REPORT NUMBER: 214-CAL-08-03

SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION
INDICANT

NISSAN MOTOR COMPANY
2008 NISSAN 350Z ROASTER
2-DOOR Convertible

NHTSA NUMBER: C85203

PREPARED BY:
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Test Date: January 17, 2008

FINAL REPORT

PREPARED FOR:
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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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Technical Report Documentation Page

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16. Abstract

A 55/28 km/h 90° Moving Deformable Barrier FMVSS 214 Indicant side impact was conducted on the subject 2008 Nissan 350Z Roadster 2-Door Convertible to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at the Calspan Corporation Transportation Sciences Center in Buffalo, New York, on January 17, 2008. The impact velocity of the Moving Deformable Barrier (MDB) was 62.2 km/h, and the ambient temperature at the struck side (driver side) of the vehicle was 21°C. The target vehicle's maximum post test static crush was 149 mm at level 2. The test vehicle's occupant performance is as follows:

	DRIVER
Left Upper Rib (LUR) Accel., g	40.7
Left Lower Rib (LLR) Accel., g	42.4
Lower Spine (T_{12}) Accel., g	52.8
Thoracic Trauma Index (TTI)	48
Pelvis (PEV) Accel., g	54
HIC	286.4

* The vehicle did not contain a rear seat.

The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.

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TABLE OF CONTENTS

Section		Page No.
1	Purpose and Test Procedure	1-1
2	Summary of FMVSS 214 Indicant Side Impact Test	2-1

Data Sheet No.		Page No.
1	General Test and Vehicle Parameter Data	2-3
2	Test Vehicle Tire Information	2-5
3	Test Vehicle Information	2-6
4	Moving Deformable Barrier (MDB) Summary of Results	2-8
5	Post Test Observations	2-9
6	Vehicle Pre-Test and Post Test Measurements	2-10
7	SID/HIII Longitudinal Clearance Dimensions	2-11
8	SID/HIII Lateral Clearance Dimensions	2-12
9	Vehicle Side Measurements	2-13
10	Vehicle Exterior Crush Profiles	2-14
11	Vehicle Damage Profile Distances	2-15
12	Deformable Barrier Honeycomb Face Static Crush	2-16
13	Vehicle Accelerometer Locations	2-17
14	MDB Accelerometer Locations	2-18
15	Vehicle Structural Measurements	2-19
16	High Speed Camera Locations and Data	2-20
17	Summary of FMVSS 301 Data	2-21

Appendix		Page No
A	Photographs	A-1
B	SID/HIII, Vehicle and MDB Response Data	B-1
C	SID/HIII Configuration and Performance Verification Data	C-1
D	Test Equipment and Calibration Information	D-1

SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-07-D-00064. The purpose of this indicant test was to evaluate side impact protection in a 2008 Nissan 350Z Roadster 2-Door Convertible when tested at the New Car Assessment Program (NCAP) target test velocity of 62.0 kph, which is 8 kph faster than the target velocity required by the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-08, dated December 15, 2006).

SECTION 2

SUMMARY OF FMVSS 214 INDICANT SIDE IMPACT TEST

This Side Impact Protection Indicant Test was performed at the New Car Assessment Program (NCAP) target test velocity of 62.0 kph, which is 8 kph faster than the target velocity required by the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-08, dated December 15, 2006).

A model year 2008 Nissan 350Z Roadster 2-Door Convertible was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.2 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1770.0 kg and the test weight of the MDB was 1362.5 kg. The test was conducted at the Calspan Corporation Transportation Sciences Center on January 17, 2008.

One (1) real-time motion picture camera and nine (8) high-speed motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and Side Impact Dummies (SID/HIIIs) can be found in Appendix A.

One 50th percentile adult male SID/HIII was placed in the driver (P1) designated seating position according to instructions specified in the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated July 1997. The SID/HIII was instrumented in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)
- Head Center of Gravity (CG) tri-axial accelerometers (X, Y and Z axes primary and redundant)
- Upper Neck load cell (Fx, Fy, Fz, Mx, My, Mz)

The test vehicle was instrumented with twenty (20) structural accelerometers and the MDB was instrumented with five (5) accelerometers.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 149 mm at level 2, 1200 mm rearward of the left vertical impact point. The driver SID/HIII (Serial No. 270) was calibrated just prior to this test.

Test data and observations are presented in this section of the report. Appendix A contains the still photograph prints. Appendix B contains the driver SID/HIII, vehicle, and MDB response data traces. Appendix C contains the SID/HIII configuration and performance verification data. Appendix D contains the test equipment information.

The occupant data is summarized below:

ATD position	HIC(36)	T_1	T_2	TTI (G's)	Peak Pelvis (G's)
Driver	286.4	75.0	84.8	48	54

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger) *	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	N/A	N/A
Side Torso Airbag	Yes	Yes	N/A	N/A
Side Head/Torso Combination Airbag	NA	NA	N/A	N/A
Curtain Airbag	No	NA	N/A	N/A

* The vehicle did not contain rear seating positions.

The test instrumentation data listed in Appendix B can be found on the NHTSA website: www.nhtsa.dot.gov.

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

TEST VEHICLE INFORMATION AND VEHICLE OPTIONS

Make	Nissan Motor Company	Driver Front Airbag	Yes
Model	350Z Roadster	Driver Side Curtain Airbag	No
Body Style	2-Door Convertible	Driver Side Torso Airbag	Yes
NHTSA No.	C85203	Driver Pretensioners	Yes
VIN	JN1BZ36A98M850054	Driver Load Limiters	Yes
Color	Red	Driver Power Seats	Yes
Engine Disp.(L)	3.5	Rear Pass. Side Curtain Airbag	N/A
Engine Cylinders	6	Rear Pass. Side Torso Airbag	N/A
Engine Placement	Longitudinal	Rear Pass. Pretensioners	N/A
Transmission Type	Automatic	Rear Pass. Load Limiters	N/A
Transmission Speeds	5	Rear Pass. Power Seats	N/A
Final Drive	Rear	Tilt Wheel	Yes
Air Conditioning	Yes	Anti-lock Brakes	Yes
Power Steering	Yes	Traction Control	Yes
Power Brakes	Yes	Power Windows	Yes
Delivery Date	12/31/2007	Power Door Locks	Yes
Odometer Reading (km)	47	Automatic Door Locks (ADL)	No
Dealer	West Herr Nissan	Owner's Manual Details Instructions on Disabling ADLs	N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Company	GVWR (kg)	1875
		GAWR Front (kg)	941
Date of Manufacture	08/07	GAWR Rear (kg)	945

VEHICLE CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	N/A		
Number Of Occupants	2	N/A		2
Capacity Wt. (VCW) (kg)				204
Cargo Wt. (RCLW) (kg)				67.9

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			Fully Loaded (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	433.5	445.0		461.5	450.5		461.0	440.0	
Right	kg	377.0	373.5		442.0	420.0		448.0	421.0	
Ratio	%	49.8	50.2		50.9	49.1		51.4	48.6	
Totals	kg	810.5	818.5	1629.0	903.5	870.5	1774.0	909.0	861.0	1770.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1629.0
Weight of One P572M ATDs (81.2 kg each)	kg	81.2
Rated Cargo/Luggage Weight (RCLW)	kg	67.9
Calculated Vehicle Target Weight (TVTW)	kg	1778.1

* Actual As Tested Weight (ATW) will be TVTW -4.5/-9.1 kg

Weight of Ballast (including instrumentation package and cameras): 59.8 kg

TEST VEHICLE ATTITUDES

	Units	LF	RF	LR	RR
As Delivered	mm	680	678	717	715
Fully Loaded	mm	672	672	699	700
As Tested	mm	673	672	703	701

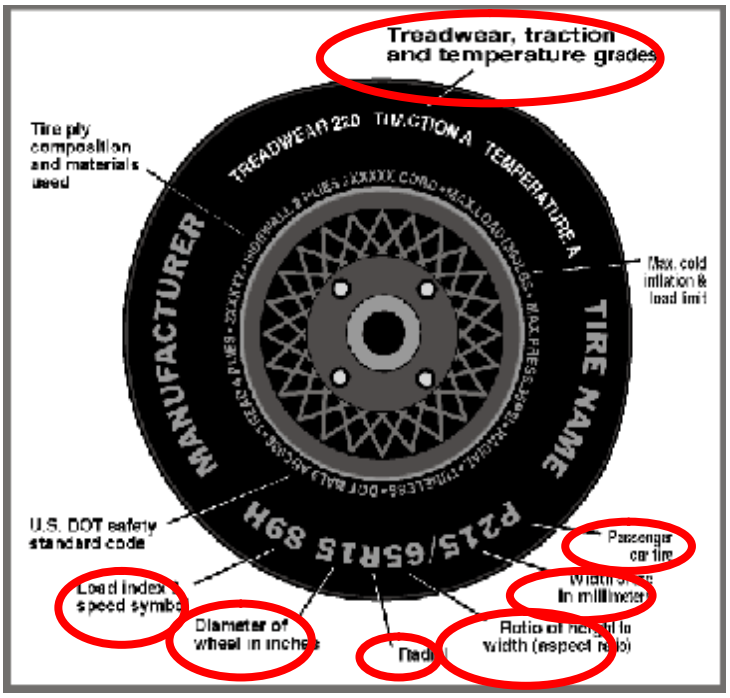
TEST VEHICLE VERTICAL IMPACT LINE AND CG

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2649
Target Impact Point Aft of Front Axle	mm	385
Actual Impact Point Aft of Front Axle	mm	385
As Tested CG (aft of front axle)	mm	1289

DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold / Test Pressure (kPa)	240	240
Recommended Tire Size	P225/45R18	P245/45R18
Tire Size on Vehicle	P225/45R18	P245/45R18
Tire Manufacturer	Bridgestone	Bridgestone
Tire Name	Potenza RE050A	Potenza RE050A
Tire Type	Passenger	Passenger
Tire Width (mm)	225	245
Ratio of Height to Width (aspect ratio)	45	45
Radial	Yes	Yes
Wheel Diameter	18	18
Load Index & Speed Symbol	91W	96W
Treadwear	140	140
Traction Grade	A	A
Temperature Grade	A	A

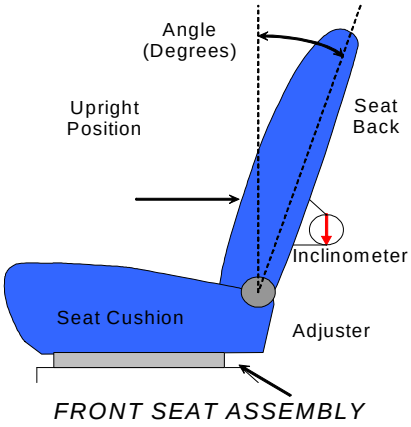
DATA SHEET NO. 3

TEST VEHICLE INFORMATION

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle.



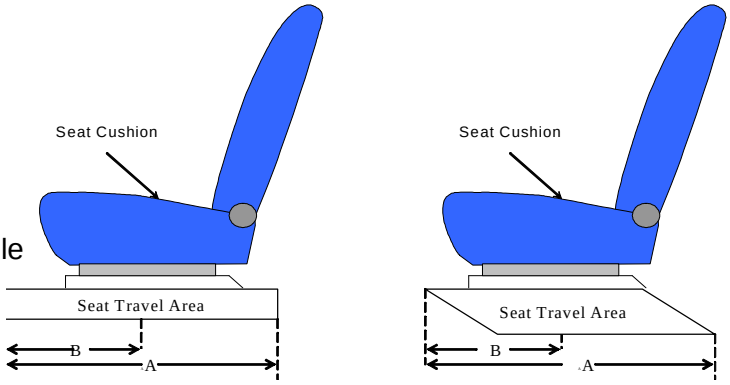
FRONT SEAT ASSEMBLY

SEAT BACK POSITION

	Driver Seat	Rear Seat
Test Detent (forward-most detent defined as 0)	N/A	N/A
Angle (deg. from forward-most locking position)	N/A	N/A
Alternative Measurements to Verify Test Position	Head restraint post 10° back from vertical	N/A

SEAT FORE/AFT POSITIONS

The total seat travel was measured from forward most position to rearmost position irrespective of vertical seat height in those positions. The seat was set at the longitudinal mid position with vertical adjustment at the lowest position obtainable for both the driver and passenger.



SEAT FORE/AFT POSITION

	Driver Seat	Rear Seat
Total Fore/Aft Travel (A) (mm)	226	N/A
Test Position (B) (mm)	113	N/A
Test Detent (forward-most detent defined as 0)	Mid position – Power seat	N/A
Total Number of Detents (including 0)	No Detents – Power seat	N/A

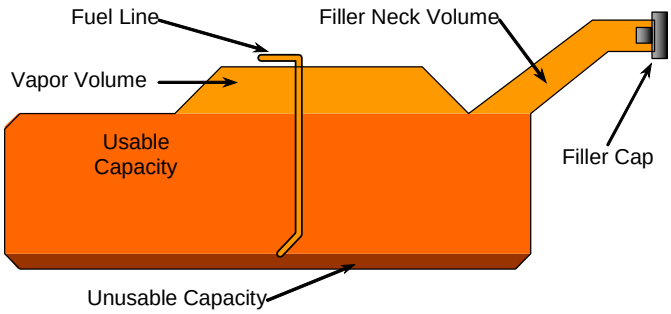
DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

FUEL SYSTEM INFORMATION

The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



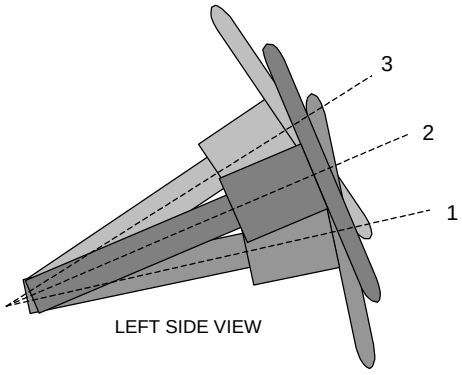
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard" Fuel Tank	75.7
Usable Capacity of "Optional" Fuel Tank	N/A
Stoddard Used For Test (92%-94% of Fuel Tank Usable Capacity)	71.1

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. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITION

	Fore/Aft Position (mm)	Tilt (degrees)	Tilt (detent)
Lowermost Position No. 1	N/A	15	N/A
Geometric Center Position No. 2 *	N/A	17.5	N/A
Uppermost Position No. 3	N/A	19	N/A

DATA SHEET NO. 4

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Face	4120
Wheel base of Framework Carriage	2590
Tread of Framework Carriage (front & rear)	1875
C.G. Location aft of Front Axle	1104

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	409.5	281.5	
Right	kg	372.5	299.0	
Ratio	%	57.4	42.6	
Totals	kg	782.0	580.5	1362.5

MDB SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.2
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.2
Impact angle with respect to impactor	º	88.5º to 91.5º	89.9º

POST TEST OBSERVATIONS

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	0 mm
Vertical Offset	mm	+/-20	7 mm above

DATA SHEET NO. 5

POST TEST OBSERVATIONS

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID/HIII / 270	N/A
Head Contact	Side of Head – Window/ Upper Door Sill	N/A
Upper Torso Contact	Side Torso Airbag	N/A
Lower Torso Contact	Side Torso Airbag	N/A
Left Knee Contact	No Contact	N/A
Right Knee Contact	No Contact	N/A

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Doors were locked	N/A
Left Side Door Opening	Door remained closed and latched	N/A
Right Side Door Opening	Door remained closed and latched; Door opened without tools	N/A
Seat Movement	0	N/A
Seat Back Failure	None	N/A

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	Minor cracks
Window Damage	Left Front Window Shattered
Other Notable Effects	None

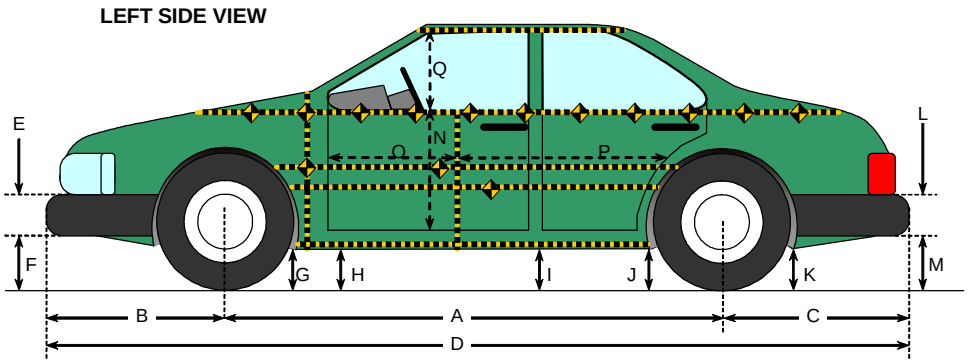
SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	N/A	N/A
Side Torso Airbag	Yes	Yes	N/A	N/A
Side Head/Torso Combination Airbag	NA	NA	N/A	N/A
Curtain Airbag	N/A	N/A	N/A	N/A

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



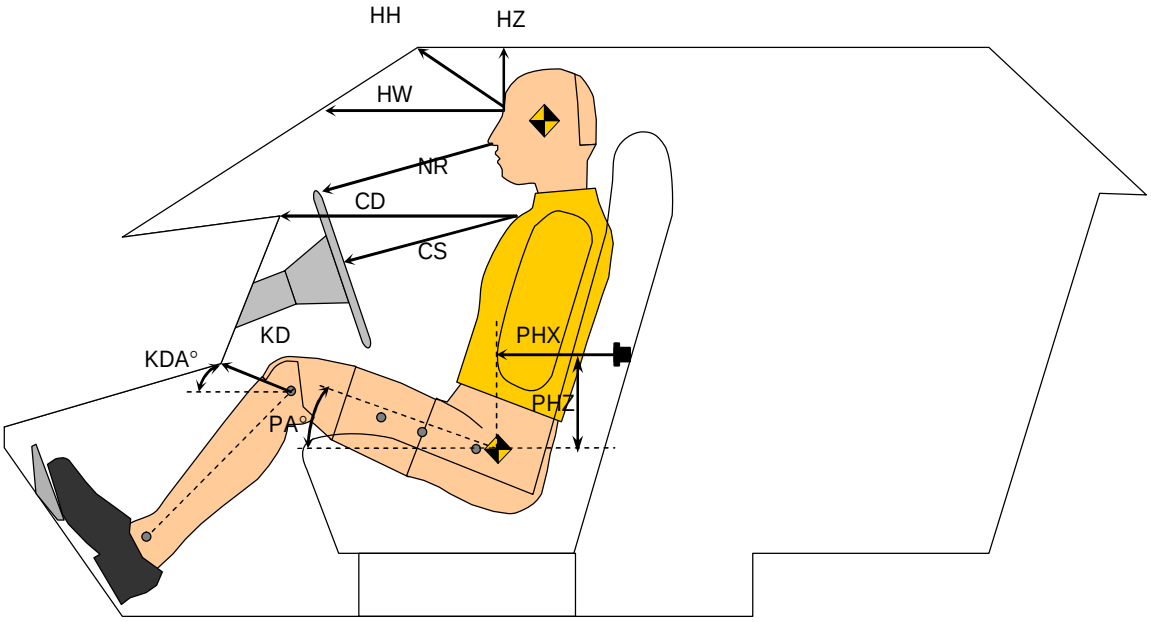
All Measurements in mm

Code	Measurement Description	Pre-Test (delivered)	Pre-Test (as tested)	Post-Test (as tested)	Difference
A	Wheelbase	2648	2649	2642	7
B	Front Axle to FSOV	803	802	809	-7
C	Rear Axle to RSOV	860	860	854	6
D	Total Length at Centerline	4311	4311	4305	6
E	Front Bumper Thickness	120	120	120	0
F	Front Bumper Bottom to Ground	418	410	434	-24
G	Sill Height at Front Wheel Well	128	111	134	-23
H	Sill Height at Front Door Leading Edge	151	137	154	-17
I	Sill Height at "B" Pillar	153	146	148	-2
J1	Sill Height at Rear Wheel Well	144	128	145	-17
J2	Pinch Weld Height at Rear Wheel Well	148	132	134	-2
K	Sill Height Aft of Rear Wheel Well	225	209	214	-5
L	Rear Bumper Thickness	175	175	175	0
M	Rear Bumper Bottom to Ground	290	272	292	-20
N	Sill Height to Window Bottom Sill	647	647	531	116
O	Front Door Leading Edge to Impact CL	536	536	531	5
P	Rear Door Trailing Edge to Impact CL	750	750	745	5
Q	Front Window Opening	333	333	362	-29
R	Right Side Length	4168	4168	4181	-13
S	Left Side Length	4176	4176	4167	9
T	Vehicle Width at "B" Post	1789	1789	1628	161

DATA SHEET NO. 7

SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

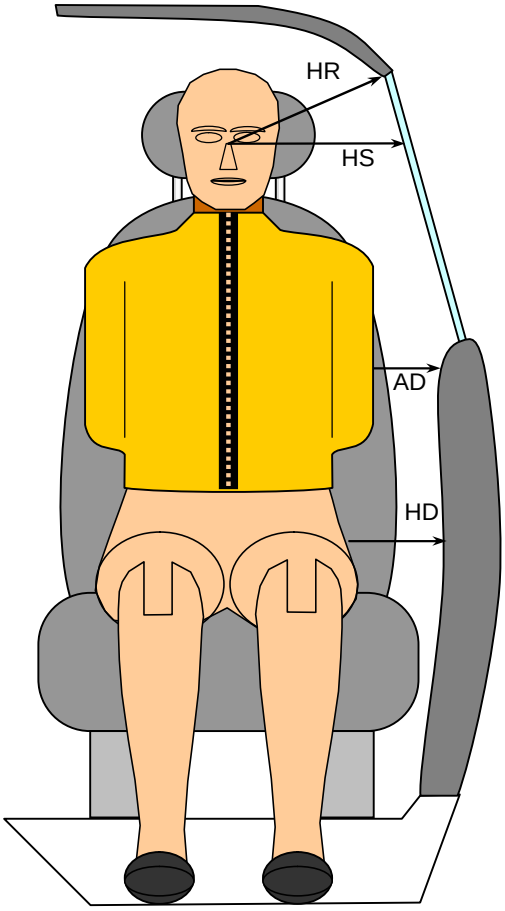


Driver Code	Pass. Code	Measurement Description	Driver S/N 270	
			Length(mm)	Angle(°)
HH		Head to Header	320	
HW		Head to Windshield	463	
HZ	HZ	Head to Roof	155	
NR	NB	Nose to Rim/Nose to Seatback	381	
CD	CB	Chest to Dash or Seatback	485	
CS		Chest to Steering Wheel	242	
KDL	KBL	Left Knee to Dash or Seatback	155	35
KDR	KBR	Right Knee to Dash or Seatback	147	33
PA	PA	Pelvic Angle		23.1
PHX	PHX	H-Point to Striker (X-Axis)	443	
PHZ	PHZ	H-Point to Striker (Z-Axis)	210	

DATA SHEET NO. 8

SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



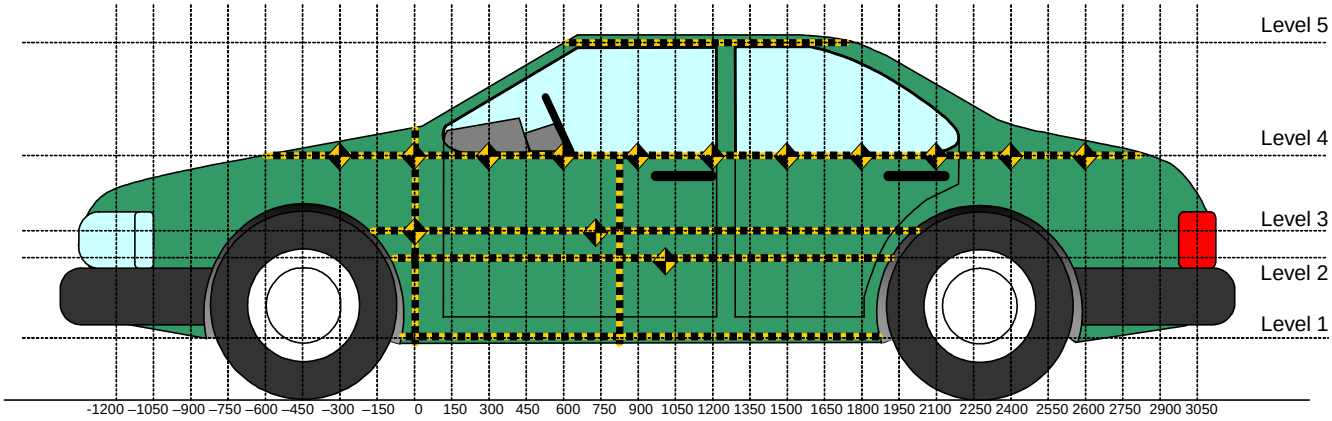
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver S/N 270
HR	Head to Side Header	mm	225
HS	Head to Side Window	mm	303
AD_1	Arm to Door (at upper rib level)	mm	78
AD_2	Arm to Door (at lower rib level)	mm	94
HD	H-Point to Door	mm	174

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTS

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



All Measurements Shown in mm

LEFT SIDE VIEW

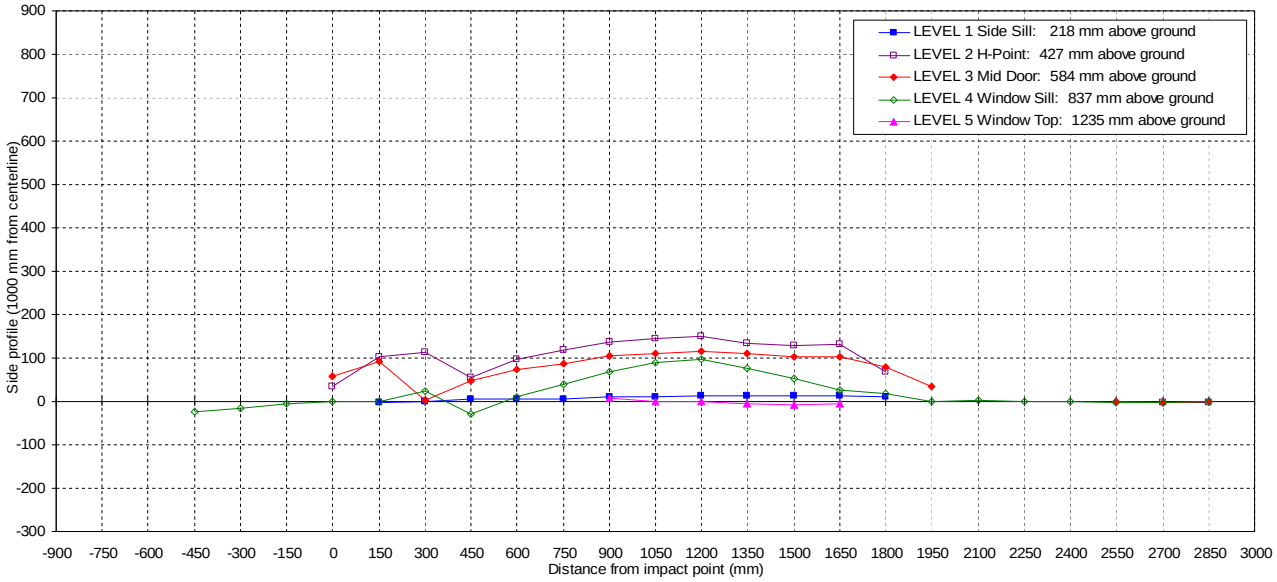
Measurements are taken with vehicle in the as tested condition.
Measurements along the vertical 750 mm.
All measurements below in mm.

Level	Measurement Description	Maximum Exterior Static Crush	Height Above Ground	Distance From Impact
1	Sill Top	14	218	1200
2	Occupant H-Point	149	427	1200
3	Mid Door	116	584	1200
4	Window Sill	97	837	1200
5	Window	7	1235	900
	Maximum Penetration	149		

DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



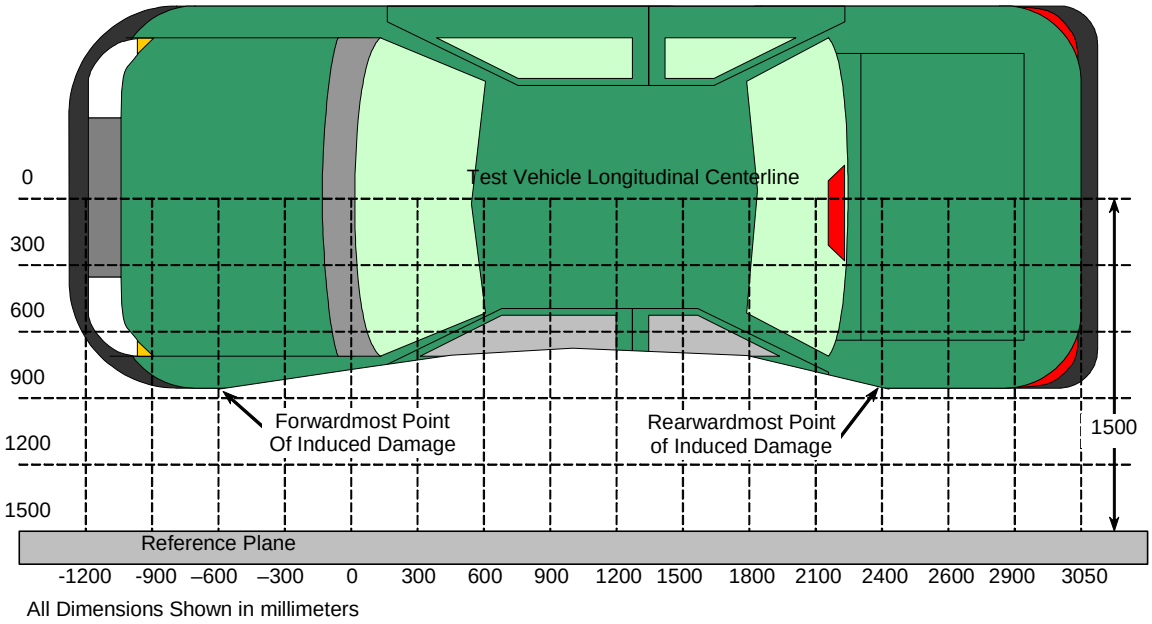
NOTE: All dimensions are in millimeters with a tolerance of ±3 mm

			DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																										
LEVEL	HEIGHT (mm)		-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000
LEVEL 1 SIDE SILL	218	PRE	--	–	--	--	--	--	–	145	141	135	131	130	127	127	127	131	135	138	129	--	--	--	--	--	--	--	--
		POST	--	–	--	--	--	--	–	143	142	139	137	136	137	138	141	145	149	152	140	--	--	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2	1	4	6	6	10	11	14	14	14	14	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LEVEL 2 H POINT	427	PRE	--	–	--	--	--	--	104	124	116	110	104	101	99	99	100	103	107	114	112	--	--	--	--	--	141	235	--
		POST	--	–	--	--	--	--	139	227	228	164	201	220	236	245	249	237	235	245	181	--	--	--	--	--	138	232	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	35	103	112	54	97	119	137	146	149	134	128	131	69	N/A	N/A	N/A	N/A	N/A	-3	-3	N/A
LEVEL 3 MID DOOR	584	PRE	--	–	--	--	--	--	117	128	118	111	105	101	98	98	99	102	107	113	118	95	--	--	--	109	172	247	--
		POST	--	–	--	--	--	--	176	220	121	158	180	189	202	209	215	213	209	216	197	130	--	--	--	108	170	246	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	59	92	3	47	75	88	104	111	116	111	102	103	79	35	N/A	N/A	N/A	-1	-2	-1	N/A
LEVEL 4 WINDOW SILL	837	PRE	--	–	--	469	320	257	232	218	205	195	190	182	177	176	174	176	177	182	190	197	200	200	222	268	308	374	--
		POST	--	–	--	446	304	253	231	218	228	167	201	221	245	265	271	252	230	209	208	197	203	201	223	265	306	375	--
		CRUSH	N/A	N/A	N/A	-23	-16	-4	-1	0	23	-28	11	39	68	89	97	76	53	27	18	0	3	1	1	-3	-2	1	N/A
LEVEL 5 WINDOW TOP	1235	PRE	--	–	--	--	--	--	–	--	--	--	--	--	484	377	369	374	418	462	--	--	--	--	--	--	--	--	--
		POST	--	–	--	--	--	--	–	--	--	--	--	--	491	377	368	368	410	456	--	--	--	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7	0	-1	-6	-8	-6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



TOP VIEW

DAMAGE PROFILE DISTANCES

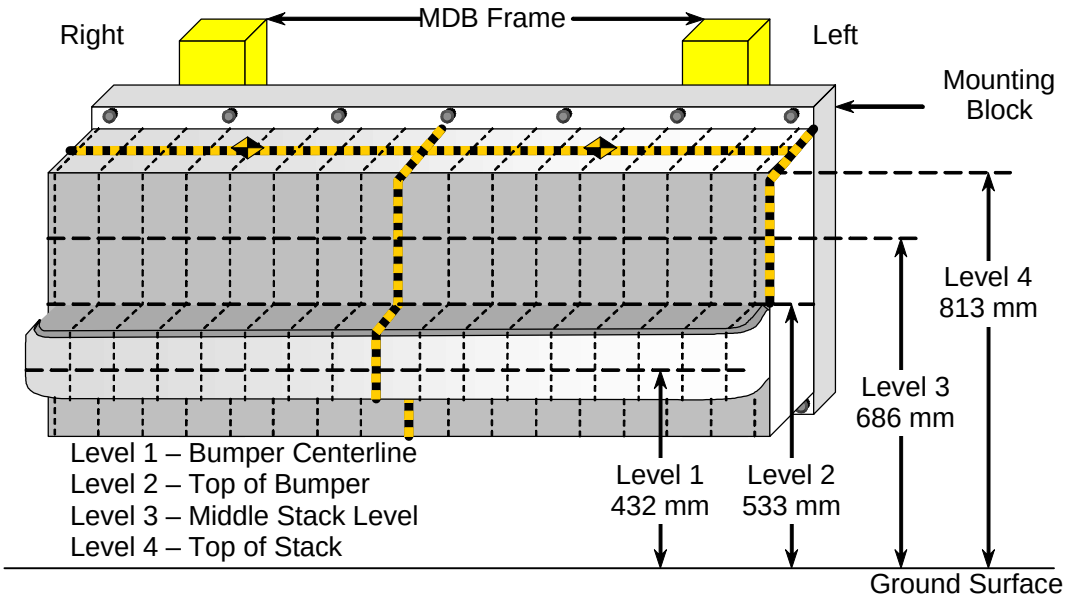
DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1 (LR)	2100	837	200	203	3
2	1650	427	114	245	131
3	1200	427	100	249	149
4	750	427	101	220	119
5	300	427	116	228	112
6 (LF)	-150	837	257	253	-4

Reference plane is parallel to test vehicle longitudinal centerline.
Given dimensions = Reference plane to vehicle body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



NOTE: All dimensions are in millimeters with a tolerance of ±3 mm

LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)									DISTANCE LEFT OF CENTER (mm)							
			-800	-700	-600	-500	-400	-300	-200	-100	0	100	200	300	400	500	600	700	800
LEVEL 4		PRE	411	412	412	412	412	412	413	413	413	413	413	413	413	413	413	413	412
TOP	811	POST	256	227	281	322	348	366	380	380	367	353	346	338	327	306	297	295	281
STACK		CRUSH	155	185	131	90	64	46	33	33	46	60	67	75	86	107	116	118	131
LEVEL 3		PRE	411	411	412	412	412	412	412	412	413	412	412	412	412	412	412	412	412
MID	682	POST	235	235	262	317	341	358	370	376	378	375	369	359	341	306	252	286	288
LEVEL		CRUSH	176	176	150	95	71	54	42	36	35	37	43	53	71	106	160	126	124
LEVEL 2		PRE	411	412	412	412	412	412	412	412	413	412	412	412	412	412	412	412	412
TOP	542	POST	224	223	227	246	270	285	293	291	295	291	289	288	284	272	257	254	260
BUMPER		CRUSH	187	189	185	166	142	127	119	121	118	121	123	124	128	140	155	158	152
LEVEL 1		PRE	501	513	513	513	513	513	513	514	514	514	514	514	514	514	514	514	505
MID	430	POST	263	286	284	299	319	340	353	356	354	353	350	347	335	307	302	308	301
BUMPER		CRUSH	238	227	229	214	194	173	160	158	160	161	164	167	179	207	212	206	204

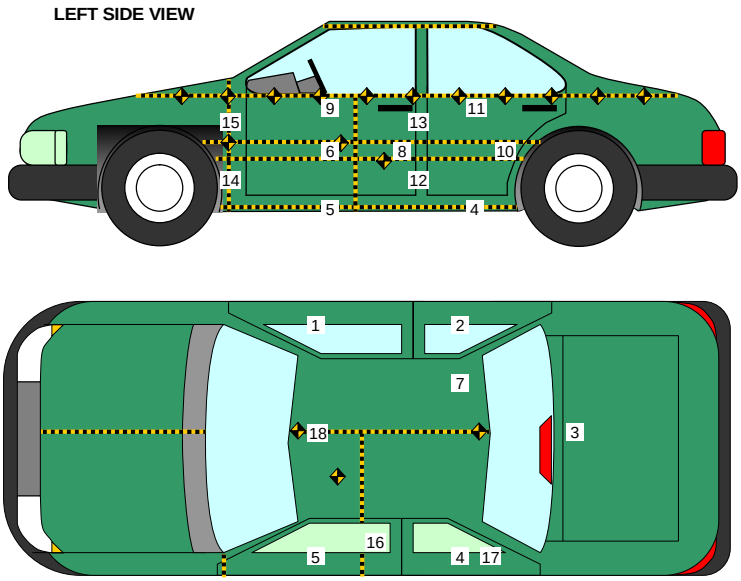
LEVEL	HEIGHT AT CL (mm)*	MAX CRUSH
LEVEL 4		
TOP	811	185
STACK		
LEVEL 3		
MID	682	176
LEVEL		
LEVEL 2		
TOP	542	189
BUMPER		
LEVEL 1		
MID	430	238
BUMPER		

*Heights measured above ground level.

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2561	685	-295
2	Right Sill at Rear Seat	1742	652	-307
3	Rear Floorpan Above Axle	987	9	-631
4	Left Sill at Rear Door	1746	-643	-291
5	Left Sill at Front Door	2584	-684	-302
6	Left Front Door C/L**	-	-	-
7	Rear Occupant Compartment	1799	406	-184
8	Left Front Door Mid-Rear**	-	-	-
9	Left Front Door Upper C/L**	-	-	-
10	Left Rear Door Mid-Rear**	-	-	-
11	Left Rear Door Upper C/L**	-	-	-
12	Left Lower B-Post	1716	-660	-471
13	Left Middle B-Post	1634	-659	-655
14	Left Lower A-Post	2726	-665	-364
15	Left Middle A-Post	2577	-650	-913
16	Front Seat Track	1851	-548	-207
17	Rear Seat Track or Structure	-	-	-
18	Vehicle CG	2100	45	-463

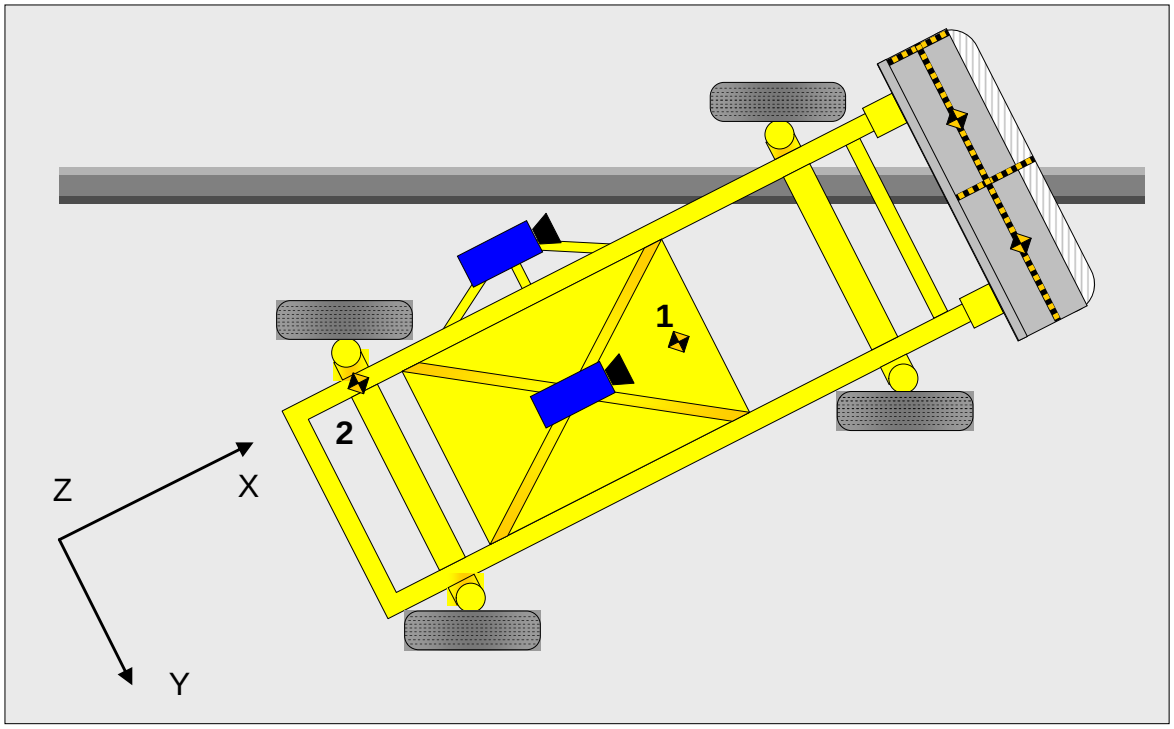
Reference Points X - Test Vehicle Rear Bumper (+ forward)
Y - Test Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

** Accelerometer was not requested by the COTR.

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	MDB CG	1859	0	-330
2	MDB Rear	386	-660	-660

Reference Points
X - MDB Rear Bumper (+ forward)
Y - MDB Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 15

VEHICLE STRUCTURAL MEASUREMENTS

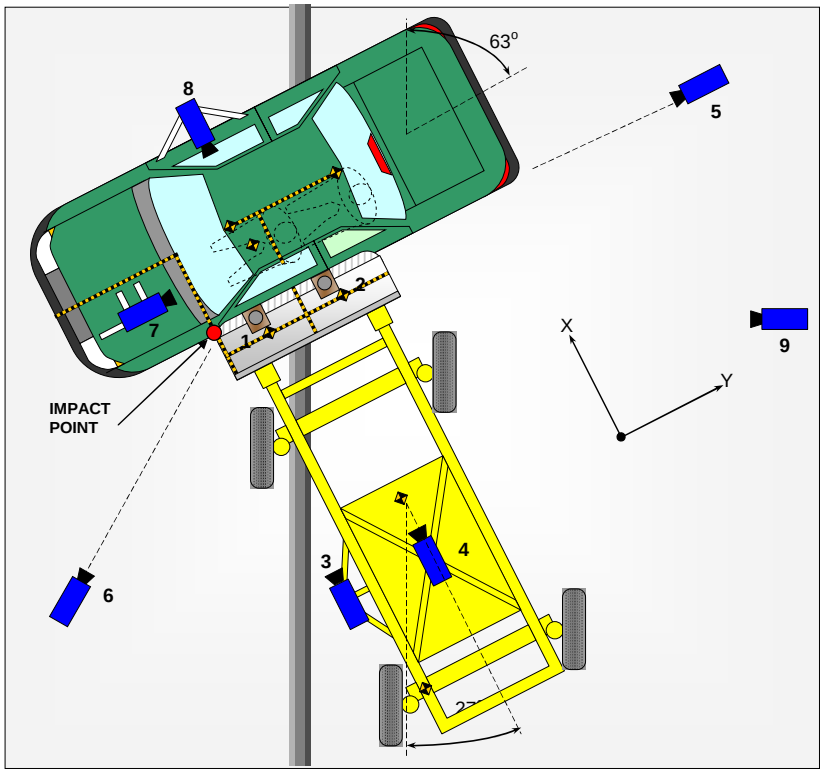
Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

	Elements	Pre-Test (mm)
1	Total Length	4311
2	Total Width	1789
3	Bumper Top Height	491
4	Bumper Bottom Height	386
5	Longitudinal Member Top Height	481
6	Distance between Longitudinal Members	883
7	Longitudinal Member Width	24
8	Engine Top Height	882
9	Engine Bottom Height	173
10	Engine and gearbox width	591
11	Front bumper-engine distance	508
12	Front shock absorber fixing height	731
13	Bonnet leading edge height	635
14	Front shock absorber fixing width	868
15	Front bumper – front axle distance	802
16	Front axle – a pillar distance	1314
17	A-pillar – B-pillar distance	1117
18	B-Pillar – rear axle distance	654
19	B-pillar – C-pillar distance	-
20	Roof sill bottom height	1161
21	Roof sill top height	1229
22	Floor sill bottom height	139
23	Floor sill top height	252

DATA SHEET NO. 16

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008



No.	Camera View	Location (mm)			Angle (deg)	Lens (mm)	Film Speed (fps)
		X	Y	Z			
1	Overhead Close-up	72	812	-4880	-90	20	1000
2	Overhead Overall	195	855	-4880	-90	28	1000
3	MDB Onboard, Impact Point Close-up	-1470	0	-847	0	12.5	500
4	MDB Onboard, Centerline of Impact	-1140	838	-1587	-17	25	500
5	Right Side, Ground Level, Overall	380	10050	-910	-2	50	1000
6	Left Side, Ground Level, Overall	-2180	-1397	-925	-4	28	1000
7	Vehicle Onboard Front SID/HIII, Front	516	-240	-1203	-10	25	1000
8	Vehicle Onboard Front SID/HIII, Side	1610	1110	-1025	-4	12.5	1000
9	Real Time Coverage						30

Reference Points
X - Impact Line
Y - MDB Left Edge Impact Point
Z - Ground Plane

DATA SHEET NO. 17
SUMMARY OF FMVSS 301 DATA

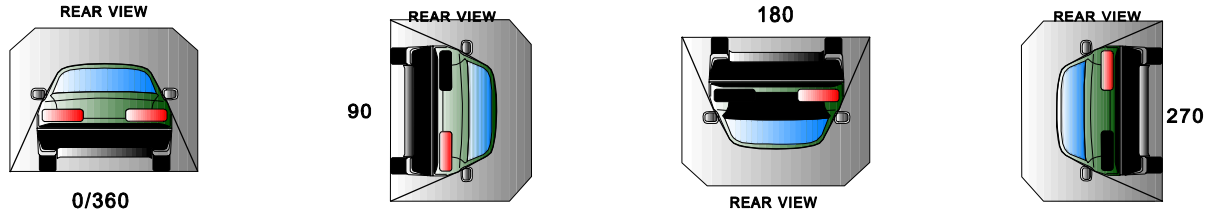
Test Vehicle:	2008 Nissan 350Z Roadster	NHTSA No.	C85203
Test Program:	FMVSS 214 Indicant Side Impact	Test Date:	January 17, 2008

FUEL SYSTEM INTEGRITY POST IMPACT DATA

Time Interval	FMVSS 301 Maximum Allowable Spillage	Spillage (g)
Impact Until Motion Ceases	28 g	0
First Five Minutes Following Impact	142 g	0
Next 25 Minutes	28 g / 1 minute	0

Spillage Location(s)	None

STATIC ROLLOVER DATA



Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0º - 90º	1	minutes	09	seconds	5	minutes	6	minutes	9	seconds	7	minutes
90º - 180º	1	minutes	06	seconds	5	minutes	6	minutes	6	seconds	7	minutes
180º-270º	1	minutes	00	seconds	5	minutes	6	minutes	0	seconds	7	minutes
270º-360º	1	minutes	15	seconds	5	minutes	6	minutes	15	seconds	7	minutes

Rollover Stage	Spillage (g)			
	First 5 min. from onset of rotation	6^{th} min.	7^{th} min.	8^{th} min. (if required)
0º - 90º	0	0	0	0
90º - 180º	0	0	0	0
180º-270º	0	0	0	0
270º-360º	0	0	0	0
FMVSS 301 Maximum Allowable (for each 90º stage)	142	28	28	28

Rollover Stage	Spillage Location(s)
0º - 90º	None
90º - 180º	None
180º-270º	None
270º-360º	None

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

FIGURE	TITLE	PAGE
A-1	As Received Left Front ¾ View	A-4
A-2	As Received Right Rear ¾ View	A-4
A-3	Vehicle Certification Label	A-5
A-4	Vehicle Tire Placard Label	A-5
A-5	Pre-Test Front View	A-6
A-6	Post-Test Front View	A-6
A-7	Pre-Test Left Front ¾ View	A-7
A-8	Post-Test Left Front ¾ View	A-7
A-9	Pre-Test Left Side View	A-8
A-10	Post-Test Left Side View	A-8
A-11	Pre-Test Left Rear ¾ View	A-9
A-12	Post-Test Left Rear ¾ View	A-9
A-13	Pre-Test Rear View	A-10
A-14	Post-Test Rear View	A-10
A-15	Pre-Test Right Rear ¾ View	A-11
A-16	Post-Test Right Rear ¾ View	A-11
A-17	Pre-Test Right Side View	A-12
A-18	Post-Test Right Side View	A-12
A-19	Pre-Test Right Front ¾ View	A-13
A-20	Post-Test Right Front ¾ View	A-13
A-21	Pre-Test Frontal View of MDB Impactor Face	A-14
A-22	Post-Test Frontal View of MDB Impactor Face	A-14
A-23	Pre-Test Left Side View of MDB Impactor Face	A-15
A-24	Post-Test Left Side View of MDB Impactor Face	A-15
A-25	Pre-Test Right Side View of MDB Impactor Face	A-16
A-26	Post-Test Right Side View of MDB Impactor Face	A-16
A-27	Pre-Test Top View of MDB Impactor Face	A-17
A-28	Post-Test Top View of MDB Impactor Face	A-17
A-29	Pre-Test Left Side View of Aligned MDB and Vehicle	A-18
A-30	Pre-Test Right Side View of Aligned MDB and Vehicle	A-18
A-31	Pre-Test Overhead View of Aligned MDB and Vehicle	A-19
A-32	Post-Test Overhead View of MDB and Vehicle	A-19
A-33	Pre-Test Close-Up View of Impact Point Target	A-20
A-34	Post-Test Close-Up View of Impact Point Target	A-20

TABLE OF PHOTOGRAPHS (continued)

FIGURE	TITLE	PAGE
A-35	Pre-Test Right Occupant Compartment View of Driver	A-21
A-36	Post-Test Right Occupant Compartment View of Driver	A-21
A-37	Pre-Test Left Occupant Compartment View of Driver	A-22
A-38	Post-Test Left Occupant Compartment View of Driver	A-22
A-39	Pre-Test Left Front Interior Trim	A-23
A-40	Post-Test Left Front Interior Trim	A-23
A-41	Pre-Test Left Front ¾ View of Left Side Doors	A-24
A-42	Post-Test Left Front ¾ View of Left Side Doors	A-24
A-43	Pre-Test Left Rear ¾ View of Left Side Doors	A-25
A-44	Post-Test Left Rear ¾ View of Left Side Doors	A-25
A-45	Rollover 90 Degrees	A-26
A-46	Rollover 180 Degrees	A-26
A-47	Rollover 270 Degrees	A-27
A-48	Rollover 360 Degrees	A-27
A-49	Impact Photo	A-28

Figure A-1: As Received Left Front ¾ View

Figure A-2: As Received Right Rear ¾ View

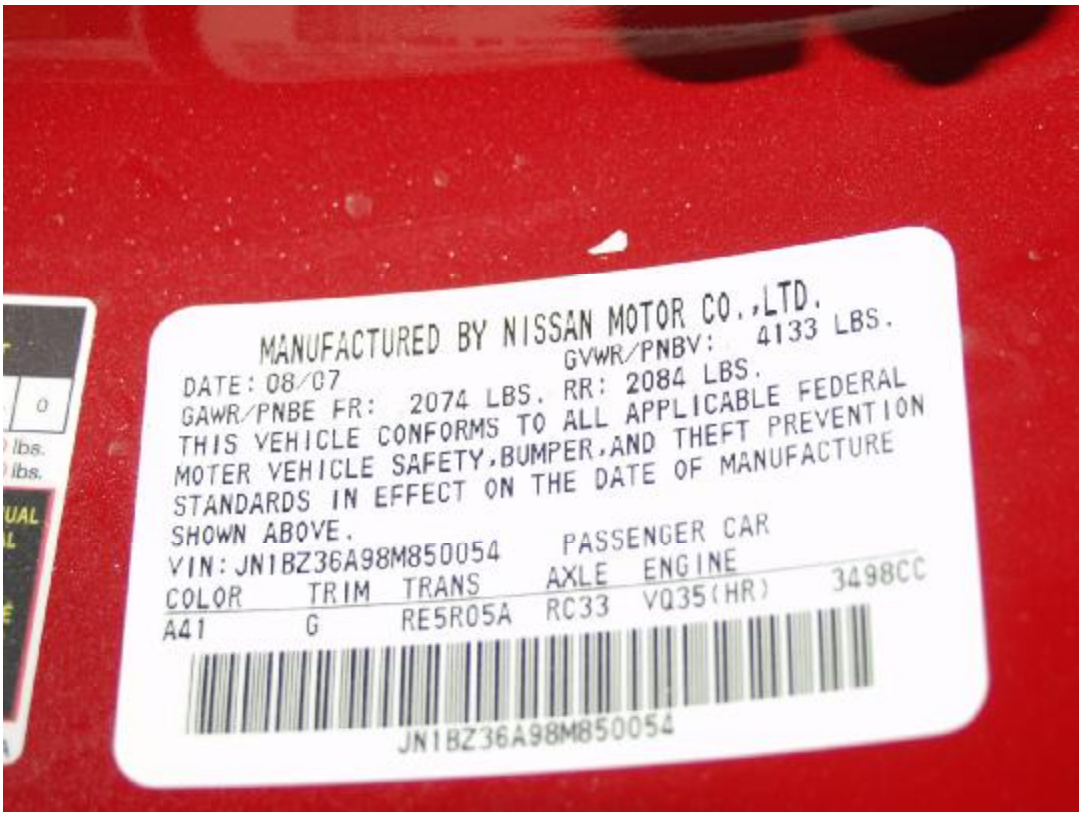


Figure A-3: Vehicle Certification Label

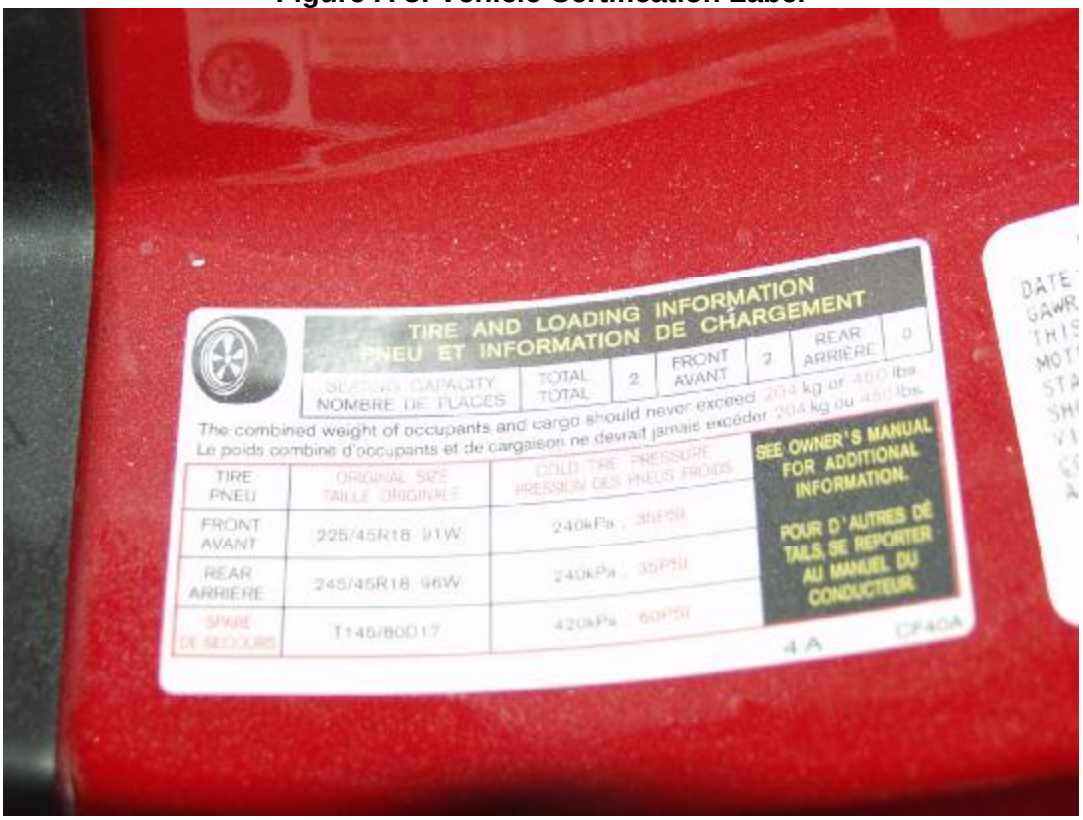


Figure A-4: Vehicle Tire Placard Label

Figure A-5: Pre-Test Front View

Figure A-6: Post-Test Front View

Figure A-7: Pre-Test Left Front ¾ View

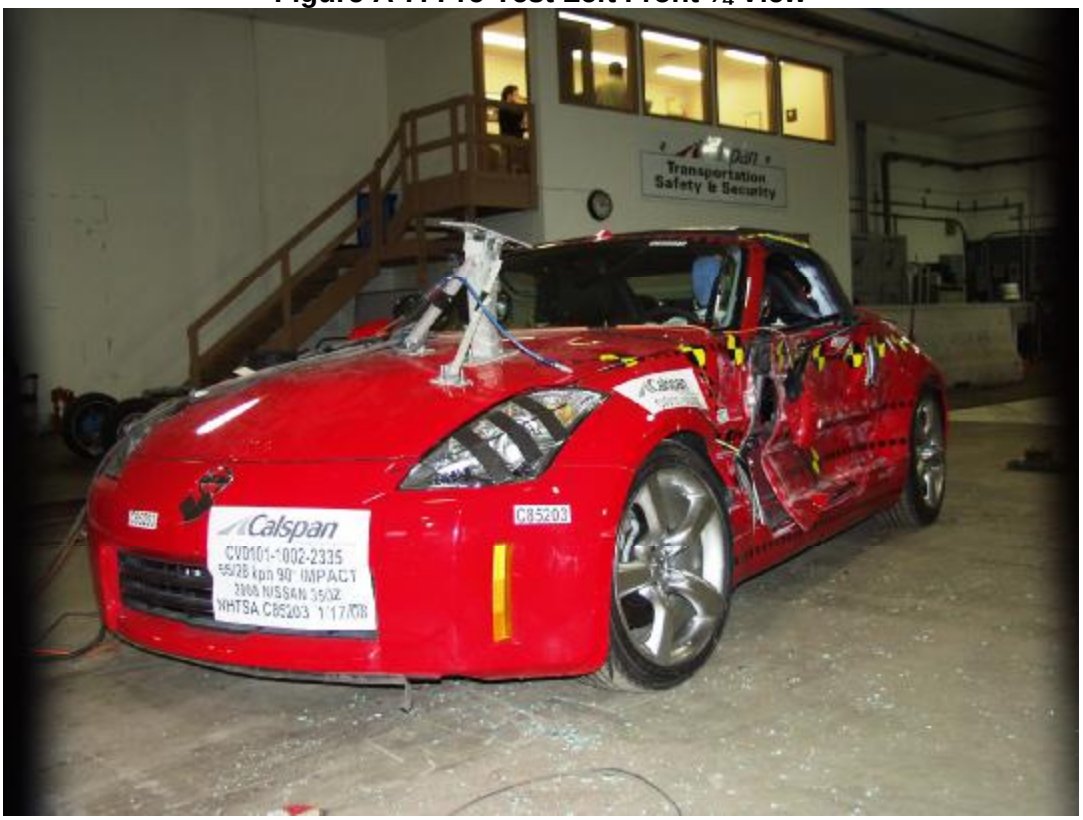


Figure A-8: Post-Test Left Front ¾ View

Figure A-9: Pre-Test Left Side View

Figure A-10: Post-Test Left Side View

Figure A-11: Pre-Test Left Rear ¾ View

Figure A-12: Post-Test Left Rear ¾ View

Figure A-13: Pre-Test Rear View

Figure A-14: Post-Test Rear View

Figure A-15: Pre-Test Right Rear ¾ View

Figure A-16: Post-Test Right Rear ¾ View

Figure A-17: Pre-Test Right Side View

Figure A-18: Post-Test Right Side View

Figure A-19: Pre-Test Right Front ¾ View

Figure A-20: Post-Test Right Front ¾ View

Figure A-21: Pre-Test Frontal View of MDB Impactor Face

Figure A-22: Post-Test Frontal View of MDB Impactor Face

Figure A-23:Pre-Test Left Side View of MDB Impactor Face

Figure A-24: Post-Test Left Side View of MDB Impactor Face

Figure A-25: Pre-Test Right Side View of MDB Impactor Face

Figure A-26: Post-Test Right Side View of MDB Impactor Face

Figure A-27: Pre-Test Top View of MDB Impactor Face

Figure A-28: Post-Test Top View of MDB Impactor Face

Figure A-29: Pre-Test Left Side View of Aligned MDB and Vehicle

Figure A-30: Pre-Test Right Side View of Aligned MDB and Vehicle

Figure A-31: Pre-Test Overhead View of Aligned MDB and Vehicle

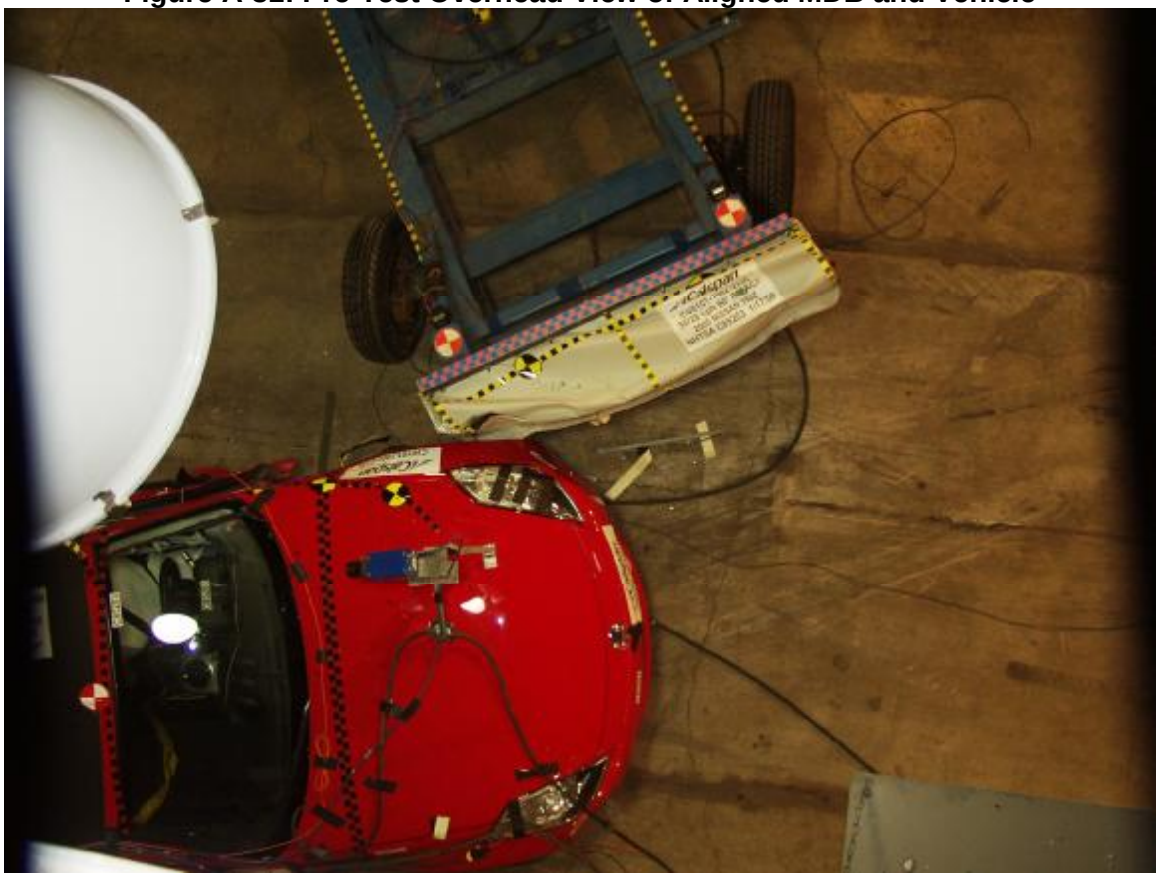


Figure A-32: Post-Test Overhead View of MDB and Vehicle

Figure A-33: Pre-Test Close-Up View of Impact Point Target

Figure A-34: Post-Test Close-Up View of Impact Point Target

Figure A-35: Pre-Test Right Occupant Compartment View of Driver

Figure A-36: Post-Test Right Occupant Compartment View of Driver

Figure A-37: Pre-Test Left Occupant Compartment View of Driver

Figure A-38: Post-Test Left Occupant Compartment View of Driver

Figure A-39: Pre-Test Left Front Interior Trim

Figure A-40: Post-Test Left Front Interior Trim

Figure A-41: Pre-Test Left Front ¾ View of Left Side Doors

Figure A-42: Post-Test Left Front ¾ View of Left Side Doors

Figure A-43: Pre-Test Left Rear ¾ View of Left Side Doors

Figure A-44: Post-Test Left Rear ¾ View of Left Side Doors

Figure A-45: Rollover 90 Degrees

Figure A-46: Rollover 180 Degrees

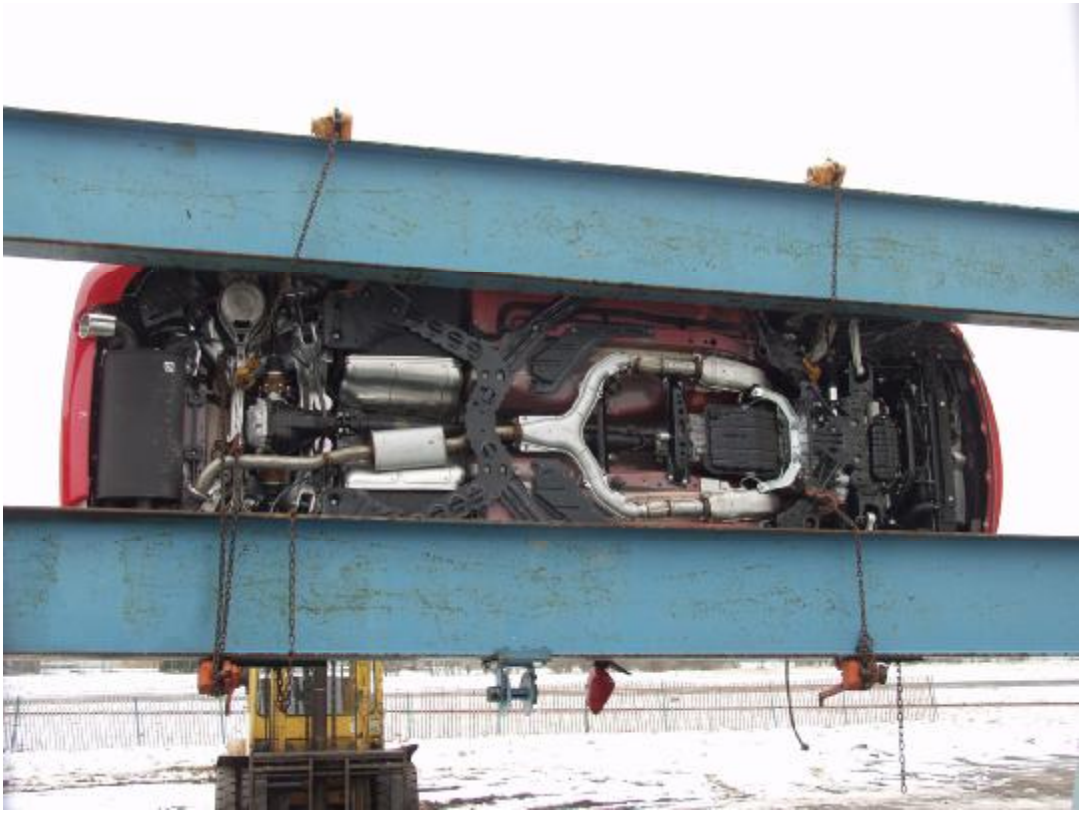


Figure A-47: Rollover 270 Degrees

Figure A-48: Rollover 360 Degrees

Figure A-49: Impact Photo

APPENDIX B

SID/HIII, VEHICLE AND MDB RESPONSE DATA

(SAE sign convention)

DATA CHANNEL FILTER CLASS SUMMARY

Data Type	SAE Filter Class
Dummy Head Accelerations	CFC 1000
Rib Accelerations	FIR 100
Spine Accelerations	FIR 100
Pelvis Accelerations	FIR 100

DATA CHANNEL TITLE KEY

Prefix	Suffix
V1 = Vehicle 1 (Moving Barrier)	Ax = Acceleration, X-direction
V2 = Vehicle 2 (Test Vehicle)	Ay = Acceleration, Y-direction
P1 = Left Front Seating Position (Driver)	Az = Acceleration, Z-direction
	Fx = Force, X-direction
A1-A18 = Accelerometer Location Number	Fy = Force, Y-direction
	Fz = Force, Z-direction
	Mx = Moment about X
	My = Moment about Y
	Mz = Moment about Z

TABLE OF DATA PLOTS

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	V2P1 Head Ax [g, CFC_1000]	B-5
2	V2P1 Head Ay [g, CFC_1000]	B-5
3	V2P1 Head Az [g, CFC_1000]	B-5
4	V2P1 Head Ar [g, CFC_1000]	B-5
5	V1P1 Upper Rib Ay [g, FIR_100]	B-6
6	V1P1 Lower Rib Ay [g, FIR_100]	B-6
7	V1P1 Lower Spine Ay [g, FIR_100]	B-6
8	V1P1 Pelvic Ay [g, FIR_100]	B-6

The following dummy, vehicle and load cell response data can be found in the research and development section of the NHTSA website at: www.nhtsa.dot.gov

V2P1 Head Ax
V2P1 Head Ay
V2P1 Head Az
V2P1 Upper Neck Fx
V2P1 Upper Neck Fy
V2P1 Upper Neck Fz
V2P1 Upper Neck Mx
V2P1 Upper Neck My
V2P1 Upper Neck Mz
V2P1 Upper Rib Ay
V2P1 Upper Rib Redundant Ay
V2P1 Lower Rib Ay
V2P1 Lower Rib Redundant Ay
V2P1 Lower Spine Ay
V2P1 Lower Spine Redundant Ay
V2P1 Pelvic Ay
V2P1 Pelvic Redundant Ay

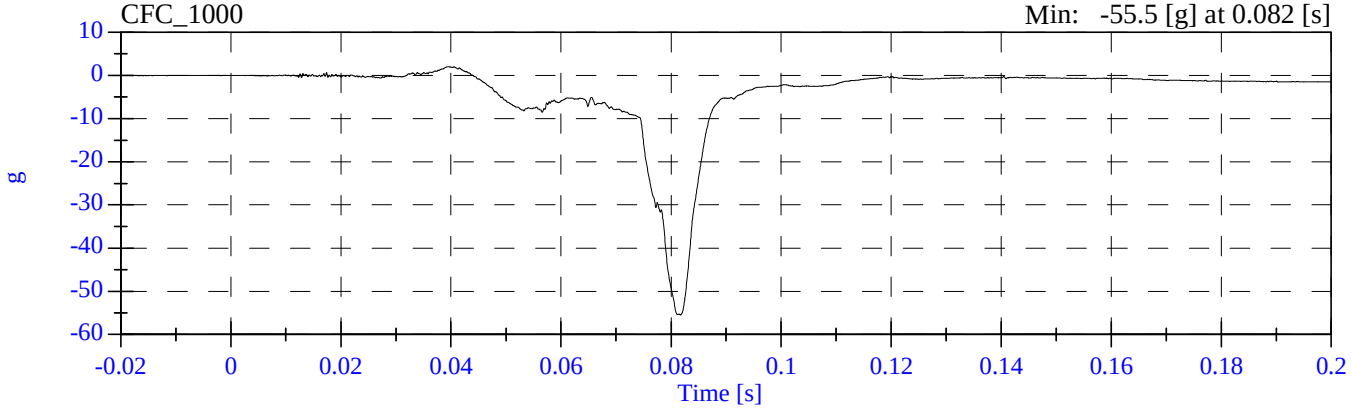
V2A1 Right Front Sill Ax
V2A1 Right Front Sill Ay
V2A1 Right Front Sill Az
V2A2 Right Rear Sill Ax
V2A2 Right Rear Sill Ay
V2A2 Right Rear Sill Az
V2A3 Rear Floorpan Ax
V2A3 Rear Floorpan Ay
V2A3 Rear Floorplan Az
V2A4 Left Rear Sill Ay
V2A5 Left Front Sill Ay
V2A7 Right Rear Compartment Ay
V2A12 Left Lower B Post Ay
V2A13 Left Mid B Post Ay
V2A14 Left Lower A Post Ay
V2A15 Left Mid A Post Ay
V2A16 Front Seat Track Ay
V2A18 Target CG Ax
V2A18 Target CG Ay
V2A18 Target CG Az
V1 Moving Barrier CG Ax
V1 Moving Barrier CG Ay
V1 Moving Barrier CG Az
V1 Moving Barrier Left Rail Ax
V1 Moving Barrier Left Rail Ay

TEST NOTES

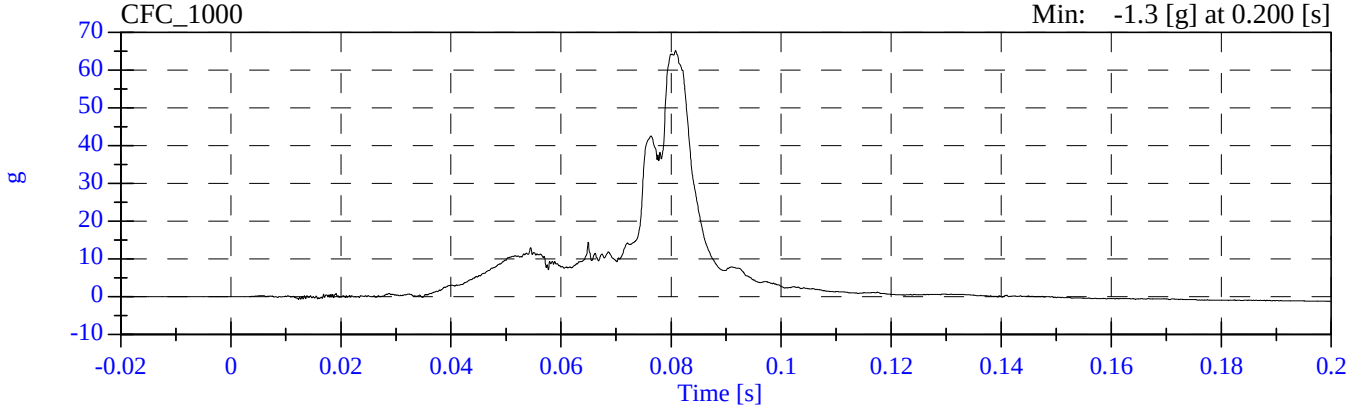
None

2008 FMVSS 214I Test 3 2008 Nissan 350Z
C85203 - January 17, 2008

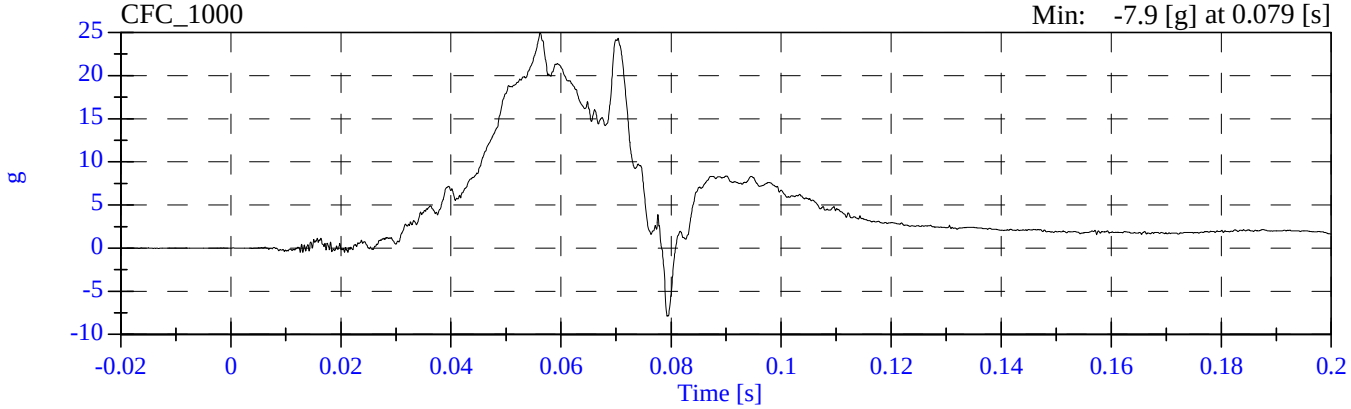
V2P1 Head x
CFC_1000
Max: 2.0 [g] at 0.039 [s]
Min: -55.5 [g] at 0.082 [s]



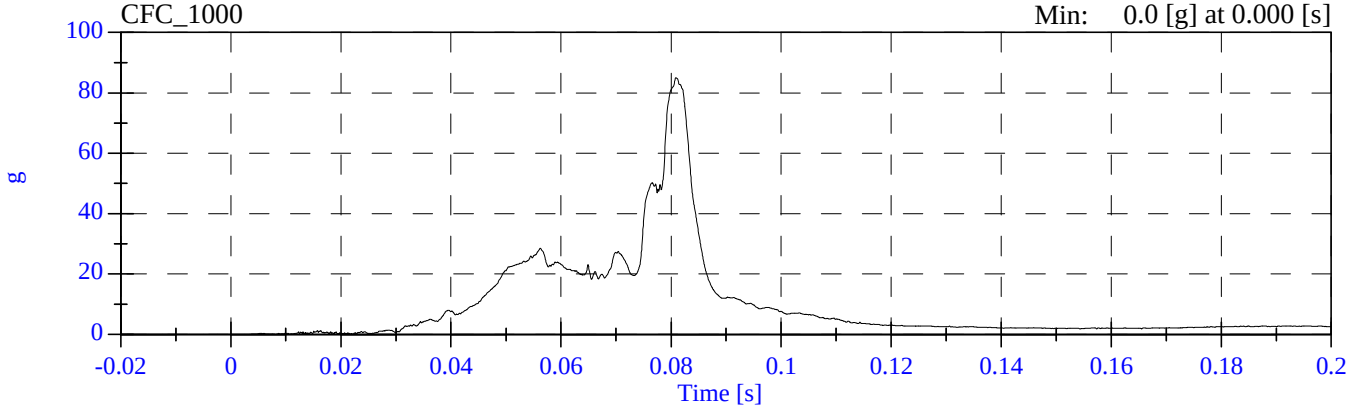
V2P1 Head y
CFC_1000
Max: 65.1 [g] at 0.081 [s]
Min: -1.3 [g] at 0.200 [s]



V2P1 Head z
CFC_1000
Max: 25.0 [g] at 0.056 [s]
Min: -7.9 [g] at 0.079 [s]

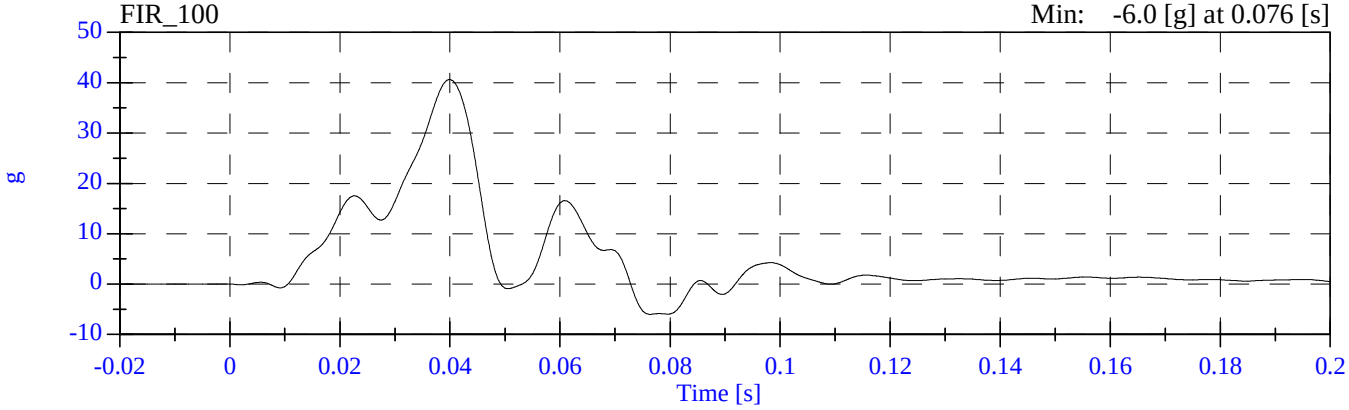


V2P1 Head Resultant
CFC_1000
Max: 85.0 [g] at 0.081 [s]
Min: 0.0 [g] at 0.000 [s]

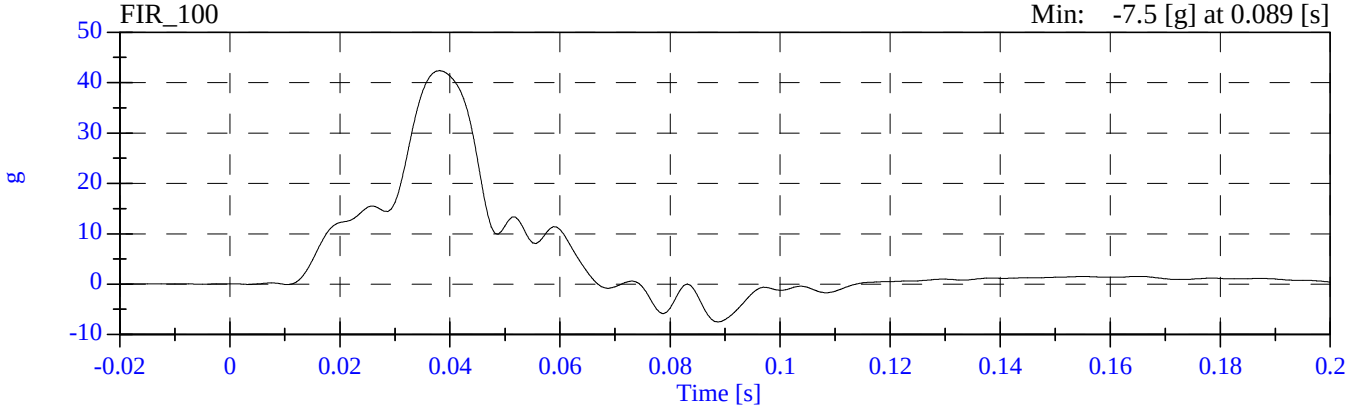


2008 FMVSS 214I Test 3 2008 Nissan 350Z
C85203 - January 17, 2008

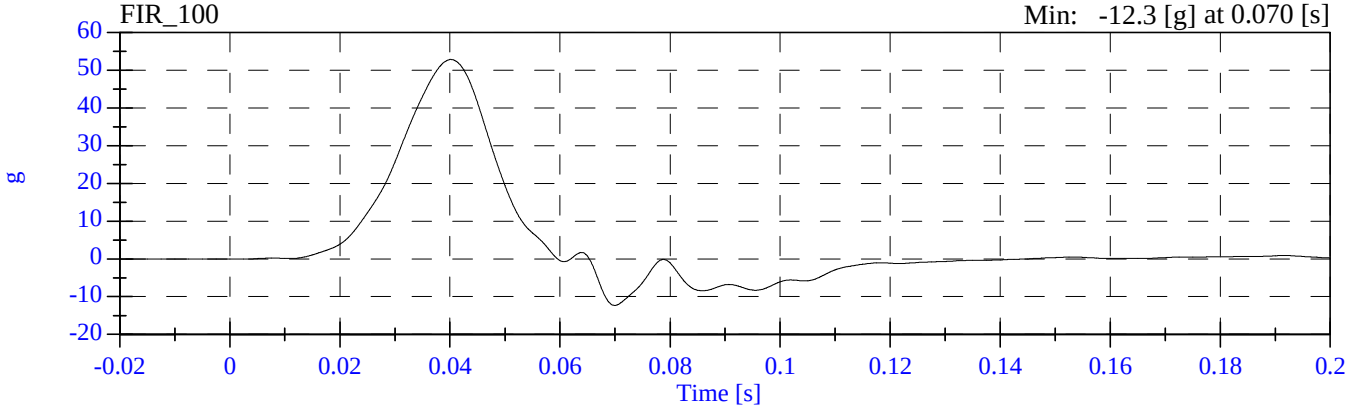
V2P1 Upper Rib y
FIR_100
Max: 40.7 [g] at 0.040 [s]
Min: -6.0 [g] at 0.076 [s]



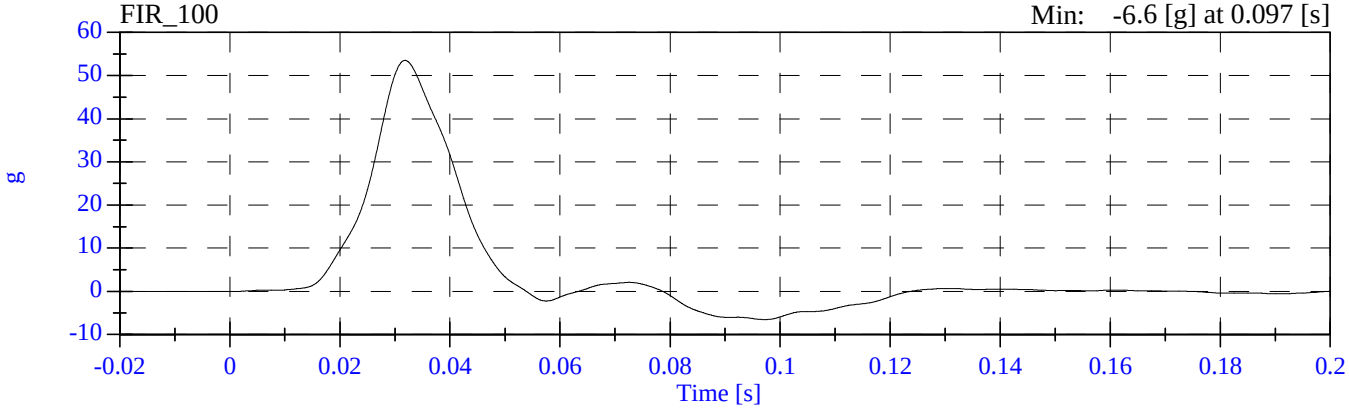
V2P1 Lower Rib y
FIR_100
Max: 42.4 [g] at 0.038 [s]
Min: -7.5 [g] at 0.089 [s]



V2P1 Lower Spine y
FIR_100
Max: 52.8 [g] at 0.040 [s]
Min: -12.3 [g] at 0.070 [s]



V2P1 Pelvic y
FIR_100
Max: 53.6 [g] at 0.032 [s]
Min: -6.6 [g] at 0.097 [s]



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID H3 PRE & POST TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: January 14, 2008, February 4, ,2008 Sequential Test Number: 5
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID H3 NO.: 270	
		PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	902	899
RH- Rib Height (mm)	501 - 521	503	505
HP- Hip Pivot Height (mm)	99 ref.	99	99
RD- Rib from Back Line (mm)	229 - 241	234	234
KV- Knee Pivot from Back Line (mm)	511 - 526	513	518
SW- Knee Pivot to Floor (mm)	490 - 505	495	495
HW- Hip Width (mm)	356 - 391	384	384
THORAX IMPACTS			
TEMPERATURE (C)	18.9 - 25.5	21.1	21.1
RELATIVE. HUMIDITY (%)	10 -70	26.00	18.00
PROBE SPEED (m/s)	4.27 - 4.33	4.28	4.27
UPPER RIB (g's)	37 - 46	40	40.89
LOWER RIB (g's)	37 - 46	42.06	41.01
LOWER SPINE (g's)	15 -22	21.57	20.38
PELVIS IMPACT			
TEMPERATURE (C)	18.9 - 25.5	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	26.00	18.00
PROBE SPEED (m/s)	4.27 - 4.33	4.28	4.29
PELVIS (g's)	40 -60	50.92	57.78

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 270

CONFIGURED FOR LEFT SIDE IMPACT

CALIBRATION TEST RESULTS SUMMARY
PRE-TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 5
Date: January 15, 2008 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

EXTERNAL DIMENSIONS
PRE-TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 5
Date: January 15, 2008 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	902
RH- Rib Height (mm)	502 – 520	503
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 – 241	234
KH- Knee Pivot from Back Line (mm)	511 – 526	513
KV- Knee Pivot to Floor (mm)	490 – 505	495
HW- Hip Width (mm)	356 - 391	384

REMARKS: None

Shock Low (3.05 m/s)

PRE TEST

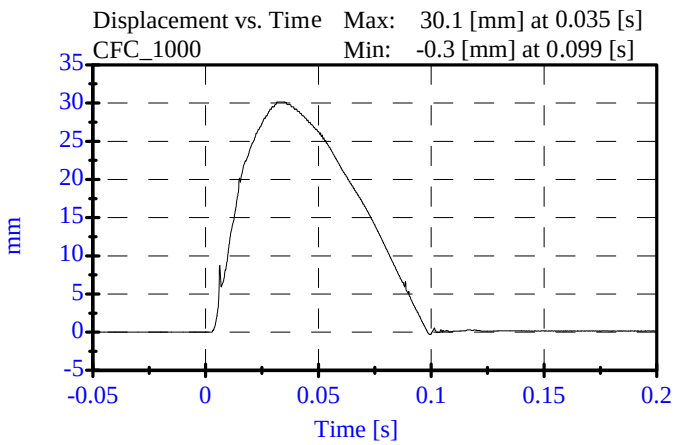
CONFIGURED FOR LEFT SIDE IMPACT

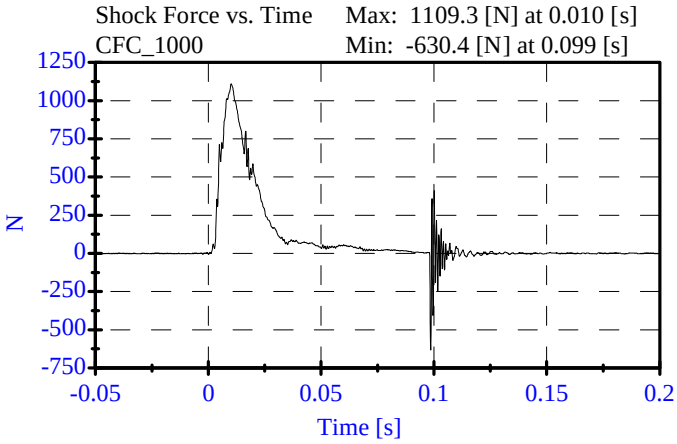
ATD Serial No: 270 Sequential Test Number: 1 File: 270-10 07-18-07

Date: 07-18-07 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Displacement:	30.00-35.00 mm	30.14 mm	Passed
Maximum Force:	836.00-1125.00 N	1109.32 N	Passed

Impact Test Velocity: 3.05 m/s
Damper Identification: 270
Damper Setting: 5





Shock Med (4.27 m/s)

PRE TEST

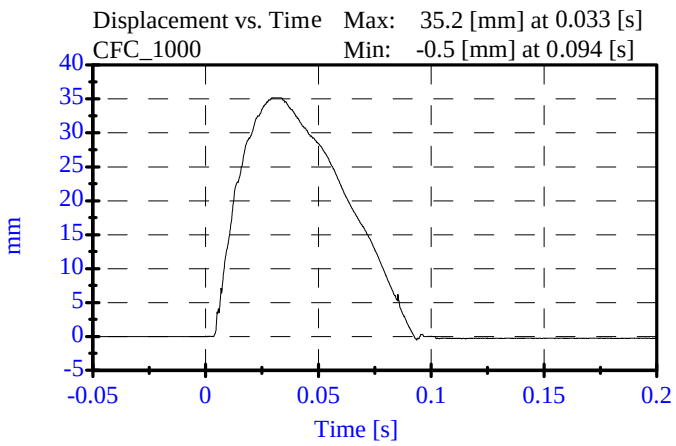
CONFIGURED FOR LEFT SIDE IMPACT

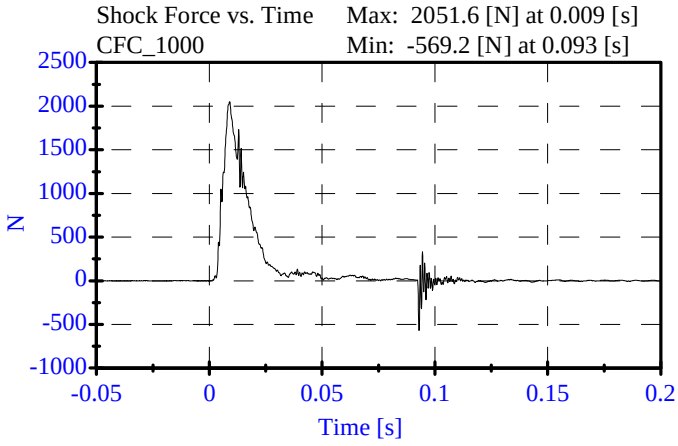
ATD Serial No: 270 Sequential Test Number: 1 File: 270-14a 07-18-07

Date: 07-18-07 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Displacement:	32.00-37.00 mm	35.15 mm	Passed
Maximum Force:	1730.00-2099.00 N	2051.64 N	Passed

Impact Test Velocity: 4.27 m/s
Damper Identification: 270
Damper Setting: 5





Shock High (6.10 m/s)

PRE TEST

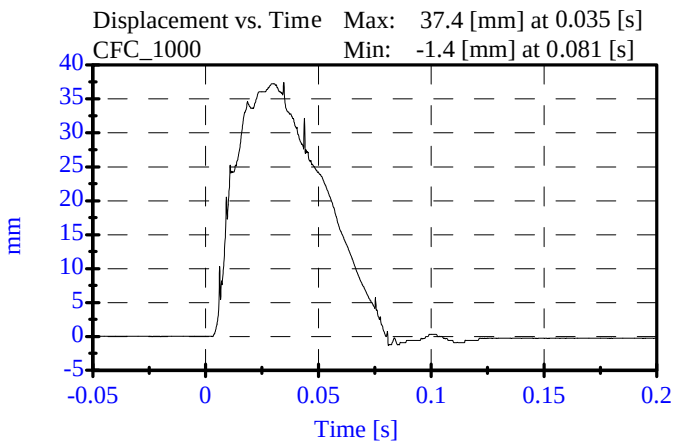
CONFIGURED FOR LEFT SIDE IMPACT

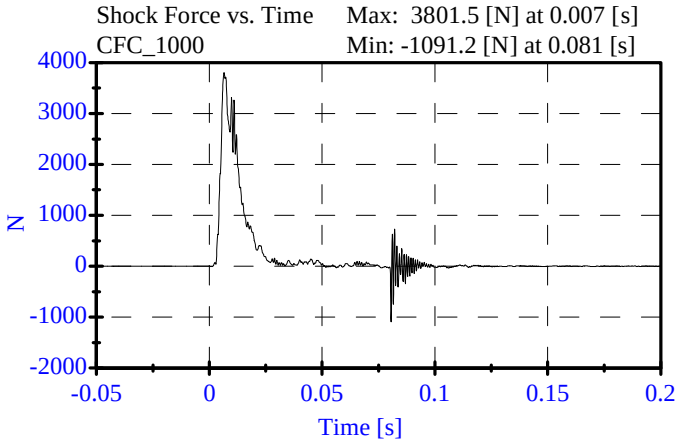
ATD Serial No: 270 Sequential Test Number: 1 File: 270-20a 07-19-07

Date: 07-19-07 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Displacement:	33.00-40.00 mm	37.41 mm	Passed
Maximum Force:	3741.00-4448.00 N	3801.46 N	Passed

Impact Test Velocity: 6.10 m/s
Damper Identification: 270
Damper Setting: 5





Thorax Impact

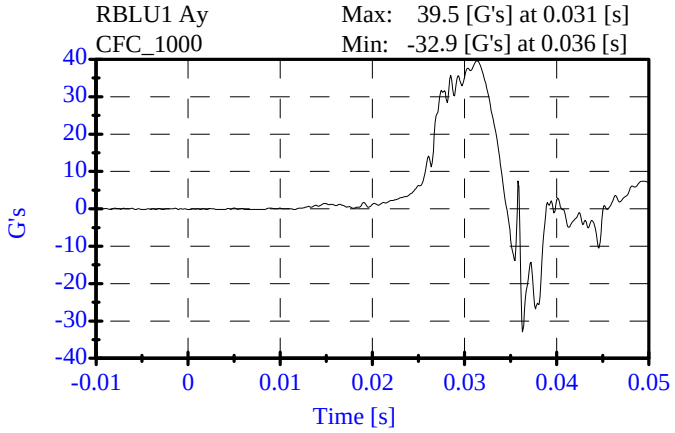
Pre-Test

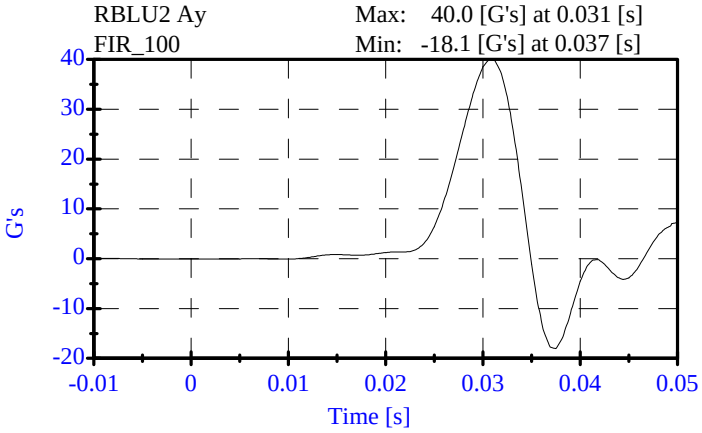
CONFIGURED FOR LEFT SIDE IMPACT

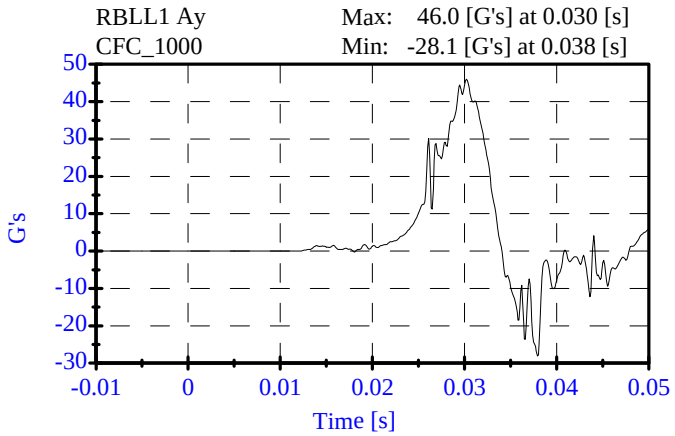
ATD Serial No: 270 Sequential Test Number: 1 File: 270T2 01-14-08

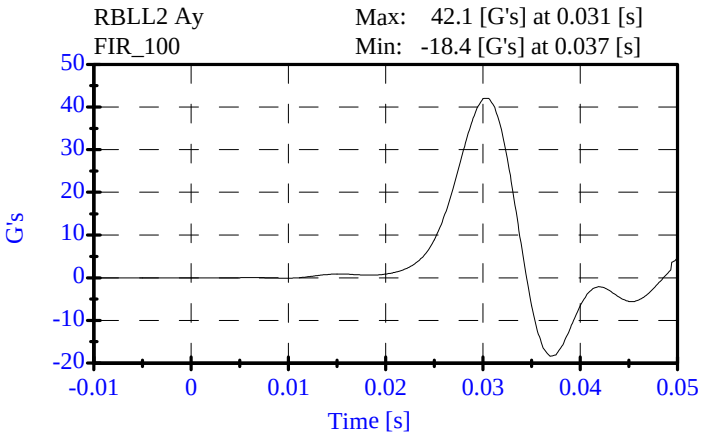
Date: 01-14-08 Laboratory Technician: B. Swiecicki

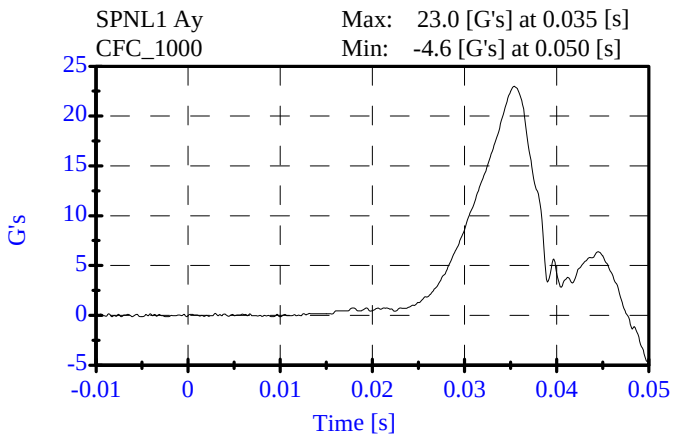
TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	26.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.28 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	40.00 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	42.06 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.57 G's	Passed

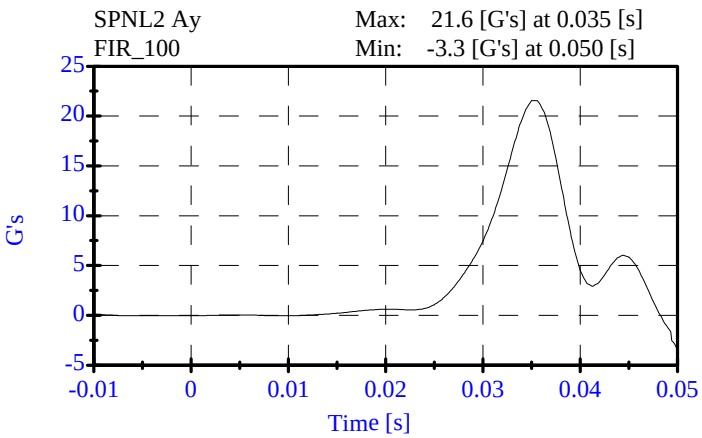












Pelvis Impact

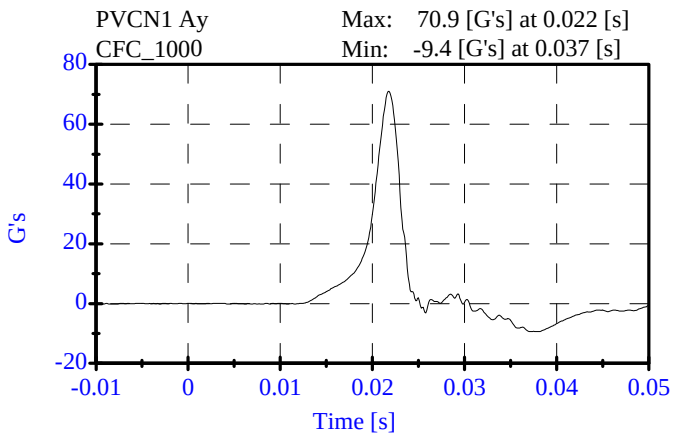
Pre-Test

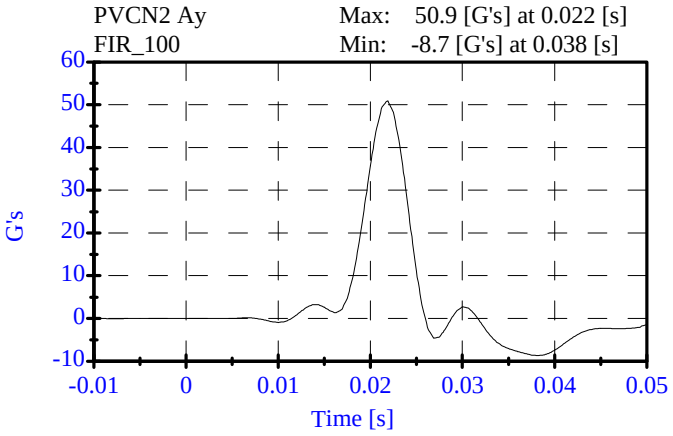
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270 Sequential Test Number: 1 File: 270P 01-14-08

Date: 01-14-08 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	26.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.28 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	50.92 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.5 ms	Passed





Head Drop

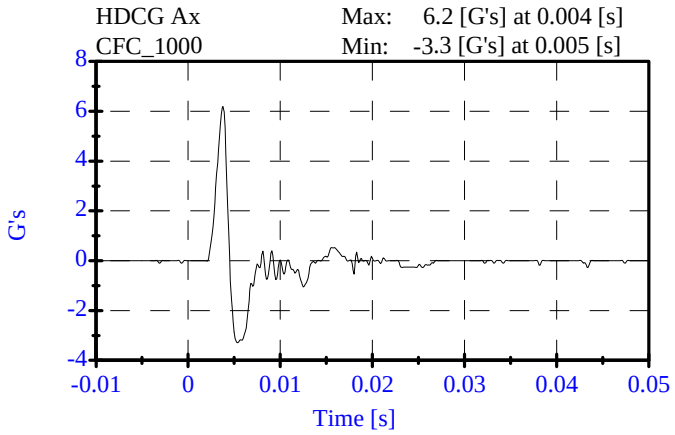
Pre-Test

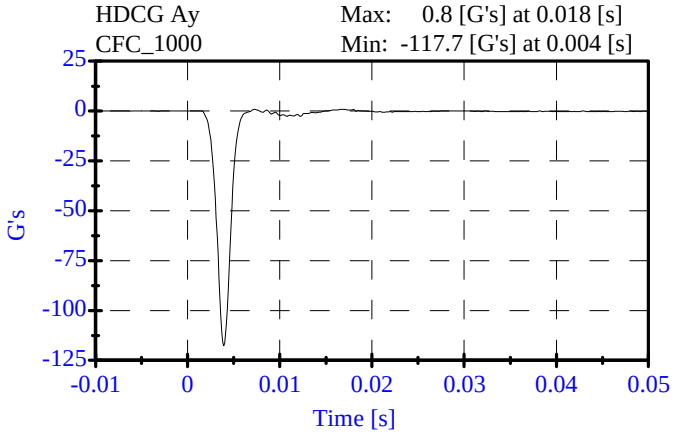
CONFIGURED FOR LEFT SIDE IMPACT

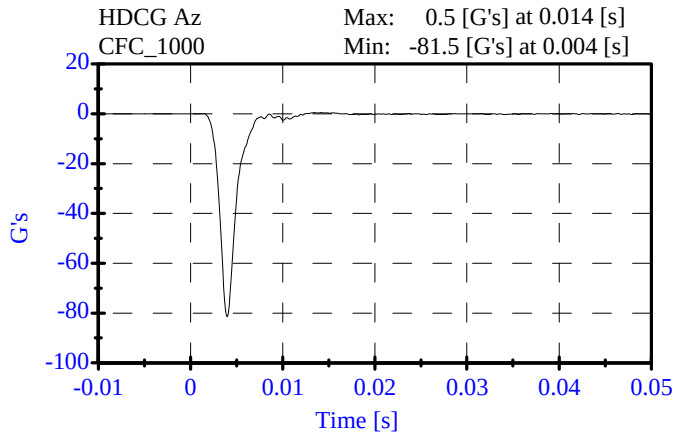
ATD Serial No: 270 Sequential Test Number: 1 File: 270H 01-11-08

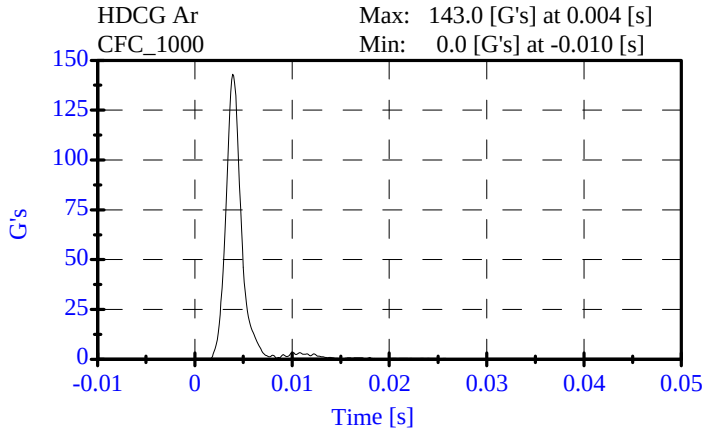
Date: 01-11-08 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	20.6 C	Passed
Lab Humidity:	10-70 %	32.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	143.00 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	6.19 Gs	Passed
Curve PerCent NonModal:	< 15%	2.41 %	Passed









Neck Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270 Sequential Test Number: 1 File: 270N5 01-15-08

Date: 01-15-08 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	20.6-22.2 C	21.7 C	Passed
Lab Humidity:	10-70 %	26.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	6.99 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.15 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.39 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.22 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.00 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	68.19 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.40 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	86.85 N-m	Passed
Occiptal Moment Decay:	49.0-64.0 ms	52.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	8.00 ms	Passed

Neck Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

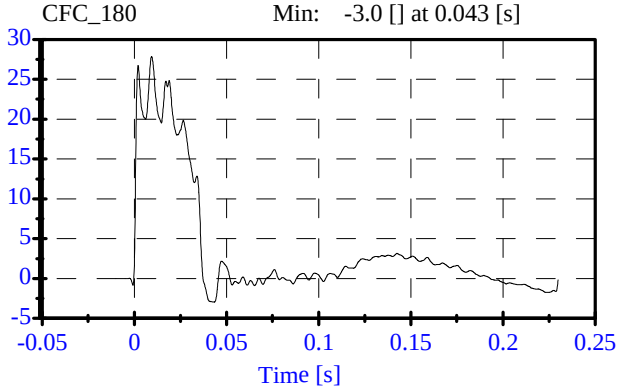
ATD Serial No: 270

Sequential Test Number: 1 File: 270N5 01-15-08

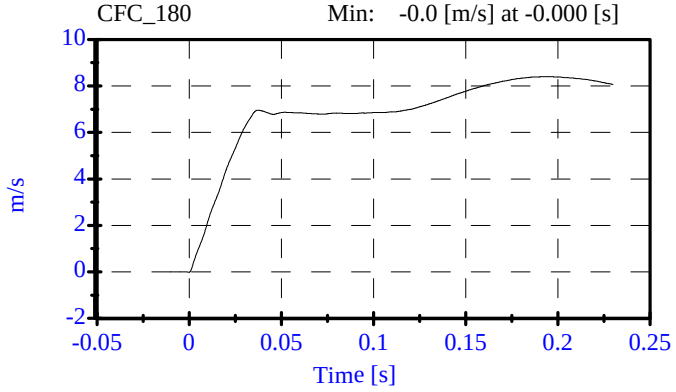
Date: 01-15-08

Laboratory Technician: B. Swiecicki

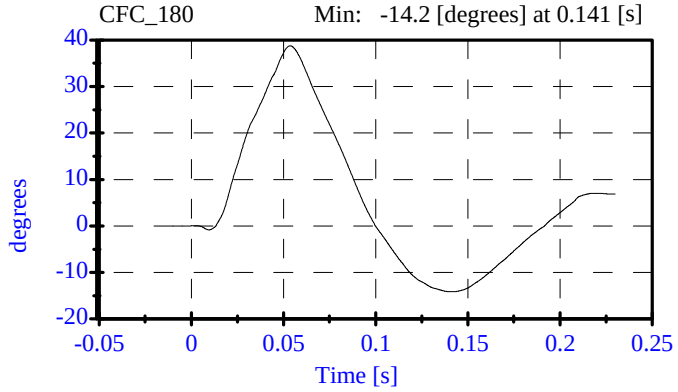
Pend Ax Max: 27.9 [] at 0.009 [s]
CFC_180 Min: -3.0 [] at 0.043 [s]



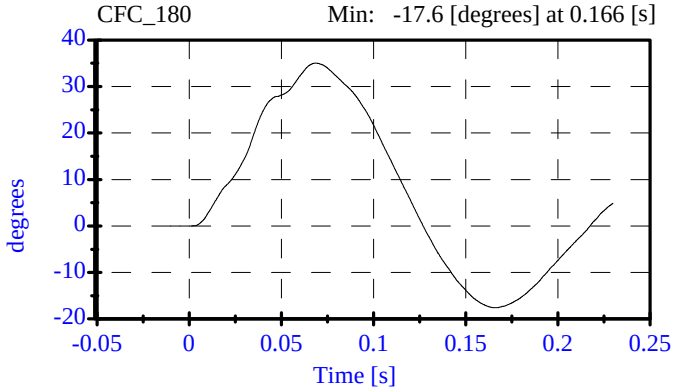
Pend Vx Max: 8.4 [m/s] at 0.193 [s]
CFC_180 Min: -0.0 [m/s] at -0.000 [s]



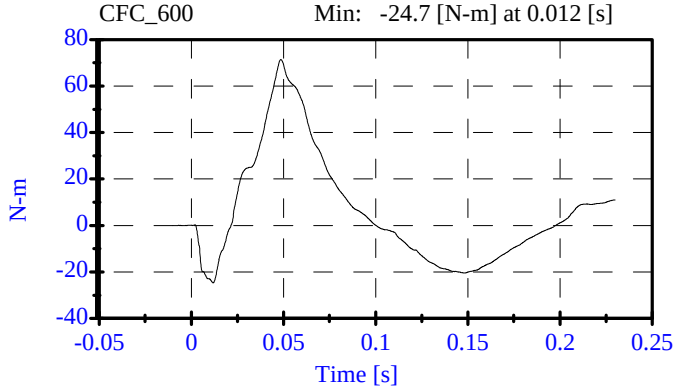
Head Rot Max: 38.8 [degrees] at 0.054 [s]
CFC_180 Min: -14.2 [degrees] at 0.141 [s]



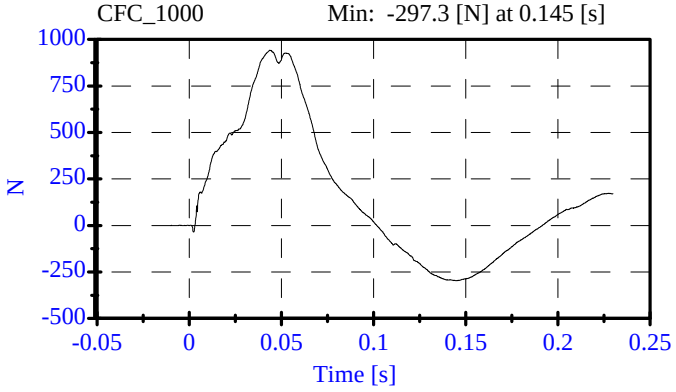
Arm Rot Max: 35.0 [degrees] at 0.069 [s]
CFC_180 Min: -17.6 [degrees] at 0.166 [s]



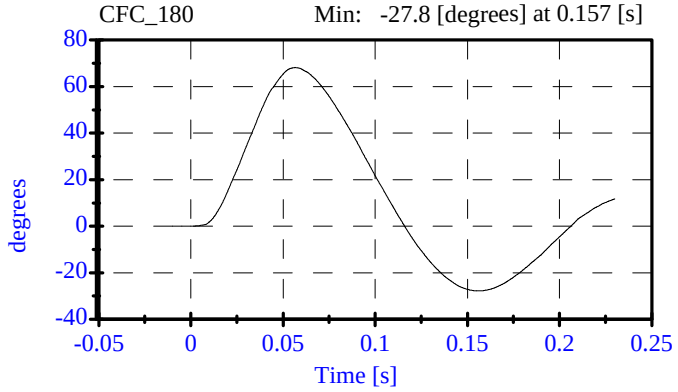
Neck Mx Max: 71.4 [N-m] at 0.049 [s]
CFC_600 Min: -24.7 [N-m] at 0.012 [s]



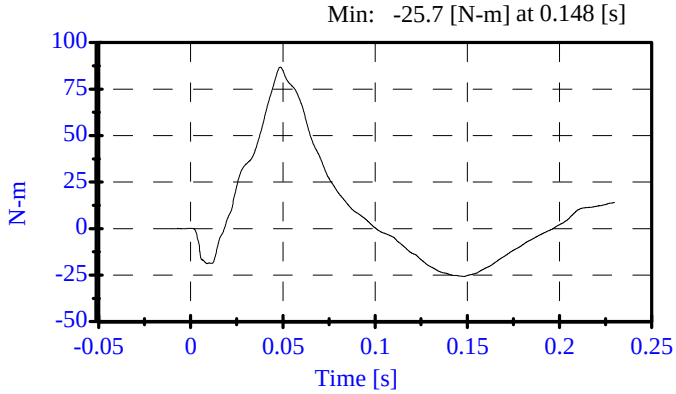
Neck Fy Max: 941.3 [N] at 0.044 [s]
CFC_1000 Min: -297.3 [N] at 0.145 [s]



Tot Rot Max: 68.2 [degrees] at 0.057 [s]
CFC_180 Min: -27.8 [degrees] at 0.157 [s]



MOCX Max: 86.8 [N-m] at 0.049 [s]
Min: -25.7 [N-m] at 0.148 [s]



Abdomen Compression Test

Pre-Test

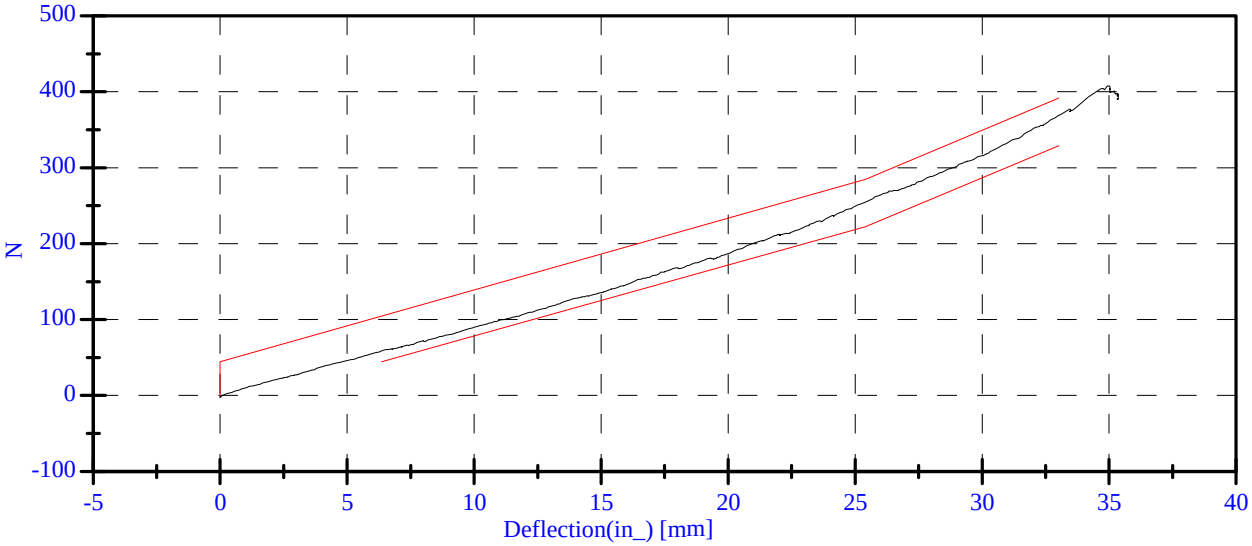
CONFIGURED FOR LEFT SIDE IMPACT

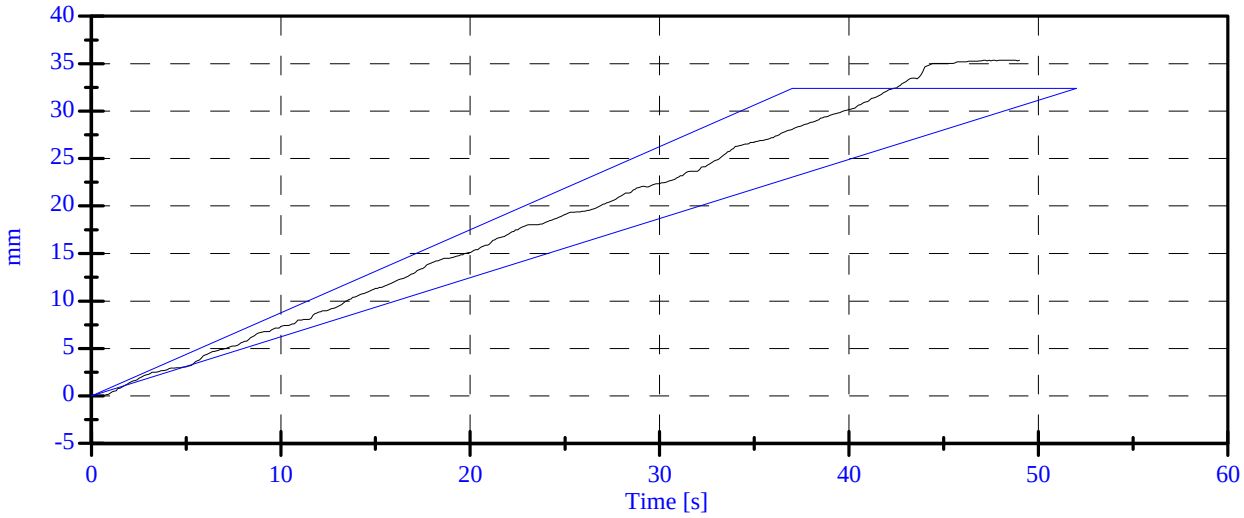
ATD Serial No: 270 Sequential Test Number: 1 File: 270 Ab 01-11-08

Date: 01-11-08 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	117.61 N	Passed
Force at 19.05 mm :	162.98-220.99 N	177.78 N	Passed
Force at 25.40 mm :	221.97-280.02 N	254.27 N	Passed
Force at 33.02 mm :	324.99-391.00 N	368.81 N	Passed

ABDOMINAL COMPRESSION TEST





Lumbar Spine Test
Pre-Test

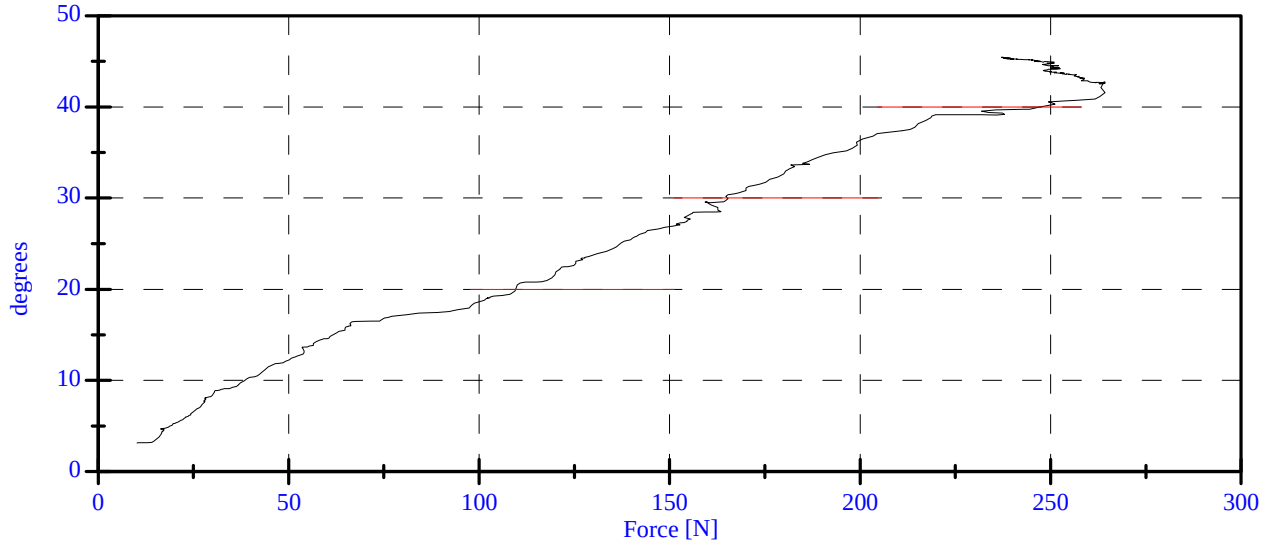
CONFIGURED FOR LEFT SIDE IMPACT

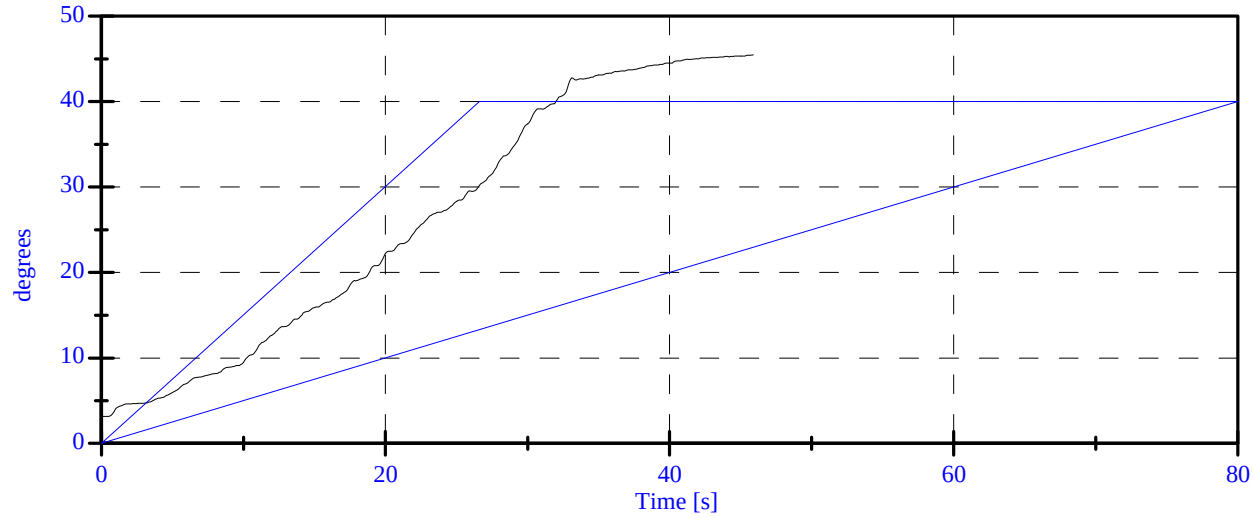
ATD Serial No: 270
Date: 01-15-08

Sequential Test Number: 1 File: 270 Spine 01-15-08
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.7 C	Passed
Lab Humidity:	10-70 %	26.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	10.18 N	Passed
Force at 20 Deg:	97.86-151.24 N	109.68 N	Passed
Force at 30 Deg	151.24-204.62 N	165.31 N	Passed
Force at 40 Deg	204.62-258.00 N	247.57 N	Passed
Return Angle	12 Deg Max	9.46 deg	Passed

LUMBAR SPINE FLEXION TEST





PRE-TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number:
Date: Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 270

CONFIGURED FOR LEFT SIDE IMPACT

CALIBRATION TEST RESULTS SUMMARY
POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 1
Date: February 4, 2008 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

EXTERNAL DIMENSIONS
POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 1
Date: February 4, 2008 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	505
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	384

REMARKS: None

Thorax Impact

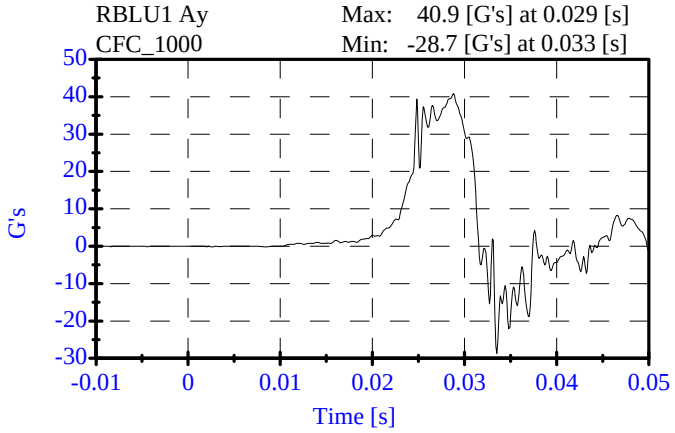
Post-Test

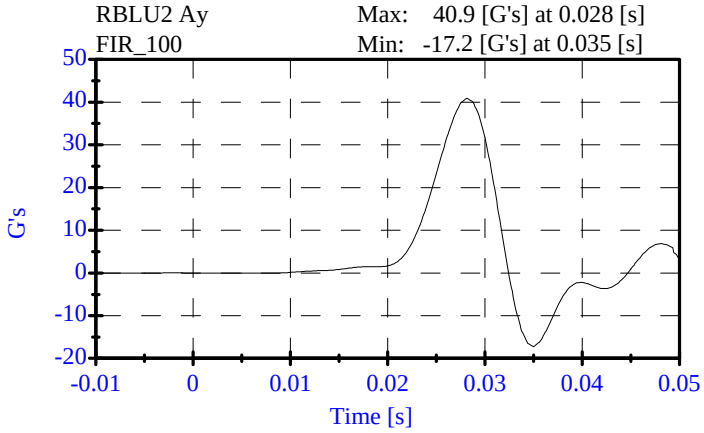
CONFIGURED FOR LEFT SIDE IMPACT

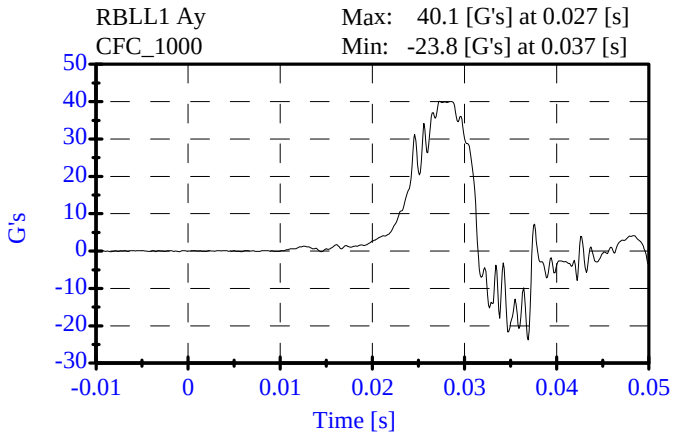
ATD Serial No: 270 Sequential Test Number: 1 File: 270T 01-28-08

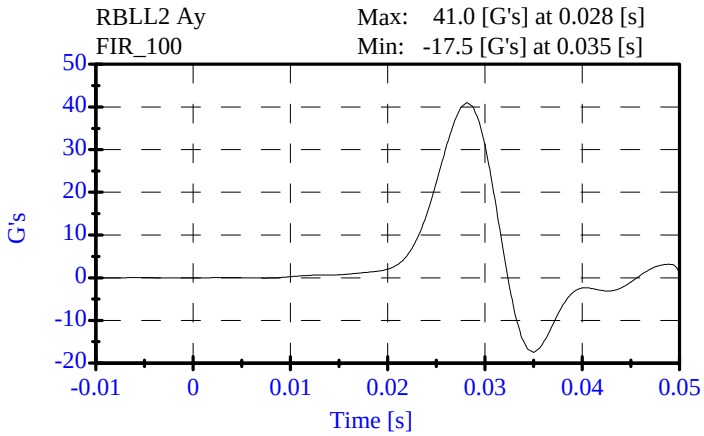
Date: 01-28-08 Laboratory Technician: B. Swiecicki

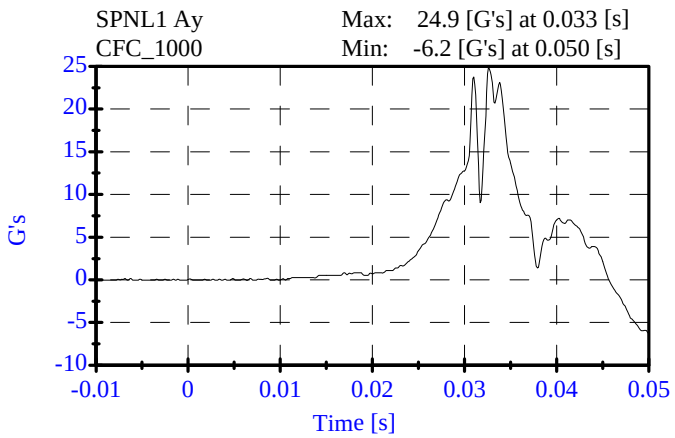
TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	18.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	40.89 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	41.01 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	20.38 G's	Passed

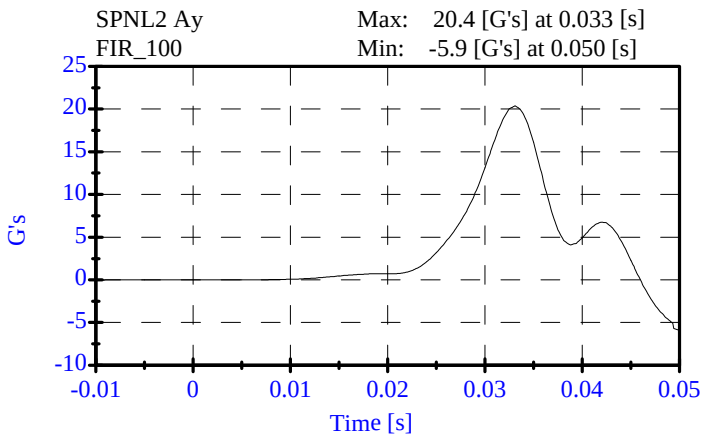












Pelvis Impact Test

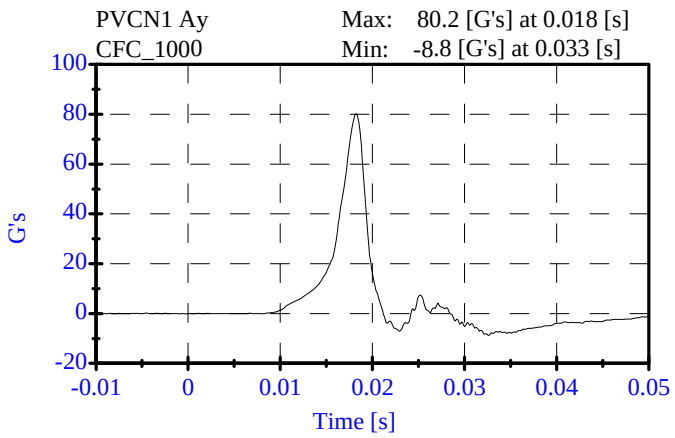
Post-Test

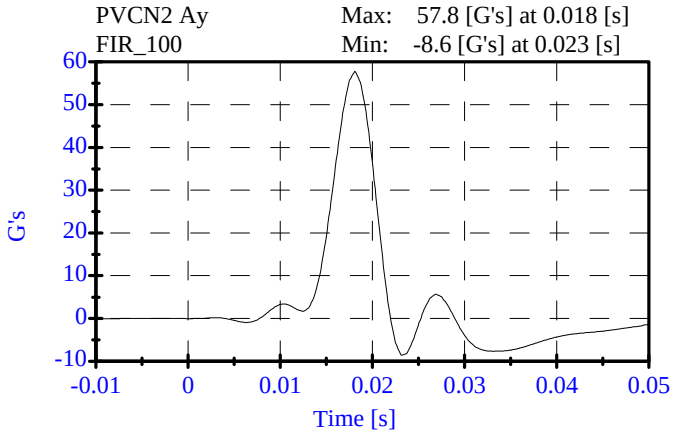
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270 Sequential Test Number: 1 File: 270P 01-28-08

Date: 01-28-08 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	18.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.29 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	57.78 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.8 ms	Passed





Head Drop Test

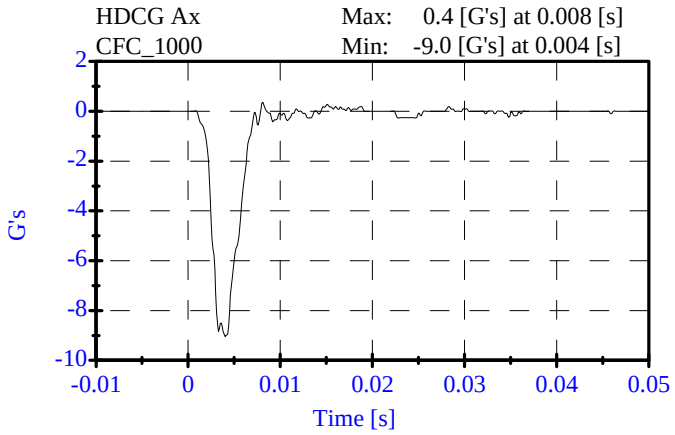
Post-Test

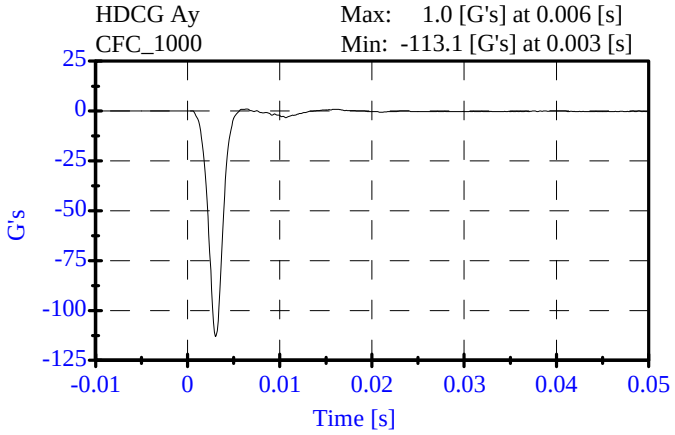
CONFIGURED FOR LEFT SIDE IMPACT

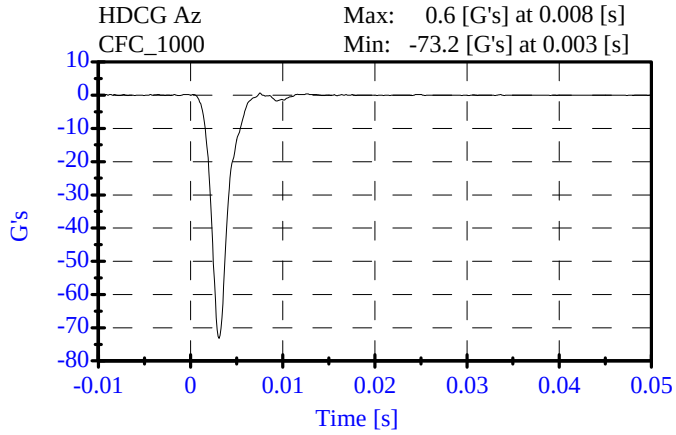
ATD Serial No: 270 Sequential Test Number: 1 File: 270H 01-25-08

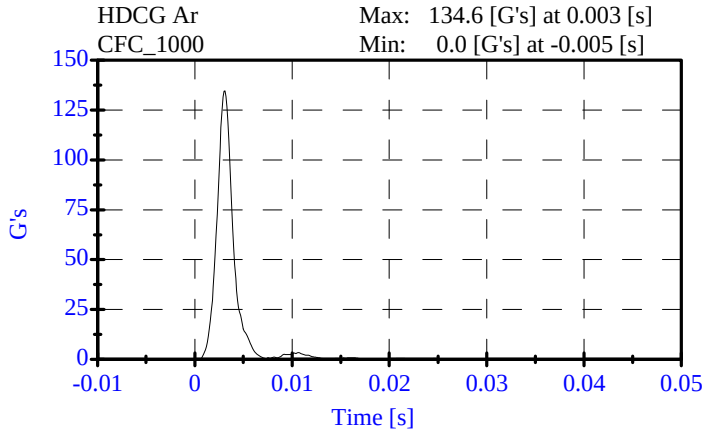
Date: 01-25-08 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	18.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	134.65 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	0.36 Gs	Passed
Curve PerCent NonModal:	< 15%	2.50 %	Passed









Neck Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270 Sequential Test Number: 1 File: 270N1 01-28-08

Date: 01-28-08 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	18.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.05 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.17 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.02 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.02 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	67.01 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	58.10 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	87.38 N-m	Passed
Occiptal Moment Decay:	49.0-64.0 ms	52.20 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	9.10 ms	Passed

Neck Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

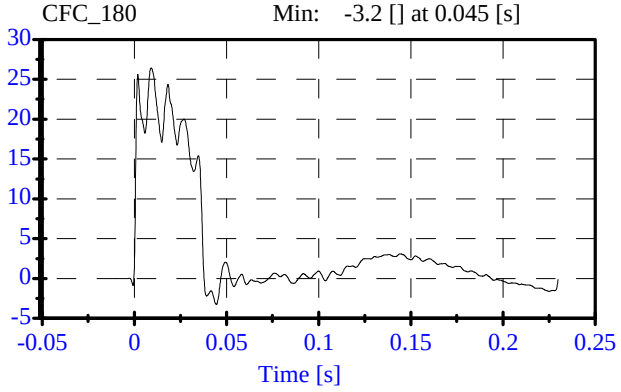
ATD Serial No: 270

Sequential Test Number: 1 File: 270N1 01-28-08

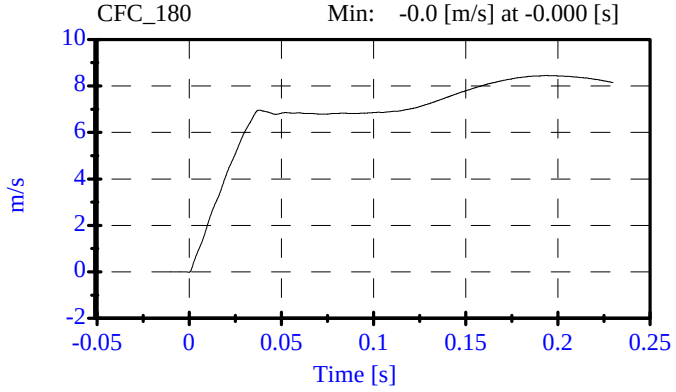
Date: 01-28-08

Laboratory Technician: B. Swiecicki

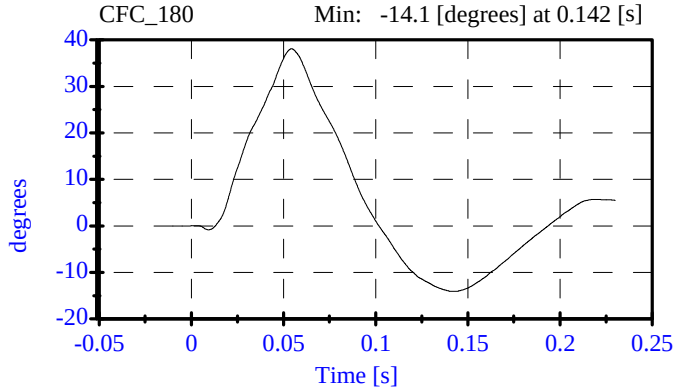
Pend Ax
CFC_180
Max: 26.4 [] at 0.009 [s]
Min: -3.2 [] at 0.045 [s]



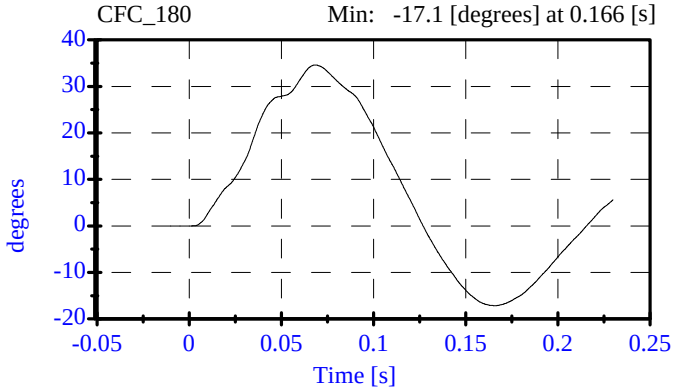
Pend Vx
CFC_180
Max: 8.4 [m/s] at 0.194 [s]
Min: -0.0 [m/s] at -0.000 [s]



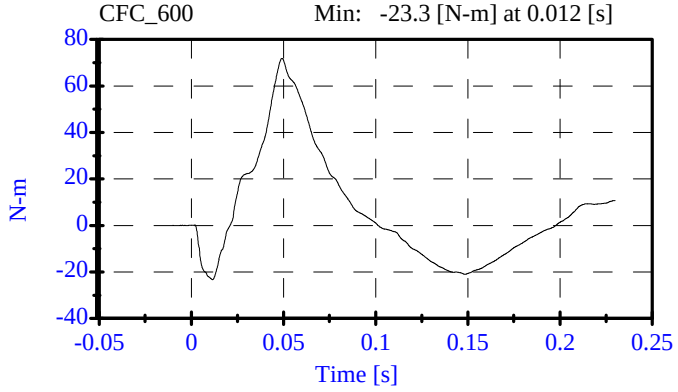
Head Rot
CFC_180
Max: 38.1 [degrees] at 0.054 [s]
Min: -14.1 [degrees] at 0.142 [s]



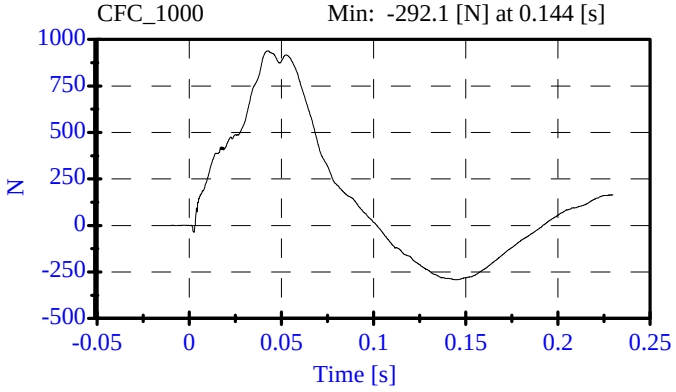
Arm Rot
CFC_180
Max: 34.6 [degrees] at 0.069 [s]
Min: -17.1 [degrees] at 0.166 [s]



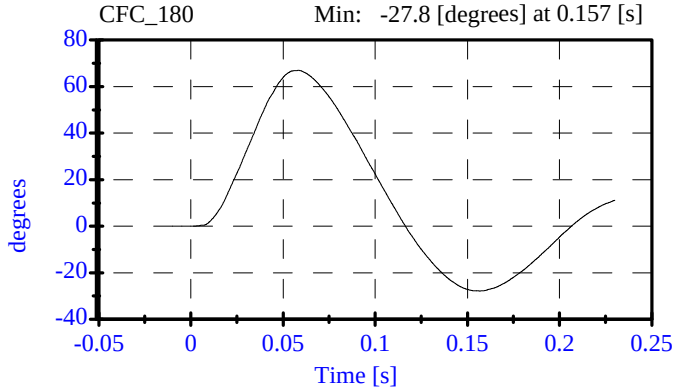
Neck Mx
CFC_600
Max: 71.8 [N-m] at 0.049 [s]
Min: -23.3 [N-m] at 0.012 [s]



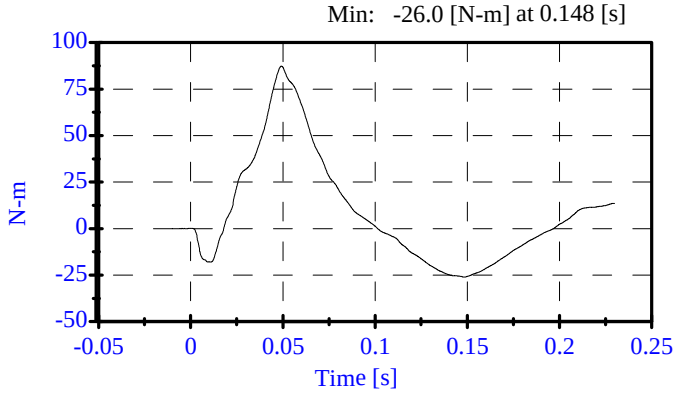
Neck Fy
CFC_1000
Max: 938.6 [N] at 0.043 [s]
Min: -292.1 [N] at 0.144 [s]



Tot Rot
CFC_180
Max: 67.0 [degrees] at 0.058 [s]
Min: -27.8 [degrees] at 0.157 [s]



MOCX
Max: 87.4 [N-m] at 0.049 [s]
Min: -26.0 [N-m] at 0.148 [s]



Abdominal Compression Test
Post-Test

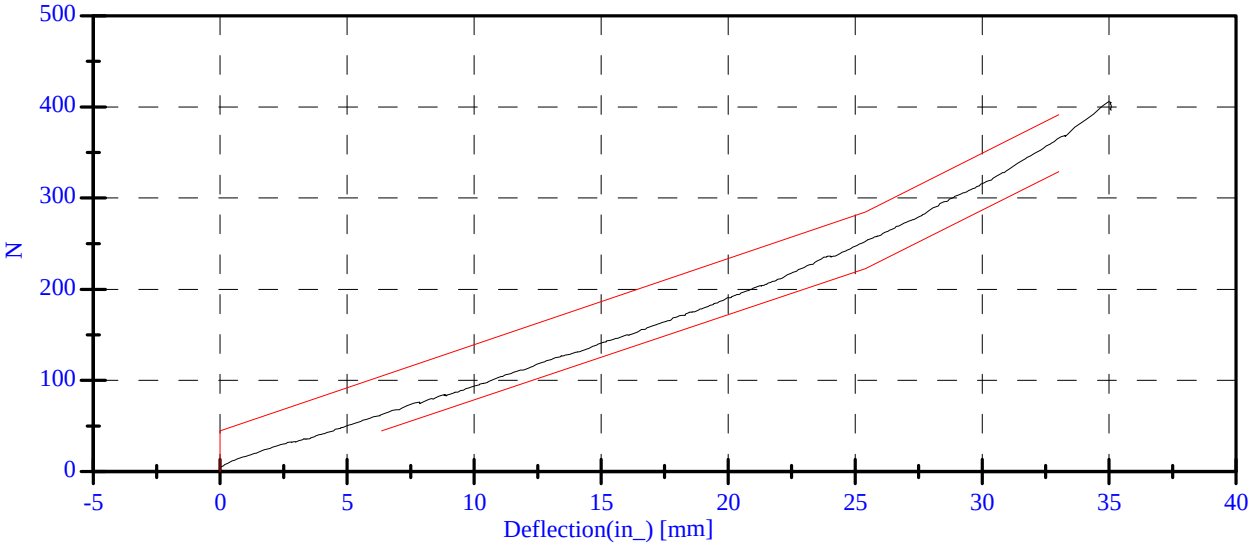
CONFIGURED FOR LEFT SIDE IMPACT

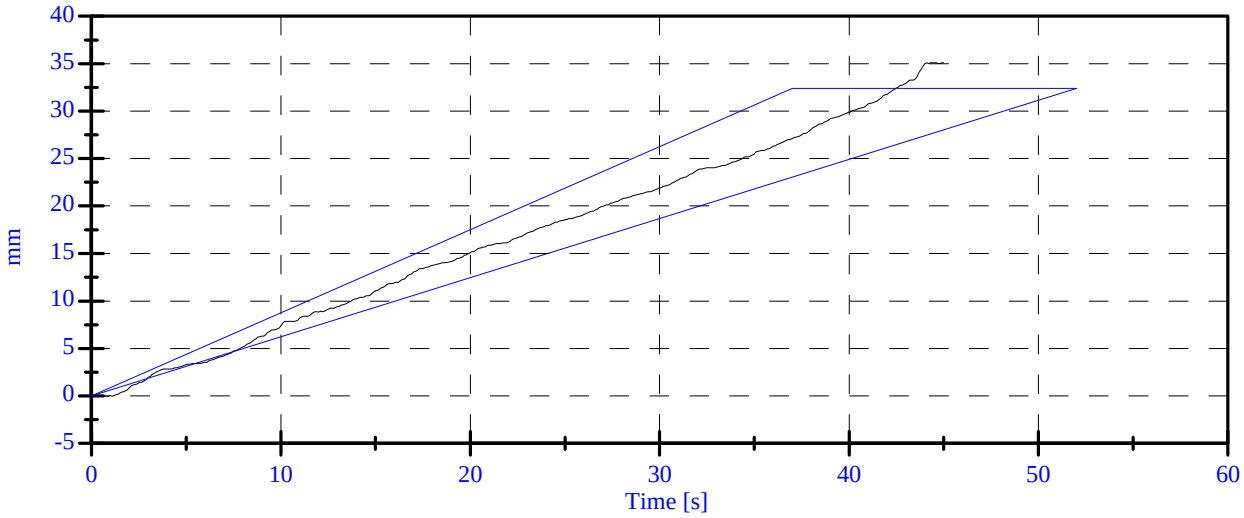
ATD Serial No: 270
Date: 01-25-08

Sequential Test Number: 1 File: 270 Ab 01-25-08
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	18.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	123.05 N	Passed
Force at 19.05 mm :	162.98-220.99 N	178.87 N	Passed
Force at 25.40 mm :	221.97-280.02 N	252.09 N	Passed
Force at 33.02 mm :	324.99-391.00 N	364.82 N	Passed

ABDOMINAL COMPRESSION TEST





Lumbar Spine Test
Post-Test

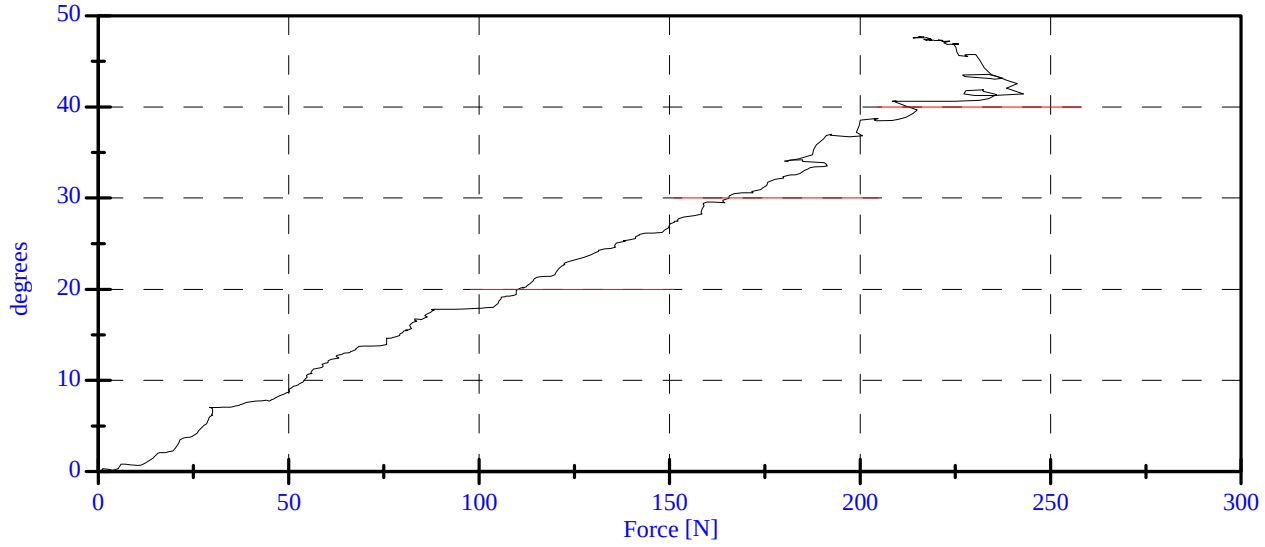
CONFIGURED FOR LEFT SIDE IMPACT

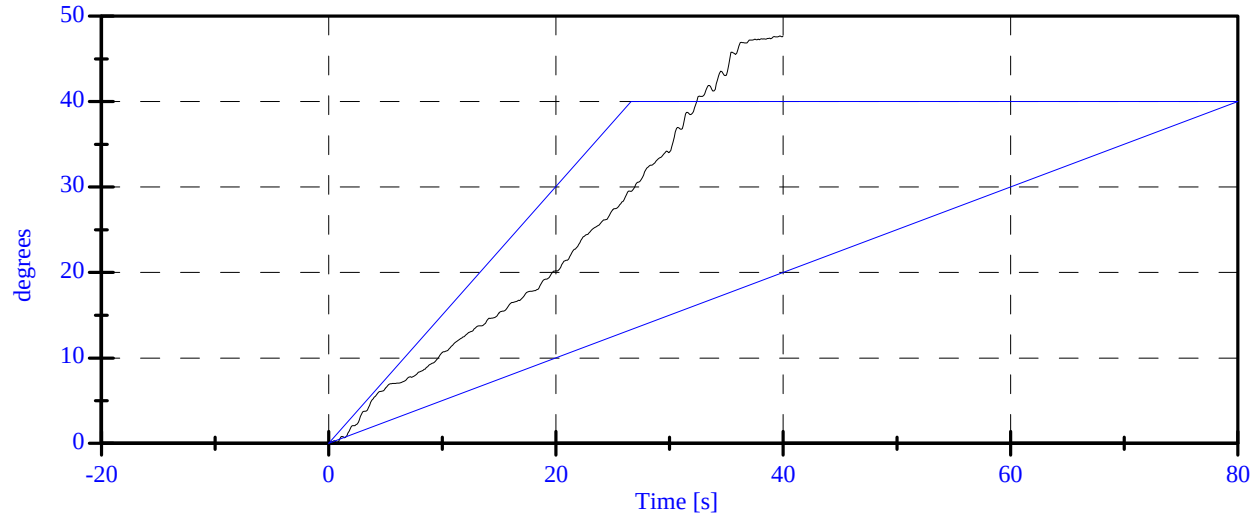
ATD Serial No: 270
Date: 02-01-08

Sequential Test Number: 1 File: 270 Spine 02-1-08
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	18.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	2.35 N	Passed
Force at 20 Deg:	97.86-151.24 N	110.47 N	Passed
Force at 30 Deg	151.24-204.62 N	165.57 N	Passed
Force at 40 Deg	204.62-258.00 N	212.06 N	Passed
Return Angle	12 Deg Max	4.75 deg	Passed

LUMBAR SPINE FLEXION TEST





POST TEST DUMMY INSPECTION LIST

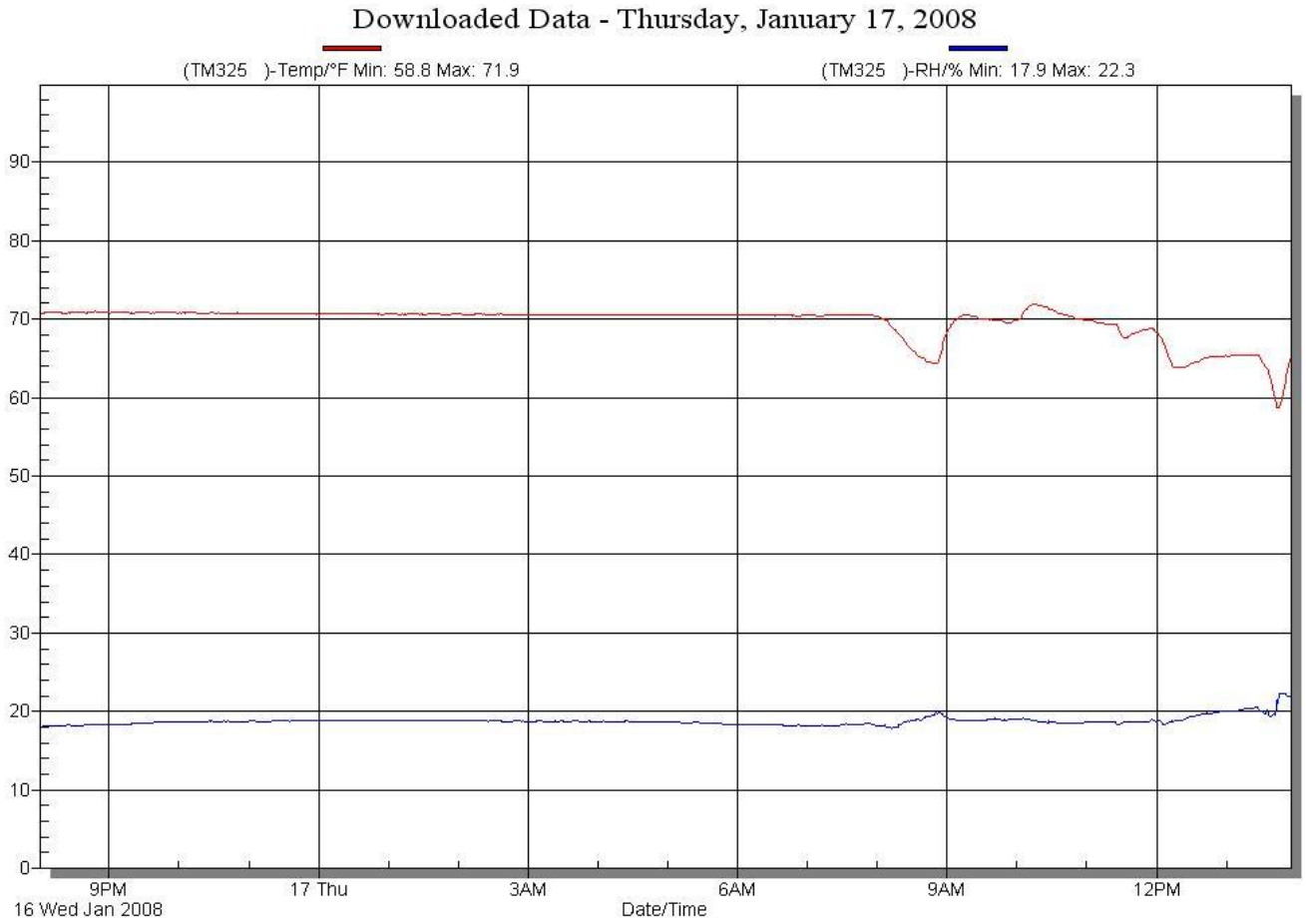
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 1
Date: February 4, 2008 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	

REMARKS: None

TEMPERATURE TRACE



APPENDIX D

TEST EQUIPMENT AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID/HIII INSTRUMENTATION

	FRONT SID/HIII NO.: 270		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P35812	ENDEVCO	11-Sep-07
HEAD AY	AC-P35761	ENDEVCO	09-Aug-07
HEAD AZ	AC-P19212	ENDEVCO	11-Sep-07
UPPER NECK FX	LC-1629Fx	DENTON	03-Jan-08
UPPER NECK FY	LC-1629Fy	DENTON	03-Jan-08
UPPER NECK FZ	LC-1629Fz	DENTON	03-Jan-08
UPPER NECK MX	LC-1629Mx	DENTON	03-Jan-08
UPPER NECK MY	LC-1629My	DENTON	03-Jan-08
UPPER NECK MZ	LC-1629Mz	DENTON	03-Jan-08
UPPER RIB	AC-P18558	ENDEVCO	11-Sep-07
LOWER RIB	AC-P18537	ENDEVCO	12-Aug-07
LOWER SPINE	AC-P18639	ENDEVCO	11-Sep-07
PELVIS	AC-P21171	ENDEVCO	11-Sep-07
UPPER RIB REDUNDANT	AC-P35818	ENDEVCO	11-Sep-07
LOWER RIB REDUNDANT	AC-P19222	ENDEVCO	12-Aug-07
LOWER SPINE REDUNDANT	AC-P16576	ENDEVCO	11-Sep-07
PELVIS REDUNDANT	AC-P22639	ENDEVCO	12-Aug-07

REMARKS: None

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND MDB INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT FRONT SILL (X)	AC-P32464	ENDEVCO	06-Aug-07
RIGHT FRONT SILL (Y)	AC-P32139	ENDEVCO	07-Aug-07
RIGHT FRONT SILL (Z)	AC-P32455	ENDEVCO	07-Aug-07
RIGHT REAR SILL (X)	AC-P23164	ENDEVCO	11-Sep-07
RIGHT REAR SILL (Y)	AC-P23939	ENDEVCO	09-Aug-07
RIGHT REAR SILL (Z)	AC-P23993	ENDEVCO	09-Aug-07
REAR FLOORPAN ABOVE AXLE (X)	AC-P32295	ENDEVCO	07-Aug-07
REAR FLOORPAN ABOVE AXLE (Y)	AC-P18518	ENDEVCO	07-Aug-07
REAR FLOORPAN ABOVE AXLE (Z)	AC-P18524	ENDEVCO	07-Aug-07
LEFT REAR SILL (Y)	AC-P18785	ENDEVCO	09-Aug-07
LEFT FRONT SILL (Y)	AC-J37854	ENDEVCO	10-Aug-07
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-P24145	ENDEVCO	08-Nov-07
LOWER LEFT B- PILLAR (Y)	AC-P23904	ENDEVCO	07-Nov-07
MIDDLE LEFT B-PILLAR (Y)	AC-P18948	ENDEVCO	09-Aug-07
LOWER LEFT A-PILLAR (Y)	AC-P16823	ENDEVCO	26-Nov-07
UPPER LEFT A-PILLAR (Y)	AC-P23926	ENDEVCO	09-Aug-07
FRONT SEAT TRACK (Y)	AC-P17242	ENDEVCO	09-Aug-07
VEHICLE CG (X)	AC-P23134	ENDEVCO	14-Nov-07
VEHICLE CG (Y)	AC-P18792	ENDEVCO	14-Nov-07
VEHICLE CG (Z)	AC-P17535	ENDEVCO	14-Nov-07
MDB CG (X)	AC-C15007	ENDEVCO	12-Sep-07
MDB CG (Y)	AC-C16416	ENDEVCO	12-Sep-07
MDB CG (Z)	AC-C16499	ENDEVCO	12-Sep-07
MDB REAR FRAME MEMBER (X)	AC-C14948	ENDEVCO	12-Sep-07
MDB REAR FRAME MEMBER (Y)	AC-C16680	ENDEVCO	12-Sep-07

REMARKS: None