

REPORT NUMBER: NCAP-KAR-11-009

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

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

NHTSA NUMBER: MB5217

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



AUGUST 16, 2010

FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY PERFORMANCE STANDARDS
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVE, SE
ROOM W43-410
WASHINGTON, DC 20590**

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By: 
Mr. Kelsey A. Chiu, Engineering Department Supervisor
KARCO Engineering, LLC.

Reviewed By: 
Ms. Angie Valenzuela, Quality Assurance Manager
KARCO Engineering, LLC.

Approved By: 
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC.

Approval Date: August 23, 2010

FINAL REPORT ACCEPTANCE BY OCWS:


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

Date: _____


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

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. NCAP-KAR-11-009		2. Government Accession No.		3. Recipient's Catalog No.																																																					
4. Title and Subtitle Final Report of New Car Assessment Program Testing of a 2011 Nissan Versa 4-Door Sedan NHTSA No. MB5217				5. Report Date August 26, 2010																																																					
				6. Performing Organization Code KAR																																																					
7. Authors Mr. Kelsey A. Chiu, Engineering Department Supervisor, KARCO Mr. Frank Richardson, Program Manager, KARCO				8. Performing Organization Report No. TR-P30001-05-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. DTNH22-06-D-00027																																																					
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C 20590				13. Type of Report and Period Covered Final Test Report, August 23, 2010																																																					
				14. Sponsoring Agency Code NPS-10																																																					
15. Supplementary Notes																																																									
16. Abstract A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2011 Nissan Versa 4-Door Sedan in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301 and foot well intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on August 16, 2010. The impact velocity of the vehicle was 56.28 km/h and the ambient temperature at the barrier face at the time of impact was 38.3 deg. C. The target vehicle's maximum post-test maximum crush was 310 mm at the vehicle centerline. The test vehicle's performance is as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700.0</td> <td>242.2</td> <td>700.0</td> <td>470.6</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>-63</td> <td>-31.5</td> <td>52</td> <td>-21.4</td> </tr> <tr> <td>Nij</td> <td>N/A</td> <td>1</td> <td>0.40</td> <td>1</td> <td>0.67</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>2068.8</td> <td>2620</td> <td>1358.4</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>696.1</td> <td>2520</td> <td>487.0</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>3670.3</td> <td>6805</td> <td>2899.0</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>3139.0</td> <td>6805</td> <td>1824.6</td> </tr> </tbody> </table>						Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700.0	242.2	700.0	470.6	Maximum Chest Compression	mm	-63	-31.5	52	-21.4	Nij	N/A	1	0.40	1	0.67	Neck Tension	N	4170	2068.8	2620	1358.4	Neck Compression	N	4000	696.1	2520	487.0	Left Femur Force	N	10008	3670.3	6805	2899.0	Right Femur Force	N	10008	3139.0	6805	1824.6
Measurement Description	Units	Driver ATD		Passenger ATD																																																					
		Threshold	Result	Threshold	Result																																																				
Head Injury Criteria (HIC ₁₅)	N/A	700.0	242.2	700.0	470.6																																																				
Maximum Chest Compression	mm	-63	-31.5	52	-21.4																																																				
Nij	N/A	1	0.40	1	0.67																																																				
Neck Tension	N	4170	2068.8	2620	1358.4																																																				
Neck Compression	N	4000	696.1	2520	487.0																																																				
Left Femur Force	N	10008	3670.3	6805	2899.0																																																				
Right Femur Force	N	10008	3139.0	6805	1824.6																																																				
17. Key Words 35 mph Frontal Barrier Impact Test New Car Assessment Program (NCAP)				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 123	22. Price																																																				

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Purpose and Summary of the Test	1
2	Occupant and Vehicle Information / Data Sheets	3
<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	4
2	Seat Adjustment, Fuel Systems, and Steering Wheel Data	8
3	Dummy Longitudinal Clearance Dimensions	10
4	Dummy Lateral Clearance Dimensions	11
5	Seat Belt Positioning Data	12
6	High-Speed Camera Locations and Data	13
7	Vehicle Accelerometer Locations	15
8	Photographic Reference Target Locations	16
9	Load Cell Locations on Fixed Barrier	17
10	Test Vehicle Camera and Instrumentation Summary	18
11	Post-Test Observations	19
12	Vehicle Profile Measurements	20
13	Accident Investigation Division Data	22
14	Vehicle Intrusion Measurements	23
15	Summary of FMVSS 212 and FMVSS 219 (Partial) Data	28
16	FMVSS 301 Fuel System Integrity Post-Impact Data	29
17	FMVSS 301 Fuel Static Rollover Data	30
18	Dummy / Vehicle Temperature Stabilization	31
<u>Appendix</u>		<u>Page No.</u>
A	Photographs	A
B	Dummy Response Data Traces	B
C	Dummy Calibration and Performance Verification Data	C

SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56.3 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program, sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number DTNH22-06-D-00027. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure, dated January, 2010.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2011 Nissan Versa 4-Door Sedan at a velocity of 56.3 km/h. The test was performed at KARCO Engineering, LLC. on August 16, 2010. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A of this report.

Three (3) real-time camera and sixteen (16) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in Data Sheet 6 of this report.

One Part 572E 50th percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part 572O 5th percentile female ATD was placed in the right-front passenger seating position according to dummy placement instructions specified in the Frontal NCAP Laboratory Test Procedure.

Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck force transducers, right / left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure the dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 035) and the right-front passenger (position 2) ATD (Serial No. 141) were calibrated prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 128 channels of data were recorded on an on-board data acquisition system. Appendix B contains the dummy response data traces.

There was 100% windshield retention and no intrusion into the protected zone of the windshield during the event. There was no Stoddard solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the test vehicle was 310 mm located at the vehicle centerline. Both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver ATD's head contacted the airbag and the headrest. The upper torso contacted the airbag. Both the left and right knees contacted the knee bolster.

The passenger's visible contact points were as follows: The passenger ATD's head contacted the airbag and headrest. The upper torso contacted the airbag. Both the left and right knees contacted the glovebox.

The occupant data is summarized below:

ATD Position	HIC ₁₅	T ¹	T ²	Chest Disp. (mm)	Nij	Neck Tension (N)	Neck Comp. (N)	Left Femur (N)	Right Femur (N)
Driver (50th)	242.2	68.0	83.0	-31.5	0.40	2068.8	-696.1	-3670.3	-3139.0
Passenger (5th)	470.6	59.8	74.8	-21.4	0.67	1358.4	-487.0	-2899.0	-1824.6

SECTION 2
DATA SHEETS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

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	N•m	1.355

DATA SHEET NO. 1**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MB5217
Make	Nissan
Model	Versa
Body Style	4-Door Sedan
VIN	3N1CC1AP5BL366891
Body Color	Blue Onyx
Delivery Date	7/19/2010
Odometer Reading (mi)	119
Odometer Reading (km)	192
Dealer	Empire Nissan
Transmission	4-Speed Automatic
Final Drive	Front
Type / No. of Cylinders	Inline 4
Engine Displacement (L)	1.6
Engine Placement	Transverse
Roof Rack	No
Sunroof / T-Top	No
Tinted Glass	No
Traction Control	No
Power Brakes	Yes
Front Disc	Yes
Rear Disc	No

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	Yes
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Pass. Front Airbag	Yes
Pass. Curtain Airbag	Yes
Pass. Head/Torso Airbag	No
Pass. Torso Airbag	Yes
Pass. Torso/Pelvis Airbag	No
Pass. Pelvis Airbag	No
Pass. Knee Airbag	No
Pre-Tensioners	Yes
Load Limiters	Yes
Automatic Door Locks	No
Tilt Steering	Yes
Other	n/a

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	Jun-10

GVWR (kg)	1656
GAWR Front (kg)	850
GAWR Rear (kg)	814

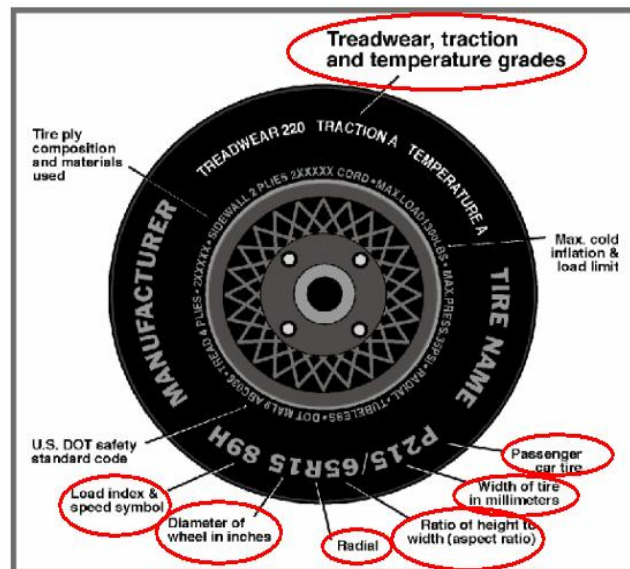
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	3		5
Capacity Weight (VCW) (kg)				390.0
Cargo Weight (RCLW) (kg)				49.8

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2011 Nissan Versa 4-Door Sedan	NHTSA No.:	MB5217
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	08/16/10



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	P185/65R14	P185/65R14
Tire Size on Vehicle	P185/65R14	P185/65R14
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	B381	B381
Treadwear	260	260
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	1	1
Tire Plies Body	3	3
Load Index / Speed Symbol	85T	85T
Tire Material	Polyester, Steel	Polyester, Steel
DOT Safety Code Left	V67J P3R	V67J P3R
DOT Safety Code Right	V67J P3R	V67J P3R

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

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	339.5	227.0		383.5	309.0	
Right	kg	347.0	240.5		353.5	291.5	
Ratio	%	59.5%	40.5%	100.0%	55.1%	44.9%	100.0%
Total	kg	686.5	467.5	1154.0	737.0	600.5	1337.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1154.0	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	49.8	C
Calculated Vehicle Target Weightt (TVTW)	kg	1344.8	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	688	692	685	690	1054
As Tested	mm	696	680	653	683	1168
Post-Test	mm	810	838	768	790	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2602
Total Vehicle Length at Left Side	mm	3839
Total Vehicle Length at Centerline	mm	4465
Total Vehicle Length at Right Side	mm	3834
Weight of Ballast in Cargo Area	kg	76.9
Weight of Vehicle Components Removed	kg	47.5
Amount of Stoddard Solvent in Fuel Tank	L	41.82

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Tail Lights (2.5 kg), Trunk Liner and matt (6.0 kg), Spare tire and tools (12.5 kg), Rear Door Trim and Speakers (5.0 kg), Rear Seat Cushions (10.0 kg), Outboard Mirrors (4.0 kg), Muffler and pipe (7.5 kg)

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

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length	4465	4155	-310
2	Total Width	1685	1841	156
3	Bumper Top Height	590	605	15
4	Bumper Bottom Height	432	492	60
5	Longitudinal Member Top Height	520	640	120
6	Distance Between Longitudinal Members	875	1025	150
7	Longitudinal Member Width	70	85	15
8	Engine Top Height	845	930	85
9	Engine Bottom Height	181	248	67
10	Engine and Gearbox Width	600	600	0
11	Front Bumper to Engine Distance	560	423	-137
12	Front Shock Absorber Fixing Height	845	918	73
13	Bonnet Leading Edge Height	710	806	96
14	Front Shock Absorber Fixing Width	1170	1157	-13
15	Front Bumper to Front Axle Distance	887	503	-384
16	Front Axle to A-Pillar Distance	453	394	-59
17	A-Pillar to B-Pillar Distance	921	918	-3
18	B-Pillar to Rear Axle Distance	1050	1045	-5
19	B-Pillar to C-Pillar Distance	831	829	-2
20	Roof Sill Bottom Height	1375	1345	-30
21	Roof Sill Top Height	1467	1502	35
22	Floor Sill Bottom Height	163	204	41
23	Floor Sill Top Height	315	347	32

All measurements in millimeters.

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Nissan Versa 4-Door Sedan

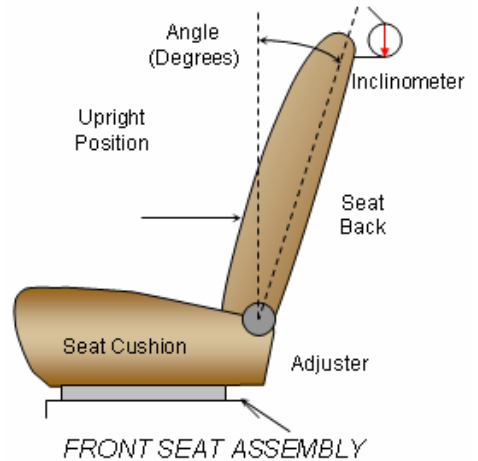
NHTSA No.: MB5217

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 08/16/10

NOMINAL DESIGN RIDING POSITION

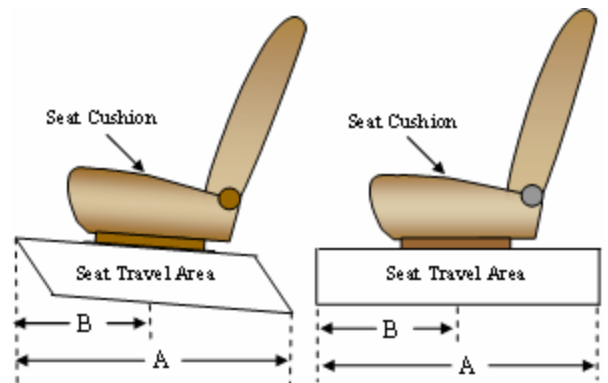
The procedure for the driver is as follows: the seat back is set to the manufacturer's designated angle; seat back angle is measured at the headrest post using a digital inclinometer. The procedure for the passenger is as follows: the seat back is set to position the transverse instrumentation platform of the dummy's head at $0^\circ \pm 0.5^\circ$; seat back angle is measured at the headrest post using a digital inclinometer.



Seating Position	Degrees
Driver Seat Back Angle	10.8
Passenger Seat Back Angle	7.0

SEAT FORE / AFT POSITIONS

The total seat travel is measured from the forward most possible position to the rearmost possible position. The driver's seat is set to the mid travel longitudinal position with the seat in the full down height position at the manufacturer's designated cushion angle, full down for this test. The passenger's seat is set to the forward most position where the ATD will not contact any interior panels. The passenger's seat was not height adjustable, and there was no cushion angle adjustment.



Seating Position	Total Fore-Aft Travel	Placed in Position
Driver Seat	238 mm	120 mm
Passenger Seat	242 mm	20 mm

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50th percentile adult male ATD for the driver, and a 5th percentile adult female ATD for the passenger. Position one (1) is the uppermost position.

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	1
Passenger Seat	4	1

DATA SHEET NO. 2 ... (CONTINUED)

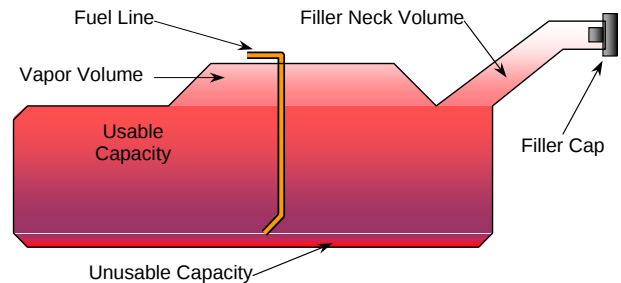
SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	44.97
Usable Capacity of "Optional Tank"	
92 - 94% of Usable Capacity	41.37 to 42.27
Actual Amount of Stoddard Solvent Used	41.82
1/3 of Usable Capacity	14.99

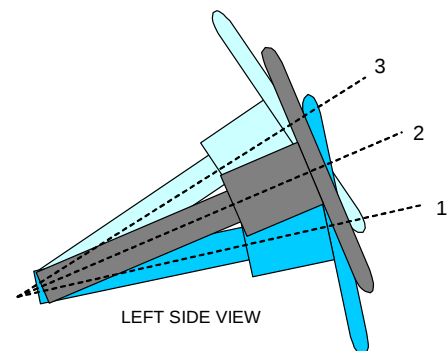
The test vehicle is equipped with an electric fuel pump. The fuel pump will operate for a few seconds after the ignition switch is turned on. After that, the pump operates only while the engine is running. The fuel filler door is located on the right rear fender. The standard fuel tank occupies the area under the rear seat.



VEHICLE FUEL TANK ASSEMBLY

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 which is placed across the rim of the steering wheel for angular measurements. A tape measure is used with a reference mark on the steering column to measure telescoping travel.



STEERING COLUMN ASSEMBLY

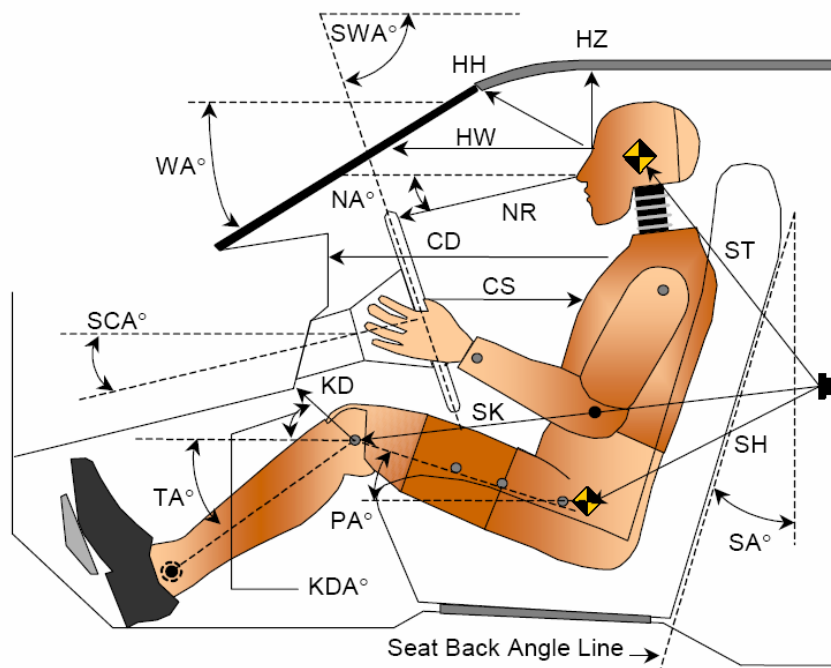
STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	25.1	N/A
Geometric Center Position, No. 2	27.2	N/A
Uppermost Position, No. 3	29.3	N/A
Telescoping Steering Wheel Travel		N/A
Test Position	27.2	N/A

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

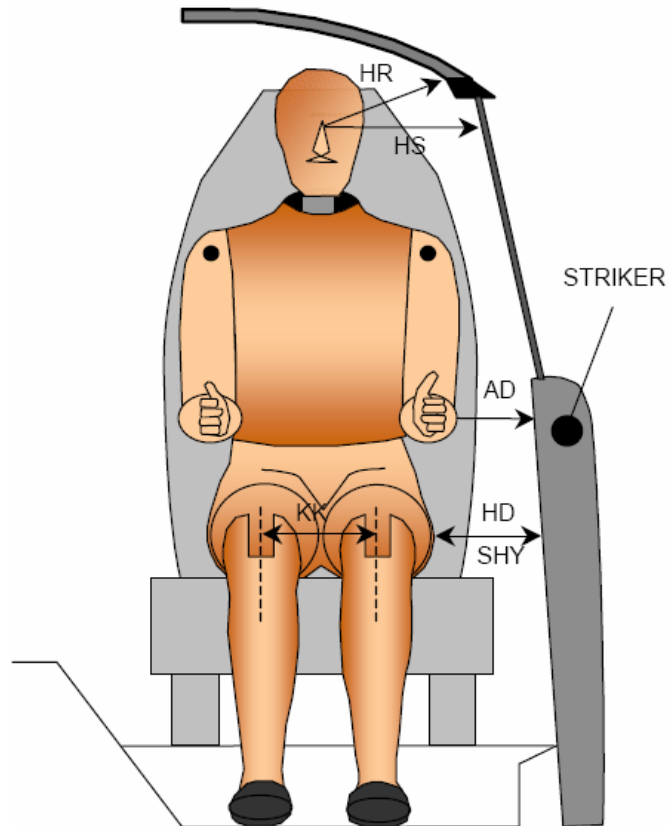


Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		28.6		
SWA°	Steering Wheel Angle		26.2		
SCA°	Steering Column Angle		63.1		
SA°	Seat Back Angle (On Headrest Post)		26.9		7.0
HZ	Head to Roof	208	90.0	243	90.0
HH	Head to Header	355	24.7	322	48.0
HW	Head to Windshield	634	0.0	67	0.0
HR	Head to Side Header	283	27.4	331	35.5
NR	Nose to Rim	393	13.2	N/A	N/A
CD	Chest to Dash	536	5.1	536	0.0
CS	Chest to Steering Hub	330	7.3		
RA	Rim to Abdomen	185	0.0		
KDL	Left Knee to Dash	157	7.3	58	22.8
KDR	Right Knee to Dash	119	24.6	87	13.5
PA°	Pelvic Angle		25.0		21.7
TA°	Tibia Angle		49.0		53.8
SK	Striker to Knee	625	0.8	707	0.3
ST	Striker to Head	574	102.1	535	67.0
SH	Striker to H-Point	264	20.6	396	13.5

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10



Code	Description	(mm)	(mm)
AD	Arm to Door	10	72
HD	H-Point to Door	105	151
HR	Head to Side Header	283	331
HS	Head to Side Window	315	356
KK	Knee to Knee	320	236
SHY	Striker to H-Point (Y-Direction)	234	266
AA	Ankle to Ankle	315	187

DATA SHEET NO. 5

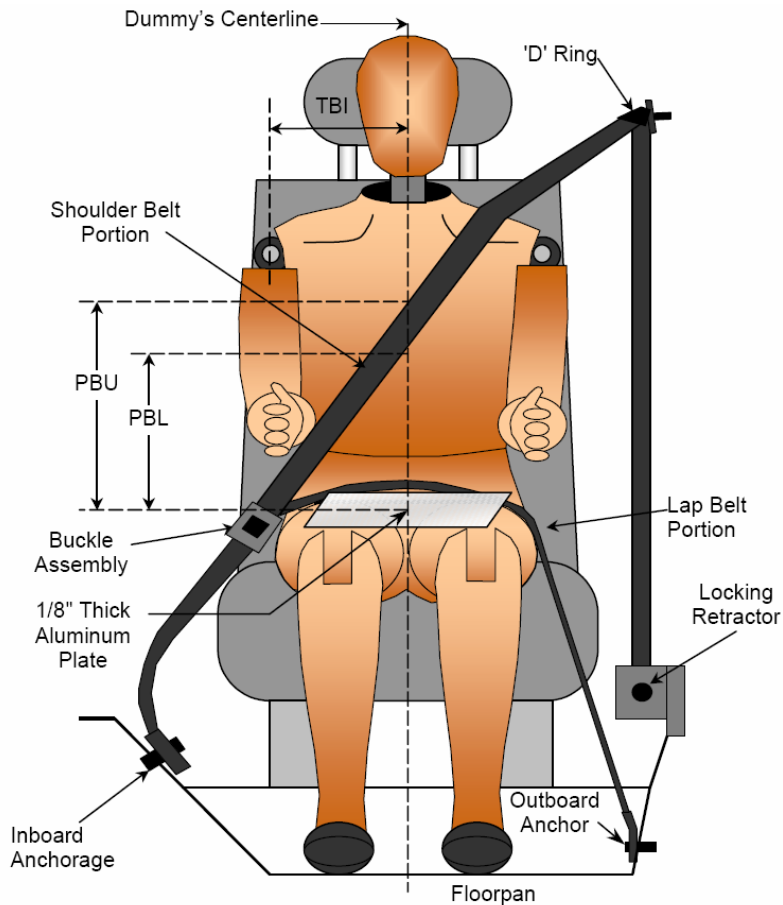
SEAT BELT POSITIONING DATA

Test Vehicle: 2011 Nissan Versa 4-Door Sedan

NHTSA No.: MB5217

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 08/16/10



Front View of Dummy

SEAT BELT POSITIONING MEASUREMENTS

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	310	320
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	240	240

BELT LENGTH DATA

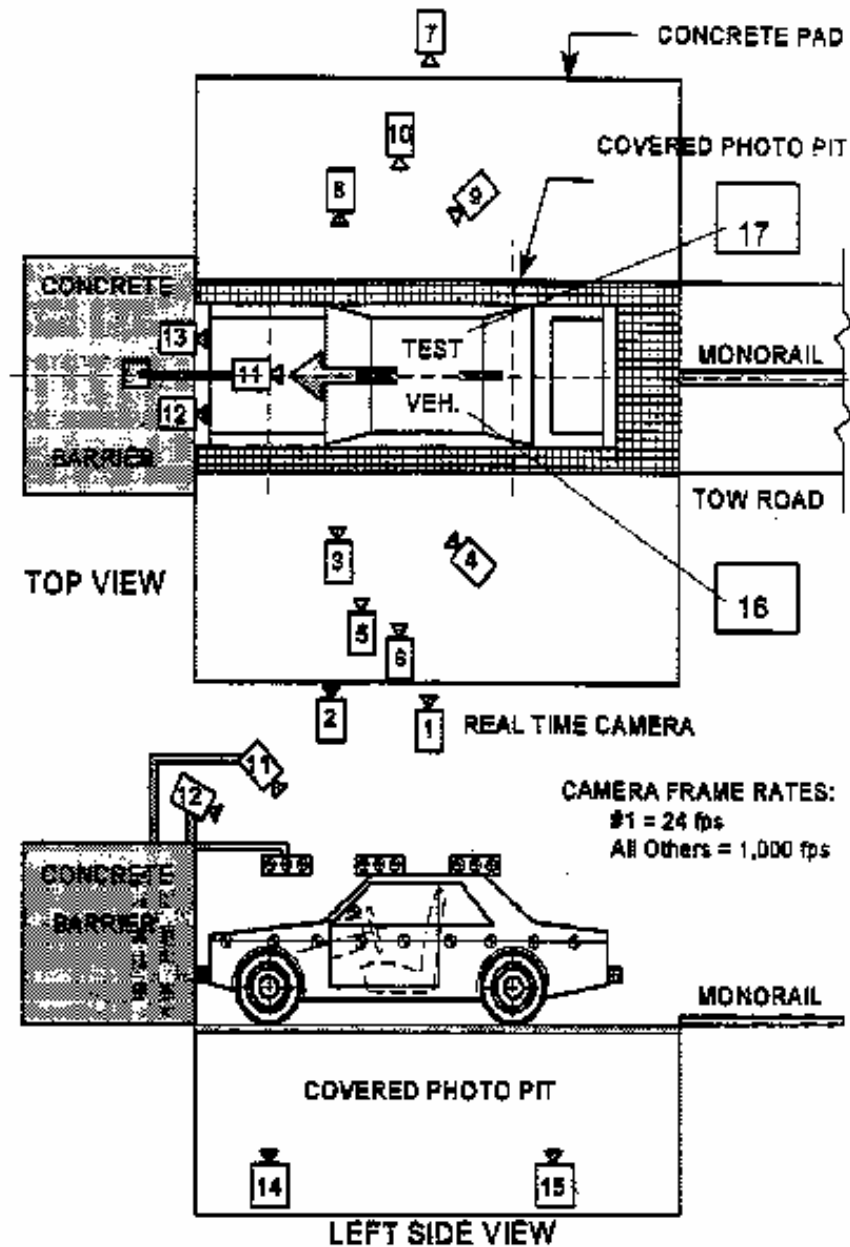
Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	912	998
Lap Belt Length as Measured on ATD	mm	852	966
Remainder of Belt on Reel	mm	730	496
Total Belt Length for Continuous Webbing Systems	mm	2494	2460

DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 ... (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

CAMERA LOCATIONS

No.	Description	Location			Angle (°)	Film Plane to Head Target	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real-Time Camera	-11412	-8150	-1484				30
2	Overall Left Side	-2590	-7950	-1371	0	9881	24	1000
3	Left Side A-Pillar	-1701	-6197	-1701	0	7921	85	1000
4	Left Side B-Pillar	-6696	-10308	-3211	-17	11281	ZOOM	1000
5	Steering Column Upper	-1966	-10412	-3688	-13	9887	35	1000
6	Steering Column Lower	-1972	-10412	-3379	-13	9870	35	1000
7	Overall Right Side	-2336	7569	-1012	0	9417	24	1000
8	Right Side A-Pillar	-1733	7581	-1408	0	7789	70	1000
9	Passenger IP View	-1600	8214	-1811	0	7795	ZOOM	1000
10	Right Side B-Pillar	-6217	9516	-4830	-10	12626	ZOOM	1000
11	Overhead Windshield View	297	366	-2460	-34		12	1000
12	Overhead Driver View	297	-366	-2460	-34		12	1000
13	Overhead Passenger View	-354	0	-5749	-90		24	1000
14	Pit View of Engine Compartment	-756	0	1495	90		12	1000
15	Pit View of Fuel Tank	-3398	0	1495	90		8	1000
16	Driver's On Board View	-2370	785	-1000	-22		12	1000
17	Passenger's On Board View	-2370	-785	-1000	-22		12	1000

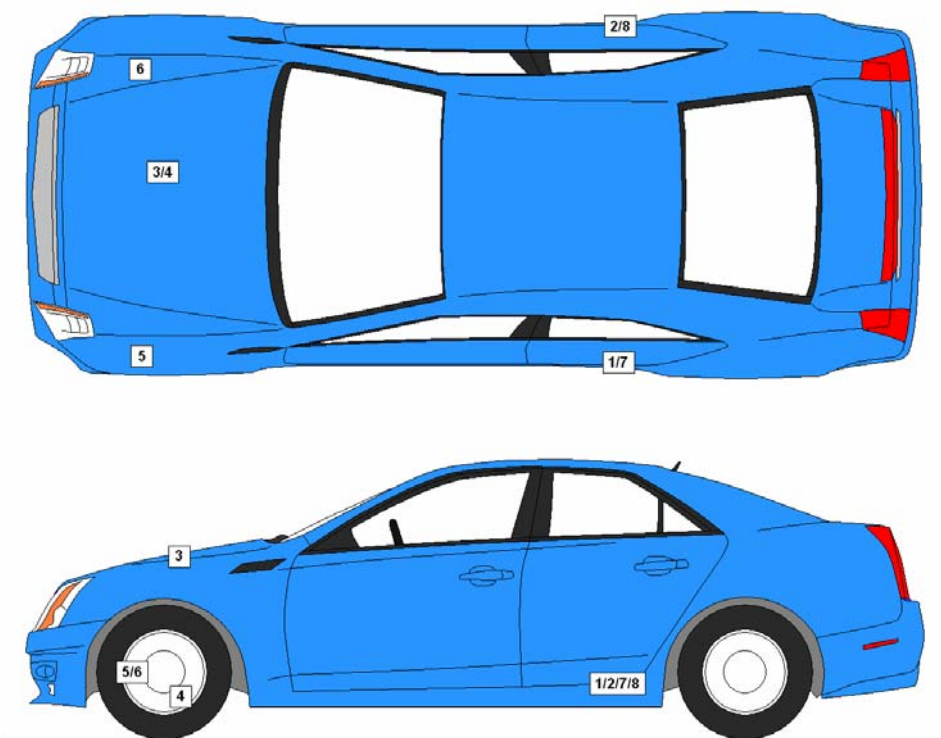
Reference Points: X – Front Surface of Vehicle (+ Forward)
 Y – Vehicle Centerline (+ Passenger Side)
 Z – Ground Plane (+ Down)

NOTE: Camera Views 15, 16 and 17 failed during the test.

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Cross Member X	1750	-690	320
2	Right Rear Cross Member X	1750	670	320
3	Engine Top X	3705	-210	845
4	Engine Bottom X	3695	-210	156
5	Left Brake Caliper X	3690	-720	275
6	Right Brake Caliper X	3690	720	275
7	Left Rear Cross Member Z	1750	-690	320
8	Right Rear Cross Member Z	1750	670	320

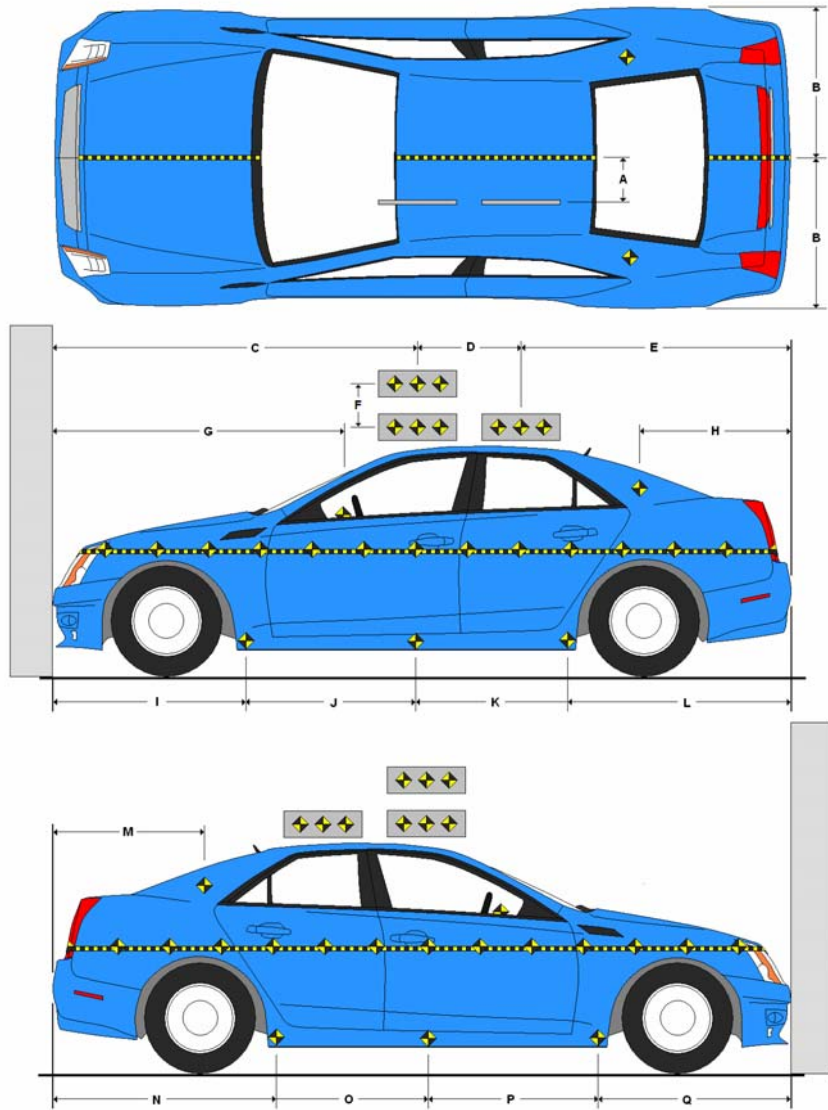
Reference Points: X – Rear Surface of Vehicle (+ Forward)
Y – Vehicle Centerline (+ Passenger Side)
Z – Ground Plane (+ Up)

DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

Item	Value
A	350
B	843
C	2070
D	605
E	1800
F	277
G	1600
H	1062
I	1313
J	873
K	878
L	1389
M	1060
N	1383
O	875
P	875
Q	1322



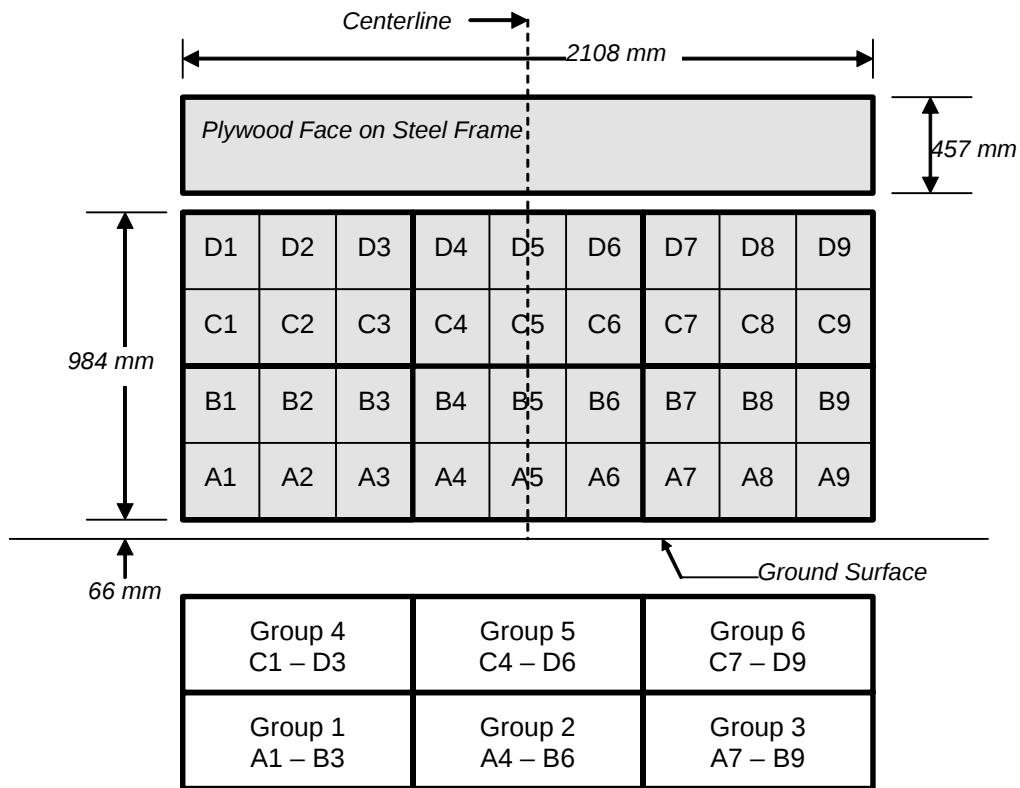
All measurements in millimeters.

DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

36 Load Cell Rigid Barrier (NHTSA Standard) Load Cell Locations on Fixed Barrier



6 Groups of 6 Load Cells Each

DATA SHEET NO. 10

TEST VEHICLE CAMERA AND INSTRUMENTATION SUMMARY

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

INSTRUMENTATION

Driver Dummy Accelerometers	44
Passenger Dummy Accelerometers	44
Vehicle Structure Accelerometers	8
Load Cell Barrier	36
Total	132

CAMERA COVERAGE

High-Speed Vehicle On-Board	
High-Speed Offboard	13
Real Time	3
Total	16

DATA SHEET NO. 11

POST-TEST OBSERVATIONS

Test Vehicle:	2011 Nissan Versa 4-Door Sedan	NHTSA No.:	MB5217
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	08/16/10

TEST DUMMY INFORMATION AND CONTACT

Description	Driver	Passenger
Dummy Type/Serial No.	P572E 50th Percentile Male ATD / 035	P572O 5th Percentile Female ATD / 141
Head Contact	Airbag, Headrest	Airbag, Headrest
Upper Torso Contact	Airbag	Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster	Glovebox
Right Knee Contact	Knee Bolster	Glovebox

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Rear Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Seat Track Shift (mm)	19 mm	16 mm
Seat Back Failure	None	None
Glazing Damage	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Broken, Lower Separation
Window Damage	None
Other Notable Effects	None

VEHICLE REBOUND FROM BARRIER

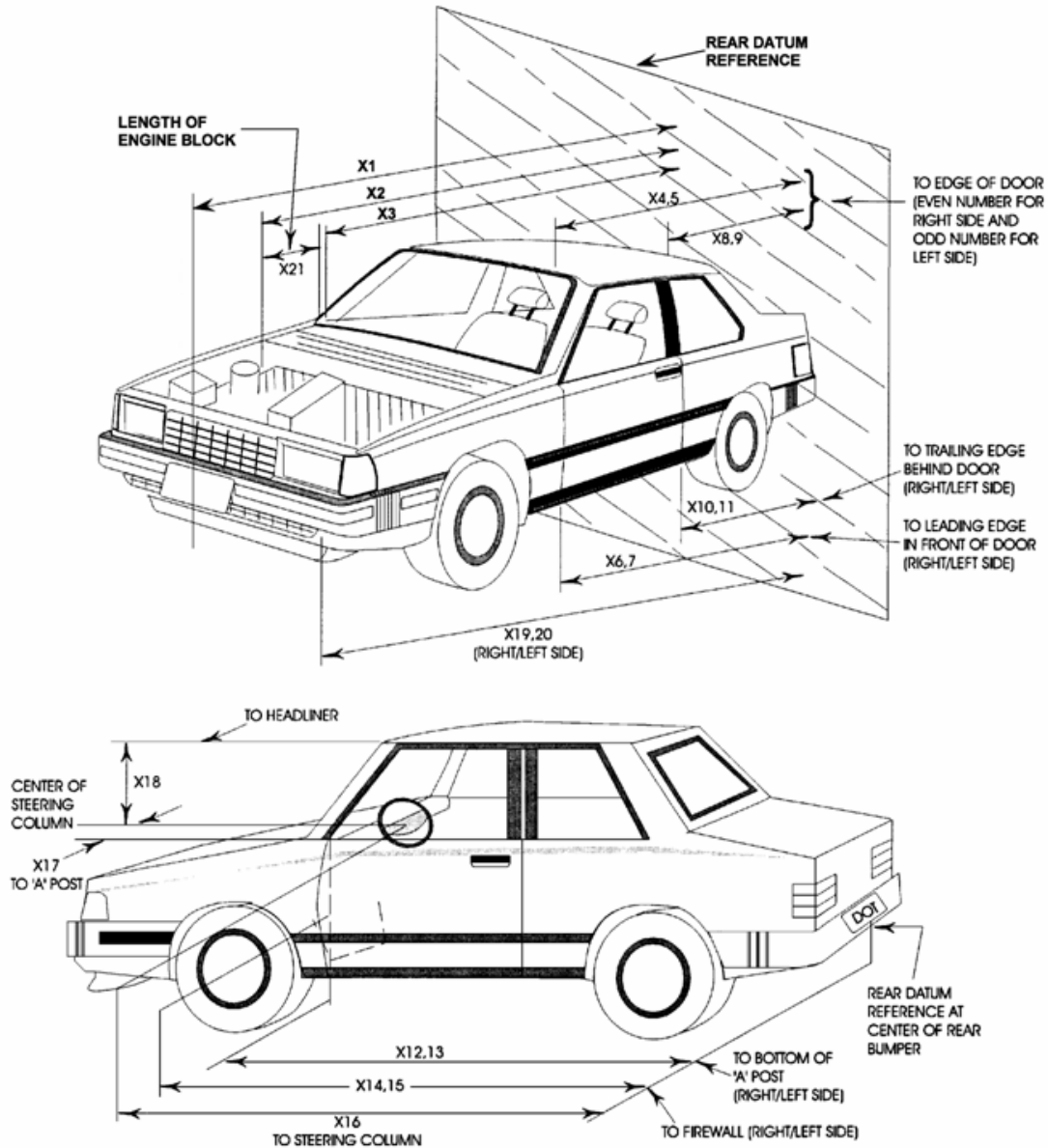
Measured Parameter	Units	Value
Left Side	mm	3254
Center	mm	3211
Right Side	mm	3238
Average	mm	3234

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Curtain Airbag	Yes	No	Yes	No
Torso Airbag	Yes	No	Yes	No
Knee Airbag	No		No	
Seat Belt Pretensioner	Yes	Yes	Yes	No
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

DATA SHEET NO. 12
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

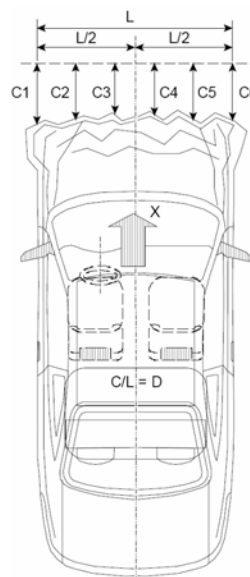


DATA SHEET NO. 12 ... (CONTINUED)**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4465	4155	-310
2	Rear Surface of Vehicle to Front of Engine	3905	3732	-173
3	RSOV to Firewall	3575	3558	-17
4	RSOV to Upper Leading Edge of Right Door	3152	3154	2
5	RSOV to Upper Leading Edge of Left Door	3161	3160	-1
6	RSOV to Lower Leading Edge of Right Door	3115	3116	1
7	RSOV to Lower Leading Edge of Left Door	3117	3112	-5
8	RSOV to Upper Trailing Edge of Right Door	2020	2035	15
9	RSOV to Upper Trailing Edge of Left Door	2028	2030	2
10	RSOV to Lower Trailing Edge of Right Door	2005	2009	4
11	RSOV to Lower Trailing Edge of Left Door	2015	2005	-10
12	RSOV to Bottom of A-Pillar of Right Side	3021	3033	12
13	RSOV to Bottom of A-Pillar Left Side	3021	3020	-1
14	RSOV to Firewall, Right Side	3530	3482	-48
15	RSOV to Firewall, Left Side	3495	3460	-35
16	RSOV to Steering Column	2675	2720	45
17	Center of Steering Column to A-Pillar	400	375	-25
18	Center of Steering Column to Headliner	420	438	18
19	RSOV to Right Side of Front Bumper	3834	3650	-184
20	RSOV to Left Side of Front Bumper	3839	3583	-256
21	Length of Engine Block	375	375	0
RD	RSOV to Right Side of Dash Panel	2880	2903	23
CD	RSOV to Center of Dash Panel	2790	2810	20
LD	RSOV to Left Side of Dash Panel	2900	2893	-7

All measurements in millimeters.

DATA SHEET NO. 13**ACCIDENT INVESTIGATION DATA**Test Vehicle: 2011 Nissan Versa 4-Door SedanNHTSA No.: MB5217Test Program: 56 km/h Frontal Impact NCAP TestTest Date: 08/16/10**VEHICLE INFORMATION**VIN: 3N1CC1AP5BL366891Wheelbase (mm): 2602Vehicle Size Category: 4-Door SedanTest Weight (kg): 1338.0**ACCELEROMETER DATA**Accelerometer Locations: Left Rear CrossmemberCal. Procedure/Interval: Drop Test / 6 monthsIntegration Algorithm: NHTSA StandardImpact Velocity (km/h): 56.28Velocity Change (km/h): 63.1Time of Separation (msec): 66.9Linearity: Good**CRUSH PROFILE**Collision Deformation Classification: 12FCEW2Midpoint of Damage: Vehicle CenterlineDamage Region Length (mm): 1685Impact Mode: Full Frontal

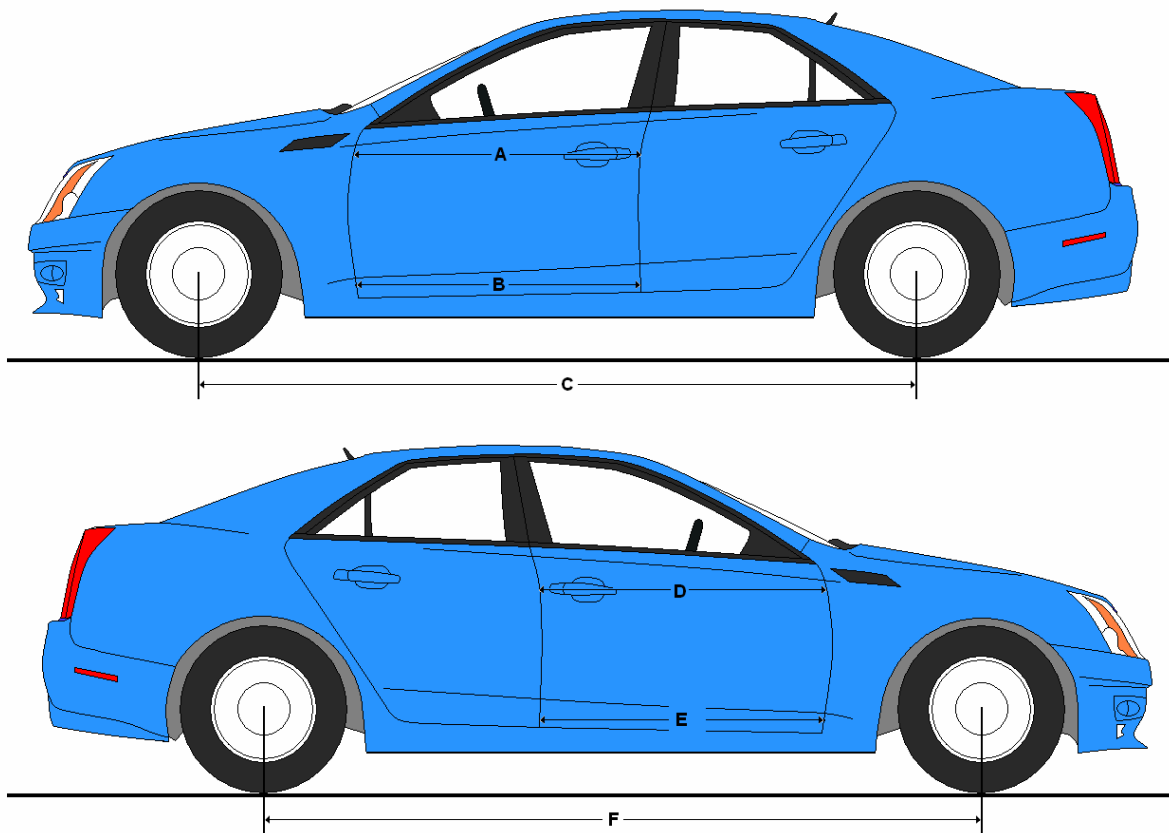
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	630	846	-216
C2	Crush Zone 2 at Left Side	mm	103	397	-294
C3	Crush Zone 3 at Left Side	mm	20	327	-307
C4	Crush Zone 4 at Right Side	mm	20	322	-302
C5	Crush Zone 5 at Right Side	mm	107	368	-261
C6	Crush Zone 6 at Right Side	mm	633	795	-162
L	C1 to C6	mm	1685		

DATA SHEET NO. 14**VEHICLE INTRUSION MEASUREMENTS**Test Vehicle: 2011 Nissan Versa 4-Door SedanNHTSA No.: MB5217Test Program: 56 km/h Frontal Impact NCAP TestTest Date: 08/16/10**DOOR OPENING WIDTH**

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	921	918	-3
B	Left Side Lower	mm	906	903	-3
D	Right Side Upper	mm	921	916	-5
E	Right Side Lower	mm	936	927	-9

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2601	2532	-69
F	Right Side Wheelbase	mm	2603	2587	-16



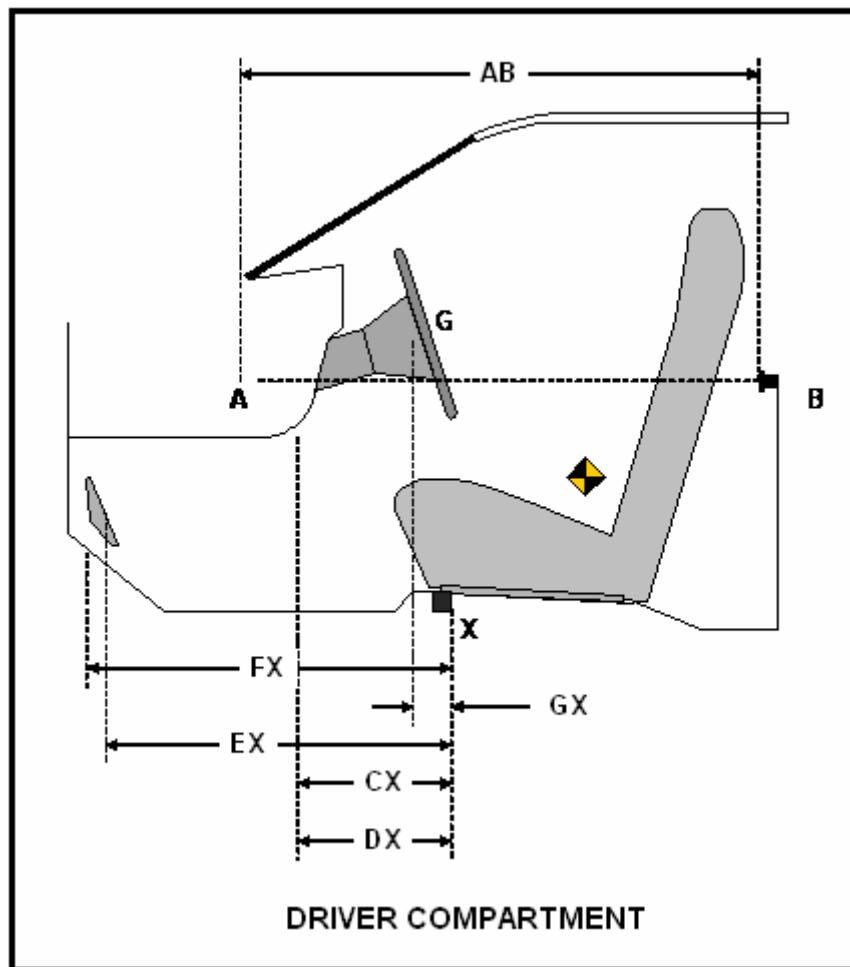
DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

DRIVER COMPARTMENT INTRUSION

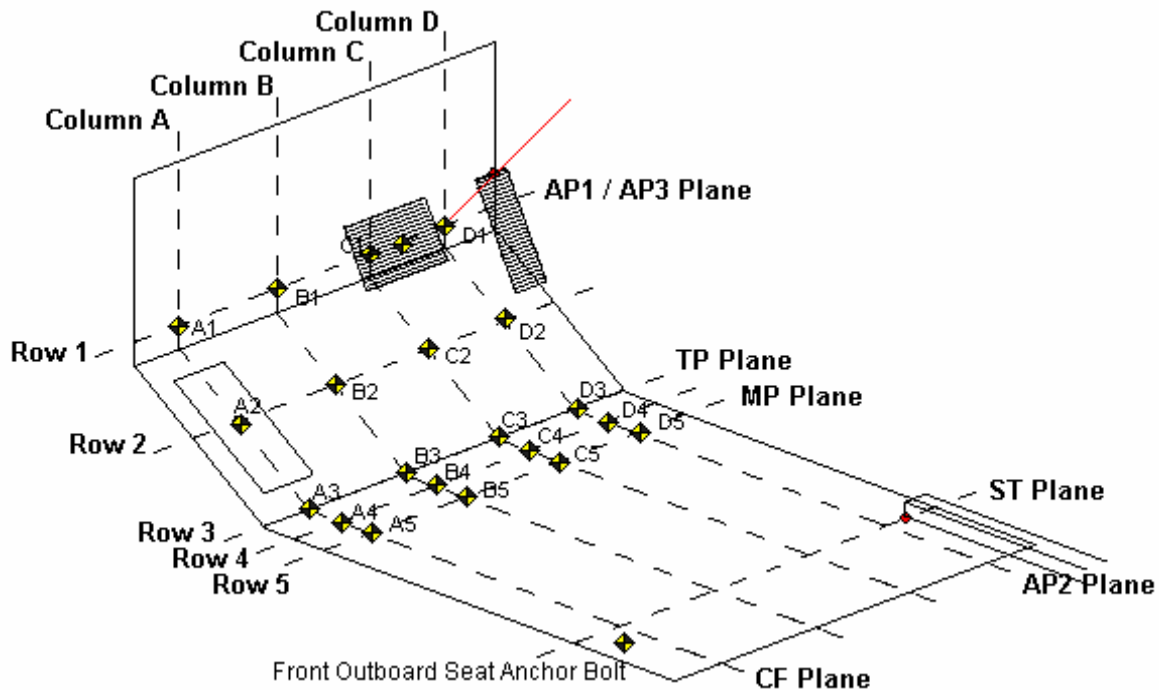
Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	921	918	-3
CX	Left Knee Bolster to X	mm	348	330	-18
DX	Right Knee Bolster to X	mm	311	319	8
EX	Brake Pedal to X	mm	511	420	-91
FX	Foot Rest to X	mm	575	555	-20
GX	Center of Steering Wheel Hub to X	mm	80	110	30

X = Front of Seat Track (Stationary)



DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2011 Nissan Versa 4-Door Sedan	NHTSA No.:	MB5217
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	08/16/10



AP1: Y-Z Plane passing through D1

AP2: X-Z Plane passing through D1

AP3: X-Y plane passing through D1

MP: Y-Z plane, halfway between the ST plane and AP1 plane

CF Plane: X-Z plane passes through center of footrest.

BP Plane: X-Z plane passes through center of brake pedal

TP Plane: Y-Z plane, intersection of BP Plane and the intersection of the toe pan and floorboard

Column A: intersection of vehicle and CF plane

Column D: Intersection of vehicle and AP2 plane

Row 1: intersection of the vehicle and the AP3 Plane

Row 3: intersection of the vehicle and TP plane

Row 5: intersection of the vehicle and MP plane

Row 2: evenly spaced between row 1 and 3

Row 4: evenly spaced between row 3 and 5

DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

DRIVER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	637	660	662	663	605	632	618	614	-32	-28	-44	-49
2	556	543	553	553	544	528	523	528	-12	-15	-30	-25
3	417	410	410	407	413	399	402	402	-4	-11	-8	-5
4	334	327	326	323	328	316	320	319	-6	-11	-6	-4
5	250	247	249	252	244	237	244	248	-6	-10	-5	-4

DRIVER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-25	-144	-263	-392	-24	-145	-263	-391	1	-1	0	1
2	-8	-141	-264	-397	-4	-138	-256	-392	4	3	8	5
3	-12	-141	-261	-398	-7	-138	-254	-391	5	3	7	7
4	-12	-142	-258	-393	-2	-139	-251	-386	10	3	7	7
5	-12	-141	-257	-392	-1	-136	-251	-385	11	5	6	7

DRIVER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	68	52	57	62	108	85	91	99	40	33	34	37
2	-46	-15	-38	-23	-22	0	-13	-13	24	15	25	10
3	-86	-38	-79	-72	-63	-38	-85	-88	23	0	-6	-16
4	-105	-41	-80	-74	-86	-49	-96	-97	19	-8	-16	-23
5	-111	-44	-77	-74	-90	-59	-111	-94	21	-15	-34	-20

All measurements in millimeters

DATA SHEET NO. 14 ... (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
 Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

PASSENGER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	648	648	640	614	598	615	620	602	-50	-33	-20	-12
2	538	542	532	542	517	522	524	539	-21	-20	-8	-3
3	404	407	404	410	400	403	396	408	-4	-4	-8	-2
4	324	325	329	335	321	321	323	331	-3	-4	-6	-4
5	245	249	247	256	241	244	241	249	-4	-5	-6	-7

PASSENGER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	388	251	132	-4	389	254	135	-5	1	3	3	-1
2	387	256	133	-11	385	250	135	-12	-2	-6	2	-1
3	388	259	133	-13	383	258	133	-13	-5	-1	0	0
4	389	258	136	-13	386	255	135	-17	-3	-3	-1	-4
5	389	259	136	-15	387	255	135	-17	-2	-4	-1	-2

PASSENGER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	44	42	42	56	63	55	53	69	19	13	11	13
2	-29	-42	-13	-45	-42	-41	-14	-37	-13	1	-1	8
3	-75	-78	-36	-80	-104	-92	-45	-78	-29	-14	-9	2
4	-77	-79	-39	-101	-100	-97	-52	-92	-23	-18	-13	9
5	-77	-79	-44	-106	-104	-101	-60	-93	-27	-22	-16	13

All measurements in millimeters

DATA SHEET NO. 15

SUMMARY OF FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

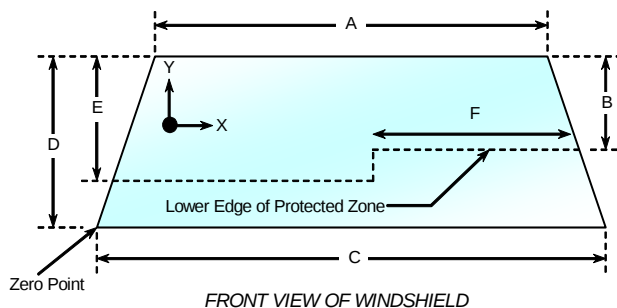
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with rubber cement type adhesive and plastic molding.

The standard requires that the post-test retention measurement be a minimum of 75% of the pre-test total periphery measurement for vehicles not equipped with occupant passive restraints and 50% for each side of the windshield for vehicles which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 22° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2086	2086	
Right Side	2086	2086	
Total	4172	4172	100%



Item	Units	Value
A	mm	1190
B	mm	470
C	mm	1330
D	mm	826
E	mm	518
F	mm	505

AREAS OF PROTECTED ZONE FAILURES

- A. Provide Coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one that is normally in contact with the windshield.

X	Y

- B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component.

X	Y

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

Temperature at Time of Impact: 38.3° Test Time: 1:05 PM

Stoddard Solvent Spillage Measurements

- 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: No spillage occurred

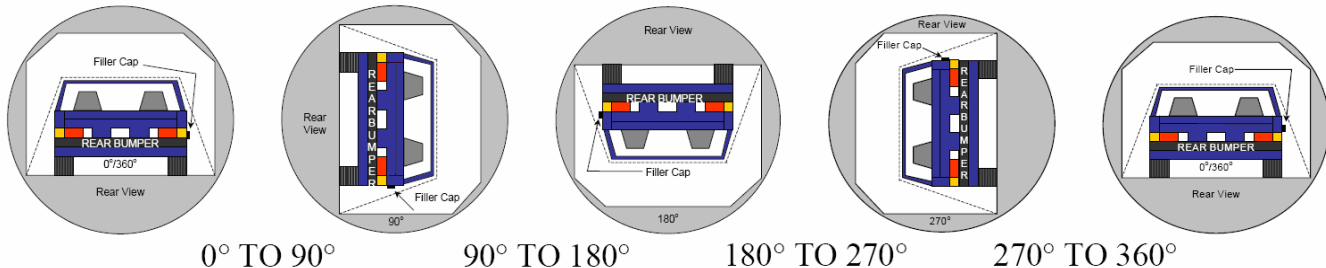
DATA SHEET NO. 17
FMVSS 301 STATIC ROLLOVER

Test Vehicle: 2011 Nissan Versa 4-Door Sedan

NHTSA No.: MB5217

Test Program: 56 km/h Frontal Impact NCAP Test

Test Date: 08/16/10



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard solvent spillage: No spillage occurred

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	85	350	435
90° To 180°	88	300	388
180° To 270°	87	300	387
270° To 360°	86	300	386

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			
270° To 360°	0			

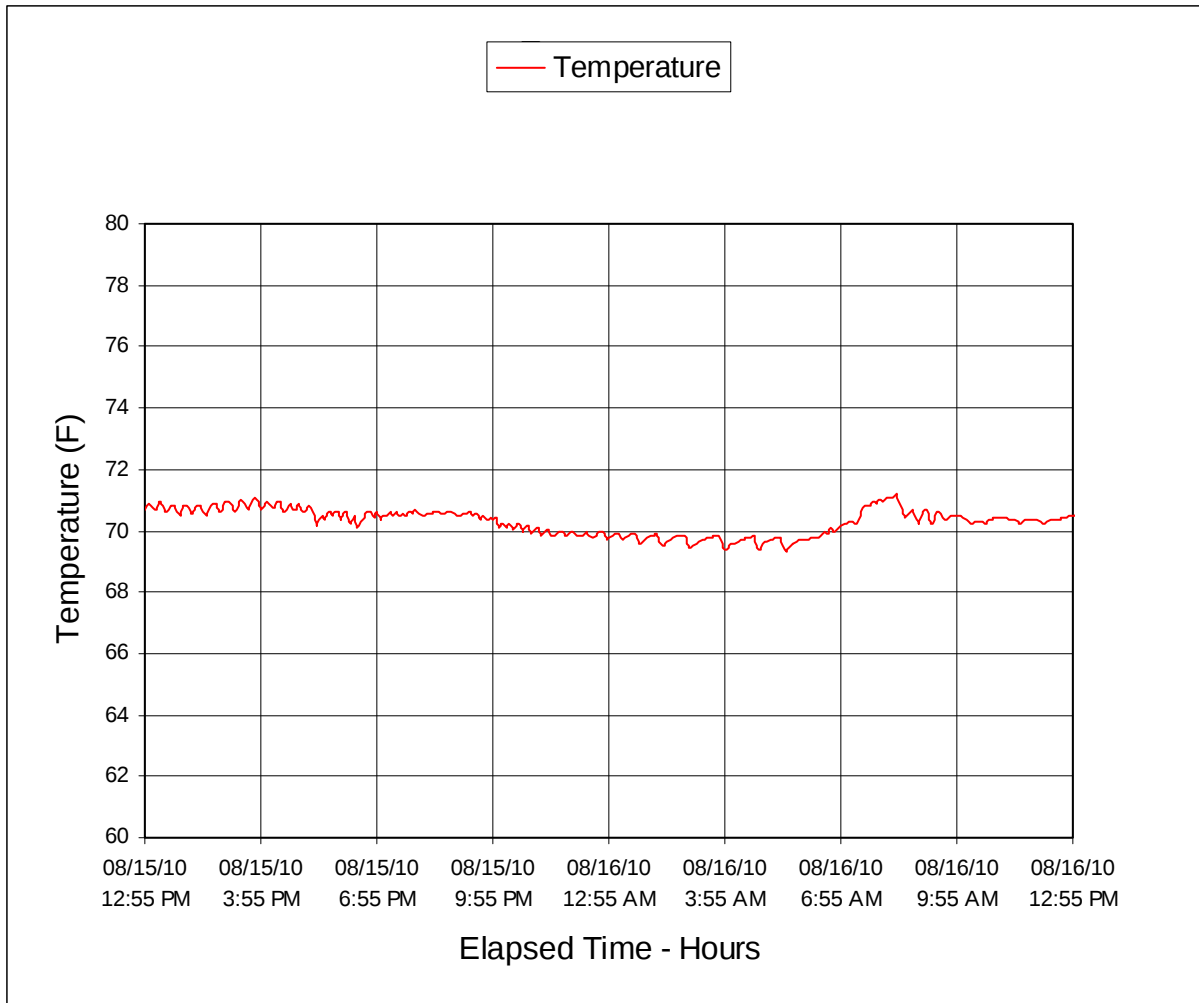
SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 18

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2011 Nissan Versa 4-Door Sedan NHTSA No.: MB5217
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 08/16/10



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Figure		Page
1	Load Cell Location	A-1
2	Load Cell Wall	A-1
3	Manufacturer's Label	A-2
4	Tire Placard	A-2
5	Right Front $\frac{3}{4}$ View, as Received	A-3
6	Left Rear $\frac{3}{4}$ View, as Received	A-3
7	Pre-Test Front View of Test Vehicle	A-4
8	Post-Test Front View of Test Vehicle	A-4
9	Pre-Test Left View of Test Vehicle	A-5
10	Post-Test Left View of Test Vehicle	A-5
11	Pre-Test Right View of Test Vehicle	A-6
12	Post-Test Right View of Test Vehicle	A-6
13	Pre-Test Right Front $\frac{3}{4}$ View	A-7
14	Post-Test Right Front $\frac{3}{4}$ View	A-7
15	Pre-Test Left Rear $\frac{3}{4}$ View	A-8
16	Post-Test Left Rear $\frac{3}{4}$ View	A-8
17	Pre-Test Windshield View	A-9
18	Post-Test Windshield View	A-9
19	Pre-Test Engine Compartment View	A-10
20	Post-Test Engine Compartment View	A-10
21	Pre-Test Fuel Filler Cap View	A-11
22	Post-Test Fuel Filler Cap View	A-11
23	Pre-Test Front Underbody View1	A-12
24	Post-Test Front Underbody View1	A-12
25	Pre-Test Rear Underbody View1	A-13
26	Post-Test Rear Underbody View1	A-13
27	Pre-Test Dummy Cable Routing	A-14
28	Post-Test Dummy Cable Routing	A-14
29	Pre-Test Driver Dummy Front View	A-15
30	Post-Test Driver Dummy Front View	A-15
31	Pre-Test Driver Dummy Window View	A-16
32	Post-Test Driver Dummy Window View	A-16
33	Pre-Test Driver Dummy and Vehicle Interior View	A-17
34	Post-Test Driver Dummy and Vehicle Interior View	A-17
35	Pre-Test Driver's Seat Fore-Aft Markings	A-18

TABLE OF PHOTOGRAPHS --- (CONTINUED)

Figure		Page
36	Post-Test Driver's Seat Fore-Aft Markings	A-18
37	Pre-Test Driver Dummy Feet	A-19
38	Post-Test Driver Dummy Feet	A-19
39	Pre-Test Driver's Side Knee Bolster	A-20
40	Post-Test Driver's Side Knee Bolster	A-20
41	Pre-Test Driver's Side Floorpan	A-21
42	Post-Test Driver's Side Floorpan	A-21
43	Post-Test Driver Dummy Contact With Airbag	A-22
43a	Post-Test Driver Dummy Contact With Headrest	A-22
43b	Post-Test Driver Dummy Contact With Knee Bolster	A-23
44	Pre-Test View of the Steering Column Shear Capsule	A-23
45	Post-Test View of the Steering Column Shear Capsule	A-24
46	Pre-Test Passenger Dummy Front View	A-24
47	Post-Test Passenger Dummy Front View	A-25
48	Pre-Test Passenger Dummy Window View	A-25
49	Post-Test Passenger Dummy Window View	A-26
50	Pre-Test Passenger Dummy and Vehicle Interior View	A-26
51	Post-Test Passenger Dummy and Vehicle Interior View	A-27
52	Pre-Test Passenger's Seat Fore-Aft Markings	A-27
53	Post-Test Passenger's Seat Fore-Aft Markings	A-28
54	Pre-Test Passenger Dummy Feet	A-28
55	Post-Test Passenger Dummy Feet	A-29
56	Pre-Test Passenger's Side Knee Bolster	A-29
57	Post-Test Passenger's Side Knee Bolster	A-30
58	Pre-Test Passenger's Side Floorpan	A-30
59	Post-Test Passenger's Side Floorpan	A-31
60	Post-Test Passenger Dummy Contact With Airbag	A-31
60a	Post-Test Passenger Dummy Contact With Headrest	A-32
60b	Post-Test Passenger Dummy Contact With Knee Bolster	A-32
61	Photograph of ballast installed in vehicle	A-33
62	Post-Test Stoddard Solvent Spillage Location	A-33
63	Post-Test Speed Trap Read-out	A-34
64	Vehicle at 0° on Static Rollover Device	A-34
65	Vehicle at 90° on Static Rollover Device	A-35
66	Vehicle at 180° on Static Rollover Device	A-35

TABLE OF PHOTOGRAPHS --- (CONTINUED)

Figure		Page
67	Vehicle at 270° on Static Rollover Device	A-36
68	Vehicle at 360° on Static Rollover Device	A-36
69	Impact Photograph (video still)	A-37
70	Monroney Label Photograph	A-37

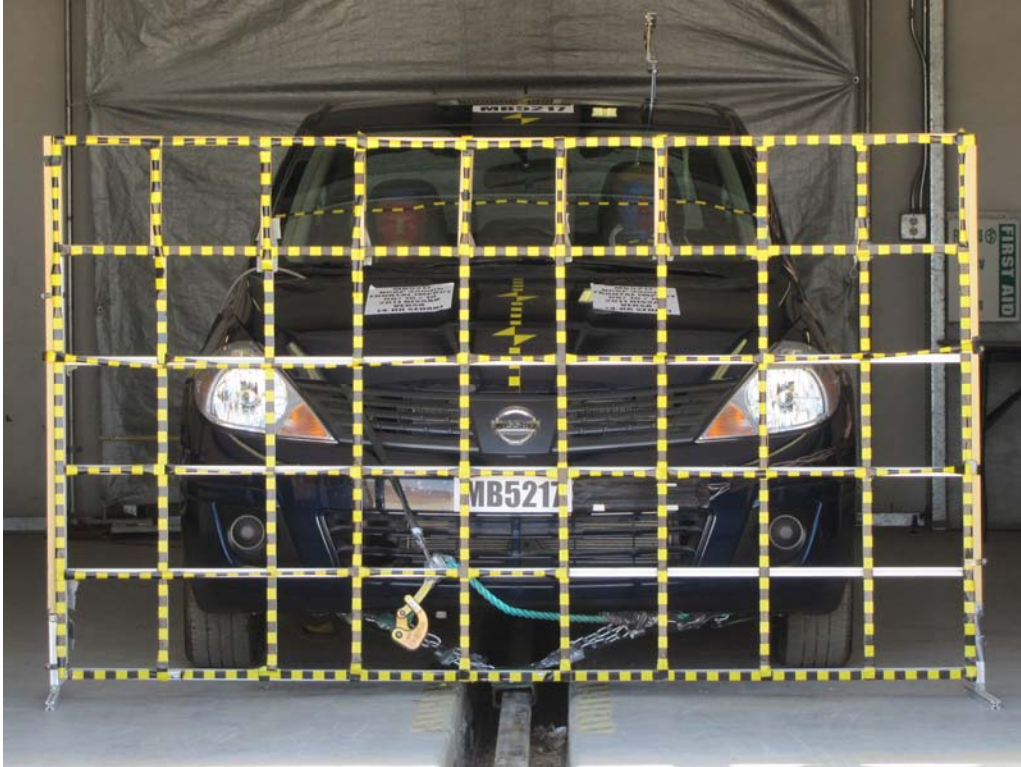


FIGURE 1. Load Cell Location

Photograph Not Available

FIGURE 2. Load Cell Wall



FIGURE 3. Manufacturer's Label



FIGURE 4. Tire Placard



FIGURE 5. Right Front $\frac{3}{4}$ View, As Received



FIGURE 6. Left Rear $\frac{3}{4}$ View of Vehicle, As Received



FIGURE 7. Pre-Test Front View of Test Vehicle

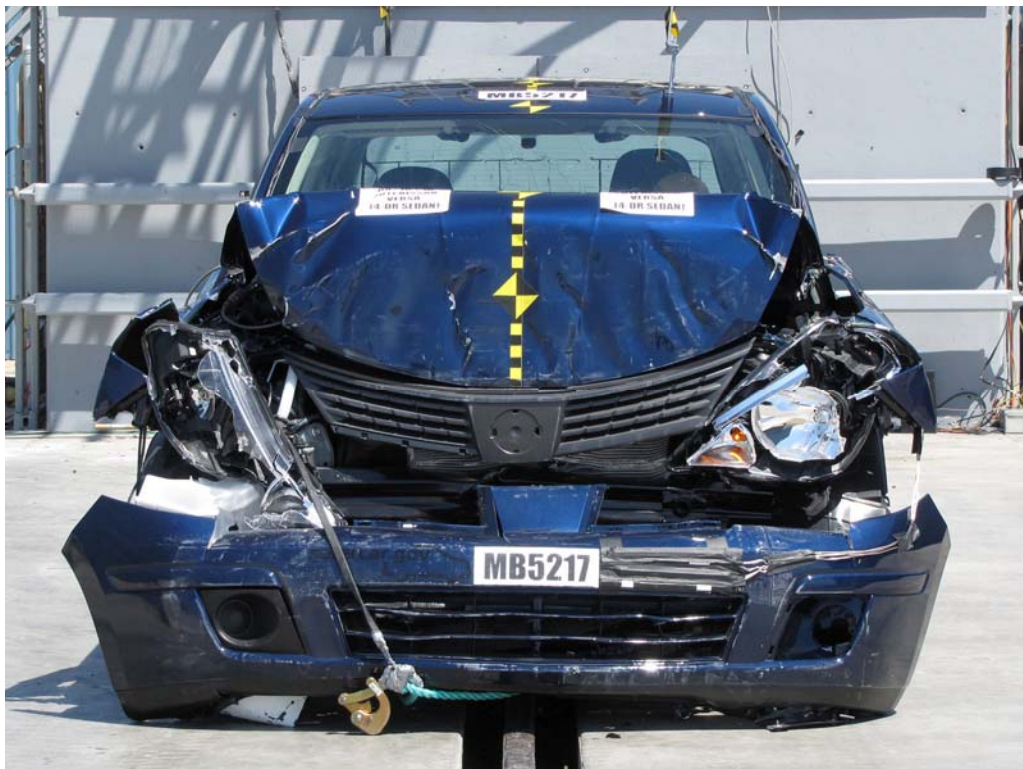


FIGURE 8. Post-Test Front View of Test Vehicle



FIGURE 9. Pre-Test Left View of Test Vehicle



FIGURE 10. Post-Test Left View of Test Vehicle



FIGURE 11. Pre-Test Right View of Test Vehicle



FIGURE 12. Post-Test Right View of Test Vehicle



FIGURE 13. Pre-Test Right Front $\frac{3}{4}$ View



FIGURE 14. Post-Test Right Front $\frac{3}{4}$ View



FIGURE 15. Pre-Test Left Rear $\frac{3}{4}$ View



FIGURE 16. Post-Test Left Rear $\frac{3}{4}$ View

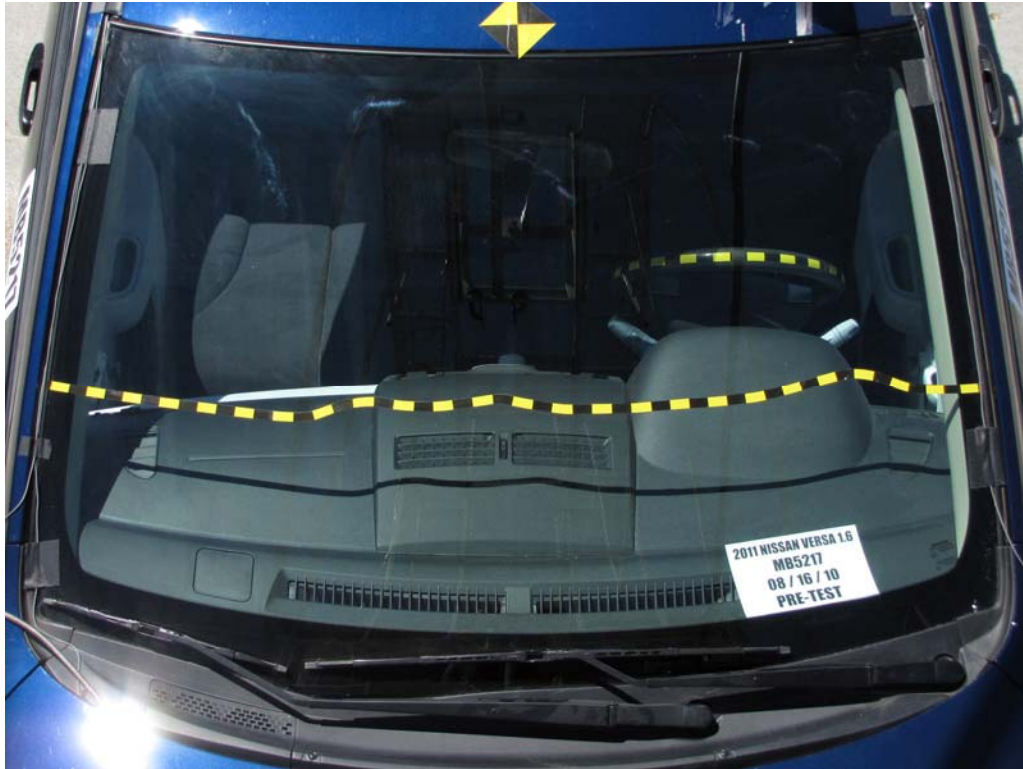


FIGURE 17. Pre-Test Windshield View



FIGURE 18. Post-Test Windshield View



FIGURE 19. Pre-Test Engine Compartment View



FIGURE 20. Post-Test Engine Compartment View



FIGURE 21. Pre-Test Fuel Filler Cap View



FIGURE 22. Post-Test Fuel Filler Cap View

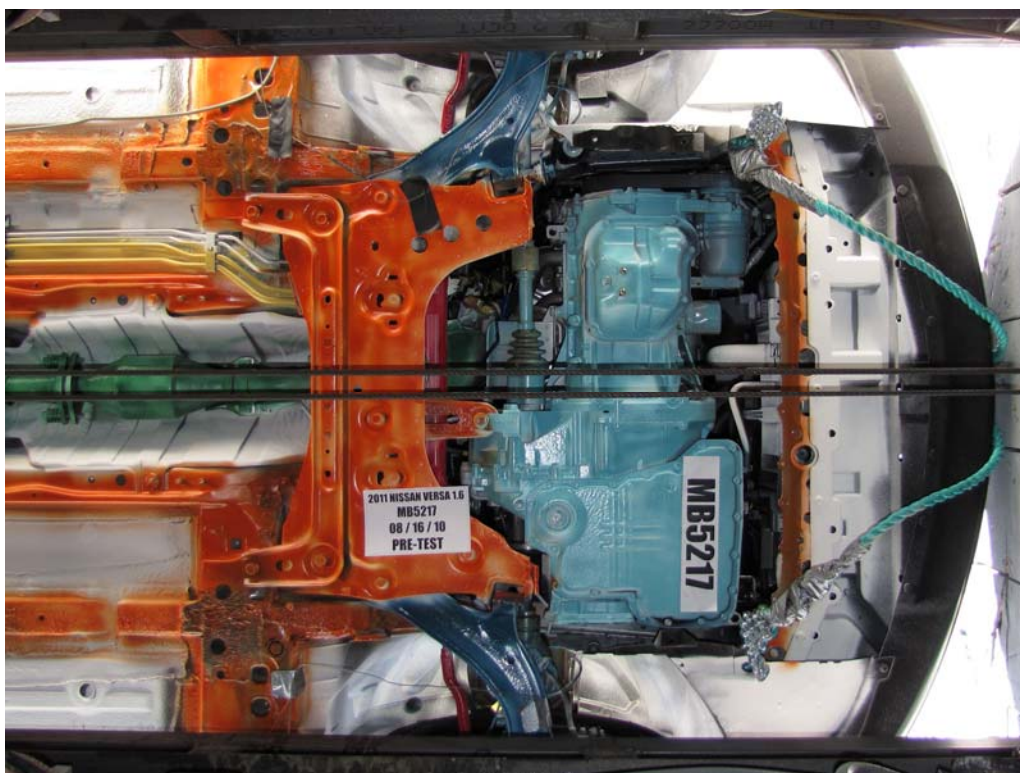


FIGURE 23. Pre-Test Front Underbody View

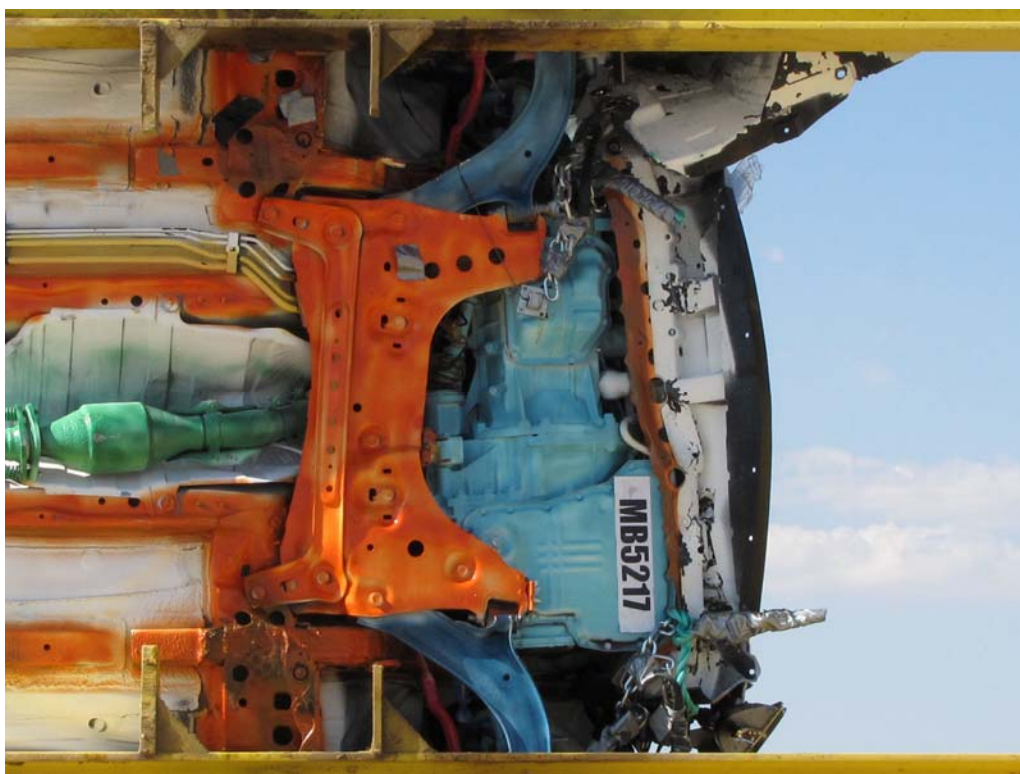


FIGURE 24. Post-Test Front Underbody View

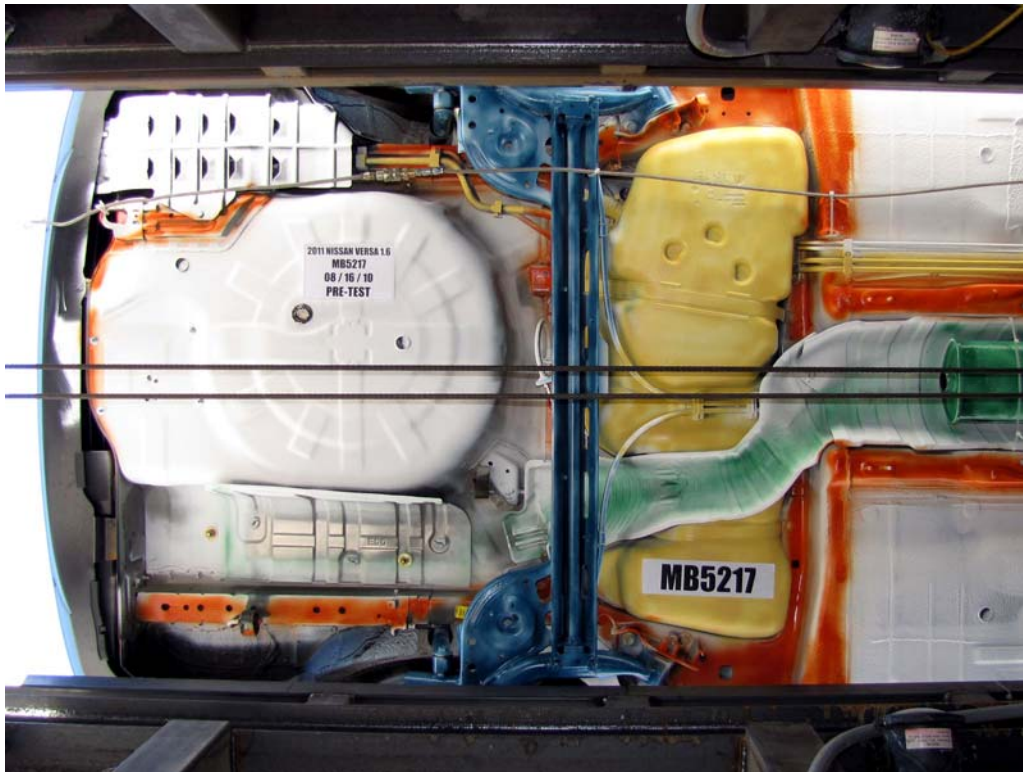


FIGURE 25. Pre-Test Rear Underbody View

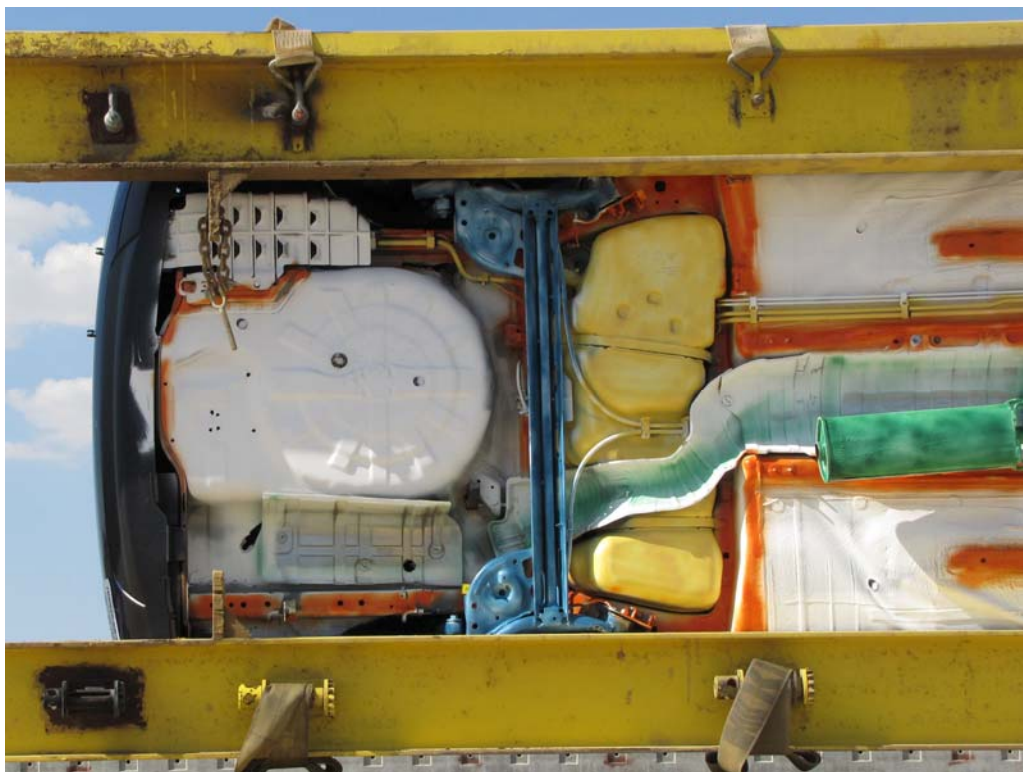


FIGURE 26. Post-Test Rear Underbody View

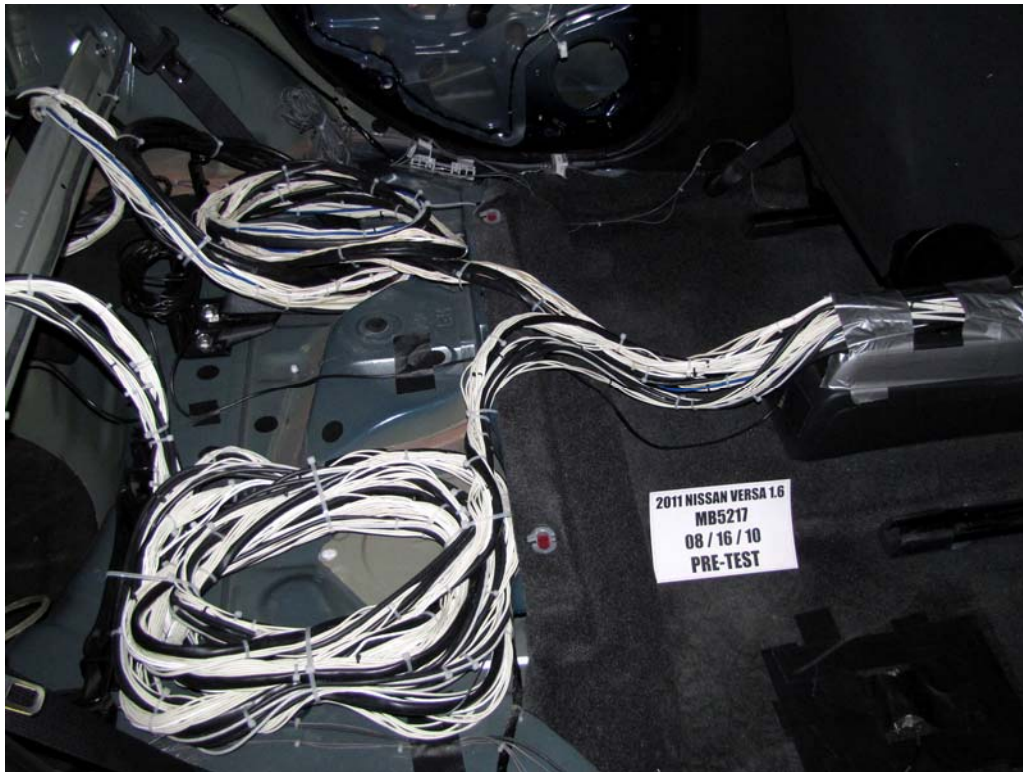


FIGURE 27. Pre-Test Dummy Cable Routing



FIGURE 28. Post-Test Dummy Cable Routing

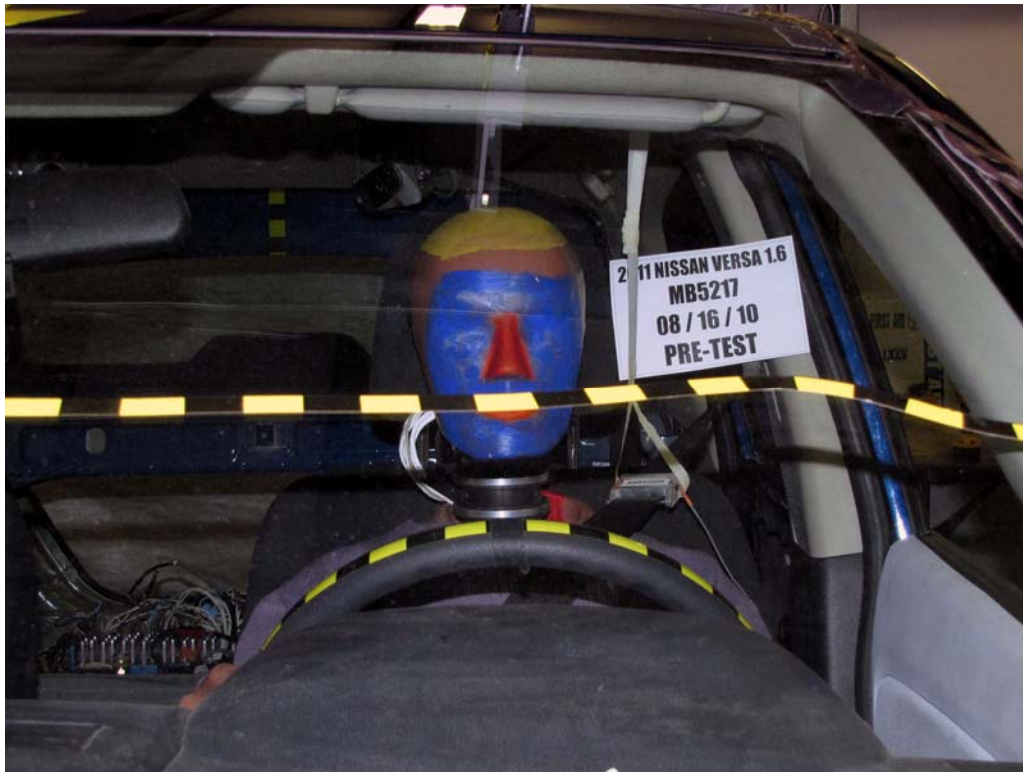


FIGURE 29. Pre-Test Driver Dummy Front View



FIGURE 30. Post-Test Driver Dummy Front View



FIGURE 31. Pre-Test Driver Dummy Window View



FIGURE 32. Post-Test Driver Dummy Window View



FIGURE 33. Pre-Test Driver Dummy and Vehicle Interior View

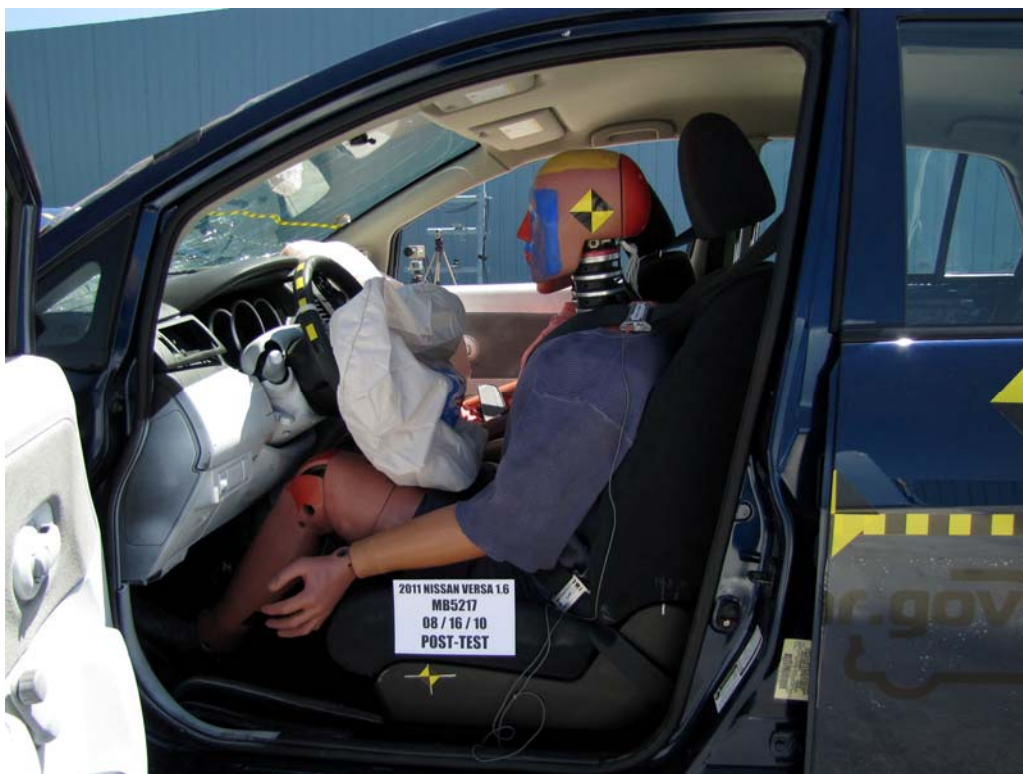


FIGURE 34. Post-Test Driver Dummy and Vehicle Interior View



FIGURE 35. Pre-Test Driver's Seat Fore-Aft Markings



FIGURE 36. Post-Test Driver's Seat Fore-Aft Markings

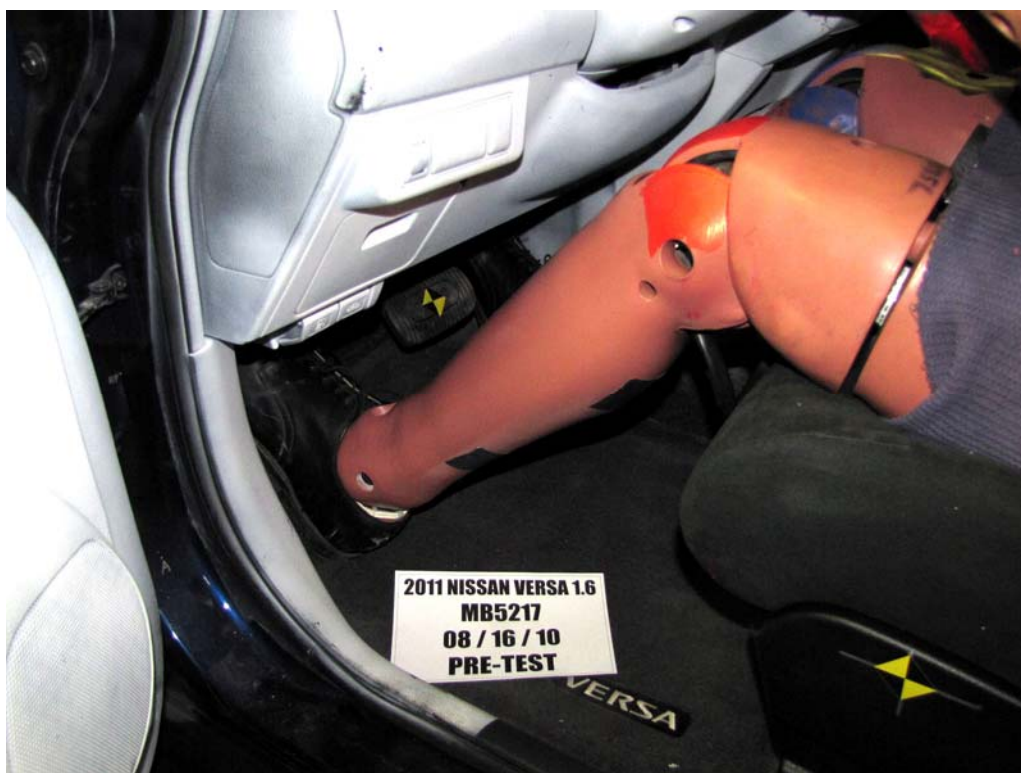


FIGURE 37. Pre-Test Driver Dummy Feet



FIGURE 38. Post-Test Driver Dummy Feet



FIGURE 39. Pre-Test Driver's Side Knee Bolster



FIGURE 40. Post-Test Driver's Side Knee Bolster



FIGURE 41. Pre-Test Driver's Side Floorpan



FIGURE 42. Post-Test Driver's Side Floorpan



FIGURE 43. Post-Test Driver Dummy Contact With Airbag



FIGURE 43a. Post-Test Driver Dummy Contact With Headrest



FIGURE 43b. Post-Test Driver Dummy Contact With Knee Bolster



FIGURE 44. Pre-Test View of Steering Column Shear Capsule

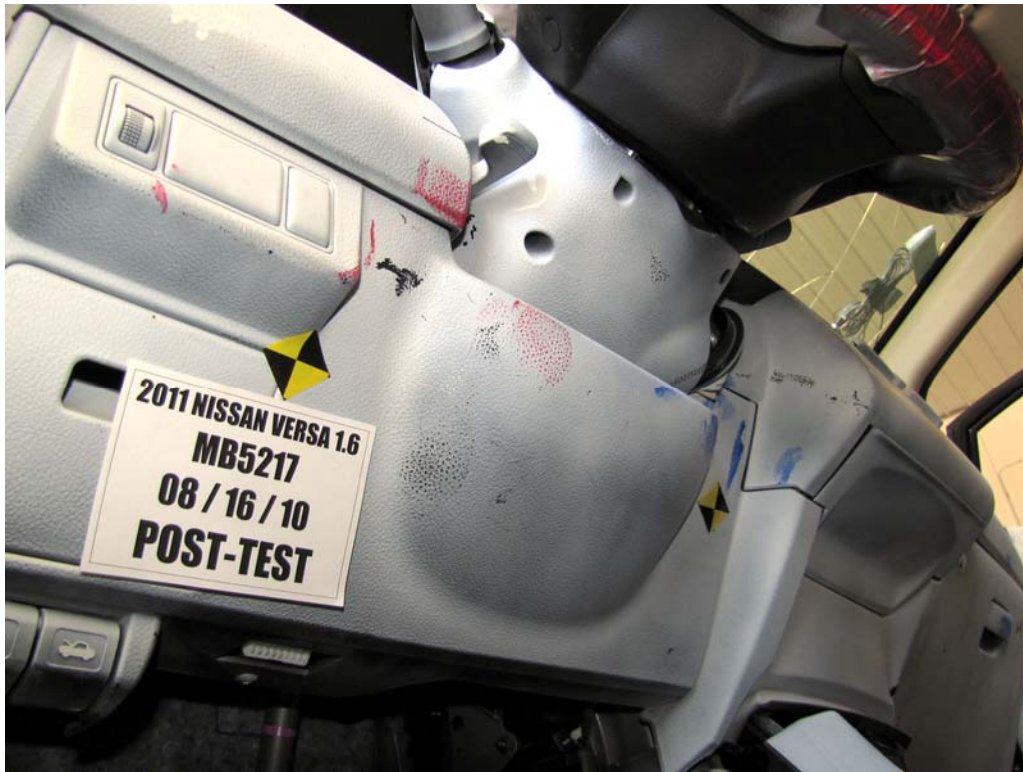


FIGURE 45. Post-Test View of Steering Column Shear Capsule



FIGURE 46. Pre-Test Passenger Dummy Front View



FIGURE 47. Post-Test Passenger Dummy Front View



FIGURE 48. Pre-Test Passenger Dummy Window View



FIGURE 49. Post-Test Passenger Dummy Window View



FIGURE 50. Pre-Test Passenger Dummy and Vehicle Interior View



FIGURE 51. Post-Test Passenger Dummy and Vehicle Interior View



FIGURE 52. Pre-Test Passenger's Seat Fore-Aft Markings



FIGURE 53. Post-Test Passenger's Seat Fore-Aft Markings



FIGURE 54. Pre-Test Passenger Dummy Feet



FIGURE 55. Post-Test Passenger Dummy Feet



FIGURE 56. Pre-Test Passenger's Side Knee Bolster



FIGURE 57. Post-Test Passenger's Side Knee Bolster



FIGURE 58. Pre-Test Passenger's Side Floorpan



FIGURE 59. Post-Test Passenger's Side Floorpan



FIGURE 60. Post-Test Passenger Dummy Contact With Airbag



FIGURE 60a. Post-Test Passenger Dummy Contact With Headrest



FIGURE 60b. Post-Test Passenger Dummy Contact With Knee Bolster



FIGURE 61. Pre-Test of Ballast Installed in Vehicle

Photograph Not Applicable
No Stoddard
Solvent Spillage

FIGURE 62. Post-Test Stoddard Solvent Spillage Location



FIGURE 63. Post-Test Speed Trap Read Out

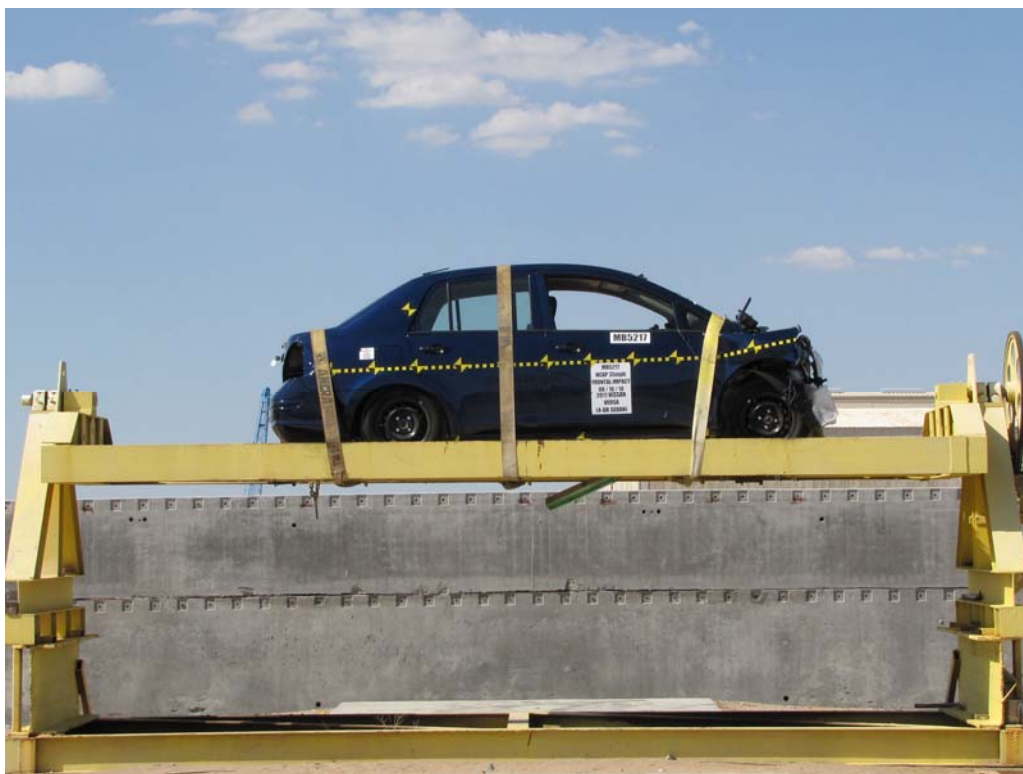


FIGURE 64. Vehicle at 0° on Static Rollover Device



FIGURE 65. Vehicle at 90°on Static Rollover Device



FIGURE 66. Vehicle at 180°on Static Rollover Device

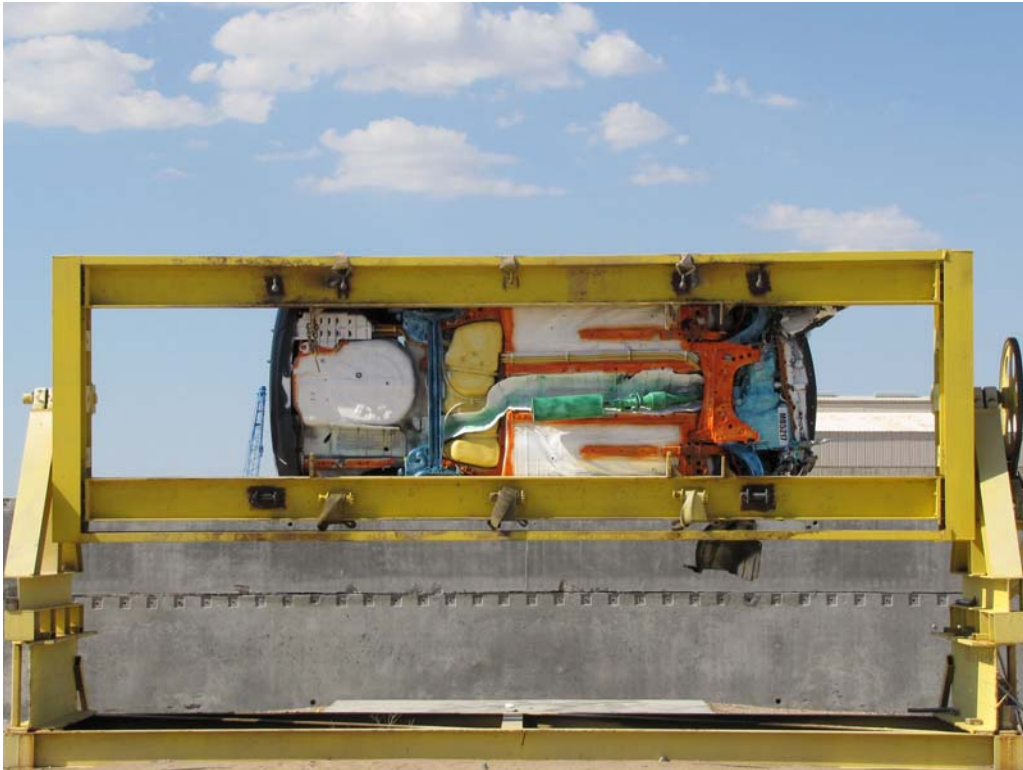


FIGURE 67. Vehicle at 270°on Static Rollover Device

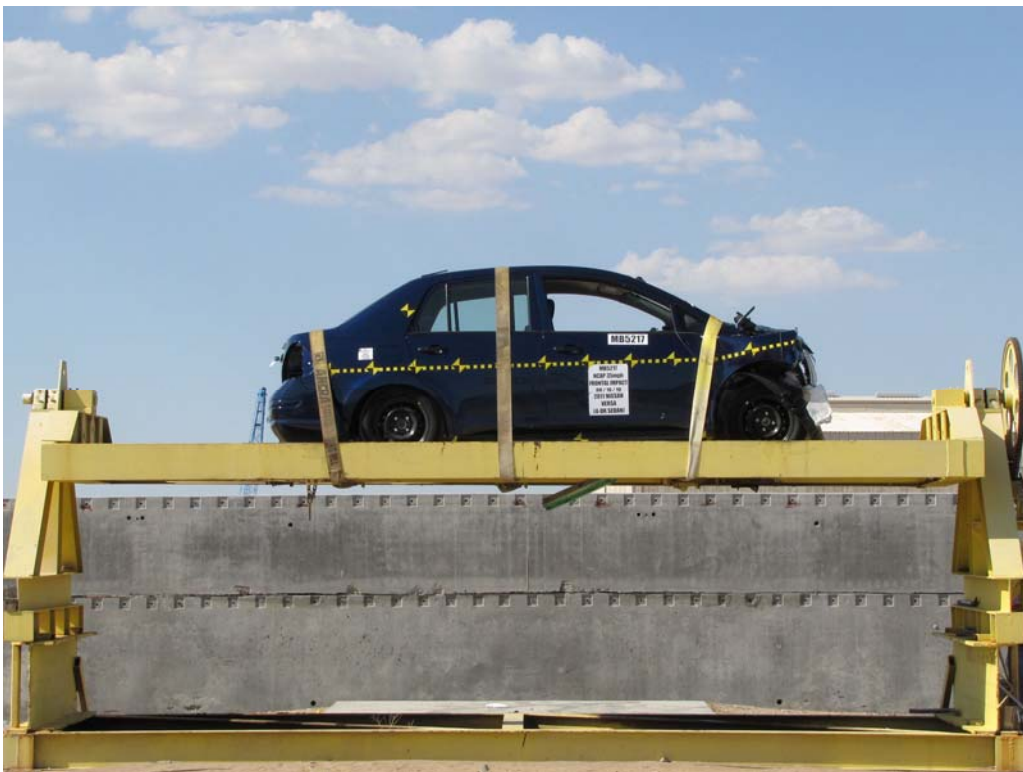


FIGURE 68. Vehicle at 360°on Static Rollover Device



FIGURE 69. Impact Photograph

2011 VERSA 1.6 SEDAN

When Life is Big,
You Need Generous Accommodations

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE
1.6, DOHC 4-Cylinder Engine
107 Horsespower & 111 lb-ft. of Torque
4-Speed Automatic Transmission
Ultra Low Emissions Vehicle (ULEV) Rating
Independent Dual Front Suspension
Torsion Beam Rear Suspension w/ Integrated Stabilizer Bar
Front Side-Impact Bar
Ripple-Control Shock Absorbers
Power-Assisted Steering
Front Disc/Rear Drum Brakes
Electric Power-Assisted Steering
14" Steel Wheels w/ Full Wheel Covers
135/65R14 All-Season Tires

SAFETY & SECURITY
Nissan Advanced Air Bag System (AABS)
Front Seat Mounted
Side Impact Supplemental Air Bags
Roll-Over Protection System (ROPS)
Anti-Lock Braking System (ABS)
Front Seat Active Head Rest Rests
Front Seat Belts w/ Pretensioners
Load Limiters & Adjustable Upper Anchors
3-Point Seat Belts (All Seating Positions)
Patented Driver Seat Belt Warning Chime/Light
Lower Anchors and Tethers for Children (LATCH)
Child Safety Rear Door Locks
Energy-Absorbing Steering Column
Pop-Style Steel Side-Door Guard Beams
Zone Body Construction
with Front and Rear Crumple Zones
Tire Pressure Monitoring System (TPMS)
Emergency Inside Trunk Release
Center High-Mounted Stop Light
Nissan Vehicle Immobilizer System

0066 MLC's
PinaP

COMFORT & CONVENIENCE
Air Conditioning w/ Cabin Microfilter
4-Way Adjustable Driver's Seat
Cloth Seat & Door Trim
4 Speakers With Audio Pre-Amp
TR Steering Column
Variable Intermittent Windshield Wipers
Rear Window Defroster w/ Timer
Front Door Map Pockets
Dual Front & Rear Cup Holders
Front & Rear Passenger Assist Grips
Day/Night Rearview Mirror
12-Volt Power Outlet
Remote Fuel-Filler Door Release

EXTERIOR FEATURES
Black Manual Folding & Operating
Side View Mirrors
Black Door Handles
Wash-Washer/Washer Headlights
Black Decklid Finisher
Black Front Grill
Fixed Roof Antenna
Energy-Absorbing Body Color
Front & Rear Fenders

Manufacturer's Suggested
Retail Price \$12,240.00

Options Included by Manufacturer
FIVE-PIECE FLOOR/TRUNK MAT SET \$55.00

Destination Charge: \$70.00

Total* \$13,145.00

EPA Fuel Economy Estimates

CITY MPG 25 Expected range for most drivers 20 to 30 mpg	Estimated Annual Fuel Cost \$1,392 based on 15,000 miles at \$2.40 per gallon	HIGHWAY MPG 33 Expected range for most drivers 27 to 39 mpg
--	---	---

Combined Fuel Economy
This Vehicle **28**
12 **▲** 30 **▼**
ALL MIDDLE CARS

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

GOVERNMENT SAFETY RATINGS			DELIVERY
Frontal Crash Not Rated	Driver Passenger Not Rated	Rear Passenger Not Rated	VEHICLE COLORS: EXT: BRILLIANT SILVER INT: CHARCOAL
Side Crash Not Rated	Front seat Not Rated	Rear seat Not Rated	FINAL ASSEMBLY POINT: AGUASCALIENTES, JALISCO
Rollover Not Rated			TRANSPORT METHOD: TRUCK

DEALER: EMPIRE NISSAN, INC.
1377 KETTERING LOOP
ONTARIO, CA 91761

20100618031246R102C

FIGURE 70. Monroney Label Photograph

APPENDIX B
DUMMY RESPONSE DATA TRACES

TABLE OF DATA PLOTS

Plot		Page
1	Driver Head X Acceleration vs. Time Primary	B-1
2	Driver Head Y Acceleration vs. Time Primary	B-1
3	Driver Head Z Acceleration vs. Time Primary	B-1
4	Driver Head Resultant Acceleration vs. Time Primary	B-1
5	Driver Chest X Deflection vs. Time	B-2
6	Driver Chest X Acceleration vs. Time Primary	B-3
7	Driver Chest Y Acceleration vs. Time Primary	B-3
8	Driver Chest Z Acceleration vs. Time Primary	B-3
9	Driver Chest Resultant Acceleration vs. Time Primary	B-3
10	Driver Upper Neck Force X vs. Time Primary	B-4
11	Driver Upper Neck Force Z vs. Time Primary	B-4
12	Driver Upper Neck Moment Y vs. Time Primary	B-4
13	Driver Nij vs. Time Primary	B-4
14	Driver Left Femur Force vs. Time	B-5
15	Driver Right Femur Force vs. Time	B-5
16	Passenger Head X Acceleration vs. Time Primary	B-6
17	Passenger Head Y Acceleration vs. Time Primary	B-6
18	Passenger Head Z Acceleration vs. Time Primary	B-6
19	Passenger Head Resultant Acceleration vs. Time Primary	B-6
20	Passenger Chest X Deflection vs. Time	B-7
21	Passenger Chest X Acceleration vs. Time Primary	B-8
22	Passenger Chest Y Acceleration vs. Time Primary	B-8
23	Passenger Chest Z Acceleration vs. Time Primary	B-8
24	Passenger Chest Resultant Acceleration vs. Time Primary	B-8
25	Passenger Upper Neck Force X vs. Time Primary	B-9
26	Passenger Upper Neck Force Z vs. Time Primary	B-9
27	Passenger Upper Neck Moment Y vs. Time Primary	B-9
28	Passenger Nij vs. Time Primary	B-9
29	Passenger Left Femur Force vs. Time	B-10
30	Passenger Right Femur Force vs. Time	B-10

The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

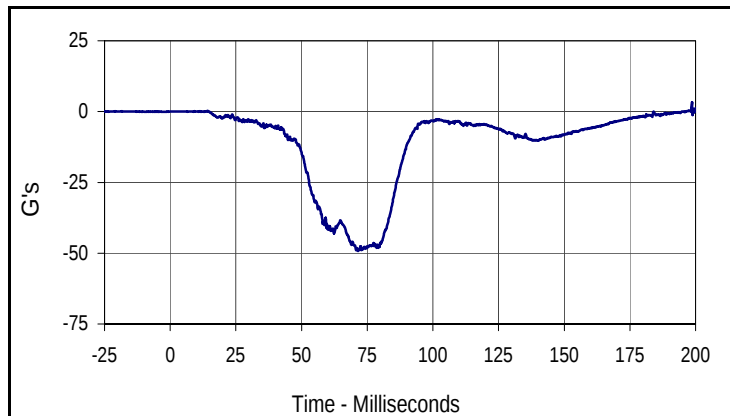
Driver Head X Acceleration Redundant
Driver Head Y Acceleration Redundant
Driver Head Z Acceleration Redundant
Driver Upper Neck Force Y
Driver Upper Neck Moment X
Driver Upper Neck Moment Z
Driver Chest X Acceleration Redundant
Driver Chest Y Acceleration Redundant
Driver Chest Z Acceleration Redundant
Driver Pelvis X
Driver Pelvis Y
Driver Pelvis Z
Driver Shoulder Belt Force
Driver Lap Belt Force
Driver Left Upper Tibia Moment X
Driver Left Upper Tibia Moment Y
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Passenger Head X Acceleration Redundant

Passenger Head Y Acceleration Redundant
Passenger Head Z Acceleration Redundant
Passenger Upper Neck Force X
Passenger Upper Neck Force Z
Passenger Upper Neck Moment Y
Passenger Chest X Acceleration Redundant
Passenger Chest Y Acceleration Redundant
Passenger Chest Z Acceleration Redundant
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z
Passenger Shoulder Belt Force
Passenger Lap Belt Force
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Left Rear Seat Crossmember X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Vehicle Engine Top X

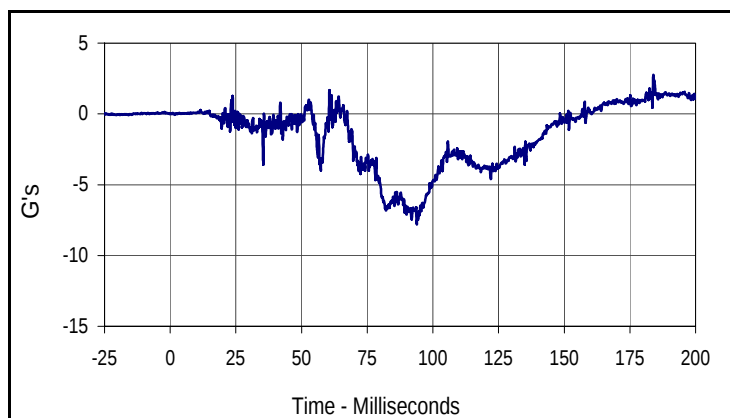
Vehicle Engine Bottom X
Vehicle Left Brake Caliper X
Vehicle Right Brake Caliper X
Load Cell Barrier A1-A9
Load Cell Barrier B1-A9
Load Cell Barrier C1-A9
Load Cell Barrier D1-A9

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

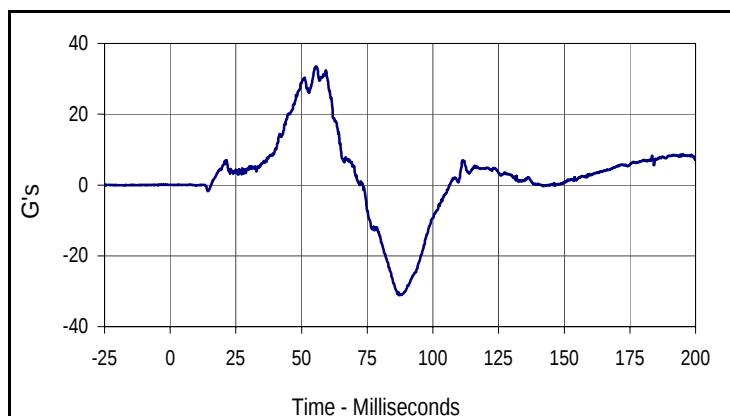
Test Date: 8/16/10
 NHTSA No.: MB5217



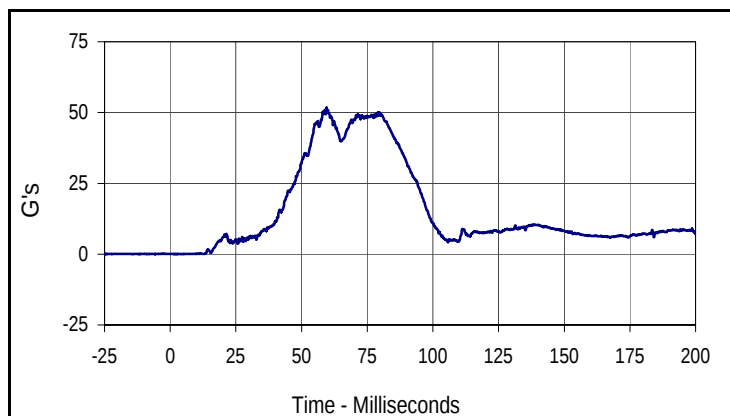
Curve Description			
Driver Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
3.4	198.6	-49.3	71.5



Curve Description			
Driver Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.8	183.9	-7.8	93.9



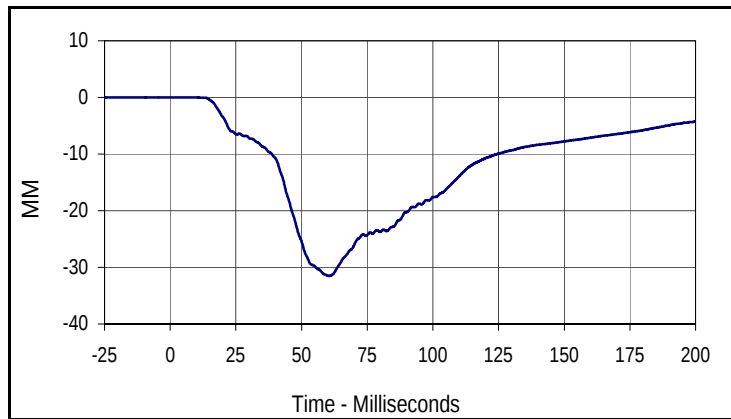
Curve Description			
Driver Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
33.5	55.4	-31.1	87.1



Curve Description			
Driver Head Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
51.7	59.5	0.0	2.9

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

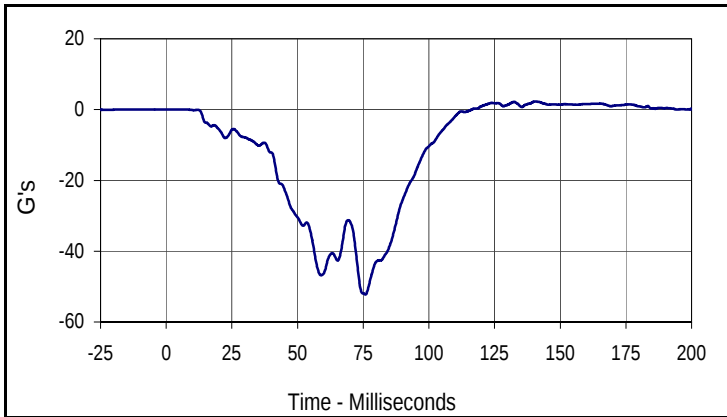
Test Date: 8/16/10
 NHTSA No.: MB5217



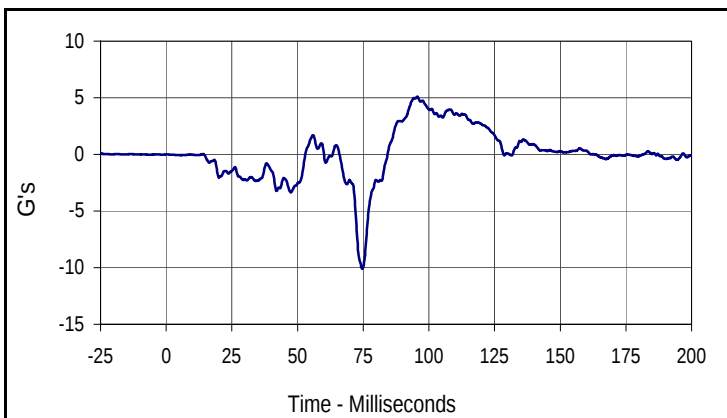
Curve Description			
Driver Chest Deflection			
CURNO	Type	SAE Class	Units
019	FIL	600	MM
Max	Time	Min	Time
0.0	3.7	-31.5	60.4

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

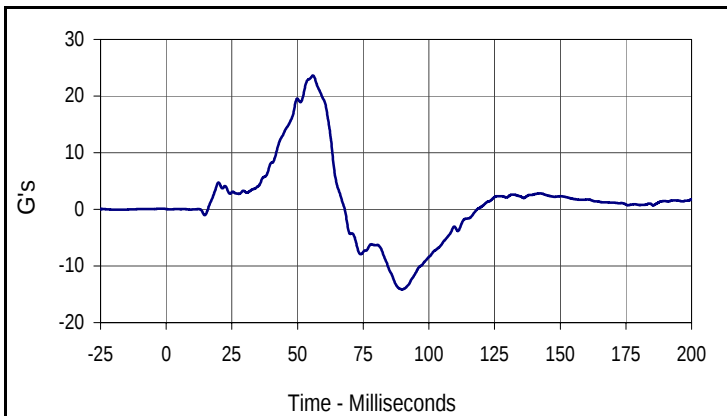
Test Date: 8/16/10
 NHTSA No.: MB5217



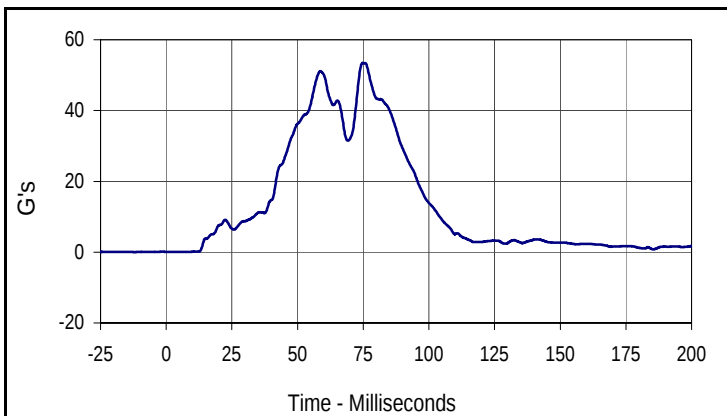
Curve Description			
Driver Chest Acceleration X Primary			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
2.3	140.5	-52.3	75.9



Curve Description			
Driver Chest Acceleration Y Primary			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
5.1	95.6	-10.1	74.6



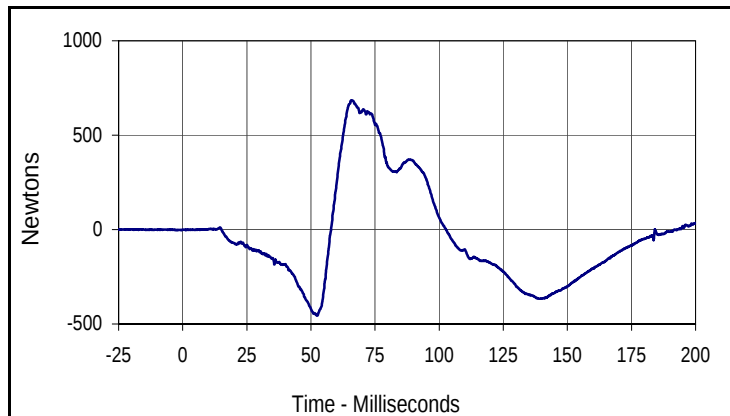
Curve Description			
Driver Chest Acceleration Z Primary			
CURNO	Type	SAE Class	Units
015	FIL	180	G's
Max	Time	Min	Time
23.6	55.9	-14.1	89.8



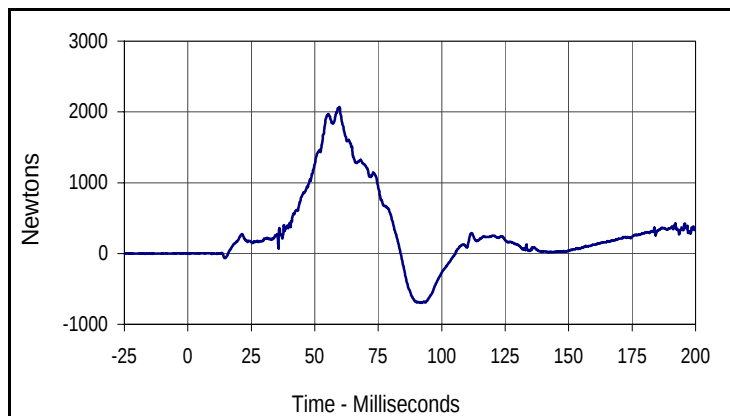
Curve Description			
Driver Chest Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
013	RES	180	G's
Max	Time	Min	Time
53.4	74.8	0.0	8.3

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

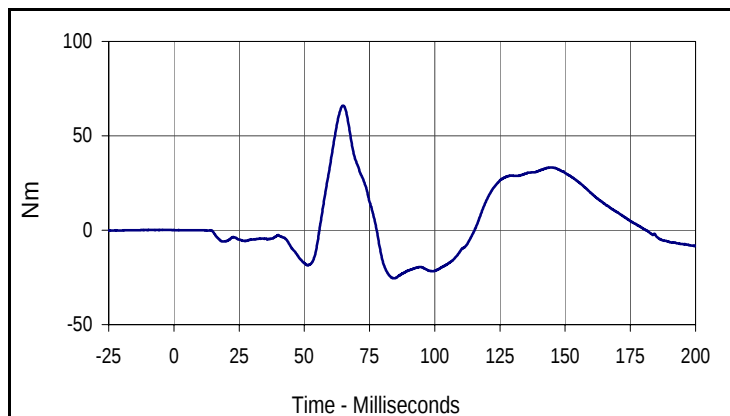
Test Date: 8/16/10
 NHTSA No.: MB5217



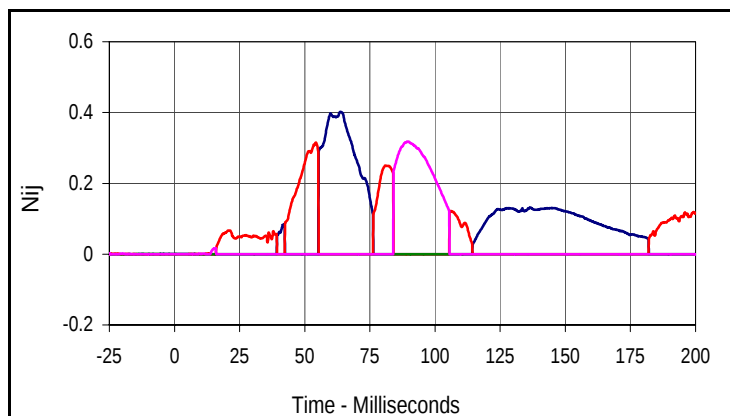
Curve Description			
Driver Upper Neck Force X			
CURNO	Type	SAE Class	Units
007	FIL	1000	Newtons
Max	Time	Min	Time
685.0	66.0	-456.1	52.4



Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
009	FIL	1000	Newtons
Max	Time	Min	Time
2068.8	59.7	-696.1	92.3



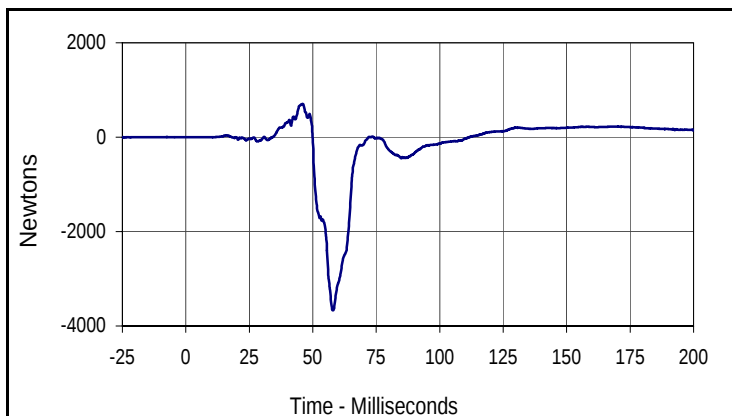
Curve Description			
Driver Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
011	FIL	600	Nm
Max	Time	Min	Time
66.0	64.8	-25.5	84.3



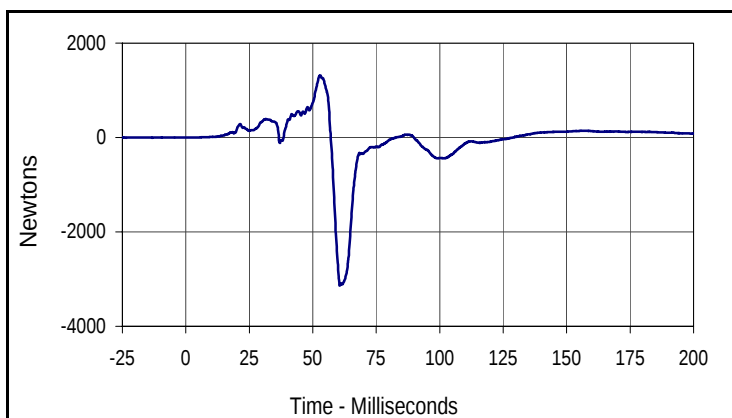
Curve Description			
Driver Nij			
Units	Type	Max	Time
Ntf	FIL	0.40	63.6
Units	Type	Max	Time
Nte	FIL	0.32	54.3
Units	Type	Max	Time
Ncf	FIL	0.00	-4.1
Units	Type	Max	Time
Nce	FIL	0.32	89.6

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

Test Date: 8/16/10
 NHTSA No.: MB5217



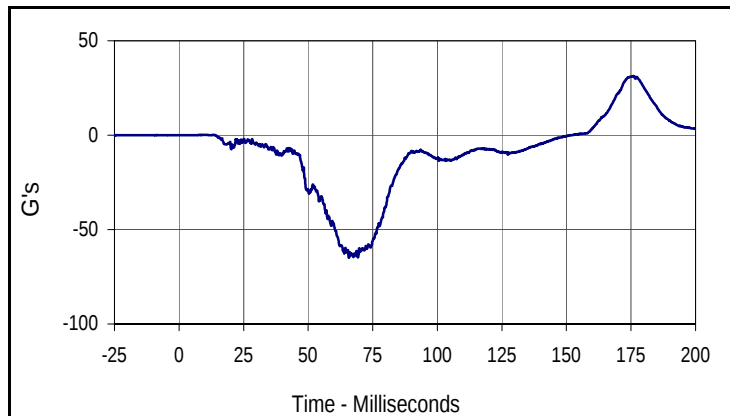
Curve Description			
Driver Left Femur Force Z			
CURNO	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
706.3	46.0	-3670.3	58.0



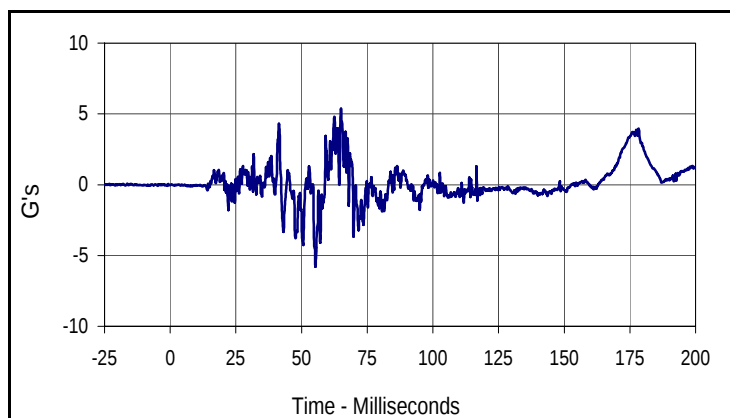
Curve Description			
Driver Right Femur Force Z			
CURNO	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
1313.2	52.9	-3139.0	60.6

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

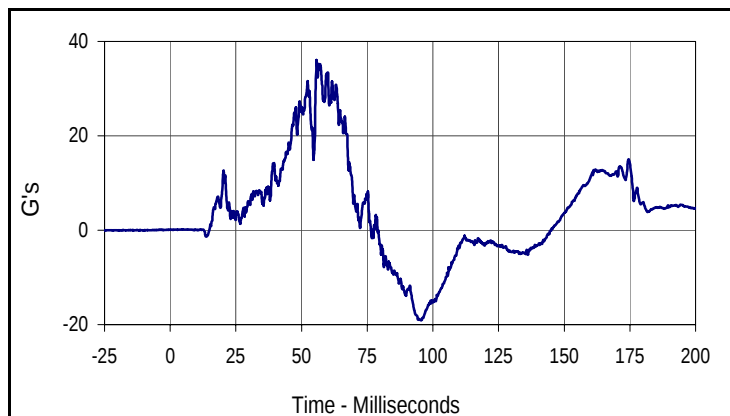
Test Date: 8/16/10
 NHTSA No.: MB5217



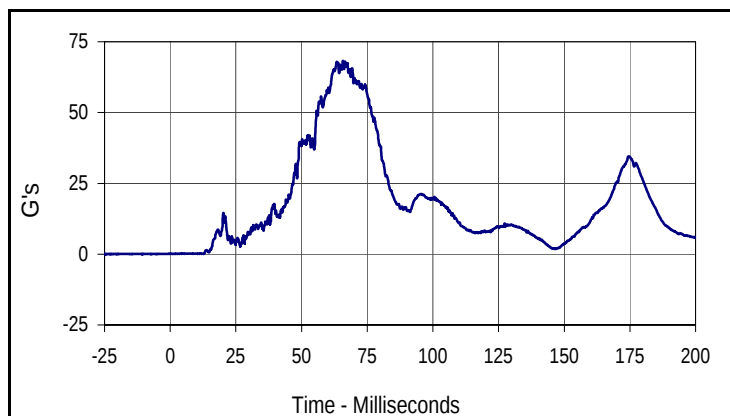
Curve Description			
Passenger Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
31.3	176.0	-64.8	65.8



Curve Description			
Passenger Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
5.4	65.0	-5.8	55.3



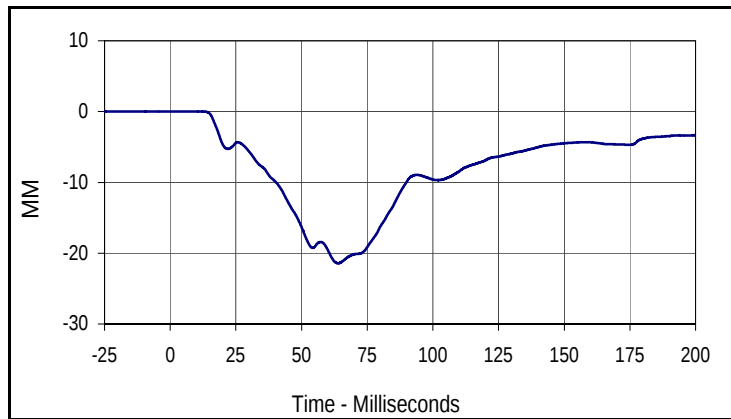
Curve Description			
Passenger Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
36.1	55.7	-19.1	95.5



Curve Description			
Passenger Head Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
045	RES	1000	G's
Max	Time	Min	Time
68.2	65.7	0.1	1.1

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

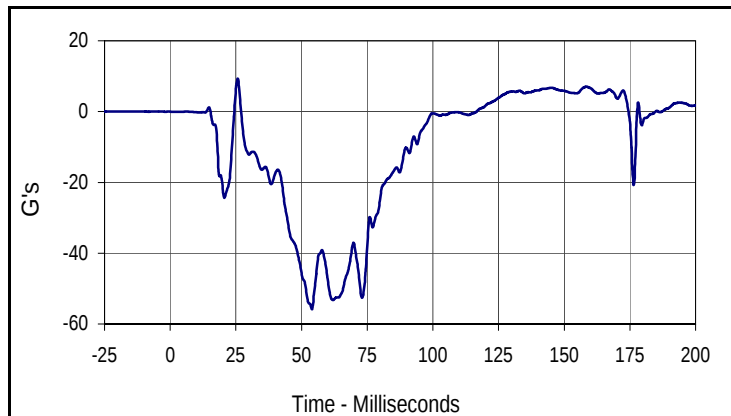
Test Date: 8/16/10
 NHTSA No.: MB5217



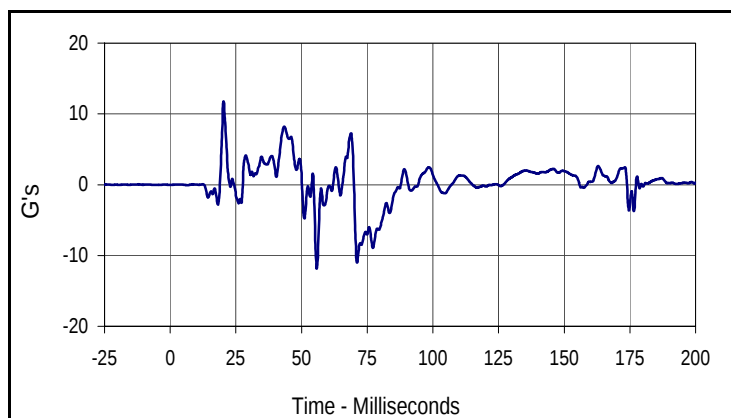
Curve Description			
Passenger Chest Deflection			
CURNO	Type	SAE Class	Units
063	FIL	180	MM
Max	Time	Min	Time
0.0	0.6	-21.4	63.9

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

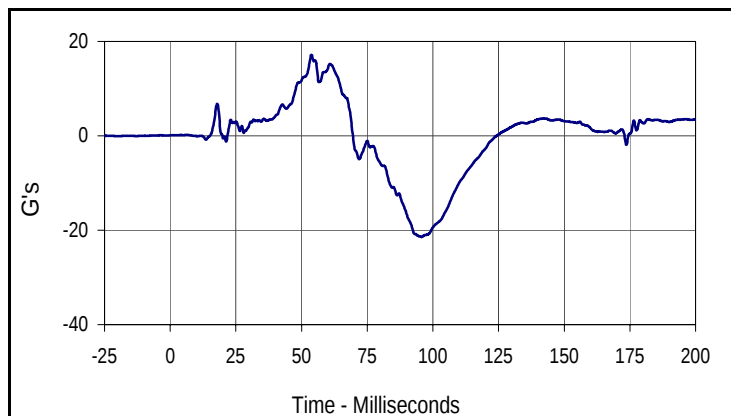
Test Date: 8/16/10
 NHTSA No.: MB5217



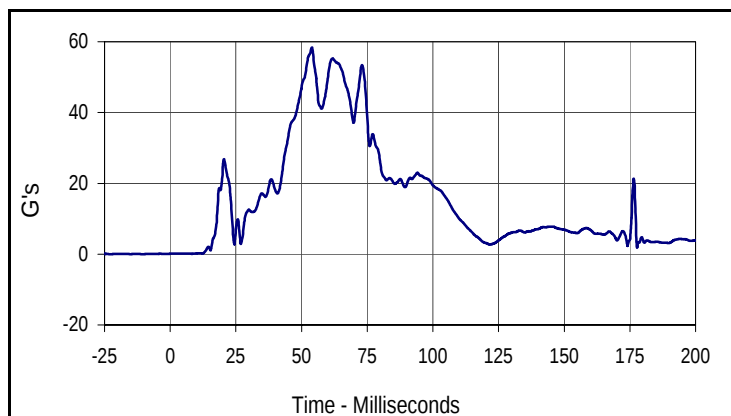
Curve Description			
Passenger Chest Acceleration X Primary			
CURNO	Type	SAE Class	Units
057	FIL	180	G's
Max	Time	Min	Time
9.3	25.7	-55.8	54.0



Curve Description			
Passenger Chest Acceleration Y Primary			
CURNO	Type	SAE Class	Units
058	FIL	180	G's
Max	Time	Min	Time
11.8	20.3	-11.9	55.8



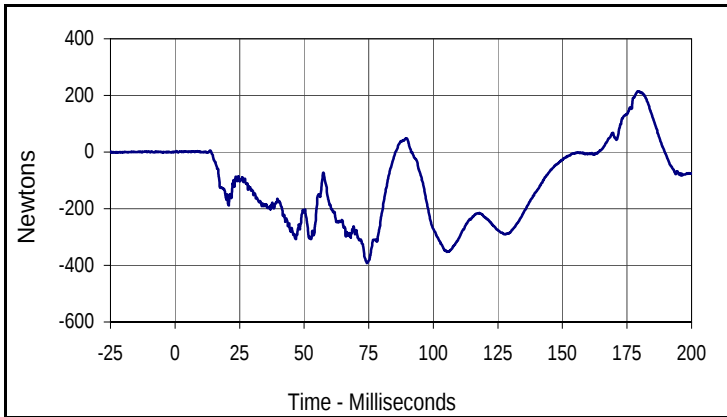
Curve Description			
Passenger Chest Acceleration Z Primary			
CURNO	Type	SAE Class	Units
059	FIL	180	G's
Max	Time	Min	Time
17.2	53.7	-21.4	95.7



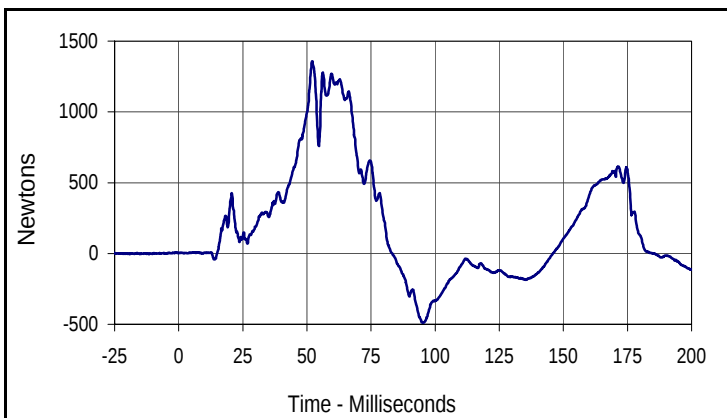
Curve Description			
Passenger Chest Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
057	RES	180	G's
Max	Time	Min	Time
58.4	53.9	0.1	8.2

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

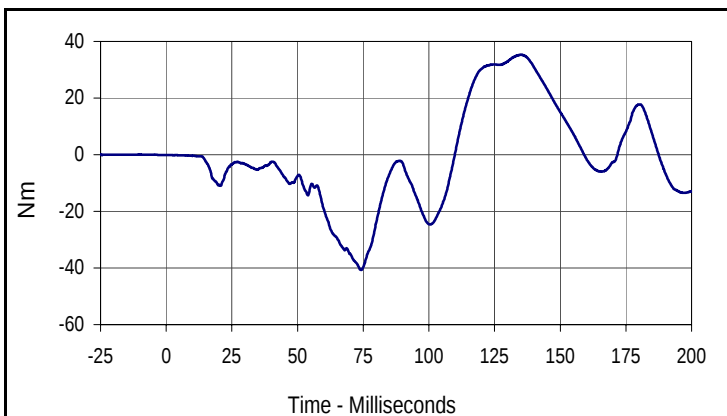
Test Date: 8/16/10
 NHTSA No.: MB5217



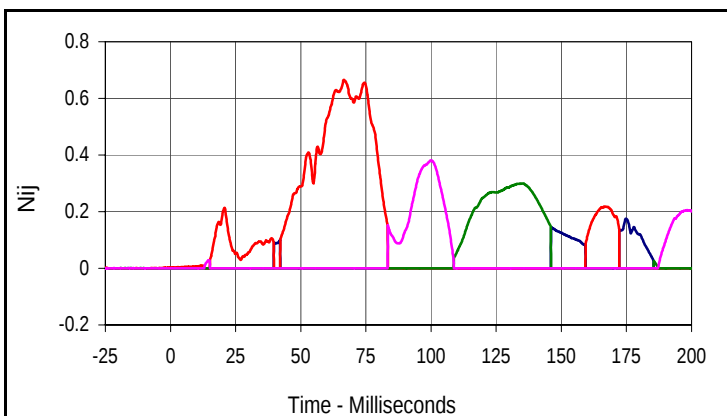
Curve Description			
Passenger Upper Neck Force X			
CURNO	Type	SAE Class	Units
051	FIL	1000	Newtons
Max	Time	Min	Time
214.4	179.2	-392.1	74.4



Curve Description			
Passenger Upper Neck Force Z			
CURNO	Type	SAE Class	Units
053	FIL	1000	Newtons
Max	Time	Min	Time
1358.4	52.0	-487.0	94.9



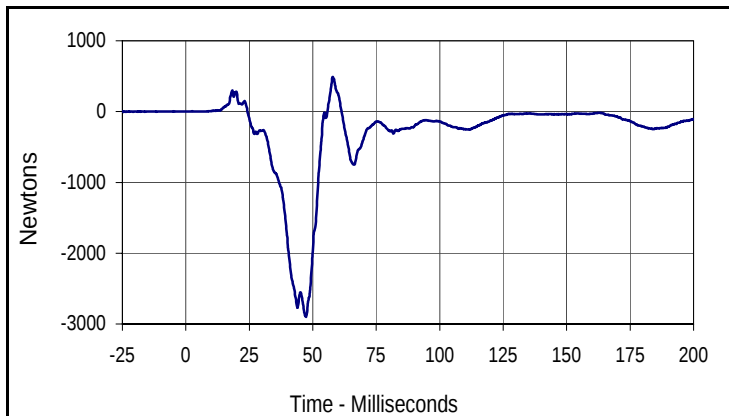
Curve Description			
Passenger Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
055	FIL	600	Nm
Max	Time	Min	Time
35.3	135.0	-40.7	74.2



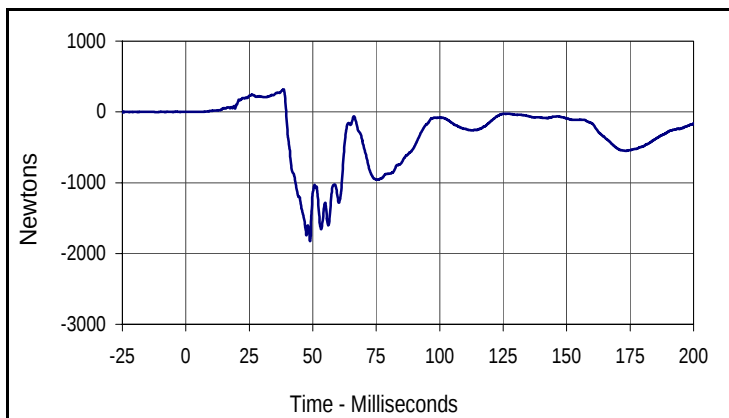
Curve Description			
Passenger Nij			
Units	Type	Max	Time
Ntf	FIL	0.18	174.9
Units	Type	Max	Time
Nte	FIL	0.67	66.6
Units	Type	Max	Time
Ncf	FIL	0.30	134.7
Units	Type	Max	Time
Nce	FIL	0.38	100.0

Test Vehicle: 2011 Nissan Versa 4-Door Sedan
 Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test

Test Date: 8/16/10
 NHTSA No.: MB5217



Curve Description			
Passenger Left Femur Force Z			
CURNO	Type	SAE Class	Units
067	FIL	600	Newtons
Max	Time	Min	Time
487.9	57.9	-2899.0	47.3



Curve Description			
Passenger Right Femur Force Z			
CURNO	Type	SAE Class	Units
068	FIL	600	Newtons
Max	Time	Min	Time
318.7	38.5	-1824.6	49.0

APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

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

Test Program: Hybrid III 50th Percentile Male Head Drop Test

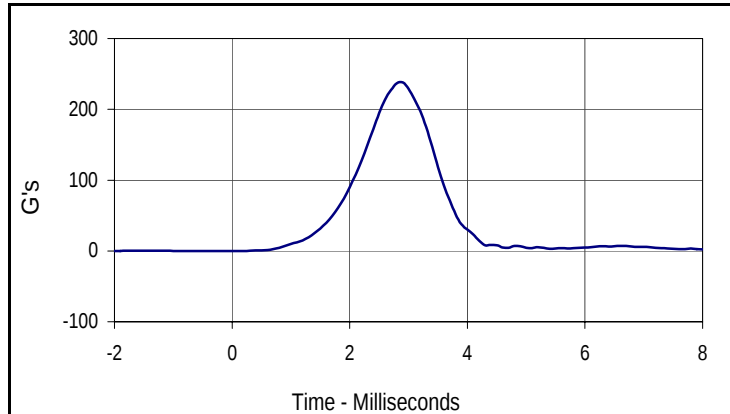
Test Date: 8/15/10

ATD Serial No.: 035

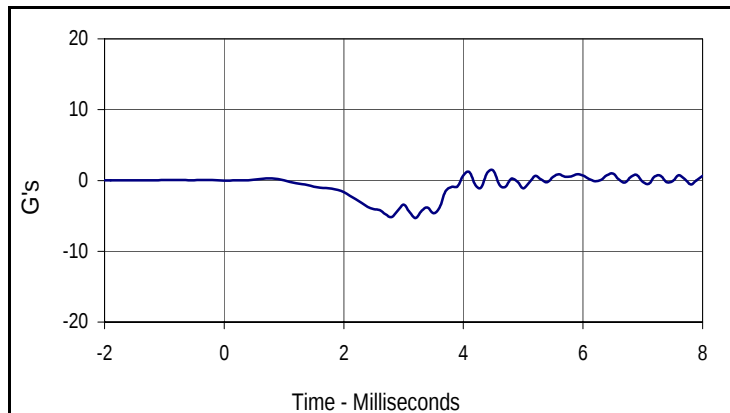
Test I.D.: HDM08B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	237.9	Pass
Peak Lateral Acceleration	G's	≤15.0	5.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results			Pass	



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
237.9	2.9	0.0	-2.0



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
1.4	4.5	-5.3	3.2

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

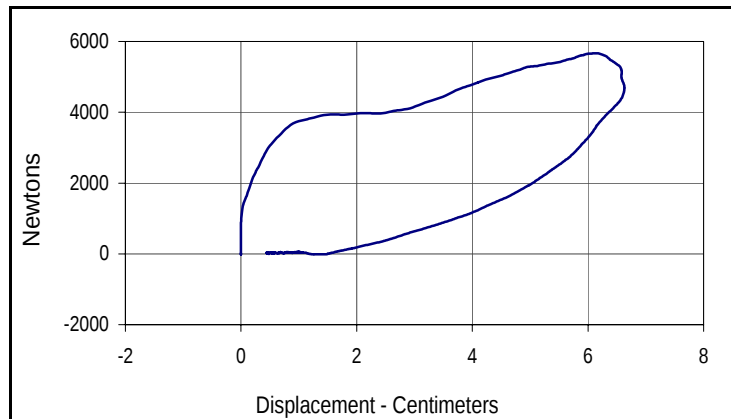
Test Date: 8/15/10

ATD Serial No.: 035

Test I.D.: CHM08B



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
Probe Velocity	m/s	6.58 to 6.82	6.60	Pass
Peak Probe Force	Newtons	5159 to 5893	5669	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.63	Pass
Internal Hysteresis	%	69 to 85	72.7	Pass
Overall Test Results				Pass



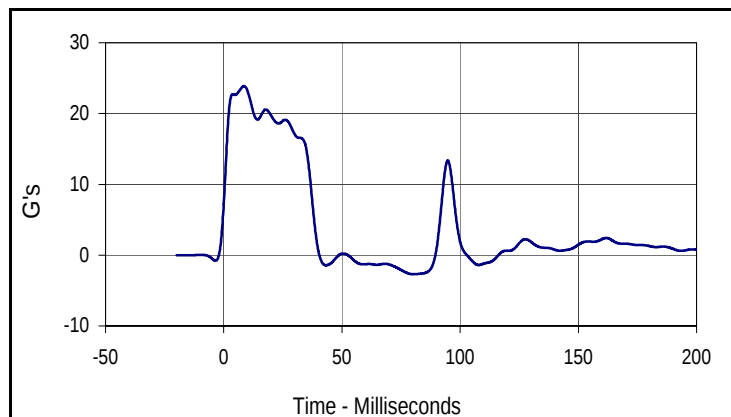
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	72.7
Peak Probe Force		Peak Chest Deflection	
5669		6.63	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 035

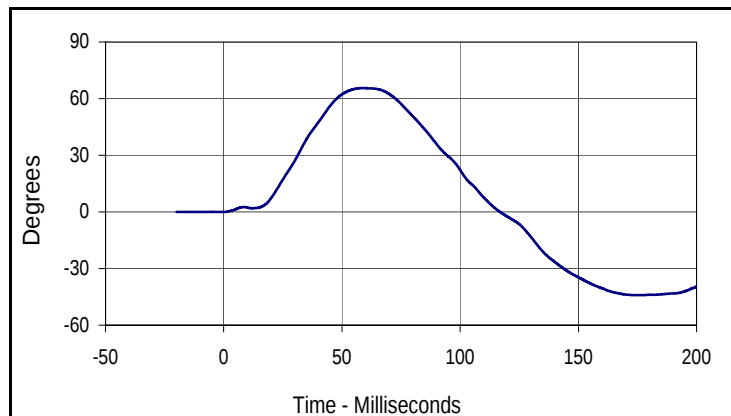
Test Date: 8/15/10
 Test I.D.: NFM08B



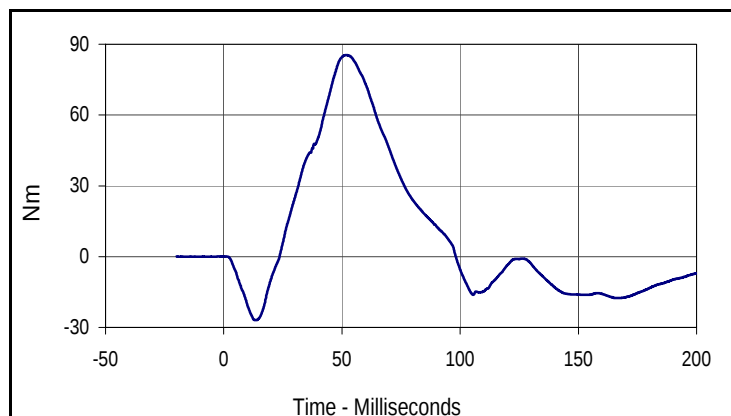
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.01	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.2	Pass
	20 Msec.	G's	17.6 to 22.6	19.7	Pass
	30 Msec.	G's	12.5 to 18.5	17.1	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.1	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	38.3	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	65.5	Pass
	Time	Msec.	57.0 to 64.0	58.8	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	116.9	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	85.4	Pass
	Time	Msec.	47.0 to 58.0	52.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	98.2	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
23.9	8.5	-2.7	80.1



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
65.5	58.8	-44.1	175.2



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
85.4	52.1	-26.9	13.7

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

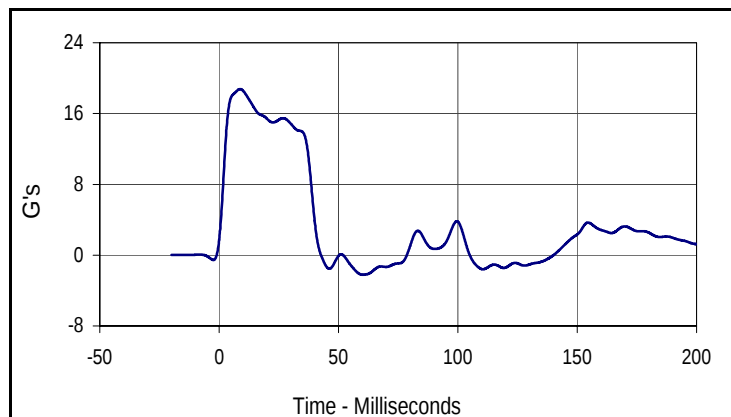
Test Date: 8/15/10

ATD Serial No.: 035

Test I.D.: NEM08B



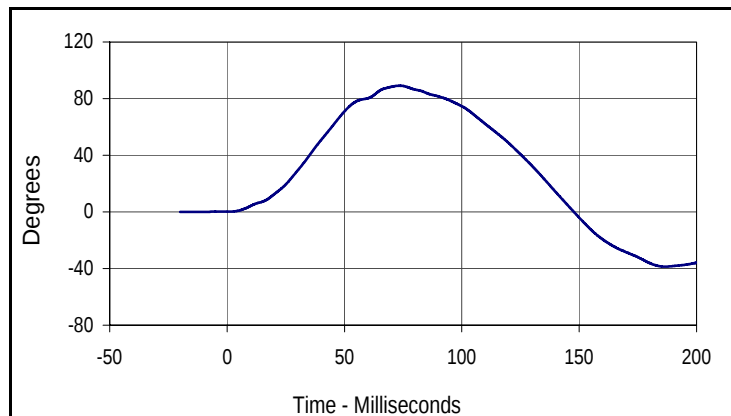
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.02	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.6	Pass
	20 Msec.	G's	14.0 to 19.0	15.4	Pass
	30 Msec.	G's	11.0 to 16.0	14.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	39.6	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	89.2	Pass
	Time	Msec.	72.0 to 82.0	73.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	147.8	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-63.7	Pass
	Time	Msec.	65.0 to 79.0	69.9	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	140.8	Pass
Overall Test Results					Pass



Curve Description

Pendulum Deceleration

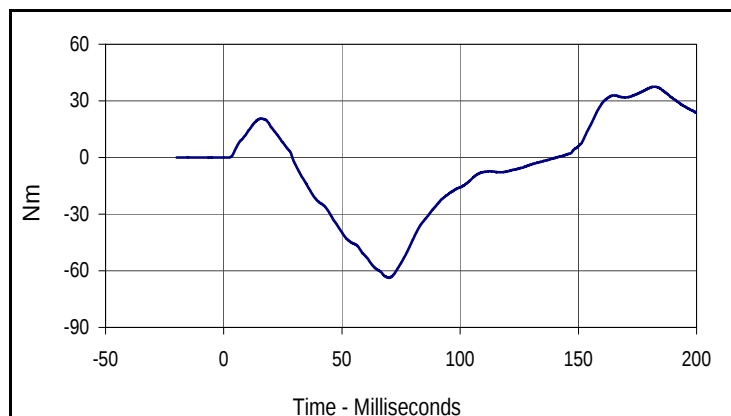
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.8	8.8	-2.2	60.2



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
89.2	73.5	-38.6	186.5



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
37.5	181.7	-63.7	69.9

Test Program: Hybrid III 50th Percentile Male Knee Impact Test

Test Date: 8/15/10

ATD Serial No.: 035

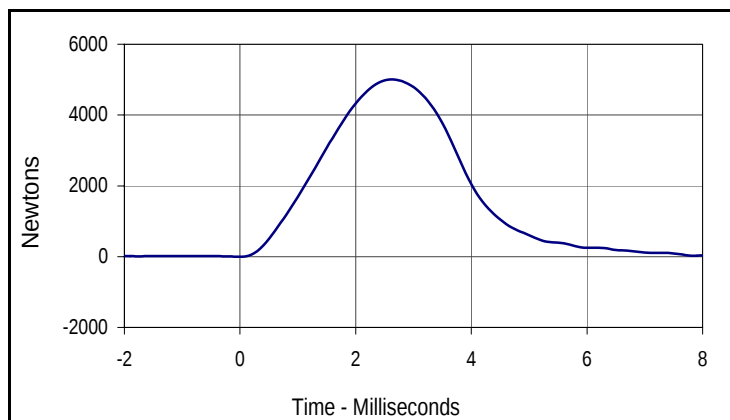
Test I.D.: LKM08B , RKM08B

**Left Knee**

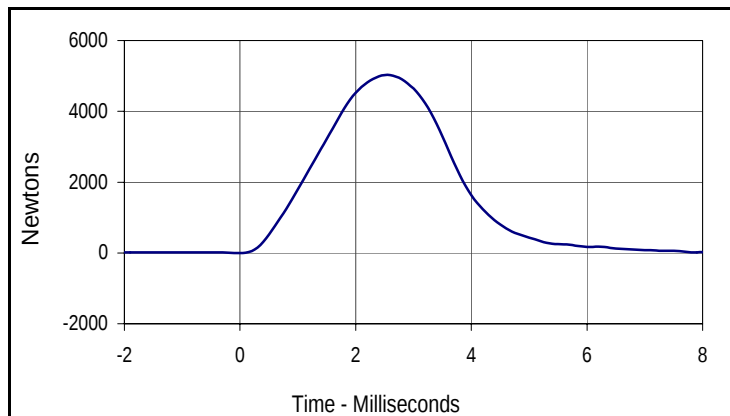
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5007	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	Newtons	4715 to 5782	5027	Pass
Overall Test Results				Pass

**Curve Description****Left Knee Probe Force**

CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5007.3	2.6	-54.5	9.6

**Curve Description****Right Knee Probe Force**

CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
5026.7	2.5	-47.3	9.8

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 8/15/10

ATD Serial No.: 035

Test I.D.: N/A



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
A - Total sitting height	mm	879 to 889	880	Pass
B - Shoulder pivot height	mm	505 to 521	519	Pass
C - "H" point height	mm	84 to 89	88	Pass
D - "H" point from seat back	mm	135 to 140	140	Pass
E - Shoulder pivot from back	mm	84 to 94	85	Pass
F - Thigh clearance	mm	140 to 155	149	Pass
G - Elbow back to wrist pivot	mm	290 to 305	300	Pass
H - Skull cap to back line	mm	41 to 46	45	Pass
I - Shoulder to elbow length	mm	330 to 345	331	Pass
J - Elbow rest height	mm	190 to 211	209	Pass
K - Buttock to knee length	mm	579 to 604	590	Pass
L - Popliteal length	mm	429 to 455	442	Pass
M - Knee pivot height	mm	485 to 500	497	Pass
N - Buttock popliteal length	mm	452 to 477	472	Pass
O - Chest depth	mm	213 to 229	213	Pass
P - Foot length	mm	251 to 267	261	Pass
V - Shoulder breadth	mm	422 to 437	435	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference	mm	970 to 1001	985	Pass
Z - Waist circumference	mm	836 to 866	863	Pass
AA - Location for chest circumference	mm	429 to 434	432	Pass
BB - Location for waist circumference	mm	226 to 231	230	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop TestTest Date: 8/14/10ATD Serial No.: 141Test I.D.: HDF08B

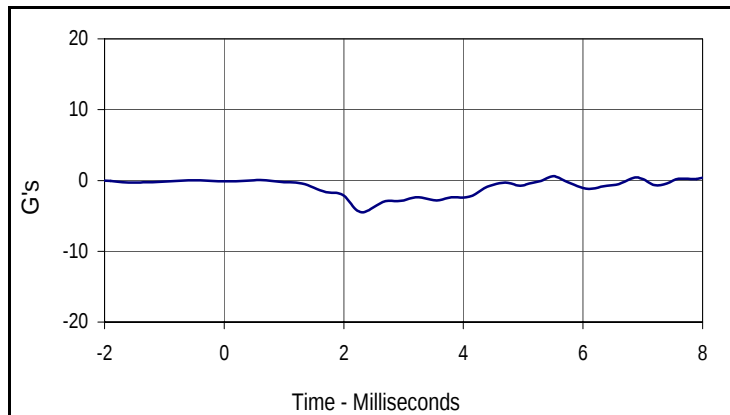
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	263.7	Pass
Peak Lateral Acceleration	G's	≤15.0	4.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description

Head Resultant

CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
263.7	2.5	0.3	-1.3



Curve Description

Head Y

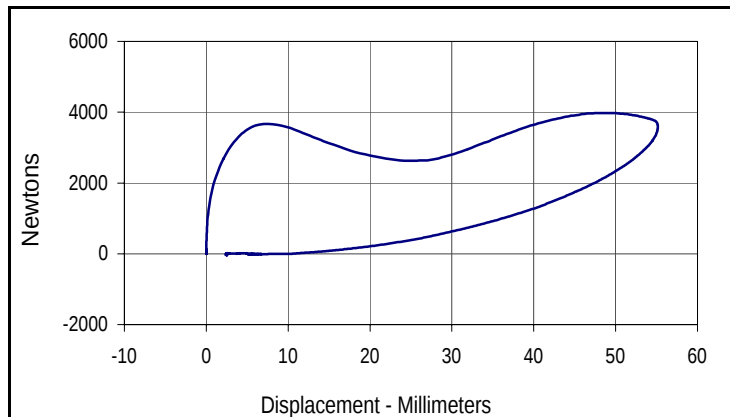
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.6	5.5	-4.5	2.3

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test
 ATD Serial No.: 141

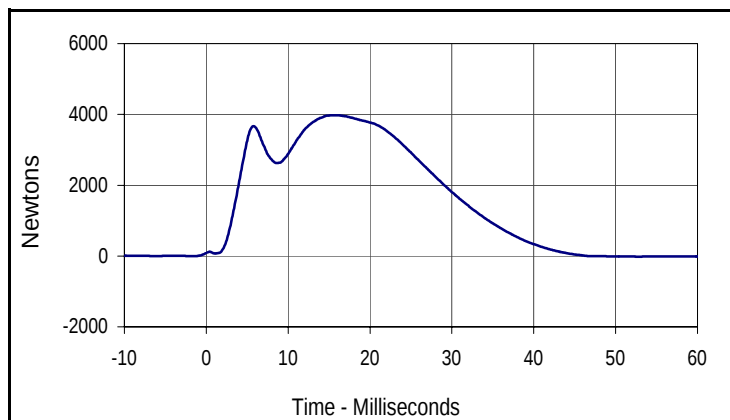
Test Date: 8/14/10
 Test I.D.: CHF08B



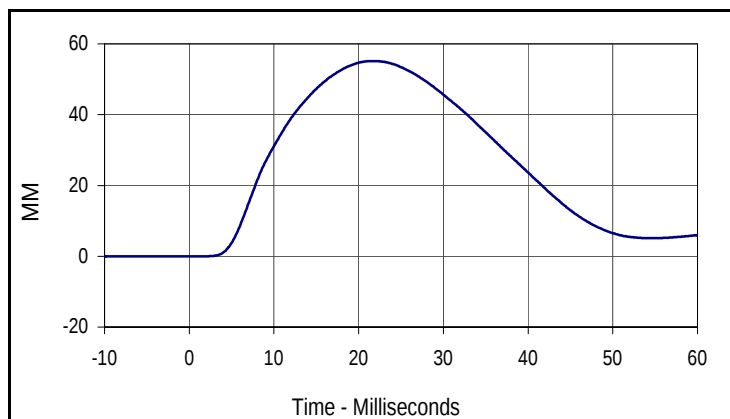
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.59 to 6.83	6.60	Pass
Peak Chest Deflection	MM	50.0 to 58.0	55.2	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	3978	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	3971	Pass
Internal Hysteresis	%	69 to 85	74.4	Pass
Overall Test Results			Pass	



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
003	FIL	180	74.4
Peak Probe Force		Peak Chest Displ.	
3978.3		55.2	



Curve Description			
Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
3978.3	15.4	-50.6	187.8



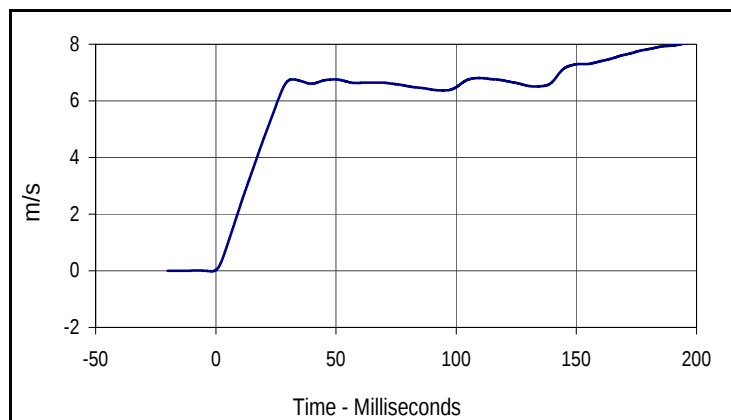
Curve Description			
Chest Deflection			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
55.2	21.7	0.0	-8.3

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test
 ATD Serial No.: 141

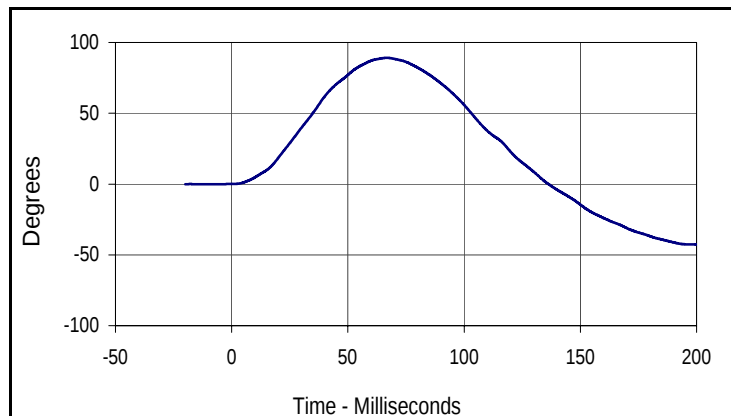
Test Date: 8/14/10
 Test I.D.: NF08B



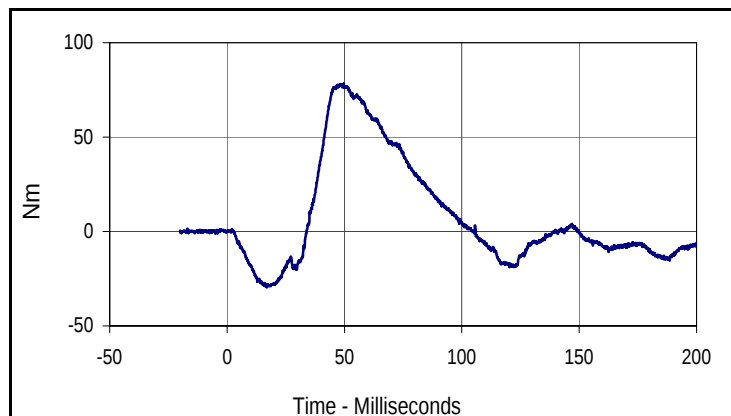
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.07	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.3	Pass
	20 Msec.	m/s	4.0 to 5.0	4.7	Pass
	30 Msec.	m/s	5.8 to 7.0	6.7	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	89.1	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	77.0	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	94.9	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
8.1	200.0	0.0	-1.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
89.1	66.8	-42.7	200.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
78.3	49.6	-29.7	16.9

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

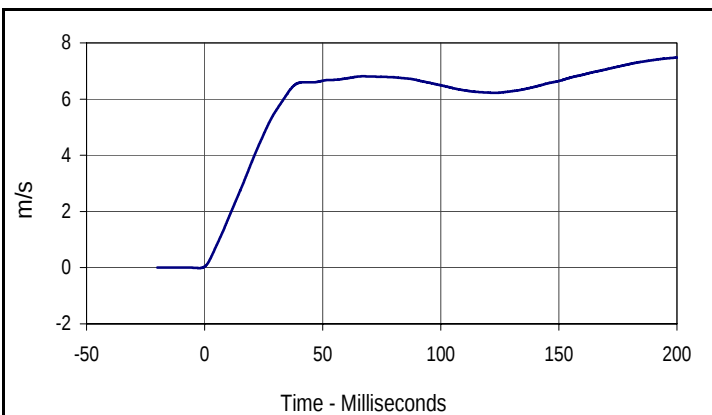
Test Date: 8/14/10



ATD Serial No.: 141

Test I.D.: NE08B

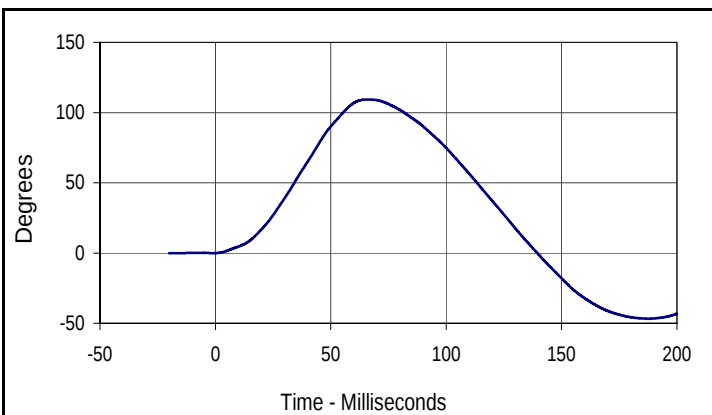
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.08	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.7	Pass
	20 Msec.	m/s	3.1 to 3.9	3.8	Pass
	30 Msec.	m/s	4.6 to 5.6	5.6	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	109.2	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-62.1	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	97.2	Pass
			Overall Test Results		Pass



Curve Description

Pendulum Velocity

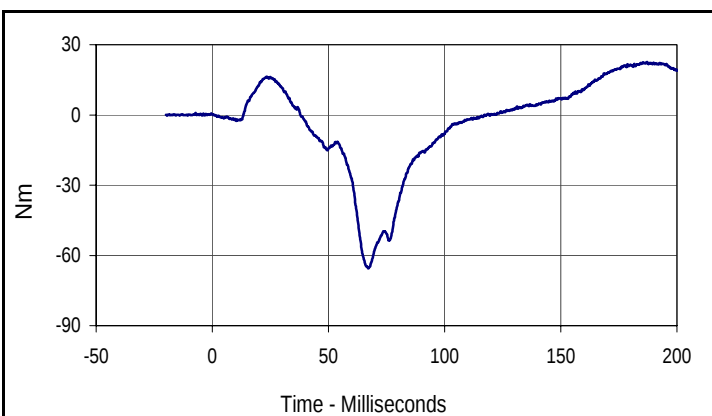
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
7.5	200.0	0.0	-2.2



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
109.2	65.3	-46.7	187.8



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
22.7	187.1	-65.5	67.1

Test Program: Hybrid III 5th Percentile Female Knee Impact Test
 ATD Serial No.: 141

Test Date: 8/14/10
 Test I.D.: LKF08B , RKB08B



Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	3450 to 4060	3875	Pass
Overall Test Results			Pass	

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	3450 to 4060	3921	Pass
Overall Test Results			Pass	



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3875.0	4.3	3.6	-0.4



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
3920.8	4.3	-2.6	-0.4

Test Program: Hybrid III 5th Percentile Female Torso Flexion Test

Test Date: 8/14/10

ATD Serial No.: 141

Test I.D.: TF08B



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	≤20.0	2.1	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	320.0 to 390.0	331.0	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	1.0	Pass
Final reference plane angle	Degrees	+/-8	3.5	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 8/14/10

ATD Serial No.: 141

Test I.D.: N/A



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
A - Total sitting height	mm	774.7 to 800.1	782	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	442	Pass
C - "H" point height (Reference)	mm	81.3 to 86.3	84	Pass
D - "H" point from seat back (Ref.)	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	80	Pass
F - Thigh clearance	mm	119.4 to 134.6	131	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	251	Pass
H - Head to back line	mm	40.7 to 45.7	43	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	285	Pass
J - Elbow rest height	mm	182.8 to 203.2	200	Pass
K - Buttock to knee length	mm	520.7 to 546.1	542	Pass
L - Popliteal height	mm	355.6 to 376.0	362	Pass
M - Knee pivot height	mm	393.7 to 419.1	415	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	415	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	183	Pass
P - Foot length	mm	218.5 to 233.7	230	Pass
R - Buttock to knee pivot length	mm	457.2 to 482.6	475	Pass
S - Head breadth	mm	137.1 to 147.3	145	Pass
T - Head depth	mm	177.8 to 188.0	182	Pass
U - Hip breadth	mm	299.7 to 314.9	311	Pass
V - Shoulder breadth	mm	350.5 to 365.7	362	Pass
W - Foot breadth	mm	78.8 to 94.0	92	Pass
X - Head circumference	mm	528.3 to 548.7	542	Pass
Y - Chest circumference with jacket	mm	850.8 to 881.3	853	Pass
Z - Waist circumference	mm	759.5 to 789.9	775	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	305	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	165	Pass
Overall Test Results				Pass

Test Program: Dummy Damage Checklist
 ATD Serial No.: 035

Test Date: 8/15/10
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

Test Program: Dummy Damage Checklist
 ATD Serial No.: 141

Test Date: 8/14/10
 Test I.D.: N/A



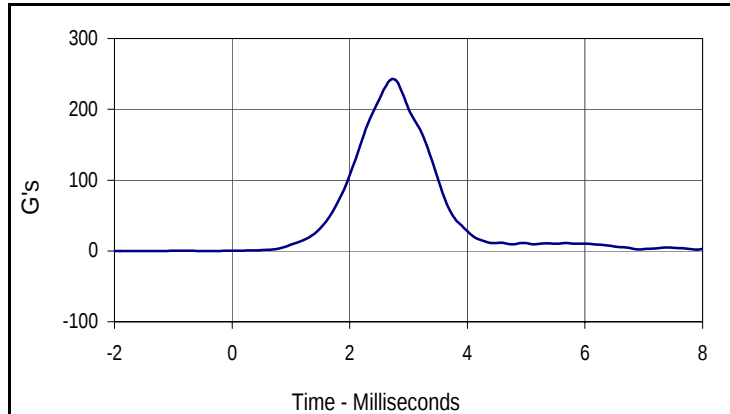
GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

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

Test Program: Hybrid III 50th Percentile Male Head Drop TestTest Date: 8/19/10ATD Serial No.: 035Test I.D.: HDM08C

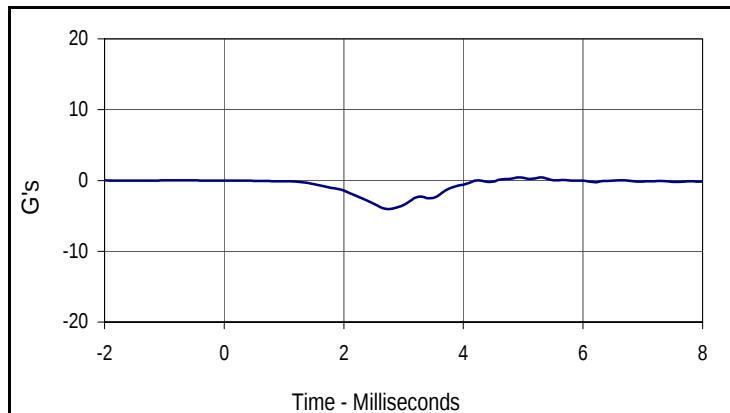
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	242.2	Pass
Peak Lateral Acceleration	G's	≤15.0	4.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description

Head Resultant

CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
242.2	2.7	0.0	-1.6



Curve Description

Head Y

CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.4	5.3	-4.0	2.7

Test Program: Hybrid III 50th Percentile Male Thorax Impact Test

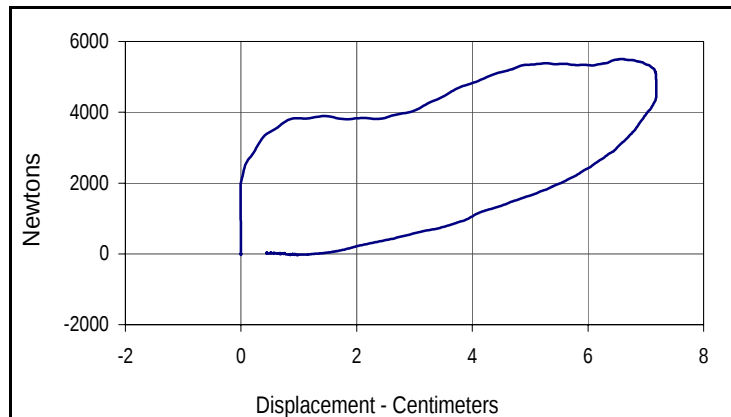
Test Date: 8/19/10

ATD Serial No.: 035

Test I.D.: CHM08C



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
Probe Velocity	m/s	6.58 to 6.82	6.67	Pass
Peak Probe Force	Newtons	5159 to 5893	5506	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	7.18	Pass
Internal Hysteresis	%	69 to 85	74.0	Pass
Overall Test Results			Pass	



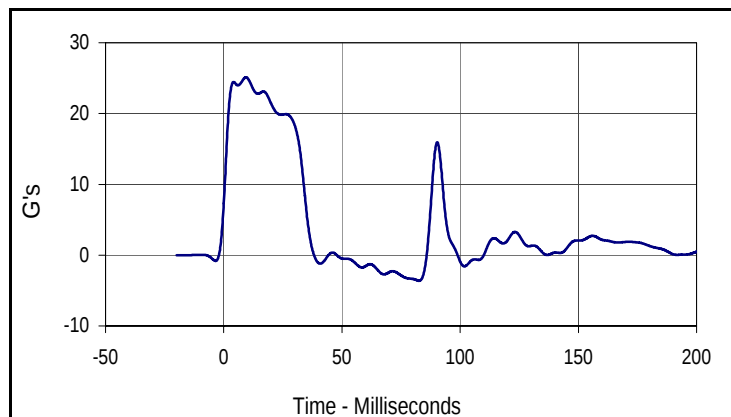
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
001	FIL	180	74.0
Peak Probe Force		Peak Chest Deflection	
5506		7.18	

Test Program: Hybrid III 50th Percentile Male Neck Flexion Test
 ATD Serial No.: 035

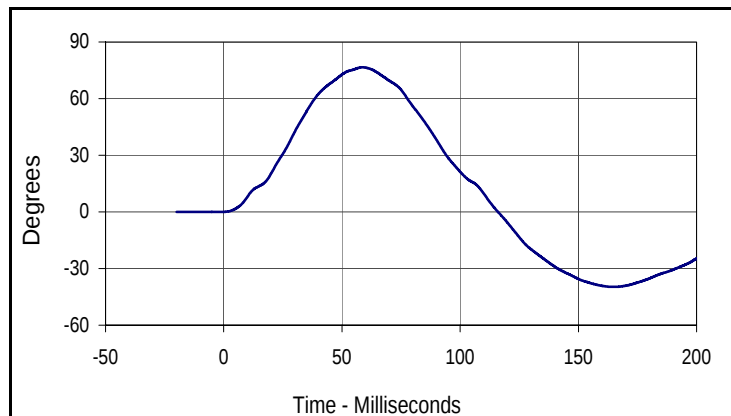
Test Date: 8/19/10
 Test I.D.: NFM08C



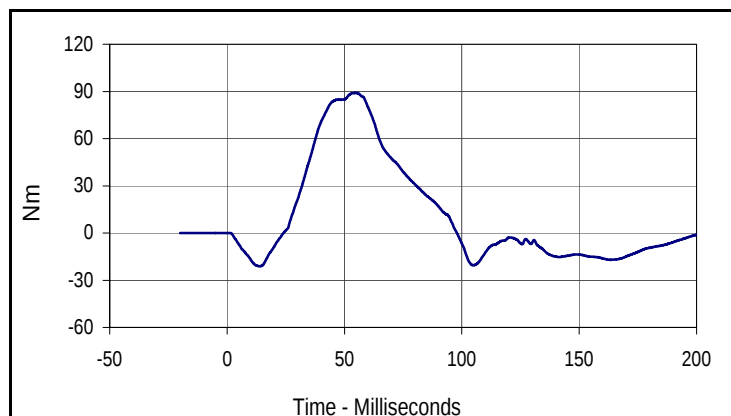
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.89	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	25.0	Pass
	20 Msec.	G's	17.6 to 22.6	21.4	Pass
	30 Msec.	G's	12.5 to 18.5	18.4	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.4	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	35.4	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	76.6	Pass
	Time	Msec.	57.0 to 64.0	58.6	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	116	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	89.1	Pass
	Time	Msec.	47.0 to 58.0	54.5	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	98.0	Pass
Overall Test Results					Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
25.1	9.4	-3.6	82.6



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
76.6	58.6	-39.7	164.8



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
89.1	54.5	-21.2	13.8

Test Program: Hybrid III 50th Percentile Male Neck Extension Test

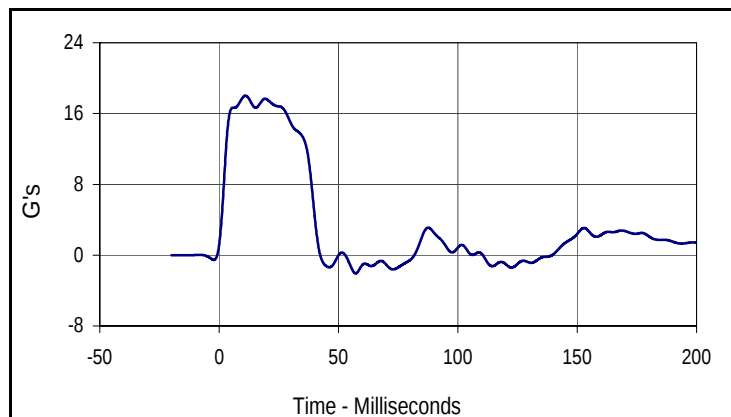
Test Date: 8/19/10

ATD Serial No.: 035

Test I.D.: NEM08C



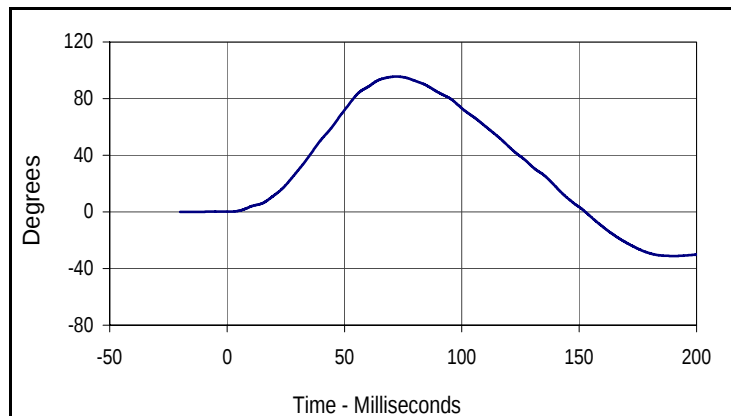
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	5.96	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	17.9	Pass
	20 Msec.	G's	14.0 to 19.0	17.6	Pass
	30 Msec.	G's	11.0 to 16.0	14.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	14.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	39.8	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	95.6	Pass
	Time	Msec.	72.0 to 82.0	72.2	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	152.7	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-75.2	Pass
	Time	Msec.	65.0 to 79.0	68.2	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	137.1	Pass
			Overall Test Results		Pass



Curve Description

Pendulum Deceleration

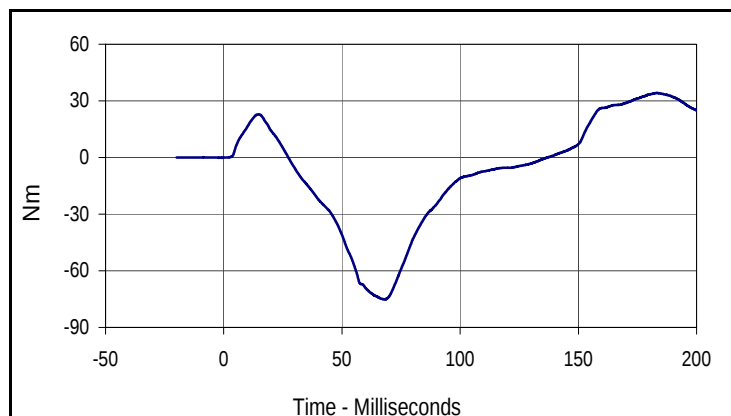
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
18.0	11.0	-2.1	57.2



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
95.6	72.2	-31.1	190.4



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
34.2	183.3	-75.2	68.2

Test Program: Hybrid III 50th Percentile Male Knee Impact Test
 ATD Serial No.: 035

Test Date: 8/19/10
 Test I.D.: LKM08C , RKM08C

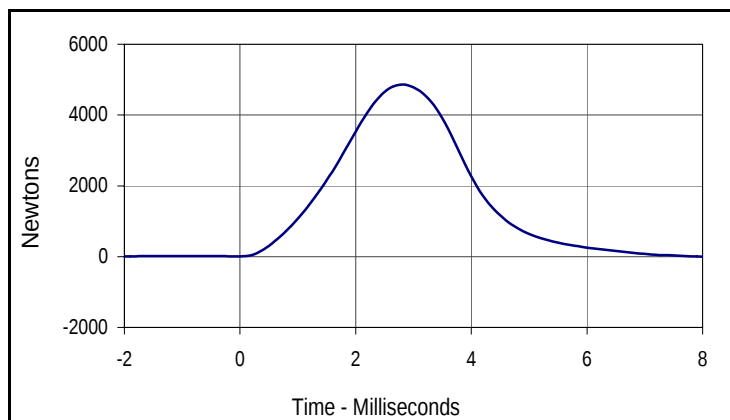


Left Knee

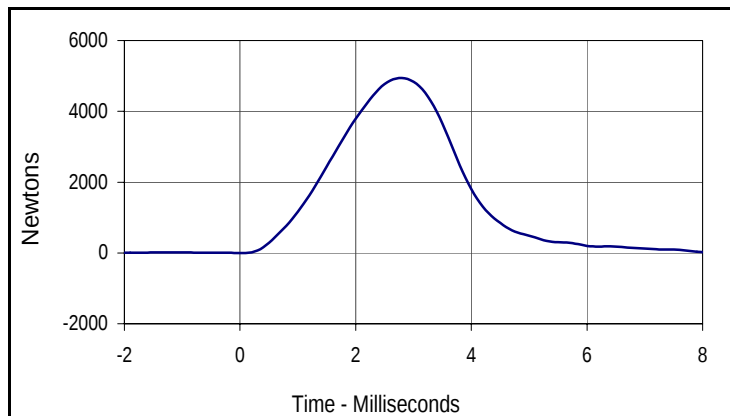
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	4860	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	4943	Pass
Overall Test Results				Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4859.8	2.8	-12.6	8.7



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
4943.0	2.8	-44.0	10.0

Test Program: Hybrid III 50th Percentile Male External Measurements

Test Date: 8/19/10

ATD Serial No.: 035

Test I.D.: N/A



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
A - Total sitting height	mm	879 to 889	881	Pass
B - Shoulder pivot height	mm	505 to 521	517	Pass
C - "H" point height	mm	84 to 89	85	Pass
D - "H" point from seat back	mm	135 to 140	139	Pass
E - Shoulder pivot from back	mm	84 to 94	84	Pass
F - Thigh clearance	mm	140 to 155	149	Pass
G - Elbow back to wrist pivot	mm	290 to 305	301	Pass
H - Skull cap to back line	mm	41 to 46	43	Pass
I - Shoulder to elbow length	mm	330 to 345	335	Pass
J - Elbow rest height	mm	190 to 211	210	Pass
K - Buttock to knee length	mm	579 to 604	590	Pass
L - Popliteal length	mm	429 to 455	432	Pass
M - Knee pivot height	mm	485 to 500	487	Pass
N - Buttock popliteal length	mm	452 to 477	470	Pass
O - Chest depth	mm	213 to 229	215	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	431	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference	mm	970 to 1001	986	Pass
Z - Waist circumference	mm	836 to 866	864	Pass
AA - Location for chest circumference	mm	429 to 434	431	Pass
BB - Location for waist circumference	mm	226 to 231	231	Pass
Overall Test Results				Pass

Test Program: Hybrid III 5th Percentile Female Head Drop Test

Test Date: 8/20/10

ATD Serial No.: 141

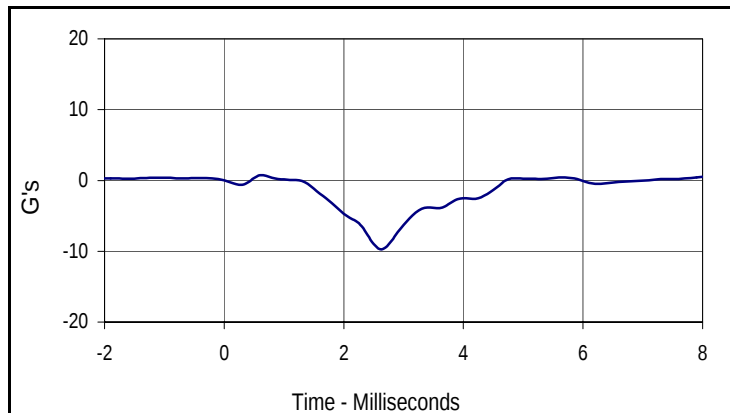
Test I.D.: HDF08C



Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	273.1	Pass
Peak Lateral Acceleration	G's	≤15.0	9.7	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass



Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
273.1	2.6	0.6	-1.5



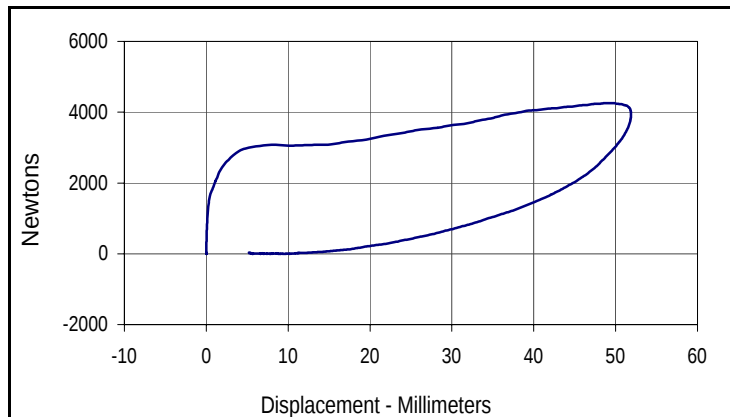
Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.7	0.6	-9.7	2.6

Test Program: Hybrid III 5th Percentile Female Thorax Impact Test
 ATD Serial No.: 141

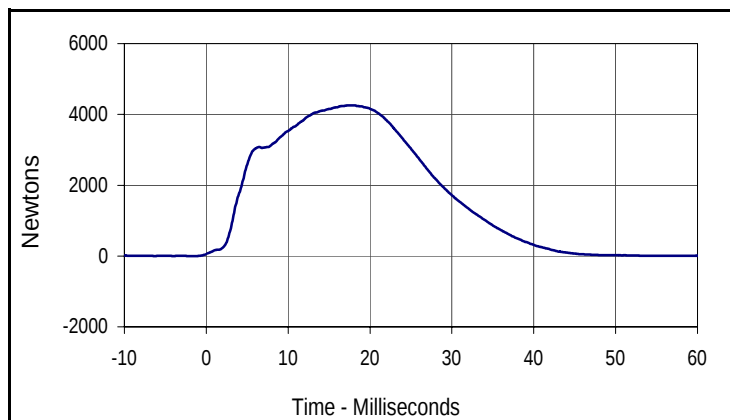
Test Date: 8/20/10
 Test I.D.: CHF08C



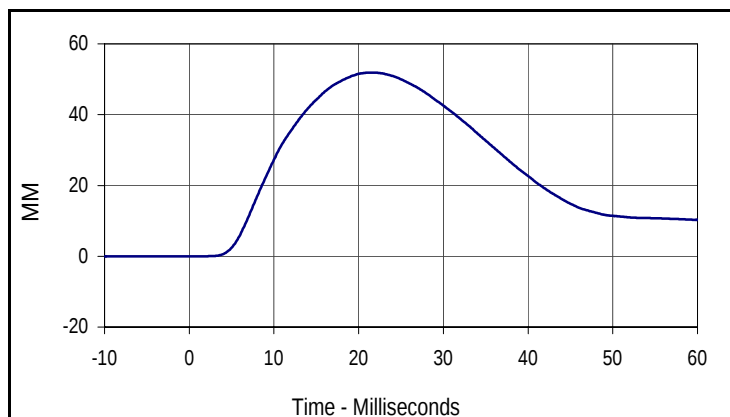
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.59 to 6.83	6.66	Pass
Peak Chest Deflection	MM	50.0 to 58.0	51.9	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4258	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4241	Pass
Internal Hysteresis	%	69 to 85	76.3	Pass
Overall Test Results			Pass	



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysteresis
003	FIL	180	76.3
Peak Probe Force		Peak Chest Displ.	
4257.6		51.9	



Curve Description			
Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4257.6	17.3	-5.8	155.4



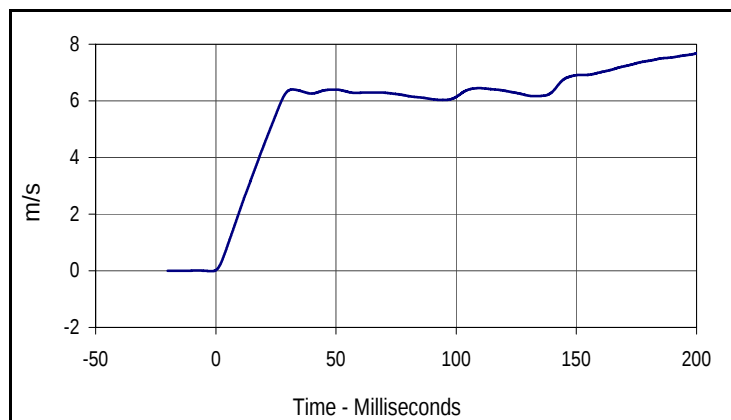
Curve Description			
Chest Deflection			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
51.9	21.6	0.0	-10.0

Test Program: Hybrid III 5th Percentile Female Neck Flexion Test
 ATD Serial No.: 141

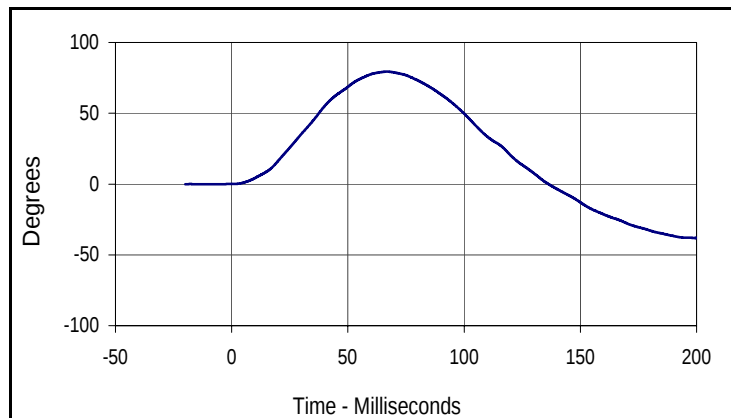
Test Date: 8/20/10
 Test I.D.: NF08C



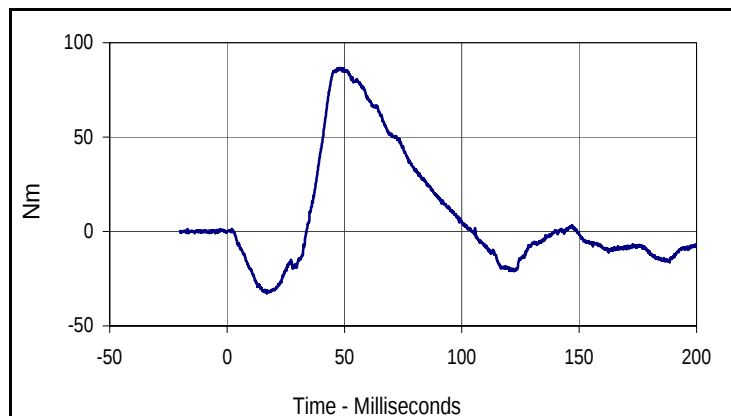
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.10	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.1	Pass
	20 Msec.	m/s	4.0 to 5.0	4.4	Pass
	30 Msec.	m/s	5.8 to 7.0	6.4	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	79.4	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	73.1	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	95.9	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
7.7	200.0	0.0	-1.8



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
79.4	66.8	-38.0	200.0



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
86.5	48.0	-32.9	16.9

Test Program: Hybrid III 5th Percentile Female Neck Extension Test

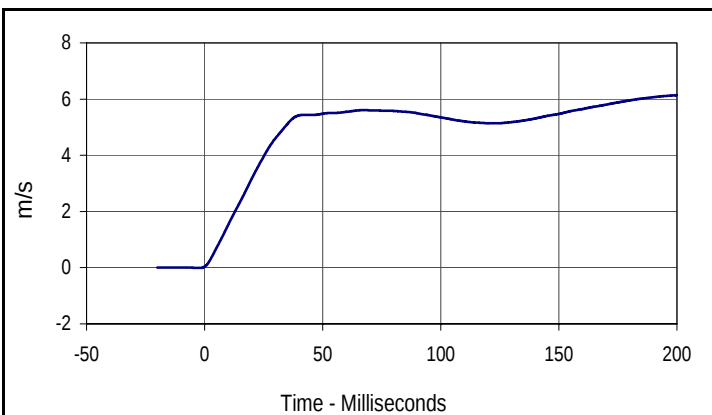
Test Date: 8/20/10



ATD Serial No.: 141

Test I.D.: NE08C

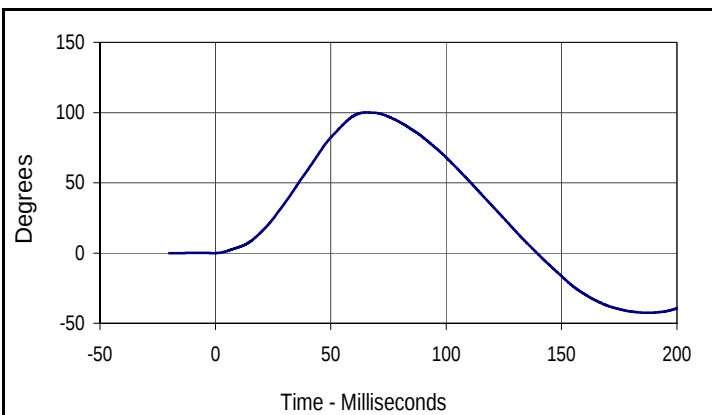
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.08	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.5	Pass
	20 Msec.	m/s	3.1 to 3.9	3.2	Pass
	30 Msec.	m/s	4.6 to 5.6	4.6	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	100.0	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-54.1	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	96.0	Pass
			Overall Test Results		Pass



Curve Description

Pendulum Velocity

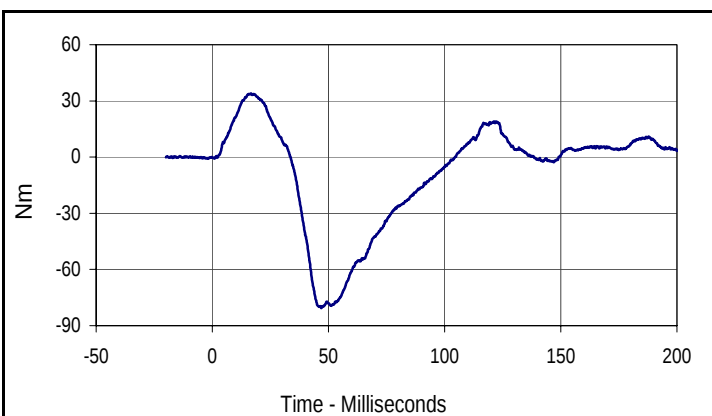
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
6.1	200.0	0.0	-2.2



Curve Description

"D" Plane Rotation

CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
100.0	65.4	-42.6	187.9



Curve Description

Moment About Occipital Condyle

CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
34.0	16.7	-80.6	46.9

Test Program: Hybrid III 5th Percentile Female Knee Impact Test

Test Date: 8/20/10

ATD Serial No.: 141

Test I.D.: LKF08C , RKB08C

**Left Knee**

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	3450 to 4060	3721	Pass
Overall Test Results				Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	3450 to 4060	3692	Pass
Overall Test Results				Pass

**Curve Description****Left Knee Probe Force**

CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3721.5	4.3	3.2	-0.4

**Curve Description****Right Knee Probe Force**

CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
3692.3	4.3	-2.4	-0.4

Test Program: Hybrid III 5th Percentile Female External Measurements

Test Date: 8/20/10

ATD Serial No.: 141

Test I.D.: N/A



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
A - Total sitting height	mm	774.7 to 800.1	783	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	441	Pass
C - "H" point height (Reference)	mm	81.3 to 86.3	84	Pass
D - "H" point from seat back (Ref.)	mm	144.8 to 149.8	146	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	79	Pass
F - Thigh clearance	mm	119.4 to 134.6	129	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	253	Pass
H - Head to back line	mm	40.7 to 45.7	43	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	286	Pass
J - Elbow rest height	mm	182.8 to 203.2	202	Pass
K - Buttock to knee length	mm	520.7 to 546.1	540	Pass
L - Popliteal height	mm	355.6 to 376.0	361	Pass
M - Knee pivot height	mm	393.7 to 419.1	414	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	415	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	182	Pass
P - Foot length	mm	218.5 to 233.7	231	Pass
R - Buttock to knee pivot length	mm	457.2 to 482.6	465	Pass
S - Head breadth	mm	137.1 to 147.3	143	Pass
T - Head depth	mm	177.8 to 188.0	181	Pass
U - Hip breadth	mm	299.7 to 314.9	309	Pass
V - Shoulder breadth	mm	350.5 to 365.7	362	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	543	Pass
Y - Chest circumference with jacket	mm	850.8 to 881.3	853	Pass
Z - Waist circumference	mm	759.5 to 789.9	779	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	304	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	167	Pass
Overall Test Results				Pass

Test Program: Dummy Damage Checklist
 ATD Serial No.: 035

Test Date: 8/19/10
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:

Test Program: Dummy Damage Checklist
 ATD Serial No.: 141

Test Date: 8/20/10
 Test I.D.: N/A



GENERAL	DAMAGED	OK
Outer skin on entire dummy		X
Head ballast secure		X
Gashes, rips, general appearance, etc.		X
Neck-Broken or cracks in rubber		X
Check that upper neck bracket is firmly attached to lwr neck bracket		X
Three rubber bumpers in place		X
Spine- Broken or cracks in rubber		X
Check for looseness at the condyle joint		X
Nodding blocks- cracked or out of position		X
Ribs- Check all ribs and rib supports for damage (bent or broken)		X
Check damping material or separation or cracks		X
OTHER		
CHEST DISPLACEMENT ASSEMBLY		
Bent shaft		X
Slider arm riding correctly, in track		X
TRANSDUCER LEADS		
Torn cables		X
ACCELEROMETER MOUNTINGS		
Check for secure mounting		X
KNEES		
Check outer skin, insert and casting (without removing insert)		X
Knee sliders - Wires intact		X
Knee sliders- Rubber returned to "at rest position"		X
LIMBS		
Check for normal movement and adjustment		X
PELVIS		
Inspect for breakage, especially at iliac crest		X

Comments on repair or replacement parts:
