

REPORT NUMBER: SPNCAP-CAL-15-001

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

**Honda De Mexico S.A. De C.V.
2015 Honda Fit
Five Door Hatchback**

NHTSA No: M20155319

**PREPARED BY:
CALSPAN CORPORATION
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February 20, 2015

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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WASHINGTON, D.C. 20590**

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Date: February 20, 2015

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Date: February 20, 2015

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

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16. Abstract A 32.20 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2015 Honda Fit five door hatchback in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on December 3, 2014. The impact velocity of the vehicle was 32.14 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle was 21°C. The target vehicle's maximum post-test static crush was 250 mm located at level 3. The test vehicle's occupant performance data is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs) (Serial No. 303)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>305.238</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>G</td> <td>82</td> <td>37.389</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>2837.130</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>21.433</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>19.495</td> </tr> </tbody> </table> *Proposed IARV The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs) (Serial No. 303)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	305.238	Resultant Lower Spine Acceleration	G	82	37.389	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2837.130	Maximum Thoracic Rib Deflection	mm	38*	21.433	Maximum Abdomen Rib Deflection	mm	45*	19.495
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 2015 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-14-D-00352. The purpose of this test is to generate comparative side impact performance in a 2015 Honda Fit five door hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated September 2013.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2015 Honda Fit five door hatchback. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.14 km/h. The test was conducted by Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on December 3, 2014 . Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated September 2013. Camera locations and other pertinent camera information are included on page 3-11 in this report.

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

Head CG tri-axial accelerometers

Thorax upper, middle, and lower rib displacement potentiometers

Abdomen upper and lower rib displacement potentiometers

Lower spine tri-axial 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. Appendix D identifies all serial numbers, manufacturers, and calibration dates for test equipment, dummy sensors, potentiometers, and load cells used to collect data during the test.

Injury readings for the SID-IIs dummy were recorded as follows:

INJURY READINGS

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	305.238
Resultant Lower Spine Acceleration	g	82	37.389
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2837.130
Maximum Thoracic Rib Deflection	mm	38*	21.433
Maximum Abdominal Rib Deflection	mm	45*	19.495

*Proposed IARV

Supplemental restraint information was recorded as follows:

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	N/A		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 – Torso/Pelvis Airbag	Yes	Yes	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	Yes	No	N/A
Other				

GENERAL COMMENTS:

1. P1 serial number - 303

Data Anomalies:

- None

SECTION 3

OCCUPANT AND VEHICLE INFORMATION

This section contains information reporting for the following Data Sheets:

Data Sheet No. 1 – General Test and Vehicle Parameter Data

Data Sheet No. 2 – Seat, Seat Belt, Steering Wheel Adjustment and Fuel Systems Data

Data Sheet No. 3 – Dummy Longitudinal Clearance Dimensions

Data Sheet No. 4 – Dummy Lateral Clearance Dimensions

Data Sheet No. 5 – Camera and instrumentation Data

Data Sheet No. 6 – Vehicle Accelerometer Data

Data Sheet No. 7 – Rigid Pole Load Cell Data

Data Sheet No. 8 – Post-Test Observations

Data Sheet No. 9 – Test Vehicle Profile Measurements

Data Sheet No. 10 – Test Vehicle Exterior Crush Measurements

Data Sheet No. 11 – Vehicle Damage Profile Distances

Data Sheet No. 12 – FMVSS No. 301 Static Rollover Results

Data Sheet No. 13 – Dummy / Vehicle Temperature and Humidity Stabilization Data

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Honda Fit five door hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
Test Date: 12/3/2014

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20155319
Model Year	2015
Make	Honda
Model	Fit
Body Style	Five Door Hatchback
VIN	3HGGK5G54FM732565
Body Color	Blue
Odometer Reading (km/mi)	14.5 km / 9 mi
Engine Displacement (L)	1.5
Type / No. Cylinders	I4
Engine Placement	Transverse
Transmission Type	Manual
Transmission Speeds	6-Speed
Overdrive	Yes
Final Drive	Front Wheel Drive
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	--
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso / Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head / Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso / Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	-

Does owner's manual provide instructions to turn off automatic door locks?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda De Mexico S.A De C.V
Date of Manufacture	09/14
Vehicle Type	Passenger

GVWR (kg)	1525
GAWR Front (kg)	803
GAWR Rear (kg)	722

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	-	5
Capacity Weight (VCW) (kg)				385
DSC X 68.04 kg				340.2
Cargo Weight (RCLW) (kg)				44.8

(A)

(B)

(A-B)

VEHICLE SEAT TYPE

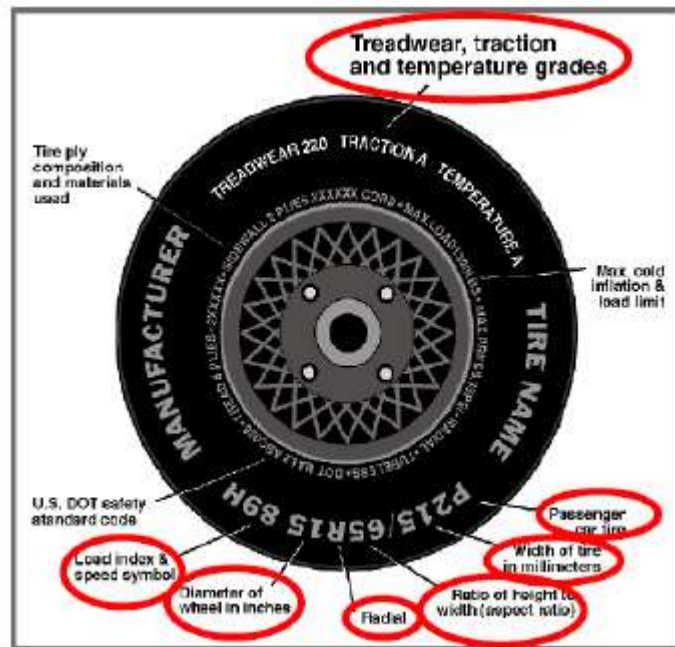
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable W/ Lever	W/ Knob
Front Seat	X					X	
Rear or Second Row Seat			X		X		
Third Row seat	-	-	-	-	-	-	-

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

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014

Collected for year, make, model, & VIN, all items circled in red, tire manufacturer and tire name.



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	P185/60R15	P185/60R15
Tire Size on Vehicle	P185/60R15	P185/60R15
Tire Manufacturer	Firestone	Firestone
Tire Model	FR740	FR740
Treadwear	400	400
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	84T	84T
Tire Material	Rubber	Rubber
DOT Safety Code Left	ELCACJJ2014	ELCACJJ1914
DOT Safety Code Right	ELCACJJ2014	ELCACJJ1914

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

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	242	238	236	238
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	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	334	241		356	265		359	272	
Right	kg	368	195		380	220		371	228	
Ratio	%	62%	38%		60%	40%		59%	41%	
Totals	kg	702	436	1138	736	485	1221	730	500	1230

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1138	(A)
Actual Weight of 1 P572V (SID-IIs) ATD Used	kg	44.12	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	44.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1226.92	(A+B+C)

Does the measured As Test Vehicle Weight lie within the required weight range
 (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to – 9 kg)? ☒ Yes ☐ No

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Rqmt***
Driver Door Sill Angle (front-to-rear)*	Deg	-0.6	-0.2	-0.1	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg	-0.8	-0.4	-0.3	Yes
Front Bumper-Line Angle (left-to-right)**	Deg	0.0	0.0	0.1	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg	0.2	-0.1	-0.4	Yes
Vehicle CG (Aft of Front Axle)	mm	969	1005	1028	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	+8	+13	+19	

* 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. 1 ... (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Spare Tire & Jack	14
Trunk Carpeting	3
Tail Light	1
Ballast / Equipment Added	0

Test Height – Adjustable Suspension Setting, if Applicable	N/A
--	-----

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

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	14.4	12.5	13.4
Front Passenger Seat	-	Not Adjustable	-
Front Center Seat	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore / Aft	Forward- Most
Driver Seat	13.4	47	Max	40	55	62
			Mid	20	33	47
			Min	0	12	24
Front Passenger Seat	Not Adjustable		Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Front Center Seat	N/A	N/A	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	-	-	-

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

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014

SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detents*
Driver Seat	235	35 (0-34)	0	0
Front Passenger Seat	235	35 (0-34)	0	0
Front Center Seat	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1 for the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back are 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 Dummy	-11.4 – (+59.7)	N/A	-11.2	N/A
Front Passenger Seat	-10.9 – (+59.7)	N/A	-10.9	N/A
Front Center Seat	N/A	N/A	N/A	N/A
Struck Side Rear Seat	FIXED	N/A	FIXED	N/A
Non-Struck Side Rear Seat	FIXED	N/A	FIXED	N/A
Rear Center Seat	FIXED	N/A	FIXED	N/A

SEAT BELT ANCHORAGE ADJUSTMENT

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

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

HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the lowest and most full forward in-use position.

Seat	Total # of Positions	Placed in Position #
Driver Seat	5	5-lowest

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

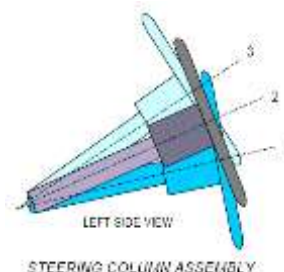
Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014

STEERING COLUMN ADJUSTMENT

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

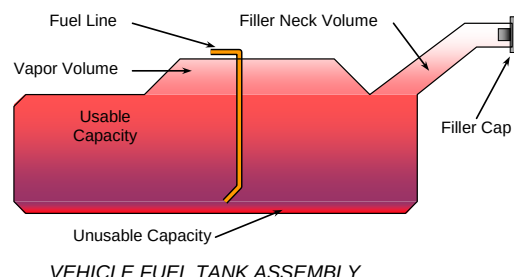
	Degrees	Fore / Aft Position (mm)
Lowermost – Position 1	24.6	
Geometric Center – Position 2	27.2	
Uppermost – Position 3	29.7	
Telescoping Steering Wheel Travel		40
Test Position	27.2	20



FUEL PUMP

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

The vehicle is equipped with an electric fuel pump.
The fuel filler neck is on the left side of the vehicle.
The pump creates positive pressure in the fuel lines, pushing the gasoline to the engine. See form 1 for more information.



FUEL TANK CAPACITY DATA

Description	Liters
Usable Capacity of "Standard Tank" - see Form No. 1	40
Usable Capacity of "Optional Tank" - see Form No. 1	N/A
Usable Capacity of "Standard Tank" - see Owner's Manual	40
Usable Capacity of "Optional Tank" - see Owner's Manual	N/A
93% of Usable Capacity	37.2
Actual Amount of Solvent Used in Test	37.2
1/3 of Usable Capacity	13.3

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



Yes

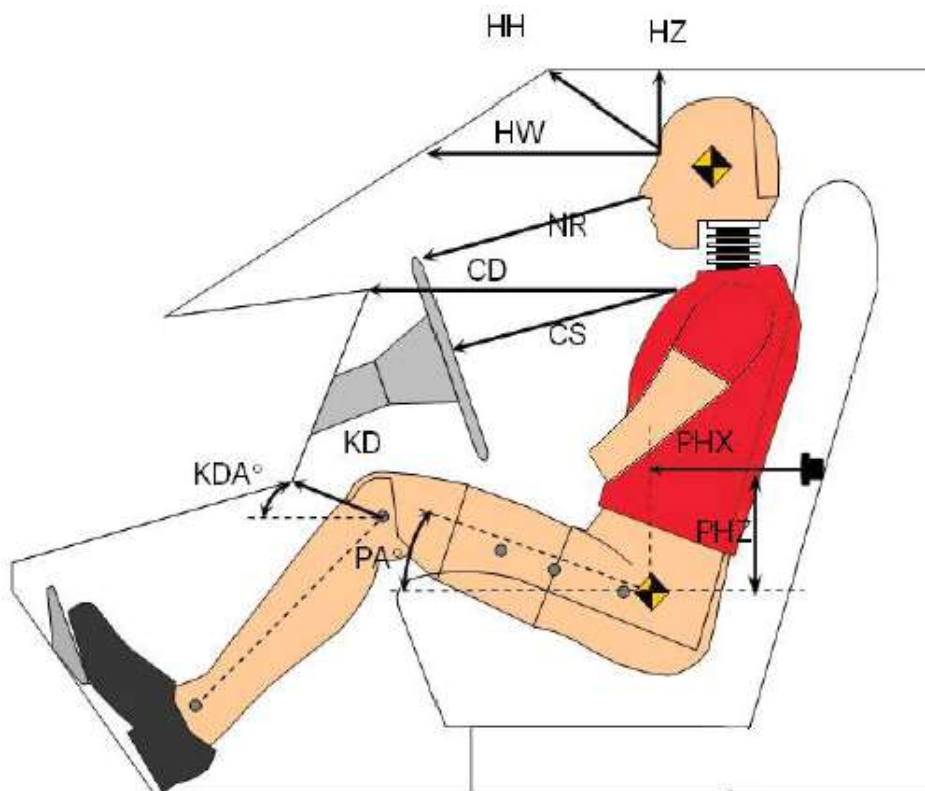


No

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014



Left Side View

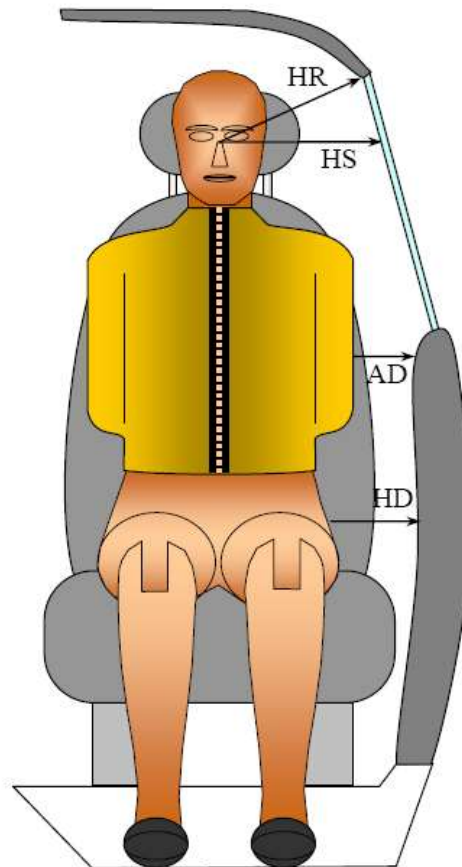
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver (Serial No. 303)	
		Length (mm)	Angle (°)
HH	Head to Header	255	
HW	Head to Windshield	620	
HZ	Head to Roof Liner	215	
NR	Nose to Rim	236	
CD	Chest to Dash	425	
CS	Chest to Steering Wheel	172	
KD(L) / KDA(L)°	Left Knee to Dash	80	31.8
KD(R) / KDA(R)°	Right Knee to Dash	77	25.3
PAX°	Pelvic Tilt Angle (X-Axis)		18.2
PAY°	Pelvic Tilt Angle (Y-Axis)		0.3
PHX	Hip Point to Striker (X-Axis)	377	
PHZ	Hip Point to Striker (Z-Axis)	72	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Honda Fit five door hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
Test Date: 12/3/2014



FRONT VIEW OF DUMMY

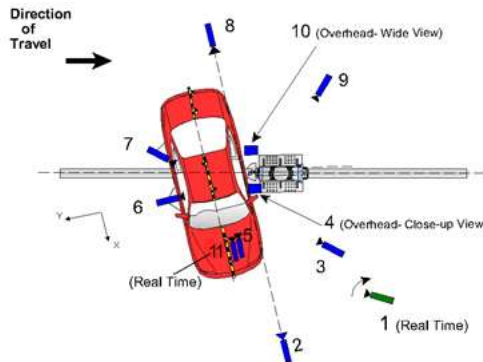
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver - Length (Serial No. 303)
HR	Head To Side Header	mm	236
HS	Head to Side Window	mm	357
AD	Arm to Door	mm	152
HD	Hip Point to Door	mm	173

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014



CAMERA LOCATIONS AND DATA

No.	Camera 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	5228	1629	1165	24	1000
3	Impact side 45° - forward pole view	3053	3160	1684	28	1000
4	Overhead Close-up view of impact	0	0	3524	20	1000
5	Onboard - dummy front view				25	1000
6	Onboard - dummy side view				12.5	1000
7	Onboard - dummy rear oblique view				12.5	1000
8	Rear ground level - impact view	-6867	-1958	1166	24	1000
9	Impact side 45° - rearward pole view	3055	-3002	1674	28	1000
10	Overhead wide - view of impact	0	-241	3529	14	1000
11	Real-time (24 - 30 fps) - dummy front view				Zoom	30

Notes: Reference - From Point of Impact for X and Y; from Ground for Z
 +X = Forward of vehicle, +Y = Right of vehicle, +Z = Down
 * All measurements accurate to ± 6 mm. Vehicle is at a 75° angle to the rigid pole.

Comments: All cameras operated as intended.

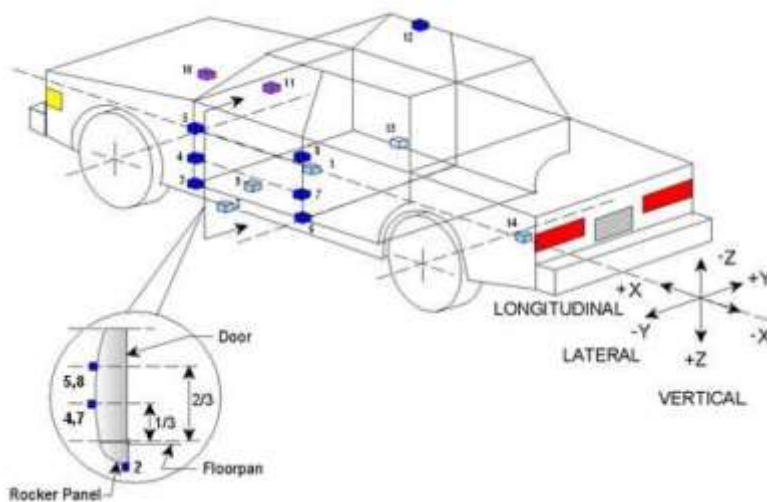
INSTRUMENTATION

Description	Number of Channels
Driver Dummy Channels	16
Vehicle Structure Accelerometers	18
Pole Load Cells	8
Total	42

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

Test Vehicle: 2015 Honda Fit five door hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
Test Date: 12/3/2014



TEST VEHICLE ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2181	41	499
2	Left Floor Sill	2445	-620	294
3	A-Pillar Sill	2764	-616	282
4	A-Pillar Low	2809	-618	560
5	A-Pillar Mid	2641	-669	997
6	B-Pillar Sill	1808	-610	304
7	B-Pillar Low	1796	-649	524
8	B-Pillar Mid	1781	-636	787
9	Driver Seat Track	2003	-531	349
10	Engine Top	3317	69	763
11	Firewall	3080	30	748
12	Right Roof	2449	622	295
13	Right Floor Sill	1898	572	1462
14	Rear Floorpan	876	-1	491

Reference: X – Rear surface of vehicle (+ forward)
Y – Vehicle centerline (+ to right)
Z – Ground plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2015 Honda Fit five door hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
Test Date: 12/3/2014

POLE BARRIER



RIGID POLE LOAD CELL LOCATIONS

ID	Units	Height From Ground
1	mm	200
2	mm	590
3	mm	750
4	mm	1075
5	mm	1260
6	mm	1740
7	mm	1920
8	mm	2300

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2015 Honda Fit five door hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
Test Date: 12/3/2014

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver Seat Dummy (SID-IIs)
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	Headrest
Left Shoulder	Seatback & Torso/Pelvis Airbag
Upper Torso	Seatback
Lower Torso	Seatback
Left Hip	Seat pan & Torso/Pelvis Airbag
Left Knee	None

POST-TEST DOOR PERFORMANCE

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

POST-TEST SEAT PERFORMANCE

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

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

Test Vehicle: 2015 Honda Fit five door hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
Test Date: 12/3/2014

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	A-Pillar & B-Pillar Buckled
Sill Separation	None
Windshield Damage	Cracks throughout with separation along driver's A-Pillar
Side Window Damage	Driver's window shattered during impact event
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	N/A		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 – Torso/Pelvis	Yes	Yes	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	Yes	No	N/A
Other				

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

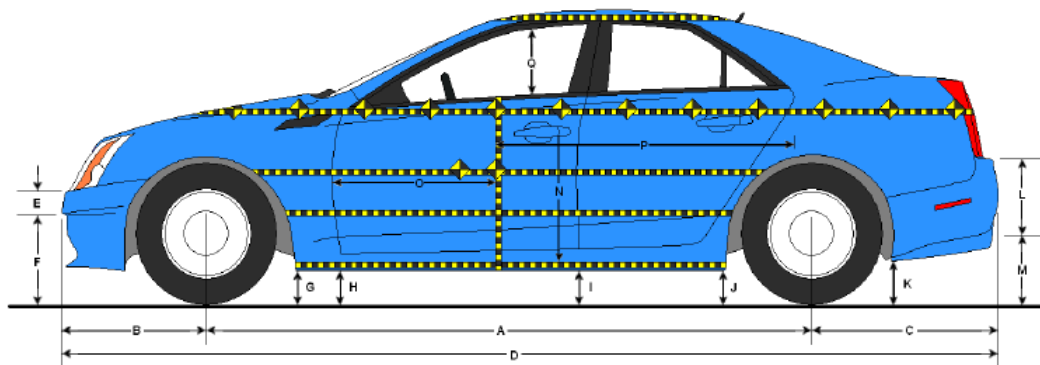
Measured Parameter	Units	Tolerance	Value
Vertical Impact Ref Line - Aft of Front Axle, Intended Impact Pt	mm		992
Actual Impact Point - Aft of Front Axle	mm		990
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 *	2
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75.0
Trap No. 1 Velocity - Primary	kph	31.4 to 33.0	32.14
Trap No. 2 Velocity - Redundant	kph	31.4 to 33.0	32.11

* Of Intended Impact Point

DATA SHEET NO. 9
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

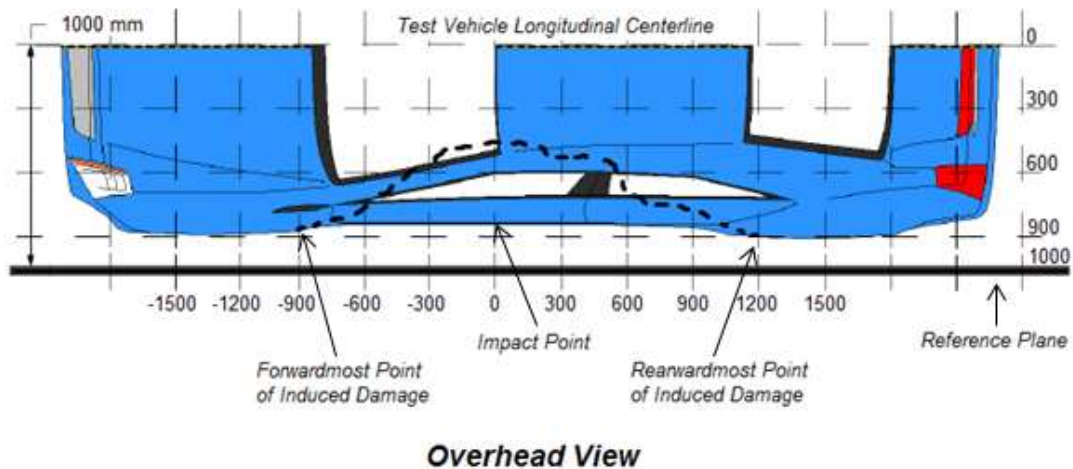
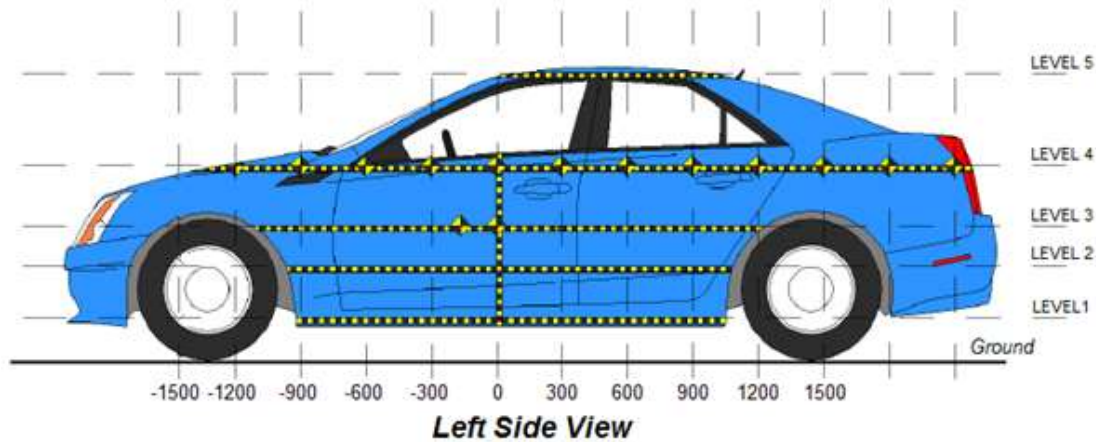
Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2530	2510	20
B	Front Axle to FSOV	811	813	-2
C	Rear Axle to RSOV	726	724	2
D	Total Length at Centerline	4068	4048	20
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	408	416	-8
G	Sill Height at Front Wheel Well	185	178	7
H	Sill Height at Front Door Leading Edge	184	181	3
I	Sill Height at B-Pillar	200	182	18
J1	Sill Height at Rear Wheel Well	203	193	10
J2	Pinch Weld Height at Rear Wheel Well	181	175	6
K	Sill Height Aft of Rear Wheel Well	270	253	17
L	Rear Bumper Thickness	140	140	0
M	Rear Bumper Bottom to Ground	379	365	14
N	Sill Height to Bottom of Front Window Sill	747	747	0
O	Front Door Leading Edge to Impact CL	583	528	54
P	Rear Door Trailing Edge to Impact CL	1406	1355	51
Q	Front Window Opening	430	432	-2
R	Right Side Length	3989	3989	-1
S	Left Side Length	3990	3961	29
T	Vehicle Width at B-Pillars	1694	1652	43

* All measurements in mm with tolerance of $\pm 3\text{mm}$

DATA SHEET NO. 10
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	302	202	0
2	Occupant Hip Point	mm	602	245	0
3	Mid - Door	mm	659	250	0
4	Window Sill	mm	912	239	0
5	Window Top	mm	1447	83	150

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)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

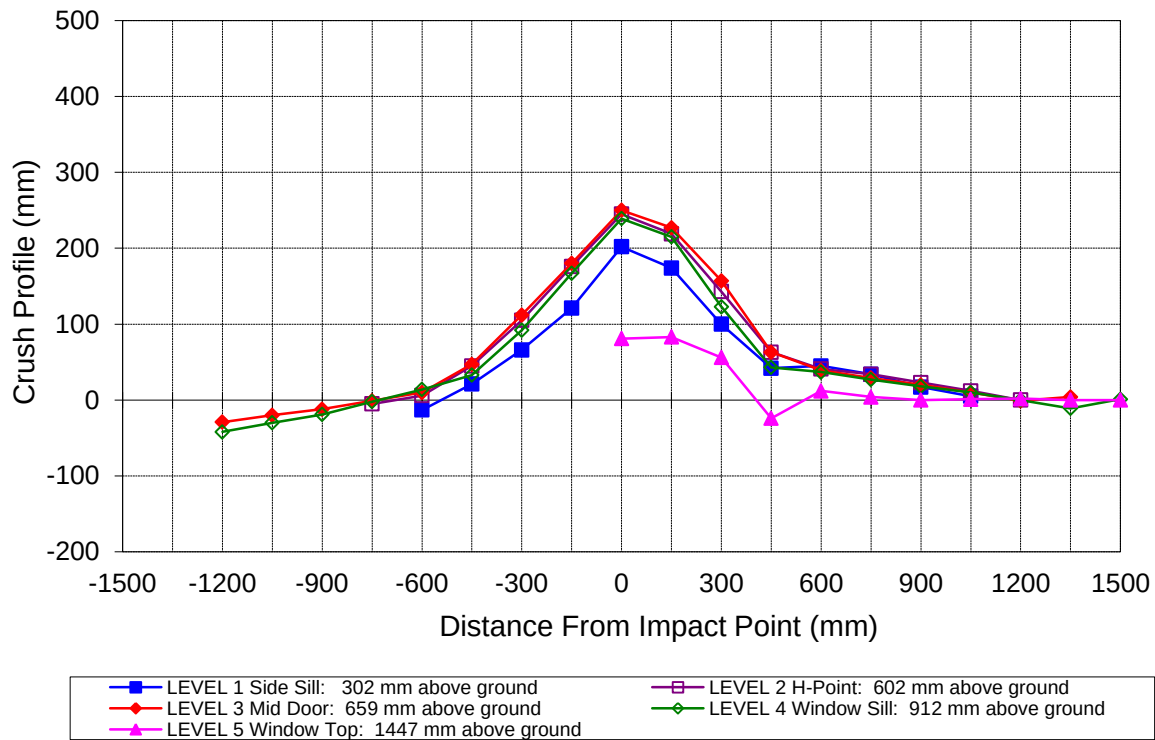
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1200	--	--	837	675	--	--	--	866	717	--	--	--	-29	-42	--
-1050	--	--	843	735	--	--	--	863	765	--	--	--	-20	-30	--
-900	--	--	845	767	--	--	--	857	786	--	--	--	-12	-19	--
-750	--	846	846	778	--	--	851	847	780	--	--	-5	-1	-2	--
-600	832	843	843	782	--	845	837	833	768	--	-13	6	10	14	--
-450	831	839	836	785	--	810	794	789	752	--	21	45	47	33	--
-300	832	837	836	790	--	766	732	724	698	--	66	105	112	92	--
-150	833	838	837	799	--	712	662	657	632	--	121	176	180	167	--
0	832	840	840	806	527	630	595	590	567	446	202	245	250	239	81
150	833	842	843	811	571	659	623	616	596	488	174	219	227	215	83
300	833	843	845	812	588	733	700	688	689	532	100	143	157	123	56
450	831	844	847	817	587	789	781	784	774	611	42	63	63	43	-24
600	829	843	846	819	588	784	802	807	782	576	45	41	39	37	12
750	828	842	845	813	583	794	808	816	786	579	34	34	29	27	4
900	829	840	844	803	576	812	817	824	785	576	17	23	20	18	0
1050	832	841	843	803	567	827	829	833	793	566	5	12	10	10	1
1200	--	847	846	808	548	--	847	847	808	546	--	0	-1	0	2
1350	--	--	849	813	505	--	--	845	824	505	--	--	4	-11	0
1500	--	--	--	811	458	--	--	--	810	458	--	--	--	1	0

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

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

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014



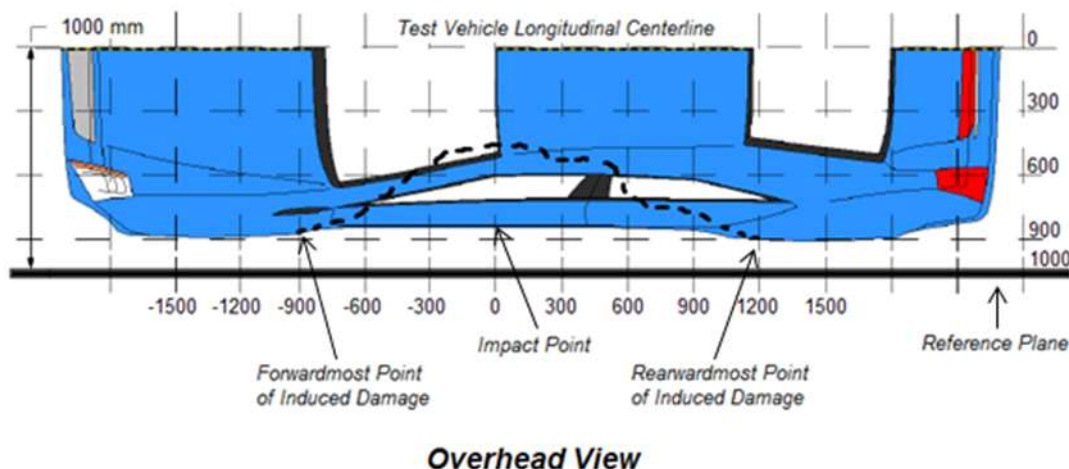
Vehicle Exterior Crush Measurements - Visual Representation

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

Test Vehicle: 2015 Honda Fit five door hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
 Test Date: 12/3/2014

For guidance regarding damage profile distance measurements, please refer to the latest version of the *NHTSA Test Reference Guide, Volume 1: Vehicle Tests*.



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	-1200	3	134	163	-29
2	-690	3	159	155	4
3	-180	3	330	163	167
4	330	3	293	155	138
5	840	3	179	156	23
6	1350	3	155	151	4

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

Test Vehicle: <u>2015 Honda Fit five door hatchback</u>	NHTSA No.: <u>M20155319</u>
Test Program: <u>NCAP Side MDB Impact Test</u>	Test Date: <u>12/3/2014</u>
Test Time: <u>1:04 PM</u>	Temperature: <u>21° C</u>

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum allowable is 1 oz.)
- B. For the 5-minute period after motion ceases: 0 oz.
 (Maximum allowable is 5 oz.)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable is 1 oz./minute)
- D. Spillage Details: No Spillage Occurred

FMVSS NO. 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	74	300	374
90° to 180°	63	300	363
180° to 270°	62	300	362
270° to 360°	67	300	367

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

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

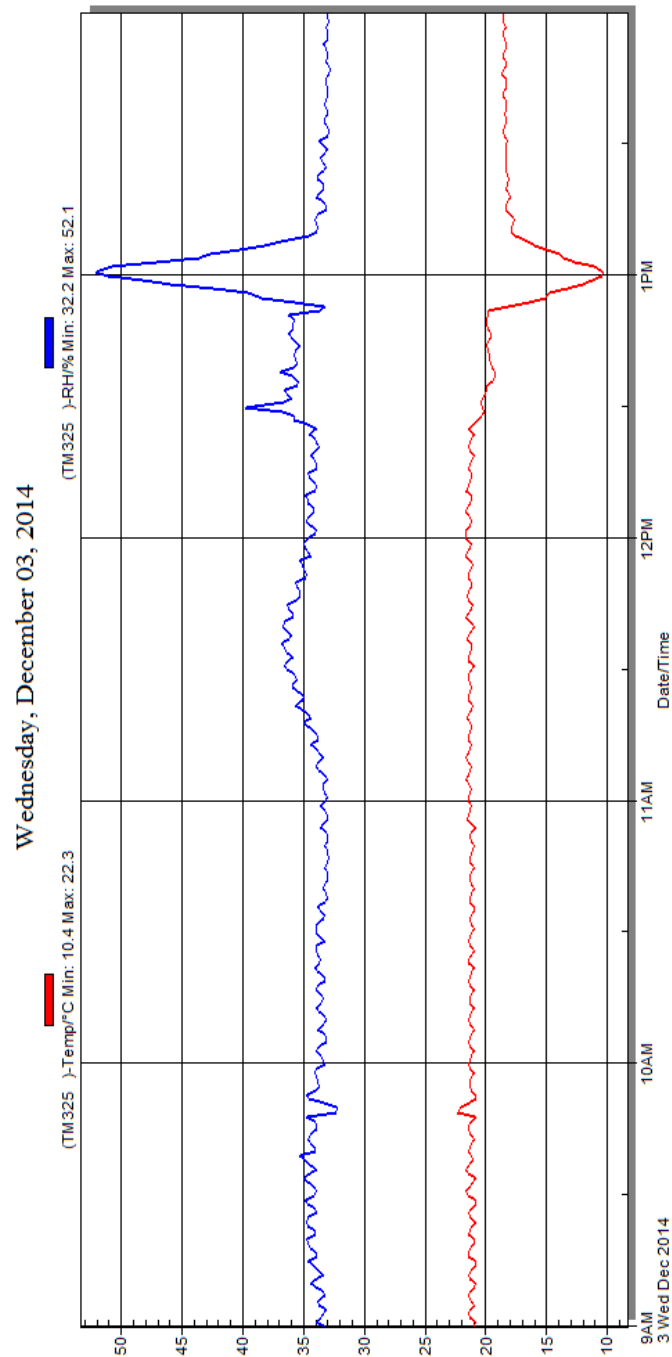
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	No Spillage Occurred
90° to 180°	No Spillage Occurred
180° to 270°	No Spillage Occurred
270° to 360°	No Spillage Occurred

DATA SHEET NO. 13
DUMMY / VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2015 Honda Fit five door hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No.: M20155319
Test Date: 12/3/2014



Temperature and Humidity Stabilization Chart / Data for Dummies and Test Vehicle

APPENDIX A
PHOTOGRAPHS

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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

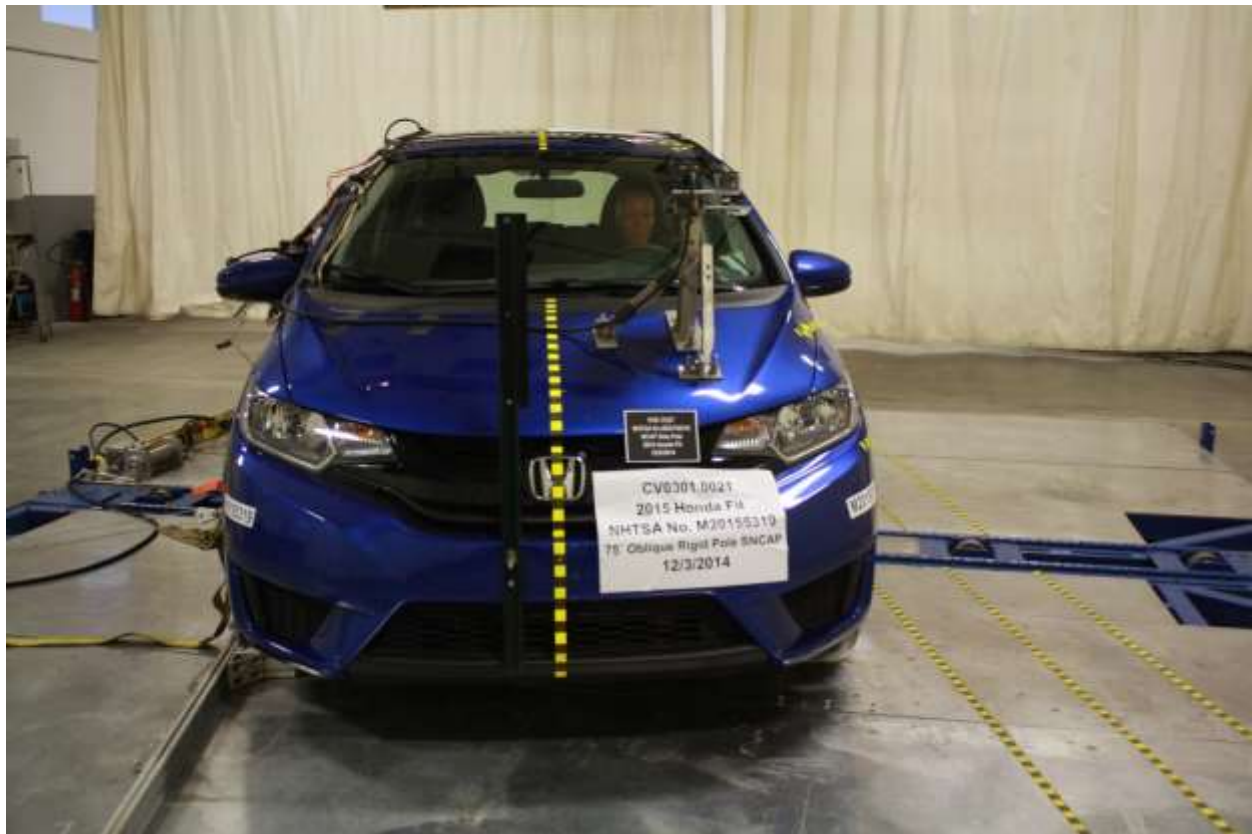


Figure A-3: Pre-Test Frontal View of Test Vehicle

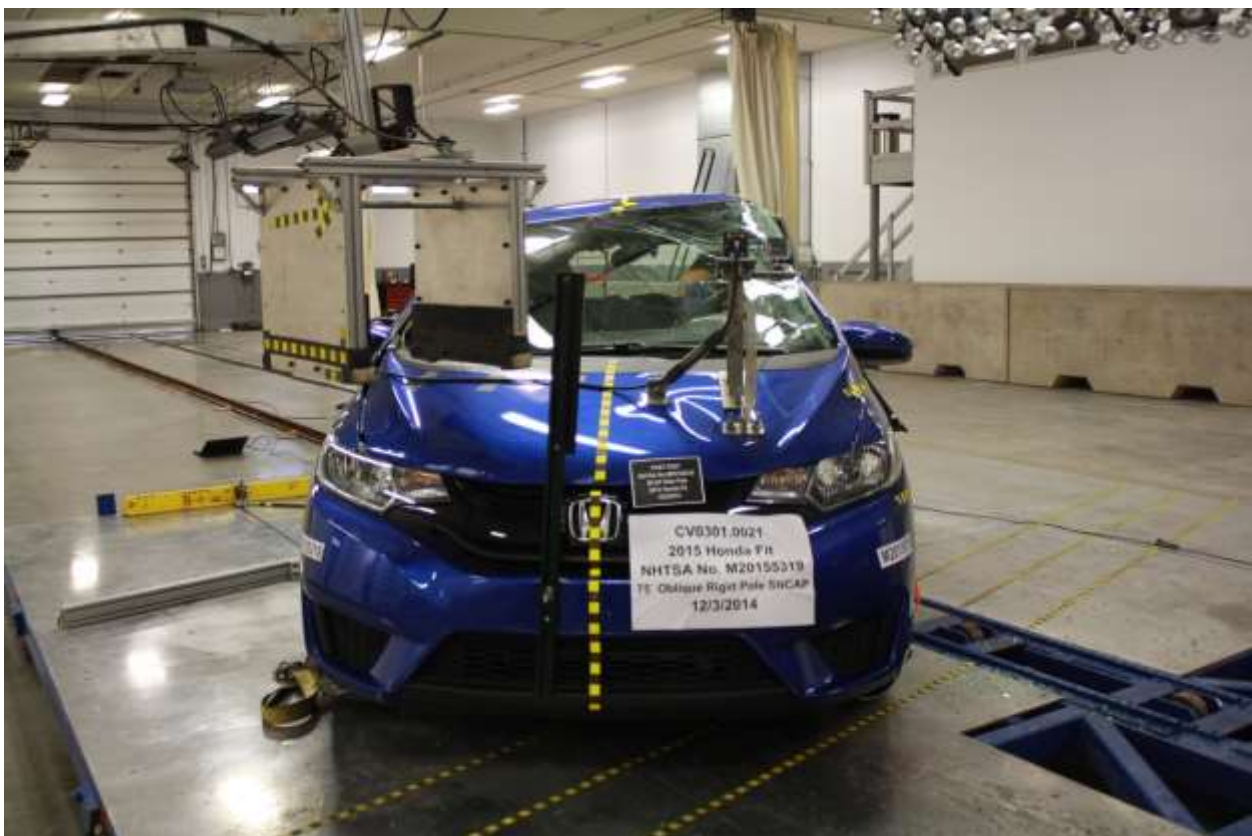


Figure A-4: Post-Test Frontal View of Test Vehicle



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 of 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

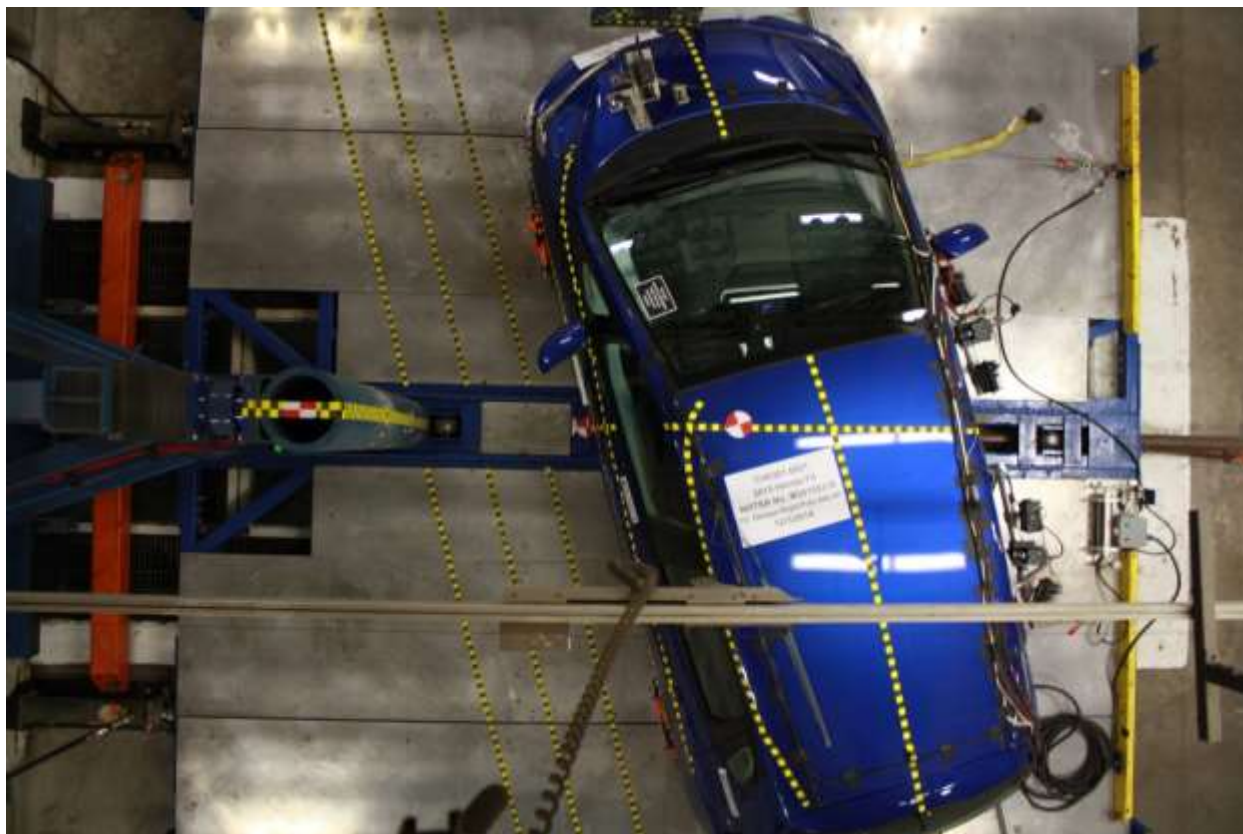


Figure A-15: Pre-Test Overhead View of Test Area



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

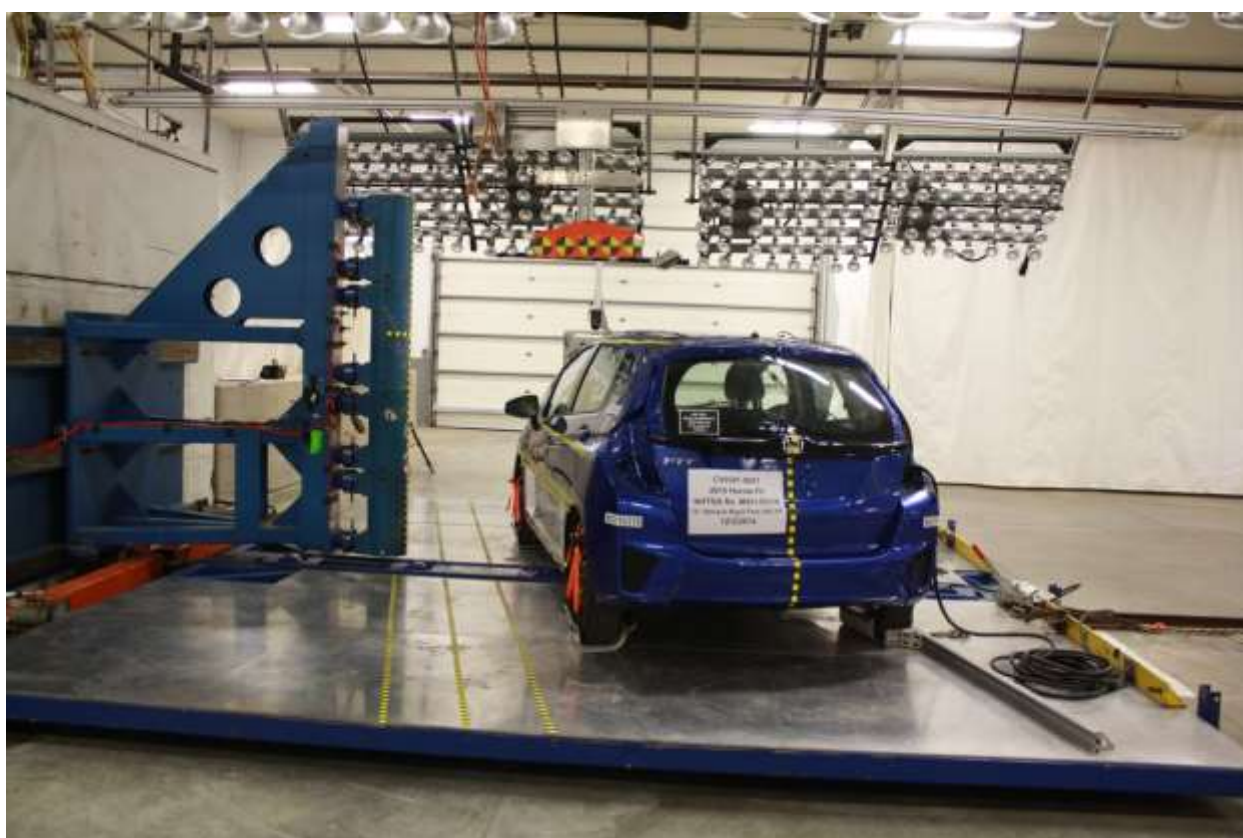


Figure A-18: Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



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 Frontal View of Seat Back Prior to Dummy Positioning

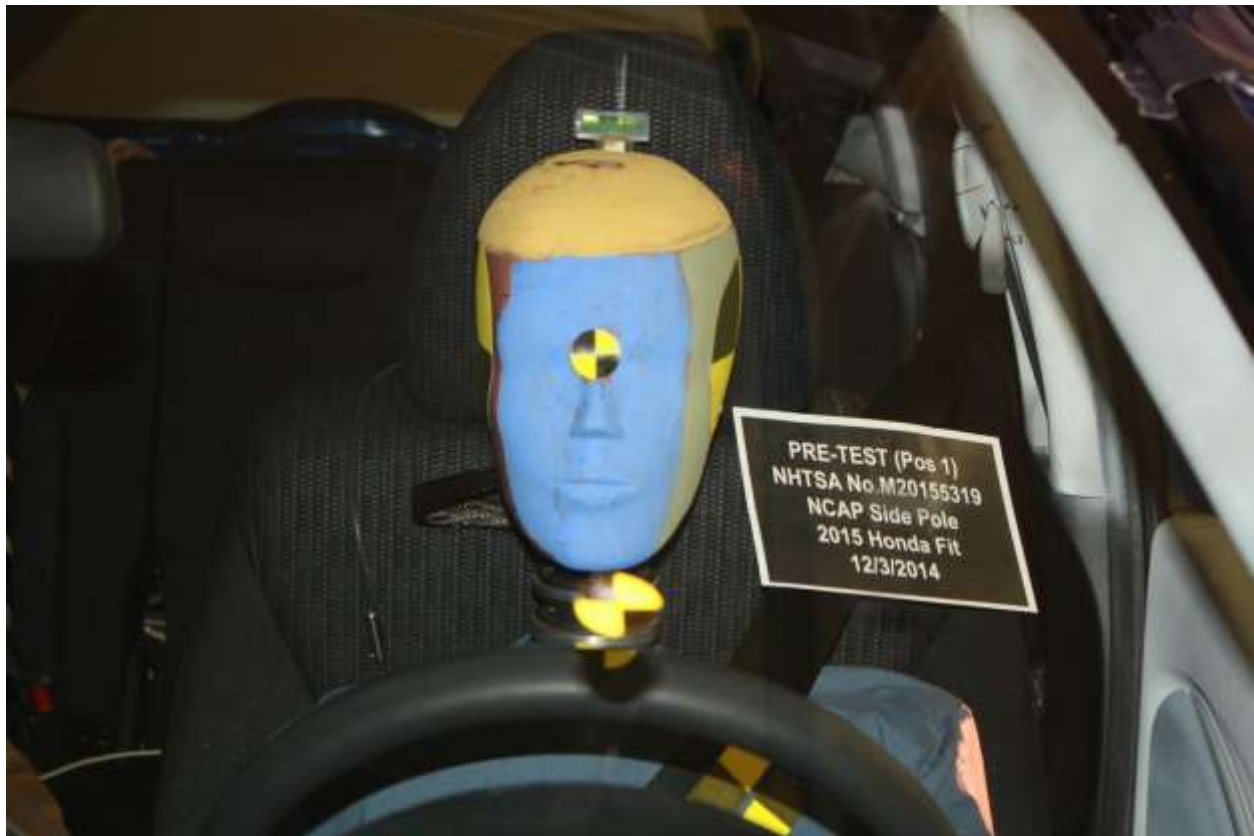


Figure A-27: Pre-Test Frontal Close-Up View of Dummy Head / Shoulders in Relation to Head Restraint



Figure A-28: Pre-Test Frontal 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

Photo Not Applicable

Figure A-52: Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



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



Figure A-54: Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-55: Close-Up View of Vehicle's Certification Label

Photo Not Applicable

Figure A-55a: Close-Up View of Reduced Load Capacity Label



Figure A-56: Close-Up View of Vehicle's Tire Information Placard or Label

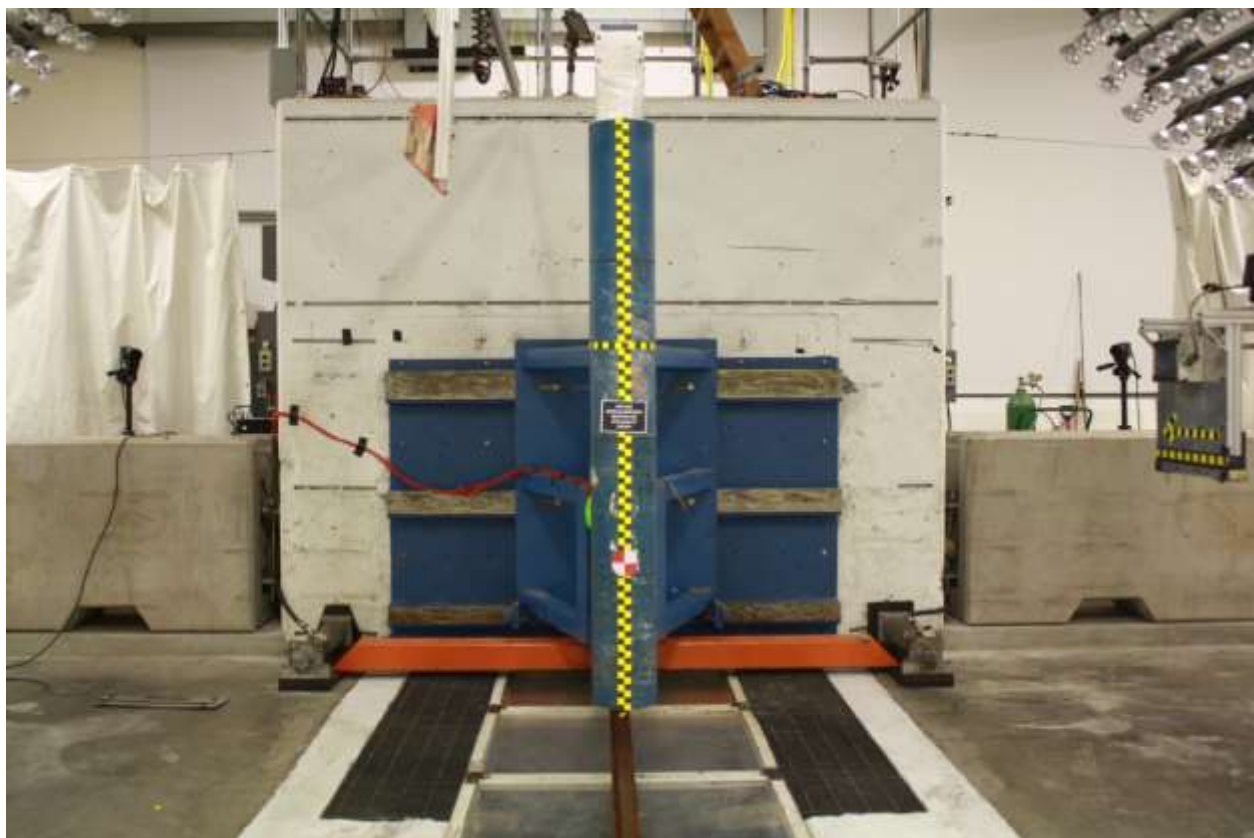


Figure A-57: Pre-Test Pole Barrier Front View

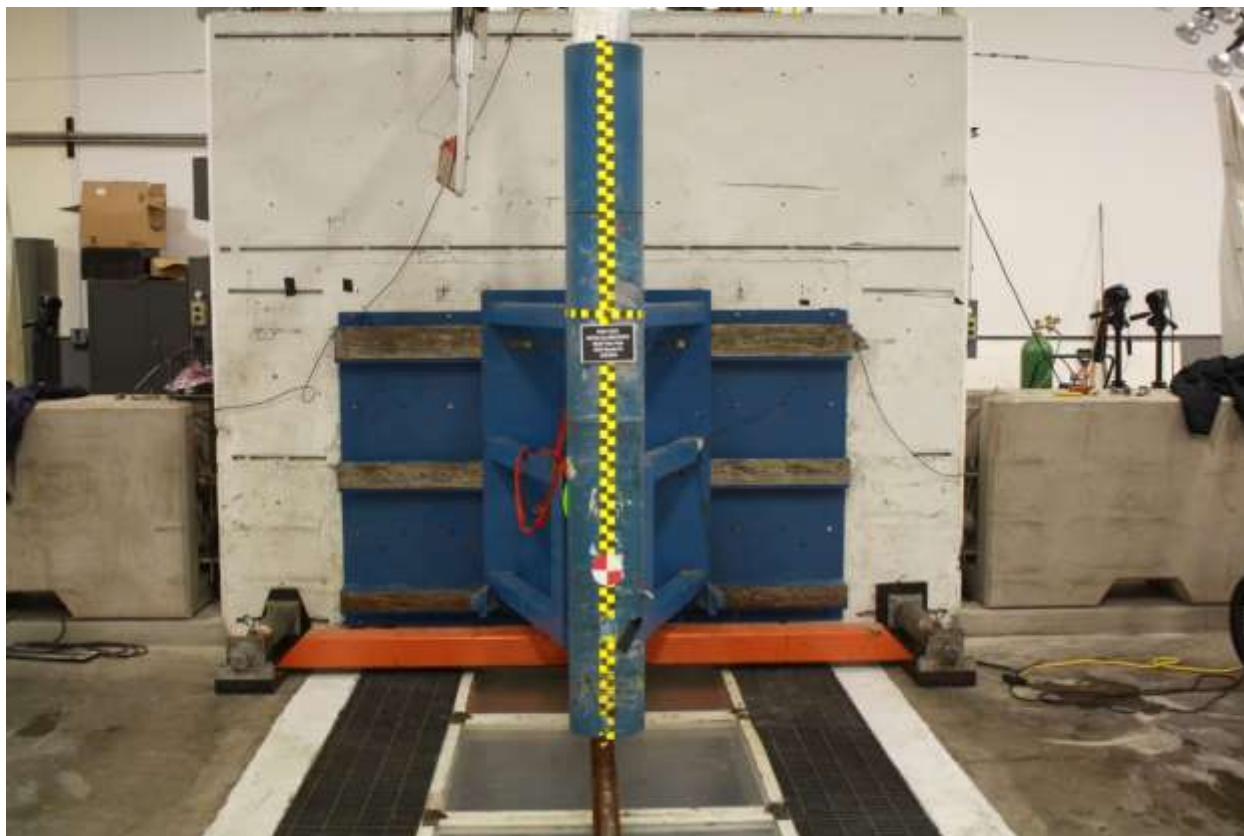


Figure A-58: Post-Test Pole Barrier Front View

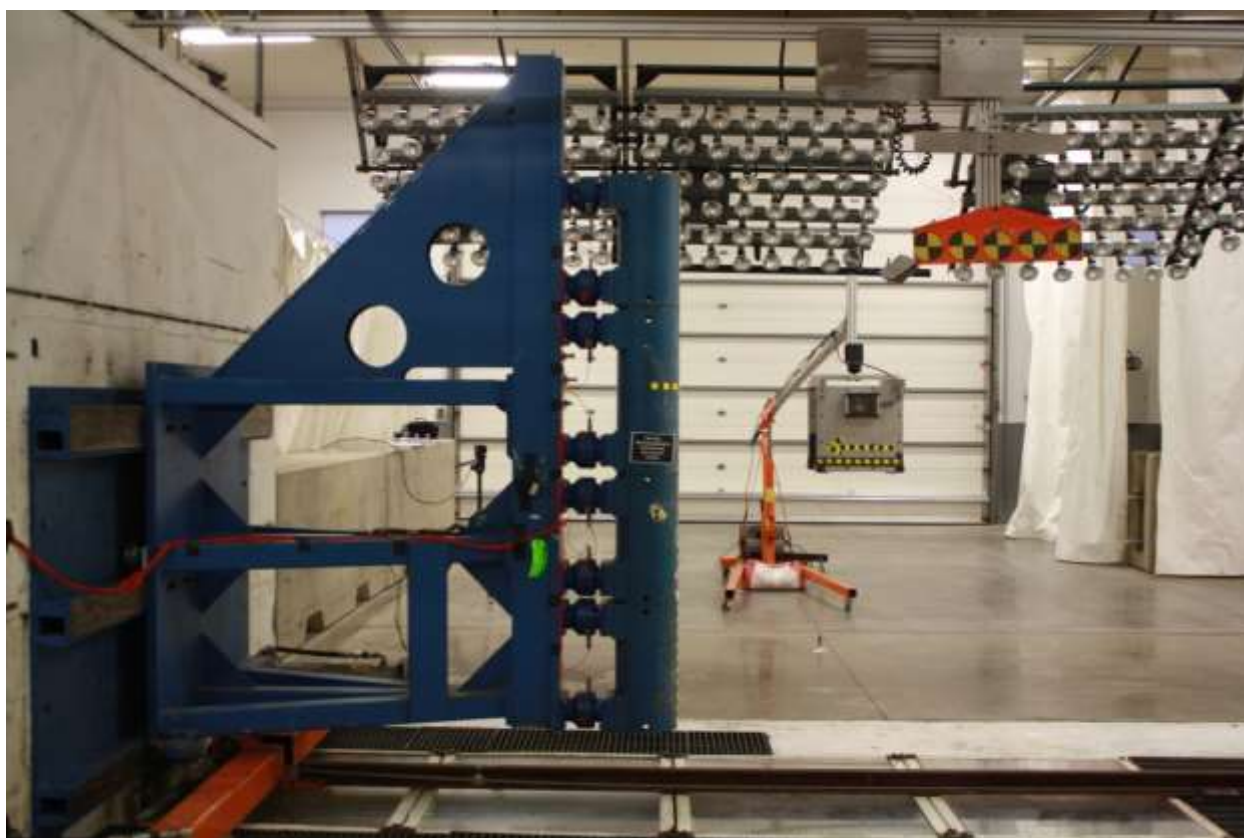


Figure A-59: Pre-Test Pole Barrier Side View



Figure A-60: Post-Test Pole Barrier Side View



Figure A-61: Pre-Test Ballast View



Figure A-62: Post-Test Primary and Redundant Speed Trap Read-Out



Figure A-63: FMVSS No. 301 Static Rollover 0 Degrees



Figure A-64: FMVSS No. 301 Static Rollover 90 Degrees



Figure A-65: FMVSS No. 301 Static Rollover 180 Degrees



Figure A-66: FMVSS No. 301 Static Rollover 270 Degrees

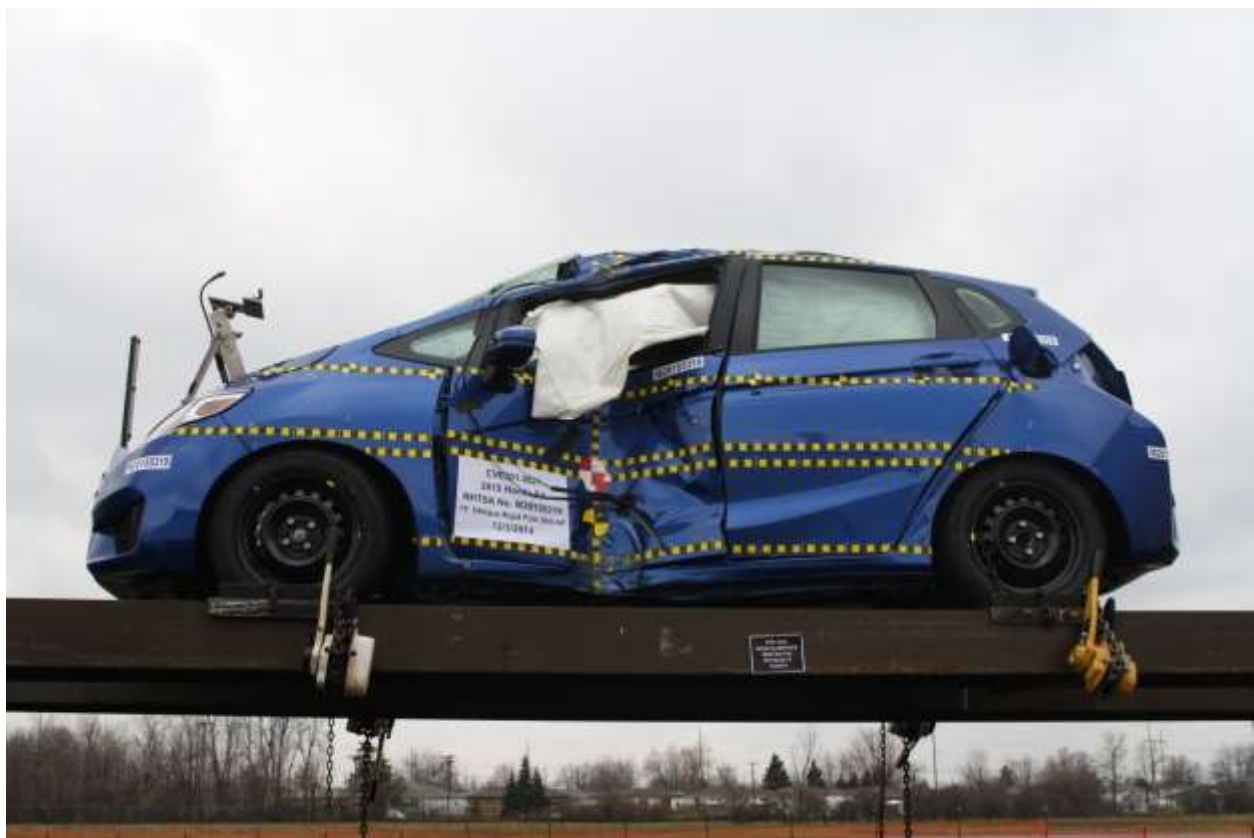


Figure A-67: FMVSS No. 301 Static Rollover 360 Degrees

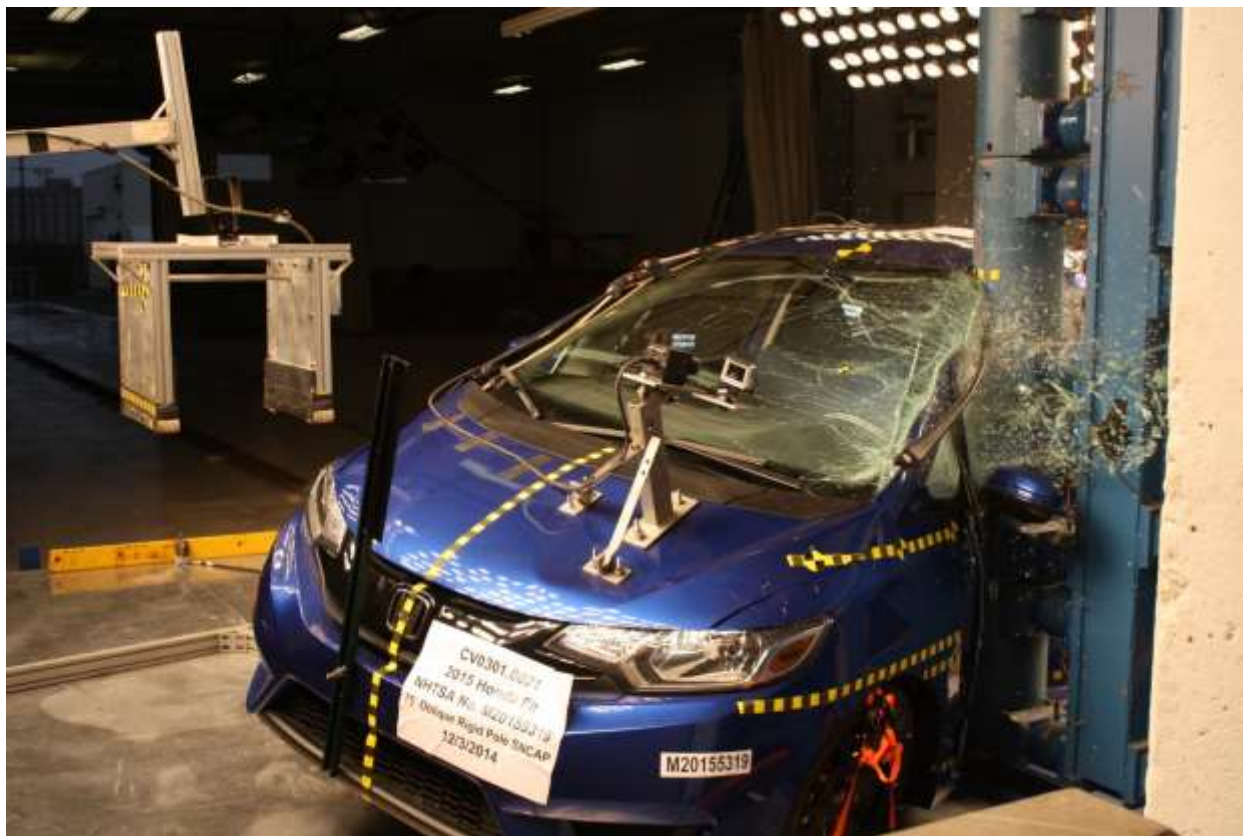
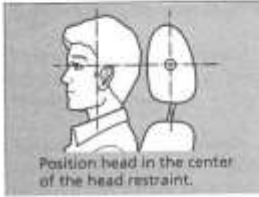


Figure A-68: Impact Event

HONDA		2015 FIT 5DR LX EXT: AEGEAN BLUE M. CHROME MACHETE LYNX-1504315 INT: BLACK		EPA DOT Fuel Economy and Environment Gasoline Vehicle	
STANDARD EQUIPMENT AT NO EXTRA COST		Manufacturer's Suggested Retail Price \$15,525.00 Full Tank of Fuel No Charge		Fuel Economy 32 MPG 29 city 37 highway 3.1 gallons per 100 miles	
TECHNICAL FEATURES* 150ci 1.8-Liter COHC 18-Valve i-VTEC 4-Cylinder Direct Injection Engine w/ Drive Dynamic Technology 6-Speed Manual Transmission - Drive-by-Wire Throttle System - Electric Power-Assisted Rack-and-Pinion Steering - Front MacPherson Strut Suspension - Rear Torque-Rear Suspension - Immobilizer Theft-Deterrent System		INTERIOR FEATURES* - AM/FM/CD/MP3 Auto System w/ 6 Speakers 5-Inch Color LCD Screen w/ Navigation Camera - Bluetooth Audio - Bluetooth-Hands-Free Link - USB Audio Interface - Steering Wheel-Mounted Controls - MP3 Auxiliary Input Jack - Air Conditioning w/ An Ionization System - Center Storage Console w/ Access - Driver's Seat Height Adjustment 60/40 Fold-Flat Rear Magic Seat - Power Windows and Programmable Auto Locks - Driver's Auto Up/Down Windows 18" & Telescopic Steering Column - Cargo Area Light - Wiper Vanity Mirror - Center Console 12-Volt Power Outlets		You save \$2,750 in fuel costs over 5 years compared to the average new vehicle.	
SAFETY FEATURES* - Driver's and Front Passenger's Dual-Ridge Airbags (SAB) - Driver's and Front Passenger's Side Airbags - Side Curtain Airbags w/ Roll-Over Sensor - Anti-Lock Braking System (ABS) - Electronic Brake Distribution (EBD) - Vehicle Stability Assist (VSA) - Tire Pressure Monitoring System - ACE Body Structure - Daytime Running Lights (DRL) - LATCH System for Child Seats		EXTERIOR FEATURES* 15" x 6.5" Steel Wheels w/ Full Wheel Covers - Projected H10 All-Season Tires - Intermittent Wiper/Washers - Rear Window Defogger - Rear Wiper w/ Washer - Auto-CHOIR Headlights - Exterior View Mirror - Body-Colored Power Door Mirrors - CD Headlight - Rear Spoiler - Remote Entry w/ Security System		Annual fuel cost \$1,650 Fuel Economy & Greenhouse Gas Rating: 1 (Best) to 10 (Worst)	
Destination and Handling 790.00 TOTAL VEHICLE PRICE (includes Pre-Delivery Service) \$16,315.00 *License and title fees, sales and local taxes and dealer options and accessories are not included in the manufacturer's suggested retail price.		PARTS CONTENT INFORMATION FOR VEHICLES IN THIS CATEGORY: U.S./Canadian Parts Content: 5% Major Sources of Foreign Parts Content: MEXICO 70% NOTE: Parts content does not include final assembly, distribution or other non-parts costs.		GOVERNMENT 5-STAR SAFETY RATING Overall Vehicle Score: Not Rated Frontal Crash: Driver Not Rated, Passenger Not Rated Side Crash: Front seat Not Rated, Rear seat Not Rated Rollover: Not Rated	
FORBEN HONDA 7000 GRAND AVENUE SUITE 100, IL 60051 PORT OF ENTRY: EL PASO DELIVERY POINT: SCHUMBERG DATE: 4/19/14 TRUCK/MILEAGE: 419-08 VIN: 3HGD2KG34FM732002		ORIG. D/L: 80768 REF. NO: 40790 REG. NO: 109-0913 SHIPMENT: 50 STATE CONTROL NO: 34624 DEALER: 201060		FOR THIS VEHICLE Final Assembly Plant: CELAYA, CELAYA MEXICO Country of Origin: Mexico Transmission: PHILIPPINES	
9/14 8 Miles H48176		Star Ratings range from 1 to 5 stars (*****) with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA) www.safercar.gov or 1-888-327-4276		This vehicle is equipped with a front bumper of a type that has been tested at an impact speed of 5 miles per hour, and a rear bumper of a type that has been tested at an impact speed of 5 miles per hour, resulting in no damage to the vehicle's body and safety systems and minimal damage to the bumper and attachment hardware. "Minimal damage to the bumper" means minor cosmetic damage that can be repaired with the use of common repair materials and without replacing any parts. The stronger the bumper, the less likely the vehicle will require repair after a low-speed collision. This vehicle exceeds the current federal bumper standard of 5.5 miles per hour.	

Figure A-69: Monroney Label

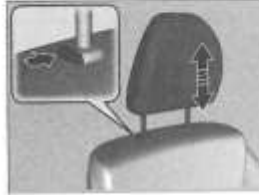
■ Adjusting the Head Restraints



Your vehicle is equipped with head restraints in all seating positions.

Head restraints are most effective for protection against whiplash and other rear-impact crash injuries when the center of the back of the occupant's head rests against the center of the restraint. The tops of the occupant's ears should be level with the center height of the restraint.

■ Adjusting the front head restraint positions



To raise the head restraint: Pull it upward.
To lower the head restraint: Push it down while pressing the release button.

■ Adjusting the Head Restraints

⚠ WARNING

Improperly positioning head restraints reduces their effectiveness and increases the likelihood of serious injury in a crash.

Make sure head restraints are in place and positioned properly before driving.

In order for the head restraint system to work properly:

- Do not hang any items on the head restraints, or from the restraint legs.
- Do not place any objects between an occupant and the seat-back.
- Install each restraint in its proper location.

Continued

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Figure A-70: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



Figure A-71: Post-Test View of Shattered Vehicle Inner Door Panel (if applicable)

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

Fig.	Description	Page
1	Driver Head Acceleration (X) Primary vs. Time	B-4
2	Driver Head Acceleration (Y) Primary vs. Time	B-4
3	Driver Head Acceleration (Z) Primary vs. Time	B-4
4	Driver Head Resultant Acceleration Primary vs. Time	B-4
5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-5
6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-5
7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-5
8	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-5
9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-6
10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-6
11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-6

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

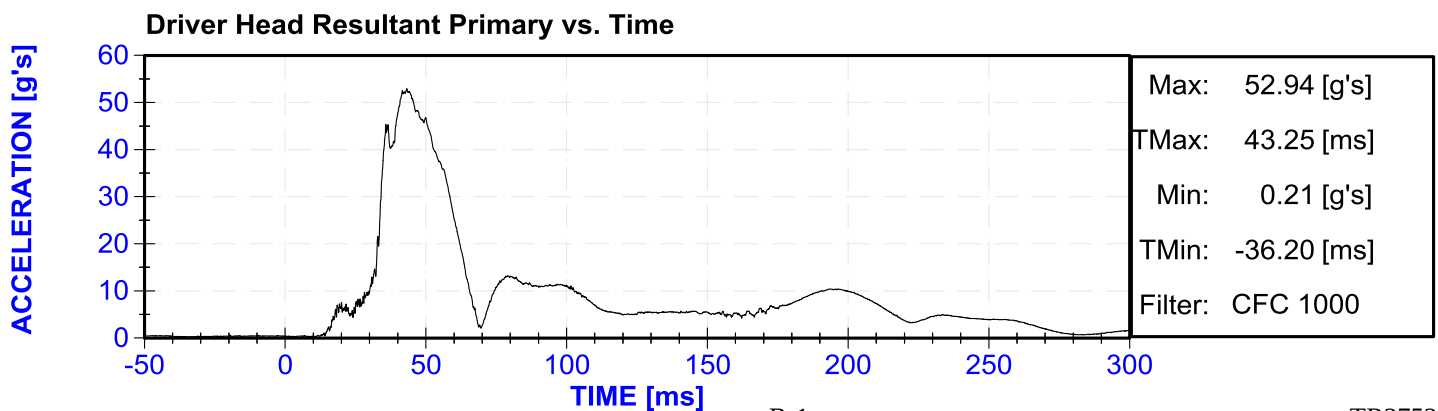
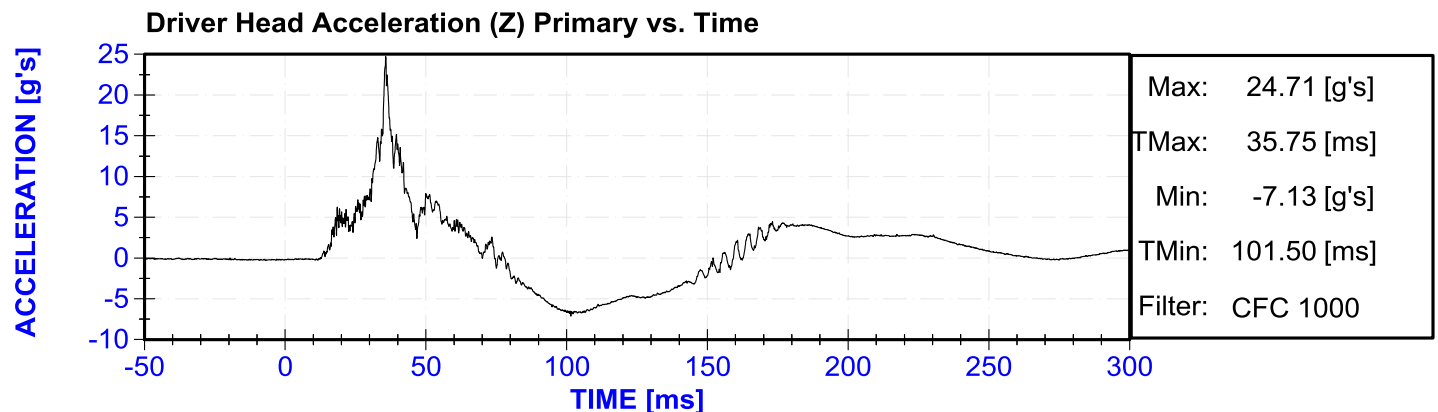
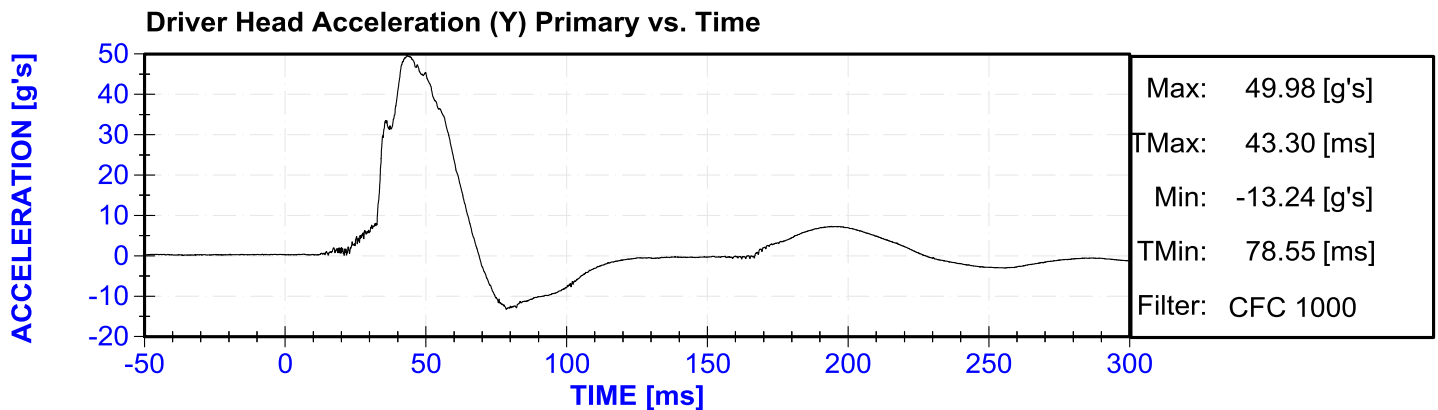
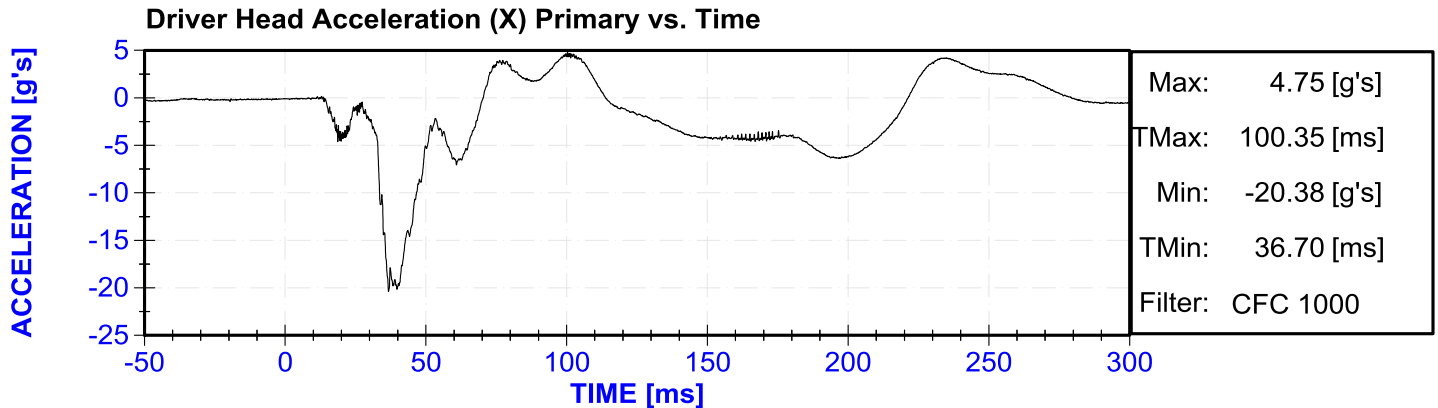
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)

Vehicle Instrumentation Data

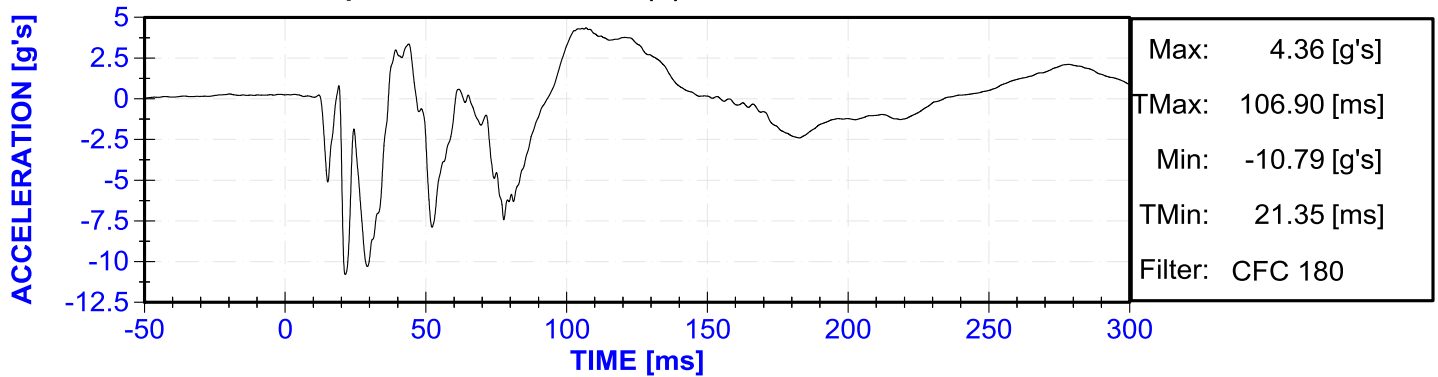
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

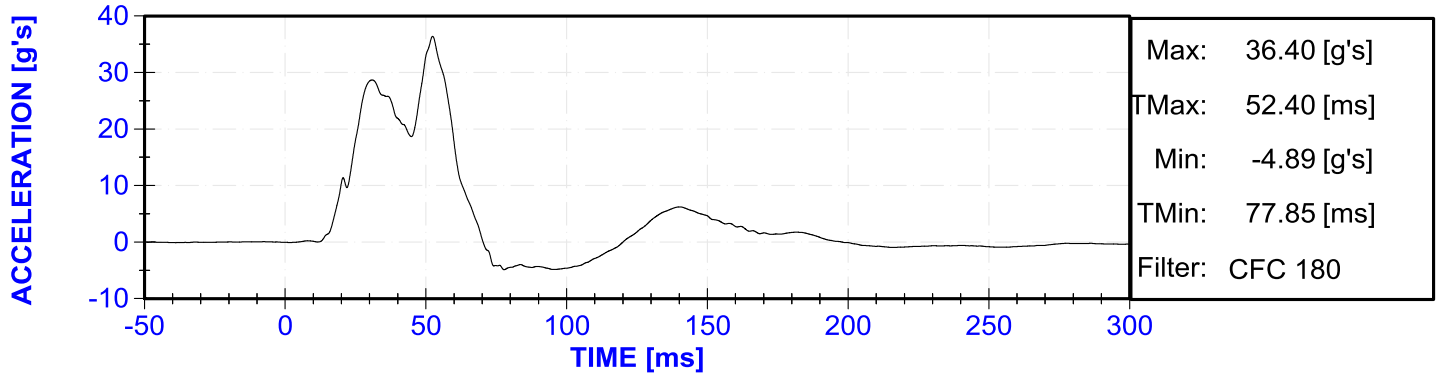
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)



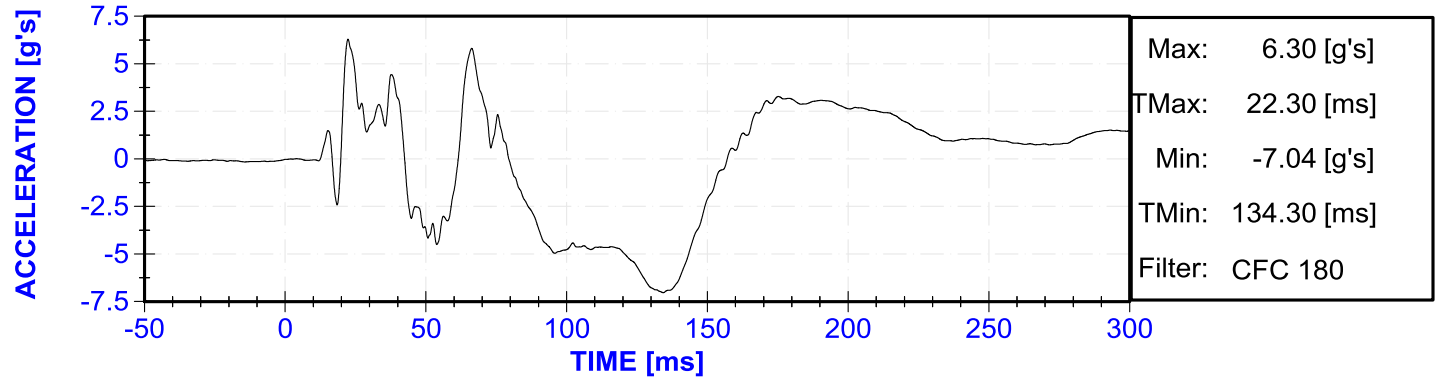
Driver Lower Spine T12 Acceleration (X) vs. Time



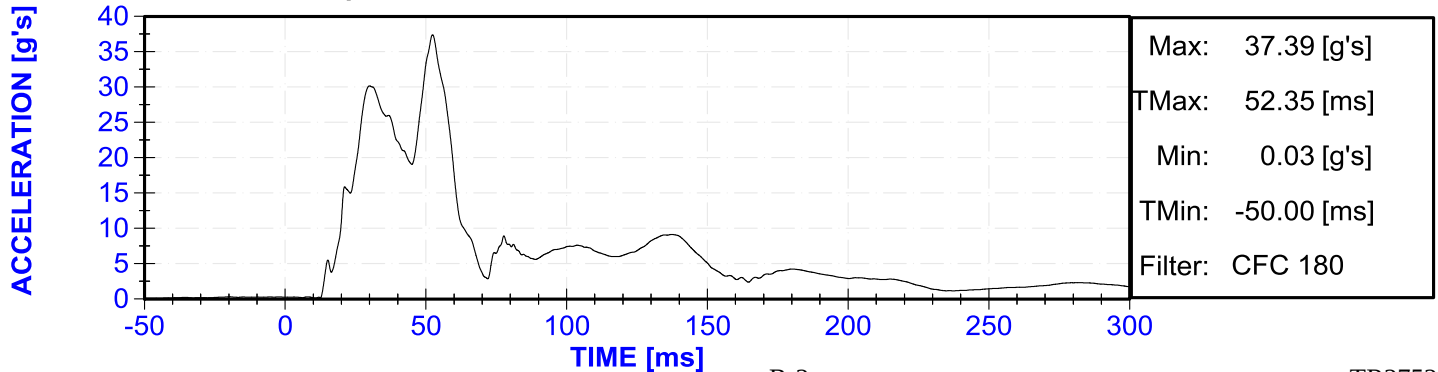
Driver Lower Spine T12 Acceleration (Y) vs. Time



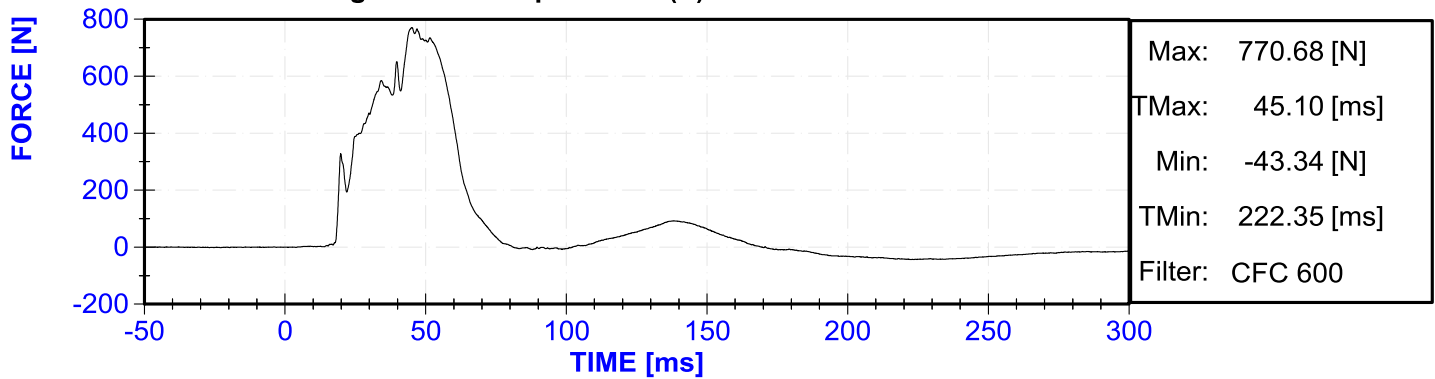
Driver Lower Spine T12 Acceleration (Z) vs. Time



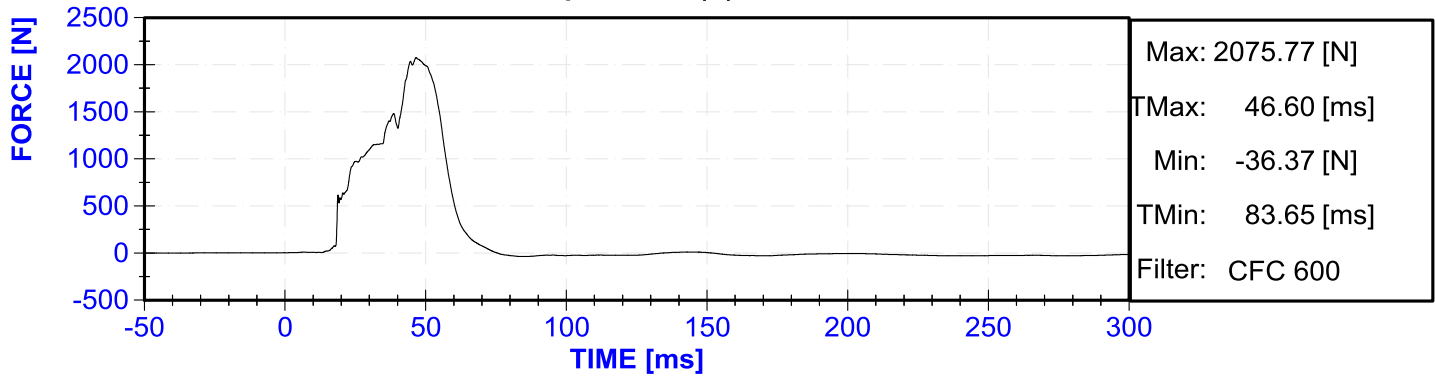
Driver Lower Spine T12 Resultant Acceleration vs. Time



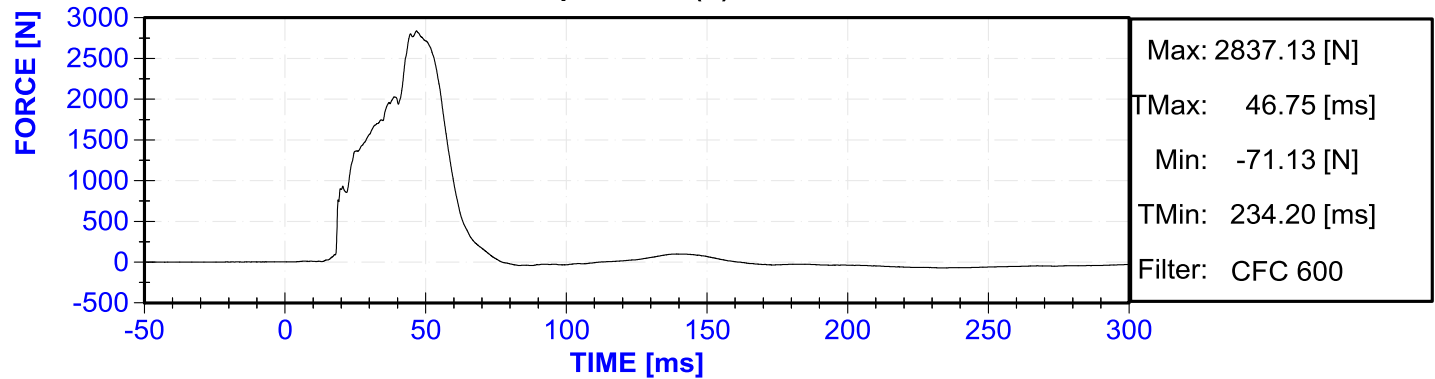
Driver Iliac Wing Force on Impact Side (Y) vs. Time



Driver Acetabulum Force on Impact Side (Y) vs. Time



Driver Total Pelvis Force on Impact Side (Y) vs. Time



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SERIAL NO: 303

(CONFIGURED FOR LEFT SIDE IMPACT)

Table V1. External Measurements

SID-ILs, PART 572, SUBPART V EXTERNAL DIMENSIONS				
Symbol	Description	Specification (mm)	Results (mm)	Pass/Fail
A	Sitting Height	772 – 788	780	P
B	Shoulder Pivot Height	437 – 453	445	P
C	H-point Height	79 – 89	87	P
D	H-point from seatback	141 – 151	146	P
E	Shoulder Pivot from Backline	97 – 107	104	P
F	Thigh Clearance	119 – 135	128	P
G	Head Breadth	140 – 148	144	P
H	Head Back from Backline	40 – 46	43	P
I	Head Depth	178 – 188	181	P
J	Head Circumference	541 – 551	546	P
K	Buttock to Knee Length	514 – 540	530	P
L	Popliteal Height	343 – 369	358	P
M	Knee Pivot to floor height	392 – 409	404	P
N	Buttock Popliteal Length	416 – 442	437	P
O	Chest Depth w/o jacket	195 – 211	203	P
P	Foot Length	216 – 232	219	P
Q	Hip Breadth (w/pelvic plugs)	313 – 323	316	P
R	Arm Length	249 – 259	252	P
S	Knee Joint to seatback	477 – 493	485	P
V	Shoulder Width	341 – 357	350	P
W	Foot Width	78 – 94	84	P
Y	Chest Circumference w/jacket	851 – 881	870	P
Z	Waist Circumference	761 – 791	770	P

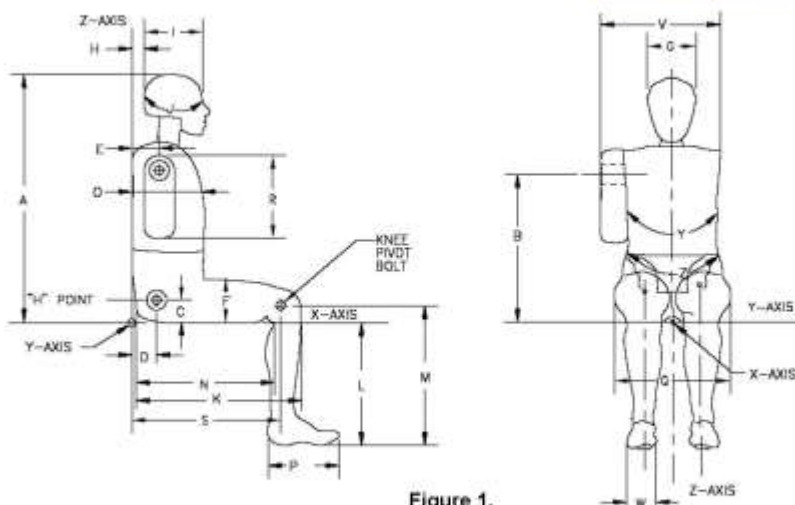


Figure 1.



VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:			
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Head Drop	Test Date:	11/10/2014
		Test Time:	1:44:42 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10 -- 70	28 %RH P
Resultant Acceleration	115.0 -- 137.0	125.0 g P
Oscillation	0.0 -- 15.0	9.8 % P
Fore-Aft Acceleration	-15.0 -- 15.0	-6.4 g P

All test parameters are within specifications

Technician: M. Geesey

Supervisor: M. Goehle



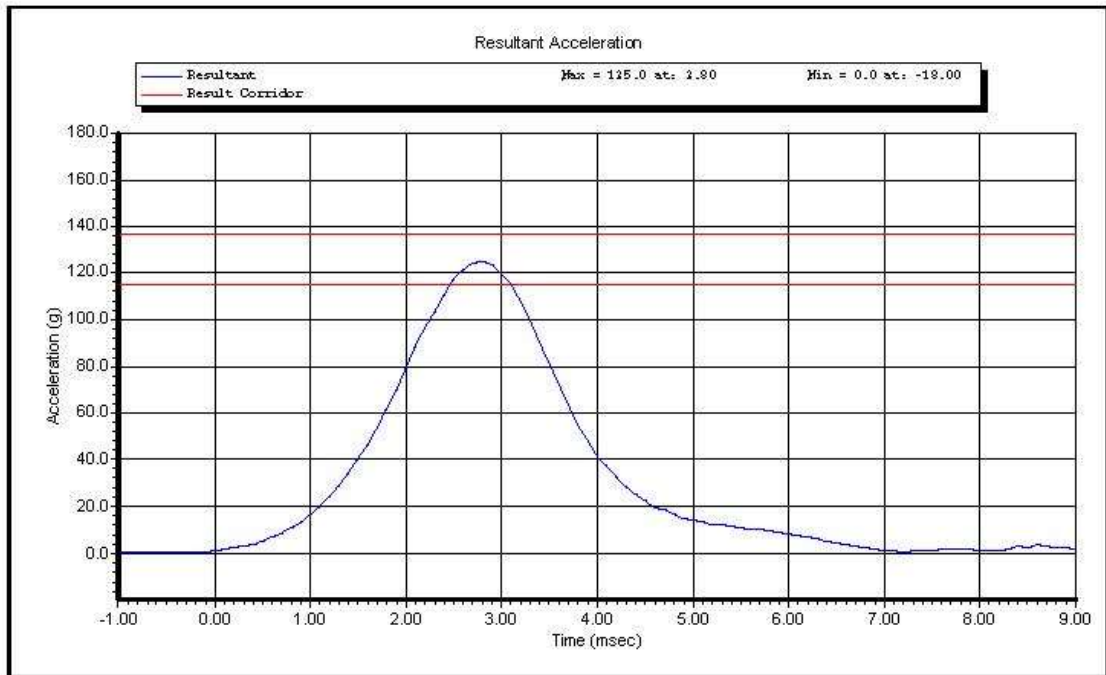
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P52022	10/8/2014
Endevco	7264-2000	P52040	10/8/2014
Endevco	7264-2000	P58737	10/8/2014



Test Name:	Head Drop
Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303

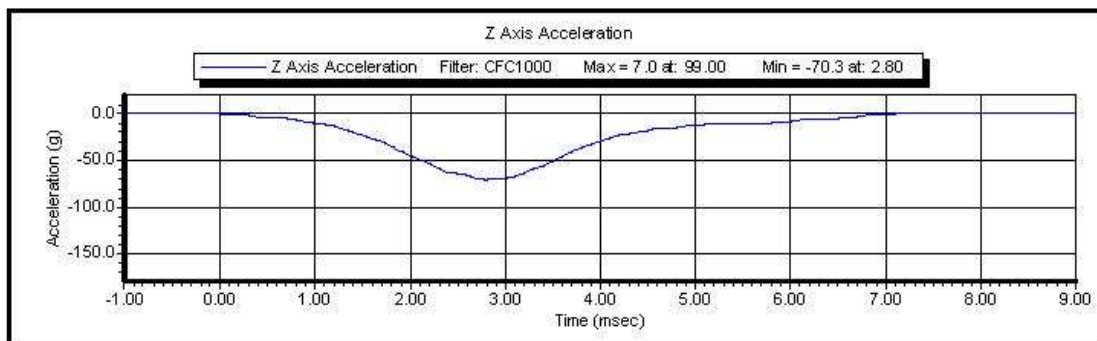
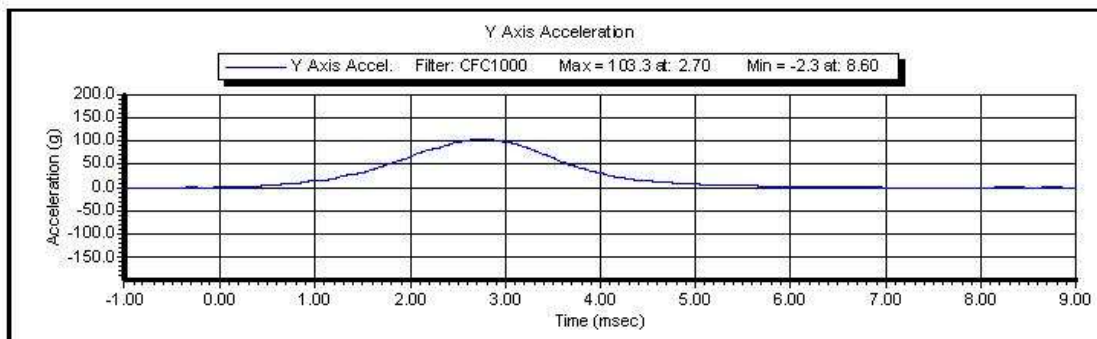
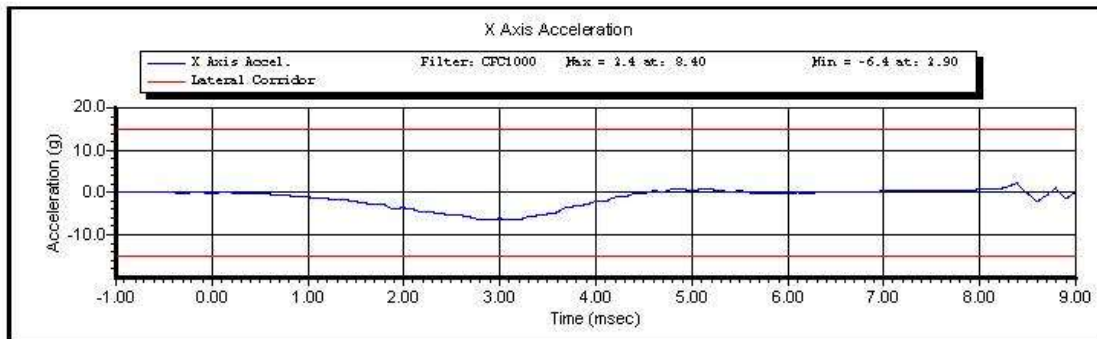


Test ID: **Head Drop**

Test Time: **1:44:42 PM**

Test Date: **11/10/2014**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0



Test ID: **Head Drop**

Test Time: **1:44:42 PM**

Test Date: **11/10/2014**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0



VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side		
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Neck Flexion Left	Test Date:	11/13/2014
		Test Time:	3:30:38 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.9 deg C P
Humidity	10 -- 70	23.8 %RH P
Velocity	5.51 -- 5.63	5.564 m/s P
Pendulum Impulse at 10 ms	2.2 -- 2.8	2.25 m/s P
Pendulum Impulse at 15 ms	3.3 -- 4.1	3.31 m/s P
Pendulum Impulse at 20 ms	4.4 -- 5.4	4.51 m/s P
Pendulum Impulse at 25 ms	5.4 -- 6.1	5.50 m/s P
Pendulum Impulse between 25 and 100 ms	5.5 -- 6.2	5.87 m/s P
Max D Plane Rotation	71 -- 81	78.2 degrees P
Time at Max Rotation	50 -- 70	63.9 ms P
Moment about OC	36 -- 44	42.2 Nm P
Moment Decay to Zero	102 -- 126	117.7 ms P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



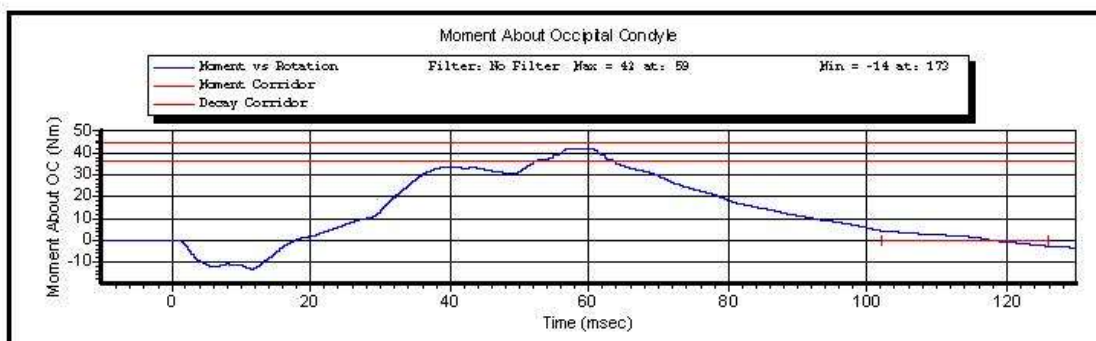
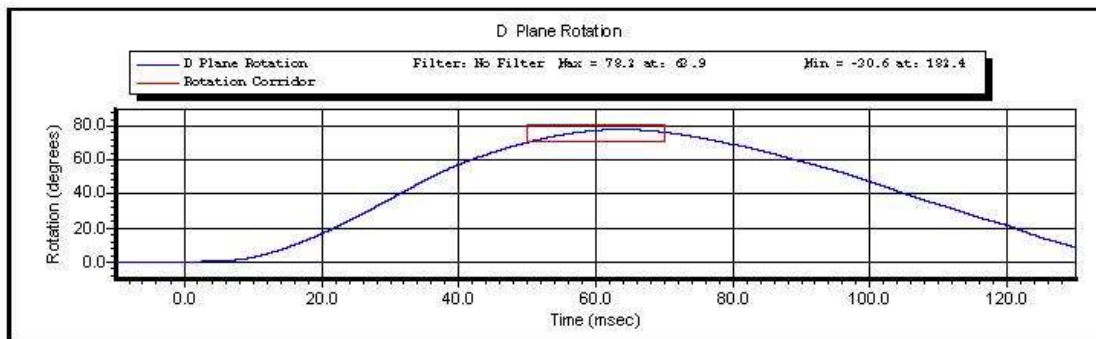
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	AH5F3	11/6/2014
Denton	1716A	LC-2019 Fy	5/19/2014
Denton	1716A	LC-2019 Mx	5/19/2014
DentonATD	78051-342	184	11/13/2014
DentonATD	78051-342	174	11/13/2014
DentonATD	78051-342	185	11/13/2014



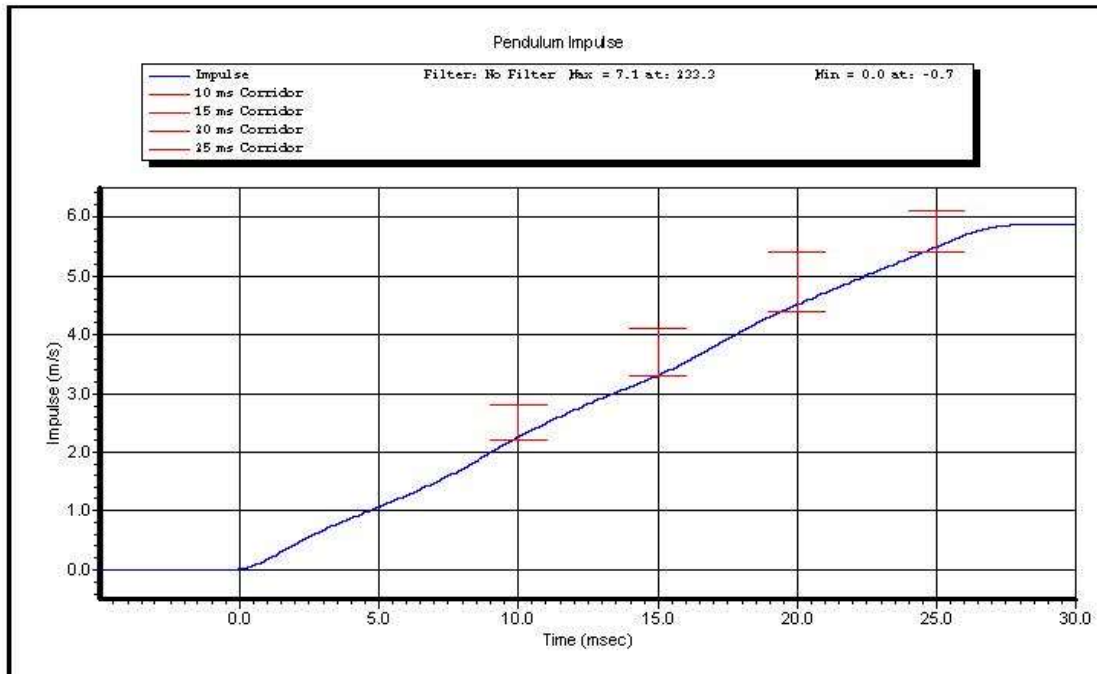
Test Name:	Neck Pendulum
Sub Test Name:	Left Side
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: Neck Flexion Left Test Time: 3:30:38 PM

Test Date: 11/13/2014

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0



Test ID: **Neck Flexion Left** Test Time: **3:30:38 PM**

Test Date: **11/13/2014**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0



VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:			
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Shoulder Impact	Test Date:	11/12/2014
		Test Time:	9:07:44 AM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.40 deg C	P
Humidity	10	--	70	30.0 %RH	P
Velocity	4.2	--	4.4	4.32 m/s	P
Probe Acceleration	13	--	18	15.6 g	P
Shoulder Deflection	28	--	37	30.6 mm	P
T1 Acceleration	17	--	22	20.9 g	P

All test parameters are within specifications

Technician: M. Geesey

Supervisor: M. Goehle



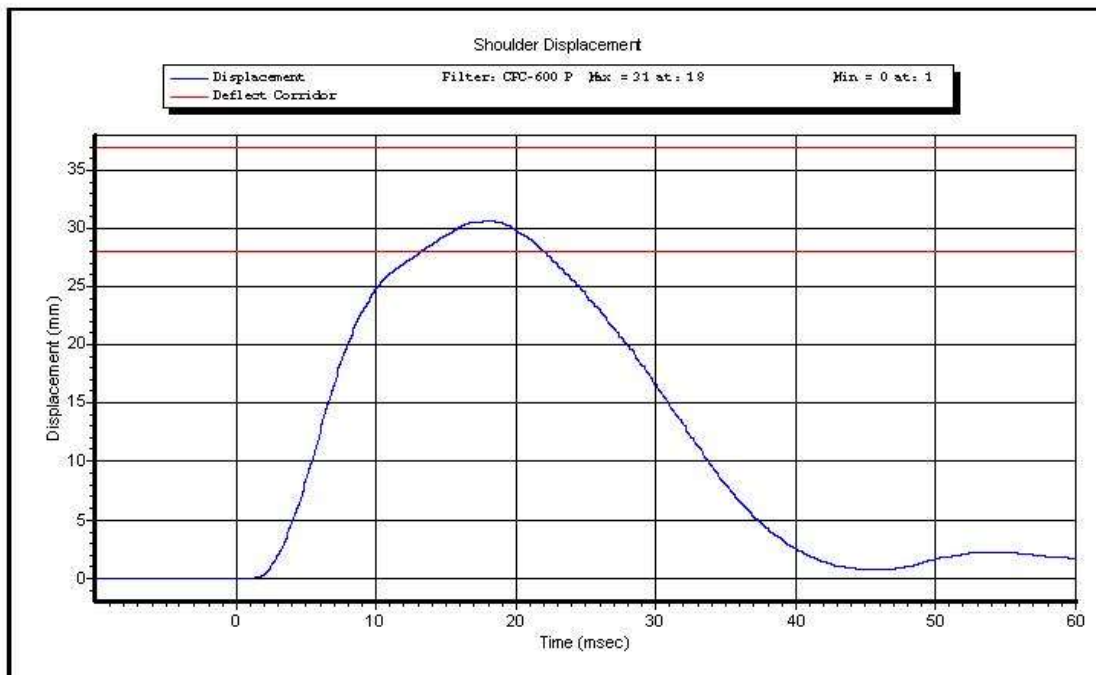
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Servo	180-3885	DS-1179GFE	8/6/2014
Endevco	7264-2000	P63315	10/9/2014

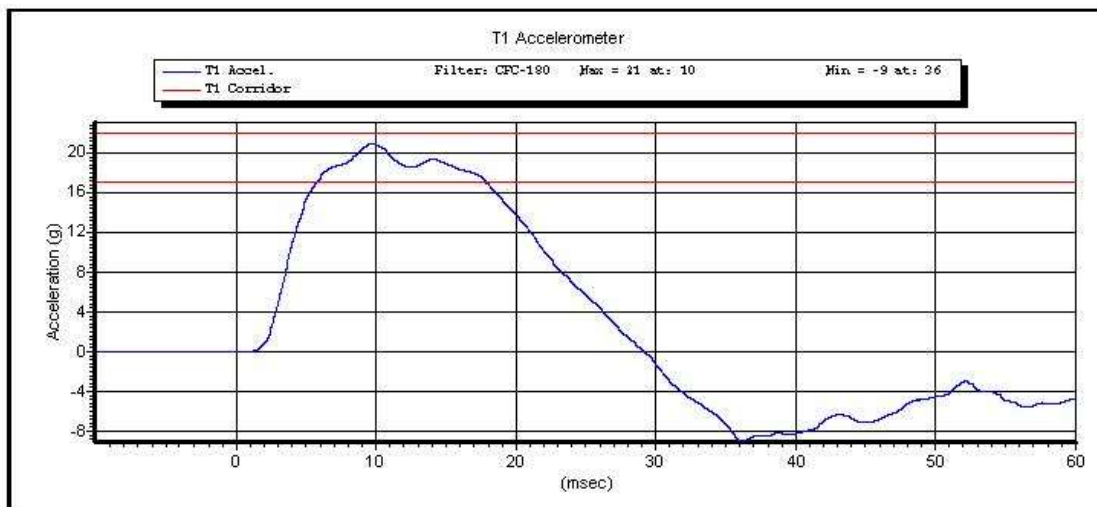


Test Name:	Shoulder Impact
Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: **Shoulder Impact** Test Time: **9:07:44 AM**
Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

Test Date: **11/12/2014**



Test ID: **Shoulder Impact** Test Time: **9:07:44 AM**
Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0

Test Date: **11/12/2014**



VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:			
ATD Type:	SID-11s		
ATD Serial Number:	303		
Test ID:	Thorax Impact w/Arm	Test Date:	11/11/2014
		Test Time:	12:46:04 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.9 deg C	P
Humidity	10	--	70	31.0 %RH	P
Velocity	6.6	--	6.8	6.71 m/s	P
Probe Acceleration after 5ms	30	--	36	34.6 g	P
Upper Thorax Rib Deflection	25	--	32	26.1 mm	P
Mid Thorax Rib Deflection	30	--	36	31.2 mm	P
Lower Thorax Rib Deflection	32	--	38	33.3 mm	P
Upper Spine Acceleration ("y")	34	--	43	42.2 g	P
Lower Spine Acceleration ("y")	29	--	37	36.0 g	P
Shoulder Deflection	31	--	40	34.4 mm	P

All test parameters are within specifications

Technician: **M. Geesey**
Supervisor: **M. Goehle**



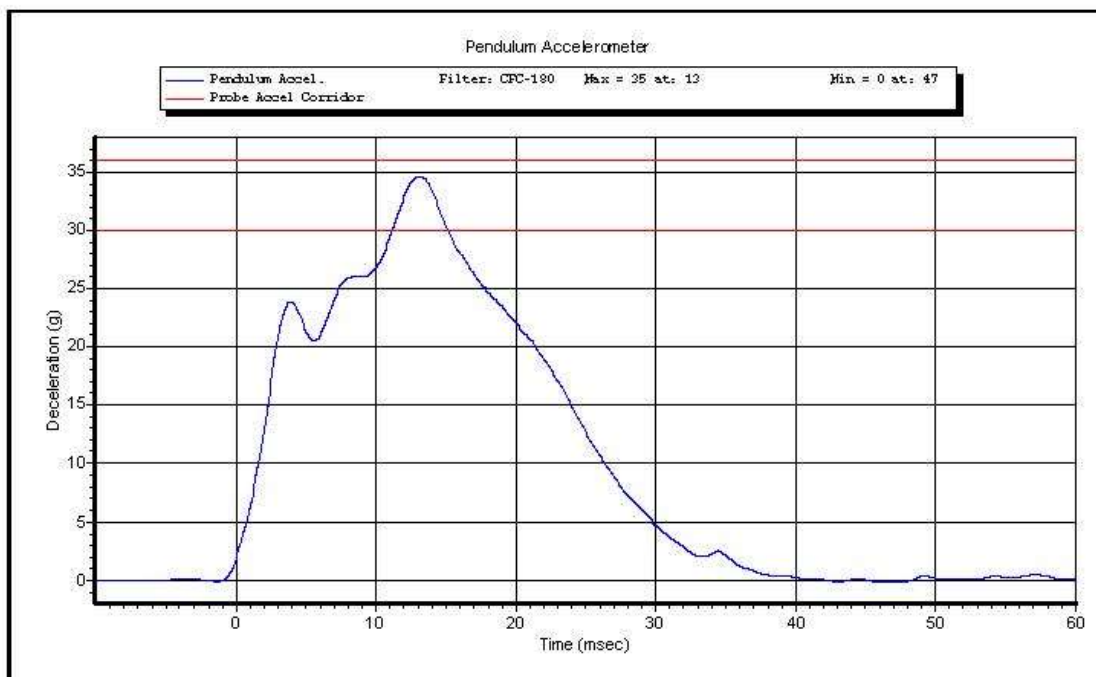
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Servo	180-3885	DS-1199GFE	8/6/2014
Servo	180-3885	DS-1246GFE	8/6/2014
Servo	180-3885	DS-1256GFE	8/6/2014
Endevco	7264-2000	P63315	10/9/2014
Endevco	7264-2000	P51974	10/9/2014
Servo	180-3885	DS-1179GFE	8/6/2014



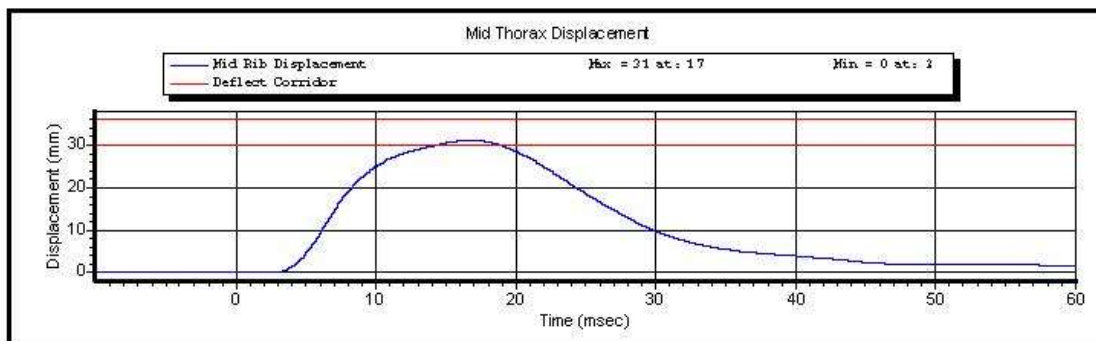
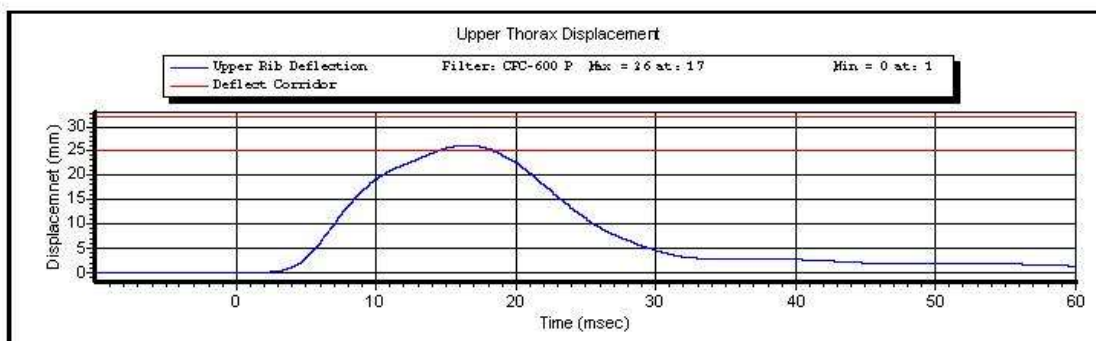
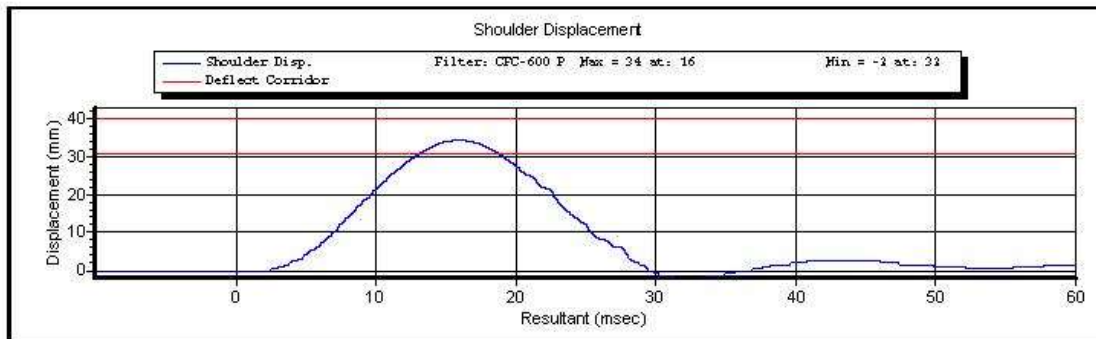
Test Name:	Thorax Impact with Arm
Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: Thorax Impact w/Arm Test Time: 12:46:04 PM

Test Date: 11/11/2014

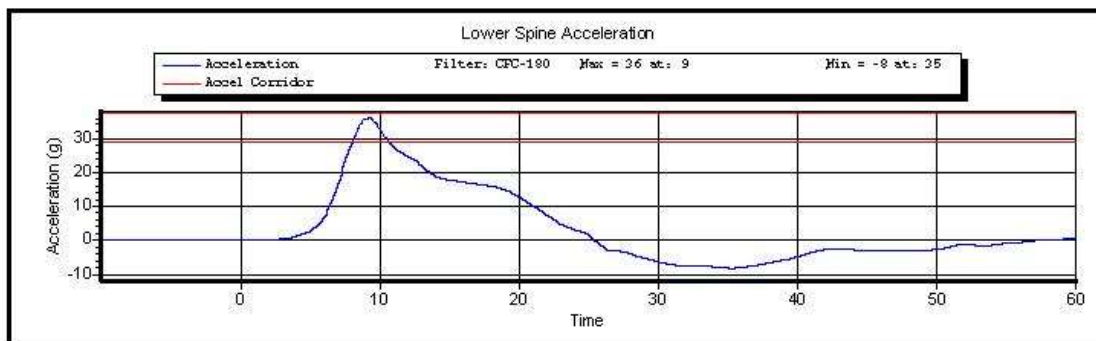
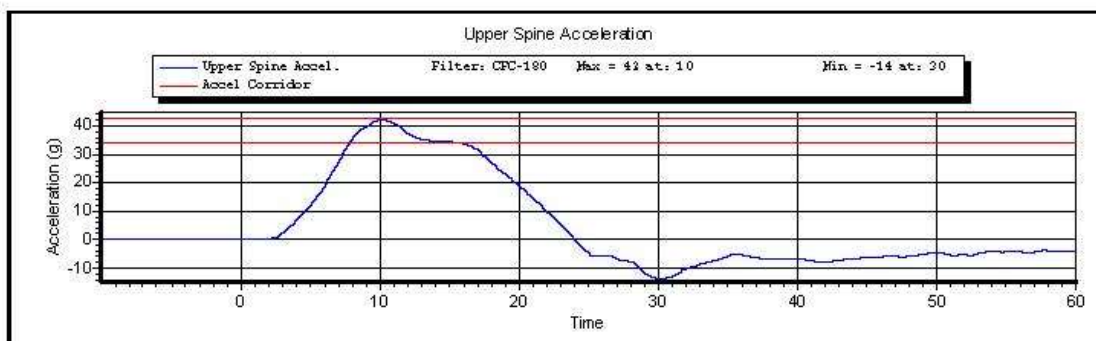
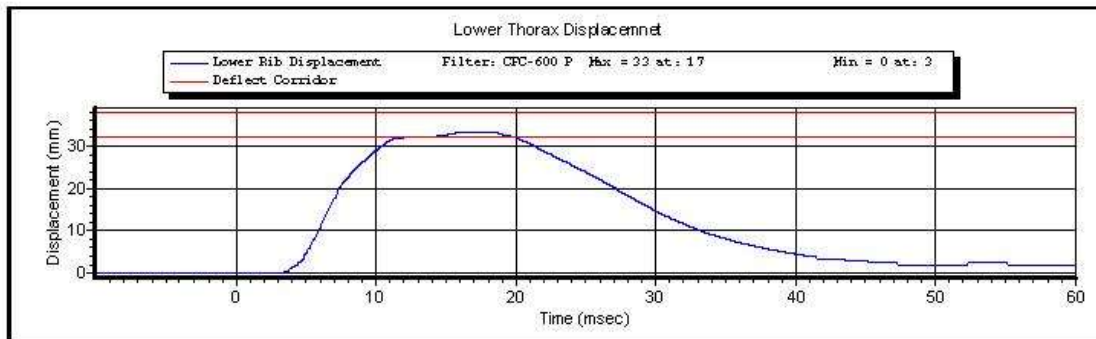
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Test ID: Thorax Impact w/Arm Test Time: 12:46:04 PM

Test Date: 11/11/2014

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0



Test ID: Thorax Impact w/Arm Test Time: 12:46:04 PM

Test Date: 11/11/2014

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VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:			
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Thorax w/o Arm	Test Date:	11/11/2014
		Test Time:	1:21:16 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	22.0 deg C	P
Humidity	10	--	70	31.0 %RH	P
Velocity	4.2	--	4.4	4.33 m/s	P
Probe Acceleration	14	--	18	16.1 g	P
Upper Thorax Rib Deflection	32	--	40	34.1 mm	P
Mid Thorax Rib Deflection	39	--	45	41.0 mm	P
Lower Thorax Rib Deflection	35	--	43	39.7 mm	P
Upper Spine Acceleration T1	13	--	17	16.2 g	P
Lower Spine Acceleration T12	7	--	11	10.0 g	P

All test parameters are within specifications

Technician: M. Geesey

Supervisor: M. Goehle



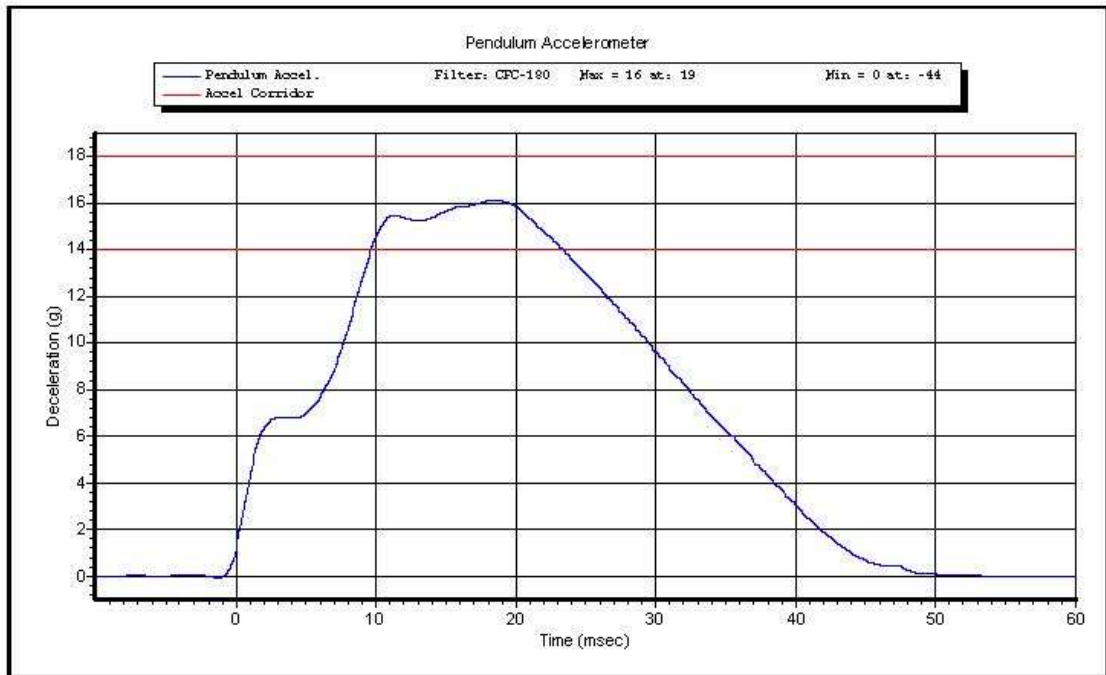
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Servo	180-3885	DS-1199GFE	8/6/2014
Servo	180-3885	DS-1246GFE	8/6/2014
Servo	180-3885	DS-1256GFE	8/6/2014
Endevco	7264-2000	P63315	10/9/2014
Endevco	7264-2000	P51974	10/9/2014



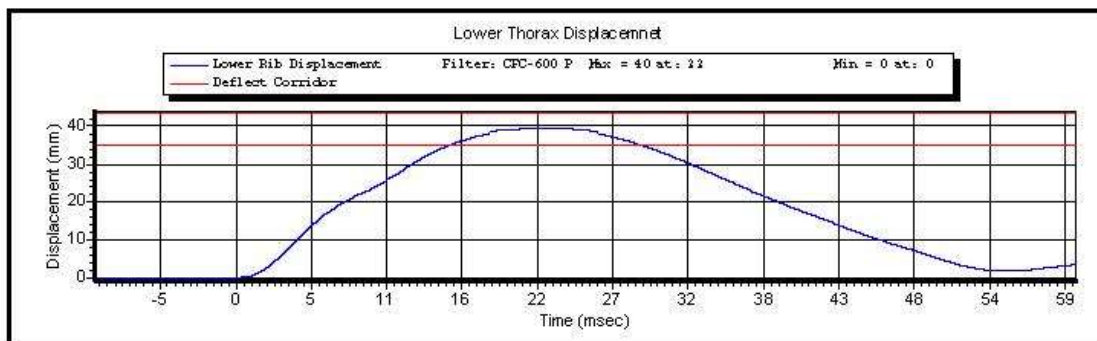
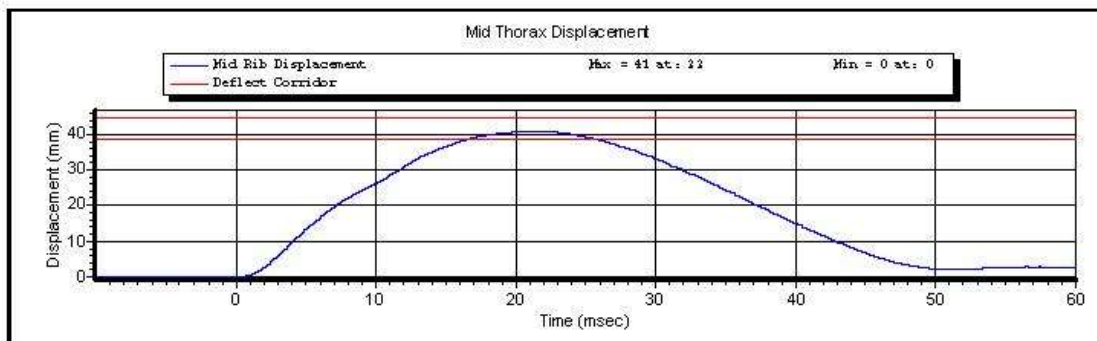
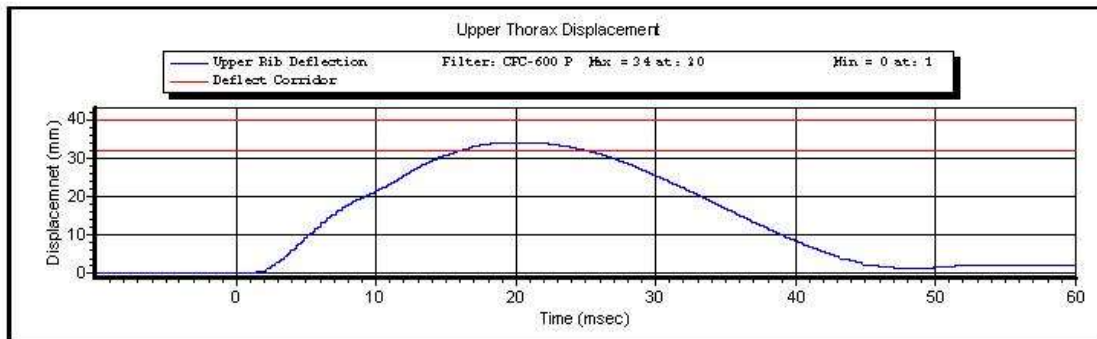
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Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: Thorax w/o Arm Test Time: 1:21:16 PM

Test Date: 11/11/2014

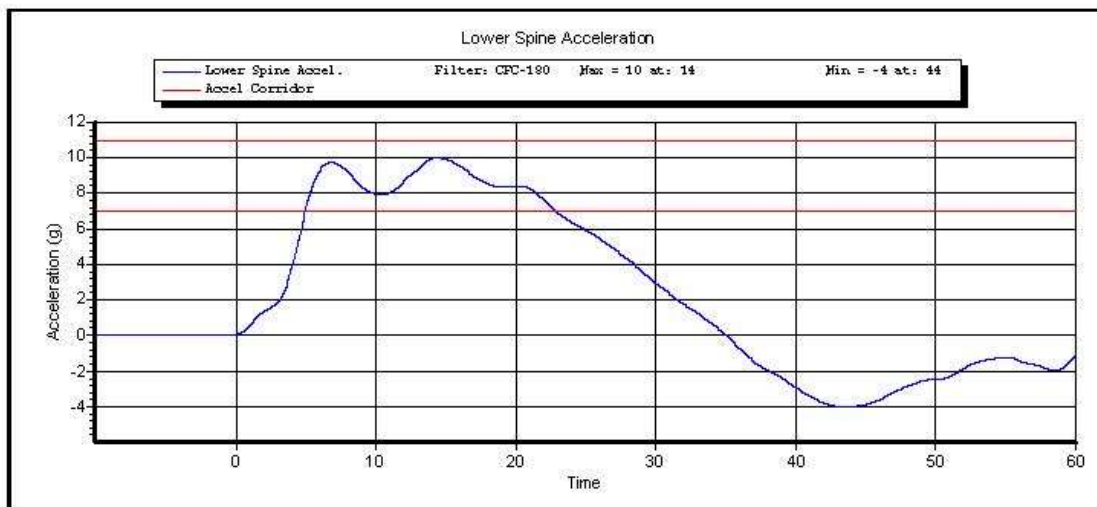
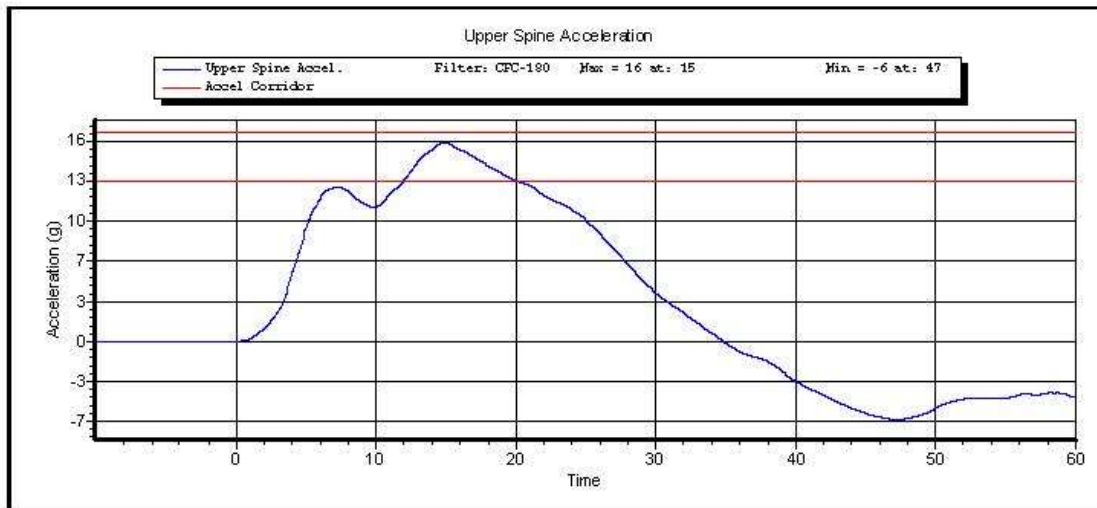
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Test ID: Thorax w/o Arm Test Time: 1:21:16 PM

Test Date: 11/11/2014

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Test ID: **Thorax w/o Arm** Test Time: **1:21:16 PM**

Test Date: **11/11/2014**

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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:			
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Abdomen Impact	Test Date:	11/12/2014
		Test Time:	11:18:46 AM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.30 deg C	P
Humidity	10	--	70	27.40 %RH	P
Velocity	4.2	--	4.4	4.33 m/s	P
Probe Deceleration	12	--	16	14.9 G's	P
Upper Abdominal Rib Deflection	36	--	47	38.7 mm	P
Lower Abdominal Rib Deflection	33	--	44	36.3 mm	P
Lower Spine Acceleration - T12	9	--	14	11.2 G's	P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



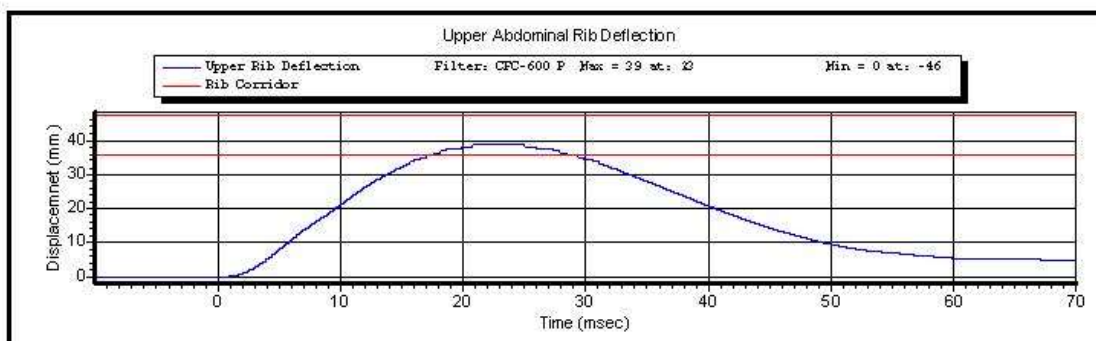
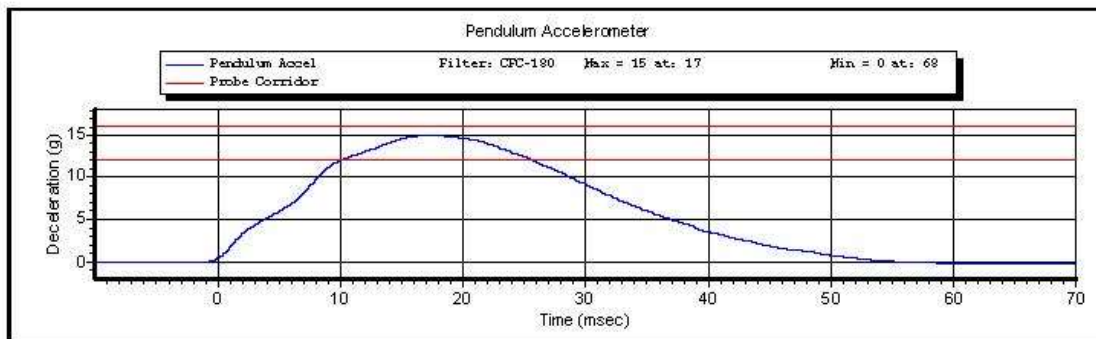
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Servo	180-3885	DS-1274GFE	8/6/2014
Servo	180-3885	DS-1285GFE	8/6/2014
Endevco	7264-2000	P51974	10/9/2014



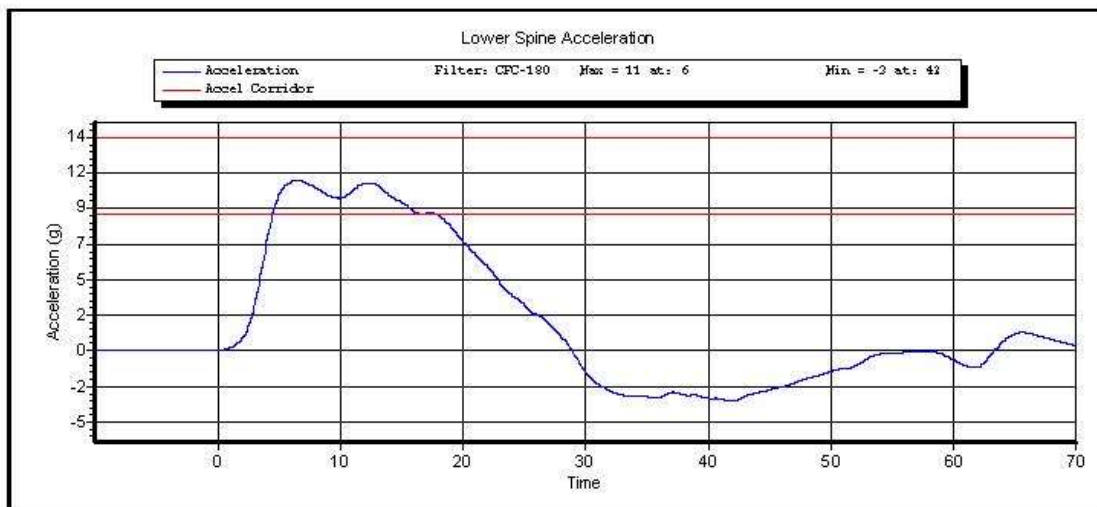
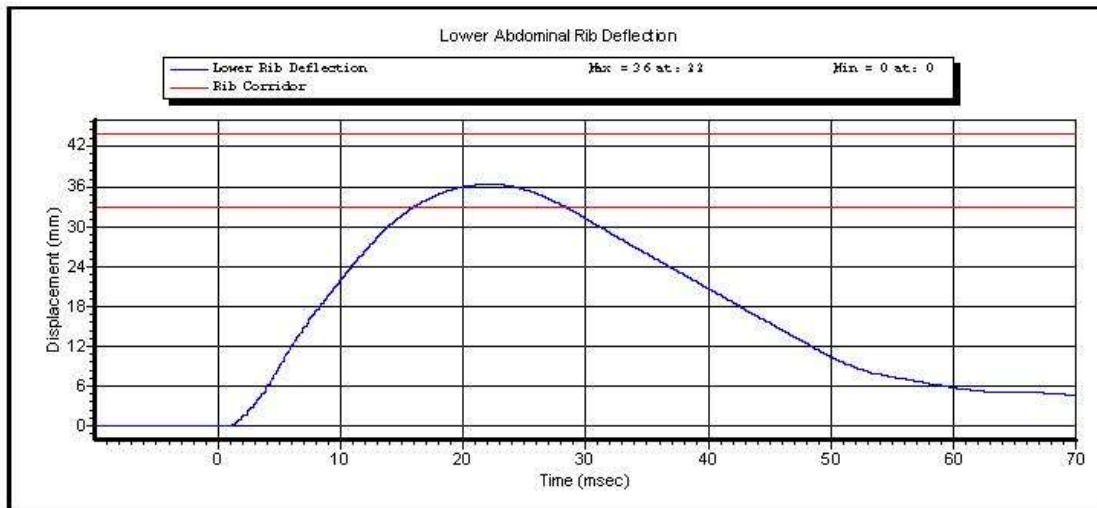
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Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: **Abdomen Impact** Test Time: **11:18:46 AM**

Test Date: **11/12/2014**

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Test ID: **Abdomen Impact** Test Time: **11:18:46 AM**

Test Date: **11/12/2014**

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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact		
ATD Type:	SID-11s		
ATD Serial Number:	303		
Test ID:	Acetabulum Impact	Test Date:	11/12/2014
		Test Time:	12:13:03 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	20.8 deg C	P
Humidity	10	--	70	28.3 %RH	P
Velocity	6.6	--	6.8	6.67 m/s	P
Peak Probe Acceleration	38	--	47	44.2 g	P
Peak Pelvis Acceleration After 6ms	34	--	42	41.0 g	P
Peak Acetabulum Force	3.6	--	4.3	3.90 kN	P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



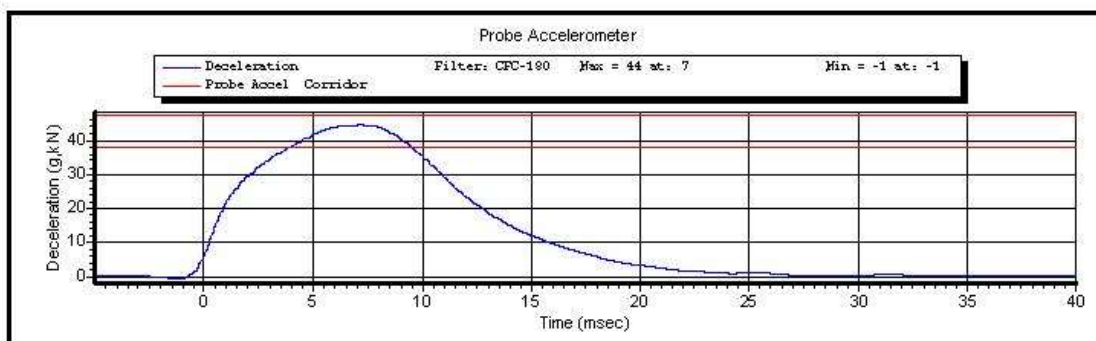
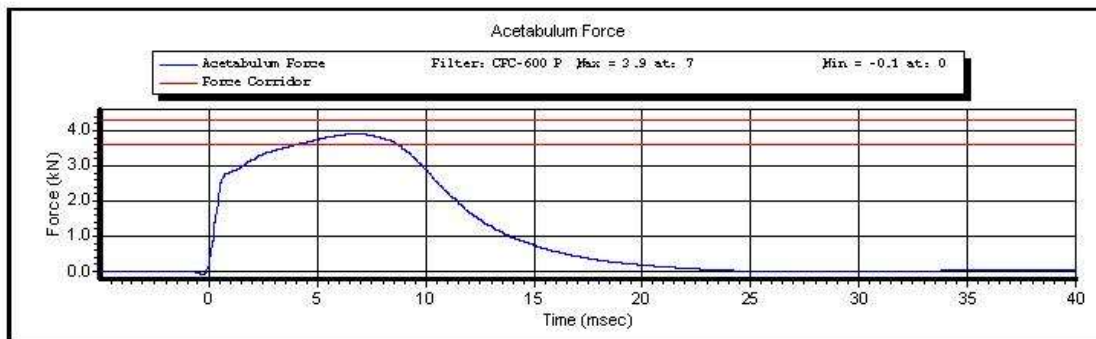
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Endevco	7264-2000	P51259	7/7/2014
FTSS	IF-520	LC-236Fy	5/13/2014



Test Name:	Pelvis
Sub Test Name:	Acetabulum Impact
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: **Acetabulum Impact** Test Time: **12:13:03 PM**

Test Date: **11/12/2014**

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Test ID: **Acetabulum Impact** Test Time: **12:13:03 PM**

Test Date: **11/12/2014**

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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact		
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Pelvis Iliac Impact	Test Date:	11/12/2014
		Test Time:	4:57:09 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.4 deg C	P
Humidity	10	--	70	23.5 %RH	P
Velocity	4.2	--	4.4	4.36 m/s	P
Peak Probe Acceleration	36	--	45	40.5 g	P
Peak Pelvis Acceleration	28	--	39	30.3 g	P
Peak Iliac Force	4.1	--	5.1	4.32 kN	P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



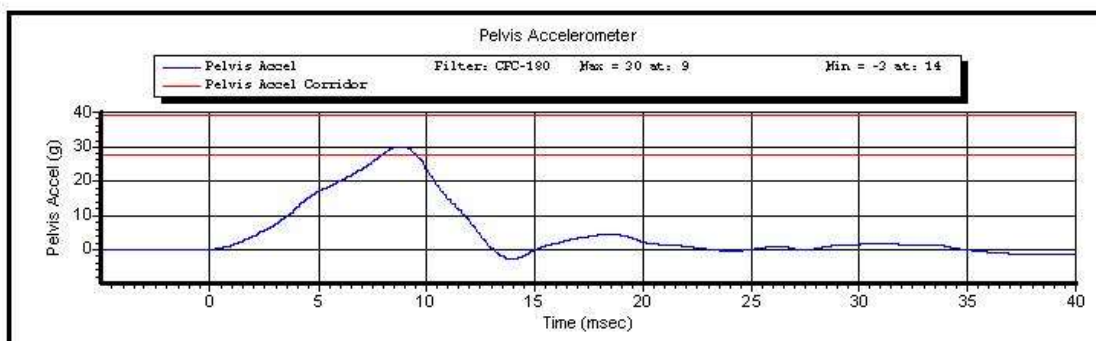
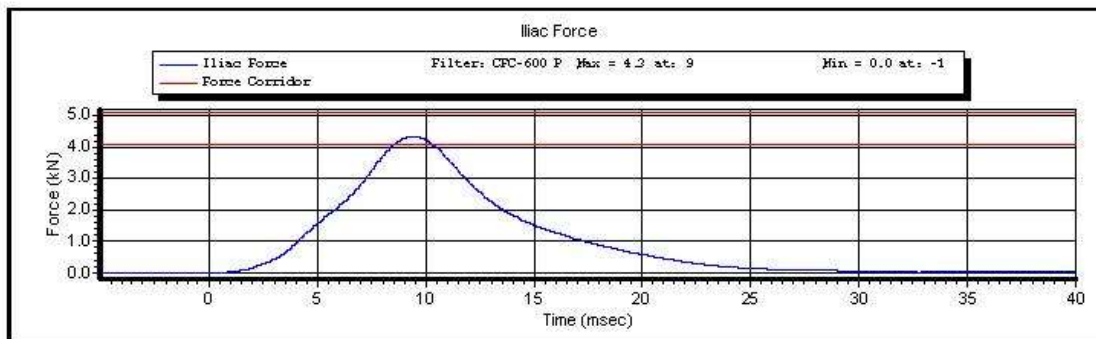
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Endevco	7264-2000	P51259	7/7/2014
DentonATD	3228J	LC-280 Fy	5/14/2014



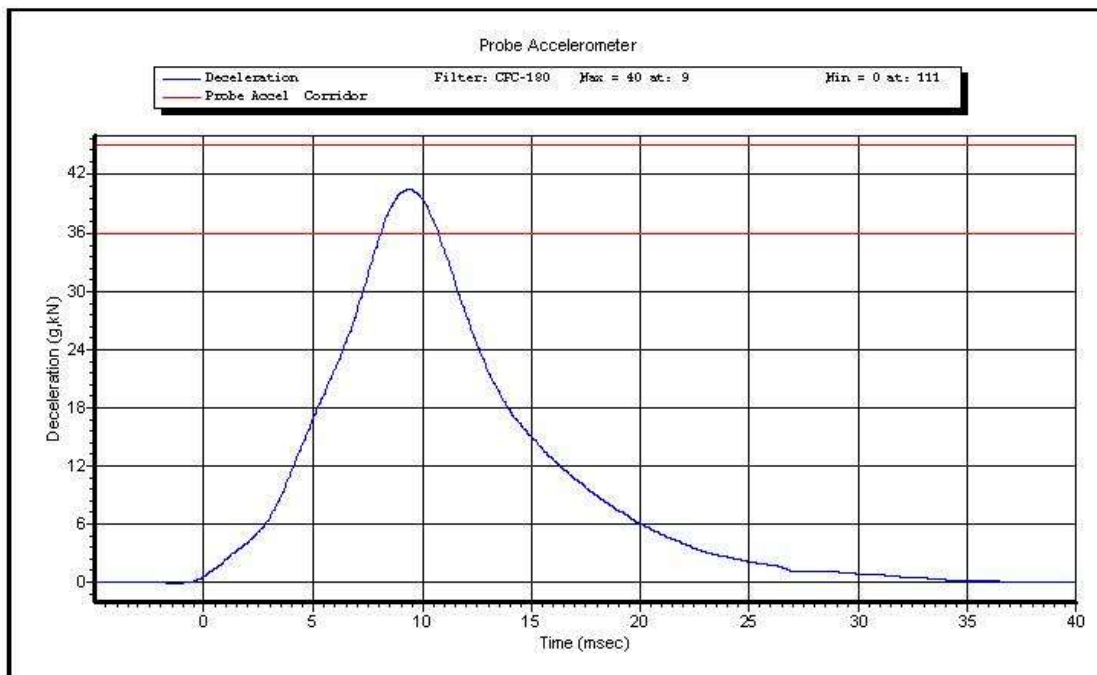
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Sub Test Name:	Iliac Impact
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: Pelvis Iliac Impact Test Time: 4:57:09 PM

Test Date: 11/12/2014

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Test ID: **Pelvis Iliac Impact** Test Time: **4:57:09 PM**

Test Date: **11/12/2014**

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CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

SERIAL NO: 303

(CONFIGURED FOR LEFT SIDE IMPACT)

Table V1. External Measurements

SID-ILs, PART 572, SUBPART V EXTERNAL DIMENSIONS				
Symbol	Description	Specification (mm)	Results (mm)	Pass/Fail
A	Sitting Height	772 – 788	781	P
B	Shoulder Pivot Height	437 – 453	445	P
C	H-point Height	79 – 89	87	P
D	H-point from seatback	141 – 151	146	P
E	Shoulder Pivot from Backline	97 – 107	105	P
F	Thigh Clearance	119 – 135	129	P
G	Head Breadth	140 – 148	144	P
H	Head Back from Backline	40 – 46	43	P
I	Head Depth	178 – 188	181	P
J	Head Circumference	541 – 551	546	P
K	Buttock to Knee Length	514 – 540	530	P
L	Popliteal Height	343 – 369	358	P
M	Knee Pivot to floor height	392 – 409	403	P
N	Buttock Popliteal Length	416 – 442	437	P
O	Chest Depth w/o jacket	195 – 211	204	P
P	Foot Length	216 – 232	218	P
Q	Hip Breadth (w/pelvic plugs)	313 – 323	316	P
R	Arm Length	249 – 259	253	P
S	Knee Joint to seatback	477 – 493	486	P
V	Shoulder Width	341 – 357	350	P
W	Foot Width	78 – 94	85	P
Y	Chest Circumference w/jacket	851 – 881	870	P
Z	Waist Circumference	761 – 791	770	P

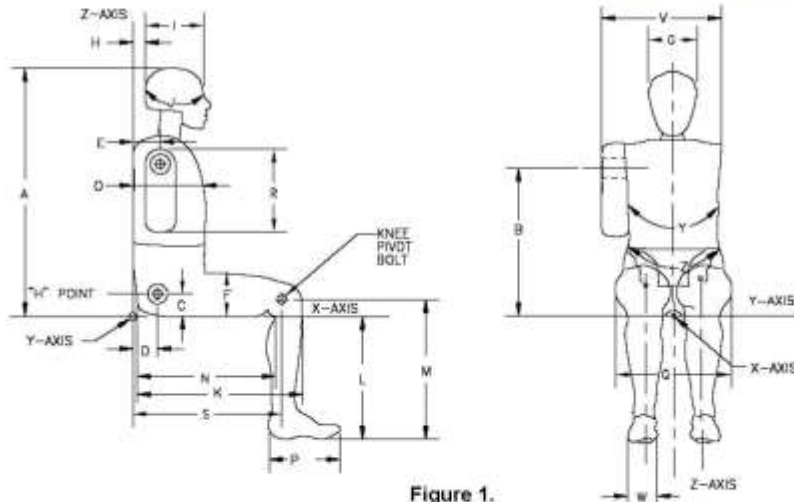


Figure 1.



VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:			
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Head Drop	Test Date:	12/4/2014
		Test Time:	9:12:34 AM

Test Parameters	Test Specifications		Test Results	
Temperature	20.6	-- 22.2	21.7 deg C	P
Humidity	10	-- 70	18 %RH	P
Resultant Acceleration	115.0	-- 137.0	125.8 g	P
Oscillation	0.0	-- 15.0	3.3 %	P
Fore-Aft Acceleration	-15.0	-- 15.0	2.9 g	P

All test parameters are within specifications.

Technician: M. Geesey

Supervisor: M. Goehle



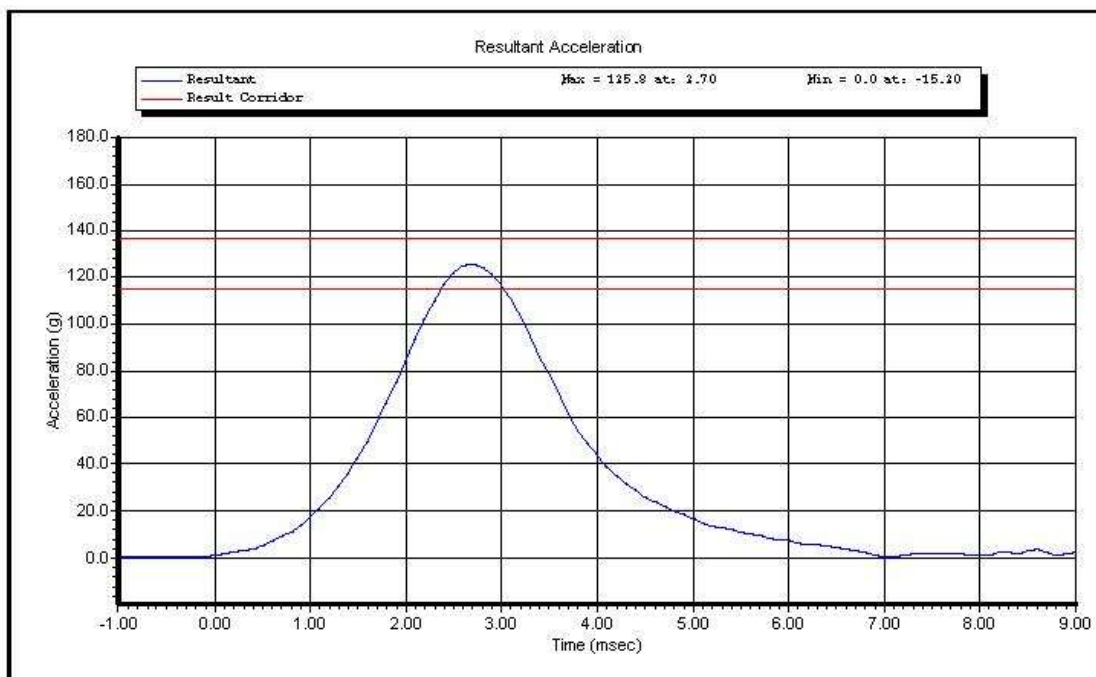
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P52022	10/8/2014
Endevco	7264-2000	P52040	10/8/2014
Endevco	7264-2000	P58737	10/8/2014



Test Name:	Head Drop
Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303

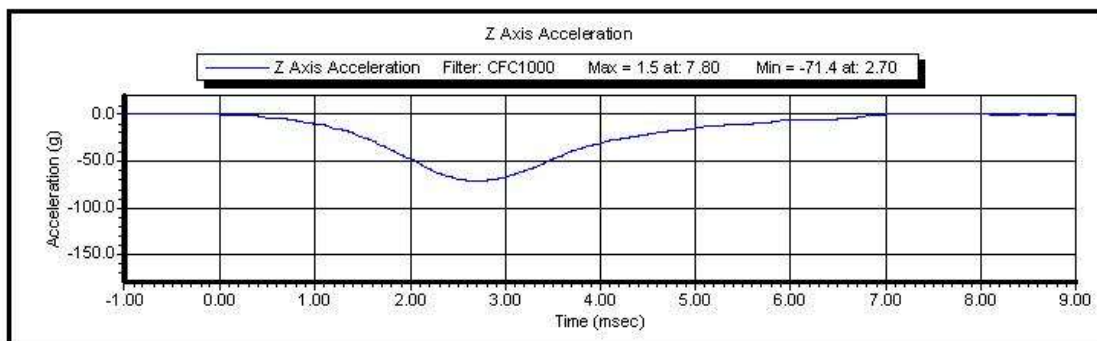
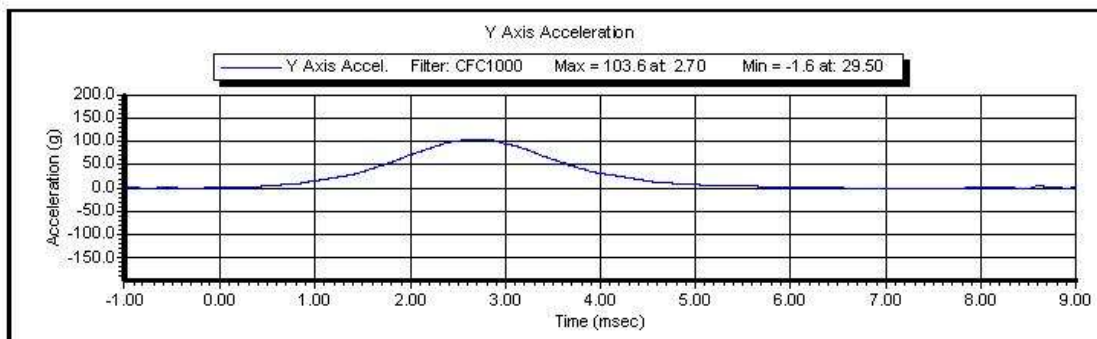
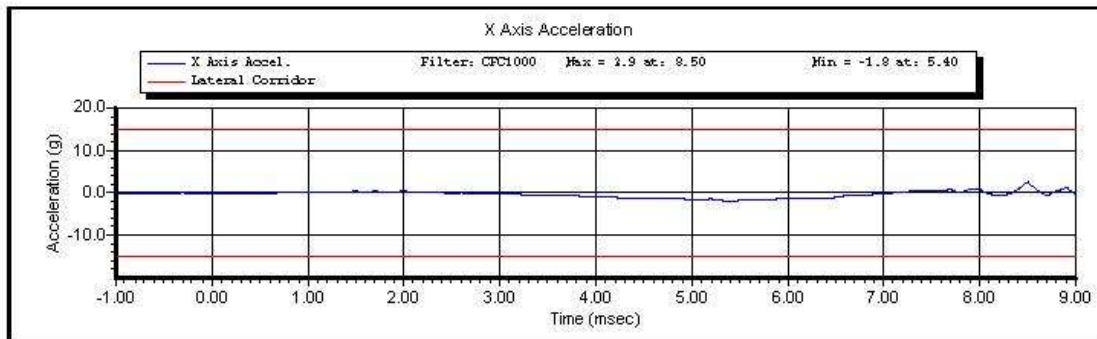


Test ID: **Head Drop**

Test Time: **9:12:34 AM**

Test Date: **12/4/2014**

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Test ID: **Head Drop**

Test Time: **9:12:34 AM**

Test Date: **12/4/2014**

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VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side		
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Neck Flexion	Test Date:	12/4/2014
		Test Time:	4:35:07 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.4 deg C P
Humidity	10 -- 70	17.7 %RH P
Velocity	5.51 -- 5.63	5.561 m/s P
Pendulum Impulse at 10 ms	2.2 -- 2.8	2.29 m/s P
Pendulum Impulse at 15 ms	3.3 -- 4.1	3.38 m/s P
Pendulum Impulse at 20 ms	4.4 -- 5.4	4.64 m/s P
Pendulum Impulse at 25 ms	5.4 -- 6.1	5.61 m/s P
Pendulum Impulse between 25 and 100 ms	5.5 -- 6.2	5.87 m/s P
Max D Plane Rotation	71 -- 81	77.9 degrees P
Time at Max Rotation	50 -- 70	61.8 ms P
Moment about OC	36 -- 44	42.5 Nm P
Moment Decay to Zero	102 -- 126	120.2 ms P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



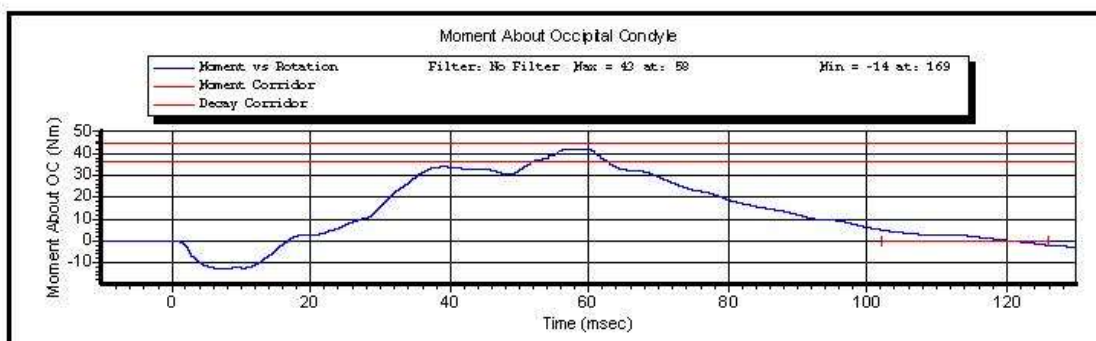
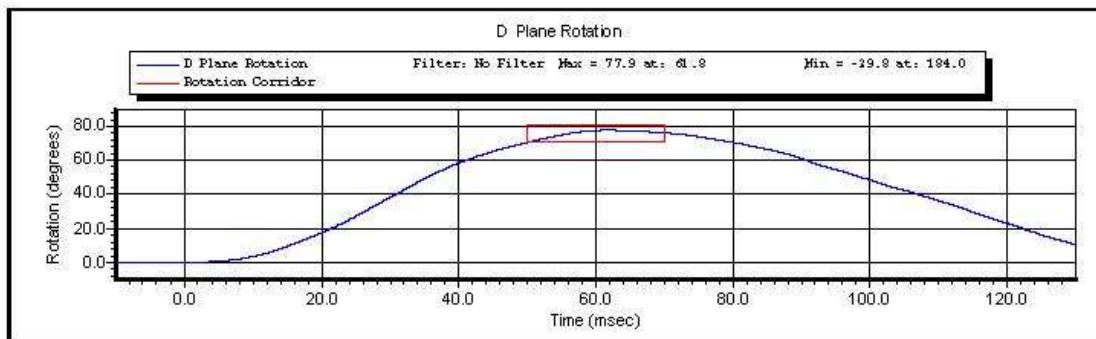
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	AH5F3	11/6/2014
Denton	1716A	LC-2019 Fy	5/19/2014
Denton	1716A	LC-2019 Mx	5/19/2014
DentonATD	78051-342	184	11/13/2014
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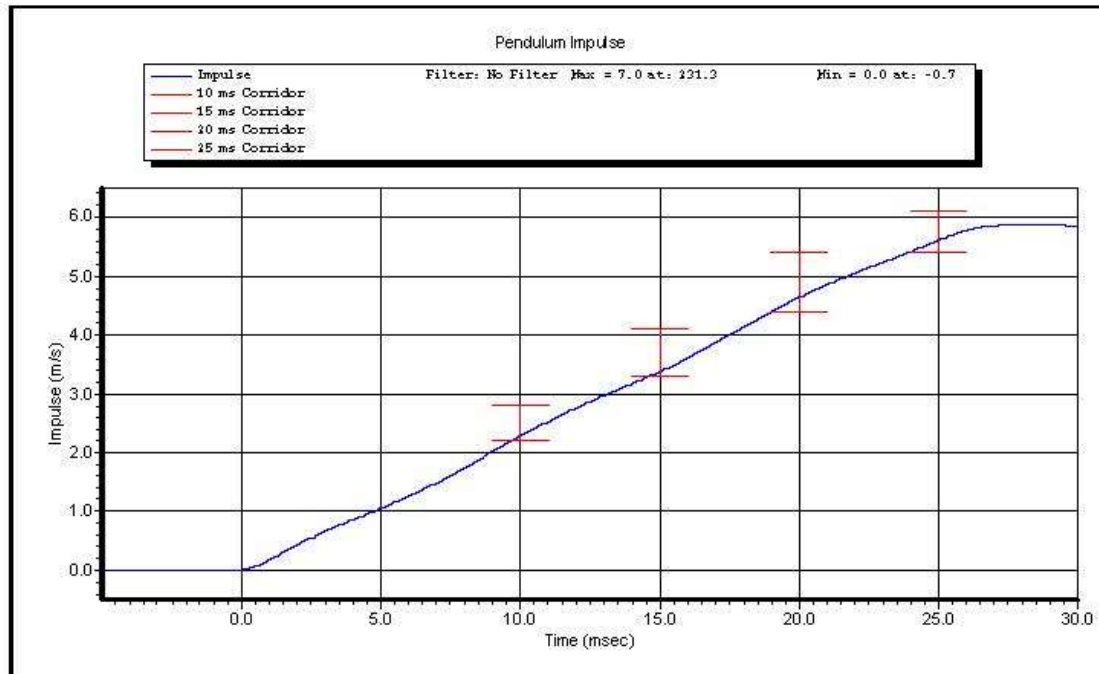


Test Name:	Neck Pendulum
Sub Test Name:	Left Side
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: Neck Flexion Test Time: 4:35:07 PM Test Date: 12/4/2014

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Test ID: **Neck Flexion** Test Time: **4:35:07 PM**

Test Date: **12/4/2014**

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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:			
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Shoulder Impact	Test Date:	12/5/2014
		Test Time:	3:00:37 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	20.70 deg C	P
Humidity	10	--	70	23.6 %RH	P
Velocity	4.2	--	4.4	4.31 m/s	P
Probe Acceleration	13	--	18	15.2 g	P
Shoulder Deflection	28	--	37	30.5 mm	P
T1 Acceleration	17	--	22	20.1 g	P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



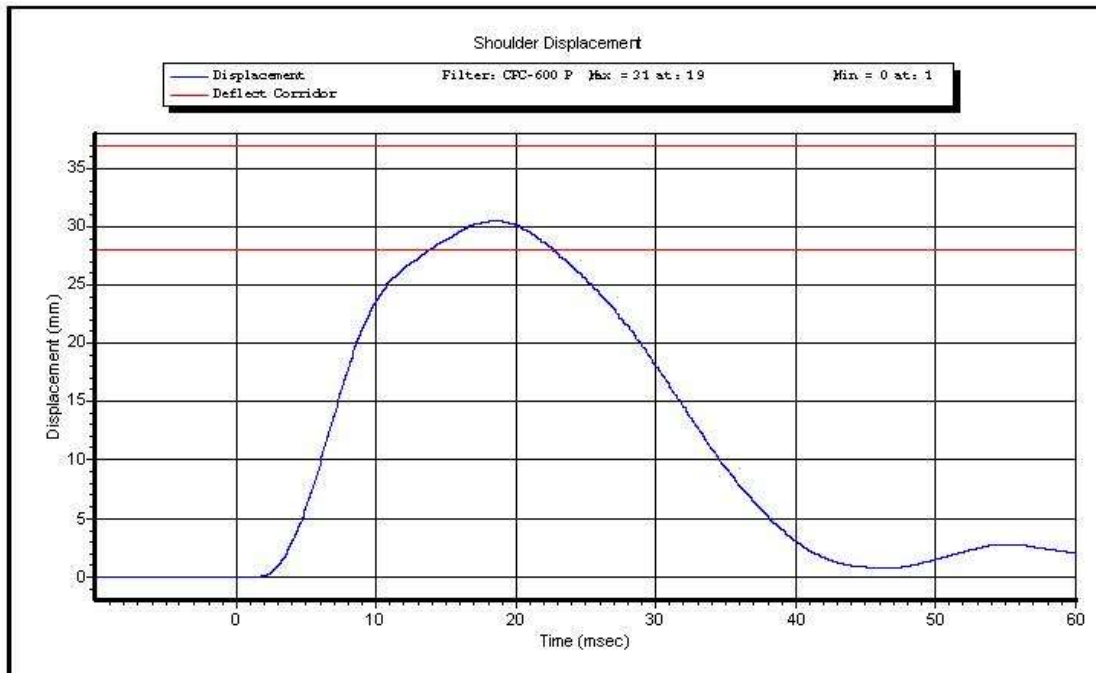
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Servo	180-3885	DS-8GFE	12/4/2014
Endevco	7264-2000	P63315	10/9/2014



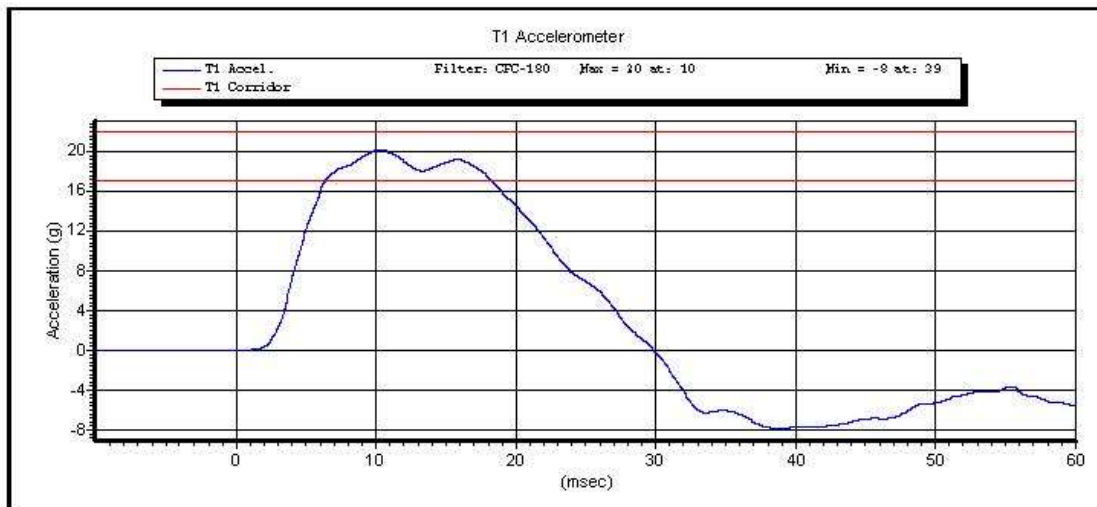
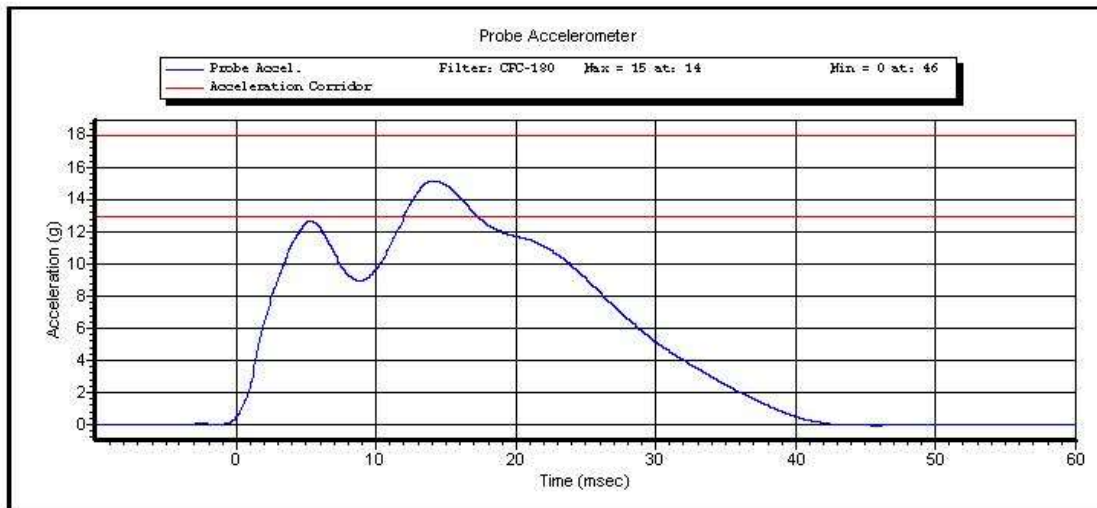
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Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: **Shoulder Impact** Test Time: **3:00:37 PM**

Test Date: **12/5/2014**

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Test ID: **Shoulder Impact** Test Time: **3:00:37 PM**

Test Date: **12/5/2014**

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VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:			
ATD Type:	SID-IIs		
ATD Serial Number:	139		
Test ID:	Thorax With Arm	Test Date:	12/5/2014
		Test Time:	5:39:56 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	20.7 deg C	P
Humidity	10	--	70	25.1 %RH	P
Velocity	6.6	--	6.8	6.63 m/s	P
Probe Acceleration after 5ms	30	--	36	32.4 g	P
Upper Thorax Rib Deflection	25	--	32	28.2 mm	P
Mid Thorax Rib Deflection	30	--	36	32.3 mm	P
Lower Thorax Rib Deflection	32	--	38	33.8 mm	P
Upper Spine Acceleration ("y")	34	--	43	39.6 g	P
Lower Spine Acceleration ("y")	29	--	37	34.1 g	P
Shoulder Deflection	31	--	40	37.6 mm	P

All test parameters are within specifications

Technician: **M. Goehle**
Supervisor: **M. Goehle**



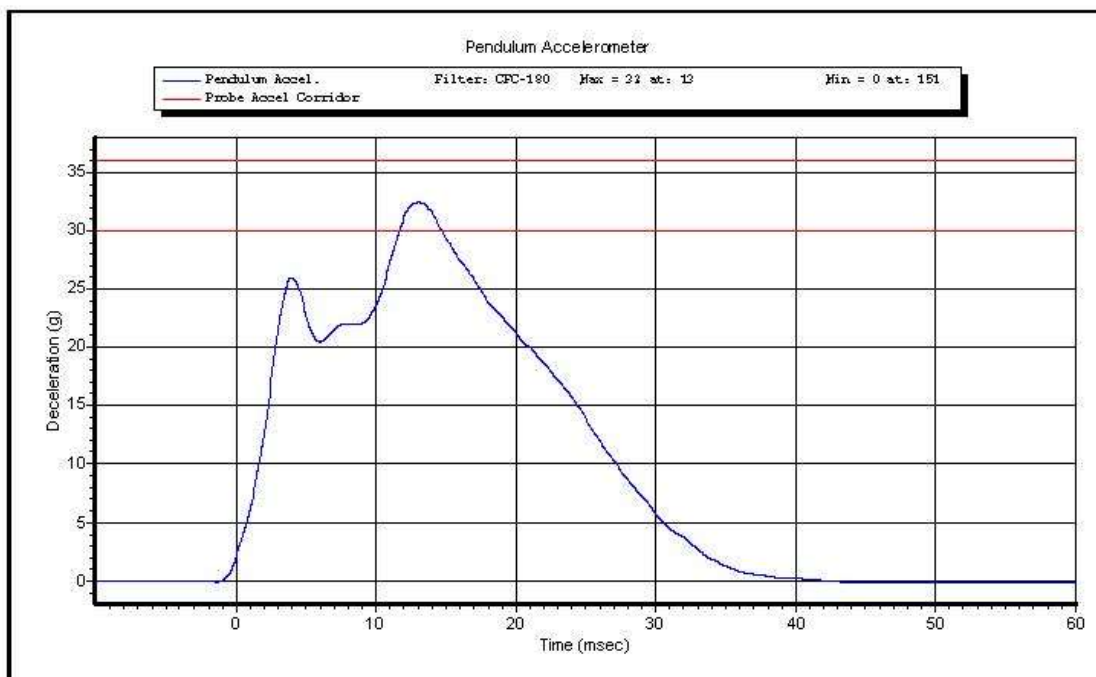
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Servo	180-3885	DS-1199GFE	8/6/2014
Servo	180-3885	DS-1246GFE	8/6/2014
Servo	180-3885	DS-1256GFE	8/6/2014
Endevco	7264-2000	P63315	10/9/2014
Endevco	7264-2000	P51974	10/9/2014
Servo	180-3885	DS-8GFE	12/4/2014



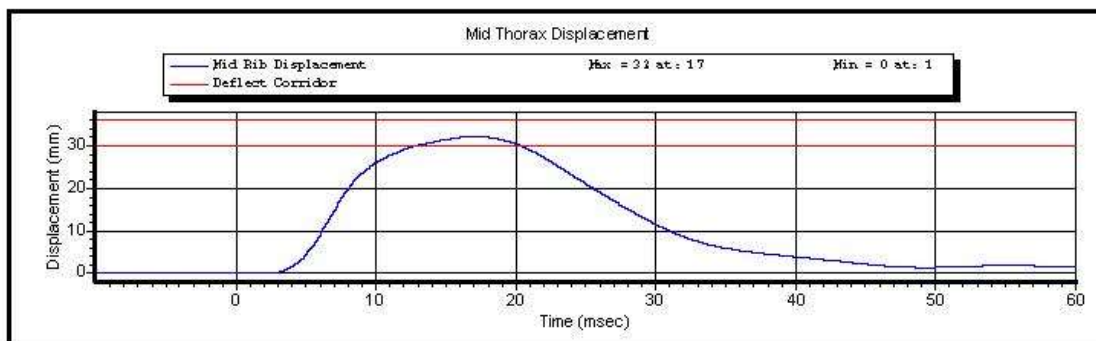
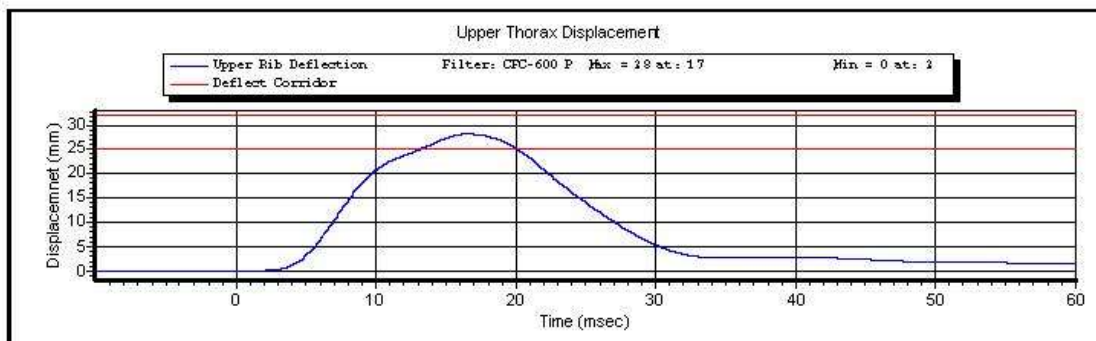
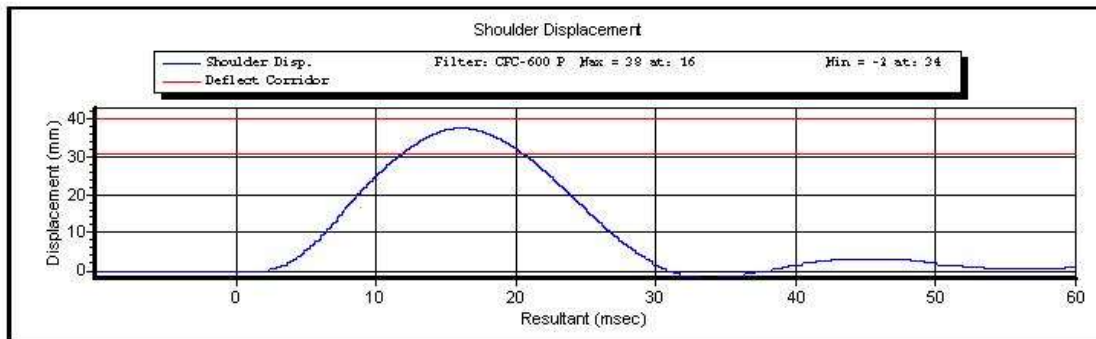
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Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	139



Test ID: **Thorax With Arm** Test Time: **5:39:56 PM**

Test Date: **12/5/2014**

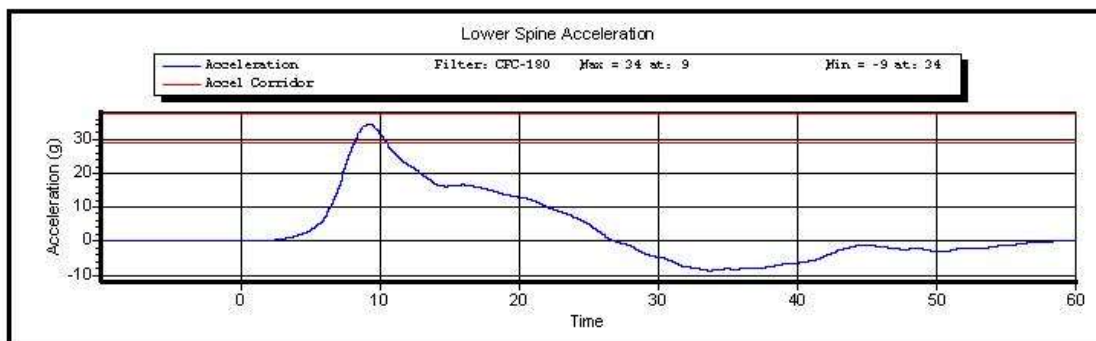
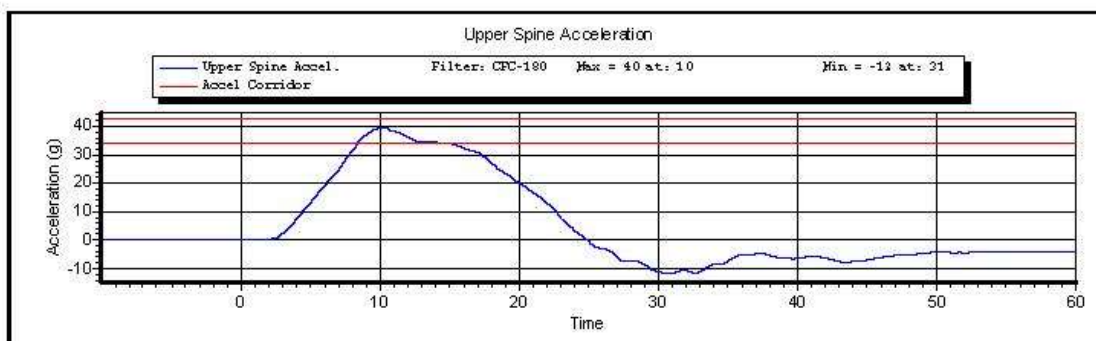
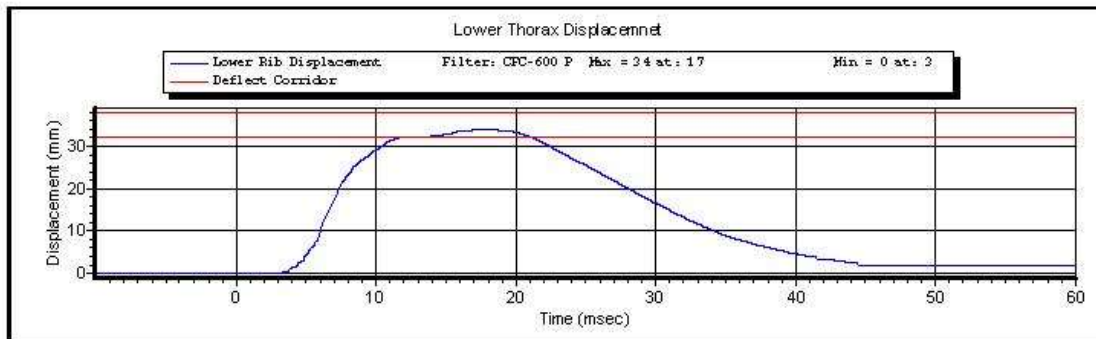
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Test ID: **Thorax With Arm** Test Time: **5:39:56 PM**

Test Date: **12/5/2014**

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Test ID: **Thorax With Arm** Test Time: **5:39:56 PM**

Test Date: **12/5/2014**

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VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:			
ATD Type:	SID-11s		
ATD Serial Number:	303		
Test ID:	Thorax w/o Arm	Test Date:	12/4/2014
		Test Time:	1:56:57 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.1 deg C	P
Humidity	10	--	70	17.9 %RH	P
Velocity	4.2	--	4.4	4.31 m/s	P
Probe Acceleration	14	--	18	16.3 g	P
Upper Thorax Rib Deflection	32	--	40	36.6 mm	P
Mid Thorax Rib Deflection	39	--	45	41.7 mm	P
Lower Thorax Rib Deflection	35	--	43	38.3 mm	P
Upper Spine Acceleration T1	13	--	17	16.9 g	P
Lower Spine Acceleration T12	7	--	11	10.3 g	P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



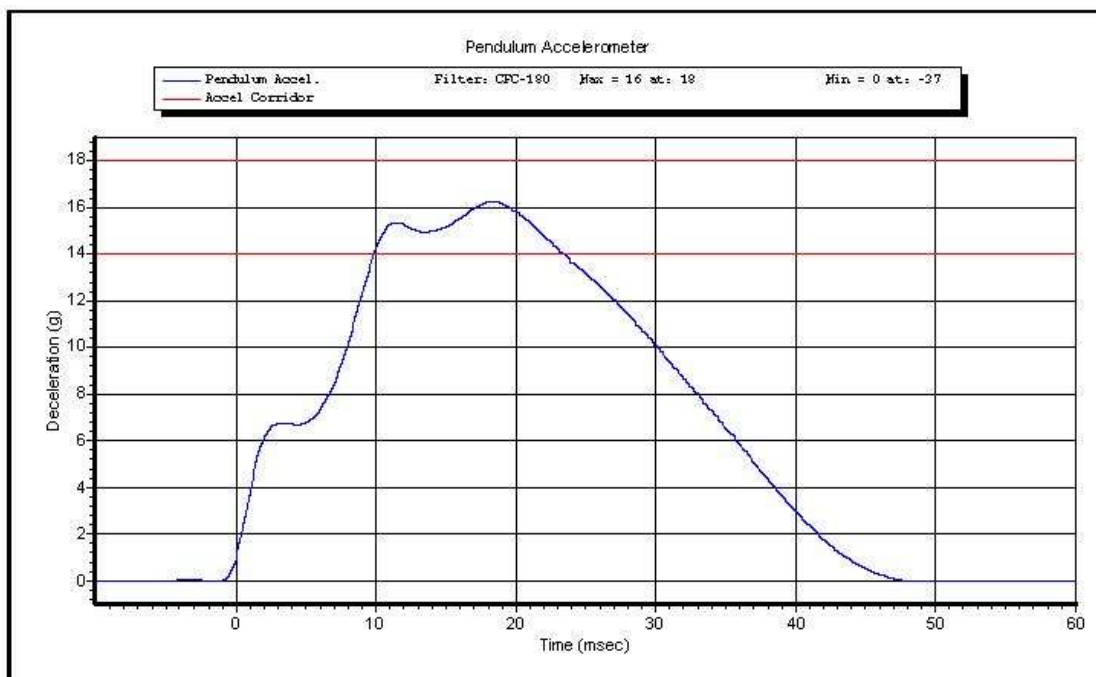
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Servo	180-3885	DS-1199GFE	8/6/2014
Servo	180-3885	DS-1246GFE	8/6/2014
Servo	180-3885	DS-1256GFE	8/6/2014
Endevco	7264-2000	P63315	10/9/2014
Endevco	7264-2000	P51974	10/9/2014



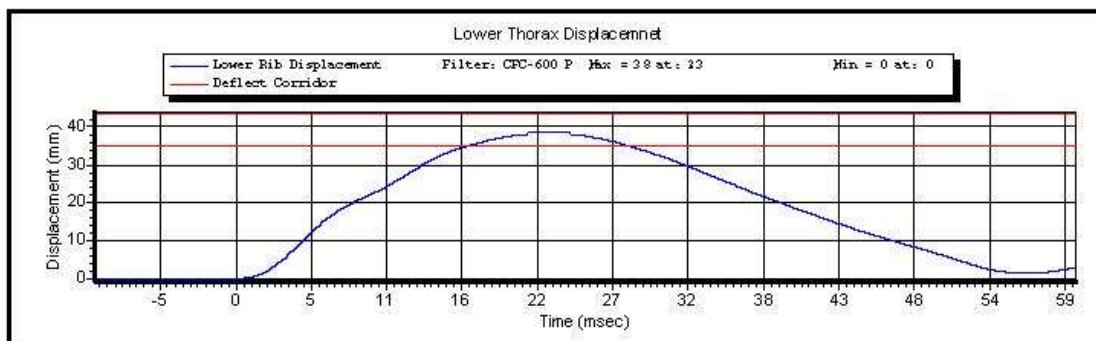
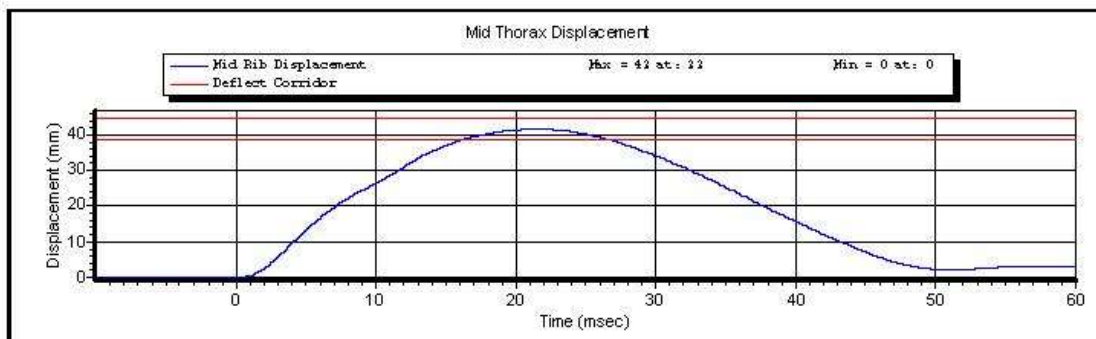
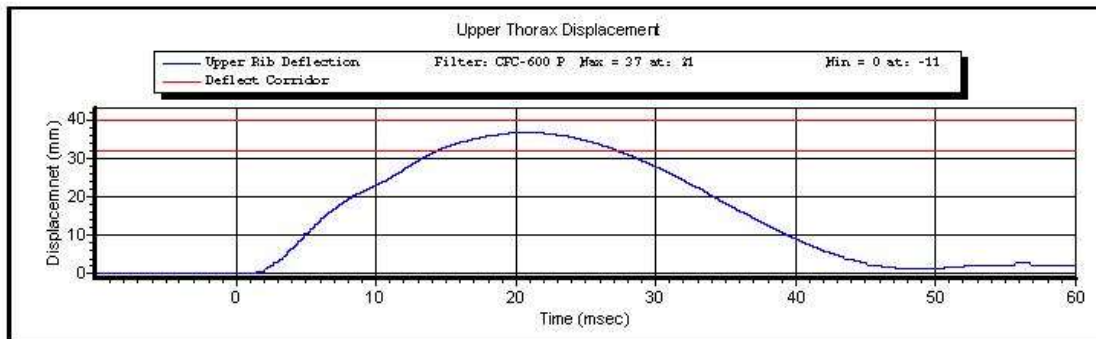
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Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: Thorax w/o Arm Test Time: 1:56:57 PM

Test Date: 12/4/2014

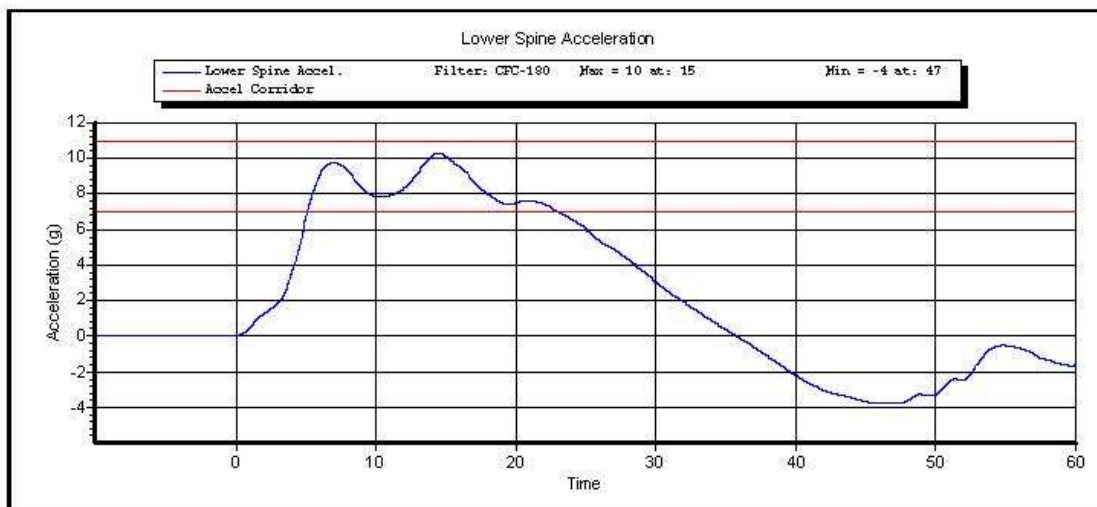
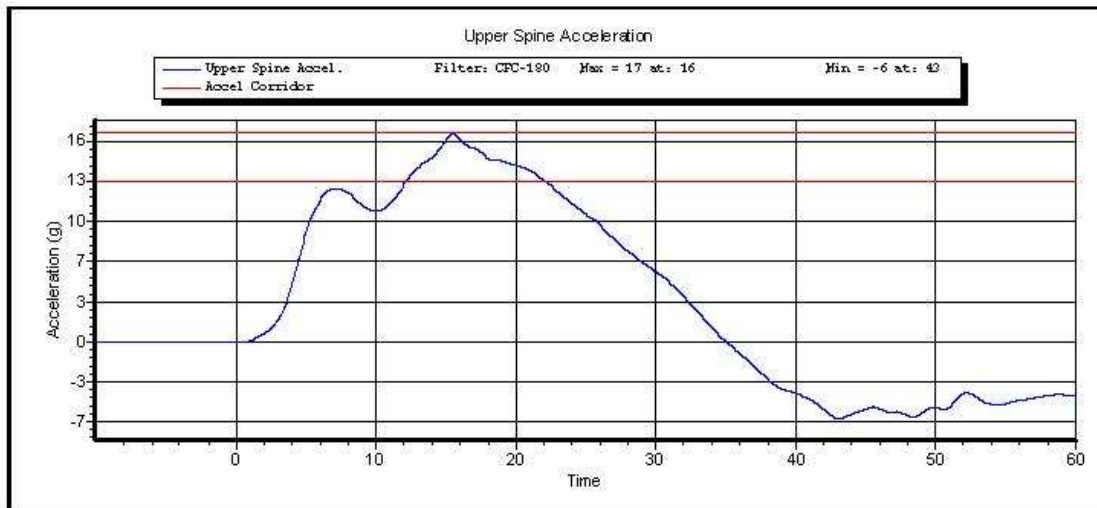
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Test ID: Thorax w/o Arm Test Time: 1:56:57 PM

Test Date: 12/4/2014

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Test ID: **Thorax w/o Arm** Test Time: **1:56:57 PM**

Test Date: **12/4/2014**

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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:			
ATD Type:	SID-11s		
ATD Serial Number:	303		
Test ID:	Abdomen Impact	Test Date:	12/4/2014
		Test Time:	1:30:01 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.30 deg C	P
Humidity	10	--	70	18.10 %RH	P
Velocity	4.2	--	4.4	4.31 m/s	P
Probe Deceleration	12	--	16	15.3 G's	P
Upper Abdominal Rib Deflection	36	--	47	36.1 mm	P
Lower Abdominal Rib Deflection	33	--	44	35.5 mm	P
Lower Spine Acceleration - T12	9	--	14	11.8 G's	P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



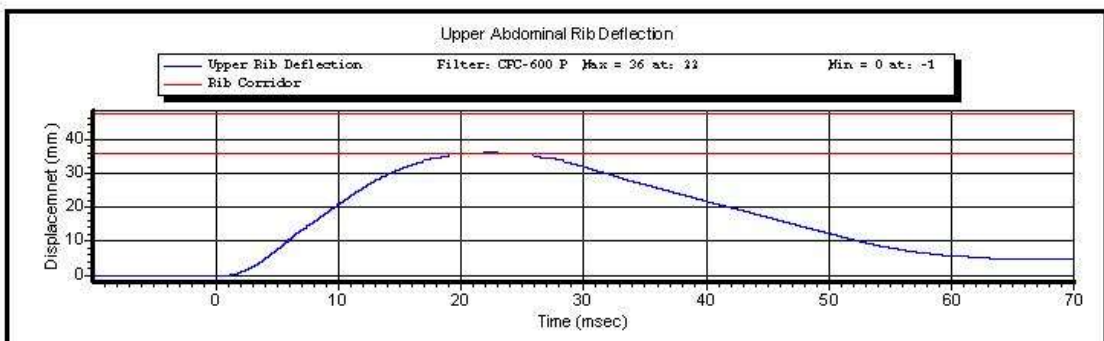
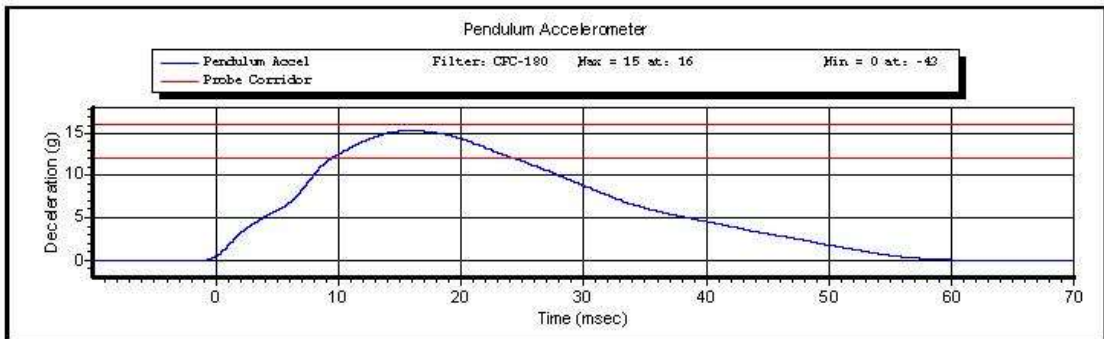
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Servo	180-3885	DS-1274GFE	8/6/2014
Servo	180-3885	DS-1285GFE	8/6/2014
Endevco	7264-2000	P51974	10/9/2014



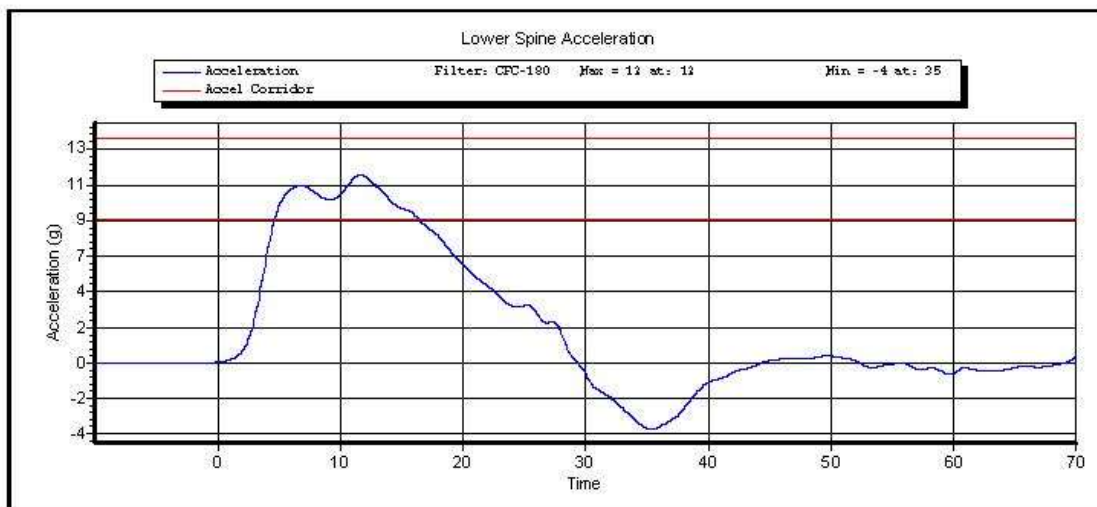
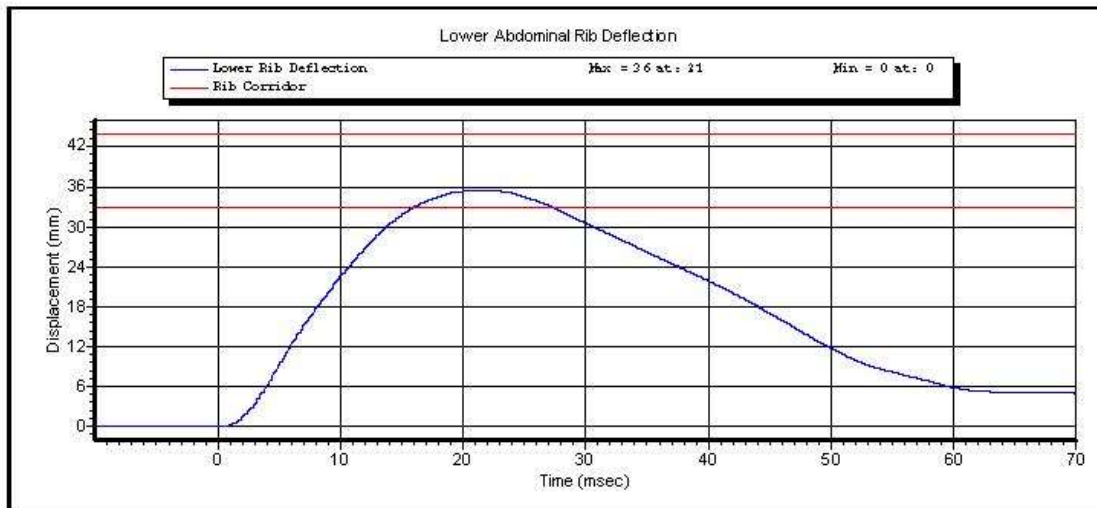
Test Name:	Abdominal Impact
Sub Test Name:	
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: **Abdomen Impact** Test Time: **1:30:01 PM**

Test Date: **12/4/2014**

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Test ID: **Abdomen Impact** Test Time: **1:30:01 PM**

Test Date: **12/4/2014**

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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact		
ATD Type:	SID-11s		
ATD Serial Number:	303		
Test ID:	Acetabulum Impact	Test Date:	12/4/2014
		Test Time:	11:04:10 AM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	20.6 deg C	P
Humidity	10	--	70	19.5 %RH	P
Velocity	6.6	--	6.8	6.64 m/s	P
Peak Probe Acceleration	38	--	47	44.6 g	P
Peak Pelvis Acceleration	34	--	42	40.6 g	P
Peak Acetabulum Force	3.6	--	4.3	3.99 kN	P

All test parameters are within specifications

Technician: **M. Geesey**

Supervisor: **M. Goehle**



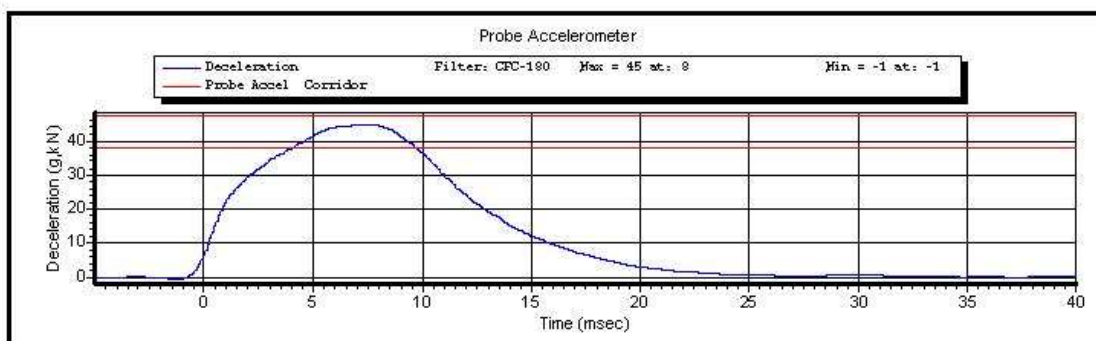
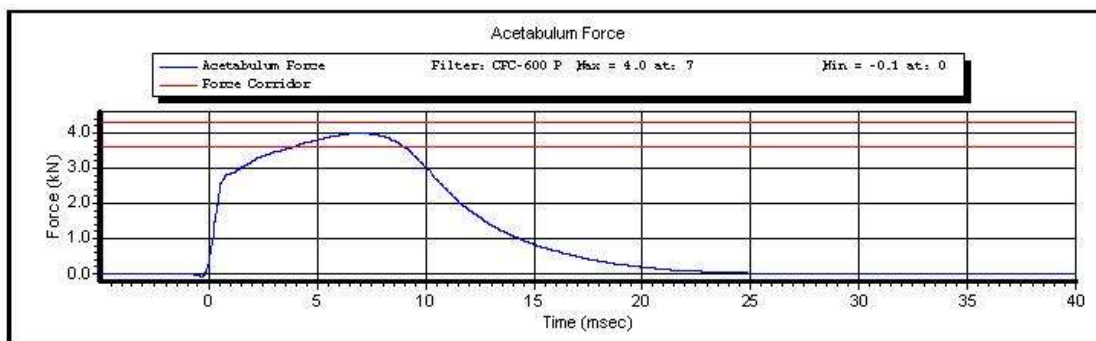
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Endevco	7264-2000	P51259	7/7/2014
FTSS	IF-520	LC-236Fy	5/13/2014



Test Name:	Pelvis
Sub Test Name:	Acetabulum Impact
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: **Acetabulum Impact** Test Time: **11:04:10 AM**

Test Date: **12/4/2014**

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Test ID: **Acetabulum Impact** Test Time: **11:04:10 AM**

Test Date: **12/4/2014**

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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact		
ATD Type:	SID-IIs		
ATD Serial Number:	303		
Test ID:	Pelvis Iliac Impact	Test Date:	12/4/2014
		Test Time:	3:24:42 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.1 deg C	P
Humidity	10	--	70	18.2 %RH	P
Velocity	4.2	--	4.4	4.36 m/s	P
Peak Probe Acceleration	36	--	45	40.5 g	P
Peak Pelvis Acceleration	28	--	39	33.2 g	P
Peak Iliac Force	4.1	--	5.1	4.42 kN	P

All test parameters are within specifications

Technician: **M. Geesey**
Supervisor: **M. Goehle**



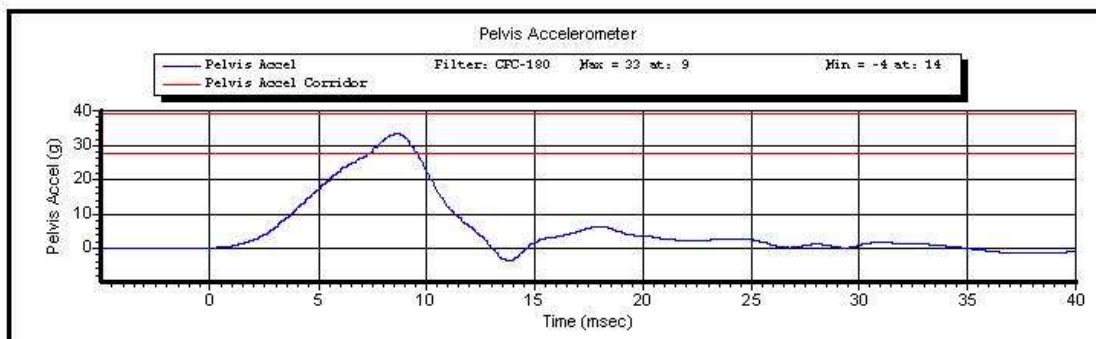
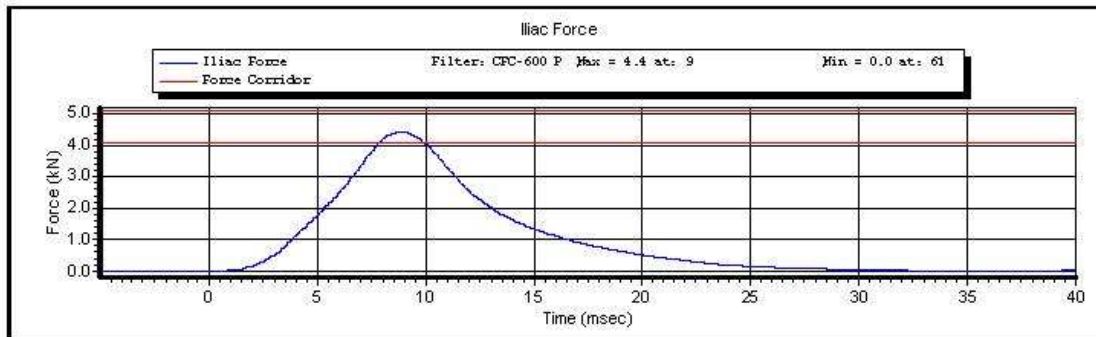
VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2014
Endevco	7231CT	C14953	7/30/2014
Endevco	7264-2000	P51259	7/7/2014
DentonATD	3228J	LC-280 Fy	5/14/2014



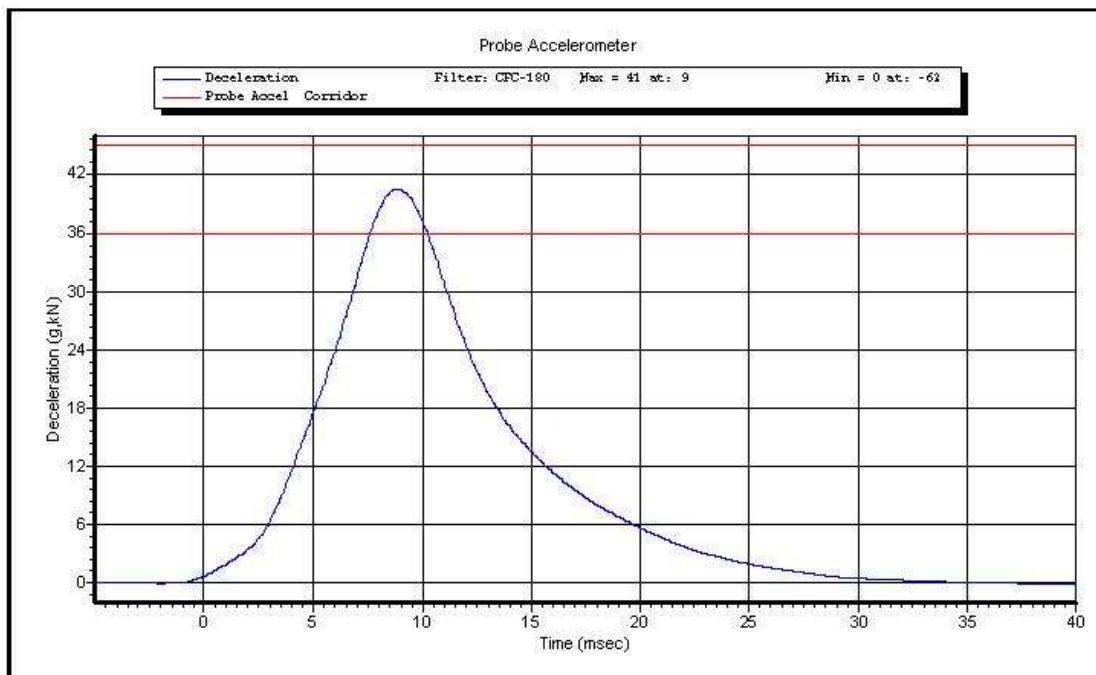
Test Name:	Pelvis
Sub Test Name:	Iliac Impact
ATD Type:	SID-IIs
ATD Serial Number:	303



Test ID: Pelvis Iliac Impact Test Time: 3:24:42 PM

Test Date: 12/4/2014

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Test ID: **Pelvis Iliac Impact** Test Time: **3:24:42 PM**

Test Date: **12/4/2014**

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APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (SID-IIs)

			SID-IIs S/N: 303			
			Serial Number	Manufacturer	Calibration Date	
Head Accelerometers			X	AC-P52022	ENDEVCO	10/8/2014
			Y	AC-P52040	ENDEVCO	10/8/2014
			Z	AC-P58737	ENDEVCO	10/8/2014
Head Accelerometers - Redundant			X	AC-P51668	ENDEVCO	10/8/2014
			Y	AC-P51327	ENDEVCO	10/8/2014
			Z	AC-P51695	ENDEVCO	10/8/2014
Displacement Potentiometer	Shoulder		Y			
	Thoracic Rib	Upper	Y	DS-1199GFE	SERVO	8/6/2014
		Middle	Y	DS-1246GFE	SERVO	8/6/2014
		Lower	Y	DS-1256GFE	SERVO	8/6/2014
	Abdominal Rib	Upper	Y	DS-1274GFE	SERVO	8/6/2014
		Lower	Y	DS-1285GFE	SERVO	8/6/2014
Lower Spine Accelerometers (T12)			X	AC-P51945	ENDEVCO	10/9/2014
			Y	AC-P51974	ENDEVCO	10/9/2014
			Z	AC-P51946	ENDEVCO	10/9/2014
Acetabulum Load Cell			Y	LC-236Fy	DENTON	5/13/2014
Lilac Wing Load Cell			Y	LC-280Fy	DENTON	5/14/2014
Pelvis Plug (Struck Side)				46085	Humanetics	9/21/2011
Pelvis Plug (Non-Struck Side)						

Table 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	AC-A127675	MSI 1201	9/18/2014
Vehicle Center of Gravity	Y	AC-A127660	MSI 1201	9/18/2014
Vehicle Center of Gravity	Z	AC-A126789	MSI 1201	9/18/2014
Left Floor Sill	Y	AC-A127662	MSI 1201	9/18/2014
A-Pillar Sill	Y	AC-A112911	MSI 1201	9/16/2014
A-Pillar Low	Y	AC-A112908	MSI 1201	9/16/2014
A-Pillar Mid	Y	AC-A112921	MSI 1201	9/16/2014
B-Pillar Sill	Y	AC-A127659	MSI 1201	9/18/2014
B-Pillar Low	Y	AC-A127665	MSI 1201	9/18/2014
B-Pillar Mid	Y	AC-A127672	MSI 1201	11/5/2014
Driver Seat	Y	AC-A127655	MSI 1201	9/19/2014
Engine Top	X	AC-A120612	MSI 1201	9/26/2014
Engine Top	Y	AC-A081413	MSI 1201	9/26/2014
Firewall	Y	AC-A127658	MSI 1201	9/25/2014
Right Roof	Y	AC-A112912	MSI 1201	9/18/2014
Right Floor Sill	Y	AC-A035006	MSI 1201	9/19/2014
Rear Floorpan	X	AC-A112918	MSI 1201	9/19/2014
Rear Floorpan	Y	AC-A127671	MSI 1201	9/19/2014

Table 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	LC-18867	INTERFACE	8/25/2014
Load Cell 2	LC-18850	INTERFACE	8/25/2014
Load Cell 3	LC-46979	INTERFACE	8/25/2014
Load Cell 4	LC-18882	INTERFACE	8/25/2014
Load Cell 5	LC-62094	INTERFACE	8/25/2014
Load Cell 6	LC-46933	INTERFACE	8/25/2014
Load Cell 7	LC-18866	INTERFACE	8/25/2014
Load Cell 8	LC-46949	INTERFACE	8/25/2014