

FINAL REPORT NUMBER: SINCAP-TRC-15-001

**NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**General Motors LLC
2015 Chevrolet Tahoe 4-Door SUV
NHTSA NUMBER: M20150111**

**PREPARED BY:
Transportation Research Center Inc.
10820 State Route 347
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Report Date: May 15, 2014

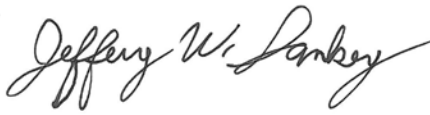
FINAL REPORT

**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: _____

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

Date: _____

Technical Report Documentation Page

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16. Abstract This 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2015 Chevrolet Tahoe SUV in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on April 11, 2014. The impact velocity of the Moving Deformable Barrier (MDB) was 61.11 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 22° C. The target vehicle post-test maximum crush was 205 mm at Level 1. The test vehicle's performance was as follows: Driver ATD (ES-2re) <table border="1"> <thead> <tr> <th>Measurement Description</th><th>Units</th><th>IARV</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td>N/A</td><td>1000</td><td>23</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>44</td><td>17.5</td></tr> <tr> <td>Total Abdominal Force</td><td>N</td><td>2500</td><td>473.8</td></tr> <tr> <td>Pubic Symphysis Force</td><td>N</td><td>6000</td><td>950.87</td></tr> </tbody> </table> Passenger ATD (SID-IIs) <table border="1"> <thead> <tr> <th>Measurement Description</th><th>Units</th><th>IARV</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td>N/A</td><td>1000</td><td>107</td></tr> <tr> <td>Lower Spine Resultant Acceleration</td><td>g's</td><td>82</td><td>26.1</td></tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td><td>N</td><td>5525</td><td>927.1</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td>9.0</td></tr> <tr> <td>Maximum Abdominal Rib Deflection</td><td>mm</td><td>45*</td><td>12.5</td></tr> </tbody> </table> * Proposed IARV The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.				Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	23	Maximum Thoracic Rib Deflection	mm	44	17.5	Total Abdominal Force	N	2500	473.8	Pubic Symphysis Force	N	6000	950.87	Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	107	Lower Spine Resultant Acceleration	g's	82	26.1	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	927.1	Maximum Thoracic Rib Deflection	mm	38*	9.0	Maximum Abdominal Rib Deflection	mm	45*	12.5
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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>Appendix</u>		
A	Photographs	A-1
B	Vehicle and Dummy Response Data Plots	B-1
C	Dummy Performance Calibration Test Data	C-1
D	Test Equipment and Instrumentation Calibration Data	D-1
<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	Test Vehicle Accelerometer Locations	14
7	MDB Accelerometer Locations	15
8	Post-Test Observations	16
9	MDB Summary of Results	18
10	Test Vehicle Profile Measurements	19
11	Test Vehicle Exterior Crush Measurements	20
12	MDB Exterior Static Crush Measurements	23
13	FMVSS No. 301 Static Rollover Results	24
14	Dummy/Vehicle Temperature and Humidity Stabilization	25

SECTION 1
TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test was conducted as part of the MY 2015 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00125. The purpose of this test is to generate comparative side impact performance in a 2015 Chevrolet Tahoe SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2013.

SECTION 2

SUMMARY OF TEST RESULTS

A 2015 Chevrolet Tahoe SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.11 km/h (37.97 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Transportation Research Center Inc. in East Liberty, Ohio, on April 11, 2014. Pre-test and post-test photographs of the test vehicle and the MDB and the dummies (ES-2-re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated September 2013. The side impact event was documented by 11 cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen forward, middle, and rear y-axis load cells

Lower spine (T12) tri-axial accelerometers

Pubic symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG triaxial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (T12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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

Dummy injury readings were recorded as follows:

Measurement Description	Driver ATD (ES-2-re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	23
Maximum Thoracic Rib Deflection	mm	44	17.5
Combined Abdominal Force	N	2500	473.8
Pubic Symphysis Force	N	6000	950.87

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	107
Lower Spine (T12) Resultant Acceleration	G	82	26.1
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	927.1
Maximum Thoracic Rib Deflection	mm	38*	9.0
Maximum Abdominal Rib Deflection	mm	45*	12.5

* 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		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Pelvis Airbag	No	N/A	No	N/A
Knee Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	No	No	N/A
Other	N/A	N/A	N/A	N/A

GENERAL COMMENTS

All doors remained closed throughout the test. No fuel spillage occurred during the impact or the static rollover test which followed. Injury values for both ATDs were within the established performance thresholds. The restraint system performed as expected.

Left rear door panel hit the release lever and released the seat back during test; this caused the seat back position change during impact.

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: NCAP Side Impact

NHTSA No.: M20150111
 Test Date: 4/11/14

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20150111
Model Year	2015
Make	Chevrolet
Model	Tahoe
Body Style	SUV
VIN	1GNSCAEC9FR116060
Body Color	Tan
Odometer Reading (km/mi)	19 mi
Engine Displacement (L)	5.3
Type/No. Cylinders	Gas/8
Engine Placement	Front/Longitudinal
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	RWD
Roof Rack	Yes
Sunroof/T-Top	No
Running Boards	Yes
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

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

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors LLC
Date of Manufacture	02/14
Vehicle Type	MPV

GVWR (kg)	3221
GAWR Front (kg)	1452
GAWR Rear (kg)	1860

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	3	3	3	9
Capacity Weight (VCW) (kg)				760
DSC x 68.04 (kg)				612.36
Cargo 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

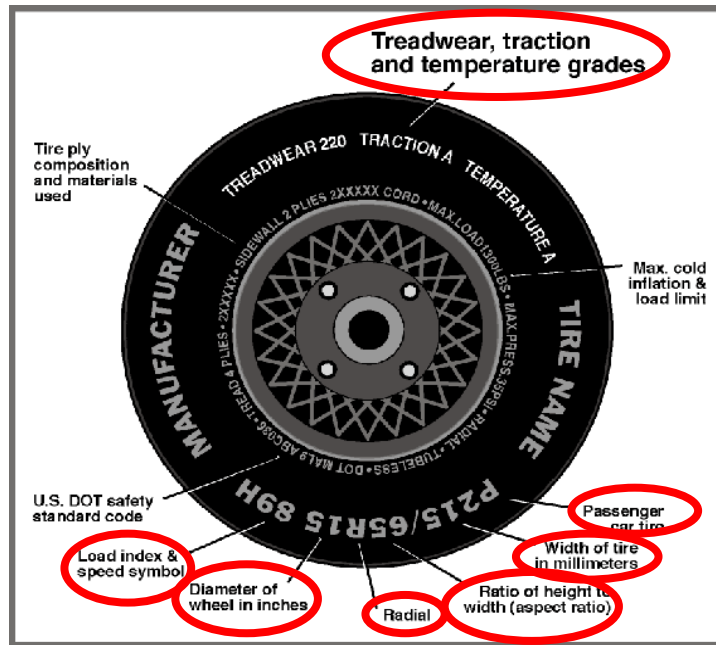
¹ Rated cargo and luggage weight is limited to 136.0 kg or 300 lbs.

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

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

NHTSA No.: M20150111
 Test Date: 4/11/14



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	P265/65R18	P265/65R18
Tire Size on Vehicle	P265/65R18	P265/65R18
Tire Manufacturer	Goodyear	Goodyear
Tire Model	Assurance ^{CS}	Assurance ^{CS}
Treadwear	600	600
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	112T	112T
Tire Material	Polyester, steel & polyamide	Polyester, steel & polyamide
DOT Safety Code Left	PJXPJK1R 0514	PJXPJK1R 0514
DOT Safety Code Right	PJXPJK1R 0514	PJXPJK1R 0514

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

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

NHTSA No.: M20150111
 Test Date: 4/11/14

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	255	255	255	255
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

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	207	207	207	207	207

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	618.8	612.4		646.6	708.0		658.6	739.8	
Right	kg	591.4	595.4		607.4	711.0		584.6	698.8	
Ratio	%	50.0	50.0		46.9	53.1		46.4	53.6	
Totals	kg	1210.2	1207.8	2418.0	1254.0	1419.0	2673.0	1243.2	1438.6	2681.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	2418.0	(A)
Actual Weight of 1 P572V ATD (SID-11s) Dummy Used	kg	125.0	(B)
Rated Cargo/Luggage Weight (RCLW) ¹	kg	136.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2679.0	(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

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement
LF	mm	909	909	Yes
RF	mm	915	908	Yes
RR	mm	953	946	Yes
LR	mm	942	943	Yes
Vehicle CG (Aft of Front Axle)	mm	1582	1566	
Vehicle CG (Left(+)/Right(-) from Longitudinal Centerline)	mm	+37	+12	

***The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirement".

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: 121.1 kg plate on rear cargo floor	121.1
Removed: None.	0.0

¹RCLW is limited to 136.0 kg

DATA SHEET NO. 2**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA**Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUVNHTSA No.: M20150111Test Program: NCAP Side ImpactTest Date: 4/11/14**SEAT POSITIONING**

The driver seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, 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	17.1	7.1	12.1
Front Passenger Seat	N/A	N/A	8.5
Front Center Seat*	N/A	N/A	10.8
Struck Side Rear Seat	N/A	N/A	9.8
Non-Struck Side Rear Seat	N/A	N/A	9.8
Rear Center Seat*	N/A	N/A	9.2

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore/Aft	Forward-Most
Driver Seat	12.1	286	Max	357	352	347
			Mid	325	319	314
			Min	292	286	281
Front Passenger Seat	8.5	Fixed	Max	N/A	N/A	N/A
			Mid	271	271	271
			Min	N/A	N/A	N/A
Front Center Seat*	10.8	Fixed	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	9.8	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	9.8	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*	9.2	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 SYSTEM DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150111

Test Program: NCAP Side Impact

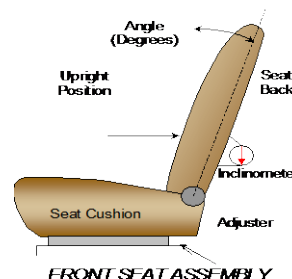
Test Date: 4/11/14

SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents	mm	Detent
Driver Seat	262	N/A	131	N/A
Front Passenger Seat	210	N/A	105	N/A
Front Center Seat*	Fixed	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

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated seat back angle. 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 seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as 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	53.0	N/A	2.7	N/A
Front Passenger Seat	52.1	N/A	2.7	N/A
Front Center Seat*	0.0	N/A	0	N/A
Struck Side Rear Seat w/ Seated Dummy	16.9	10	0	0
Non-Struck Side Rear Seat	17.0	10	0	0
Rear Center Seat*	16.9	10	0	0

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance 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
Rear Seat	1	1, Fixed

HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is 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	1, Uppermost
Rear Seat	1	Fixed

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

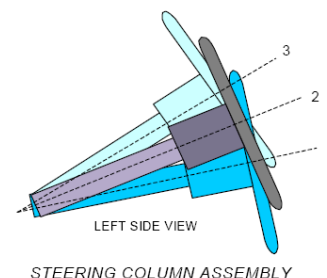
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STEERING COLUMN ADJUSTMENT

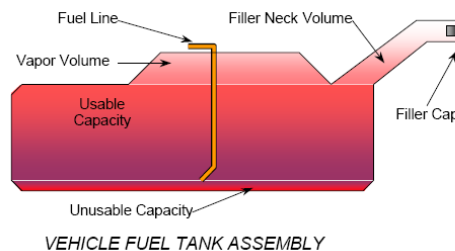
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.



	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	11.4	0
Geometric Center, Position No. 2	24.2	0
Uppermost, Position No. 3	34.3	0
Telescoping Steering Wheel Travel		N/A
Test Position	24.2 (5 of 10)	Fixed

FUEL PUMP

Pump operates a few seconds after ignition switch is turned ON. After that, pump operates only while engine is running.



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

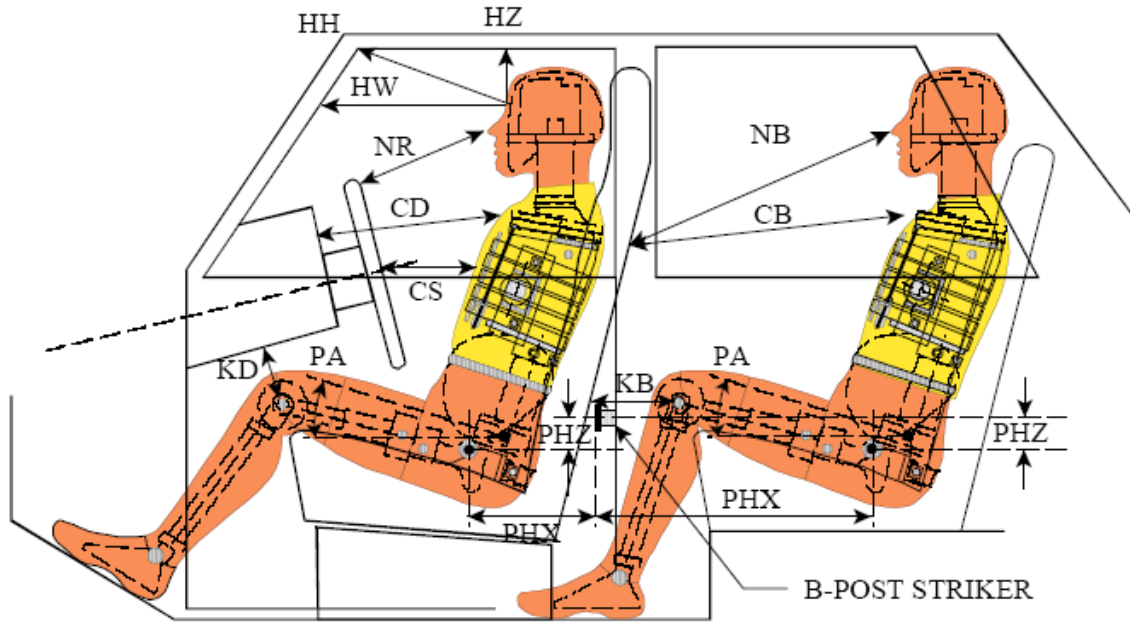
Is the Actual Amount of Solvent Used in the test equal to 93% $\pm$ 1% of the Usable Capacity stated in on Form No. 1? ☒ YES ☐ NO

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

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

NHTSA No.: M20150111
 Test Date: 4/11/14



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

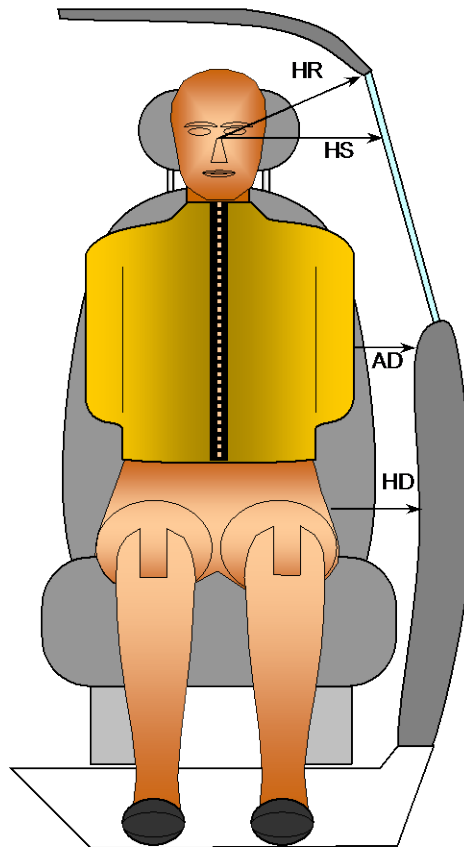
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	505			
HW		Header to Windshield	756			
HZ	HZ	Head to Roof Liner	280		273	
NR	NB	Nose to Rim/Seat Back	461		632	
CD	CB	Chest to Dash/Seat Back	574		584	
CS		Chest to Steering Wheel	359			
KD(L)/KDA(L) ⁰	KB(L)/KBA(L) ⁰	Left Knee to Dash/Seat Back	196	33.5	289	11.4
KD(R)/KDA(R) ⁰	KB(R)/KBA(R) ⁰	Right Knee to Dash/Seat Back	194	33.5	286	11.0
PAX ⁰	PAX ⁰	Pelvic Tilt Angle X		0.6		0.7
	PAY ⁰	Pelvic Tilt Angle Y				20.7
PHX	PHX	Hip Point to Striker (X-Axis)	185		244	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	45		177	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

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

NHTSA No.: M20150111
 Test Date: 4/11/14



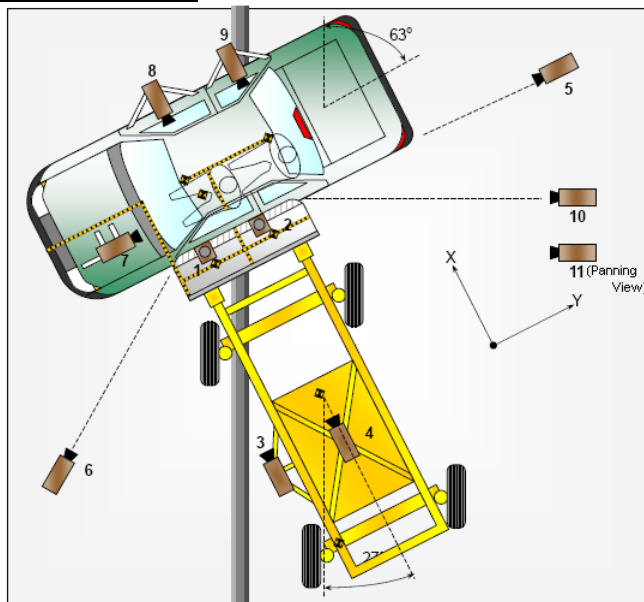
FRONT VIEW OF DUMMY

Code	Description	Units	Driver	Passenger
HR	Head to Side Header	mm	255	269
HS	Head to Side Window ¹	mm	354	370
AD	Arm to Door	mm	106	152
HD	H-Point to Door	mm	142	149

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

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

NHTSA No.: M20150111
 Test Date: 4/11/14



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	305	1295	-5639	8.5	1000
2	Overhead Close-up	305	1675	-5639	25	1000
3	Left Impact Point (MDB)	-1766	-855	-824	25	1000
4	Side Overall (MDB)	-2429	0	-1445	8.5	1000
5	Rear	0	8364	-1185	Zoom	1000
6	Left Front	-2601	-4420	-1285	25	1000
7	Driver Front (OB)				12.5	1000
8	Driver Side (OB)				8.5	1000
9	Passenger Side (OB)				12.5	1000
10	Real-time Left Rear				Zoom	30
11	Real-time Inrun				Zoom	30

Reference: Impact Point projected to Ground; +X = To Front of MDB +Y = To Right of MDB; +Z = Down

*All measurements accurate to ± 6 mm.

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

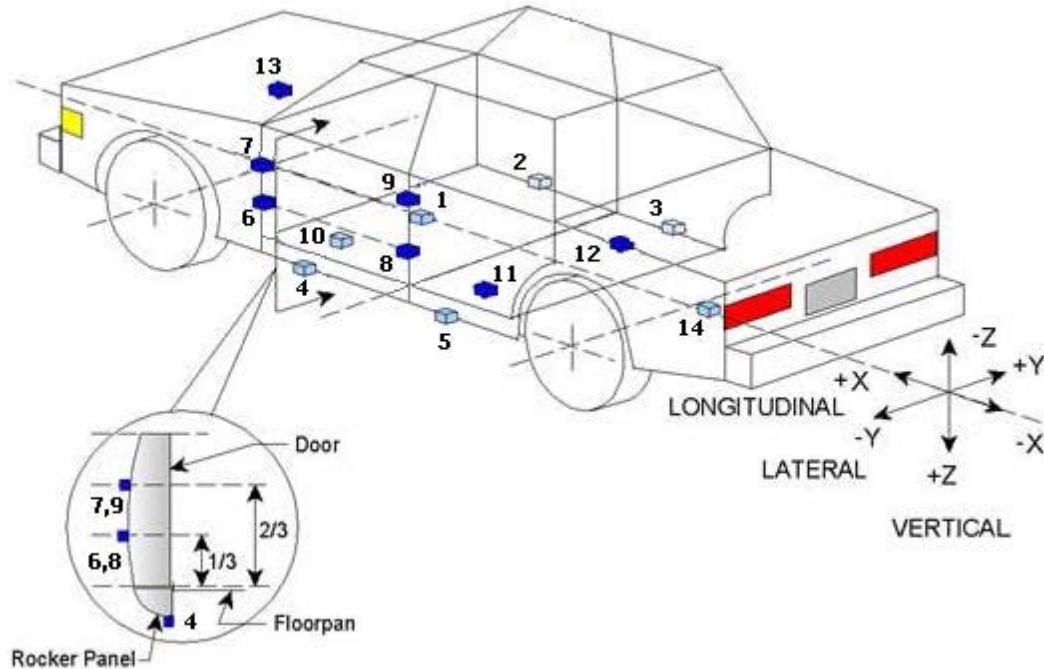
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MBD Accelerometers	7
TOTAL	62

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

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

NHTSA No.: M20150111
 Test Date: 4/11/14



TEST VEHICLE ACCELEROMETER LOCATIONS

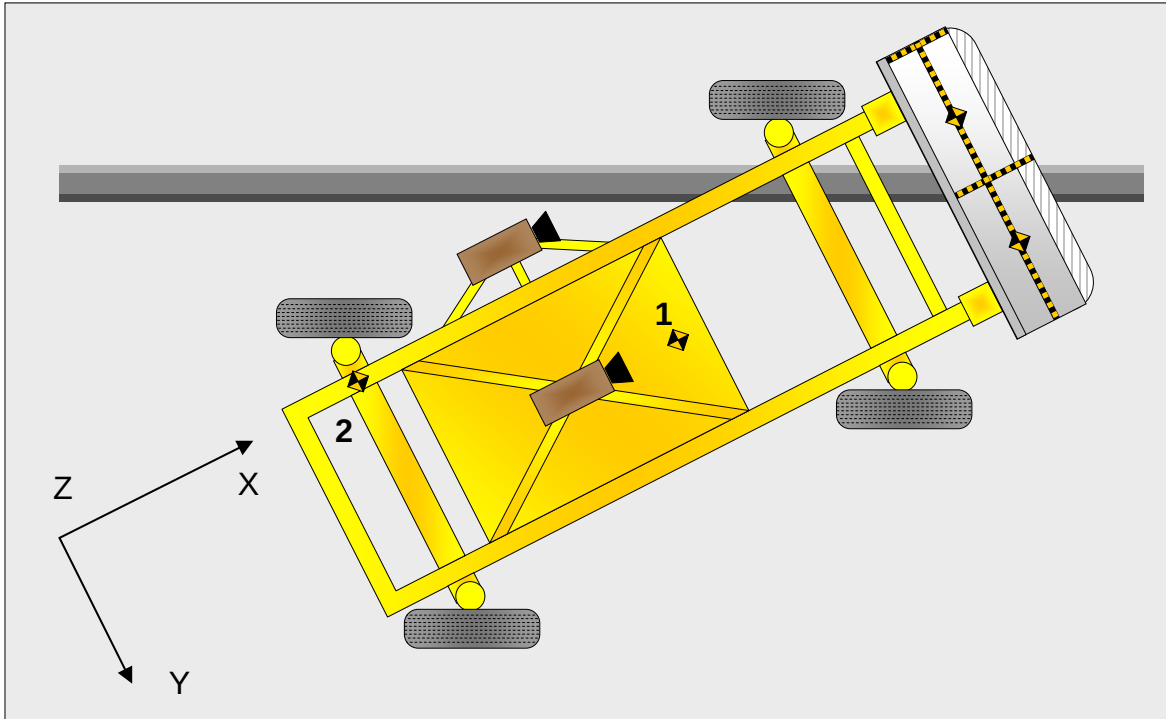
Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3203	0	-718
2	Right Sill at Front Seat	3166	740	-497
3	Right Sill at Rear Seat	2238	725	-515
4	Left Sill at Front Door	3171	-750	-510
5	Left Sill at Rear Door	2236	-735	-515
6	A-Post Lower	3558	-920	-697
7	A-Post Middle	3578	-905	-1118
8	B-Post Lower	2429	-915	-760
9	B-Post Middle	2423	-900	-1170
10	Front Seat Track	2668	-635	-545
11	Rear Seat Structure	1990	-600	-520
12	Right Rear Occ. Compartment	2045	670	-520
13	Engine Block	4077	-126	-1060
14	Rear Above Axle	1358	0	-755

Reference: X - Rear surface of vehicle (+ forward)
 Y - Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

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

NHTSA No.: M20150111
 Test Date: 4/11/14



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	-2179	0	-505
2	MDB Rear	-3648	-650	-618

Reference : X - Face of MDB (+ forward)
 Y - MDB Centerline (+ to right)
 Z - Ground Plane (+ down)

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

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

NHTSA No.: M20150111
Test Date: 4/11/14

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES2-re)	Rear Seat Dummy (SID-IIs)
Face	SCAB	SCAB
Top of Head	SCAB	SCAB
Left Side of Head	None	SCAB
Back of Head	None	SCAB, Head Restraint
Left Shoulder	Seat Side Bolster	Door Panel
Upper Torso	Seat Side Bolster	Door Panel
Lower Torso	Seat Side Bolster, Torso/Pelvis Bag	None
Left Hip	Door Panel	Door Panel, Seat Bolster
Left Knee	Door Panel	Door Panel

POST TEST DOOR PERFORMANCE

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

POST TEST SEAT PERFORMANCE

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

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Major Deformation
Sill Separation	None Visible
Windshield Damage	None
Side Window Damage	None
Other Notable Effects	Right rear tire dismounted. Left rear door panel hit the release lever and released the seat back during the test.

DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS

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

NHTSA No.: M20150111
 Test Date: 4/11/14

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2950
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		508
Actual Impact Point (Aft of Front Axle)	mm		492
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact point	+16
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact point	+1

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

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

NHTSA No.: M20150111
 Test Date: 4/11/14

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel Base of Framework Carriage	2591
C.G. Location aft of Front Axle	1109

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	421.8	260.2	682.0
Right	kg	362.0	323.8	685.5
Ratio	%	57.3	42.7	100.0
Totals	kg	783.8	584.0	1367.8

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.11
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.13
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	27

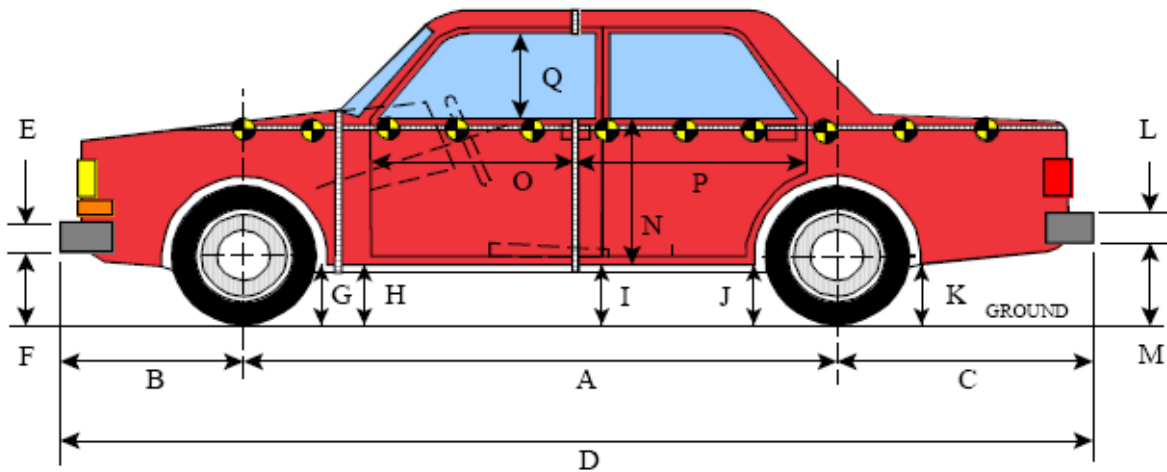
MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Right	216
B	Top of Bumper	533	800	Right	212
C	Mid-Level	686	800	Right	191
D	Top of Stack	813	800	Right	193

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

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

NHTSA No.: M20150111
 Test Date: 4/11/14



LEFT SIDE VIEW

All MEASUREMENTS IN (mm) WITH TOLERANCE OF $\pm 3\text{mm}$

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2950	2940	10
B	Front Axle to Front Surface of Vehicle	1020	1030	-10
C	Rear Axle to Rear Surface of Vehicle	1200	1185	15
D	Total Length at Centerline	5170	5160	10
E	Front Bumper Thickness	142	142	0
F	Front Bumper Bottom to Ground	518	513	5
G	Sill Height at Front Wheel Well	400	395	5
H	Sill Height at Front Door Leading Edge	400	410	-10
I	Sill Height at B-Pillar	412	432	-20
J1	Sill Height at Rear Wheel Well	417	458	-41
J2	Pinch Weld Height at Rear Wheel Well	205	327	-122
K	Sill Height Aft of Rear Wheel Well	397	430	-33
L	Rear Bumper Thickness	125	125	0
M	Rear Bumper Bottom to Ground	508	530	-22
N	Sill Height to Window Bottom Sill	810	895	-85
O	Front Door Leading Edge to Impact CL	791	775	16
P	Rear Door Trailing Edge to Impact CL	1396	1172	224
Q	Front Window Opening	475	465	10
R	Right Side Length	5018	5021	-3
S	Left Side Length	5012	4995	17
T	Vehicle Width	2040	2030	10

DATA SHEET NO. 11

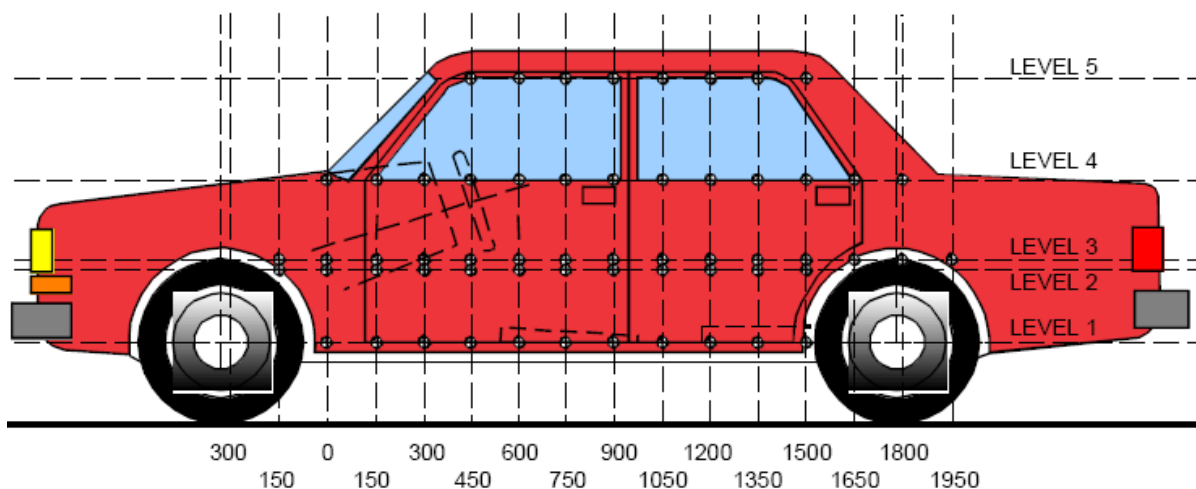
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150111

Test Program: NCAP Side Impact

Test Date: 4/11/14



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance From Impact
1	Sill Top	532	205	1350
2	Driver Hip Point	843	192	1500
3	Mid-Door	870	184	1650
4	Window Sill	1249	55	1200
5	Window Top	1803	0	600

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

DATA SHEET NO. 11 (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

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

NHTSA No.: M20150111
 Test Date: 4/11/14

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

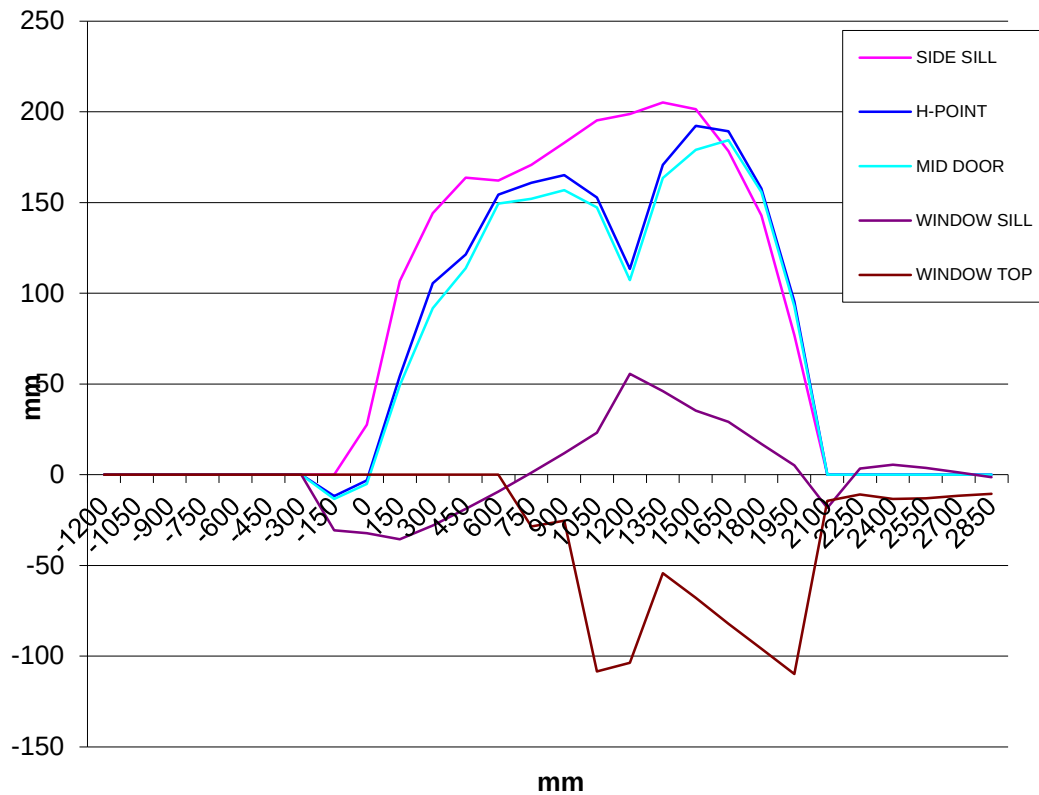
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-150	0	1014	1014	886	0	0	1025	1028	916	0	0	-11	-14	-30	0
0	984	1004	1002	902	0	957	1007	1007	934	0	27	-3	-5	-32	0
150	979	997	996	912	0	872	942	947	947	0	107	55	49	-35	0
300	977	998	998	923	0	833	893	906	951	0	144	105	92	-28	0
450	976	1000	1000	934	0	812	878	886	952	0	164	122	114	-18	0
600	975	1001	1001	941	0	813	846	852	951	0	162	155	149	-10	0
750	974	1002	1002	948	689	803	841	850	947	717	171	161	152	1	-28
900	973	1003	1002	955	702	790	837	846	943	727	183	166	156	12	-25
1050	971	1003	1003	960	709	776	850	856	937	818	195	153	147	23	-109
1200	970	1003	1003	961	713	772	890	896	906	816	198	113	107	55	-103
1350	967	1003	1003	962	716	762	832	839	915	770	205	171	164	47	-54
1500	966	1002	1002	961	720	765	810	823	926	788	201	192	179	35	-68
1650	966	1001	1001	961	723	788	812	817	932	805	178	189	184	29	-82
1800	969	1004	1003	960	726	826	846	847	943	822	143	158	156	17	-96
1950	976	1013	1012	959	728	899	918	919	954	837	77	95	93	5	-109
2100	0	0	0	958	731	0	0	0	977	745	0	0	0	-19	-14
2250	0	0	0	958	731	0	0	0	954	742	0	0	0	4	-11
2400	0	0	0	956	733	0	0	0	950	746	0	0	0	6	-13
2550	0	0	0	954	732	0	0	0	950	745	0	0	0	4	-13
2700	0	0	0	950	730	0	0	0	949	742	0	0	0	1	-12
2850	0	0	0	946	726	0	0	0	947	737	0	0	0	-1	-11

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.

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

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

NHTSA No.: M20150111
Test Date: 4/11/14

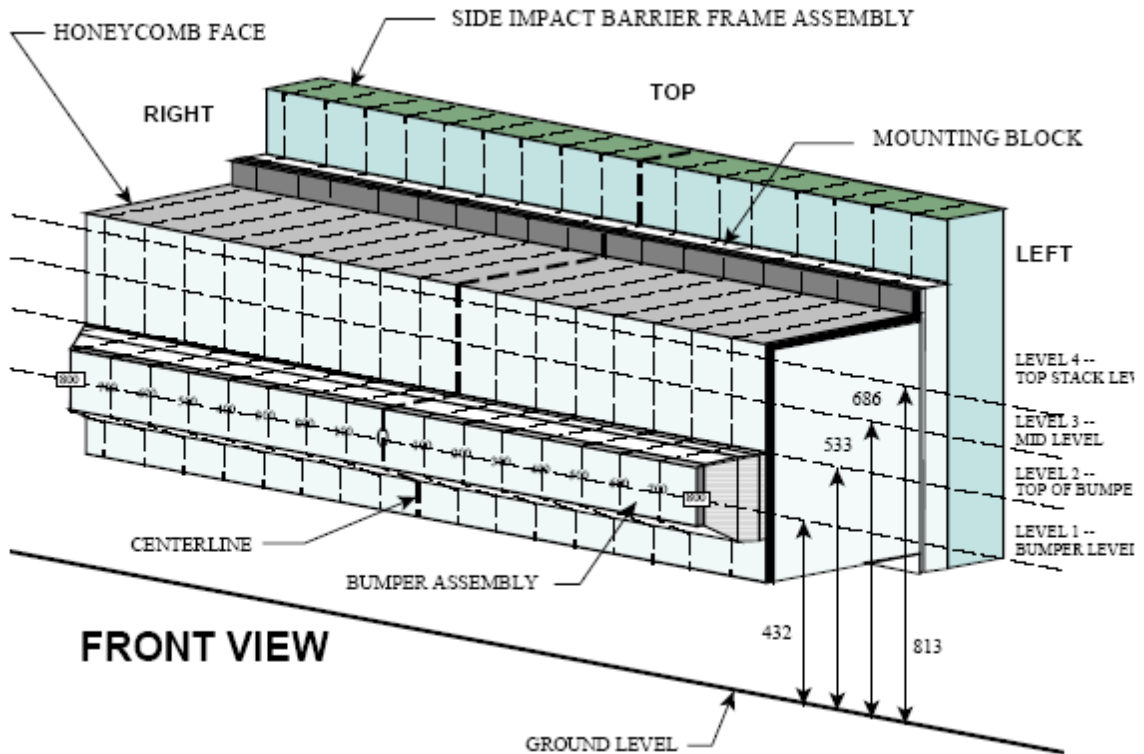


DATA SHEET NO. 12

MDB EXTERIOR STATIC CRUSH MEASUREMENTS

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

NHTSA No.: M20150111
 Test Date: 4/11/14



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		0	100	200	300	400	500	600	700
1	-216	-177	-148	-124	-143	-175	-179	-137	-112	-104	-99	-96	-100	-100	-107	-127	-167
2	-212	-189	-134	-99	-94	-123	-133	-114	-118	-110	-102	-94	-87	-83	-84	-96	-139
3	-191	-162	-135	-125	-119	---	---	---	---	-107	-107	-106	-107	-108	-108	-109	-112
4	-193	-171	-140	-122	-119	-118	-116	-114	-113	-111	-110	-109	-108	-108	-108	-116	-122

¹ Measurement point missing post-test.

DATA SHEET NO. 13
FMVSS NO. 301 STATIC ROLLOVER RESULTS

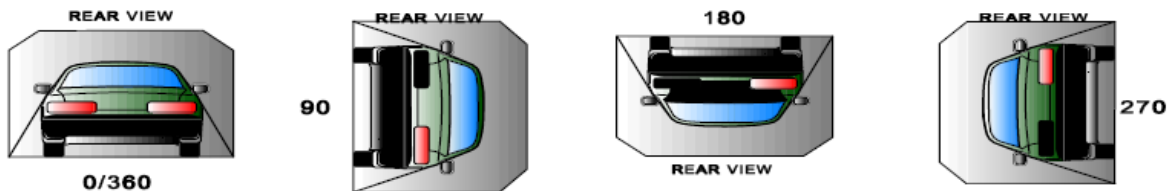
Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV
 Test Program: NCAP Side Impact

NHTSA No.: M20150111
 Test Date: 4/11/14

Test Time: 13:29 **Temperature:** 21.6°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 oz.
 (Maximum allowable is 5 ounces)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable is 1 ounce/minute)
- D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	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. 14

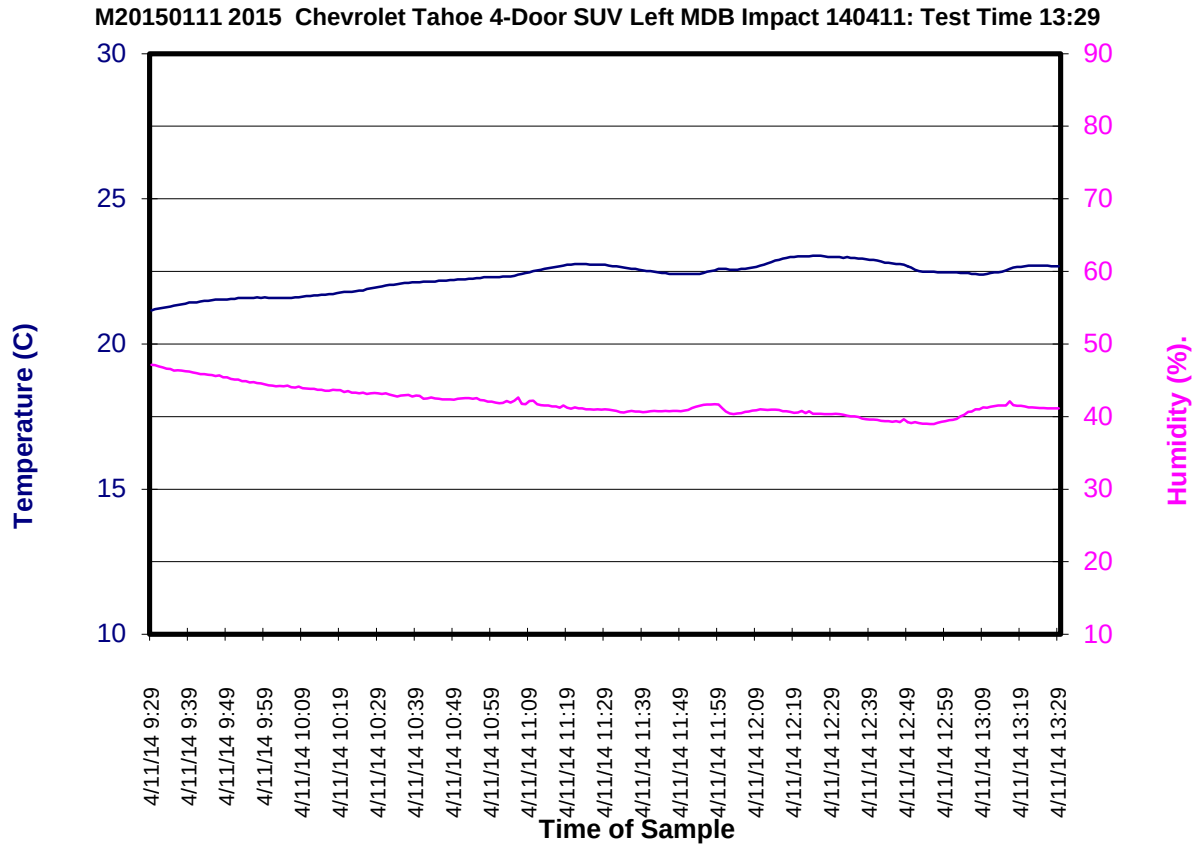
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2015 Chevrolet Tahoe 4-Door SUV

NHTSA No.: M20150111

Test Program: NCAP Side Impact

Test Date: 4/11/14



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

No.	Description	Page
001	As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-6
002	As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-6
003	Pre-Test Front View of Test Vehicle	A-7
004	Post-Test Front View of Test Vehicle	A-7
005	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-8
006	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-8
007	Pre-Test Left Side View of Test Vehicle	A-9
008	Post-Test Left Side View of Test Vehicle	A-9
009	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-10
010	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-10
011	Pre-Test Rear View of Test Vehicle	A-11
012	Post-Test Rear View of Test Vehicle	A-11
013	Pre-Test Right Side View of Test Vehicle	A-12
014	Post-Test Right Side View of Test Vehicle	A-12
015	Pre-Test Overhead View of Test Area	A-13
016	Post-Test Overhead View of Test Area	A-13
017	Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle	A-14
018	Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle	A-14
019	Pre-Test Close-up View of Impact Point Target	A-15
020	Post-Test Close-up View of Impact Point Target	A-15
021	Pre-Test Left Front Door Latch Close-up	A-16
022	Post-Test Left Front Door Latch Close-up	A-16
023	Pre-Test Left Rear Door Latch Close-up	A-17
024	Post-Test Left Rear Door Latch Close-up	A-17
025	Pre-Test Front Close-up View of Driver Dummy	A-18
026	Post-Test Front Close-up View of Driver Dummy	A-18
027	Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking	A-19
028	Pre-Test Left Side View of Driver Dummy Shoulder and Door Top	A-19
029	Post-Test Left Side View of Driver Dummy Shoulder and Door Top	A-20
030	Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning	A-20
031	Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint	A-21
032	Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning	A-21
033	Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan	A-22
034	Pre-Test Placement of Driver Dummy's Feet	A-22
035	Pre-Test View of Belt Anchorage for Driver Dummy	A-23
036	Pre-Test Left Side View of Steering Wheel	A-23

TABLE OF PHOTOGRAPHS (CONTINUED)

No.	Description	Page
037	View of Disengaged Parking Brake	A-24
038	Pre-Test View of Parking Brake	A-24
039	Pre-Test Close-Up Left Side View of Driver Seat Track	A-25
040	Pre-Test Close-Up Left Side View of Driver Seat Back	A-25
041	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-26
042	Pre-Test Driver Dummy and Door Clearance View	A-26
043	Post-Test Driver Dummy and Door Clearance View	A-27
044	Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment	A-27
045	Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment	A-28
046	Pre-Test Driver Inner Door Panel View	A-28
047	Post-Test Driver Inner Door Panel View	A-29
048	Post-Test Driver Dummy Close-Up Head Contact with Vehicle View	A-29
049	Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View	A-30
050	Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View	A-30
051	Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View	A-31
052	Post-Test Driver Dummy Close-Up Pelvis Contact View	A-31
053	Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View	A-32
054	Post-Test Driver Dummy Close-Up Knee Contact View	A-32
055	Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking	A-33
056	Pre-Test Left Side View of Passenger Dummy Shoulder and Door Top View	A-33
057	Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View	A-34
058	Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning	A-34
059	Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint	A-35
060	Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning	A-35
061	Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan	A-36
062	Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket	A-36
063	Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level	A-37
064	Pre-Test Placement of Rear Passenger Dummy's Feet	A-37
065	Pre-Test View of Belt Anchorage for Rear Passenger Dummy	A-38
066	Pre-Test Close-Up Left Side View of Rear Passenger Seat Track	A-38
067	Pre-test Close-Up Left Side View of Rear Passenger Seat Back	A-39

TABLE OF PHOTOGRAPHS (CONTINUED)

No.	Description	Page
068	Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint	A-39
069	Pre-Test Passenger Dummy and Door Clearance View	A-40
070	Post-Test Passenger Dummy and Door Clearance View	A-40
071	Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-41
072	Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment	A-41
073	Pre-Test Passenger Inner Door Panel View	A-42
074	Post-Test Passenger Inner Door Panel View	A-42
075	Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View	A-43
076	Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View	A-43
077	Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View	A-44
078	Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View	A-44
079	Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View	A-45
080	Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View	A-45
081	Post-Test Rear Passenger Dummy Close-Up Knee Contact View	A-46
082	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-46
083	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-47
084	Pre-Test Front View of MDB Impactor Face	A-47
085	Post-Test Front View of MDB Impactor Face	A-48
086	Pre-Test Top View of MDB Impactor Face	A-48
087	Post-Test Top View of MDB Impactor Face	A-49
088	Pre-Test Left Side View of MDB Impactor Face	A-49
089	Post-Test Left Side View of MDB Impactor Face	A-50
090	Pre-Test Right Side View of MDB Impactor Face	A-50
091	Post-Test Right Side View of MDB Impactor Face	A-51
092	Close-Up View of Vehicle's Certification Label	A-51
093	Close-Up View of Vehicle's Tire Information Placard or Label	A-52
094	Pre-Test Ballast View	A-52
095	Post-Test Primary and Redundant Speed Trap Read-Out	A-53

TABLE OF PHOTOGRAPHS (CONTINUED)

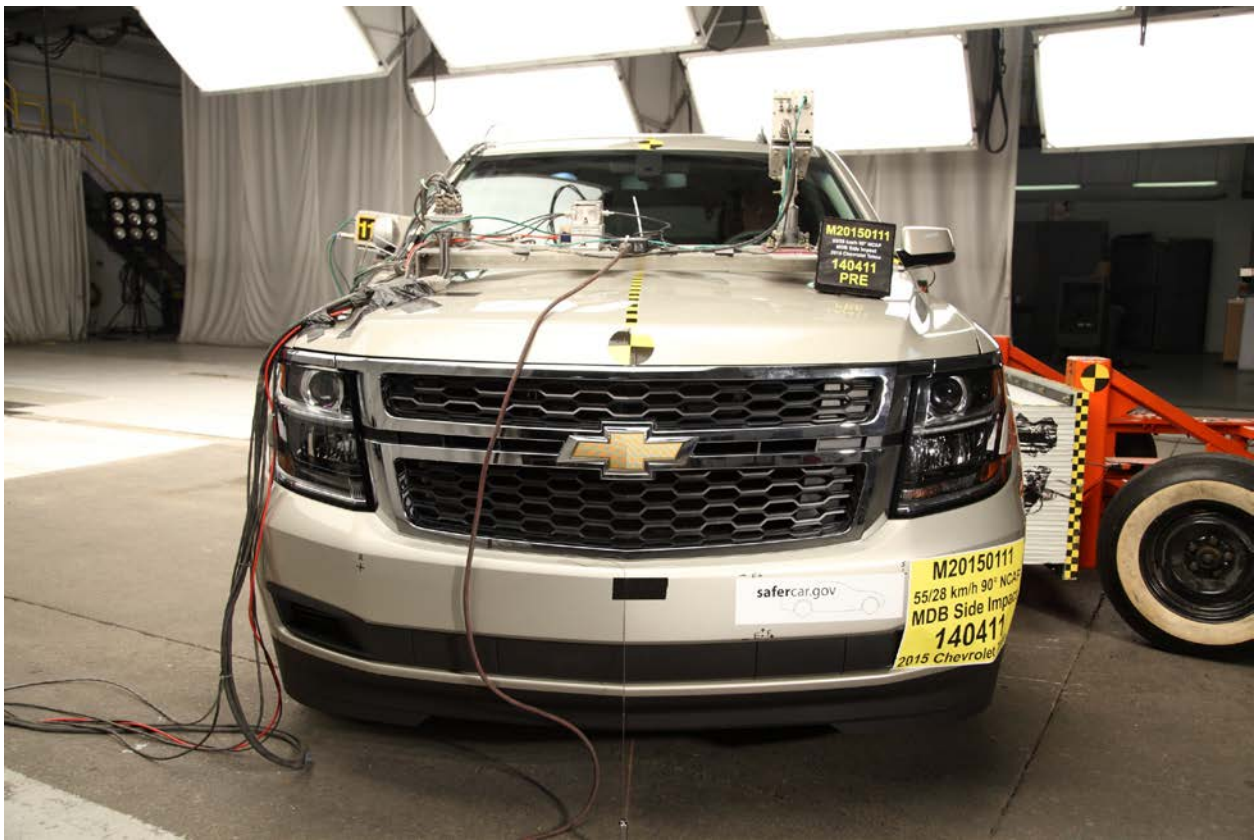
No.	Description	Page
096	FMVSS No. 301 Static Rollover 0 Degrees	A-53
097	FMVSS No. 301 Static Rollover 90 Degrees	A-54
098	FMVSS No. 301 Static Rollover 180 Degrees	A-54
099	FMVSS No. 301 Static Rollover 270 Degrees	A-55
100	FMVSS No. 301 Static Rollover 360 Degrees	A-55
101	Impact Event	A-56
102	Monroney Label	A-56
103	Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-57
104	Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-57



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



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



003 Pre-Test Front View of Test Vehicle



004 Post-Test Front View of Test Vehicle



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



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



010 Post-Test Left Rear $\frac{3}{4}$ 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 MDB Positioned Against Side of Test Vehicle



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



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



020 Post-Test Close-up View of Impact Point Target



021 Pre-Test Left Front Door Latch Close-up



022 Post-Test Left Front Door Latch Close-up



023 Pre-Test Left Rear Door Latch Close-up



024 Post-Test Left Rear Door Latch Close-up



025 Pre-Test Front Close-up View of Driver Dummy



026 Post-Test Front Close-up View of Driver Dummy



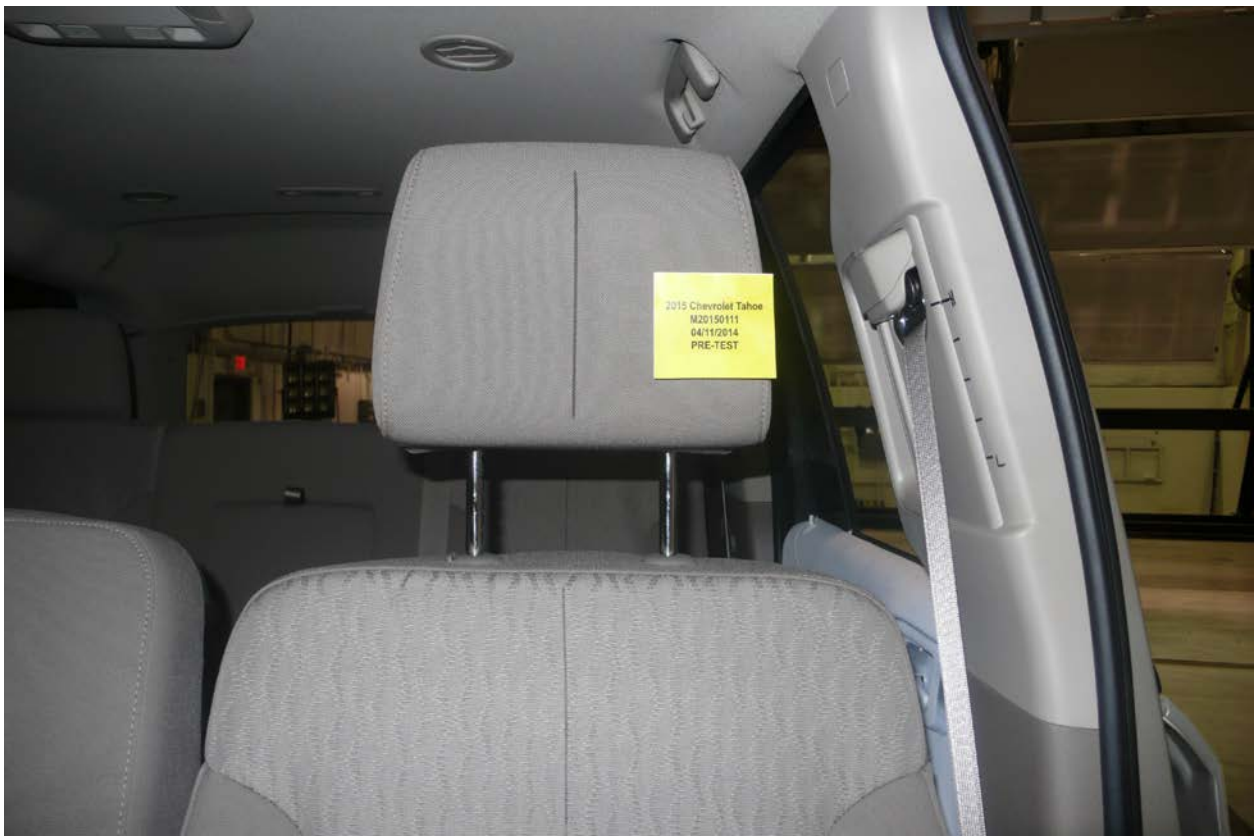
027 Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



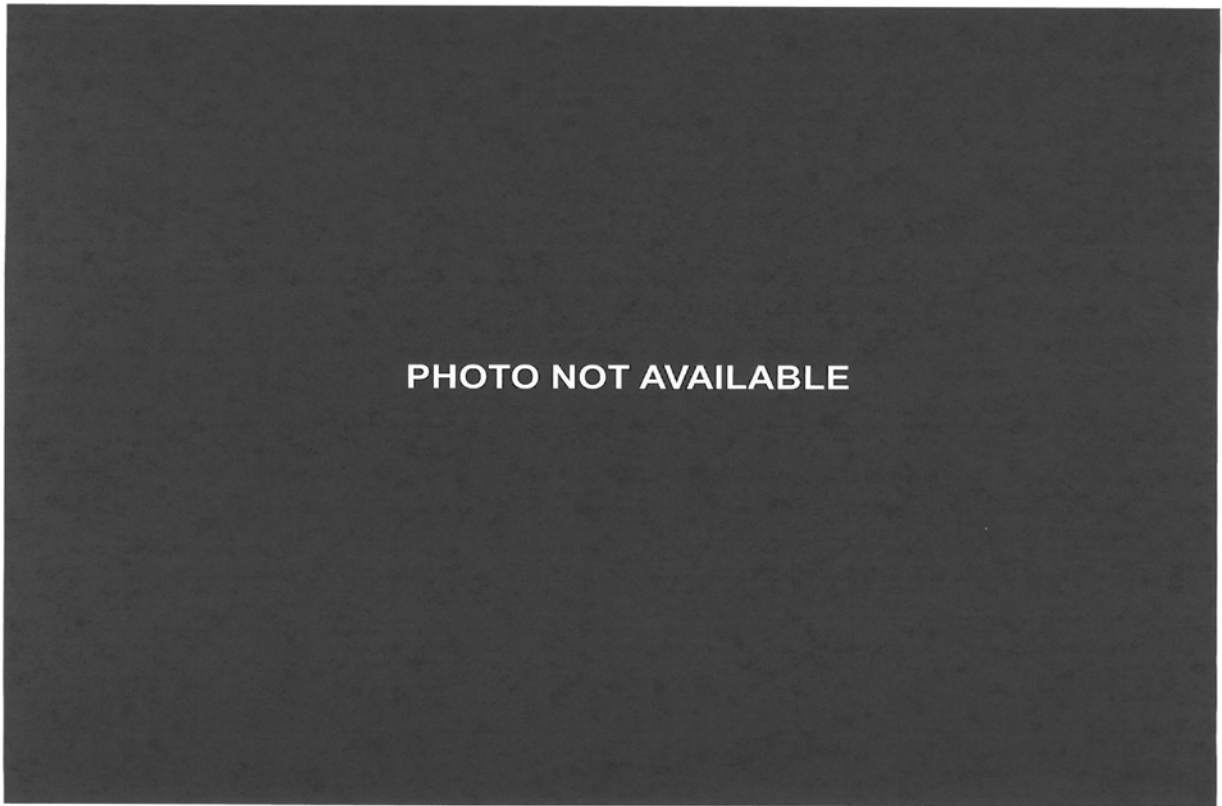
028 Pre-Test Left Side View of Driver Dummy Shoulder and Door Top



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



030 Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



031 Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



032 Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



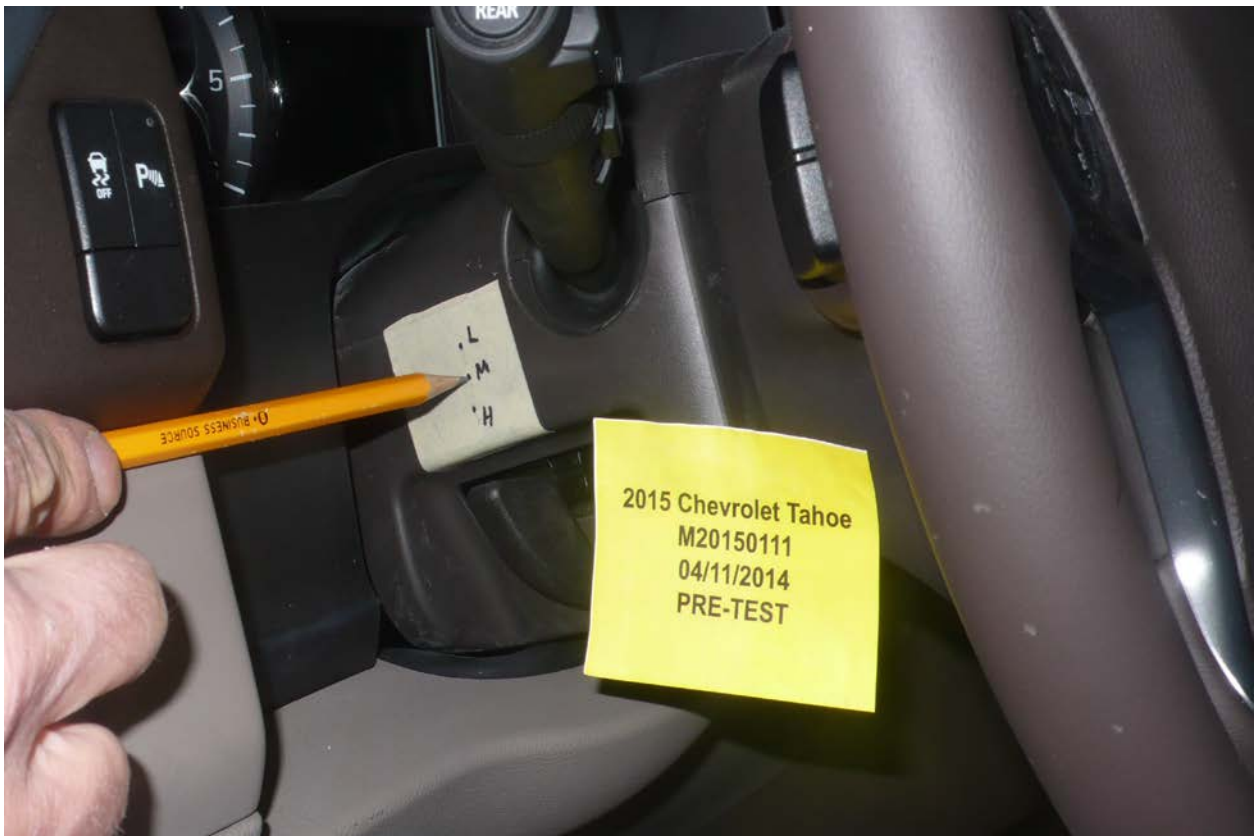
033 Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



034 Pre-Test Placement of Driver Dummy Feet



035 Pre-Test View of Belt Anchorage for Driver Dummy



036 Pre-Test Left Side View of Steering Wheel



037 View of Disengaged Parking Brake



038 Pre-Test View of Parking Brake



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



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



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



042 Pre-Test Driver Dummy and Door Clearance View



043 Post-Test Driver Dummy and Door Clearance View



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



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



046 Pre-Test Driver Inner Door Panel View



047 Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations



048 Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



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



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

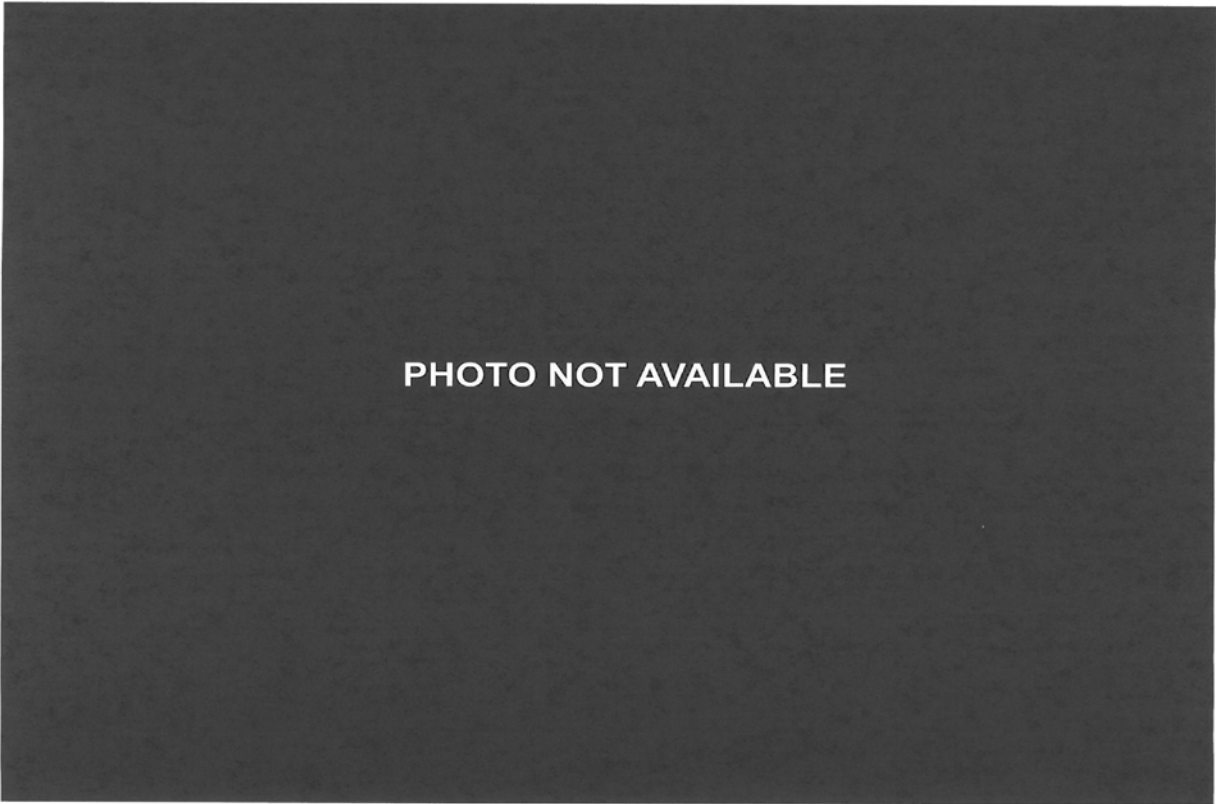


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051 Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View

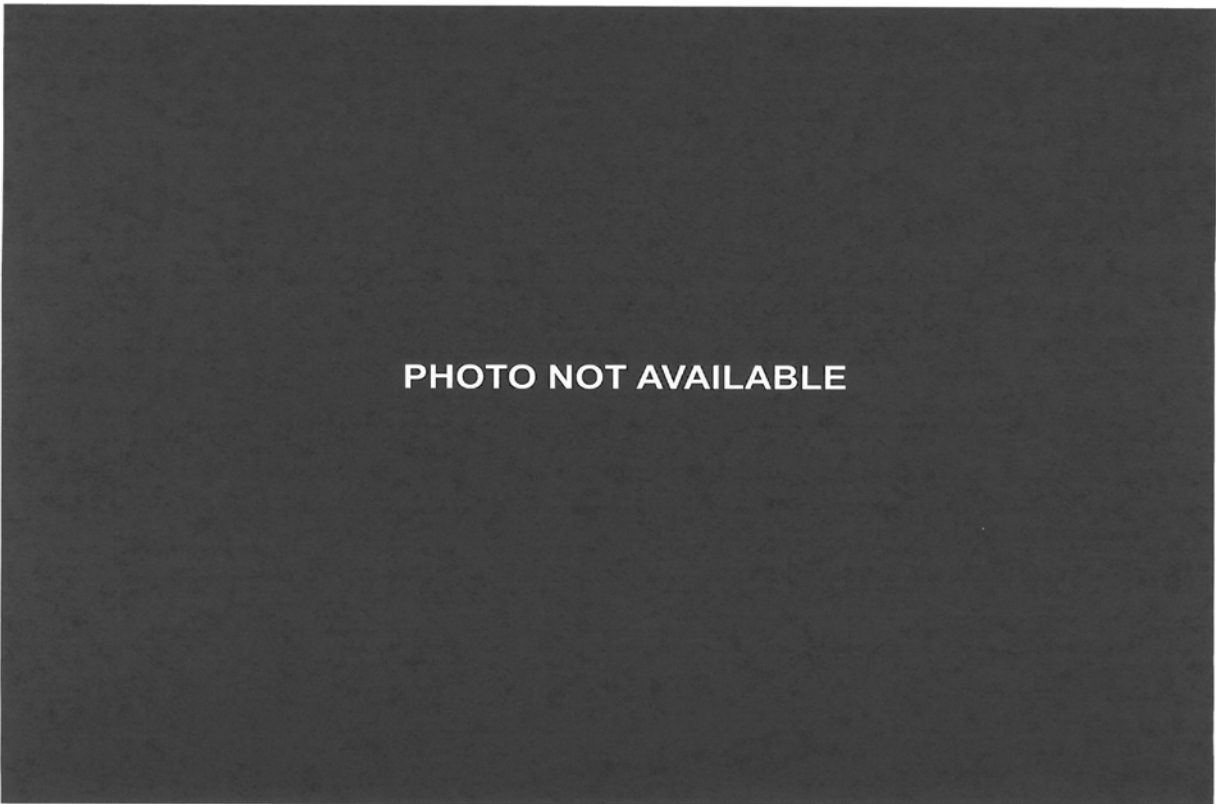


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052 Post-Test Driver Dummy Close-Up Pelvis Contact View

PHOTO NOT AVAILABLE

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



054 Post-Test Driver Dummy Close-Up Knee Contact View



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



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



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



058 Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



059 Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



060 Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



061 Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



062 Pre-Test View of Rear Passenger Dummy Neck Showing Position of Adjustable Neck Bracket



063 Pre-Test View of Rear Passenger Dummy Head Showing Dummy Head is Level



064 Pre-Test Placement of Rear Passenger Dummy Feet



065 Pre-Test View of Belt Anchorage for Rear Passenger Dummy



066 Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



067 Pre-test Close-Up Left Side View of Rear Passenger Seat Back



068 Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



069 Pre-Test Passenger Dummy and Door Clearance View



070 Post-Test Passenger Dummy and Door Clearance View



071 Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



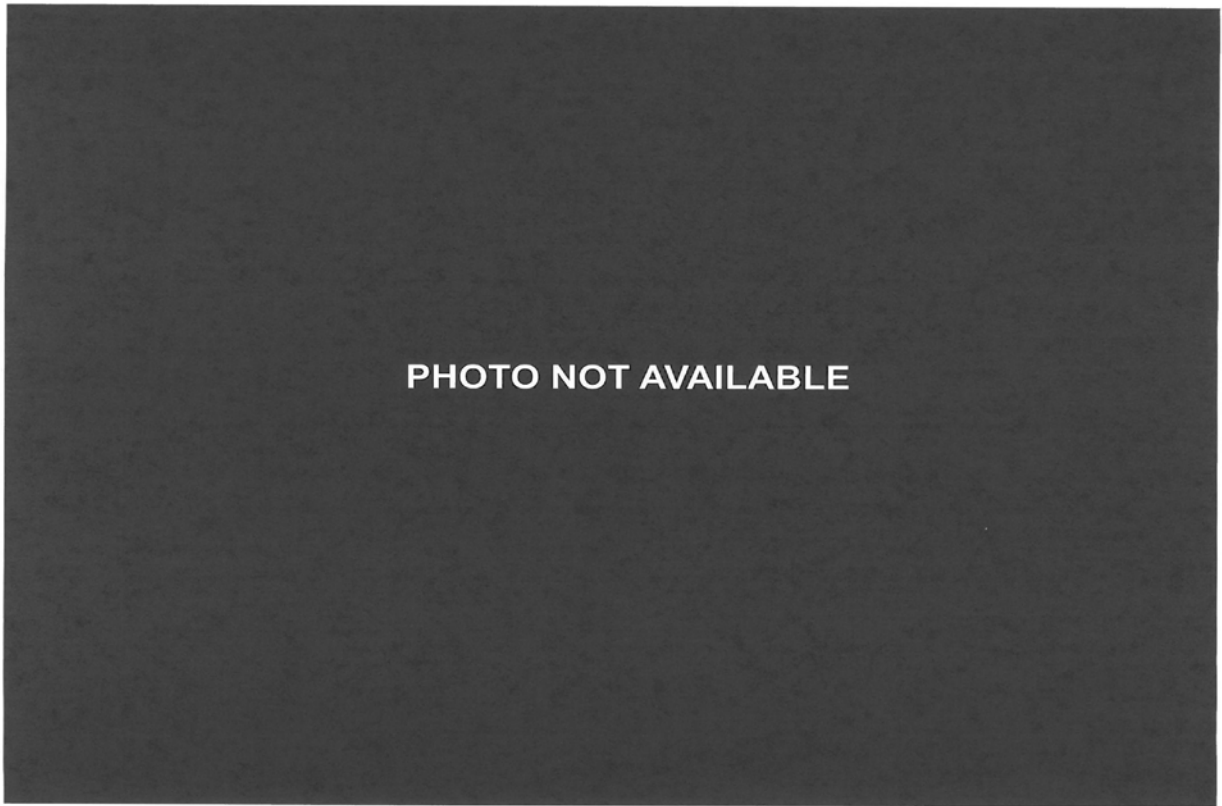
072 Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



073 Pre-Test Passenger Inner Door Panel View



074 Post-Test Passenger Inner Door Panel View Showing



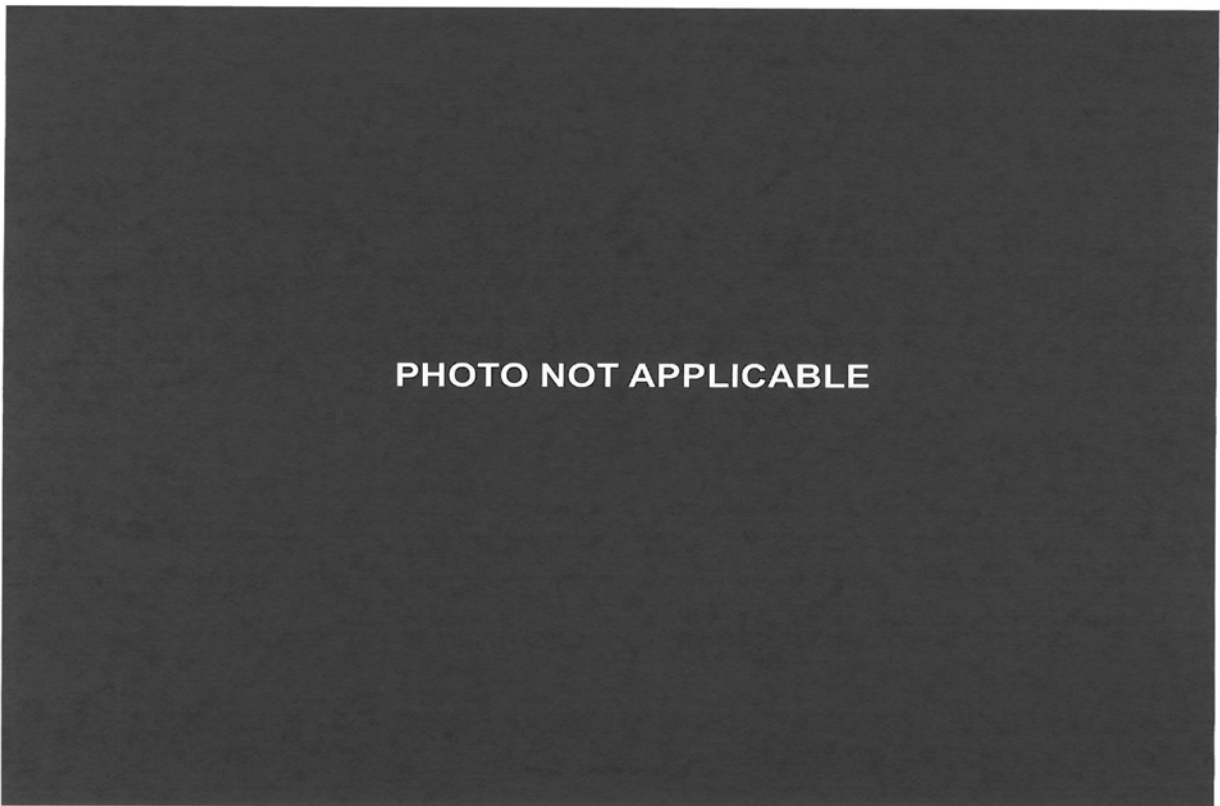
075 Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



076 Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



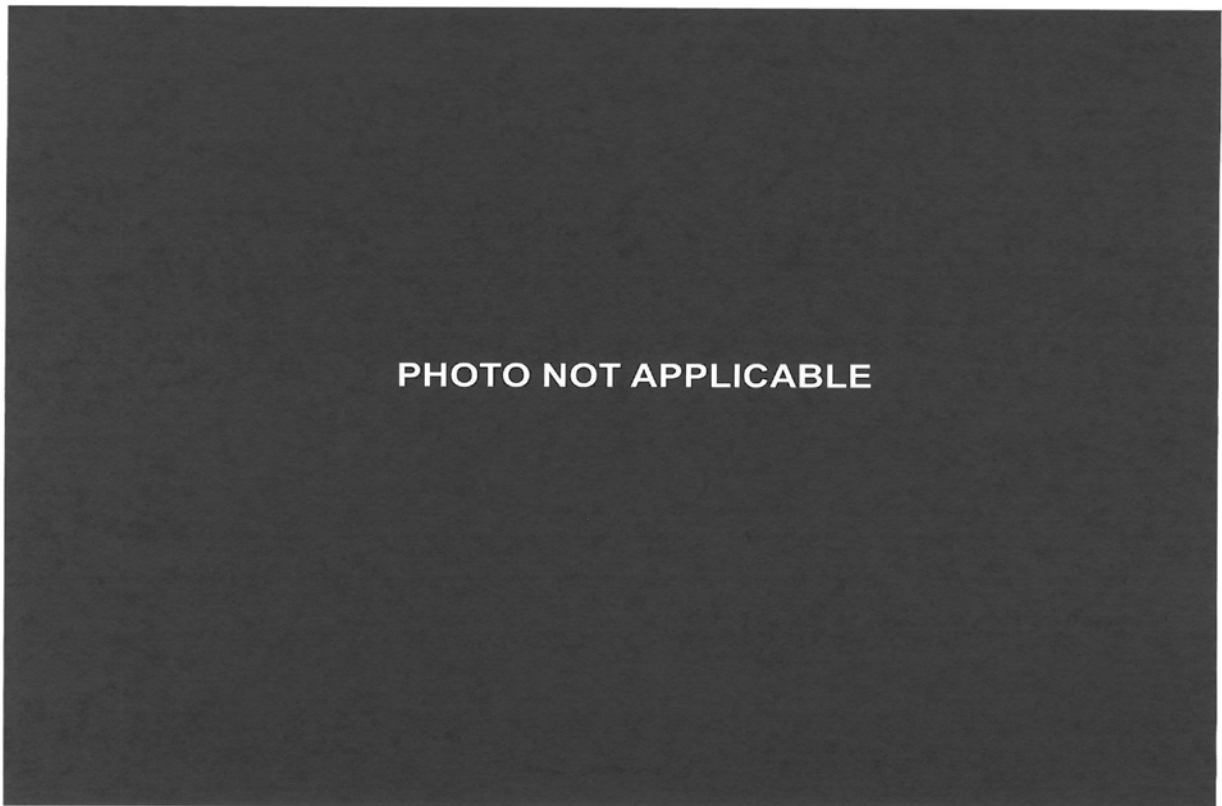
077 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



078 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



079 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View



080 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View



081 Post-Test Rear Passenger Dummy Close-Up Knee Contact View



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



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



084 Pre-Test Front View of MDB Impactor Face



085 Post-Test Front View of MDB Impactor Face



086 Pre-Test Top View of MDB Impactor Face



087 Post-Test Top View of MDB Impactor Face



088 Pre-Test Left Side View of MDB Impactor Face



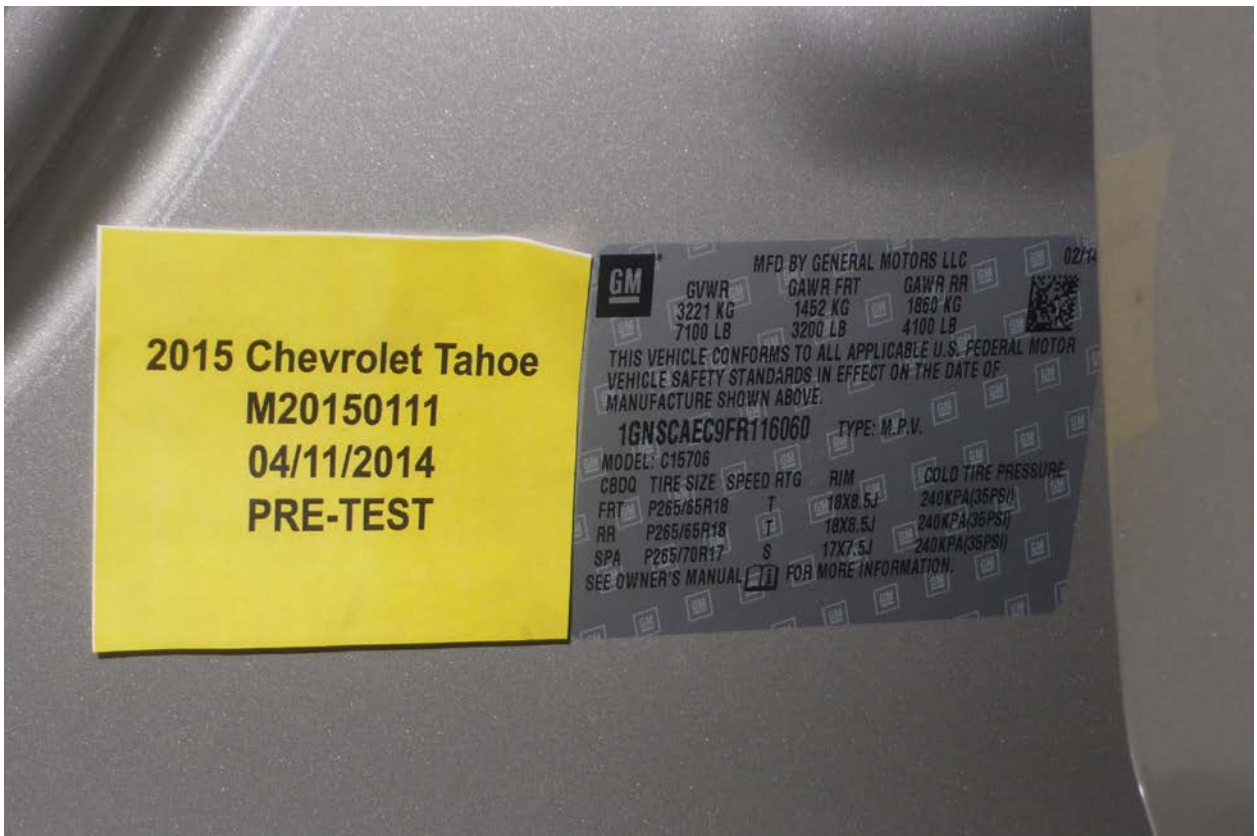
089 Post-Test Left Side View of MDB Impactor Face



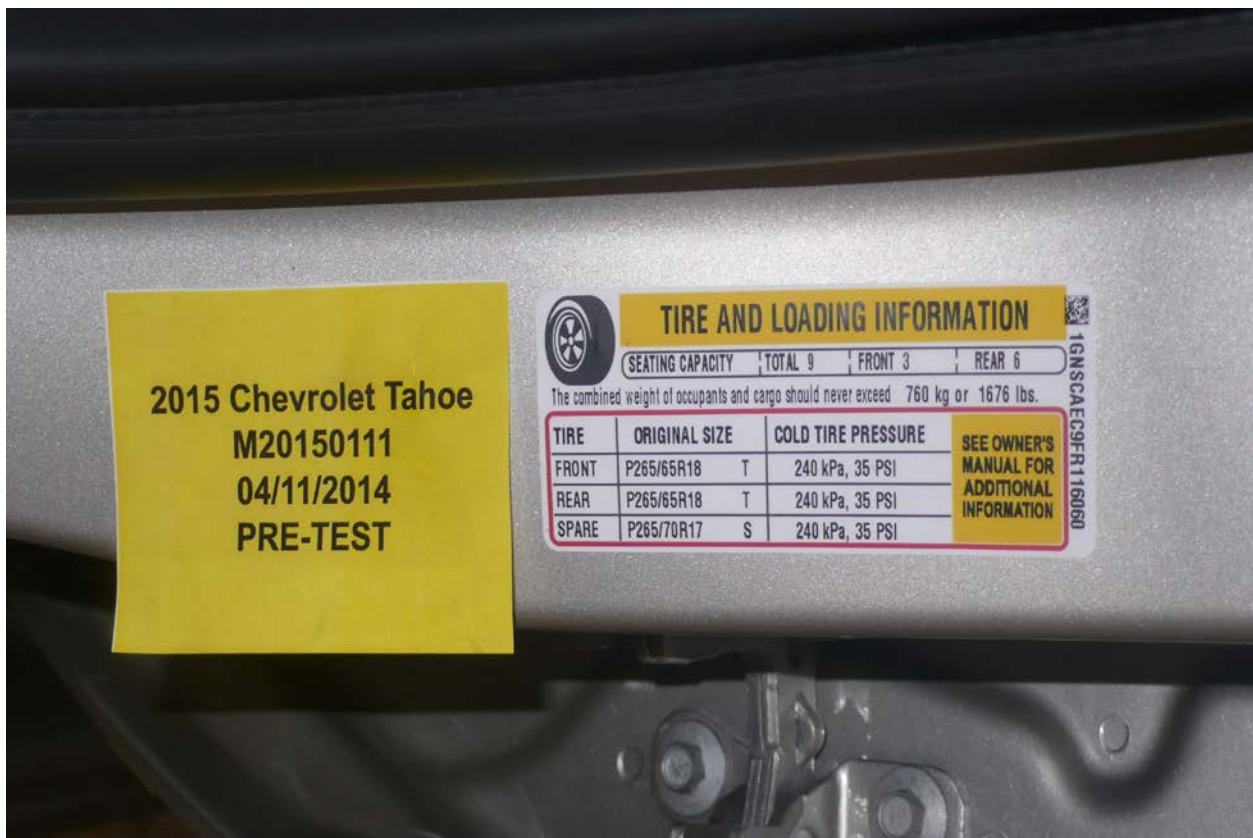
090 Pre-Test Right Side View of MDB Impactor Face



091 Post-Test Right Side View of MDB Impactor Face



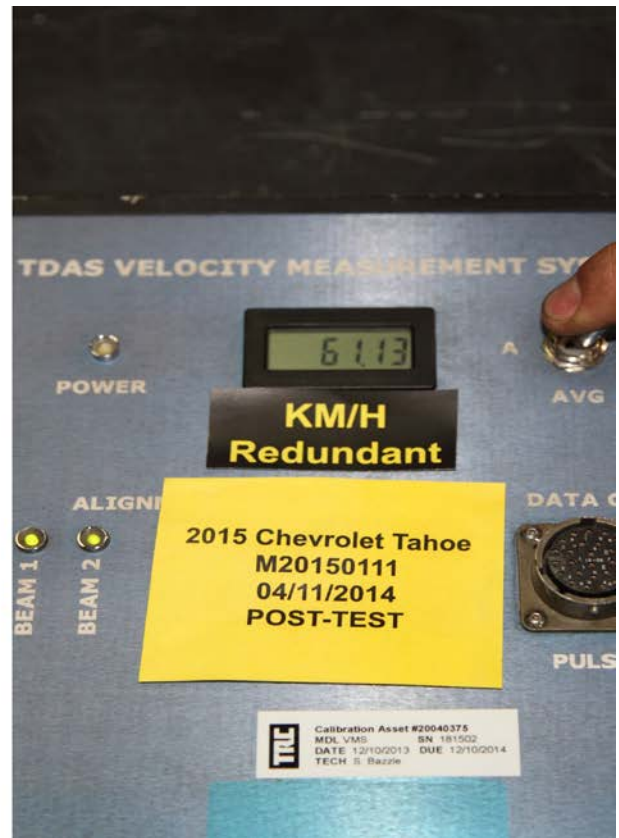
092 Close-Up View of Vehicle Certification Label



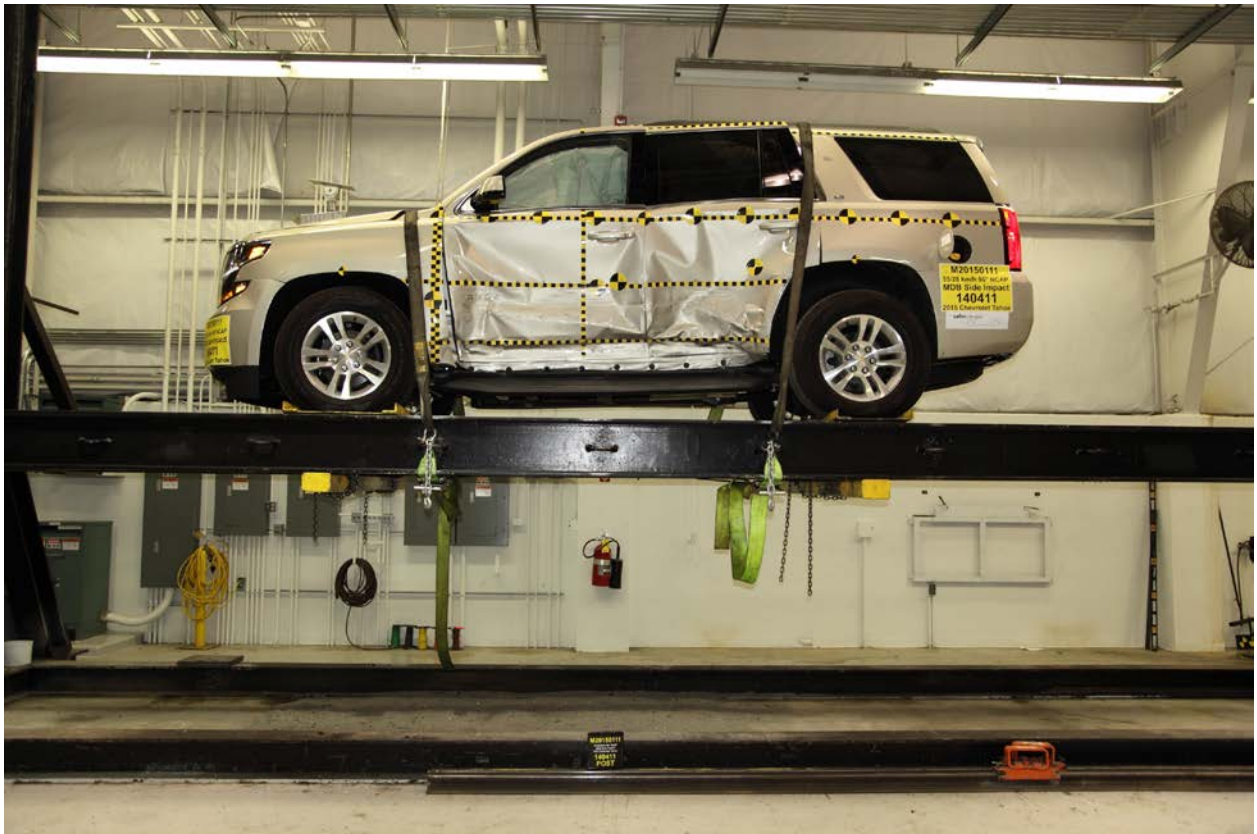
093 Close-Up View of Vehicle Tire Information Placard or Label



094 Pre-Test Ballast View



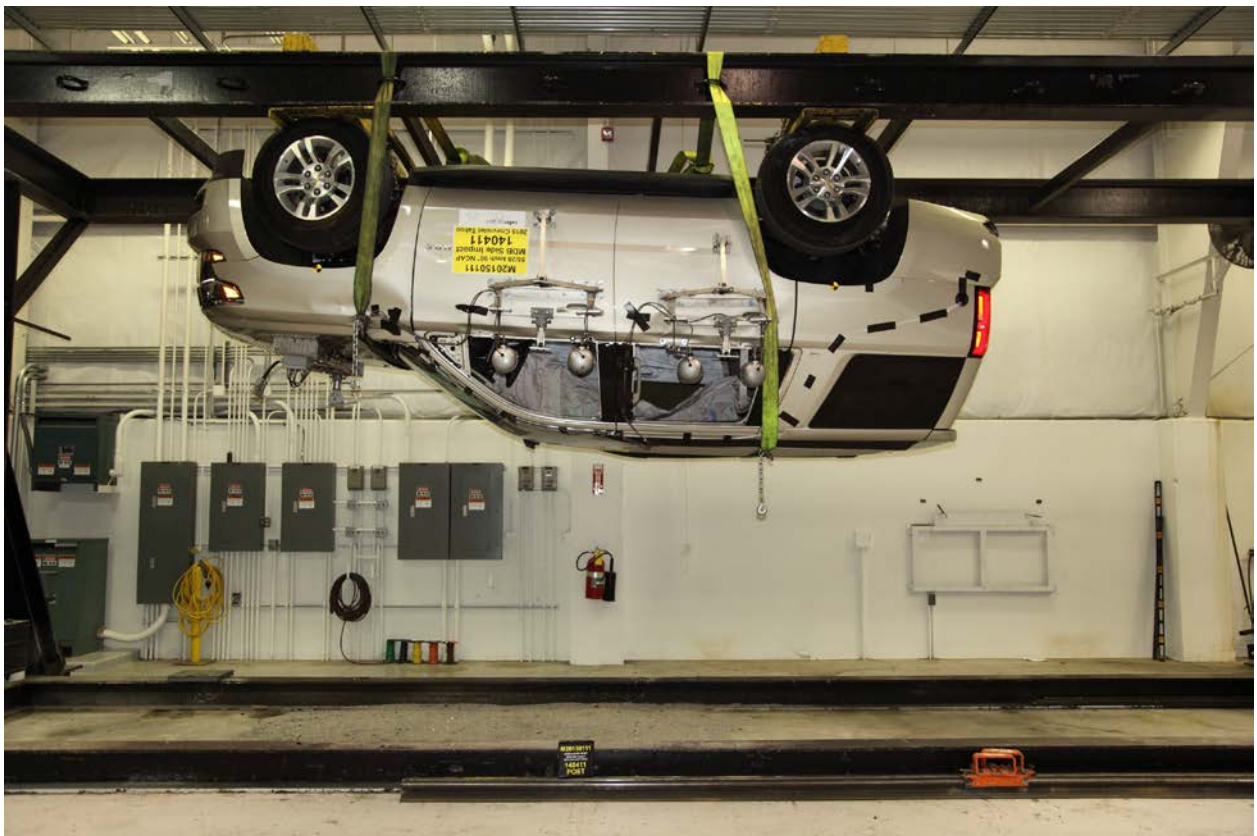
095 Post-Test Primary Speed Trap Read-Out



096 FMVSS No. 301 Static Rollover 0 Degrees



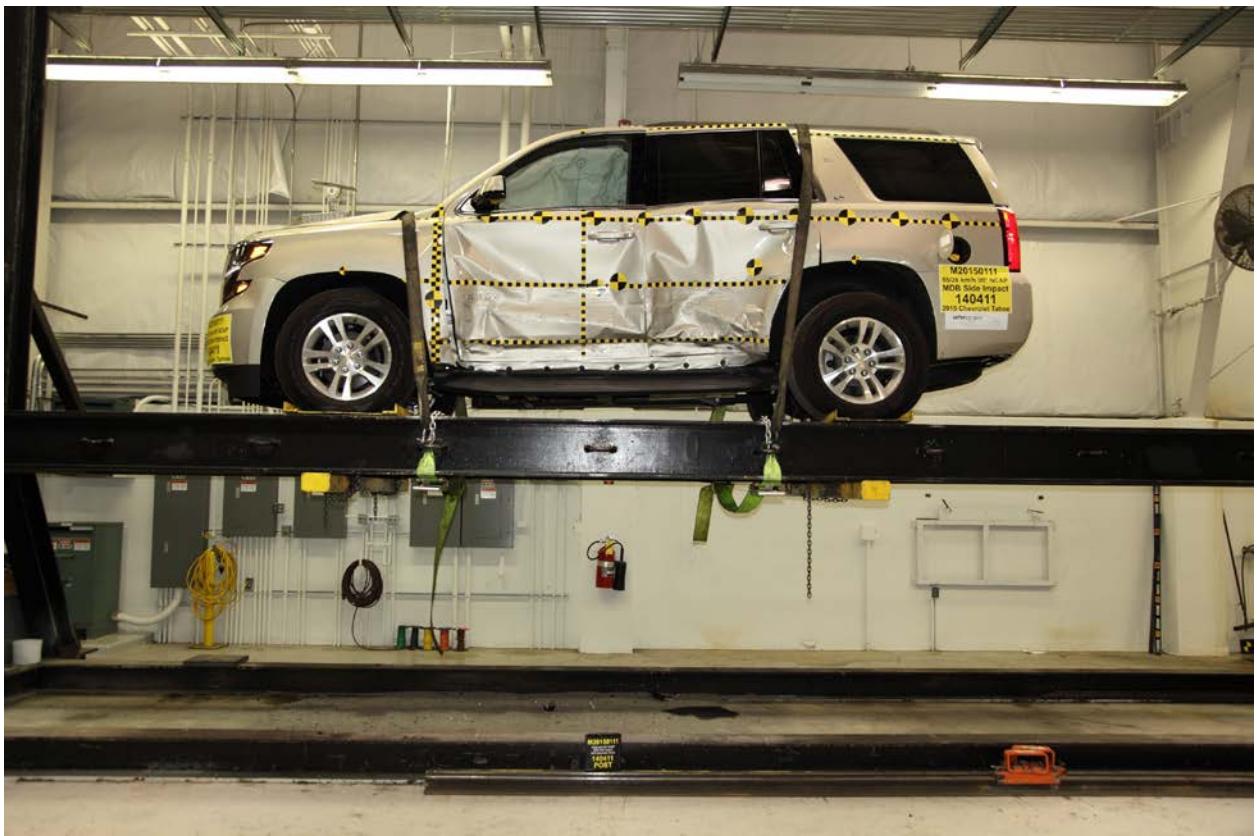
097 FMVSS No. 301 Static Rollover 90 Degrees



098 FMVSS No. 301 Static Rollover 180 Degrees



099 FMVSS No. 301 Static Rollover 270 Degrees



100 FMVSS No. 301 Static Rollover 360 Degrees



101 Impact Event

CHEVROLET

2015 TAHOE Z71 EXTENDED RANGE

EXTERIOR: CHAMPAGNE SILVER
METALLIC INTERIOR: COCOA / DUNE

ENGINE, 5.3L V8 ECOTEC3
TRANSMISSION, 6 SPD AUTOMATIC

VIN: 1GNSKCEGPR1N10606
 VIN: 1GNSKCEGPR1N10606

Visit us at www.chevy.com

TOTAL VEHICLE PRICE*	\$45,640.00
-----------------------------	--------------------

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

- 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

CONNECTIONS w/ AUTOMATIC CRASH RESPONSE & TURN-BY-TURN NAV PLUS 5-YEAR ONSTAR BASIC PLAN (ONITS SAFETY, SECURITY & RAC) (SEE ONSTAR.COM)

- 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 HEAD CURTAIN SIDE-IMPACT FOR ALL ROWS IN OUTBOARD SEAT POSITIONS

EXTENDED RANGE

- 18" ALUMINUM WHEELS
- 17" STEEL SPARE WHEEL

AUDIO SYSTEM W/ 4.2" DIAGONAL COLOR SCREEN & 112-VOLT AC POWER OUTPUT

MECHANICAL

- 5.3L V8 ECOTEC3 ENGINE
- 6 SPD AUTOMATIC TRANSMISSION
- PREMIUM RIDE SUSPENSION
- REAR AXLE 3.08 RAIO
- TRAILERING EQUIPMENT
- 4-WHEEL ANTILOCK DISC BRAKES

EXTERIOR

- RAIN SENSING WINDOWSHIELD WIPERS
- POWER HEATED OUTSIDE MIRRORS
- LUGGAGE RACK SIDE RAILS
- ASSIST STEPS
- REMOTE KEYLESS ENTRY.

INTERIOR

- CLOTH FRONT BUCKET SEATS
- 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
- TILTING STEERING COLUMN
- STEERING WHEEL CONTROLS
- BLUETOOTH FOR PHONE
- MULTI-TONE DRIVER INSTRUMENT INFO ENHANCED DISPLAY
- TRI-ZONE AUTOMATIC CLIMATE CONTROL

OPTIONS & PRICING
MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE	\$44,600.00
OPTION PROVIDED BY THE MANUFACTURER (ANY REPLACE STANDARD EQUIPMENT SHOWN)	
AUTO LOOKING REAR DIFFERENTIAL SEATS, FRONT 40/20/40 BENCH BELTLES CENTER CONSOLE AND DRIVER INBOARD SEAT MOUNTED AIRBAG DOWN FATING - 7100 LBS	295.00 -250.00 INC.
TOTAL OPTIONS	\$45.00
TOTAL VEHICLE & OPTIONS DESTINATION CHARGE	\$45,640.00 995.00

EPA DOT Fuel Economy and Environment

Fuel Economy

18 MPG

Standard SUV's range from 13 to 26 MPG. The best vehicle rates 119 MPG. Values are based on gasoline and do not reflect performance and ratings based on CDS.

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

Flexible-Fuel Vehicle Gasoline-Ethanol (E85)

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

Annual fuel cost \$2,900

This vehicle emits 481 grams CO₂ per mile. The best emits 0 grams per mile (hydrogen only). Producing and distributing fuel and creating emissions, burn more at fuel economy goes.

Smog Rating (tailpipe only)

4

Best

fueleconomy.gov

Calculate personalized estimates and compare vehicles.

OnStar

Push your blue button or visit onstar.com for details.

Equipped with the safety and connectivity of OnStar.

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: U.S.A.
ENGINE: UNITED STATES
TRANSMISSION: UNITED STATES

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

DEALER INFORMATION: SALES CODE & SALES MODEL CODE 021509
SELLER ID 1176
FINANCIAL INSTITUTION: U.S.A.
VIN 1GNSKCEGPR1N10606
DEALER TO WHOM DELIVERED: BOBBY MURRAY CHEVROLET, INC.
PO BOX 40839
RALEIGH, NC 27629-0839

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1A2041001

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GMWLS_PRCO_2015-07-07-001

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.

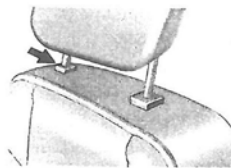
103 Driver Head Restraint Use and Adjustment Information from Vehicle Owner Manual

Second Row Seats

The vehicle's second row seats have head restraints in the outboard seating positions that cannot be adjusted.

The second row seat outboard head restraints are not removable.

Third Row Seats



The third row seat head restraint can be lowered for better visibility when the rear seat is unoccupied.

To lower the head restraint, press the button located on the top of the seatback and push the head restraint down.

Return the lowered head restraint to the upright position until it locks into place. Push and pull on the head restraint to make sure it is locked.

If you are installing a child restraint in the third row seat, see "Securing a Child Restraint Designed for the LATCH System" under *Lower Anchors and Tethers for Children (LATCH System)* on page 3-52.

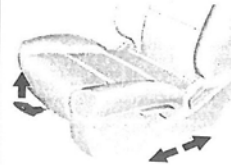
Seats and Restraints 3-3

Front Seats

Seat Adjustment

Warning

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



104 Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
1	Driver Head Acceleration (X) Primary vs. Time	B-5
2	Driver Head Acceleration (Y) Primary vs. Time	B-5
3	Driver Head Acceleration (Z) Primary vs. Time	B-5
4	Driver Head Resultant Acceleration Primary vs. Time	B-5
5	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-6
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-6
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-6
8	Driver Thorax Rib Deflection Maximum vs. Time	B-6
9	Driver Anterior Abdominal Force (Y) vs. Time	B-7
10	Driver Middle Abdominal Force (Y) vs. Time	B-7
11	Driver Posterior Abdominal Force (Y) vs. Time	B-7
12	Driver Total Abdominal Force (Y) vs. Time	B-7
13	Driver Pubic Symphysis Force (Y) vs. Time	B-8
14	Passenger Head Acceleration (X) Primary vs. Time	B-8
15	Passenger Head Acceleration (Y) Primary vs. Time	B-8
16	Passenger Head Acceleration (Z) Primary vs. Time	B-8
17	Passenger Head Resultant Acceleration Primary vs. Time	B-9
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-9
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-9
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-9
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-10
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-10
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-10
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-10

The following additional data can be obtained from the Research and Development section of the NHTSA website (<http://www.nhtsa.dot.gov>)

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

NHTSA

Test Lab: CTF

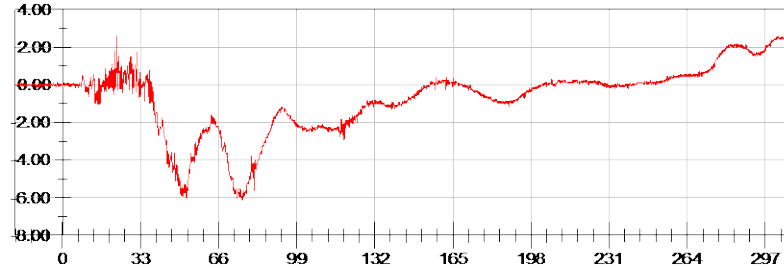
Test Number: 140411 (M20150111)

Test Date: 04/11/2014

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Driver Head Acceleration (X) Primary vs. Time (g) vs. Time [ms]



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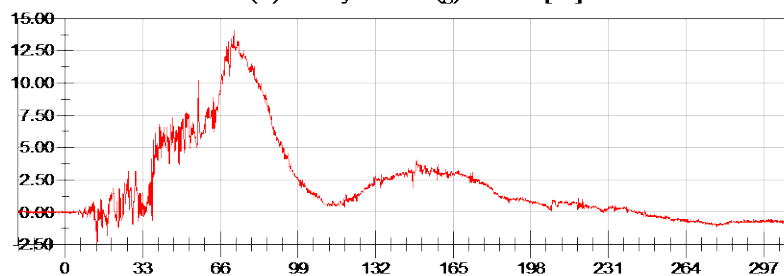
2.60 g at 22.96 ms

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-6.16 g at 76.08 ms

CFC_1000

Driver Head Acceleration (Y) Primary vs. Time (g) vs. Time [ms]



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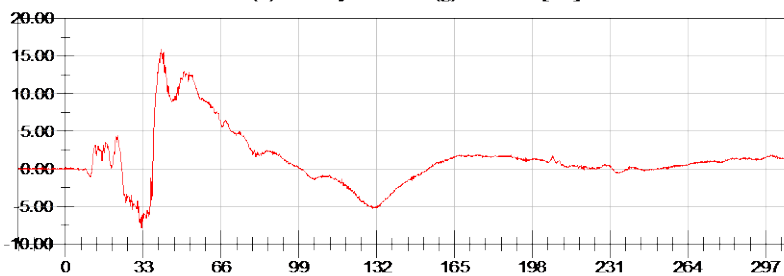
14.07 g at 71.84 ms

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-2.37 g at 13.60 ms

CFC_1000

Driver Head Acceleration (Z) Primary vs. Time (g) vs. Time [ms]



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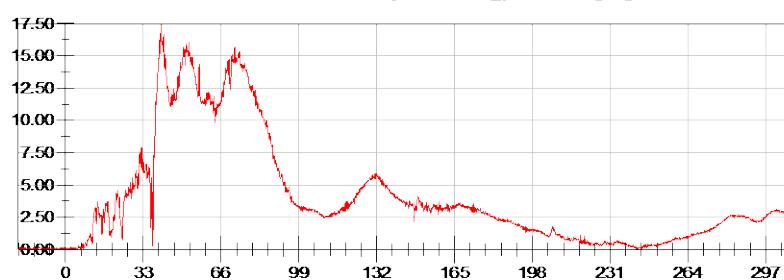
15.91 g at 40.56 ms

<Min>

-7.92 g at 32.32 ms

CFC_1000

Driver Head Resultant Acceleration Primary vs. Time (g) vs. Time [ms]



<Max>

17.44 g at 40.56 ms

<Min>

0.04 g at -19.92 ms

CFC_1000



NHTSA

Test Lab: CTF

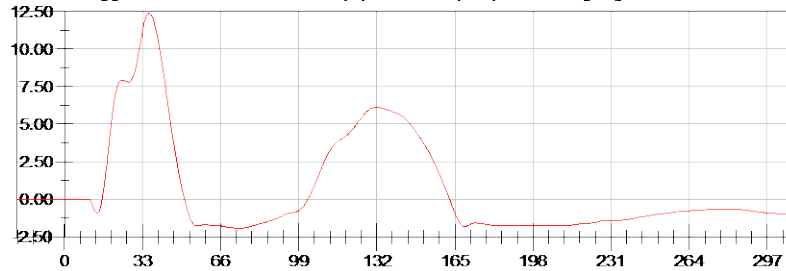
Test Number: 140411 (M20150111)

Test Date: 04/11/2014

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Driver Upper Thorax Rib Deflection (Y) vs. Time (mm) vs. Time [ms]



<Max>

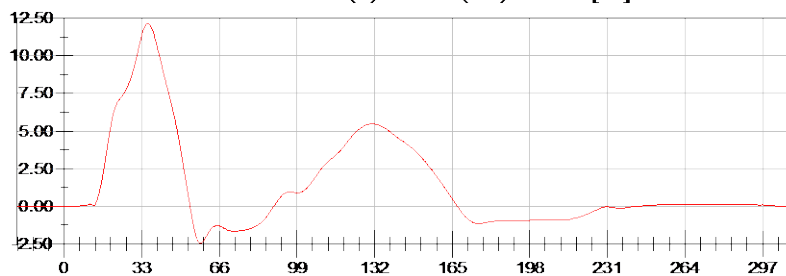
12.38 mm at 35.84 ms

<Min>

-1.94 mm at 73.84 ms

CFC_180

Driver Middle Thorax Rib Deflection (Y) vs. Time (mm) vs. Time [ms]



<Max>

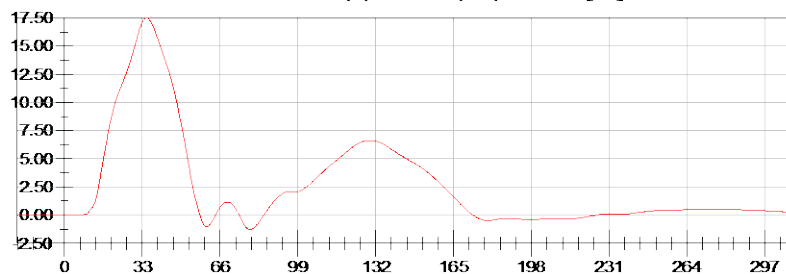
12.14 mm at 35.52 ms

<Min>

-2.45 mm at 58.08 ms

CFC_180

Driver Lower Thorax Rib Deflection (Y) vs. Time (mm) vs. Time [ms]



<Max>

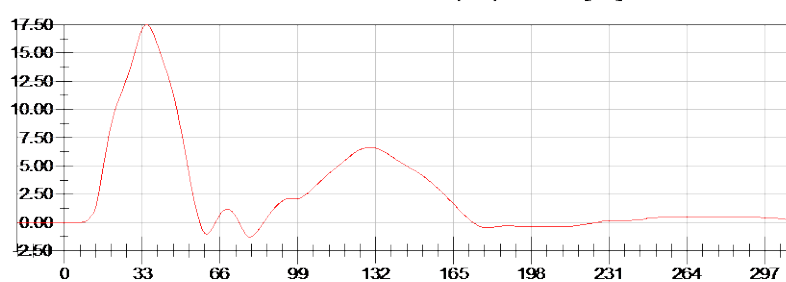
17.48 mm at 34.88 ms

<Min>

-1.29 mm at 78.72 ms

CFC_180

Driver Thorax Rib Deflection Maximum vs. Time (mm) vs. Time [ms]



<Max>

17.48 mm at 34.88 ms

<Min>

-1.29 mm at 78.72 ms

CFC_180



NHTSA

Test Lab: CTF

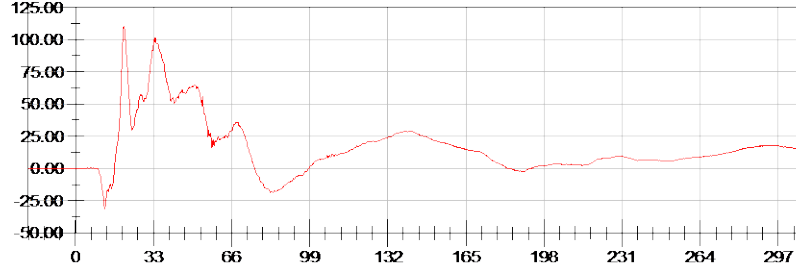
Test Number: 140411 (M20150111)

Test Date: 04/11/2014

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Driver Anterior Abdominal Force (Y) vs. Time (N) vs. Time [ms]



<Max>

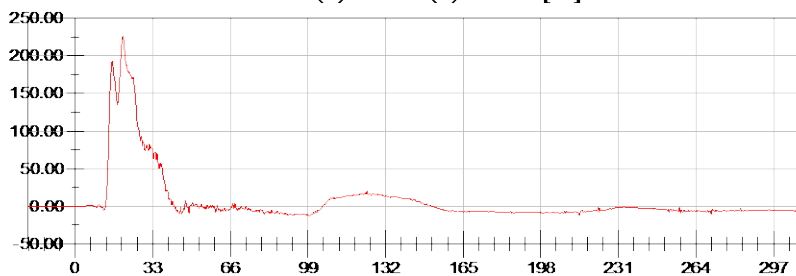
110.46 N at 20.40 ms

<Min>

-31.11 N at 12.40 ms

CFC_600

Driver Middle Abdominal Force (Y) vs. Time (N) vs. Time [ms]



<Max>

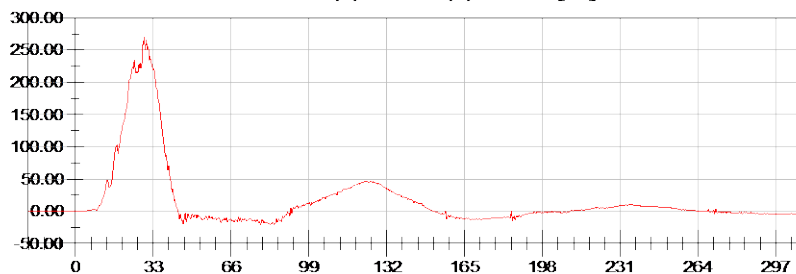
226.03 N at 20.24 ms

<Min>

-13.17 N at 99.84 ms

CFC_600

Driver Posterior Abdominal Force (Y) vs. Time (N) vs. Time [ms]



<Max>

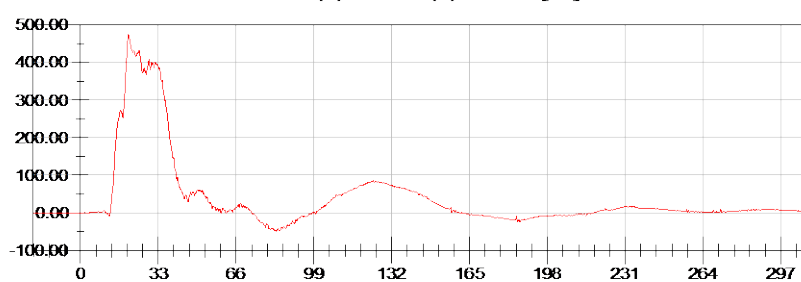
271.01 N at 29.20 ms

<Min>

-21.10 N at 78.64 ms

CFC_600

Driver Total Abdominal Force (Y) vs. Time (N) vs. Time [ms]



<Max>

473.77 N at 20.40 ms

<Min>

-48.25 N at 82.48 ms

CFC_600



NHTSA

Test Lab: CTF

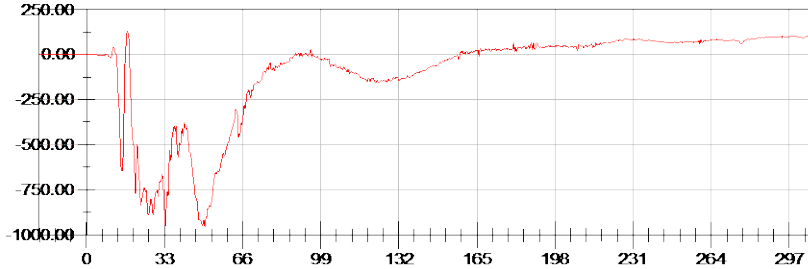
Test Number: 140411 (M20150111)

Test Date: 04/11/2014

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Driver Pubic Symphysis Force (Y) vs. Time (N) vs. Time [ms]



<Max>

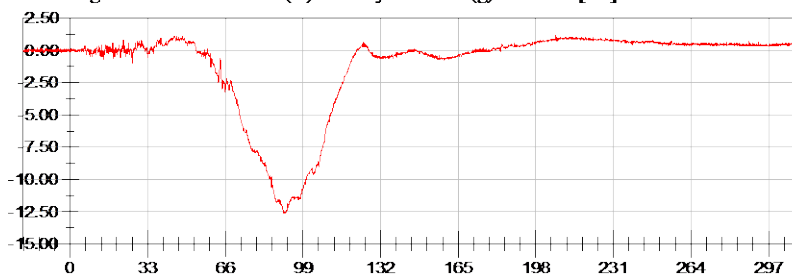
127.02 N at 17.20 ms

<Min>

-950.87 N at 50.08 ms

CFC_600

Passenger Head Acceleration (X) Primary vs. Time (g) vs. Time [ms]



<Max>

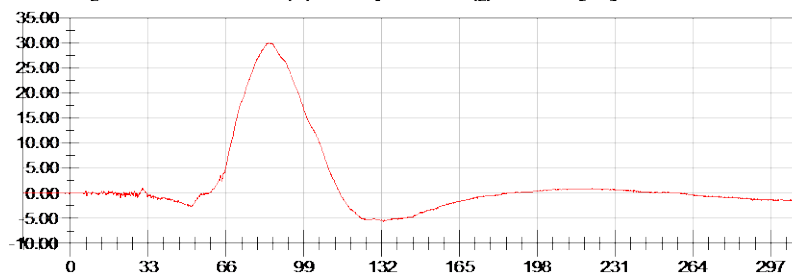
1.14 g at 206.48 ms

<Min>

-12.68 g at 90.88 ms

CFC_1000

Passenger Head Acceleration (Y) Primary vs. Time (g) vs. Time [ms]



<Max>

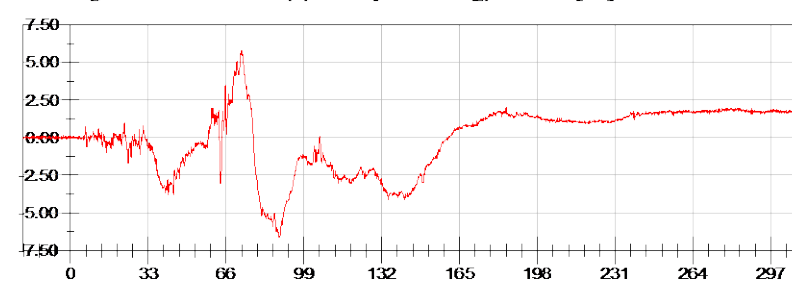
30.04 g at 85.12 ms

<Min>

-5.62 g at 132.80 ms

CFC_1000

Passenger Head Acceleration (Z) Primary vs. Time (g) vs. Time [ms]



<Max>

5.82 g at 72.64 ms

<Min>

-6.62 g at 88.48 ms

CFC_1000



NHTSA

Test Lab: CTF

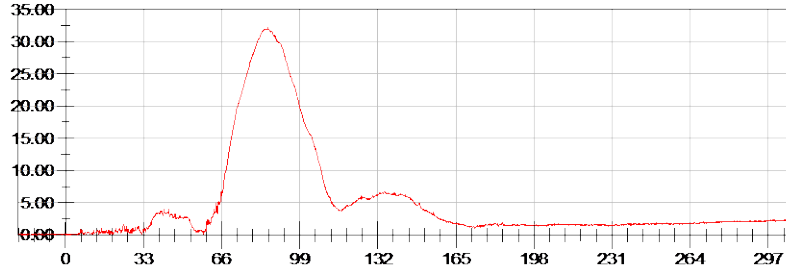
Test Number: 140411 (M20150111)

Test Date: 04/11/2014

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Passenger Head Resultant Acceleration Primary vs. Time (g) vs. Time [ms]



<Max>

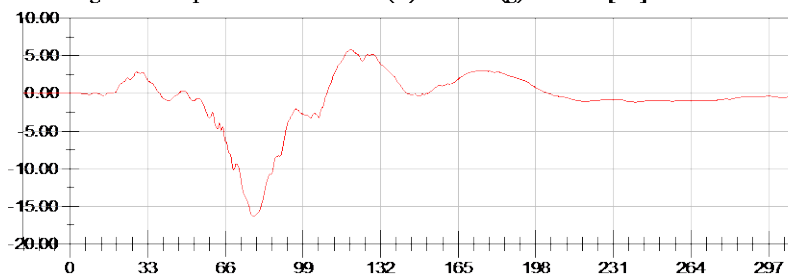
32.15 g at 85.52 ms

<Min>

0.03 g at -13.84 ms

CFC_1000

Passenger Lower Spine T12 Acceleration (X) vs. Time (g) vs. Time [ms]



<Max>

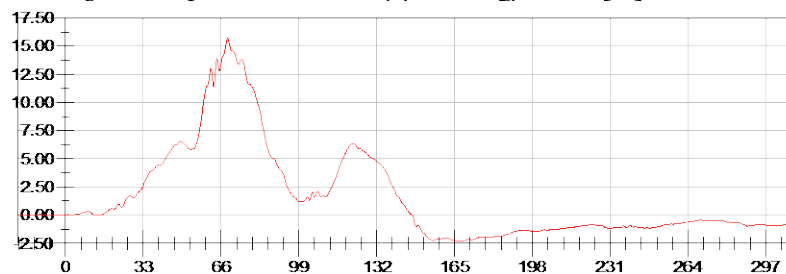
5.78 g at 119.28 ms

<Min>

-16.30 g at 77.52 ms

CFC_180

Passenger Lower Spine T12 Acceleration (Y) vs. Time (g) vs. Time [ms]



<Max>

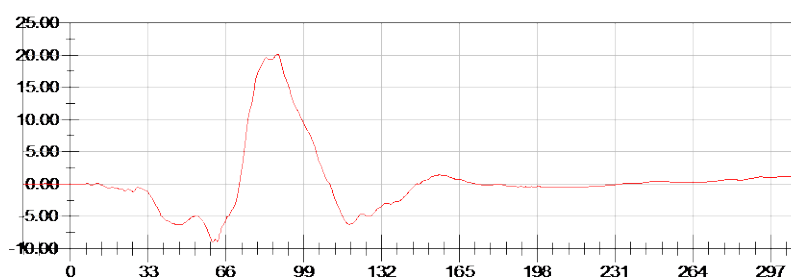
15.67 g at 68.88 ms

<Min>

-2.33 g at 167.28 ms

CFC_180

Passenger Lower Spine T12 Acceleration (Z) vs. Time (g) vs. Time [ms]



<Max>

20.13 g at 87.92 ms

<Min>

-9.02 g at 60.48 ms

CFC_180



NHTSA

Test Lab: CTF

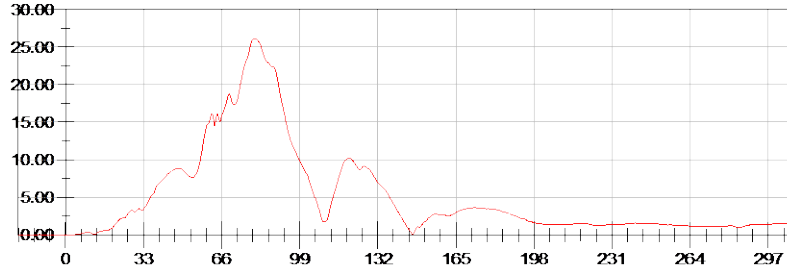
Test Number: 140411 (M20150111)

Test Date: 04/11/2014

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Passenger Lower Spine T12 Resultant Acceleration vs. Time (g) vs. Time [ms]



<Max>

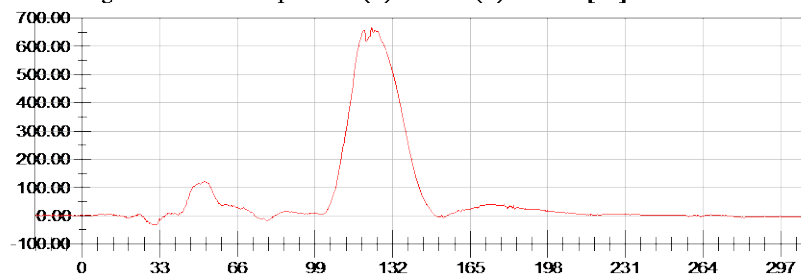
26.11 g at 80.16 ms

<Min>

0.00 g at -16.64 ms

CFC_180

Passenger Iliac Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

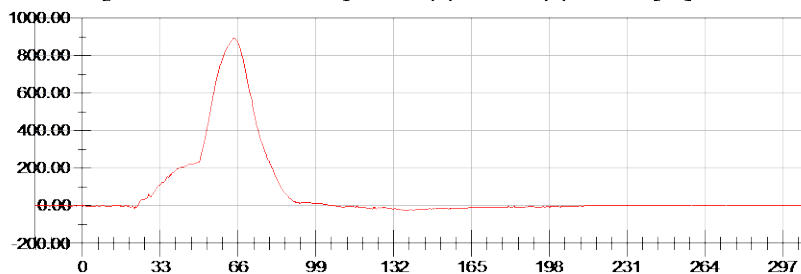
665.76 N at 123.04 ms

<Min>

-32.91 N at 30.32 ms

CFC_600

Passenger Acetabulum Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

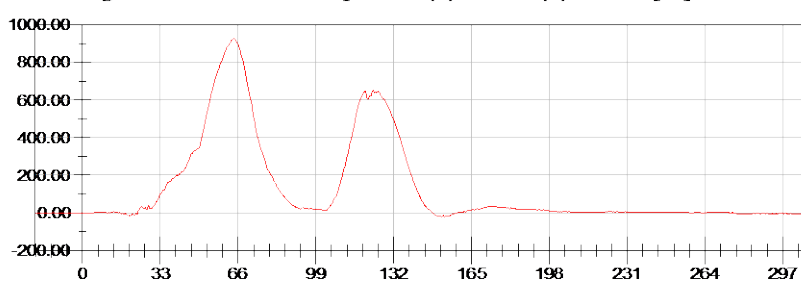
893.17 N at 64.16 ms

<Min>

-22.54 N at 140.56 ms

CFC_600

Passenger Total Pelvic Force on Impact Side (Y) vs. Time (N) vs. Time [ms]



<Max>

927.07 N at 64.40 ms

<Min>

-20.47 N at 153.60 ms

CFC_600



APPENDIX C
DUMMY PERFORMANCE CALIBRATION TEST DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

ES-2re (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 Neck Pendulum Test

Pendulum Velocity (m/s) vs. Time (ms)
Flexion Angle (°) vs. Time (ms)
Potentiometer A (°) vs. Time (ms)
Potentiometer B (°) vs. Time (ms)
Potentiometer C (°) vs. Time (ms)

Table 4. Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)

Table 5. Thorax – Upper Rib Drop Test

Upper Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
Upper Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 6. Thorax – Middle Rib Drop Test

Middle Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
Middle Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 7. Thorax – Lower Rib Drop Test

Lower Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
Lower Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 8. Thorax – Full Body Impact Test

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

Table 9. Abdomen Impact Test

Impactor Force (kN) vs. Time (ms)
Total Abdomen Force (kN) vs. Time (ms)
Front Abdomen Force (kN) vs. Time (ms)
Middle Abdomen Force (kN) vs. Time (ms)
Rear Abdomen Force (kN) vs. Time (ms)

Table 10. Lumbar Spine Flexion Test

Pendulum Velocity (m/s) vs. Time (ms)
Spine Flexion Angle (°) vs. Time (ms)
Potentiometer A (°) vs. Time (ms)
Potentiometer B (°) vs. Time (ms)
Potentiometer C (°) vs. Time (ms)

Table 11. Pelvis Impact Test

Pendulum Acceleration (G's) vs. Time (ms)
Impactor Force (kN) vs. Time (ms)
Pubic Symphysis (Y) Force (kN) vs. Time (ms)

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

SID-IIs (Rear Passenger) 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

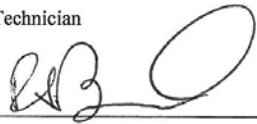
Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Iliac Force (N) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N F030

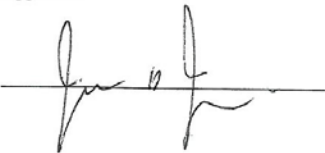
Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 25
03/3/14

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	910	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	560	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	350	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	98	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	444	Yes
6	Head Width	152.0 - 158.0	155	Yes
7	Shoulder/Arm Width	461.0 - 479.0	471	Yes
8	Thorax Width	322.0 - 332.0	325	Yes
9	Abdomen Width	273.0 - 287.0	281	Yes
10	Pelvis Lap Width	359.0 - 373.0	366	Yes
11	Head Depth	196.0 - 206.0	200	Yes
12	Thorax Depth	262.0 - 272.0	266	Yes
13	Abdomen Depth	194.0 - 204.0	200	Yes
14	Pelvis Depth	235.0 - 245.0	240	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	158	Yes
16	Back of Buttocks to Front of Knee	597.0 - 615.0	606	Yes

Technician



Approved



Baseline 10/07/05



Transportation Research Center Inc.

Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 25-2
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	29 %	Yes
Peak Resultant Acceleration	125 - 155 g	144.1 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	7.1 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician


Approved


Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 08:01:30 359

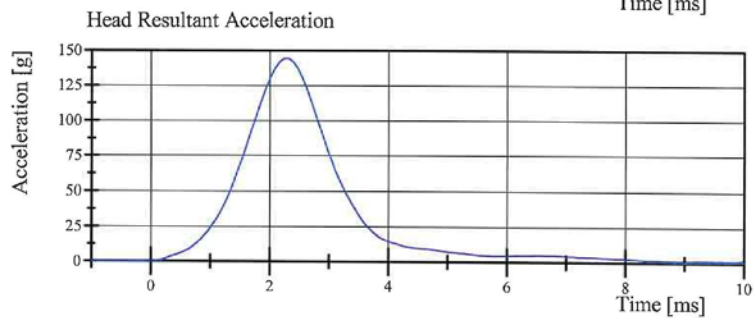
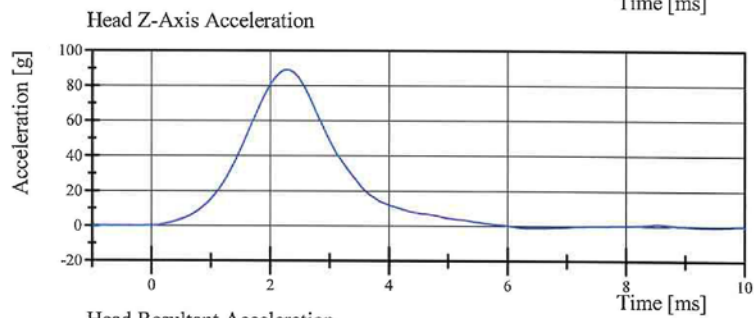
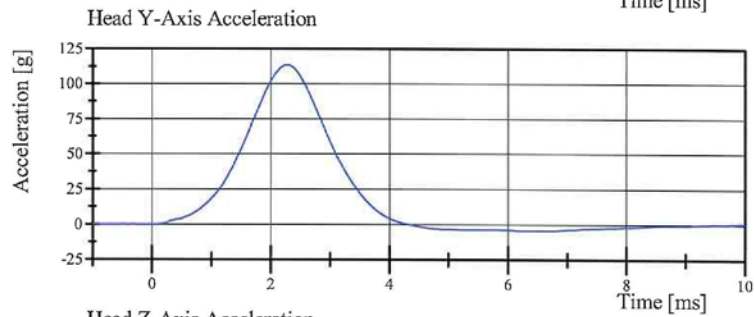
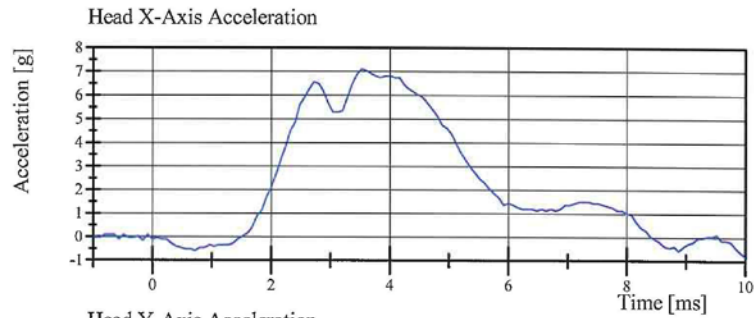


Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 25-2

Test Date: 3/3/2014



Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 08:01:39 359



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 25-1

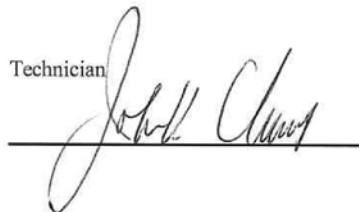
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.36 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-52.6 deg	Yes
Time of Peak	54 - 66 ms	57.7 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	65.0 ms	Yes

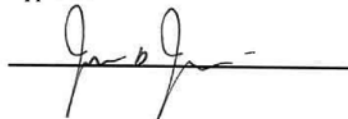
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 10:45:28 1310

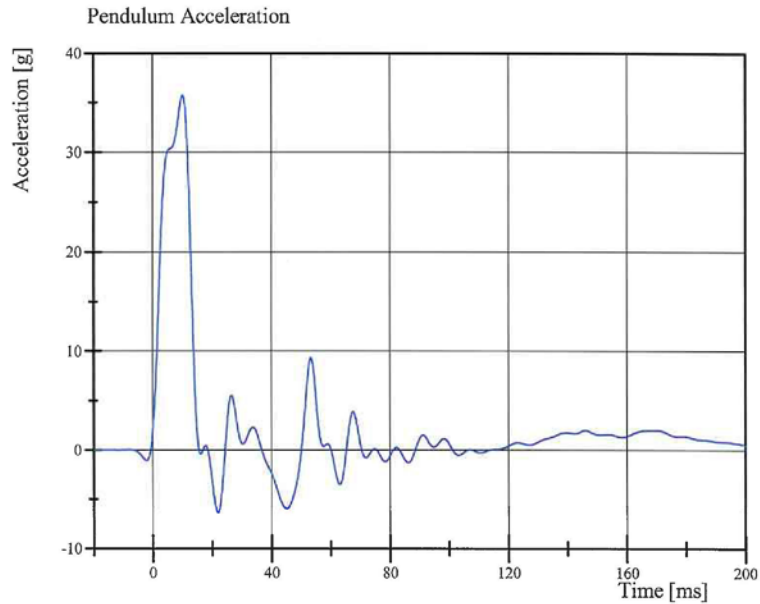


Transportation Research Center Inc.

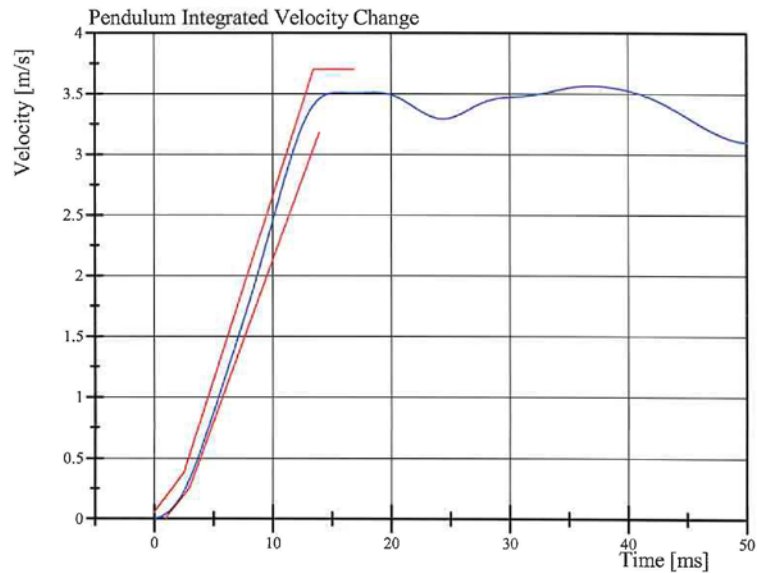
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 25-1

Test Date: 3/3/2014



Filter Class: CFC_60
Max: 35.7 g at 10.1 ms
Min: -6.4 g at 21.9 ms



Filter Class: CFC_60
Max: 3.6 m/s at 36.7 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 10:45:35 1310

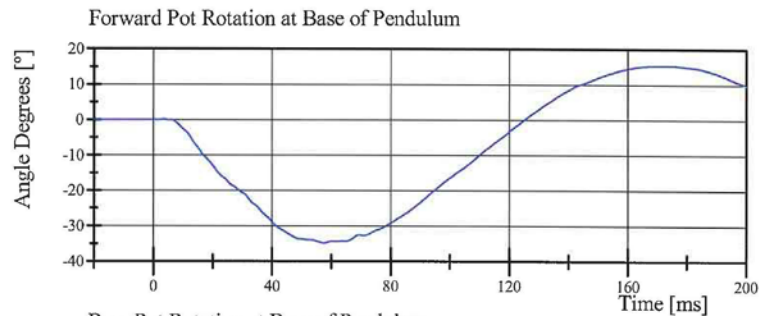


Transportation Research Center Inc.

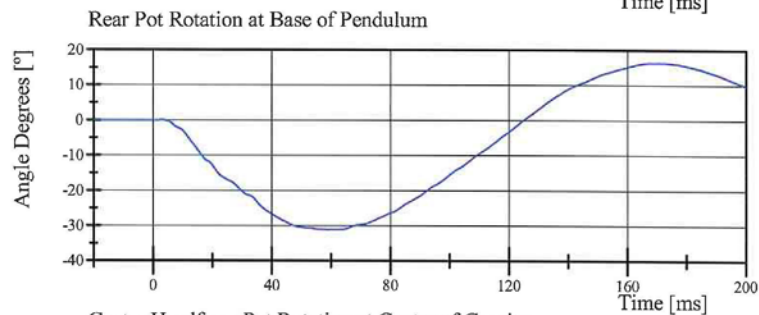
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 25-1

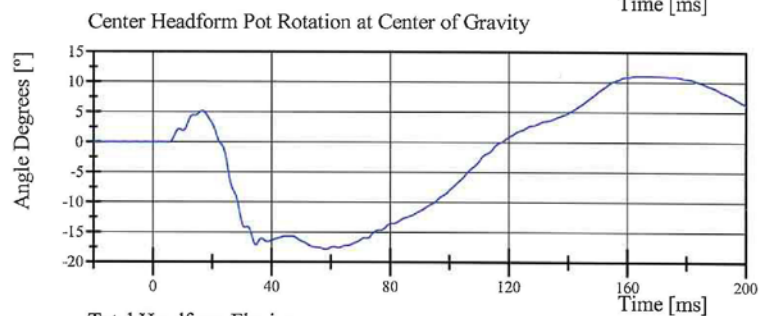
Test Date: 3/3/2014



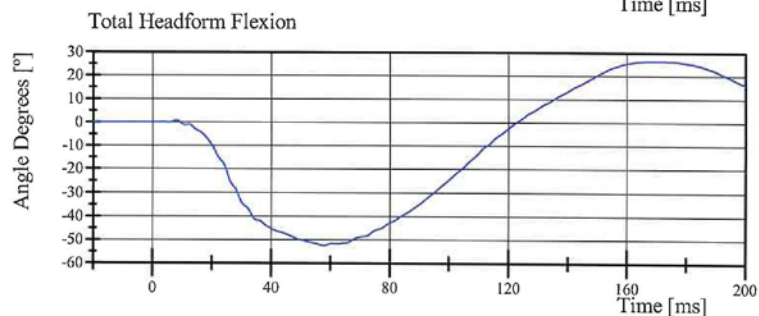
Filter Class: CFC_180
Max: 15.3 ° at 170.2 ms
Min: -34.8 ° at 57.4 ms



Filter Class: CFC_180
Max: 16.4 ° at 170.4 ms
Min: -31.2 ° at 59.0 ms



Filter Class: CFC_180
Max: 11.0 ° at 163.6 ms
Min: -17.9 ° at 58.2 ms



Filter Class: CFC_180
Max: 26.2 ° at 169.5 ms
Min: -52.6 ° at 57.7 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 10:45:36 1310



Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 25-1

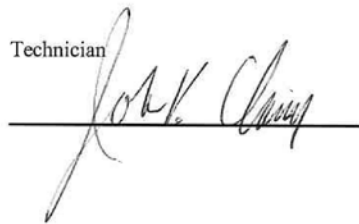
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.34 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-10.11 g	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA final rule 8/15/2008

03.03.2014 14:15:09 557

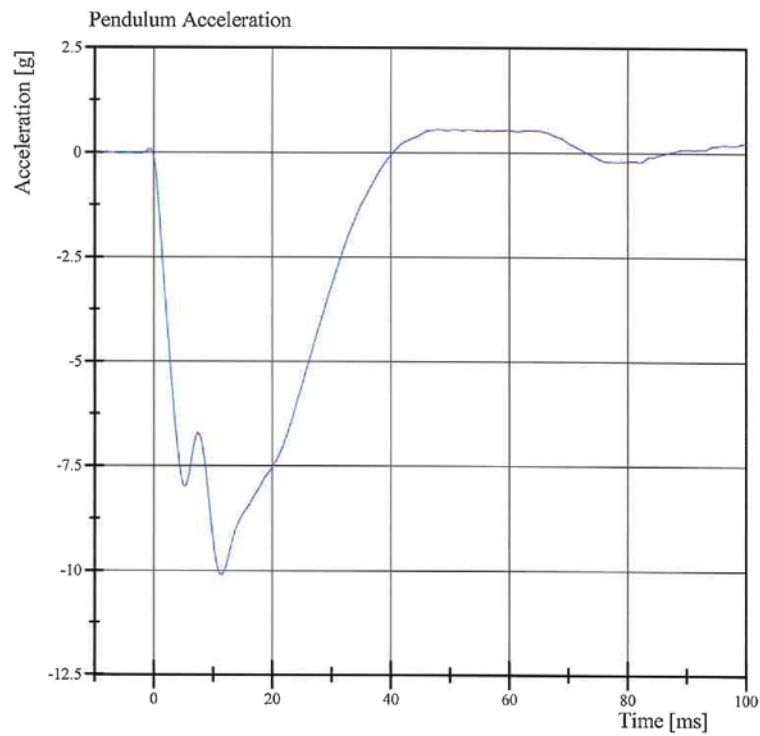


Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 25-1

Test Date: 3/3/2014



Filter Class: CFC_180
Max: 0.6 g at 50.9 ms
Min: -10.1 g at 11.4 ms

Specification Source: NHTSA final rule 8/15/2008

03.03.2014 14:15:18 557



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	49.0 mm	Yes

Test meets specifications.

Comments:

Drop Height: 816

Technician



Specification Source: NHTSA Final Rule 8/15/2008

Approved

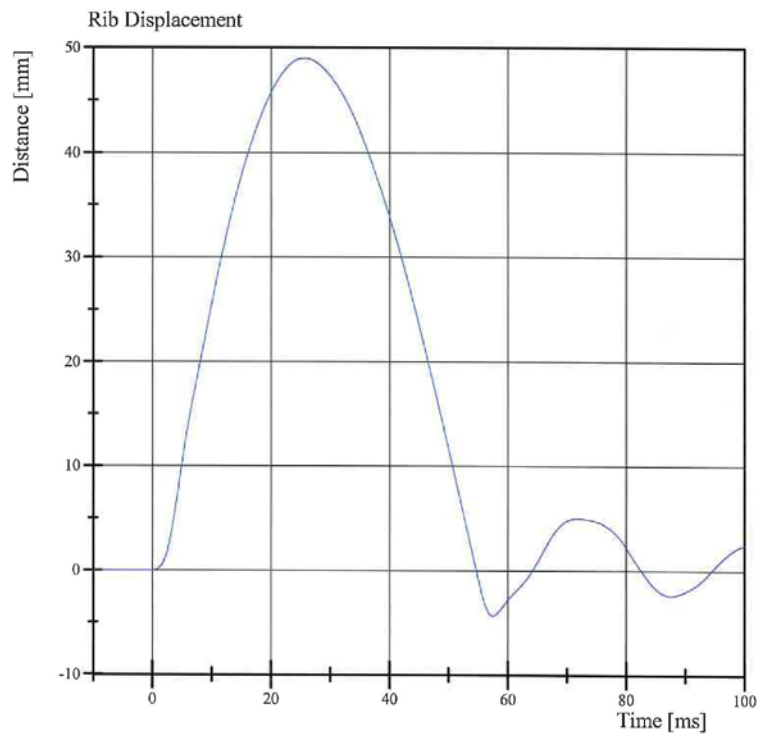


03.03.2014 11:12:15 721



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014



Filter Class: CFC_180
Max: 49.0 mm at 25.6 ms
Min: -4.4 mm at 57.4 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:12:29 721



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.2 mm	Yes

Test meets specifications.

Comments:

Drop Height: 462

Technician



Approved



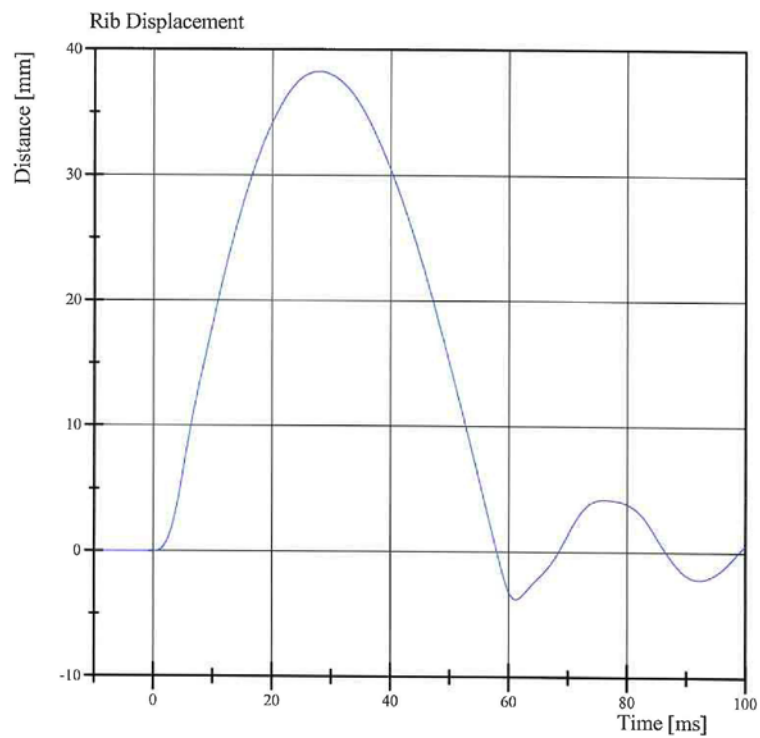
Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:19:44 908



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014



Filter Class: CFC_180
Max: 38.2 mm at 27.9 ms
Min: -3.8 mm at 61.2 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:20:10 908



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.2 mm	Yes

Test meets specifications.

Comments:

Drop Height: 816

Technician



Specification Source: NHTSA Final Rule 8/15/2008

Approved

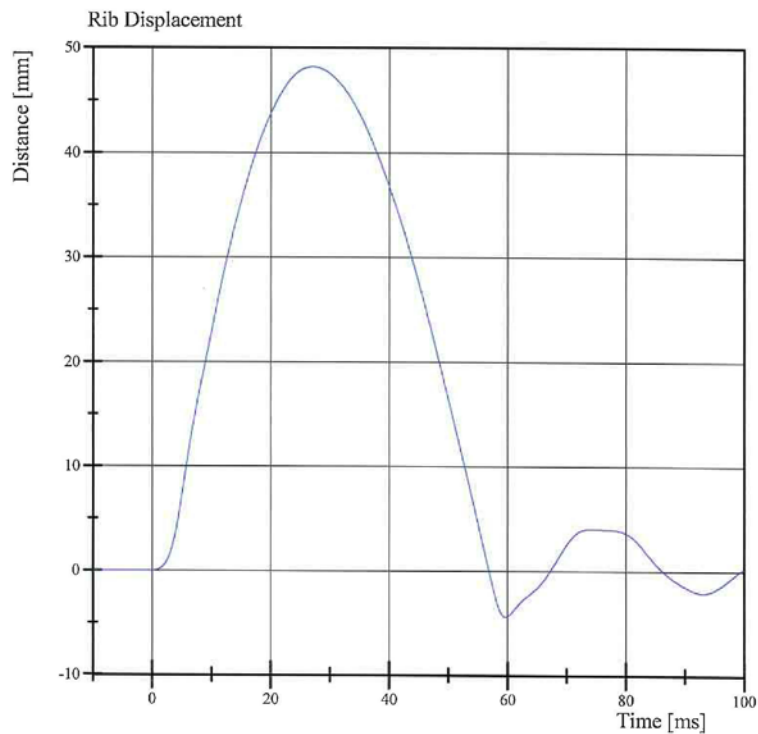


03.03.2014 11:28:02 711



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014



Filter Class: CFC_180
Max: 48.2 mm at 27.0 ms
Min: -4.4 mm at 59.6 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:28:14 711



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.0 mm	Yes

Test meets specifications.

Comments:

Drop Height: 462

Technician



Approved



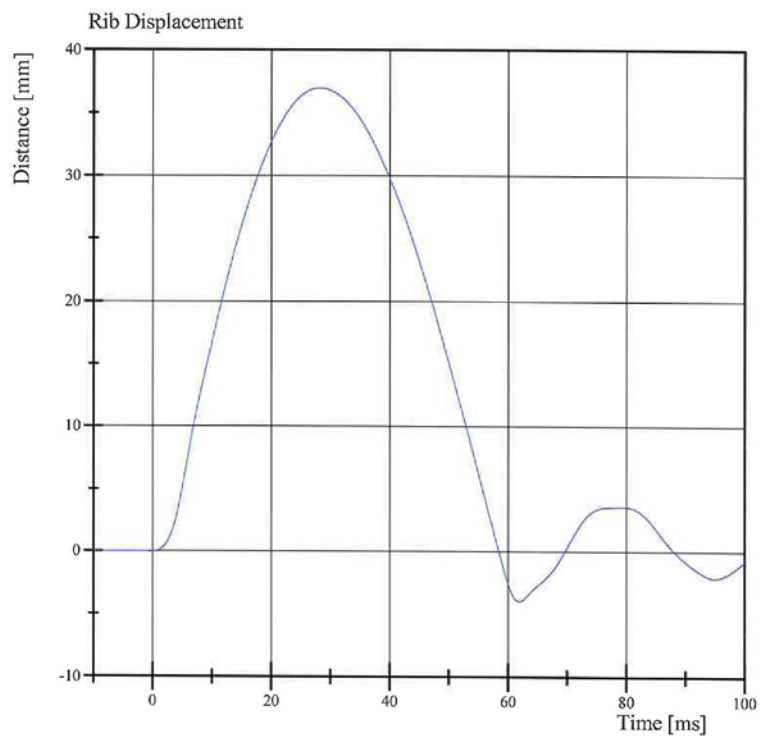
Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:33:20 906



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014



Filter Class: CFC_180
Max: 37.0 mm at 28.2 ms
Min: -4.0 mm at 61.9 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:33:33 906



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 25-1

Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	29 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	47.9 mm	Yes

Test meets specifications.

Comments:

Drop Height: 816

Technician



Approved



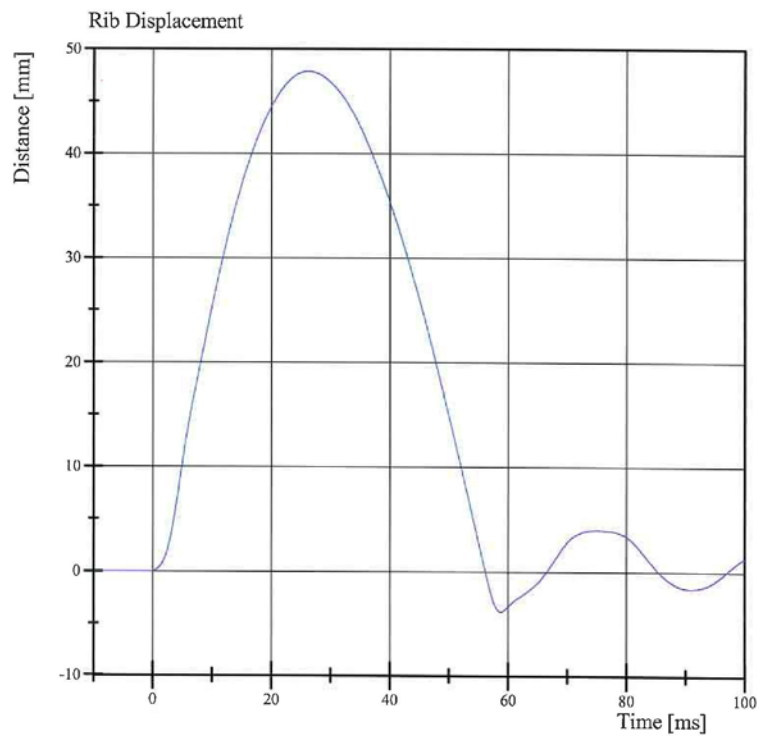
Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:40:57 726



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014



Filter Class: CFC_180
Max: 47.9 mm at 26.2 ms
Min: -3.9 mm at 58.7 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:41:10 726



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014

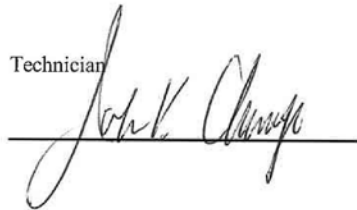
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	36.8 mm	Yes

Test meets specifications.

Comments:

Drop Height: 462

Technician



Approved



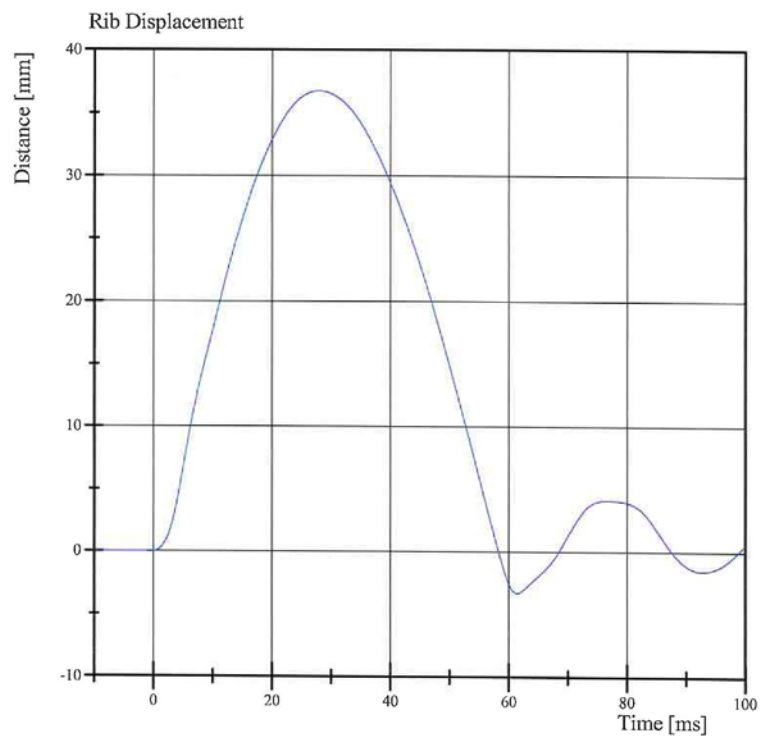
Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:47:23 913



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014



Filter Class: CFC_180
Max: 36.8 mm at 27.9 ms
Min: -3.3 mm at 61.4 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 11:47:36 913



Transportation Research Center Inc.

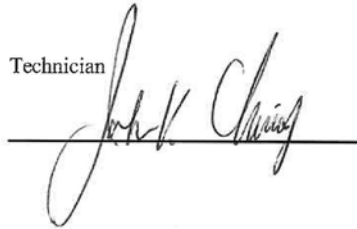
Left Lateral Thorax
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.510 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,437.2 N	Yes
Upper Rib Displacement	34 - 41 mm	38.1 mm	Yes
Center Rib Displacement	37 - 45 mm	41.2 mm	Yes
Lower Rib Displacement	37 - 44 mm	41.5 mm	Yes

Test meets specifications.

Comments:

Technician



Approved



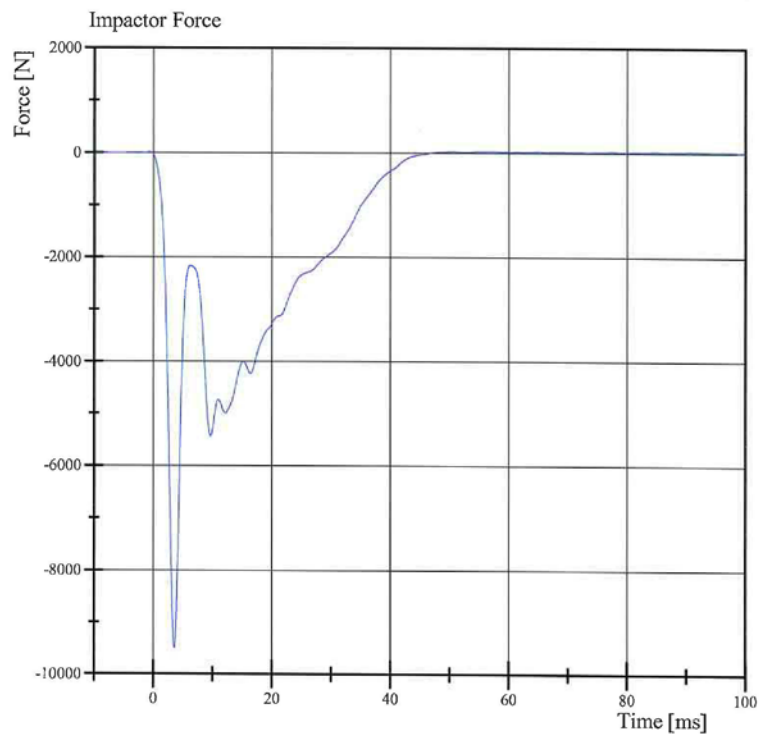
Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

03.03.2014 15:00:51 447



Transportation Research Center Inc.

Left Lateral Thorax
ES-2re Serial No. F030 Certification No. 25-1
Test Date: 3/3/2014



Filter Class: CFC_180
Max: 29.6 N at 50.5 ms
Min: -9,501.5 N at 3.6 ms

Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

03.03.2014 15:01:04 447

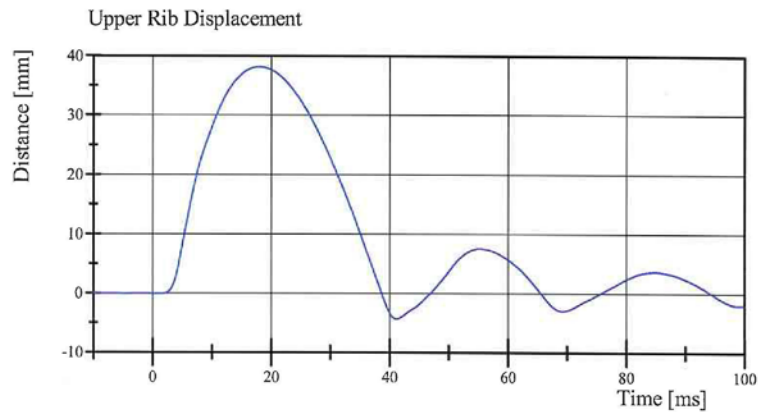


Transportation Research Center Inc.

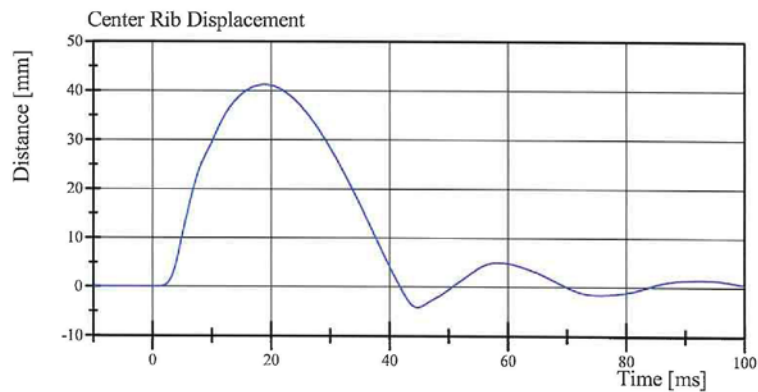
Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 25-1

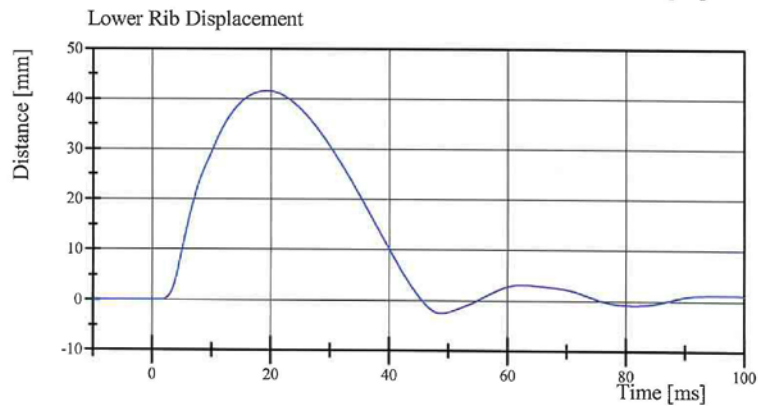
Test Date: 3/3/2014



Filter Class: CFC_180
Max: 38.1 mm at 18.0 ms
Min: -4.3 mm at 41.1 ms



Filter Class: CFC_180
Max: 41.2 mm at 19.0 ms
Min: -4.2 mm at 44.7 ms



Filter Class: CFC_180
Max: 41.5 mm at 19.3 ms
Min: -2.6 mm at 48.8 ms

Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

03.03.2014 15:01:05 447



Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 25-1

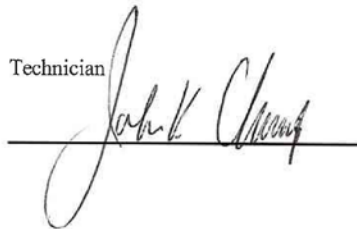
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.063 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-45.8 deg	Yes
Time of Peak	39 - 53 ms	42.5 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	37.9 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 10:19:52 576

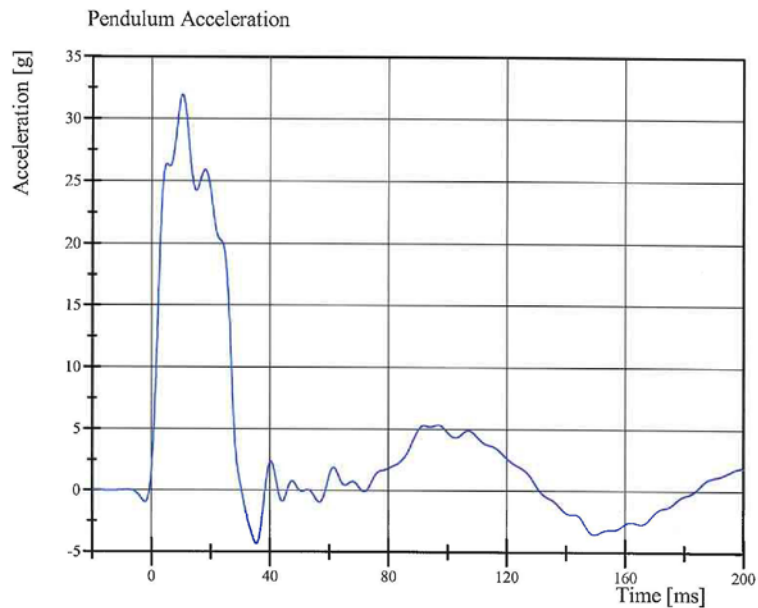


Transportation Research Center Inc.

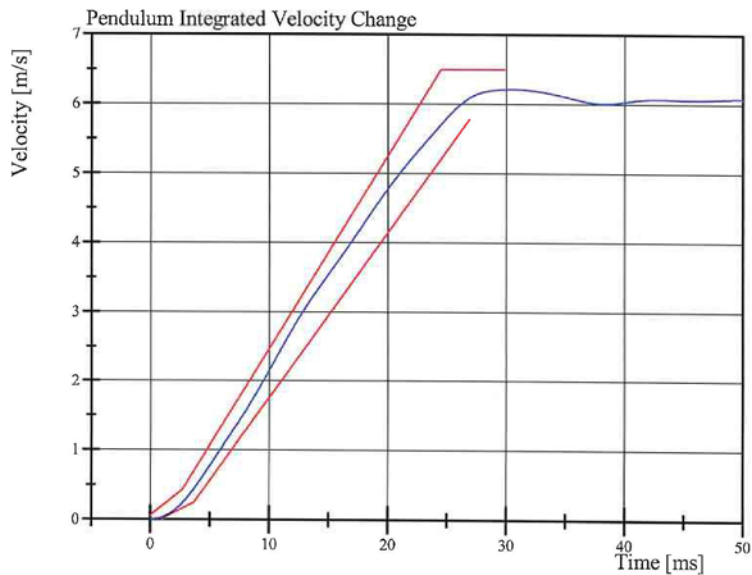
Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 25-1

Test Date: 3/3/2014



Filter Class: CFC_60
Max: 31.9 g at 10.4 ms
Min: -4.3 g at 35.4 ms



Filter Class: CFC_60
Max: 6.2 m/s at 30.4 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 10:20:02 576

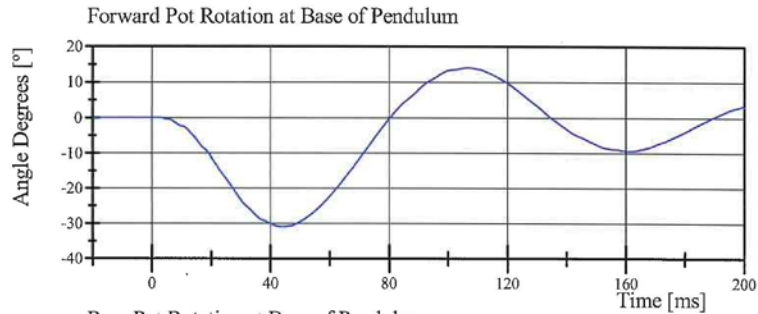


Transportation Research Center Inc.

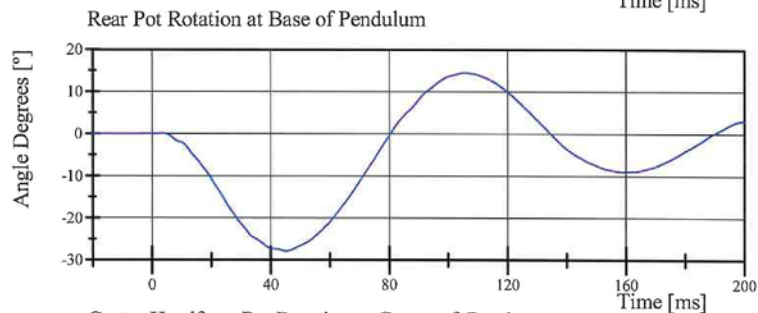
Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 25-1

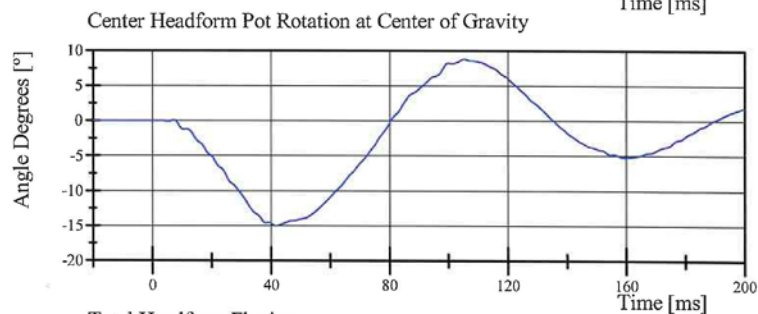
Test Date: 3/3/2014



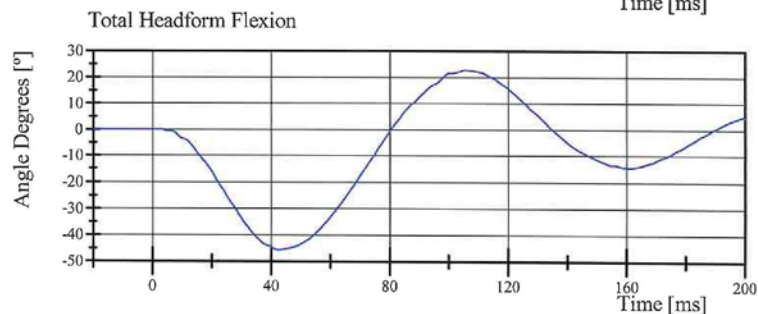
Filter Class: CFC_180
Max: 14.0 ° at 106.5 ms
Min: -30.9 ° at 43.0 ms



Filter Class: CFC_180
Max: 14.5 ° at 105.4 ms
Min: -27.9 ° at 45.0 ms



Filter Class: CFC_180
Max: 8.8 ° at 105.1 ms
Min: -15.0 ° at 41.7 ms



Filter Class: CFC_180
Max: 22.7 ° at 105.6 ms
Min: -45.8 ° at 42.5 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 10:20:03 576



Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 25-2
Test Date: 4/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	3.93 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,394.6 N	Yes
Time of Peak	10.6 - 13.0 ms	11.36 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,556.8 N	Yes
Time of Peak	10.0 - 12.3 ms	11.36 ms	Yes

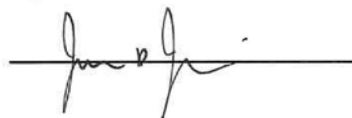
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

04.03.2014 15:56:46 572

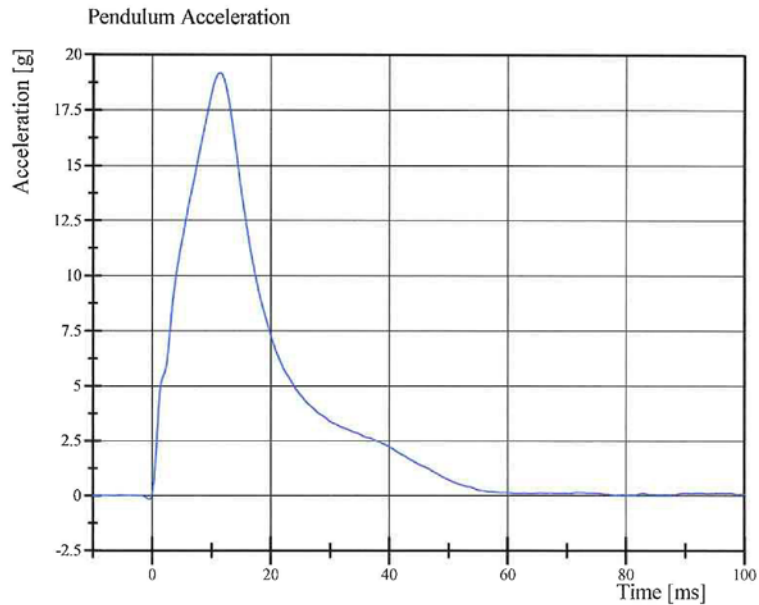


Transportation Research Center Inc.

Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 25-2

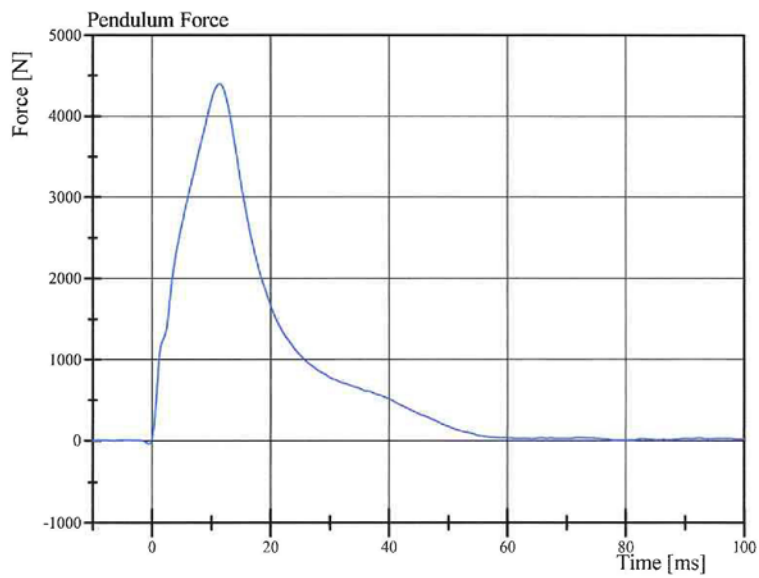
Test Date: 4/3/2014



Filter Class: CFC_180

Max: 19.2 g at 11.4 ms

Min: -0.2 g at -0.6 ms



Filter Class: CFC_180

Max: 4,394.6 N at 11.4 ms

Min: -38.2 N at -0.6 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.03.2014 15:56:52 572

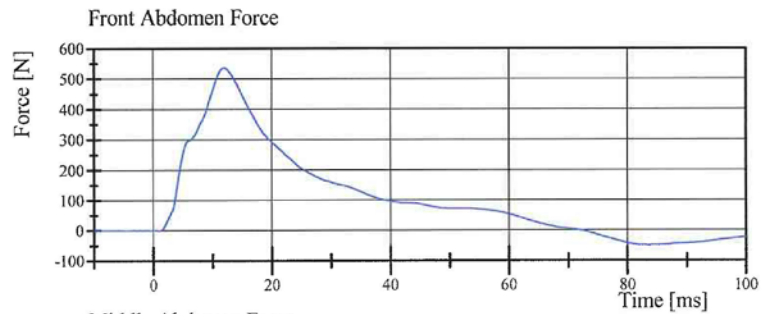


Transportation Research Center Inc.

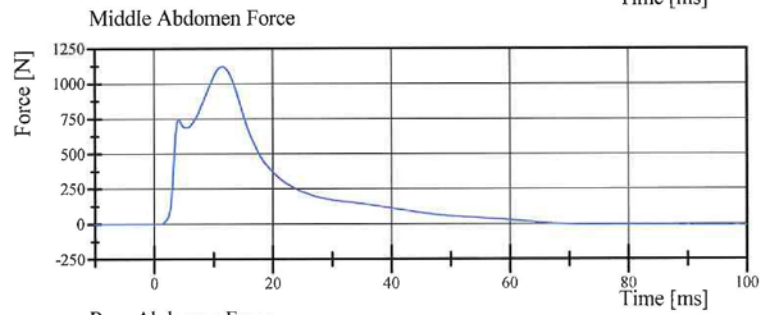
Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 25-2

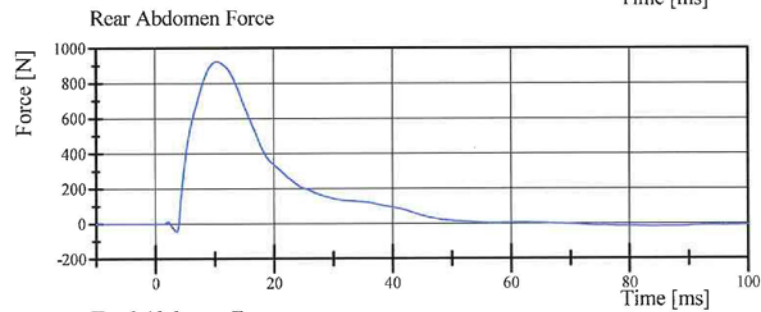
Test Date: 4/3/2014



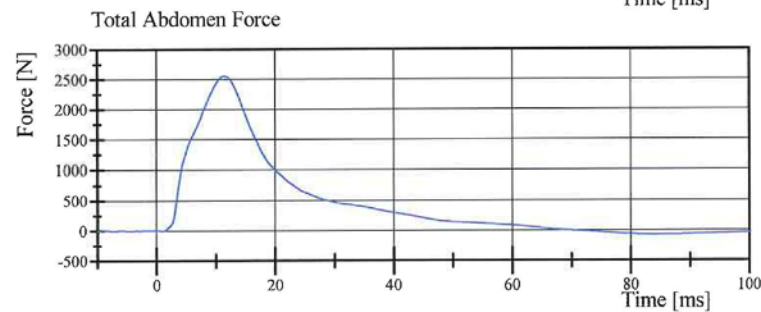
Filter Class: CFC_600
Max: 536.2 N at 12.0 ms
Min: -49.2 N at 83.6 ms



Filter Class: CFC_600
Max: 1,121.2 N at 11.4 ms
Min: -6.4 N at 93.4 ms



Filter Class: CFC_600
Max: 921.3 N at 10.4 ms
Min: -44.2 N at 3.6 ms



Filter Class: CFC_600
Max: 2,556.8 N at 11.4 ms
Min: -70.8 N at 83.7 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.03.2014 15:56:53 572



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 25-1

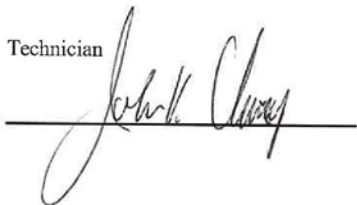
Test Date: 3/3/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,171.5 N	Yes
Time of Peak	11.8 - 16.1 ms	12.96 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,280.8 N	Yes
Time of Peak	12.2 - 17.0 ms	14.08 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 15:42:29 544

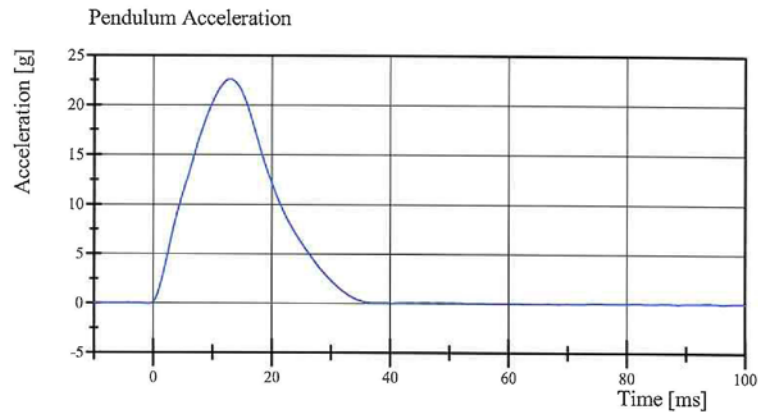


Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 25-1

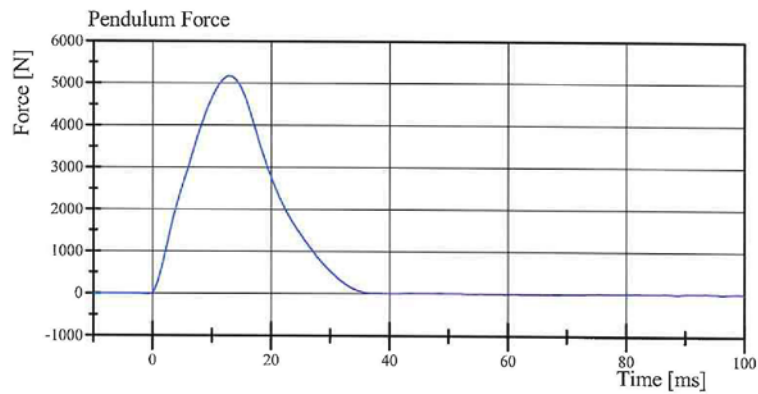
Test Date: 3/3/2014



Filter Class: CFC_180

Max: 22.6 g at 13.0 ms

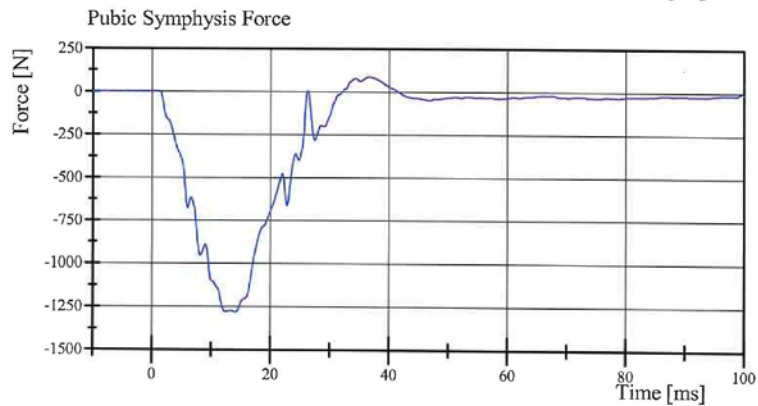
Min: -0.1 g at 68.5 ms



Filter Class: CFC_180

Max: 5,171.5 N at 13.0 ms

Min: -16.8 N at 68.5 ms



Filter Class: CFC_600

Max: 84.5 N at 36.7 ms

Min: -1,280.8 N at 14.1 ms

Specification Source: NHTSA Final Rule 8/15/2008

03.03.2014 15:42:39 544



Driver S/N F030

Post-Test Calibration Sheets

Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 26
04/14/14

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	909	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	560	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	350	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	98	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	443	Yes
6	Head Width	152.0 - 158.0	155	Yes
7	Shoulder/Arm Width	461.0 - 479.0	470	Yes
8	Thorax Width	322.0 - 332.0	325	Yes
9	Abdomen Width	273.0 - 287.0	282	Yes
10	Pelvis Lap Width	359.0 - 373.0	366	Yes
11	Head Depth	196.0 - 206.0	200	Yes
12	Thorax Depth	262.0 - 272.0	267	Yes
13	Abdomen Depth	194.0 - 204.0	199	Yes
14	Pelvis Depth	235.0 - 245.0	240	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	158	Yes
16	Back of Buttocks to Front of Knee	597.0 - 615.0	606	Yes

Technician



Approved



Baseline 10/07/05



Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Peak Resultant Acceleration	125 - 155 g	151.3 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	-8.5 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

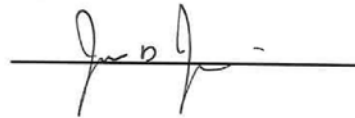
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 08:41:11 360

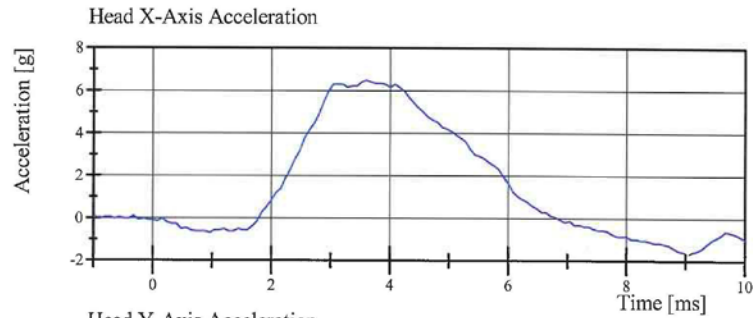


Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 26-1

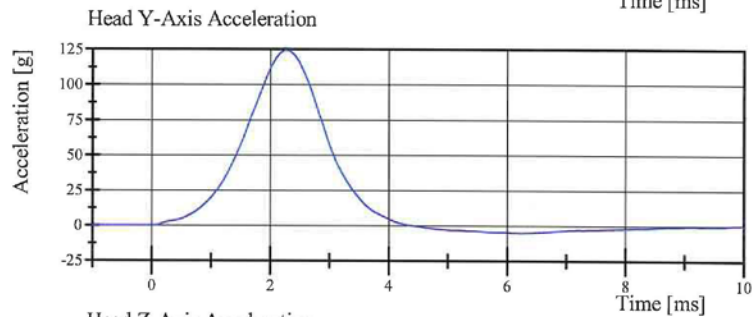
Test Date: 4/14/2014



Filter Class: CFC_1000

Max: 6.5 g at 3.6 ms

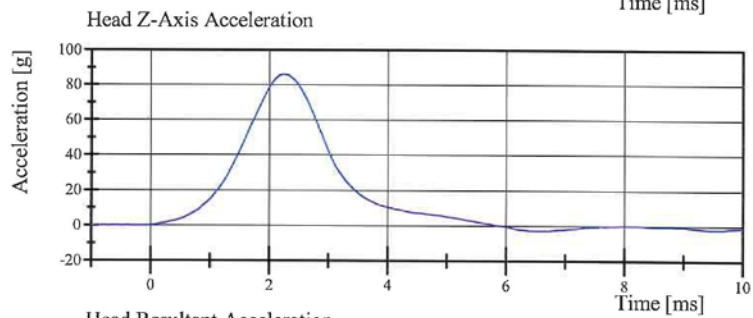
Min: -1.7 g at 9.0 ms



Filter Class: CFC_1000

Max: 124.4 g at 2.2 ms

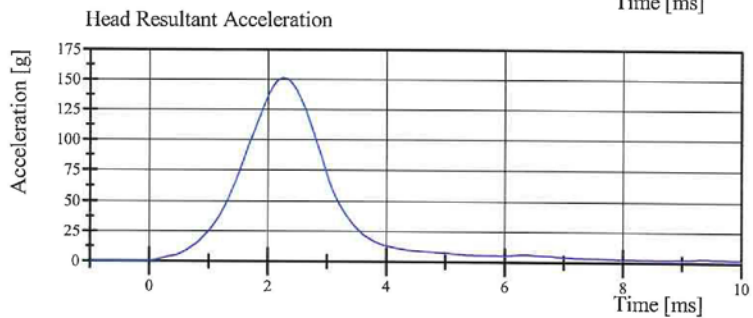
Min: -5.3 g at 6.2 ms



Filter Class: CFC_1000

Max: 86.1 g at 2.2 ms

Min: -2.8 g at 6.5 ms



Filter Class: CFC_1000

Max: 151.3 g at 2.2 ms

Min: 0.0 g at -0.5 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 08:41:28 360



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.37 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-53.1 deg	Yes
Time of Peak	54 - 66 ms	57.8 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	65.7 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 10:51:39 1310

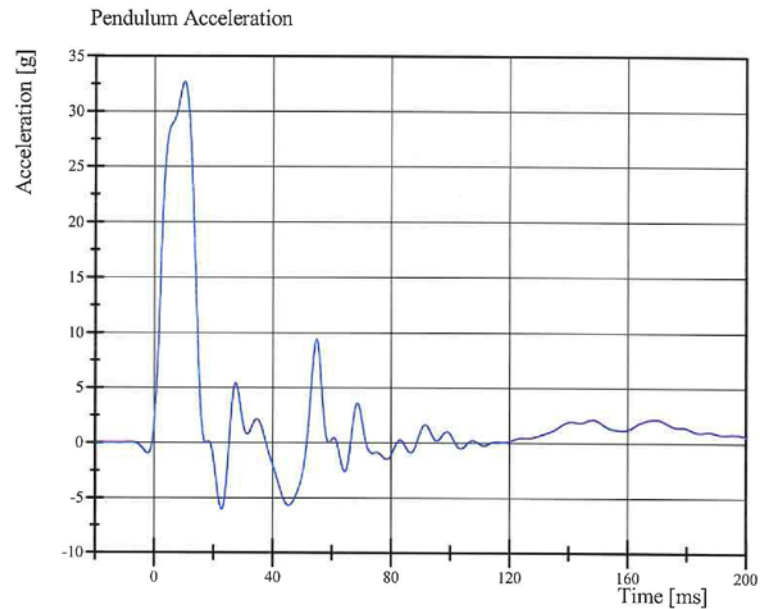


Transportation Research Center Inc.

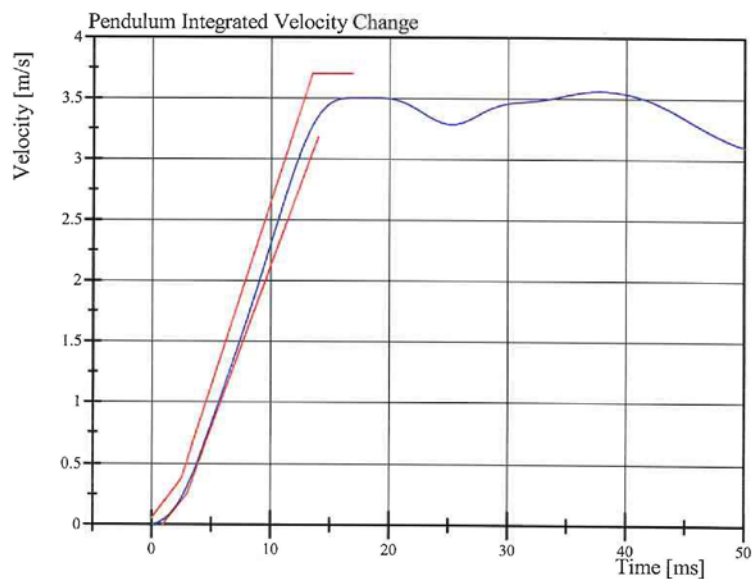
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014



Filter Class: CFC_60
Max: 32.7 g at 10.1 ms
Min: -6.0 g at 22.7 ms



Filter Class: CFC_60
Max: 3.6 m/s at 37.7 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 10:51:48 1310

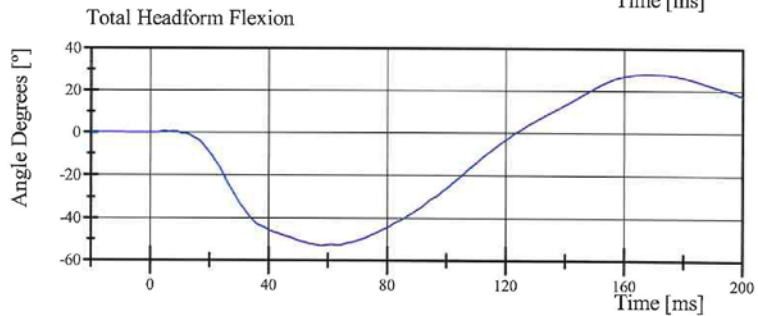
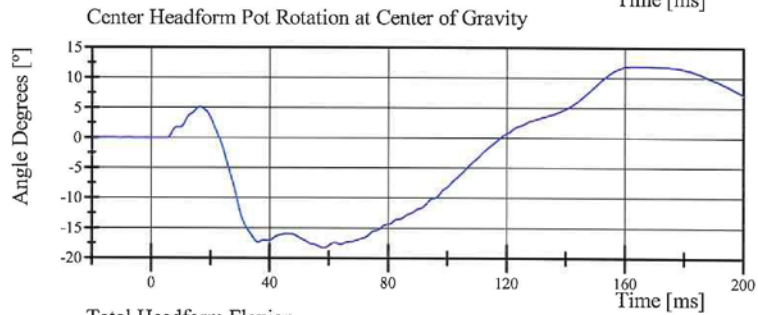
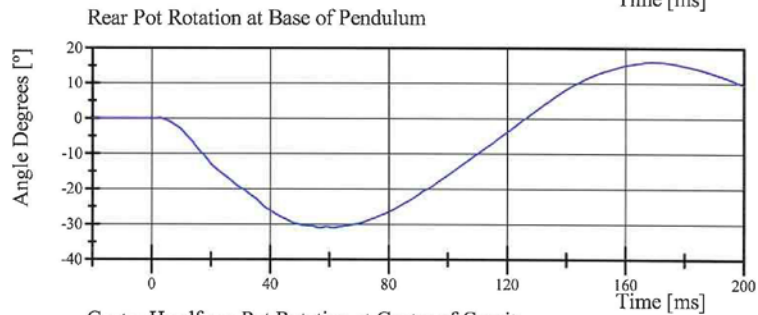
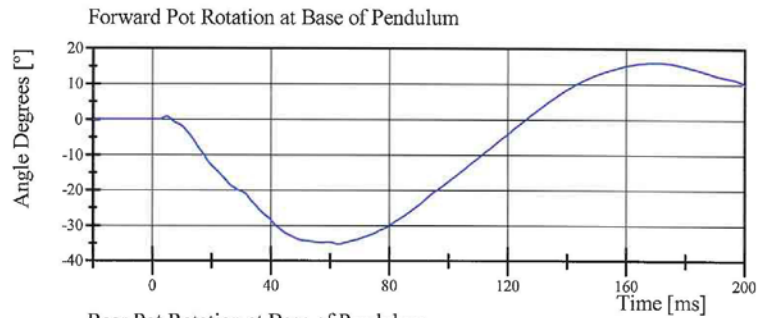


Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014



Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 10:51:49 1310



Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-9.33 g	Yes

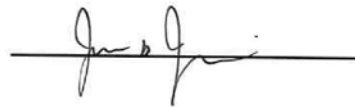
Test meets specifications.

Comments:

Technician



Approved



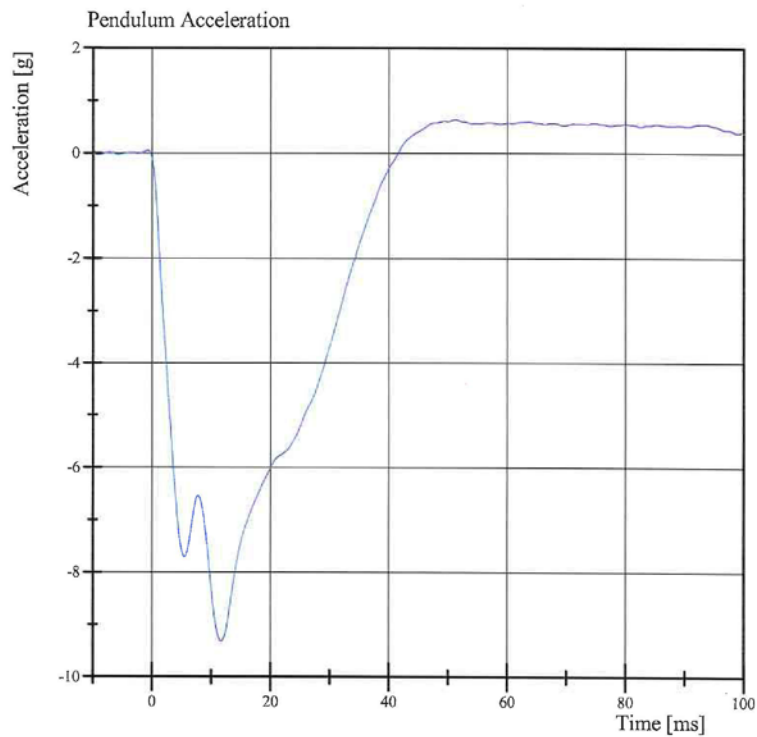
Specification Source: NHTSA final rule 8/15/2008

04.14.2014 14:02:06 541



Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014



Filter Class: CFC_180
Max: 0.6 g at 51.2 ms
Min: -9.3 g at 11.7 ms

Specification Source: NHTSA final rule 8/15/2008

04.14.2014 14:02:15 541



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.7 mm	Yes

Test meets specifications.

Comments:

Drop Height: 816

Technician



Approved



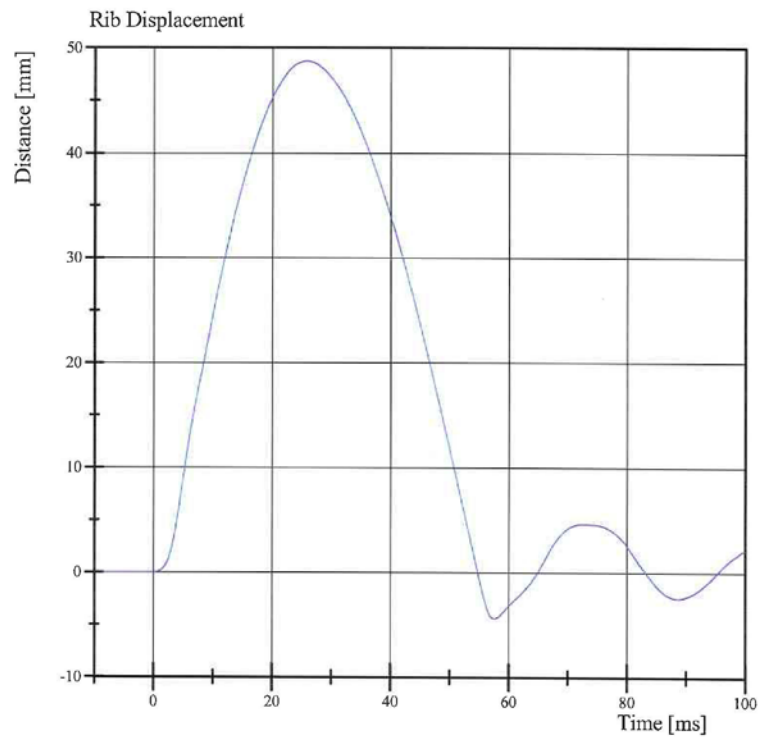
Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:06:52 730



Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014



Filter Class: CFC_180
Max: 48.7 mm at 25.8 ms
Min: -4.5 mm at 57.5 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:07:06 730



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014

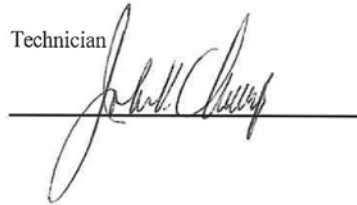
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.2 mm	Yes

Test meets specifications.

Comments:

Drop Height: 462

Technician



Approved



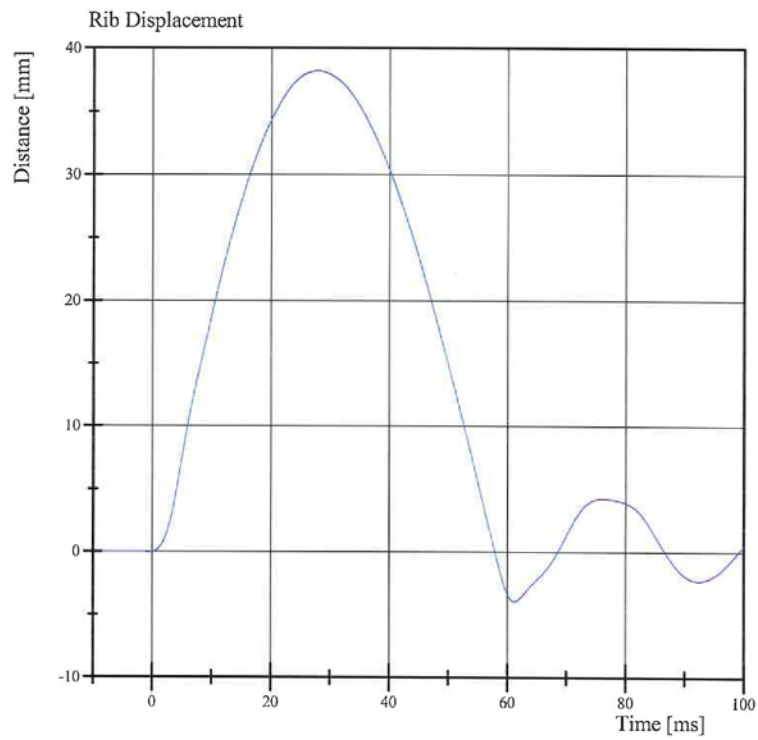
Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:12:18 933



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014



Filter Class: CFC_180
Max: 38.2 mm at 27.8 ms
Min: -3.9 mm at 61.1 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:12:26 933



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.6 mm	Yes

Test meets specifications.

Comments:

Drop Height: 816

Technician



Approved



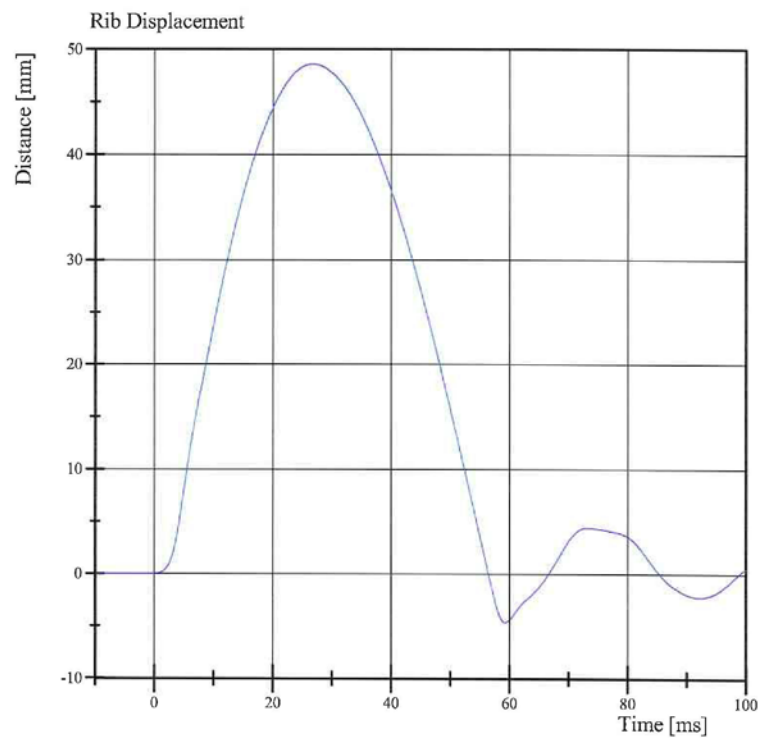
Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:17:42 735



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014



Filter Class: CFC_180
Max: 48.6 mm at 26.7 ms
Min: -4.6 mm at 59.3 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:17:50 735



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.6 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.4 mm	Yes

Test meets specifications.

Comments:

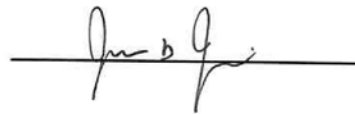
Drop Height: 462

Technician



Specification Source: NHTSA Final Rule 8/15/2008

Approved

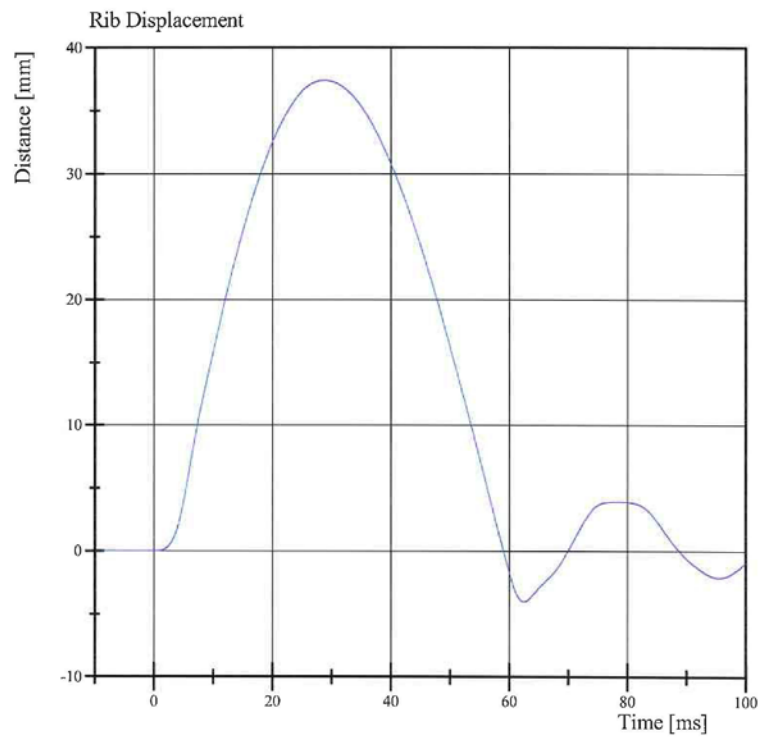


04.14.2014 11:26:51 917



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014



Filter Class: CFC_180
Max: 37.4 mm at 28.7 ms
Min: -4.0 mm at 62.5 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:27:00 917



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014

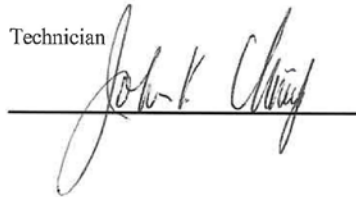
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.1 mm	Yes

Test meets specifications.

Comments:

Drop Height: 816

Technician



Approved



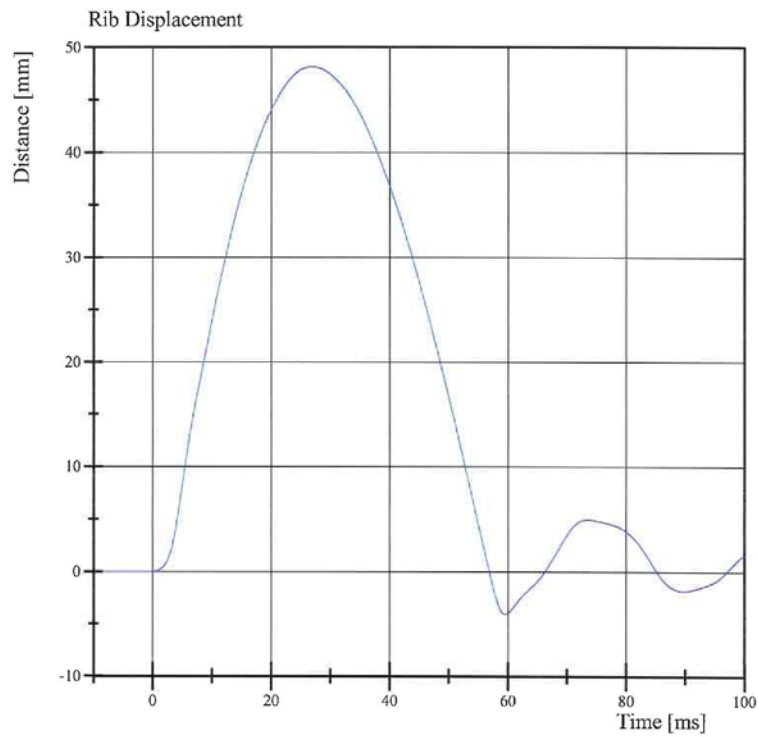
Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:29:02 724



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014



Filter Class: CFC_180
Max: 48.1 mm at 26.8 ms
Min: -4.1 mm at 59.5 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:30:05 724



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.3 mm	Yes

Test meets specifications.

Comments:

Drop Height: 462

Technician



Approved



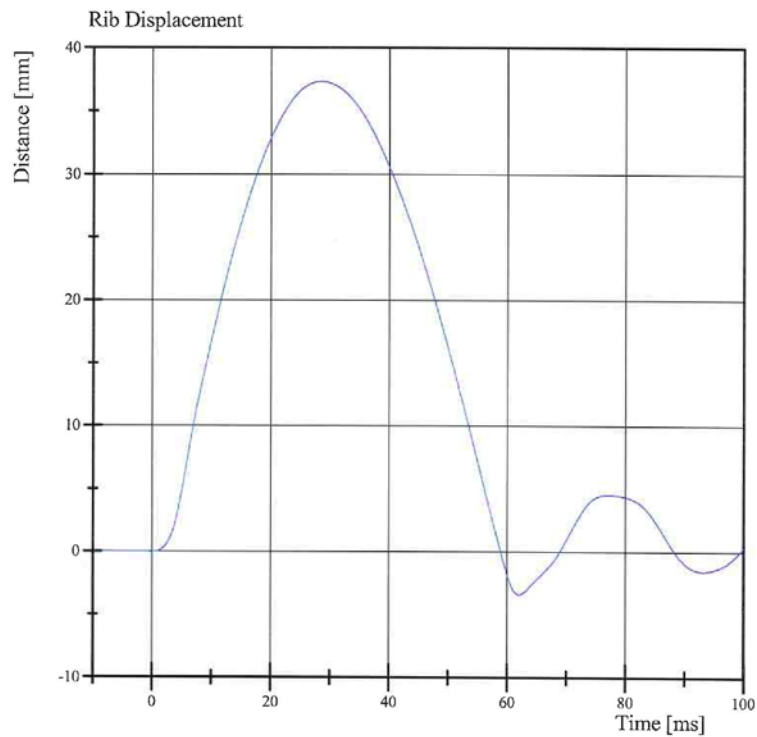
Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:35:04 934



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014



Filter Class: CFC_180
Max: 37.3 mm at 28.5 ms
Min: -3.4 mm at 62.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 11:35:16 934



Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 26-1

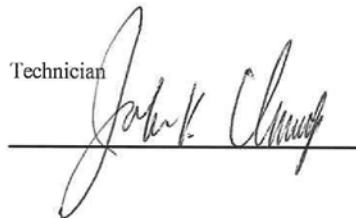
Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.467 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,337.6 N	Yes
Upper Rib Displacement	34 - 41 mm	36.4 mm	Yes
Center Rib Displacement	37 - 45 mm	39.0 mm	Yes
Lower Rib Displacement	37 - 44 mm	40.0 mm	Yes

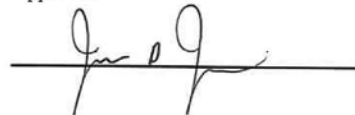
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

04.14.2014 14:15:44 435

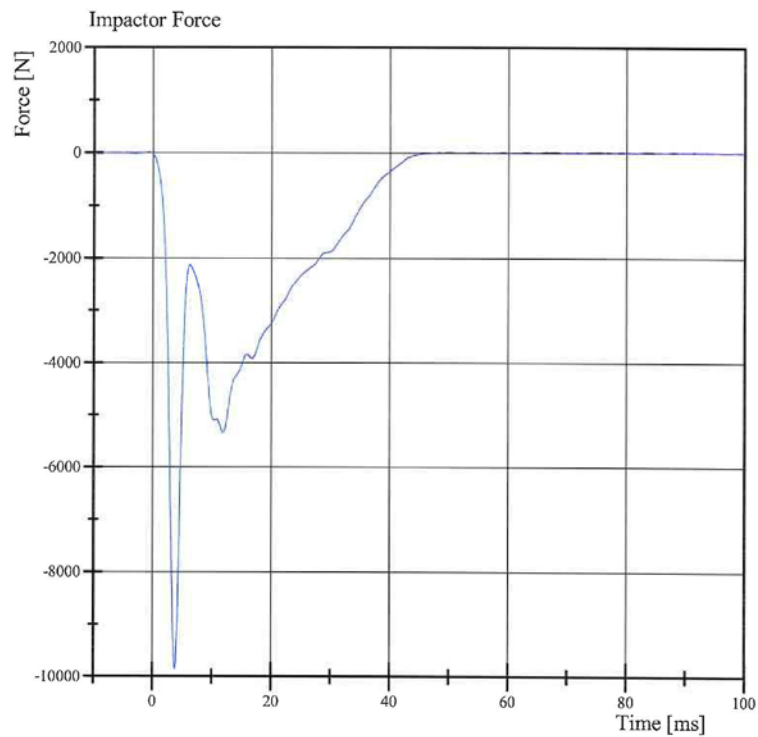


Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014



Filter Class: CFC_180

Max: 18.4 N at 83.8 ms

Min: -9,860.4 N at 3.8 ms

Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

04.14.2014 14:15:58 435

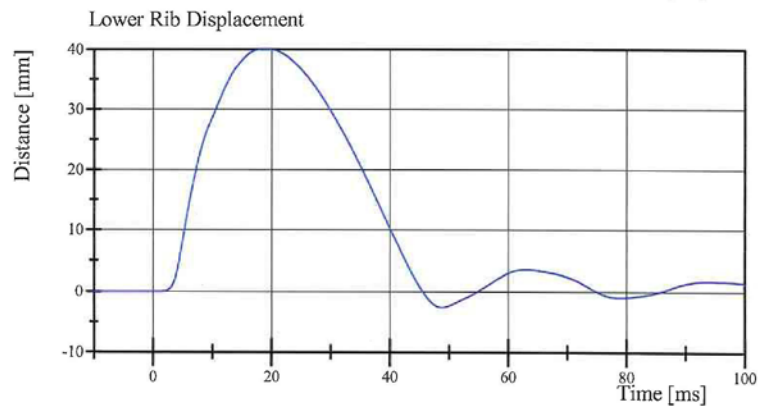
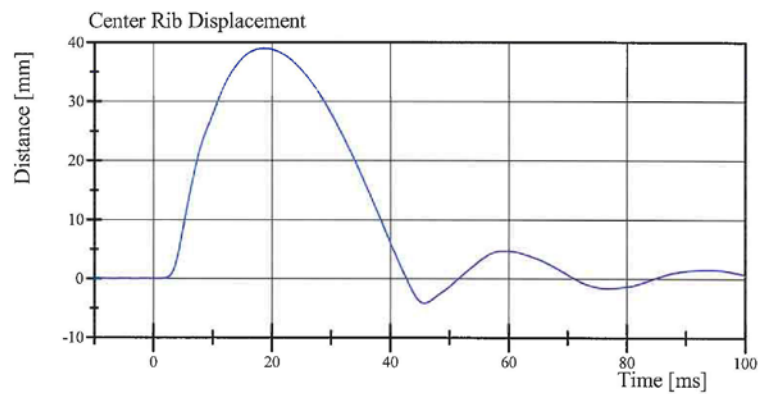
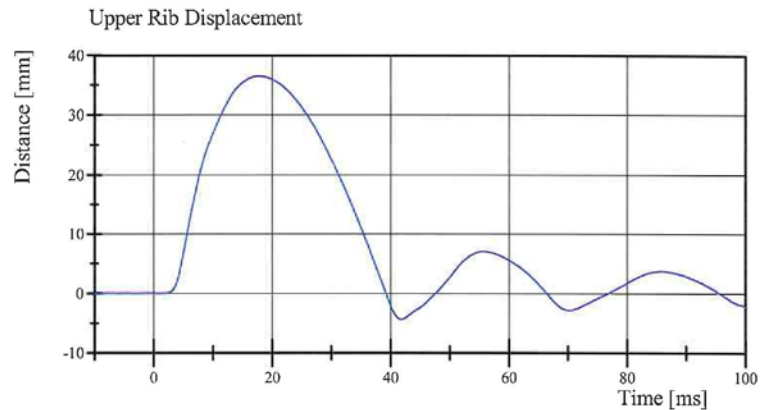


Transportation Research Center Inc.

Left Lateral Thorax

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014



Specification Source: Procedures based on Final Rule dated 8/15/2008.
Polarity in accordance with SAE J211.

04.14.2014 14:15:59 435



Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	3.93 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,512.2 N	Yes
Time of Peak	10.6 - 13.0 ms	11.52 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,661.0 N	Yes
Time of Peak	10.0 - 12.3 ms	11.36 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 15:20:05 569

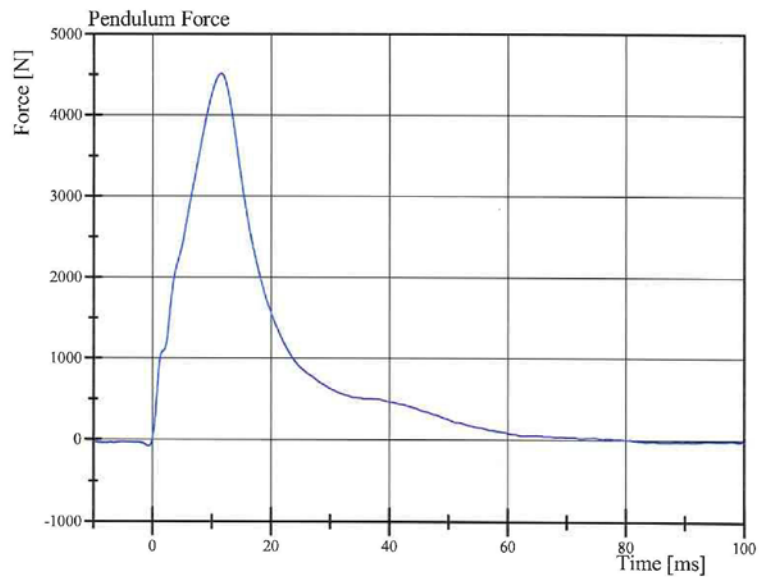
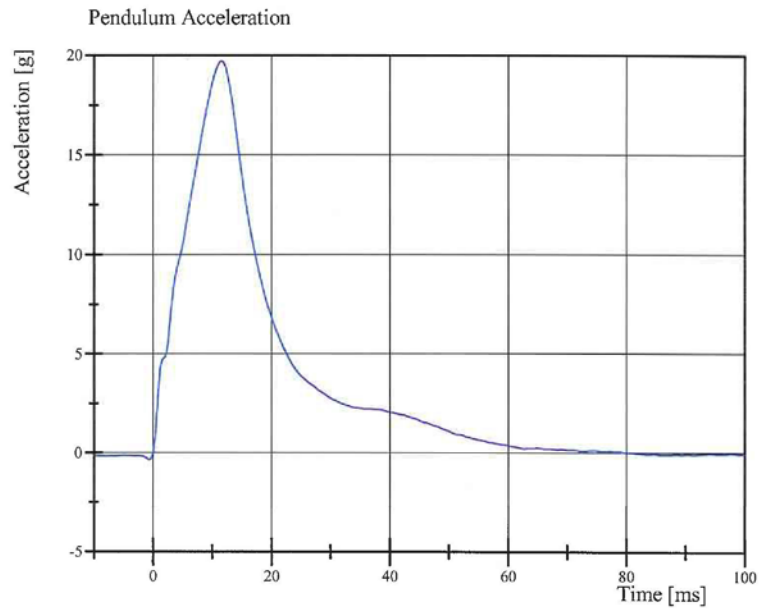


Transportation Research Center Inc.

Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014



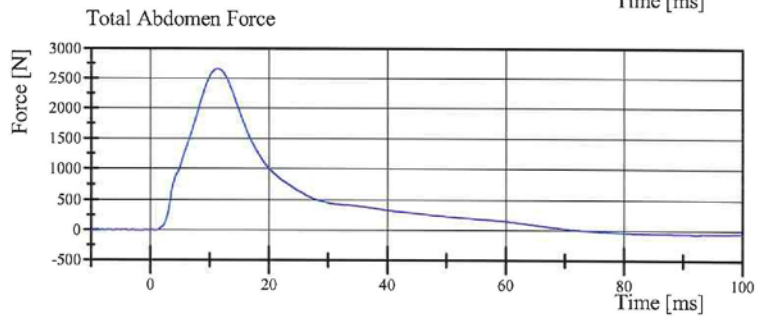
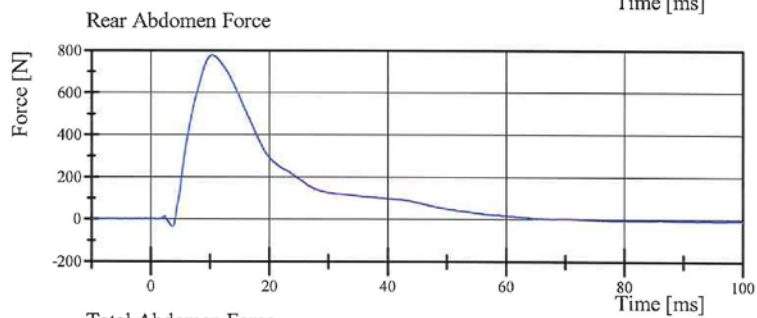
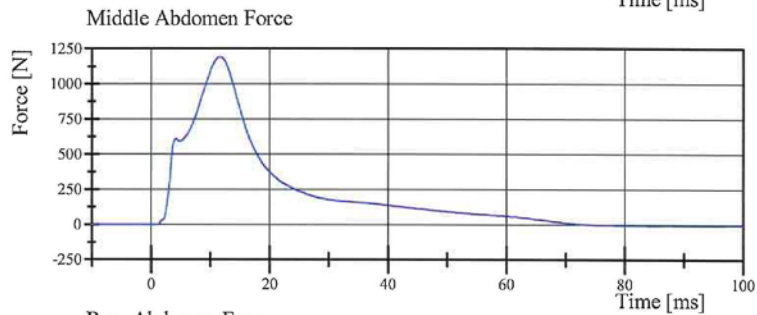
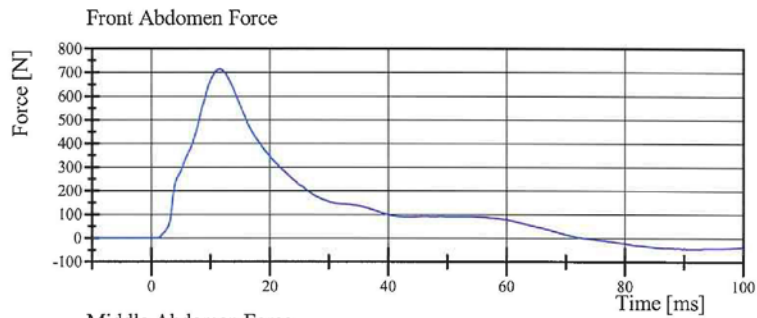
Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 15:20:11 569



Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 26-1
Test Date: 4/14/2014



Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 15:20:12 569



Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 26-2

Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.059 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-47.9 deg	Yes
Time of Peak	39 - 53 ms	45.1 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	37.0 ms	Yes

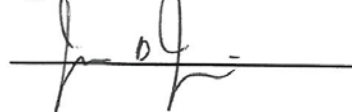
Test meets specifications.

Comments:

Technician



Approved



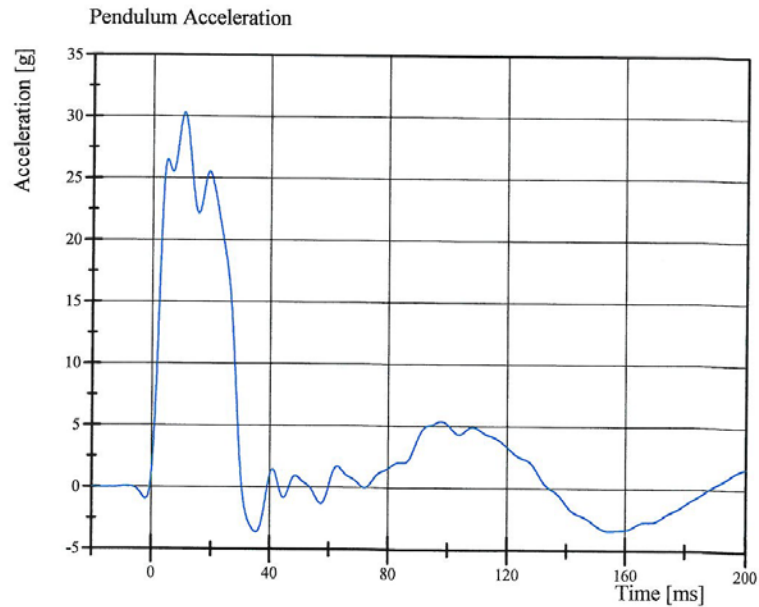
Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 10:28:22 576

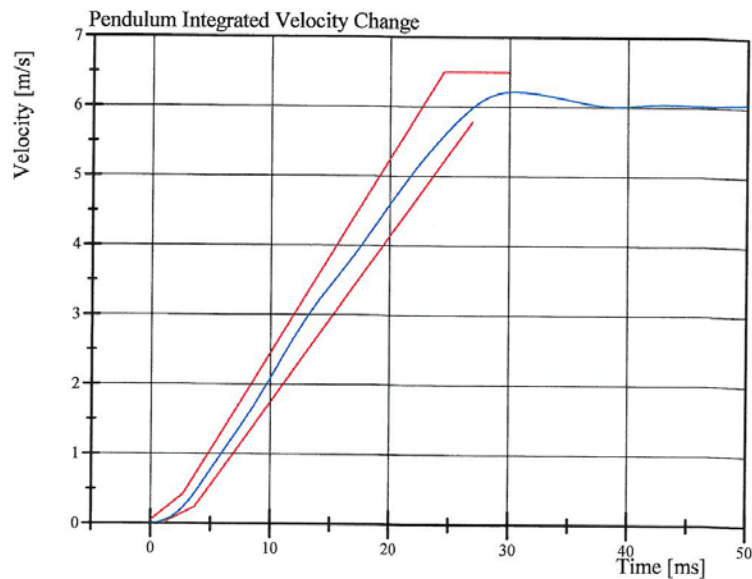


Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 26-2
Test Date: 4/14/2014



Filter Class: CFC_60
Max: 30.3 g at 10.6 ms
Min: -3.6 g at 35.3 ms



Filter Class: CFC_60
Max: 6.2 m/s at 30.4 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 10:28:36 576

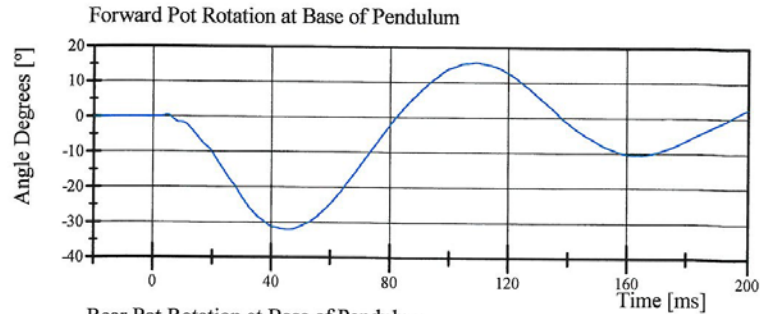


Transportation Research Center Inc.

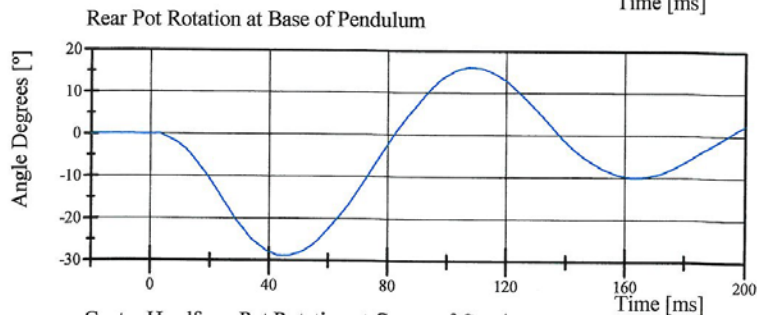
Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 26-2

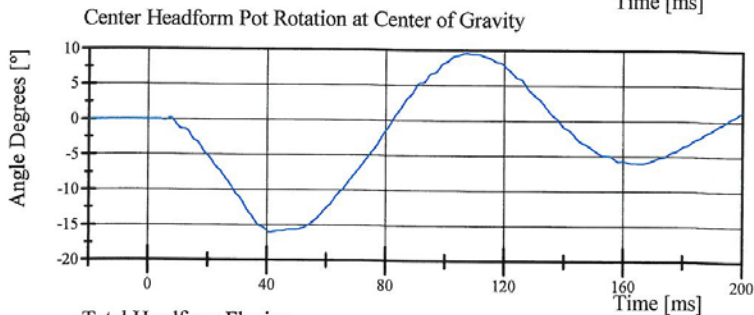
Test Date: 4/14/2014



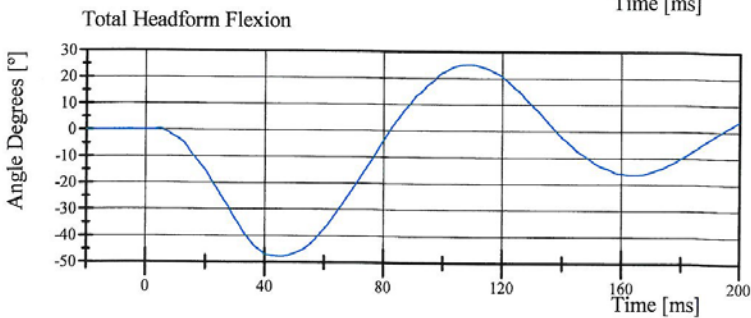
Filter Class: CFC_180
Max: 15.7 ° at 109.1 ms
Min: -32.1 ° at 45.6 ms



Filter Class: CFC_180
Max: 16.0 ° at 107.5 ms
Min: -28.9 ° at 45.2 ms



Filter Class: CFC_180
Max: 9.6 ° at 107.0 ms
Min: -16.0 ° at 41.0 ms



Filter Class: CFC_180
Max: 25.1 ° at 109.0 ms
Min: -47.9 ° at 45.1 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 10:28:37 576



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 26-1

Test Date: 4/14/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,263.7 N	Yes
Time of Peak	11.8 - 16.1 ms	13.52 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,272.7 N	Yes
Time of Peak	12.2 - 17.0 ms	14.48 ms	Yes

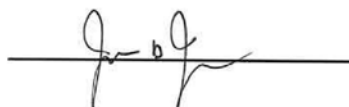
Test meets specifications.

Comments:

Technician



Approved



Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 15:34:25 571

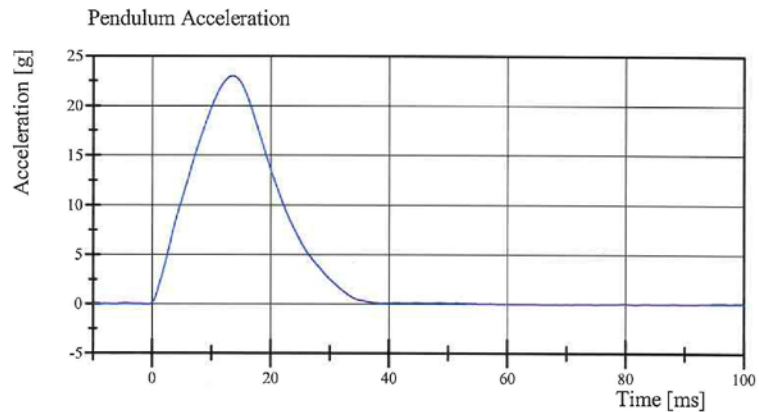


Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 26-1

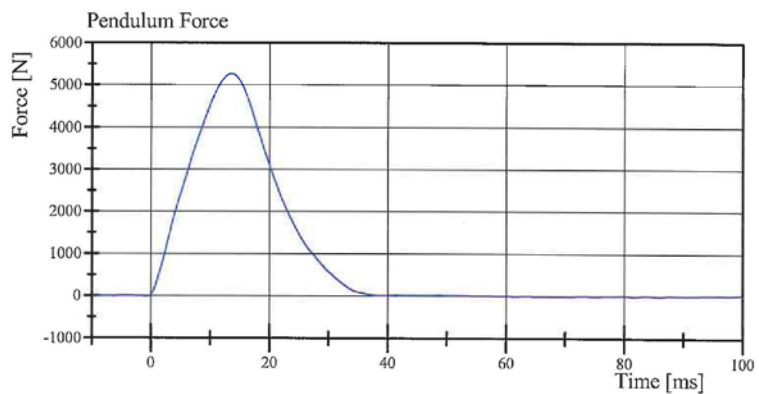
Test Date: 4/14/2014



Filter Class: CFC_180

Max: 23.0 g at 13.5 ms

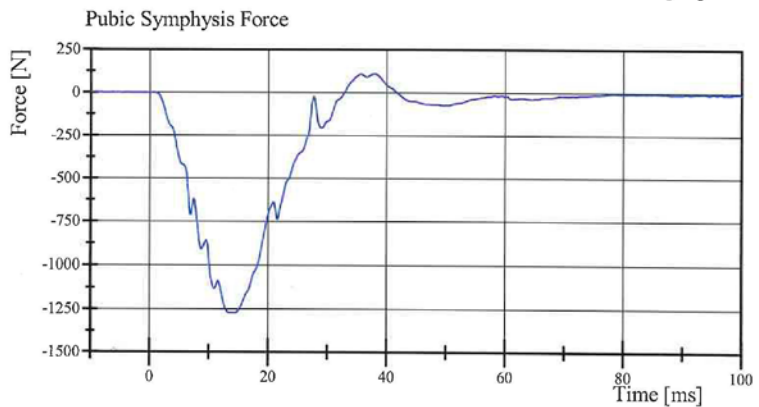
Min: -0.1 g at 81.7 ms



Filter Class: CFC_180

Max: 5,263.7 N at 13.5 ms

Min: -12.2 N at 81.7 ms



Filter Class: CFC_600

Max: 109.1 N at 37.9 ms

Min: -1,272.7 N at 14.5 ms

Specification Source: NHTSA Final Rule 8/15/2008

04.14.2014 15:34:32 571



Pre-Test Calibration Sheets
Passenger S/N 305

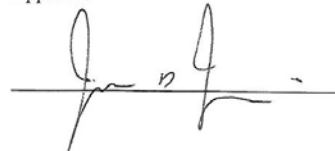
Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 305 Calibration No.030

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	444	Yes
C	H-Point Height	79.0 - 89.0	84	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	126	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	355	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	402	Yes
N	Buttock Popliteal Length	416.0 - 442.0	428	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	318	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	484	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	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	864	Yes
Z	Waist Circumference	761.0 - 791.0	777	Yes

Technician



Approved



Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 30-1

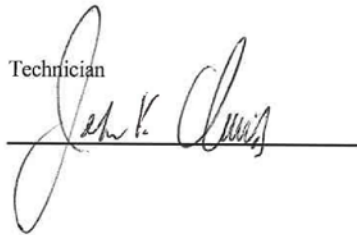
Test Date: 2/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	121.8 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-1.6 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.

02.28.2014 13:45:50 230

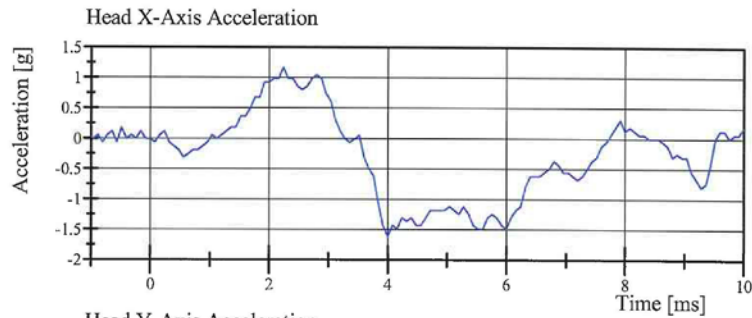


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 30-1

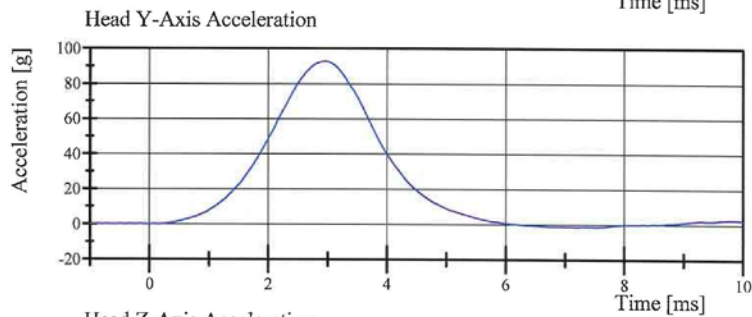
Test Date: 2/28/2014



Filter Class: CFC_1000

Max: 1.2 g at 2.2 ms

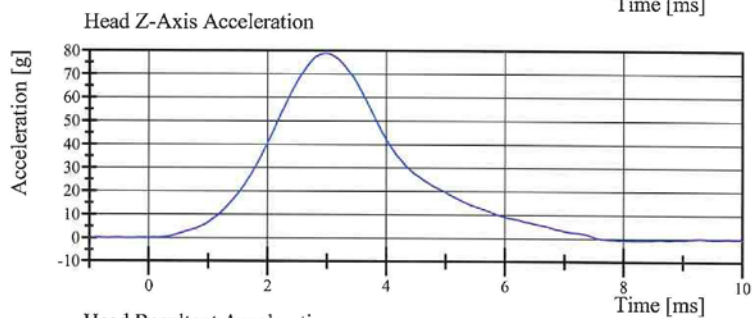
Min: -1.6 g at 4.0 ms



Filter Class: CFC_1000

Max: 92.8 g at 3.0 ms

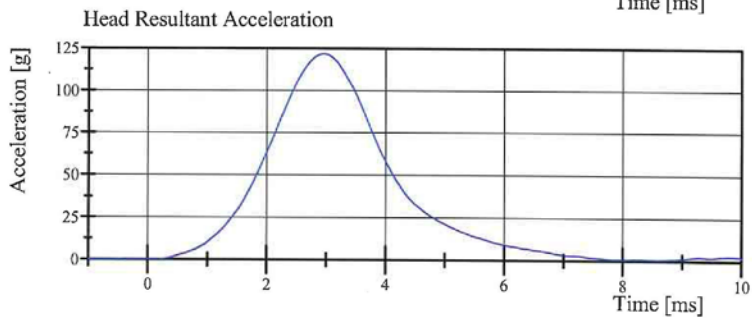
Min: -1.5 g at 7.2 ms



Filter Class: CFC_1000

Max: 79.0 g at 3.0 ms

Min: -1.0 g at 8.2 ms



Filter Class: CFC_1000

Max: 121.8 g at 3.0 ms

Min: 0.0 g at -0.2 ms

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

02.28.2014 13:46:00 230



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 30-1

Test Date: 2/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.606 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.553 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.798 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.139 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.821 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.821 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-75.6 deg	Yes
Time of Peak	50 - 70 ms	67.5 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	40.7 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	118.5 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.

02.28.2014 14:10:30 634

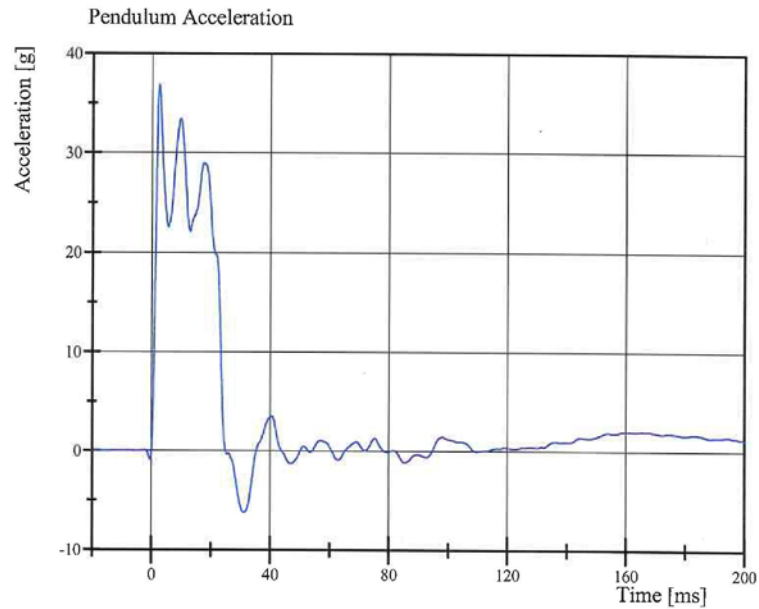


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 30-1

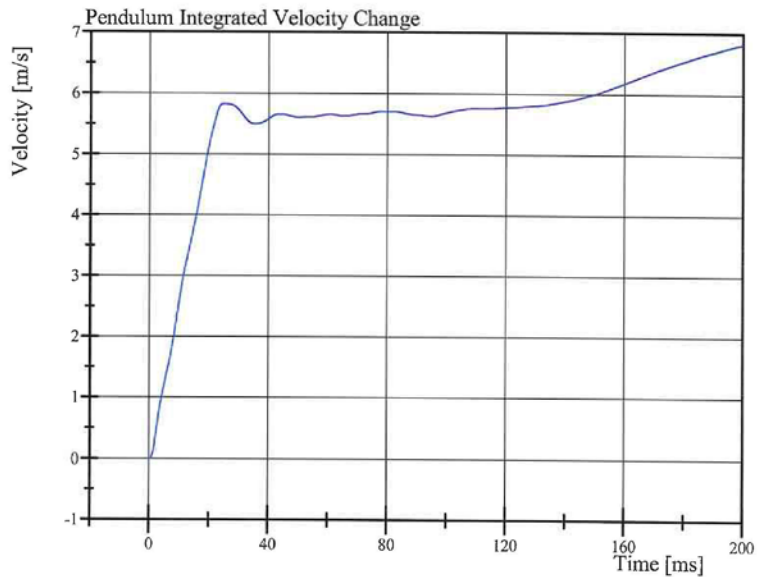
Test Date: 2/28/2014



Filter Class: CFC_180

Max: 36.8 g at 2.5 ms

Min: -6.2 g at 31.3 ms



Filter Class: CFC_180

Max: 6.8 m/s at 200.0 ms

Min: -0.0 m/s at 0.1 ms

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

02.28.2014 14:10:39 634

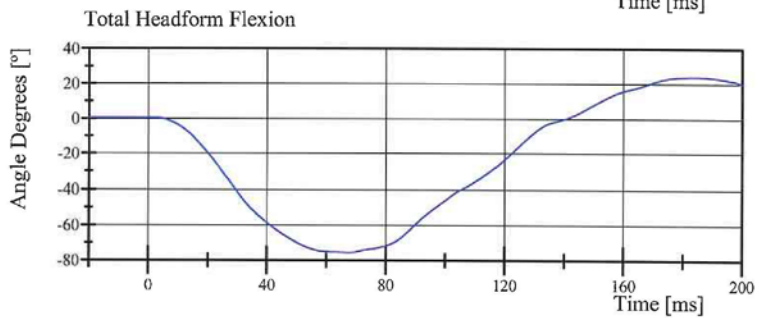
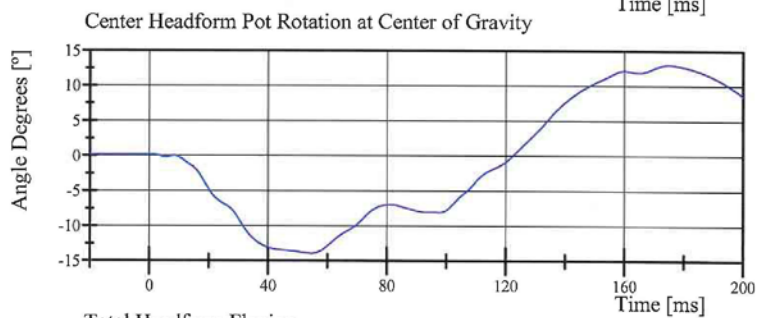
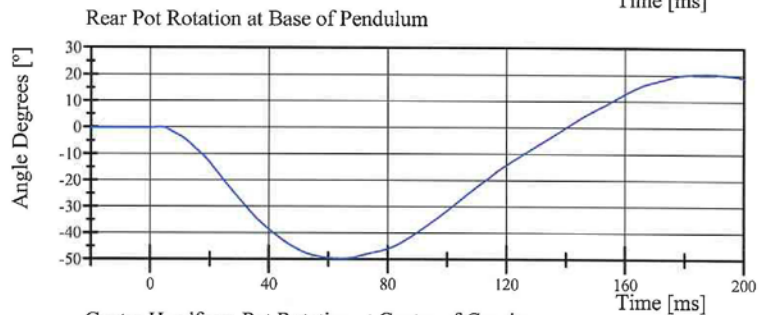
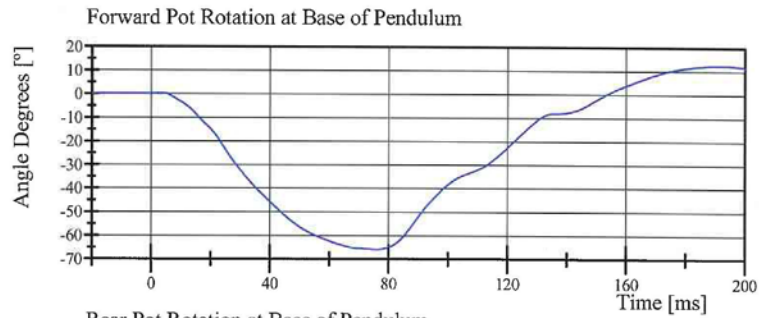


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 30-1

Test Date: 2/28/2014



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

02.28.2014 14:10:40 634

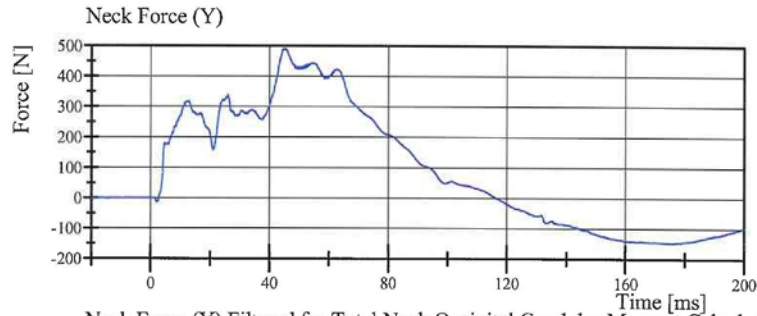


Transportation Research Center Inc.

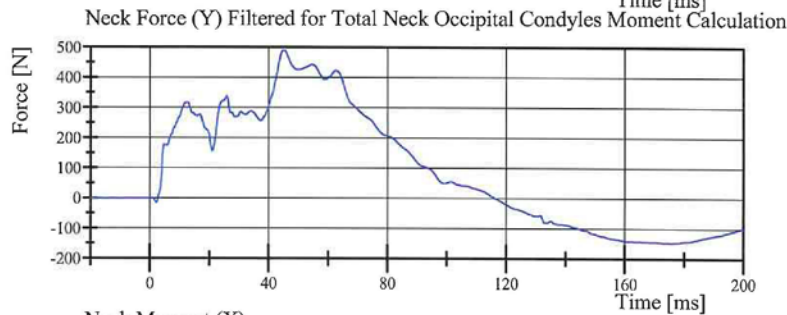
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 30-1

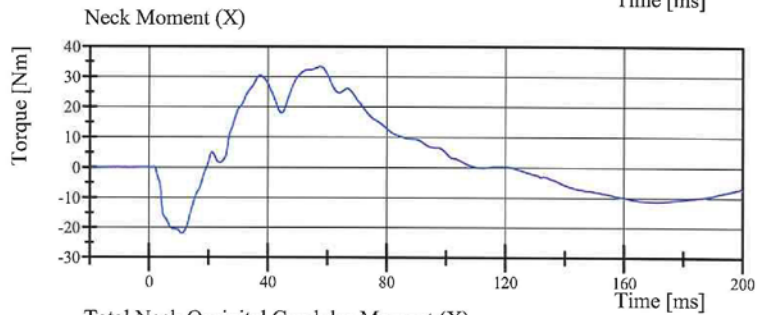
Test Date: 2/28/2014



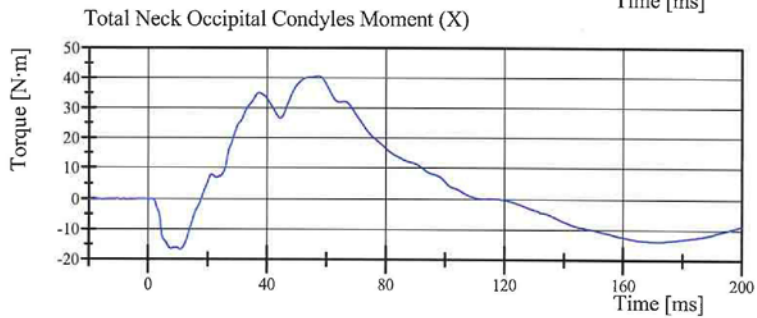
Filter Class: CFC_1000
Max: 490.5 N at 44.9 ms
Min: -148.7 N at 175.9 ms



Filter Class: CFC_600
Max: 489.8 N at 44.9 ms
Min: -148.2 N at 175.9 ms



Filter Class: CFC_600
Max: 33.4 Nm at 57.4 ms
Min: -22.0 Nm at 11.0 ms



Filter Class: Without_(Consta
Max: 40.7 N·m at 57.3 ms
Min: -16.7 N·m at 10.8 ms

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

02.28.2014 14:10:41 634



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 30-1

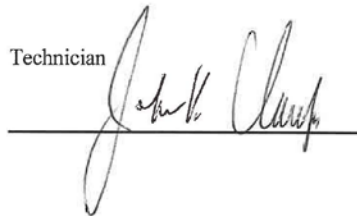
Test Date: 2/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	29 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.32 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-16.1 g	Yes
Shoulder Displacement	28 - 37 mm	30.2 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.2 g	Yes

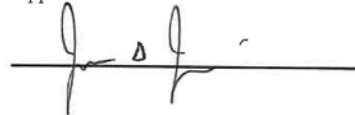
Test meets specifications.

Comments:

Technician



Approved



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

02.28.2014 11:14:34 822

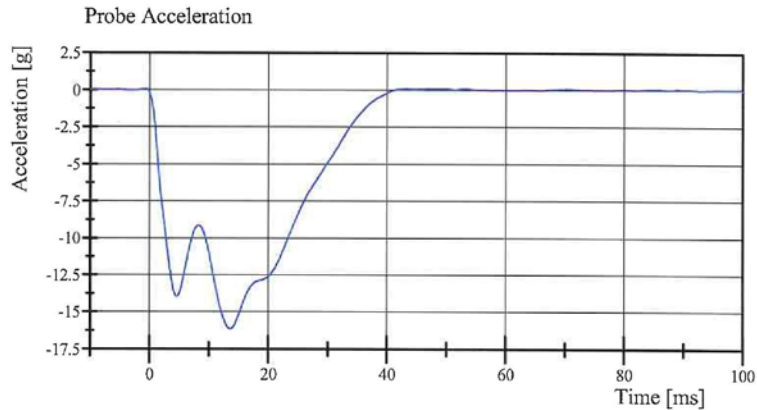


Transportation Research Center Inc.

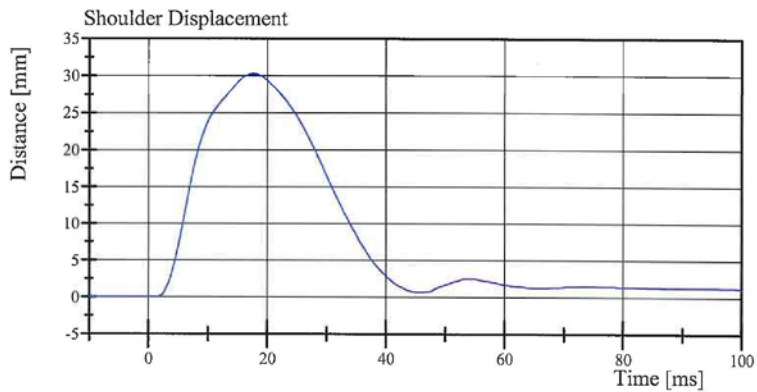
Left Lateral Shoulder

SID II_s Serial No. 305 Certification No. 30-1

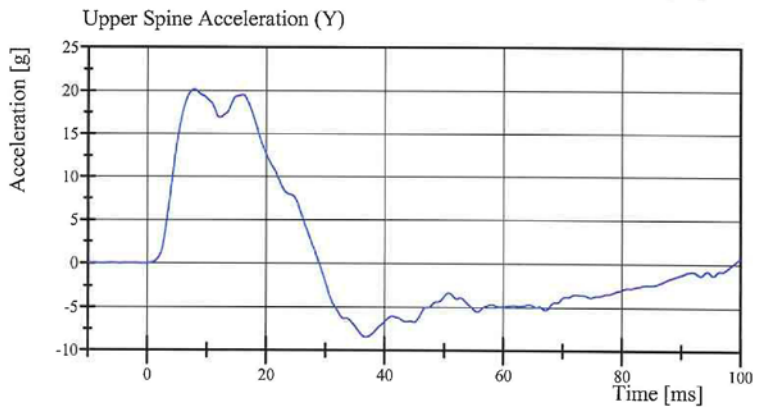
Test Date: 2/28/2014



Filter Class: CFC_180
Max: 0.1 g at 53.2 ms
Min: -16.1 g at 13.6 ms



Filter Class: CFC_600
Max: 30.2 mm at 17.7 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_180
Max: 20.2 g at 7.8 ms
Min: -8.4 g at 36.8 ms

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

02.28.2014 11:14:44 822



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 30-1
Test Date: 2/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.704 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.6 g	Yes
Shoulder Displacement	31 - 40 mm	35.5 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.2 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.0 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	32.4 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.6 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	34.2 g	Yes

Test meets specifications.

Comments:

Technician



Approved



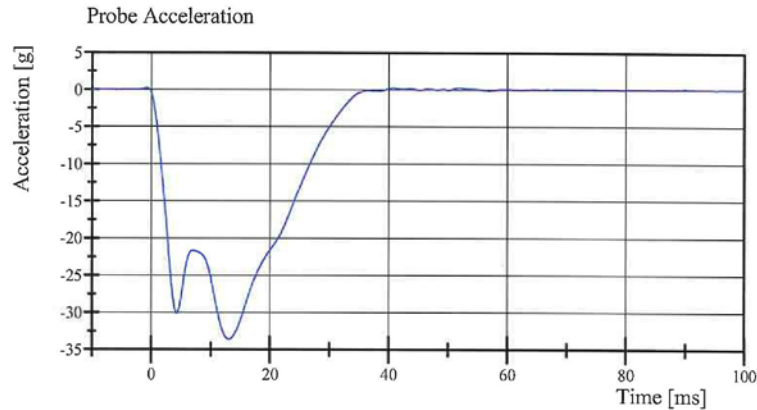
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.28.2014 12:33:09 610

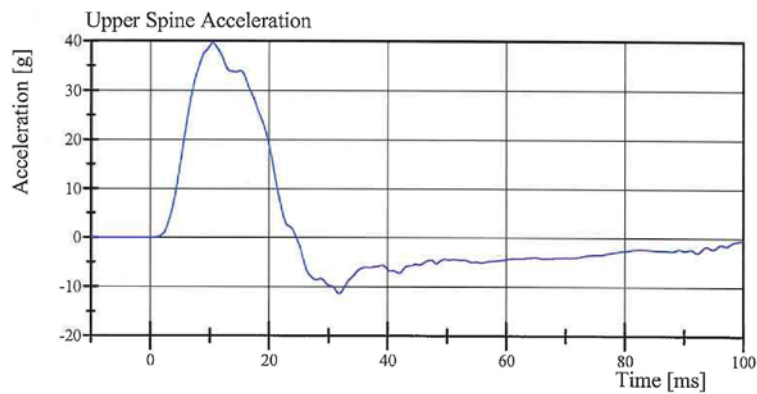


Transportation Research Center Inc.

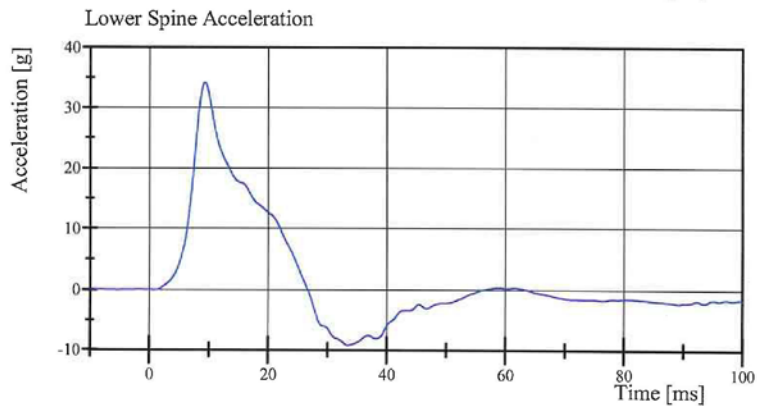
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 30-1
Test Date: 2/28/2014



Filter Class: CFC_180
Max: 0.2 g at 51.8 ms
Min: -33.6 g at 13.1 ms



Filter Class: CFC_180
Max: 39.6 g at 10.5 ms
Min: -11.3 g at 31.8 ms



Filter Class: CFC_180
Max: 34.2 g at 9.4 ms
Min: -9.2 g at 33.4 ms

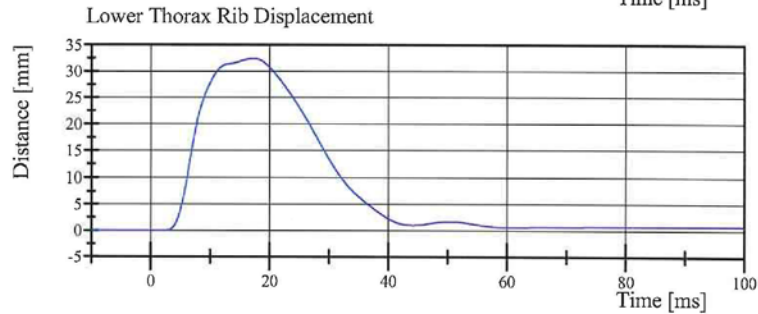
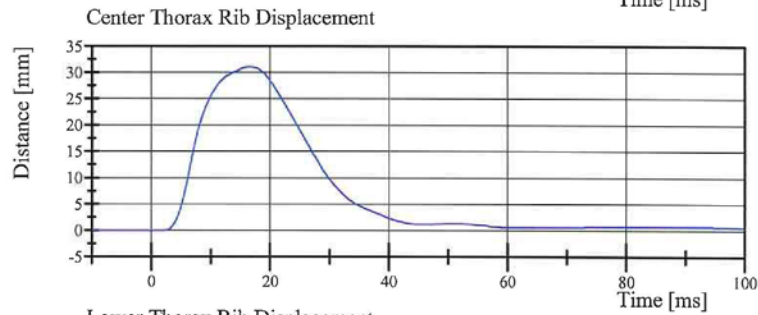
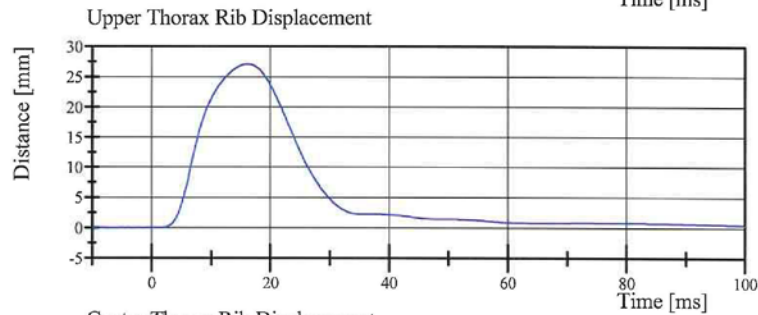
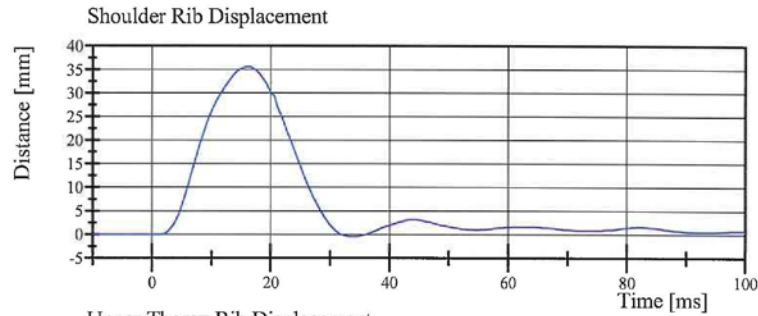
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.28.2014 12:33:23 610



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIa Serial No. 305 Certification No. 30-1
Test Date: 2/28/2014



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

02.28.2014 12:33:23 610



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 30-1
Test Date: 2/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.388 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.4 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.1 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.2 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	37.6 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	16.0 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.1 g	Yes

Test meets specifications.

Comments:

Technician



Approved



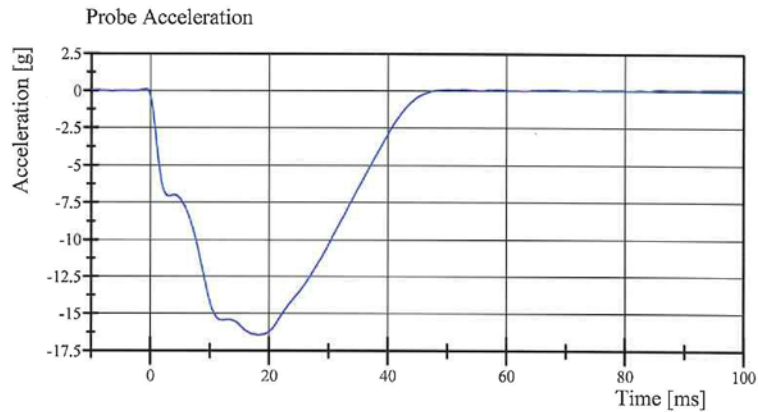
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.28.2014 11:47:39 808

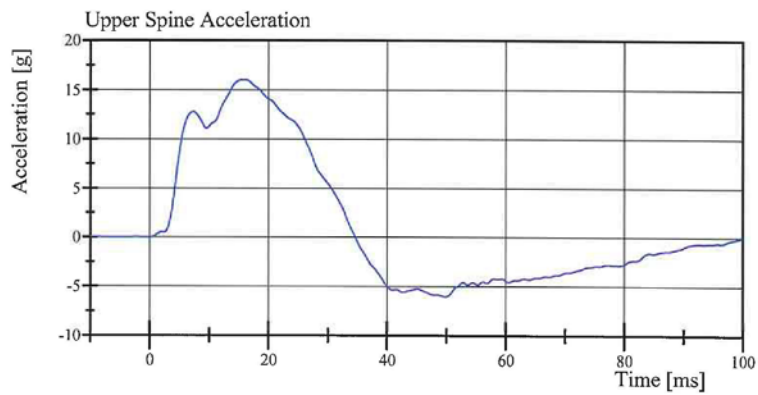


Transportation Research Center Inc.

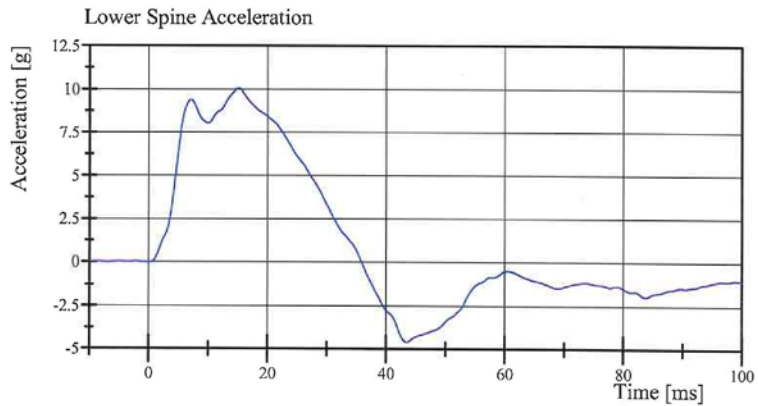
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 30-1
Test Date: 2/28/2014



Filter Class: CFC_180
Max: 0.1 g at -0.8 ms
Min: -16.4 g at 18.3 ms



Filter Class: CFC_180
Max: 16.0 g at 16.0 ms
Min: -6.0 g at 49.8 ms



Filter Class: CFC_180
Max: 10.1 g at 15.1 ms
Min: -4.6 g at 43.4 ms

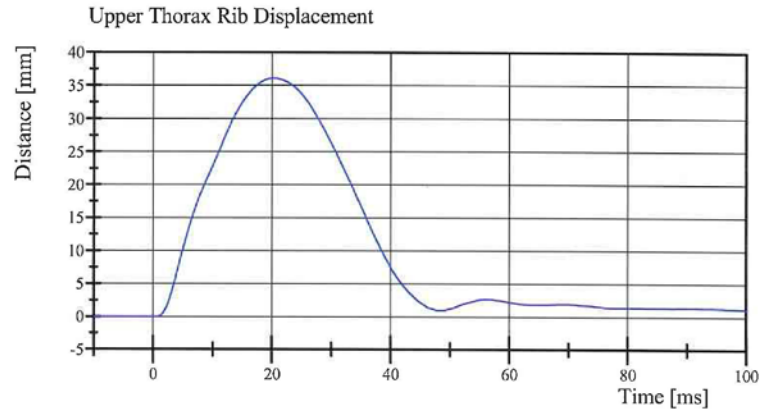
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.28.2014 11:47:51 808

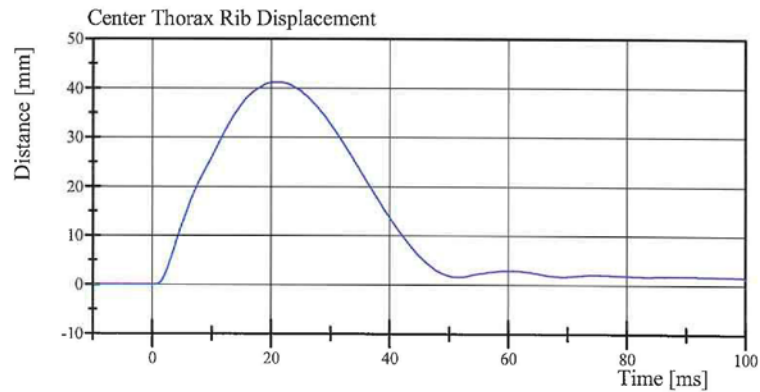


Transportation Research Center Inc.

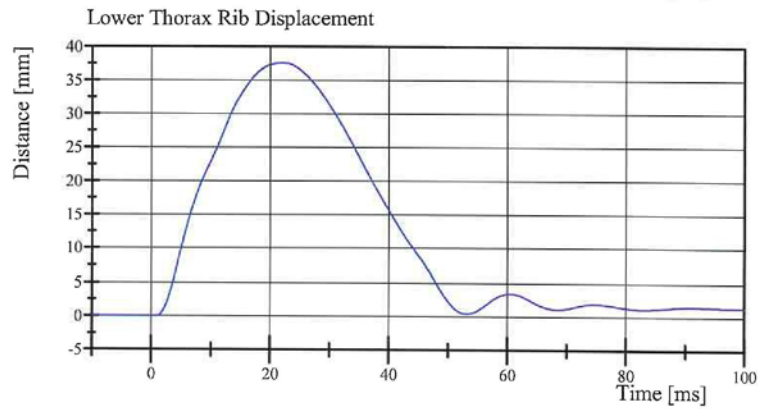
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 30-1
Test Date: 2/28/2014



Filter Class: CFC_600
Max: 36.1 mm at 20.2 ms
Min: -0.0 mm at 0.6 ms



Filter Class: CFC_600
Max: 41.2 mm at 20.7 ms
Min: -0.0 mm at -0.9 ms



Filter Class: CFC_600
Max: 37.6 mm at 21.9 ms
Min: -0.0 mm at 0.6 ms

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

02.28.2014 11:47:52 808



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 30-1

Test Date: 2/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-13.6 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	44.5 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	37.3 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.61 g	Yes

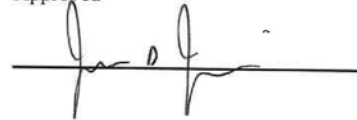
Test meets specifications.

Comments:

Technician



Approved



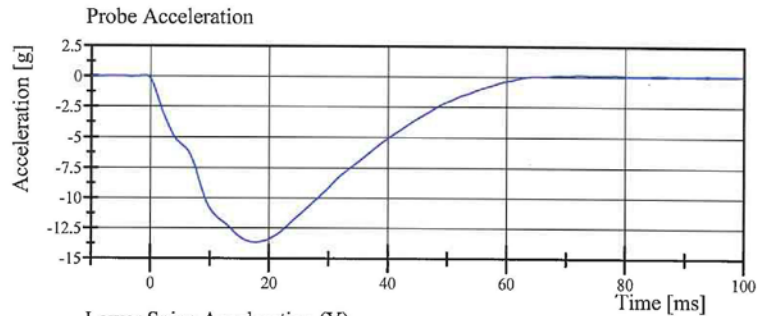
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.28.2014 11:27:50 660

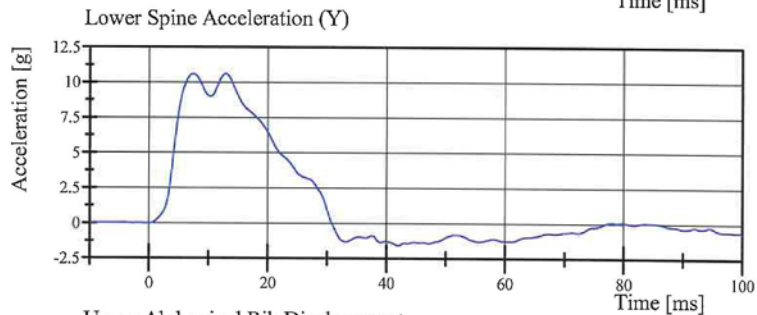


Transportation Research Center Inc.

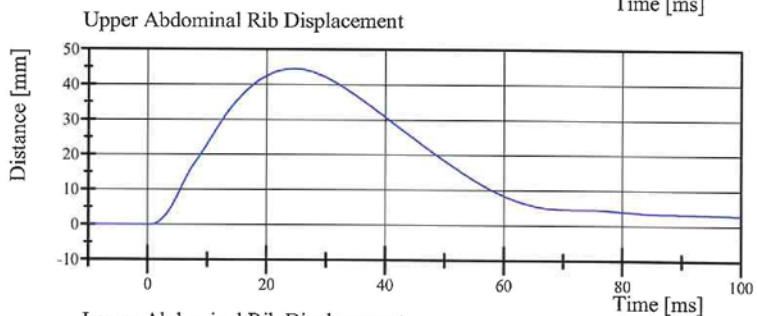
Left Lateral Abdomen
SID IIs Serial No. 305 Certification No. 30-1
Test Date: 2/28/2014



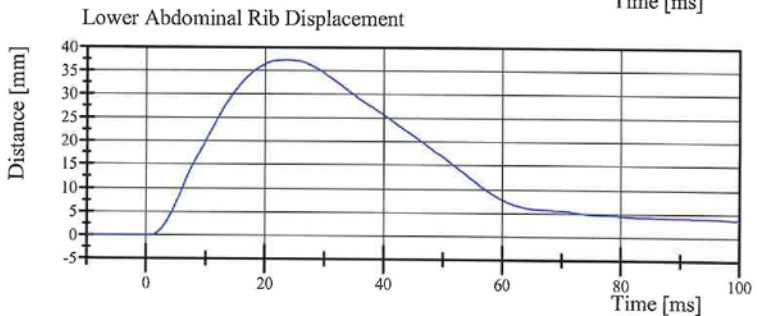
Filter Class: CFC_180
Max: 0.2 g at 72.2 ms
Min: -13.6 g at 17.6 ms



Filter Class: CFC_180
Max: 10.6 g at 12.9 ms
Min: -1.6 g at 41.9 ms



Filter Class: CFC_600
Max: 44.5 mm at 24.6 ms
Min: -0.0 mm at -2.3 ms



Filter Class: CFC_600
Max: 37.3 mm at 23.5 ms
Min: -0.0 mm at -1.9 ms

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

02.28.2014 11:28:00 660



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 30-1

Test Date: 2/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.63 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-41.47 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	36.9 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,230.2 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.

02.28.2014 13:24:47 435

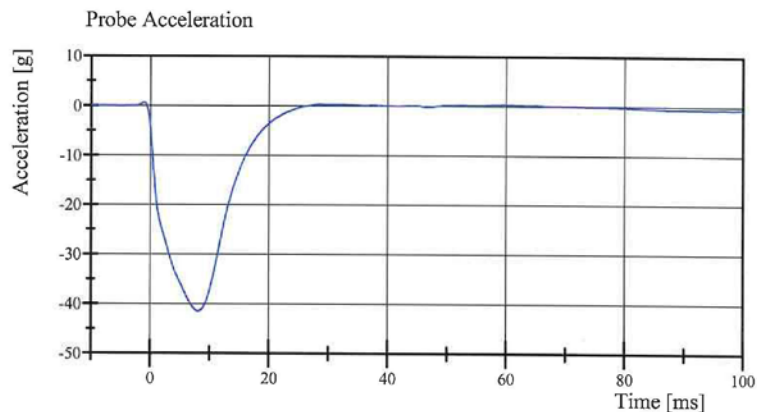


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 30-1

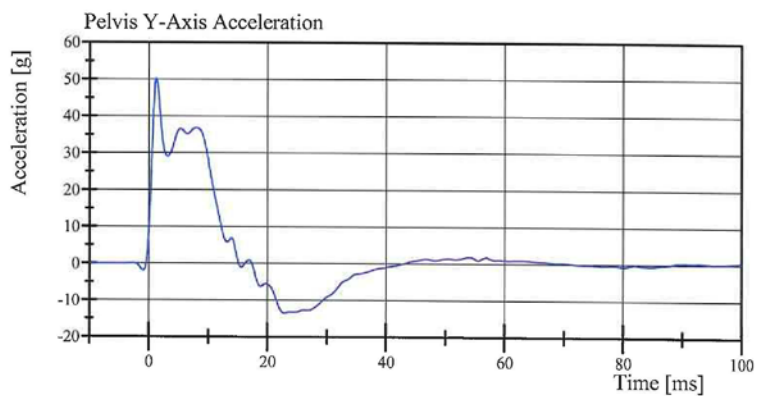
Test Date: 2/28/2014



Filter Class: CFC_180

Max: 0.6 g at -1.0 ms

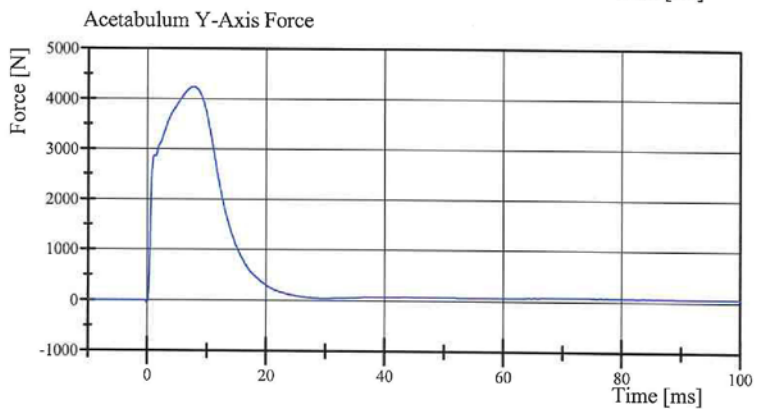
Min: -41.5 g at 8.1 ms



Filter Class: CFC_180

Max: 50.2 g at 1.3 ms

Min: -13.5 g at 22.8 ms



Filter Class: CFC_600

Max: 4,230.2 N at 7.8 ms

Min: -53.5 N at 0.0 ms

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

02.28.2014 13:24:57 435



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 30-1

Test Date: 2/28/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.4 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	31.2 g	Yes
Iliac Force	4,100 - 5,100 N	4,959.1 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.

02.28.2014 10:53:52 670

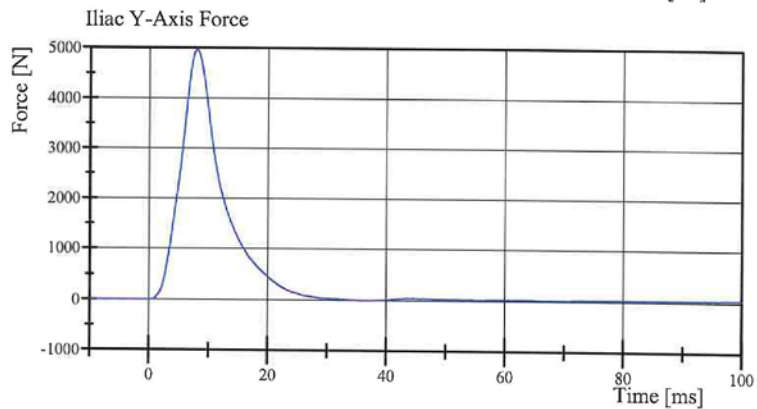
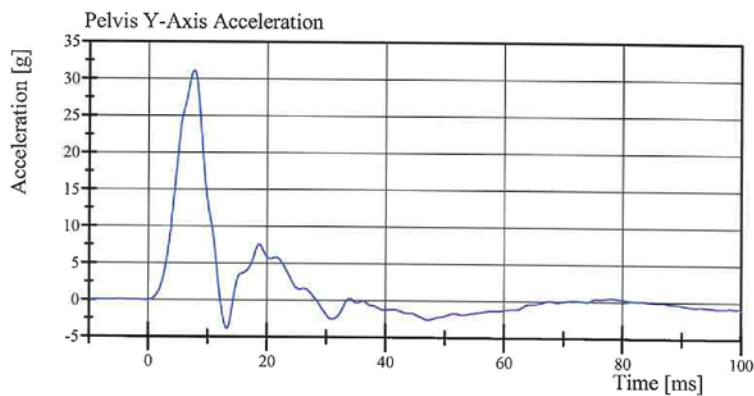
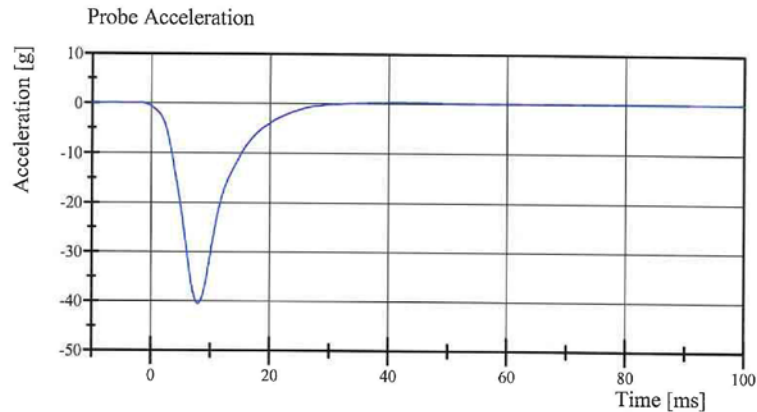


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 30-1

Test Date: 2/28/2014



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

02.28.2014 10:54:03 670

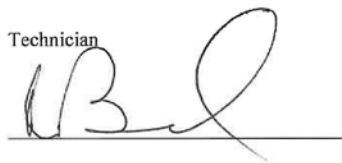


Post-Test Calibration Sheets
Passenger S/N 305

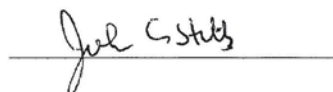
Transportation Research Center Inc.
SIDI's Dummy - Level D
External Dimensions
Serial No. 305 Calibration No.031

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	445	Yes
C	H-Point Height	79.0 - 89.0	84	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	126	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	355	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	402	Yes
N	Buttock Popliteal Length	416.0 - 442.0	428	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	318	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	484	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	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	864	Yes
Z	Waist Circumference	761.0 - 791.0	777	Yes

Technician



Approved



Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 31-1

Test Date: 4/15/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	115.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	3.8 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.

04.15.2014 13:31:44 232

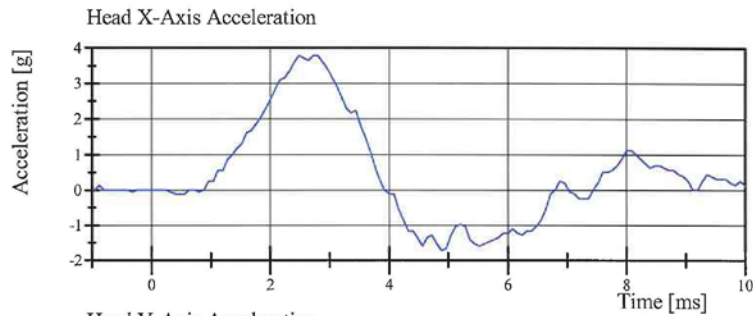


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 31-1

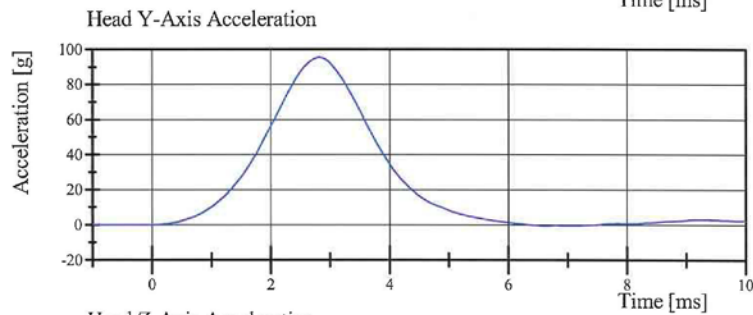
Test Date: 4/15/2014



Filter Class: CFC_1000

Max: 3.8 g at 2.5 ms

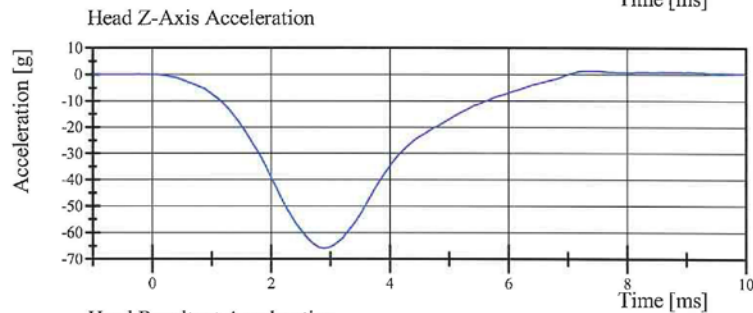
Min: -1.7 g at 4.9 ms



Filter Class: CFC_1000

Max: 95.5 g at 2.8 ms

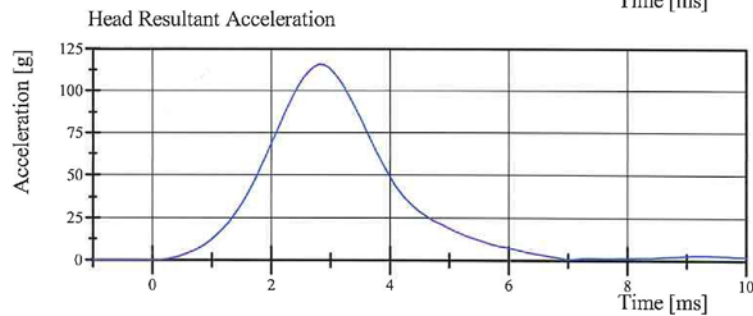
Min: -0.7 g at 6.6 ms



Filter Class: CFC_1000

Max: 1.3 g at 7.4 ms

Min: -65.9 g at 2.9 ms



Filter Class: CFC_1000

Max: 115.9 g at 2.8 ms

Min: 0.0 g at -0.7 ms

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

04.15.2014 13:32:11 232



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 31-1

Test Date: 4/15/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.6 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.613 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.746 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.956 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.279 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.794 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.799 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-72.8 deg	Yes
Time of Peak	50 - 70 ms	59.7 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.0 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	115.2 ms	Yes

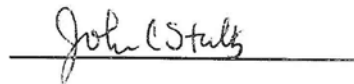
Test meets specifications.

Comments:

Technician



Approved



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

04.15.2014 14:15:39 640

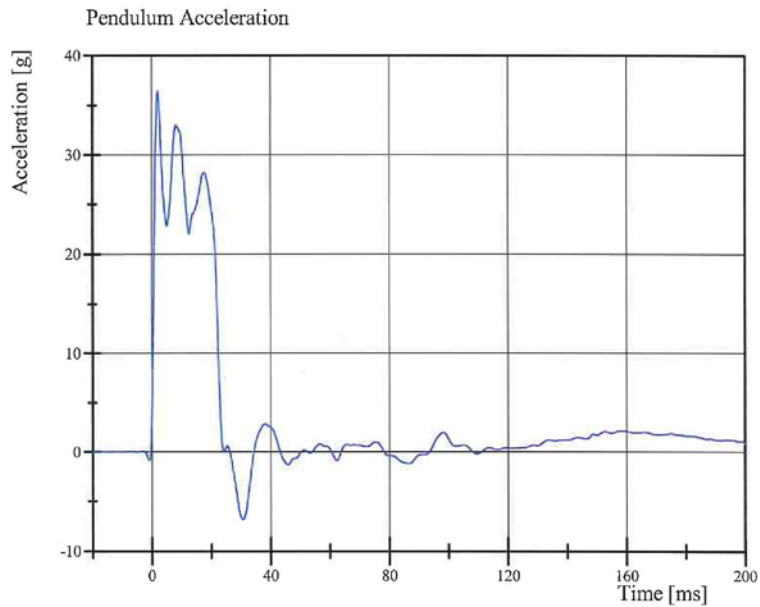


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 31-1

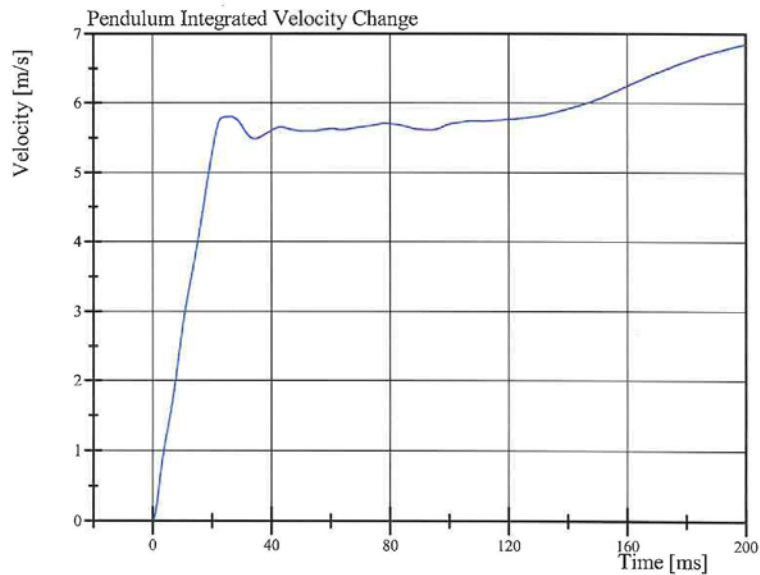
Test Date: 4/15/2014



Filter Class: CFC_180

Max: 36.4 g at 2.0 ms

Min: -6.8 g at 30.7 ms



Filter Class: CFC_180

Max: 6.8 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.

04.15.2014 14:15:49 640

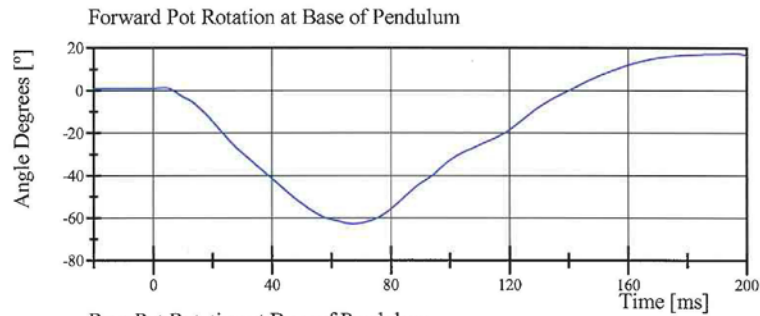


Transportation Research Center Inc.

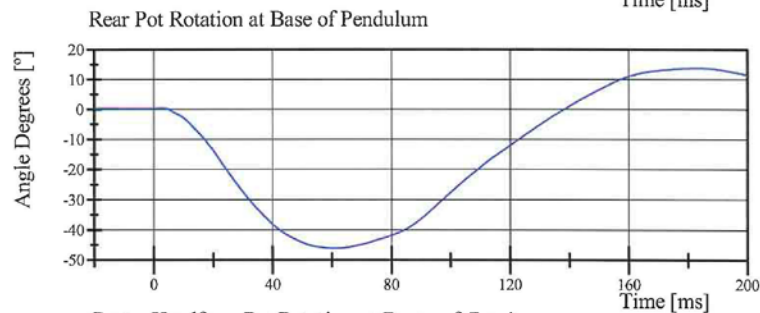
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 31-1

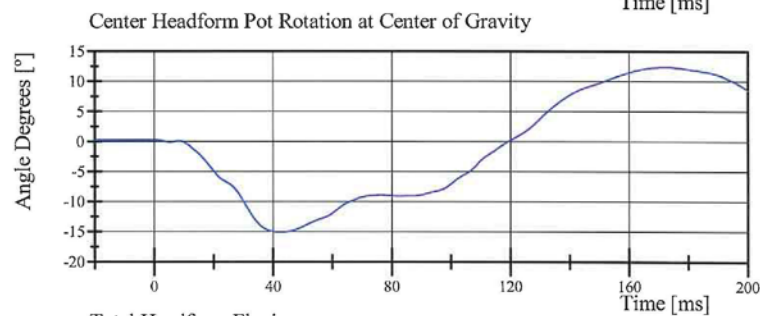
Test Date: 4/15/2014



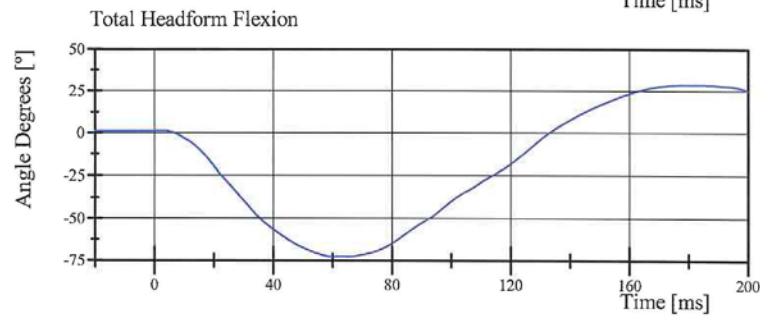
Filter Class: CFC_60
Max: 17.3 ° at 195.2 ms
Min: -62.8 ° at 67.3 ms



Filter Class: CFC_60
Max: 13.8 ° at 183.4 ms
Min: -46.1 ° at 61.2 ms



Filter Class: CFC_60
Max: 12.3 ° at 172.4 ms
Min: -15.1 ° at 42.6 ms



Filter Class: CFC_60
Max: 28.5 ° at 179.6 ms
Min: -72.8 ° at 59.7 ms

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

04.15.2014 14:15:50 640

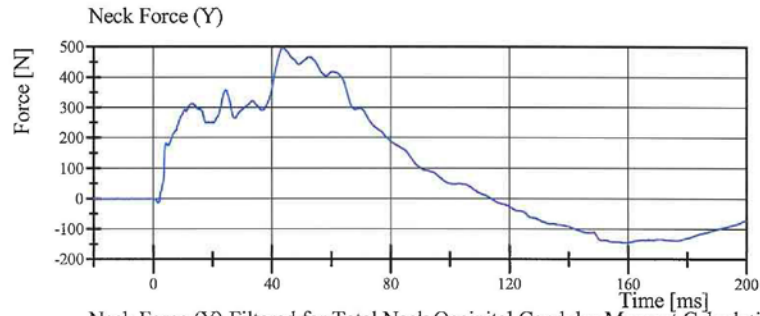


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 31-1

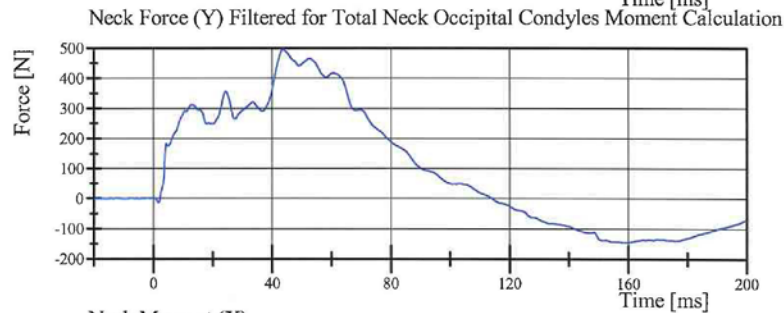
Test Date: 4/15/2014



Filter Class: CFC_1000

Max: 495.8 N at 43.6 ms

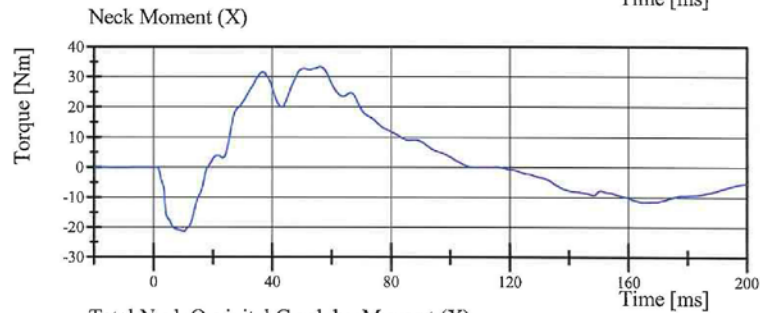
Min: -146.1 N at 159.0 ms



Filter Class: CFC_600

Max: 495.6 N at 43.7 ms

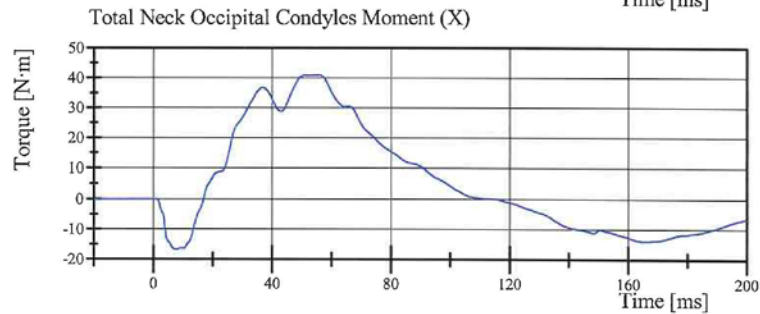
Min: -146.0 N at 159.0 ms



Filter Class: CFC_600

Max: 33.4 Nm at 56.2 ms

Min: -21.5 Nm at 10.3 ms



Filter Class: Without_(Consta

Max: 41.0 N·m at 55.7 ms

Min: -16.7 N·m at 7.4 ms

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

04.15.2014 14:15:51 640



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 31-1

Test Date: 4/16/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-16.0 g	Yes
Shoulder Displacement	28 - 37 mm	30.5 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.6 g	Yes

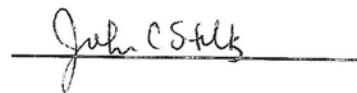
Test meets specifications.

Comments:

Technician



Approved



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

04.16.2014 10:49:19 817

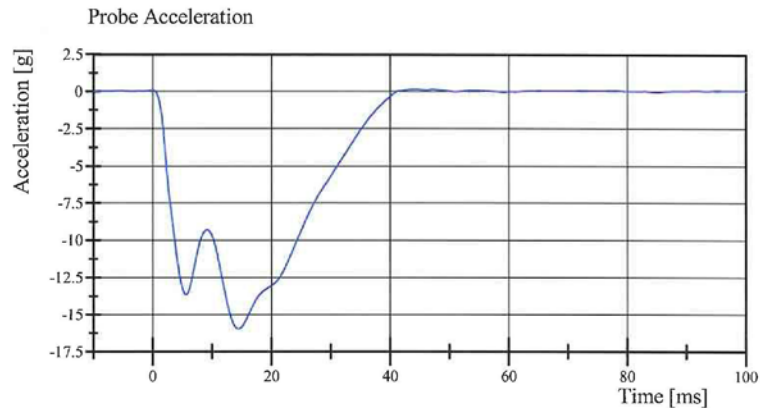


Transportation Research Center Inc.

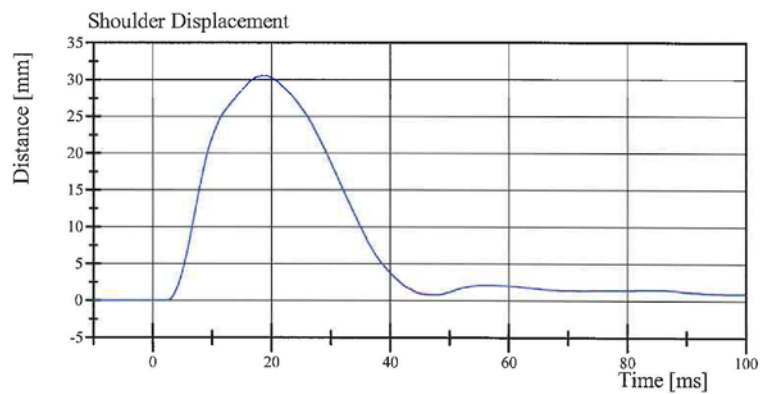
Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 31-1

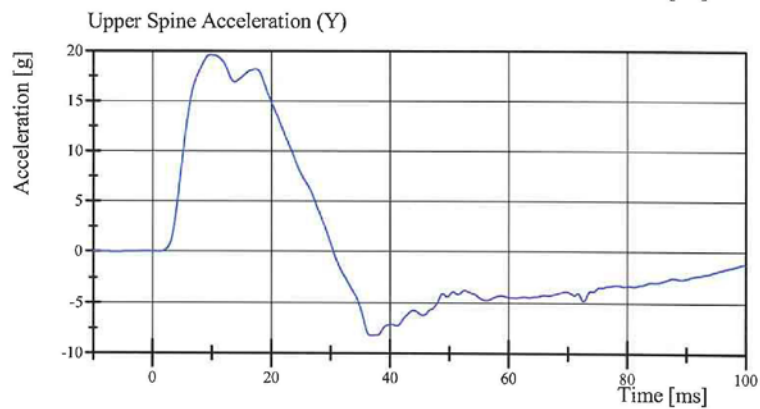
Test Date: 4/16/2014



Filter Class: CFC_180
Max: 0.1 g at 43.8 ms
Min: -16.0 g at 14.4 ms



Filter Class: CFC_600
Max: 30.5 mm at 18.6 ms
Min: -0.0 mm at 0.3 ms



Filter Class: CFC_180
Max: 19.6 g at 9.7 ms
Min: -8.2 g at 37.0 ms

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

04.16.2014 10:49:28 817



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 31-1
Test Date: 4/16/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.710 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-31.9 g	Yes
Shoulder Displacement	31 - 40 mm	33.9 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.0 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.6 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.2 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.8 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	32.9 g	Yes

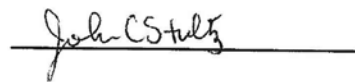
Test meets specifications.

Comments:

Technician



Approved



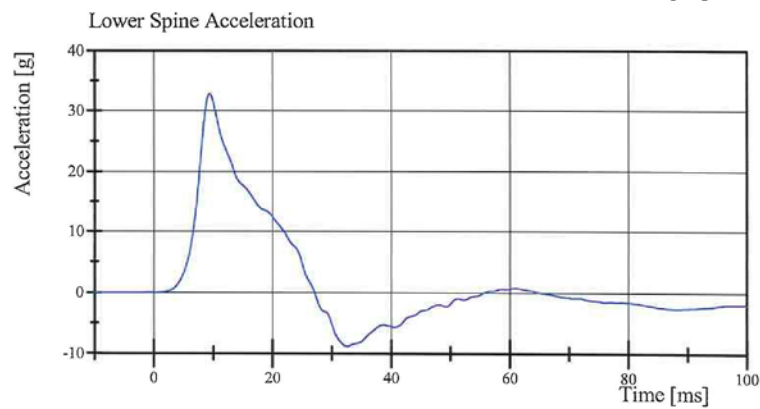
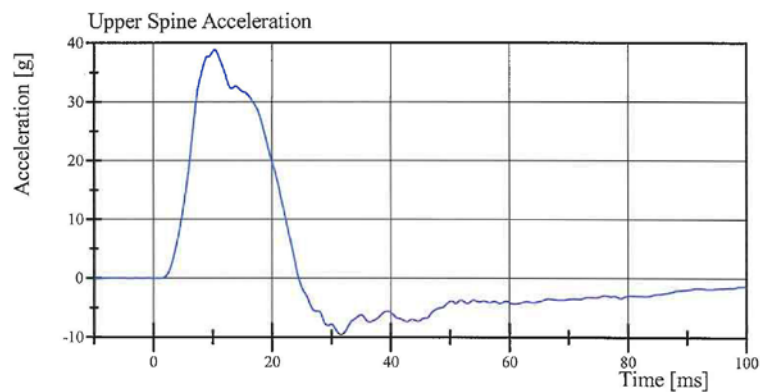
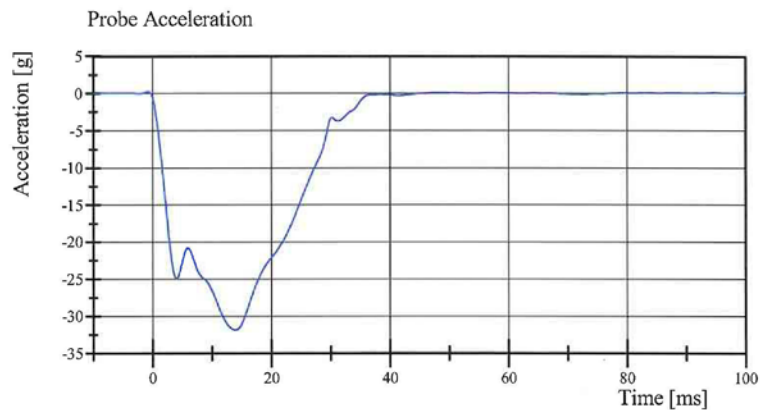
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.16.2014 12:30:10 617



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 31-1
Test Date: 4/16/2014



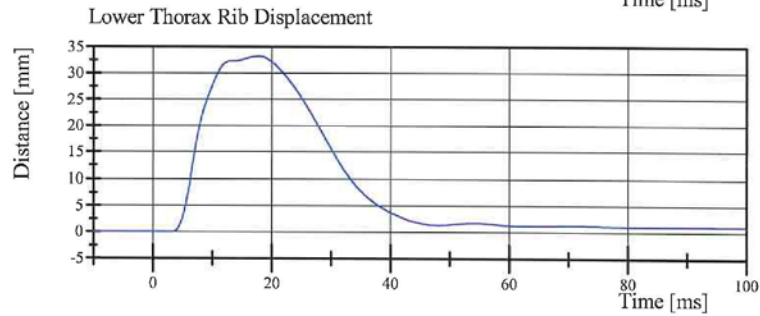
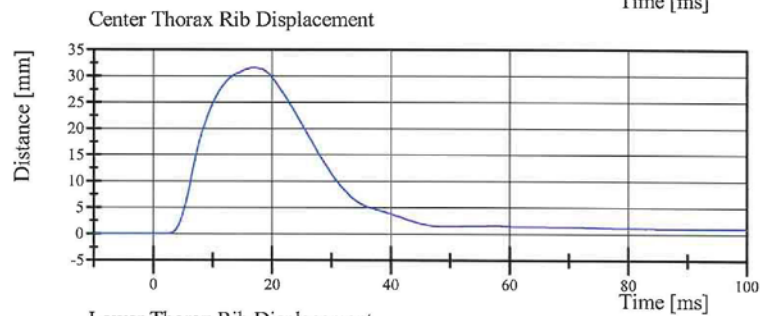
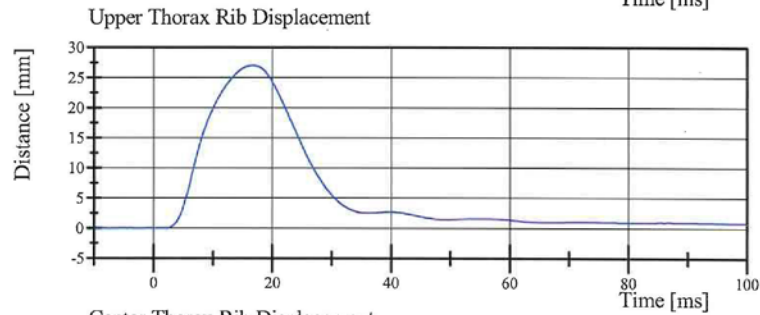
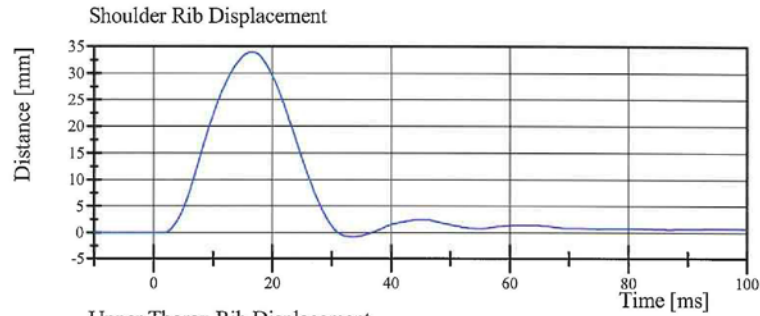
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.16.2014 12:30:33 617



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 31-1
Test Date: 4/16/2014



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

04.16.2014 12:30:33 617



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 31-1
Test Date: 4/16/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.328 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.9 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.0 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.5 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	36.2 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	15.2 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.7 g	Yes

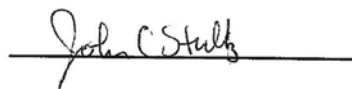
Test meets specifications.

Comments:

Technician



Approved



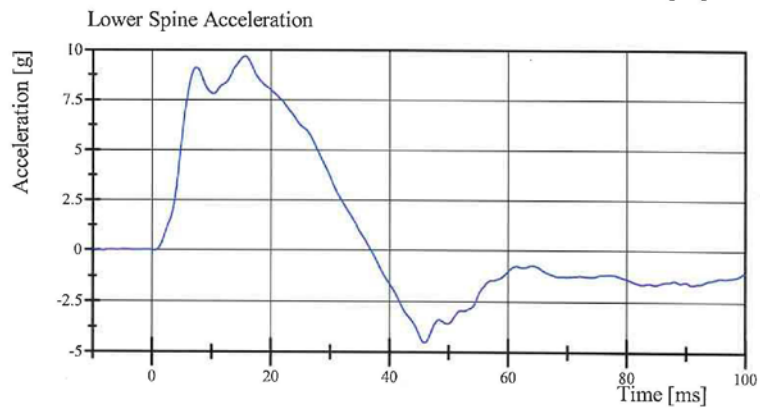
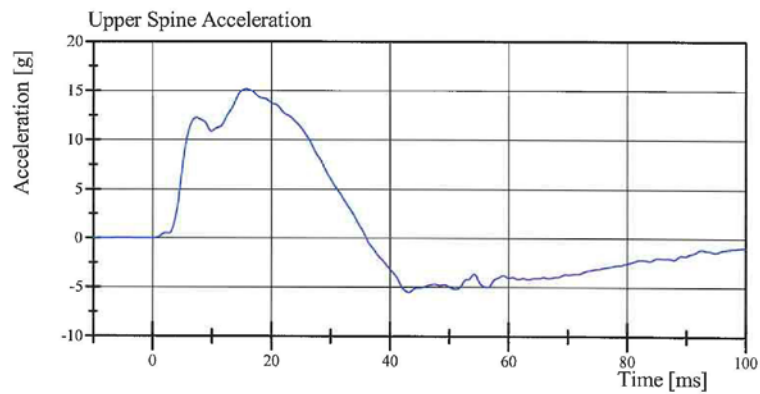
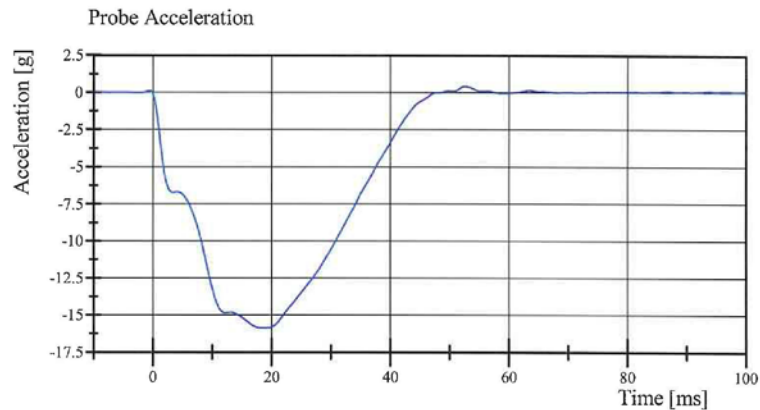
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

04.16.2014 11:22:01 824



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 31-1
Test Date: 4/16/2014



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

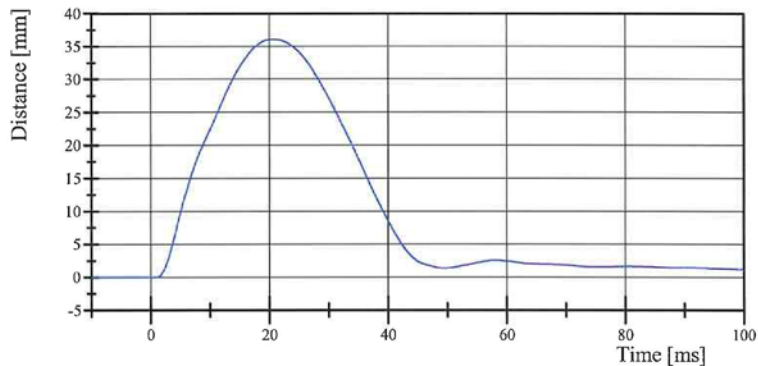
04.16.2014 11:22:10 824



Transportation Research Center Inc.

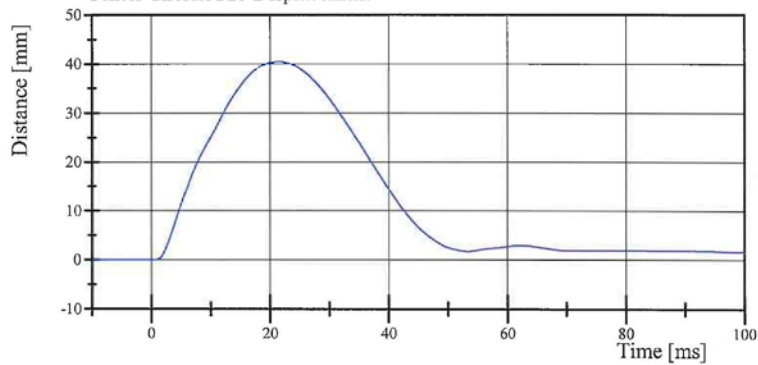
Left Lateral Thorax without Arm
SID IIIs Serial No. 305 Certification No. 31-1
Test Date: 4/16/2014

Upper Thorax Rib Displacement



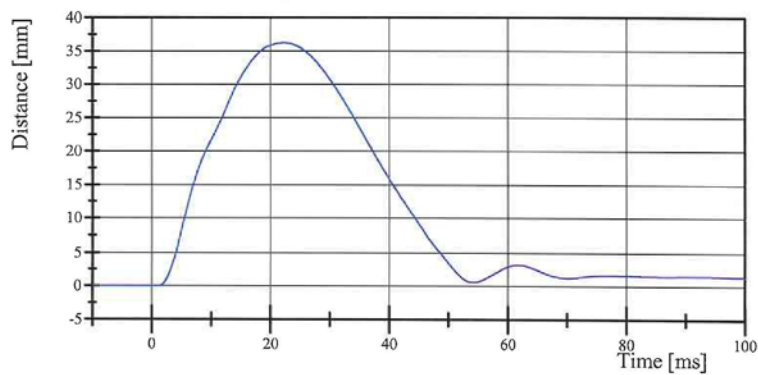
Filter Class: CFC_600
Max: 36.0 mm at 20.6 ms
Min: -0.0 mm at -2.4 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 40.5 mm at 21.5 ms
Min: -0.0 mm at -3.4 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 36.2 mm at 22.2 ms
Min: -0.0 mm at -2.6 ms

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

04.16.2014 11:22:11 824



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 31-1

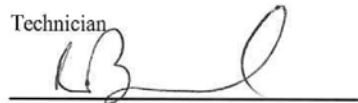
Test Date: 4/16/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.0 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	43.6 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	37.9 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.45 g	Yes

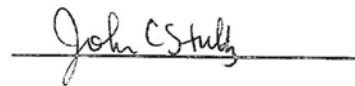
Test meets specifications.

Comments:

Technician



Approved



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

04.16.2014 10:59:46 648

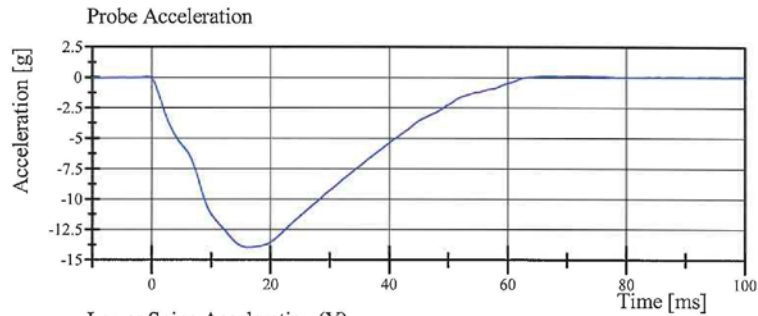


Transportation Research Center Inc.

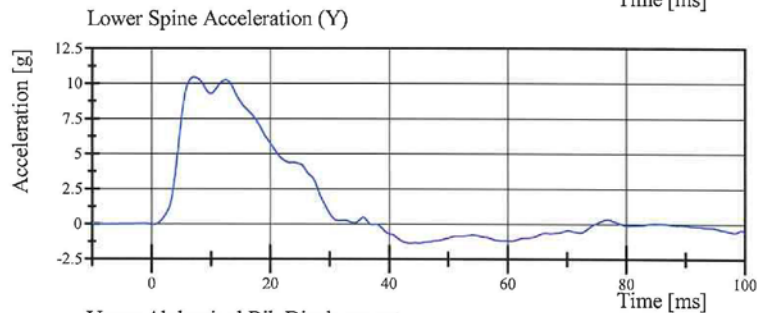
Left Lateral Abdomen

SID IIa Serial No. 305 Certification No. 31-1

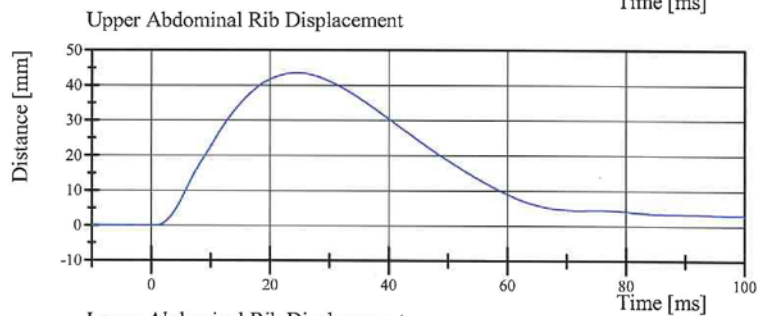
Test Date: 4/16/2014



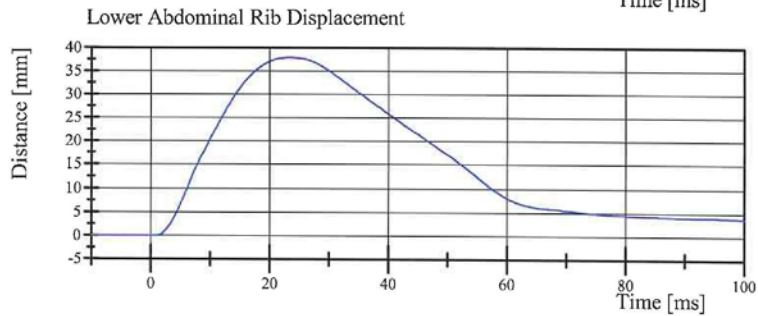
Filter Class: CFC_180
Max: 0.1 g at 73.0 ms
Min: -14.0 g at 16.2 ms



Filter Class: CFC_180
Max: 10.4 g at 7.0 ms
Min: -1.4 g at 43.4 ms



Filter Class: CFC_600
Max: 43.6 mm at 24.5 ms
Min: -0.0 mm at -5.6 ms



Filter Class: CFC_600
Max: 37.9 mm at 23.3 ms
Min: -0.0 mm at 1.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J2111.

04.16.2014 10:59:53 648



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 31-3

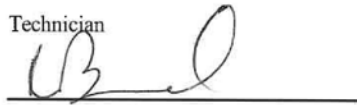
Test Date: 4/17/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.64 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.19 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	38.5 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,245.3 N	Yes

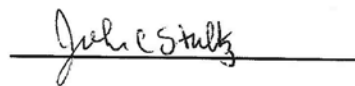
Test meets specifications.

Comments:

Technician



Approved



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

04.17.2014 07:21:34 399

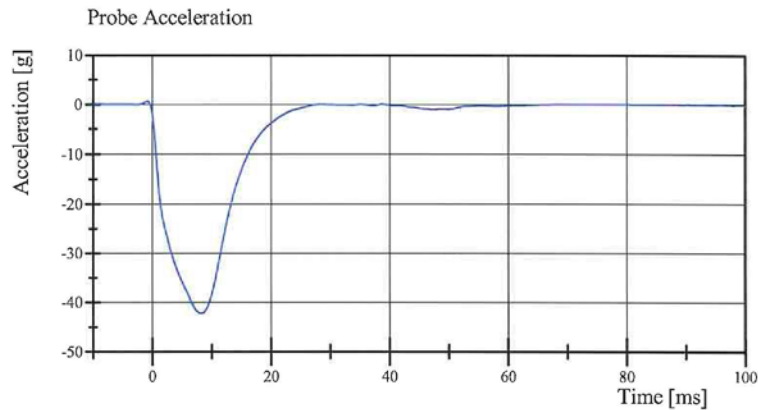


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 31-3

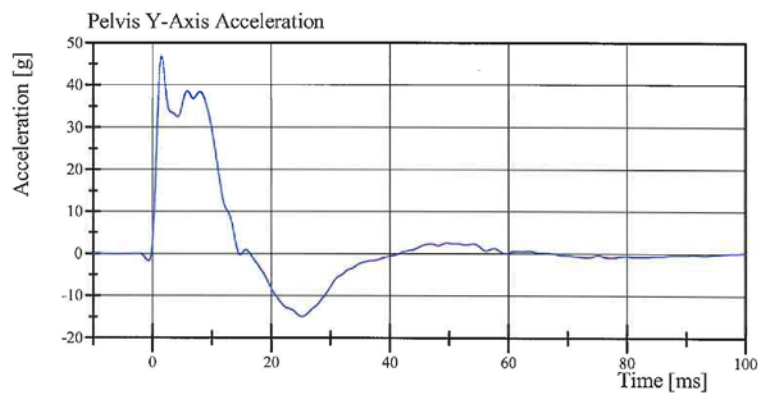
Test Date: 4/17/2014



Filter Class: CFC_180

Max: 0.6 g at -0.9 ms

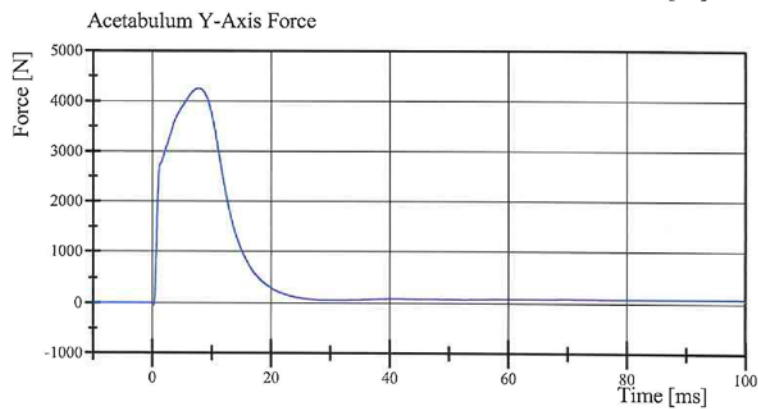
Min: -42.2 g at 8.2 ms



Filter Class: CFC_180

Max: 47.1 g at 1.5 ms

Min: -15.0 g at 25.2 ms



Filter Class: CFC_600

Max: 4,245.3 N at 7.8 ms

Min: -48.4 N at 0.2 ms

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

04.17.2014 07:21:41 399



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 31-2

Test Date: 4/15/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.9 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	31.9 g	Yes
Iliac Force	4,100 - 5,100 N	5,046.0 N	Yes

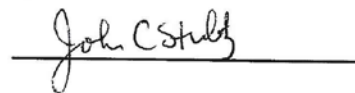
Test meets specifications.

Comments:

Technician



Approved



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

04.15.2014 15:28:52 653

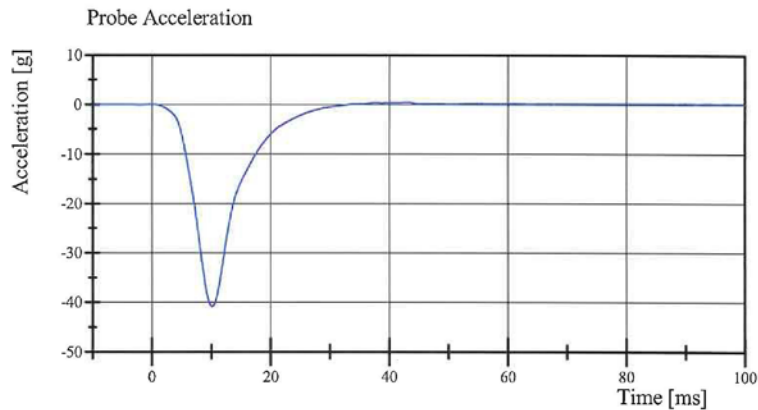


Transportation Research Center Inc.

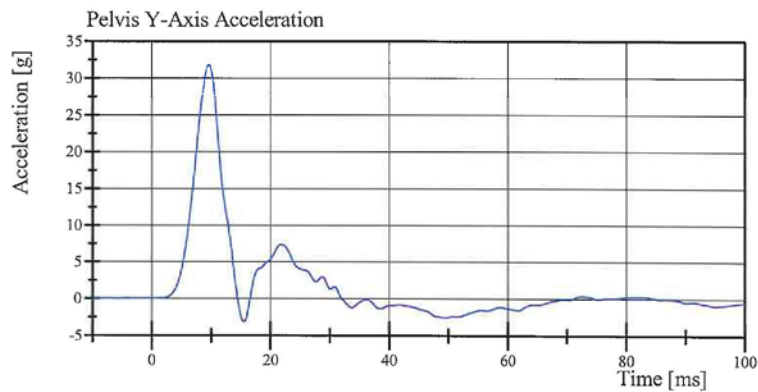
Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 31-2

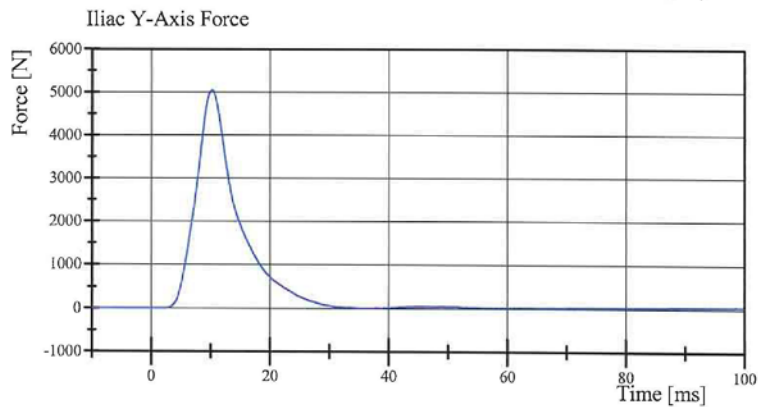
Test Date: 4/15/2014



Filter Class: CFC_180
Max: 0.4 g at 43.0 ms
Min: -40.9 g at 10.2 ms



Filter Class: CFC_180
Max: 31.9 g at 9.6 ms
Min: -3.1 g at 15.5 ms



Filter Class: CFC_600
Max: 5,046.0 N at 10.2 ms
Min: -0.8 N at -3.5 ms

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

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APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F030		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers		X	P58890	Endevco	9-Dec-13
		Y	P51702	Endevco	9-Dec-13
		Z	P52083	Endevco	9-Dec-13
Thoracic Rib Displacement Potentiometers	Upper	Y	111	FTSS	27-Jan-14
	Middle	Y	174	FTSS	10-Dec-13
	Lower	Y	173	FTSS	10-Dec-13
Abdomen Load Cells	Front	Y	1441	Denton	21-Oct-13
	Middle	Y	1436	Denton	21-Oct-13
	Rear	Y	1437	Denton	21-Oct-13
Lower Spine Accelerometers (T12)		X	P15954	Endevco	9-Dec-13
		Y	P68599	Endevco	9-Dec-13
		Z	P59005	Endevco	9-Dec-13
Acetabulum Load Cell		Y	N/A	N/A	N/A
Pubic Symphysis Load Cell		Y	457-FY	Denton	21-Oct-13

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 305			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P51719	Endevco	11-Dec-13
				Y	P51272	Endevco	11-Dec-13
				Z	P58862	Endevco	11-Dec-13
Displacement Potentiometers	Shoulder		Y	N/A	N/A	N/A	
	Thoracic Rib	Upper	Y	007	Servo	12-Dec-13	
		Middle	Y	1161	Servo	12-Dec-13	
		Lower	Y	037	Servo	21-Jan-14	
	Abdominal Rib	Upper	Y	1295	Servo	12-Dec-13	
		Lower	Y	1136	Servo	12-Dec-13	
Lower Spine Accelerometers (T12)				X	P50068	Endevco	12-Dec-13
				Y	P52051	Endevco	12-Dec-13
				Z	P51710	Endevco	12-Dec-13
Acetabulum Load Cell				Y	D14283-FY	FTSS	13-Jan-14
Iliac Wing Load Cell				Y	287-FY	FTSS	28-Oct-13
Pelvis Plug (struck side)					63296	FTSS	24-Jan-14
Pelvis Plug (non-struck side)					36473	FTSS	23-Sep-10

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	P83380	Endevco	11-Mar-14
	Vehicle Center of Gravity	Y	MS23331	Measurement Specialties	6-Mar-14
	Vehicle Center of Gravity	Z	MS23302	Measurement Specialties	6-Mar-14
2	Right Sill at Front Seat	X	MS22976	Measurement Specialties	5-Mar-14
	Right Sill at Front Seat	Y	MS22988	Measurement Specialties	6-Mar-14
	Right Sill at Front Seat	Z	P83294	Endevco	11-Mar-14
3	Right Sill at Rear Seat	X	MS23133	Measurement Specialties	22-Jan-14
	Right Sill at Rear Seat	Y	MS23130	Measurement Specialties	22-Jan-14
	Right Sill at Rear Seat	Z	P81597	Endevco	12-Nov-13
4	Left Sill at Front Door	Y	P82289	Endevco	5-Nov-13
5	Left Sill at Rear Door	Y	P83377	Endevco	12-Mar-14
6	Left A-Post Lower	Y	P76187	Endevco	15-Jan-14
7	Left A-Post Middle	Y	P78202	Endevco	3-Mar-14
8	Left B-Post Lower	Y	P83283	Endevco	12-Mar-14
9	B-Post Middle	Y	P83386	Endevco	12-Mar-14
10	Front Seat Track	Y	P81991	Endevco	5-Nov-13
11	Rear Seat Track or Structure	Y	P80138	Endevco	14-Feb-14
12	Right Rear Occupant Compartment	Y	P83395	Endevco	12-Mar-14
13	Engine Block	X	P83284	Endevco	12-Mar-14
	Engine Block	Y	P83282	Endevco	12-Mar-14
14	Rear Floorpan Above Axle	X	P78102	Endevco	24-Feb-14
	Rear Floorpan Above Axle	Y	P80700	Endevco	24-Feb-14
	Rear Floorpan Above Axle	Z	P80708	Endevco	24-Feb-14

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	P81635	Endevco	14-Nov-13
MDB Center of Gravity	Y	P81091	Endevco	5-Nov-13
MDB Center of Gravity	Z	P80616	Endevco	14-Nov-13
Left Frame Rail at Rear Axle Centerline	X	P78093	Endevco	15-Jan-14
Left Frame Rail at Rear Axle Centerline	Y	P77746	Endevco	15-Jan-14