

FINAL REPORT NUMBER: SPNCAP-TRC-15-001

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

**General Motors LLC
2015 Chevrolet Tahoe 4-Door SUV
NHTSA NUMBER: M20150110**

**PREPARED BY:
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Report Date: May 15, 2014

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**

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Approval Date: May 15, 2014

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

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Date: _____

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16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2015 Chevrolet Tahoe 4-Door SUV, 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 by Transportation Research Center Inc. in East Liberty, Ohio, on April 10, 2014. The impact velocity was 32.09 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 21° C. The test vehicle's post-test maximum crush was 454 mm at Level 2. The test or target vehicle's performance is given below: <table border="1"> <thead> <tr> <th></th> <th>Unit</th> <th>Threshold</th> <th>Front SID-IIs</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆):</td> <td>NA</td> <td>1000</td> <td>355</td> </tr> <tr> <td>Resultant Lower Spine Acceleration:</td> <td>g's</td> <td>82</td> <td>50.0</td> </tr> <tr> <td>Total Pelvic Force: (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>3971.7</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>22.6</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45</td> <td>23.7</td> </tr> </tbody> </table> The door struck by the pole did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					Unit	Threshold	Front SID-IIs	Head Injury Criteria (HIC ₃₆):	NA	1000	355	Resultant Lower Spine Acceleration:	g's	82	50.0	Total Pelvic Force: (sum of acetabular and iliac forces)	N	5525	3971.7	Maximum Thoracic Rib Deflection	mm	38	22.6	Maximum Abdomen Rib Deflection	mm	45	23.7
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																									
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	4
<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment and Fuel Systems Data	8
3	Dummy Longitudinal Clearance Dimensions	11
4	Dummy Lateral Clearance Dimensions	12
5	Camera and Instrumentation Data	13
6	Vehicle Accelerometer Data	14
7	Rigid Pole Load Cell Data	15
8	Post-Test Observations	16
9	Vehicle Profile Measurements	18
10	Vehicle Exterior Crush Measurements	19
11	Vehicle Damage Profile Distances	22
12	FMVSS No. 301 Fuel Integrity Post-Impact Data	23
13	Dummy/Vehicle Temperature and Humidity Stabilization Data	24
<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
D	Test Equipment And Instrumentation Calibration Data	D-1

SECTION 1
TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY15 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00125. The purpose of this test is to generate comparative side impact performance in a 2015 Chevrolet Tahoe 4-Door SUV manufactured by General Motors LLC. 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 model year 2015 Chevrolet Tahoe 4-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.09 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on April 10, 2014. Pre-test and post-test photographs of the test vehicle and the side impact dummy (SID-IIs) are included in Appendix A of this report.

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

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

- Head CG Triaxial Accelerometers
- Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
- Abdomen Upper and Lower Rib Displacement Potentiometers
- Lower Spine (T12) Triaxial Accelerometers
- Iliac Load Cell
- Acetabulum Load Cell

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

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

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)	NA	1000	355
Lower Spine Acceleration Resultant	G	82	50.0
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3971.7
Maximum Thoracic Rib Deflection	mm	38*	22.6
Maximum Abdominal Rib Deflection	mm	45*	23.7

* Proposed IARV

Supplemental restraint information is given below:

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

GENERAL COMMENTS

None

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
Test Date: 4/10/14

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20150110	Traction Control System (TCS)	Yes
Model Year	2015	Auto-Leveling System	No
Make	Chevrolet	Automatic Door Locks (ADL)	Yes
Model	Tahoe	Power Window Auto-Reverse	Yes
Body Style	SUV	Other Optional Feature	No
VIN	1GN5CBKCXFR111704	Driver Front Airbag	Yes
Body Color	Red	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	8 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	5.3	Driver Torso Airbag	No
Type/No. Cylinders	Gas/8	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Front/Longitudinal	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
Transmission Speeds	6	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	RWD	Rear Pass. Torso Airbag	No
Roof Rack	Yes	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	Yes	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	No
Power Seats	Yes	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
		Other Safety Restraint	Driver Center Seat Airbag

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors LLC	GVWR (kg)	3221
Date of Manufacturer	02/14	GAWR Front (kg)	1452
Vehicle Type	SUV	GAWR Rear (kg)	1860

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	3	8
Vehicle Capacity Weight (VCW) (kg)				721.0
DSC X 68.04 kg				544.32
Rated Cargo and Luggage Weight (RCLW) (kg) ¹				136.0

VEHICLE SEAT TYPE

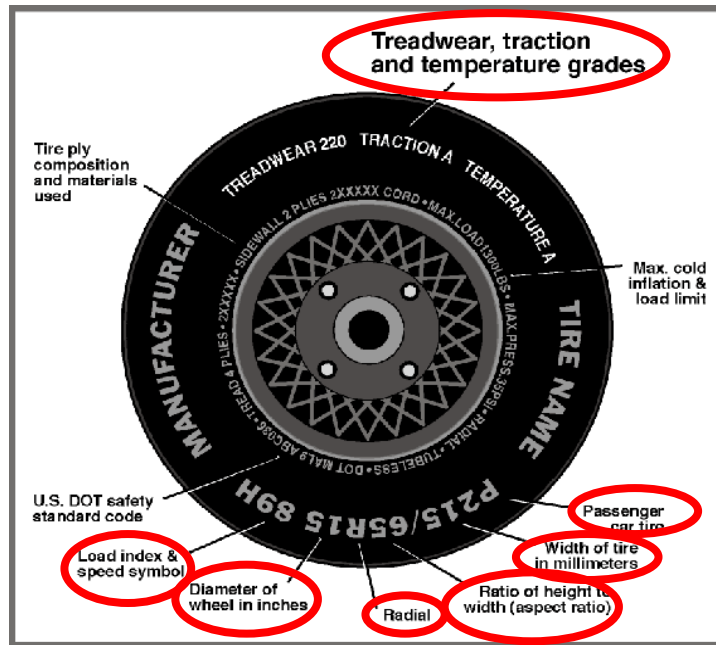
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	Yes	N/A	N/A		N/A	N/A	Yes
Rear or Second Row Seat	N/A	N/A	Yes	Yes	N/A	Yes	N/A
Third row seat	N/A	N/A	Yes	N/A	Yes	N/A	N/A

¹ RCLW is limited to 136.0 kg

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

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	P275/55R20	P275/55R20
Tire Size on Vehicle	P275/55R20	P275/55R20
Tire Manufacturer	Continental	Continental
Tire Model	CrossContact LX20	CrossContact LX20
Treadwear	740	740
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	111S	111S
Tire Material	Polyester, steel & polyamide	Polyester, steel & polyamide
DOT Safety Code Left	A32A WBDE 0614	A32A WBDE 0514
DOT Safety Code Right	A32A WBDE 0614	A32A WBDE 0614

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150110

Test Program: SPNCAP Side Impact

Test Date: 4/10/14

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	276	276	276	276
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	N/A	N/A	N/A	N/A
As Tested	kPa	240	240	240	240

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	617.4	621.2		635.8	688.0		628.8	715.0	
Right	kg	611.4	605.4		619.4	689.6		608.8	688.8	
Ratio	%	50.0	50.0		47.7	52.3		46.9	53.1	
Totals	kg	1228.8	1226.6	2455.4	1255.2	1377.6	2632.8	1237.6	1403.8	2641.4

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total As Delivered Weight (UVW)	kg	2455.4
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0
Rated Cargo/Luggage Weight (RCLW) ¹	kg	136.0
Calculated Vehicle Target Weight (TVTW)	kg	2640.4

(A)

(B)

(C)

(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: Steel plate mounted in cargo area	80.6
Components removed: None	0.0

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.8	-0.4	+0.2	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.9	-0.4	+0.4	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	0.0	0.0	-0.1	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.1	-0.1	-0.3	Yes
Vehicle CG (Aft of Front Axle)	mm	1474	1544	1568	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+8	+5	+15	

*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 Requirements".

¹ RCLW limited to 136.0 kg

DATA SHEET NO. 2

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150110

Test Program: SPNCAP Side Impact

Test Date: 4/10/14

SEAT POSITIONING

The driver 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	18.2	8.3	13.3
Front Passenger Seat	18.3	8.3	13.3
Front Center Seat*	Fixed	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	10.6
Non-Struck Side Rear Seat	Fixed	N/A	10.6
Rear Center Seat*	Fixed	N/A	9.8

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCR Height (mm)	SCR Height Position	SCR Height (mm)		
				Rearmost	Mid- Fore/Aft	Forward- Most
Driver Seat	13.3	326	Max	368	363	358
			Mid	336	331	326
			Min	302	298	293
Front Passenger Seat	13.3	325	Max	363	359	355
			Mid	332	328	325
			Min	297	294	290
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	10.6	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	10.6	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Rear Center Seat*	9.8	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150110

Test Program: SPNCAP Side Impact

Test Date: 4/10/14

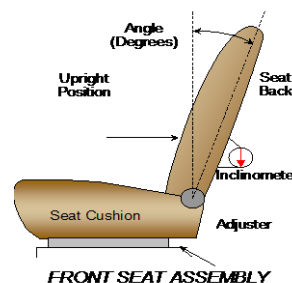
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	262	N/A	0	0
Front Passenger Seat	210	N/A	0	0
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	N/A	N/A
Non-Struck Side Rear Seat	Fixed	N/A	N/A	N/A
Rear Center Seat*	Fixed	N/A	N/A	N/A

* 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	Detent*
Driver Seat w/ Seated Dummy	53.1	N/A	5.7 fwd	N/A
Front Passenger Seat	52.1	N/A	5.7 fwd	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	17.7	10	0	0
Non-Struck Side Rear Seat	17.7	10	0	0
Rear Center Seat*	17.7	10	0	0

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	5, numbered from 0 to 4	0, Uppermost

HEAD RESTRAINT ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	7, numbered from 0 to 6	6, Lowermost

DATA SHEET NO. 2 (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150110

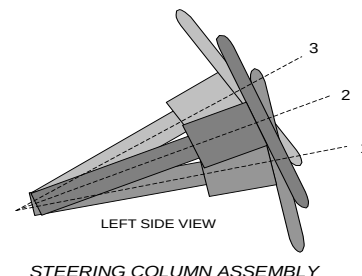
Test Program: SPNCAP Side Impact

Test Date: 4/10/14

STEERING COLUMN ADJUSTMENT

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

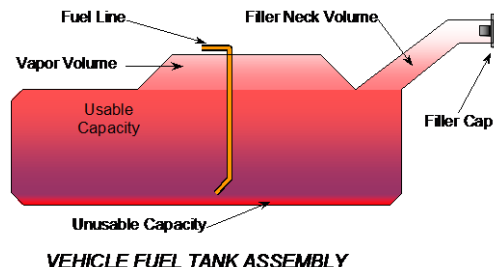
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	8.3	400
Geometric Center, Position No. 2	20.6	400
Uppermost, Position No. 3	32.9	400
Telescoping Steering Wheel Travel		39
Test Position	20.6	419



FUEL PUMP

Describe the fuel pump type, detail about how it operates and the location of the fuel filler neck:

Fuel tank is located in front of the rear axle. Filler neck enters the right side of the tank. Cap is on right rear quarter panel. Fuel pump will run when engine is running. Also, it will run briefly when ignition key is turned to the "ON" position without starting the engine.



FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	98.4
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	98.4
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	91.5
Actual Amount of Solvent Used in Test	91.5
1/3 of Usable Capacity	32.8

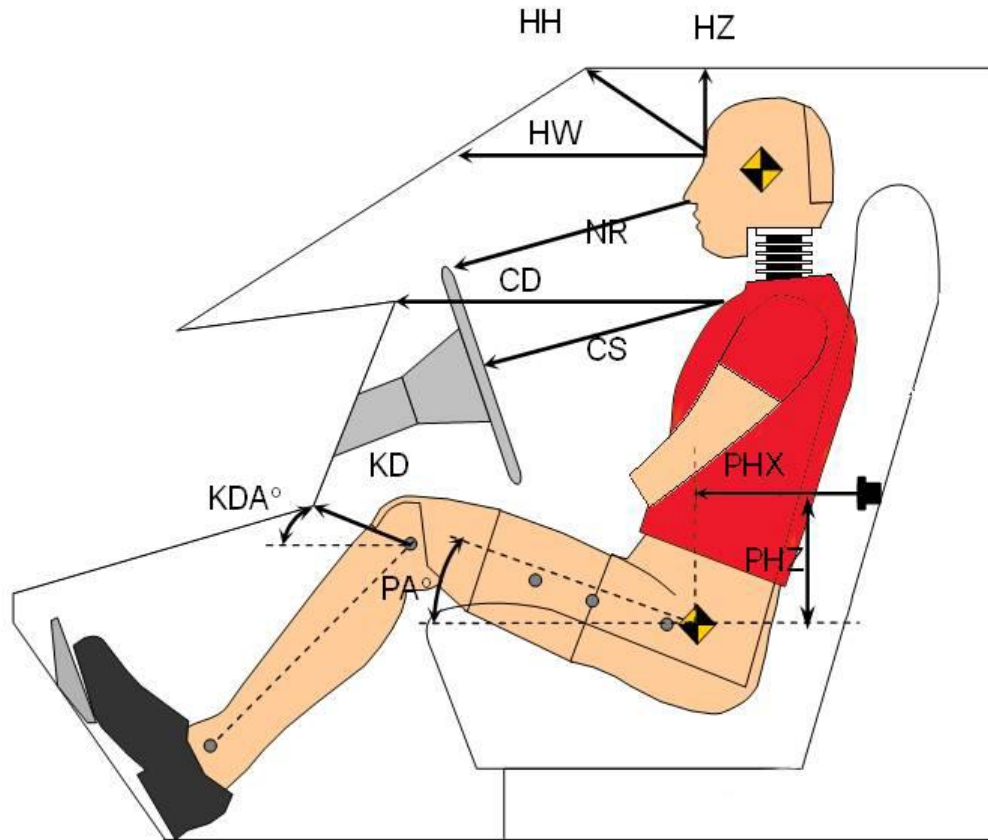
Is the Actual Amount of Solvent Used in the test equal to 93% +/- 1% of the Usable Capacity stated on Form No. 1? X YES ☐ NO

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14

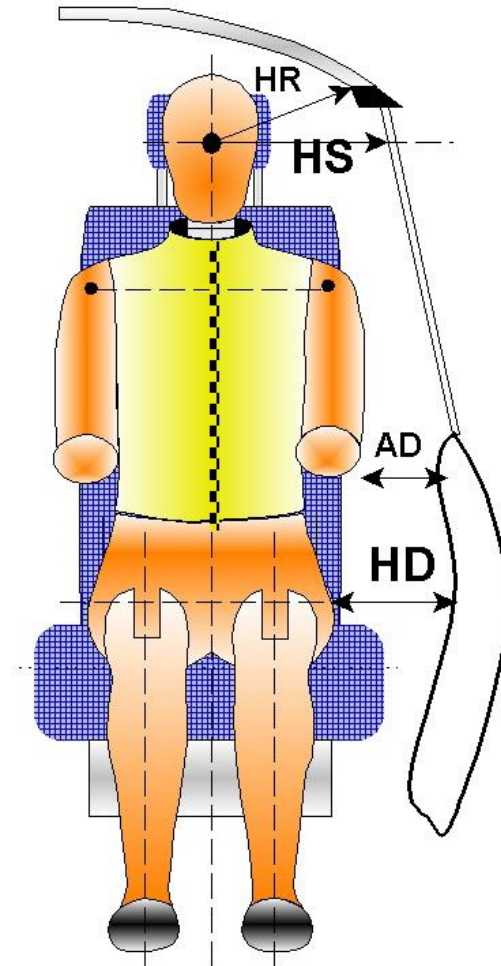


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	336	
HW	Head to Windshield	623	
HZ	Head to Visor	220	
NR	Nose to Rim	196	
CD	Chest to Dashboard	388	
CS	Chest to Steering Wheel	146	
KDL/KDLA°	Left Knee to Dash	98	35.0
KDR/KDRA°	Right Knee to Dash	89	35.0
PAX°	Pelvic Tilt Angle (X-axis)		1.0
PAY°	Pelvic Tilt Angle (Y-axis)		21.5
PHX	Hip Point to Striker (X-Axis)	374	
PHZ	Hip Point to Striker (Z-Axis)	0	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
Test Date: 4/10/14

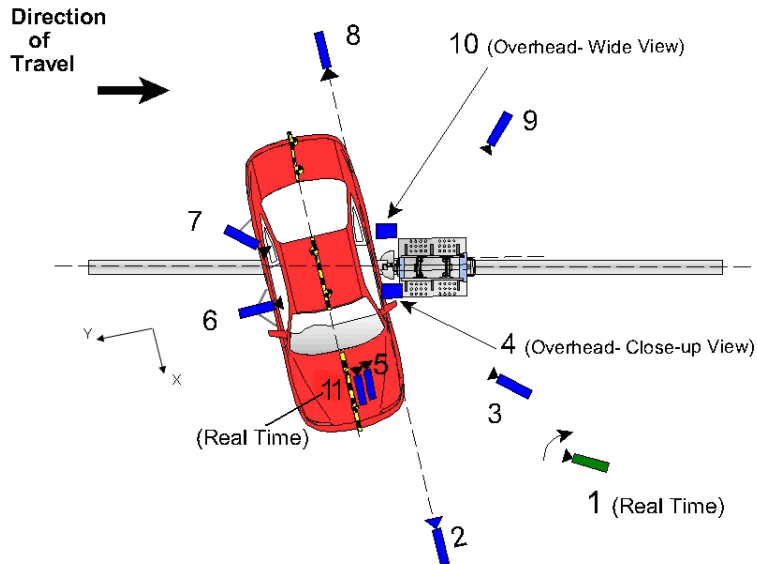


Code	Measurement Description	Length (mm)
HR	Head to Side Header	269
HS	Head to Side Window	377
AD	Arm to Door	160
HD	Hip Point to Door	154

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14



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	5183	110	-1458	16	1000
3	Impact side 45° – forward pole view	5085	-1475	-1599	Zoom	1000
4	Overhead Close-up view of impact	0	0	-5705	Zoom	1000
5	Onboard – dummy front view				12.5	1000
6	Onboard – dummy side view				8.5	1000
7	Onboard – dummy rear oblique view				12.5	1000
8	Rear ground level – impact view	-5583	0	-1525	8.5	1000
9	Impact side 45° – rearward pole view	-3765	-2284	-1289	25	1000
10	Overhead wide view of impact	-120	320	-5705	20	1000
11	Real time dummy front view				Zoom	30

All measurements accurate to +/- 6 mm.

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

If applicable, explain why camera(s) did not run: Not Applicable

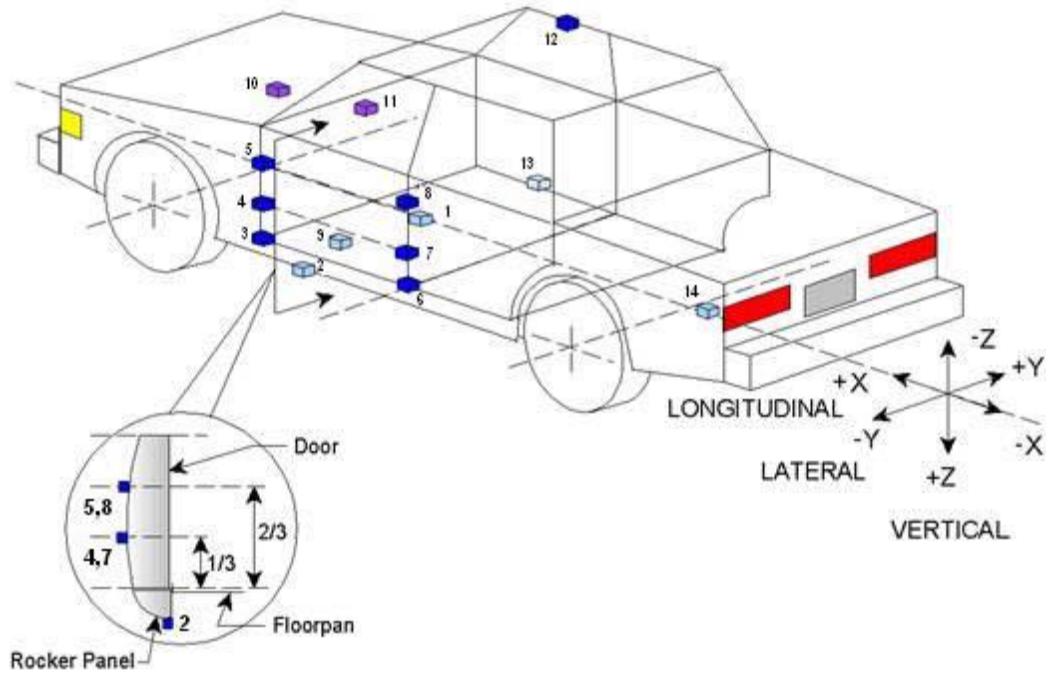
INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14



	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3233	190	-627
2	Left Floor Sill	3197	-790	-500
3	A-Pillar Sill	3475	-787	-530
4	A-Pillar Low	3545	-922	-700
5	A-Pillar Mid	3570	-907	-1150
6	B-Pillar Sill	2325	-750	-549
7	B-Pillar Low	2415	-915	-780
8	B-Pillar Mid	2410	-900	-1190
9	Driver Seat Track	2622	-635	-577
10	Engine Top	4074	-125	-1136
11	Firewall	3945	25	-1226
12	Right Roof	2230	710	-1820
13	Right Floor Sill	3170	790	-505
14	Rear Floorpan	1195	0	-762

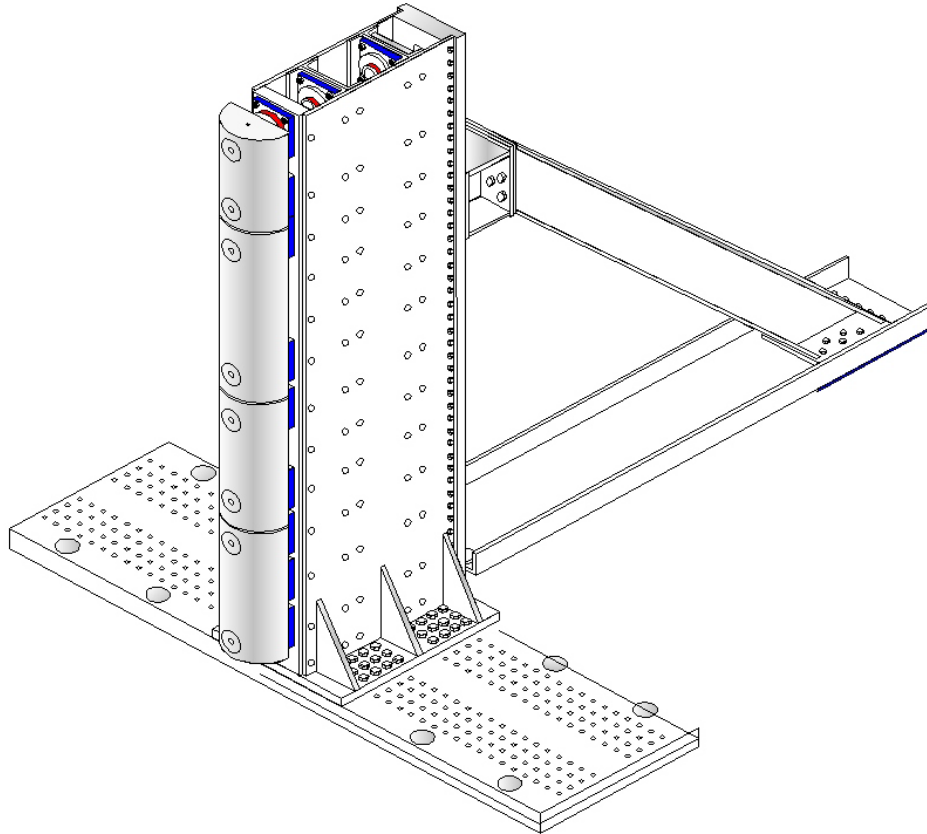
Reference: X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
Test Date: 4/10/14

FOIL 300K RIGID POLE



Load Cell Locations	
ID	Height From Top of Carrier (mm)
1	87
2	468
3	648
4	978
5	1168
6	1651
7	1816
8	2057

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

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
Test Date: 4/10/14

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB
Top of Head	SCAB
Left Side of Head	SCAB
Back of Head	None
Left Shoulder	Torso/Pelvis airbag
Upper Torso	Seat side bolster
Lower Torso	Seat side bolster
Left Hip	Torso/Pelvis airbag
Left Knee	None

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	No
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

* Indicate "Yes", "No", or "NA".

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

* Indicate "Yes", "No", or "NA".

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Major Deformation
Sill Separation	None Visible
Windshield Damage	Broken
Side Window Damage	Front Window Shattered; Rear Window Undamaged
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

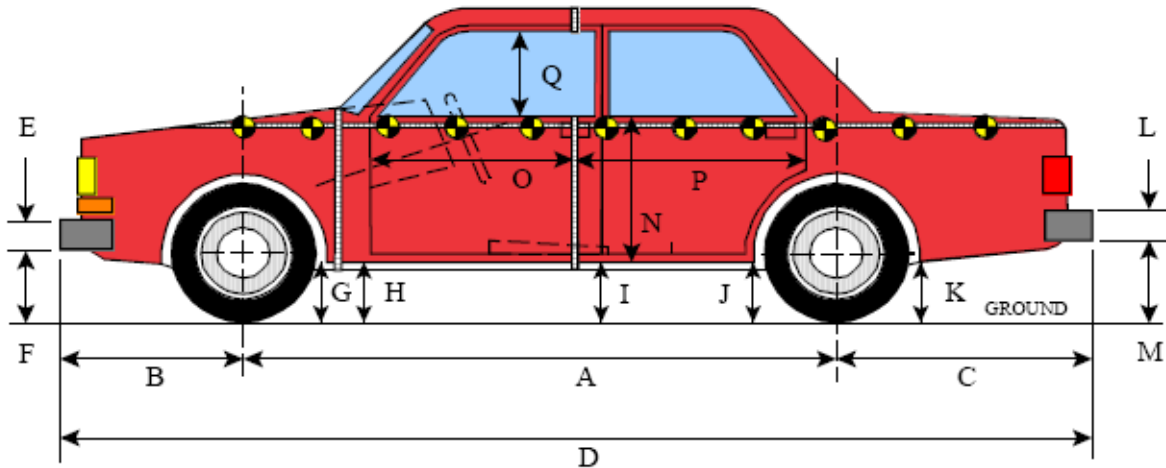
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1221
Actual Impact Point (Aft of Front Axle)	mm		1223
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	-2
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.09
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.10

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14



LEFT SIDE VIEW

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

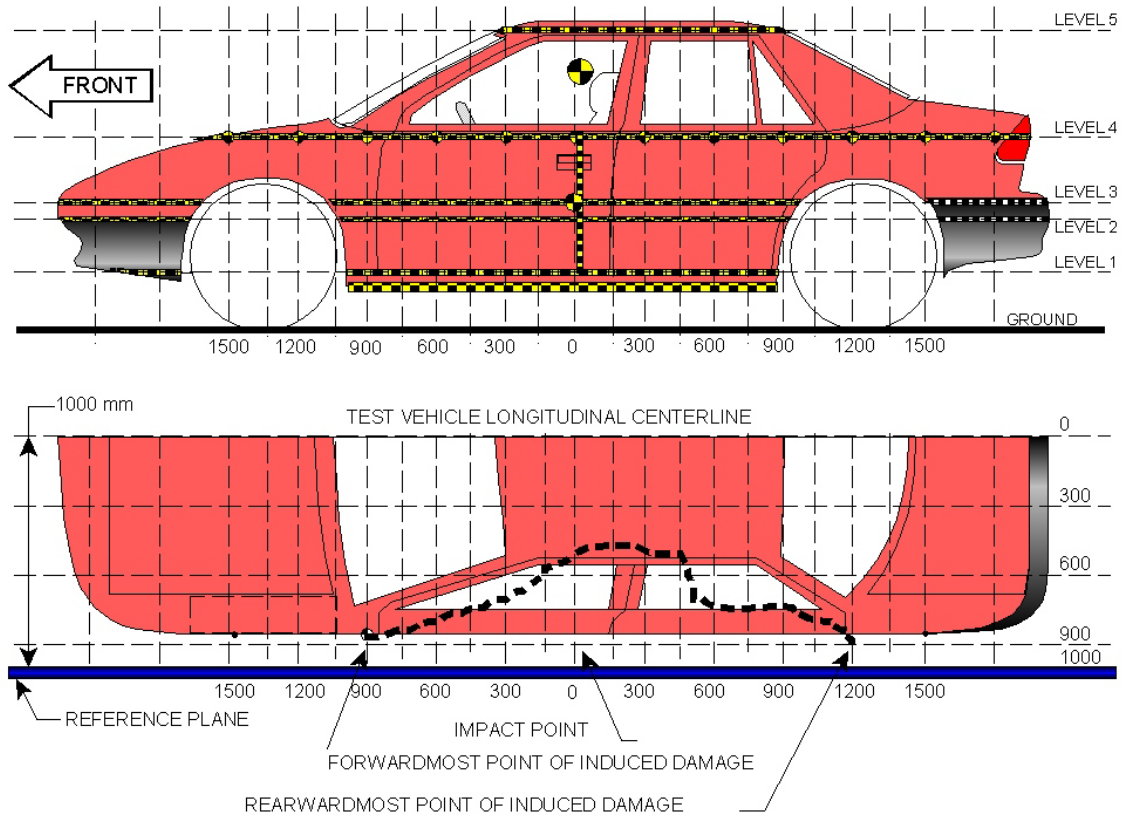
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2950	2865	85
B	Front Axle to Front Surface of Vehicle	1020	1095	-75
C	Rear Axle to Rear Surface of Vehicle	1200	1150	50
D	Total Length at Centerline	5170	5110	60
E	Front Bumper Thickness	142	142	0
F	Front Bumper Bottom to Ground	533	565	-32
G	Sill Height at Front Wheel Well	412	420	-8
H	Sill Height at Front Door Leading Edge	412	425	-13
I	Sill Height at B-Pillar	422	450	-28
J1	Sill Height at Rear Wheel Well	432	478	-46
J2	Pinch Weld Height at Rear Wheel Well	320	415	-95
K	Sill Height Aft of Rear Wheel Well	410	450	-40
L	Rear Bumper Thickness	168	168	0
M	Rear Bumper Bottom to Ground	517	555	-38
N	Sill Height to Bottom of Front Window Sill	910	915	-5
O	Front Door Leading Edge to Impact CL	634	440	194
P	Rear Door Trailing Edge to Impact CL	1563	1455	108
Q	Front Window Opening	475	440	35
R	Right Side Length	5030	4980	50
S	Left Side Length	5030	4940	90
T	Vehicle Width at "B" Pillars	2005	1878	127

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14



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	537	423	0
2	Occupant H-Point	849	454	0
3	Mid-Door	907	453	0
4	Window Sill	1256	401	0
5	Window Top	1802	203	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: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14

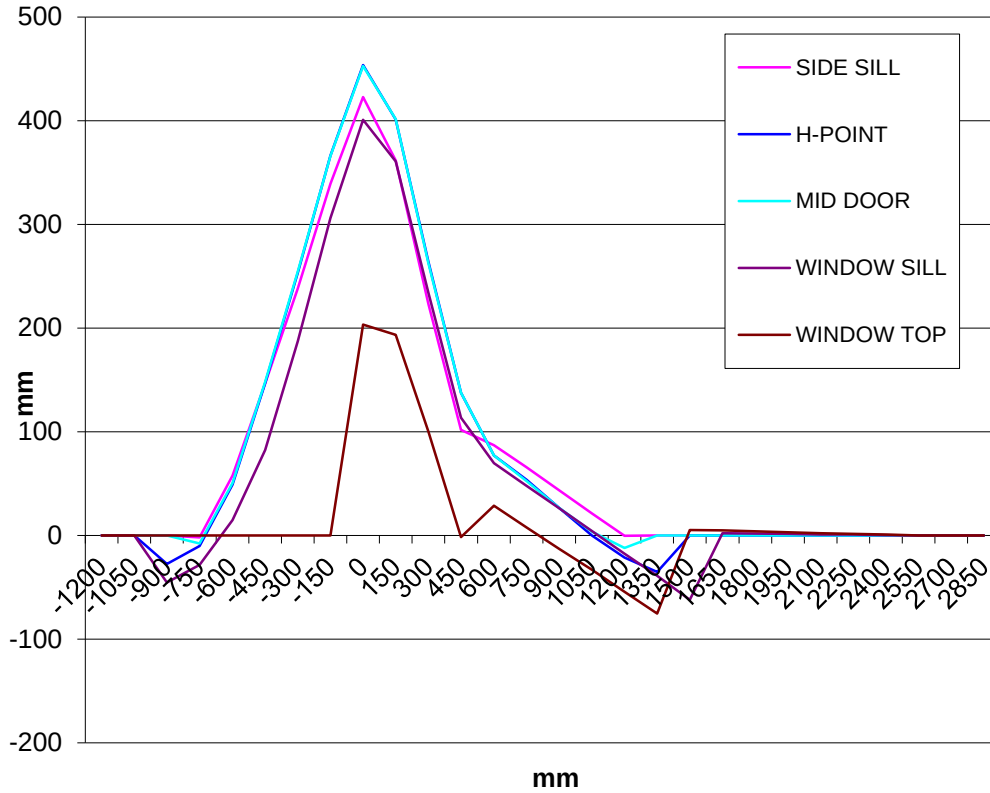
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900	0	1022	0	893	0	0	1049	0	939	0	0	-27	0	-46	0
-750	993	1011	1014	912	0	994	1021	1022	941	0	-1	-10	-8	-29	0
-600	987	1003	1004	922	0	929	954	953	907	0	58	49	51	15	0
-450	984	1004	1004	932	0	837	857	856	849	0	147	147	148	83	0
-300	982	1005	1005	940	0	744	752	751	753	0	238	253	254	187	0
-150	982	1006	1006	948	0	642	640	640	642	0	340	366	366	306	0
0	980	1007	1007	952	694	557	553	554	551	491	423	454	453	401	203
150	979	1008	1008	956	715	617	606	606	595	522	362	402	402	361	193
300	977	1008	1008	960	718	754	743	746	726	617	223	265	262	234	101
450	976	1008	1008	964	724	874	870	871	850	725	102	138	137	114	-1
600	973	1007	1008	965	726	886	930	931	896	698	87	77	77	69	28
750	972	1006	1007	966	731	906	953	954	918	723	66	53	53	48	8
900	971	1005	1006	966	734	928	979	979	940	747	43	26	27	26	-13
1050	972	1006	1007	964	738	951	1006	1003	960	770	21	0	4	4	-32
1200	982	1013	1014	963	739	983	1034	1026	980	793	-1	-21	-12	-17	-54
1350	0	1022	0	961	741	0	1057	0	1000	816	0	-35	0	-39	-75
1500	0	0	0	958	742	0	0	0	1020	737	0	0	0	-62	5
1650	0	0	0	954	742	0	0	0	952	737	0	0	0	2	5
1800	0	0	0	951	740	0	0	0	949	736	0	0	0	2	4
1950	0	0	0	946	738	0	0	0	945	735	0	0	0	1	3
2100	0	0	0	941	734	0	0	0	940	732	0	0	0	1	2
2250	0	0	0	935	729	0	0	0	934	728	0	0	0	1	1

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

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

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
Test Program: SPNCAP Side Impact

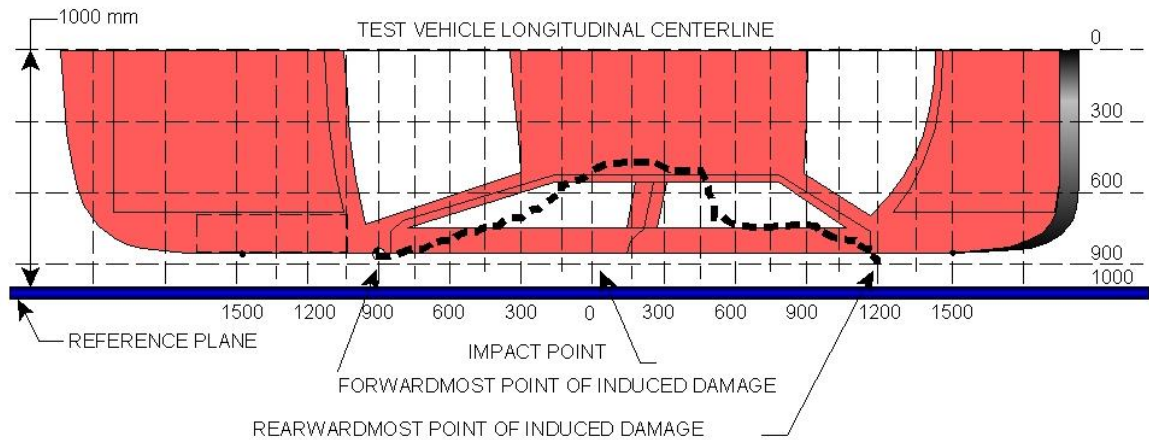
NHTSA No.: M20150110
Test Date: 4/10/14



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20150110
 Test Date: 4/10/14



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	2400	5	723	724	0
2	1800	5	736	740	4
3	1200	1	983	982	-1
4	600	1	886	973	87
5	0	2	553	1007	454
6	-600	1	929	987	0

¹ DPD 1 and 6 defined as zero crush since the crush doesn't extend to the end of the vehicle.

DATA SHEET NO. 12

FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150110

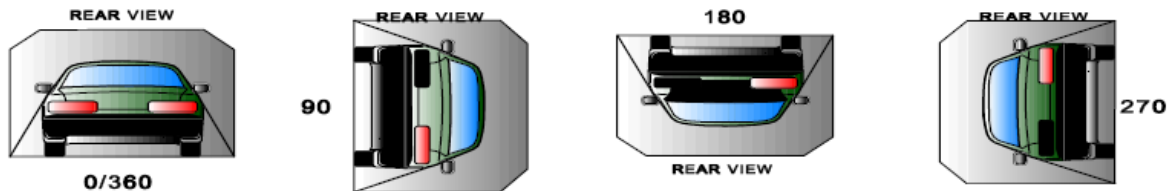
Test Program: SPNCAP Side Impact

Test Date: 4/10/14

Test Time: 14:11 Temperature: 21.2°C

- A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable is 1 ounce)
- B. For the 5 minute period after motion ceases: 0
(Maximum allowable is 5 ounces)
- C. For the following 25 minutes: 0
(Maximum allowable is 1 ounce/minute)
- D. Spillage Deta1LS: None

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	90	330	420
90 to 180	90	330	840
180 to 270	90	330	1260
270 to 360	90	330	1680

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

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

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0 to 90	None
90 to 180	None
180 to 270	None
270 to 360	None

DATA SHEET NO. 13

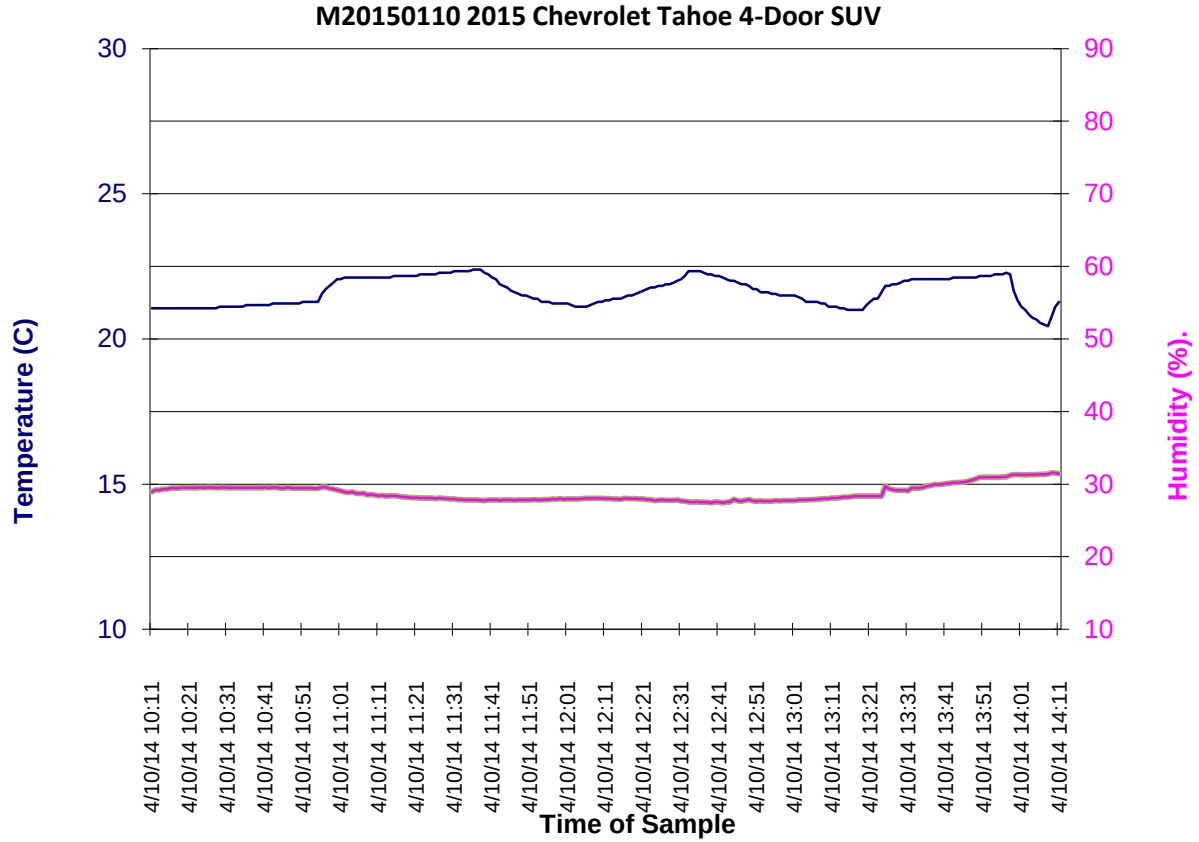
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150110

Test Program: SPNCAP Side Impact

Test Date: 4/10/14



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

No.	Description	Page
1	As Delivered Right Front 3-4 View of Test Vehicle	A-4
2	As Delivered Left Rear 3-4 View of Test Vehicle	A-4
3	Pre-Test Frontal View of Test Vehicle	A-5
4	Post-Test Frontal View of Test Vehicle	A-5
5	Pre-Test Left Front 3-4 View of Test Vehicle	A-6
6	Post-Test Left Front 3-4 View of Test Vehicle	A-6
7	Pre-Test Left Side View of Test Vehicle	A-7
8	Post-Test Left Side View of Test Vehicle	A-7
9	Pre-Test Left Rear 3-4 View of Test Vehicle	A-8
10	Post-Test Left Rear 3-4 View of Test Vehicle	A-8
11	Pre-Test Rear View of Test Vehicle	A-9
12	Post-Test Rear View of Test Vehicle	A-9
13	Pre-Test Right Side View of Test Vehicle	A-10
14	Post-Test Right Side View of Test Vehicle	A-10
15	Pre-Test Overhead View of Test Area	A-11
16	Post-Test Overhead View of Test Area	A-11
17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-12
18	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-12
19	Pre-Test Close-Up View of Impact Point Target	A-13
20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-13
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-14
22	Post-Test Front Close-Up View of Dummy	A-14
23	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-15
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-15
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-16
26	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-16
27	Pre-Test Front View of Dummy Head and Shoulders in Relation to Head Restraint	A-17
28	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-17
29	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-18
30	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-18
31	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-19
32	Pre-Test Placement of Dummy's Feet	A-19
33	Pre-Test View of Belt Anchorage for Dummy	A-20
34	Pre-Test Left Side View of Steering Wheel	A-20

TABLE OF PHOTOGRAPHS (CONTINUED)

No.	Description	Page
35	Pre-Test View of Disengaged Parking Brake	A-21
36	Pre-Test View of Parking Brake	A-21
37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-22
38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-22
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-23
40	Pre-Test Dummy and Door Clearance View	A-23
41	Post-Test Dummy and Door Clearance View	A-24
42	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-24
43	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-25
44	Pre-Test Inner Driver Door Panel View	A-25
45	Post-Test Inner Driver Door Panel View Showing Dummy Contact Location	A-26
46	Post-Test Dummy Close-Up Head Contact with Vehicle View	A-26
47	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-27
48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-27
49	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-28
50	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-28
51	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-29
52	Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-29
53	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-30
54	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-30
55	Close-Up View of Vehicle's Certification Label	A-31
56	Close-Up View of Vehicle's Tire Information Placard or Label	A-31
57	Pre-Test Pole Barrier Front View	A-32
58	Post-Test Pole Barrier Front View	A-32
59	Pre-Test Pole Barrier Side View	A-33
60	Post-Test Pole Barrier Side View	A-33
61	Pre-Test Ballast View	A-34
62	Post-Test Primary and Redundant Speed Trap Read-Out	A-34
63	FMVSS No. 301 Static Rollover 0 Degrees	A-35
64	FMVSS No. 301 Static Rollover 90 Degrees	A-35
65	FMVSS No. 301 Static Rollover 180 Degrees	A-36
66	FMVSS No. 301 Static Rollover 270 Degrees	A-36
67	FMVSS No. 301 Static Rollover 360 Degrees	A-37
68	Impact Event	A-37
69	Monroney Label	A-38
70	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-38
71	Post-Test View of Shattered Vehicle Inner Door Panel	A-39



001 As Delivered Right Front 3-4 View of Test Vehicle



002 As Delivered Left Rear 3-4 View of Test Vehicle



003 Pre-Test Frontal View of Test Vehicle



004 Post-Test Frontal View of Test Vehicle



005 Pre-Test Left Front 3-4 View of Test Vehicle



006 Post-Test Left Front 3-4 View of Test Vehicle



007 Pre-Test Left Side View of Test Vehicle



008 Post-Test Left Side View of Test Vehicle



009 Pre-Test Left Rear 3-4 View of Test Vehicle



010 Post-Test Left Rear 3-4 View of Test Vehicle



011 Pre-Test Rear View of Test Vehicle



012 Post-Test Rear View of Test Vehicle



013 Pre-Test Right Side View of Test Vehicle



014 Post-Test Right Side View of Test Vehicle



015 Pre-Test Overhead View of Test Area



016 Post-Test Overhead View of Test Area



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



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



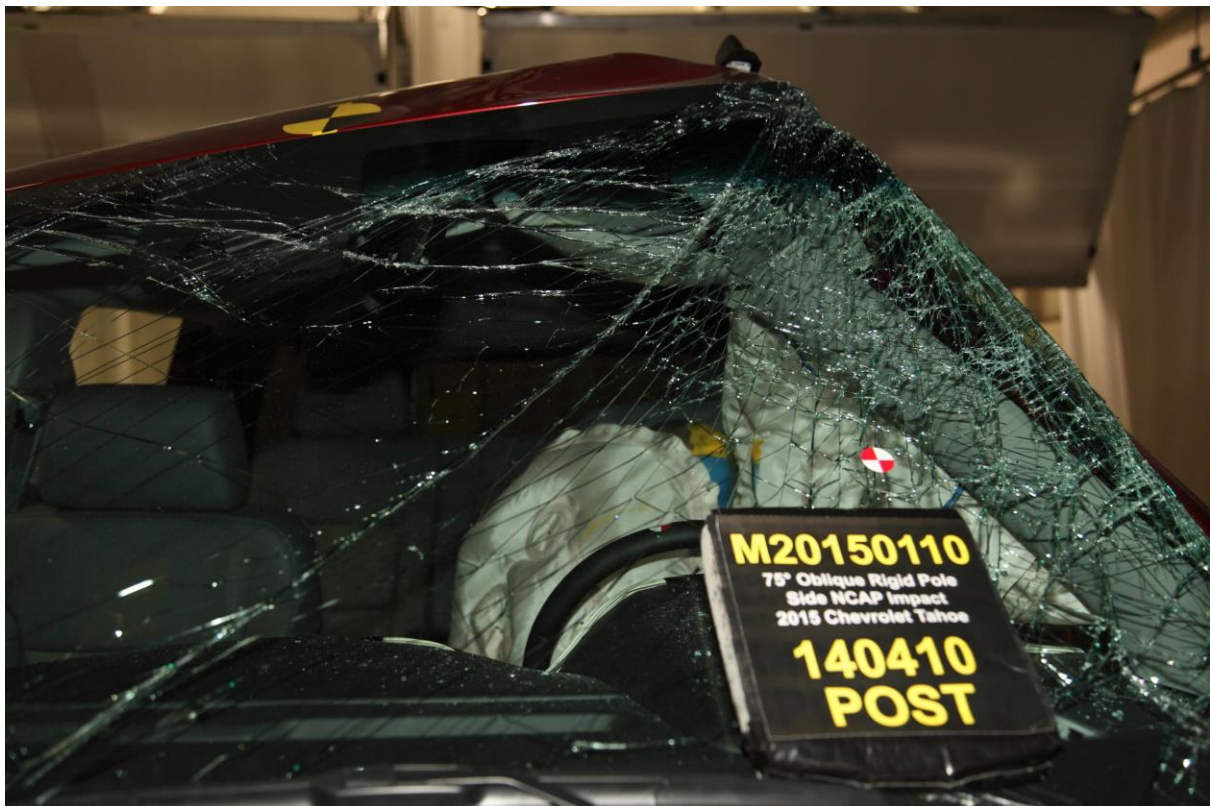
019 Pre-Test Close-Up View of Impact Point Target



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



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



022 Post-Test Front Close-Up View of Dummy



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



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



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



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



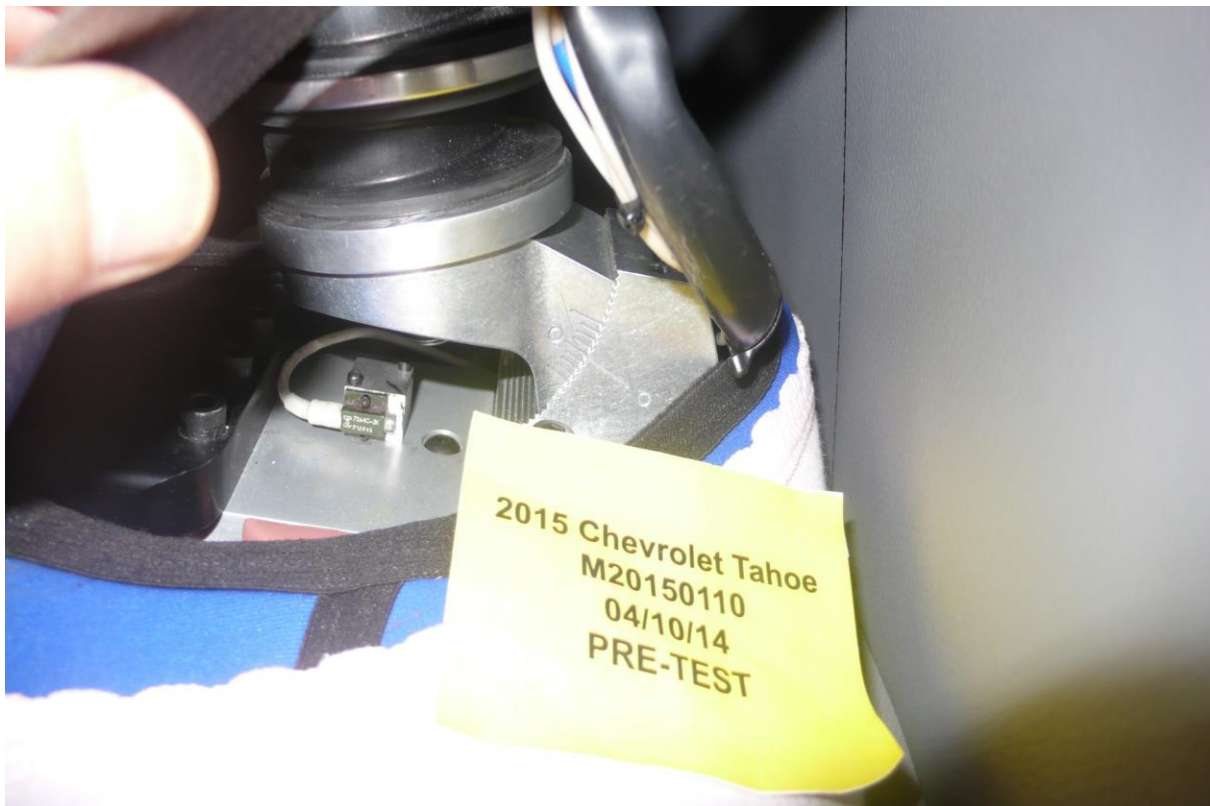
027 Pre-Test Front View of Dummy Head and Shoulders in Relation to Head Restraint



028 Pre-Test Front View of Seat Pan Prior to Dummy Positioning



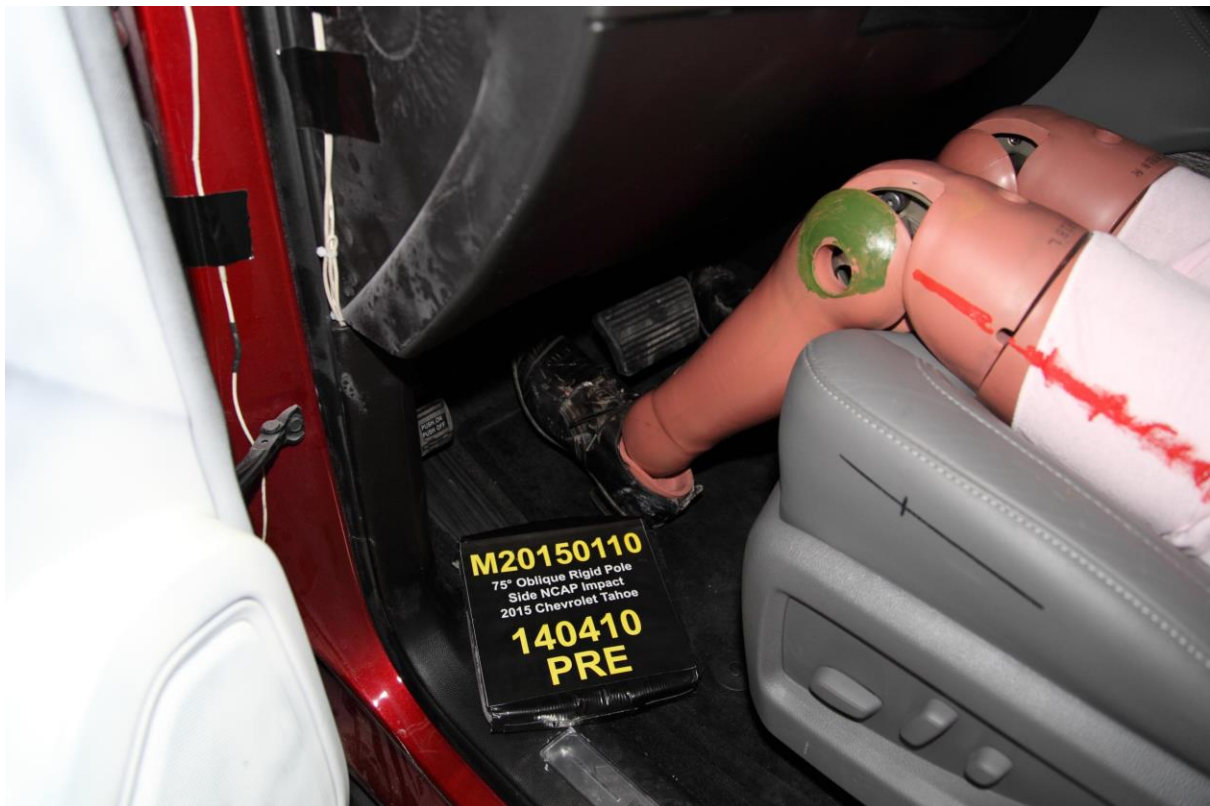
029 Pre-Test Overhead View of Dummy Thighs on Seat Pan



030 Pre-Test Left Side View of Dummy Neck Showing Position of Adjustable Neck Bracket



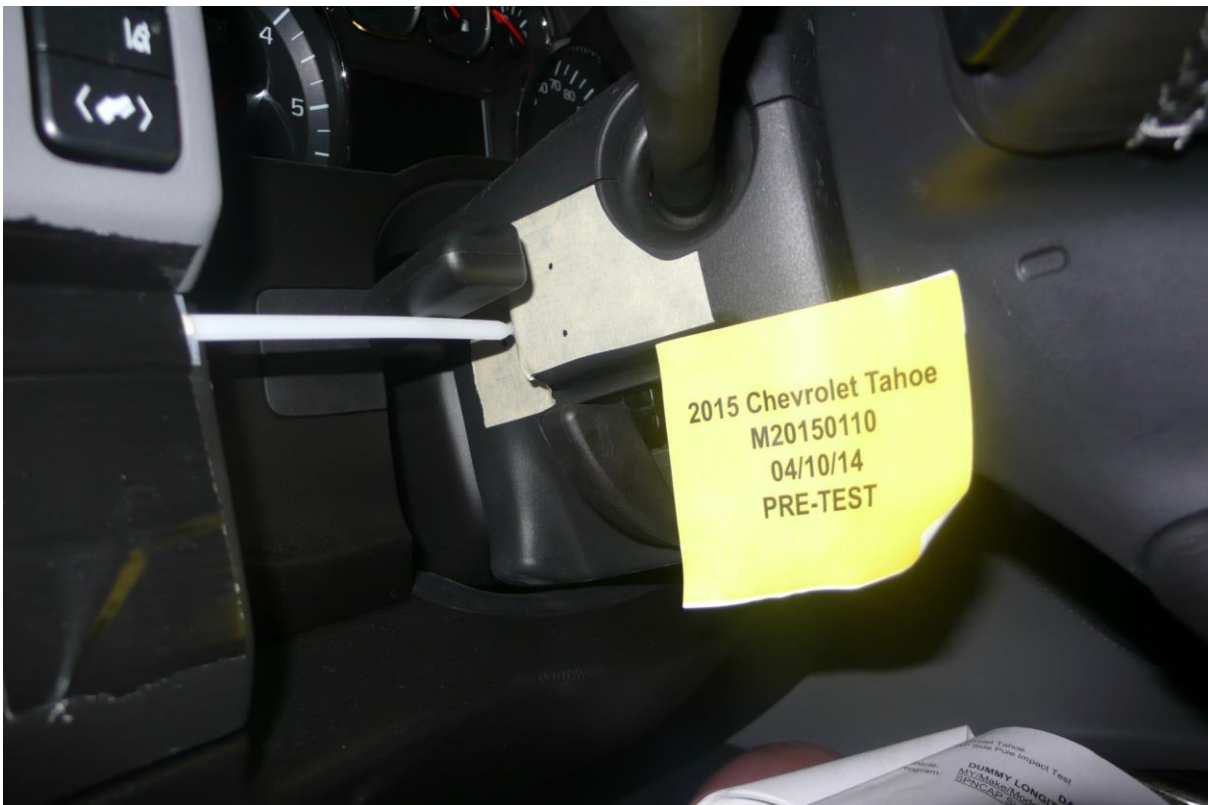
031 Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level



032 Pre-Test Placement of Dummy Feet



033 Pre-Test View of Belt Anchorage for Dummy



034 Pre-Test Left Side View of Steering Wheel



035 Pre-Test View of Disengaged Parking Brake



036 Pre-Test View of Parking Brake



037 Pre-Test Close-Up Left Side View of Driver Seat Track



038 Pre-Test Close-Up Left Side View of Driver Seat Back



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



040 Pre-Test Dummy and Door Clearance View



041 Post-Test Dummy and Door Clearance View



042 Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



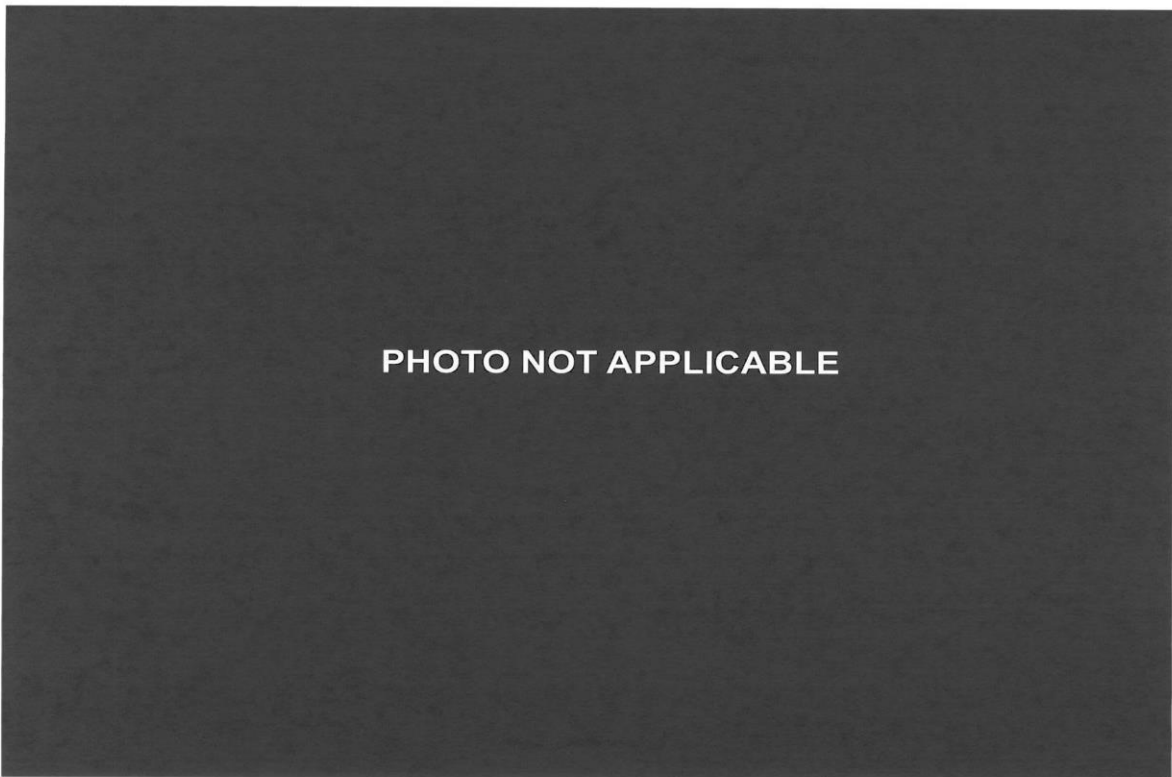
043 Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



044 Pre-Test Inner Driver Door Panel View



045 Post-Test Inner Driver Door Panel View Showing Dummy Contact Location



046 Post-Test Dummy Close-Up Head Contact with Vehicle View



047 Post-Test Dummy Close-Up Head Contact with Side Airbag View



048 Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



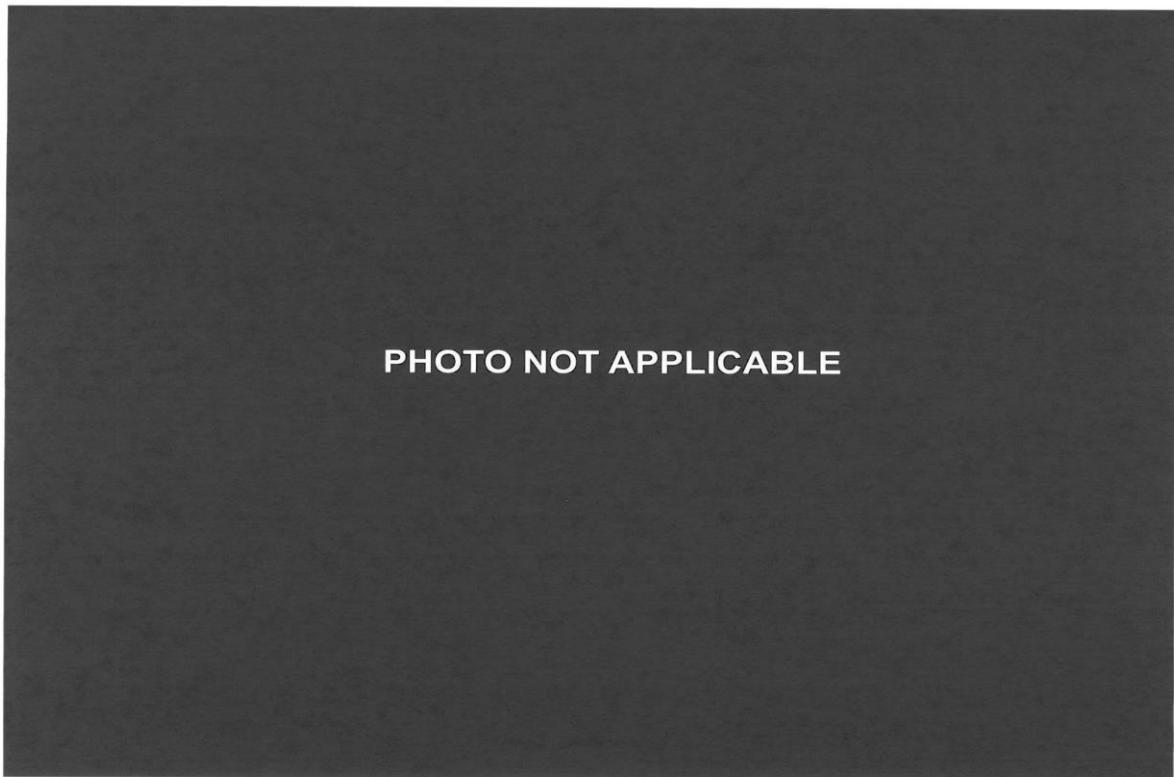
049 Post-Test Dummy Close-Up Torso Contact with Side Airbag View



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



051 Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



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



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



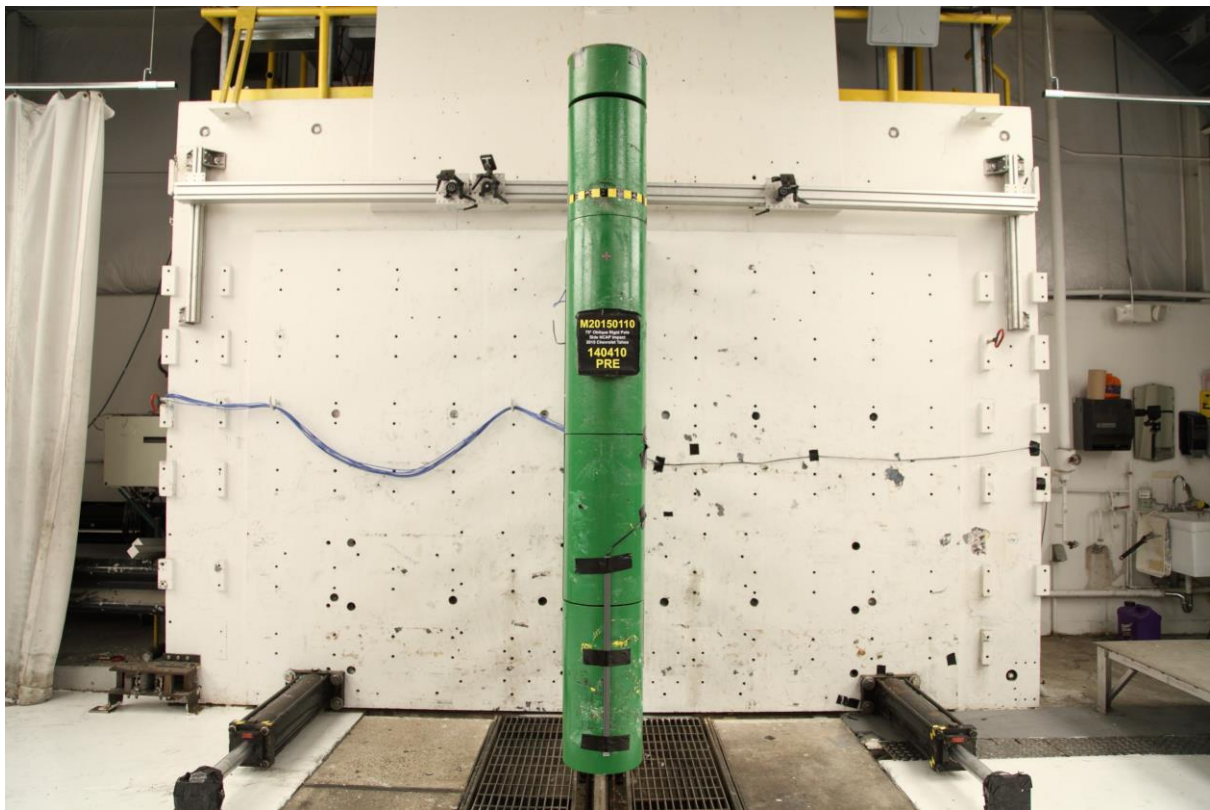
054 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



055 Close-Up View of Vehicle Certification Label



056 Close-Up View of Vehicle Tire Information Placard or Label



057 Pre-Test Pole Barrier Front View



058 Post-Test Pole Barrier Front View



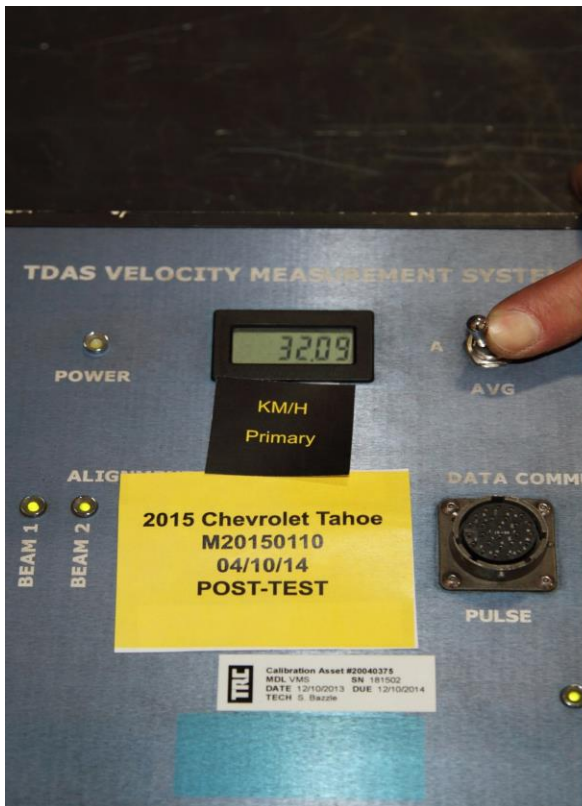
059 Pre-Test Pole Barrier Side View



060 Post-Test Pole Barrier Side View

PHOTO NOT AVAILABLE

061 Pre-Test Ballast View



062 Post-Test Primary and Redundant Speed Trap Read-Out



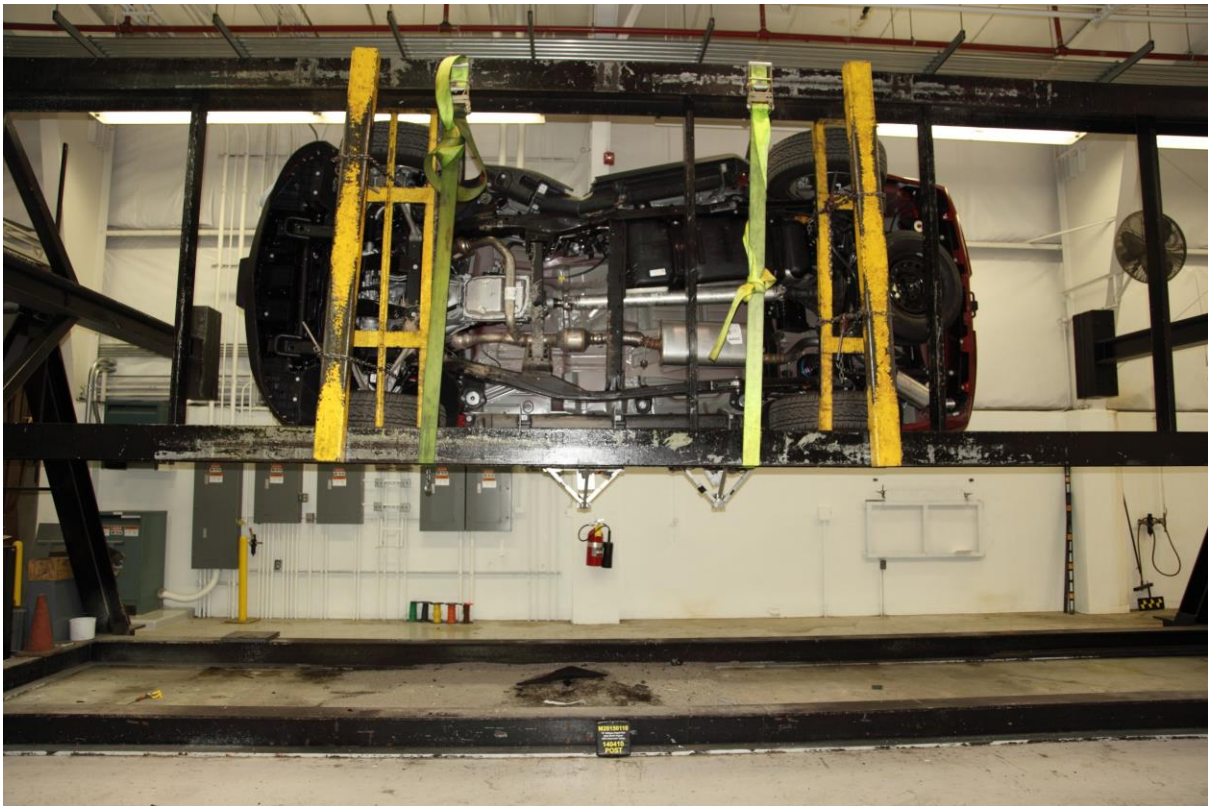
063 FMVSS No. 301 Static Rollover 0 Degrees



064 FMVSS No. 301 Static Rollover 90 Degrees



065 FMVSS No. 301 Static Rollover 180 Degrees



066 FMVSS No. 301 Static Rollover 270 Degrees



067 FMVSS No. 301 Static Rollover 360 Degrees



068 Impact Event



CHEVROLET

2015 TAHOE 2WD LT



EXTERIOR: CRYSTAL RED METALLIC
INTERIOR: JET BLACK / DARK ASH

ENGINE: 5.3L V8 ECOTEC3
TRANSMISSION: 6 SPD AUTOMATIC

STANDARD EQUIPMENT

(ITEMS LISTED BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE SHEET)

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

MECHANICAL

- 5.3L V8 ECOTEC3 ENGINE
- 6 SPD AUTOMATIC TRANSMISSION
- FULLY AUTOMATIC LOCKING REAR DIFFERENTIAL
- PREMIUM RIDE SUSPENSION
- REAR AXLE 3.08 RATIO
- REAR PARK ASSIST
- TRAILERING EQUIPMENT
- 4-WHEEL ANTILOCK DISC BRAKES

SAFETY & SECURITY

- 6 MTH ONSTAR® DIRECTIONS & CONNECTIONS W/ AUTOMATIC CRASH RESPONSE & TURN-BY-TURN NAV PLUS 5-YEAR ONSTAR BASIC PLAN (CMTS SAFETY, SECURITY & NAV) (SEE ONSTAR.COM)
- FORWARD COLLISION ALERT
- LANE DEPARTURE WARNING & SAFETY ALERT SEAT
- REAR VISION CAMERA
- TIRE PRESSURE MONITOR SYSTEM (EXCL. SPARE TIRE)
- AIR BAGS, FRONTAL AND SIDE-IMPACT, FOR DRIVER AND FRONT PASSENGER, DRIVER INBOARD SEAT MOUNTED, SIDE-IMPACT AND A HEAD CURTAIN SIDE-IMPACT FOR ALL ROWS IN OUTBOARD SEAT POSITIONS

EXTERIOR

- RAIN SENSING

WINDSHIELD WIPERS

- POWER HEATED OUTSIDE MIRRORS
- LUGGAGE RACK SIDE RAILS
- ASSIST STEPS
- REMOTE KEYLESS ENTRY, EXTENDED RANGE
- 18" ALUMINUM WHEELS
- 17" STEEL SPARE WHEEL
- POWER REAR LIFTGATE W/ PROGRAMMABLE HEIGHT SETTING

INTERIOR

- SEATS FRONT BUCKET, LEATHER APPOINTED, HEATED
- MEMORY SETTINGS, DRIVER SEAT, PEDALS
- PWR SEAT ADJUSTER, DRIVER AND FRONT PASSENGER
- SECOND ROW 60/40 SPLIT FOLD FLAT BENCH SEAT
- 3RD ROW 60/40 FOLD FLAT BENCH SEAT
- REMOTE VEHICLE START

- EXPRESS DOWN, EXPRESS UP FRONT, POWER WINDOWS
- POWER DOOR LOCKS
- POWER ADJUSTABLE PEDALS
- AUTO DIMMING INSIDE REARVIEW MIRROR
- TILTING AND TELESCOPING STEERING COLUMN
- STEERING WHEEL CONTROLS
- BOSE PREMIUM AUDIO SYSTEM
- 110-VOLT AC POWER OUTLET
- UNIVERSAL HOME REMOTE

OPTIONS & PRICING

MANUFACTURER'S SUGGESTED RETAIL PRICE
STANDARD VEHICLE PRICE \$50,000.00

Visit us at www.chevy.com

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

WHEELS, 20" POLISHED ALUMINUM	1,400.00
CRYSTAL RED METALLIC	495.00
CHROME BODY SIDE MOLDINGS (DEALER INSTALLED)	295.00
WHEEL LOCKS (DLR INSTALLED)	55.00
GWR RATING - 7100 LBS	INC.
TOTAL OPTIONS	\$2,245.00
TOTAL VEHICLE & OPTIONS	\$52,245.00
DESTINATION CHARGE	995.00
TOTAL VEHICLE PRICE*	\$53,240.00

EPA Fuel Economy and Environment



Flexible-Fuel Vehicle Gasoline-Ethanol (E85)

You spend \$3,500 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$2,900

Fuel Economy & Greenhouse Gas Rating (tailpipe only)



Smog Rating (tailpipe only)



Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs \$11,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.59 per gallon. This is a dual-fuel vehicle. MPG is miles per gallon (city equivalent). Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov

Calculator personalized estimates and compare vehicles



GOVERNMENT 5-STAR SAFETY RATINGS

This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash or rollover risk.

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



Equipped with the safety and connectivity of OnStar.
Push your blue button or visit onstar.com for details.

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 60%
MAJOR SOURCES OF FOREIGN PARTS CONTENT: MEXICO 28%

NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
ARLINGTON, TX U.S.A.
COUNTRY OF ORIGIN:
ENGINE: UNITED STATES
TRANSMISSION: UNITED STATES

This label has been applied pursuant to Federal law. Use not vehicles prior to delivery to the ultimate purchaser. Vehicle's Manufacturer's Recommended Pre-Delivery Service. Does not include dealer-installed options, and accessories not listed above, local taxes or license fees.

© 2009 General Motors LLC
GM-IL-PRC-0001-01/10/2014

ORDER NO. RNDQ07 SALES CODE E
SALES MODEL CODE C01006
DEALER NO. 10279
PHILIPS ASSEMBLY
ARLINGTON, TX U.S.A.
VIN 1GN5CBK0XFR111704

DEALER TO WHOM DELIVERED
PHELPS CHEVROLET
PO BOX 2306
GREENVILLE, NC 27636-0306



DI
1A20405655

3-2 Seats and Restraints

Head Restraints

Front Seats

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



Warning
With head restraints that are not installed and adjusted properly, there is a greater chance that occupants will suffer a neck/spinal injury in a crash. Do not drive until the head restraints for all occupants are installed and adjusted properly.



Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.



The height of the head restraint can be adjusted. Pull the head restraint up to raise it. Try to move the head restraint to make sure that it is locked in place.

To lower the head restraint, press the button, located on the top of the seatback, and push the head restraint down. Try to move the head restraint after the button is released to make sure that it is locked in place.

The front seat outboard head restraints are not removable.

070 Head Restraint Use and Adjustment Information from Vehicle Owner Manual

PHOTO NOT AVAILABLE

071 Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

No.	Description	Page
1	Driver Head Acceleration (X) vs. Time	B-4
2	Driver Head Acceleration (Y) vs. Time	B-4
3	Driver Head Acceleration (Z) vs. Time	B-4
4	Driver Head Acceleration Resultant 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 Acceleration Resultant 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 (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)

Vehicle Instrumentation Data

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

Pole Instrumentation Data

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

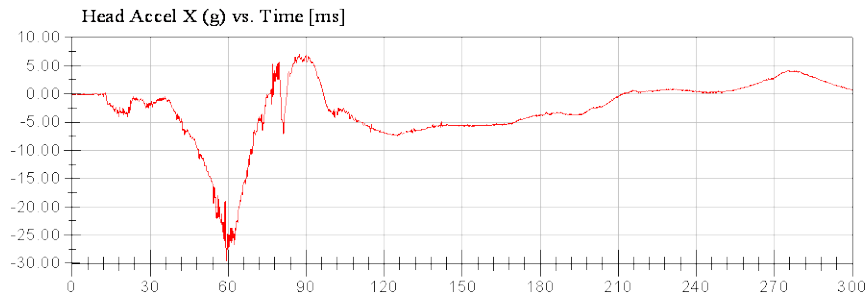
NHTSA

Test Lab: CTF

Test Number: 140410 (M20150110)

Position #1 SID II's Dummy (D18818)

Test Date: 04/10/2014



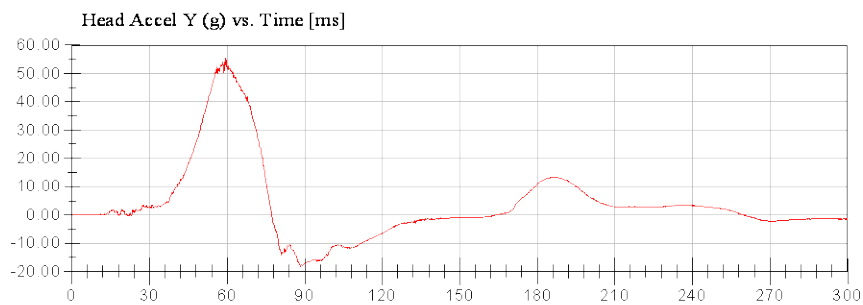
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6.96 g at 87.36 ms

<Min>

-29.50 g at 59.36 ms

CFC_1000



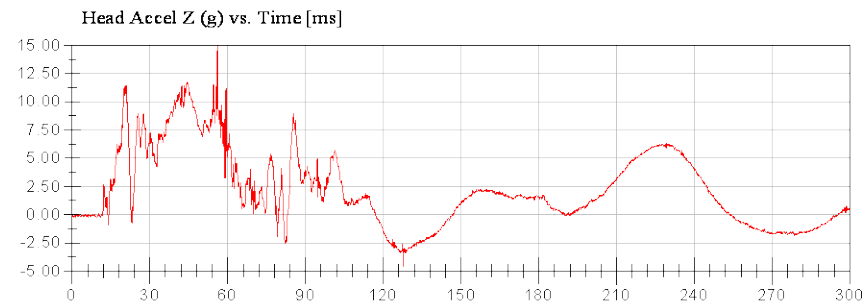
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55.49 g at 59.44 ms

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-18.25 g at 88.40 ms

CFC_1000



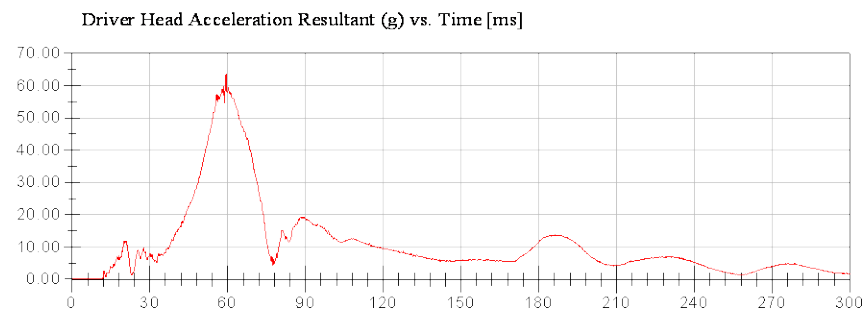
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15.00 g at 56.08 ms

<Min>

-4.61 g at 127.68 ms

CFC_1000



<Max>

63.72 g at 59.44 ms

<Min>

0.02 g at 8.16 ms

CFC_1000



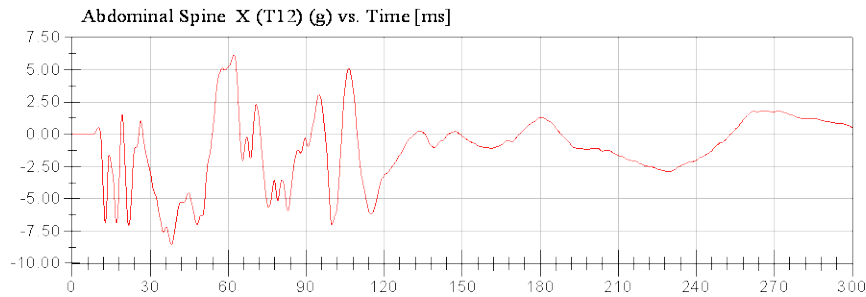
NHTSA

Test Lab: CTF

Test Number: 140410 (M20150110)

Position #1 SID II's Dummy (DI8818)

Test Date: 04/10/2014

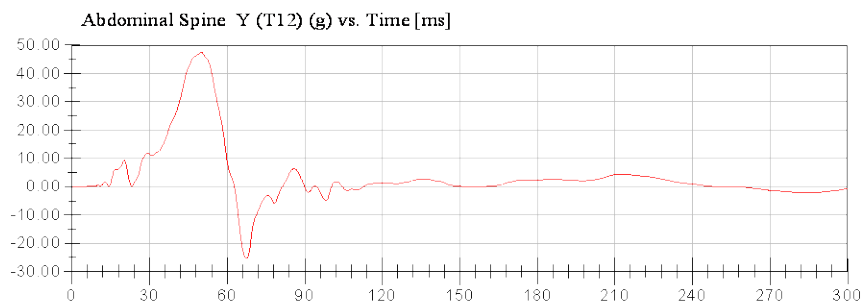


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6.14 g at 62.24 ms

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-8.53 g at 38.24 ms

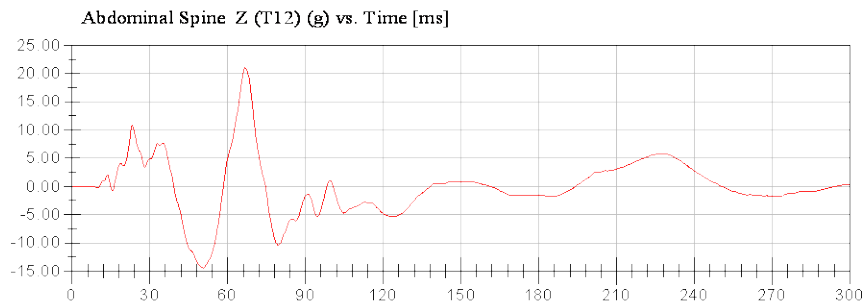


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47.51 g at 50.00 ms

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-25.40 g at 67.52 ms

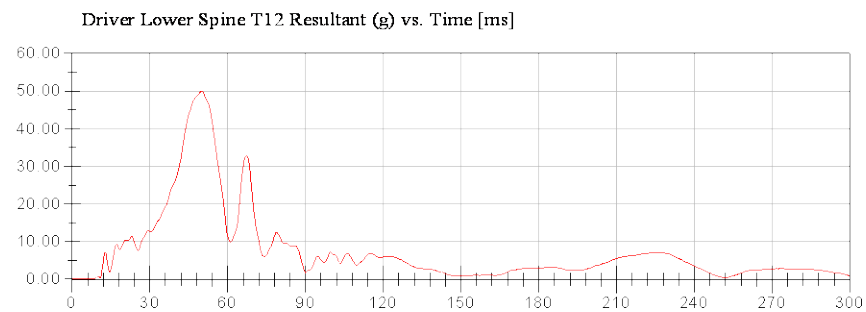


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21.03 g at 66.72 ms

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-14.40 g at 50.56 ms



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50.01 g at 50.00 ms

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0.06 g at 4.08 ms



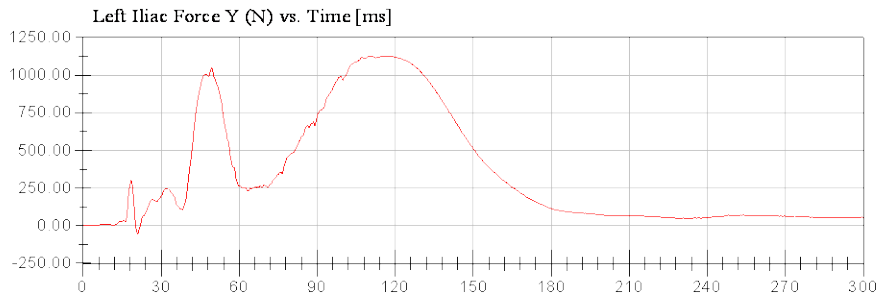
NHTSA

Test Lab: CTF

Test Number: 140410 (M20150110)

Position #1 SID IIs Dummy (D18818)

Test Date: 04/10/2014

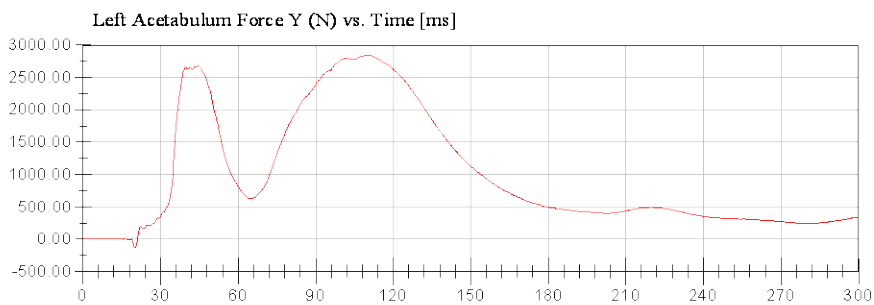


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-55.17 N at 20.96 ms

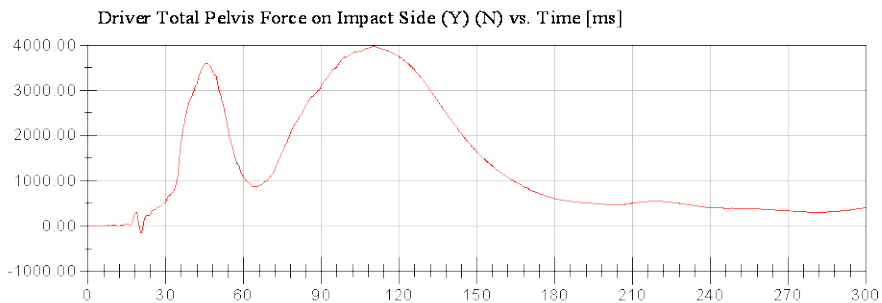


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2,847.11 N at 110.48 ms

<Min>

-130.06 N at 20.24 ms



<Max>

3,971.67 N at 109.92 ms

<Min>

-153.36 N at 20.48 ms



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS
SID-IIs (Driver) Dummy
Description

Table 1. External Measurements

Table 2. Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)
Head (X) Acceleration (G's) vs. Time (ms)
Head (Y) Acceleration (G's) vs. Time (ms)
Head (Z) Acceleration (G's) vs. Time (ms)

Table 3. Lateral Neck Pendulum Test

Pendulum Velocity (m/s) vs. Time (ms)
Flexion Angle (°) vs. Time (ms)
Moment About Occipital Condyle (Nm) vs. Time (ms)

Table 4. Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)

Table 5. Thorax (With Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 6. Thorax (Without Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 7. Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 8. Pelvis Plug Quasi-Static Test (Optional*)

Table 9. Pelvis Acetabulum Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Acetabulum Force (N) vs. Time (ms)

Table 10. Pelvis Iliac Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Iliac Force (N) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N DI8818

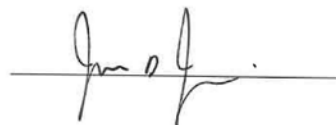
Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. DI8818 Calibration No.14

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	781	Yes
B	Shoulder Pivot Height	437.0 - 453.0	440	Yes
C	H-Point Height	79.0 - 89.0	82	Yes
D	H-Point from Seat Back	141.0 - 151.0	142	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	100	Yes
F	Thigh Clearance	119.0 - 135.0	131	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	182	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	534	Yes
L	Popliteal Height	343.0 - 369.0	352	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	399	Yes
N	Buttock Popliteal Length	416.0 - 442.0	427	Yes
O	Chest Depth without Jacket	195.0 - 211.0	202	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	313	Yes
R	Arm Length	249.0 - 259.0	255	Yes
S	Knee Joint to seat Back	478.0 - 493.0	484	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	867	Yes
Z	Waist Circumference	761.0 - 791.0	775	Yes

Technician



Approved



Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DI8818 Certification No. 14-1

Test Date: 2/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	130.7 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	3.5 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 10:46:27 234

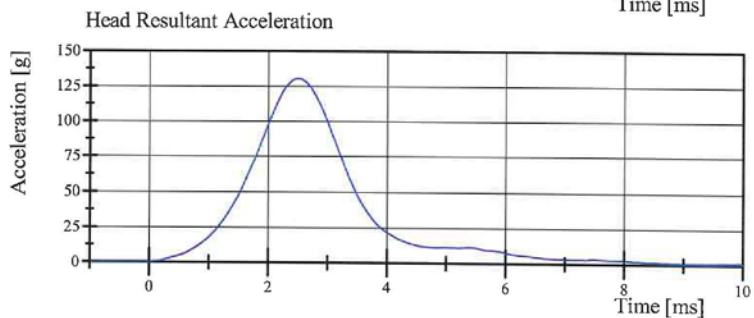
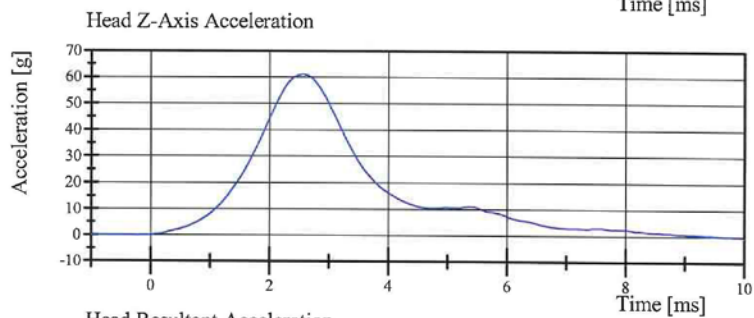
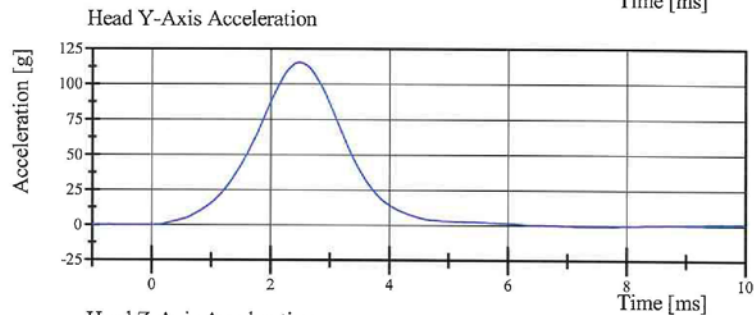
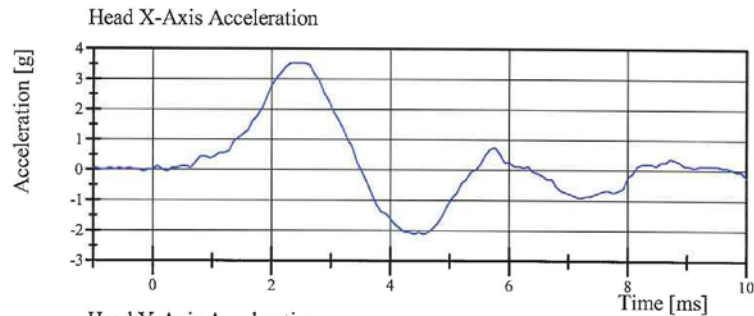


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DI8818 Certification No. 14-1

Test Date: 2/27/2014



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 10:46:36 234



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DI8818 Certification No. 14-1

Test Date: 2/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.597 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.589 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.914 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.294 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.775 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.786 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-73.0 deg	Yes
Time of Peak	50 - 70 ms	64.5 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N-m	41.6 N-m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N-m	102 - 126 ms	109.8 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 10:48:36 633

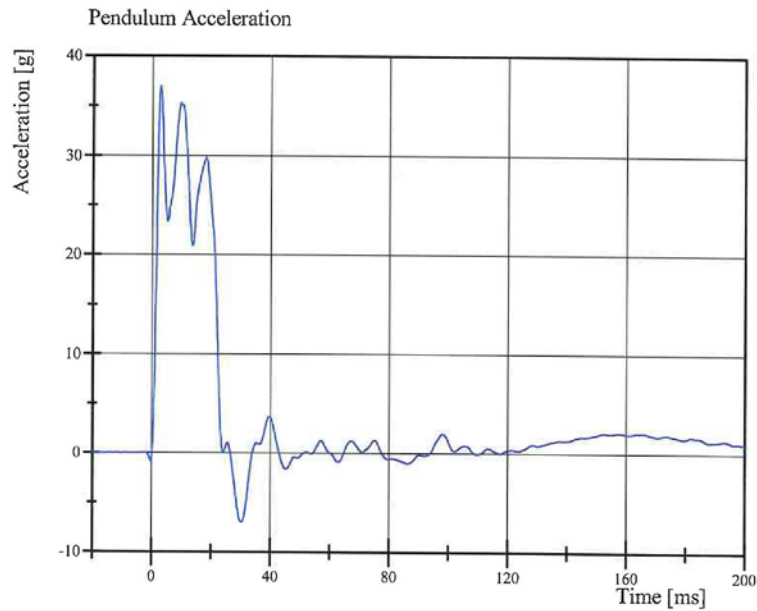


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DI8818 Certification No. 14-1

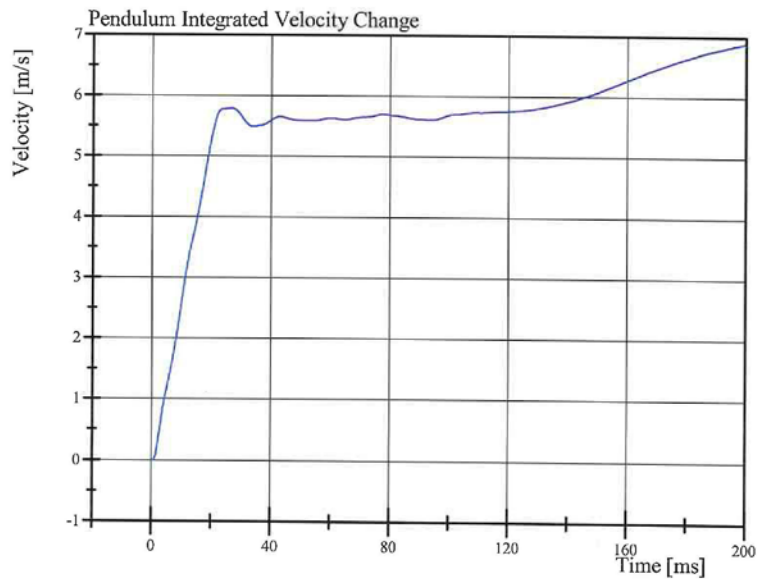
Test Date: 2/27/2014



Filter Class: CFC_180

Max: 36.9 g at 2.7 ms

Min: -7.0 g at 30.3 ms



Filter Class: CFC_180

Max: 6.9 m/s at 200.0 ms

Min: -0.0 m/s at 0.2 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 10:48:47 633

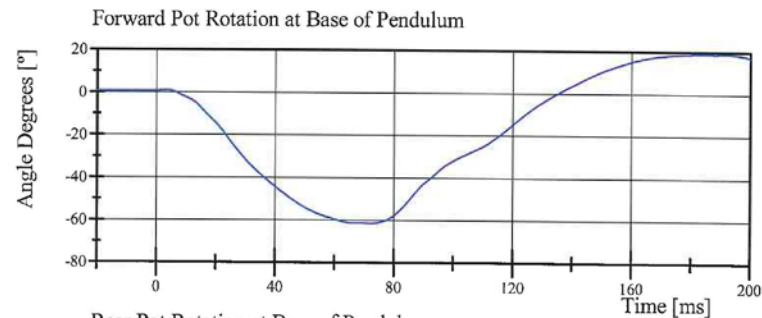


Transportation Research Center Inc.

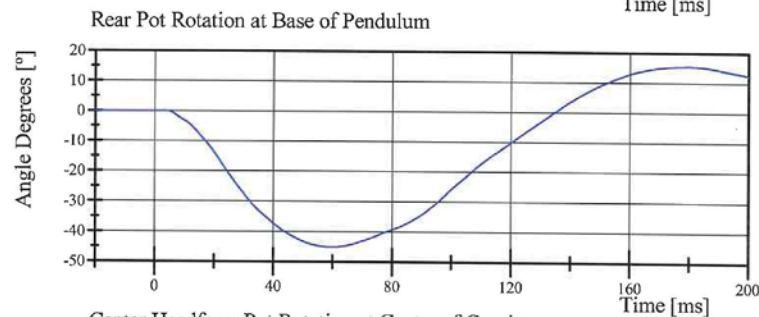
Left Lateral Neck

SID IIs Serial No. DI8818 Certification No. 14-1

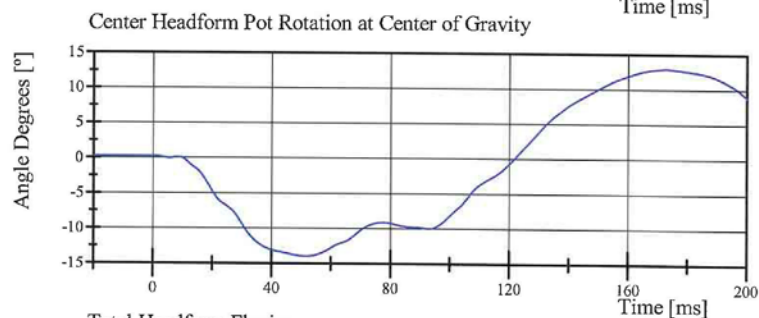
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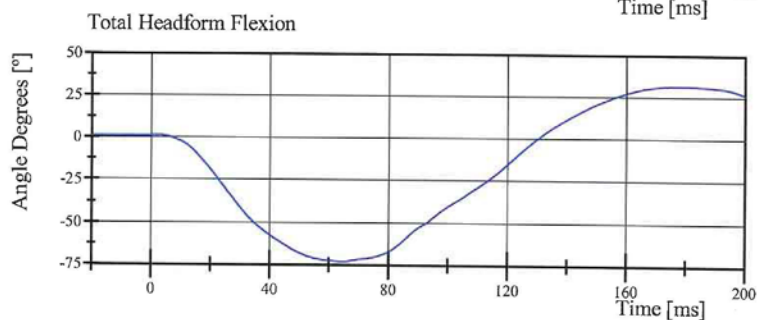
Filter Class: CFC_60
Max: 18.8 ° at 182.6 ms
Min: -61.5 ° at 72.2 ms



Filter Class: CFC_60
Max: 15.4 ° at 179.9 ms
Min: -45.1 ° at 59.5 ms



Filter Class: CFC_60
Max: 12.9 ° at 172.6 ms
Min: -14.0 ° at 51.5 ms



Filter Class: CFC_60
Max: 31.3 ° at 176.6 ms
Min: -73.0 ° at 64.5 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 10:48:48 633

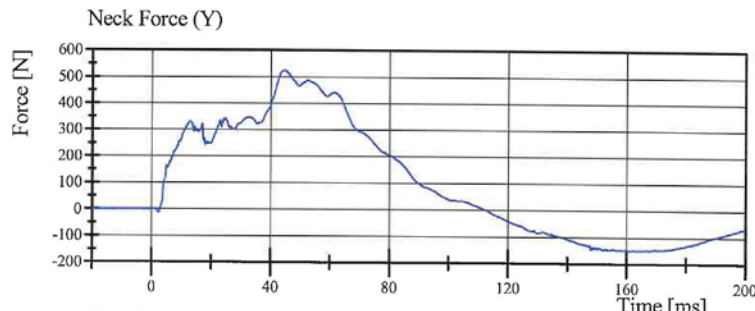


Transportation Research Center Inc.

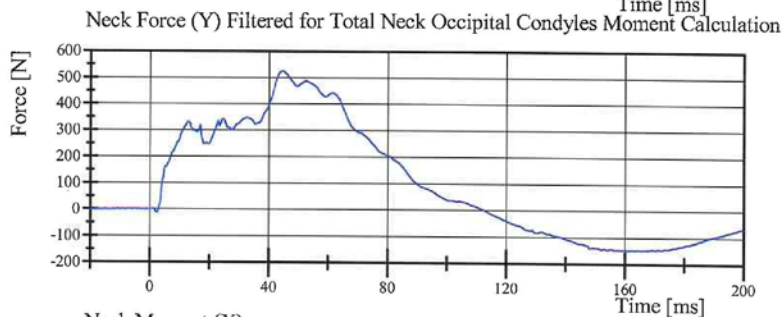
Left Lateral Neck

SID II_s Serial No. DI8818 Certification No. 14-1

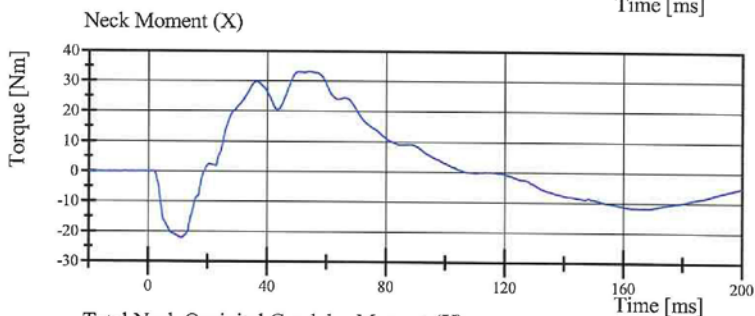
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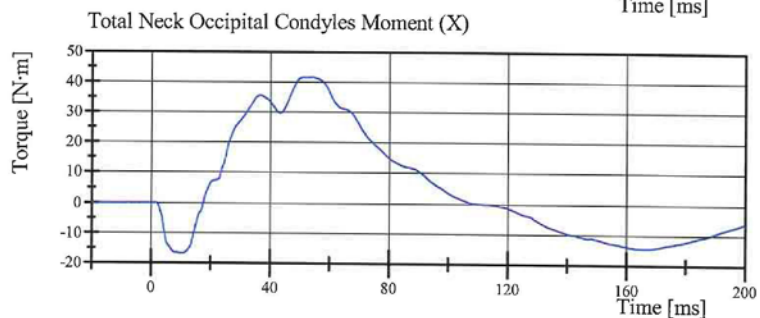
Filter Class: CFC_1000
Max: 524.3 N at 44.6 ms
Min: -151.7 N at 161.0 ms



Filter Class: CFC_600
Max: 523.7 N at 44.5 ms
Min: -151.4 N at 163.4 ms



Filter Class: CFC_600
Max: 33.2 Nm at 54.5 ms
Min: -22.0 Nm at 11.1 ms



Filter Class: Without_(Constan
Max: 41.6 N·m at 54.2 ms
Min: -16.8 N·m at 9.9 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 10:48:49 633



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. DI8818 Certification No. 14-1

Test Date: 2/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	29 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-14.8 g	Yes
Shoulder Displacement	28 - 37 mm	32.1 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.5 g	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 12:24:49 830

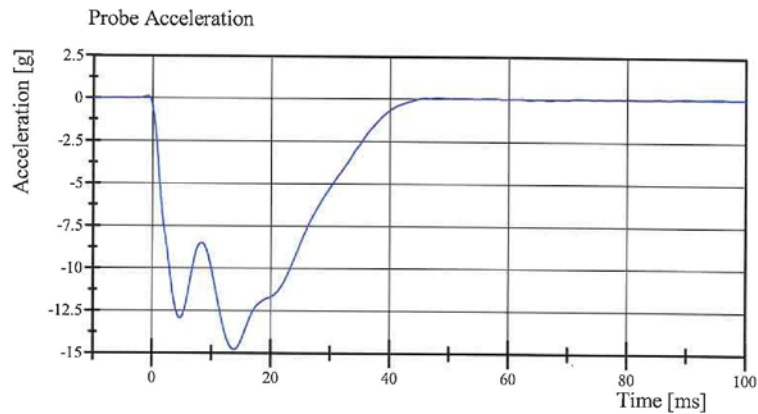


Transportation Research Center Inc.

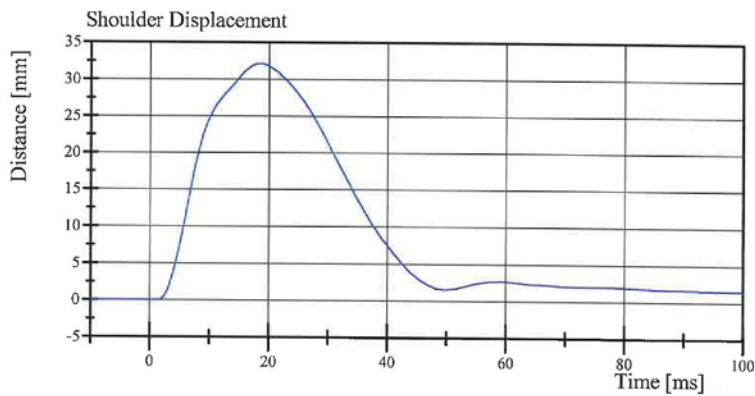
Left Lateral Shoulder

SID IIs Serial No. DI8818 Certification No. 14-1

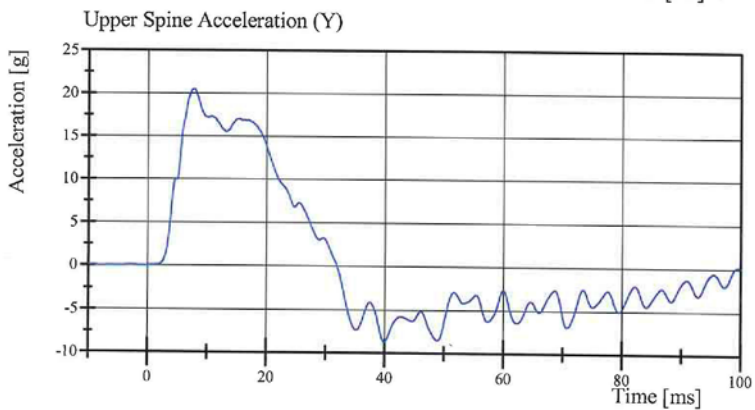
Test Date: 2/27/2014



Filter Class: CFC_180
Max: 0.1 g at -0.9 ms
Min: -14.8 g at 13.8 ms



Filter Class: CFC_600
Max: 32.1 mm at 18.5 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_180
Max: 20.5 g at 7.8 ms
Min: -8.7 g at 39.9 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 12:24:57 830



Transportation Research Center Inc.

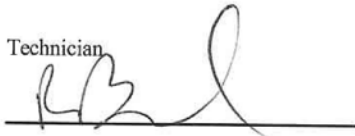
Left Lateral Thorax with Arm
SID IIs Serial No. DI8818 Certification No. 14-1
Test Date: 2/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.742 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.9 g	Yes
Shoulder Displacement	31 - 40 mm	37.7 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	28.7 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.1 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	32.3 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.9 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.1 g	Yes

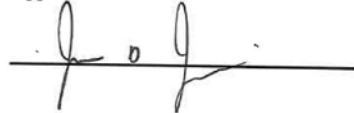
Test meets specifications.

Comments:

Technician



Approved



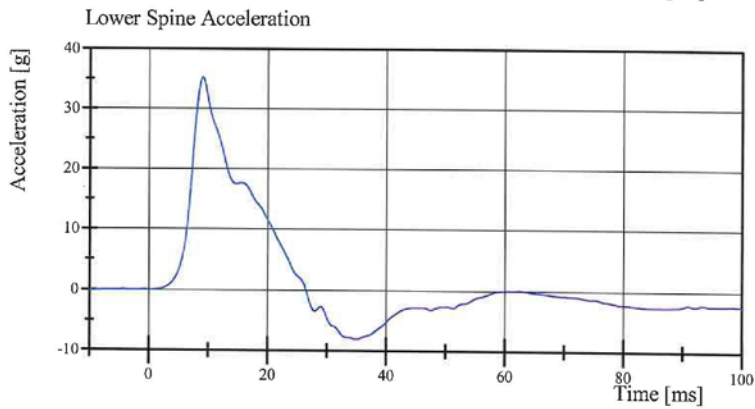
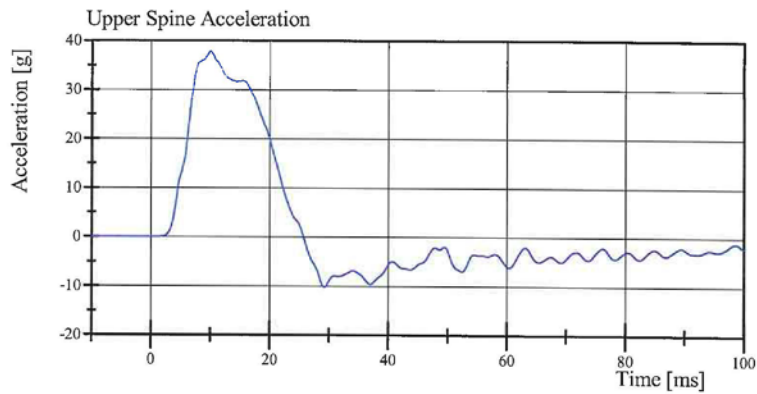
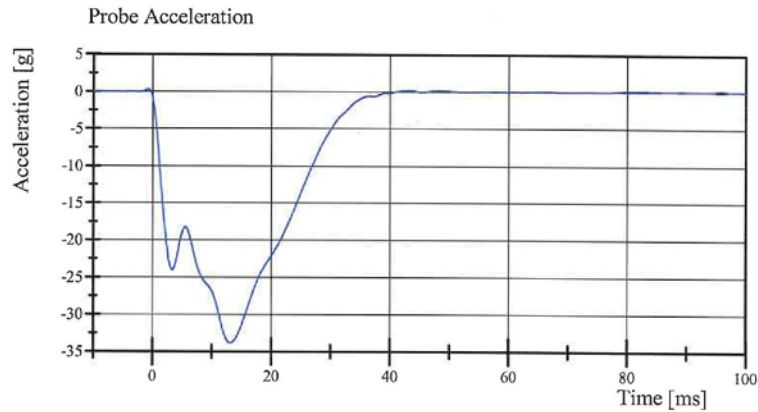
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 13:31:30 604



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. DI8818 Certification No. 14-1
Test Date: 2/27/2014



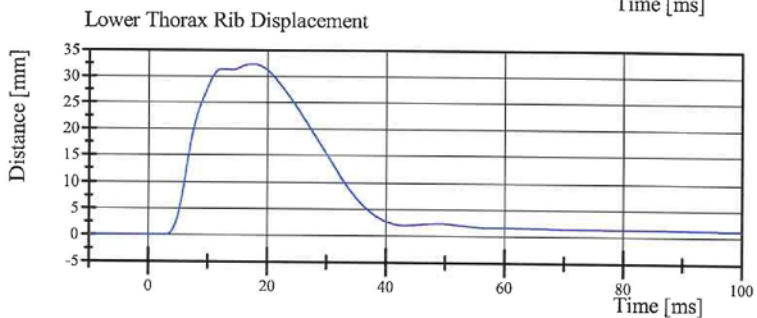
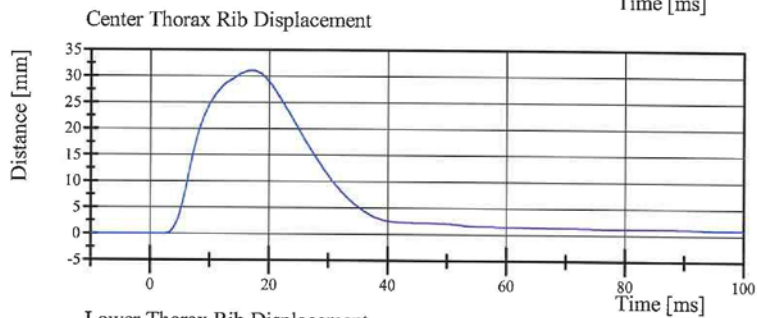
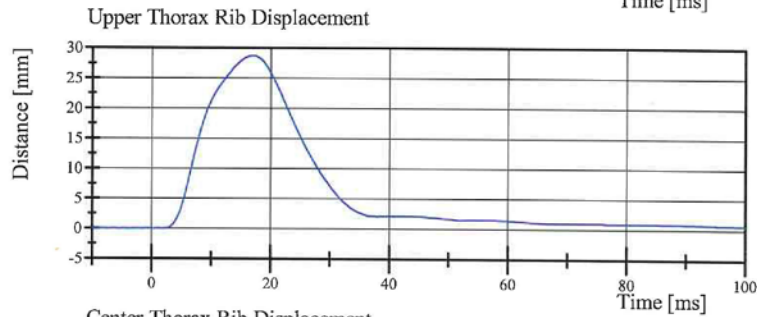
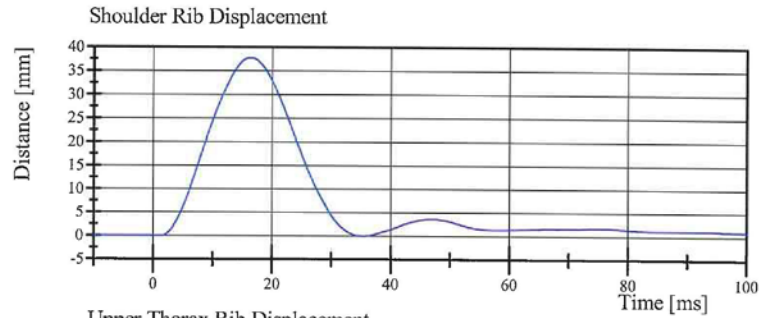
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 13:31:39 604



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. DI8818 Certification No. 14-1
Test Date: 2/27/2014



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 13:31:40 604



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. DI8818 Certification No. 14-1
Test Date: 2/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.233 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.8 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	34.8 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.1 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.4 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.3 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.5 g	Yes

Test meets specifications.

Comments:

Technician


Approved

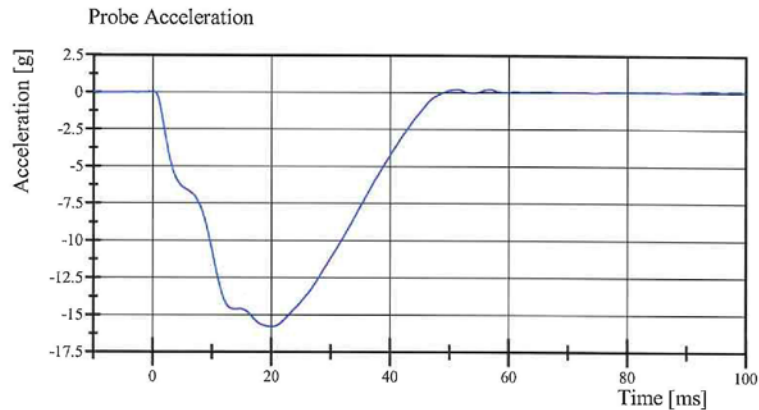

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 12:57:05 824

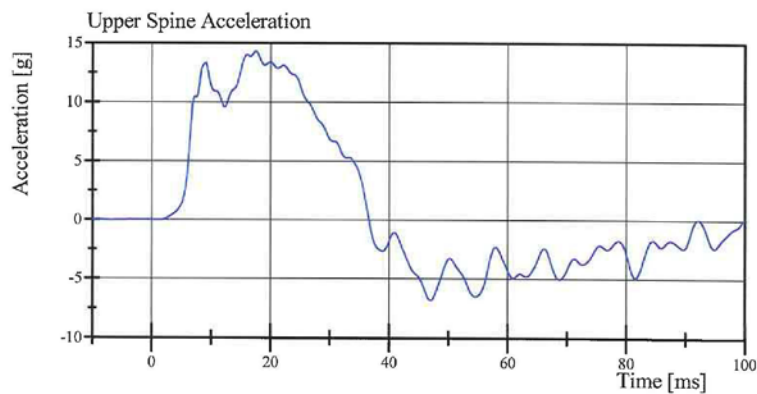


Transportation Research Center Inc.

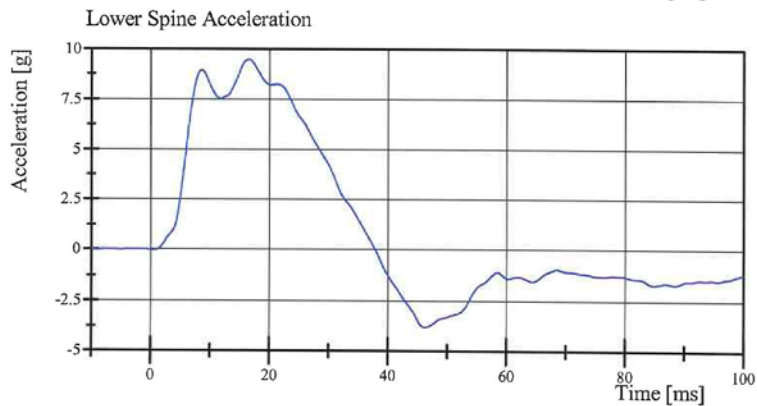
Left Lateral Thorax without Arm
SID II_s Serial No. DI8818 Certification No. 14-1
Test Date: 2/27/2014



Filter Class: CFC_180
Max: 0.2 g at 56.7 ms
Min: -15.8 g at 20.0 ms



Filter Class: CFC_180
Max: 14.3 g at 17.5 ms
Min: -6.8 g at 47.0 ms



Filter Class: CFC_180
Max: 9.5 g at 16.5 ms
Min: -3.8 g at 46.2 ms

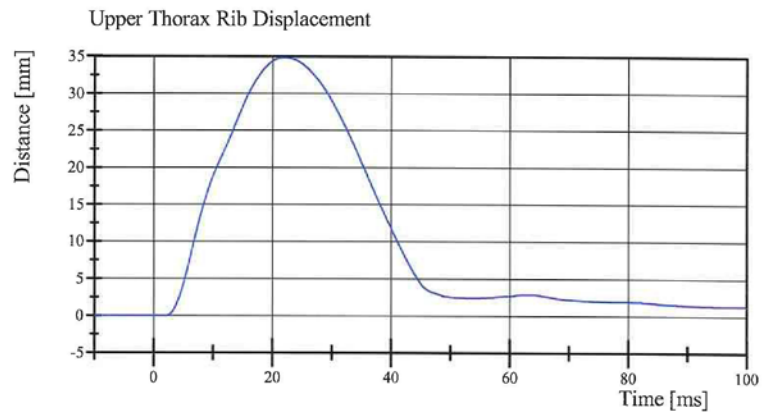
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 12:57:14 824

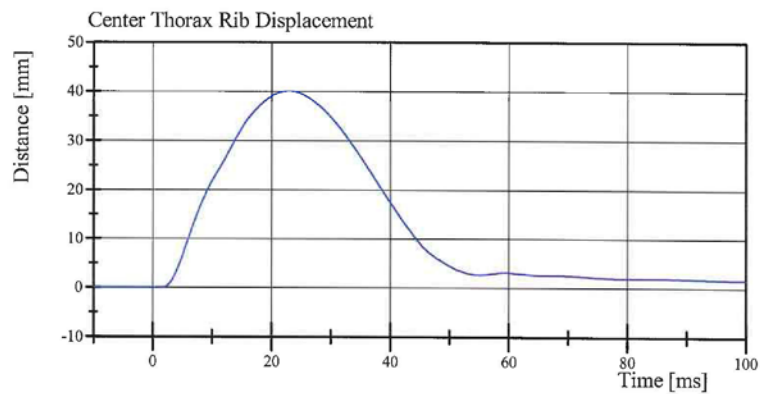


Transportation Research Center Inc.

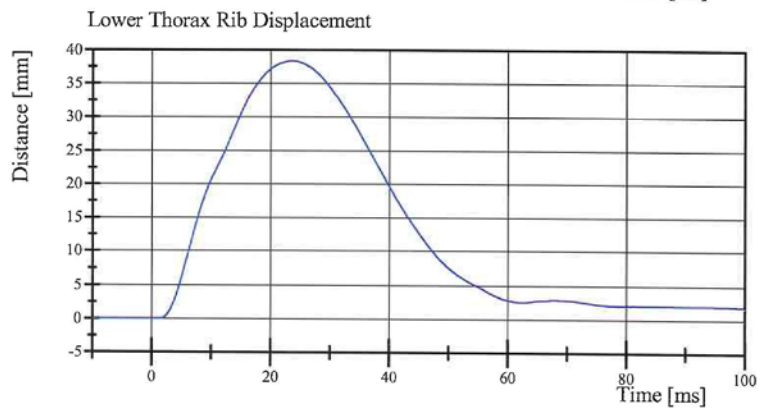
Left Lateral Thorax without Arm
SID II_s Serial No. DI8818 Certification No. 14-1
Test Date: 2/27/2014



Filter Class: CFC_600
Max: 34.8 mm at 21.9 ms
Min: -0.0 mm at 1.8 ms



Filter Class: CFC_600
Max: 40.1 mm at 23.0 ms
Min: -0.0 mm at -2.5 ms



Filter Class: CFC_600
Max: 38.4 mm at 23.6 ms
Min: -0.0 mm at 1.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 12:57:15 824



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. DI8818 Certification No. 14-1

Test Date: 2/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.8 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	38.5 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	35.1 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.24 g	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 12:37:58 632

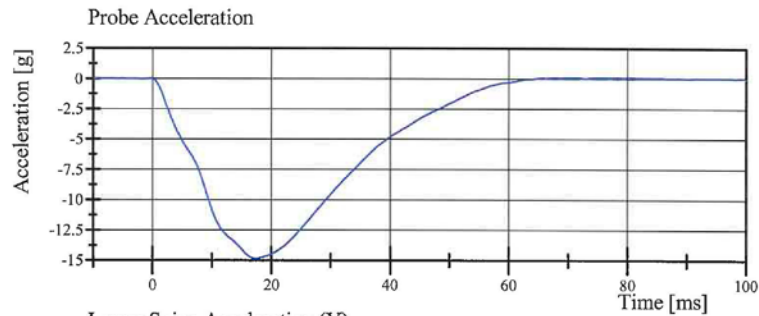


Transportation Research Center Inc.

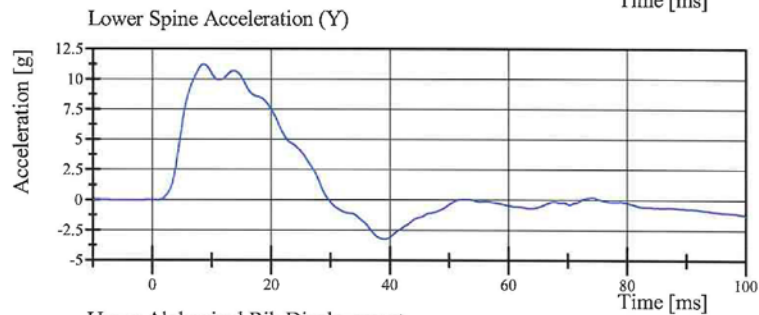
Left Lateral Abdomen

SID II_s Serial No. DI8818 Certification No. 14-1

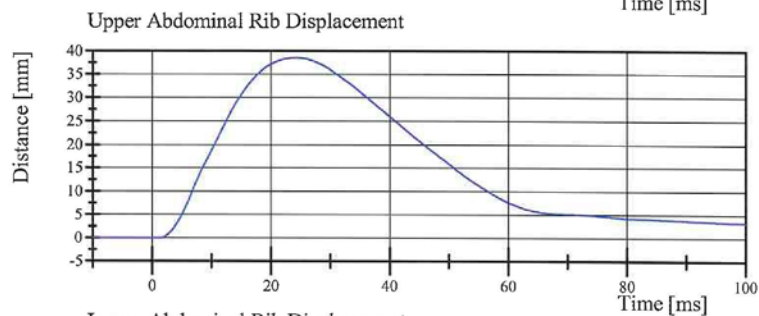
Test Date: 2/27/2014



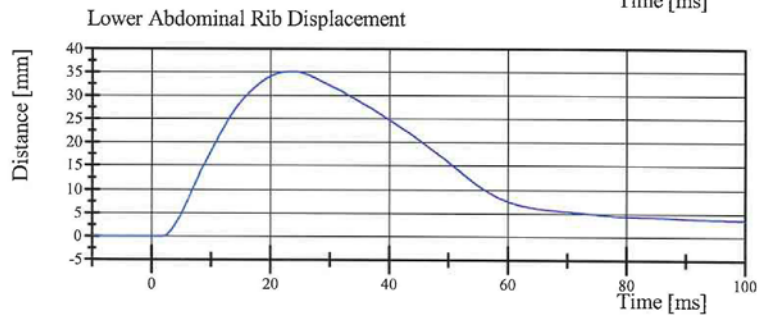
Filter Class: CFC_180
Max: 0.1 g at 78.2 ms
Min: -14.8 g at 17.4 ms



Filter Class: CFC_180
Max: 11.2 g at 8.6 ms
Min: -3.3 g at 39.1 ms



Filter Class: CFC_600
Max: 38.5 mm at 24.2 ms
Min: -0.0 mm at -3.1 ms



Filter Class: CFC_600
Max: 35.1 mm at 23.3 ms
Min: -0.0 mm at 1.8 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 12:38:06 632



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DI8818 Certification No. 14-1

Test Date: 2/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-42.3 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	31.8 g	Yes
Iliac Force	4,100 - 5,100 N	4,946.3 N	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 11:27:17 616

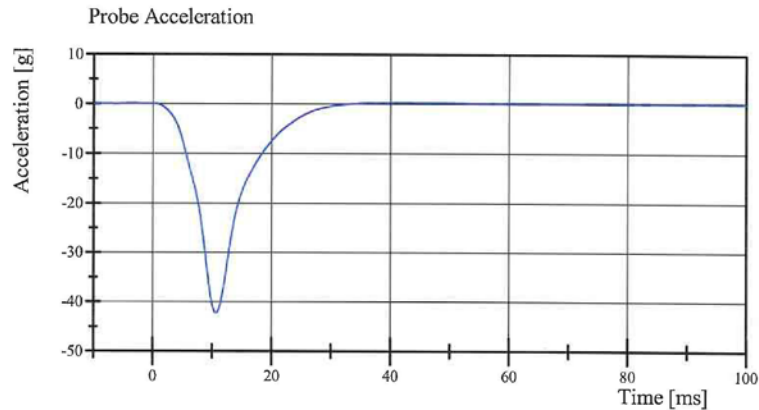


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DI8818 Certification No. 14-1

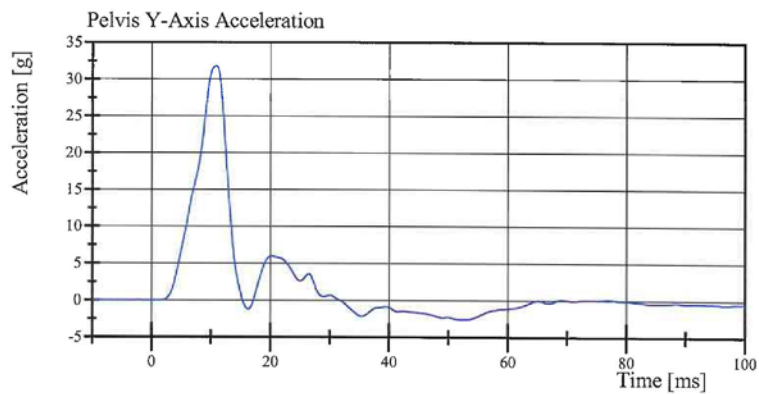
Test Date: 2/27/2014



Filter Class: CFC_180

Max: 0.3 g at 42.9 ms

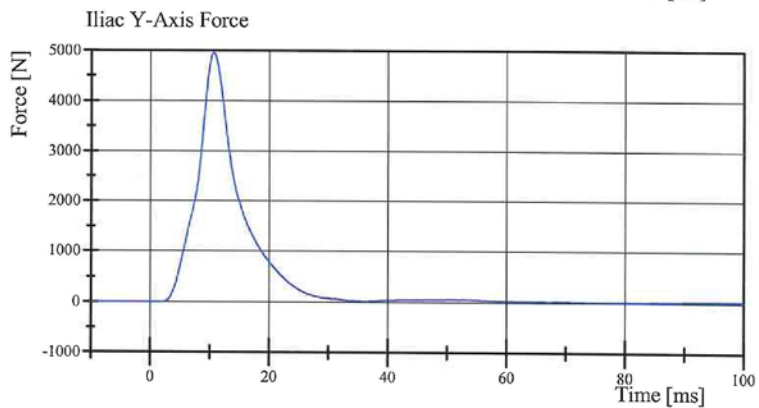
Min: -42.3 g at 10.6 ms



Filter Class: CFC_180

Max: 31.8 g at 10.9 ms

Min: -2.6 g at 52.9 ms



Filter Class: CFC_600

Max: 4,946.3 N at 10.6 ms

Min: -0.6 N at -4.6 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 11:27:25 616



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. DI8818 Certification No. 14-1

Test Date: 2/27/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.67 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-45.32 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	40.2 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,235.9 N	Yes

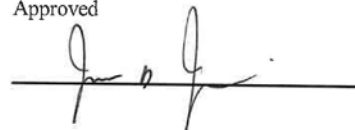
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 14:50:52 426

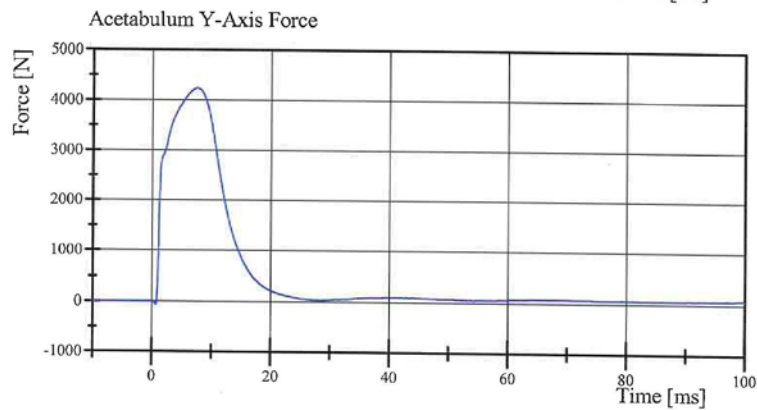
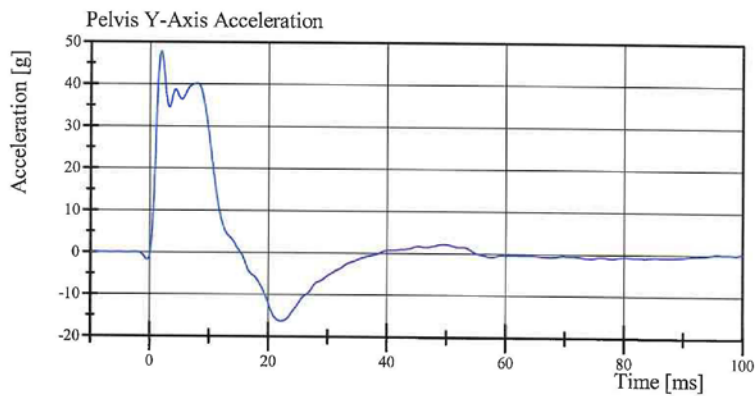
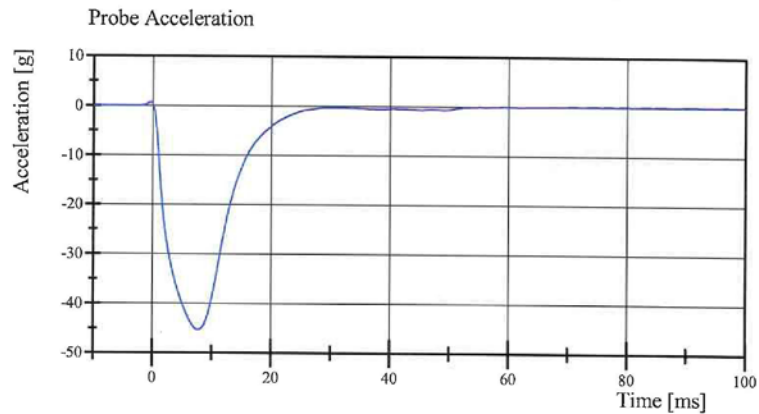


Transportation Research Center Inc.

Left Lateral Pelvis

SID II_s Serial No. DI8818 Certification No. 14-1

Test Date: 2/27/2014



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.27.2014 14:51:00 426



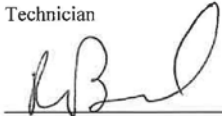
Driver S/N DI8818

Post-Test Calibration Sheets

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. DI8818 Calibration No.15

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	441	Yes
C	H-Point Height	79.0 - 89.0	82	Yes
D	H-Point from Seat Back	141.0 - 151.0	142	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	99	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	182	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	534	Yes
L	Popliteal Height	343.0 - 369.0	352	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	399	Yes
N	Buttock Popliteal Length	416.0 - 442.0	427	Yes
O	Chest Depth without Jacket	195.0 - 211.0	201	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	313	Yes
R	Arm Length	249.0 - 259.0	255	Yes
S	Knee Joint to seat Back	478.0 - 493.0	484	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	867	Yes
Z	Waist Circumference	761.0 - 791.0	775	Yes

Technician



Approved



Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop

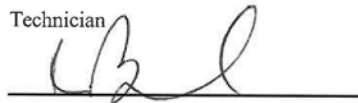
SID IIs Serial No. DI8818 Certification No. 15-1

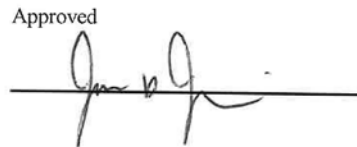
Test Date: 4/11/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	129.8 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.6 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician


Approved


Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 09:07:14 233

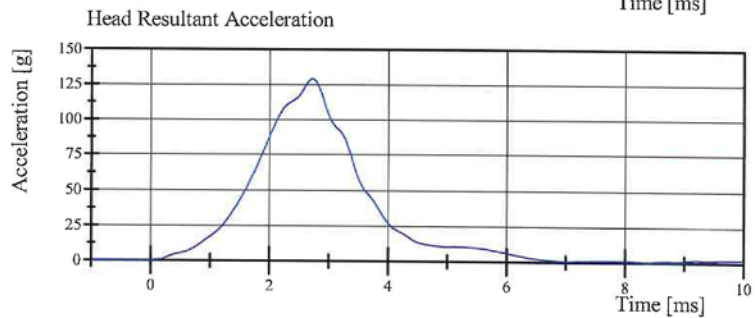
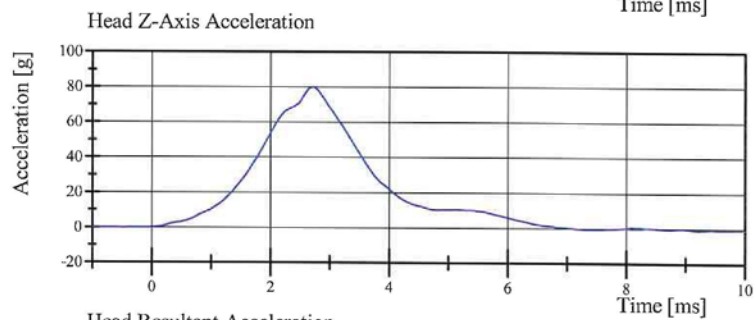
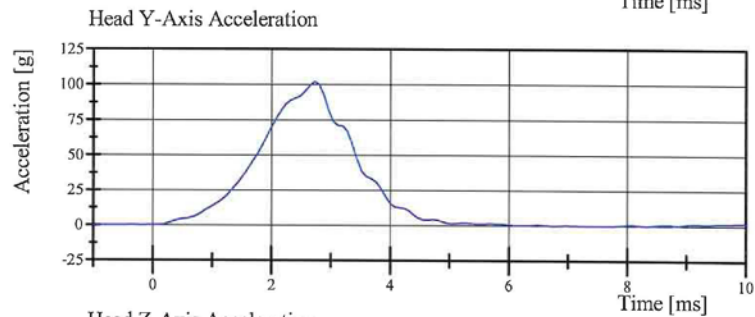
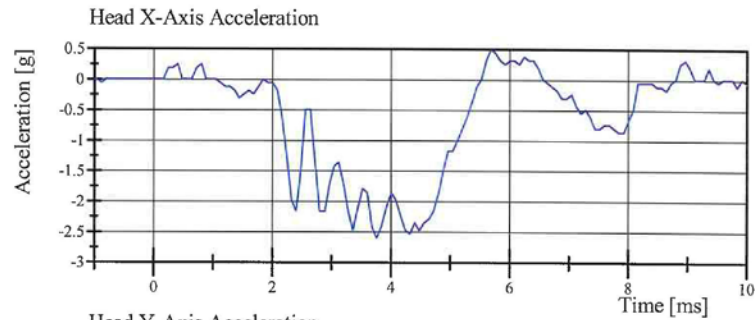


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DI8818 Certification No. 15-1

Test Date: 4/11/2014



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 09:07:21 233



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DI8818 Certification No. 15-1

Test Date: 4/11/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.590 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.778 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	4.017 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.337 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.763 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.763 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-76.1 deg	Yes
Time of Peak	50 - 70 ms	65.5 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	38.0 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	120.4 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 09:33:41 641

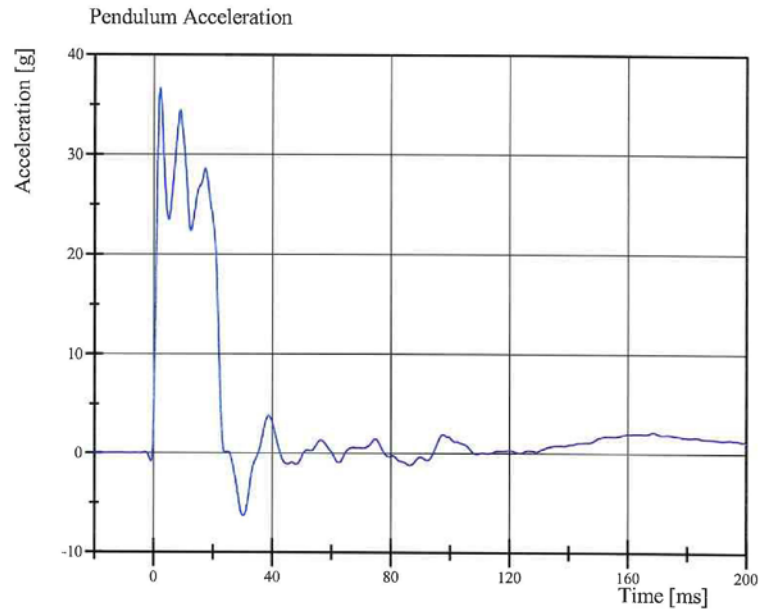


Transportation Research Center Inc.

Left Lateral Neck

SID II_s Serial No. DI8818 Certification No. 15-1

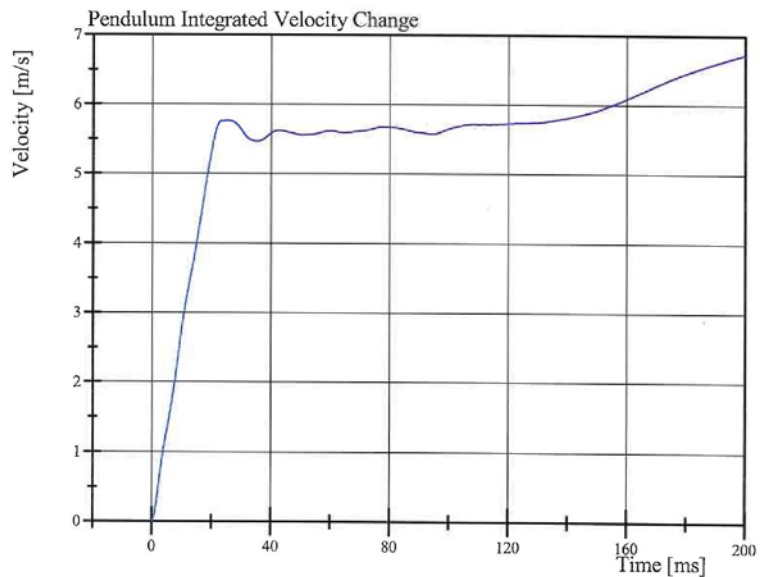
Test Date: 4/11/2014



Filter Class: CFC_180

Max: 36.6 g at 2.1 ms

Min: -6.3 g at 30.2 ms



Filter Class: CFC_180

Max: 6.7 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 09:33:48 641

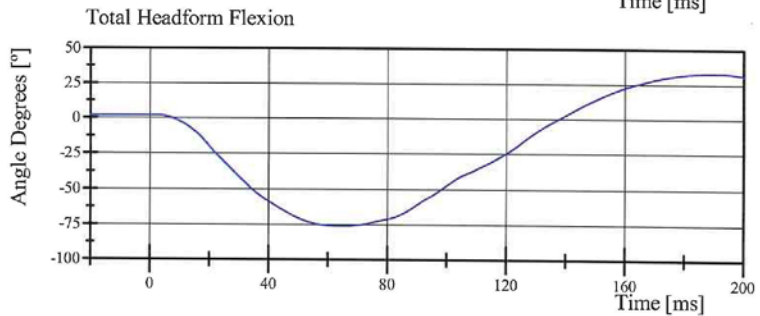
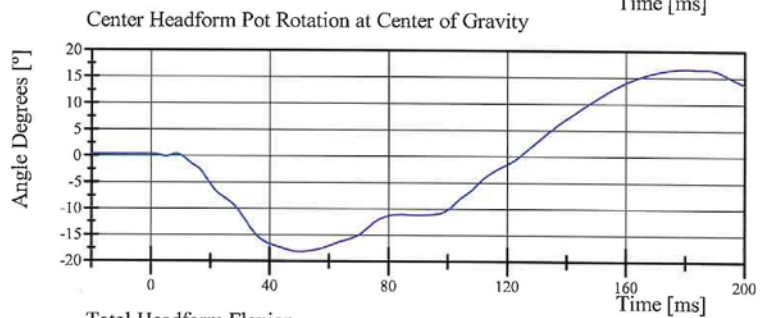
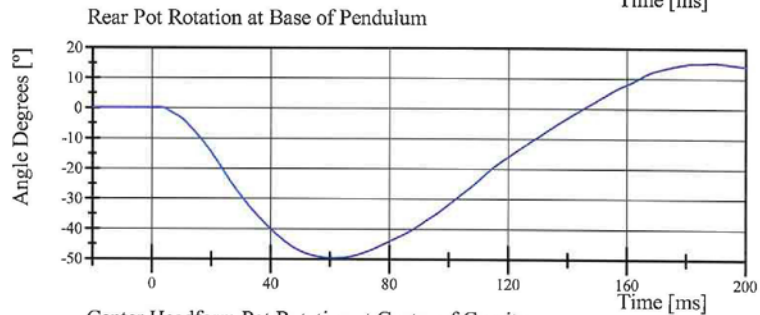
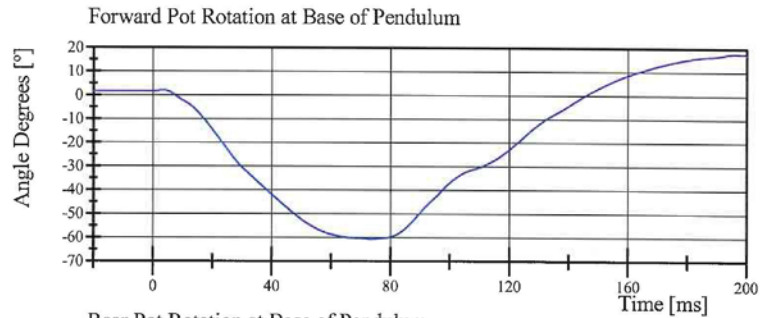


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DI8818 Certification No. 15-1

Test Date: 4/11/2014



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 09:33:49 641

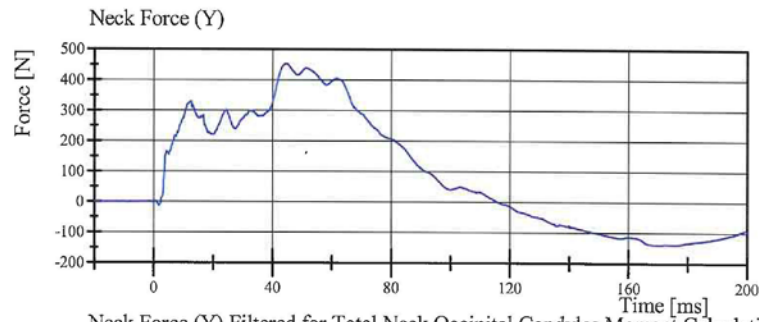


Transportation Research Center Inc.

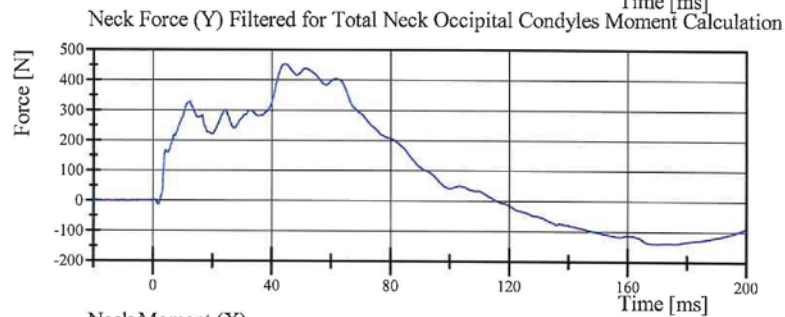
Left Lateral Neck

SID IIa Serial No. DI8818 Certification No. 15-1

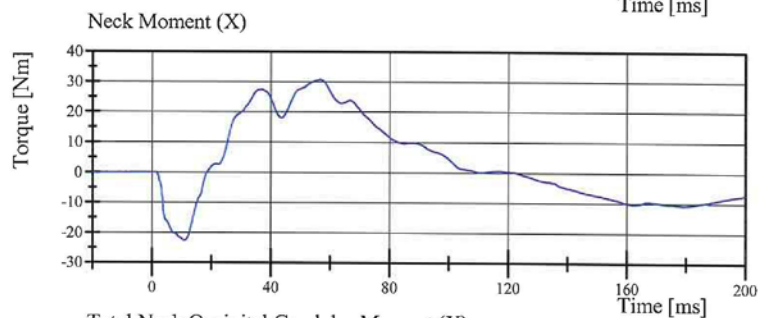
Test Date: 4/11/2014



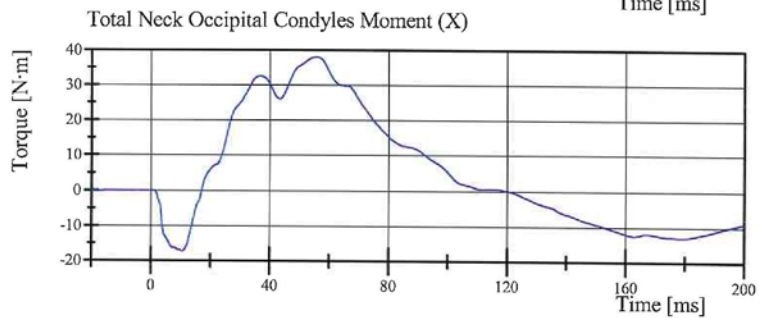
Filter Class: CFC_1000
Max: 452.7 N at 44.2 ms
Min: -140.6 N at 170.0 ms



Filter Class: CFC_600
Max: 452.4 N at 44.2 ms
Min: -140.1 N at 170.0 ms



Filter Class: CFC_600
Max: 30.8 Nm at 56.6 ms
Min: -22.6 Nm at 10.9 ms



Filter Class: Without_(Consta
Max: 38.0 N·m at 55.8 ms
Min: -17.3 N·m at 10.5 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 09:33:50 641



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. DI8818 Certification No. 15-1

Test Date: 4/11/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.26 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-14.2 g	Yes
Shoulder Displacement	28 - 37 mm	31.8 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	21.1 g	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 10:46:58 828

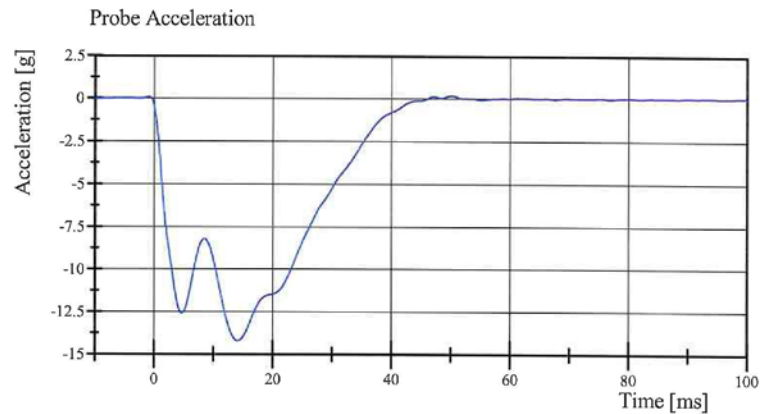


Transportation Research Center Inc.

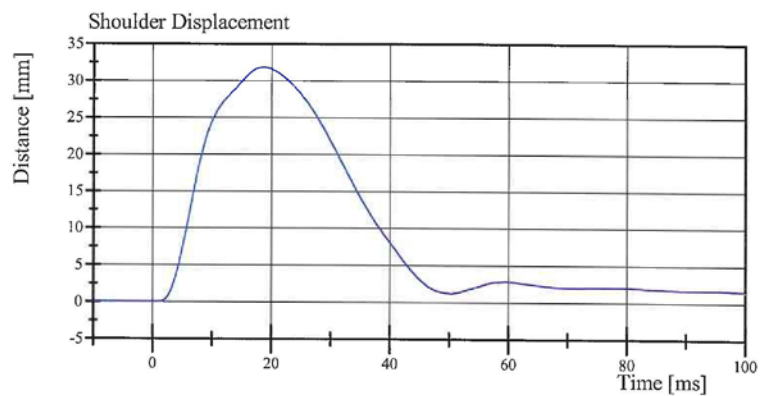
Left Lateral Shoulder

SID IIs Serial No. DI8818 Certification No. 15-1

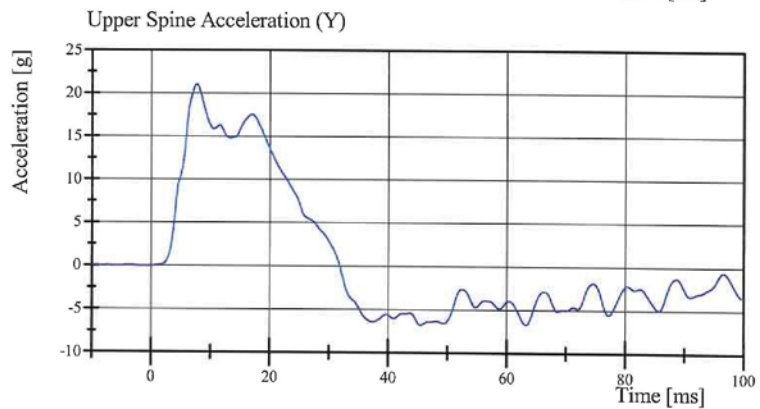
Test Date: 4/11/2014



Filter Class: CFC_180
Max: 0.2 g at 50.1 ms
Min: -14.2 g at 14.1 ms



Filter Class: CFC_600
Max: 31.8 mm at 18.5 ms
Min: -0.0 mm at 1.0 ms



Filter Class: CFC_180
Max: 21.1 g at 7.7 ms
Min: -6.8 g at 45.4 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 10:47:04 828



Transportation Research Center Inc.

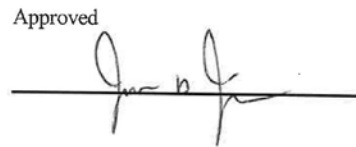
Left Lateral Thorax with Arm
SID IIs Serial No. DI8818 Certification No. 15-1
Test Date: 4/11/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.743 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.3 g	Yes
Shoulder Displacement	31 - 40 mm	38.1 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	29.6 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.9 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.1 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.9 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	34.5 g	Yes

Test meets specifications.

Comments:

Technician


Approved


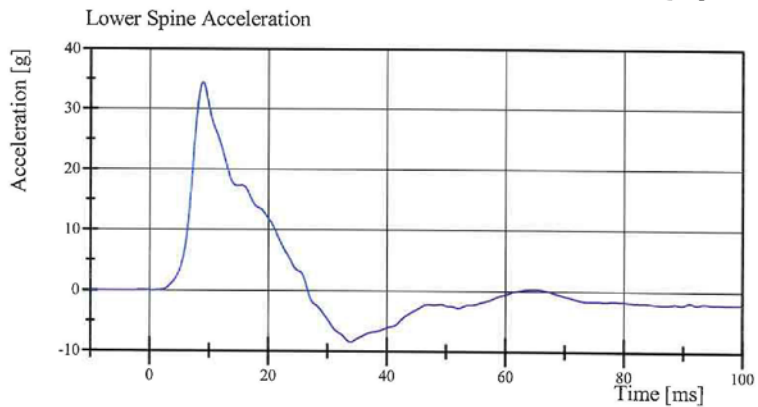
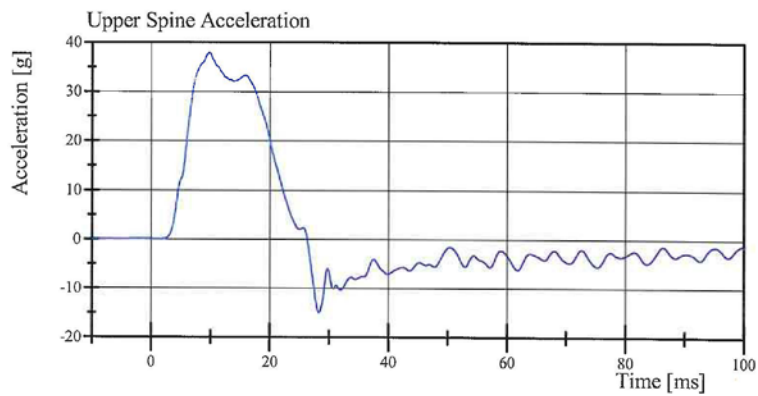
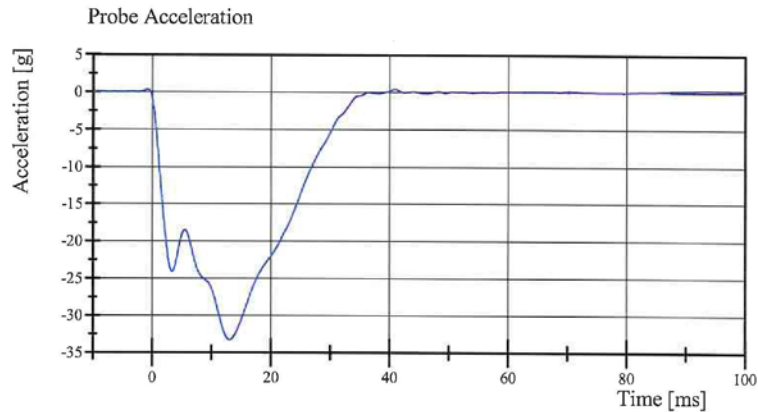
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 11:49:32 605



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID II_s Serial No. DI8818 Certification No. 15-1
Test Date: 4/11/2014



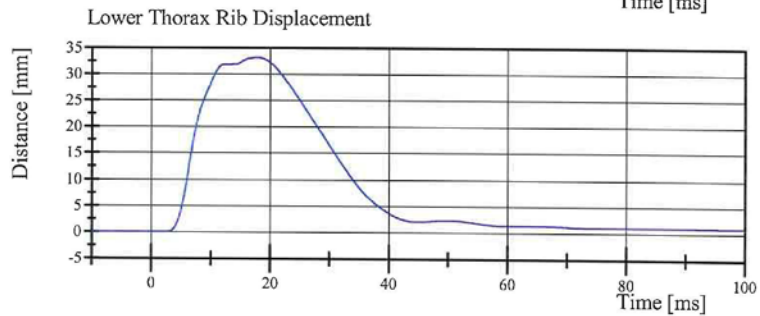
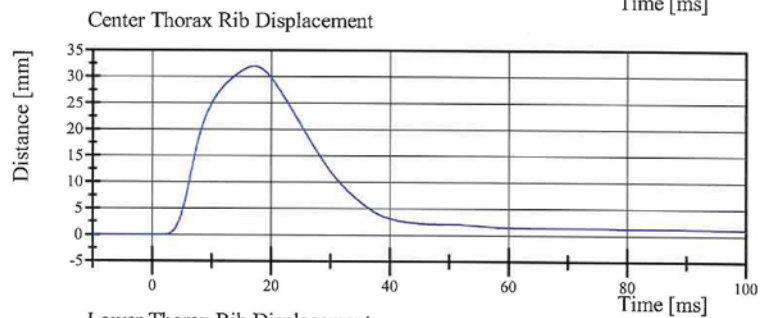
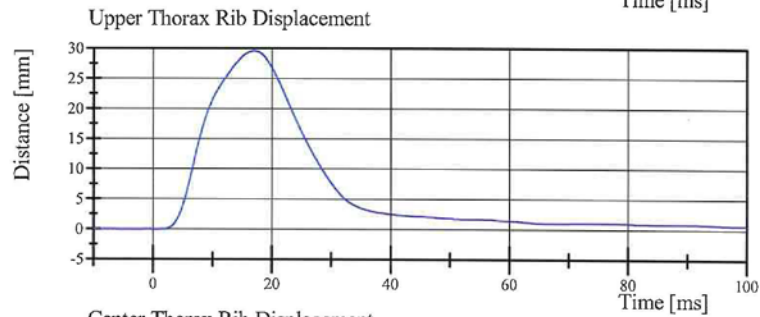
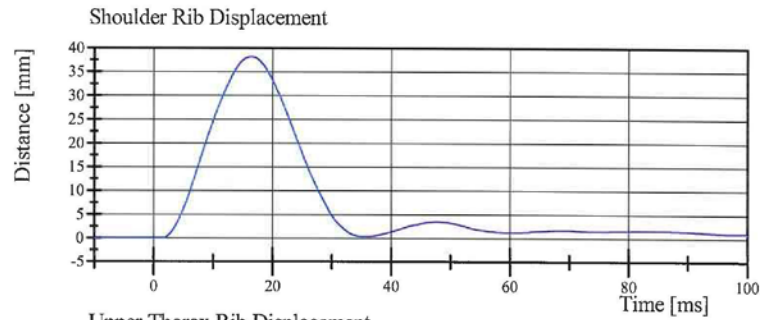
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 11:49:40 605



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID II_s Serial No. DI8818 Certification No. 15-1
Test Date: 4/11/2014



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 11:49:41 605



Transportation Research Center Inc.

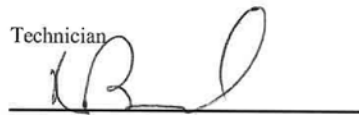
Left Lateral Thorax without Arm
SID IIs Serial No. DI8818 Certification No. 15-1
Test Date: 4/11/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.267 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.6 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	37.7 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.3 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.1 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.7 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.1 g	Yes

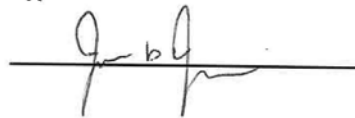
Test meets specifications.

Comments:

Technician



Approved



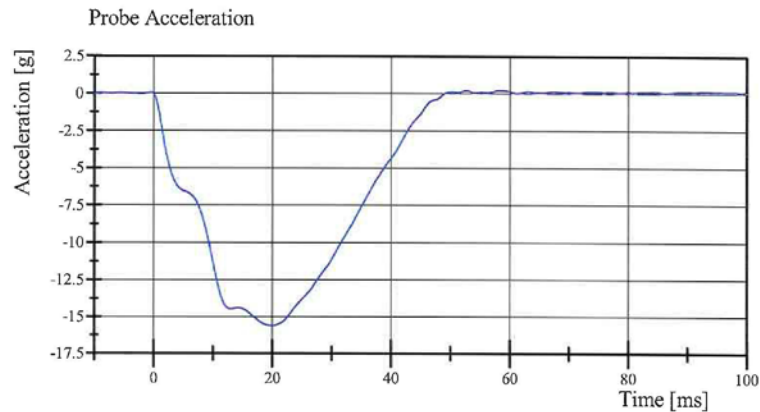
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 11:19:18 797

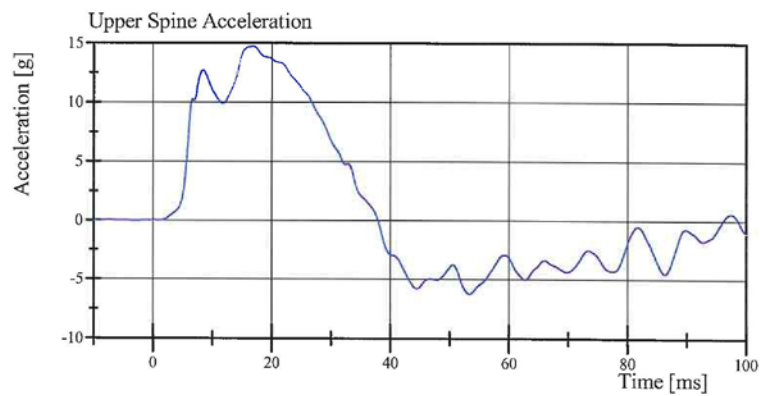


Transportation Research Center Inc.

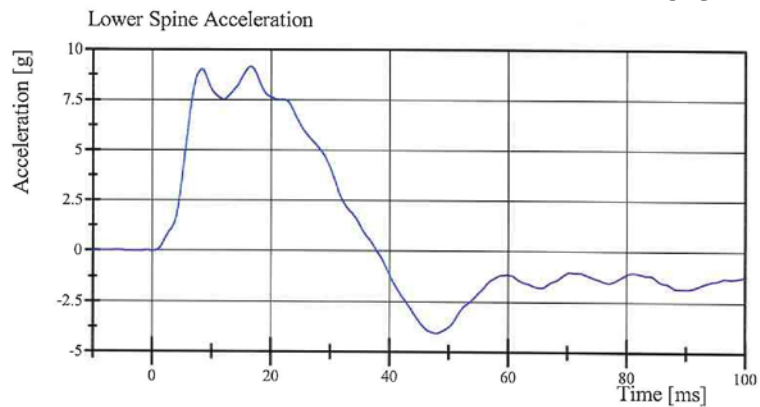
Left Lateral Thorax without Arm
SID IIs Serial No. DI8818 Certification No. 15-1
Test Date: 4/11/2014



Filter Class: CFC_180
Max: 0.2 g at 58.1 ms
Min: -15.6 g at 20.0 ms



Filter Class: CFC_180
Max: 14.7 g at 16.8 ms
Min: -6.2 g at 53.3 ms



Filter Class: CFC_180
Max: 9.1 g at 16.6 ms
Min: -4.1 g at 47.8 ms

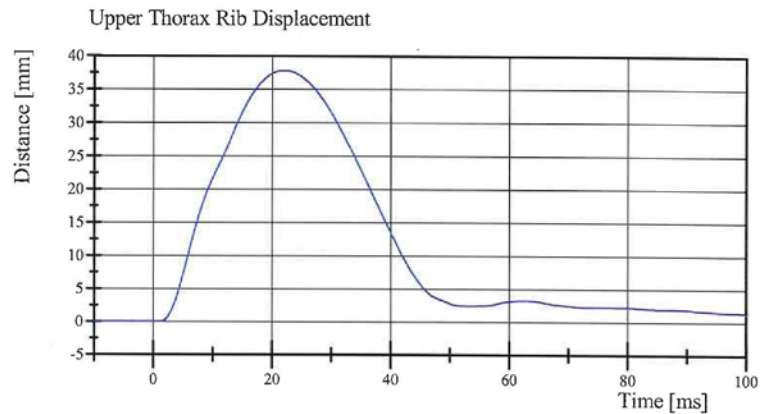
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 11:19:26 797

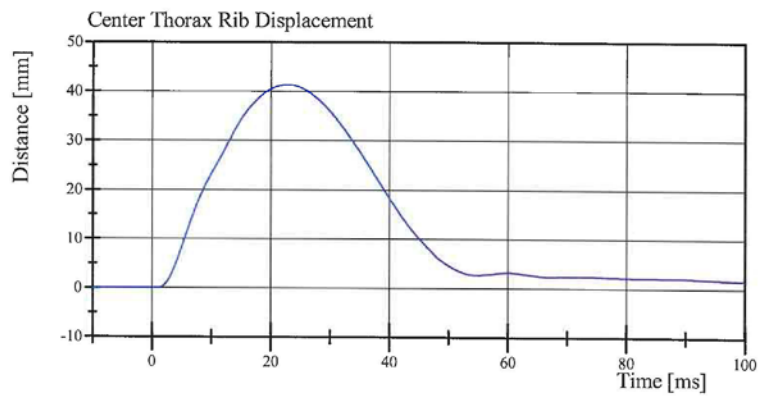


Transportation Research Center Inc.

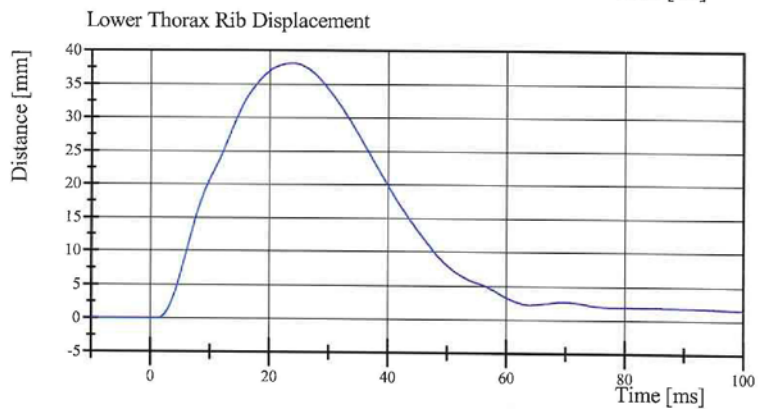
Left Lateral Thorax without Arm
SID II_s Serial No. DI8818 Certification No. 15-1
Test Date: 4/11/2014



Filter Class: CFC_600
Max: 37.7 mm at 21.9 ms
Min: -0.0 mm at -9.0 ms



Filter Class: CFC_600
Max: 41.3 mm at 22.7 ms
Min: -0.0 mm at -5.4 ms



Filter Class: CFC_600
Max: 38.1 mm at 23.8 ms
Min: -0.0 mm at 0.7 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 11:19:27 797



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. DI8818 Certification No. 15-1

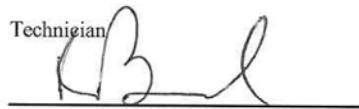
Test Date: 4/11/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.5 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	39.2 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	34.9 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.44 g	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 10:55:10 624

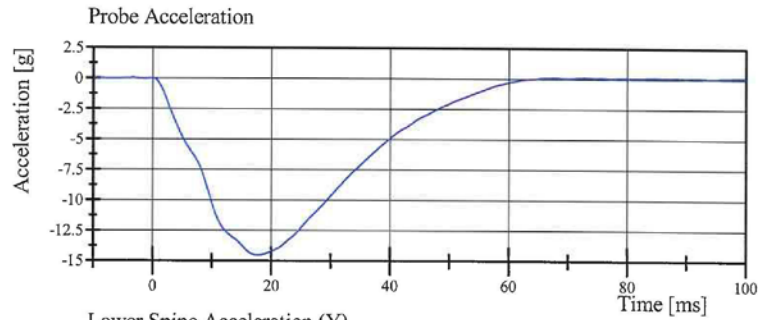


Transportation Research Center Inc.

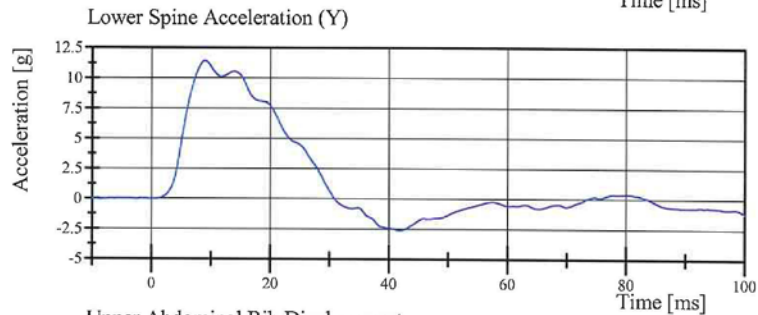
Left Lateral Abdomen

SID II_s Serial No. DI8818 Certification No. 15-1

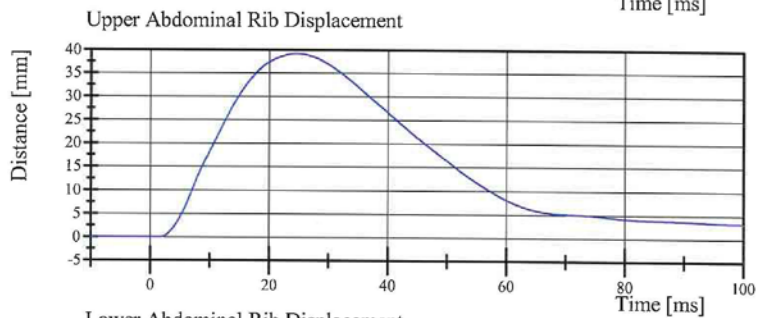
Test Date: 4/11/2014



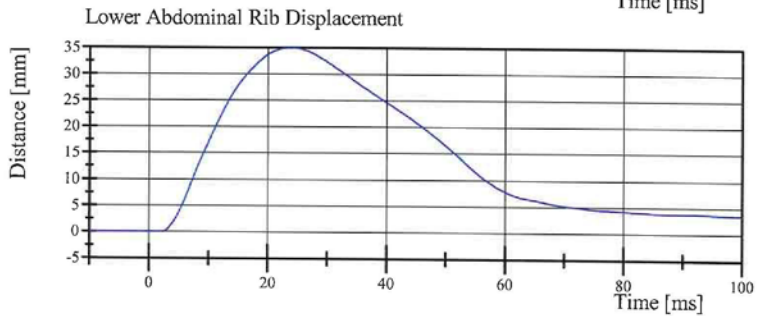
Filter Class: CFC_180
Max: 0.1 g at 72.6 ms
Min: -14.5 g at 17.7 ms



Filter Class: CFC_180
Max: 11.4 g at 9.0 ms
Min: -2.6 g at 41.8 ms



Filter Class: CFC_600
Max: 39.2 mm at 24.6 ms
Min: -0.0 mm at 0.3 ms



Filter Class: CFC_600
Max: 34.9 mm at 24.2 ms
Min: -0.0 mm at 2.2 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 10:55:16 624



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DI8818 Certification No. 15-1

Test Date: 4/11/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.8 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	32.0 g	Yes
Iliac Force	4,100 - 5,100 N	4,683.8 N	Yes

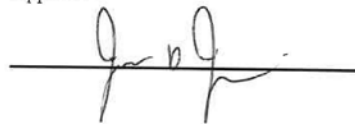
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 10:35:17 638

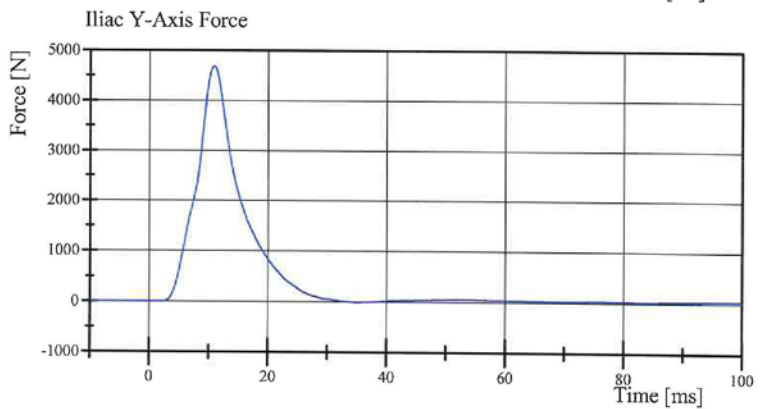
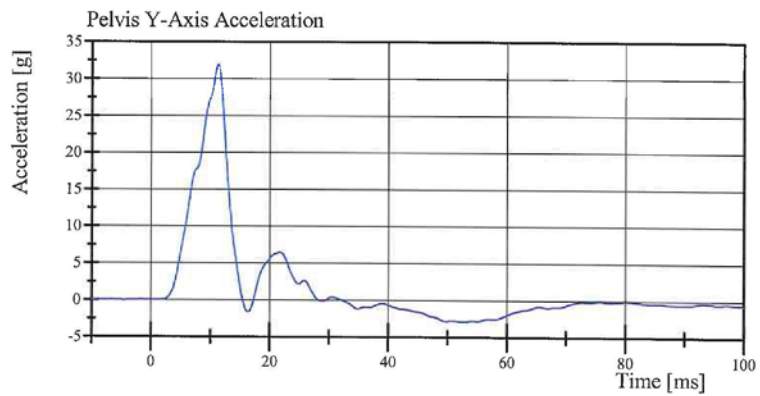
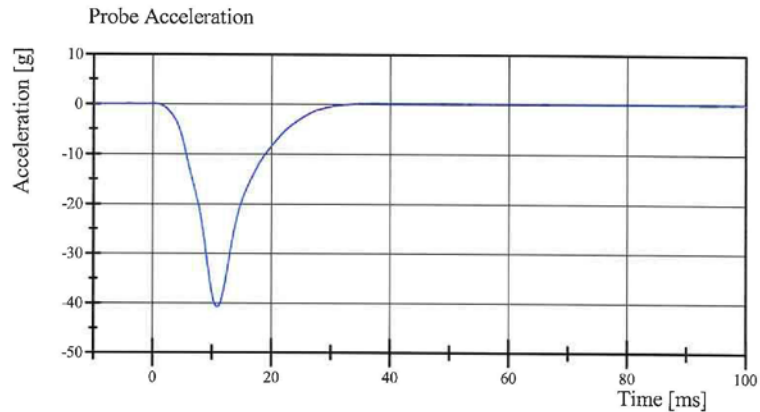


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DI8818 Certification No. 15-1

Test Date: 4/11/2014



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 10:35:24 638



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. DI8818 Certification No. 15-2

Test Date: 4/11/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.67 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-45.43 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	40.6 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,281.2 N	Yes

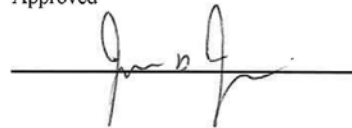
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 15:01:46 442

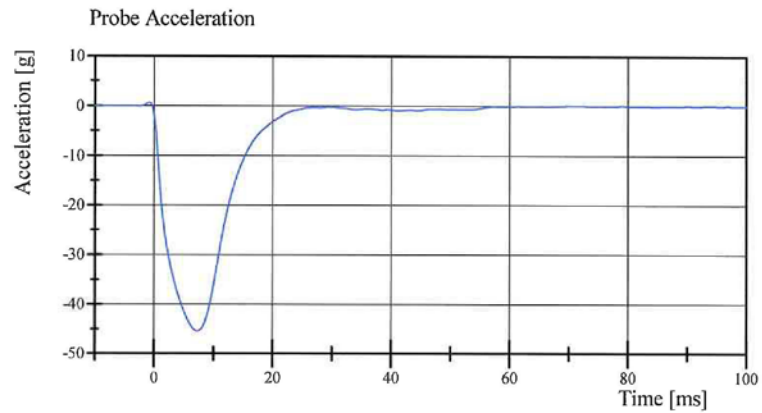


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIIs Serial No. DI8818 Certification No. 15-2

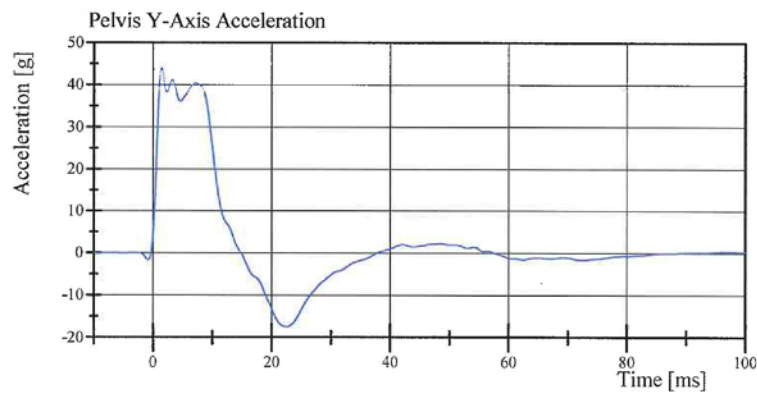
Test Date: 4/11/2014



Filter Class: CFC_180

Max: 0.6 g at -0.8 ms

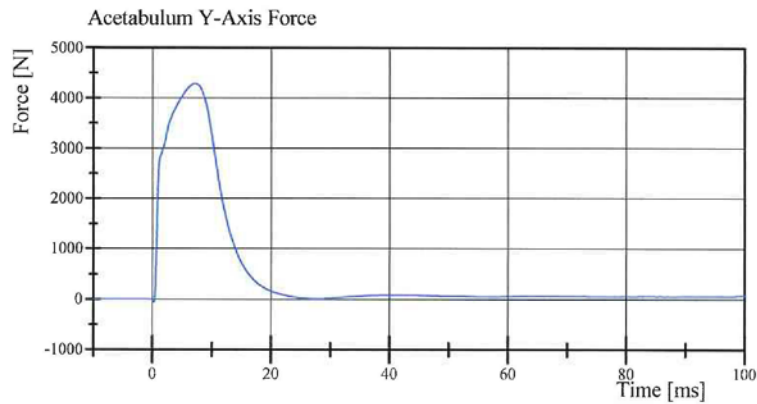
Min: -45.4 g at 7.3 ms



Filter Class: CFC_180

Max: 44.1 g at 1.4 ms

Min: -17.5 g at 22.5 ms



Filter Class: CFC_600

Max: 4,281.2 N at 7.1 ms

Min: -59.0 N at 0.2 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.11.2014 15:01:56 442



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N DI8818		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers			X	J32214	Endevco	9-Dec-2013
			Y	J27040	Endevco	9-Dec-2013
			Z	AGAC4	Endevco	9-Dec-2013
Displacement Potentiometers	Shoulder		Y	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	3787-047	Servo	10-Dec-2013
		Middle	Y	3745-01815	Servo	10-Dec-2013
		Lower	Y	03745-01803	Servo	10-Dec-2013
	Abdominal Rib	Upper	Y	3745-01811	Servo	10-Dec-2013
		Lower	Y	3787-051	Servo	18-Dec-2013
Lower Spine Accelerometers (T12)			X	P64150	Endevco	9-Dec-2013
			Y	P64142	Endevco	4-Dec-2013
			Z	P64100	Endevco	7-Feb-2014
Acetabulum Load Cell			Y	235-FY	FTSS	6-Nov-2013
Iliac Wing Load Cell			Y	113-FY	FTSS	6-Nov-2013
Pelvis Plug (struck side)				63065	FTSS	19-Jan-2013
Pelvis Plug (non-struck side)				63609	FTSS	15-Feb-2013

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	MS23089	Measurement Specialties	16-Jan-2014
Vehicle Center of Gravity	Y	MS22955	Measurement Specialties	6-Mar-2014
Vehicle Center of Gravity	Z	MS23108	Measurement Specialties	16-Jan-2014
Left Floor Sill	Y	P81093	Endevco	5-Nov-2013
A-Pillar Sill	Y	P81649	Endevco	14-Nov-2013
A-Pillar Low	Y	P81023	Endevco	24-Feb-2014
A-Pillar Mid	Y	P81535	Endevco	5-Nov-2013
B-Pillar Sill	Y	P83375	Endevco	11-Mar-2014
B-Pillar Low	Y	P78111	Endevco	15-Nov-2013
B-Pillar Mid	Y	P78116	Endevco	9-Jan-2014
Driver Seat	Y	MS22961	Measurement Specialties	6-Mar-2014
Engine Top	X	P81990	Endevco	15-Nov-2013
Engine Top	Y	P81643	Endevco	15-Nov-2013
Firewall	Y	P57169	Endevco	23-Oct-2013
Right Roof	Y	MS23126	Measurement Specialties	22-Jan-2014
Right Floor Sill	Y	MS22970	Measurement Specialties	6-Mar-2014
Rear Floor Pan	X	P80765	Endevco	24-Feb-2014
Rear Floor Pan	Y	P78221	Endevco	12-Feb-2014

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	5763-87-FX	Denton	9-Dec-2013
Load Cell 2	5763-97-FX	Denton	9-Dec-2013
Load Cell 3	5763-84-FX	Denton	9-Dec-2013
Load Cell 4	5764-81-FX	Denton	9-Dec-2013
Load Cell 5	5763-89-FX	Denton	9-Dec-2013
Load Cell 6	5763-77-FX	Denton	9-Dec-2013
Load Cell 7	5764-89-FX	Denton	9-Dec-2013
Load Cell 8	5764-77-FX	Denton	9-Dec-2013