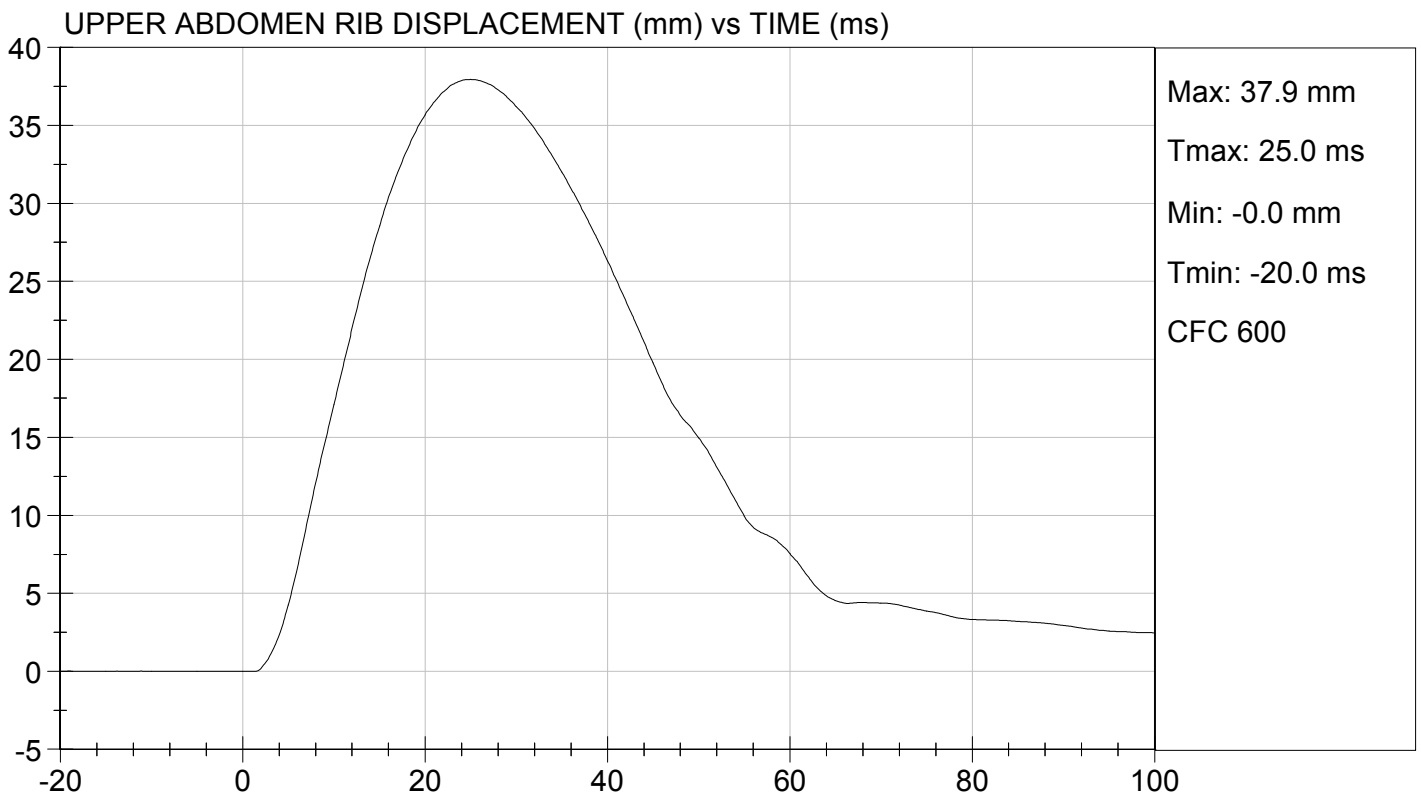
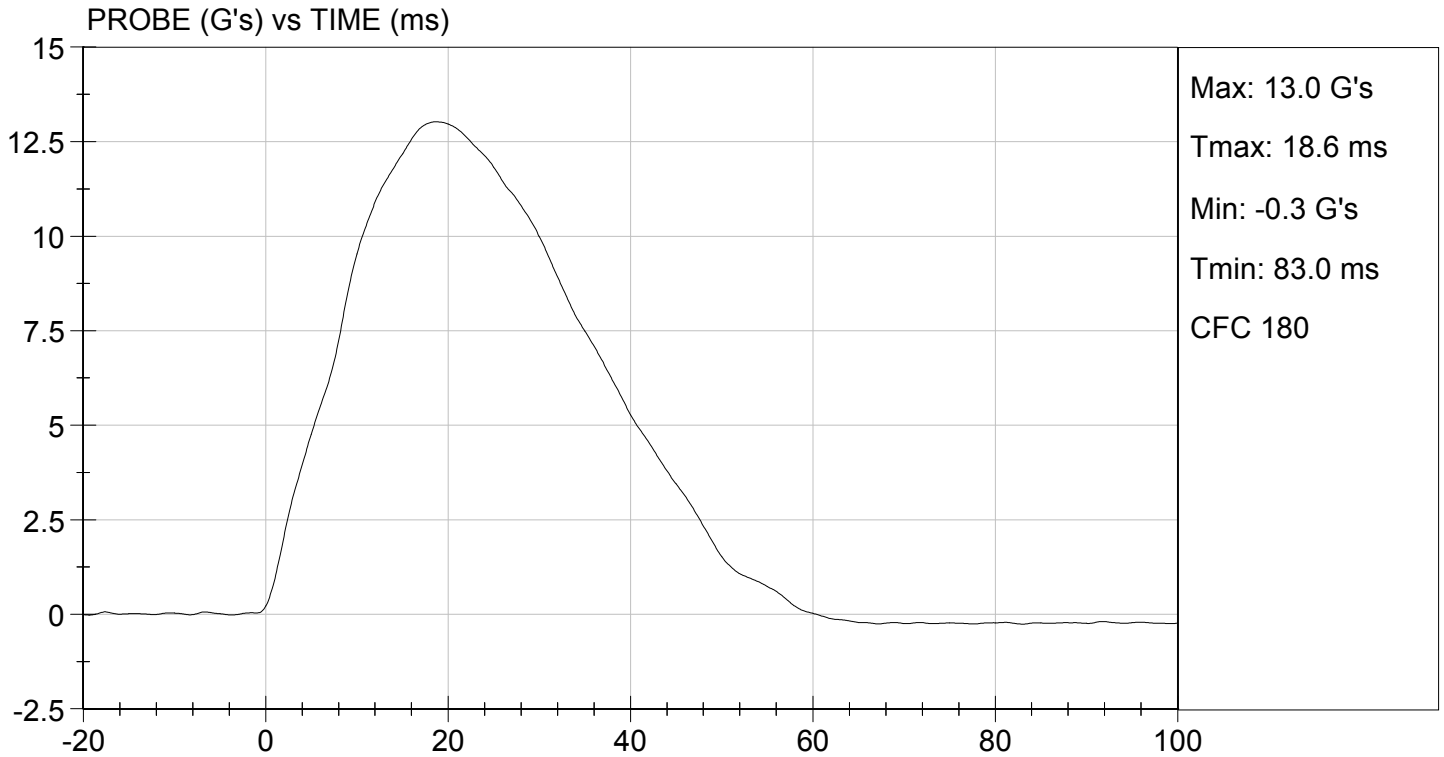
Test Date

  
Approved By



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

TEST DATE: 04/28/2014  
TEST #: D141626

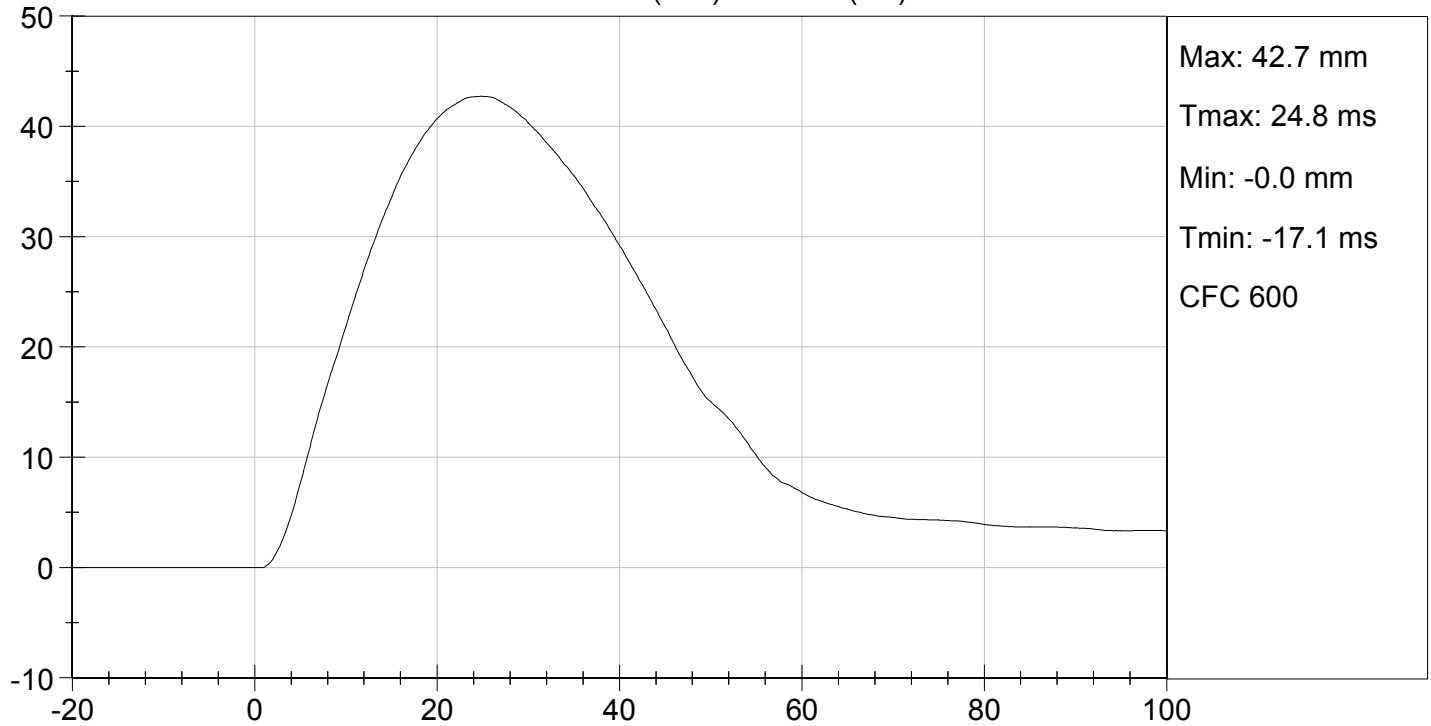




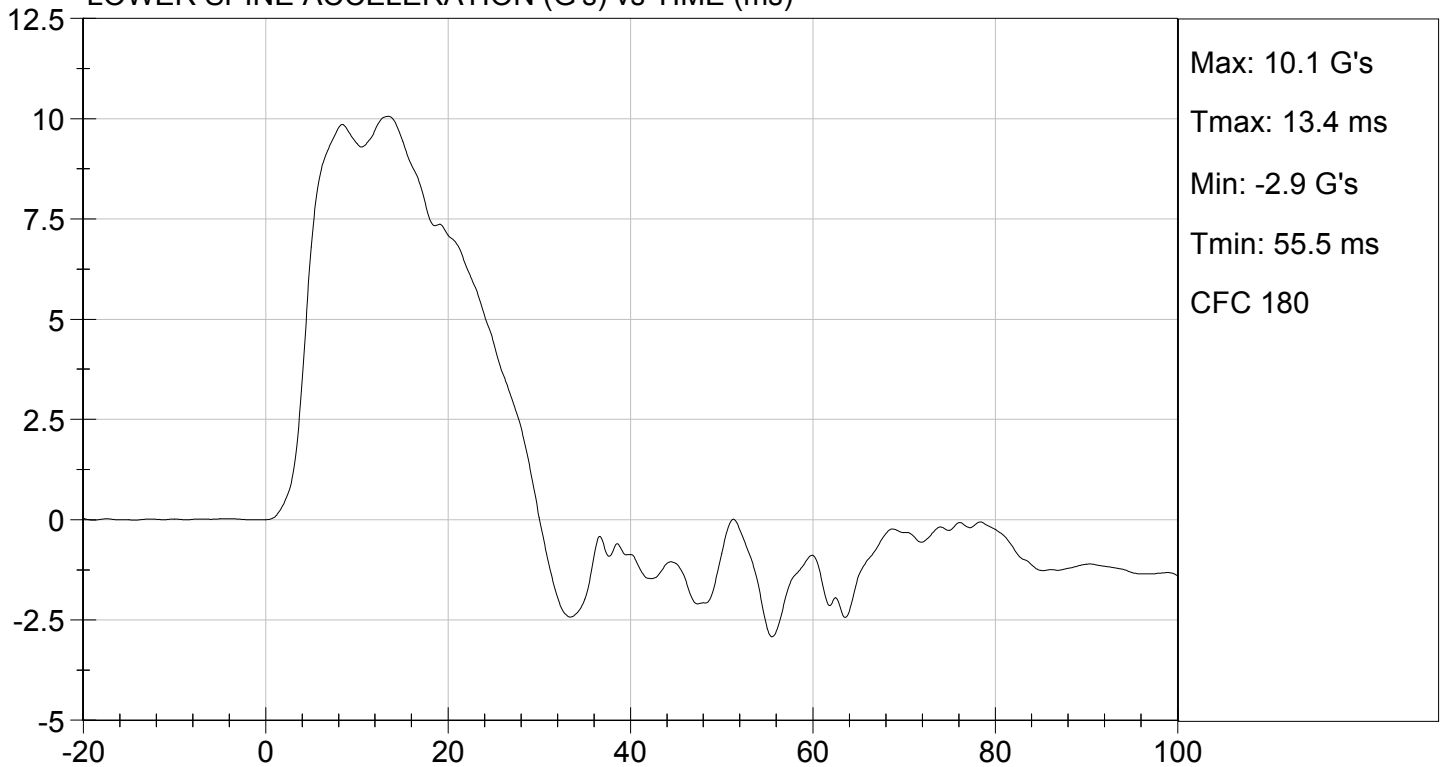
TEST DESC: ABDOMEN IMPACT  
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 04/28/2014  
TEST #: D141626

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



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



**MGA RESEARCH CORPORATION**

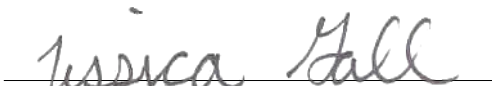
**PELVIS IMPACT TEST**

**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D141627

| Tested Parameter                 | Units | Specification | Result | Pass/Fail |
|----------------------------------|-------|---------------|--------|-----------|
| Temperature                      | deg C | 20.6 to 22.2  | 21.1   | Pass      |
| Humidity                         | %     | 10 to 70      | 36     | 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      | 40     | Pass      |
| Peak Acetabulum Force            | N     | 3600 to 4300  | 4,289  | Pass      |
| Overall Test Results             |       |               |        | Pass      |

  
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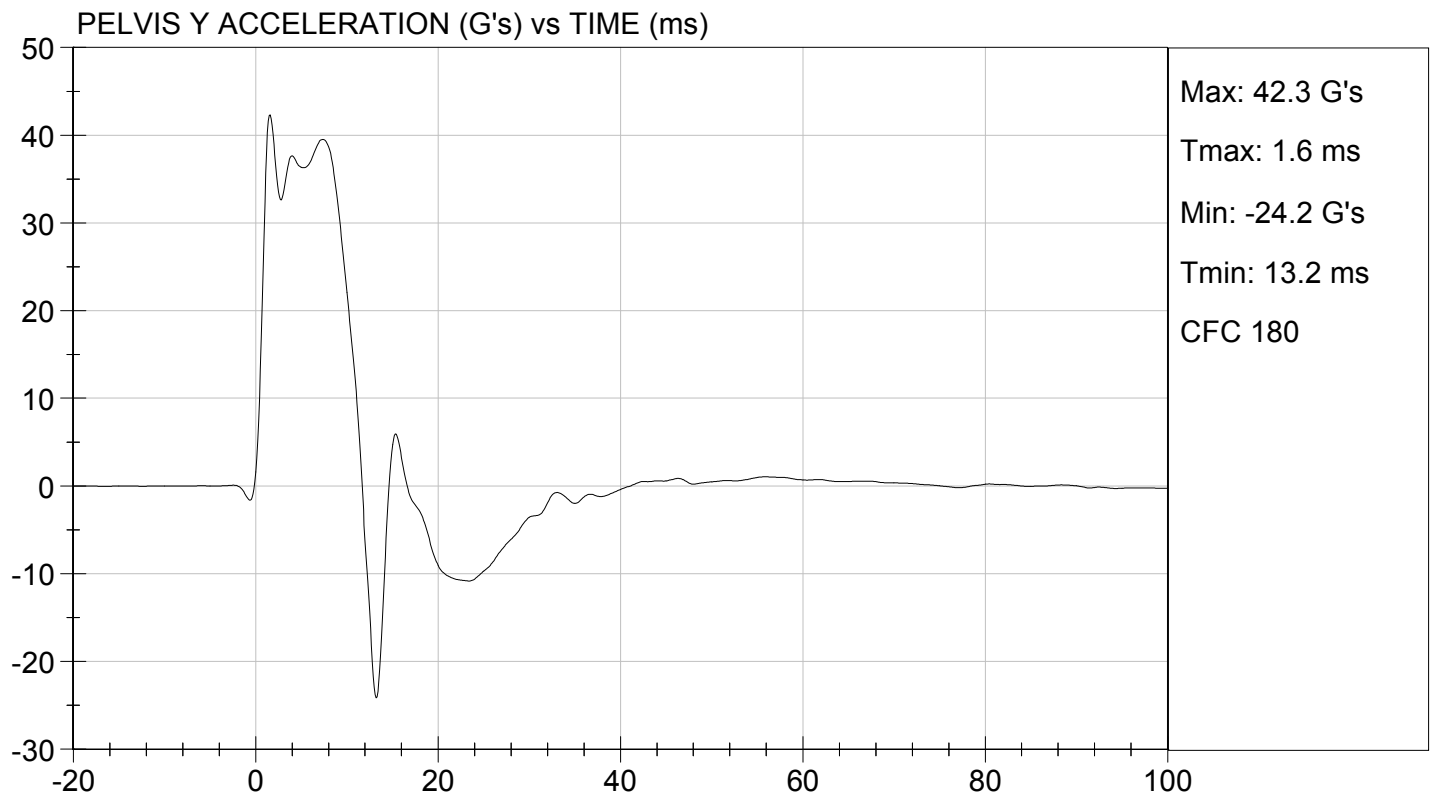
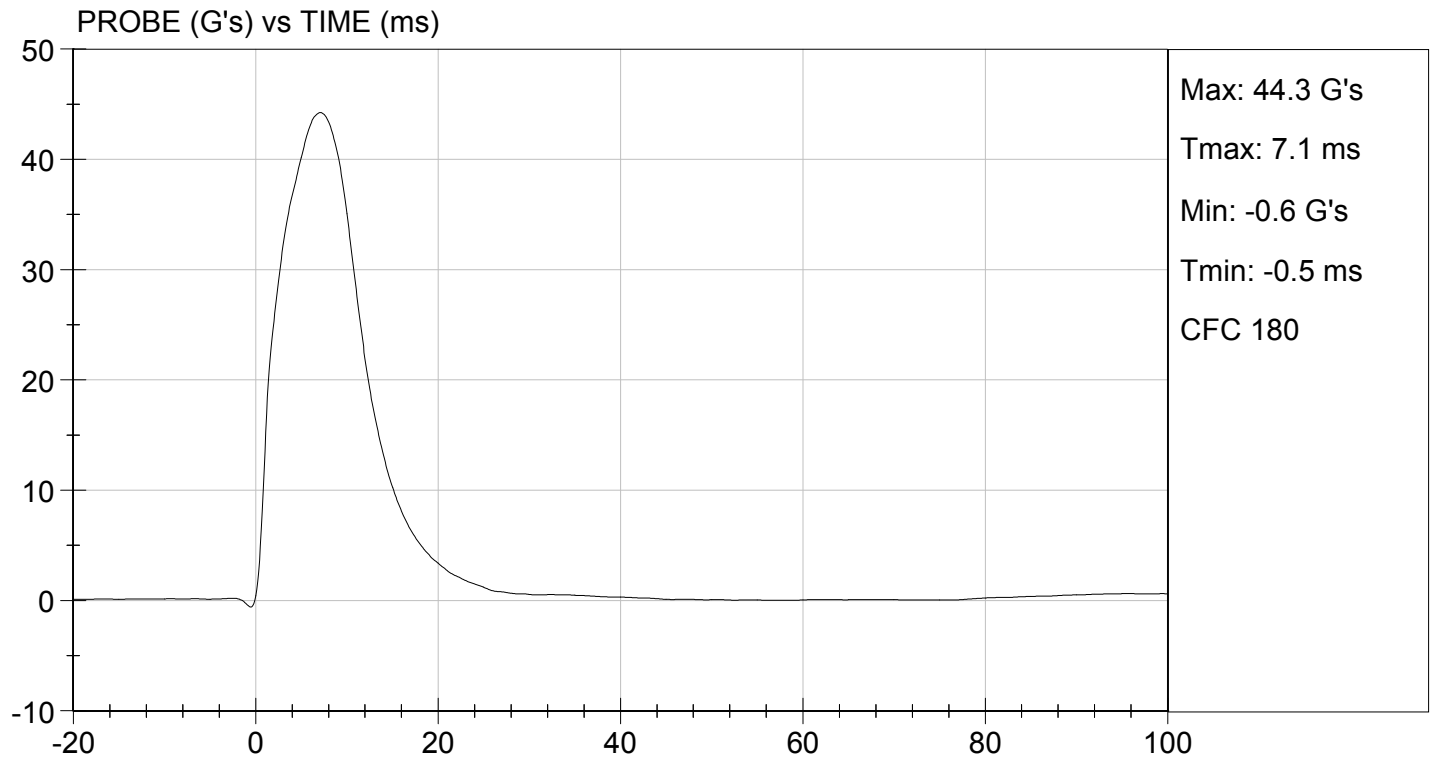
Test Date

  
Approved By



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

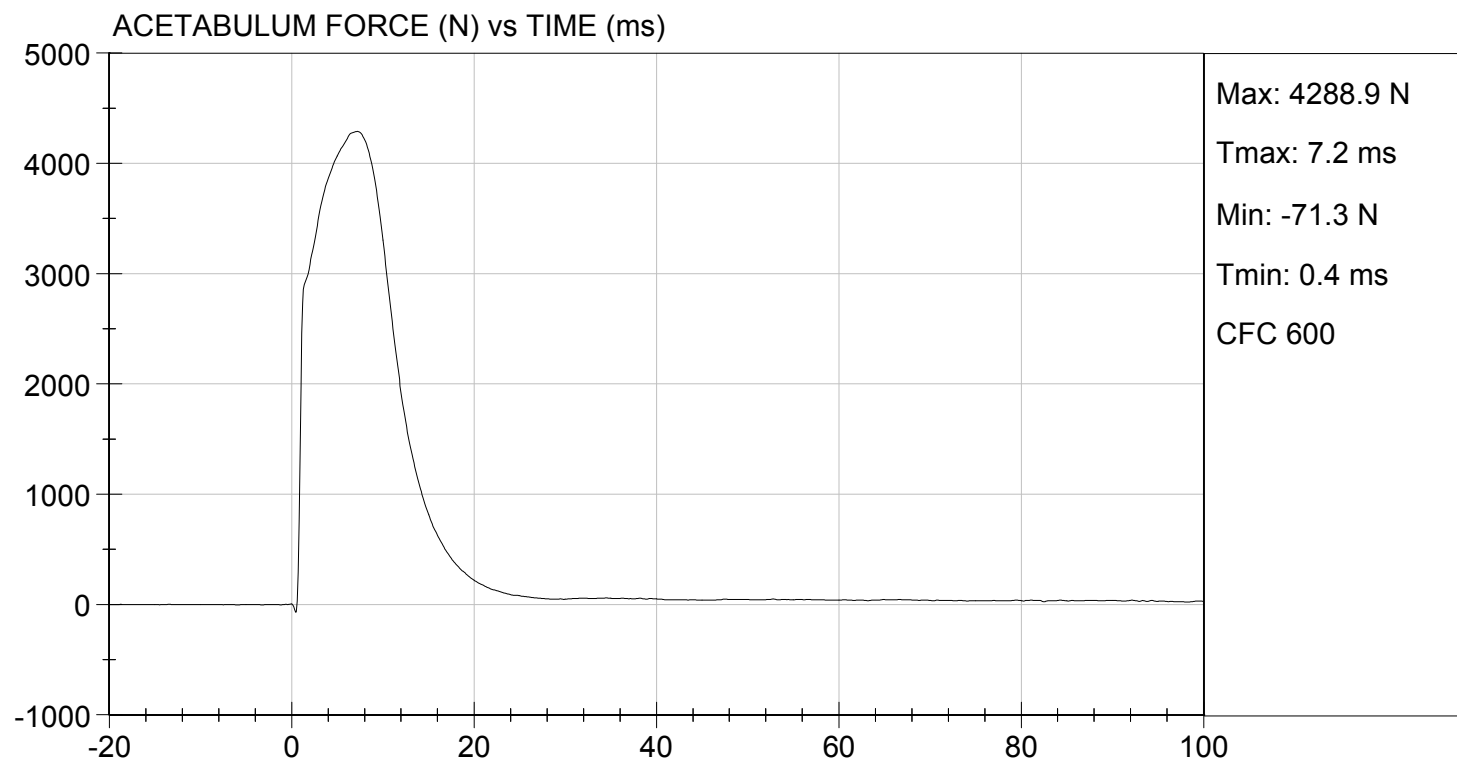
TEST DATE: 04/28/2014  
TEST #: D141627





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

TEST DATE: 04/28/2014  
TEST #: D141627



**MGA RESEARCH CORPORATION**

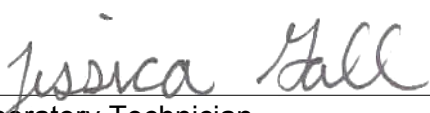
**ILIAC IMPACT TEST**

**SID-IIs BUILD LEVEL D DUMMY**

**ATD Serial No:** 306

**Test I.D:** D141628

| Tested Parameter           | Units | Specification | Result | Pass/Fail |
|----------------------------|-------|---------------|--------|-----------|
| Temperature                | deg C | 20.6 to 22.2  | 21.1   | Pass      |
| Humidity                   | %     | 10 to 70      | 36     | Pass      |
| Impact Velocity            | m/s   | 4.20 to 4.40  | 4.30   | Pass      |
| Maximum Probe Acceleration | G's   | 36 to 45      | 40     | Pass      |
| Pelvis Y Acceleration      | G's   | 28 to 39      | 31     | Pass      |
| Peak Pelvis Iliac Force    | N     | 4100 to 5100  | 4,730  | Pass      |
| Overall Test Results       |       |               |        | Pass      |

  
Laboratory Technician

04/28/2014

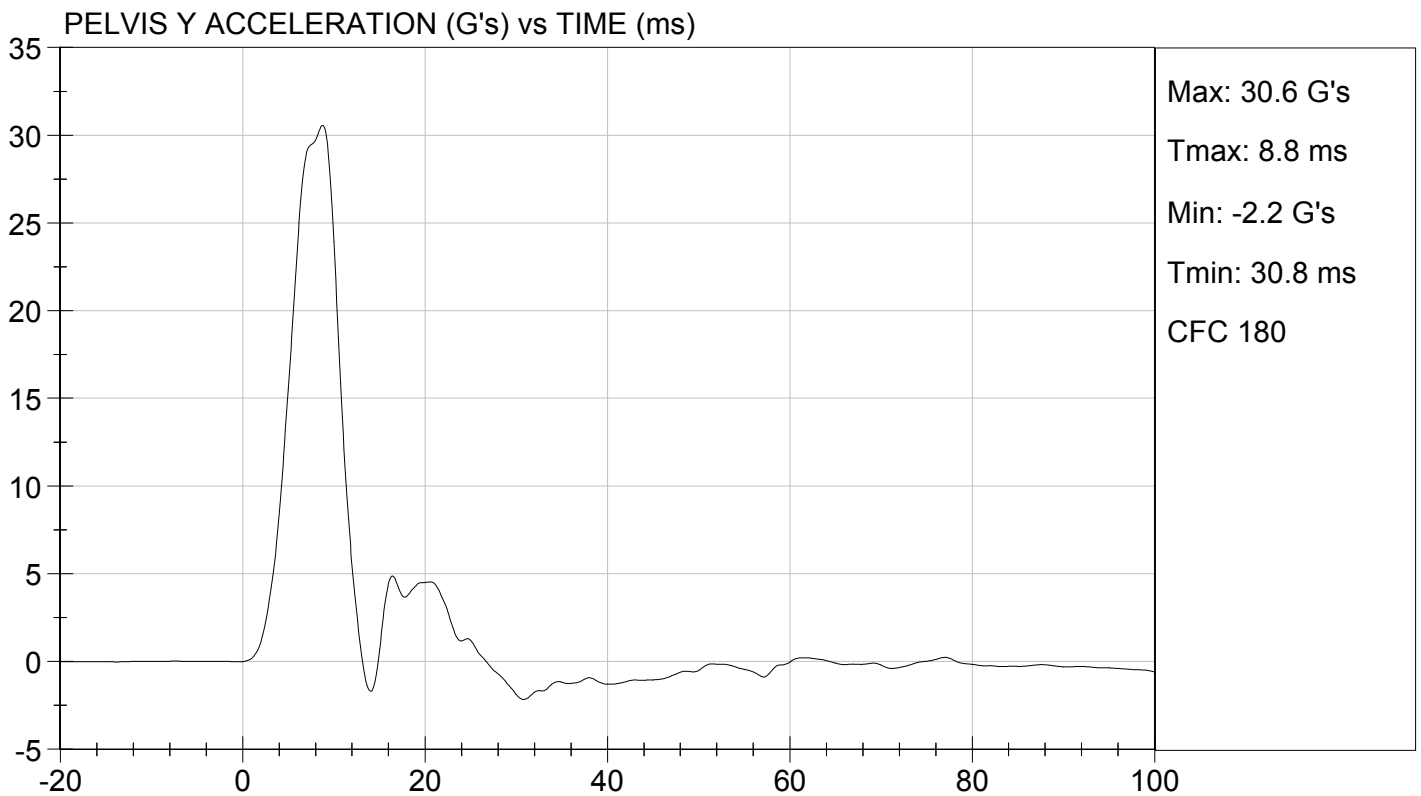
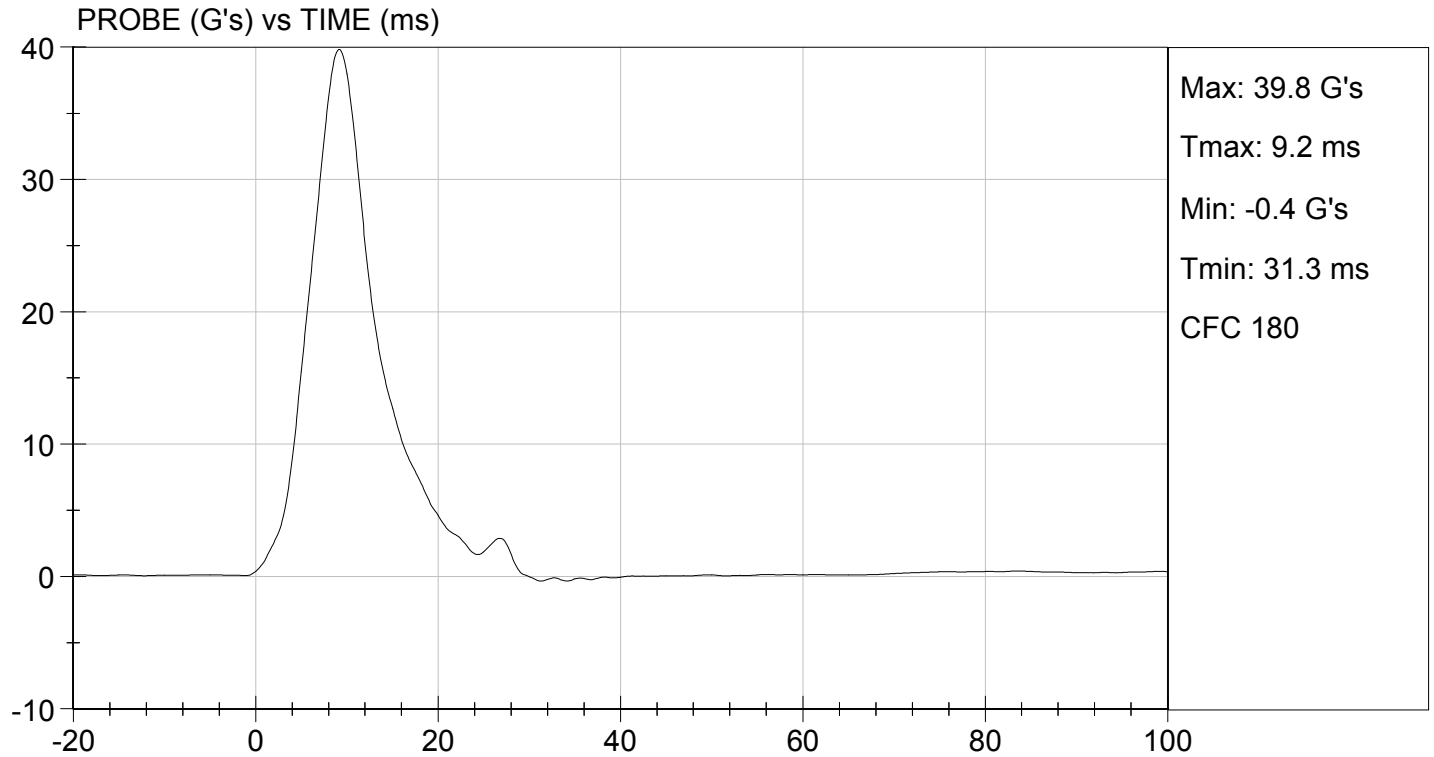
Test Date

  
Approved By



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

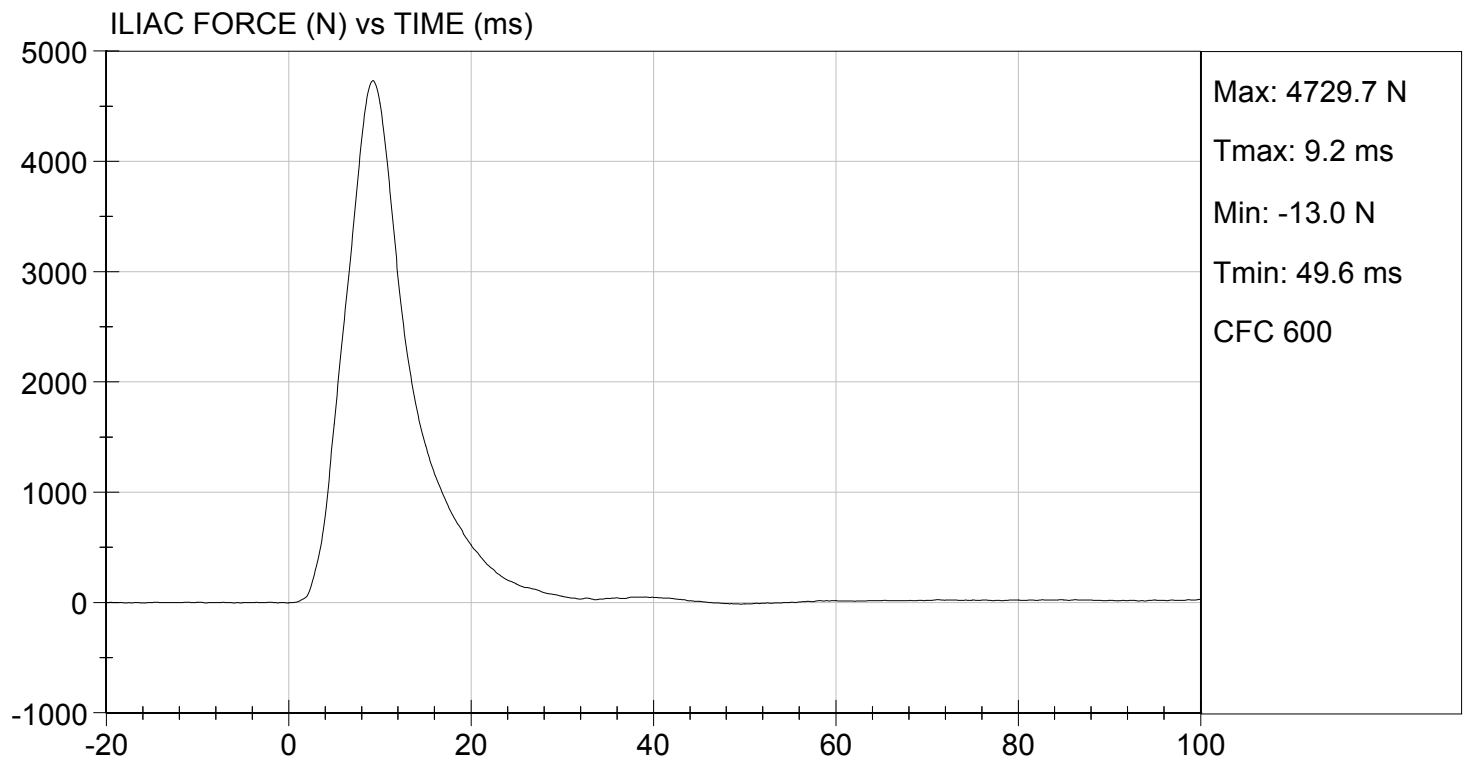
TEST DATE: 04/28/2014  
TEST #: D141628



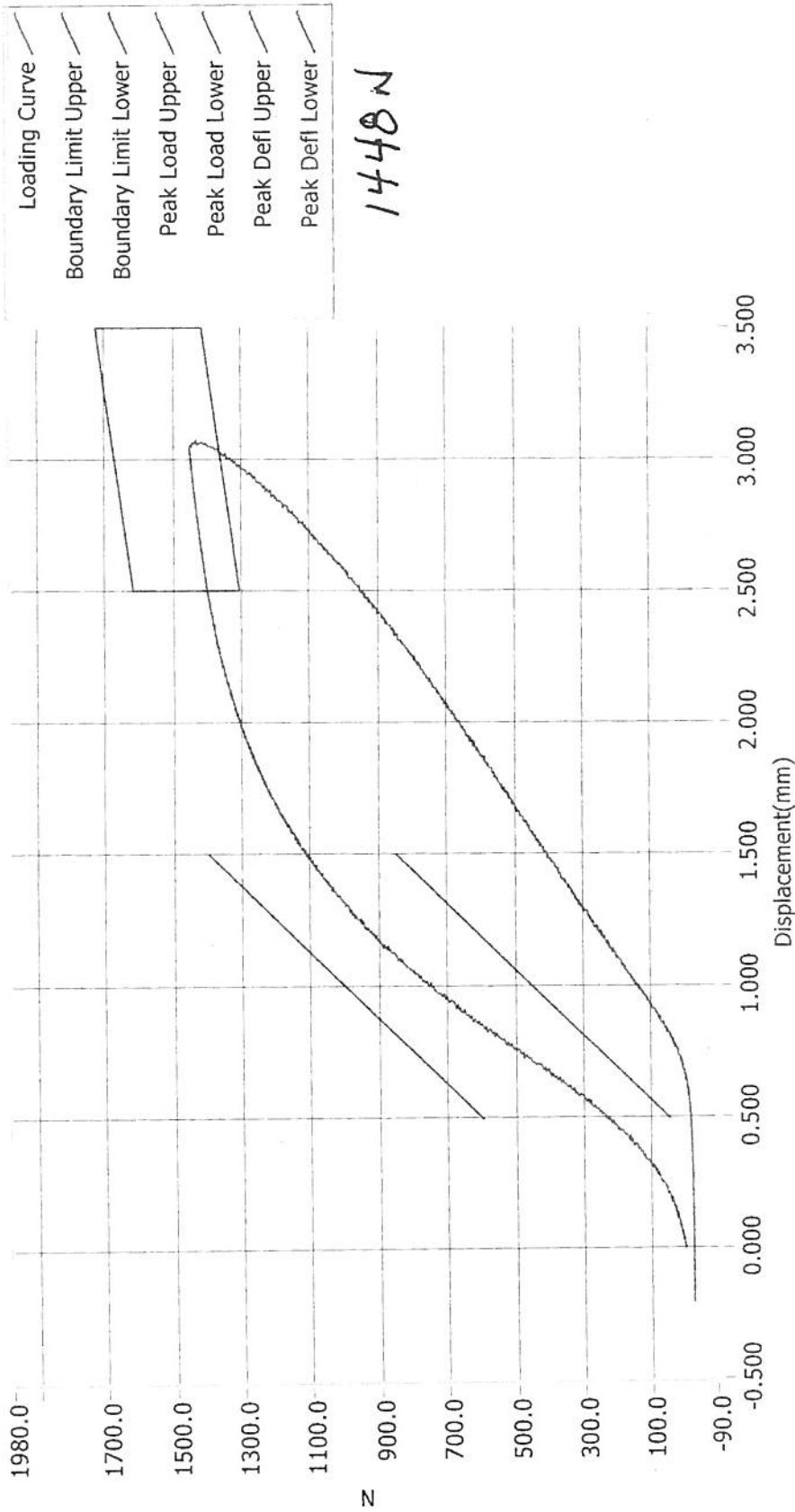


TEST DESC: ILLIAC  
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 04/28/2014  
TEST #: D141628



# Resultant Data - SIDIIs Plug Compression



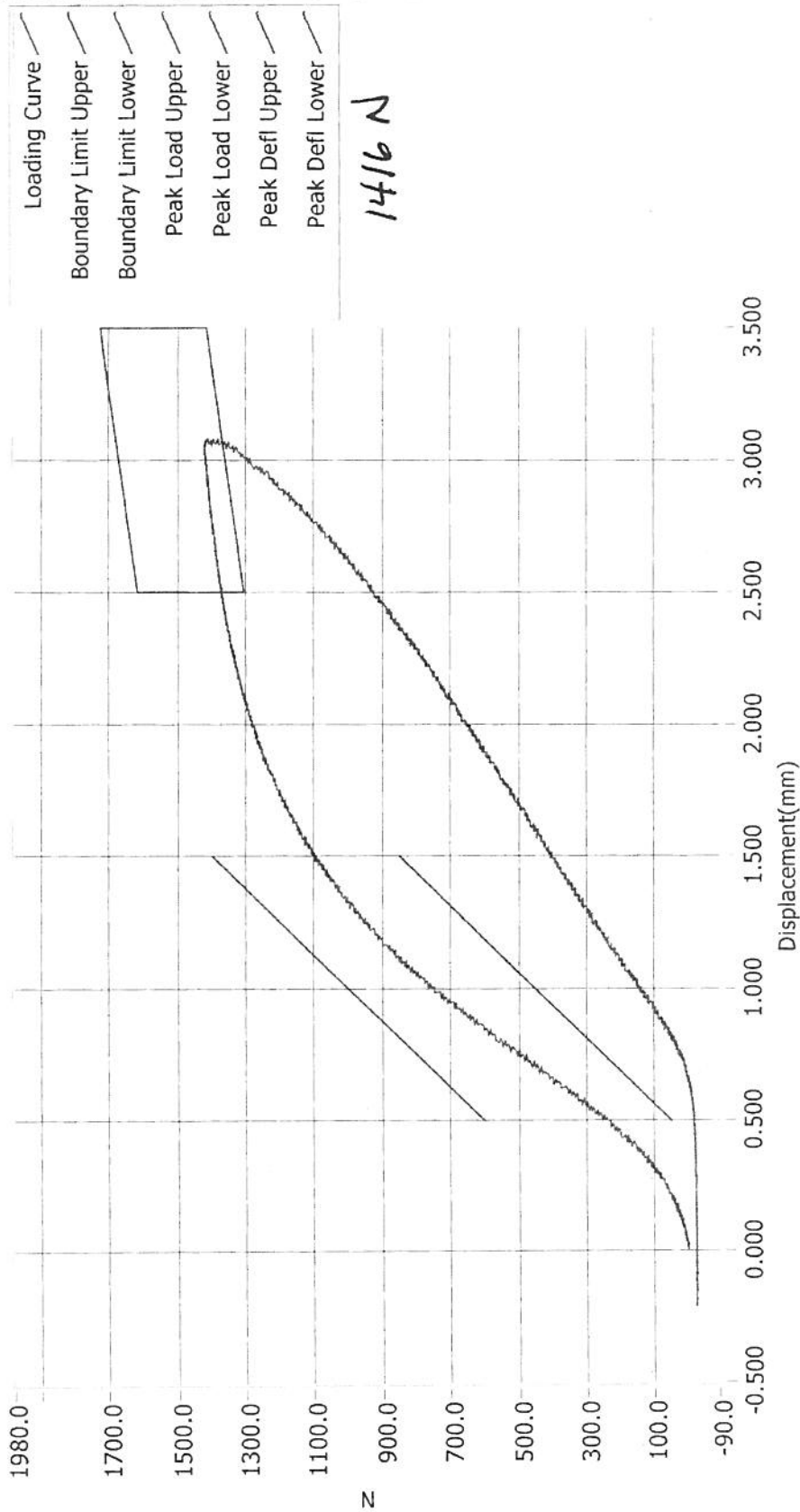
ATD Calibration Lab

| Test ID | Part Serial Number | Test Date | Test Time |
|---------|--------------------|-----------|-----------|
|         | 63551              | 2/4/2013  | 11:43 PM  |
| Cert ID | ATD Serial Number  | ATD Type  |           |
|         | N/A                | SIDIIs    |           |

Current Date : 2/4/2013

Current Time : 23:44:23

# Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

| Test ID | Part Serial Number | Test Date | Test Time |
|---------|--------------------|-----------|-----------|
|         | 63568              | 2/5/2013  | 12:39 AM  |
| Cert ID | ATD Serial Number  | ATD Type  |           |
|         | N/A                | SIDIIs    |           |

Current Date : 2/5/2013 Current Time : 00:40:22

**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               | P79575       | Endevco          | 12/30/13 |
|                                  |               |        |   | Y               | P79577       | Endevco          | 12/30/13 |
|                                  |               |        |   | Z               | P79578       | Endevco          | 12/30/13 |
|                                  |               |        |   | Xr              | P79799       | Endevco          | 12/30/13 |
|                                  |               |        |   | Yr              | P79802       | Endevco          | 12/30/13 |
|                                  |               |        |   | Zr              | P79803       | Endevco          | 12/30/13 |
| Displacement Potentiometers      | Thoracic Rib  | Upper  | Y | G033            | FTSS         | 04/17/14         |          |
|                                  |               | Middle | Y | G1261           | FTSS         | 04/17/14         |          |
|                                  |               | Lower  | Y | G1270           | FTSS         | 04/17/14         |          |
|                                  | Abdominal Rib | Upper  | Y | G032            | FTSS         | 04/17/14         |          |
|                                  |               | Lower  | Y | G1304           | FTSS         | 04/17/14         |          |
| Lower Spine Accelerometers (T12) |               |        |   | X               | P79441       | Endevco          | 04/10/14 |
|                                  |               |        |   | Y               | P79442       | Endevco          | 04/10/14 |
|                                  |               |        |   | Z               | P79443       | Endevco          | 04/10/14 |
| Acetabulum Load Cell             |               |        |   | Y               | ACG111       | FTSS             | 04/03/14 |
| Iliac Wing Load Cell             |               |        |   | Y               | IWG226       | FTSS             | 04/03/14 |
| Pelvis Plug (struck side)        |               |        |   |                 | 63551        | FTSS             | 02/04/13 |
| Pelvis Plug (non-struck side)    |               |        |   |                 | 63568        | FTSS             | 02/05/13 |

**Table 2 – Vehicle Instrumentation**

|                           |   | Serial Number | Manufacturer | Calibration Date |
|---------------------------|---|---------------|--------------|------------------|
| Vehicle Center of Gravity | X | P73966        | Endevco      | 01/24/14         |
| Vehicle Center of Gravity | Y | P73968        | Endevco      | 01/24/14         |
| Vehicle Center of Gravity | Z | P73967        | Endevco      | 01/24/14         |
| Left Floor Sill           | Y | P73757        | Endevco      | 01/14/14         |
| A-Pillar Sill             | Y | P73700        | Endevco      | 12/30/13         |
| A-Pillar Low              | Y | P67439        | Endevco      | 12/23/13         |
| A-Pillar Mid              | Y | P66872        | Endevco      | 12/23/13         |
| B-Pillar Sill             | Y | P74689        | Endevco      | 01/31/14         |
| B-Pillar Low              | Y | P63258        | Endevco      | 04/21/14         |
| B-Pillar Mid              | V | P64015        | Endevco      | 04/21/14         |
| Driver Seat               | Y | P66773        | Endevco      | 04/23/14         |
| Engine Top                | X | P59658        | Endevco      | 12/23/13         |
| Engine Top                | Y | P59657        | Endevco      | 12/23/13         |
| Firewall                  | Y | P64023        | Endevco      | 04/23/14         |
| Right Roof                | Y | P67506        | Endevco      | 04/23/14         |
| Right Floor Sill          | Y | P67886        | Endevco      | 01/15/14         |
| Rear Floorpan             | X | P77669        | Endevco      | 01/24/14         |
| Rear Floorpan             | Y | P77668        | Endevco      | 01/24/14         |

**Table 3 – Pole Instrumentation**

|             | Serial Number | Manufacturer | Calibration Date |
|-------------|---------------|--------------|------------------|
| Load Cell 1 | DG6277        | FTSS         | 08/16/13         |
| Load Cell 2 | DG6278        | FTSS         | 08/16/13         |
| Load Cell 3 | DG6279        | FTSS         | 08/19/13         |
| Load Cell 4 | DG6280        | FTSS         | 08/19/13         |
| Load Cell 5 | DG6281        | FTSS         | 08/19/13         |
| Load Cell 6 | DG6283        | FTSS         | 08/19/13         |
| Load Cell 7 | DG6284        | FTSS         | 08/19/13         |
| Load Cell 8 | DG6582        | FTSS         | 08/19/13         |