REPORT NUMBER: NCAP-KAR-12-033

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

NISSAN MOTOR CO., LTD.

2012 NISSAN VERSA 1.6 S 4-DOOR SEDAN

NHTSA NUMBER: MC5205

PREPARED BY:

KARCO ENGINEERING, LLC.

9270 HOLLY ROAD

ADELANTO, CA 92301

JANUARY 20, 2012

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

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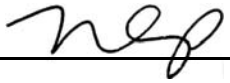
Reviewed By: 

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Approval Date: January 20, 2012

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 DOCUMENTATON PAGE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
NCAP-KAR-12-033		

4. Title and Subtitle
Final Report of New Car Assessment Program Testing of a
2012 Nissan Versa 1.6 S 4-Door Sedan
NHTSA No. MC5205

5. Report Date
January 20, 2012

6. Performing Organization Code
KAR

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TR-P31001-04-NC

9. Performing Organization Name and Address
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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, Jan. 6 - 20, 2012

14. Sponsoring Agency Code
NVS-111

15. Supplementary Notes

16. Abstract

A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2012 Nissan Versa 1.6 S 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 footwell intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on January 6, 2012.

The impact velocity of the vehicle was 56.34 km/h and the ambient temperature at the barrier face at the time of impact was 20.0 deg. C. The target vehicle's post-test maximum crush was 355 mm at the vehicle's centerline. The test vehicle's performance is as follows:

Measurement Description	Units	Driver ATD		Passenger ATD	
		Threshold	Result	Threshold	Result
Head Injury Criteria (HIC_{15})	N/A	700.0	310.5	700.0	561.4
Maximum Chest Compression	mm	63	-27	52	-14
Nij	N/A	1	0.28	1	0.62
Neck Tension	N	4170	1860.9	2620	1063.6
Neck Compression	N	4000	-332.5	2520	-721.1
Left Femur Force	N	10008	-3340.2	6805	-2332.2
Right Femur Force	N	10008	-3510.1	6805	-2227.9

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	20. Security Classification of this page	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED	135	

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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 August, 2011.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2012 Nissan Versa 1.6 S 4-door sedan at a velocity of 56.34 km/h. The test was performed at KARCO Engineering, LLC. on January 6, 2012. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A of this report.

Three (3) real-time cameras 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 installed on the driver's and the passenger's shoulder and lap belts to measure the dummy 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 136 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 355 mm located at DPD the vehicle's 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. The left knee contacted the knee bolster. The right knee contacted the knee bolster and the steering column.

The passenger's visible contact points were as follows: The passenger 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 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)	310.5	69.6	84.6	-27	0.28	1860.9	-332.5	-3340.2	-3510.1
Passenger (5th)	561.4	63.9	78.9	-14	0.62	1063.6	-721.1	-2332.2	-2227.9

SECTION 2

DATA SHEETS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lbf/in^2	kPa	6.895
Temperature	General Use	^oF	^oC	=(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: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MC5205	Auto-Leveling System	No
Model Year	2012	Automatic Door Locks	No
Make	Nissan	Power Window Auto-Reverse	No
Model	Versa 1.6 S	Other Optional Feature	None
Body Style	4-Door Sedan	Driver Front Airbag	Yes
VIN	3N1CN7AP7CL845022	Driver Curtain Airbag	Yes
Body Color	Brilliant Silver	Driver Head/Torso Airbag	No
Odometer Reading (km / mi)	138 / 86	Driver Torso Airbag	No
Engine Displacement (L)	1.6	Driver Torso/Pelvis Airbag	Yes
Type / No. of Cylinders	Inline 4	Driver Pelvis Airbag	No
Engine Placement	Transverse	Driver Knee Airbag	No
Transmission Type	CVT	Pass. Front Airbag	Yes
Transmission Speeds	n/a	Pass. Curtain Airbag	Yes
Overdrive	Yes	Pass. Head/Torso Airbag	No
Final Drive	Front	Pass. Torso Airbag	No
Roof Rack	No	Pass. Torso/Pelvis Airbag	Yes
Sunroof / T-Top	No	Pass. Pelvis Airbag	No
Running Boards	No	Pass. Knee Airbag	No
Tilt Steering Wheel	Yes	Driver Seat Belt Pretensioner	Yes
Power Seats	No	Pass. Seat Belt Pretensioner	Yes
Anti-Lock Brakes (ABS)	Yes	Driver Load Limiter	Yes
All Wheel Drive (AWD)	No	Pass. Load Limiter	Yes
Traction Control System	Yes	Other Safety Restraint	None

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co., LTD.	GVWR (kg)	1536
Date of Manufacture	Oct-11	GAWR Front (kg)	793
		GAWR Rear (kg)	757

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

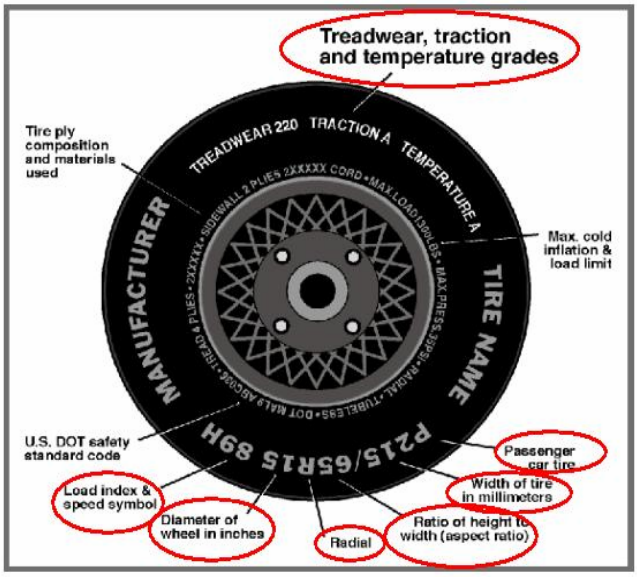
Measured Parameter	Front	Rear	Third	Total	
Type of Seats	Bucket	Bench			
Designated Seating Capacity	2	3		5	
Capacity Weight (VCW) (kg)				385.0	*A*
DSC x 68.04 (kg)				340.2	*B*
Cargo Weight (RCLW) (kg)				44.8	*A-B*

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	P185/65R15	P185/65R15
Tire Size on Vehicle	P185/65R15	P185/65R15
Tire Manufacturer	Continental	Continental
Tire Model	Contipro Contact	Contipro Contact
Treadwear	400	400
Traction	AA	AA
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	2 Steel, 1 Polyester, 1 Nylon	2 Steel, 1 Polyester, 1 Nylon
Load Index / Speed Symbol	86H	86H
Tire Material	Steel, Polyester, Nylon	Steel, Polyester, Nylon
DOT Safety Code Left	P5FP 3RN 4111	P5FP 3RN 4111
DOT Safety Code Right	P5FP 3RN 4111	P5FP 3RN 4111

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	341.0	222.0		380.0	297.5	
Right	kg	311.5	231.5		323.5	285.5	
Ratio	%	59.0%	41.0%	100.0%	54.7%	45.3%	100.0%
Total	kg	652.5	453.5	1106.0	703.5	583.0	1286.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1106.0	A
Weight of 1 P572E ATD & 1 P572O ATD	kg	141.0	B
Rated Cargo/Luggage Weight (RCLW)	kg	44.8	C
Calculated Vehicle Target Weight (TVTW)	kg	1291.8	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	684	687	671	676	
As Tested	mm	669	675	641	649	
Post-Test	mm	636	677	633	658	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2600
Total Vehicle Length at Left Side	mm	3814
Total Vehicle Length at Centerline	mm	4450
Total Vehicle Length at Right Side	mm	3818
Weight of Ballast in Cargo Area	kg	64.4
Weight of Vehicle Components Removed	kg	34.0
Amount of Stoddard Solvent in Fuel Tank	L	38.02

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Rear Taillights (2.5 kg), Hub Caps (2.5 kg), Rear Door Panels and Windows (13.0 kg), Outboard Mirrors (2.0 kg), Spare Tire and Tools (9.5 kg), Truck Trim and Carpeting (4.5 kg)

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length	4450	4095	-355
2	Total Width	1700	1780	80
3	Bumper Top Height	585	510	-75
4	Bumper Bottom Height	435	360	-75
5	Longitudinal Member Top Height	555	615	60
6	Distance Between Longitudinal Members	783	930	147
7	Longitudinal Member Width	53	73	20
8	Engine Top Height	837	810	-27
9	Engine Bottom Height	191	164	-27
10	Engine and Gearbox Width	400	400	0
11	Front Bumper to Engine Distance	520	380	-140
12	Front Shock Absorber Fixing Height	850	840	-10
13	Bonnet Leading Edge Height	810	760	-50
14	Front Shock Absorber Fixing Width	1115	1090	-25
15	Front Bumper to Front Axle Distance	830	505	-325
16	Front Axle to A-Pillar Distance	440	375	-65
17	A-Pillar to B-Pillar Distance	1032	1030	-2
18	B-Pillar to Rear Axle Distance	1042	1045	3
19	B-Pillar to C-Pillar Distance	871	873	2
20	Roof Sill Bottom Height	1352	1342	-10
21	Roof Sill Top Height	1445	1439	-6
22	Floor Sill Bottom Height	205	173	-32
23	Floor Sill Top Height	383	285	-98

All measurements in millimeters.

DATA SHEET NO. 2

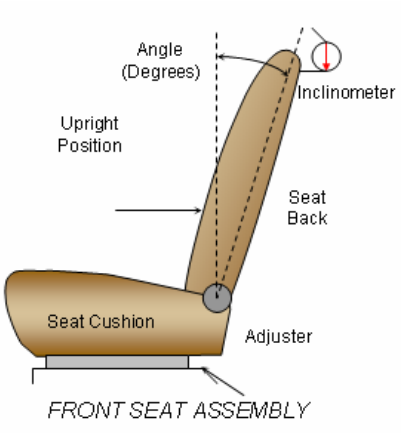
SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

NOMINAL DESIGN RIDING POSITION

The procedure for the driver is as follows: the seat back is set to the manufacturer's designated angle. 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° ± 0.5°. Seat back angle is measured at the headrest post using a digital inclinometer.

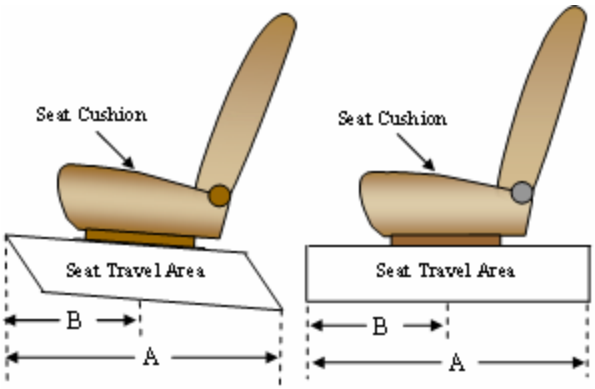


SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	12.8
Passenger Seat Back Angle	9.6

SEAT FORE / AFT POSITIONING

The total seat travel is measured from the forward most possible position to the rear most possible position. The driver's seat is set to the middle of the fore-aft travel. The passenger's seat is set to the forward most position where the ATD will not contact any interior panels.



SEAT FORE/AFT POSITIONS

Seating Position	Total Fore-Aft Travel	Placed in Position
Driver Seat	272 mm (25 detents)	142 mm (11th detent)
Passenger Seat	240 mm (25 detents)	0 mm [1st detent]

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 "H" is the uppermost position, followed by position "M1". Position "L" is the lowermost position.

SEAT BELT UPPER ANCHORAGES

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

DATA SHEET NO. 2 … (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

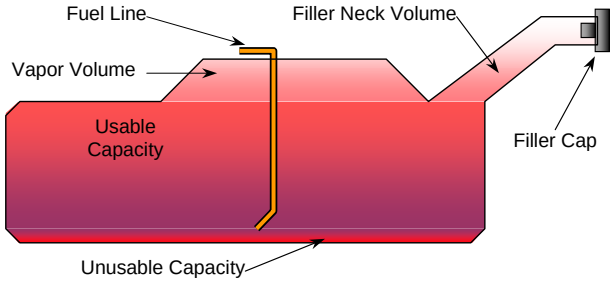
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	40.88
Usable Capacity of "Optional Tank"	
92 - 94% of Usable Capacity	37.61 to 38.43
Actual Amount of Stoddard Solvent Used	38.02
1/3 of Usable Capacity	13.63

FUEL PUMP

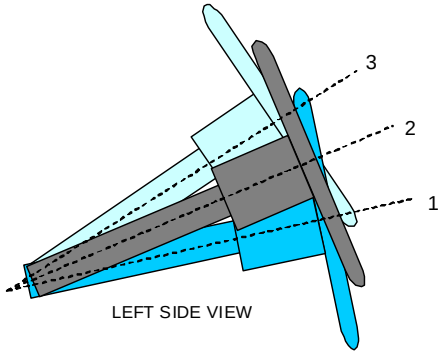
The vehicle is equipped with an electric fuel pump. The fuel pump will pump fuel for one second after the ignition is turned to the “ON” position and when the engine is running.



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 to measure telescoping steering wheel travel.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

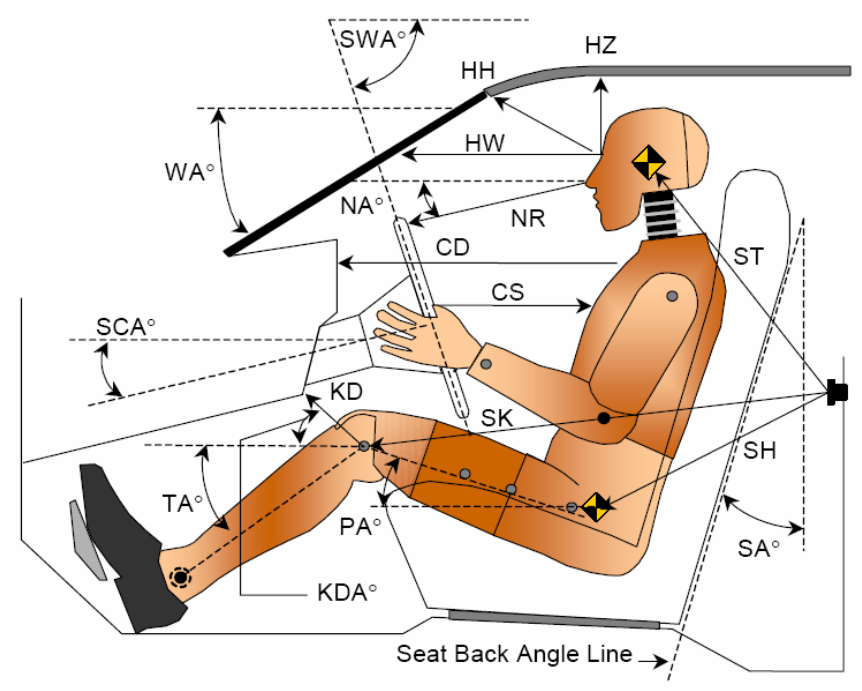
	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	24.6	
Geometric Center Position, No. 2	26.6	
Uppermost Position, No. 3	28.7	
Telescoping Steering Wheel Travel		
Test Position	26.6	

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12



LEFT SIDE VIEW

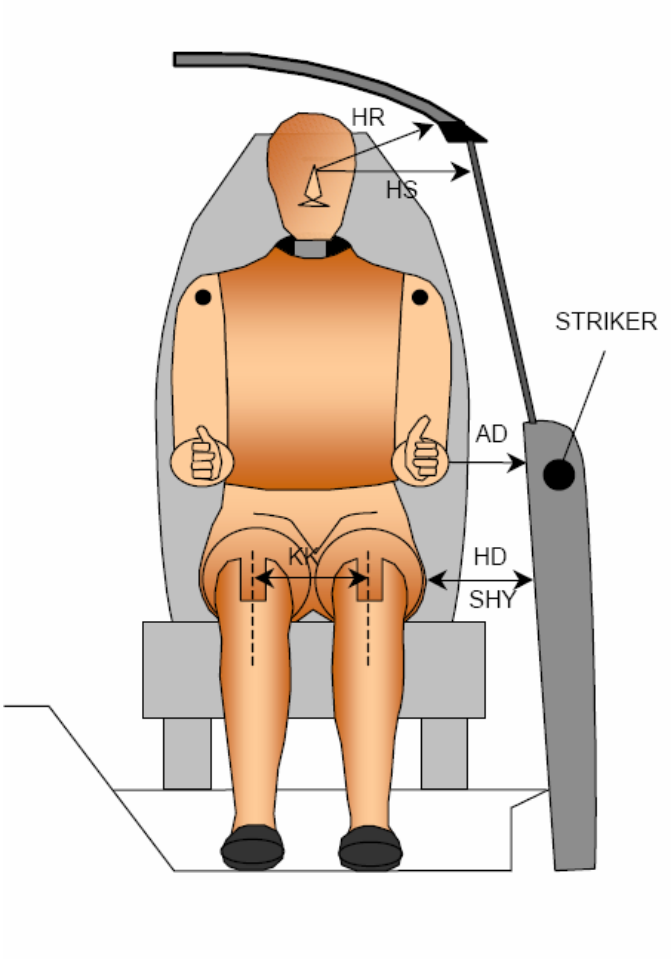
Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		25.4		
SWA°	Steering Wheel Angle		63.4		
SCA°	Steering Column Angle		26.6		
SA°	Seat Back Angle (On Headrest Post)		12.8		9.6
HZ	Head to Roof	181	90.0	246	90.0
HH	Head to Header	335	23.5	315	39.9
HW	Head to Windshield	592	0.0	659	0.0
NR	Nose to Rim	400	15.2	465	27.3
CD	Chest to Dash	522	9.9	422	36.6
CS	Chest to Steering Hub	265	0.0		
RA	Rim to Abdomen	187	0.0		
KDL	Left Knee to Dash	145	25.5	65	
KDR	Right Knee to Dash	112	37.0	112	33.7
PA°	Pelvic Angle		22.0		22.0
TA°	Tibia Angle		45.3		57.7
SK	Striker to Knee	631	1.8	720	1.2
ST	Striker to Head	579	74.2	549	59.6
SH	Striker to H-Point	274	21.4	383	14.6

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12



Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	91	143
HD	H-Point to Door	100	170
HR	Head to Side Header	195	252
HS	Head to Side Window	302	326
KK	Knee to Knee	350	229
SHY	Striker to H-Point (Y-Direction)	219	265
AA	Ankle to Ankle	360	173

DATA SHEET NO. 5

SEAT BELT POSITIONING DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

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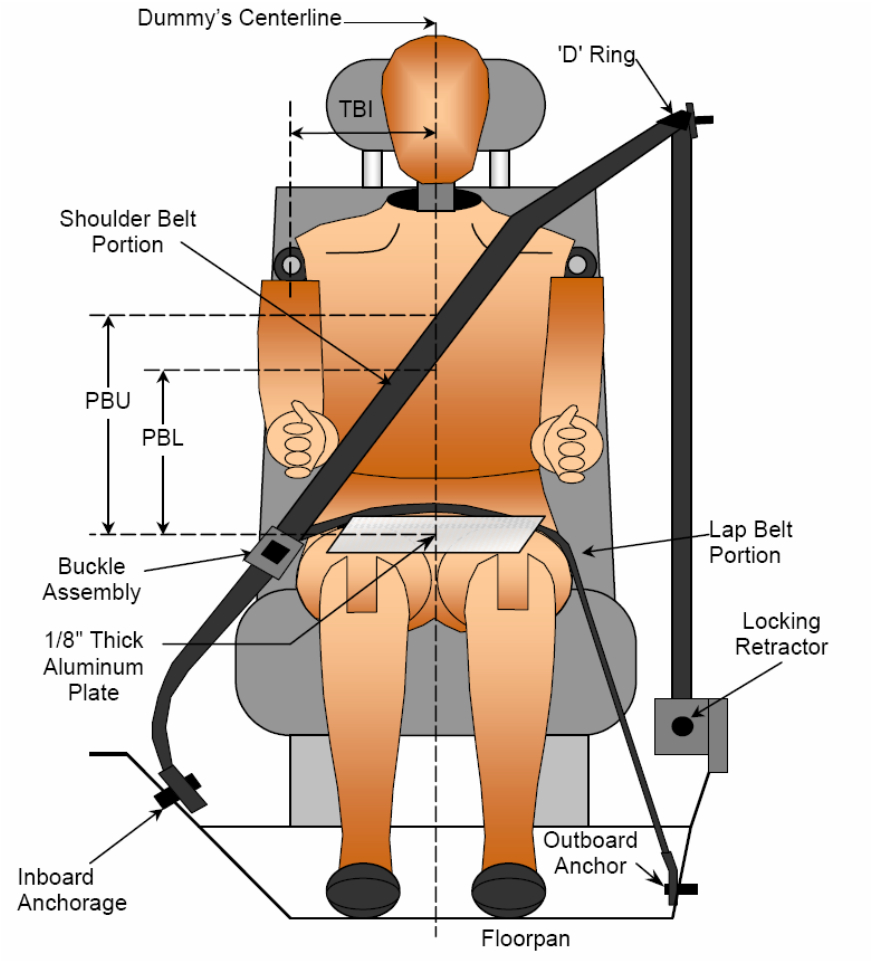


FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	394	291
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	321	208

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	931	934
Lap Belt Length as Measured on ATD	mm	872	955
Remainder of Belt on Reel	mm	940	868
Total Belt Length for Continuous Webbing Systems	mm	2743	2757

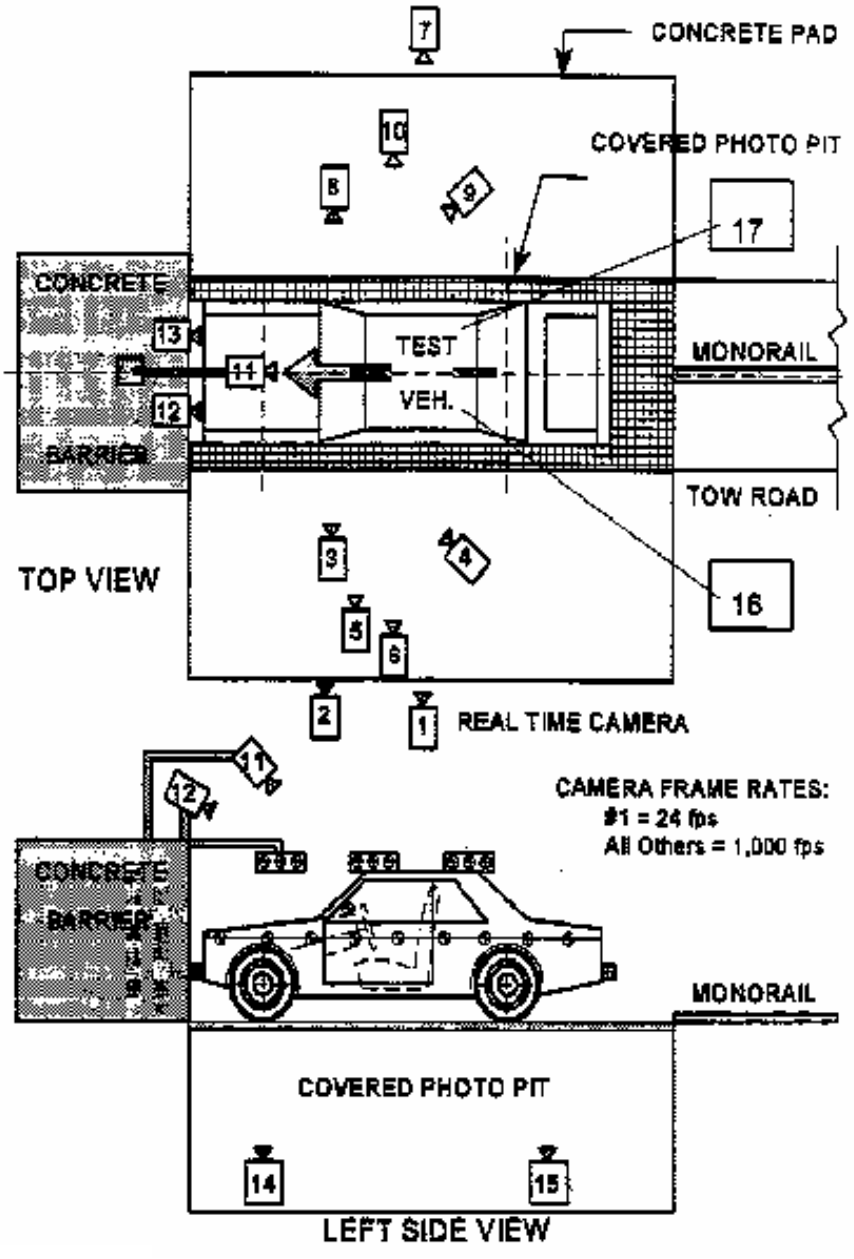
DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 … (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

CAMERA LOCATIONS

No.	Description	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall	-11412	-8150	-1484		30
2	Driver Close-Up	-2590	-7950	-1371	24	1000
3	Left Front Half	-1701	-6197	-1701	50	1000
4	Left Angle	-6696	-10308	-3211	ZOOM	1000
5	Steering Column - Top	-1966	-10412	-3688	50	1000
6	Steering Column - Bottom	-1972	-10412	-3379	50	1000
7	Right Overall	-2336	7569	-1012	24	1000
8	Passenger Close-Up	-1733	7581	-1408	50	1000
9	Right Front Half	-1600	8214	-1811	ZOOM	1000
10	Right Angle	-6217	9516	-4830	ZOOM	1000
11	Windshield	-354	0	-5749	12	1000
12	Driver Windshield	297	-366	-2460	12	1000
13	Passenger Windshield	297	366	-2460	24	1000
14	Pit Front	-756	0	1495	12	1000
15	Pit Rear	-3398	0	1495	8	1000
16	Onboard Driver Airbag (Optional)	-3095	265	-1350	12	1000
17	Onboard Passenger Airbag (Optional)	-3095	-265	-1350	12	1000
18	Real-Time Left View of Impact					
19	Real-Time Right View of Impact					

Coordinates: +X = forward impact plane

+Y = right of monorail center

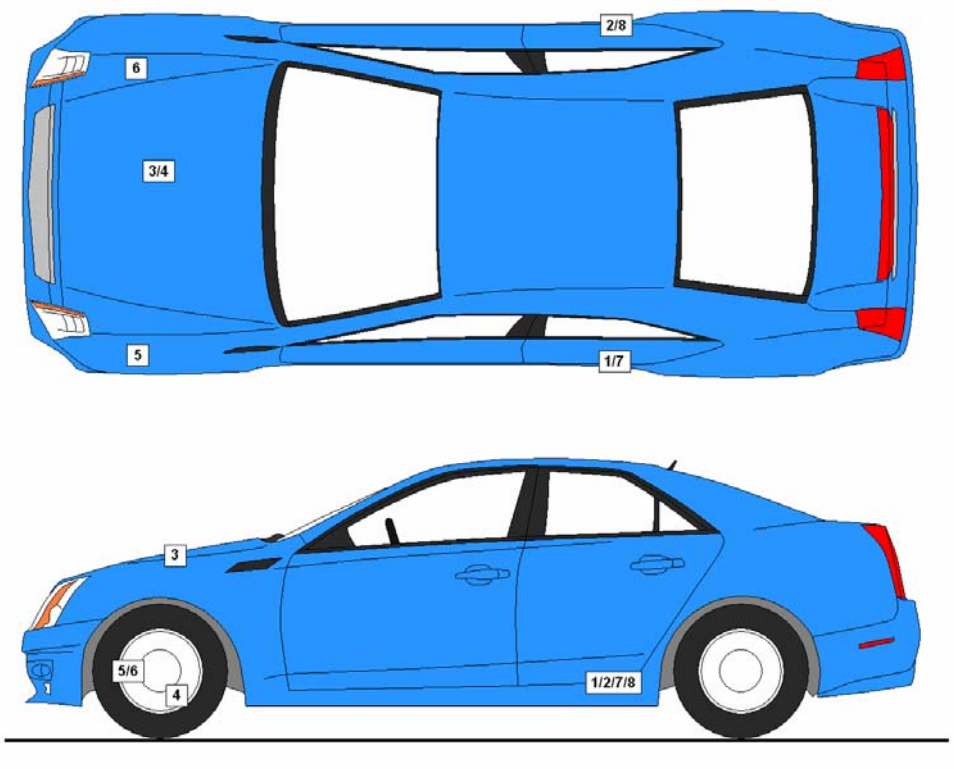
+Z = into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Accelerometer X-Direction	1844	-675	-321
2	Right Rear Accelerometer X-Direction	1844	675	-321
3	Engine Top X	3745	336	-747
4	Engine Bottom X	3772	298	-166
5	Left Brake Caliper X	3698	-645	-230
6	Right Brake Caliper X	3698	645	-230
7	Left Rear Accelerometer Z-Direction	1844	-675	-321
8	Right Rear Accelerometer Z-Direction	1844	675	-321

Reference Points: X – Rear Surface of Vehicle (+ forward)

Y – Vehicle Centerline (+ to right)

Z – Ground Plane (+ down)

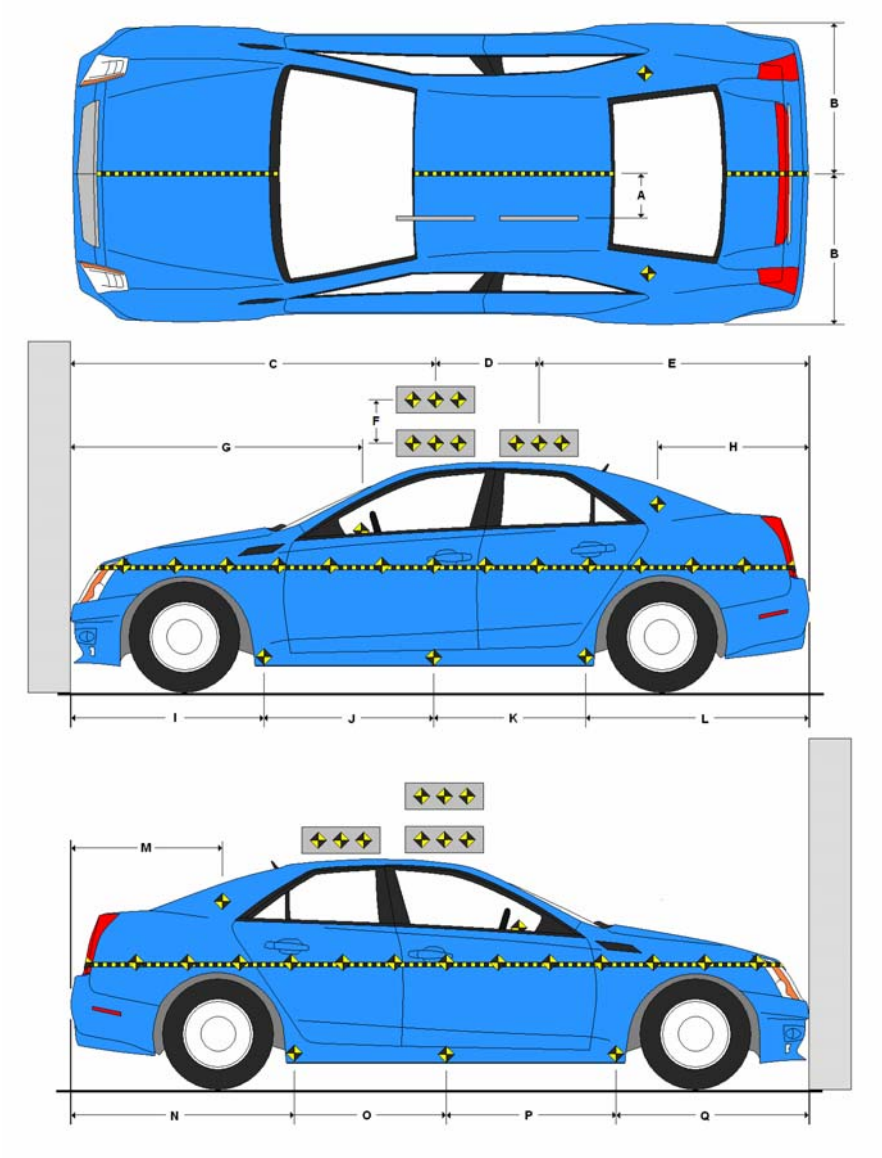
DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

Item	Value
A	300
B	850
C	2133
D	610
E	1710
F	305
G	1575
H	886
I	1252
J	880
K	880
L	1429
M	885
N	1435
O	881
P	881
Q	1257



All measurements in millimeters.

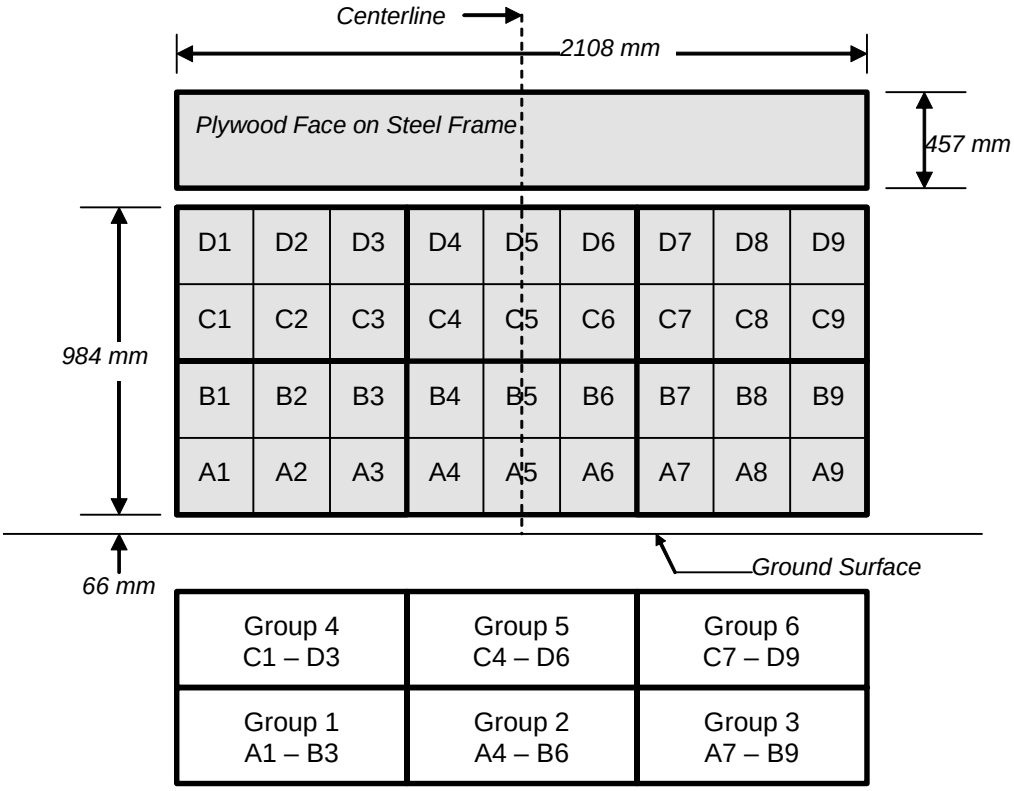
DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

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: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

INSTRUMENTATION

Driver Dummy Accelerometers	44
Passenger Dummy Accelerometers	44
Vehicle Structure Accelerometers	8
Seat Belt Load Cells	4
Load Cell Barrier	36
Total	136

CAMERA COVERAGE

High-Speed Vehicle On Board	2
High-Speed Off board	14
Real Time	3
Total	19

DATA SHEET NO. 11

POST-TEST OBSERVATIONS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

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	Knee Bolster
Right Knee Contact	Knee Bolster, Steering Column	Knee Bolster

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)	22	7
Seat Back Failure	None	None
Glazing Damage	None	None

POST TEST STRUCTURAL OBSERVATIONS

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

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	4527
Center	mm	4386
Right Side	mm	4416
Average	mm	4443

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

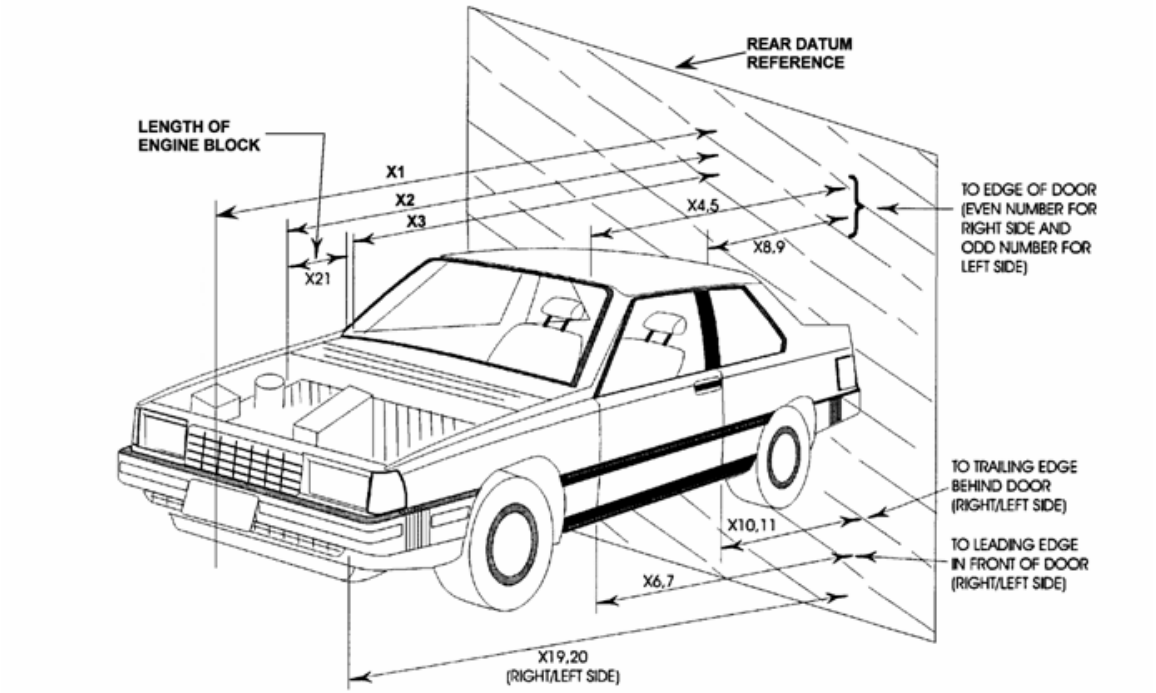
Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Side Airbag 1 (Curtain)	Yes	No	Yes	No
Side Airbag 2 (Torso/Pelvis)	Yes	No	Yes	No
Knee Airbag	No		No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

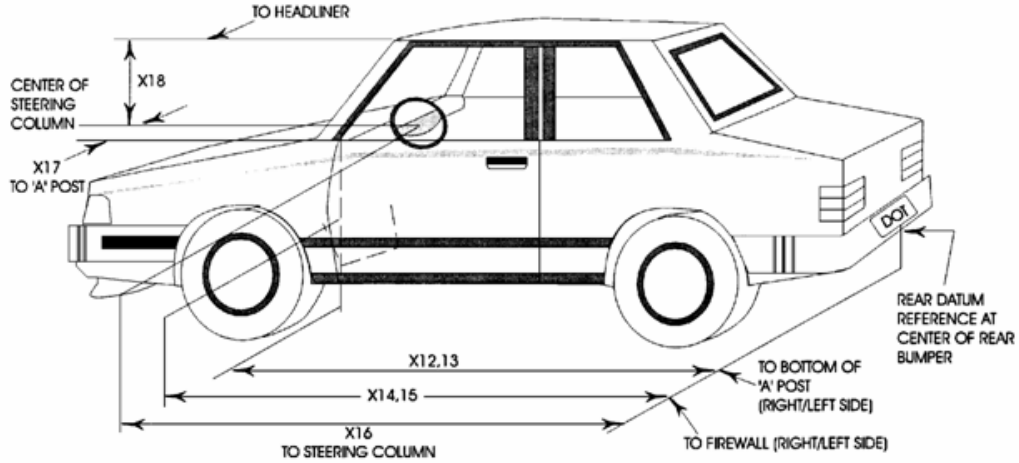
DATA SHEET NO. 12

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12





DATA SHEET NO. 12 … (CONTINUED)

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4450	4095	-355
2	Rear Surface of Vehicle to Front of Engine	3930	4070	140
3	RSOV to Firewall	3506	3400	-106
4	RSOV to Upper Leading Edge of Right Door	3214	3233	19
5	RSOV to Upper Leading Edge of Left Door	3214	3230	16
6	RSOV to Lower Leading Edge of Right Door	3192	3191	-1
7	RSOV to Lower Leading Edge of Left Door	3185	3188	3
8	RSOV to Upper Trailing Edge of Right Door	2074	2104	30
9	RSOV to Upper Trailing Edge of Left Door	2071	2100	29
10	RSOV to Lower Trailing Edge of Right Door	2073	2075	2
11	RSOV to Lower Trailing Edge of Left Door	2057	2061	4
12	RSOV to Bottom of A-Pillar, Right Side	3176	3198	22
13	RSOV to Bottom of A-Pillar, Left Side	3171	3198	27
14	RSOV to Firewall, Right Side	3418	3385	-33
15	RSOV to Firewall, Left Side	3550	3530	-20
16	RSOV to Steering Column	2700	2796	96
17	Center of Steering Column to A-Pillar	410	435	25
18	Center of Steering Column to Headliner	412	380	-32
19	RSOV to Right Side of Front Bumper	3818	3591	-227
20	RSOV to Left Side of Front Bumper	3814	3567	-247
21	Length of Engine Block	575	575	0
RD	RSOV to Right Side of Dash Panel	2943	2958	15
CD	RSOV to Center of Dash Panel	2860	2840	-20
LD	RSOV to Left Side of Dash Panel	2933	2950	17

All measurements in millimeters.

DATA SHEET NO. 13

ACCIDENT INVESTIGATION DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

VEHICLE INFORMATION

VIN: 3N1CN7AP7CL845022 Wheelbase (mm): 2600

Vehicle Size Category: 4-Door Sedan Test Weight (kg): 1286.5

ACCELEROMETER DATA

Accelerometer Locations: Left Rear Crossmember

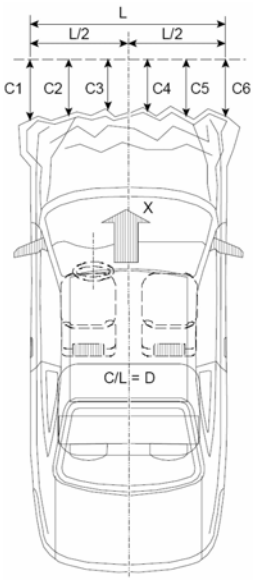
Cal. Procedure/Interval: Drop Test / 6 months

Integration Algorithm: NHTSA Standard Linearity: Good

Impact Velocity (km/h): 56.34

Velocity Change (km/h): 66.5

Time of Separation (msec): 56.9



CRUSH PROFILE

Collision Deformation Classification: 12FDEW2

Midpoint of Damage: Vehicle Centerline

Damage Region Length (mm): 1422

Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	268	530	262
C2	Crush Zone 2 at Left Side	mm	116	405	289
C3	Crush Zone 3 at Left Side	mm	62	390	328
C4	Crush Zone 4 at Right Side	mm	62	410	348
C5	Crush Zone 5 at Right Side	mm	116	470	354
C6	Crush Zone 6 at Right Side	mm	268	520	252
L	C1 to C6	mm	1422		

DATA SHEET NO. 14

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

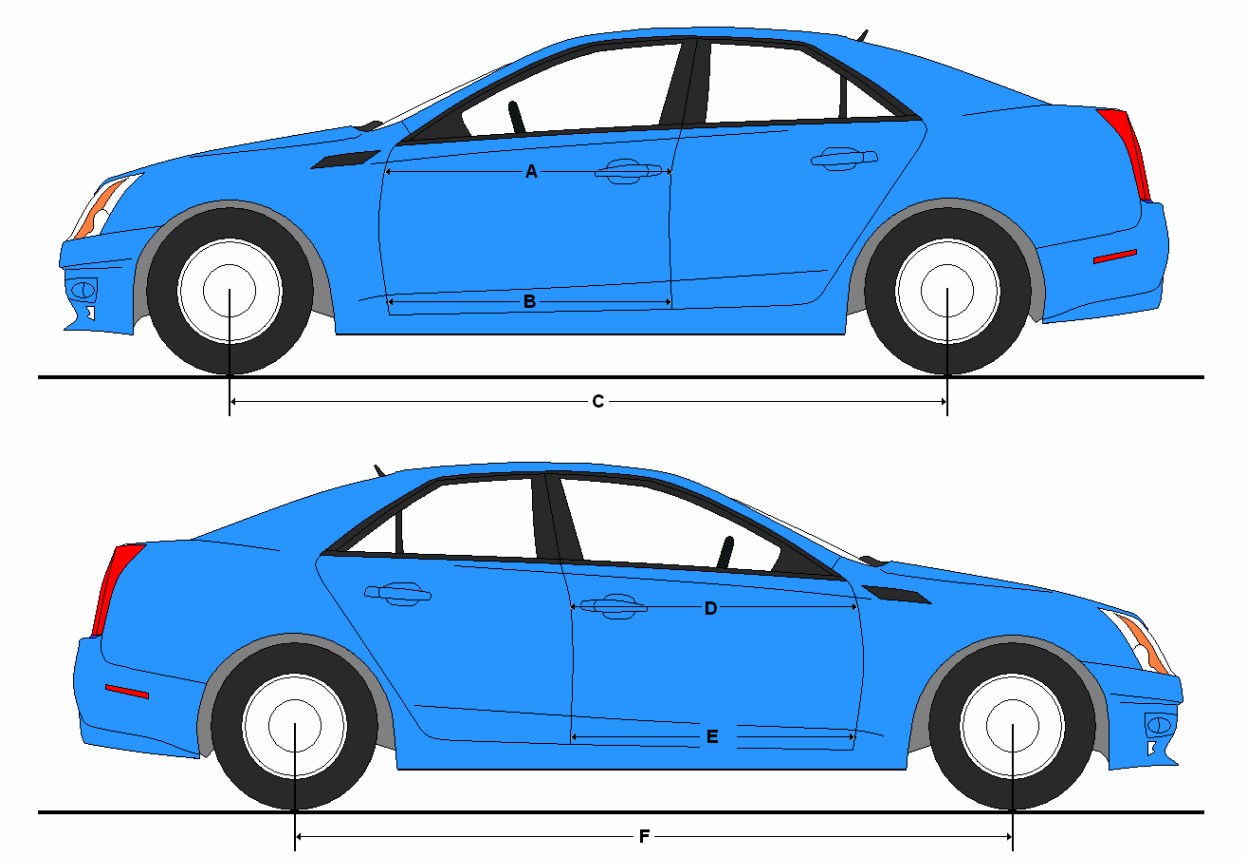
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1032	1031	1
B	Left Side Lower	mm	951	953	-2
D	Right Side Upper	mm	1032	1028	4
E	Right Side Lower	mm	925	926	-1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2600	2543	57
F	Right Side Wheelbase	mm	2600	2534	66



DATA SHEET NO. 14 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

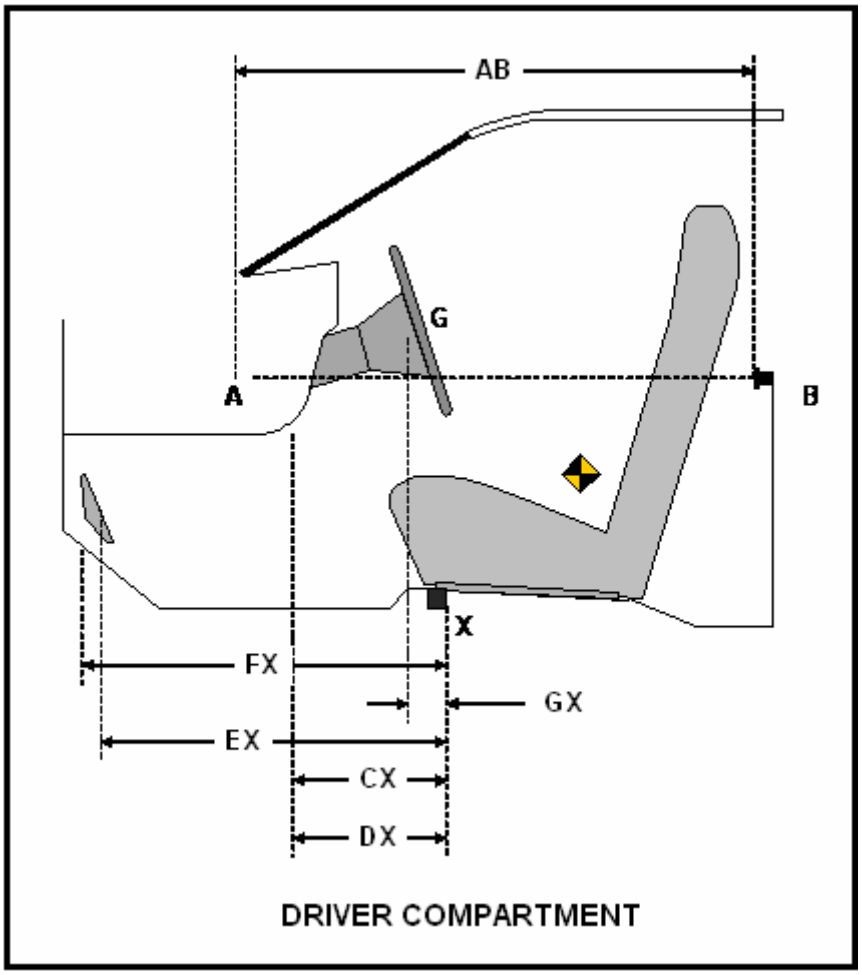
Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	963	958	5
CX	Left Knee Bolster to X	mm	255	260	-5
DX	Right Knee Bolster to X	mm	260	250	10
EX	Brake Pedal to X	mm	514	380	134
FX	Foot Rest to X	mm	543	565	-22
GX	Center of Steering Wheel Hub to X	mm	60	100	-40

X = Front of Seat Track (Stationary)

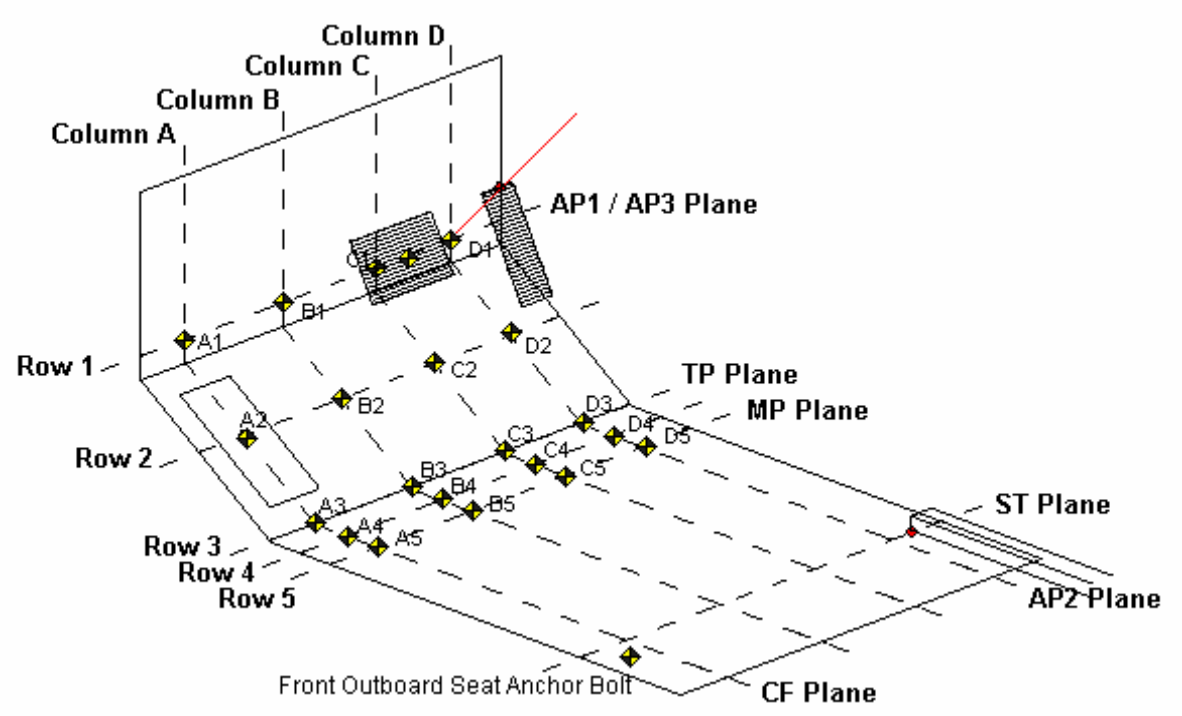


DATA SHEET NO. 14 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12



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: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

DRIVER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	601	659	662	670	606	640	631	630	-5	19	31	40
2	592	588	597	603	589	579	574	572	3	9	23	31
3	527	522	533	535	526	514	519	513	1	8	14	22
4	409	406	407	417	406	400	400	411	3	6	7	6
5	299	294	287	286	296	288	280	280	3	6	7	6

DRIVER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-27	-146	-269	-423	-23	-150	-263	-403	-4	4	-6	-20
2	-14	-145	-269	-424	-15	-146	-260	-413	1	1	-9	-11
3	-15	-145	-270	-427	-16	-146	-270	-423	1	1	0	-4
4	-15	-147	-269	-431	-16	-146	-268	-428	1	-1	-1	-3
5	-15	-149	-266	-429	-13	-148	-265	-423	-2	-1	-1	-6

DRIVER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	51	16	17	17	47	19	27	36	4	-3	-10	-19
2	-35	-13	-22	-31	-38	-16	-15	-15	3	3	-7	-16
3	-78	-53	-72	-70	-83	-58	-73	-66	5	5	1	-4
4	-106	-86	-112	-102	-108	-92	-121	-114	2	6	9	12
5	-115	-85	-116	-99	-112	-91	-122	-108	-3	6	6	9

All measurements in millimeters

DATA SHEET NO. 14 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

PASSENGER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	671	665	664	606	657	647	644	591	14	18	20	15
2	602	599	586	591	586	590	581	583	16	9	5	8
3	535	532	517	529	530	528	513	527	5	4	4	2
4	416	413	410	412	411	408	406	409	5	5	4	3
5	298	298	297	295	294	294	292	292	4	4	5	3

PASSENGER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	354	281	157	37	351	279	157	33	3	2	0	4
2	359	282	152	14	356	281	151	14	3	1	1	0
3	362	284	150	14	360	284	149	13	2	0	1	1
4	368	287	147	14	368	286	146	13	0	1	1	1
5	371	285	146	13	370	285	146	12	1	0	0	1

PASSENGER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	23	30	30	60	27	37	35	58	-4	-7	-5	2
2	-19	-17	-6	-28	-15	-18	-7	-31	-4	1	1	3
3	-69	-69	-48	-73	-76	-71	-51	-79	7	2	3	6
4	-95	-105	-81	-103	-102	-109	-85	-109	7	4	4	6
5	-97	-112	-83	-112	-103	-117	-87	-116	6	5	4	4

All measurements in millimeters

DATA SHEET NO. 15

SUMMARY OF FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

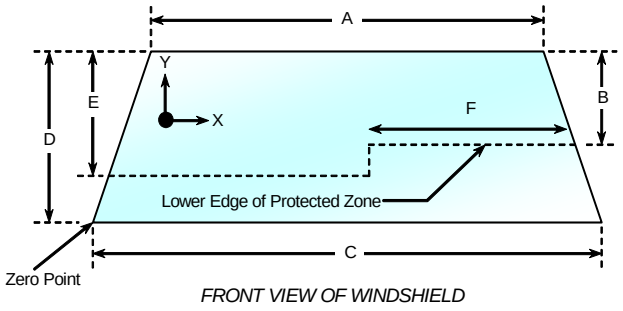
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with rubber molding and rubber cement.

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: 20.8 ° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2090	2090	100.0%
Right Side	2090	2090	100.0%
Total	4180	4180	100.0%



FRONT VIEW OF WINDSHIELD

Item	Units	Value
A	mm	1100
B	mm	340
C	mm	1310
D	mm	885
E	mm	495
F	mm	495

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. 15 … (CONTINUED)

SUMMARY OF FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 20.0° C Test Time: 2:24 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)

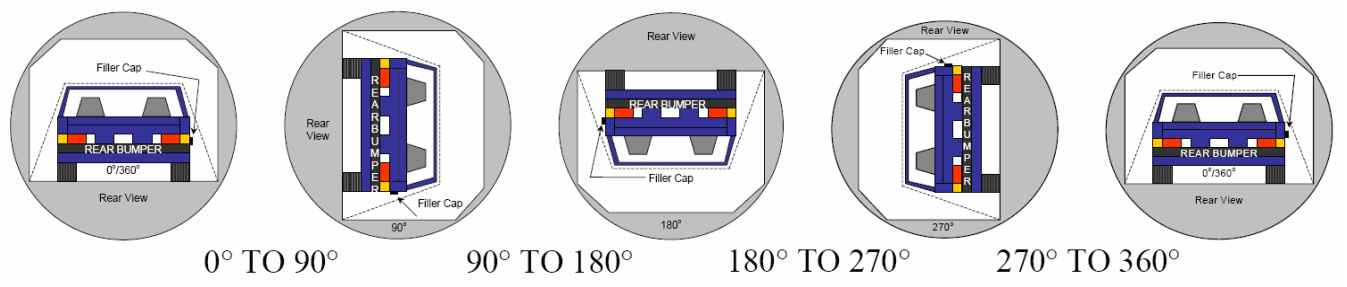
D. Spillage: There was no Stoddard solvent spillage.

DATA SHEET NO. 16

FMVSS 301 STATIC ROLLOVER

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12



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: There was no Stoddard solvent spillage.

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	84	300	384
90° To 180°	82	300	382
180° To 270°	77	300	377
270° To 360°	80	300	380

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

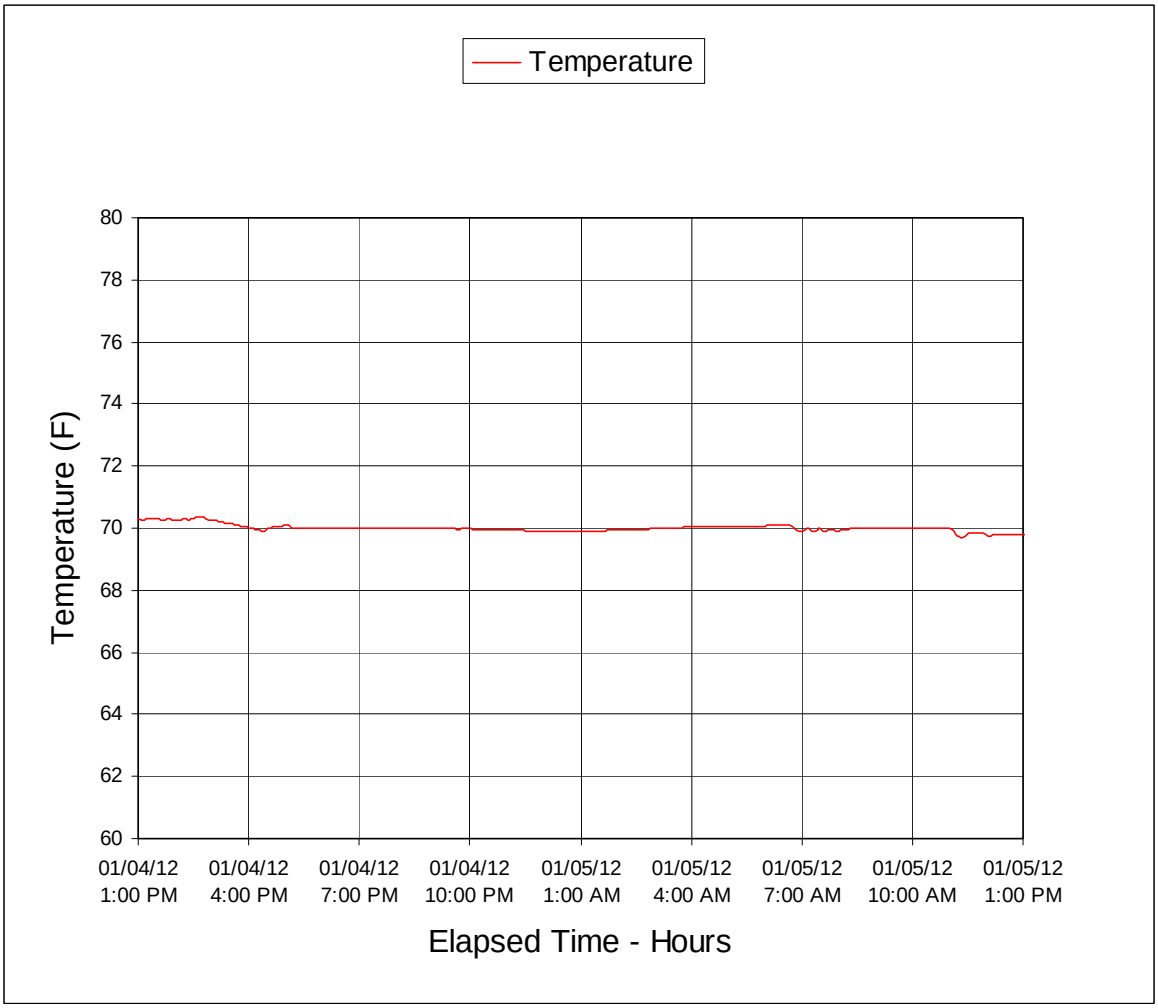
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

DATA SHEET NO. 17

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2012 Nissan Versa 1.6 S 4-Door Sedan NHTSA No.: MC5205

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 1/6/12



APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS … (CONTINUED)

TABLE OF PHOTOGRAPHS … (CONTINUED)

FIGURE 1. Load Cell Location

FIGURE 2. Load Cell Wall

FIGURE 3. Manufacturer's Label

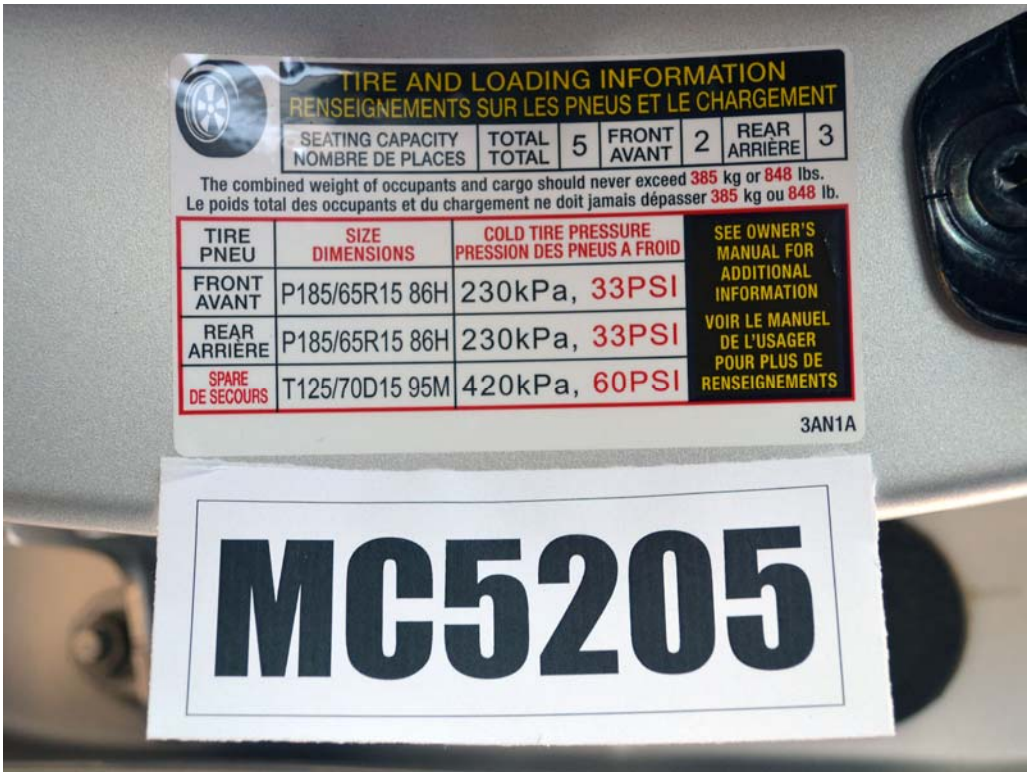


FIGURE 4. Tire Placard

FIGURE 5. 2012 Nissan Versa Right Front ¾ View, As Delivered

FIGURE 6. Left Rear ¾ View, As Received

FIGURE 7. Pre-Test Front View of Test Vehicle

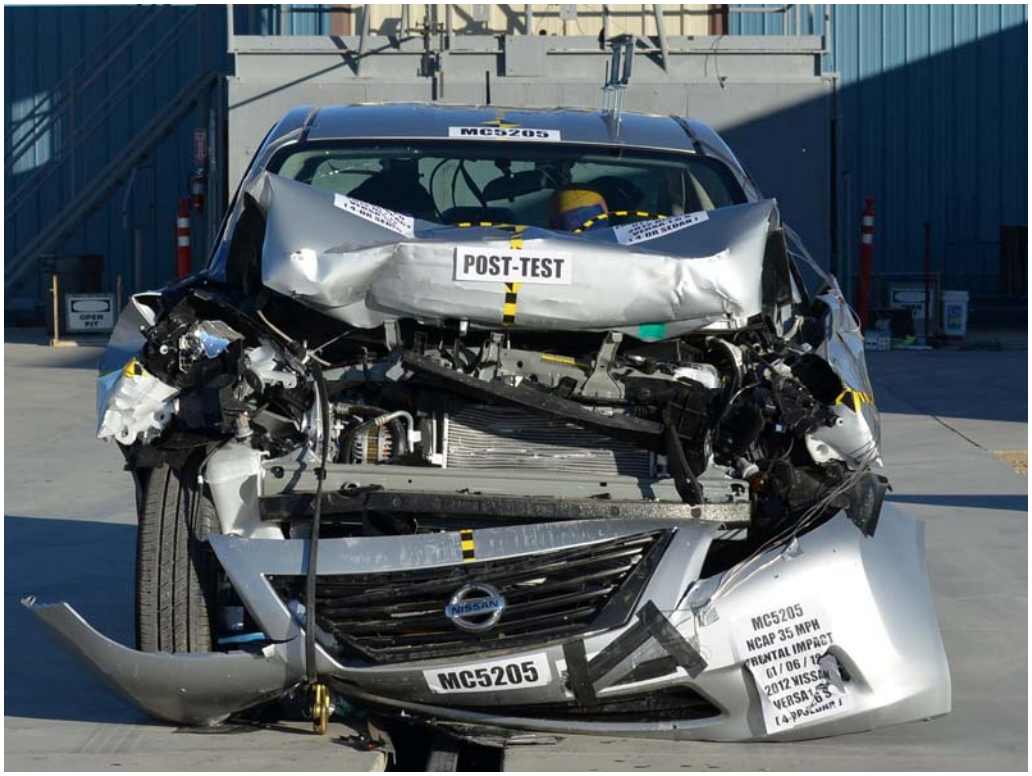


FIGURE 8. Post-Test Front View of Test Vehicle

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 ¾ View

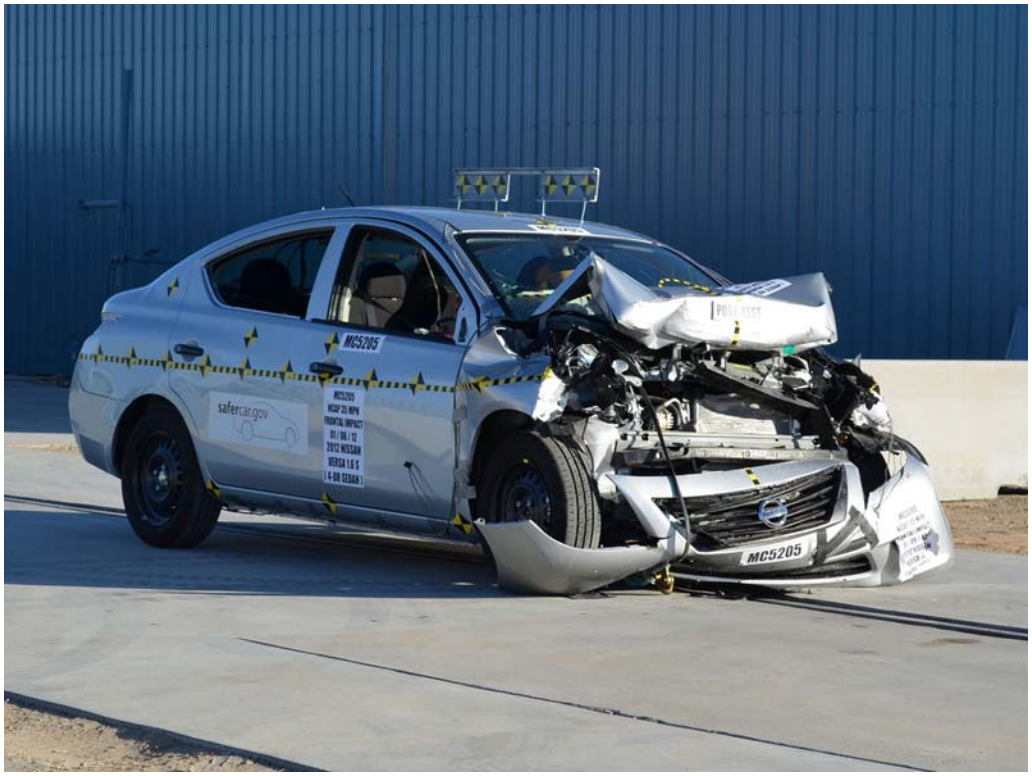


FIGURE 14. Post-Test Right Front ¾ View

FIGURE 15. Pre-Test Left Rear ¾ View

FIGURE 16. Post-Test Left Rear ¾ View

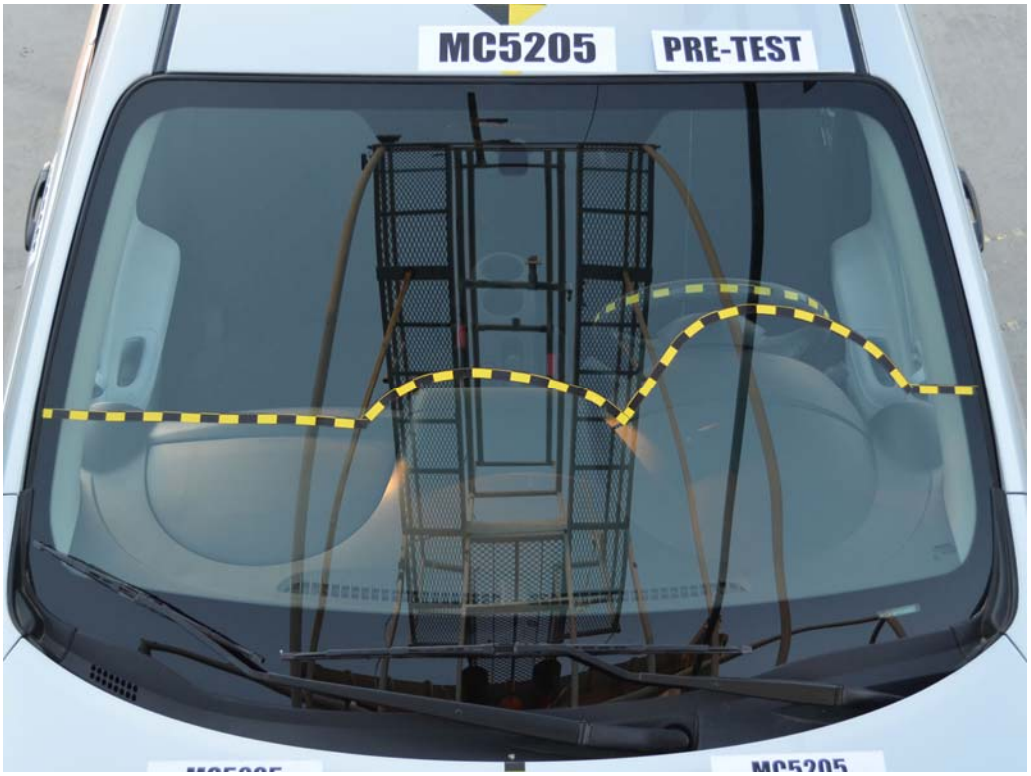


FIGURE 17. Pre-Test Windshield View

FIGURE 18. Post-Test Windshield View

FIGURE 19. Pre-Test Engine Compartment View

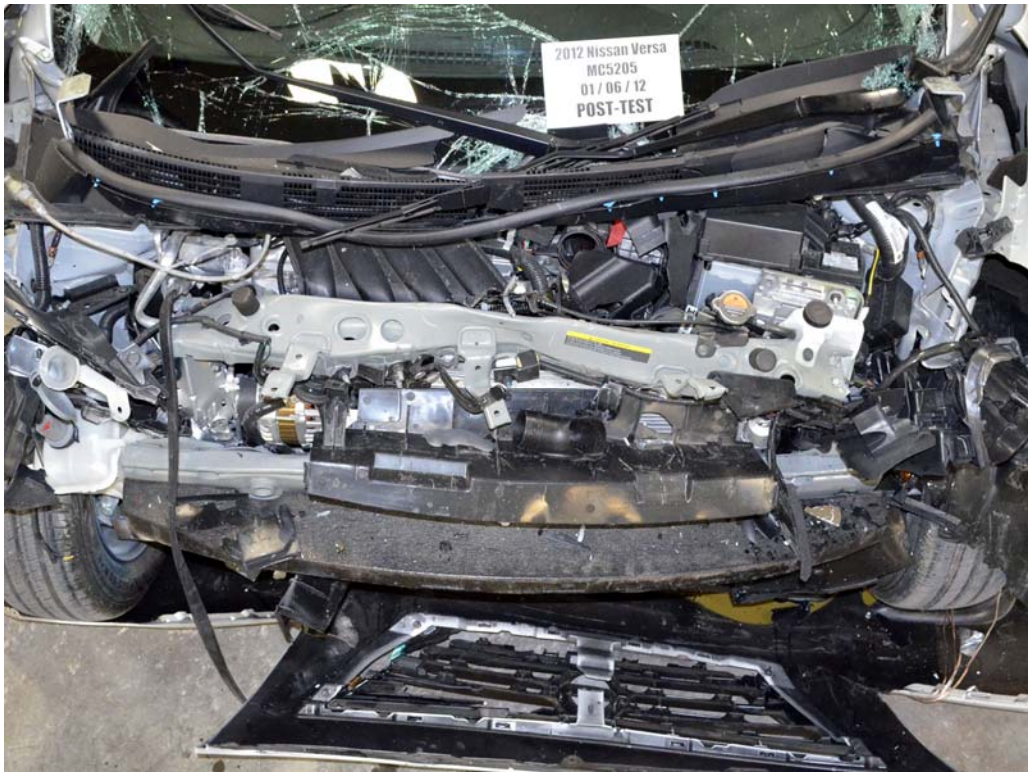


FIGURE 20. Post-Test Engine Compartment View

FIGURE 21. Pre-Test Fuel Filler Cap View

FIGURE 22. Post-Test Fuel Filler Cap View

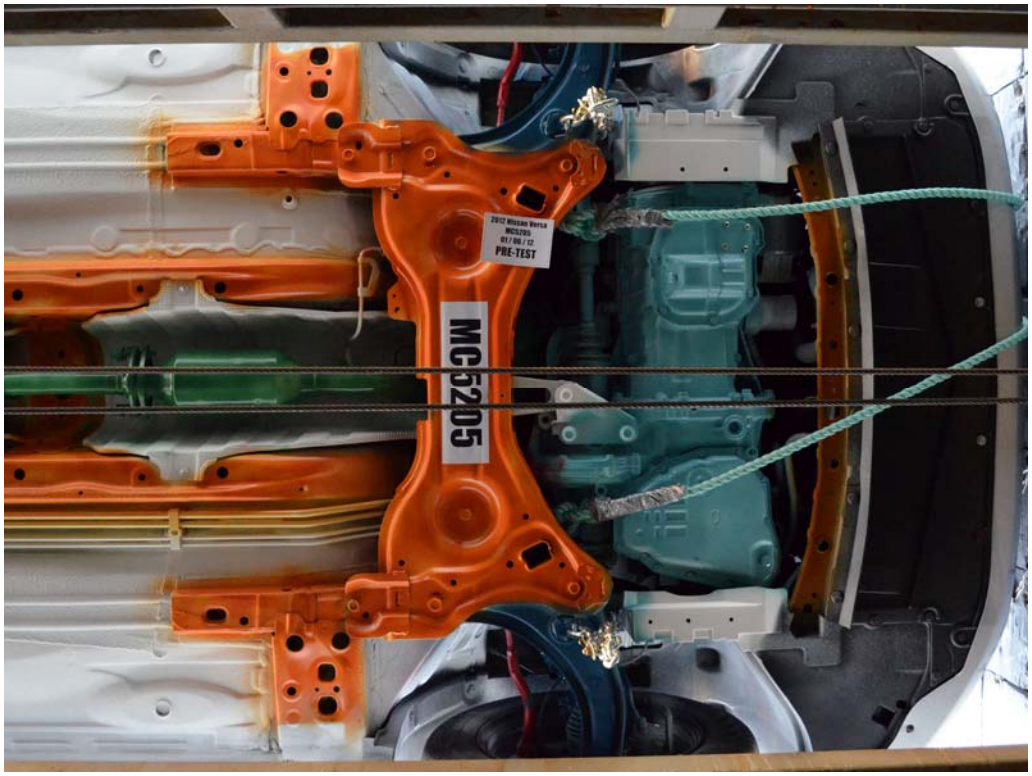


FIGURE 23. Pre-Test Front Underbody View

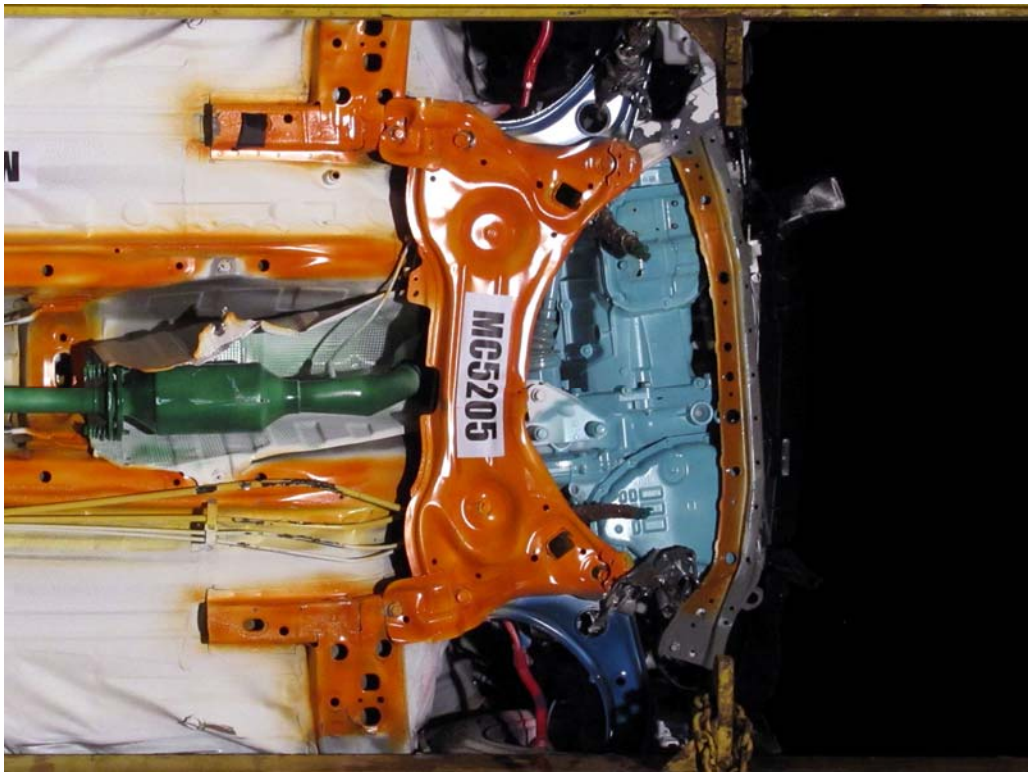


FIGURE 24. Post-Test Front Underbody View

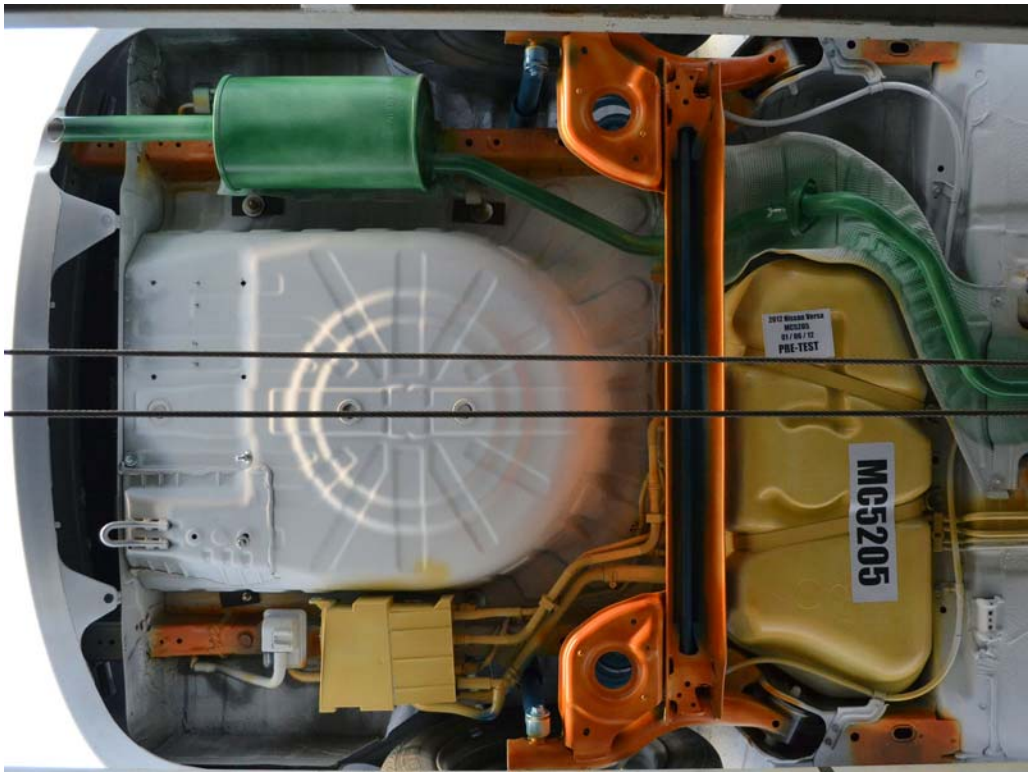


FIGURE 25. Pre-Test Rear Underbody View

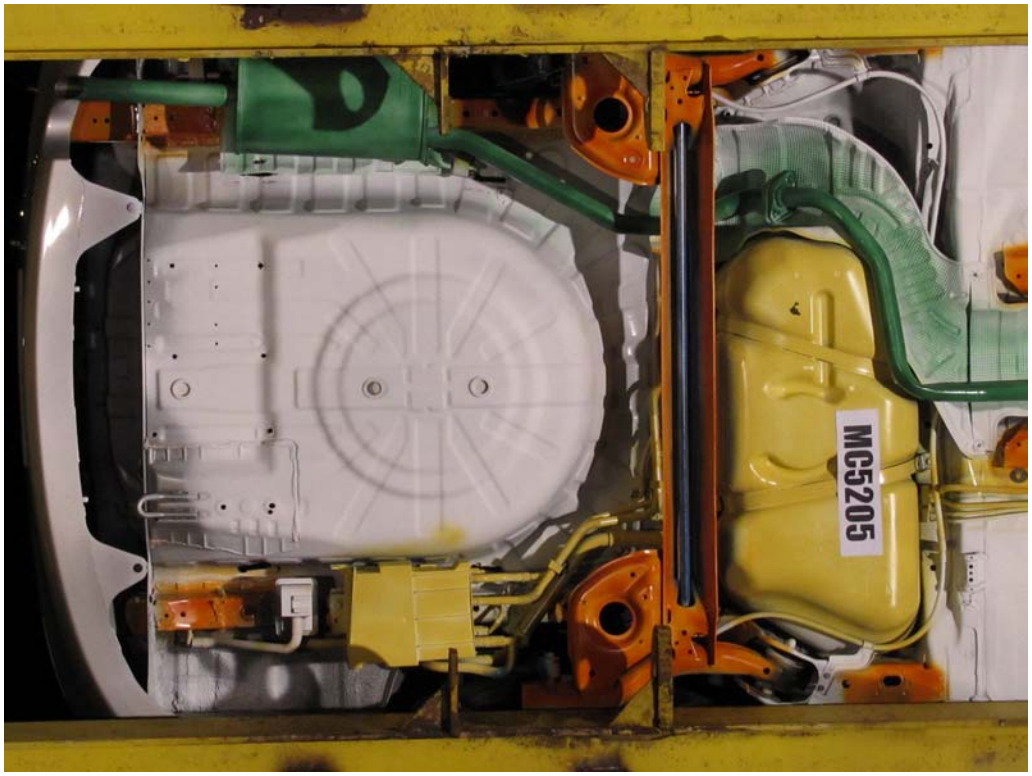


FIGURE 26. Post-Test Rear Underbody View

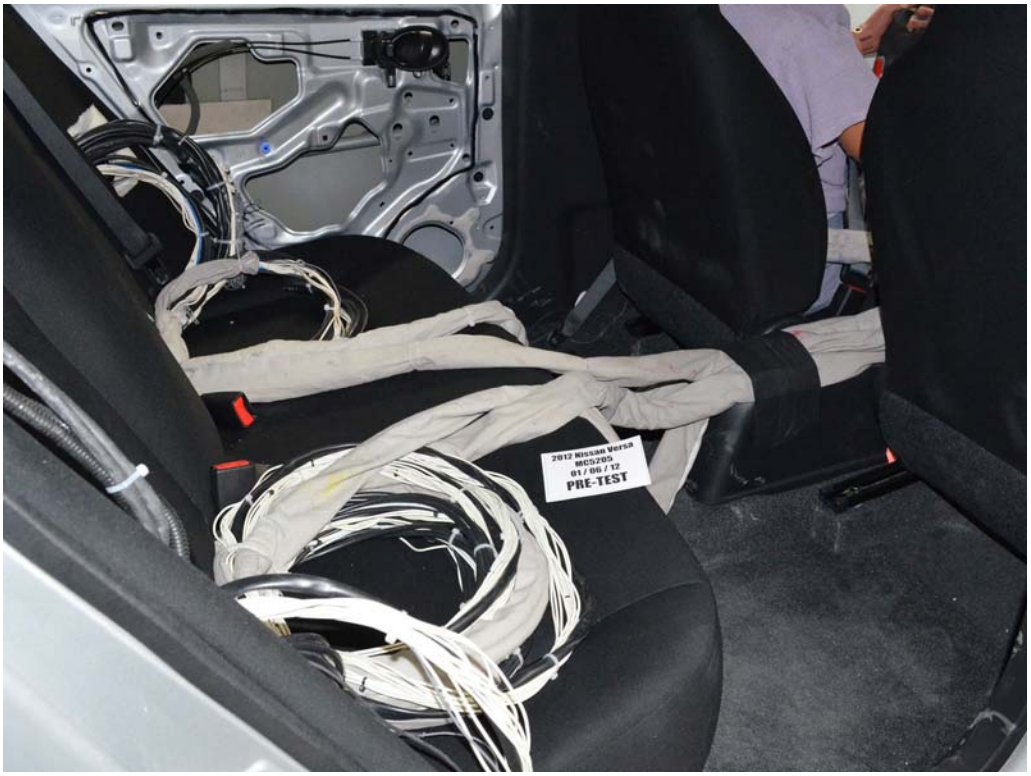


FIGURE 27. Pre-Test Dummy Cable Routing

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 Face

FIGURE 44. Post-Test Driver Dummy Contact With Airbag

FIGURE 45. Post-Test Driver Dummy Contact With Head Rest

FIGURE 45a. Post-Test Driver Dummy Contact With Knee Bolster

FIGURE 45b. Post-Test Driver Dummy Contact With Steering Column

FIGURE 46. Pre-Test View Of Steering Wheel

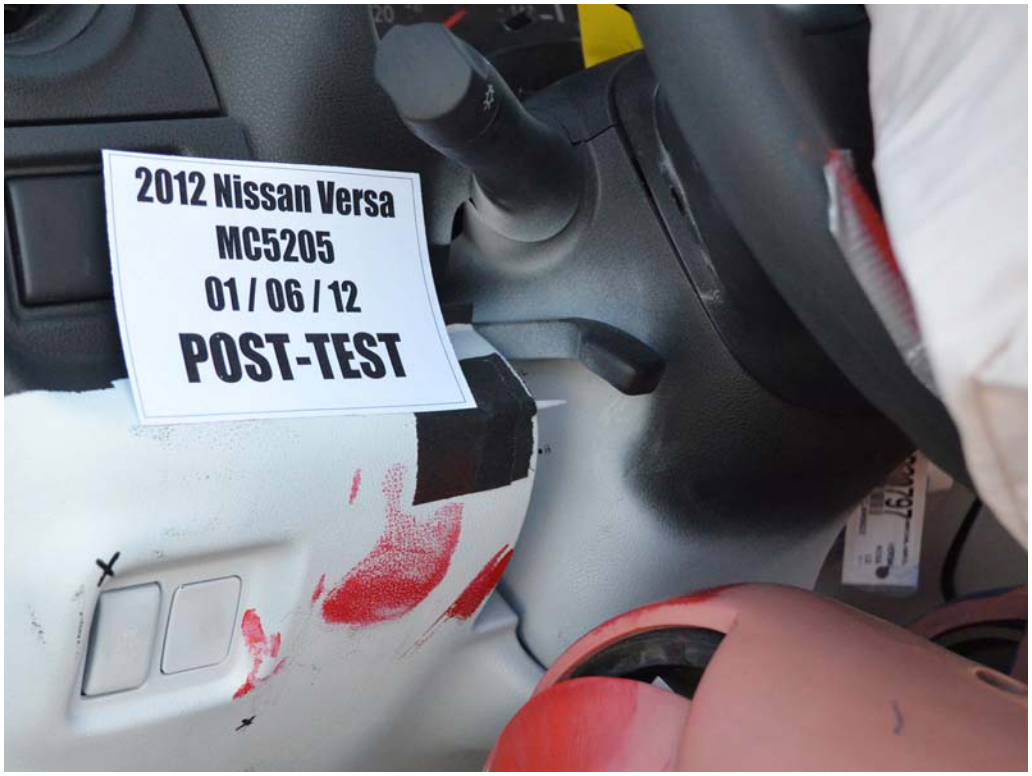


FIGURE 47. Post-Test View Of Steering Wheel

FIGURE 48. Pre-Test Passenger Dummy Front View

FIGURE 49. Post-Test Passenger Dummy Front View

FIGURE 50. Pre-Test Passenger Dummy Window View

FIGURE 51. Post-Test Passenger Dummy Window View

FIGURE 52. Pre-Test Passenger Dummy and Vehicle Interior View

FIGURE 53. Post-Test Passenger Dummy and Vehicle Interior View

FIGURE 54. Pre-Test Passenger's Seat Fore-Aft Markings

FIGURE 55. Post-Test Passenger's Seat Fore-Aft Markings

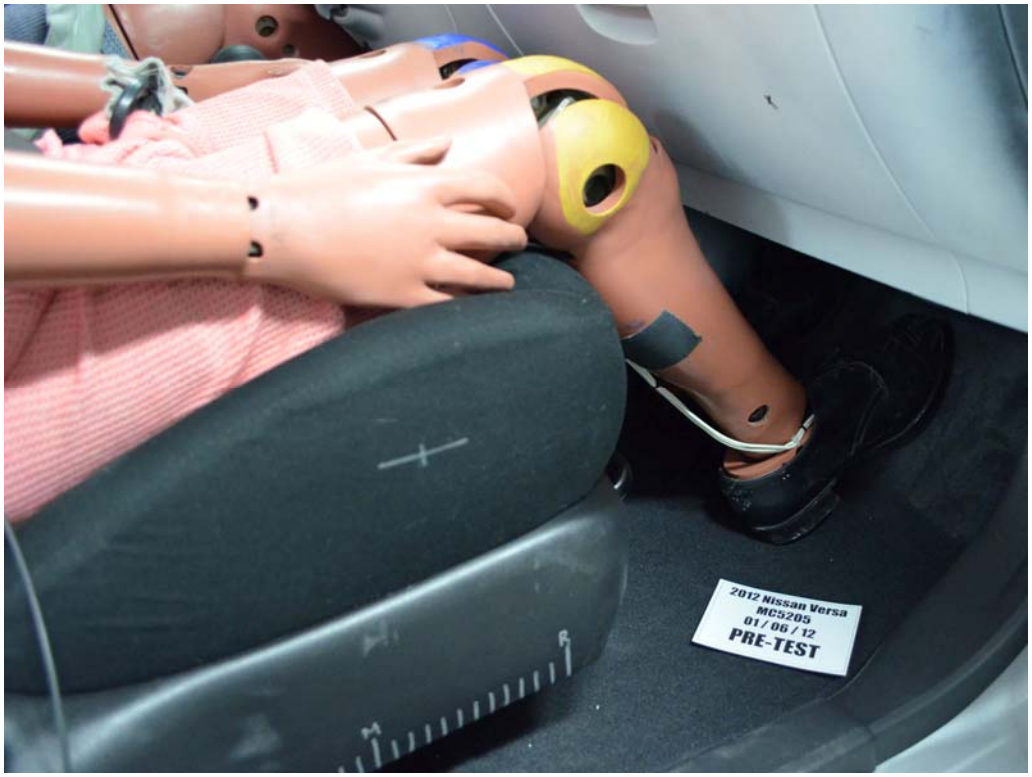


FIGURE 56. Pre-Test Passenger Dummy Feet

FIGURE 57. Post-Test Passenger Dummy Feet

FIGURE 58. Pre-Test Passenger's Side Knee Bolster

FIGURE 59. Post-Test Passenger's Side Knee Bolster

FIGURE 60. Pre-Test Passenger's Side Floorpan

FIGURE 61. Post-Test Passenger's Side Floorpan

FIGURE 62. Post-Test Passenger Dummy Contact With Airbag

FIGURE 62a. Post-Test Passenger Dummy Contact With Head Restraint

FIGURE 62b. Post-Test Passenger Dummy Contact With Knee Bolster

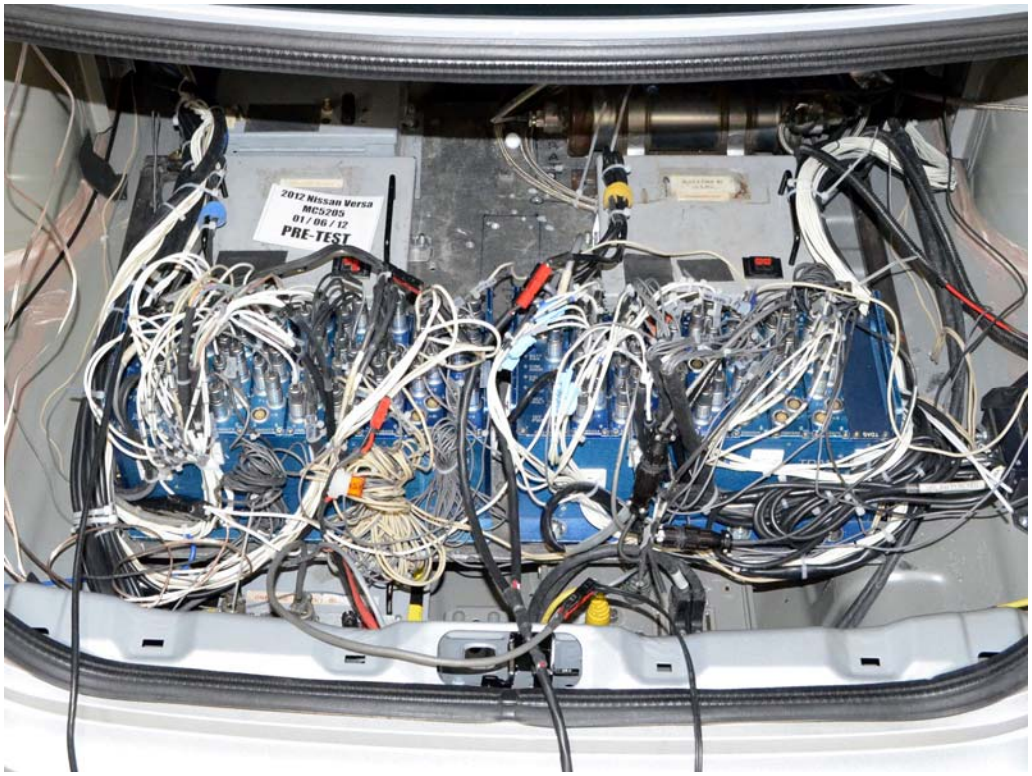


FIGURE 63. Pre-Test of Ballast Installed in Vehicle

Photograph Not Applicable
No Stoddard
Solvent Spillage

FIGURE 64. Post-Test Stoddard Solvent Spillage Location

FIGURE 65. Post-Test Speed Trap Read Out

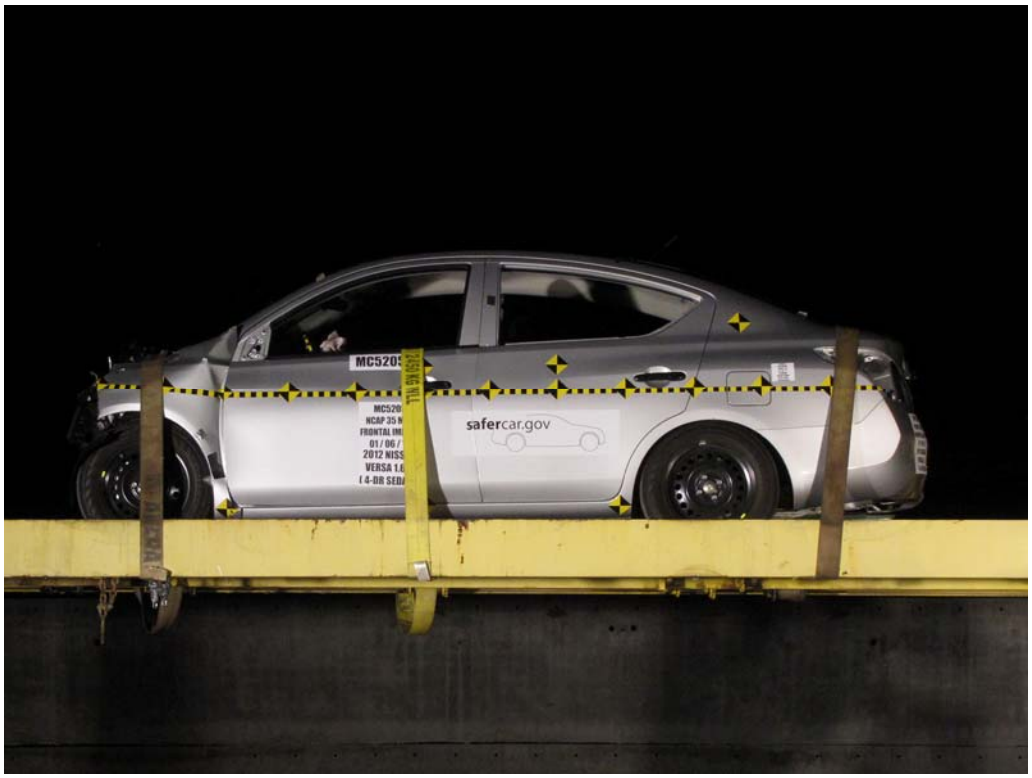


FIGURE 66. Vehicle at 0°on Static Rollover Device

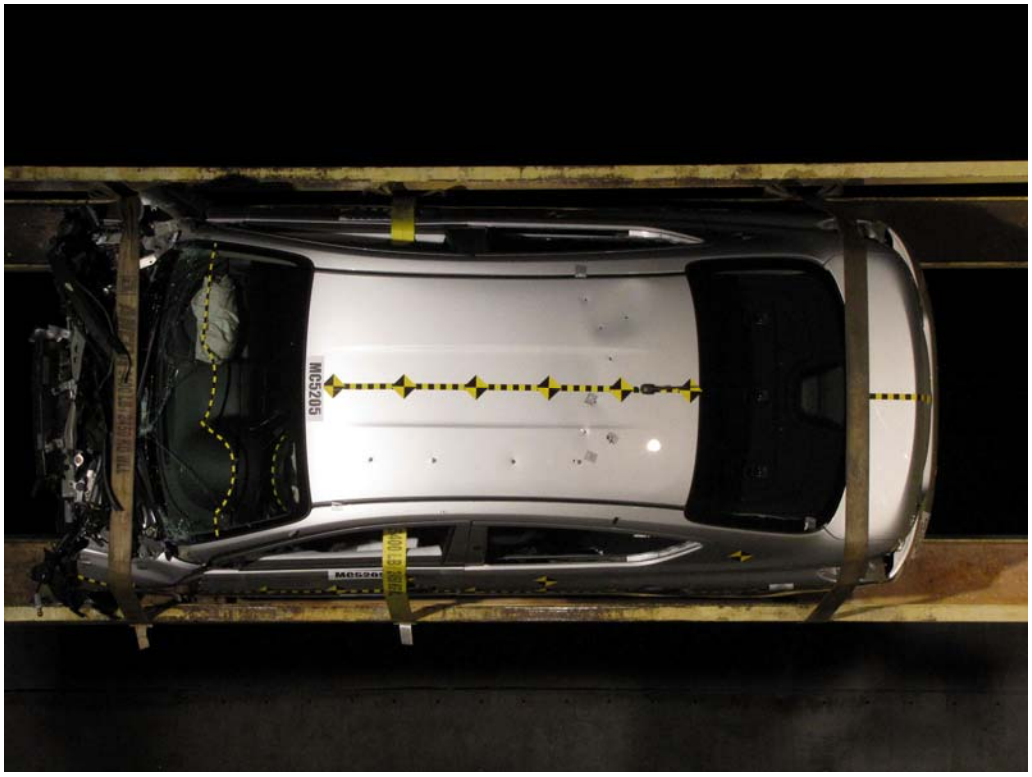


FIGURE 67. Vehicle at 90°on Static Rollover Device

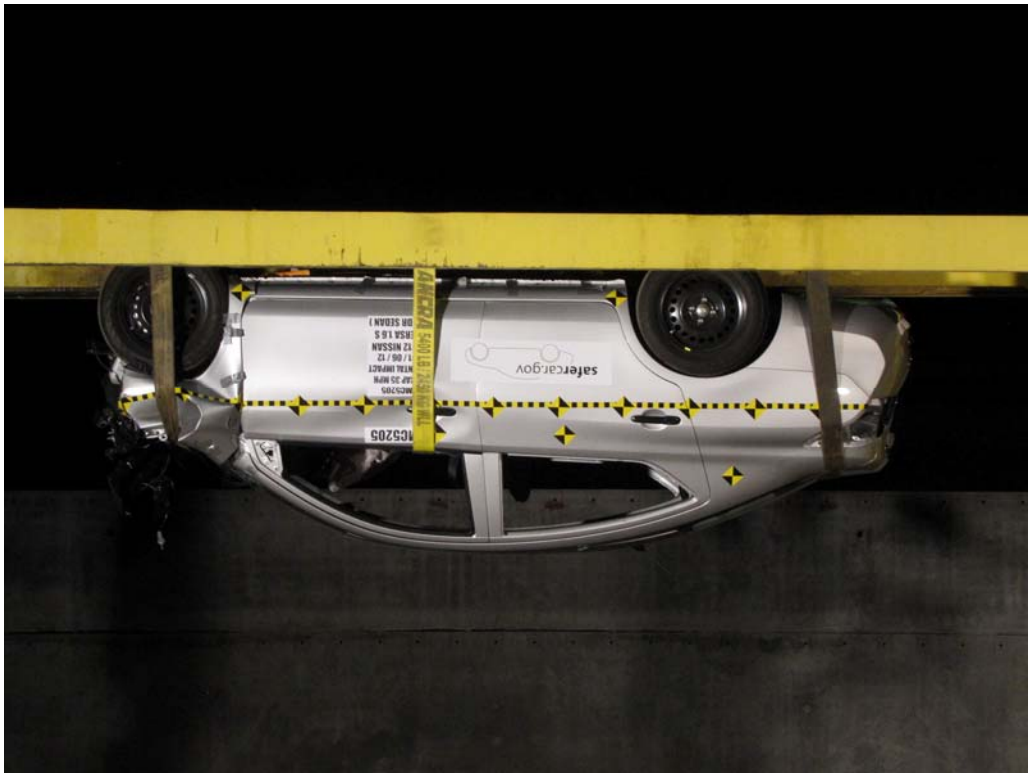


FIGURE 68. Vehicle at 180°on Static Rollover Device

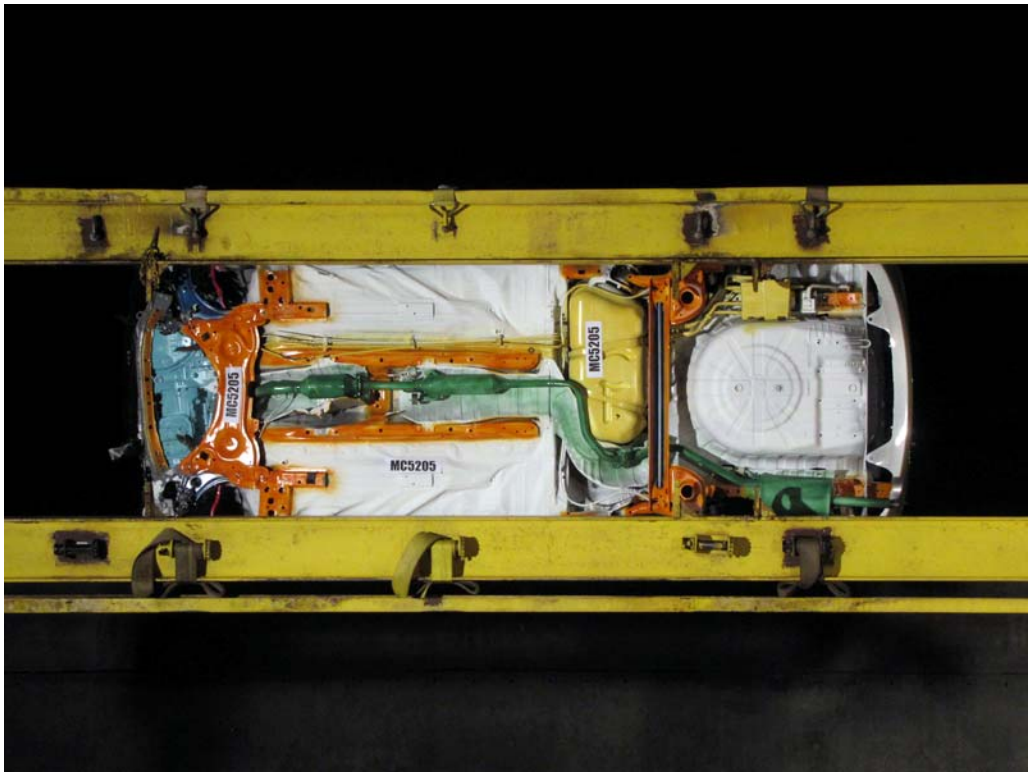


FIGURE 69. Vehicle at 270°on Static Rollover Device

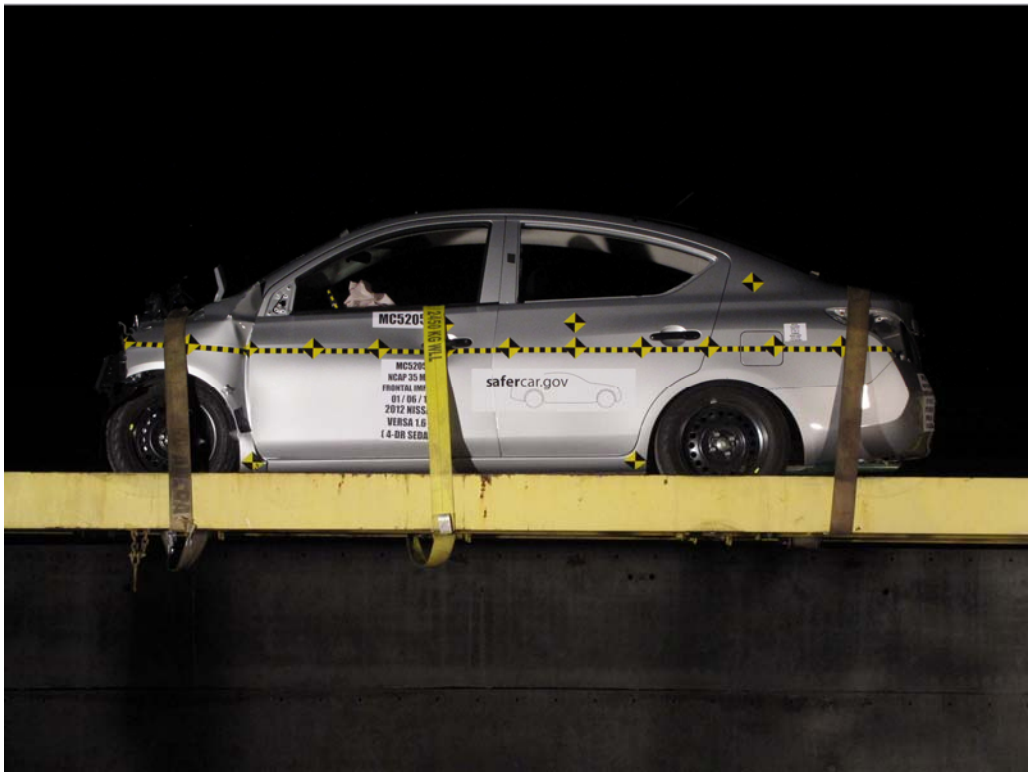


FIGURE 70. Vehicle at 360°on Static Rollover Device

FIGURE 71. 2012 Nissan Versa Frontal Impact Event

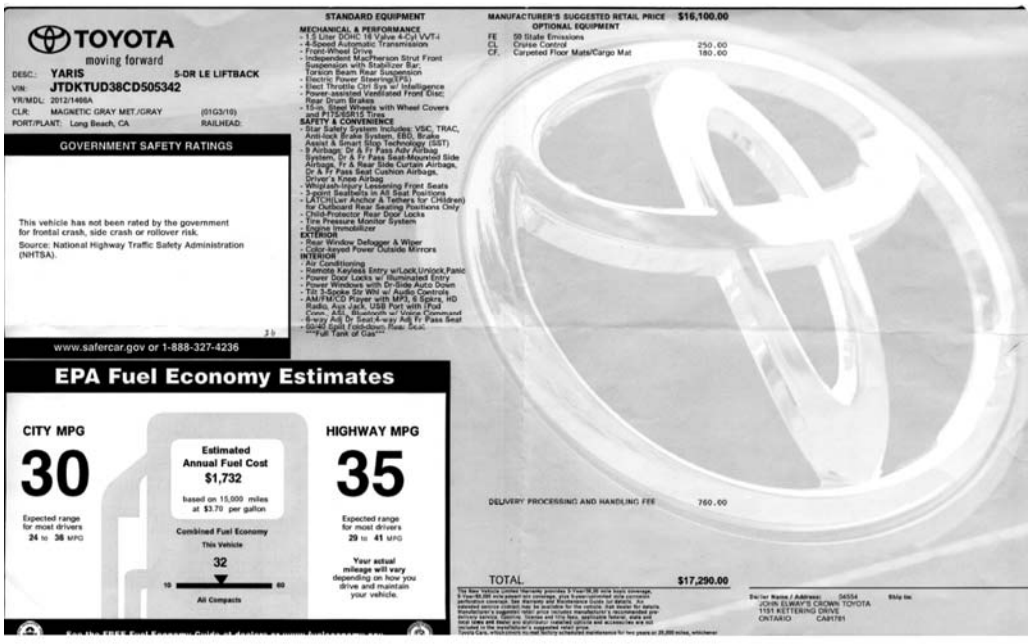


FIGURE 72. Monroney Label Photograph

APPENDIX B
DUMMY RESPONSE DATA TRACES

TABLE OF DATA PLOTS

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 Left Femur Force Z Redundant
Driver Right Femur Force Z Redundant
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 Left Femur Force Z Redundant
Passenger Right Femur Force Z Redundant
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

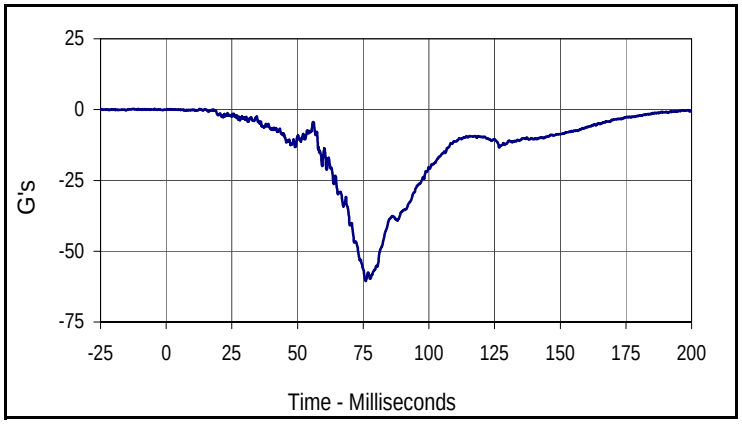
Load Cell Barrier A1-A9

Load Cell Barrier B1-B9

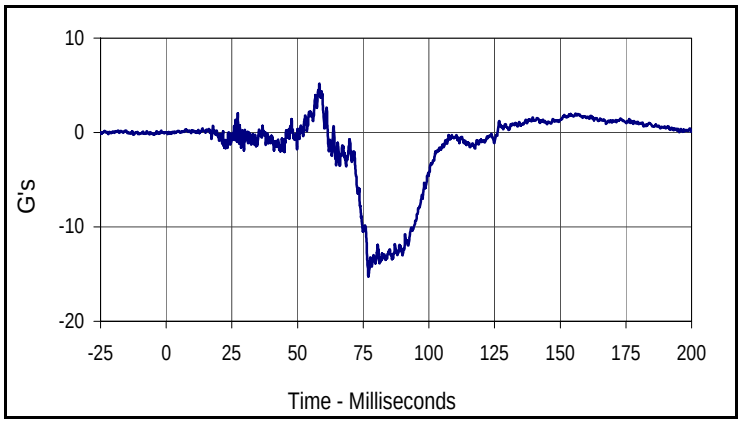
Load Cell Barrier C1-C9

Load Cell Barrier D1-D9

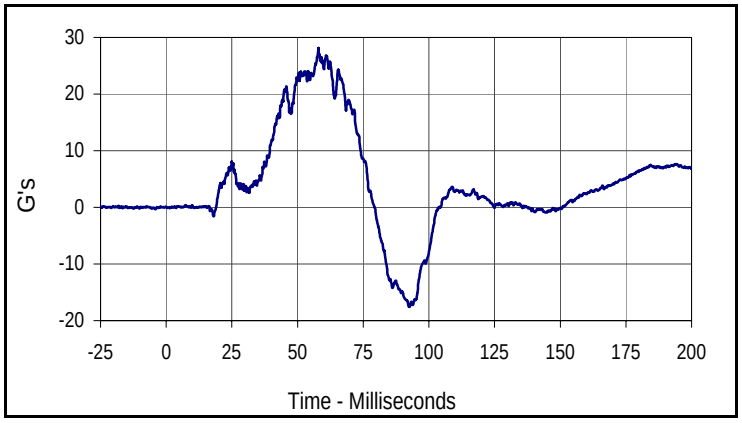
Test Vehicle:	2012 Nissan Versa 1.6 S 4-Door Sedan	NHTSA No.:	MC5205
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	1/6/12



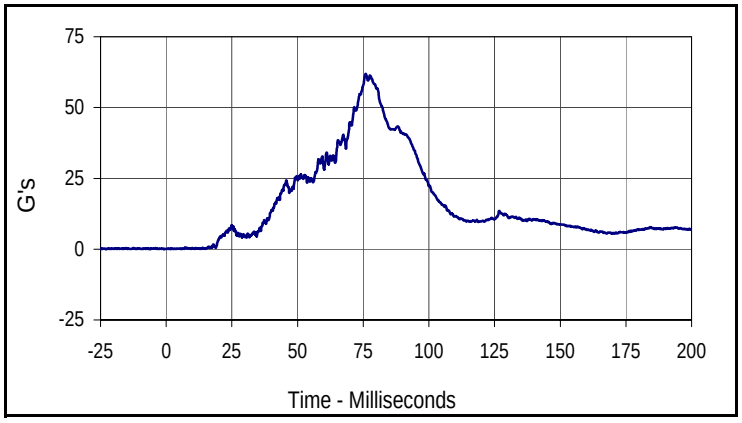
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
0.3	12.6	-60.5	76.0



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
5.2	58.3	-15.2	77.0

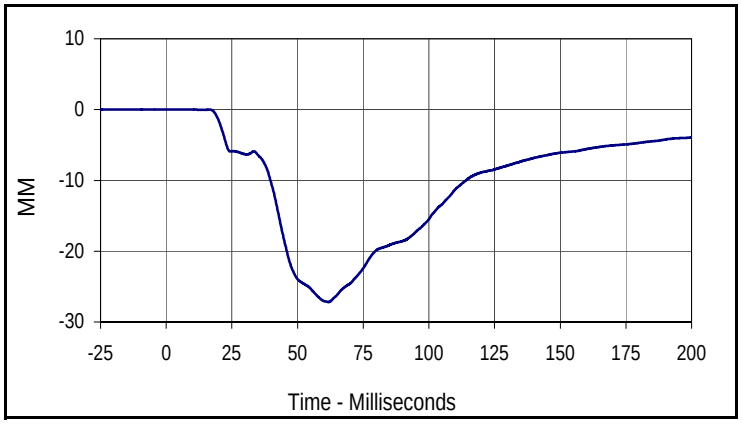


Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
28.1	57.9	-17.6	92.7

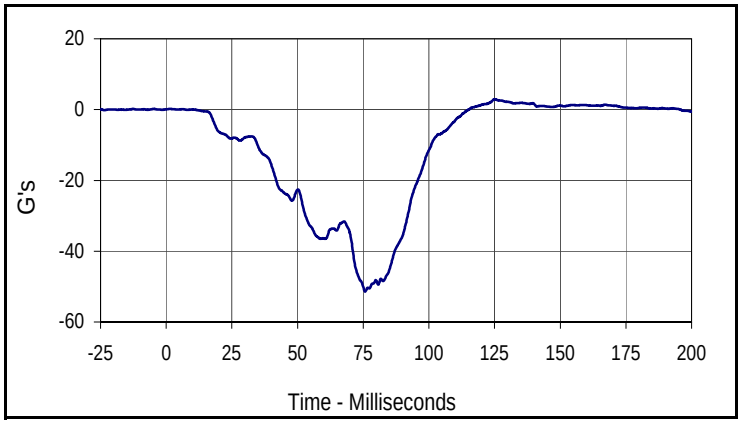


Curve Description			
Driver Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
61.9	76.0	0.0	1.6

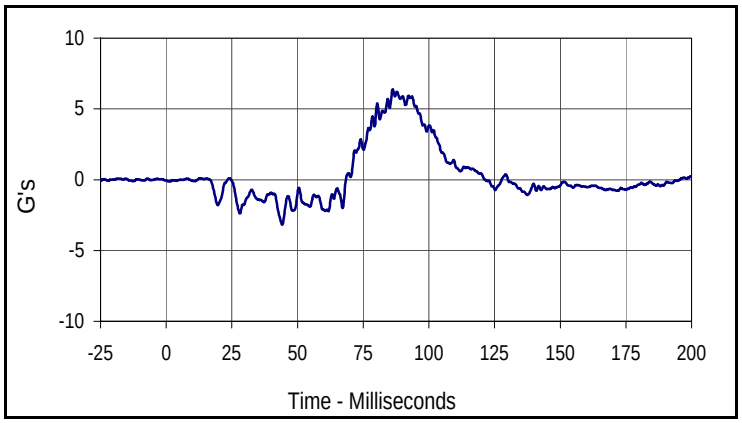
Test Vehicle:	2012 Nissan Versa 1.6 S 4-Door Sedan	NHTSA No.:	MC5205
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	1/6/12



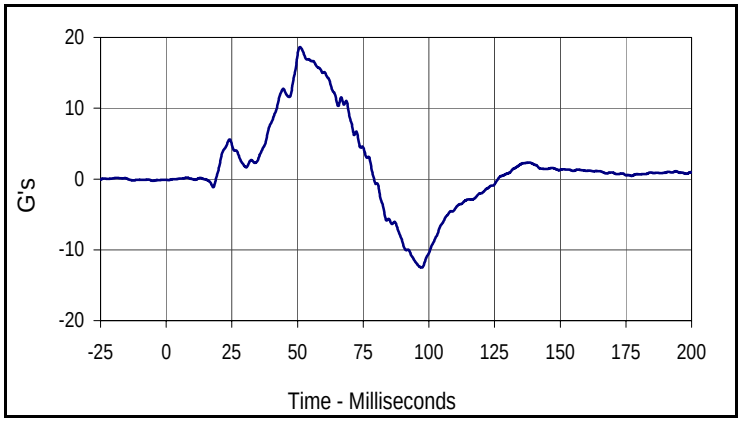
Curve Description			
Driver Chest Deflection			
Plot No.	Type	SAE Class	Units
005	FIL	180	MM
Max	Time	Min	Time
0.0	7.2	-27.2	61.8



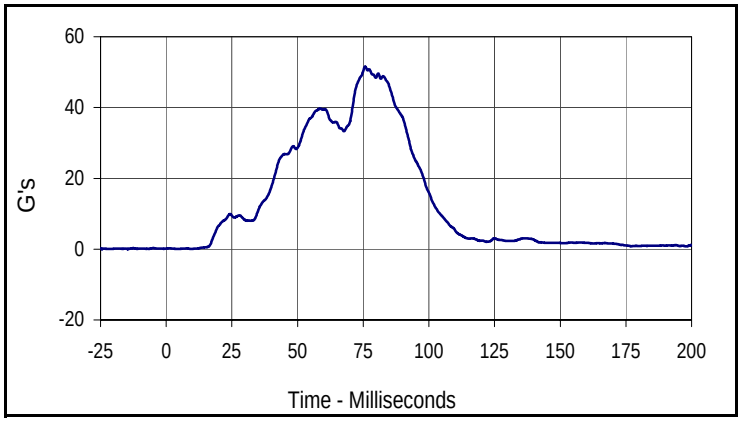
Curve Description			
Driver Chest Acceleration X Primary			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
2.9	125.0	-51.4	75.7



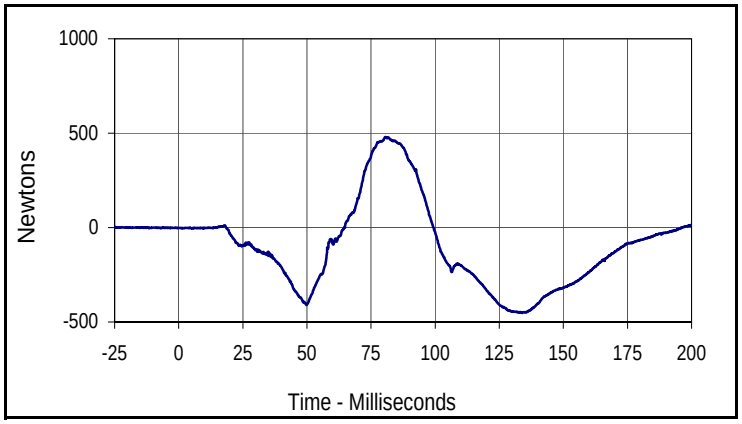
Curve Description			
Driver Chest Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
007	FIL	180	G's
Max	Time	Min	Time
6.4	86.2	-3.2	44.1



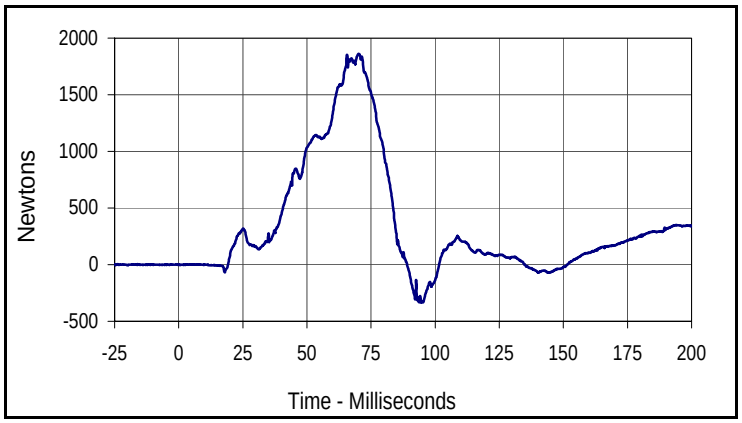
Curve Description			
Driver Chest Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
008	FIL	180	G's
Max	Time	Min	Time
18.6	51.0	-12.5	97.3



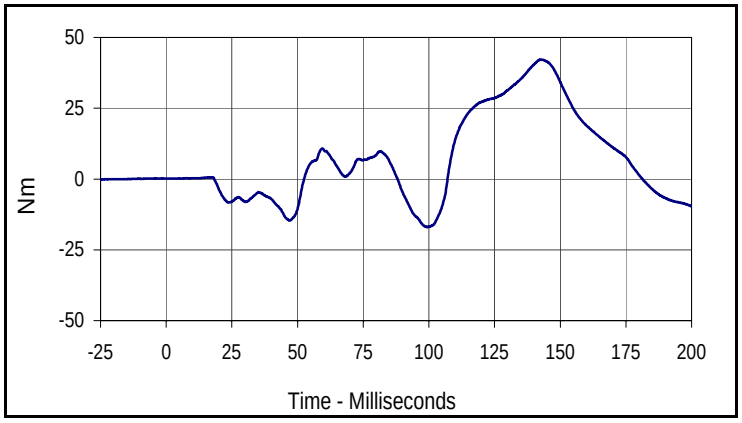
Curve Description			
Driver Chest Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
009	RES	180	G's
Max	Time	Min	Time
51.6	75.7	0.0	4.4



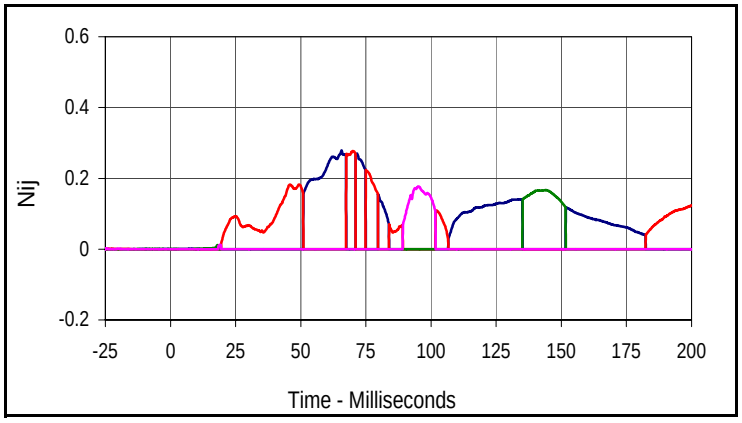
Curve Description			
Driver Upper Neck Force X			
Plot No.	Type	SAE Class	Units
010	FIL	1000	Newtons
Max	Time	Min	Time
480.0	80.6	-452.0	133.9



Curve Description			
Driver Upper Neck Force Z			
Plot No.	Type	SAE Class	Units
011	FIL	1000	Newtons
Max	Time	Min	Time
1860.9	70.2	-332.5	95.2

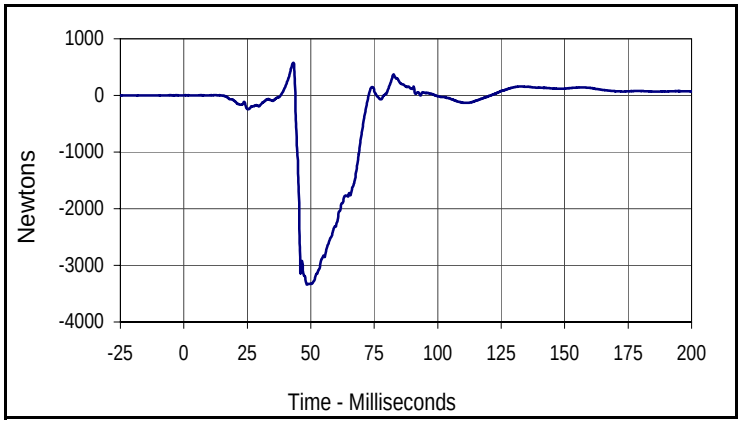


Curve Description			
Driver Upper Neck Moment Y			
Plot No.	Type	SAE Class	Units
012	FIL	600	Nm
Max	Time	Min	Time
42.2	142.6	-17.0	99.4

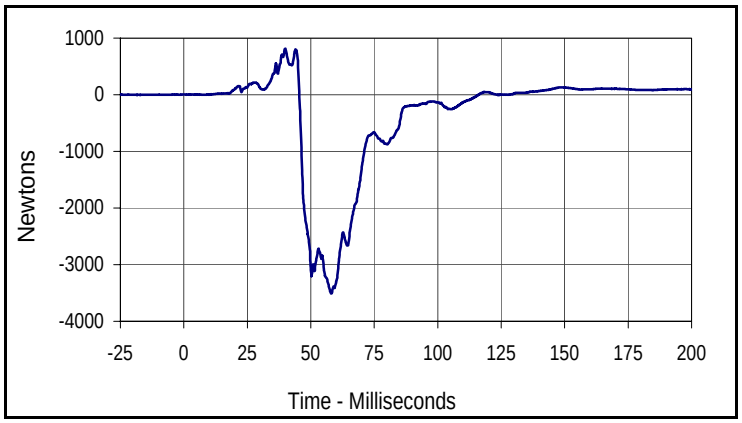


Curve Description			
Driver Nij			
Units	Type	Max	Time
Ntf	FIL	0.28	65.7
Units	Type	Max	Time
Nte	FIL	0.28	70.0
Units	Type	Max	Time
Ncf	FIL	0.17	143.9
Units	Type	Max	Time
Nce	FIL	0.25	294.8

Test Vehicle:	2012 Nissan Versa 1.6 S 4-Door Sedan	NHTSA No.:	MC5205
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	1/6/12

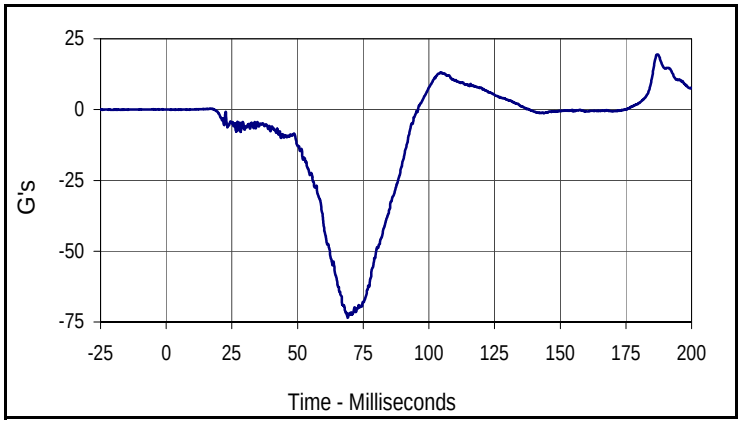


Curve Description			
Driver Left Femur Force Z			
Plot No.	Type	SAE Class	Units
013	FIL	600	Newtons
Max	Time	Min	Time
575.2	43.1	-3340.2	48.5

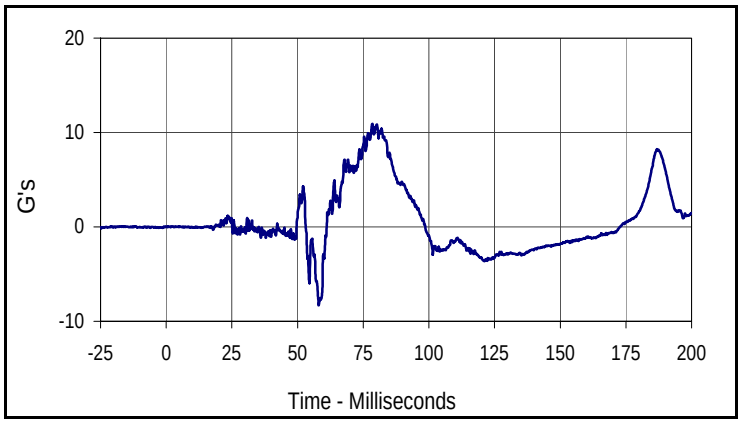


Curve Description			
Driver Right Femur Force Z			
Plot No.	Type	SAE Class	Units
014	FIL	600	Newtons
Max	Time	Min	Time
814.5	39.9	-3510.1	58.1

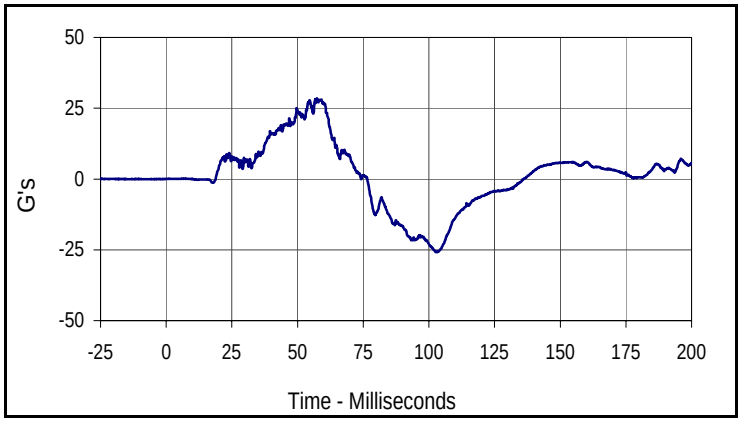
Test Vehicle:	2012 Nissan Versa 1.6 S 4-Door Sedan	NHTSA No.:	MC5205
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	1/6/12



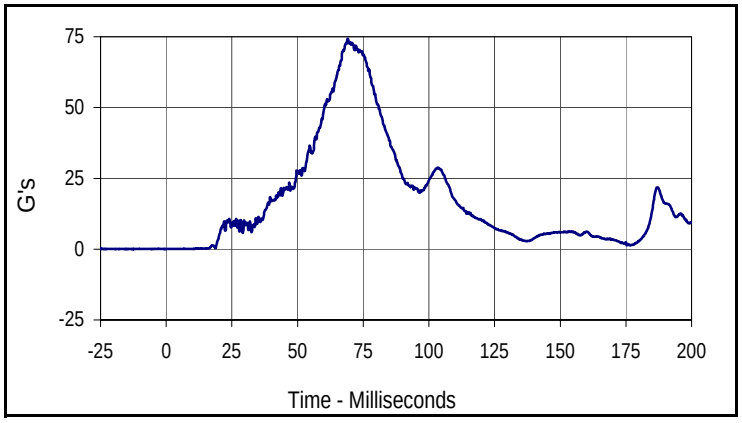
Curve Description			
Passenger Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
015	FIL	1000	G's
Max	Time	Min	Time
19.5	187.0	-73.5	69.1



Curve Description			
Passenger Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
016	FIL	1000	G's
Max	Time	Min	Time
10.9	78.4	-8.3	58.1

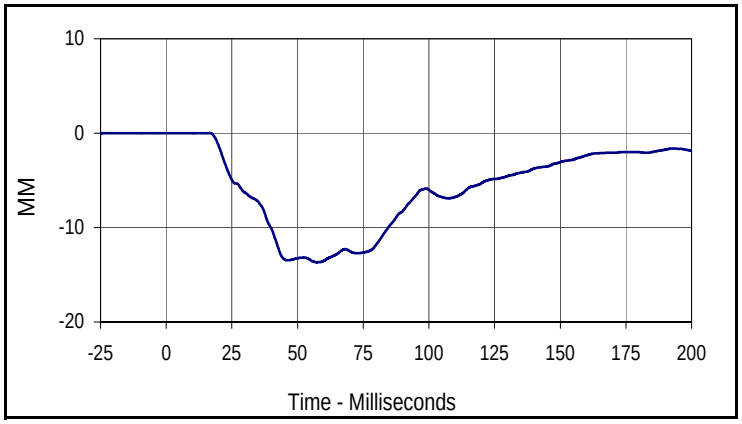


Curve Description			
Passenger Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
017	FIL	1000	G's
Max	Time	Min	Time
28.5	57.4	-25.8	103.3



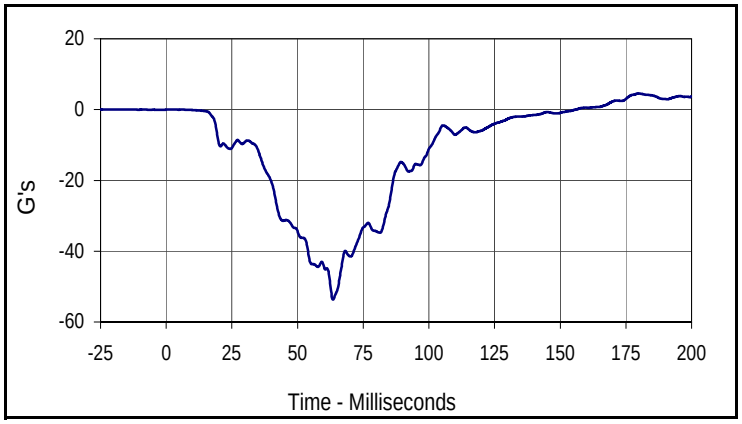
Curve Description			
Passenger Head Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
018	RES	1000	G's
Max	Time	Min	Time
74.3	69.1	0.0	3.9

Test Vehicle:	2012 Nissan Versa 1.6 S 4-Door Sedan	NHTSA No.:	MC5205
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	1/6/12

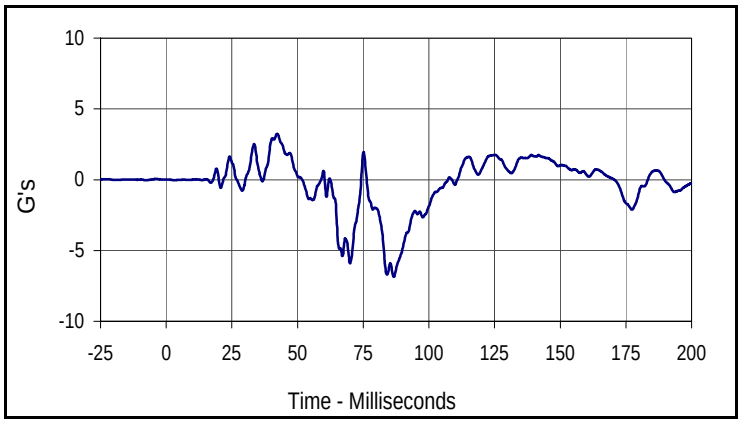


Curve Description			
Passenger Chest Deflection			
Plot No.	Type	SAE Class	Units
019	FIL	180	MM
Max	Time	Min	Time
0.0	16.6	-13.7	57.4

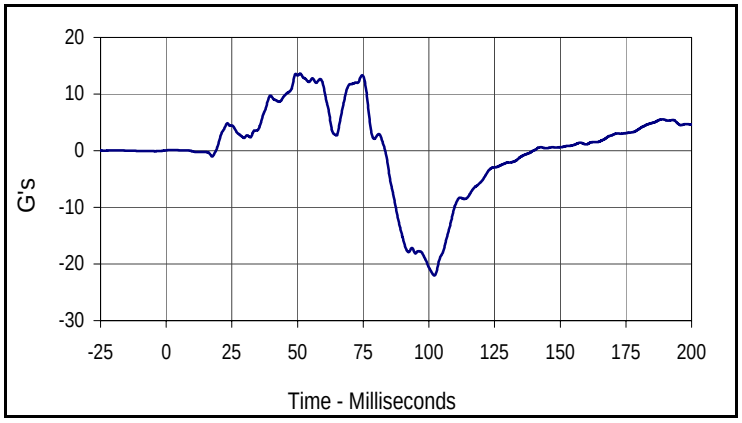
Test Vehicle:	2012 Nissan Versa 1.6 S 4-Door Sedan	NHTSA No.:	MC5205
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	1/6/12



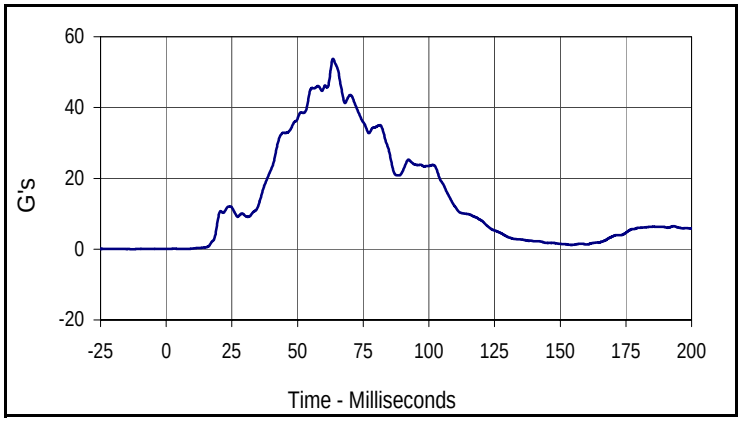
Curve Description			
Passenger Chest Acceleration X Primary			
Plot No.	Type	SAE Class	Units
020	FIL	180	G's
Max	Time	Min	Time
4.6	179.7	-53.7	63.5



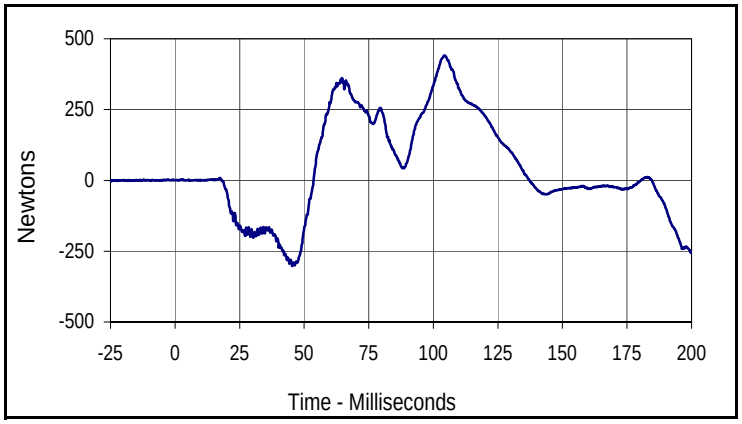
Curve Description			
Passenger Chest Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
021	FIL	180	G's
Max	Time	Min	Time
3.2	42.2	-6.9	86.6



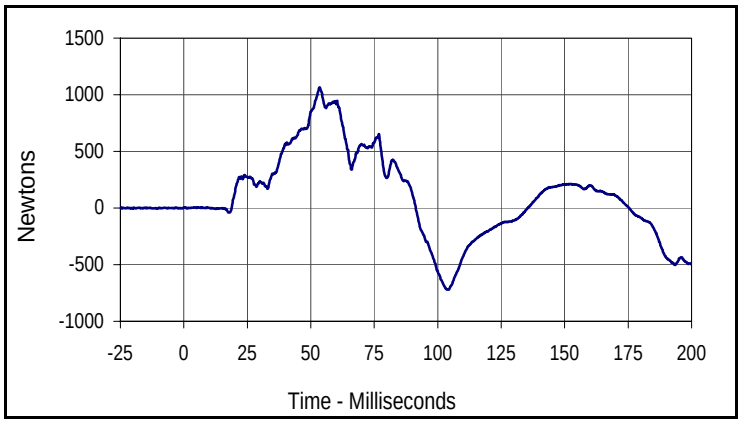
Curve Description			
Passenger Chest Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
022	FIL	180	G's
Max	Time	Min	Time
13.6	51.0	-22.0	102.1



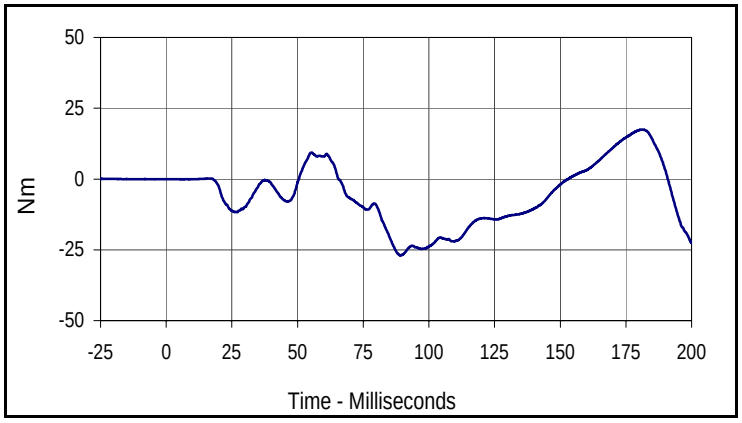
Curve Description			
Passenger Chest Resultant Acceleration Primary			
Plot No.	Type	SAE Class	Units
023	RES	180	G's
Max	Time	Min	Time
53.8	63.5	0.1	0.0



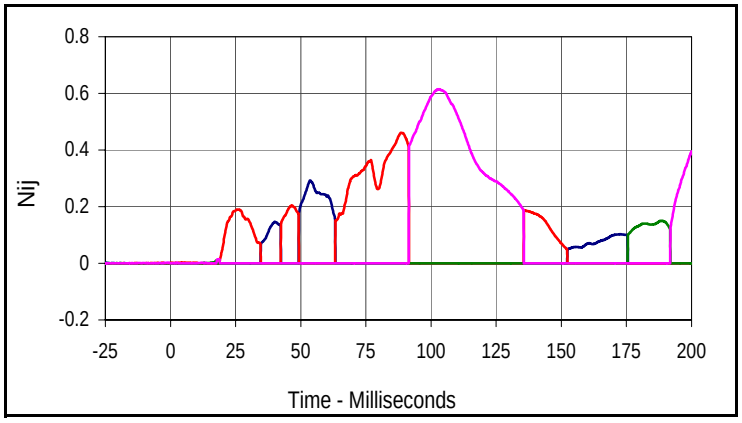
Curve Description			
Passenger Upper Neck Force X			
Plot No.	Type	SAE Class	Units
024	FIL	1000	Newtons
Max	Time	Min	Time
441.5	104.3	-302.3	45.4



Curve Description			
Passenger Upper Neck Force Z			
Plot No.	Type	SAE Class	Units
025	FIL	1000	Newtons
Max	Time	Min	Time
1063.6	53.5	-721.1	103.7

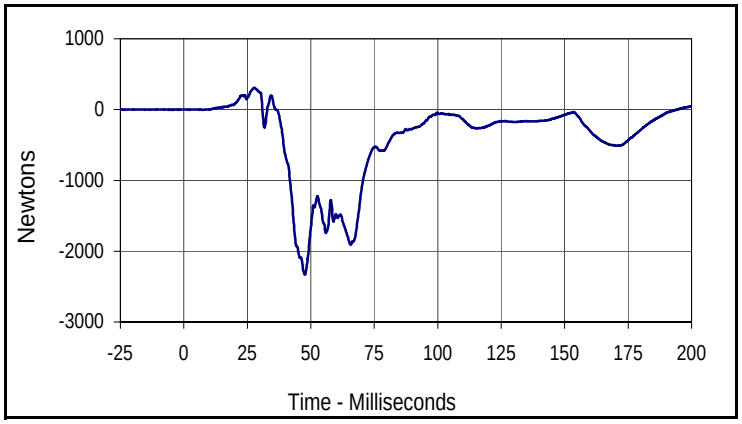


Curve Description			
Passenger Upper Neck Moment Y			
Plot No.	Type	SAE Class	Units
026	FIL	600	Nm
Max	Time	Min	Time
17.5	181.0	-27.0	89.2

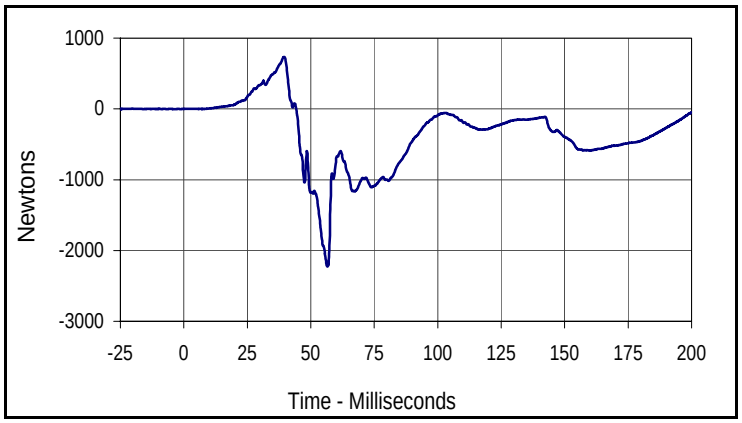


Curve Description			
Passenger Nij			
Units	Type	Max	Time
Ntf	FIL	0.29	53.6
Units	Type	Max	Time
Nte	FIL	0.46	88.4
Units	Type	Max	Time
Ncf	FIL	0.15	188.9
Units	Type	Max	Time
Nce	FIL	0.61	103.1

Test Vehicle:	2012 Nissan Versa 1.6 S 4-Door Sedan	NHTSA No.:	MC5205
Test Program:	56 km/h Frontal Impact NCAP Test	Test Date:	1/6/12



Curve Description			
Passenger Left Femur Force Z			
Plot No.	Type	SAE Class	Units
027	FIL	600	Newtons
Max	Time	Min	Time
308.2	27.6	-2332.2	47.8



Curve Description			
Passenger Right Femur Force Z			
Plot No.	Type	SAE Class	Units
028	FIL	600	Newtons
Max	Time	Min	Time
735.5	39.6	-2227.9	56.5

APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

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

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist Test Date: 12/15/11

ATD Serial No.: 035 Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

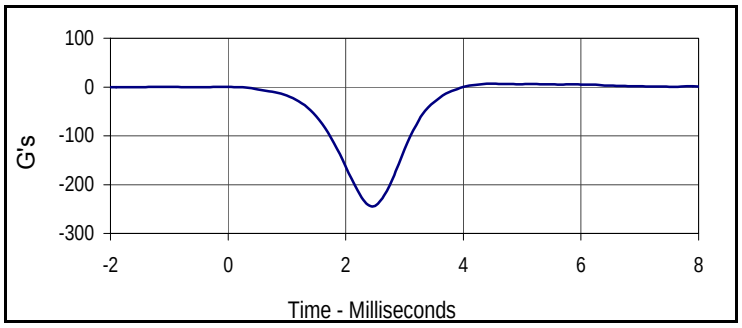
Test Program:	Hybrid III 50th Percentile Male External Measurements	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.31	Pass
Laboratory Relative Humidity	%	10 to 70	32.5	Pass
A - Total sitting height	mm	879 to 889	883	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - H point height	mm	84 to 89	86	Pass
D - H point location from backline	mm	135 to 140	138	Pass
E - Shoulder pivot from backline	mm	84 to 94	87	Pass
F - Thigh clearance	mm	140 to 155	148	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	299	Pass
H - Head back to backline	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	334	Pass
J - Elbow rest height	mm	190 to 211	203	Pass
K - Buttock to knee length	mm	579 to 604	587	Pass
L - Popliteal length	mm	429 to 455	437	Pass
M - Knee pivot height	mm	485 to 500	489	Pass
N - Buttock popliteal length	mm	452 to 477	472	Pass
O - Chest depth without jacket	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	434	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	987	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	230	Pass
		Overall Test Results		Pass

Test Program:	Hybrid III 50th Percentile Male Head Drop Test	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	M035HD027

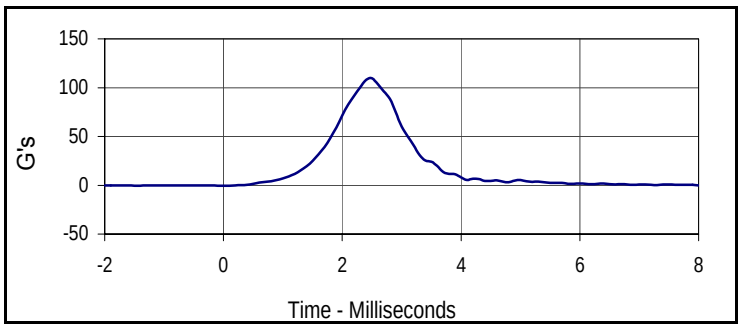
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	250	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	38.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.8	Pass
Peak Resultant Acceleration		G's	225.0 to 275.0	267.0	Pass
Peak Lateral Acceleration		G's	≤15.0	3.5	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	3.2	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
			Overall Test Results		Pass

Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
267.0	2.5	0.1	-1.8



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
6.9	4.5	-243.4	2.5

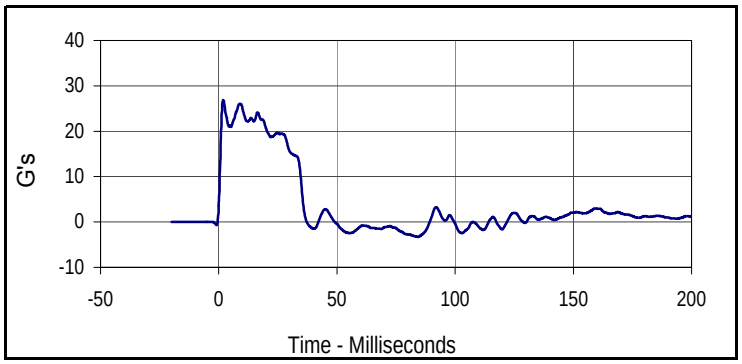
Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
1.7	5.1	-3.5	2.5



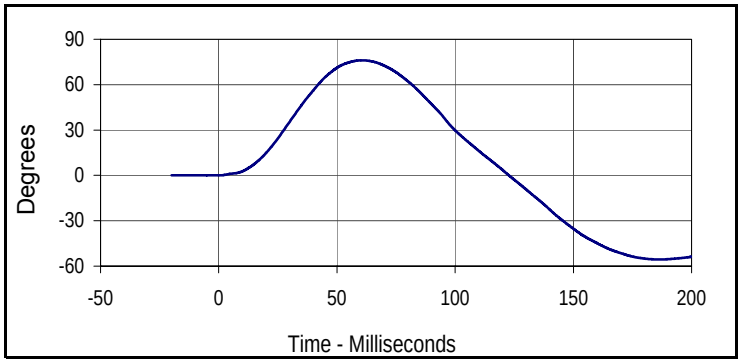
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
109.5	2.5	-0.5	0.0

Test Program:	Hybrid III 50th Percentile Male Neck Flexion Test	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	M035NF027

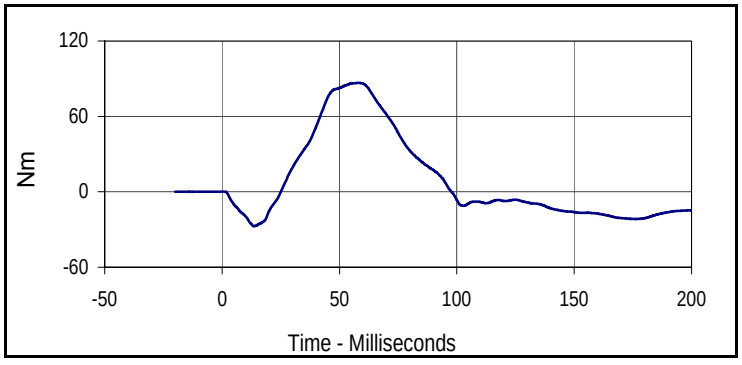
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	290	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	38.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.9	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.04	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	25.1	Pass
	20 Msec.	G's	17.6 to 22.6	20.6	Pass
	30 Msec.	G's	12.5 to 18.5	15.6	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	15.6	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	35.6	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	76.1	Pass
	Time	Msec.	57.0 to 64.0	60.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	122.8	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	86.7	Pass
	Time	Msec.	47.0 to 58.0	57.8	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.8	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
26.9	1.9	-3.3	84.2

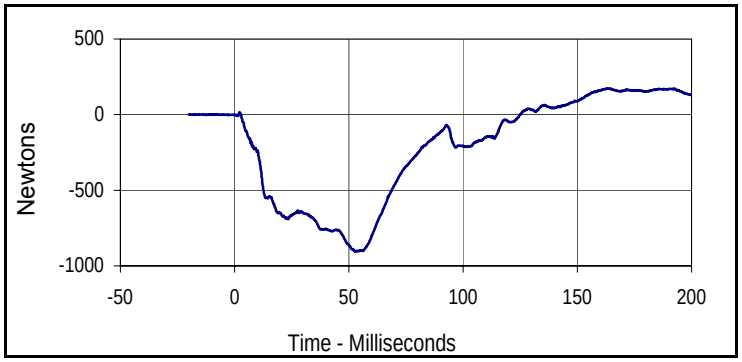


Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
76.1	60.5	-55.6	186.6

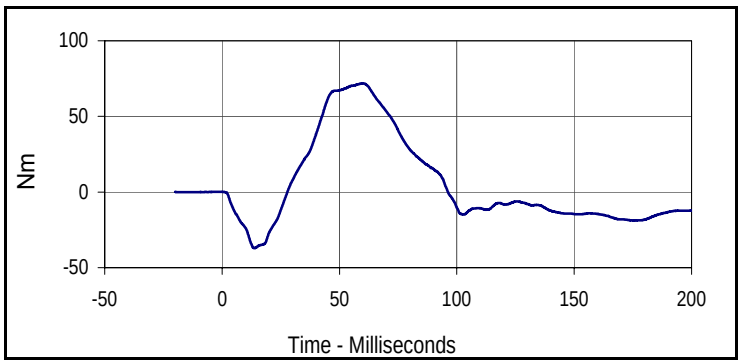


Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
86.7	57.8	-27.4	13.8

Test Program:	Hybrid III 50th Percentile Male Neck Flexion Test	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	M035NF027



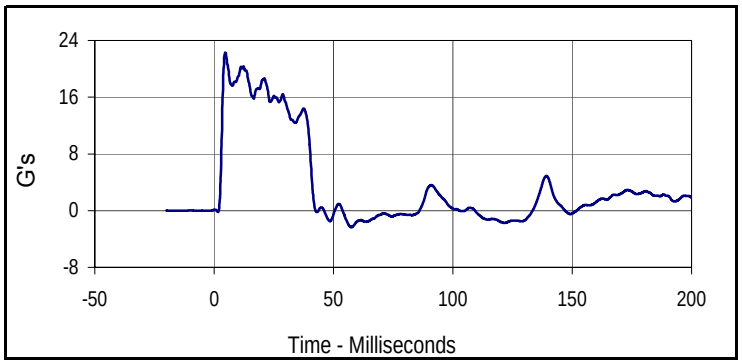
Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
172.5	163.6	-904.4	53.1



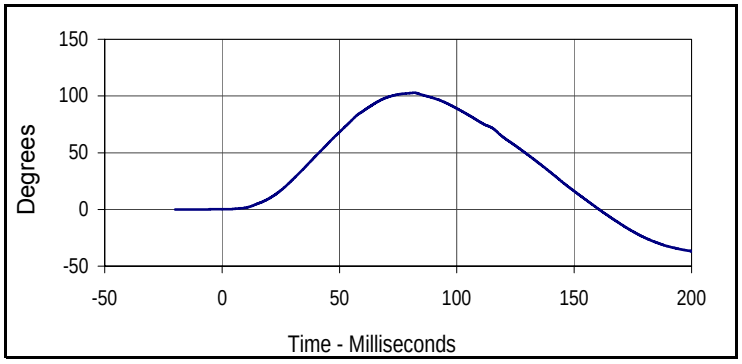
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
71.9	59.9	-37.1	13.8

Test Program:	Hybrid III 50th Percentile Male Neck Extension Test	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	M035NE027

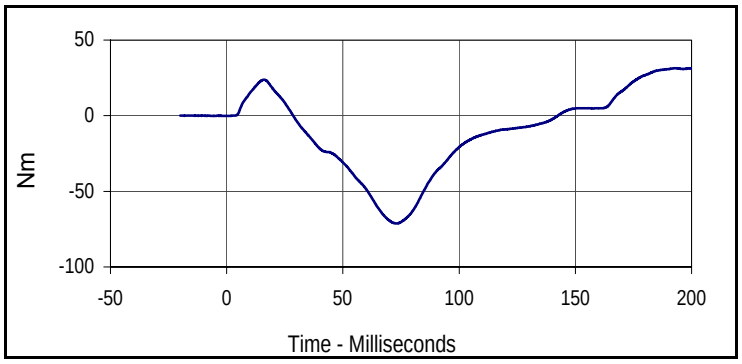
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	320	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		20.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	38.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.9	Pass
Pendulum Velocity		m/s	5.94 to 6.19	5.99	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	18.9	Pass
	20 Msec.	G's	14.0 to 19.0	18.3	Pass
	30 Msec.	G's	11.0 to 16.0	15.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.2	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	40.9	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	102.8	Pass
	Time	Msec.	72.0 to 82.0	81.8	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	160.6	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-71.3	Pass
	Time	Msec.	65.0 to 79.0	73.0	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	142.5	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
22.3	4.7	-2.3	57.5

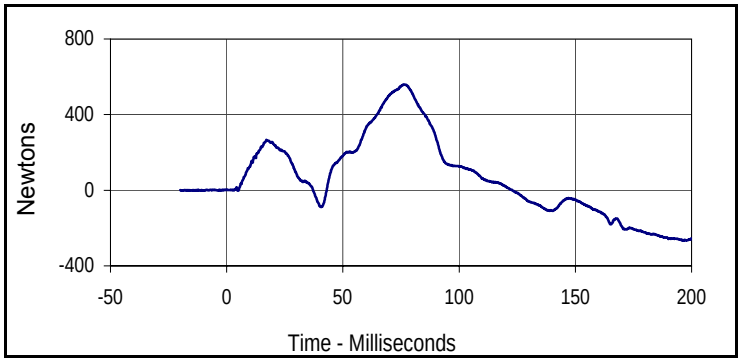


Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
102.8	81.8	-36.8	200.0

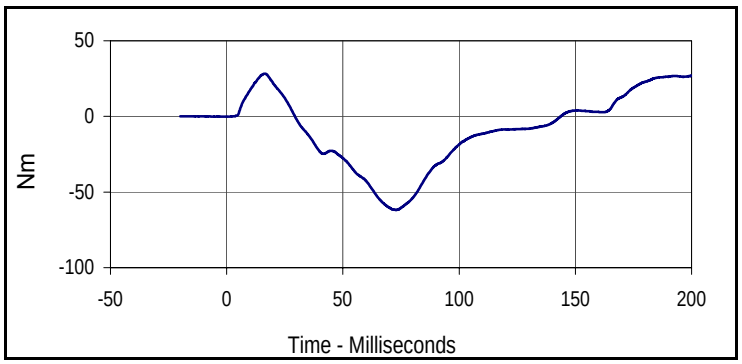


Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
31.4	200.0	-71.3	73.0

Test Program:	Hybrid III 50th Percentile Male Neck Extension Test	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	M035NE027



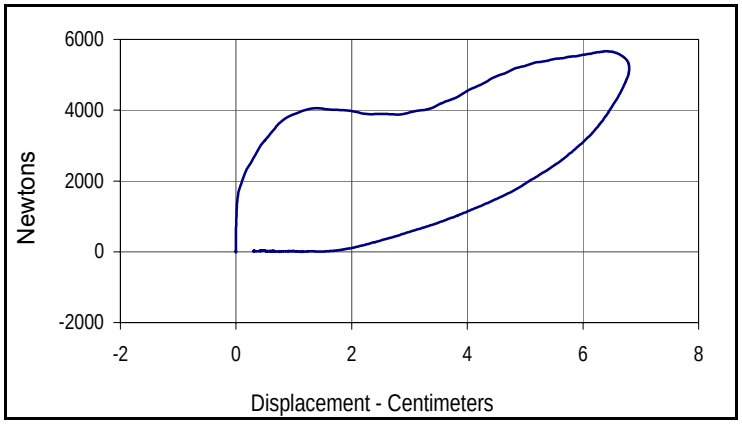
Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
559.6	76.3	-266.1	196.5



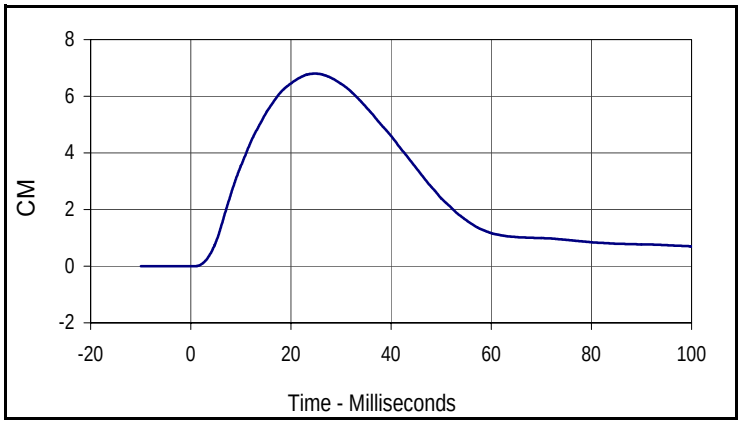
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
28.2	16.2	-61.8	72.8

Test Program:	Hybrid III 50th Percentile Male Thorax Impact Test	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	M035CH027

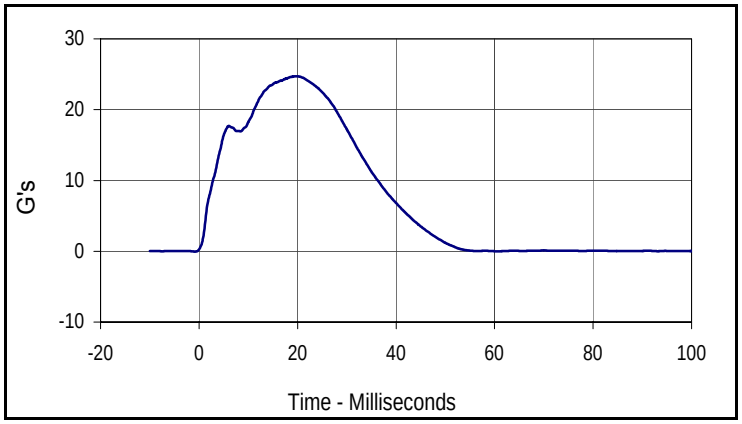
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	410	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	38.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.6	Pass
Probe Velocity		m/s	6.58 to 6.82	6.75	Pass
Peak Probe Force		Newtons	5159 to 5893	5664	Pass
Peak Sternum Deflection		CM	6.35 to 7.26	6.80	Pass
Internal Hysterysis		%	69 to 85	72.3	Pass
			Overall Test Results		Pass



Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysterysis
001	FIL	180	72.3
Peak Probe Force		Peak Chest Deflection	
5664		6.80	



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	180	CM
Max	Time	Min	Time
6.8	24.8	0.0	0.5



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
24.7	19.6	0.0	-0.8

Test Program:	Hybrid III 50th Percentile Male Knee Impact Test	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	M035LK027 , M035RK027

Left Knee

Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	430	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		20.6	Pass
Humidity During Soak	Max	%	10.0 to 70.0	38.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	34.6	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force		Newtons	4715 to 5782	5000	Pass
			Overall Test Results		Pass

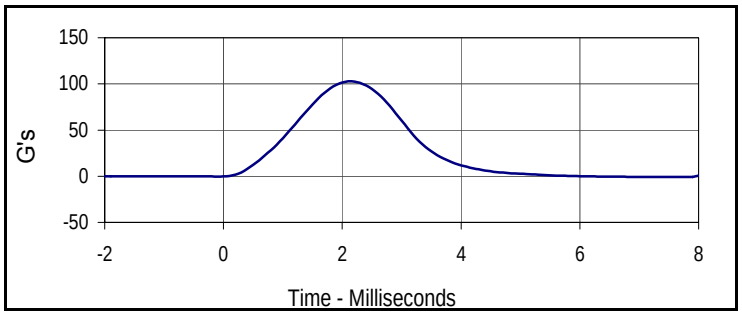
Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5027	Pass
		Overall Test Results		Pass

Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5000.4	2.3	-51.2	7.8

Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
102.2	2.3	-1.0	7.8

Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
5027.0	2.1	-43.3	10.0



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
102.7	2.1	-0.9	10.0

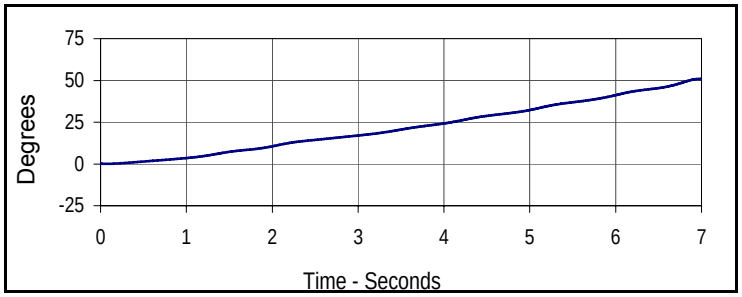
Test Program:	Hybrid III 50th Percentile Male Hip Joint-Femur Flexion Test	Test Date:	12/15/11
ATD Serial No.:	035	Test I.D.:	M035LF027 , M035RF027

Left Hip Joint-Femur Results

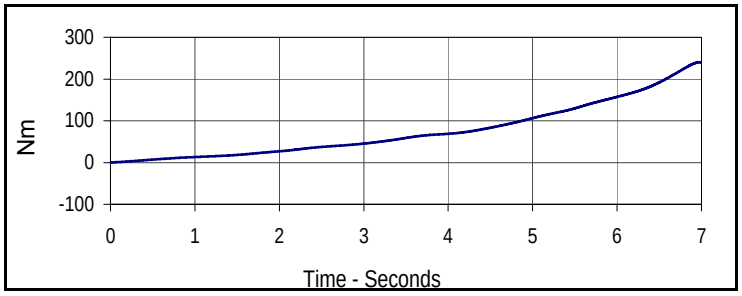
Tested Parameter		Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time		Minutes	≥240	470	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	38.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	31.5	Pass
Rotation Rate		deg/sec	5 to 10	7.3	Pass
Femur Torque at 30°		Nm	≤ 95	91.7	Pass
Rotation at 203 Nm		Degrees	40.0 to 50.0	46.3	Pass
			Overall Test Results		Pass

Right Hip Joint-Femur Results

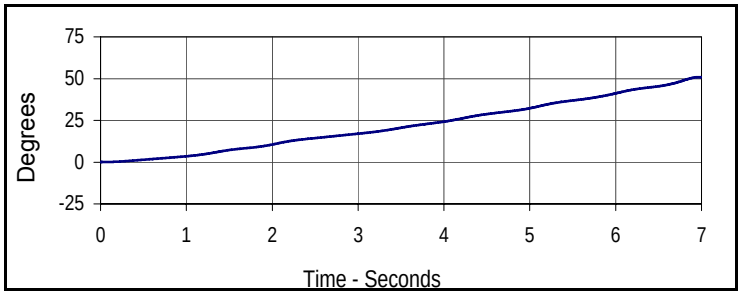
Rotation Rate	deg/sec	5 to 10	7.3	Pass
Femur Torque at 30°	Nm	≤ 95	89.9	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	46.7	Pass
		Overall Test Results		Pass



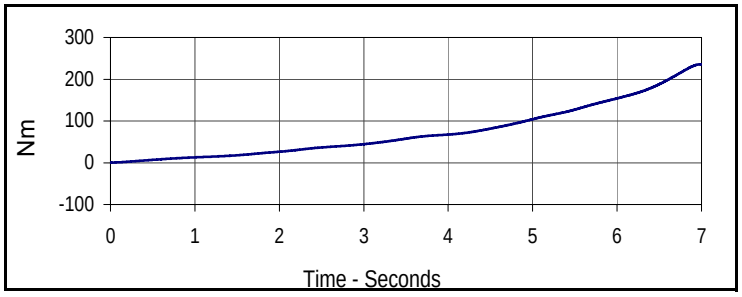
Curve Description			
Left Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
001	FIL	60	Degrees
Max	Time	Min	Time
50.9	7.0	0.0	0.0



Curve Description			
Left Femur Torque			
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
240.6	7.0	0.3	0.0



Curve Description			
Right Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
50.9	7.0	0.0	0.0



Curve Description			
Right Femur Torque			
Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
235.8	7.0	0.3	0.0

Test Program: Hybrid III 5th Percentile Female Dummy Damage Checklist Test Date: 1/5/12

ATD Serial No.: 141 Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

Test Program: Hybrid III 5th Percentile Female External Measurements Test Date: 1/5/12

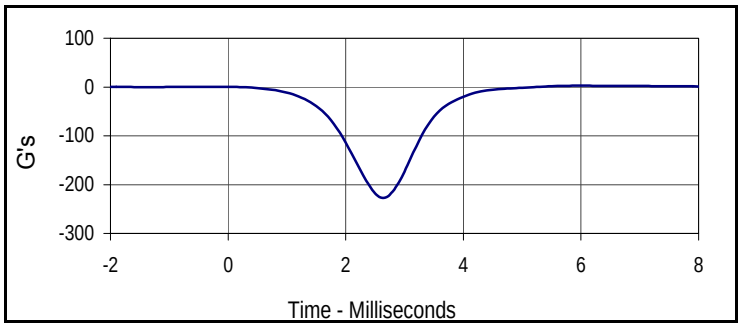
ATD Serial No.: 141 Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.58	Pass
Laboratory Relative Humidity	%	10 to 70	31.2	Pass
A - Total sitting height	mm	774.7 to 800.1	779	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	451	Pass
C - H point height	mm	81.3 to 86.3	84	Pass
D - H point location from backline	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	125	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	250	Pass
H - Head back to backline	mm	40.7 to 45.7	45	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	529	Pass
L - Popliteal length	mm	355.6 to 376.0	374	Pass
M - Knee pivot height	mm	393.7 to 419.1	400	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	187	Pass
P - Foot length	mm	218.5 to 233.7	221	Pass
R - Buttock to Knee Pivot Length	mm	457.2 to 482.6	475	Pass
S - Head Breadth	mm	137.1 to 147.3	144	Pass
T - Head Depth	mm	177.8 to 188.0	180	Pass
U - Hip Breadth	mm	299.7 to 314.9	300	Pass
V - Shoulder breadth	mm	350.5 to 365.7	359	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	541	Pass
Y - Chest circumference (with chest jacket)	mm	850.8 to 881.3	860	Pass
Z - Waist circumference	mm	759.5 to 789.9	766	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	300	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	164	Pass
		Overall Test Results		Pass

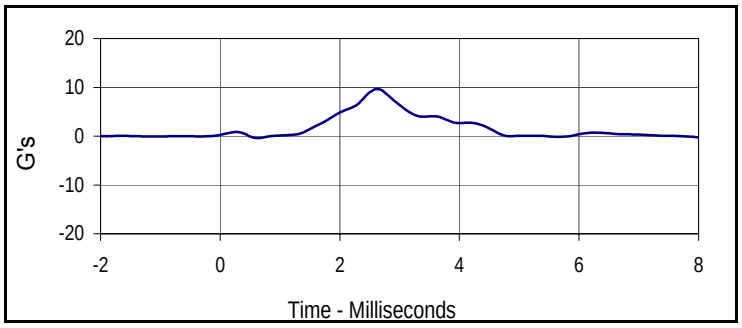
Test Program:	Hybrid III 5th Percentile Female Head Drop Test	Test Date:	1/5/12
ATD Serial No.:	141	Test I.D.:	F141HD027

Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	420	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		20.6	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	31.5	Pass
Peak Resultant Acceleration		G's	250.0 to 300.0	259.6	Pass
Peak Lateral Acceleration		G's	≤15.0	9.6	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	1.4	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
			Overall Test Results		Pass

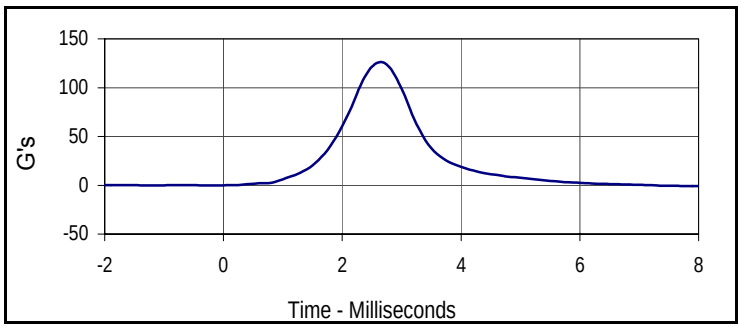
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
259.6	2.6	0.0	-1.4



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.7	6.0	-226.8	2.6



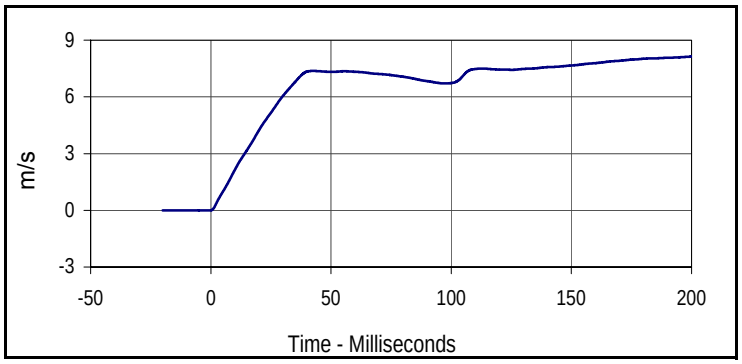
Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
9.6	2.6	-0.4	0.6



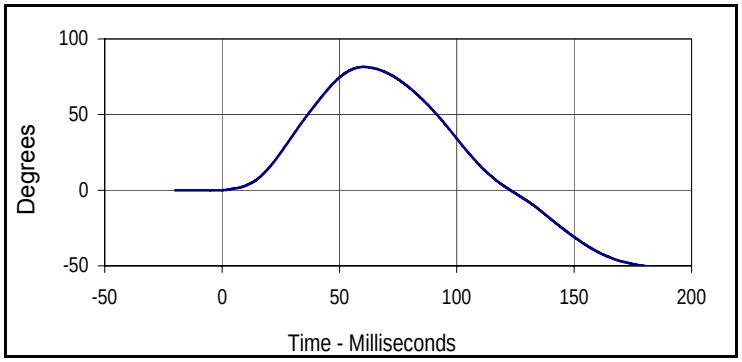
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
125.9	2.6	0.0	-0.1

Test Program:	Hybrid III 5th Percentile Female Neck Flexion Test	Test Date:	1/5/12
ATD Serial No.:	141	Test I.D.:	F141NF027

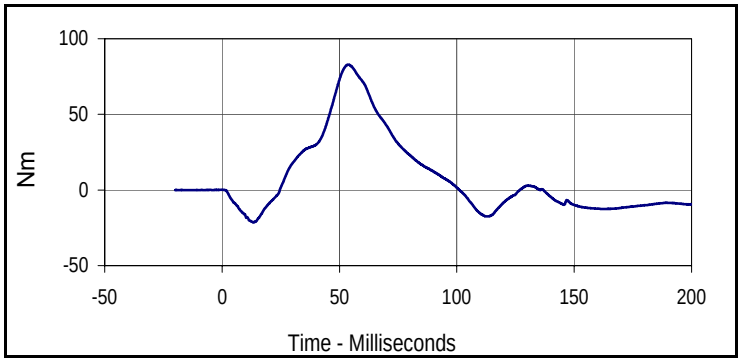
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	450	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		20.8	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.1	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.97	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.1	Pass
	20 Msec.	m/s	4.0 to 5.0	4.2	Pass
	30 Msec.	m/s	5.8 to 7.0	6.0	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	81.5	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	70.3	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	91.5	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.1	200.0	0.0	-0.4

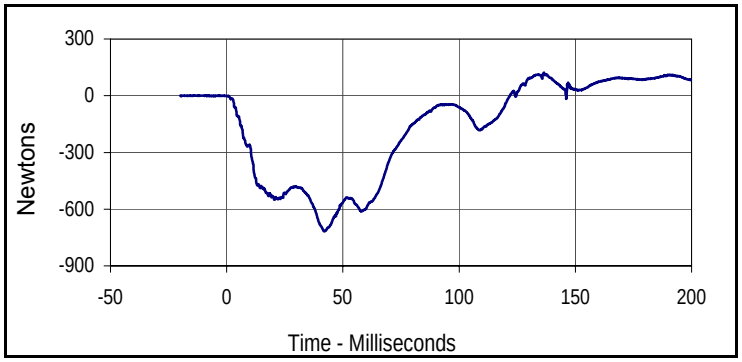


Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
81.5	60.4	-52.1	194.6

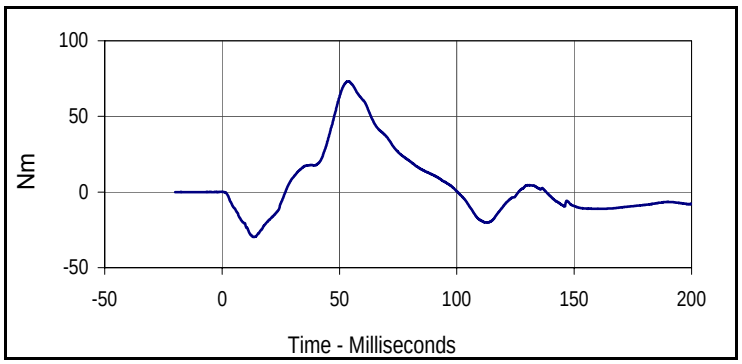


Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
82.8	53.7	-21.4	13.3

Test Program:	Hybrid III 5th Percentile Female Neck Flexion Test	Test Date:	1/5/12
ATD Serial No.:	141	Test I.D.:	F141NF027



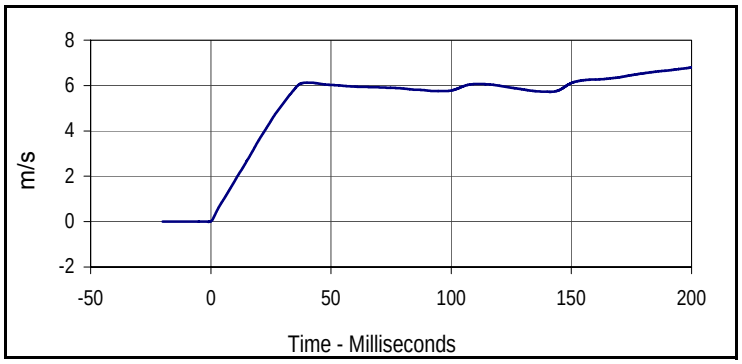
Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
122.1	136.5	-717.4	41.9



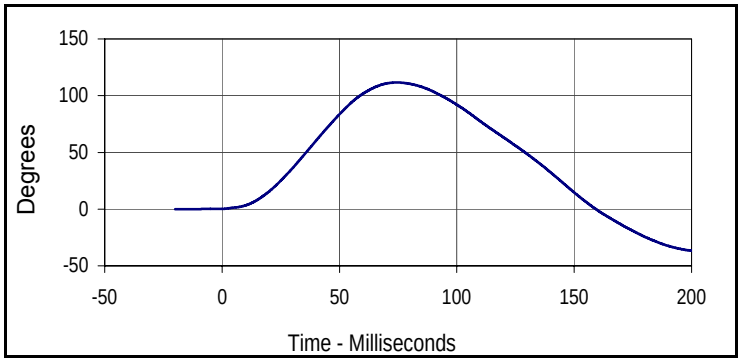
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
73.1	53.7	-29.8	13.4

Test Program:	Hybrid III 5th Percentile Female Neck Extension Test	Test Date:	1/5/12
ATD Serial No.:	141	Test I.D.:	F141NE027

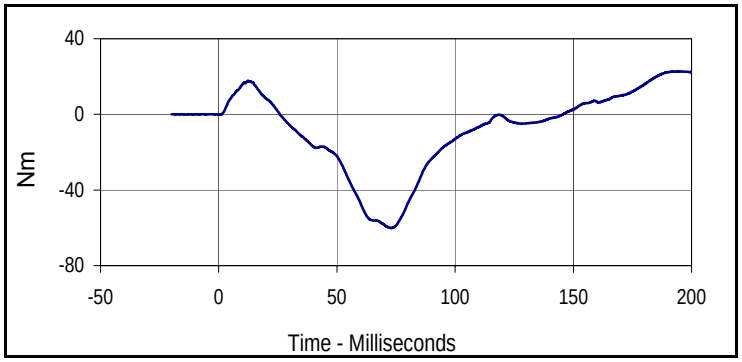
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	250	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	33.9	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.09	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.6	Pass
	30 Msec.	m/s	4.6 to 5.6	5.2	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	111.6	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-60.1	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	104.0	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
6.8	200.0	0.0	-0.9

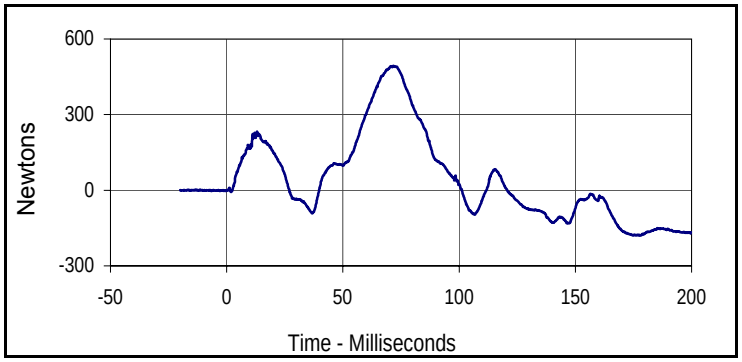


Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
111.6	74.4	-36.6	200.0

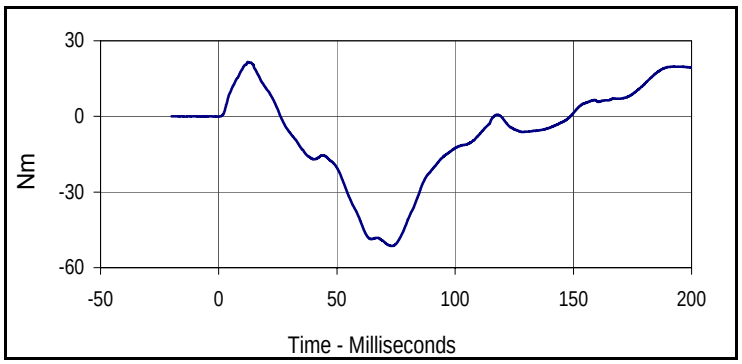


Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
22.7	192.2	-60.1	73.0

Test Program:	Hybrid III 5th Percentile Female Neck Extension Test	Test Date:	1/5/12
ATD Serial No.:	141	Test I.D.:	F141NE027



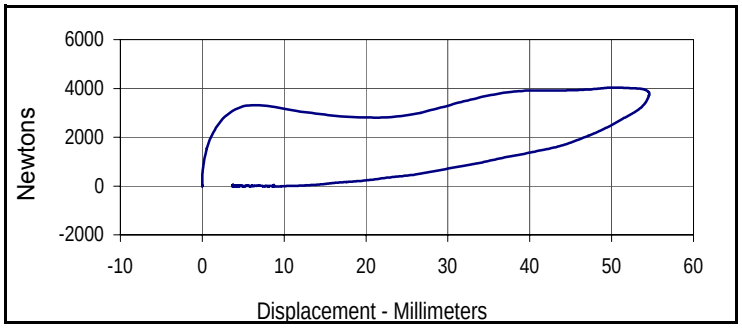
Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
492.9	71.7	-180.0	177.9



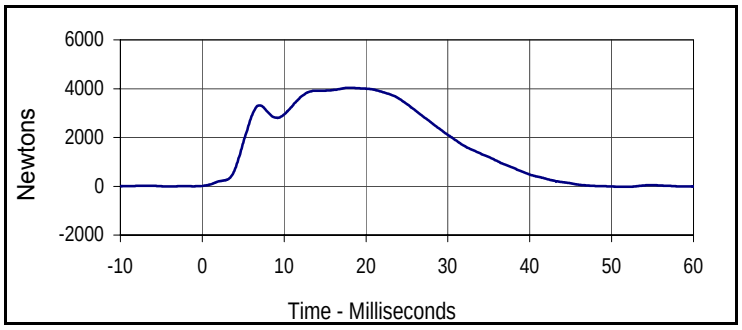
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
21.6	12.2	-51.4	73.0

Test Program:	Hybrid III 5th Percentile Female Thorax Impact Test	Test Date:	1/5/12
ATD Serial No.:	141	Test I.D.:	F141CH027

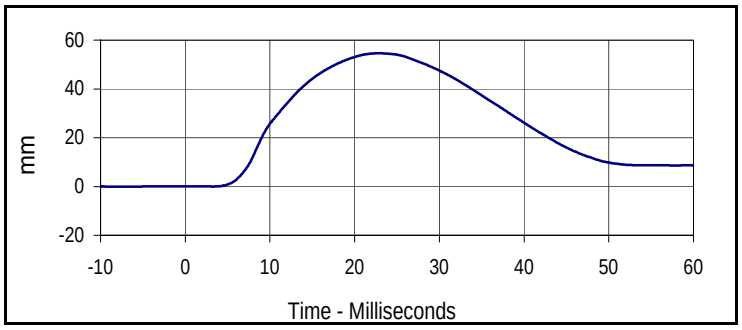
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	350	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	34.2	Pass
Probe Velocity		m/s	6.59 to 6.83	6.71	Pass
Peak Chest Deflection		mm	50.0 to 58.0	54.6	Pass
Peak Force Between 50 and 58 MM		Newtons	3900 to 4400	4031	Pass
Peak Force Between 18 and 50 MM		Newtons	≤4600	4037	Pass
Internal Hysterysis		%	69 to 85	73.8	Pass
			Overall Test Results		Pass



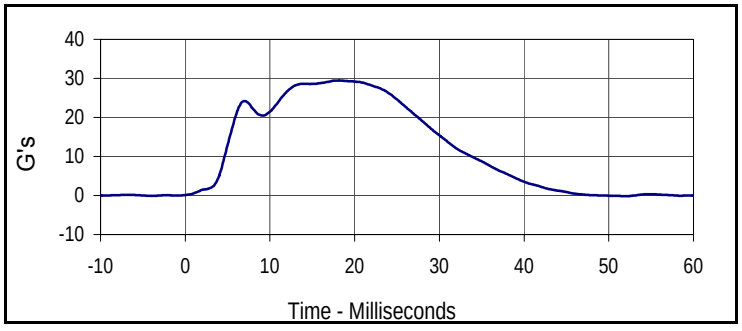
Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysterysis
001	FIL	180	73.8
Peak Probe Force		Peak Chest Deflection	
4037.3		54.6	



Curve Description			
Probe Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4037.3	18.2	-23.5	52.0



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
54.6	22.8	0.0	-5.9



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
29.5	18.2	-0.2	52.0

Test Program:	Hybrid III 5th Percentile Female Knee Impact Test	Test Date:	1/5/12
ATD Serial No.:	141	Test I.D.:	F141LK027 , F141LK027

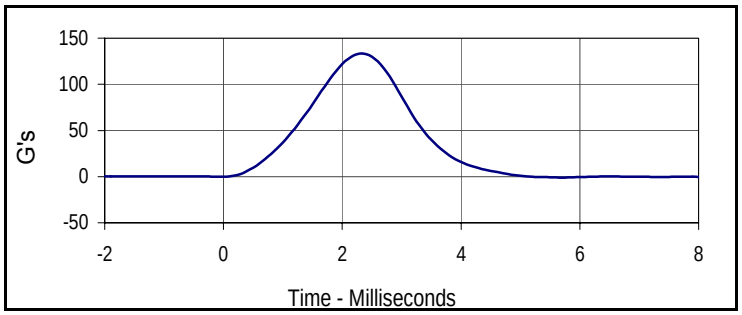
Left Knee

Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	420	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.2	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.3	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force		Newtons	3450 to 4060	3906	Pass
			Overall Test Results		Pass

Right Knee

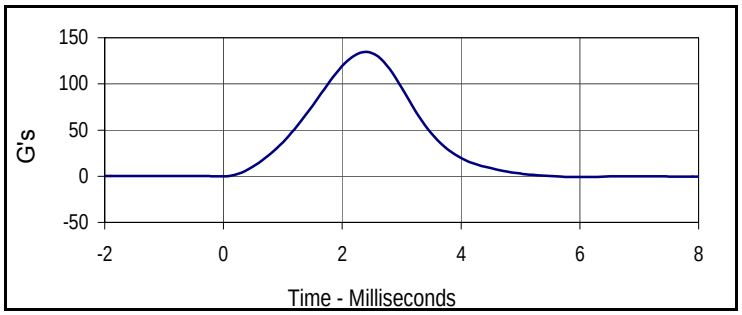
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	3450 to 4060	3945	Pass
		Overall Test Results		Pass

Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3906.4	2.3	-28.5	5.7



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
133.3	2.3	-1.0	5.7

Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
3944.9	2.4	-25.7	6.1



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
134.6	2.4	-0.9	6.1

Test Program:	Hybrid III 5th Percentile Female Torso Flexion Test		Test Date:	1/5/12	
ATD Serial No.:	141		Test I.D.:	F141TF027	

Left Hip Joint-Femur Results

Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	430	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		20.7	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		29.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	34.1	Pass
Initial Reference Plane Angle		Degrees	≤ 20	7.2	Pass
Peak Force at 45° +/-0.5°		Newtons	320.0 to 390.0	347.7	Pass
Torso Rotation Rate		deg/sec	0.5 to 1.5	1.0	Pass
Final Reference Plane Angle		Degrees	+/-8	4.3	Pass
			Overall Test Results		Pass

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

Test Program: Hybrid III 50th Percentile Male Dummy Damage Checklist Test Date: 1/7/12

ATD Serial No.: 035 Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

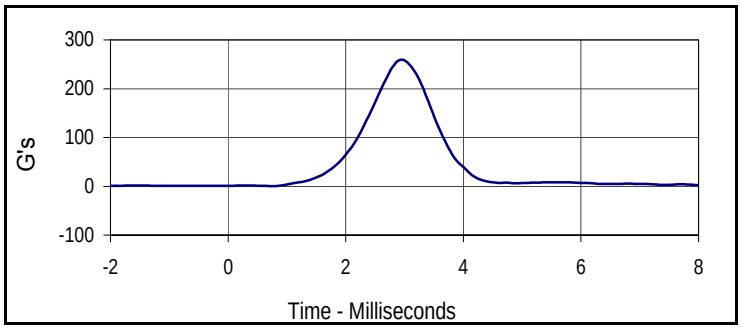
Test Program: Hybrid III 50th Percentile Male External Measurements Test Date: 1/7/12

ATD Serial No.: 035 Test I.D.: N/A

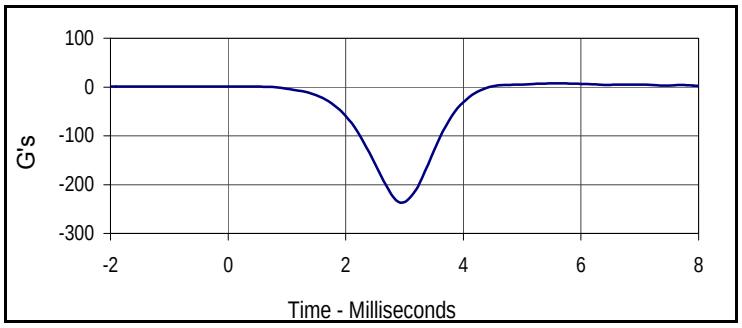
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.33	Pass
Laboratory Relative Humidity	%	10 to 70	33.8	Pass
A - Total sitting height	mm	879 to 889	884	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - H point height	mm	84 to 89	87	Pass
D - H point location from backline	mm	135 to 140	138	Pass
E - Shoulder pivot from backline	mm	84 to 94	87	Pass
F - Thigh clearance	mm	140 to 155	148	Pass
G - Back of elbow to wrist pivot	mm	290 to 305	298	Pass
H - Head back to backline	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	334	Pass
J - Elbow rest height	mm	190 to 211	203	Pass
K - Buttock to knee length	mm	579 to 604	587	Pass
L - Popliteal length	mm	429 to 455	438	Pass
M - Knee pivot height	mm	485 to 500	489	Pass
N - Buttock popliteal length	mm	452 to 477	472	Pass
O - Chest depth without jacket	mm	213 to 229	225	Pass
P - Foot length	mm	251 to 267	260	Pass
V - Shoulder breadth	mm	422 to 437	433	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference (with chest jacket)	mm	970 to 1001	987	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	230	Pass
		Overall Test Results		Pass

Test Program:	Hybrid III 50th Percentile Male Head Drop Test	Test Date:	1/7/12
ATD Serial No.:	035	Test I.D.:	M035HD028

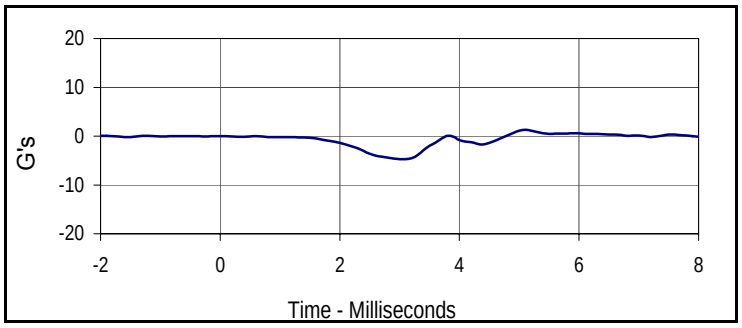
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	245	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.4	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	31.8	Pass
Peak Resultant Acceleration		G's	225.0 to 275.0	258.4	Pass
Peak Lateral Acceleration		G's	≤15.0	4.8	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	15.3	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
			Overall Test Results		Pass



Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
258.4	3.0	0.3	0.8



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
7.6	5.6	-235.6	3.0

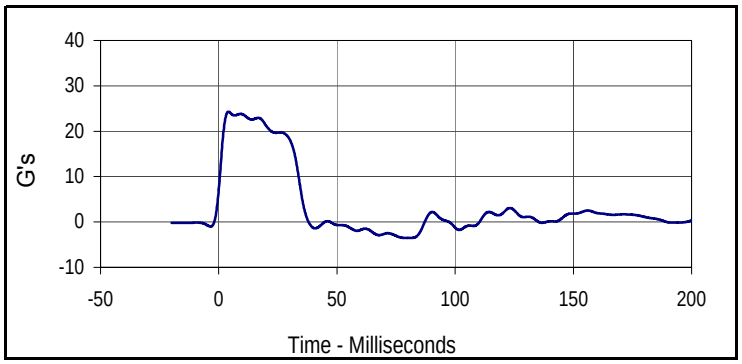


Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
1.3	5.1	-4.8	3.0

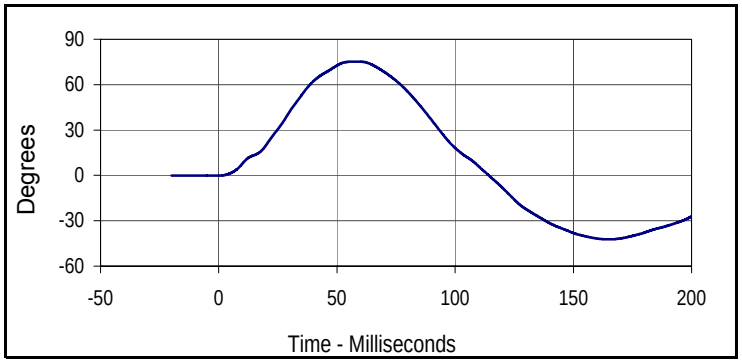
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
105.9	3.0	-1.1	-1.6

Test Program:	Hybrid III 50th Percentile Male Neck Flexion Test	Test Date:	1/7/12
ATD Serial No.:	035	Test I.D.:	M035NF028

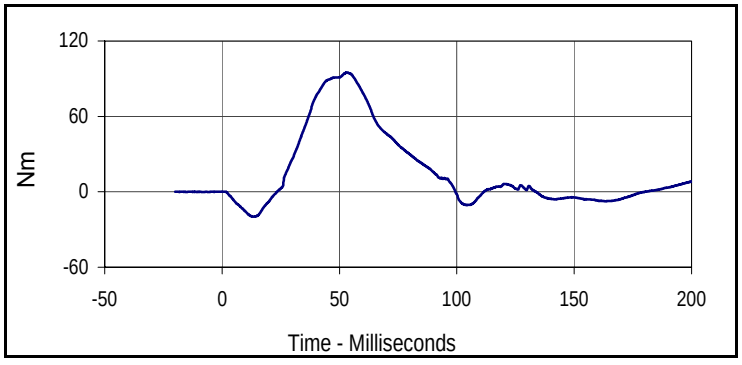
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	280	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	35.3	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.7	Pass
	20 Msec.	G's	17.6 to 22.6	21.3	Pass
	30 Msec.	G's	12.5 to 18.5	18.2	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	18.2	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	75.2	Pass
	Time	Msec.	57.0 to 64.0	57.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	114.3	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	95.0	Pass
	Time	Msec.	47.0 to 58.0	53.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	99.4	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
24.3	4.1	-3.5	79.0

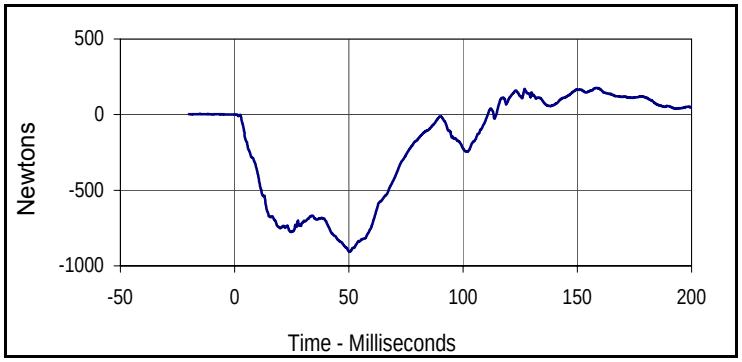


Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
75.2	57.5	-42.3	164.8

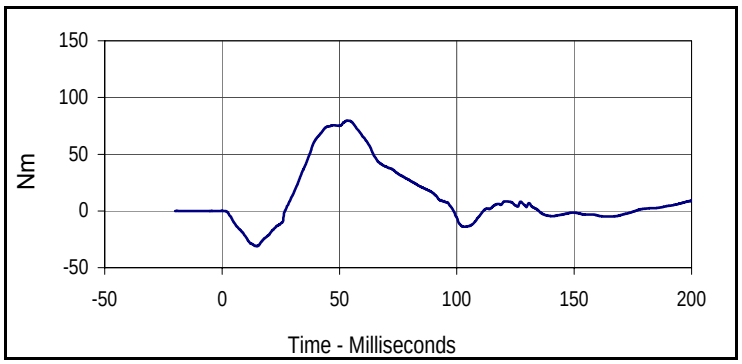


Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
95.0	53.1	-19.9	13.7

Test Program:	Hybrid III 50th Percentile Male Neck Flexion Test	Test Date:	1/7/12
ATD Serial No.:	035	Test I.D.:	M035NF028



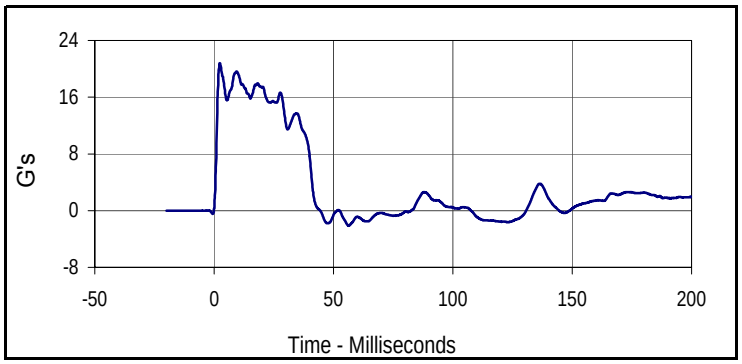
Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
177.0	158.4	-906.4	50.2



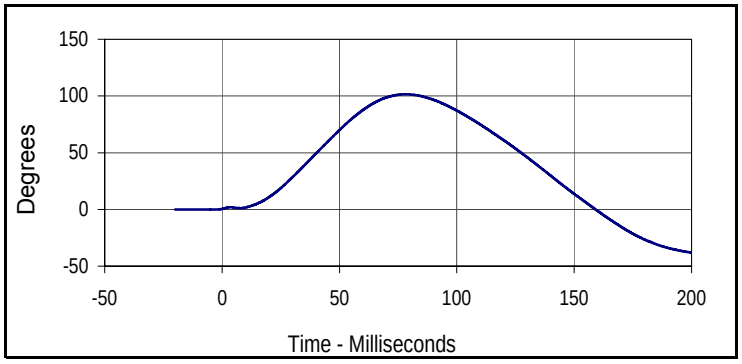
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
79.7	53.2	-31.0	14.9

Test Program:	Hybrid III 50th Percentile Male Neck Extension Test	Test Date:	1/7/12
ATD Serial No.:	035	Test I.D.:	M035NE028

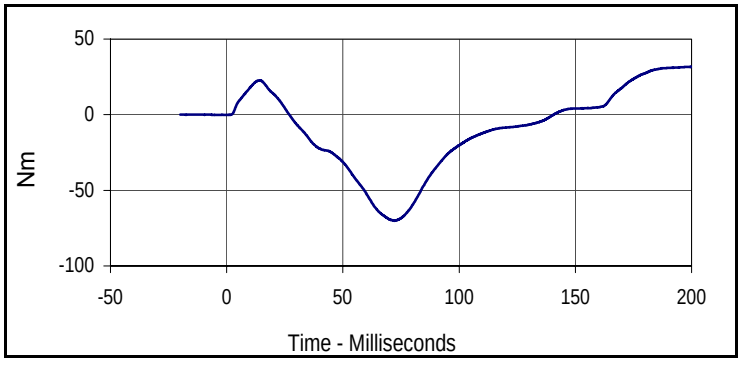
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	310	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.4	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	34.6	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.10	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.3	Pass
	20 Msec.	G's	14.0 to 19.0	17.4	Pass
	30 Msec.	G's	11.0 to 16.0	12.3	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	13.7	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	40.8	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	101.5	Pass
	Time	Msec.	72.0 to 82.0	78.0	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	159.1	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to -79.9	-70.1	Pass
	Time	Msec.	65.0 to 79.0	72.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	140.7	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
Plot No.	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
20.8	2.4	-2.1	56.3

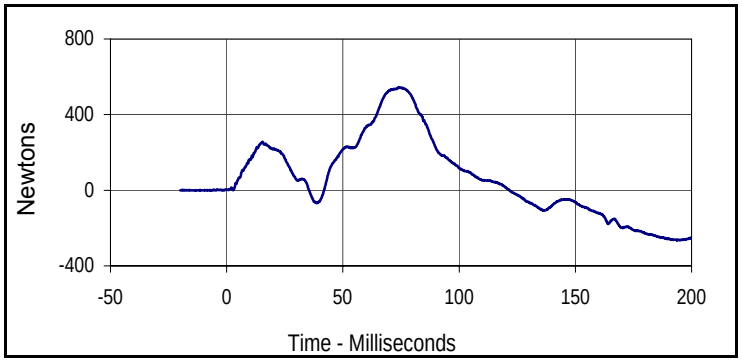


Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
101.5	78.0	-38.0	200.0

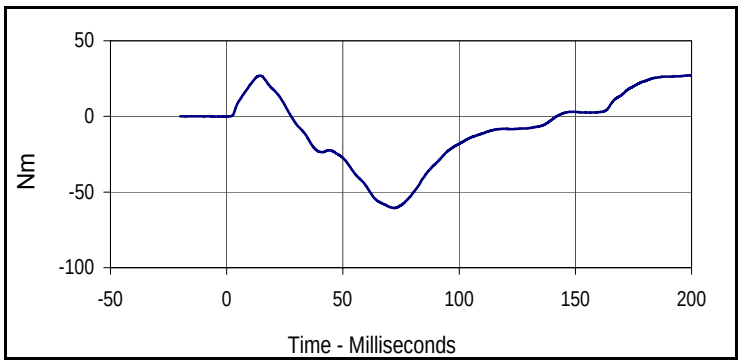


Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
31.7	198.5	-70.1	72.1

Test Program:	Hybrid III 50th Percentile Male Neck Extension Test	Test Date:	1/7/12
ATD Serial No.:	035	Test I.D.:	M035NE028



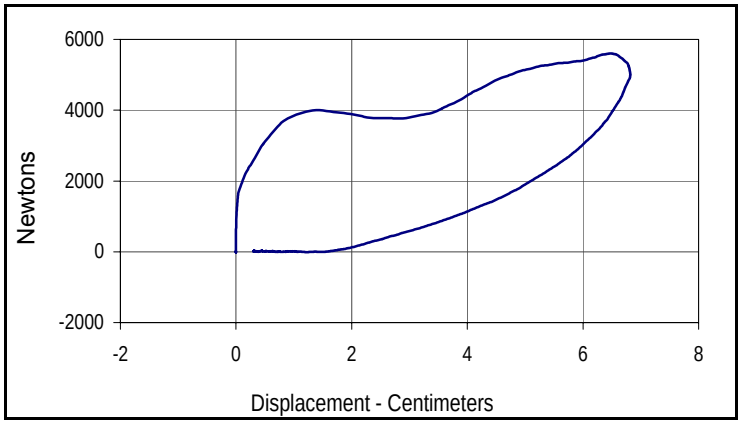
Curve Description			
Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
543.0	73.7	-265.4	195.1



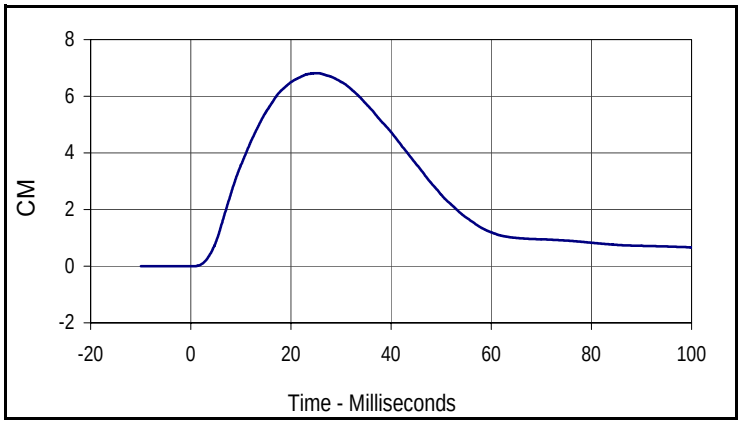
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
27.2	199.8	-60.6	72.1

Test Program:	Hybrid III 50th Percentile Male Thorax Impact Test	Test Date:	1/7/12
ATD Serial No.:	035	Test I.D.:	M035CH028

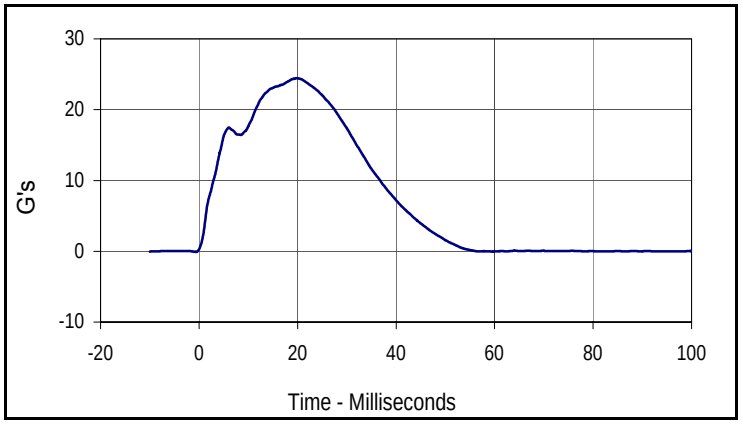
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	400	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	35.2	Pass
Probe Velocity		m/s	6.58 to 6.82	6.77	Pass
Peak Probe Force		Newtons	5159 to 5893	5601	Pass
Peak Sternum Deflection		CM	6.35 to 7.26	6.82	Pass
Internal Hysterysis		%	69 to 85	71.8	Pass
			Overall Test Results		Pass



Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysterysis
001	FIL	180	71.8
Peak Probe Force		Peak Chest Deflection	
5601		6.82	



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	180	CM
Max	Time	Min	Time
6.8	25.2	0.0	0.4



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
24.5	19.8	-0.1	-0.7

Test Program:	Hybrid III 50th Percentile Male Knee Impact Test	Test Date:	1/7/12
ATD Serial No.:	035	Test I.D.:	M035LK028 , M035RK028

Left Knee

Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	430	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	35.2	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force		Newtons	4715 to 5782	4962	Pass
			Overall Test Results		Pass

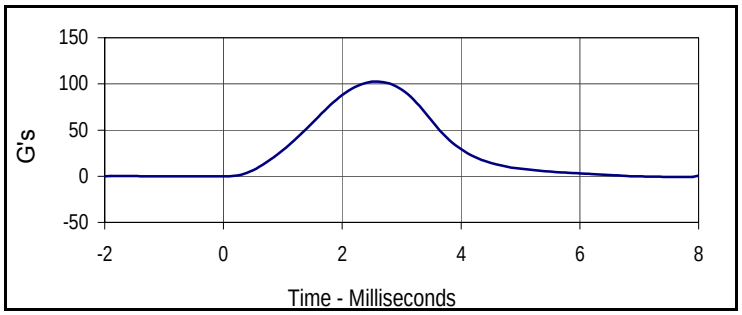
Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.12	Pass
Peak Probe Force	Newtons	4715 to 5782	5023	Pass
		Overall Test Results		Pass

Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4961.6	2.6	-47.1	7.7

Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
101.4	2.6	-1.0	7.7

Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
5022.6	2.6	-43.3	10.0



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
102.7	2.6	-0.9	10.0

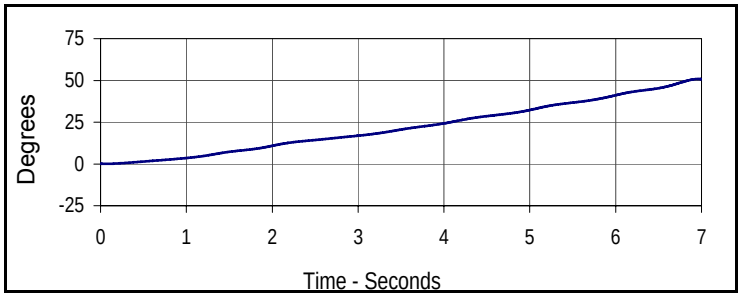
Test Program:	Hybrid III 50th Percentile Male Hip Joint-Femur Flexion Test	Test Date:	1/7/12
ATD Serial No.:	035	Test I.D.:	M035LF028 , M035RF028

Left Hip Joint-Femur Results

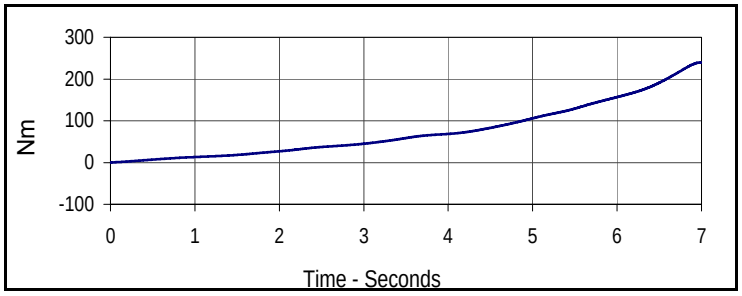
Tested Parameter		Units	Specification	Result	Pass/Fail
Hip Joint-Femur Assembly Soak Time		Minutes	≥240	470	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	31.5	Pass
Rotation Rate		deg/sec	5 to 10	7.3	Pass
Femur Torque at 30°		Nm	≤ 95	92.8	Pass
Rotation at 203 Nm		Degrees	40.0 to 50.0	46.6	Pass
			Overall Test Results		Pass

Right Hip Joint-Femur Results

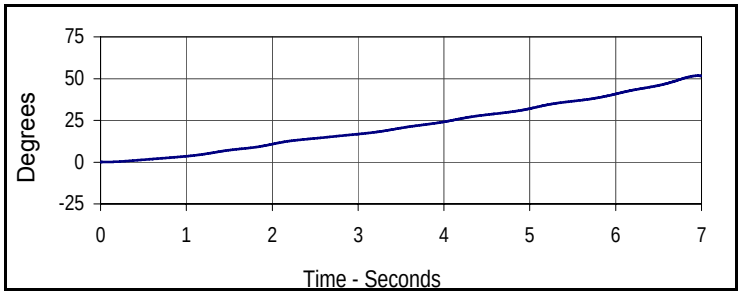
Rotation Rate	deg/sec	5 to 10	7.4	Pass
Femur Torque at 30°	Nm	≤ 95	93.3	Pass
Rotation at 203 Nm	Degrees	40.0 to 50.0	47.8	Pass
		Overall Test Results		Pass



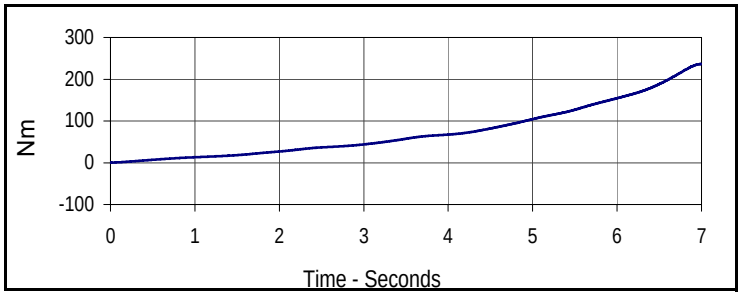
Curve Description			
Left Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
001	FIL	60	Degrees
Max	Time	Min	Time
50.9	7.0	0.0	0.0



Curve Description			
Left Femur Torque			
Plot No.	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
239.7	7.0	0.3	0.0



Curve Description			
Right Hip-Femur Rotation			
Plot No.	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
51.8	7.0	0.0	0.0



Curve Description			
Right Femur Torque			
Plot No.	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
236.2	7.0	0.3	0.0

Test Program: Hybrid III 5th Percentile Female Dummy Damage Checklist Test Date: 1/7/12

ATD Serial No.: 141 Test I.D.: N/A

Dummy Item	Inspect for	Comments	Damaged	OK
Entire Dummy	Perform general cleaning			X
Outer Skin	Gashes, rips, cracks			X
Head	Ballast secure			X
	General appearance			X
Neck	Broken or cracked rubber			X
	Upper neck bracket firmly attached to the lower neck bracket			X
	Looseness at the condyle joint			X
	Nodding blocks cracked or out of position			X
Spine	Broken or cracks in rubber			X
Ribs	Broken or bent ribs			X
	Broken or bent rib supports			X
	Damping material separated or cracked			X
	Rubber bumpers in place			X
Chest Displacement Assembly	Bent shaft			X
	Slider arm riding in track			X
Transducer Leads	Torn cables			X
Accelerometer Mountings	Head mounting secure			X
	Chest mounting secure			X
Knees	Skin condition			X
	Insert (do not remove)			X
	Casting			X
Limbs	Normal movement and adjustment			X
Knee Sliders	Wires intact			X
	Rubber returned to "at rest" position			X
Pelvis	Broken			X
Other				X

Describe the repair on repair or replacement of parts:

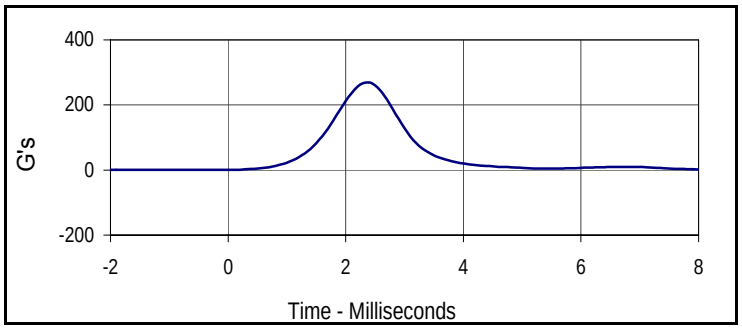
Test Program: Hybrid III 5th Percentile Female External Measurements Test Date: 1/7/12

ATD Serial No.: 141 Test I.D.: N/A

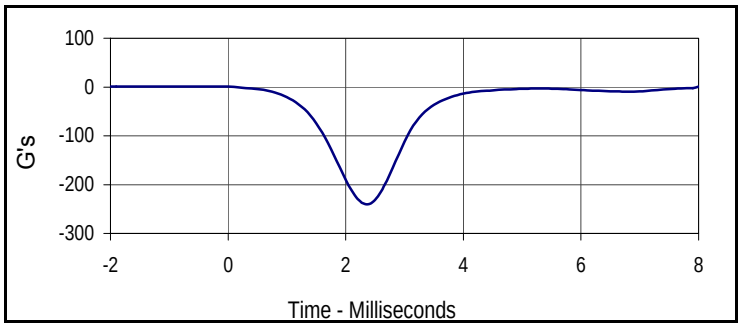
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.46	Pass
Laboratory Relative Humidity	%	10 to 70	33.2	Pass
A - Total sitting height	mm	774.7 to 800.1	780	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	451	Pass
C - H point height	mm	81.3 to 86.3	84	Pass
D - H point location from backline	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	125	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	250	Pass
H - Head back to backline	mm	40.7 to 45.7	44	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	530	Pass
L - Popliteal length	mm	355.6 to 376.0	374	Pass
M - Knee pivot height	mm	393.7 to 419.1	401	Pass
N - Buttock popliteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	187	Pass
P - Foot length	mm	218.5 to 233.7	221	Pass
R - Buttock to Knee Pivot Length	mm	457.2 to 482.6	475	Pass
S - Head Breadth	mm	137.1 to 147.3	144	Pass
T - Head Depth	mm	177.8 to 188.0	180	Pass
U - Hip Breadth	mm	299.7 to 314.9	300	Pass
V - Shoulder breadth	mm	350.5 to 365.7	359	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	541	Pass
Y - Chest circumference (with chest jacket)	mm	850.8 to 881.3	860	Pass
Z - Waist circumference	mm	759.5 to 789.9	766	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	300	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	164	Pass
		Overall Test Results		Pass

Test Program:	Hybrid III 5th Percentile Female Head Drop Test	Test Date:	1/7/12
ATD Serial No.:	141	Test I.D.:	F141HD028

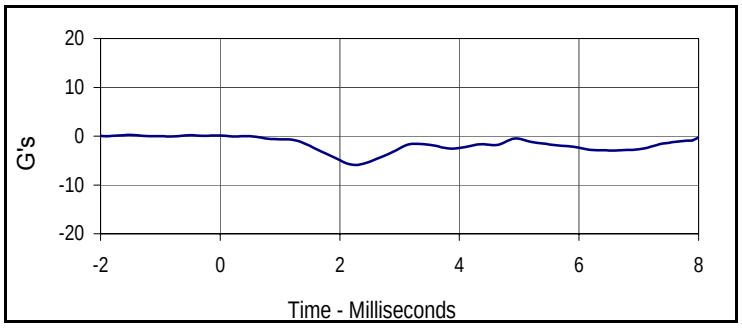
Tested Parameter		Units	Specification	Result	Pass/Fail
Head Assembly Soak Time		Minutes	≥240	420	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	31.8	Pass
Peak Resultant Acceleration		G's	250.0 to 300.0	268.9	Pass
Peak Lateral Acceleration		G's	≤15.0	5.9	Pass
Oscillations After Main Pulse		%	<10% of peak Res. Acceleration	3.7	Pass
Is Acceleration Unimodal?		Yes/No	Yes	Yes	Pass
			Overall Test Results		Pass



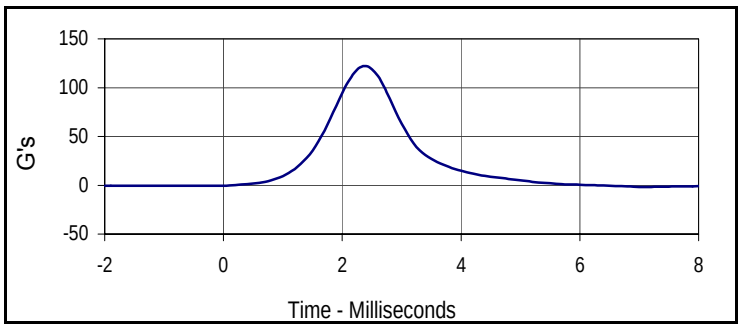
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
268.9	2.4	0.3	0.1



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
1.0	-1.5	-239.6	2.4



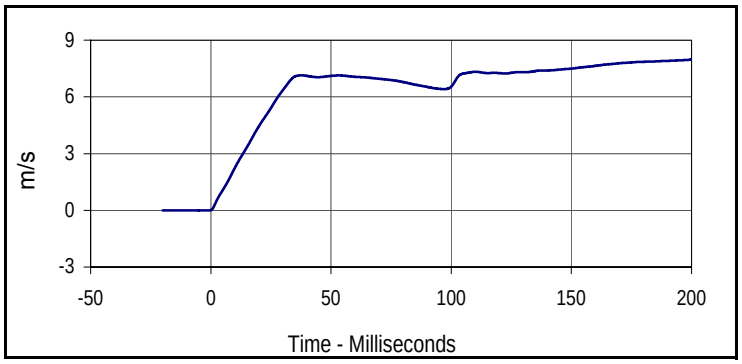
Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
0.2	-1.5	-5.9	2.3



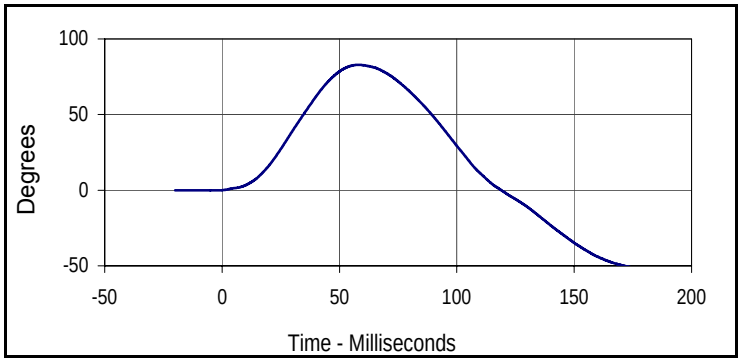
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
122.0	2.4	-0.6	-2.0

Test Program:	Hybrid III 5th Percentile Female Neck Flexion Test	Test Date:	1/7/12
ATD Serial No.:	141	Test I.D.:	F141NF028

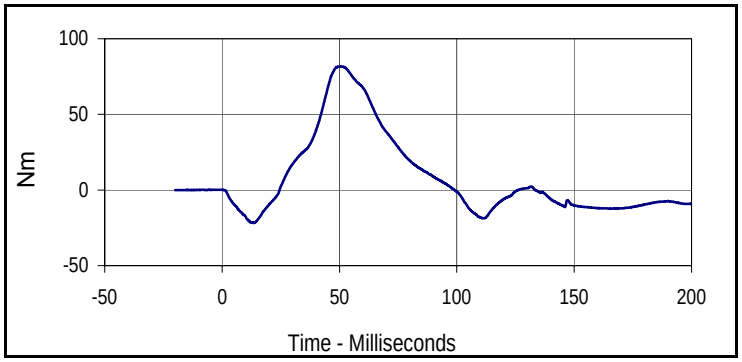
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	450	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	36.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.1	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.04	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.2	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	82.9	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	81.7	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	87.7	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
8.0	200.0	0.0	-0.6

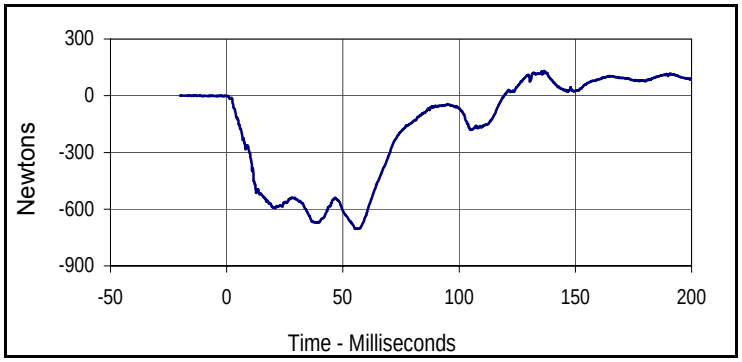


Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
82.9	58.1	-53.3	191.5

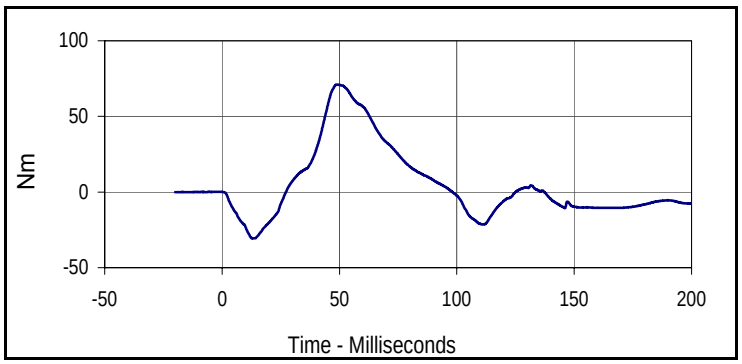


Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
81.7	50.5	-21.8	13.5

Test Program:	Hybrid III 5th Percentile Female Neck Flexion Test	Test Date:	1/7/12
ATD Serial No.:	141	Test I.D.:	F141NF028



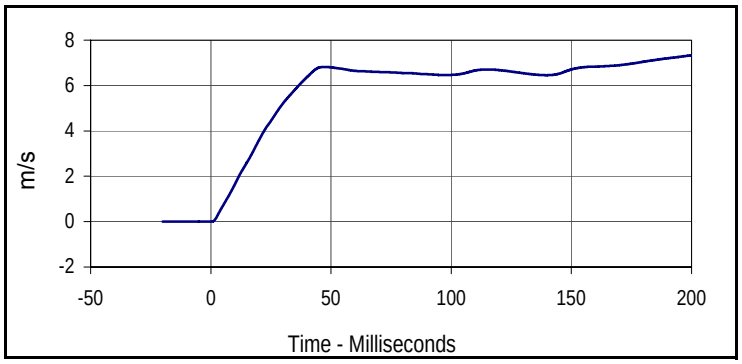
Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
131.2	136.5	-704.1	55.2



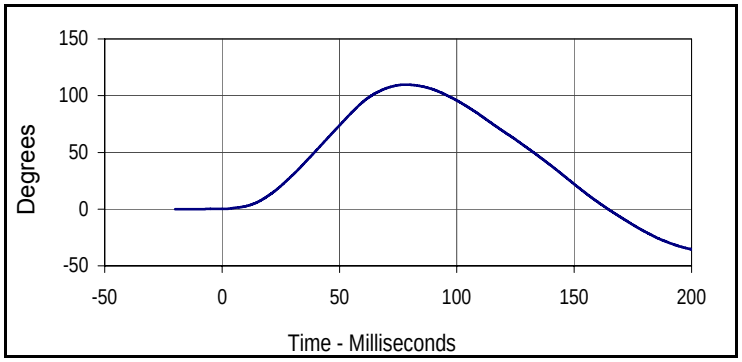
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
71.0	49.2	-30.7	12.8

Test Program:	Hybrid III 5th Percentile Female Neck Extension Test	Test Date:	1/7/12
ATD Serial No.:	141	Test I.D.:	F141NE028

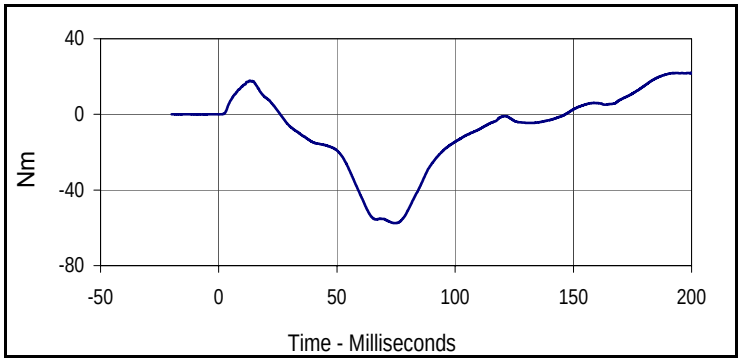
Tested Parameter		Units	Specification	Result	Pass/Fail
Neck Assembly Soak Time		Minutes	≥240	250	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.6	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	32.4	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.11	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.6	Pass
	20 Msec.	m/s	3.1 to 3.9	3.6	Pass
	30 Msec.	m/s	4.6 to 5.6	5.2	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	109.7	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-57.5	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	106.5	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
7.3	200.0	0.0	0.0

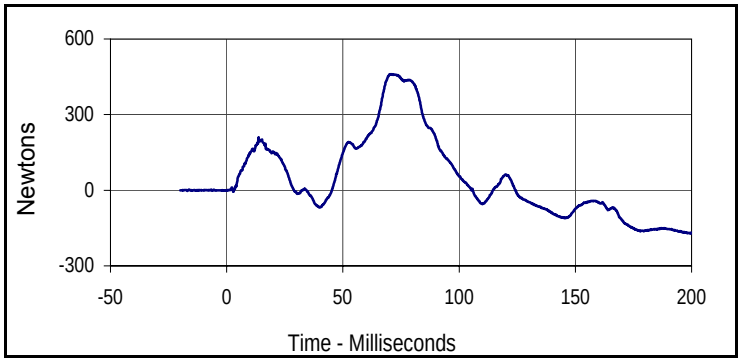


Curve Description			
"D" Plane Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degrees
Max	Time	Min	Time
109.7	78.1	-35.5	200.0

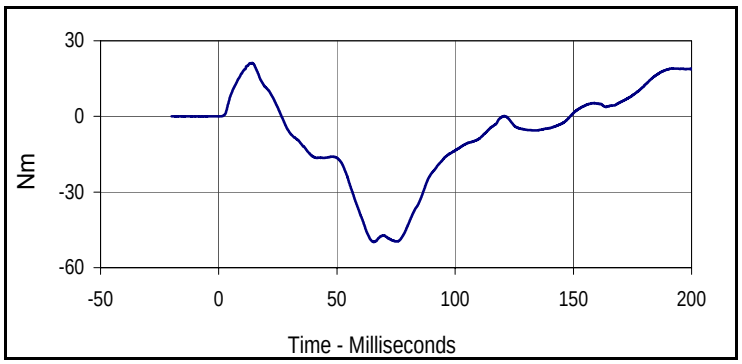


Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
21.9	196.2	-57.5	74.7

Test Program:	Hybrid III 5th Percentile Female Neck Extension Test	Test Date:	1/7/12
ATD Serial No.:	141	Test I.D.:	F141NE028



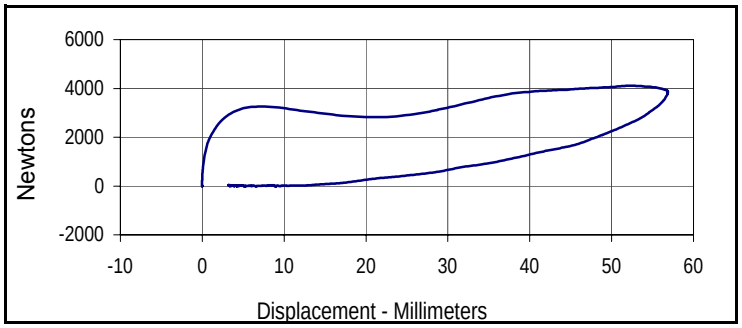
Curve Description			
Upper Neck Force X			
Plot No.	Type	SAE Class	Units
004	FIL	1000	Newtons
Max	Time	Min	Time
460.4	71.1	-170.9	199.4



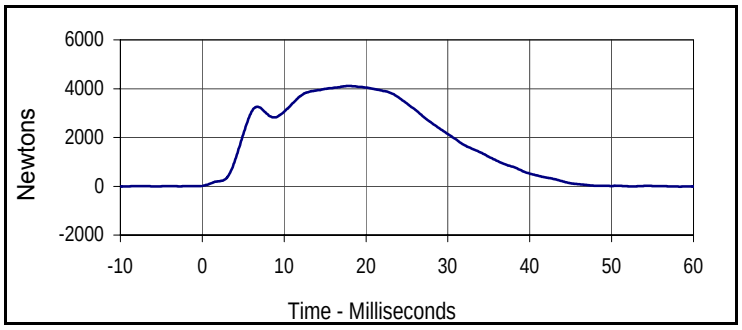
Curve Description			
Neck Moment Y			
Plot No.	Type	SAE Class	Units
005	FIL	600	Nm
Max	Time	Min	Time
21.2	14.1	-49.8	65.6

Test Program:	Hybrid III 5th Percentile Female Thorax Impact Test	Test Date:	1/7/12
ATD Serial No.:	141	Test I.D.:	F141CH028

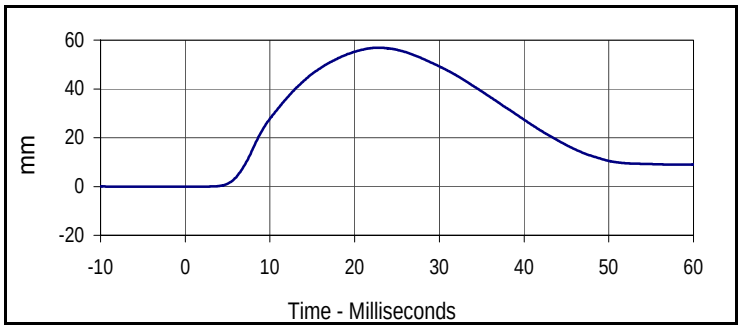
Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	350	Pass
Temperature During Soak	Max	°C	20.6 to 22.2	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	20.6 to 22.2	21.5	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	34.6	Pass
Probe Velocity		m/s	6.59 to 6.83	6.78	Pass
Peak Chest Deflection		mm	50.0 to 58.0	56.9	Pass
Peak Force Between 50 and 58 MM		Newtons	3900 to 4400	4059	Pass
Peak Force Between 18 and 50 MM		Newtons	≤4600	4115	Pass
Internal Hysterysis		%	69 to 85	73.1	Pass
			Overall Test Results		Pass



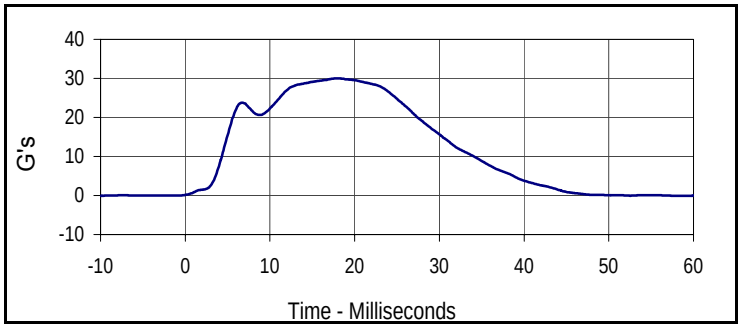
Curve Description			
Probe Force vs. Chest Deflection			
Plot No.	Type	SAE Class	Hysterysis
001	FIL	180	73.1
Peak Probe Force		Peak Chest Deflection	
4115.5		56.9	



Curve Description			
Probe Force			
Plot No.	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4115.5	17.9	-15.2	81.1



Curve Description			
Chest Deflection			
Plot No.	Type	SAE Class	Units
003	FIL	600	mm
Max	Time	Min	Time
56.9	22.8	0.0	1.6



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
30.0	17.9	-0.1	81.1

Test Program:	Hybrid III 5th Percentile Female Knee Impact Test	Test Date:	1/7/12
ATD Serial No.:	141	Test I.D.:	F141LK028 , F141LK028

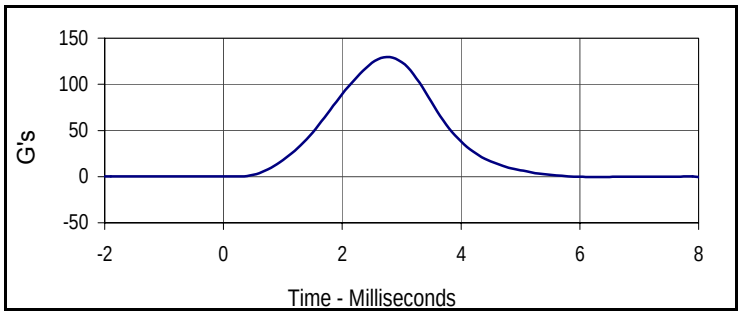
Left Knee

Tested Parameter		Units	Specification	Result	Pass/Fail
Knee Assembly Soak Time		Minutes	≥240	420	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	33.9	Pass
Pendulum Velocity at T=0		m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force		Newtons	3450 to 4060	3796	Pass
			Overall Test Results		Pass

Right Knee

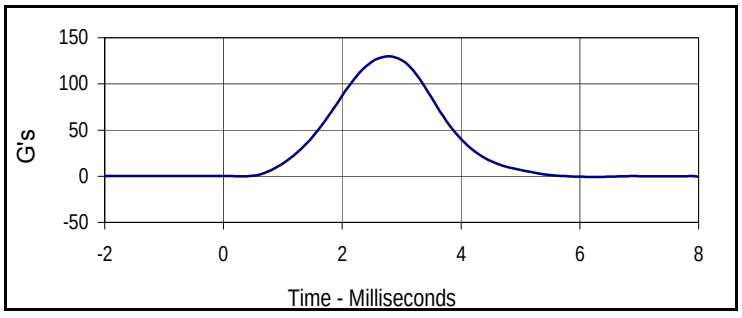
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	3450 to 4060	3804	Pass
		Overall Test Results		Pass

Curve Description			
Left Knee Probe Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3796.4	2.8	-17.0	8.3



Curve Description			
Left Knee Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	600	G's
Max	Time	Min	Time
129.5	2.8	-0.6	8.3

Curve Description			
Right Knee Probe Force			
Plot No.	Type	SAE Class	Units
003	FIL	600	Newtons
Max	Time	Min	Time
3804.0	2.8	-25.9	6.2



Curve Description			
Right Knee Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	600	G's
Max	Time	Min	Time
129.8	2.8	-0.9	6.2

Test Program:	Hybrid III 5th Percentile Female Torso Flexion Test	Test Date:	1/7/12
ATD Serial No.:	141	Test I.D.:	F141TF028

Left Hip Joint-Femur Results

Tested Parameter		Units	Specification	Result	Pass/Fail
Dummy Soak Time		Minutes	≥240	430	Pass
Temperature During Soak	Max	°C	18.9 to 25.6	21.7	Pass
	Min	°C		21.1	Pass
Humidity During Soak	Max	%	10.0 to 70.0	35.0	Pass
	Min	%		30.0	Pass
Laboratory Temperature During Test		°C	18.9 to 25.6	21.6	Pass
Laboratory Humidity During Test		%	10.0 to 70.0	33.6	Pass
Initial Reference Plane Angle		Degrees	≤ 20	9.7	Pass
Peak Force at 45° +/-0.5°		Newtons	320.0 to 390.0	359.2	Pass
Torso Rotation Rate		deg/sec	0.5 to 1.5	1.2	Pass
Final Reference Plane Angle		Degrees	+/-8	5.1	Pass
			Overall Test Results		Pass