REPORT NUMBER: 208-MGA-2007-004

VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 301, FUEL SYSTEM INTEGRITY

GENERAL MOTORS CORPORATION
2007 CHEVROLET IMPALA PASSENGER CAR
NHTSA NO.: C70109

PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105

TEST DATES: MARCH 7, 2007 - MAY 9, 2007

FINAL REPORT DATA: AUGUST 28, 2007

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVENUE, S.E., NVS-220
WASHINGTON, D.C. 20590
This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-03-D-11002.

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Prepared by: ___________ Date: August 28, 2007
Jeff Lewandowski, Project Engineer

Reviewed by: ___________ Date: August 28, 2007
David Winkelbauer, Facility Director

FINAL REPORT ACCEPTED BY OVSC:

Accepted By: ___________ Date: August 28, 2007

Acceptance Date: August 28, 2007
Compliance tests were conducted on the subject 2007 Chevrolet Impala in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-13 for the determination of FMVSS 208 compliance. Test failures identified were as follows:

None

Frontal Impact
40 kmph Vehicle Safety Compliance Testing
FMVSS 208, “Occupant Crash Protection”
FMVSS 212, “Windshield Mounting”
FMVSS 219, (partial), “Windshield Zone Intrusion”
FMVSS 301, “Fuel System Integrity”

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Technical Information Services (TIS)
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Form DOT F1700.7 (8-72)
<table>
<thead>
<tr>
<th>Section</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Purpose of Compliance Test</td>
<td>1</td>
</tr>
<tr>
<td>2 Tests Performed</td>
<td>2</td>
</tr>
<tr>
<td>3 Injury Result Summary</td>
<td>4</td>
</tr>
<tr>
<td>4 Discussion of Test (if applicable)</td>
<td>6</td>
</tr>
<tr>
<td>5 Test Data Sheets</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Sheet</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 COTR Vehicle Work Order</td>
<td>8</td>
</tr>
<tr>
<td>2 Report of Vehicle Condition</td>
<td>12</td>
</tr>
<tr>
<td>3 Certification Label and Tire Placard Information</td>
<td>14</td>
</tr>
<tr>
<td>4 Rear Outboard Seating Position Seat Belts</td>
<td>15</td>
</tr>
<tr>
<td>5 Air Bag Labels</td>
<td>16</td>
</tr>
<tr>
<td>6 Readiness Indicator</td>
<td>27</td>
</tr>
<tr>
<td>7 Passenger Air Bag Manual Cut-Off Device</td>
<td>28</td>
</tr>
<tr>
<td>8 Lap Belt Lockability</td>
<td>31</td>
</tr>
<tr>
<td>9 Seat Belt Warning System</td>
<td>43</td>
</tr>
<tr>
<td>10 Belt Contact Force</td>
<td>45</td>
</tr>
<tr>
<td>11 Latch Plate Access</td>
<td>48</td>
</tr>
<tr>
<td>12 Seat Belt Retraction</td>
<td>50</td>
</tr>
<tr>
<td>13 Seat Belt Guides and Hardware</td>
<td>52</td>
</tr>
<tr>
<td>14 Marking of Reference Points &amp; Points</td>
<td>58</td>
</tr>
<tr>
<td>15 H-point Determination for 50th Percentile Male Dummy</td>
<td>70</td>
</tr>
<tr>
<td>16 Air Bag Suppression Telltale</td>
<td>76</td>
</tr>
<tr>
<td>17 Suppression Test Using 12-Month CRABI Dummy</td>
<td>77</td>
</tr>
<tr>
<td>18 Suppression Test Using Newborn Infant Dummy</td>
<td>84</td>
</tr>
<tr>
<td>19 Suppression Test Using 3-YO Dummy and Booster Seats</td>
<td>85</td>
</tr>
<tr>
<td>20 Suppression Test Using 3-YO Dummy and Fwd Facing Restraints</td>
<td>87</td>
</tr>
<tr>
<td>21 Suppression Test Using an Unbelted 3-YO Dummy</td>
<td>90</td>
</tr>
<tr>
<td>22 Suppression Test Using 6-YO Dummy and Booster Seats</td>
<td>91</td>
</tr>
<tr>
<td>23 Suppression Test Using an Unbelted 6-YO Dummy</td>
<td>94</td>
</tr>
<tr>
<td>29 Summary of Low Risk Deployment Using an Unbelted 5th% Dummy Position 1</td>
<td>95</td>
</tr>
<tr>
<td>30 Summary of Low Risk Deployment Using an Unbelted 5th% Dummy Position 2</td>
<td>96</td>
</tr>
<tr>
<td>32 Vehicle Weight, Fuel Tank, and Attitude Data</td>
<td>97</td>
</tr>
<tr>
<td>33 Vehicle Accelerometer Locations and Measurements</td>
<td>101</td>
</tr>
<tr>
<td>34 Photographic Targets</td>
<td>104</td>
</tr>
<tr>
<td>Data Sheet</td>
<td>Page No</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
</tr>
<tr>
<td>35 Camera Locations</td>
<td>110</td>
</tr>
<tr>
<td>36 Dummy Positioning</td>
<td>112</td>
</tr>
<tr>
<td>37 Dummy Measurements</td>
<td>121</td>
</tr>
<tr>
<td>38 Crash Test</td>
<td>124</td>
</tr>
<tr>
<td>40 Accident Investigation Measurements</td>
<td>126</td>
</tr>
<tr>
<td>41 Windshield Mounting (FMVSS 212)</td>
<td>128</td>
</tr>
<tr>
<td>42 Windshield Zone Intrusion (FMVSS 219)</td>
<td>130</td>
</tr>
<tr>
<td>43 Fuel System Integrity (FMVSS 301)</td>
<td>132</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Crash Test Data</td>
<td>A-1</td>
</tr>
<tr>
<td>B Low Risk Test Data</td>
<td>B-1</td>
</tr>
<tr>
<td>C Crash Test Photographs</td>
<td>C-1</td>
</tr>
<tr>
<td>D Low Risk Photographs</td>
<td>D-1</td>
</tr>
<tr>
<td>E Suppression Photographs</td>
<td>E-1</td>
</tr>
<tr>
<td>F Instrumentation Calibration</td>
<td>F-1</td>
</tr>
<tr>
<td>G Notice of Test Failure (If Applicable)</td>
<td>G-1</td>
</tr>
</tbody>
</table>
SECTION 1
PURPOSE OF COMPLIANCE TEST

The tests performed are part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-03-D-11002. The purpose of this test was to determine whether the subject vehicle, a 2007 Chevrolet Impala, NHTSA No. C70109, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity". The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No. TP208-13 dated July 27, 2005.
The following checked items indicate the tests that were performed:

1. Rear outboard seating position seat belts (S4.1.1.2(b) & (S4.2.4)
2. Air bag labels (S4.5.1)
3. Readiness indicator (S4.5.2)
4. Passenger air bag manual cut-off device (S4.5.4)
5. Lap belt lockability (S7.1.1.5)
6. Seat belt warning system (S7.3)
7. Seat belt contact force (S7.4.4)
8. Seat belt latch plate access (S7.4.4)
9. Seat belt retraction (S7.4.5)
10. Seat belt guides and hardware (S7.4.6)
11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R)
12. Suppression tests with newborn infant (Part 572, Subpart K)
13. Suppression tests with 3-year-old dummy (Part 572, Subpart P)
14. Suppression tests with 6-year-old dummy (Part 572, Subpart N)
15. Test of reactivation of the passenger air bag system with an unbelted 5th percentile female dummy
16. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R)
17. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P)
18. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N)
19. Low risk deployment test with 5th female dummy (Part 572, Subpart O)
20. Impact Tests

Frontal Oblique
- Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
- Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
- Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))

Frontal 0°
- Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
- Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
- Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
- Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
- Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
- Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
- Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
- Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

The dynamic tests were recorded using high-speed film and high-speed digital video.

The vehicle appears to meet all of the performance requirements to which it was tested.
## SECTION 3

### INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

**Test Vehicle:** 2007 Chevrolet Impala  
**Test Program:** FMVSS 208 Compliance  
**NHTSA No.:** C70109  
**Test Date:** 4/25/07

### 5th Percentile Female Low Risk Deployments

#### 5th Percentile Female SN 505 Position 1 (Chin On Module) 4-25-07

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Measured Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIC15</td>
<td>700</td>
<td>4</td>
</tr>
<tr>
<td>Peak Nij (Nte)</td>
<td>1.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>61.1</td>
</tr>
<tr>
<td>Peak Nij (Ntf)</td>
<td>1.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>10.0</td>
</tr>
<tr>
<td>Peak Nij (Nce)</td>
<td>1.0</td>
<td>0.0</td>
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<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>0.9</td>
</tr>
<tr>
<td>Peak Nij (Ncf)</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>3.7</td>
</tr>
<tr>
<td>Neck Tension</td>
<td>2070 N</td>
<td>464</td>
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<tr>
<td>Neck Compression</td>
<td>2520 N</td>
<td>7</td>
</tr>
<tr>
<td>Chest g</td>
<td>60 g</td>
<td>6</td>
</tr>
<tr>
<td>Chest Displacement</td>
<td>52 mm</td>
<td>3</td>
</tr>
<tr>
<td>Left Femur</td>
<td>6805 N</td>
<td>82</td>
</tr>
<tr>
<td>Right Femur</td>
<td>6805 N</td>
<td>24</td>
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</table>

Second stage fire time of 100 ms; Injuries calculated on 0 ms to 225 ms

#### 5th Percentile Female SN 511 Position 2 (Chin On Rim) 4-25-07

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Measured Value</th>
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<tbody>
<tr>
<td>HIC15</td>
<td>700</td>
<td>20</td>
</tr>
<tr>
<td>Peak Nij (Nte)</td>
<td>1.0</td>
<td>0.4</td>
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<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>30.5</td>
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<tr>
<td>Peak Nij (Ntf)</td>
<td>1.0</td>
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<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>60.3</td>
</tr>
<tr>
<td>Peak Nij (Nce)</td>
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<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>175.9</td>
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<tr>
<td>Peak Nij (Ncf)</td>
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<tr>
<td>Time (ms)</td>
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<tr>
<td>Neck Tension</td>
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<td>757</td>
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<td>2520 N</td>
<td>48</td>
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<tr>
<td>Chest g</td>
<td>60 g</td>
<td>13</td>
</tr>
<tr>
<td>Chest Displacement</td>
<td>52 mm</td>
<td>12</td>
</tr>
<tr>
<td>Left Femur</td>
<td>6805 N</td>
<td>40</td>
</tr>
<tr>
<td>Right Femur</td>
<td>6805 N</td>
<td>46</td>
</tr>
</tbody>
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Second stage fire time of 100 ms; Injuries calculated on 0 ms to 225 ms
SECTION 3
INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2007 Chevrolet Impala  
Test Program: FMVSS 208 Compliance  
NHTSA No.: C70109  
Test Date: 5/9/07

40 kmph Frontal Crash

Impact Angle: Zero degrees

Belted Dummies: Yes  
No

Speed Range: 0 to 40 kmph  
32 to 40 kmph  
0 to 48 kmph  
0 to 56 kmph

Test Speed: 39.8 kmph  
Test Weight: 1962.6 kg

Driver Dummy: 5th female  
50th male

Passenger Dummy: 5th female  
50th male

50th Percentile Male Frontal Crash Test

Vehicles certified to S5.1.1(b)(1), S5.1.1(b)(2), S5.1.2(a)(2), or S5.1.2(b)

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Driver</th>
<th>Passenger</th>
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<tr>
<td>HIC15</td>
<td>700</td>
<td>69</td>
<td>104</td>
</tr>
<tr>
<td>N_{le}</td>
<td>1.0</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>N_{lf}</td>
<td>1.0</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>N_{ce}</td>
<td>1.0</td>
<td>0.0</td>
<td>0.4</td>
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<td>N_{cf}</td>
<td>1.0</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Neck Tension</td>
<td>4170 N</td>
<td>752</td>
<td>1107</td>
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<tr>
<td>Neck Compression</td>
<td>4000 N</td>
<td>432</td>
<td>622</td>
</tr>
<tr>
<td>Chest g</td>
<td>60 g</td>
<td>33</td>
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<tr>
<td>Chest Displacement</td>
<td>63 mm</td>
<td>29</td>
<td>7</td>
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<tr>
<td>Left Femur</td>
<td>10,000 N</td>
<td>5785</td>
<td>5762</td>
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<tr>
<td>Right Femur</td>
<td>10,000 N</td>
<td>6185</td>
<td>5720</td>
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</table>
SECTION 4
DISCUSSION OF TESTS

Test Vehicle: 2007 Chevrolet Impala  
Test Program: FMVSS 208 Compliance  
NHTSA No.: C70109  
Test Dates: 3/7/07 - 5/9/07

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

The Instrument Panel (X) accelerometer was not installed for the crash test at the request of the COTR due to the deployment characteristics of the passenger air bag.
SECTION 5
TEST DATA SHEETS

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
NHTSA No.: C70109
Test Dates: 3/7/07 - 5/9/07
**DATA SHEET 1**

**COTR VEHICLE WORK ORDER**

Test Vehicle: 2007 Chevrolet Impala  
NHTSA No.: C70109  
Test Program: FMVSS 208 Compliance  
Test Dates: 3/7/07 - 5/9/07  
COTR Signature: Charles R. Case

Test to be performed for this vehicle are checked below:

1. Rear Outboard Seating Position Seat Belts (S4.1.2(b)) & (S4.2.4)
2. Air Bag Labels (S4.5.1)
3. Readiness Indicator (S4.5.2)
4. Passenger Air Bag Manual Cut-off Device (S4.5.4)
5. Lap Belt Lockability (S7.1.1.5)
6. Seat Belt Warning System (S7.3)
7. Seat Belt Contact Force (S7.4.4)
8. Seat Belt Latch Plate Access (S7.4.4)
9. Seat Belt Retraction (S7.4.5)
10. Seat Belt Guides and Hardware (S7.4.6)
11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints.

**Section B**
- Britax Handle with Care 191  
- Century Assura 4553  
- Century Avanta SE 41530  
- Century Smart Fit 4543  
- Cosco Arriva 02727  
- Cosco Opus 35 02603  
- Evenflo Discovery Adjust Right 212  
- Evenflo First Choice 204  
- Evenflo On My Way Position Right V 282  
- Graco Infant 8457

**Section C**
- Britax Roundabout 161  
- Century Encore 4612  
- Century STE 1000 4416  
- Cosco Olympian 02803  
- Cosco Touriva 02519  
- Evenflo Horizon V 425  
- Evenflo Medallion 254

12. Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints.

**Section A**
- Cosco Dream Ride 02-719

13. Suppression tests with 3-year-old dummy (Part 572, Subpart P) using the following indicated child restraints where a child restraint is required.
Section C

<table>
<thead>
<tr>
<th>Child Restraint</th>
<th>Forward Position</th>
<th>Mid Position</th>
<th>Forward Position</th>
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<tbody>
<tr>
<td>Britax Roundabout 161</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Century Encore 4612</td>
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<td></td>
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</tr>
<tr>
<td>Century STE 1000 4416</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Cosco Olympian 02803</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cosco Touriva 02519</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evenflo Horizon V 425</td>
<td></td>
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<td></td>
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<tr>
<td>Evenflo Medallion 254</td>
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Section D

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<th>Forward Position</th>
<th>Mid Position</th>
<th>Forward Position</th>
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<tbody>
<tr>
<td>Britax Roadster 9004</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Century Next Step 4920</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cosco High Back Booster 02-442</td>
<td></td>
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<tr>
<td>Evenflo Right Fit 245</td>
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<td></td>
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14. Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required. (Appendix H, Data Sheet 16H and 17H)

Section C

<table>
<thead>
<tr>
<th>Child Restraint</th>
<th>Forward Position</th>
<th>Mid Position</th>
<th>Forward Position</th>
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<tr>
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<tr>
<td>Century Encore 4612</td>
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<td>Century STE 1000 4416</td>
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</tr>
<tr>
<td>Cosco Olympian 02803</td>
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<td>Cosco Touriva 02519</td>
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<tr>
<td>Evenflo Horizon V 425</td>
<td></td>
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<tr>
<td>Evenflo Medallion 254</td>
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Section D

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<tr>
<th>Child Restraint</th>
<th>Forward Position</th>
<th>Mid Position</th>
<th>Forward Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britax Roadster 9004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Century Next Step 4920</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cosco High Back Booster 02-442</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evenflo Right Fit 245</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following Forward, Middle, and Rearward seat track positions

X Sitting on seat with back against seat back (S22.2.2.1)
X Sitting on seat with back against reclined seat back (S22.2.2.2)
X Sitting on seat with back not against seat back (S22.2.2.3)
X Sitting on seat edge, spine vertical, hands by the child’s side (S22.2.2.4)
X Standing on seat, facing forward (S22.2.2.5)
X Kneeling on seat facing forward (S22.2.2.6)
X Kneeling on seat facing rearward (S22.2.2.7)
X Lying on seat (S22.2.2.8)

16. Suppression tests with representative 3-year-old child in the following positions

X Sitting on seat with back against seat back (S22.2.2.1)
X Sitting on seat with back against reclined seat back (S22.2.2.2)
X Sitting on seat with back not against seat back (S22.2.2.3)
X Sitting on seat edge, spine vertical, hands by the child’s side (S22.2.2.4)
X Standing on seat, facing forward (S22.2.2.5)
X Kneeling on seat facing forward (S22.2.2.6)
X Kneeling on seat facing rearward (S22.2.2.7)
X Lying on seat (S22.2.2.8)

17. Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required.
18. Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required.

<table>
<thead>
<tr>
<th>Section D</th>
<th>Britax Roadster 9004</th>
<th>Full Rearward</th>
<th>Mid Position</th>
<th>Full Forward</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Century Next Step 4920</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Cosco High Back Booster 02-442</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo Right Fit 245</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
</tbody>
</table>

19. Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following Forward, Middle, and Rearward seat track positions

| X Sitting on seat with back against seat back (S22.2.2.1) |
| X Sitting on seat with back against reclined seat back (S22.2.2.2) |
| X Sitting on seat edge, spine vertical, hands by the child’s side (S22.2.2.4) |
| X Sitting back in the seat and leaning on the right front passenger door (S24.2.3) |

20. Suppression tests with representative 6-year-old child in the following positions

| Sitting on seat with back against seat back (S22.2.2.1) |
| Sitting on seat with back against reclined seat back (S22.2.2.2) |
| Sitting on seat edge, spine vertical, hands by the child’s side (S22.2.2.4) |
| Sitting back in the seat and leaning on the right front passenger door (S24.2.3) |

21. Test of Reactivation of the Passenger Air Bag System with an Unbelted 5th percentile female dummy (S20.3, 22.3, S24.3). Perform this test after the following suppression tests: After each restraint.

22. Test of Reactivation of the passenger air bag system with a representative 5th percentile female (S20.3, 22.3, S24.3). Perform this test after the following suppression tests:

23. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) using the following indicated child restraints.

<table>
<thead>
<tr>
<th>Section B</th>
<th>Britax Handle with Care 191</th>
<th>Full Rearward</th>
<th>Mid Position</th>
<th>Full Forward</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Century Assura 4553</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Century Avanta SE 41530</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Century Smart Fit 4543</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Cosco Arriva 02727</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Cosco Opus 35 02603</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo Discovery Adjust Right 212</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo First Choice 204</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo On My Way Position Right V 282</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Graco Infant 8457</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section C</th>
<th>Britax Roundabout 161</th>
<th>Full Rearward</th>
<th>Mid Position</th>
<th>Full Forward</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Century Encore 4612</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Century STE 1000 4416</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Cosco Olympian 02803</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Cosco Touriva 02519</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo Horizon V 425</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
<tr>
<td></td>
<td>Evenflo Medallion 254</td>
<td>Full Rearward</td>
<td>Mid Position</td>
<td>Full Forward</td>
</tr>
</tbody>
</table>
24. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions
   - Position 1
   - Position 2

25. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions
   - Position 1
   - Position 2

26. Low risk deployment test with 5th percentile female dummy (Part 572, Subpart O) in the following positions
   - X Position 1
   - X Position 2

27. Impact Tests
   - Frontal Oblique - Test Speed:
     - Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
     - Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
     - Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
   - X Frontal 0° - Test Speed: 39.8 kmph
     - Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1(b)(1) or S5.1.1(a))
     - Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
     - Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
     - Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
     - Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.2(a) (1))
     - Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
     - X Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
     - X Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
     - 40% Offset 0° Belted 5th male dummy driver and passenger (0 to 40 kmph) (S18.1)

28. Sled Test: Unbelted 50th male dummy driver and passenger (S13)

29. FMVSS 204 Indicant Test

30. FMVSS 212 Indicant Test

31. FMVSS 219 Indicant Test

32. FMVSS 301 Frontal Indicant Test
DATA SHEET 2
REPORT OF VEHICLE CONDITION

Test Vehicle: 2007 Chevrolet Impala
NHTSA No.: C70109
Test Program: FMVSS 208 Compliance
Test Dates: 3/7/07 - 5/9/07

CONTRACT NO.: DTNH22-03-D-11002
Date: 5/14/07
FROM (Lab and rep name): MGA Research Corporation
TO: NHTSA, OVSC (NVS-220)

PURPOSE: (X) Initial Receipt (   ) Received via Transfer (  ) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2007 Chevrolet Impala Sedan
MANUFACTURE DATE: 08/06
NHTSA NO. C70109
BODY COLOR: Red
VIN: 2G1WD58C579159017
GVWR: 2159 kg (4760 lbs)
GAWR (Fr): 1169 kg (2577 lbs)
GAWR (Rr): 990 kg (2183 lbs)

ODOMETER READINGS:
ARRIVAL (miles): 0
DATE: 3/6/07
COMPLETION (miles): 268
DATE: 5/9/07

PURCHASE PRICE: ($) 26,469
DEALER’S NAME: Ricart Automotive Group, 4255 S. Hamilton Rd., Groverport, OH 43125

A. All options listed on window sticker are present on the test vehicle:
_X Yes ___No

B. Tires and wheel rims are new and the same as listed: _X Yes ___No

C. There are no dents or other interior or exterior flaws: _X Yes ___No

D. The vehicle has been properly prepared and is in running condition:
_X Yes ___No

E. Keyless remote is available and working: ___Yes _X No

F. The glove box contains an owner’s manual, warranty document, consumer information, and extra set of keys:
_X Yes ___No

G. Proper fuel filler cap is supplied on the test vehicle:
_X Yes ___No

H. Using permanent marker, identify vehicle with NHTSA number and FMVSS test type(s) on roof line above driver door or for school buses, place a placard with NHTSA number inside the windshield and to the exterior front and rear side of bus:
_X Yes ___No

I. Place vehicle in storage area: _X Yes ___No

J. Inspect the vehicle’s interior and exterior, including all windows, seats, doors, etc. to confirm that each system is complete and functional per the manufacturer’s specifications. Any damage, misadjustment, or other unusual condition that could influence the test program or test results shall be recorded. Report any abnormal condition to the NHTSA COTR before beginning any test:
_X Vehicle OK ___Conditions reported below
REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: FMVSS 208, 212, 219, 301

VEHICLE: 2007 Chevrolet Impala  
NHTSA NO.: C70109

REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:
Spare tire, jack and tools, and trunk interior

Explanation for equipment removal:
Components removed for instrumentation installation and to meet target weight.

Test Vehicle Condition:
25 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, radiator damaged, air bags & pretensioners deployed, Stoddard in fuel system

RECORDED BY: Jeff Lewandowski  
DATE: 5/14/2007

APPROVED BY: David Winkelbauer  
DATE: 5/14/2007

# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #

RELEASE OF TEST VEHICLE

The vehicle described above is released from MGA to be delivered to:

Date:  
Time:  
Odometer:

Lab Rep’s Signature:  
Title:
Carrier/Customer Rep:  
Date:
DATA SHEET 3
CERTIFICATION LABEL AND TIRE PLACARD INFORMATION

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski
NHTSA No.: C70109
Test Date: 5/9/07

<table>
<thead>
<tr>
<th>Certification Label</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer:</td>
<td>General Motors Corporation</td>
</tr>
<tr>
<td>Date of Manufacture:</td>
<td>08/06</td>
</tr>
<tr>
<td>VIN:</td>
<td>2G1WD58C579159017</td>
</tr>
<tr>
<td>Vehicle Certified As (Pass. Car/MPV/Truck/Bus):</td>
<td>Passenger Car</td>
</tr>
<tr>
<td>Front Axle GVWR:</td>
<td>1169 kg (2577 lbs)</td>
</tr>
<tr>
<td>Rear Axle GVWR:</td>
<td>990 kg (2183 lbs)</td>
</tr>
<tr>
<td>Total GVWR:</td>
<td>2159 kg (4760 lbs)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tire Placard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable, vehicle is not a passenger car and does not have a tire placard.</td>
</tr>
<tr>
<td>This is not a passenger car, but all or part of this information is still contained on a vehicle label and is reported here.</td>
</tr>
<tr>
<td>Vehicle Capacity Weight:</td>
</tr>
<tr>
<td>Designated Seating Capacity Front:</td>
</tr>
<tr>
<td>Designated Seating Capacity Rear:</td>
</tr>
<tr>
<td>Total Designated Seating Capacity:</td>
</tr>
<tr>
<td>Recommended Cold Tire Inflation Pressure Front:</td>
</tr>
<tr>
<td>Recommended Cold Tire Inflation Pressure Rear:</td>
</tr>
<tr>
<td>Recommended Tire Size:</td>
</tr>
</tbody>
</table>

Signature: Nick Kosinski
Date: 5/9/07
DATA SHEET 4
REAR OUTBOARD SEATING POSITION SEAT BELTS

Test Vehicle: 2007 Chevrolet Impala  
NHTSA No.: C70109  
Test Program: FMVSS 208 Compliance  
Test Date: 3/7/07  
Test Technician: Nick Kosinski

<table>
<thead>
<tr>
<th>Do all rear outboard seating positions have Type 2 seat belts?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a Type 2 seat belt was not installed.

REMARKS:

Signature:  
Date: 3/7/07
Data Sheet 5

Air Bag Labels (S4.5.1)

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

1. Air bag maintenance label and owner's manual instructions: (S4.5.1(a))
   1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?
      - Yes, go to 1.2
      - No - go to 2
   1.2 Does the vehicle have a label specifying air bag maintenance or replacement?
      - Yes - Pass
      - No - Fail
   1.3 Does the label contain one of the following?
      - Yes - Pass
      - No - Fail
      Check applicable schedule:
      - Schedule on label specifies month and year (Record date_______)
      - Schedule on label specified vehicle mileage (Record mileage_______)
      - Schedule on label specifies interval measured from date on certification label
        (Record interval_______)
   1.4 Is the label permanently affixed within the passenger compartment such that it cannot be
      removed without destroying or defacing the label or the sunvisor? (3/19/01 legal interpretation to Todd Mitchell)
      - Yes - Pass
      - No - Fail
   1.5 Is the label lettered in English?
      - Yes - Pass
      - No - Fail
   1.6 Is the label in block capitals and numerals?
      - Yes - Pass
      - No - Fail
   1.7 Are the letters and numerals at least 3/32 inches high?
      - Yes - Pass
      - No - Fail
   1.8 Does the owner’s manual set forth the recommended schedule for maintenance or replacement?
      - Yes - Pass
      - No - Fail

2. Does the owner’s manual: (S4.5.1(f))
   2.1 Include a description of the vehicle’s air bag system in an easily understandable format?
      - Yes - Pass
      - No - Fail
   2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating position?
      - Yes - Pass
      - No - Fail
2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating position?
   - Yes - Pass
   - No - Fail

2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?
   - Yes - Pass
   - No - Fail

2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?
   - Yes - Pass
   - No - Fail

2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?
   - Yes - Pass
   - No - Fail

2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain answer from COTR) (S4.5.1(f)(2))
   - Yes - (Go to 2.7.1)
   - No - (Go to 3.)

2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))
   - Yes - Pass
   - No - Fail

2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))
   - Yes - Pass
   - No - Fail

2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))
   - Yes - Pass
   - No - Fail

2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1(f)(2)(ii))
   - Yes - Pass
   - No - Fail

2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))
   - Yes - Pass
   - No - Fail

2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2, or 23.2 (automatic suppression)?
   - Yes, continue with 2.7.6
   - No, go to 2.7.7

2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))
   - Yes - Pass
   - No - Fail
2.7.6.2 Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?
- Yes - Pass
- No - Fail

2.7.7 Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))
- Yes - Pass
- No - Fail

2.7.8 Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))
- Yes - Pass
- No - Fail

2.7.9 Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system? (S4.5.1(f)(2)(vii))
- Yes - Pass
- No - Fail

3. Sun Visor Air Bag Warning Label (S4.5.1(b)) Check only one of the following:
- The vehicle is not certified to meet the requirements of S19, S21, and S23 (Obtain answer from COTR) (S4.5.1(b)(1)) Go to 3.1 and skip 3.2
- The vehicle is certified to meet the requirements of S19, S21, and S23 on 9/1/03 or later. (Obtain answer from COTR) (S4.5.1(b)(3)) Go to 3.2 and skip 3.1

3.1 Vehicles not certified to meet the requirements of S19, S21, and S23.

3.1.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or sun visor? (S4.5.1(b)(1)) (3/19/01 legal interpretation to Todd Mitchell)
- Driver Side, Yes - Pass
- Driver Side, No - Fail
- Passenger Side, Yes - Pass
- Passenger Side, No - Fail
3.1.2 Does the label conform in content to the label shown in either Figure 6A or 6B (Figure 6b is for vehicles with passenger air bag on-off switches), as appropriate, at each front outboard seating position? (S4.5.1(b)(1)) (Vehicles without back seats may omit the statement: “The back seat is the safest place for children.” (S4.5.1(b)(1)(iv))

<table>
<thead>
<tr>
<th></th>
<th>Driver Side, Yes - Pass</th>
<th>Driver Side, No - Fail</th>
<th>Passenger Side, Yes - Pass</th>
<th>Passenger Side, No - Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1.3</strong></td>
<td>Is the label heading area yellow with the word “WARNING” and the alert symbol in black? (S4.5.1(b)(1)(i))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Driver Side, Yes - Pass</td>
<td>Driver Side, No - Fail</td>
<td>Passenger Side, Yes - Pass</td>
<td>Passenger Side, No - Fail</td>
</tr>
<tr>
<td><strong>3.1.4</strong></td>
<td>Is the message area white with black text? (S4.5.1(b)(1)(ii))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Driver Side, Yes - Pass</td>
<td>Driver Side, No - Fail</td>
<td>Passenger Side, Yes - Pass</td>
<td>Passenger Side, No - Fail</td>
</tr>
</tbody>
</table>
3.1.5 Is the message area at least 30 cm²? (S4.5.1(b)(1)(ii))

The message area consists of the total label area minus the yellow heading area and the pictogram. The pictogram is enclosed on the left side and bottom by the edge of the label and on the top by line that borders the yellow heading area. The right side of the pictogram is defined by a vertical line midway between the rightmost edge of the pictogram and the left most edge of the text, including any bullets. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Driver Side: Length______, Width________
Passenger Side: Length______, Width________

Actual message area __________ cm²

3.1.6 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(b)(2)(iii))

Driver Side, Yes - Pass
Driver Side, No - Fail
Passenger Side, Yes - Pass
Passenger Side, No - Fail

3.1.7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))

Actual diameter__________mm

3.2 Vehicles certified to meet the requirements of S19, S21, and S23 on 9/1/03 and later. (S4.5.1(b)(3))

3.2.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(3)) (3/19/01 legal interpretation to Todd Mitchell)

Driver Side, Yes - Pass
Driver Side, No - Fail
Passenger Side, Yes - Pass
Passenger Side, No - Fail
3.2.2 Does the label conform in content to the label shown in Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: “The back seat is the safest place for children.” (S4.5.1(b)(3)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement “Never put a rear-facing child seat in the front.”)(S4.5.1(b)(3)(v))

![Figure 11. Sun Visor Label Visible when Visor is in Down Position.](image)

<table>
<thead>
<tr>
<th>Side</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
<tr>
<td>Passenger Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
</tbody>
</table>

3.2.3 Is the label heading area yellow with the word “WARNING” and the alert symbol in black? (S4.5.1(b)(3)(i))

<table>
<thead>
<tr>
<th>Side</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
<tr>
<td>Passenger Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
</tbody>
</table>

3.2.4 Is the message area white with black text? (S4.5.1(b)(3)(ii))

<table>
<thead>
<tr>
<th>Side</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
<tr>
<td>Passenger Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
</tbody>
</table>

3.2.5 Is the message area at least 30 cm²? (S4.5.1(b)(3)(iii)) The message area consists of the total label area minus the yellow heading area and the pictogram. The pictogram is enclosed on the left side and bottom by the edge of the label. The top edge of the pictogram area is defined by a horizontal line midway between the uppermost edge of the pictogram and the lowermost edge of the text. The right side of the pictogram is defined by a vertical line midway between the rightmost edge of the pictogram and the left most edge of the text, including any bullets. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Driver Side: Length 9 cm, Width 3.8 cm
Passenger Side: Length 9 cm, Width 3.8 cm

Actual message area 34.2 cm²

<table>
<thead>
<tr>
<th>Side</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
<tr>
<td>Passenger Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
</tbody>
</table>

3.2.6 Is the pictogram black on a white background? (S4.5.1(b)(3)(iii))

<table>
<thead>
<tr>
<th>Side</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
<tr>
<td>Passenger Side</td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
</tbody>
</table>
3.2.7 Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(3)(iii))

Driver Side: Length 32 mm
Passenger Side: Length 32 mm
X Driver Side, Yes - Pass
X Driver Side, No - Fail
X Passenger Side, Yes - Pass
X Passenger Side, No - Fail

3.3 Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1(b)(5)(i))

X Driver Side, Yes - Pass
X Driver Side, No - Fail
X Passenger Side, Yes - Pass
X Passenger Side, No - Fail

3.4 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label and/or the rollover-warning label? (S4.5.1(b)(5)(ii))

X Driver Side, Yes - Pass
X Driver Side, No - Fail
X Passenger Side, Yes - Pass
X Passenger Side, No - Fail

3.5 Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?

__ Yes, go to 3.5.1

x No, go to 4 (skipping 3.5.1 through 3.5.3)

3.5.1 Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?

___ Yes, go to 3.5.2 and skip 3.5.3

__ No, go to 3.5.3 and skip 3.5.2

3.5.2 Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))

______________ actual distance

3.5.3 Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105 (d)(1)(iv)(A))

_________ actual distance

__Yes-Pass __No-FAIL

4. Air Bag Alert Label (S4.5.1(c) (A “Rollover Warning Label” or “Rollover Alert Label” may be on the same side of the driver’s sun visor as the “Air Bag Alert Label.” 575.105(d))

4.1 Is the sun visor warning label visible when the sun visor is in the stowed position?

X If yes for driver and passenger, go to 5.
X Driver Side, Yes
X Driver Side, No
X Passenger Side, Yes
X Passenger Side, No
4.2 Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c)) (3/19/01 legal interpretation to Todd Mitchell)

<table>
<thead>
<tr>
<th></th>
<th>Driver Side, Yes - Pass</th>
<th>Driver Side, No - Fail</th>
<th>Passenger Side, Yes - Pass</th>
<th>Passenger Side, No - Fail</th>
</tr>
</thead>
</table>

4.3 Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))

<table>
<thead>
<tr>
<th></th>
<th>Driver Side, Yes - Pass</th>
<th>Driver Side, No - Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side, Yes - Pass</td>
<td>Passenger Side, Yes - Pass</td>
<td>Passenger Side, No - Fail</td>
</tr>
</tbody>
</table>

4.4 Does the label conform in content to the label shown in Figure 6C? (S4.5.1(c))

![Image](image_url)

4.5 Is the message area black with yellow text? (S4.5.1(c)(1))

<table>
<thead>
<tr>
<th></th>
<th>Driver Side, Yes - Pass</th>
<th>Driver Side, No - Fail</th>
<th>Passenger Side, Yes - Pass</th>
<th>Passenger Side, No - Fail</th>
</tr>
</thead>
</table>

4.6 Is the message area at least 20 cm²? (S4.5.1(c)(1)) The message area consists of the black part of the label.

<table>
<thead>
<tr>
<th></th>
<th>Driver Side, Yes - Pass</th>
<th>Driver Side, No - Fail</th>
<th>Passenger Side, Yes - Pass</th>
<th>Passenger Side, No - Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Side: Length _____, Width _____</td>
<td>Passenger Side: Length _____, Width _____</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual message area _____</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.7 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2))

<table>
<thead>
<tr>
<th></th>
<th>Driver Side, Yes - Pass</th>
<th>Driver Side, No - Fail</th>
<th>Passenger Side, Yes - Pass</th>
<th>Passenger Side, No - Fail</th>
</tr>
</thead>
</table>
4.8 Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2))

Driver Side Diameter _____
Passenger Side Diameter _____

5. Label on the Dashboard

5.1 Is the vehicle certified to meet the requirements of S19, S21, and S23? (Obtain answer from COTR) (S4.5.1(e)(3))

X Yes, go to 5.1.1 and skip 5.2
X No, go to 5.2, skipping 5.1.1 through 5.6

5.1.1 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(3))

X Yes - Pass
X No - Fail

5.1.2 Is the label clearly visible from all front seating positions? (S4.5.1(e)(3))

X Yes - Pass
X No - Fail

5.1.3 Does the label conform in content to the label shown in Figure 12? (S4.5.1(e)(3))

Vehicles without back seats may omit the statement: "The back seat is the safest place for children." Vehicles without back seats or too small to accommodate a rear-facing child restraint consistent with S4.5.4.1 as determined in DATA SHEET 7 may omit the statement "Never put a rear-facing child seat in the front." (S4.5.1(e)(3)(iii))

X Yes - Pass
X No - Fail

5.1.4 Is the heading area yellow with black text? (S4.5.1(e)(3)(i))

X Yes - Pass
X No - Fail

5.1.5 Is the message white with black text? (S4.5.1(e)(3)(ii))

X Yes - Pass
X No - Fail
5.1.6 Is the message area at least $30 \text{ cm}^2$? (S4.5.1(e)(3)(ii)) The message area consists of the total label area minus the yellow heading area. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Length 10.5 cm  Width 3.8 cm
Actual message area $39.9 \text{ cm}^2$
X Yes - Pass
X No - Fail

5.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(1))
Yes - Pass
No - Fail

5.2.1 Is the label clearly visible from all front seating positions? (S4.5.1(e)(1))
Yes - Pass
No - Fail

5.2.2 Does the label conform in content to the label shown in Figure 7? (S4.5.1(e)(1)(iii)) Vehicles without back seats may omit the statement: “The back seat is the safest place for children.” (S4.5.1(e)(1)(iii))
Yes - Pass
No - Fail

5.2.3 Is the heading area yellow with the word “WARNING” and the alert symbol in black? (S4.5.1(e)(1)(i))
Yes - Pass
No - Fail

5.2.4 Is the message white with black text? (S4.5.1(e)(1)(ii))
Yes - Pass
No - Fail

5.2.5 Is the message area at least $30 \text{ cm}^2$? (S4.5.1(e)(1)(ii)) The message area consists of the total label area minus the yellow heading area. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)
Length_______, Width_______
Actual message area _________ cm$^2$
Yes - Pass
No - Fail
REMARKS:

I certify that I have read and performed each instruction.

Signature:  Nick Yosinski

Date:  3/7/07
An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement.

(11/8/94 legal interpretation to Lawrence F. Hennegerger on behalf of Breed)

1. Is the system totally mechanical? If Yes, this data sheet is complete.
   - Yes
   - No

2. Describe the location of the readiness indicator: Instrument panel/right side

3. Is the readiness indicator clearly visible to the driver?
   - Yes - Pass
   - No - Fail

4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner’s manual?
   - Yes - Pass
   - No - Fail

5. Does the vehicle have an on-off switch for the passenger air bag?
   - If Yes, go to 6
   - If No, this form is complete.

6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?
   - Yes - Pass
   - No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 3/7/07
DATA SHEET 7
PASSENGER AIR BAG MANUAL CUT-OFF DEVICE (S4.5.4)

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

1. Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position?
   - Yes, go to 2
   - X No, this sheet is complete

2. Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4.1(a))
   - Yes, go to 3
   - No, go to 4

3. Verification there is room for a child restraint in the rear seat behind the driver’s seat. (S4.5.4.1(b))
   - 3.1 Using all the controls that affect the fore-aft movement of the seat, move the seat to the rearmost position. Mark this position.
     - N/A, the seat does not have fore-aft adjustment
   - 3.2 Using all the controls that affect the fore-aft movement of the seat, move the seat to the foremost position. Mark this position.
     - N/A, the seat does not have fore-aft adjustment
   - 3.3 Move the seat to the middle of the foremost and rearmost positions. (S8.1.2)
     - N/A, the seat does not have a fore-aft adjustment
   - 3.4 If the driver’s seat height is adjustable, use all the controls that affect height to put it in the lowest position while maintaining the middle fore-aft position. (S8.1.2)
     - N/A, No seat height adjustment
   - 3.5 Position the driver’s seat adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
     - N/A, No lumbar adjustment
   - 3.6 The driver’s seat back angle, if adjustable, is set at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1(b) and S8.1.3)
     - N/A, No seat back angle adjustment
     - Manufacturer’s design driver’s seat back angle ______________
     - Tested driver’s seat back angle ______________
   - 3.7 Is the driver seat a bucket seat?
     - Yes, go to 3.7.1 and skip 3.7.2.
     - No, go to 3.7.2 and skip 3.7.1.
   - 3.7.1 Bucket seats:
     - 3.7.1.1 Locate and mark a vertical Plane B through the longitudinal centerline of the driver’s seat cushion. The longitudinal centerline of a bucket seat cushion is determined at SgRP. (S16.3.1.10) (S4.5.4.1(b)(1))
3.7.1.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver's seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver's seat.

____ mm distance
- less than 720 mm - Pass
- more than 720 mm - FAIL
Go to 4

3.2 Bench seats (including split bench seats):

3.7.2.1 Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline. (S4.5.4.1(b)(2))

3.7.2.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat.

____ mm distance
- less than 720 mm - Pass
- more than 720 mm - FAIL
Go to 4

4. Does the device turn the air bag on and off using the vehicle's ignition key? (S4.5.4.2)
- Yes - Pass
- No - Fail

5. Is the on-off device separate from the ignition switch? (S4.5.4.2)
- Yes - Pass
- No - Fail

6. Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2)
- Yes - Pass
- No - Fail

7. Telltale light (S4.5.4.3)

7.1 Is the light yellow? S4.5.4.3(a))
- Yes - Pass
- No - Fail

7.2 Are the words "PASSENGER AIR BAG OFF" or "PASS AIR BAG OFF" (S4.5.4.3(b)) on the telltale?
- Yes - Pass, go to 7.3
- No - go to 7.2.2

7.2.2 within 25 mm of the telltale?
Measurement from the edge of the telltale light (mm):
- Yes - Pass
- No - Fail

7.3 Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3c)) (Leave the air bag off for 5 minutes.)
- Yes - Pass
- No - Fail

7.4 Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))
- Yes - Fail
- No - Pass

7.5 Is the telltale combined with the air bag readiness indicator? (S4.5.4.3(e))
- Yes - Fail
- No - Pass

8.1 Does the owner’s manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))

- Yes - Pass
- No - Fail

8.2 Does the owner’s manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b))

- Infants: there is no back seat
  - the rear seat is too small to accommodate a child restraint
  - there is a medical condition that must be monitored constantly
- Children: there is no back seat
  - space is not always available in the rear seat
  - there is a medical condition that must be monitored constantly
- Medical: medical risk causes special risk for passenger
  - condition: greater risk for harm than with the air bag on

- Yes - Pass
- No - Fail

8.3 Does the owner’s manual contain a warning about the safety consequences of using the on-off switch at other times?

- Yes - Pass
- No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 3/7/07
DATA SHEET 8
LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2007 Chevrolet Impala          NHTSA No.: C70109
Test Program: FMVSS 208 Compliance          Test Date: 3/7/07
Test Technician: Nick Kosinski

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver’s seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

<table>
<thead>
<tr>
<th>DESIGNATED SEATING POSITION: Front Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A - no retractor is at this position</td>
</tr>
<tr>
<td>N/A - the retractor is an automatic locking retractor ONLY</td>
</tr>
<tr>
<td>1. Record test fore-aft seat position: FULL REAR (S7.1.1.5(c)(1)) (Any position is acceptable)</td>
</tr>
<tr>
<td>X Yes - Pass</td>
</tr>
<tr>
<td>No - Fail</td>
</tr>
<tr>
<td>2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))</td>
</tr>
<tr>
<td>X Yes - Pass</td>
</tr>
<tr>
<td>No - Fail</td>
</tr>
<tr>
<td>3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))</td>
</tr>
<tr>
<td>X Yes - Pass</td>
</tr>
<tr>
<td>No - Fail</td>
</tr>
<tr>
<td>4. Place any adjustable seat belt anchorage in the lowest adjustment position.</td>
</tr>
<tr>
<td>X N/A The anchorage is not adjustable.</td>
</tr>
<tr>
<td>5. Buckle the seat belt. (S7.1.1.5(c)(1))</td>
</tr>
<tr>
<td>6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))</td>
</tr>
<tr>
<td>7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))</td>
</tr>
<tr>
<td>X Yes - Pass</td>
</tr>
<tr>
<td>No, go to 9.</td>
</tr>
<tr>
<td>8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?</td>
</tr>
<tr>
<td>X Yes, go to 8.1</td>
</tr>
<tr>
<td>No, go to 9.</td>
</tr>
<tr>
<td>8.1 Does the vehicle owner’s manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))</td>
</tr>
<tr>
<td>X Yes - Pass</td>
</tr>
<tr>
<td>No - Fail</td>
</tr>
</tbody>
</table>
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B (inches): 61 inches

11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle (Spec. 5-15 degrees): 13°

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B (inches): 27 ¾ inches

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 25 lbs./sec

Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 28 inches

15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle 13° spec. 5 - 15 degrees)

17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B 21 ¾ inches

18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 25lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B 22 ½ inches (S7.1.1.5(c)(6))

19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

14-13 = 28 - 27 ¾ = ¼ inch
18-17 = 22 ½ - 21 ¾ = ¾ inch

Yes - Pass  
No - Fail
20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both?

(S7.1.1.5(c)(8))

10-14 = 61 - 28 = 33 inches
10-18 = 61 - 22 ½ = 38 ½ inches

Yes - Pass
No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 3/7/07
DATA SHEET 8
LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2007 Chevrolet Impala  NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  Test Date: 3/7/07
Test Technician: Nick Kosinski

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver’s seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION: Left Rear Passenger

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Record test fore-aft seat position: (S7.1.1.5(c)(1)) (Any position is acceptable)</td>
<td>(\times) FIXED</td>
</tr>
<tr>
<td>2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))</td>
<td>(\times) Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>(\times) No - Fail</td>
</tr>
<tr>
<td>3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))</td>
<td>(\times) Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>(\times) No - Fail</td>
</tr>
<tr>
<td>4. Place any adjustable seat belt anchorage in the lowest adjustment position.</td>
<td>(\times) N/A The anchorage is not adjustable.</td>
</tr>
<tr>
<td>5. Buckle the seat belt. (S7.1.1.5(c)(1))</td>
<td>(\times)</td>
</tr>
<tr>
<td>6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))</td>
<td>(\times)</td>
</tr>
<tr>
<td>7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))</td>
<td>(\times)</td>
</tr>
<tr>
<td>8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?</td>
<td>(\times) Yes, go to 8.1</td>
</tr>
<tr>
<td></td>
<td>(\times) No, go to 9.</td>
</tr>
<tr>
<td>8.1 Does the vehicle owner’s manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))</td>
<td>(\times) Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>(\times) No - Fail</td>
</tr>
<tr>
<td>9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) &amp; S7.1.1.5(c)(1))</td>
<td>(\times)</td>
</tr>
</tbody>
</table>
10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
   Measured distance between A and B (inches): 61 ¾ inches

11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
   Measured force application angle (Spec. 5-15 degrees): 15°

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
   Measured distance between A and B (inches): 15 ¼ inches

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
   Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 25lbs/sec
   Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 15 ½ inches

15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
   Measured force application angle 15° (spec. 5 - 15 degrees)

17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
   Measured distance between A and B (inches): 8 ½ inches

18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
   Record onset rate 25lbs/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
   Measured distance between A and B 8 ¾ inches (S7.1.1.5(c)(6))

19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))
   14-13 = 15 ¼ - 15 ¼ = ¼ inch
   18-17 = 8 ¼ - 8 ½ = ¼ inch
   Yes - Pass
   No - Fail

20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))
   10-14 = 61 ¾ - 15 ½ = 46 ¼ inches
   10-18 = 61 ¾ - 8 ¾ = 53 inches
   Yes - Pass
   No - Fail
REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 3/7/07

Figure 5. - Webbing Tension Pull Device
DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2007 Chevrolet Impala  
Test Program: FMVSS 208 Compliance  
Test Technician: Nick Kosinski

NHTSA No.: C70109  
Test Date: 3/7/07

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver’s seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION: Center Rear Passenger

N/A - no retractor is at this position
N/A - the retractor is an automatic locking retractor ONLY

1. Record test fore-aft seat position: FIXED REAR SEAT (S7.1.1.5(c)(1)) (Any position is acceptable)
X Yes - Pass  
X No - Fail

2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
X Yes - Pass  
X No - Fail

3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
X Yes - Pass  
X No - Fail

4. Place any adjustable seat belt anchorage in the lowest adjustment position.
X N/A The anchorage is not adjustable.

5. Buckle the seat belt. (S7.1.1.5(c)(1))
X

6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
X

7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
X

8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
X Yes, go to 8.1  
X No, go to 9

8.1 Does the vehicle owner’s manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
X Yes - Pass  
X No - Fail
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

   Measured distance between A and B (inches): 66 ½ inches

11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

   Measured force application angle (Spec. 5-15 degrees): 14°

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

   Measured distance between A and B (inches): 27 ¾ inches

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

   Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 25lbs/sec
   Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 28 inches

15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

   Measured force application angle 14° (spec. 5 - 15 degrees)

   Measured distance between A and B 14 ¾ inches

17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

   Record onset rate 25lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))
   Measured distance between A and B 15 inches (S7.1.1.5(c)(6))

19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

   14-13 = 28 - 27 ¼ = ¼ inch
   18-17 = 15 - 14 ¾ = ¼ inch

   Yes - Pass
   No - Fail
20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

10-14 = 66 ½ - 28 = 38 ½ inches
10-18 = 66 ½ - 15 = 51 ½ inches

Yes - Pass
No - Fail

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 3/7/07

Figure 5. - Webbing Tension Pull Device
DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Complete one of these forms for each designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver’s seat (S7.1.1.5(a), and that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION: Right Rear Passenger

- N/A - no retractor is at this position
- N/A - the retractor is an automatic locking retractor ONLY

1. Record test fore-aft seat position: FIXED REAR SEAT (S7.1.1.5(c)(1)) (Any position is acceptable)
- X Yes - Pass
- No - Fail

2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
- X Yes - Pass
- No - Fail

3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
- X Yes - Pass
- No - Fail

4. Place any adjustable seat belt anchorage in the lowest adjustment position.
- X N/A The anchorage is not adjustable.

5. Buckle the seat belt. (S7.1.1.5(c)(1))

6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
- X Yes, go to 8.1
- No, go to 9.

8.1 Does the vehicle owner’s manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
- X Yes - Pass
- No - Fail
9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner’s manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

Measured distance between A and B (inches): 62 inches

11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))

12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle (Spec. 5-15 degrees): 15°

13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B (inches): 18 inches

14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 25lbs/sec

Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 18 ¼ inches

15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle 15° (spec. 5 - 15 degrees)

17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B 10 inches

18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 25lbs/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B 10 ¼ inches (S7.1.1.5(c)(6))

19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

14-13 = 18 ¼ - 18 = ¼ inch

18-17 = 10 ¼ - 10 = ¼ inch

Yes - Pass
No - Fail
20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

- 10-14 = 62 - 18 ½ = 43 ¼ inches
- 10-18 = 62 - 10 ¼ = 51 ¾ inches

Yes - Pass
No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]
Date: 3/7/07

Figure 5. Webbing Tension Pull Device
DATA SHEET 9
FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski
NHTSA No.: C70109
Test Date: 3/7/07

1. The occupant is in the driver’s seat.
2. The seat belt is in the stowed position.
3. The key is in the “on” or “start” position.
4. The time duration of the audible signal beginning with key “on” or “start” is Seconds: 5
5. The occupant is in the driver’s seat.
6. The seat belt is in the stowed position.
7. The key is in the “on” or “start” position.
8. The time duration of the warning light beginning with key “on” or “start” is Seconds: Stays On
9. The occupant is in the driver’s seat.
10. The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
11. The key is in the “on” or “start” position.
12. The time duration of the warning light beginning with key “on” or “start” is Seconds: 0
13. Complete the following table with the data from 4, 8, and 12 to determine which option is used.

<table>
<thead>
<tr>
<th>S7.3 (a)(1)</th>
<th>Belt stowed &amp; key on or start</th>
<th>Warning light specification</th>
<th>Audible signal</th>
<th>Audible signal specification*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Item 8: Stays On</td>
<td>60 seconds minimum</td>
<td>Item 4: 5</td>
<td>4 to 8 seconds</td>
</tr>
<tr>
<td>S7.3 (a)(2)</td>
<td>Belt latched &amp; key on or start</td>
<td>Item 12: 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item 8: Stays On</td>
<td>4 to 8 seconds</td>
<td>Item 4: 5</td>
<td>4 to 8 seconds</td>
</tr>
</tbody>
</table>

* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.
A voluntary audible signal after the 4 to 8 second required signal may be provided. It must be differentiated from the required signal (3/25/2001 legal interpretation to Longacre and Associates).
14. The seat belt warning system meets the requirements of (manufacturers may comply with either section)
   - S7.3 (a)(1)
   - S7.3 (a)(2)
   - FAIL - does not meet the requirements of either option

15. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))
   - Fasten seat belts
   - Fasten belts
   - Symbol 101 - [Symbol Image]
   - FAIL - does not use any of the above wording or symbol

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 3/7/07
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2007 Chevrolet Impala  NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  Test Date: 3/7/07
Test Technician: Nick Kosinski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION: Left Rear Passenger

1. Does the vehicle incorporate a webbing tension-relieving device?
   - Yes, this form is complete
   - No, continue with this check sheet

2. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   - N/A, no lumbar adjustment

3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
   - N/A, no additional support adjustment

4. Is the fore-aft position of the seat adjustable?
   - No- go to 5
   - Yes - Put the seat in the mid fore-aft and full down height position determined in Data Sheet 14.2

5. Is the seat back angle adjustable?
   - No- go to 6
   - Yes-Use the seat back angle determined in Data Sheet 14.2

6. Position the test dummies according to dummy position placement instructions in Appendix F. Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.

7. Fasten the seat belt latch.

8. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

9. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
   - Contact Force (lb):
     - 0.0 to 0.7 pounds - Pass 0.4 lbs.
     - Greater than 0.7 pounds - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Nick Kosinski

Date: 3/7/07
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2007 Chevrolet Impala  
Test Program: FMVSS 208 Compliance  
Test Technician: Nick Kosinski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

<table>
<thead>
<tr>
<th>DESIGNATED SEATING POSITION:</th>
<th>Center Rear Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does the vehicle incorporate a webbing tension-relieving device?</td>
<td>X Yes, this form is complete</td>
</tr>
<tr>
<td>2. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)</td>
<td>X N/A, no lumbar adjustment</td>
</tr>
<tr>
<td>3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)</td>
<td>X N/A, no additional support adjustment</td>
</tr>
<tr>
<td>4. Is the fore-aft position of the seat adjustable?</td>
<td>X No- go to 5</td>
</tr>
<tr>
<td>5. Is the seat back angle adjustable?</td>
<td>X No- go to 6</td>
</tr>
<tr>
<td>6. Position the test dummies according to dummy position placement instructions in Appendix F. Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.</td>
<td></td>
</tr>
<tr>
<td>7. Fasten the seat belt latch.</td>
<td></td>
</tr>
<tr>
<td>8. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.</td>
<td></td>
</tr>
<tr>
<td>9. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.</td>
<td></td>
</tr>
</tbody>
</table>

Contact Force (lb):
X 0.0 to 0.7 pounds - Pass 0.4 lbs.
X Greater than 0.7 pounds - Fail

REMARKS:
I certify that I have read and performed each instruction.

Signature: Nick Kosinski
Date: 3/7/07
DATA SHEET 10
BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2007 Chevrolet Impala  NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  Test Date: 3/7/07
Test Technician: Nick Kosinski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION: Right Rear Passenger

1. Does the vehicle incorporate a webbing tension-relieving device?
   - Yes, this form is complete
   - No, continue with this check sheet

2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   - N/A, no lumbar adjustment

3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
   - N/A, no additional support adjustment

4. Is the fore-aft position of the seat adjustable?
   - No- go to 5
   - Yes- Put the seat in the mid fore-aft and full down height position determined in Data Sheet 14.2

5. Is the seat back angle adjustable?
   - No- go to 6
   - Yes- Use the seat back angle determined in Data Sheet 14.2

6. Position the test dummies according to dummy position placement instructions in Appendix F. Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.

7. Fasten the seat belt latch.

8. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

9. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
   - Contact Force (lb):
     - 0.0 to 0.7 pounds - Pass 0.4 lbs.
     - Greater than 0.7 pounds - Fail

REMARKS:
I certify that I have read and performed each instruction.

Signature: Nick Kosinski
Date: 3/7/07
**DATA SHEET 11**  
**LATCH PLATE ACCESS (S7.4.4)**

Test Vehicle: 2007 Chevrolet Impala  
Test Program: FMVSS 208 Compliance  
Test Technician: Nick Kosinski

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

### DESIGNATED SEATING POSITION:  
Not Applicable For Any Position - Passenger Car

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Put the seat in the forwardmost fore-aft and full down height position determined in Data Sheet 14.2. (S10.7)</td>
</tr>
<tr>
<td>2.</td>
<td>Put the seat back angle in the position determined in Data Sheet 14.2.</td>
</tr>
<tr>
<td>3.</td>
<td>Position the test dummy using the procedures in Appendix F. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix F positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.</td>
</tr>
<tr>
<td>4.</td>
<td>Position the adjustable seat belt anchorage in the manufacturer’s nominal design position for a 50th percentile adult male occupant.</td>
</tr>
<tr>
<td>5.</td>
<td>Attach the inboard reach string to the base of the head following the instructions on Figure 3.</td>
</tr>
<tr>
<td>6.</td>
<td>Attach the outboard reach string to the torso sheath following the instructions on Figure 3.</td>
</tr>
<tr>
<td>7.</td>
<td>Place the latch plate in the stowed position.</td>
</tr>
</tbody>
</table>
| 8.   | Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?  
|      | Yes - Pass                                                                 |
|      | No                                                                         |
| 9.   | Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?  
|      | Yes - Pass                                                                 |
|      | No                                                                         |
| 10.  | Is the latch plate within the inboard (item 10) or outboard (item 11) reach envelope?  
|      | Yes - Pass                                                                 |
|      | No - Fail                                                                  |
| 11.  | Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?  
|      | Yes - Pass                                                                 |
|      | No - Fail                                                                  |
REMARKS:

I certify that I have read and performed each instruction.

Signature:  

Date:  3/7/07
**DATA SHEET 12**

**SEAT BELT RETRACTION (S7.4.5)**

Test Vehicle: **2007 Chevrolet Impala**  
NHTSA No.: **C70109**  
Test Program: **FMVSS 208 Compliance**  
Test Technician: **Nick Kosinski**  
Test Date: **3/7/07**

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

### DESIGNATED SEATING POSITION: Not Applicable For Any Position - Passenger Car

1. Is the vehicle a passenger car or walk-in van-type vehicle?  
   - Yes, this form is complete  
   - No

2. Put the seat in the mid fore-aft and full down height position determined in Data Sheet 14.2. (S8.1.2)

3. Put the seat back angle in the position determined in Data Sheet 14.2. (S8.1.3)

4. Position the Part 572 Subpart E test dummy according to dummy position placement instructions in Appendix F. Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.

5. Fasten the seat belt around the dummy.

6. Remove all slack from the lap belt portion. (S10.9)  
   - N/A, the seat does not have a fore-aft adjustment

7. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

8. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)  
   - Pound load applied:

9. Is the belt system equipped with a tension relieving device?  
   - Yes, continue  
   - No, go to 12

10. Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner’s manual. (S10.9)

11. Check the statement that applies to this test vehicle:  
   11.1 The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.  
   - Yes - Pass go to 12  
   - No - go to 11.2

   11.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.  
   - Yes - Pass go to 12  
   - No - go to 11.3

   11.3 Neither 11.1 nor 11.2 apply.  
   - Fail

12. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?  
   - Yes - Pass  
   - No - Fail
13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

- N/A - Not an open body vehicle
- Yes - Pass
- No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 3/7/07
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2007 Chevrolet Impala  NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  Test Date: 3/7/07
Test Technician: Nick Kosinski

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION: Left Rear Passenger

1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))
   - Yes, this form is complete
   - X No, go to 2

2. Is the seat removable? (S7.4.6.1(b))
   - Yes, this form is complete
   - X No, go to 3

3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
   - Yes, this form is complete
   - X No, go to 4

4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
   - Yes, go to 5
   - X No, this form is complete

5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
   - X Yes - Pass
   - No - Fail
   - Identify the part(s) on top or above the seat.
     - X Seat belt latch plate
     - X Buckle
     - X Seat belt webbing

6. Are the remaining two seat belt parts accessible under normal conditions?
   - Yes - Pass
   - No - Fail

7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
   - X Yes - Pass
   - No - Fail

8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
   - X Yes - Pass
   - No - Fail
9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
   - X Yes - Pass
   - No - Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
    - X Yes - Pass
    - No - Fail
    - N/A - Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 3/7/07
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2007 Chevrolet Impala  
Test Program: FMVSS 208 Compliance  
Test Technician: Nick Kosinski  
Test Date: 3/7/07  
NHTSA No.: C70109

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

### DESIGNATED SEATING POSITION:
Center Rear Passenger

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Is the seat cushion movable so that the seat back serves a function other than seating? <em>(S7.4.6.1 (b))</em>*</td>
</tr>
<tr>
<td></td>
<td>Yes, this form is complete</td>
</tr>
<tr>
<td></td>
<td>No, go to 2</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Is the seat removable? <em>(S7.4.6.1(b))</em>*</td>
</tr>
<tr>
<td></td>
<td>Yes, this form is complete</td>
</tr>
<tr>
<td></td>
<td>No, go to 3</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? <em>(S7.4.6.1(b))</em>* Seat back folds down for an arm rest; seat bottom is stationary</td>
</tr>
<tr>
<td></td>
<td>Yes, this form is complete</td>
</tr>
<tr>
<td></td>
<td>No, go to 4</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? <em>(S7.4.6.1(a))</em>*</td>
</tr>
<tr>
<td></td>
<td>Yes, go to 5</td>
</tr>
<tr>
<td></td>
<td>No, this form is complete</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? <em>(S7.4.6.1(a))</em>*</td>
</tr>
<tr>
<td></td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
<tr>
<td></td>
<td>Identify the part(s) on top or above the seat.</td>
</tr>
<tr>
<td></td>
<td>Seat belt latch plate</td>
</tr>
<tr>
<td></td>
<td>Buckle</td>
</tr>
<tr>
<td></td>
<td>Seat belt webbing</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Are the remaining two seat belt parts accessible under normal conditions?</td>
</tr>
<tr>
<td></td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. <em>(S7.4.6.2)</em>*</td>
</tr>
<tr>
<td></td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. <em>(S7.4.6.2)</em>*</td>
</tr>
<tr>
<td></td>
<td>Yes - Pass</td>
</tr>
<tr>
<td></td>
<td>No - Fail</td>
</tr>
</tbody>
</table>
9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

   □ Yes - Pass  □ No - Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

   □ Yes - Pass  □ No - Fail  □ N/A - Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: [signature]

Date: 3/7/07
DATA SHEET 13
SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2007 Chevrolet Impala  NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  Test Date: 3/7/07
Test Technician: Nick Kosinski

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

**DESIGNATED SEATING POSITION:** Right Rear Passenger

1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1(b))
   - Yes, this form is complete
   - No, go to 2

2. Is the seat removable? (S7.4.6.1(b))
   - Yes, this form is complete
   - No, go to 3

3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
   - Yes, this form is complete
   - No, go to 4

4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
   - Yes, go to 5
   - No, this form is complete

5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
   - Yes - Pass
   - No - Fail

   **Identify the part(s) on top or above the seat.**
   - Seat belt latch plate
   - Buckle
   - Seat belt webbing

6. Are the remaining two seat belt parts accessible under normal conditions?
   - Yes - Pass
   - No - Fail

7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
   - Yes - Pass
   - No - Fail

8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
   - Yes - Pass
   - No - Fail

Test Vehicle: 2007 Chevrolet Impala  NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  Test Date: 3/7/07
Test Technician: Nick Kosinski

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.
9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

[ ] Yes - Pass
[ ] No - Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

[ ] Yes - Pass
[ ] No - Fail
[ ] N/A - Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 3/7/07
DATA SHEET 14
MARKING OF REFERENCE POINTS FOR VARIOUS TEST POSITIONS AND POINTS

Test Vehicle: 2007 Chevrolet Impala  
NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  
Test Date: 4/25/07
Test Technician: Brian Roach

DATA SHEET 14.1
MARKING OF REFERENCE POINTS FOR 5TH FEMALE

× Driver Seat __Passenger Seat

1. Seat Position
   × 1.1 Position the seat’s adjustable lumbar supports so that the lumbar supports are in the
   lowest, retracted or deflated adjustment positions. (S16.2.10.1, S20.1.9.1, S20.4.1,
   S22.1.7.1)
   __ N/A - No lumbar adjustment
   × 1.2 Position any adjustable parts of the seat that provide additional support so that they are
   in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S20.4.1,
   S22.1.7.1, S22.4.2.1, S22.4.3.1, S24.4.2.1, S26.2.3, S26.3.1)
   X N/A - No additional support adjustment
   × 1.3 Position an adjustable leg support system in its rearmost position. (8/27/04
   interpretation to Toyota)
   X N/A - No adjustable leg support system
   × 1.4 Mark a point (seat cushion reference point) on the side of the seat cushion that is
   between 150 mm and 250 mm from the front edge of the seat cushion. (S16.3.1.12)
   × 1.5 Draw a line (seat cushion reference line) through the seat cushion reference point.
   (S16.3.1.13)
   × 1.6 Use only the controls that primarily move the seat in the fore-aft direction to move the
   seat cushion reference point to the rearmost position. (S16.2.10.3.1, S22.1.7.3)
   × 1.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls
   that primarily move the seat cushion in the fore-aft direction to move the seat cushion
   reference point to the rearmost position. (S16.2.10.3.1, S20..1.9.3)
   X N/A - No independent fore-aft seat cushion adjustment
   × 1.8 Use any part of any control, other than the parts just used for fore-aft positioning, to
   determine the range of angles of the seat cushion reference line and to set the seat
   cushion reference line at the mid-angle. (S16.2.10.3.1)
   Maximum angle 8.4 Nose up
   Minimum angle 5.5 Nose down
   Mid-angle 1.5 Nose up
   × 1.9 If the seat and/or seat cushion height is adjustable, use any part of any control other
   than the parts which primarily move the seat or seat cushion fore-aft, to put the seat
   cushion reference point in its lowest position with the seat cushion reference line angle
   at the mid-angle found in 1.8. (S16.2.10.3.1)
   __N/A - No seat height adjustment
   × 1.10 Use only the controls that primarily move the seat in the fore-aft direction to verify the
   seat is in the rearmost position.
1.11 Use only the controls that primarily move the seat in the fore-aft direction to mark for future reference the fore-aft seat positions. Mark each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.

1.12 Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position.

1.13 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1, S24.4.3.1, S26.2.3, S26.3.1)

N/A - No seat height adjustment. Go to 1.18

1.14 Use only the controls that primarily move the seat and/or seat cushion in the fore-aft direction to place the seat in the mid-fore-aft position.

1.15 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

1.16 Use only the control that change the seat in the fore-aft direction to place the seat in the foremost position. (S16.2.10.3.2)

1.17 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S16.2.10.3.3, S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

1.18 Visually mark for future reference the seat back angle at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer for the rearmost, mid, and foremost seat positions. (S20.1.9.5, S22.1.7.5, S22.4.2.1, S22.4.3.1, S24.1.2, S24.4.2.1, S26.2.3, S26.3.1)

N/A - No seat back angle adjustment

Manufacturer’s design seat back angle: 24.0 Degrees

1.19 Is the seat a bucket seat?

Yes, go to 1.20 and skip 1.21

No, go to 1.21 and skip 1.20

1.20 Bucket seats:

Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S16.3.1.10 & S20.1.10)

1.21 Bench seats (complete ONLY the one that is applicable to the seat being marked):

1.21.1 Driver Seat

Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.
1.21.2 Passenger Seat
Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3, S24.2.3, S20.4.4, S22.2.2.1(b), S22.2.2.3(b), S22.2.2.4(a), S22.2.2.5(a), S22.2.2.6(a), S22.2.2.7(a), S24.2.3(a))

Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _______
Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) _______

2. Head Restraint Position
__N/A, vehicle contains automatic head restraints.
__N/A, there is no head restraint adjustment

X 2.1 Adjust the head restraint to its lowest position. (S16.2.10.2, S20.1.9.6 S20.4.1, S22.1.7.6, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.2 All adjustments of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. Mark the foremost position. (S16.2.10.2 & S16.3.4.4 & S20.1.9.6, S20.4.1, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and mark a horizontal plane through the midpoint of this distance. (S16.3.4.3)
Vertical height of head restraint: 190 mm
Mid-point height: 95 mm

_____________________________  _____4/25/07_____
Bryan Roach

I certify that I have read and performed each instruction. Date
DATA SHEET 14.1
MARKING OF REFERENCE POINTS FOR 5TH FEMALE

_driver Seat _x Passenger Seat

1. Seat Position
   X 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the
      lowest, retracted or deflated adjustment positions. (S16.2.10.1, S20.1.9.1, S20.4.1,
      S22.1.7.1)
      X N/A - No lumbar adjustment
   X 1.2 Position any adjustable parts of the seat that provide additional support so that they are
      in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S20.4.1,
      S22.1.7.1, S22.4.2.1, S22.4.3.1, S24.4.2.1, S26.2.3, S26.3.1)
      X N/A - No additional support adjustment
   X 1.3 Position an adjustable leg support system in its rearmost position. (8/27/04
      interpretation to Toyota)
      X N/A - No adjustable leg support system
   X 1.4 Mark a point (seat cushion reference point) on the side of the seat cushion that is
      between 150 mm and 250 mm from the front edge of the seat cushion. (S16.3.1.12)
   X 1.5 Draw a line (seat cushion reference line) through the seat cushion reference point.
      (S16.3.1.13)
   X 1.6 Use only the controls that primarily move the seat in the fore-aft direction to move the
      seat cushion reference point to the rearmost position. (S16.2.10.3.1, S22.1.7.3)
   X 1.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls
      that primarily move the seat cushion in the fore-aft direction to move the seat cushion
      reference point to the rearmost position. (S16.2.10.3.1, S20.1.9.3)
      X N/A - No independent fore-aft seat cushion adjustment
   X 1.8 Use any part of any control, other than the parts just used for fore-aft positioning, to
      determine the range of angles of the seat cushion reference line and to set the seat
      cushion reference line at the mid-angle. (S16.2.10.3.1)
         Maximum angle: 7.2 Nose Up
         Minimum angle: 6.4 Nose Down
         Mid-angle: 0.4 Nose Up
   X 1.9 If the seat and/or seat cushion height is adjustable, use any part of any control other
      than the parts which primarily move the seat or seat cushion fore-aft, to put the seat
      cushion reference point in its lowest position with the seat cushion reference line angle
      at the mid-angle found in 1.8. (S16.2.10.3.1)
      X N/A - No seat height adjustment
   X 1.10 Use only the controls that primarily move the seat in the fore-aft direction to verify the
      seat is in the rearmost position.
   X 1.11 Use only the controls that primarily move the seat in the fore-aft direction to mark for
      future reference the fore-aft seat positions. Mark each position so that there is a visual
      indication when the seat is at a particular position. For manual seats, move the seat
      forward one detent at a time and mark each detent. For power seats, mark only the
      rearmost, middle, and foremost positions. Label three of the positions with the following:
      F for foremost, M for mid-position (if there is no mid-position, label the closest
      adjustment position to the rear of the mid-point), and R for rearmost.
   X 1.12 Use only the controls that primarily move the seat in the fore-aft direction to place the
      seat in the rearmost position.
1.13 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1, S24.4.3.1, S26.2.3, S26.3.1)

__ N/A - No seat height adjustment. Go to 1.18

1.14 Use only the controls that primarily move the seat and/or seat cushion in the fore-aft direction to place the seat in the mid-fore-aft position.

1.15 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1)

1.16 Use only the control that change the seat in the fore-aft direction to place the seat in the foremost position. (S16.2.10.3.2)

1.17 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S16.2.10.3.3, S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

1.18 Visually mark for future reference the seat back angle at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer for the rearmost, mid, and foremost seat positions. (S20.1.9.5, S22.1.7.5, S22.4.2.1, S22.4.3.1, S24.1.2, S24.4.2.1, S26.2.3, S26.3.1)

__ N/A - No seat back angle adjustment

Manufacturer’s design seat back angle: 24.0 Degrees

1.19 Is the seat a bucket seat?

X Yes, go to 1.20 and skip 1.21

__ No, go to 1.21 and skip 1.20

1.20 Bucket seats:

Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S16.3.1.10 & S20.1.10)

1.21 Bench seats (complete ONLY the one that is applicable to the seat being marked):

1.21.1 Driver Seat

Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.

1.21.2 Passenger Seat

Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3, S24.2.3, S20.4.4, S22.2.2.1(b), S22.2.2.3(b), S22.2.2.4(a), S22.2.2.5(a), S22.2.2.6(a), S22.2.2.7(a), S24.2.3(a))

Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _______

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) _______
2. Head Restraint Position
   __N/A Vehicle contains automatic head restraints.
   __N/A, there is no head restraint adjustment

   X 2.1 Adjust the head restraint to its lowest position. (S16.2.10.2, S20.1.9.6 S20.4.1, S22.1.7.6, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

   X 2.2 All adjustments of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position. (S16.2.10.2 & S16.3.4.4 & S20.1.9.6, S20.4.1, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

   X 2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance. (S16.3.4.3)
   Vertical height of head restraint: **190** mm
   Mid-point height: **95** mm

   [Signature]
   3/8/07

   I certify that I have read and performed each instruction. Date
DATA SHEET 14.2
MARKING OF REFERENCE POINTS FOR 50TH MALE

X Driver Seat __Passenger Seat ________________Other seat

X 1. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3) __N/A - No lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) X N/A - No additional support adjustment

X 3. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. Mark this position for future reference. (8/31/95 legal interp to Hogan and Hartson)

X 4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. Mark this position for future reference. (8/31/95 legal interp to Hogan and Hartson)

X 5. Mark each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interp to Hogan and Hartson)

X 6. Move the seat to the mid position.

X 7. While maintaining the mid position, move the seat to its lowest position. Mark the height position for future reference. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position.

X 8. Visually mark for future reference the seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. __N/A - No seat back angle adjustment

X Previously marked during Data Sheet 14.1 go to 9
Manufacturer’s design seat back angle: 24.0 Degrees

X 9. Is the seat a bucket seat? __Previously marked during data sheet 14.1. This form is complete.

X Yes, go to 10 and skip 11
__No, go to 11 and skip 10
X 10. Bucket seats:
   Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

11. Bench seats (complete ONLY the one that is applicable to the seat being marked):
   11.1 Driver Seat
   Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)

   11.2 Passenger Seat
   Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)
   Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _______
   Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _______

________________________________________________  ____5/9/07_____
I certify that I have read and performed each instruction.    Date
DATA SHEET 14.2
MARKING OF REFERENCE POINTS FOR 50TH MALE

__ Driver Seat  X Passenger Seat  ________________Other seat

X 1. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   X N/A - No lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
   X N/A - No additional support adjustment

X 3. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. Mark this position for future reference. (8/31/95 legal interp to Hogan and Hartson)

X 4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. Mark this position for future reference. (8/31/95 legal interp to Hogan and Hartson)

X 5. Mark each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interp to Hogan and Hartson)

X 6. Move the seat to the mid position.

X 7. While maintaining the mid position, move the seat to its lowest position. Mark the height position for future reference. For seats with adjustable seat cushions, use the manufacturer’s recommended seat cushion angle for determining the lowest height position.

X 8. Visually mark for future reference the seat back angle, if adjustable, at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.
   __ N/A - No seat back angle adjustment
   X Previously marked during Data Sheet 14.1 go to 9
   Manufacturer’s design seat back angle: 24.0 Degrees

X 9. Is the seat a bucket seat?
   __ Previously marked during data sheet 14.1. This form is complete.
   X Yes, go to 10 and skip 11
   __ No, go to 11 and skip 10

X 10. Bucket seats:
   Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

__ 11. Bench seats (complete ONLY the one that is applicable to the seat being marked):
   __ 11.1 Driver Seat
   Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)
11.2 Passenger Seat

Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)

Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _______

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _______

Joe [Signature] 5/9/07

I certify that I have read and performed each instruction. Date
DATA SHEET 14.3
MARKING OF REFERENCE POINTS FOR STEERING WHEEL

X 1. Is the steering wheel adjustable up and down and/or in and out?
   X Yes - go to 2
   __No - this form is complete

X 2. Find and mark for future reference each up and down position. Label three of the
positions with the following: H for highest, M for mid-position (if there is no mid-position,
label the next lowest adjustment position), and L for lowest.
   __N/A - steering wheel is not adjustable up and down

X 3. Find and mark for future references each in and out position. Label three of the
positions with the following: F for foremost, M for mid-position (if there is no mid-position,
label the next rearmost adjustment position), and R for rearmost.
   X N/A - steering wheel is not adjustable in and out.

________________________________________________  _____4/25/07_____
I certify that I have read and performed each instruction.   Date

Brian Roach
DATA SHEET 14.4

MARKING OF REFERENCE POINTS FOR DRIVER LOW RISK DEPLOYMENT

X Position 1  X Position 2

X 1. Position the steering wheel so the front wheels are in the straight-ahead position. (S26.2.1)

X 2. Position any adjustable parts of the steering controls to the mid-position as determined in Data Sheet 14.3 above. If a mid-position adjustment is not achievable, position the controls to the next lowest detent position. (S26.2.1)

X 3. Locate and mark the point that is defined by the intersection of the steering wheel cover and a line between the volumetric center of the smallest volume that can encompass the folded undeployed air bag and the volumetric center of the static fully inflated air bag. The vertical plane parallel to the vehicle longitudinal centerline through this point is referred to as “Plane E.” (Check determination method below.) (S26.2.2)

Measurements with respect to measurement reference points:

________________________________________________________________________

The longitudinal centerline of the air bag was used.

________________________________________________________________________

__Point determined using manufacturer’s information supplied by the COTR.
(Include manufacturer’s information in the test report.)

OR

X Point determined by test lab personnel and approved by the COTR.
(Include supporting documentation in the test report.)

X 4. Locate the highest point of the air bag module cover. The horizontal plane through this point is referred to as “Plane F.” (Check determination method below.) (S26.2.6)

Measurements with respect to measurement reference points:

________________________________________________________________________

The top of the air bag module cover was used.

________________________________________________________________________

__Point determined using manufacturer’s information supplied by the COTR.
(Include manufacturer’s information in the test report.)

OR

X Point determined by test lab personnel and approved by the COTR.
(Include supporting documentation in the test report.)

I certify that I have read and performed each instruction.

Date
DATA SHEET 15
H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

X Driver Designated Seating Position  ___Passenger Designated Seating Position

X 1. Place the seat in the mid-fore-aft position and full down position, with the head restraint full down and the seat back in the manufacturer’s nominal design riding position for the 50th percentile male as determined during the completion of Data Sheet 14.2.

X 2. Place a 910 mm² piece of muslin cotton cloth over the seat area. (The muslin cloth shall be comparable to 48 threads/in² and density of 2.85 lb/yd.) Tuck the muslin cloth in a sufficient amount to prevent hammocking of the material.

X 3. Place the seat and back assembly of the H-Point machine at the centerline of the seat as determined in Data Sheet 14.1 or 14.2.

X 4. Install the lower leg, and foot segments.

X 5. Set the length of the lower leg segment at 16.3 inches and the length of the thigh bar at 15.8 inches.

X 6. Leg and foot placement

X 6.1 Driver Designated Seating Position

X 6.1.1 Insert the pin so that the foot angle is never less than 87 degrees.

X 6.1.2 Place the right foot on the undepressed accelerator pedal with the sole of the foot on the pedal and the heel as far forward as allowable. Do not place the heel on the toe board.

X 6.1.3 Adjust the left leg to be the same distance from H-point machine centerline as the right leg.

X 6.1.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

X Foot on toe board

___Foot on floor pan

___ Foot on floor pan

6.2 Passenger Designated Seating Position

6.2.1 Insert the pin so that the foot angle is never less than 87 degrees.

6.2.2 Space the lower legs 10.6 inches apart, equally spaced about the centerline of the H-point machine.

6.2.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

___Foot on toe board

___Foot on floor pan.

___ Foot on floor pan

6.2.3 With the T-bar level, place the right foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

___Foot on toe board

___Foot on floor pan

7. Apply the lower leg weights.
8. Apply the thigh weights.

9. Tilt the back pan forward against the forward stop and draw the H-point machine away from the seatback using the T-bar.

10. Repositioning the back pan

10.1 Allow the H-point machine to slide rearward until a forward horizontal restraining load on the T-bar is no longer required due to the seat pan contacting the seat back.

10.2 Slide the H-point machine rearward by a horizontal rearward load applied at the T-bar until the seat pan contacts the seat back.

11. Apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

12. Again apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

13. Carefully return the back pan to the seat back.

14. Install the right and left buttock weights.

15. Install the eight torso weights alternately the installation between right and left.

16. Tilt the back pan forward until the stop is contacted.

17. Rock the H-point from side to side over a 10 degree arc (5 degrees to each side of the vertical centerline) for three complete cycles. Restrain the T-bar during rocking so that the seat pan does not change position. Minimize any inadvertent exterior loads applied in a vertical or fore-aft direction. The feet are free to move during this rocking motion.

18. Without applying a forward or lateral load lift the right foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

19. Lower the right foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor, toe board, or undepressed accelerator pedal.

20. Without applying a forward or lateral load lift the left foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

21. Lower the left foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor or toe board.

22. Is the seat pan level?
   
   Yes, Go to 24
   
   No, Go to 23

23. Apply a sufficient lateral load to the top of the seatback pan to level the H-point machine seat pan on the seat.

24. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, return the seatback pan to the seatback.

25. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, apply sufficient rearward force perpendicular to the back angle bar just above the torso weights to increase the hip angle 3 degrees. Minimize the exterior downward or side forces applied to the H-point machine. Release the force. Repeat this step until the hip angle readout is identical. Complete as many force applications as necessary and record the results in the following table:

<table>
<thead>
<tr>
<th>Force Application</th>
<th>Hip Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
<td>101</td>
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<tr>
<td>3</td>
<td>102</td>
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<tr>
<td>4</td>
<td>102</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
26. Is the H-point machine level?
   X Yes, go to 27.
   ___ No, relevel. Go back to step 16 and repeat using a new data sheet.

27. Record the H-point location.
   Describe and mark the measuring reference point.

<table>
<thead>
<tr>
<th>Driver H-Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP to Floor Z</td>
</tr>
<tr>
<td>HP to Hinge X</td>
</tr>
<tr>
<td>HP to Sill Y</td>
</tr>
<tr>
<td>HP to Striker X</td>
</tr>
<tr>
<td>HP to Dash X</td>
</tr>
<tr>
<td>HP to Header Z</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H-Point Machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Knee</td>
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<tr>
<td>Right Knee</td>
</tr>
<tr>
<td>Left Foot Angle</td>
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<td>Right Foot Angle</td>
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<tr>
<td>Left Leg</td>
</tr>
<tr>
<td>Right Leg</td>
</tr>
<tr>
<td>Hip Angle</td>
</tr>
<tr>
<td>Back Angle</td>
</tr>
</tbody>
</table>

I certify that I have read and performed each instruction.  Date

5/9/07
DATA SHEET 15
H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

Test Vehicle: 2007 Chevrolet Impala  NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  Test Date: 5/9/07
Test Technician: Joe Fleck

X Driver Designated Seating Position  X Passenger Designated Seating Position

1. Place the seat in the mid-fore-aft position and full down position, with the head restraint full down and the seat back in the manufacturer’s nominal design riding position for the 50th percentile male as determined during the completion of Data Sheet 14.2.

2. Place a 910 mm² piece of muslin cotton cloth over the seat area. (The muslin cloth shall be comparable to 48 threads/in² and density of 2.85 lb/yd.) Tuck the muslin cloth in a sufficient amount to prevent hammocking of the material.

3. Place the seat and back assembly of the H-Point machine at the centerline of the seat as determined in Data Sheet 14.1 or 14.2.

4. Install the lower leg, and foot segments.

5. Set the length of the lower leg segment at 16.3 inches and the length of the thigh bar at 15.8 inches.

6. Leg and foot placement

6.1 Driver Designated Seating Position

6.1.1 Insert the pin so that the foot angle is never less than 87 degrees.

6.1.2 Place the right foot on the undepressed accelerator pedal with the sole of the foot on the pedal and the heel as far forward as allowable. Do not place the heel on the toe board.

6.2 Passenger Designated Seating Position

6.2.1 Insert the pin so that the foot angle is never less than 87 degrees.

6.2.2 Space the lower legs 10.6 inches apart, equally spaced about the centerline of the H-point machine.

6.2.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

6.3 With the T-bar level, place the right foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.

7. Apply the lower leg weights.
8. Apply the thigh weights.

9. Tilt the back pan forward against the forward stop and draw the H-point machine away from the seatback using the T-bar.

10. Repositioning the back pan

10.1 Allow the H-point machine to slide rearward until a forward horizontal restraining load on the T-bar is no longer required due to the seat pan contacting the seat back. The seat pan does not slide rearward. Go to 10.2

10.2 Slide the H-point machine rearward by a horizontal rearward load applied at the T-bar until the seat pan contacts the seat back.

11. Apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

12. Again apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.

13. Carefully return the back pan to the seat back.

14. Install the right and left buttock weights.

15. Install the eight torso weights alternately the installation between right and left.

16. Tilt the back pan forward until the stop is contacted.

17. Rock the H-point from side to side over a 10 degree arc (5 degrees to each side of the vertical centerline) for three complete cycles. Restrain the T-bar during rocking so that the seat pan does not change position. Minimize any inadvertent exterior loads applied in a vertical or fore-aft direction. The feet are free to move during this rocking motion.

18. Without applying a forward or lateral load lift the right foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

19. Lower the right foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor, toe board, or undepressed accelerator pedal.

20. Without applying a forward or lateral load lift the left foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.

21. Lower the left foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor or toe board.

22. Is the seat pan level?

   Yes, Go to 24
   No, Go to 23

23. Apply a sufficient lateral load to the top of the seatback pan to level the H-point machine seat pan on the seat.

24. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, return the seatback pan to the seatback.

25. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, apply sufficient rearward force perpendicular to the back angle bar just above the torso weights to increase the hip angle 3 degrees. Minimize the exterior downward or side forces applied to the H-point machine. Release the force. Repeat this step until the hip angle readout is identical. Complete as many force applications as necessary and record the results in the following table:

<table>
<thead>
<tr>
<th>Force Application</th>
<th>Hip Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>101</td>
</tr>
<tr>
<td>2</td>
<td>102</td>
</tr>
<tr>
<td>3</td>
<td>102</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
X 26. Is the H-point machine level?
   X Yes, go to 27.
   ___No, releve. Go back to step 16 and repeat using a new data sheet.
X 27. Record the H-point location.
   Describe and mark the measuring reference point.

<table>
<thead>
<tr>
<th>Passenger H-Point</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HP to Floor Z</td>
<td>192</td>
</tr>
<tr>
<td>HP to Hinge X</td>
<td>852</td>
</tr>
<tr>
<td>HP to Sill Y</td>
<td>208</td>
</tr>
<tr>
<td>HP to Striker X</td>
<td>320</td>
</tr>
<tr>
<td>HP to Dash X</td>
<td>715</td>
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<tr>
<td>HP to Header Z</td>
<td>766</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H-Point Machine</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Knee</td>
<td>139</td>
</tr>
<tr>
<td>Right Knee</td>
<td>139</td>
</tr>
<tr>
<td>Left Foot Angle</td>
<td>126°</td>
</tr>
<tr>
<td>Right Foot Angle</td>
<td>111°</td>
</tr>
<tr>
<td>Left Leg</td>
<td>135</td>
</tr>
<tr>
<td>Right Leg</td>
<td>120</td>
</tr>
<tr>
<td>Hip Angle</td>
<td>102°</td>
</tr>
<tr>
<td>Back Angle</td>
<td>24°</td>
</tr>
</tbody>
</table>

I certify that I have read and performed each instruction. Date: 5/9/07
DATA SHEET 16
AIR BAG SUPPRESSION TELLTALE (S19.2.2)

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Wayne Dahlke

X 1. Is the vehicle certified to any suppression performance standards of FMVSS 208? (S19.2.2(a))
   ⊗ Yes - go to 2
   ⊗ No - this form is complete

X 2. Does telltale emit yellow light when the air bag is suppressed? (S19.2.2(a))
   ⊗ Yes - Pass, go to 3.1
   ⊗ No - FAIL

X 3. Are the words “PASSENGER AIR BAG OFF” or “PASS AIR BAG OFF” (S19.2.2(b)) on the telltale? (S19.2.2(b))
   ⊗ Yes - Pass, go to 4
   ⊗ No - go to 3.2
   ⊗ No - go to 3.2
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

3.2 Within 25 mm of the telltale? (S19.2.2(b)) \( \text{mm from the edge of the telltale light} \)
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 4. Is the telltale separate from the air bag readiness indicator? (S19.2.2(c))
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 5. Is the telltale within the interior of the vehicle? (S19.2.2(d))
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 6. Is the telltale forward of and above the design H-point of both the driver’s and the front outboard passenger’s seat when the seats are in their forwardmost seating positions? (S19.2.2(d))
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 7. Is the telltale away from surfaces that can be used for temporary or permanent storage of objects that could obscure the telltale from either the driver’s or front outboard passenger’s view? (S19.2.2(d))
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 8. Is the telltale located so that it is not obscured from the driver or front outboard passenger by a rear-facing child restraint in Appendix A installed in the front outboard passenger seat? (S19.2.2(d))
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 9. Is the telltale visible or recognizable during the night? (S19.2.2(e))
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 10. Is the telltale visible or recognizable during the day? (S19.2.2(e))
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 11. If there is a visibility adjustment, do all the adjustment levels make the telltale visible and recognizable? (S19.2.2(g))
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 12. Does the telltale remain illuminated while the air bag is suppressed? (S19.2.2(h)) (Leave the air bag suppressed for 5 minutes.)
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

X 13. Is the telltale off while the air bag is activated? (S19.2.2(h)) (Leave the air bag activated for 5 minutes.)
   ⊗ Yes - Pass \( \text{NO - FAIL} \)

________________________________________________  _____3/13/07____
I certify that I have read and performed each instruction.   Date
DATA SHEET 17 SUMMARY
Suppression Test Using 12-month-old CRABI Dummy  (Part 572, Subpart R)
Section B  Rear Facing CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>084</td>
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<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Britax</th>
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<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Handle With Care 191</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>5-26-2000</td>
</tr>
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Base: _On _Off _X N/A-Restraint does not have a removable base

Manufacturer’s design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer’s specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>130</td>
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</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>129</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
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<tr>
<td>Unbelted</td>
<td>Forward</td>
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<td>Suppressed</td>
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<tr>
<td></td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (0 = Full Forward; 240 = Full Rearward; 240 mm total Seat Slide travel)
DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>TEST DATE:</th>
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<th>TECHNICIANS:</th>
<th>DUMMY TYPE:</th>
<th>DUMMY SERIAL NO.:</th>
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<td>3/9/07</td>
<td>MGA</td>
<td>WD</td>
<td>12 Month Old</td>
<td>084</td>
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</table>

| CHILD RESTRAINT NAME: | Evenflo |
| CHILD RESTRAINT MODEL: | First Choice 204 |
| DATE OF MANUFACTURE: | 6-20-2000 |

Base: __On __Off __X N/A-Restraint does not have a removable base

Manufacturer’s design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer’s specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
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</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 75 *</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Rear</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 45 *</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Forward</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (0 = Full Forward; 240 = Full Rearward; 240 mm total Seat Slide travel)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>084</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Graco</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Infant 8457</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>8-31-2000</td>
</tr>
</tbody>
</table>

Base: **X** On  __ Off  __ N/A-Restraint does not have a removable base

Manufacturer’s design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer’s specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

**Test Summary**

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
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<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 50 *</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td></td>
<td>Middle</td>
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<td>Suppressed</td>
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<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 55 *</td>
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<td>Suppressed</td>
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<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (0 = Full Forward; 240 = Full Rearward; 240 mm total Seat Slide travel)
DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
</tr>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>084</td>
</tr>
</tbody>
</table>

CHILD RESTRAINT NAME: Graco
CHILD RESTRAINT MODEL: Infant 8457
DATE OF MANUFACTURE: 8-31-2000

Base: ___On ___Off ___N/A-Restraint does not have a removable base

Manufacturer’s design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer’s specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
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<td>Middle</td>
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</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 35 *</td>
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<td>Suppressed</td>
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<tr>
<td></td>
<td>Middle</td>
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<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward 30 *</td>
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<td>Suppressed</td>
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<tr>
<td></td>
<td>Middle</td>
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<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (0 = Full Forward; 240 = Full Rearward; 240mm total Seat Slide travel)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
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<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
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<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
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<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Britax</th>
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<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Roundabout 161</td>
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<td>DATE OF MANUFACTURE:</td>
<td>7-21-2000</td>
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</table>

Base: __On   __Off   _X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle:   24.0 Degrees
Tested seat back angle:     24.0 Degrees
Manufacturer's specified anchorage position:  2nd Down of 4
Tested anchorage position:     2nd Down of 4

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
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<td>Suppressed</td>
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<tr>
<td>Forward</td>
<td>Middle</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
<td>131</td>
<td>Suppressed</td>
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<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Forward</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
<td>N/A</td>
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<td>Belted</td>
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<td>Facing</td>
<td>Rearward</td>
<td>131</td>
<td>Suppressed</td>
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<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Suppressed</td>
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<tr>
<td>Rear</td>
<td>Middle</td>
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<tr>
<td>Facing</td>
<td>Rearward</td>
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Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-month-old CRABI Dummy  (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

<table>
<thead>
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<th>TEST DATE:</th>
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<td>DUMMY TYPE:</td>
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<td>DUMMY SERIAL NO.:</td>
<td>084</td>
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<table>
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<tr>
<th>CHILD RESTRAINT NAME:</th>
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<td>CHILD RESTRAINT MODEL:</td>
<td>Encore 4612</td>
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<td>DATE OF MANUFACTURE:</td>
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</tr>
</tbody>
</table>

Base: ___On ___Off ___X N/A-Restraint does not have a removable base

Manufacturer’s design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer’s specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted</td>
<td>Middle</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted</td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>132</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted</td>
<td>Middle</td>
<td>132</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted</td>
<td>Rearward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)
DATA SHEET 17 SUMMARY
Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>12 Month Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>084</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Evenflo</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Medallion 254</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>6-1-2000</td>
</tr>
</tbody>
</table>

Base: _On _Off _X N/A-Restraint does not have a removable base

Manufacturer’s design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer’s specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

### Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>132</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>132</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Forward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted</td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Unbelted</td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>N/A</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN507)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (0 = Full Forward; 240 = Full Rearward; 240 mm total Seat Slide travel)
DATA SHEET 18 SUMMARY
Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K)
Section A Car Bed

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>Newborn Infant</td>
<td>DUMMY SERIAL NO.:</td>
<td>003</td>
</tr>
<tr>
<td>CAR BED NAME:</td>
<td>Cosco</td>
<td>CAR BED MODEL:</td>
<td>Dream Ride 02-719</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>6-16-2000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Base: ___On ___Off  X N/A-Restraint does not have a removable base
(A car bed with a removable base shall be treated as two separate models, i.e. this form and
test procedure will be completed with the base on and then repeated on a new form with the
base off.

Manufacturer’s design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer’s specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

A blanket and visor were not used in the suppression testing because they did not affect the
weight sensing system used on the vehicle.

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td>Forward</td>
<td>Won’t Fit</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in
the Rearward position. (SN507)
### DATA SHEET 19 SUMMARY

**Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)**

**Section D Forward Facing Belt Positioning Booster**

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/12/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>031</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOSTER SEAT NAME:</th>
<th>Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOSTER SEAT MODEL:</td>
<td>Next Step 4920</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>8-16-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: **24.0 Degrees**

Tested seat back angle:  **24.0 Degrees**

Manufacturer's specified anchorage position: **2nd Down of 4**

Tested anchorage position: **2nd Down of 4**

#### Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted Forward Facing</td>
<td>Forward</td>
<td>12</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Without Harness</td>
<td>Middle</td>
<td>10</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>12</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Belted Forward Facing</td>
<td>Forward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Cinched With Harness</td>
<td>Middle</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5\textsuperscript{th} percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)
## DATA SHEET 19 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)

**Section D Forward Facing Toddler Belt Positioning Booster Seat**

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/12/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>031</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOSTER SEAT NAME:</th>
<th>Cosco</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOSTER SEAT MODEL:</td>
<td>High Back Booster 02-442</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>4-28-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer's specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

### Test Summary

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Facing</td>
<td>Belted</td>
<td>Forward</td>
<td>12</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Without Harness</td>
<td></td>
<td>Middle</td>
<td>14</td>
<td>Suppressed</td>
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<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>15</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Forward Facing</td>
<td>Belted</td>
<td>Forward</td>
<td>133</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Cinched With Harness</td>
<td></td>
<td>Middle</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)
DATA SHEET 20 SUMMARY
Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>031</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Britax</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Roundabout 161</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>7-21-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer's specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forward</td>
<td>132</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)
DATA SHEET 20 SUMMARY
Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>031</td>
</tr>
<tr>
<td>CHILD RESTRAINT NAME:</td>
<td>Century</td>
<td>CHILD RESTRAINT MODEL:</td>
<td>Encore 4612</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>8-16-2000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manufacturer’s design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer’s specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>130</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>130</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)
### Data Sheet 20 Summary

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/9/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>031</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHILD RESTRAINT NAME:</th>
<th>Evenflo</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILD RESTRAINT MODEL:</td>
<td>Medallion 254</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>6-1-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 24.0 Degrees  
Tested seat back angle: 24.0 Degrees  
Manufacturer's specified anchorage position: 2nd Down of 4  
Tested anchorage position: 2nd Down of 4

#### Test Summary

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Cinch Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forward</td>
<td>131</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>129</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>129</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN507)
## DATA SHEET 21 SUMMARY

**Suppression Test Using An Unbelted 3 Year Old Dummy (Part 572, Subpart P)**

No CRS

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/12/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>3 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>031</td>
</tr>
</tbody>
</table>

### Test Summary

<table>
<thead>
<tr>
<th>Position</th>
<th>Seat Slide</th>
<th>Seat Back Angle</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Position 1</strong></td>
<td>Sitting on seat with back against seat back</td>
<td>Forward</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>24°</td>
</tr>
<tr>
<td><strong>Position 2</strong></td>
<td>Sitting on seat with back against reclined seat back</td>
<td>Forward</td>
<td>48°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>48°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>48°</td>
</tr>
<tr>
<td><strong>Position 3</strong></td>
<td>Sitting on seat with back not against seat back</td>
<td>Forward</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>24°</td>
</tr>
<tr>
<td><strong>Position 4</strong></td>
<td>Sitting on seat edge, spine vertical, hands at dummy's sides</td>
<td>Forward</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>24°</td>
</tr>
<tr>
<td><strong>Position 5</strong></td>
<td>Standing on seat, facing forward</td>
<td>Forward</td>
<td>32°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>32°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>32°</td>
</tr>
<tr>
<td><strong>Position 6</strong></td>
<td>Kneeling on seat, facing forward</td>
<td>Forward</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>24°</td>
</tr>
<tr>
<td><strong>Position 7</strong></td>
<td>Kneeling on seat, facing rearward</td>
<td>Forward</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>24°</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>24°</td>
</tr>
<tr>
<td><strong>Position 8</strong></td>
<td>Lying on seat. (Three designated seating positions only)</td>
<td>Forward</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN507)

* The seat back was reclined because of dummy contact with the roof. The final location of the seat was at 32° on the seat back.
DATA SHEET 22 SUMMARY
Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D  Forward Facing Toddler Belt Positioning Booster Seat

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/12/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>6 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>153</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOSTER SEAT NAME:</th>
<th>Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOSTER SEAT MODEL:</td>
<td>Next Step 4920</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>8-16-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer's specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

Test Summary

<table>
<thead>
<tr>
<th></th>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Belt Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td></td>
<td>Forward</td>
<td>10</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle</td>
<td>10</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearward</td>
<td>16</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)
DATA SHEET 22 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D  Forward Facing Toddler Belt Positioning Booster Seat

<table>
<thead>
<tr>
<th>NHTSA NO.</th>
<th>TEST DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>C70109</td>
<td>3/12/07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LABORATORY</th>
<th>TECHNICIANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGA</td>
<td>WD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DUMMY TYPE</th>
<th>DUMMY SERIAL NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Year Old</td>
<td>153</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOSTER SEAT NAME</th>
<th>BOOSTER SEAT MODEL</th>
<th>DATE OF MANUFACTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cosco</td>
<td>High Back Booster 02-442</td>
<td>4-28-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 24.0 Degrees  
Tested seat back angle: 24.0 Degrees  
Manufacturer's specified anchorage position: 2nd Down of 4  
Tested anchorage position: 2nd Down of 4

<table>
<thead>
<tr>
<th>Seat Belt</th>
<th>Seat Slide</th>
<th>Belt Load (N)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forward</td>
<td>10</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>12</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>15</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN507)
DATA SHEET 22 SUMMARY

Suppression Test Using 6-Year-Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>3/12/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>WD</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>6 Year Old</td>
<td>DUMMY SERIAL NO.:</td>
<td>153</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOSTER SEAT NAME:</th>
<th>Evenflo</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOSTER SEAT MODEL:</td>
<td>Right Fit 245</td>
</tr>
<tr>
<td>DATE OF MANUFACTURE:</td>
<td>6-26-2000</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 24.0 Degrees
Tested seat back angle: 24.0 Degrees
Manufacturer's specified anchorage position: 2nd Down of 4
Tested anchorage position: 2nd Down of 4

<table>
<thead>
<tr>
<th>Test Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Seat Belt</strong></td>
</tr>
<tr>
<td>Belted</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN507)
## Test Summary

<table>
<thead>
<tr>
<th>Position</th>
<th>Seat Slide</th>
<th>Seat Back Angle</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position 1 Sitting on seat with back against seat back</td>
<td>Forward 55 *</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Position 2 Sitting on seat with back against reclined seat back</td>
<td>Forward 55 *</td>
<td>48°</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>48°</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>48°</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Position 3 Sitting on seat edge, spine vertical, hands at dummy's sides</td>
<td>Forward</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
<tr>
<td>Position 4 Sitting on seat with back against seat back then leaning on the door</td>
<td>Forward 55 *</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
<tr>
<td></td>
<td>Rearward</td>
<td>24°</td>
<td>Suppressed</td>
</tr>
</tbody>
</table>

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN507)

* The ATD would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (0 = Full Forward; 240 = Full Rearward; 240 mm total Seat Slide travel)
DATA SHEET 29 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female Dummy (Part 572, Subpart O) (S26)
Position 1 - Chin On Module (S26.2)

<table>
<thead>
<tr>
<th>NHTSA NO.:</th>
<th>C70109</th>
<th>TEST DATE:</th>
<th>4/25/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>LABORATORY:</td>
<td>MGA</td>
<td>TECHNICIANS:</td>
<td>BR</td>
</tr>
<tr>
<td>DUMMY TYPE:</td>
<td>5th Percentile Female</td>
<td>DUMMY SERIAL NO.:</td>
<td>505</td>
</tr>
</tbody>
</table>

Manufacturer's design seat back angle: 24.0°
Tested seat back angle: 24.3°
Tested seat position: Full Aft

Tested steering wheel angle: 22.8°
Thorax cavity angle: 28.6°
Bottom of chin height: 2 mm Above Module

Air Bag Deployment Timing

<table>
<thead>
<tr>
<th>Stage No.</th>
<th>Firing time (ms)</th>
<th>Recorded firing time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>100.0</td>
<td>100.1</td>
</tr>
</tbody>
</table>

5th Percentile Female SN 505 Position 1 (Chin On Module) 4-25-07

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Measured Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIC15</td>
<td>700</td>
<td>4</td>
</tr>
<tr>
<td>Peak Nij (Nte)</td>
<td>1.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>61.1</td>
</tr>
<tr>
<td>Peak Nij (Ntf)</td>
<td>1.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>10.0</td>
</tr>
<tr>
<td>Peak Nij (Nce)</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>0.9</td>
</tr>
<tr>
<td>Peak Nij (Ncf)</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>3.7</td>
</tr>
<tr>
<td>Neck Tension</td>
<td>2070 N</td>
<td>464</td>
</tr>
<tr>
<td>Neck Compression</td>
<td>2520 N</td>
<td>7</td>
</tr>
<tr>
<td>Chest g</td>
<td>60 g</td>
<td>6</td>
</tr>
<tr>
<td>Chest Displacement</td>
<td>52 mm</td>
<td>3</td>
</tr>
<tr>
<td>Left Femur</td>
<td>6805 N</td>
<td>82</td>
</tr>
<tr>
<td>Right Femur</td>
<td>6805 N</td>
<td>24</td>
</tr>
</tbody>
</table>

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
Second stage fire time of 100 ms; Injuries calculated on 0 ms to 225 ms
Low Risk Deployment Tests Using an Unbelted 5th Percentile Female Dummy (Part 572, Subpart O) (S26)
Position 2 - Chin On Rim (S26.3)

NHTSA NO.: C70109  TEST DATE:  4/25/07
LABORATORY: MGA  TECHNICIANS: BR
DUMMY TYPE: 5th Percentile Female  DUMMY SERIAL NO.: 511

Manufacturer's design seat back angle: 24.0°
Tested seat back angle: 24.3°
Tested seat position: Full Aft

Tested steering wheel angle: 22.8°
Thorax cavity angle: 28.7°
Chin Point height: 1 mm Above Steering Wheel Target

Note: The chin on rim steering wheel target is 10 mm below the highest point on the steering wheel

<table>
<thead>
<tr>
<th>Stage No.</th>
<th>Firing time (ms)</th>
<th>Recorded firing time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

5th Percentile Female SN 511 Position 2 (Chin On Rim) 4-25-07

<table>
<thead>
<tr>
<th>Injury Criteria</th>
<th>Max. Allowable Injury Assessment Values</th>
<th>Measured Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIC15</td>
<td>700</td>
<td>20</td>
</tr>
<tr>
<td>Peak Nij (Nte)</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>30.5</td>
</tr>
<tr>
<td>Peak Nij (Ntf)</td>
<td>1.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>60.3</td>
</tr>
<tr>
<td>Peak Nij (Nce)</td>
<td>1.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>175.9</td>
</tr>
<tr>
<td>Peak Nij (Ncf)</td>
<td>1.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Time (ms)</td>
<td>NA</td>
<td>71.9</td>
</tr>
<tr>
<td>Neck Tension</td>
<td>2070 N</td>
<td>757</td>
</tr>
<tr>
<td>Neck Compression</td>
<td>2520 N</td>
<td>48</td>
</tr>
<tr>
<td>Chest g</td>
<td>60 g</td>
<td>13</td>
</tr>
<tr>
<td>Chest Displacement</td>
<td>52 mm</td>
<td>12</td>
</tr>
<tr>
<td>Left Femur</td>
<td>6805 N</td>
<td>40</td>
</tr>
<tr>
<td>Right Femur</td>
<td>6805 N</td>
<td>46</td>
</tr>
</tbody>
</table>

Calculated on data recorded for 125ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
Second stage fire time of 100 ms; Injuries calculated on 0 ms to 225 ms
DATA SHEET 32

VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

IMPACT ANGLE: Zero Degrees
BELTED DUMMIES (YES/NO): No
TEST SPEED: X 32 to 40 kmph 0 to 48 kmph 0 to 56 kmph
DRIVER DUMMY: 5th female X 50th male
PASSENGER DUMMY: 5th female X 50th male

1. Fill the transmission with transmission fluid to the satisfactory range.
2. Drain fuel from vehicle
3. Run the engine until fuel remaining in the fuel delivery system is used and the engine stops.
4. Record the useable fuel tank capacity supplied by the COTR
   Useable Fuel Tank Capacity supplied by COTR: 66.2 liters (17.5 gallons)
5. Record the fuel tank capacity supplied in the owner's manual.
   Useable Fuel Tank Capacity in owner's manual: 66.2 liters (17.5 gallons)
6. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," or gasoline, fill the fuel tank.
   Amount Added: 66.2 liters (17.5 gallons)
7. Fill the coolant system to capacity.
8. Fill the engine with motor oil to the Max. mark on the dip stick.
9. Fill the brake reservoir with brake fluid to its normal level.
10. Fill the windshield washer reservoir to capacity.
11. Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner’s manual.
   Tire placard pressure: RF: 32 psi LF: 32 psi RR: 32 psi LR: 32 psi
   Owner’s manual pressure: RF: 32 psi LF: 32 psi RR: 32 psi LR: 32 psi
   Actual inflated pressure: RF: 32 psi LF: 32 psi RR: 32 psi LR: 32 psi
12. Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight.
   Right Front (kg): 547.5 Right Rear (kg): 328.4
   Left Front (kg): 518.9 Left Rear (kg): 332.0
   Total Front (kg): 1066.4 Total Rear (kg): 660.4
   % Total Weight: 61.8 % Total Weight: 38.2
   UVW = TOTAL FRONT PLUS TOTAL REAR (KG): 1726.8
13. UVW Test Vehicle Attitude: (All dimensions in millimeters)
   13.1 Mark a point on the vehicle above the center of each wheel.
   13.2 Place the vehicle on a level surface.
13.3 Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements

<table>
<thead>
<tr>
<th>RF</th>
<th>LF</th>
<th>RR</th>
<th>LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>726</td>
<td>734</td>
<td>750</td>
<td>745</td>
</tr>
</tbody>
</table>

14. Calculate the Rated Cargo and Luggage Weight (RCLW): 88 kg

14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?

- Yes, go to 14.3
- No, go to 14.2

14.2 VCW = Gross Vehicle Weight - UVW

\[
VCW = \text{UVW} - \text{Gross Vehicle Weight}
\]

14.3 VCW = 428 kg (944 lbs)

14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?

- Yes, go to 14.6
- No, go to 14.5 and skip 14.6

14.5 DSC = Total number of seat belt assemblies = 

14.6 DSC = 

14.7 RCLW = VCW - (68 kg x DSC) = 428 kg - (68 kg x 5) = 88 kg

14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?

- Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)
- No, use the RCLW calculated in 14.7

15. Fully Loaded Weight (100% fuel fill): 1970.9 kg

15.1 Place the appropriate test dummy in both front outboard seating positions.

Driver: ___ 5th female \( \times \) 50th male
Passenger: ___ 5th female \( \times \) 50th male

15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.

15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (d))

15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

<table>
<thead>
<tr>
<th>Right Front (kg)</th>
<th>583.3</th>
<th>Right Rear (kg)</th>
<th>414.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Front (kg)</td>
<td>552.5</td>
<td>Left Rear (kg)</td>
<td>420.5</td>
</tr>
<tr>
<td>Total Front (kg)</td>
<td>1135.8</td>
<td>Total Rear (kg)</td>
<td>835.1</td>
</tr>
<tr>
<td>% Total Weight</td>
<td>57.6</td>
<td>% Total Weight</td>
<td>42.4</td>
</tr>
<tr>
<td>% GVW</td>
<td>54.1</td>
<td>% GVW</td>
<td>45.9</td>
</tr>
</tbody>
</table>

\[
\text{Fully Loaded Weight} = \text{Total Front Plus Total Rear (kg)} = 1970.9
\]

16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)

16.1 Place the vehicle on a level surface.

16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements

<table>
<thead>
<tr>
<th>RF</th>
<th>LF</th>
<th>RR</th>
<th>LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>712</td>
<td>725</td>
<td>711</td>
<td>707</td>
</tr>
</tbody>
</table>

17. Drain the fuel system

18. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, “Standard Specifications for Hydrocarbon Dry-cleaning Solvents,” fill the fuel tank to 92 - 94 percent of useable capacity.

Fuel tank capacity x .94 = 66.2 liters (17.5 gallons) x .94 = 62.3 liters (16.45 gallons)

Amount added 61.7 liters (16.3 gallons) 93.1%
19. Crank the engine to fill the fuel delivery system with Stoddard solvent

20. Calculate the test weight range.

20.1 Calculated Weight = UVW (see 12 above) + RCLW (see 14 above) + 2x(dummy weight)

\[ 1970.8 \text{ kg} = 1726.8 \text{ kg} + 88.0 \text{ kg} + 156.0 \text{ kg} \]

20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)
Max. Test Weight = Calculated Test Weight - 4.5 kg = 1966.3 kg
Min. Test Weight = Calculated Test Weight - 9 kg = 1961.8 kg

21. Remove the RCLW from the cargo area.

22. Drain transmission fluid, engine coolant, motor oil, and windshield washer fluid from the test vehicle so that Stoddard solvent leakage from the fuel system will be evident.

23. Vehicle Components Removed For Weight Reduction:
Spare tire, tool and jack, and trunk interior

24. Secure the equipment and ballast in the load carrying area and distribute it, as nearly as possible, to obtain the proportion of axle weight indicated by the gross axle weight ratings and center it over the longitudinal centerline of the vehicle.

25. If necessary, add ballast to achieve the actual test weight.

Weight of Ballast: 65.8 kg

26. Ballast, including test equipment, must be contained so that it will not shift during the impact event or interfere with data collection or interfere with high-speed film recordings or affect the structural integrity of the vehicle or do anything else to affect test results. Care must be taken to assure that any attachment hardware added to the vehicle is not in the vicinity of the fuel tank or lines.

27. Record the vehicle weight at each wheel to determine the actual test weight.

<table>
<thead>
<tr>
<th>Right Front (kg):</th>
<th>572.0</th>
<th>Right Rear (kg):</th>
<th>416.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Front (kg):</td>
<td>553.8</td>
<td>Left Rear (kg):</td>
<td>420.0</td>
</tr>
<tr>
<td>Total Front (kg):</td>
<td>1125.8</td>
<td>Total Rear (kg):</td>
<td>836.8</td>
</tr>
<tr>
<td>% Total Weight:</td>
<td>59.2</td>
<td>% Total Weight:</td>
<td>40.8</td>
</tr>
<tr>
<td>% GVW</td>
<td>54.1</td>
<td>% GVW</td>
<td>45.9</td>
</tr>
</tbody>
</table>

\((\% \text{ GVW} = \text{Axle GVW divided by Vehicle GVW})\)

TOTAL FRONT PLUS TOTAL REAR (kg): 1962.6

28. Is the test weight between the Max. Weight and the Min. Weight (See 20.2)?

Yes

29. Test Weight Vehicle Attitude: (all dimensions in millimeters)

29.1 Place the vehicle on a level surface

29.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13 above) and record the measurements

| RF: 721 | LF: 730 | RR: 713 | LR: 711 |

30. Summary of test attitude
X 30.1 AS DELIVERED:

<table>
<thead>
<tr>
<th></th>
<th>RF:</th>
<th>LF:</th>
<th>RR:</th>
<th>LR:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>726</td>
<td>734</td>
<td>750</td>
<td>745</td>
</tr>
</tbody>
</table>

AS TESTED:

<table>
<thead>
<tr>
<th></th>
<th>RF:</th>
<th>LF:</th>
<th>RR:</th>
<th>LR:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>721</td>
<td>730</td>
<td>713</td>
<td>711</td>
</tr>
</tbody>
</table>

FULLY LOADED:

<table>
<thead>
<tr>
<th></th>
<th>RF:</th>
<th>LF:</th>
<th>RR:</th>
<th>LR:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>712</td>
<td>725</td>
<td>711</td>
<td>707</td>
</tr>
</tbody>
</table>

X 30.2 Is the “as tested” test attitude equal to or between the “fully loaded” and “as delivered” attitude?

Yes

No, explain why not.

REMARKS:

I certify that I have read and performed each instruction.

Signature:  

Date: 5/9/07
DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide
NHTSA No.: C70109
Test Date: 5/9/07

IMPACT ANGLE: Zero Degrees
BELTED DUMMIES (YES/NO): No
TEST SPEED: X 32 to 40 kmph  0 to 48 kmph  0 to 56 kmph
DRIVER DUMMY:  5th female  X 50th male
PASSENGER DUMMY:  5th female  X 50th male

1. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.

2. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.

3. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

4. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

5. Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart.

6. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.

7. Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart.

8. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart.

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature] Date: 5/9/07
Dimensions Corresponding To The Letters “A” Through “K” (Excluding “I”) Are Recorded In The Table On The Following Page. Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.
## DATA SHEET 33

### VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>LENGTH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRETEST VALUES</strong></td>
<td></td>
</tr>
<tr>
<td>A (LH Rear Seat Xmbr)</td>
<td>350</td>
</tr>
<tr>
<td>B (RH Rear Seat Xmbr)</td>
<td>350</td>
</tr>
<tr>
<td>C (Engine Top)</td>
<td>4205</td>
</tr>
<tr>
<td>D (Engine Bottom)</td>
<td>4160</td>
</tr>
<tr>
<td>E (Caliper)</td>
<td>Right Side: 4104</td>
</tr>
<tr>
<td>F (Left Caliper)</td>
<td>725</td>
</tr>
<tr>
<td>G (IP)</td>
<td>N/A *</td>
</tr>
<tr>
<td>H (Seat)</td>
<td>2050</td>
</tr>
<tr>
<td>J (Right Caliper)</td>
<td>725</td>
</tr>
<tr>
<td>K (Trunk)</td>
<td>1172</td>
</tr>
<tr>
<td><strong>POST TEST VALUES</strong></td>
<td></td>
</tr>
<tr>
<td>A (LH Rear Seat Xmbr)</td>
<td>350</td>
</tr>
<tr>
<td>B (RH Rear Seat Xmbr)</td>
<td>350</td>
</tr>
<tr>
<td>C (Engine Top)</td>
<td>3982</td>
</tr>
<tr>
<td>D (Engine Bottom)</td>
<td>4110</td>
</tr>
<tr>
<td>E (Caliper)</td>
<td>Right Side: 4098</td>
</tr>
<tr>
<td>F (Left Caliper)</td>
<td>705</td>
</tr>
<tr>
<td>G (IP)</td>
<td>N/A *</td>
</tr>
<tr>
<td>H (Seat)</td>
<td>2050</td>
</tr>
<tr>
<td>J (Right Caliper)</td>
<td>705</td>
</tr>
<tr>
<td>K (Trunk)</td>
<td>1172</td>
</tr>
</tbody>
</table>

* The Instrument Panel (X) accelerometer was not installed at the request of the COTR due to the deployment characteristics of the passenger air bag.
DATA SHEET 34
PHOTOGRAPHIC TARGETS

Test Vehicle: 2007 Chevrolet Impala  
Test Program: FMVSS 208 Compliance  
Test Technician: Jamie Aide

<table>
<thead>
<tr>
<th>IMPACT ANGLE:</th>
<th>Zero Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELTED DUMMIES (YES/NO):</td>
<td>No</td>
</tr>
<tr>
<td>TEST SPEED:</td>
<td>32 to 40 kmph</td>
</tr>
<tr>
<td>DRIVER DUMMY:</td>
<td>5th female</td>
</tr>
<tr>
<td>PASSENGER DUMMY:</td>
<td>5th female</td>
</tr>
</tbody>
</table>

1. FMVSS 208 vehicle targeting requirements (See Figures 28A and 28B)
2. Targets A1 and A2 are on flat rectangular panels.
3. Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it.
   - Distance between targets (mm): 100 mm
4. Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it.
   - Distance between targets (mm): 100 mm
5. The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm.
   - Distance between the first and last circular targets (mm): 915 mm
6. Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy.
7. Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.
8. Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart.
   - Distance between targets (mm): 611 mm
9. Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart.
   - Distance between targets (mm): 612 mm
10. Place tape with squares having alternating colors on the top portion of the steering wheel.
11. Chalk the bottom portion of the steering wheel
12. Is this an offset test?
   - Yes, continue with this section
   - No, go to 2.
13. Measure the width of the vehicle.
   - Vehicle width (mm):
14. Find the centerline of the vehicle. (½ of the vehicle width)
15. Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
1.15 Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D)

2. Barrier Targeting
2.1 Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy
2.2 Targets D1 and D2 are on a rectangular panel.
2.3 Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.

Distance between circular targets on D1 (mm): 100 mm
Distance between circular targets on D2 (mm): 100 mm

3. FMVSS 208 Dummy Targeting Requirements
3.1 Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
3.2 Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
3.3 Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
3.4 Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.

4. FMVSS 204 Targeting Requirements
4.1 Is an FMVSS 204 indicant test ordered on the “COTR Vehicle Work Order?”
   Yes, continue with this form.
   No, this form is complete.
4.2 Resection panel (Figure 28C)
4.2.1 The panel deviates no more than 6 mm from perfect flatness when suspended vertically
4.2.2 The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.
4.2.3 The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.
4.2.4 Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.
4.2.5 The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.
4.3 Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.
4.4 Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash
I certify that I have read and performed each instruction.

Signature: 

Date: 5/9/07
REFERENCE PHOTO TARGETS

CONCRETE BARRIER

915 mm

610 mm

COVERED PHOTO PIT

LEFT SIDE VIEW

MONORAIL
RESECTION PANEL TARGETING ALIGNMENT

CAR TOP TARGETS A1 & A2

RESECTION CONTROL POINTS PANEL

STEERING COLUMN TARGET B

TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION

LEFT SIDE VIEW
PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW

LEFT SIDE VIEW

914 mm
## DATA SHEET 35
### CAMERA LOCATIONS

<table>
<thead>
<tr>
<th>CAMERA NO.</th>
<th>VIEW</th>
<th>CAMERA POSITIONS (mm)</th>
<th>LENS (mm)</th>
<th>SPEED (fps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Real Time Left Side View</td>
<td>X: 0 Y: 0 Z: 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Left Side View (Barrier face to front seat backs)</td>
<td>X: 890 Y: -5270 Z: 1040</td>
<td>24</td>
<td>1000</td>
</tr>
<tr>
<td>3</td>
<td>Left Side View (Driver)</td>
<td>X: 1670 Y: -5660 Z: 1360</td>
<td>35</td>
<td>1000</td>
</tr>
<tr>
<td>4</td>
<td>Left Side View (B-post aimed toward center of steering wheel)</td>
<td>X: 6600 Y: -5050 Z: 2120</td>
<td>50</td>
<td>1000</td>
</tr>
<tr>
<td>5</td>
<td>Left Side View (Steering Column)</td>
<td>X: 1370 Y: -5000 Z: 1280</td>
<td>25</td>
<td>1000</td>
</tr>
<tr>
<td>6</td>
<td>Left Side View (Steering Column)</td>
<td>X: 1370 Y: -5000 Z: 900</td>
<td>25</td>
<td>1000</td>
</tr>
<tr>
<td>7</td>
<td>Right Side View (Overall)</td>
<td>X: 2010 Y: 6200 Z: 1075</td>
<td>19</td>
<td>1000</td>
</tr>
<tr>
<td>8</td>
<td>Right Side View (Passenger)</td>
<td>X: 1760 Y: 4170 Z: 1260</td>
<td>35</td>
<td>1000</td>
</tr>
<tr>
<td>9</td>
<td>Right Side View (Angle)</td>
<td>X: 6600 Y: 5050 Z: 2120</td>
<td>50</td>
<td>1000</td>
</tr>
<tr>
<td>10</td>
<td>Right Side View (Front door)</td>
<td>X: 900 Y: 4220 Z: 1070</td>
<td>25</td>
<td>1000</td>
</tr>
<tr>
<td>11</td>
<td>Front View Windshield</td>
<td>X: -285 Y: 0 Z: 2800</td>
<td>12.5</td>
<td>1000</td>
</tr>
<tr>
<td>12</td>
<td>Front View Driver</td>
<td>X: -155 Y: -365 Z: 1500</td>
<td>24</td>
<td>1000</td>
</tr>
<tr>
<td>13</td>
<td>Front View Passenger</td>
<td>X: -155 Y: 370 Z: 1500</td>
<td>24</td>
<td>1000</td>
</tr>
<tr>
<td>14</td>
<td>Overhead Barrier Impact View</td>
<td>X: 1600 Y: 0 Z: 5050</td>
<td>19</td>
<td>1000</td>
</tr>
<tr>
<td>15</td>
<td>Pit Camera Engine View</td>
<td>X: 960 Y: 0 Z: -3160</td>
<td>24</td>
<td>1000</td>
</tr>
<tr>
<td>16</td>
<td>Pit Camera Fuel Tank View</td>
<td>X: 2700 Y: 0 Z: -3160</td>
<td>24</td>
<td>1000</td>
</tr>
</tbody>
</table>

*COORDINATES:

+X - forward of impact plane
+Y - right of monorail centerline
+Z - above ground level
CJAMAER POSITIONS FOR FMVSS 208

CONCRETE PAD

CONCRETE BARRIER

COVERED PHOTO PIT

TOW ROAD

TOP VIEW

REAL TIME CAMERA

CONCRETE BARRIER

COVERED PHOTO PIT

LEFT SIDE VIEW
IMPACT ANGLE: Zero Degrees
BELTED DUMMIES (YES/NO): No
TEST SPEED: X 32 to 40 kmph | _ 0 to 48 kmph | _ 0 to 56 kmph
DRIVER DUMMY: _ 5th female | X 50th male
PASSENGER DUMMY: _ 5th female | X 50th male

X 1. Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
   _N/A - No lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S20.1.8.2)
   X N/A - No additional support adjustment

X 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S20.1.9.3)
   X N/A - No independent fore-aft seat cushion adjustment

X 4. Use the seat markings determined during the completion of Data Sheet 14 to set the mid-fore-aft position, full down height position and the seat cushion angle. (S8.1.2)

X 5. The seat back angle, if adjustable, is set at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
   _N/A - No seat back angle adjustment
   Manufacturer’s design seat back angle 24.0° on Seat Back
   Tested seat back angle 23.9° on Seat Back

X 6. If adjustable, set the head restraint at the full up and full forward position. Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. (S8.1.3)
   _N/A - No head restraint adjustment

X 7. Place any adjustable seat belt anchorages at the vehicle manufacturer’s nominal design position for a 50th percentile adult male occupant (S8.1.3)
   _N/A - No adjustable upper seat belt anchorage
   Manufacturer’s specified anchorage position. 2nd Down of 4
   Tested anchorage position 2nd Down of 4 (Unbelted Test)

X 8. Place the adjustable accelerator pedal in the full forward position.
   X N/A - the accelerator pedal is not adjustable.
9. Set the steering wheel hub at the geometric center of the full range of driving positions including any telescoping positions as determined in data sheet 14.

10. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 1.18 of Data Sheet 14 and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

11. Rest the thighs on the seat cushion. (S10.5)

12. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage.

Adjust the dummy position until these three measurements are within the specifications.
(S10.4.2.1 and S10.4.2.2)
0.00 horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
(S10.4.2.1)
0.025 vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
(S10.4.2.1)
23.9° pelvic angle (20° to 25°)

13. Is the head level within ± 0.5°? (S10.1)

X Yes, go to 14
__ No, go to 13.1

13.1 Adjust the position of the H-point. (S10.1)

13.2 Is the head level within ± 0.5°? (S10.1)

__ Yes, record the following, then go to 15. __ No, go to 13.3
____ horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
(S10.4.2.1)
____ vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
(S10.4.2.1)
____ pelvic angle (20° to 25°) (S10.4.2.2)

13.3 Adjust the pelvic angle. (S10.1)

13.4 Is the head level within ± 0.5°? (S10.1)

__ Yes, record the following, then go to 14. __ No, go to 13.5
____ horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
(S10.4.2.1)
____ vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
(S10.4.2.1)
____ pelvic angle (20° to 25°) (S10.4.2.2)
13.5 Adjust the neck bracket of the dummy the minimum amount necessary from the non-adjusted "0" setting until the head is level within ± 0.5°. (S10.1)

Record the following, then go to 14 (The neck bracket was moved one notch)

horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
(S10.4.2.1)
vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
(S10.4.2.1)
pelvic angle (20° to 25°)

14. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches. (S10.5)

15. Can the right foot be placed on the accelerator?

Yes, go to 15.1 and skip 15.2
No, go to 15.2

15.1. To the extent practicable keep the right thigh and the leg in a vertical plane (S10.5) while resting the foot on the undepressed accelerator pedal with the rearmost point of the heel on the floor pan in the plane of the pedal. (S10.6.1.1)

15.2 Initially set the foot perpendicular to the leg and then place it as far forward as possible in the direction of the pedal centerline with the rearmost point of the heel resting on the floor pan. (S10.6.1.1)

15.2.1 Move the adjustable pedal to its most rearward position or until the right foot is flat on the pedal, whichever occurs first. (S10.6.1.1)

N/A - the accelerator pedal is not adjustable

16. Does the vehicle have a foot rest?

Yes, go to 16.1
No, go to 16.2

16.1. With the left thigh and leg in a vertical plane, place the foot on the foot rest with the heel resting on the floor pan. (S10.6.1.2)

16.1.1 Is the left foot elevated above the right foot?

Yes, go to 16.1.2 and position the foot off the foot rest
No, go to 17
16.1.2 Check the ONLY one of the following that applies

- The foot reaches the toeboard without adjusting the foot or leg. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard, skip 16.1.3 (S10.6.1.2)

- The foot reaches the toeboard but contacts the brake or clutch pedal and must be rotated to avoid pedal contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard. The foot was rotated about the leg to avoid pedal contact, skip 16.1.3 (S10.6.1.2)

- The foot reaches the toeboard but contacts the brake or clutch pedal and the foot and leg must be rotated to avoid pedal contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard. The foot was rotated about the leg and the leg was rotated outboard about the hip the minimum distance necessary to avoid pedal contact, skip 16.1.3 (S10.6.1.2)

- N/A - the foot does not reach the toeboard, go to 16.1.3

16.1.3 Check the ONLY one of the following that applies

- The foot did not contact the brake or clutch pedal. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5). Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan. (S10.6.1.2)

- The foot did contact the brake or clutch pedal and the foot was rotated to avoid contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5). Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan and rotate the foot the minimum amount to avoid pedal contact. (S10.6.1.2)

- The foot did contact the brake or clutch pedal and the foot was rotated about the leg and the leg was rotated outboard about the hip the minimum distance necessary to avoid pedal contact. Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan and rotate the foot about the leg and the thigh and leg outboard about the hip the minimum distance necessary to avoid pedal contact. (S10.6.1.2)

17. Place the right upper arm adjacent to the torso with the centerline as close to a vertical plane as possible. (S10.2.1)

18. Is the driver seat belt used for this test?
   - Yes, continue
   - No, go to 19

18.1 Fasten the seat belt around the dummy.

18.2 Remove all slack from the lap belt portion. (S10.9)
18.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

18.4 Apply a 2 to 4 pound tension load to the lap belt. (S10.9)

18.5 Is the belt system equipped with a tension-relieving device?
   Yes, continue
   No, go to 19

18.6 Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner’s manual. (S10.9).

19. Place the left upper arm adjacent to the torso with the centerline as close to a vertical plane as possible. (S10.2.1)

20. Place the right hand with the palm in contact with the steering wheel at the rim’s horizontal centerline and with the thumb over the steering wheel. (S10.3.1)

21. Place the left hand with the palm in contact with the steering wheel at the rim’s horizontal centerline and with the thumb over the steering wheel. (S10.3.1)

22. Tape the thumb of each hand to the steering wheel by using masking tape with a width of 0.25 inch. The length of the tape shall only be enough to go around the thumb and steering wheel one time.

REMARKS:

I certify that I have read and performed each instruction.

Date

5/9/07
### APPENDIX F

**DUMMY POSITIONING PROCEDURES FOR PASSENGER TEST DUMMY CONFORMING TO SUBPART E OF PART 572**

<table>
<thead>
<tr>
<th>Test Vehicle:</th>
<th>2007 Chevrolet Impala</th>
<th>NHTSA No.:</th>
<th>C70109</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Program:</td>
<td>FMVSS 208 Compliance</td>
<td>Test Date:</td>
<td>5/9/07</td>
</tr>
<tr>
<td>Test Technician:</td>
<td>Tim Bratz</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IMPACT ANGLE:** Zero Degrees  
**BELTED DUMMIES (YES/NO):** No  
**TEST SPEED:**  
- X 32 to 40 kmph  
- _ 0 to 48 kmph  
- ___ 0 to 56 kmph  
**DRIVER DUMMY:**  
- _ 5th female  
- X 50th male  
**PASSENGER DUMMY:**  
- _ 5th female  
- X 50th male

**X 1.** The seat is a bench seat for which the adjustments have already been made for the driver and there are no independent adjustments that can be made for the passenger. Go to 7.  
_X N/A- the passenger seat adjusts independently of the driver seat._

**X 2.** Position the seat’s adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)  
_X N/A - No lumbar adjustment._

**X 3.** Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S20.1.8.2)  
_X N/A - No additional support adjustment._

**X 4.** If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S20.1.9.3)  
_X N/A - No independent fore-aft seat cushion adjustment._

**X 5.** Use the seat markings determined during the completion of Data Sheet 14 to set the mid-fore-aft position, full down height position and the seat cushion angle. (S8.1.2)  

**X 6.** The seat back angle, if adjustable, is set at the manufacturer’s nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)  
_X N/A - No seat back angle adjustment._  
**Manufacturer’s design seat back angle:** 24.0° on Seat Back  
**Tested seat back angle:** 23.6° on Seat Back

**X 7.** If adjustable, set the head restraint at the full up and full forward position. Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. (S8.1.3)  
_X N/A - No head restraint adjustment._
8. Place any adjustable seat belt anchorages at the vehicle manufacturer’s nominal design position for a 50th percentile adult male occupant (S.8.1.3)
   - N/A - No adjustable upper seat belt anchorage
   - Manufacturer’s specified anchorage position
   - 2nd Down of 4
   - Tested anchorage position
   - 2nd Down of 4 (Unbelted Test)
   - N/A - the seat does not have a fore-aft adjustment

9. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 2.19 of Data Sheet 14 and the upper torso rests against the seat back. (S.10.4.1.1 & S.10.4.1.2)

10. Rest the thighs on the seat cushion. (S.10.5)

11. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S.10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage.

   Adjust the dummy position until these three measurements are within the specifications. (S.10.4.2.1 and S.10.4.2.2)
   - 0.078 horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
   - 0.039 vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
   - 22.8° pelvic angle (20° to 25°)

12. Is the head level within ± 0.5°? (S.10.1)
   - Yes, go to 13
   - No, go to 12.1

   12.1 Adjust the position of the H-point. (S.10.1 and S.10.4.2.1)

   12.2 Is the head level within ± 0.5°? (S.10.1)
   - Yes, record the following, then go to 13.
   - No, go to 12.3

   12.3 Adjust the pelvic angle. (S.10.1)

   12.4 Is the head level within ± 0.5°? (S.10.1)
   - Yes, record the following, then go to 13.
   - No, go to 12.5
12.5 Adjust the neck bracket of the dummy the minimum amount necessary from the non-adjusted “0” setting until the head is level within ± 0.5°. (S10.1)

Record the following, then go to 13 (The neck bracket was moved four notches)

- Horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
- Vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
- Pelvic angle (20° to 25°) (S10.4.2.2)

13. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches. 10.6” measured distance (10.6 inches) (S10.5)

14. Check the only one of the following that applies:

- To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, place the feet on the toeboard with the heels resting on the floor pan as close as possible to the intersection of the floor pan and toeboard.

- The feet cannot be placed flat on the toeboard. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heels resting on the floor pan.

- The vehicle has a wheelhouse projection. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heel resting on the floor pan. Do not set the feet on the wheelhouse projection.

- The vehicle has a wheelhouse projection and the feet cannot be placed on the toeboard. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heel resting on the floor pan. Do not set the feet on the wheelhouse projection.

15. Place the left upper arm in contact with the seat back and side of the torso. (S10.2.2)

16. Is the passenger seat belt used for this test?

- Yes, continue
- No, go to 17

16.1 Fasten the seat belt around the dummy.

16.2 Remove all slack from the lap belt portion. (S10.9)

16.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

16.4 Apply a 2 to 4 pound tension load to the lap belt. (S10.9)

119
__16.5 Is the belt system equipped with a tension relieving device?
__Yes, continue
__No, go to 17

__16.6 Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9). Go to 17.

X 17. Place the right upper arm in contact with the seat back and side of the torso. (S10.2.2)

X 18. Place the left hand palm in contact with the outside of the left thigh and the little finger in contact with the seat cushion. (S10.3.2)

X 19. Place the right hand palm in contact with the outside of the right thigh and the little finger in contact with the seat cushion. (S10.3.2)

REMARKS:

I certify that I have read and performed each instruction. Date

5/9/07
DATA SHEET 37

DUMMY MEASUREMENTS

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Joe Fleck
NHTSA No.: C70109
Test Date: 5/9/07

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD</td>
<td>Chest to Dash</td>
</tr>
<tr>
<td>CS</td>
<td>Chest to Steering Wheel Hub</td>
</tr>
<tr>
<td>HH</td>
<td>Head to Header</td>
</tr>
<tr>
<td>HW</td>
<td>Head to Windshield</td>
</tr>
<tr>
<td>HZ</td>
<td>Head to Roof</td>
</tr>
<tr>
<td>KDA</td>
<td>Knee to Dash Angle</td>
</tr>
<tr>
<td>KDL</td>
<td>Left Knee to Dash</td>
</tr>
<tr>
<td>KDR</td>
<td>Right Knee to Dash</td>
</tr>
<tr>
<td>NA</td>
<td>Nose to Rim Angle</td>
</tr>
<tr>
<td>NR</td>
<td>Nose to Rim</td>
</tr>
<tr>
<td>PA</td>
<td>Pelvic Angle</td>
</tr>
<tr>
<td>RA</td>
<td>Rim to Abdomen</td>
</tr>
<tr>
<td>SA</td>
<td>Seat Back Angle</td>
</tr>
<tr>
<td>SCA</td>
<td>Steering Column Angle</td>
</tr>
<tr>
<td>SH</td>
<td>Striker to H-Point</td>
</tr>
<tr>
<td>SK</td>
<td>Striker to Knee</td>
</tr>
<tr>
<td>ST</td>
<td>Striker to Head</td>
</tr>
<tr>
<td>SWA</td>
<td>Steering Wheel Angle</td>
</tr>
<tr>
<td>TA</td>
<td>Tibial Angle</td>
</tr>
<tr>
<td>WA</td>
<td>Windshield Angle</td>
</tr>
</tbody>
</table>

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Joe Fleck
NHTSA No.: C70109
Test Date: 5/9/07
### DATA SHEET 37

**DUMMY MEASUREMENTS**

**Test Vehicle:** 2007 Chevrolet Impala  
**Test Program:** FMVSS 208 Compliance  
**Test Technician:** Joe Fleck

**NHTSA No.:** C70109  
**Test Date:** 5/9/07

---

#### TEST DUMMY POSITION MEASUREMENTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Measurement Description</th>
<th>Driver SN 401</th>
<th></th>
<th>Passenger SN 403</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Length (mm)</td>
<td>Angle (°)</td>
<td>Length (mm)</td>
<td>Angle (°)</td>
<td>Length (mm)</td>
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<tr>
<td>WA</td>
<td>Windshield Angle</td>
<td>26.5</td>
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<td></td>
<td></td>
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<tr>
<td>SWA</td>
<td>Steering Wheel Angle</td>
<td>67.4</td>
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<tr>
<td>SCA</td>
<td>Steering Column Angle</td>
<td>22.3</td>
<td></td>
<td></td>
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<tr>
<td>SA</td>
<td>Seat Back Angle (On Headrest)</td>
<td>23.6</td>
<td></td>
<td></td>
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<tr>
<td>HZ</td>
<td>Head to Roof (Z)</td>
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<td>159</td>
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<tr>
<td>HH</td>
<td>Head to Header</td>
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<td>21.5</td>
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<td>22.3</td>
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<td>HW</td>
<td>Head to Windshield</td>
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<td>0</td>
<td>667</td>
<td>0</td>
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<td>HR</td>
<td>Head to Side Header (Y)</td>
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<td>207</td>
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<tr>
<td>NR</td>
<td>Nose to Rim</td>
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<td>10.1</td>
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<tr>
<td>CD</td>
<td>Chest to Dash</td>
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<td>537</td>
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<tr>
<td>CS</td>
<td>Chest to Steering Hub</td>
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<td>5.5</td>
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<td></td>
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<tr>
<td>RA</td>
<td>Rim to Abdomen</td>
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<td>6</td>
<td></td>
<td></td>
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<tr>
<td>KDL</td>
<td>Left Knee to Dash</td>
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<td>35.7</td>
<td>186</td>
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</tr>
<tr>
<td>KDR</td>
<td>Right Knee to Dash</td>
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<td></td>
<td></td>
<td>192</td>
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<tr>
<td>PA</td>
<td>Pelvic Angle</td>
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<td>22.8</td>
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<td>TA</td>
<td>Tibia Angle</td>
<td>41.4</td>
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<td>41.2</td>
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<tr>
<td>KK</td>
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<td>319</td>
<td></td>
<td></td>
<td>266</td>
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<tr>
<td>SK</td>
<td>Striker to Knee</td>
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<td>92.7</td>
<td>569</td>
<td>90.3</td>
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<td>ST</td>
<td>Striker to Head</td>
<td>538</td>
<td>8.9</td>
<td>520</td>
<td>7.7</td>
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<tr>
<td>SH</td>
<td>Striker to H-Point</td>
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<td>111.5</td>
<td>193</td>
<td>108.1</td>
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<tr>
<td>SHY</td>
<td>Striker to H-Point (Y)</td>
<td>275</td>
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<tr>
<td>HS</td>
<td>Head to Side Window</td>
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<td>336</td>
</tr>
<tr>
<td>HD</td>
<td>H-Point to Door (Y)</td>
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<td>178</td>
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<tr>
<td>AD</td>
<td>Arm to Door (Y)</td>
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<td>AA</td>
<td>Ankle to Ankle</td>
<td>295</td>
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<td>217</td>
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---

**Test Vehicle:** 2007 Chevrolet Impala  
**Test Program:** FMVSS 208 Compliance  
**Test Technician:** Joe Fleck

**NHTSA No.:** C70109  
**Test Date:** 5/9/07
SEAT BELT POSITIONING DATA

**FRONT VIEW OF DUMMY**

**SEAT BELT POSITIONING MEASUREMENTS**

<table>
<thead>
<tr>
<th>Measurement Description</th>
<th>Units</th>
<th>Driver</th>
<th>Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBU - Top surface of reference to belt upper edge</td>
<td>mm</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>PBL - Top surface of reference to belt lower edge</td>
<td>mm</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
DATA SHEET 38
CRASH TEST

Test Vehicle: 2007 Chevrolet Impala  
Test Program: FMVSS 208 Compliance  
Test Technician: Joe Fleck

<table>
<thead>
<tr>
<th>IMPACT ANGLE:</th>
<th>Zero Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELTED DUMMIES (YES/NO):</td>
<td>No</td>
</tr>
</tbody>
</table>
| TEST SPEED: | X 32 to 40 kmph  
| | _ 0 to 48 kmph  
| | _ 0 to 56 kmph |
| DRIVER DUMMY: | _ 5th female  
| | X 50th male |
| PASSENGER DUMMY: | _ 5th female  
| | X 50th male |

1. Vehicle underbody painted
2. The speed measuring devices are in place and functioning.
3. The speed measuring devices are _1.0_ m from the barrier (spec. 1.5m) and _30_ cm from the barrier (spec. is 30 cm) 
4. Convertible top is in the closed position.
5. Instrumentation and wires are placed so the motion of the dummies during impact is not affected.
6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information.

220 kpa front left tire  
220 kpa front right tire  
220 kpa rear left tire  
220 kpa rear right tire

7. Time zero contacts on barrier in place.
8. Pre test zero and shunt calibration adjustments performed and recorded
9. Dummy temperature meets requirements of section 12.2 of the test procedure.
10. Vehicle hood closed and latched
11. Transmission placed in neutral
12. Parking brake off
13. Ignition in the ON position
14. Doors closed and latched but not locked
15. Posttest zero and shunt calibration checks performed and recorded
16. Actual test speed _39.8_ kmph
17. Vehicle rebound from the barrier _176_ cm
18. Describe whether the doors open after the test and what method is used to open the doors.

| X | Left Front Door: Door remained closed and latched; Door opened without tools |
| X | Right Front Door: Door remained closed and latched; Door opened without tools |
| X | Left Rear Door: Door remained closed and latched; Door opened without tools |
| X | Right Rear Door: Door remained closed and latched; Door opened without tools |

NHTSA No.: C70109  
Test Date: 5/9/07
19. Describe the contact points of the dummy with the interior of the vehicle.

- Driver Dummy: Head to Air Bag and Headrest; Chest to Air Bag; Knees to Knee Bolster
- Passenger Dummy: Head to Air Bag and Headrest; Chest to Air Bag; Knees to Glove Box

REMARKS:

______________________________  ____________
I certify that I have read and performed each instruction.       Date

5/9/07
### DATA SHEET NO. 40

**ACCIDENT INVESTIGATION MEASUREMENTS**

<table>
<thead>
<tr>
<th>Test Vehicle:</th>
<th>2007 Chevrolet Impala</th>
<th>NHTSA No.:</th>
<th>C70109</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Program:</td>
<td>FMVSS 208 Compliance</td>
<td>Test Date:</td>
<td>5/9/07</td>
</tr>
<tr>
<td>Test Technician:</td>
<td>Jamie Aide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IMPACT ANGLE:** Zero Degrees

**BELTED DUMMIES (YES/NO):** No

**TEST SPEED:**
- X 32 to 40 kmph
- _ 0 to 48 kmph
- _ 0 to 56 kmph

**DRIVER DUMMY:**
- _ 5th female
- X 50th male

**PASSENGER DUMMY:**
- _ 5th female
- X 50th male

<table>
<thead>
<tr>
<th>Vehicle Year/Make/Model/Body Style:</th>
<th>2007 Chevrolet Impala Passenger Car</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIN:</td>
<td>2G1WD58C579159017</td>
</tr>
<tr>
<td>Wheelbase:</td>
<td>2800</td>
</tr>
<tr>
<td>Build Date:</td>
<td>08/06</td>
</tr>
<tr>
<td>Vehicle Size Category:</td>
<td>3</td>
</tr>
<tr>
<td>Test Weight:</td>
<td>1962.6 kg</td>
</tr>
<tr>
<td>Front Overhang:</td>
<td>1071 mm</td>
</tr>
<tr>
<td>Overall Width:</td>
<td>1831 mm</td>
</tr>
<tr>
<td>Overall Length Center:</td>
<td>5045 mm</td>
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</table>

**Accelerometer Data**

<table>
<thead>
<tr>
<th>Location:</th>
<th>As per measurements on Data Sheet 33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linearity:</td>
<td>&gt;99.9%</td>
</tr>
</tbody>
</table>

| Integration Algorithm:             | Trapezoidal                         |
| Vehicle Impact Speed:              | 39.8 kmph                           |
| Time of Separation:                | 143.4 ms                            |
| Velocity Change:                   | 45.5 kmph                           |
CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
Midpoint of Damage: Vehicle Longitudinal Centerline
Damage Region Length (mm): 1210
Impact Mode: Frontal Barrier

<table>
<thead>
<tr>
<th>No.</th>
<th>Measurement Description</th>
<th>Units</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Crush zone 1 at left side</td>
<td>mm</td>
<td>4928</td>
<td>4708</td>
<td>220</td>
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<tr>
<td>C2</td>
<td>Crush zone 2 at left side</td>
<td>mm</td>
<td>4996</td>
<td>4660</td>
<td>336</td>
</tr>
<tr>
<td>C3</td>
<td>Crush zone 3 at left side</td>
<td>mm</td>
<td>5032</td>
<td>4698</td>
<td>334</td>
</tr>
<tr>
<td>C4</td>
<td>Crush zone 4 at right side</td>
<td>mm</td>
<td>5032</td>
<td>4678</td>
<td>354</td>
</tr>
<tr>
<td>C5</td>
<td>Crush zone 5 at right side</td>
<td>mm</td>
<td>4996</td>
<td>4669</td>
<td>327</td>
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<tr>
<td>C6</td>
<td>Crush zone 6 at right side</td>
<td>mm</td>
<td>4928</td>
<td>4698</td>
<td>230</td>
</tr>
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</table>

REMARKS:
I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 5/9/07
DATA SHEET 41
WINDSHIELD MOUNTING (FMVSS 212)

<table>
<thead>
<tr>
<th>Test Vehicle:</th>
<th>2007 Chevrolet Impala</th>
<th>NHTSA No.:</th>
<th>C70109</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Program:</td>
<td>FMVSS 208 Compliance</td>
<td>Test Date:</td>
<td>5/9/07</td>
</tr>
<tr>
<td>Test Technician:</td>
<td>Jamie Aide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMPACT ANGLE:</th>
<th>Zero Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELTED DUMMIES (YES/NO):</td>
<td>No</td>
</tr>
<tr>
<td>TEST SPEED:</td>
<td><em>X</em> 32 to 40 kmph</td>
</tr>
<tr>
<td>DRIVER DUMMY:</td>
<td></td>
</tr>
<tr>
<td>PASSENGER DUMMY:</td>
<td></td>
</tr>
</tbody>
</table>

1. Pre-Crash

<table>
<thead>
<tr>
<th>1.1</th>
<th>Describe from visual inspection how the windshield is mounted and describe any trim material.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Retained with glue</td>
</tr>
</tbody>
</table>

1.2 | Mark the longitudinal centerline of the windshield |

1.3 | Measure pre-crash A, B, and C for the left side and record in the chart below. |

1.4 | Measure pre-crash C, D, and E for the right side and record in the chart below. |

1.5 | Measure from the edge of the retainer or molding to the edge of the windshield. |
| Dimension G (mm): None |

2. Post Crash

<table>
<thead>
<tr>
<th>2.1</th>
<th>Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>No - Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.</td>
</tr>
</tbody>
</table>

2.2 | Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body. |

2.3 | Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body. |

2.4 | Calculate and record the percent retention for the right and left side of the windshield. |

<table>
<thead>
<tr>
<th>2.5</th>
<th>Is total right side percent retention less than 75%?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, Fail</td>
<td></td>
</tr>
<tr>
<td>No, Pass</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.6</th>
<th>Is total left side percent retention less than 75%?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, Fail</td>
<td></td>
</tr>
<tr>
<td>No, Pass</td>
<td></td>
</tr>
</tbody>
</table>

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide

NHTSA No.: C70109
Test Date: 5/9/07
### WINDSHIELD RETENTION MEASUREMENTS

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Pre-Crash (mm)</th>
<th>Post-Crash (mm)</th>
<th>Percent Retention (Post-Test ÷ Pre-Crash)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>617</td>
<td>617</td>
<td>100%</td>
</tr>
<tr>
<td>B</td>
<td>842</td>
<td>842</td>
<td>100%</td>
</tr>
<tr>
<td>C</td>
<td>775</td>
<td>775</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>2234</td>
<td>2234</td>
<td>100%</td>
</tr>
<tr>
<td>D</td>
<td>617</td>
<td>617</td>
<td>100%</td>
</tr>
<tr>
<td>E</td>
<td>842</td>
<td>842</td>
<td>100%</td>
</tr>
<tr>
<td>F</td>
<td>775</td>
<td>775</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>2234</td>
<td>2234</td>
<td>100%</td>
</tr>
</tbody>
</table>

Indicate area of mounting failure. NONE

**FRONT VIEW OF WINDSHIELD**

**INDICATE WIDTH OF MOLDING**

**ZERO POINT (0,0)**

REMARKS:

I certify that I have read and performed each instruction.

Signature: [Signature]

Date: 5/9/07
1. Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))

2. Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))

3. From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))

4. Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3

5. After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.
WINDSHIELD DIMENSIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>mm</td>
<td>1234</td>
</tr>
<tr>
<td>B</td>
<td>mm</td>
<td>545</td>
</tr>
<tr>
<td>C</td>
<td>mm</td>
<td>1550</td>
</tr>
<tr>
<td>D</td>
<td>mm</td>
<td>842</td>
</tr>
<tr>
<td>E</td>
<td>mm</td>
<td>550</td>
</tr>
<tr>
<td>F</td>
<td>mm</td>
<td>571</td>
</tr>
</tbody>
</table>

AREA OF PROTECTED ZONE FAILURES:

B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>

C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:

I certify that I have read and performed each instruction.

Signature: ____________________  Date: 5/9/07
DATA SHEET 43
FUEL SYSTEM INTEGRITY (FMVSS 301)

Test Vehicle: 2007 Chevrolet Impala
Test Program: FMVSS 208 Compliance
Test Technician: Daniel Sienko
NHTSA No.: C70109
Test Date: 5/9/07

TYPE OF IMPACT: 25 mph Unbelted Flat Frontal

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0.0 grams
   (Maximum Allowable = 28 grams)
B. For the 5 minute period after motion ceases: 0.0 grams
   (Maximum Allowable = 142 grams)
C. For the following 25 minutes: 0.0 grams
   (Maximum Allowable = 28 grams/minute)
D. Spillage: NONE

REMARKS: NO SPILLAGE
DATA SHEET NO. 43
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2007 Chevrolet Impala  NHTSA No.: C70109
Test Program: FMVSS 208 Compliance  Test Date: 5/9/07

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: None

<table>
<thead>
<tr>
<th>Test Phase</th>
<th>Rotation Time (sec.)</th>
<th>Hold Time (sec.)</th>
<th>Spillage (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0° to 90°</td>
<td>125</td>
<td>300</td>
<td>0.0</td>
</tr>
<tr>
<td>90° to 180°</td>
<td>115</td>
<td>300</td>
<td>0.0</td>
</tr>
<tr>
<td>180° to 270°</td>
<td>110</td>
<td>300</td>
<td>0.0</td>
</tr>
<tr>
<td>270° to 360°</td>
<td>118</td>
<td>300</td>
<td>0.0</td>
</tr>
</tbody>
</table>
APPENDIX A

CRASH TEST DATA
### TABLE OF DATA PLOTS

<table>
<thead>
<tr>
<th>Figure No.</th>
<th>Plot Description</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Driver Head X Acceleration vs. Time</td>
<td>A-1</td>
</tr>
<tr>
<td>2</td>
<td>Driver Head Y Acceleration vs. Time</td>
<td>A-1</td>
</tr>
<tr>
<td>3</td>
<td>Driver Head Z Acceleration vs. Time</td>
<td>A-1</td>
</tr>
<tr>
<td>4</td>
<td>Driver Head Resultant Acceleration vs. Time</td>
<td>A-1</td>
</tr>
<tr>
<td>5</td>
<td>Driver Head X Velocity vs. Time</td>
<td>A-2</td>
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<tr>
<td>6</td>
<td>Driver Head Y Velocity vs. Time</td>
<td>A-2</td>
</tr>
<tr>
<td>7</td>
<td>Driver Head Z Velocity vs. Time</td>
<td>A-2</td>
</tr>
<tr>
<td>8</td>
<td>Driver Ne X Force X vs. Time</td>
<td>A-3</td>
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<tr>
<td>9</td>
<td>Driver Neck Force Y vs. Time</td>
<td>A-3</td>
</tr>
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<td>11</td>
<td>Driver Neck Force Resultant vs. Time</td>
<td>A-3</td>
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<td>12</td>
<td>Driver Neck Moment X vs. Time</td>
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<tr>
<td>13</td>
<td>Driver Neck Moment Y vs. Time</td>
<td>A-4</td>
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<td>14</td>
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<td>15</td>
<td>Driver Neck Moment Resultant vs. Time</td>
<td>A-4</td>
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<td>16</td>
<td>Driver Chest X Acceleration vs. Time</td>
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<tr>
<td>17</td>
<td>Driver Chest Y Acceleration vs. Time</td>
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<tr>
<td>18</td>
<td>Driver Chest Z Acceleration vs. Time</td>
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<tr>
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<td>Driver Chest Resultant Acceleration vs. Time</td>
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<td>Driver Chest X Velocity vs. Time</td>
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<td>21</td>
<td>Driver Chest Y Velocity vs. Time</td>
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<tr>
<td>22</td>
<td>Driver Chest Z Velocity vs. Time</td>
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<td>23</td>
<td>Driver Chest Displacement vs. Time</td>
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<td>Driver Left Femur Force vs. Time</td>
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<td>25</td>
<td>Driver Right Femur Force vs. Time</td>
<td>A-7</td>
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<td>26</td>
<td>Passenger Head X Acceleration vs. Time</td>
<td>A-8</td>
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<tr>
<td>27</td>
<td>Passenger Head Y Acceleration vs. Time</td>
<td>A-8</td>
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<td>28</td>
<td>Passenger Head Z Acceleration vs. Time</td>
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</tr>
<tr>
<td>29</td>
<td>Passenger Head Resultant Acceleration vs. Time</td>
<td>A-8</td>
</tr>
<tr>
<td>Figure No.</td>
<td>Description</td>
<td>Page No.</td>
</tr>
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<td>30</td>
<td>Passenger Head X Velocity vs. Time</td>
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<td>Passenger Head Y Velocity vs. Time</td>
<td>A-9</td>
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<tr>
<td>32</td>
<td>Passenger Head Z Velocity vs. Time</td>
<td>A-9</td>
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<td>33</td>
<td>Passenger Neck Force X vs. Time</td>
<td>A-10</td>
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<td>Passenger Neck Force Y vs. Time</td>
<td>A-10</td>
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<td>35</td>
<td>Passenger Neck Force Z vs. Time</td>
<td>A-10</td>
</tr>
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<td>36</td>
<td>Passenger Neck Force Resultant vs. Time</td>
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<td>37</td>
<td>Passenger Neck Moment X vs. Time</td>
<td>A-11</td>
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<td>Passenger Neck Moment Y vs. Time</td>
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<td>41</td>
<td>Passenger Chest X Acceleration vs. Time</td>
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<td>42</td>
<td>Passenger Chest Y Acceleration vs. Time</td>
<td>A-12</td>
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<tr>
<td>43</td>
<td>Passenger Chest Z Acceleration vs. Time</td>
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<td>44</td>
<td>Passenger Chest Resultant Acceleration vs. Time</td>
<td>A-12</td>
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<td>45</td>
<td>Passenger Chest X Velocity vs. Time</td>
<td>A-13</td>
</tr>
<tr>
<td>46</td>
<td>Passenger Chest Y Velocity vs. Time</td>
<td>A-13</td>
</tr>
<tr>
<td>47</td>
<td>Passenger Chest Z Velocity vs. Time</td>
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<td>48</td>
<td>Passenger Chest Displacement vs. Time</td>
<td>A-13</td>
</tr>
<tr>
<td>49</td>
<td>Passenger Left Femur Force vs. Time</td>
<td>A-14</td>
</tr>
<tr>
<td>50</td>
<td>Passenger Right Femur Force vs. Time</td>
<td>A-14</td>
</tr>
<tr>
<td>51</td>
<td>Driver Nij (N_{TF}) vs. Time</td>
<td>A-15</td>
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<tr>
<td>52</td>
<td>Driver Nij (N_{TE}) vs. Time</td>
<td>A-15</td>
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<tr>
<td>53</td>
<td>Driver Nij (N_{CF}) vs. Time</td>
<td>A-15</td>
</tr>
<tr>
<td>54</td>
<td>Driver Nij (N_{CE}) vs. Time</td>
<td>A-15</td>
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<td>Passenger Nij (N_{TF}) vs. Time</td>
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<td>Passenger Nij (N_{TE}) vs. Time</td>
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<td>57</td>
<td>Passenger Nij (N_{CF}) vs. Time</td>
<td>A-16</td>
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<td>58</td>
<td>Passenger Nij (N_{CE}) vs. Time</td>
<td>A-16</td>
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<tr>
<td>59</td>
<td>Driver Occipital Condyle Moment vs. Time</td>
<td>A-17</td>
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Figure No. 60. Passenger Occipital Condyle Moment vs. Time A-17
Figure No. 61. Left Rear Seat Crossmember X Acceleration vs. Time A-18
Figure No. 62. Left Rear Seat Crossmember X Velocity vs. Time A-18
Figure No. 63. Right Rear Seat Crossmember X Acceleration vs. Time A-18
Figure No. 64. Right Rear Seat Crossmember X Velocity vs. Time A-18
Figure No. 65. Top of Engine X Acceleration vs. Time A-19
Figure No. 66. Top of Engine X Velocity vs. Time A-19
Figure No. 67. Bottom of Engine X Acceleration vs. Time A-19
Figure No. 68. Bottom of Engine X Velocity vs. Time A-19
Figure No. 69. Left Brake Caliper X Acceleration vs. Time A-20
Figure No. 70. Left Brake Caliper X Velocity vs. Time A-20
Figure No. 71. Right Brake Caliper X Acceleration vs. Time A-20
Figure No. 72. Right Brake Caliper X Velocity vs. Time A-20
Figure No. 73. Trunk Z Acceleration vs. Time A-21
Figure No. 74. Trunk Z Velocity vs. Time A-21
Figure No. 75. Barrier Force – Upper Left vs. Time A-22
Figure No. 76. Barrier Force – Upper Center vs. Time A-22
Figure No. 77. Barrier Force – Upper Right vs. Time A-22
Figure No. 78. Barrier Force – Lower Left vs. Time A-23
Figure No. 79. Barrier Force – Lower Center vs. Time A-23
Figure No. 80. Barrier Force – Lower Right vs. Time A-23
Figure No. 81. Barrier Force – Sum Left vs. Time A-24
Figure No. 82. Barrier Force – Sum Center vs. Time A-24
Figure No. 83. Barrier Force – Sum Right vs. Time A-24
Figure No. 84. Barrier Force – Sum All vs. Time A-24
25 MPH FRONTAL UNBELTED  
2007 CHEVROLET IMPALA (C70109)  
Test Date: 05/09/2007  
Speed: 24.7 mph (39.8 km/h)

DRIVER HEAD X Velocity (kph) vs TIME (ms)
- Max: 40.2 kph  
- Tmax: 53.1 ms  
- Min: -16.9 kph  
- Tmin: 224.0 ms  
- CFC 180

DRIVER HEAD Y Velocity (kph) vs TIME (ms)
- Max: 6.7 kph  
- Tmax: 137.8 ms  
- Min: -0.1 kph  
- Tmin: 55.1 ms  
- CFC 180

DRIVER HEAD Z Velocity (kph) vs TIME (ms)
- Max: 14.6 kph  
- Tmax: 300.0 ms  
- Min: -1.6 kph  
- Tmin: 81.6 ms  
- CFC 180
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)
Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

2007 CHEVROLET IMPALA (C70109)

Max: 132.6 N
Tmax: 180.7 ms
Min: -5784.7 N
Tmin: 72.3 ms
CFC 600

Max: 131.4 N
Tmax: 181.7 ms
Min: -6185.3 N
Tmin: 71.6 ms
CFC 600
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)

Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

**PASSENGER HEAD X Velocity (kph) vs TIME (ms)**

Max: 41.6 kph
Tmax: 69.1 ms
Min: -14.9 kph
Tmin: 265.5 ms
CFC 180

**PASSENGER HEAD Y Velocity (kph) vs TIME (ms)**

Max: 1.0 kph
Tmax: 181.4 ms
Min: -0.2 kph
Tmin: 271.3 ms
CFC 180

**PASSENGER HEAD Z Velocity (kph) vs TIME (ms)**

Max: 16.5 kph
Tmax: 300.0 ms
Min: -3.3 kph
Tmin: 81.8 ms
CFC 180
Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

2007 CHEVROLET IMPALA (C70109)

PASSENGER NECK MX (Nm) vs TIME (ms)
Max: 11.6 Nm
Tmax: 79.4 ms
Min: -4.8 Nm
Tmin: 179.4 ms
CFC 600

PASSENGER NECK MY (Nm) vs TIME (ms)
Max: 48.2 Nm
Tmax: 97.8 ms
Min: -33.9 Nm
Tmin: 123.7 ms
CFC 600

PASSENGER NECK MZ (Nm) vs TIME (ms)
Max: 12.9 Nm
Tmax: 134.1 ms
Min: -5.7 Nm
Tmin: 86.2 ms
CFC 600

PASSENGER NECK MResultant (Nm) vs TIME (ms)
Max: 48.7 Nm
Tmax: 97.8 ms
Min: 0.0 Nm
Tmin: 0.0 ms
CFC 600
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)
Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

PASSENGER CHEST X (G's) vs TIME (ms)
Max: 3.4 G's
Tmax: 218.7 ms
Min: -41.5 G's
Tmin: 100.1 ms
CFC 180

PASSENGER CHEST Y (G's) vs TIME (ms)
Max: 1.1 G's
Tmax: 80.4 ms
Min: -5.2 G's
Tmin: 106.7 ms
CFC 180

PASSENGER CHEST Z (G's) vs TIME (ms)
Max: 24.1 G's
Tmax: 96.1 ms
Min: -7.8 G's
Tmin: 65.8 ms
CFC 180

PASSENGER CHEST Resultant (G's) vs TIME (ms)
Max: 45.6 G's
Tmax: 99.4 ms
Min: 0.0 G's
Tmin: 0.0 ms
CFC 180
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)

Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

PASSENGER LEFT FEMUR (N) vs TIME (ms)

Max: 213.7 N
Tmax: 196.7 ms
Min: -5761.6 N
Tmin: 94.0 ms
CFC 600

PASSENGER RIGHT FEMUR (N) vs TIME (ms)

Max: 259.4 N
Tmax: 203.6 ms
Min: -5719.7 N
Tmin: 87.6 ms
CFC 600
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)

Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

Pass. nij (NTF) () vs TIME (ms)
Max: 0.3
Tmax: 97.7 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

Pass. nij (NTE) () vs TIME (ms)
Max: 0.3
Tmax: 119.8 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

Pass. nij (NCF) () vs TIME (ms)
Max: 0.1
Tmax: 221.1 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

Pass. nij (NCE) () vs TIME (ms)
Max: 0.4
Tmax: 128.2 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)

Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

Drv. Occipital Condyle Moment (Nm) vs TIME (ms)

Max: 53.1 Nm
Tmax: 76.7 ms
Min: -9.7 Nm
Tmin: 274.2 ms
CFC 600

Pass. Occipital Condyle Moment (Nm) vs TIME (ms)

Max: 36.4 Nm
Tmax: 219.9 ms
Min: -42.4 Nm
Tmin: 124.7 ms
CFC 600
LEFT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)

Max: 2.0 G's
Tmax: 163.3 ms
Min: -26.1 G's
Tmin: 62.6 ms
CFC 60

LEFT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)

Max: 39.8 kph
Tmax: 0.0 ms
Min: -5.8 kph
Tmin: 145.2 ms
CFC 180

RIGHT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)

Max: 4.5 G's
Tmax: 27.1 ms
Min: -28.8 G's
Tmin: 55.9 ms
CFC 60

RIGHT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)

Max: 39.8 kph
Tmax: 0.0 ms
Min: -5.9 kph
Tmin: 141.7 ms
CFC 180
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)

Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

TOP OF ENGINE X (G's) vs TIME (ms)
Max: 26.0 G's
Tmax: 55.7 ms
Min: -78.3 G's
Tmin: 35.8 ms
CFC 60

TOP OF ENGINE X Velocity (kph) vs TIME (ms)
Max: 39.8 kph
Tmax: 0.0 ms
Min: -8.0 kph
Tmin: 50.5 ms
CFC 180

BOTTOM OF ENGINE X (G's) vs TIME (ms)
Max: 8.4 G's
Tmax: 62.9 ms
Min: -54.1 G's
Tmin: 39.2 ms
CFC 60

BOTTOM OF ENGINE X Velocity (kph) vs TIME (ms)
Max: 39.8 kph
Tmax: 20.8 ms
Min: -4.9 kph
Tmin: 204.4 ms
CFC 180
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)

Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

LEFT BRAKE CALIPER X (G's) vs TIME (ms)
Max: 5.9 G's
Tmax: 60.1 ms
Min: -31.0 G's
Tmin: 30.9 ms
CFC 60

LEFT BRAKE CALIPER X Velocity (kph) vs TIME (ms)
Max: 39.8 kph
Tmax: 0.0 ms
Min: -6.9 kph
Tmin: 124.5 ms
CFC 180

RIGHT BRAKE CALIPER X (G's) vs TIME (ms)
Max: 7.0 G's
Tmax: 50.2 ms
Min: -28.7 G's
Tmin: 32.8 ms
CFC 60

RIGHT BRAKE CALIPER X Velocity (kph) vs TIME (ms)
Max: 39.8 kph
Tmax: 0.0 ms
Min: -7.2 kph
Tmin: 146.6 ms
CFC 180
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)

Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

Max: 8.2 G's
Tmax: 38.6 ms
Min: -6.7 G's
Tmin: 6.7 ms
CFC 60

Max: 5.4 kph
Tmax: 295.4 ms
Min: -1.5 kph
Tmin: 18.7 ms
CFC 180
25 MPH FRONTAL UNBELTED
2007 CHEVROLET IMPALA (C70109)

Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

BARRIER FORCE - UPPER LEFT (KN) vs TIME (ms)
Max: 4.4 KN
Tmax: 9.2 ms
Min: -18.3 KN
Tmin: 24.6 ms
CFC 60

BARRIER FORCE - UPPER CENTER (KN) vs TIME (ms)
Max: 0.7 KN
Tmax: 139.2 ms
Min: -68.1 KN
Tmin: 33.0 ms
CFC 60

BARRIER FORCE - UPPER RIGHT (KN) vs TIME (ms)
Max: 2.0 KN
Tmax: 5.6 ms
Min: -52.0 KN
Tmin: 44.7 ms
CFC 60
Test Date: 05/09/2007
Speed: 24.7 mph (39.8 km/h)

2007 CHEVROLET IMPALA (C70109)

**BARRIER FORCE - LOWER LEFT (KN) vs TIME (ms)**

Max: 1.2 KN
Tmax: 4.6 ms
Min: -70.6 KN
Tmin: 29.1 ms
CFC 60

**BARRIER FORCE - LOWER CENTER (KN) vs TIME (ms)**

Max: 0.6 KN
Tmax: 0.0 ms
Min: -93.4 KN
Tmin: 82.7 ms
CFC 60

**BARRIER FORCE - LOWER RIGHT (KN) vs TIME (ms)**

Max: 2.4 KN
Tmax: 0.0 ms
Min: -93.8 KN
Tmin: 33.3 ms
CFC 60
APPENDIX B

LOW RISK TEST DATA
<table>
<thead>
<tr>
<th>Figure No.</th>
<th>Description</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>5th Fem. P1 Driver Head X Acceleration vs. Time</td>
<td>B-1</td>
</tr>
<tr>
<td>No. 2</td>
<td>5th Fem. P1 Driver Head Y Acceleration vs. Time</td>
<td>B-1</td>
</tr>
<tr>
<td>No. 3</td>
<td>5th Fem. P1 Driver Head Z Acceleration vs. Time</td>
<td>B-1</td>
</tr>
<tr>
<td>No. 4</td>
<td>5th Fem. P1 Driver Head Resultant Acceleration vs. Time</td>
<td>B-1</td>
</tr>
<tr>
<td>No. 5</td>
<td>5th Fem. P1 Driver Head X Velocity vs. Time</td>
<td>B-2</td>
</tr>
<tr>
<td>No. 6</td>
<td>5th Fem. P1 Driver Head Y Velocity vs. Time</td>
<td>B-2</td>
</tr>
<tr>
<td>No. 7</td>
<td>5th Fem. P1 Driver Head Z Velocity vs. Time</td>
<td>B-2</td>
</tr>
<tr>
<td>No. 8</td>
<td>5th Fem. P1 Driver Neck Force X vs. Time</td>
<td>B-3</td>
</tr>
<tr>
<td>No. 9</td>
<td>5th Fem. P1 Driver Neck Force Y vs. Time</td>
<td>B-3</td>
</tr>
<tr>
<td>No. 10</td>
<td>5th Fem. P1 Driver Neck Force Z vs. Time</td>
<td>B-3</td>
</tr>
<tr>
<td>No. 11</td>
<td>5th Fem. P1 Driver Neck Force Resultant vs. Time</td>
<td>B-3</td>
</tr>
<tr>
<td>No. 12</td>
<td>5th Fem. P1 Driver Neck Moment X vs. Time</td>
<td>B-4</td>
</tr>
<tr>
<td>No. 13</td>
<td>5th Fem. P1 Driver Neck Moment Y vs. Time</td>
<td>B-4</td>
</tr>
<tr>
<td>No. 14</td>
<td>5th Fem. P1 Driver Neck Moment Z vs. Time</td>
<td>B-4</td>
</tr>
<tr>
<td>No. 15</td>
<td>5th Fem. P1 Driver Occipital Condyle Moment vs. Time</td>
<td>B-4</td>
</tr>
<tr>
<td>No. 16</td>
<td>5th Fem. P1 Driver Chest X Acceleration vs. Time</td>
<td>B-5</td>
</tr>
<tr>
<td>No. 17</td>
<td>5th Fem. P1 Driver Chest Y Acceleration vs. Time</td>
<td>B-5</td>
</tr>
<tr>
<td>No. 18</td>
<td>5th Fem. P1 Driver Chest Z Acceleration vs. Time</td>
<td>B-5</td>
</tr>
<tr>
<td>No. 19</td>
<td>5th Fem. P1 Driver Chest Resultant Acceleration vs. Time</td>
<td>B-5</td>
</tr>
<tr>
<td>No. 20</td>
<td>5th Fem. P1 Driver Chest X Velocity vs. Time</td>
<td>B-6</td>
</tr>
<tr>
<td>No. 21</td>
<td>5th Fem. P1 Driver Chest Y Velocity vs. Time</td>
<td>B-6</td>
</tr>
<tr>
<td>No. 22</td>
<td>5th Fem. P1 Driver Chest Z Velocity vs. Time</td>
<td>B-6</td>
</tr>
<tr>
<td>No. 23</td>
<td>5th Fem. P1 Driver Chest Displacement vs. Time</td>
<td>B-6</td>
</tr>
<tr>
<td>No. 24</td>
<td>5th Fem. P1 Driver Left Femur Force vs. Time</td>
<td>B-7</td>
</tr>
<tr>
<td>No. 25</td>
<td>5th Fem. P1 Driver Right Femur Force vs. Time</td>
<td>B-7</td>
</tr>
<tr>
<td>No. 26</td>
<td>Fire Voltage #1 vs. Time</td>
<td>B-8</td>
</tr>
<tr>
<td>No. 27</td>
<td>Fire Current #1 vs. Time</td>
<td>B-8</td>
</tr>
<tr>
<td>No. 28</td>
<td>Fire Voltage #2 vs. Time</td>
<td>B-8</td>
</tr>
<tr>
<td>No. 29</td>
<td>Fire Current #2 vs. Time</td>
<td>B-8</td>
</tr>
</tbody>
</table>
Figure No. 30. 5th Fem. P1 Driver Nij (N_{TF}) vs. Time
Figure No. 31. 5th Fem. P1 Driver Nij (N_{TE}) vs. Time
Figure No. 32. 5th Fem. P1 Driver Nij (N_{CF}) vs. Time
Figure No. 33. 5th Fem. P1 Driver Nij (N_{CE}) vs. Time
Figure No. 34. 5th Fem. P2 Driver Head X Acceleration vs. Time
Figure No. 35. 5th Fem. P2 Driver Head Y Acceleration vs. Time
Figure No. 36. 5th Fem. P2 Driver Head Z Acceleration vs. Time
Figure No. 37. 5th Fem. P2 Driver Head Resultant Acceleration vs. Time
Figure No. 38. 5th Fem. P2 Driver Head X Velocity vs. Time
Figure No. 39. 5th Fem. P2 Driver Head Y Velocity vs. Time
Figure No. 40. 5th Fem. P2 Driver Head Z Velocity vs. Time
Figure No. 41. 5th Fem. P2 Driver Neck Force X vs. Time
Figure No. 42. 5th Fem. P2 Driver Neck Force Y vs. Time
Figure No. 43. 5th Fem. P2 Driver Neck Force Z vs. Time
Figure No. 44. 5th Fem. P2 Driver Neck Force Resultant vs. Time
Figure No. 45. 5th Fem. P2 Driver Neck Moment X vs. Time
Figure No. 46. 5th Fem. P2 Driver Neck Moment Y vs. Time
Figure No. 47. 5th Fem. P2 Driver Neck Moment Z vs. Time
Figure No. 48. 5th Fem. P2 Driver Occipital Condyle Moment vs. Time
Figure No. 49. 5th Fem. P2 Driver Chest X Acceleration vs. Time
Figure No. 50. 5th Fem. P2 Driver Chest Y Acceleration vs. Time
Figure No. 51. 5th Fem. P2 Driver Chest Z Acceleration vs. Time
Figure No. 52. 5th Fem. P2 Driver Chest Resultant Acceleration vs. Time
Figure No. 53. 5th Fem. P2 Driver Chest X Velocity vs. Time
Figure No. 54. 5th Fem. P2 Driver Chest Y Velocity vs. Time
Figure No. 55. 5th Fem. P2 Driver Chest Z Velocity vs. Time
Figure No. 56. 5th Fem. P2 Driver Chest Displacement vs. Time
Figure No. 57. 5th Fem. P2 Driver Left Femur Force vs. Time
Figure No. 58. 5th Fem. P2 Driver Right Femur Force vs. Time
Figure No. 59. Fire Voltage #1 vs. Time
Figure No. 60. Fire Current #1 vs. Time  
Figure No. 61. Fire Voltage #2 vs. Time  
Figure No. 62. Fire Current #2 vs. Time  
Figure No. 63. 5th Fem. P2 Driver Nij (NTF) vs. Time  
Figure No. 64. 5th Fem. P2 Driver Nij (NTE) vs. Time  
Figure No. 65. 5th Fem. P2 Driver Nij (NCF) vs. Time  
Figure No. 66. 5th Fem. P2 Driver Nij (NCE) vs. Time
Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER HEAD X (G's) vs TIME (ms)
- Max: 2.2 G's
- Tmax: 86.8 ms
- Min: -28.7 G's
- Tmin: 7.3 ms
- CFC 1000

5TH FEM. DRIVER HEAD Y (G's) vs TIME (ms)
- Max: 10.3 G's
- Tmax: 7.4 ms
- Min: -2.6 G's
- Tmin: 14.9 ms
- CFC 1000

5TH FEM. DRIVER HEAD Z (G's) vs TIME (ms)
- Max: 5.6 G's
- Tmax: 7.4 ms
- Min: -4.1 G's
- Tmin: 8.7 ms
- CFC 1000

5TH FEM. DRIVER HEAD Resultant (G's) vs TIME (ms)
- Max: 30.7 G's
- Tmax: 7.4 ms
- Min: 0.0 G's
- Tmin: 1.1 ms
- CFC 1000
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P1)
Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER HEAD X Velocity (kph) vs TIME (ms)
Max: 0.0 kph
Tmax: 5.8 ms
Min: -10.9 kph
Tmin: 60.8 ms
CFC 180

5TH FEM. DRIVER HEAD Y Velocity (kph) vs TIME (ms)
Max: 0.6 kph
Tmax: 41.2 ms
Min: -0.0 kph
Tmin: 5.9 ms
CFC 180

5TH FEM. DRIVER HEAD Z Velocity (kph) vs TIME (ms)
Max: 8.6 kph
Tmax: 225.0 ms
Min: -0.0 kph
Tmin: 9.1 ms
CFC 180
Injury Values Calculated between 0ms and 225ms

**5TH FEM. DRIVER NECK FX (N) vs TIME (ms)**
- Max: 317.8 N
- Tmax: 7.5 ms
- Min: -50.7 N
- Tmin: 18.6 ms
- CFC 1000

**5TH FEM. DRIVER NECK FY (N) vs TIME (ms)**
- Max: 28.8 N
- Tmax: 22.2 ms
- Min: -81.4 N
- Tmin: 7.5 ms
- CFC 1000

**5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)**
- Max: 463.9 N
- Tmax: 37.9 ms
- Min: -7.4 N
- Tmin: 3.6 ms
- CFC 1000

**5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)**
- Max: 464.8 N
- Tmax: 37.9 ms
- Min: 0.9 N
- Tmin: 4.4 ms
- CFC 1000
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P1)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)
Max: 3.8 Nm
Tmax: 10.3 ms
Min: -5.6 Nm
Tmin: 20.3 ms
CFC 600

5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)
Max: 11.5 Nm
Tmax: 10.0 ms
Min: -7.9 Nm
Tmin: 80.6 ms
CFC 600

5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)
Max: 1.7 Nm
Tmax: 37.9 ms
Min: -1.8 Nm
Tmin: 17.0 ms
CFC 600

Drv. Occipital Condyle Moment (Nm) vs TIME (ms)
Max: 9.6 Nm
Tmax: 10.0 ms
Min: -8.7 Nm
Tmin: 80.6 ms
CFC 600
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P1)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)

Max: 1.3 G's
Tmax: 179.9 ms
Min: -7.9 G's
Tmin: 10.9 ms
CFC 180

5TH FEM. DRIVER CHEST Y (G's) vs TIME (ms)

Max: 1.0 G's
Tmax: 26.4 ms
Min: -0.9 G's
Tmin: 33.6 ms
CFC 180

5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)

Max: 4.0 G's
Tmax: 12.5 ms
Min: -1.6 G's
Tmin: 8.7 ms
CFC 180

5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)

Max: 8.2 G's
Tmax: 11.0 ms
Min: 0.0 G's
Tmin: 6.3 ms
CFC 180
LOW RISK DEPLOYMENT
Test Date: 04/25/07
2007 CHEVROLET IMPALA (C70109) (5th P1)
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)
Max: 0.6 kph
Tmax: 225.0 ms
Min: -4.0 kph
Tmin: 57.5 ms
CFC 180

5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)
Max: 0.3 kph
Tmax: 146.0 ms
Min: -0.1 kph
Tmin: 23.3 ms
CFC 180

5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)
Max: 3.9 kph
Tmax: 225.0 ms
Min: -0.1 kph
Tmin: 9.9 ms
CFC 180

5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)
Max: 0.3 mm
Tmax: 1.5 ms
Min: -2.9 mm
Tmin: 13.1 ms
CFC 600
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P1)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER LEFT FEMUR (N) vs TIME (ms)

Max: 101.9 N
Tmax: 18.3 ms
Min: -81.6 N
Tmin: 36.8 ms
CFC 600

5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)

Max: 109.6 N
Tmax: 41.4 ms
Min: -24.2 N
Tmin: 12.2 ms
CFC 600
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P1)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

FIRE VOLTAGE #1 (Volts) vs TIME (ms)
Max: 16.5 Volts
Tmax: 0.3 ms
Min: -1.1 Volts
Tmin: 10.3 ms
CFC 1000

FIRE CURRENT #1 (Amps) vs TIME (ms)
Max: 3.0 Amps
Tmax: 0.2 ms
Min: -0.0 Amps
Tmin: 178.7 ms
CFC 1000

FIRE VOLTAGE #2 (Volts) vs TIME (ms)
Max: 16.8 Volts
Tmax: 100.3 ms
Min: -1.1 Volts
Tmin: 110.3 ms
CFC 1000

FIRE CURRENT #2 (Amps) vs TIME (ms)
Max: 2.8 Amps
Tmax: 100.1 ms
Min: -0.1 Amps
Tmin: 99.7 ms
CFC 1000
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P1)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)
Max: 0.2
Tmax: 10.0 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)
Max: 0.2
Tmax: 61.1 ms
Min: 0.0
Tmin: 0.5 ms
CFC 600

Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)
Max: 0.0
Tmax: 3.7 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)
Max: 0.0
Tmax: 0.9 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P2)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

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5TH FEM. DRIVER HEAD X (G's) vs TIME (ms)
- Max: 26.6 G's
- Tmax: 58.7 ms
- Min: -11.5 G's
- Tmin: 28.9 ms
- CFC 1000

5TH FEM. DRIVER HEAD Y (G's) vs TIME (ms)
- Max: 4.6 G's
- Tmax: 61.5 ms
- Min: -4.7 G's
- Tmin: 58.7 ms
- CFC 1000

5TH FEM. DRIVER HEAD Z (G's) vs TIME (ms)
- Max: 14.9 G's
- Tmax: 11.2 ms
- Min: -2.8 G's
- Tmin: 72.3 ms
- CFC 1000

5TH FEM. DRIVER HEAD Resultant (G's) vs TIME (ms)
- Max: 27.6 G's
- Tmax: 58.7 ms
- Min: 0.0 G's
- Tmin: 1.3 ms
- CFC 1000

---
5TH FEM. DRIVER HEAD X Velocity (kph) vs TIME (ms)

-2.5 to 2.5 kph

Max: 0.1 kph
Tmax: 9.3 ms
Min: -11.9 kph
Tmin: 56.5 ms
CFC 180

5TH FEM. DRIVER HEAD Y Velocity (kph) vs TIME (ms)

-2.5 to 0.5 kph

Max: 0.3 kph
Tmax: 27.9 ms
Min: -2.8 kph
Tmin: 225.0 ms
CFC 180

5TH FEM. DRIVER HEAD Z Velocity (kph) vs TIME (ms)

-1.0 to 6.0 kph

Max: 5.8 kph
Tmax: 68.6 ms
Min: 0.0 kph
Tmin: 0.1 ms
CFC 180

Injury Values Calculated between 0ms and 225ms
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P2)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER NECK FX (N) vs TIME (ms)
Max: 4.1 N
Tmax: 0.9 ms
Min: -461.4 N
Tmin: 31.3 ms
CFC 1000

5TH FEM. DRIVER NECK FY (N) vs TIME (ms)
Max: 64.6 N
Tmax: 39.2 ms
Min: -75.7 N
Tmin: 61.7 ms
CFC 1000

5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)
Max: 756.8 N
Tmax: 59.6 ms
Min: -47.7 N
Tmin: 72.3 ms
CFC 1000

5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)
Max: 801.5 N
Tmax: 59.6 ms
Min: 1.3 N
Tmin: 5.2 ms
CFC 1000
Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)
- Max: 6.6 Nm
- Tmax: 15.8 ms
- Min: -5.5 Nm
- Tmin: 99.6 ms
- CFC 600

5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)
- Max: 18.3 Nm
- Tmax: 71.0 ms
- Min: -25.0 Nm
- Tmin: 30.5 ms
- CFC 600

5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)
- Max: 6.0 Nm
- Tmax: 66.9 ms
- Min: -1.4 Nm
- Tmin: 19.5 ms
- CFC 600

Drv. Occipital Condyle Moment (Nm) vs TIME (ms)
- Max: 19.3 Nm
- Tmax: 71.1 ms
- Min: -17.2 Nm
- Tmin: 17.8 ms
- CFC 600
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P2)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)
Max: 4.8 G's
Tmax: 59.5 ms
Min: -23.5 G's
Tmin: 10.2 ms
CFC 180

5TH FEM. DRIVER CHEST Y (G's) vs TIME (ms)
Max: 1.0 G's
Tmax: 102.1 ms
Min: -2.6 G's
Tmin: 10.1 ms
CFC 180

5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)
Max: 3.8 G's
Tmax: 29.3 ms
Min: -3.1 G's
Tmin: 59.4 ms
CFC 180

5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)
Max: 23.7 G's
Tmax: 10.2 ms
Min: 0.0 G's
Tmin: 2.1 ms
CFC 180
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P2)

Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

Max: 239.1 N
Tmax: 17.8 ms
Min: -40.4 N
Tmin: 139.2 ms
CFC 600

Max: 286.0 N
Tmax: 18.0 ms
Min: -46.2 N
Tmin: 68.1 ms
CFC 600
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P2)
Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 225ms

**FIRE VOLTAGE #1 (Volts) vs TIME (ms)**
- Max: 16.2 Volts
- Tmax: 0.3 ms
- Min: -1.1 Volts
- Tmin: 10.3 ms

**FIRE CURRENT #1 (Amps) vs TIME (ms)**
- Max: 4.0 Amps
- Tmax: 0.2 ms
- Min: -0.0 Amps
- Tmin: 11.7 ms

**FIRE VOLTAGE #2 (Volts) vs TIME (ms)**
- Max: 16.8 Volts
- Tmax: 100.3 ms
- Min: -1.2 Volts
- Tmin: 110.3 ms

**FIRE CURRENT #2 (Amps) vs TIME (ms)**
- Max: 2.9 Amps
- Tmax: 100.1 ms
- Min: -0.2 Amps
- Tmin: 100.5 ms
LOW RISK DEPLOYMENT
2007 CHEVROLET IMPALA (C70109) (5th P2)
Test Date: 04/25/07
Speed: 0.0 mph (0.0 km/h)

Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)
Max: 0.2
Tmax: 60.3 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)
Max: 0.4
Tmax: 30.5 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)
Max: 0.1
Tmax: 71.9 ms
Min: 0.0
Tmin: 0.7 ms
CFC 600

Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)
Max: 0.1
Tmax: 175.9 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600
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<tr>
<th>Photo No.</th>
<th>Description</th>
<th>Page No.</th>
</tr>
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<tr>
<td>1</td>
<td>Vehicle Certification Label</td>
<td>C-1</td>
</tr>
<tr>
<td>2</td>
<td>Tire Placard</td>
<td>C-2</td>
</tr>
<tr>
<td>3</td>
<td>Pre-Test Front View of Test Vehicle</td>
<td>C-3</td>
</tr>
<tr>
<td>4</td>
<td>Post-Test Front View of Test Vehicle</td>
<td>C-4</td>
</tr>
<tr>
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<td>Pre-Test Left Side View of Test Vehicle</td>
<td>C-5</td>
</tr>
<tr>
<td>6</td>
<td>Post-Test Left Side View of Test Vehicle</td>
<td>C-6</td>
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<td>C-7</td>
</tr>
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<td>C-8</td>
</tr>
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<td>Pre-Test Right Front Three-Quarter View of Test Vehicle</td>
<td>C-9</td>
</tr>
<tr>
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<td>Post-Test Right Front Three-Quarter View of Test Vehicle</td>
<td>C-10</td>
</tr>
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<td>Pre-Test Left Front Three-Quarter View of Test Vehicle</td>
<td>C-11</td>
</tr>
<tr>
<td>12</td>
<td>Post-Test Left Front Three-Quarter View of Test Vehicle</td>
<td>C-12</td>
</tr>
<tr>
<td>13</td>
<td>Pre-Test Right Rear Three-Quarter View of Test Vehicle</td>
<td>C-13</td>
</tr>
<tr>
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<td>Post-Test Right Rear Three-Quarter View of Test Vehicle</td>
<td>C-14</td>
</tr>
<tr>
<td>15</td>
<td>Pre-Test Left Rear Three-Quarter View of Test Vehicle</td>
<td>C-15</td>
</tr>
<tr>
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<td>Post-Test Left Rear Three-Quarter View of Test Vehicle</td>
<td>C-16</td>
</tr>
<tr>
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<td>Pre-Test Rear View of Test Vehicle</td>
<td>C-17</td>
</tr>
<tr>
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<td>C-18</td>
</tr>
<tr>
<td>19</td>
<td>Pre-Test Windshield View</td>
<td>C-19</td>
</tr>
<tr>
<td>20</td>
<td>Post-Test Windshield View</td>
<td>C-20</td>
</tr>
<tr>
<td>21</td>
<td>Pre-Test Engine Compartment View</td>
<td>C-21</td>
</tr>
<tr>
<td>22</td>
<td>Post-Test Engine Compartment View</td>
<td>C-22</td>
</tr>
<tr>
<td>23</td>
<td>Pre-Test Fuel Filler Cap View</td>
<td>C-23</td>
</tr>
<tr>
<td>24</td>
<td>Post-Test Fuel Filler Cap View</td>
<td>C-24</td>
</tr>
<tr>
<td>25</td>
<td>Pre-Test Front Underbody View</td>
<td>C-25</td>
</tr>
<tr>
<td>26</td>
<td>Post-Test Front Underbody View</td>
<td>C-26</td>
</tr>
</tbody>
</table>
Photo No. 27.  Pre-Test Mid Underbody View  
Photo No. 28.  Post-Test Mid Underbody View  
Photo No. 29.  Pre-Test Mid Rear Underbody View  
Photo No. 30.  Post-Test Mid Rear Underbody View  
Photo No. 31.  Pre-Test Rear Underbody View  
Photo No. 32.  Post-Test Rear Underbody View  
Photo No. 33.  Pre-Test Driver Dummy Front View (head position)  
Photo No. 34.  Post-Test Driver Dummy Front View (head position)  
Photo No. 35.  Pre-Test Driver Dummy Position Left Side View  
Photo No. 36.  Post-Test Driver Dummy Position Left Side View  
Photo No. 37.  Pre-Test Driver Dummy Position Left Side View (Door Open)  
Photo No. 38.  Post-Test Driver Dummy Position Left Side View (Door Open)  
Photo No. 39.  Pre-Test Driver Dummy Seat Position  
Photo No. 40.  Post-Test Driver Dummy Seat Position  
Photo No. 41.  Pre-Test Driver Dummy Feet Position  
Photo No. 42.  Post-Test Driver Dummy Feet Position  
Photo No. 43.  Pre-Test Driver Side Knee Bolster View  
Photo No. 44.  Post-Test Driver Side Knee Bolster View  
Photo No. 45.  Post-Test Driver Dummy Head Contact (headrest)  
Photo No. 46.  Post-Test Driver Dummy Knee Contact  
Photo No. 47.  Post-Test Driver Dummy Airbag Contact  
Photo No. 48.  Pre-Test Passenger Dummy Front View (head position)  
Photo No. 49.  Post-Test Passenger Dummy Front View (head position)  
Photo No. 50.  Pre-Test Passenger Dummy Position Right Side View  
Photo No. 51.  Post-Test Passenger Dummy Position Right Side View  
Photo No. 52.  Pre-Test Passenger Dummy Position Right Side View (Door Open)  
Photo No. 53.  Post-Test Passenger Dummy Position Right Side View (Door Open)  
Photo No. 54.  Pre-Test Passenger Dummy Seat Position
Photo No. 55. Post-Test Passenger Dummy Seat Position
Photo No. 56. Pre-Test Passenger Dummy Feet Position
Photo No. 57. Post-Test Passenger Dummy Feet Position
Photo No. 58. Pre-Test Passenger Side Knee Bolster View
Photo No. 59. Post-Test Passenger Side Knee Bolster View
Photo No. 60. Post-Test Passenger Dummy Head Contact (headdest)
Photo No. 61. Post-Test Passenger Dummy Knee Contact
Photo No. 62. Post-Test Passenger Dummy Airbag Contact
Photo No. 63. Rollover 90 Degrees
Photo No. 64. Rollover 180 Degrees
Photo No. 65. Rollover 270 Degrees
Photo No. 66. Rollover 360 Degrees
Photo No. 67. Temperature Plot
Photo No. 68. Vehicle in Relation to The Load Cell Grid
MFD BY GENERAL MOTORS OF CANADA LTD.

DATE 08/06
GVWR 2159 KG 4760 LB
GAWR FRT 1169 KG 2577 LB
GAWR RR 990 KG 2183 LB

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

2G1WD58C579159017 TYPE: PASS CAR
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<td>SPARE</td>
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The combined weight of occupants and cargo should never exceed 428 kg or 944 lbs.
Post-Test Front View of Test Vehicle
Pre-Test Left Side View of Test Vehicle
Post-Test Left Side View of Test Vehicle
Post-Test Right Side View of Test Vehicle
Pre-Test Right Front Three-Quarter View of Test Vehicle
Post-Test Right Front Three-Quarter View of Test Vehicle
Pre-Test Left Front Three-Quarter View of Test Vehicle
Post-Test Right Rear Three-Quarter View of Test Vehicle
Pre-Test Left Rear Three-Quarter View of Test Vehicle
Post-Test Left Rear Three-Quarter View of Test Vehicle
Pre-Test Rear View of Test Vehicle
Post-Test Rear View of Test Vehicle
Post-Test Fuel Filler Cap View
Pre-Test Driver Dummy Front View (head position)
Post-Test Driver Dummy Front View (head position)
Post-Test Driver Dummy Position Left Side View (Door Open)
Post-Test Driver Dummy Seat Position
Pre-Test Driver Dummy Feet Position
Post-Test Driver Dummy Feet Position
Post-Test Driver Side Knee Bolster View
Post-Test Driver Dummy Head Contact (headrest)
Post-Test Driver Dummy Knee Contact
Post-Test Driver Dummy Airbag Contact
Pre-Test Passenger Dummy Front View (head position)
Post-Test Passenger Dummy Front View (head position)
Pre-Test Passenger Dummy Position Right Side View
Post-Test Passenger Dummy Position Right Side View
Pre-Test Passenger Dummy Seat Position
Post-Test Passenger Dummy Seat Position
Pre-Test Passenger Dummy Feet Position
Post-Test Passenger Dummy Feet Position
Post-Test Passenger Side Knee Bolster View
Post-Test Passenger Dummy Head Contact (headrest)
Post-Test Passenger Dummy Knee Contact
Post-Test Passenger Dummy Airbag Contact
Rollover 270 Degrees
Vehicle in Relation to The Load Cell Grid
### TABLE OF PHOTOGRAPHS

<table>
<thead>
<tr>
<th>Photo No.</th>
<th>Description</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre-Test 5&lt;sup&gt;th&lt;/sup&gt; Fem. P1 Driver Dummy Left Side View</td>
<td>D-1</td>
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</tr>
<tr>
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<td>D-3</td>
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<td>D-5</td>
</tr>
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<tr>
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<td>D-7</td>
</tr>
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<td>Post-Test 5&lt;sup&gt;th&lt;/sup&gt; Fem. P2 Driver Dummy Left Side View</td>
<td>D-8</td>
</tr>
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<td>D-12</td>
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</table>
Post-Test 5th Fem. P2 Driver Dummy Left Side View
Post-Test 5th Fem. P2 Driver Dummy Airbag Contact Right Side View
APPENDIX E
SUPPRESSION PHOTOGRAPHS
# TABLE OF PHOTOGRAPHS

<table>
<thead>
<tr>
<th>Photo No.</th>
<th>Description</th>
<th>Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>Cosco Dream Ride Car Bed Belted, Middle Seat Track</td>
<td>E-1</td>
</tr>
<tr>
<td>No. 2</td>
<td>Cosco Dream Ride Car Bed Belted, Rearward Seat Track</td>
<td>E-1</td>
</tr>
<tr>
<td>No. 3</td>
<td>Unbelted 5&lt;sup&gt;th&lt;/sup&gt; Percentile Female Dummy Reactivation, Rearward Seat Track</td>
<td>E-1</td>
</tr>
<tr>
<td>No. 4</td>
<td>Britax Handle With Care 191 Belted, Forward Seat Track</td>
<td>E-2</td>
</tr>
<tr>
<td>No. 5</td>
<td>Britax Handle With Care 191 Belted, Middle Seat Track</td>
<td>E-2</td>
</tr>
<tr>
<td>No. 6</td>
<td>Britax Handle With Care 191 Belted, Rearward Seat Track</td>
<td>E-2</td>
</tr>
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<td>No. 7</td>
<td>Britax Handle With Care 191 Unbelted, Forward Seat Track</td>
<td>E-2</td>
</tr>
<tr>
<td>No. 8</td>
<td>Britax Handle With Care 191 Unbelted, Middle Seat Track</td>
<td>E-3</td>
</tr>
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<td>No. 9</td>
<td>Britax Handle With Care 191 Unbelted, Rearward Seat Track</td>
<td>E-3</td>
</tr>
<tr>
<td>No. 10</td>
<td>Britax Handle With Care 191 Forward Facing Unbelted, Forward Seat Track</td>
<td>E-3</td>
</tr>
<tr>
<td>No. 11</td>
<td>Britax Handle With Care 191 Forward Facing Unbelted, Middle Seat Track</td>
<td>E-3</td>
</tr>
<tr>
<td>No. 12</td>
<td>Britax Handle With Care 191 Forward Facing Unbelted, Rearward Seat Track</td>
<td>E-4</td>
</tr>
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<td>No. 13</td>
<td>Unbelted 5&lt;sup&gt;th&lt;/sup&gt; Percentile Female Dummy Reactivation, Middle Seat Track</td>
<td>E-4</td>
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<tr>
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<td>Evenflo First Choice 204 Belted, Forward Seat Track</td>
<td>E-5</td>
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<tr>
<td>No. 15</td>
<td>Evenflo First Choice 204 Belted, Middle Seat Track</td>
<td>E-5</td>
</tr>
<tr>
<td>No. 16</td>
<td>Evenflo First Choice 204 Belted, Rearward Seat Track</td>
<td>E-5</td>
</tr>
<tr>
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<td>Evenflo First Choice 204 Unbelted, Forward Seat Track</td>
<td>E-5</td>
</tr>
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<td>No. 18</td>
<td>Evenflo First Choice 204 Unbelted, Middle Seat Track</td>
<td>E-5</td>
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<tr>
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<td>Evenflo First Choice 204 Unbelted, Rearward Seat Track</td>
<td>E-6</td>
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<td>Evenflo First Choice 204 Forward Facing Unbelted, Forward Seat Track</td>
<td>E-6</td>
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<td>E-6</td>
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<td>Evenflo First Choice 204 Forward Facing Unbelted, Rearward Seat Track</td>
<td>E-6</td>
</tr>
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<td>Unbelted 5&lt;sup&gt;th&lt;/sup&gt; Percentile Female Dummy Reactivation, Forward Seat Track</td>
<td>E-7</td>
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<td>Graco Infant W/ Base Belted, Forward Seat Track</td>
<td>E-8</td>
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<td>Graco Infant W/ Base Belted, Middle Seat Track</td>
<td>E-8</td>
</tr>
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<td>Graco Infant W/ Base Belted, Rearward Seat Track</td>
<td>E-8</td>
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<td>E-8</td>
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<td>Graco Infant W/ Base Unbelted, Middle Seat Track</td>
<td>E-9</td>
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<td>Graco Infant W/ Base Unbelted, Rearward Seat Track</td>
<td>E-9</td>
</tr>
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<td>E-9</td>
</tr>
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<td>Graco Infant W/ Base Forward Facing Unbelted, Middle Seat Track</td>
<td>E-9</td>
</tr>
<tr>
<td>No. 32</td>
<td>Graco Infant W/ Base Forward Facing Unbelted, Rearward Seat Track</td>
<td>E-10</td>
</tr>
<tr>
<td>No. 33</td>
<td>Graco Infant W/O Base Belted, Forward Seat Track</td>
<td>E-10</td>
</tr>
<tr>
<td>Photo No.</td>
<td>Description</td>
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</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>34</td>
<td>Graco Infant W/O Base Belted, Middle Seat Track</td>
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<td>E-10</td>
</tr>
<tr>
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<td>Graco Infant W/O Base Unbelted, Forward Seat Track</td>
<td>E-11</td>
</tr>
<tr>
<td>37</td>
<td>Graco Infant W/O Base Unbelted, Middle Seat Track</td>
<td>E-11</td>
</tr>
<tr>
<td>38</td>
<td>Graco Infant W/O Base Unbelted, Rearward Seat Track</td>
<td>E-11</td>
</tr>
<tr>
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<td>Graco Infant W/O Base Forward Facing Unbelted, Forward Seat Track</td>
<td>E-11</td>
</tr>
<tr>
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<td>Graco Infant W/O Base Forward Facing Unbelted, Middle Seat Track</td>
<td>E-12</td>
</tr>
<tr>
<td>41</td>
<td>Graco Infant W/O Base Forward Facing Unbelted, Rearward Seat Track</td>
<td>E-12</td>
</tr>
<tr>
<td>42</td>
<td>Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track</td>
<td>E-12</td>
</tr>
<tr>
<td>43</td>
<td>Britax Roundabout 161 Forward Facing Belted, Forward Seat Track</td>
<td>E-13</td>
</tr>
<tr>
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<td>Britax Roundabout 161 Forward Facing Belted, Middle Seat Track</td>
<td>E-13</td>
</tr>
<tr>
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<td>E-14</td>
</tr>
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<td>Britax Roundabout 161 Rear Facing Belted, Forward Seat Track</td>
<td>E-14</td>
</tr>
<tr>
<td>50</td>
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<td>E-14</td>
</tr>
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<td>51</td>
<td>Britax Roundabout 161 Rear Facing Belted, Rearward Seat Track</td>
<td>E-15</td>
</tr>
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<td>Britax Roundabout 161 Rear Facing Unbelted, Forward Seat Track</td>
<td>E-15</td>
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<td>E-15</td>
</tr>
<tr>
<td>55</td>
<td>Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track</td>
<td>E-16</td>
</tr>
<tr>
<td>56</td>
<td>Century Encore Forward Facing Belted, Forward Seat Track</td>
<td>E-17</td>
</tr>
<tr>
<td>57</td>
<td>Century Encore Forward Facing Belted, Middle Seat Track</td>
<td>E-17</td>
</tr>
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<td>Century Encore Forward Facing Belted, Rearward Seat Track</td>
<td>E-17</td>
</tr>
<tr>
<td>59</td>
<td>Century Encore Forward Facing Unbelted, Forward Seat Track</td>
<td>E-17</td>
</tr>
<tr>
<td>60</td>
<td>Century Encore Forward Facing Unbelted, Middle Seat Track</td>
<td>E-18</td>
</tr>
<tr>
<td>61</td>
<td>Century Encore Forward Facing Unbelted, Rearward Seat Track</td>
<td>E-18</td>
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</tr>
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<td>E-19</td>
</tr>
<tr>
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<td>Century Encore Rear Facing Unbelted, Forward Seat Track</td>
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<td>Century Encore Rear Facing Unbelted, Middle Seat Track</td>
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Photo No. 69. Evenflo Medallion 254 Forward Facing Belted, Forward Seat Track  
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Photo No. 71. Evenflo Medallion 254 Forward Facing Belted, Rearward Seat Track  
Photo No. 72. Evenflo Medallion 254 Forward Facing Unbelted, Forward Seat Track  
Photo No. 73. Evenflo Medallion 254 Forward Facing Unbelted, Middle Seat Track  
Photo No. 74. Evenflo Medallion 254 Forward Facing Unbelted, Rearward Seat Track  
Photo No. 75. Evenflo Medallion 254 Rear Facing Belted, Forward Seat Track  
Photo No. 76. Evenflo Medallion 254 Rear Facing Belted, Middle Seat Track  
Photo No. 77. Evenflo Medallion 254 Rear Facing Belted, Rearward Seat Track  
Photo No. 78. Evenflo Medallion 254 Rear Facing Unbelted, Forward Seat Track  
Photo No. 79. Evenflo Medallion 254 Rear Facing Unbelted, Middle Seat Track  
Photo No. 80. Evenflo Medallion 254 Rear Facing Unbelted, Rearward Seat Track  
Photo No. 81. Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track  
Photo No. 82. 3-Year-Old Forward Facing Britax Roundabout Belted, Forward Seat Track  
Photo No. 83. 3-Year-Old Forward Facing Britax Roundabout Belted, Middle Seat Track  
Photo No. 84. 3-Year-Old Forward Facing Britax Roundabout Belted, Rearward Seat Track  
Photo No. 85. Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track  
Photo No. 86. 3-Year-Old Forward Facing Century Encore Belted, Forward Seat Track  
Photo No. 87. 3-Year-Old Forward Facing Century Encore Belted, Middle Seat Track  
Photo No. 88. 3-Year-Old Forward Facing Century Encore Belted, Rearward Seat Track  
Photo No. 89. Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track  
Photo No. 90. 3-Year-Old Forward Facing Evenflo Medallion Belted, Forward Seat Track  
Photo No. 91. 3-Year-Old Forward Facing Evenflo Medallion Belted, Middle Seat Track  
Photo No. 92. 3-Year-Old Forward Facing Evenflo Medallion Belted, Rearward Seat Track  
Photo No. 93. Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track  
Photo No. 94. 3-Year-Old Century Next Step Belted, Forward Seat Track  
Photo No. 95. 3-Year-Old Century Next Step Belted, Middle Seat Track  
Photo No. 96. 3-Year-Old Century Next Step Belted, Rearward Seat Track  
Photo No. 97. 3-Year-Old Century Next Step Cinched With Harness, Forward Seat Track  
Photo No. 98. 3-Year-Old Century Next Step Cinched With Harness, Middle Seat Track  
Photo No. 99. 3-Year-Old Century Next Step Cinched With Harness, Rearward Seat Track  
Photo No. 100. Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track  
Photo No. 101. 3-Year-Old Cosco High Back Booster Belted, Forward Seat Track  
Photo No. 102. 3-Year-Old Cosco High Back Booster Belted, Middle Seat Track  
Photo No. 103. 3-Year-Old Cosco High Back Booster Belted, Rearward Seat Track
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DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)

Newborn Section A Car Bed

Cosco Dream Ride Car Bed Belted, Middle Seat Track

Cosco Dream Ride Car Bed Belted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
12 Month Section B Rear Facing CRS

Britax Handle With Care 191 Belted, Forward Seat Track
Britax Handle With Care 191 Belted, Middle Seat Track
Britax Handle With Care 191 Belted, Rearward Seat Track
Britax Handle With Care 191 Unbelted, Forward Seat Track
Britax Handle With Care 191 Forward Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track
Evenflo First Choice 204 Belted, Forward Seat Track

Evenflo First Choice 204 Belted, Middle Seat Track

Evenflo First Choice 204 Belted, Rearward Seat Track

Evenflo First Choice 204 Unbelted, Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
12 Month Section B Rear Facing CRS

Evenflo First Choice 204 Forward Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track
Graco Infant W/ Base Forward Facing Unbelted, Rearward Seat Track

Graco Infant W/ Base Forward Facing Unbelted, Rearward Seat Track

Graco Infant W/O Base Belted, Middle Seat Track

Graco Infant W/O Base Belted, Rearward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
12 Month Section B Rear Facing CRS

Graco Infant W/O Base Forward Facing Unbelted, Middle Seat Track
Graco Infant W/O Base Forward Facing Unbelted, Rearward Seat Track
Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
12 Month Section C Forward Facing Convertible CRS

Britax Roundabout 161 Forward Facing Belted, Forward Seat Track
Britax Roundabout 161 Forward Facing Belted, Middle Seat Track
Britax Roundabout 161 Forward Facing Belted, Rearward Seat Track
Britax Roundabout 161 Forward Facing Unbelted, Forward Seat Track
Britax Roundabout 161 Forward Facing Unbelted, Middle Seat Track

Britax Roundabout 161 Forward Facing Unbelted, Rearward Seat Track

Britax Roundabout 161 Rear Facing Belted, Forward Seat Track

Britax Roundabout 161 Rear Facing Belted, Middle Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
12 Month Section C Forward Facing Convertible CRS

Britax Roundabout 161 Rear Facing Belted, Rearward Seat Track
Britax Roundabout 161 Rear Facing Unbelted, Forward Seat Track
Britax Roundabout 161 Rear Facing Unbelted, Middle Seat Track
Britax Roundabout 161 Rear Facing Unbelted, Rearward Seat Track
Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
12 Month Section C Forward Facing Convertible CRS

Century Encore Forward Facing Belted, Forward Seat Track
Century Encore Forward Facing Belted, Middle Seat Track
Century Encore Forward Facing Belted, Rearward Seat Track
Century Encore Forward Facing Unbelted, Forward Seat Track
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Century Encore Rear Facing Belted, Forward Seat Track
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Century Encore Rear Facing Belted, Middle Seat Track
Century Encore Rear Facing Belted, Rearward Seat Track

Century Encore Rear Facing Unbelted, Forward Seat Track

Century Encore Rear Facing Unbelted, Middle Seat Track

Century Encore Rear Facing Unbelted, Rearward Seat Track
Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)

12 Month Section C Forward Facing Convertible CRS

Evenflo Medallion 254 Forward Facing Belted, Forward Seat Track

Evenflo Medallion 254 Forward Facing Belted, Middle Seat Track

Evenflo Medallion 254 Forward Facing Belted, Rearward Seat Track

Evenflo Medallion 254 Forward Facing Unbelted, Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)

12 Month Section C Forward Facing Convertible CRS

- Evenflo Medallion 254 Forward Facing Unbelted, Middle Seat Track
- Evenflo Medallion 254 Forward Facing Unbelted, Rearward Seat Track
- Evenflo Medallion 254 Rear Facing Belted, Forward Seat Track
- Evenflo Medallion 254 Rear Facing Belted, Middle Seat Track
Unbelted 5th Percentile Female Dummy Reactivation,
Forward Seat Track
3 Year Old Section C Forward Facing Convertible CRS

3-Year-Old Forward Facing Century Encore Belted, Forward Seat Track

3-Year-Old Forward Facing Century Encore Belted, Middle Seat Track

3-Year-Old Forward Facing Century Encore Belted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
3 Year Old
Section C
Forward Facing Convertible CRS

3-Year-Old Forward Facing Evenflo Medallion Belted,
Forward Seat Track

3-Year-Old Forward Facing Evenflo Medallion Belted,
Middle Seat Track

3-Year-Old Forward Facing Evenflo Medallion Belted,
Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation,
Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)

3 Year Old  Section D  Forward Facing Toddler  Belt Positioning Booster Seat

3-Year-Old Century Next Step Belted, Forward Seat Track
3-Year-Old Century Next Step Belted, Middle Seat Track
3-Year-Old Century Next Step Belted, Rearward Seat Track
3-Year-Old Century Next Step Cinched With Harness, Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
3 Year Old Section D Forward Facing Toddler Belt Positioning Booster Seat

3-Year-Old Century Next Step Cinched With Harness, Middle Seat Track

3-Year-Old Century Next Step Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Rearward Seat Track
3 Year Old Section D Forward Facing Toddler Belt Positioning Booster Seat

3-Year-Old Cosco High Back Booster Cinched With Harness, Middle Seat Track

3-Year-Old Cosco High Back Booster Cinched With Harness, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track
6 Year Old Section D Forward Facing Toddler Belt Positioning Booster Seat

6-Year-Old Cosco High Back Booster Belted, Forward Seat Track

6-Year-Old Cosco High Back Booster Belted, Middle Seat Track

6-Year-Old Cosco High Back Booster Belted, Rearward Seat Track

Unbelted 5th Percentile Female Dummy Reactivation, Middle Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)

6 Year Old
Section D
Forward Facing Toddler
Belt Positioning Booster Seat

6-Year-Old Evenflo Right Fit Belted, Forward Seat Track
6-Year-Old Evenflo Right Fit Belted, Middle Seat Track
6-Year-Old Evenflo Right Fit Belted, Rearward Seat Track
Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track
3 Year Old

No CRS

3-Year-Old Unbelted, Forward Seat Track, Position 1

3-Year-Old Unbelted, Forward Seat Track, Position 2

3-Year-Old Unbelted, Forward Seat Track, Position 3

3-Year-Old Unbelted, Forward Seat Track, Position 4
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)

3 Year Old No CRS

3-Year-Old Unbelted, Forward Seat Track, Position 5

3-Year-Old Unbelted, Forward Seat Track, Position 6

3-Year-Old Unbelted, Forward Seat Track, Position 7

3-Year-Old Unbelted, Middle Seat Track, Position 1
3-Year-Old Unbelted, Rearward Seat Track, Position 7

Unbelted 5th Percentile Female Dummy Reactivation, Forward Seat Track
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
6 Year Old No CRS

6-Year-Old Unbelted, Middle Seat Track, Position 1
6-Year-Old Unbelted, Middle Seat Track, Position 2
6-Year-Old Unbelted, Middle Seat Track, Position 3
6-Year-Old Unbelted, Middle Seat Track, Position 4
6 Year Old  No CRS

6-Year-Old Unbelted, Rearward Seat Track, Position 1

6-Year-Old Unbelted, Rearward Seat Track, Position 2

6-Year-Old Unbelted, Rearward Seat Track, Position 3

6-Year-Old Unbelted, Rearward Seat Track, Position 4
DOT/NHTSA 208 Suppression Test – 2007 Chevrolet Impala (C70109)
6 Year Old No CRS

Unbelted 5th Percentile Female Dummy Reactivation,
Rearward Seat Track
APPENDIX F

INSTRUMENTATION CALIBRATION
### INSTRUMENTS FOR DRIVER DUMMY NO. 401

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<td>9425</td>
<td>GSE</td>
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</tbody>
</table>

### VEHICLE INSTRUMENTS

<table>
<thead>
<tr>
<th>SERIAL NO.</th>
<th>MANUFACTURER</th>
<th>CALIBRATION DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Rear Seat Crossmember X</td>
<td>P47827</td>
<td>Endevco</td>
</tr>
<tr>
<td>Right Rear Seat Crossmember X</td>
<td>C29-L21</td>
<td>Entran</td>
</tr>
<tr>
<td>Top of Engine X</td>
<td>P47834</td>
<td>Endevco</td>
</tr>
<tr>
<td>Bottom of Engine X</td>
<td>F29-X18</td>
<td>Entran</td>
</tr>
<tr>
<td>Left Brake Caliper X</td>
<td>E05-Z27</td>
<td>Entran</td>
</tr>
<tr>
<td>Right Brake Caliper X</td>
<td>E05-Z57</td>
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<tr>
<td>Trunk Z</td>
<td>P47805</td>
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