

REPORT NUMBER: SPNCAP-KAR-15-001

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

**TOYOTA MOTOR CORPORATION
2015 LEXUS RX 350 5-DOOR MPV**

NHTSA No: M20155300

**PREPARED BY:
KARCO ENGINEERING, LLC.
9270 HOLLY ROAD
ADELANTO, CA 92301**



JUNE 19, 2014

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
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OFFICE OF CRASHWORTHINESS STANDARDS
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15. Supplementary Notes																														
16. Abstract A 32.2 km/h (20 mph) 75° oblique impact Side NCAP Test was conducted on the subject 2015 Lexus RX 350 5-door MPV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on June 5, 2014. The impact velocity was 31.57 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 32.8° C. The target vehicle's maximum post-test static crush was 501 mm located at level 3. The test vehicle's occupant performance data is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Units</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>430.6</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82</td> <td>35</td> </tr> <tr> <td>Total Pelvic Force (Sum of Acetabular and Iliac Forces)</td> <td>N</td> <td>5525</td> <td>2221</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>12</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45</td> <td>18</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches. The opposite doors did not open during the side impact event.				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	430.6	Resultant Lower Spine Acceleration	g	82	35	Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	2221	Maximum Thoracic Rib Deflection	mm	38	12	Maximum Abdominal Rib Deflection	mm	45	18
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Information Services Division, NPO-411 1200 New Jersey Ave., SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																												
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SECTION 1

TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2015 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00122. The purpose of this test is to generate comparative side impact performance in a 2015 Lexus RX 350 5-door MPV. 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 rigid pole side impact test was conducted on a 2015 Lexus RX 350 5-door MPV. The subject vehicle was towed into the rigid pole at an angle of 74.7° and a velocity of 31.57 km/h. The test was conducted by KARCO Engineering, LLC. in Adelanto, California on June 5, 2014. Pre- and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

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

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

- Primary and Redundant Head CG tri-axial accelerometers
- Thorax upper, middle and lower rib displacement potentiometers
- Abdomen upper and lower rib displacement potentiometers
- Lower spine (12) tri-axial accelerometers
- Iliac load cell
- Acetabulum load cell

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

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

Measurement Description	Units	Passenger ATD (SID-IIs)	
		IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	430.6
Lower Spine (T12) Resultant Acceleration	g	82	35
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2221
Maximum Thoracic Rib Deflection	mm	38*	12
Maximum Abdominal Rib Deflection	mm	45*	18

*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	No	
Knee Airbag	Yes	No	No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	No	
Side Airbag 3 (Torso)	No		Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	
Other	No		No	

GENERAL COMMENTS

The doors on the struck side of the vehicle remained closed and latched. There was no separation at the hinges or latches. The doors on the non-struck side remained closed and latched. There were no ATD values that exceeded limits.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lbf/in ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20155300
Model Year	2015
Make	Lexus
Model	RX 350
Body Style	5-Door MPV
VIN	JTJZK1BA8F2420144
Body Color	Claret Mica
Odometer Reading (km / mi)	26 / 16
Engine Displacement (L)	3.5
Type / No. of Cylinders	V6
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	Front
Roof Rack	Yes
Sunroof / T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	None
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	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	Yes
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	No

Does Owner's Manual provide instructions to turn off automatic door locks?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation
Date of Manufacture	Mar-14
Vehicle Type	MPV

GVWR (kg)	2520
GAWR Front (kg)	1360
GAWR Rear (kg)	1385

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				395.0	A
DSC x 68.04 (kg)				340.2	B
Cargo Weight (RCLW) (kg)				54.8	A-B

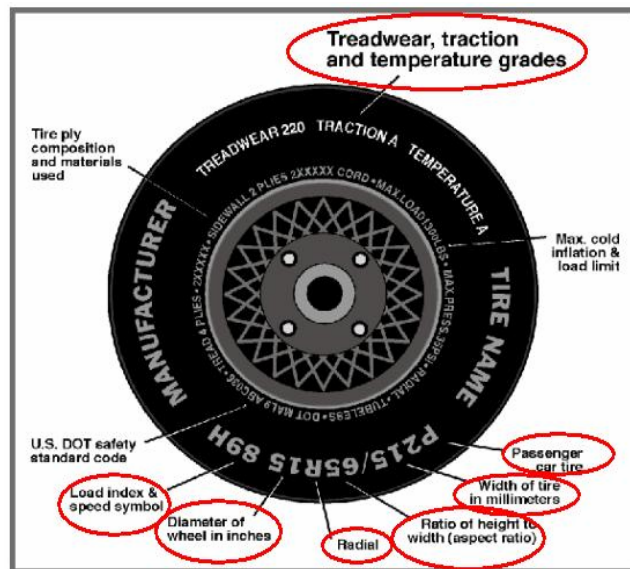
VEHICLE SEAT TYPE

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

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	220	220
Recommended Tire Size	P235/60R18	P235/60R18
Tire Size on Vehicle	P235/60R18	P235/60R18
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Dueler H/L 400	Dueler H/L 400
Treadware	260	260
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Nylon	2 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	102V	102V
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	EL DC CMJ0814	EL DC CMJ0814
DOT Safety Code Right	EL DC CMJ0814	EL DC CMJ0814

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	275	275	275	275
Tire Placard	kPa	220	220	220	220
Owner's Manual	kPa	220	220	220	220
As Tested	kPa	220	220	220	220

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	560.5	411.0		581.0	451.0		575.0	461.0	
Right	kg	534.0	395.0		549.0	417.0		539.0	428.0	
Ratio	%	57.6%	42.4%	100.0%	56.6%	43.4%	100.0%	55.6%	44.4%	100.0%
Total	kg	1094.5	806.0	1900.5	1130.0	868.0	1998.0	1114.0	889.0	2003.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1900.5	A
Actual Weight of 1 P572 O ATD Used	kg	49.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	54.8	C
Calculated Vehicle Target Wt (TVTW)	kg	2004.3	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 -9.0 kg)? ☒ Yes ☐ No

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	°	0.0	0.0	0.0	Yes
Front Passenger Sill Angle (front-to-rear)*	°	-0.2	-0.1	-0.1	Yes
Front Bumper-Line Angle (left-to-right)**	°	-0.2	-0.2	-0.3	Yes
Rear Bumper-Line Angle (left-to-right)**	°	-0.2	0.0	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	1161	1189	1215	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	18	27	28	

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

***The "As Tested" vehicle attitude angle measurements must be within "As Delivered" and the "Fully Loaded" vehicle attitude measurements at each location. Indicate "Yes" or "No" for "Meets Requirement"

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Spare Tire and Tools	26.0
Trunk Trim	13.0
Ballast / Equipment Added	73.0

Test Height Adjustable Setting (If Applicable)	
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DATA SHEET NO. 2**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT, AND FUEL SYSTEM DATA**

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	7.0	0.0	3.5
Front Passenger Seat	5.3	0.0	2.7
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed to RR	Fixed to RR	Fixed to RR

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle	As Tested SCRP Height	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	3.5	720	Max	735	738	740
			Mid	716	718	720
			Min	696	698	701
Front Passenger Seat	2.7	712	Max	727	729	731
			Mid	708	710	712
			Min	688	690	692
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed to RR	Fixed to RR	Max	Fixed to RR	Fixed to RR	Fixed to RR
			Mid	Fixed to RR	Fixed to RR	Fixed to RR
			Min	Fixed to RR	Fixed to RR	Fixed to RR

DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

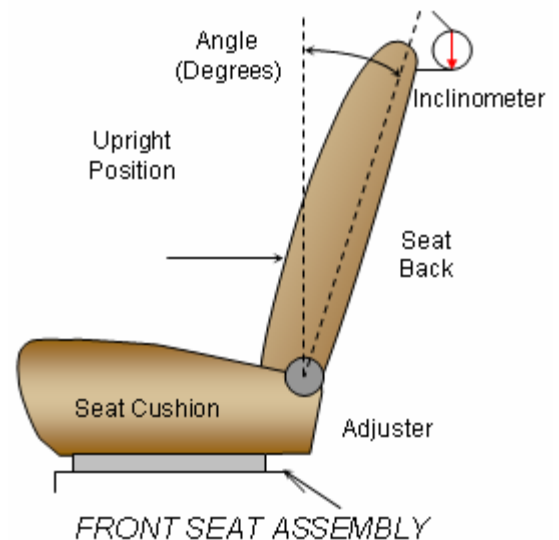
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	260	N/A	0	N/A
Front Passenger Seat	260	N/A	0	N/A
Front Center Seat				
Struck Side Rear Seat	123	9	123	8
Non-Struck Side Rear Seat	123	9	123	8
Rear Center Seat	Fixed to RR	Fixed to RR	Fixed to RR	Fixed to RR

*Detent zero (0) is the forward most detent

SEAT BACK ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner to the driver's seat. The struck side rear passenger seat back is positioned in accordance with the information provided by the manufacturer in Form 1 for the 5th percentile female dummy in a Side NCAP MDB Test. The rear center and non-struck side rear passenger's seat back is set to match the struck side rear seat back. Seat back angle is measured at the headrest post.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	52.1	N/A	10.4	N/A
Front Passenger Seat	51.8	N/A	10.4	N/A
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	14.6	9	16.7	0
Non-Struck Side Rear Seat	14.7	9	16.7	0
Rear Center Seat	Fixed to RR	Fixed to RR	Fixed to RR	Fixed to RR

*Detent zero (0) is the forward most detent

DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. The positions are marked H, M1, ..., L from top to bottom.

	Total No. of Positions	Placed in Position
Driver Seat	4	H

HEAD RESTRAINT ADJUSTMENT

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

	Total No. of Positions	Placed in Position
Driver Seat	4	Full Down

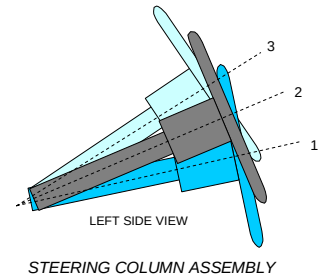
DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

STEERING COLUMN ADJUSTMENT

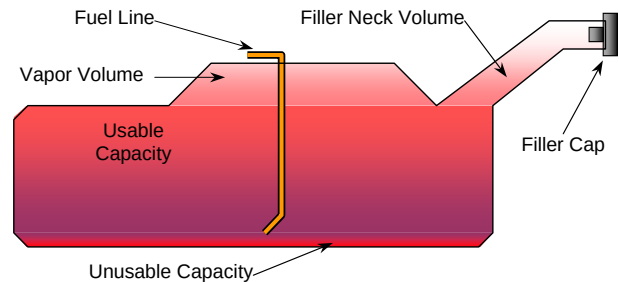
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of the geometric locus it describes when it moves through its full range of motion.



	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	24.3	101
Geometric Center - Position 2	26.1	120
Uppermost - Position 3	28.0	139
Telescoping Steering Wheel Travel		38
Test Position	26.1	120

FUEL PUMP

The vehicle is equipped with an electric fuel pump.
 The fuel pump is activated when the ignition is turned on.



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

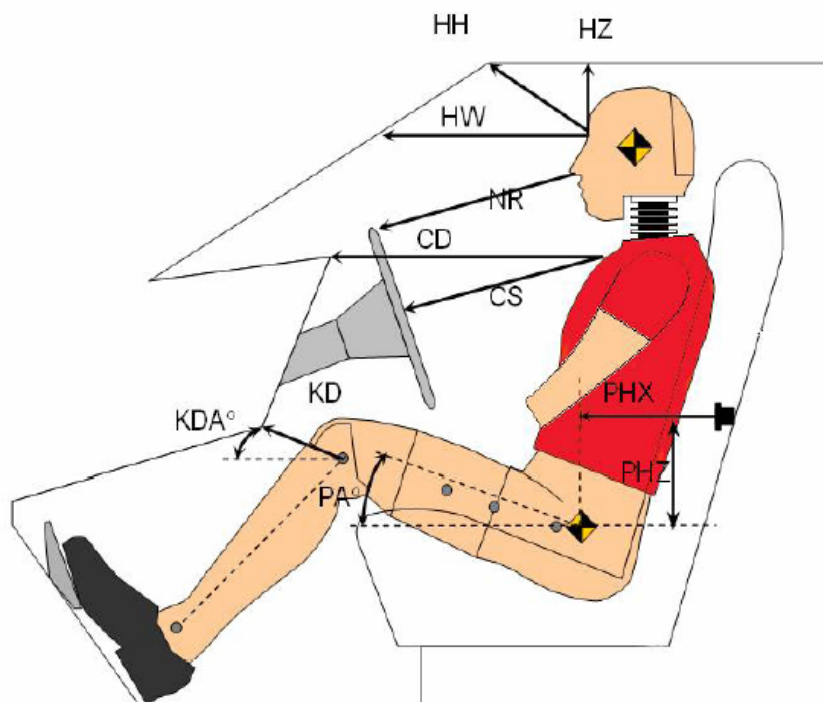
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	72.67
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	67.60
Actual amount of Solvent Used in Test	67.60
1/3 of Usable Capacity	24.22

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

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14



Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	306	
HW	Head to Windshield	687	
HZ	Head to Roof	200	
NR	Nose to Rim	222	
CD	Chest to Dash	376	
CS	Chest to Steering Wheel	150	
KD(L)/KDA(L)°	Left Knee to Dash	94	37.1
KD(R)/KDA(R)°	Right Knee to Dash	85	35.3
PAX°	Pelvic Tilt Angle (x-axis)		21.4
PAY°	Pelvic Tilt Angle (y-axis)		0.3
PHX	Hip Point to Striker (x-axis)	381	
PHZ	Hip Point to Striker (z-axis)	159	

DATA SHEET NO. 4

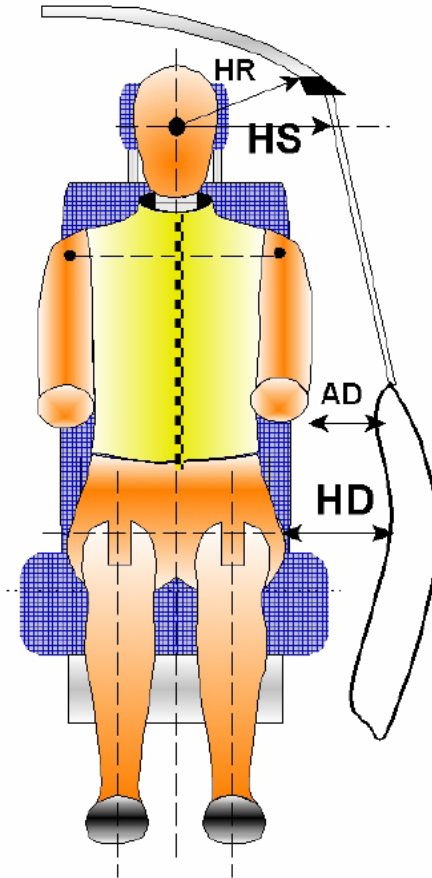
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV

NHTSA No. M20155300

Test Program: NCAP Side Pole Impact Test

Test Date: 06/05/14

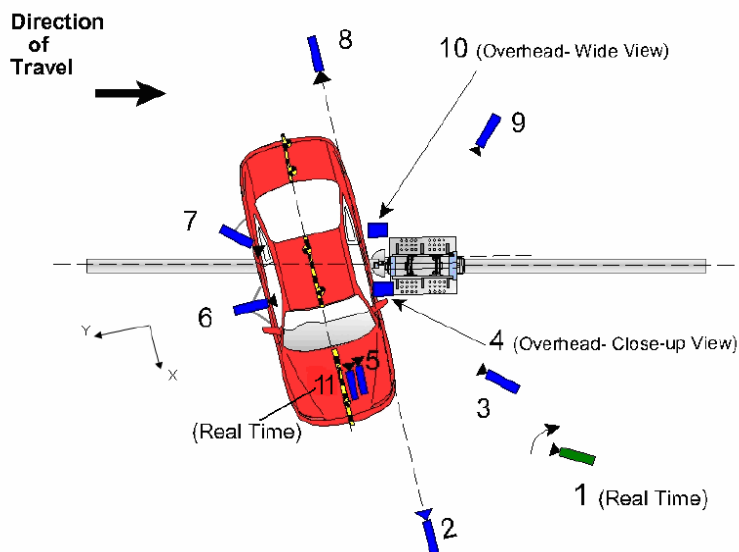


Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	245
HS	Head to Side Window	mm	383
AD	Arm to Door	mm	172
HD	Hip Point to Door	mm	176

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14



Reference from Point of Impact for X and Y; from Ground for Z):
 +X = Forward of Vehicle, +Y = Right of Vehicle, +Z = Down

Camera No.	View	Coordinates (m)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real Time Pan View of Impact	8.89	46.57	-3.04		30
2	Front Ground Level - Impact View	8.34	-0.05	-0.93	24	1000
3	Impact Side 45° - Forward Pole View	4.10	-2.15	-1.15	8.5	1000
4	Overhead Close-Up View of Impact	0.00	0.00	-5.79	12.5	1000
5	On-Board - Dummy Front View	1.52	0.51	-1.55	35	1000
6	On-Board - Dummy Side View	-0.09	1.85	-1.19	14	1000
7	On-Board - Dummy Rear Oblique View	-0.97	1.83	-1.25	20	1000
8	Rear Ground Level - Impact View	-6.12	-6.23	-0.96	24	1000
9	Impact Side 45° - Rearward Pole View	-8.02	0.04	-1.01	35	1000
10	Overhead Wide View of Impact	-0.06	0.22	-5.79	14	1000
11	Real Time Dummy Front View	1.54	0.68	-1.54		30

*All measurements accurate to ± 6 mm

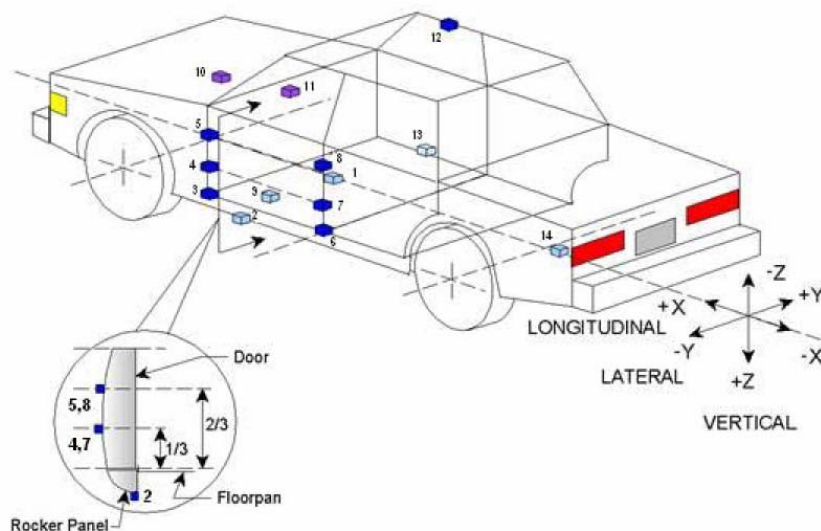
INSTRUMENTATION

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

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

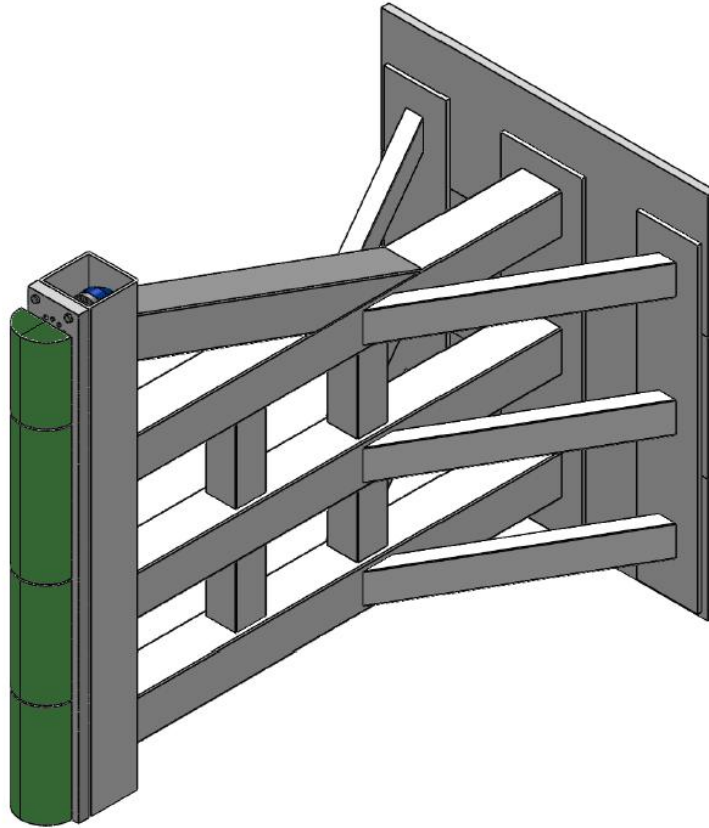


Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1913	35	-413
2	Left Floor Sill	2904	-776	-293
3	A-Pillar Sill	3123	-882	-632
4	A-Pillar Low	3123	-882	-761
5	A-Pillar Mid	3123	-882	-838
6	B-Pillar Sill	2061	-782	-551
7	B-Pillar Low	2061	-782	-775
8	B-Pillar Mid	2061	-782	-899
9	Driver Seat Track	2375	-195	-507
10	Engine Top	3934	337	-862
11	Firewall	3496	-58	-947
12	Right Roof	2241	466	-1655
13	Right Floor Sill	2078	712	-438
14	Rear Floorpan	982	-48	-567

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

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14



ID	Units	Height From Ground
1	mm	87
2	mm	468
3	mm	648
4	mm	978
5	mm	1168
6	mm	1651
7	mm	1816
8	mm	2057

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	None
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag, Headrest
Left Shoulder	Seat, Torso/Pelvis Airbag
Upper Torso	Seat, Torso/Pelvis Airbag
Lower Torso	Seat, Torso/Pelvis Airbag
Left Hip	Seat, Torso/Pelvis Airbag
Left Knee	Door Panel, Steering Column, Right Knee

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
Latch or Hinge System 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	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No separation occurred
Sill Separation	No separation occurred
Windshield Damage	Broken
Side Window Damage	Left front window broken
Other Notable Effects	None

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

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	Yes	No	No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	No	
Side Airbag 3 (Torso)	No		Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	
Other	No		No	

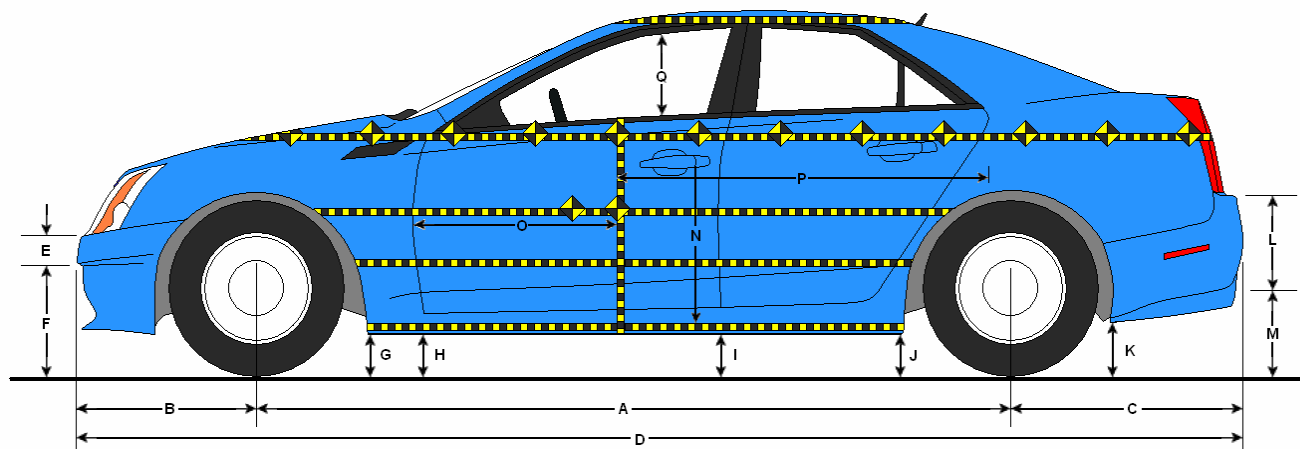
IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		1065
Actual Impact Point (Aft of Front Axle)	mm		1087
Horizontal Offset (+ forward / - rearward)	mm	± 38 of Intended Impact Point	-22
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	°	75 ± 3	74.7
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	31.57
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	31.61

DATA SHEET NO. 9

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14



LEFT SIDE VIEW

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

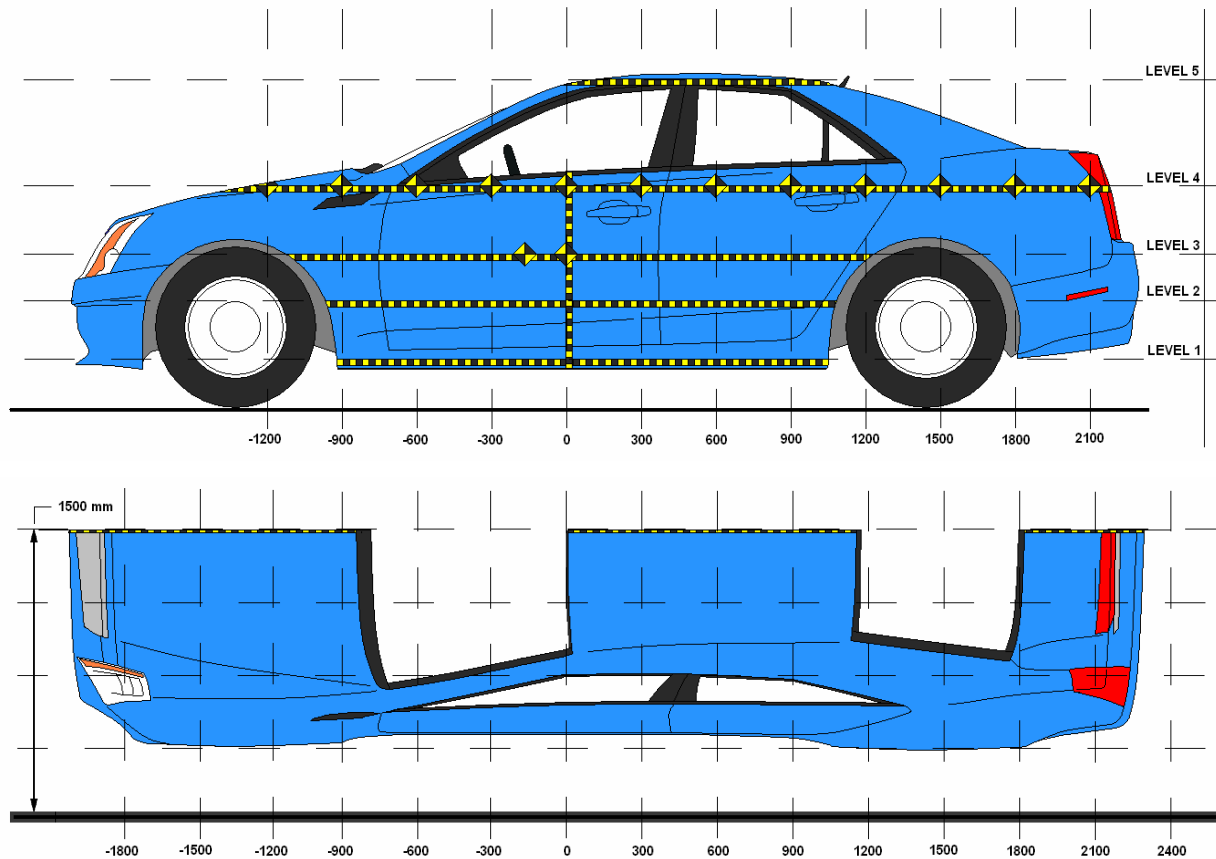
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2738	2631	-107
B	Front Axle to FSOV	981	998	17
C	Rear Axle to RSOV	1032	1069	37
D	Total Length at Centerline	4720	4698	-22
E	Front Bumper Thickness	108	107	-1
F	Front Bumper Bottom to Ground	561	609	48
G	Sill Height at Front Wheel Well	271	290	19
H	Sill Height at Front Door Leading Edge	269	298	29
I	Sill Height at B-Pillar	289	349	60
J1	Sill Height at Rear Wheel Well	269	331	62
J2	Pinch Weld Height at Rear Wheel Well	280	337	57
K	Sill Height Aft of Rear Wheel Well	411	445	34
L	Rear Bumper Thickness	214	215	1
M	Rear Bumper Bottom to Ground	503	530	27
N	Sill Height to Bottom of Front Window Sill	703	810	107
O	Front Door Leading Edge to Impact CL	570	437	-133
P	Rear Door Trailing Edge to Impact CL	1596	1464	-132
Q	Front Window Opening	427	468	41
R	Right Side Length	3278	3306	28
S	Left Side Length	3277	3162	-115
T	Vehicle Width at B-Pillar	1885	1808	-77

DATA SHEET NO. 10

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14



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

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	377	468	0
2	Occupant H-Point	698	497	0
3	Mid-Door	737	501	0
4	Window Sill	1091	416	0
5	Window Top	1604	221	150

DATA SHEET NO. 10 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900				689					743					54	
-750		556	556	675			649	649	748			93	93	73	
-600	573	555	556	662		682	662	662	756		109	107	106	94	
-450	576	557	558	613		746	731	730	749		170	174	172	136	
-300	575	558	558	646		845	837	839	869		270	279	281	223	
-150	577	558	558	644		952	953	954	960		375	395	396	316	
0	579	558	557	643		1047	1055	1058	1059		468	497	501	416	
150	580	559	558	642	895	1000	1034	1036	1052	1116	420	475	478	410	221
300	580	560	559	641	894	862	909	913	934	1065	282	349	354	293	171
450	583	561	560	639	894	719	774	778	832	1031	136	213	218	193	137
600	584	563	561	639	893	725	702	700	778	997	141	139	139	139	104
750	583	565	563	638	892	703	681	677	760	970	120	116	114	122	78
900	582	566	564	637	892	678	661	655	741	959	96	95	91	104	67
1050	585	562	562	639	896	658	641	634	725	955	73	79	72	86	59
1200	573	556	557	636	899	627	624	617	707	952	54	68	60	71	53
1350		553	553	635	904		603	598	691	954		50	45	56	50
1500				630	912				670	957				40	45
1650				628	921				679	958				51	37
1800				628	931				672	963				44	32
1950				634	939				672	968				38	29
2100				649					679					30	
2250															
2400															
2550															
2700															
2850															

DATA SHEET NO. 10 ... (CONTINUED)

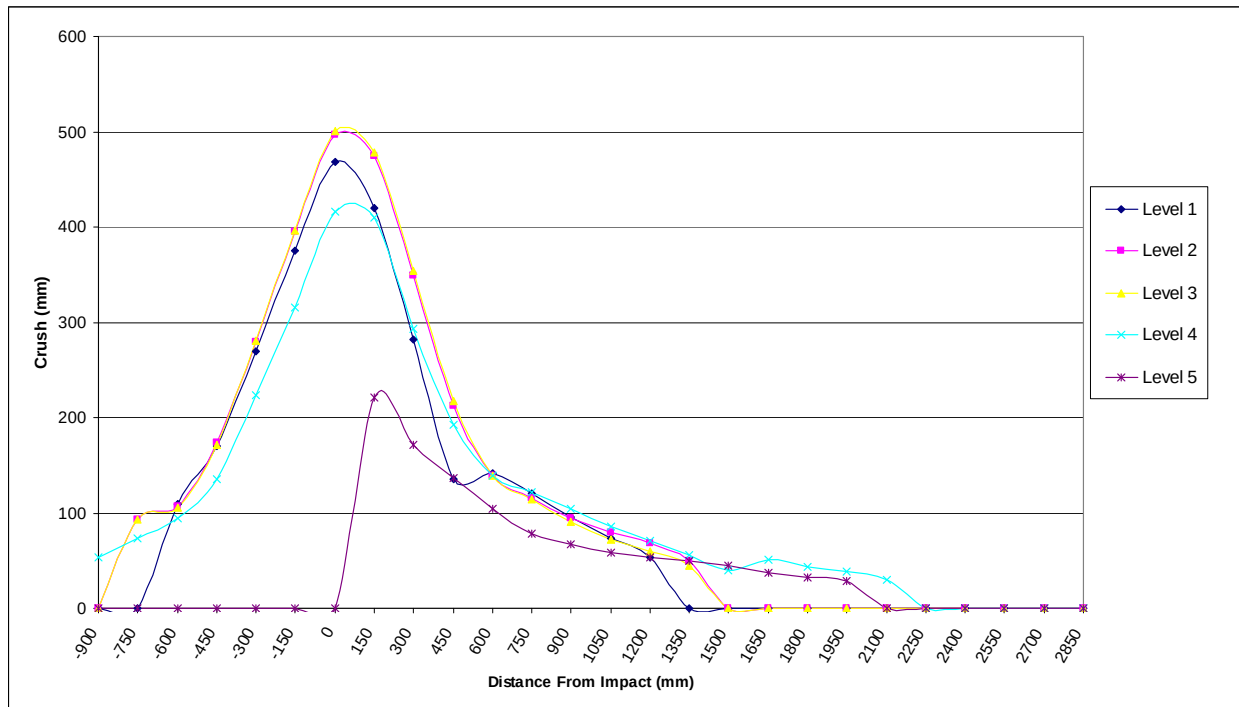
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV

NHTSA No. M20155300

Test Program: NCAP Side Pole Impact Test

Test Date: 06/05/14

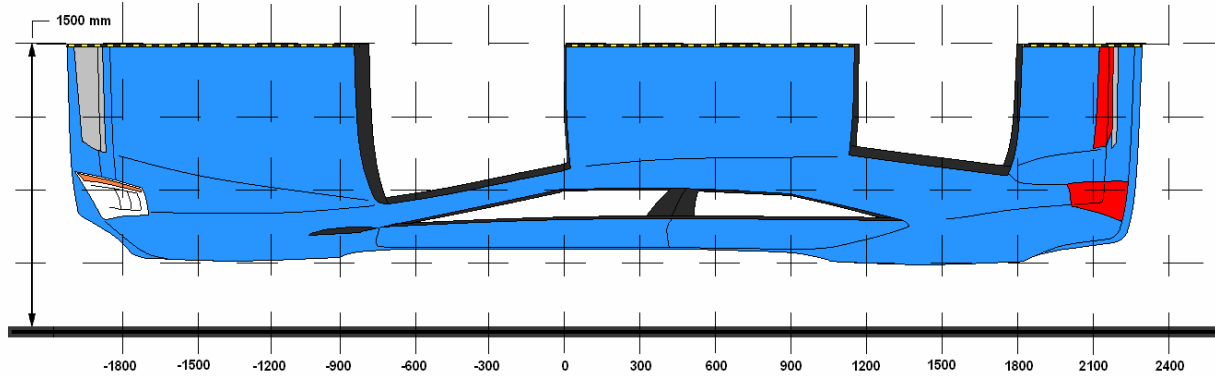


DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300

Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14



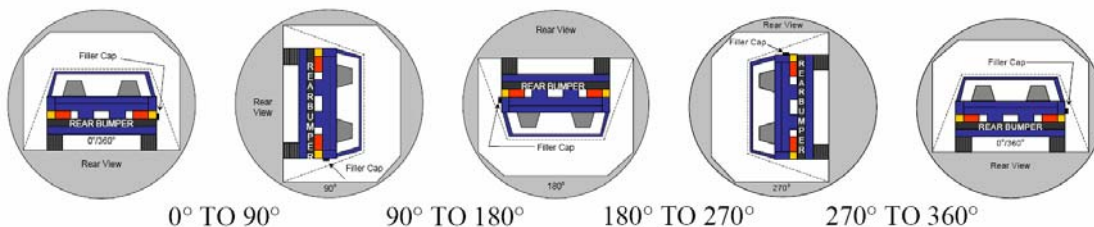
DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	2100	4	649	679	30
2	1500	5	912	957	45
3	900	4	637	741	104
4	300	3	559	913	354
5	-300	3	558	839	281
6	-900	4	689	743	54

DATA SHEET NO. 12

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
 Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14
 Temperature at Time of Impact: 32.8° C Test Time: 10:57 AM

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.
 (Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.
 (Maximum allowable = 1 oz./minute)
- D. Spillage Details: There was no Stoddard solvent spillage.



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	83	300	383
90° To 180°	83	300	383
180° To 270°	78	300	378
270° To 360°	84	300	384

FMVSS 301 SPILLAGE TABLE

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

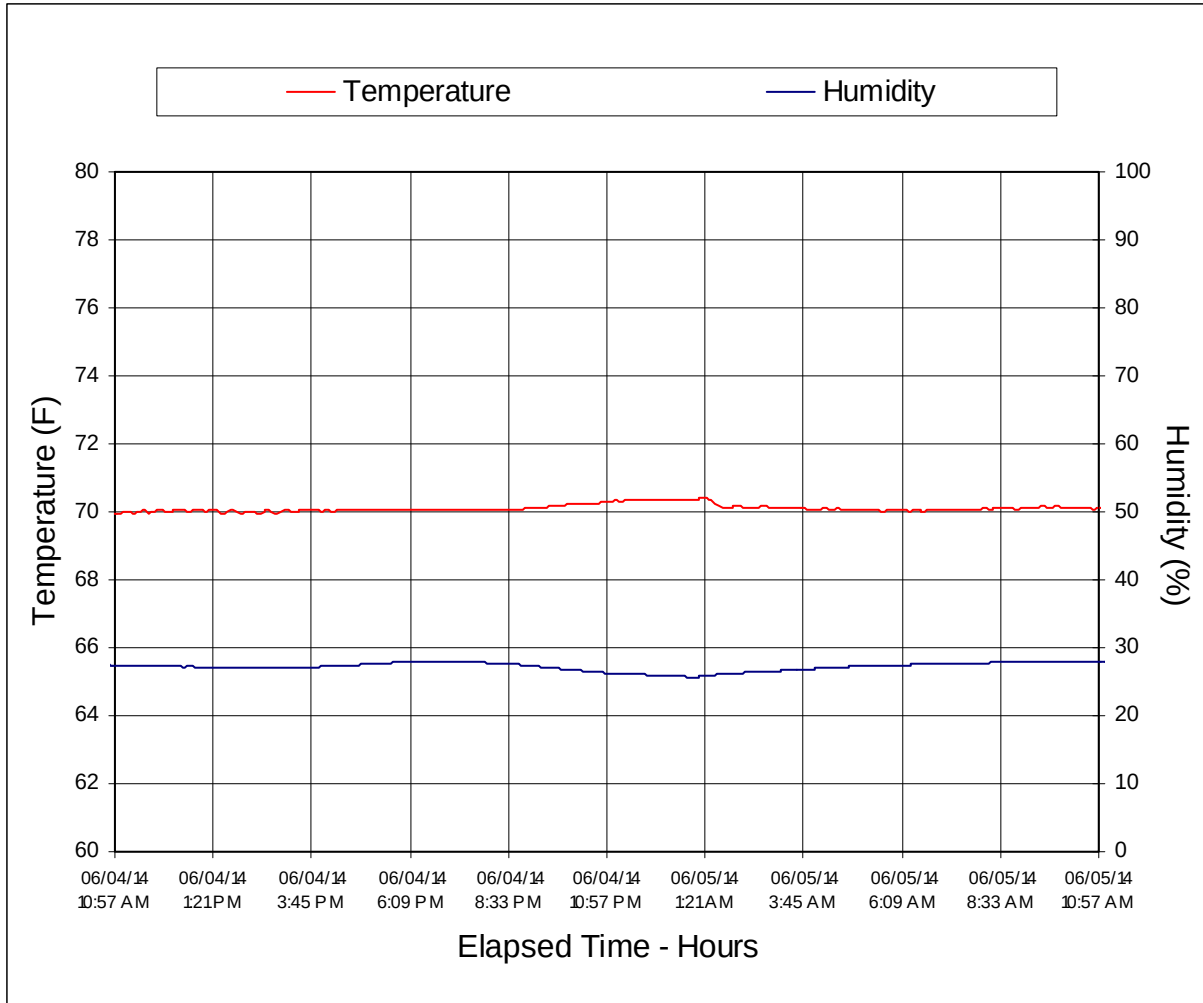
SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 13

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2015 Lexus RX 350 5-Door MPV NHTSA No. M20155300
Test Program: NCAP Side Pole Impact Test Test Date: 06/05/14



APPENDIX A
PHOTOGRAPHS

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FIGURE 1. As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 2. As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 3. Pre-Test Frontal View of Test Vehicle

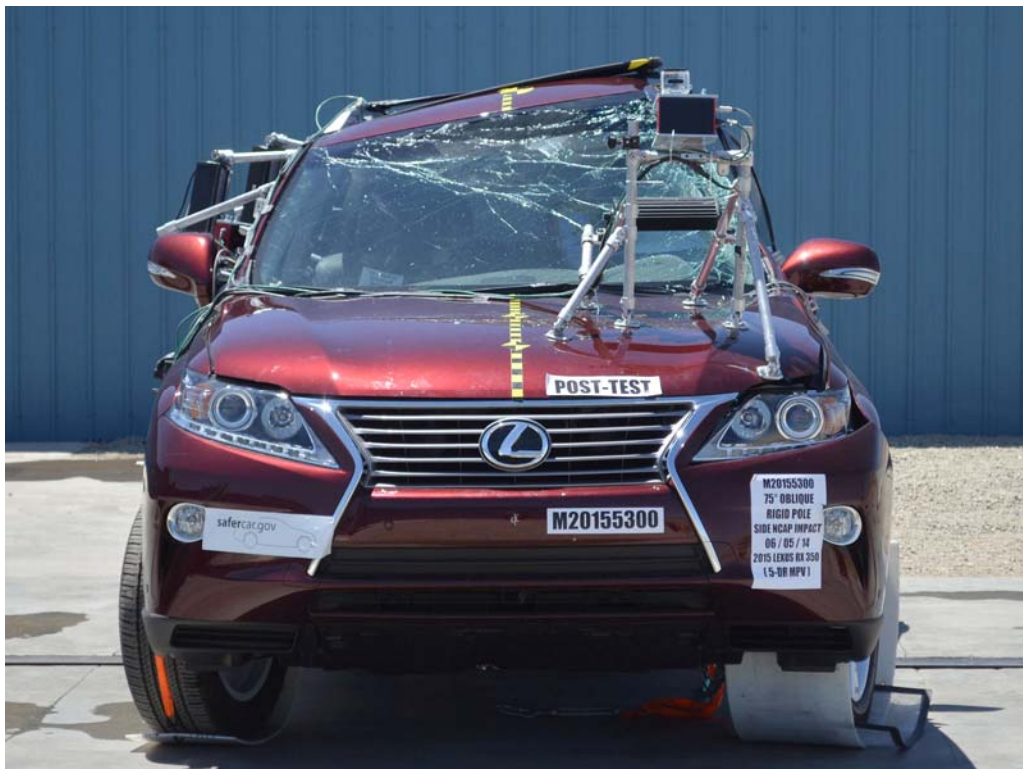


FIGURE 4. Post-Test Frontal View of Test Vehicle



FIGURE 5. Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 6. Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 7. Pre-Test Left Side View of Test Vehicle



FIGURE 8. Post-Test Left Side View of Test Vehicle



FIGURE 9. Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 10. Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



FIGURE 13. Pre-Test Right Side View of Test Vehicle



FIGURE 14. Post-Test Right Side View of Test Vehicle



FIGURE 15. Pre-Test Overhead View of Test Area

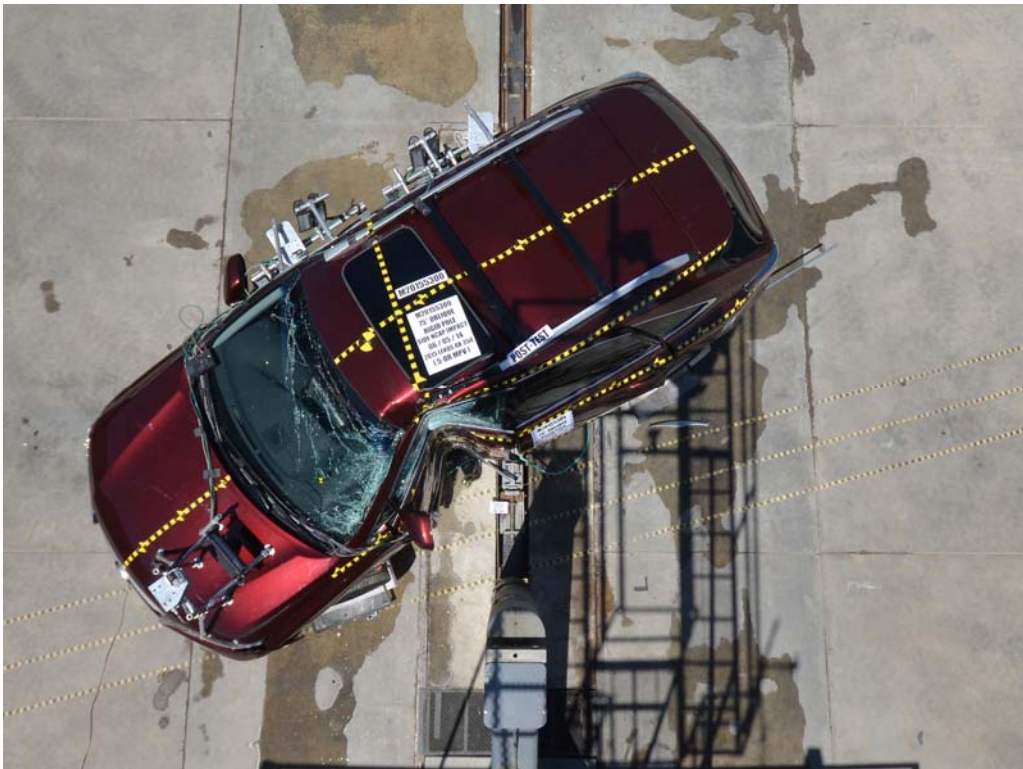


FIGURE 16. Post-Test Overhead View of Test Area



FIGURE 17. Pre-Test Left Side View of Pole
Positioned Against Side of Vehicle



FIGURE 18. Pre-Test Right Side View of Pole
Positioned Against Side of Vehicle



FIGURE 19. Pre-Test Close-Up View of Impact Point Target

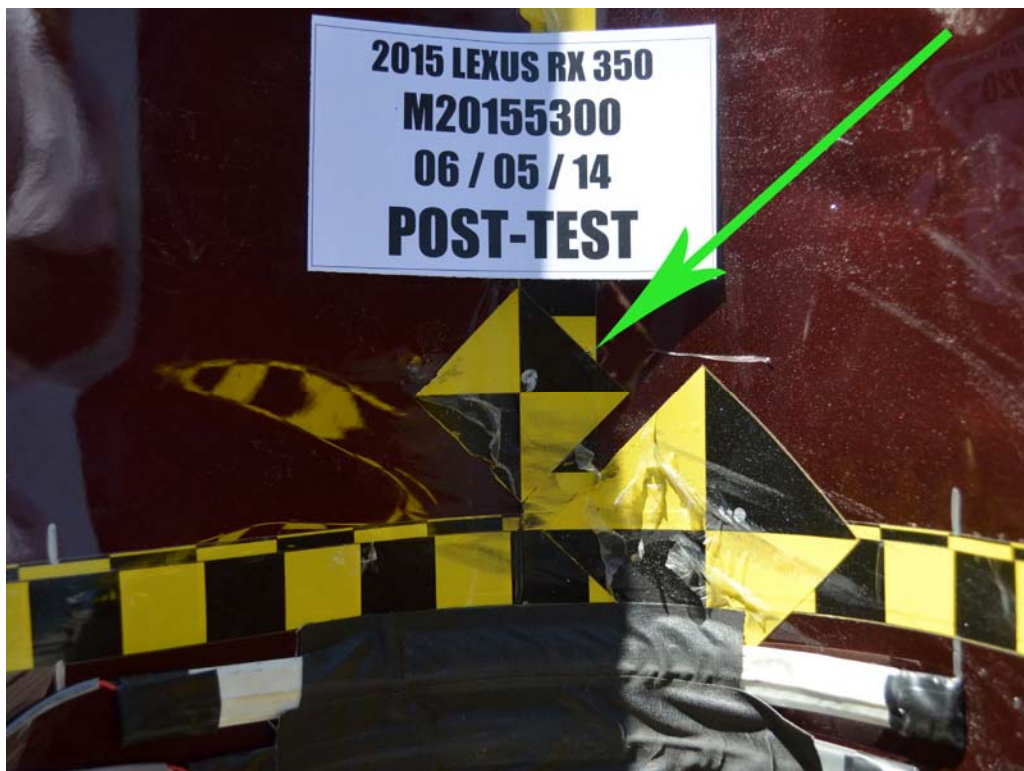


FIGURE 20. Post-Test Close-Up View of Impact Point Target
Showing Impact Location

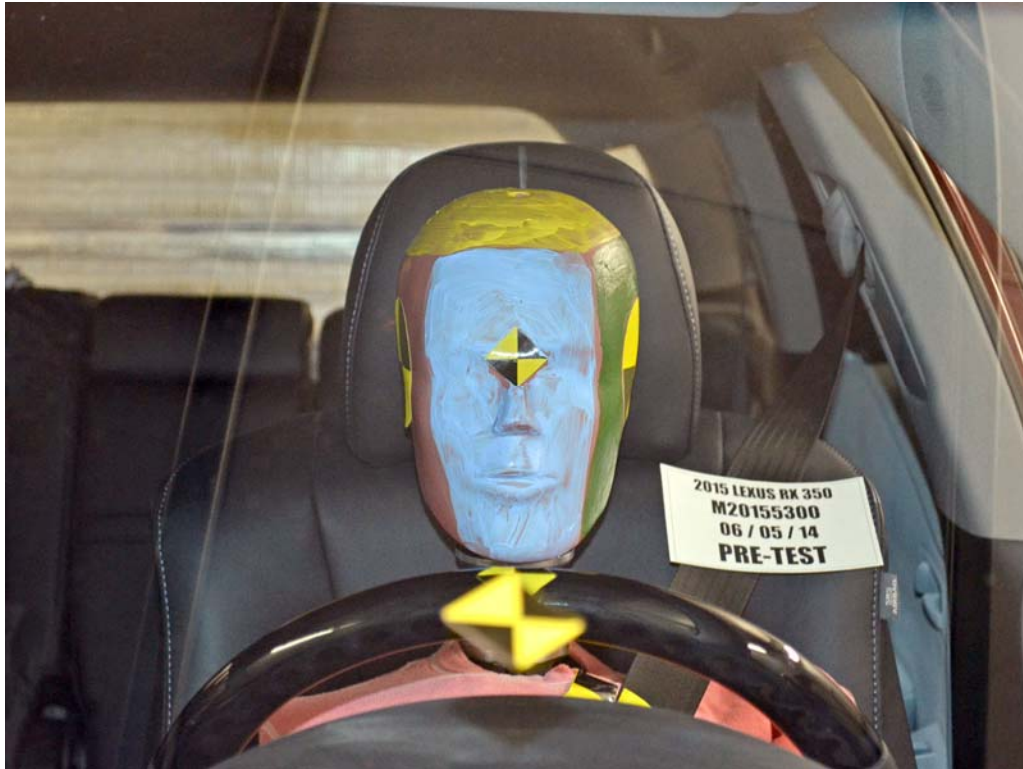


FIGURE 21. Pre-Test Front Close-Up View of Dummy Head and Chest



FIGURE 22. Post-Test Front Close-Up View of Dummy



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



FIGURE 24. Pre-Test Left Side View of Dummy Shoulder and Door Top View

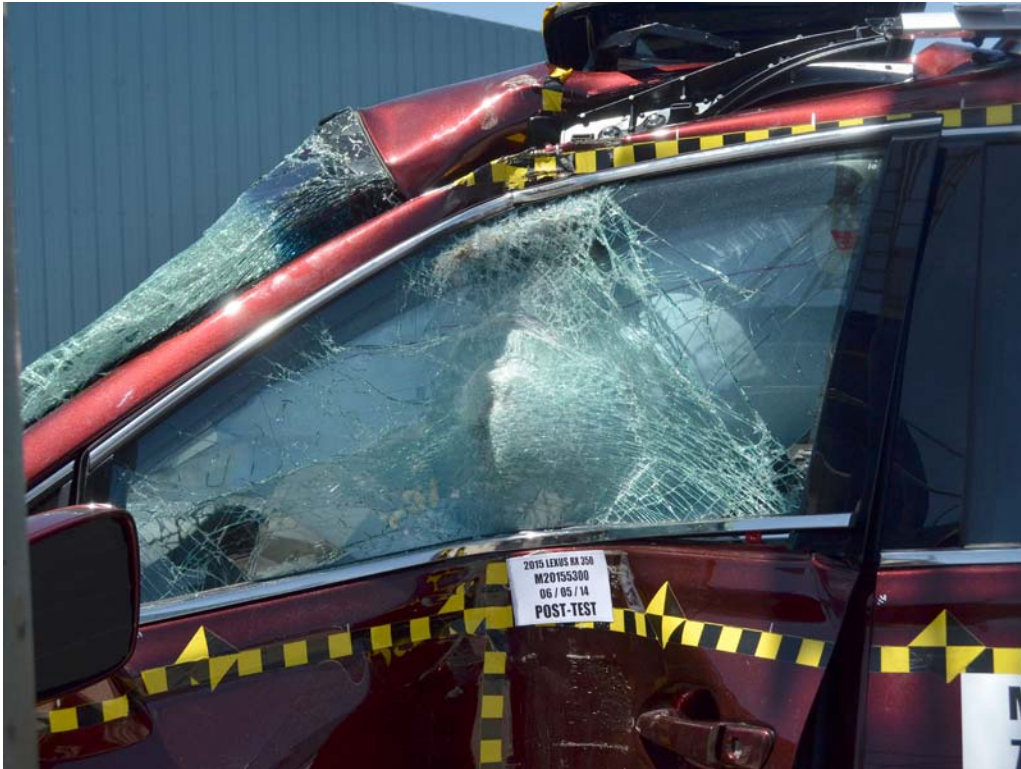


FIGURE 25. Post-Test Left Side View of Dummy Shoulder and Door Top View



FIGURE 26. Pre-Test Frontal View of Seat Back Prior to Dummy Positioning

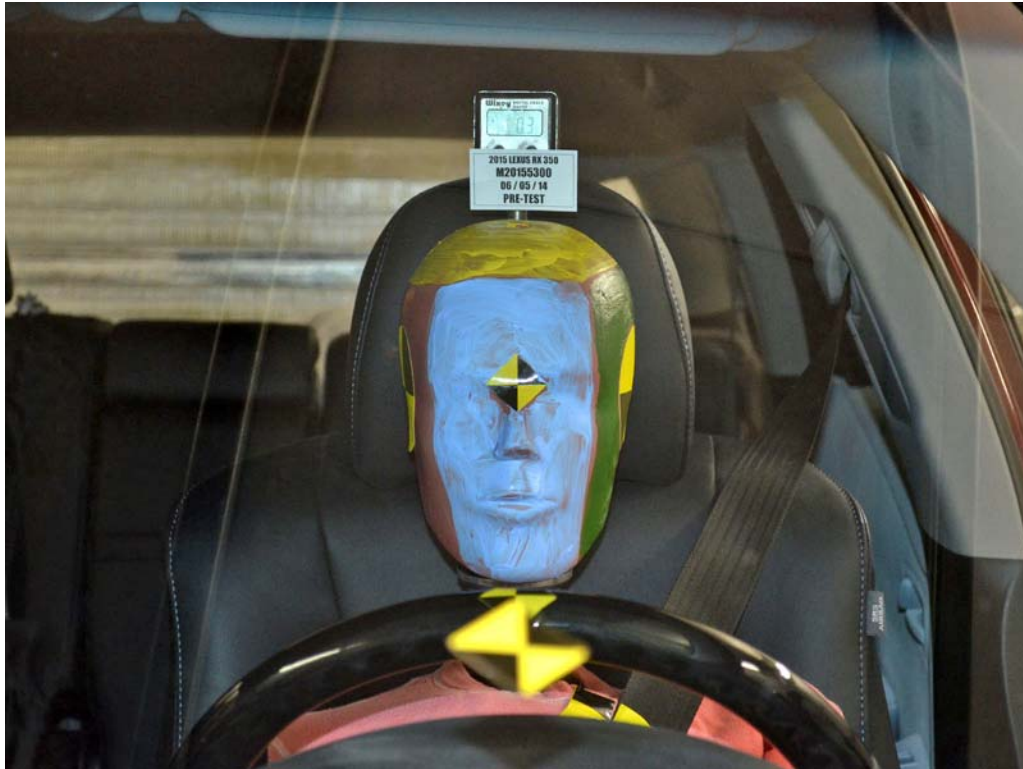


FIGURE 27. Pre-Test Frontal Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 28. Pre-Test Overhead View of Seat Pan Prior to Dummy Positioning



FIGURE 29. Pre-Test Overhead View of Dummy Thighs on Seat Pan



FIGURE 30. Pre-Test Left Side View of Dummy's Neck
Showing Position of Adjustable Neck Bracket



FIGURE 31. Pre-Test Left Side View of Dummy's Head Showing Head is Level

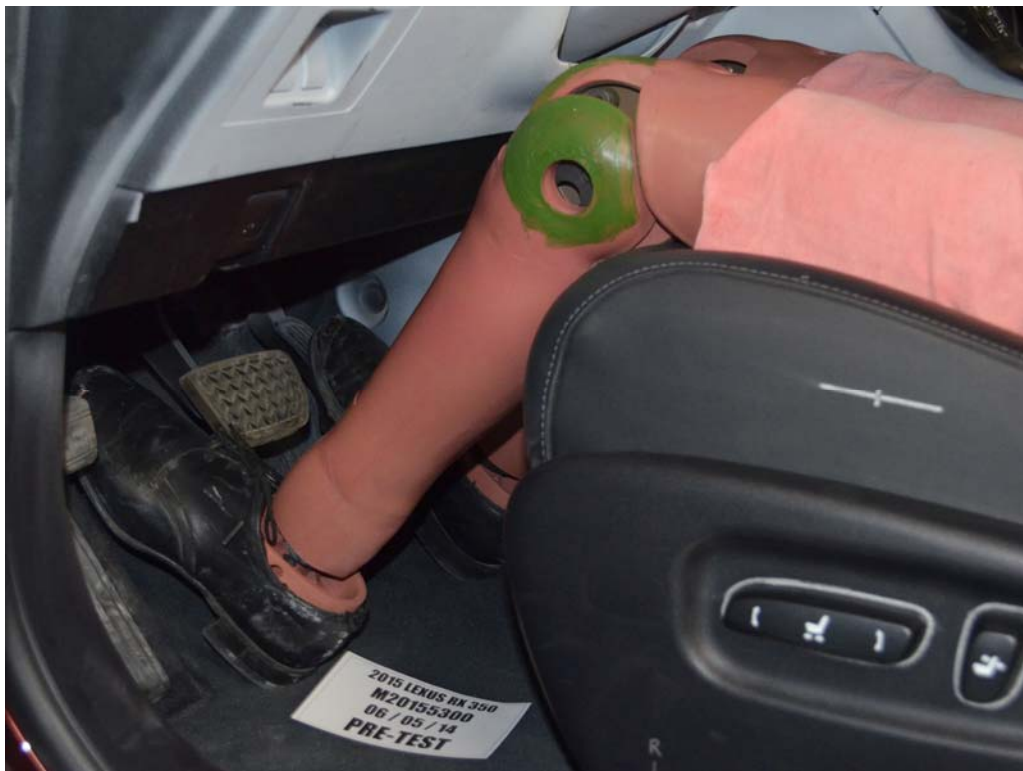


FIGURE 32. Pre-Test Placement of Dummy's Feet



FIGURE 33. Pre-Test View of Belt Anchorage for Dummy



FIGURE 34. Pre-Test Left Side View of Steering Wheel



FIGURE 35. View of Disengaged Parking Brake



FIGURE 36. Pre-Test View of Parking Brake



FIGURE 37. Pre-Test Close-Up Left Side View of Driver Seat Track



FIGURE 38. Pre-Test Close-Up Left Side View of Driver Seat Back



FIGURE 39. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 40. Pre-Test Dummy and Door Clearance View



FIGURE 41. Post-Test Dummy and Door Clearance View



FIGURE 42. Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



FIGURE 43. Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment

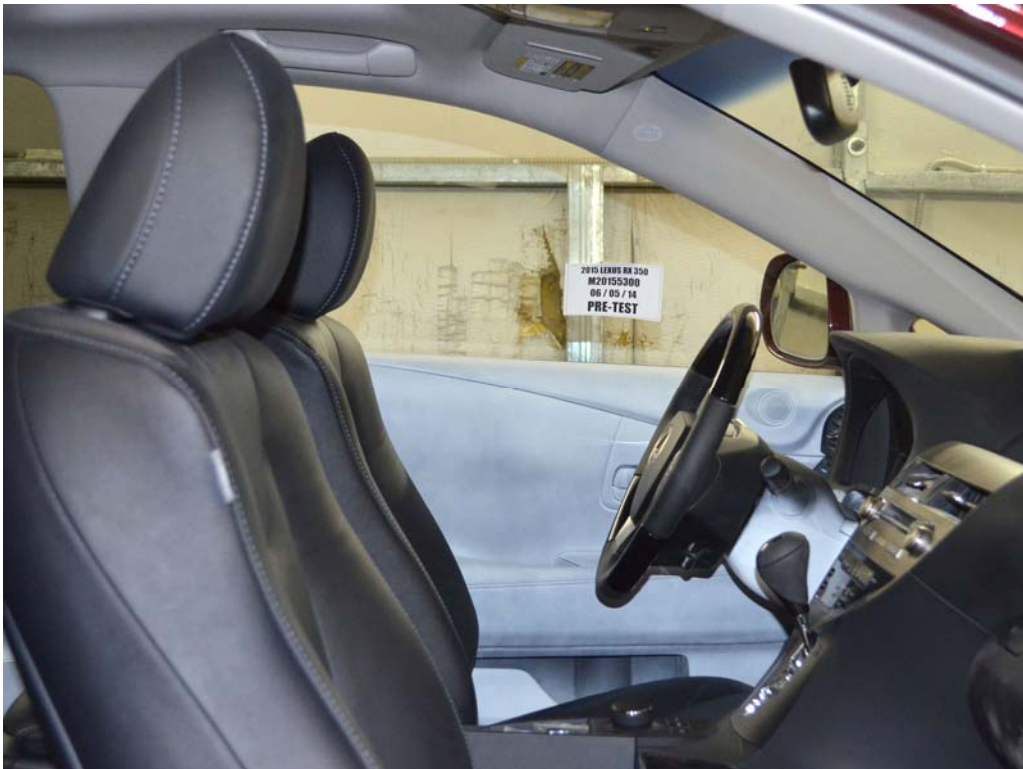


FIGURE 44. Pre-Test Inner Door Panel View



FIGURE 45. Post-Test Inner Door Panel View
Showing Dummy Contact Locations



FIGURE 46. Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



FIGURE 47. Post-Test Dummy Close-Up Head Contact With Side Airbag View



FIGURE 48. Post-Test Dummy Close-Up Torso Contact With Vehicle Interior View



FIGURE 49. Post-Test Dummy Close-Up Torso Contact With Side Airbag View



FIGURE 50. Post-Test Dummy Close-Up Pelvis Contact With Vehicle Interior View



FIGURE 51. Post-Test Dummy Close-Up Pelvis Contact With Side Airbag View



FIGURE 52. Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



FIGURE 53. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

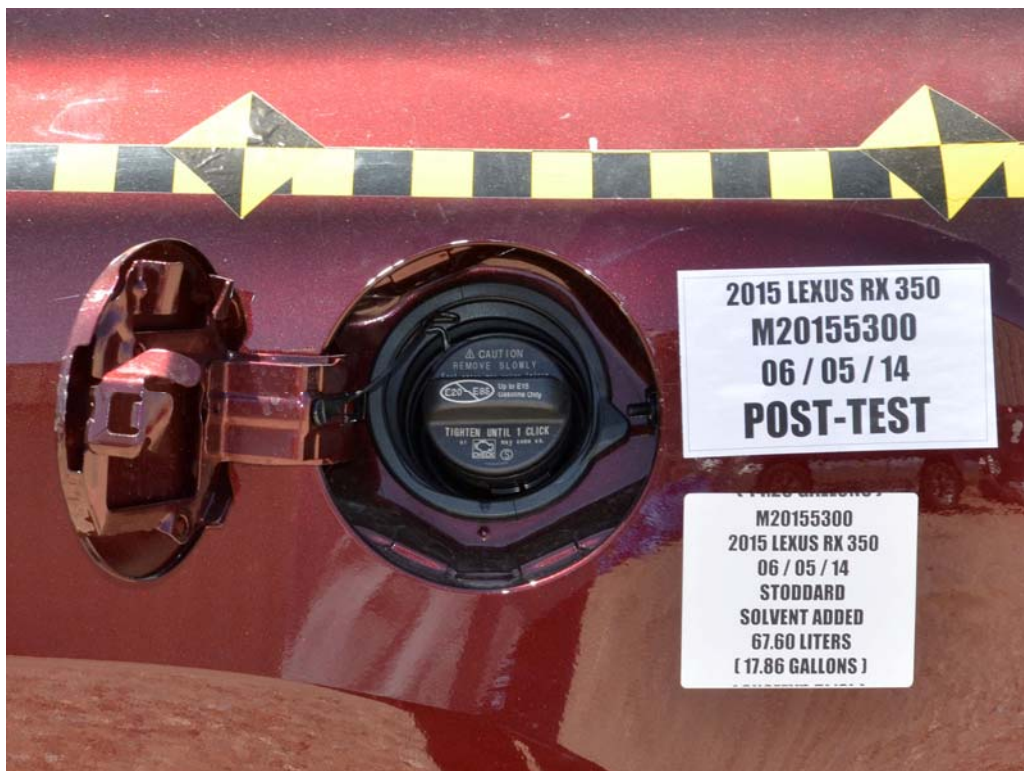


FIGURE 54. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 55. Close-Up View of Vehicle's Certification Label



FIGURE 55a. Close-Up View of Vehicle's Reduced Load Carrying Capacity Label



FIGURE 56. Close-Up View of Vehicle's Tire Information Placard or Label



FIGURE 57. Pre-Test Pole Barrier Front View



FIGURE 58. Post-Test Pole Barrier Front View



FIGURE 59. Pre-Test Pole Barrier Side View



FIGURE 60. Post-Test Pole Barrier Side View

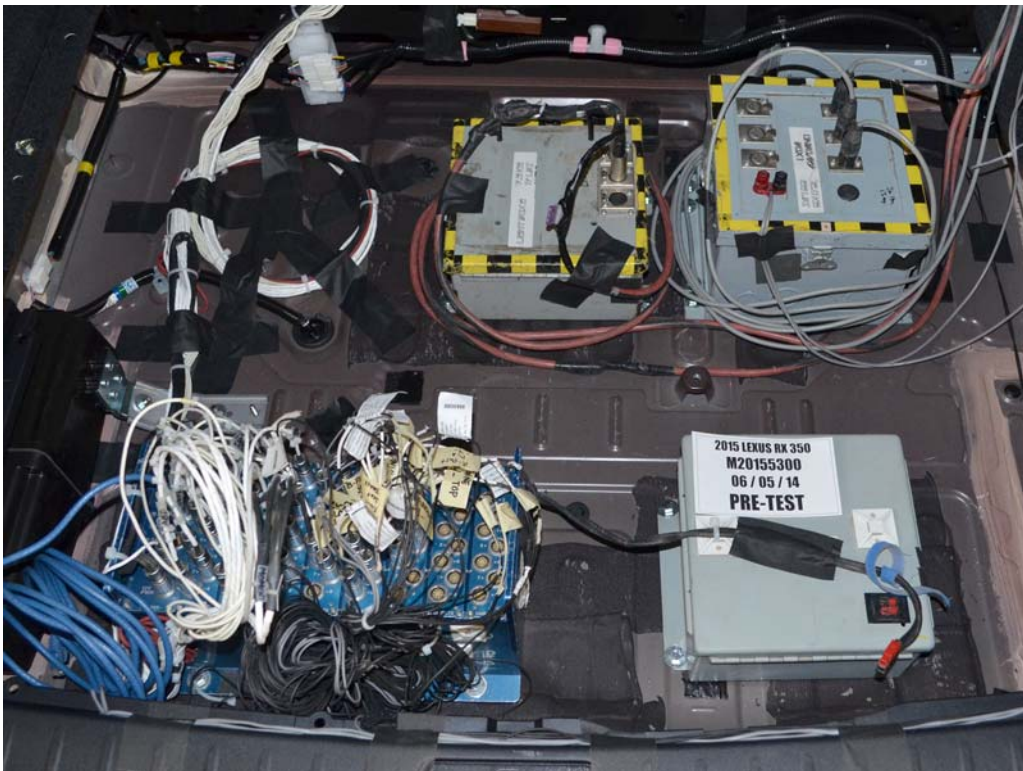


FIGURE 61. Pre-Test Ballast View



FIGURE 62. Post-Test Primary and Redundant Speed Trap Read-Out

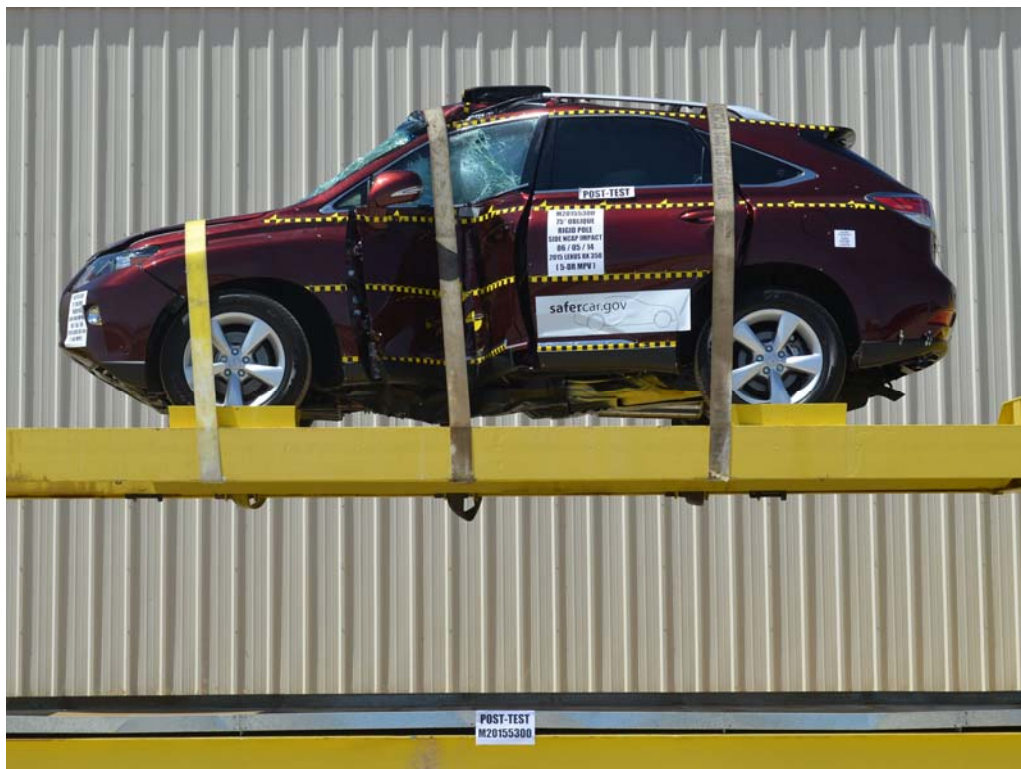


FIGURE 63. FMVSS No. 301 Static Rollover 0 Degrees



FIGURE 64. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 65. FMVSS No. 301 Static Rollover 180 Degrees



FIGURE 66. FMVSS No. 301 Static Rollover 270 Degrees

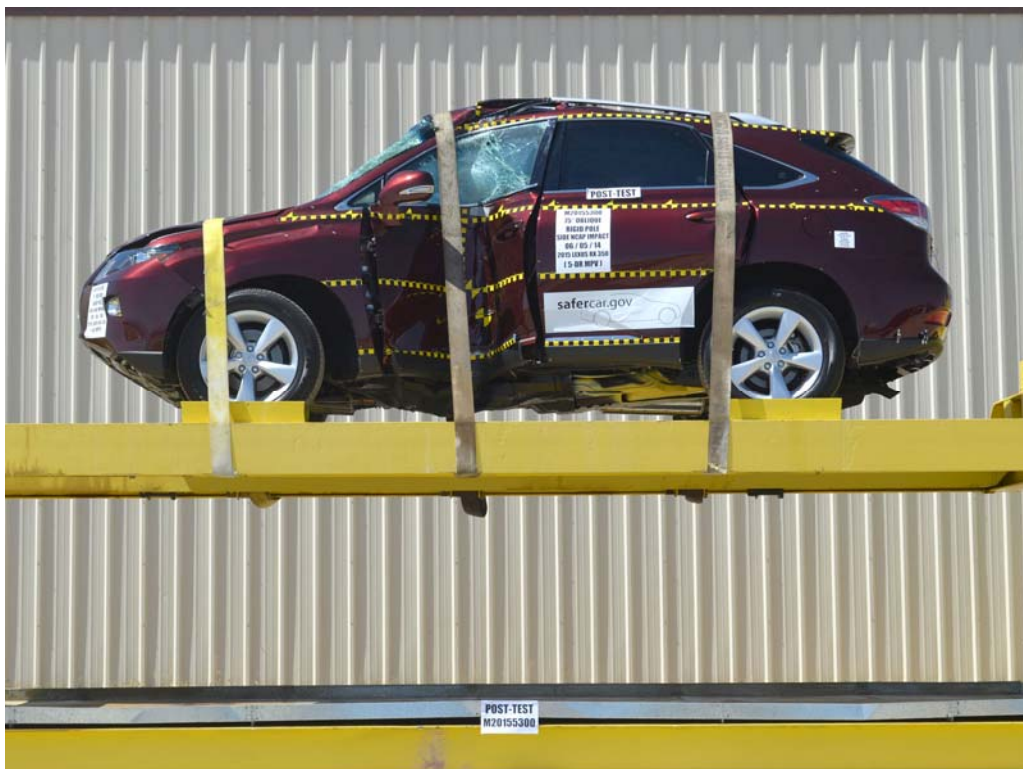


FIGURE 67. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 68. Impact Event

LEXUS
The Pursuit of Perfection

DESCRIPTION: 2015 / 9420A RX 350 5-DR SUV
 COLOR: CLARET MICA
 VIN: JTJ2K1BA8F2420144
 PORT/PLANT: Long Beach, CA

Dealer Name / Address:
 LEXUS SAN DIEGO
 4970 KEARNY MESA ROAD
 SAN DIEGO CA 92111

Ship to: (Dealer, unless otherwise indicated)

STANDARD EQUIPMENT & INSTALLED OPTIONS

STANDARD FEATURES	MANUFACTURER'S SUGGESTED RETAIL PRICE
3.5 Liter 270HP Four Cam 24-Valve V6 Engine with Variable Valve Timing (VVT-i)	500.00
6-Sp Automatic Transmission w/"Snow Mode"	2,260.00
18" Aluminum Alloy Wheels	
Tire Pressure Monitoring System	
10 Airbags: Driver & Front Passenger; Front, Knee & Side (6); Rear Side (2); Side Curtain (2)	
Anti-Lock Braking System (ABS) with Electronic Brakeforce Distribution (EBD) & Brake Assist	
Automatic On/Off Headlamps/Integrated Fog Lamps	
LED Daytime Running Lamps (DRL)	
Vehicle Theft-Deterrent Sys w/Engine Immobilizer	
Safety Connect: Automatic Collision Notification, Stolen Vehicle Location, Emergency Assist Button (SOS), and Enhanced Roadside Assistance (1-year trial subscription included)	
Lexus 12 speaker Premium Display Audio System, HD Radio w/ iTunes tagging, USB iPod/iMP3 Control, SiriusXM Satellite Radio (90-day All Access trial subscription included)	
Backup Camera	
Auto Dual Zone Climate Control Sys w/Rear Vents	
10-Way Power Front Seats	
Power Tilt-and-Telescopic Steering Column	
Reclining/Sliding 40/20/40 Split Rear Seat	
Power Back Door	
Rear View Mirror - Auto Dimming, Homelink Garage Door Opener	
SmartAccess Passive Entry System	
Genuine Wood Interior Trim	
Multi-Information Display with Lexus Personalized Settings, Trip Computer & Outside Temp Display	
Tonneau Cover	
Premium Package Includes: Leather Trim Interior, One-Touch Open/Close Moonroof, Power-folding Electrochromic Heated Outside Mirrors, Driver's Seat/Steering Mirror Memory-3 settings, Roof Rails Wood & Leather Trimmed Steering Wheel & Shift Knob	330.00
Cross Bars	259.00
Cargo Mat/Cargo Net/Wheel Lock & Key Glove	258.00

PAOT Fuel Economy and Environment

Fuel Economy

21 **18** **25** MPG
 combined city/hwy city highway

4.8 gallons per 100 miles

Annual fuel cost
\$2,500

Fuel Economy & Greenhouse Gas Rating (EPA est.)

5 (Best)

Smog Rating (EPA est.)

5 (Best)

You spend \$1,500 more in fuel costs over 5 years compared to the average new vehicle.

GOVERNMENT 5-STAR SAFETY RATINGS

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

APPLICABLE FEDERAL TAXES NOT INCLUDED

Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. License and title fees, state, local and applicable selected taxes, and dealer-installed options and accessories are not included in the manufacturer's suggested retail price.

LEXUS NEW VEHICLE LIMITED WARRANTY
 Limited warranty coverage highlights include:
 • 4yr / 50,000 mi basic coverage
 • 4yr / 50,000 mi powertrain coverage
 • 8yr / Unlimited mile corrosion perforation warranty

See your retailer and Service Guide for details.

LEXUS IS PLEASED TO OFFER THE FOLLOWING OWNER SUPPORT PACKAGE WITH EACH NEW LEXUS:
 • 24-hour toll-free emergency assistance
 • Complimentary 1st and 2nd scheduled maintenance services
 • Locking and emergency roadside 100 miles from home

An extended service contract may be available for this vehicle. Ask dealer for details.

114A93 002 1E01 H2212

Star ratings range from 1 to 5 stars (★ ★ ★ ★ ★) with 5 being the highest.
 Source: National Highway Traffic Safety Administration (NHTSA)
 www.safercar.gov or 1-888-327-4236

FIGURE 69. Monroney Label

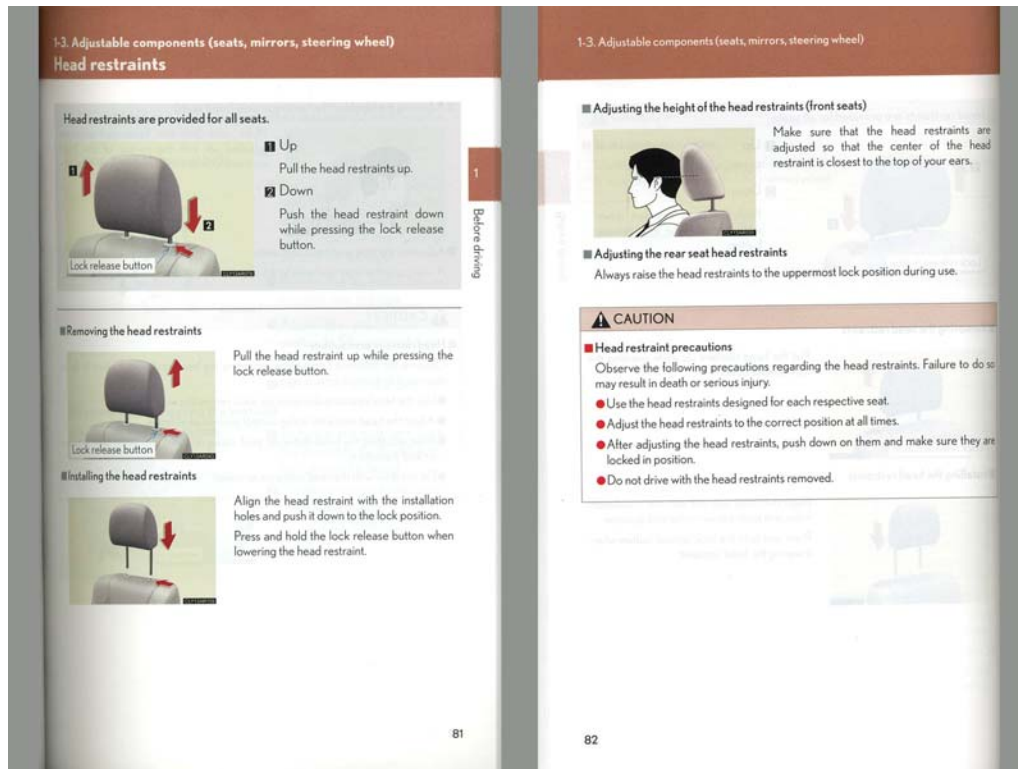


FIGURE 70. Head Restraint Use and Adjustment
 Information from Vehicle Owner's Manual

APPENDIX B
DUMMY RESPONSE DATA

TABLE OF DATA PLOTS

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

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

www.NHTSA.dot.gov

Additional Driver Dummy Instrumentation Data

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

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)

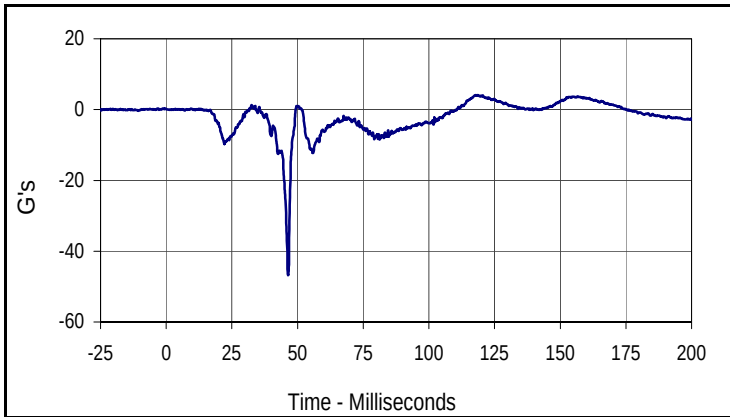
Left B-Pillar Sill Acceleration
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration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

Pole Instrumentation Data

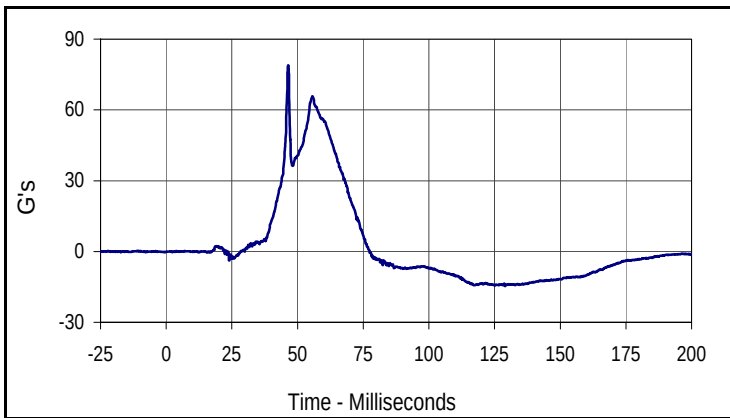
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

Test Vehicle: 2015 Lexus RX 350 5-Door MPV
 Test Program: NCAP Side Pole Impact Test

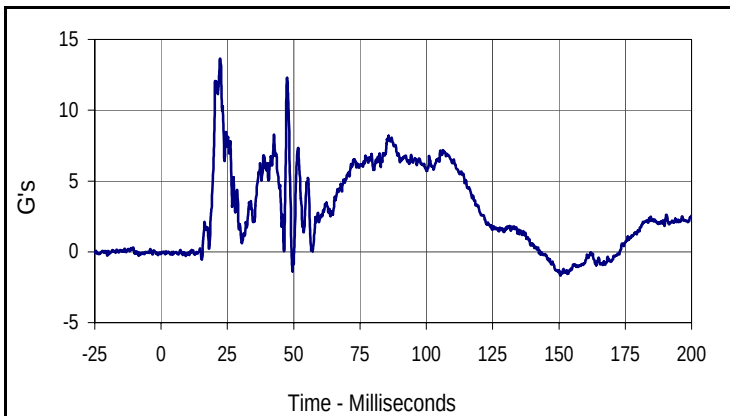
Test Date: 6/5/14
 NHTSA No.: M20155300



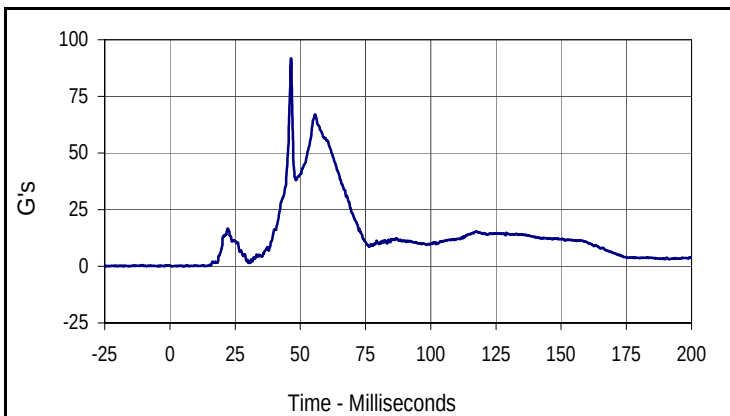
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
4.1	117.7	-46.8	46.4



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
78.9	46.4	-14.6	129.0



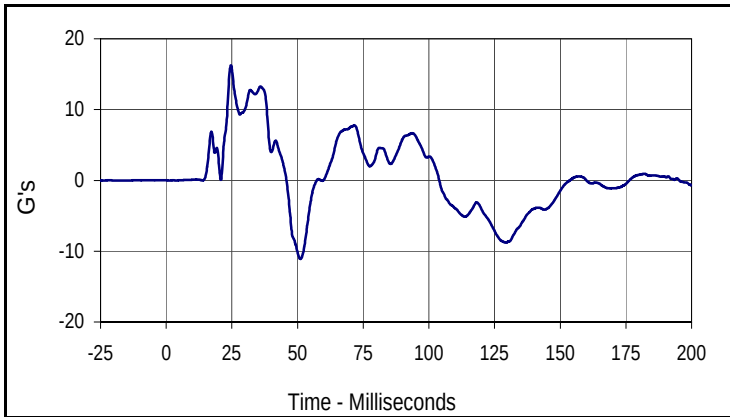
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
13.6	22.3	-1.7	150.5



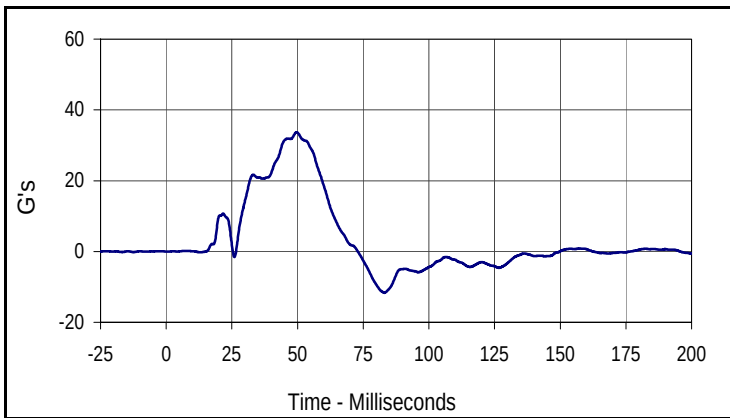
Curve Description			
Driver Head Acceleration Primary Res.			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
91.8	46.4	0.0	1.0

Test Vehicle: 2015 Lexus RX 350 5-Door MPV
 Test Program: NCAP Side Pole Impact Test

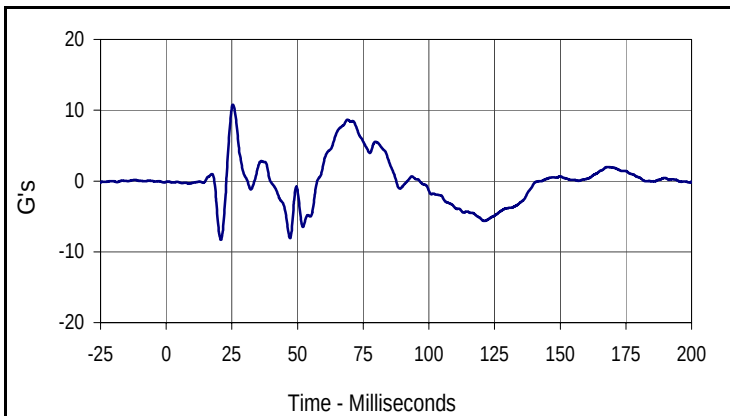
Test Date: 6/5/14
 NHTSA No.: M20155300



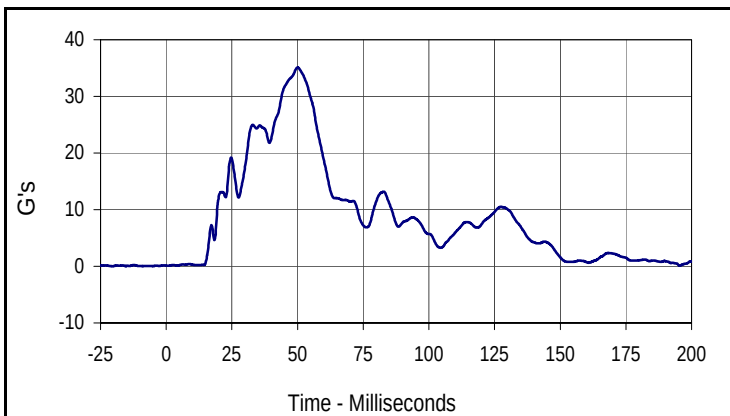
Curve Description			
Driver Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
16.3	24.6	-11.1	51.1



Curve Description			
Driver Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.7	49.7	-11.6	83.1



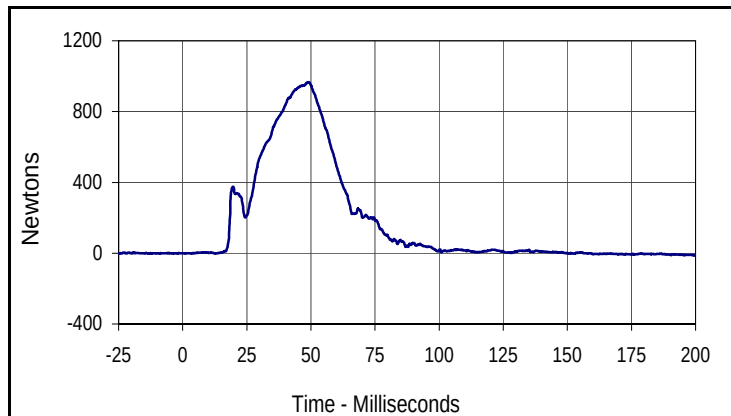
Curve Description			
Driver Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
007	FIL	180	G's
Max	Time	Min	Time
10.8	25.4	-8.3	20.8



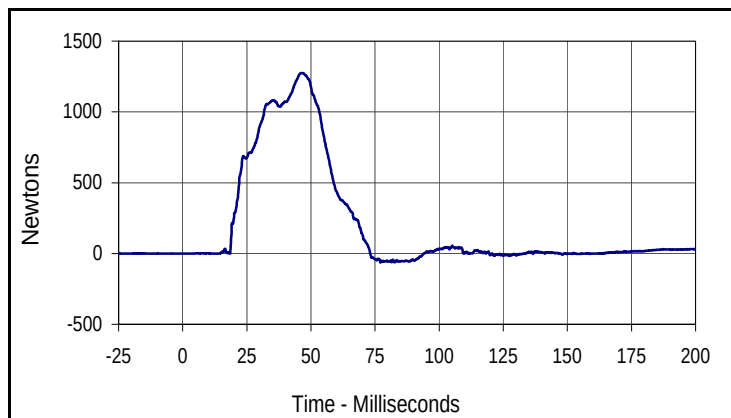
Curve Description			
Driver Lower Spine T12 Acceleration Res.			
Plot No.	Type	SAE Class	Units
008	RES	180	G's
Max	Time	Min	Time
35.1	50.0	0.1	0.6

Test Vehicle: 2015 Lexus RX 350 5-Door MPV
 Test Program: NCAP Side Pole Impact Test

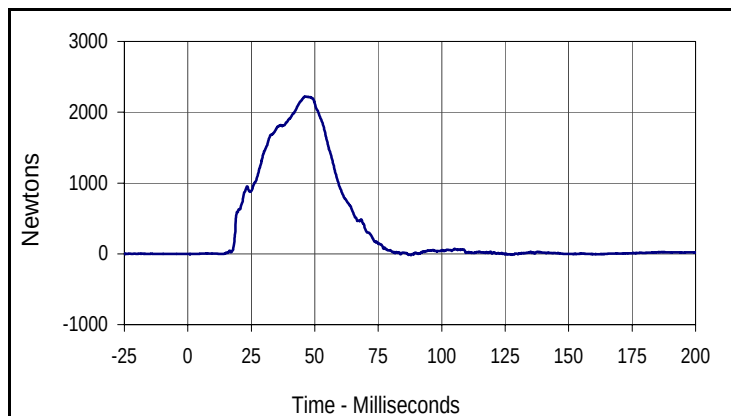
Test Date: 6/5/14
 NHTSA No.: M20155300



Curve Description			
Driver Iliac Wing Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
966.0	49.2	-12.0	199.6



Curve Description			
Driver Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
010	FIL	600	Newtons
Max	Time	Min	Time
1274.5	46.4	-63.4	77.1



Curve Description			
Driver Total Pelvic Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
011	SUM	600	Newtons
Max	Time	Min	Time
2221.0	46.3	-18.8	87.9

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
PRE-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: SID IIs External Measurements
 ATD Serial No.: 299

Test Date: 6/2/14
 Test I.D.: N/A



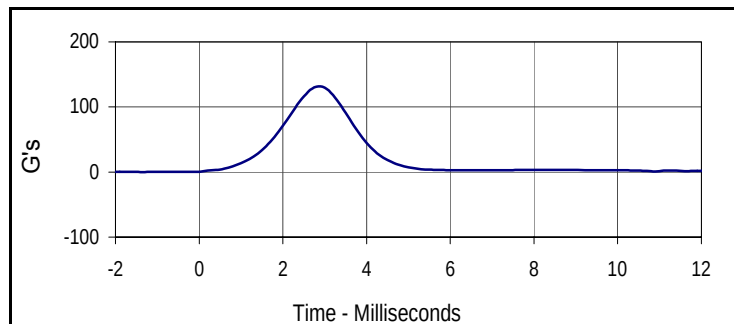
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.0	Pass
Laboratory Relative Humidity		%	10 to 70	21	Pass
A	Sitting Height	mm	772 - 788	780	Pass
B	Shoulder Pivot Height	mm	437 - 453	445	Pass
C	H-Point Height	mm	79 - 89	85	Pass
D	H-Point from Seatback	mm	141 - 151	145	Pass
E	Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F	Thigh Clearance	mm	119 - 135	125	Pass
G	Head Breadth	mm	140 - 148	145	Pass
H	Head Back from Backline	mm	40 - 46	44	Pass
I	Head Depth	mm	178 - 188	184	Pass
J	Head Circumference	mm	541 - 551	545	Pass
K	Buttock to Knee Length	mm	514 - 540	527	Pass
L	Popliteal Height	mm	343 - 369	352	Pass
M	Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N	Buttock Popliteal Length	mm	416 - 442	432	Pass
O	Chest Depth w/o Jacket	mm	195 - 211	202	Pass
P	Foot Length	mm	216 - 232	221	Pass
Q	Hip Breadth with Pelvic Plug	mm	313 - 323	315	Pass
R	Arm Length	mm	249 - 259	252	Pass
S	Knee Joint to Seatback	mm	477 - 493	481	Pass
V	Shoulder Width	mm	341 - 357	352	Pass
W	Foot Width	mm	78 - 94	86	Pass
Y	Chest Circumference with Jacket	mm	851 - 881	872	Pass
Z	Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results					Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 299

Test Date: 6/2/14
 Test I.D.: 299HD072



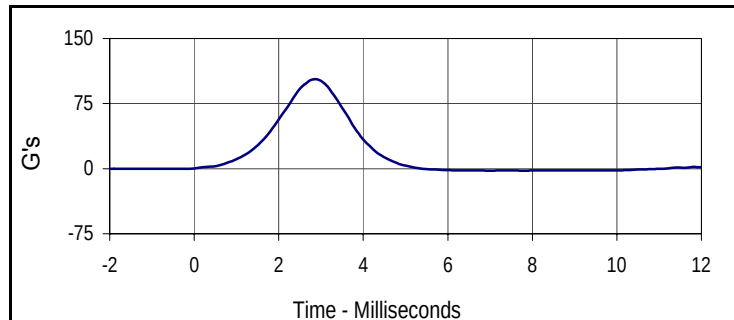
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	313	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.2	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	21.8	Pass
	Min	%		21.2	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	21.2	Pass
Peak Head Resultant Acceleration		G's	115 to 137	131.9	Pass
Peak Head X Acceleration		G's	<15	7.0	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse		%	<15	2.9	Pass
Overall Test Results					Pass



Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
131.9	2.9	0.1	-1.3



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
7.0	3.2	-0.1	-1.6



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
103.3	2.9	-2.3	7.8



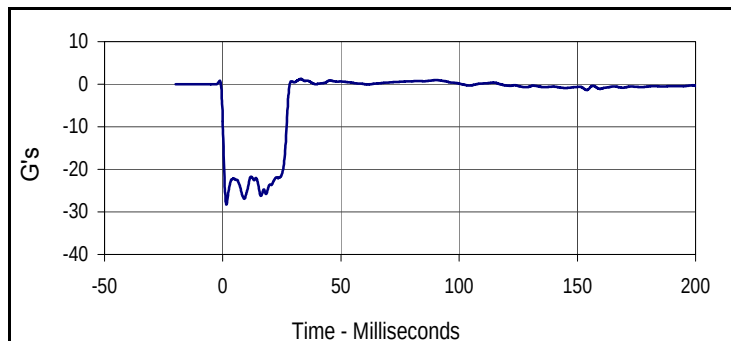
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
83.8	2.9	-1.5	7.9

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

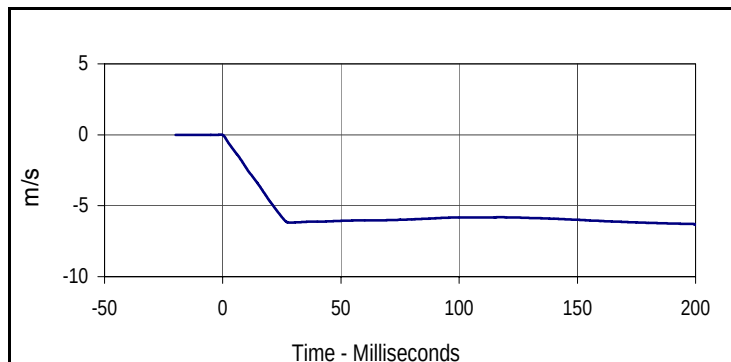
Test Date: 6/2/14
 Test I.D.: 299NB072



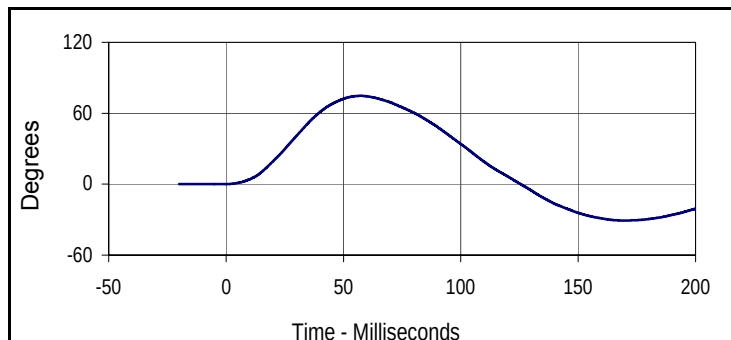
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	378	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	21.8	Pass
	Min		21.2	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	21.2	Pass
Pendulum Velocity	m/s	5.51 to 5.63	5.59	Pass
Pendulum Deceleration	10 msec	-2.20 to -2.80	-2.36	Pass
	15 msec	-3.30 to -4.10	-3.47	Pass
	20 msec	-4.40 to -5.40	-4.70	Pass
	25 msec	-5.40 to -6.10	-5.80	Pass
	25-100 msec	-5.50 to -6.20	-6.19	Pass
D-Plane Rotation	Max	71 to 81	74.7	Pass
	Time	50 to 70	57.5	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-38.9	Pass
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	105.3	Pass
Overall Test Results			Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
1.3	0.0	-28.2	0.0



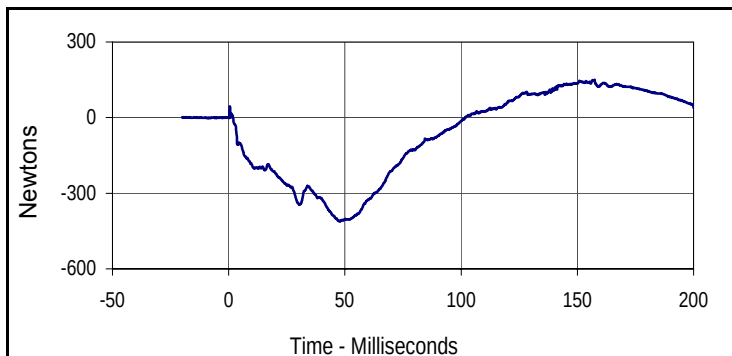
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.8	-6.4	200.0



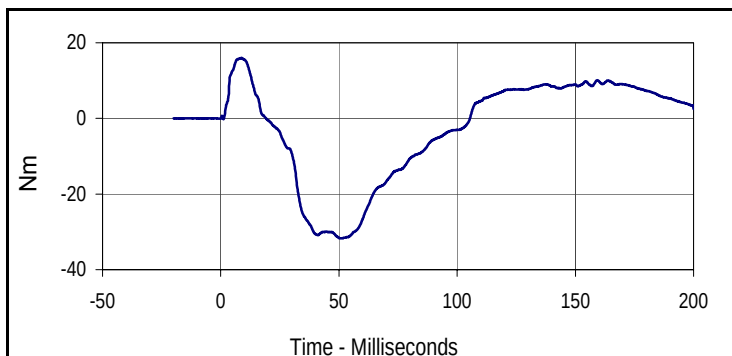
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
74.7	57.5	-30.7	169.3

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

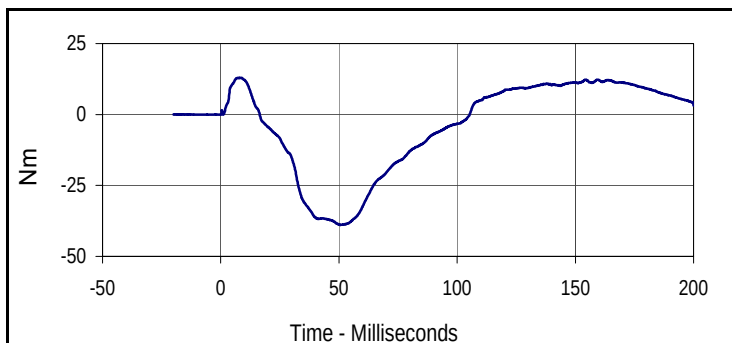
Test Date: 6/2/14
 Test I.D.: 299NB072



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
149.8	157.4	-411.7	47.6



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
16.0	8.8	-31.7	50.5



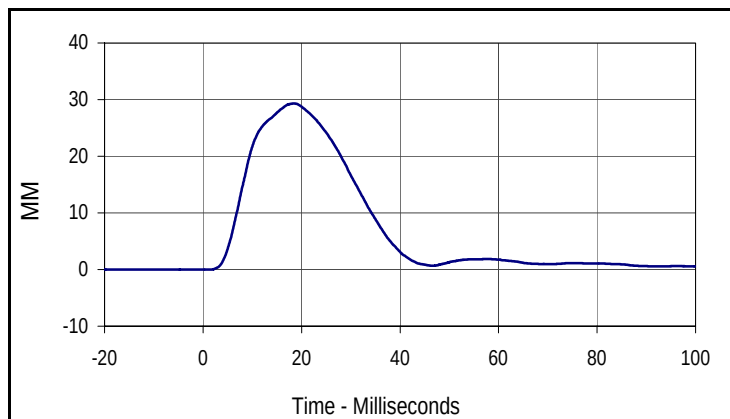
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
13.0	8.3	-38.9	50.6

Test Program: SID IIs Shoulder Impact Test
 ATD Serial No.: 299

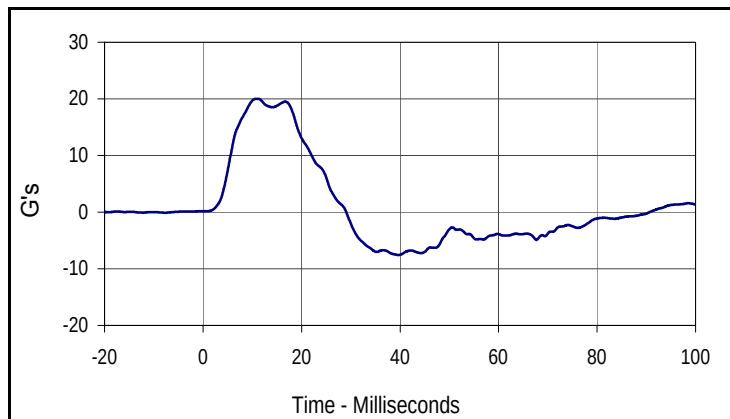
Test Date: 6/2/14
 Test I.D.: 299SH072



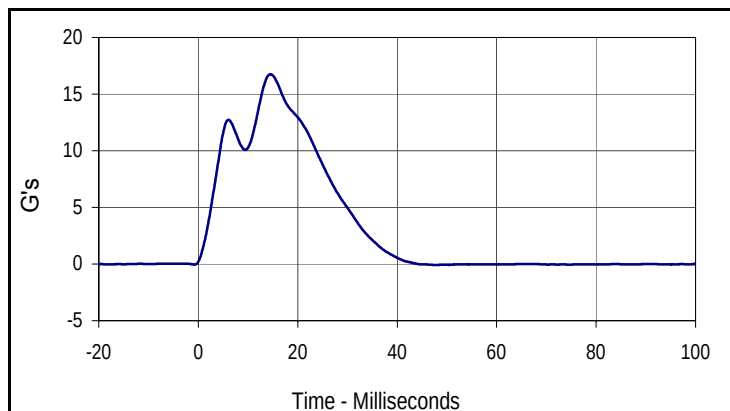
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	453	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.2	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	21.8	Pass
	Min	%		21.2	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	21.3	Pass
Impactor Velocity		m/s	4.20 to 4.40	4.33	Pass
Peak Shoulder Deflection		mm	28 to 37	29.3	Pass
Peak Lateral Spine Acceleration Y		G's	17 to 22	20.0	Pass
Peak Impactor Acceleration		G's	13 to 18	16.7	Pass
Overall Test Results				Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
29.3	18.5	0.0	-17.0



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
20.0	11.1	-7.6	39.6



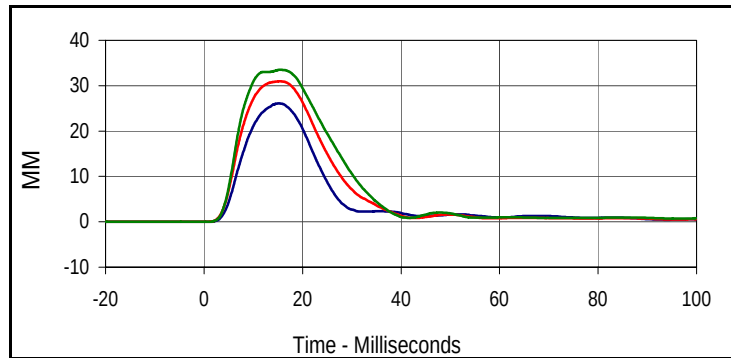
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
16.7	14.5	-0.1	47.7

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

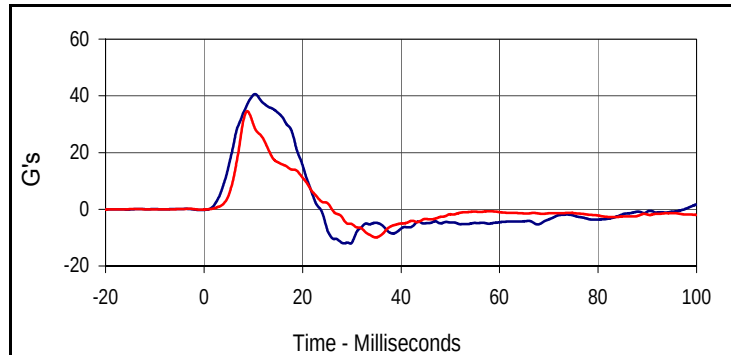
Test Date: 6/2/14
 Test I.D.: 299TWA072



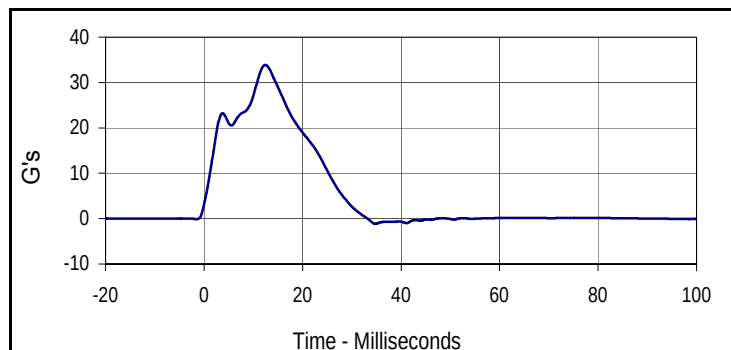
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	503	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	21.8	Pass
	Min		21.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	21.4	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.73	Pass
Peak Shoulder Deflection	mm	31 to 40	32.6	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	26.1	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.0	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	33.5	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	40.6	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	34.6	Pass
Peak Impactor Acceleration	G's	30 to 36	33.9	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
26.1	15.2	0.0	-13.2
Middle Thorax Deflection			
Max	Time	Min	Time
31.0	15.4	0.0	-12.6
Lower Thorax Deflection			
Max	Time	Min	Time
33.5	15.4	0.0	-11.5



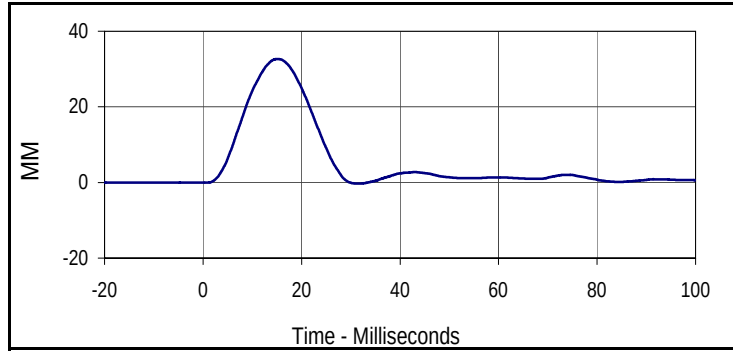
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
40.6	10.3	-12.1	29.7
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
34.6	8.8	-9.9	34.8



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.9	12.4	-1.2	34.7

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

Test Date: 6/2/14
 Test I.D.: 299TWA072



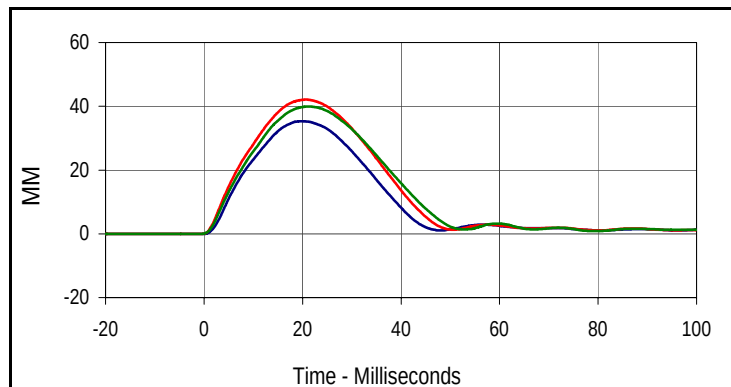
Curve Description			
Shoulder Deflection Y			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
32.6	15.1	-0.3	31.7

Test Program: SID IIs Thorax without Arm Impact Test
 ATD Serial No.: 299

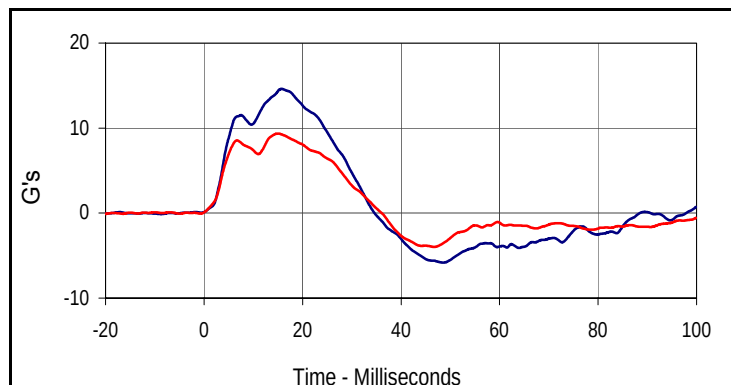
Test Date: 6/2/14
 Test I.D.: 299TWOA072



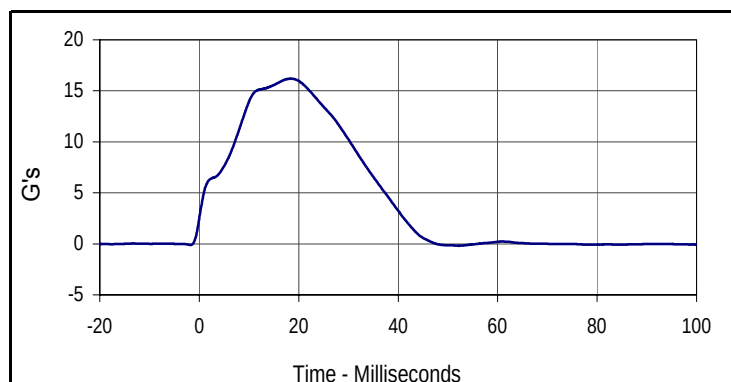
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	558	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.2	Pass
	Min	°C		21.0	Pass
Humidity During Soak	Max	%	10.0 to 70.0	21.8	Pass
	Min	%		21.2	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	21.6	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.37	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	35.3	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	42.1	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	40.0	Pass
Peak Upper Spine Y Acceleration		G's	13 to 17	14.6	Pass
Peak Lower Spine Y Acceleration		G's	7 to 11	9.4	Pass
Peak Impactor Acceleration		G's	14 to 18	16.2	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.3	19.9	0.0	-3.7
Middle Thorax Deflection			
Max	Time	Min	Time
42.1	20.9	0.0	-3.7
Lower Thorax Deflection			
Max	Time	Min	Time
40.0	21.2	0.0	-15.3



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.6	15.7	-5.8	48.6
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.4	15.0	-4.0	46.7



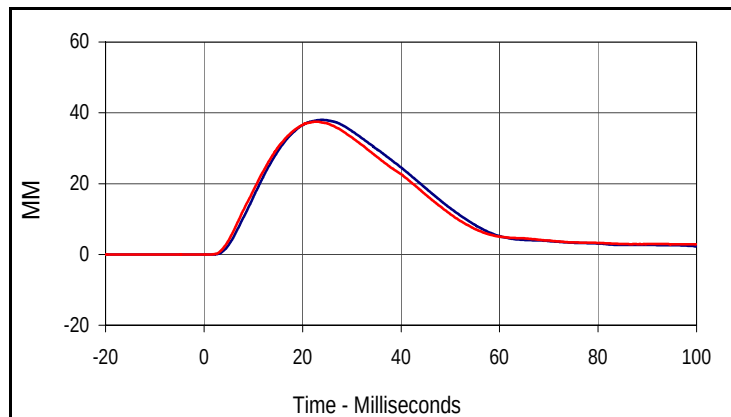
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.2	18.4	-0.2	52.2

Test Program: SID IIs Abdomen Impact Test
 ATD Serial No.: 299

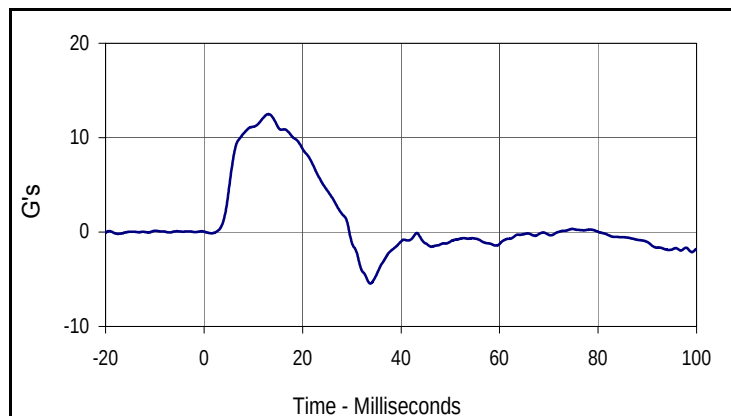
Test Date: 6/2/14
 Test I.D.: 299ABD072



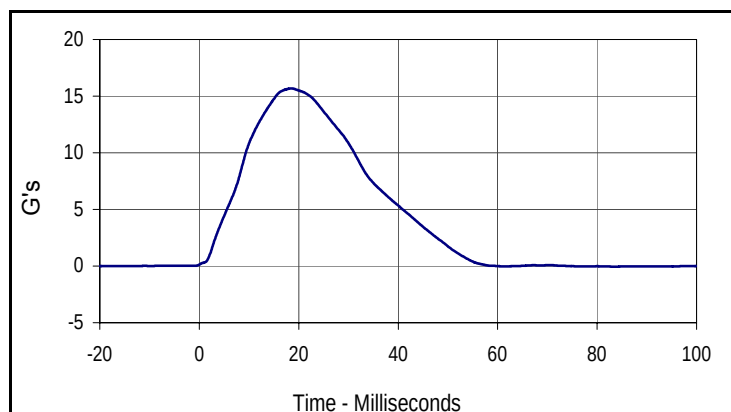
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	618	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	21.8	Pass
	Min		21.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	21.5	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	38.0	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	37.5	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.5	Pass
Peak Impactor Acceleration	G's	12 to 16	15.7	Pass
Overall Test Results			Pass	



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.0	23.9	0.0	-4.1
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
37.5	22.8	0.0	-3.8

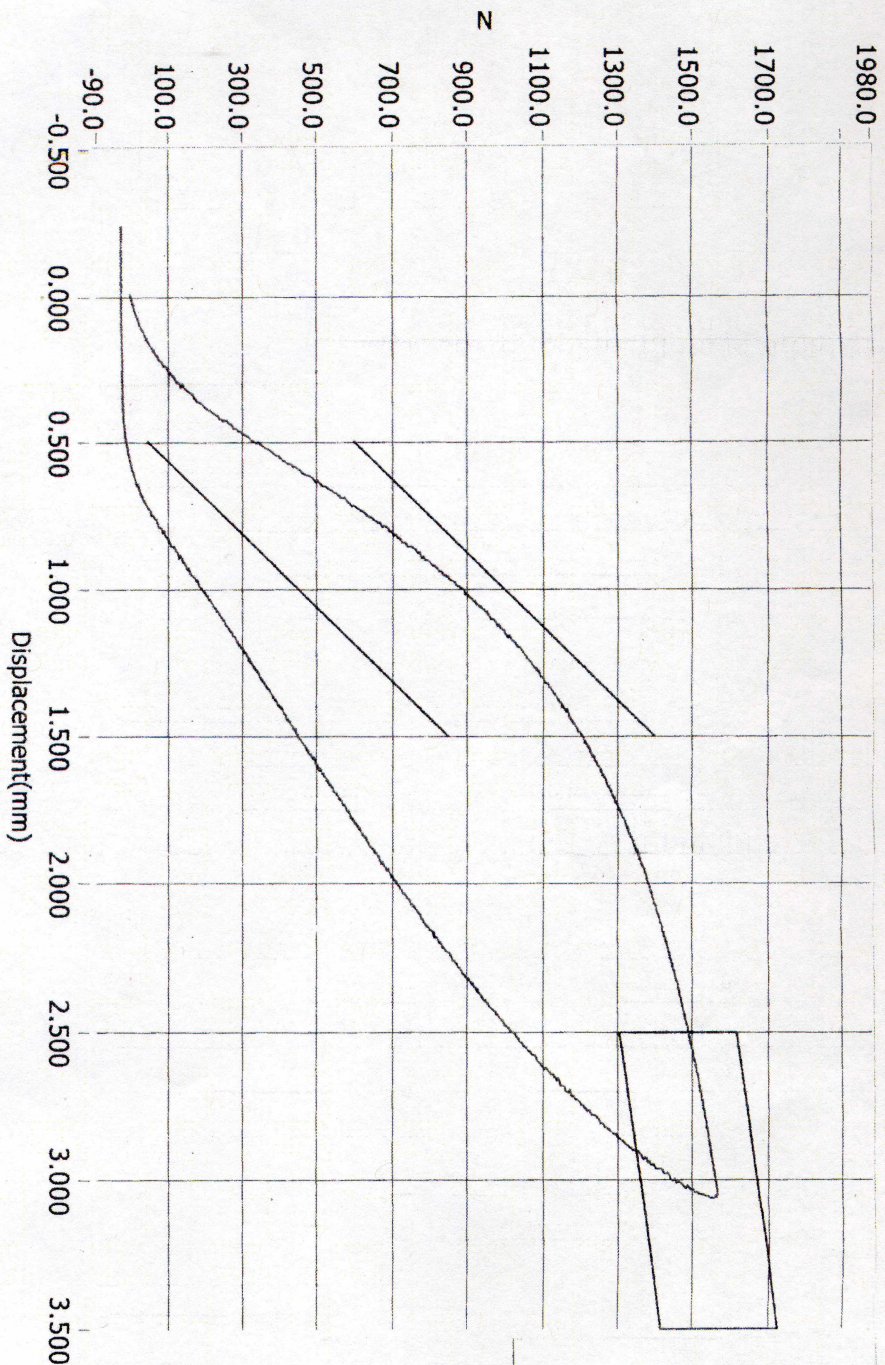


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.5	13.1	-5.4	33.8



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.7	18.5	-0.1	83.7

Resultant Data - SIDIIs Plug Compression



Loading Curve —
 Boundary Limit Upper —
 Boundary Limit Lower —
 Peak Load Upper —
 Peak Load Lower —
 Peak Defl Upper —
 Peak Defl Lower —

1561N

ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	62901	1/17/2013	4:40 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

M20155300 PRE-TEST

Current Date : 1/17/2013

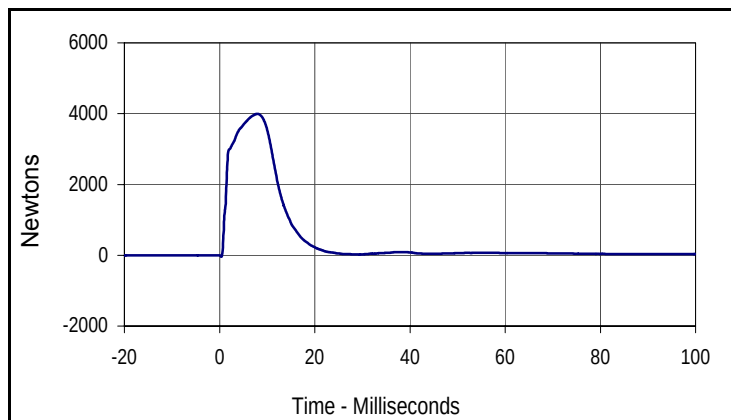
Current Time : 16:40:34

Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

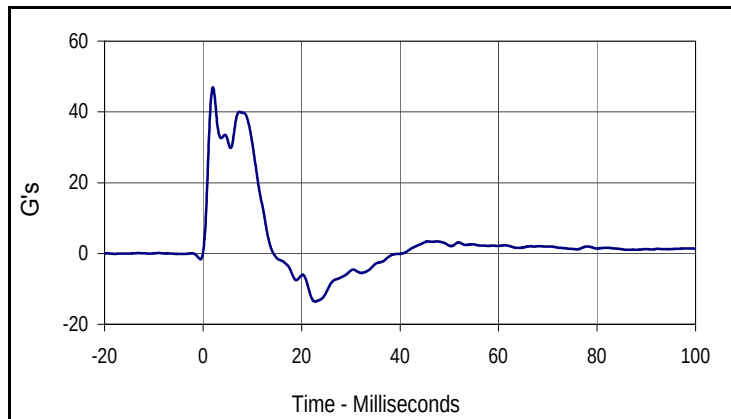
Test Date: 6/2/14
 Test I.D.: 299ACET072



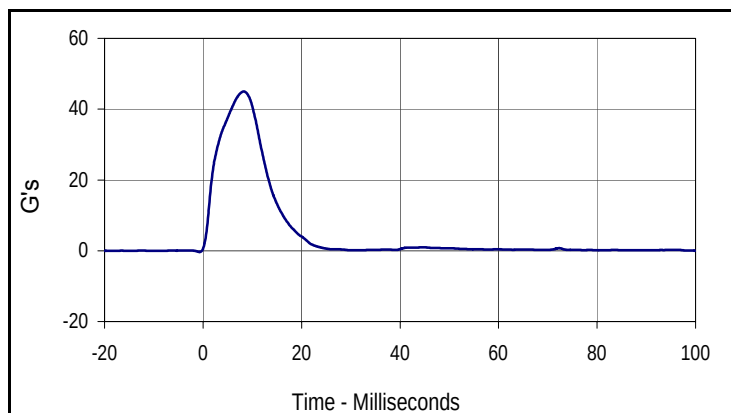
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	693	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	21.8	Pass
	Min		21.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	21.6	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.66	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3995.8	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	40.0	Pass
Peak Impactor Acceleration	G's	38 to 47	45.0	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3995.8	7.9	-37.0	0.4



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
46.9	2.0	-13.6	22.8



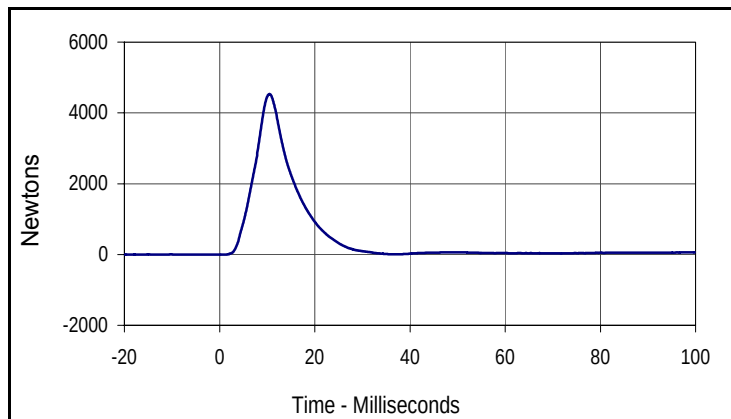
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
45.0	8.3	-0.3	-0.7

Test Program: SID IIs Pelvis Iliac Calibration Test
 ATD Serial No.: 299

Test Date: 6/2/14
 Test I.D.: 299PL072



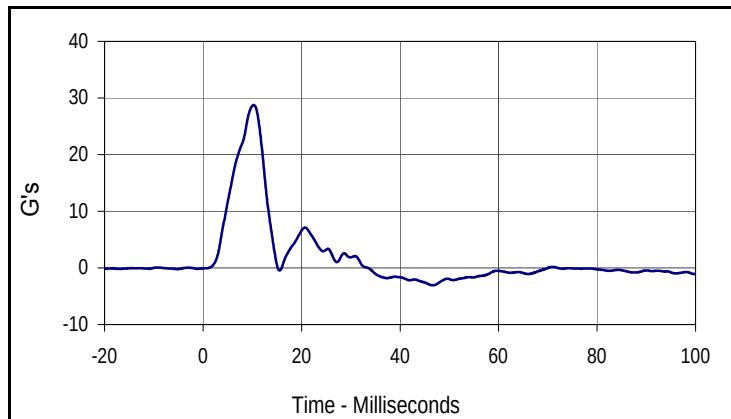
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	758	Pass
Temperature During Soak	Max	20.6 to 22.2	21.2	Pass
	Min		21.0	Pass
Humidity During Soak	Max	10.0 to 70.0	21.8	Pass
	Min		21.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	21.8	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Iliac Force	Newtons	4100 to 5100	4533.5	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	28.8	Pass
Peak Impactor Acceleration	G's	36 to 45	42.2	Pass
Overall Test Results			Pass	



Curve Description

Pelvis Iliac Force

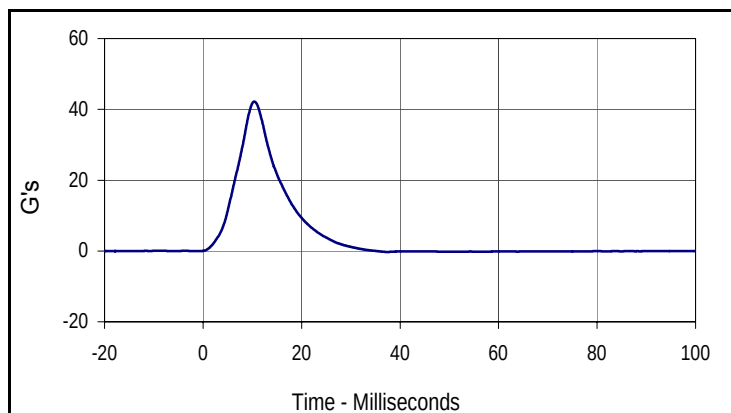
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4533.5	10.5	-2.7	-16.5



Curve Description

Pelvis Y Acceleration

Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
28.8	10.3	-3.1	46.7



Curve Description

Impactor Acceleration

Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
42.2	10.4	-0.3	37.4

APPENDIX C
POST-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: SID IIs External Measurements
 ATD Serial No.: 299

Test Date: 6/6/14
 Test I.D.: N/A



Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	28	Pass
A	Sitting Height	mm	772 - 788	780	Pass
B	Shoulder Pivot Height	mm	437 - 453	445	Pass
C	H-Point Height	mm	79 - 89	85	Pass
D	H-Point from Seatback	mm	141 - 151	145	Pass
E	Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F	Thigh Clearance	mm	119 - 135	125	Pass
G	Head Breadth	mm	140 - 148	145	Pass
H	Head Back from Backline	mm	40 - 46	44	Pass
I	Head Depth	mm	178 - 188	184	Pass
J	Head Circumference	mm	541 - 551	545	Pass
K	Buttock to Knee Length	mm	514 - 540	527	Pass
L	Popliteal Height	mm	343 - 369	352	Pass
M	Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N	Buttock Popliteal Length	mm	416 - 442	432	Pass
O	Chest Depth w/o Jacket	mm	195 - 211	202	Pass
P	Foot Length	mm	216 - 232	221	Pass
Q	Hip Breadth with Pelvic Plug	mm	313 - 323	315	Pass
R	Arm Length	mm	249 - 259	252	Pass
S	Knee Joint to Seatback	mm	477 - 493	481	Pass
V	Shoulder Width	mm	341 - 357	352	Pass
W	Foot Width	mm	78 - 94	86	Pass
Y	Chest Circumference with Jacket	mm	851 - 881	872	Pass
Z	Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results					Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 299

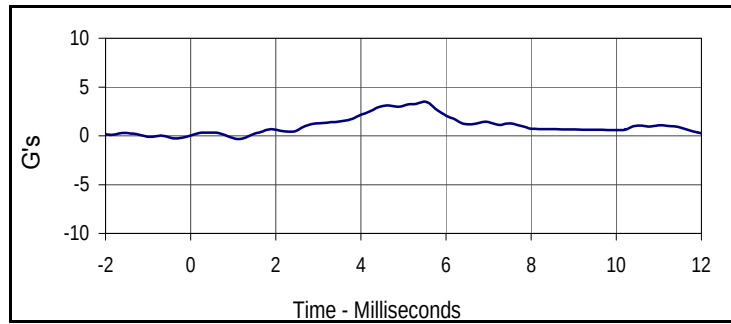
Test Date: 6/6/14
 Test I.D.: 299HD073



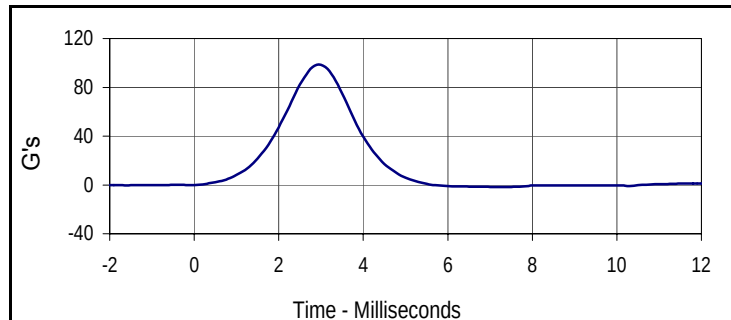
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	550	Pass
Temperature During Soak	Max	18.9 to 25.6	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	27.6	Pass
	Min		27.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	27.5	Pass
Peak Head Resultant Acceleration	G's	115 to 137	122.8	Pass
Peak Head X Acceleration	G's	<15	3.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.2	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
122.8	3.0	0.1	-0.6



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
3.5	5.5	-0.3	1.1



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
98.4	3.0	-1.8	7.4



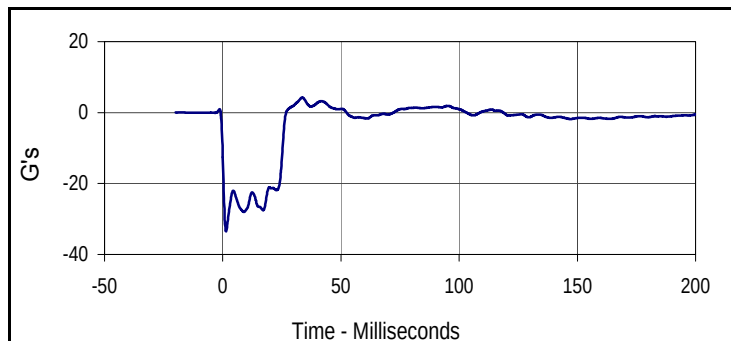
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
73.4	3.0	-0.2	11.0

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

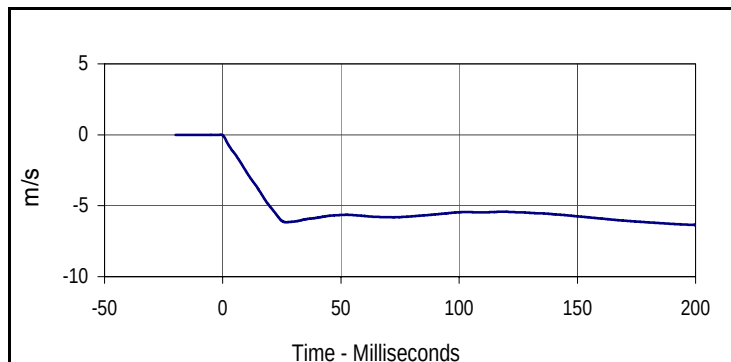
Test Date: 6/6/14
 Test I.D.: 299NB073



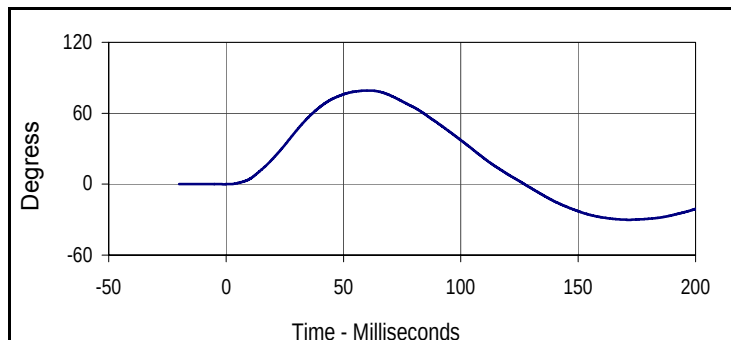
Tested Parameter	Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time	Minutes	≥240	615	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	27.6	Pass
	Min		27.5	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	27.5	Pass
Pendulum Velocity	m/s	5.51 to 5.63	5.58	Pass
Pendulum Deceleration	10 msec	-2.20 to -2.80	-2.62	Pass
	15 msec	-3.30 to -4.10	-3.82	Pass
	20 msec	-4.40 to -5.40	-5.06	Pass
	25 msec	-5.40 to -6.10	-6.07	Pass
	25-100 msec	-5.50 to -6.20	-6.16	Pass
D-Plane Rotation	Max	71 to 81	79.2	Pass
	Time	50 to 70	60.5	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-42.6	Pass
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	113.3	Pass
Overall Test Results			Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
4.3	0.0	-33.5	0.0



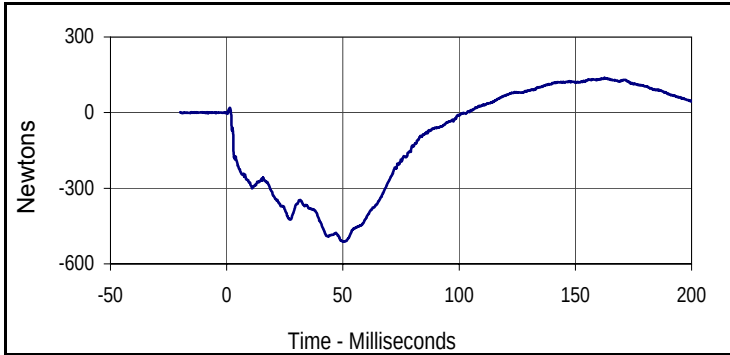
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.9	-6.4	200.0



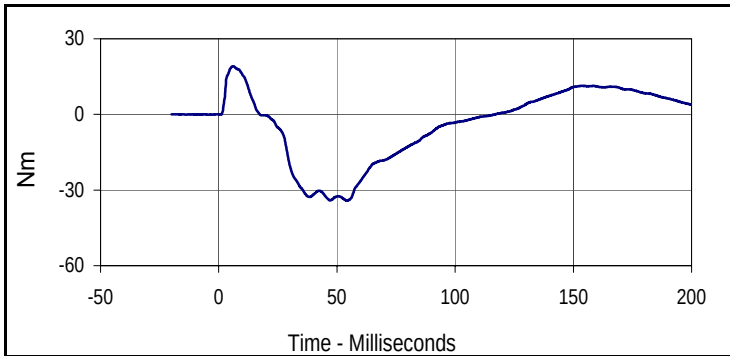
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degress
Max	Time	Min	Time
79.2	60.5	-30.1	171.6

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

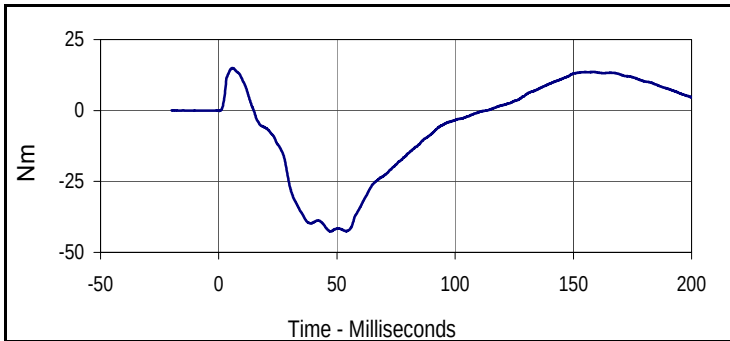
Test Date: 6/6/14
 Test I.D.: 299NB073



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
138.3	162.6	-512.2	50.4



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
19.1	6.3	-34.2	54.1



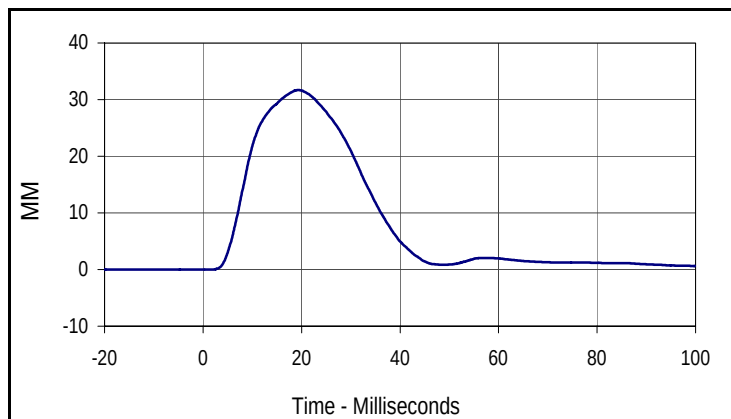
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
15.0	5.7	-42.6	47.2

Test Program: SID IIs Shoulder Impact Test
 ATD Serial No.: 299

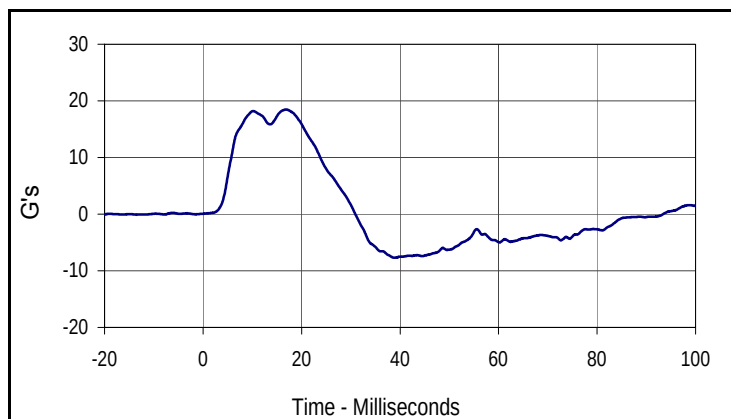
Test Date: 6/6/14
 Test I.D.: 299SH073



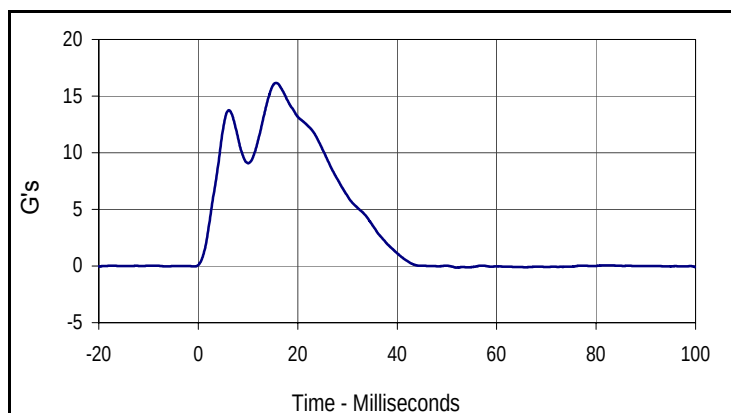
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	690	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.3	Pass
	Min	°C		21.2	Pass
Humidity During Soak	Max	%	10.0 to 70.0	27.6	Pass
	Min	%		27.5	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	27.5	Pass
Impactor Velocity		m/s	4.20 to 4.40	4.36	Pass
Peak Shoulder Deflection		mm	28 to 37	31.7	Pass
Peak Lateral Spine Acceleration Y		G's	17 to 22	18.5	Pass
Peak Impactor Acceleration		G's	13 to 18	16.2	Pass
Overall Test Results				Pass	



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
31.7	19.4	0.0	0.9



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.5	16.9	-7.7	38.9



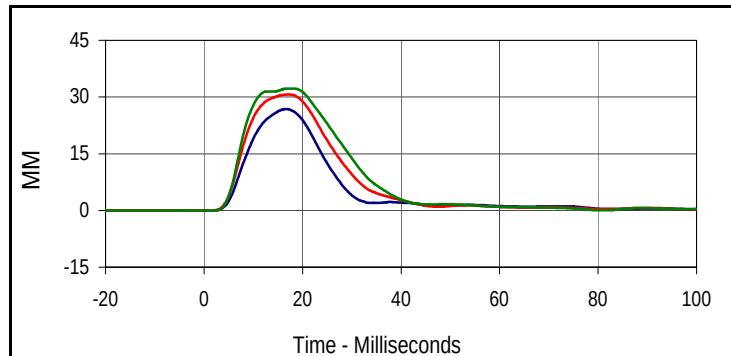
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
16.2	15.6	-0.1	52.0

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

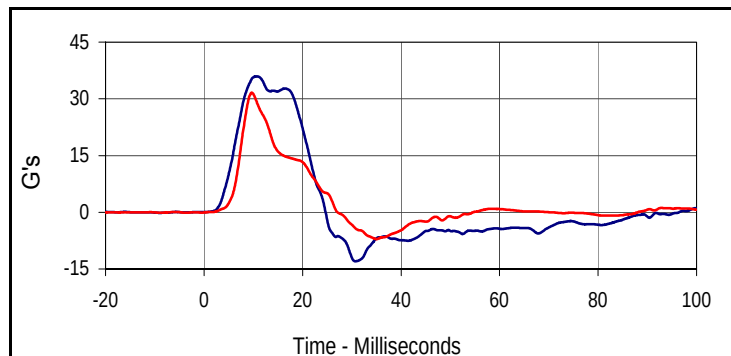
Test Date: 6/6/14
 Test I.D.: 299TWA073



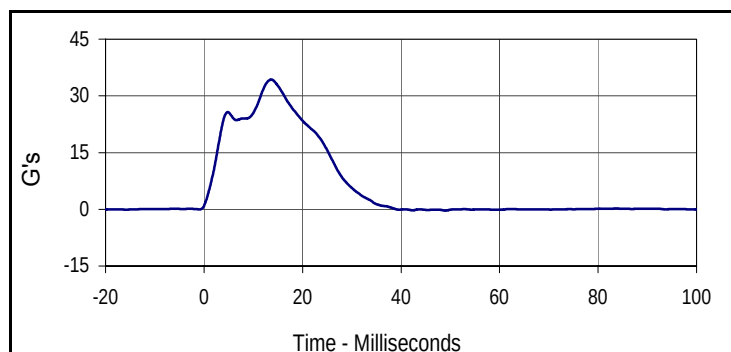
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	740	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	27.6	Pass
	Min		27.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	27.6	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.71	Pass
Peak Shoulder Deflection	mm	31 to 40	36.3	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	26.8	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	30.7	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	32.2	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	35.9	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	31.6	Pass
Peak Impactor Acceleration	G's	30 to 36	34.3	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
26.8	16.6	0.0	-19.8
Middle Thorax Deflection			
Max	Time	Min	Time
30.7	17.2	0.0	-18.2
Lower Thorax Deflection			
Max	Time	Min	Time
32.2	17.4	0.0	-15.8



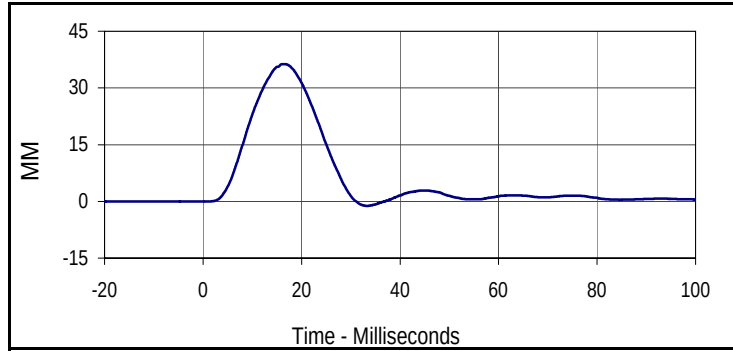
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
35.9	10.6	-13.0	30.7
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
31.6	9.7	-7.1	35.0



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
34.3	13.6	-0.3	49.1

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

Test Date: 6/6/14
 Test I.D.: 299TWA073



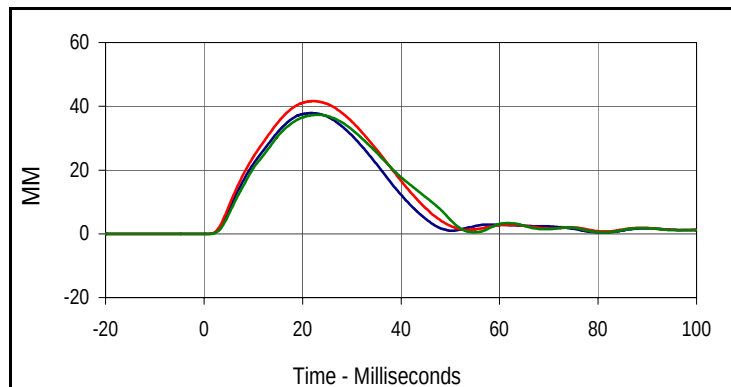
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
36.3	16.1	-1.2	33.4

Test Program: SID IIs Thorax without Arm Impact Test
 ATD Serial No.: 299

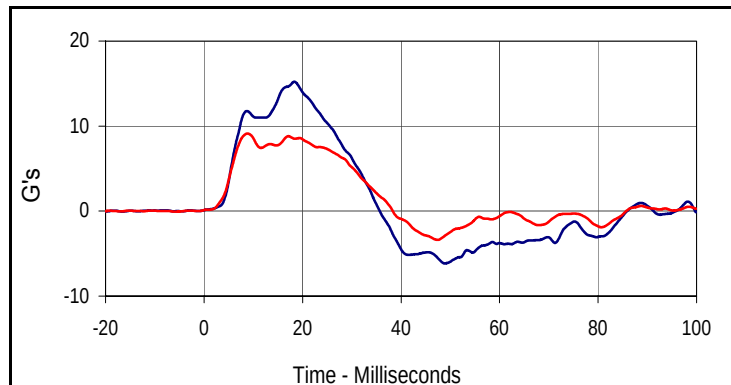
Test Date: 6/6/14
 Test I.D.: 299TWOA073



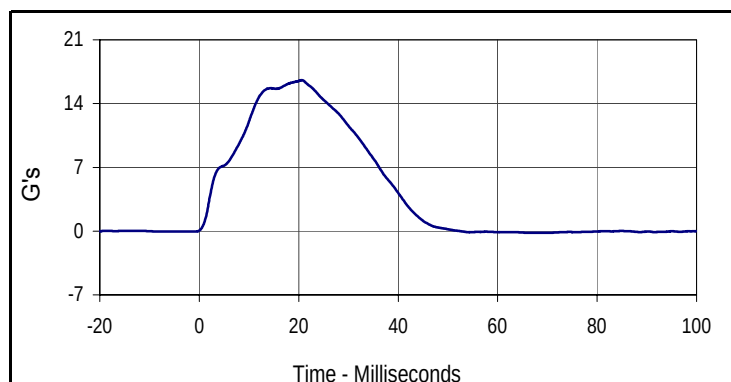
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	795	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.3	Pass
	Min	°C		21.2	Pass
Humidity During Soak	Max	%	10.0 to 70.0	27.6	Pass
	Min	%		27.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	27.6	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.33	Pass
Peak Upper Thorax Rib Deflection		mm	32 to 40	37.9	Pass
Peak Middle Thorax Rib Deflection		mm	39 to 45	41.6	Pass
Peak Lower Thorax Rib Deflection		mm	35 to 43	37.3	Pass
Peak Upper Spine Y Acceleration		G's	13 to 17	15.2	Pass
Peak Lower Spine Y Acceleration		G's	7 to 11	9.1	Pass
Peak Impactor Acceleration		G's	14 to 18	16.6	Pass
Overall Test Results				Pass	



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
37.9	21.8	0.0	-5.0
Middle Thorax Deflection			
Max	Time	Min	Time
41.6	22.2	0.0	-2.2
Lower Thorax Deflection			
Max	Time	Min	Time
37.3	23.2	0.0	-5.6



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.2	18.3	-6.2	48.9
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.1	8.9	-3.4	47.4



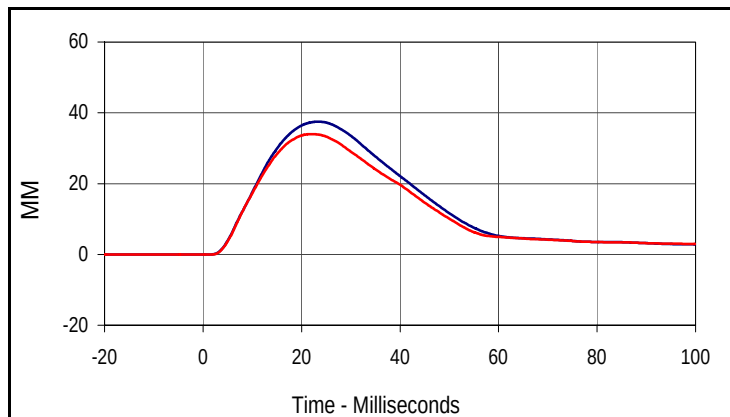
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.6	20.6	-0.2	70.3

Test Program: SID IIs Abdomen Impact Test
 ATD Serial No.: 299

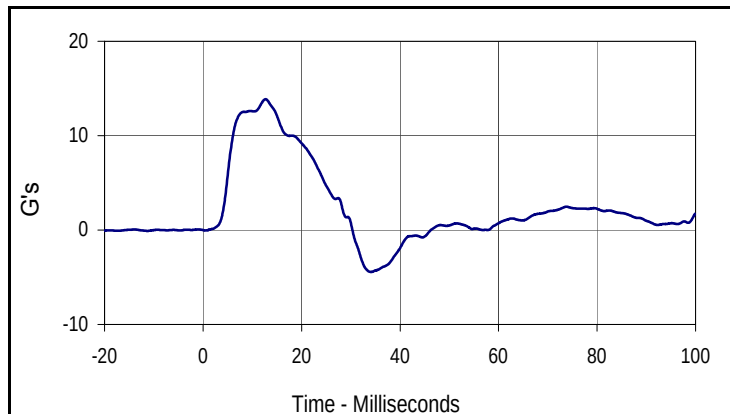
Test Date: 6/6/14
 Test I.D.: 299ABD073



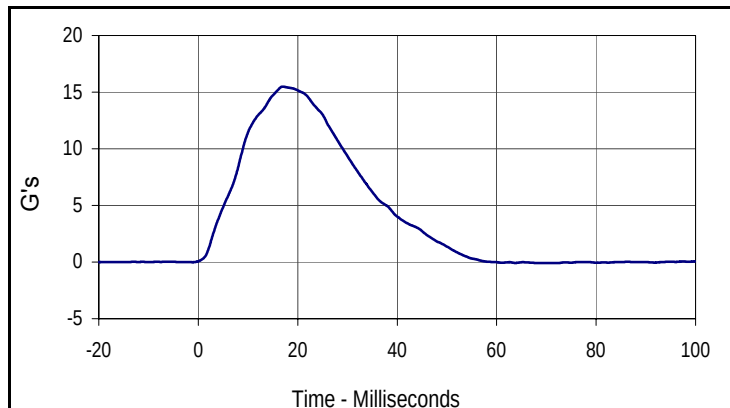
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	855	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	27.6	Pass
	Min		27.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	27.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.34	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	37.5	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	34.0	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	13.9	Pass
Peak Impactor Acceleration	G's	12 to 16	15.5	Pass
Overall Test Results			Pass	



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
37.5	23.2	0.0	-0.9
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
34.0	21.7	0.0	-5.3

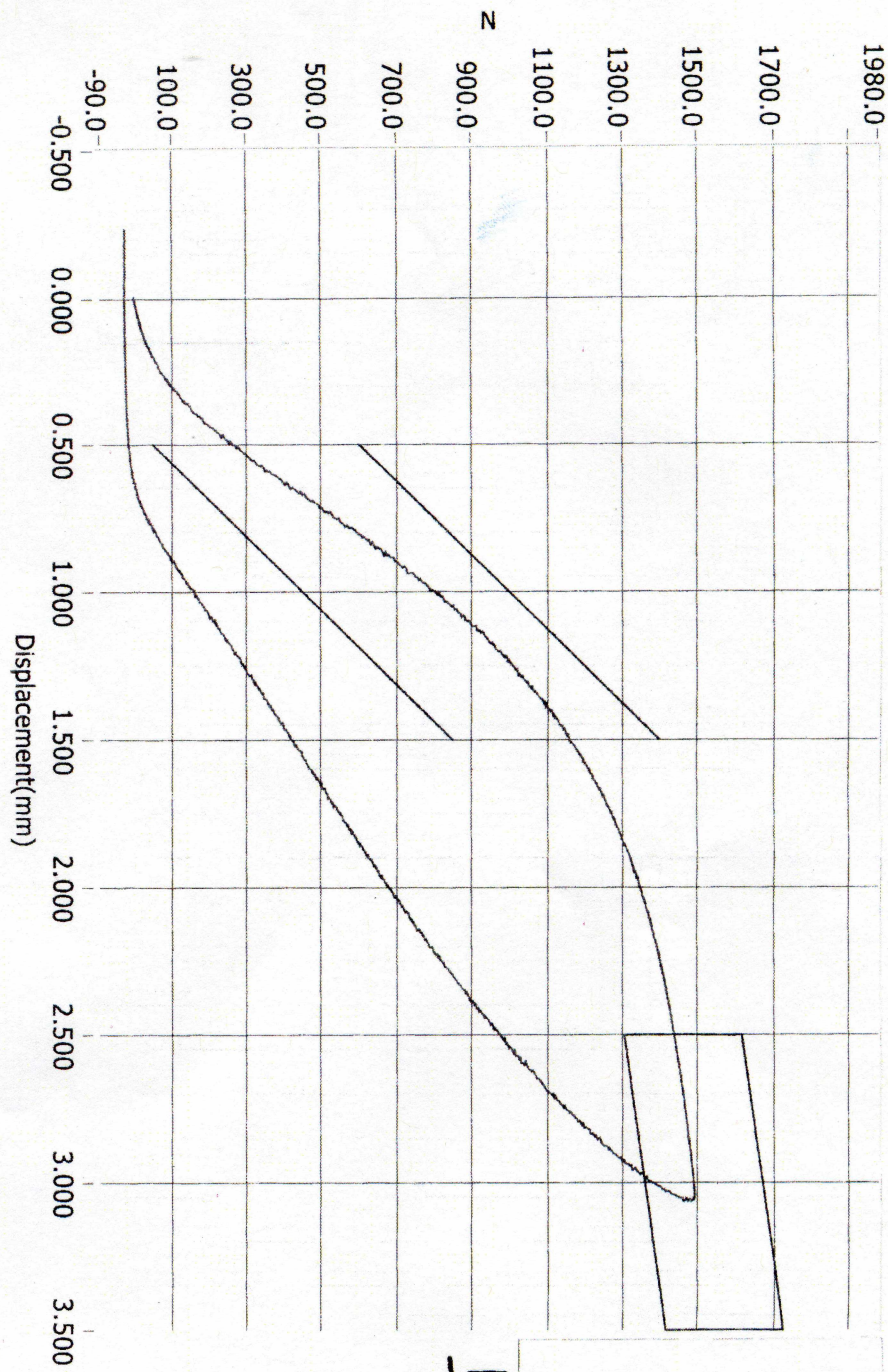


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
13.9	12.7	-4.4	34.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.5	17.0	-0.1	70.1

Resultant Data - SIDIIs Plug Compression



Loading Curve
 Boundary Limit Upper
 Boundary Limit Lower
 Peak Load Upper
 Peak Load Lower
 Peak Defl Upper
 Peak Defl Lower

1490N

ATD Calibration Lab

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
	63081	1/21/2013	5:06 PM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	N/A	SIDIIs	

M20155300 POST-TEST

Current Date : 1/21/2013

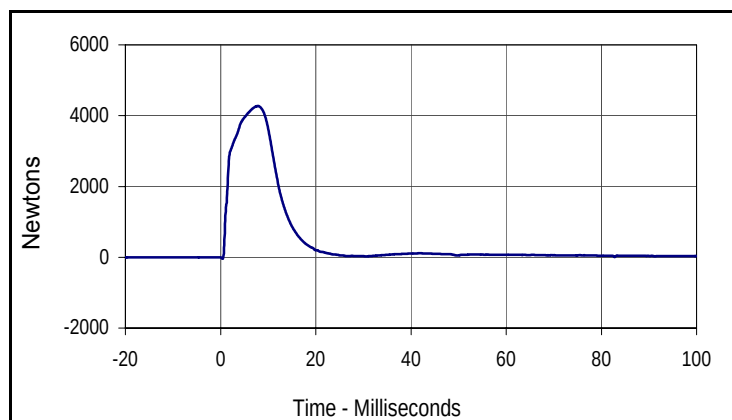
Current Time : 17:06:50

Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

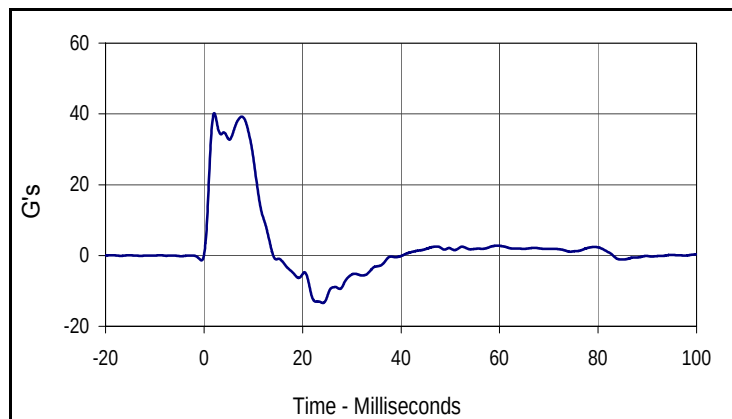
Test Date: 6/6/14
 Test I.D.: 299ACET073



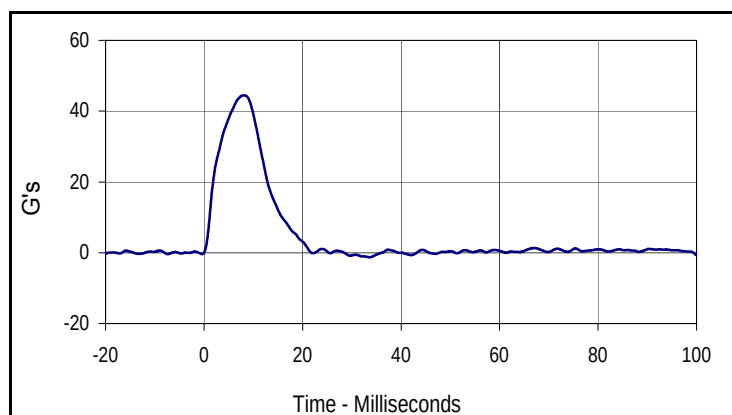
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	930	Pass
Temperature During Soak	Max	20.6 to 22.2	21.3	Pass
	Min		21.2	Pass
Humidity During Soak	Max	10.0 to 70.0	27.6	Pass
	Min		27.5	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	27.6	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.69	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	4274.0	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	39.2	Pass
Peak Impactor Acceleration	G's	38 to 47	44.5	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4274.0	7.8	-40.5	0.4



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
40.2	2.1	-13.4	24.1



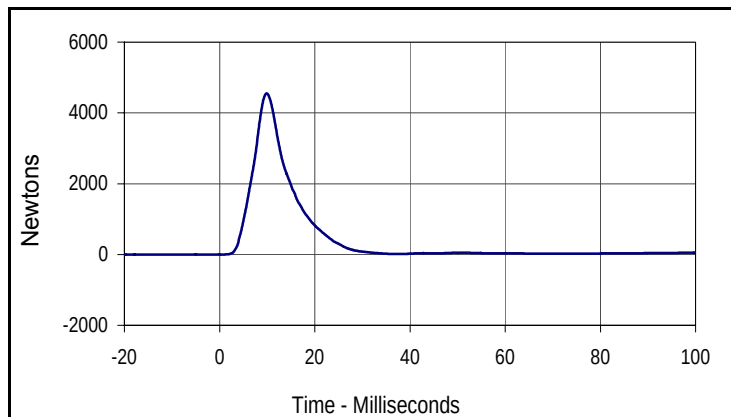
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
44.5	8.1	-1.3	33.6

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

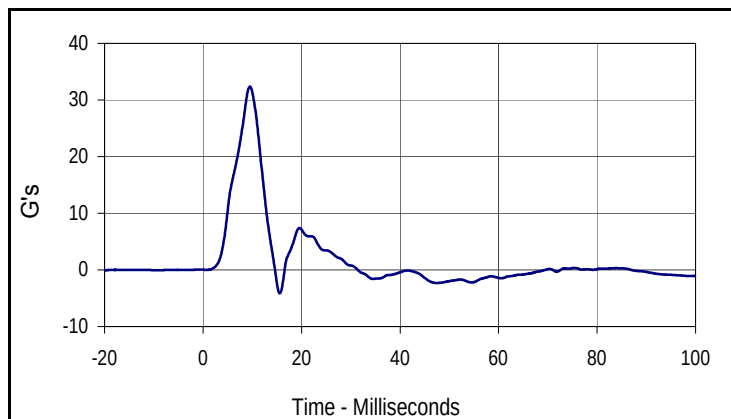
Test Date: 6/6/14
 Test I.D.: 299PL073



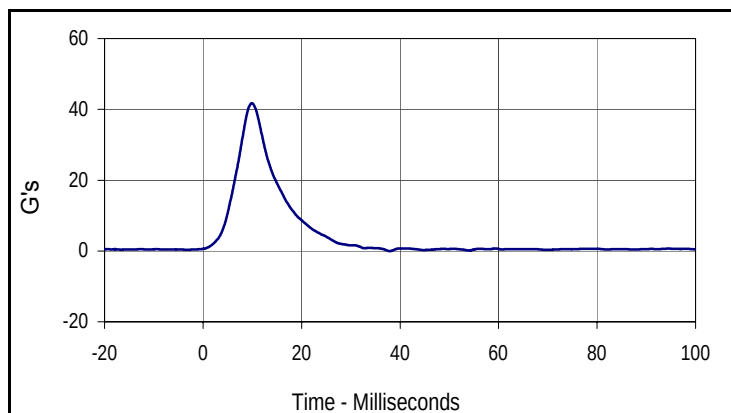
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥180	995	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.3	Pass
	Min	°C		21.2	Pass
Humidity During Soak	Max	%	10.0 to 70.0	27.6	Pass
	Min	%		27.5	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	27.6	Pass
Impactor Velocity		m/s	4.2 to 4.4	4.32	Pass
Peak Iliac Force		Newtons	4100 to 5100	4550.9	Pass
Peak Pelvis Y Acceleration		G's	28 to 39	32.3	Pass
Peak Impactor Acceleration		G's	36 to 45	41.7	Pass
Overall Test Results				Pass	



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4550.9	9.9	-1.5	-6.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
32.3	9.5	-4.1	15.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.7	9.9	0.0	37.9

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 299		
				Serial Number	Manufacturer	Calibration
Head Accelerometers	Primary		X	P58736	Endevco	5/9/14
			Y	P51929	Endevco	5/13/14
			Z	P51934	Endevco	5/13/14
	Redundant		X	P68604	Endevco	5/13/14
			Y	P51931	Endevco	5/13/14
			Z	P51939	Endevco	5/13/14
Displacement Potentiometers	Shoulder		Y	1074	FTSS	5/14/14
	Thoracic Rib	Upper	Y	1143	FTSS	5/14/14
		Middle	Y	1160	FTSS	5/14/14
		Lower	Y	1213	FTSS	5/14/14
	Abdominal Rib	Upper	Y	1218	FTSS	5/14/14
		Lower	Y	1234	FTSS	5/14/14
Lower Spine Accelerometers (T12)			X	04I20-Z04	Endevco	5/14/14
			Y	06A07-R08	Endevco	5/14/14
			Z	P58795	Endevco	5/14/14
Acetabulum Load Cell			Y	272	Denton	5/1/14
Iliac Wing Load Cell			Y	284	Denton	5/1/14
Pelvis Plug (Struck Side)				63193	FTSS	1/23/13
Pelvis Plug (Non-Struck Side)				62902	FTSS	1/17/13

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	Ketx11-X	MSI	3/5/14
Vehicle Center of Gravity	Y	Ketx11-Y	MSI	3/5/14
Vehicle Center of Gravity	Z	Ketx11-Z	MSI	3/7/14
Left Floor Sill	Y	A136672	MSI	3/20/14
A-Pillar Sill	Y	A136678	MSI	3/20/14
A-Pillar Low	Y	A136698	MSI	3/20/14
A-Pillar Mid	Y	A136677	MSI	3/20/14
B-Pillar Sill	Y	A136736	MSI	3/20/14
B-Pillar Low	Y	A136717	MSI	3/20/14
B-Pillar Mid	Y	A136669	MSI	3/20/14
Driver Seat	Y	A136737	MSI	3/20/14
Engine Top	X	A136710	MSI	3/20/14
Engine Top	Y	A136733	MSI	3/20/14
Firewall	Y	A136723	MSI	3/20/14
Right Roof	Y	A136692	MSI	3/20/14
Right Floor Sill	Y	A136729	MSI	3/20/14
Rear Floorpan	X	A136728	MSI	3/20/14
Rear Floorpan	Y	A136681	MSI	3/20/14

TABLE 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	131822A	Interface	5/20/14
Load Cell 2	132304A	Interface	5/20/14
Load Cell 3	19477	Interface	5/20/14
Load Cell 4	19325	Interface	5/20/14
Load Cell 5	131827A	Interface	5/20/14
Load Cell 6	132302A	Interface	5/21/14
Load Cell 7	19267	Interface	5/21/14
Load Cell 8	19321	Interface	5/21/14