

REPORT NUMBER: SPNCAP-KAR-11-017

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

AUDI AG

2011 AUDI A4 2.0 TFSI FRONTTRAK MULTITRONIC 4-DOOR SEDAN

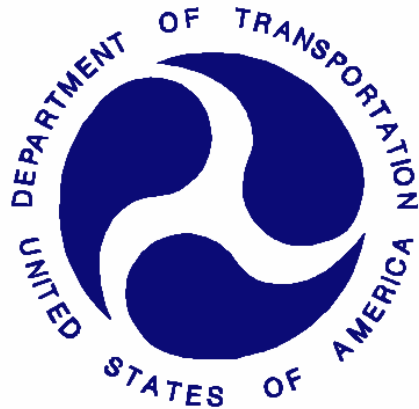
NHTSA No: MB5800

PREPARED BY:

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9270 HOLLY ROAD

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SEPTEMBER 10, 2010

FINAL REPORT

PREPARED FOR:

**U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS**

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15. Supplementary Notes		13. Type of Report and Period Covered Final Test Report, September 2010																				
		14. Sponsoring Agency Code NVS-111																				
16. Abstract <p>A 32.2 km/h (20 mph) 75° oblique impact Side NCAP test was conducted on the subject 2011 Audi A4 2.0 TFSI FrontTrak Multitronic 4-Door Sedan 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 September 10, 2010.</p> <p>The impact velocity was 32.1 km/h and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 29.4° C. The test vehicle's post-test maximum crush was 505 mm at level 3. The test vehicle's performance was as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th rowspan="2" style="text-align: center;">Measurement Description</th> <th colspan="3" style="text-align: center;">Passenger ATD</th> </tr> <tr> <th style="text-align: center;">Units</th> <th style="text-align: center;">Threshold</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Head Injury Criteria (HIC₃₆)</td> <td style="background-color: #cccccc;"></td> <td style="text-align: center;">1000</td> <td style="text-align: center;">317.7</td> </tr> <tr> <td style="text-align: center;">Resultant Lower Spine Acceleration</td> <td style="text-align: center;">G</td> <td style="text-align: center;">82</td> <td style="text-align: center;">50</td> </tr> <tr> <td style="text-align: center;">Combined Acetabular and Iliac Pelvic Force</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">2883</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the vehicle at the hinges or latches. The opposite side doors did not open during the impact event.</p>				Measurement Description	Passenger ATD			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	317.7	Resultant Lower Spine Acceleration	G	82	50	Combined Acetabular and Iliac Pelvic Force	N	5525	2883
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. Technical Reference Division 1200 New Jersey Ave., SE Washington, DC 20590																				
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SECTION 1
TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2011 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. DTNH22-09-D-00122. The purpose of this test is to generate comparative side impact performance in a 2011 Audi A4 2.0 TFSI FrontTrak Multitronic 4-Door Sedan. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated January 25, 2010.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2011 Audi A4 2.0 TFSI FrontTrak Multitronic 4-Door Sedan. The subject vehicle was towed into the rigid pole at an angle of 74.5° and a velocity of 32.1 km/h. The test was conducted by KARCO Engineering, LLC. in Adelanto, California, on September 10, 2010. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated January 25, 2010. Camera location and other pertinent camera information are included in this report.

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

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

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

The following table summarizes the results of the test:

Dummy	HIC (36ms)	Resultant Lower Spine Acceleration	Pelvic Force (N)	
SID-IIs 5th Percentile Adult Female	318	50	Iliac Wing	691
			Acetabular	2275
			Sum	2883

SUPPLEMENTAL RESTRAINT INFORMATION

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

GENERAL COMMENTS

Both of the struck side doors of the test vehicle remained closed and latched and were jammed shut after the impact. There was no separation at the hinges or the latches. The non-struck side doors remained closed and latched. There were no driver injury values that exceeded their limits. There was no FMVSS 301 Stoddard solvent spillage as a result of the impact.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10

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	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(tf - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMATER DATA

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MB5800
Model Year	2011
Make	Audi
Model	A4 2.0
Body Style	4-Door Sedan
VIN	WAUAF AFL7BN001577
Body Color	Ice Silver Metallic
Delivery Date	8/10/2010
Odometer Reading (km / mi)	100 / 62
Dealer	Circle Audi
Transmission	8-Speed Automatic
Final Drive	Front
Type / No. of Cylinders	Inline 4 Turbo
Engine Displacement (L)	2.0
Engine Placement	Longitudinal
Roof Rack	No
Sunroof / T-Top	Yes
Tinted Glass	Yes
Traction Control	Yes
Power Brakes	Yes
Front Disc	Yes
Rear Disc	Yes

Anti-Lock Brakes	Yes
All Wheel Drive	No
Power Steering	Yes
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Toso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Pretensioners	Yes
Load Limiters	Yes
Automatic Door Locks	Yes
Bucket Seats	Yes
Tilt Steering	Yes
Other	
Other	

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Audi AG
Date of Manufacture	Jun-10

GVWR (kg)	2135
GAWR Front (kg)	1100
GAWR Rear (kg)	1090

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				480.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				139.8

A
B
A-B

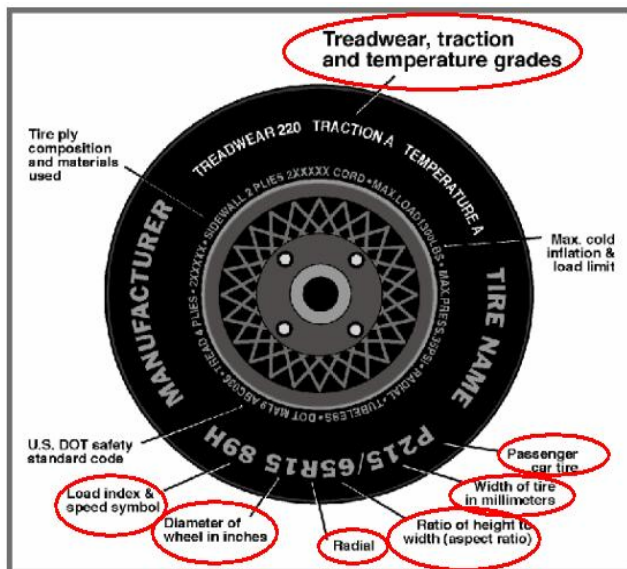
VEHICLE SEAT TYPE

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

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMATER DATA

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kpa)	240	250
Recommended Tire Size	225/50R17	225/50R17
Tire Size on Vehicle	225/50R17	225/50R17
Tire Model	P6 Four Season	P6 Four Season
Tire Manufacturer	Pirelli	Pirelli
Treadwear	400	400
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	6	6
Load Index/Speed Symbol	94H	94H
Tire Material	Rayon, Steel, Nylon	Rayon, Steel, Nylon
DOT Safety Code Right	XT NU K009 1010	XT NUK009 1010
DOT Safety Code Left	XT NU K009 0710	XT NUK009 0610

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMATER DATA

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	462.0	339.0		458.5	415.0		472.5	439.5	
Right	kg	441.5	339.5		460.5	428.5		437.5	421.5	
Ratio	%	57.1%	42.9%	100.0%	52.1%	47.9%	100.0%	51.4%	48.6%	100.0%
Total	kg	903.5	678.5	1582.0	919.0	843.5	1762.5	910.0	861.0	1771.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1582.0	A
Actual Weight of 1 P572V ATD Used	kg	49.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	139.8	C
Calculated Vehicle Target Wt (TVTWT)	kg	1770.8	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	As Delivered	As Tested	Fully Loaded
Driver Door Sill Angle (front-to-rear)	Deg	-0.3	-0.9	-0.9
Front Passenger Sill Angle (front-to-rear)	Deg	0.0	0.4	0.4
Front Bumper Angle (left-to-right)	Deg	0.5	0.4	0.4
Rear Bumper Angle (left-to-right)	Deg	0.1	0.0	0.0
Vehicle CG (Aft of Front Axle)	mm	1202	1341	1362
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	11	-8	27

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	105.0
Weight of Vehicle Components Removed	kg	31.0

Vehicle components removed to make Target Vehicle Test Weight:

Right Side Door Panels (5.5 kg), Trunk Lining and Trim (4.0 kg), Right Side Rear Window (3.0 kg), Spare Tire and Tools (18.5 kg)

TEST VEHICLE IMPACT POINT DATA

Measurement Description	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1275
Actual Impact Point (Aft of Front Axle)	mm	1267
Impact Point Difference (- forward/+ rearward)	mm	-8

DATA SHEET NO. 2

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

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan

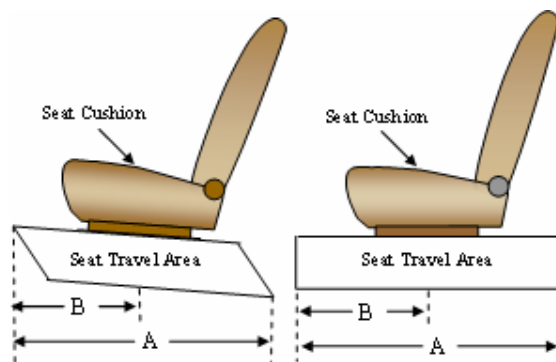
NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole

Test Date: 09/10/10

SEAT FORE / AFT POSITIONS

The total seat travel is measured from the forward most possible position to the rearmost possible position with the seat set at mid angle and lowest height. The driver's seat is set to the forward most position where the ATD will not contact any interior panels at the mid angle and mid height positions.

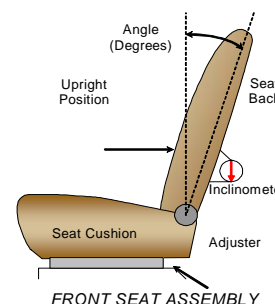


SEAT FORE/AFT POSITIONING

Seating Position	Total Fore-Aft Travel	Placed in Position	Cushion Range	Placed in Position
Driver Seat	250 mm	0 mm	0.8 - 6.4	3.6
Front Passenger Seat	243 mm	0 mm	2.5 - 3.8	3.1
Rear Seat - Struck Side	Fixed	Fixed	Fixed	Fixed
Rear Seat - Non-Struck Side	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE POSITION

The procedure for the driver is as follows: the seat back is set to level the driver ATD's (SID-II's) head transverse instrumentation platform; seat back angle is measured with a straight edge along the seat back using a digital inclinometer.



SEAT BACK ANGLE

Seating Position	Degrees	Detent
Driver Seat Back Angle w/Seated Dummy	11.0	
Front Passenger Seat Back Angle	11.0	
Struck Side Rear Seat Back Angle	Fixed	Fixed
Non-Struck Side Rear Seat Back Angle	Fixed	Fixed

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 5th percentile adult female ATD.

SEAT BELT UPPER ANCHORAGE POSITION

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	2

DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan

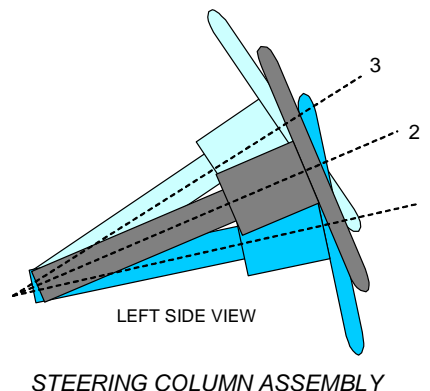
NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole

Test Date: 09/10/10

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. A digital inclinometer is used to measure a plate placed across the rim of the steering wheel for angle.

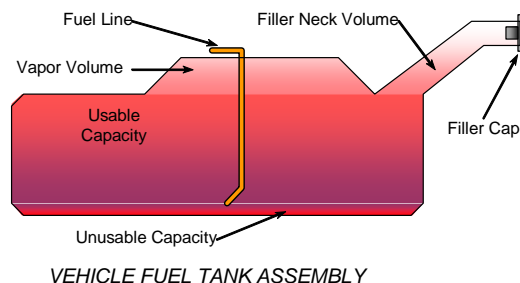


STEERING COLUMN POSITIONING

	Angle (°)	Fore-Aft Position (mm)
Lowermost Position, No. 1	19.0	71
Geometric Center Position, No. 2	21.7	97
Uppermost Position, No. 3	24.3	122
Steering Wheel Travel	5.3	51
Test Position	21.7	97

FUEL PUMP

The test vehicle is equipped with an electric fuel pump. The fuel pump starts when the ignition is on. At ignition on, the fuel pump will operate for a short time to pressurize the system. If the engine is running, the pump works normally. The fuel filler door is located on the right rear fender. The standard fuel tank occupies the area under the rear seat.



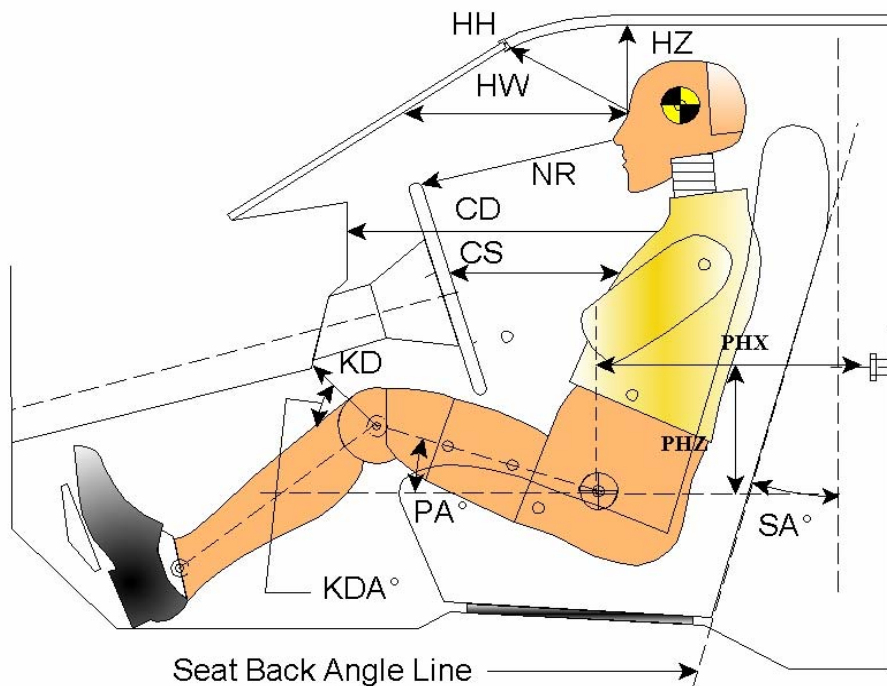
FUEL CAPACITY DATA

Description	Liters
Usable Capacity of "Standard Tank"	62.98
Usable Capacity of "Optional Tank"	
Usable Capacity of Standard Tank as Specified In Owner's Manual	
Usable Capacity of Optional Tank as Specified in Owner's Manual	
92 - 94% of Usable Capacity	57.94 to 59.20
Actual Amount of Stoddard Solvent Used	58.57
1/3 of Usable Capacity	20.99

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10



DUMMY LONGITUDINAL CLEARANCE DIMENSIONS (S/N: 307)

Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	241	50.5
HW	Head to Windshield	573	
HZ	Head to Roof	186	
NR	Nose to Rim	240	2.4
CD	Chest to Dash	403	24.8
CS	Chest to Steering Wheel	171	0.0
KDL / KDAL°	Left Knee to Dash	143	42.1
KDR / KDAR°	Right Knee to Dash	142	64.7
PA°	Pelvic Angle		20.0
PHX	H-Point to Striker (x-direction)	265	
PHZ	H-Point to Striker (z-direction)	161	
SA°	Seat Back Angle		11.0

DATA SHEET NO. 4

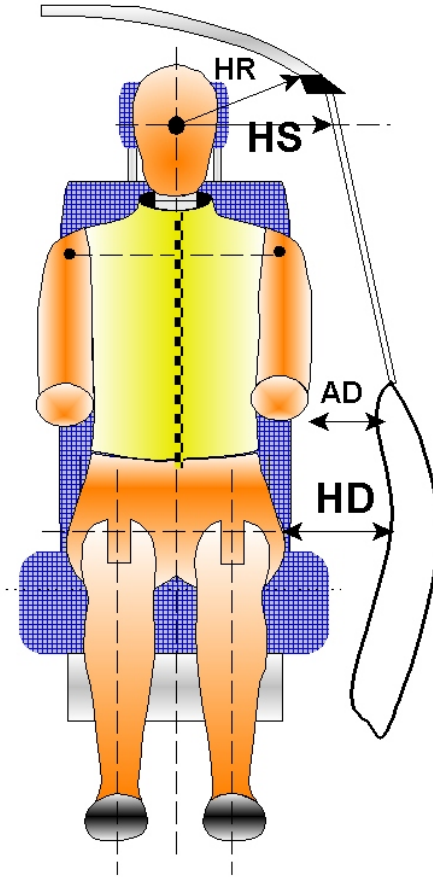
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan

NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole

Test Date: 09/10/10



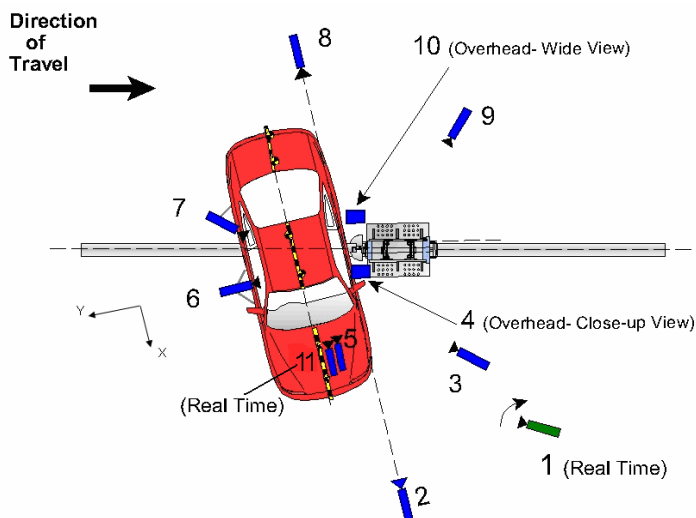
DUMMY LATERAL CLEARANCE DIMENSIONS (S/N: 307)

Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	232
HS	Head to Side Window	mm	378
AD	Arm to Door	mm	161
HD	H-Point to Door	mm	177

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test Date: 09/10/10



CAMERA LOCATIONS

Camera No.	View	Coordinates (mm)			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	1.14	0.57	-1.14	35	400
6	On-Board - Dummy Side View	-0.07	1.55	-1.04	14	1000
7	On-Board - Dummy Rear Oblique View	-0.98	1.52	-1.07	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	1.29	0.64	-1.11		30

Reference: +X = Forward of Vehicle
 +Y = Right of Vehicle
 +Z = Down

* All Measurements accurate to ± 6 mm

NOTE: Vehicle was at a 15° angle to the rigid pole

INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Vehicle Structure	21
Pole Load Cells	8
Contact Switches	3
Airbag Timing Sensor	2
Total No. of Data Channels	50

DATA SHEET NO. 6

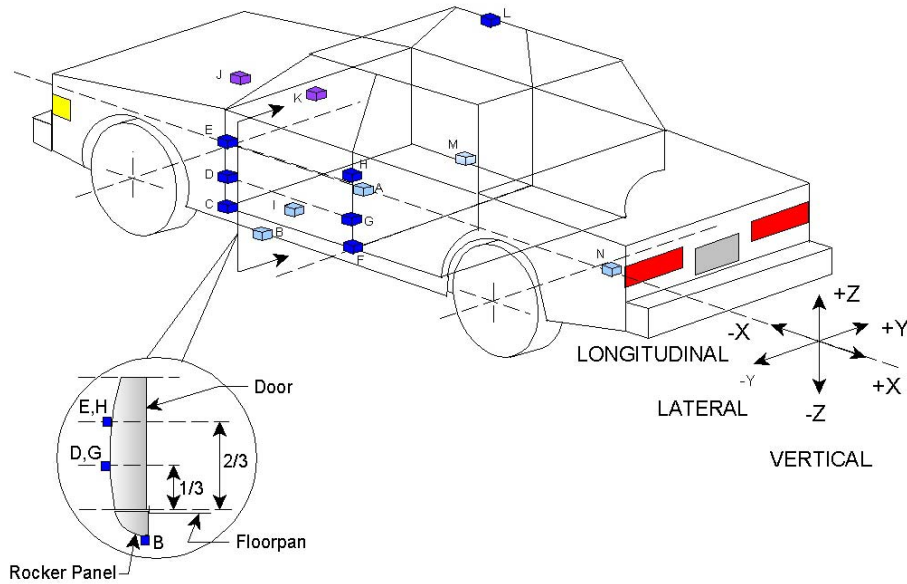
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan

NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole

Test Date: 09/10/10



VEHICLE ACCELEROMETER LOCATIONS

	Sensor Description	Coordinates (mm)		
		X	Y	Z
A	Vehicle CG Accelerometer	2015	0	415
	Vehicle CG ARS	2015	0	415
B	Left Floor Sill	2815	710	190
C	A-Pillar Sill	3310	780	365
D	A-Pillar Lower	3310	780	500
E	A-Pillar Mid	3310	780	725
F	B-Pillar Sill	2205	695	365
G	B-Pillar Lower	2205	695	630
H	B-Pillar Mid	2205	695	780
I	Driver Seat	2330	620	290
J	Engine Top	4030	295	735
K	Firewall	3720	110	820
L	Right Roof Sill	2220	505	1378
M	Right Floor Sill	2155	695	380
N	Rear Floorpan	820	515	340

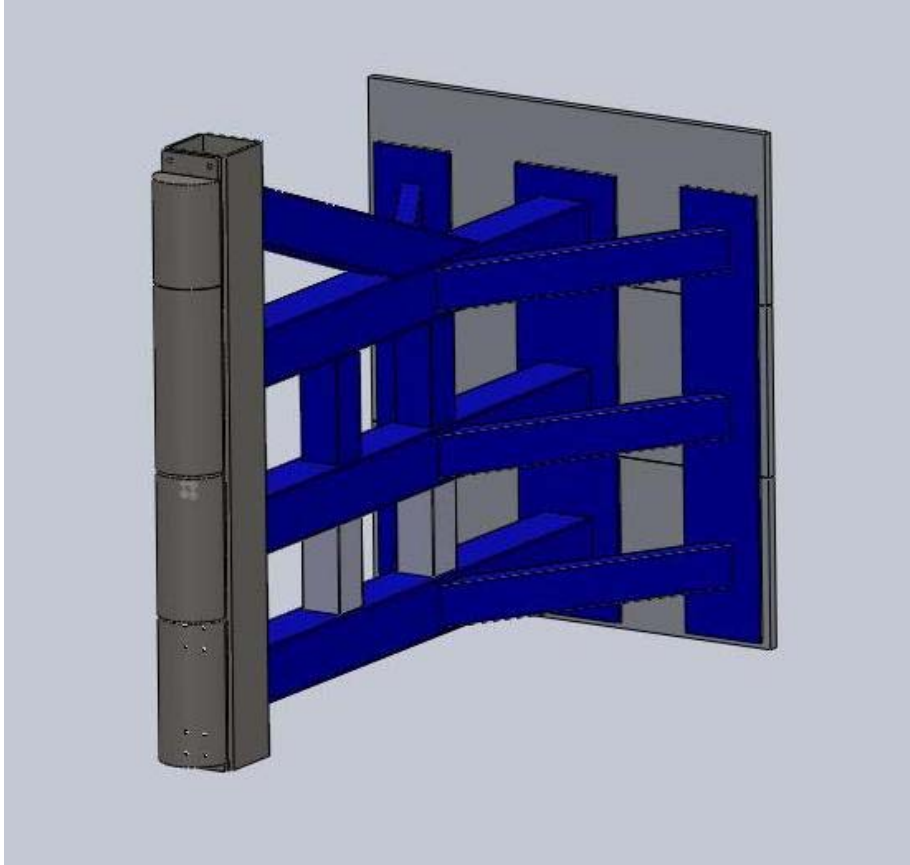
DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan

NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole

Test Date: 09/10/10



RIGID POLE LOAD CELL LOCATIONS

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: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver Dummy
Dummy Type/Serial No.	P572V (SID-IIs) / Serial No. 299
Head Contact	Curtain Airbag, Head Restraint
Upper Torso Contact	Side Airbag, Door Panel
Lower Torso Contact	Side Airbag
Left Knee Contact	Right Knee
Right Knee Contact	Left Knee

POST-TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Jammed shut	Jammed shut
Right Side Door Opening	Remained closed and operational	Remained closed and operational
Seat Movement	None	None
Seatback Failure	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
Window Damage	Left front window broken
Other Notable Effects	Sunroof broke and seperated from frame

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

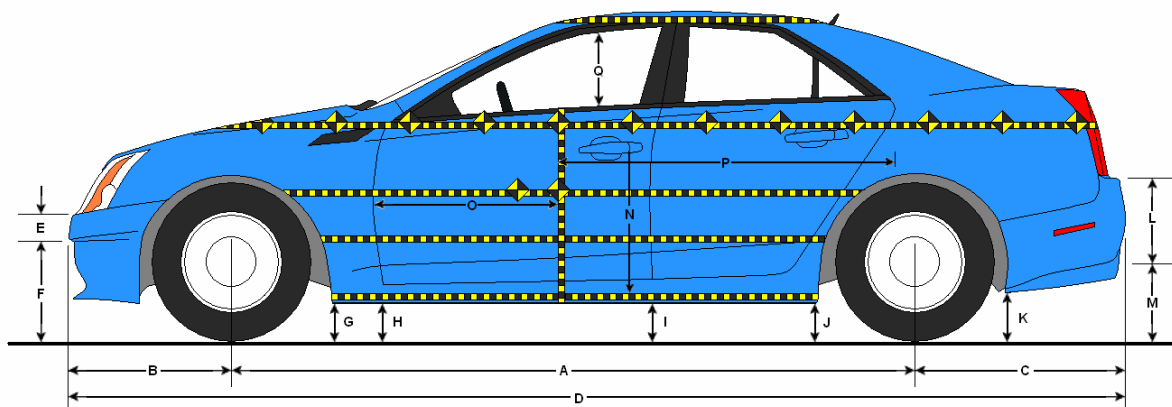
Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Installed	Deployed	Installed	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	No	No	No	
Side Airbag 1 (Torso/Pelvis)	Yes	Yes	No	
Side Airbag 2 (Curtain)	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes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

VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset From Vertical Reference Line	mm	+/- 38	-8 (Left)
Trap No. 1 Velocity (Primary)	km/h	30.4 to 32.0	32.1
Trap No. 2 Velocity (Redundant)	km/h	30.4 to 32.0	32.1

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10



LEFT SIDE VIEW

VEHICLE PRE-AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2802	2697	-105
B	Front Axle to FSOV	871	910	39
C	Rear Axle to RSOV	1033	1060	27
D1	Total Vehicle Length at Left Side	3399	3274	-125
D2	Total Vehicle Length at Centerline	4688	4667	-21
D3	Total Vehicle Length at Right Side	3401	3424	23
E	Front Bumper Thickness	127	134	7
F	Front Bumper Bottom to Ground	408	444	36
G	Sill Height at Front Wheel Well	187	205	18
H	Sill Height at Front Door Leading Edge	193	194	1
I	Sill Height at B-Pillar	195	231	36
J1	Sill Height at Rear Wheel Well	188	244	56
J2	Pinch Weld Height at Rear Wheel Well	165	206	41
K	Sill Aft of Rear Wheel Well	257	313	56
L	Rear Bumper Thickness	195	200	5
M	Rear Bumper Bottom to Ground	389	441	52
N	Sill Height to Window Bottom Sill	611	691	80
O	Front Door Leading Edge to Impact CL	715	574	-141
P	Rear Door Trailing Edge to Impact CL	1365	1234	-131
Q	Front Window Opening	353	393	40
R	Right Side Length	3401	3424	23
S	Left Side Length	3399	3274	-125
T	Vehicle Width at B-Pillar	1811	1633	-178

All measurements in mm with tolerance of ±3mm

DATA SHEET NO. 10

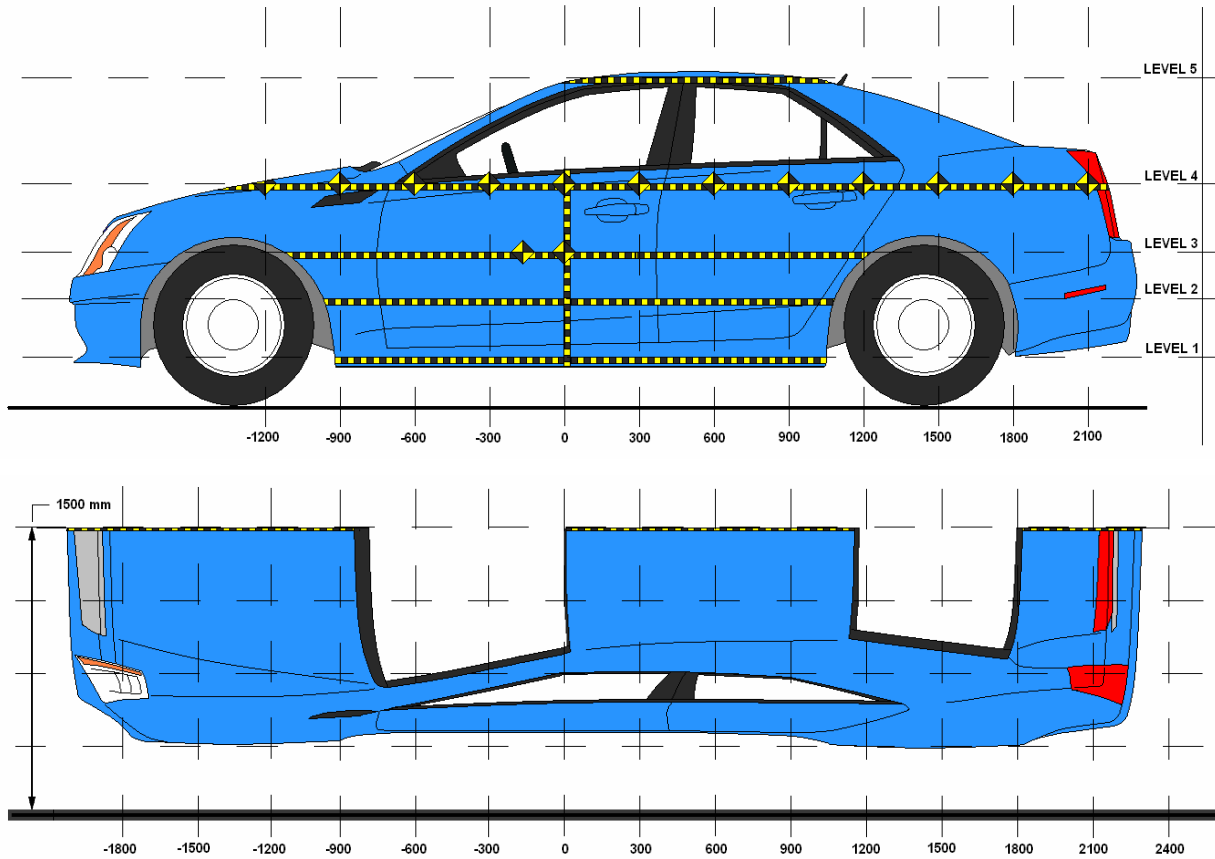
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan

NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole

Test Date: 09/10/10



NOTE: All measurements are in millimeters (mm)

LEVEL HEIGHTS

Level	Description	Height Above Ground (mm)
1	Sill Top Height	256
2	Occupant H-Point Height	507
3	Mid-Door Height	628
4	Window Sill Height	929
5	Window Top Height	1375

DATA SHEET NO. 10 ... (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10

VEHICLE EXTERIOR CRUSH MEASUREMENTS

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900		598	607				679	695				81	88		
-750	621	609	610	720		755	709	701	808		134	100	91	88	
-600	621	608	609	703		810	760	753	776		189	152	144	73	
-450	621	606	607	694		872	838	835	854		251	232	228	160	
-300	621	605	605	687		945	932	928	941		324	327	323	254	
-150	621	604	604	683		1024	1026	1024	1030		403	422	420	347	
0	622	604	604	680	929	1099	1107	1109	1117	1168	477	503	505	437	239
150	624	605	604	675	932	1039	1051	1057	1079	1159	415	446	453	404	227
300	626	605	604	675	941	934	905	914	953	1125	308	300	310	278	184
450	628	607	606	675	947	852	818	823	880	1092	224	211	217	205	145
600	631	610	610	677	953	789	773	783	848	1059	158	163	173	171	106
750	634	613	614	681	954	737	734	748	820	1040	103	121	134	139	86
900	637	617	618	686	957	693	701	716	794	1028	56	84	98	108	71
1050	637	618	623	692	960	661	664	686	770	1015	24	46	63	78	55
1200			613	697	964			648	749	1010			35	52	46
1350				706	972				727	1018				21	46
1500				717					745					28	
1650				729					750					21	
1800				746					759					13	
1950				766					775					9	
2100				777					794					17	
2250				809					819					10	
2400															
2550															
2700															
2850															

MAXIMUM CRUSH DATA

	Units	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush	mm	477	503	505	437	239
Distance From Impact	mm	0	0	0	0	0

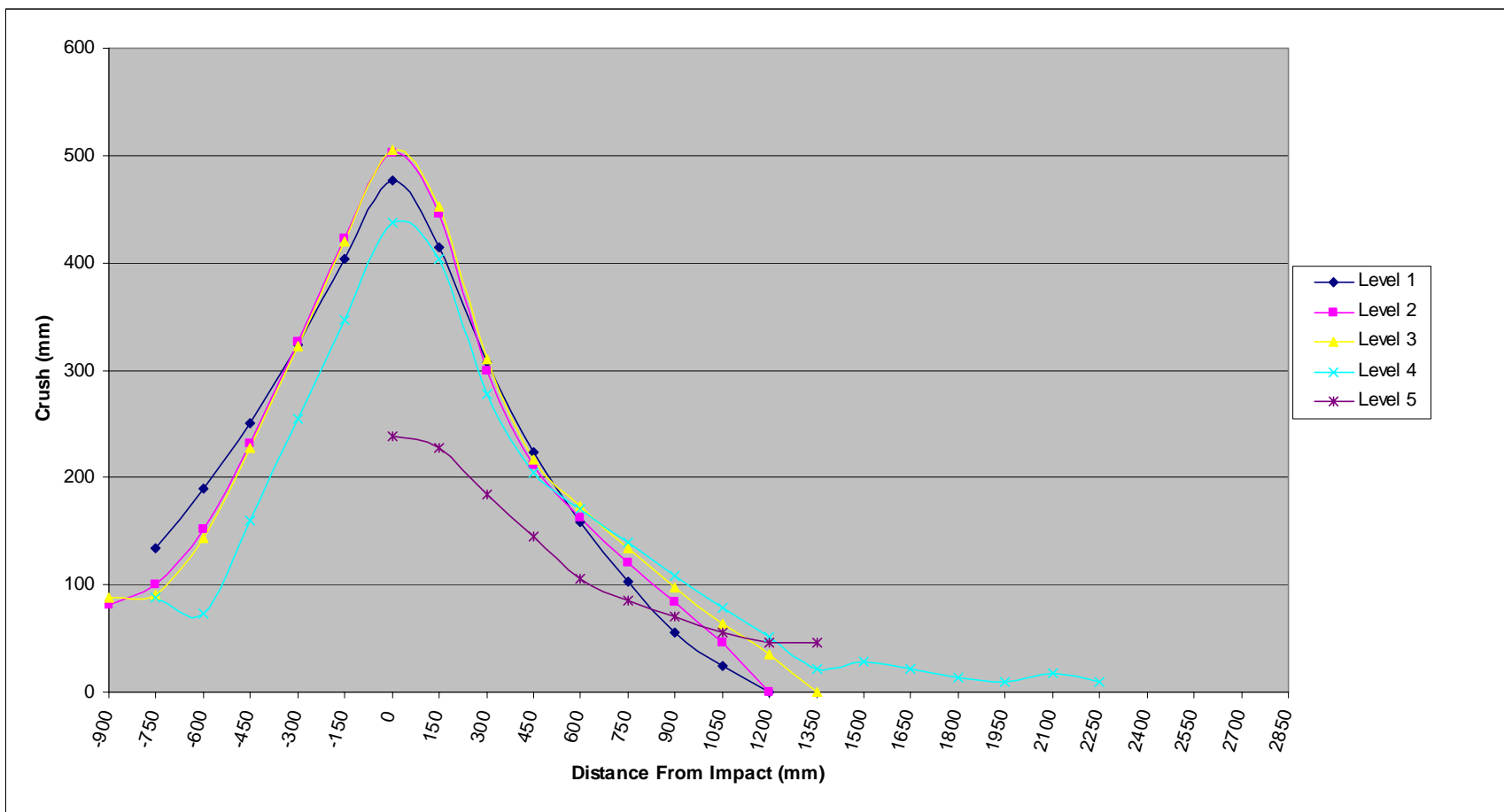
DATA SHEET NO. 10 ... (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan

NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole

Test Date: 09/10/10



DATA SHEET NO. 11

FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

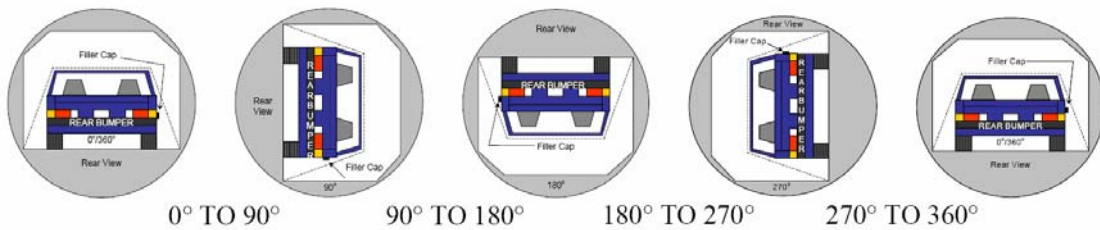
Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 09/10/10

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 29.4° C Test Time: 1:10 PM

- 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: No spillage occurred



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	83	305	388
90° To 180°	83	300	383
180° To 270°	77	360	437
270° To 360°	81	300	381

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° To 90°	None
90° To 180°	None
180° To 270°	None
270° To 360°	None

DATA SHEET NO. 12

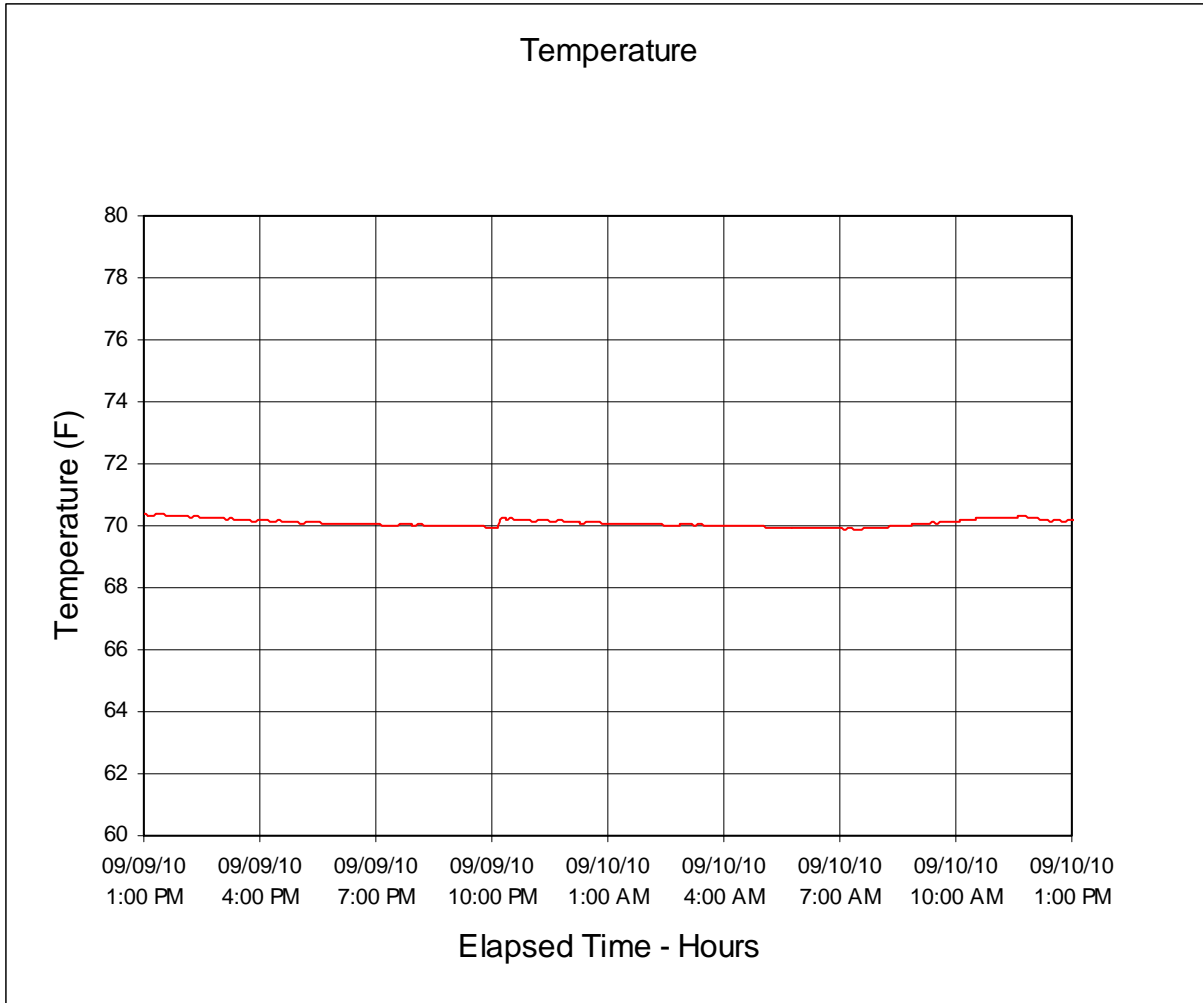
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2011 Audi A4 2.0 4-Door Sedan

NHTSA No. MB5800

Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole

Test Date: 09/10/10



**APPENDIX A
PHOTOGRAPHS**

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FIGURE 1. 2011 Audi A4 2.0 Side Pole As Delivered



FIGURE 2. 2011 Audi A4 2.0 Side Pole As Delivered



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 Vehicle



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



FIGURE 7. Pre-Test Left Side View of Vehicle



FIGURE 8. Post-Test Left Side View of Vehicle



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



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



FIGURE 11. Pre-Test Rear View of Test Vehicle



FIGURE 12. Post-Test Rear View of Test Vehicle



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



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



FIGURE 15. Pre-Test Overhead View of Test Vehicle and Pole



FIGURE 16. Post-Test Overhead View of Test Vehicle and Pole



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



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



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



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



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

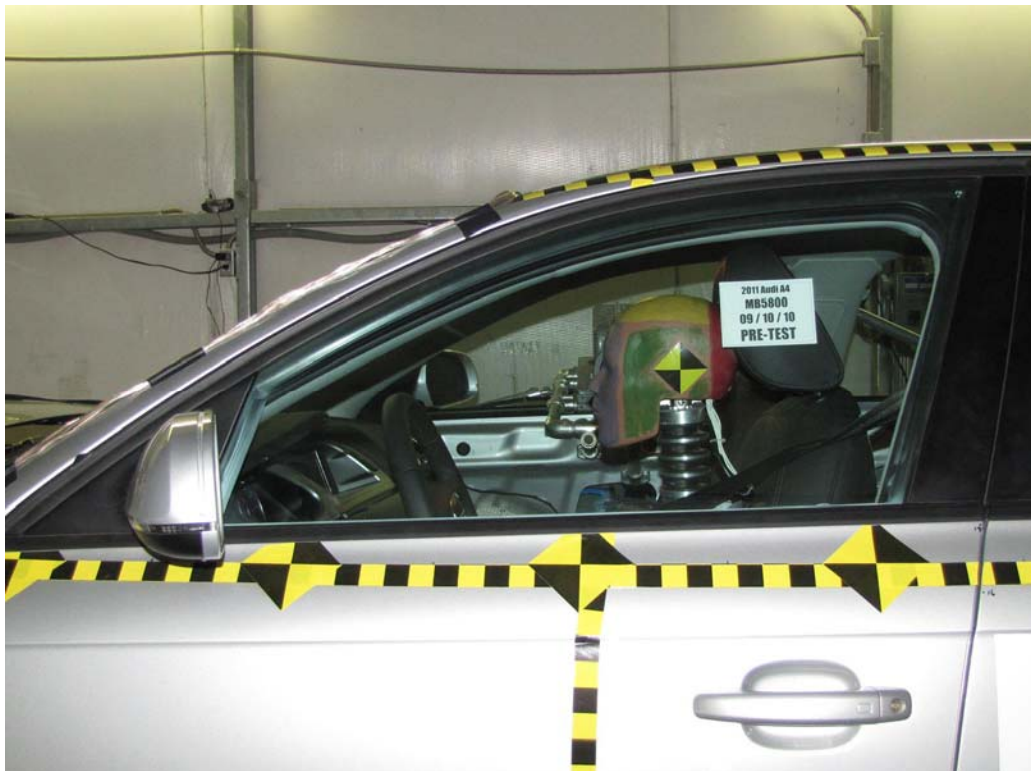


FIGURE 24. Pre-Test Left Side View of Dummy Shoulder and Driver Door Top View



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



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



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



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



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



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



FIGURE 31. Pre-Test View of Dummy's Head Showing Dummy's Head Is Level



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

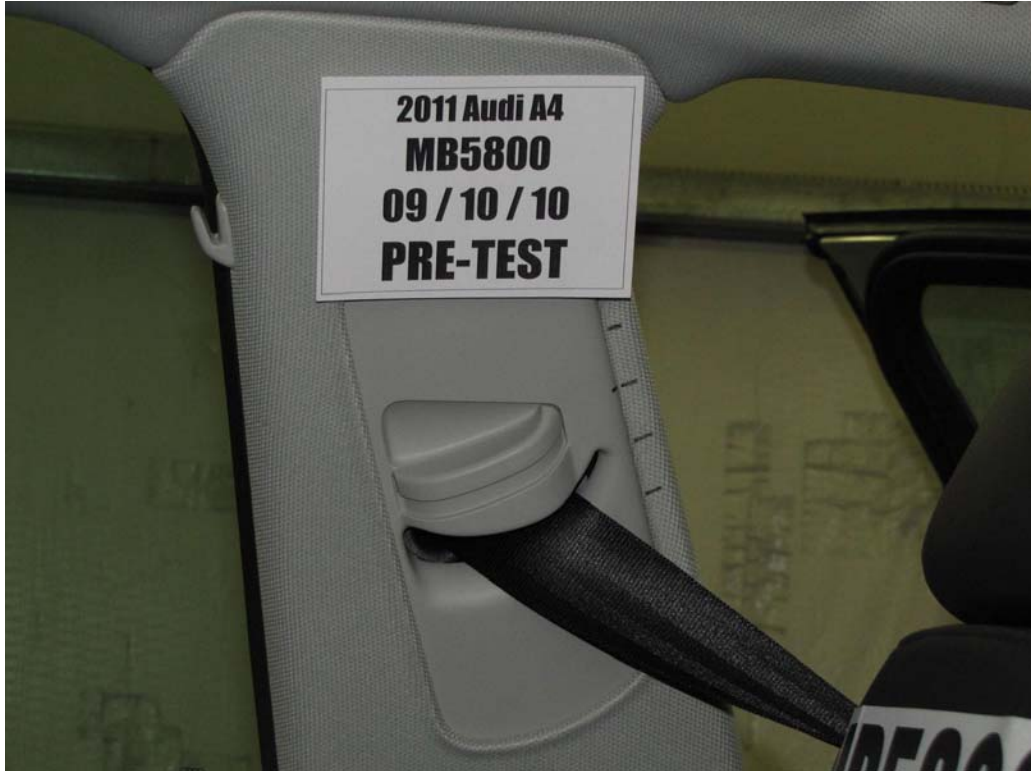


FIGURE 33. Pre-Test View of Belt Anchorage for Dummy



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



FIGURE 35. Pre-Test View of Parking Brake



FIGURE 36. Pre-Test Close-Up Left Side View of Driver Seat Track



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



FIGURE 38. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 39. Pre-Test Dummy and Driver Door Clearance

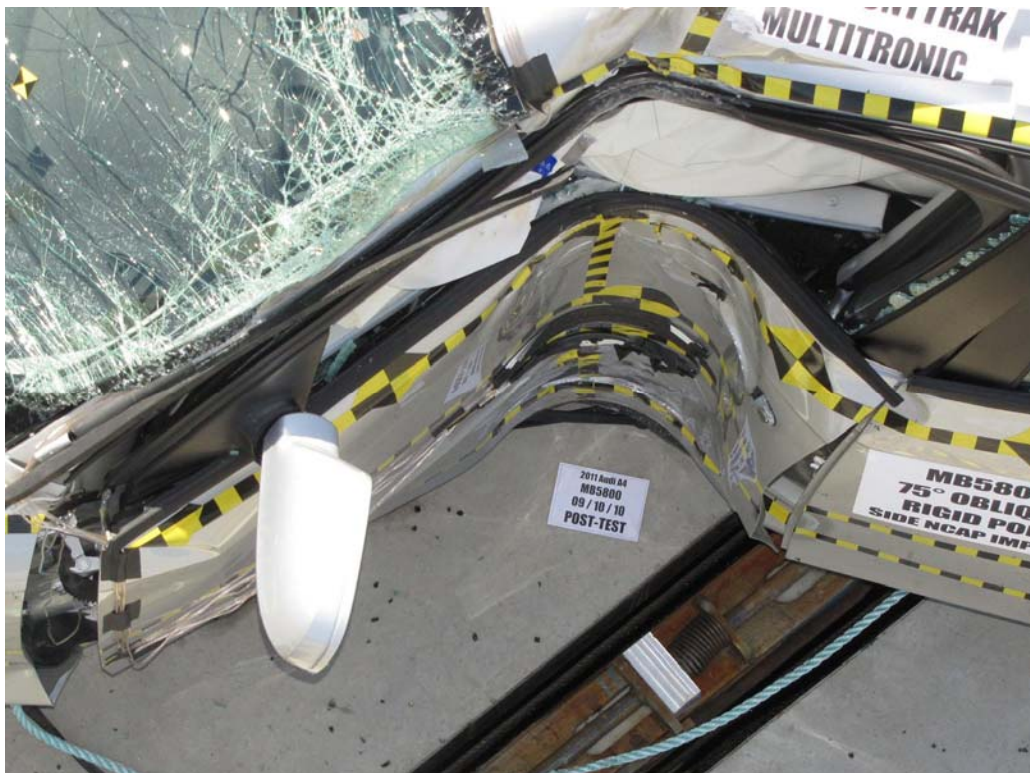


FIGURE 40. Post-Test Dummy and Driver Door Clearance



FIGURE 41. Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment



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



FIGURE 43. Pre-Test Inner Driver Door Panel View



FIGURE 44. Post-Test Inner Driver Door Panel View
Showing Dummy Contact Locations

Photograph Not Applicable

No Dummy Head Contact With Vehicle Interior

FIGURE 45. Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



FIGURE 46. Post-Test Dummy Close-Up Head Contact with Side Airbag View

Photograph Not Applicable

No Dummy Torso Contact With Vehicle Interior

FIGURE 47. Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View

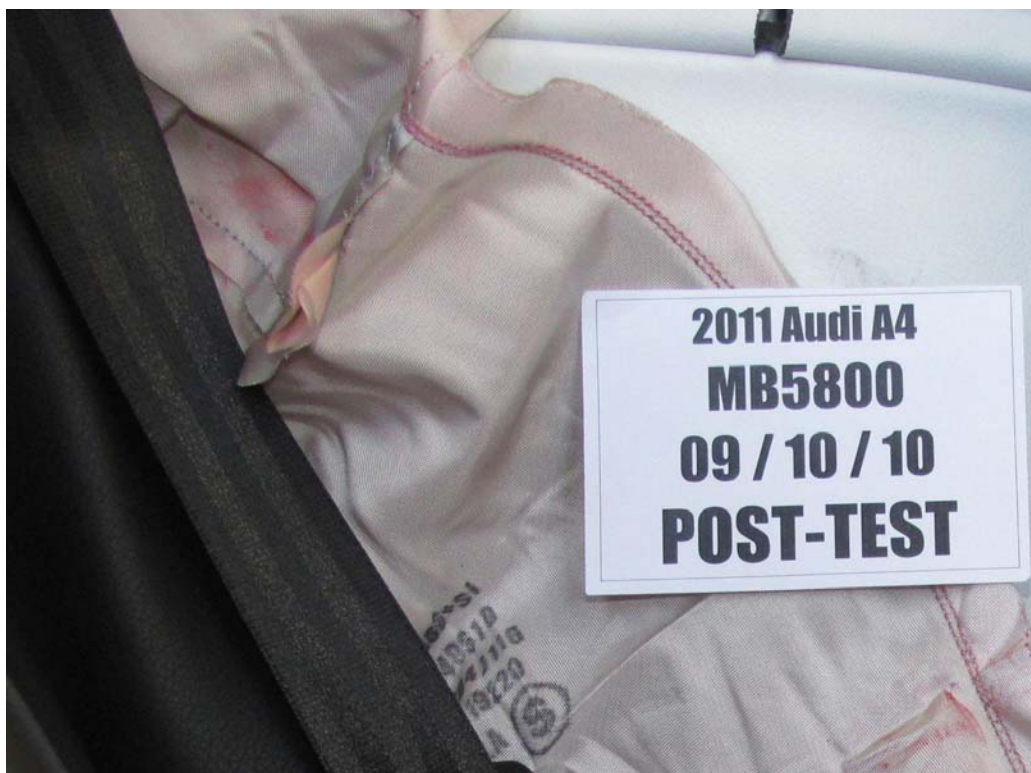


FIGURE 48. Post-Test Dummy Close-Up Torso Contact with Side Airbag View



FIGURE 49. Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



FIGURE 50. Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



FIGURE 51. Pre-Test View of Fuel Filler Cap



FIGURE 52. Post-Test View of Fuel Filler Cap



FIGURE 53. Close-Up View of Vehicle's Certification Label

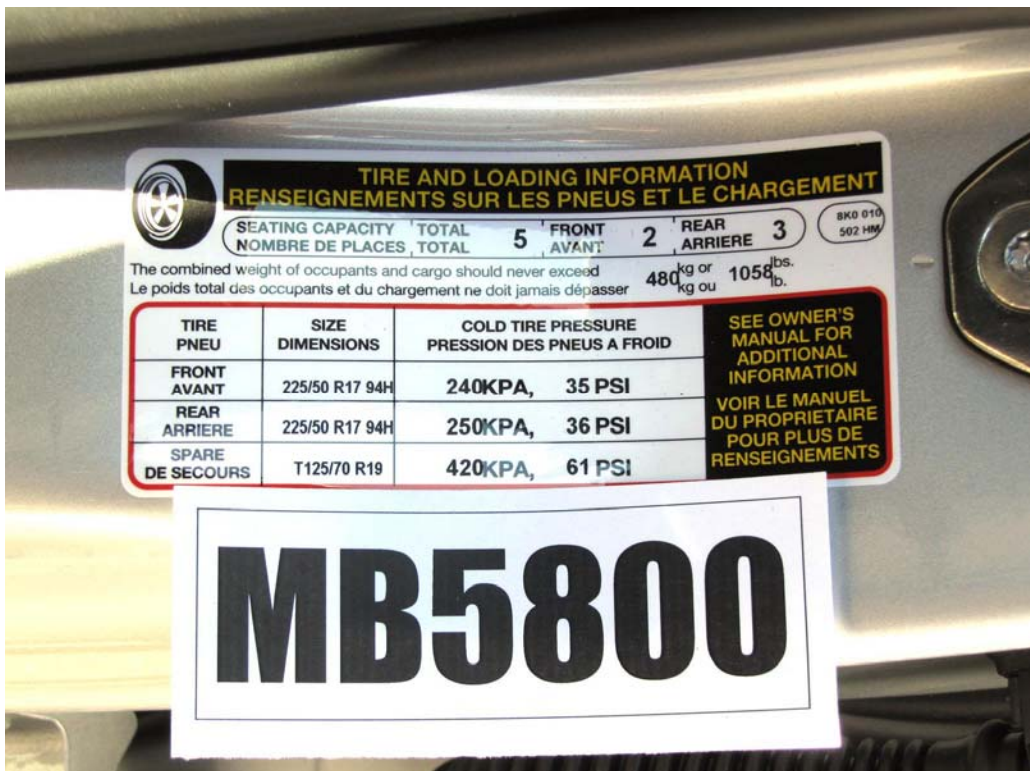


FIGURE 54. Close-Up View of Vehicle's Tire Information Placard



FIGURE 55. Pre-Test Pole Barrier Front View



FIGURE 56. Post-Test Pole Barrier Front View



FIGURE 57. Pre-Test Pole Barrier Side View



FIGURE 58. Post-Test Pole Barrier Side View



FIGURE 59. Pre-Test Ballast View



FIGURE 60. Post-Test Primary and Redundant Speed Trap Read-Out



FIGURE 61. FMVSS No. 301-305 Rollover 0 Degrees



FIGURE 62. FMVSS No. 301-305 Rollover 90 Degrees



FIGURE 63. FMVSS No. 301-305 Rollover 180 Degrees



FIGURE 64. FMVSS No. 301-305 Rollover 270 Degrees



FIGURE 65. FMVSS No. 301-305 Rollover 360 Degrees



FIGURE 66. 2011 Audi A4 2.0 Side Pole Impact Event

2011 Audi A4 2.0 TFSI FrontTrak Multitronic Sedan

Exterior: Ice Silver Metallic Interior: Black Interior VIN: WAUAFAPL7BN001577 MODEL: 8K256H

MANUFACTURER'S SUGGESTED RETAIL PRICE

2011 Audi A4 2.0 TFSI FrontTrak Multitronic Sedan	\$31,950.00
Ice Silver metallic	\$475.00
Black interior	Included
Multitronic™ CVT automatic trans.	Included
HomeLink® & Bluetooth® Package	\$700.00

STANDARD EQUIPMENT (unless replaced by option)

TECHNICAL

- 2.0 TFSI 211 hp DOHC turbo charged 4-cyl engine with FSI® Direct Injection
- Audi Multitronic™ Continuously Variable Transmission
- PowerFront™ front-wheel drive system
- ABS (Antilock Brake System) with Brake Assist
- ESP® (Electronic Stability Program)
- Automatic Headlamp Dimming
- 17" Alloy wheels, 2005 alloy wheels
- Dynamic Drive Control
- Dynamic Steering
- Dynamic Steering Assist, fully independent, rear suspension
- Steering wheel-mounted power steering
- Space Saver Spare Tire

COMFORT/CONVENIENCE

- Center console with two cup holders and two power outlets
- Automatic climate control
- Onyx interior
- Front & rear power windows with one-touch and pinch protection
- Electric window control
- Electrically adjustable heated outside side view mirrors
- Power central locking system
- Power driver and passenger seat adjustment with driver lumbar adjustment feature
- Leather-trimmed interior
- Leather-trimmed steering wheel with multifunction controls
- Audi Connect™ (Audi Sync) with in-dash CD player
- Bluetooth® interface with 1-month complimentary subscription, SD card slot and auxiliary audio input
- Leather-trimmed interior

SAFETY/SECURITY

- Driver and front passenger advanced front-stage air bag
- Supplemental restraint system with passenger seat occupancy sensor
- Driver and front passenger safety belt use reminder
- Driver and front passenger seat-mounted side-impact supplemental restraint
- Roll-over protection system
- Autolock feature
- Front 2-point safety belts with automatic pretensioners and load limiters, rear 3-point safety belts with automatic pretensioners
- Audi Front Vehicle Alarm System and Ignition Immobilizer
- Lower Anchors and Tethers for Children (LATCH)

WARRANTY/MAINTENANCE

- 4 Year/50,000 mile (whichever occurs first) new vehicle limited warranty*
- 12 Year/150,000 mile (whichever occurs first) powertrain warranty*
- 12 Month/5,000 mile (whichever occurs first) roadside assistance*
- 4 Year/50,000 mile (whichever occurs first) complimentary maintenance*

*Please refer to the 2011 Audi Warranty Manual for complete coverage information.

COMFORT/CONVENIENCE

- Center console with two cup holders and two power outlets
- Automatic climate control
- Onyx interior
- Front & rear power windows with one-touch and pinch protection
- Electric window control
- Electrically adjustable heated outside side view mirrors
- Power central locking system
- Power driver and passenger seat adjustment with driver lumbar adjustment feature
- Leather-trimmed interior
- Leather-trimmed steering wheel with multifunction controls
- Audi Connect™ (Audi Sync) with in-dash CD player
- Bluetooth® interface with 1-month complimentary subscription, SD card slot and auxiliary audio input
- Leather-trimmed interior

SAFETY/SECURITY

- Driver and front passenger advanced front-stage air bag
- Supplemental restraint system with passenger seat occupancy sensor
- Driver and front passenger safety belt use reminder
- Driver and front passenger seat-mounted side-impact supplemental restraint
- Roll-over protection system
- Autolock feature
- Front 2-point safety belts with automatic pretensioners and load limiters, rear 3-point safety belts with automatic pretensioners
- Audi Front Vehicle Alarm System and Ignition Immobilizer
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WARRANTY/MAINTENANCE

- 4 Year/50,000 mile (whichever occurs first) new vehicle limited warranty*
- 12 Year/150,000 mile (whichever occurs first) powertrain warranty*
- 12 Month/5,000 mile (whichever occurs first) roadside assistance*
- 4 Year/50,000 mile (whichever occurs first) complimentary maintenance*

*Please refer to the 2011 Audi Warranty Manual for complete coverage information.

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:	FOR THIS VEHICLE:
U.S./CANADIAN	FINAL ASSEMBLY POINT:
PARTS CONTENT: 1%	NECKARSULM, GERMANY
MAJOR SOURCES OF FOREIGN	COUNTRY OF ORIGIN:
PARTS CONTENT:	ENGINE: HUNGARY
GERMANY: 75%	TRANSMISSION:
	GERMANY

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

EPA Fuel Economy Estimates

These estimates reflect new EPA methods beginning with 2008 models.

CITY MPG	Estimated Annual Fuel Cost	HIGHWAY MPG
22	\$1,680	30
Expected range for most drivers: 18 to 26 MPG	based on 15,000 miles at \$2.80 per gallon	Expected range for most drivers: 24 to 36 MPG
Combined Fuel Economy		
This Vehicle: 25		
All Compact Cars: 11 to 42		

Your actual mileage will vary depending on how you drive and maintain your vehicle.

See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov

DEALER: 422A03 CIRCLE AUDI 1919 N LAKEWOOD BLVD LONG BEACH, CA 90815 Port of Entry: SAN DIEGO

SHIP TO: 422A03 CIRCLE AUDI 1919 N LAKEWOOD BLVD LONG BEACH, CA 90815 CDM NUM: C88144 Transportation Method: TRUCK

GOVERNMENT SAFETY RATINGS

Frontal Crash	Driver Passenger	Not Rated
Star ratings based on the risk of injury in a frontal impact. Frontal ratings should ONLY be compared to other vehicles of similar size and weight.	Star ratings based on the risk of injury in a frontal impact. Frontal ratings should ONLY be compared to other vehicles of similar size and weight.	Star ratings based on the risk of injury in a side impact.
Side Crash	Front Seat Rear Seat	Not Rated Not Rated
Star ratings based on the risk of injury in a side impact.	Star ratings based on the risk of rollover in a single vehicle crash. Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA).	★★★★★

www.safercar.gov or 1-888-327-4236

FIGURE 67. Monroney Label

78 Seats and storage

Head restraints

Front head restraints

Head restraints that are adjusted according to body size, along with the seat belt, offer effective protection.

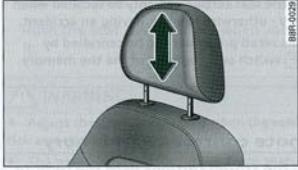


Fig. 73 Front seat: Adjusting the head restraint

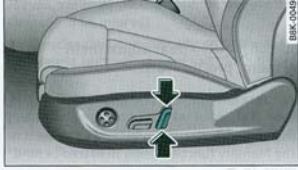


Fig. 74 Front seat: Adjusting head restraint electrically*

The head restraints on the front seats can be adjusted to provide safe support to head and neck at the optimum height ⇒ fig. 73. Adjust the head restraint so the upper edge is as even as possible with the top of your head. If that is not possible, try to adjust the head restraint so that it is as close to this position as possible ⇒ page 78.

Raising/Lowering the head restraint

- Grasp the sides of the head restraint with both hands and slide the head restraint upward/downward, until you feel it click into place ⇒ fig. 73.

Electric height adjustment*

- Push the switch up or down ⇒ fig. 74 to adjust the height of the head restraint.

Refer to ⇒ page 172, "Proper adjustment of head restraints" for guidelines on how to adjust the height of the front head restraints to suit the occupant's body size.

WARNING

- Driving without head restraints or with head restraints that are not properly adjusted increases the risk of serious or fatal neck injury dramatically.
- Read and heed all WARNINGS ⇒ page 172.

Tips

Correctly adjusted head restraints and safety belts are an extremely effective combination of safety features. ■

FIGURE 68. Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

<u>Plot</u>		<u>Page</u>
1	Driver Head Acceleration (X) Primary	B-1
2	Driver Head Acceleration (Y) Primary	B-1
3	Driver Head Acceleration(Z) Primary	B-1
4	Driver Head Resultant Primary	B-1
5	Driver Lower Spine T12 Acceleration (X)	B-2
6	Driver Lower Spine T12 Acceleration (Y)	B-2
7	Driver Lower Spine T12 Acceleration (Z)	B-2
8	Driver Lower Spine Y12 Resultant Acceleration	B-2
9	Driver Iliac Wing Force on Impact Side (Y)	B-3
10	Driver Acetabulum Force on Impact Side (Y)	B-3
11	Driver Total Pelvis Force on Impact Side (Y)	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 (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)
Driver Shoulder Contact Switch
Driver Torso Contact Switch
Driver Pelvis Contact Switch
Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Vehicle Center of Gravity Angular Rate About X (Roll)
Vehicle Center of Gravity Angular Rate About Y (Pitch)
Vehicle Center of Gravity Angular Rate About Z (Yaw)

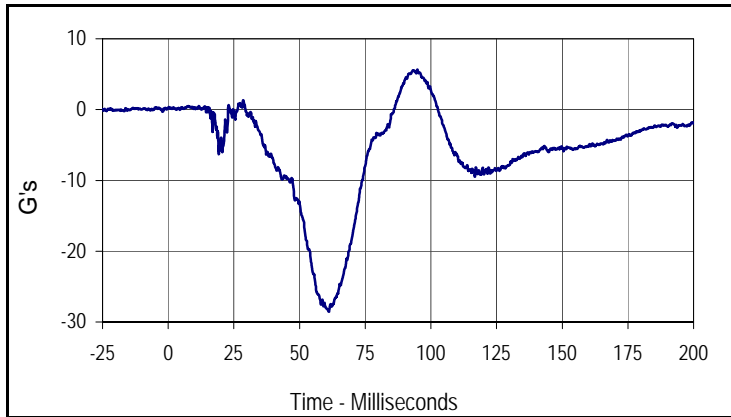
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy H-Point Acceleration (Y)
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)
Driver Side Airbag Timing
Driver Side Curtain Airbag Timing

Pole Instrumentation Data

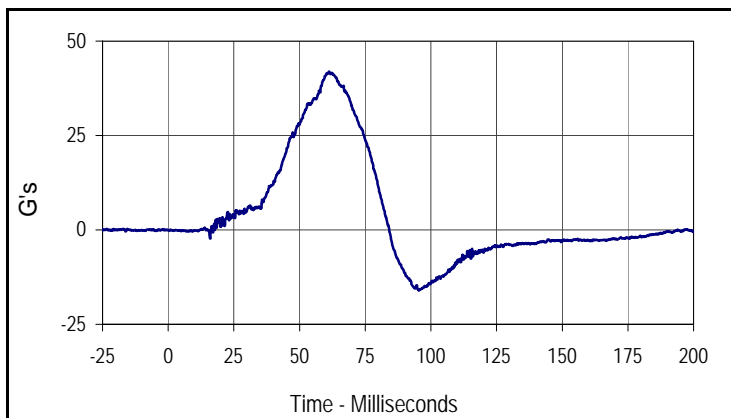
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

Test Vehicle: 2011 Audi A4 2.0 TFSI FrontTrak Multitronic 4-Door Sedan
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

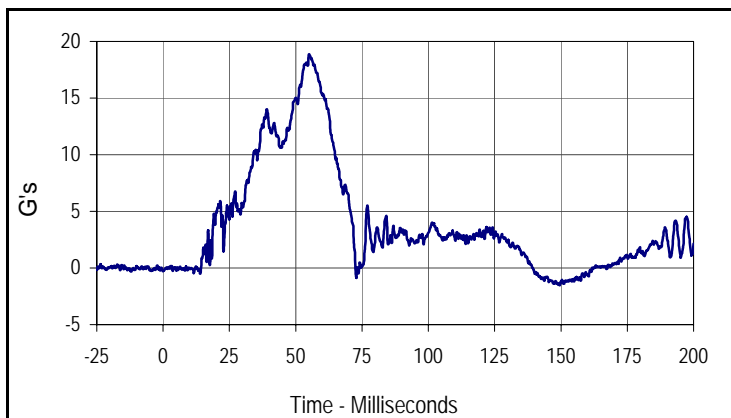
Test Date: 9/10/10
 NHTSA No.: MB5800



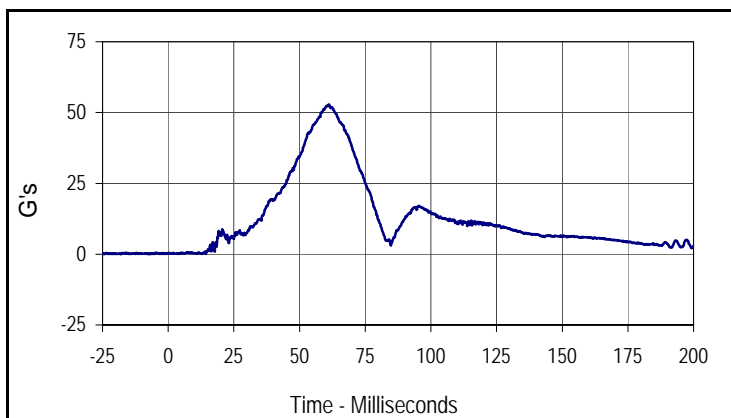
Curve Description			
Driver Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
5.6	94.9	-28.6	61.2



Curve Description			
Driver Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
41.9	61.2	-16.0	95.5



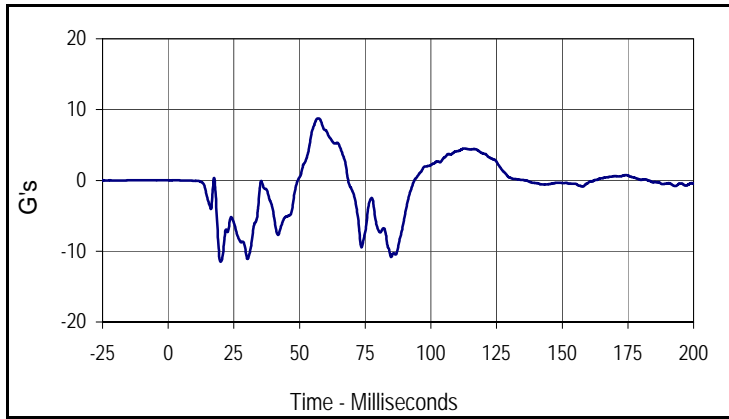
Curve Description			
Driver Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
18.9	55.1	-1.5	149.6



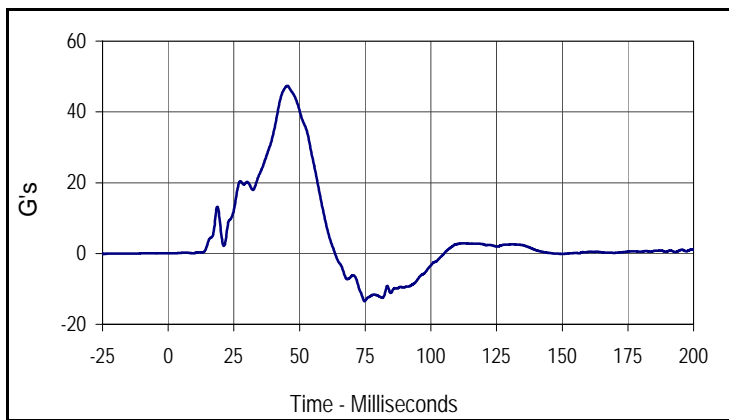
Curve Description			
Driver Head Acceleration Primary Res.			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
52.9	61.2	0.1	14.3

Test Vehicle: 2011 Audi A4 2.0 TFSI FrontTrak Multitronic 4-Door Sedan
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

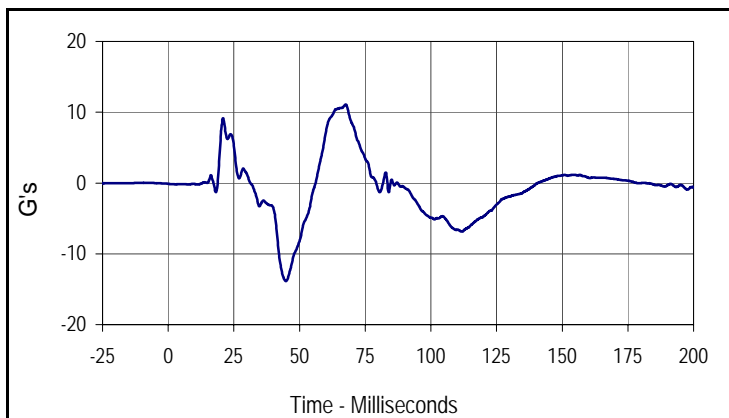
Test Date: 9/10/10
 NHTSA No.: MB5800



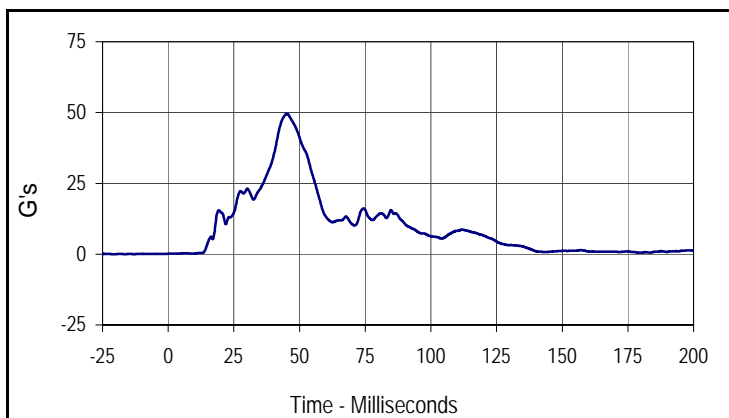
Curve Description			
Driver Lower Spine T12 Acceleration X			
CURNO	Type	SAE Class	Units
012	FIL	180	G's
Max	Time	Min	Time
8.8	57.1	-11.5	19.9



Curve Description			
Driver Lower Spine T12 Acceleration Y			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
47.3	45.3	-13.5	74.7



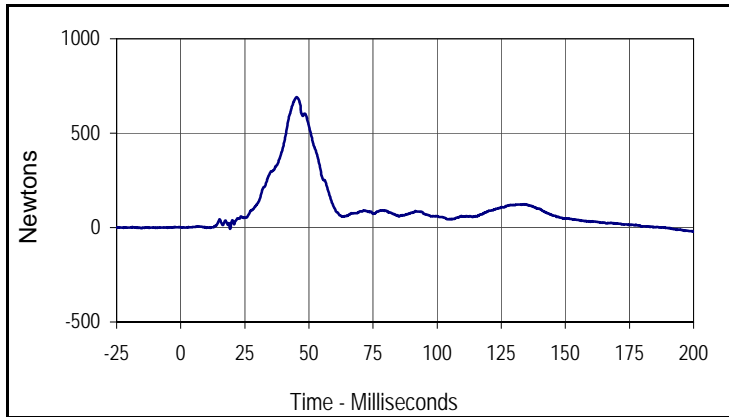
Curve Description			
Driver Lower Spine T12 Acceleration Z			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
11.1	67.6	-13.9	44.8



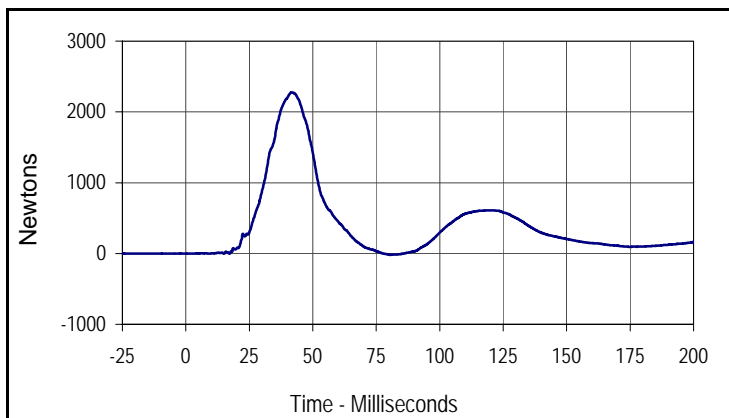
Curve Description			
Driver Lower Spine T12 Acceleration Res.			
CURNO	Type	SAE Class	Units
012	RES	180	G's
Max	Time	Min	Time
49.5	45.2	0.2	0.0

Test Vehicle: 2011 Audi A4 2.0 TFSI FrontTrak Multitronic 4-Door Sedan
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

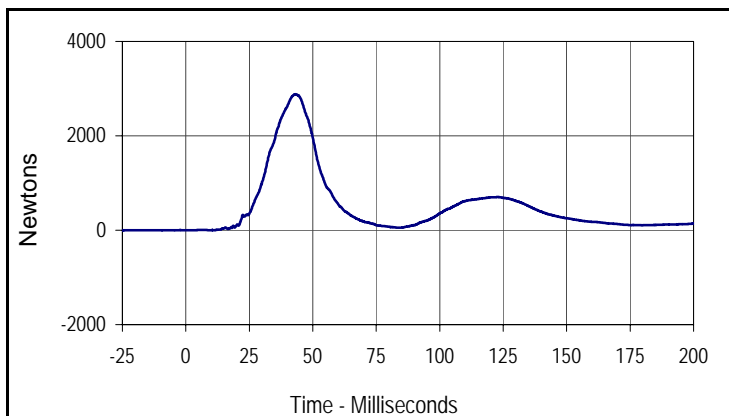
Test Date: 9/10/10
 NHTSA No.: MB5800



Curve Description			
Driver Iliac Wing Force on Impact Side Y			
CURNO	Type	SAE Class	Units
015	FIL	600	Newtons
Max	Time	Min	Time
691.0	45.2	-21.3	200.0



Curve Description			
Driver Acetabulum Force on Impact Side Y			
CURNO	Type	SAE Class	Units
016	FIL	600	Newtons
Max	Time	Min	Time
2275.0	41.6	-19.0	80.5



Curve Description			
Driver Total Pelvic Force on Impact Side Y			
CURNO	Type	SAE Class	Units
015	SUM	600	Newtons
Max	Time	Min	Time
2882.6	43.2	-0.8	9.8

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

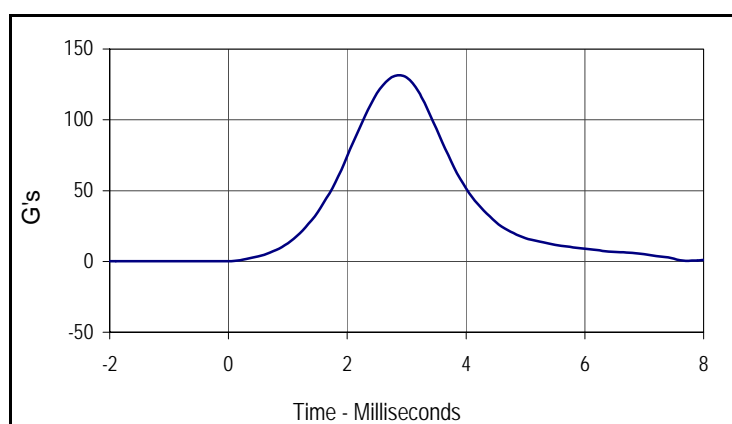
APPENDIX C
PRE-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

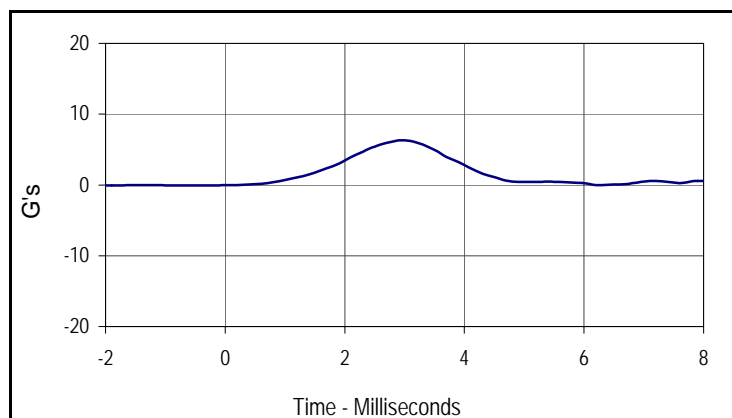
Test Date: 9/2/10
 Test I.D.: HDP09A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	115 to 137	131.6	Pass
Peak Longitudinal Acceleration	G's	≤15	6.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	12.6	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
131.6	2.9	0.1	-1.7



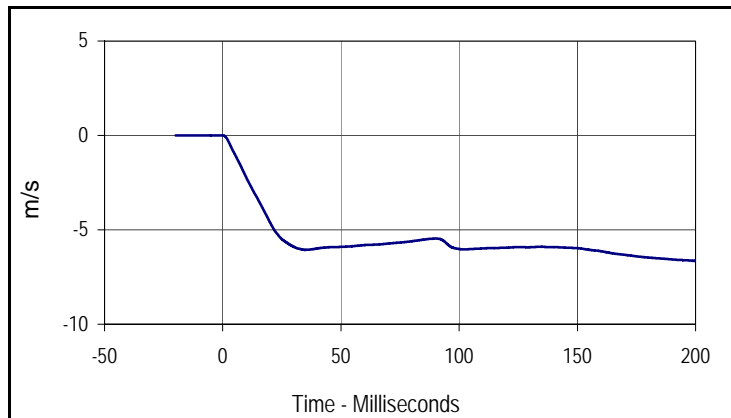
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.3	3.0	-0.1	-0.4

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

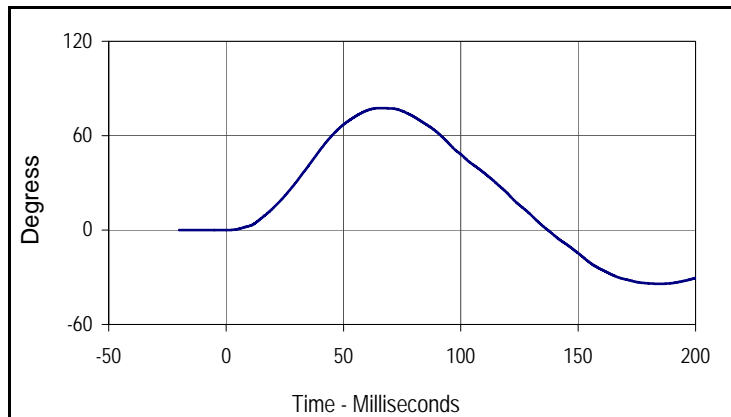
Test Date: 9/2/10
 Test I.D.: NBP09A



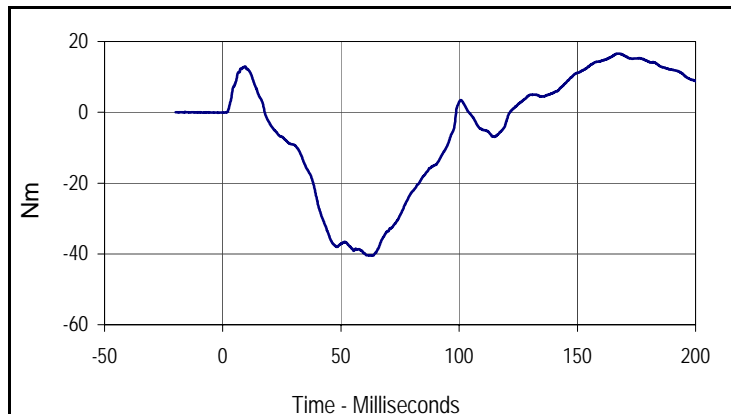
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.6	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.2	Pass
	15 msec	m/s	-3.30 to -4.10	-3.4	Pass
	20 msec	m/s	-4.40 to -5.40	-4.6	Pass
	25 msec	m/s	-5.40 to -6.10	-5.5	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.1	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	77.6	Pass
	Time	msec	50.0 to 70.0	65.5	Pass
Peak Occipital Condyle Moment	Nm	-36.0 to -44.0	-40.5	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102.0 to 126.0	121.5	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.2	-6.7	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degree
Max	Time	Min	Time
77.6	65.5	-34.1	184.7



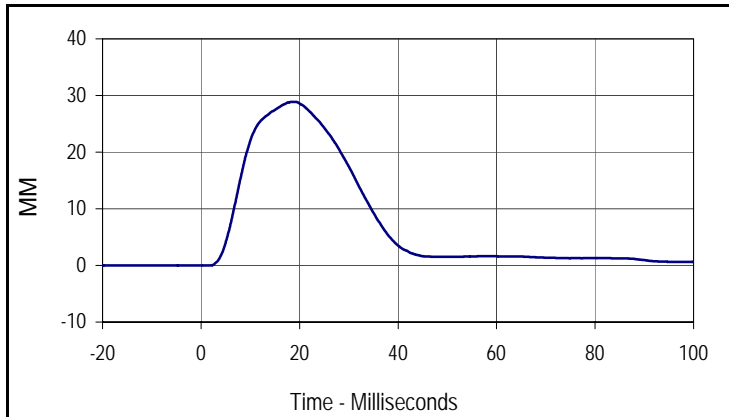
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
16.6	167.2	-40.5	62.5

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

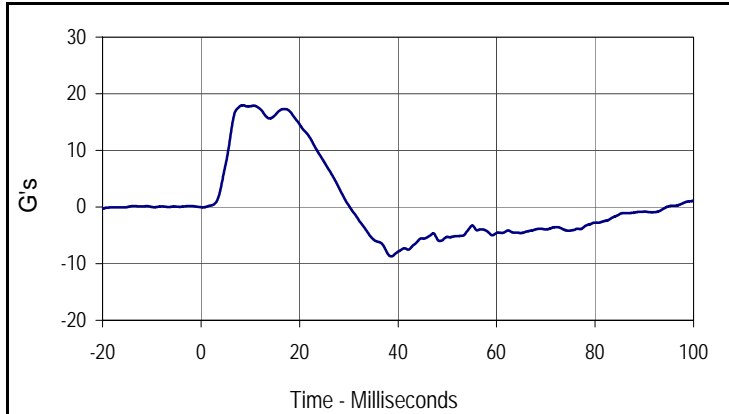
Test Date: 9/2/10
 Test I.D.: SHP09A



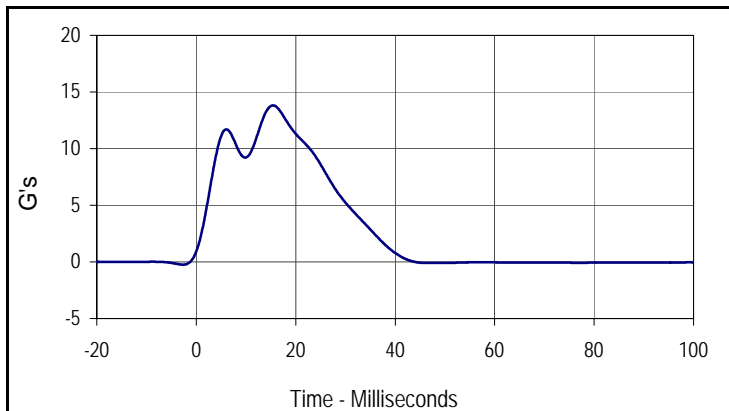
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.20	Pass
Shoulder Deflection	MM	28 to 37	28.9	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	18.0	Pass
Peak Impactor Acceleration	G's	13 to 18	13.8	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
28.9	19.0	0.0	-5.6



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.0	8.6	-8.7	38.6



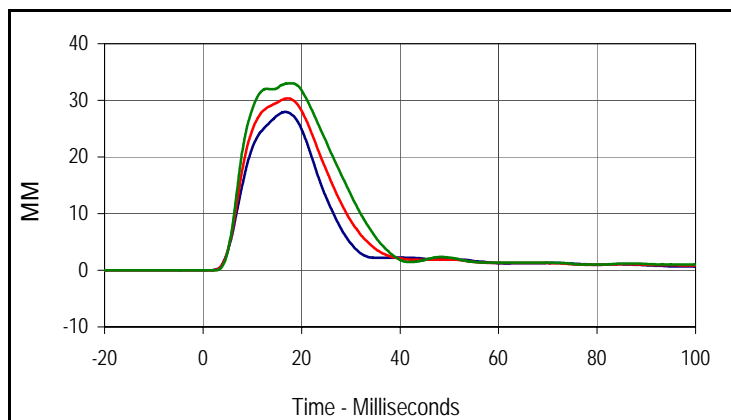
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
13.8	15.4	-0.2	-2.7

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

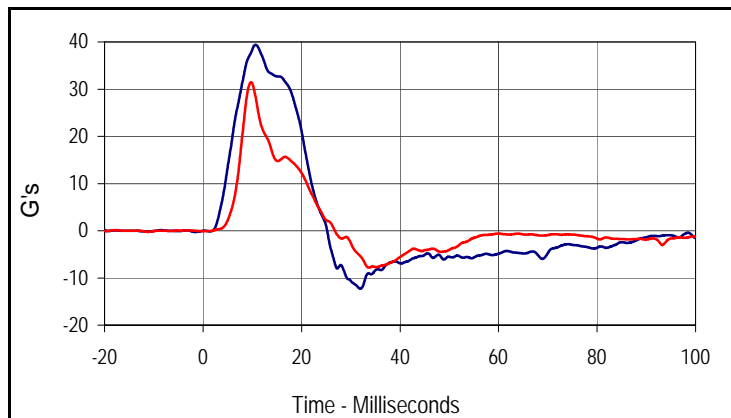
Test Date: 9/2/10
 Test I.D.: THP09A



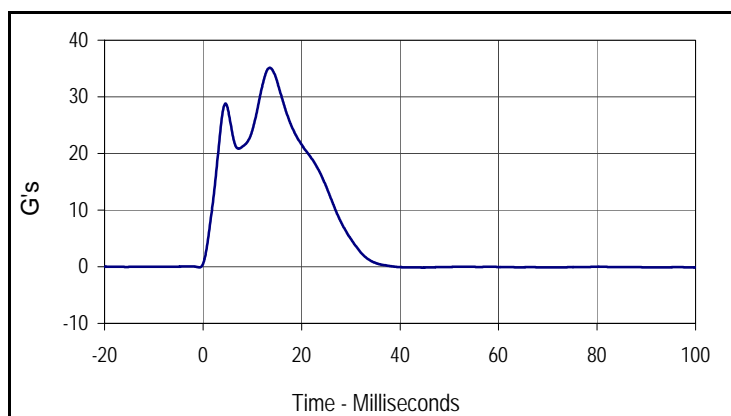
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.63	Pass
Shoulder Deflection	MM	31 to 40	37.5	Pass
Upper Thorax Rib Deflection	MM	25 to 32	27.9	Pass
Middle Thorax Rib Deflection	MM	30 to 36	30.3	Pass
Lower Thorax Rib Deflection	MM	32 to 38	33.0	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	39.4	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	31.5	Pass
Peak Impactor Acceleration After 5 msec.	G's	30 to 36	35.1	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.9	16.7	0.0	-8.9
Middle Thorax Deflection			
Max	Time	Min	Time
30.3	17.2	0.0	-10.9
Lower Thorax Deflection			
Max	Time	Min	Time
33.0	17.5	0.0	-5.1



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
39.4	10.6	-12.3	32.0
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
31.5	9.7	-7.8	33.7



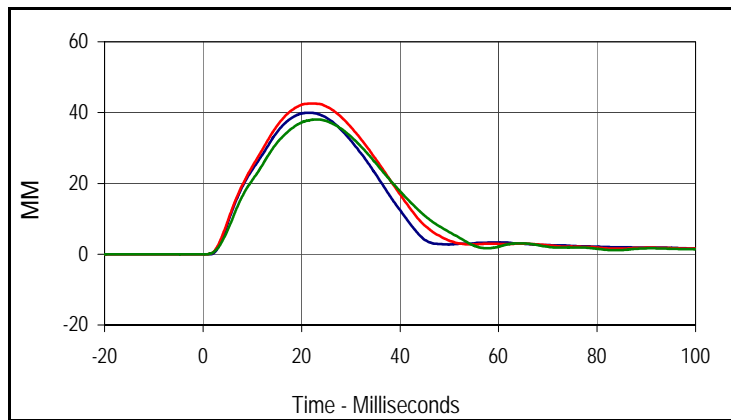
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
35.1	13.5	-0.2	0.0

Test Program: SID IIs Thorax w/o Arm Calibration
 ATD Serial No.: 299

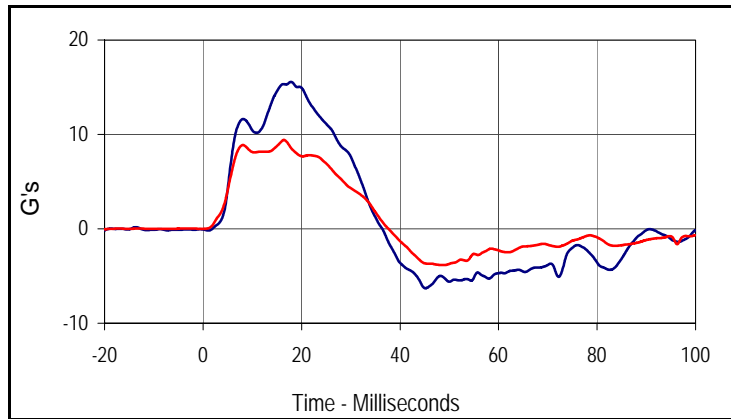
Test Date: 9/2/10
 Test I.D.: TOAP09A



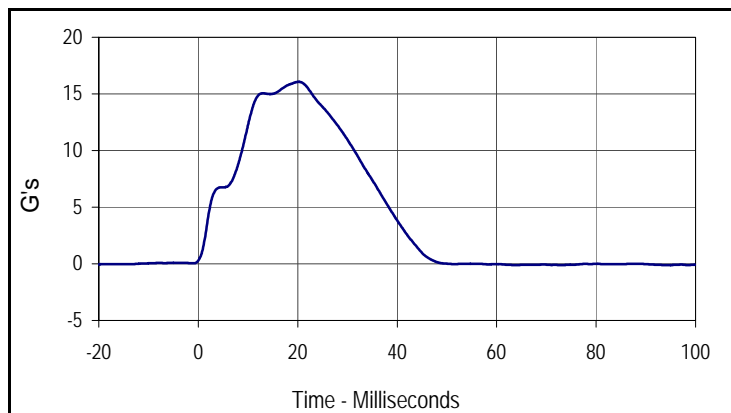
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.30	Pass
Upper Thorax Rib Deflection	MM	32 to 40	40.0	Pass
Middle Thorax Rib Deflection	MM	39 to 45	42.6	Pass
Lower Thorax Rib Deflection	MM	35 to 43	38.1	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.6	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.4	Pass
Peak Impactor Acceleration	G's	14 to 18	16.1	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
40.0	21.5	0.0	-12.8
Middle Thorax Deflection			
Max	Time	Min	Time
42.6	22.2	0.0	-18.7
Lower Thorax Deflection			
Max	Time	Min	Time
38.1	23.3	0.0	-10.8



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.6	17.9	-6.3	45.2
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.4	16.4	-3.8	49.0



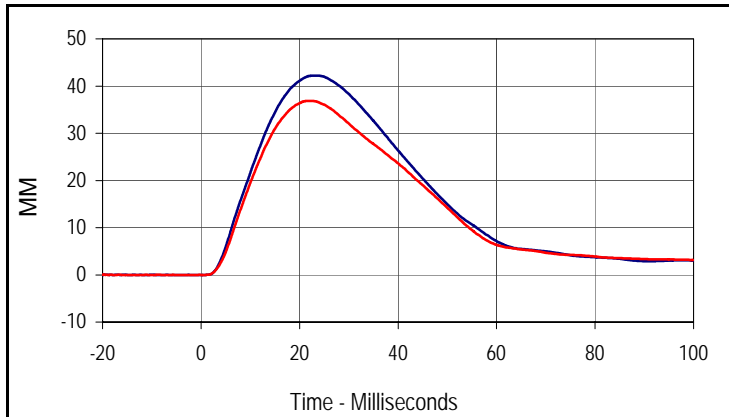
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.1	20.2	-0.1	94.1

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

Test Date: 9/2/10
 Test I.D.: ABDP09A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.21	Pass
Upper Abdominal Rib Deflection	MM	36 to 47	42.2	Pass
Lower Abdominal Rib Deflection	MM	33 to 44	36.9	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	13.0	Pass
Peak Impactor Acceleration	G's	12 to 16	15.6	Pass
Overall Test Results			Pass	



Curve Description

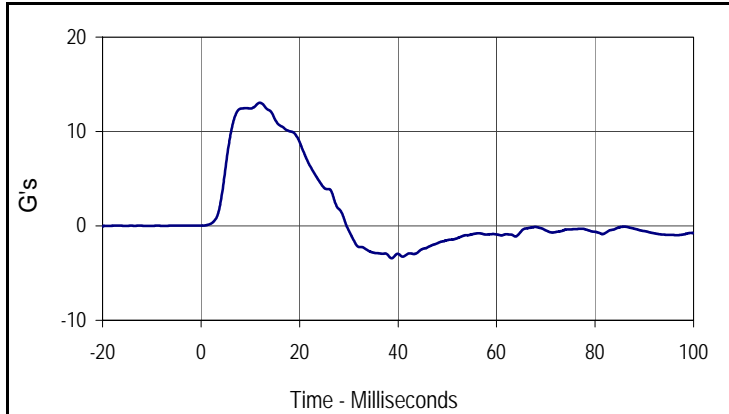
Upper Abdominal Rib Deflection

CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
42.2	23.2	0.0	-11.2

Curve Description

Lower Abdominal Rib Deflection

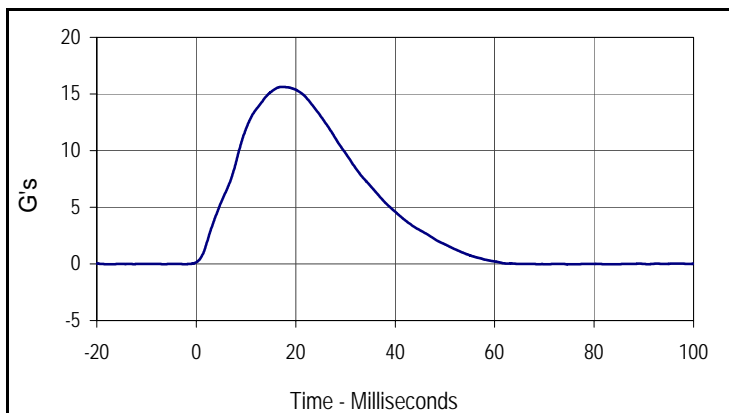
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
36.9	22.2	0.0	-6.3



Curve Description

Lower Spine Y Acceleration

CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
13.0	12.0	-3.4	38.7



Curve Description

Impactor Acceleration

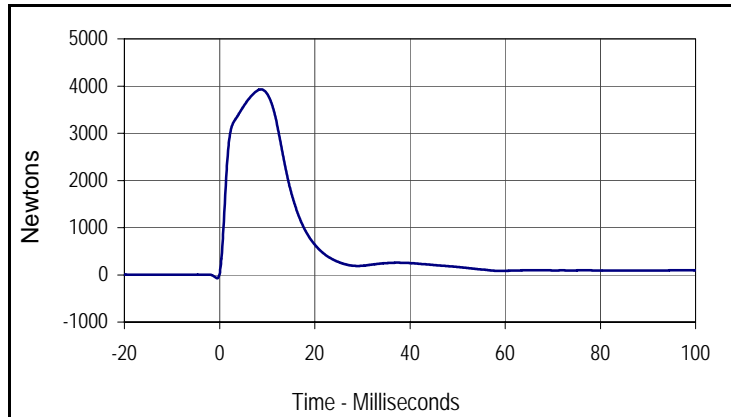
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.6	17.3	0.0	76.2

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

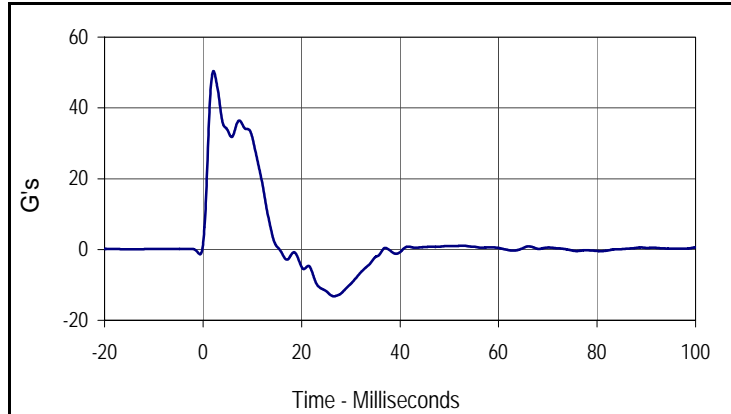
Test Date: 9/2/10
 Test I.D.: PAP09A



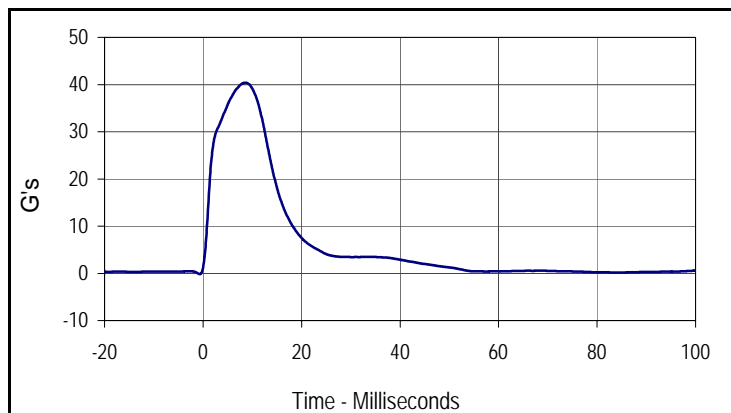
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.78	Pass
Peak Acetabulum Force	Newtons	3600 to 4300	3932.1	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	36.4	Pass
Peak Impactor Acceleration	G's	38 to 47	40.4	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
3932.1	8.7	-71.6	-0.5



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
50.4	2.1	-13.2	26.5



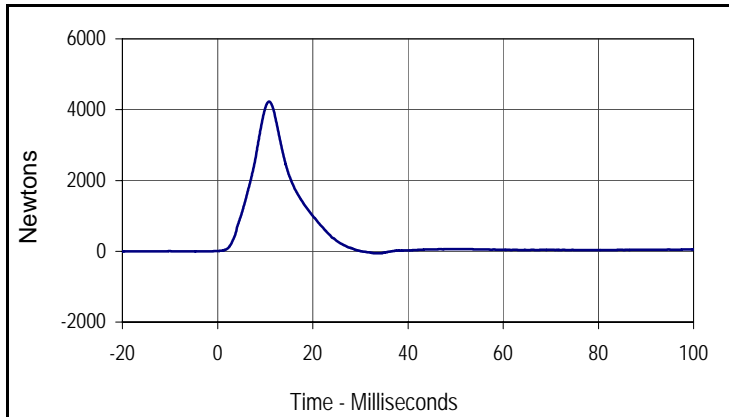
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
40.4	8.7	-0.2	-0.7

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

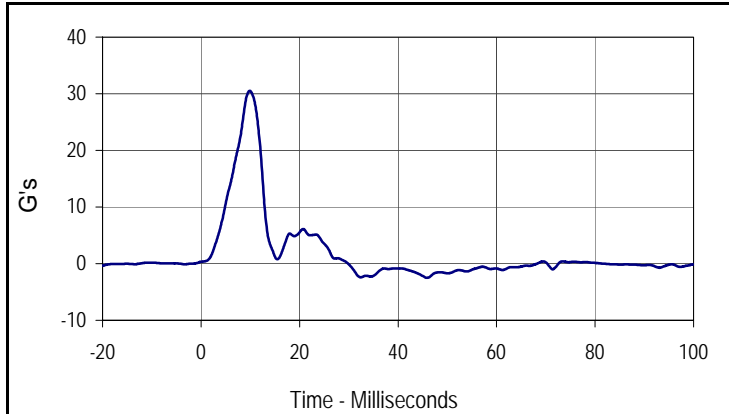
Test Date: 9/2/10
 Test I.D.: PL08C



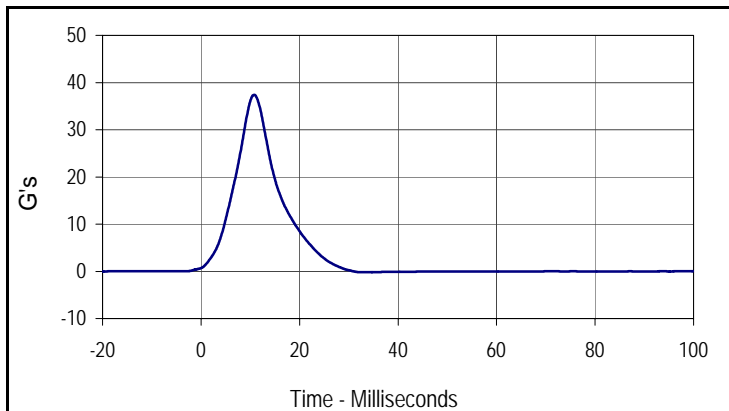
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.21	Pass
Peak Iliac Force	Newtons	4100 to 5100	4227.7	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	30.5	Pass
Peak Impactor Acceleration	G's	36 to 45	37.4	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4227.7	10.8	-60.5	34.1



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
30.5	9.9	-2.5	45.9



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
37.4	10.8	-0.2	32.6

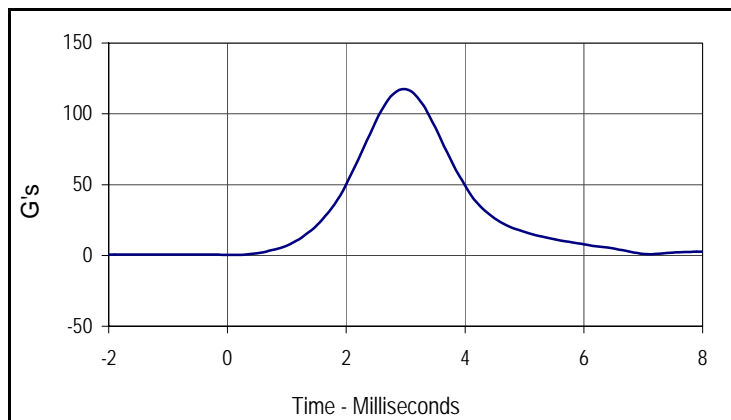
APPENDIX C
POST-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

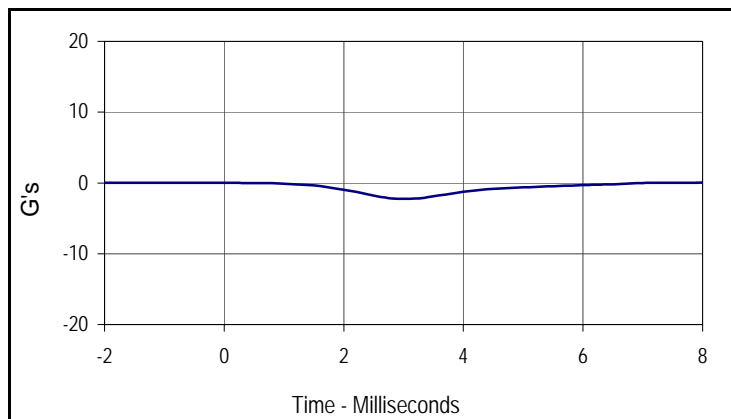
Test Date: 9/13/10
 Test I.D.: HDP09A



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	115 to 137	117.5	Pass
Peak Longitudinal Acceleration	G's	≤15	2.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	14.1	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
117.5	3.0	0.4	0.1



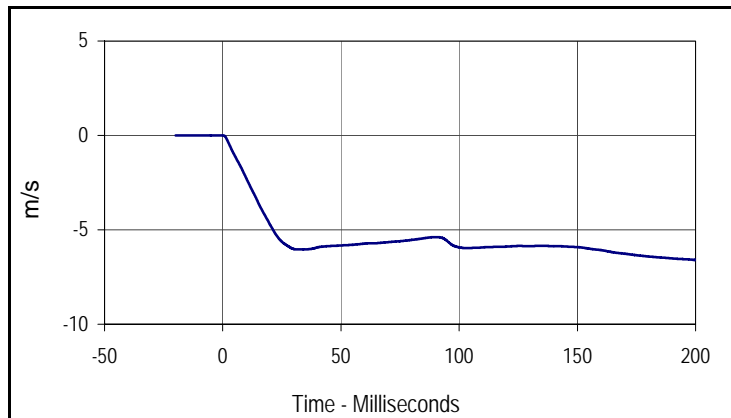
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.0	-0.2	-2.3	3.0

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

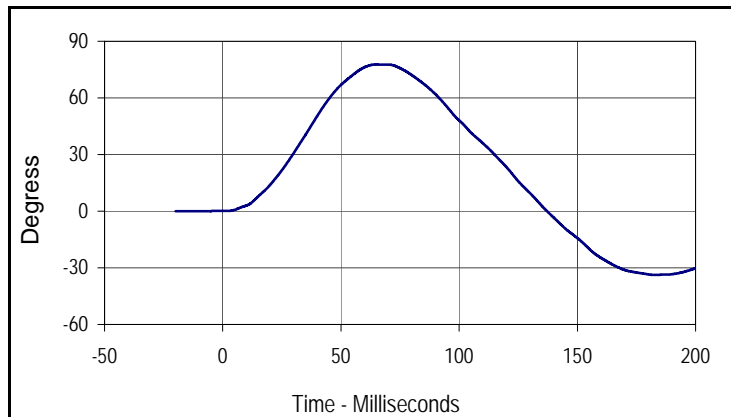
Test Date: 9/13/10
 Test I.D.: NBP09B



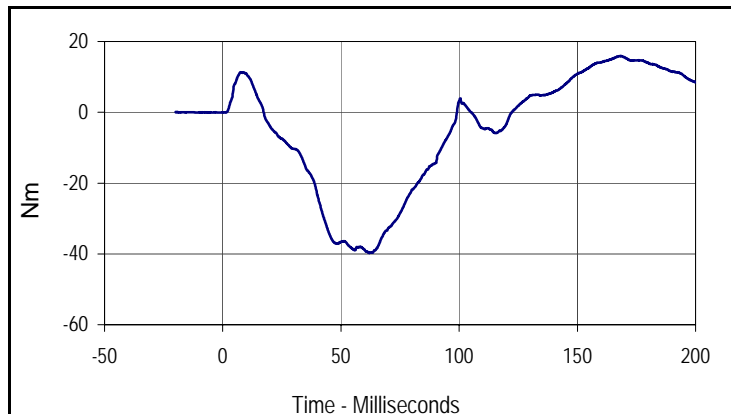
Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	30	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.6	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.3	Pass
	15 msec	m/s	-3.30 to -4.10	-3.6	Pass
	20 msec	m/s	-4.40 to -5.40	-4.7	Pass
	25 msec	m/s	-5.40 to -6.10	-5.6	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.0	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	77.7	Pass
	Time	msec	50.0 to 70.0	64.9	Pass
Peak Occipital Condyle Moment	Nm	-36.0 to -44.0	-39.7	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102.0 to 126.0	122.3	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.2	-6.6	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degree
Max	Time	Min	Time
77.7	64.9	-33.8	182.6



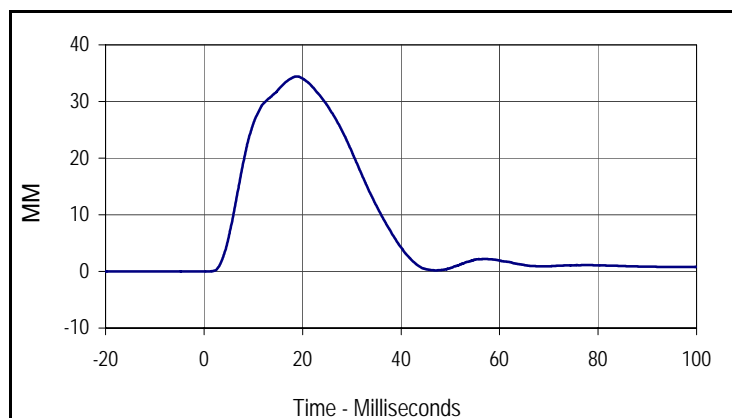
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
15.9	168.3	-39.7	61.9

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

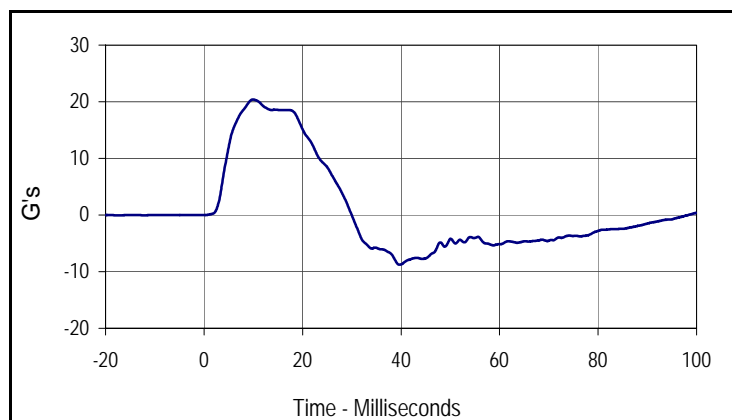
Test Date: 9/13/10
 Test I.D.: SHP09B



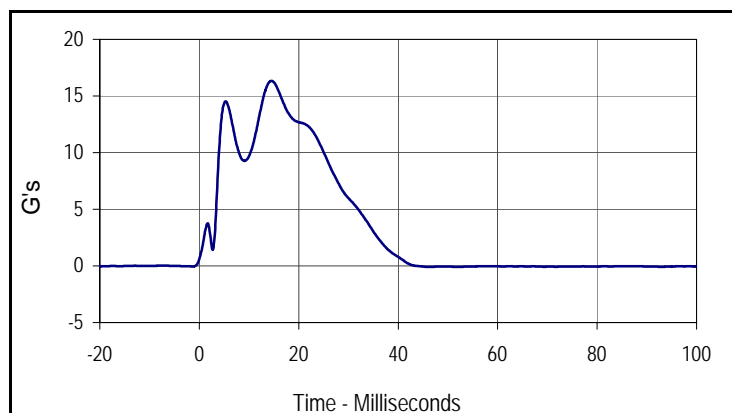
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.22	Pass
Shoulder Deflection	MM	28 to 37	34.4	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	20.4	Pass
Peak Impactor Acceleration	G's	13 to 18	16.3	Pass
Overall Test Results			Pass	Pass



Curve Description			
Shoulder Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
34.4	18.8	0.0	0.0



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
20.4	9.9	-8.8	39.7



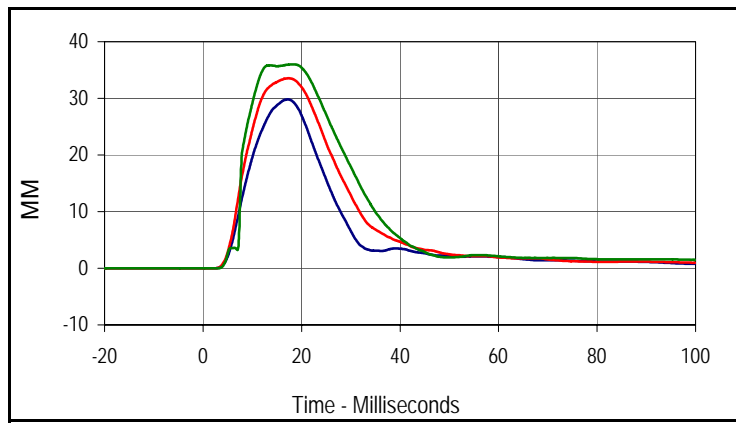
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
16.3	14.5	-0.1	46.1

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

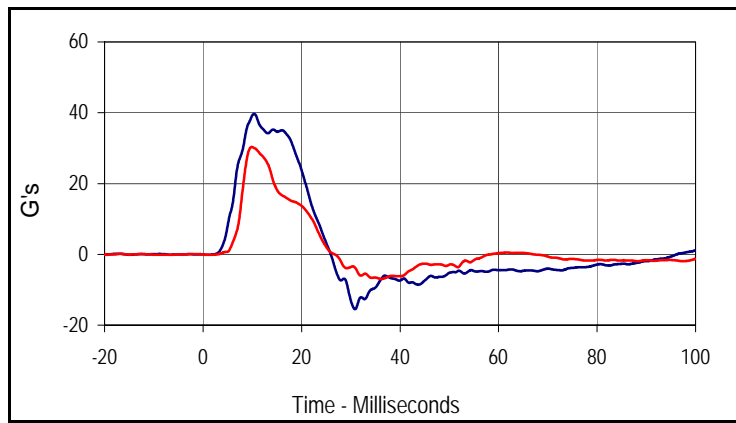
Test Date: 9/13/10
 Test I.D.: THP09B



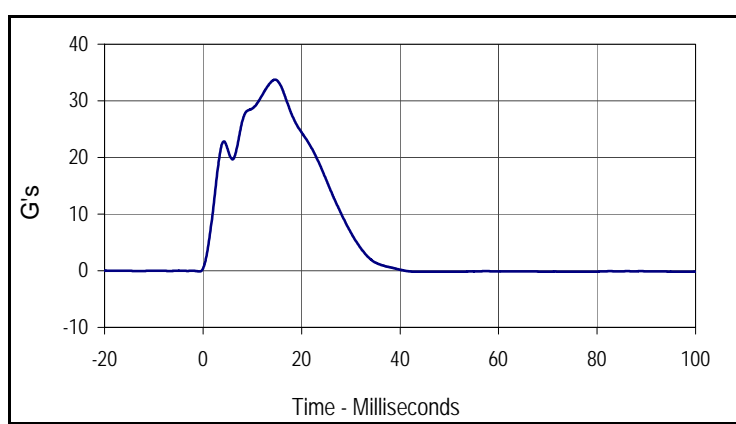
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.65	Pass
Shoulder Deflection	MM	31 to 40	35.4	Pass
Upper Thorax Rib Deflection	MM	25 to 32	29.8	Pass
Middle Thorax Rib Deflection	MM	30 to 36	33.5	Pass
Lower Thorax Rib Deflection	MM	32 to 38	36.0	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	39.7	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	30.3	Pass
Peak Impactor Acceleration After 5 msec.	G's	30 to 36	33.7	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
29.8	17.2	0.0	-12.8
Middle Thorax Deflection			
Max	Time	Min	Time
33.5	17.4	0.0	-3.0
Lower Thorax Deflection			
Max	Time	Min	Time
36.0	18.4	0.0	-17.7



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
39.7	10.4	-15.5	30.8
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
30.3	9.9	-7.0	36.2



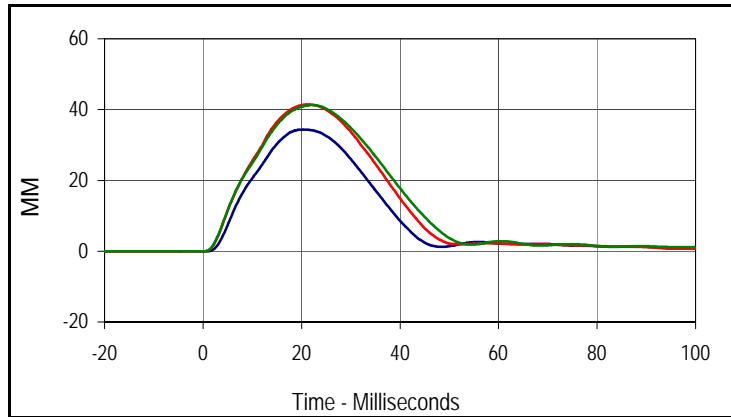
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.7	14.6	-0.2	50.4

Test Program: SID IIs Thorax w/o Arm Calibration
 ATD Serial No.: 299

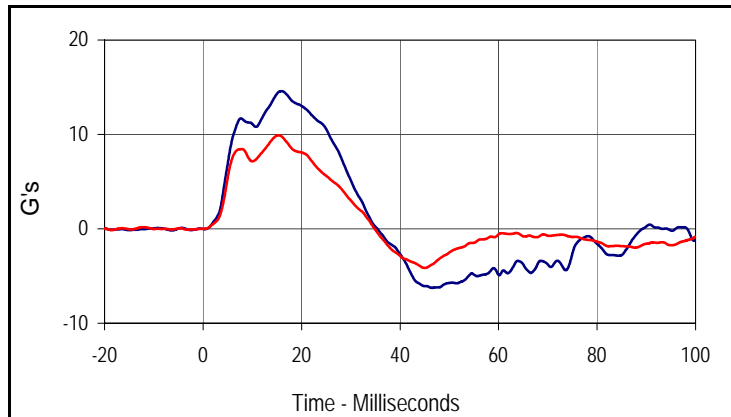
Test Date: 9/13/10
 Test I.D.: TOAP09B



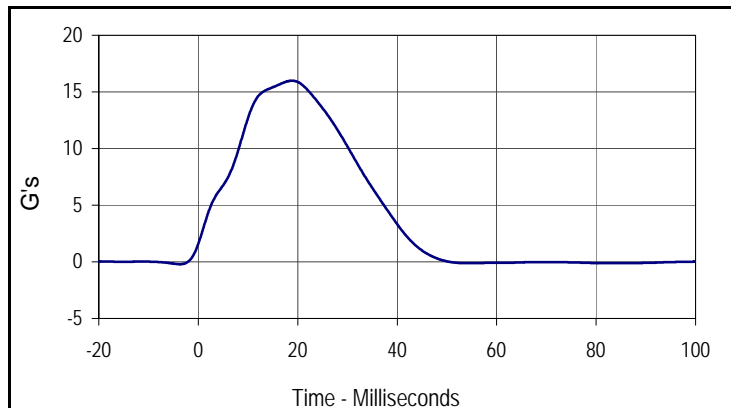
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.33	Pass
Upper Thorax Rib Deflection	MM	32 to 40	34.3	Pass
Middle Thorax Rib Deflection	MM	39 to 45	41.4	Pass
Lower Thorax Rib Deflection	MM	35 to 43	41.3	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	14.6	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.9	Pass
Peak Impactor Acceleration	G's	14 to 18	16.0	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
34.3	20.5	0.0	-0.1
Middle Thorax Deflection			
Max	Time	Min	Time
41.4	21.4	0.0	-4.1
Lower Thorax Deflection			
Max	Time	Min	Time
41.3	22.0	0.0	0.2



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.6	15.9	-6.3	46.5
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.9	15.3	-4.2	45.0



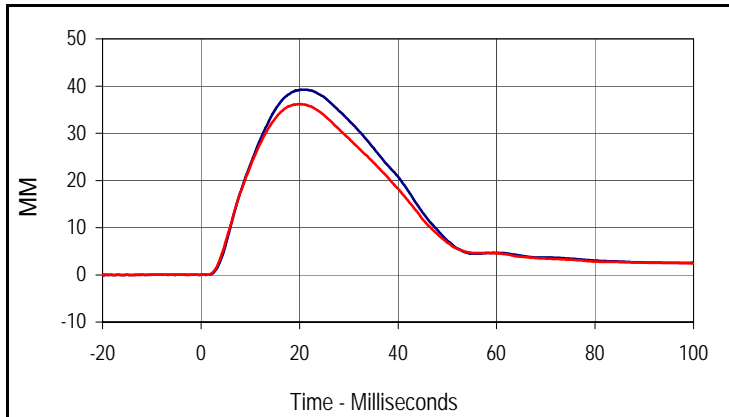
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.0	18.8	-0.2	-3.7

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

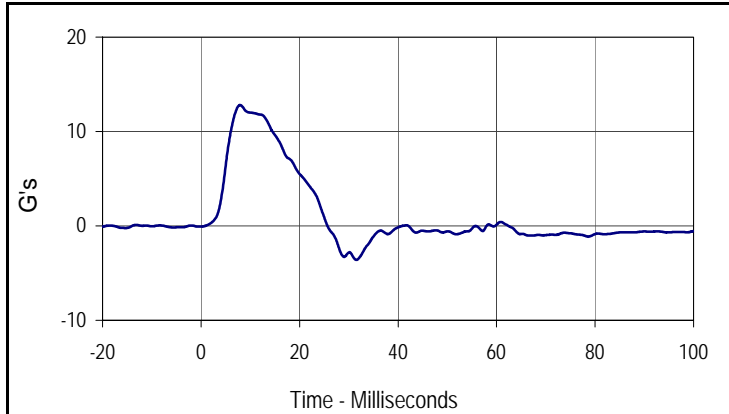
Test Date: 9/13/10
 Test I.D.: ABDP09B



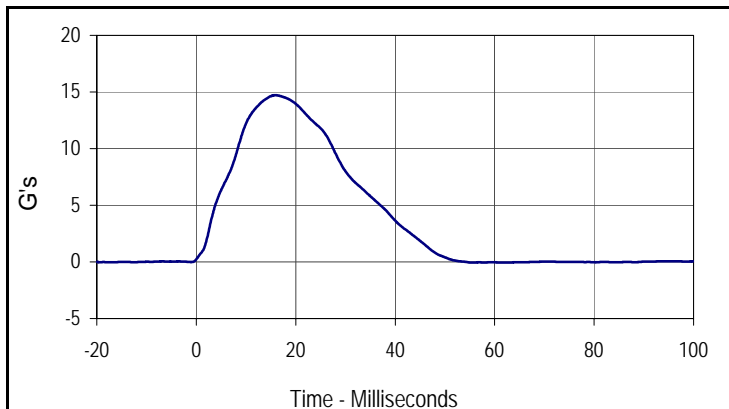
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.20	Pass
Upper Abdominal Rib Deflection	MM	36 to 47	39.2	Pass
Lower Abdominal Rib Deflection	MM	33 to 44	36.2	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.8	Pass
Peak Impactor Acceleration	G's	12 to 16	14.7	Pass
Overall Test Results			Pass	Pass



Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
39.2	20.9	0.0	-16.3
Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
36.2	20.0	0.0	-2.5



Curve Description			
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.8	7.9	-3.6	31.5



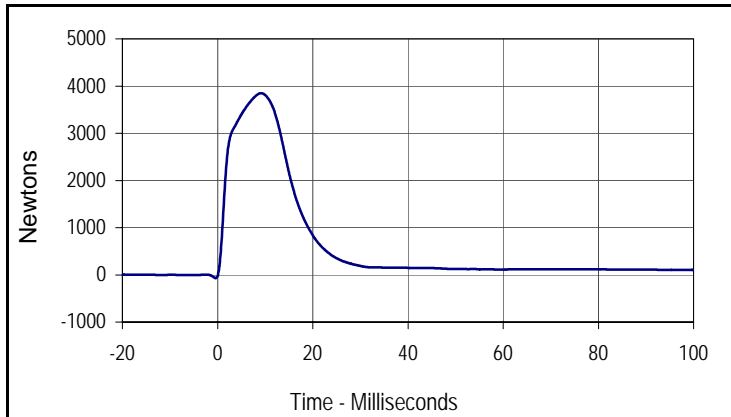
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.7	15.9	-0.1	55.4

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

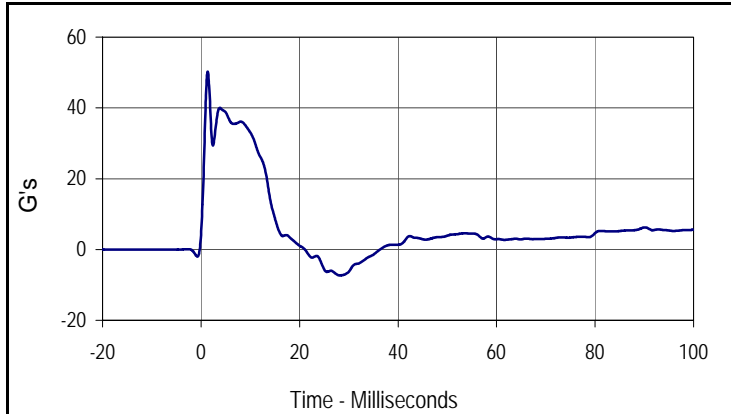
Test Date: 9/13/10
 Test I.D.: PAP09B



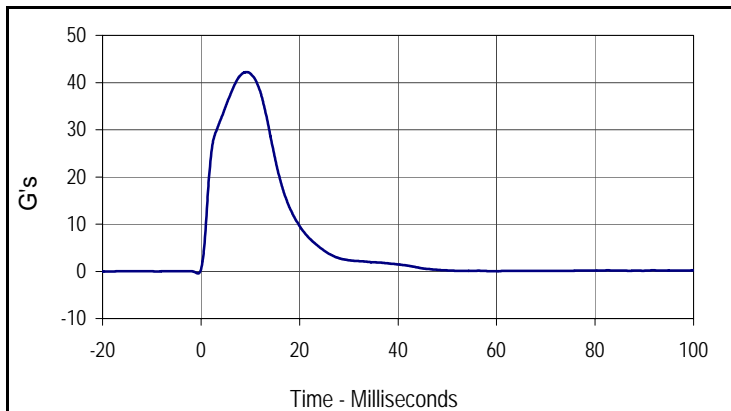
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.78	Pass
Peak Acetabulum Force	Newtons	3600 to 4300	3848.4	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	36.1	Pass
Peak Impactor Acceleration	G's	38 to 47	42.2	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
3848.4	9.1	-67.8	-0.4



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
50.2	1.4	-7.3	28.2



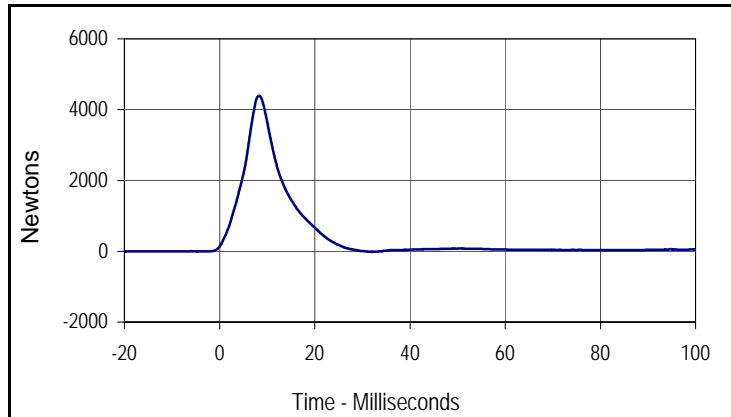
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
42.2	9.3	-0.4	-0.6

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

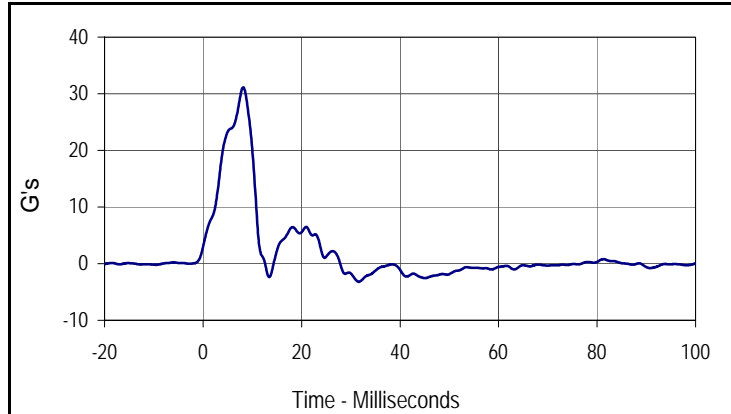
Test Date: 9/13/10
 Test I.D.: PLP09B



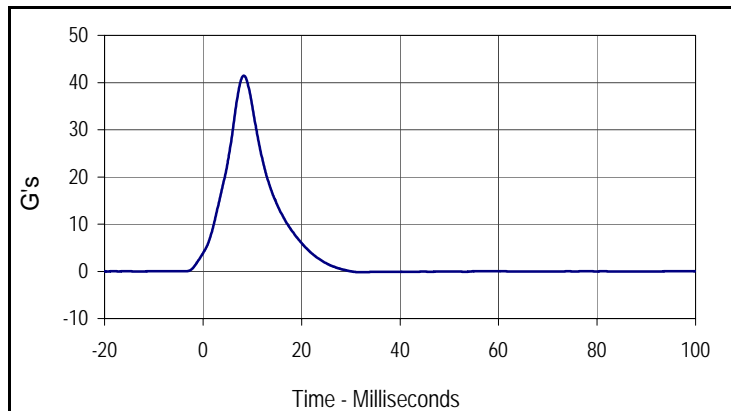
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.25	Pass
Peak Iliac Force	Newtons	4100 to 5100	4393.5	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	31.1	Pass
Peak Impactor Acceleration	G's	36 to 45	41.4	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4393.5	8.3	-16.7	32.0



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
31.1	8.1	-3.2	31.6



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.4	8.3	-0.2	31.9