

REPORT NUMBER: SPNCAP-KAR-15-018

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

**CHRYSLER GROUP LLC
2015 DODGE CHALLENGER SXT 2-DOOR COUPE**

NHTSA No: M20150301

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



DECEMBER 3, 2014

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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Approval Date: December 3, 2014

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

COTR, New Car Assessment Program
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Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

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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 Dodge Challenger SXT 2-door coupe 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 November 19, 2014. The impact velocity was 32.14 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 21.1° C. The target vehicle's maximum post-test static crush was 476 mm located at level 3. The test vehicle's occupant performance data is as follows:																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 35%;">Measurement Description</th> <th colspan="3">Driver ATD (SID-IIs)</th> </tr> <tr> <th style="width: 15%;">Units</th> <th style="width: 15%;">Threshold</th> <th style="width: 35%;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td style="text-align: center;">1000</td> <td style="text-align: center;">171.1</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">g</td> <td style="text-align: center;">82</td> <td style="text-align: center;">36</td> </tr> <tr> <td>Total Pelvic Force (Sum of Acetabular and Iliac Forces)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">2805</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">38</td> <td style="text-align: center;">25</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">45</td> <td style="text-align: center;">20</td> </tr> </tbody> </table>				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	171.1	Resultant Lower Spine Acceleration	g	82	36	Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	2805	Maximum Thoracic Rib Deflection	mm	38	25	Maximum Abdominal Rib Deflection	mm	45	20
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The door on the struck side of the vehicle did not separate from the body at the hinges or latches. The opposite door did not open during the side impact event.																														
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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TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information / Data Sheets	4
<u>Data Sheet</u>		<u>Page</u>
1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment, and Fuel System Data	9
3	Dummy Longitudinal Clearance Dimensions	13
4	Dummy Lateral Clearance Dimensions	14
5	Camera and Instrumentation Data	15
6	Test Vehicle Accelerometer Locations	16
7	Rigid Pole Load Cell Data	17
8	Post-Test Observations	18
9	Test Vehicle Profile Measurements	20
10	Test Vehicle Exterior Crush Measurements	21
11	Vehicle Damage Profile Distances	24
12	FMVSS No. 301 Static Rollover Results	25
13	Dummy/Vehicle Temperature and Humidity Stabilization	26
<u>Appendix</u>		<u>Page</u>
A	Photographs	A
B	Vehicle and Dummy Response Data Plots	B
C	Dummy Configuration and Performance Verification Data	C
D	Test Equipment and Instrumentation Calibration Data	D

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 Dodge Challenger SXT 2-Door Coupe. 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 Dodge Challenger SXT 2-door coupe. The subject vehicle was towed into the rigid pole at an angle of 75.3° and a velocity of 32.14 km/h. The test was conducted by KARCO Engineering, LLC. in Adelanto, California on November 19, 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	171.1
Lower Spine (T12) Resultant Acceleration	g	82	36
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2805
Maximum Thoracic Rib Deflection	mm	38*	25
Maximum Abdominal Rib Deflection	mm	45*	20

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

GENERAL COMMENTS

The door on the struck side of the vehicle remained closed and latched. There was no separation at the hinges or latches. The door on the non-struck side remained closed and latched. There was no ATD injury value that exceeded its limit.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

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 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	M20150301
Model Year	2015
Make	Dodge
Model	Challenger SXT
Body Style	2-Door Coupe
VIN	2C3CDZAG9FH709441
Body Color	TorRed
Odometer Reading (km / mi)	27 / 17
Engine Displacement (L)	3.6
Type / No. of Cylinders	V6
Engine Placement	Longitudinal
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
Final Drive	Rear
Roof Rack	No
Sunroof / T-Top	No
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	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 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	Yes

Does Owner's Manual provide instructions to turn off automatic door locks? No

DATA FROM CERTIFICATION LABEL

Manufactured By	Chrysler Group LLC
Date of Manufacture	Sep-14
Vehicle Type	Passenger Car

GVWR (kg)	2246
GAWR Front (kg)	1275
GAWR Rear (kg)	1275

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				392.0	A
DSC x 68.04 (kg)				340.2	B
Cargo Weight (RCLW) (kg)				51.8	A-B

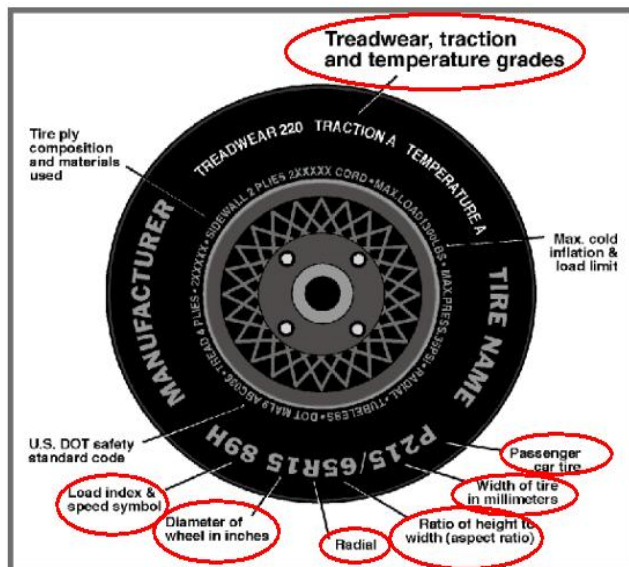
VEHICLE SEAT TYPE

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 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	220	220
Recommended Tire Size	P235/55R18	P235/55R18
Tire Size on Vehicle	P235/55R18	P235/55R18
Tire Manufacturer	Michelin	Michelin
Tire Model	Primacy MXM4	Primacy MXM4
Treadware	500	500
Traction Grade	AA	AA
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	1 Polyester, 1 Polyamide, 2 Steel	2 Polyester, 1 Polyamide, 2 Steel
Load Index/Speed Symbol	100V	100V
Tire Material	Polyester, Polyamide, Steel	Polyester, Polyamide, Steel
DOT Safety Code Left	B93J 0J4X 3214	B93J 0J4X 3214
DOT Safety Code Right	B93J 0J4X 3214	B93J 0J4X 3214

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	260	265	260	255
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	465.5	431.0		481.5	460.5		484.0	478.0	
Right	kg	454.0	410.0		468.5	446.0		454.0	446.0	
Ratio	%	52.2%	47.8%	100.0%	51.2%	48.8%	100.0%	50.4%	49.6%	100.0%
Total	kg	919.5	841.0	1760.5	950.0	906.5	1856.5	938.0	924.0	1862.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1760.5	A
Actual Weight of 1 P572 O ATD Used	kg	49.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	51.8	C
Calculated Vehicle Target Wt (TVTW)	kg	1861.3	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)*	°	-0.4	-0.4	-0.4	Yes
Front Passenger Sill Angle (front-to-rear)*	°	-0.6	-0.6	-0.5	Yes
Front Bumper-Line Angle (left-to-right)**	°	0.0	0.0	-0.1	Yes
Rear Bumper-Line Angle (left-to-right)**	°	0.0	0.1	0.1	Yes
Vehicle CG (Aft of Front Axle)	mm	1508	1582	1621	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	7	20	13	

*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 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Trim	10.0
Spare Tire	14.5
Spare Tire Tools	2.5
Rear Door Panels	7.5
Ballast / Equipment Added	64.8

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 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

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	5.3	0.0	2.6
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle	As Tested SCRP Height	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	2.6	567	Max	576	586	596
			Mid	548	557	567
			Min	520	527	537
Front Passenger Seat	Fixed	539	Max	525	532	539
			Mid	525	532	539
			Min	525	532	539
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	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

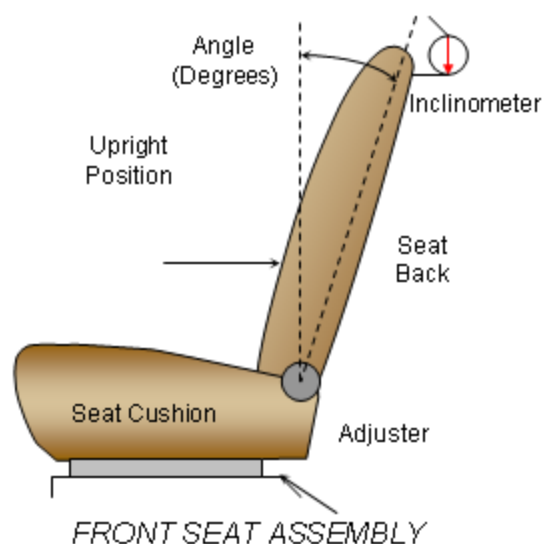
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	254		0	
Front Passenger Seat	217	23	0	0
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*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 head rest post.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	52.9	26	2.3	1
Front Passenger Seat	52.8	26	1.9	1
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

*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 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

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	Fixed	Fixed

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

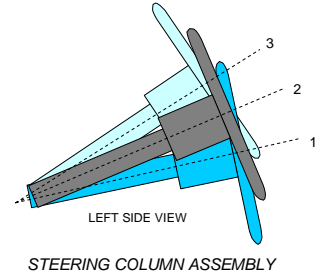
DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

STEERING COLUMN ADJUSTMENT

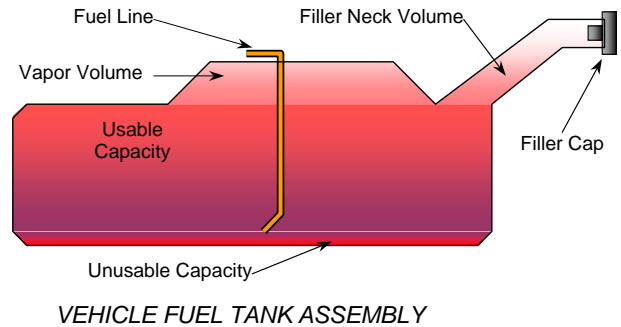
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of the geometric locus it describes when it moves through its full range of motion.



	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	19.3	129
Geometric Center - Position 2	21.7	157
Uppermost - Position 3	24.2	185
Telescoping Steering Wheel Travel		56
Test Position	21.7	157

FUEL PUMP

The vehicle is equipped with an electric fuel pump. The fuel pump starts pumping fuel when the ignition is in the "RUN" position.



FUEL TANK CAPACITY

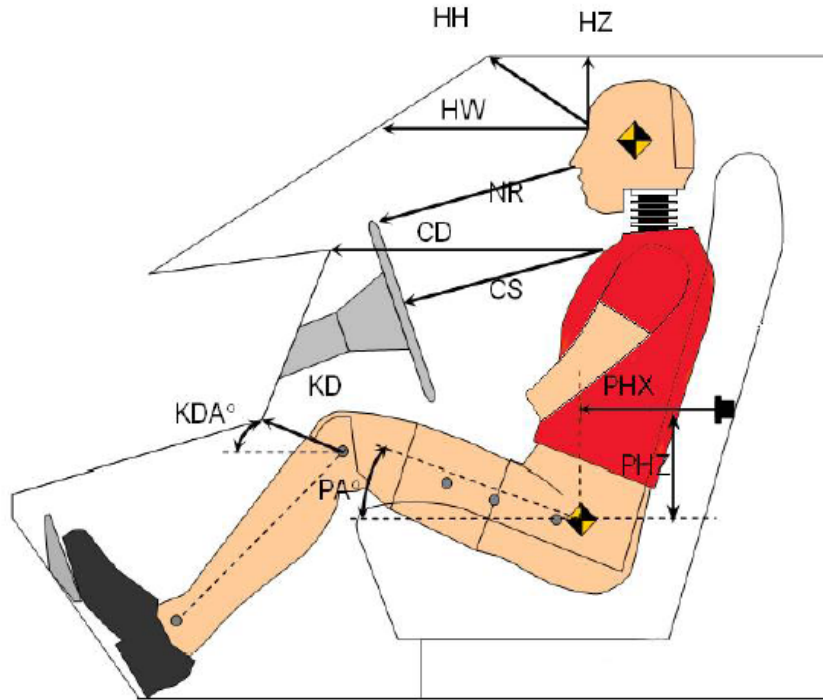
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	70.02
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	65.14
Actual amount of Solvent Used in Test	65.14
1/3 of Usable Capacity	23.34

Is the Actual Amount of Solvent Used in the test equal to 93% ± 1% of the Usable Capacity stated in the Form No. 1? **Yes** **No**

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14



Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	265	
HW	Head to Windshield	686	
HZ	Head to Roof	203	
NR	Nose to Rim	199	
CD	Chest to Dash	412	
CS	Chest to Steering Wheel	148	
KD(L)/KDA(L)°	Left Knee to Dash	128	39.4
KD(R)/KDA(R)°	Right Knee to Dash	114	35.3
PAX°	Pelvic Tilt Angle (x-axis)		18.3
PAY°	Pelvic Tilt Angle (y-axis)		0.0
PHX	Hip Point to Striker (x-axis)	616	
PHZ	Hip Point to Striker (z-axis)	124	

DATA SHEET NO. 4

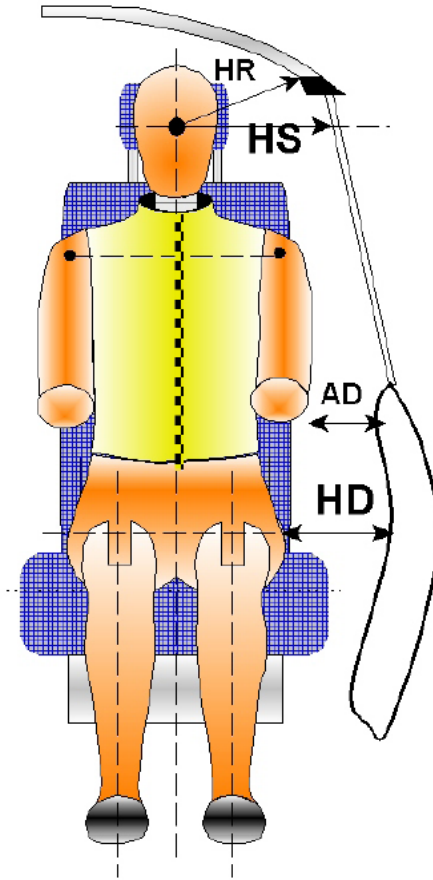
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe

NHTSA No. M20150301

Test Program: NCAP Side Pole Impact Test

Test Date: 11/19/14

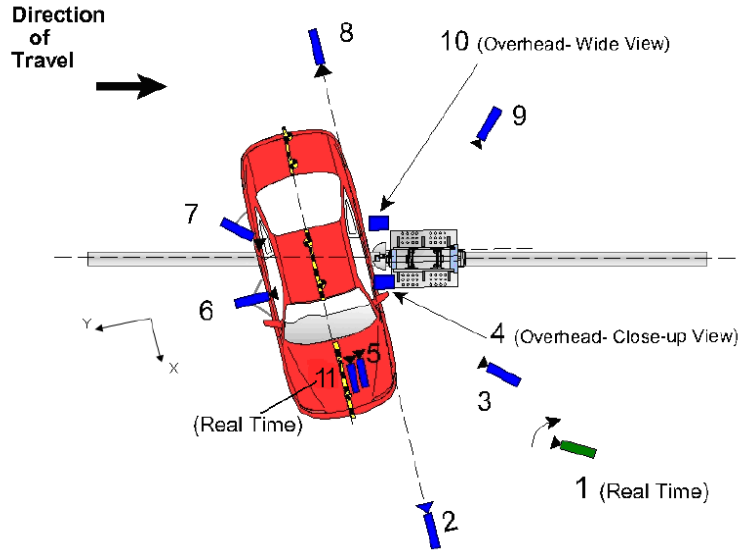


Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	261
HS	Head to Side Window	mm	382
AD	Arm to Door	mm	193
HD	Hip Point to Door	mm	172

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14



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	1.79	0.62	-1.42	35	1000
6	On-Board - Dummy Side View	-0.19	1.82	-1.11	14	1000
7	On-Board - Dummy Rear Oblique View	-0.89	1.78	-1.19	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	1.78	0.71	-1.41		30

*All measurements accurate to ±6 mm

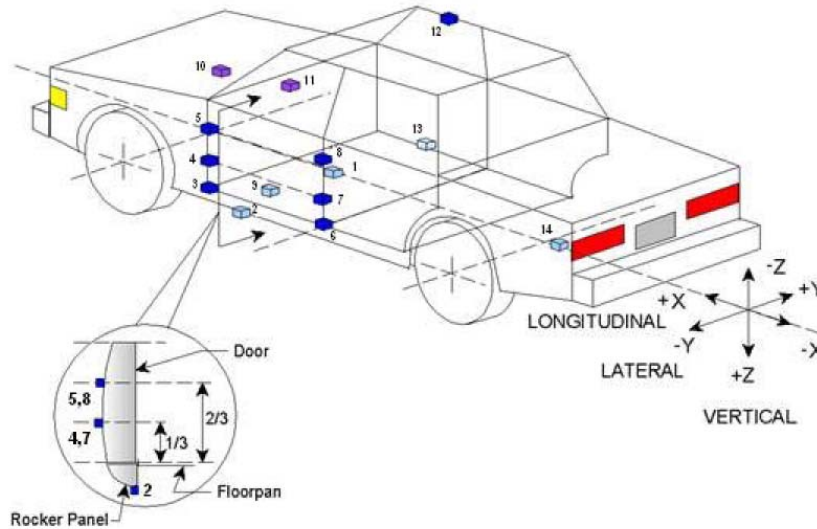
INSTRUMENTATION

Driver Dummy Channels	16
Vehicle Structure Accelerometers	15
Pole Load Cells	8
Total	39

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

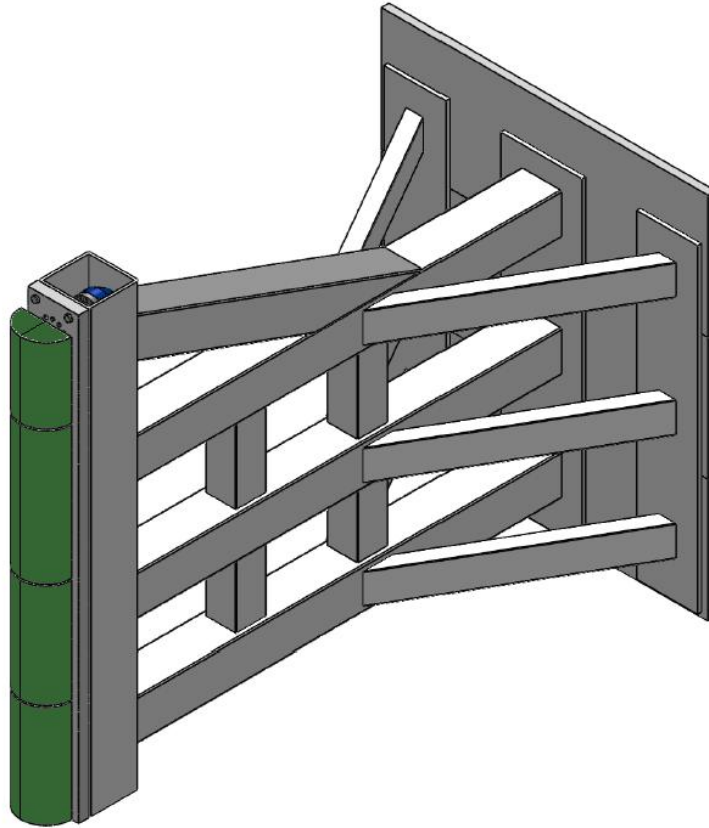


Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1091	0	-472
2	Left Floor Sill	3122	-749	-175
3	A-Pillar Sill	3350	-858	-435
4	A-Pillar Low	3350	-858	-606
5	A-Pillar Mid	3350	-858	-767
6	B-Pillar Sill			
7	B-Pillar Low			
8	B-Pillar Mid			
9	Driver Seat Track	2536	-250	-268
10	Engine Top	4261	-123	-945
11	Firewall	3644	130	-894
12	Right Roof	2318	512	-1455
13	Right Floor Sill	2286	713	-381
14	Rear Floorpan	1478	0	-508

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 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14



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 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	Headrest
Left Shoulder	Seat, Torso/Pelvis Airbag, Door Panel
Upper Torso	Seat
Lower Torso	Seat
Left Hip	Seat, Torso/Pelvis Airbag
Left Knee	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	N/A	Yes	N/A	Yes
Total Separation from Vehicle at Hinges or Latches	No	N/A	No	N/A	No
Latch or Hinge System Pulled Out of Their Anchorages	No	N/A	No	N/A	No
Disengaged from Latched Position	No	N/A	No	N/A	No
Latch Separated from Striker	No	N/A	No	N/A	No
Jammed Shut	Yes	N/A	No	N/A	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	Roof skin separated from sill

DATA SHEET NO. 8 ... (CONTINUED)

POST-TEST OBSERVATIONS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

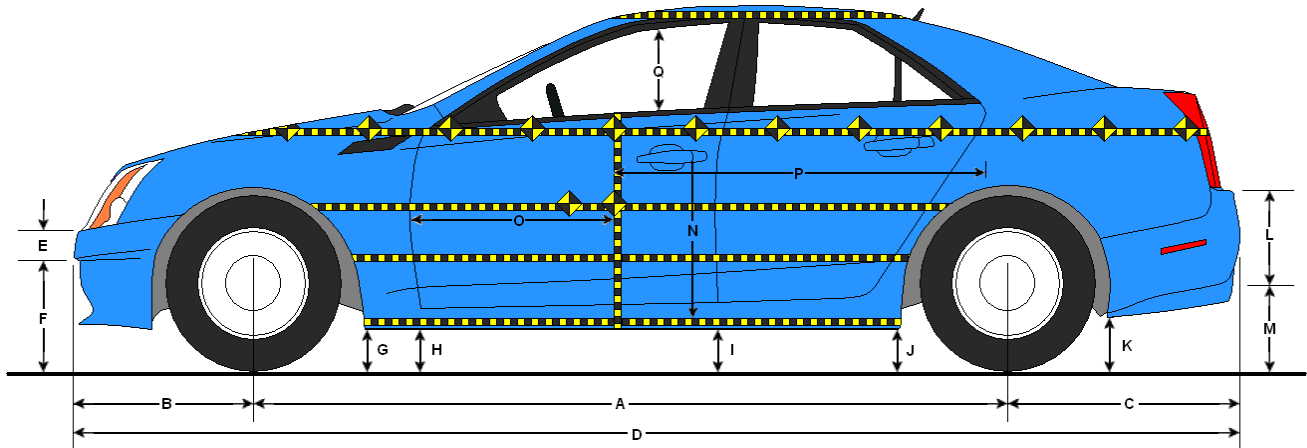
IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		1349
Actual Impact Point (Aft of Front Axle)	mm		1354
Horizontal Offset (+ forward / - rearward)	mm	± 38 of Intended Impact Point	-5
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	°	75 ± 3	75.3
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.14
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.13

DATA SHEET NO. 9

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14



LEFT SIDE VIEW

All measurements in mm with tolerance of ± 3 mm

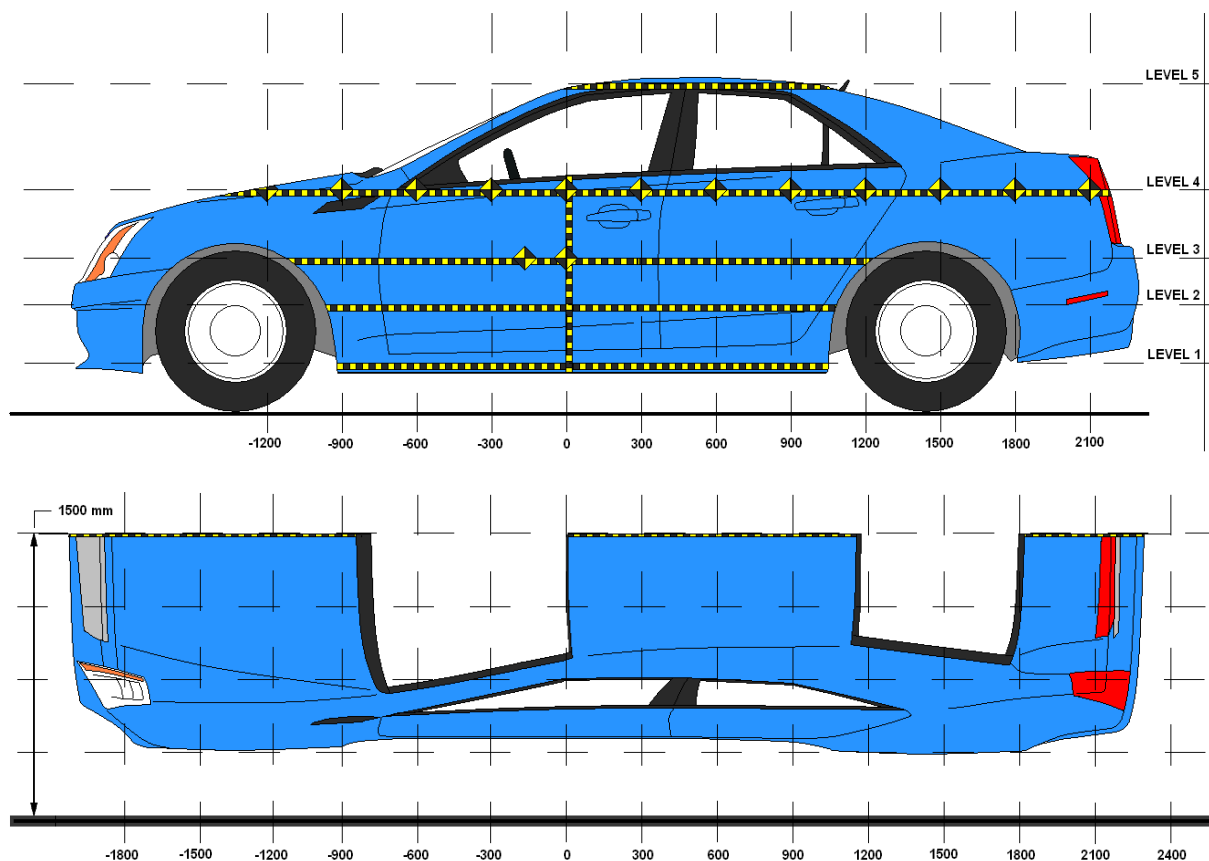
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2951	2828	-123
B	Front Axle to FSOV	955	989	34
C	Rear Axle to RSOV	1113	1153	40
D	Total Length at Centerline	5009	4970	-39
E	Front Bumper Thickness	159	162	3
F	Front Bumper Bottom to Ground	426	470	44
G	Sill Height at Front Wheel Well	241	242	1
H	Sill Height at Front Door Leading Edge	246	260	14
I	Sill Height at B-Pillar	264	324	60
J1	Sill Height at Rear Wheel Well	267	318	51
J2	Pinch Weld Height at Rear Wheel Well	165	211	46
K	Sill Height Aft of Rear Wheel Well	322	364	42
L	Rear Bumper Thickness	143	144	1
M	Rear Bumper Bottom to Ground	606	621	15
N	Sill Height to Bottom of Front Window Sill	715	682	-33
O	Front Door Leading Edge to Impact CL	654	536	-118
P	Rear Door Trailing Edge to Impact CL	1693	1937	244
Q	Front Window Opening	332	353	21
R	Right Side Length	3716	3736	20
S	Left Side Length	3719	3586	-133
T	Vehicle Width at B-Pillar	1917	1903	-14

DATA SHEET NO. 10

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14



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	273	401	0
2	Occupant H-Point	550	466	0
3	Mid-Door	628	476	0
4	Window Sill	942	428	150
5	Window Top	1356	246	150

DATA SHEET NO. 10 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14

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		562	554	637			661	654	714			99	100	77	
-750	626	559	551	631		749	675	666	718		123	116	115	87	
-600	622	558	550	624		764	699	688	721		142	141	138	97	
-450	620	556	549	621		818	768	764	801		198	212	215	180	
-300	617	555	548	588		868	845	842	845		251	290	294	257	
-150	615	555	547	612		928	928	929	938		313	373	382	326	
0	615	554	546	608	853	1016	1020	1022	1028	1096	401	466	476	420	243
150	615	554	546	606	836	983	1006	1012	1034	1082	368	452	466	428	246
300	615	554	546	604	833	880	889	898	930	1031	265	335	352	326	198
450	615	554	546	606	833	801	787	792	848	992	186	233	246	242	159
600	615	555	547	604	833	722	700	702	766	954	107	145	155	162	121
750	615	556	548	604	832	695	648	640	699	934	80	92	92	95	102
900	616	558	550	590	836	678	638	629	678	925	62	80	79	88	89
1050	618	560	552	574	849	670	635	628	654	930	52	75	76	80	81
1200		562	554	565	874		619	620	639	949		57	66	74	75
1350				563	921				630	990				67	69
1500				566					625					59	
1650				570					623					53	
1800				578					625					47	
1950															
2100															
2250															
2400															
2550															
2700															
2850															

DATA SHEET NO. 10 ... (CONTINUED)

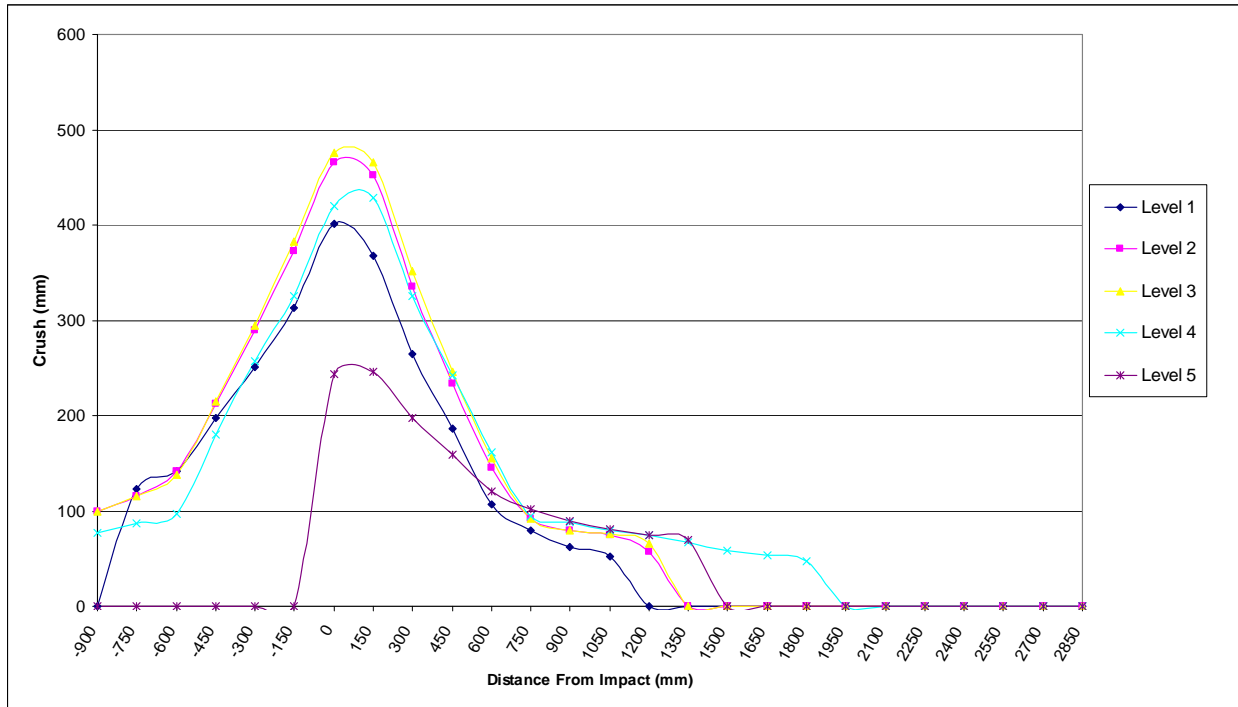
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe

NHTSA No. M20150301

Test Program: NCAP Side Pole Impact Test

Test Date: 11/19/14

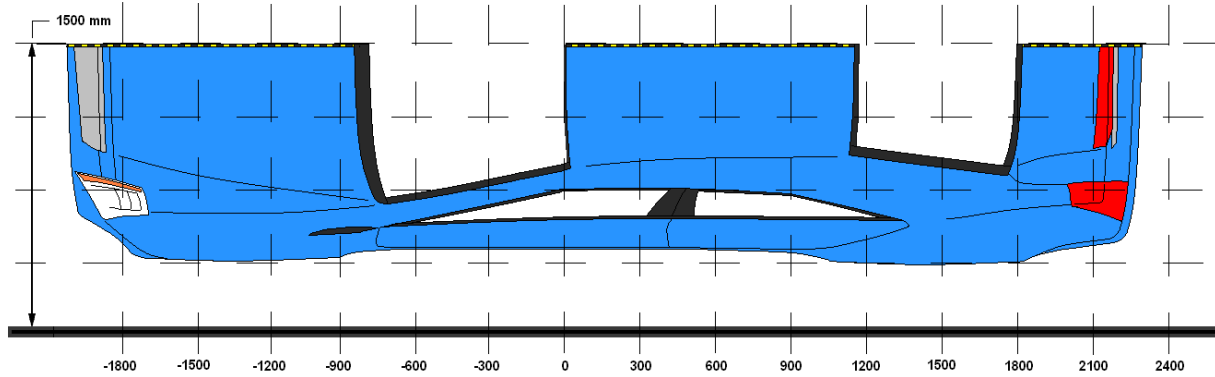


DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301

Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14



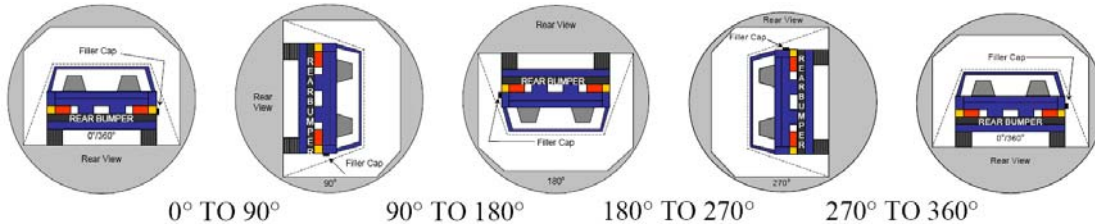
DPD	Distance From Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	1800	4	578	625	47
2	1350	5	921	990	69
3	750	5	832	934	102
4	150	3	546	1012	466
5	-450	3	549	764	215
6	-900	3	554	654	100

DATA SHEET NO. 12

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301
 Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14
 Temperature at Time of Impact: 21.1° C Test Time: 11:40 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°	80	300	380
180° To 270°	78	300	378
270° To 360°	79	300	379

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

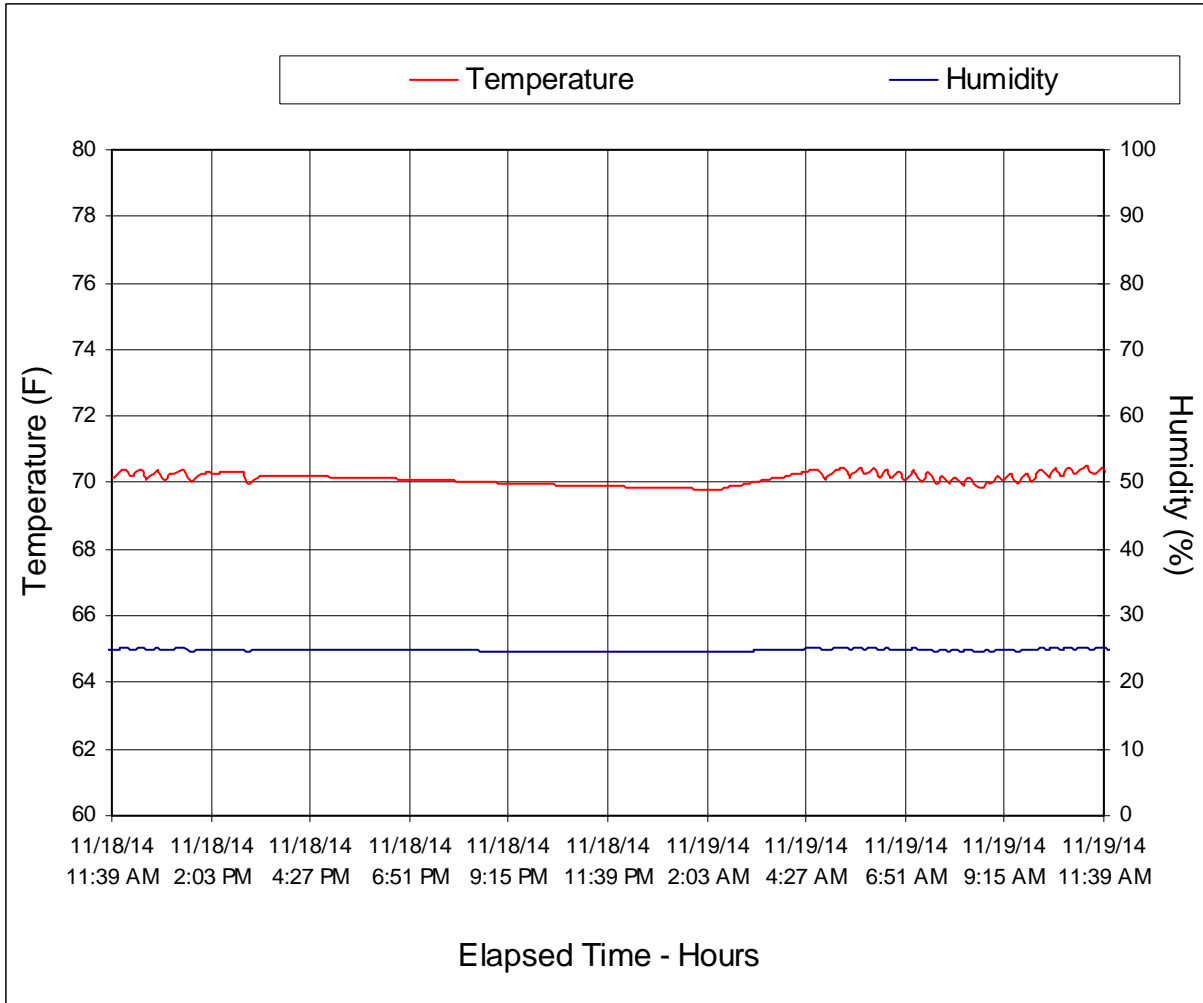
Test Phase	Spillage Location
0° To 90°	No Spillage Occurred
90° To 180°	No Spillage Occurred
180° To 270°	No Spillage Occurred
270° To 360°	No Spillage Occurred

DATA SHEET NO. 13

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe NHTSA No. M20150301

Test Program: NCAP Side Pole Impact Test Test Date: 11/19/14



**APPENDIX A
PHOTOGRAPHS**

*Figure 42 and 43 include an incorrect NHTSA number on the door label

TABLE OF PHOTOGRAPHS

Figure		Page
1	As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-1
2	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-1
3	Pre-Test Frontal View of Test Vehicle	A-2
4	Post-Test Frontal View of Test Vehicle	A-2
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
7	Pre-Test Left Side View of Test Vehicle	A-4
8	Post-Test Left Side View of Test Vehicle	A-4
9	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
10	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
11	Pre-Test Rear View of Test Vehicle	A-6
12	Post-Test Rear View of Test Vehicle	A-6
13	Pre-Test Right Side View of Test Vehicle	A-7
14	Post-Test Right Side View of Test Vehicle	A-7
15	Pre-Test Overhead View of Test Area	A-8
16	Post-Test Overhead View of Test Area	A-8
17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-9
18	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-9
19	Pre-Test Close-Up View of Impact Point Target	A-10
20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-10
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-11
22	Post-Test Front Close-Up View of Dummy	A-11
23	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-12
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-12
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-13
26	Pre-Test Frontal View of Seat Back Prior to Dummy Positioning	A-13
27	Pre-Test Frontal Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint	A-14
28	Pre-Test Overhead View of Seat Pan Prior to Dummy Positioning	A-14
29	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-15
30	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-15
31	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-16
32	Pre-Test Placement of Dummy's Feet	A-16
33	Pre-Test View of Belt Anchorage for Dummy	A-17
34	Pre-Test Left Side View of Steering Wheel	A-17
35	View of Disengaged Parking Brake	A-18

TABLE OF PHOTOGRAPHS ... (CONTINUED)

<u>Figure</u>		<u>Page</u>
36	Pre-Test View of Parking Brake	A-18
37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-19
38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-19
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-20
40	Pre-Test Dummy and Door Clearance View	A-20
41	Post-Test Dummy and Door Clearance View	A-21
42	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-21
43	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-22
44	Pre-Test Inner Door Panel View	A-22
45	Post-Test Inner Door Panel View Showing Dummy Contact Locations	A-23
46	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-23
47	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-24
48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-24
49	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-25
50	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-25
51	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-26
52	Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-26
53	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
54	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
55	Close-Up View of Vehicle's Certification Label	A-28
56	Close-Up View of Vehicle's Tire Information Placard or Label	A-28
57	Pre-Test Pole Barrier Front View	A-29
58	Post-Test Pole Barrier Front View	A-29
59	Pre-Test Pole Barrier Side View	A-30
60	Post-Test Pole Barrier Side View	A-30
61	Pre-Test Ballast View	A-31
62	Post-Test Primary and Redundant Speed Trap Read-Out	A-31
63	FMVSS No. 301 Static Rollover 0 Degrees	A-32
64	FMVSS No. 301 Static Rollover 90 Degrees	A-32
65	FMVSS No. 301 Static Rollover 180 Degrees	A-33
66	FMVSS No. 301 Static Rollover 270 Degrees	A-33
67	FMVSS No. 301 Static Rollover 360 Degrees	A-34
68	Impact Event	A-34
69	Monroney Label	A-35
70	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-35



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

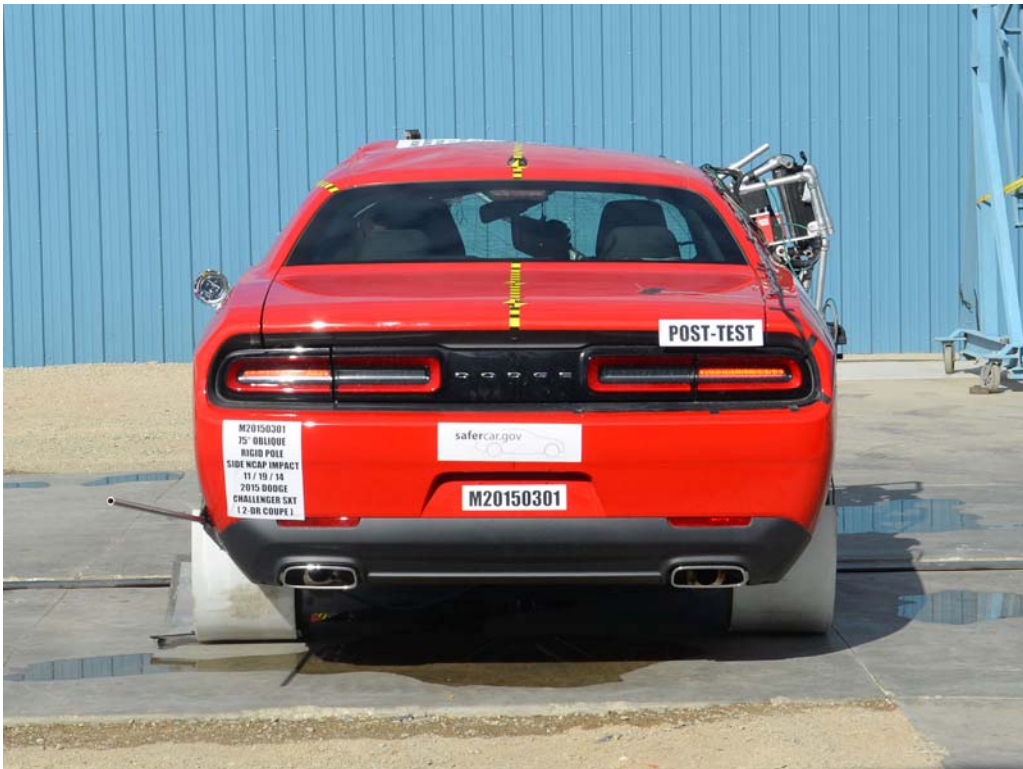


FIGURE 12. Post-Test Rear View of Test Vehicle



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



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



FIGURE 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

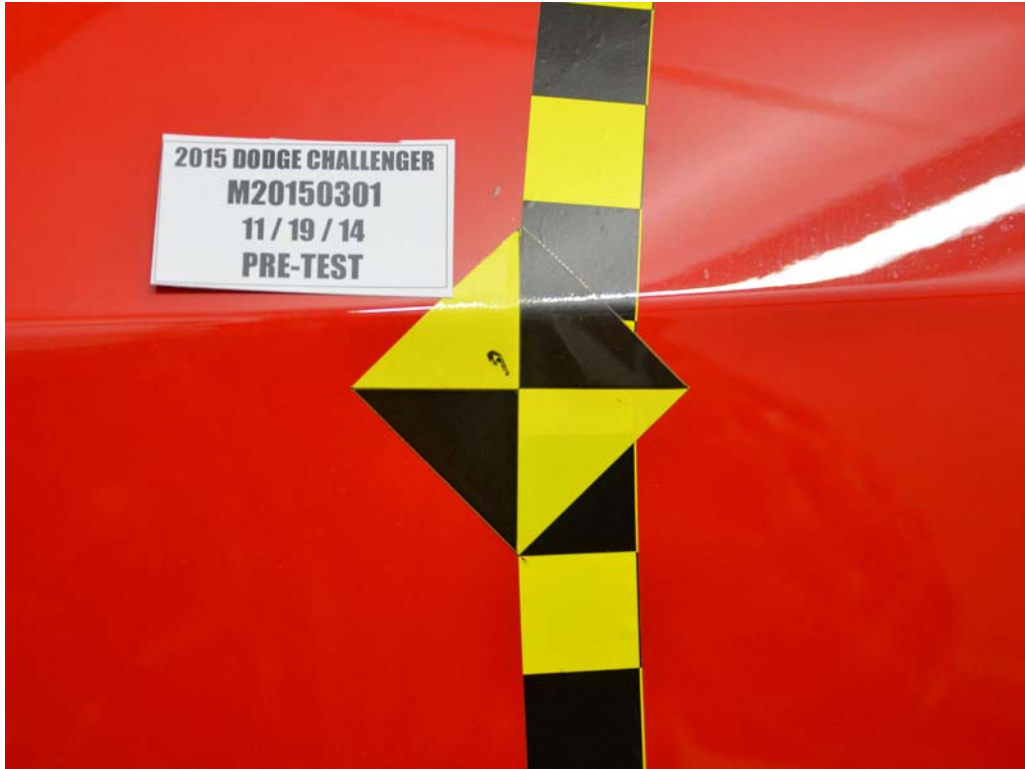


FIGURE 19. Pre-Test Close-Up View of Impact Point Target

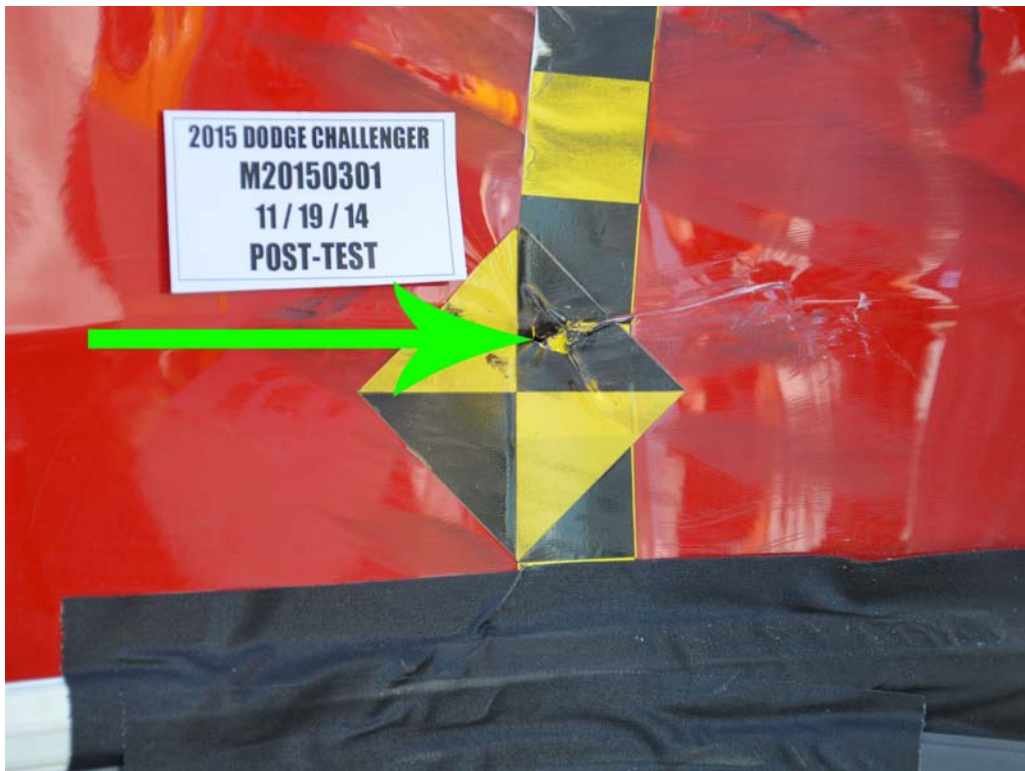


FIGURE 20. Post-Test Close-Up View of Impact Point Target
Showing Impact Location



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

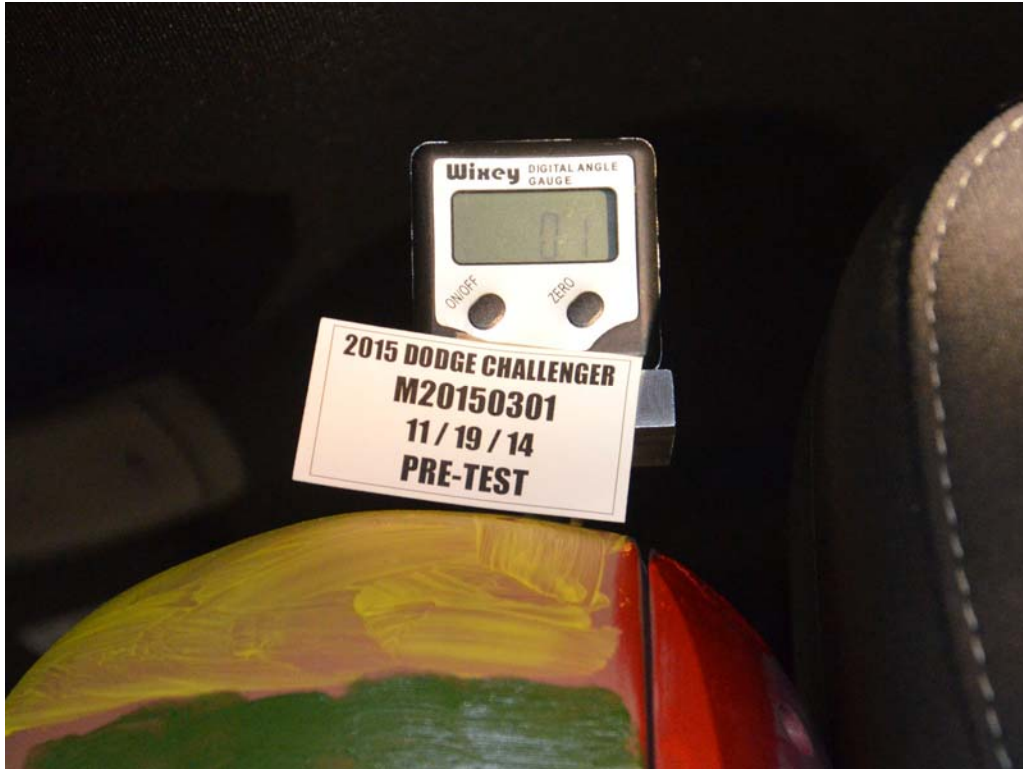


FIGURE 31. Pre-Test Left Side View of Dummy's Head Showing Head is Level



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

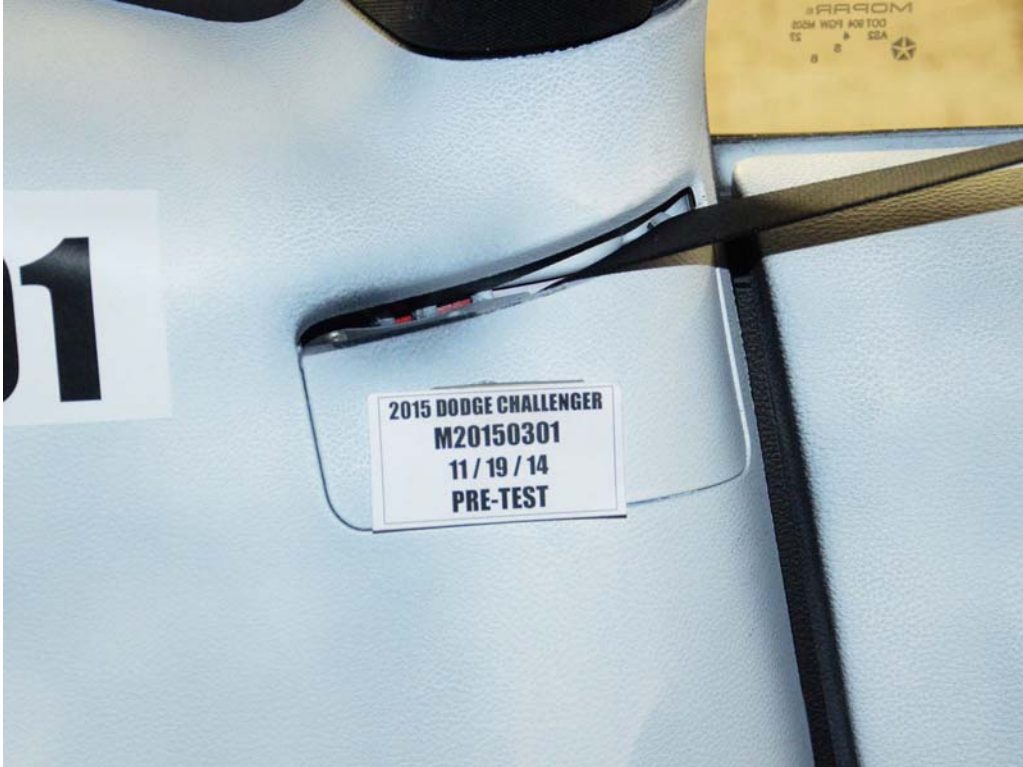


FIGURE 33. Pre-Test View of Belt Anchorage for Dummy



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

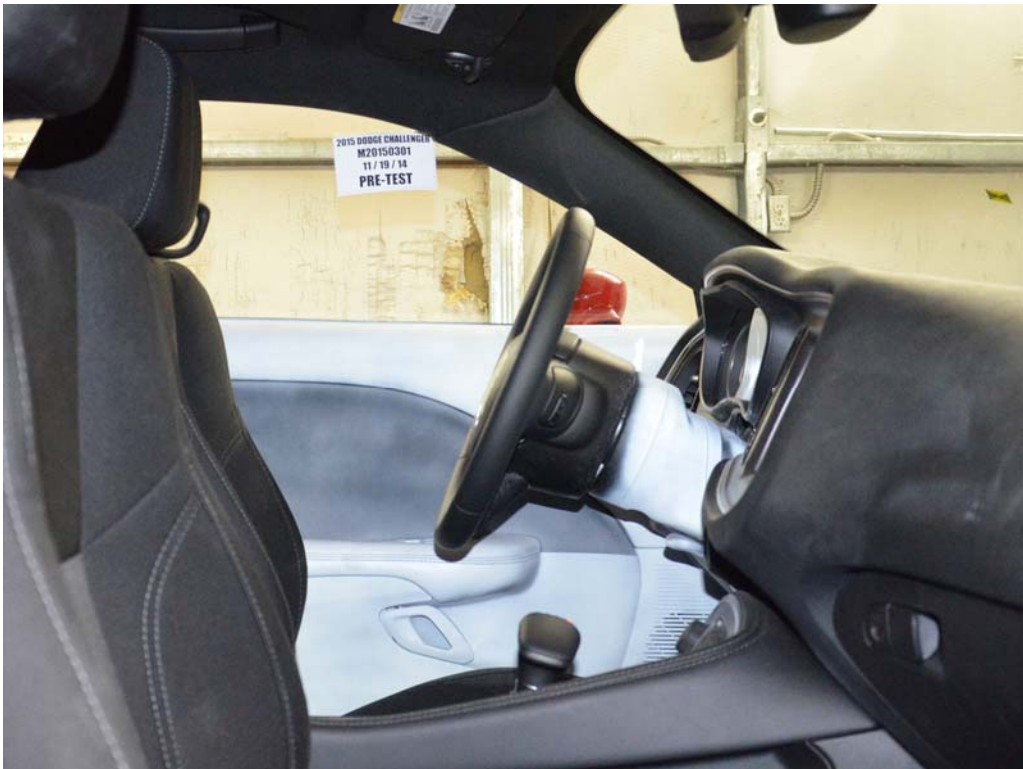


FIGURE 44. Pre-Test Inner Door Panel View



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

Photograph Not Applicable

**No Driver Dummy Knee
Contact with Vehicle Interior**

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 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

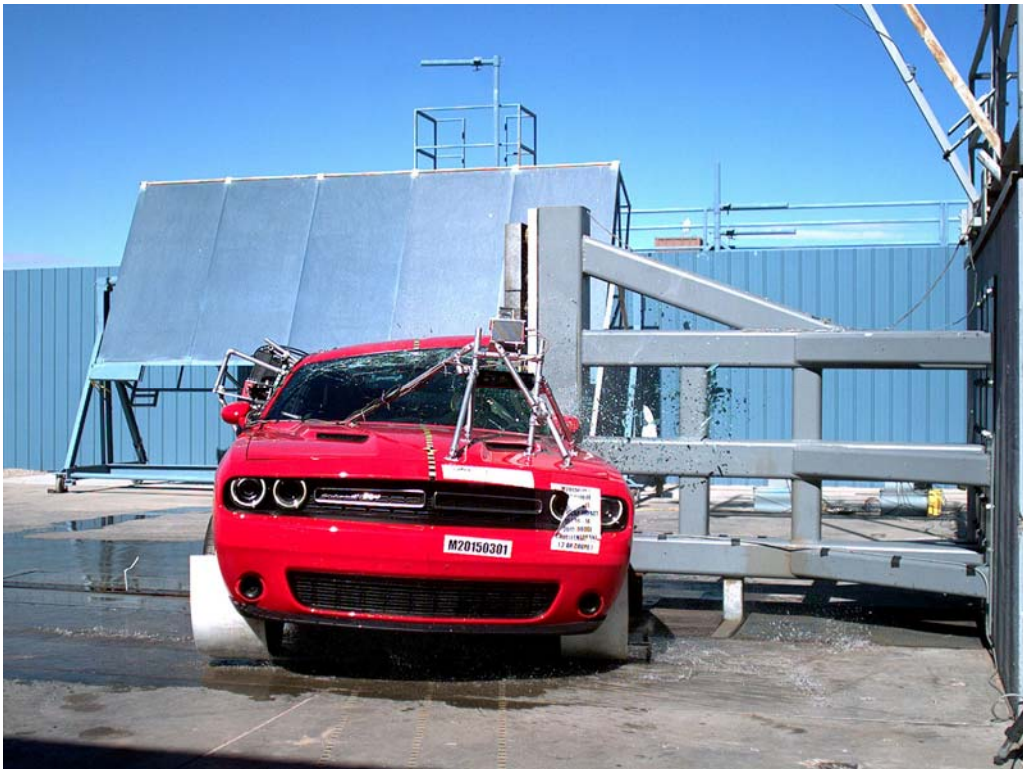


FIGURE 68. Impact Event

APPENDIX B
VEHICLE AND 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)

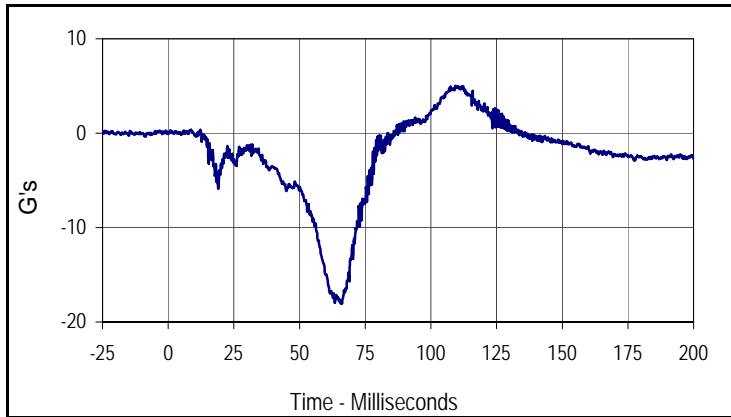
Left B-Pillar Sill Acceleration
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration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

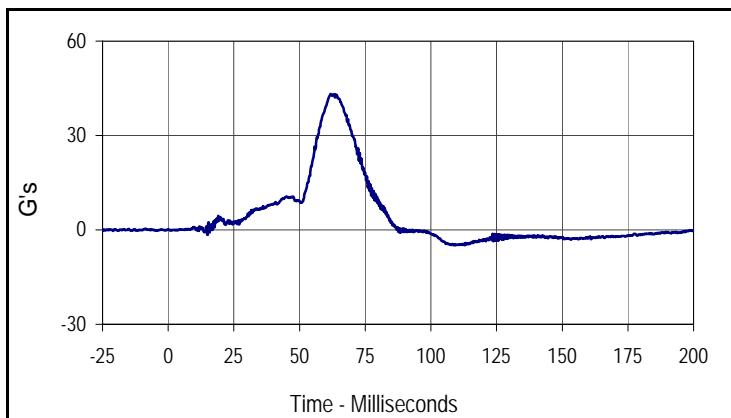
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe
 Test Program: NCAP Side Pole Impact Test

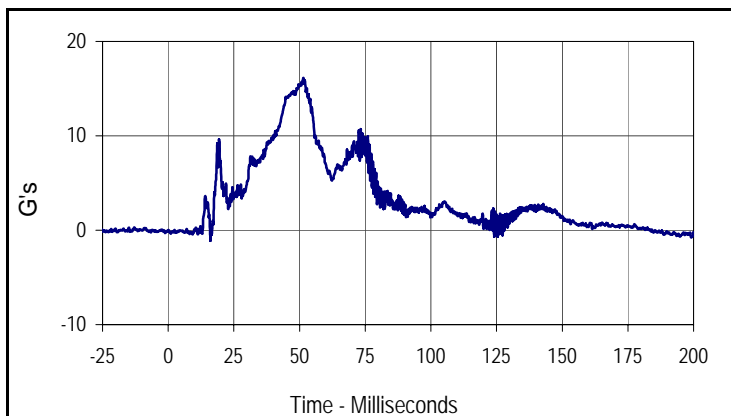
Test Date: 11/19/14
 NHTSA No.: M20150301



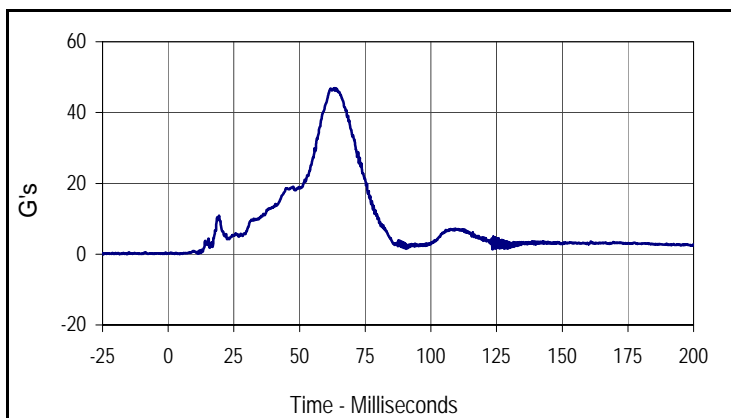
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
5.0	109.4	-18.1	66.1



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
43.3	61.8	-4.9	109.4



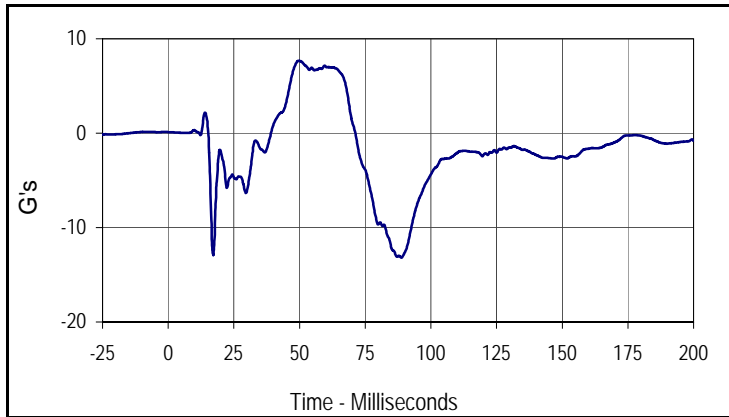
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
16.1	51.5	-1.1	16.1



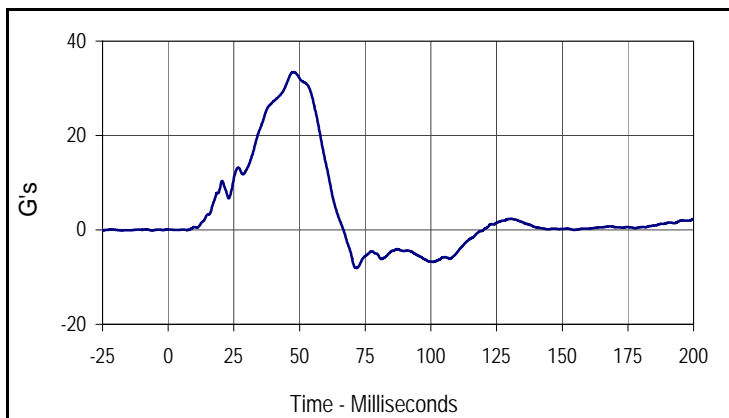
Curve Description			
Driver Head Acceleration Primary Res.			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
46.9	63.3	0.0	4.4

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe
 Test Program: NCAP Side Pole Impact Test

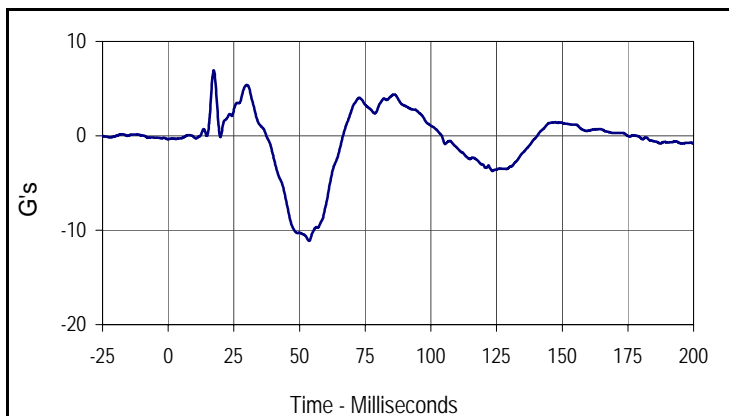
Test Date: 11/19/14
 NHTSA No.: M20150301



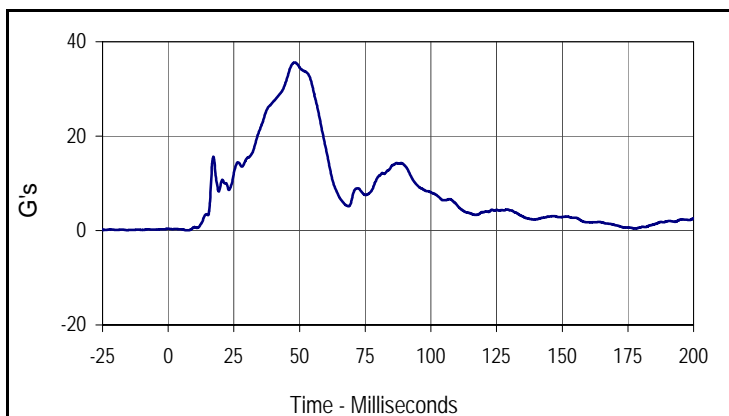
Curve Description			
Driver Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
7.7	49.7	-13.2	88.8



Curve Description			
Driver Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.4	47.8	-8.1	71.5



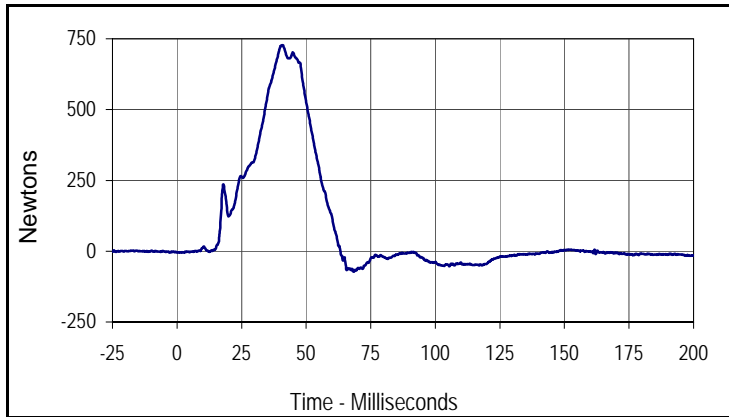
Curve Description			
Driver Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
007	FIL	180	G's
Max	Time	Min	Time
6.9	17.3	-11.1	53.6



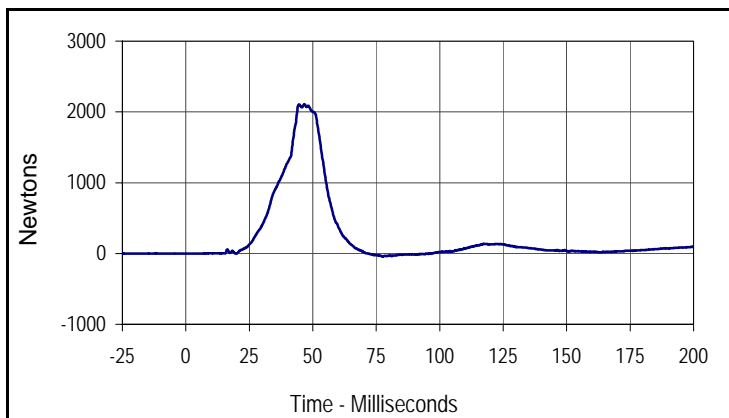
Curve Description			
Driver Lower Spine T12 Acceleration Res.			
Plot No.	Type	SAE Class	Units
008	RES	180	G's
Max	Time	Min	Time
35.6	48.1	0.1	6.8

Test Vehicle: 2015 Dodge Challenger SXT 2-Door Coupe
 Test Program: NCAP Side Pole Impact Test

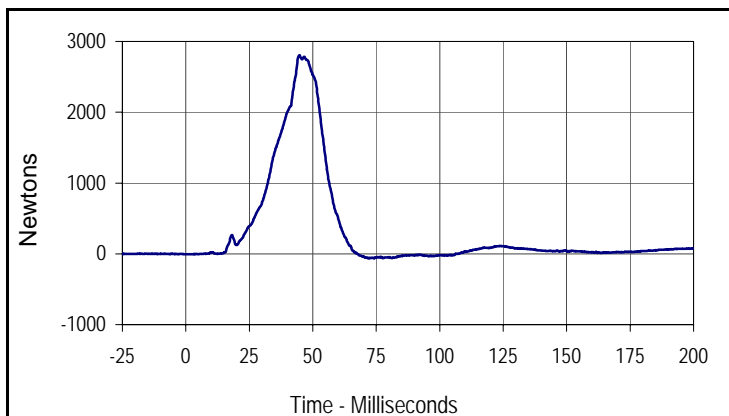
Test Date: 11/19/14
 NHTSA No.: M20150301



Curve Description			
Driver Iliac Wing Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
727.8	40.8	-72.6	68.4



Curve Description			
Driver Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
010	FIL	600	Newtons
Max	Time	Min	Time
2108.5	46.6	-45.3	77.3



Curve Description			
Driver Total Pelvic Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
011	SUM	600	Newtons
Max	Time	Min	Time
2805.1	44.7	-63.9	71.9

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Test Program: SID IIs External Measurements

Test Date: 11/11/14



ATD Serial No.: 299

Test I.D.: N/A

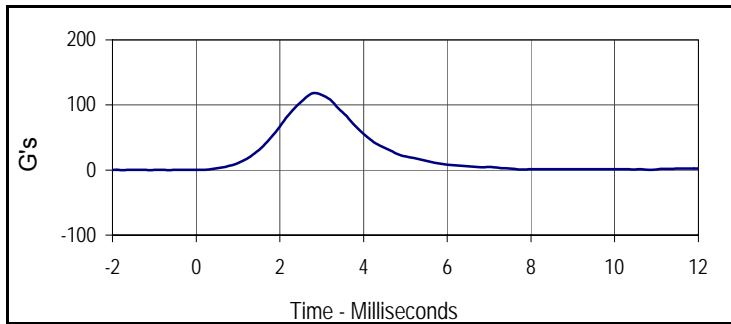
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	37	Pass
A Sitting Height	mm	772 - 788	780	Pass
B Shoulder Pivot Height	mm	437 - 453	445	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 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

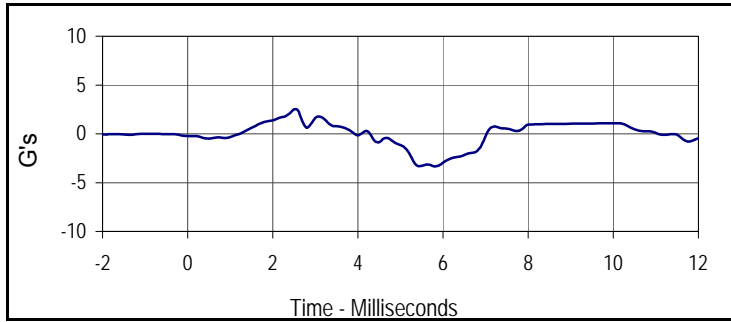
Test Date: 11/11/14
 Test I.D.: 299HD079



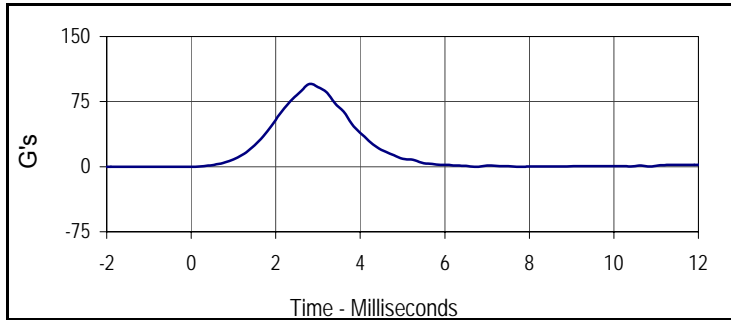
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	316	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	37.3	Pass
	Min		36.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.9	Pass
Peak Head Resultant Acceleration	G's	115 to 137	118.2	Pass
Peak Head X Acceleration	G's	<15	3.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	4.0	Pass
Overall Test Results				Pass



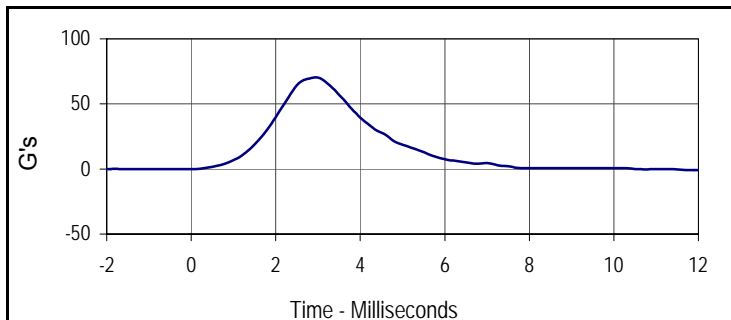
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
118.2	2.8	0.0	-1.7



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.5	2.5	-3.3	5.8



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
95.6	2.8	-0.2	-1.4



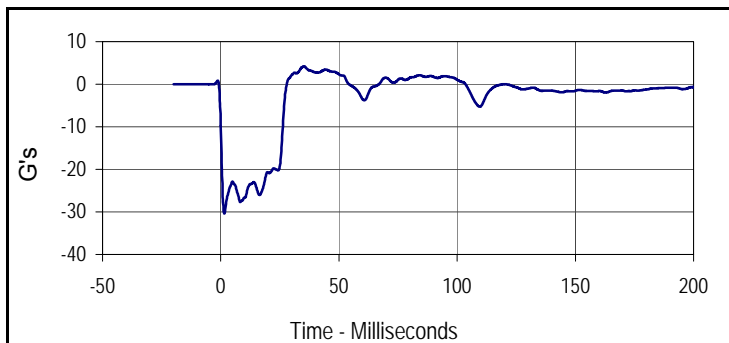
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
70.4	2.9	-0.9	12.0

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

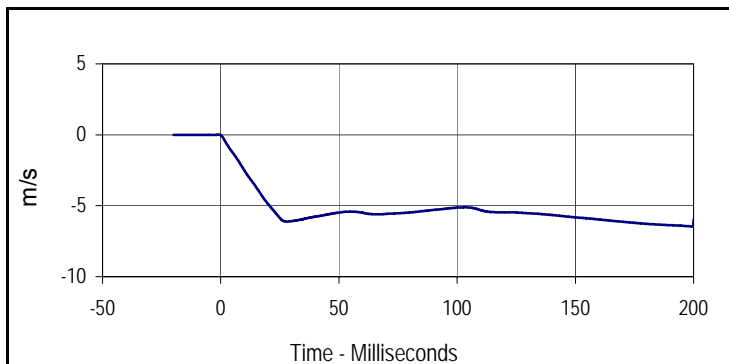
Test Date: 11/11/14
 Test I.D.: 299NB079



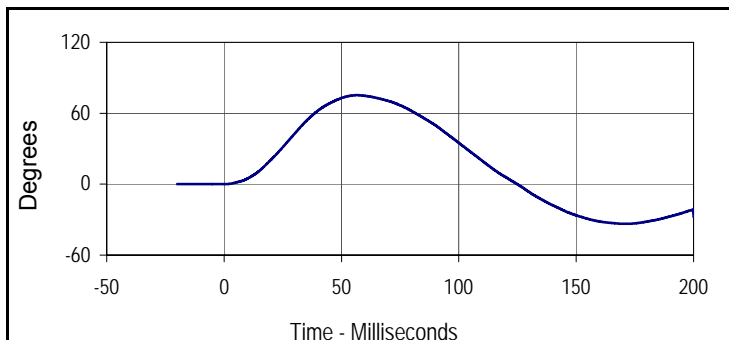
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	361	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass	
	Min		21.3	Pass	
Humidity During Soak	Max	10.0 to 70.0	37.3	Pass	
	Min		36.8	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	36.9	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.54	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.51	Pass
	15 msec	m/s	-3.30 to -4.10	-3.70	Pass
	20 msec	m/s	-4.40 to -5.40	-4.87	Pass
	25 msec	m/s	-5.40 to -6.10	-5.86	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.11	Pass
D-Plane Rotation	Max	Degrees	71 to 81	75.2	Pass
	Time	msec	50 to 70	56.6	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-42.9	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	106.9	Pass	
Overall Test Results			Pass	Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
4.2	0.0	-30.4	0.0



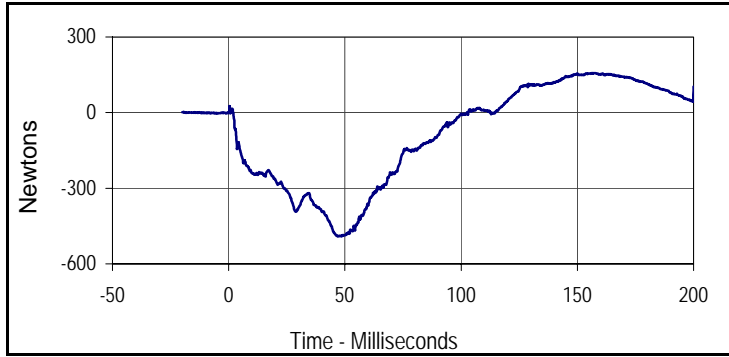
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.8	-6.5	199.9



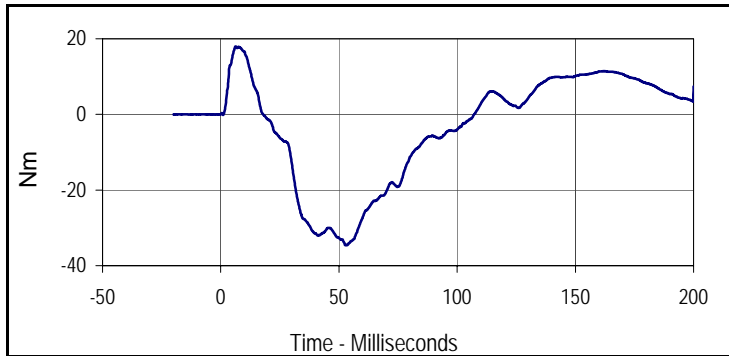
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
75.2	56.6	-33.6	170.9

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

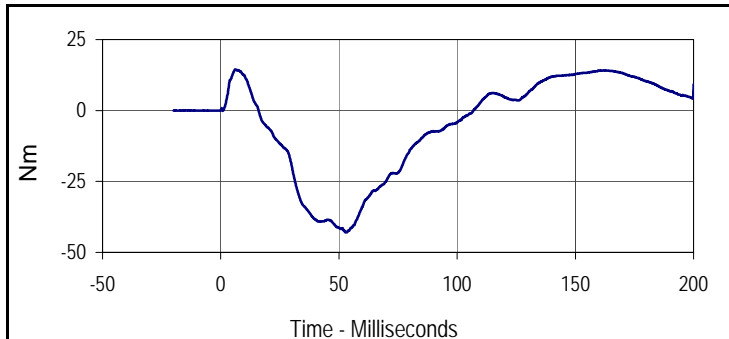
Test Date: 11/11/14
 Test I.D.: 299NB079



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
157.2	157.4	-490.7	48.4



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
18.0	6.3	-34.6	52.6



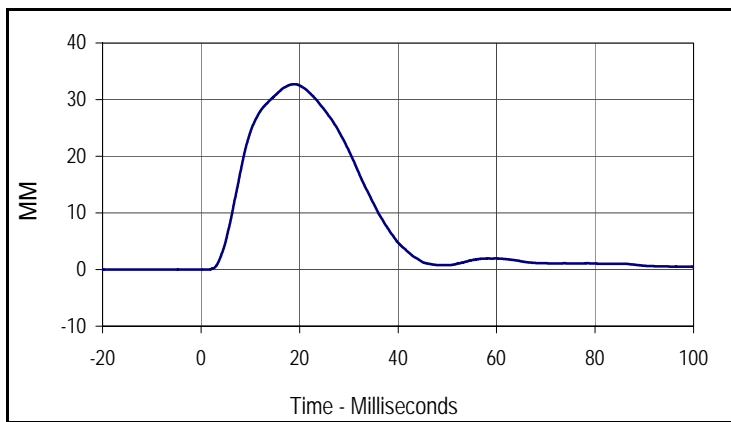
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
14.5	6.1	-42.9	53.3

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

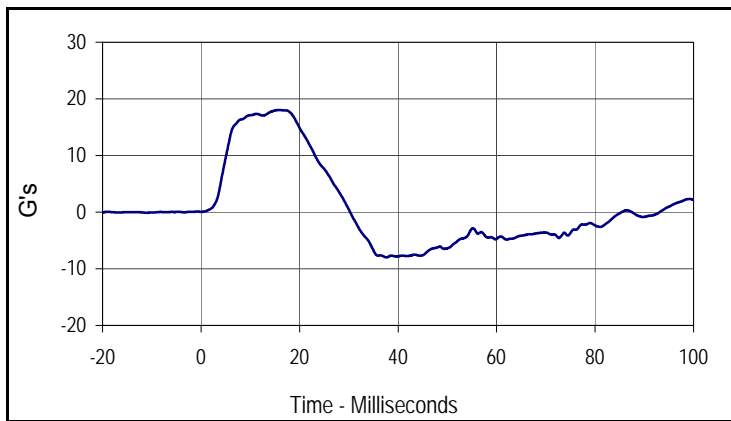
Test Date: 11/11/14
 Test I.D.: 299SH079



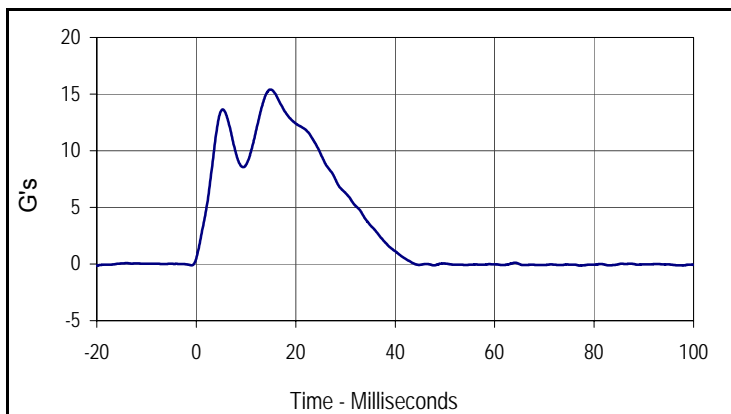
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	406	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	37.3	Pass
	Min		36.8	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	36.9	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.35	Pass
Peak Shoulder Deflection	mm	28 to 37	32.7	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	18.0	Pass
Peak Impactor Acceleration	G's	13 to 18	15.4	Pass
Overall Test Results			Pass	Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
32.7	19.1	0.0	-0.4



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.0	15.8	-8.0	37.6



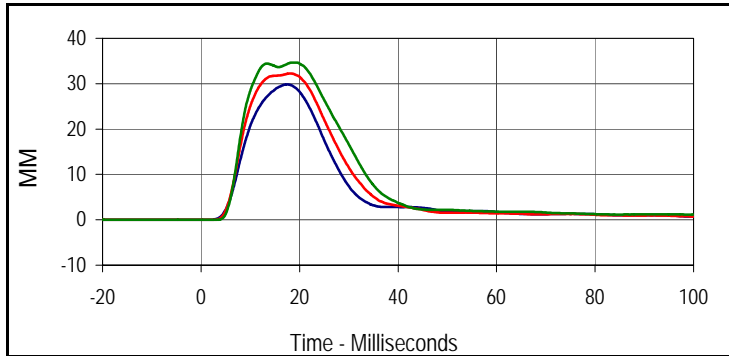
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.4	14.9	-0.1	-20.0

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

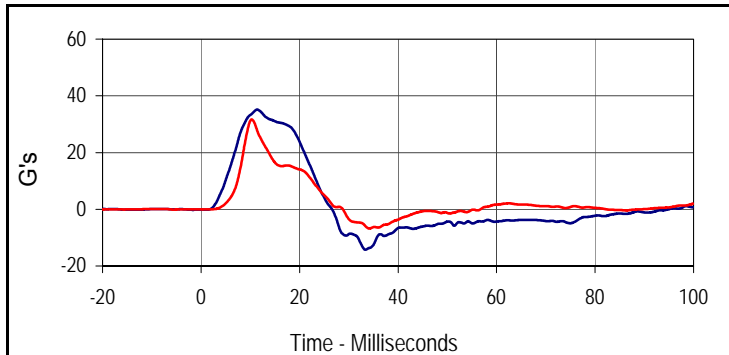
Test Date: 11/11/14
 Test I.D.: 299TWA079



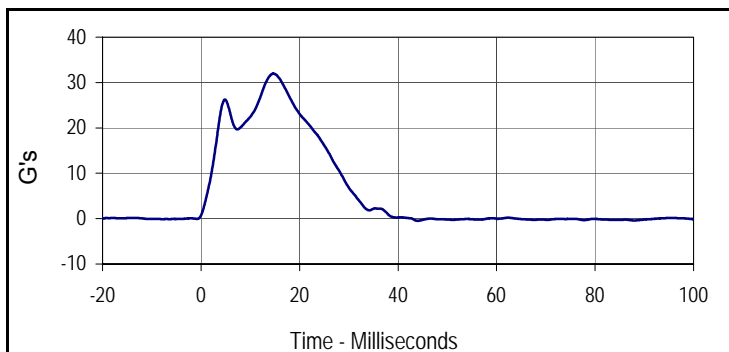
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	451	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	37.3	Pass
	Min		36.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	37.1	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.63	Pass
Peak Shoulder Deflection	mm	31 to 40	35.4	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	29.8	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	32.2	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	34.6	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	35.2	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	31.6	Pass
Peak Impactor Acceleration	G's	30 to 36	31.9	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
29.8	17.5	0.0	-4.9
Middle Thorax Deflection			
Max	Time	Min	Time
32.2	18.0	0.0	-10.8
Lower Thorax Deflection			
Max	Time	Min	Time
34.6	18.4	0.0	-11.1



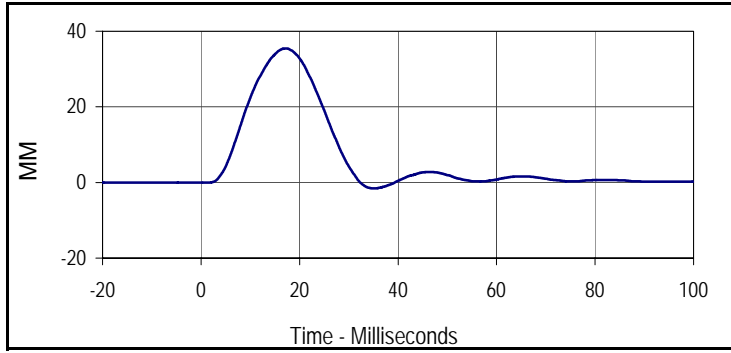
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
35.2	11.4	-14.3	33.3
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
31.6	10.3	-6.8	34.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
31.9	14.7	-0.5	44.0

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

Test Date: 11/11/14
 Test I.D.: 299TWA079



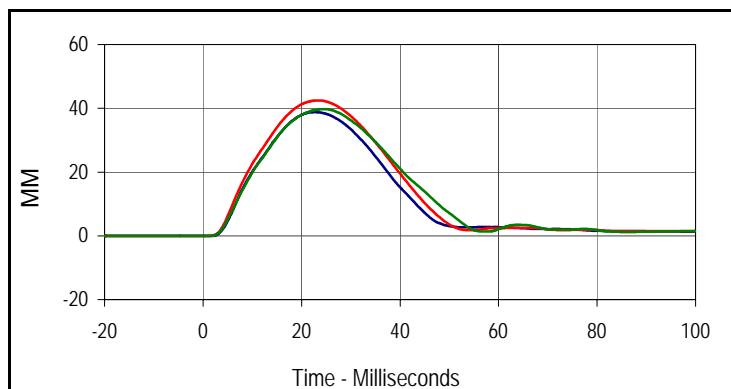
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
35.4	17.2	-1.6	35.0

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

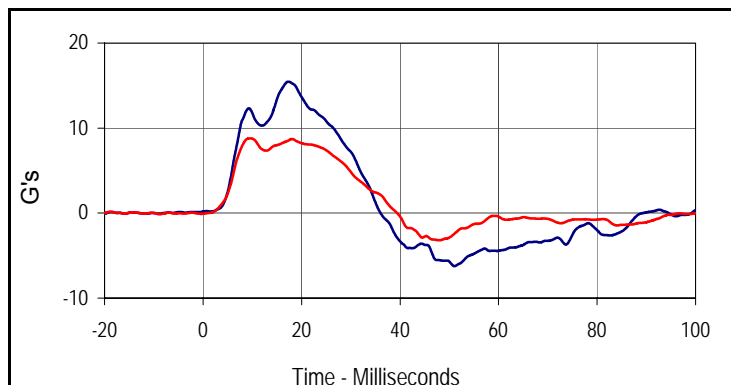
Test Date: 11/11/14
 Test I.D.: 299TWOA079



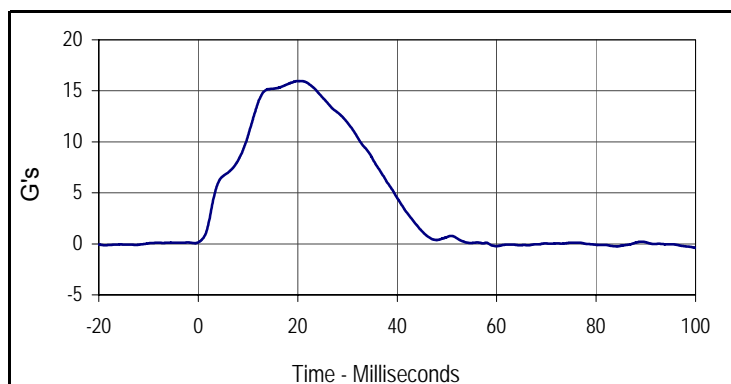
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	496	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	37.3	Pass
	Min		36.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	37.1	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.35	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	38.8	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	42.5	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	39.8	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.5	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	8.8	Pass
Peak Impactor Acceleration	G's	14 to 18	16.0	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.8	22.8	0.0	-16.5
Middle Thorax Deflection			
Max	Time	Min	Time
42.5	23.3	0.0	-17.2
Lower Thorax Deflection			
Max	Time	Min	Time
39.8	24.6	0.0	0.7



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.5	17.3	-6.2	51.1
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
8.8	9.6	-3.2	48.0



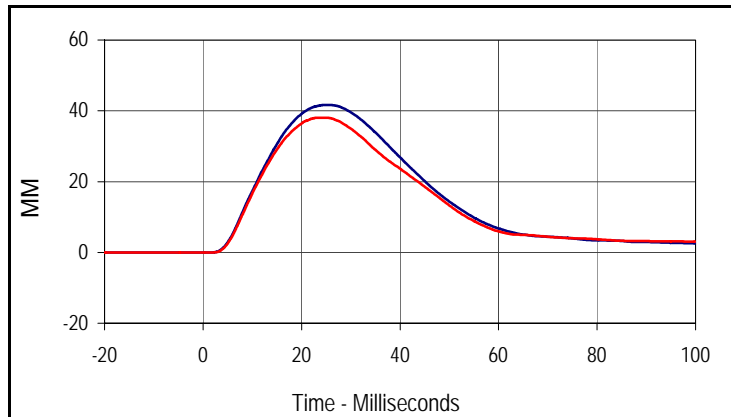
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.0	20.6	-0.4	99.9

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

Test Date: 11/11/14
 Test I.D.: 299ABD079

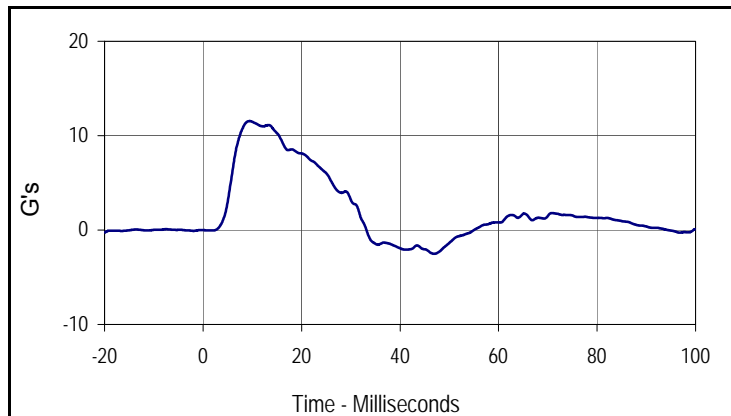


Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	541	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	37.3	Pass
	Min		36.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	37.1	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.36	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	41.7	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	38.1	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	11.5	Pass
Peak Impactor Acceleration	G's	12 to 16	15.0	Pass
Overall Test Results				Pass

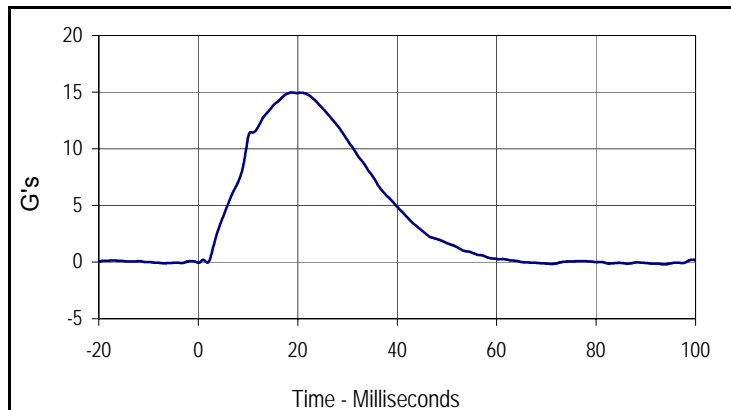


Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
41.7	25.1	0.0	-10.1

Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
38.1	23.7	0.0	-5.2

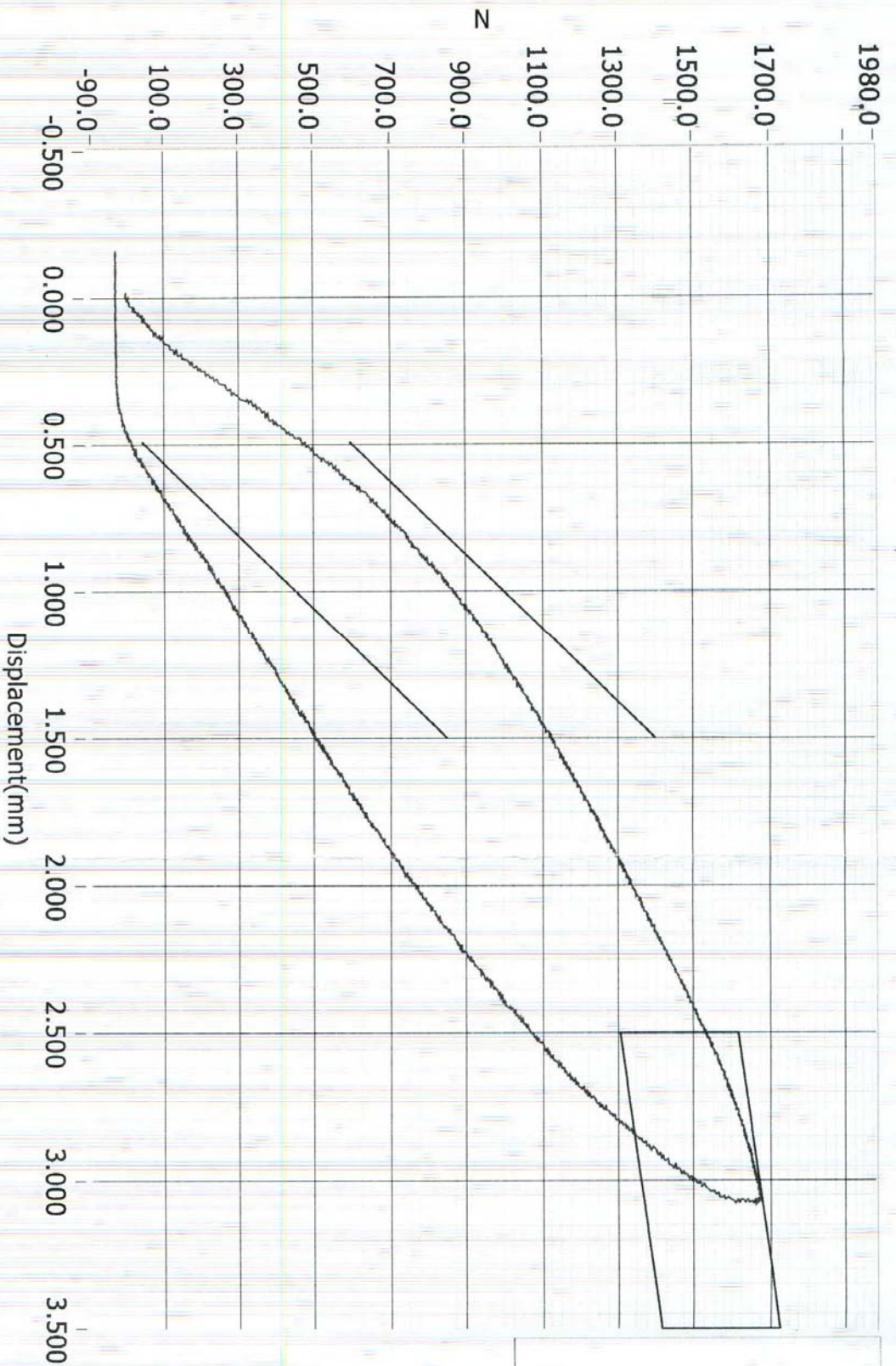


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
11.5	9.4	-2.5	46.9



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.0	18.8	-0.2	93.6

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

1667N

ATD Calibration Lab

M20150301 Pre-Test

Current Date : 12/12/2013

Current Time : 22:45:52

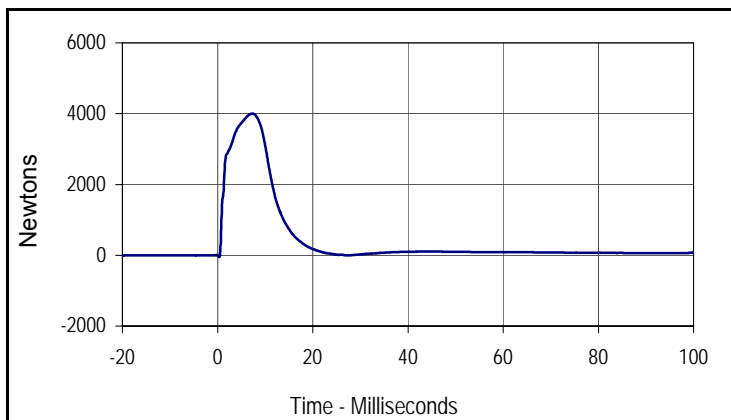
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	70740	12/12/2013	10:45 PM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	N/A	SIDIIs	

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

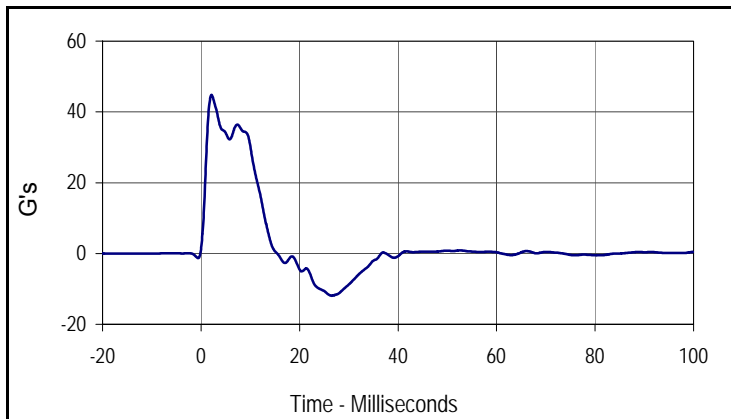
Test Date: 11/11/14
 Test I.D.: 299ACET079



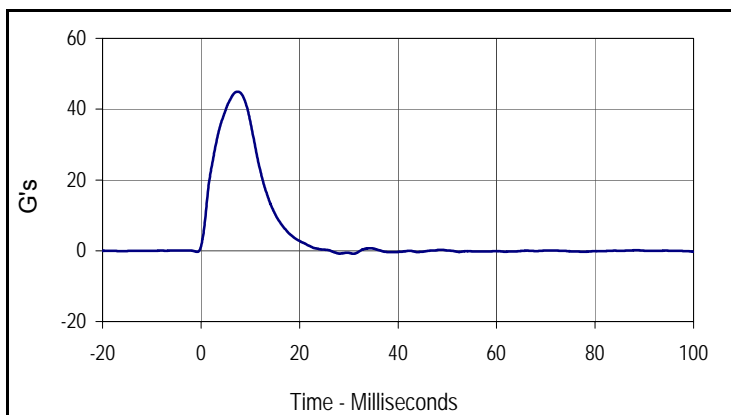
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	586	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	37.3	Pass
	Min		36.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	37.2	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.64	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3999.1	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	36.4	Pass
Peak Impactor Acceleration	G's	38 to 47	44.9	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3999.1	7.3	-45.9	0.4



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
44.8	2.1	-11.9	26.5



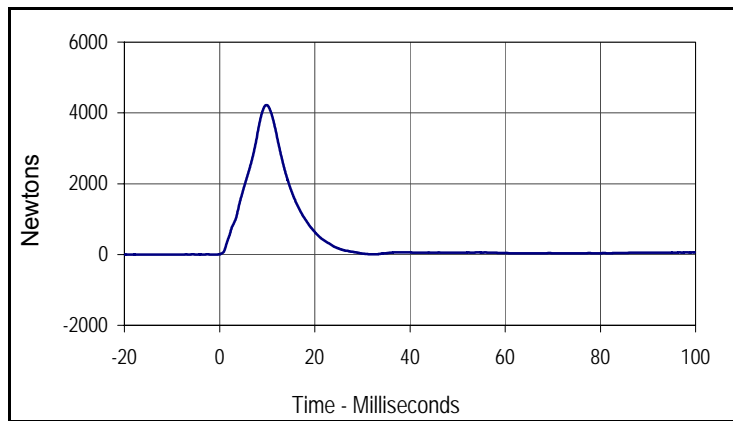
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
44.9	7.4	-0.8	30.9

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

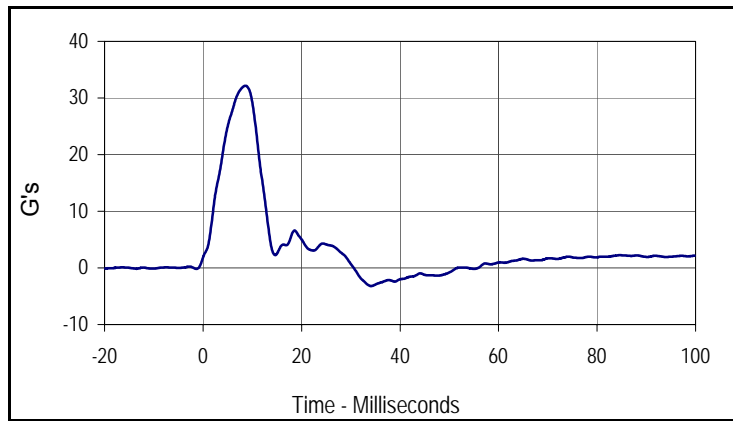
Test Date: 11/11/14
 Test I.D.: 299PL079



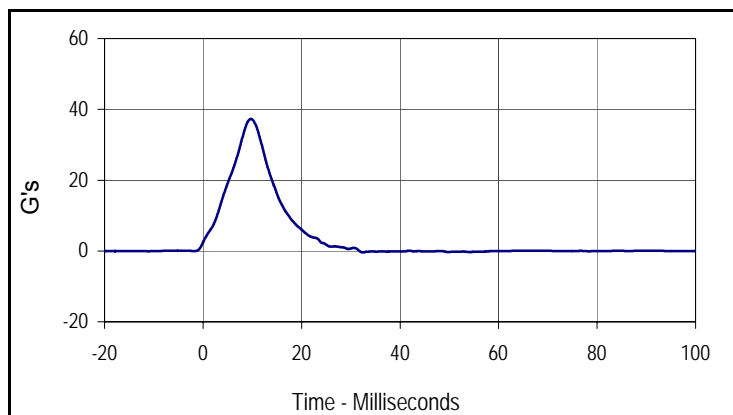
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	631	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	37.3	Pass
	Min		36.8	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	37.3	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Iliac Force	Newtons	4100 to 5100	4223.5	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	32.2	Pass
Peak Impactor Acceleration	G's	36 to 45	37.3	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4223.5	9.8	-3.6	-13.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
32.2	8.6	-3.2	34.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
37.3	9.7	-0.4	32.4

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

Test Program: SID IIs External Measurements

Test Date: 11/24/14



ATD Serial No.: 299

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	20	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

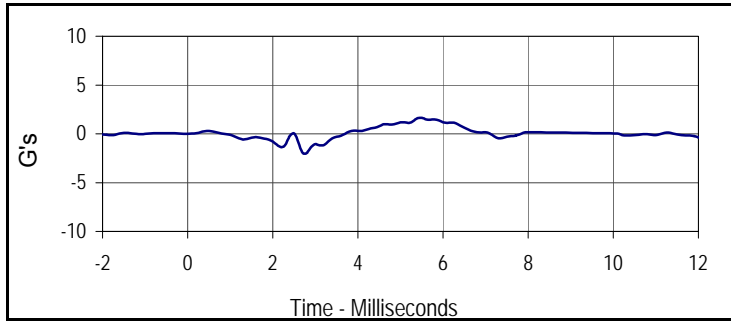
Test Date: 11/24/14
 Test I.D.: 299HD080



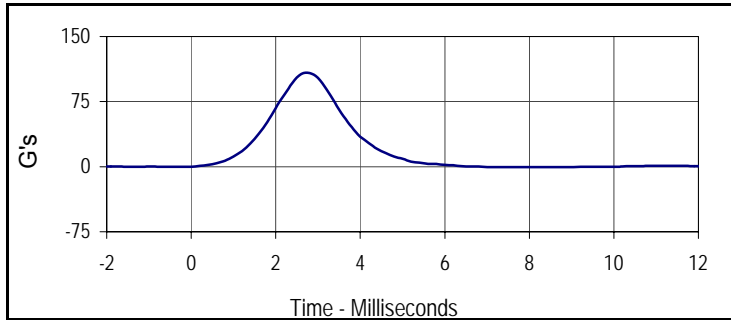
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	300	Pass
Temperature During Soak	Max	18.9 to 25.6	21.6	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass
	Min		20.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.2	Pass
Peak Head Resultant Acceleration	G's	115 to 137	134.5	Pass
Peak Head X Acceleration	G's	<15	2.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	1.2	Pass
Overall Test Results				Pass



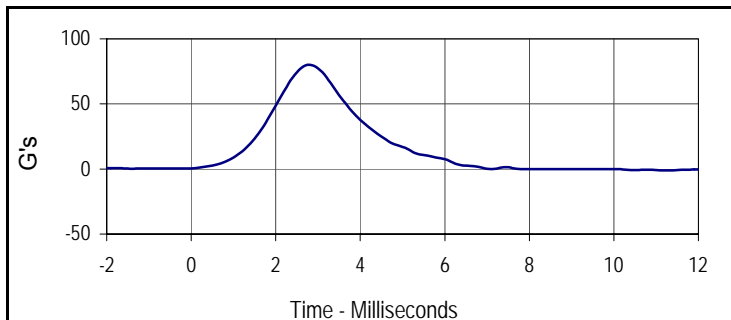
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
134.5	2.7	0.3	-1.4



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
1.6	5.5	-2.0	2.8



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
108.3	2.7	-0.5	7.9



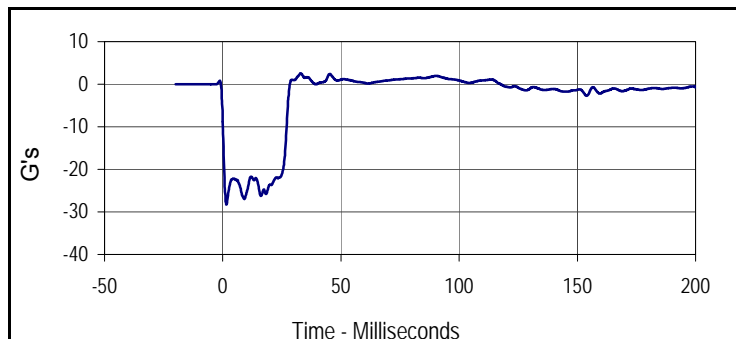
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
80.2	2.8	-1.2	11.3

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

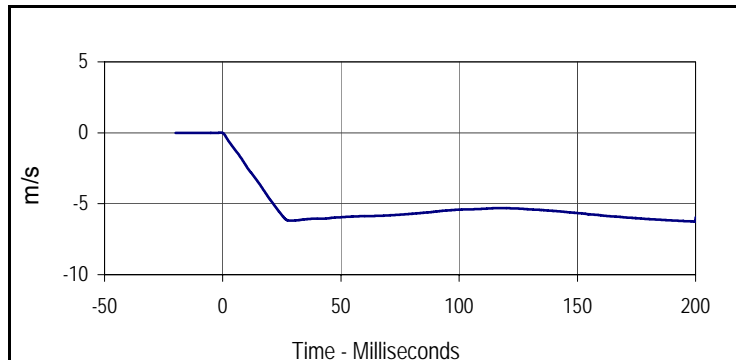
Test Date: 11/24/14
 Test I.D.: 299NB080



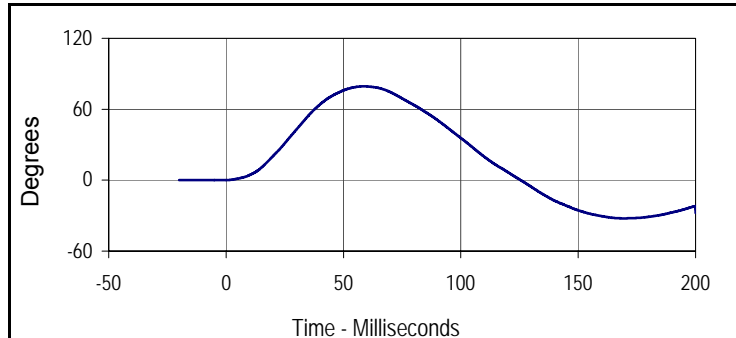
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	345	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass	
	Min		21.3	Pass	
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass	
	Min		20.2	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	20.4	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.60	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.36	Pass
	15 msec	m/s	-3.30 to -4.10	-3.47	Pass
	20 msec	m/s	-4.40 to -5.40	-4.70	Pass
	25 msec	m/s	-5.40 to -6.10	-5.80	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.20	Pass
D-Plane Rotation	Max	Degrees	71 to 81	79.4	Pass
	Time	msec	50 to 70	58.6	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-40.9	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	105.3	Pass	
Overall Test Results			Pass	Pass	



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	180	G's
Max	Time	Min	Time
2.5	0.0	-28.3	0.0



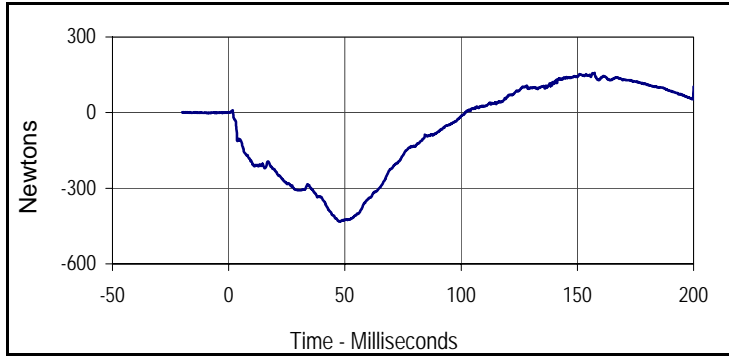
Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
002	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.8	-6.3	199.9



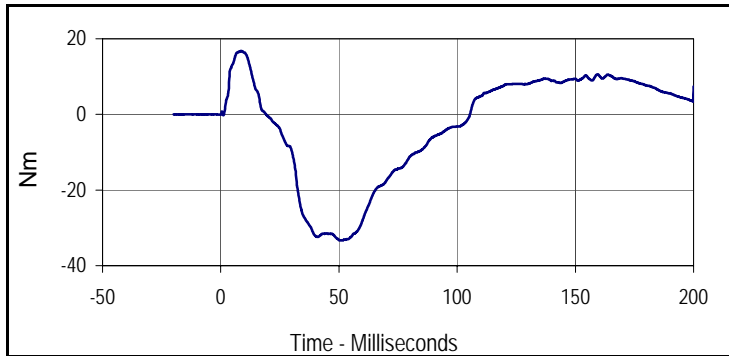
Curve Description			
D-Plane Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
79.4	58.6	-32.3	169.2

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

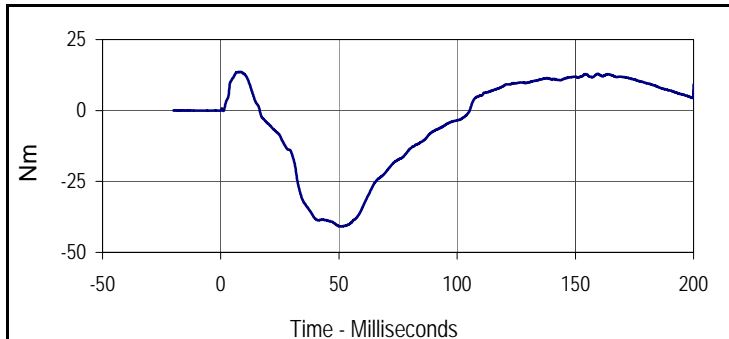
Test Date: 11/24/14
 Test I.D.: 299NB080



Curve Description			
Neck Force Y			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
157.2	157.4	-432.6	47.6



Curve Description			
Neck Moment X			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
16.8	8.8	-33.3	50.5



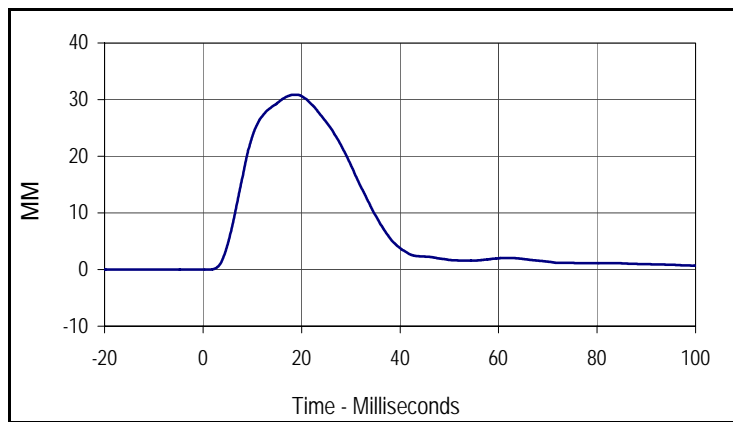
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
006	FIL	600	Nm
Max	Time	Min	Time
13.6	8.3	-40.9	50.6

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

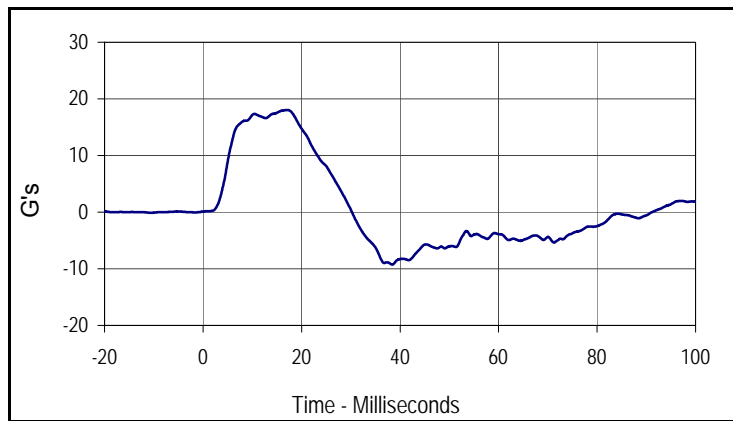
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 Test I.D.: 299SH080



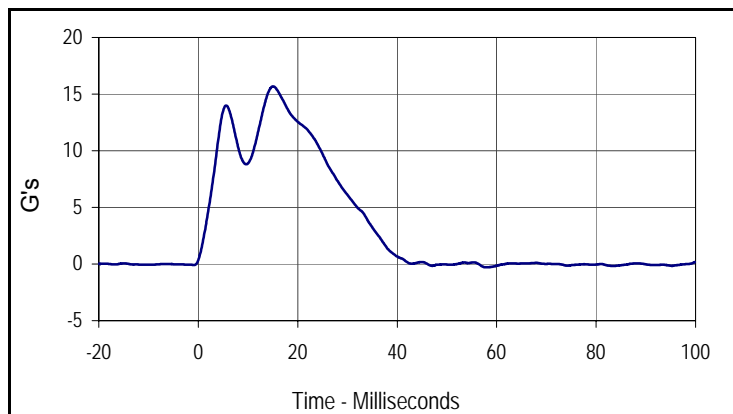
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	390	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass
	Min		20.2	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.4	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.33	Pass
Peak Shoulder Deflection	mm	28 to 37	30.9	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	18.0	Pass
Peak Impactor Acceleration	G's	13 to 18	15.7	Pass
Overall Test Results			Pass	Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
30.9	18.6	0.0	-9.0



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.0	17.1	-9.2	38.4



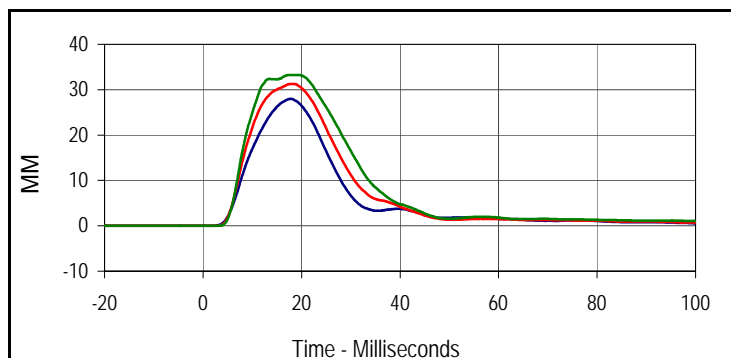
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.7	15.0	-0.3	57.8

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

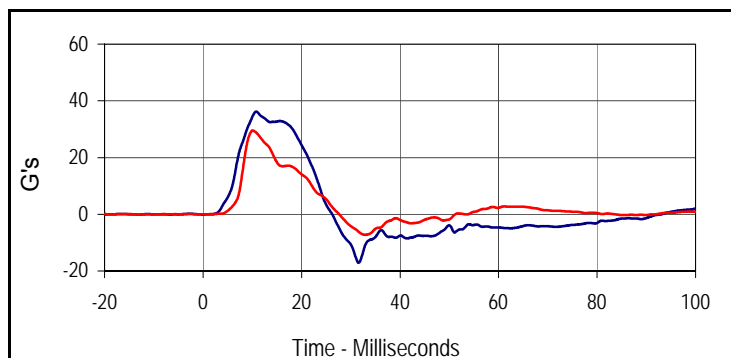
Test Date: 11/24/14
 Test I.D.: 299TWA080



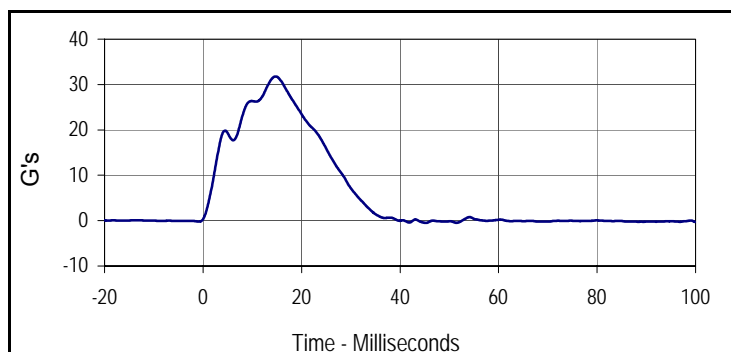
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	435	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass
	Min		20.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.4	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.61	Pass
Peak Shoulder Deflection	mm	31 to 40	33.8	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	28.0	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.3	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	33.2	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	36.2	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	29.5	Pass
Peak Impactor Acceleration	G's	30 to 36	31.8	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
28.0	17.8	0.0	-2.2
Middle Thorax Deflection			
Max	Time	Min	Time
31.3	18.2	0.0	-6.0
Lower Thorax Deflection			
Max	Time	Min	Time
33.2	18.5	0.0	-1.2



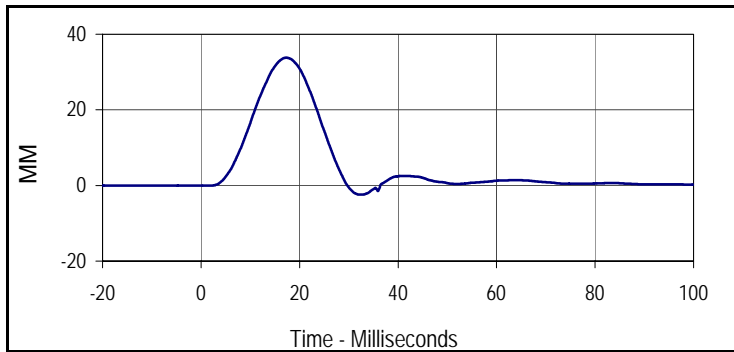
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
36.2	10.8	-17.0	31.6
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
29.5	10.1	-7.2	32.9



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
31.8	14.7	-0.5	45.2

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

Test Date: 11/24/14
 Test I.D.: 299TWA080



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
33.8	17.3	-2.4	32.8

Test Program: SID IIs Thorax without Arm Impact Test

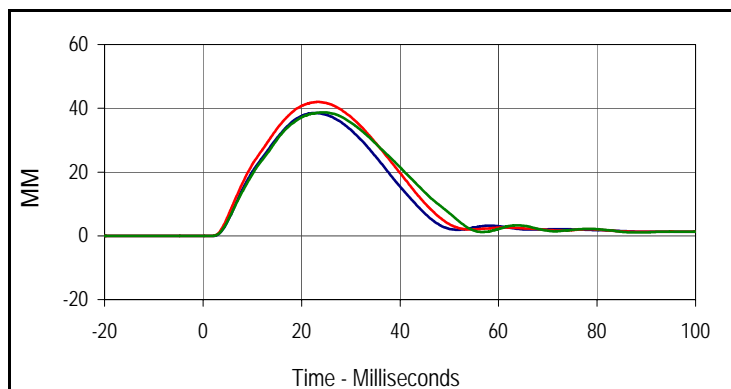
Test Date: 11/24/14



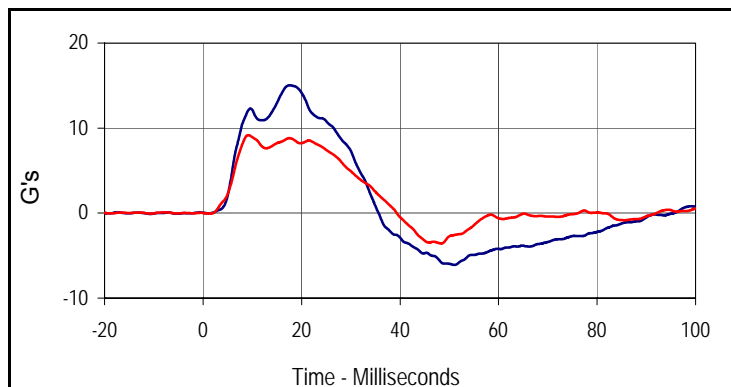
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Test I.D.: 299TWOA080

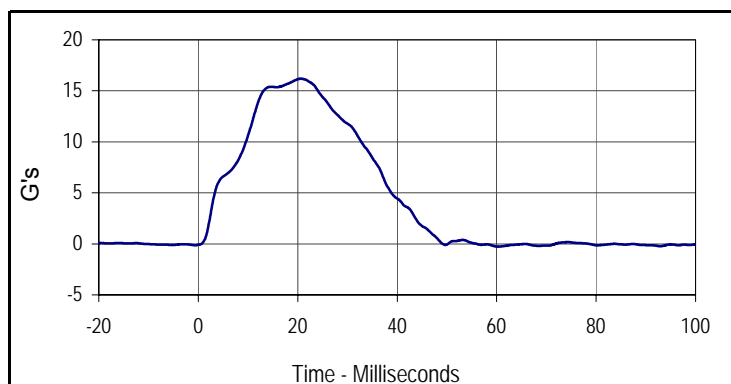
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	480	Pass
Temperature During Soak	Max	18.9 to 25.6	21.6	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass
	Min		20.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.5	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	38.5	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	42.0	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	38.8	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.0	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.2	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
38.5	22.6	0.0	-5.5
Middle Thorax Deflection			
Max	Time	Min	Time
42.0	23.4	0.0	-0.2
Lower Thorax Deflection			
Max	Time	Min	Time
38.8	24.4	0.0	-0.5



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.0	17.6	-6.1	51.0
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.2	9.2	-3.6	48.4



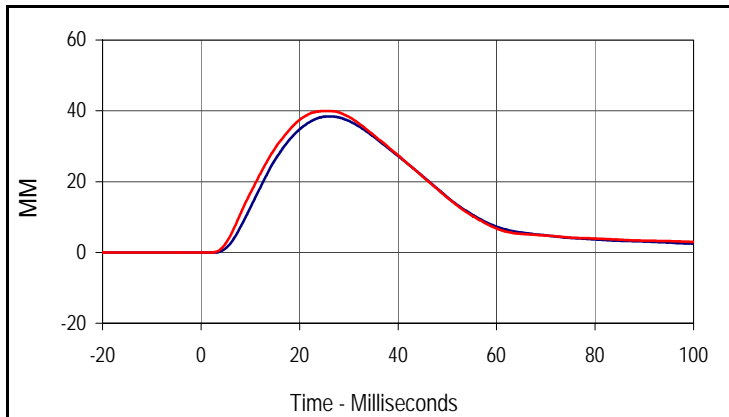
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.2	20.6	-0.3	60.3

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

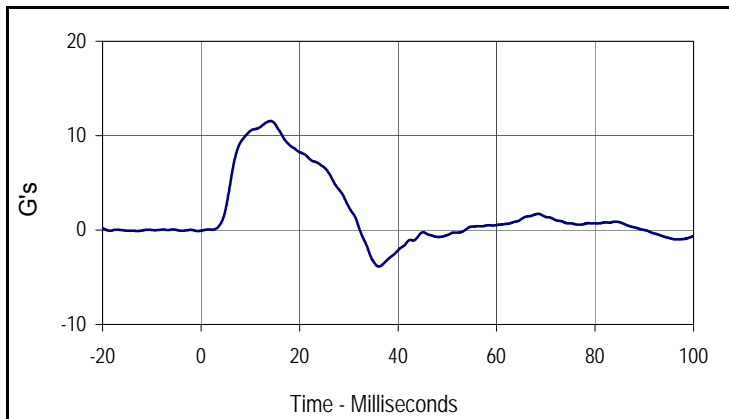
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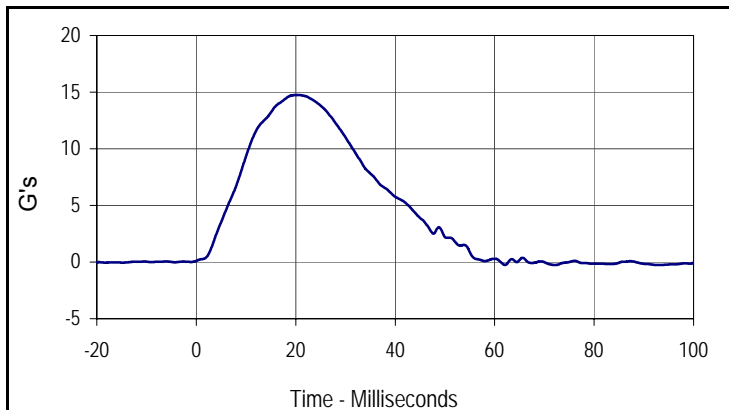
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	525	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass
	Min		20.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.5	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.34	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	38.4	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	39.9	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	11.5	Pass
Peak Impactor Acceleration	G's	12 to 16	14.8	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
38.4	25.8	0.0	1.7



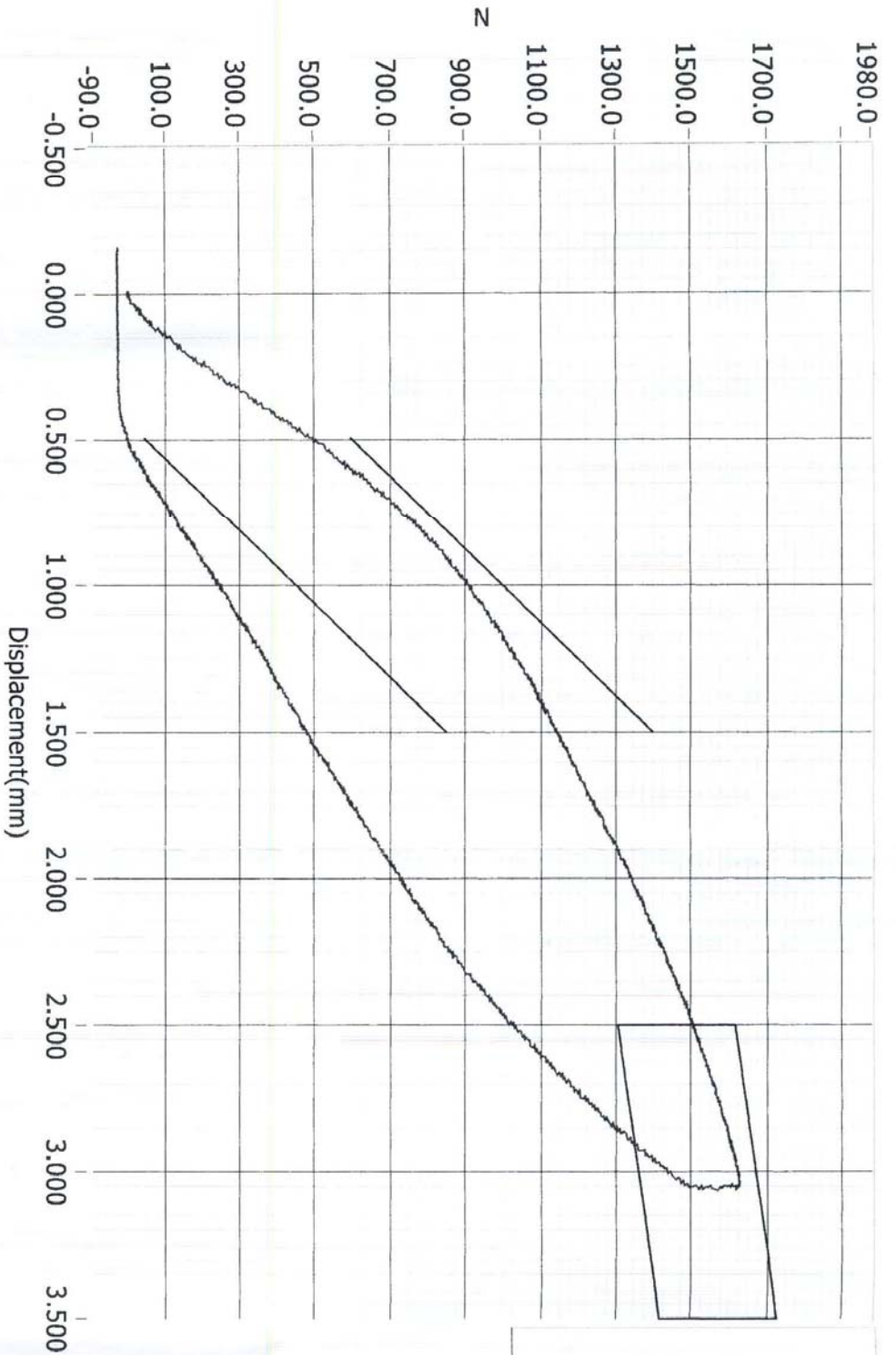
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
39.9	25.1	0.0	-16.4



Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
11.5	14.1	-3.9	36.1

Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.8	20.1	-0.3	92.6

Resultant Data - SIDIIS Plug Compression



1624N

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

ATD Calibration Lab

M20150301 Post-Test

Test ID	Part Serial Number	Test Date	Test Time
	70994	12/13/2013	11:01 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIS	

Current Date : 12/13/2013

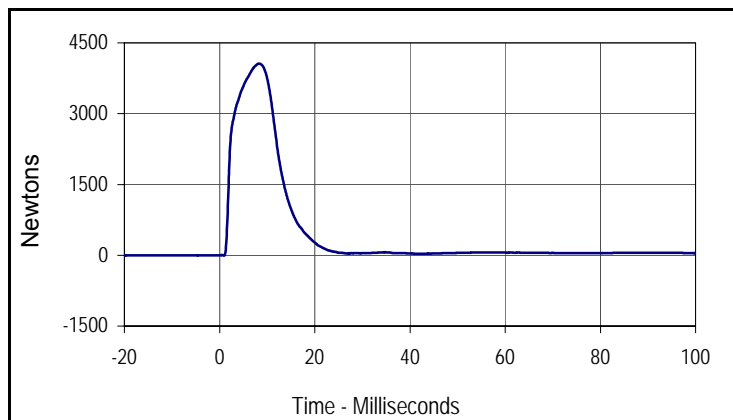
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Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

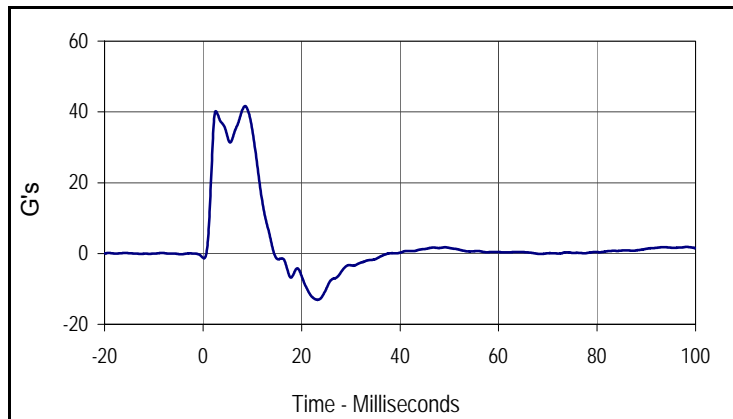
Test Date: 11/24/14
 Test I.D.: 299ACET080



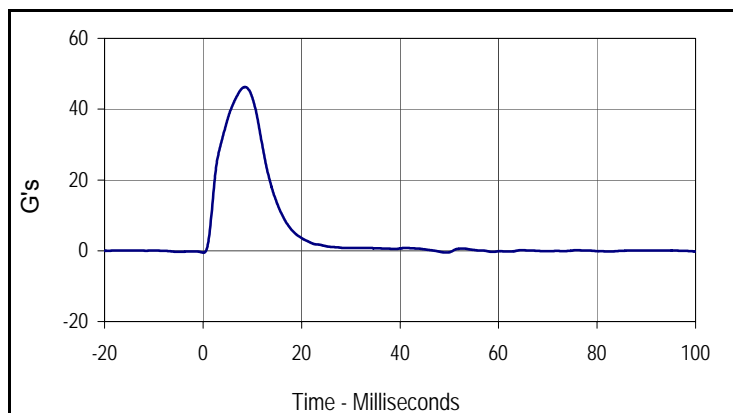
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	570	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass
	Min		20.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.4	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.67	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	4059.5	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	41.6	Pass
Peak Impactor Acceleration	G's	38 to 47	46.3	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4059.5	8.3	-6.5	1.0



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
41.6	8.5	-13.1	23.3



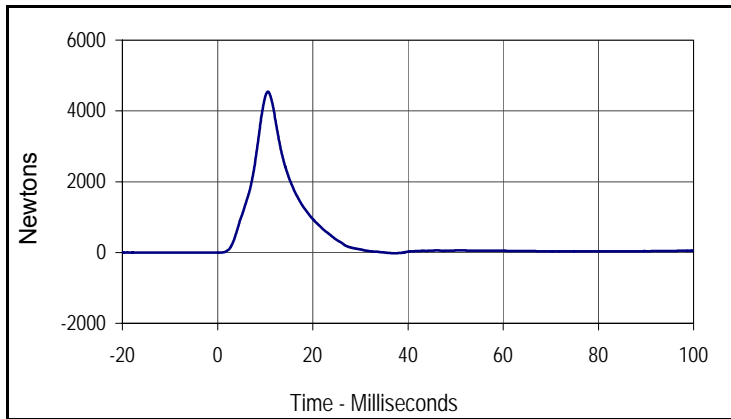
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.3	8.5	-0.5	0.1

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

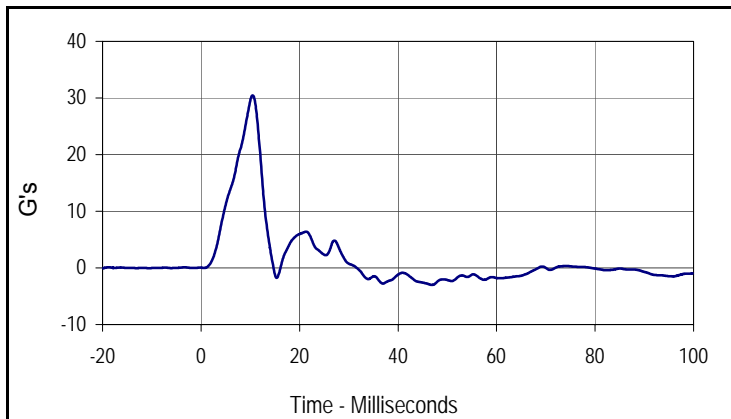
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 Test I.D.: 299PL080



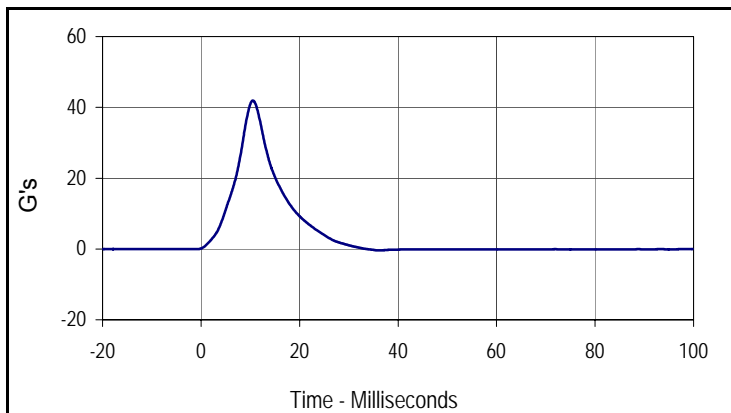
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	615	Pass
Temperature During Soak	Max	20.6 to 22.2	21.6	Pass
	Min		21.3	Pass
Humidity During Soak	Max	10.0 to 70.0	20.5	Pass
	Min		20.2	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	20.5	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.33	Pass
Peak Iliac Force	Newtons	4100 to 5100	4540.7	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	30.5	Pass
Peak Impactor Acceleration	G's	36 to 45	41.9	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4540.7	10.6	-22.7	37.3



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
30.5	10.5	-3.0	46.9



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.9	10.5	-0.4	36.2

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	10/6/14	
		Y	P51929	Endevco	10/6/14	
		Z	P51934	Endevco	10/6/14	
	Redundant	X	P68604	Endevco	10/6/14	
		Y	P51931	Endevco	10/6/14	
		Z	P51939	Endevco	10/6/14	
Displacement Potentiometers	Thoracic Rib	Upper	Y	1143	FTSS	10/7/14
		Middle	Y	1160	FTSS	10/7/14
		Lower	Y	1213	FTSS	10/7/14
	Abdominal Rib	Upper	Y	1218	FTSS	10/7/14
		Lower	Y	1234	FTSS	10/7/14
Lower Spine Accelerometers (T12)		X	04I20-Z04	Endevco	10/7/14	
		Y	06A07-R08	Endevco	10/7/14	
		Z	P58795	Endevco	10/7/14	
Acetabulum Load Cell		Y	272	Denton	5/1/14	
Iliac Wing Load Cell		Y	284	Denton	5/1/14	
Pelvis Plug (Struck Side)			72814	FTSS	2/8/14	
Pelvis Plug (Non-Struck Side)			70940	FTSS	12/13/13	

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A136731	MSI	9/20/14
Vehicle Center of Gravity	Y	A136697	MSI	9/20/14
Vehicle Center of Gravity	Z	A136717	MSI	9/20/14
Left Floor Sill	Y	A136723	MSI	9/20/14
A-Pillar Sill	Y	A145526	MSI	8/13/14
A-Pillar Low	Y	A145532	MSI	8/13/14
A-Pillar Mid	Y	A145448	MSI	8/13/14
B-Pillar Sill	Y	N/A	N/A	N/A
B-Pillar Low	Y	N/A	N/A	N/A
B-Pillar Mid	Y	N/A	N/A	N/A
Driver Seat	Y	12245	Endevco	8/8/14
Engine Top	X	A145450	MSI	8/13/14
Engine Top	Y	A145522	MSI	8/13/14
Firewall	Y	A145449	MSI	8/13/14
Right Roof	Y	A145461	MSI	8/13/14
Right Floor Sill	Y	A145499	MSI	8/13/14
Rear Floorpan	X	A145496	MSI	8/13/14
Rear Floorpan	Y	A136680	MSI	9/20/14

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