

REPORT NUMBER: SPNCAP-CAL-12-020

**NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST**

**KIA Motor CO
2012 Kia Sportage
Utility Vehicle**

NHTSA NUMBER: MC0511

**PREPARED BY:
CALSPAN CORPORATION
P.O. BOX 400
BUFFALO, NEW YORK 14225**



March 7, 2012

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
1200 NEW JERSEY AVE SE, ROOM W43-410
WASHINGTON, 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 DTNH22-09-D-00126.

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared by: _____
Vanessa Walsh, Project Engineer

Date: _____

Approved by: _____
David Travale, Technical Director,
Transportation Operations

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

1. Report No. SPNCAP-CAL-12-020	2. Government Accession No.	3. Recipient's Catalog No.																												
4. Title and Subtitle Final Report of New Car Assessment Program 2012 Kia Sportage Utility Vehicle NHTSA No.: MC0511		5. Report Date 3/7/2012																												
		6. Performing Organization Code CAL																												
7. Author(s) Vanessa Walsh, Project Engineer David Travale, Technical Director		8. Performing Organization Report No. TR2559																												
9. Performing Organization Name and Address Calspan Corporation Transportation Research Group P.O. Box 400 Buffalo, New York 14225		10. Work Unit No.																												
		11. Contract or Grant No. DTNH22-09-D-00126																												
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NVS-111 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C. 20590		13. Type of Report and Period Covered: Final Report, 3/7/2012																												
		14. Sponsoring Agency Code NVS-111																												
15. Supplementary Notes																														
16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2012 Kia Sportage Utility Vehicle in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on 12/19/2011. The impact velocity was 32.40 km/h, and the ambient temperature at the struck (driver's) side of the vehicle was 7°C. The test vehicle post-test maximum crush was 381 mm at levels 2 and 3. The test vehicle's occupant performance is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>355.89</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>36.58</td> </tr> <tr> <td>Total Pelvic Force</td> <td>N</td> <td>5525</td> <td>2,317.98</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>16.91</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45</td> <td>11.59</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	355.89	Resultant Lower Spine Acceleration	Gs	82	36.58	Total Pelvic Force	N	5525	2,317.98	Maximum Thoracic Rib Deflection	mm	38	16.91	Maximum Abdomen Rib Deflection	mm	45	11.59
Measurement Description	Driver ATD (SID-IIs)																													
	Units	Threshold	Result																											
Head Injury Criteria (HIC ₃₆)	N/A	1000	355.89																											
Resultant Lower Spine Acceleration	Gs	82	36.58																											
Total Pelvic Force	N	5525	2,317.98																											
Maximum Thoracic Rib Deflection	mm	38	16.91																											
Maximum Abdomen Rib Deflection	mm	45	11.59																											
17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, 1200 New Jersey Ave. SE Washington, D.C. 20590																												
19. Security Class. (of this report) UNCLASSIFIED	20. Security Class. (of this page) UNCLASSIFIED	21. No. of Pages 157	22. Price																											

Form DOT F1700.7 (8-72)

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Purpose and Test Procedure	1-1
2	Summary of NCAP Side Impact Test	2-1
3	Occupant and Vehicle Information	3-1
<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	3-2
2	Seat, Seat Belt, Steering Wheel Adjustment and fuel Systems Data	3-5
3	Dummy Longitudinal Clearance Dimensions	3-7
4	Dummy Lateral Clearance Dimensions	3-8
5	Camera and instrumentation Data	3-9
6	Vehicle Accelerometer Data	3-10
7	Rigid Pole Load Data	3-11
8	Post Test Observations	3-12
9	Vehicle Profile Measurements	3-13
10	Vehicle Exterior Crush Measurements	3-14
11	FMVSS 301 Fuel System Integrity Post-Impact Data	3-17
12	Dummy/Vehicle Temperature Stabilization Data	3-18
<u>Appendix</u>		<u>Page No</u>
A	Photographs	A-1
B	Vehicle and Dummy Response Data Plots	B-1
C	Dummy Configuration and Performance Verification Data	C-1

SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the MY 2012 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00126. The purpose of this test is to generate comparative side impact performance in a 2012 Kia Sportage Utility Vehicle manufactured by KIA Motor CO. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated August 2011.

SECTION 2

SUMMARY OF NCAP SIDE IMPACT TEST

A rigid pole side test was conducted on a 2012 Kia Sportage Utility Vehicle. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.40 km/h. The test was conducted by Calspan Corporation Transportation Research Group on 12/19/2011. Pre-test and post test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated August 2011. Camera locations and other pertinent camera information are included in this report.

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

Head CG Triaxial Accelerometers
Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
Abdomen Upper and Lower Rib Displacement Potentiometers
Lower Spine Triaxial Accelerometers
Iliac Load Cell
Acetabulum Load Cell

Appendix B contains the dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report.

The following table summarizes the results of the test:

Measurement Description	Driver ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	355.89
Resultant Lower Spine Acceleration	Gs	82	36.58
Total Pelvic Force	N	5525	2317.98
Maximum Thoracic Rib Deflection	mm	38	16.91
Maximum Abdomen Rib Deflection	mm	45	11.59

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1	
	Mounted	Deployed
Frontal Airbag	Yes	No
Knee Airbag	N/A	N/A
Curtain Airbag	Yes	Yes
Torso/Pelvis Airbag	Yes	Yes
Seat Belt Pretensioner	Yes	Yes
Seat Belt Load Limiter	Yes	Yes

GENERAL COMMENTS:

1. P1 serial number – 300
2. Camera No. 2 was over exposed
3. Camera No.4 does not have a time stamp due to an internal malfunction and needs to be sent back to the manufacturer for repair.

Data Anomalies:

- Load Cell Pole #1 FY is questionable shape 25-85ms

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	3-2
2	Seat, Seat Belt, Steering Wheel Adjustment and fuel Systems Data	3.5
3	Dummy Longitudinal Clearance Dimensions	3-7
4	Dummy Lateral Clearance Dimensions	3-8
5	Camera and instrumentation Data	3-9
6	Vehicle Accelerometer Data	3-10
7	Rigid Pole Load Data	3-11
8	Post Test Observations	3-12
9	Vehicle Profile Measurements	3-13
10	Vehicle Exterior Crush Measurements	3-14
11	FMVSS 301 Fuel System Integrity Post-Impact Data	3-17
12	Dummy/Vehicle Temperature Stabilization Data	3-18

DATA SHEET NO.1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MC0511	Traction Control System (TCS)	Yes
Model Year	2012	Auto-Leveling System	No
Make	Kia	Automatic Door Locks (ADL)	Yes
Model	Sportage	Power Window Auto-Reverse	No
Body Style	Utility Vehicle	Other Optional Feature	--
VIN	KNDPB3A2XC7215312	Driver Front Airbag	Yes
Body Color	Red	Driver Curtain Airbag	Yes
Odometer Reading	106 / 66	Driver Head/Torso Airbag	No
Engine Displacement	2.34	Driver Torso Airbag	No
Type/No. Cylinders	4-Cylinder	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
Transmission Speeds	6-Speed	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	Front Wheel Drive	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioners	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioners	No
Power Seats	No	Driver Load Limiters	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiters	No
All-Wheel Drive (AWD)	No	Other Safety Restraint	No

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Kia Motor CO	GVWR (kg)	4,497
Date of Manufacture	8/11	GAWR Front (kg)	1,075
Vehicle Type	Sportage	GAWR Rear (kg)	1,125

VEHICLE SEATING AND WEIGHT CAPACITY DATA

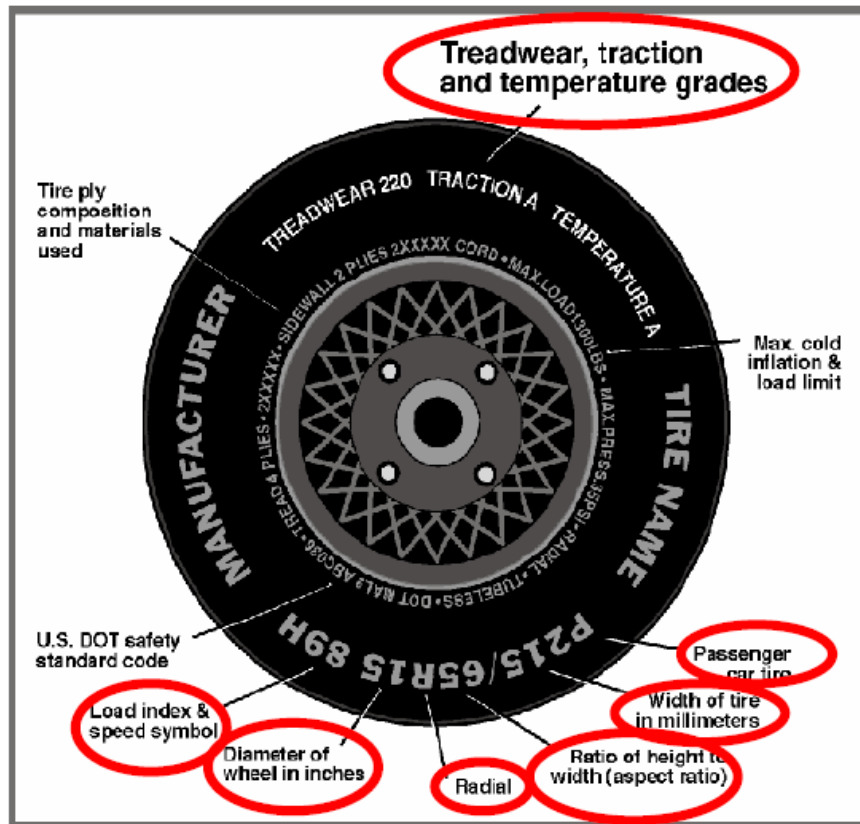
	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Vehicle Capacity Weight (VCW) (kg)				420.0	(A)
DSC X 68.04 kg				340.2	(B)
Rated Cargo and Luggage Weight (RCLW)				79.8*	(A-B)

VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	X					X	
Rear or Second Row		X			X		
Third Row seat							

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

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011



TIRE PLACARD INFORMATION

Measured Parameter	Front	Rear
Recommended Cold Tire Pressure (kPa)	230	230
Recommended Tire Size	P225/60R17	P225/60R17

TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure	300	300
Tire Size on Vehicle	P225/60R17	P225/60R17
Tire Manufacturer	Kumho	Kumho
Tire Name	Solus KL21	Solus KL21
Tire Type	Passenger	Passenger
Tire Width (mm)	225	225
Aspect Ratio	60	60
Radial	Yes	Yes
Wheel Diameter (mm)	665	665
Load Index/Speed Symbol	99H	99H
Treadwear	500	500
Traction Grade	A	A
Temperature Grade	A	A
Tire Material	Rubber	Rubber

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

Test Vehicle: 2012 Kia Sportage NHTSA No: MC0511
 Test Program: Side Pole NCAP Test Date: 12/19/2011

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	230	230	230	230
Tire Placard	kPa	230	230	230	230
Owner's Manual	kPa	230	230	230	230
As Tested	kPa	230	230	230	230

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	448.5	298.5		469	343		469	356.5	
Right	kg	426	288.5		423	342		433	332	
Ratio	%	60	40		57	43		57	43	
Total	kg	874.5	587	1,461.5	892	685	1,577	902	688.5	1,590.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1,461.5	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy	kg	44.1	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	79.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1,585.4	(A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range
 (i.e., Calculated Test Vehicle Target Weight – 4.5 kg to -9 kg? ☒ YES ☐ NO

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast (if any)	57.0

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.9	-0.6	-0.6	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-1.1	-0.7	-0.7	Yes
Front Bumper Angle (left-to-right)**	Deg.	-0.1	-0.3	-0.3	Yes
Rear Bumper Angle (left-to-right)**	Deg.	-0.1	0.0	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	1,060	1,147	1,143	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	18	24	31	

*ND=Nose Down (-), NU=Nose Up (+)

** LD=Left Down (-), LU=Left Up (+)

*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements. Indicate "Yes" or "No" for Meets Requirement"

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

Test Vehicle: 2012 Kia Sportage NHTSA No: MC0511
 Test Program: Side Pole NCAP Test Date: 12/19/2011

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	13.2	10.2	11.7
Front Passenger Seat	-	No Angle Adjustment	-
Front Center Seat*			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat*	Fixed	Fixed	Fixed

*if applicable

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid- Fore/Aft	Forward -Most
Driver Seat	11.7	36	Max	56	66	76
			Mid	28	39	56
			Min	0	11	21
Front Passenger Seat	No Height or Angle Adjustment		Max			
			Mid			
			Min			
Front Center Seat*			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max			
			Mid			
			Min			
Non-Struck Side Rear Seat	Fixed	Fixed	Max			
			Mid			
			Min			
Rear Center Seat*	Fixed	Fixed	Max			
			Mid			
			Min			

*if applicable

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

Test Vehicle: 2012 Kia Sportage NHTSA No: MC0511
 Test Program: Side Pole NCAP Test Date: 12/19/2011

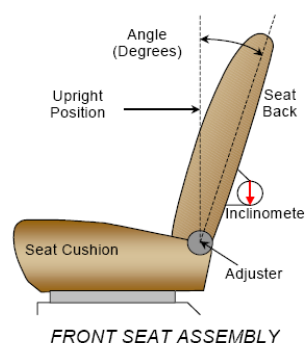
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detents*
Driver Seat	240	0-24	0	0
Front Passenger Seat	240	0-24	0	0
Front Center Seat*				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear	Fixed	Fixed	Fixed	Fixed
Rear Center Seat*	Fixed	Fixed	Fixed	Fixed

*if applicable

SEAT BACK ANGLE ADJUSTMENT

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



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/Seated	-13.6 to 50	-	3.8	-
Front Passenger Seat	-13.6 to 50	-	3.8	-
Front Center Seat*				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat*	Fixed	Fixed	Fixed	Fixed

*if applicable

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. For this test zero is defined as the uppermost position

	Total # of Positions	Placed in Position #
Driver Seat	4	0

HEAD RESTRAINT ADJUSTMENT

Head restraints are adjusted to the lowest and most full forward in-use position. For this test position 6 is defined as the lowermost position.

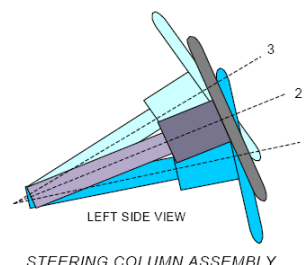
	Total # of Positions	Placed in Position #
Driver Seat	6	6

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

Test Vehicle: 2012 Kia Sportage NHTSA No: MC0511
 Test Program: Side Pole NCAP Test Date: 12/19/2011

STEERING COLUMN ADJUSTMENT

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

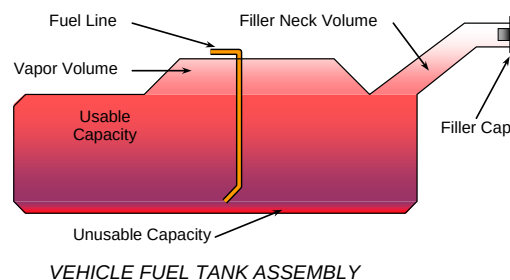


	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	64.3	
Geometric Center, Position No. 2	62.3	
Uppermost, Position No. 3	60.3	
Telescoping Steering Wheel Travel		40
Test Position	62.3	20

Fuel Pump

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

The electric fuel pump operates with the ignition in the 'on' position and the engine running. The fuel filler neck is located above the left rear wheel well



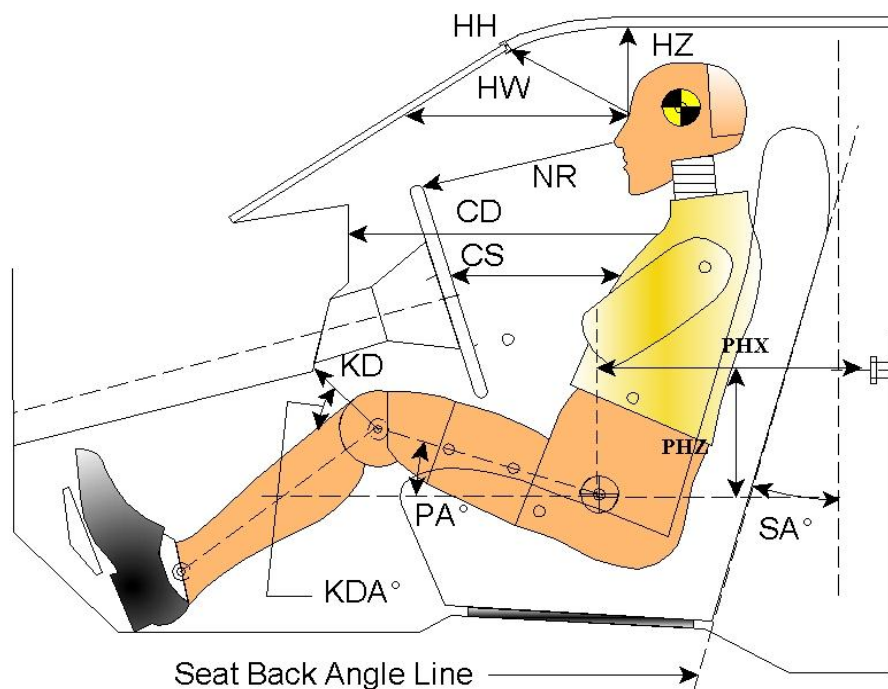
FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	57.9
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank (see Owner's Manual)	57.9
Usable Capacity of Optional Tank (see Owner's Manual)	
93% of Usable Capacity	53.7
Actual Amount of Solvent Used in Test	53.7
1/3 of Usable Capacity	19.3

Is the Actual Amount of Solvent Used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated on Form No. 1? ☒ YES ☐ NO

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011

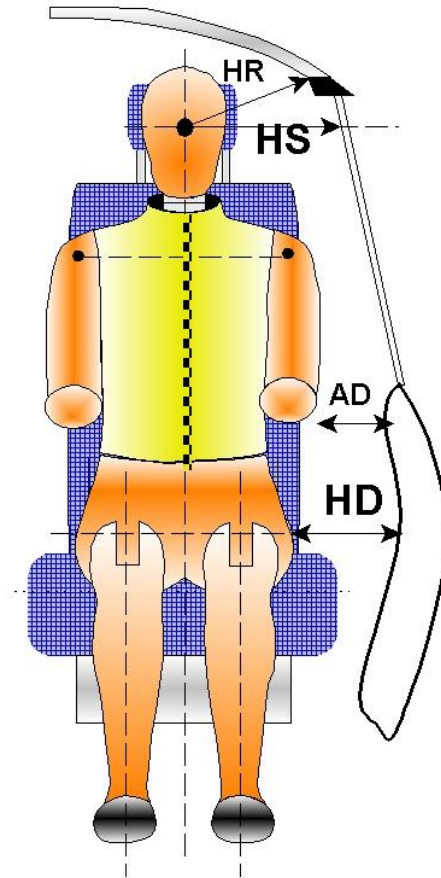


DUMMY ID# 300

Code	Measurement Description	Driver (S/N: 300)	
		Length (mm)	Angle (°)
HH	Head to Header	293	
HW	Head to Windshield	621	
HZ	Head to Roof Liner	195	
NR	Nose to Rim	261	
CD	Chest to Dashboard	436	
CS	Chest to Steering Wheel	201	
KDL/KDAL°	Left Knee to Dash	110	28.2
KDR/KDAR°	Right Knee to Dash	91	27.4
PAX°	Pelvic Tilt Angle (X-Axis)		19.0
PAY°	Pelvic Tilt Angle (Y-Axis)		0.3
PHX	Hip Point to Striker (X-Axis)	345	
PHZ	Hip Point to Striker (Z-Axis)	232	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011

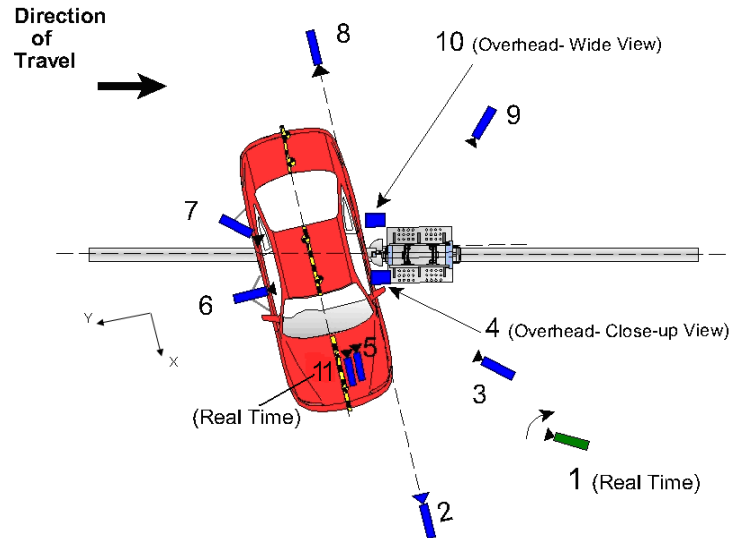


DUMMY ID#: 300

Code	Measurement Description	Length (mm)
HR	Head To Side Header	254
HS	Head to Side Window	388
AD	Arm to Door	188
HD	Hip Point to Door	169

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011



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

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real time (24-30 fps) pan view of impact				Zoom	30
2	Front ground level - impact view	1620	5890	950	28	1000
3	Impact side 45° - forward pole view	2445	2370	1580	24	1000
4	Overhead Close-up view of impact	300	0	5150	28	1000
5	Onboard – dummy front view				25	500
6	Onboard – dummy side view				12.5	500
7	Onboard – dummy rear oblique view				12.5	500
8	Rear ground level – impact view	1860	6355	1050	24	1000
9	Impact side 45° - rearward pole view	2025	3230	1560	24	1000
10	Overhead wide-view of impact	600	0	5150	14	1000
11	Real-time (24-30 fps) – dummy front view				Zoom	30

* All measurements accurate to ± 6 mm.

NOTE: Vehicle is at a 75° angle to the rigid pole.

If applicable, explain why camera(s) did not operate as intended:

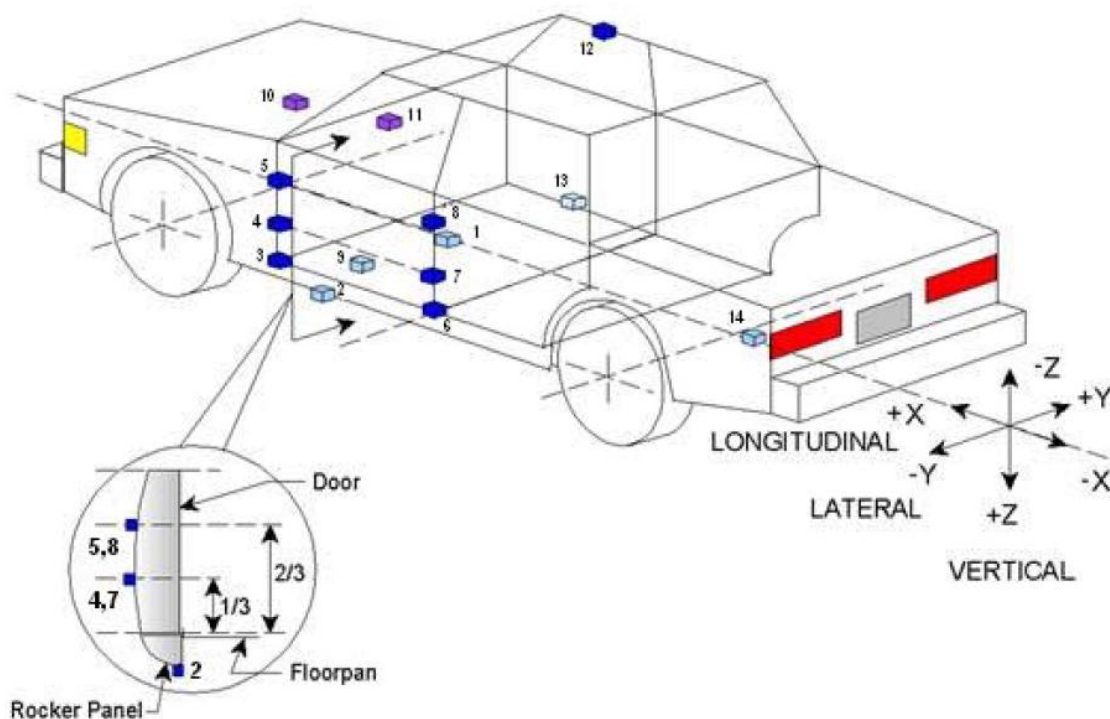
Camera No. 4 does not have a time stamp due to an internal malfunction and needs to be sent Back to the manufacturer to be repaired. Camera No. 2 is over exposed.

INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	6
TOTAL	40

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

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011



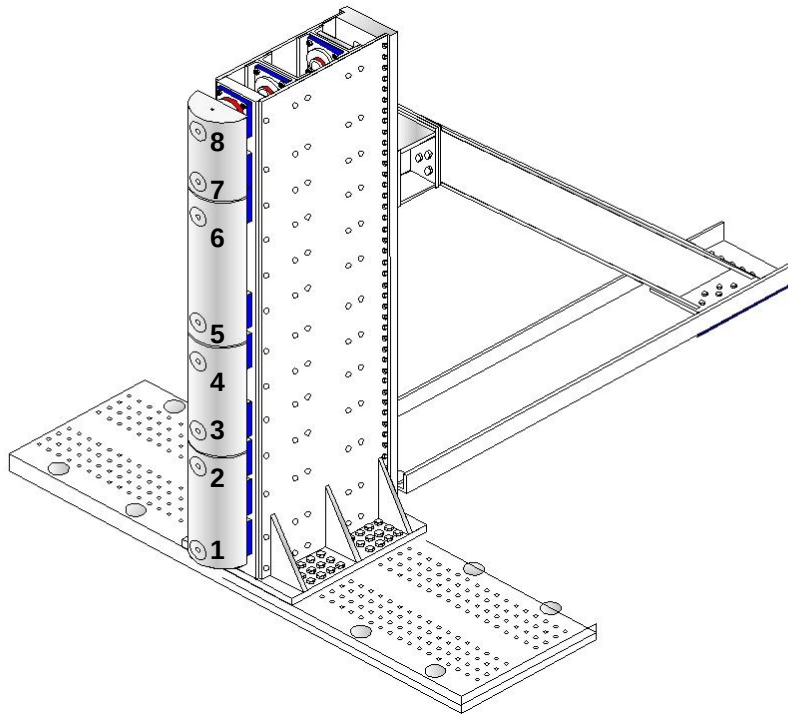
	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2,403	51	689
2	Left Floor Sill	2,714	-663	453
3	A Pillar Sill	2,960	-659	466
4	A Pillar Low	3,029	-664	660
5	A Pillar Mid	2,993	-656	1,173
6	B Pillar Sill	1,776	-654	442
7	B Pillar Low	1,978	-674	600
8	B Pillar Mid	1,943	-677	1,096
9	Driver Seat Track	2,134	-566	461
10	Engine Top	3,760	120	852
11	Firewall	3,308	117	835
12	Right Roof	2,145	443	1,612
13	Right Floor Sill	2250	463	403
14	Rear Floorpan	999	40	757

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

**DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA**

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011

FOIL 300K RIGID POLE



Load Cell Locations	
ID	Height From Ground (mm)
1	200
2	590
3	750
4	1075
5	1260
6	1740
7	1920
8	2300

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2012 Kia Sportage NHTSA No: MC0511
Test Program: Side Pole NCAP Test Date: 12/19/2011

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	HeadRest
Left Shoulder	Curtain Airbag
Upper Torso	Torso/Pelvis Airbag
Lower Torso	Torso/Pelvis Airbag
Left Hip	Driver's Side Door
Left Knee	Driver's Side Door

POST TEST DOOR PERFORMANCE

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

* Indicate "Yes", "No", or "N/A".

POST TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	Not Recoverable	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	Not Recoverable	No	No	No
Seat Back Collapse	No	No	No	No

* Indicate "Yes", "No", or "N/A".

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	A-Pillar bent inwards at the point of impact
Sill Separation	None
Windshield Damage	cracked and separated along the driver's side A-Pillar
Side Window Damage	Driver's window shattered during Impact
Other Notable Effects	None

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

Test Vehicle: 2012 Kia Sportage NHTSA No: MC0511
Test Program: Side Pole NCAP Test Date 12/19/2011

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

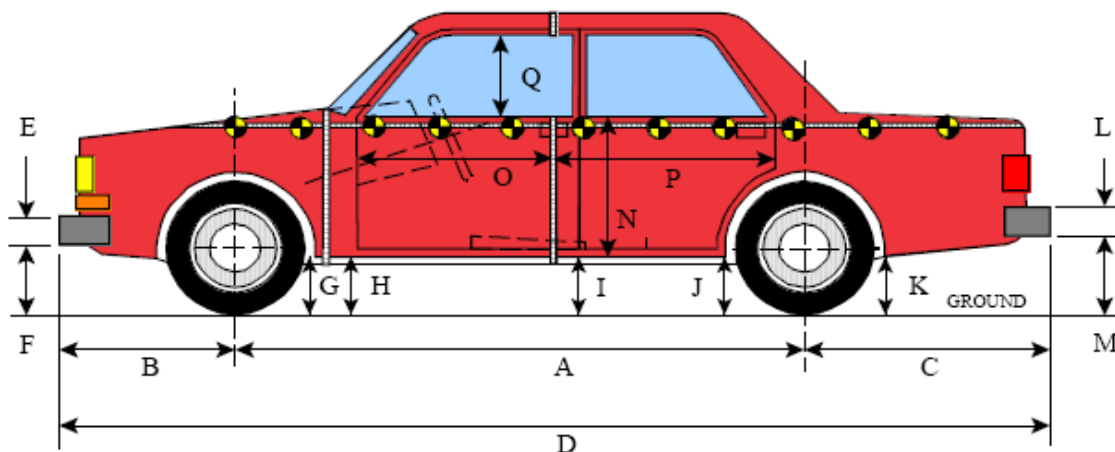
Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	N/A	N/A		
Curtain Airbag	Yes	Yes	Yes	Yes
Torso/Pelvis Airbag	Yes	Yes	N/A	N/A
Seat Belt Pretensioner	Yes	Yes	No	No
Seat Belt Load Limiter	Yes	Yes	No	No
Other				

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

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1086
Actual Impact Point (Aft of Front Axle)	mm		1082
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact Point	4
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.4
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.3

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011



LEFT SIDE VIEW

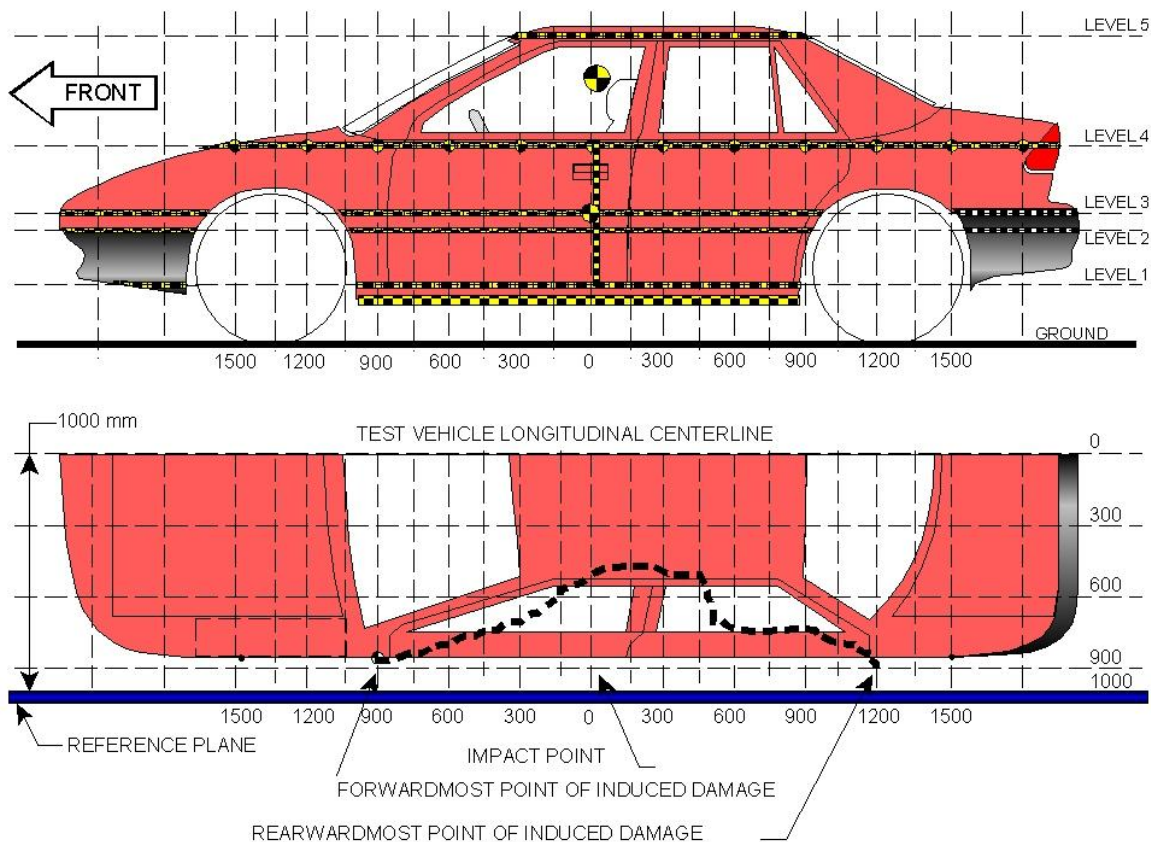
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2,640	2,605	-35
B	Front Axle to FSOV	894	874	-20
C	Rear Axle to RSOV	911	905	-6
D	Total Length at Centerline	4,446	4,384	-62
E	Front Bumper Thickness	145	145	0
F	Front Bumper Bottom to Ground	470	502	-32
G	Sill Height at Front Wheel Well	261	269	-8
H	Sill Height at Front Door Leading	262	260	2
I	Sill Height at B-Pillar	268	243	25
J1	Sill Height at Rear Wheel Well	266	302	-36
J2	Pinch Weld Height at Rear Wheel	255	293	-68
K	Sill Height Aft of Rear Wheel Well	327	342	-15
L	Rear Bumper Thickness	140	140	0
M	Rear Bumper Bottom to Ground	385	384	1
N	Sill Height to Bottom of Front Window	767	768	1
O	Front Door Leading Edge to Impact	610	442	-168
P	Rear Door Trailing Edge to Impact CL	1,372	1,254	-118
Q	Front Window Opening	381	362	-19
R	Right Side Length	4,251	4,238	-13
S	Left Side Length	4,250	4,151	-99
T	Vehicle Width at B-Pillars	1,799	1,697	-102

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

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011



NOTE: All measurements are in millimeters (mm)

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	435	350	0
2	Occupant Hip Point	710	381	0
3	Mid-Door	804	381	0
4	Window Sill	1,079	347	0
5	Window Top	1,564	144	0

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

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

Test Vehicle: 2012 Kia Sportage NHTSA No: MC0511
 Test Program: Side Pole NCAP Test Date: 12/19/2011

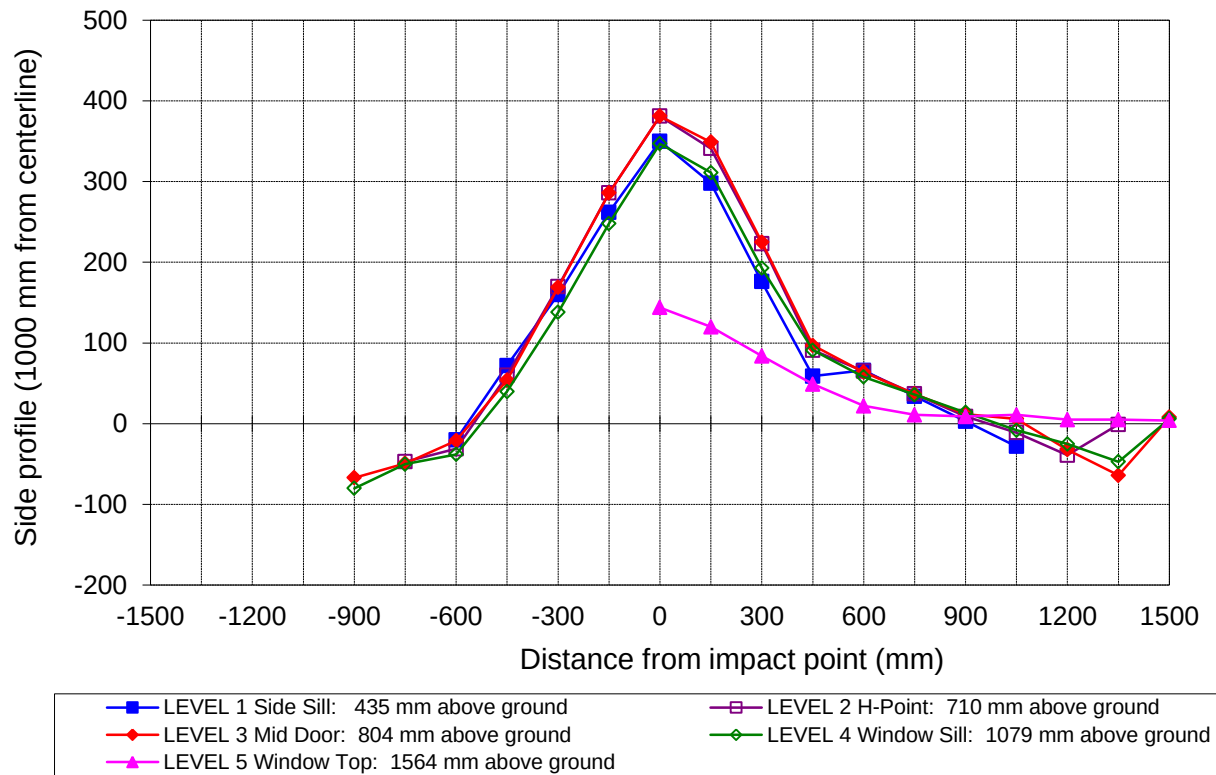
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500															
-1350															
-1200															
-1050															
-900			-919	-791				-986	-871				67	80	
-750		-920	-912	-811			-967	-961	-861			47	49	50	
-600	-888	-905	-891	-826		-908	-936	-912	-864		20	31	21	38	
-450	-878	-893	-891	-837		-806	-833	-837	-797		-72	-60	-54	-40	
-300	-874	-895	-894	-848		-714	-725	-725	-710		-160	-170	-169	-138	
-150	-873	-897	-896	-853		-611	-611	-610	-605		-262	-286	-286	-248	
0	-873	-898	-898	-858	-609	-523	-517	-517	-511	-465	-350	-381	-381	-347	-144
150	-872	-896	-899	-859	-632	-574	-555	-550	-548	-512	-298	-341	-349	-311	-120
300	-870	-894	-899	-860	-635	-694	-671	-674	-667	-551	-176	-223	-225	-193	-84
450	-867	-892	-898	-860	-633	-808	-801	-801	-769	-584	-59	-91	-97	-91	-49
600	-867	-888	-895	-857	-630	-801	-823	-831	-799	-912	-66	-65	-64	-58	282
750	-866	-884	-892	-854	-626	-832	-847	-855	-818	-615	-34	-37	-37	-36	-11
900	-869	-882	-887	-851	-623	-866	-873	-875	-837	-614	-3	-9	-12	-14	-9
1050	-880	-887	-884	-846	-617	-908	-898	-878	-854	-606	28	11	-6	8	-11
1200		-907	-896	-840	-603		-946	-928	-865	-598		39	32	25	-5
1350		-918	-913	-832	-584		-919	-977	-879	-579		1	64	47	-5
1500			-920	-823	-541			-912	-817	-537			-8	-6	-4

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

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

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011



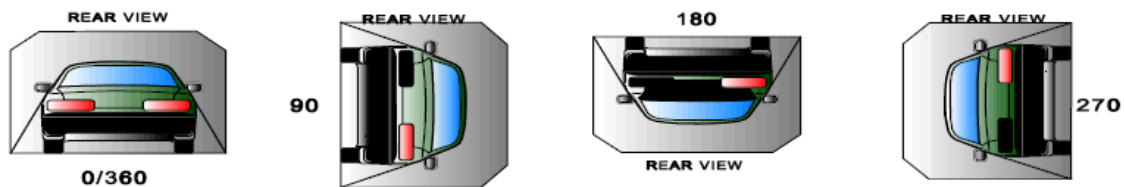
DATA SHEET NO. 11
FMVSS NO. 301 STATIC ROLLOVER RESULTSA

Test Vehicle: 2012 Kia Sportage NHTSA No: MC0511
 Test Program: Side Pole NCAP Test Date 12/19/2011

Test Time: 4:50 PM Temperature: 7° C

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

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	71	300	371
90 to 180	63	300	363
180 to 270	63	300	363
270 to 360	73	300	373

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

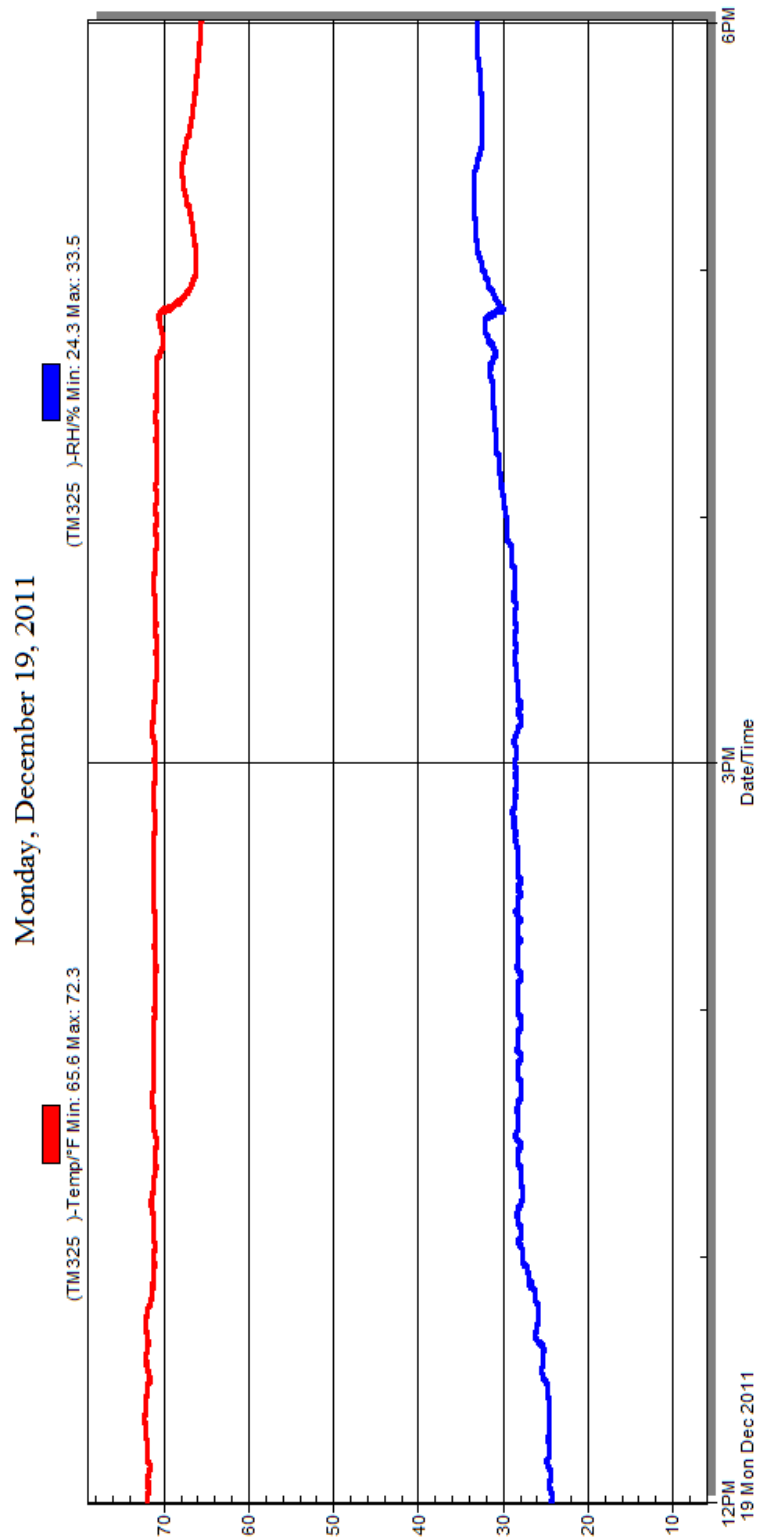
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0		
90 to 180	0	0		
180 to 270	0	0		
270 to 360	0	0		

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 12
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle:	2012 Kia Sportage	NHTSA No:	MC0511
Test Program:	Side Pole NCAP	Test Date	12/19/2011



**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS		
No.		Page
1	As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-5
2	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
3	Pre-Test Frontal View of Test Vehicle	A-6
4	Post-Test Frontal View of Test Vehicle	A-6
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-7
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-7
7	Pre-Test Left Side View of Test Vehicle	A-8
8	Post-Test Left Side View of Test Vehicle	A-8
9	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-9
10	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-9
11	Pre-Test Rear View of Test Vehicle	A-10
12	Post-Test Rear View of Test Vehicle	A-10
13	Pre-Test Right Side View of Test Vehicle	A-11
14	Post-Test Right Side View of Test Vehicle	A-11
15	Pre-Test Overhead View of Test Area	A-12
16	Post-Test Overhead View of Test	A-12
17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-13
18	Pre-Test Right Side View of Pole Positioned Against Side of	A-13
19	Pre-Test Close-Up View of Impact Point	A-14
20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-14
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-15
22	Post-Test Front Close-Up View of Dummy	A-15
23	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-16
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-16
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-17
26	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-17
27	Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint	A-18
28	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-18

29	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-19
30	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-19
31	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-20
32	Pre-Test Placement of Dummy's Feet	A-20
33	Pre-Test View of Belt Anchorage for Dummy	A-21
34	Pre-Test Left Side View of Steering Wheel	A-21
35	Pre-Test View of Disengaged Parking Brake	A-22
36	Pre-Test View of Parking Brake	A-22
37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-23
38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-23
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-24
40	Pre-Test Dummy and Door Clearance View	A-24
41	Post-Test Dummy and Door Clearance View	A-25
42	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-25
43	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-26
44	Pre-Test Inner Door Panel View	A-26
45	Post-Test Inner Door Panel View Showing Dummy Contact Location	A-27
46	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-27
47	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-28
48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-28
49	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-29
50	Post-Test Dummy Close-Up Pelvis Contact With Vehicle Interior View	A-29
51	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-30
52	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-30
53	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-31
54	Close-Up View of Vehicle's Certification Label	A-31
55	Close-Up View of Vehicle's Tire Information Placard or Label	A-32
56	Pre-Test Pole Barrier Front View	A-32
57	Post-Test Pole Barrier Front View	A-33
58	Pre-Test Pole Barrier Side View	A-33

59	Post-Test Pole Barrier Side View	A-34
60	Pre-Test Ballast View	A-34
61	Post-Test Primary and Redundant Speed Trap Read-Out	A-35
62	FMVSS No. 301 Static Rollover 0 Degrees	A-35
63	FMVSS No. 301 Static Rollover 90 Degrees	A-36
64	FMVSS No. 301 Static Rollover 180 Degrees	A-36
65	FMVSS No. 301 Static Rollover 270 Degrees	A-37
66	FMVSS No. 301 Static Rollover 360 Degrees	A-37
67	Impact Event	A-38
68	Monroney Label	A-38
69	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-39



Figure A-1: As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



Figure A-2: As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-3: Pre-Test Frontal View of Test Vehicle



Figure A-4: Post-Test Frontal View of Test Vehicle



Figure A-5: Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



Figure A-6: Post-Test Left Front $\frac{3}{4}$ View Test Vehicle



Figure A-7: Pre-Test Left Side View of Test Vehicle



Figure A-8: Post-Test Left Side View of Test Vehicle



Figure A-9: Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-10: Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-11: Pre-Test Rear View of Test Vehicle



Figure A-12: Post-Test Rear View of Test Vehicle



Figure A-13: Pre-Test Right Side View of Test Vehicle

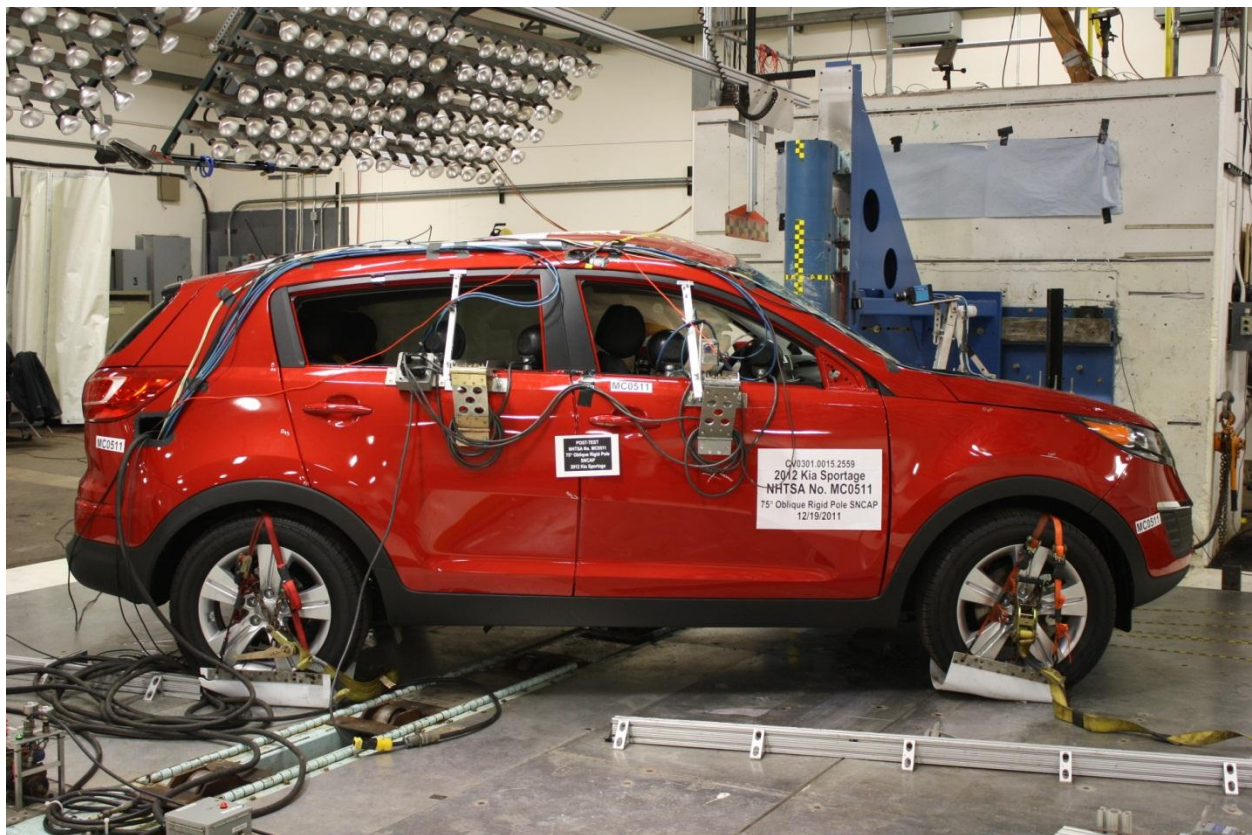


Figure A-14: Post-Test Right Side View of Test Vehicle

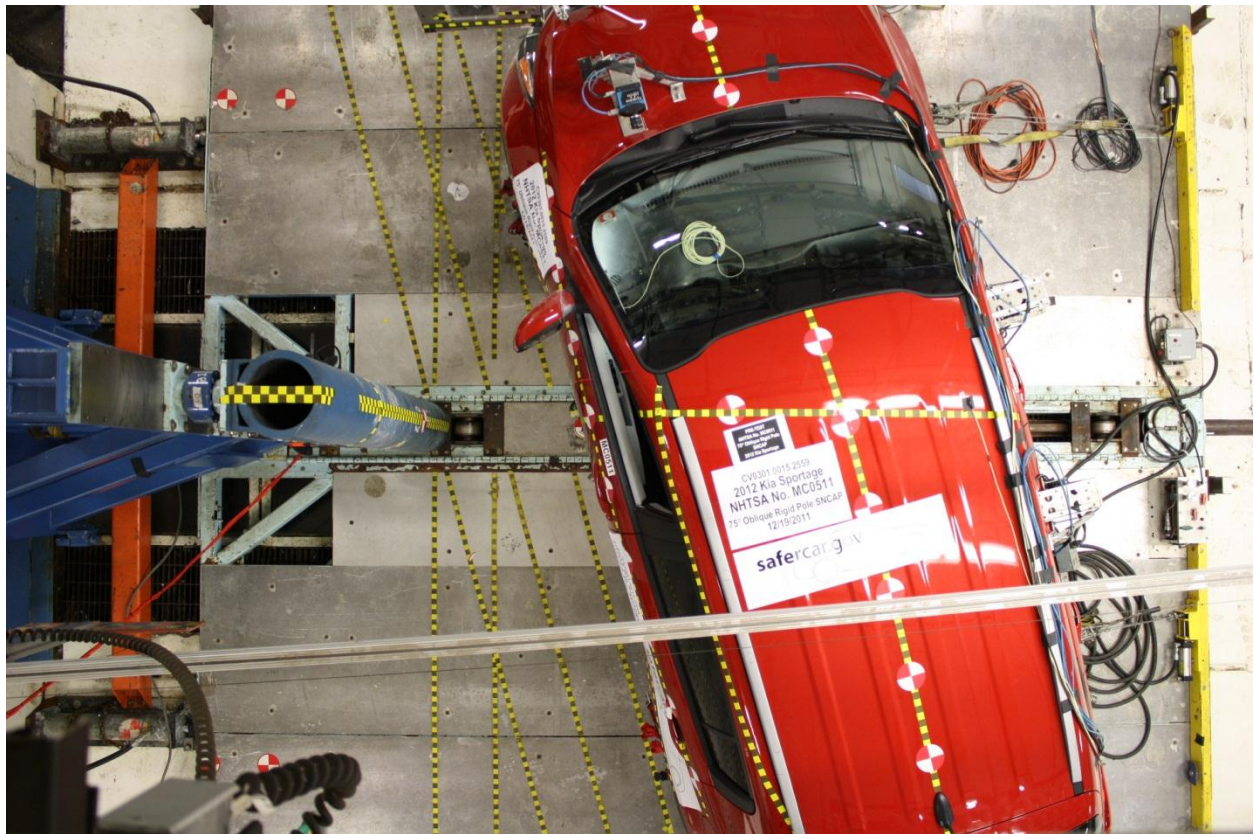


Figure A-15: Pre-Test Overhead View of Test Area

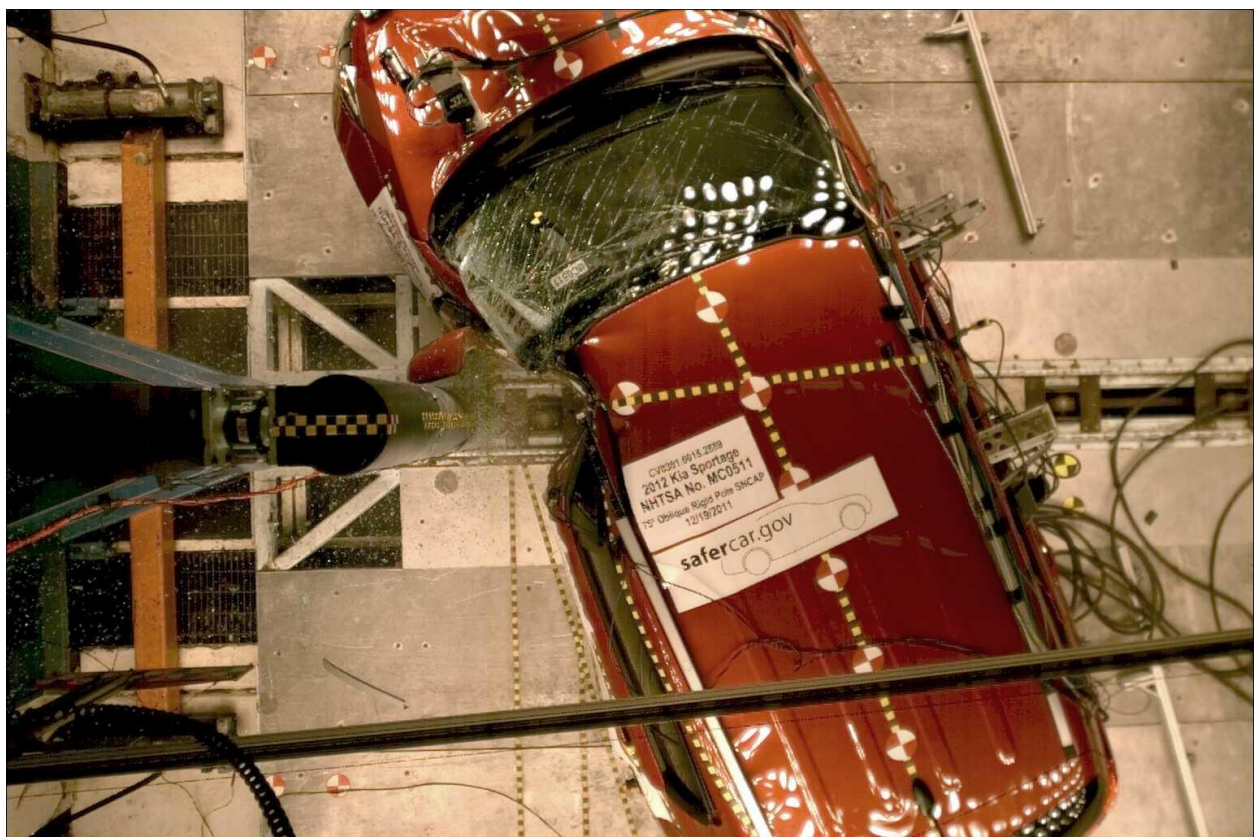


Figure A-16: Post-Test Overhead View of Test Area



Figure A-17: Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



Figure A-18: Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



Figure A-19: Pre-Test Close-Up View of Impact Point Target



Figure A-20: Post-Test Close-Up View of Impact Point Target Showing Impact Location



Figure A-21: Pre-Test Front Close-Up View of Dummy Head and Chest

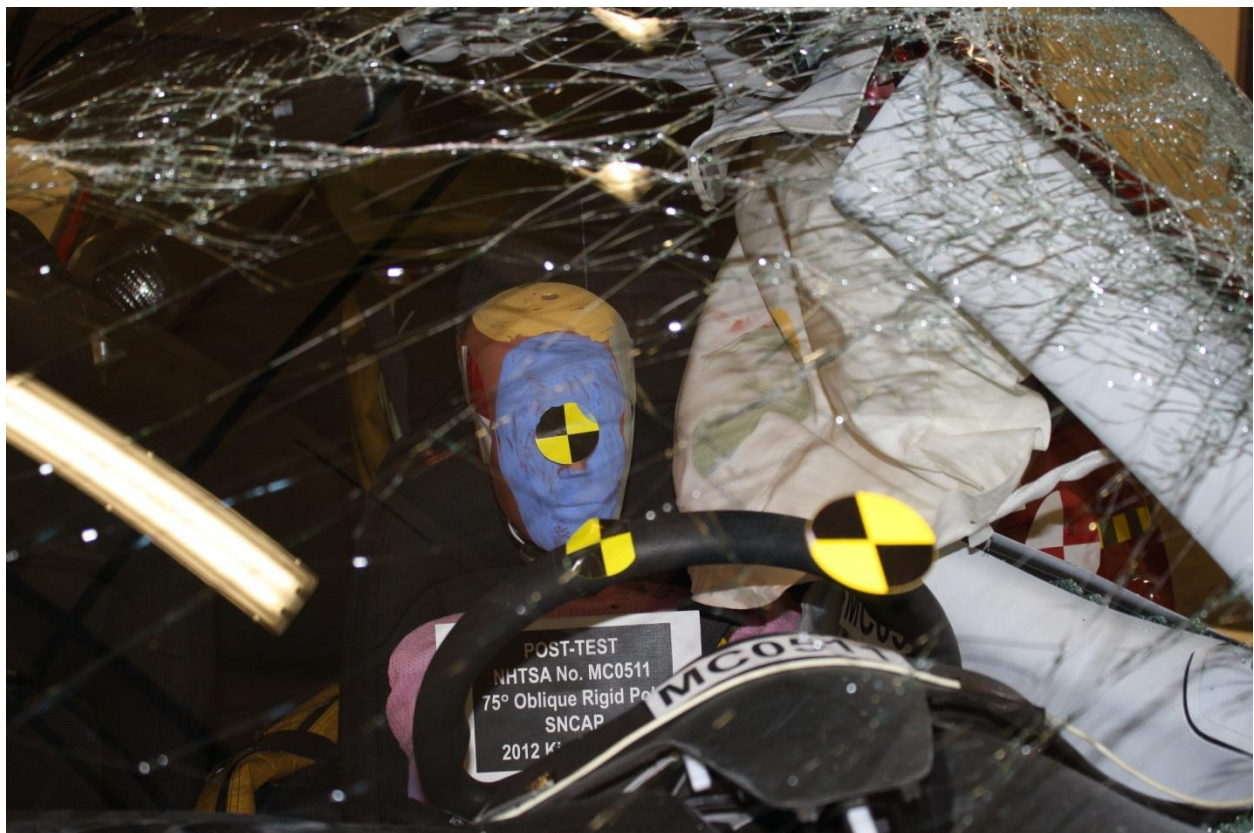


Figure A-22: Post-Test Front Close-Up View of Dummy



Figure A-23. Pre-Test Left Side View of Dummy Showing Belt and Chalking



Figure A-24: Pre-Test Left Side View of Dummy Shoulder and Door Top View



Figure A-25: Post-Test Left Side View of Dummy Shoulder and Door Top View



Figure A-26: Pre-Test Front View of Seat Back Prior to Dummy Positioning



Figure A-27: Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint

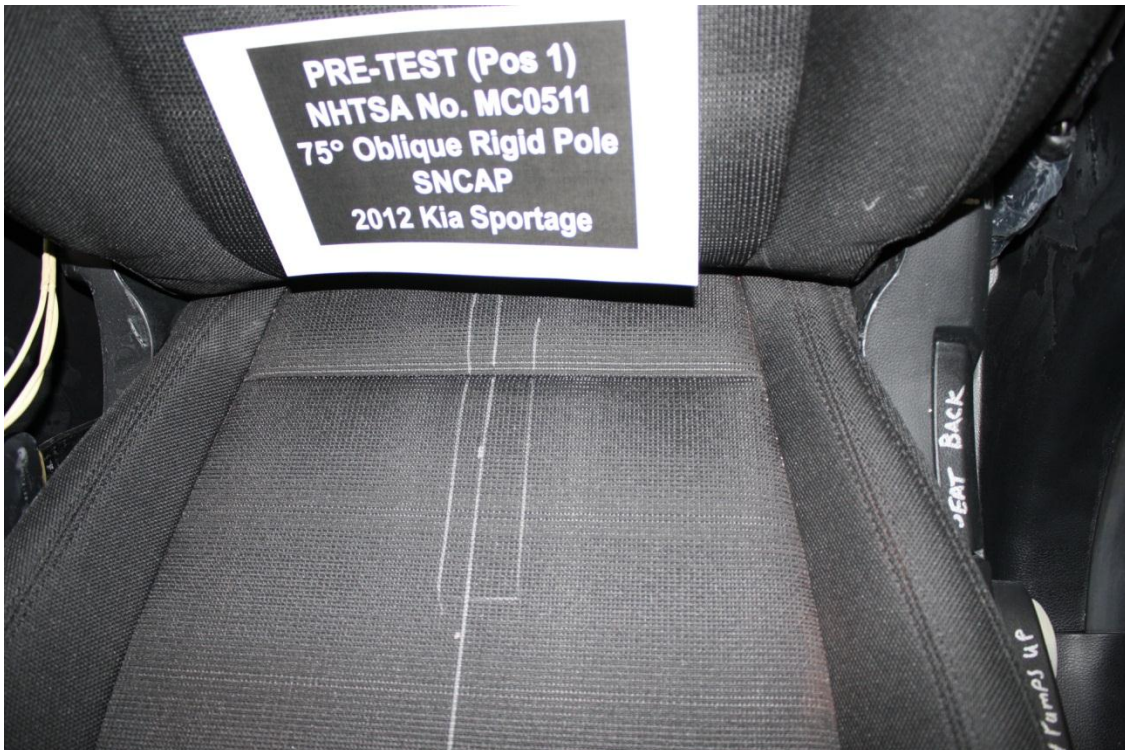


Figure A-28: Pre-Test Front View of Seat Pan Prior to Dummy Positioning



Figure A-29: Pre-Test Overhead View of Dummy Thighs on Seat Pan



Figure A-30: Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket



Figure A-31: Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level



Figure A-32: Pre-Test Placement of Dummy's Feet



Figure A-33: Pre-Test View of Belt Anchorage for Dummy



Figure A-34: Pre-Test Left Side View of Steering Wheel



Figure A-35: Pre-Test View of Disengaged Parking Brake



Figure A-36: Pre-Test View of Parking Brake



Figure A-37: Pre-Test Close-Up Left Side View of Driver Seat Track



Figure A-38: Pre-Test Close-Up Left Side View of Driver Seat Back



Figure A-39: Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Figure A-40: Pre-Test Dummy and Door Clearance View



Figure A-41: Post-Test Dummy and Door Clearance View



Figure A-42: Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Figure A-43: Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Figure A-44: Pre-Test Inner Door Panel View



Figure A-45: Post-Test Inner Door Panel View Showing Dummy Contact Location



Figure A-46: Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



Figure A-47: Post-Test Dummy Close-Up Head Contact with Side Airbag View

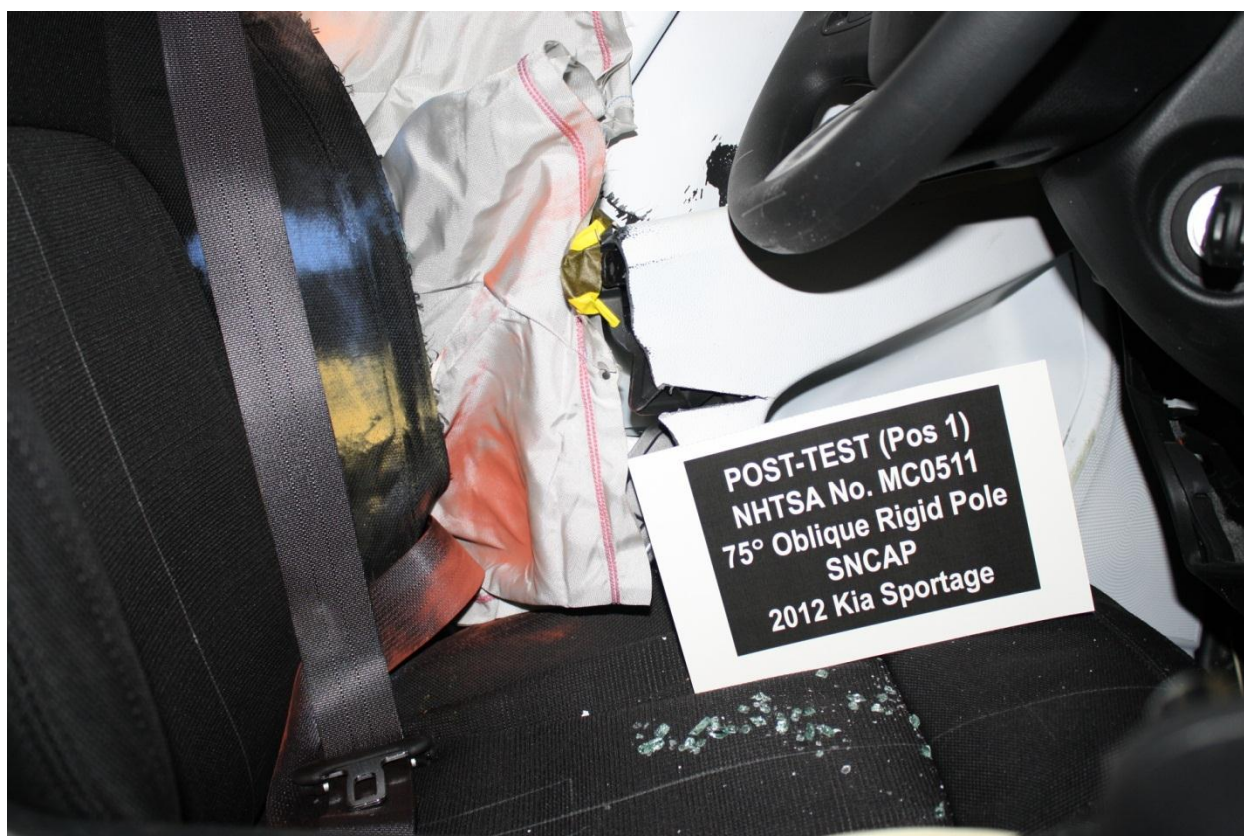


Figure A-48: Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Figure A-49: Post-Test Dummy Close-Up Torso Contact with Side Airbag View



Figure A-50: Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



Figure A-51: Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



Figure A-52: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-53: Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-54: Close-Up View of Vehicle's Certification Label

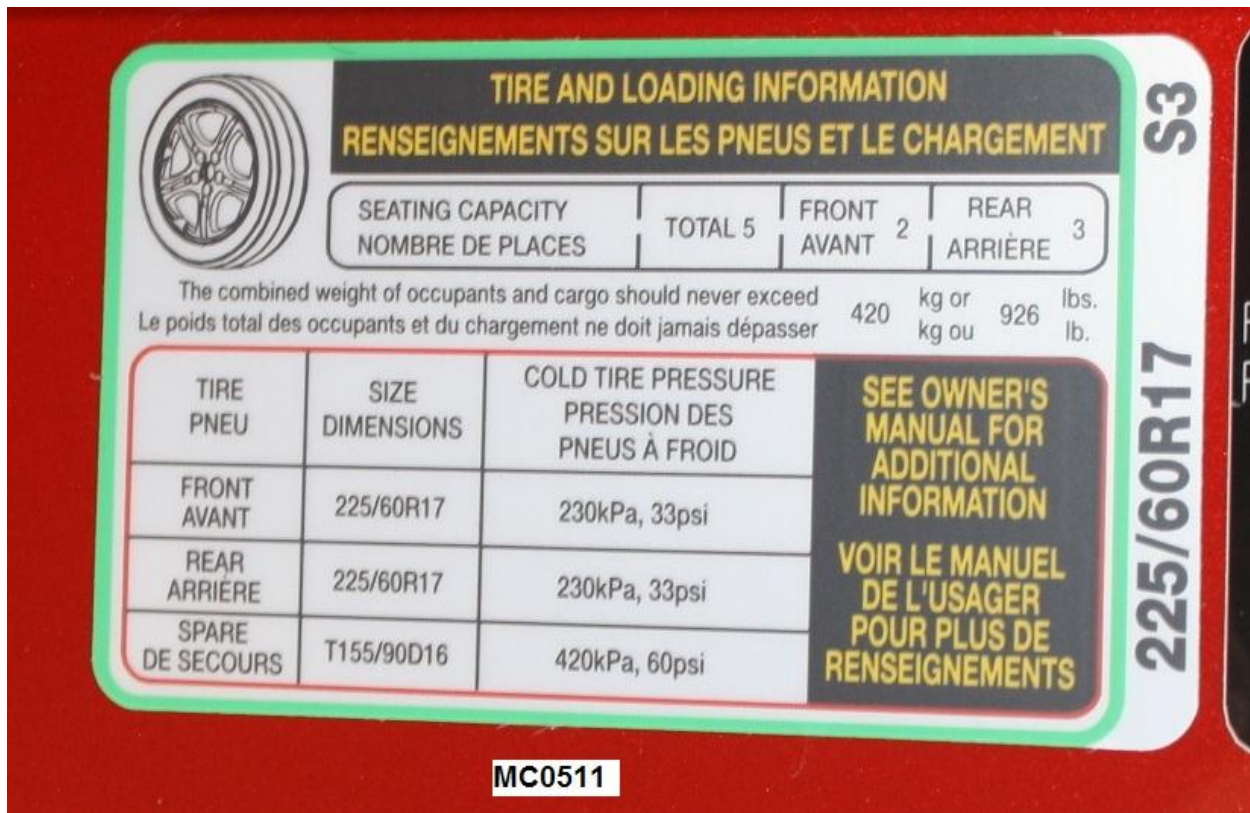


Figure A-55: Close-Up View of Vehicle's Tire Information Placard or Label

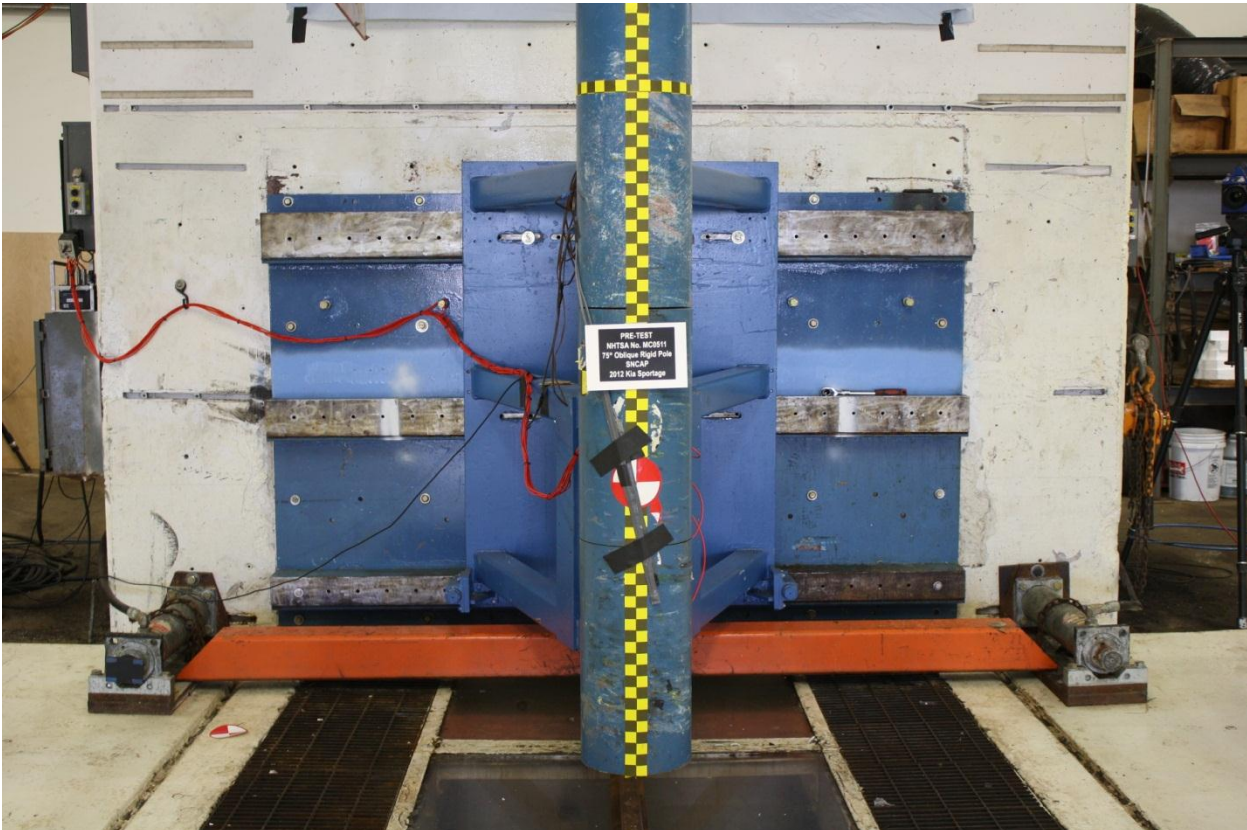


Figure A-56: Pre-Test Pole Barrier Front View

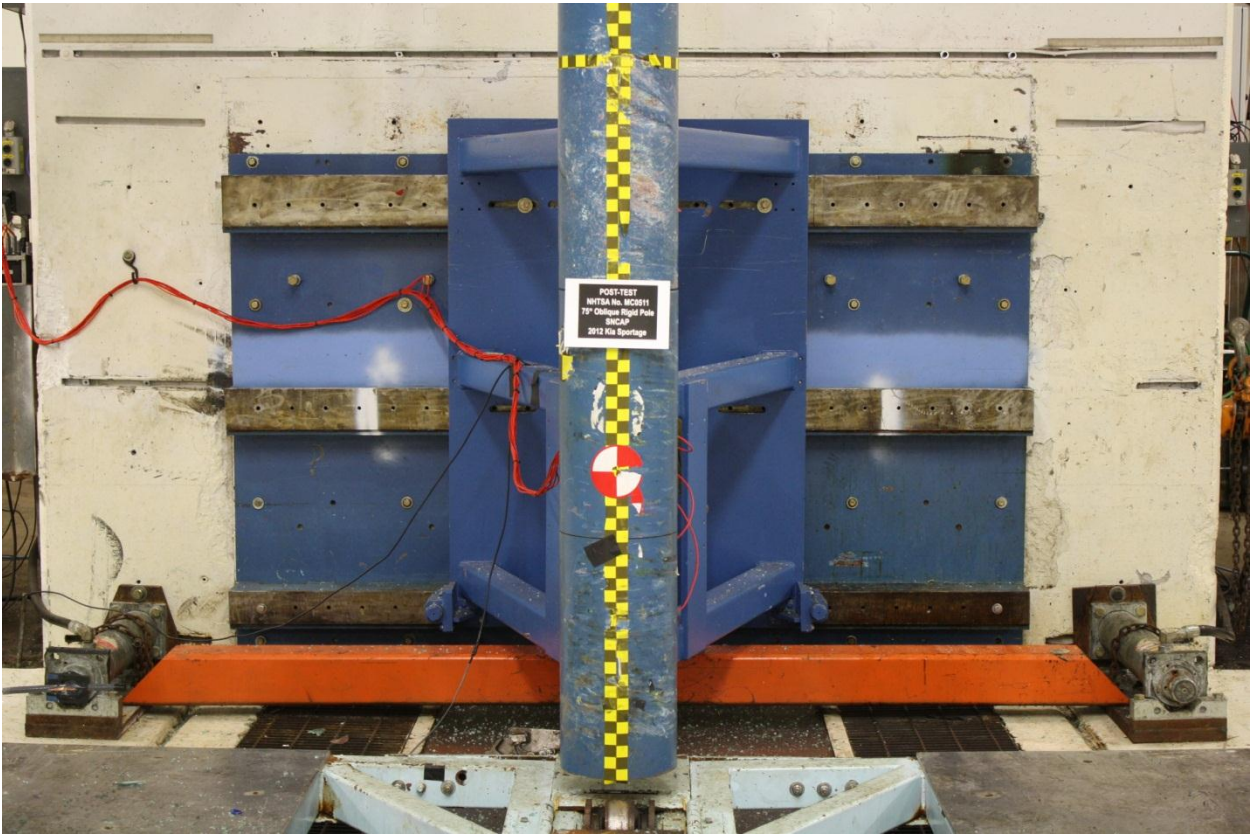


Figure A-57: Post-Test Pole Barrier Front View

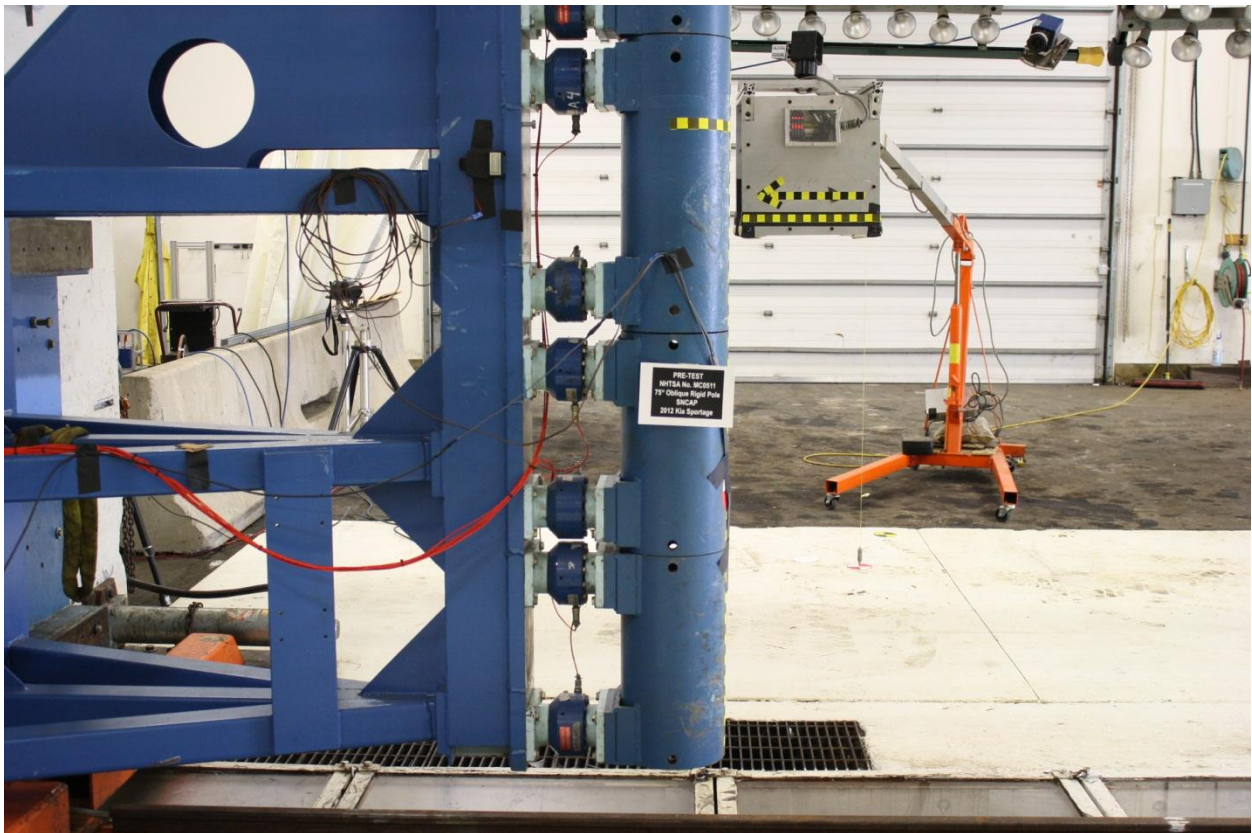


Figure A-58: Pre-Test Pole Barrier Side View

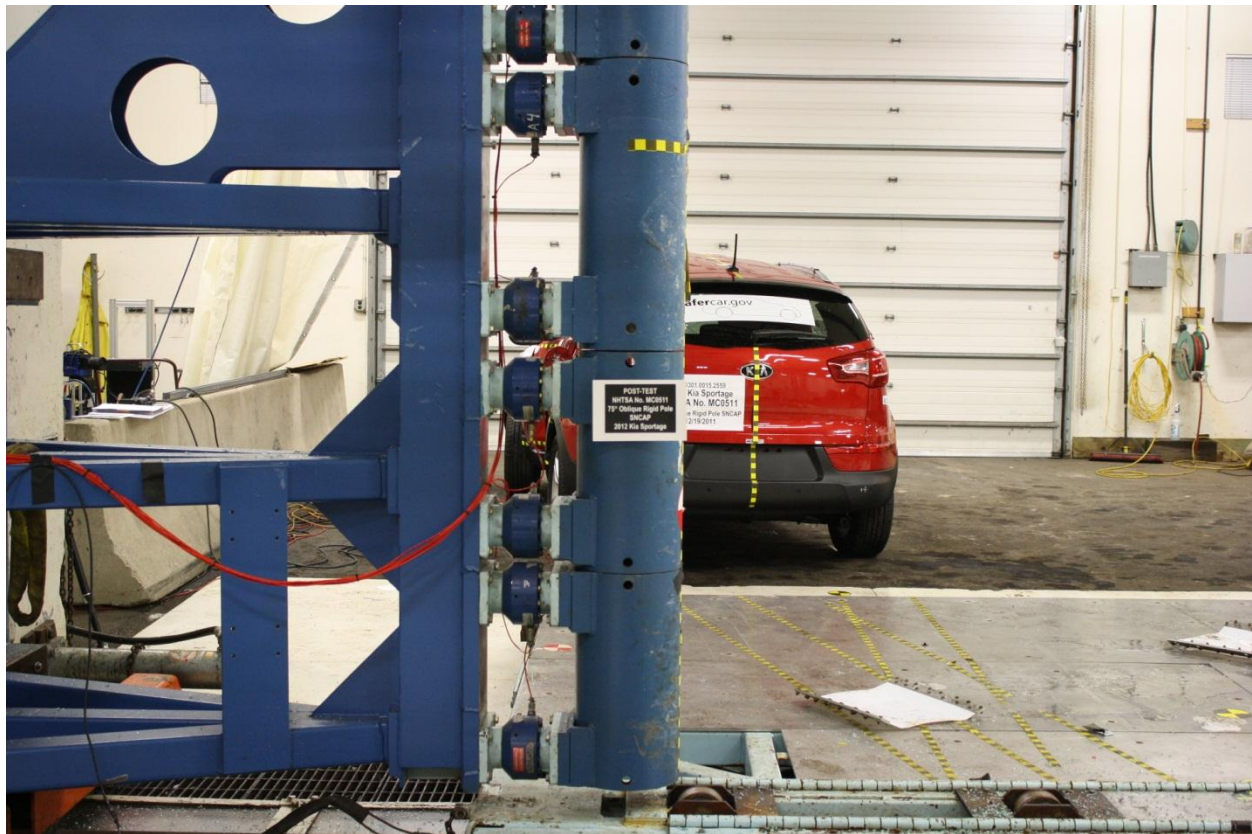


Figure A-59: Post-Test Pole Barrier Side View

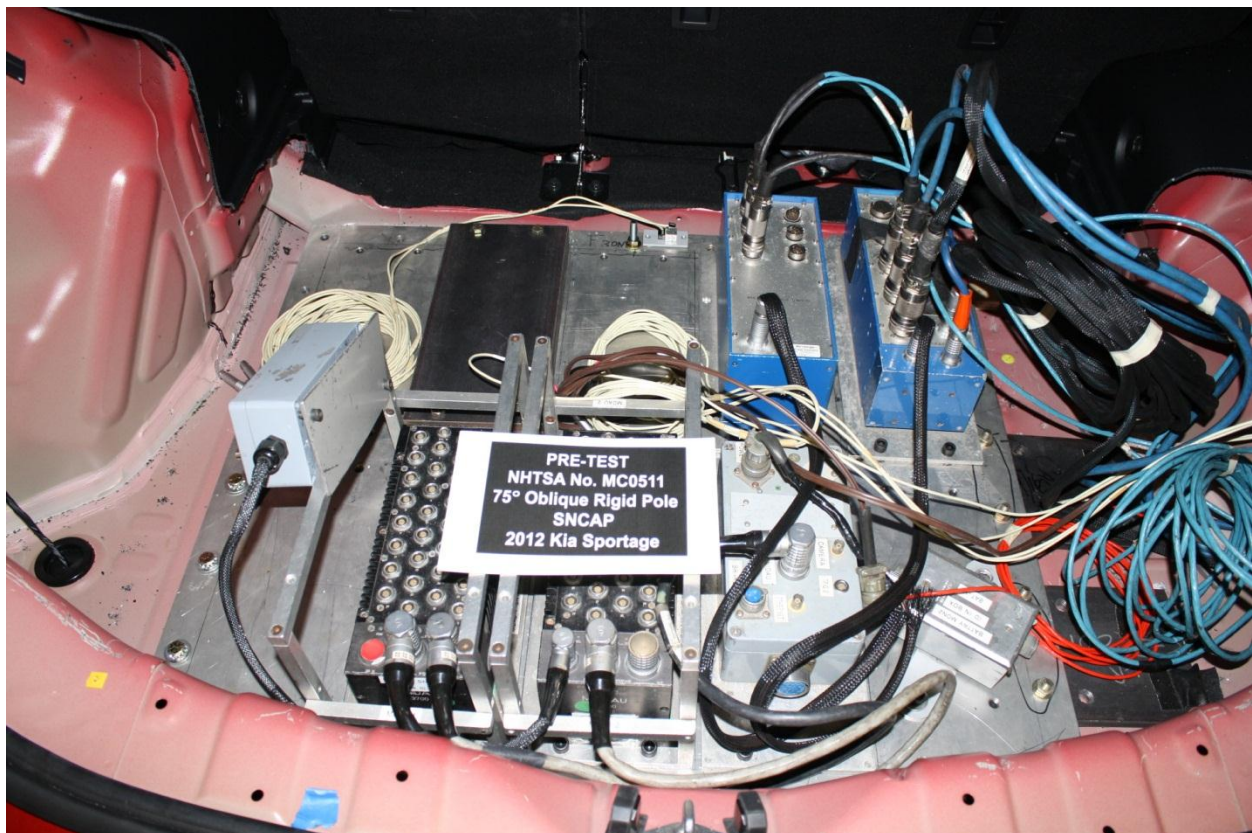


Figure A-60: Pre-Test Ballast View



Figure A-61: Post-Test Primary and Redundant Speed Trap Read-Out

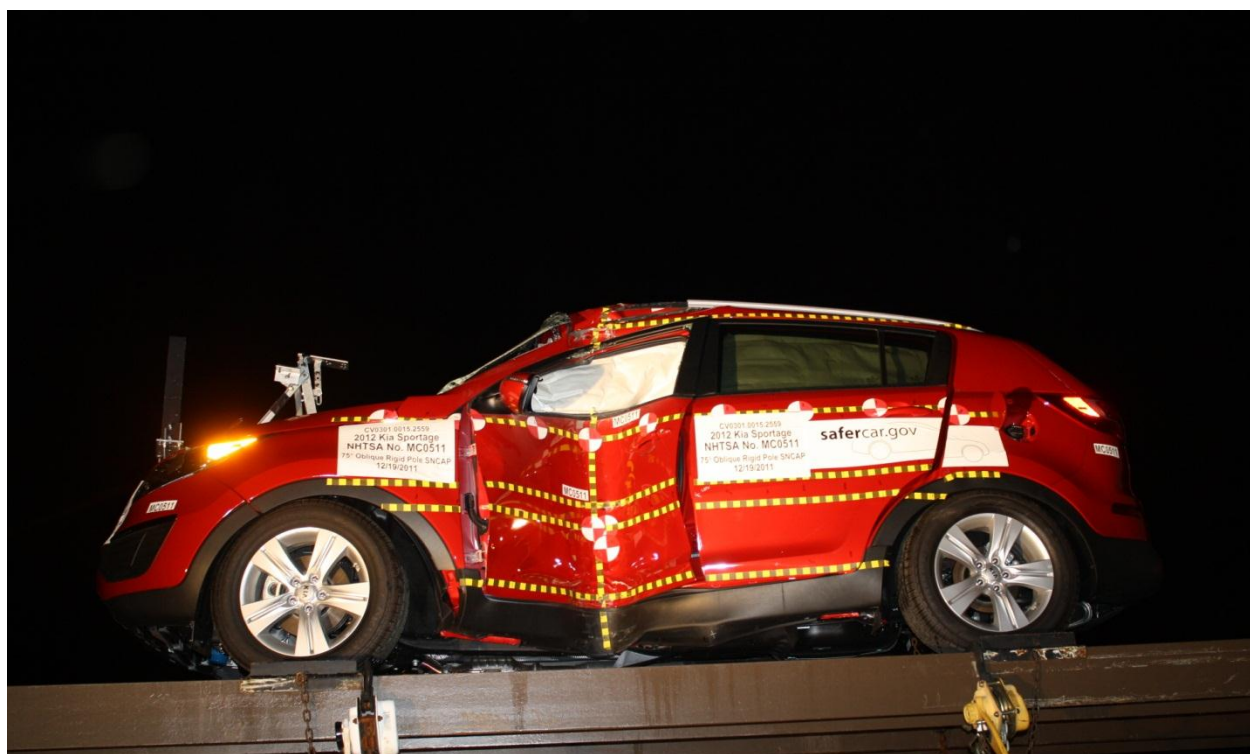


Figure A-62: FMVSS No. 301 Static Rollover 0 Degrees

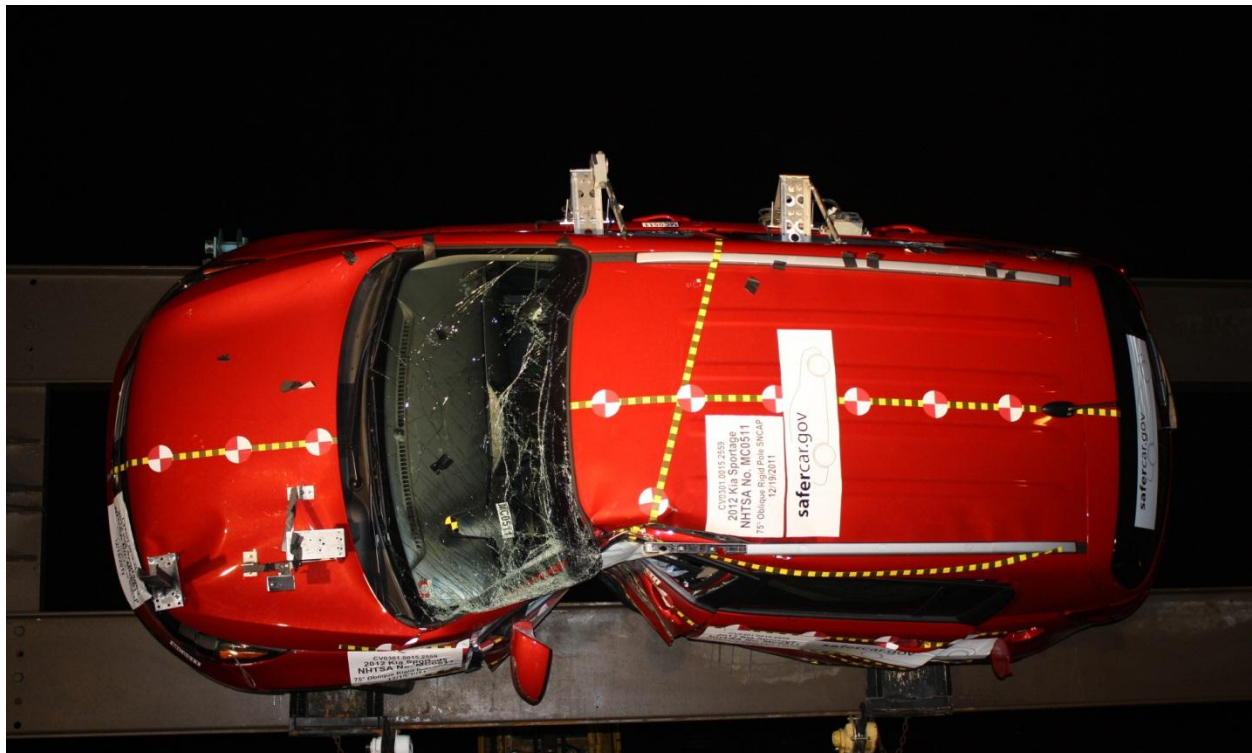


Figure A-63: FMVSS No. 301 Static Rollover 90 Degrees



Figure A-64: FMVSS No. 301 Static Rollover 180 Degrees



Figure A-65: FMVSS No. 301 Static Rollover 270 Degrees

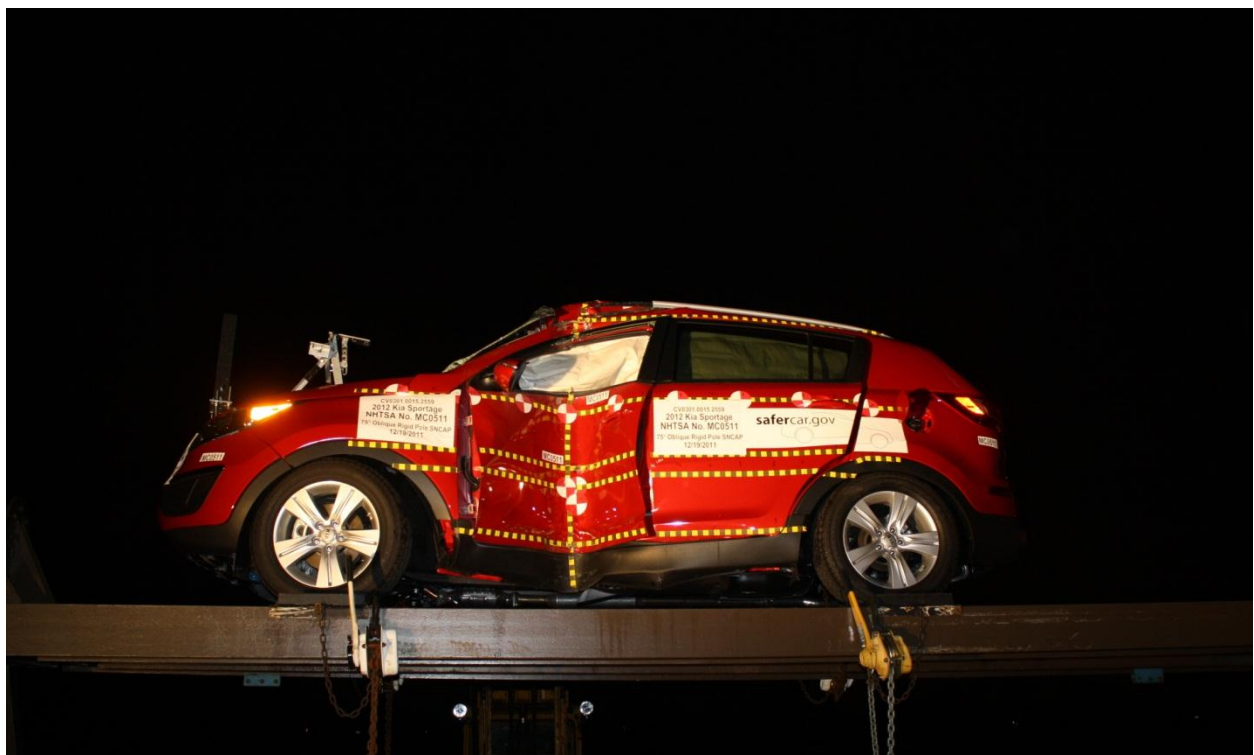


Figure A-66: FMVSS No. 301 Static Rollover 360 Degrees



Figure A-67: Impact Event

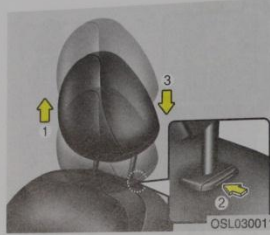
		2012 42222 KIA SPORTAGE LX FWD MODEL YEAR MODEL SIGNAL RED/BLK EXTENSION (INTERIOR COLOR) KNDPB3A2XC7215312 G4KEBU50 VEHICLE NUMBER ENGINE NUMBER PHILADELPHIA TRUCK	SOLD TO: NY082 FUCCILLO KIA 3950 RIDGE ROAD WEST ROCHESTER NY 14626	SHIP TO: NY082
STANDARD FEATURES MECHANICAL 2.4L DOHC CVT 4-Cylinder Engine 6-Speed Automatic Transmission Motor Driven Power Steering 17" Tires with Alloy Wheels SAFETY Dual Front Advanced Airbags Front Seat Mounted Side Airbags Full-Length Side Curtain Airbags 3-Point Seatbelts for All Seating Positions Front Active Headrests Lower Anchors and Tethers for Children (LATCH) Anti-Lock Brake System (ABS) Traction Control System (TCS) Electronic Stability Control (ESC) Downhill Brake/Hill-start Assist Control (DBC/HAC) Rollover Protection System (ROPS) Tire Pressure Monitoring System (TPMS) INTERIOR Air Conditioning Power Windows, Door Locks & Outside Mirrors Keyless Entry and Alarm System AM/FM/CD/MP3 Audio System SIRIUS Satellite Radio w/ free 3-mo. subscription** USB & Auxiliary Input Jacks Multi-Adjustable Front Seats 60/40 Split Folding Rear Seats Cruise Control, Trip Computer Bluetooth (Phone and Streaming Audio) Tilt Steering Wheel Steering Wheel Controls (Bluetooth/Audio/Cruise) Front Cup Holders, 2nd Row Armrest w/Cupholders EXTERIOR Outside Mirrors w/ Turn Signal Indicators Body Color Door Handles Privacy and Solar Glass WARRANTY 10 Year/100,000 Mile Limited Powertrain Warranty 5 Year/60,000 Mile Limited Basic Warranty 5 Year/60,000 Mile Roadside Assistance **Ask dealer for details		MANUFACTURER'S SUGGESTED RETAIL PRICE \$20,800.00 ADDITIONAL INSTALLED EQUIPMENT: (In addition to or in place of standard features) Convenience Package \$1,300.00 Back-up Warning System Rear Spoiler Roof Rails Heated Outside Mirrors Telescopic Steering Wheel Cooling Glove Box Cargo Cover Sunvisor Extender w/Mirror Illumination Carpeted Floor Mats (5 Seats) \$75.00 Cargo Net \$75.00 EC Mirror w/ Compass & Homelink \$350.00 MSRP INCLUDING OPTIONS \$22,575.00 INLAND FREIGHT AND HANDLING \$800.00 TOTAL MANUFACTURER'S SUGGESTED RETAIL PRICE \$23,375.00 Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. License and title fees, state and local taxes and other dealer installed options and accessories are not included in the manufacturer's suggested retail price.		
TOTAL ADDITIONAL WEIGHT: 12.8				

EPA Fuel Economy Estimates			
These estimates reflect new EPA methods beginning with 2008 models.			
CITY MPG 22 Expected range for most drivers 18 to 26 MPG	Estimated Annual Fuel Cost \$1800.00 based on 15,000 miles at \$3.00 per gallon Combined Fuel Economy This Vehicle 10 25 32 ALL SUVS	HIGHWAY MPG 32 Expected range for most drivers 26 to 38 MPG Your actual mileage will vary depending on how you drive and maintain your vehicle.	
See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov			
GOVERNMENT SAFETY RATINGS		PARTS CONTENT INFORMATION	
This vehicle has not been rated by the government for frontal crash, side crash or rollover risk. Source: National Highway Traffic Safety Administration (NHTSA). www.safercar.gov or 1-888-327-4236		FOR VEHICLES IN THIS CAR LINE U.S./CANADIAN PARTS CONTENT: 1% MAJOR SOURCES OF FOREIGN PARTS: KOREA: 98% NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS. FOR THIS VEHICLE FINAL ASSEMBLY POINT: KOREA COUNTRY OF ORIGIN ENGINE: KOREA TRANSMISSION: KOREA	
Environmental Performance			
Protect the environment, choose vehicles with higher scores:			
Global Warming Score 7 1 7 10 Average new vehicle Cleanest Using alternative fuels may improve scores. See www.DriveClean.ca.gov	Smog Score 9 1 7 10 Average new vehicle Cleanest See www.DriveClean.ca.gov	Vehicle emissions are a primary contributor to global warming and smog. Scores are determined by the California Air Resources Board based on this vehicle's measured emissions. Please visit calair.ca.gov or www.DriveClean.ca.gov for more information. AIR RESOURCES BOARD	

Figure A-68: Monroney Label

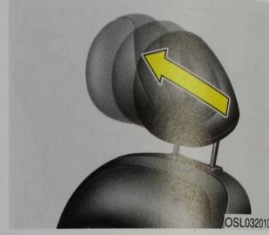
WARNING

- For maximum effectiveness in case of an accident, the headrest should be adjusted so the middle of the headrest is at the same height of the center of gravity of an occupant's head. Generally, the center of gravity of most people's head is similar with the height of the top of their eyes. Also, adjust the headrest as close to your head as possible. For this reason, the use of a cushion that holds the body away from the seatback is not recommended.
- Do not operate the vehicle with the headrests removed. Severe injury to the occupants may occur in the event of an accident. Headrests may provide protection against neck injuries when properly adjusted.
- Do not adjust the headrest position of the driver's seat while the vehicle is in motion.



Adjusting the height up and down

To raise the headrest, pull it up to the desired position (1). To lower the headrest, push and hold the release button (2) on the headrest support and lower the headrest to the desired position (3).



Forward and backward adjustment (if equipped)

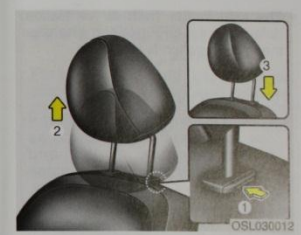
The headrest may be adjusted forward to several different positions by pulling the headrest forward and upward at 30 to 45 degrees.

To adjust the headrest to its furthest backward position, pull it fully forward to the farthest position and release it.

Adjust the headrest so that it properly supports the head and neck.

CAUTION

Excessive pulling or pushing may damage the headrest.



Removal

To remove the headrest, raise it as far as it can go then press the release button (1) while pulling the headrest up (2).

To reinstall the headrest, put the headrest poles (3) into the holes while pressing the release button (1). Then adjust it to the appropriate height.

WARNING

Make sure the headrest locks in position after adjusting it to properly protect the occupants.

Figure A-69: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

No.		Page
	Driver Dummy Instrumentation Plots	
1	Driver Head Acceleration (X) Primary vs. Time	B-5
2	Driver Head Acceleration (Y) Primary vs. Time	B-5
3	Driver Head Acceleration(Z) Primary vs. Time	B-6
4	Driver Head Resultant Primary vs. Time	B-6
5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-7
6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-7
7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-8
8	Driver Lower Spine Y12 Resultant Acceleration vs. Time	B-8
9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-9
10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-9
11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-10

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

Additional Driver Dummy Instrumentation Data

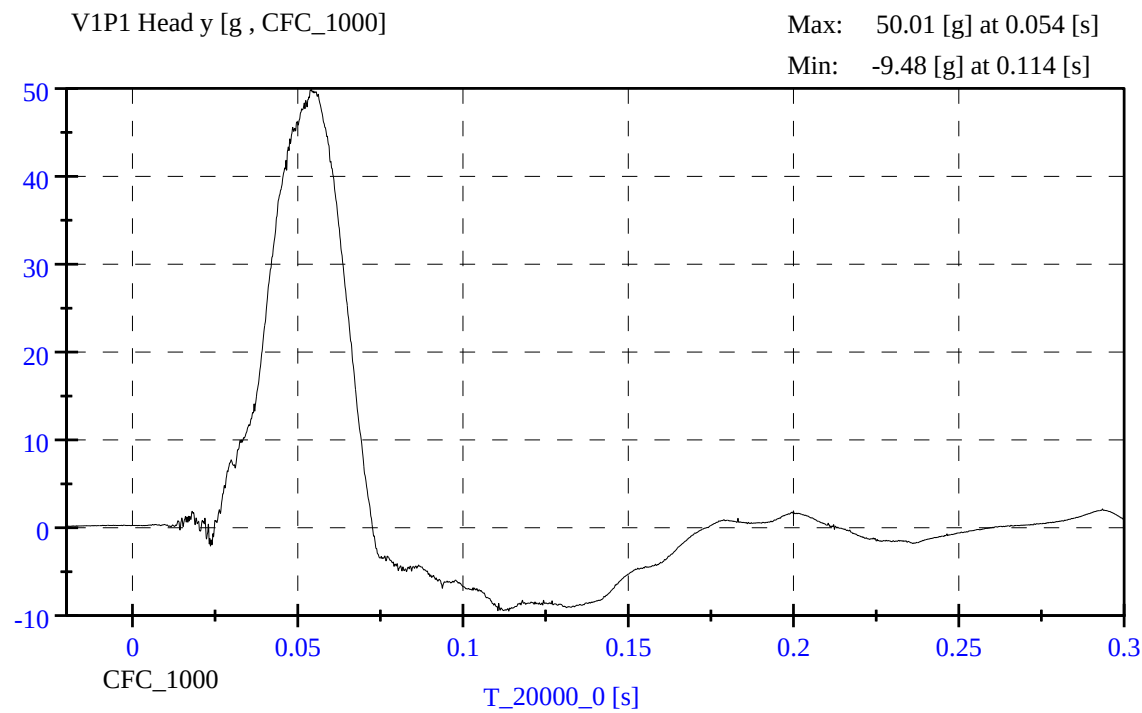
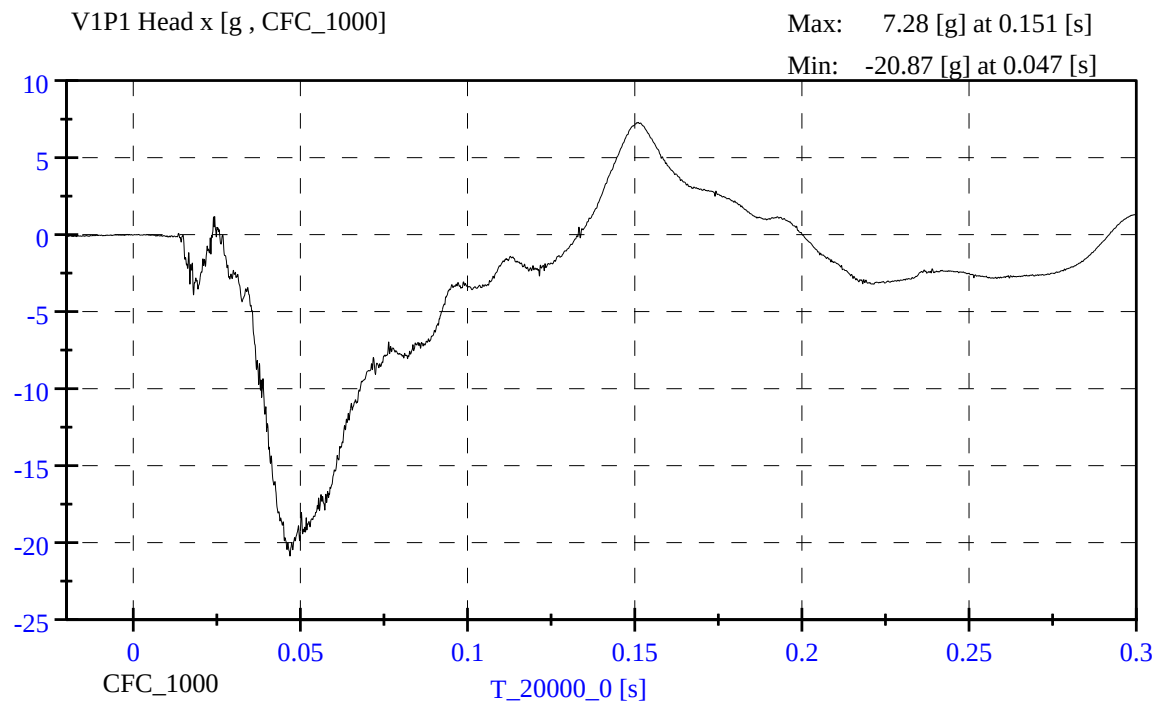
Driver Head Acceleration (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)
Driver Shoulder Contact Switch
Driver Torso Contact Switch
Driver Pelvis Contact Switch

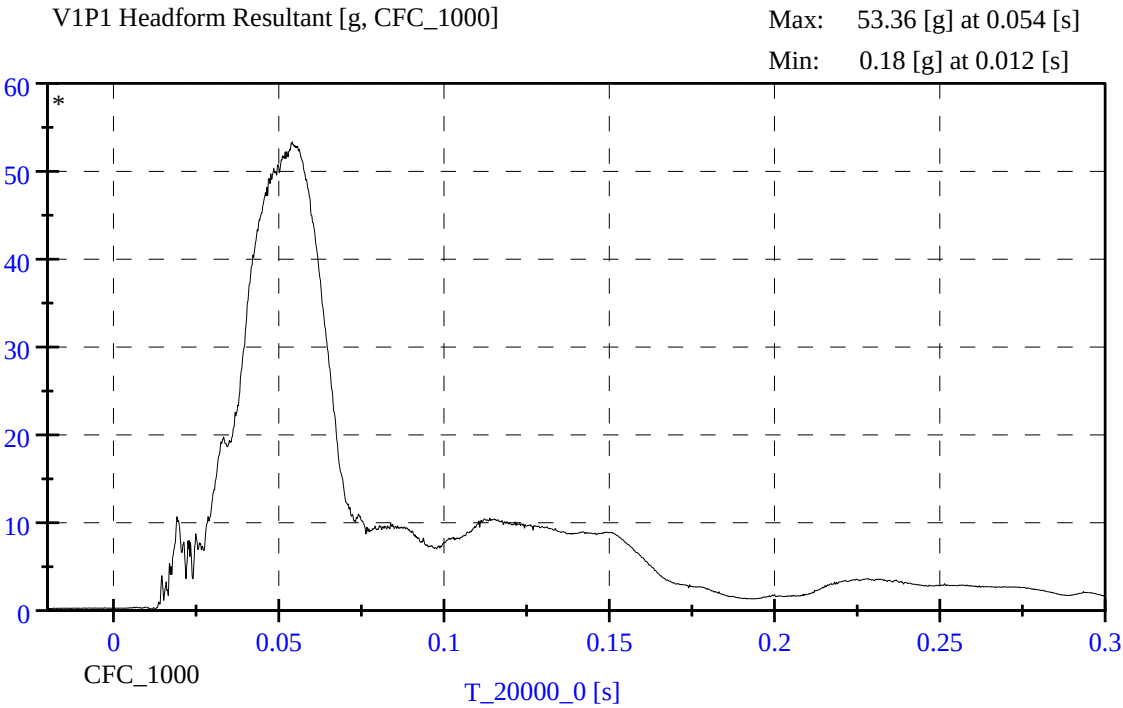
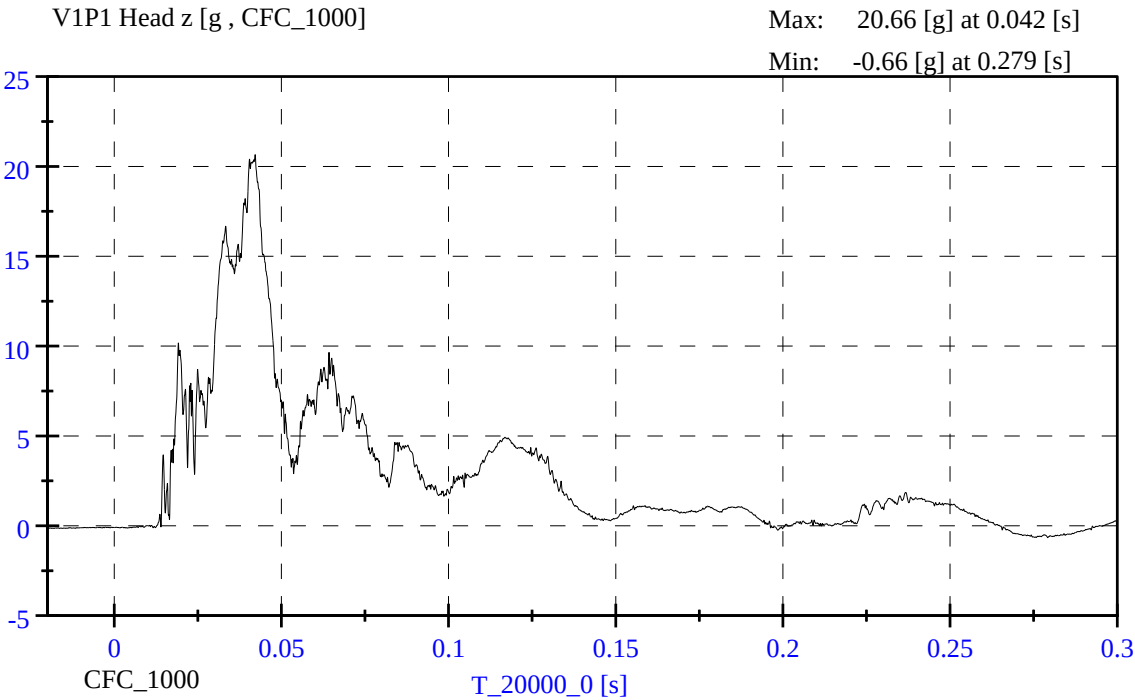
Vehicle Instrumentation Data

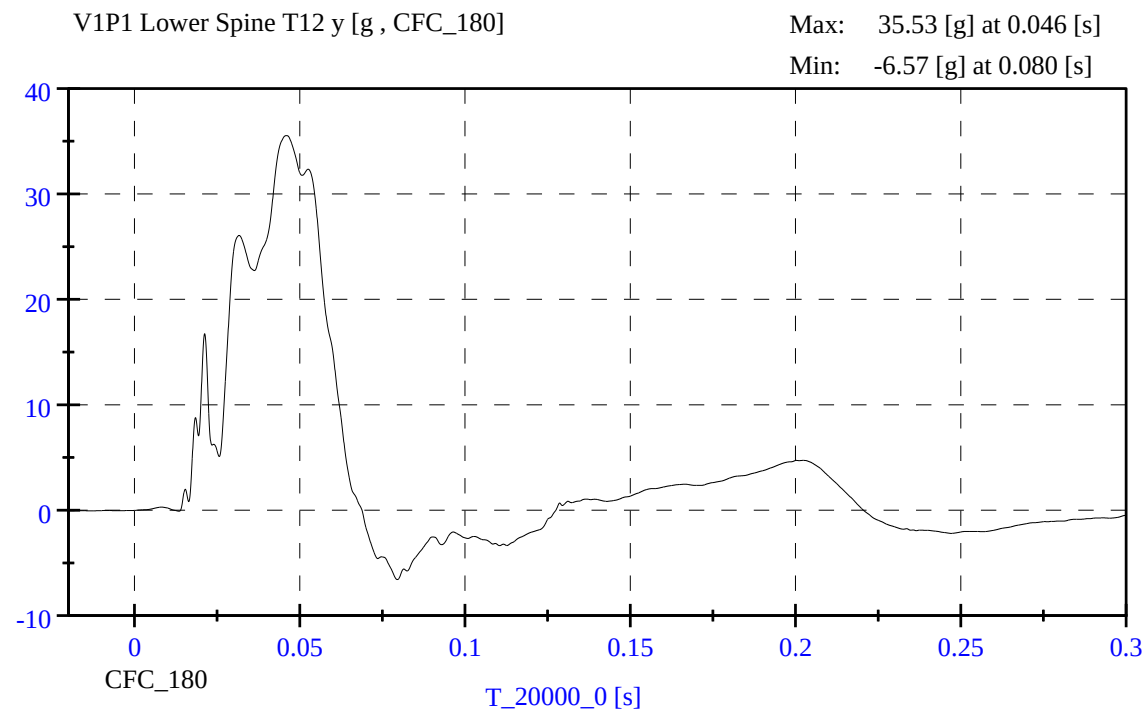
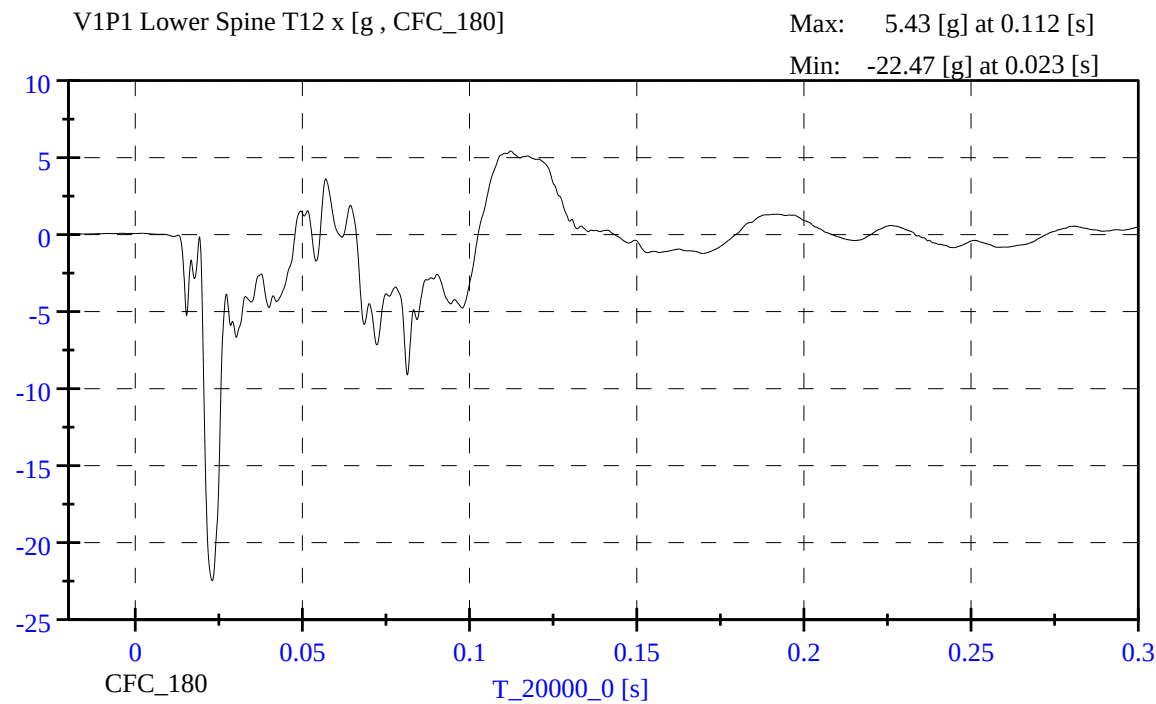
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Vehicle Center of Gravity Angular Rate About X (Roll)
Vehicle Center of Gravity Angular Rate About Y (Pitch)
Vehicle Center of Gravity Angular Rate About Z (Yaw)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy H-Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)
Driver Side Airbag Timing
Driver Side Curtain Airbag Timing

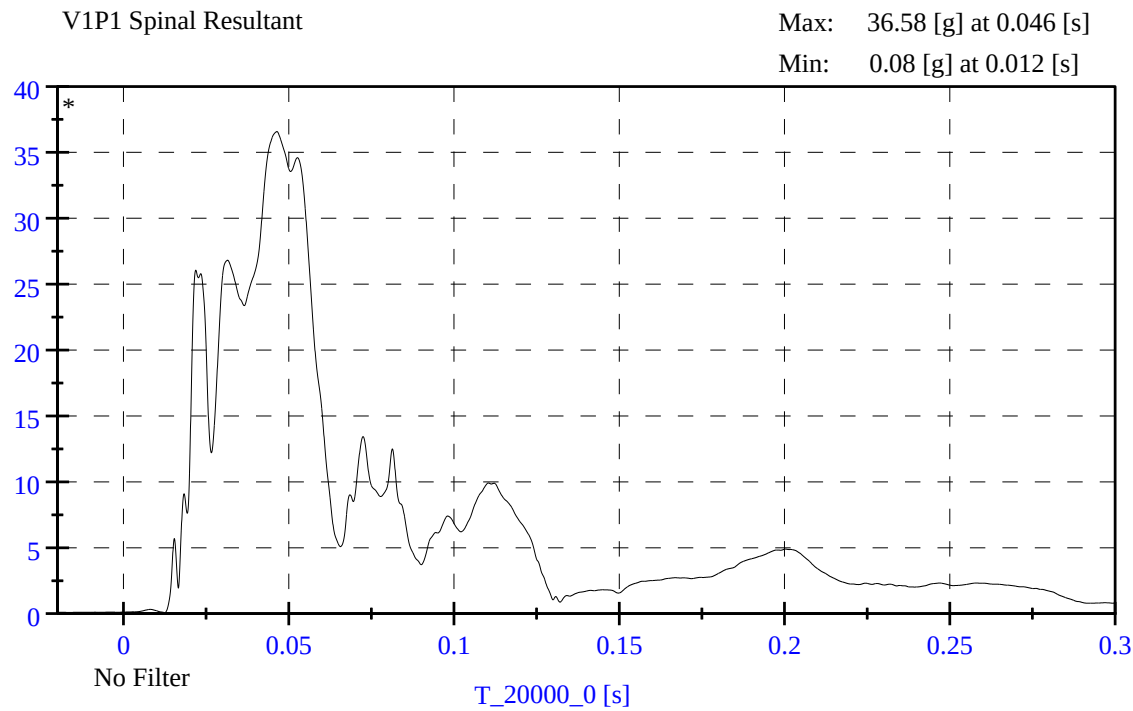
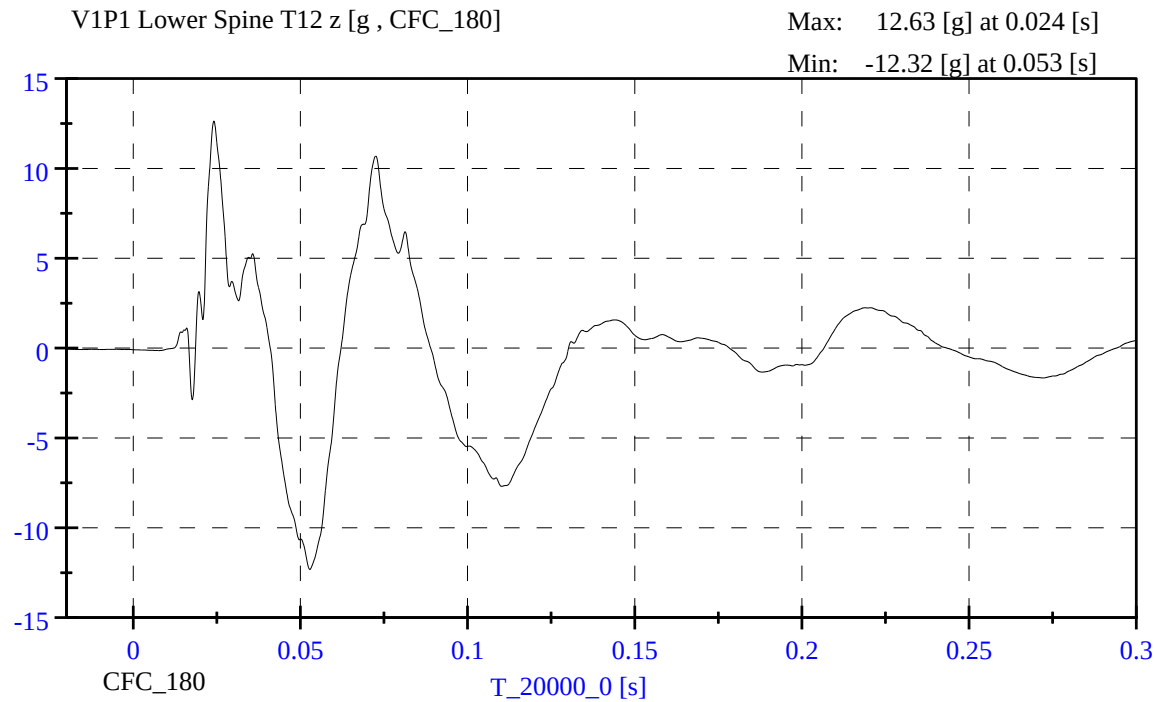
Pole Instrumentation Data

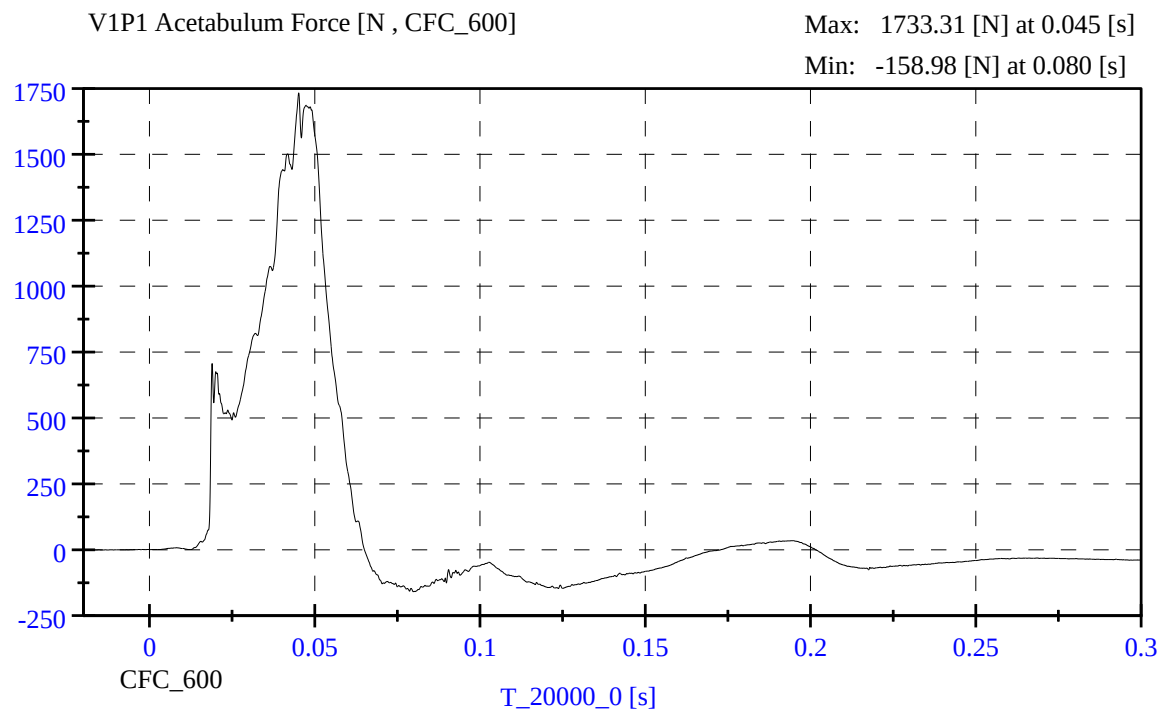
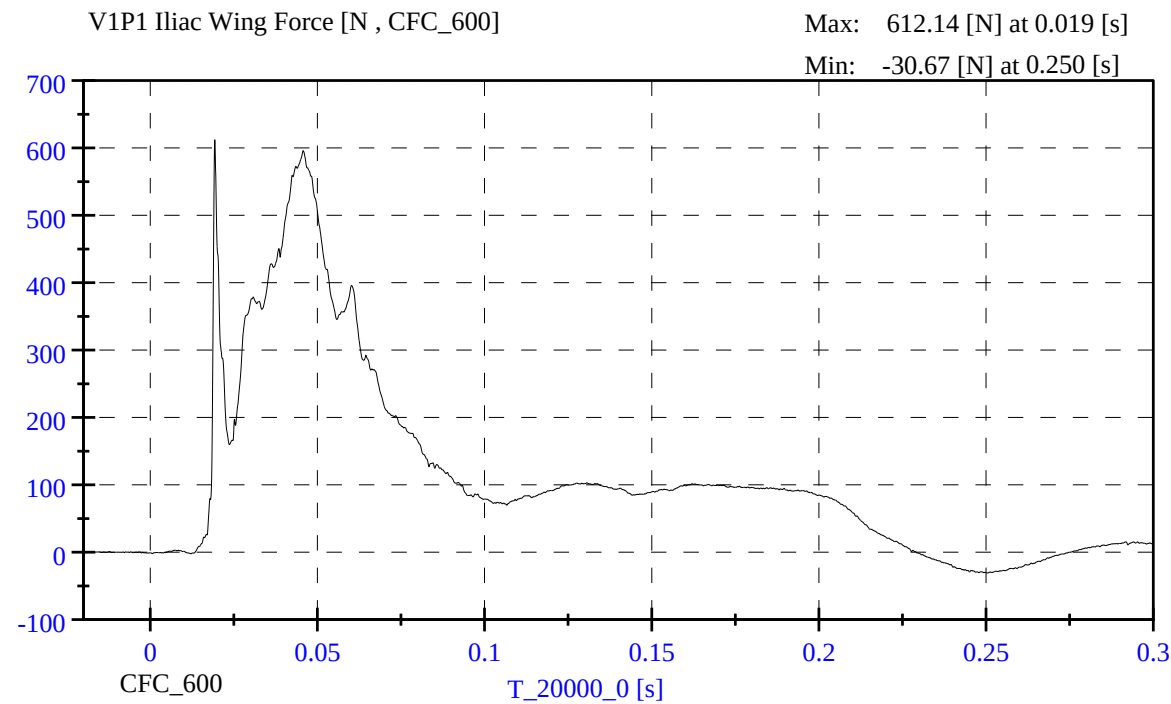
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

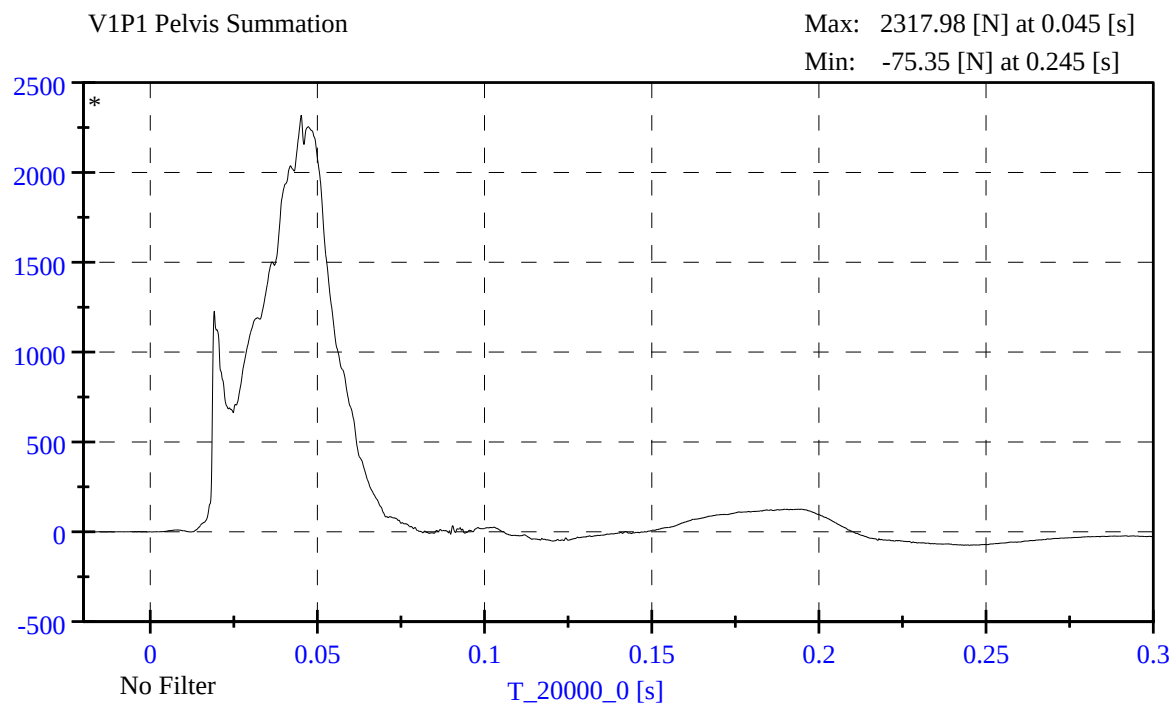












APPENDIX C
DUMMY CALIBRATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIs No: 300

CONFIGURED FOR LEFT SIDE IMPACT



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

SID-IIsD External Measurements

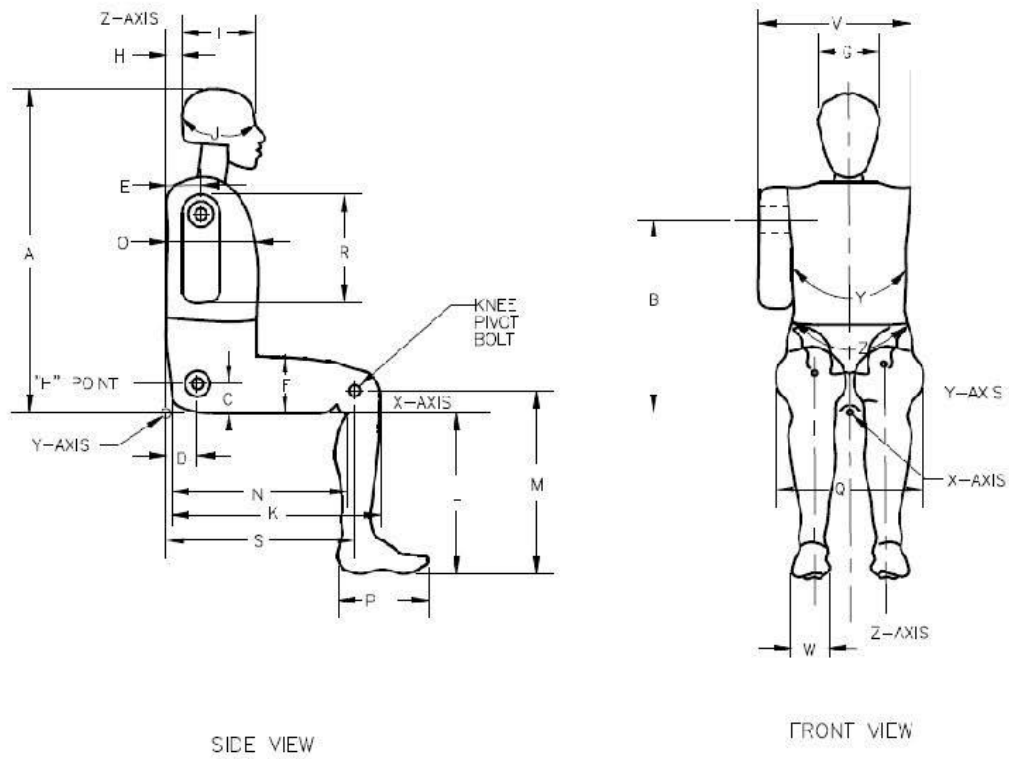
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	782	Yes
B	Shoulder Pivot Height	437.0 - 453.0	440	Yes
C	H-Point Height	79.0 - 89.0	83	Yes
D	H-Point from Seat Back	141.0 - 151.0	143	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	98	Yes
F	Thigh Clearance	119.0 - 135.0	122	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	43	Yes
I	Head Depth	178.0 - 188.0	181	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	352	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	397	Yes
N	Buttock Popliteal Length	416.0 - 442.0	433	Yes
O	Chest Depth without Jacket	195.0 - 211.0	204	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	316	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to Seat back	478.0 - 493.0	483	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	346	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	866	Yes
Z	Waist Circumference	761.0 - 791.0	777	Yes

Technician: AR

Date: 12/16/2011

SID-ILSD External Dimension Reference Diagram





www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/15/2011
Test Number:	1	Test Time:	8:35:00 AM

Component Part Number	Component Serial Number
Head Skin - 180-1002	1355

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	45 %RH P
Resultant Acceleration	115.0 -- 137.0	135.6 g P
Oscillation	0.0 -- 15.0	8.0 % P
Fore-Aft Acceleration	-15.0 -- 15.0	-3.9 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Tavale**

Test ID:

Test Time: **8:35:00 AM**

Test Date: **12/15/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P71271	8/12/2011
Endevco	7264-2000	P71281	8/12/2011
Endevco	7264-2000	P71298	8/12/2011

Test ID:

Test Time: **8:35:00 AM**

Test Date: **12/15/2011**

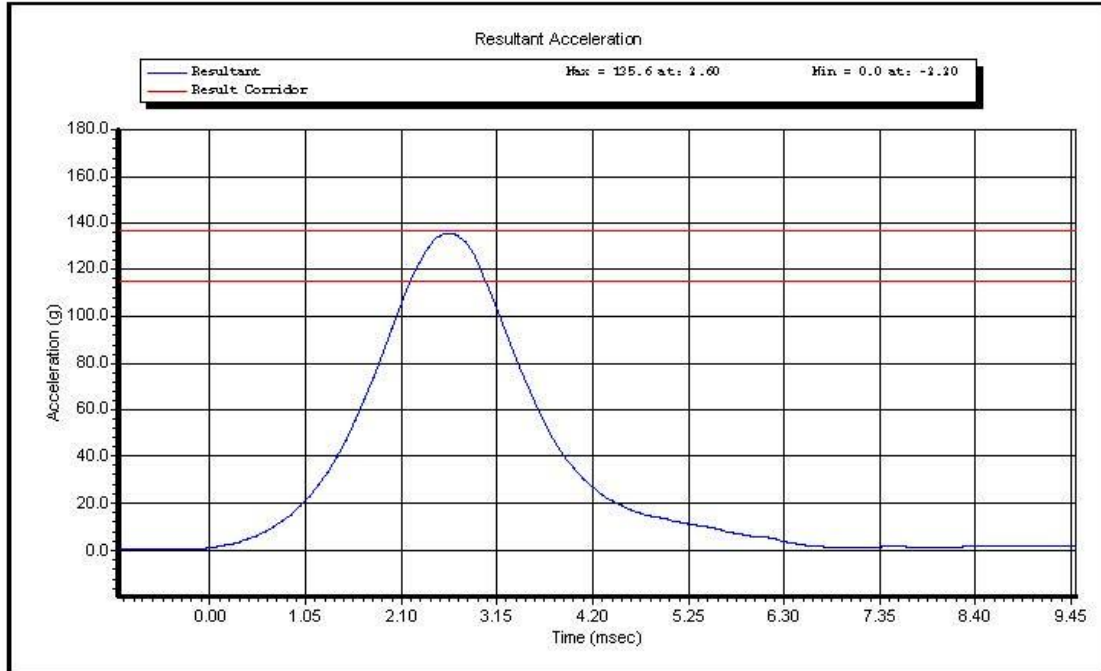


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/15/2011
Test Number:	1	Test Time:	8:35:00 AM



Test ID:

Test Time: 8:35:00 AM

Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

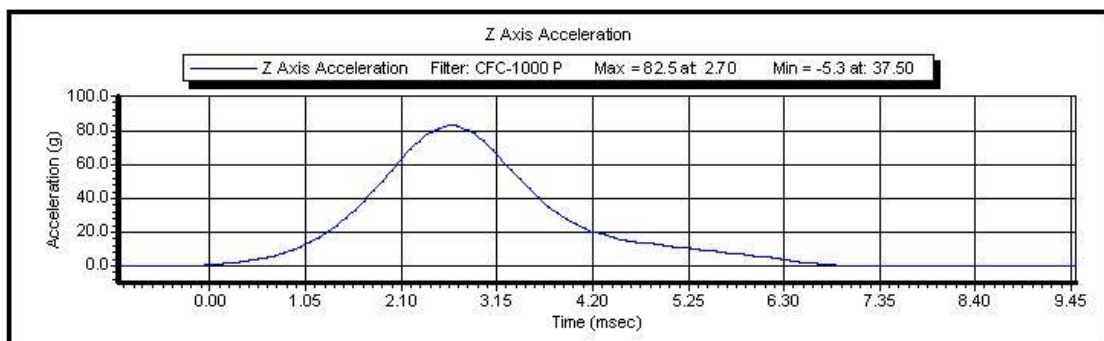
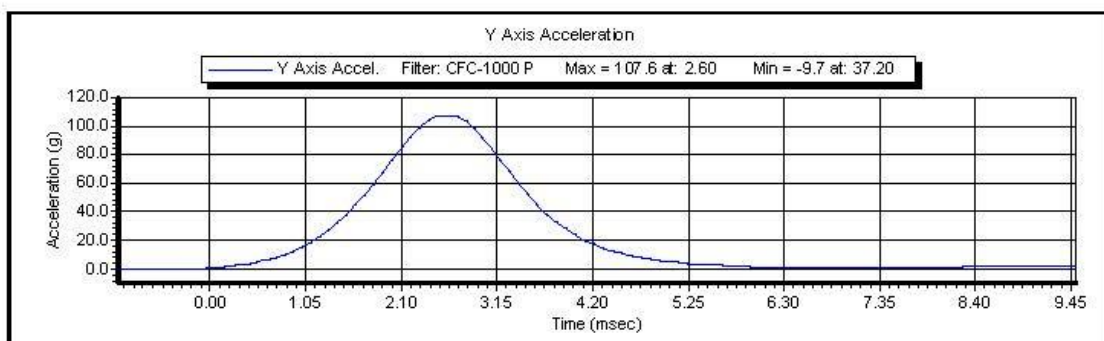
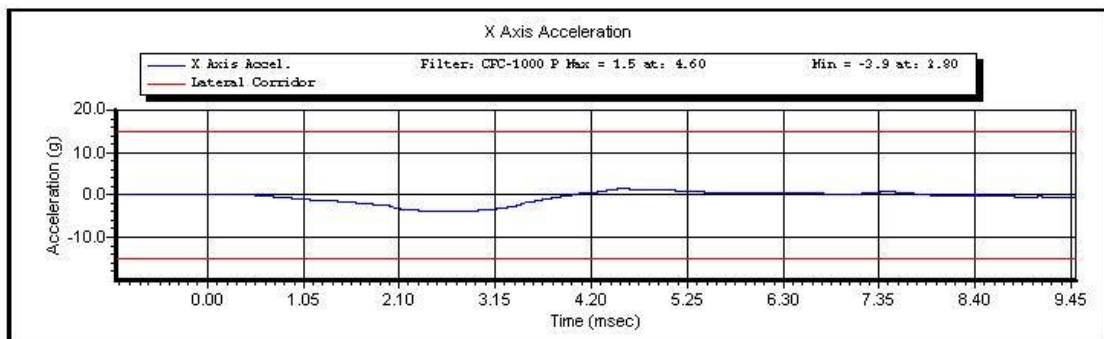
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 8:35:00 AM

Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/15/2011
Test Number:	1	Test Time:	4:20:26 PM

Component Part Number	Component Serial Number
Neck - 180-2000	787

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	46 %RH P
Velocity	5.51 -- 5.63	5.58 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.40 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.53 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.74 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.60 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.80 m/s P
Max D Plane Rotation	71.0 -- 81.0	73.6 degrees P
Time at Max Rotation	50.0 -- 70.0	61.1 ms P
Moment about OC	-44.0 -- -36.0	-41.7 Nm P
Moment Decay to Zero	102.0 -- 126.0	113.6 ms P

All test parameters are within specifications

Technician: S. Zito
Supervisor: D. Travale

Test ID:

Test Time: **4:20:26 PM**

Test Date: **12/15/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	C16510	10/3/2011
Denton	1716A	LC-1591 Fy	6/20/2011
Denton	1716A	LC-1591 Mx	6/20/2011
DentonATD	78051-342	184	5/8/2011
DentonATD	78051-342	174	5/8/2011
DentonATD	78051-342	185	5/8/2011

Test ID:

Test Time: 4:20:26 PM

Test Date: 12/15/2011

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

2 of 2

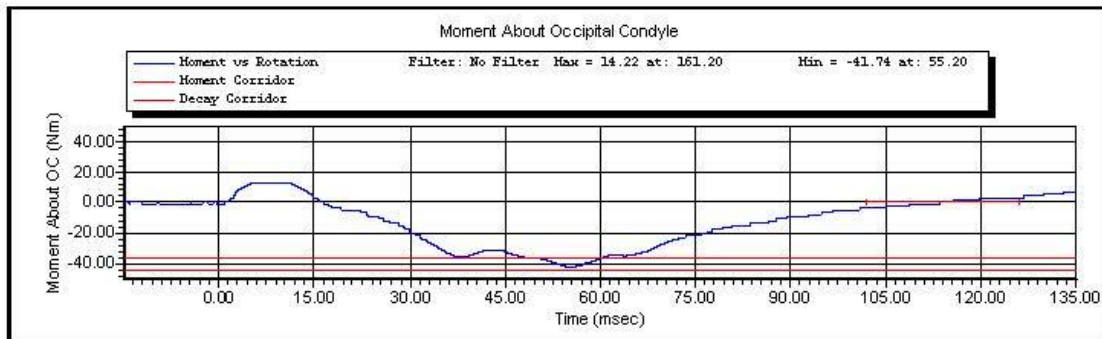
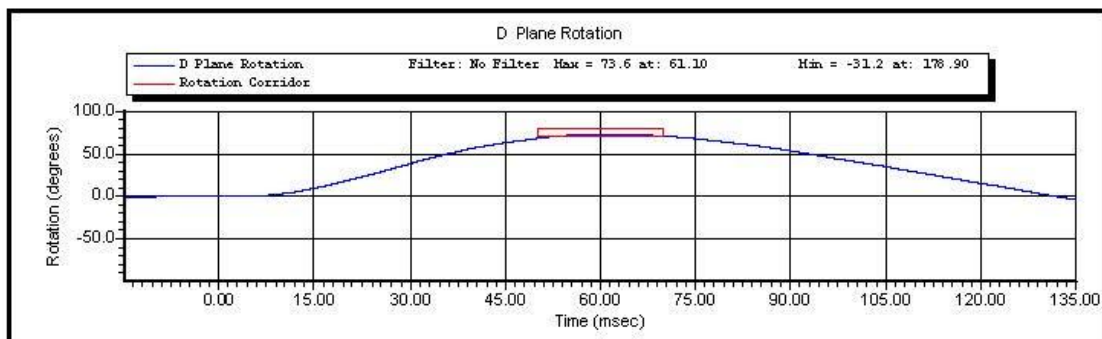


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/15/2011
Test Number:	1	Test Time:	4:20:26 PM



Test ID:

Test Time: 4:20:26 PM

Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

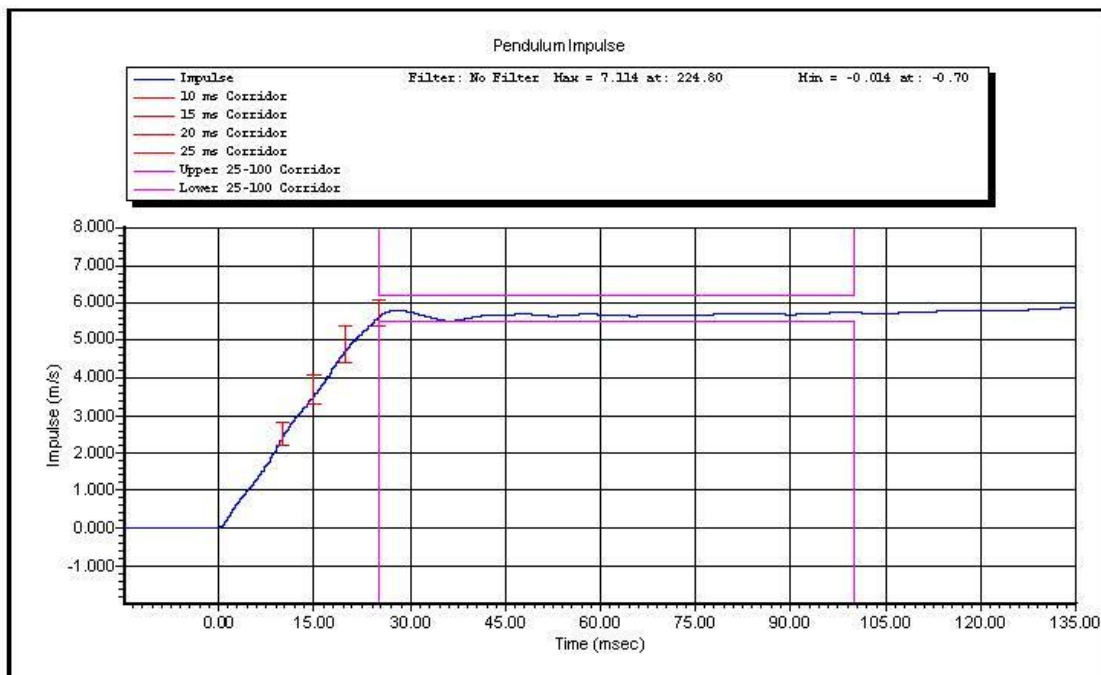
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 4:20:26 PM

Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/14/2011
Test Number:	1	Test Time:	2:41:02 PM

Component Part Number	Component Serial Number
-----------------------	-------------------------

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.20 deg C P
Humidity	10.0 -- 70.0	27.0 %RH P
Velocity	4.20 -- 4.40	4.27 m/s P
Probe Acceleration	13.0 -- 18.0	17.1 g P
Shoulder Deflection	28.0 -- 37.0	28.1 mm P
T1 Acceleration	17.0 -- 22.0	21.3 g P

All test parameters are within specifications

Technician: S. Zito

Supervisor: D. Travale

Test ID:

Test Time: **2:41:02 PM**

Test Date: **12/14/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7264-2000	P66927	12/10/2011
Servo	180-3885	DS-1063	10/31/2011
Endevco	7264-2000	P58806	11/3/2011

Test ID:

Test Time: 2:41:02 PM

Test Date: 12/14/2011

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

2 of 2

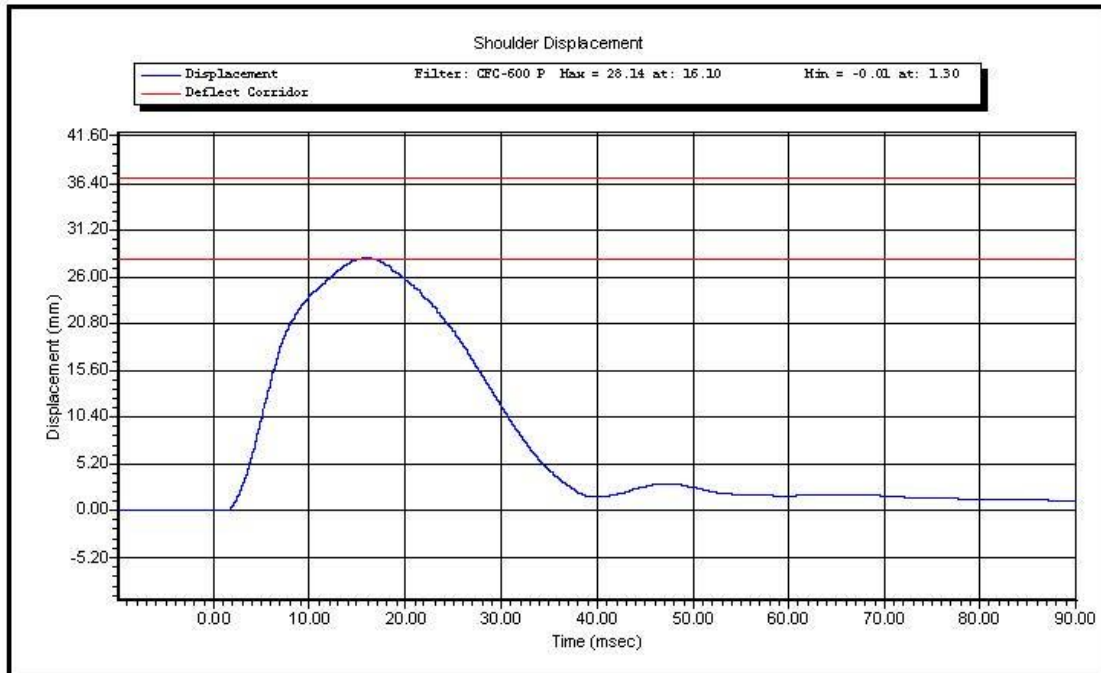


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/14/2011
Test Number:	1	Test Time:	2:41:02 PM



Test ID:

Test Time: 2:41:02 PM

Test Date: 12/14/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

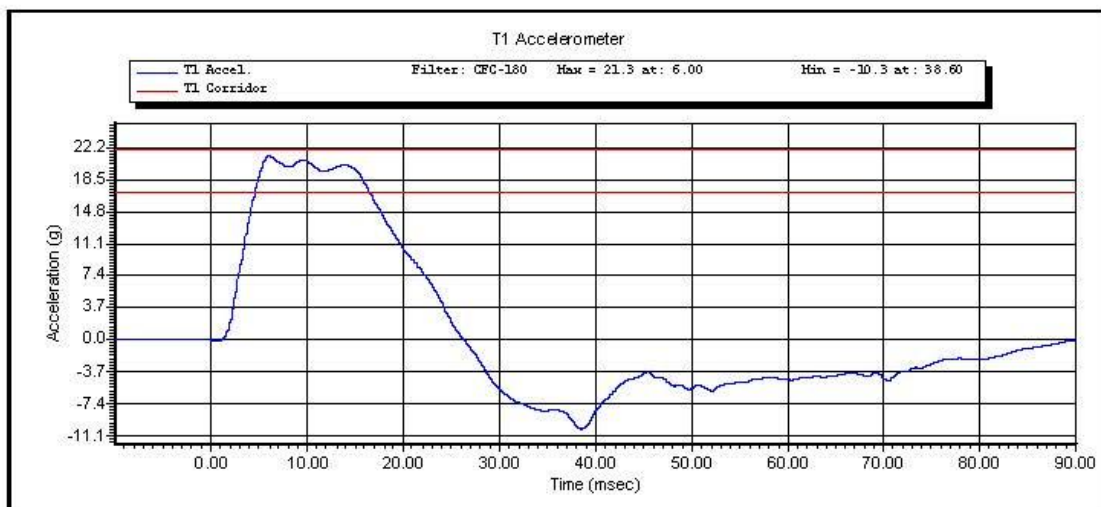
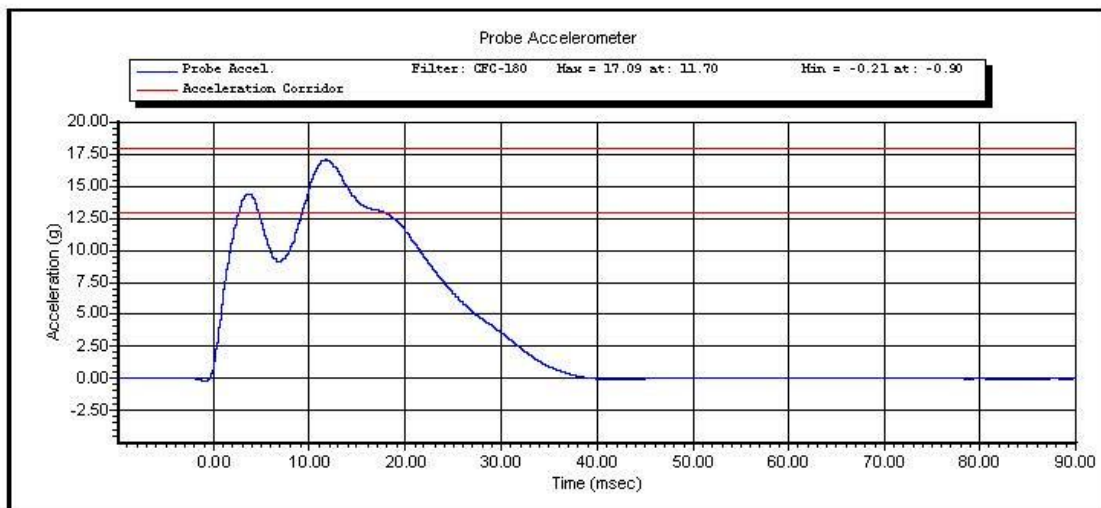
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 2:41:02 PM

Test Date: 12/14/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/16/2011
Test Number:	1	Test Time:	2:20:59 PM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3 180-3362	2024, 2061, 2062
Shoulder Rib 180-3355	168
Left Arm 180-6011-1	822

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.1 deg C P
Humidity	10 -- 70	26 %RH P
Velocity	6.60 -- 6.80	6.76 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	35.2 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	27.3 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	32.9 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	34.6 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	41.2 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	34.7 g P
Shoulder Deflection	31.0 -- 40.0	34.3 mm P

All test parameters are within specifications

Technician: **A. Rudniski**
Supervisor: **D. Travale**

Test ID:

Test Time: **2:20:59 PM**

Test Date: **12/16/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Servo	180-3885	DS-1121	10/29/2011
Servo	180-3885	DS-1151	10/31/2011
Servo	180-3885	DS-1156	10/31/2011
Endevco	7264-2000	P58806	11/3/2011
Endevco	7264-2000	P64147	11/1/2011
Servo	180-3885	DS-1063	10/31/2011

Test ID:

Test Time: 2:20:59 PM

Test Date: 12/16/2011

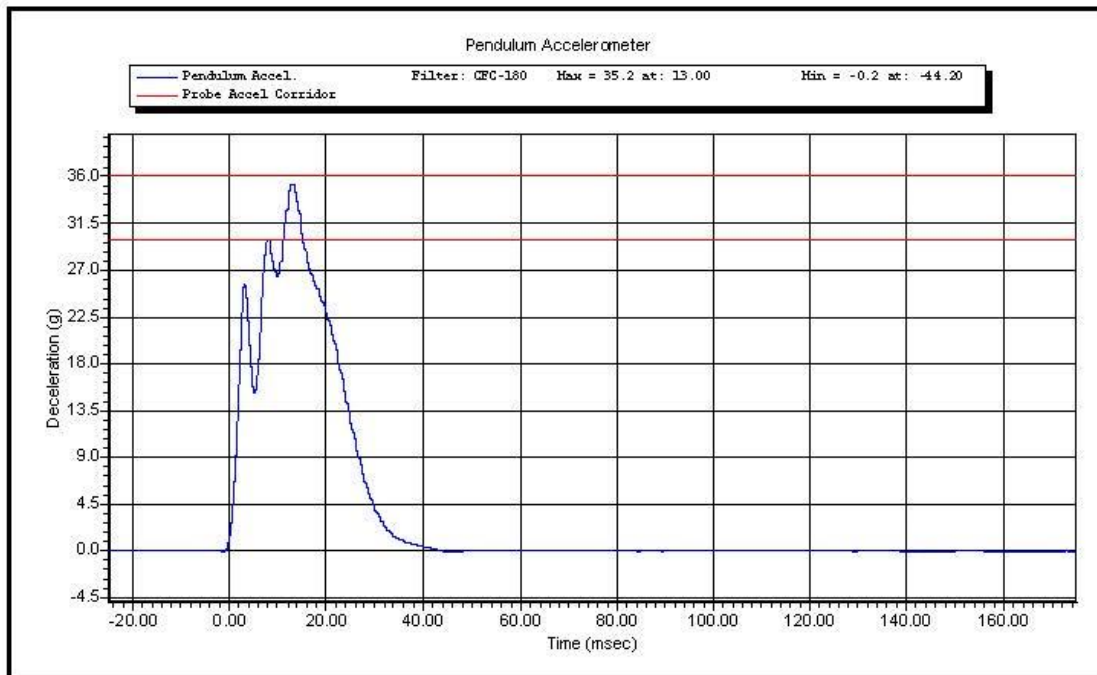


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/16/2011
Test Number:	1	Test Time:	2:20:59 PM



Test ID:

Test Time: 2:20:59 PM

Test Date: 12/16/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

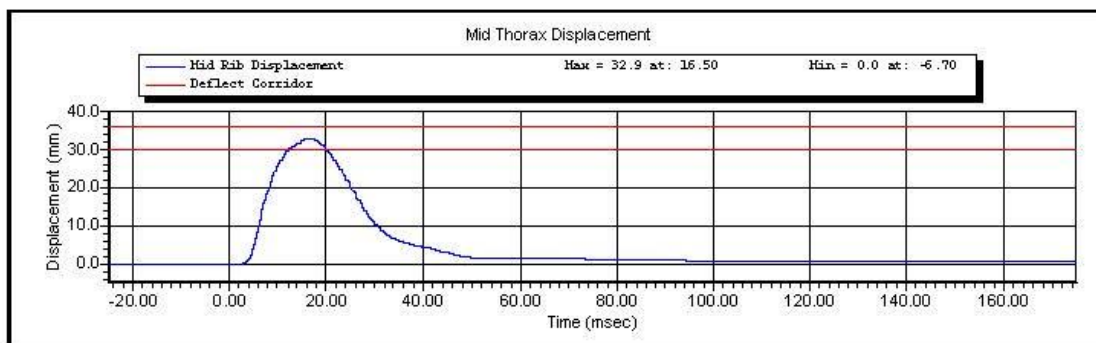
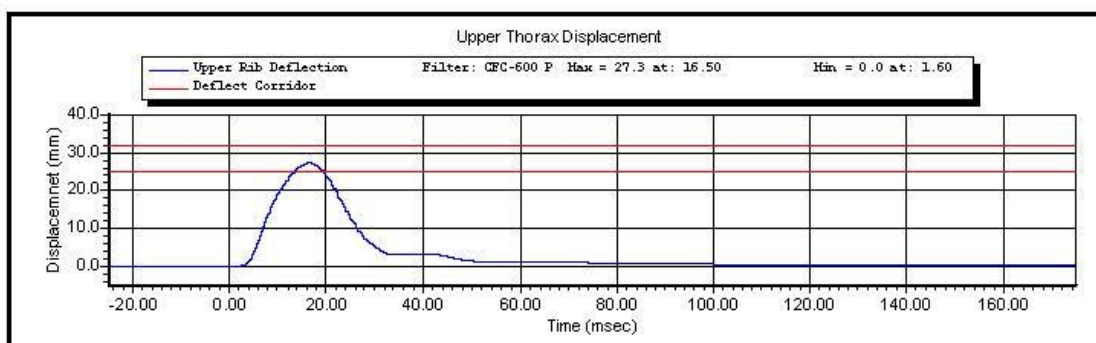
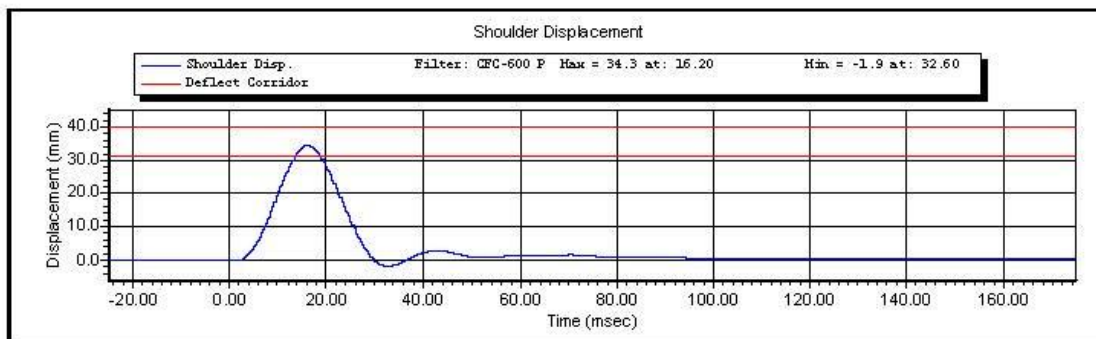
1 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 2:20:59 PM

Test Date: 12/16/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

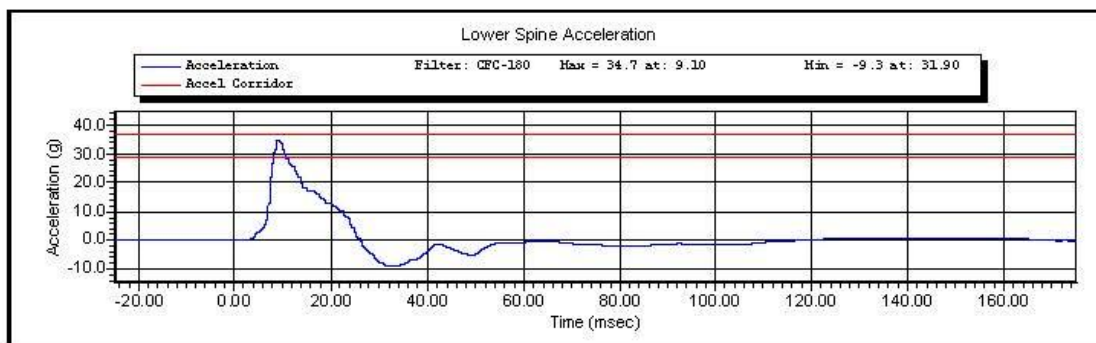
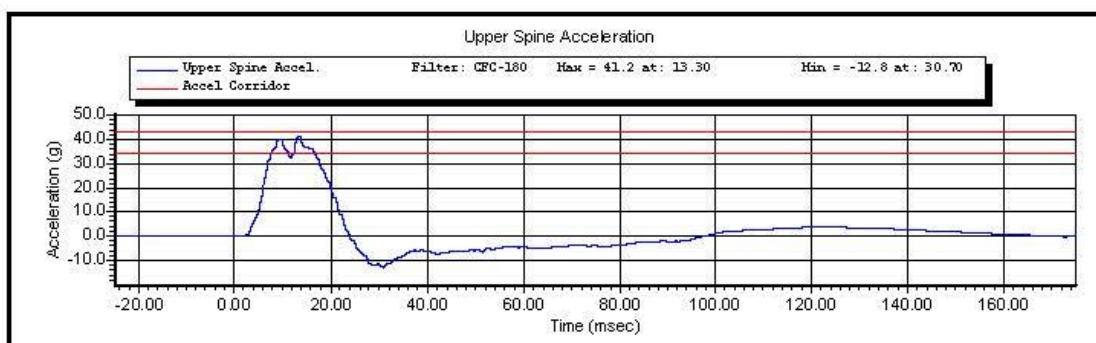
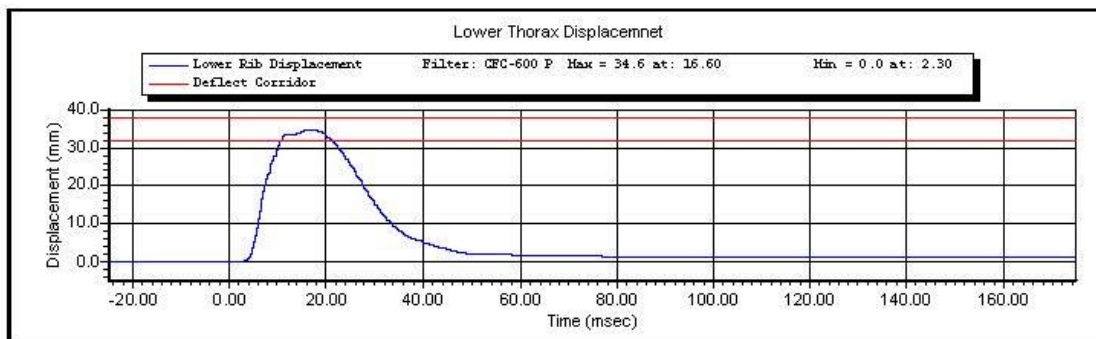
2 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 2:20:59 PM

Test Date: 12/16/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

3 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/15/2011
Test Number:	2	Test Time:	11:23:36 AM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3	2024, 2061, 2062

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	46 %RH P
Velocity	4.20 -- 4.40	4.36 m/s P
Probe Acceleration	14.0 -- 18.0	16.6 g P
Upper Thorax Rib Deflection	32.0 -- 40.0	33.8 mm P
Mid Thorax Rib Deflection	39.0 -- 45.0	41.9 mm P
Lower Thorax Rib Deflection	35.0 -- 43.0	40.2 mm P
Upper Spine Acceleration T1	13.0 -- 17.0	15.8 g P
Lower Spine Acceleration T12	7.0 -- 11.0	10.3 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test ID:

Test Time: **11:23:36 AM**

Test Date: **12/15/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Servo	180-3885	DS-1121	10/29/2011
Servo	180-3885	DS-1151	10/31/2011
Servo	180-3885	DS-1156	10/31/2011
Endevco	7264-2000	P58806	11/3/2011
Endevco	7264-2000	P64147	11/1/2011

Test ID:

Test Time: 11:23:36 AM

Test Date: 12/15/2011

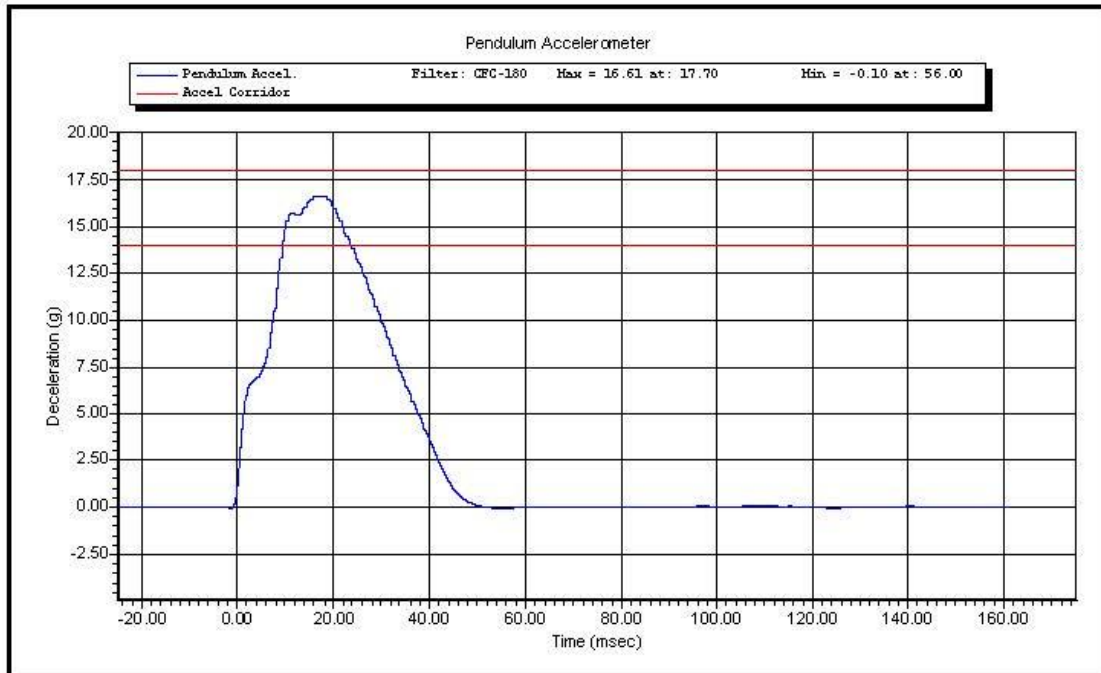


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/15/2011
Test Number:	2	Test Time:	11:23:36 AM



Test ID:

Test Time: 11:23:36 AM

Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

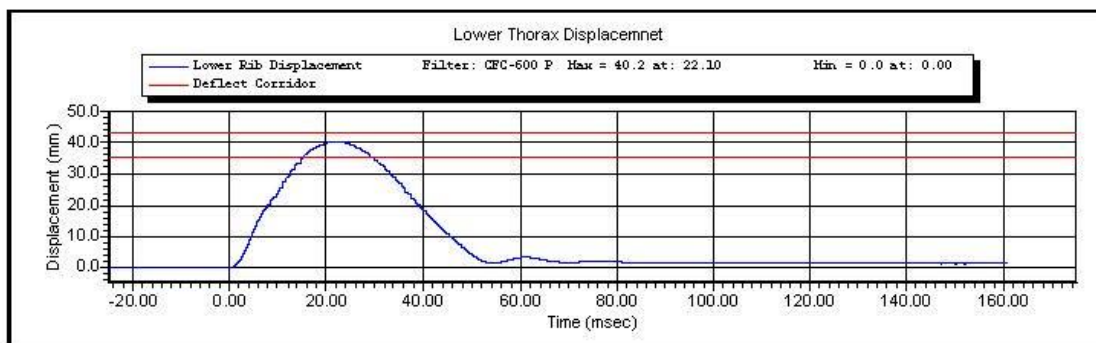
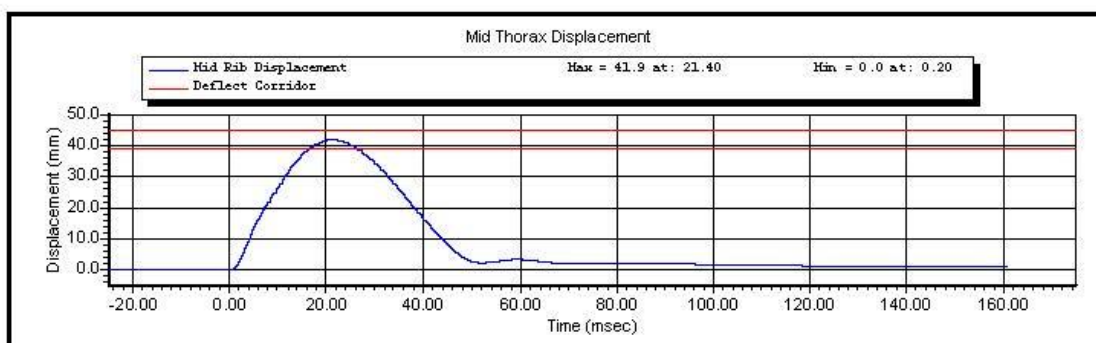
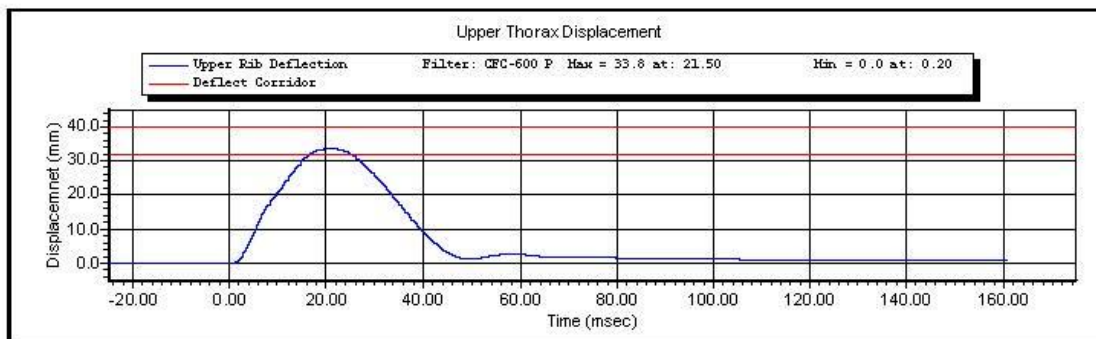
1 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 11:23:36 AM

Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

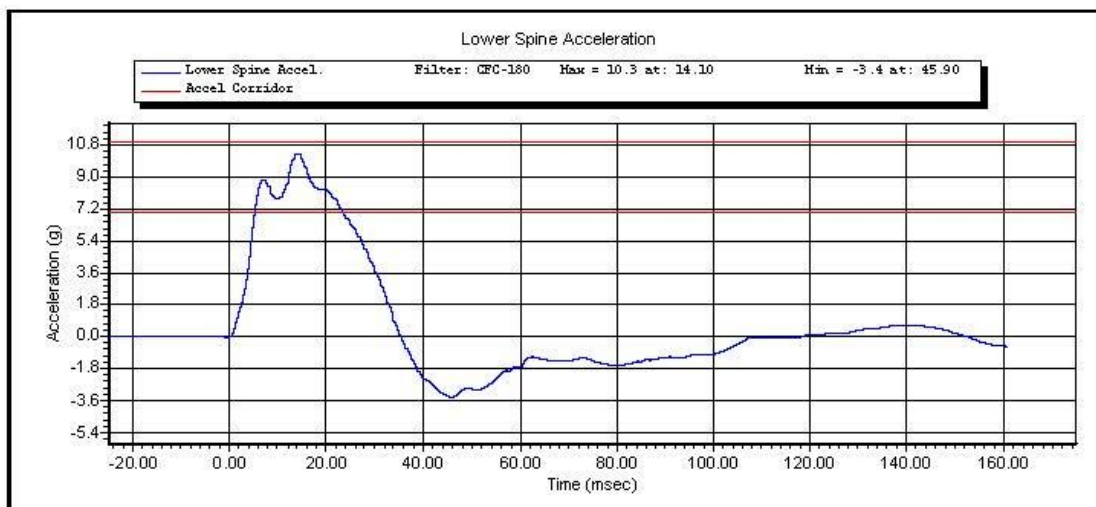
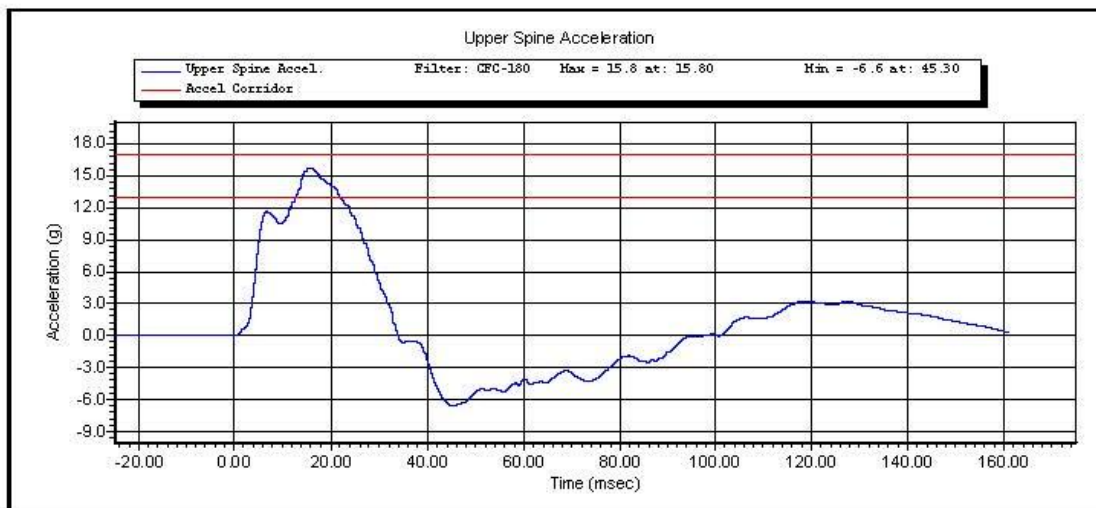
2 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 11:23:36 AM

Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

3 of 3

VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/15/2011
Test Number:	1	Test Time:	10:19:49 AM

Component Part Number	Component Serial Number
Abdomen Ribs 4,5	2024, 2061

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	46 %RH P
Velocity	4.20 -- 4.40	4.38 m/s P
Probe Acceleration	12.0 -- 16.0	15.6 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	40.6 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	37.7 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	12.5 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test ID:

Test Time: **10:19:49 AM**

Test Date: **12/15/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Servo	180-3885	DS-1162	11/3/2011
Servo	180-3885	DS-1622	11/3/2011
Endevco	7264-2000	P64147	11/1/2011

Test ID:

Test Time: 10:19:49 AM

Test Date: 12/15/2011

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

2 of 2

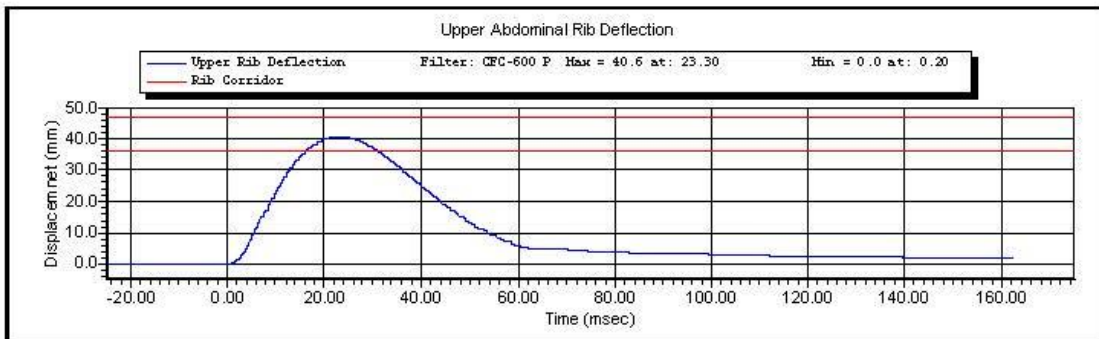
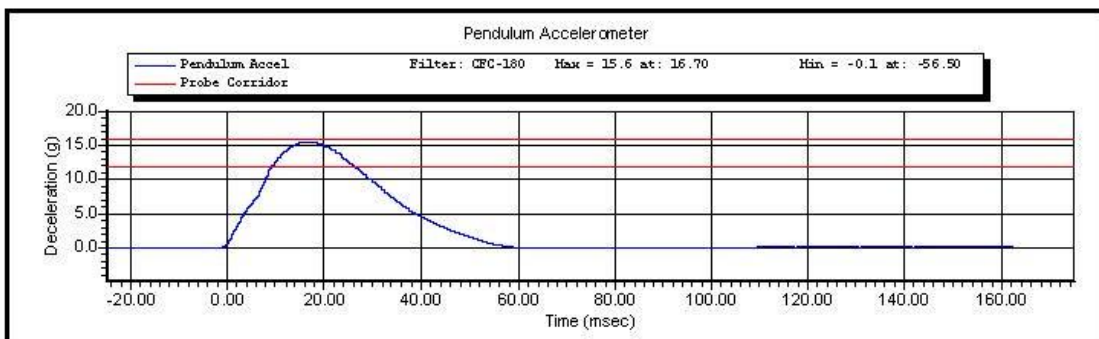


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/15/2011
Test Number:	1	Test Time:	10:19:49 AM



Test ID:

Test Time: 10:19:49 AM

Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

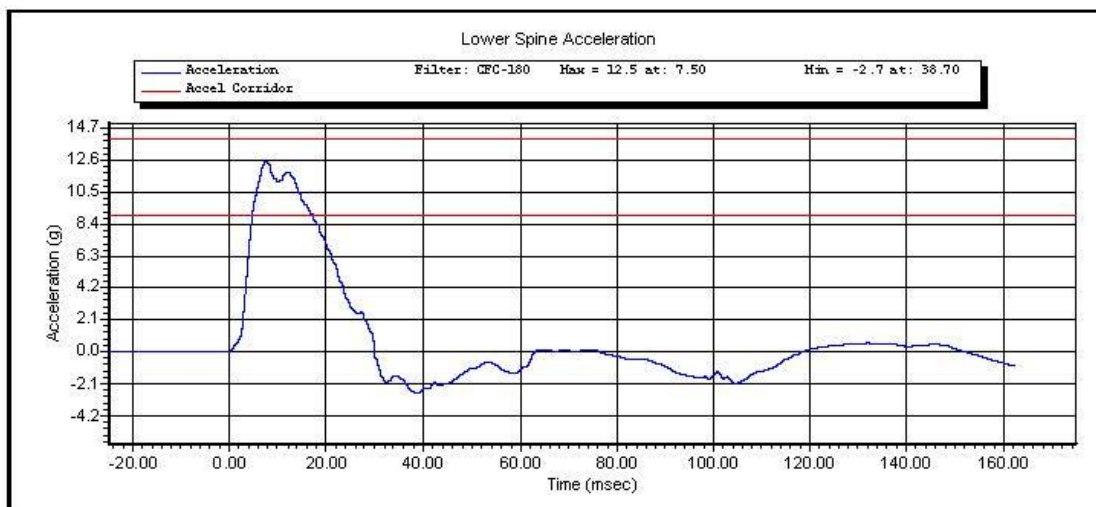
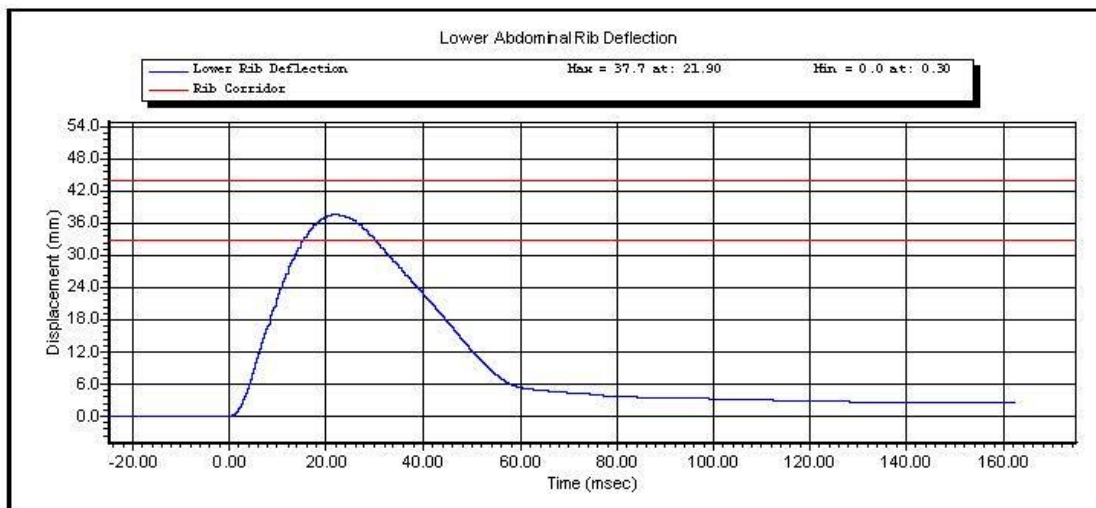
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 10:19:49 AM

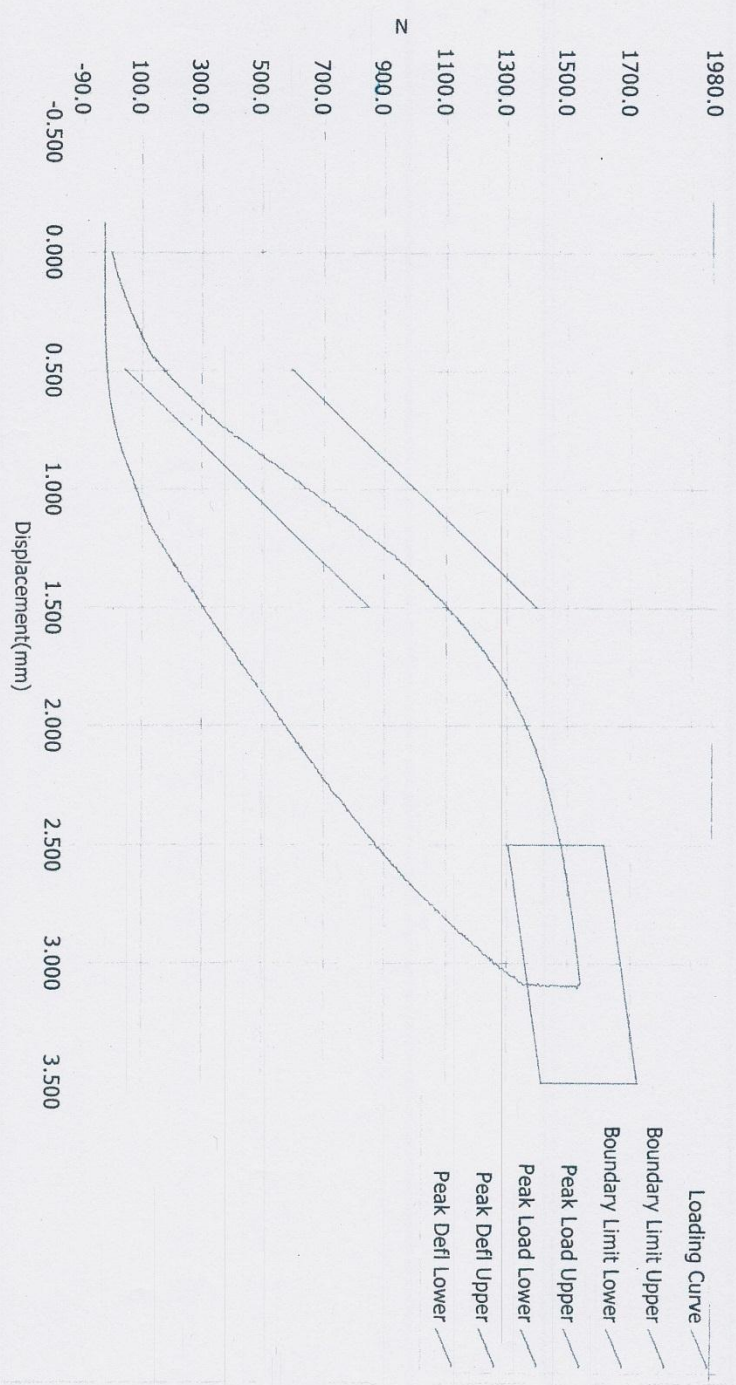
Test Date: 12/15/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2

300 Cert test 12/16/11

Resultant Data - SIDIIS Plug Compression

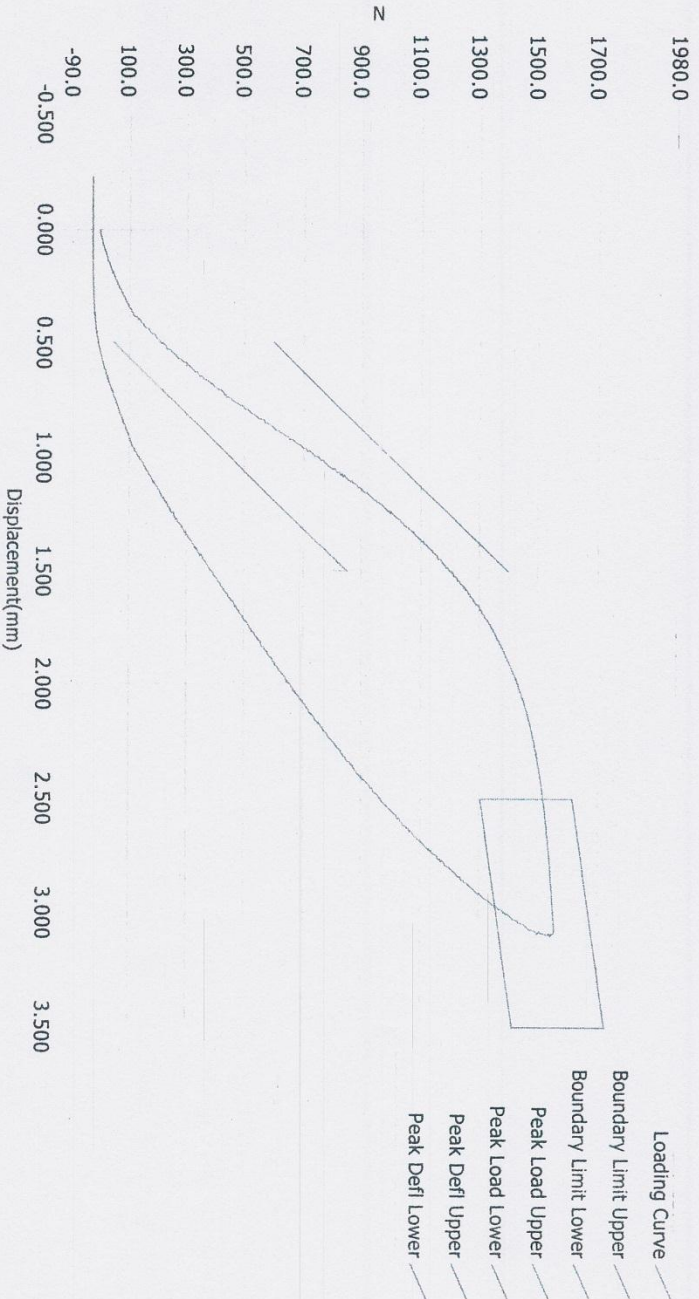


ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
Cert ID	46459	9/22/2011	8:30 PM
ATD Serial Number	ATD Type		
N/A	SIDIIS		

Current Date : 9/22/2011 Current Time : 20:31:09

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
45953	9/20/2011	8:13 PM	
Cert ID	ATD Serial Number	ATD Type	
N/A	SIDIIs		
Current Date : 9/20/2011		Current Time : 20:13:36	



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact Redundant Ac	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/16/2011
Test Number:	2	Test Time:	11:54:40 AM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	D13396
Humanetics Cert Plug	46459
Humanetics Test Plug	45953

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	26 %RH P
Velocity	6.60 -- 6.80	6.61 m/s P
Peak Probe Acceleration	38.0 -- 47.0	45.8 g P
Peak Pelvis Acceleration	34.0 -- 42.0	40.9 g P
Peak Acetabulum Force	3.60 -- 4.30	3.87 kN P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **11:54:40 AM**

Test Date: **12/16/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Endevco	7264-2000	P15526	10/31/2011
DentonATD	3249J	LC-275a	11/3/2011
Endevco	7264-2000	P13323	12/15/2010

Test ID:

Test Time: 11:54:40 AM

Test Date: 12/16/2011

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

2 of 2

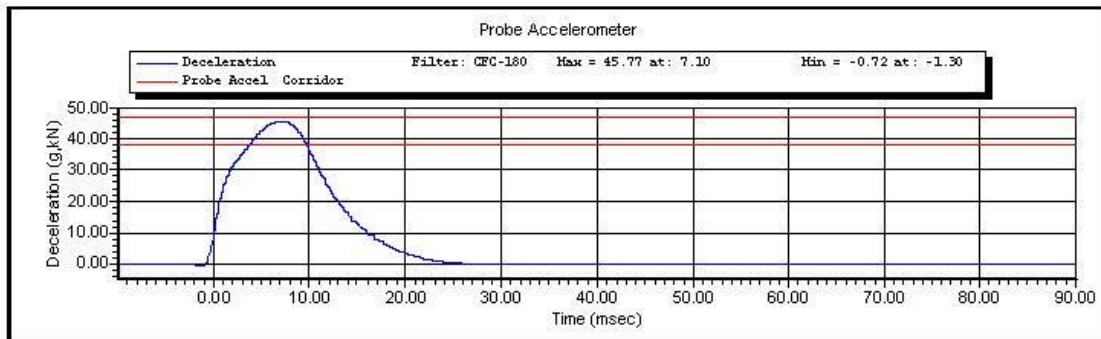
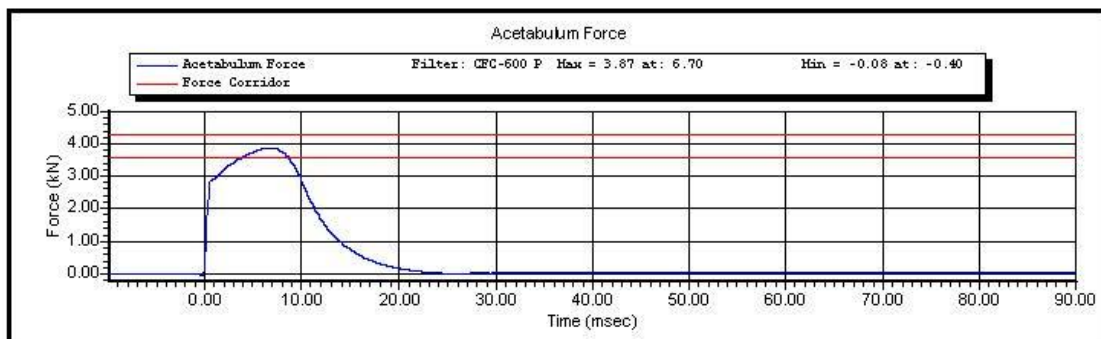


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact Redundant Ac	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/16/2011
Test Number:	2	Test Time:	11:54:40 AM



Test ID:

Test Time: **11:54:40 AM**

Test Date: **12/16/2011**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

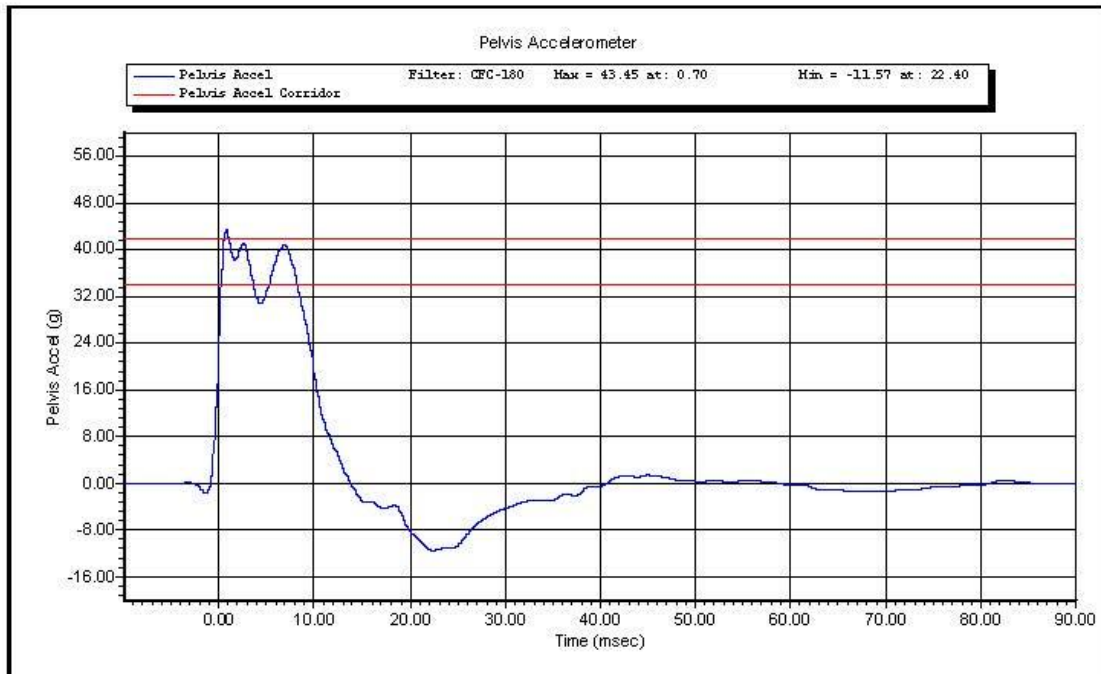
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 11:54:40 AM

Test Date: 12/16/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/16/2011
Test Number:	1	Test Time:	2:58:23 PM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	D13396

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.1 deg C P
Humidity	10 -- 70	26 %RH P
Velocity	4.20 -- 4.40	4.32 m/s P
Peak Probe Acceleration	36.0 -- 45.0	41.7 g P
Peak Pelvis Acceleration	28.0 -- 39.0	32.5 g P
Peak Iliac Force	4.10 -- 5.10	4.57 kN P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **2:58:23 PM**

Test Date: **12/16/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Endevco	7264-2000	P15526	10/31/2011
DentonATD	3228J	LC-279 Fy	11/3/2011

Test ID:

Test Time: 2:58:23 PM

Test Date: 12/16/2011

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

2 of 2

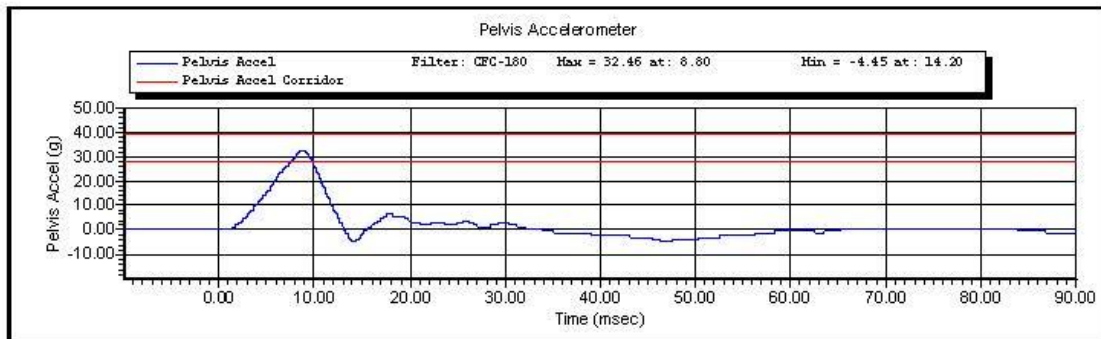
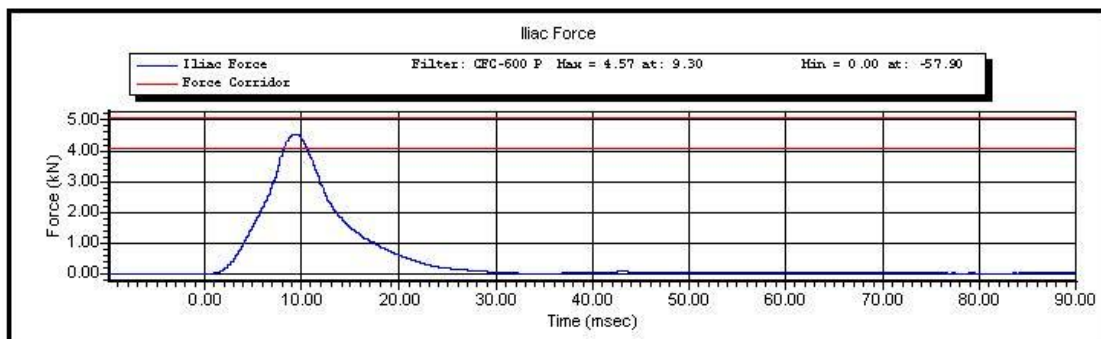


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/16/2011
Test Number:	1	Test Time:	2:58:23 PM



Test ID:

Test Time: **2:58:23 PM**

Test Date: **12/16/2011**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

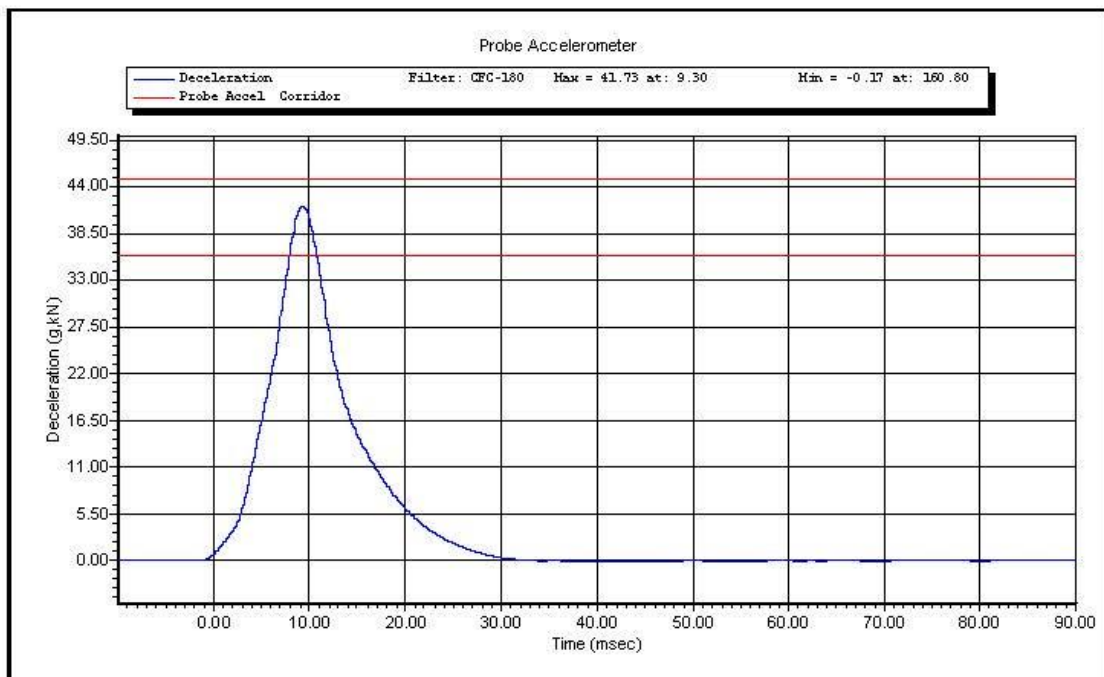
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 2:58:23 PM

Test Date: 12/16/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2

CALIBRATION TEST RESULTS

POST-TEST

SID-IIs No: 300

CONFIGURED FOR LEFT SIDE IMPACT



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

SID-IIsD External Measurements

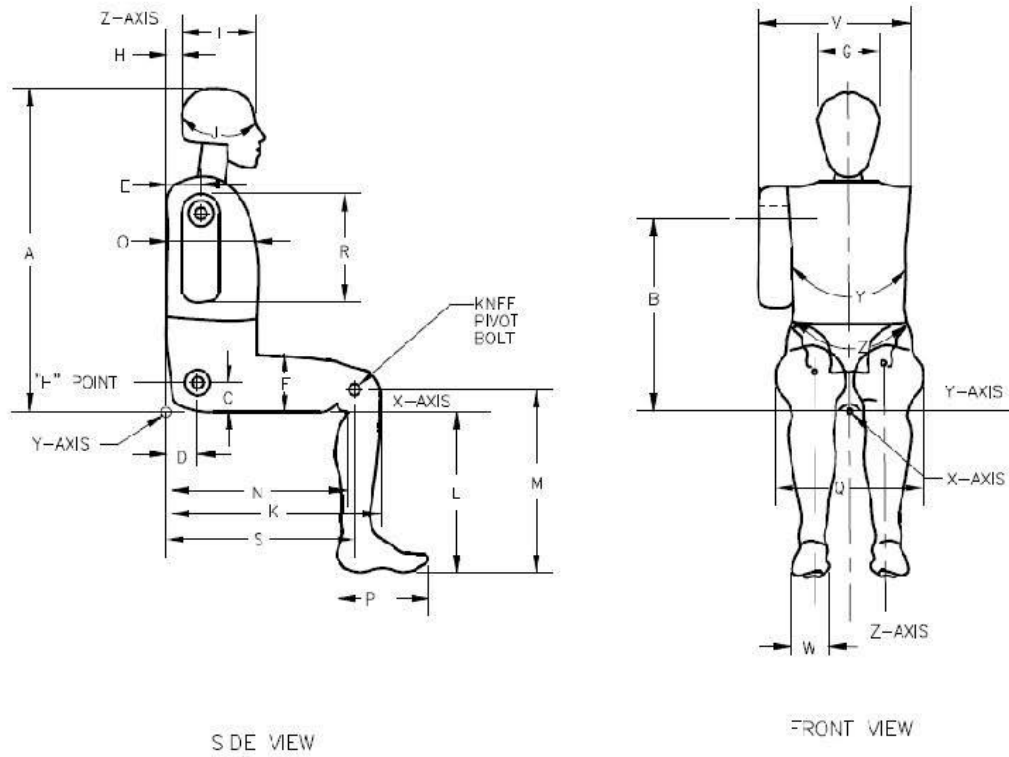
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	782	Yes
B	Shoulder Pivot Height	437.0 - 453.0	440	Yes
C	H-Point Height	79.0 - 89.0	83	Yes
D	H-Point from Seat Back	141.0 - 151.0	143	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	98	Yes
F	Thigh Clearance	119.0 - 135.0	122	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	43	Yes
I	Head Depth	178.0 - 188.0	181	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	352	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	397	Yes
N	Buttock Popliteal Length	416.0 - 442.0	433	Yes
O	Chest Depth without Jacket	195.0 - 211.0	204	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	316	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to Seat back	478.0 - 493.0	483	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	345	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	866	Yes
Z	Waist Circumference	761.0 - 791.0	776	Yes

Technician: AR

Date: 12/21/2011

SID-IIsD External Dimension Reference Diagram





www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/21/2011
Test Number:	1	Test Time:	1:54:13 PM

Component Part Number	Component Serial Number
Head Skin - 180-1002	1355

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	22.0 deg C	P
Humidity	10	--	70	41 %RH	P
Resultant Acceleration	115.0	--	137.0	129.3 g	P
Oscillation	0.0	--	15.0	6.9 %	P
Fore-Aft Acceleration	-15.0	--	15.0	-2.9 g	P

All test parameters are within specifications

Technician: S. Zito

Supervisor: D. Travale

Test ID:

Test Time: **1:54:13 PM**

Test Date: **12/21/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P71271	8/12/2011
Endevco	7264-2000	P71281	8/12/2011
Endevco	7264-2000	P71298	8/12/2011

Test ID:

Test Time: **1:54:13 PM**

Test Date: **12/21/2011**

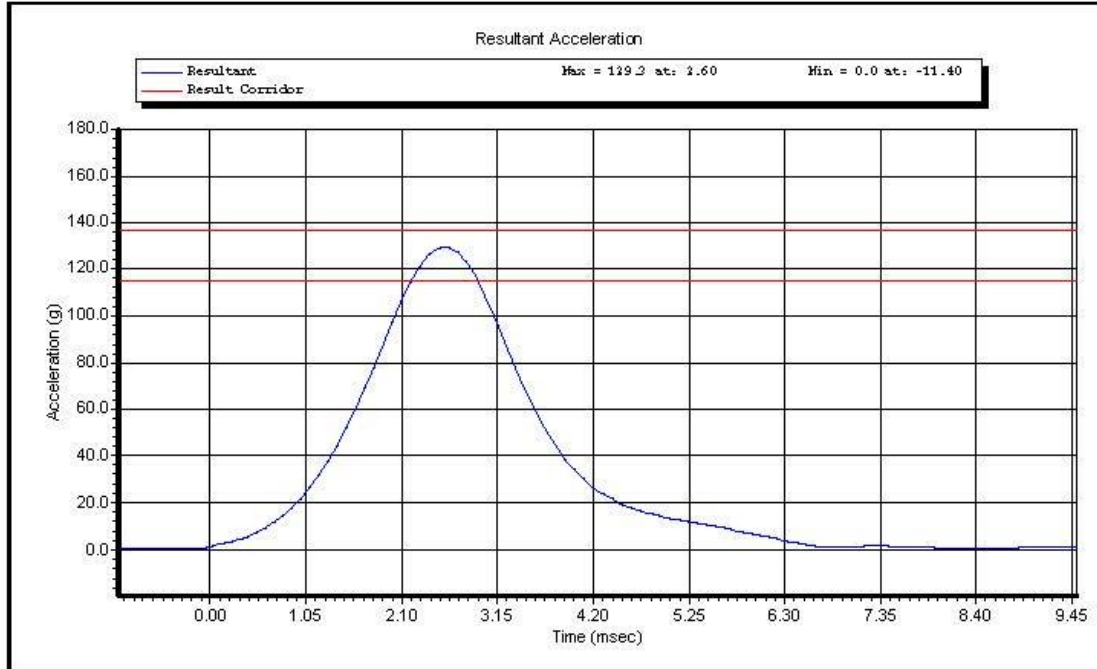


Calspan - Transportation Research Group

www.calspan.com

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/21/2011
Test Number:	1	Test Time:	1:54:13 PM



Test ID:

Test Time: 1:54:13 PM

Test Date: 12/21/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

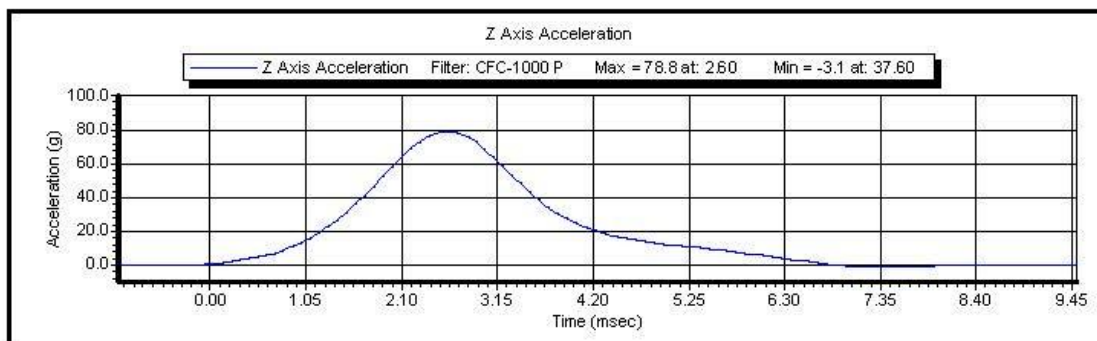
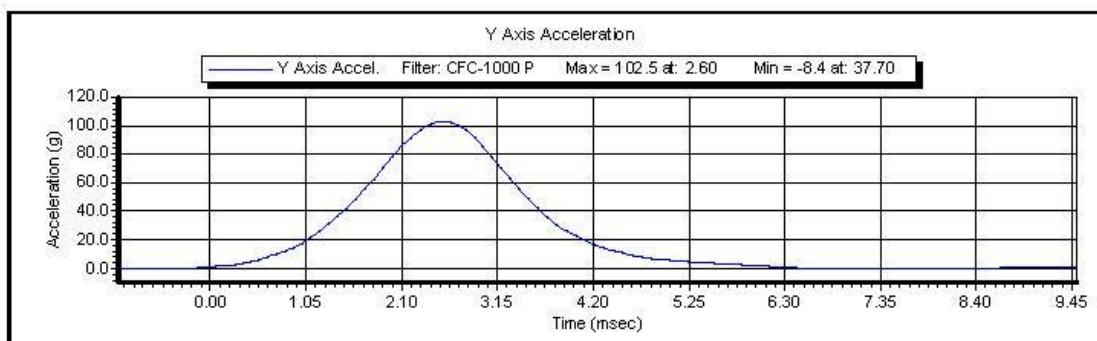
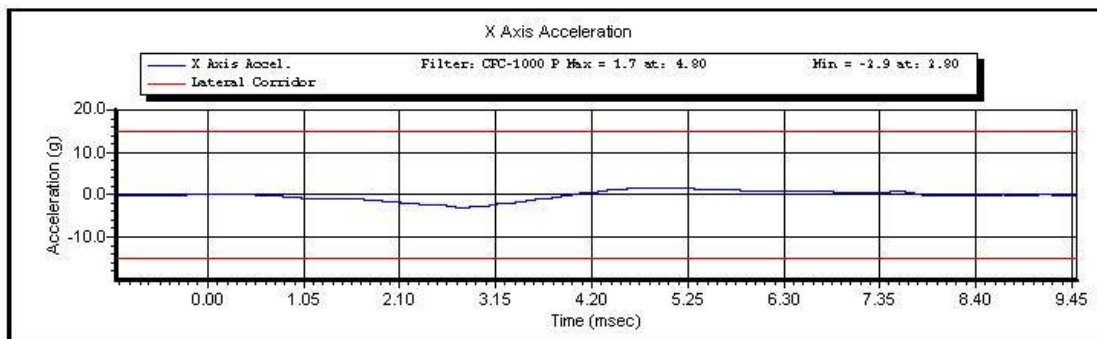
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 1:54:13 PM

Test Date: 12/21/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/21/2011
Test Number:	1	Test Time:	4:02:11 PM

Component Part Number	Component Serial Number
Neck - 180-2000	787

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	45 %RH P
Velocity	5.51 -- 5.63	5.59 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.22 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.32 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.52 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.45 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.76 m/s P
Max D Plane Rotation	71.0 -- 81.0	73.5 degrees P
Time at Max Rotation	50.0 -- 70.0	61.9 ms P
Moment about OC	-44.0 -- -36.0	-40.9 Nm P
Moment Decay to Zero	102.0 -- 126.0	114.6 ms P

All test parameters are within specifications

Technician: S. Zito

Supervisor: D. Travale

Test ID:

Test Time: **4:02:11 PM**

Test Date: **12/21/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	C16510	10/3/2011
Denton	1716A	LC-2192Fy	8/31/2011
Denton	1716A	LC-2192Mx	8/31/2011
DentonATD	78051-342	184	5/8/2011
DentonATD	78051-342	174	5/8/2011
DentonATD	78051-342	185	5/8/2011

Test ID:

Test Time: 4:02:11 PM

Test Date: 12/21/2011

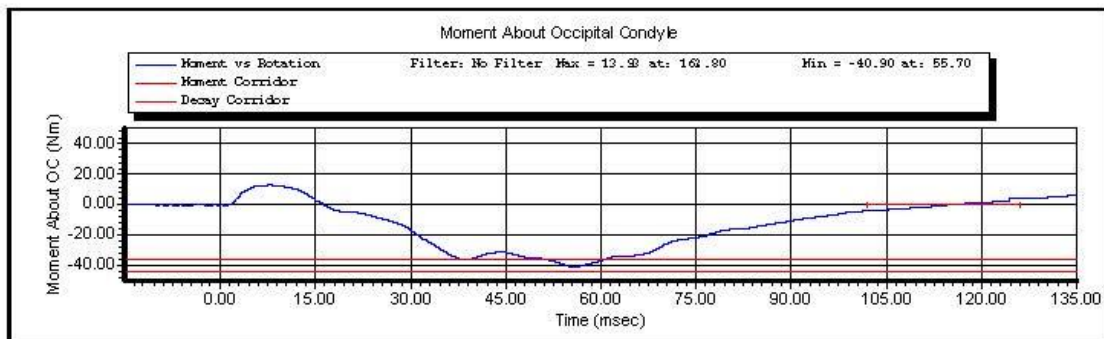
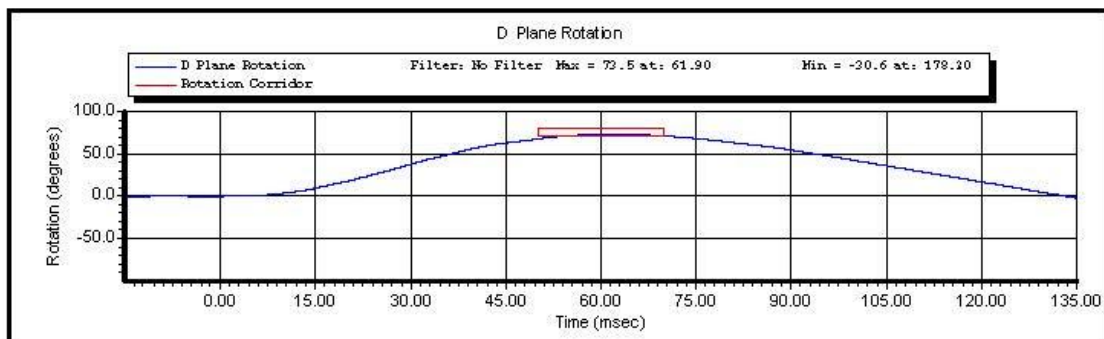


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/21/2011
Test Number:	1	Test Time:	4:02:11 PM



Test ID:

Test Time: 4:02:11 PM

Test Date: 12/21/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

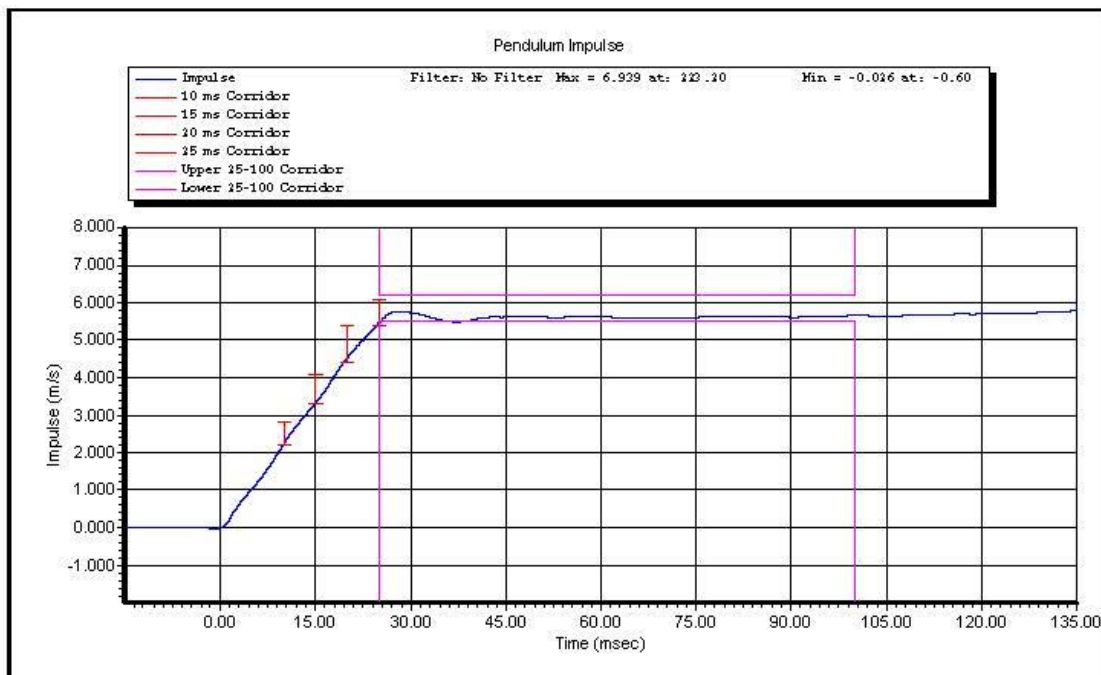
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 4:02:11 PM

Test Date: 12/21/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/22/2011
Test Number:	1	Test Time:	2:51:32 PM

Component Part Number	Component Serial Number
Shoulder Rib 180-3355	168
Left Arm 180-6011-1	822

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	22.00 deg C	P
Humidity	10.0	--	70.0	32.8 %RH	P
Velocity	4.20	--	4.40	4.24 m/s	P
Probe Acceleration	13.0	--	18.0	16.2 g	P
Shoulder Deflection	28.0	--	37.0	29.5 mm	P
T1 Acceleration	17.0	--	22.0	20.5 g	P

All test parameters are within specifications

Technician: S. Zito

Supervisor: D. Travale

Test ID:

Test Time: **2:51:32 PM**

Test Date: **12/22/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Servo	180-3885	DS-1063	10/31/2011
Endevco	7264-2000	P58806	11/3/2011

Test ID:

Test Time: **2:51:32 PM**

Test Date: **12/22/2011**

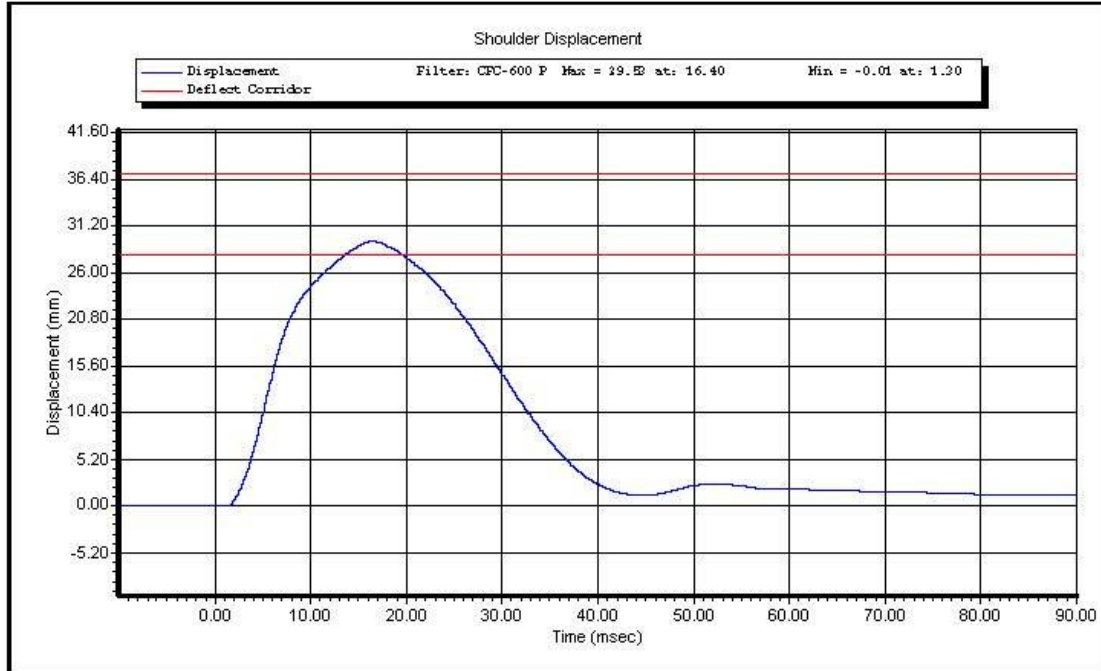


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/22/2011
Test Number:	1	Test Time:	2:51:32 PM



Test ID:

Test Time: **2:51:32 PM**

Test Date: **12/22/2011**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

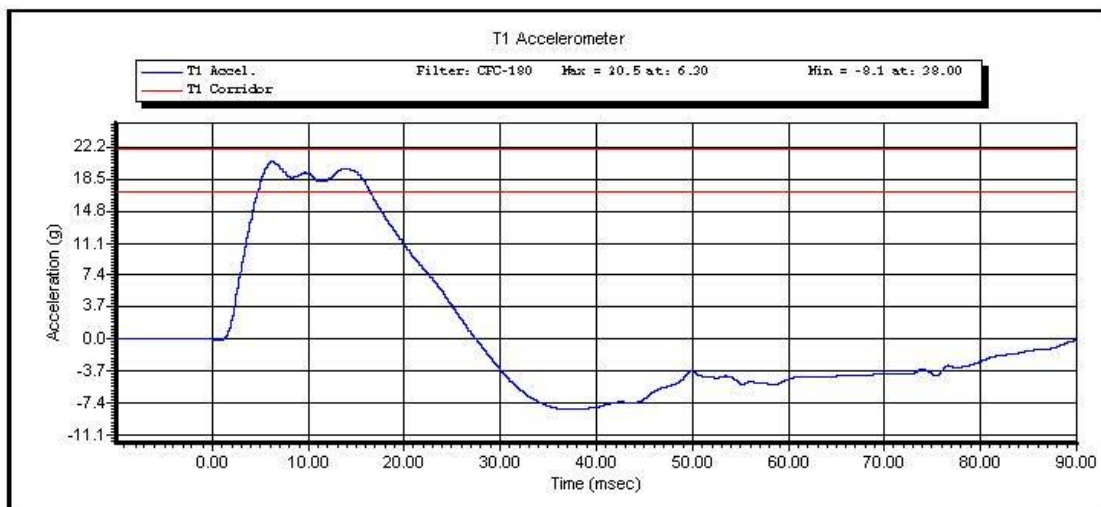
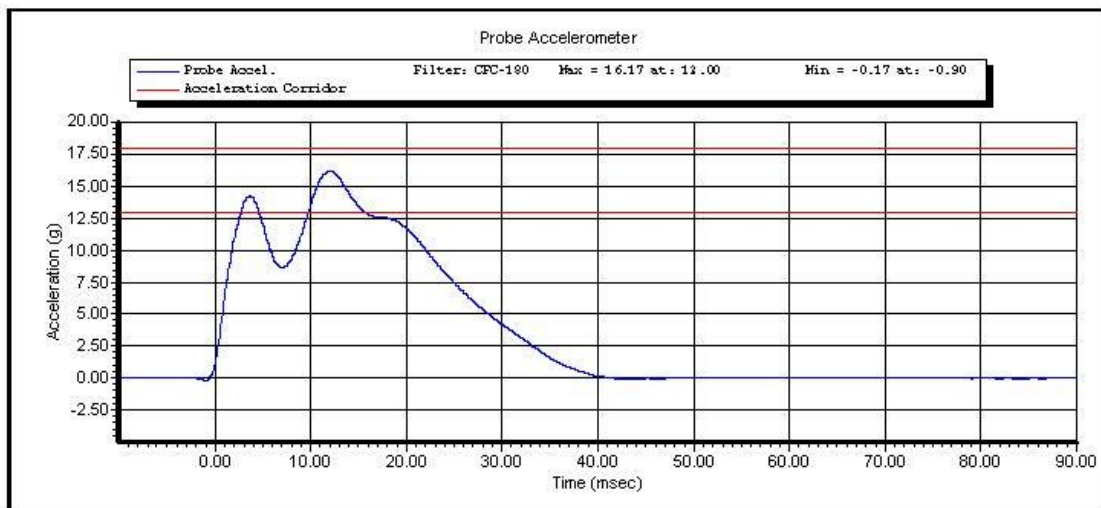
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 2:51:32 PM

Test Date: 12/22/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	1/3/2012
Test Number:	3	Test Time:	11:07:24 AM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3 180-3362	2024, 2061, 2062
Shoulder Rib 180-3355	168
Left Arm 180-6011-1	822

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.4 deg C P
Humidity	10 -- 70	17 %RH P
Velocity	6.60 -- 6.80	6.75 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	36.0 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	27.0 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	32.9 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	34.4 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	39.7 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	33.3 g P
Shoulder Deflection	31.0 -- 40.0	33.2 mm P

All test parameters are within specifications

Technician: **S. Zito**
Supervisor: **D. Travale**

Test ID:

Test Time: **11:07:24 AM**

Test Date: **1/3/2012**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	1/3/2012
Servo	180-3885	DS-1121	10/29/2011
Servo	180-3885	DS-1151	10/31/2011
Servo	180-3885	DS-1156	10/31/2011
Endevco	7264-2000	P58806	11/3/2011
Endevco	7264-2000	P64147	11/1/2011
Servo	180-3885	DS-1063	10/31/2011

Test ID:

Test Time: 11:07:24 AM

Test Date: 1/3/2012

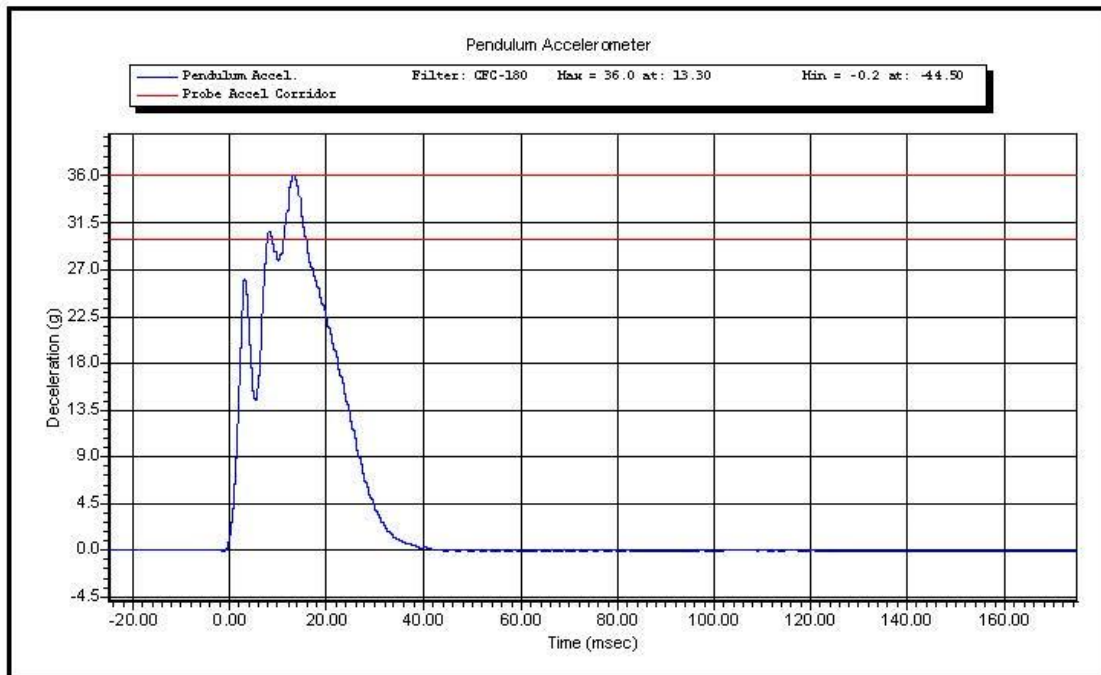


Calspan - Transportation Research Group

www.calspan.com

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	1/3/2012
Test Number:	3	Test Time:	11:07:24 AM



Test ID:

Test Time: 11:07:24 AM

Test Date: 1/3/2012

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

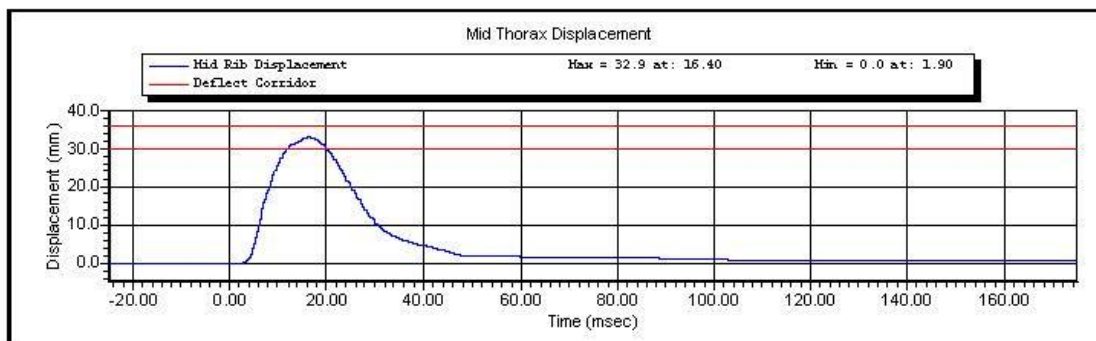
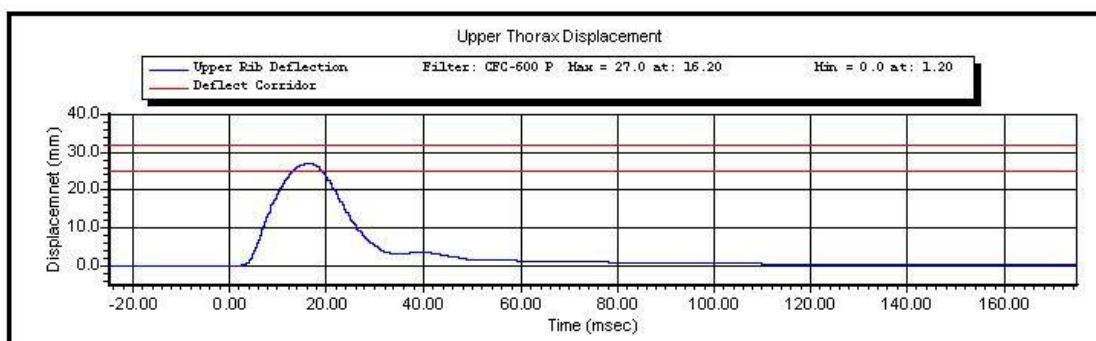
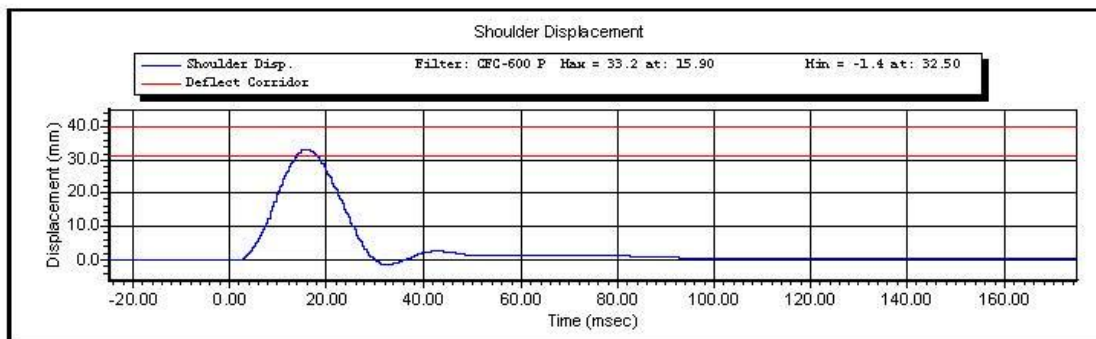
1 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 11:07:24 AM

Test Date: 1/3/2012

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

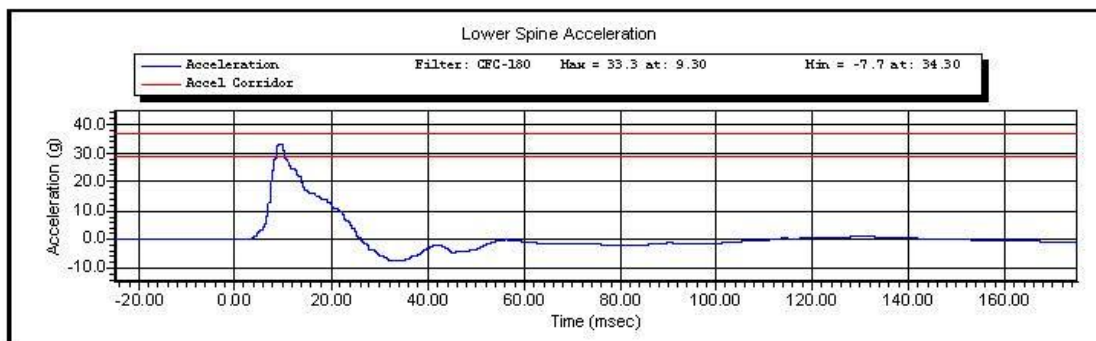
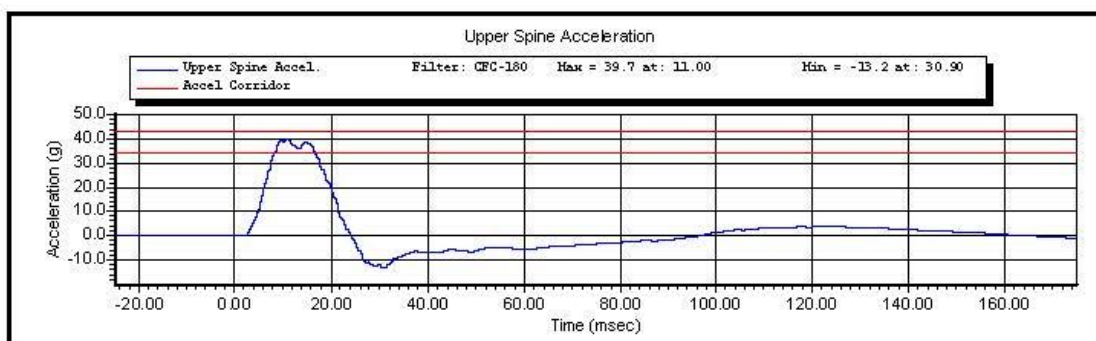
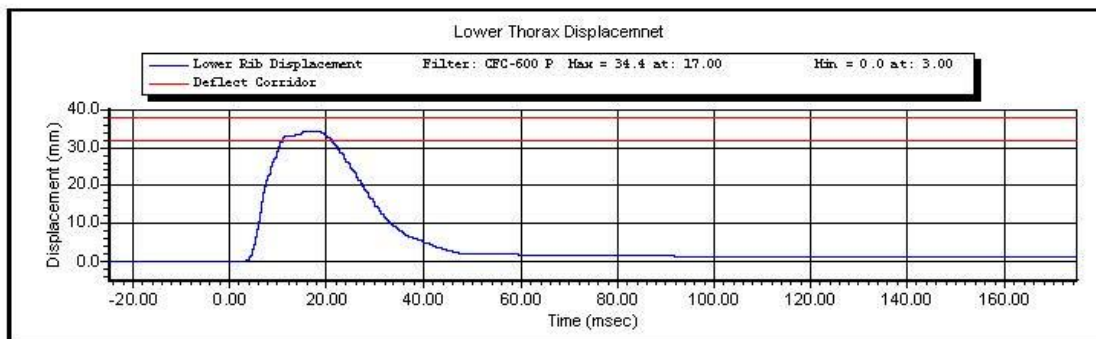
2 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 11:07:24 AM

Test Date: 1/3/2012

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

3 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Servo	180-3885	DS-1121	10/29/2011
Servo	180-3885	DS-1151	10/31/2011
Servo	180-3885	DS-1156	10/31/2011
Endevco	7264-2000	P58806	11/3/2011
Endevco	7264-2000	P64147	11/1/2011

Test ID:

Test Time: **3:18:50 PM**

Test Date: **12/22/2011**

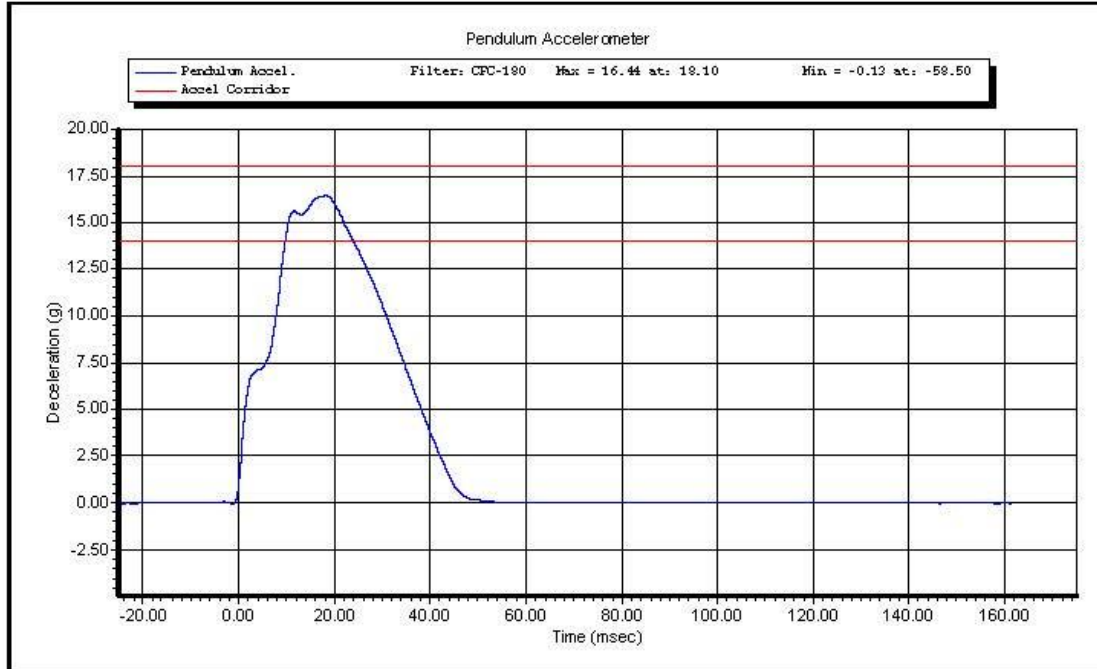


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/22/2011
Test Number:	1	Test Time:	3:18:50 PM



Test ID:

Test Time: 3:18:50 PM

Test Date: 12/22/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

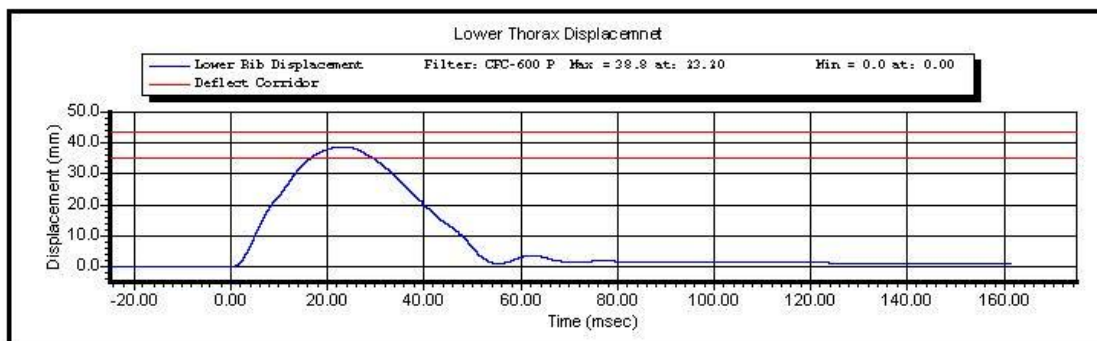
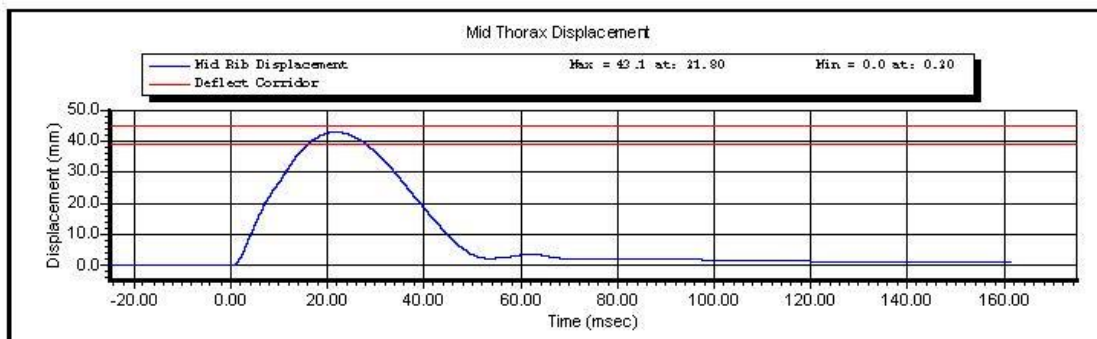
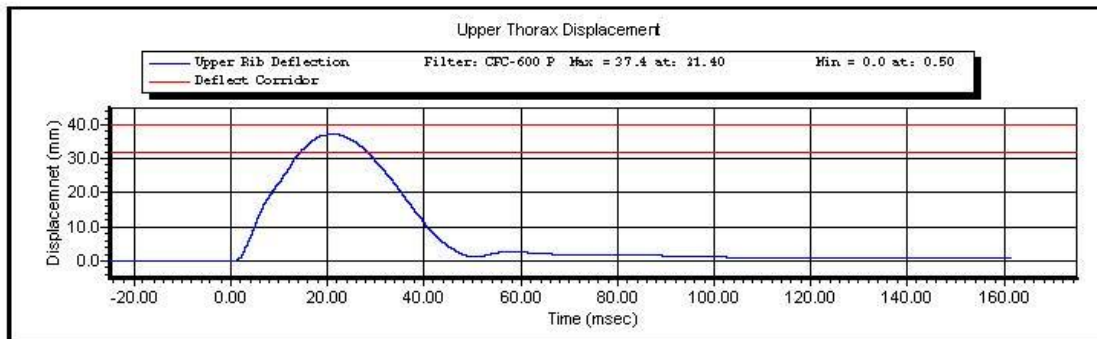
1 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 3:18:50 PM

Test Date: 12/22/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

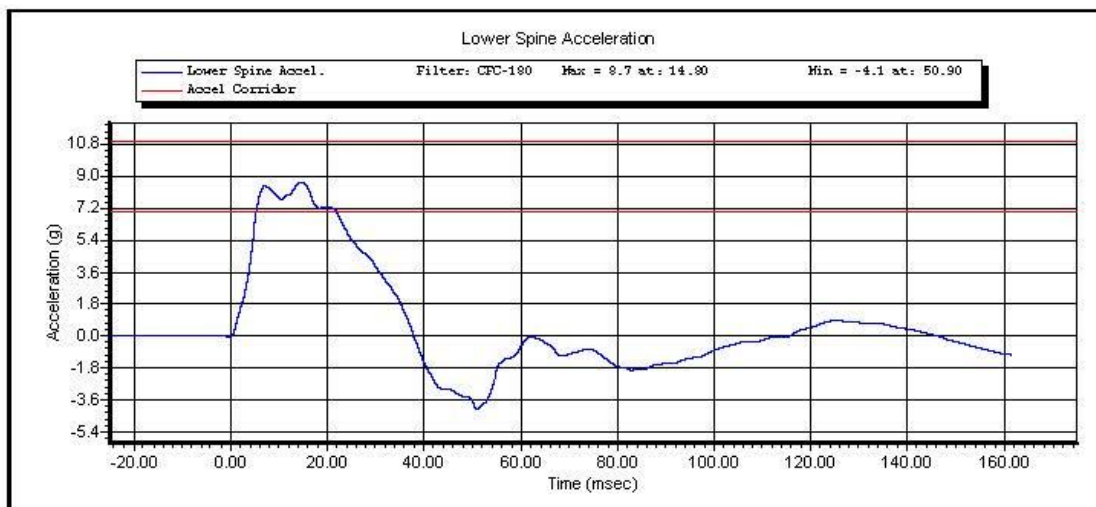
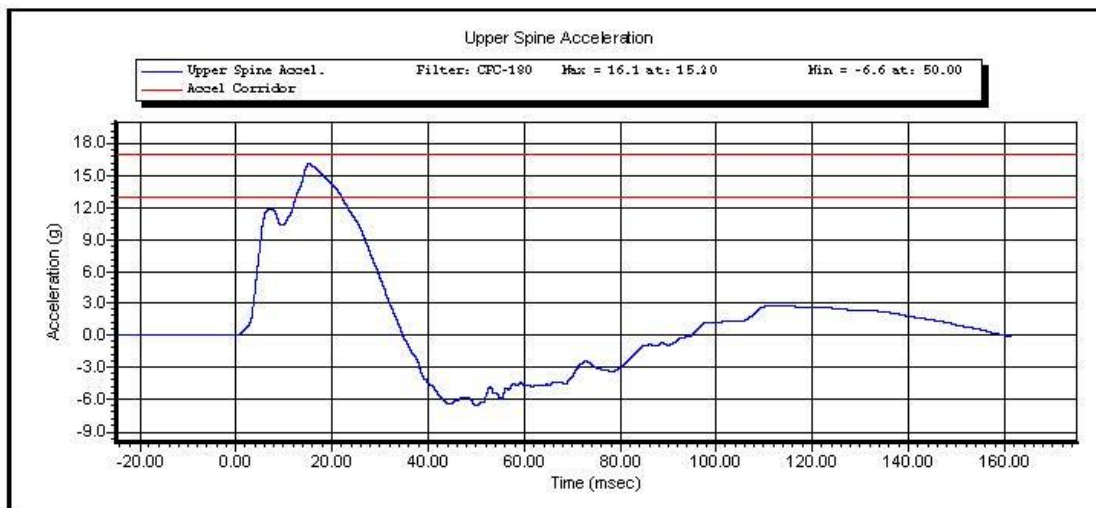
2 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 3:18:50 PM

Test Date: 12/22/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

3 of 3



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	12/22/2011
Test Number:	1	Test Time:	3:42:17 PM

Component Part Number	Component Serial Number
Abdomen Ribs 4, 5	2024, 2061

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.1 deg C P
Humidity	10 -- 70	33 %RH P
Velocity	4.20 -- 4.40	4.38 m/s P
Probe Acceleration	12.0 -- 16.0	15.5 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	39.6 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	37.7 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	12.3 g P

All test parameters are within specifications

Technician: **S. Zito**
Supervisor: **D. Travale**

Test ID:

Test Time: **3:42:17 PM**

Test Date: **12/22/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Servo	180-3885	DS-1162	11/3/2011
Servo	180-3885	DS-1622	11/3/2011
Endevco	7264-2000	P64147	11/1/2011

Test ID:

Test Time: 3:42:17 PM

Test Date: 12/22/2011

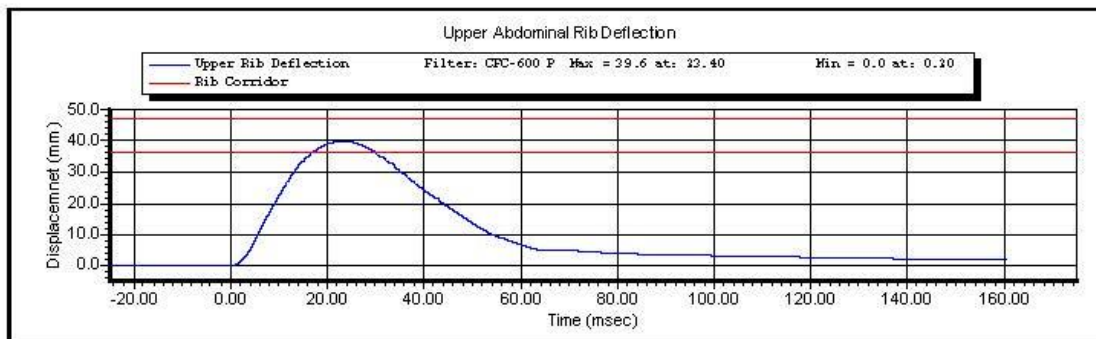
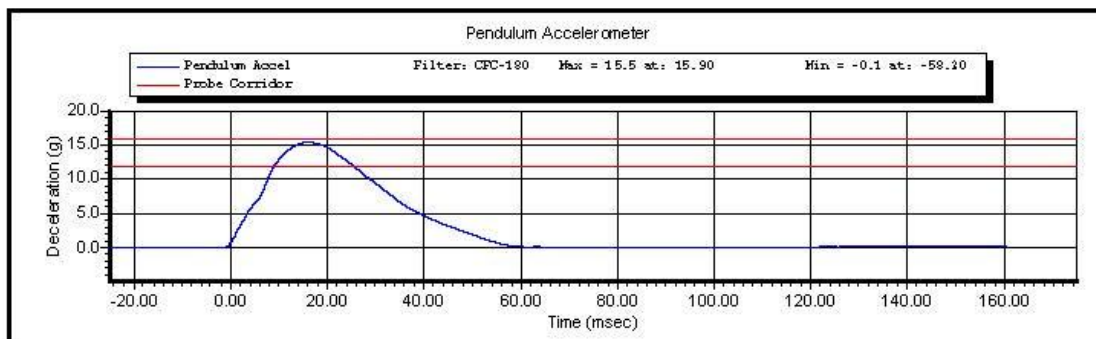


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/22/2011
Test Number:	1	Test Time:	3:42:17 PM



Test ID:

Test Time: 3:42:17 PM

Test Date: 12/22/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

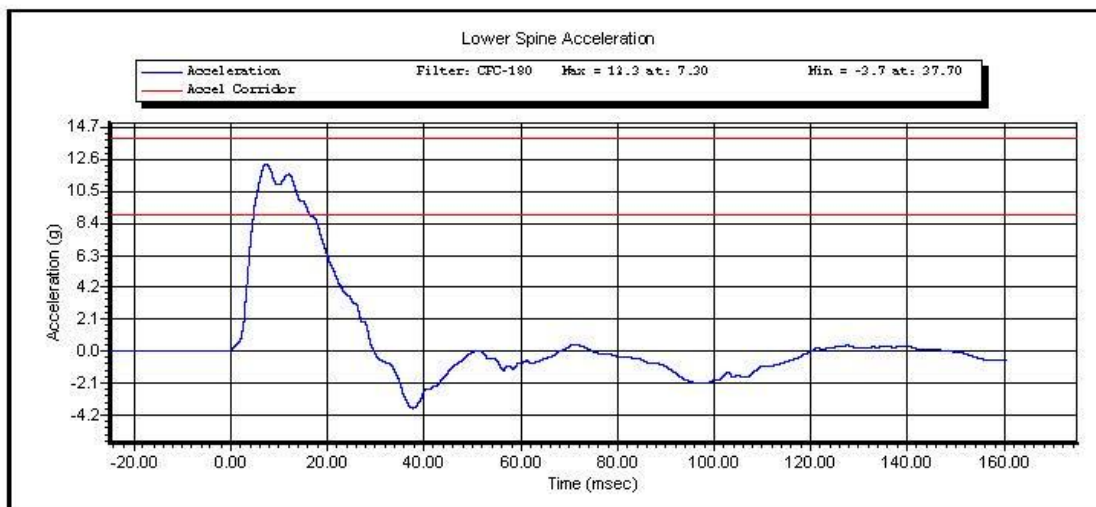
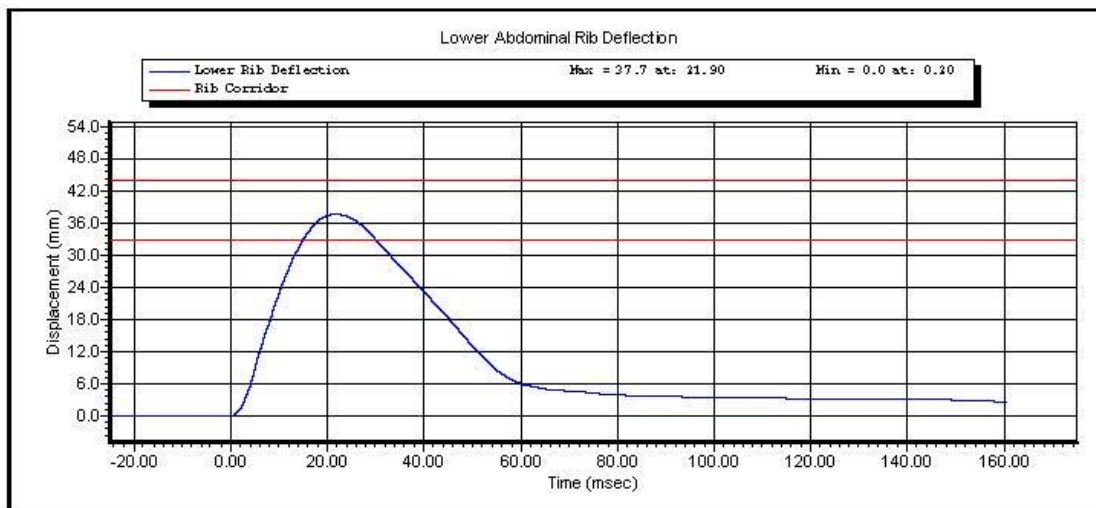
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

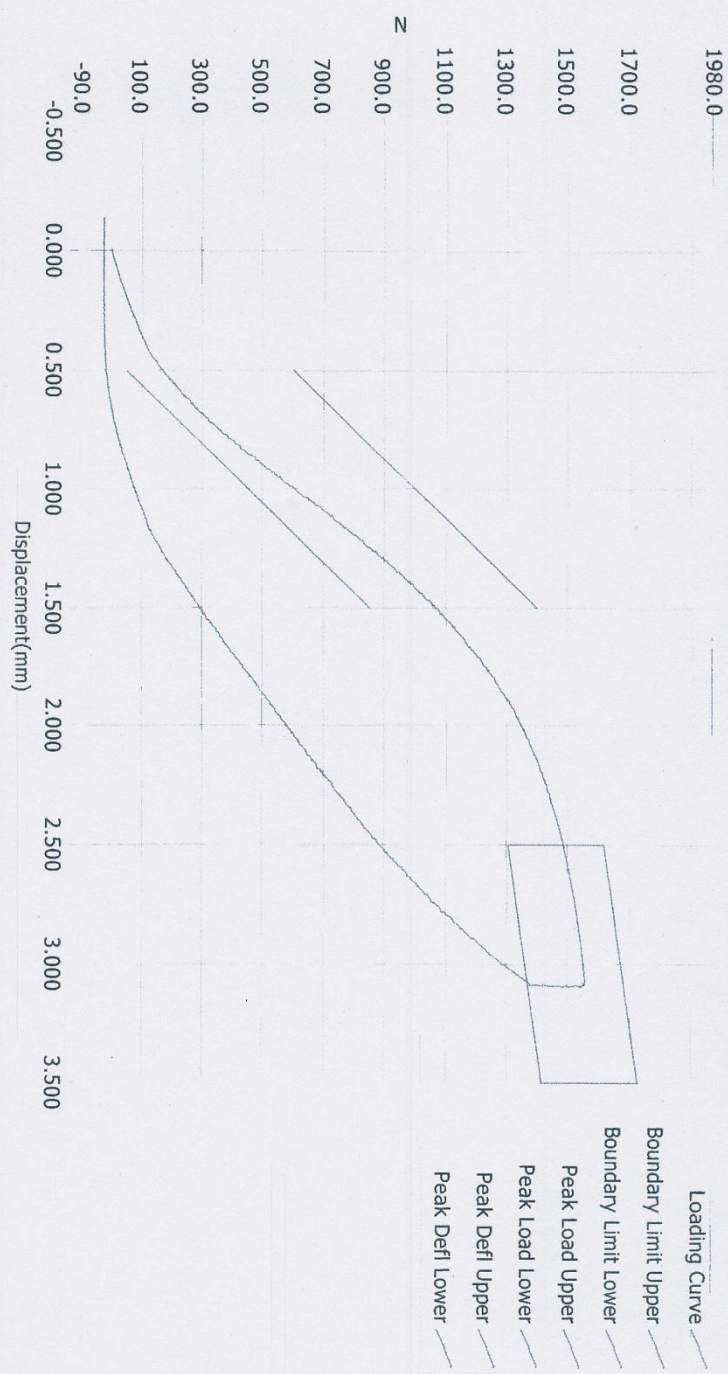
Test Time: 3:42:17 PM

Test Date: 12/22/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2

Resultant Data - SIDIIs Plug Compression



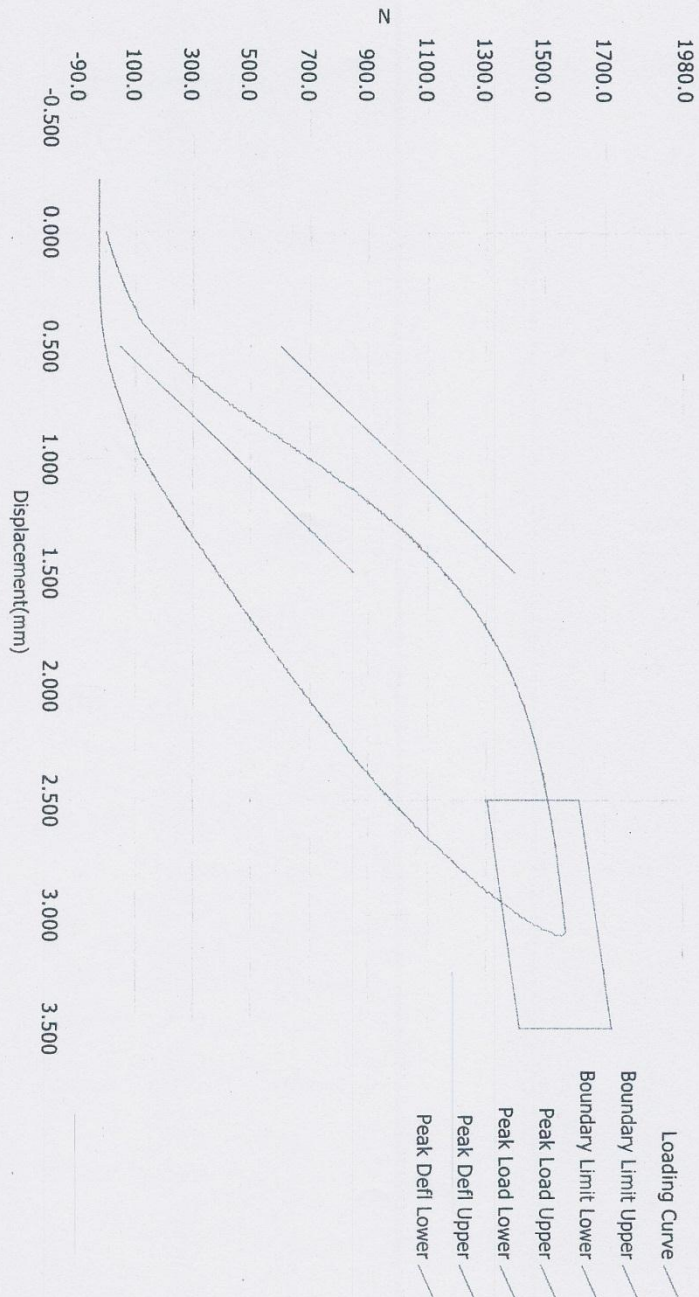
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
Cert ID	46469	9/22/2011	8:58 PM
	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 9/22/2011 Current Time : 20:59:25

CRASH

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
46017	9/20/2011	10:15 PM	
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
N/A	SIDIIs		

Current Date : 9/20/2011

Current Time : 22:15:48



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	1/3/2012
Test Number:	1	Test Time:	11:54:57 AM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DJ3396
Humanetics Cert Plug	46469
Humanetics Test Plug	46017

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10 -- 70	17 %RH P
Velocity	6.60 -- 6.80	6.61 m/s P
Peak Probe Acceleration	38.0 -- 47.0	46.5 g P
Peak Pelvis Acceleration	34.0 -- 42.0	41.3 g P
Peak Acetabulum Force	3.60 -- 4.30	3.88 kN P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test ID:

Test Time: **11:54:57 AM**

Test Date: **1/3/2012**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	1/3/2012
Endevco	7264-2000	P15526	10/31/2011
DentonATD	3249J	LC-275a	11/3/2011

Test ID:

Test Time: 11:54:57 AM

Test Date: 1/3/2012

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

2 of 2

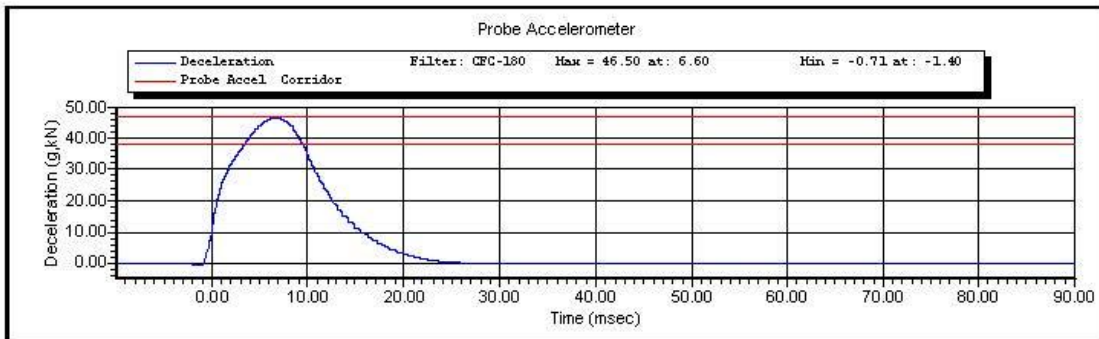
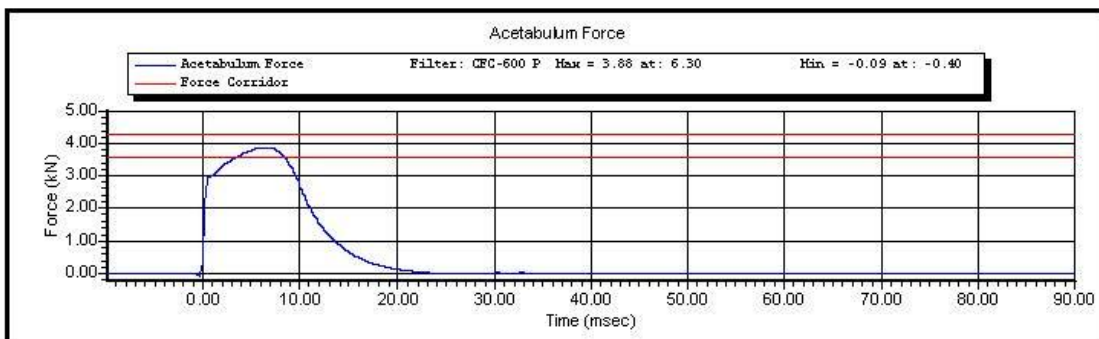


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-11s		
ATD Serial Number:	300		
Test ID:		Test Date:	1/3/2012
Test Number:	1	Test Time:	11:54:57 AM



Test ID:

Test Time: **11:54:57 AM**

Test Date: **1/3/2012**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

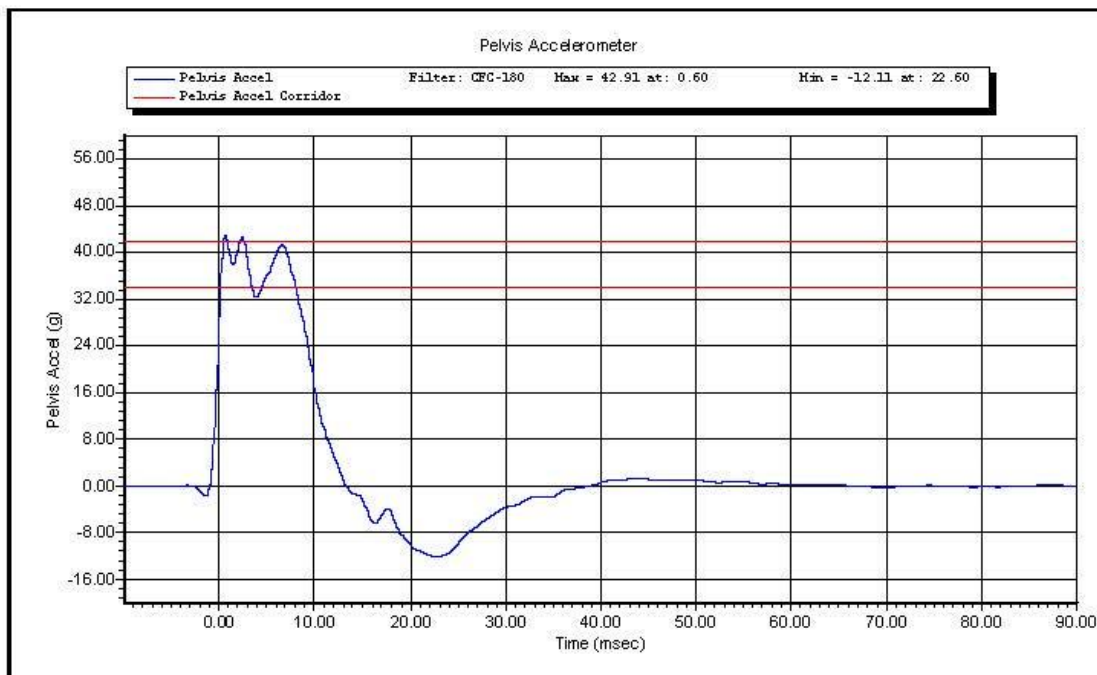
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 11:54:57 AM

Test Date: 1/3/2012

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/22/2011
Test Number:	1	Test Time:	10:23:06 AM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DB396

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.7 deg C	P
Humidity	10	--	70	35 %RH	P
Velocity	4.20	--	4.40	4.31 m/s	P
Peak Probe Acceleration	36.0	--	45.0	42.2 g	P
Peak Pelvis Acceleration	28.0	--	39.0	33.7 g	P
Peak Iliac Force	4.10	--	5.10	4.66 kN	P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test ID:

Test Time: **10:23:06 AM**

Test Date: **12/22/2011**



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2011
Endevco	7231CT	AGHF5	12/14/2011
Endevco	7264-2000	P15526	10/31/2011
DentonATD	3228J	LC-279 Fy	11/3/2011

Test ID:

Test Time: **10:23:06 AM**

Test Date: **12/22/2011**

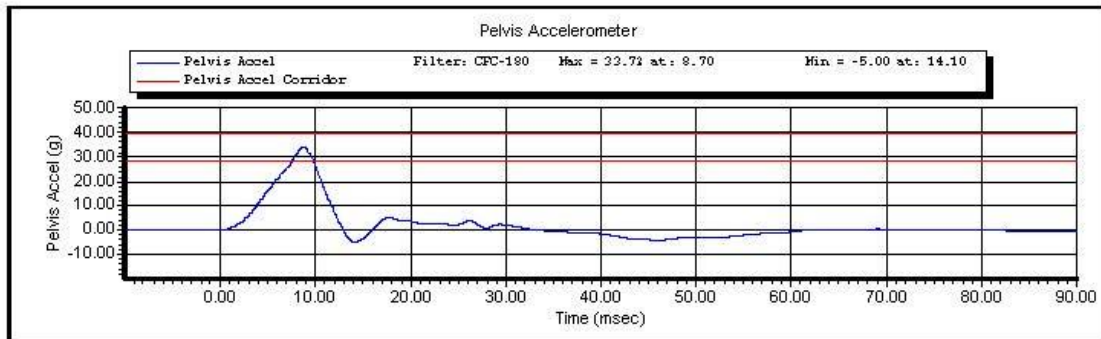
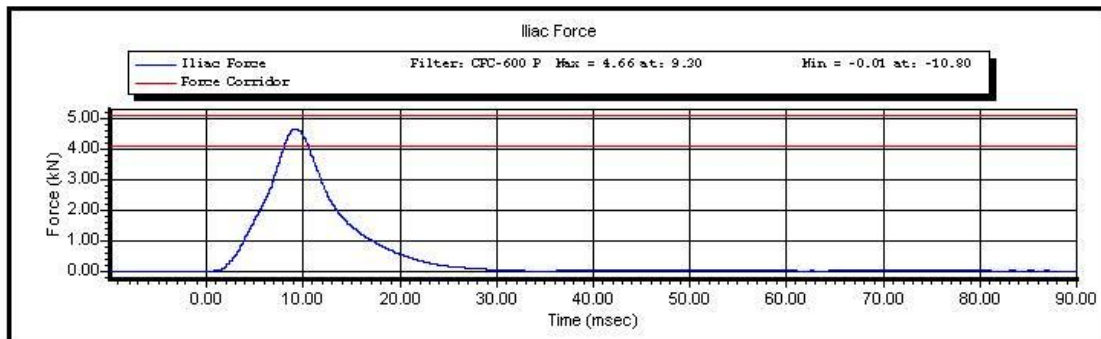


www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	12/22/2011
Test Number:	1	Test Time:	10:23:06 AM



Test ID:

Test Time: **10:23:06 AM**

Test Date: **12/22/2011**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

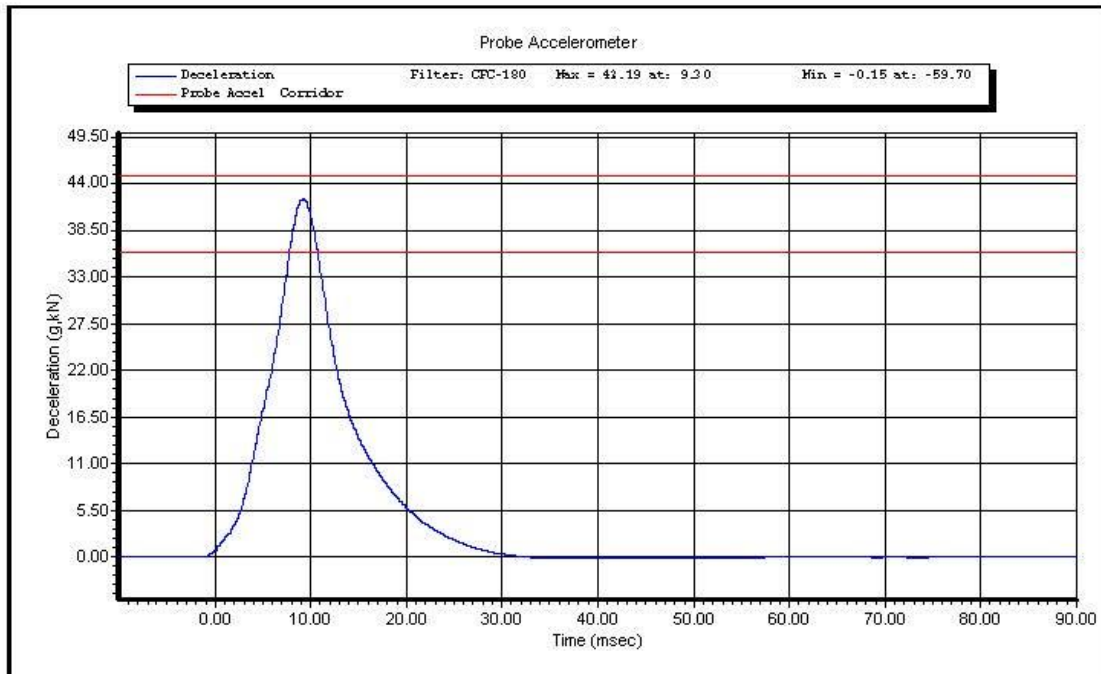
1 of 2



www.calspan.com

Calspan - Transportation Research Group

4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500



Test ID:

Test Time: 10:23:06 AM

Test Date: 12/22/2011

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

2 of 2

Appendix D
Test Equipment and Instrumentation Calibration Data

Table 1 – Dummy Instrumentation

				SID-IIs S/N: 300			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P51685	Endevco	10/31/11
				Y	P51682	Endevco	10/31/11
				Z	P51699	Endevco	10/31/11
Head Accelerometers				X	P51701	Endevco	10/31/11
				Y	P45019	Endevco	10/31/11
				Z	P51690	Endevco	10/31/11
Displacement Potentiometer	Thoracic Rib	Upper	Y	1121	FTSS	10/29/11	
		Middle	Y	1151	FTSS	10/31/11	
		Lower	Y	1156	FTSS	10/31/11	
	Abdominal Rib	Upper	Y	1162	Denton	10/29/11	
		Lower	Y	1622	Endevco	10/31/11	
Lower Spine Accelerometers (T12)			X	P58883	Endevco	10/31/11	
			Y	P64147	Endevco	10/31/11	
			Z	P58786	Endevco	10/31/11	
Acetabulum Load Cell				Y	275	Denton	11/3/11
Lilac Wing Load Cell				Y	279Fy	Denton	11/3/11

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A005869	MS	10/4/11
Vehicle Center of Gravity	Y	A081433	MS	10/4/11
Vehicle Center of Gravity	Z	A081445	MS	10/4/11
Left Floor Sill	Y	A081429	MS	10/4/11
A-Pillar Sill	Y	A081442	MS	10/4/11
A-Pillar Low	Y	A081464	MS	10/4/11
A-Pillar Mid	Y	A081452	MS	10/4/11
B-Pillar Sill	Y	A079084	MS	10/4/11
B-Pillar Low	Y	A081417	MS	10/4/11
B-Pillar Mid	Y	A016518	MS	10/4/11
Driver Seat	Y	A081420	MS	10/4/11
Engine Top	X	A032569	MS	10/4/11
Engine Top	Y	A035443	MS	10/4/11
Firewall	Y	A081463	MS	10/4/11
Right Roof	Y	A081460	MS	10/4/11
Right Floor Sill	Y	A081444	MS	10/4/11
Rear Floorpan	X	A081461	MS	10/4/11
Rear Floorpan	Y	A081425	MS	10/4/11

Tale 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	18880	Interface	9/22/11
Load Cell 2	18850	Interface	9/22/11
Load Cell 3	46979	Interface	9/22/11
Load Cell 4	18857	Interface	9/22/11
Load Cell 5	18844	Interface	9/22/11
Load Cell 6	46933	Interface	9/22/11
Load Cell 7	18866	Interface	9/22/11
Load Cell 8	46949	Interface	9/22/11