

REPORT NUMBER: SPNCAP-KAR-11-042

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

**NISSAN MOTOR CO., LTD.
2011 NISSAN ALTIMA 2.5 4-DOOR SEDAN**

NHTSA No: MB5200

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



NOVEMBER 19, 2010

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
1200 NEW JERSEY AVE, SE, ROOM W43-410
WASHINGTON, D.C. 20590**

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. SPNCAP-KAR-11-042	2. Government Accession No.	3. Recipient's Catalog No.																				
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of a 2011 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200		5. Report Date December 2, 2010																				
		6. Performing Organization Code KAR																				
7. Authors Mr. Denver J. Schaffarzick, Project Engineer, KARCO Mr. Frank D. Richardson, Program Manager, KARCO		8. Performing Organization Report No TR-P30032-14-NC																				
9. Performing Organization Name and Address KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA, 92301		10. Work Unit No.																				
		11. Contract or Grant No. DTNH22-09-D-00122																				
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NVS-111) 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C 20590		13. Type of Report and Period Covered Final Test Report, December 2010																				
		14. Sponsoring Agency Code NVS-111																				
15. Supplementary Notes																						
16. Abstract A 32.2 km/h (20 mph) 75° oblique impact Side NCAP test was conducted on the subject 2011 Nissan Altima 2.5 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 November 19, 2010. The impact velocity was 32.90 km/h and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 13.3° C. The test vehicle's post-test maximum crush was 523 mm at level 2 and level 3. The test vehicle's performance was as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th><th colspan="3">Passenger ATD</th></tr> <tr> <th>Units</th><th>Threshold</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td></td><td>1000</td><td>358.4</td></tr> <tr> <td>Resultant Lower Spine Acceleration</td><td>G</td><td>82</td><td>36</td></tr> <tr> <td>Combined Acetabular and Iliac Pelvic Force</td><td>N</td><td>5525</td><td>2636</td></tr> </tbody> </table> 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.				Measurement Description	Passenger ATD			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	358.4	Resultant Lower Spine Acceleration	G	82	36	Combined Acetabular and Iliac Pelvic Force	N	5525	2636
Measurement Description	Passenger ATD																					
	Units	Threshold	Result																			
Head Injury Criteria (HIC ₃₆)		1000	358.4																			
Resultant Lower Spine Acceleration	G	82	36																			
Combined Acetabular and Iliac Pelvic Force	N	5525	2636																			
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																				
19. Security Classification of this report UNCLASSIFIED	20. Security Classification of this page UNCLASSIFIED	21. No. of Pages 86	22. Price																			

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	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 Systems Data	8
3	Dummy Longitudinal Clearance Dimensions	10
4	Dummy Lateral Clearance Dimensions	11
5	Camera and Instrumentation Data	12
6	Vehicle Accelerometer Data	13
7	Rigid Pole Load Cell Data	14
8	Post-Test Observations	15
9	Vehicle Profile Measurements	16
10	Vehicle Exterior Crush Measurements	17
11	FMVSS No. 301 Fuel System Integrity Post-Impact Data	20
12	Dummy/Vehicle Temperature Stabilization	21
<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

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 Nissan Altima 2.5 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 Nissan Altima 2.5 4-Door Sedan. The subject vehicle was towed into the rigid pole at an angle of 75.3° and a velocity of 32.90 km/h. The test was conducted by KARCO Engineering, LLC. in Adelanto, California, on November 19, 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	358	36	Iliac Wing	607
			Acetabulur	2037
			Sum	2636

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	No	
Seat Belt Load Limiter	Yes	Yes	No	
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 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200
Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 11/19/10

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	$=(t_f - 32)/1.8$
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 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 11/19/10

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MB5200
Model Year	2011
Make	Nissan
Model	Altima 2.5
Body Style	4-Door Sedan
VIN	1N4AL2APXBN408990
Body Color	Metallic Slate
Delivery Date	10/29/2010
Odometer Reading (km / mi)	156/97
Dealer	Buena Park Nissan
Transmission	CVT
Final Drive	Front
Type / No. of Cylinders	Inline 4
Engine Displacement (L)	2.5
Engine Placement	Transverse
Roof Rack	No
Sunroof / T-Top	No
Tinted Glass	No
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	No
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?

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co., Ltd.
Date of Manufacture	Sep-10

GVWR (kg)	1941
GAWR Front (kg)	1017
GAWR Rear (kg)	993

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				408.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				67.8

A

B

A-B

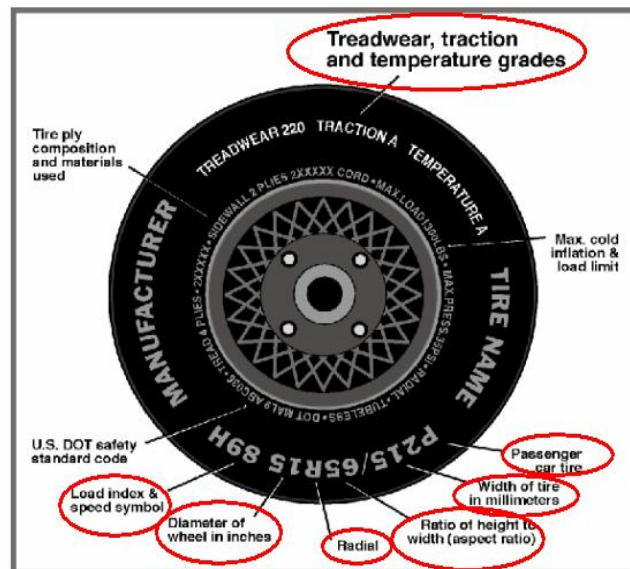
VEHICLE SEAT TYPE

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 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 11/19/10



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kpa)	220	220
Recommended Tire Size	P215/60R16	P215/60R16
Tire Size on Vehicle	P215/60R16	P215/60R16
Tire Model	ContiProContact	ContiProContact
Tire Manufacturer	Continental	Continental
Treadwear	540	540
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	94T	94T
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Right	A3X8 3WH 3710	A3X8 3WH 3710
DOT Safety Code Left	A3X8 3WH 3710	A3X8 3WH 3710

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMATER DATA

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 11/19/10

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	432.5	295.5		448.0	338.5		444.5	349.5	
Right	kg	421.0	275.0		431.5	315.0		424.0	324.0	
Ratio	%	59.9%	40.1%	100.0%	57.4%	42.6%	100.0%	56.3%	43.7%	100.0%
Total	kg	853.5	570.5	1424.0	879.5	653.5	1533.0	868.5	673.5	1542.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1424.0	A
Actual Weight of 1 P572V ATD Used	kg	49.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	67.8	C
Calculated Vehicle Target Wt (TVTWT)	kg	1540.8	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	As Delivered	As Tested	Fully Loaded
Driver Door Sill Angle (front-to-rear)	Deg	0.3	0.3	0.5
Front Passenger Sill Angle (front-to-rear)	Deg	0.1	0.3	0.6
Front Bumper Angle (left-to-right)	Deg	0.5	0.4	0.4
Rear Bumper Angle (left-to-right)	Deg	0.6	0.6	0.6
Vehicle CG (Aft of Front Axle)	mm	1112	1183	1212
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	17	20	23

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	48.0
Weight of Vehicle Components Removed	kg	32.5

Vehicle components removed to make Target Vehicle Test Weight:

Spare tire and tools (16.0 kg), Non-struck side door panels and windows (9.0 kg), Trunk lining and mat (6.5 kg), Non-struck side mirror (1.0 kg)

TEST VEHICLE IMPACT POINT DATA

Measurement Description	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1132
Actual Impact Point (Aft of Front Axle)	mm	1140
Impact Point Difference (- forward/+ rearward)	mm	8

DATA SHEET NO. 2

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

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan

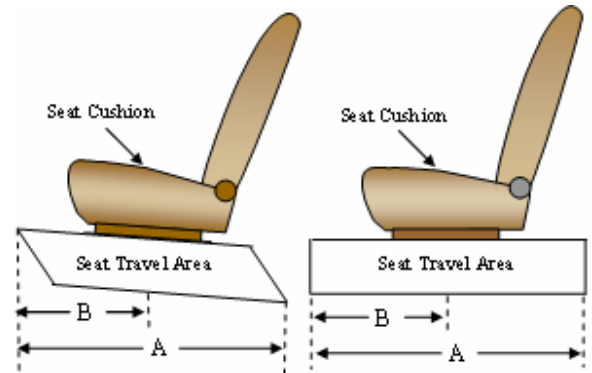
NHTSA No. MB5200

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

Test Date: 11/19/10

SEAT FORE / AFT POSITIONING

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.

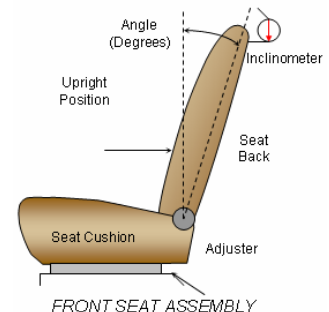


SEAT FORE/AFT POSITIONS

Seating Position	Total Fore-Aft Travel	Placed in Position	Cushion Range	Placed in Position
Driver Seat	236 mm	0 mm	9.9 - 16.4	13.2
Front Passenger Seat	238 mm	0 mm	Fixed	Fixed
Rear Seat - Struck Side	Fixed	Fixed	Fixed	Fixed
Rear Seat - Non-Struck Side	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE POSITIONING

The procedure for the driver is as follows: the seat back is set to level the driver ATD's (SID-IIs) head transverse instrumentation platform; seat back angle is measured at the headrest post using a digital inclinometer.



SEAT BACK ANGLE POSITIONS

Seating Position	Degrees	Detent
Driver Seat Back Angle w/Seated Dummy	7.4	
Front Passenger Seat Back Angle	7.4	
Struck Side Rear Seat Back Angle	Fixed	Fixed
Non-Struck Side Rear Seat Back Angle	Fixed	Fixed

SEAT BELT UPPER ANCHORAGE POSITIONING

The seat belt upper anchorage is positioned to the manufacturer's design position for a 5th percentile adult female ATD. Position zero (0) is the uppermost position.

SEAT BELT UPPER ANCHORAGES

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	0

DATA SHEET NO. 2 ... (CONTINUED)

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

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan

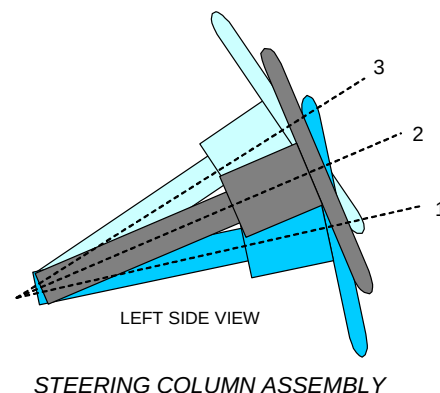
NHTSA No. MB5200

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

Test Date: 11/19/10

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. A tape measure is used with a reference mark on the steering column to measure telescoping travel.

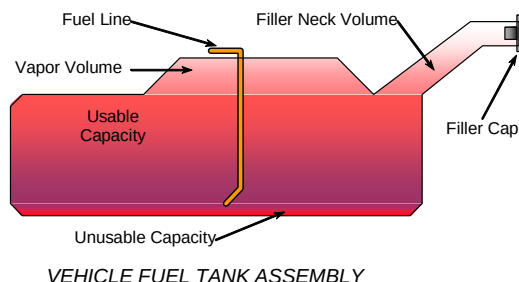


STEERING COLUMN POSITIONS

	Angle (°)	Fore-Aft Position (mm)
Lowermost Position, No. 1	17.1	0
Geometric Center Position, No. 2	24.6	20
Uppermost Position, No. 3	32.1	40
Steering Wheel Travel	15.0	40
Test Position	23.1	20

FUEL PUMP

The test vehicle is equipped with an electric fuel pump. The fuel pump will pump fuel for 1.0 second after the ignition is switched to "on", while the engine is running, and for 1.5 seconds after the engine stops running. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



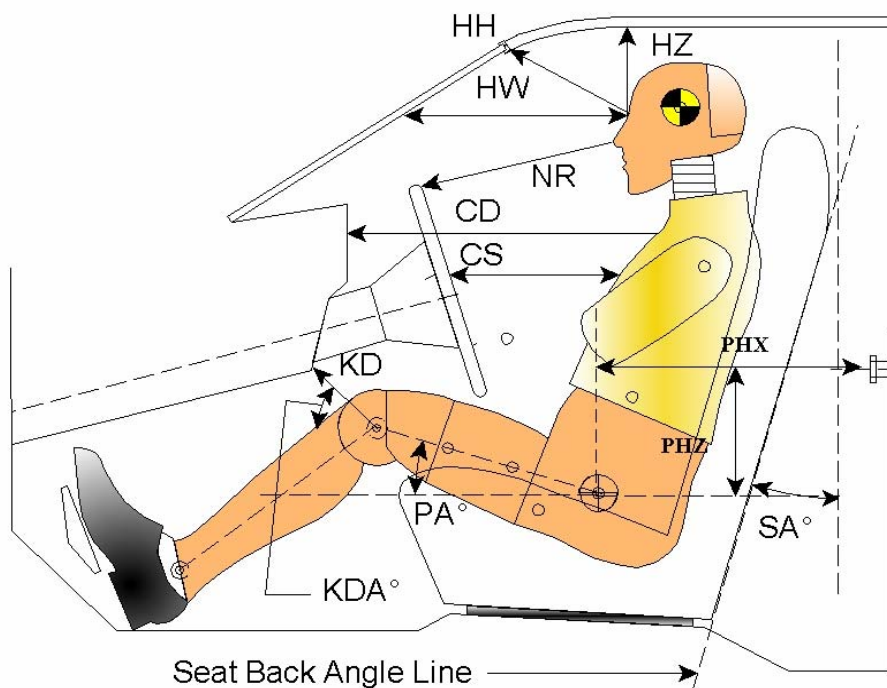
FUEL CAPACITY DATA

Description	Liters
Usable Capacity of "Standard Tank"	75.70
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	69.64 to 71.16
Actual Amount of Stoddard Solvent Used	70.40
1/3 of Usable Capacity	25.23

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test Date: 11/19/10



DUMMY LONGITUDINAL CLEARANCE DIMENSIONS (S/N: 299)

Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	255	49.1
HW	Head to Windshield	589	0.0
HZ	Head to Roof	185	90.0
NR	Nose to Rim	208	10.1
CD	Chest to Dash	394	17.9
CS	Chest to Steering Wheel	136	1.8
KDL / KDAL°	Left Knee to Dash	110	43.5
KDR / KDAR°	Right Knee to Dash	104	42.8
PA°	Pelvic Angle		20.6
PHX	H-Point to Striker (x-direction)	379	
PHZ	H-Point to Striker (z-direction)	126	
SA°	Seat Back Angle		7.4

DATA SHEET NO. 4

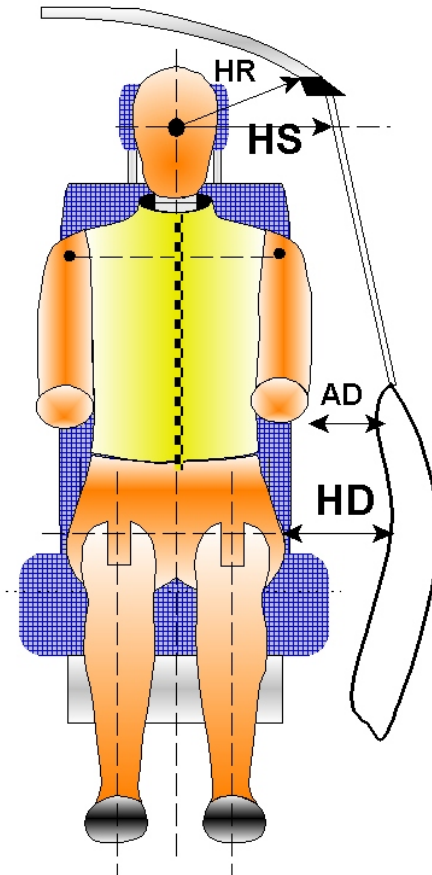
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan

NHTSA No. MB5200

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

Test Date: 11/19/10



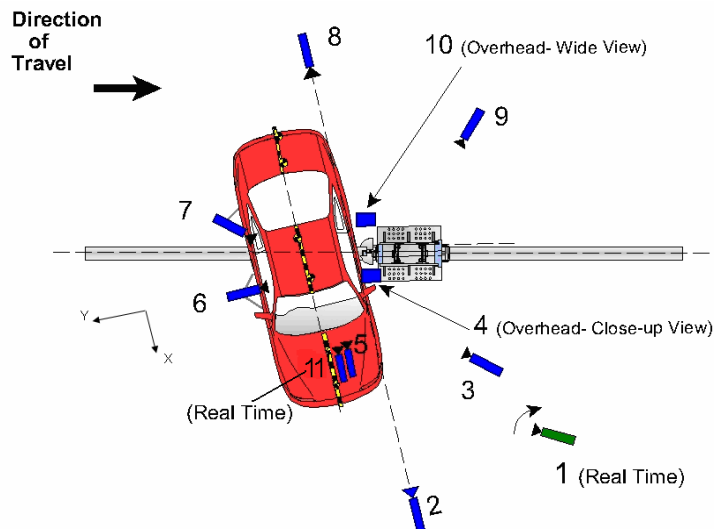
DUMMY LATERAL CLEARANCE DIMENSIONS (S/N: 299)

Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	229
HS	Head to Side Window	mm	458
AD	Arm to Door	mm	160
HD	H-Point to Door	mm	175

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test Date: 11/19/10



Reference: +X = Forward of Vehicle (from Point of Impact)
 +Y = Right of Vehicle (from Point of Impact)
 +Z = Down (from Ground)

CAMERA LOCATIONS

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	1.41	0.50	-1.20	35	400
6	On-Board - Dummy Side View	-0.14	1.59	-1.05	14	1000
7	On-Board - Dummy Rear Oblique View	-1.09	1.55	-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	1.41	0.52	-1.20		30

* All measurements accurate to ± 3 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

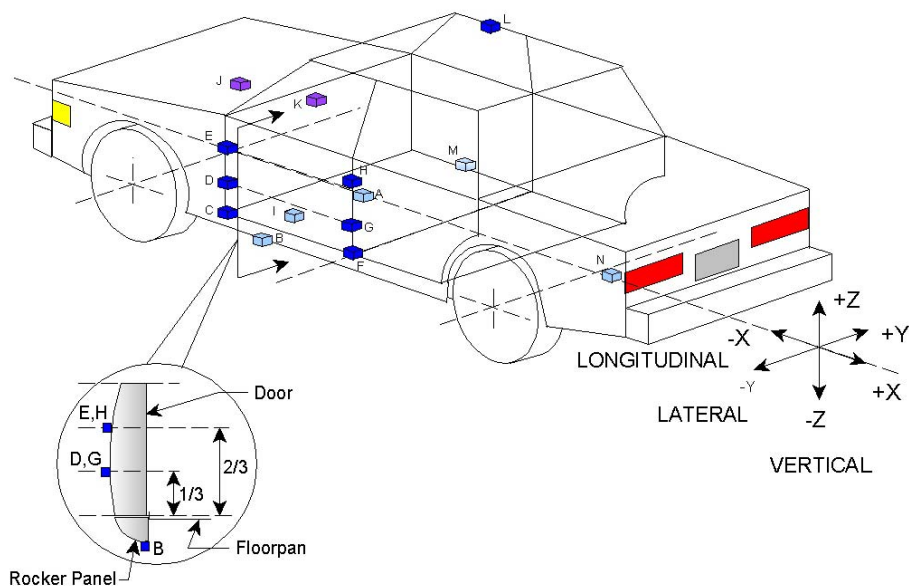
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan

NHTSA No. MB5200

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

Test Date: 11/19/10



VEHICLE ACCELEROMETER LOCATIONS

	Sensor Description	Coordinates (mm)		
		X	Y	Z
A	Vehicle CG Accelerometer	-2170	0	320
	Vehicle CG ARS	-2170	0	320
B	Left Floor Sill	-3320	-770	190
C	A-Pillar Sill	-3330	-810	360
D	A-Pillar Lower	-3330	-810	565
E	A-Pillar Mid	-3330	-810	795
F	B-Pillar Sill	-2190	-750	380
G	B-Pillar Lower	-2190	-750	610
H	B-Pillar Mid	-2190	-750	880
I	Driver Seat	-2450	-585	260
J	Engine Top	-3980	140	800
K	Firewall	-3620	395	780
L	Right Roof Sill	-2320	505	1425
M	Right Floor Sill	-2110	690	250
N	Rear Floorpan	-520	460	480

Reference: X = + Forward
Y = + To Right
Z = + Down

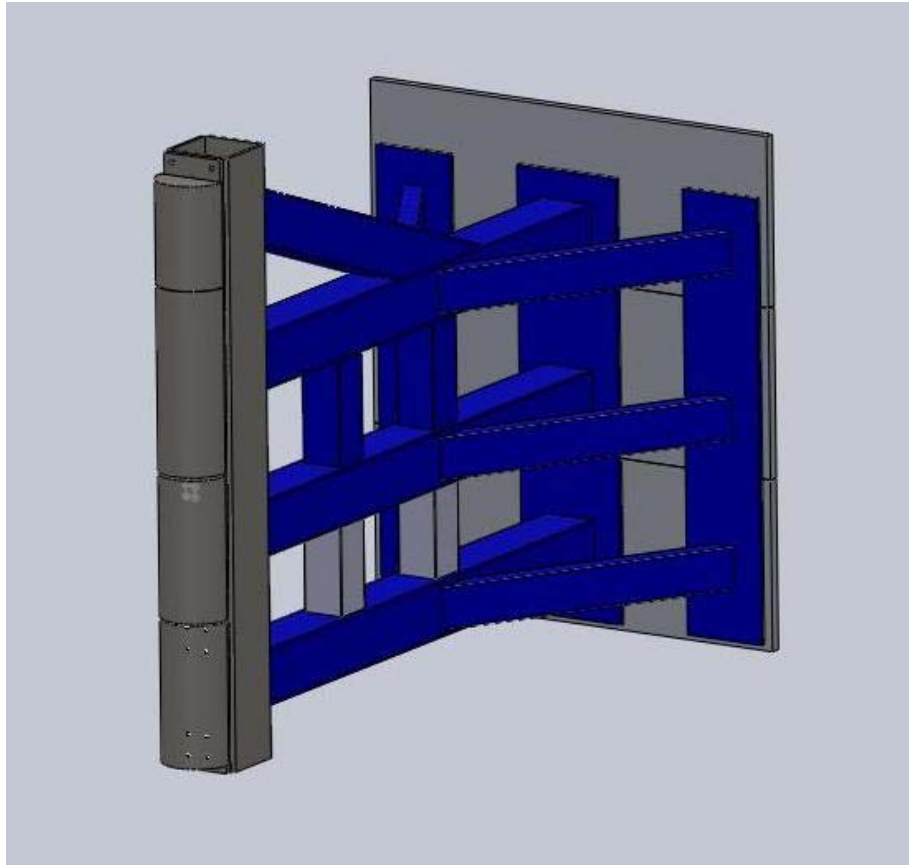
DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan

NHTSA No. MB5200

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

Test Date: 11/19/10



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 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200
Test Program: 32 km/h (20 mph) Side Impact NCAP 75°Rigid Pole Test Date: 11/19/10

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver Dummy
Dummy Type/Serial No.	P572V (SID-IIs) / Serial No. 299
Head Contact	Curtain Airbag, Headrest
Upper Torso Contact	Torso/Pelvis Airbag, Door Panel
Lower Torso Contact	Torso/Pelvis Airbag, Door Panel
Left Knee Contact	Steering Column, Knee Bolster, Right Knee
Right Knee Contact	Left knee, Knee Bolster

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	Slight door skin separation

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

VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset From Vertical Reference Line	mm	+/- 38	8 (Right)
Trap No. 1 Velocity (Primary)	km/h	30.4 to 33.0	32.9
Trap No. 2 Velocity (Redundant)	km/h	30.4 to 33.0	33.0

DATA SHEET NO. 9

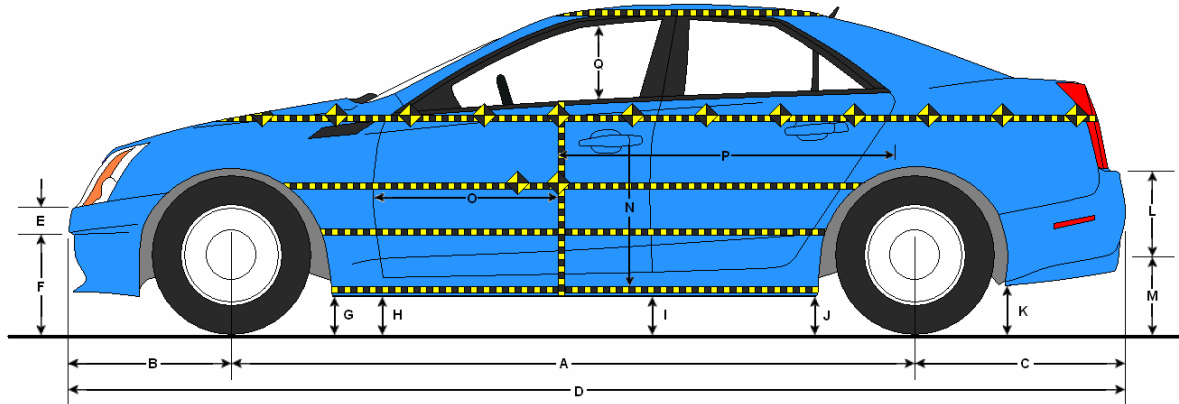
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan

NHTSA No. MB5200

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

Test Date: 11/19/10



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2776	2659	-117
B	Front Axle to FSOV	976	995	19
C	Rear Axle to RSOV	1096	1134	38
D1	Total Vehicle Length at Left Side	3349	3190	-159
D2	Total Vehicle Length at Centerline	4781	4788	7
D3	Total Vehicle Length at Right Side	3355	3375	20
E	Front Bumper Thickness	309	308	-1
F	Front Bumper Bottom to Ground	232	270	38
G	Sill Height at Front Wheel Well	197	192	-5
H	Sill Height at Front Door Leading Edge	192	181	-11
I	Sill Height at B-Pillar	184	207	23
J1	Sill Height at Rear Wheel Well	184	214	30
J2	Pinch Weld Height at Rear Wheel Well	193	217	24
K	Sill Aft of Rear Wheel Well	211	227	16
L	Rear Bumper Thickness	308	308	0
M	Rear Bumper Bottom to Ground	279	291	12
N	Sill Height to Window Bottom Sill	585	664	79
O	Front Door Leading Edge to Impact CL	617	494	-123
P	Rear Door Trailing Edge to Impact CL	1577	1453	-124
Q	Front Window Opening	432	474	42
R	Right Side Length	3355	3375	20
S	Left Side Length	3349	3190	-159
T	Vehicle Width at B-Pillar	1792	1629	-163

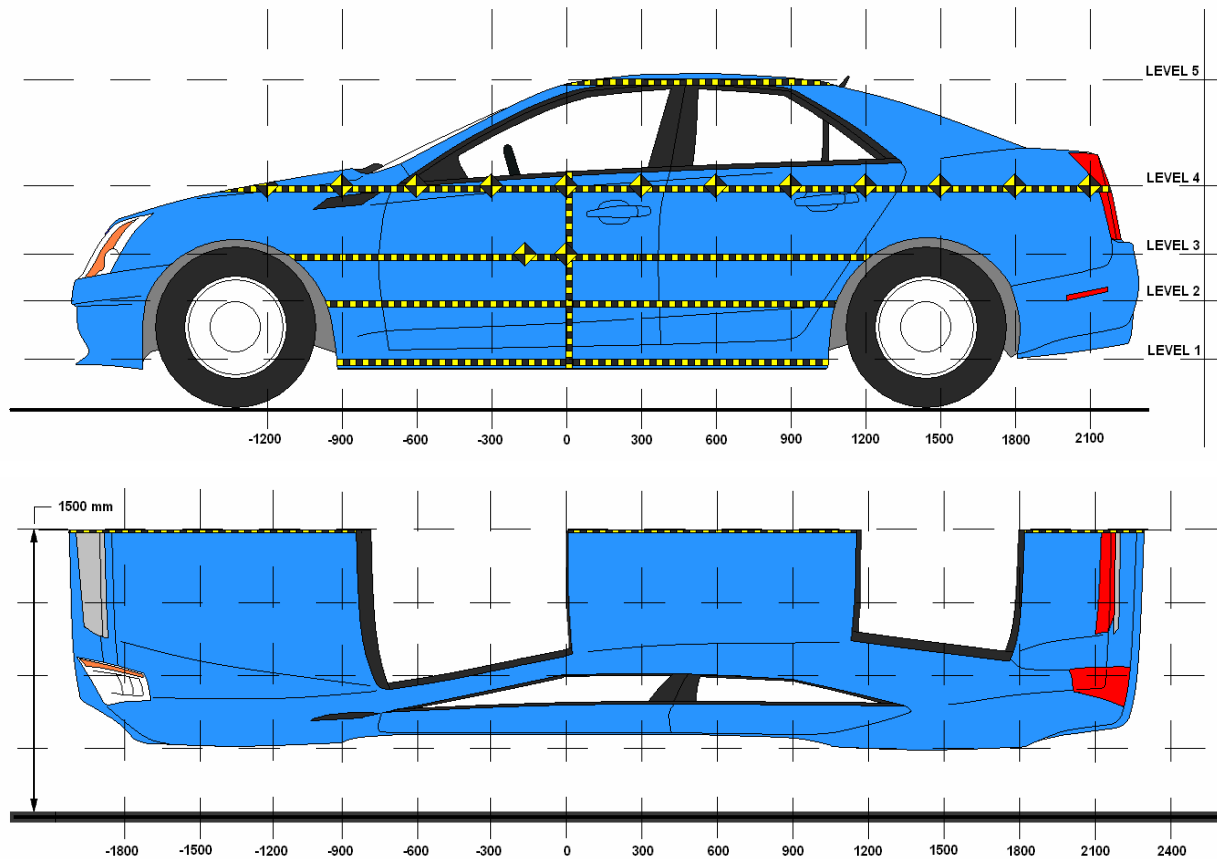
* All measurements accurate to ± 3 mm

DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200

Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test Date: 11/19/10



NOTE: All measurements are in millimeters (mm)

Level	Description	Height Above Ground (mm)
1	Sill Top Height	258
2	Occupant H-Point Height	528
3	Mid-Door Height	626
4	Window Sill Height	901
5	Window Top Height	1398

DATA SHEET NO. 10 ... (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan

NHTSA No. MB5200

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

Test Date: 11/19/10

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900				725					794					69	
-750		600	602	709			693	691	782			93	89	73	
-600	636	606	607	698		793	754	748	752		157	148	141	54	
-450	644	606	607	687		876	839	835	823		232	233	228	136	
-300	644	606	607	681		955	933	929	917		311	327	322	236	
-150	644	606	607	677		1042	1033	1030	1022		398	427	423	345	
0	645	607	607	674		1131	1130	1130	1126		486	523	523	452	
150	644	607	607	672	939	1100	1117	1120	1123	1175	456	510	513	451	236
300	644	608	608	670	940	984	997	1003	1018	1130	340	389	395	348	190
450	644	609	608	669	944	914	883	880	908	1090	270	274	272	239	146
600	644	609	609	669	948	860	830	822	856	1059	216	221	213	187	111
750	643	611	610	667	951	811	798	791	826	1036	168	187	181	159	85
900	643	611	611	667	954	764	764	760	799	1028	121	153	149	132	74
1050	637	611	611	663	959	715	728	728	768	1024	78	117	117	105	65
1200	620	607	610	659	959	657	685	694	738	1018	37	78	84	79	59
1350			602	661				651	713				49	52	
1500				656					679					23	
1650				658					700					42	
1800				665					699					34	
1950				673					701					28	
2100				684					706					22	
2250															
2400															
2550															
2700															
2850															

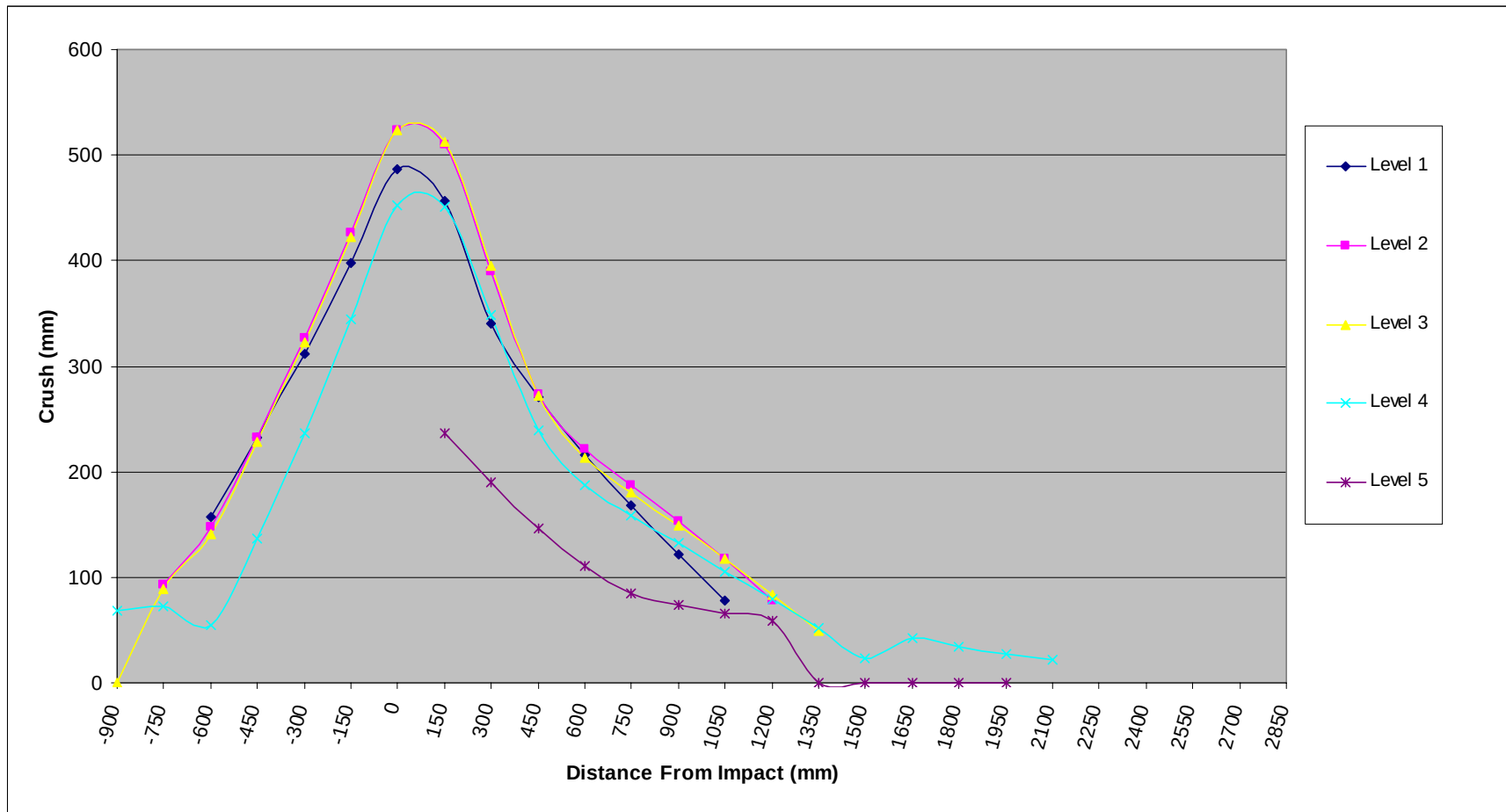
MAXIMUM CRUSH DATA

	Units	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush	mm	486	523	523	452	236
Distance From Impact	mm	0	0	0	0	150

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

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan
Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole

NHTSA No. MB5200
Test Date: 11/19/10



DATA SHEET NO. 11

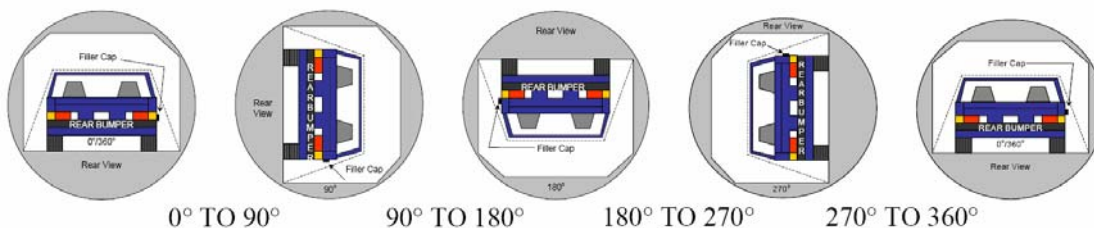
FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan NHTSA No. MB5200
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test Date: 11/19/10

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 13.3° C Test Time: 11:22 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: No spillage occurred



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	84	300	384
90° To 180°	81	300	381
180° To 270°	77	300	377
270° To 360°	80	300	380

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°	None
90° To 180°	None
180° To 270°	None
270° To 360°	None

DATA SHEET NO. 12

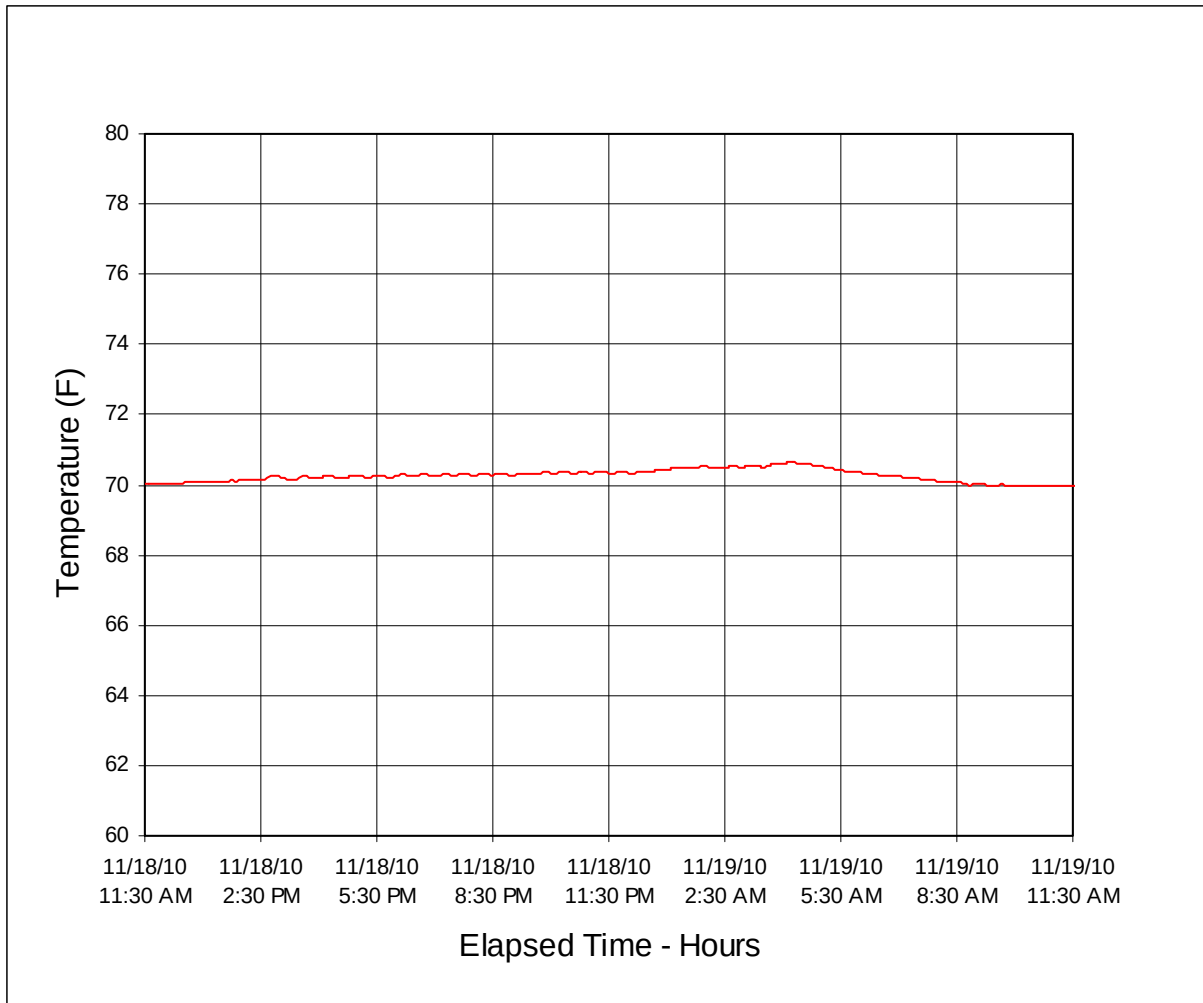
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan

NHTSA No. MB5200

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

Test Date: 11/19/10



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Figure		Page
1	As Delivered Right Front Three-Quarter View of Test Vehicle	A-1
2	As Delivered Left Rear Three-Quarter 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 Three-Quarter View of Test Vehicle	A-3
6	Post-Test Left Front Three-Quarter 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 Three-Quarter View of Test Vehicle	A-5
10	Post-Test Left Rear Three-Quarter 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 Vehicle and Pole	A-8
16	Post-Test Overhead View of Test Vehicle and Pole	A-8
17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle at Impact Point	A-9
18	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle at Impact Point	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	A-11
22	Post-Test Front Close-Up View of Dummy	A-11
23	Pre-Test Left Side View of Dummy Showing Belt, Chalking, and Contact Switches	A-12
24	Pre-Test Left Side View of Dummy Shoulder and Driver Door Top View	A-12
25	Post-Test Left Side View of Dummy Shoulder and Driver Door Top View	A-13
26	Pre-Test Frontal View of Seat Back Prior to Dummy Positioning	A-13
27	Pre-Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint	A-14
28	Pre-Test Frontal 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 View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-15
31	Pre-Test 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	Pre-Test View of Parking Brake	A-18

TABLE OF PHOTOGRAPHS ... (CONTINUED)

Figure		Page
36	Pre-Test Close-Up Left Side View of Driver Seat Track	A-18
37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-19
38	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-19
39	Pre-Test Dummy and Driver Door Clearance View	A-20
40	Post-Test Dummy and Driver Door Clearance View	A-20
41	Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment	A-21
42	Post-Test Right Side View of Dummy and Front Seat Occupant Compartment	A-21
43	Pre-Test Inner Driver Door Panel View	A-22
44	Post-Test Inner Driver Door Panel View Showing Dummy Contact Locations	A-22
45	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-23
46	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-23
47	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-24
48	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-24
49	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-25
50	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-25
51	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-26
52	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-26
53	Close-Up View of Vehicle's Certification Label	A-27
54	Close-Up View of Vehicle's Tire Information Placard or Label	A-27
55	Pre-Test Pole Barrier Front View	A-28
56	Post-Test Pole Barrier Front View	A-28
57	Pre-Test Pole Barrier Side View	A-29
58	Post-Test Pole Barrier Side View	A-29
59	Pre-Test Ballast View	A-30
60	Post-Test Primary and Redundant Speed Trap Read-Out	A-30
61	FMVSS No. 301-305 Rollover 0 Degrees	A-31
62	FMVSS No. 301-305 Rollover 90 Degrees	A-31
63	FMVSS No. 301-305 Rollover 180 Degrees	A-32
64	FMVSS No. 301-305 Rollover 270 Degrees	A-32
65	FMVSS No. 301-305 Rollover 360 Degrees	A-33
66	Impact Event	A-33
67	Monroney Label	A-34
68	Head Restraint Use and Adjustment Information from Vehicle Manual	A-34



FIGURE 1. As-Delivered Right Front Three-Quarter View of Test Vehicle



FIGURE 2. As-Delivered Left Rear Three-Quarter 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 Three-Quarter View of Test Vehicle



FIGURE 6. Post-Test Left Front Three-Quarter 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 Three-Quarter View of Test Vehicle



FIGURE 10. Post-Test Left Rear Three-Quarter 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 Ideal 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 Door Top View



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



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 Driver Dummy and Door Clearance



FIGURE 40. Post-Test Driver Dummy and 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



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

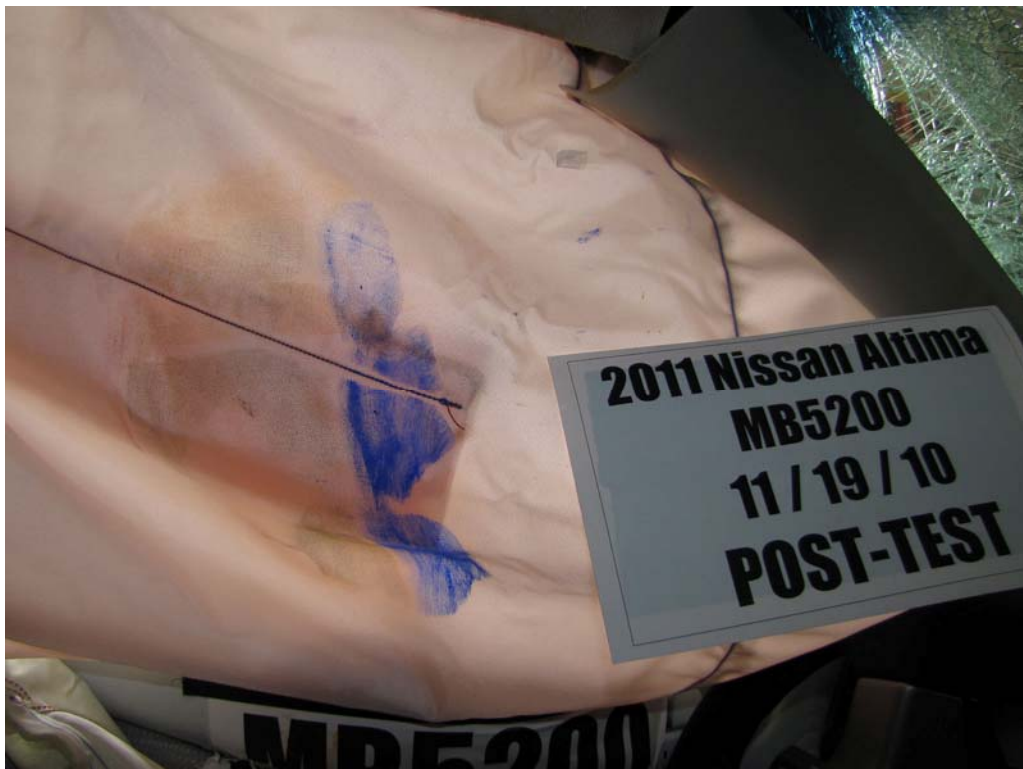


FIGURE 46. Post-Test Dummy Close-Up Head Contact with Side Airbag View



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 or Fuel Filler Neck



FIGURE 52. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



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

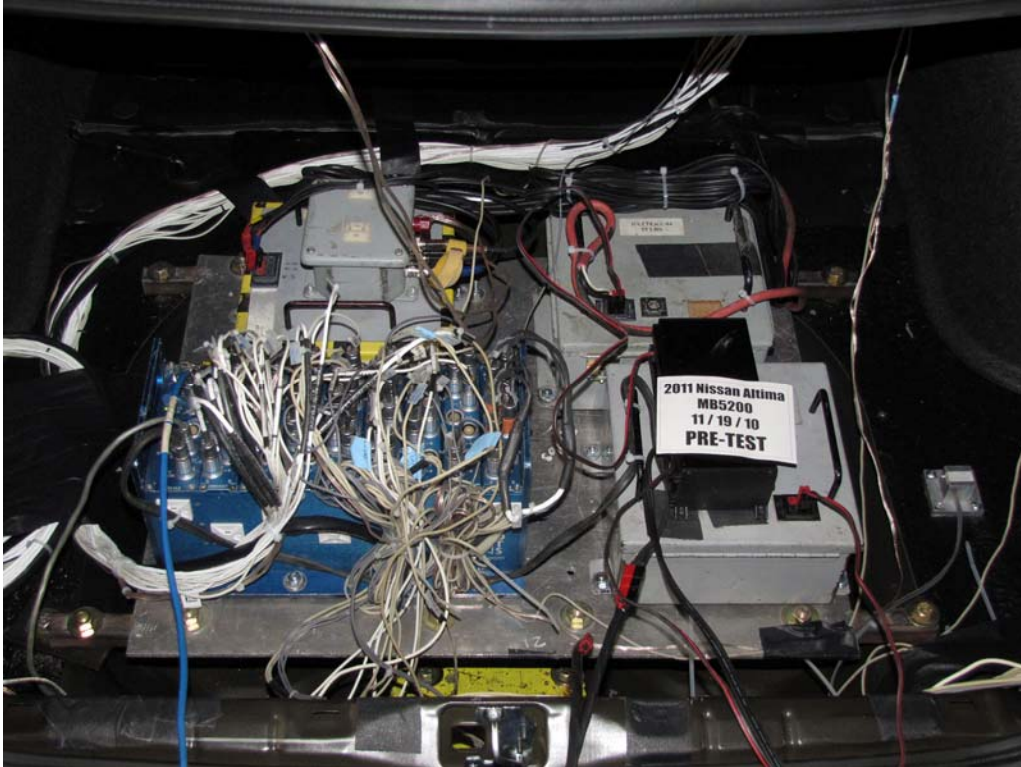


FIGURE 59. Pre-Test Ballast View



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. Impact Event

2011 ALTIMA 2.5

MADE TO DRIVE. BUILT TO LAST.

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE
 2.5-Liter COHC 16 Valve 4-Cylinder Engine
 175 Horsepower and 180 lb-ft Torque (200)
 170 Horsepower and 175 lb-ft Torque (CAL)
 Xtronic CVT™
 (Continuously Variable Transmission)
 Sequential Multi-Point Fuel Injection System
 Front and Rear Stabilizer Bars
 Power Rack and Pinion Steering
 Independent Front Suspension
 Independent Multi-Link Rear Suspension
 Power-Assisted Vented Front Disc Brakes
 Power-Assisted Rear Disc Brakes
 18" Steel Wheels w/Full Wheel Covers
 P215/65R16 All-Season Tires

SAFETY & SECURITY
 Nissan Advanced Air Bag System (AABS)
 Driver & Front Passenger
 Side-Impact Supplemental Air Bags
 Roof Mounted Curtain
 Side-Impact Supplemental Air Bags
 Front-Seat Active Head Restraints
 Front Seat Belts w/Pre-tensioners
 Load Limiters & Adjustable Upper Anchors
 3-Point ALNELLER Seat Belts for All
 Seating Positions (Driver ELR Only)
 Lower Anchors & Tethers for Children (LATCH)
 Child Safety Rear Door Locks
 Zone Body Construction w/Front & Rear
 Crumple Zones
 Anti-lock Braking System (ABS)
 Electronic Brake Force Distribution (EBD)
 Traction Control System (TCS)
 Vehicle Dynamic Control (VDC)
 Tire Pressure Monitoring System (TPMS)
 Vehicle Security System (VSS)
 Nissan Vehicle Immobilizer System
 Emergency Inside Truck Release

COMFORT & CONVENIENCE
 Contoured Reclining Front Bucket Seats
 Cloth Seat Ties
 60/40 Split Fold Down Rear Seat w/Lock
 76 Telescopic Steering Column
 Cruise Control w/Steering Wheel Controls
 Speed-Sensitive Variable Intermittent
 Windshield Wipers w/Mist Function
 Audio Pre-Wire w/4 Speakers
 Trip Computer w/Outside Temperature Gauge
 Vehicle Information Display
 Air Conditioning w/Cabin Microfilter

EXTERIOR FEATURES
 Halogen Headlights
 Dual Power Sideview Mirrors
 Dual Chrome-Tipped Exhaust Finishers
 Body-Color Side Moldings
 Body-Color Fenders & Sideview Mirrors
 UV-Reducing Solar Glass

EXTERIOR FEATURES
 Push Button Ignition
 Power Windows w/One-Touch Driver
 Auto-Up/Down w/Auto Reverse Feature
 Power Door Locks w/Auto-Door Locking System
 Dual 12 Volt DC Power Outlets
 Dual Sun Vises w/Driver Side Vanity
 Mirror
 Front Map Lights and Sunglasses Storage
 Three Cup Holders in Center Console
 Rear Center Armrest w/Cup Holders
 Front & Rear Doors w/Bottle Holders &
 Map Pockets
 Front Console w/Sliding Armrest
 A Dual Level Storage

**Manufacturer's Suggested
Retail Base Price:** \$19,900.00
**Options Included by Manufacturer
FLOOR & TRUNK MAT SET** 175.00
Destination Charge: 750.00
Total* \$20,825.00

EPA Fuel Economy Estimates

CITY MPG	Estimated Annual Fuel Cost	HIGHWAY MPG
23	\$1,665	32
Expected range for most drivers 19 to 27 MPG	based on 15,000 miles at \$3.00 per gallon	Expected range for most drivers 26 to 38 MPG
Combined Fuel Economy This Vehicle 27 12 ▲ 50 At MIDSIZE CARS		

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

GOVERNMENT SAFETY RATINGS

Frontal Crash	Driver Passenger	To Be 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 side impact.	Star ratings based on the risk of rollover in a single vehicle crash.
Side Crash	Front seat Rear seat	To Be Rated To Be Rated
Rollover ★ ★ ★ ★ ★ Star ratings range from 1 to 5 stars (★ ★ ★ ★ ★), with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA). www.safercar.gov or 1-800-327-4236		

This Vehicle qualifies for Nissan's **Security+Plus Vehicle Protection Plan**
 The only service agreement backed by Nissan!
 Ask your dealer for details, or call 1-800-NISSAN-1 for more information

DELIVERY

VEHICLE COLORS:
 EXT: METALLIC SLATE
 INT: FROST

FINAL ASSEMBLY POINT:
 CANTON

TRANSPORT METHOD:
 TRUCK

DEALER:
 BUENA PARK NISSAN
 6501 AUTO CENTER DRIVE
 BUENA PARK CA 92621

VIN: 1N4AL2APXBN408990
 EMS: CALIFORNIA EMISSIONS
 MDL: 13011-408990 KBC-K
 OPT: A-C01193

20100911012510AS5003

FIGURE 67. Monroney Label

HEAD RESTRAINTS

WARNING
 Head restraints supplement the other vehicle safety systems. They may provide additional protection against injury in certain rear-end collisions. Adjust the head restraints properly, as specified in this section. Check the adjustment after someone else uses the seat. Do not attach anything to the head restraint stalks or remove the head restraint. Do not use the seat if the head restraint has been removed. If the head restraint is removed, reinstall and properly adjust the head restraint before an occupant uses the seating position. Failure to follow these instructions can reduce the effectiveness of the head restraints. This may increase the risk of serious injury or death in a collision.

The illustration shows the seating positions equipped with head restraints. All of the head restraints are adjustable.

▲ Indicates the seating position is equipped with a head restraint.

Components

1. Head restraint
2. Adjustment notches
3. Lock knob
4. Stalks
5. Release knob

Adjustment
 Adjust the head restraint so the center is level with the center of the seat occupant's ears.

To raise the head restraint, pull it up.

To lower, push and hold the lock knob and push the head restraint down.

Removal

Use the following procedure to remove the adjustable head restraints.

1. Pull the head restraint up to the highest position.
2. Push and hold the lock knob and release knob.
3. Remove the head restraint from the seat.
4. Store the head restraint properly so it is not loose in the vehicle.

Install

1. Align the head restraint stalks with the holes in the seat. Make sure the head restraint is facing the correct direction.
2. Push and hold the lock knob and push the head restraint down.
3. Properly adjust the head restraint before an occupant uses the seating position.

Front-seat Active Head Restraints

The Active Head Restraint moves forward utilizing the force that the seatback retracts from the straight at a rear-end collision. The movement of the head restraint helps support the occupant's head by reducing its backward movement and helping absorb some of the forces that may lead to whiplash-type injuries.

Active Head Restraints are effective for collisions at low to medium speeds in which it is said that whiplash injury occurs most.

FIGURE 68. Head Restraint Use and Adjustment Information from Vehicle Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Plot		Page
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)

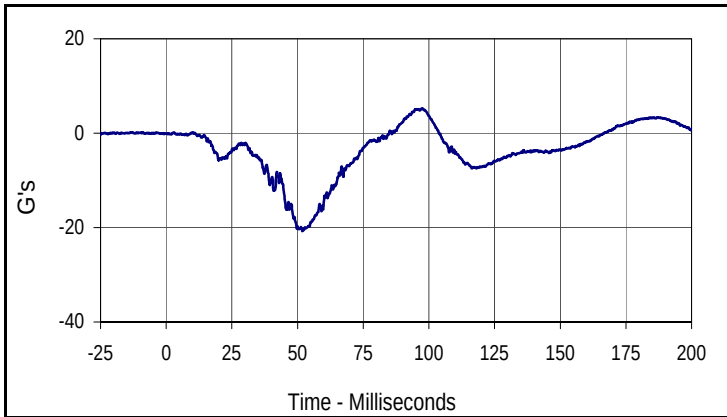
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy H-Point Acceleration (Y)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

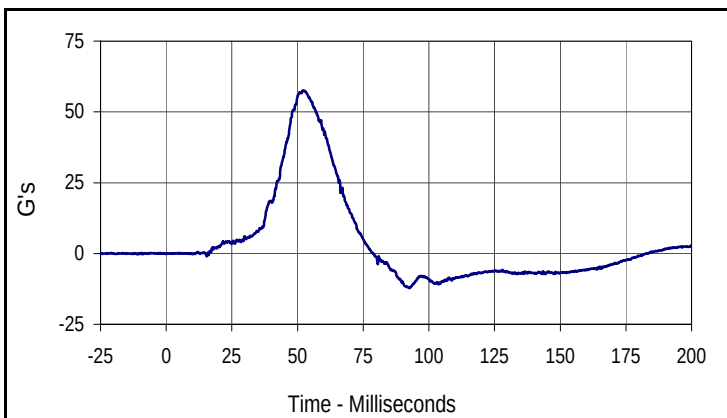
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

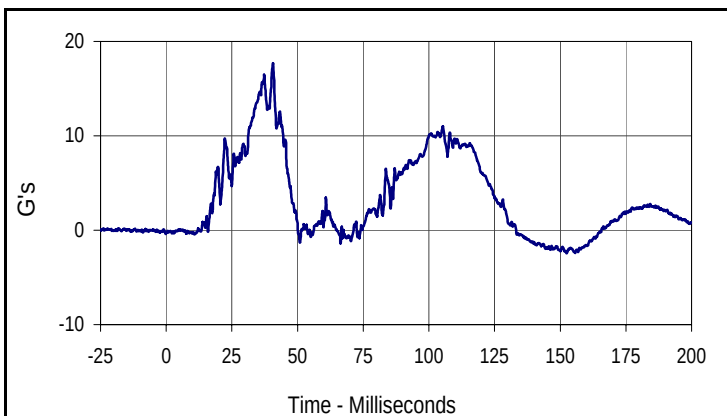
Test Date: 11/19/10
 NHTSA No.: MB5200



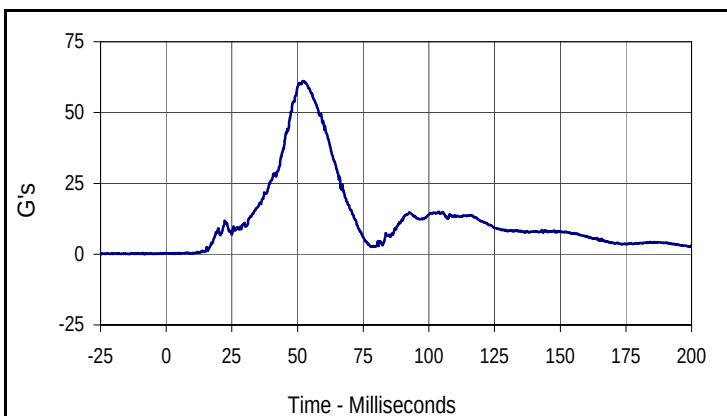
Curve Description			
Driver Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
5.3	97.5	-20.7	51.9



Curve Description			
Driver Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
57.5	52.1	-12.2	92.7



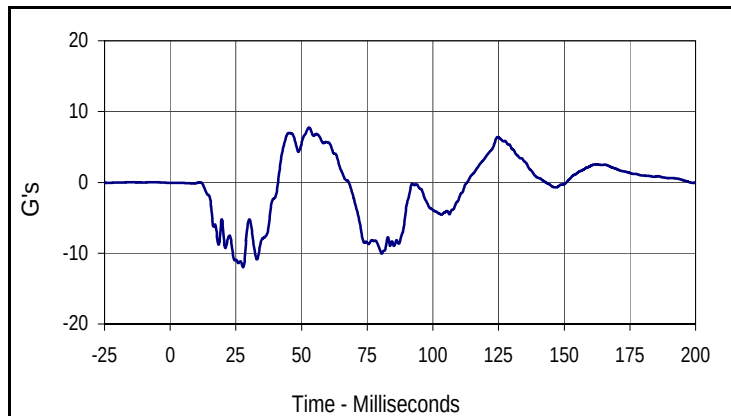
Curve Description			
Driver Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
17.7	40.6	-2.4	152.5



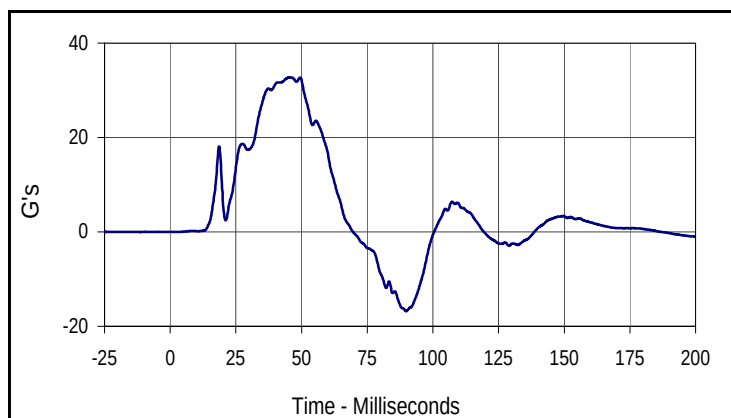
Curve Description			
Driver Head Acceleration Primary Res.			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
61.1	52.1	0.1	3.5

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

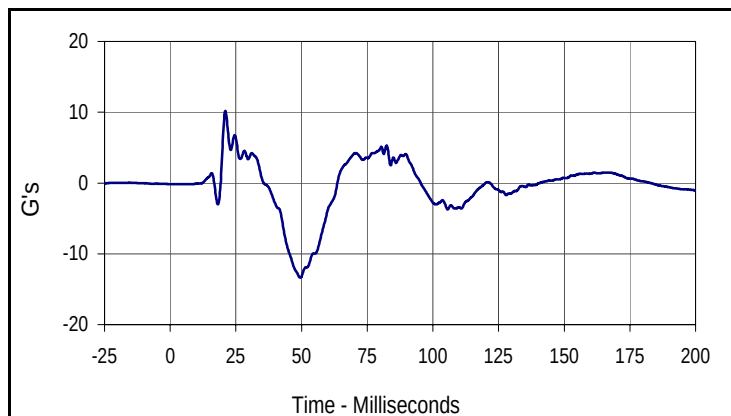
Test Date: 11/19/10
 NHTSA No.: MB5200



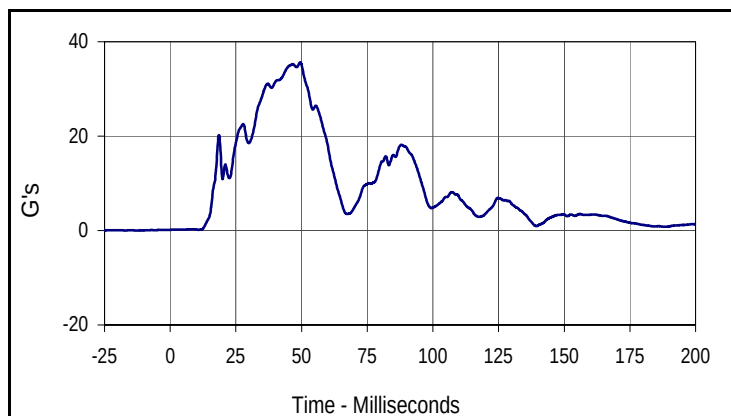
Curve Description			
Driver Lower Spine T12 Acceleration X			
CURNO	Type	SAE Class	Units
012	FIL	180	G's
Max	Time	Min	Time
7.7	52.8	-12.0	27.8



Curve Description			
Driver Lower Spine T12 Acceleration Y			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
32.8	45.5	-16.8	89.8



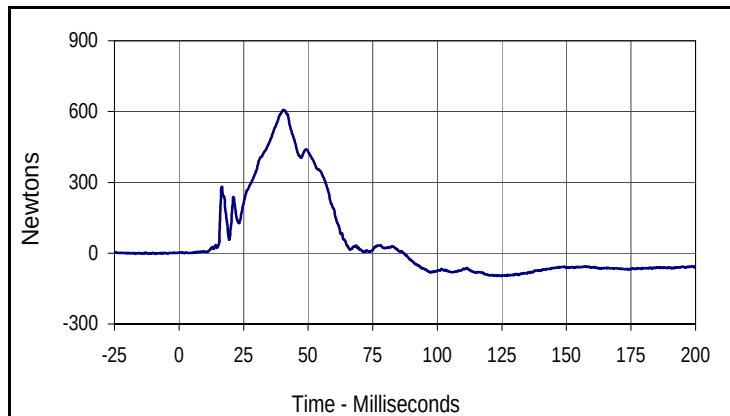
Curve Description			
Driver Lower Spine T12 Acceleration Z			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
10.2	21.0	-13.4	49.5



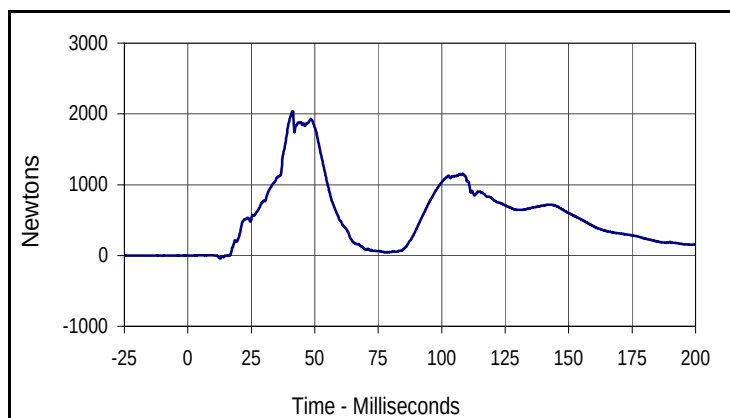
Curve Description			
Driver Lower Spine T12 Acceleration Res.			
CURNO	Type	SAE Class	Units
012	RES	180	G's
Max	Time	Min	Time
35.6	49.5	0.2	0.0

Test Vehicle: 2011 Nissan Altima 2.5 4-Door Sedan
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

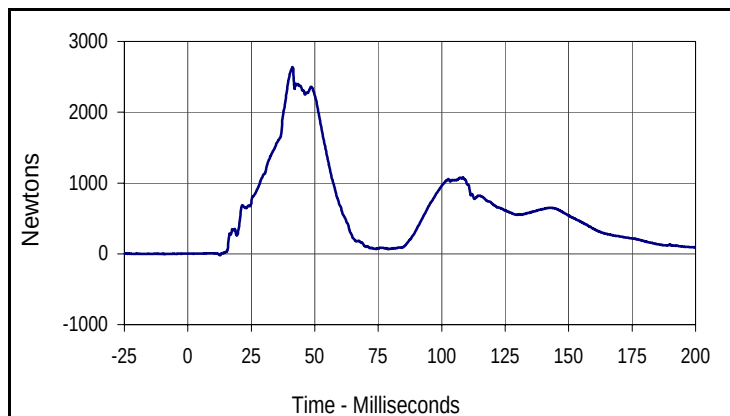
Test Date: 11/19/10
 NHTSA No.: MB5200



Curve Description			
Driver Iliac Wing Force on Impact Side Y			
CURNO	Type	SAE Class	Units
015	FIL	600	Newtons
Max	Time	Min	Time
606.7	40.4	-96.6	124.6



Curve Description			
Driver Acetabulum Force on Impact Side Y			
CURNO	Type	SAE Class	Units
016	FIL	600	Newtons
Max	Time	Min	Time
2036.7	41.3	-43.8	12.8



Curve Description			
Driver Total Pelvic Force on Impact Side Y			
CURNO	Type	SAE Class	Units
015	SUM	600	Newtons
Max	Time	Min	Time
2636.2	41.2	-19.0	12.7

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

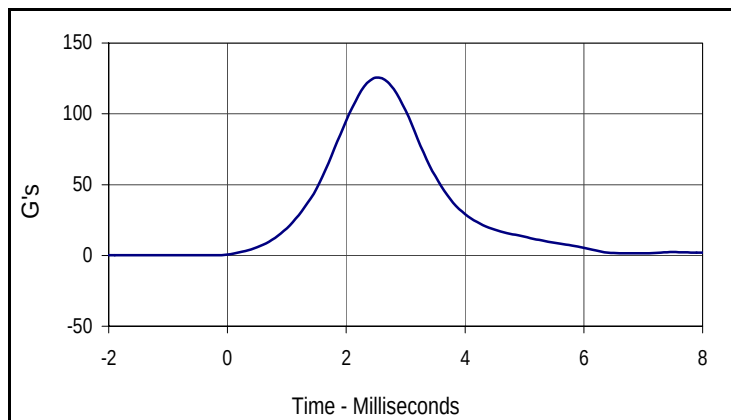
APPENDIX C
PRE-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

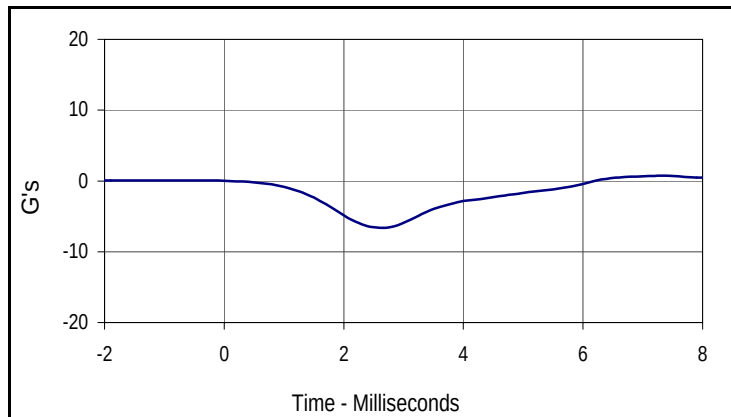
Test Date: 11/9/10
 Test I.D.: HDP11A



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	125.5	Pass
Peak Longitudinal Acceleration	G's	≤15	6.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	10.5	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
125.5	2.5	0.1	-2.0



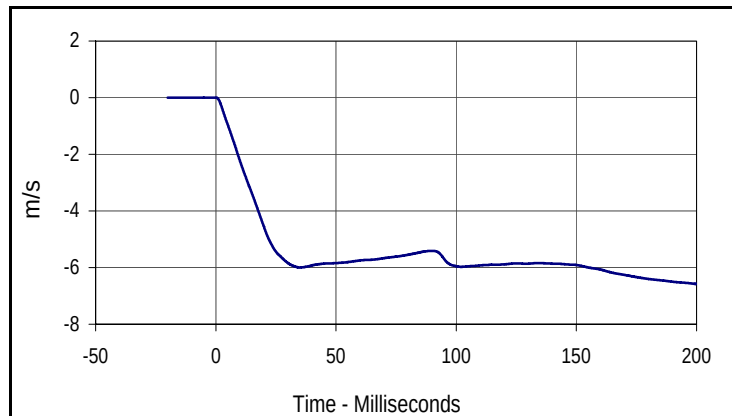
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.1	-0.2	-6.6	2.6

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

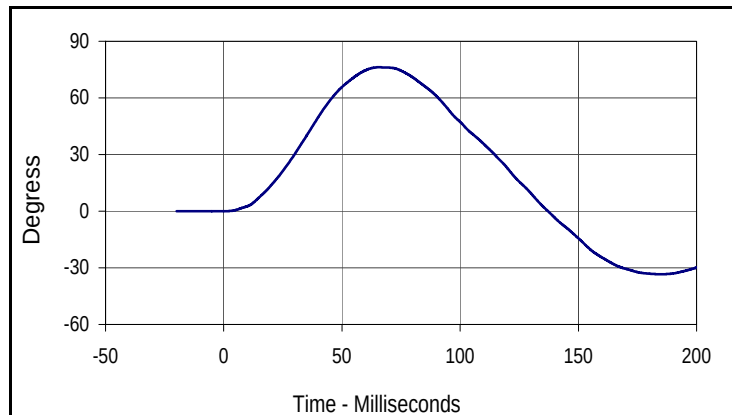
Test Date: 11/9/10
 Test I.D.: NBP11A



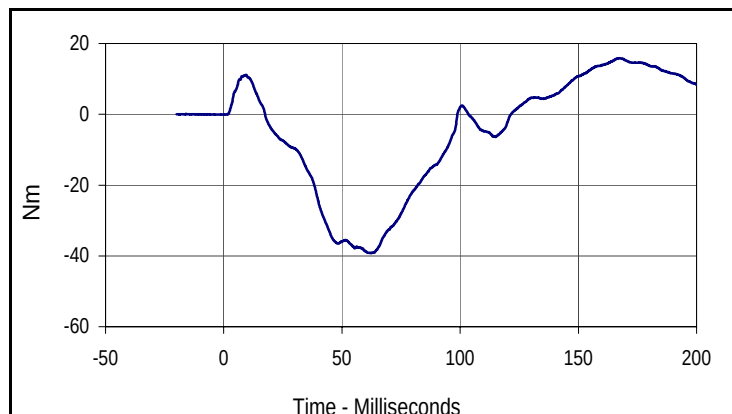
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.6	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.2	Pass
	15 msec	m/s	-3.30 to -4.10	-3.4	Pass
	20 msec	m/s	-4.40 to -5.40	-4.6	Pass
	25 msec	m/s	-5.40 to -6.10	-5.4	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.0	Pass
Translation-Rotation	Max	Degrees	71.0 to 81.0	76.2	Pass
	Time	msec	50.0 to 70.0	65.6	Pass
Peak Occipital Condyle Moment		Nm	-36.0 to -44.0	-39.2	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	-6.6	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
76.2	65.6	-33.4	184.8



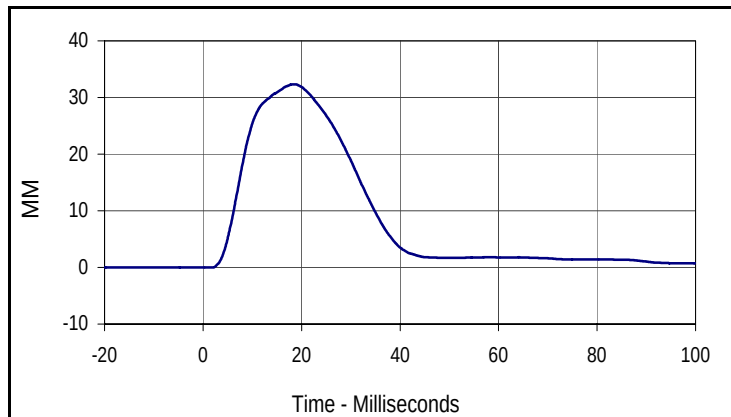
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
15.8	167.2	-39.2	62.5

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

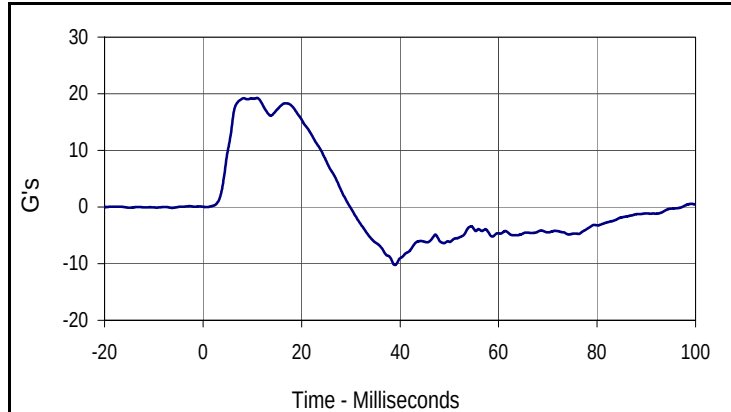
Test Date: 11/9/10
 Test I.D.: SHP11A



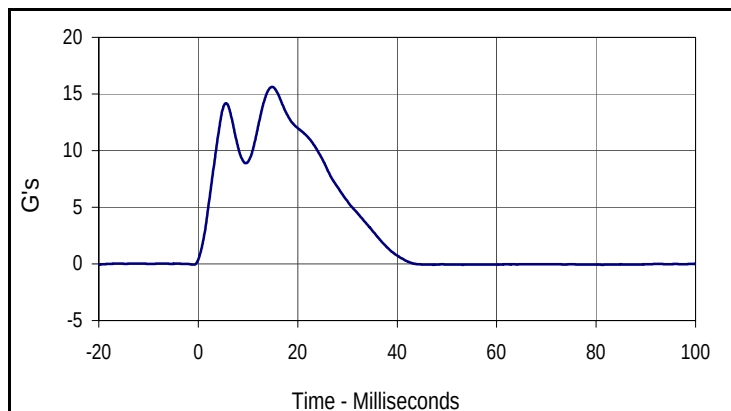
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.33	Pass
Shoulder Deflection	MM	28 to 37	32.3	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	19.3	Pass
Peak Impactor Acceleration	G's	13 to 18	15.6	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
32.3	18.6	0.0	1.0



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
19.3	11.0	-10.2	39.0



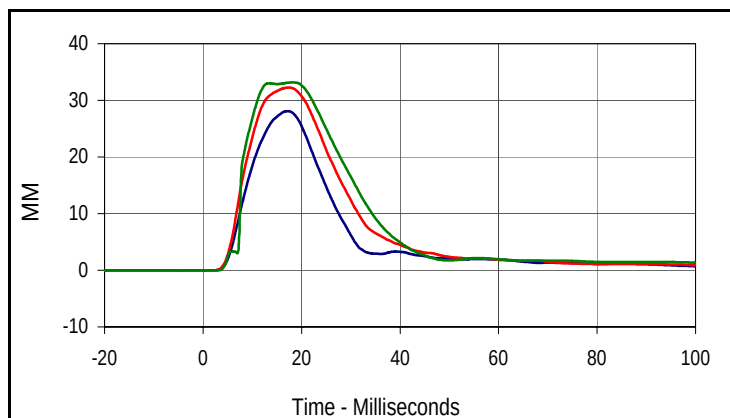
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.6	14.8	-0.1	81.3

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

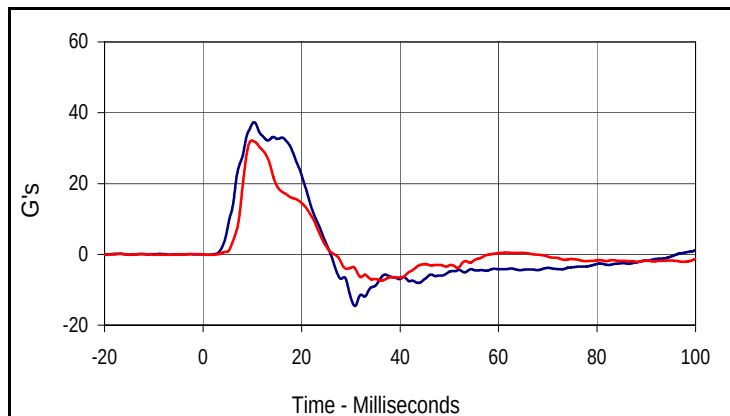
Test Date: 11/9/10
 Test I.D.: TWAP11A



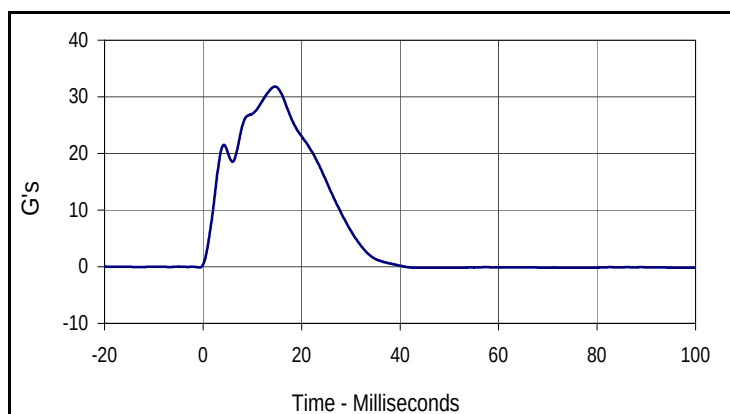
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.70	Pass
Shoulder Deflection	MM	31 to 40	33.4	Pass
Upper Thorax Rib Deflection	MM	25 to 32	28.1	Pass
Middle Thorax Rib Deflection	MM	30 to 36	32.3	Pass
Lower Thorax Rib Deflection	MM	32 to 38	33.1	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	37.3	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.2	Pass
Peak Impactor Acceleration After 5 msec.	G's	30 to 36	31.8	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
28.1	17.2	0.0	-12.8
Middle Thorax Deflection			
Max	Time	Min	Time
32.3	17.4	0.0	-3.0
Lower Thorax Deflection			
Max	Time	Min	Time
33.1	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
37.3	10.4	-14.6	30.8
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.2	9.9	-7.4	36.2



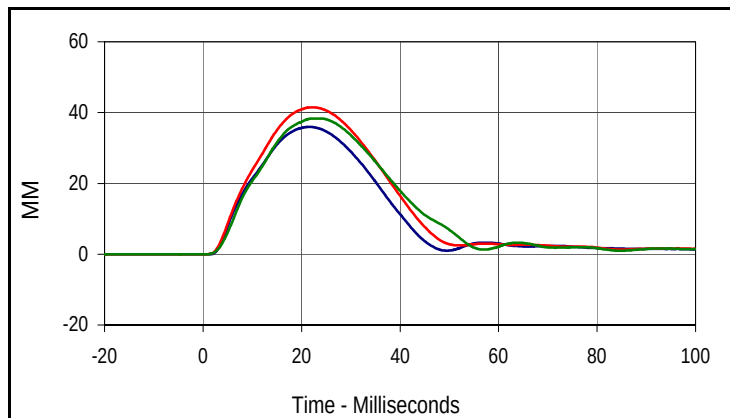
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
31.8	14.6	-0.2	50.4

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

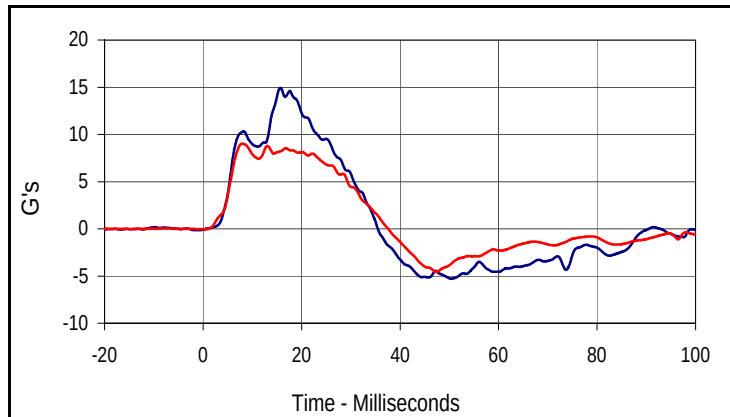
Test Date: 11/9/10
 Test I.D.: TOAP11A



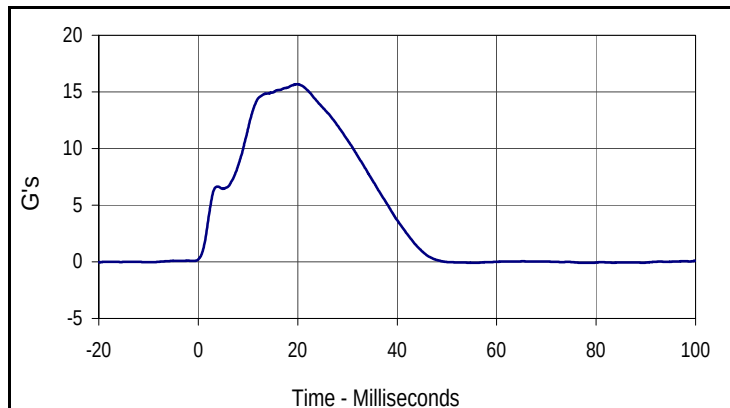
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.27	Pass
Upper Thorax Rib Deflection	MM	32 to 40	35.9	Pass
Middle Thorax Rib Deflection	MM	39 to 45	41.5	Pass
Lower Thorax Rib Deflection	MM	35 to 43	38.3	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	14.9	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	9.0	Pass
Peak Impactor Acceleration	G's	14 to 18	15.7	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
35.9	21.5	0.0	-19.5
Middle Thorax Deflection			
Max	Time	Min	Time
41.5	22.1	0.0	-10.0
Lower Thorax Deflection			
Max	Time	Min	Time
38.3	22.6	0.0	-9.3



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.9	15.7	-5.3	50.3
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
9.0	8.0	-4.6	47.3



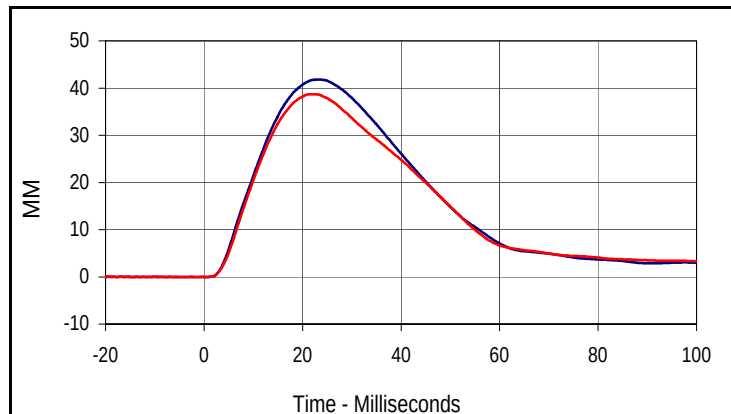
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
15.7	19.8	-0.1	0.0

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

Test Date: 11/9/10
 Test I.D.: ABDP11A

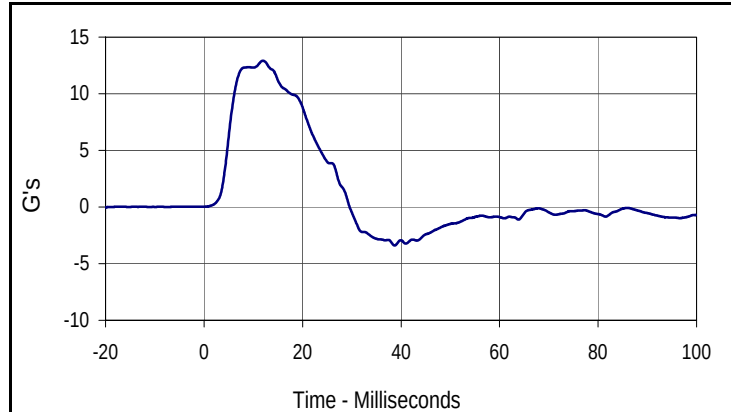


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.27	Pass
Upper Abdominal Rib Deflection	MM	36 to 47	41.8	Pass
Lower Abdominal Rib Deflection	MM	33 to 44	38.7	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.9	Pass
Peak Impactor Acceleration	G's	12 to 16	15.5	Pass
Overall Test Results			Pass	

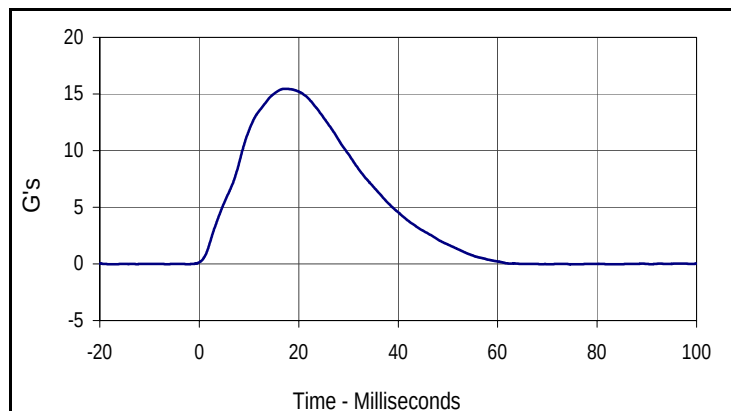


Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
41.8	23.2	0.0	-11.2

Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
38.7	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
12.9	12.0	-3.4	38.7



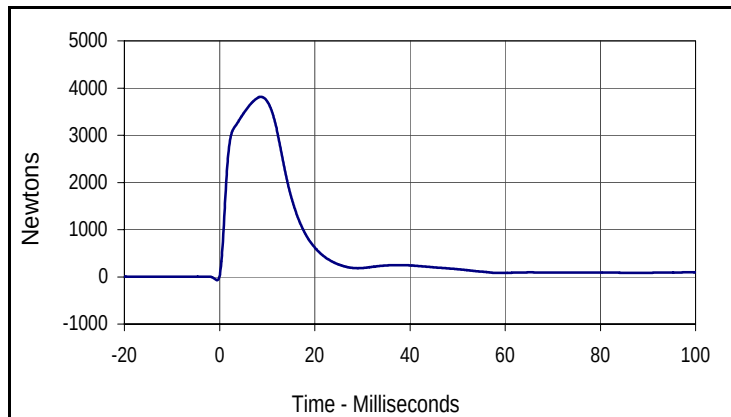
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.5	17.3	0.0	76.2

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

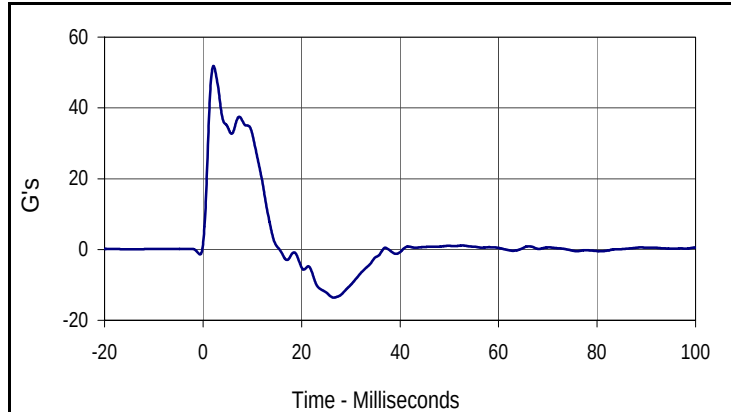
Test Date: 11/9/10
 Test I.D.: PAP11A



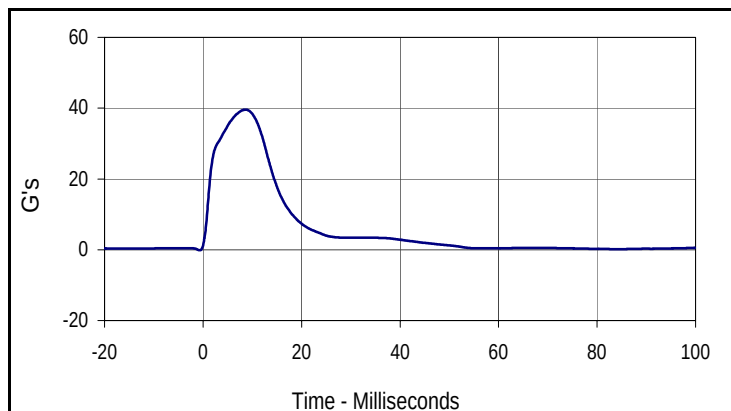
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.61	Pass
Peak Acetabulum Force	Newtons	3600 to 4300	3814.9	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	37.5	Pass
Peak Impactor Acceleration	G's	38 to 47	39.6	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
3814.9	8.7	-69.4	-0.5



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
51.9	2.1	-13.6	26.5



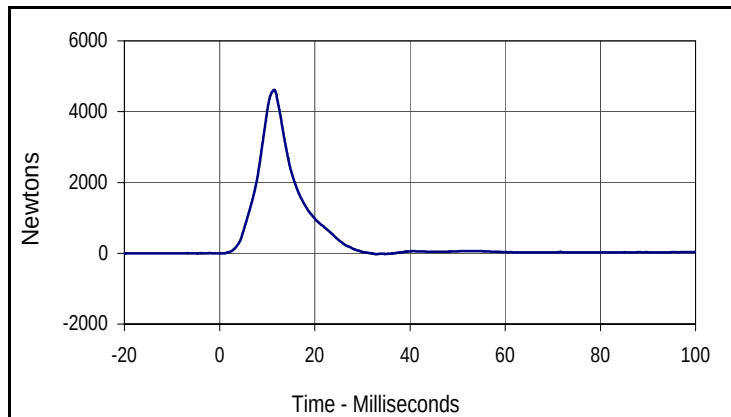
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
39.6	8.7	-0.1	-0.7

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

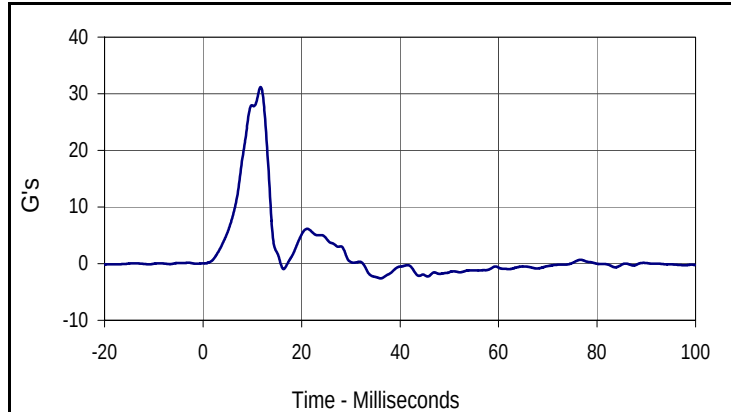
Test Date: 11/9/10
 Test I.D.: PLP11A



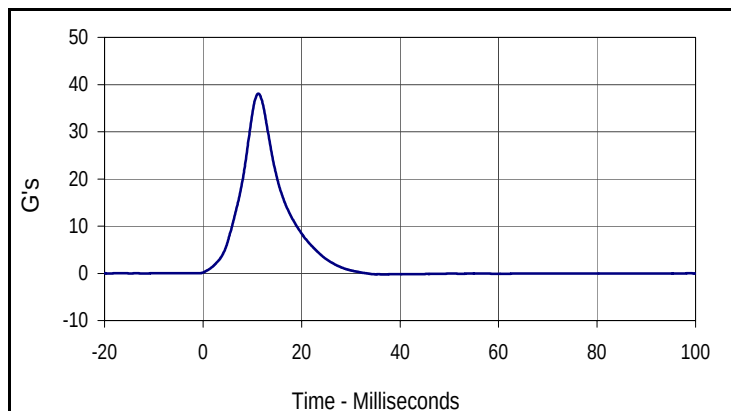
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.2 to 4.4	4.27	Pass
Peak Iliac Force	Newtons	4100 to 5100	4616.1	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	31.2	Pass
Peak Impactor Acceleration	G's	36 to 45	38.1	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Iliac Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4616.1	11.5	-26.1	32.9



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
31.2	11.7	-2.6	36.0



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
38.1	11.2	-0.2	37.1

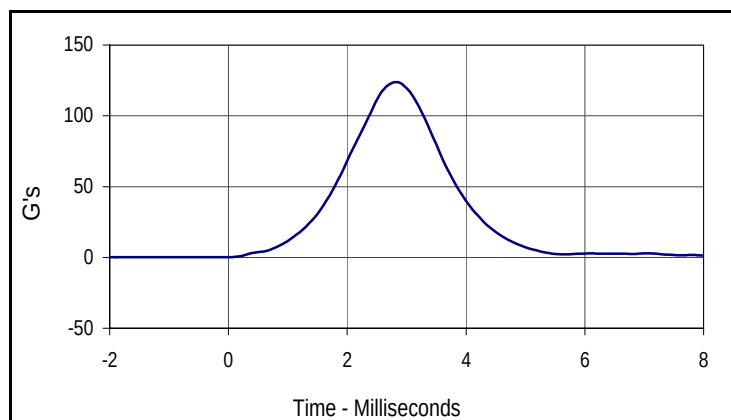
APPENDIX C
POST-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

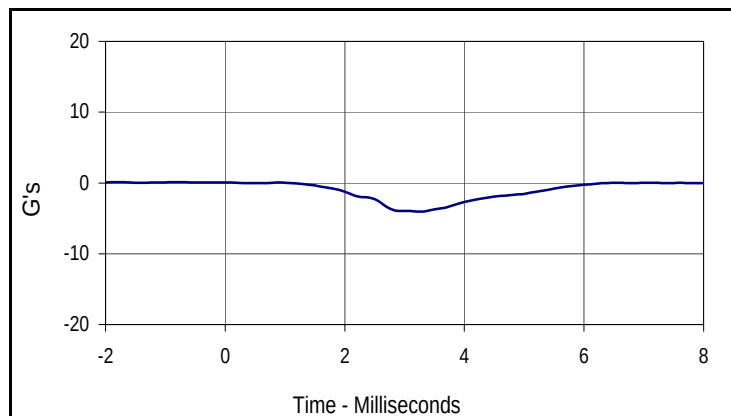
Test Date: 11/22/10
 Test I.D.: HDP11B



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	123.8	Pass
Peak Longitudinal Acceleration	G's	≤15	4.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	5.7	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
123.8	2.8	0.1	-0.5



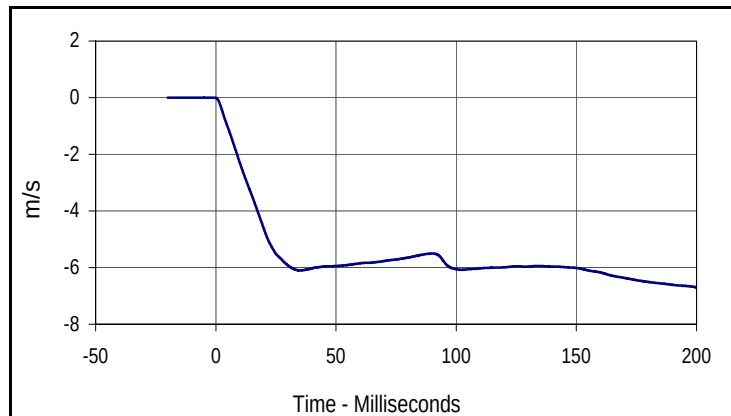
Curve Description			
Head X			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.1	-1.8	-4.1	3.3

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

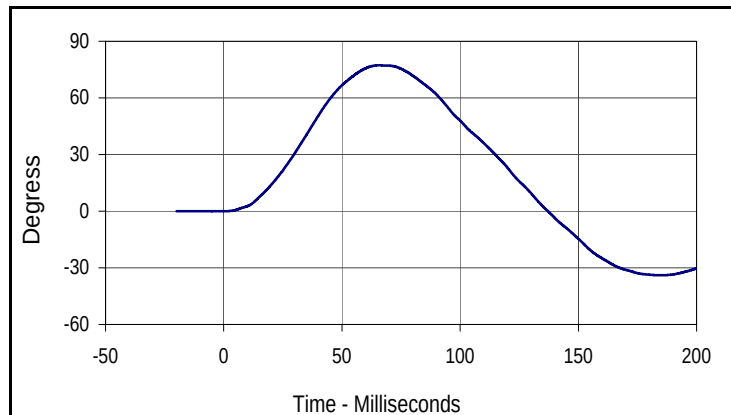
Test Date: 11/22/10
 Test I.D.: NBP11B



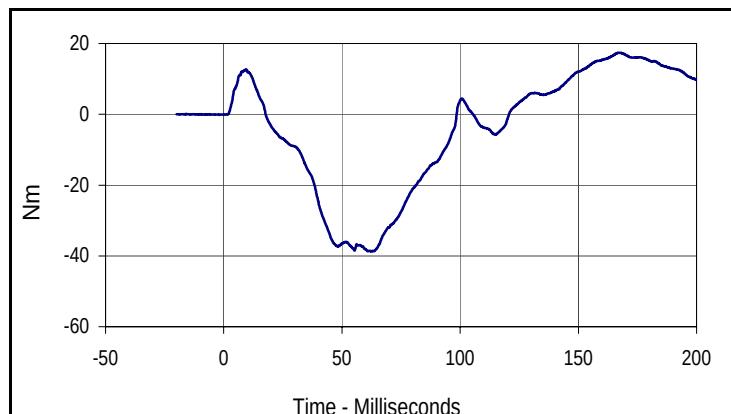
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	29	Pass
Pendulum Velocity		m/s	5.51 to 5.63	5.6	Pass
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.3	Pass
	15 msec	m/s	-3.30 to -4.10	-3.5	Pass
	20 msec	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	77.3	Pass
	Time	msec	50.0 to 70.0	65.5	Pass
Peak Occipital Condyle Moment		Nm	-36.0 to -44.0	-38.7	Pass
Decaying Moment Time to Cross 0 Nm		msec	102.0 to 126.0	120.7	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	-0.9	-6.7	200.0



Curve Description			
Maximum Translation Rotation			
CURNO	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
77.3	65.5	-33.9	184.8



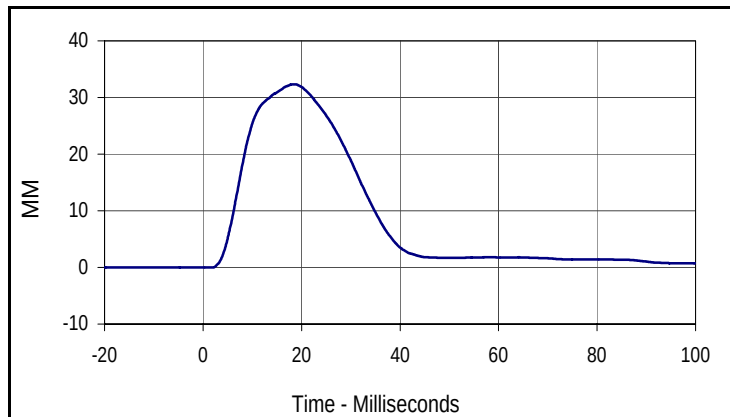
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
17.4	167.2	-38.7	62.5

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

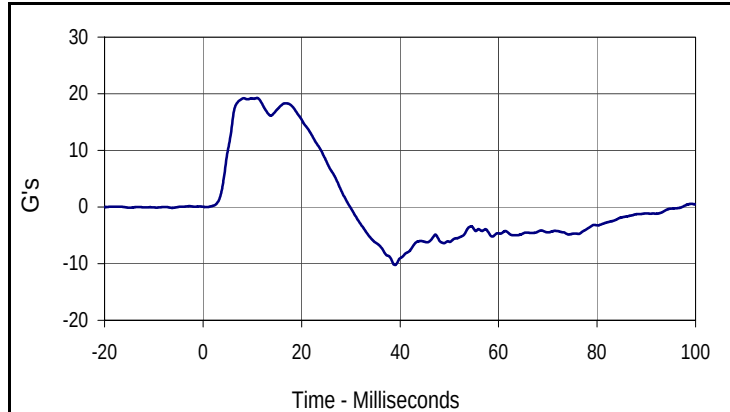
Test Date: 11/22/10
 Test I.D.: SHP11B



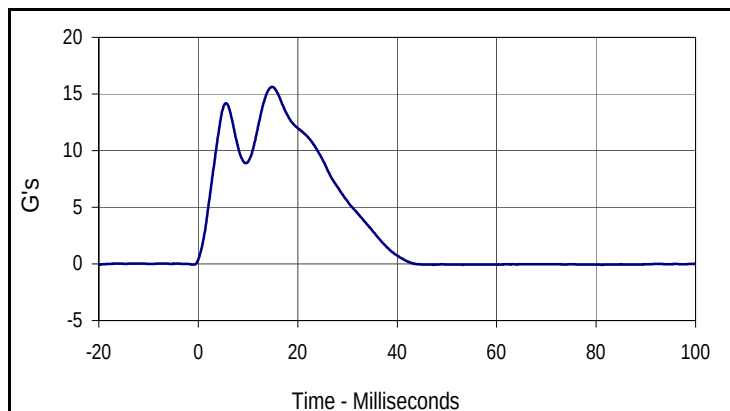
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.34	Pass
Shoulder Deflection	MM	28 to 37	32.3	Pass
Peak Upper Spine Y Acceleration	G's	17 to 22	19.3	Pass
Peak Impactor Acceleration	G's	13 to 18	15.6	Pass
Overall Test Results			Pass	



Curve Description			
Shoulder Acceleration			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
32.3	18.6	0.0	1.0



Curve Description			
Upper Spine Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
19.3	11.0	-10.2	39.0



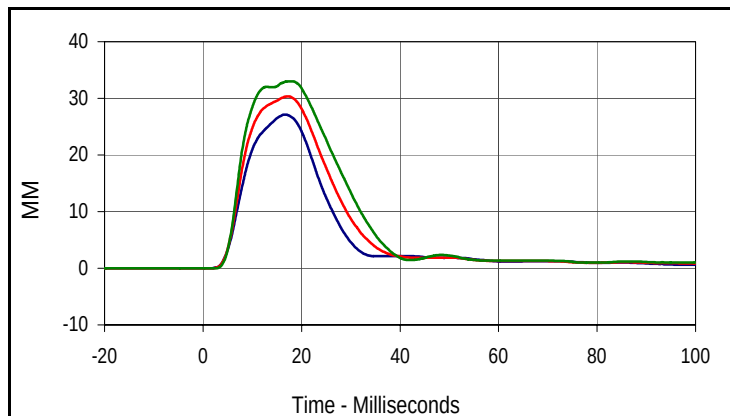
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.6	14.8	-0.1	81.3

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

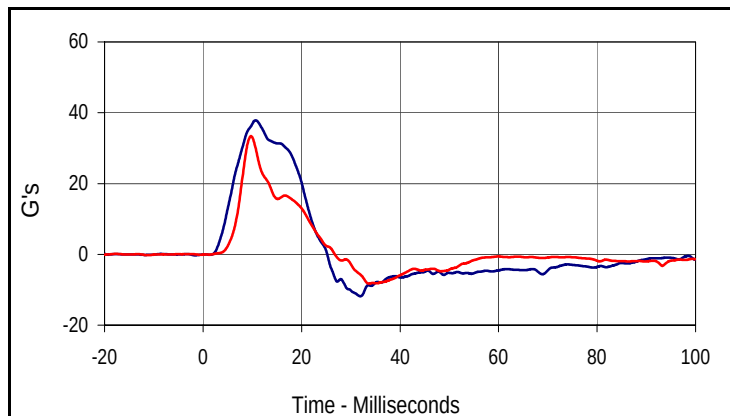
Test Date: 11/22/10
 Test I.D.: TWAP11B



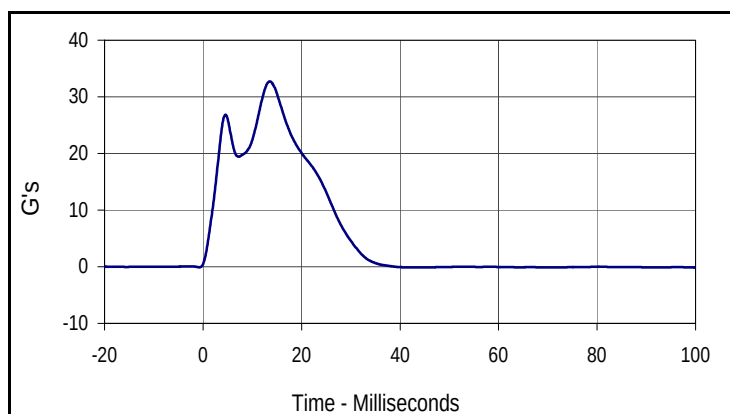
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.76	Pass
Shoulder Deflection	MM	31 to 40	37.5	Pass
Upper Thorax Rib Deflection	MM	25 to 32	27.1	Pass
Middle Thorax 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	37.8	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	33.4	Pass
Peak Impactor Acceleration After 5 msec.	G's	30 to 36	32.7	Pass
Overall Test Results			Pass	



Curve Description			
Upper Thorax Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
27.1	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
37.8	10.7	-11.8	31.9
Lower Spine Y Acceleration			
CURNO	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
33.4	9.7	-8.3	33.7



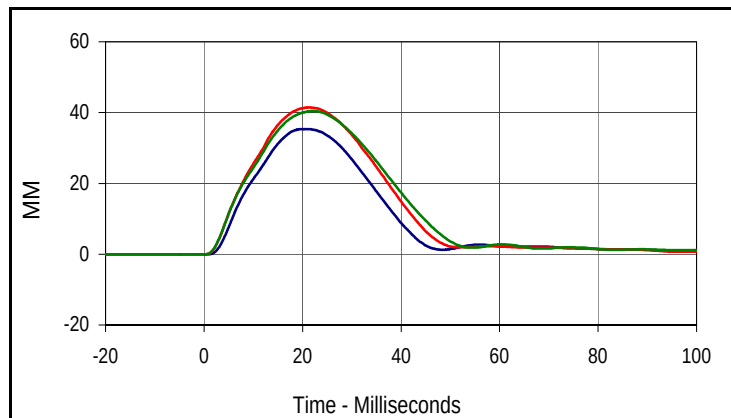
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
32.7	13.5	-0.1	44.7

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

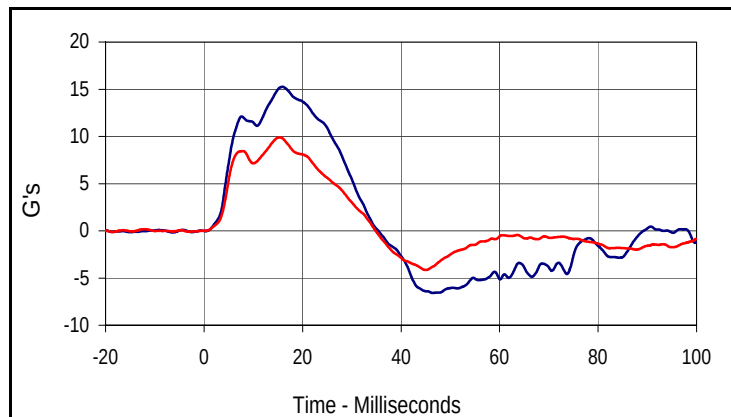
Test Date: 11/22/10
 Test I.D.: TOAP11B



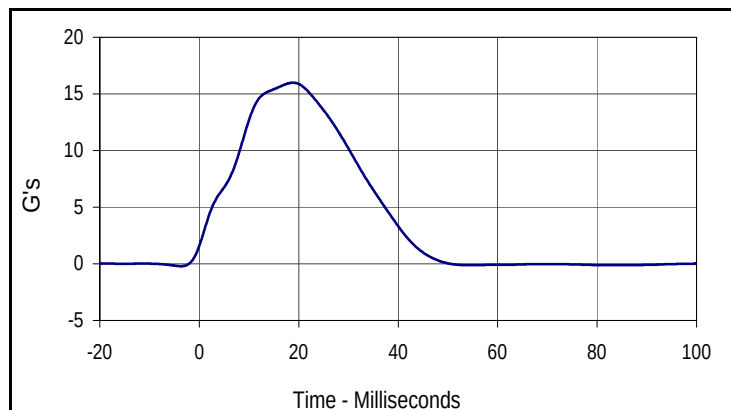
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.35	Pass
Upper Thorax Rib Deflection	MM	32 to 40	35.4	Pass
Middle Thorax Rib Deflection	MM	39 to 45	41.4	Pass
Lower Thorax Rib Deflection	MM	35 to 43	40.5	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.3	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
35.4	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
40.5	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
15.3	15.9	-6.6	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



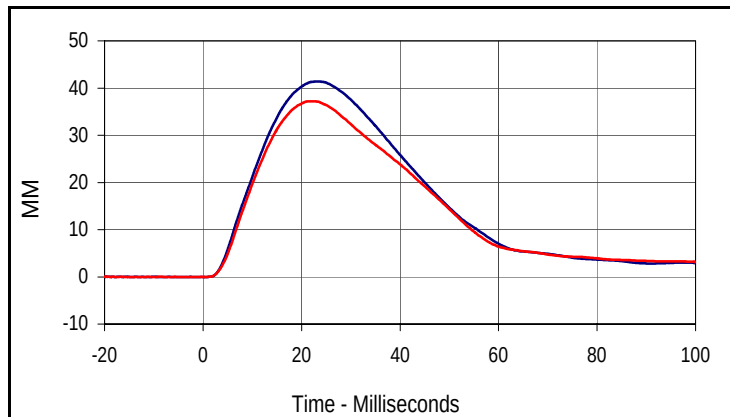
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
16.0	18.8	-0.2	-3.7

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

Test Date: 11/22/10
 Test I.D.: ABDP11B

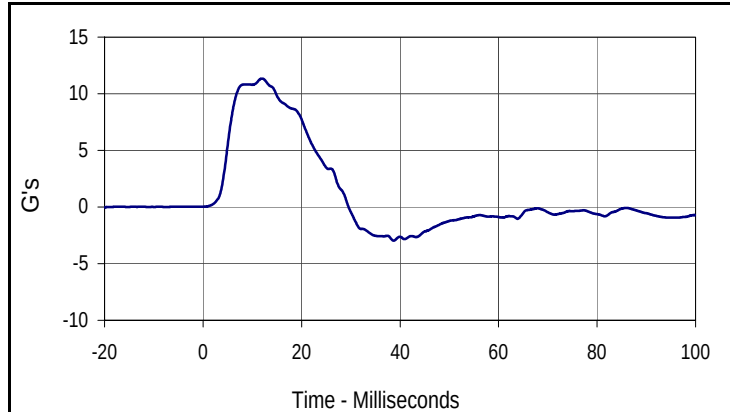


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	4.20 to 4.40	4.36	Pass
Upper Abdominal Rib Deflection	MM	36 to 47	41.4	Pass
Lower Abdominal Rib Deflection	MM	33 to 44	37.2	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	11.3	Pass
Peak Impactor Acceleration	G's	12 to 16	14.3	Pass
Overall Test Results			Pass	

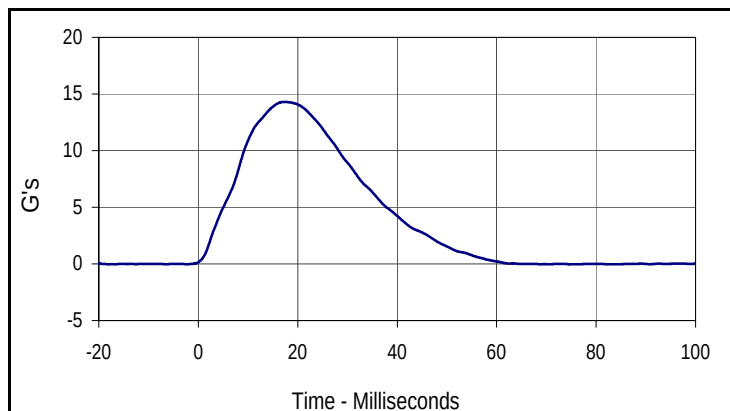


Curve Description			
Upper Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
41.4	23.2	0.0	-11.2

Curve Description			
Lower Abdominal Rib Deflection			
CURNO	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
37.2	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
11.3	12.0	-3.0	38.7



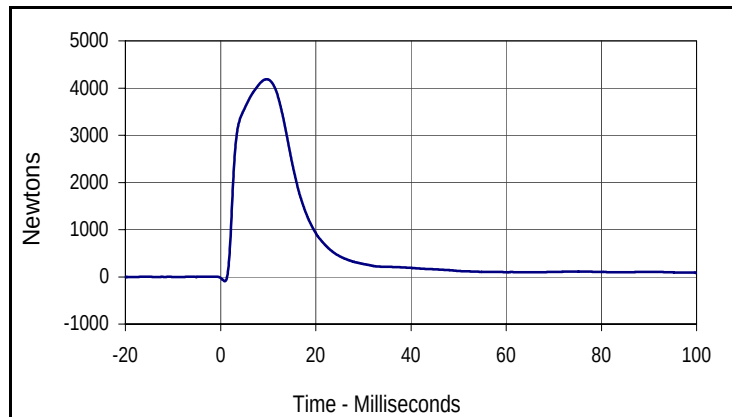
Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
14.3	17.2	0.0	76.2

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

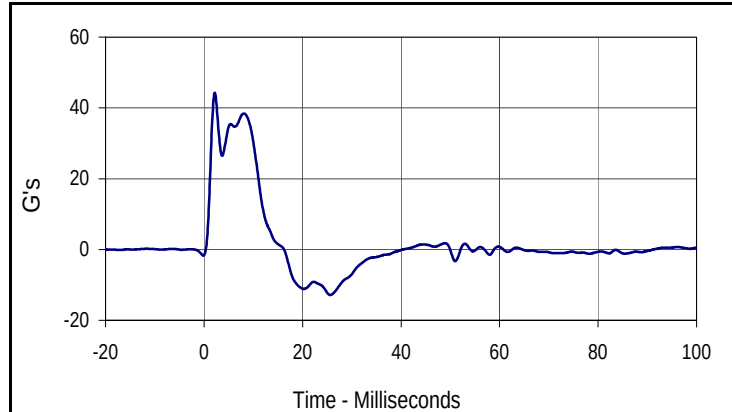
Test Date: 11/22/10
 Test I.D.: PAP11B



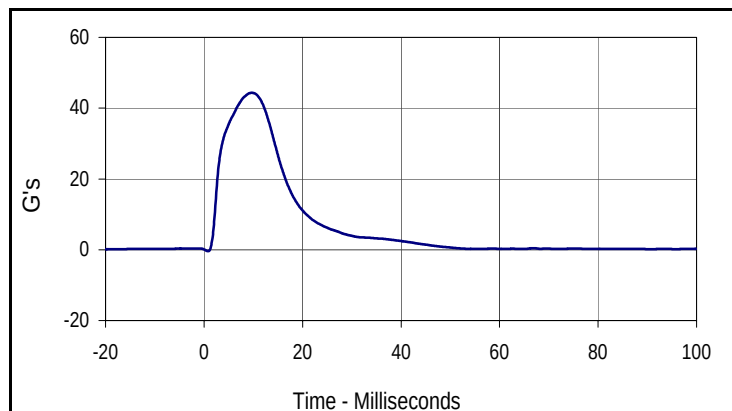
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity	m/s	6.60 to 6.80	6.67	Pass
Peak Acetabulum Force	Newtons	3600 to 4300	4186.6	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	38.4	Pass
Peak Impactor Acceleration	G's	38 to 47	44.3	Pass
Overall Test Results			Pass	



Curve Description			
Pelvis Acetabulum Force			
CURNO	Type	SAE Class	Units
001	FIL	180	Newtons
Max	Time	Min	Time
4186.6	9.7	-90.8	0.9



Curve Description			
Pelvis Y Acceleration			
CURNO	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
44.2	2.2	-12.9	25.6



Curve Description			
Impactor Acceleration			
CURNO	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
44.3	9.7	-0.4	0.8