REPORT NUMBER: NCAP-KAR-11-034

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

NISSAN MOTOR CO., LTD.

2011 NISSAN SENTRA 2.0 4-DOOR SEDAN

NHTSA NUMBER: MB5214

PREPARED BY:

KARCO ENGINEERING, LLC.

9270 HOLLY ROAD

ADELANTO, CA 92301

OCTOBER 27, 2010

FINAL REPORT

U.S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

SAFETY PERFORMANCE STANDARDS

OFFICE OF CRASHWORTHINESS STANDARDS

1200 NEW JERSEY AVE, SE

ROOM W43-410

WASHINGTON, DC 20590

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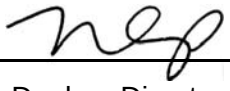
Reviewed By: 

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Approval Date: November 8, 2010

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date:

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

Date:

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16. Abstract

A 56.3 km/h NCAP Frontal Impact Test was conducted on a 2011 Nissan Sentra 2.0 4-Door Sedan in accordance with the specifications of the Office of Crashworthiness Standards Frontal NCAP Laboratory Test Procedure. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301 and foot well intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on October 27, 2010.

The impact velocity of the vehicle was 56.67 km/h and the ambient temperature at the barrier face at the time of impact was 16.1 deg. C. The target vehicle's post-test maximum crush was 384 mm at DPD5 to the right of the 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	260.3	700.0	311.9
Maximum Chest Compression	mm	63	-26	52	-16
Nij	N/A	1	0.42	1	0.76
Neck Tension	N	4170	1389.7	2620	981.8
Neck Compression	N	4000	-427.8	2520	-654.0
Left Femur Force	N	10008	-2373.6	6805	-2641.4
Right Femur Force	N	10008	-2476.7	6805	-2202.9

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35 mph Frontal Barrier Impact Test
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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 January, 2010.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2011 Nissan Sentra 2.0 4-Door Sedan at a velocity of 56.67 km/h. The test was performed at KARCO Engineering, LLC. on October 27, 2010. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A of this report.

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

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

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

The 132 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 384 mm located at DPD5 to the right of the 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, side header, and headrest. The upper torso contacted the airbag. Both the left knee and right knee contacted the steering column and knee bolster.

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

The occupant data is summarized below:

ATD Position	HIC_{15}	T^1	T^2	Chest Disp. (mm)	Nij	Neck Tension (N)	Neck Comp. (N)	Left Femur (N)	Right Femur (N)
Driver (50th)	260.3	67.9	82.9	-26	0.42	1389.7	-427.8	-2373.6	-2476.7
Passenger (5th)	311.9	63.1	78.1	-16	0.76	981.8	-654.0	-2641.4	-2202.9

SECTION 2

DATA SHEETS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in^2	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	^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: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MB5214	Anti-Lock Brakes	Yes
Make	Nissan	All Wheel Drive	No
Model	Sentra 2.0	Power Steering	Yes
Body Style	4-Door Sedan	Driver Front Airbag	Yes
VIN	3N1AB6AP5BL606254	Driver Curtain Airbag	Yes
Body Color	Brilliant Silver	Driver Head/Torso Airbag	No
Delivery Date	9/28/2010	Driver Torso Airbag	No
Odometer Reading (mi)	89	Driver Torso/Pelvis Airbag	Yes
Odometer Reading (km)	143	Driver Pelvis Airbag	No
Dealer	West Covina Nissan	Driver Knee Airbag	No
Transmission	CVT	Pass. Front Airbag	Yes
Final Drive	Front	Pass. Curtain Airbag	Yes
Type / No. of Cylinders	Inline 4	Pass. Head/Torso Airbag	No
Engine Displacement (L)	2.0	Pass. Torso Airbag	No
Engine Placement	Transverse	Pass. Torso/Pelvis Airbag	Yes
Roof Rack	No	Pass. Pelvis Airbag	No
Sunroof / T-Top	No	Pass. Knee Airbag	No
Tinted Glass	No	Pre-Tensioners	Yes
Traction Control	Yes	Load Limiters	Yes
Power Brakes	Yes	Automatic Door Locks	Yes
Front Disc	Yes	Tilt Steering	Yes
Rear Disc	No	Other	

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co., Ltd.	GVWR (kg)	1791.8
Date of Manufacture	Aug-10	GAWR Front (kg)	1009.9
		GAWR Rear (kg)	820.8

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

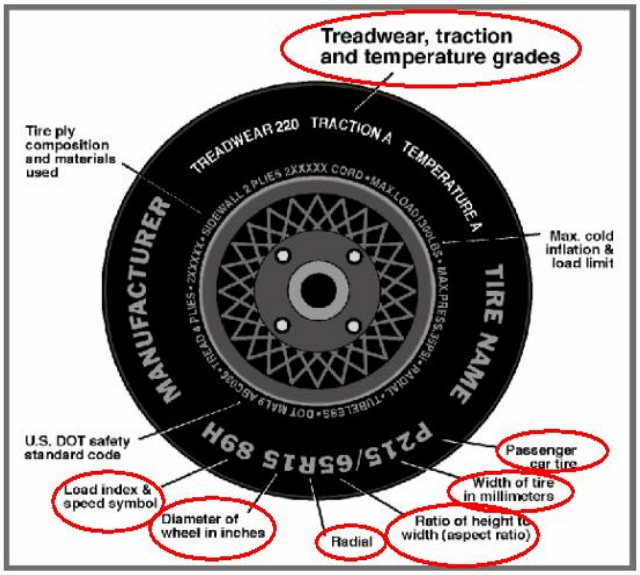
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	3		5
Capacity Weight (VCW) (kg)				385.0
Cargo Weight (RCLW) (kg)				44.8

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	P205/60R15	P205/60R15
Tire Size on Vehicle	P205/60R15	P205/60R15
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Turanza EL400	Turanza EL400
Treadwear	300	300
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel	1 Polyester, 2 Steel
Load Index / Speed Symbol	90H	90H
Tire Material	Polyester, Steel	Polyester, Steel
DOT Safety Code Left	V6UN TEO 3110	V6UN TEO 3110
DOT Safety Code Right	V6UN TEO 3110	V6UN TEO 3110

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	425.5	252.0		457.5	322.0	
Right	kg	401.0	247.0		418.5	307.5	
Ratio	%	62.4%	37.6%	100.0%	58.2%	41.8%	100.0%
Total	kg	826.5	499.0	1325.5	876.0	629.5	1505.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1325.5	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 Weightt (TVTW)	kg	1511.3	A+B+C

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	691	700	695	695	1007
As Tested	mm	679	683	668	672	1119
Post-Test	mm	722	778	650	678	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2675
Total Vehicle Length at Left Side	mm	3843
Total Vehicle Length at Centerline	mm	4562
Total Vehicle Length at Right Side	mm	3842
Weight of Ballast in Cargo Area	kg	98.0
Weight of Vehicle Components Removed	kg	47.5
Amount of Stoddard Solvent in Fuel Tank	L	48.90

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Rear seat backs (19.0 kg), Tail lights (3.0 kg), Rear door panels (5.0 kg), Spare tire and tools (15.0 kg), Trunk liner (5.5 kg)

DATA SHEET NO. 1 … (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

TARGET VEHICLE STRUCTURAL MEASUREMENTS

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length	4562	4228	-334
2	Total Width	1760	1931	171
3	Bumper Top Height	597	663	66
4	Bumper Bottom Height	218	277	59
5	Longitudinal Member Top Height	538	598	60
6	Distance Between Longitudinal Members	900	1020	120
7	Longitudinal Member Width	60	90	30
8	Engine Top Height	862	932	70
9	Engine Bottom Height	178	193	15
10	Engine and Gearbox Width	470	470	0
11	Front Bumper to Engine Distance	573	388	-185
12	Front Shock Absorber Fixing Height	837	922	85
13	Bonnet Leading Edge Height	724	766	42
14	Front Shock Absorber Fixing Width	1185	1192	7
15	Front Bumper to Front Axle Distance	931	691	-240
16	Front Axle to A-Pillar Distance	465	405	-60
17	A-Pillar to B-Pillar Distance	996	995	-1
18	B-Pillar to Rear Axle Distance	1103	1109	6
19	B-Pillar to C-Pillar Distance	847	849	2
20	Roof Sill Bottom Height	1321	1356	35
21	Roof Sill Top Height	1448	1478	30
22	Floor Sill Bottom Height	1262	1245	-17
23	Floor Sill Top Height	213	342	129

All measurements in millimeters.

DATA SHEET NO. 2

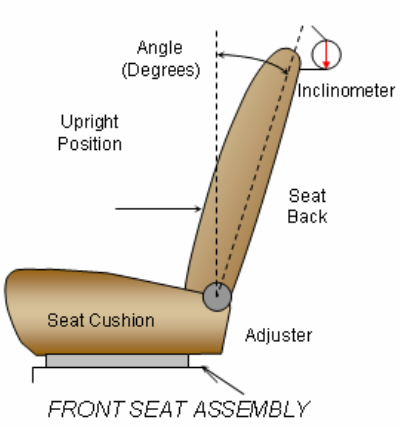
SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

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.

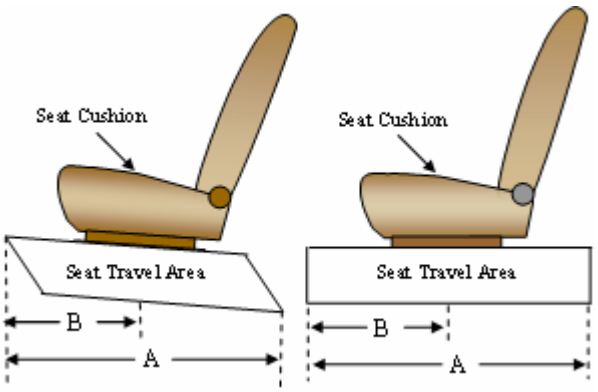


SEAT BACK ANGLE

Seating Position	Degrees
Driver Seat Back Angle	11.5
Passenger Seat Back Angle	7.7

SEAT FORE / AFT POSITIONING

The total seat travel is measured from the forward most possible position to the rearmost possible position. The driver's seat is set to the closest detent rearward of the measured mid-travel. The passenger's seat is set to the forward most position where the ATD will not contact any interior panels, full forward for this test.



SEAT FORE/AFT POSITIONS

Seating Position	Total Fore-Aft Travel	Placed in Position
Driver Seat	242 mm	122 mm
Passenger Seat	241 mm	0 mm

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50th percentile adult male ATD for the driver, and a 5th percentile adult female ATD for the passenger. Position zero (0) is the uppermost position.

SEAT BELT UPPER ANCHORAGES

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

DATA SHEET NO. 2 … (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEMS, AND STEERING WHEEL DATA

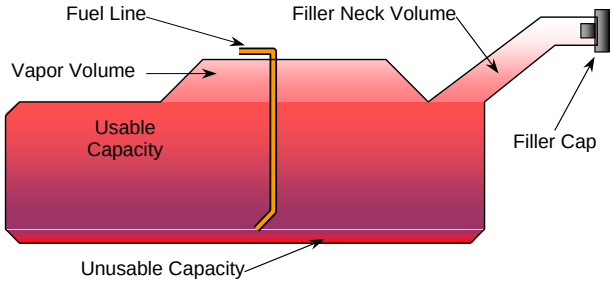
Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	52.61
Usable Capacity of "Optional Tank"	
92 - 94% of Usable Capacit	48.4 to 49.45
Actual Amount of Stoddard Solvent Used	48.90
1/3 of Usable Capacity	17.54

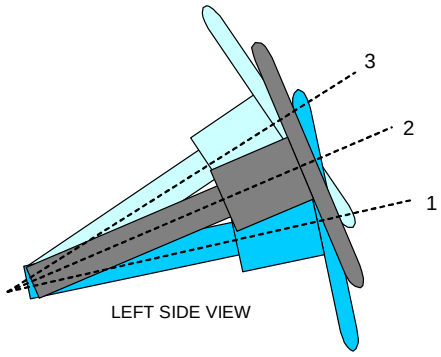
The test vehicle is equipped with an electric fuel pump. The fuel pump will pump fuel for 1.0 second after the ignition is switched to “on”, while the engine is running, and for 1.5 seconds after the engine stops running. The fuel filler door is located on the right rear fender. The standard fuel tank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



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. A digital inclinometer is used to measure a plate which is placed across the rim of the steering wheel for angular measurements. A tape measure is used with a reference mark on the steering column to measure telescoping travel.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

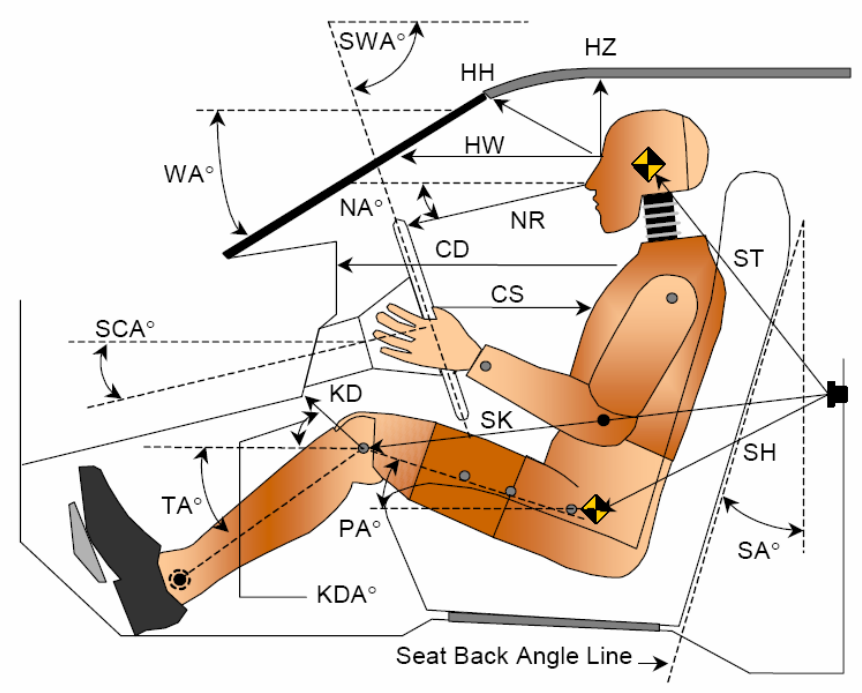
	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	25.5	
Geometric Center Position, No. 2	27.2	
Uppermost Position, No. 3	28.8	
Telescoping Steering Wheel Travel		
Test Position	27.1	

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10



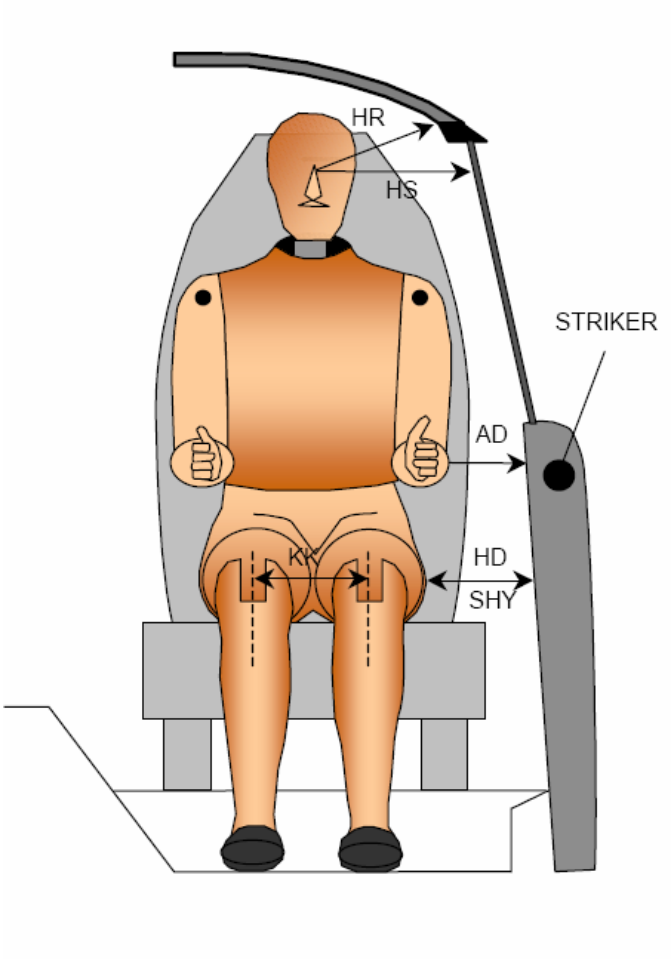
Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		24.2		
SWA°	Steering Wheel Angle		27.7		
SCA°	Steering Column Angle		27.2		
SA°	Seat Back Angle (On Headrest Post)		11.5		7.7
HZ	Head to Roof	199	90.0	222	90.0
HH	Head to Header	345	21.6	294	48.0
HW	Head to Windshield	664	0.0	640	0.0
HR	Head to Side Header	262	24.4	267	34.9
NR	Nose to Rim	409	15.2	450	29.3
CD	Chest to Dash	426	14.7	383	7.8
CS	Chest to Steering Hub	321	9.6		
RA	Rim to Abdomen	196	0.0		
KDL	Left Knee to Dash	175	25.1	92	44.3
KDR	Right Knee to Dash	154	32.9	110	37.5
PA°	Pelvic Angle		24.6		22.2
TA°	Tibia Angle		43.6		49.5
SK	Striker to Knee	601	1.2	703	3.4
ST	Striker to Head	546	71.8	516	62.0
SH	Striker to H-Point	252	29.5	389	16.8

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10



Code	Description	Driver (mm)	Passenger (mm)
AD	Arm to Door	127	91
HD	H-Point to Door	143	178
HR	Head to Side Header	262	267
HS	Head to Side Window	353	372
KK	Knee to Knee	344	233
SHY	Striker to H-Point (Y-Direction)	234	276
AA	Ankle to Ankle	335	185

DATA SHEET NO. 5

SEAT BELT POSITIONING DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

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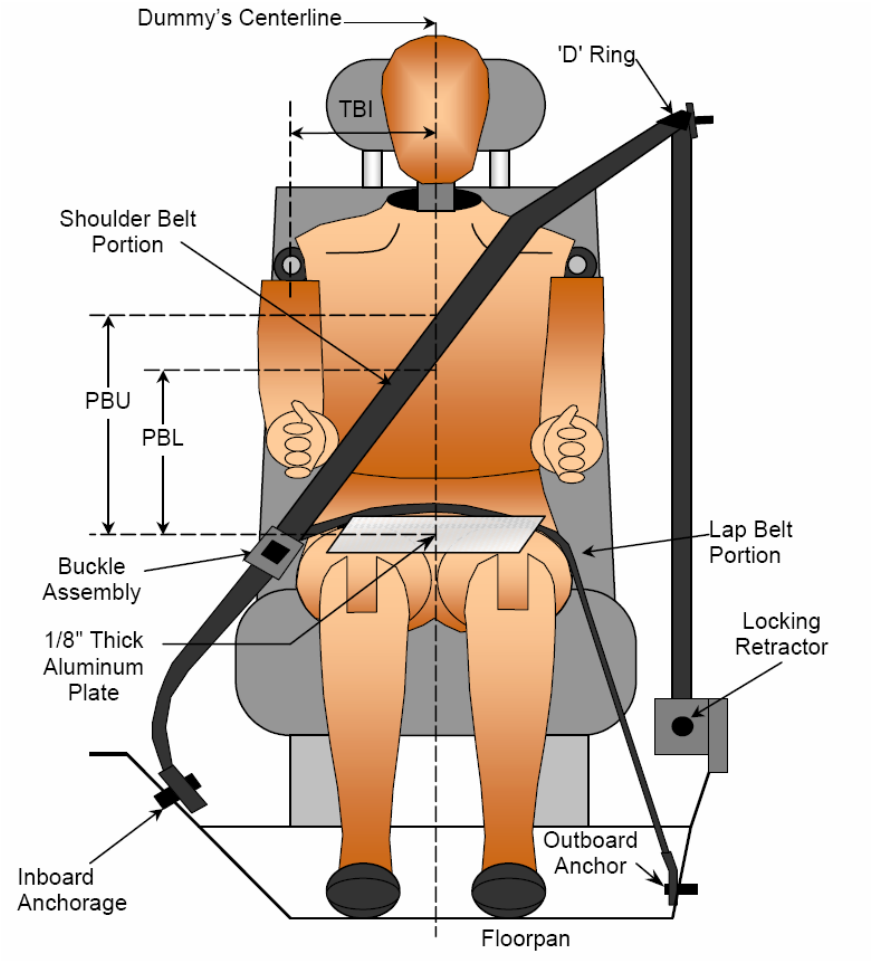


FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	330	293
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	253	210

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	904	990
Lap Belt Length as Measured on ATD	mm	836	937
Remainder of Belt on Reel	mm	745	663
Total Belt Length for Continuous Webbing Systems	mm	2485	2590

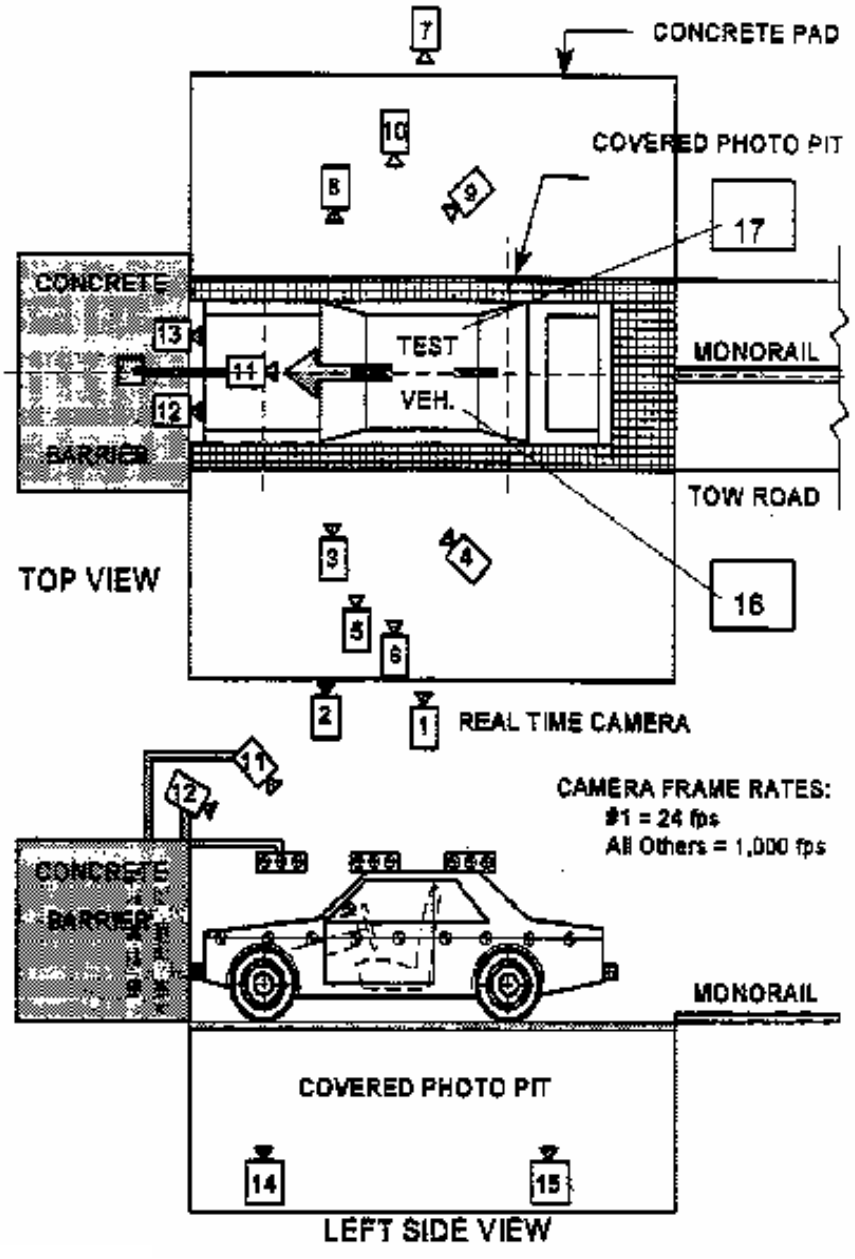
DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

CAMERA POSITIONS FOR FRONTAL IMPACTS



DATA SHEET NO. 6 … (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

CAMERA LOCATIONS

No.	Description	Location			Angle (°)	Film Plane to Head Target	Lens (mm)	Speed (fps)
		X	Y	Z				
1	Real-Time Camera	-11412	-8150	-1484				30
2	Overall Left Side	-2590	-7950	-1371	0	9881	24	1000
3	Left Side A-Pillar	-1701	-6197	-1701	0	7921	50	1000
4	Left Side B-Pillar	-6696	-10308	-3211	-17	11281	ZOOM	1000
5	Steering Column Upper	-1966	-10412	-3688	-13	9887	50	1000
6	Steering Column Lower	-1972	-10412	-3379	-13	9870	50	1000
7	Overall Right Side	-2336	7569	-1012	0	9417	24	1000
8	Right Side A-Pillar	-1733	7581	-1408	0	7789	50	1000
9	Passenger IP View	-1600	8214	-1811	0	7795	ZOOM	1000
10	Right Side B-Pillar	-6217	9516	-4830	-10	12626	ZOOM	1000
11	Overhead Windshield View	297	366	-2460	-34		12	1000
12	Overhead Driver View	297	-366	-2460	-34		12	1000
13	Overhead Passenger View	-354	0	-5749	-90		24	1000
14	Pit View of Engine Compartment	-756	0	1495	90		12	1000
15	Pit View of Fuel Tank	-3398	0	1495	90		8	1000
16	Driver's On Board View	-2977	-177	-1333	-22		12	1000
17	Passenger's On Board View	-2980	175	-1333	-22		12	1000

Coordinates: +X = forward impact plane

+Y = right of monorail center

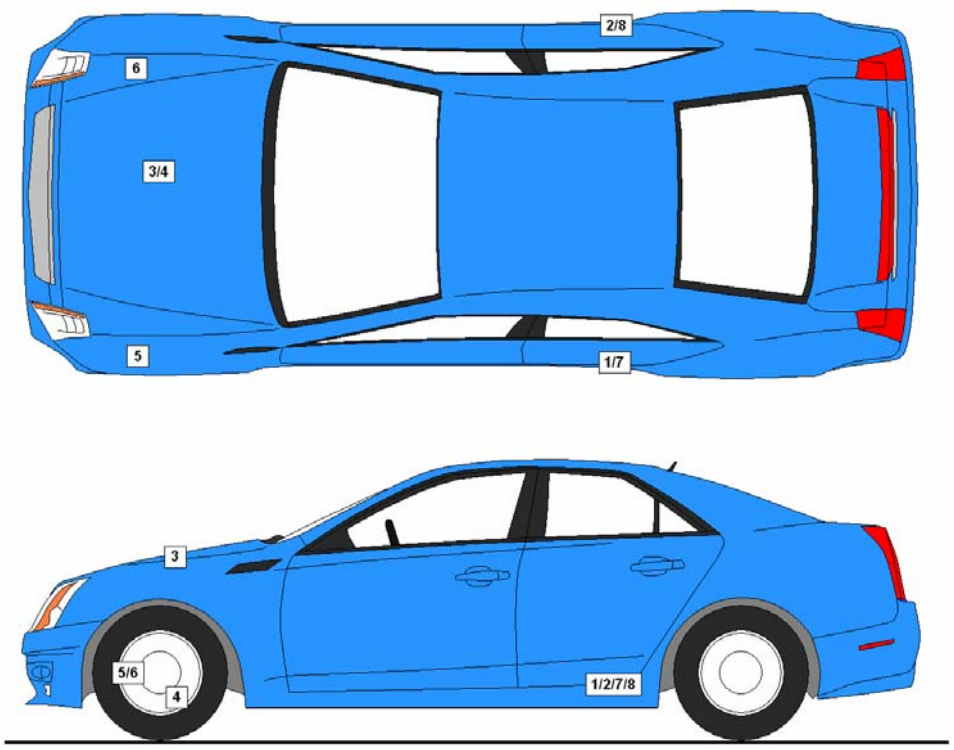
+Z = into ground

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Description	Location		
		X	Y	Z
1	Left Rear Cross Member X	1700	-655	-340
2	Right Rear Cross Member X	1700	655	-340
3	Engine Top X	3762	137	-862
4	Engine Bottom X	3802	161	-193
5	Left Brake Caliper X	3712	-710	-300
6	Right Brake Caliper X	3712	710	-300
7	Left Rear Cross Member Z	1700	-655	-340
8	Right Rear Cross Member Z	1700	655	-340

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

Y – Vehicle Centerline (+ to right)

Z – Ground Plane (+ down)

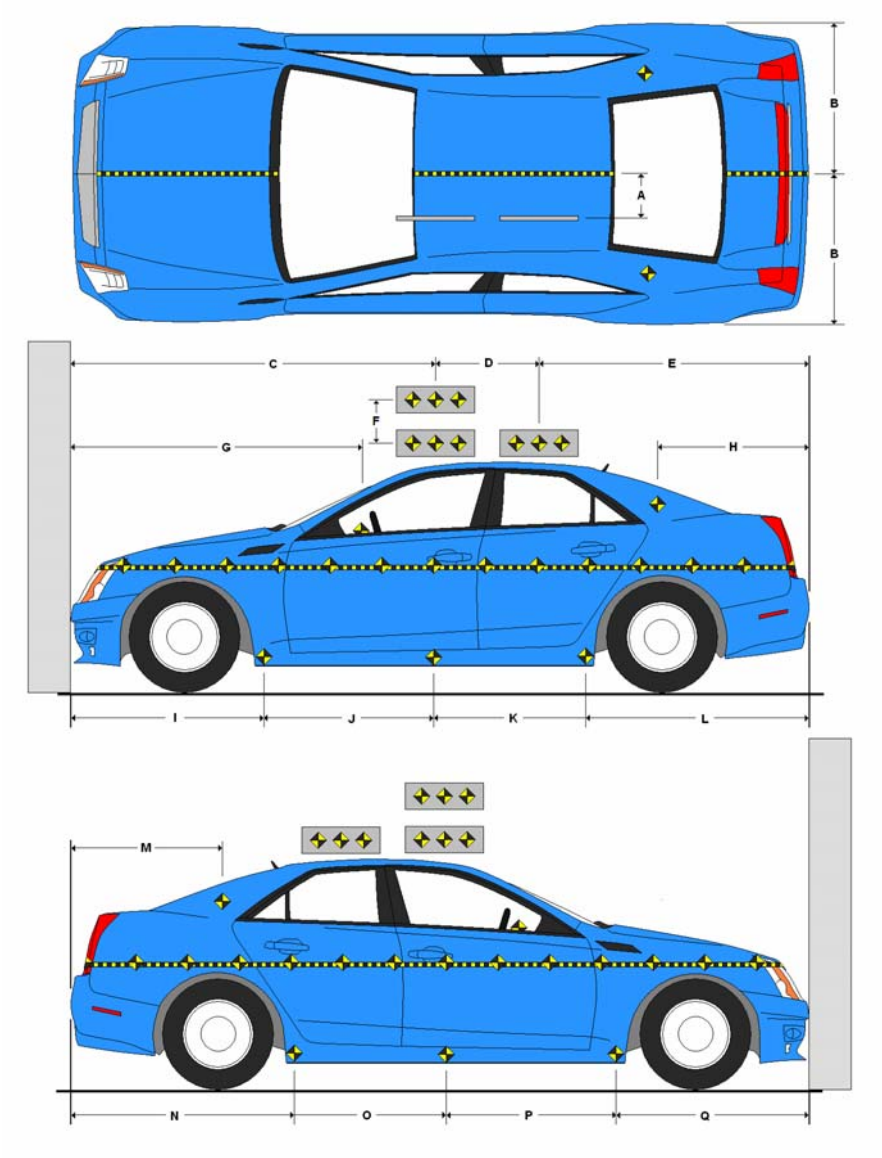
DATA SHEET NO. 8

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

Item	Value
A	315
B	880
C	2176
D	610
E	1793
F	
G	1681
H	950
I	1352
J	915
K	915
L	1368
M	890
N	1375
O	914
P	914
Q	1352



All measurements in millimeters.

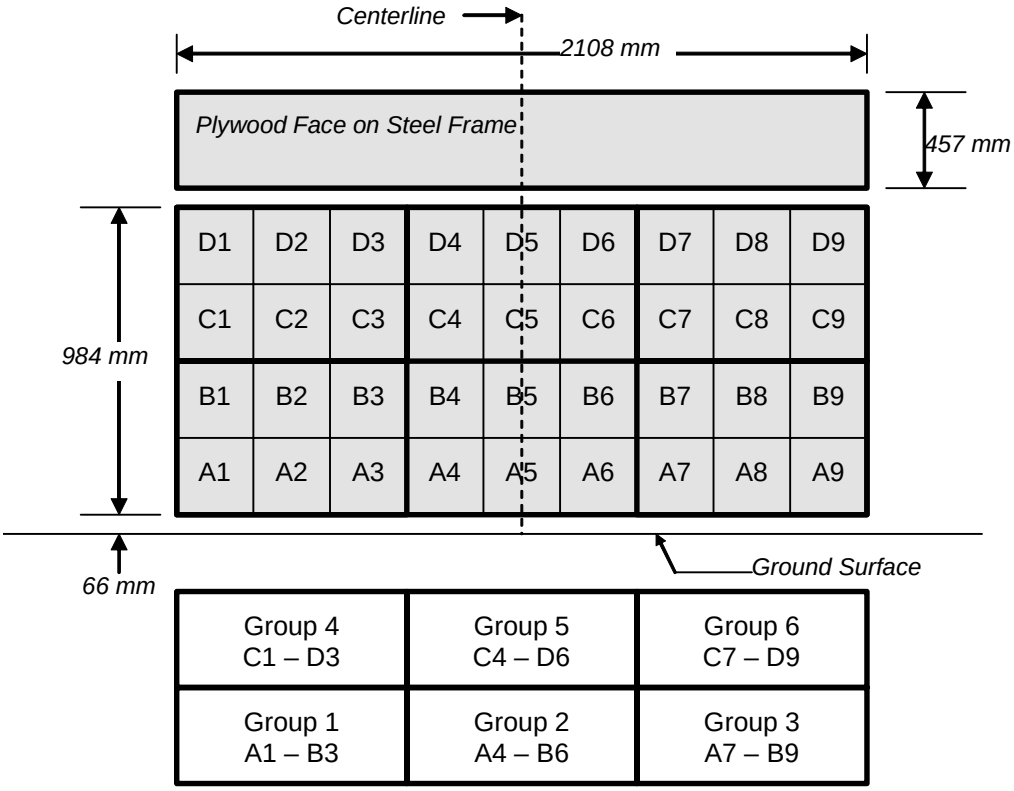
DATA SHEET NO. 9

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

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



6 Groups of 6 Load Cells Each

DATA SHEET NO. 10

TEST VEHICLE CAMERA AND INSTRUMENTATION SUMMARY

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

INSTRUMENTATION

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

CAMERA COVERAGE

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

DATA SHEET NO. 11

POST-TEST OBSERVATIONS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

TEST DUMMY INFORMATION AND CONTACT

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

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Locked	Locked
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)	6	0
Seat Back Failure	None	None
Glazing Damage	None	None

POST TEST STRUCTURAL OBSERVATIONS

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

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	4497
Center	mm	4401
Right Side	mm	4462
Average	mm	4453

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

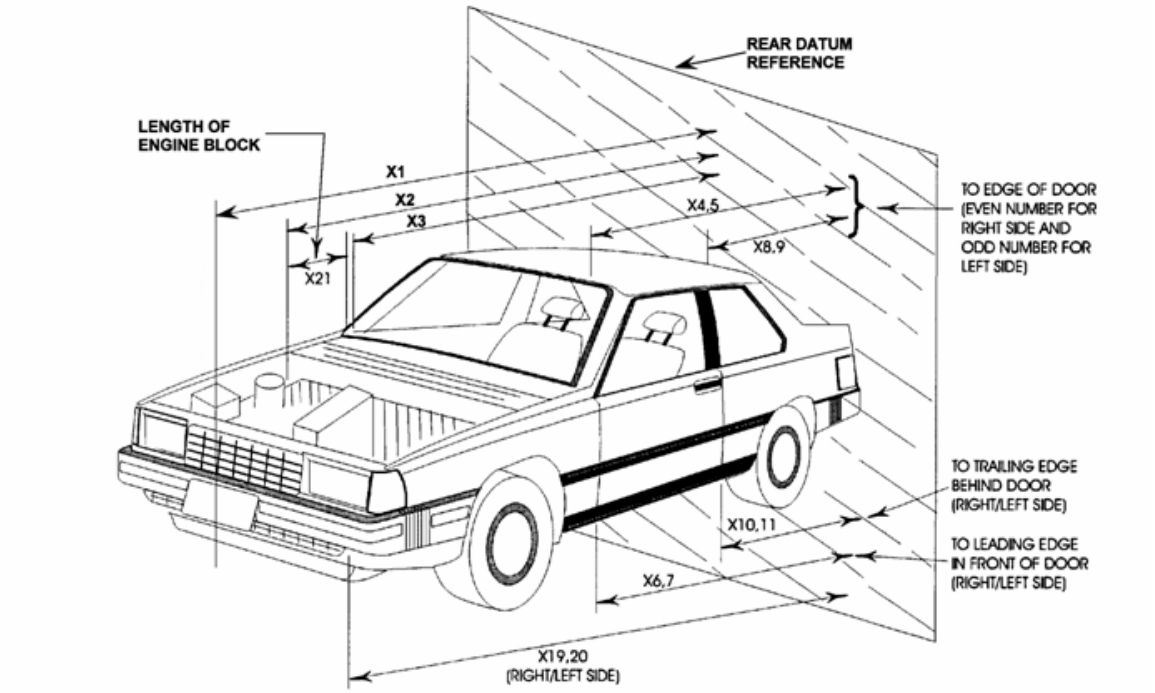
Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Curtain Airbag	Yes	No	Yes	No
Torso/Pelvis Airbag	Yes	No	Yes	No
Knee Airbag	No		No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

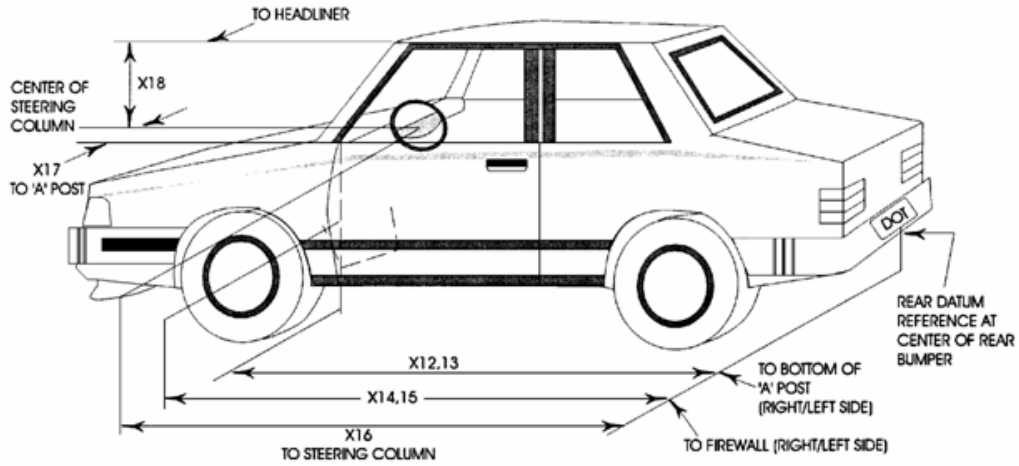
DATA SHEET NO. 12

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10





DATA SHEET NO. 12 … (CONTINUED)

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4562	4228	-334
2	Rear Surface of Vehicle to Front of Engine	3989	3773	-216
3	RSOV to Firewall	3616	3522	-94
4	RSOV to Upper Leading Edge of Right Door	3168	3172	4
5	RSOV to Upper Leading Edge of Left Door	3173	3175	2
6	RSOV to Lower Leading Edge of Right Door	3148	3161	13
7	RSOV to Lower Leading Edge of Left Door	3154	3156	2
8	RSOV to Upper Trailing Edge of Right Door	2053	2060	7
9	RSOV to Upper Trailing Edge of Left Door	2053	2062	9
10	RSOV to Lower Trailing Edge of Right Door	2037	2046	9
11	RSOV to Lower Trailing Edge of Left Door	2043	2053	10
12	RSOV to Bottom of A-Pillar of Right Side	3118	3126	8
13	RSOV to Bottom of A-Pillar Left Side	3116	3128	12
14	RSOV to Firewall, Right Side	3520	3556	36
15	RSOV to Firewall, Left Side	3523	3493	-30
16	RSOV to Steering Column	2802	2674	-128
17	Center of Steering Column to A-Pillar	430	460	30
18	Center of Steering Column to Headliner	420	403	-17
19	RSOV to Right Side of Front Bumper	3842	3491	-351
20	RSOV to Left Side of Front Bumper	3843	3822	-21
21	Length of Engine Block	437	437	0
RD	RSOV to Right Side of Dash Panel	2930	2944	14
CD	RSOV to Center of Dash Panel	2848	2846	-2
LD	RSOV to Left Side of Dash Panel	2933	2940	7

All measurements in millimeters.

DATA SHEET NO. 13

ACCIDENT INVESTIGATION DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

VEHICLE INFORMATION

VIN: 3N1AB6AP5BL606254 Wheelbase (mm): 2675

Vehicle Size Category: 4-Door Sedan Test Weight (kg): 1505.5

ACCELEROMETER DATA

Accelerometer Locations: Left Rear Crossmember

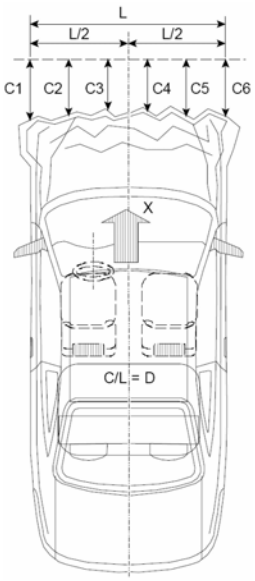
Cal. Procedure/Interval: Drop Test / 6 months

Integration Algorithm: NHTSA Standard Linearity: Good

Impact Velocity (km/h): 56.67

Velocity Change (km/h): 66.2

Time of Separation (msec): 64.0



CRUSH PROFILE

Collision Deformation Classification: 12FCEW2

Midpoint of Damage: Vehicle Centerline

Damage Region Length (mm): 1748

Impact Mode: Full Frontal

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	721	750	-29
C2	Crush Zone 2 at Left Side	mm	126	337	-211
C3	Crush Zone 3 at Left Side	mm	52	337	-285
C4	Crush Zone 4 at Right Side	mm	51	377	-326
C5	Crush Zone 5 at Right Side	mm	106	490	-384
C6	Crush Zone 6 at Right Side	mm	722	1067	-345
L	C1 to C6	mm	1748		

DATA SHEET NO. 14

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

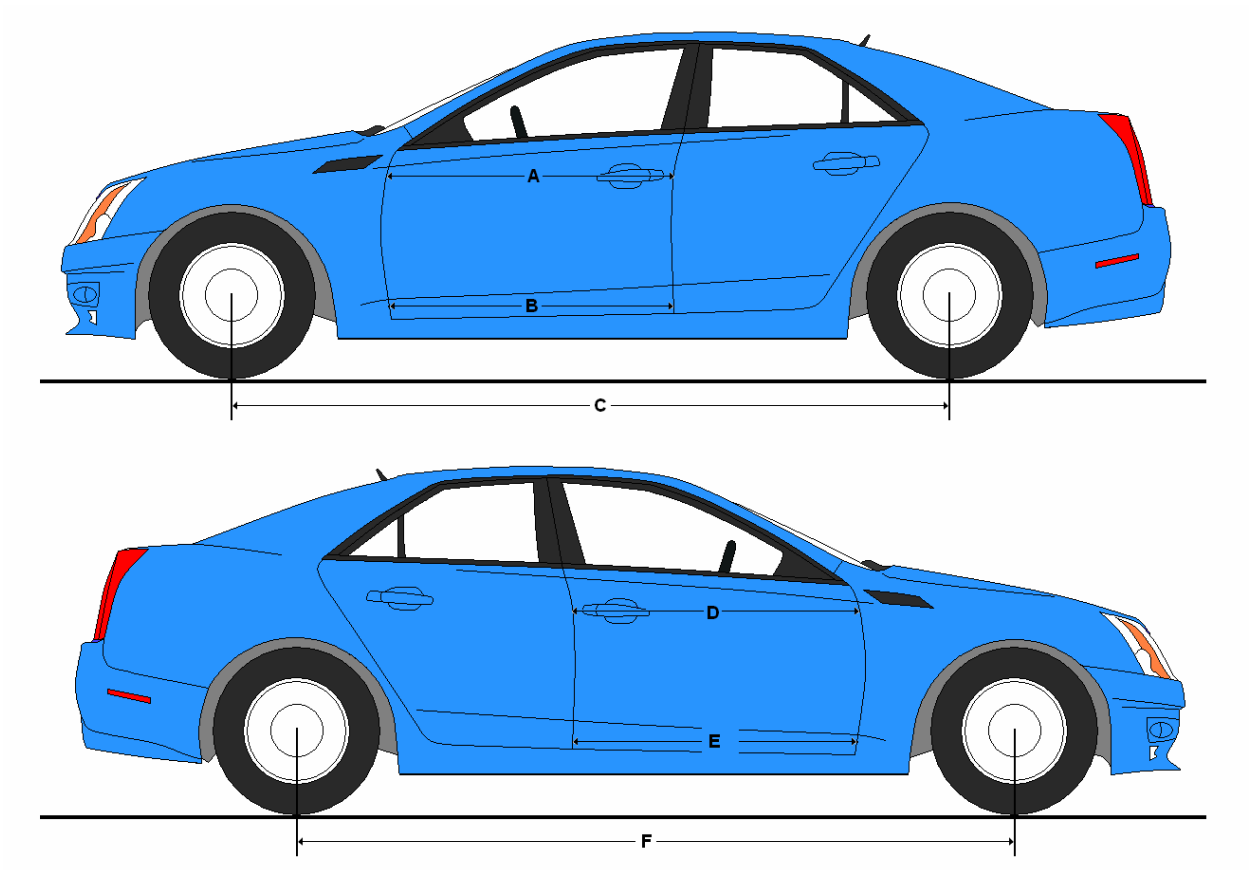
Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1068	995	73
B	Left Side Lower	mm	838	845	-7
D	Right Side Upper	mm	1074	996	78
E	Right Side Lower	mm	790	794	-4

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2675	2617	58
F	Right Side Wheelbase	mm	2675	2637	38



DATA SHEET NO. 14 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

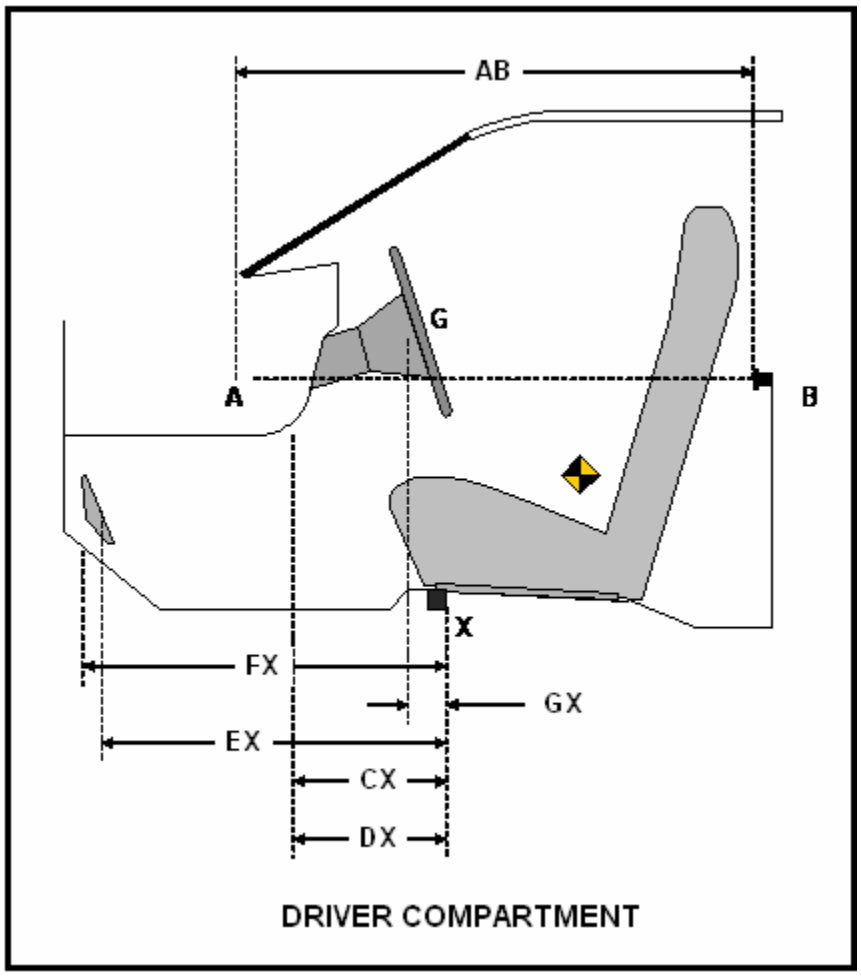
Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	946	944	2
CX	Left Knee Bolster to X	mm	360	337	23
DX	Right Knee Bolster to X	mm	300	327	-27
EX	Brake Pedal to X	mm	514	503	11
FX	Foot Rest to X	mm	607	630	-23
GX	Center of Steering Wheel Hub to X	mm	140	66	74

X = Front of Seat Track (Stationary)

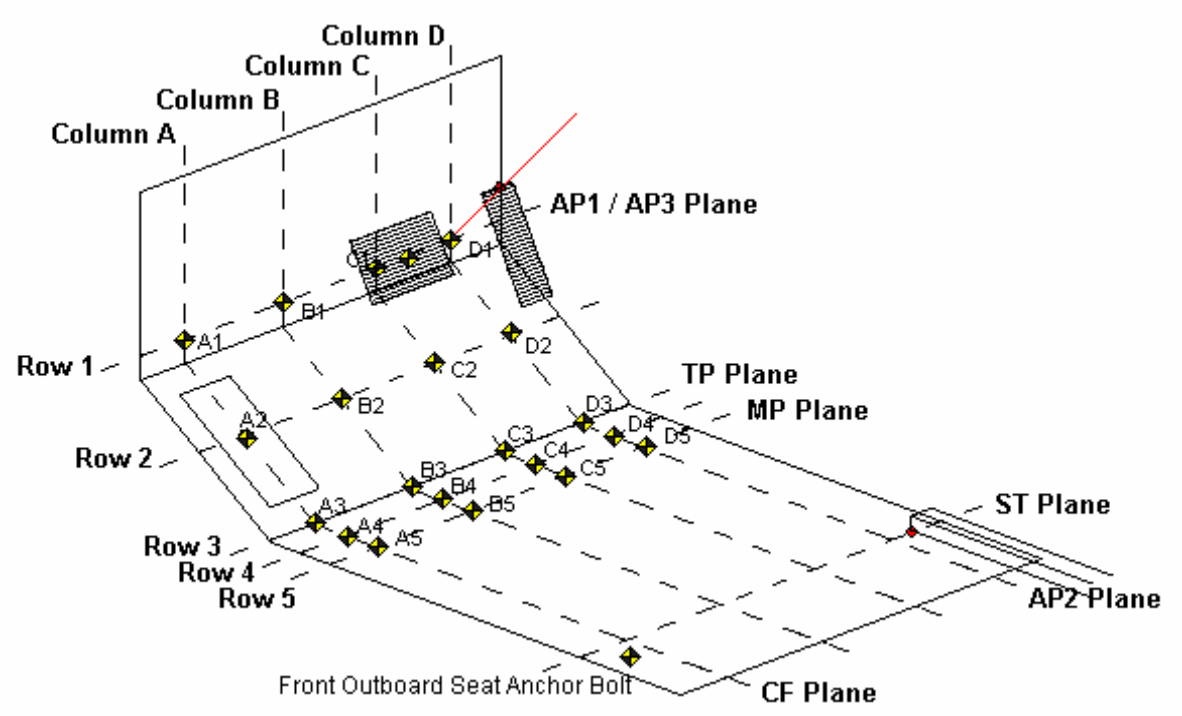


DATA SHEET NO. 14 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10



AP1: Y-Z Plane passing through D1

AP2: X-Z Plane passing through D1

AP3: X-Y plane passing through D1

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

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

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

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

Column A: intersection of vehicle and CF plane

Column D: Intersection of vehicle and AP2 plane

Row 1: intersection of the vehicle and the AP3 Plane

Row 3: intersection of the vehicle and TP plane

Row 5: intersection of the vehicle and MP plane

Row 2: evenly spaced between row 1 and 3

Row 4: evenly spaced between row 3 and 5

DATA SHEET NO. 14 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

DRIVER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	675	749	750	755	625	698	705	697	-50	-51	-45	-58
2	657	669	673	666	632	652	650	626	-25	-17	-23	-40
3	570	573	577	573	555	558	558	558	-15	-15	-19	-15
4	462	458	464	463	448	443	448	444	-14	-15	-16	-19
5	342	348	353	347	328	333	337	330	-14	-15	-16	-17

DRIVER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-19	-113	-218	-410	-20	-119	-224	-412	-1	-6	-6	-2
2	-5	-106	-216	-410	-11	-113	-225	-420	-6	-7	-9	-10
3	-3	-105	-214	-409	-9	-111	-222	-416	-6	-6	-8	-7
4	-3	-103	-215	-406	-10	-109	-221	-412	-7	-6	-6	-6
5	-1	-106	-214	-399	-8	-111	-219	-404	-7	-5	-5	-5

DRIVER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	94	64	64	66	108	91	93	108	14	27	29	42
2	-19	-20	-16	6	-7	-10	7	34	12	10	23	28
3	-73	-75	-66	-50	-65	-67	-49	-43	8	8	17	7
4	-90	-94	-89	-90	-83	-89	-80	-75	7	5	9	15
5	-96	-97	-93	-90	-89	-94	-89	-85	7	3	4	5

All measurements in millimeters

DATA SHEET NO. 14 … (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

PASSENGER FLOORPAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	725	731	732	676	710	717	722	666	-15	-14	-10	-10
2	636	645	648	644	628	640	643	640	-8	-5	-5	-4
3	548	555	555	557	544	553	554	556	-4	-2	-1	-1
4	454	450	447	452	451	449	446	453	-3	-1	-1	1
5	350	350	340	343	348	349	338	344	-2	-1	-2	1

PASSENGER FLOORPAN Y-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	392	223	104	24	394	225	105	23	2	2	1	-1
2	390	215	102	-6	394	216	102	-6	4	1	0	0
3	390	215	103	-12	392	214	102	-12	2	-1	-1	0
4	388	213	105	-19	388	211	103	-20	0	-2	-2	-1
5	392	215	104	-22	392	213	103	-24	0	-2	-1	-2

PASSENGER FLOORPAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	34	39	38	78	61	65	64	101	27	26	26	23
2	-23	-40	-43	-31	-6	-22	-23	-10	17	18	20	21
3	-59	-85	-89	-84	-51	-72	-74	-65	8	13	15	19
4	-92	-99	-102	-102	-88	-92	-93	-89	4	7	9	13
5	-91	-101	-103	-100	-91	-99	-98	-92	0	2	5	8

All measurements in millimeters

DATA SHEET NO. 15

SUMMARY OF FMVSS 212 AND 219 (PARTIAL) DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

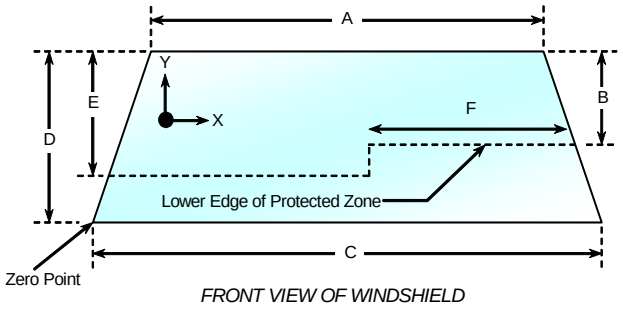
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with rubber plastic and rubber molding sealed with rubber cement.

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: 21.4° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2142.5	2142.5	
Right Side	2142.5	2142.5	
Total	4285	4285	100%



FRONT VIEW OF WINDSHIELD

Item	Units	Value
A	mm	1177
B	mm	480
C	mm	1420
D	mm	844
E	mm	568
F	mm	435

AREAS OF PROTECTED ZONE FAILURES

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

X	Y

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

X	Y

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

Temperature at Time of Impact: 16.1° C Test Time: 2:10 PM

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable = 1 oz.)

B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable = 5 oz.)

C. For the following 25 minutes: 0 oz.
(Maximum allowable = 1 oz./minute)

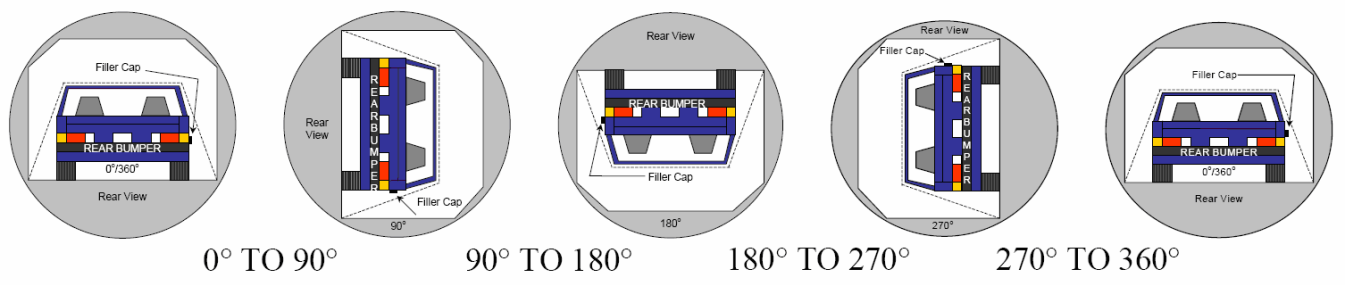
D. Spillage: No spillage occurred

DATA SHEET NO. 17

FMVSS 301 STATIC ROLLOVER

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10



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

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	82	320	402
90° To 180°	83	305	388
180° To 270°	77	315	392
270° To 360°	79	300	379

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

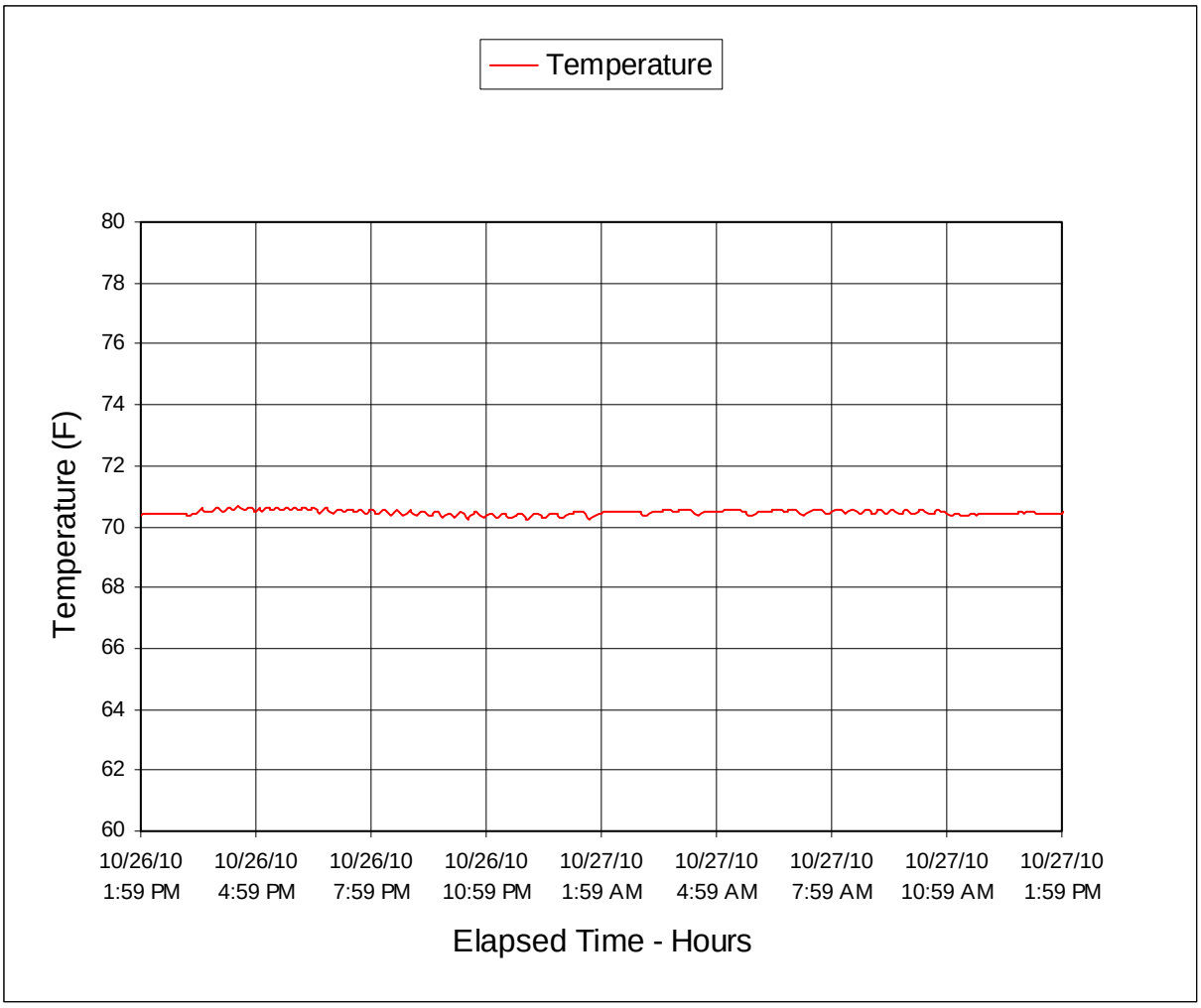
Test Phase	Spillage Location
0° To 90°	None
90° To 180°	None
180° To 270°	None
270° To 360°	None

DATA SHEET NO. 18

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan NHTSA No.: MB5214

Test Program: 56 km/h Frontal Impact NCAP Test Test Date: 10/27/10



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS … (CONTINUED)

TABLE OF PHOTOGRAPHS … (CONTINUED)

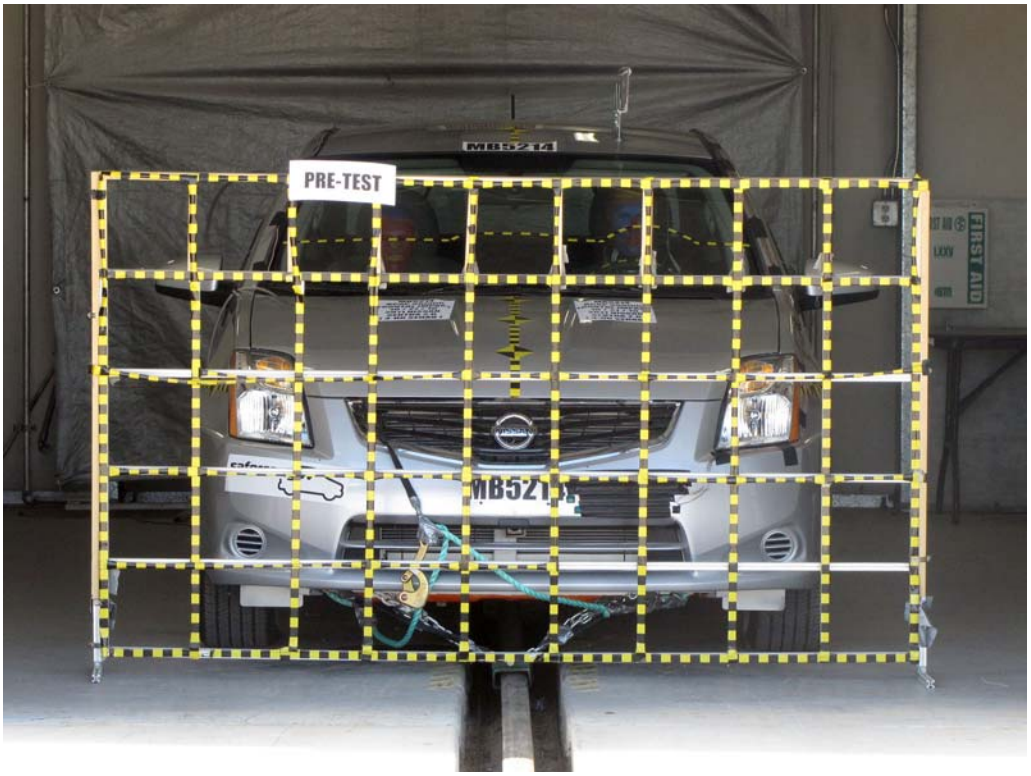


FIGURE 1. Load Cell Location

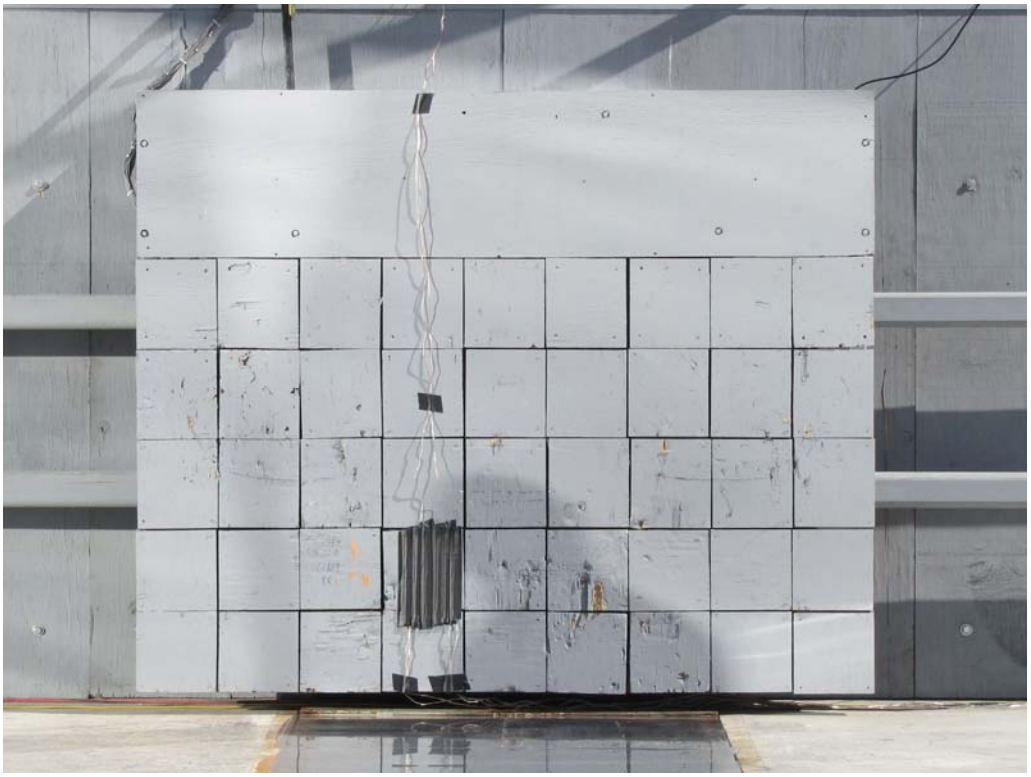


FIGURE 2. Load Cell Wall

FIGURE 3. Manufacturer's Label

FIGURE 4. Tire Placard

FIGURE 5. Right Front ¾ View as Delivered

FIGURE 6. Left Rear ¾ View of Vehicle as Delivered

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

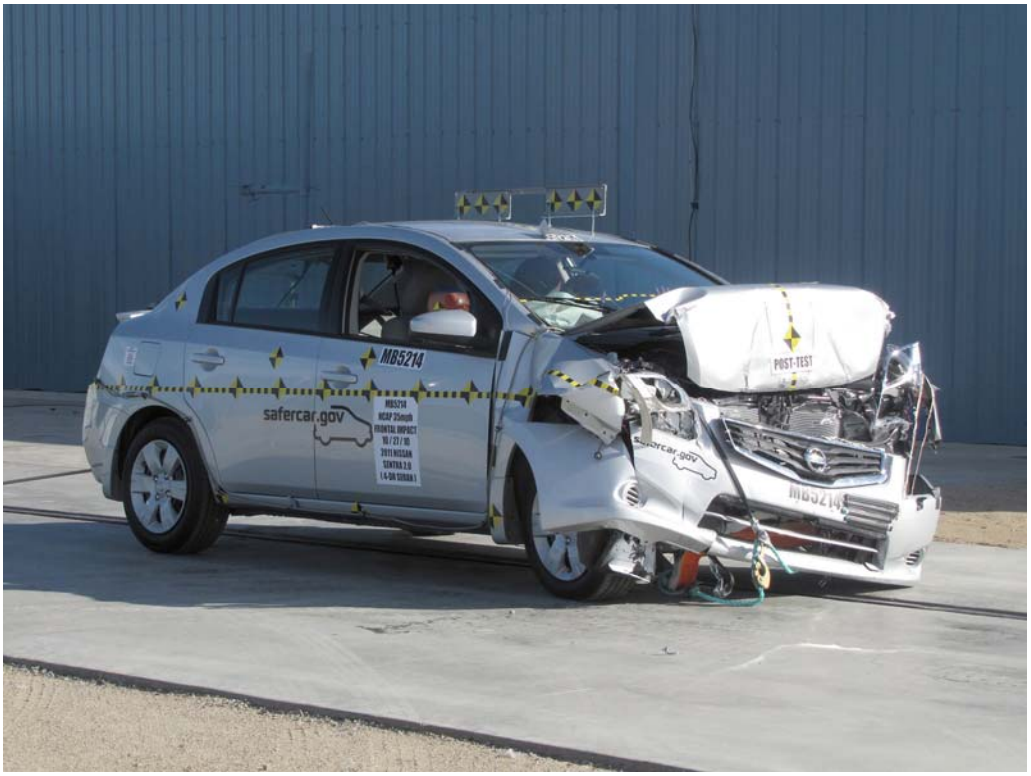


FIGURE 14. Post-Test Right Front ¾ View

FIGURE 15. Pre-Test Left Rear ¾ View

FIGURE 16. Post-Test Left Rear ¾ View

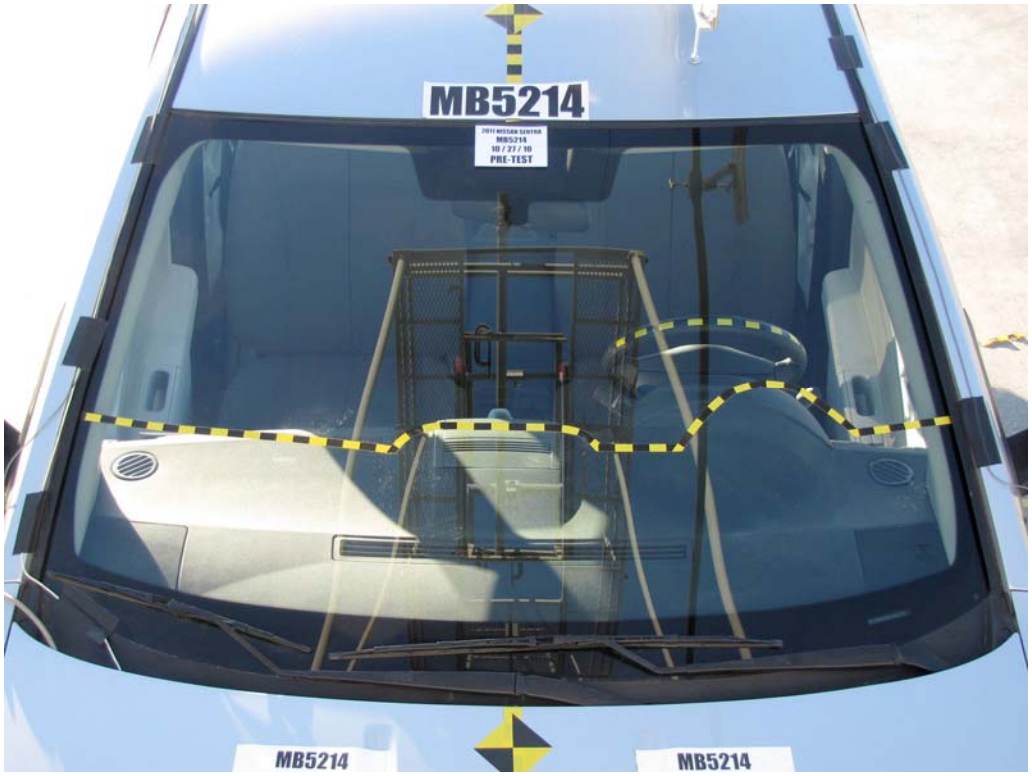


FIGURE 17. Pre-Test Windshield View

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

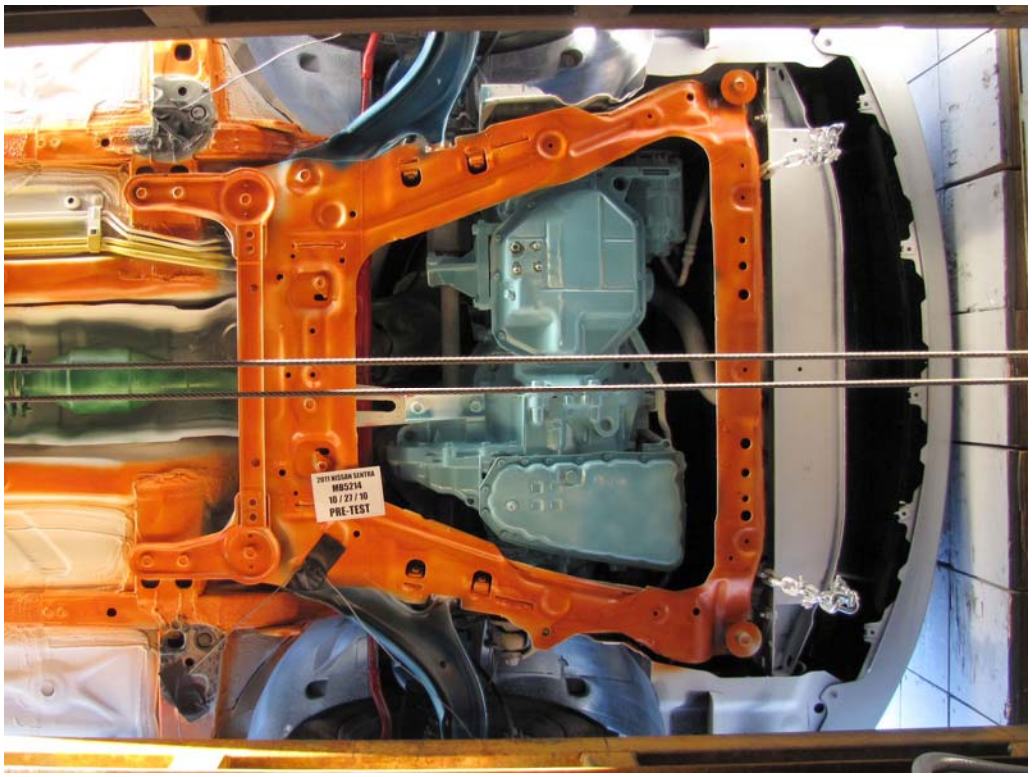


FIGURE 23. Pre-Test Front Underbody View

FIGURE 24. Post-Test Front Underbody View

FIGURE 25. Pre-Test Rear Underbody View

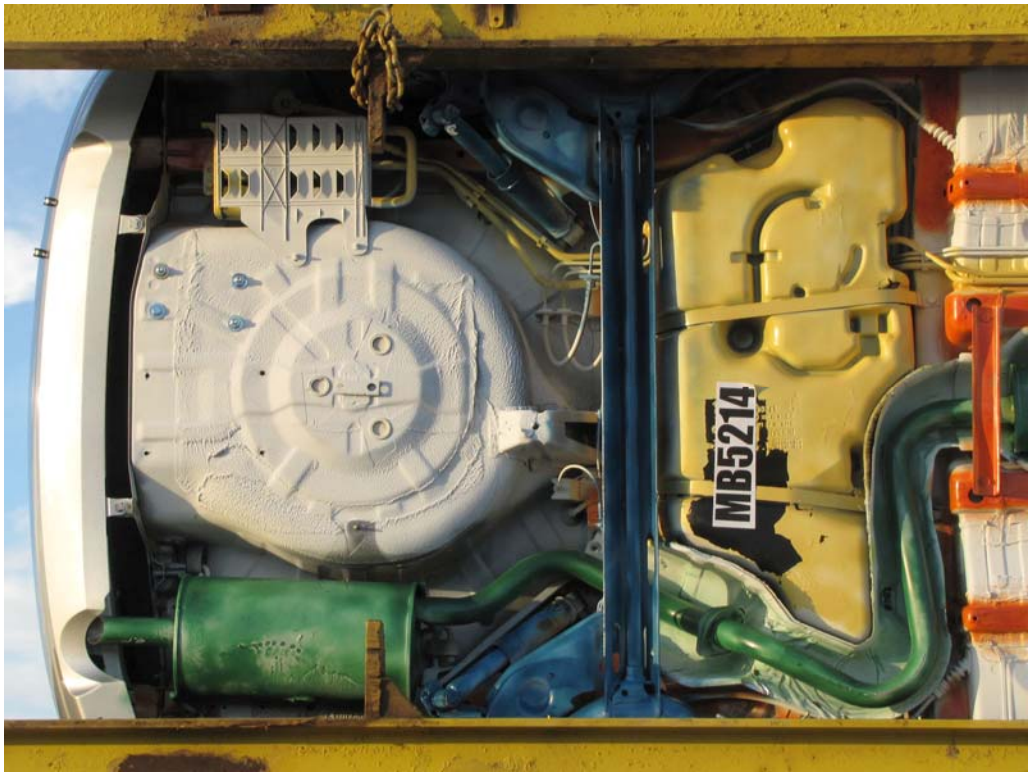


FIGURE 26. Post-Test Rear Underbody View

FIGURE 27. Pre-Test Dummy Cable Routing

FIGURE 28. Post-Test Dummy Cable Routing

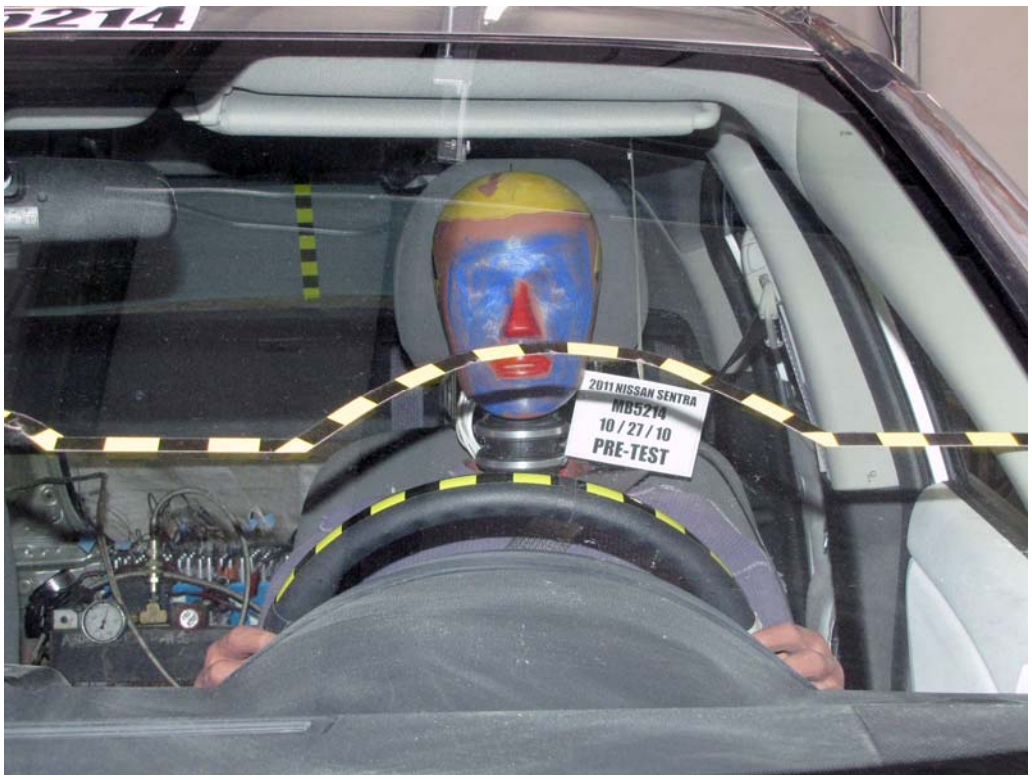


FIGURE 29. Pre-Test Driver Dummy Front View

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

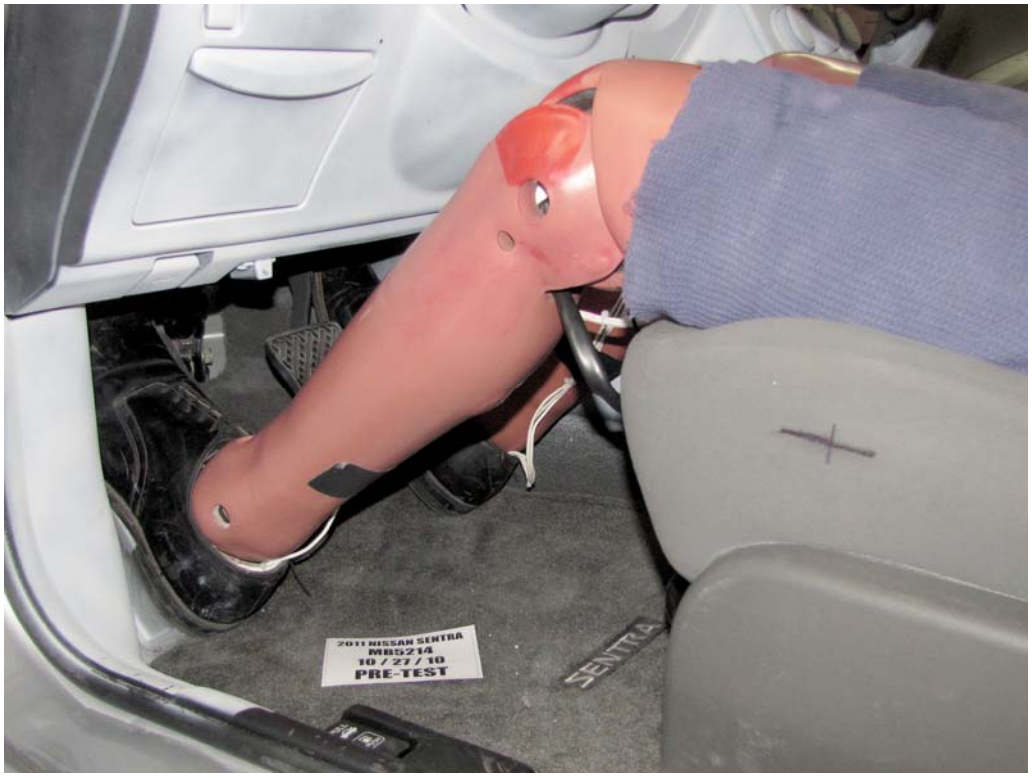


FIGURE 37. Pre-Test Driver Dummy Feet

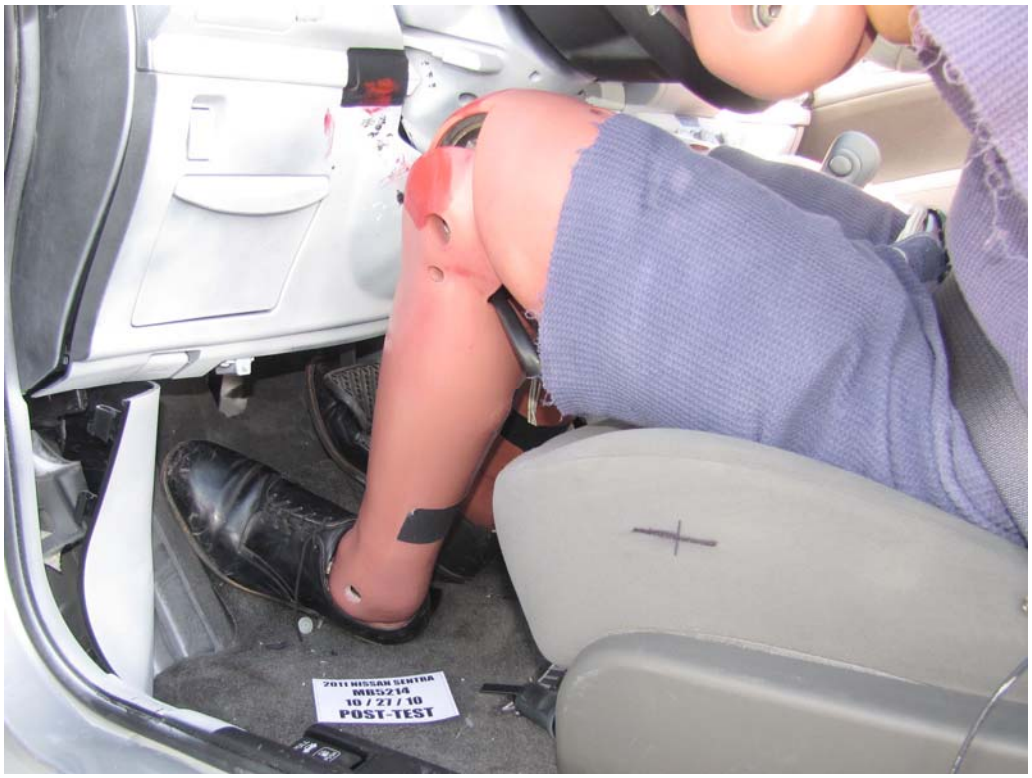


FIGURE 38. Post-Test Driver Dummy Feet

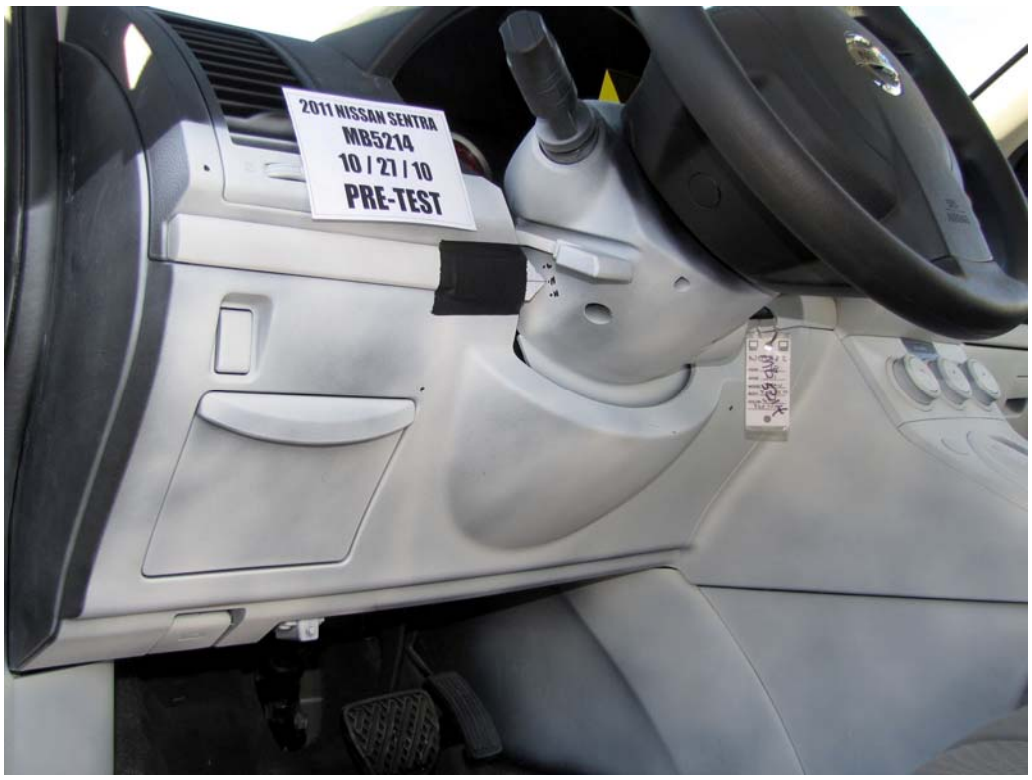


FIGURE 39. Pre-Test Driver's Side Knee Bolster

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 Contact With Airbag

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

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

FIGURE 43c. Post-Test Driver Dummy Contact With Side Header

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

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

FIGURE 46. Pre-Test Passenger Dummy Front View

FIGURE 47. Post-Test Passenger Dummy Front View

FIGURE 48. Pre-Test Passenger Dummy Window View

FIGURE 49. Post-Test Passenger Dummy Window View

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

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

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

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

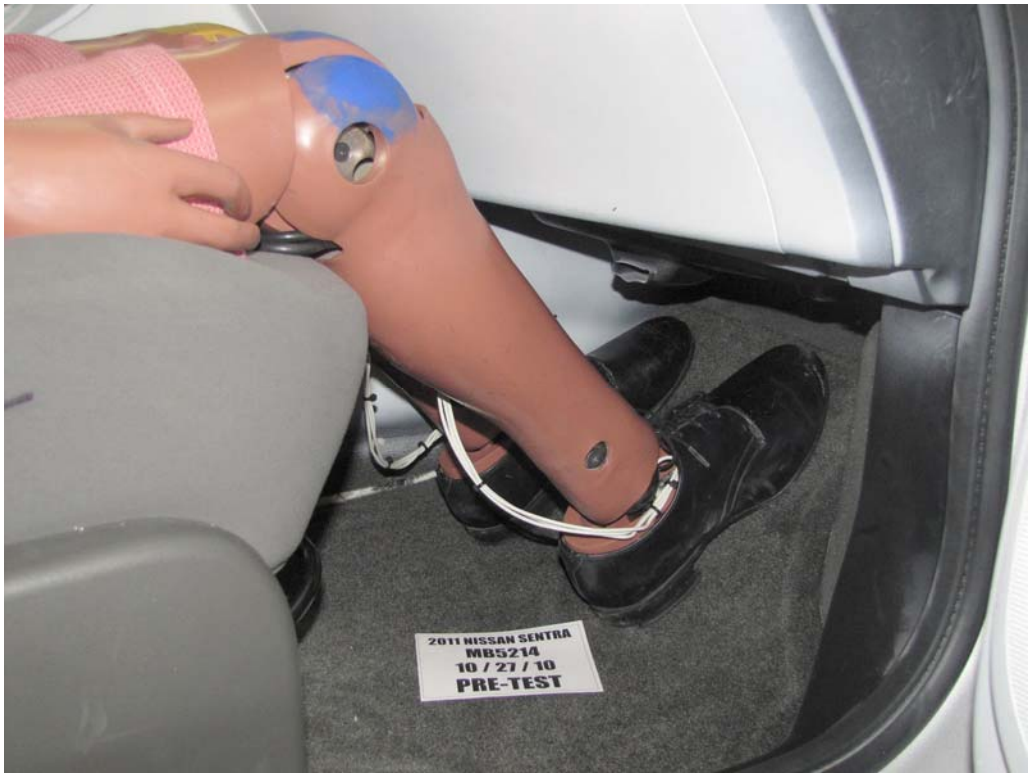


FIGURE 54. Pre-Test Passenger Dummy Feet

FIGURE 55. Post-Test Passenger Dummy Feet

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

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

FIGURE 58. Pre-Test Passenger's Side Floorpan

FIGURE 59. Post-Test Passenger's Side Floorpan

FIGURE 60. Post-Test Passenger Dummy Contact With Airbag

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

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

FIGURE 61. Pre-Test of Ballast Installed in Vehicle

Photograph Not Applicable
No Stoddard
Solvent Spillage

FIGURE 62. Post-Test Stoddard Solvent Spillage Location

FIGURE 63. Post-Test Speed Trap Read Out

FIGURE 64. Vehicle at 0°on Static Rollover Device

FIGURE 65. Vehicle at 90°on Static Rollover Device

FIGURE 66. Vehicle at 180°on Static Rollover Device

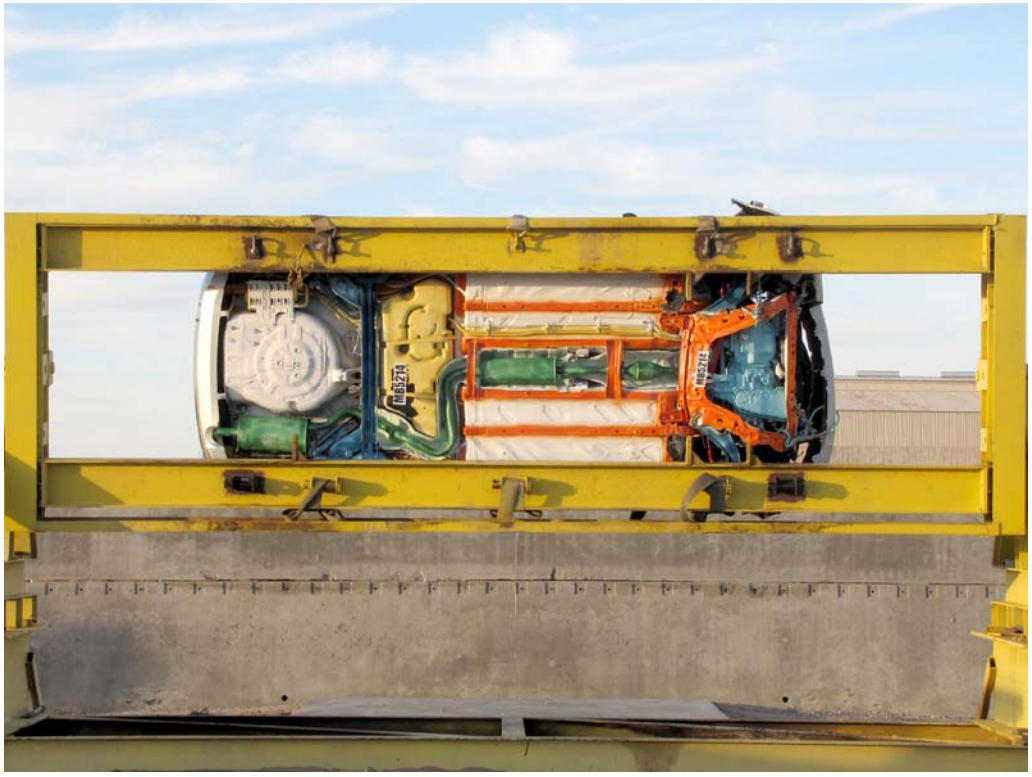
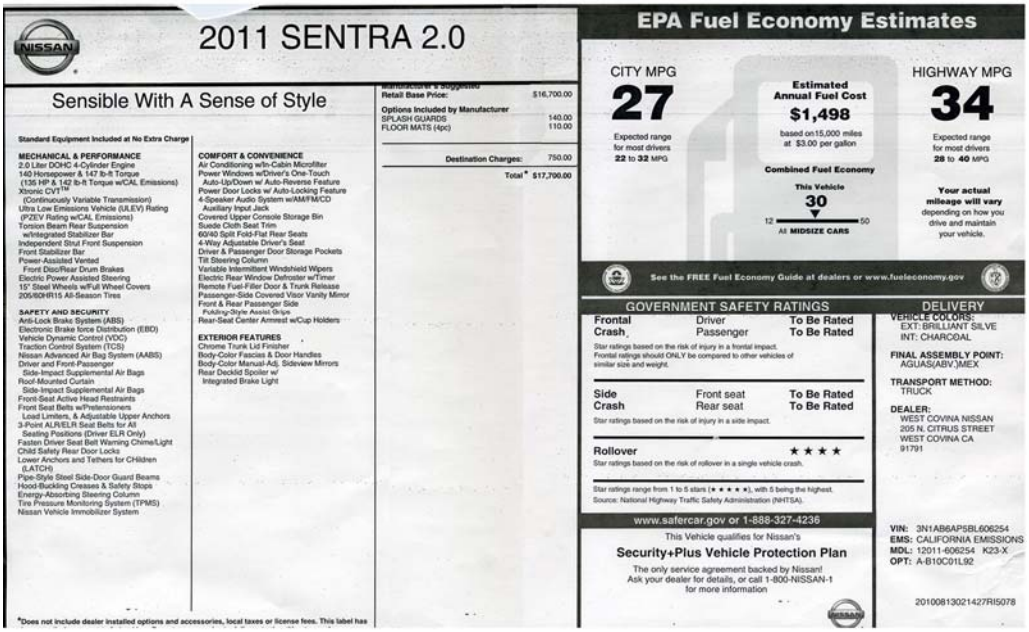


FIGURE 67. Vehicle at 270°on Static Rollover Device

FIGURE 68. Vehicle at 360°on Static Rollover Device

FIGURE 69. Impact Event



2011 SENTRA 2.0

Sensible With A Sense of Style

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE
2.0 Liter DOHC 4-Cylinder Engine
140 Horsepower & 147 lb-ft Torque (135 HP & 142 lb-ft Torque w/CAL Emissions)
Xtronic CVT™ (Continuously Variable Transmission)
Ultra Low Emissions Vehicle (ULEV) Rating (PZEV Rating w/CAL Emissions)
Torsion Beam Rear Suspension w/Integrated Stabilizer Bar
Independent Strut Front Suspension
Front Stabilizer Bar
Power-Assisted Vented Front Disc/Rear Drum Brakes
Electric Power Assisted Steering
15" Steel Wheels w/Full Wheel Covers
205/60HR15 All-Season Tires

SAFETY AND SECURITY
Anti-Lock Brake System (ABS)
Electronic Brake force Distribution (EBD)
Vehicle Dynamic Control (VDC)
Traction Control System (TCS)
Nissan Advanced Air Bag System (AABS)
Driver and Front-Passenger Side-Impact Supplemental Air Bags
Roof-Mounted Curtain Side-Impact Supplemental Air Bags
Front-Seat Active Head Restraints
Front Seat Belts w/Pretensioners Load Limiters, & Adjustable Upper Anchors
3-Point ALR/ELR Seat Belts for All Seating Positions (Driver ELR Only)
Fasten Driver Seat Belt Warning Chime/Light
Child Safety Rear Door Locks
Lower Anchors and Tethers for CHildren (LATCH)
Pipe-Style Steel Side-Door Guard Beams
Hood-Buckling Creases & Safety Stops
Energy-Absorbing Steering Column
Tire Pressure Monitoring System (TPMS)
Nissan Vehicle Immobilizer System

COMFORT & CONVENIENCE
Air Conditioning w/In-Cabin Microfilter
Power Windows w/Driver's One-Touch Auto-Up/Down w/ Auto-Reverse Feature
Power Door Locks w/ Auto-Locking Feature
4-Speaker Audio System w/AM/FM/CD Auxiliary Input Jack
Covered Upper Console Storage Bin
Suede Cloth Seat Trim
60/40 Split Fold-Flat Rear Seats
4-Way Adjustable Driver's Seat
Driver & Passenger Door Storage Pockets
Tilt Steering Column
Variable Intermittant Windshield Wipers
Electric Rear Window Defroster w/Timer
Remote Fuel-Filler Door & Trunk Release
Passenger-Side Covered Visor Vanity Mirror
Front & Rear Passenger Side Folding-Style Assist Grips
Rear-Seat Center Armrest w/Cup Holders

EXTERIOR FEATURES
Chrome Trunk Lid Finisher
Body-Color Fascias & Door Handles
Body-Color Manual-Adj. Sideview Mirrors
Rear Deckld Spoiler w/ Integrated Brake Light

Retail Base Price:	$16,700.00
Options Included by Manufacturer	
SPLASH GUARDS	140.00
FLOOR MATS (4pc)	110.00
Destination Charges:	750.00
Total*	$17,700.00

*Does not include dealer installed options and accessories, local taxes or license fees. This label has

EPA Fuel Economy Estimates

CITY MPG
27
Expected range for most drivers 22 to 32 MPG

Estimated Annual Fuel Cost
$1,498
based on 15,000 miles at $3.00 per gallon

Combined Fuel Economy
This Vehicle
30
12 — 50
All MIDSIZE CARS

HIGHWAY MPG
34
Expected range for most drivers 28 to 40 MPG

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

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

GOVERNMENT SAFETY RATINGS

Frontal Crash	Driver	To Be Rated
	Passenger	To Be Rated

Star ratings based on the risk of injury in a frontal impact. Frontal ratings should ONLY be compared to other vehicles of similar size and weight.

Side Crash	Front seat	To Be Rated
	Rear seat	To Be Rated

Star ratings based on the risk of injury in a side impact.

Rollover ★★★★

Star ratings based on the risk of rollover in a single vehicle crash.

Star ratings range from 1 to 5 stars (★ ★ ★ ★), with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA).

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

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

DELIVERY

VEHICLE COLORS:
EXT: BRILLIANT SILVE
INT: CHARCOAL

FINAL ASSEMBLY POINT:
AGUAS(AEIV)MEX

TRANSPORT METHOD:
TRUCK

DEALER:
WEST COVINA NISSAN
205 N. CITRUS STREET
WEST COVINA CA
91791

VIN: 3N1AB6AP5BL606254
EMS: CALIFORNIA EMISSIONS
MDL: 12011-606254 K23-X
OPT: A-B10C01L92

20100813021427RI5078

FIGURE 70. 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 Shoulder Belt Force
Driver Lap Belt Force
Driver Left Upper Tibia Moment X
Driver Left Upper Tibia Moment Y
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Passenger Head X Acceleration Redundant

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

Vehicle Engine Bottom X

Vehicle Left Brake Caliper X

Vehicle Right Brake Caliper X

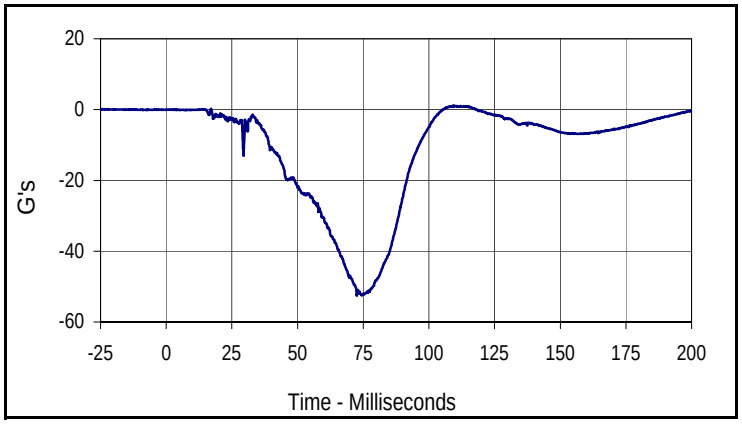
Load Cell Barrier A1-A9

Load Cell Barrier B1-A9

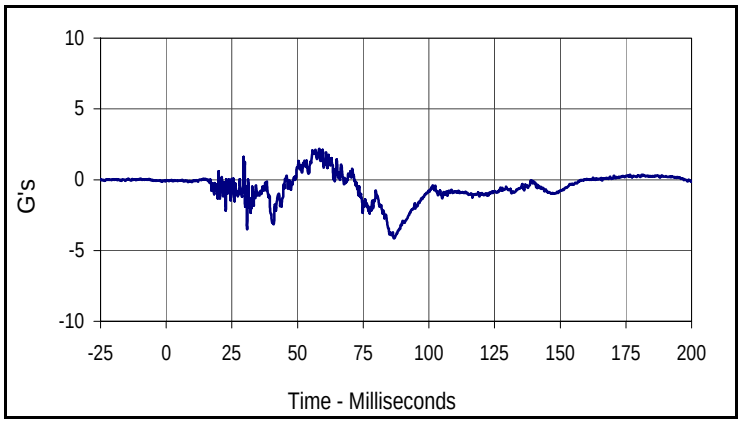
Load Cell Barrier C1-A9

Load Cell Barrier D1-A9

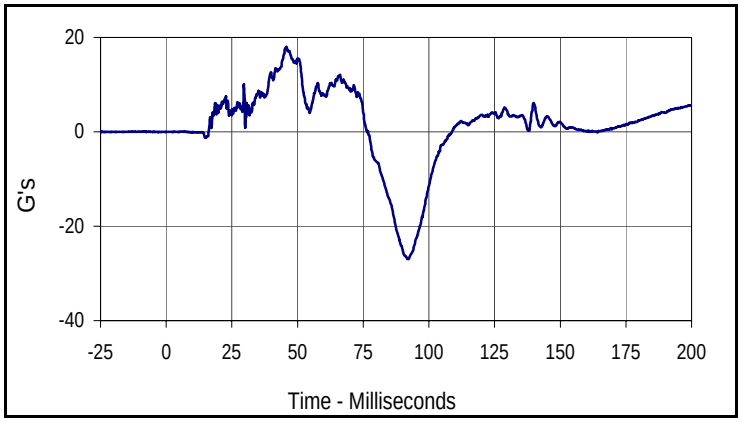
Test Vehicle:	2011 Nissan Sentra 2.0 4-Door Sedan	Test Date:	10/27/10
Test Program:	56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test	NHTSA No.:	MB5214



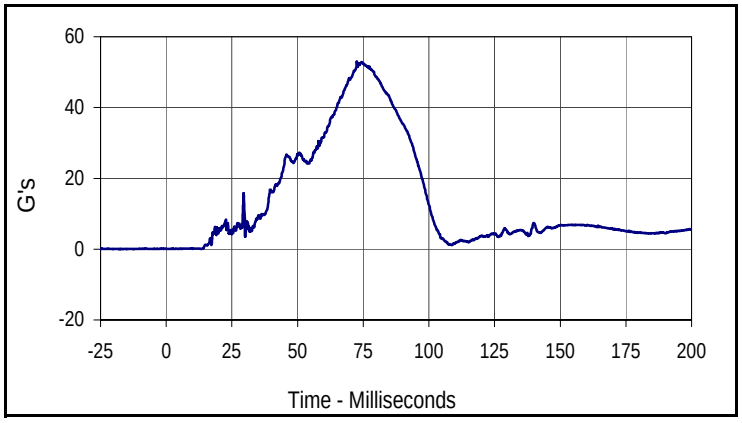
Curve Description			
Driver Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
1.2	109.3	-52.6	72.6



Curve Description			
Driver Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.2	58.3	-4.2	86.7

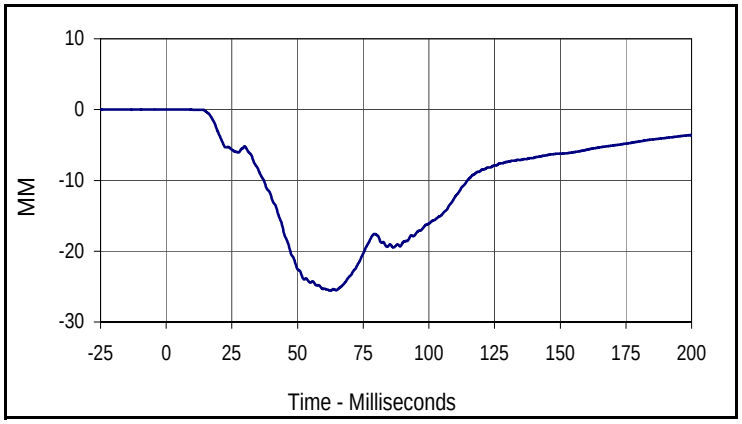


Curve Description			
Driver Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
18.0	45.8	-27.0	92.2

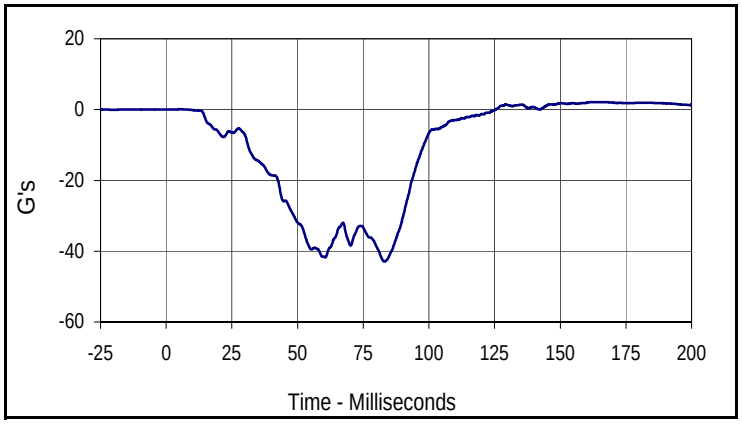


Curve Description			
Driver Head Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
53.1	72.6	0.0	1.9

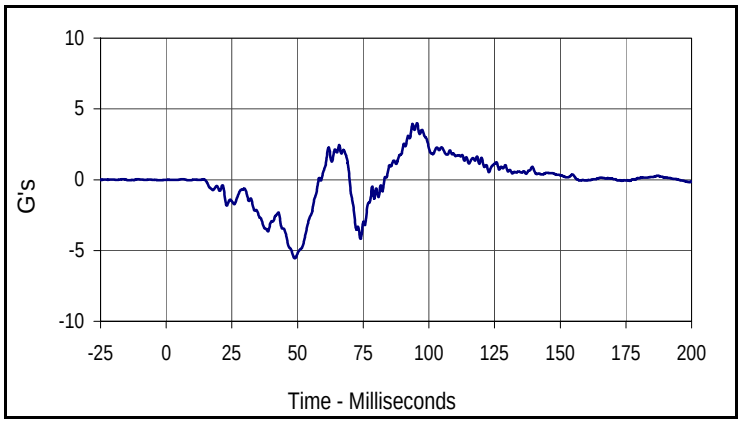
Test Vehicle:	2011 Nissan Sentra 2.0 4-Door Sedan	Test Date:	10/27/10
Test Program:	56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test	NHTSA No.:	MB5214



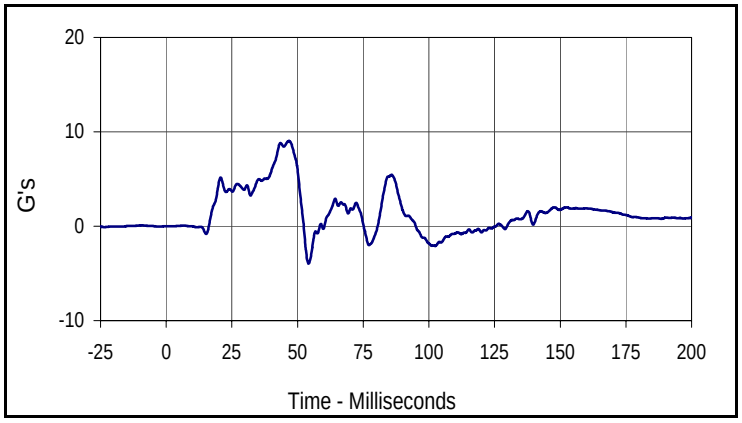
Curve Description			
Driver Chest Deflection			
CURNO	Type	SAE Class	Units
019	FIL	600	MM
Max	Time	Min	Time
0.0	3.7	-25.6	62.3



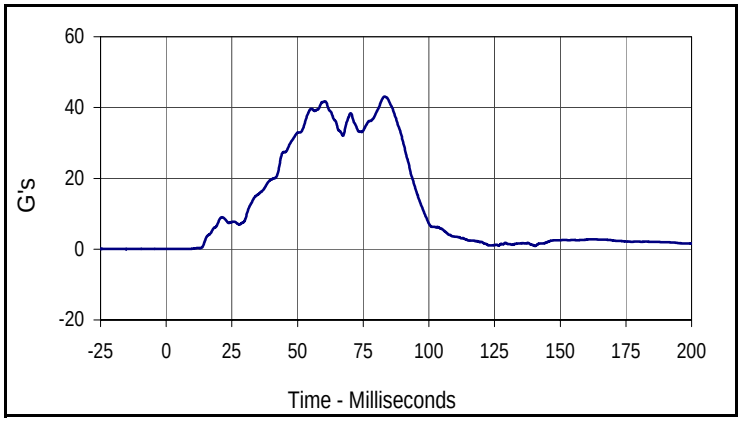
Curve Description			
Driver Chest Acceleration X Primary			
CURNO	Type	SAE Class	Units
013	FIL	180	G's
Max	Time	Min	Time
2.1	163.7	-42.9	83.0



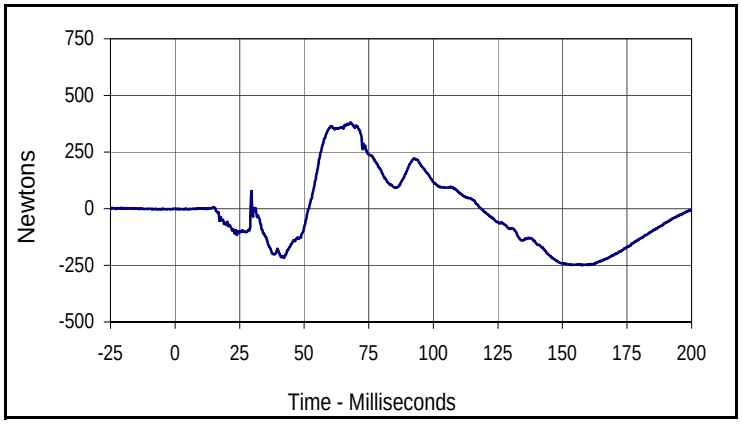
Curve Description			
Driver Chest Acceleration Y Primary			
CURNO	Type	SAE Class	Units
014	FIL	180	G's
Max	Time	Min	Time
4.0	95.5	-5.6	48.9



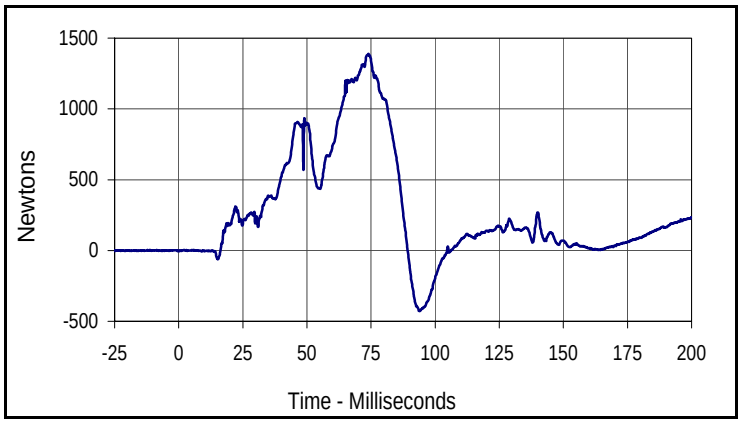
Curve Description			
Driver Chest Acceleration Z Primary			
CURNO	Type	SAE Class	Units
015	FIL	180	G's
Max	Time	Min	Time
9.0	46.7	-4.0	54.2



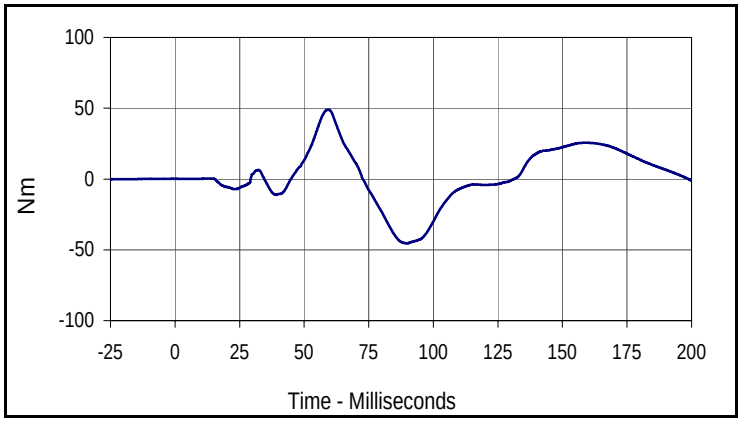
Curve Description			
Driver Chest Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
013	RES	180	G's
Max	Time	Min	Time
43.1	83.1	0.0	1.6



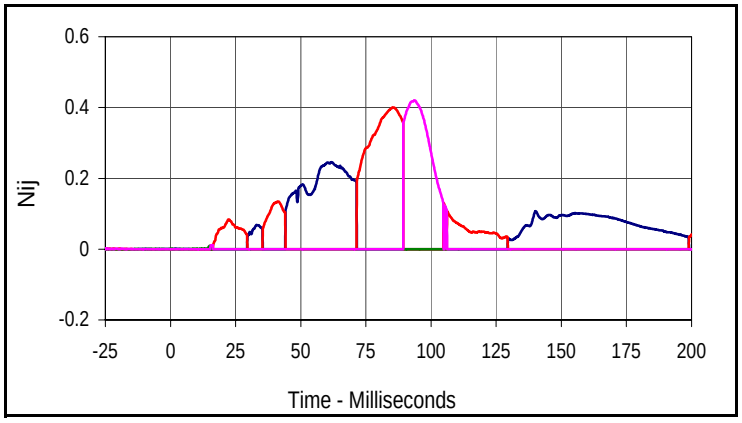
Curve Description			
Driver Upper Neck Force X			
CURNO	Type	SAE Class	Units
007	FIL	1000	Newtons
Max	Time	Min	Time
380.8	68.0	-249.5	157.7



Curve Description			
Driver Upper Neck Force Z			
CURNO	Type	SAE Class	Units
009	FIL	1000	Newtons
Max	Time	Min	Time
1389.7	74.0	-427.8	93.8



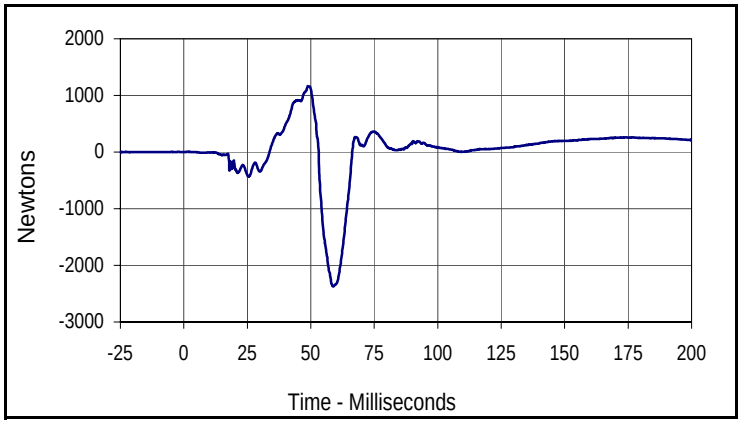
Curve Description			
Driver Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
011	FIL	600	Nm
Max	Time	Min	Time
49.0	59.2	-45.5	89.9



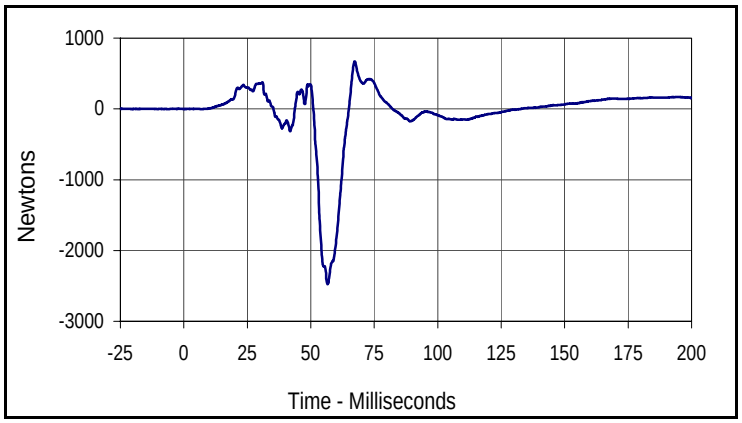
Curve Description			
Driver Nij			
Units	Type	Max	Time
Ntf	FIL	0.25	61.8
Units	Type	Max	Time
Nte	FIL	0.40	85.7
Units	Type	Max	Time
Ncf	FIL	0.01	15.2
Units	Type	Max	Time
Nce	FIL	0.42	93.8

Test Vehicle: 2011 Nissan Sentra 2.0 4-Door Sedan Test Date: 10/27/10

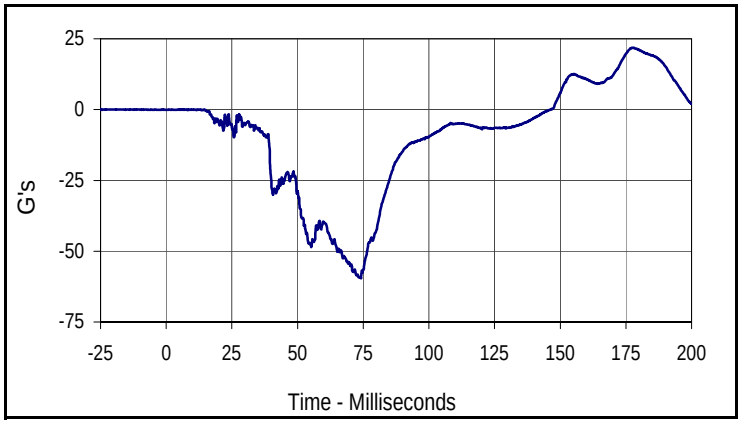
Test Program: 56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test NHTSA No.: MB5214



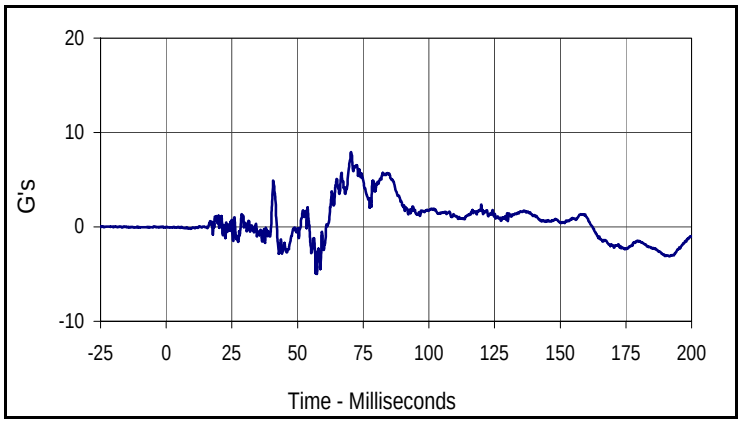
Curve Description			
Driver Left Femur Force Z			
CURNO	Type	SAE Class	Units
023	FIL	600	Newtons
Max	Time	Min	Time
1162.7	48.8	-2373.6	58.9



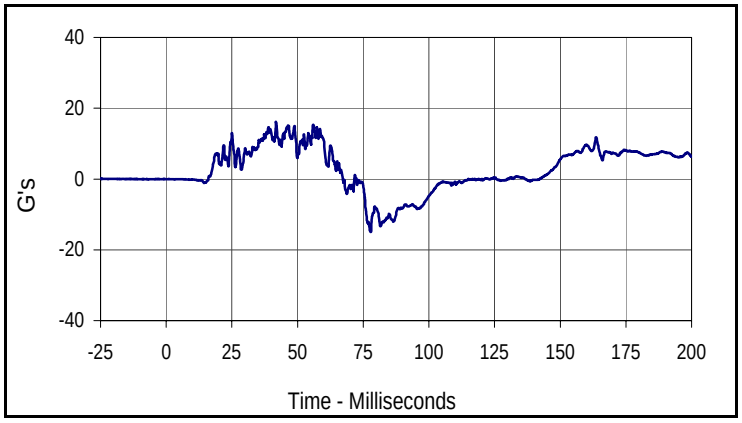
Curve Description			
Driver Right Femur Force Z			
CURNO	Type	SAE Class	Units
024	FIL	600	Newtons
Max	Time	Min	Time
671.0	67.3	-2476.7	56.6



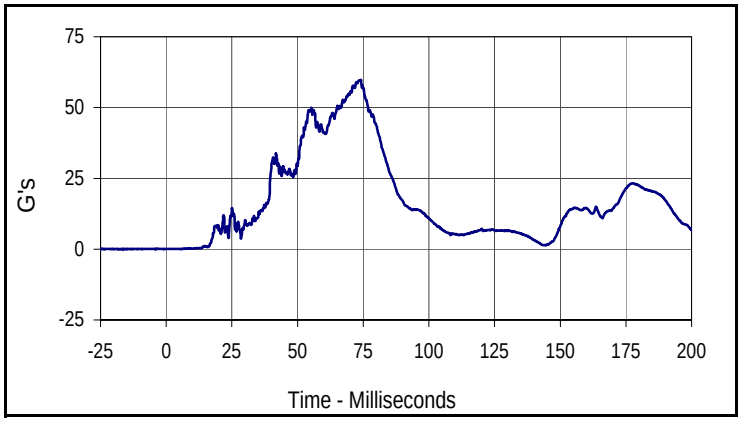
Curve Description			
Passenger Head Acceleration X Primary			
CURNO	Type	SAE Class	Units
045	FIL	1000	G's
Max	Time	Min	Time
21.9	177.6	-59.5	74.1



Curve Description			
Passenger Head Acceleration Y Primary			
CURNO	Type	SAE Class	Units
046	FIL	1000	G's
Max	Time	Min	Time
7.9	70.4	-5.0	57.4

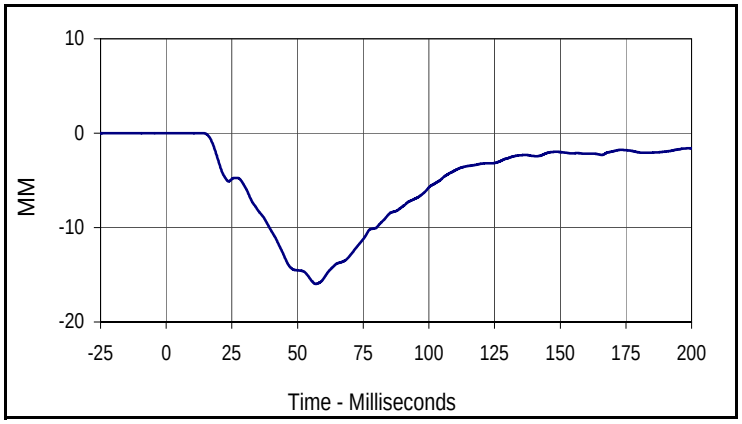


Curve Description			
Passenger Head Acceleration Z Primary			
CURNO	Type	SAE Class	Units
047	FIL	1000	G's
Max	Time	Min	Time
16.2	41.8	-15.0	77.8

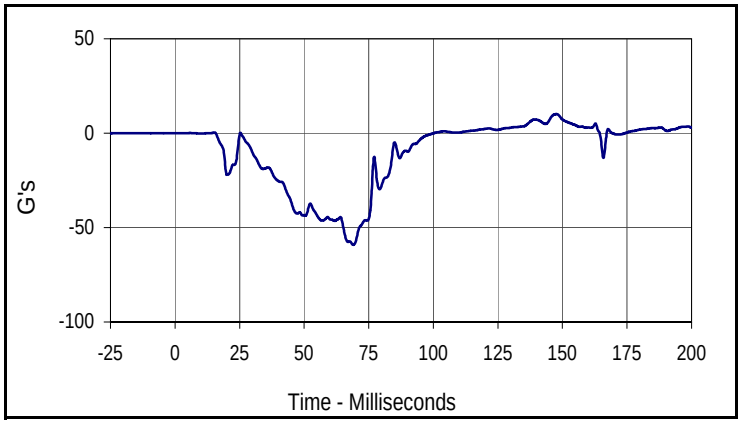


Curve Description			
Passenger Head Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
045	RES	1000	G's
Max	Time	Min	Time
59.8	74.1	0.0	5.7

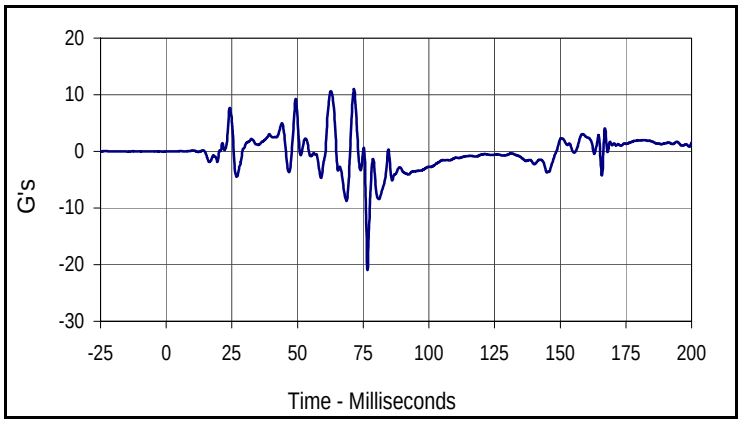
Test Vehicle:	2011 Nissan Sentra 2.0 4-Door Sedan	Test Date:	10/27/10
Test Program:	56 km/h (35 mph) Frontal Impact NCAP Rigid Barrier Test	NHTSA No.:	MB5214



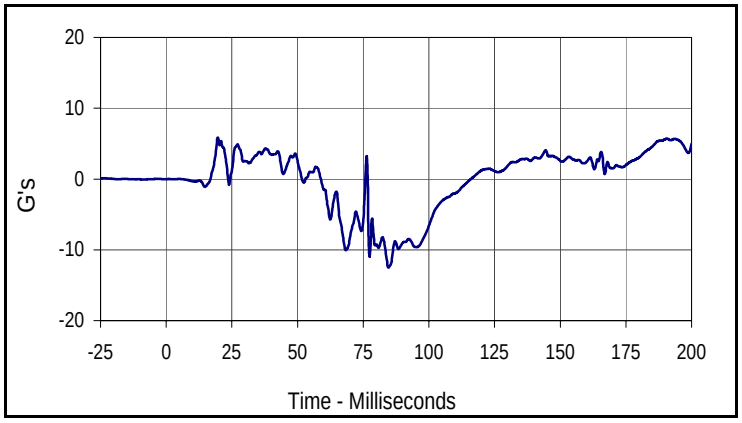
Curve Description			
Passenger Chest Deflection			
CURNO	Type	SAE Class	Units
063	FIL	180	MM
Max	Time	Min	Time
0.0	8.5	-16.0	57.0



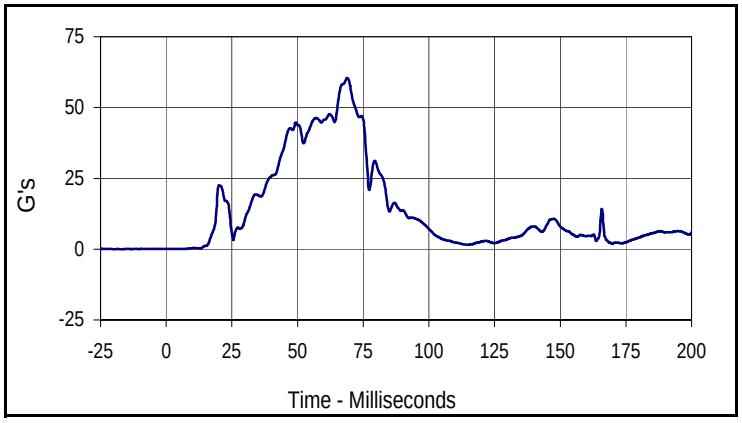
Curve Description			
Passenger Chest Acceleration X Primary			
CURNO	Type	SAE Class	Units
057	FIL	180	G's
Max	Time	Min	Time
10.2	147.7	-59.1	69.0



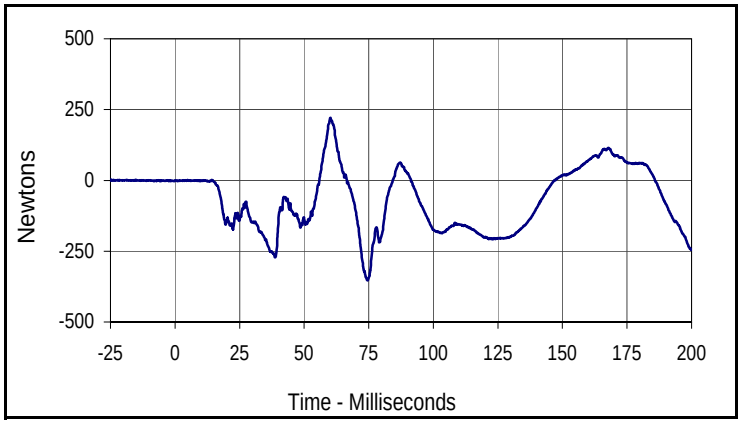
Curve Description			
Passenger Chest Acceleration Y Primary			
CURNO	Type	SAE Class	Units
058	FIL	180	G's
Max	Time	Min	Time
11.0	71.5	-21.0	76.6



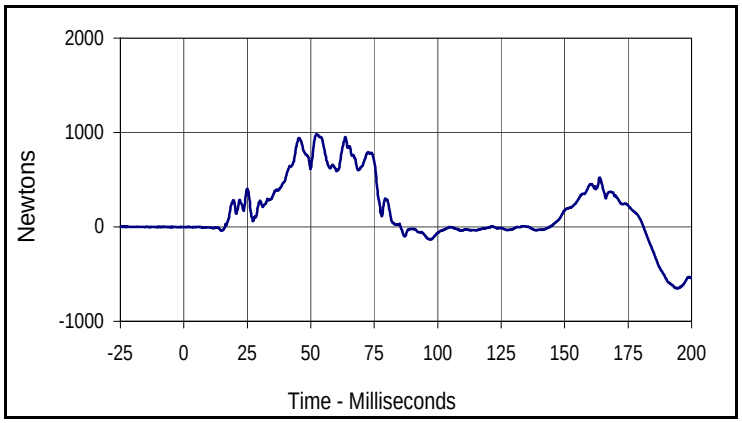
Curve Description			
Passenger Chest Acceleration Z Primary			
CURNO	Type	SAE Class	Units
059	FIL	180	G's
Max	Time	Min	Time
5.9	19.6	-12.5	84.6



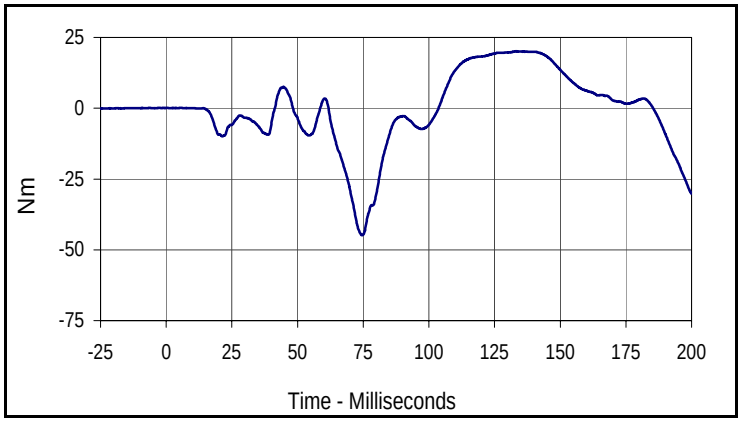
Curve Description			
Passenger Chest Resultant Acceleration Primary			
CURNO	Type	SAE Class	Units
057	RES	180	G's
Max	Time	Min	Time
60.5	68.9	0.1	4.1



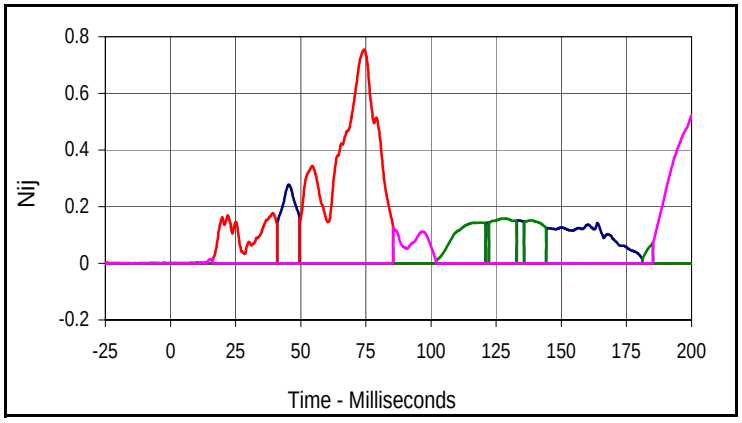
Curve Description			
Passenger Upper Neck Force X			
CURNO	Type	SAE Class	Units
051	FIL	1000	Newtons
Max	Time	Min	Time
220.6	60.1	-353.6	74.5



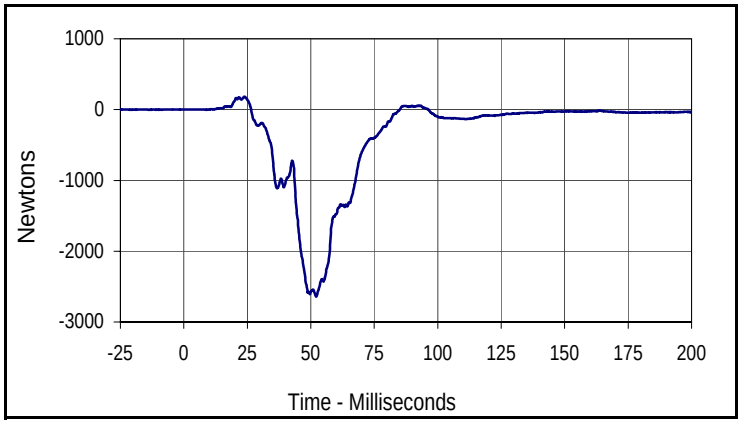
Curve Description			
Passenger Upper Neck Force Z			
CURNO	Type	SAE Class	Units
053	FIL	1000	Newtons
Max	Time	Min	Time
981.8	52.3	-654.0	194.4



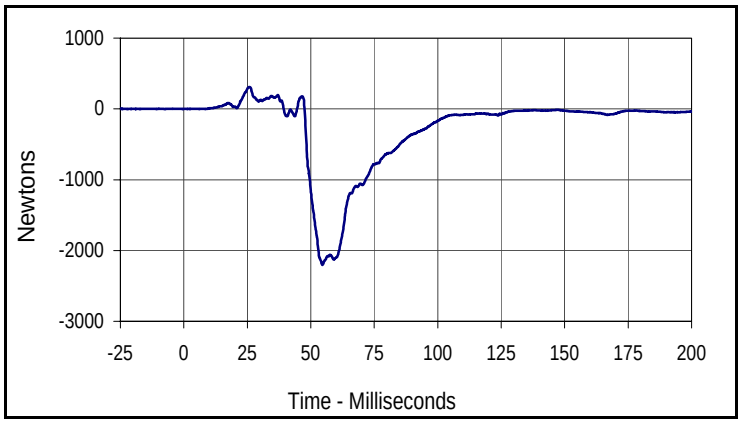
Curve Description			
Passenger Upper Neck Moment Y			
CURNO	Type	SAE Class	Units
055	FIL	600	Nm
Max	Time	Min	Time
20.1	133.2	-44.8	74.5



Curve Description			
Passenger Nij			
Units	Type	Max	Time
Ntf	FIL	0.28	45.4
Units	Type	Max	Time
Nte	FIL	0.76	74.3
Units	Type	Max	Time
Ncf	FIL	0.16	127.6
Units	Type	Max	Time
Nce	FIL	0.57	202.5



Curve Description			
Passenger Left Femur Force Z			
CURNO	Type	SAE Class	Units
067	FIL	600	Newtons
Max	Time	Min	Time
182.3	23.9	-2641.4	52.1



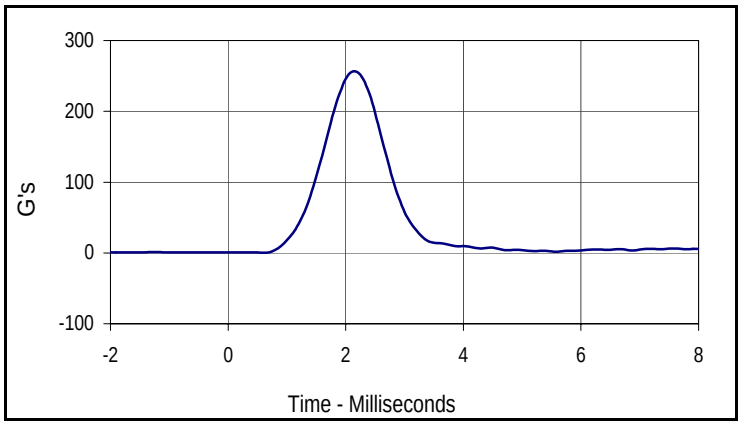
Curve Description			
Passenger Right Femur Force Z			
CURNO	Type	SAE Class	Units
068	FIL	600	Newtons
Max	Time	Min	Time
309.4	25.7	-2202.9	54.6

APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA

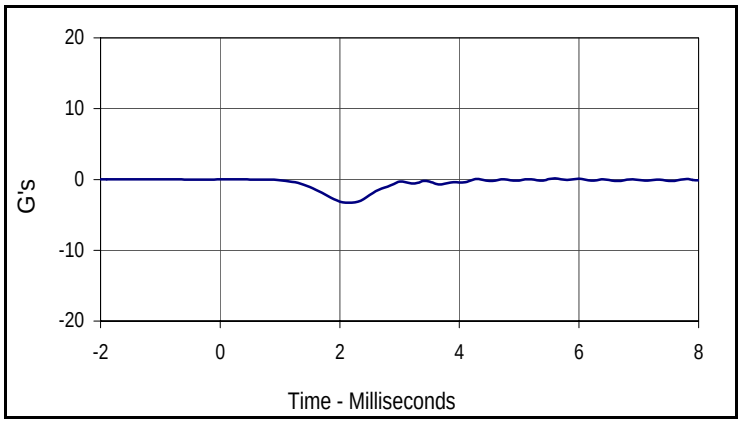
APPENDIX C
PRE-TEST / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program:	Hybrid III 50th Percentile Male Head Drop Test		Test Date:	10/25/10	
ATD Serial No.:	035		Test I.D.:	HDM10C	

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	255.5	Pass
Peak Lateral Acceleration	G's	≤15.0	3.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
		Overall Test Results		Pass



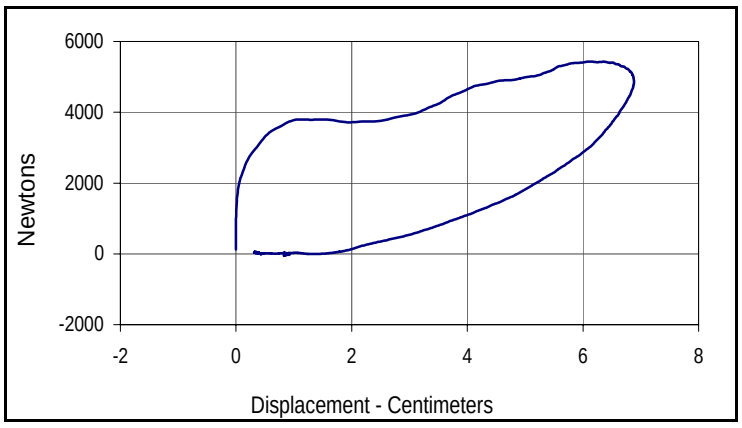
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
255.5	2.1	0.5	0.6



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.1	5.6	-3.3	2.2

Test Program:	Hybrid III 50th Percentile Male Thorax Impact Test	Test Date:	10/25/10
ATD Serial No.:	035	Test I.D.:	CHM10C

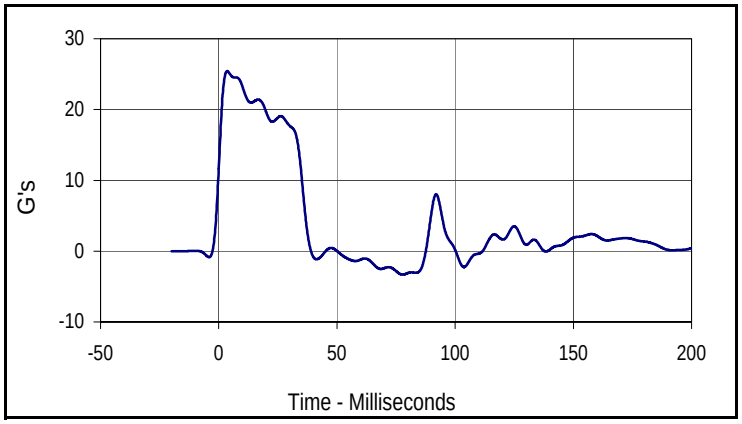
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.70	Pass
Peak Probe Force	Newtons	5159 to 5893	5429	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.88	Pass
Internal Hysterysis	%	69 to 85	72.4	Pass
		Overall Test Results		Pass



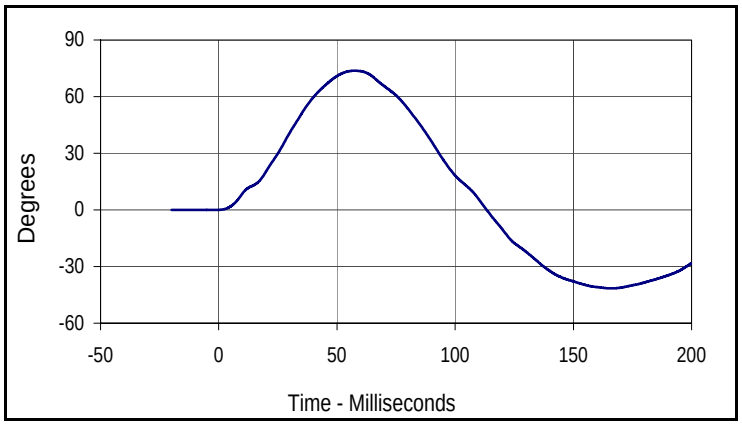
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysterysis
001	FIL	180	72.4
Peak Probe Force		Peak Chest Deflection	
5429		6.88	

Test Program:	Hybrid III 50th Percentile Male Neck Flexion Test	Test Date:	10/25/10
ATD Serial No.:	035	Test I.D.:	NFM10C

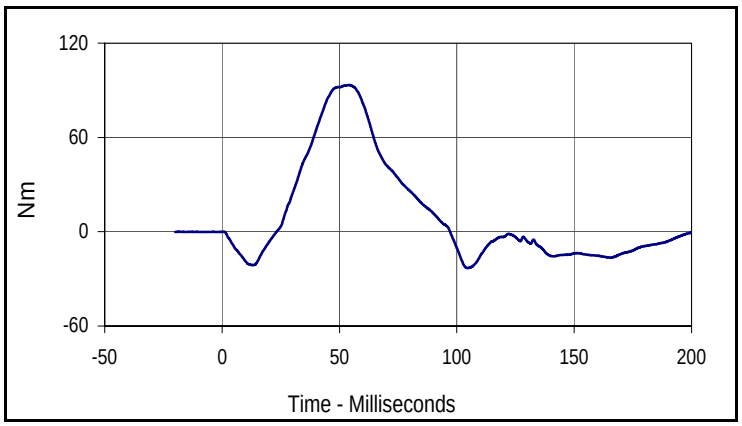
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	23.3	Pass
	20 Msec.	G's	17.6 to 22.6	19.7	Pass
	30 Msec.	G's	12.5 to 18.5	17.7	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	17.7	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	36.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	73.7	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	113.4	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	93.4	Pass
	Time	Msec.	47.0 to 58.0	54.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.1	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
25.4	3.6	-3.3	77.8



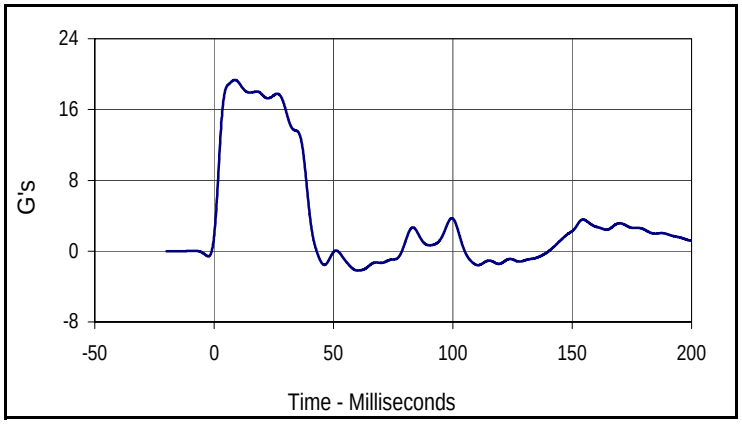
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
73.7	57.5	-41.5	166.0



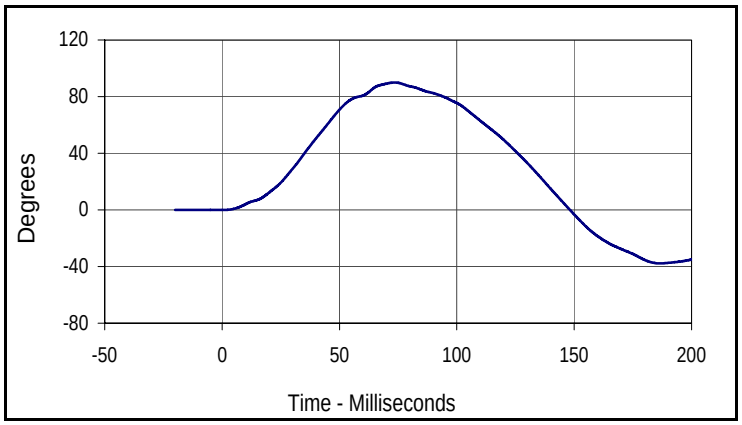
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
93.4	54.1	-23.1	104.6

Test Program:	Hybrid III 50th Percentile Male Neck Extension Test	Test Date:	10/25/10
ATD Serial No.:	035	Test I.D.:	NEM10C

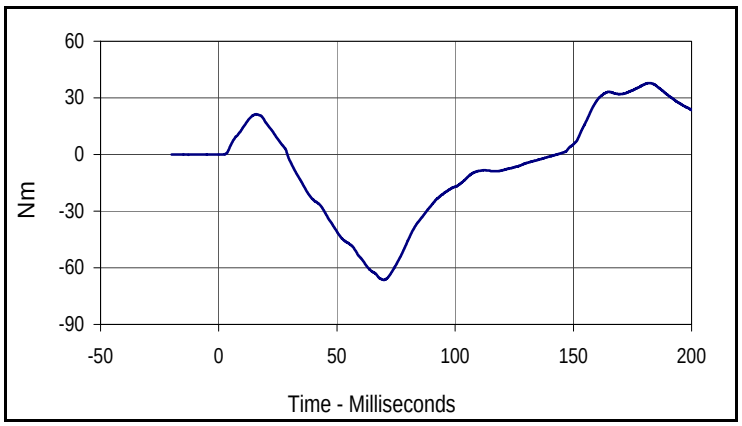
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.10	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.1	Pass
	20 Msec.	G's	14.0 to 19.0	17.7	Pass
	30 Msec.	G's	11.0 to 16.0	15.9	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.9	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	39.7	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	90.0	Pass
	Time	Msec.	72.0 to 82.0	73.5	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	148.2	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-66.4	Pass
	Time	Msec.	65.0 to 79.0	69.9	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	143.1	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
19.3	8.7	-2.2	60.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
90.0	73.5	-37.8	186.5



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
37.8	181.7	-66.4	69.9

Test Program:	Hybrid III 50th Percentile Male Knee Impact Test	Test Date:	10/25/10
ATD Serial No.:	035	Test I.D.:	LKM10C , RKM10C

Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4861	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	4917	Pass
		Overall Test Results		Pass

Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4860.9	2.8	-12.9	8.7

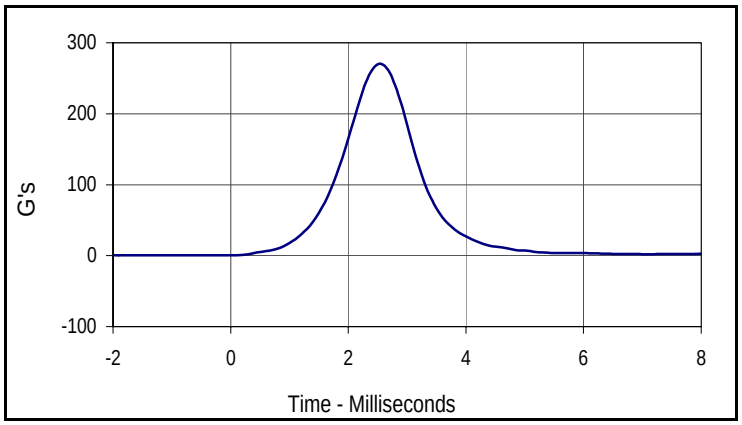
Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
4917.4	2.8	-12.8	8.7

Test Program:	Hybrid III 50th Percentile Male External Measurements	Test Date:	10/25/10
ATD Serial No.:	035	Test I.D.:	N/A

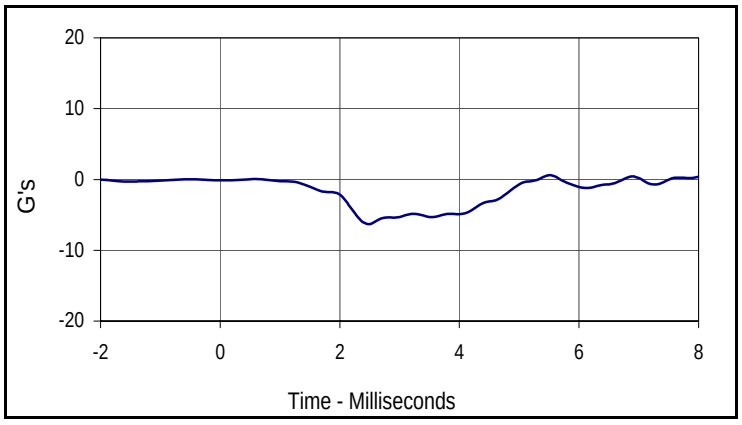
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	881	Pass
B - Shoulder pivot height	mm	505 to 521	515	Pass
C - "H" point height	mm	84 to 89	86	Pass
D - "H" point from seat back	mm	135 to 140	138	Pass
E - Shoulder pivot from back	mm	84 to 94	86	Pass
F - Thigh clearance	mm	140 to 155	147	Pass
G - Elbow back to wrist pivot	mm	290 to 305	296	Pass
H - Skull cap to back line	mm	41 to 46	43	Pass
I - Shoulder to elbow length	mm	330 to 345	333	Pass
J - Elbow rest height	mm	190 to 211	206	Pass
K - Buttock to knee length	mm	579 to 604	587	Pass
L - Poplipteal length	mm	429 to 455	432	Pass
M - Knee pivot height	mm	485 to 500	486	Pass
N - Buttock poplipteal length	mm	452 to 477	468	Pass
O - Chest depth	mm	213 to 229	215	Pass
P - Foot length	mm	251 to 267	259	Pass
V - Shoulder breadth	mm	422 to 437	431	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference	mm	970 to 1001	986	Pass
Z - Waist circumference	mm	836 to 866	862	Pass
AA - Location for chest circumference	mm	429 to 434	431	Pass
BB - Location for waist circumference	mm	226 to 231	231	Pass
		Overall Test Results		Pass

Test Program:	Hybrid III 5th Percentile Female Head Drop Test	Test Date:	10/25/10
ATD Serial No.:	141	Test I.D.:	HDF10B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	269.7	Pass
Peak Lateral Acceleration	G's	≤15.0	6.3	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
		Overall Test Results		Pass



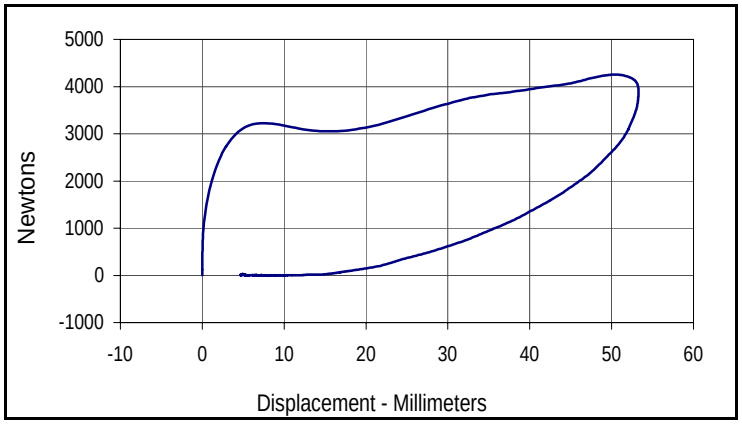
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
269.7	2.5	0.4	-1.3



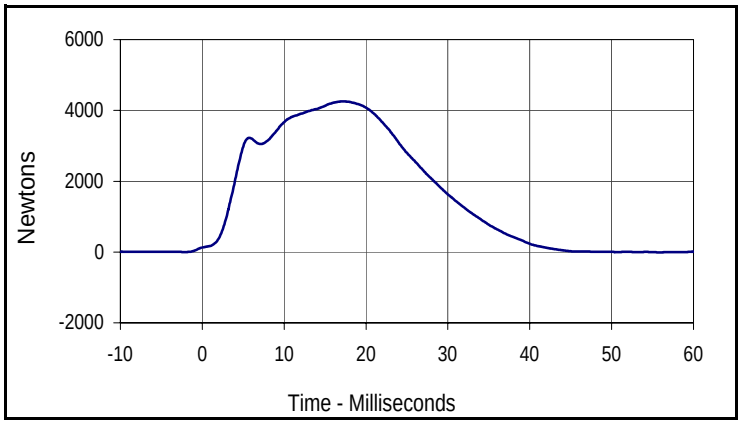
Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.6	5.5	-6.3	2.5

Test Program:	Hybrid III 5th Percentile Female Thorax Impact Test	Test Date:	10/25/10
ATD Serial No.:	141	Test I.D.:	CHF10B

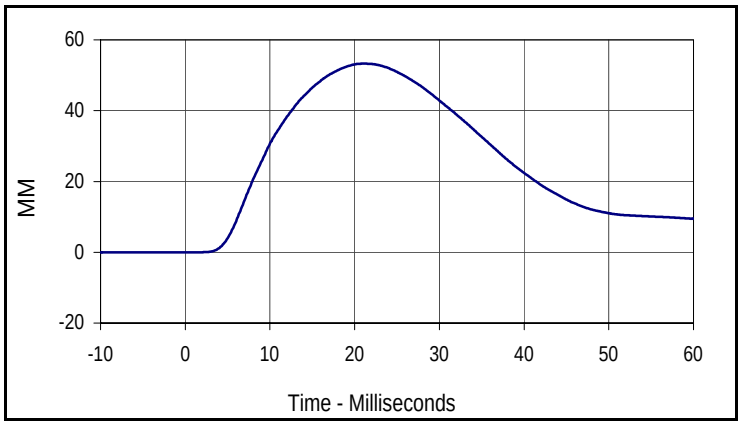
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.59 to 6.83	6.70	Pass
Peak Chest Deflection	MM	50.0 to 58.0	53.3	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4251	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4255	Pass
Internal Hysterysis	%	69 to 85	77.0	Pass
		Overall Test Results		Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysterysis
003	FIL	180	77.0
Peak Probe Force		Peak Chest Displ.	
4254.7		53.3	



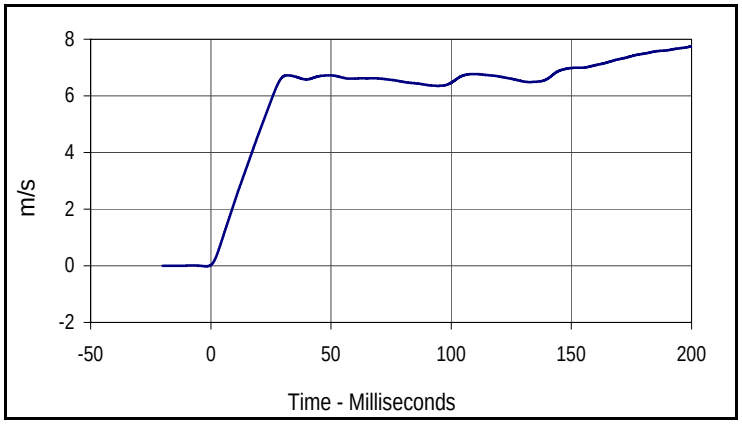
Curve Description			
Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4254.7	17.2	-9.1	55.8



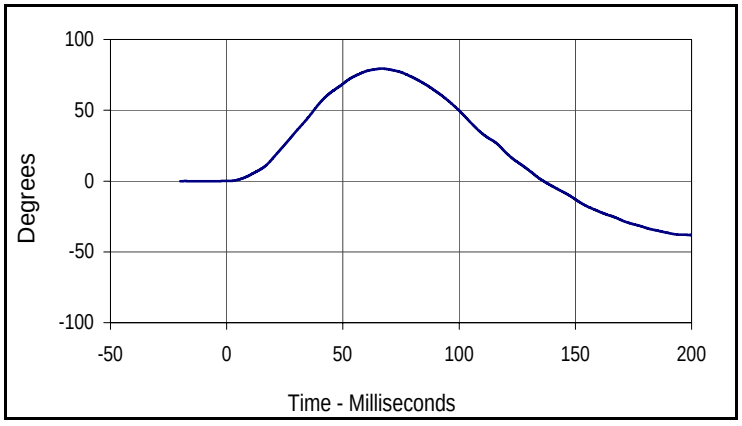
Curve Description			
Chest Deflection			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
53.3	21.1	0.0	-7.7

Test Program:	Hybrid III 5th Percentile Female Neck Flexion Test	Test Date:	10/25/10
ATD Serial No.:	141	Test I.D.:	NF10B

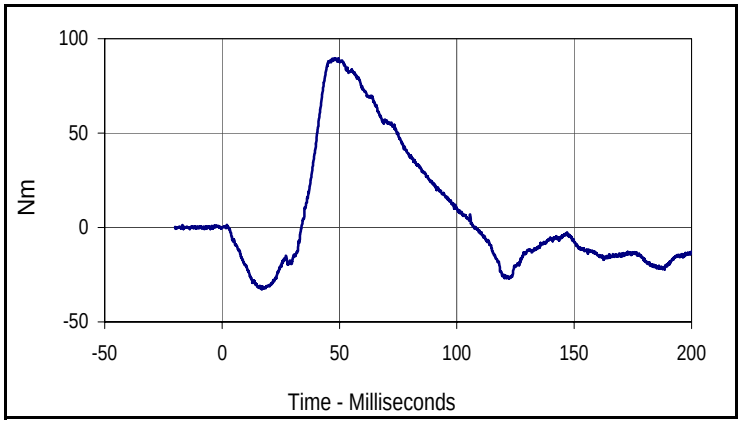
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.01	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.3	Pass
	20 Msec.	m/s	4.0 to 5.0	4.7	Pass
	30 Msec.	m/s	5.8 to 7.0	6.7	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	79.4	Pass
Peak Moment in Rotation	Max	Nm	69.0 to 83.0	76.1	Pass
Positive Moment Decay, Time To 10 Nm		Msec.	80.0 to 100.0	99.7	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
7.8	200.0	0.0	-1.8



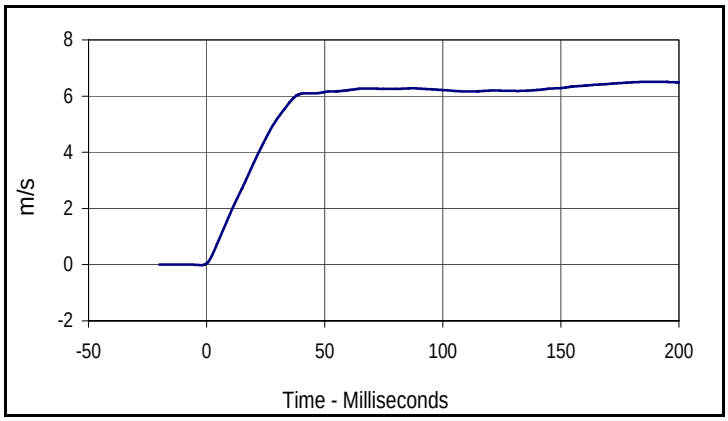
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
79.4	66.8	-38.0	200.0



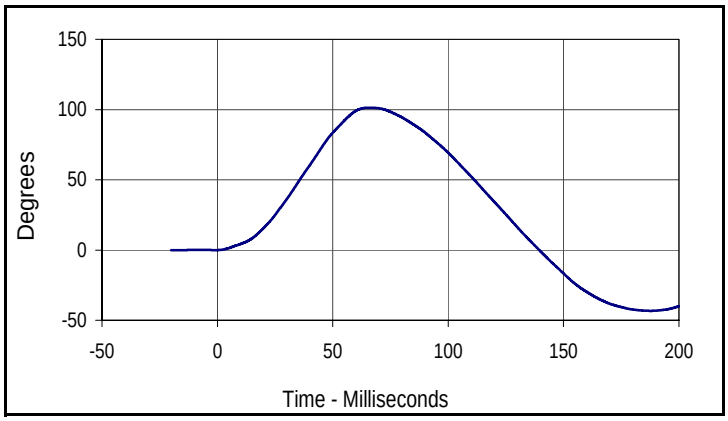
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
89.6	48.0	-32.9	16.9

Test Program:	Hybrid III 5th Percentile Female Neck Extension Test	Test Date:	10/25/10
ATD Serial No.:	141	Test I.D.:	NE10B

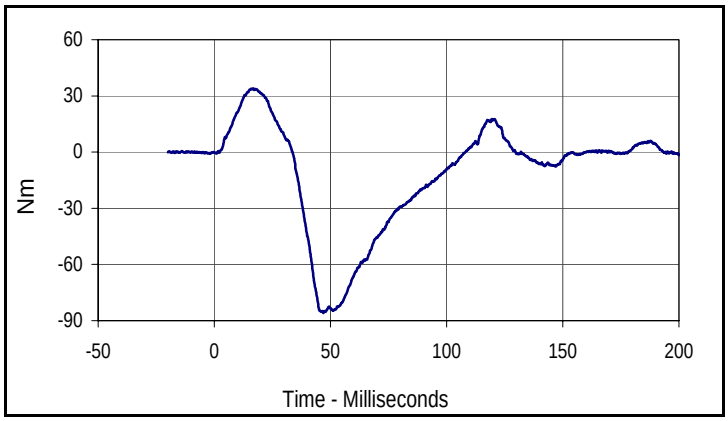
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.04	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.8	Pass
	20 Msec.	m/s	3.1 to 3.9	3.6	Pass
	30 Msec.	m/s	4.6 to 5.6	5.2	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	101.3	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-57.4	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	99.5	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
6.5	190.4	0.0	-2.3



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
101.3	65.3	-43.3	187.8



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
34.1	16.7	-85.9	46.9

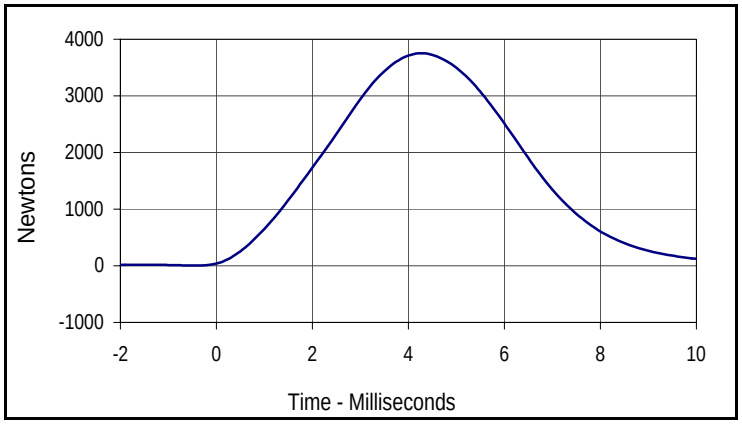
Test Program:	Hybrid III 5th Percentile Female Knee Impact Test	Test Date:	10/25/10
ATD Serial No.:	141	Test I.D.:	LKF10B , RKB10B

Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	3450 to 4060	3752	Pass
		Overall Test Results		Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force	Newtons	3450 to 4060	3691	Pass
		Overall Test Results		Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3752.2	4.3	4.3	-0.4

Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
3690.9	4.3	-2.5	-0.4

Test Program:	Hybrid III 5th Percentile Female Torso Flexion Test	Test Date:	10/25/10
ATD Serial No.:	141	Test I.D.:	TF10B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	^{o}C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	≤20.0	0.7	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	320.0 to 390.0	324.5	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	0.9	Pass
Final reference plane angle	Degrees	+/-8	1.0	Pass
		Overall Test Results		Pass

Test Program:	Hybrid III 5th Percentile Female External Measurements	Test Date:	10/25/10
ATD Serial No.:	141	Test I.D.:	N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	774.7 to 800.1	785	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	440	Pass
C - "H" point height (Reference)	mm	81.3 to 86.3	84	Pass
D - "H" point from seat back (Ref.)	mm	144.8 to 149.8	145	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	81	Pass
F - Thigh clearance	mm	119.4 to 134.6	130	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	253	Pass
H - Head to back line	mm	40.7 to 45.7	45	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	284	Pass
J - Elbow rest heignt	mm	182.8 to 203.2	201	Pass
K - Buttock to knee length	mm	520.7 to 546.1	538	Pass
L - Poplipteal height	mm	355.6 to 376.0	365	Pass
M - Knee pivot height	mm	393.7 to 419.1	414	Pass
N - Buttock poplipteal length	mm	414.0 to 439.4	420	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	183	Pass
P - Foot length	mm	218.5 to 233.7	229	Pass
R - Buttock to knee pivot length	mm	457.2 to 482.6	465	Pass
S - Head breadth	mm	137.1 to 147.3	142	Pass
T - Head depth	mm	177.8 to 188.0	181	Pass
U - Hip breadth	mm	299.7 to 314.9	309	Pass
V - Shoulder breadth	mm	350.5 to 365.7	361	Pass
W - Foot breadth	mm	78.8 to 94.0	90	Pass
X - Head circumference	mm	528.3 to 548.7	542	Pass
Y - Chest circumference with jacket	mm	850.8 to 881.3	853	Pass
Z - Waist circumference	mm	759.5 to 789.9	778	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	301	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	165	Pass
		Overall Test Results		Pass

Test Program:	Dummy Damage Checklist	Test Date:	10/25/10
ATD Serial No.:	035	Test I.D.:	N/A

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

Comments on repair or replacement parts:

Test Program:	Dummy Damage Checklist	Test Date:	10/25/10
ATD Serial No.:	141	Test I.D.:	N/A

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

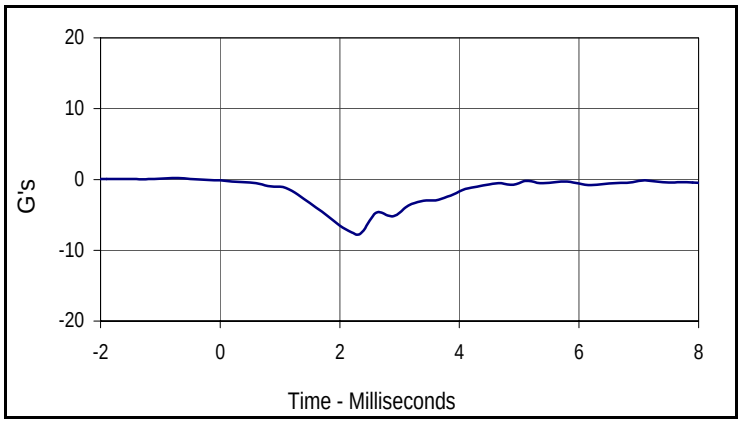
Comments on repair or replacement parts:

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

Test Program:	Hybrid III 50th Percentile Male Head Drop Test	Test Date:	10/28/10
ATD Serial No.:	035	Test I.D.:	HDM10D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	247.2	Pass
Peak Lateral Acceleration	G's	≤15.0	7.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
		Overall Test Results		Pass

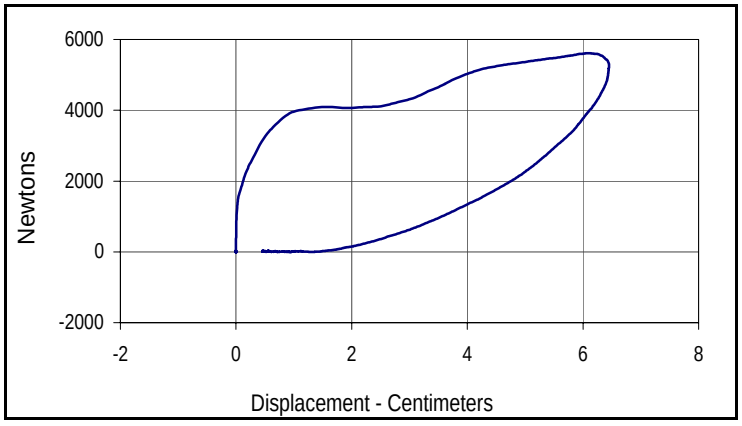
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
247.2	2.3	0.5	-1.1



Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.2	-0.8	-7.8	2.3

Test Program:	Hybrid III 50th Percentile Male Thorax Impact Test	Test Date:	10/28/10
ATD Serial No.:	035	Test I.D.:	CHM10D

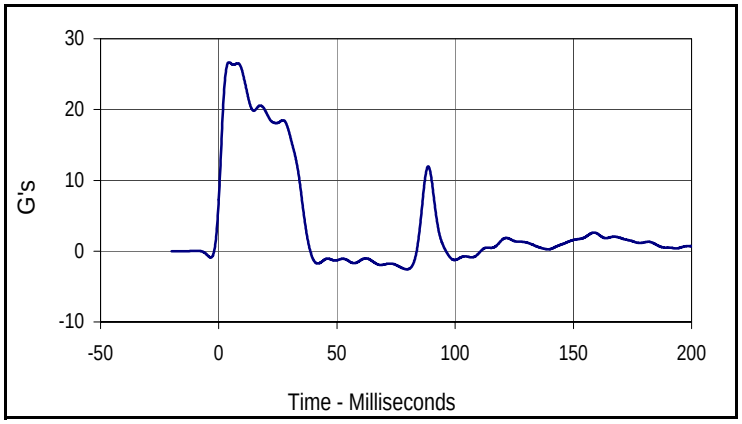
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.58 to 6.82	6.71	Pass
Peak Probe Force	Newtons	5159 to 5893	5615	Pass
Peak Sternum Deflection	CM	6.35 to 7.26	6.45	Pass
Internal Hysterysis	%	69 to 85	72.4	Pass
		Overall Test Results		Pass



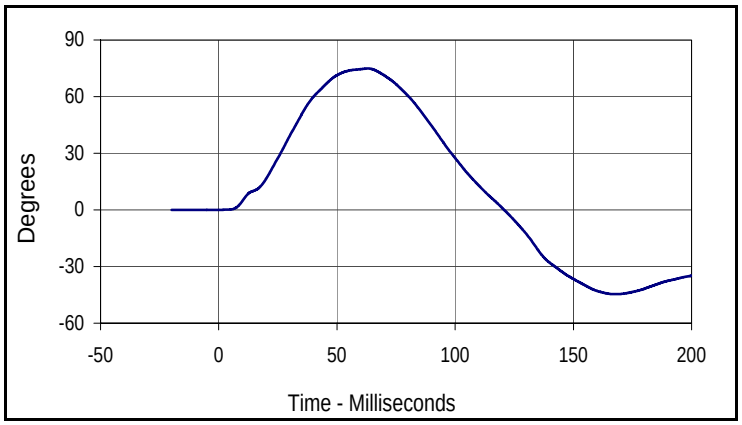
Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysterysis
001	FIL	180	72.4
Peak Probe Force		Peak Chest Deflection	
5615		6.45	

Test Program:	Hybrid III 50th Percentile Male Neck Flexion Test	Test Date:	10/28/10
ATD Serial No.:	035	Test I.D.:	NFM10D

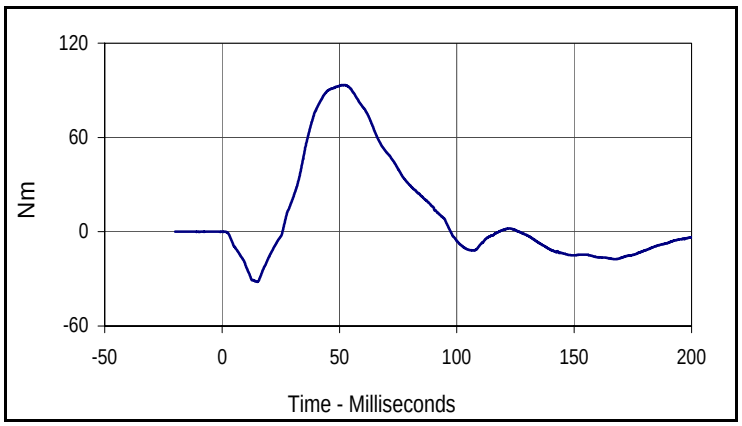
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.90	Pass
Pendulum Deceleration	10 Msec.	G's	22.5 to 27.5	25.3	Pass
	20 Msec.	G's	17.6 to 22.6	19.6	Pass
	30 Msec.	G's	12.5 to 18.5	16.5	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 29.0	16.5	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	34.0 to 42.0	36.1	Pass
Maximum "D" Plane Rotation	Max	Degrees	64.0 to 78.0	74.9	Pass
	Time	Msec.	57.0 to 64.0	63.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	113.0 to 128.0	120.8	Pass
Moment About Occ. Condyle	Max	Nm	84.1 to 108.5	93.3	Pass
	Time	Msec.	47.0 to 58.0	52.3	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	97.0 to 107.0	97.4	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
26.7	4.3	-2.6	79.6



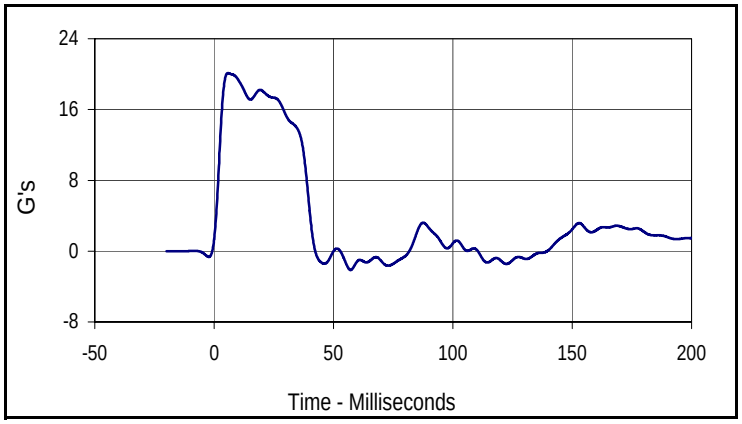
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
74.9	63.1	-44.6	167.7



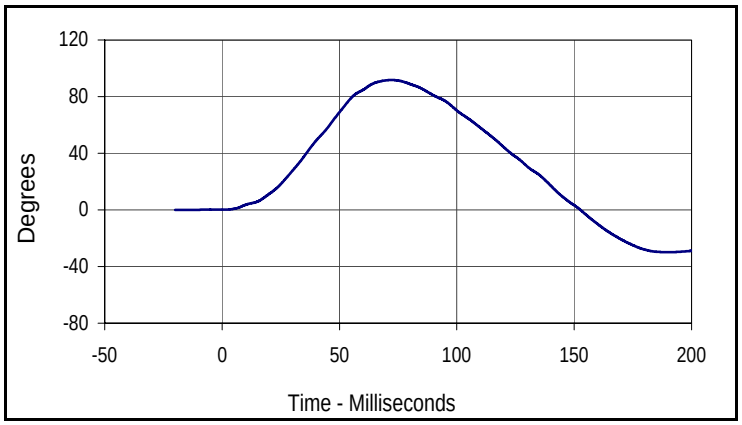
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
93.3	52.3	-31.8	15.0

Test Program:	Hybrid III 50th Percentile Male Neck Extension Test	Test Date:	10/28/10
ATD Serial No.:	035	Test I.D.:	NEM10D

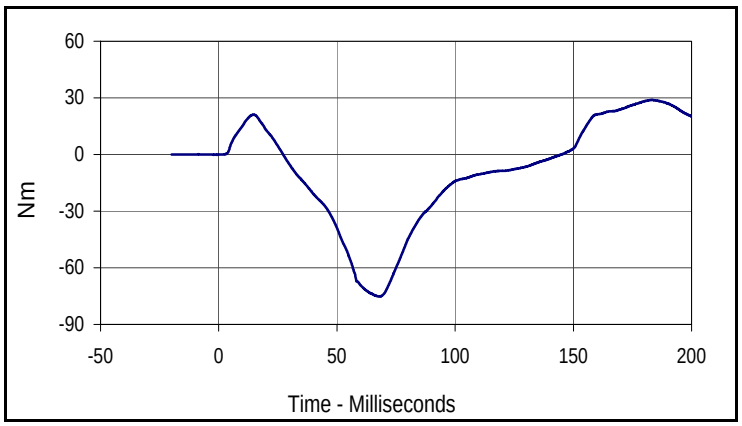
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.94 to 6.19	6.11	Pass
Pendulum Deceleration	10 Msec.	G's	17.2 to 21.2	19.4	Pass
	20 Msec.	G's	14.0 to 19.0	18.2	Pass
	30 Msec.	G's	11.0 to 16.0	15.4	Pass
Peak Pendulum Decel. after 30 Msec.		G's	≤ 22.0	15.4	Pass
Deceleration Decay, Time to Cross 5 G's		Msec.	38.0 to 46.0	39.9	Pass
Maximum "D" Plane Rotation	Max	Degrees	81.0 to 106.0	91.7	Pass
	Time	Msec.	72.0 to 82.0	72.1	Pass
"D" Plane Rotation Decay, Time To Zero Crossing		Msec.	147.0 to 174.0	152.7	Pass
Moment About Occ. Condyle	Max	Nm	-52.9 to- 79.9	-75.3	Pass
	Time	Msec.	65.0 to 79.0	68.1	Pass
Positive Moment Decay, Time To Zero Crossing		Msec.	120.0 to 148.0	145.2	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Deceleration			
CURNO	Type	SAE Class	Units
001	FIL	60	G's
Max	Time	Min	Time
20.1	5.8	-2.1	57.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
91.7	72.1	-29.9	190.4



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
004	FIL	600	Nm
Max	Time	Min	Time
28.9	183.3	-75.3	68.1

Test Program:	Hybrid III 50th Percentile Male Knee Impact Test	Test Date:	10/28/10
ATD Serial No.:	035	Test I.D.:	LKM10D , RKM10D

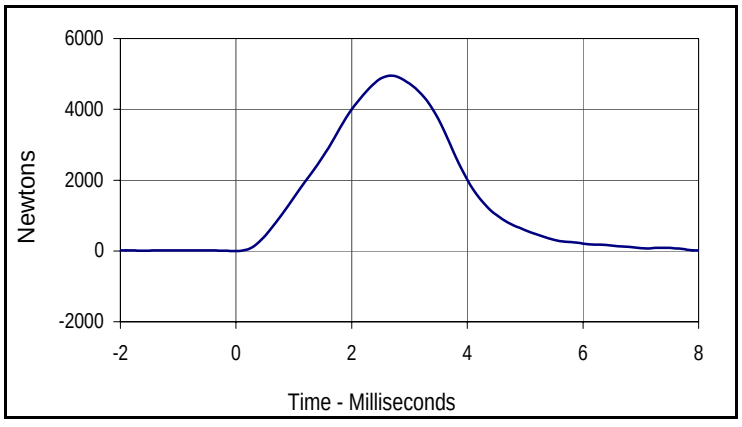
Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5013	Pass
		Overall Test Results		Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4950	Pass
		Overall Test Results		Pass

Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
5013.2	2.8	-13.2	8.7



Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
4950.1	2.7	-45.7	9.0

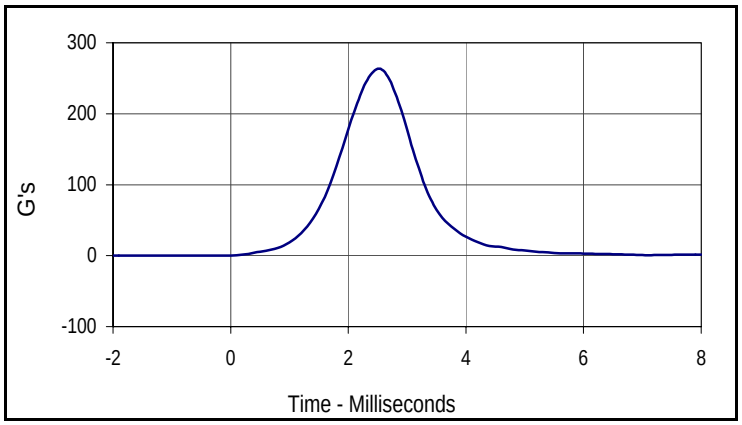
Test Program: Hybrid III 50th Percentile Male External Measurements Test Date: 10/28/10

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

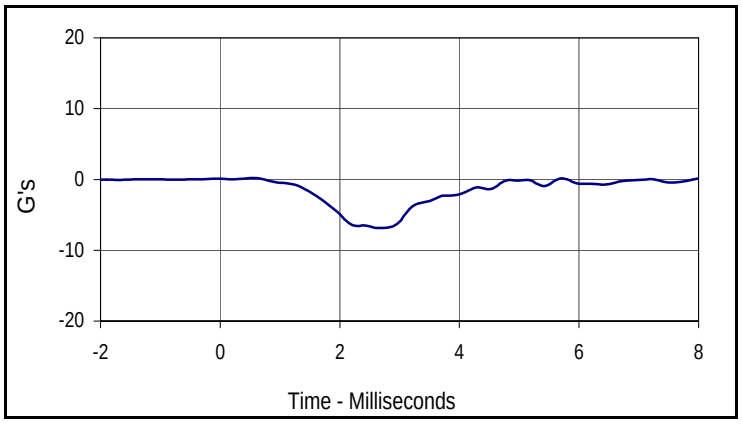
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	879 to 889	881	Pass
B - Shoulder pivot height	mm	505 to 521	519	Pass
C - "H" point height	mm	84 to 89	87	Pass
D - "H" point from seat back	mm	135 to 140	137	Pass
E - Shoulder pivot from back	mm	84 to 94	87	Pass
F - Thigh clearance	mm	140 to 155	147	Pass
G - Elbow back to wrist pivot	mm	290 to 305	295	Pass
H - Skull cap to back line	mm	41 to 46	44	Pass
I - Shoulder to elbow length	mm	330 to 345	333	Pass
J - Elbow rest height	mm	190 to 211	195	Pass
K - Buttock to knee length	mm	579 to 604	591	Pass
L - Poplipteal length	mm	429 to 455	433	Pass
M - Knee pivot height	mm	485 to 500	485	Pass
N - Buttock poplipteal length	mm	452 to 477	469	Pass
O - Chest depth	mm	213 to 229	214	Pass
P - Foot length	mm	251 to 267	255	Pass
V - Shoulder breadth	mm	422 to 437	434	Pass
W - Foot breadth	mm	91 to 107	99	Pass
Y - Chest circumference	mm	970 to 1001	990	Pass
Z - Waist circumference	mm	836 to 866	860	Pass
AA - Location for chest circumference	mm	429 to 434	430	Pass
BB - Location for waist circumference	mm	226 to 231	229	Pass
		Overall Test Results		Pass

Test Program:	Hybrid III 5th Percentile Female Head Drop Test		Test Date:	10/28/10	
ATD Serial No.:	141		Test I.D.:	HDF10C	

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	250.0 to 300.0	263.7	Pass
Peak Lateral Acceleration	G's	≤15.0	6.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
		Overall Test Results		Pass



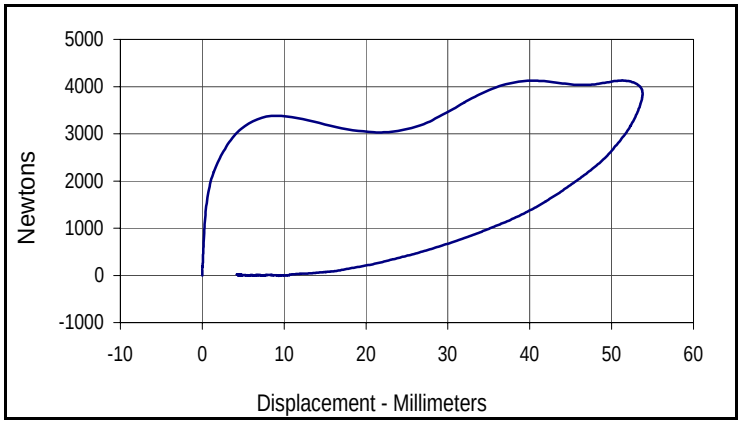
Curve Description			
Head Resultant			
CURNO	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
263.7	2.5	0.0	-2.0



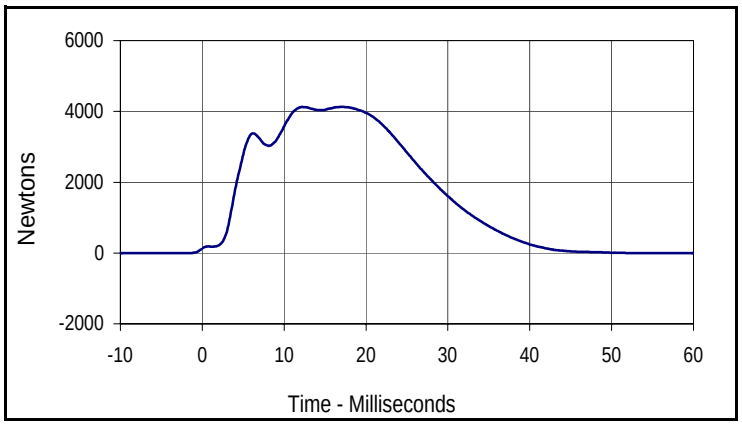
Curve Description			
Head Y			
CURNO	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
0.2	0.5	-6.9	2.7

Test Program:	Hybrid III 5th Percentile Female Thorax Impact Test	Test Date:	10/28/10
ATD Serial No.:	141	Test I.D.:	CHF10C

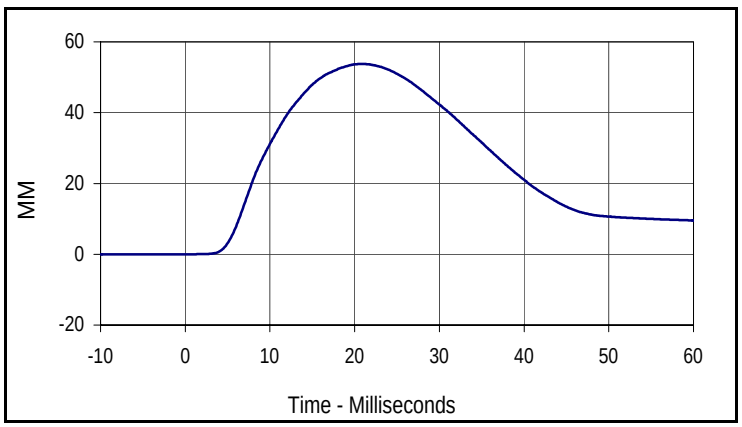
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	6.59 to 6.83	6.67	Pass
Peak Chest Deflection	MM	50.0 to 58.0	53.8	Pass
Peak Force Between 50 and 58 MM	Newtons	3900 to 4400	4125	Pass
Peak Force Between 18 and 50 MM	Newtons	≤4600	4129	Pass
Internal Hysterysis	%	69 to 85	75.3	Pass
		Overall Test Results		Pass



Curve Description			
Probe Force vs. Chest Deflection			
CURNO	Type	SAE Class	Hysterysis
003	FIL	180	75.3
Peak Probe Force		Peak Chest Displ.	
4129.0		53.8	



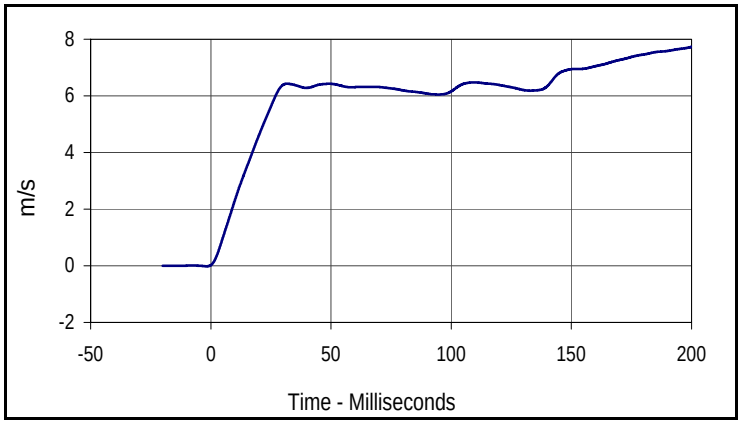
Curve Description			
Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	180	Newtons
Max	Time	Min	Time
4129.0	17.1	-7.1	61.1



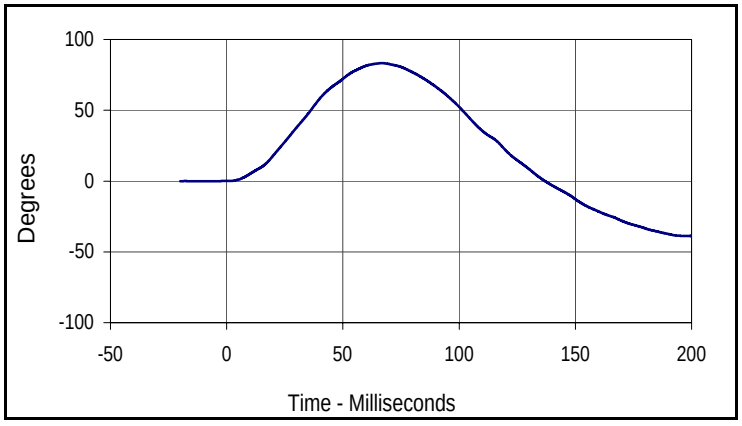
Curve Description			
Chest Deflection			
CURNO	Type	SAE Class	Units
001	FIL	180	MM
Max	Time	Min	Time
53.8	20.8	0.0	-0.1

Test Program:	Hybrid III 5th Percentile Female Neck Flexion Test	Test Date:	10/28/10
ATD Serial No.:	141	Test I.D.:	NF10C

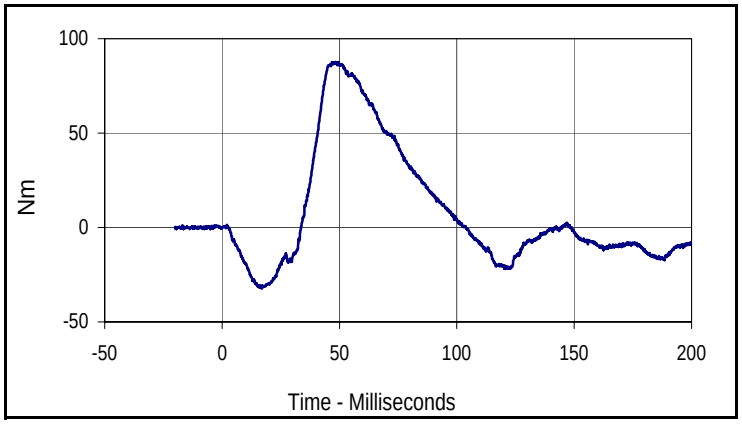
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.00	Pass
Pendulum Deceleration	10 Msec.	m/s	2.1 to 2.5	2.3	Pass
	20 Msec.	m/s	4.0 to 5.0	4.6	Pass
	30 Msec.	m/s	5.8 to 7.0	6.4	Pass
"D" Plane Rotation	Max	Degrees	77.0 to 91.0	83.3	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	93.6	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
7.7	200.0	0.0	-1.7



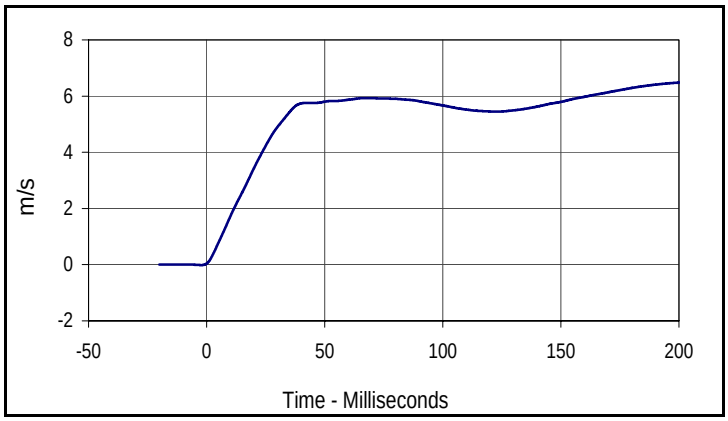
Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
83.3	66.8	-38.8	200.0



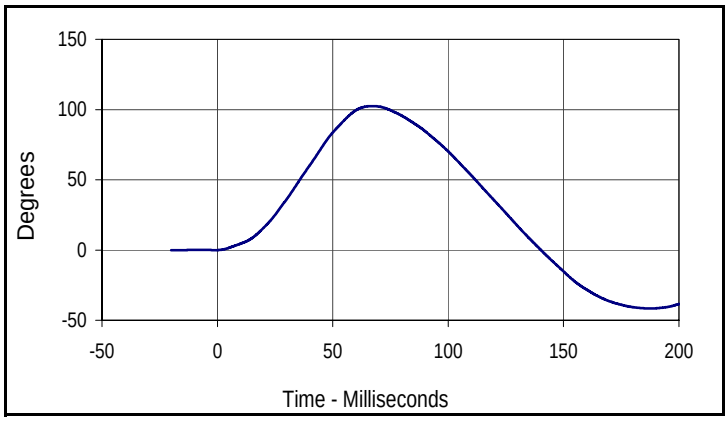
Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
87.7	48.0	-32.4	16.9

Test Program:	Hybrid III 5th Percentile Female Neck Extension Test	Test Date:	10/28/10
ATD Serial No.:	141	Test I.D.:	NE10D

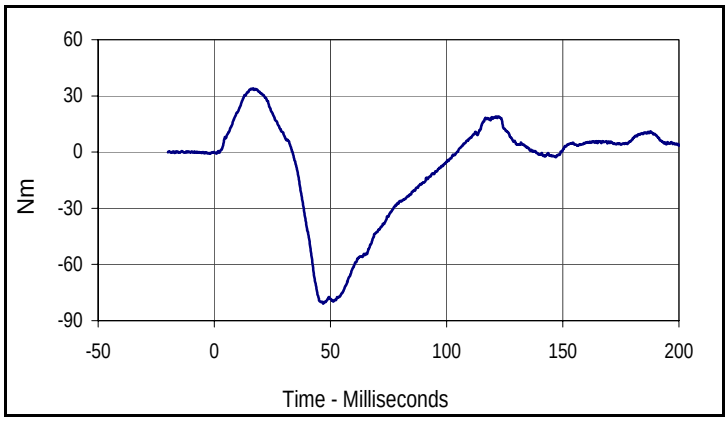
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.04	Pass
Pendulum Deceleration	10 Msec.	m/s	1.5 to 1.9	1.7	Pass
	20 Msec.	m/s	3.1 to 3.9	3.4	Pass
	30 Msec.	m/s	4.6 to 5.6	4.9	Pass
"D" Plane Rotation	Max	Degrees	99.0 to 114.0	102.4	Pass
Peak Moment in Rotation	Max	Nm	-53.0 to -65.0	-62.0	Pass
Positive Moment Decay, Time To -10 Nm		Msec.	94.0 to 114.0	96.0	Pass
			Overall Test Results		Pass



Curve Description			
Pendulum Velocity			
CURNO	Type	SAE Class	Units
001	FIL	60	m/s
Max	Time	Min	Time
6.5	200.0	0.0	-2.2



Curve Description			
"D" Plane Rotation			
CURNO	Type	SAE Class	Units
003	FIL	60	Degrees
Max	Time	Min	Time
102.4	67.2	-41.6	187.9



Curve Description			
Moment About Occipital Condyle			
CURNO	Type	SAE Class	Units
002	FIL	600	Nm
Max	Time	Min	Time
34.1	16.7	-80.9	46.9

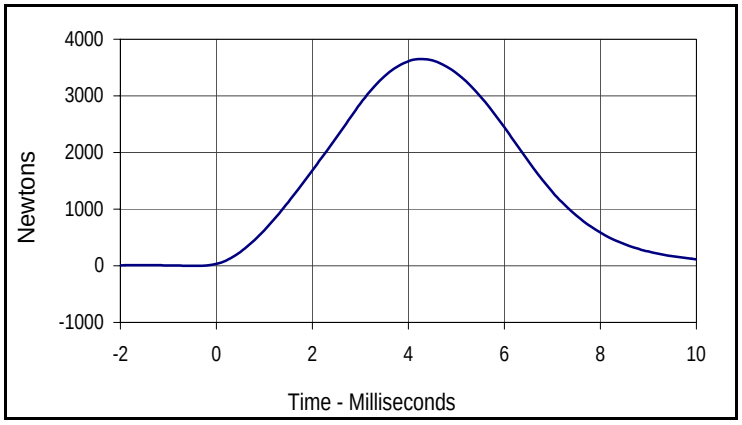
Test Program:	Hybrid III 5th Percentile Female Knee Impact Test	Test Date:	10/28/10
ATD Serial No.:	141	Test I.D.:	LKF10C , RKB10C

Left Knee

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force	Newtons	3450 to 4060	3652	Pass
		Overall Test Results		Pass

Right Knee

Pendulum Velocity at T=0	m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force	Newtons	3450 to 4060	3547	Pass
		Overall Test Results		Pass



Curve Description			
Left Knee Probe Force			
CURNO	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3652.4	4.3	-2.3	-0.4

Curve Description			
Right Knee Probe Force			
CURNO	Type	SAE Class	Units
002	FIL	600	Newtons
Max	Time	Min	Time
3547.4	4.3	-2.4	-0.4

Test Program:	Hybrid III 5th Percentile Female Torso Flexion Test	Test Date:	10/28/10
ATD Serial No.:	141	Test I.D.:	TF10C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	^{o}C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Initial reference plane angle	Degrees	≤20.0	0.5	Pass
Peak Force at 45 +/-0.5 degrees	Newtons	320.0 to 390.0	325.9	Pass
Torso rotation rate	deg/sec	0.5 to 1.5	1.0	Pass
Final reference plane angle	Degrees	+/-8	1.2	Pass
		Overall Test Results		Pass

Test Program:	Hybrid III 5th Percentile Female External Measurements	Test Date:	10/28/10
ATD Serial No.:	141	Test I.D.:	N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.6 to 22.2	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
A - Total sitting height	mm	774.7 to 800.1	785	Pass
B - Shoulder pivot height	mm	431.8 to 457.2	441	Pass
C - "H" point height (Reference)	mm	81.3 to 86.3	85	Pass
D - "H" point from seat back (Ref.)	mm	144.8 to 149.8	145	Pass
E - Shoulder pivot from backline	mm	68.6 to 83.8	80	Pass
F - Thigh clearance	mm	119.4 to 134.6	129	Pass
G - Back of elbow to wrist pivot	mm	243.9 to 259.1	253	Pass
H - Head to back line	mm	40.7 to 45.7	45	Pass
I - Shoulder to elbow length	mm	276.8 to 297.2	284	Pass
J - Elbow rest heignt	mm	182.8 to 203.2	201	Pass
K - Buttock to knee length	mm	520.7 to 546.1	537	Pass
L - Poplipteal height	mm	355.6 to 376.0	365	Pass
M - Knee pivot height	mm	393.7 to 419.1	413	Pass
N - Buttock poplipteal length	mm	414.0 to 439.4	421	Pass
O - Chest depth without jacket	mm	175.3 to 190.5	183	Pass
P - Foot length	mm	218.5 to 233.7	228	Pass
R - Buttock to knee pivot length	mm	457.2 to 482.6	465	Pass
S - Head breadth	mm	137.1 to 147.3	142	Pass
T - Head depth	mm	177.8 to 188.0	181	Pass
U - Hip breadth	mm	299.7 to 314.9	309	Pass
V - Shoulder breadth	mm	350.5 to 365.7	361	Pass
W - Foot breadth	mm	78.8 to 94.0	89	Pass
X - Head circumference	mm	528.3 to 548.7	542	Pass
Y - Chest circumference with jacket	mm	850.8 to 881.3	853	Pass
Z - Waist circumference	mm	759.5 to 789.9	778	Pass
AA - Location for chest circumference	mm	299.7 to 309.9	302	Pass
BB - Location for waist circumference	mm	160.1 to 170.2	163	Pass
		Overall Test Results		Pass

Test Program:	Dummy Damage Checklist	Test Date:	10/28/10
ATD Serial No.:	035	Test I.D.:	N/A

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

Comments on repair or replacement parts:

Test Program:	Dummy Damage Checklist	Test Date:	10/28/10
ATD Serial No.:	141	Test I.D.:	N/A

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

Comments on repair or replacement parts: